

作りましょう 0.6プリ  
パラメタほうしきフォントファミリ  
校とプリティプリントのソース

Tsukurimashou 0.6pre  
Parametric Font Family  
Proofs and pretty-printed  
source code

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Proofs and pretty-printed source code for Tsukurimashou  
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Part I

# Resources





# preintro.mp

```
1 %
2 % Early shared code for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
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25 %
26 % Matthew Skala
27 % http://ansuz.sooke.bc.ca/
28 % mskala@ansuz.sooke.bc.ca
29 %
30
31 

---


32
```

## Tsukurimashou Pre-Intro

```
33 % TSUKURIMASHOU PRE-INTRO
34
35 % When I say nonstopmode I mean nonstopmode, dammit!
36 nonstopmode;
37 def errorstopmode = nonstopmode enddef;
38
39 % load library
40 input type1.mp;
41
42 % file inclusion gatekeeper
43 vardef inclusion_lock(suffix fn) =
44   if known already_included.fn:
```

```

45     endinput;
46     fi;
47     boolean already_included.fn;
48     already_included.fn:=true;
49 enddef;
50
51 % basic brush definition
52 transform tsu_brush_xf;
53 tsu_brush_shape:=1.0;
54 tsu_brush_angle:=0;
55
56 % special brush for punctuation
57 tsu_pbrush_size:=50;
58 tsu_pbrush_shape:=1.0;
59 tsu_pbrush_angle:=0;
60 tsu_punct_size:=100;
61
62 % size the handakuten
63 handakuten_inner:=120;
64 handakuten_outer:=200;
65
66 % general shape tweaker
67 mincho:=0;
68
69 % control appearance of corners
70 boolean sharp_corners;
71 sharp_corners:=false;
72
73 % for naming the font
74 string stylename;
75 stylename:="";
76
77 % brush option override
78 def tsu_brush_opt(expr n,l) = nib(n)(l) enddef;
79
80 % bo_serif type; point lp; direction lp; brush tip size
81 vardef tsu_serif.choose(expr bst,plp,dlp,l,bts,bos) =
82 enddef;
83
84 % do "modern" width alternation
85 boolean do_alteration;
86 do_alteration:=false;
87
88 % handle outline mode for Genjimon
89 boolean genji_outline;
90 genji_outline:=false;
91
92 % prepare to detect proportional spacing

```

```
93 boolean is_proportional;
94 is_proportional:=false;
95
96 % prepare to detect blackletter
97 boolean is_blackletter;
98 is_blackletter:=false;
99
100 % prepare to detect fine IDCs
101 boolean fine_idcs;
102 fine_idcs:=false;
```

# tsuku-at.mp

```
1 %  
2 % Tsukurimashou Anbiruteki  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Anbiruteki

```
31 % TSUKURIMASHOU ANBIRUTEKI  
32  
33 input preintro.mp;  
34  
35 stylename:="Anbiruteki";  
36  
37 (0,4) transformed tsu_brush_xf = (4,1.5);  
38 (1,1) transformed tsu_brush_xf = (1,1.5);  
39 (4,0) transformed tsu_brush_xf = (0,1.5);  
40  
41 tsu_brush_min:=1.5;  
42 tsu_brush_max:=1.5;  
43  
44 tsu_pbrush_size:=115;  
45 tsu_punct_size:=130;  
46  
47 handakuten_outer:=260;  
48  
49 input intro.mp;
```

# tsuku-bk.mp

```
1 %
2 % Tsukurimashou Bokukko
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
```

## Tsukurimashou Bokukko

```
31 % TSUKURIMASHOU BOKUKKO
32
33 input preintro.mp;
34
35 stylename:="Bokukko";
36
37 mincho:=0.3;
38
39 (0,4) transformed tsu_brush_xf = (0.8,0.95);
40 (1,1) transformed tsu_brush_xf = (1.02,0.80);
41 (4,0) transformed tsu_brush_xf = (3.8,0.95);
42
43 tsu_brush_min:=0.80;
44 tsu_brush_max:=0.95;
45 tsu_brush_shape:=0.3;
46 tsu_brush_angle:=20;
47
48 tsu_pbrush_size:=60;
49 tsu_pbrush_shape:=0.3;
50 tsu_pbrush_angle:=20;
51
52 def tsu_brush_opt(expr n,l) = cut(n,rel 120)(l) enddef;
53 sharp_corners:=true;
54
55 genji_outline:=true;
56 genji_hw:=0.55;
57
58 input intro.mp;
```

# tsuku-kg.mp

```
1 %  
2 % Tsukurimashou Kaku  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Kaku

```
31 % TSUKURIMASHOU KAKU  
32  
33 input preintro.mp;  
34  
35 stylename:="Kaku";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.75);  
38 (1,1) transformed tsu_brush_xf = (1,0.62);  
39 (4,0) transformed tsu_brush_xf = (0,0.75);  
40  
41 tsu_brush_min:=0.62;  
42 tsu_brush_max:=0.75;  
43  
44 def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;  
45 sharp_corners:=true;  
46  
47 input intro.mp;
```

# tsuku-mg.mp

```
1 %  
2 % Tsukurimashou Maru  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Maru

```
31 % TSUKURIMASHOU MARU  
32  
33 input preintro.mp;  
34  
35 stylename:="Maru";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.74);  
38 (1,1) transformed tsu_brush_xf = (1,0.65);  
39 (4,0) transformed tsu_brush_xf = (0,0.74);  
40  
41 tsu_brush_min:=0.65;  
42 tsu_brush_max:=0.74;  
43  
44 input intro.mp;
```

# tsuku-mi.mp

```
1 %  
2 % Tsukurimashou Mincho  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Mincho

```
31 % TSUKURIMASHOU MINCHO  
32  
33 input preintro.mp;  
34  
35 stylename:="Mincho";  
36  
37 mincho:=1;  
38  
39 (0,4) transformed tsu_brush_xf = (0.0,1.1);  
40 (1,1) transformed tsu_brush_xf = (1.2,0.35);  
41 (4,0) transformed tsu_brush_xf = (4.8,1.1);  
42  
43 tsu_brush_min:=0.35;  
44 tsu_brush_max:=1.05;  
45  
46 tsu_brush_shape:=0.38;  
47 tsu_brush_angle:=1;  
48  
49 tsu_pbrush_size:=60;  
50 tsu_pbrush_shape:=0.38;  
51 tsu_pbrush_angle:=1;  
52  
53 input serif.mp;  
54  
55 for i=1 upto 10:  
56   tsu_do_serif[i]:=true;  
57 endfor;  
58  
59 do_alteration:=true;  
60  
61 genji_outline:=true;  
62 genji_hw:=0.2;  
63  
64 input intro.mp;
```



# tsuku-tn.mp

```
1 %  
2 % Tsukurimashou Tenshi no Kami  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Tsukurimashou Tenshi No Kami

```
31 % TSUKURIMASHOU TENSHI NO KAMI  
32  
33 input preintro.mp;  
34  
35 stylename:="TenshinoKami";  
36  
37 (0,4) transformed tsu_brush_xf = (4,0.15);  
38 (1,1) transformed tsu_brush_xf = (1,0.15);  
39 (4,0) transformed tsu_brush_xf = (0,0.15);  
40  
41 tsu_brush_min:=0.15;  
42 tsu_brush_max:=0.15;  
43  
44 tsu_pbrush_size:=15;  
45  
46 handakuten_inner:=170;  
47  
48 fine_idcs:=true;  
49  
50 input intro.mp;
```

# tsuku-ps.mp

```
1 %
2 % Proportional spacing modifications for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 vardef tsu_rescale_half = tsu_rescale_full; enddef;
34 vardef tsu_rescale_half_lc = tsu_rescale_full; enddef;
35 vardef tsu_rescale_half_katakana = tsu_rescale_full; enddef;
36 vardef tsu_rescale_decenter = tsu_rescale_full; enddef;
37
38 is_proportional:=true;
39
40 tsu_rescale_full;
```

# intro.mp

```
1 %
2 % General shared code for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(intro);
32
33 

---


34
35 %
36 % Tsukurimashou intro - utility routines for all pages
37 %
38
39 pf_info_quad 1000;
40 pf_info_space 1000, 0, 0;
41 pf_info_familyname "Tsukurimashou" & stylename;
42 pf_info_fixedpitch true;
43 pf_info_capheight 900;
44 pf_info_xheight 585;
45 % pf_info_ascender 900;
46 % pf_info_descender 100;
47 pf_info_ascender 985;
48 pf_info_descender 265;
49
50 pair centre_pt;
51 centre_pt=(500,390);
52 latin_vcentre:=430;
53 latin_wide_baseline:=25;
54 latin_wide_top:=750;
55 wide_margin:=30;
56 narrow_margin:=40;
57
58 

---


59
60 input bcircle.mp;
61 input obstack.mp;
62
63 

---


64
65 % get rid of degeneracies
66 vardef regenerate(expr p) =
67   begingroup
68     save q;
69     path q;
70     for t=1 step 1 until length p:
```

```

71   if abs((point t of p)-(point (t-1) of p))>3:
72     if unknown q:
73       q:=subpath (t-1,t) of p;
74     elseif length(q)=1:
75       q:=(point 0 of q)..
76         controls (postcontrol 0 of q) and (precontrol 1 of q)..
77         (0.5[point 1 of q,point t-1 of p])..
78         controls (postcontrol t-1 of p) and (precontrol t of p)..
79         (point t of p);
80     else:
81       q:=(subpath (0,length(q)-1) of q)..
82         controls (postcontrol length(q)-1 of q)
83           and (precontrol length(q) of q)..
84         (0.5[point length(q) of q,point t-1 of p])..
85         controls (postcontrol t-1 of p) and (precontrol t of p)..
86         (point t of p);
87     fi;
88   fi;
89   endfor;
90   if cycle p:
91     q:=subpath (0,length(q)-1) of q..
92     controls (postcontrol length(q)-1 of q)
93       and (precontrol length(q) of q)..
94     cycle;
95   fi;
96   q
97   endgroup
98   enddef;
99
100 % like Fill, but doesn't complain about turning number
101 def dangerousFill text glist =
102   begingroup
103   save h_; path h_;
104   for g_:=glist:
105     h_:=g_ start.default; % JMN's suggestion
106     if glyph_usage div store = 1: % storing
107       glyph_stored.glyph_name[incr glyph_stored.glyph_name.num]=h_;
108     fi
109     glyph_list[incr glyph_list.num]:=round_node_values(h_ italicized);
110     update_glyph_bb(glyph_list[glyph_list.num]);
111   endfor;
112   endgroup
113   enddef;
114
115   default_nib:=fix_nib(100,100,0);
116
117   def begintsuglyph(expr name,code) =
118     message name;

```

```

119 encode(name) (code); standard_introduce(name);
120 write ("BEGINGLYPH ""&name& "" ""&decimal code) to "proof.prf";
121 beginglyph(name);
122   init_obstack;
123   string perl_structure;
124   perl_structure:="$structure{""&name&""}=["&name&"";
125 enddef;
126
127 def endtsuglyph =
128   fix_hsbw((rescale_to.left+rescale_to.right),0,0);
129 endglyph;
130 perl_structure:=perl_structure&"]";
131 write "PERL_STRUCTURE ""&perl_structure to "proof.prf";
132 if rescale_to.right=0:
133   write "ENDGLYPH -10 0" to "proof.prf";
134 else:
135   write ("ENDGLYPH 0 ""&decimal (rescale_to.left+rescale_to.right))
136     to "proof.prf";
137 fi;
138 enddef;
139
140 def tsu_brush_tip_size(expr l,q) =
141   begingroup
142     numeric y,yy;
143     y:=ypart (point l of q);
144     if y<tsu_brush_min:
145       yy:=tsu_brush_min;
146     elseif y>tsu_brush_max:
147       yy:=tsu_brush_max;
148     else:
149       yy:=y;
150     fi;
151     yy
152   endgroup
153 enddef;
154
155 def tsu_brush_tip(expr l,p,q,bsi,is_start,is_end,is_alt) =
156   begingroup
157     numeric y;
158     y:=tsu_brush_tip_size(l,q);
159     if is_alt and do_alteration:
160       fix_nib(bsi*y*tsu_brush_shape,bsi*y*tsu_brush_shape,tsu_brush_angle)
161     else:
162       fix_nib(bsi*y,bsi*y*tsu_brush_shape,tsu_brush_angle)
163     fi
164   endgroup
165 enddef;
166

```

```

167 % rescaling for half/double width
168 % this is basically global because it will be shared by most glyphs in a file
169
170 path width_curve;
171
172 vardef tsu_rescale_full =
173   rescale_from.left:=wide_margin;
174   rescale_from.right:=1000-wide_margin;
175   rescale_from.top:=ypart centre_pt;
176   rescale_from.bottom:=latin_wide_baseline;
177
178   rescale_to.left:=wide_margin;
179   rescale_to.right:=1000-wide_margin;
180   rescale_to.top:=ypart centre_pt;
181   rescale_to.bottom:=latin_wide_baseline;
182
183   rescale_skew:=0;
184
185   width_curve:=(-1,-1)-(2000,2000);
186 enddef;
187
188 vardef tsu_rescale_half =
189   rescale_from.left:=wide_margin;
190   rescale_from.right:=1000-wide_margin;
191   rescale_from.top:=ypart centre_pt;
192   rescale_from.bottom:=latin_wide_baseline;
193
194   rescale_to.left:=narrow_margin;
195   rescale_to.right:=500-narrow_margin;
196   rescale_to.top:=latin_vcentre;
197   rescale_to.bottom:=0;
198
199   rescale_skew:=0;
200
201   width_curve:=((-1,-1)-(100,100))..(940,410)..{right}(2000,1000);
202 enddef;
203
204 vardef tsu_rescale_half_lc =
205   rescale_from.left:=wide_margin*3.5;
206   rescale_from.right:=1000-wide_margin*3.5;
207   rescale_from.top:=ypart centre_pt;
208   rescale_from.bottom:=latin_wide_baseline;
209
210   rescale_to.left:=narrow_margin;
211   rescale_to.right:=500-narrow_margin;
212   rescale_to.top:=latin_vcentre;
213   rescale_to.bottom:=0;
214

```

```

215 rescale_skew:=0;
216
217 width_curve:=((-1,-1)-(100,100)..(780,410)..{right}(2000,1000);
218 enddef;
219
220 vardef tsu_rescale_half_katakana =
221 rescale_from.left:=wide_margin;
222 rescale_from.right:=1000-wide_margin;
223 rescale_from.top:=700;
224 rescale_from.bottom:=0;
225
226 rescale_to.left:=narrow_margin;
227 rescale_to.right:=500-narrow_margin;
228 rescale_to.top:=670;
229 rescale_to.bottom:=30;
230
231 rescale_skew:=8;
232
233 width_curve:=((-1,-1)-(100,100)..(860,440)..{right}(2000,1000);
234 enddef;
235
236 vardef tsu_rescale_double =
237 rescale_from.left:=narrow_margin;
238 rescale_from.right:=500-narrow_margin;
239 rescale_from.top:=latin_vcentre;
240 rescale_from.bottom:=0;
241
242 rescale_to.left:=wide_margin;
243 rescale_to.right:=1000-wide_margin;
244 rescale_to.top:=ypart centre_pt;
245 rescale_to.bottom:=latin_wide_baseline;
246
247 rescale_skew:=0;
248
249 width_curve:=(-1,-1)-(2000,2000);
250 enddef;
251
252 vardef tsu_rescale_decenter =
253 rescale_from.left:=300;
254 rescale_from.right:=700;
255 rescale_from.top:=ypart centre_pt;
256 rescale_from.bottom:=latin_wide_baseline;
257
258 rescale_to.left:=50;
259 rescale_to.right:=450;
260 rescale_to.top:=latin_vcentre;
261 rescale_to.bottom:=0;
262

```

```

263 rescale_skew:=0;
264
265 width_curve:=(-1,1)-(2000,2000);
266 enddef;
267
268 vardef tsu_rescale_native_narrow =
269   rescale_from.left:=narrow_margin;
270   rescale_from.right:=500-narrow_margin;
271   rescale_from.top:=latin_vcentre;
272   rescale_from.bottom:=0;
273
274   rescale_to.left:=narrow_margin;
275   rescale_to.right:=500-narrow_margin;
276   rescale_to.top:=latin_vcentre;
277   rescale_to.bottom:=0;
278
279   rescale_skew:=0;
280
281   width_curve:=(-1,1)-(2000,2000);
282 enddef;
283
284 vardef tsu_rescale_native_zero =
285   rescale_from.left:=0;
286   rescale_from.right:=0;
287   rescale_from.top:=1000;
288   rescale_from.bottom:=0;
289
290   rescale_to.left:=0;
291   rescale_to.right:=0;
292   rescale_to.top:=1000;
293   rescale_to.bottom:=0;
294
295   rescale_skew:=0;
296
297   width_curve:=(-1,1)-(2000,2000);
298 enddef;
299
300 vardef tsu_rescale_native_conditional =
301   if is_proportional:
302     tsu_rescale_full;
303   else:
304     tsu_rescale_native_narrow;
305   fi;
306 enddef;
307
308 tsu_rescale_full;
309
310 vardef tsu_rescale_xform =

```



```

311 begingroup
312     save t;
313     transform t;
314     t:=identity;
315     % check if rescaling is active
316     if (rescale_from.left<>rescale_to.left)
317     or (rescale_from.right<>rescale_to.right): begingroup
318         save i,xa,xb,lf,rf,wf,lt,rt,wt;
319         numeric i,xa,xb,lf,rf,wf,lt,rt,wt;
320         transform t;
321         % find the bounds of the paths
322         if find_stroke(0)<=0:
323             xa:=0.5[rescale_from.left,rescale_from.right];
324             xb:=0.5[rescale_from.left,rescale_from.right];
325         else:
326             xa:=infinity;
327             xb:=-infinity;
328             for i=1 upto sp-1:
329                 if obstacktype[i]=otstroke:
330                     if (xpart llcorner obstackp[i])<xa:
331                         xa:=xpart llcorner obstackp[i];
332                     fi;
333                     if (xpart lrcorner obstackp[i])>xb:
334                         xb:=xpart lrcorner obstackp[i];
335                     fi;
336                 fi;
337             endfor;
338         fi;
339         % compute bearings and widths
340         lf=xa-rescale_from.left;
341         rf=rescale_from.right-xb;
342         lf+rf+wf=rescale_from.right-rescale_from.left;
343         lt+rt+wt=rescale_to.right-rescale_to.left;
344         (lt,rt)=whatever[(0,0),(lf,rf)];
345         wt=ypart (width_curve intersectionpoint ((wf,infinity)-(wf,infinity)));
346         % find transformation
347         if wf>0:
348             (rescale_from.left+lf,rescale_from.bottom) transformed t=
349             (rescale_to.left+lt,rescale_to.bottom-rescale_skew);
350             (rescale_from.left+lf,rescale_from.top) transformed t=
351             (rescale_to.left+lt,rescale_to.top-rescale_skew);
352             (rescale_from.right-rf,rescale_from.bottom) transformed t=
353             (rescale_to.right-rt,rescale_to.bottom+rescale_skew);
354         else:
355             (rescale_from.left+lf,rescale_from.bottom) transformed t=
356             (rescale_to.left+lt,rescale_to.bottom);
357             (rescale_from.left+lf,rescale_from.top) transformed t=
358             (rescale_to.left+lt,rescale_to.top);

```

```

359         (rescale_from.left+lf+1,rescale_from.bottom) transformed t=
360         (rescale_to.left+lt+1,rescale_to.bottom);
361     fi;
362     endgroup; fi;
363     t
364 endgroup
365 enddef;
366
367 % render a single segment - pulled out to make it easier to override
368 vardef tsu_render_segment(expr i,p,q) =
369     if do_alteration and obstackba.boalterate[i]:
370         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max
371                             *tsu_brush_shape,
372                             obstackna.bosize[i]*tsu_brush_max
373                             *tsu_brush_shape,
374                             0);
375     else:
376         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max,
377                             obstackna.bosize[i]*tsu_brush_max
378                             *tsu_brush_shape,
379                             tsu_brush_angle);
380     fi;
381     path mytip[],glyph;
382     for l=0 step 1 until length(p):
383         mytip[l]:=tsu_brush_tip(l,p,q,obstackna.bosize[i],s<1,
384                               t>(length obstackp[i])-1,obstackba.boalterate[i]);
385     endfor;
386     pen_stroke(for l=0 step 1 until length(p):
387         if sharp_corners and known obstacknaa.botip[i][ltime[l]]:
388             tip(obstacknaa.botip[i][ltime[l]])(l)
389         else:
390             tsu_brush_opt(mytip[l])(l)
391         fi
392     endfor)(p)(glyph);
393     glstk[ngls]:=regenerate(glyph);
394     ngls:=ngls+1;
395     for l=0 step 1 until length(p):
396         si:=floor (ltime[l]+0.5);
397         if known obstacknaa.boserif[i][si]:
398             tsu_serif.choose(obstacknaa.boserif[i][si],
399                             point l of p,direction l of p,l,
400                             obstackna.bosize[i],tsu_brush_tip_size(l,q));
401             write ("SERIF "&(decimal obstacknaa.boserif[i][si])&" "&
402                 (decimal xpart point l of p)&""&
403                 (decimal ypart point l of p)) to "proof.prf";
404         fi;
405     endfor;
406 enddef;

```

```

407
408 def tsu_render_in_circle(expr fitcircle) =
409 %
410 % find and apply rescaling xform
411 %
412 transform tsu_rescaling_xf;
413 tsu_rescaling_xf:=tsu_rescale_xform;
414 for i=1 upto sp-1:
415   if known obstackp[i]:
416     obstackp[i]:=obstackp[i] transformed tsu_rescaling_xf;
417   fi;
418   if known obstackt[i]:
419     obstackt[i]:=obstackt[i] transformed tsu_rescaling_xf;
420   fi;
421 endfor;
422 %
423 % main render
424 %
425 for i=1 upto sp-1: if obstacktype[i]=othook:
426   if obstackn[i]=hsmain_render:
427     scantokens obstacks[i];
428   fi;
429 fi; endfor;
430 begingroup
431   numeric i,j,k,l,s,t,si,ngls,flati;
432   path bqi,p,q,glstk[];
433   ngls:=0;
434   flati:=1;
435   for i=1 upto sp-1: if obstacktype[i]=otstroke:
436     if unknown obstackba.boalternate[i]:
437       obstackba.boalternate[i]:=false;
438     fi;
439 % message "suffix " & str i;
440     bqi:=obstackq[i] transformed tsu_brush_xf;
441     s:=0;
442     for j=0 step 1 until (length obstackp[i])-1:
443       k:=j+1;
444 % message " j=" & decimal j & " thr " & decimal (xpart point j of bqi)
445 % & "/" & decimal (xpart point k of bqi);
446       if ((xpart point j of bqi)<1)
447         and ((xpart point k of bqi)>=1):
448 % message " START";
449         if (xpart point k of bqi)=1:
450           s:=k;
451         else:
452           s:=j+(xpart ((subpath (j,k) of bqi)
453             intersectiontimes ((1,infinity)
454               -(1,infinity))));

```

```

455         fi;
456     fi;
457     if (((xpart point j of bqi)>=1) and ((xpart point k of bqi)<1))
458         or (k=length obstackp[i])):
459 % message " END";
460     if (xpart point k of bqi)>=1:
461         t:=k;
462     else:
463         t:=j+(xpart ((subpath (j,k) of bqi)
464             intersectiontimes ((1,infinity)
465                 -(1,infinity))));
466     fi;
467     if ((t-s)>0.02) and (obstackna.bosize[i]>0):
468         boolean is_cycle;
469         is_cycle:=((point s of obstackp[i])=(point t of obstackp[i]));
470         p:=subpath (s,t) of obstackp[i];
471         q:=subpath (s,t) of bqi;
472 % message "ltiming...";
473         numeric ltime[];
474         ltime[0]:=s;
475 % message decimal s;
476         for l=1 step 1 until (length p)-1:
477             ltime[l]:=floor (s+l);
478 % message decimal floor (s+l);
479         endfor;
480         ltime[length p]:=t;
481 % message decimal t;
482         write ("SEGMENT "&(decimal flati)&" "&(decimal s)&" "&(decimal t))
483             to "proof.prf";
484         for lcbj=0 upto length p:
485             write ("POINT "&(decimal flati)&" "&(decimal ltime[lcbj])&" "
486                 &(decimal xpart point lcbj of p)&" "
487                 &(decimal ypart point lcbj of p)) to "proof.prf";
488         endfor;
489         flati:=flati+1;
490         tsu_render_segment(i,p,q);
491     fi;
492 fi;
493 endfor;
494 elseif obstacktype[i]=otlcblob:
495     glstk[ngls]:=regenerate(obstackp[i]);
496     ngls:=ngls+1;
497 fi; endfor;
498 %
499 % handle bounding circle
500 %
501 if xpart fitcircle>0:
502     begingroup

```

```

503     save d,tmppt,pind,xpt,pts,pcnt,tmpxf;
504     pair pts[];
505     transform d;
506     pcnt:=0;
507     for j=0 upto ngls-1:
508         for i=0 step 0.1 until length glstk[j]:
509             pts[pcnt]:=point i of glstk[j];
510             pcnt:=pcnt+1;
511         endfor
512     endfor;
513     save lowpt; numeric lowpt;
514     lowpt:=0;
515     for i=0 upto pcnt-2:
516         for j=i+1 upto pcnt-1:
517             if (i>=lowpt) and (j>=lowpt) and (abs(pts[i]-pts[j])<2):
518                 swap_pts(j,lowpt);
519                 lowpt:=lowpt+1;
520             fi;
521         endfor;
522     endfor;
523     d:=bcircle.internal(lowpt,pcnt,pcnt);
524     transform tmpxf;
525     tmpxf=identity shifted (((0,0) transformed fitcircle)-
526                             ((0,0) transformed d));
527     for j=0 upto ngls-1:
528         glstk[j]:=glstk[j] transformed tmpxf;
529     endfor;
530     endgroup
531     fi;
532     %
533     % finally render it all
534     %
535     for i=0 upto ngls-1:
536         dangerousFill glstk[i];
537     endfor;
538     %
539     % write misc. proof file stuff
540     %
541     blobcount:=0;
542     boxcount:=0;
543     for i=1 upto sp-1:
544         if obstacktype[i]=otlcblob:
545             begingroup
546                 save spt,n;
547                 pair spt;
548                 spt:=(0,0);
549                 n:=0;
550                 for j=1 upto length obstackp[i]:

```

```

551         n:=n+1;
552         spt:=spt+(point j of obstackp[i]);
553     endfor;
554     spt:=spt/n;
555     blobcount:=blobcount+1;
556     write ("BLOBCENTRE "&(decimal blobcount)&" "
557         &(decimal xpart spt)&" "&(decimal ypart spt)) to "proof.prf";
558 endgroup;
559 elseif obstacktype[i]=otpbox:
560     boxcount:=boxcount+1;
561     write ("PBOX "&
562         (decimal boxcount)&" "&
563         (decimal xpart ((0,0) transformed obstackt[i]))&" "&
564         (decimal ypart ((0,0) transformed obstackt[i]))&" "&
565         (decimal xpart ((1,0) transformed obstackt[i]))&" "&
566         (decimal ypart ((1,0) transformed obstackt[i]))&" "&
567         (decimal xpart ((1,1) transformed obstackt[i]))&" "&
568         (decimal ypart ((1,1) transformed obstackt[i]))&" "&
569         (decimal xpart ((0,1) transformed obstackt[i]))&" "&
570         (decimal ypart ((0,1) transformed obstackt[i]))&" ""&
571         obstacks[i]&""") to "proof.prf";
572     if known obstackba.botoexpand[i]:
573         if obstackba.botoexpand[i]:
574             errmessage "Unexpanded PBOX: " & obstacks[i];
575         fi;
576     fi;
577 elseif obstacktype[i]=otanchor:
578     beingroup
579     save topanchor;
580     numeric topanchor;
581     topanchor:=i;
582     for j:=sp-1 downto i+1:
583         if obstacktype[j]=otanchor:
584             if obstackn[j]=obstackn[i]:
585                 topanchor:=j;
586             fi;
587         fi;
588     exitif topanchor<>i;
589 endfor;
590 if topanchor=i:
591     write ("ANCHOR "&
592         (decimal obstackn[i])&" "&
593         (decimal xpart ((-35,0) transformed obstackt[i]))&" "&
594         (decimal ypart ((-35,0) transformed obstackt[i]))&" "&
595         (decimal xpart ((35,0) transformed obstackt[i]))&" "&
596         (decimal ypart ((35,0) transformed obstackt[i]))&" "&
597         (decimal xpart ((0,-35) transformed obstackt[i]))&" "&
598         (decimal ypart ((0,-35) transformed obstackt[i]))&" "&

```

```

599         (decimal xpart ((0,35) transformed obstackt[i]))&" "&
600         (decimal ypart ((0,35) transformed obstackt[i]))
601         to "proof.prf";
602     fi;
603 endgroup;
604 fi;
605 endfor;
606 endgroup;
607 enddef;
608
609 % the usual case - just render it without fitting into a circle
610 def tsu_render =
611     tsu_render_in_circle(identity scaled -1);
612 enddef;
613
614 transform tsu_xf.smallkana;
615
616 tsu_xf.smallkana = identity shifted (-500,0) scaled 5.5/8 shifted (500,0);
617
618 vardef tsu_xform(expr xform)(text curves) =
619     begingroup
620     save txfsp;
621     txfsp:=sp;
622     curves;
623     size_scale:=(abs(((0,0) transformed xform)
624         -((1,0) transformed xform))
625         *abs(((0,0) transformed xform)
626         -((0,1) transformed xform))**0.16667;
627     for i=txfsp upto sp-1:
628         if known obstackp[i]:
629             obstackp[i]:=obstackp[i] transformed xform;
630         fi;
631         if known obstackna.bosize[i]:
632             obstackna.bosize[i]:=obstackna.bosize[i]*size_scale;
633         fi;
634         if known obstackt[i]:
635             obstackt[i]:=obstackt[i] transformed xform;
636         fi;
637     endfor;
638 endgroup;
639 enddef;
640
641 

---


642
643 def anc_upper_accent = 1 enddef;
644 def anc_lower_accent = 2 enddef;
645 def anc_centre_accent = 3 enddef;
646 def anc_upper_left = 4 enddef;

```

```

647 def anc_upper_right = 5 enddef;
648 def anc_upper_ring = 6 enddef;
649 def anc_caron_comma = 7 enddef;
650 def anc_dakuten = 8 enddef;
651 vardef anc_iching_line(expr lnum) = (8+lnum) enddef;
652
653 transform accent_default[];
654 numeric anchor_parent[];
655
656 vardef tsu_default_anchor(expr aindex,avalue) =
657   if numeric avalue:
658     write ("DEFAULTANCHOR "&(decimal aindex)&" FALSE") to "proof.prf";
659   elseif transform avalue:
660     write ("DEFAULTANCHOR "&
661       (decimal aindex)&" "&
662       (decimal xpart ((0,0) transformed avalue))&" "&
663       (decimal ypart ((0,0) transformed avalue)))
664       to "proof.prf";
665   elseif pair avalue:
666     write ("DEFAULTANCHOR "&
667       (decimal aindex)&" "&
668       (decimal xpart avalue)&" "&
669       (decimal ypart avalue))
670       to "proof.prf";
671   fi;
672 enddef;
673
674
675
676 % there is some kind of bug in MetaType1 causing it to blow up when
677 % stroking a path at a certain angle of about 290 degrees. Exactly why,
678 % I don't know; the code is documented primarily in Polish and not well
679 % documented at all. The code below is a workaround to prevent it from
680 % evaluating turning angles on zero vectors; in addition to this, it is
681 % sometimes necessary to add extra points to paths to get correct-looking
682 % behaviour.
683
684 % "fixed" version
685 vardef pen_stroke_edge(expr p) =
686   save e_,e___,l_,i_,i___,myflag; path e_[\{\}\{]},e___[\{\}\{]};
687   l_:=length(p);
688   for i_:=0 upto l_-1:
689     e_[i_]=pen_stroke_edge(subpath (i_,i_+1) of p,
690       local_nib_(i_),local_nib_(i_+1));
691   endfor
692   for i_:=0 upto l_ if cycle p: -1 else: -2 fi:
693     i___:=(i_+1) mod l_;
694     boolean myflag;

```



```

695 if ((direction 1 of e_[i_])=(0,0)) or ((direction 0 of e_[i__])=(0,0)):
696     myflag:=true;
697 elseif abs(turn_ang(direction 1 of e_[i_], direction 0 of e_[i__]))>1:
698     myflag:=true;
699 else:
700     myflag:=false;
701 fi;
702 if myflag:
703     save t_; (t_.a,t_.b)=e_[i_] intersectiontimes reverse e_[i__];
704     if t_.a>0:
705         e_[i_]:=subpath (0,t_.a) of e_[i_];
706         e_[i__]:=subpath (1-t_.b,1) of e_[i__];
707     elseif known local_tip_(i__):
708         e__1:=extrapolate (0,xpart local_tip_(i__)) of e_[i_];
709         e__2:=extrapolate (ypart local_tip_(i__),1) of e_[i__];
710         save t_; (t_.a,t_.b)=e__1 intersectiontimes reverse e__2;
711         if t_.a>0:
712             e_[i_]:=subpath (0,t_.a) of e__1;
713             e_[i__]:=subpath (1-t_.b,1) of e__2;
714         fi
715     fi
716 fi
717 endfor
718 for i_:=0 upto l_-1:
719     hide(i__:=i_-1) mod l_)
720     if cycle p or (i_>0):
721         if length((point 1 of e_[i__])-(point 0 of e_[i_]))>1/4ignore_nib_limit:
722             % the constant 1/4ignore_nib_limitl plays a similar role
723             % to that of the ISNAP_TO_NODE1 variable in pf2mt1.awk
724             (point 1 of e_[i__])
725             if known local_tip_(i_): - else:
726                 && pen_join(predir 1 of e_[i__],postdir 0 of e_[i_],point i_ of p,
727                 local_nib_(i_)) &&
728             fi
729             fi
730         fi
731         % reconstruct |e_[i_]l (possibly ignoring direction(s)):
732         (point 0 of e_[i_])
733         if is_line(e_[i_]):
734             % this circumvents \{}MF{}//\{}MP{} instable behaviour
735             % (the operator |...l may cause that a control point and
736             % a node coincide; note that this is feature, not a bug),
737             % and thus is advisable:
738             -
739         else:
740             if not ignore_dir_(i_): {direction 0 of e_[i_]} fi ...
741             if not ignore_dir_(i_+1): {direction 1 of e_[i_]} fi
742         fi

```

```
743 endfor
744 if cycle p: cycle else: (point 1 of e_[[-1]]) fi
745 enddef;
746
747 % figure out size of brush
748 (mbrush_width,mbrush_height)=urcorner (
749   fullcircle xscaled (tsu_brush_max*100)
750   yscaled (tsu_brush_max*tsu_brush_shape*100)
751   rotated tsu_brush_angle
752 );
753 alternate_adjust:=abs(mbrush_height-mbrush_width);
754
755 serif_size:=2;
```

# frac-intro.mp

```
1 %
2 % Common code for Tsukurimashou fractions
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(fracintro);
32
33 

---


34
35 transform nxf[];
36
37 frac.in.x1=200;
38 frac.in.x2=800;
39 frac.in.y1=latin_wide_baseline;
40 frac.in.y2=latin_wide_top;
41
42 frac.one.y1=0.02[frac.in.y1,frac.in.y2];
43 frac.one.y2=0.40[frac.in.y1,frac.in.y2];
44 frac.one.y3=0.51[frac.in.y1,frac.in.y2];
45 frac.one.y4=0.60[frac.in.y1,frac.in.y2];
46 frac.one.y5=0.98[frac.in.y1,frac.in.y2];
47
48 (frac.one.x1+frac.one.x2)/2=500;
49 frac.one.x2-frac.one.x1=320;
50
51 frac.two.y1=0.04[frac.in.y1,frac.in.y2];
52 frac.two.y2=0.38[frac.in.y1,frac.in.y2];
53 frac.two.y3=0.51[frac.in.y1,frac.in.y2];
54 frac.two.y4=0.62[frac.in.y1,frac.in.y2];
55 frac.two.y5=0.96[frac.in.y1,frac.in.y2];
56
57 (frac.two.x1+frac.two.x3)/2=500;
58 (frac.two.x3-frac.two.x2)=
59 (frac.two.x2-frac.two.x1);
60 frac.two.x3-frac.two.x1=600;
61
62 frac.three.y1=0.06[frac.in.y1,frac.in.y2];
63 frac.three.y2=0.36[frac.in.y1,frac.in.y2];
64 frac.three.y3=0.51[frac.in.y1,frac.in.y2];
65 frac.three.y4=0.64[frac.in.y1,frac.in.y2];
66 frac.three.y5=0.94[frac.in.y1,frac.in.y2];
67
68 (frac.three.x1+frac.three.x4)/2=500;
69 (frac.three.x4-frac.three.x3)=
70 (frac.three.x3-frac.three.x2)=
```

```

71 (frac.three.x2-frac.three.x1);
72 frac.three.x4-frac.three.x1=700;
73
74 frac.four.y1=0.08[frac.in.y1,frac.in.y2];
75 frac.four.y2=0.34[frac.in.y1,frac.in.y2];
76 frac.four.y3=0.51[frac.in.y1,frac.in.y2];
77 frac.four.y4=0.66[frac.in.y1,frac.in.y2];
78 frac.four.y5=0.92[frac.in.y1,frac.in.y2];
79
80 (frac.four.x1+frac.four.x5)/2=500;
81 (frac.four.x5-frac.four.x4)=
82 (frac.four.x4-frac.four.x3)=
83 (frac.four.x3-frac.four.x2)=
84 (frac.four.x2-frac.four.x1);
85 frac.four.x5-frac.four.x1=800;
86
87 frac.half.y1=0.10*latin_vcentre;
88 frac.half.y2=0.82*latin_vcentre;
89 frac.half.y3=latin_vcentre;
90 frac.half.y4=1.18*latin_vcentre;
91 frac.half.y5=1.90*latin_vcentre;
92
93 (frac.half.x1+frac.half.x2)/2=250;
94 frac.half.x2-frac.half.x1=330;
95
96 vardef hexdig(expr d) =
97   if d<10: decimal d else: char (d+87) fi
98 enddef;
99
100 vardef make_digit_set(expr xfm,thispage,place) =
101   numeric ccount;
102   ccount:=0;
103   forsuffices i=zero,one,two,three,four,five,six,seven,eight,nine:
104     begintsuglyph("uFF" & thispage & place & hexdig(ccount),
105       hex(place & hexdig(ccount)));
106     tsu_xform(xfm)(numeral.i);
107     tsu_render;
108     endtsuglyph;
109     ccount:=ccount+1;
110   endfor;
111 enddef;

```

# latin-intro.mp

```
1 %
2 % Shared code for Tsukurimashou latin
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(latinintro);
32
33 _____
34
35 latin_wide_low_h:=latin_wide_baseline+mbrush_height*0.8;
36 latin_wide_high_h:=latin_wide_top-mbrush_height*0.8;
37 latin_wide_low_r:=latin_wide_baseline+mbrush_height*0.8-7;
38 latin_wide_high_r:=latin_wide_top-mbrush_height*0.8+15;
39 if sharp_corners:
40   latin_wide_low_v:=latin_wide_baseline;
41   latin_wide_high_v:=latin_wide_top;
42 else:
43   latin_wide_low_v:=latin_wide_baseline+mbrush_height*0.8;
44   latin_wide_high_v:=latin_wide_top-mbrush_height*0.8;
45 fi;
46
47 vardef vmetric(expr a) =
48   (a[latin_wide_low_h,latin_wide_high_h])
49 enddef;
50
51 latin_wide_xheight:=vmetric(0.65);
52 latin_wide_xheight_h:=latin_wide_xheight-mbrush_height*0.6;
53 latin_wide_xheight_r:=latin_wide_xheight-mbrush_height*0.6+15;
54 if sharp_corners:
55   latin_wide_xheight_v:=latin_wide_xheight;
56 else:
57   latin_wide_xheight_v:=latin_wide_xheight-mbrush_height*0.5;
58 fi;
59
60 latin_wide_desc:=vmetric(-0.35);
61 latin_wide_desc_h:=latin_wide_desc+mbrush_height*0.6;
62 latin_wide_desc_r:=latin_wide_desc+mbrush_height*0.6-10;
63 if sharp_corners:
64   latin_wide_desc_v:=latin_wide_desc;
65 else:
66   latin_wide_desc_v:=latin_wide_desc+mbrush_height*0.5;
67 fi;
68
69 latin_wide_lc_baselift:=vmetric(0.02);
70
```

```

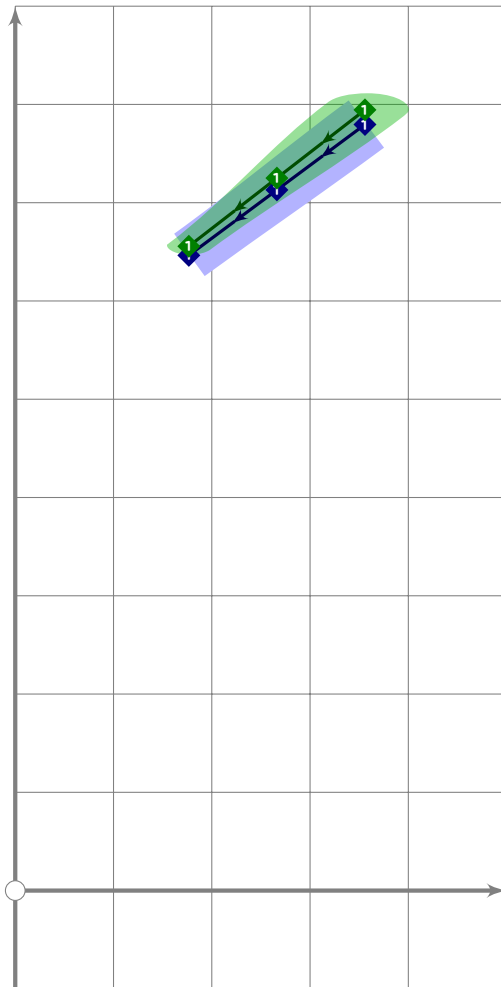
71 transform tsu_xf.accentedcap,tsu_xf.cap_upper_accent,tsu_xf.low_centre_accent;
72
73 xpart tsu_xf.accentedcap=1;
74 xypart tsu_xf.accentedcap=yxpart tsu_xf.accentedcap=0;
75 (500,vmetric(0)) transformed tsu_xf.accentedcap=(500,vmetric(0));
76 (500,vmetric(1)) transformed tsu_xf.accentedcap=(500,vmetric(0.85));
77
78 accent_default[anc_upper_accent]=identity shifted (500,vmetric(0.75));
79 accent_default[anc_lower_accent]=identity shifted (520,vmetric(-0.21));
80 accent_default[anc_centre_accent]=identity
81   scaled ((latin_wide_high_r-latin_wide_low_r)/200) shifted centre_pt;
82 anchor_parent[anc_upper_left]=anc_upper_accent;
83 anchor_parent[anc_upper_right]=anc_upper_accent;
84 anchor_parent[anc_upper_ring]=anc_upper_accent;
85 accent_default[anc_caron_comma]=identity shifted (730,vmetric(0.94));
86
87 % this one is for capitals that have NOT been shrunk
88 tsu_xf.cap_upper_accent=identity shifted (500,vmetric(1.05));
89
90 tsu_xf.low_centre_accent=identity
91   scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
92   shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2);

```

# accent.mp

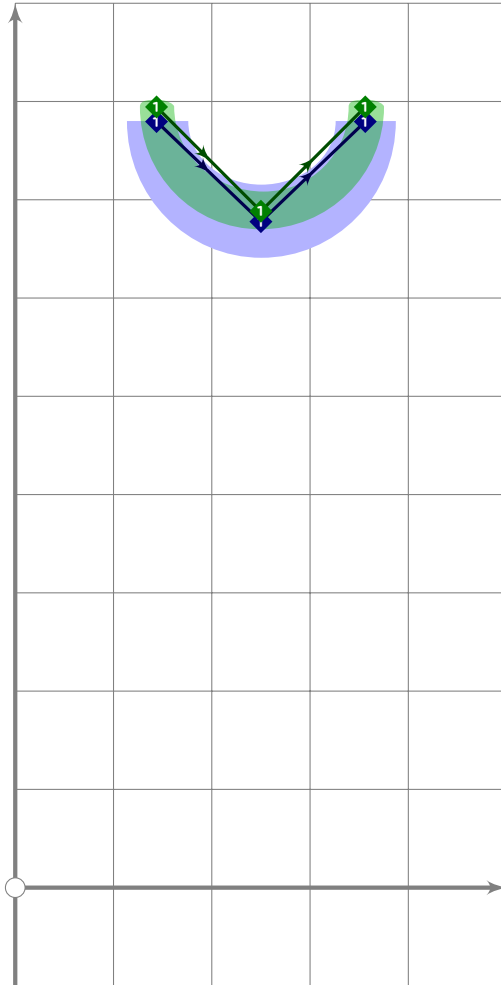
```
1 %
2 % Accents for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(accent);
32
33
```

---



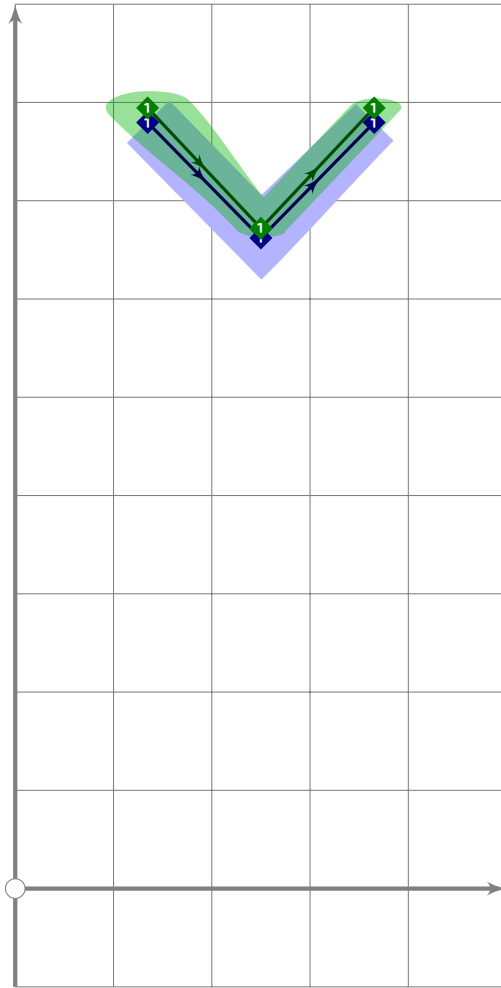
```
34
35 vardef tsu_accent.acute =
36   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
37   push_stroke(
38     (500+1.5*tsu_punct_size,vmetric(0.95))-
39     (500-0.5*tsu_punct_size,vmetric(0.78)),
40     (2,2)-(1.6,1.6)-(1.3,1.3));
41   replace_strokep(0)(insert_nodes(oldp)(0.5));
42   set_bosize(0,80);
43   set_botip(0,1,1);
```

44 enddef;



```
45
46 vardef tsu_accent.breve =
47   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
48   push_stroke((500-1.3*tsu_punct_size,vmetric(0.95)){down}..
49     (500,vmetric(0.82))..
50     {up}(500+1.3*tsu_punct_size,vmetric(0.95)),
51     (1,1)-(1.9,1.9)-(1,1));
52 enddef;
```





```

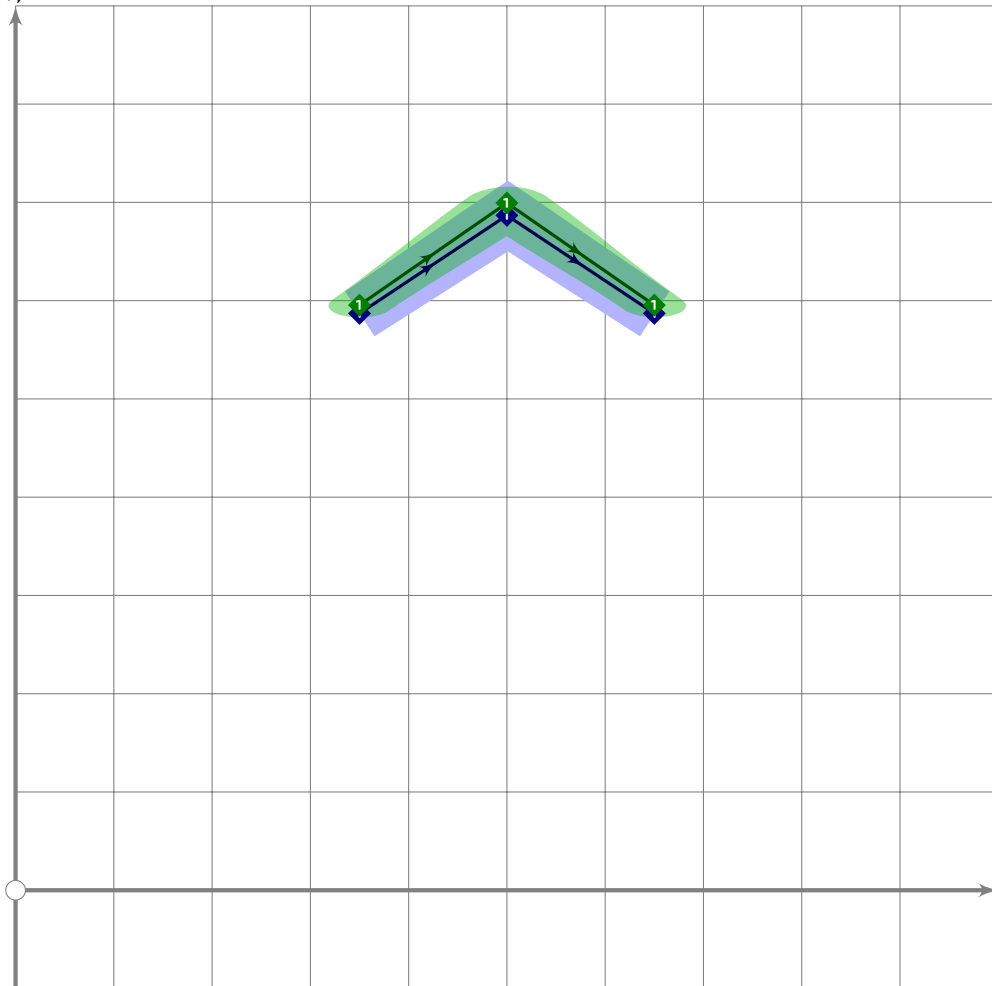
53
54 vardef tsu_accent.caron =
55   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
56   push_stroke((500-1.5*tsu_punct_size,vmetric(0.95))-
57     (500,vmetric(0.80))-
58     (500+1.5*tsu_punct_size,vmetric(0.95)),
59     (2,2)-(14,14)-(14,14));
60   set_bosize(0,80);
61   set_botip(0,1,1);
62 enddef;
63
64 vardef tsu_accent.caron_comma =
65   push_anchor(-anc_caron_comma,accent_default[anc_caron_comma]);
66   punct.make_comma((0,0) transformed accent_default[anc_caron_comma],0);
67 enddef;
68
69 vardef tsu_accent.cedilla =
70   push_anchor(-anc_lower_accent,accent_default[anc_lower_accent]);
71   push_stroke(
72     ((0,0)-(-0.3,-1.8){curl 0.7}..(2.6,-2.5)..{curl 0.2}(-2.5,-3.0))
73     scaled (0.5*tsu_punct_size) shifted (500,latin_wide_low_r),

```

```

74 (1.4,1.4)-(1.4,1.4)-(1.7,1.7)-(1.3,1.3));
75 set_bosize(0,80);
76 set_botip(0,1,1);
77 enddef;

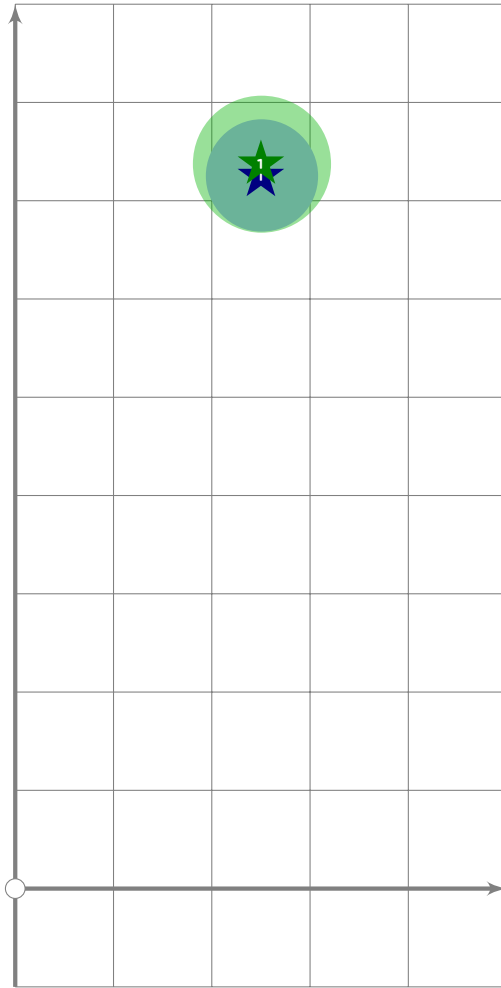
```



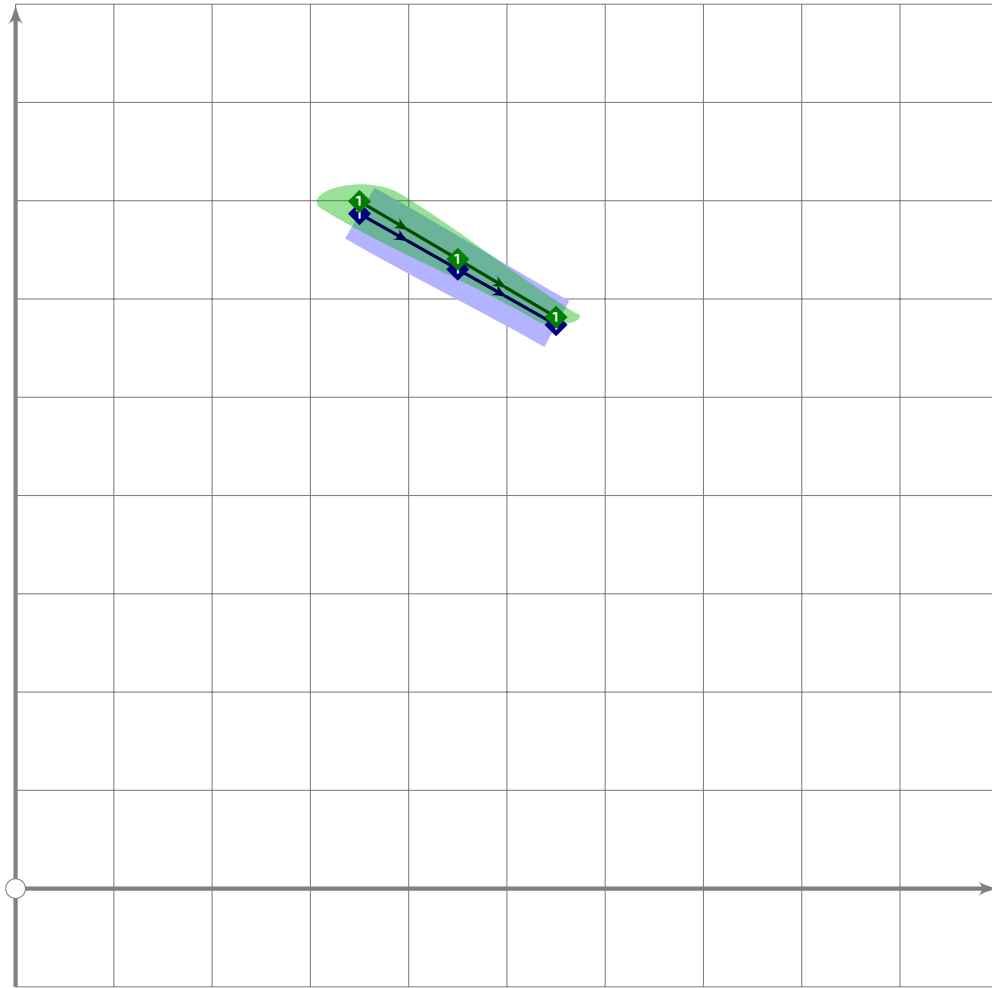
```

78
79 vardef tsu_accent.circumflex =
80   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
81   push_stroke((500-1.5*tsu_punct_size,vmetric(0.80))-
82     (500,vmetric(0.95))-
83     (500+1.5*tsu_punct_size,vmetric(0.80)),
84     (1.6,1.6)-(2,2)-(1.6,1.6));
85   set_bosize(0,80);
86   set_botip(0,1,1);
87 enddef;
88
89 vardef tsu_accent.commabelow =
90   push_anchor(-anc_lower_accent,accent_default[anc_lower_accent]);
91   punct.make_comma((0,0) transformed accent_default[anc_lower_accent],0);
92 enddef;

```



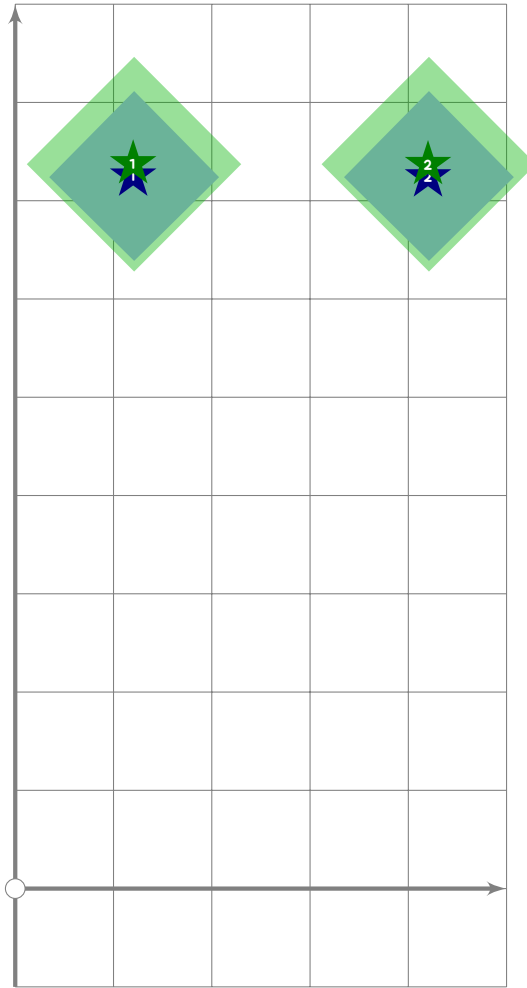
```
93
94 vardef tsu_accent.dotabove =
95   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
96   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
97     shifted ((500,vmetric(0.88))
98       transformed tsu_rescale_xform)
99     transformed inverse tsu_rescale_xform);
100 enddef;
```



```

101
102 vardef tsu_accent.grave =
103   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
104   push_stroke((500-1.5*tsu_punct_size,vmetric(0.95))-
105     (500+0.5tsu_punct_size,vmetric(0.78)),
106     (2,2)-(1.6,1.6)-(1.3,1.3));
107   replace_stroke(0)(insert_nodes(oldp)(0.5));
108   set_bosize(0,80);
109   set_botip(0,1,1);
110 enddef;

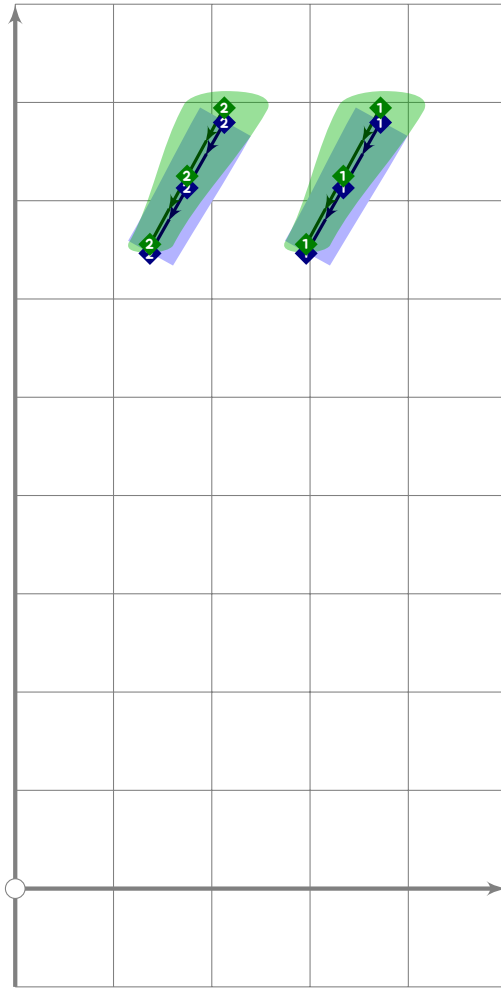
```



```

111
112 vardef tsu_accent.heavy_metal_umlaut =
113   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
114   push_lcblob((up-left-down-right-cycle) scaled (mbrush_width*1.5+30)
115     shifted ((520-1.5*tsu_punct_size,vmetric(0.88))
116       transformed tsu_rescale_xform)
117     transformed inverse tsu_rescale_xform);
118   push_lcblob((up-left-down-right-cycle) scaled (mbrush_width*1.5+30)
119     shifted ((520+1.5*tsu_punct_size,vmetric(0.88))
120       transformed tsu_rescale_xform)
121     transformed inverse tsu_rescale_xform);
122 enddef;

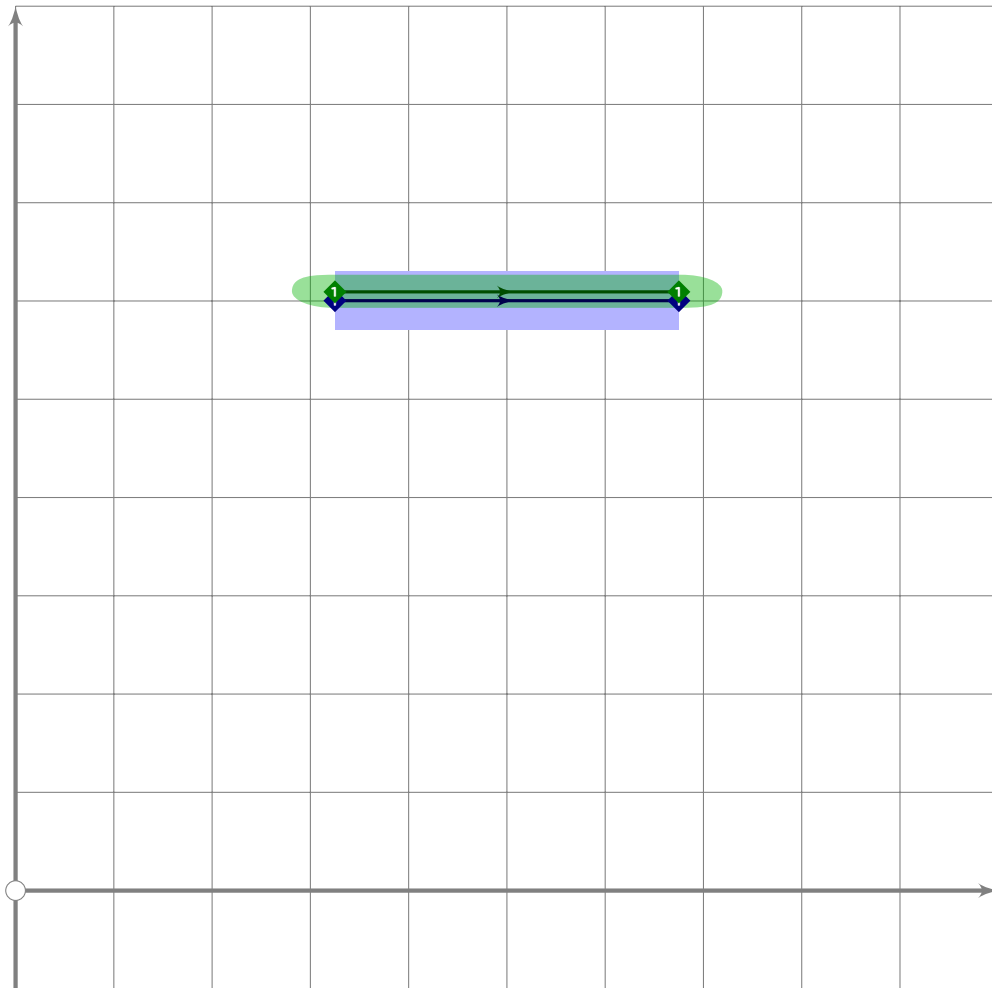
```



```

123
124 vardef tsu_accent.hungarian_umlaut =
125   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
126   push_stroke((500+1.7*tsu_punct_size,vmetric(0.95))-
127     (500+0.7*tsu_punct_size,vmetric(0.78)),
128     (2,2)-(1.6,1.6)-(1.3,1.3));
129   replace_stroke(0)(insert_nodes(oldp)(0.5));
130   set_bosize(0,80);
131   set_botip(0,1,1);
132
133   push_stroke((500-0.4*tsu_punct_size,vmetric(0.95))-
134     (500-1.4*tsu_punct_size,vmetric(0.78)),
135     (2,2)-(1.6,1.6)-(1.3,1.3));
136   replace_stroke(0)(insert_nodes(oldp)(0.5));
137   set_bosize(0,80);
138   set_botip(0,1,1);
139 enddef;

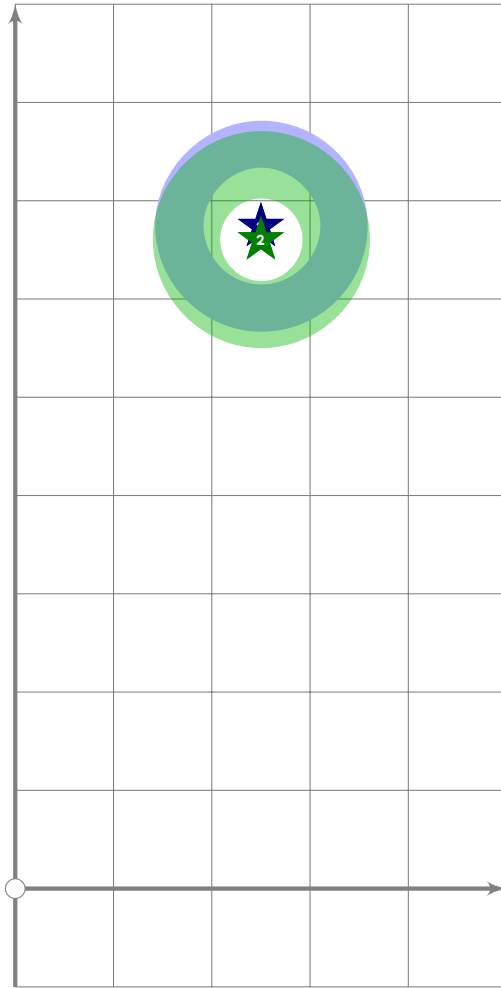
```



```

140
141 vardef tsu_accent.macron =
142   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
143   push_stroke((500-1.75*tsu_punct_size,vmetric(0.82))-
144     (500+1.75*tsu_punct_size,vmetric(0.82)),
145     (2,2)-(2,2));
146   set_bosize(0,80);
147 enddef;

```

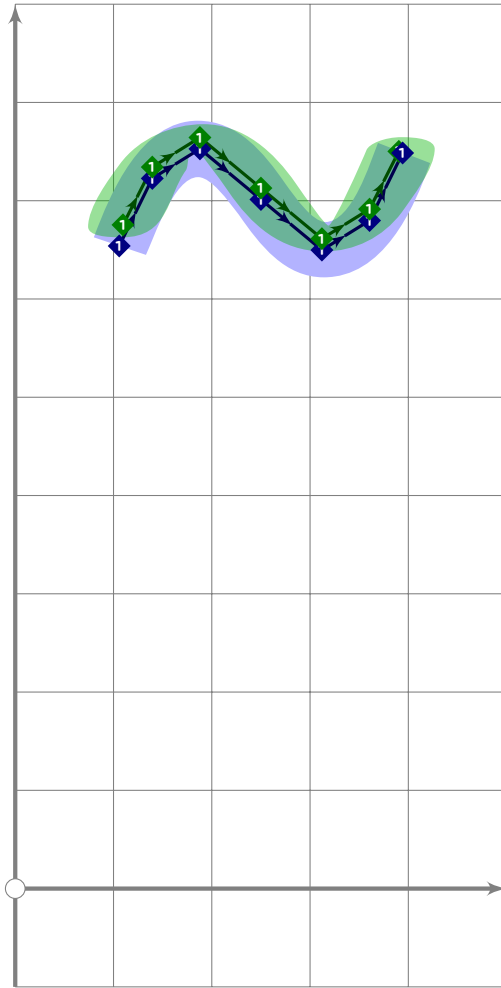


```

148
149 vardef tsu_accent.ringabove =
150   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
151   push_lcblob(fullcircle rotated 45
152     scaled (2*tsu_punct_size+20*tsu_brush_max)
153     shifted ((500,vmetric(0.83-0.03*mincho)-10)
154       transformed tsu_rescale_xform)
155     transformed inverse tsu_rescale_xform);
156   push_lcblob(reverse fullcircle rotated 45
157     scaled (2*tsu_punct_size-110*tsu_brush_max)
158     shifted ((500,vmetric(0.83-0.03*mincho)-10)
159       transformed tsu_rescale_xform)
160     transformed inverse tsu_rescale_xform);
161   enddef;
162
163 vardef tsu_accent.slash =
164   push_anchor(-anc_centre_accent,accent_default[anc_centre_accent]);
165   push_stroke(((100,130)-(100,130))
166     transformed accent_default[anc_centre_accent],[2,2)-(2,2));
167   set_bosize(0,86);
168   enddef;

```

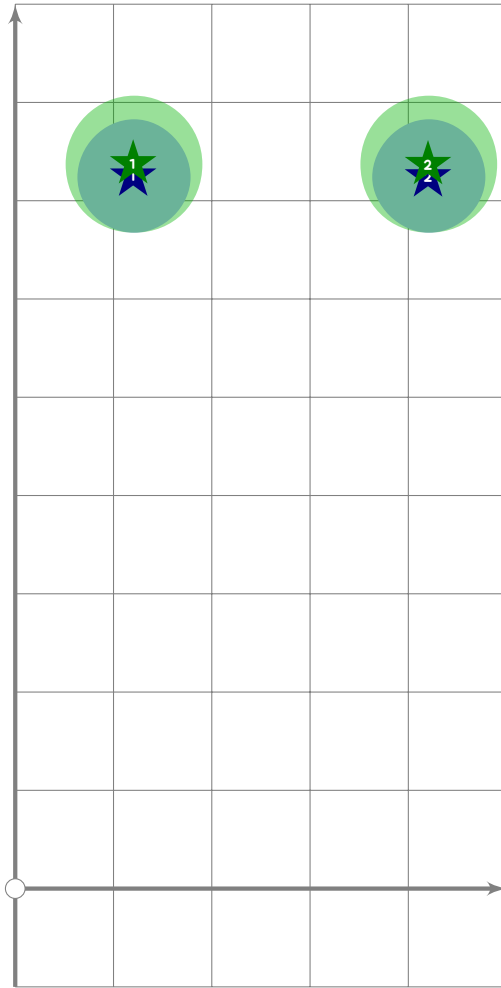




```

169
170 vardef tsu_accent.tilde =
171   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
172   push_stroke(
173     ((-3.5,-0.5){curl 0}{-14,1}..(0,0)..(14,-1)..{curl 0}{3.5,0.5})
174     rotated 5 xyscaled (0.7*tsu_punct_size,0.5*tsu_punct_size)
175     shifted (500,vmetric(0.85)),
176     (0.7,2.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
177     (1.7,1.7)-(0.7,2.7));
178   replace_stroke(0)(insert_nodes(oldp)(0.5,3.5));
179   set_bosize(0,80);
180 enddef;

```



```

181
182 vardef tsu_accent.umlaut =
183   push_anchor(-anc_upper_accent,accent_default[anc_upper_accent]);
184   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
185     shifted ((520-1.5*tsu_punct_size,vmetric(0.88))
186       transformed tsu_rescale_xform)
187     transformed inverse tsu_rescale_xform);
188   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*1.72+50)
189     shifted ((520+1.5*tsu_punct_size,vmetric(0.88))
190       transformed tsu_rescale_xform)
191     transformed inverse tsu_rescale_xform);
192 enddef;
193
194
195
196 vardef tsu_accent.capital(text curves) =
197   tsu_xform(tsu_xf.accentedcap)(curves);
198   if get_anchor_with_default(anc_upper_accent,identity)=identity:
199     push_anchor(anc_upper_accent,
200       accent_default[anc_upper_accent]
201       shifted (0,vmetric(0.98)-vmetric(0.8)));

```

```

202 fi;
203 enddef;
204
205 vardef tsu_accent.apply(text basecurves)(text markcurves) =
206   begingroup;
207     save xsp,ysp,bmi,mbi,bmt,killflag;
208     numeric xsp,ysp,bmi,mbi;
209     transform bmt;
210     boolean killflag;
211     basecurves;
212     xsp:=sp;
213     markcurves;
214     killflag:=false;
215     for i:=sp-1 downto xsp:
216       if obstacktype[i]=otanchor:
217         if obstackn[i]<0:
218           mbi:=i;
219           killflag:=true;
220         fi;
221       fi;
222     exitif killflag;
223   endfor;
224   bmt:=accent_default[-obstackn[mbi]];
225   killflag:=false;
226   for i:=xsp-1 downto 1:
227     if obstacktype[i]=otanchor:
228       if obstackn[i]=-obstackn[mbi]:
229         bmi:=i;
230         bmt:=obstackt[i];
231         killflag:=true;
232       fi;
233     fi;
234     exitif killflag;
235   endfor;
236   obstacktype[mbi]:=otnull;
237   if known bmi:
238     obstacktype[bmi]:=otnull;
239   fi;
240   ysp:=sp;
241   sp:=xsp;
242   tsu_xform((inverse obstackt[mbi]) transformed bmt)(sp:=ysp);
243 endgroup;
244 enddef;

```

## bcircle.mp

```
1 %
2 % Bounding circle algorithm of E. Welzl
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(bcircle);
32
33 % swap points in pts[] array
34 vardef swap_pts(expr a,b)=
35   pair tmppt;
36   tmppt:=pts[a];
37   pts[a]:=pts[b];
38   pts[b]:=tmppt;
39 enddef;
40
41 % compute bounding circle on up to three points
42 vardef bcircle.basis(expr rstart,rend) =
43   if rend<=rstart+1:
44     identity
45   else:
46     begingroup
47       save x,y,myt;
48       numeric x[],y[];
49       transform myt;
50       z1=pts[rstart];
51       z2=pts[rstart+1];
52       xypart myt=0;
53       yxpart myt=0;
54       if rend=rstart+2:
55         z3=(z1+z2)/2;
56         (0,0) transformed myt=(z1+z2)/2;
57         xxpart myt=yypart myt=abs(z1-z3);
58       else:
59         z3=pts[rstart+2];
60         z4=(z1+z2)/2;
61         z5=(z1+z3)/2;
62         z6=z4+whatever*((z2-z1) rotated 90);
63         z6=z5+whatever*((z3-z1) rotated 90);
64         (0,0) transformed myt=z6;
65         xxpart myt=yypart myt=abs(z1-z6);
66       fi;
67       myt
68     endgroup
69   fi
70 enddef;
```

```

71
72 % recursion to compute bounding circle.
73 % Input point sets are in pts[] array, arguments are indices into it
74 vardef bcircle.internal(expr pstart,rstart,rend) =
75   if (pstart=rstart) or (rend-rstart=3):
76     bcircle.basis(rstart,rend)
77   else:
78     begingroup
79     transform d;
80     pind:=floor ((rstart-pstart)*uniformdeviate 1)+pstart;
81     swap_pts(pstart,pind);
82     d=bcircle.internal(pstart+1,rstart,rend);
83     pair xpt;
84     xpt transformed d=pts[pstart];
85     if abs(xpt)>1:
86       swap_pts(pstart,(rstart-1));
87       d:=bcircle.internal(pstart,rstart-1,rend);
88     fi;
89     d
90   endgroup
91 fi
92 enddef;
93
94 % wrapper for bounding circle algorithm - compute bcircle of points
95 vardef bcircle.points(text txt) =
96   begingroup
97     save d,tmppt,pind,xpt,pts,pcnt;
98     pcnt:=0;
99     for myp=txt:
100       pts[pcnt]:=myp;
101       pcnt:=pcnt+1;
102     endfor;
103     bcircle.internal(0,pcnt,pcnt)
104   endgroup
105 enddef;
106
107 % wrapper for bounding circle algorithm - compute bcircle of paths
108 vardef bcircle.paths(text txt) =
109   begingroup
110     save d,tmppt,pind,xpt,pts,pcnt;
111     pcnt:=0;
112     for myp=txt:
113       for i=0 step 0.1 until length myp:
114         pts[pcnt]:=point i of myp;
115         pcnt:=pcnt+1;
116       endfor
117     endfor;
118     bcircle.internal(0,pcnt,pcnt)

```

```
119 endgroup  
120 enddef;
```

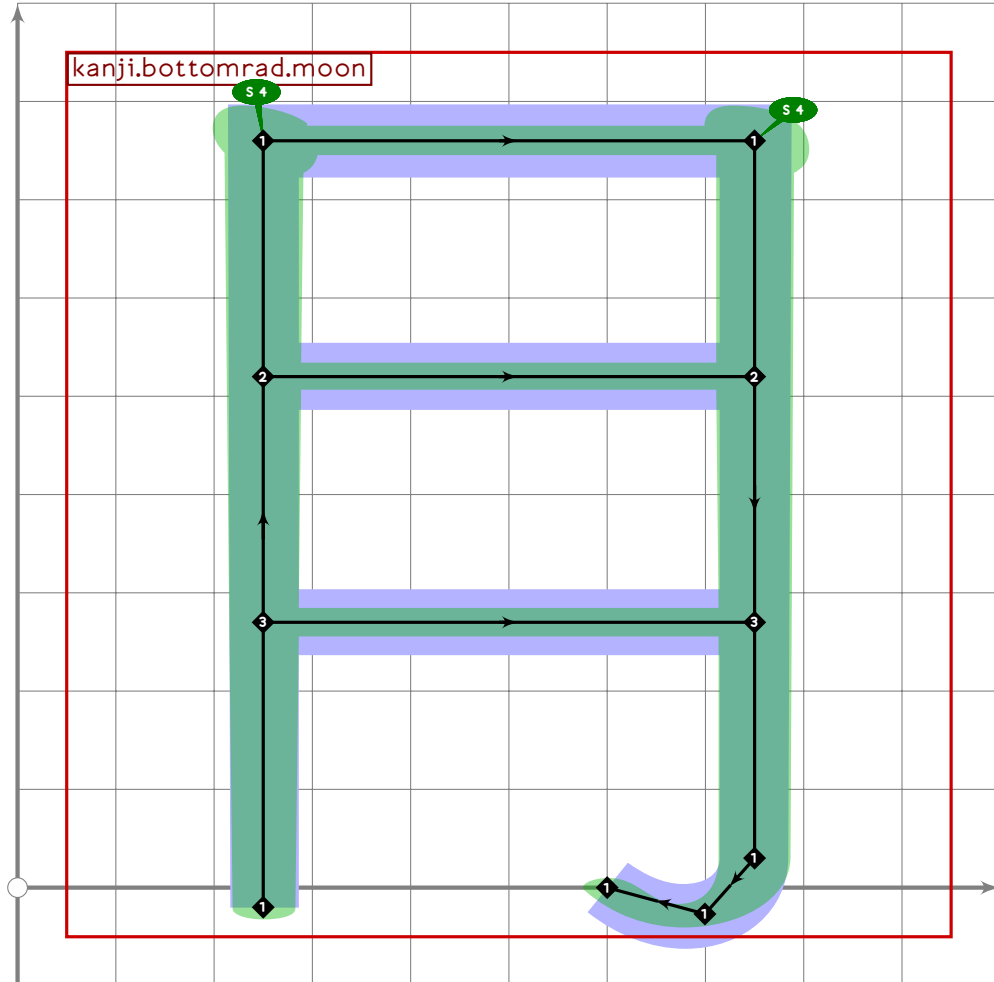
# bottomrad.mp

```
1 %
2 % Radicals for bottom (often special forms of other radicals)
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(bottomrad);
32
33 _____
34
35 vardef kanji.bottomrad.four_ticks =
36   push_pbox_toexpand("kanji.bottomrad.four_ticks");
37   push_stroke((210,750)..tension 1.2..(160,250)..(100,-30),
38     (1,1)-(1.3,1.3)-(1.8,1.8));
39   push_stroke((350,700)..tension 1.2..(390,300)..(400,-50),
40     (1,1,1)-(1.4,1.4)-(1.9,1.9));
41   push_stroke((540,750)..tension 1.2..(610,320)..(630,-40),
42     (1,1,1)-(1.4,1.4)-(1.9,1.9));
43   push_stroke((740,800)..tension 1.2..(850,360)..(890,-20),
44     (1,1,1)-(1.4,1.4)-(1.9,1.9));
45   expand_pbox;
46 enddef;
47
48 vardef kanji.bottomrad.heart =
49   push_pbox_toexpand("kanji.bottomrad.heart");
50   perl_structure:=perl_structure&"eids.softhead.u5FC3";
51   tsu_xform(identity shifted (-100,0))
52     (push_stroke((450,670),(1.6,1.6));
53     build_kanji.add_ltail(0));
54   set_boserif(0,0,10);
55   push_stroke((210,540)..tension 1.2..(130,280)..(60,150),
56     (1,1)-(1.5,1.5)-(1.8,1.8));
57   push_stroke((500,720)..tension 1.2..(570,520)..(600,270),
58     (1,1)-(1.3,1.3)-(1.6,1.6));
59   push_stroke((790,540)..tension 1.2..(880,310)..(930,130),
60     (1,1)-(1.5,1.5)-(1.8,1.8));
61   expand_pbox;
62 enddef;
63
64 vardef kanji.bottomrad.long_kimono =
65   push_pbox_toexpand("kanji.bottomrad.long_kimono");
66   build_kanji.box((210,760),(790,540));
67   push_stroke((440,540)..tension 1.2..(330,300)..(110,80),
68     (1.6,1.6)-(1.4,1.4)-(1,1));
69   push_stroke((500,540)-(500,-20),(1.6,1.6)-(1.5,1.5));
70   push_stroke((500,380)..tension 1.2..(710,220)..(800,100),
```

```

71 (0,9,9)-(1.5,1.5)-(1.9,1.9));
72 push_stroke(
73 (810,410)..tension 1.2..(750,340)..(point 0.8 of get_strokep(0)),
74 (1.7,1.7)-(1.2,1.2)-(0,9,9));
75 expand_pbox;
76 enddef;

```



```

77
78 vardef kanji.bottomrad.moon =
79 push_pbox_toexpand("kanji.bottomrad.moon");
80 push_stroke((250,-20)..{up}(250,760)-(750,760),
81 (1.4,1.4)-(1.6,1.6)-(1.6,1.6));
82 build_kanji.add_jtail(0);
83 set_botip(0,1,1);
84 set_botip(0,2,1);
85 set_boserif(0,1,4);
86 set_boserif(0,2,4);
87 push_stroke((250,520)-(750,520),
88 (1.5,1.5)-(1.5,1.5));
89 push_stroke((250,270)-(750,270),
90 (1.5,1.5)-(1.5,1.5));
91 expand_pbox;

```



92 enddef;

# dakuten.mp

```
1 %
2 % Dakuten and handakuten for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(dakuten);
32
33 

---


34
35 vardef dakuten(expr xf) =
36   push_pbox_explicit("dakuten",
37     identity shifted (-0.4,-0.5) scaled 200 rotated -50 transformed xf);
38
39   push_stroke(((0,-80,10)..(-35,-35)..(10,-90)) transformed xf,
40     (1,1)..(1.4,1.4)..(1.8,1.8));
41   set_bosize(0,85);
42   set_boserif(0,2,4);
43
44   push_stroke(((0,80)..(50,30)..(100,-30)) transformed xf,
45     (1,1)..(1.4,1.4)..(1.8,1.8));
46   set_bosize(0,85);
47   set_boserif(0,2,4);
48 enddef;
49
50 vardef handakuten(expr location) =
51   push_lcblob(fullcircle scaled handakuten_outer shifted location
52     transformed inverse tsu_rescale_xform);
53   push_lcblob(reverse fullcircle scaled handakuten_inner shifted location
54     transformed inverse tsu_rescale_xform);
55 enddef;
```

# enclosed.mp

```
1 %
2 % Enclosed characters for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(enclosed);
32
33 _____
34
35 vardef circle.single =
36   Fill fullcircle scaled (810+53*tsu_brush_max) shifted centre_pt;
37   unFill reverse fullcircle scaled (810-53*tsu_brush_max) shifted centre_pt;
38 enddef;
39
40 vardef circle.double =
41   Fill fullcircle scaled (880+60*tsu_brush_max) shifted centre_pt;
42   unFill reverse fullcircle scaled (880-20*tsu_brush_max) shifted centre_pt;
43   Fill fullcircle scaled (740+40*tsu_brush_max) shifted centre_pt;
44   unFill reverse fullcircle scaled (740-40*tsu_brush_max) shifted centre_pt;
45 enddef;
46
47 vardef square.single(text curves) =
48   tsu_xform(tsu_xf.sletter)(curves);
49   push_stroke(
50     (500,790)-(100,790)-(100,10)-(900,10)-(900,790)-cycle,
51     (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
52   set_bosize(0,80);
53   set_botip(0,1,1);
54   set_botip(0,2,1);
55   set_botip(0,3,1);
56   set_botip(0,4,1);
57 enddef;
58
59 _____
60
61 transform tsu_xf.circled;
62 xypart tsu_xf.circled=yypart tsu_xf.circled=0.68;
63 xypart tsu_xf.circled=yypart tsu_xf.circled=0;
64 centre_pt transformed tsu_xf.circled=centre_pt;
65
66 transform tsu_xf.cletter;
67 xypart tsu_xf.cletter=yypart tsu_xf.cletter=0.56;
68 xypart tsu_xf.cletter=yypart tsu_xf.cletter=0;
69 centre_pt transformed tsu_xf.cletter=centre_pt;
70
```

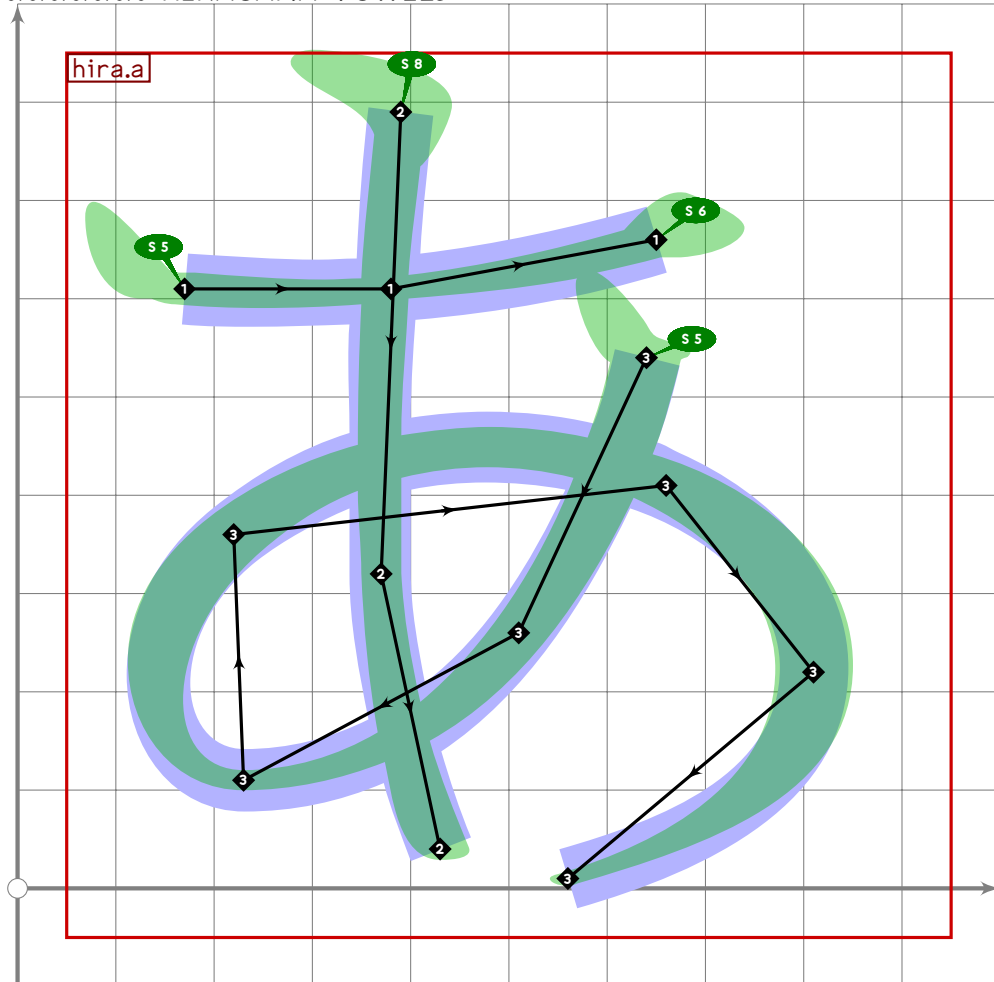
```
71 transform tsu_xf.ctwo.left;
72 xypart tsu_xf.ctwo.left=yypart tsu_xf.ctwo.left=0.48;
73 xypart tsu_xf.ctwo.left=yxpart tsu_xf.ctwo.left=0;
74 (centre_pt+290*right) transformed tsu_xf.ctwo.left=centre_pt;
75
76 transform tsu_xf.ctwo.right;
77 xypart tsu_xf.ctwo.right=yypart tsu_xf.ctwo.right=0.48;
78 xypart tsu_xf.ctwo.right=yxpart tsu_xf.ctwo.right=0;
79 (centre_pt+310*left) transformed tsu_xf.ctwo.right=centre_pt;
80
81 transform tsu_xf.sletter;
82 xypart tsu_xf.sletter=yypart tsu_xf.sletter=0.71;
83 xypart tsu_xf.sletter=yxpart tsu_xf.sletter=0;
84 centre_pt transformed tsu_xf.sletter=centre_pt+10*up;
85
86 _____
87
88 transform tsu_xf.cbound;
89 tsu_xf.cbound=identity scaled 340 shifted centre_pt;
```

# hiragana.mp

```
1 %  
2 % Hiragana for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(hiragana);  
32  
33  
34
```

## Hiragana Vowels

```
35 %%%%%%%%%% HIRAGANA VOWELS
```

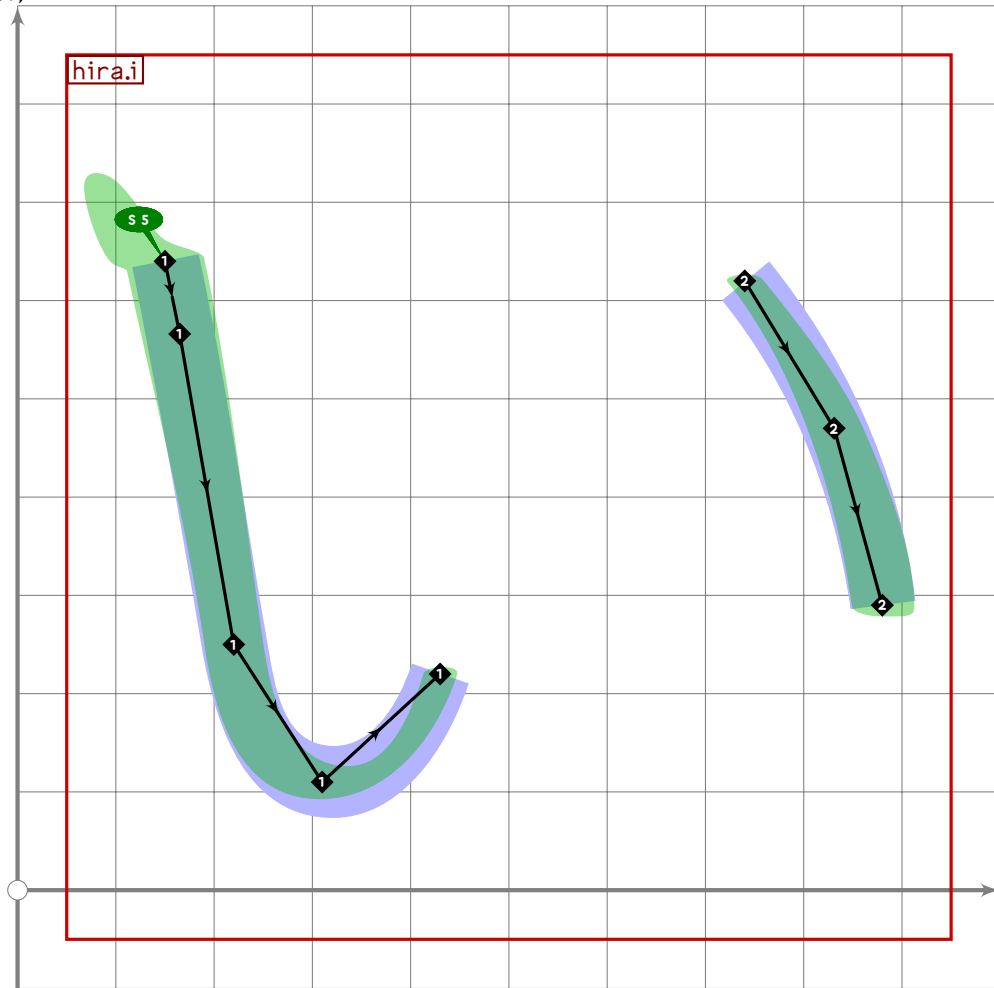


```
36  
37 vardef hira.a =  
38   push_pbox_toexpand("hira.a");  
39  
40   push_stroke((170,610)..(380,610)..(650,660),  
41     (1,6,1,7)-(1,4,1,4)-(1,6,1,6));
```

```

42 set_boserif(0,0,5);
43 set_boserif(0,2,6);
44
45 push_stroke((390,790)..tension 1.5..(370,320)..(430,40),
46   (1.2,1.2)-(1.1,1.1)-(1.3,1.3));
47 set_boserif(0,0,8);
48
49 push_stroke((640,540)..tension 1.2..(510,260)..(230,110){left}..
50   (220,360)..(660,410)..(810,220)..{curl 0}(560,10),
51   (1.5,1.5)-(1.4,1.4)-(1.2,1.2)-
52   (1.7,1.7)-(1.8,1.8)-(1.6,1.6)-(1,1));
53 set_boserif(0,0,5);
54 expand_pbox;
55 enddef;

```



```

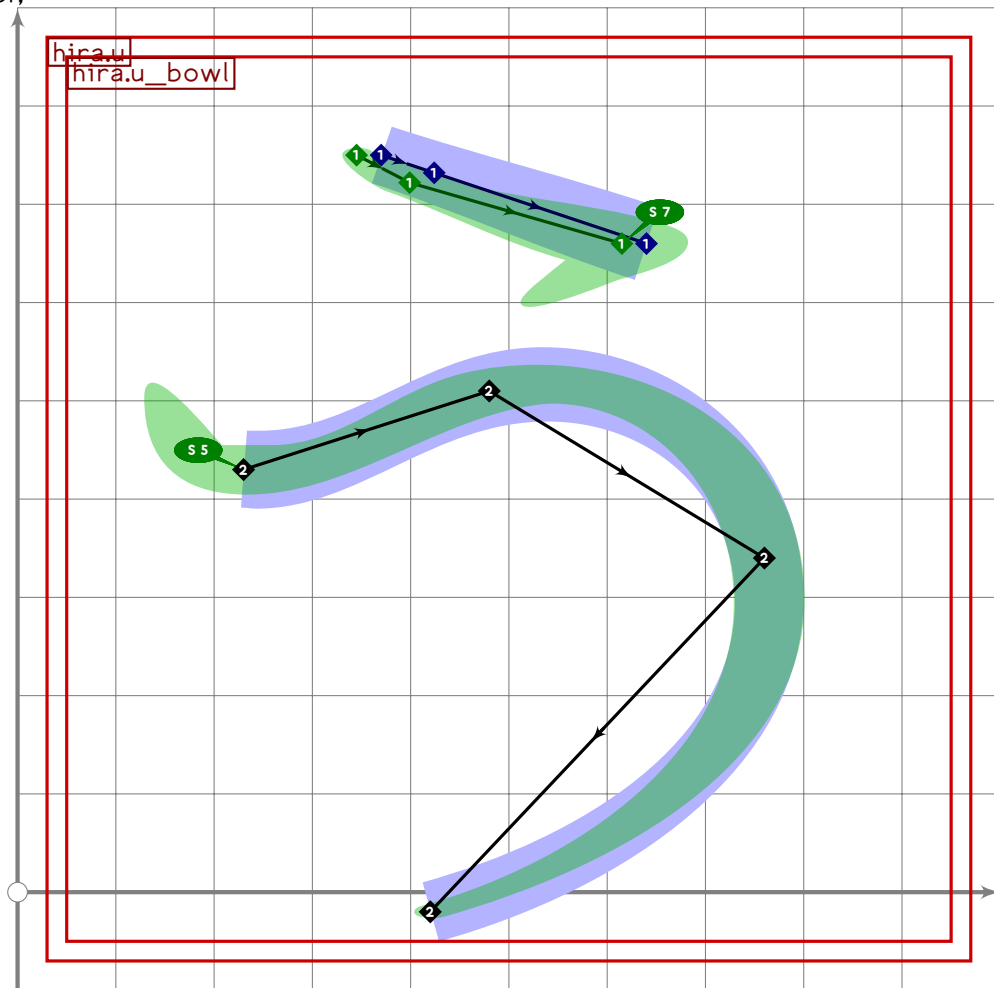
56
57 vardef hira.i =
58   push_pbox_toexpand("hira.i");
59
60   push_stroke((150,640)..(165,566)..(220,250)..(310,110)..{curl 0.1}(430,220),
61     (1.6,1.6)..(1.6,1.6)..(1.3,1.3)..(1.8,1.8)..(1,1));
62   set_boserif(0,0,5);

```

```

63
64 push_stroke((740,620)..(831,470)..(880,290),
65 (1,1)..(1,3,1,3)..(1,4,1,4));
66 expand_pbox;
67 endif;
68
69 vardef hira.u_bowl =
70 push_pbox_toexpand("hira.u_bowl");
71
72 push_stroke((230,430){dir 355}..(480,510)..(760,340)..{curl 0.1}(420,-20),
73 (2,3,2,3)..(2,2)..(1,5,1,5)..(1,1));
74 set_boserif(0,0,5);
75 expand_pbox;
76 endif;

```



```

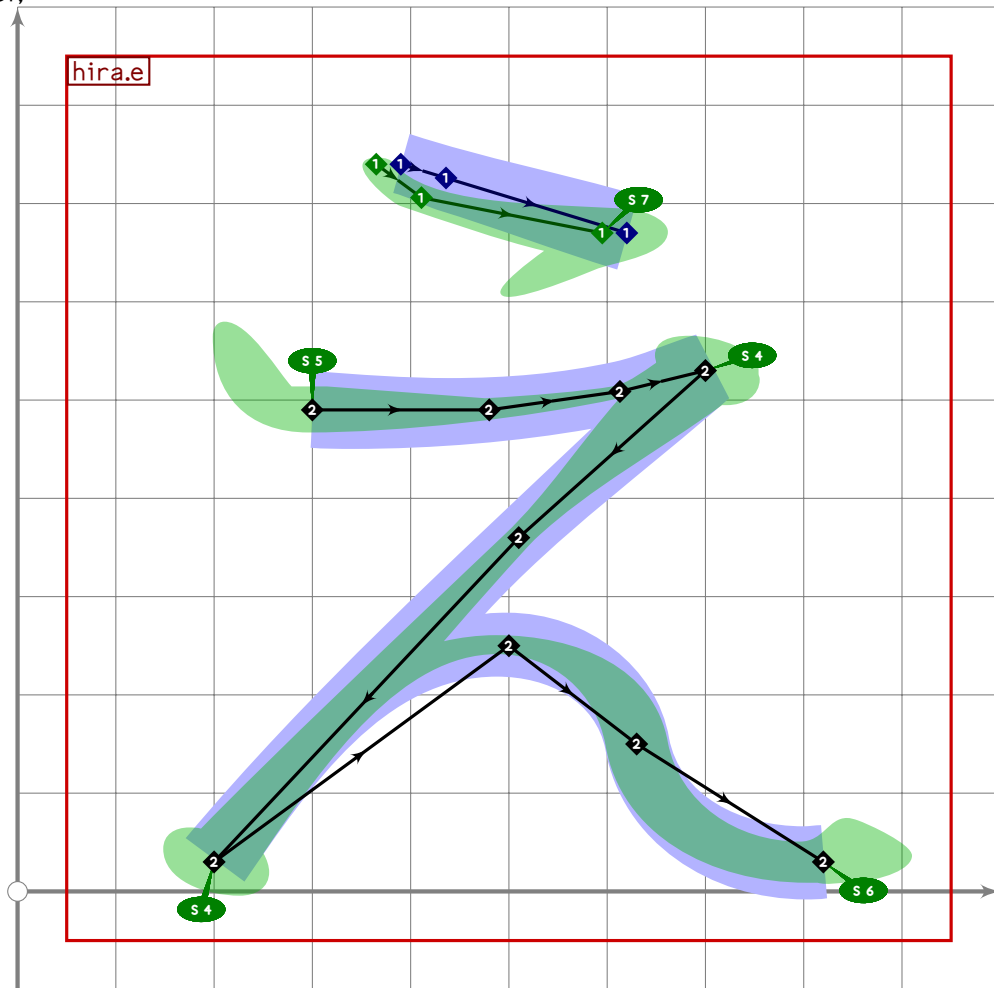
77
78 vardef hira.u =
79 push_pbox_toexpand("hira.u");
80
81 push_stroke(((370,750)..(0.2[(370,750),(640,660)]+10*down*mincho)..
82 tension 2..(640,660)) shifted (25*left*mincho),
83 (1,1)..(1,4,1,4)..(2,3,2,3));

```

```

84 set_boserif(0,2,7);
85
86 hira.u_bowl;
87 expand_pbox;
88 enddef;

```



```

89
90 vardef hira.e =
91   push_pbox_toexpand("hira.e");
92
93   push_stroke(((390,740)..(0.2[(390,740),(620,670)]+20*down*mincho)..
94     tension 2..(620,670)) shifted (25*left*mincho,
95     (1,1)..(14,14)..(2.3,2.3));
96   set_boserif(0,2,7);
97
98   push_stroke((300,490)..(480,490)..{curl 1}(700,530){curl 1}..
99     (510,360)..{curl 1}(200,30){curl 0}..
100     (500,250)..(630,150){dir 280}{dir 5}(820,30),
101     (2.2,2.2)-(1.3,1.3)-(1,1)-(2.01,2.01)
102     -(1,1)-(1.7,1.7)
103     -(1.2,1.2)-(1.4,1.4)-(2,2));
104   replace_stroke(0)(insert_nodes(oldp)(1.6));

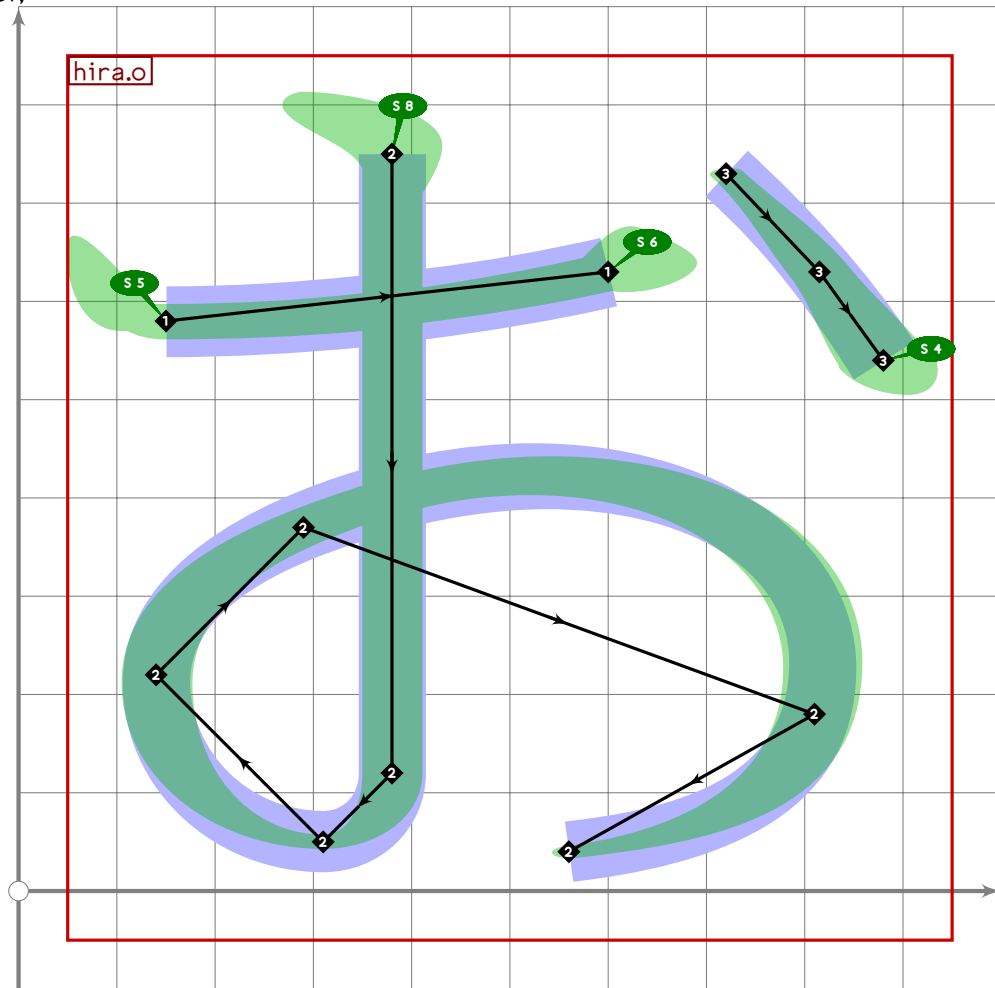
```



```

105 set_botip(0,3,0);
106 set_botip(0,5,0);
107 set_boserif(0,0,5);
108 set_boserif(0,3,4);
109 set_boserif(0,5,4);
110 set_boserif(0,8,6);
111 expand_pbox;
112 enddef;

```



```

113
114 vardef hira.o =
115   push_pbox_toexpand("hira.o");
116
117   push_stroke((150,580){right}..(600,630),
118     (1.8,1.8)..(1.8,1.8));
119   set_boserif(0,0,5);
120   set_boserif(0,1,6);
121
122   push_stroke((380,750)..(380,120){down}..(310,50){left}..tension 1.1..
123     (140,220)..(290,370)..(810,180)..{curl 0}{560,40},
124     (1.4,1.4)..(1.3,1.3)..(1,1)..(1.5,1.5)..(1.6,1.6)..
125     (1.6,1.6)..(1,1));

```

```

126 set_boserif(0,0,8);
127
128 push_stroke((720,730)..(815,630)..(880,540),
129   (1,1)..(14,14)..(18,18));
130 set_boserif(0,2,4);
131 expand_pbox;
132 enddef;
133

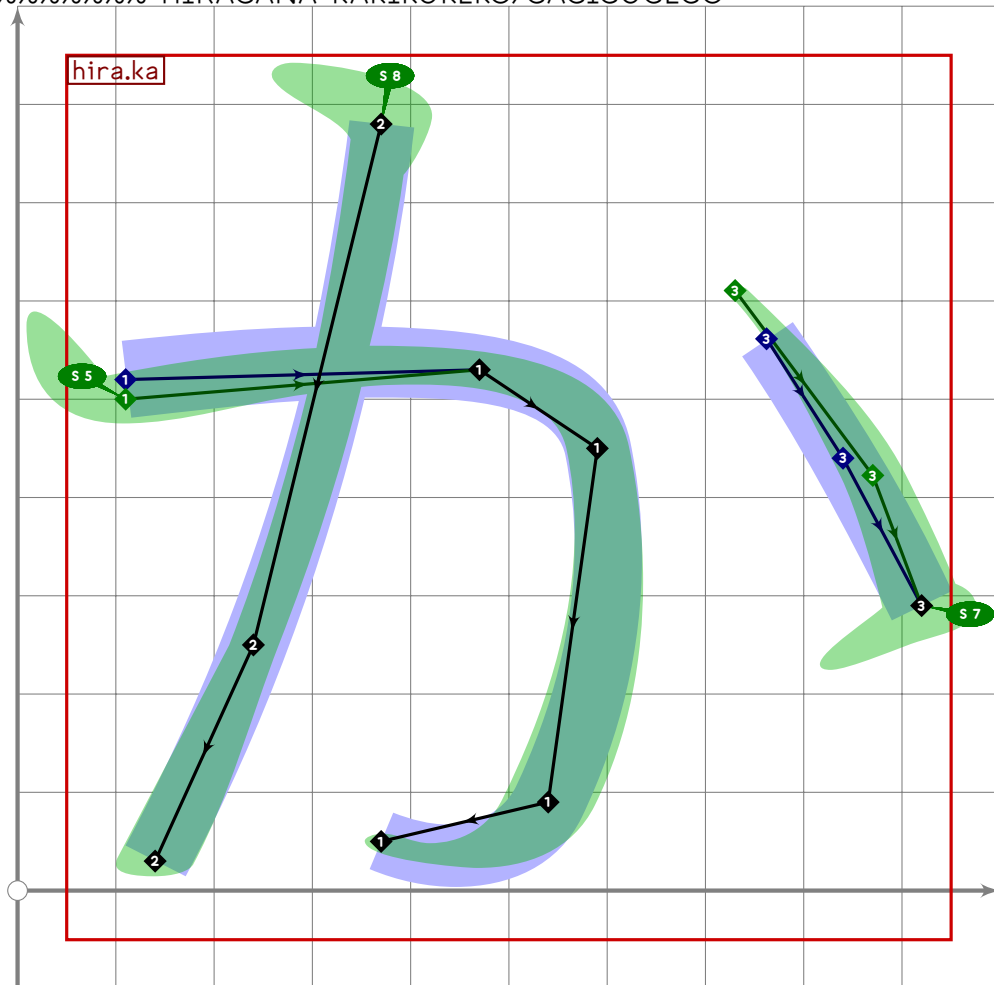
```

## Hiragana Kakikukeko/Gagigugego

```

134 %%%%%%%%%% HIRAGANA KAKIKUKEKO/GAGIGUGEGO

```



```

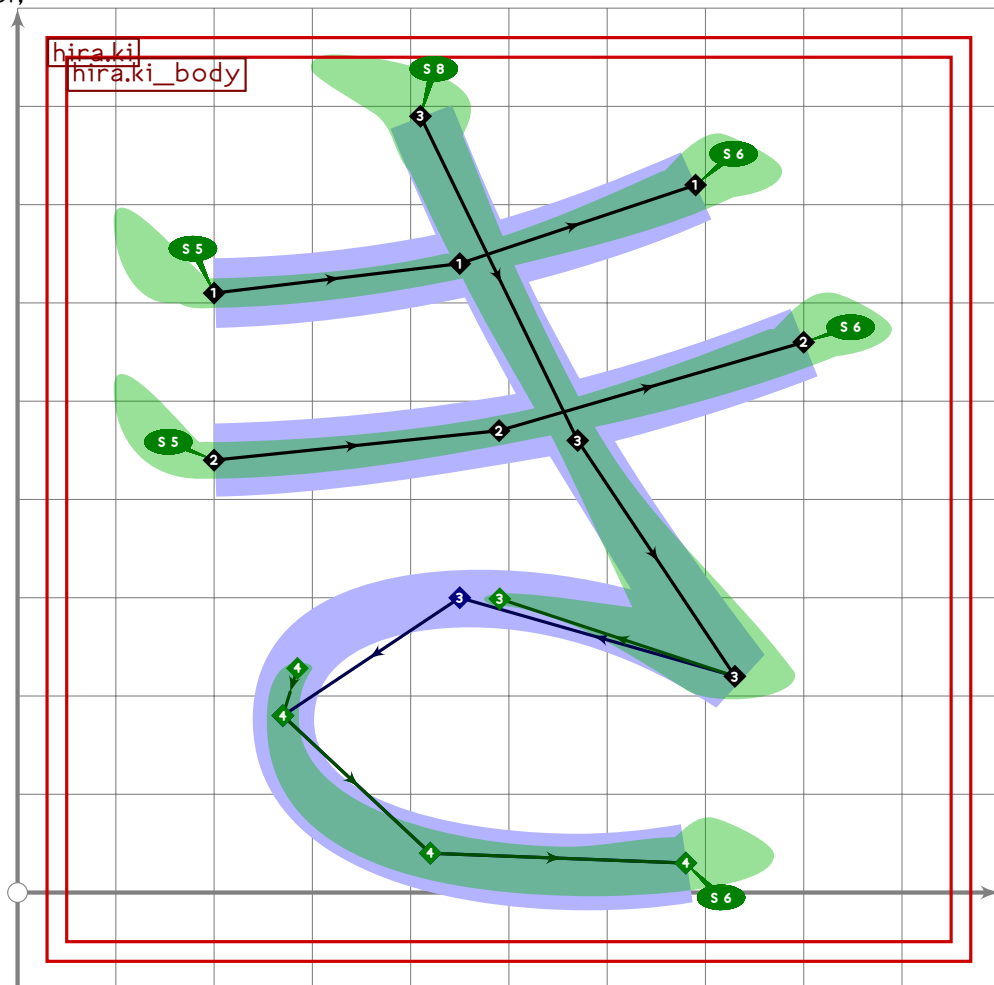
135
136 vardef hira.ka =
137   push_pbox_toexpand("hira.ka");
138
139   push_stroke(((110,520)+20*mincho*down){curl 0}..(470,530)..(590,450)..
140     tension 2..(540,90)..{curl 0.3}(370,50),
141     (2.3,2.3)..(17,17)..(14,14)..(18,18)..(1,1));
142   set_boserif(0,0,5);
143
144   push_stroke((370,780)..(240,250)..(140,30),

```

```

145 (1,3,1,3)..(1,2,1,2)..(1,6,1,6));
146 set_boserif(0,0,8);
147
148 push_stroke((720,620)..((840,440)+35*mincho*(dir -30))..(920,290),
149 (0,8,0,8)..(1,4,1,4)..(1,6,1,6));
150 set_boserif(0,2,7);
151 expand_pbox;
152 enddef;
153
154 vardef hira.ki_body =
155 push_pbox_toexpand("hira.ki_body");
156
157 push_stroke((410,790)..(570,460)..{curl 1}(730,220){curl 1}..
158 (450,300)..(270,180)..(420,40)..(680,30),
159 (1,4,1,4)-(1,2,1,2)-(2,3,2)-(0,60,1)..(0,9,1)..
160 (2,1,2,1)..(2,4,2,4));
161 set_botip(0,2,0);
162 set_boserif(0,0,8);
163 set_boserif(0,6,6);
164 expand_pbox;
165 enddef;

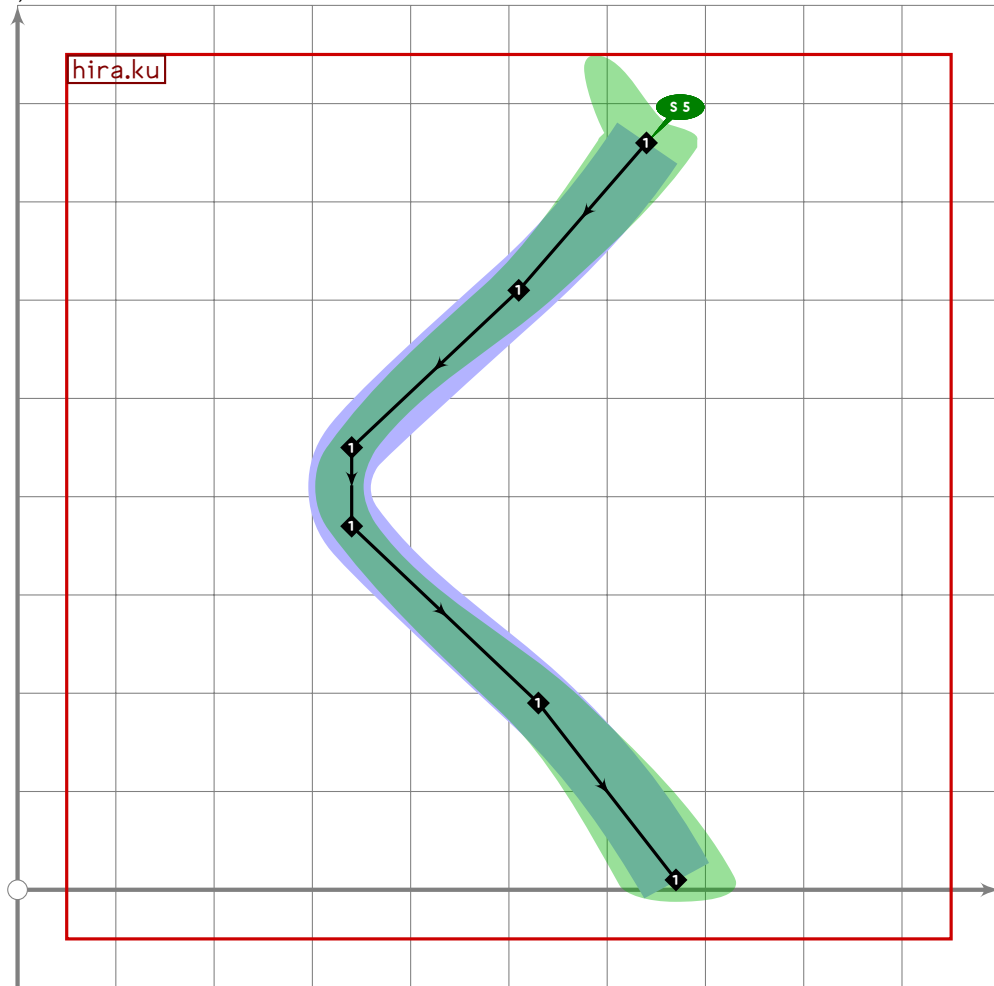
```



```

166
167 vardef hira.ki =
168   push_pbox_toexpand("hira.ki");
169
170   push_stroke((200,610)..(450,640)..(690,720),
171     (1,6,1,6)-(1,4,1,4)-(1,9,1,9));
172   set_boserif(0,0,5);
173   set_boserif(0,2,6);
174
175   push_stroke((200,440)..(490,470)..(800,560),
176     (1,9,1,9)-(1,5,1,5)-(1,9,1,9));
177   set_boserif(0,0,5);
178   set_boserif(0,2,6);
179
180   hira.ki_body;
181   expand_pbox;
182 enddef;

```



```

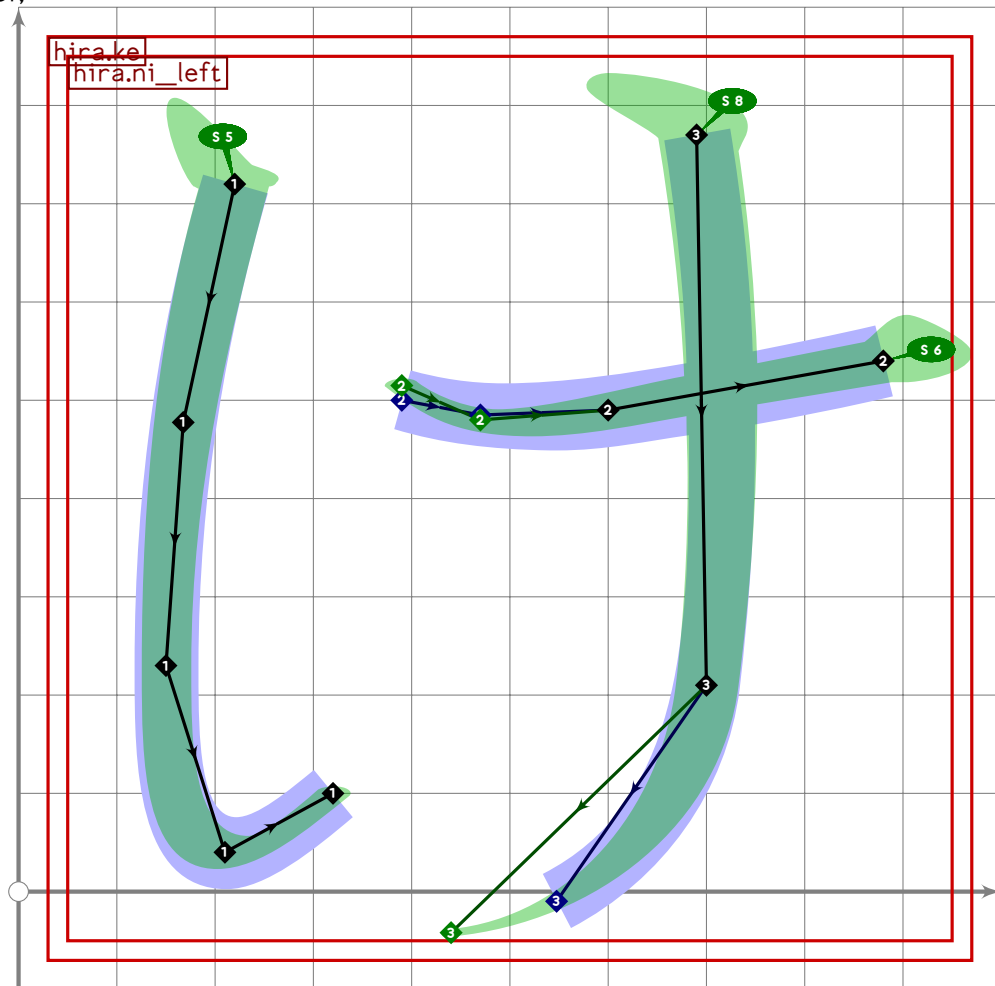
183
184 vardef hira.ku =
185   push_pbox_toexpand("hira.ku");
186

```

```

187 push_stroke((640,760)..(510,610)..(340,450)..
188     tension 0.75..(340,370)..(530,190)..(670,10),
189     (1,9)..(1,6)..(1,2)..(1,2)..(1,7)..(2,1));
190 set_boserif(0,0,5);
191 expand_pbox;
192 enddef;

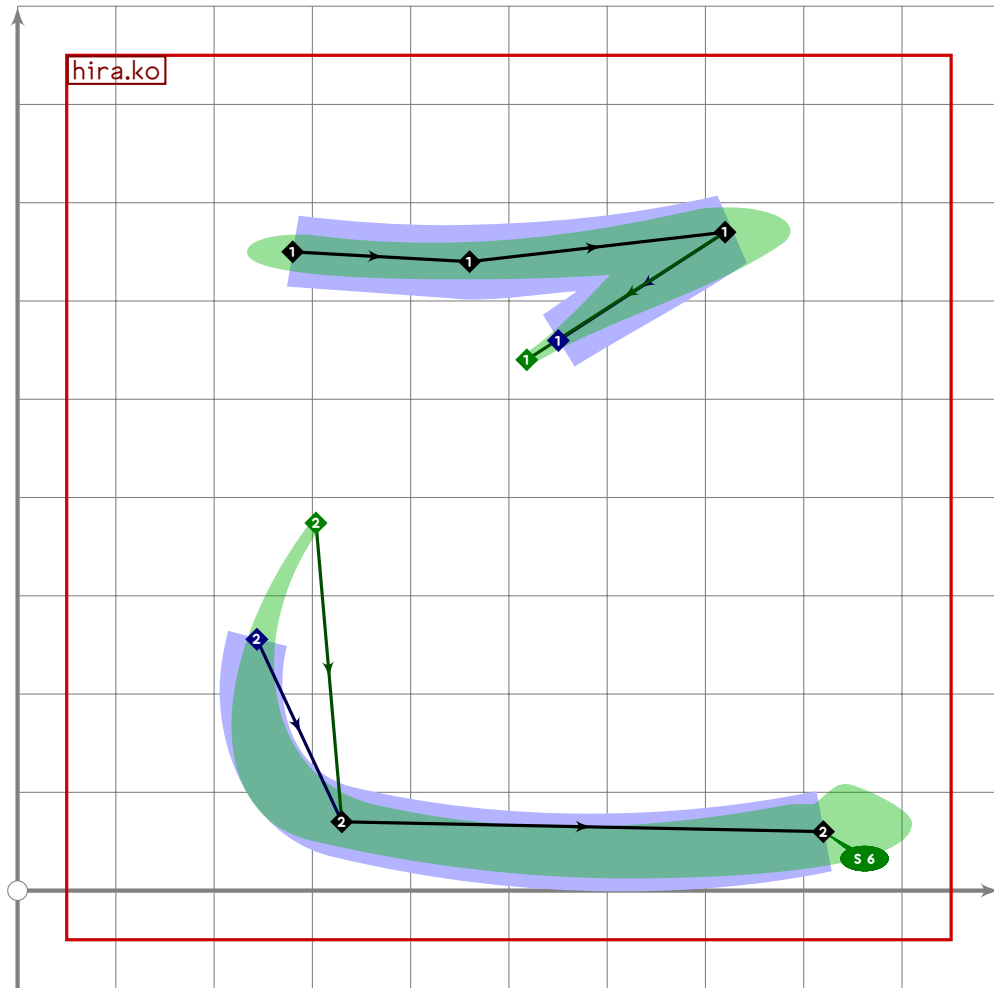
```



```

193
194 vardef hira.ke =
195     push_pbox_toexpand("hira.ke");
196
197     hira.ni_left;
198
199     push_stroke((390,500+15*mincho)..(470,485-5*mincho)..(600,490)..(880,540),
200     (1)..(1,4)..(1,8)..(2,2));
201     set_boserif(0,3,6);
202
203     push_stroke((690,770)..tension 2..(700,210)..(280,-10),
204     (1,6,1,6)-(1,4,1,4)-(0,6,0,6));
205     set_boserif(0,0,8);
206     expand_pbox;
207 enddef;

```



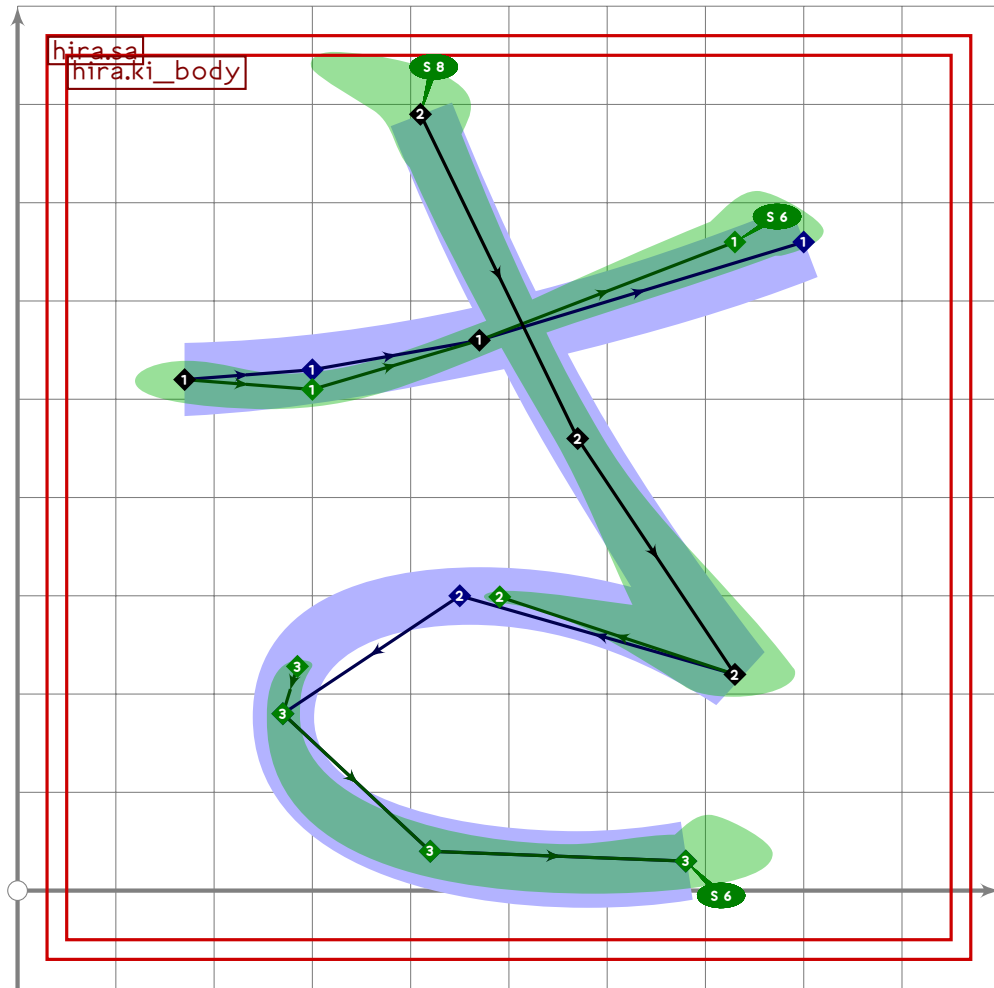
```

208
209 vardef hira.ko =
210   push_pbox_toexpand("hira.ko");
211
212   push_stroke((280,650)..(460,640)..{curl 1}(720,670){curl 1}..
213     (450,500)..(330,70)..tension 2.4..(820,60),
214     (1.8,1.8)-(1.9,1.9)-(2.3,2.3)-
215     (0.35,0.25)-(2.2,1.8)..(2.8,2.4));
216   set_botip(0,2,0);
217   set_boserif(0,5,6);
218   expand_pbox;
219 enddef;
220

```

## Hiragana Sashisuseso/Zajizuzezo

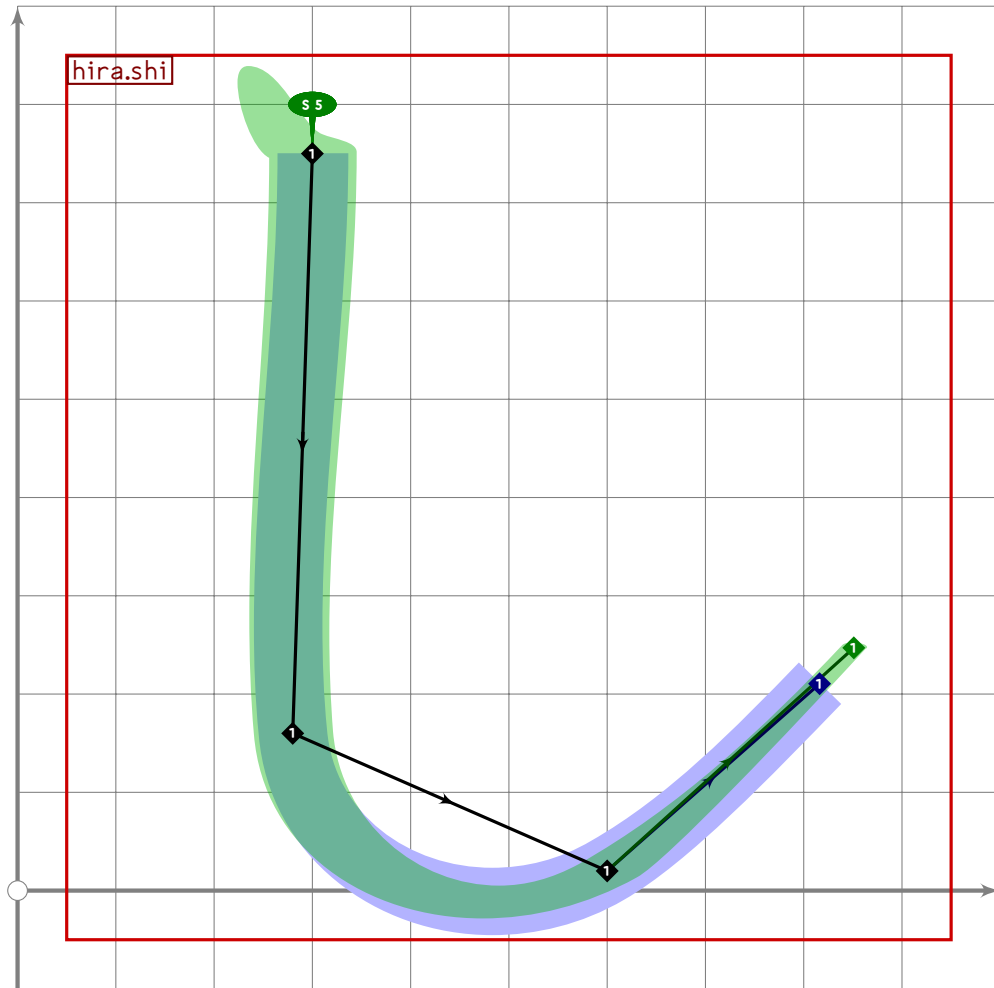
221 %%%%%%%%%% HIRAGANA SASHISUSES0/ZAJIZUZEZO



```

222
223 vardef hira.sa =
224   push_pbox_toexpand("hira.sa");
225
226   push_stroke((170,520)..(300,530-20*mincho)..(470,560)..(800-70*mincho,660),
227     (1.9,1.9)-(1.8,1.8)-(1.4,1.4)-(2.1,2.1));
228   set_boserif(0,3,6);
229
230   hira.ki_body;
231   expand_pbox;
232 enddef;

```

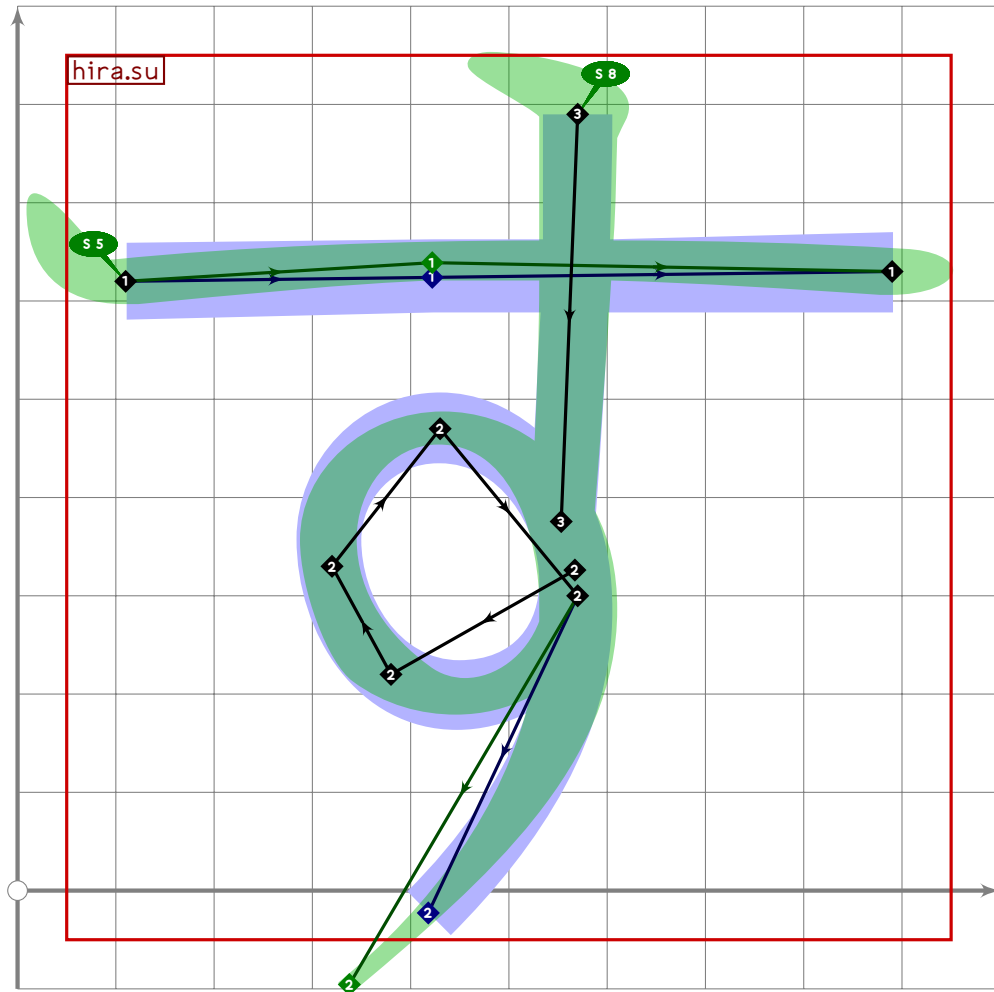


```

233
234 vardef hira.shi =
235   push_pbox_toexpand("hira.shi");
236
237   push_stroke((300,750){down}..tension 2.5..(280,160)..
238     (600,20)..tension 1.5.{curl 0}(990,400),
239     (1.7,1.7)..(1.6,1.6)-(1.5,1.5)-(0.4,0.55));
240   set_boserif(0,0,5);
241   expand_pbox;
242 enddef;

```

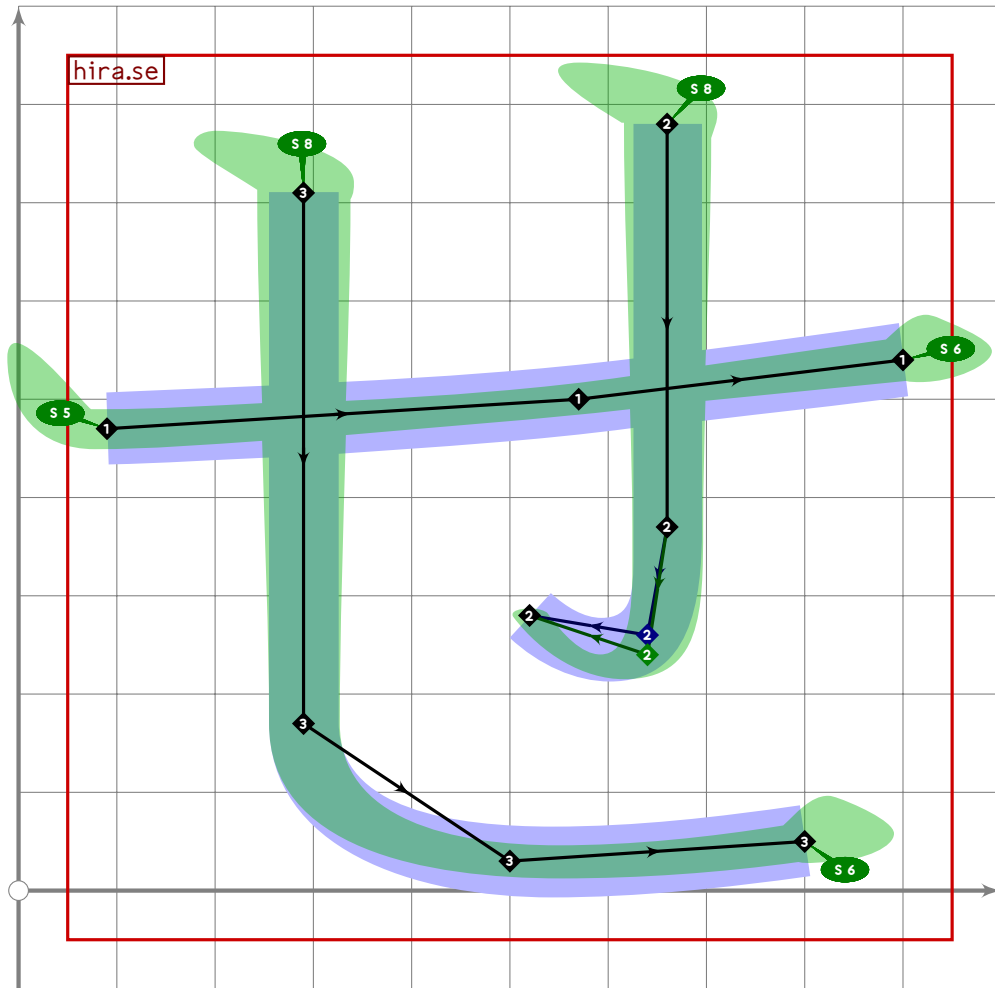




```

243
244 vardef hira.su =
245   push_pbox_toexpand("hira.su");
246
247   push_stroke((110,620)..(0.4[(110,620),(890,630)]+15*up*mincho)..(890,630),
248     (2.2,2.2)-(1.9,1.9)-(2.2,2.2));
249   set_boserif(0,0,5);
250
251   push_stroke((320,330)..(430,470)..(570,300)..{curl 0}(270,-150),
252     (1.3,1.3)-(1.7,1.7)-(1.3,1.3)-(1.7,1.7)-(1.6,1.6)-(0.7,0.7));
253   replace_stroke(0)((point 1.9 of oldp)..(380,220)..oldp);
254
255   push_stroke((570,790){down}..(point 3.7 of get_stroke(0)),
256     (1.6,1.6)..(1.4,1.4));
257   set_boserif(0,0,8);
258   expand_pbox;
259 enddef;

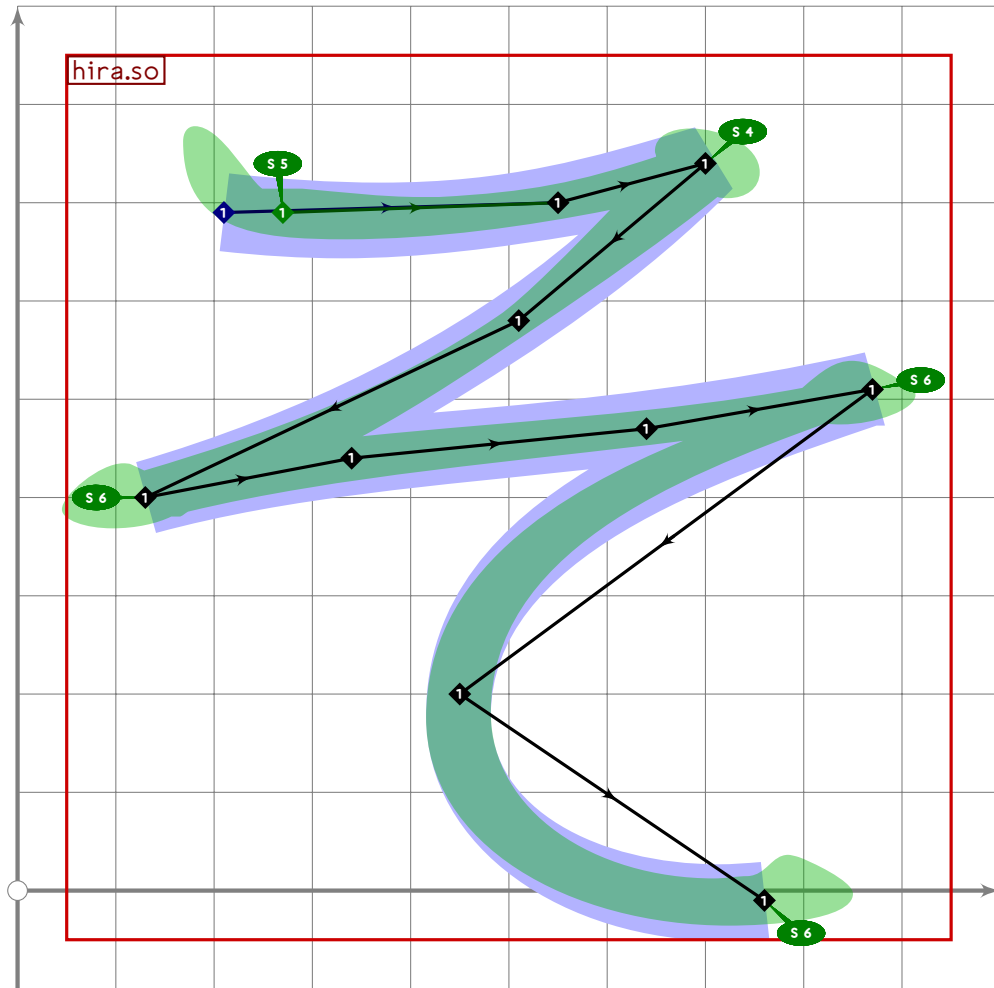
```



```

260
261 vardef hira.se =
262   push_pbox_toexpand("hira.se");
263
264   push_stroke((90,470)..(570,500)..(900,540),
265     (2,2)..(1.6,1.6)..(2,2));
266   set_boserif(0,0,5);
267   set_boserif(0,2,6);
268
269   push_stroke((660,780)..(660,370){down}..(640,260-20*mincho)..
270     {curl 0.2}(520,280),
271     (1.7,1.7)..(1.5,1.5)..(1.5,1.5)..(1,1));
272   set_boserif(0,0,8);
273
274   push_stroke((290,710)..(290,170){down}..(500,30)..
275     {direction infinity of get_strokep(-1)}(800,50),
276     (1.8,1.8)..(1.5,1.5)..(1.7,1.7)..(1.8,1.8));
277   set_boserif(0,0,8);
278   set_boserif(0,3,6);
279   expand_pbox;
280 enddef;

```



```

281
282 vardef hira.so =
283   push_pbox_toexpand("hira.so");
284
285   push_stroke(
286     (210+60*mincho,690)..tension 1.2..(550,700)..
287     {curl 0}{(700,740)}{curl 1}..
288     (510,580)..
289     {curl 1}{(130,400)}{curl 2}..(340,440)..(640,470)..
290     {curl 1}{(870,510)}{curl 0}..tension 1.2..(450,200)..{curl 0.2}{(760,-10),
291     (2.3,2.3)-(1.7,1.7)-(1.8,1.8)-
292     (1.2,1.2)-
293     (2.1,2.1)-(1.9,1.9)-(1.7,1.7)-(1.5,1.5)-
294     (1.4,1.4)-(2.3,2.3));
295   set_botip(0,2,0);
296   set_botip(0,4,0);
297   set_botip(0,7,0);
298   set_boserif(0,0,5);
299   set_boserif(0,2,4);
300   set_boserif(0,4,6);
301   set_boserif(0,7,6);

```

```

302 set_boserif(0,9,6);
303 expand_pbox;
304 endif;
305

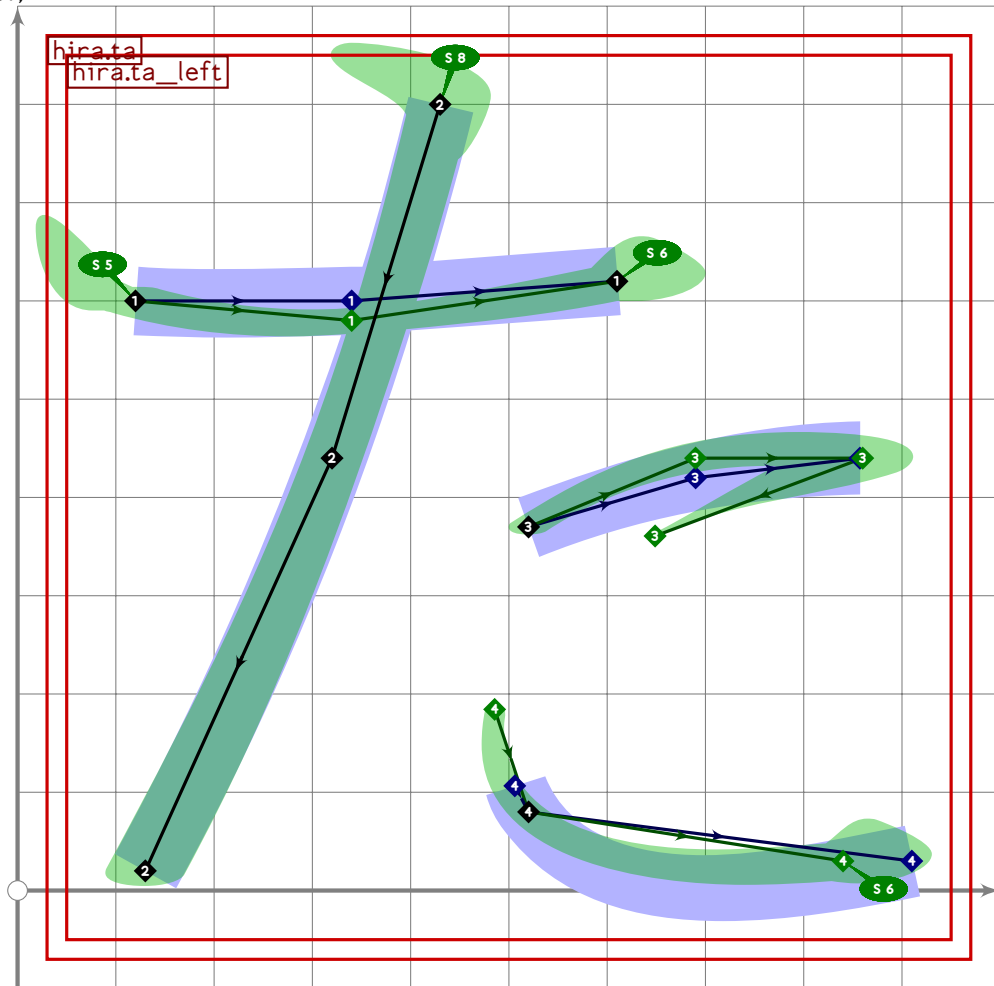
```

## Hiragana Tachitsuteto/Dajizudedo

```

306 %%%%%%%%%% HIRAGANA TACHITSUTETO/DAJIZUDEDO
307
308 vardef hira.ta_left =
309   push_pbox_toexpand("hira.ta_left");
310
311   push_stroke((120,600)..(340,600-20*mincho)..tension 1.5..(610,620),
312     (1.6,1.6)..(1.5,1.5)..(1.7,1.7));
313   set_boserif(0,0,5);
314   set_boserif(0,2,6);
315
316   push_stroke((430,800)..(320,440)..(130,20),
317     (1.4,1.4)..(1.3,1.3)..(1.6,1.6));
318   set_boserif(0,0,8);
319   expand_pbox;
320 endif;

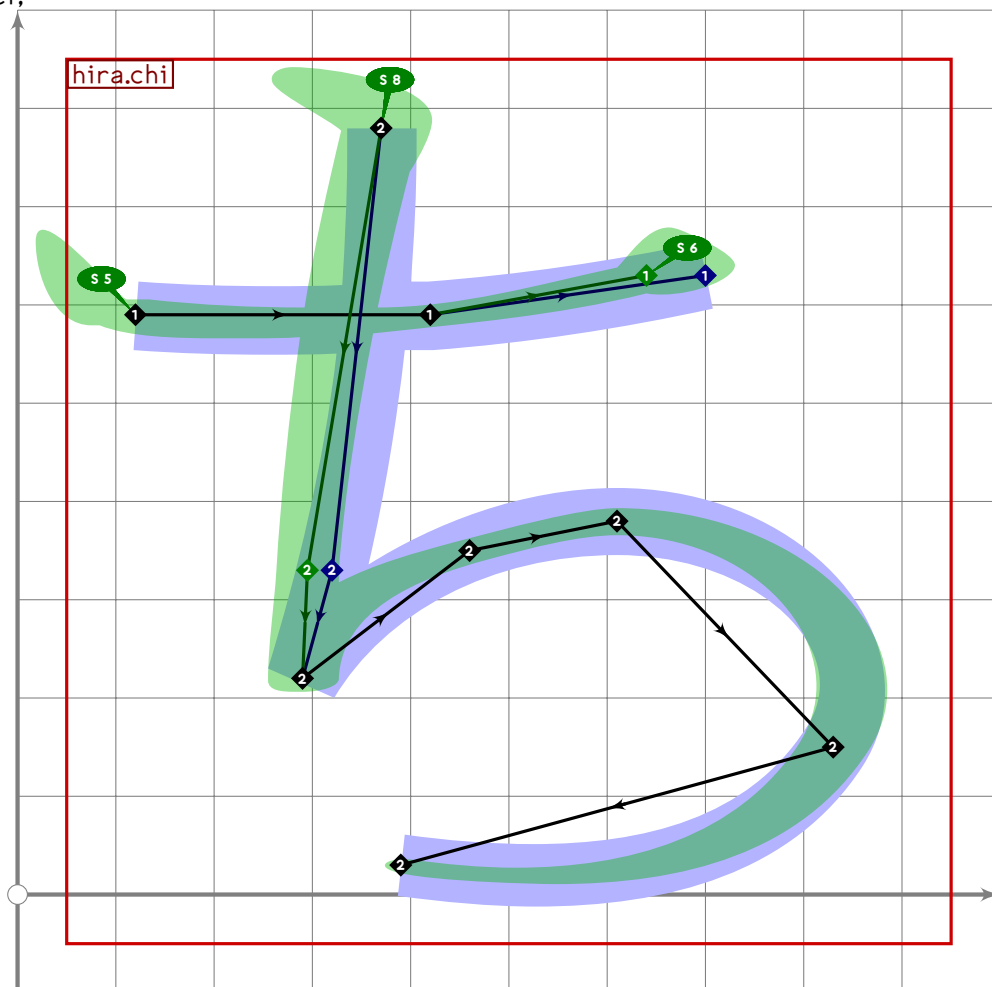
```



```

321
322 vardef hira.ta =
323   push_pbox_toexpand("hira.ta");
324
325   hira.ta_left;
326
327   push_stroke((520,370)..(690,420+20*mincho)..{curl 1.5}(860,440){curl 0}..
328     (610,280+60*mincho)..(520,80)..tension 1.2 and 3..
329     {curl 0.2}(910-70*mincho,30),
330     (1,1,1)-(1.6,1.6)-(2.8,0.99)-(0.45,0.35)-(1,1,1)-(1.9,1.9));
331   set_botip(0,2,0);
332   set_boserif(0,5,6);
333   expand_pbox;
334 enddef;
335
336 vardef hira.chi_bottom =
337   replace_stroke(0)((oldp){-direction infinity of oldp xscaled 2}..
338     (460,350)..(610,380){right}..(830,150)..
339     tension 14..{curl 0.3}(390,30));
340   replace_strokeq(0)((oldq)..(1,3,1,3)..(1,5,1,5)..(1,5,1,5)..(1,1));
341 enddef;

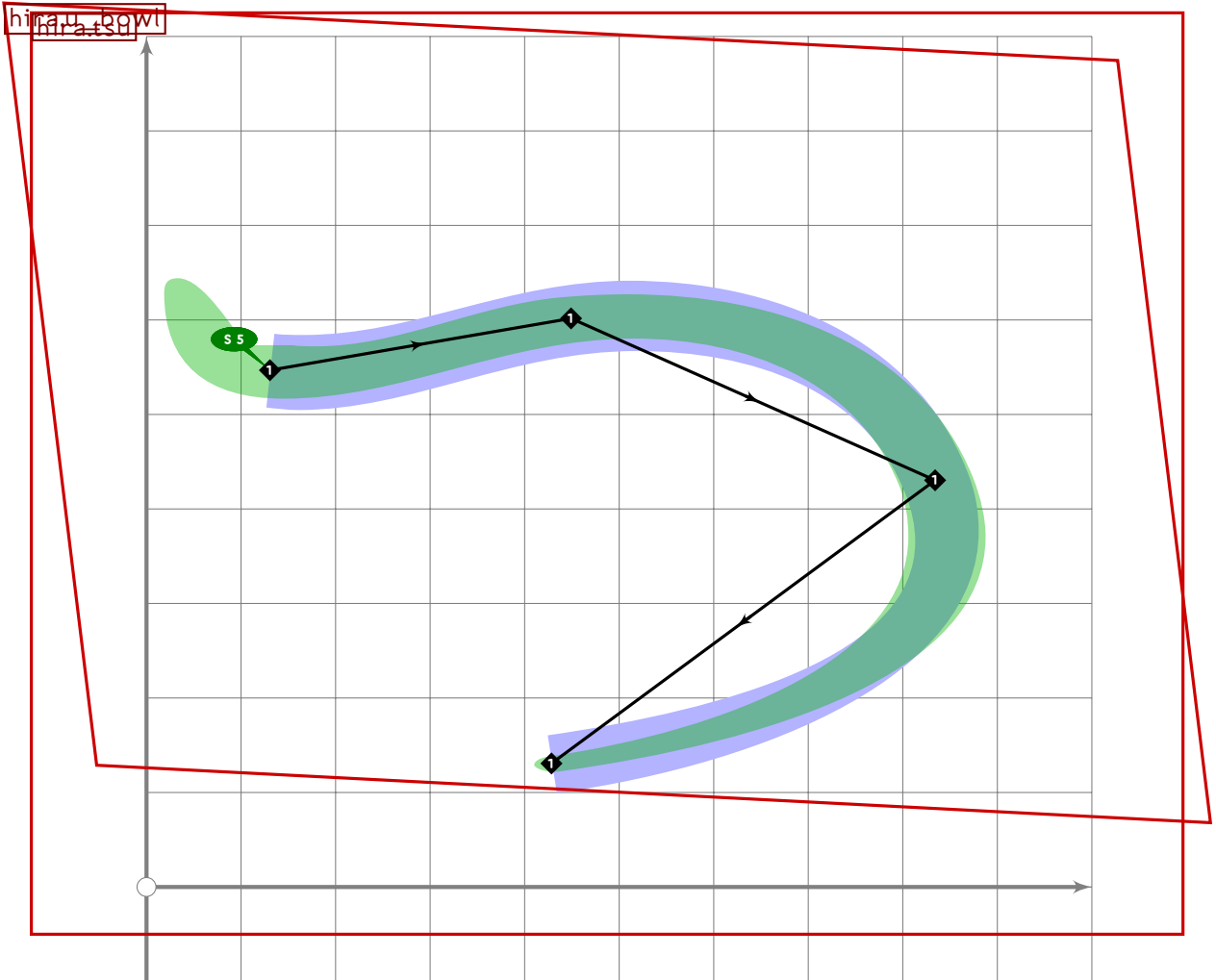
```



```

342
343 vardef hira.chi =
344   push_pbox_toexpand("hira.chi");
345
346   push_stroke((120,590)..(420,590)..(700-60*mincho,630),
347     (1.7,1.7)..(1.5,1.5)..(1.6,1.6));
348   set_boserif(0,0,5);
349   set_boserif(0,2,6);
350
351   push_stroke((370,780)..(320-25*mincho,330)..(290,220),
352     (1.6,1.6)..(1.4,1.4)..(1.5,1.5));
353   hira.chi_bottom;
354   set_botip(0,2,0);
355   set_boserif(0,0,8);
356   expand_pbox;
357 endif;

```



```

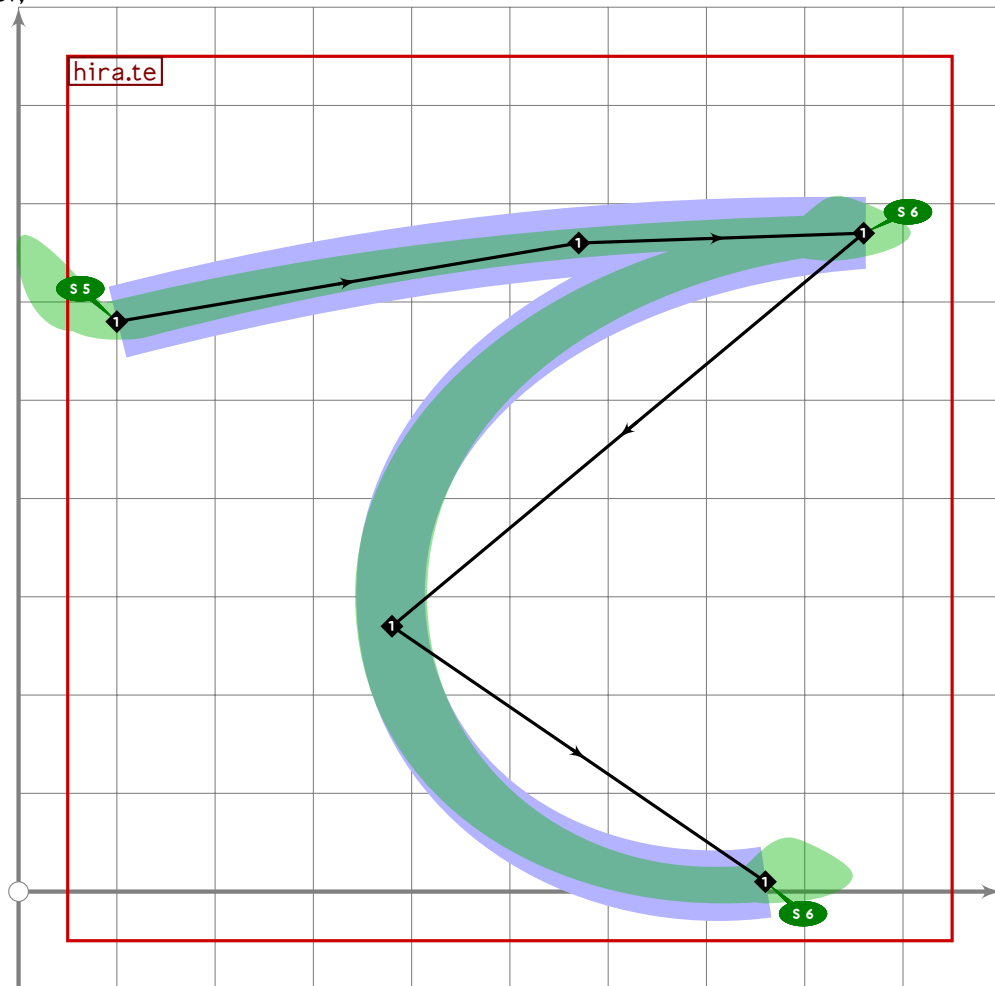
358
359 vardef hira.tsu =
360   push_pbox_toexpand("hira.tsu");
361

```

```

362 begingroup
363   save xf;
364   transform xf;
365   (300,450) transformed xf=(220,560);
366   (750,350) transformed xf=(820,440);
367   (400,0) transformed xf=(400,150);
368   tsu_xform(xf)(hira.u_bowl);
369   set_bosize(0)(100+10*mincho);
370 endgroup;
371 expand_pbox;
372 enddef;

```



```

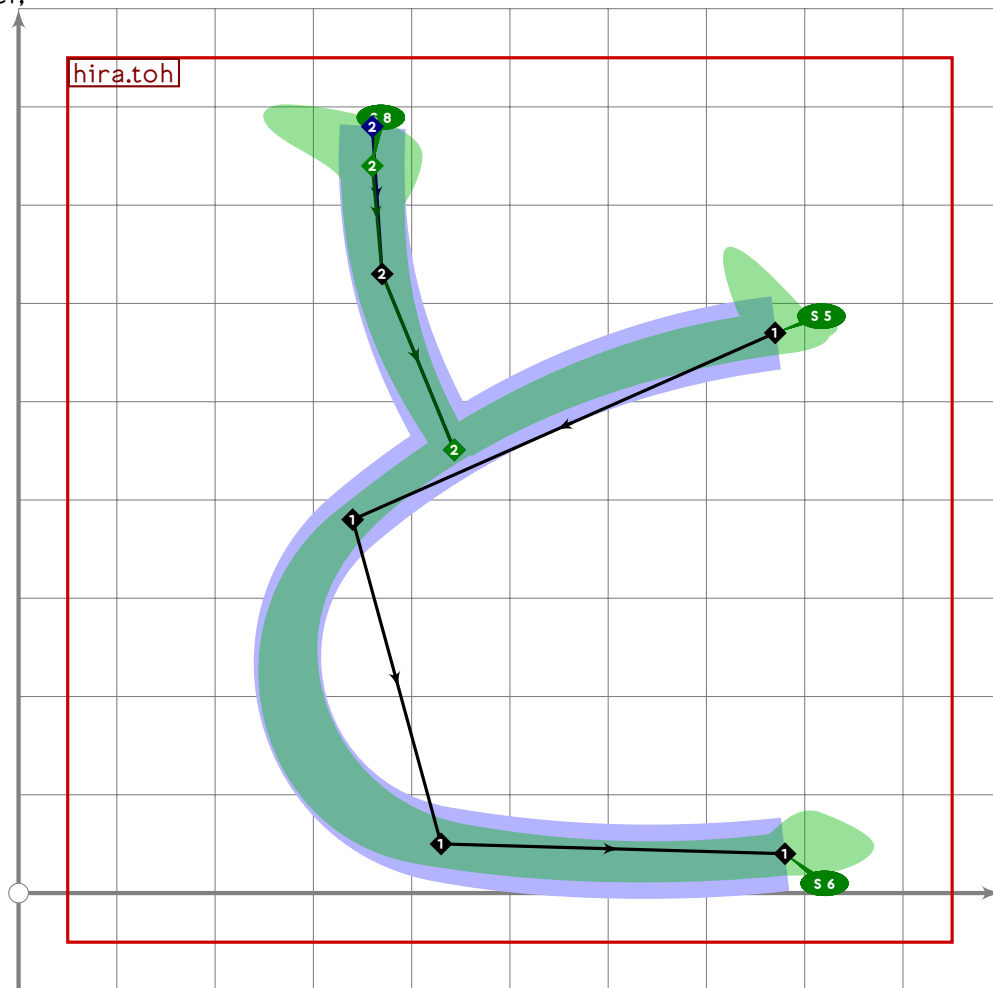
373
374 vardef hira.te =
375   push_pbox_toexpand("hira.te");
376
377   push_stroke((100,580)..(570,660)..{curl 1}(860,670){curl 0.2}..
378     (380,270)..{curl 0.6}(760,10),
379     (19,19)-(1.5,1.5)-(1.8,1.8)-(1.5,1.5)-(1.8,1.8));
380   set_botip(0,2,0);
381   set_boserif(0,0,5);
382   set_boserif(0,2,6);

```

```

383 set_boserif(0,4,6);
384 expand_pbox;
385 enddef;

```



```

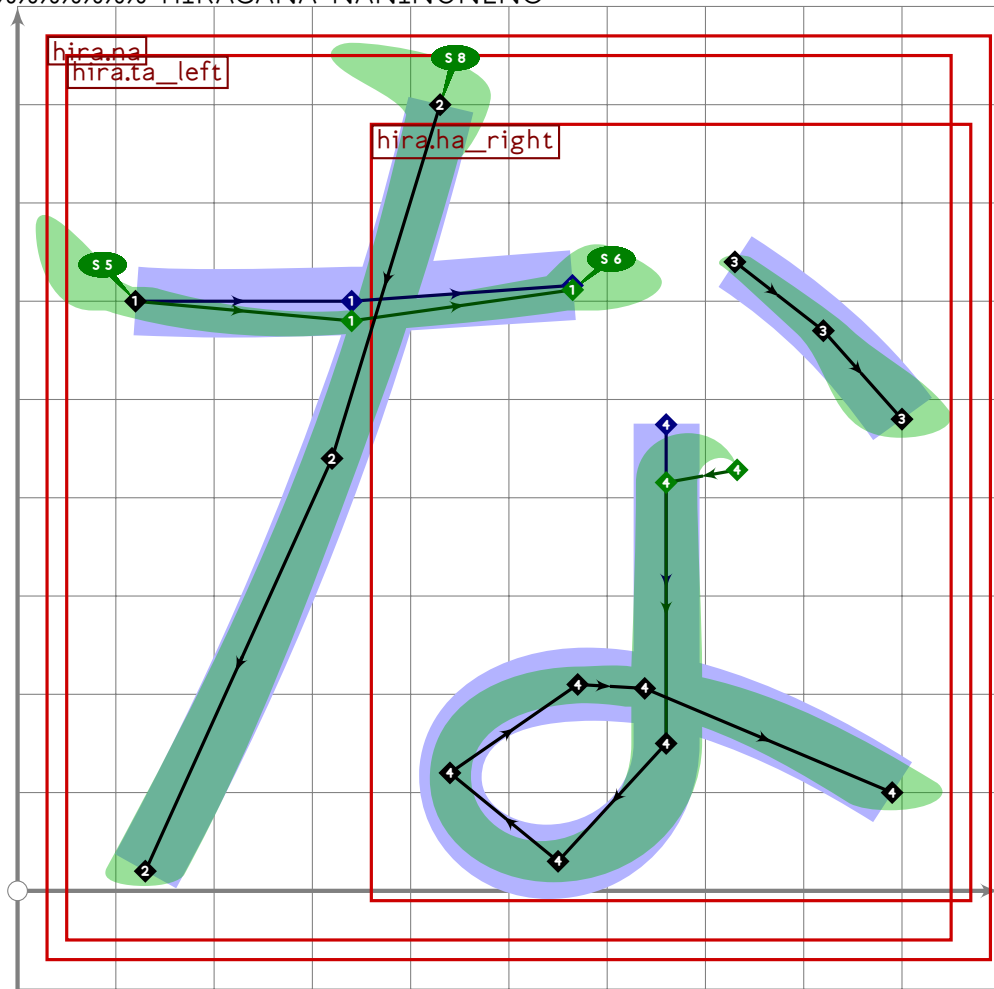
386
387 vardef hira.toh =
388   push_pbox_toexpand("hira.toh");
389
390   push_stroke((770,570)..tension 1.7..(340,380)..(430,50)..
391     tension 2..(780,40),
392     (2,2)-(1.2,1.2)-(2.1,2.1)-(2,2));
393   set_boserif(0,0,5);
394   set_boserif(0,3,6);
395
396   push_stroke(subpath (0,1,97) of
397     ((360,780-40*mincho)..(370,630)..(point 0.7 of get_strokep(0))),
398     (1.4,1.4)-(1.3,1.3)-(1.1,1.1));
399   set_boserif(0,0,8);
400   expand_pbox;
401 enddef;
402

```



# Hiragana Naninuneno

403 %%%%%%%%% HIRAGANA NANINUNENO



```

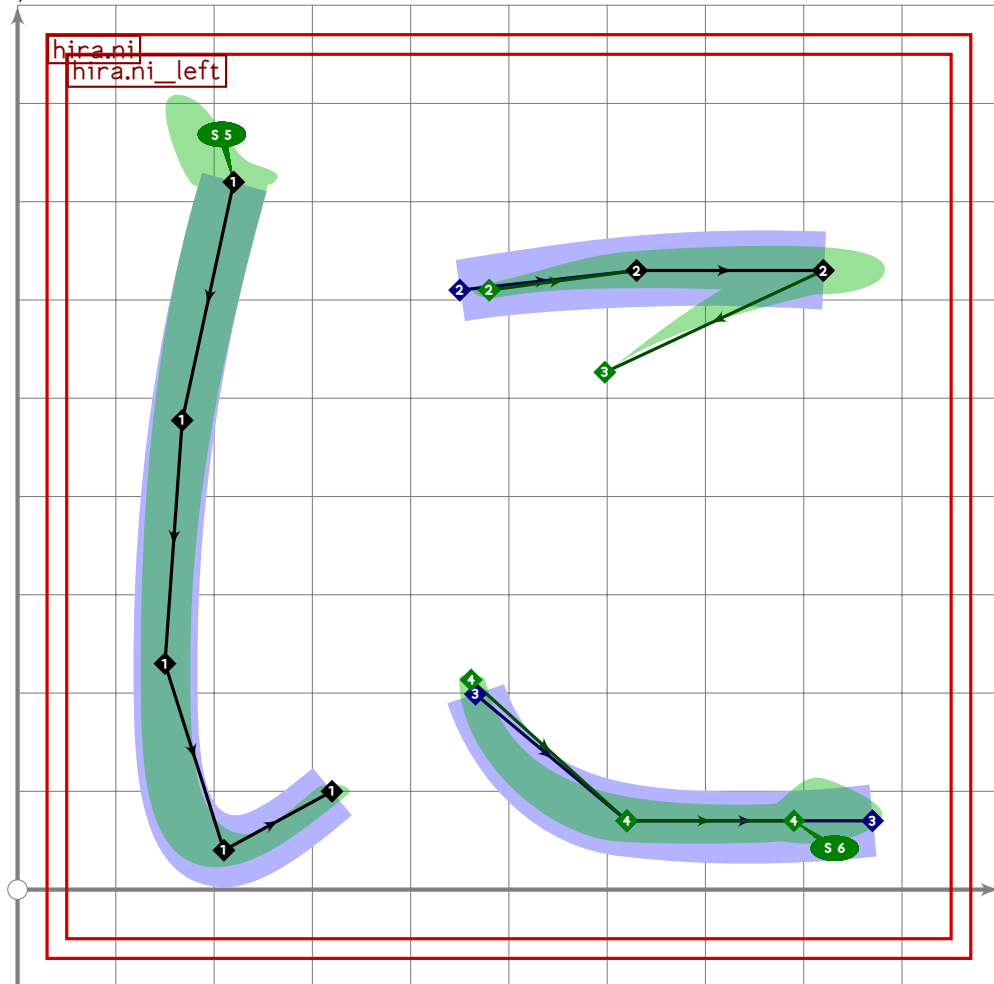
404
405 vardef hira.na =
406   push_pbox_toexpand("hira.na");
407
408   hira.ta_left;
409   replace_stroke(-1)(subpath (0,1,8) of oldp);
410
411   push_stroke((730,640)..(820,570)..(900,480),
412     (1,1)..(1,3,1,3)..(1,9,1,9));
413
414   hira.ha_right;
415
416   replace_stroke(0)((point infinity of oldp){-direction infinity of oldp}
417     ..(subpath (0.45+0.1*mincho,infinity) of oldp));
418   replace_strokeq(0)((0,-0.4)-(1,7,1)-(1,5,1,5)-(2,2)-
419     (1,1,1,1)-(1,9,1,9));
420   expand_pbox;
421 enddef;
422

```

```

423 vardef hira.ni_left =
424   push_pbox_toexpand("hira.ni_left");
425
426   push_stroke((220,720)..(150,230){down}..tension 1.5..(210,40)..
427     tension 1.5..{curl 0}(320,100),
428     (1.5,1.5)..(1.2,1.2)..(1.8,1.8)..(1,1));
429   replace_strokep(0)(insert_nodes(oldp)(0.5));
430   replace_strokeq(0)(insert_nodes(oldq)(0.5));
431   set_boserif(0,0,5);
432   expand_pbox;
433 enddef;

```



```

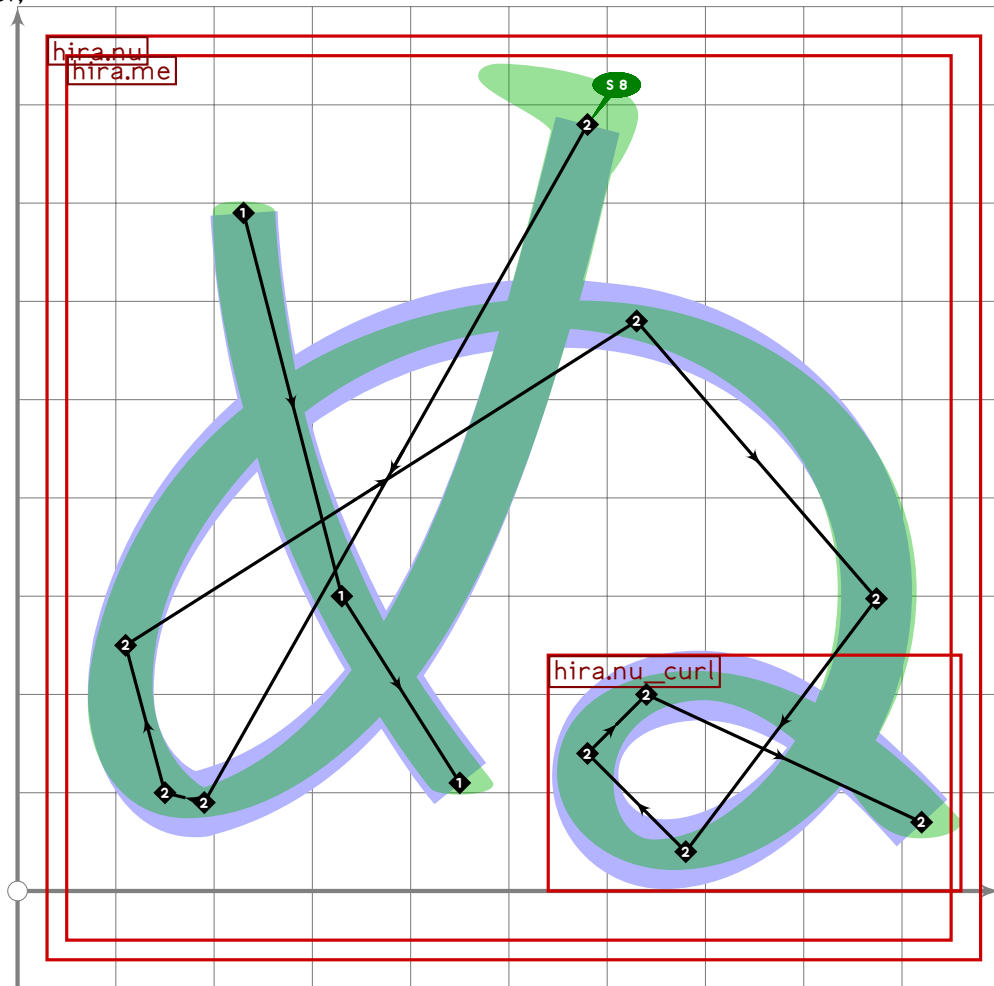
434
435 vardef hira.ni =
436   push_pbox_toexpand("hira.ni");
437
438   hira.ni_left;
439
440   push_stroke((450+30*mincho,610)..(630,630)..(820,630),
441     (1,1)..(1.9,1.9)..(2.2,2.2));
442
443   push_stroke((point infinity of get_strokep(0)){curl 0.6}..(530,460)..

```

```

444     (460,220)..(620,70)..tension 2..(870-80*mincho,70),
445     (3,0.7)-(0,0)-(0.8,0.9)-(2,2)-(1.9,1.9));
446     set_boserif(0,4,6);
447     expand_pbox;
448 enddef;
449
450 vardef hira.nu_curl =
451     begingroup
452     push_pbox_explicit("hira.nu_curl";
453     identity xyscaled (420,240) shifted (540,0));
454     (680,40)..(580,140)..(640,200)..{curl 0}(920,70)
455     endgroup
456 enddef;

```



```

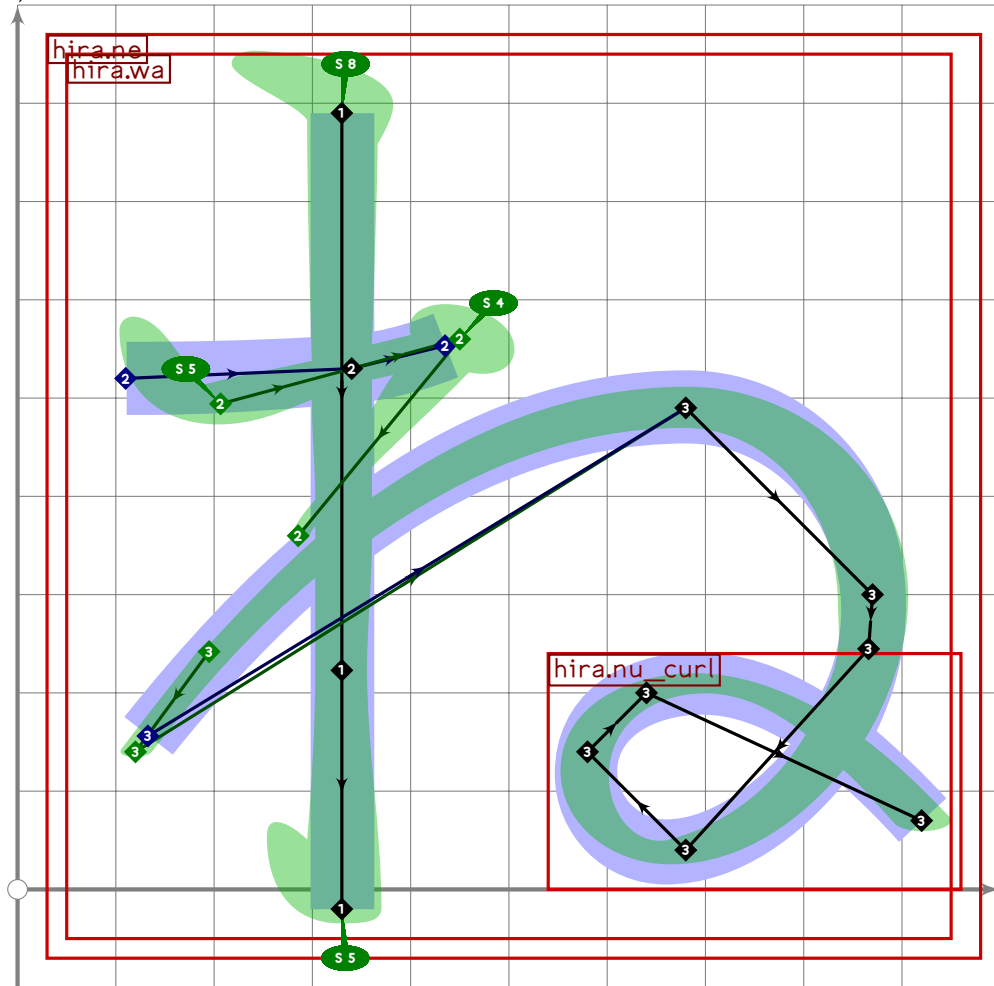
457
458 vardef hira.nu =
459     push_pbox_toexpand("hira.nu");
460
461     hira.me;
462
463     replace_strokep(0)((subpath (0,4.8) of oldp)..tension 1.2..
464     hira.nu_curl);

```

```

465 replace_strokeq(0)((1.5,1.5)-(1.4,1.4)-(1.6,1.6)-(1.4,1.4)-
466 (1.6,1.6)-(1.6,1.6)-(1.7,1.7)-(1.3,1.3)-(1.6,1.6));
467 set_boserif(0,0,8);
468 expand_pbox;
469 enddef;

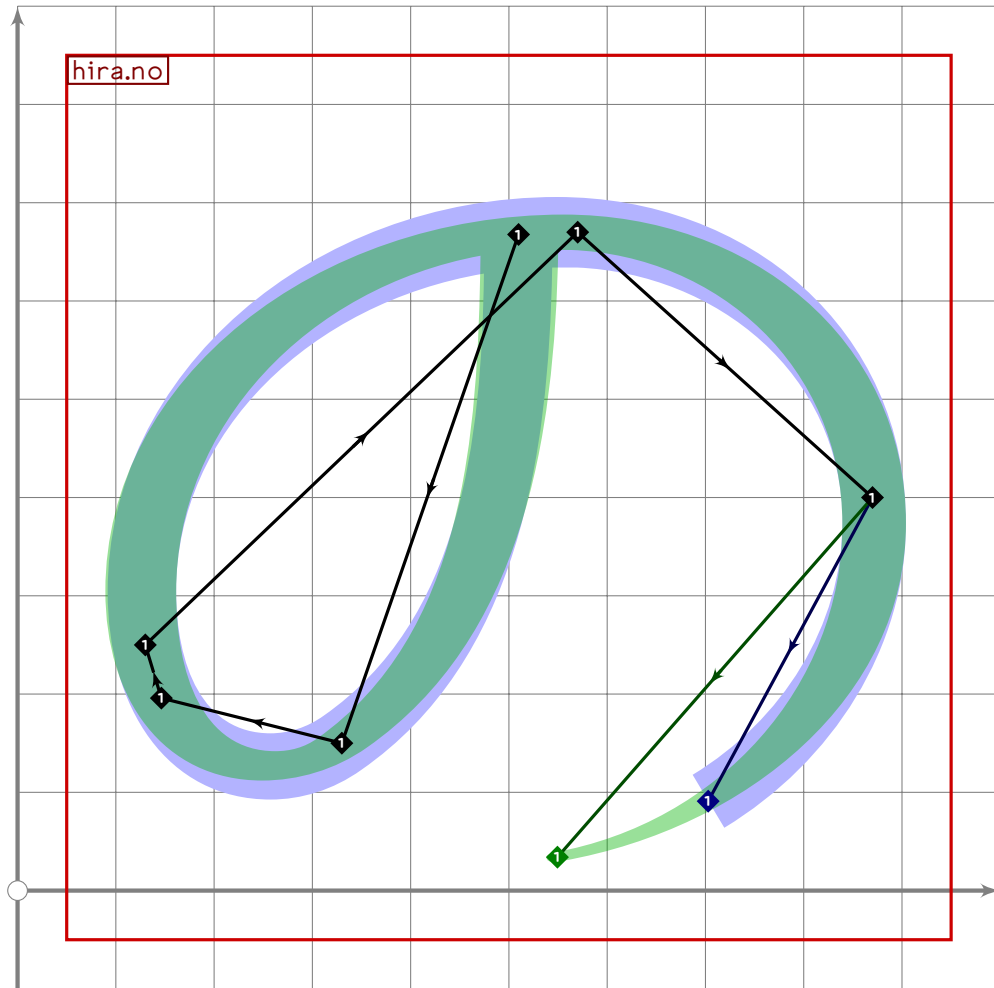
```



```

470
471 vardef hira.ne =
472   push_pbox_toexpand("hira.ne");
473
474   hira.wa;
475
476   replace_strokeq(0)((subpath (0,6,1) of oldp)..tension 1.2..
477     hira.nu_curl);
478   replace_strokeq(0)((2,2)-(1.6,1.6)-(2.2,0.9)-(0.70,7)-(0.97,0.97)-
479     (2,2)-(1.5,1.5)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(1.3,1.3));
480   expand_pbox;
481 enddef;

```



```

482
483 vardef hira.no =
484   push_pbox_toexpand("hira.no");
485
486   begingroup
487     save px,py;
488     path px,py;
489     px:=(410,30)..(130,250)..tension 11..(570,670)..(870,400)..cycle;
490     py:=(510,770){down}{dir 215}(330,150);
491
492     px:=subpath (0.85,4) of px;
493     push_stroke(
494       (subpath (xpart (py intersectiontimes px),infinity) of py)..px,
495       (1.6,1.6)-(1.3,1.3)-(1.4,1.4)-(1.5,1.5)-(1.8,1.8)-
496       (1.4,1.4)-(0.7,0.7));
497   endgroup;
498   expand_pbox;
499 enddef;
500

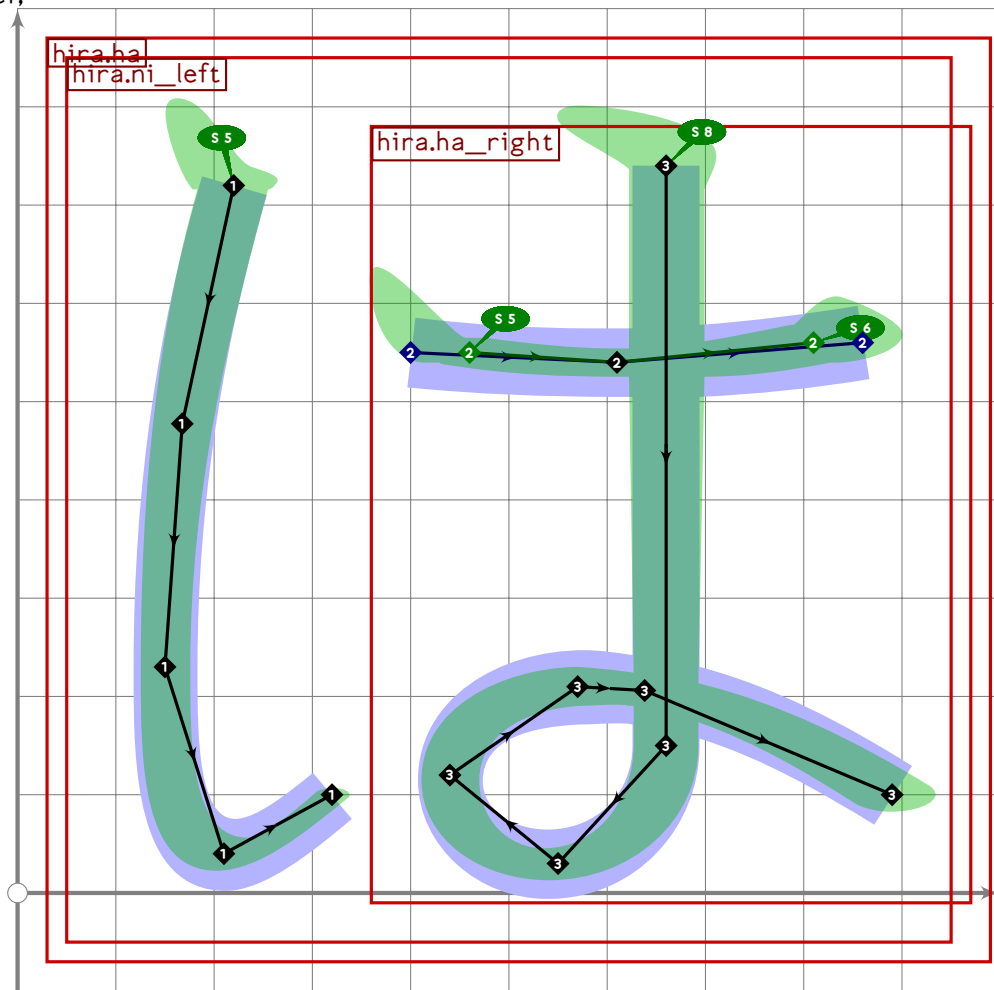
```

# Hiragana Hahifuheho/Babibubebo/Papipupepo

```

501 %%%%%%%%%% HIRAGANA HAHIFUHEHO/BABIBUBEBO/PAPIPUPEPO
502
503 vardef hira.ha_right =
504   push_pbox_explicit("hira.ha_right",
505     identity xyscaled (610,790) shifted (360,-10));
506
507   push_stroke(insert_nodes((660,740)..(660,150){down}..(550,30)..(440,120)..
508     (570,210)..{curl 0.17}(890,100))(4.2),
509     (1.6,1.6)-(1.4,1.4)-(1.6,1.6)-(1.3,1.3)-
510     (2,2)-(1.6,1.6)-(1.7,1.7));
511 enddef;

```



```

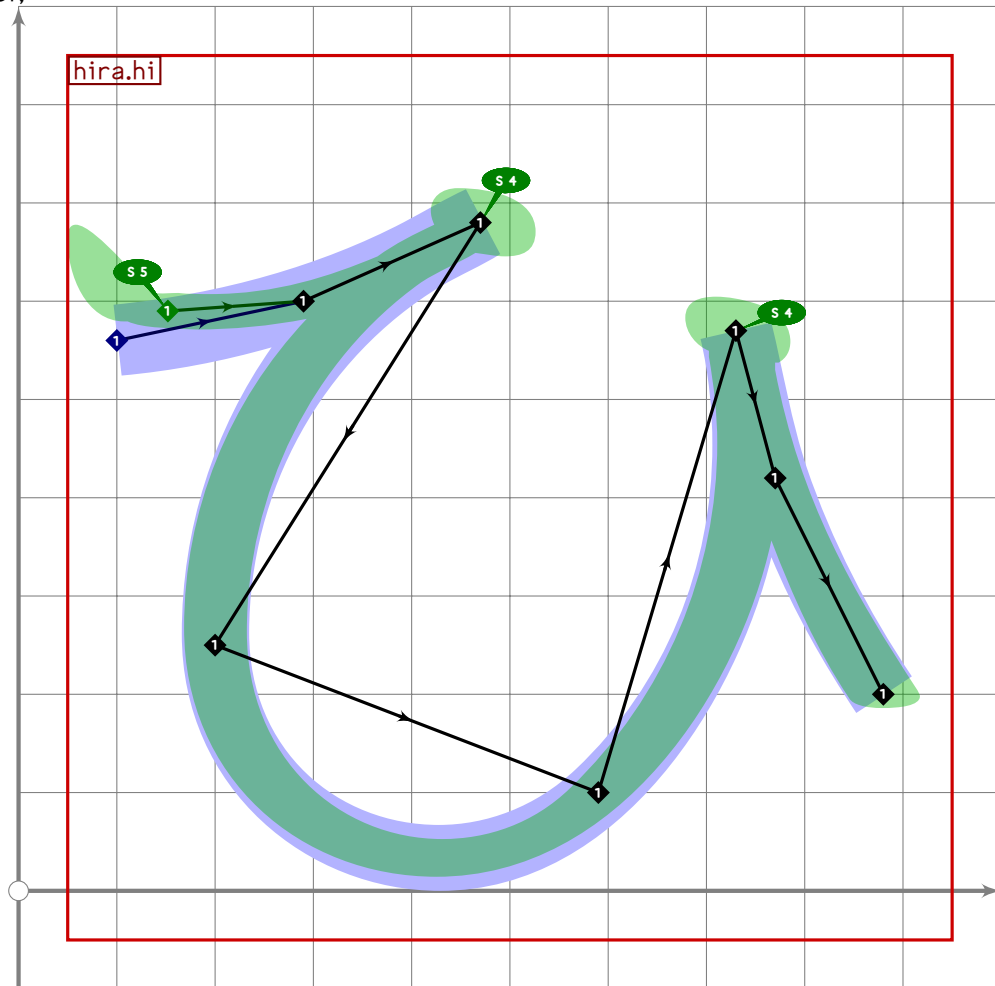
512
513 vardef hira.ha =
514   push_pbox_toexpand("hira.ha");
515
516   hira.ni_left;
517
518   push_stroke((400+60*mincho,550)..(610,540)..(860-50*mincho,560),
519     (1.6,1.6)..(1.6,1.6)..(2,2));

```

```

520 set_boserif(0,0,5);
521 set_boserif(0,2,6);
522
523 hira.ha_right;
524 set_boserif(0,0,8);
525 expand_pbox;
526 enddef;

```



```

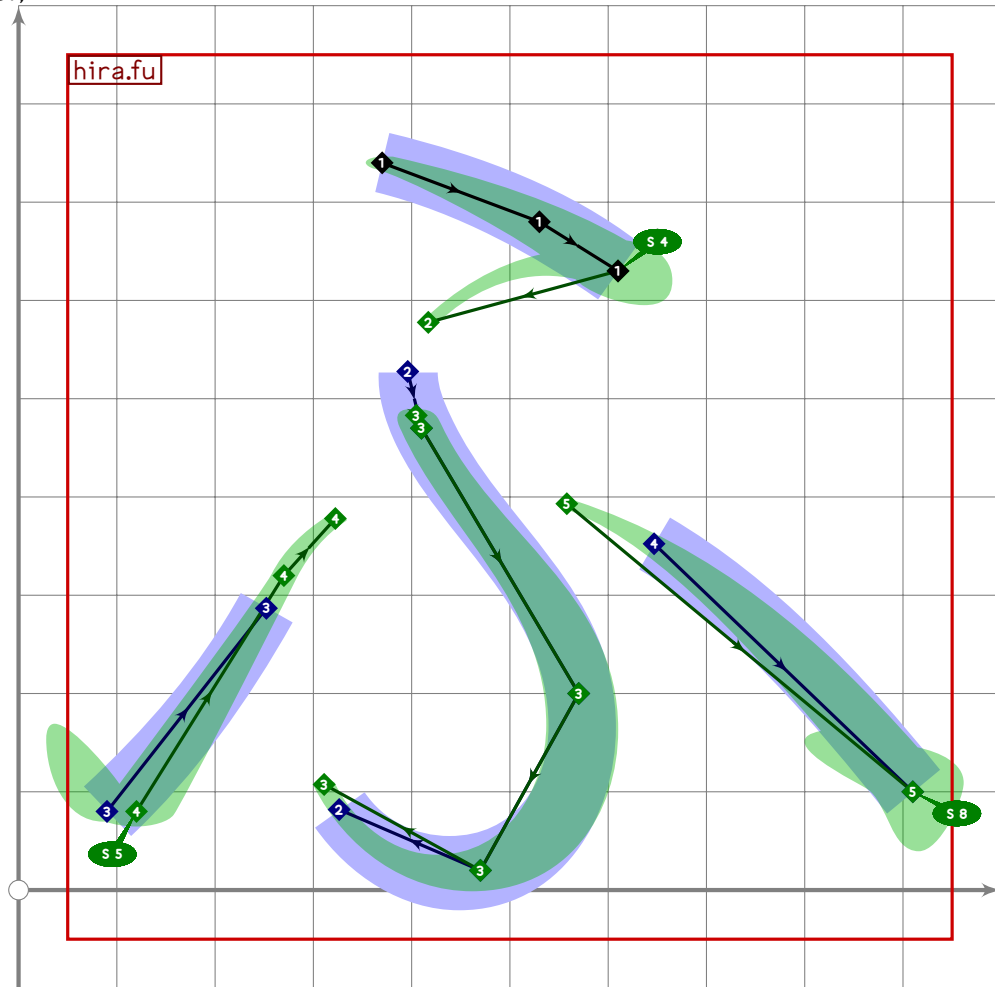
527
528 vardef hira.hi =
529   push_pbox_toexpand("hira.hi");
530
531   push_stroke(((100,560)+60*mincho*dir 30)..(290,600)..
532     {curl 1}(470,680){curl 1}..
533     tension 1.3..(200,250)..(590,100)..tension 1.3..
534     {curl 1}(730,570){curl 1}..(770,420)..(880,200),
535     (1.8,1.8)-(1.7,1.7)-(1.5,1.5)-
536     (1.4,1.4)-(1.4,1.4)-(1.4,1.4)-(1.3,1.3)-(1.5,1.5));
537   set_botip(0,2,0);
538   set_botip(0,5,0);
539   set_boserif(0,0,5);
540   set_boserif(0,2,4);

```

```

541 set_boserif(0,5,4);
542 expand_pbox;
543 endif;

```



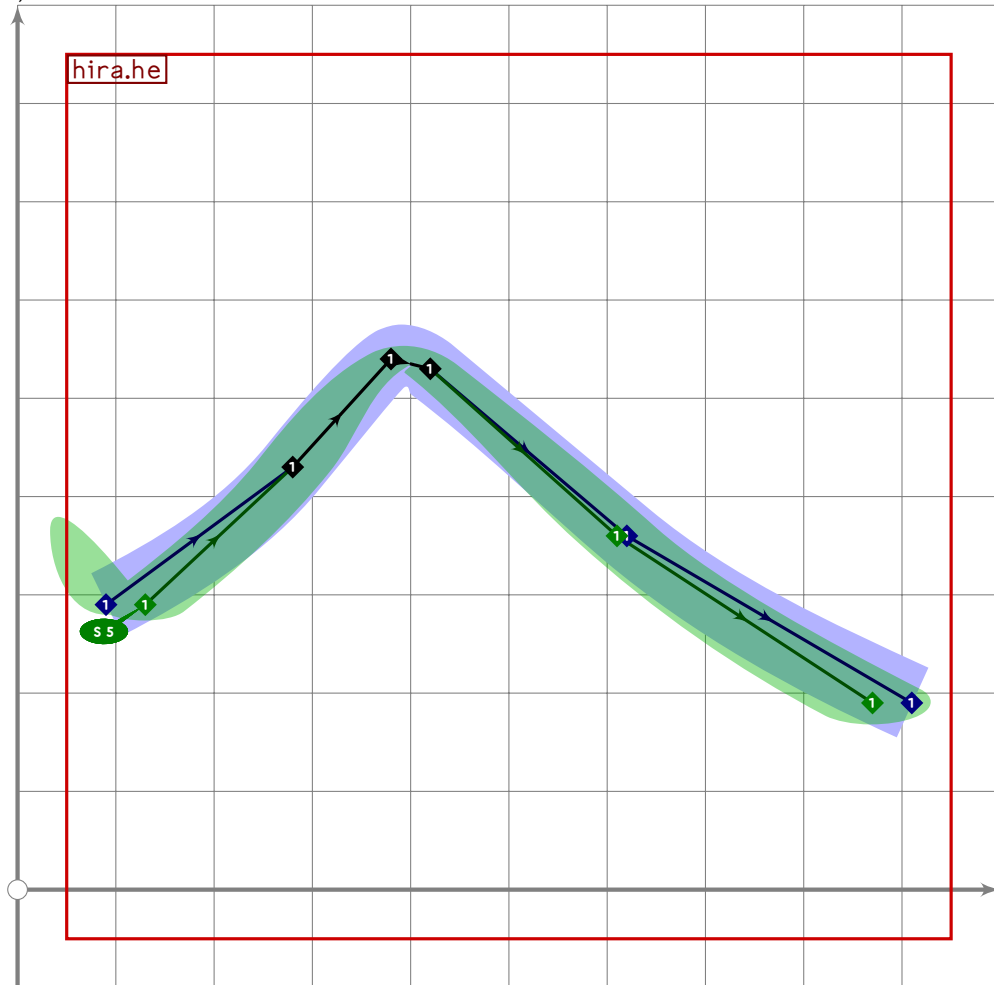
```

544
545 vardef hira.fu =
546   push_pbox_toexpand("hira.fu");
547
548   push_stroke((370,740)..(530,680)..(610,630),
549     (1,1)-(1.7,1.7)-(1.8,1.8));
550   set_boserif(0,2,4);
551
552   push_stroke((610,630)..tension 14..(410,570)..(410,470)..
553     (570,200)..(470,20)..{curl 0.3}(290,270),
554     (2.6,0.79)-(0.72,0.72)-(0.85,1.35)-(1.5,1.5)-(2,2)-(0,0));
555
556   push_stroke((90+30*mincho,80)..(270,320){dir 63}..(480,410)..
557     {curl 0}(910,100),
558     (1.4,1.7)-(0.9,0.9)-(0.7,0.7)-(1.6,1.6));
559   set_boserif(0,0,5);
560   set_boserif(0,3,8);
561   expand_pbox;

```



562 enddef;



563

564 vardef hira.he =

565 push\_pbox\_toexpand("hira.he");

566

567 push\_stroke((90+40\*mincho,290){curl 0.2}..(280,430)..tension 2..(380,540)..

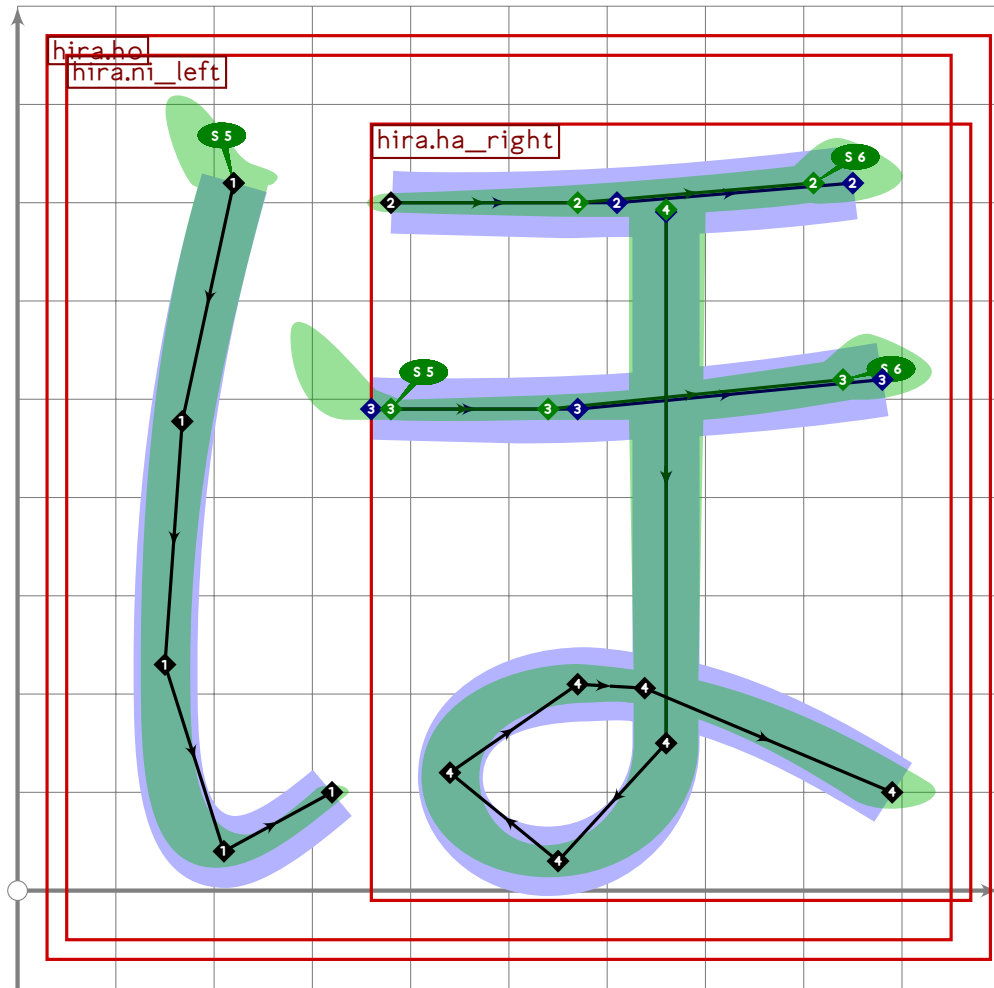
568 (420,530)..tension 2..(620-10\*mincho,360)..{curl 0.2}(910-40\*mincho,190),

569 (1.7,1.7)..(1.6,1.6)..(1.2,1.2)..(1.3,1.3)..(1.7,1.7)..(2.1,2.1));

570 set\_boserif(0,0,5);

571 expand\_pbox;

572 enddef;



```

573
574 vardef hira.ho =
575   push_pbox_toexpand("hira.ho");
576
577   hira.ni_left;
578
579   push_stroke((380,700)..(610-40*mincho,700)..(850-40*mincho,720),
580     (1,2,1,2)..(1,6,1,6)..(1,9,1,9));
581   set_boserif(0,2,6);
582
583   push_stroke((360+20*mincho,490)..(570-30*mincho,490)..(880-40*mincho,520),
584     (1,2,1,2)..(1,5,1,5)..(2,2,2));
585   set_boserif(0,0,5);
586   set_boserif(0,2,6);
587
588   hira.ha_right;
589   replace_strokep(0)(subpath
590     (xpart (oldp intersectiontimes get_strokep(-2))+0.02,infinity) of oldp);
591   expand_pbox;
592 enddef;
593

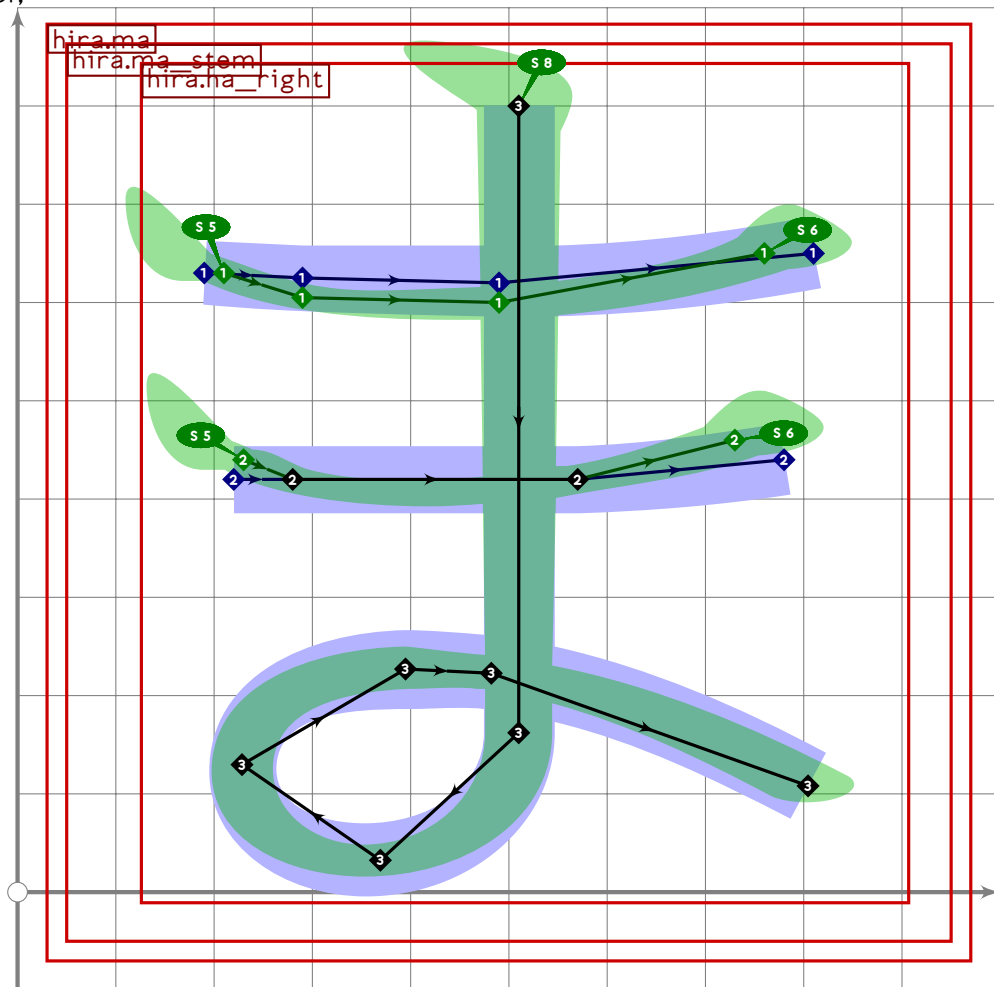
```

# Hiragana Mamimumemo

```

594 %%%%%%%%%% HIRAGANA MAMIMUMEMO
595
596 vardef hira.ma_stem =
597   push_pbox_toexpand("hira.ma_stem");
598
599   begingroup
600     transform xf;
601
602     (660,0) transformed xf = (510,0);
603     (660,740) transformed xf = (510,800);
604     (910,0) transformed xf = (830,0);
605
606     tsu_xform(xf)(hira.ha_right);
607     set_boserif(0,0,8);
608   endgroup;
609   expand_pbox;
610 enddef;

```



```

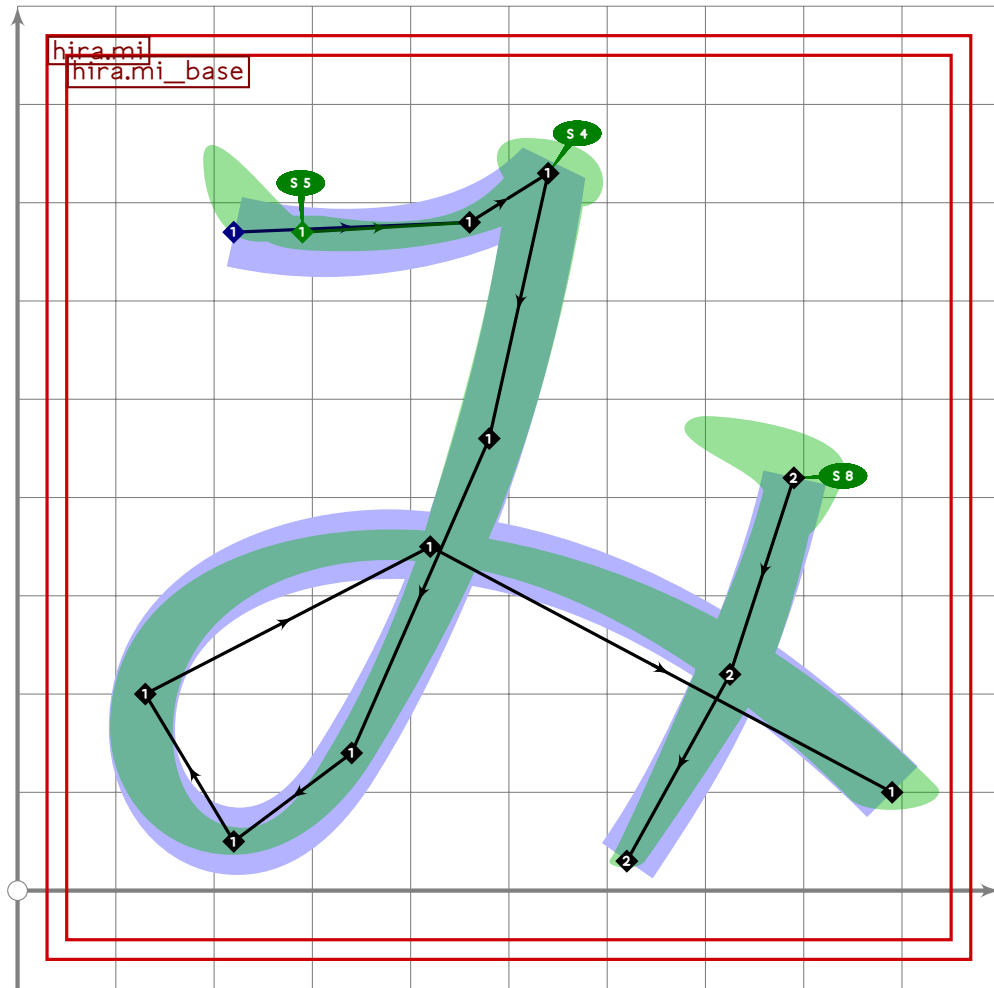
611
612 vardef hira.ma =

```

```

613 push_pbox_toexpand("hira.ma");
614
615 push_stroke((190+20*mincho,630)..(290,625-20*mincho)..tension 1.3..
616 (490,620-20*mincho)..(810-50*mincho,650),
617 (1.3,1.3)-(1.4,1.4)-(1.7,1.7)-(1.9,1.9));
618 set_boserif(0,0,5);
619 set_boserif(0,3,6);
620
621 push_stroke((220+10*mincho,420+20*mincho)..(280,420)..tension 1.3..
622 (570,420)..(780-50*mincho,440+20*mincho),
623 (1.3,1.3)-(1.3,1.3)-(1.6,1.6)-(1.8,1.8));
624 set_boserif(0,0,5);
625 set_boserif(0,3,6);
626
627 hira.ma_stem;
628 expand_pbox;
629 endif;
630
631 vardef hira.mi_base =
632 push_pbox_toexpand("hira.mi_base");
633
634 push_stroke(
635 (220+70*mincho,670)..tension 1.3..(460,680)..
636 {curl 1}(540,730){curl 1}..
637 (480,460)..(340,140)..(220,50)..(130,200)..(420,350)..
638 {curl 0.4}(890,100),
639 (1.7,1.7)-(1.3,1.3)-(1.6,1.6)-
640 (1.5,1.5)-(1.2,1.2)-(1.5,1.5)-(1.4,1.4)-(1.6,1.6)-
641 (1.8,1.8));
642 set_botip(0,2,0);
643 set_boserif(0,0,5);
644 set_boserif(0,2,4);
645 expand_pbox;
646 endif;

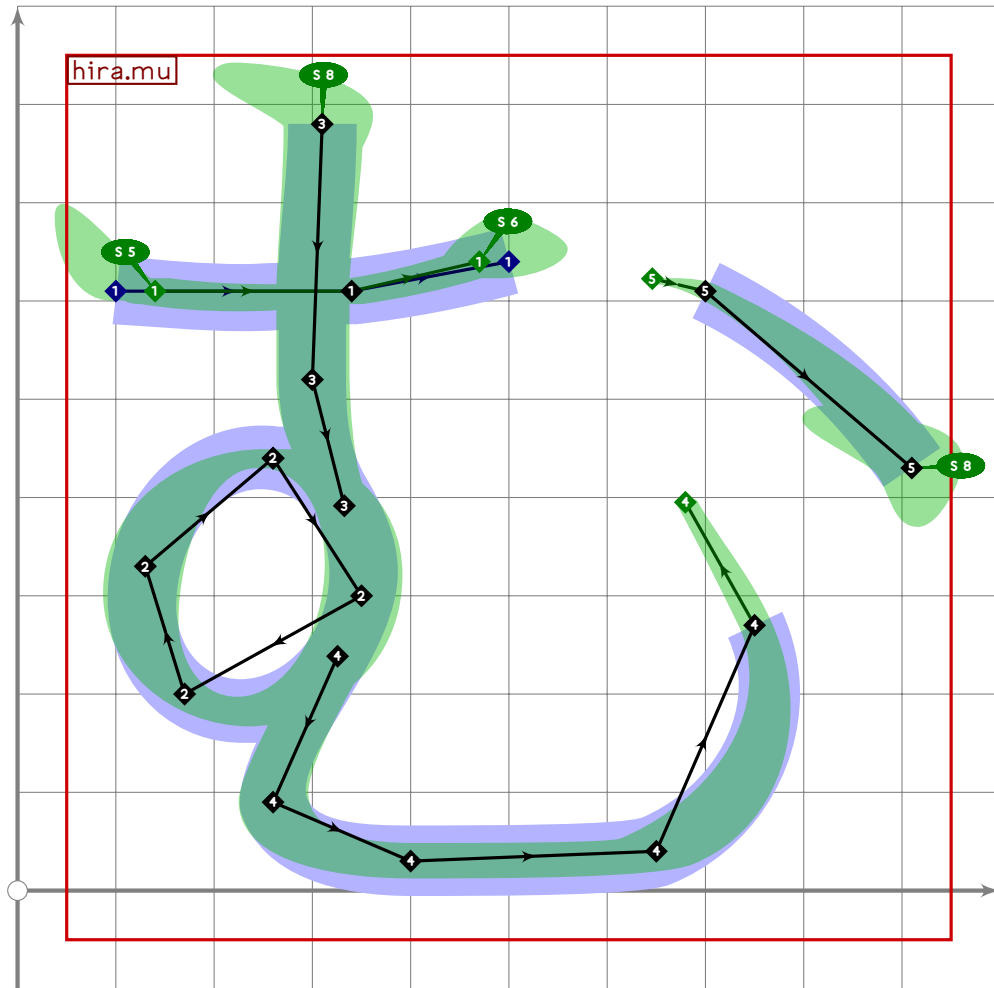
```



```

647
648 vardef hira.mi =
649   push_pbox_toexpand("hira.mi");
650
651   hira.mi_base;
652
653   push_stroke((790,420)..(725,220)..(620,30),
654     (1,3,1,3)-(1,5,1,5)-(1,1));
655   set_boserif(0,0,8);
656   expand_pbox;
657 enddef;

```



```

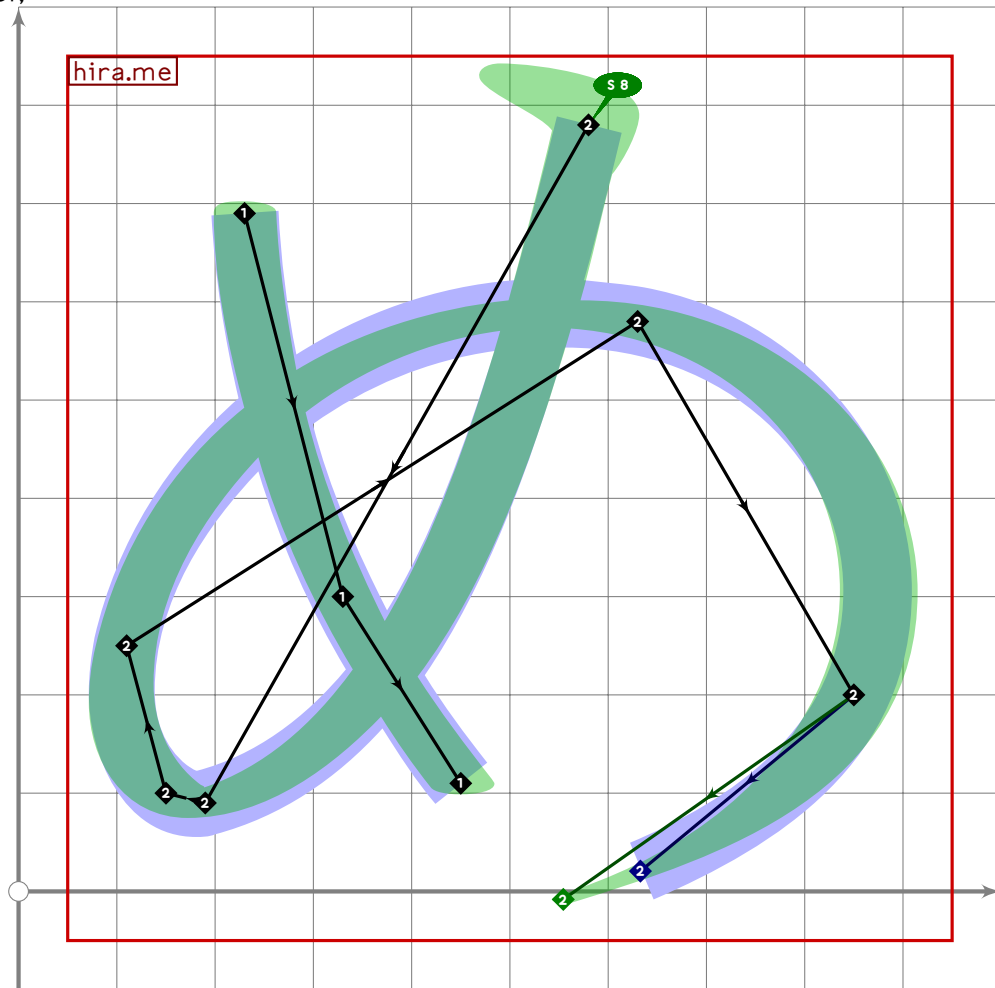
658
659 vardef hira.mu =
660   push_pbox_toexpand("hira.mu");
661
662   push_stroke((100+40*mincho,610)..(340,610)..(500-30*mincho,640),
663     (1.6,1.6)-(1.4,1.4)-(1.5,1.5));
664   set_boserif(0,0,5);
665   set_boserif(0,2,6);
666
667   push_stroke((260,440)..(350,300)..(170,200)..(130,330)..cycle,
668     (1.3,1.3)..(1.6,1.6)..(1.3,1.3)..(1.6,1.6)..cycle);
669
670   push_stroke((310,780){down}..(300,520)..
671     (point 0.5 of get_stroke(0)){direction 0.5 of get_stroke(0)},
672     (1.6,1.6)-(1.5,1.5)-(1.2,1.2));
673   set_boserif(0,0,8);
674
675   push_stroke(
676     (point 1.25 of get_stroke(-1)){direction 1.20 of get_stroke(-1)}..
677     (260,90)..(400,30){right}..(650,40)..(750,270)..
678     tension 2..(600,590)..(700,610)..(910,430),

```

```

679 (14,14)-(15,15)-(18,18)-(19,19)-
680 (1,1)-(0.6,0.6)-(1,1)-(1.6,1.6));
681 set_boserif(0,7,8);
682 expand_pbox;
683 enddef;

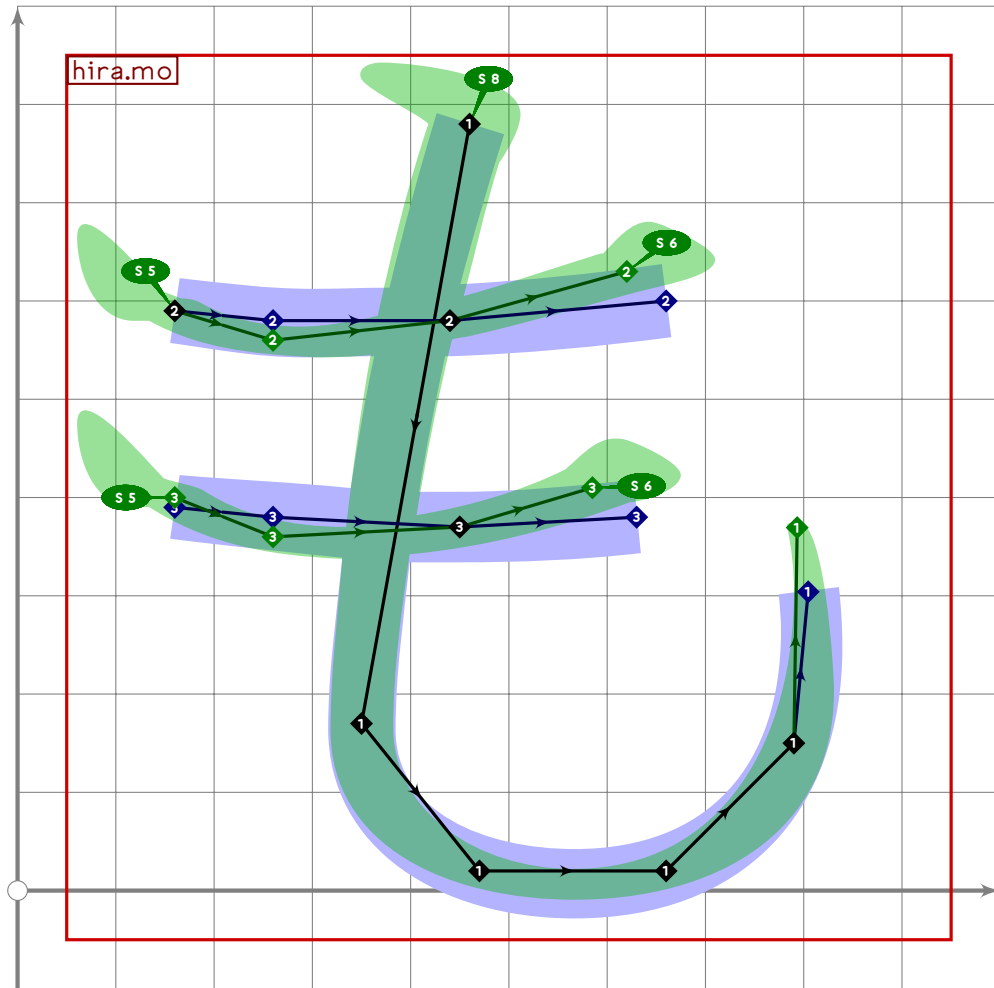
```



```

684
685 vardef hira.me =
686   push_pbox_toexpand("hira.me");
687
688   push_stroke((230,690)..(330,300)..(450,110),
689     (14,14)-(1.3,1.3)-(14,14));
690
691   push_stroke((580,780){curl 0.2}..tension 2.5..(190,90)..
692     (150,100)..(110,250)..tension 1.1..(630,580)..
693     (850,200)..tension 1.1..{curl 0.2}(470,-30),
694     (1.5,1.5)-(14,14)-(1.6,1.6)-(14,14)-
695     (1.6,1.6)-(1.6,1.6)-(0.65,0.65));
696   set_boserif(0,0,8);
697   expand_pbox;
698 enddef;

```



```

699
700 vardef hira.mo =
701   push_pbox_toexpand("hira.mo");
702
703   push_stroke((460,780)..tension 3..(350,170)..(470,20)..
704     tension 1.2..(660,20)..(790,150)..{curl 0}(770,460),
705     (1.7,1.7)-(1.4,1.4)-(1.6,1.6)-(1.7,1.7)-(1.4,1.4)-(0.6,0.6));
706   set_boserif(0,0,8);
707
708   push_stroke((160,590)..(260,580-20*mincho)..(440,580)..
709     (660-40*mincho,600+30*mincho),
710     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(2,2));
711   set_boserif(0,0,5);
712   set_boserif(0,3,6);
713
714   push_stroke((160,390+10*mincho)..(260,380-20*mincho)..(450,370)..
715     (630-45*mincho,380+30*mincho),
716     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(2,2));
717   set_boserif(0,0,5);
718   set_boserif(0,3,6);
719   expand_pbox;

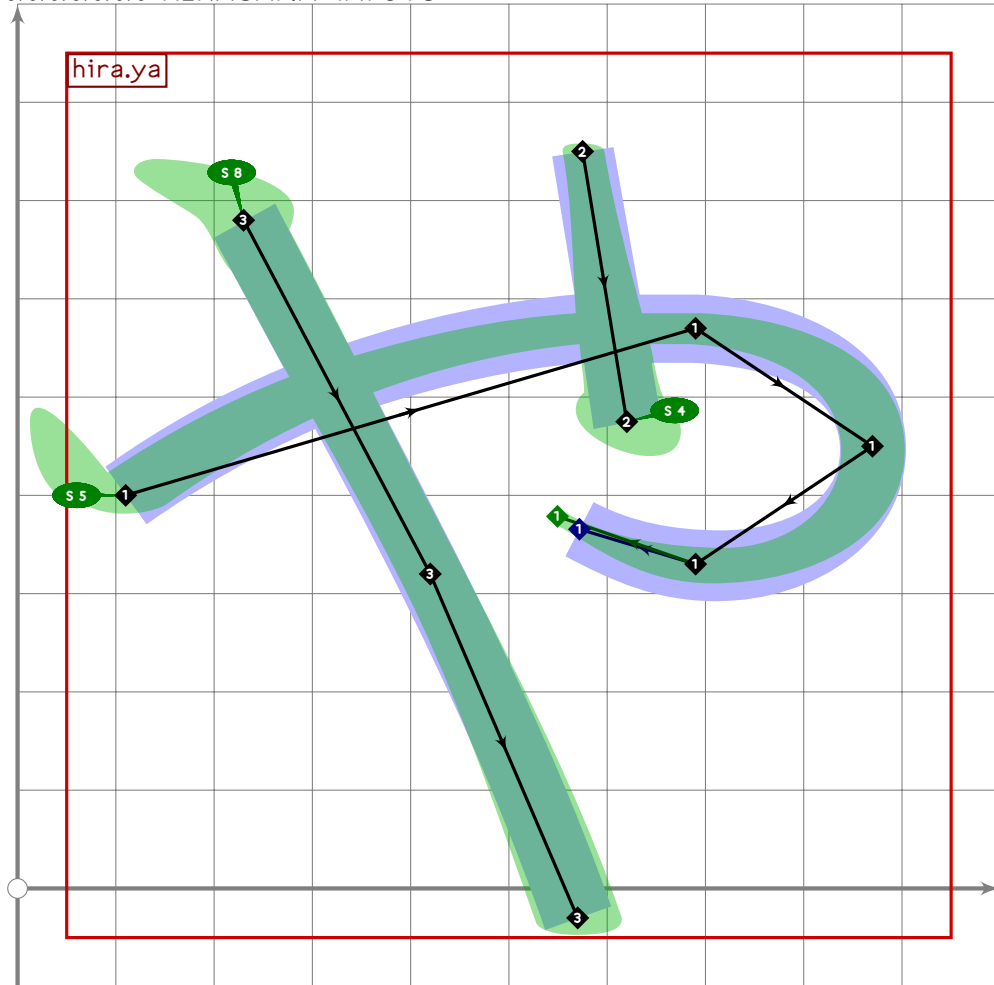
```



```
720 enddef;
721
```

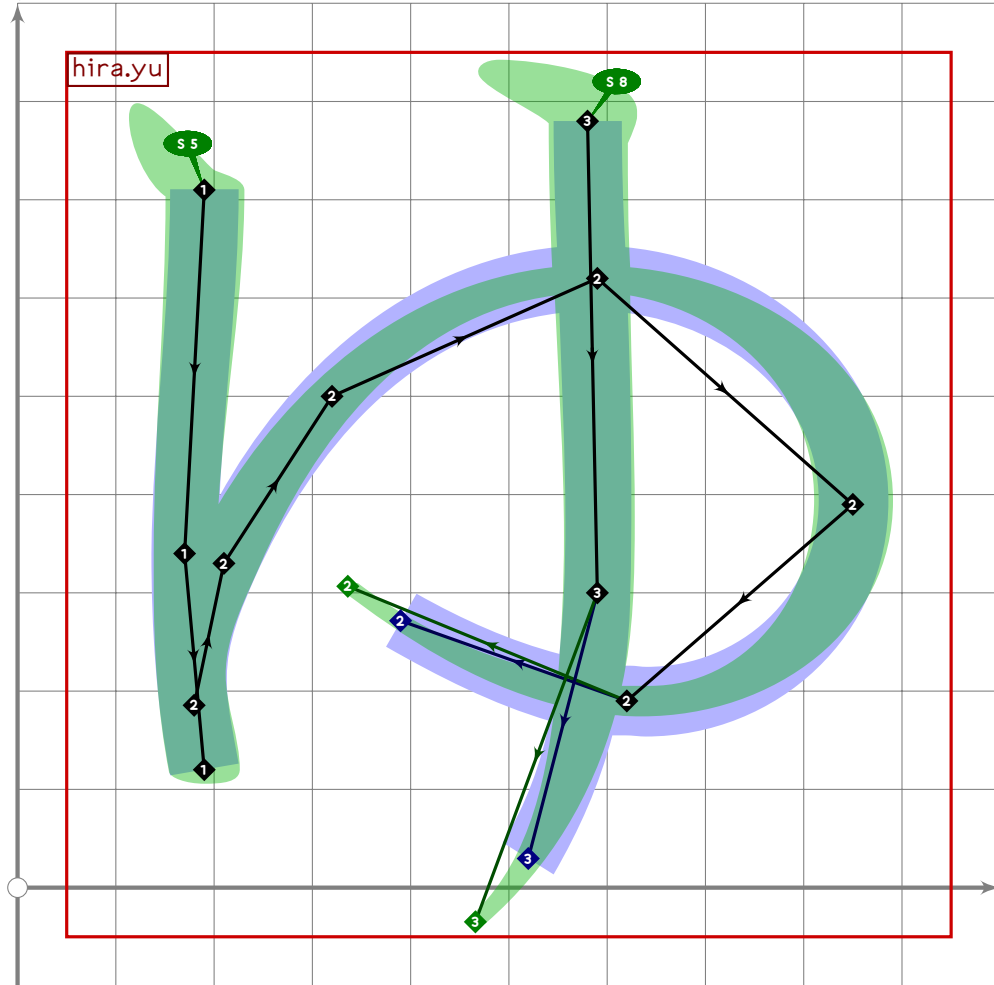
## Hiragana Yayuyo

```
722 %%%%%%%%%% HIRAGANA YAYUYO
```



```
723
724 vardef hira.ya =
725   push_pbox_toexpand("hira.ya");
726
727   push_stroke((110,400)..(690,570)..(870,450)..(690,330)..(520,400),
728     (1.8,1.8)-(1.6,1.6)-(1.4,1.4)-(1.8,1.8)-(0.6,0.6));
729   set_boserif(0,0,5);
730
731   push_stroke((575,750)-(620,475),
732     (1.1,1.1)-(1.6,1.6));
733   set_boserif(0,1,4);
734
735   push_stroke((230,680)..tension 2..(420,320)..(570,-30),
736     (1.6,1.6)-(1.4,1.4)-(1.7,1.7));
737   set_boserif(0,0,8);
738   expand_pbox;
```

739 enddef;



740

741 vardef hira.yu =

742 push\_pbox\_toexpand("hira.yu");

743

744 push\_stroke((190,710){down}...(170,340)..(190,120),

745 (1.6,1.6)-(1.4,1.4)-(1.5,1.5));

746 set\_boserif(0,0,5);

747

748 push\_stroke((point 1.7 of get\_stroke(0))

749 {direction 1.7 of get\_stroke(0)}...(210,330)..

750 (320,500)..(590,620)..(850,390)..(620,190)..tension 1.3..(320,320),

751 (1.4,1.4)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-(1.6,1.6)-

752 (1.6,1.6)-(0.77,0.77));

753

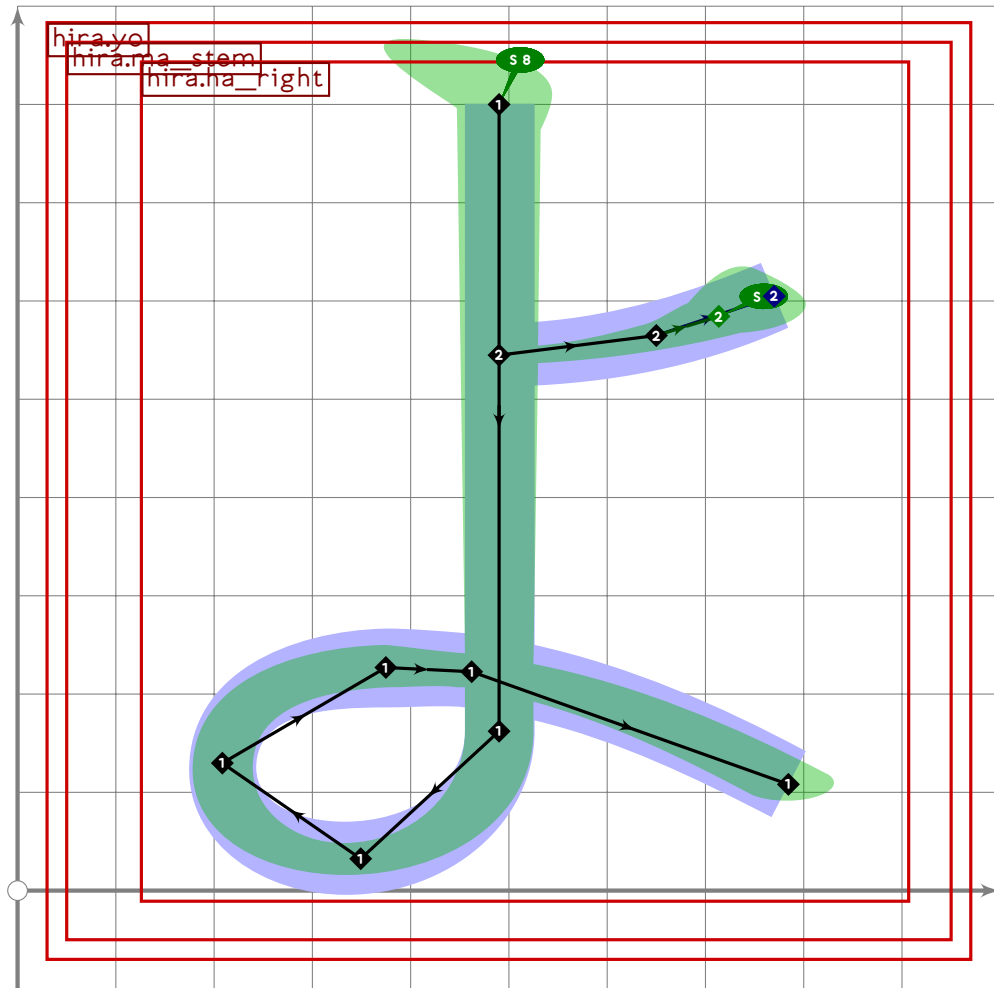
754 push\_stroke((580,780){down}...(590,300)..{dir 190}(360,-85),

755 (1.6,1.6)-(1.5,1.5)-(0.6,0.6));

756 set\_boserif(0,0,8);

757 expand\_pbox;

758 enddef;



```

759
760 vardef hira.yo =
761   push_pbox_toexpand("hira.yo");
762
763   hira.ma_stem;
764
765   replace_stroke(0)(oldp shifted (-20,0));
766   z0=point 0.4 of get_strokep(0);
767
768   push_stroke(z0..(z0+(160,20))..(z0+(280,60))+60*mincho*dir 200),
769     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
770   set_boserif(0,2,6);
771   expand_pbox;
772 enddef;
773

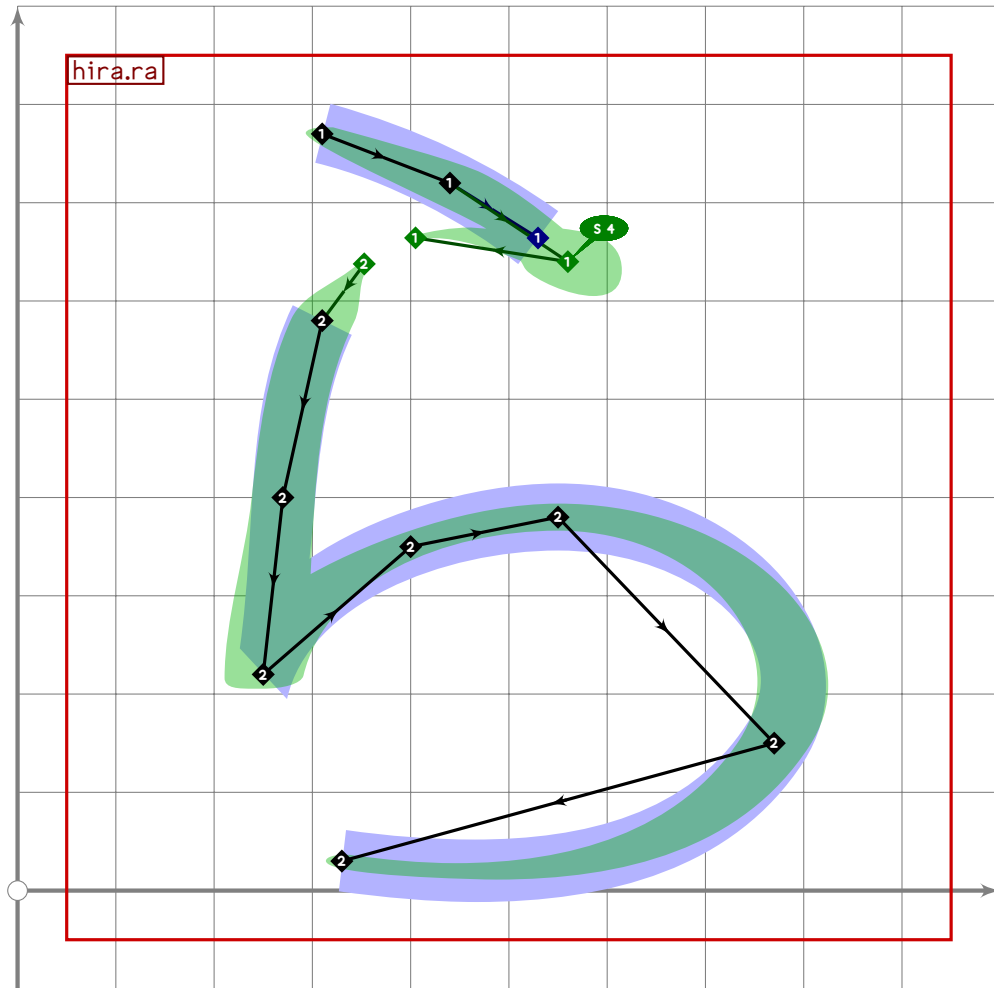
```

## Hiragana Rarirurero

```

774 %%%%%%%%%% HIRAGANA RARIRURERO

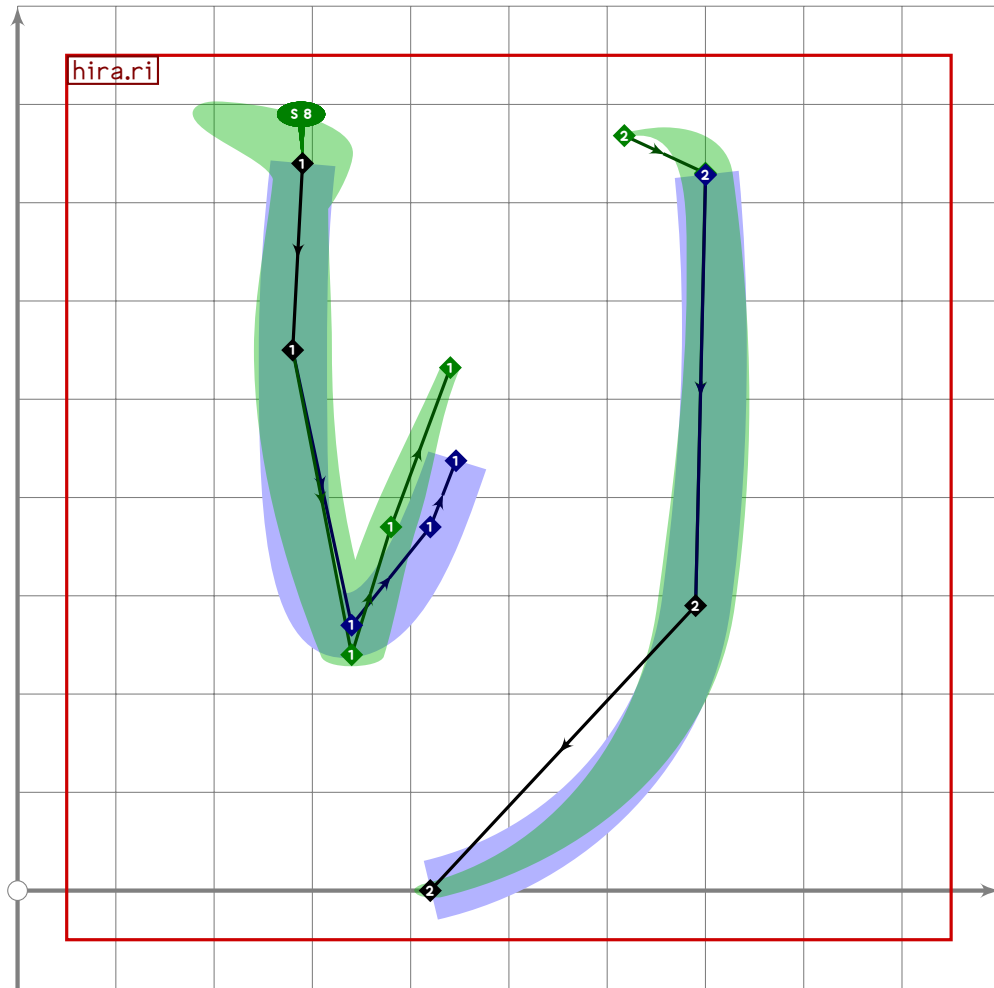
```



```

775
776 vardef hira.ra =
777   push_pbox_toexpand("hira.ra");
778
779   push_stroke((370,770)..(500,720)..{curl 1}(620,640){curl 0.1}..
780     (430,650)..(370,580)..(330,400)..(310,220),
781     (1,1)-(1.6,1.6)-(2,0.78)-(0.55,0.55)-
782     (1.8,1)-(1.4,1.4)-(1.6,1.6));
783   set_boserif(0,2,4);
784
785   hira.chi_bottom;
786   set_botip(0,2,0);
787
788   replace_stroke(0)(oldp shifted (-60,0));
789   expand_pbox;
790 enddef;

```



```

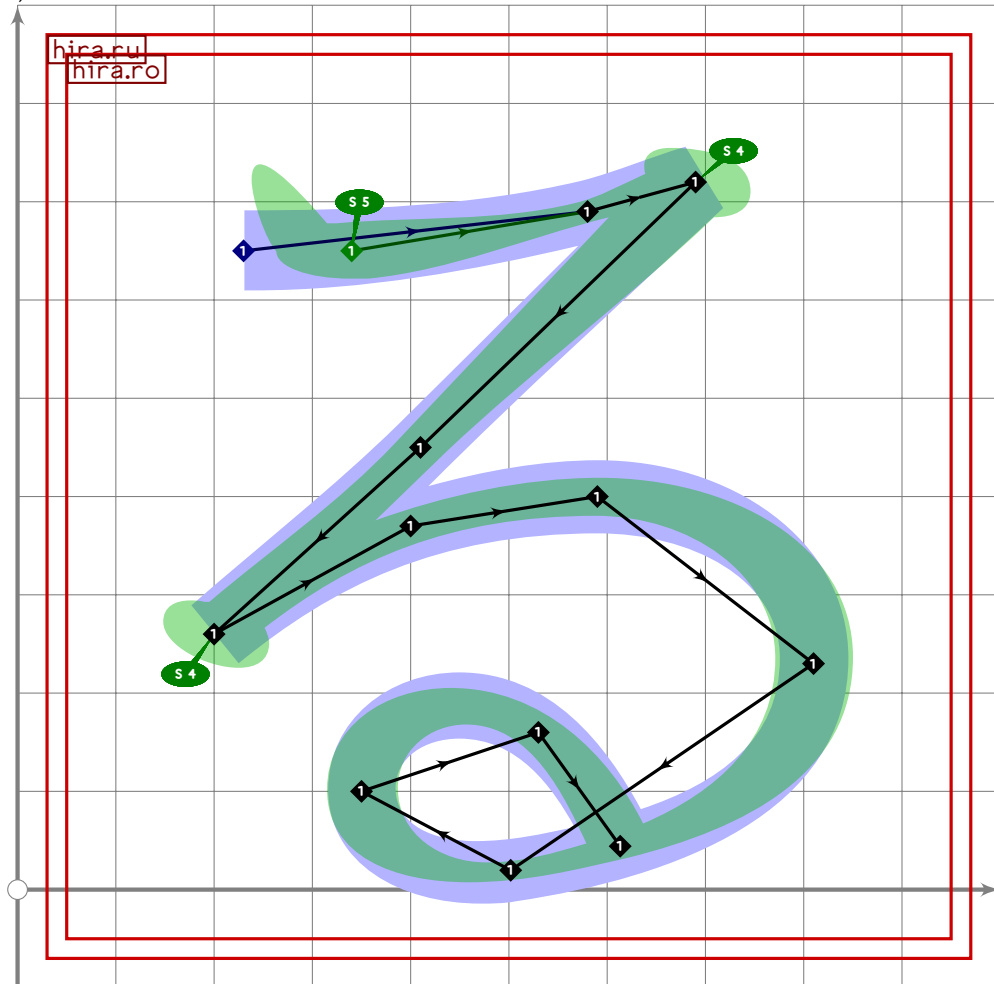
791
792 vardef hira.ri =
793   push_pbox_toexpand("hira.ri");
794
795   begingroup
796     save ripx,ripy,ripz,x,y;
797     path ripx,ripy,ripz;
798     numeric x[],y[];
799     z1=(290,740);
800     z2=(280,550);
801     z3=(340,270-30*mincho);
802     z4=(420-40*mincho,370);
803     z5=(540,710);
804     z6=(700,730);
805     ripx=z1..z2{down}..tension 1.5..z3..
806       tension 1.5..z4..z5..z6..tension 5 and 1.2..
807       (690,290)..tension 0.75 and 1.{curl 0.45}(420,0);
808     ripy=z1..z2{down}..tension 1.5.{curl 1}z3{curl 1}..
809       tension 1.5..z4..z5..z6..tension 5 and 1.2..
810       (690,290)..tension 0.75 and 1.{curl 0.45}(420,0);
811     push_stroke(interpath(mincho,ripx,ripy),

```

```

812     (1.3,1.3)–(1.6,1.6)–(1.4,1.4)–(1.2,1.2)–(0.4,0.2)–
813     (1.5,0.99)–(1.6,1.6)–(1,1));
814     set_boserif(0,0,8);
815     endgroup;
816     expand_pbox;
817 enddef;

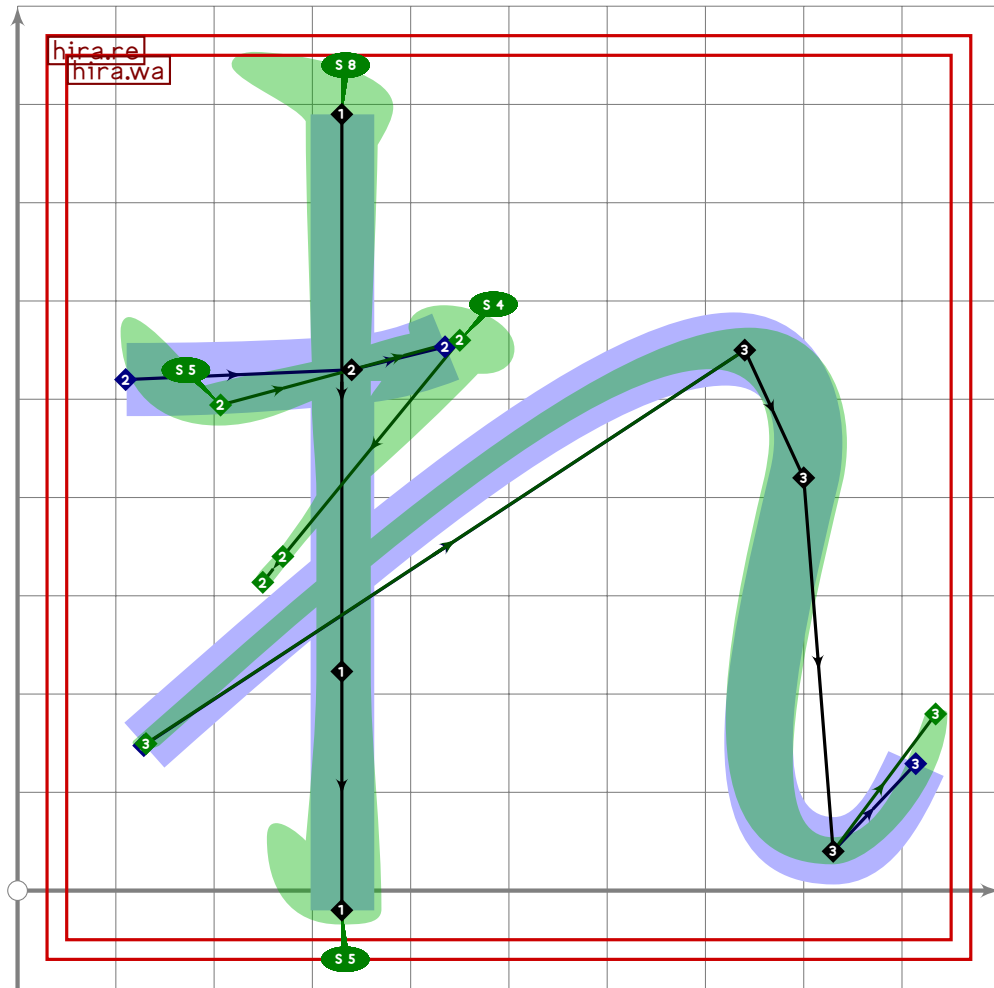
```



```

818
819 vardef hira.ru =
820     push_pbox_toexpand("hira.ru");
821
822     hira.ro;
823
824     replace_stroke(0)((subpath (0,7.8) of oldp)..(350,100)..(530,160)..
825     {curl 0.2}(point 7.6 of oldp));
826     replace_strokeq(0)((2.6,2.6)–(1.2,1.2)–(1.9,1.9)–
827     (1.3,1.3)–(1.6,1.6)–
828     (1.5,1.5)–(1.9,1.9)–(1.6,1.6)–
829     (1.2,1.2)–(1.5,1.5)–(1.4,1.4));
830     expand_pbox;
831 enddef;

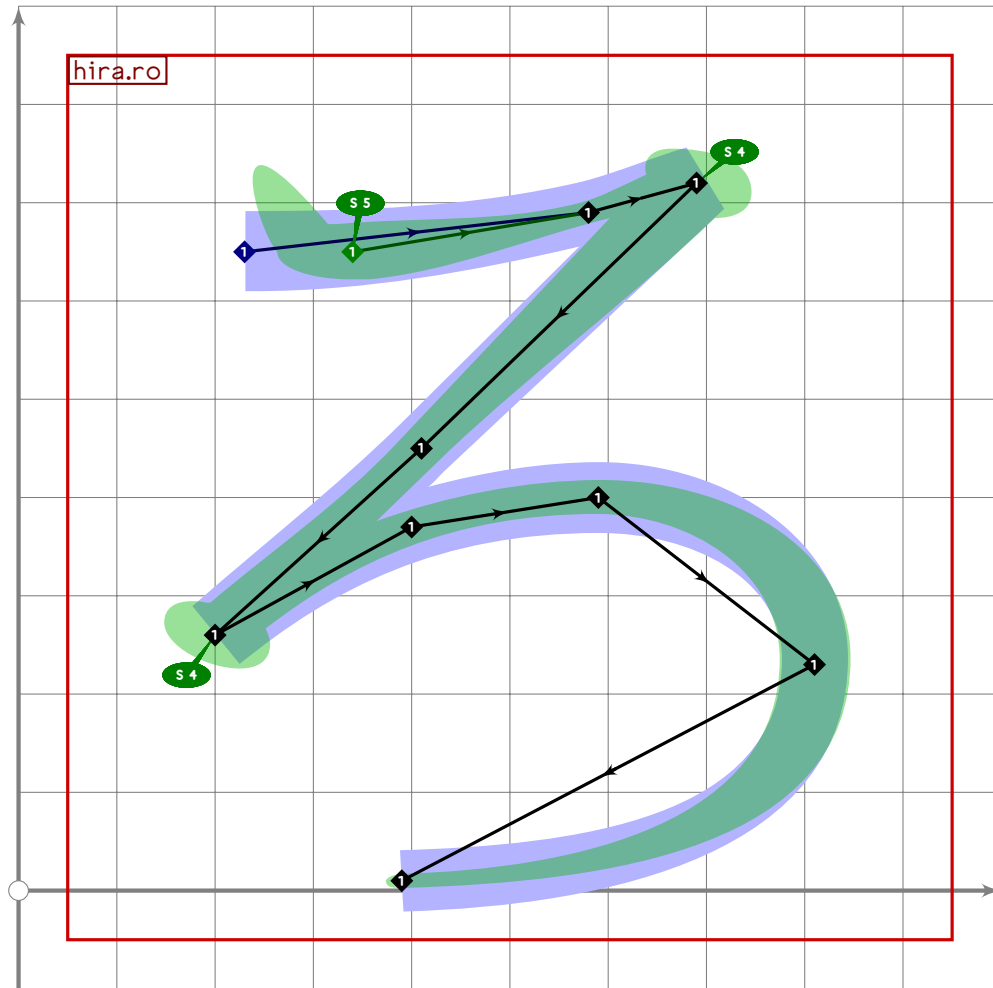
```



```

832
833 vardef hira.re =
834   push_pbox_toexpand("hira.re");
835
836   hira.wa;
837
838   replace_stroke(0)((subpath (0,4) of oldp){curl 0}..
839     tension 2..(740,550)..(800,420)..
840     (830,40){right}..tension 1.5..{curl 0}(960,270));
841   replace_stroke(0)((2,2)-(1.6,1.6)-(2.7,0.9)-
842     (0.84,0.7)-(0.79,0.97)-
843     (2.1,2.1)-(1.6,1.6)-(1.5,1.5)-(0.5,0.5));
844   set_boserif(0,2,4);
845   expand_pbox;
846 enddef;

```



```

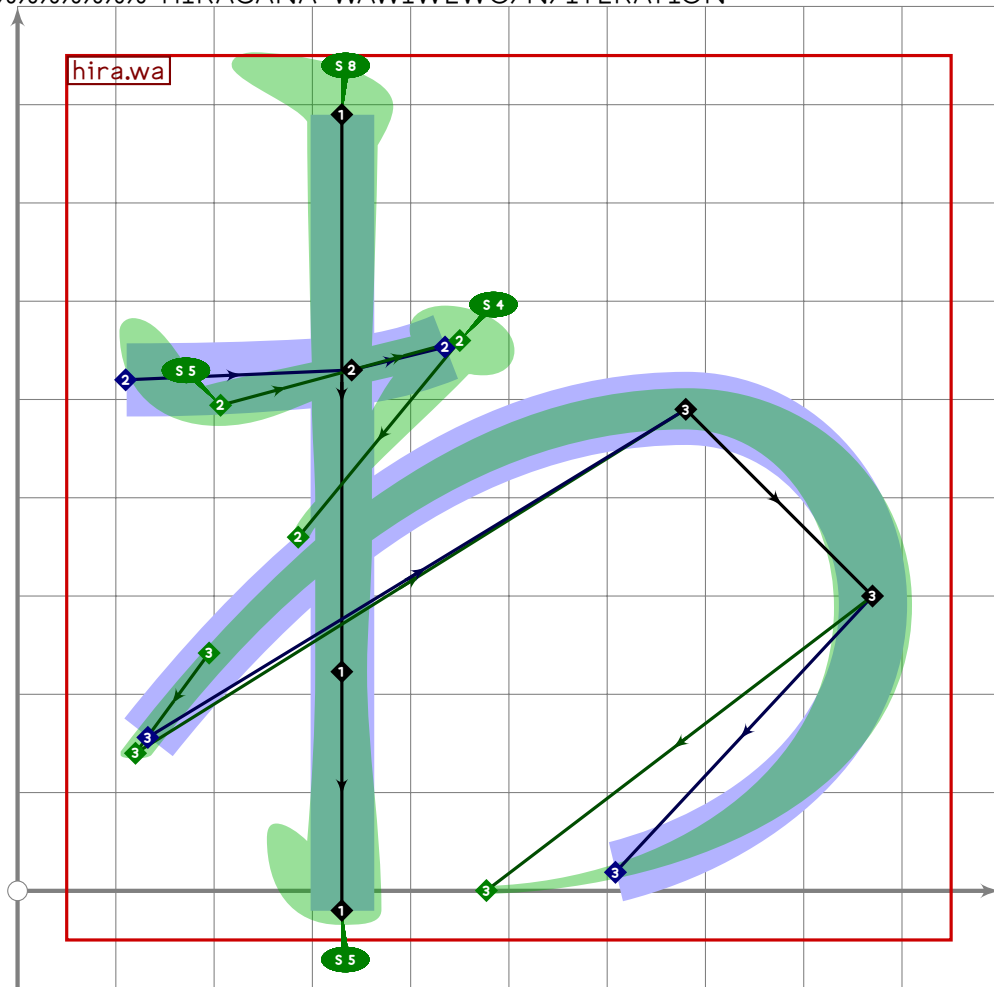
847
848 vardef hira.ro =
849   push_pbox_toexpand("hira.ro");
850
851   push_stroke((230+110*mincho,650)..(580,690)..{curl 1}{(690,720){curl 1}..
852     (410,450)..{curl 1}{(200,260){curl 1}..
853     (400,370)..(590,400){right}..(810,230)..
854     tension 1.1..{curl 0}{(390,10),
855     (2.6,2.6)-(1.2,1.2)-(1.9,1.9)-
856     (1.3,1.3)-(1.6,1.6)-
857     (1.5,1.5)-(1.7,1.7)-(1.5,1.5)-(1,1));
858   set_botip(0,2,0);
859   set_botip(0,4,0);
860   set_boserif(0,0,5);
861   set_boserif(0,2,4);
862   set_boserif(0,4,4);
863   expand_pbox;
864 enddef;
865

```



# Hiragana Wawiwewo/N/Iteration

866 %%% HIRAGANA WAWIWEWO/N/ITERATION



```

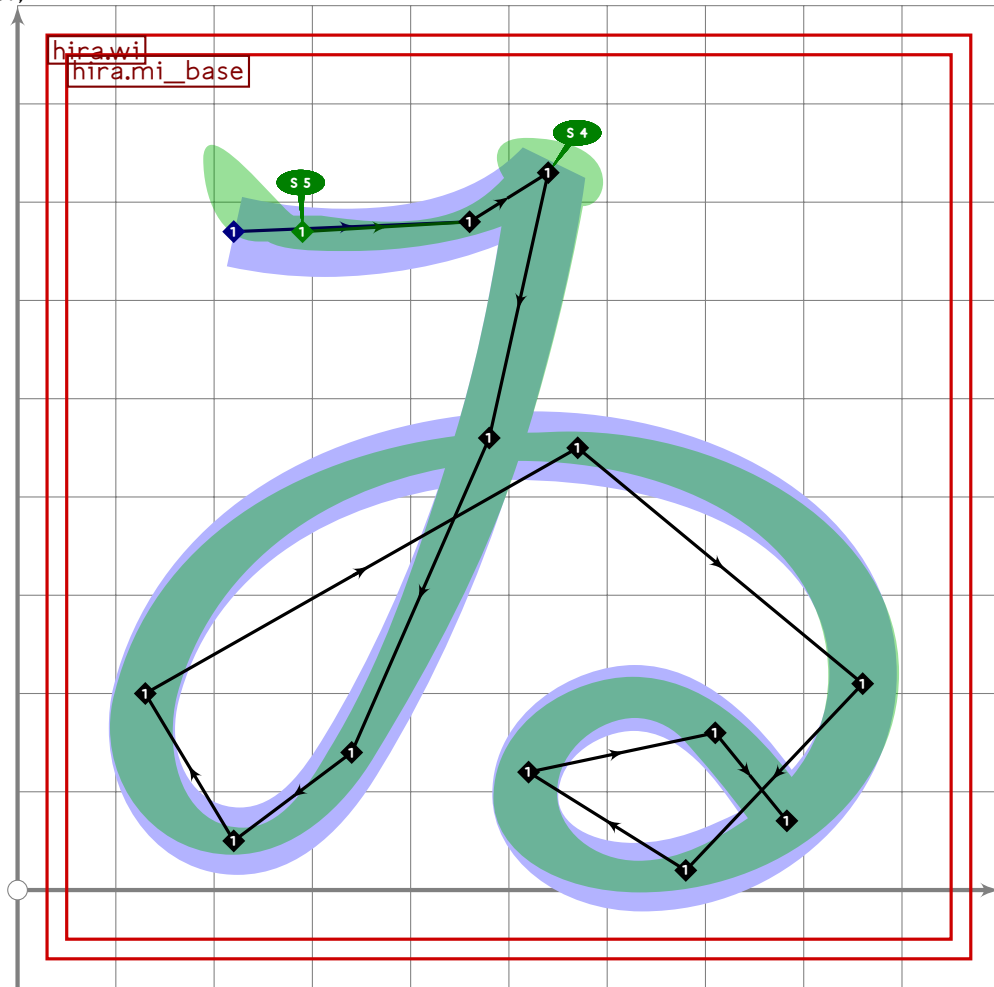
867
868 vardef hira.wa =
869   push_pbox_toexpand("hira.wa");
870
871   push_stroke(((330,790)-(0.7[(330,790),(330,-20)])-(330,-20),
872     (1.5,1.5)-(1.2,1.2)-(1.6,1.6));
873   set_boserif(0,0,8);
874   set_boserif(0,2,5);
875
876   push_stroke(((110,520)+100*mincho*dir -15)..tension 2..(340,530)..
877     {curl 1}(450,560){curl 1}..
878     (270,340)..{curl 1}(120,140){curl 0.2}..
879     (680,490){right}..(870,300)..{curl 0.2}(450,0),
880     (2,2)-(1.6,1.6)-(2.2,0.9)-
881     (0.7,0.7)-(0.97,0.97)-
882     (2,2)-(1.6,1.6)-(0.8,0.8));
883   set_botip(0,2,0);
884   set_botip(0,4,0);
885   set_boserif(0,0,5);

```

```

886 set_boserif(0,2,4);
887 expand_pbox;
888 enddef;

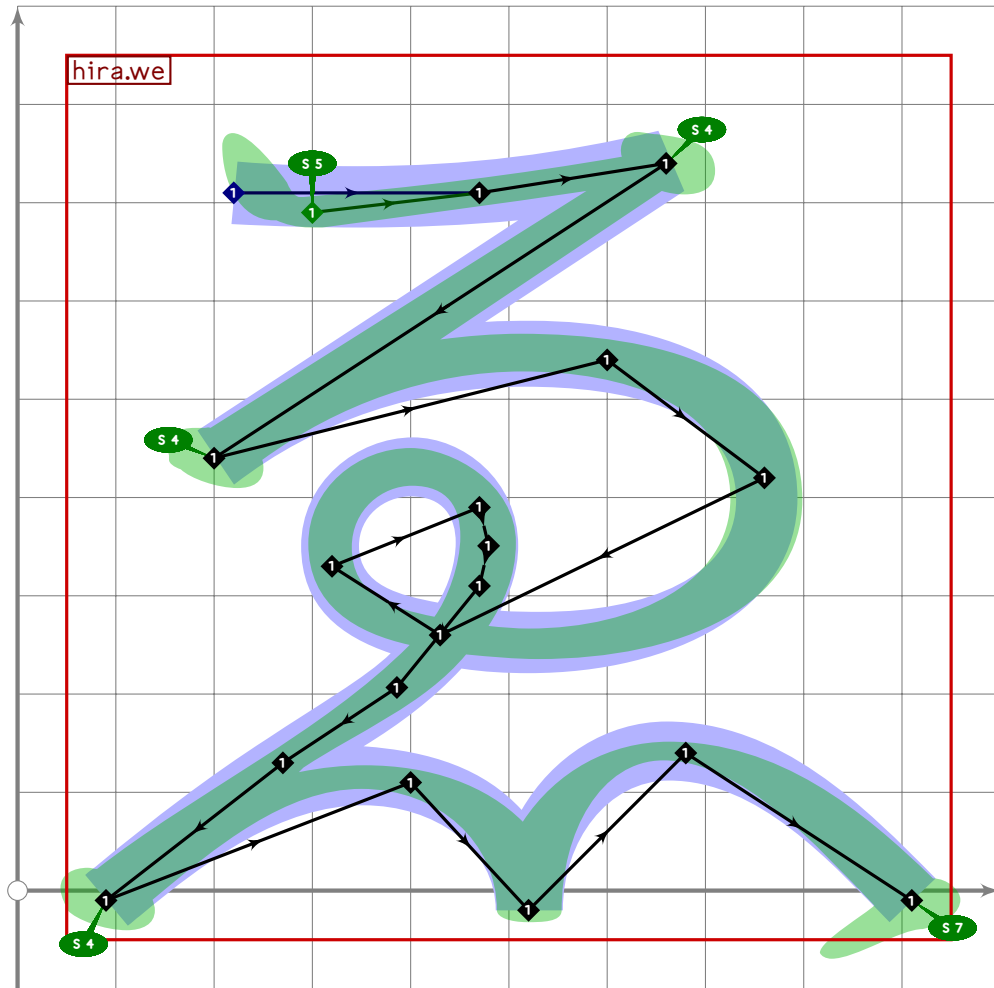
```



```

889
890 vardef hira.wi =
891   push_pbox_toexpand("hira.wi");
892
893   hira.mi_base;
894
895   replace_strokep(0)((subpath (0,6) of oldp)..(570,450)..(860,210)..(680,20)..
896     (520,120)..tension 1.2..(710,160));
897   replace_strokep(0)(oldp..{curl 0.3}(point 8.6 of oldp));
898
899   replace_strokeq(0)((1,7,1,7)-(1,3,1,3)-(1,6,1,6)-
900     (1,5,1,5)-(1,2,1,2)-(1,5,1,5)-(1,4,1,4)-
901     (1,6,1,6)-(1,5,1,5)-(1,7,1,7)-(1,4,1,4)-(1,5,1,5));
902   expand_pbox;
903 enddef;

```



```

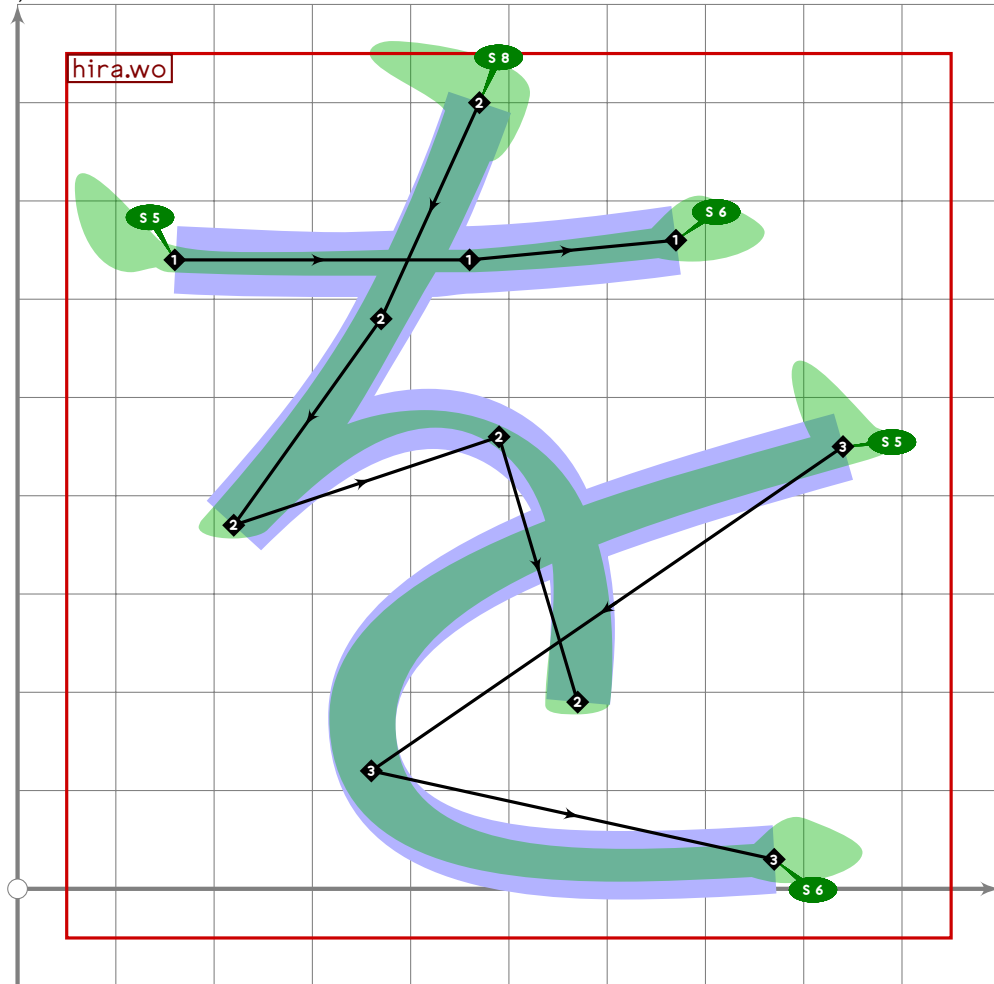
904
905 vardef hira.we =
906   push_pbox_toexpand("hira.we");
907
908   push_stroke((220+80*mincho,710-20*mincho)..(470,710)..{curl 1}(660,740)-
909     (200,440){curl 1}..
910     (600,540)..(760,420)..(430,260)..(320,330)..(470,390)..(470,310)..
911     (270,130)..{curl 0}(90,-10){curl 0}1}..
912     (400,110)..{down}(520,-20){up}..
913     (680,140)..tension 1.3..{curl 0.2}(910,-10),
914     (1.8,1.8)-(1.6,1.6)-(1.5,1.5)-(1.9,1.9)-
915     (2,2)-(1.6,1.6)-(1.7,1.7)-(1.2,1.2)-(1.3,1.3)-(1.35,1.35)-
916     (1.4,1.4)-(1.5,1.5)-(1.3,1.3)-(1.8,1.8)-
917     (1.4,1.4)-(1.5,1.5)-
918     (1.3,1.3)-(1.7,1.7));
919   replace_stroke(0)(insert_nodes(oldp)(8.5,9.5));
920   set_bosize(0,90);
921   set_botip(0,2,0);
922   set_botip(0,3,0);
923   set_botip(0,13,0);
924   set_botip(0,15,0);

```

```

925 set_boserif(0,0,5);
926 set_boserif(0,2,4);
927 set_boserif(0,3,4);
928 set_boserif(0,13,4);
929 set_boserif(0,17,7);
930 expand_pbox;
931 endif;

```



```

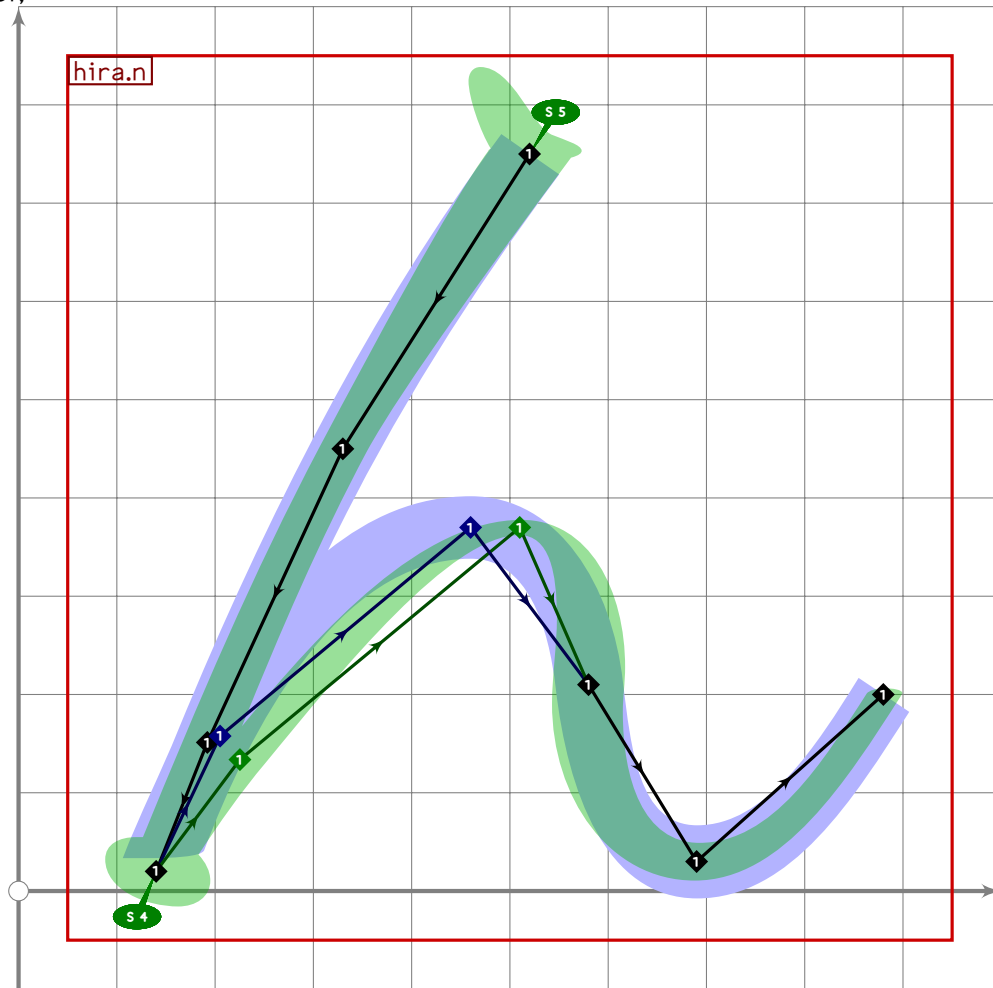
932
933 vardef hira.wo =
934   push_pbox_toexpand("hira.wo");
935
936   push_stroke((160,640)..(460,640)..(670,660),
937     (1.3,1.3)-(1.4,1.4)-(1.6,1.6));
938   set_boserif(0,0,5);
939   set_boserif(0,2,6);
940
941   push_stroke((470,800)..(370,580)..{curl 1}{(220,370){curl 0}}..
942     (490,460)..{curl 0}{(570,190),
943     (1.4,1.4)-(1.3,1.3)-(1.5,1.5)-(1.01,1.01)-(1.4,1.4));
944   set_botip(0,2,0);
945   set_boserif(0,0,8);

```

```

946
947 push_stroke((840,450){curl 0.017}..tension 1 and 2..(360,120)..
948   tension 2 and 1..{curl 0.03}(770,30),
949   (1,7,1,7)-(14,14)-(1,7,1,7));
950 set_boserif(0,0,5);
951 set_boserif(0,2,6);
952 expand_pbox;
953 enddef;

```



```

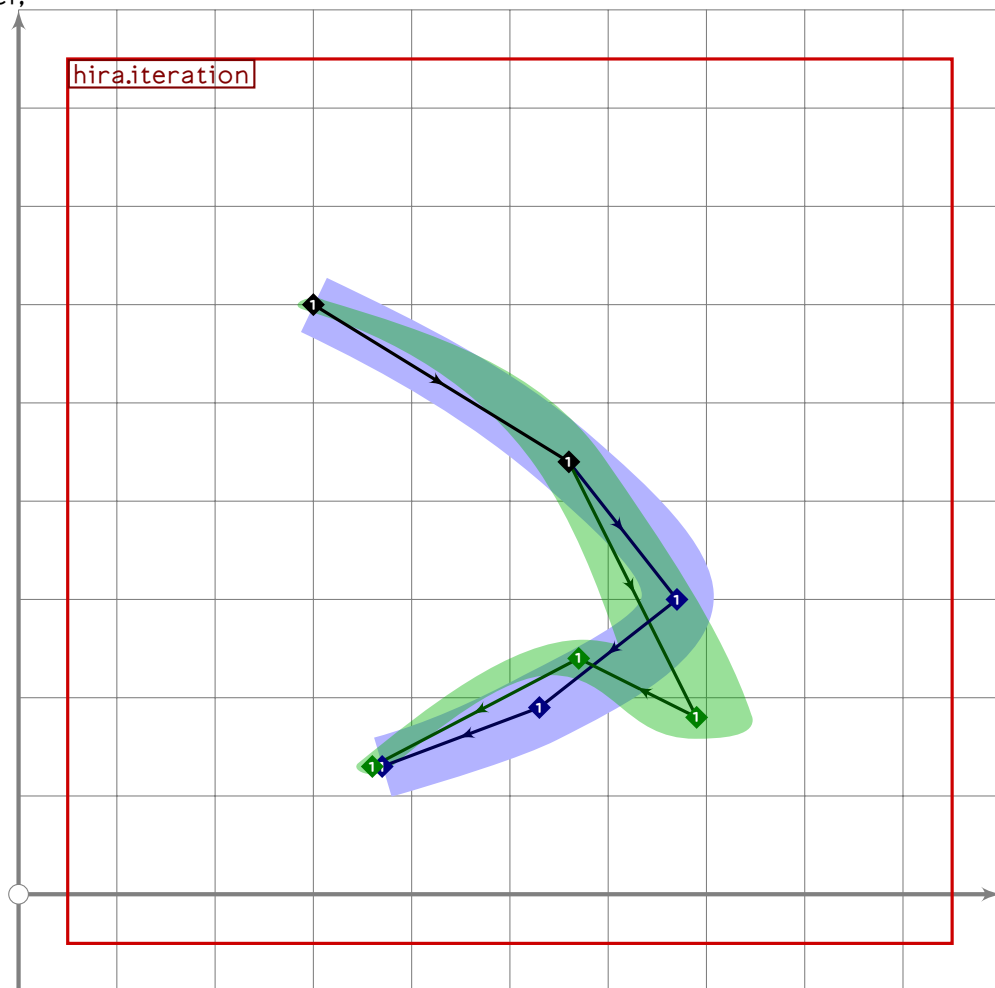
954
955 vardef hira.n =
956   push_pbox_toexpand("hira.n");
957
958   push_stroke((520,750)..(330,450)..{curl 0.2}(140,20){curl 0.1}..
959     tension (1.2+0.6*mincho)..(460+50*mincho,370){right}..
960     (580,210)..(690,30){right},
961     (1,7,1,7)-(1,2,1,2)-(1,3,1,3)-
962     (1,1,1,1)-(1,5,1,5)-(1,9,1,9)-(1,1));
963   replace_stroke(0)(oldp{right}..(880,200){-direction 0.5 of oldp});
964   replace_stroke(0)(insert_nodes(oldp)(1,7,2,3));
965   replace_strokeq(0)(insert_nodes(oldq)(1,7,2,3));
966   set_botip(0,3,0);

```

```

967 set_boserif(0,0,5);
968 set_boserif(0,3,4);
969 expand_pbox;
970 enddef;

```



```

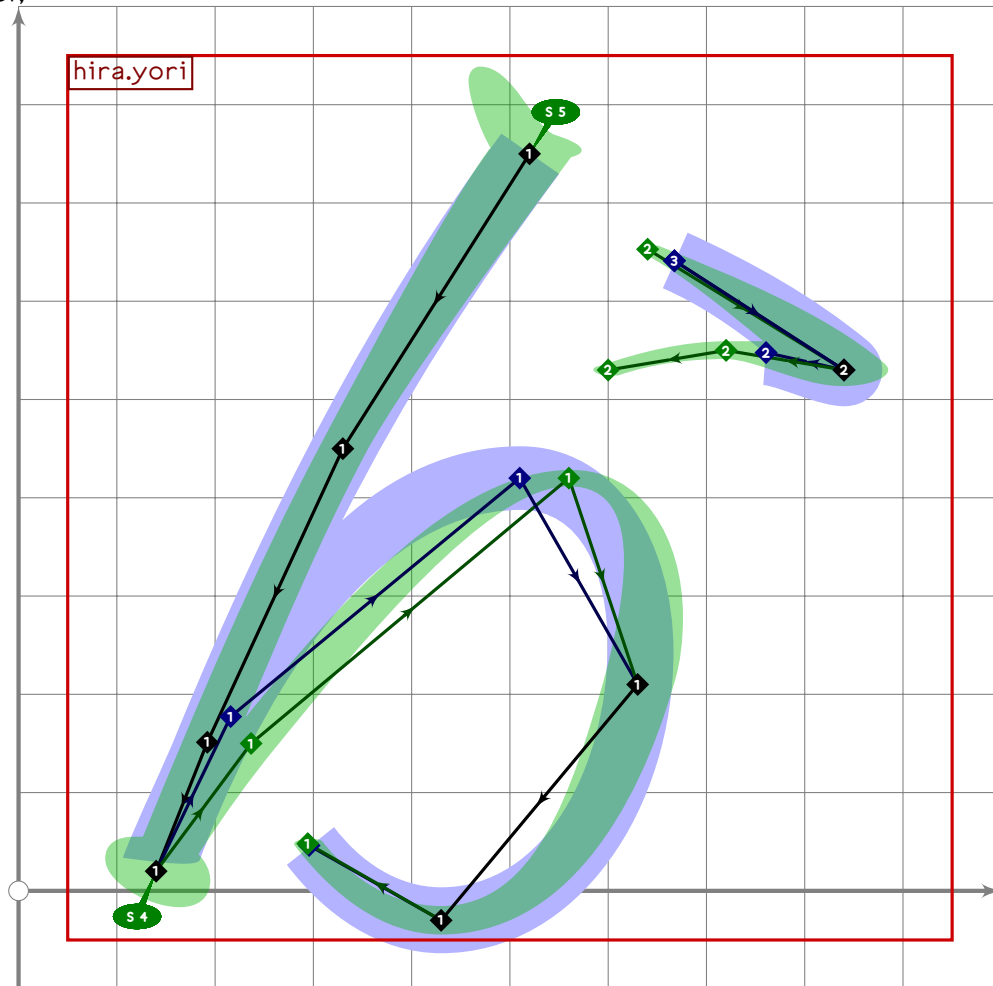
971
972 vardef hira.iteration =
973   push_pbox_toexpand("hira.iteration");
974
975   push_stroke(begingroup
976     save ripx,ripy;
977     path ripx,ripy;
978     ripx:=(300,600){curl 0.2}..(560,440)..
979       tension 1.5 and 2..(670,300)..
980       tension 2 and 1.5..(530,190){curl 0.2}(370,130);
981     ripy:=(300,600){curl 0.2}..(560,440)..
982       tension 1.5.{curl 1}(690,180){curl 1}..
983       tension 2 and 1.5..(570,240)..tension 14.{curl 0}(360,130);
984     interpath(mincho,ripx,ripy)
985   endgroup,
986   (1,1)-(1.5,1.5)-(2,2)-(1.9,1.9)-(1,1));
987   set_botip(0,2,0);

```

```

988 expand_pbox;
989 enddef;

```



```

990
991 vardef hira.yori =
992   push_pbox_toexpand("hira.yori");
993
994   push_stroke((520,750)..(330,450)..{curl 0.2}(140,20){curl 0.1}..
995     tension (1.2+0.6*mincho)..(510+50*mincho,420){right}..
996     (630,210)..(430,-30){left}..tension 1.3..(290,600)..
997     {curl 0.1}(840,530){curl 1}..(720,550)..(600,530),
998     (1.7,1.7)-(1.2,1.2)-(1.3,1.3)-
999     (1.1,1.1)-
1000     (1.5,1.5)-(1.5,1.5)-(-1,-0.4)-
1001     (1.8,1.6)-(1.6,0.7)-(1.9,0));
1002   replace_stroke(0)(insert_nodes(oldp)(1.7,2.3));
1003   replace_strokeq(0)(insert_nodes(oldq)(1.7,2.3));
1004   set_botip(0,3,0);
1005   set_botip(0,9,0);
1006   set_boserif(0,0,5);
1007   set_boserif(0,3,4);
1008   expand_pbox;

```

1009 enddef;



# iching.mp

```
1 %
2 % I Ching characters for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(iching);
32
33 _____
34
35 iching.size:=680;
36
37 vardef make_iching_xform(expr numlines) =
38   transform iching_xform;
39   numeric x[];
40
41   x2-x1=iching.size;
42   (x1+x2)/2=500;
43
44   (-1,(numlines+1)/2) transformed iching_xform=
45     (x1,0.5[latin_wide_low_h,latin_wide_high_h]);
46   (1,(numlines+1)/2) transformed iching_xform=
47     (x2,0.5[latin_wide_low_h,latin_wide_high_h]);
48   (-1,(numlines+1)/2-2.5) transformed iching_xform=
49     (x1,latin_wide_low_h);
50 enddef;
51
52 vardef iching.line(expr line,numlines,linetype) =
53   make_iching_xform(numlines);
54   if linetype=0:
55     push_stroke(((1,line)-(-0.28,line)) transformed iching_xform,
56       (2,2)-(2,2));
57     push_stroke(get_strokep(0) reflectedabout (centre_pt,centre_pt+down),
58       (2,2)-(2,2));
59   else:
60     push_stroke(((1,line)-(1,line)) transformed iching_xform,
61       (2,2)-(2,2));
62   fi;
63   push_anchor(anc_iching_line(line),
64     identity shifted (((1,line) transformed iching_xform)
65       +(1000-iching.size)*0.25*right));
66 enddef;
67
68 % WARNING, nonstandard calling convention, simply returns a path to fill
69 vardef iching.dot(expr line,numlines) =
70   begingroup;
```

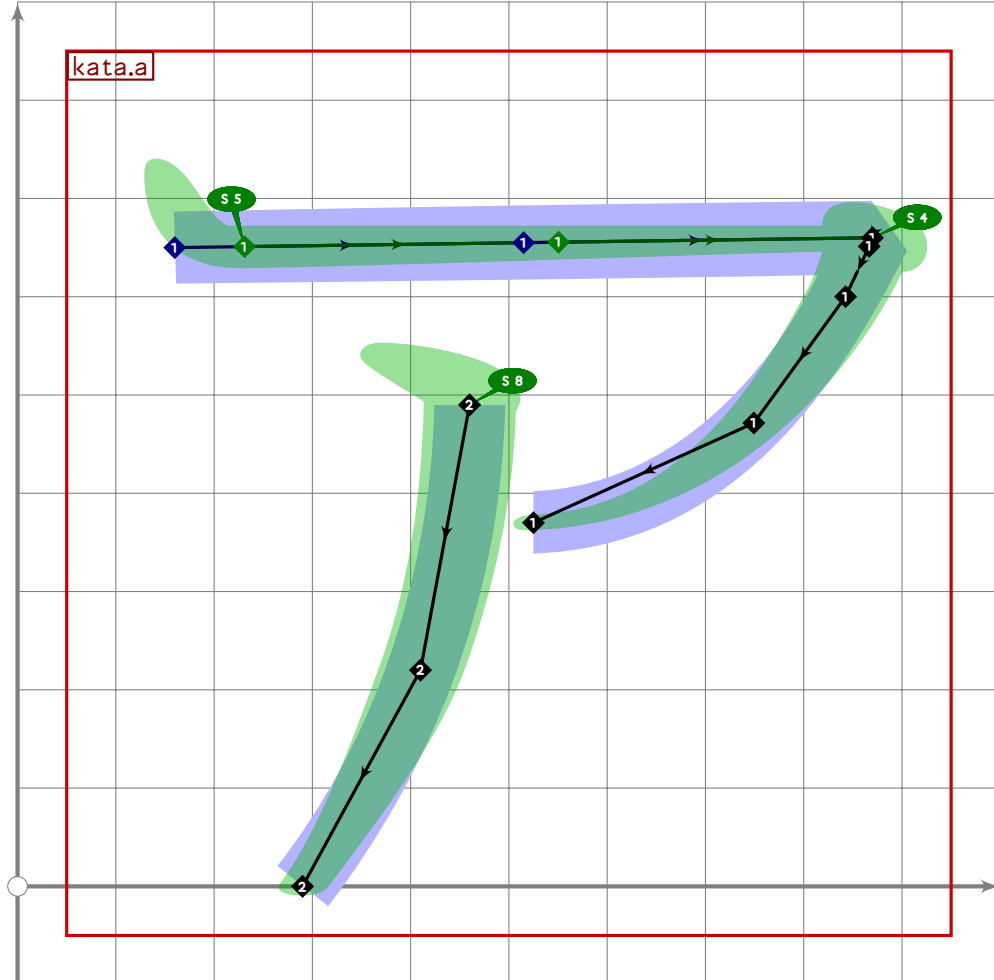
```
71  make_iching_xform(numlines);
72  (fullcircle scaled (tsu_punct_size*1.10)
73   shifted (((1,line) transformed iching_xform)
74            +(1000-iching.size)*0.25*right))
75  endgroup
76  endif;
```

# katakana.mp

```
1 %  
2 % Katakana for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(katakana);  
32  
33  
34
```

## Katakana Vowels

```
35 %%%%%%%%%%%%%%%%% KATAKANA VOWELS
```

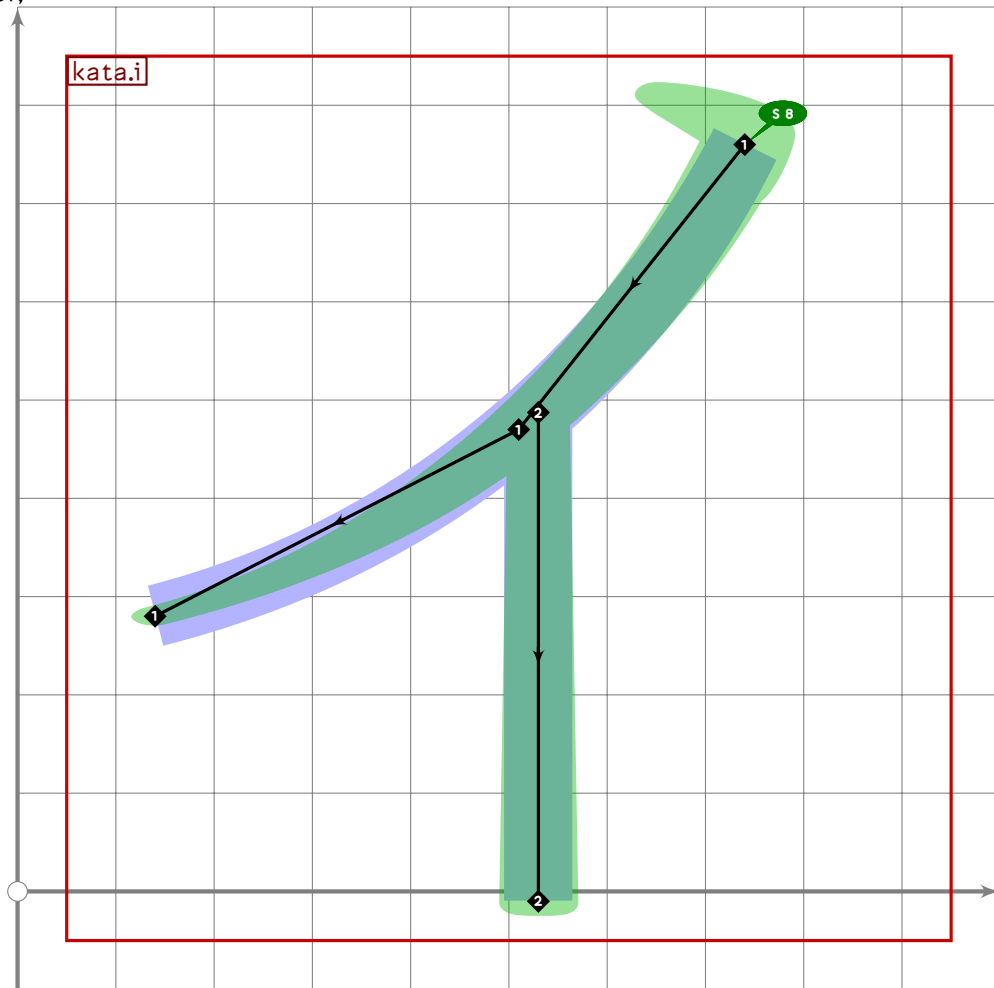


```
36  
37 vardef kata.a =  
38   push_pbox_toexpand("kata.a");  
39  
40   kata.fu_stroke((160,650),(870,660),(525,370));  
41
```

```

42 push_stroke((460,490)..(410,220)..(290,0),
43   (1.8,1.8)-(1.7,1.7)-(1.2,1.2));
44 set_boserif(0,0,8);
45 expand_pbox;
46 enddef;

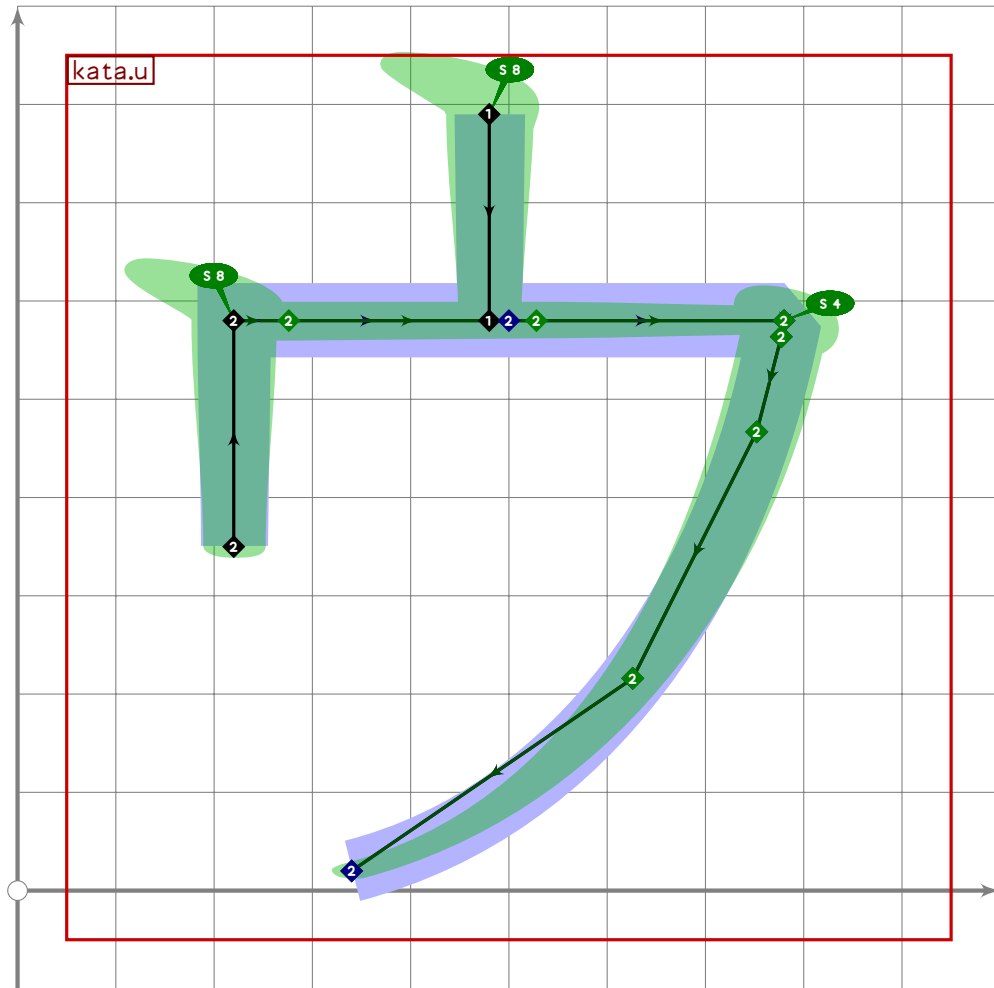
```



```

47
48 vardef kata.i =
49   push_pbox_toexpand("kata.i");
50
51   push_stroke((740,760)..(510,470)..(140,280),
52     (1.8,1.8)-(1.7,1.7)-(1.2,1.2));
53   set_boserif(0,0,8);
54
55   push_stroke((get_strokep(0) intersectionpoint
56     ((530,-infinity)-(530,infinity)))-(530,-10),
57     (1.4,1.4)-(1.6,1.6));
58   expand_pbox;
59 enddef;

```



```

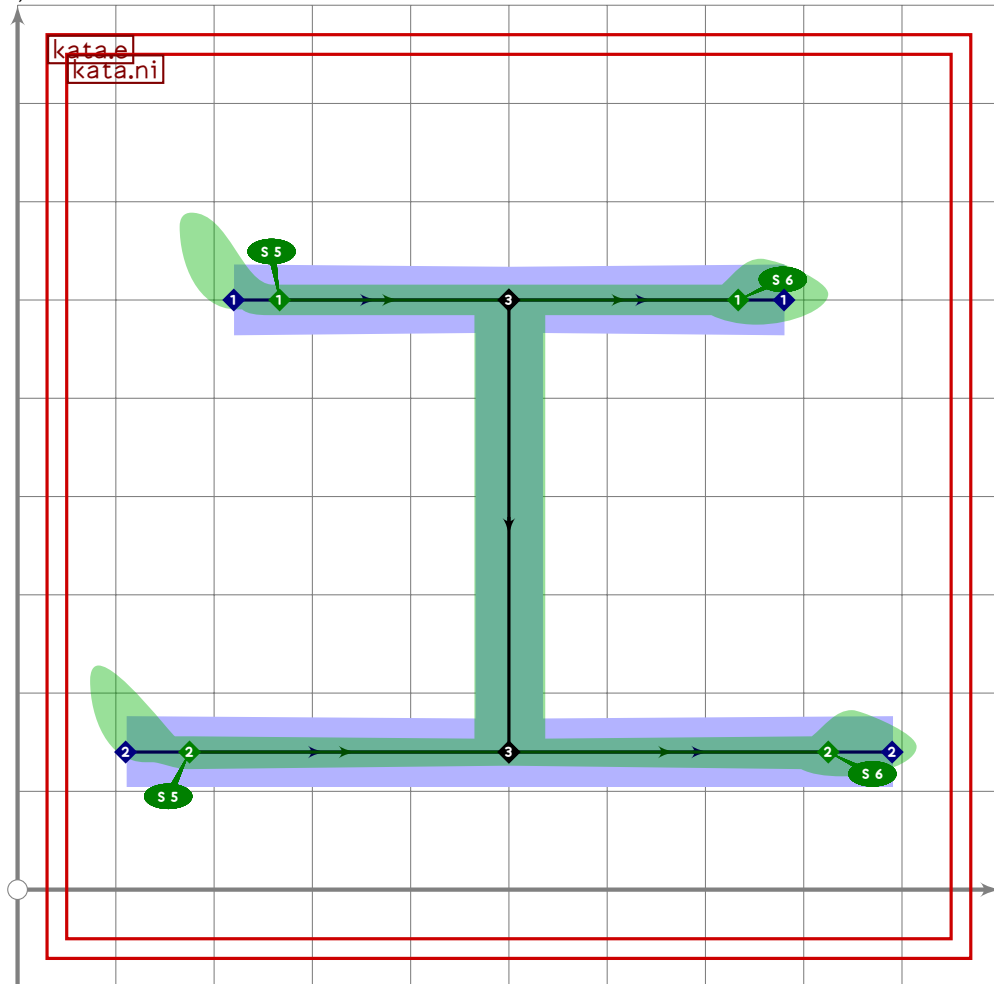
60
61 vardef kata.u =
62   push_pbox_toexpand("kata.u");
63
64   push_stroke((480,790)-(480,580),
65     (1,7,1,7)-(1,4,1,4));
66   set_boserif(0,0,8);
67
68   kata.fu_stroke((220,580),(780,580),(340,20));
69   if mincho>0.01:
70     replace_strokep(0)((220,350)-(220,580)-oldp);
71     replace_strokeq(0)((1,4,1,4)-(1,7,1,7)-oldq);
72     set_botip(0,2,1);
73     set_botip(0,4,0);
74     set_boserif(0,2,whatever);
75     set_boserif(0,4,4);
76   else:
77     replace_strokep(0)((220,350)-oldp);
78     replace_strokeq(0)((1,4,1,4)-oldq);
79     set_botip(0,1,1);
80     set_botip(0,3,0);

```

```

81 set_boserif(0,3,4);
82 fi;
83 set_boserif(0,0,whatever);
84 set_boserif(0,1,8);
85 expand_pbox;
86 enddef;

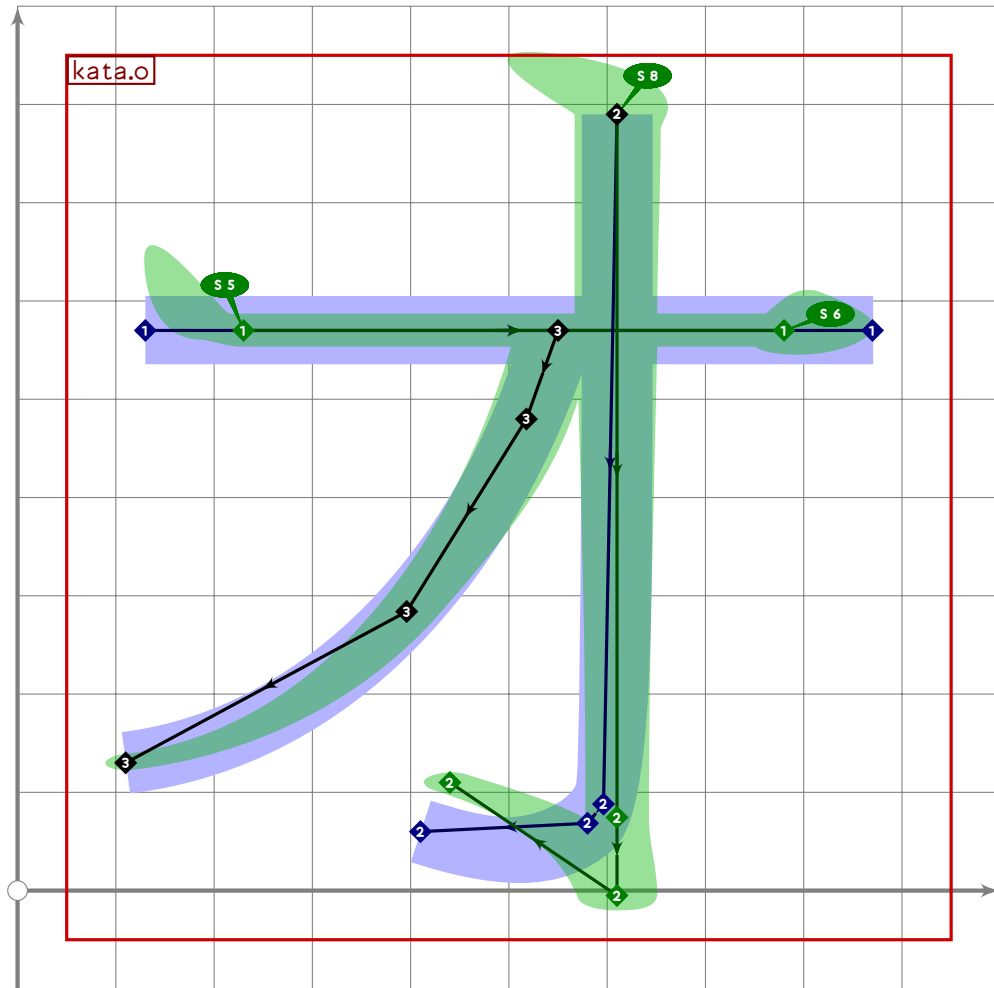
```



```

87
88 vardef kata.e =
89   push_pbox_toexpand("kata.e");
90
91   kata.ni;
92
93   push_stroke((point 1 of get_stroke(-1))-(point 1 of get_stroke(0)),
94     (1.5,1.5)-(1.5,1.5));
95   expand_pbox;
96 enddef;

```



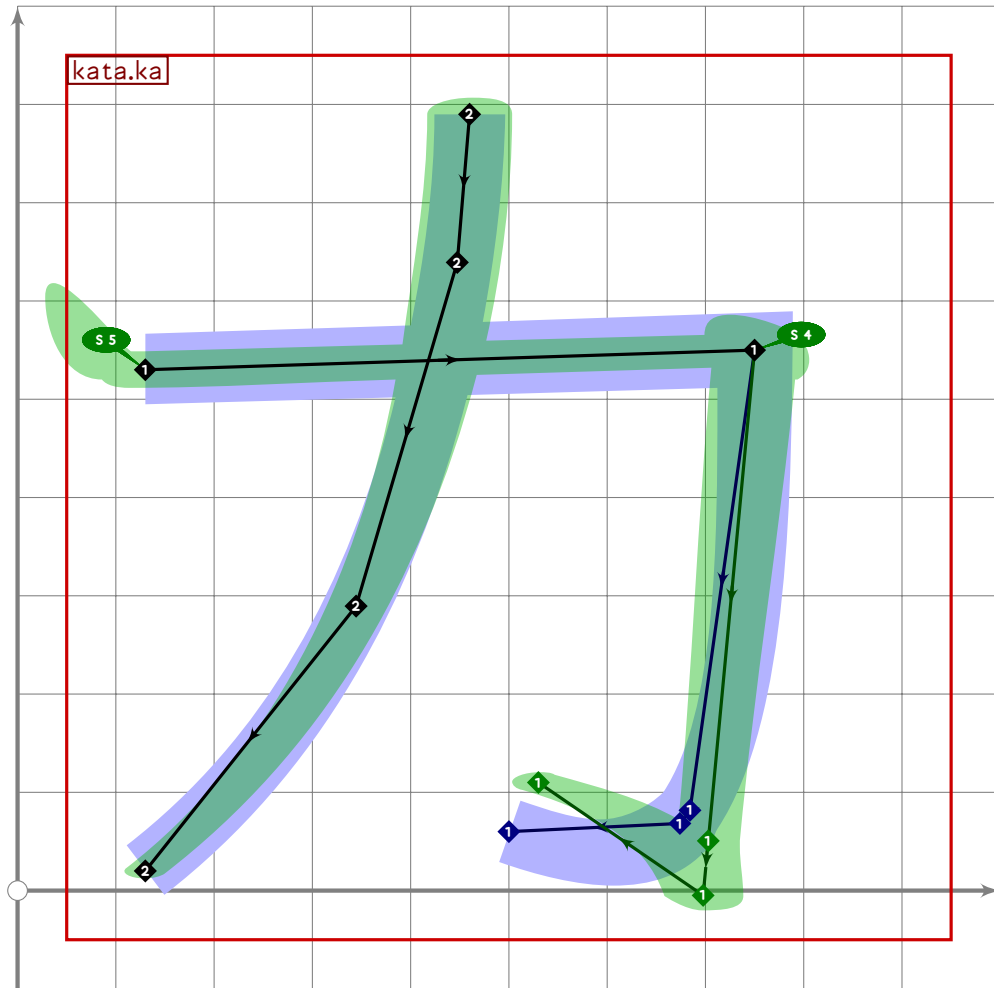
```

97
98 vardef kata.o =
99   push_pbox_toexpand("kata.o");
100
101   push_stroke((130+100*mincho,570)-(870-90*mincho,570),
102     (1.8,1.8)-(1.6,1.6));
103   set_boserif(0,0,5);
104   set_boserif(0,1,6);
105
106   kata.ho_centre((610,790),(610,20));
107
108   kata.no_stroke((550,570),(110,130));
109   expand_pbox;
110 enddef;
111

```

## Katakana Kakikukeko/Gagigugego

112 %%%%%%%%% KATAKANA KAKIKUKEKO/GAGIGUGEGO

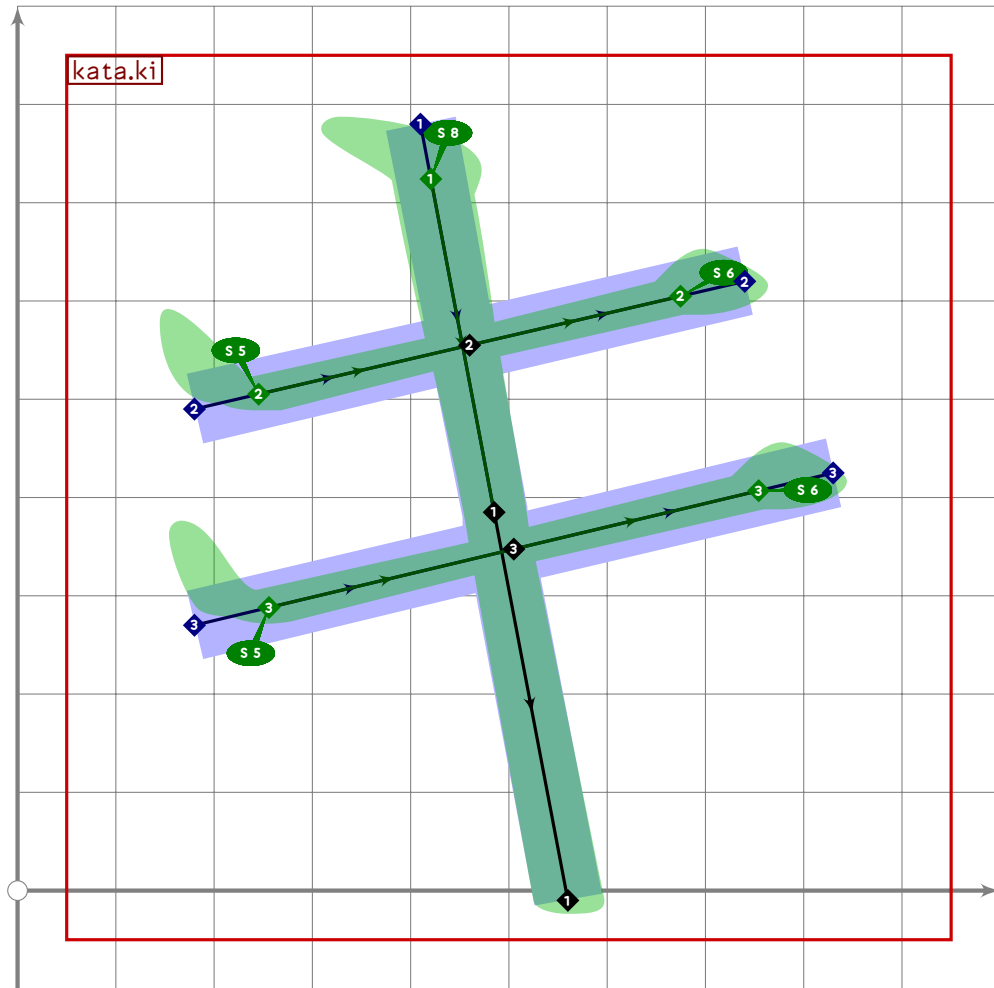


```

113
114 vardef kata.ka =
115   push_pbox_toexpand("kata.ka");
116
117   kata.ho_centre((750,550),(700,20));
118
119   replace_stroke(0)((130,530)-oldp);
120   replace_strokeq(0)((1.8,1.8)-oldq);
121   set_botip(0,1,1);
122   set_botip(0,2,whatever);
123   set_botip(0,3,0);
124   set_boserif(0,0,5);
125   set_boserif(0,1,4);
126
127   kata.no_stroke((460,790),(130,20));
128   expand_pbox;
129 enddef;

```



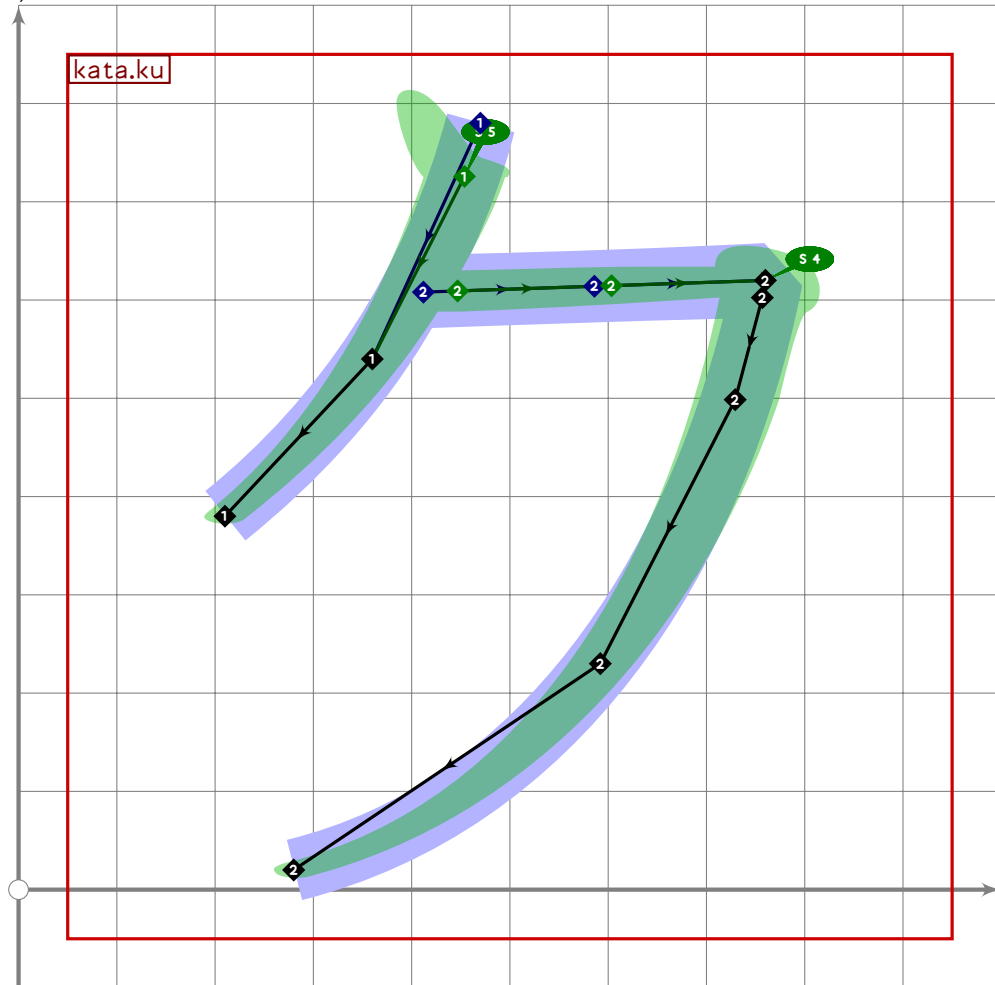


```

130
131 vardef kata.ki =
132   push_pbox_toexpand("kata.ki");
133
134   push_stroke((410,780)-(560,-10),
135     (0.74,2.55)-(1.4,1.4)-(1.5,1.5));
136   replace_strokep(0)(insert_nodes(oldp)(0.5));
137   set_boserif(0,0,8);
138
139   push_stroke((180,490)-(740,620),
140     (0.6,3)-(1.6,1.6)-(0.6,3));
141   replace_strokep(0)(insert_nodes(oldp)(0.5));
142   set_boserif(0,0,5);
143   set_boserif(0,2,6);
144
145   push_stroke((180,270)-(830,425),
146     (0.6,3)-(1.6,1.6)-(0.6,3));
147   replace_strokep(0)(insert_nodes(oldp)(0.5));
148   set_boserif(0,0,5);
149   set_boserif(0,2,6);
150   expand_pbox;

```

151 enddef;



152

153 vardef kata.ku =

154 push\_pbox\_toexpand("kata.ku");

155

156 push\_stroke((470,780)..(360,540)..(210,380),

157 (0.68,2.7)-(1.4,1.4)-(1.1,1.1));

158 set\_boserif(0,0,5);

159

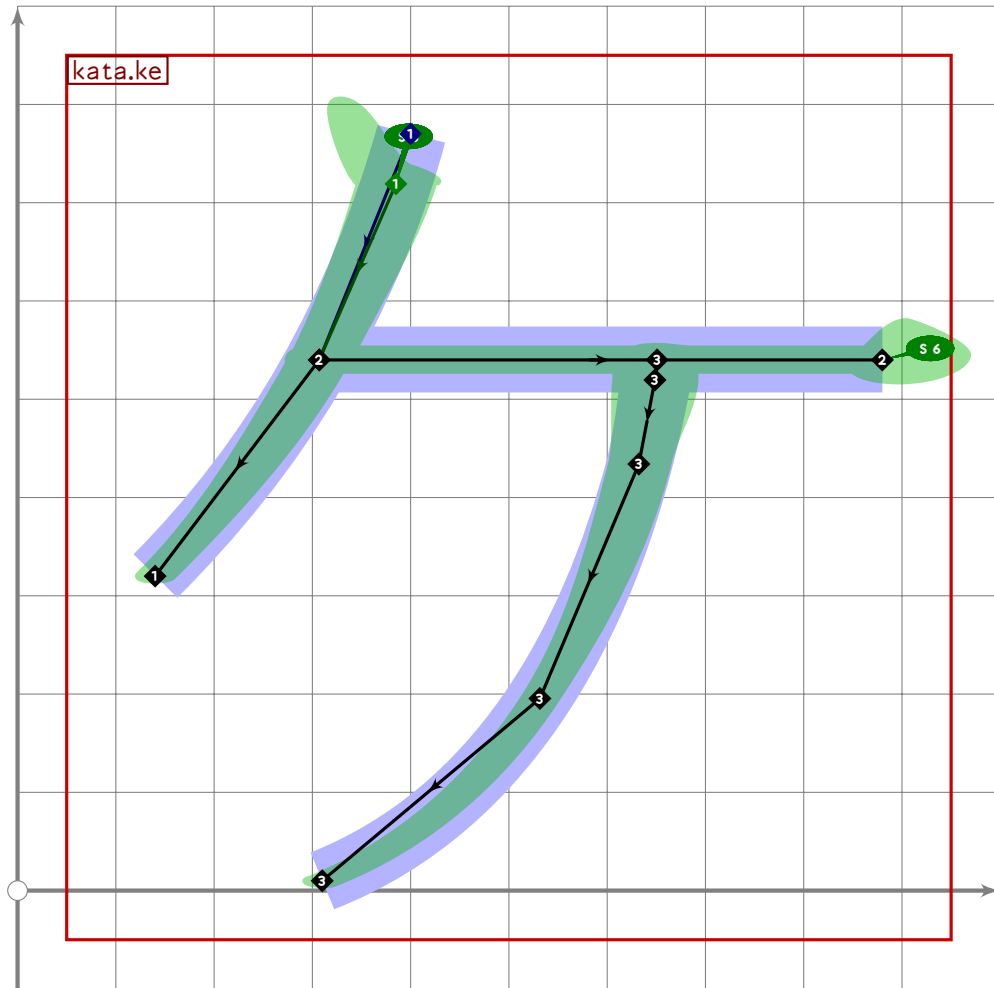
160 z1=(get\_strokep(0) intersectionpoint ((0,600)-(1000,620)))+10\*right;

161 kata.fu\_stroke(z1,(760,620),(280,20));

162 set\_boserif(0,0,whatever);

163 expand\_pbox;

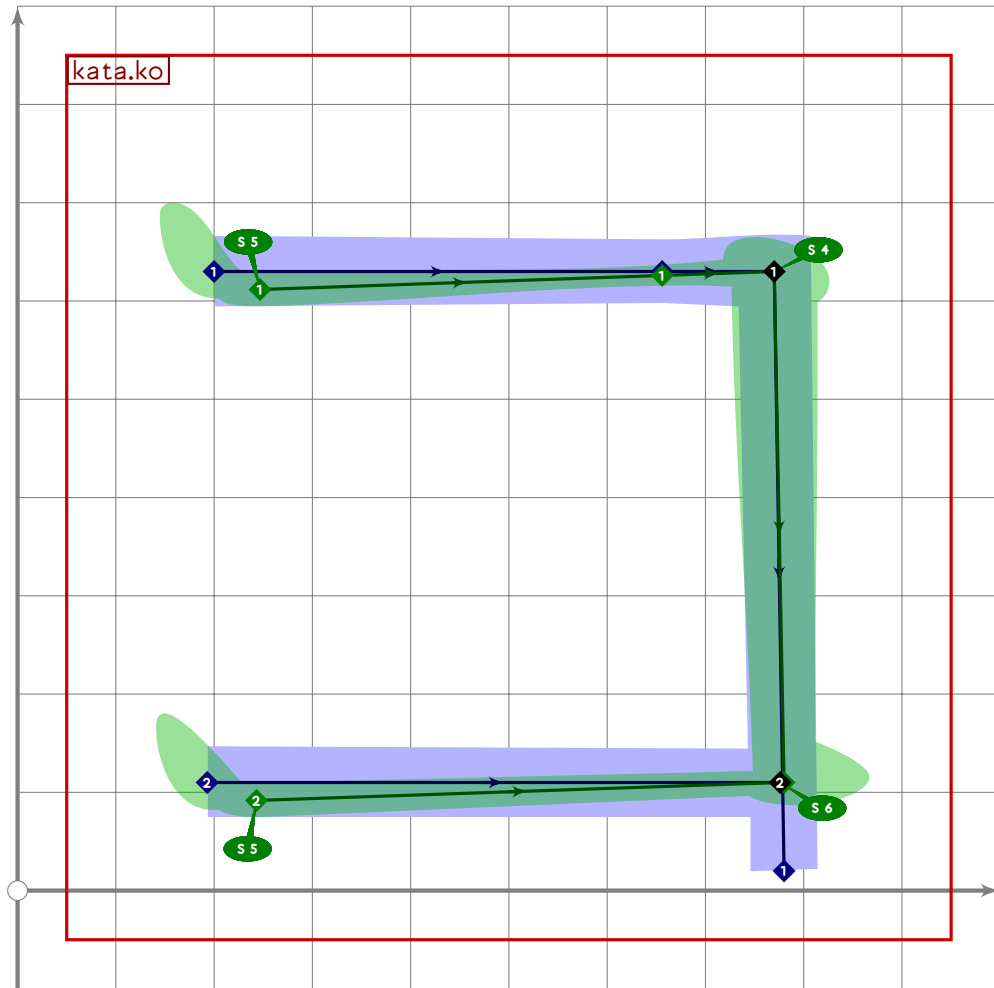
164 enddef;



```

165
166 vardef kata.ke =
167   push_pbox_toexpand("kata.ke");
168
169   push_stroke((400,770)..(307,540)..(140,320),
170     (0.68,2.7)-(1.4,1.4)-(1.1,1.1));
171   set_boserif(0,0.5);
172
173   z1=(get_strokep(0) intersectionpoint ((0,540)-(1000,540)));
174   push_stroke(z1-(880,540),(1.5,1.5)-(1.5,1.5)-(0.75,2.85));
175   set_boserif(0,1,6);
176
177   kata.no_stroke(point 0.6 of (z1-(880,540)),(310,10));
178   replace_stroke(0)(insert_nodes(oldp)(0.2));
179   expand_pbox;
180 enddef;

```



```

181
182 vardef kata.ko =
183   push_pbox_toexpand("kata.ko");
184
185   push_stroke((200,630-20*mincho)-(770,630)-(780,mincho[20,110]),
186     (0.78,2.83)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4));
187   replace_strokep(0)(insert_nodes(oldp)(0.8));
188   set_botip(0,2,1);
189   set_boserif(0,0,5);
190   set_boserif(0,2,4);
191
192   push_stroke((193,110-20*mincho)-(776,110),
193     (0.78,2.83)-(1.4,1.4));
194   set_boserif(0,0,5);
195   set_boserif(0,1,6);
196   expand_pbox;
197 enddef;
198

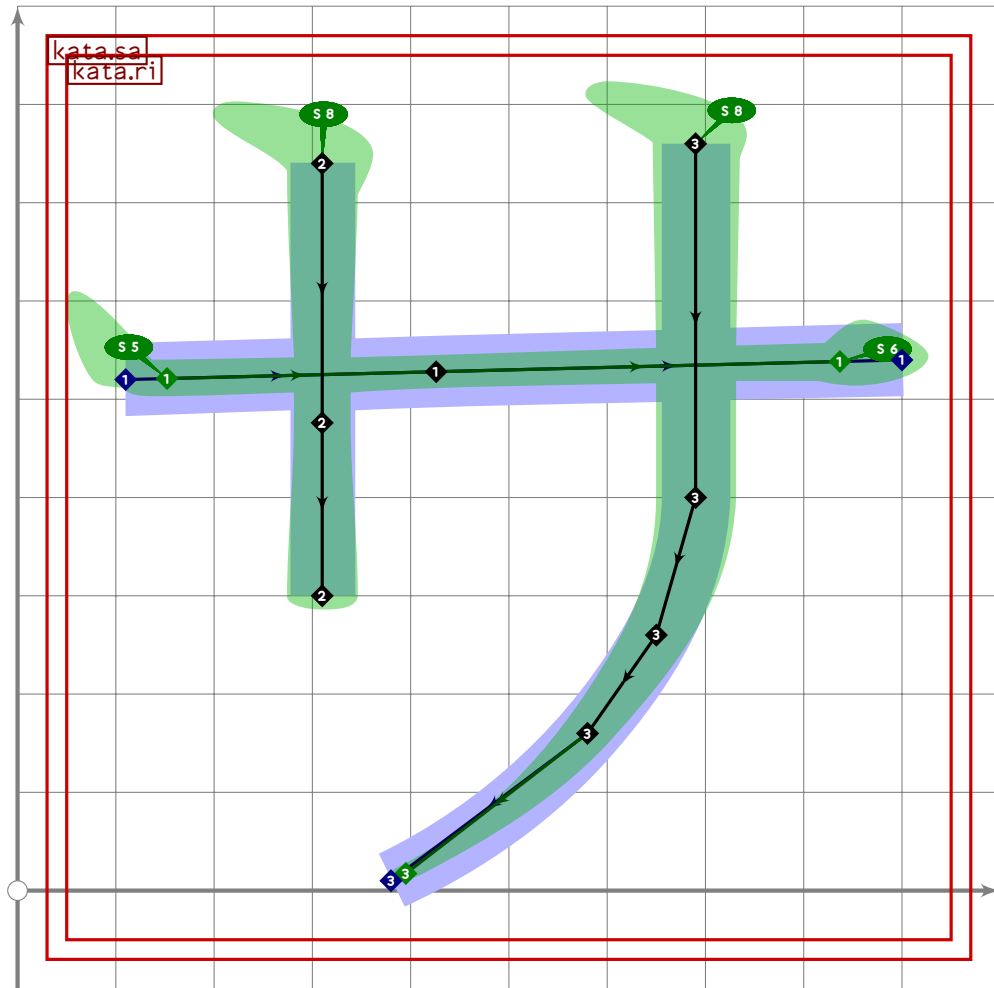
```

## Katakana Sashisuseso/Zajizuzezo

```

199 %%%%%%%%% KATAKANA SASHISUSES0/ZAJIZUZEZO

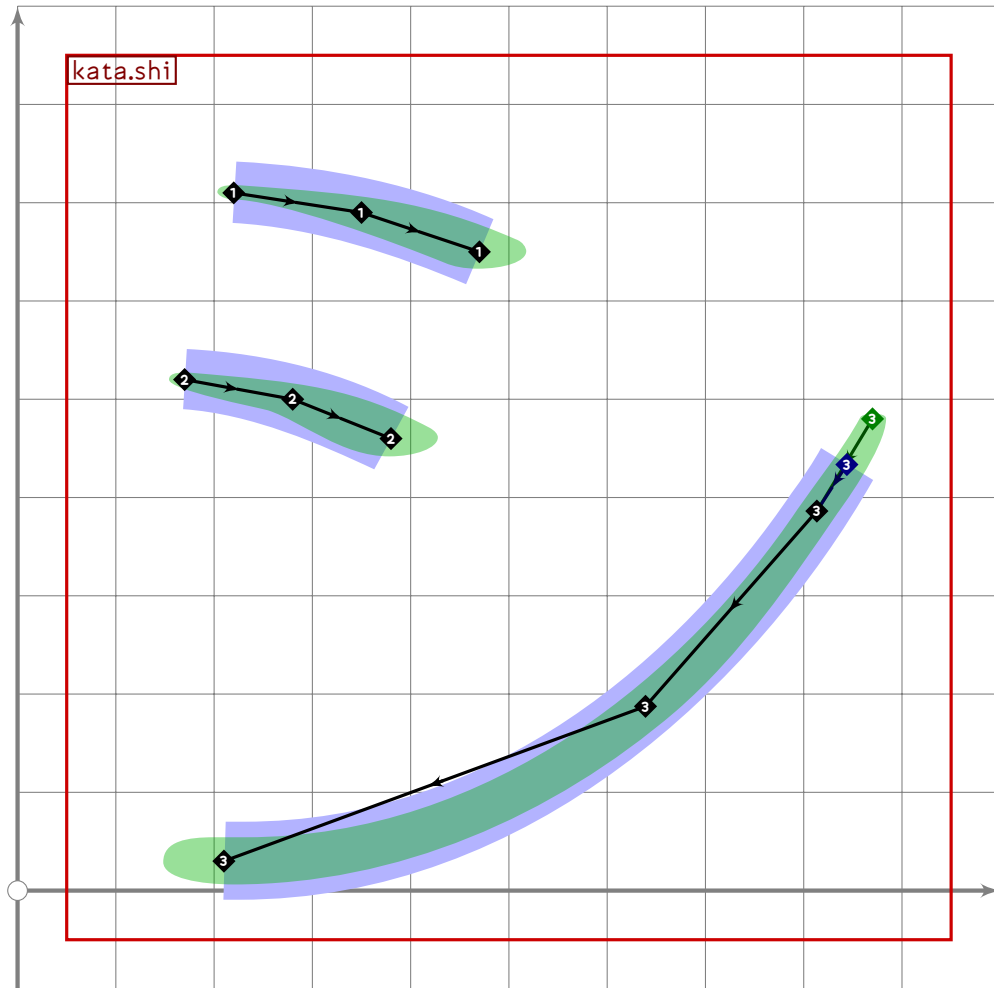
```



```

200
201 vardef kata.sa =
202   push_pbox_toexpand("kata.sa");
203
204   push_stroke((110,520)-(900,540),
205     (0,7,3)-(1,7,1,7)-(0,7,3));
206   replace_stroke(0)(insert_nodes(oldp)(0,4));
207   set_boserif(0,0,5);
208   set_boserif(0,2,6);
209
210   kata.ri;
211   expand_pbox;
212 enddef;

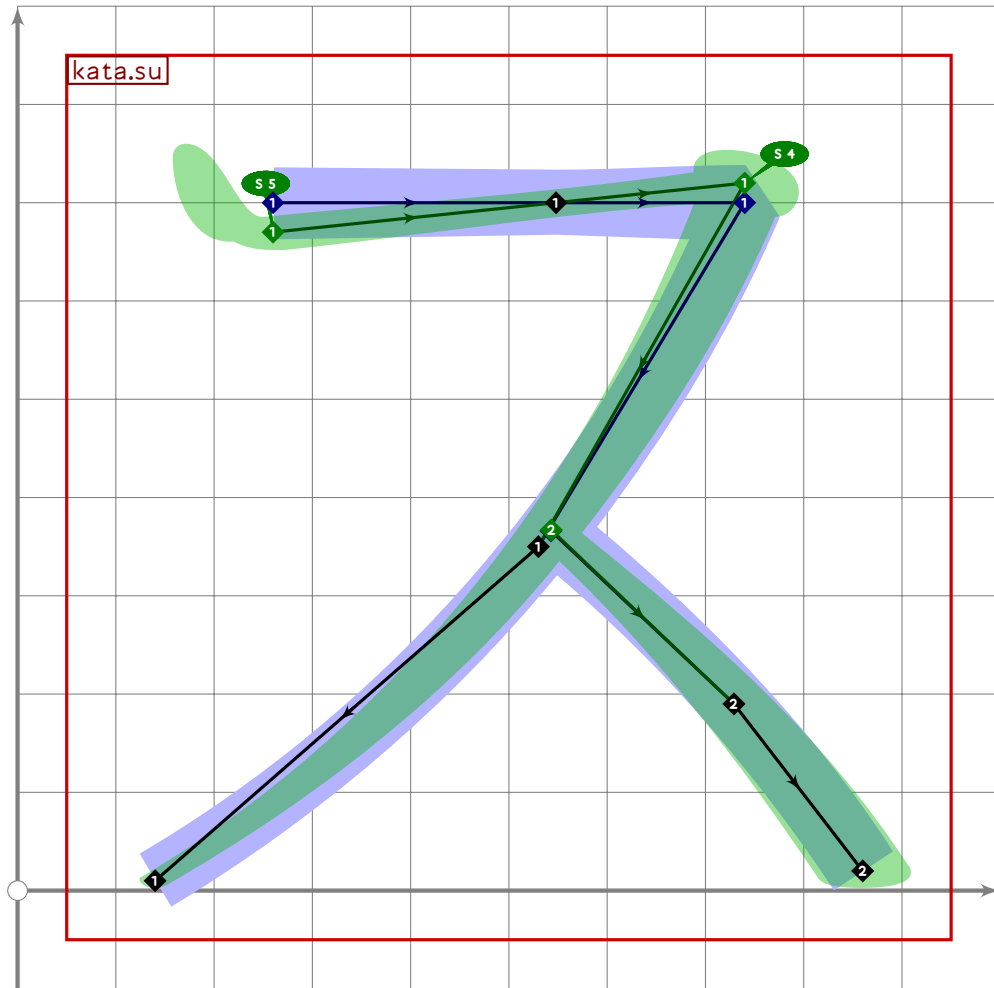
```



```

213
214 vardef kata.shi =
215   push_pbox_toexpand("kata.shi");
216
217   push_stroke((220,710)..(350,690)..(470,650),
218     (1)..(1.6,1.6)..(1.8,1.8));
219
220   push_stroke((170,520)..(280,500)..(380,460),
221     (1)..(1.6,1.6)..(1.8,1.8));
222
223   kata.no_stroke((870,480),(210,30));
224
225   replace_strokeq(0)((0,9,0,9)-(1,1,1,1)-(1,4,1,4)-(2,2,2,2));
226   set_boserif(0,4,5);
227   expand_pbox;
228 enddef;

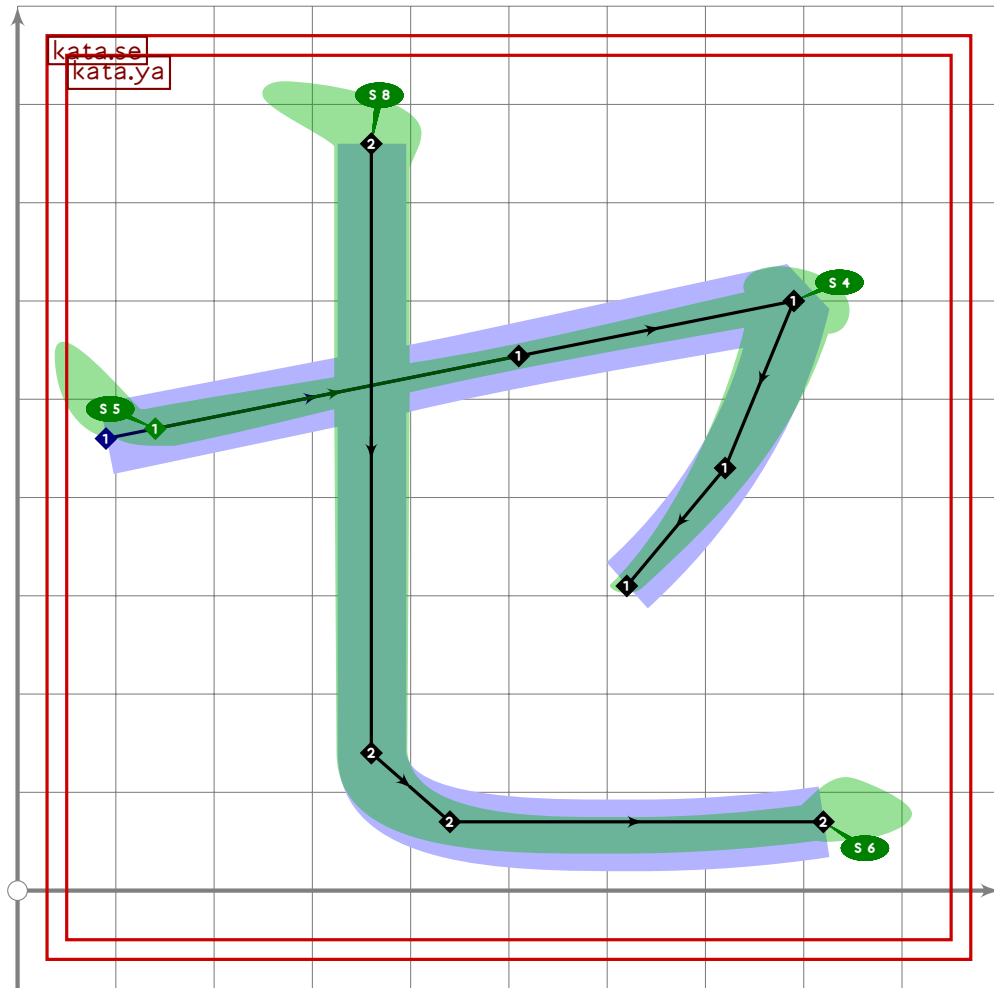
```



```

229
230 vardef kata.su =
231   push_pbox_toexpand("kata.su");
232
233   push_stroke((260,700-30*mincho)-(740,700+20*mincho)..(530,350)..(140,10),
234     (1.8,1.8)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4)-(1,1));
235   replace_strokep(0)(insert_nodes(oldp)(0.6));
236   set_botip(0,2,0);
237   set_boserif(0,0,5);
238   set_boserif(0,2,4);
239
240   push_stroke((point 2.95 of get_stroke(0)).(729,190)..(860,20),
241     (1.2,1.2)-(1.6,1.6)-(1.8,1.8));
242   expand_pbox;
243 enddef;

```

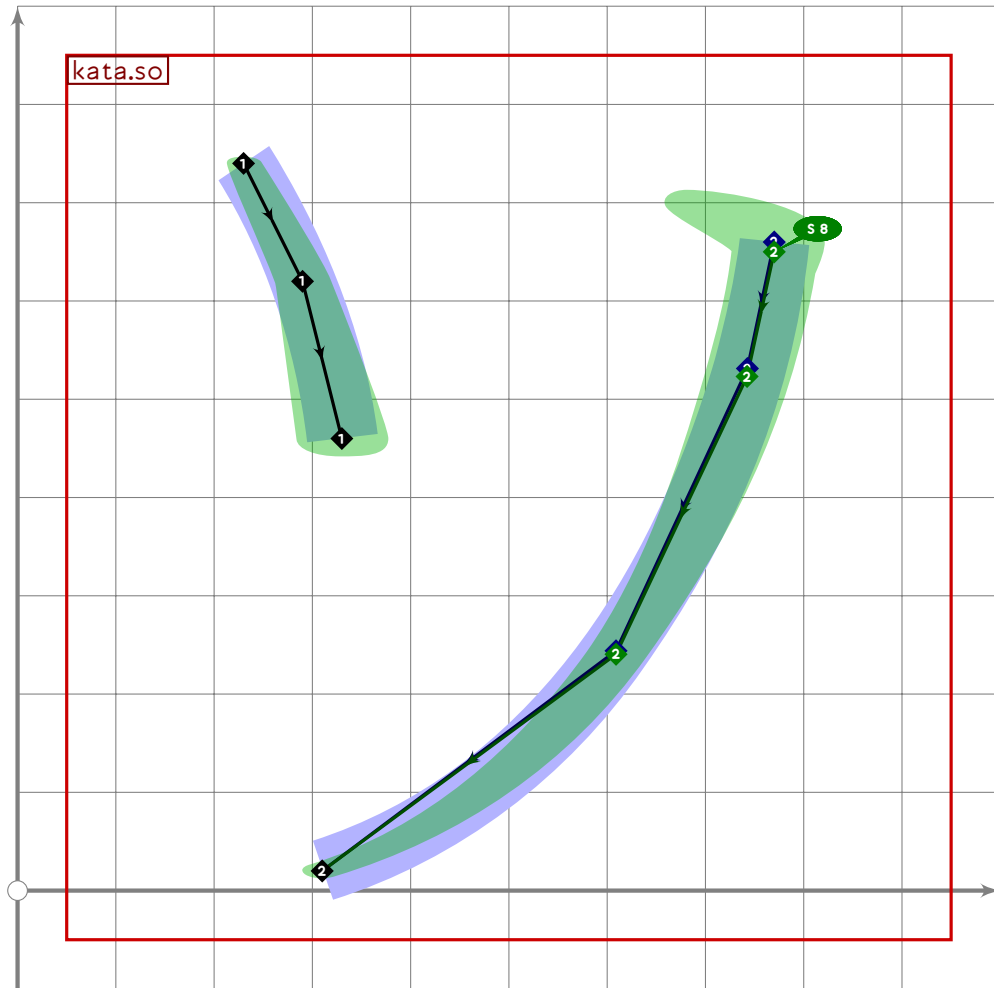


```

244
245 vardef kata.se =
246   push_pbox_toexpand("kata.se");
247
248   kata.ya;
249
250   replace_stroke(-1)(oldp shifted (-30,0));
251
252   replace_stroke(0)((360,760)-(360,140){dir 274}..
253     (440,70)..tension 2.1..(820,70));
254   replace_strokeq(0)((1.6,1.6)-(1.5,1.5)-(1.9,1.9)-(1.8,1.8));
255   set_boserif(0,0,8);
256   set_boserif(0,3,6);
257   expand_pbox;
258 enddef;

```





```

259
260 vardef kata.so =
261   push_pbox_toexpand("kata.so");
262
263   push_stroke((230,740)..(290,620)..(330,460),
264     (1)..(1.3,1.3)..(1.8,1.8));
265
266   kata.no_stroke((770,660-10*mincho),(310,20));
267   set_boserif(0,0,8);
268   expand_pbox;
269 enddef;
270

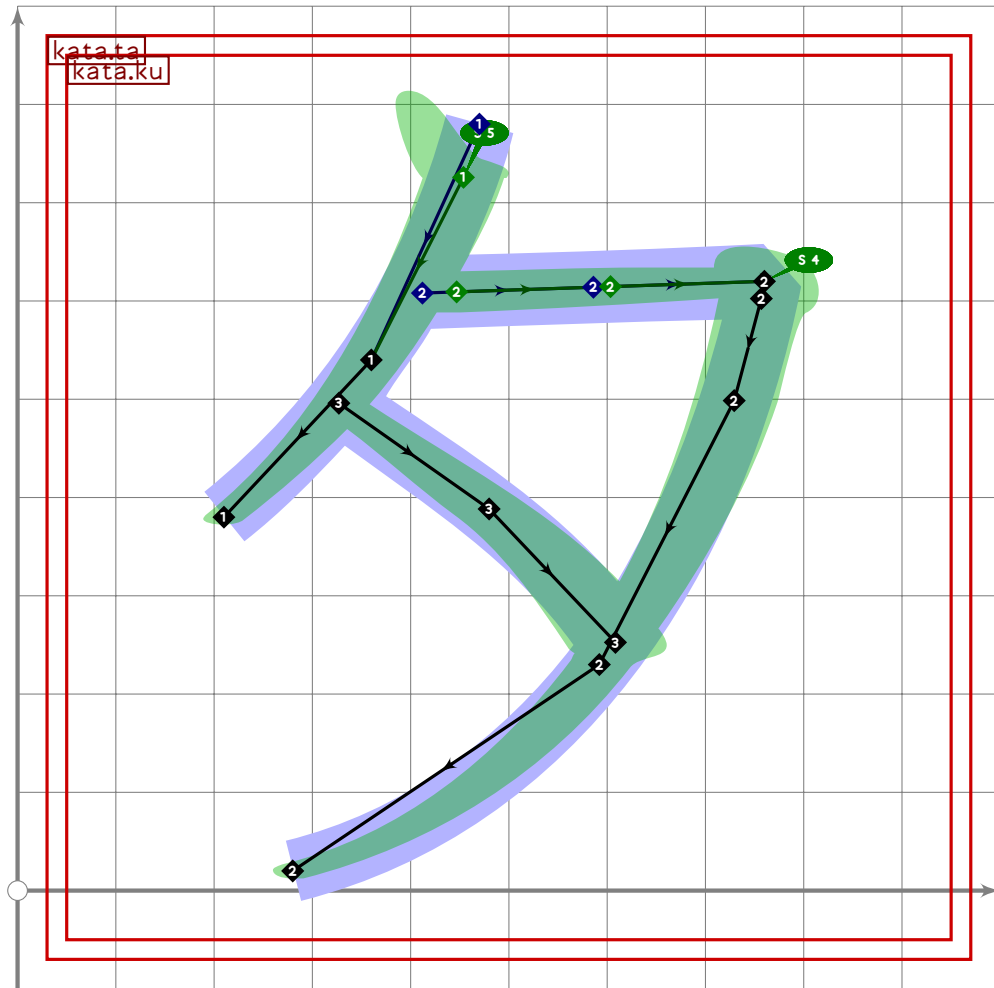
```

## Katakana Tachitsuteto/Dajizudedo

```

271 %%% KATAKANA TACHITSUTETO/DAJIZUEDO

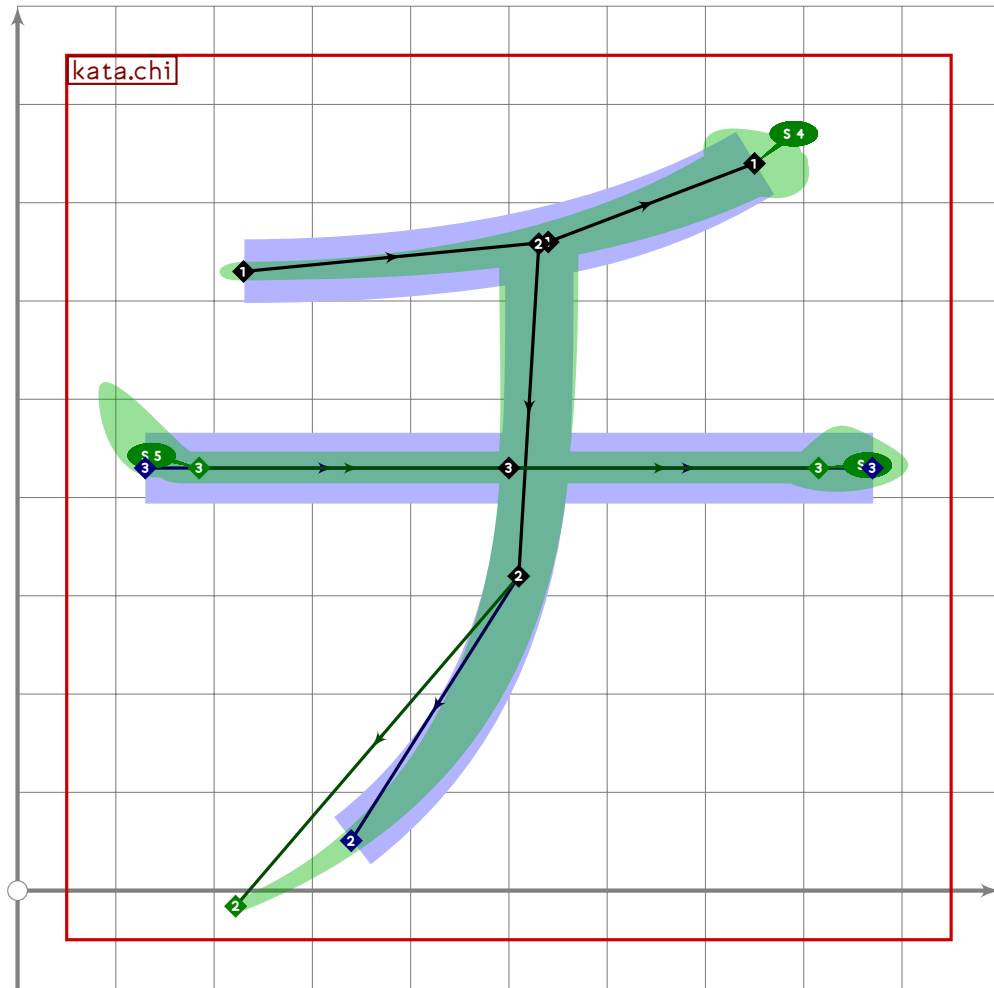
```



```

272
273 vardef kata.ta =
274   push_pbox_toexpand("kata.ta");
275
276   kata.ku;
277
278   numeric x[],y[];
279   z1=point 1.25 of get_strokep(-1);
280   z3=point 4.9 of get_strokep(0);
281   z2=(0.5[z1,z3])+0.05*((z3-z1) rotated 90);
282   push_stroke(z1..tension 2..z2..z3,
283     (1.2,1.2)-(1.6,1.6)-(1.9,1.9));
284   expand_pbox;
285 enddef;

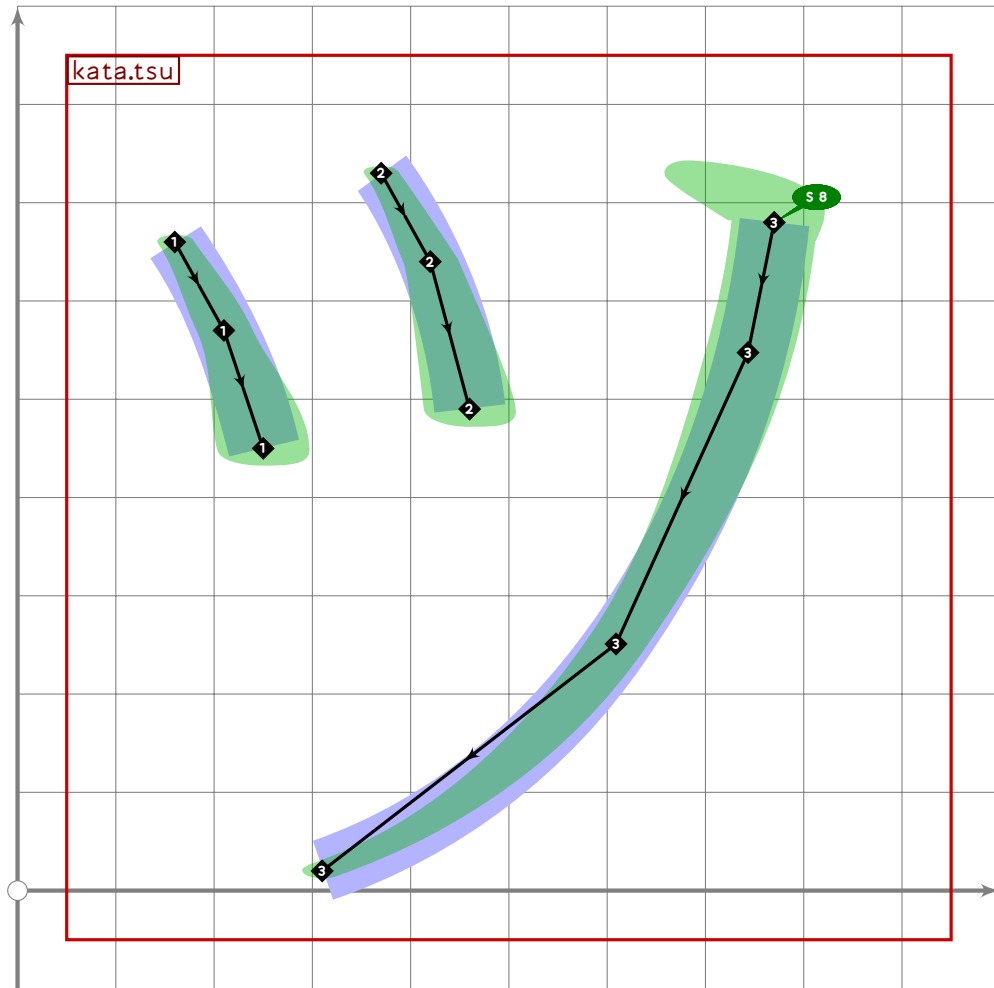
```



```

286
287 vardef kata.chi =
288   push_pbox_toexpand("kata.chi");
289
290   push_stroke((230,630)..tension 1.3..(540,660)..(750,740),
291     (1,2,1,2)-(1,7,1,7)-(2,2));
292   set_boserif(0,2,4);
293
294   kata.na_centre;
295   replace_stroke(0)(subpath (xpart (oldp intersectiontimes
296     get_stroke(-1)),infinity) of oldp);
297
298   push_stroke((130,430)-(870,430),
299     (0,7,2,7)-(1,6,1,6)-(0,7,2,7));
300   replace_stroke(0)(insert_nodes(oldp)(0.5));
301   set_boserif(0,0,5);
302   set_boserif(0,2,6);
303   expand_pbox;
304 enddef;

```



```

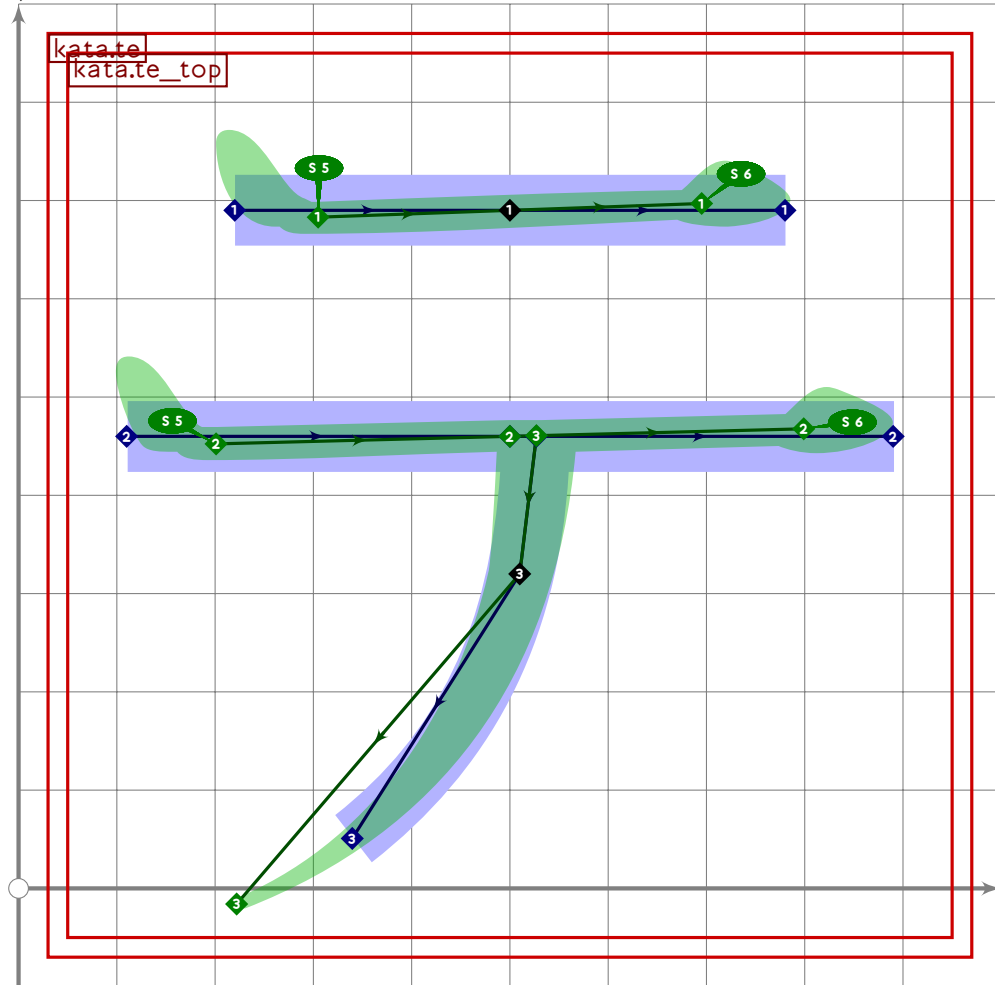
305
306 vardef kata.tsu =
307   push_pbox_toexpand("kata.tsu");
308
309   push_stroke((160,660)..(210,570)..(250,450),
310     (1,1)..(1.3,1.3)..(1.8,1.8));
311
312   push_stroke((370,730)..(420,640)..(460,490),
313     (1,1)..(1.3,1.3)..(1.8,1.8));
314
315   kata.no_stroke((770,680),(310,20));
316   set_boserif(0,0,8);
317   expand_pbox;
318 enddef;
319
320 vardef kata.te_top =
321   push_pbox_toexpand("kata.te_top");
322
323   push_stroke((220,690-10*mincho)-(780,690+10*mincho),
324     (0.5,2.9)-(1.6,1.6)-(0.5,2.9));
325   replace_strokep(0)(insert_nodes(oldp)(0.5));

```

```

326 set_boserif(0,0,5);
327 set_boserif(0,2,6);
328
329 push_stroke((110,460-10*mincho)-(890,460+10*mincho),
330   (0,6,2.8)-(1,6,1.6)-(0,6,2.8));
331 replace_stroke(0)(insert_nodes(oldp)(0.5));
332 set_boserif(0,0,5);
333 set_boserif(0,2,6);
334 expand_pbox;
335 enddef;

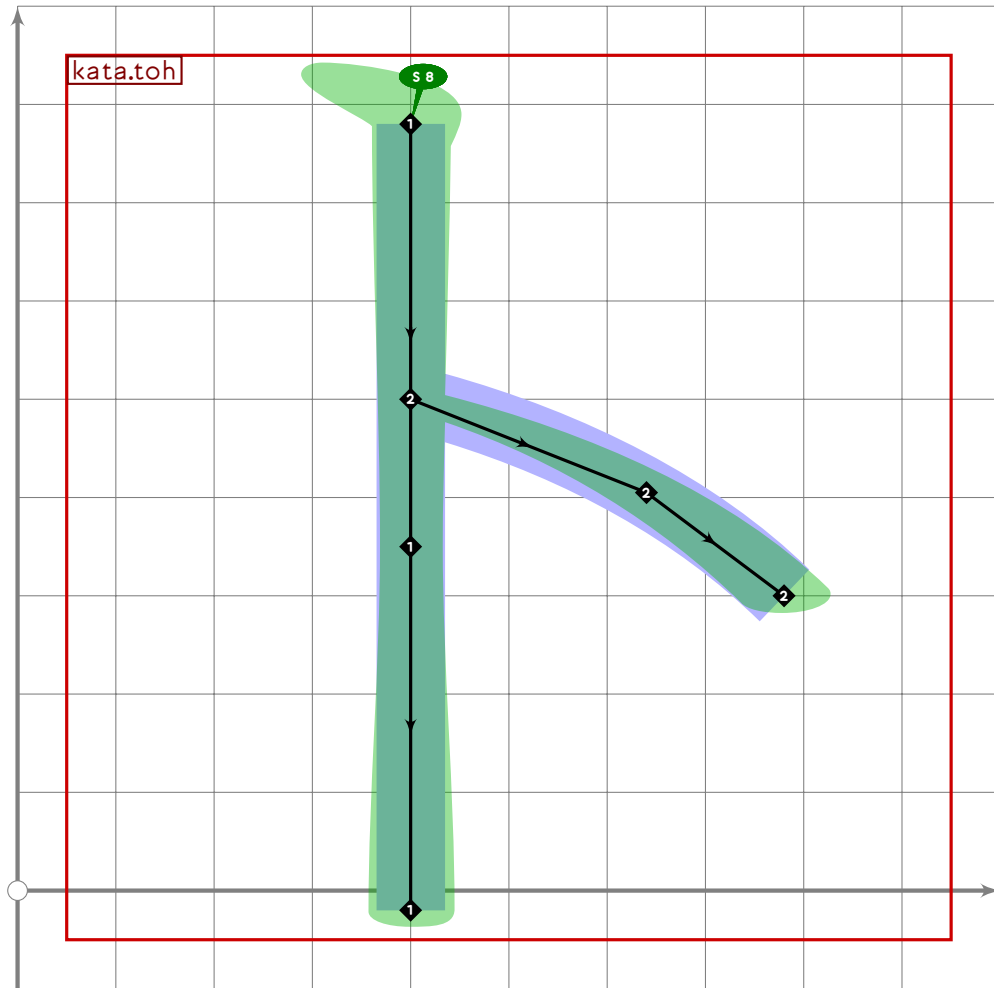
```



```

336
337 vardef kata.te =
338   push_pbox_toexpand("kata.te");
339
340   kata.te_top;
341
342   kata.na_centre;
343   replace_stroke(0)(subpath (xpart (oldp intersectiontimes get_stroke(-1)),
344     infinity) of oldp);
345   expand_pbox;
346 enddef;

```



```

347
348 vardef kata.toh =
349   push_pbox_toexpand("kata.toh");
350
351   push_stroke((400,780)-(400,350)-(400,20),
352     (1.6,1.6)-(1.4,1.4)-(1.7,1.7));
353   set_boserif(0,0,8);
354
355   push_stroke((400,500)..tension 1.1..(640,405)..(780,300),
356     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
357   expand_pbox;
358 enddef;
359

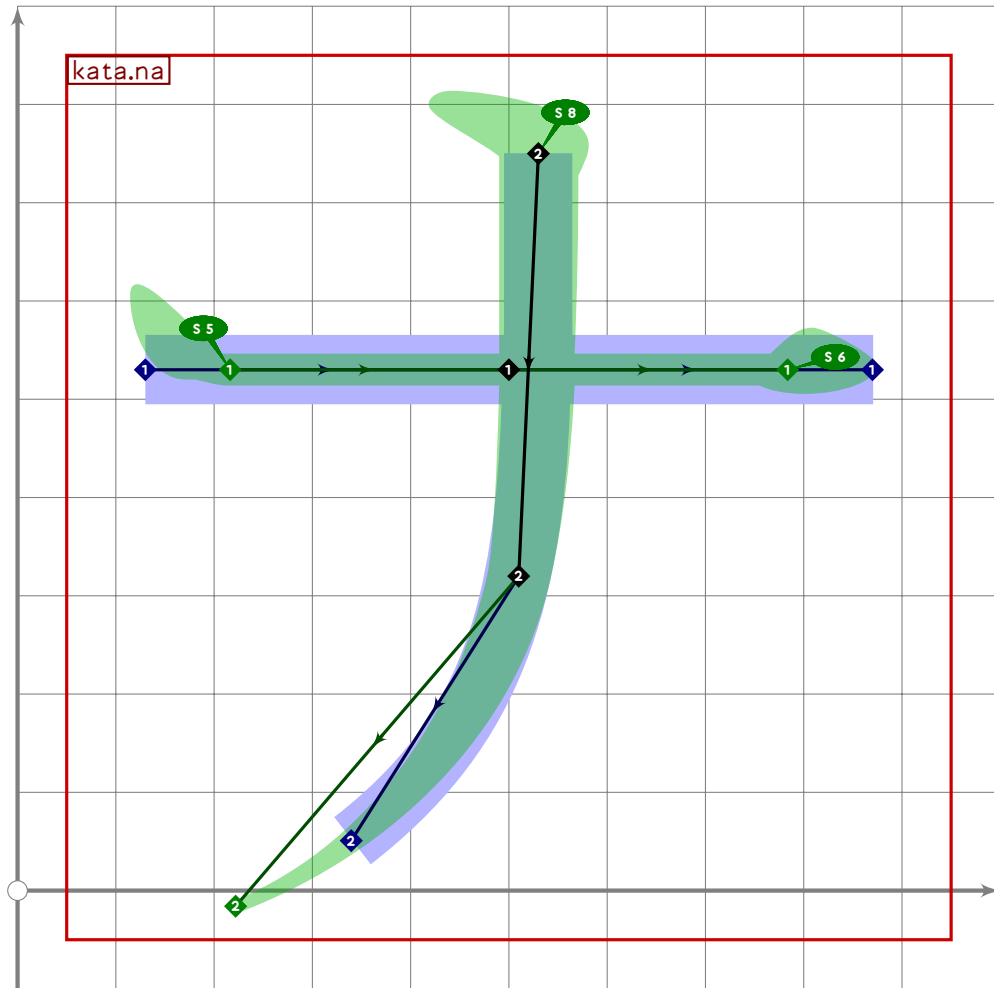
```

## Katakana Naninuneno

```

360 %%% KATAKANA NANINUNENO
361
362 vardef kata.na_centre =
363   push_stroke((530,750){down}.tension 1.2..(510,320)..(180,-30),
364     (1.6,1.6)-(1.4,1.4)-(0.78,0.78));
365 enddef;

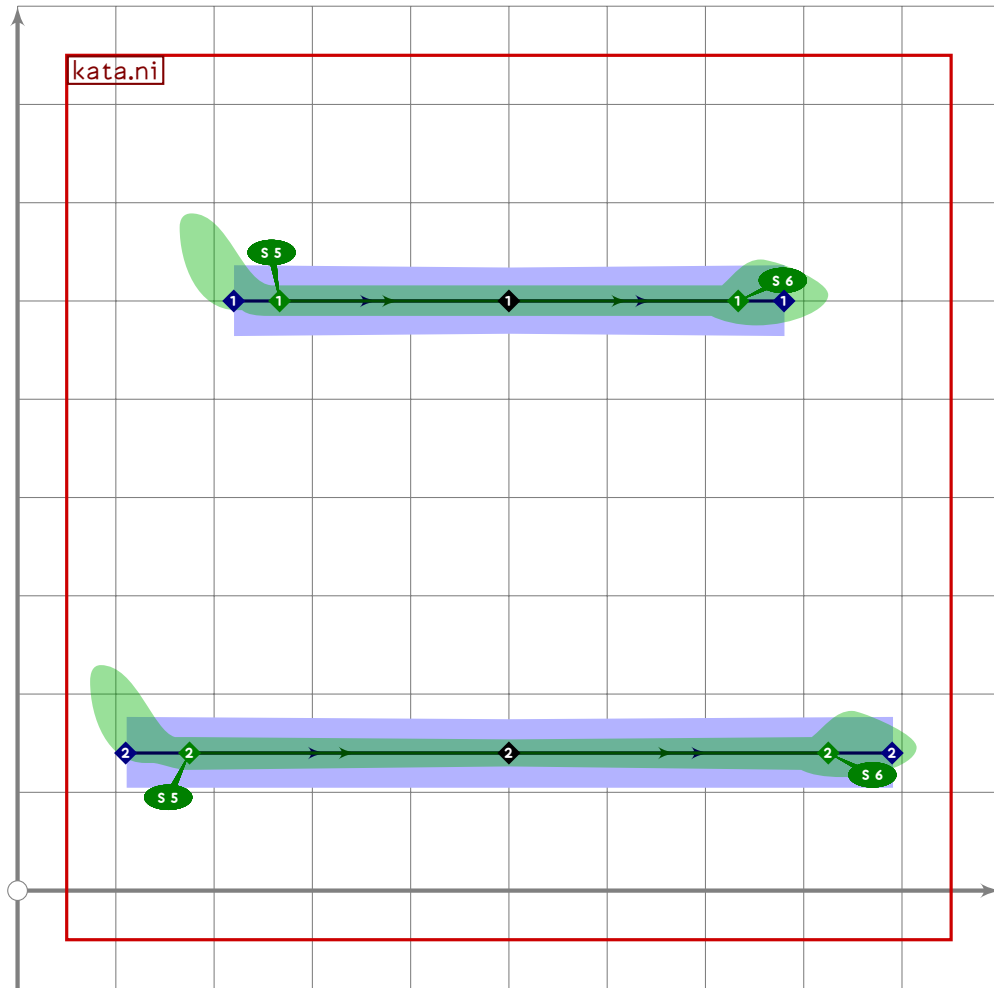
```



```

366
367 vardef kata.na =
368   push_pbox_toexpand("kata.na");
369
370   push_stroke((130,530)-(870,530),
371     (0,6,2.8)-(1,6,1.6)-(0,6,2.8));
372   replace_stroke(0)(insert_nodes(oldp)(0.5));
373   set_boserif(0,0,5);
374   set_boserif(0,2,6);
375
376   kata.na_centre;
377   set_boserif(0,0,8);
378   expand_pbox;
379 enddef;

```

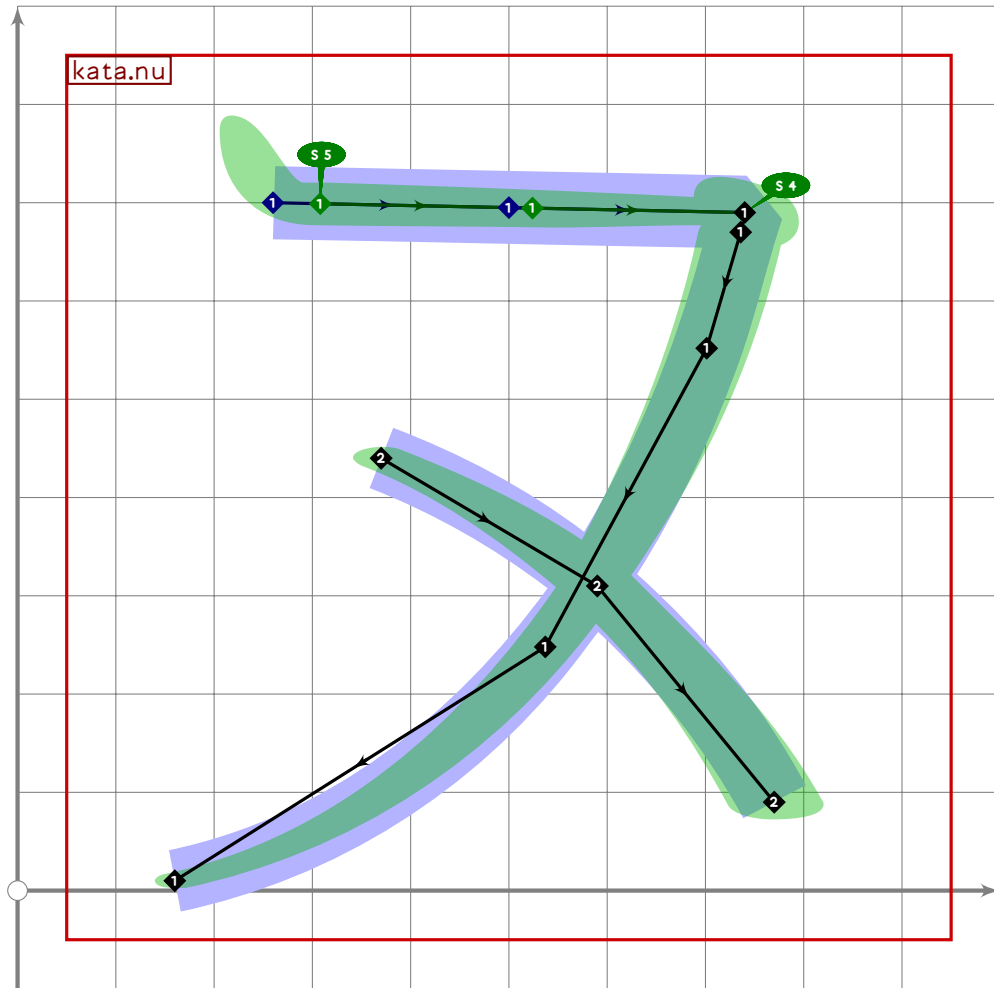


```

380
381 vardef kata.ni =
382   push_pbox_toexpand("kata.ni");
383
384   push_stroke((220,600)-(500,600)-(780,600),
385     (0.7,2.7)-(1.5,1.5)-(0.7,2.9));
386   set_boserif(0,0,5);
387   set_boserif(0,2,6);
388
389   push_stroke((110,140)-(500,140)-(890,140),
390     (0.7,2.7)-(1.5,1.5)-(0.7,2.9));
391   set_boserif(0,0,5);
392   set_boserif(0,2,6);
393   expand_pbox;
394 enddef;

```

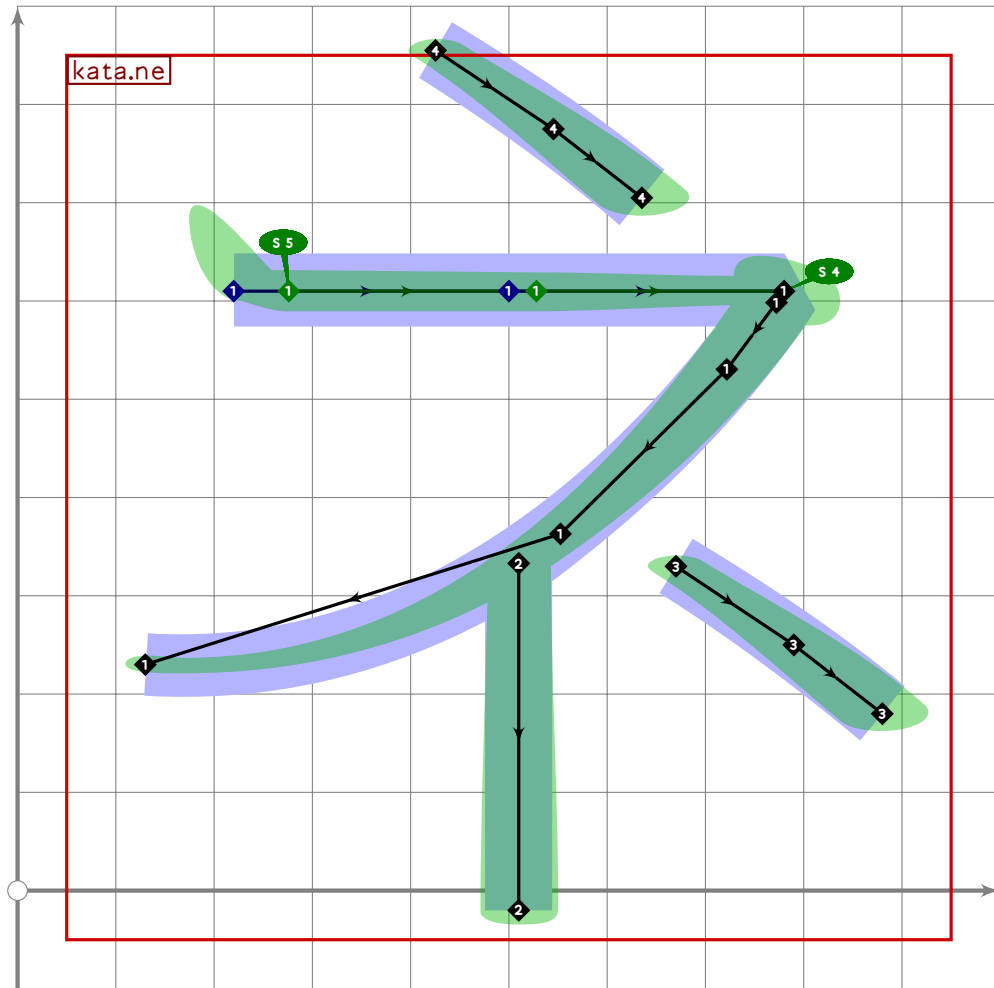




```

395
396 vardef kata.nu =
397   push_pbox_toexpand("kata.nu");
398
399   kata.fu_stroke((260,700),(740,690),(160,10));
400
401   push_stroke((370,440)..(590,310)..(770,90),
402     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
403   expand_pbox;
404 enddef;

```



```

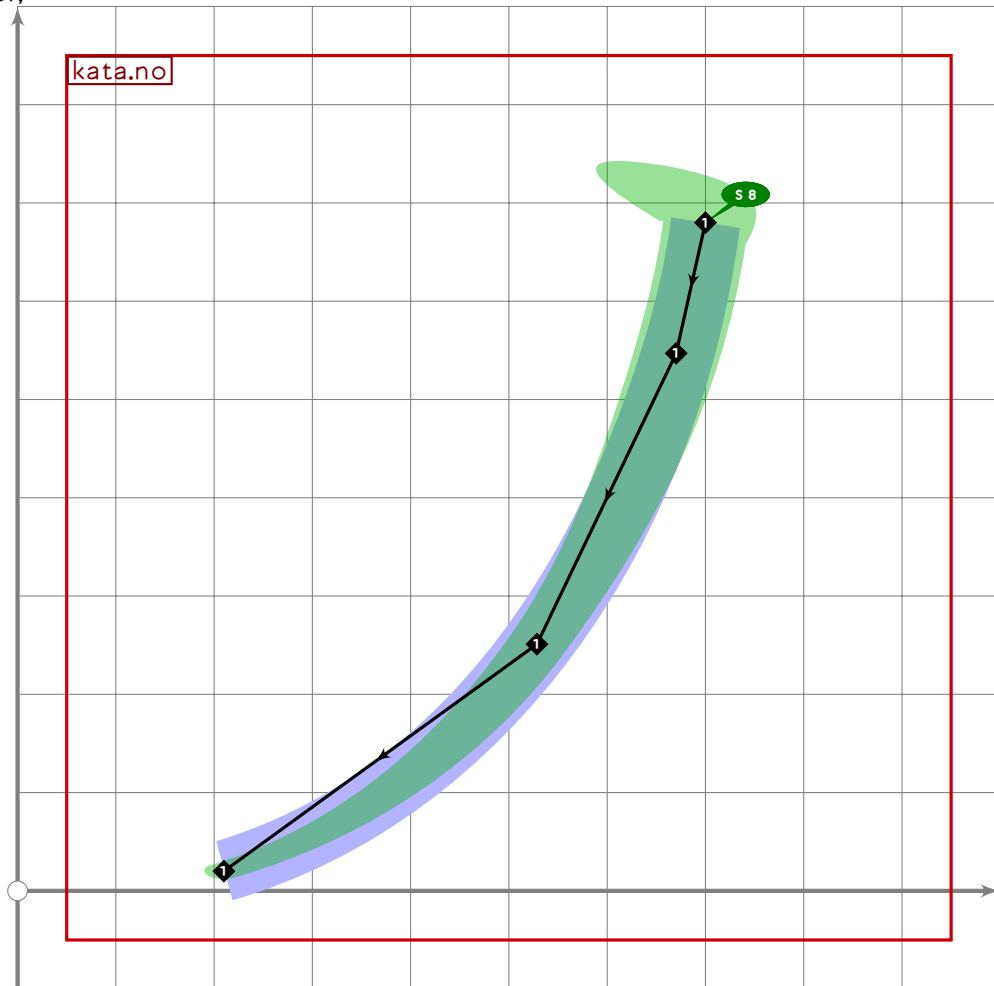
405
406 vardef kata.ne =
407   push_pbox_toexpand("kata.ne");
408
409   kata.fu_stroke((220,610),(780,610),(130,230));
410
411   push_stroke(((510,0)-(510,1000)) intersectionpoint
412     reverse get_strokep(0)-(510,-20),
413     (14,14)-(16,16));
414
415   push_stroke((670,330)..(790,250)..(880,180),
416     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
417
418   push_stroke(get_strokep(0) shifted ((510,800)-point 0.7 of get_strokep(0)),
419     get_strokeq(0));
420   expand_pbox;
421 enddef;
422
423 vardef kata.no_stroke(expr ur,ll) =
424   push_stroke(insert_nodes(ur.tension 1.1..
425     (0.65[xpart ll,xpart ur],0.35[ypart ll,ypart ur]..{curl 1.2}ll)(0.3),

```

```

426 (1.7,1.7)-(1.7,1.7)-(1.4,1.4)-(1.1,1.1));
427 enddef;

```



```

428
429 vardef kata.no =
430   push_pbox_toexpand("kata.no");
431
432   kata.no_stroke((700,680),(210,20));
433   set_boserif(0,0,8);
434   expand_pbox;
435 enddef;
436

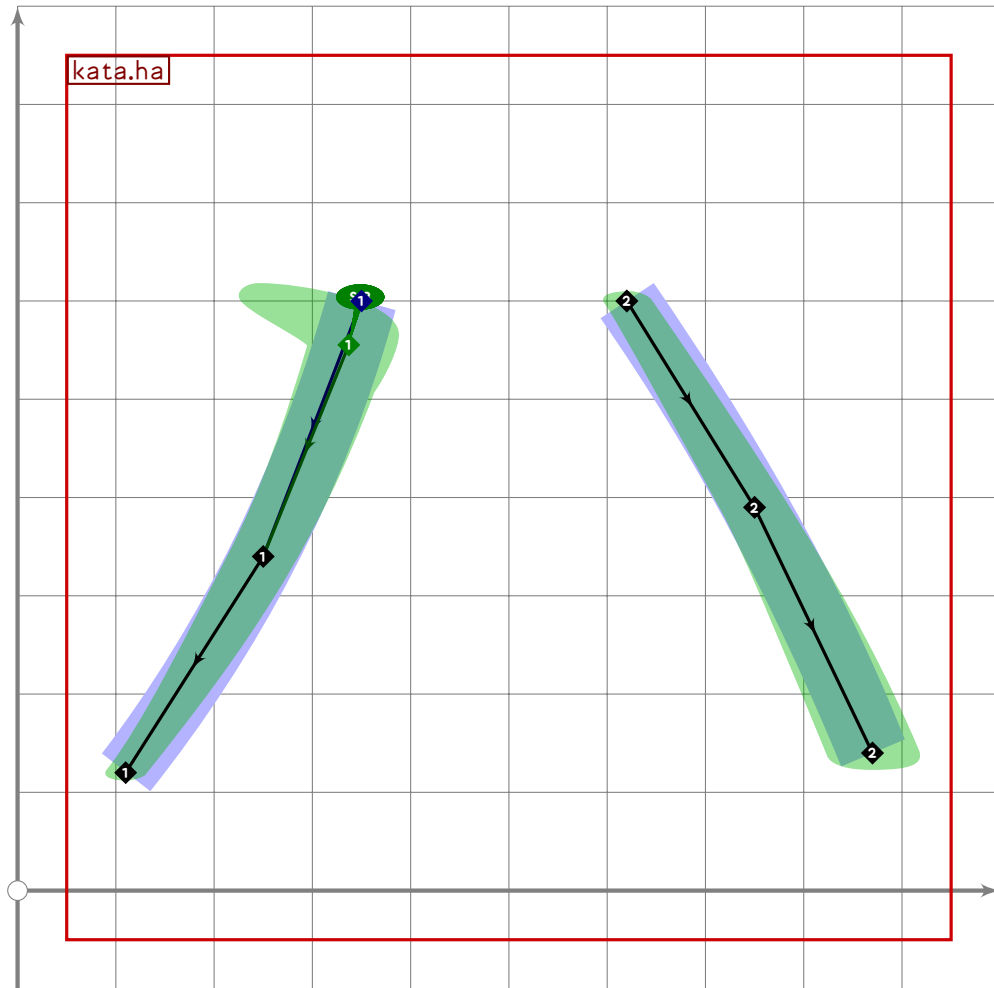
```

Katakana Hahifuheho/Babibubebo/Papipupepo

```

437 %%%%%%%%% KATAKANA HAHIFUHEHO/BABIBUBEBO/PAPIPUPEPO

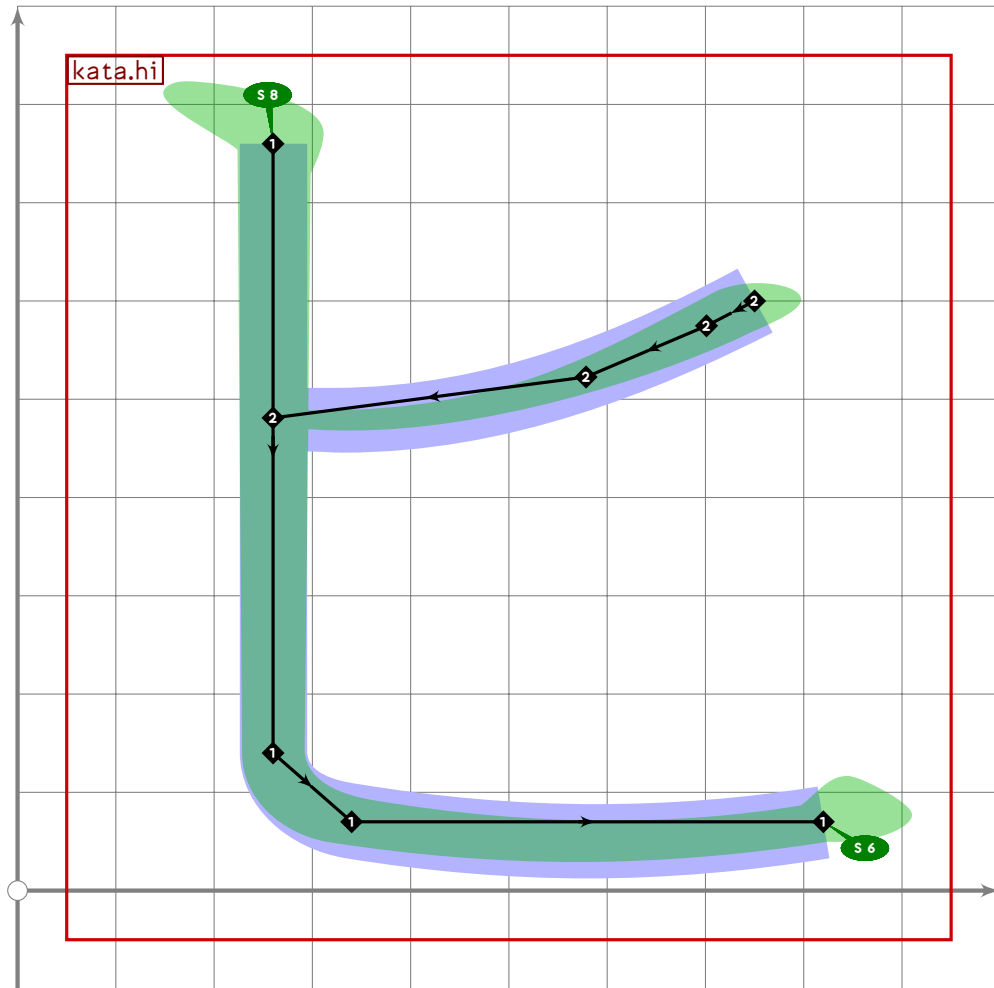
```



```

438
439 vardef kata.ha =
440   push_pbox_toexpand("kata.ha");
441
442   push_stroke((350,600)..(250,340)..(110,120),
443     (0,7,2,7)-(1,5,1,5)-(1,1,1,1));
444   set_boserif(0,0,8);
445
446   push_stroke((620,600)..(750,390)..(870,140),
447     (1,2,1,2)-(1,5,1,5)-(1,8,1,8));
448   expand_pbox;
449 enddef;

```

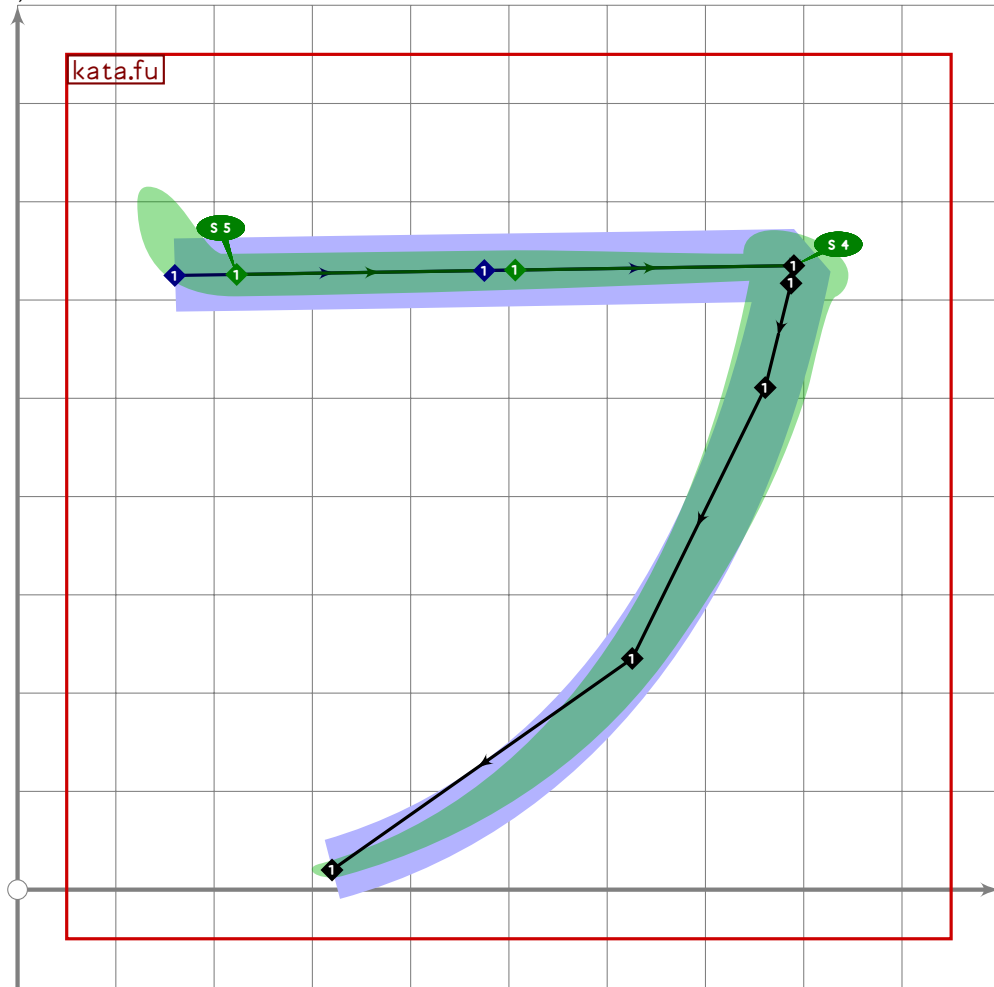


```

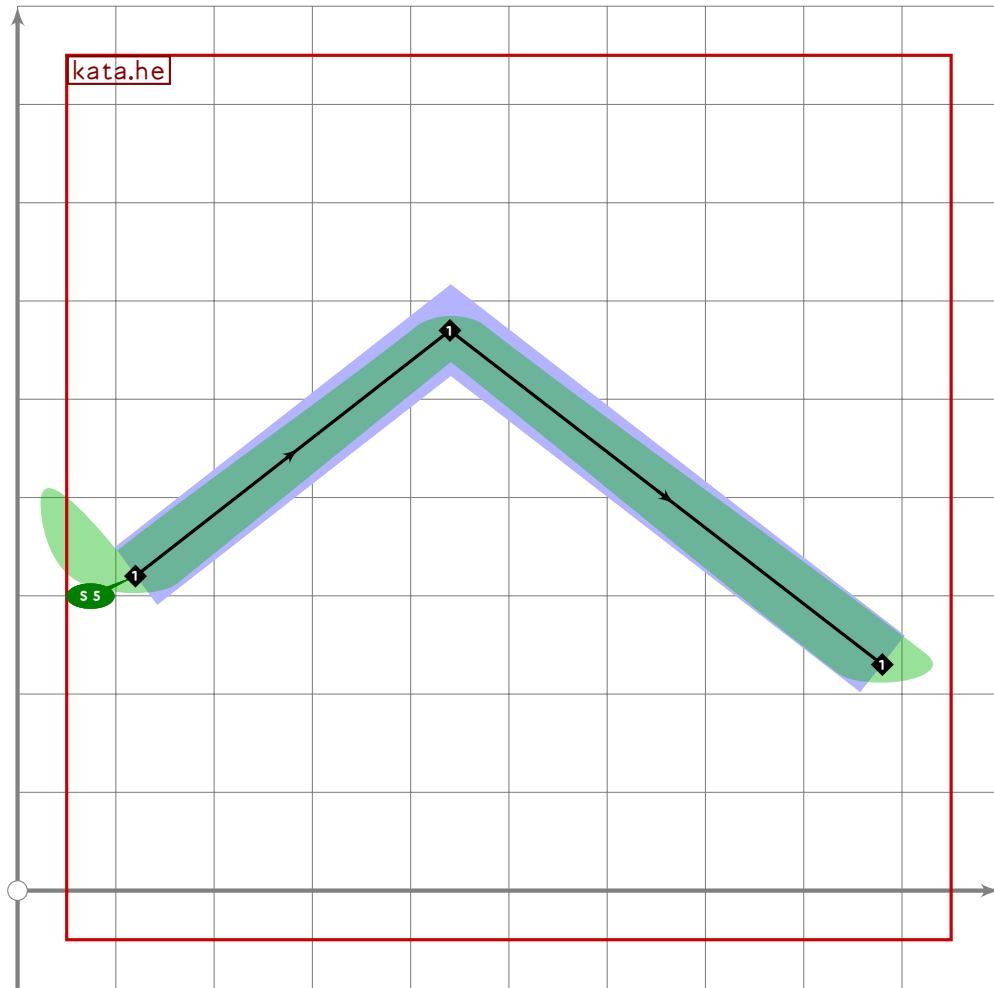
450
451 vardef kata.hi =
452   push_pbox_toexpand("kata.hi");
453
454   push_stroke((260,760)-(260,140){dir 274}..(340,70)..tension 2.1..(820,70),
455     (0.84,2.18)-(1.4,1.4)-(2.1,2.1)-(1.9,1.9));
456   set_boserif(0,0,8);
457   set_boserif(0,3,6);
458
459   kata.no_stroke((750,600),point 0.45 of get_strokep(0));
460   replace_strokeq(0)(oldq shifted (0.1,0.1));
461   expand_pbox;
462 enddef;
463
464 vardef kata.fu_stroke(expr ul,ur,ll) =
465   kata.no_stroke(ur,ll);
466   replace_strokep(0)(insert_nodes(((mincho*0.1)[ul,ur])-oldp)(0.5,1.15));
467   replace_strokeq(0)((2,2)-(1.9,1.9)-(1.5,1.5)-oldq);
468   set_botip(0,2,0);
469   set_boserif(0,0,5);
470   set_boserif(0,2,4);

```

471 enddef;



```
472  
473 vardef kata.fu =  
474   push_pbox_toexpand("kata.fu");  
475  
476   kata.fu_stroke((160,625),(790,635),(320,20));  
477   expand_pbox;  
478 enddef;
```



```

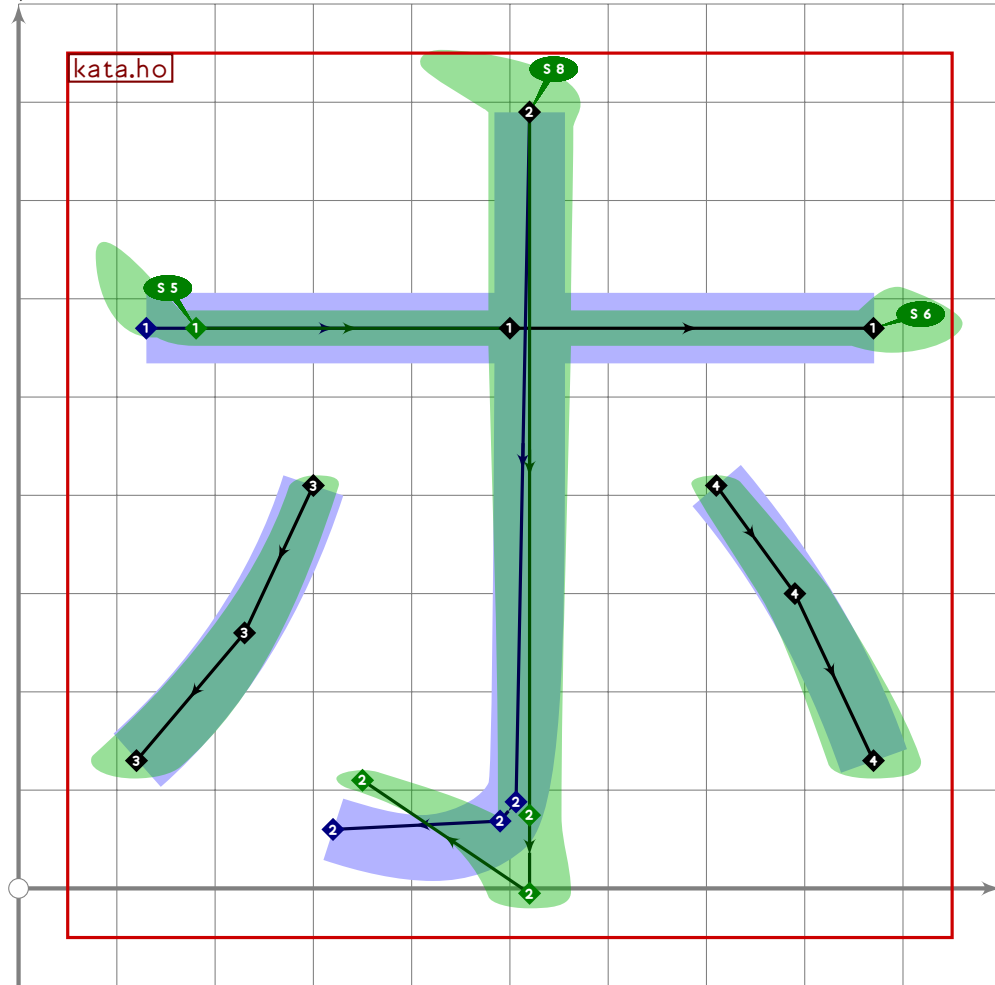
479
480 vardef kata.he =
481   push_pbox_toexpand("kata.he");
482
483   push_stroke((120,320)-(440,570)-(880,230),
484     (1.8,1.8)-(1.5,1.5)-(1.9,1.9));
485   set_botip(0,1);
486   set_boserif(0,0,5);
487   expand_pbox;
488 enddef;
489
490 vardef kata.ho_centre(expr pta,ptb) =
491   push_stroke(begingroup
492     numeric x[],y[];
493     path mycirc,ripx,ripy;
494     mycirc:=fullcircle scaled 100 shifted ptb;
495     z1=(pta-ptb) intersectionpoint mycirc;
496     z2=ptb+(-200,40);
497     z3=0.85[z2,z1];
498     ripx:=pta{down}..tension 1.6..z3..{curl 0}z2;
499     ripx:=insert_nodes(ripx)(0.95);

```

```

500 z4=1.5[z1,ptb];
501 z5=ptb+(-170,90);
502 ripy:=pta-z4{z3-z4}..{curl 0}z5;
503 ripy:=insert_nodes(ripy)(0.90);
504 interpath(mincho,ripx,ripy)
505 endgroup,
506 (1.7,1.7)-(1.4,1.4)-(1.6,1.6)-(0.9,1.6));
507 set_botip(0,2,0);
508 set_boserif(0,0,8);
509 enddef;

```



```

510
511 vardef kata.ho =
512   push_pbox_toexpand("kata.ho");
513
514   push_stroke((130,570)-(500,570)-(870,570),
515             (0.68,2.92)-(1.8,1.8)-(1.9,1.9));
516   set_boserif(0,0,5);
517   set_boserif(0,2,6);
518
519   kata.ho_centre((520,790),(520,20));
520

```



```

521 push_stroke((300,410)..(230,260)..(120,130),
522   (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
523
524 push_stroke((710,410)..(790,300)..(870,130),
525   (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
526 expand_pbox;
527 enddef;
528

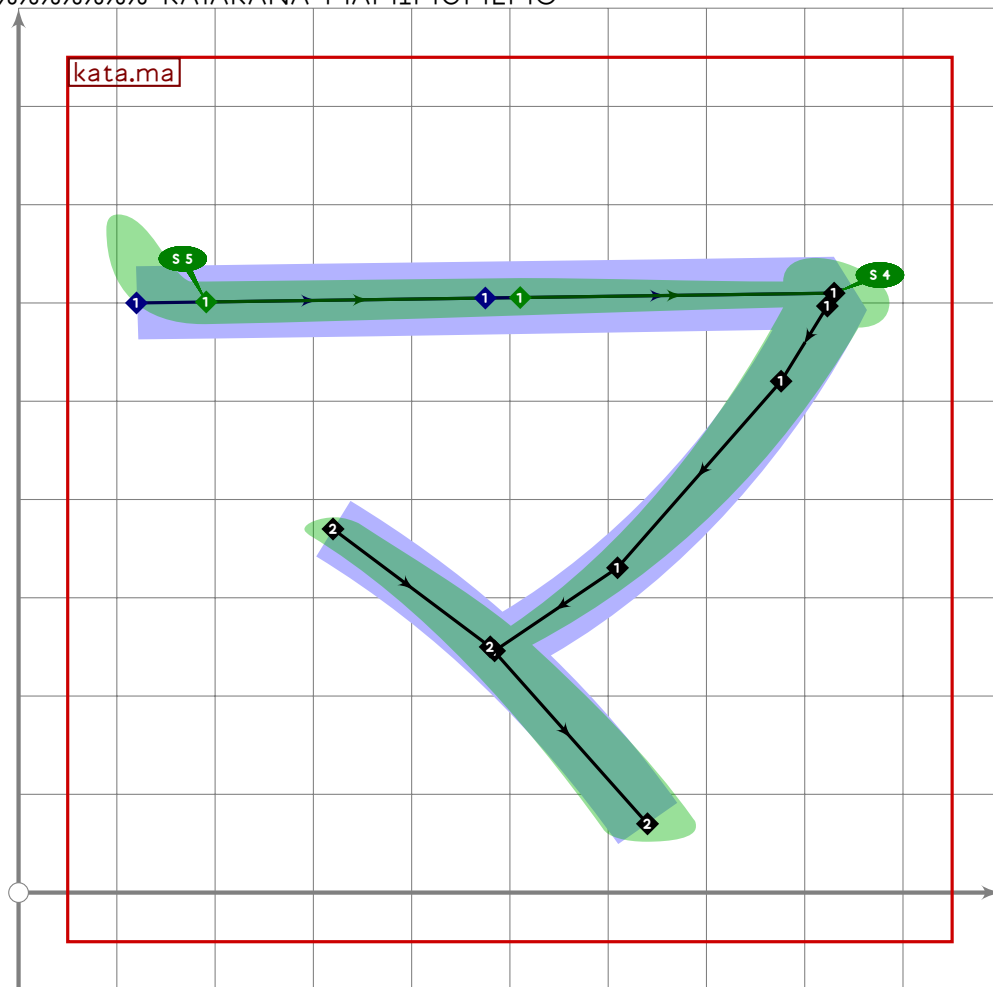
```

## Katakana Mamimumemo

```

529 %%%%%%%%% KATAKANA MAMIMUMEMO

```



```

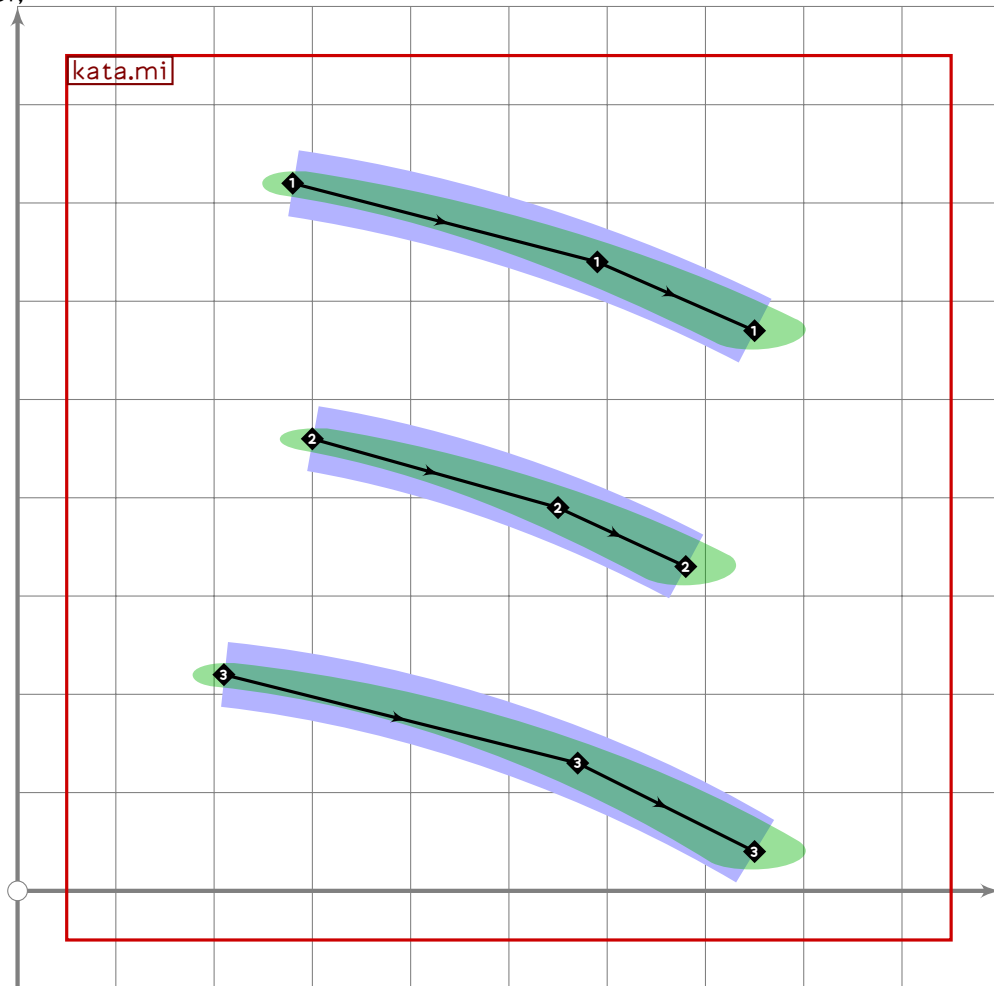
530
531 vardef kata.ma =
532   push_pbox_toexpand("kata.ma");
533
534   kata.fu_stroke((120,600),(830,610),(200,180));
535
536   push_stroke((320,370)..(480,250)..(640,70),
537     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
538   replace_stroke(-1)(subpath (0,xpart (oldp intersectiontimes
539     get_strokep(0))) of oldp);

```

```

540 expand_pbox;
541 enddef;

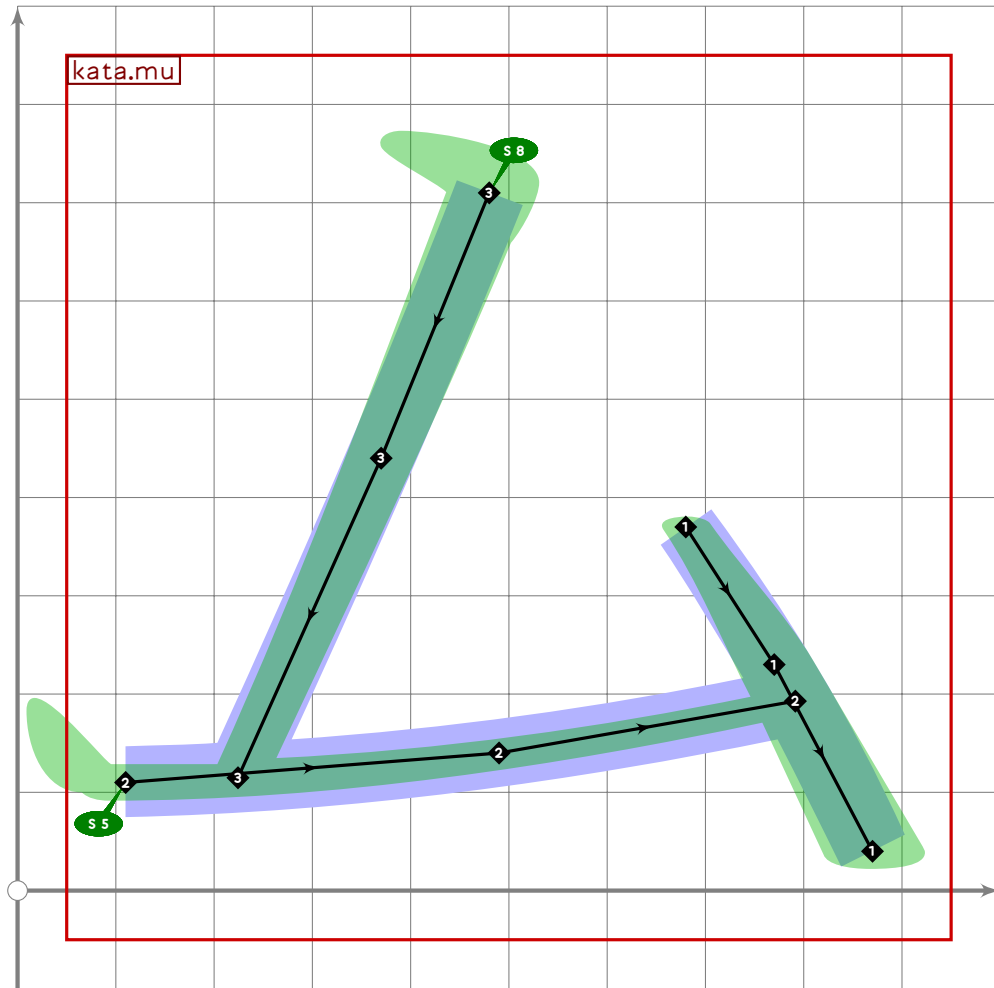
```



```

542
543 vardef kata.mi =
544   push_pbox_toexpand("kata.mi");
545
546   push_stroke((280,720)..(590,640)..(750,570),
547     (1,1,4)-(1,7,1)-(1,9,1));
548
549   push_stroke((300,460)..(550,390)..(680,330),
550     (1,1,4)-(1,7,1)-(1,9,1));
551
552   push_stroke((210,220)..(570,130)..(750,40),
553     (1,1,4)-(1,7,1)-(1,9,1));
554   expand_pbox;
555 enddef;

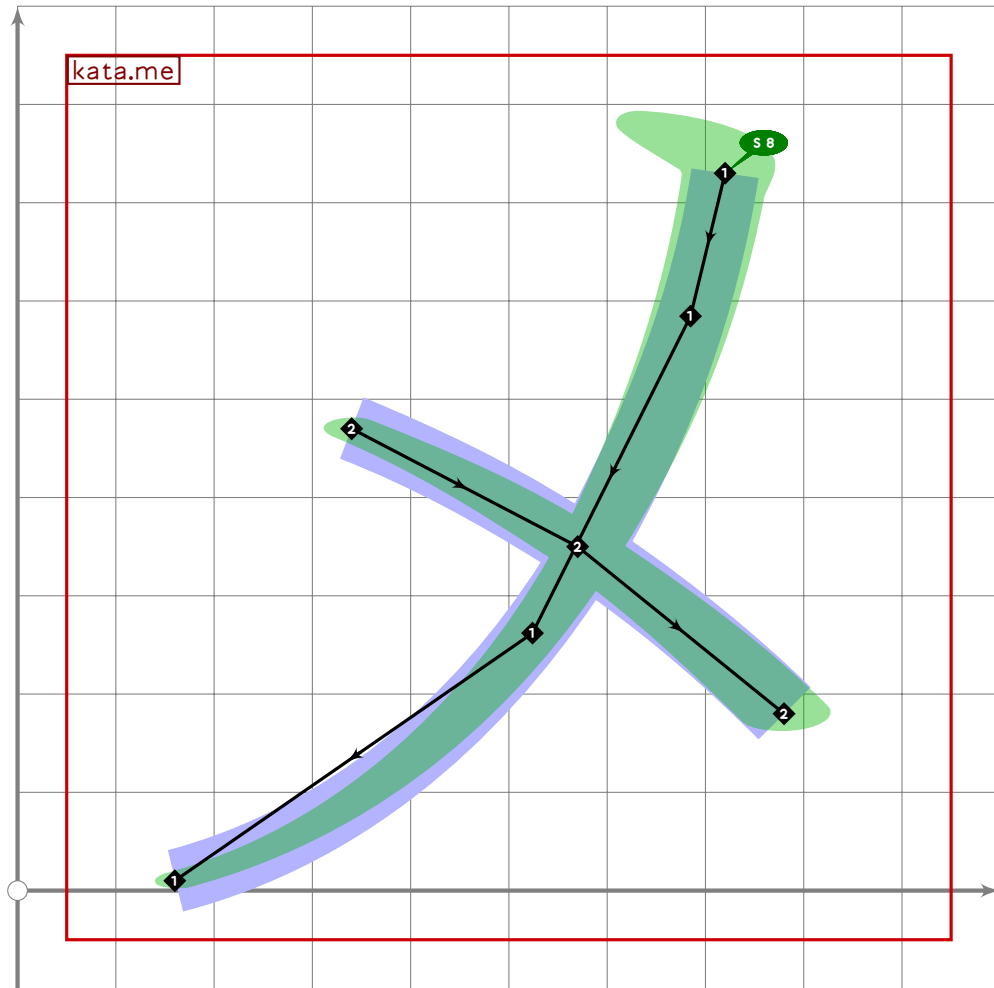
```



```

556
557 vardef kata.mu =
558   push_pbox_toexpand("kata.mu");
559
560   push_stroke((680,370)..(770,230)..(870,40),
561     (1.2,1.2)-(1.6,1.6)-(1.9,1.9));
562
563   push_stroke((110,110)..(490,140)..(point 1.2 of get_strokep(0)),
564     (1.8,1.8)-(1.6,1.6)-(1.4,1.4));
565   set_boserif(0,0,5);
566
567   push_stroke((480,710)..(370,440)..(point 0.3 of get_strokep(0)),
568     (1.7,1.7)-(1.5,1.5)-(1.3,1.3));
569   set_boserif(0,0,8);
570   expand_pbox;
571 enddef;

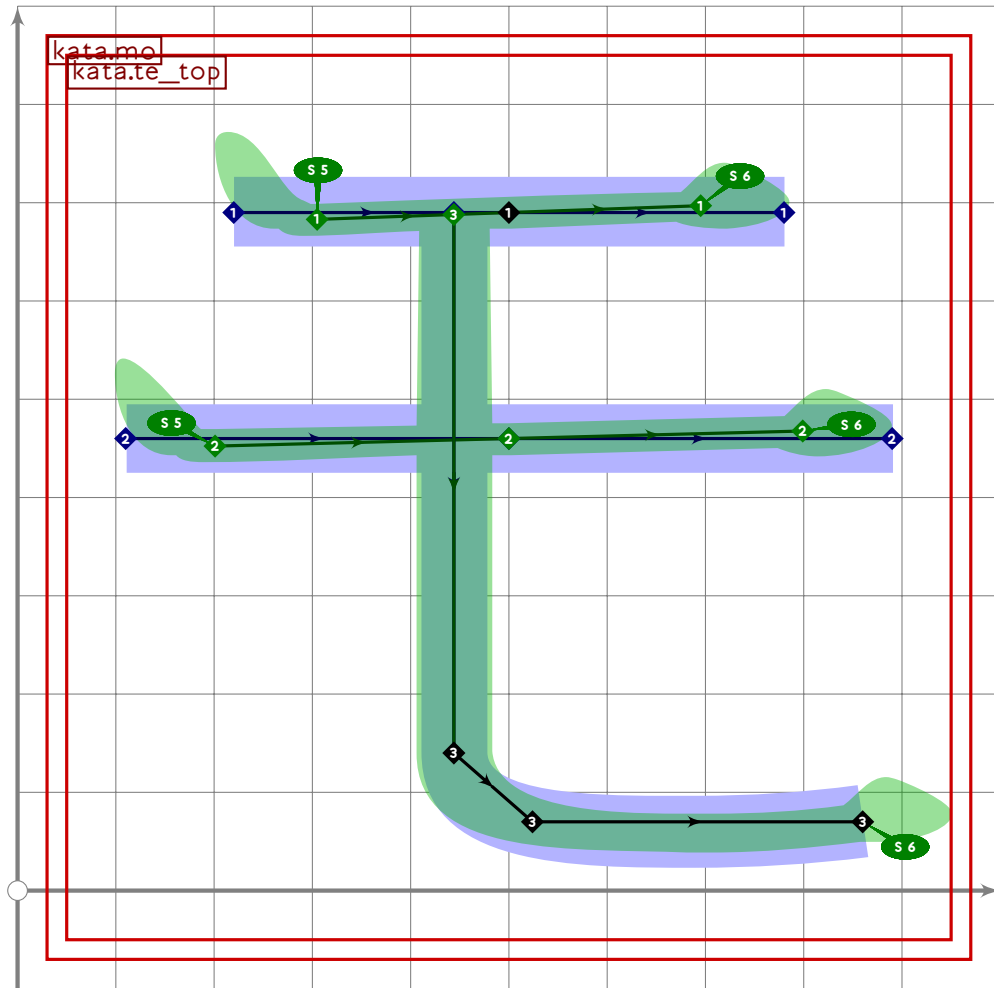
```



```

572
573 vardef kata.me =
574   push_pbox_toexpand("kata.me");
575
576   kata.no_stroke((720,730),(160,10));
577   set_boserif(0,0,8);
578
579   push_stroke((340,470)..(570,350)..(780,180),
580     (1.3,1.3)-(1.6,1.6)-(1.8,1.8));
581   expand_pbox;
582 enddef;

```



```

583
584 vardef kata.mo =
585   push_pbox_toexpand("kata.mo");
586
587   kata.te_top;
588
589   push_stroke((point 0.8 of get_stroke(-1))-
590     (xpart point 0.8 of get_stroke(-1),140){dir 274}..
591     (80+xpart point 0.8 of get_stroke(-1),70)..tension 21..(860,70),
592     (1.5,1.5)-(1.6,1.6)-(2,2)-(1.9,1.9));
593   set_boserif(0,3,6);
594   expand_pbox;
595   enddef;
596

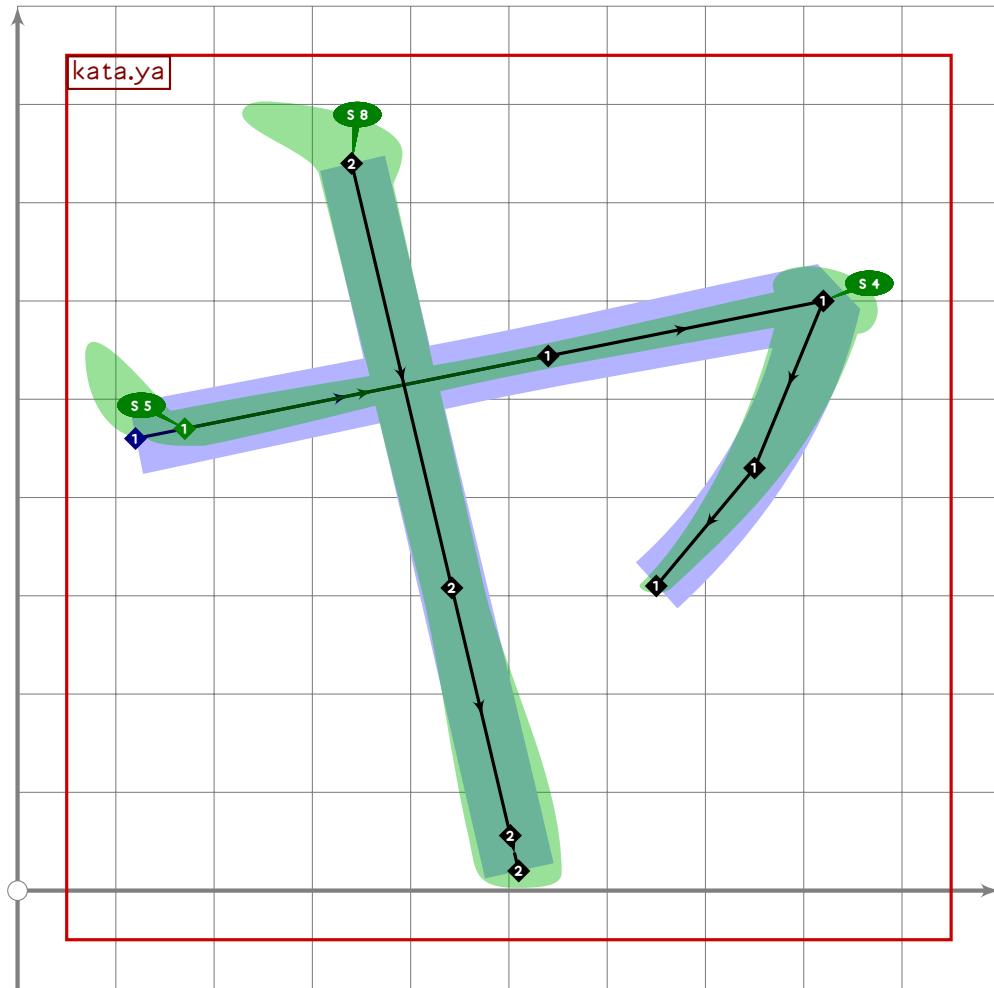
```

## Katakana Yayuyo

```

597 %%%%%%%%% KATAKANA YAYUYO

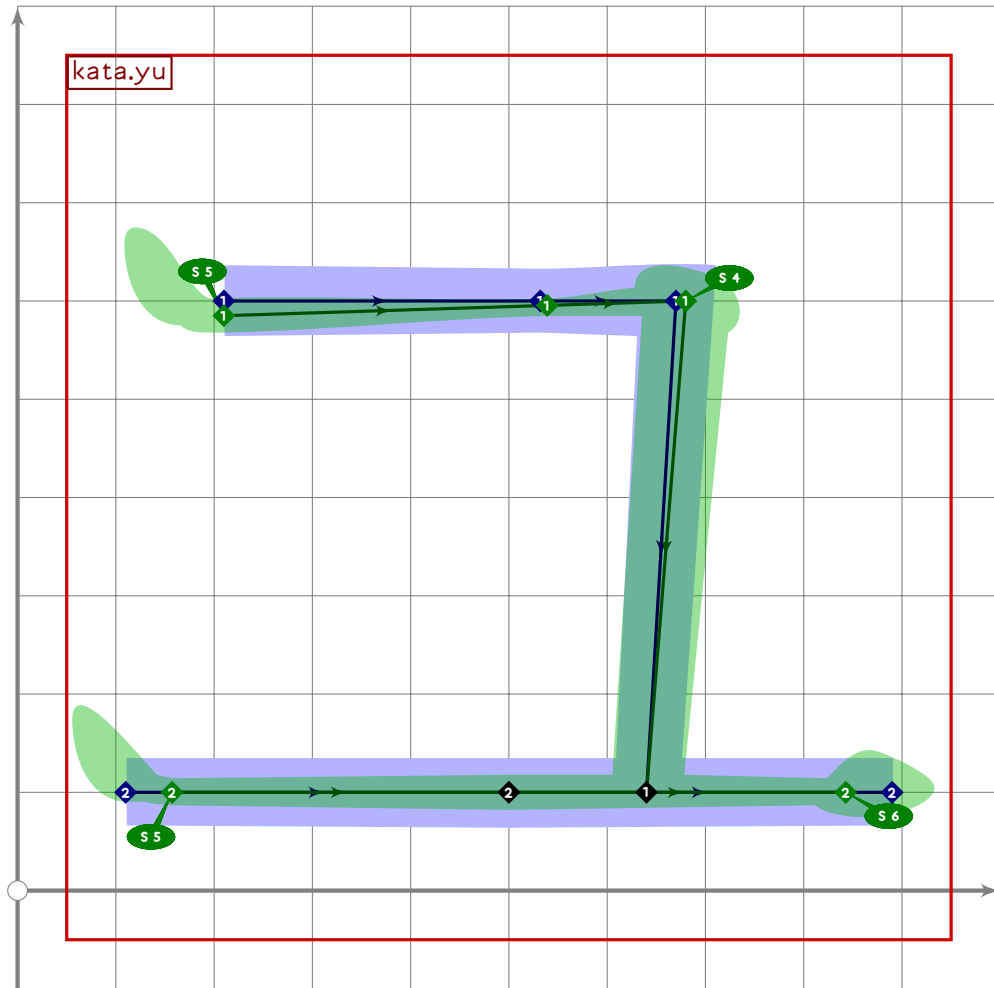
```



```

598
599 vardef kata.ya =
600   push_pbox_toexpand("kata.ya");
601
602   push_stroke((120,460)-(820,600)..(750,430)..(650,310),
603     (0.77,2.9)-(1.3,1.3)-(1.7,1.7)-(1.4,1.4)-(1,1));
604   replace_stroke(0)(insert_nodes(oldp)(0.6));
605   set_botip(0,2,0);
606   set_boserif(0,0,5);
607   set_boserif(0,2,4);
608
609   push_stroke((340,740)-(510,20),
610     (1.5,1.5)-(1.4,1.4)-(1.7,1.7)-(1.7,1.7));
611   replace_stroke(0)(insert_nodes(oldp)(0.6,0.95));
612   set_boserif(0,0,8);
613   expand_pbox;
614 enddef;

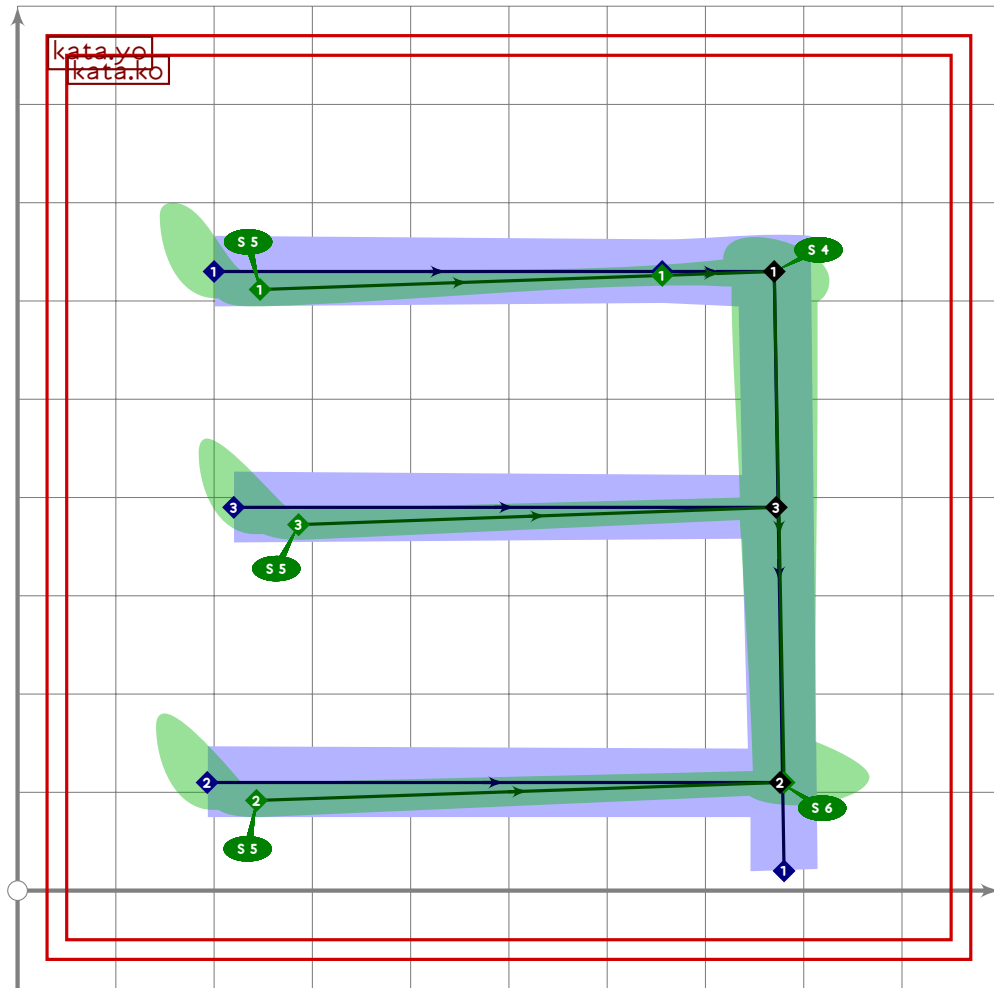
```



```

615
616 vardef kata.yu =
617   push_pbox_toexpand("kata.yu");
618
619   push_stroke((210,600-15*mincho)-(670+10*mincho,600)-(640,100),
620     (1.8,1.8)-(1.2,1.2)-(1.7,1.7)-(1.5,1.5));
621   replace_strokep(0)(insert_nodes(oldp)(0.7));
622   set_botip(0,2,1);
623   set_boserif(0,0,5);
624   set_boserif(0,2,4);
625
626   push_stroke((110,100)-(500,100)-(890,100),
627     (0.7,2.2)-(1.8,1.8)-(0.7,2.2));
628   set_boserif(0,0,5);
629   set_boserif(0,2,6);
630   expand_pbox;
631 enddef;

```



```

632
633 vardef kata.yo =
634   push_pbox_toexpand("kata.yo");
635
636   kata.ko;
637
638   push_stroke((220,390-20*mincho)-(772,390),
639     (0.77,2.7)-(1.3,1.3));
640   set_boserif(0,0,5);
641   expand_pbox;
642 enddef;
643

```

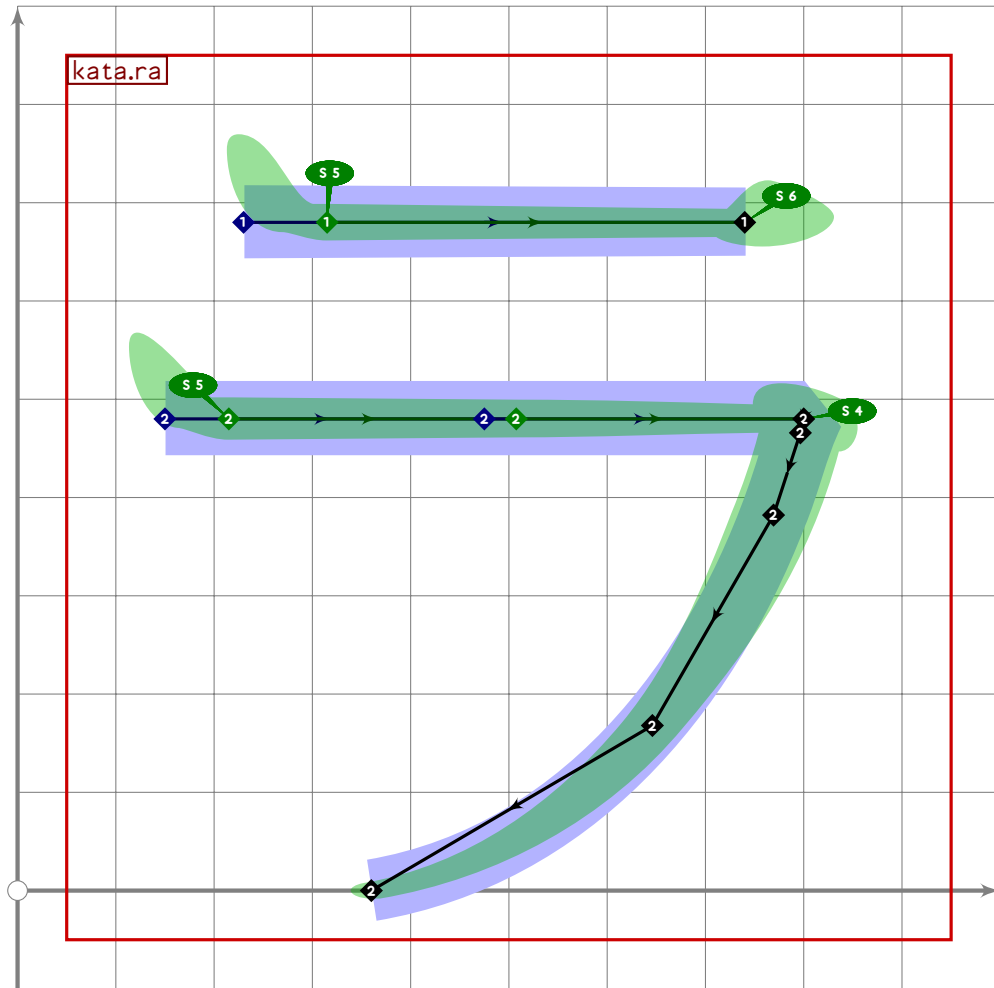
## Katakana Rarirurero

```

644 %%% KATAKANA RARIRURERO

```

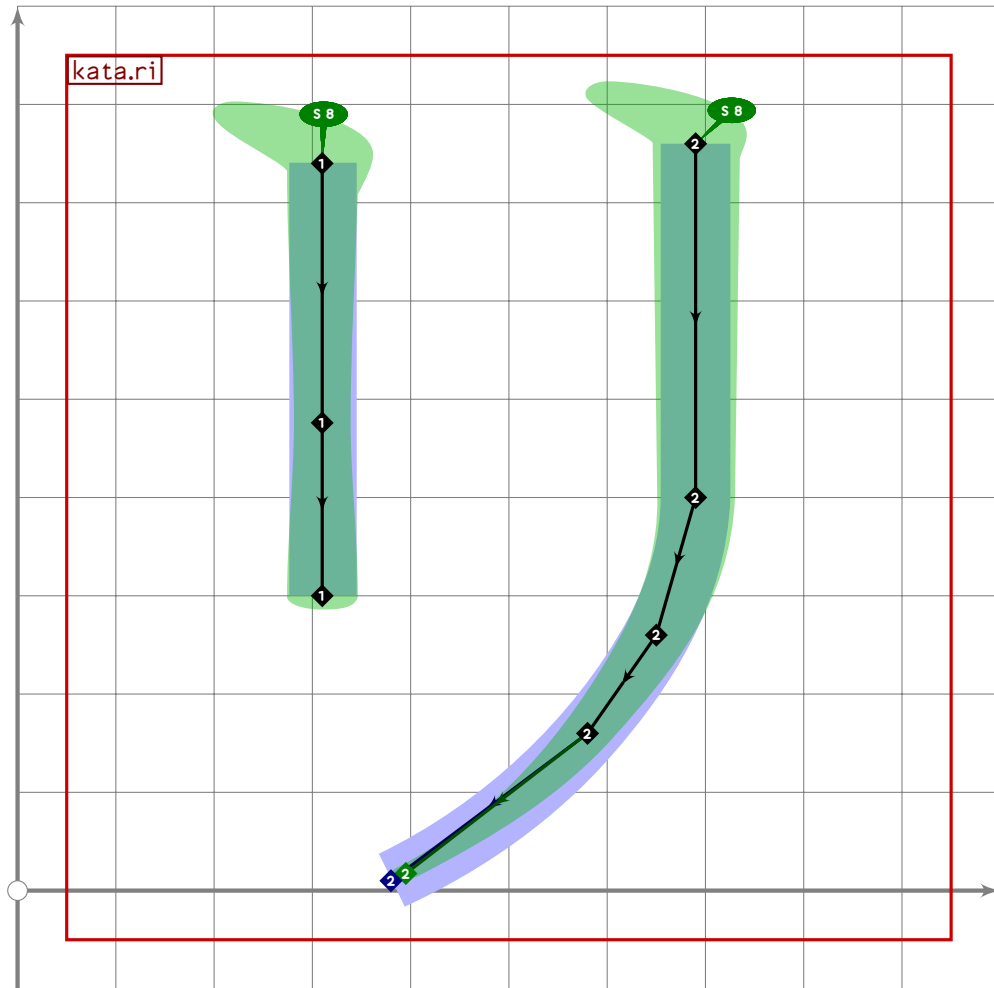




```

645
646 vardef kata.ra =
647   push_pbox_toexpand("kata.ra");
648
649   push_stroke((230,680)-(740,680),
650     (0.68,3.12)-(1.6,1.6));
651   set_boserif(0,0,5);
652   set_boserif(0,1,6);
653
654   kata.fu_stroke((150,480),(800,480),(360,0));
655   expand_pbox;
656 enddef;

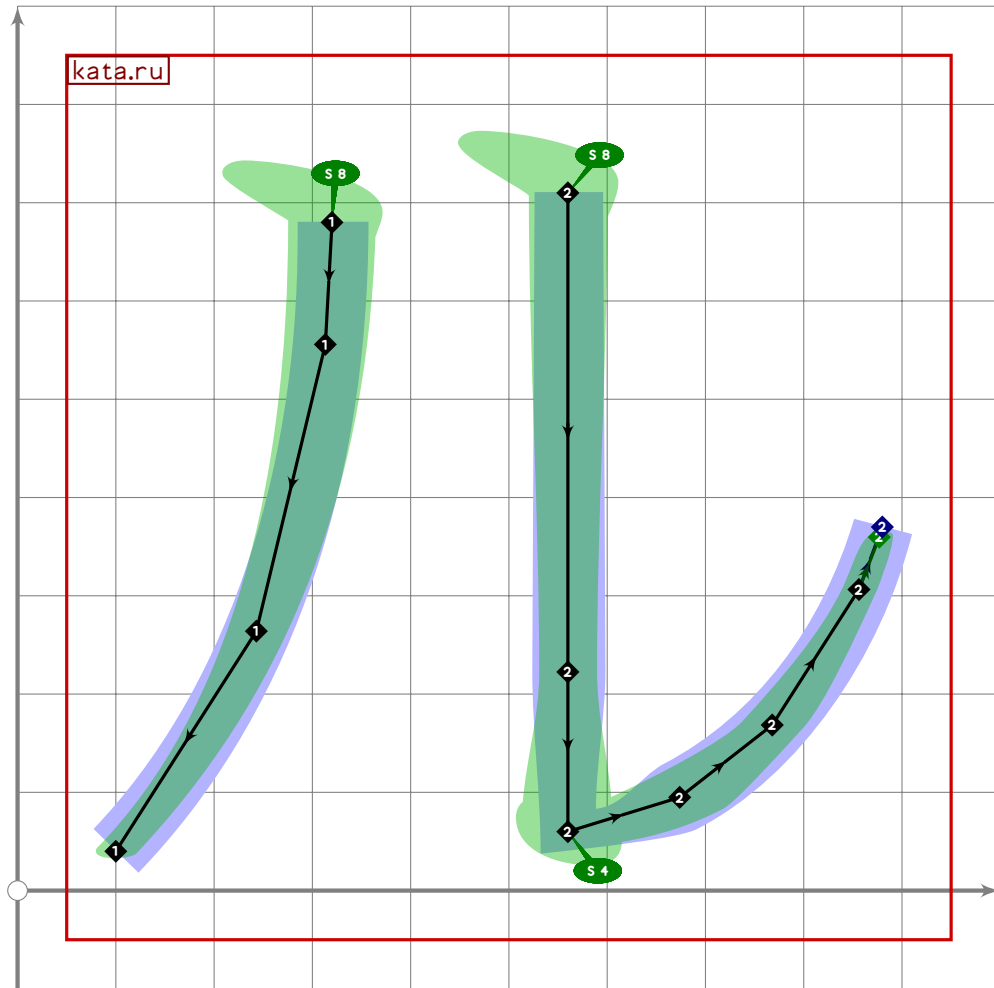
```



```

657
658 vardef kata.ri =
659   push_pbox_toexpand("kata.ri");
660
661   push_stroke((310,740)-(310,300),
662     (1.5,1.5)-(1.3,1.3)-(1.5,1.5));
663   replace_strokep(0)(insert_nodes(oldp)(0.6));
664   set_boserif(0,0,8);
665
666   push_stroke((690,760)-(690,400){dir 267}..(650,260)..(580,160)..(380,10),
667     (1.7,1.7)-(1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,1));
668   set_boserif(0,0,8);
669   expand_pbox;
670 enddef;

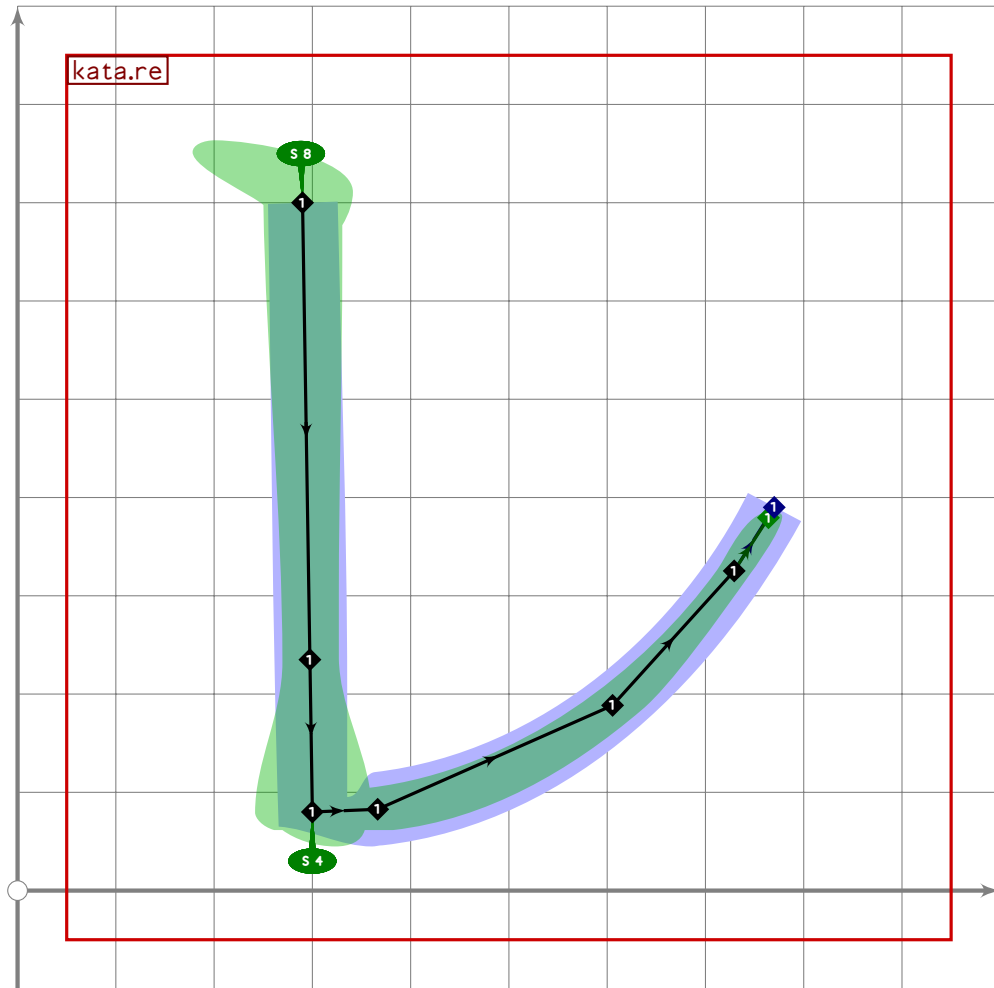
```



```

671
672 vardef kata.ru =
673   push_pbox_toexpand("kata.ru");
674
675   kata.no_stroke((320,680),(100,40));
676   set_boserif(0,0,8);
677
678   kata.no_stroke((880,370),(560,60));
679   replace_strokep(0)(insert_nodes((560,710)-reverse oldp)(0.75,1.5));
680   replace_strokeq(0)((1.6,1.6)-(1.3,1.3)-(1.8,1.8)-
681     (2,2)-(1.4,1.4)-(1,1)-(0.8,1));
682   set_botip(0,1,0);
683   set_boserif(0,0,8);
684   set_boserif(0,2,4);
685   expand_pbox;
686 enddef;

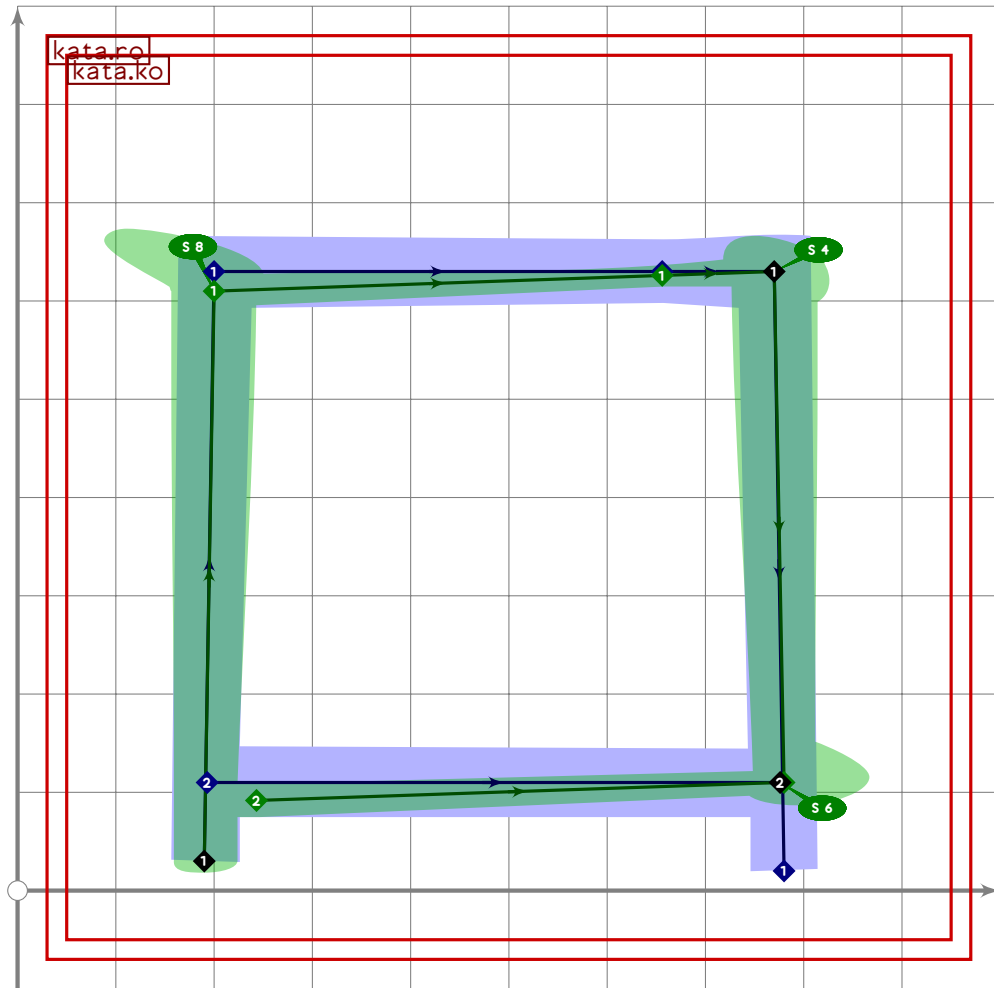
```



```

687
688 vardef kata.re =
689   push_pbox_toexpand("kata.re");
690
691   kata.no_stroke((770,390),(300,80));
692   replace_strokep(0)(insert_nodes((290,700)-reverse oldp)(0.75,1.2));
693   replace_strokeq(0)((1.6,1.6)-(1.3,1.3)-(2.1,2.1)-
694     (2,2)-(1.4,1.4)-(1,1)-(0.8,1));
695   set_botip(0,1,0);
696   set_boserif(0,0,8);
697   set_boserif(0,2,4);
698   expand_pbox;
699 enddef;

```



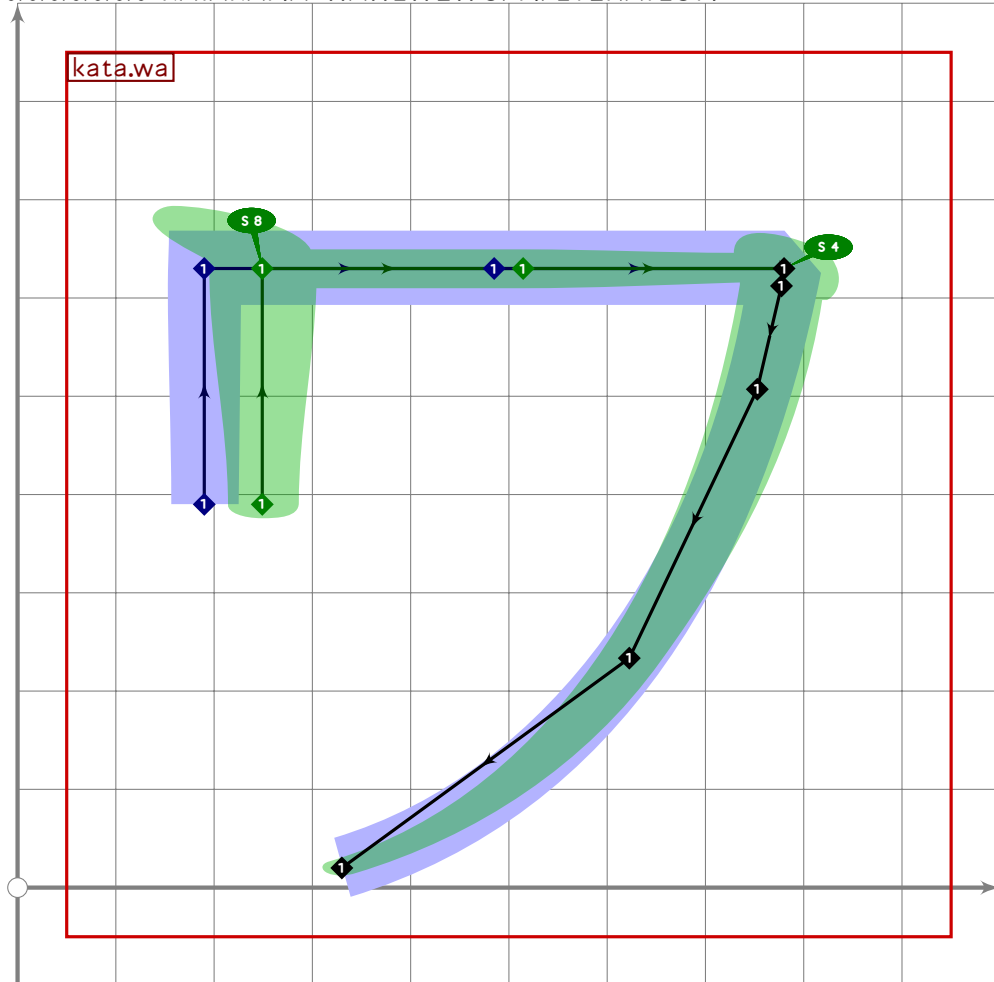
```

700
701 vardef kata.ro =
702   push_pbox_toexpand("kata.ro");
703
704   kata.ko;
705
706   replace_strokep(-1)((190,30)-oldp);
707   replace_strokeq(-1)((14,14)-(17,17)-(subpath (1,infinity) of oldq));
708   set_botip(-1,1,1);
709   set_botip(-1,2,whatever);
710   set_botip(-1,3,1);
711   set_boserif(-1,0,whatever);
712   set_boserif(-1,1,8);
713   set_boserif(-1,2,whatever);
714   set_boserif(-1,3,4);
715   set_boserif(0,0,whatever);
716   expand_pbox;
717   enddef;
718

```

# Katakana Wawiwewo/N/Iteration

719 %%%%%%%%% KATAKANA WAWIWEWO/N/ITERATION

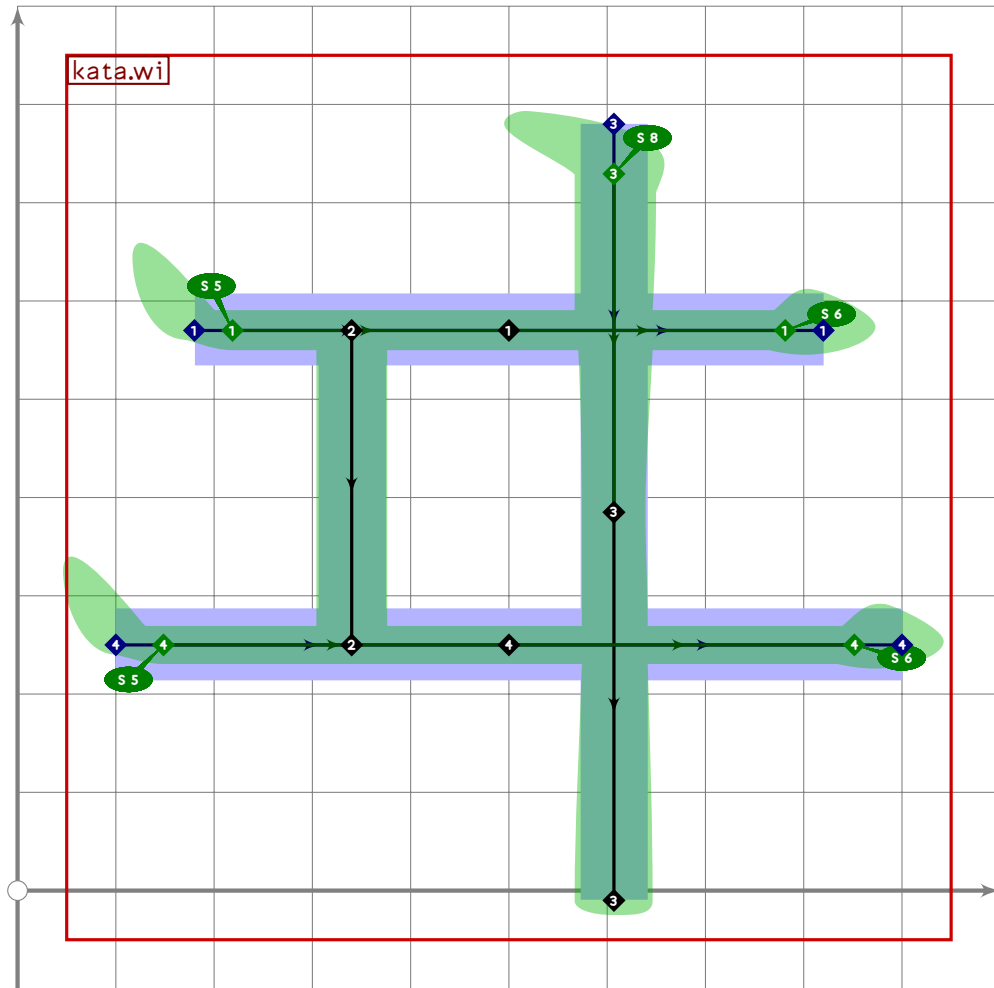


720

```

721 vardef kata.wa =
722   push_pbox_toexpand("kata.wa");
723
724   kata.fu_stroke((190,630),(780,630),(330,20));
725   replace_stroke(0)((xpart point 0 of oldp,390)-oldp);
726   replace_strokeq(0)((1.5,1.5)-oldq);
727   set_botip(0,1);
728   set_botip(0,3,0);
729   set_boserif(0,0,whatever);
730   set_boserif(0,1,8);
731   set_boserif(0,2,whatever);
732   set_boserif(0,3,4);
733   expand_pbox;
734 enddef;

```



```

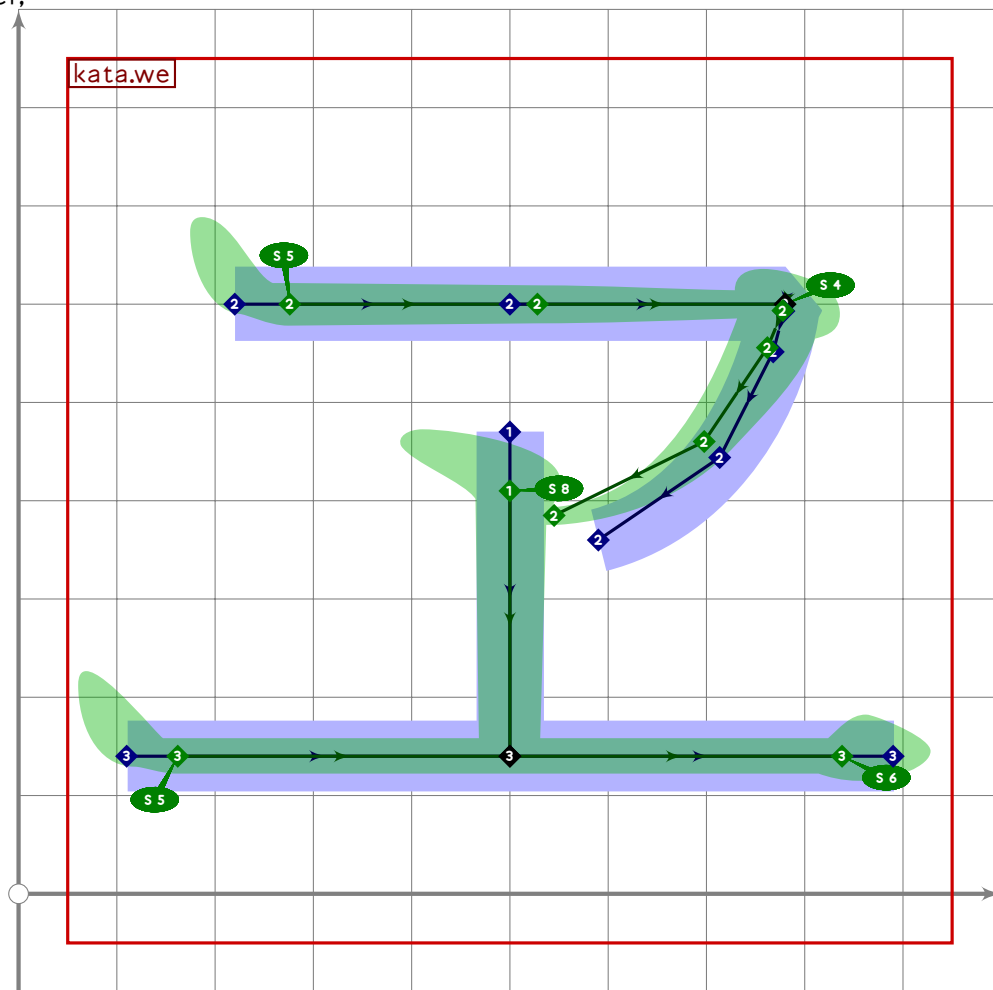
735
736 vardef kata.wi =
737   push_pbox_toexpand("kata.wi");
738
739   x1=100;
740   x2=180;
741   x3=0.25[x2,x5];
742   x4=0.667[x2,x5];
743   (x5+x2)/2=(x1+x6)/2=500;
744   y1=-10;
745   y2=250;
746   y3=570;
747   y4=780;
748   push_stroke((x2,y3)-(x5,y3),
749     (0.7,3.3)-(1.8,1.8)-(0.7,3.3));
750   replace_stroke(0)(insert_nodes(oldp)(0.5));
751   set_boserif(0,0,5);
752   set_boserif(0,2,6);
753
754   push_stroke((x3,y3)-(x3,y2),
755     (1.5,1.5)-(1.5,1.5));

```

```

756
757 push_stroke((x4,y4)-(x4,0.5[y4,y1])-(x4,y1),
758   (0.75,2.65)-(1.4,1.4)-(1.6,1.6));
759 set_boserif(0,0,8);
760
761 push_stroke((x1,y2)-(x6,y2),
762   (0.7,3.3)-(1.8,1.8)-(0.7,3.3));
763 replace_stroke(0)(insert_nodes(oldp)(0.5));
764 set_boserif(0,0,5);
765 set_boserif(0,2,6);
766 expand_pbox;
767 endif;

```



```

768
769 vardef kata.we =
770   push_pbox_toexpand("kata.we");
771
772   push_stroke((500,470-60*mincho)-(500,140),
773     (1.5,1.5)-(1.4,1.4));
774   set_boserif(0,0,8);
775
776   kata.fu_stroke((220,600),(780,600),

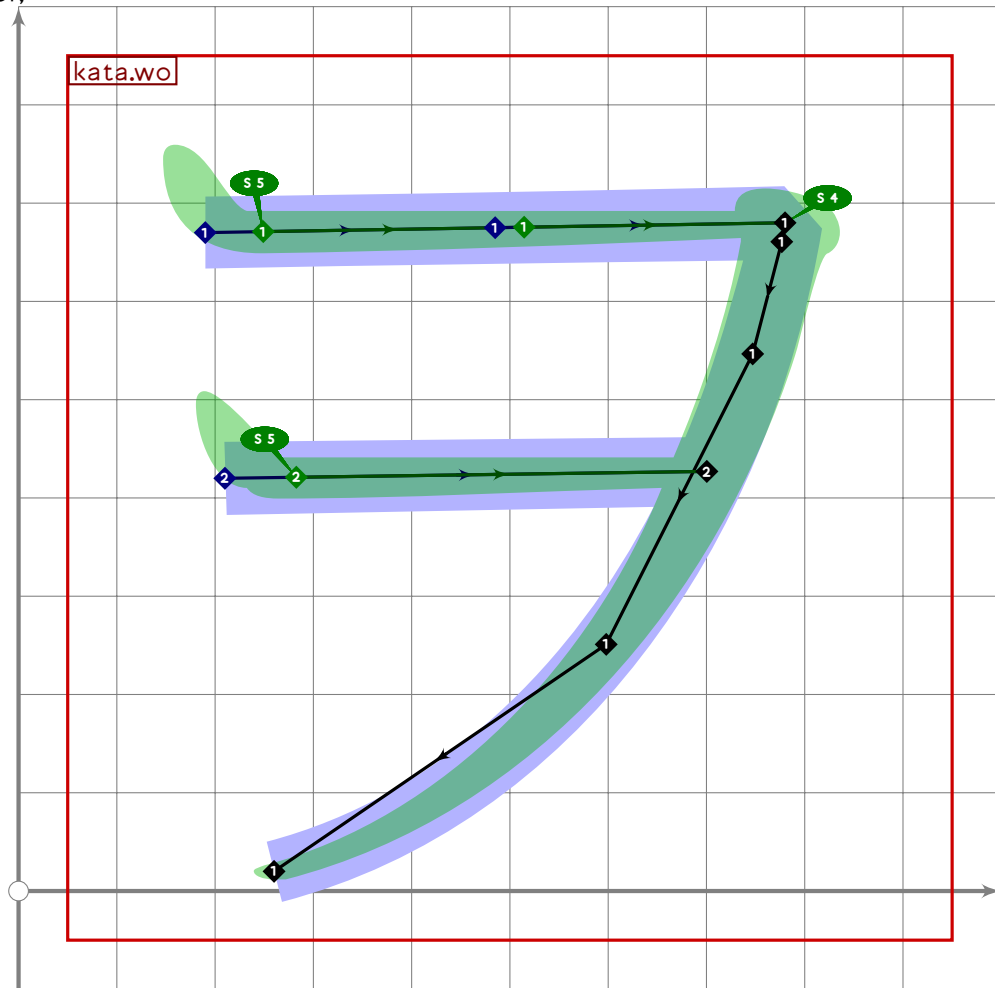
```



```

777 (0.5*mincho)[(590,360),point 0 of get_strokep(0)];
778
779 push_stroke((110,140)-(500,140)-(890,140),
780 (0,7,2.9)-(1,7,1.7)-(0,7,2.9));
781 set_boserif(0,0,5);
782 set_boserif(0,2,6);
783 expand_pbox;
784 enddef;

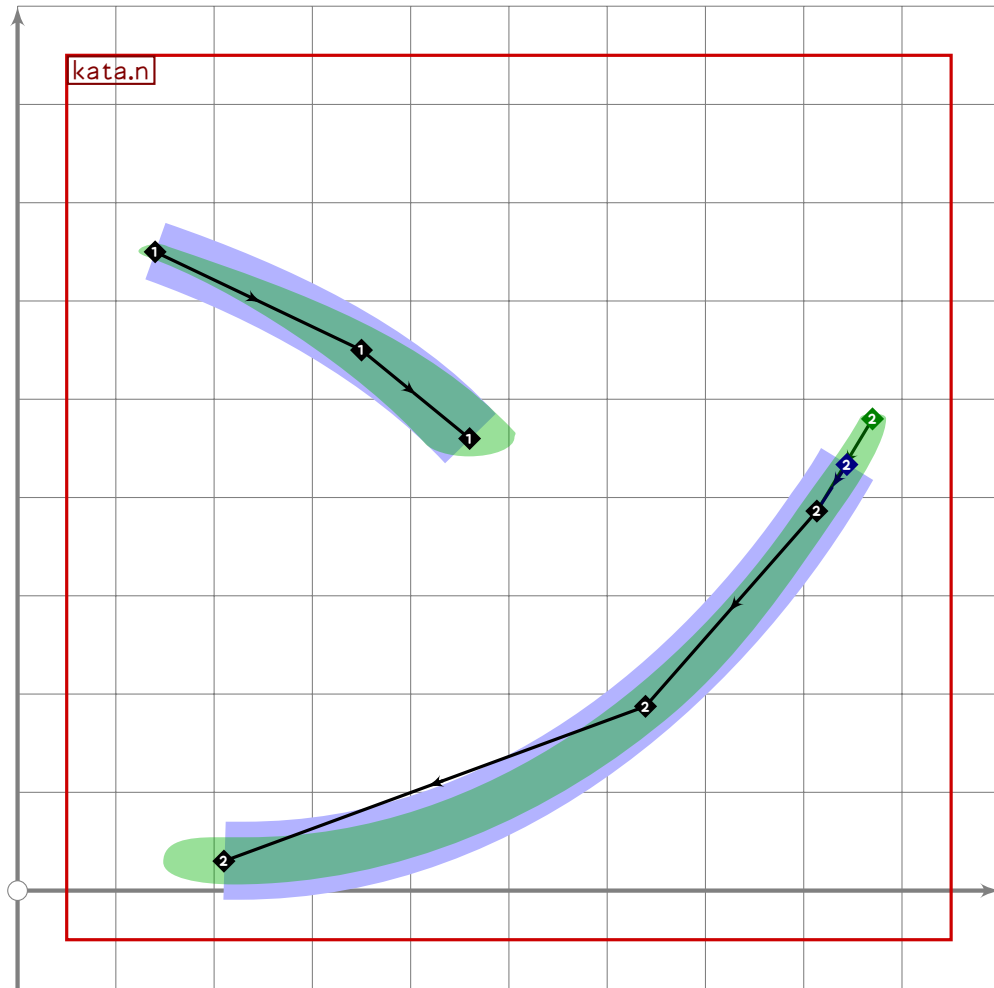
```



```

785
786 vardef kata.wo =
787   push_pbox_toexpand("kata.wo");
788
789   kata.fu_stroke((190,670),(780,680),(260,20));
790
791   z1=get_strokep(0) intersectionpoint ((0,420)-(1000,430));
792   push_stroke((210,420)-z1,
793 (0,7,3.3)-(1,6,1.6));
794   set_boserif(0,0,5);
795   expand_pbox;
796 enddef;

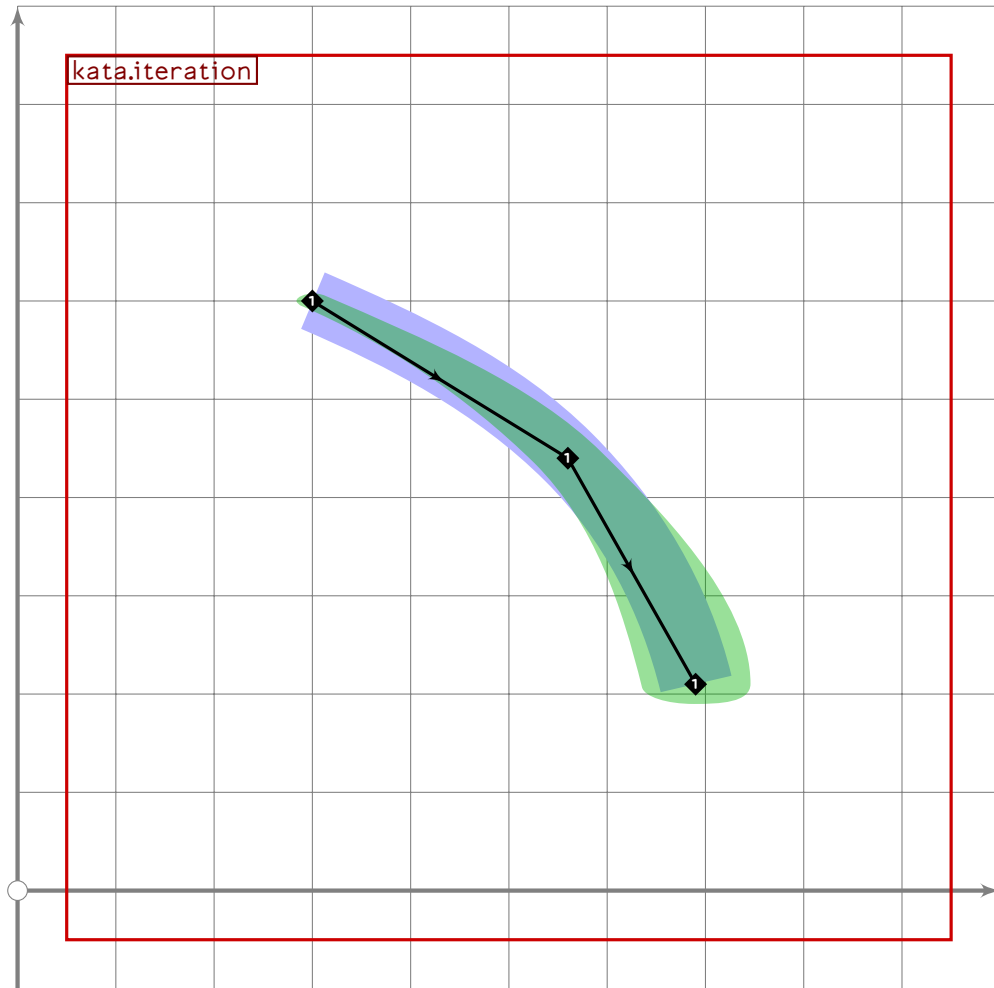
```



```

797
798 vardef kata.n =
799   push_pbox_toexpand("kata.n");
800
801   push_stroke((140,650)..tension 1.2..(350,550)..(460,460),
802     (1,1)..(1.6,1.6)..(1.8,1.8));
803
804   kata.no_stroke((870,480),(210,30));
805   replace_strokeq(0)((0,9,0,9)-(1,1,1,1)-(1,4,1,4)-(2,2,2,2));
806   set_boserif(0,4,5);
807   expand_pbox;
808 enddef;

```



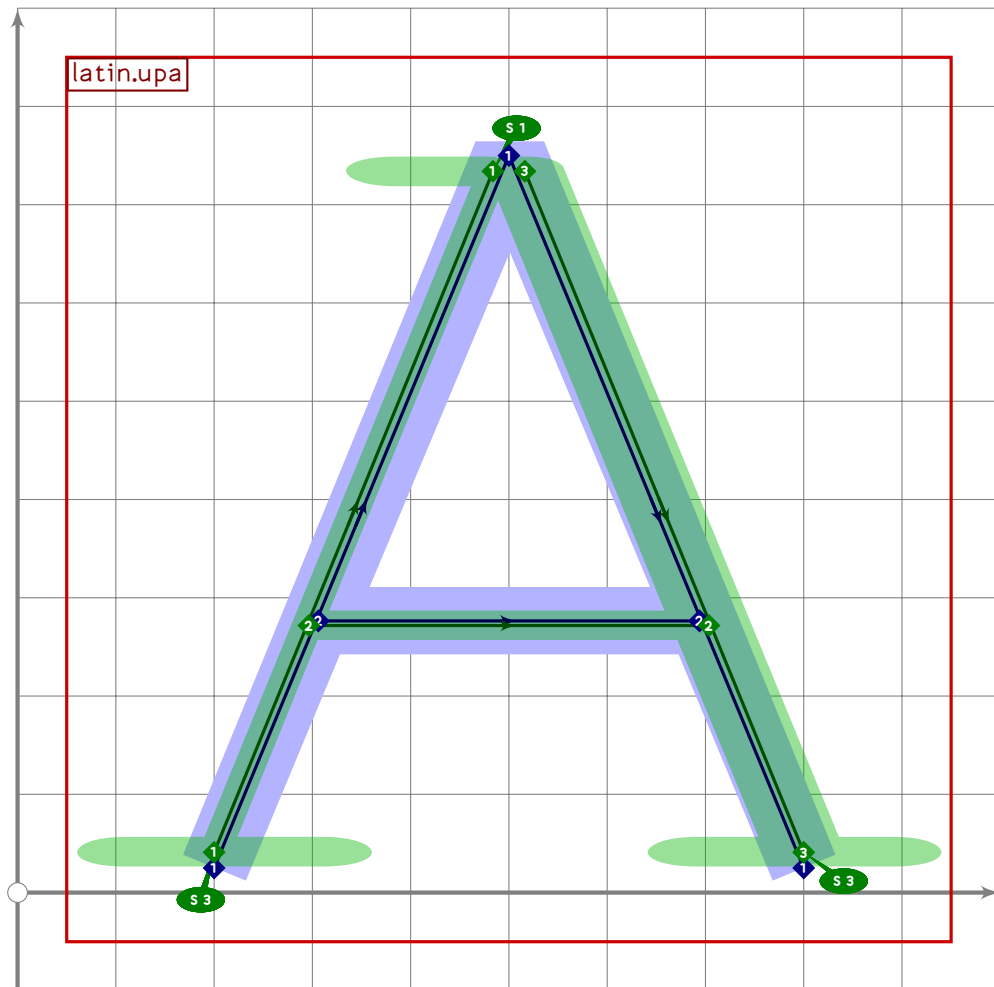
```

809
810 vardef kata.iteration =
811   push_pbox_toexpand("kata.iteration");
812
813   push_stroke((300,600){curl 0.2}..(560,440)..(690,210),
814     (1,1)-(1.5,1.5)-(2,2));
815   expand_pbox;
816 enddef;

```

# latin.mp

```
1 %  
2 % Latin and related letters for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(latin);  
32  
33
```

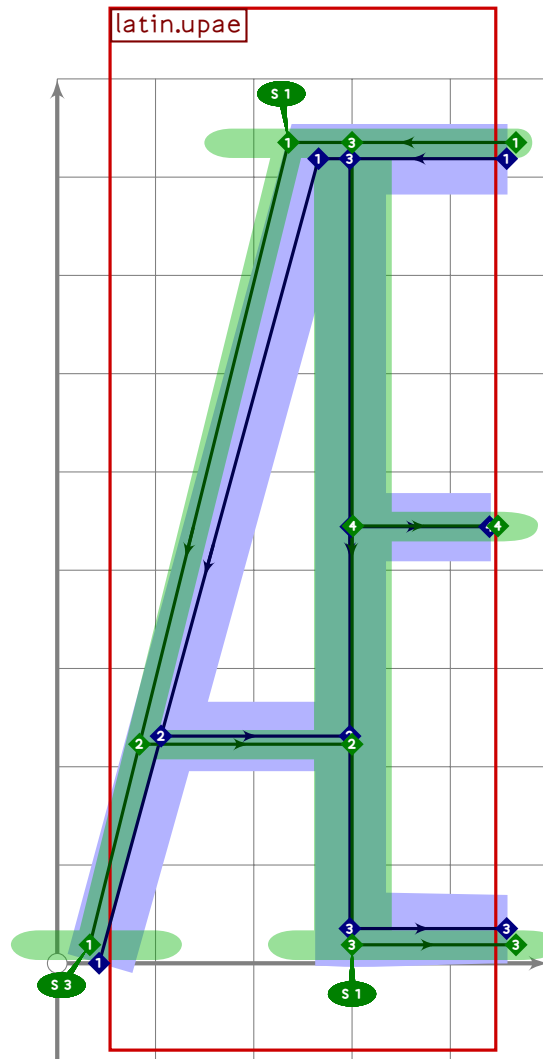


```
34  
35 vardef latin.upa =  
36   push_pbox_toexpand("latin.upa");  
37   z1=(200,latin_wide_low_v);  
38   z2=(500,latin_wide_high_v);  
39   z3=(800,latin_wide_low_v);  
40  
41   if do_alteration:  
42     z4=whatever[z1,(z2+alternate_adjust*left/2)]+(2,0);  
43     z5=whatever[(z2+alternate_adjust*right/2),z3]-(2,0);
```

```

44 y4=y5=vmetric(0.333);
45
46 push_stroke(z1-(z2+alternate_adjust*left/2),(1.6,1.6)-(1.6,1.6));
47 set_boalternate(0);
48 set_botip(0,1,0);
49 set_boserif(0,0,3);
50 set_boserif(0,1,1);
51
52 push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
53 set_boalternate(0);
54
55 push_stroke((z2+alternate_adjust*right/2)-z3,(1.6,1.6)-(1.6,1.6));
56 set_boserif(0,1,3);
57 else:
58 z4=whatever[z1,z2]+(2,0);
59 z5=whatever[z2,z3]-(2,0);
60 y4=y5=vmetric(0.333);
61
62 push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
63 set_botip(0,1,0);
64 set_boserif(0,0,3);
65 set_boserif(0,1,1);
66 set_boserif(0,2,3);
67
68 push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
69 fi;
70 expand_pbox;
71 endif;

```



```

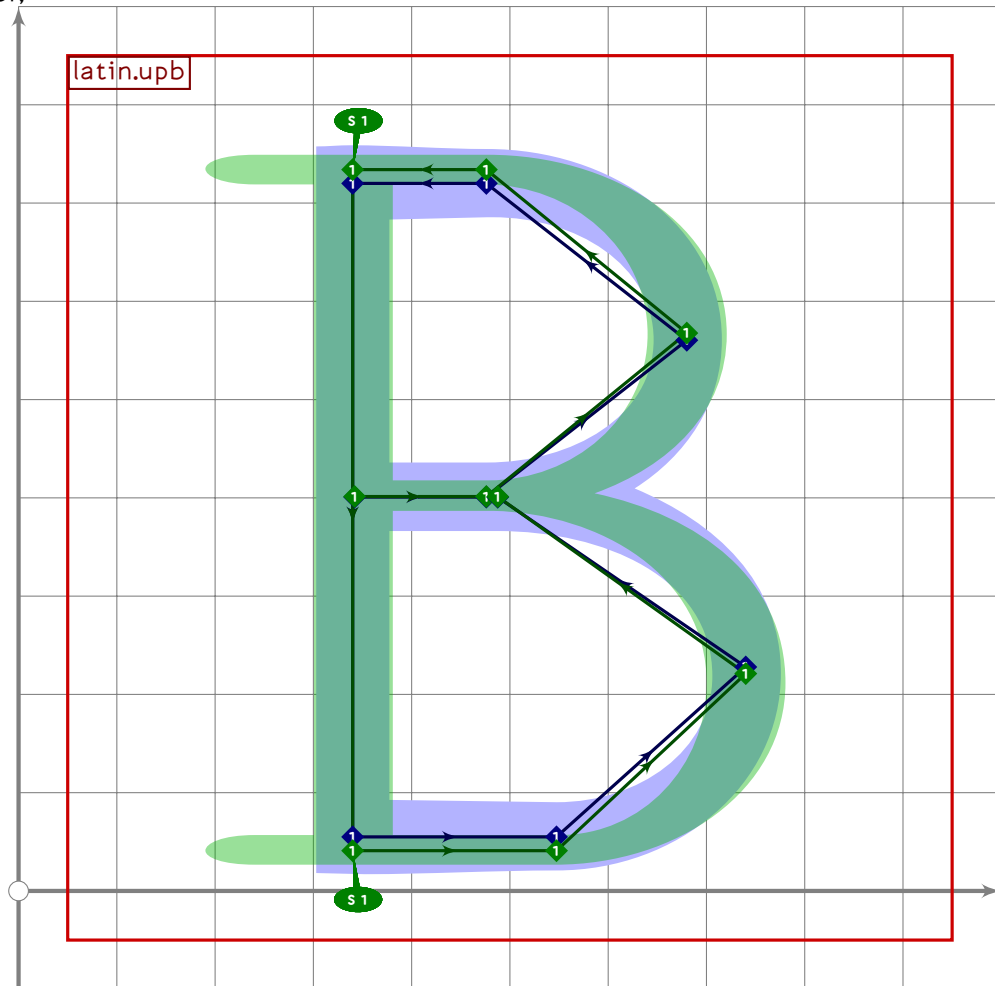
72
73 vardef latin.upae =
74   push_pbox_toexpand("latin.upae");
75   y1=y2=latin_wide_high_h;
76   y3=y4=latin_wide_low_h;
77   y5=y6=vmetric(0.522);
78
79   (x1+x7)/2=500;
80   x2=x3;
81   x1=x4;
82   x5=x2+2;
83   x6=0.89[x2,x1];
84   (x1-x2)=(y2-y3)*0.55;
85
86   y7=latin_wide_low_v;
87   x7=(-1.6)[x2,x1];
88   z10=(-0.2)[z2,z1]+2.2*alternate_adjust*left;
89   z8=whatever[z7,z10];
90   z9=whatever[z2,z3];

```

```

91 y8=y9=vmetric(0.250);
92
93 push_stroke(z1-z10-z7,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
94 set_botip(0,1,1);
95 set_boserif(0,1,1);
96 set_boserif(0,2,3);
97 set_boalternate(0);
98
99 push_stroke(z8-z9,(1.6,1.6)-(1.6,1.6));
100 set_boalternate(0);
101
102 push_stroke(z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
103 set_botip(0,1,1);
104 set_boserif(0,1,1);
105
106 push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));
107 expand_pbox;
108 enddef;

```



```

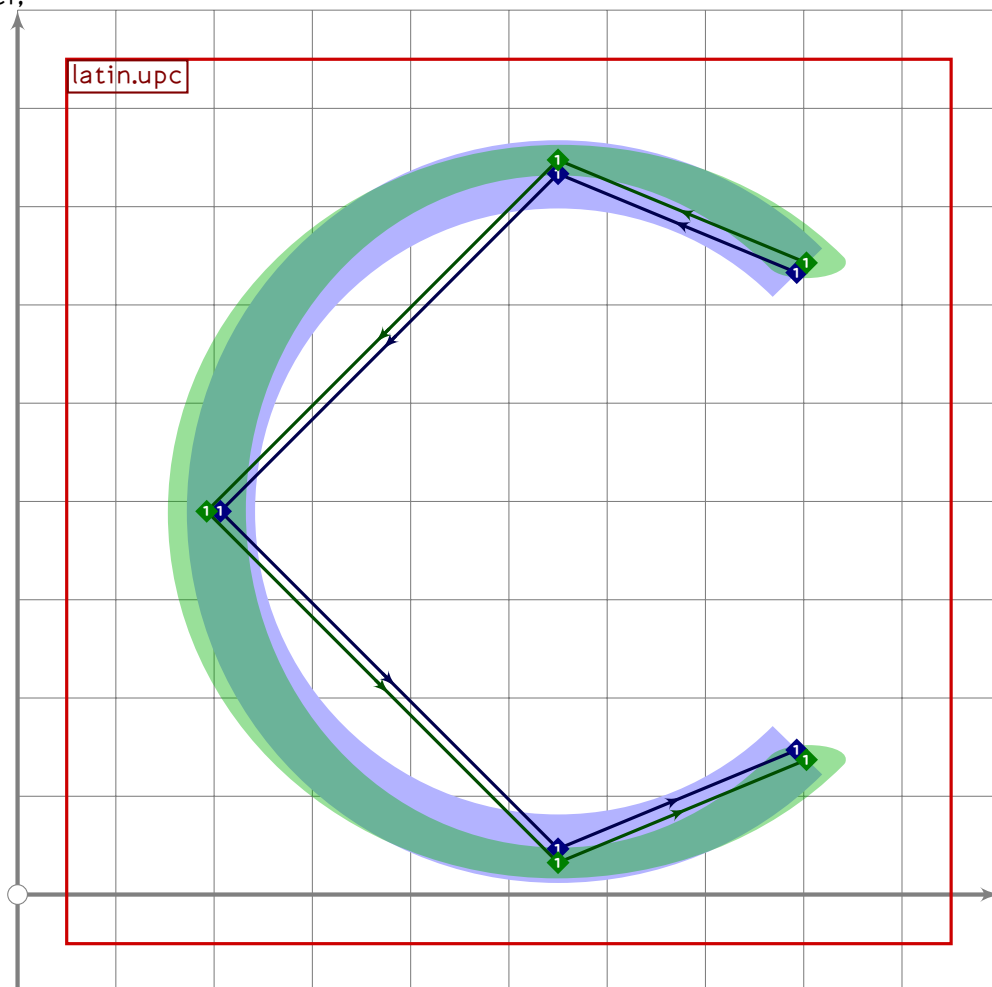
109
110 vardef latin.upb =
111   push_pbox_toexpand("latin.upb");

```

```

112 latin.upp_base(340);
113
114 x6=x5;
115 x7=0.61[x5,x3];
116 x8=x5+400;
117
118 y6=y7=latin_wide_low_h;
119 y8=0.5[y6,y1];
120
121 z9=z2;
122
123 replace_stroke(0)(oldp-z6-z7{right}..z8..{left}z9);
124 replace_stroke(0)(subpath (0,797) of oldp);
125 replace_strokeq(0)(oldq-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
126
127 set_botip(0,4,1);
128 set_botip(0,5,1);
129 set_boserif(0,4,1);
130 set_boserif(0,5,1);
131 expand_pbox;
132 enddef;

```

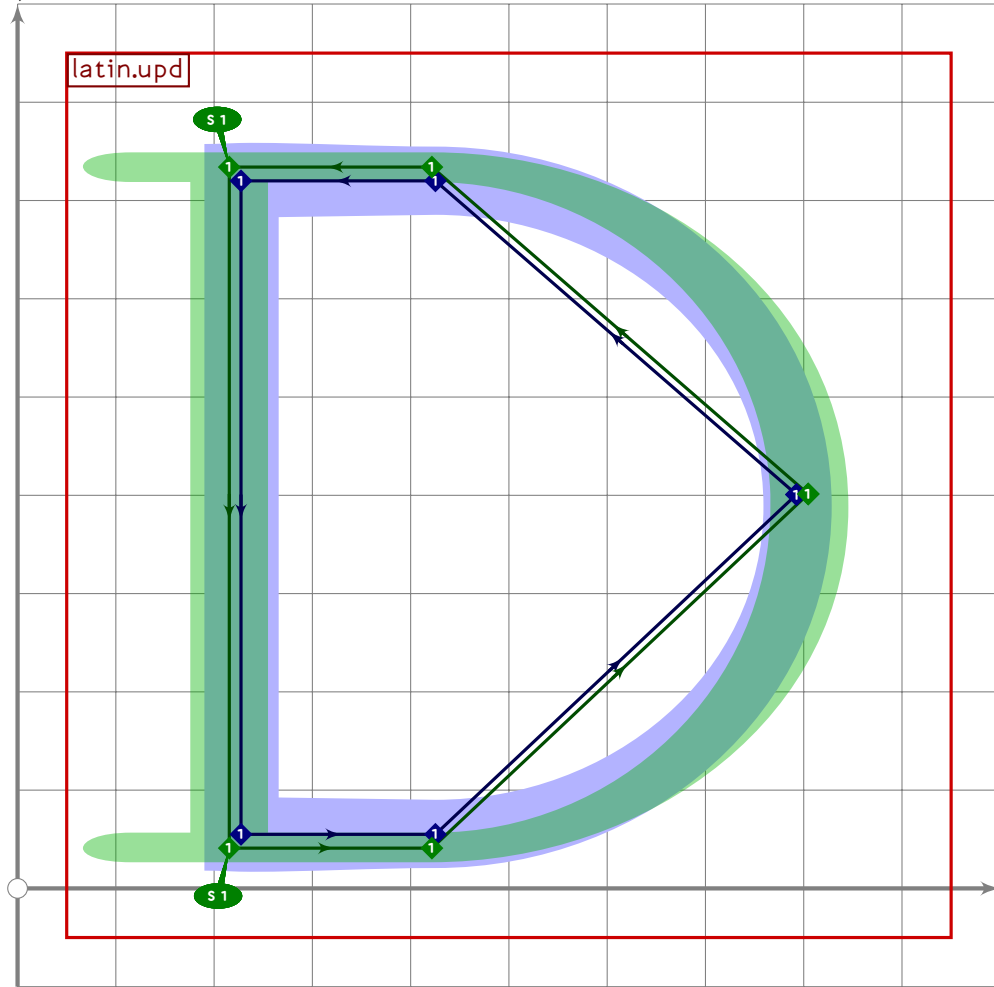




```

133
134 vardef latin.upc =
135   push_pbox_toexpand("latin.upc");
136   push_stroke(
137     (subpath (0,5,3,5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
138     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
139     shifted (centre_pt+(50,0)),
140     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
141   expand_pbox;
142 enddef;

```



```

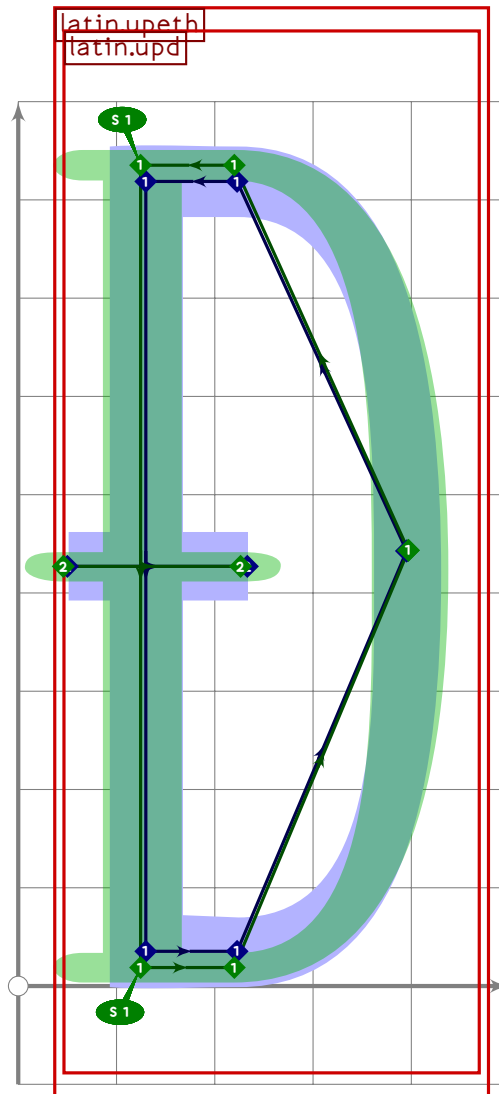
143
144 vardef latin.upd =
145   push_pbox_toexpand("latin.upd");
146   y1=y5=latin_wide_high_h;
147   y2=y3=latin_wide_low_h;
148   y4=0.52[y2,y1];
149
150   (x1+x4)/2=510;
151   (x4-x1)=0.85*(y1-y2);
152   x1=x2;
153   x3=x5=0.35[x1,x4];

```

```

154
155 push_stroke(z4..{left}z5-z1-z2-z3{right}..cycle,
156   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
157 set_botip(0,2,1);
158 set_botip(0,3,1);
159 set_boserif(0,2,1);
160 set_boserif(0,3,1);
161 expand_pbox;
162 endif;

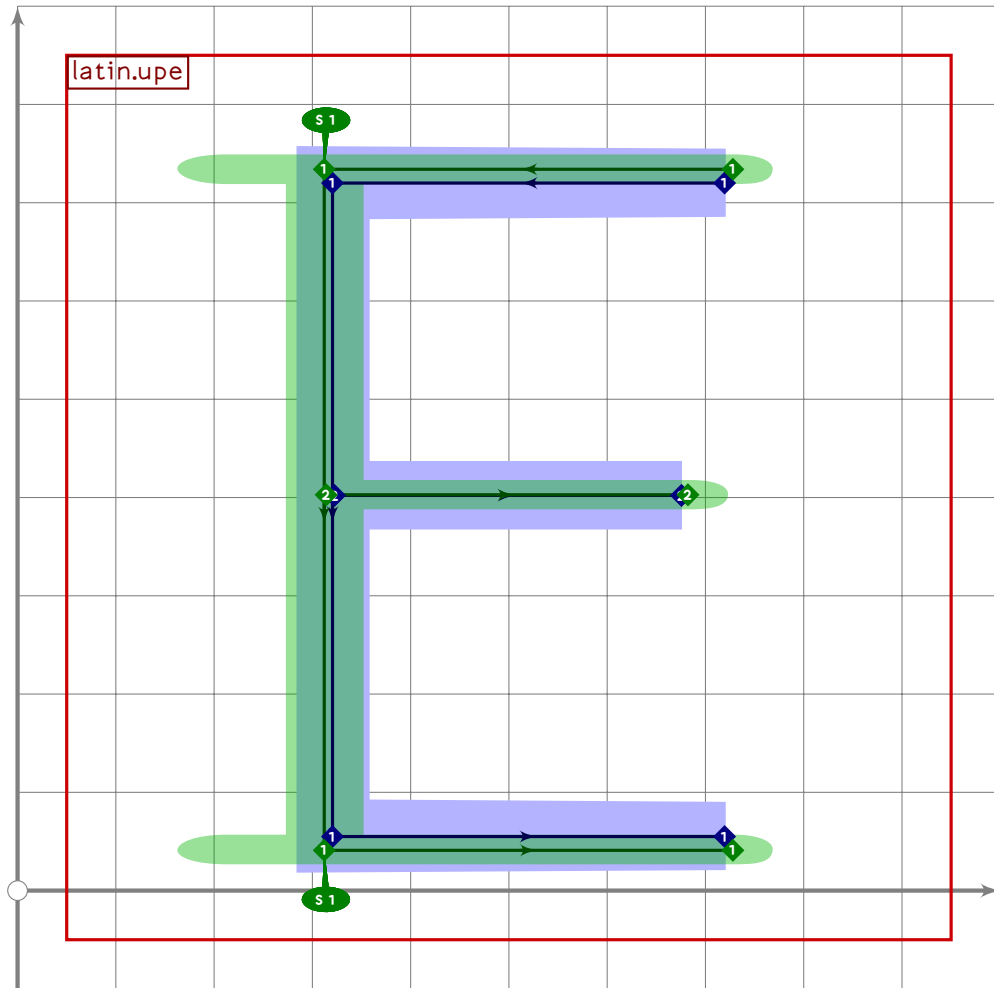
```



```

163
164 vardef latin.upeth =
165   push_pbox_toexpand("latin.upeth");
166   latin.upd;
167   push_stroke((0.5[z1,z2]+(-170,0))-(0.5[z1,z2]+(220,0)),
168     (1.6,1.6)-(1.6,1.6));
169   expand_pbox;
170 endif;

```



```

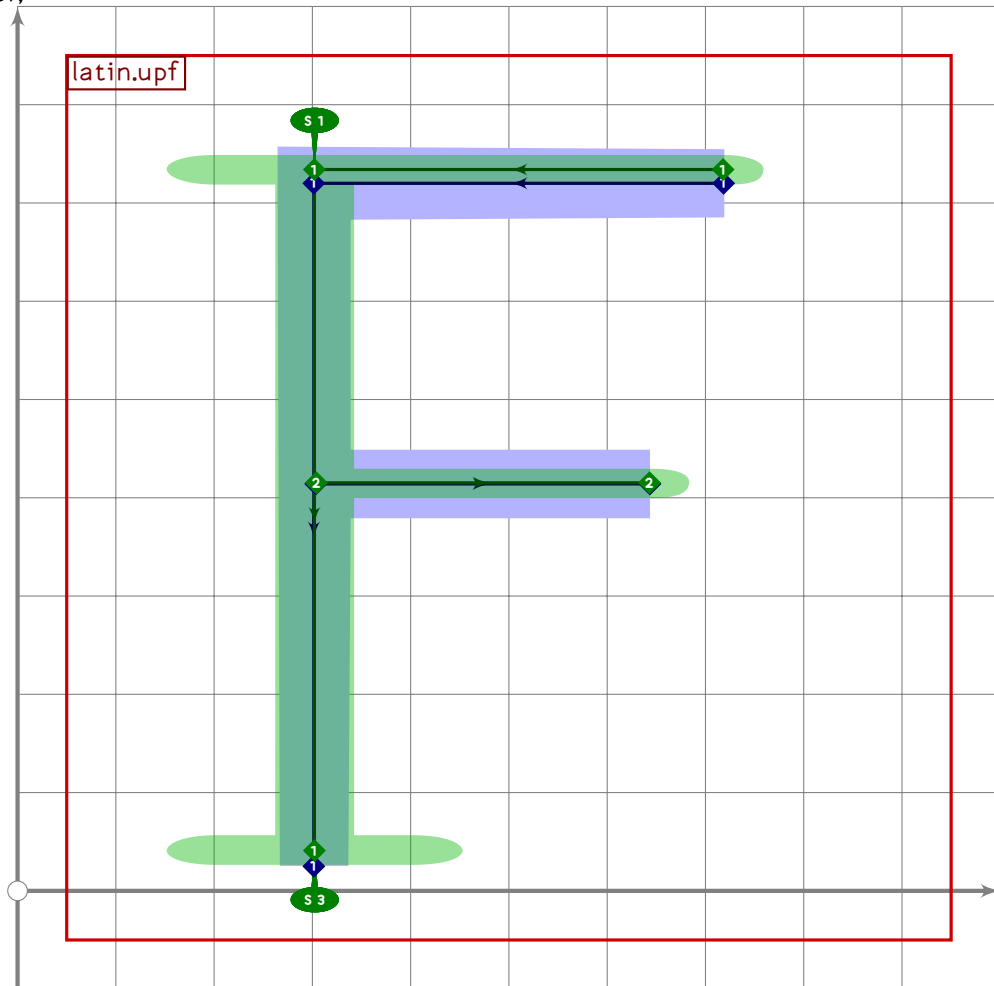
171
172 vardef latin.upe =
173   push_pbox_toexpand("latin.upe");
174   y1=y2=latin_wide_high_h;
175   y3=y4=latin_wide_low_h;
176   y5=y6=vmetric(0.522);
177
178   (x1+x2)/2=520;
179   x2=x3;
180   x1=x4;
181   x5=x2+2;
182   x6=0.89[x2,x1];
183   (x1-x2)=(y2-y3)*0.6;
184
185   push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
186   set_botip(0,1,1);
187   set_botip(0,2,1);
188   set_boserif(0,1,1);
189   set_boserif(0,2,1);
190
191   push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));

```

```

192 expand_pbox;
193 enddef;

```



```

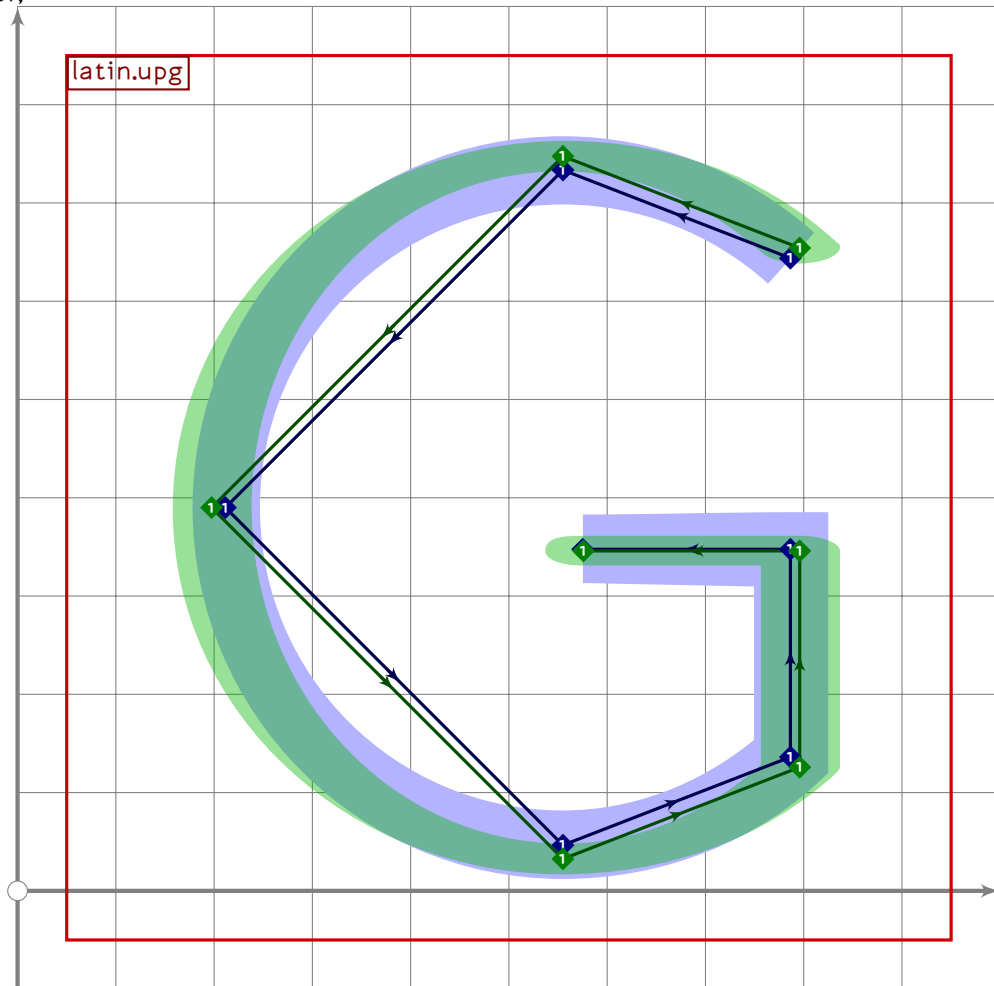
194
195 vardef latin.upf =
196   push_pbox_toexpand("latin.upf");
197   y1=y2=latin_wide_high_h;
198   y3=latin_wide_low_v;
199   y4=y5=vmetric(0.54);
200
201   (x1+x2)/2=510;
202   x3=x2;
203   x4=x2+2;
204   x5=0.82[x2,x1];
205   (x1-x2)=(y2-y3)*0.6;
206
207   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
208   set_botip(0,1,1);
209   set_boserif(0,1,1);
210   set_boserif(0,2,3);
211
212   push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));

```

```

213 expand_pbox;
214 enddef;

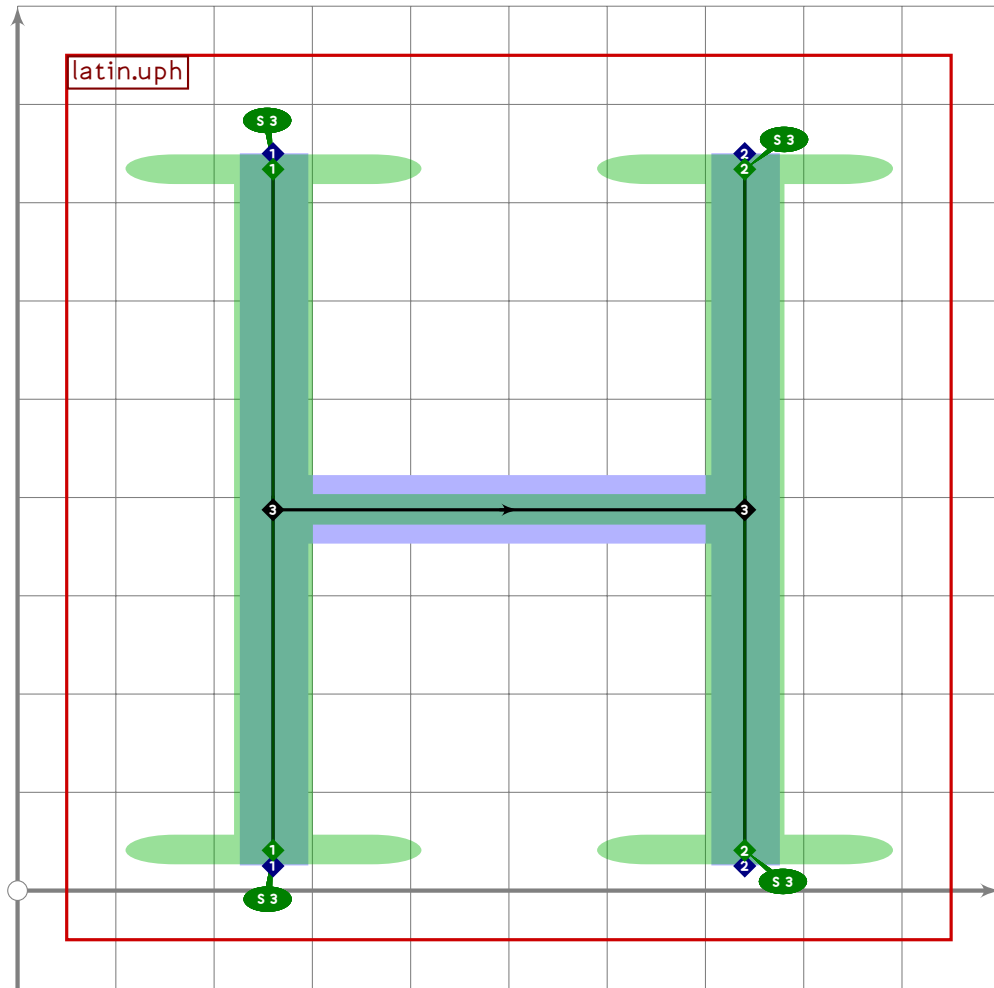
```



```

215
216 vardef latin.upg =
217   push_pbox_toexpand("latin.upg");
218   push_stroke(
219     (subpath (0.53,3.47) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
220     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
221     shifted (centre_pt+(55,0)),
222     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
223     (1.6,1.6)-(1.6,1.6));
224
225   x1=xpart point 4 of get_stroke(0);
226   y1=y2=vmetric(0.44);
227   x1-x2=y1-(ypart point 4 of get_stroke(0))*1.0;
228
229   replace_stroke(0)(oldp-z1-z2);
230   set_botip(0,4,1);
231   set_botip(0,5,1);
232   expand_pbox;
233 enddef;

```



```

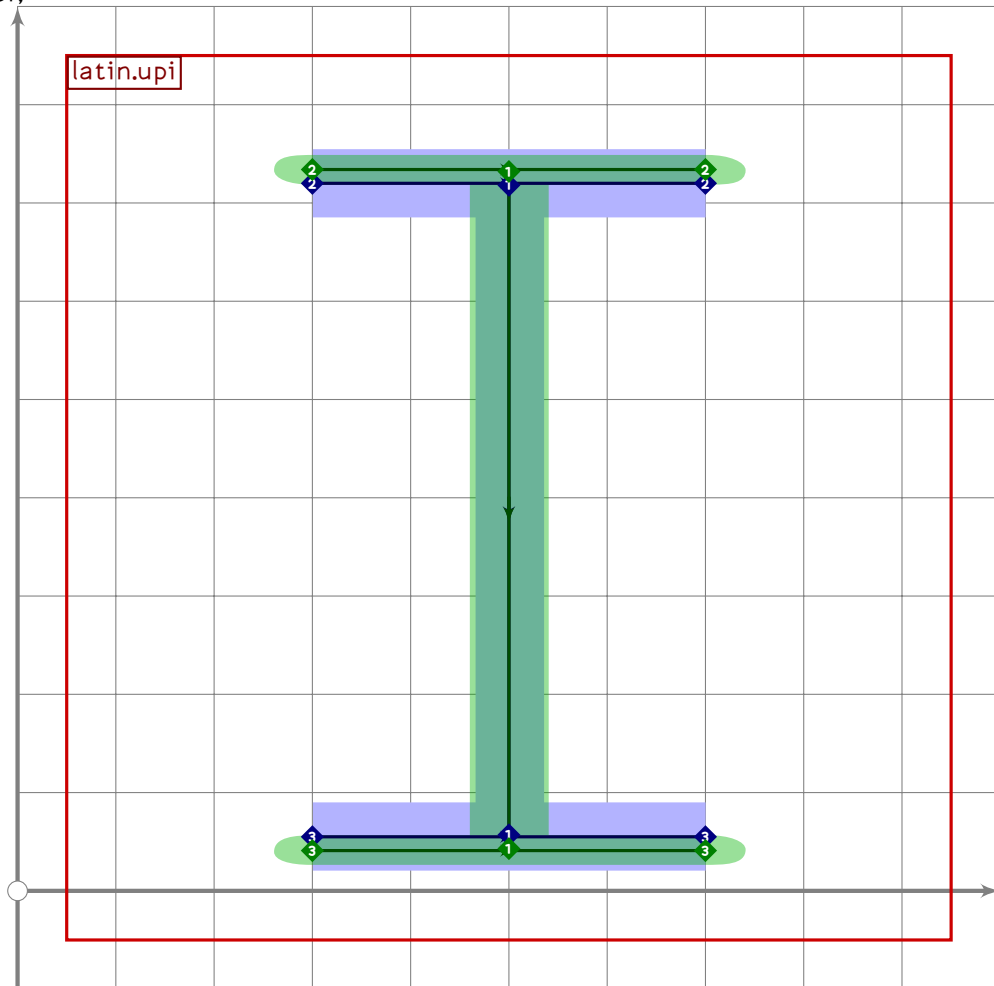
234
235 vardef latin.uph =
236   push_pbox_toexpand("latin.uph");
237   z1=(260,latin_wide_high_v);
238   z2=(740,latin_wide_high_v);
239   z3=(260,latin_wide_low_v);
240   z4=(740,latin_wide_low_v);
241
242   z5=whatever[z1,z3];
243   z6=whatever[z2,z4];
244   y5=y6=vmetric(0.5);
245
246   push_stroke(z1-z3,(1.6,1.6)-(1.6,1.6));
247   set_boserif(0,0,3);
248   set_boserif(0,1,3);
249
250   push_stroke(z2-z4,(1.6,1.6)-(1.6,1.6));
251   set_boserif(0,0,3);
252   set_boserif(0,1,3);
253
254   push_stroke(z5-z6,(1.6,1.6)-(1.6,1.6));

```

```

255 expand_pbox;
256 enddef;

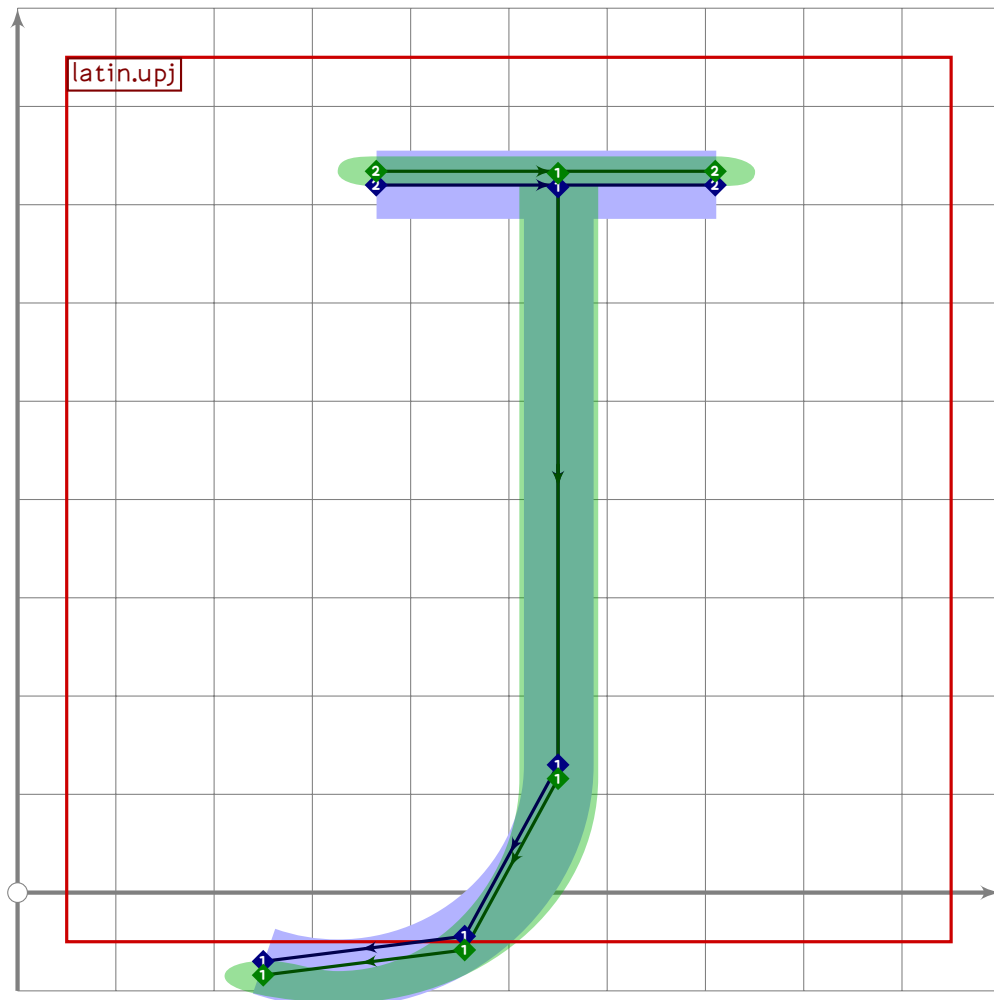
```



```

257
258 vardef latin.upi =
259   push_pbox_toexpand("latin.upi");
260   push_stroke((500,latin_wide_high_h-2)-(500,latin_wide_low_h+2),
261     (1.6,1.6)-(1.6,1.6));
262
263   push_stroke((300,latin_wide_high_h)-(700,latin_wide_high_h),
264     (1.6,1.6)-(1.6,1.6));
265
266   push_stroke((300,latin_wide_low_h)-(700,latin_wide_low_h),
267     (1.6,1.6)-(1.6,1.6));
268   expand_pbox;
269 enddef;

```

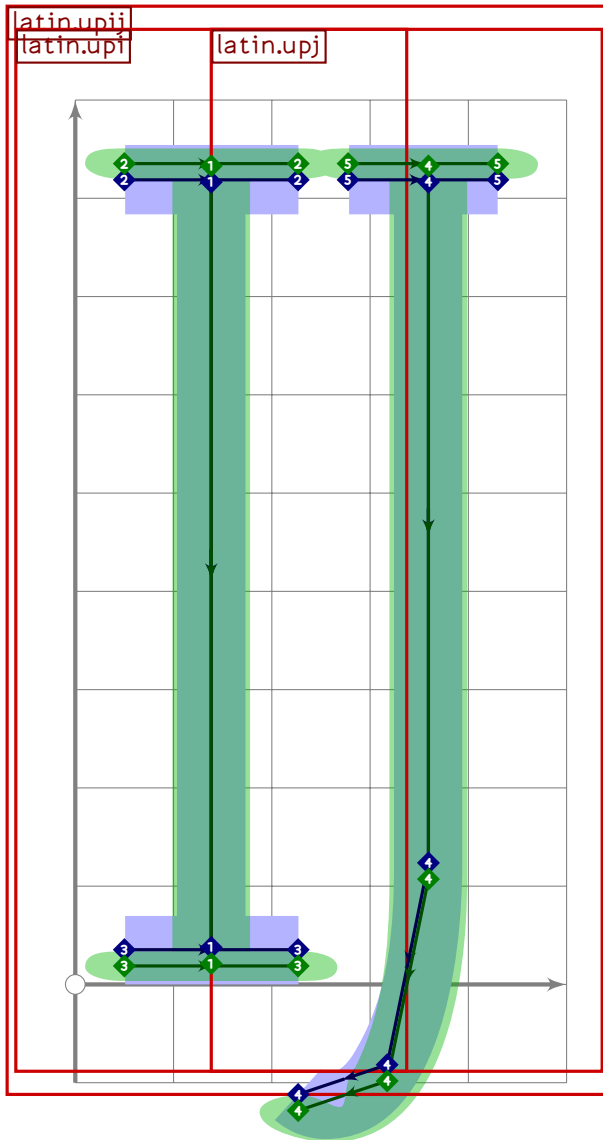


```

270
271 vardef latin.upj =
272   push_pbox_toexpand("latin.upj");
273   z1=(550,latin_wide_high_h-2);
274   z2=(550,latin_wide_low_h+75);
275   z3=z2+(-300,-200);
276
277   push_stroke((z1-z2).{curl 0.8}z3,
278     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
279   replace_strokep(0)(insert_nodes(oldp)(1.5));
280
281   push_stroke((365,latin_wide_high_h)-(710,latin_wide_high_h),
282     (1.6,1.6)-(1.6,1.6));
283   expand_pbox;
284 enddef;

```

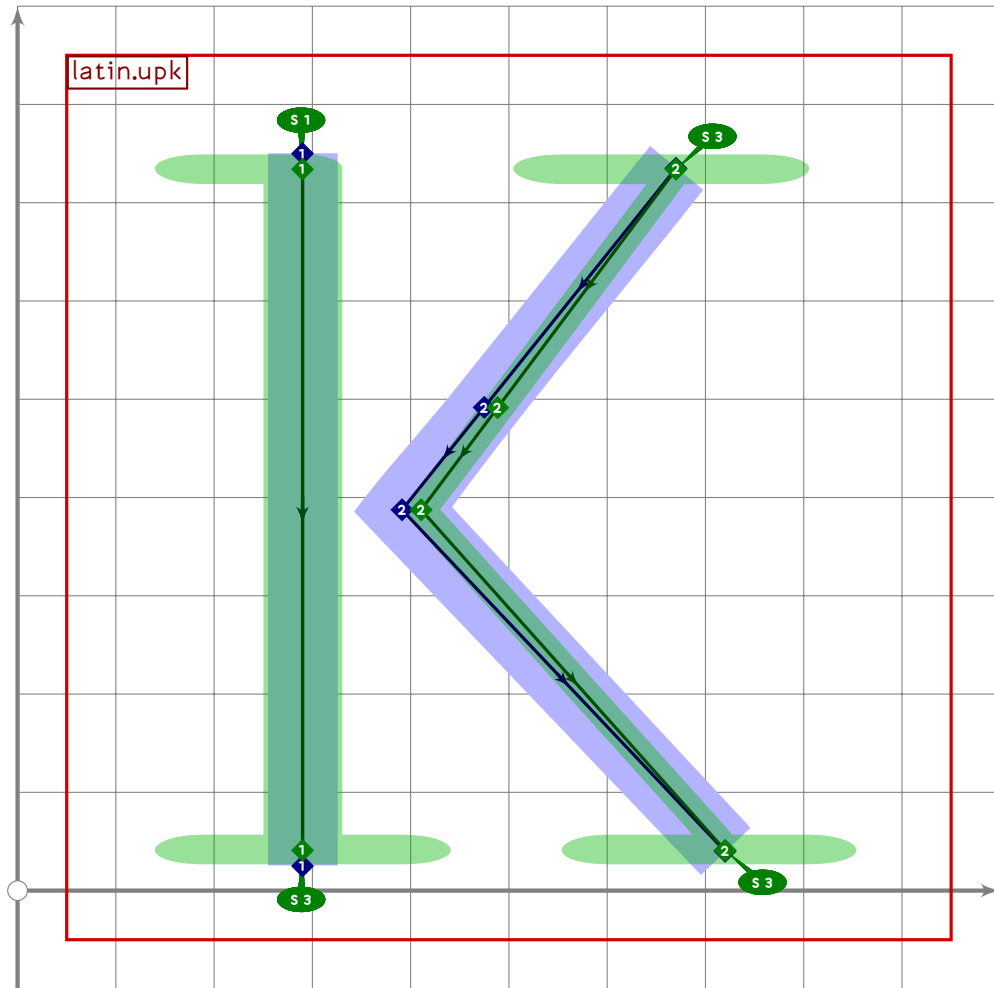




```

285
286 vardef latin.upj =
287   push_pbox_toexpand("latin.upi");
288   tsu_xform(identity shifted (-250,0))(latin.upi);
289   tsu_xform(identity shifted (200,0))(latin.upj);
290   expand_pbox;
291 enddef;

```



```

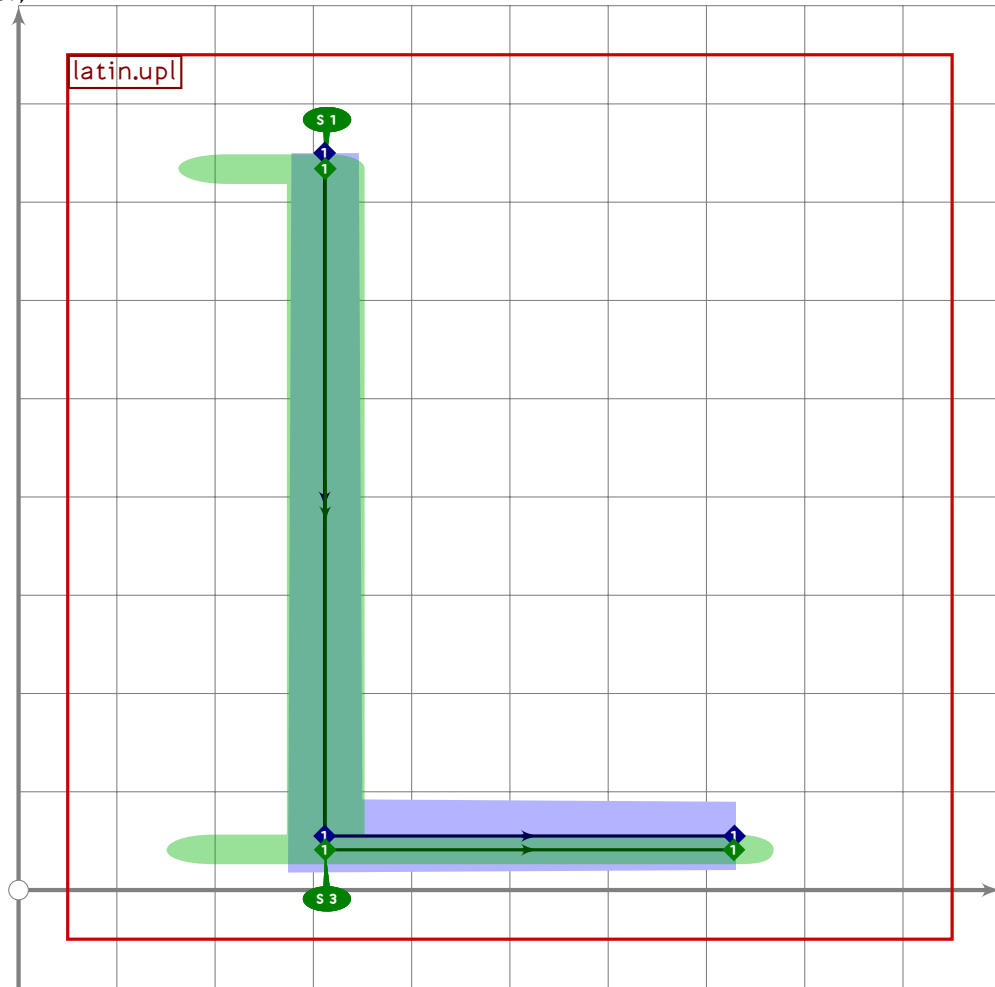
292
293 vardef latin.upk =
294   push_pbox_toexpand("latin.upk");
295   z1=(290,latin_wide_high_v);
296   z2=(290,latin_wide_low_v);
297   z3=(670,0.5[latin_wide_high_h,latin_wide_high_v]);
298   x4=290+mbrush_width*if sharp_corners: 2.7 else: 2.3 fi;
299   y4=vmetric(0.5);
300   z5=(720,0.5[latin_wide_low_h,latin_wide_low_v]);
301
302   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
303   set_boserif(0,0,1);
304   set_boserif(0,1,3);
305
306   push_stroke(z3-(0.7[z3,z4])-z4-z5,
307     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
308   set_botip(0,2,1);
309   if do_alteration:
310     set_boalternate(0);
311     set_boserif(0,0,3);
312     set_boserif(0,3,3);

```

```

313 fi;
314 expand_pbox;
315 enddef;

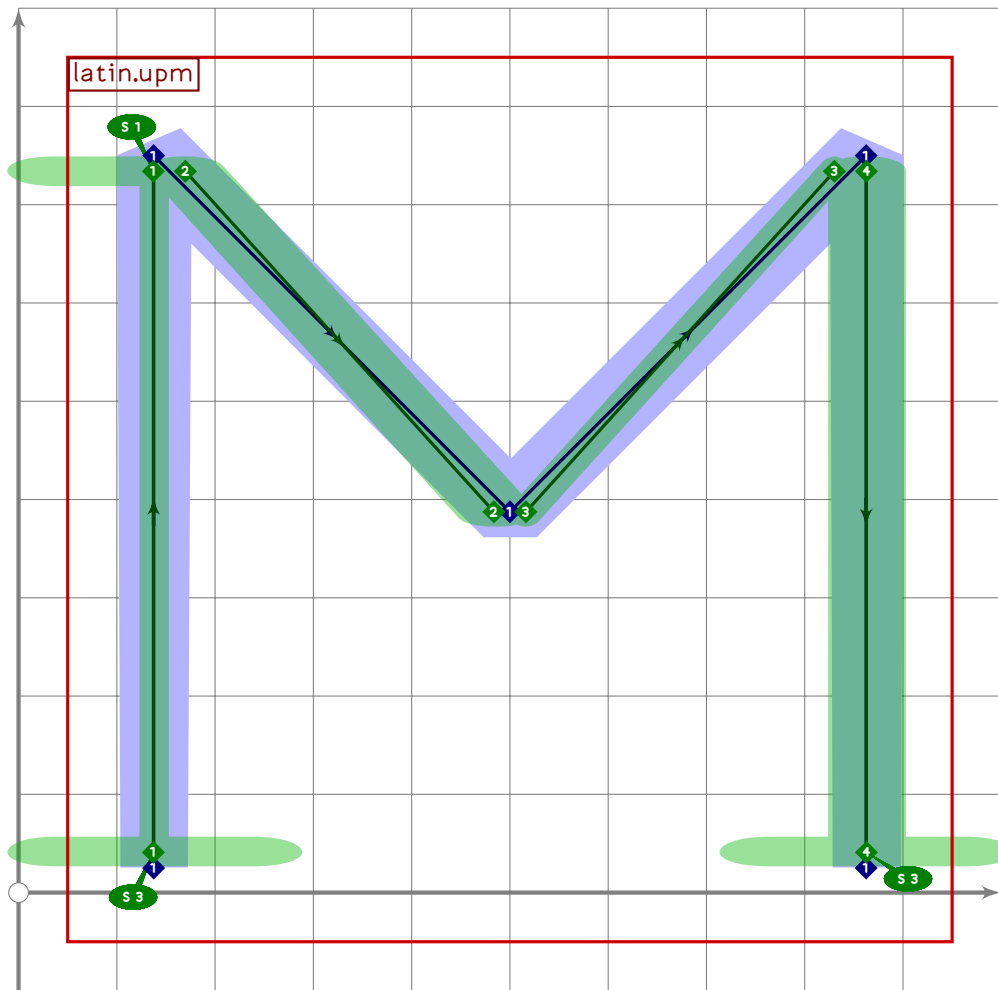
```



```

316
317 vardef latin.upl =
318   push_pbox_toexpand("latin.upl");
319   y1=latin_wide_high_v;
320   y2=y3=latin_wide_low_h;
321   x1=x2;
322   (x1+x3)/2=520;
323   (x3-x1)=(y1-y2)*0.6;
324
325   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
326   set_botip(0,1,1);
327   set_boserif(0,0,1);
328   set_boserif(0,1,3);
329   expand_pbox;
330 enddef;

```



```

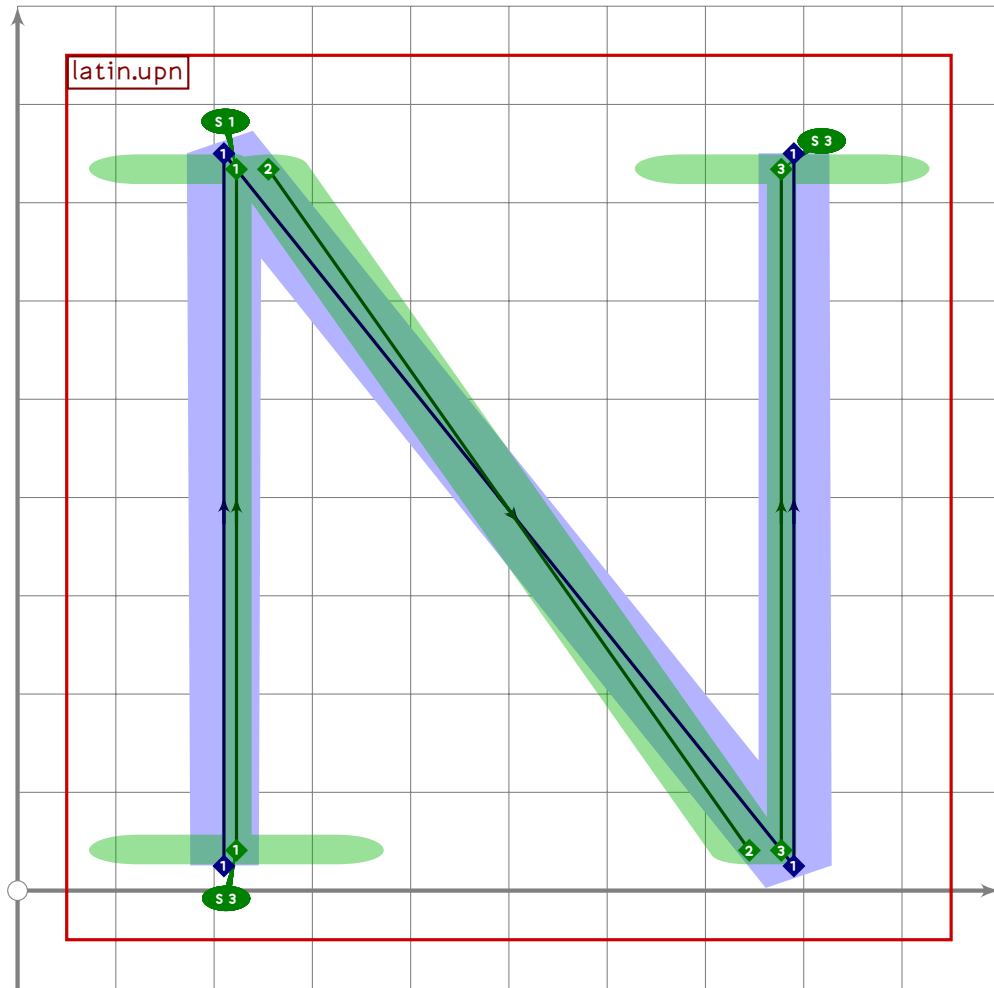
331
332 vardef latin.upm =
333   push_pbox_toexpand("latin.upm");
334   y1=y5=latin_wide_low_v;
335   y2=y4=latin_wide_high_v;
336   y3=(y1+y2)/2;
337
338   if do_alteration:
339     x1=x2;
340     x3=500+alternate_adjust/2;
341     x4=x5;
342     (x3-x1)=(x5-x3);
343
344     (x5-x1)=(y2-y1);
345
346   push_stroke((z1-z2) shifted (alternate_adjust*left),
347     (1.6,1.6)-(1.6,1.6));
348   set_boserif(0,0,3);
349   set_boserif(0,1,1);
350   set_boalternate(0);
351

```

```

352   push_stroke(z2-(z3+alternate_adjust*left),(1.6,1.6)-(1.6,1.6));
353
354   push_stroke(z3-(z4+alternate_adjust*left),(1.6,1.6)-(1.6,1.6));
355   set_boalternate(0);
356
357   push_stroke(z4-z5,(1.6,1.6)-(1.6,1.6));
358   set_boserif(0,1,3);
359   else:
360     x1=x2;
361     x3=500;
362     x4=x5;
363     (x3-x1)=(x5-x3);
364
365     (x5-x1)=(y2-y1);
366
367     push_stroke(z1-z2-z3-z4-z5,
368       (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
369     set_botip(0,1,0);
370     set_botip(0,2,0);
371     set_botip(0,3,0);
372     set_boserif(0,0,3);
373     set_boserif(0,1,1);
374     set_boserif(0,4,3);
375   fi;
376   expand_pbox;
377 enddef;

```



```

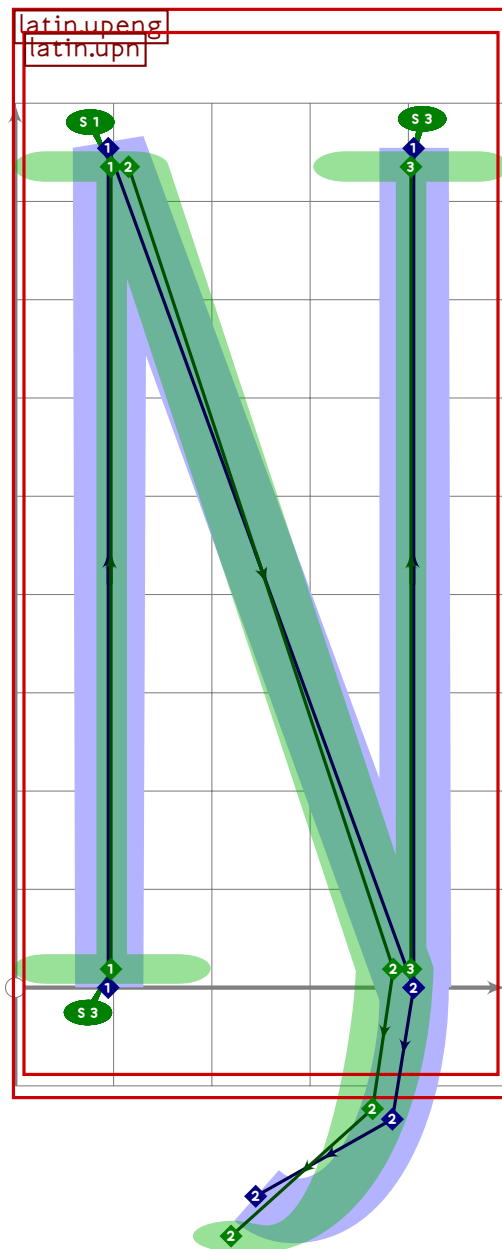
378
379 vardef latin.upn =
380   push_pbox_toexpand("latin.upn");
381   y1=y3=latin_wide_low_v;
382   y2=y4=latin_wide_high_v;
383
384   x1=x2;
385   x3=x4;
386   (x1+x3)/2=500;
387   (x3-x1)=(y2-y1)*4/5;
388
389   if do_alteration:
390     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
391     set_boserif(0,0,3);
392     set_boserif(0,1,1);
393     set_boalterate(0);
394
395     push_stroke((z2+alternate_adjust*right)-(z3+alternate_adjust*left),
396               (1.6,1.6)-(1.6,1.6));
397
398     push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));

```

```

399   set_boserif(0,1,3);
400   set_boalternate(0);
401   else:
402     push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
403     set_botip(0,1,0);
404     set_botip(0,2,0);
405     set_boserif(0,0,3);
406     set_boserif(0,1,1);
407     set_boserif(0,3,3);
408   fi;
409   expand_pbox;
410 enddef;

```



```

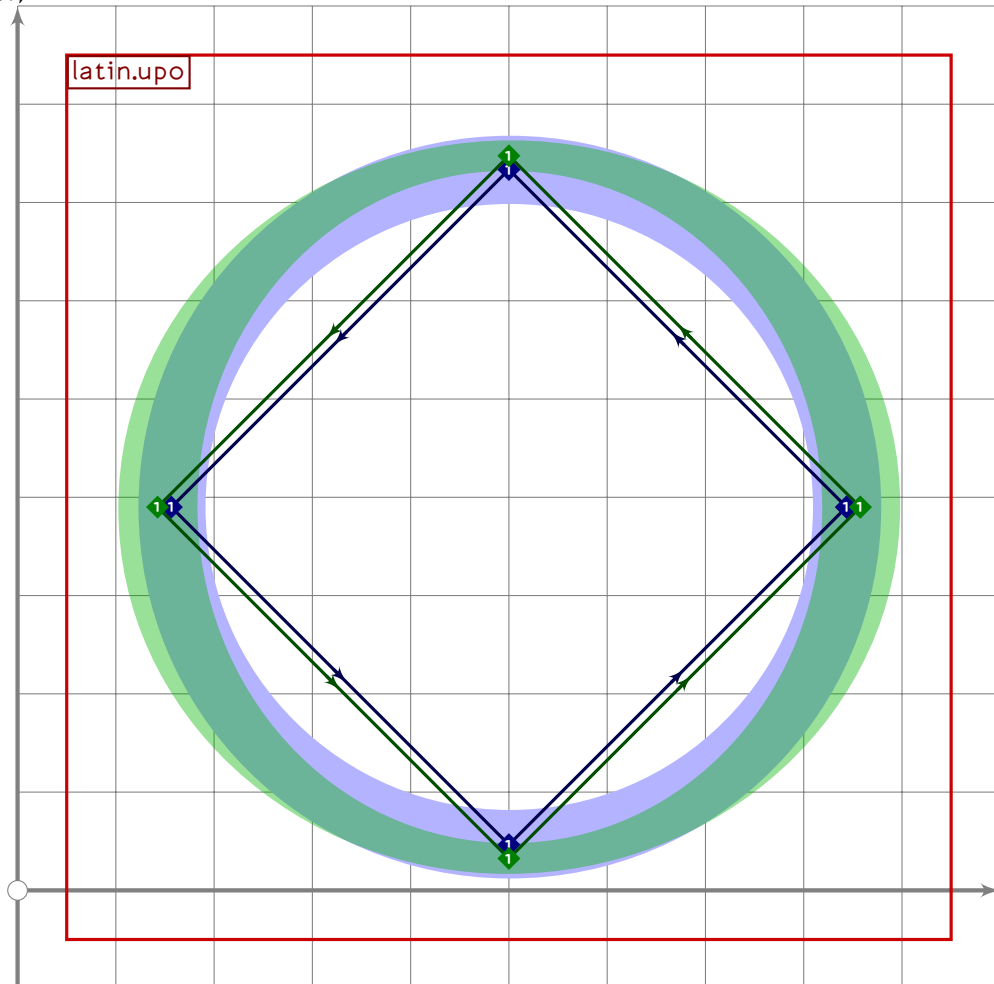
411
412 vardef latin.upeng =

```

```

413 push_pbox_toexpand("latin.upeng");
414 latin.upn;
415 y5=latin_wide_desc_h;
416 if do_alteration:
417   x5=x3-alternate_adjust-300;
418   replace_stroke(-1)(oldp{dir 268}..{curl 0.8}z5);
419   replace_stroke(-1)(insert_nodes(oldp)(1.3));
420   replace_strokeq(-1)(oldq-(1.6,1.6)-(1.6,1.6));
421 else:
422   x5=x3-300;
423   push_stroke(z3{dir 268}..{curl 0.8}z5,(1.6,1.6)-(1.6,1.6));
424   replace_stroke(0)(insert_nodes(oldp)(0.3));
425 fi;
426 expand_pbox;
427 enddef;

```



```

428
429 vardef latin.upo =
430   push_pbox_toexpand("latin.upo");
431   push_stroke(
432     ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
433     scaled ((latin_wide_high_r-latin_wide_low_r)/2)

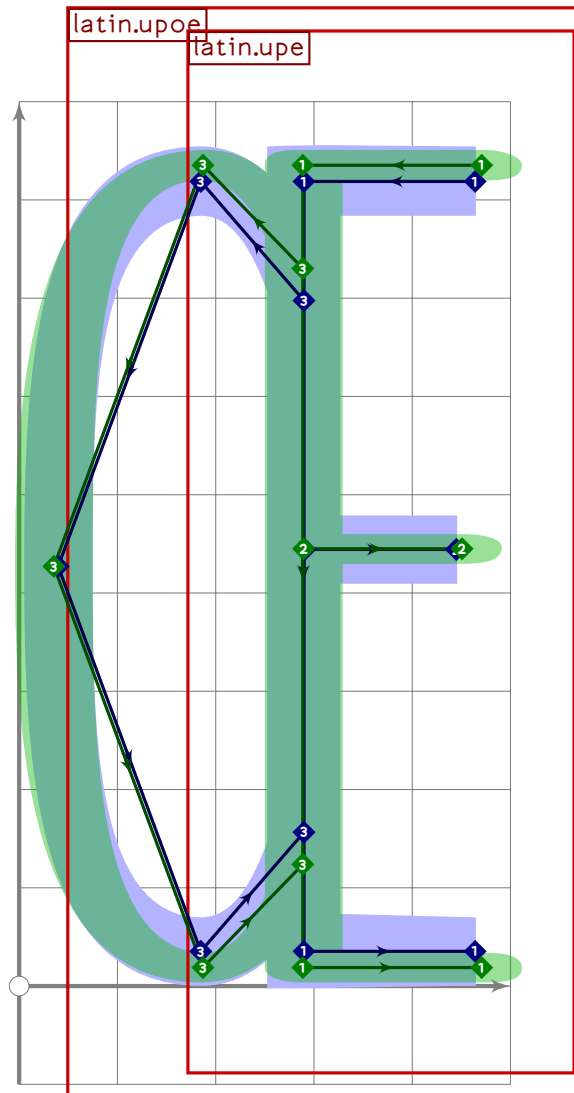
```



```

434   shifted centre_pt,
435   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
436   expand_pbox;
437   enddef;

```



```

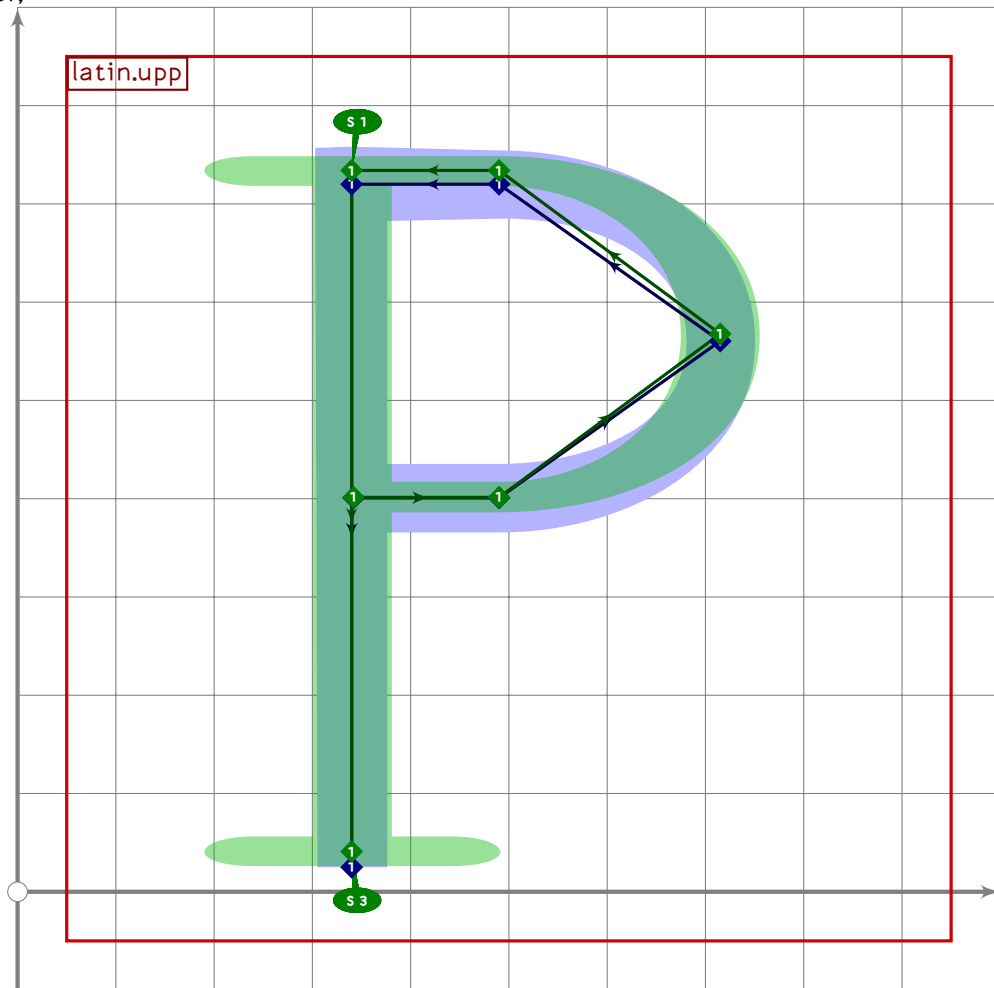
438
439   vardef latin.upoe =
440     push_pbox_toexpand("latin.upoe");
441     tsu_xform(identity shifted (280,0))(latin.upe);
442     set_boserif(-1,1,whatever);
443     set_boserif(-1,2,whatever);
444     push_stroke(
445       ((1,0)..(0,1)..(-1,0)..(0,-1)..(1,0))
446       scaled ((latin_wide_high_h-latin_wide_low_h)/2)
447       shifted (360,0.5[latin_wide_high_h,latin_wide_low_h]),
448       (1.2,1.2)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.2,1.2));
449     replace_strokep(0)(
450       subpath (xpart (oldp intersectiontimes get_strokep(-2)),
451         4-xpart ((reverse oldp) intersectiontimes get_strokep(-2)))

```

```

452 of oldp);
453 expand_pbox;
454 endif;
455
456 vardef latin.upp_base(expr b) =
457 x1=x5+2;
458 x5=340;
459 x2=x4=x5+b*0.4;
460 x3=x5+b;
461
462 y1=y2=vmetric(0.52);
463 y3=(y2+y4)/2;
464 y4=y5=latin_wide_high_h;
465
466 push_stroke(z1-z2{right}..z3..{left}z4-z5,
467 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
468 endif;

```



```

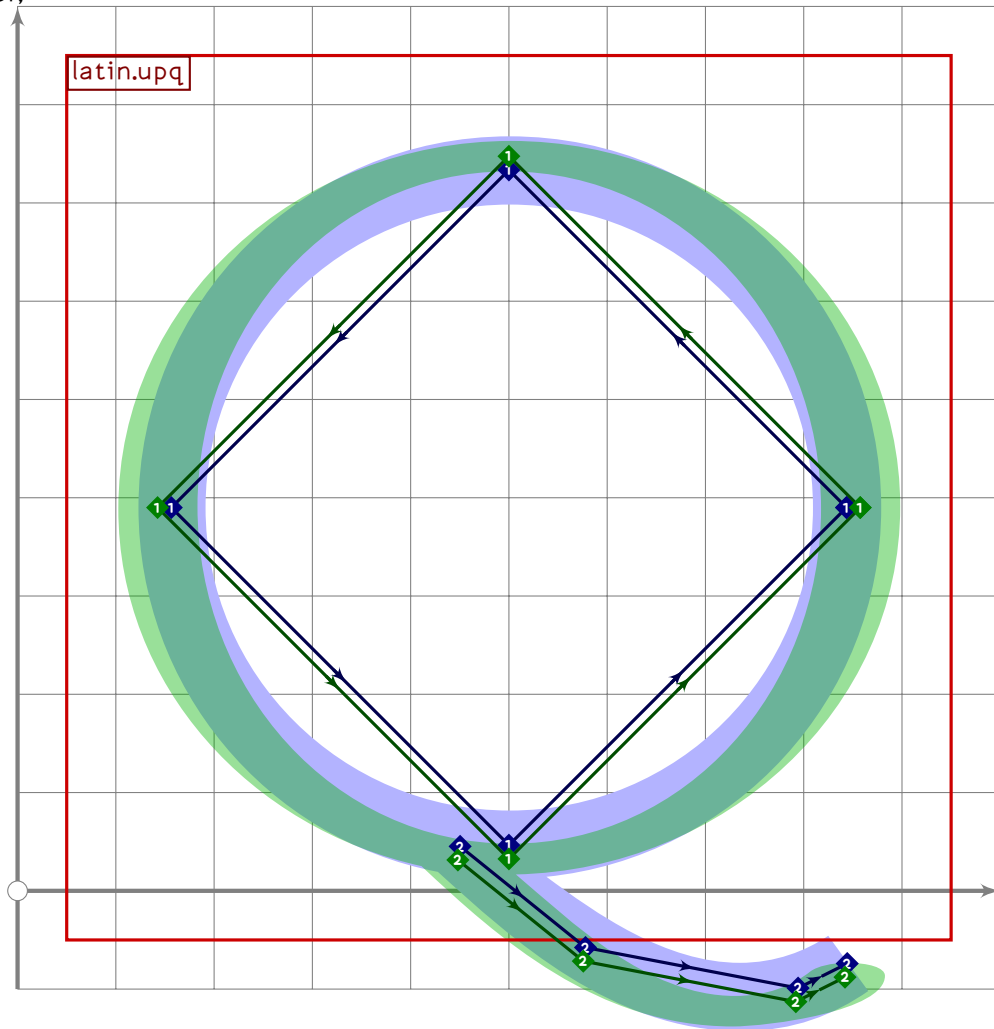
469
470 vardef latin.upp =
471 push_pbox_toexpand("latin.upp");
472 latin.upp_base(375);

```

```

473 replace_stroke(0)(oldp-(xpart point infinity of oldp,latin_wide_low_v));
474 replace_stroke(0)(oldq-(1.6,1.6));
475 set_botip(0,4,1);
476 set_boserif(0,4,1);
477 set_boserif(0,5,3);
478 expand_pbox;
479 enddef;

```



```

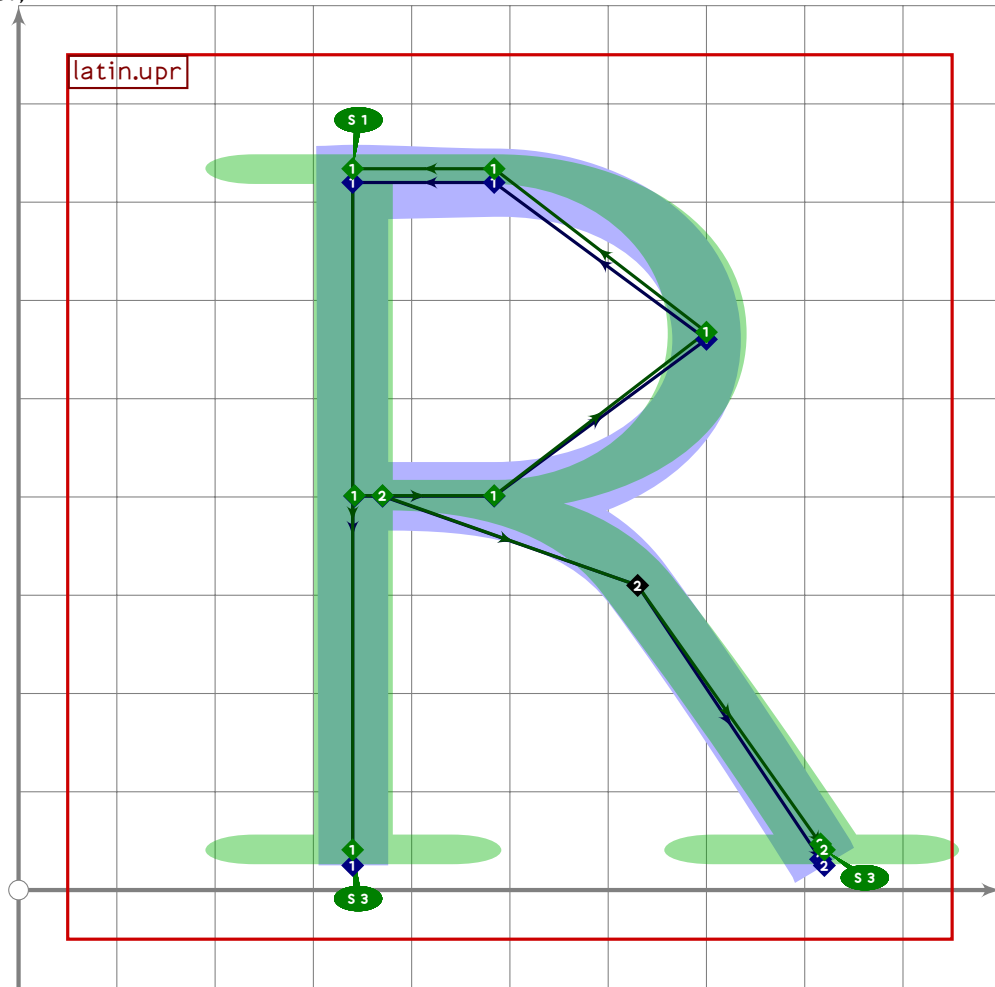
480
481 vardef latin.upq =
482   push_pbox_toexpand("latin.upq");
483   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
484     scaled ((latin_wide_high_r-latin_wide_low_r)/2)
485     shifted centre_pt,
486     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
487
488   z1=point 2.9 of get_stroke(0);
489   z2=z1+(350,-150);
490   z3=z2+(50,25);
491   push_stroke(subpath (0.02,2) of (z1{curl 0}..z2..z3),
492     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));

```

```

493 replace_strokep(0)(insert_nodes(oldp)(0.4));
494 expand_pbox;
495 enddef;

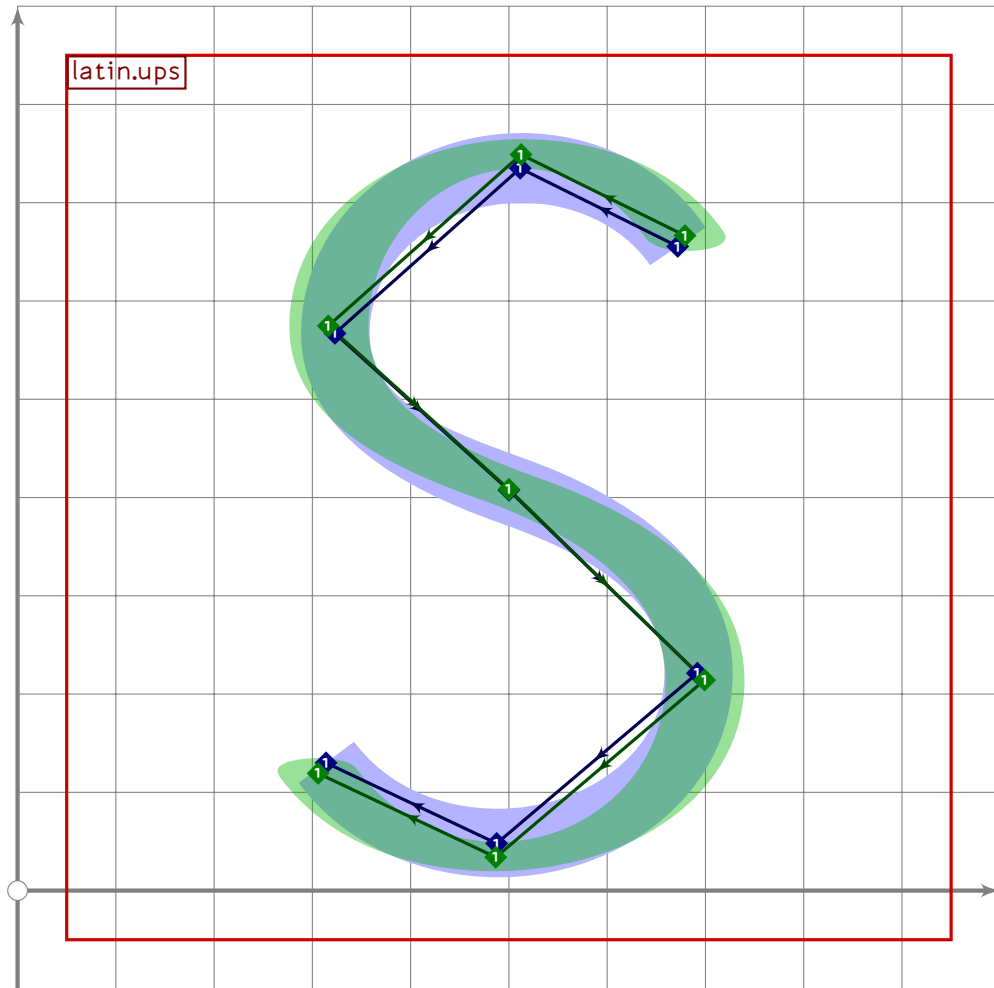
```



```

496
497 vardef latin.upr =
498   push_pbox_toexpand("latin.upr");
499   latin.upp_base(360);
500   replace_strokep(0)(oldp-(xpart point infinity of oldp,latin_wide_low_v));
501   replace_strokeq(0)(oldq-(1.6,1.6));
502   set_botip(0,4,1);
503   set_boserif(0,4,1);
504   set_boserif(0,5,3);
505
506   push_stroke((point 0.2 of get_strokep(0)){right}..(630,310)..
507     tension 3..(820,latin_wide_low_v),
508     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
509   replace_strokep(0)(insert_nodes(oldp)(1.95));
510   set_boserif(0,3,3);
511   expand_pbox;
512 enddef;

```



```

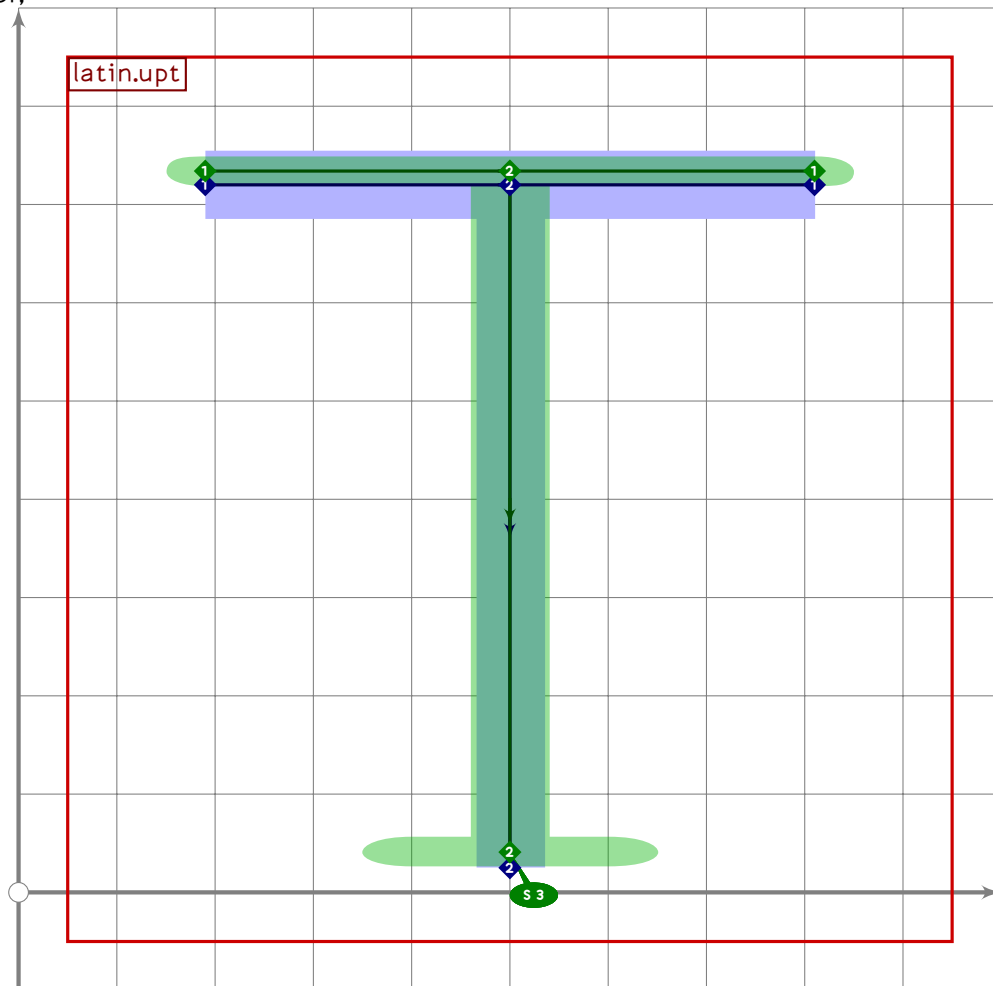
513
514 vardef latin.ups =
515   push_pbox_toexpand("latin.ups");
516   transform ta,tb;
517   path mycurve;
518
519   mycurve:=(1,0)..(0,1)..(-1,0);
520
521   y2=latin_wide_high_r;
522   y0=y3=vmetric(0.77);
523   y4=vmetric(0.53);
524   y5=y8=vmetric(0.25);
525   y6=latin_wide_low_r;
526
527   0.48[x1,x7]=0.48[x2,x6]=0.48[x3,x5]=x4=500;
528   x5-x1=20;
529   x5-x7=(y2-y6)*0.55;
530
531   (point 0 of mycurve) transformed ta=z0;
532   (point 0.35 of mycurve) transformed ta=z1;
533   (point 1 of mycurve) transformed ta=z2;

```

```

534 (point 2 of mycurve) transformed ta=z3;
535 xypart ta=0;
536
537 (point 0 of mycurve) transformed tb=z8;
538 (point 0.35 of mycurve) transformed tb=z7;
539 (point 1 of mycurve) transformed tb=z6;
540 (point 2 of mycurve) transformed tb=z5;
541
542 mycurve:=subpath (0.35,2) of mycurve;
543
544 push_stroke((mycurve transformed ta)..z4..(reverse mycurve transformed tb),
545 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
546 -(1.6,1.6));
547 expand_pbox;
548 enddef;

```



```

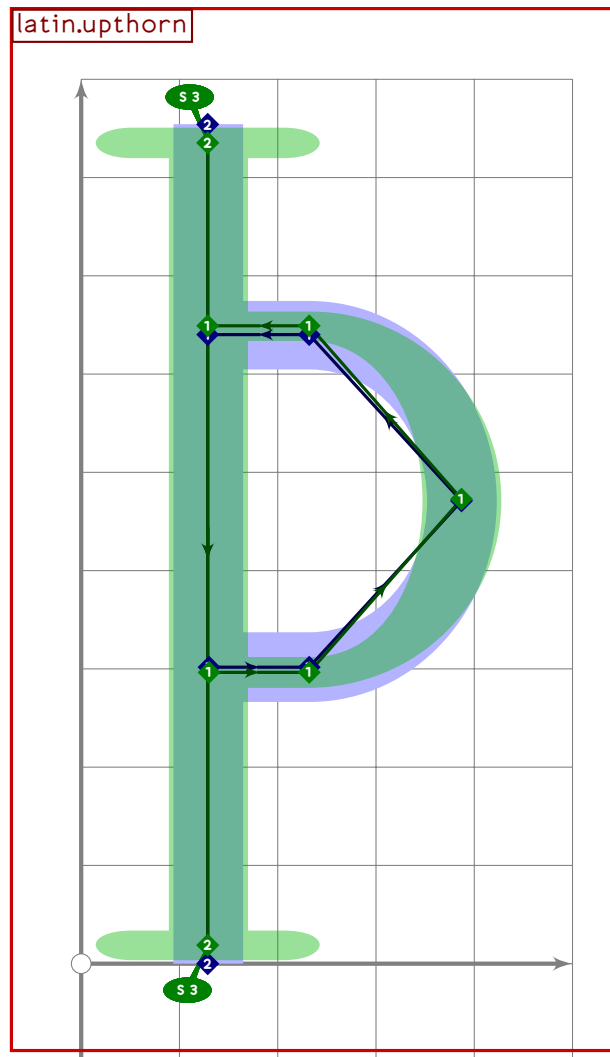
549
550 vardef latin.upt =
551   push_pbox_toexpand("latin.upt");
552   z1=(190,latin_wide_high_h);
553   z2=(500,latin_wide_high_h);
554   z3=(810,latin_wide_high_h);

```

```

555 z4=(500,latin_wide_low_v);
556
557 push_stroke(z1-z3,(1.6,1.6)-(1.6,1.6));
558
559 push_stroke(z2-z4,(1.6,1.6)-(1.6,1.6));
560 set_boserif(0,1,3);
561 expand_pbox;
562 enddef;

```



```

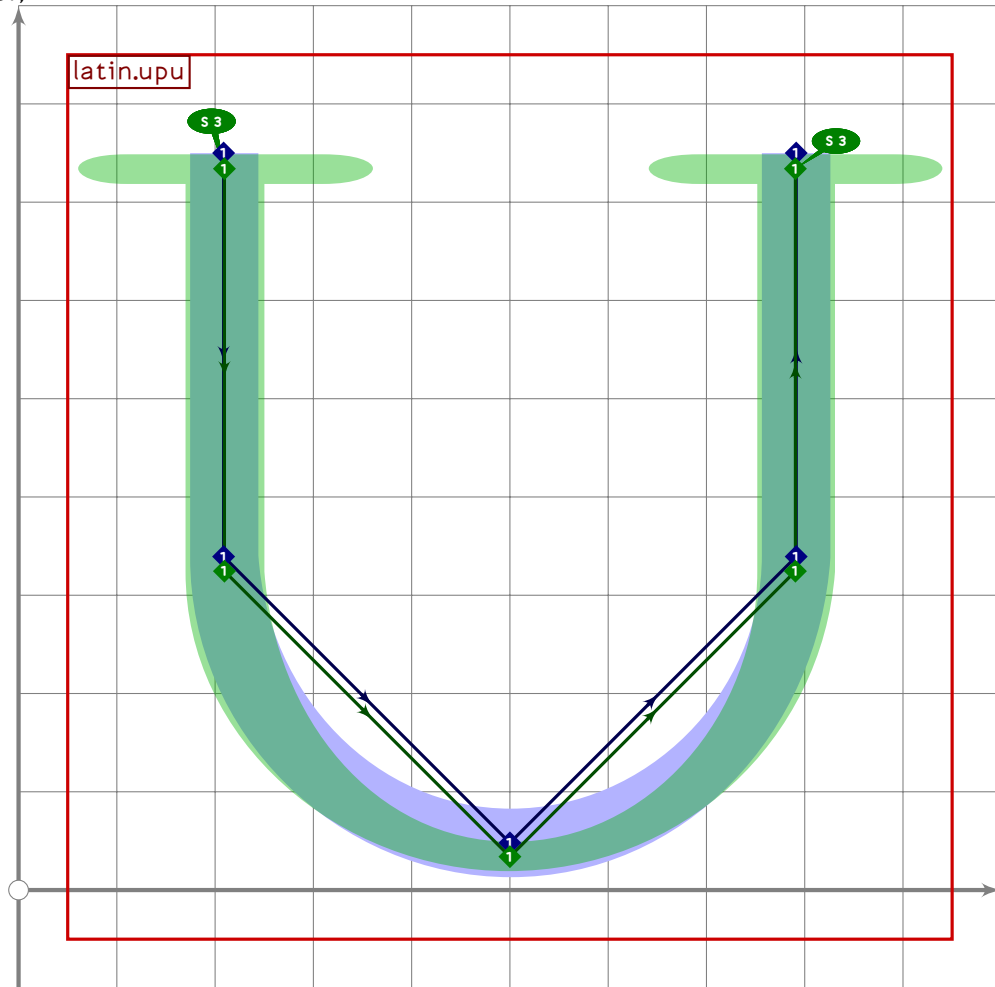
563
564 vardef latin.upthorn =
565   push_pbox_toexpand("latin.upthorn");
566   latin.upp_base(375);
567   replace_strokep(0)(oldp
568     shifted (-llcorner oldp) yscaled 0.9
569     shifted ((llcorner oldp)+(0,vmetric(0)-vmetric(0.18))));
570   push_stroke((xpart point infinity of get_strokep(0),latin_wide_high_v)
571     -(xpart point infinity of get_strokep(0),latin_wide_low_v),
572     (1.6,1.6)-(1.6,1.6));
573   set_boserif(0,0,3);

```

```

574 set_boserif(0,1,3);
575 expand_pbox;
576 enddef;

```



```

577
578 vardef latin.upu =
579   push_pbox_toexpand("latin.upu");
580   x1=x2;
581   x3=500;
582   x4=x5;
583   (x1+x5)/2=x3;
584   (x5-x1)=(y1-y3)*0.83;
585
586   y1=y5=latin_wide_high_v;
587   y2=y4;
588   y2-y3=x3-x2;
589   y3=latin_wide_low_r;
590
591   push_stroke(z1-z2{dir 274}..z3.{dir 86}z4-z5,
592     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
593   set_boserif(0,0,3);
594   set_boserif(0,4,3);

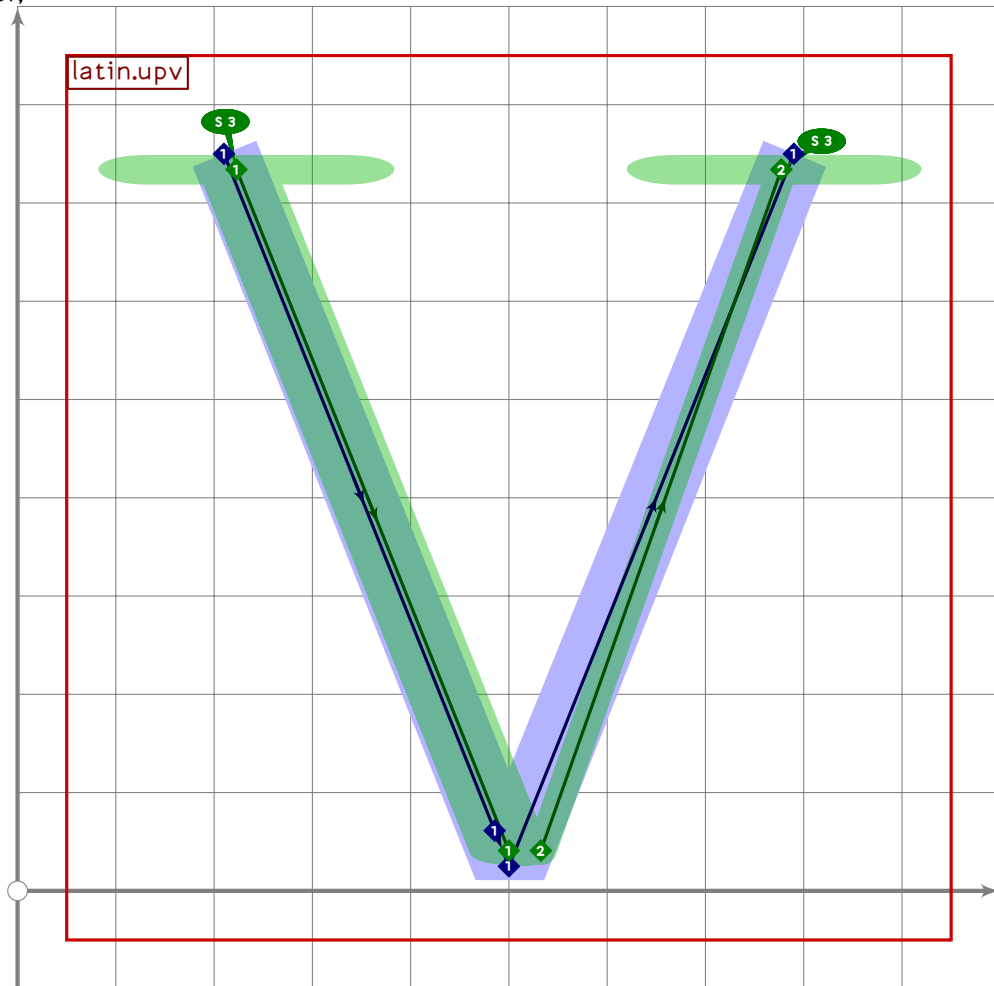
```



```

595 expand_pbox;
596 enddef;

```



```

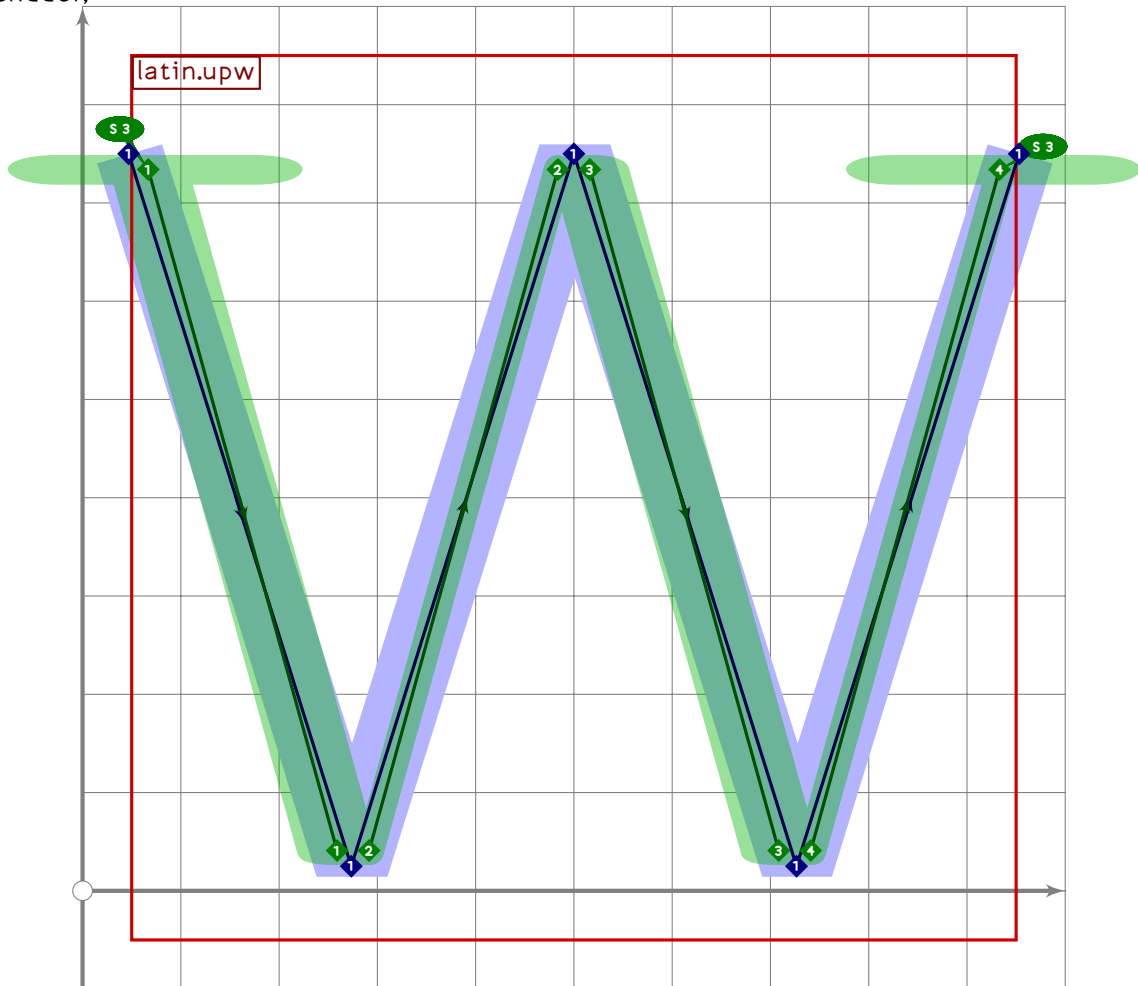
597
598 vardef latin.upv =
599   push_pbox_toexpand("latin.upv");
600   (x1+x3)/2=x2=500;
601
602   y1=y3=latin_wide_high_v;
603   y2=latin_wide_low_v;
604
605   (x3-x1)=(y1-y2)*0.8;
606
607   if do_alteration:
608     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
609     set_boserif(0,0,3);
610
611     push_stroke((z2+alternate_adjust*right)-z3,(1.6,1.6)-(1.6,1.6));
612     set_boserif(0,1,3);
613     set_boalternate(0);
614   else:
615     push_stroke(z1-(0.95[z1,z2])-z2-z3,

```

```

616     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
617     set_botip(0,2,0);
618     set_boserif(0,0,3);
619     set_boserif(0,3,3);
620     fi;
621     expand_pbox;
622 enddef;

```



```

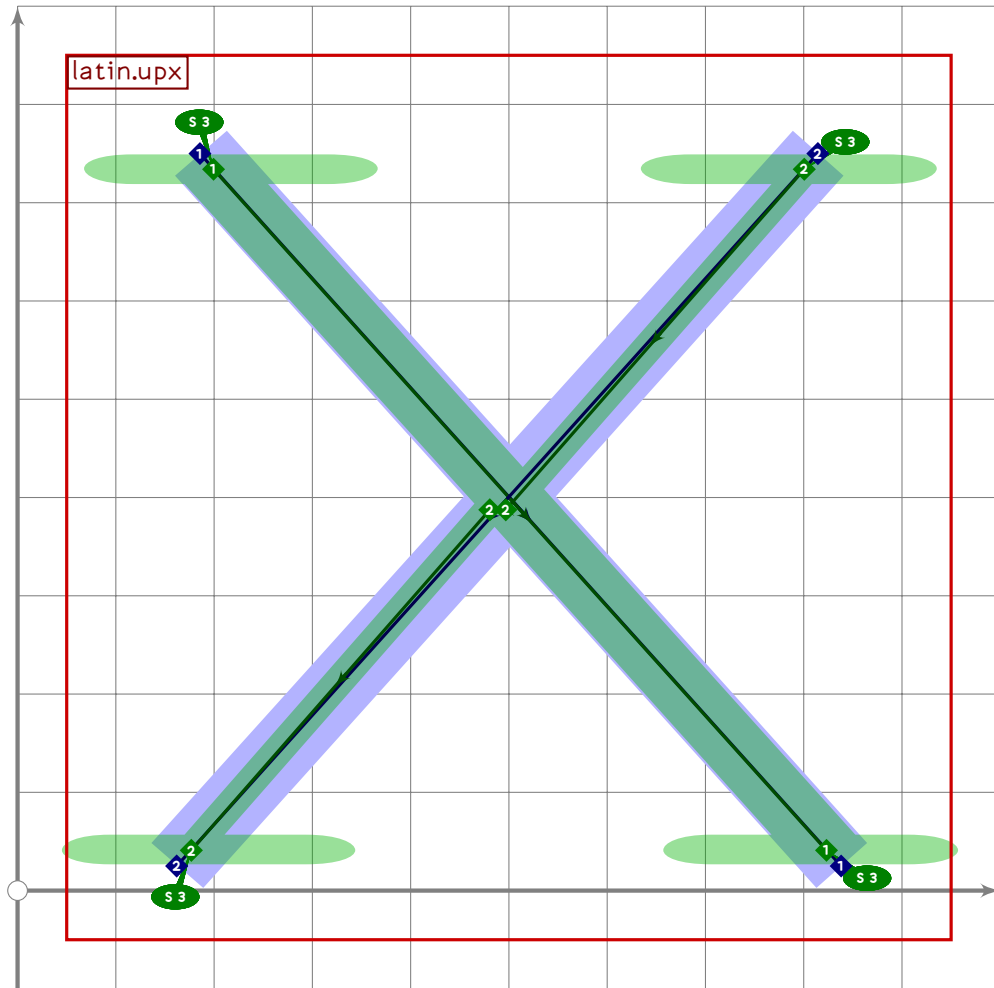
623
624 vardef latin.upw =
625     push_pbox_toexpand("latin.upw");
626     if do_alteration:
627         (x1+x5)/2=(x2+x4)/2=x3=500-alternate_adjust/2;
628         (x3-x2)=(x2-x1);
629
630         y1=y3=y5=latin_wide_high_v;
631         y2=y4=latin_wide_low_v;
632
633         (x5-x1)=(y1-y2)*1.25-(3*alternate_adjust);
634
635         push_stroke((z1-z2) shifted (alternate_adjust*left),
636             (1.6,1.6)-(1.6,1.6));

```

```

637     set_boserif(0,0,3);
638
639     push_stroke(z2-z3,(1.6,1.6)-(1.6,1.6));
640     set_boalternate(0);
641
642     push_stroke((z3-z4) shifted (alternate_adjust*right),
643               (1.6,1.6)-(1.6,1.6));
644
645     push_stroke((z4-z5) shifted (alternate_adjust*right*2),
646               (1.6,1.6)-(1.6,1.6));
647     set_boserif(0,1,3);
648     set_boalternate(0);
649 else:
650     (x1+x5)/2=(x2+x4)/2=x3=500;
651     (x3-x2)=(x2-x1);
652
653     y1=y3=y5=latin_wide_high_v;
654     y2=y4=latin_wide_low_v;
655
656     (x5-x1)=(y1-y2)*1.25;
657
658     push_stroke(z1-z2-z3-z4-z5,
659               (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
660     set_botip(0,1,0);
661     set_botip(0,2,0);
662     set_botip(0,3,0);
663     set_boserif(0,0,3);
664     set_boserif(0,4,3);
665 fi;
666 expand_pbox;
667 enddef;

```



```

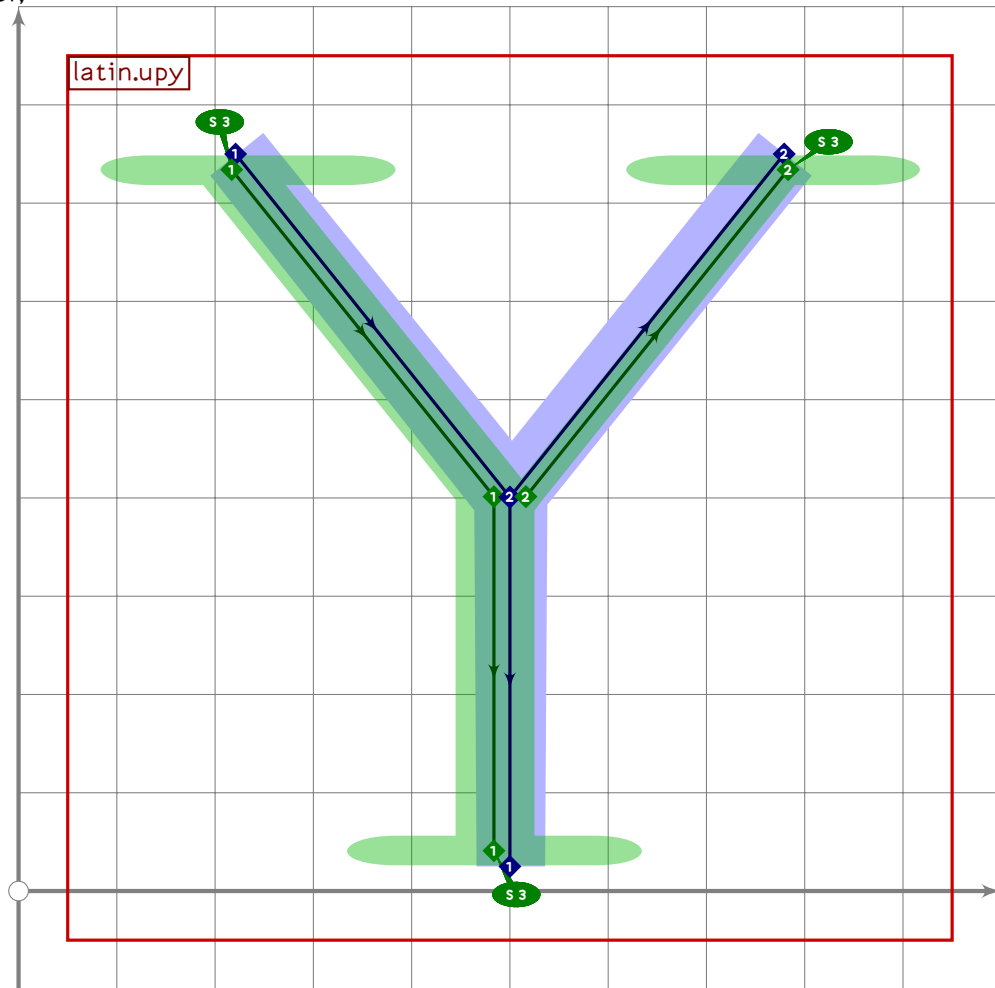
668
669 vardef latin.upx =
670   push_pbox_toexpand("latin.upx");
671   (x1+x3)/2=500;
672   (x2+x4)/2=500;
673   (x2+x3-x1-x4)=((y1-y2)*0.9)*2;
674   (x3-x1)=(x2-x4)*0.93;
675
676   y1=y3=latin_wide_high_v;
677   y2=y4=latin_wide_low_v;
678
679   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
680   set_boserif(0,0,3);
681   set_boserif(0,1,3);
682
683   if do_alteration:
684     push_stroke(z3-(0.5[z3,z4]+alternate_adjust*right/4)
685       -(0.5[z3,z4]+alternate_adjust*left/4)-z4,
686       (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
687     set_boserif(0,0,3);
688     set_boserif(0,3,3);

```

```

689 else:
690   push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));
691   set_boserif(0,0,3);
692   set_boserif(0,1,3);
693 fi;
694 set_boalternate(0);
695 expand_pbox;
696 enddef;

```



```

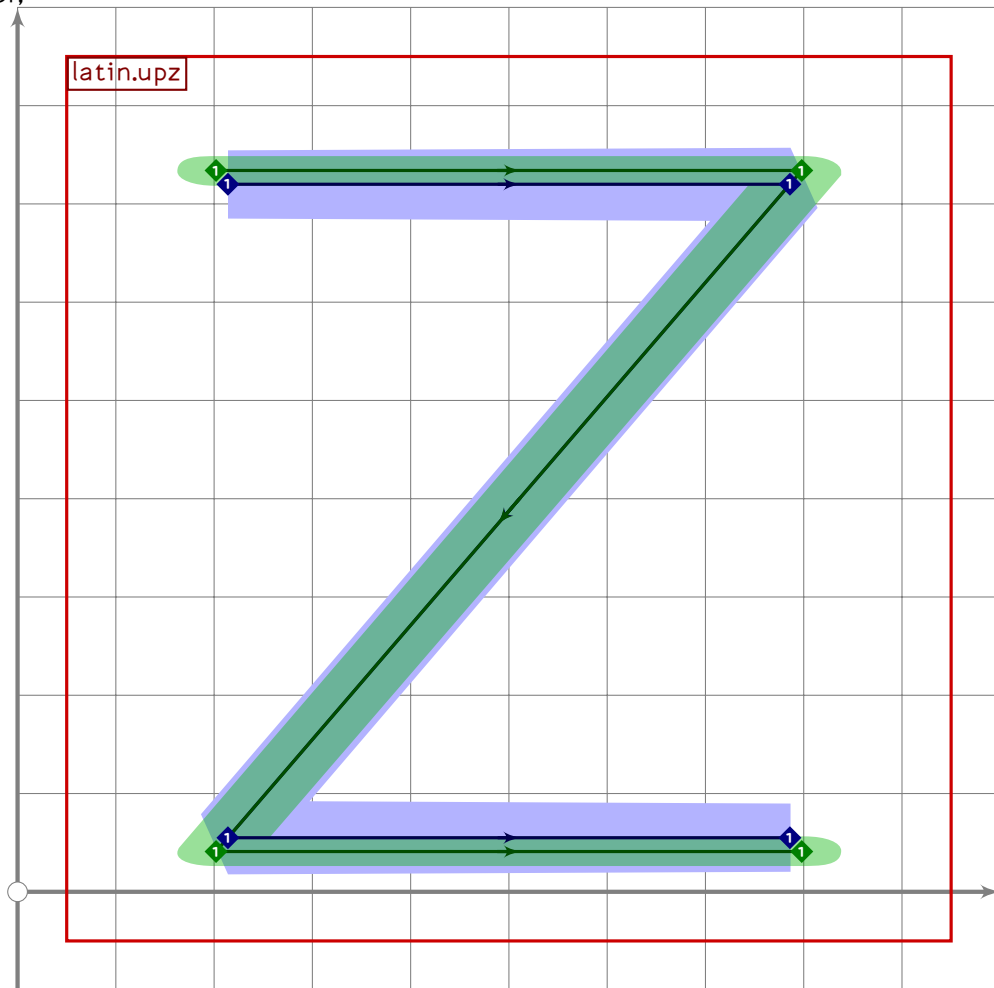
697
698 vardef latin.upy =
699   push_pbox_toexpand("latin.upy");
700   (x3+x1)/2=x2=x4=if do_alteration: 500-alternate_adjust/2 else: 500 fi;
701   (x3-x1)=0.77*(y1-y4);
702
703   y1=y3=latin_wide_high_v;
704   y2=vmetric(0.52);
705   y4=latin_wide_low_v;
706
707   push_stroke(z1-z2-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
708   set_botip(0,1,0);
709   set_boserif(0,0,3);

```

```

710 set_boserif(0,2,3);
711
712 if do_alteration:
713     push_stroke((z2-z3) shifted (alternate_adjust*right),
714         (1.6,1.6)-(1.6,1.6));
715 else:
716     push_stroke(z2-z3,(1.6,1.6)-(1.6,1.6));
717 fi;
718 set_boserif(0,1,3);
719 set_boalterate(0);
720 expand_pbox;
721 enddef;

```



```

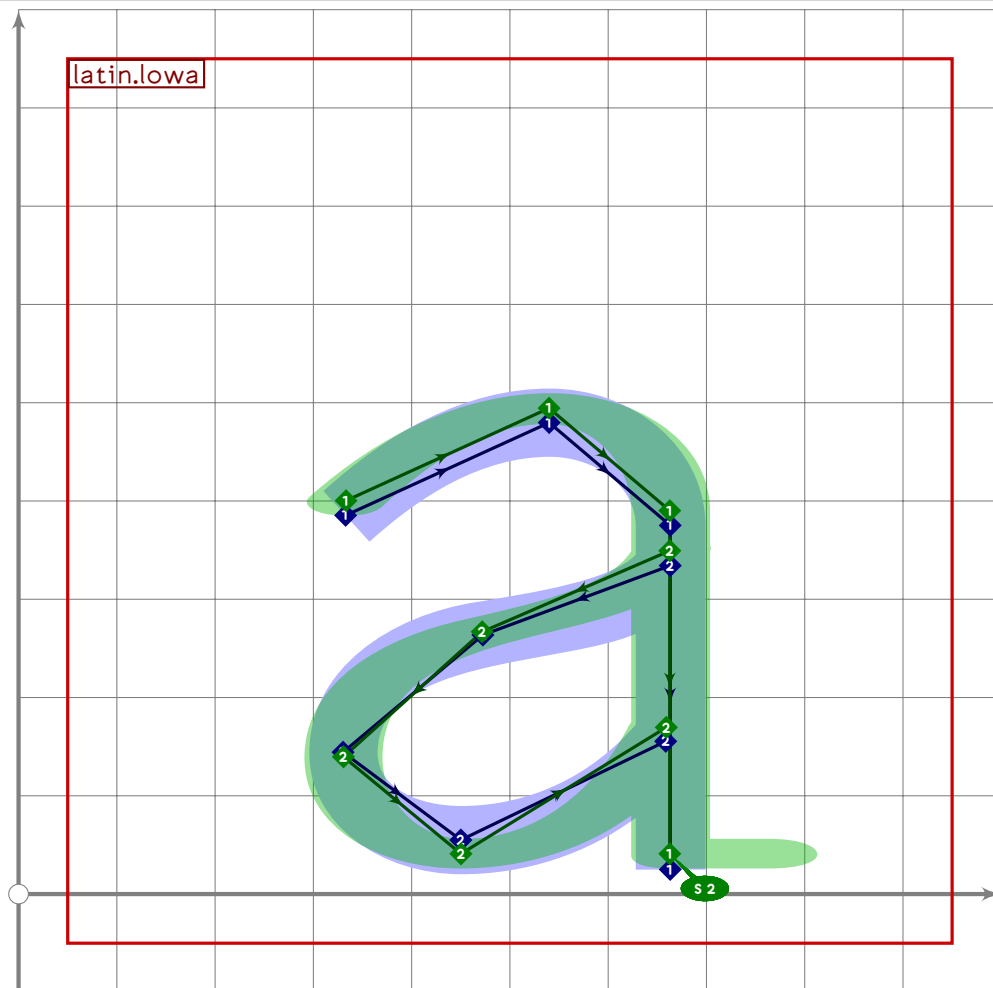
722
723 vardef latin.upz =
724     push_pbox_toexpand("latin.upz");
725     y1=y2=latin_wide_high_h;
726     y3=y4=latin_wide_low_h;
727
728     x1=x3;
729     x2=x4;
730     (x1+x2)/2=500;

```

```

731 (x2-x1)=(y1-y3)*0.86;
732
733 push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
734 set_botip(0,1,0);
735 set_botip(0,2,0);
736 expand_pbox;
737 enddef;
738
739

```



```

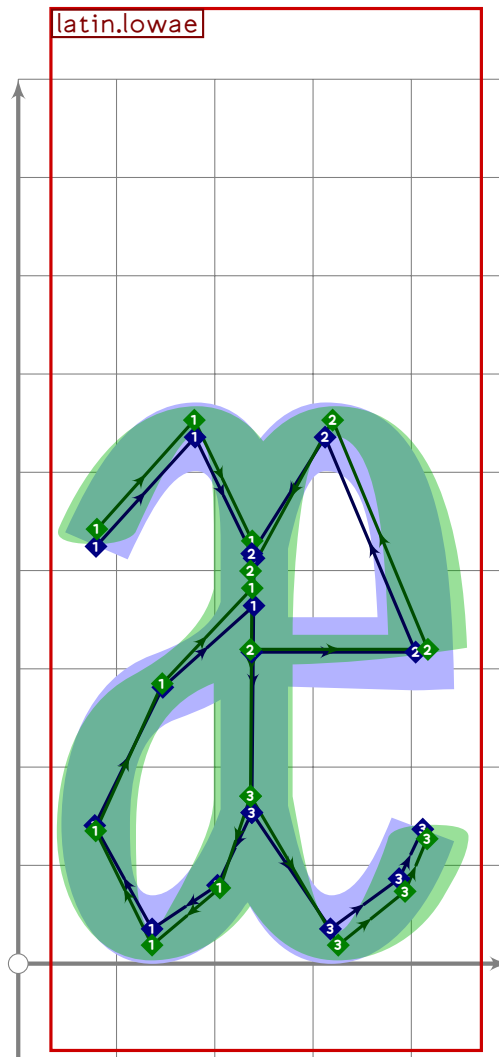
740
741 vardef latin.lowa =
742   push_pbox_toexpand("latin.lowa");
743   x1=(-0.12)[x6,x3];
744   x3=x4=x5=x8;
745   0.51[x6,x3]=500;
746   x3-x1=0.82*(y2-y4);
747   x2=0.63[x6,x3];
748   x7=0.36[x6,x3];
749
750   y1=0.7[y4,y2];
751   y3=0.77[y4,y2];

```

```

752 y2=latin_wide_xheight_r;
753 y4=latin_wide_low_v;
754 y5=0.68[y4,y2];
755 y6=0.32[y7,y5];
756 y7=latin_wide_low_h;
757 y8=0.3[y4,y2];
758
759 push_stroke(z1{curl 0.2}..z2{right}..z3{down}..z4,
760   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
761 replace_stroke(0)(subpath (0,2,3) of oldp);
762 set_boserif(0,3,2);
763
764 push_stroke(z5{dir 240}..z6{down}..z7{right}..z8,
765   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
766 replace_stroke(0)(subpath (0,2,97) of oldp);
767 replace_stroke(0)(insert_nodes(oldp)(0.5));
768 expand_pbox;
769 enddef;

```



770



```

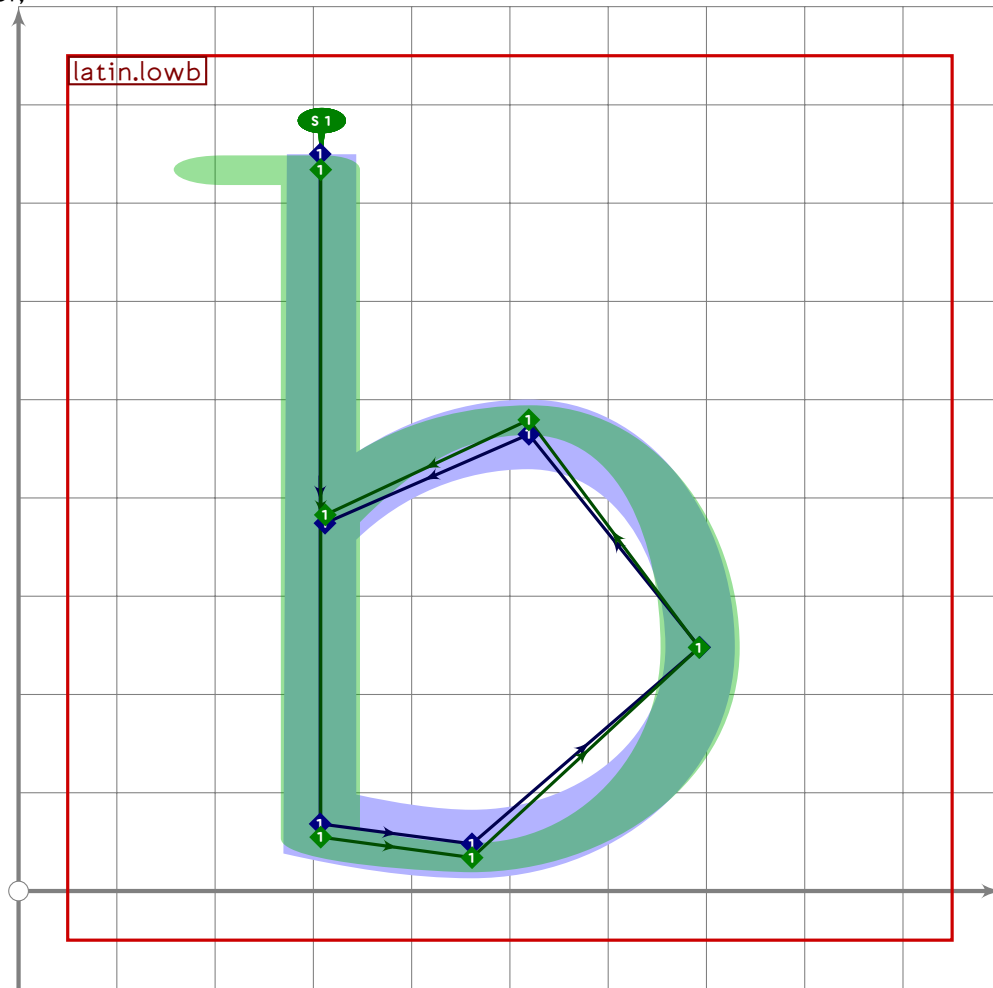
771 vardef latin.lowae =
772   push_pbox_toexpand("latin.lowae");
773   begingroup
774     save saved_sp;
775     save astem,abowl,astroke,estroke,etop,ebot;
776     path astem,abowl,astroke,estroke,etop,ebot;
777     saved_sp:=sp;
778
779     latin.lowae;
780     set_boserif(-1,3,whatever);
781     astem:=get_strokep(-1);
782     abowl:=get_strokep(0);
783
784     numeric x[],y[];
785     latin.lowae;
786     estroke:=get_strokep(0);
787
788     for i=saved_sp upto sp-1:
789       obstacktype[i]:=otnull;
790     endfor;
791
792     astroke:=(subpath (0,2) of astem)-reverse abowl;
793
794     numeric x[],y[];
795     z1=point 3 of astroke;
796     path xbp;
797     xbp=estroke shifted (0,ypart ((llcorner astroke)-(llcorner estroke)));
798     x2=xpart (xbp intersectionpoint ((470,y1)-(0,y1)));
799     astroke:=astroke shifted (470-x1,0);
800
801     estroke:=estroke shifted (470-x2,0);
802     xbp:=xbp shifted (470-x2,0);
803
804     ebot:=subpath (xpart (xbp intersectiontimes ((500,y1)-(0,y1))),
805                   infinity) of xbp;
806     ebot:=insert_nodes(ebot)((length ebot)-0.3);
807
808     etop:=
809       subpath (ypart (((470,1000)-(470,0))
810                     intersectiontimes (subpath (0,1) of estroke)),
811              1+ypart (((470,1000)-(470,0))
812                      intersectiontimes (subpath (1,infinity) of estroke)))
813       of estroke;
814
815     astroke:=insert_nodes(astroke)(3,4);
816
817     push_stroke(astroke,
818               (1.6,1.6) for i=1 upto length astroke: -(1.6,1.6) endfor);

```

```

819   push_stroke(etop,
820     (1.6,1.6) for i=1 upto length etop: -(1.6,1.6) endfor);
821   set_botip(0,1,1);
822   push_stroke(ebot,
823     (1.6,1.6) for i=1 upto length ebot: -(1.6,1.6) endfor);
824   endgroup;
825   expand_pbox;
826   enddef;

```



```

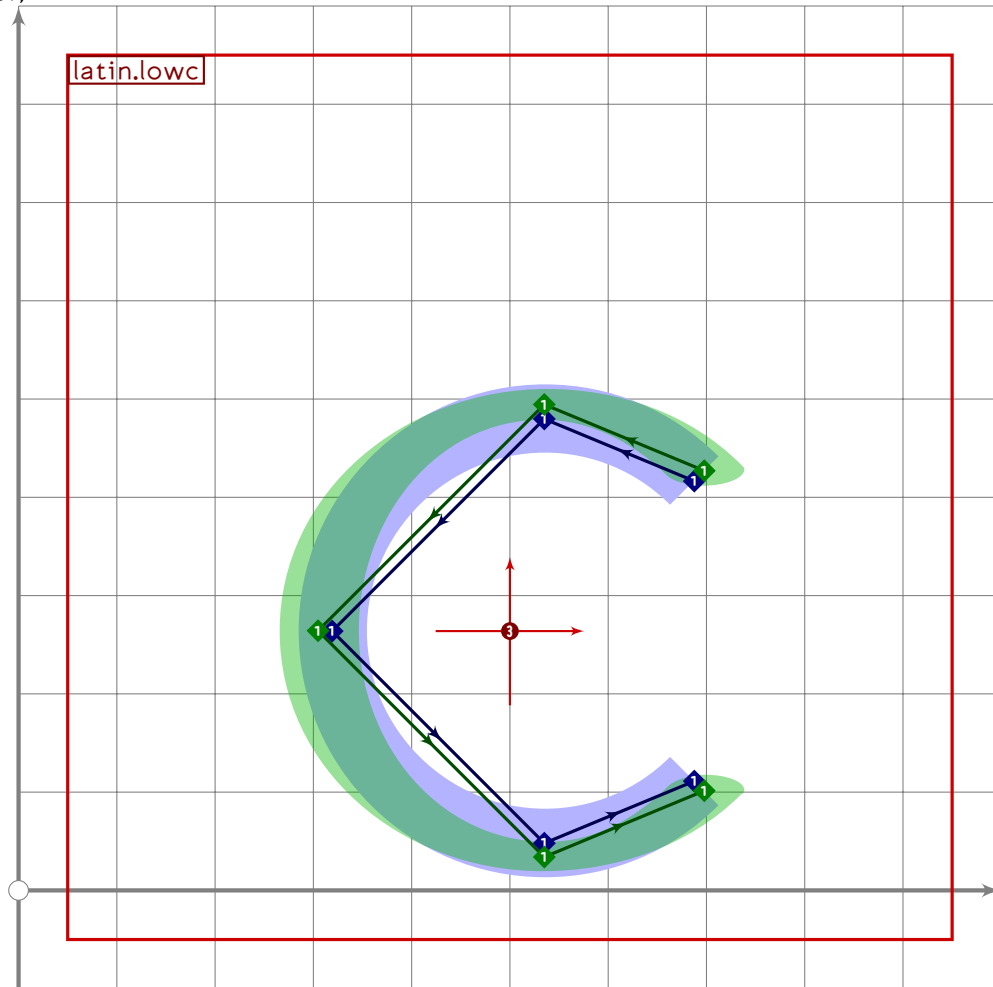
827
828   vardef latin.lowb =
829     push_pbox_toexpand("latin.lowb");
830     (x1+x4)/2=500;
831     (x4-x1)=(y1-y3)*0.55;
832     x2=x1=x6;
833     x3=0.4[x2,x4];
834     x5=0.55[x2,x4];
835
836     y1=latin_wide_high_v;
837     y2=latin_wide_lc_baselif;
838     y3=latin_wide_low_r;
839     y4=0.48[y3,y5];

```

```

840 y5=latin_wide_xheight_h;
841 y6=0.77[y3,y5];
842
843 push_stroke(z1-z2{curl 0.05}..fright}z3..fup}z4..fleft}z5..z6,
844   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
845 replace_stroke(0)(subpath (0,4.97) of oldp);
846 set_botip(0,1,1);
847 set_boserif(0,0,1);
848 expand_pbox;
849 enddef;

```



```

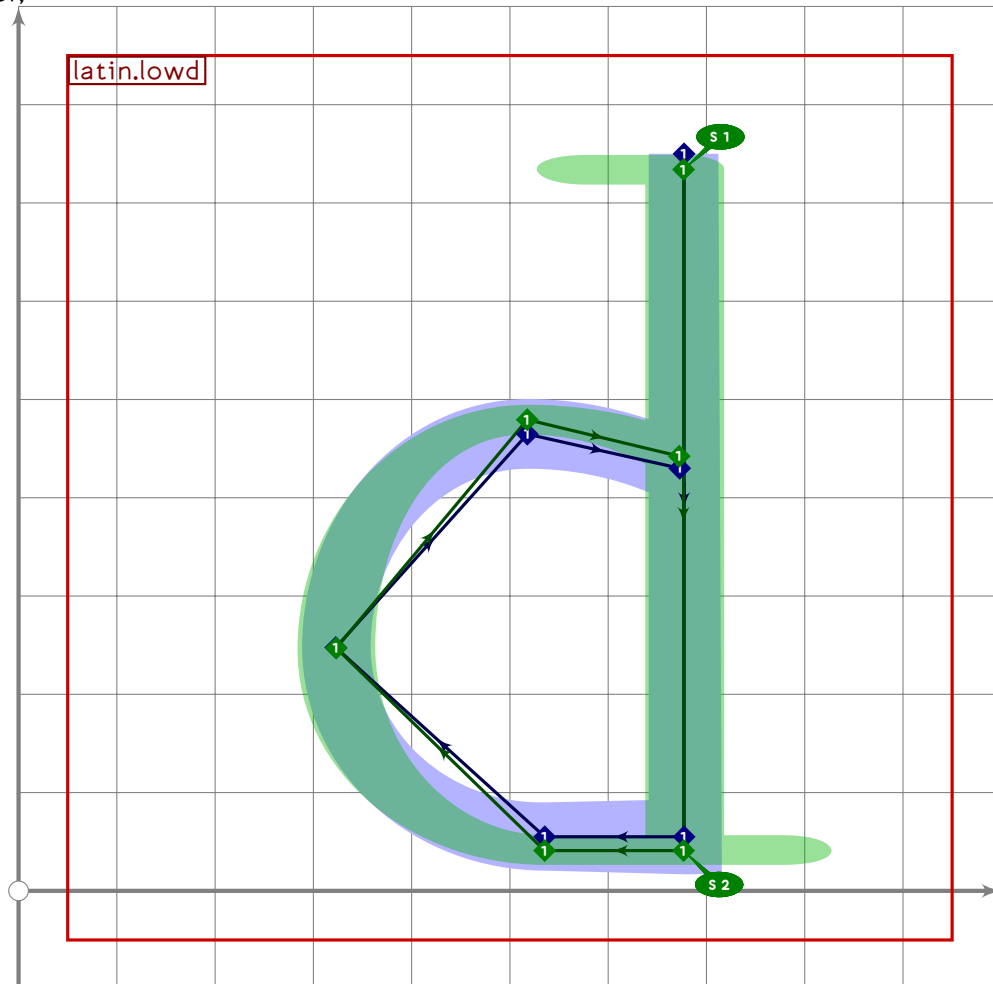
850
851 vardef latin.lowc =
852   push_pbox_toexpand("latin.lowc");
853   push_anchor(anc_centre_accent,identity
854     scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
855     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2));
856   push_stroke((subpath (0.5,3.5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
857     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
858     shifted ((xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2)
859       +(35,0)),
860   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));

```

```

861 expand_pbox;
862 enddef;

```



```

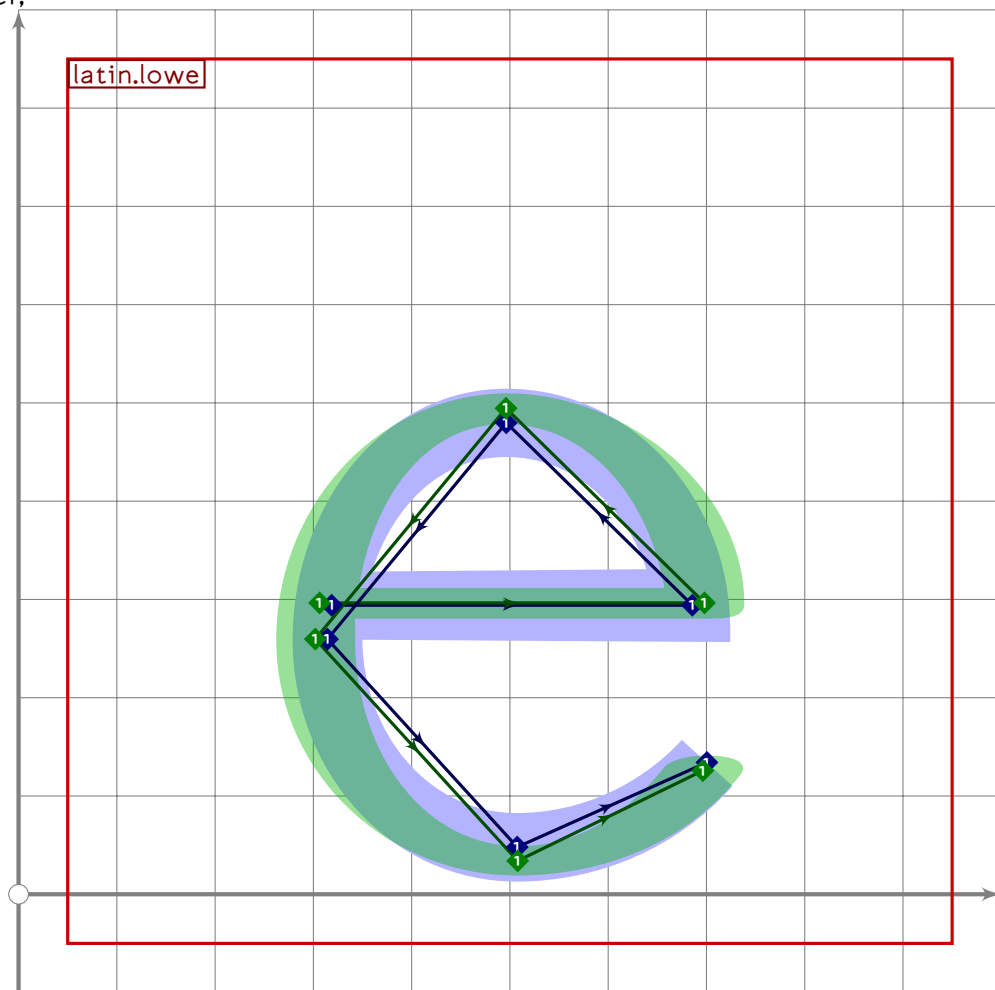
863
864 vardef latin.lowd =
865   push_pbox_toexpand("latin.lowd");
866   (x1+x4)/2=500;
867   (x1-x4)=(y1-y3)*0.51;
868   x2=x1+x6;
869   x3=0.4[x2,x4];
870   x5=0.45[x2,x4];
871
872   y1=latin_wide_high_v;
873   y2=y3=latin_wide_low_h;
874   y4=0.47[y3,y5];
875   y5=latin_wide_xheight_h;
876   y6=0.91[y3,y5];
877
878   push_stroke(z1-z2{left}..{left}z3.{up}z4.{right}z5..z6,
879     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
880   replace_strokep(0)(subpath (0,4.97) of oldp);
881   set_botip(0,1,1);

```

```

882 set_boserif(0,0,1);
883 set_boserif(0,1,2);
884 expand_pbox;
885 enddef;

```



```

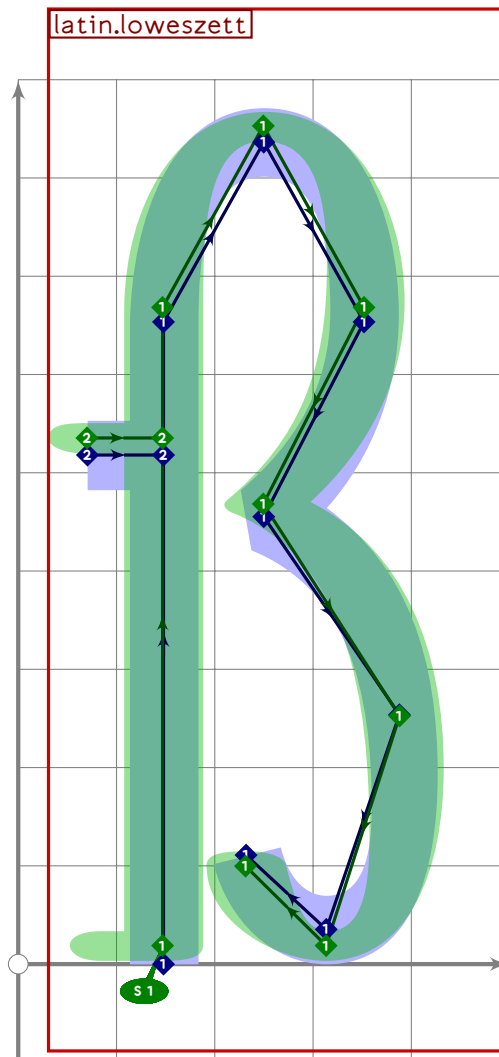
886
887 vardef latin.lowe =
888   push_pbox_toexpand("latin.lowe");
889   y2=0.57[y5,y3];
890   y3=latin_wide_xheight_r;
891   y4=0.49[y5,y3];
892   y5=latin_wide_low_r;
893   y6=0.35[y5,y2];
894
895   (x2+x4)/2=500;
896   (x2-x4)=0.86*(y3-y5);
897   x3=0.49[x4,x2];
898   x5=0.52[x4,x2];
899   x6=1.04[x4,x2]-(if sharp_corners: 0 else: (mbrush_width/3) fi);
900
901   push_stroke(z2{curl 0.7}..z3{left}..z4{down}..z5{right}..z6,
902     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));

```

```

903 z1=get_strokep(0) intersectionpoint ((z2+(-1000,0))-z2+(-10,0));
904 replace_strokep(0)((z1+2*right)-oldp);
905 set_botip(0,1,1);
906 expand_pbox;
907 endif;

```



```

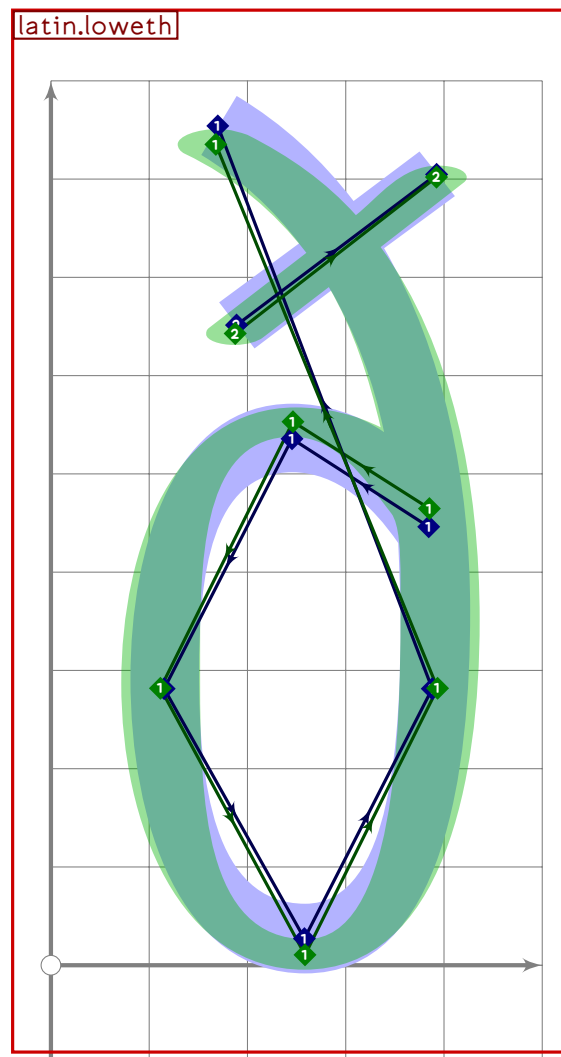
908
909 vardef latin.loweszett =
910   push_pbox_toexpand("latin.loweszett");
911   (x1+x6)/2=510;
912   (x6-x1)=3*(y3-y2);
913   x2=x1;
914   x3=x5=(x1+x4)/2;
915   x4=0.85[x1,x6];
916   x7=0.69[x1,x6];
917   x8=0.35[x1,x6];
918
919   y1=latin_wide_low_v;
920   y2=y4=0.52[y5,y3];
921   y3=latin_wide_high_r;

```

```

922 y5=0.87[y7,latin_wide_xheight_h];
923 y6=0.52[y7,y5];
924 y7=latin_wide_low_h;
925 y8=0.18[y7,y5];
926
927 push_stroke(z1-z2{dir 88}..z3{right}..z4.{dir 200}z5{dir 350}..
928     z6..z7{left}..z8{dir 120},
929     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
930     (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
931 set_botip(0,4,0);
932 set_boserif(0,0,1);
933
934 push_stroke((x1-150,latin_wide_xheight_h)-(x1,latin_wide_xheight_h),
935     (1.6,1.6)-(1.6,1.6));
936 expand_pbox;
937 enddef;

```



```

938
939 vardef latin.loweth =
940     push_pbox_toexpand("latin.loweth");

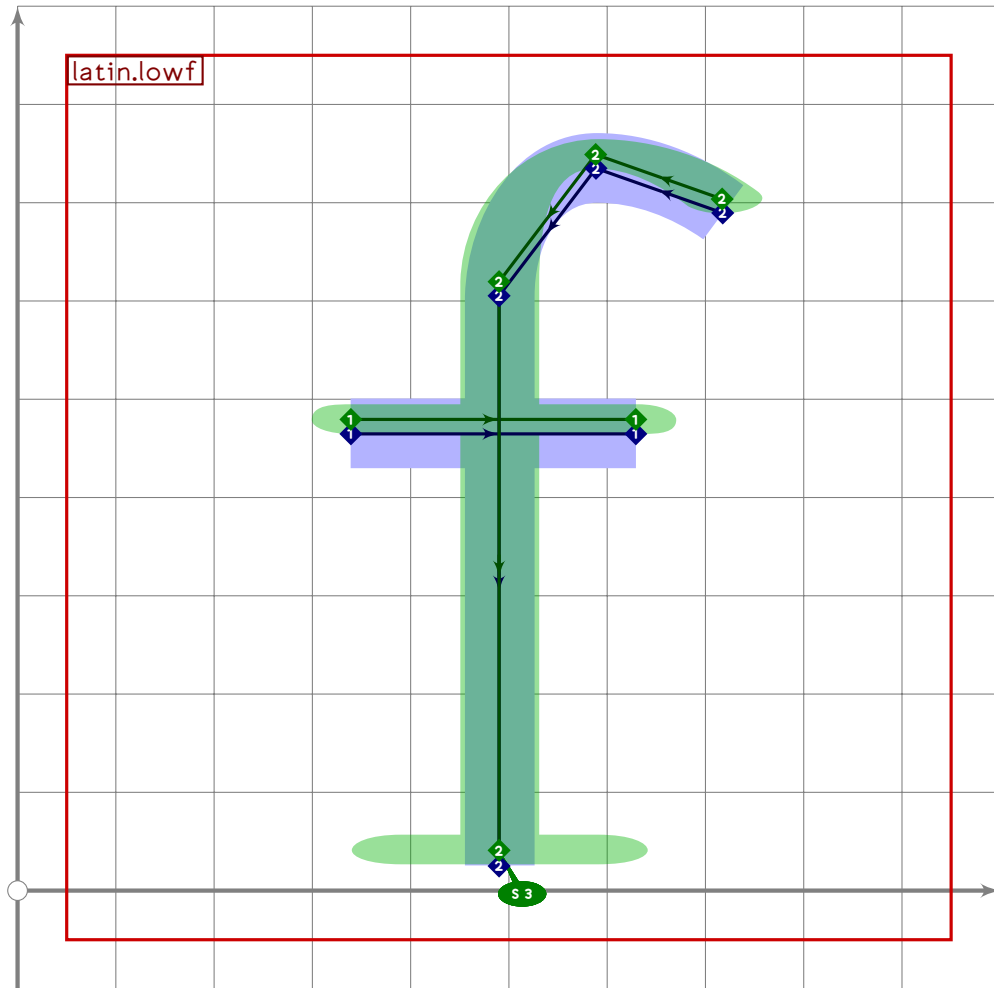
```

```

941 (x3+x5)/2=(x2+x4)/2=510;
942 x4-x2=20;
943 (x5-x3)=(y2-y4);
944 x1=1.3[x3,x5];
945 x6=0.2[x3,x5];
946
947 y1=0.25[y4,y2];
948 y3=y5=0.5[y4,y2];
949 y2=latin_wide_xheight_r;
950 y4=latin_wide_low_r;
951 y6=latin_wide_high_v;
952
953 push_stroke(z1..z2{left}..z3..z4{right}..z5.{curl 0.6}z6,
954 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
955 replace_stroke(0)(subpath (xpart ((subpath (0,1) of oldp)
956 intersectiontimes
957 (subpath (2,infinity) of oldp)),infinity) of oldp);
958
959 z7=point 4.67 of get_stroke(0);
960 z8=z7+whatever*dir 202;
961 x8=0.27[x3,x5];
962 z9=2[z8,z7];
963
964 push_stroke(z8-z9,(1.5,1.5)-(1.5,1.5));
965 set_bosize(0)(85);
966 expand_pbox;
967 enddef;

```



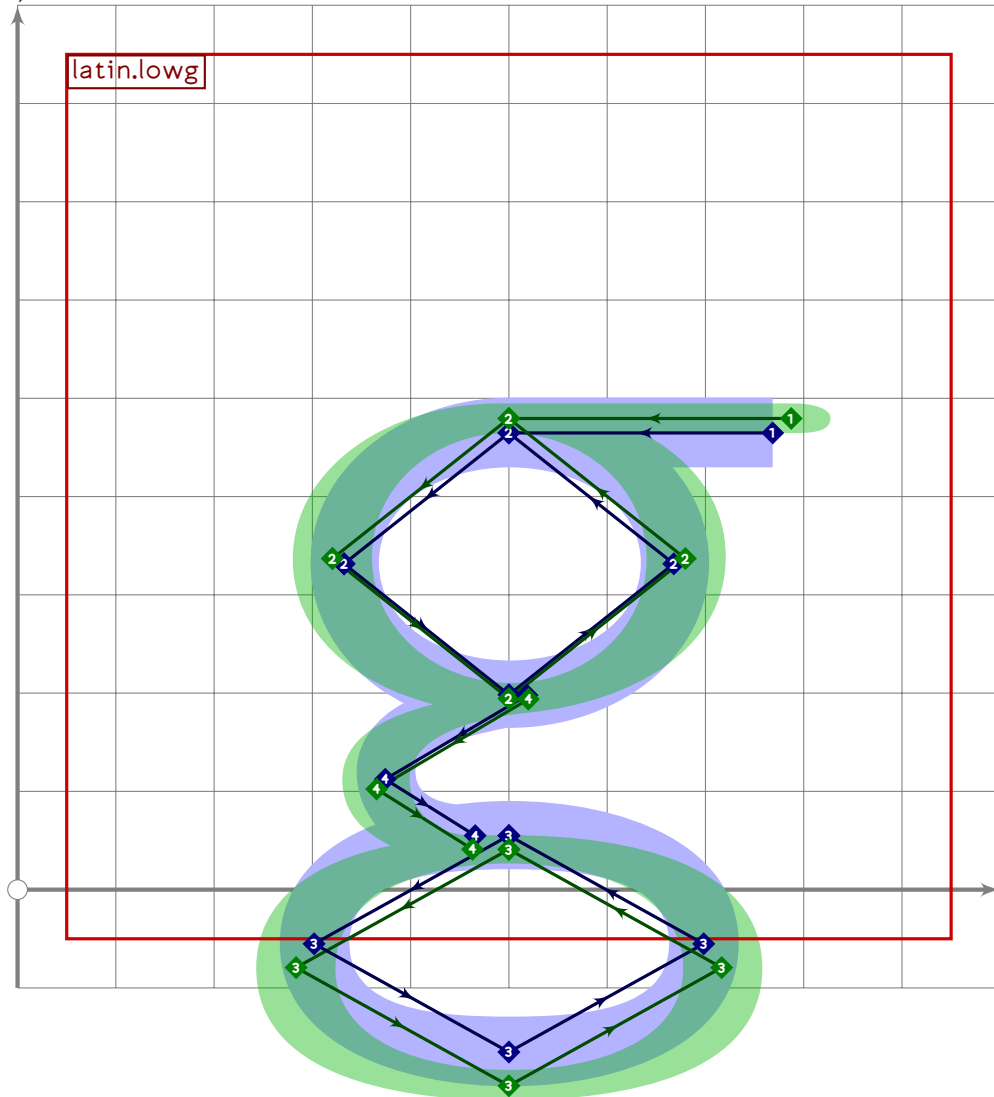


```

968
969 vardef latin.lowf =
970   push_pbox_toexpand("latin.lowf");
971   (x2-x1)=290;
972   x5=x6=490=0.52[x1,x2];
973   x3-x5=2*(y4-y5);
974   x4=0.38[x5,x3];
975
976   y1=y2=latin_wide_xheight_h;
977   y5=0.52[y2,y4];
978   y3=0.73[y2,y4];
979   y4=latin_wide_high_r;
980   y6=latin_wide_low_v;
981
982   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
983
984   push_stroke(z3{curl 0.6}..z4{left}..{dir 268}z5{down}-z6,
985     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
986   replace_stroke(0)(subpath (0.23,3) of oldp);
987   set_boserif(0,3,3);
988   expand_pbox;

```

989 enddef;



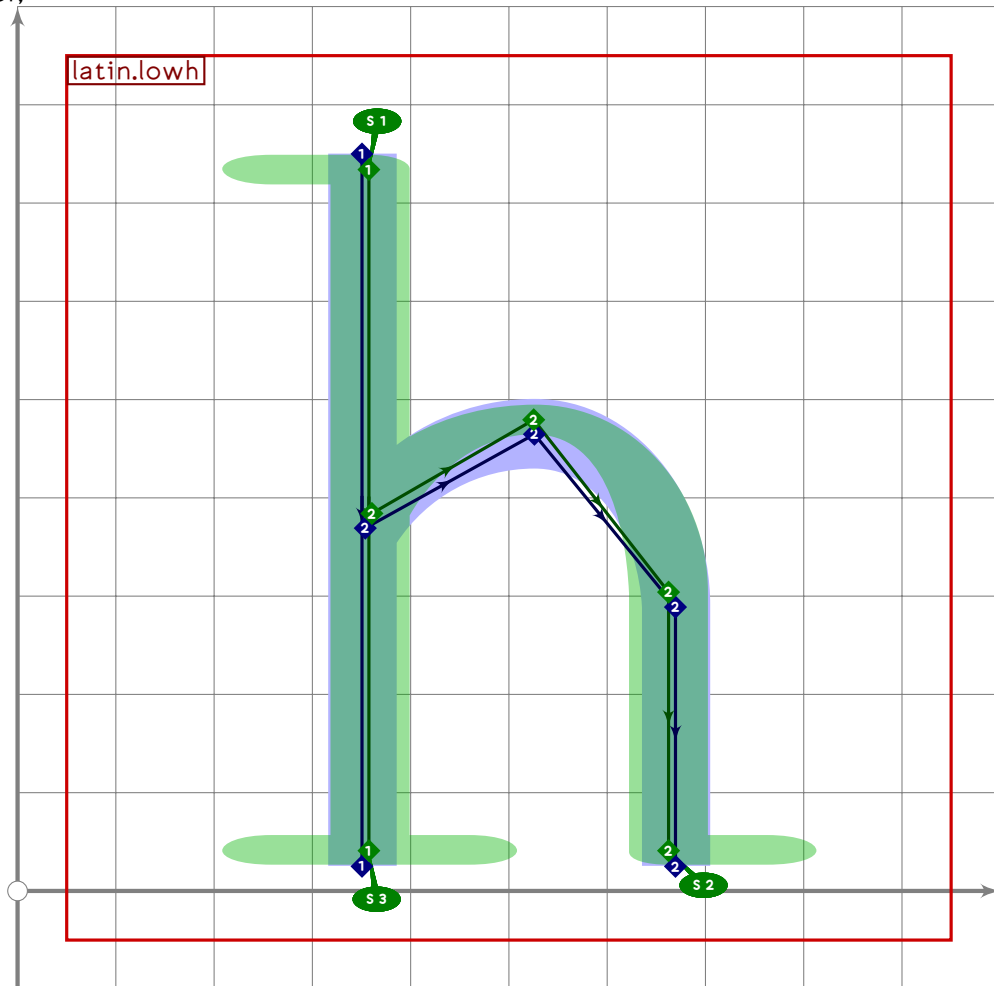
990

```
991 vardef latin.lowg =  
992   push_pbox_toexpand("latin.lowg");  
993   x2=x4=x7=x9=500;  
994   x1=1.6[x2,x5];  
995   x5-x2=x2-x3;  
996   x5-x3=1.26*(y2-y4);  
997   x6=0.25[x3,x2];  
998   x10-x7=x7-x8;  
999   x10-x8=1.8*(y7-y9);  
1000  
1001   y1=y2=latin_wide_xheight_h;  
1002   y3=y5=0.5[y4,y2];  
1003   y4=0.35[y7,y2];  
1004   y6=0.4[y7,y4];  
1005   y7=latin_wide_low_h;  
1006   y8=y10=0.5[y9,y7];
```

```

1007 y9=latin_wide_desc_r;
1008
1009 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1010
1011 push_stroke(z3..z4..z5..z2..cycle,
1012 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1013
1014 push_stroke(z7..z8..z9..z10..cycle,
1015 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1016
1017 push_stroke((point 1.2 of get_stroke(-1))
1018 {direction 1.2 of get_stroke(-1)}..z6..
1019 (point 0.05 of get_stroke(0)){direction 0.05 of get_stroke(0)},
1020 (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1021 replace_stroke(0)(subpath (0.13,1.87) of oldp);
1022 set_bosize(0,85);
1023 expand_pbox;
1024 enddef;

```



```

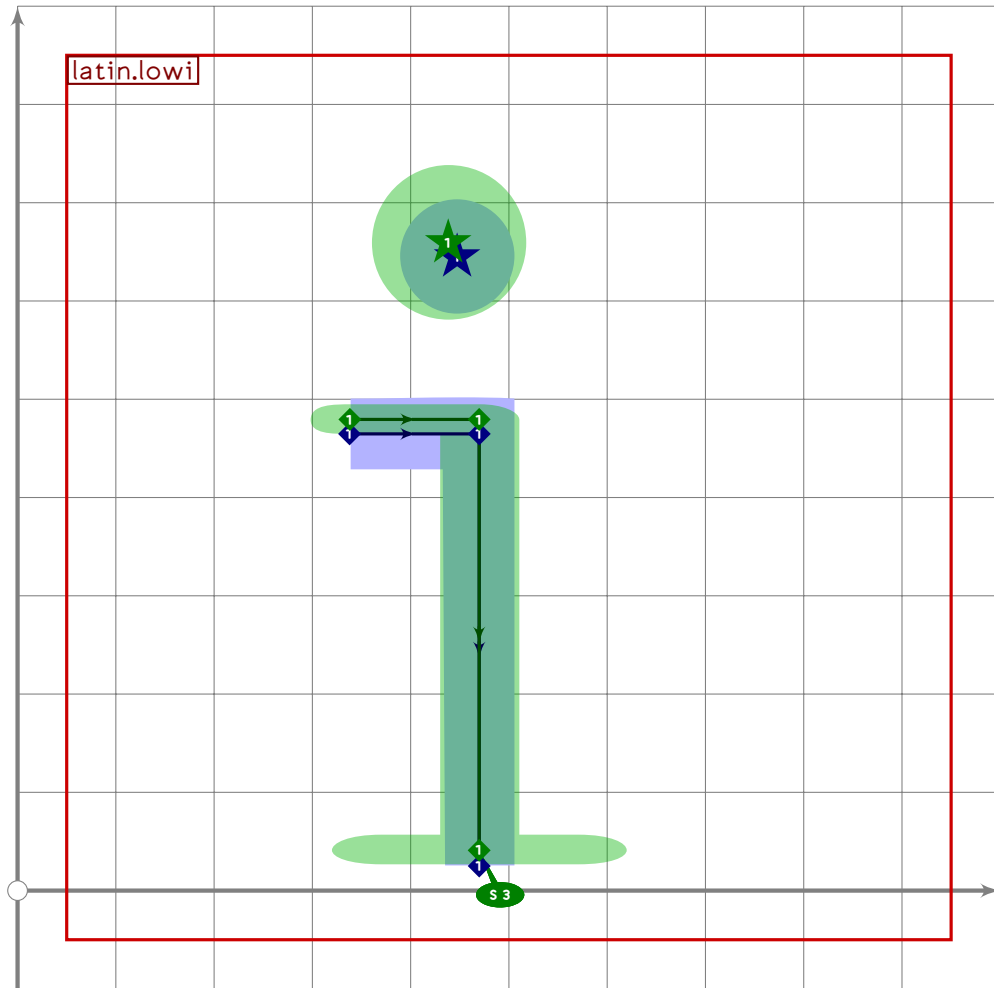
1025
1026 vardef latin.lowh =
1027 push_pbox_toexpand("latin.lowh");

```

```

1028 (x1+x5)/2=510;
1029 (x5-x1)=(y1-y2)*0.44;
1030 x2=x1=x3;
1031 x4=0.55[x3,x5];
1032 x6=x5;
1033
1034 y1=latin_wide_high_v;
1035 y2=y6=latin_wide_low_v;
1036 y3=0.77[y2,y4];
1037 y4=latin_wide_xheight_h;
1038 y5=0.60[y2,y4];
1039
1040 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1041 set_boserif(0,0,1);
1042 set_boserif(0,1,3);
1043
1044 push_stroke(z3..z4{right}..z5{dir 273}-z6,
1045 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1046 replace_strokep(0)(subpath (0.03,3) of oldp);
1047 set_boserif(0,3,2);
1048 expand_pbox;
1049 endif;

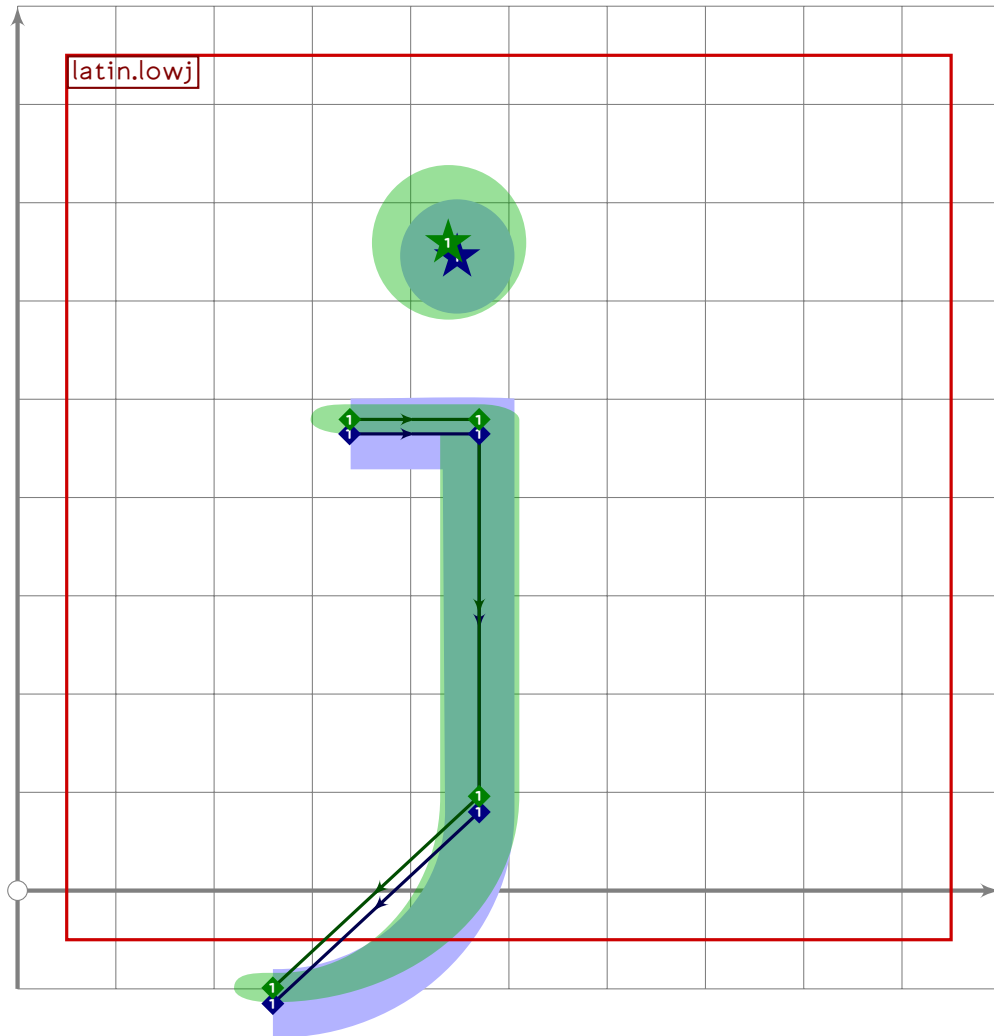
```



```

1050
1051 vardef latin.lowi =
1052   push_pbox_toexpand("latin.lowi");
1053   x2=x3;
1054   0.85[x1,x2]=450;
1055   (x2-x1)=0.3(y2-y3);
1056   x4=x2-mbrush_width*0.6;
1057
1058   y1=y2=latin_wide_xheight_h;
1059   y3=latin_wide_low_v;
1060   y4=0.5[y2,latin_wide_high_v]+mbrush_width;
1061
1062   push_stroke(z1-z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1063   set_botip(0,1,1);
1064   set_boserif(0,2,3);
1065
1066   push_lcblob(fullcircle rotated 45 scaled (mbrush_width*2.7+15)
1067     shifted (z4 transformed tsu_rescale_xform)
1068     transformed inverse tsu_rescale_xform);
1069   expand_pbox;
1070 enddef;

```



```

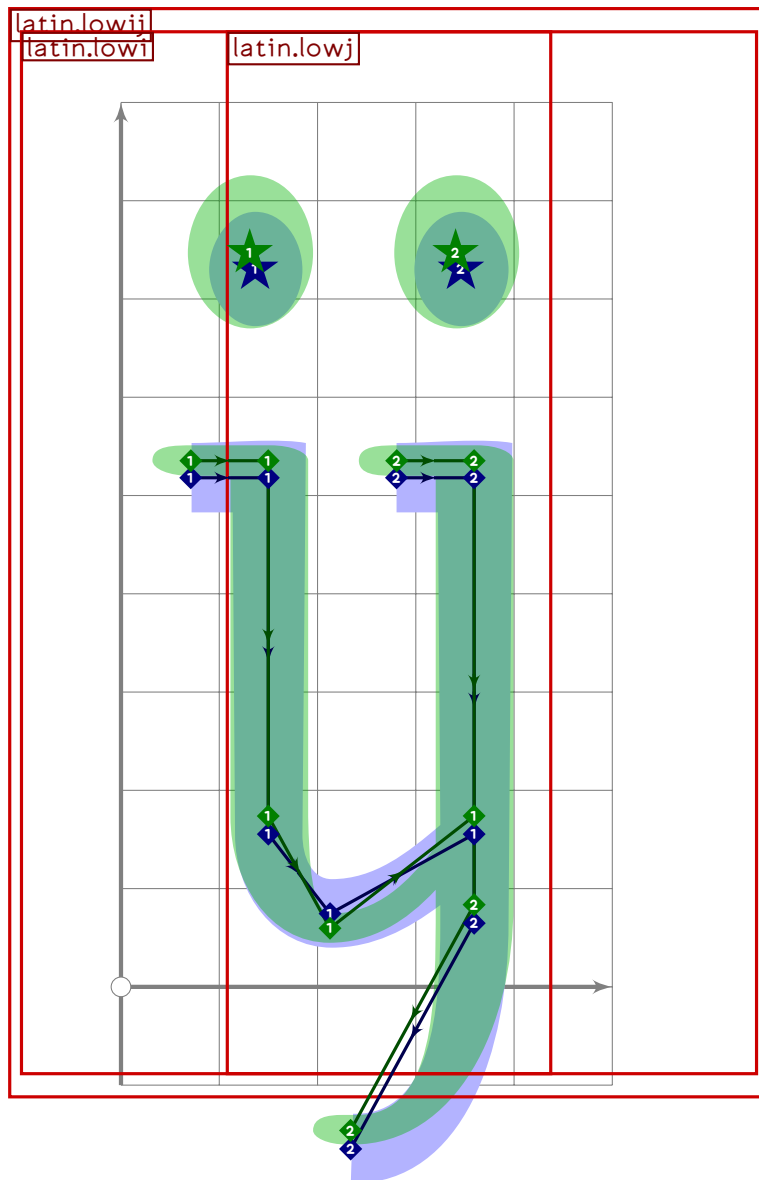
1071
1072 vardef latin.lowj =
1073   push_pbox_toexpand("latin.lowj");
1074   x2=x3;
1075   0.85[x1,x2]=450;
1076   (x2-x1)=0.3(y2-y3);
1077   x5=x2-mbrush_width*0.6;
1078
1079   y1=y2=latin_wide_xheight_h;
1080   y3=latin_wide_low_v;
1081   y5=0.5[y2,latin_wide_high_v]+mbrush_width;
1082
1083   z4=z3+(-210,-140);
1084
1085   push_stroke((z1-z2-(z3+(0,55))).{curl 0.8}z4,
1086     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1087   set_botip(0,1,1);
1088
1089   push_lcblob(fullcircle scaled (mbrush_width*2.7+15)
1090     shifted (z5 transformed tsu_rescale_xform)

```

```

1091     transformed inverse tsu_rescale_xform);
1092     expand_pbox;
1093 endif;

```



```

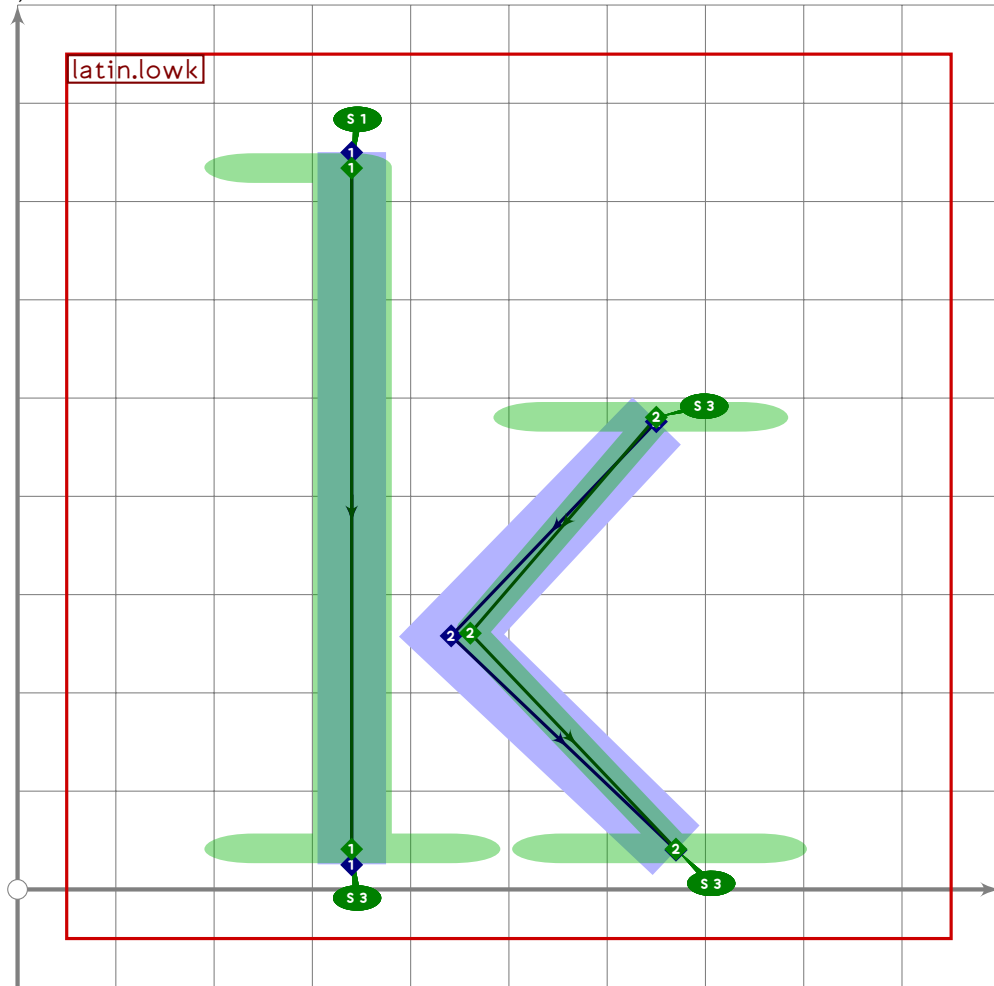
1094
1095 vardef latin.lowij =
1096   push_pbox_toexpand("latin.lowij");
1097   tsu_xform(identity shifted (-200,0))(latin.lowi);
1098   numeric x[],y[];
1099   tsu_xform(identity shifted (150,0))(latin.lowj);
1100   replace_lcblob(-1)(get_lcblob(0) shifted (-350,0));
1101   numeric x[],y[];
1102   z1=point 1.7 of get_stroke(-1);
1103   x2=0.3[x1,x3];
1104   y2=vmetric(0.05);
1105   z3=point 1.8 of get_stroke(0);
1106   replace_stroke(-1)((subpath (0,1) of oldp)-

```

```

1107 z1{dir 273}..z2{right}..{curl 0.3}z3);
1108 replace_stroke(-1)((subpath (0,1) of oldq)-(1.6,1.6)-(1.6,1.6)-(1,1));
1109 set_boserif(-1,2,whatever);
1110 expand_pbox;
1111 enddef;

```



```

1112
1113 vardef latin.lowk =
1114   push_pbox_toexpand("latin.lowk");
1115   z1=(340,latin_wide_high_v);
1116   z2=(340,latin_wide_low_v);
1117   z3=(650,(latin_wide_xheight_v+latin_wide_xheight_h)/2);
1118   x4=340+mbrush_width*if sharp_corners: 2.7 else: 2.3 fi;
1119   y4=(y3+y5)/2;
1120   z5=(670,0.5[latin_wide_low_h,latin_wide_low_v]);
1121
1122   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1123   set_boserif(0,0,1);
1124   set_boserif(0,1,3);
1125
1126   push_stroke(z3-z4-z5,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1127   set_botip(0,1,1);

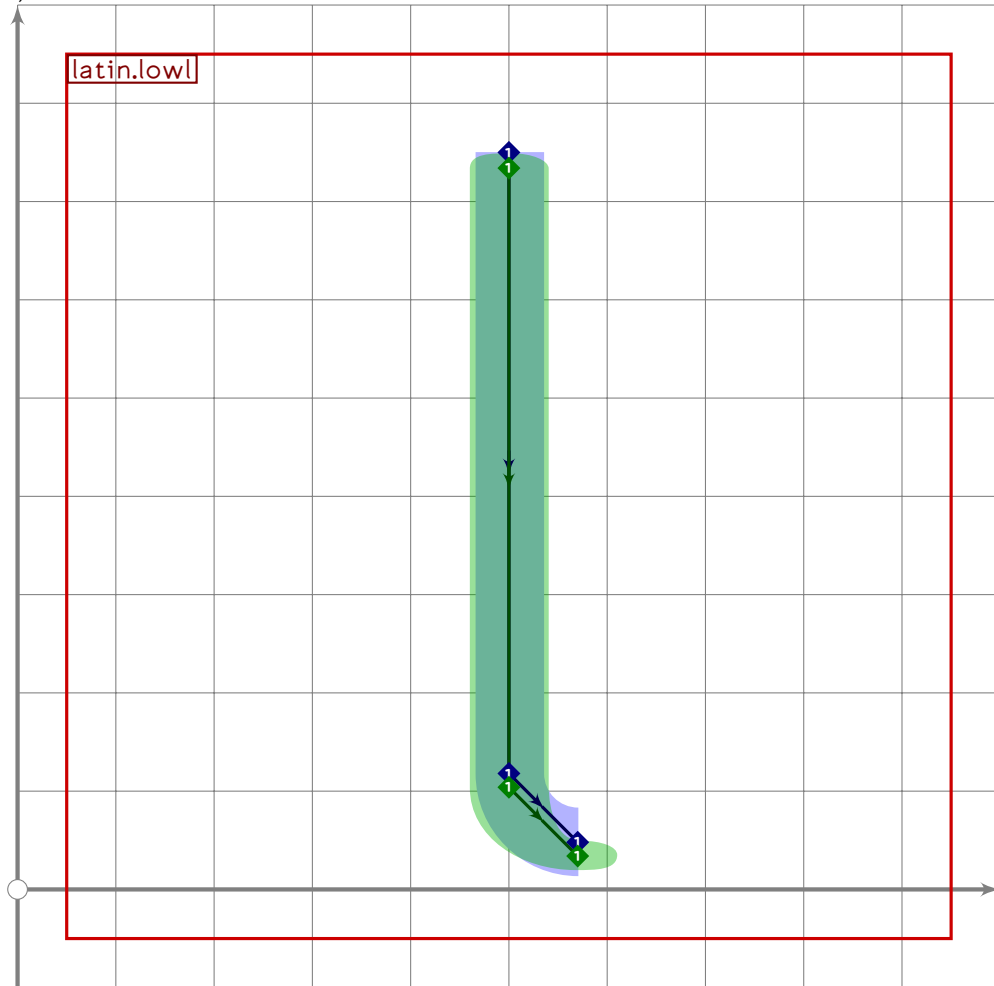
```



```

1128 set_boserif(0,0,3);
1129 set_boserif(0,2,3);
1130 set_boalternate(0);
1131 expand_pbox;
1132 enddef;

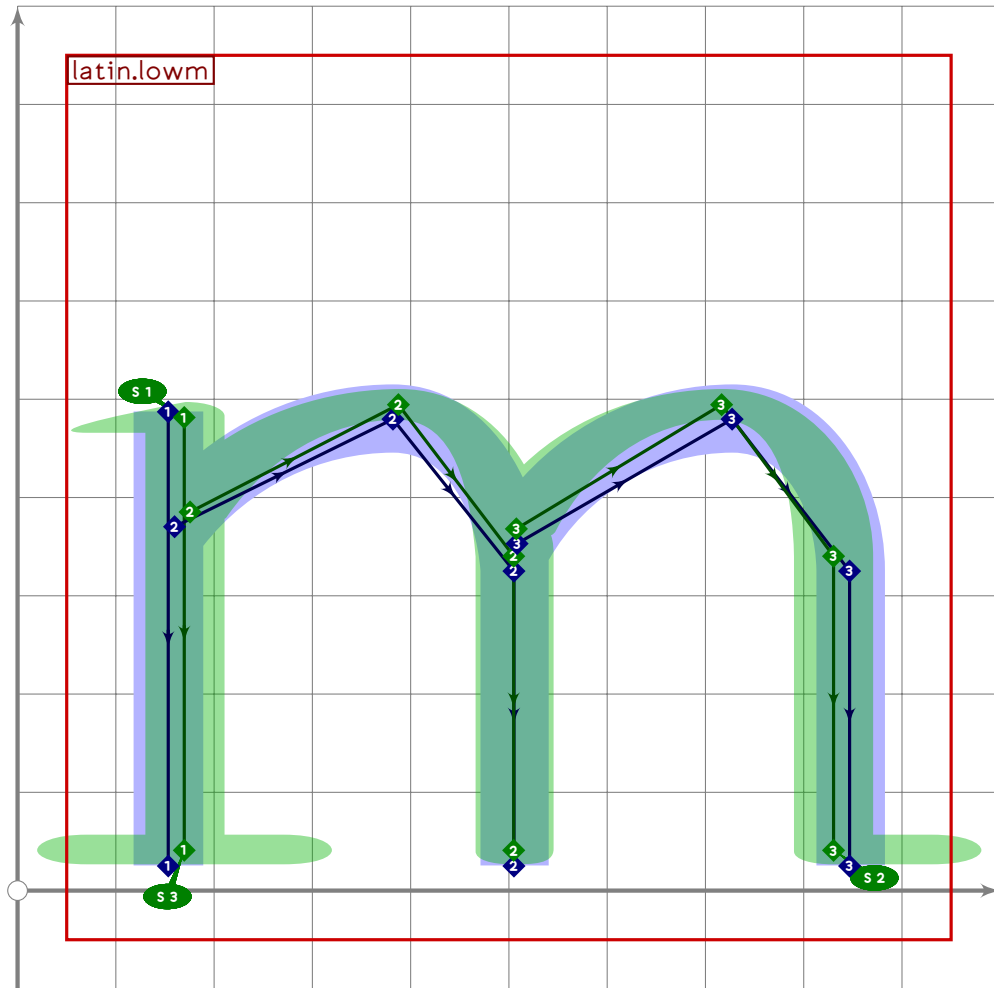
```



```

1133
1134 vardef latin.lowl =
1135   push_pbox_toexpand("latin.lowl");
1136   x1=x2=500;
1137   x3=570;
1138
1139   y1=latin_wide_high_v;
1140   y2=y3+(x3-x2);
1141   y3=latin_wide_low_r;
1142
1143   push_stroke(z1-z2{down}..:right}z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1144   expand_pbox;
1145 enddef;

```



```

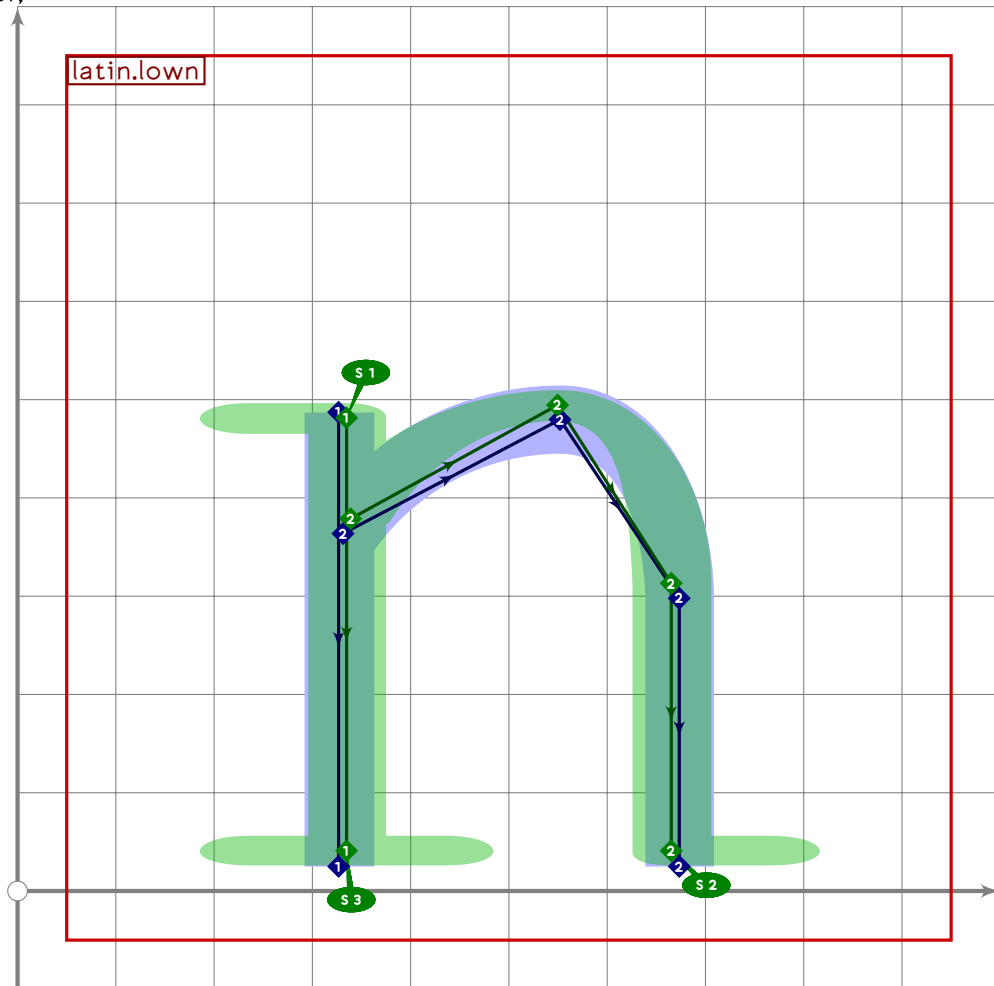
1146
1147 vardef latin.lowm =
1148   push_pbox_toexpand("latin.lowm");
1149   (x1+x9)/2=500;
1150   (x9-x1)*2=(y1-y2)*3;
1151   (x5-x1)=(x9-x5)*1.03;
1152   x2=x1=x3;
1153   x4=0.65[x3,x5];
1154   x6=x5;
1155   x8=0.65[x6,x9];
1156   x9=x10;
1157
1158   y1=latin_wide_xheight_v;
1159   y2=y6=y10=latin_wide_low_v;
1160   y3=0.74[y2,y4];
1161   y4=y8=latin_wide_xheight_r;
1162   y5=y9=0.66[y2,y4];
1163
1164   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1165   set_boserif(0,0,1);
1166   set_boserif(0,1,3);

```

```

1167
1168 push_stroke(z3..z4{right}..z5{dir 275}-z6,
1169   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1170 replace_stroke(0)(subpath (0,0,4,3) of oldp);
1171
1172 z7=get_stroke(0) intersectionpoint (z3-z9);
1173
1174 push_stroke(z7..z8{right}..z9{dir 271}-z10,
1175   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1176 replace_stroke(0)(subpath (0,0,4,3) of oldp);
1177 set_boserif(0,3,2);
1178 expand_pbox;
1179 enddef;

```



```

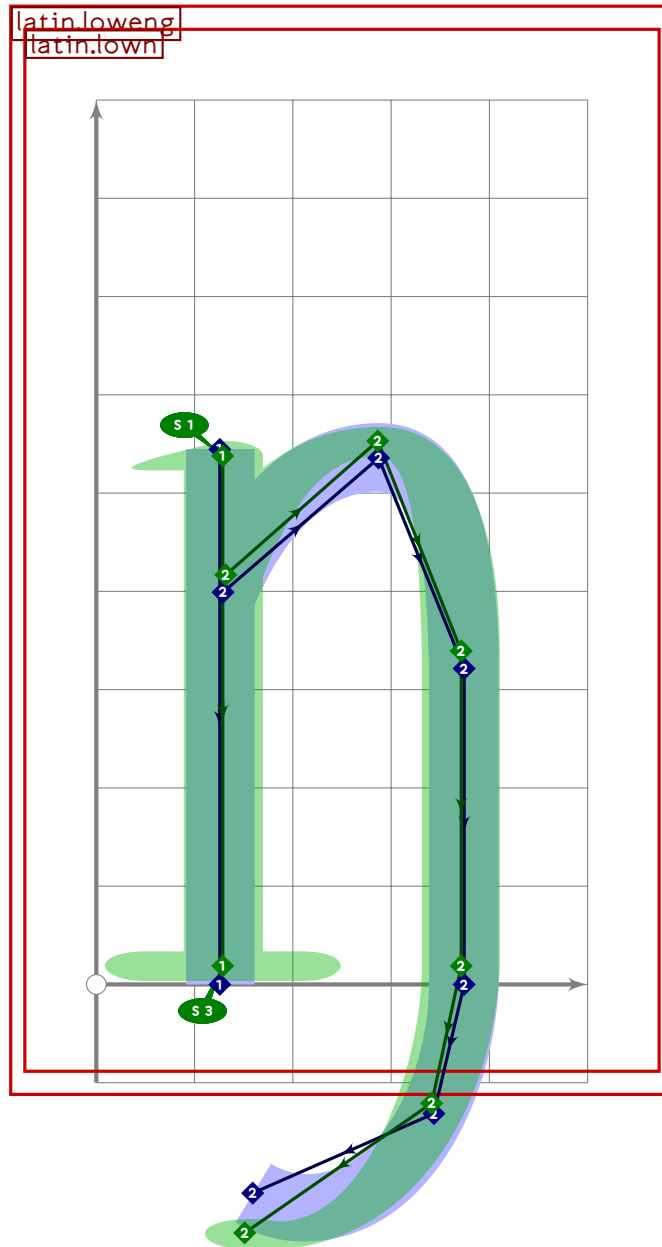
1180
1181 vardef latin.lown =
1182   push_pbox_toexpand("latin.lown");
1183   (x1+x5)/2=500;
1184   (x5-x1)=(y1-y2)*0.75;
1185   x2=x1=x3;
1186   x4=0.65[x3,x5];
1187   x6=x5;

```

```

1188
1189 y1=latin_wide_xheight_v;
1190 y2=y6=latin_wide_low_v;
1191 y3=0.73[y2,y4];
1192 y4=latin_wide_xheight_r;
1193 y5=0.60[y2,y4];
1194
1195 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1196 set_boserif(0,0,1);
1197 set_boserif(0,1,3);
1198
1199 push_stroke(z3..z4{right}..z5{dir 273}-z6,
1200 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1201 replace_strokep(0)(subpath (0,0,3,3) of oldp);
1202 set_boserif(0,3,2);
1203 expand_pbox;
1204 endif;

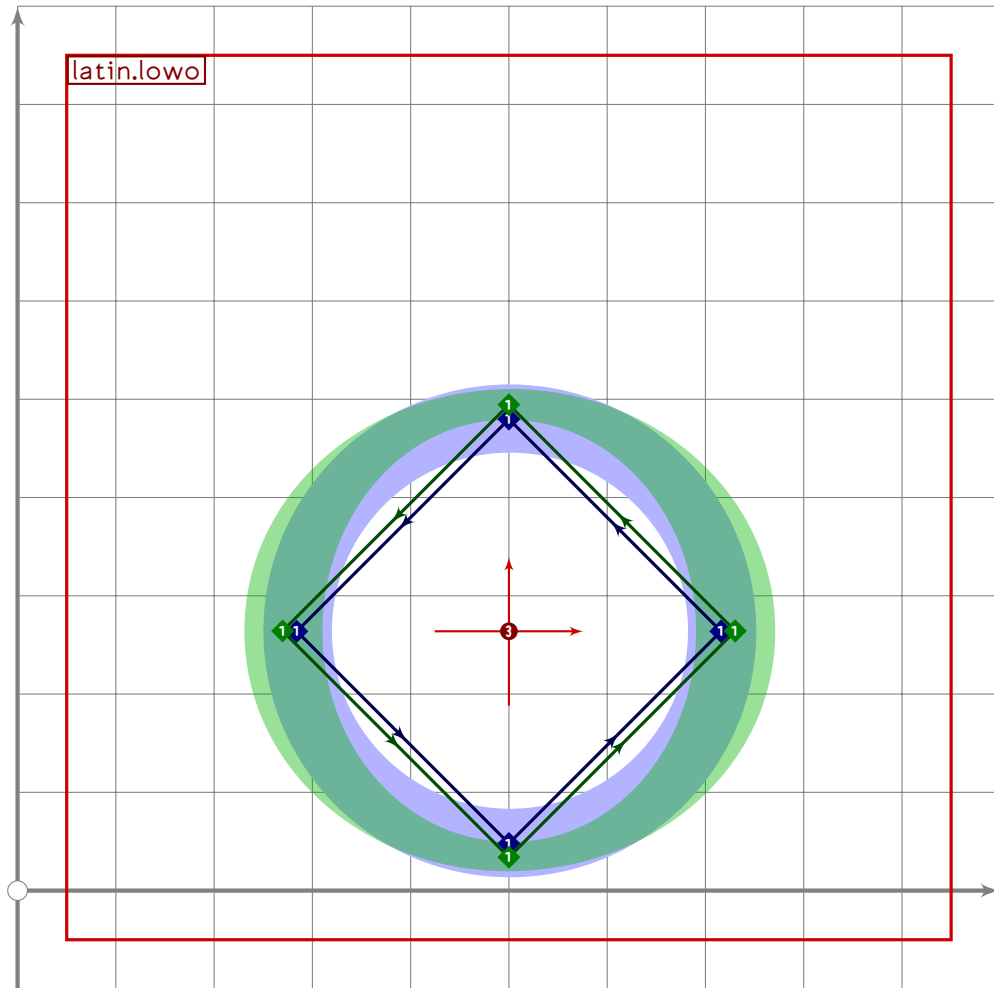
```



```

1205
1206 vardef latin.loweng =
1207   push_pbox_toexpand("latin.loweng");
1208   latin.town;
1209   x7=x6-300;
1210   y7=latin_wide_desc_h;
1211   replace_stroke(0)(oldp{dir 266}{.fcurl 0.8}z7);
1212   replace_stroke(0)(insert_nodes(oldp)(3.3));
1213   replace_strokeq(0)(oldq-(1.6,1.6)-(1.6,1.6));
1214   set_boserif(0,3,whatever);
1215   expand_pbox;
1216 enddef;

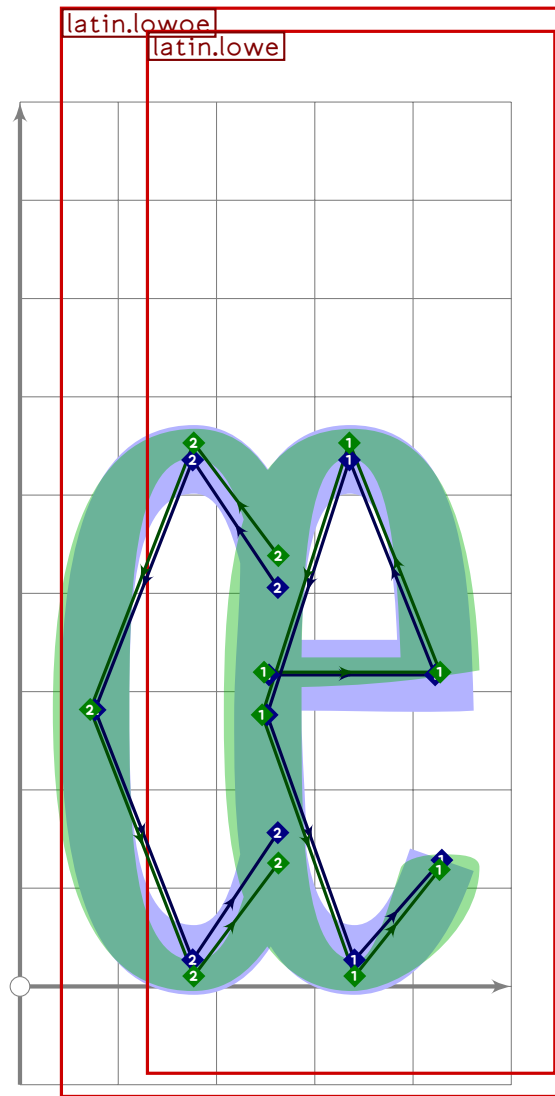
```



```

1217
1218 vardef latin.lowo =
1219   push_pbox_toexpand("latin.lowo");
1220   push_anchor(anc_centre_accent,identity
1221     scaled ((latin_wide_xheight_r-latin_wide_low_r)/200)
1222     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2));
1223   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..cycle)
1224     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
1225     shifted (xpart centre_pt,(latin_wide_xheight_r+latin_wide_low_r)/2),
1226     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
1227   expand_pbox;
1228 enddef;

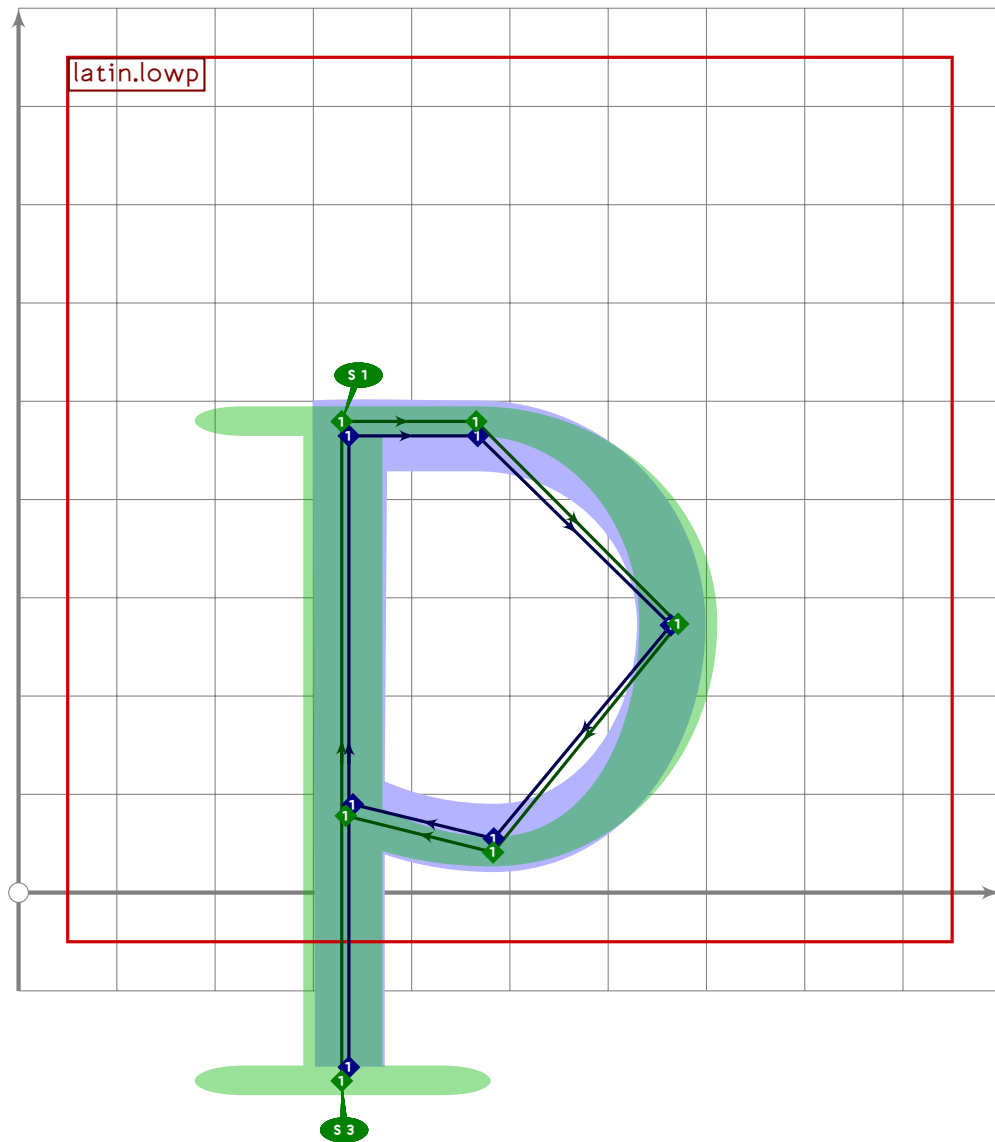
```



```

1229
1230 vardef latin.lowoe =
1231   push_pbox_toexpand("latin.lowoe");
1232   tsu_xform(identity shifted (190,0))(latin.lowe);
1233   push_stroke(((1,0)..(0,1)..(-1,0)..(0,-1)..(1,0))
1234     scaled ((latin_wide_xheight_r-latin_wide_low_r)/2)
1235     shifted (340,0.5[latin_wide_xheight_r,latin_wide_low_r]),
1236     (1.2,1.2)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.2,1.2));
1237   replace_strokep(0)(subpath (xpart (oldp intersectiontimes
1238     (subpath (2,infinity) of get_strokep(-1))),
1239     4-xpart ((reverse oldp) intersectiontimes get_strokep(-1)))
1240     of oldp);
1241   expand_pbox;
1242 enddef;

```



```

1243
1244 vardef latin.lowp =
1245   push_pbox_toexpand("latin.lowp");
1246   (x1+x4)/2=500;
1247   (x4-x1)=(y2-y1)*0.51;
1248   x2=x1=x6;
1249   x3=0.4[x2,x4];
1250   x5=0.45[x2,x4];
1251
1252   y1=latin_wide_desc_v;
1253   y2=y3=latin_wide_xheight_h;
1254   y4=0.47[y3,y5];
1255   y5=latin_wide_low_h;
1256   y6=0.91[y3,y5];
1257
1258   push_stroke(z1-z2{right}..{right}z3.{down}z4.{left}z5..z6,
1259     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
1260     (1.6,1.6)-(1.6,1.6));

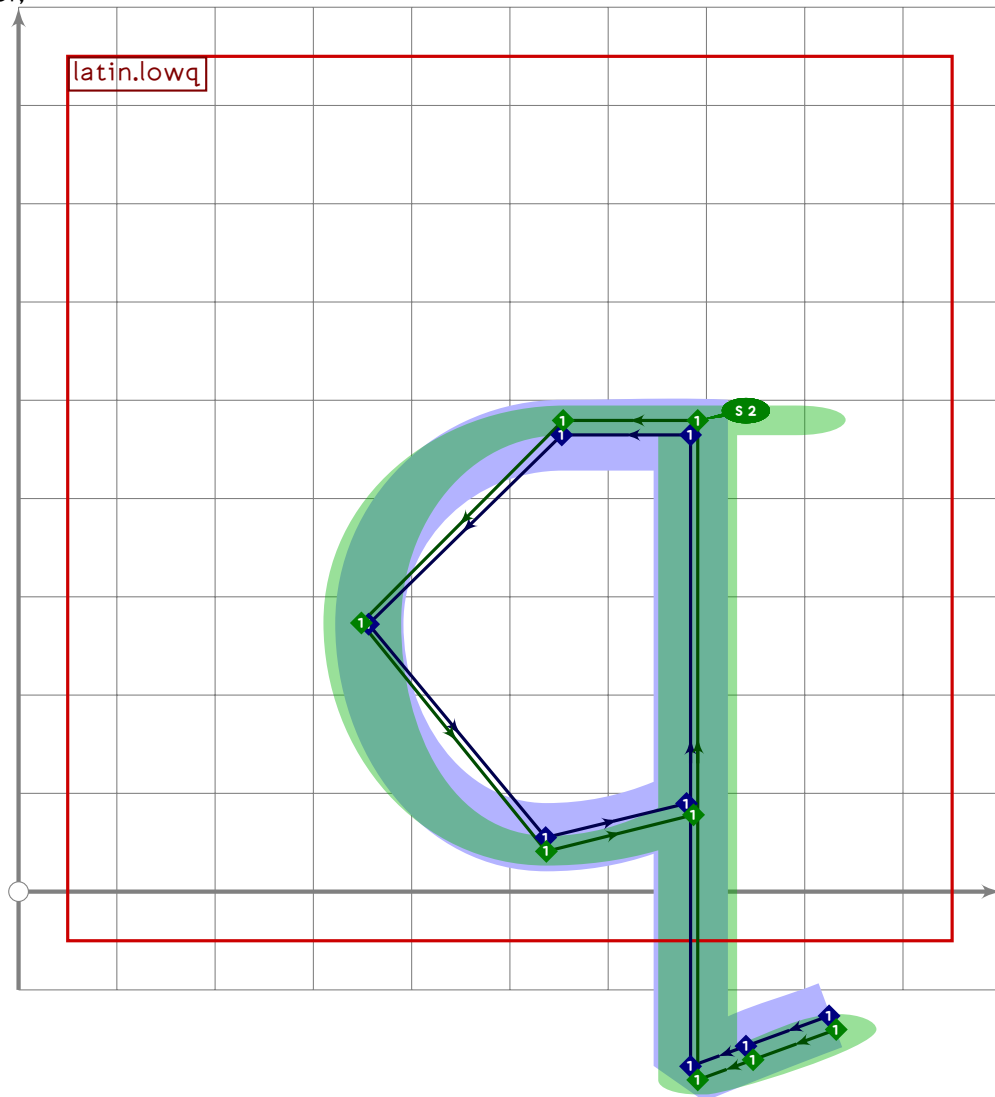
```



```

1261 replace_stroke(0)(subpath (0,4.97) of oldp);
1262 set_botip(0,1,1);
1263 set_boserif(0,0,3);
1264 set_boserif(0,1,1);
1265 expand_pbox;
1266 enddef;

```



```

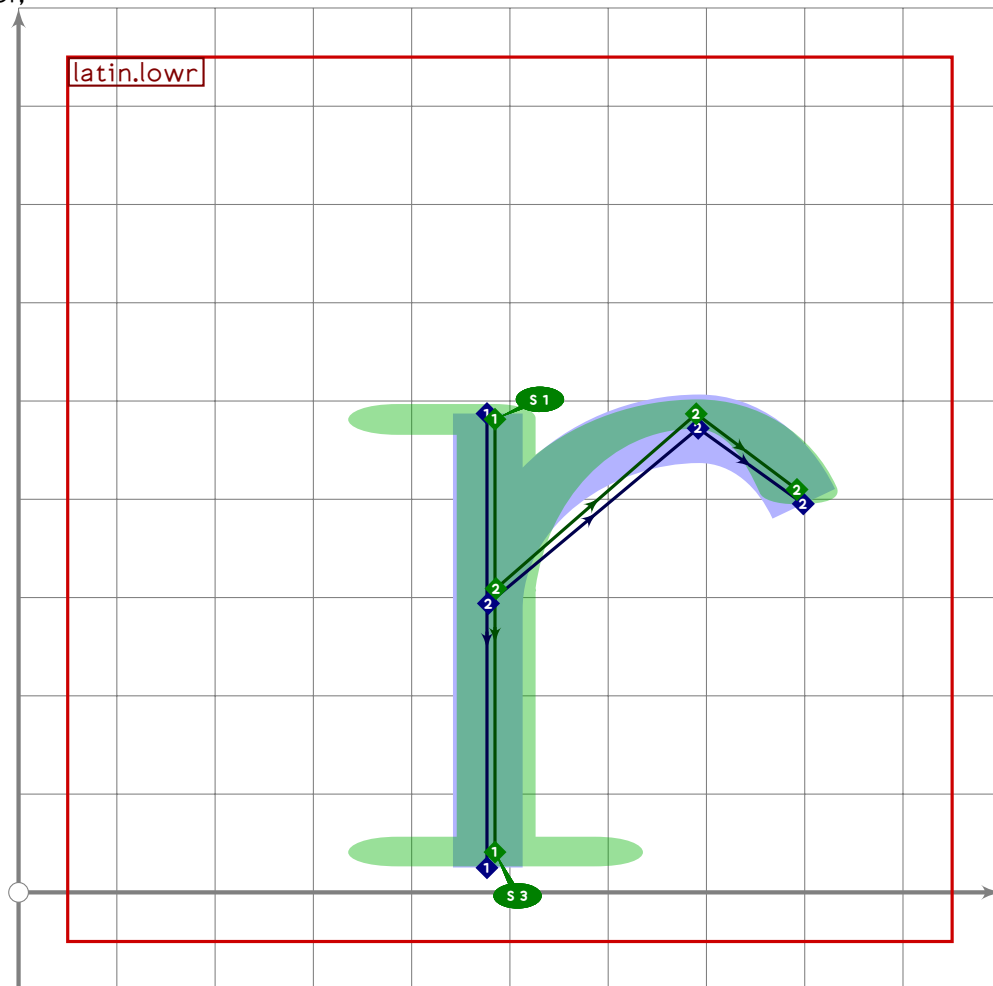
1267
1268 vardef latin.lowq =
1269   push_pbox_toexpand("latin.lowq");
1270   (x1+x4)/2=520;
1271   (x1-x4)=(y2-y1)*0.51;
1272   x2=x1=x6;
1273   x3=0.4[x2,x4];
1274   x5=0.45[x2,x4];
1275
1276   y1=latin_wide_desc_v;
1277   y2=y3=latin_wide_xheight_h;
1278   y4=0.47[y3,y5];

```

```

1279 y5=latin_wide_low_h;
1280 y6=0.91[y3,y5];
1281
1282 z0=z1+150*(dir 20);
1283
1284 push_stroke(z0-(0.6[z0,z1])-z1-z2{left}..
1285   {left}z3..{down}z4..{right}z5..z6,
1286   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
1287   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1288 replace_stroke(0)(subpath (0,6.97) of oldp);
1289 set_botip(0,2,0);
1290 set_botip(0,3,1);
1291 set_boserif(0,3,2);
1292 expand_pbox;
1293 enddef;

```



```

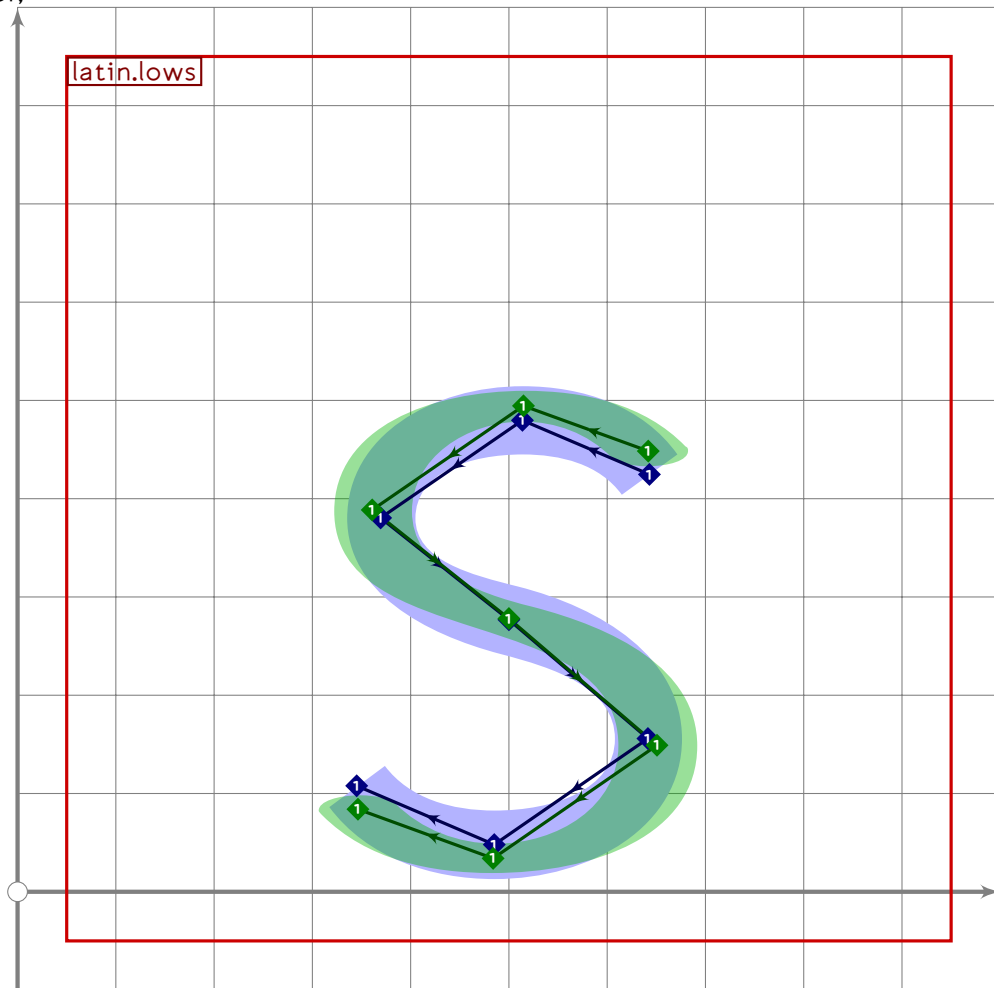
1294
1295 vardef latin.lowr =
1296   push_pbox_toexpand("latin.lowr");
1297   (x1+x5)/2=650;
1298   (x5-x1)=(y1-y2)*0.75;
1299   x2=x1=x3;

```

```

1300 x4=0.62[x3,x5];
1301
1302 y1=latin_wide_xheight_v;
1303 y2=latin_wide_low_v;
1304 y3=0.58[y2,y4];
1305 y4=0.5[latin_wide_xheight_h,latin_wide_xheight_r];
1306 y5=0.60[y2,y4];
1307
1308 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1309 set_boserif(0,0,1);
1310 set_boserif(0,1,3);
1311
1312 push_stroke(z3..z4{right}..{dir 273}z5,
1313   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1314 replace_strokep(0)(subpath (0,03,1,6) of oldp);
1315 expand_pbox;
1316 enddef;

```



```

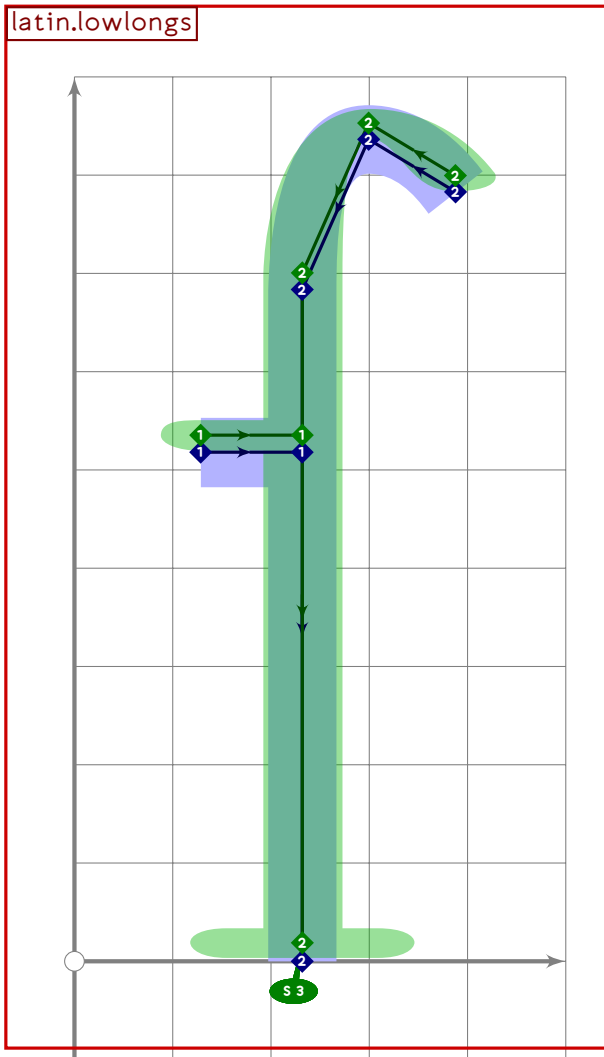
1317
1318 vardef latin.lows =
1319   push_pbox_toexpand("latin.lows");
1320   transform ta,tb;

```

```

1321 path mycurve;
1322
1323 mycurve:=(1,0)..(0,1)..(-1,0);
1324
1325 y2=latin_wide_xheight_r;
1326 y0=y3=0.77[y6,y2];
1327 y4=0.53[y6,y2];
1328 y5=y8=0.25[y6,y2];
1329 y6=latin_wide_low_r;
1330
1331 0.48[x1,x7]=0.48[x2,x6]=0.48[x3,x5]=x4=500;
1332 x5-x1=5;
1333 x5-x7=(y2-y6)*0.67;
1334
1335 (point 0 of mycurve) transformed ta=z0;
1336 (point 0.35 of mycurve) transformed ta=z1;
1337 (point 1 of mycurve) transformed ta=z2;
1338 (point 2 of mycurve) transformed ta=z3;
1339 xypart ta=0;
1340
1341 (point 0 of mycurve) transformed tb=z8;
1342 (point 0.35 of mycurve) transformed tb=z7;
1343 (point 1 of mycurve) transformed tb=z6;
1344 (point 2 of mycurve) transformed tb=z5;
1345
1346 if sharp_corners:
1347   mycurve:=subpath (0.29,2) of mycurve;
1348 else:
1349   mycurve:=subpath (0.38,2) of mycurve;
1350 fi;
1351
1352 push_stroke((mycurve transformed ta)..z4..(reverse mycurve transformed tb),
1353   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
1354   (1.6,1.6)-(1.6,1.6));
1355 expand_pbox;
1356 endif;

```



```

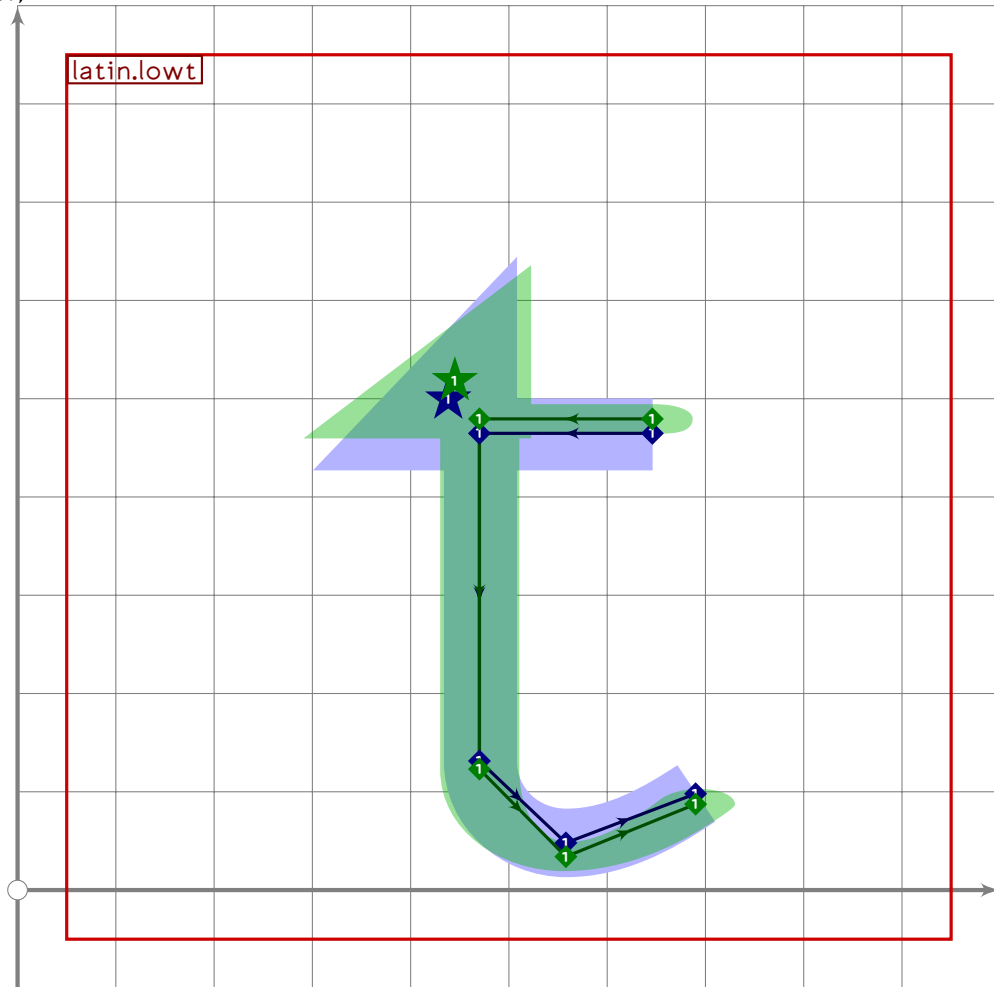
1357
1358 vardef latin.lowlongs =
1359   push_pbox_toexpand("latin.lowlongs");
1360   (x2-x1)=290;
1361   x5=x6=490=0.52[x1,x2];
1362   x3-x5=2*(y4-y5);
1363   x4=0.38[x5,x3];
1364
1365   y1=y2=latin_wide_xheight_h;
1366   y5=0.52[y2,y4];
1367   y3=0.73[y2,y4];
1368   y4=latin_wide_high_r;
1369   y6=latin_wide_low_v;
1370
1371   push_stroke(z1-(x5,y1),(1.6,1.6)-(1.6,1.6));
1372
1373   push_stroke(z3{curl 0.6}..z4{left}..{dir 268}z5{down}-z6,
1374     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1375   replace_stroke(0)(subpath (0.23,3) of oldp);

```

```

1376 set_bosserif(0,3,3);
1377 expand_pbox;
1378 enddef;

```



```

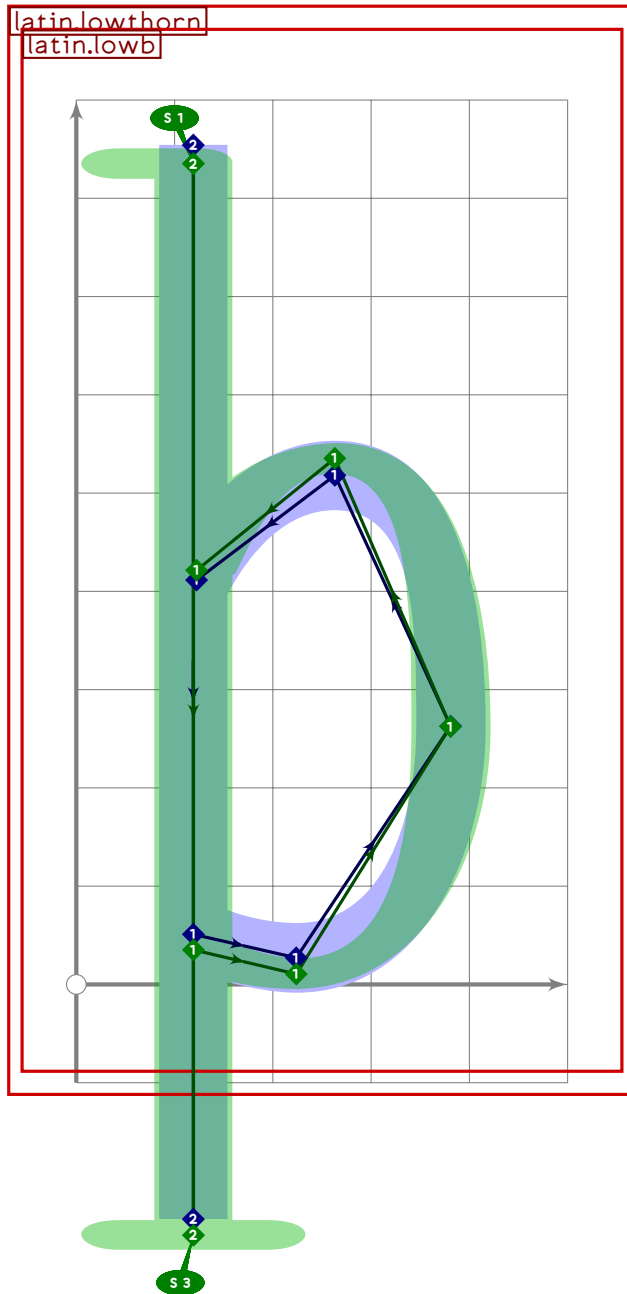
1379
1380 vardef latin.lowt =
1381   push_pbox_toexpand("latin.lowt");
1382   x2=x3=x10=470;
1383   x1=0.2[x5,x2];
1384   x4=0.6[x5,x2];
1385   x5-x2=220;
1386
1387   y1=y2=y6=latin_wide_xheight_h;
1388   y3=0.2[y4,y1];
1389   y4=latin_wide_low_r;
1390   y5=0.12[y4,y1];
1391   y10=vmetric(0.83);
1392
1393   if is_proportional:
1394     z10-z6=whatever*dir 58;
1395   else:
1396     z10-z6=whatever*dir 47;

```

```

1397 fi;
1398
1399 if tsu_pbrush_size<30:
1400     push_stroke(z1-z6-z10-z3{down}..z4{right}..{curl 0.2}z5,
1401         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1402     set_botip(0,1,1);
1403     set_botip(0,2,1);
1404 else:
1405     push_stroke(z1-z2-z3{down}..z4{right}..{curl 0.2}z5,
1406         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1407     set_botip(0,1,0);
1408 fi;
1409
1410 push_stroke(z6-z1,(0,0)-(0,0));
1411
1412 x7=x8=x2;
1413 x9=x6;
1414
1415 y7=y9=y2;
1416
1417 if is_proportional:
1418     z8-z9=whatever*dir 58;
1419 else:
1420     z8-z9=whatever*dir 47;
1421 fi;
1422
1423 if tsu_pbrush_size>=30:
1424     begingroup
1425         save t; transform t;
1426         t:=tsu_rescale_xform;
1427         push_lcblob(((z7 transformed t)+(mbrush_width,-mbrush_height))-
1428             ((z8 transformed t)+(mbrush_width,mbrush_height))-
1429             ((z9 transformed t)+(-mbrush_width,-mbrush_height))-cycle);
1430         replace_lcblob(0)(oldblob transformed inverse t);
1431     endgroup;
1432 fi;
1433 expand_pbox;
1434 endif;

```



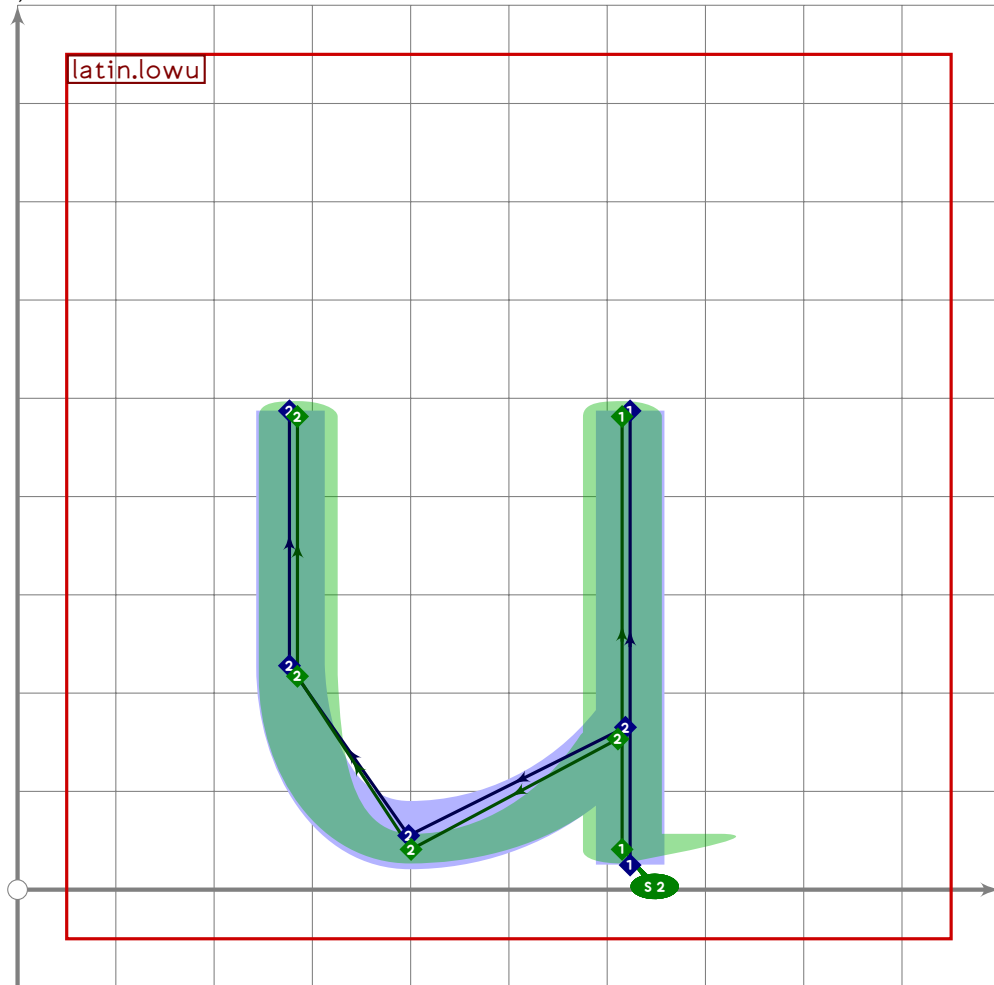
```

1435
1436 vardef latin.lowthorn =
1437   push_pbox_toexpand("latin.lowthorn");
1438   latin.lowb;
1439   set_botip(0,1,whatever);
1440   set_boserif(0,0,whatever);
1441   push_stroke((point 0 of get_stroke(0))-
1442     (xpart point 0 of get_stroke(0),latin_wide_desc_v),
1443     (1.6,1.6)-(1.6,1.6));
1444   set_boserif(0,0,1);
1445   set_boserif(0,1,3);
1446   replace_stroke(-1)(subpath (1,infinity) of oldp);
1447   replace_strokeq(-1)(subpath (1,infinity) of oldq);
1448   expand_pbox;

```



1449 enddef;

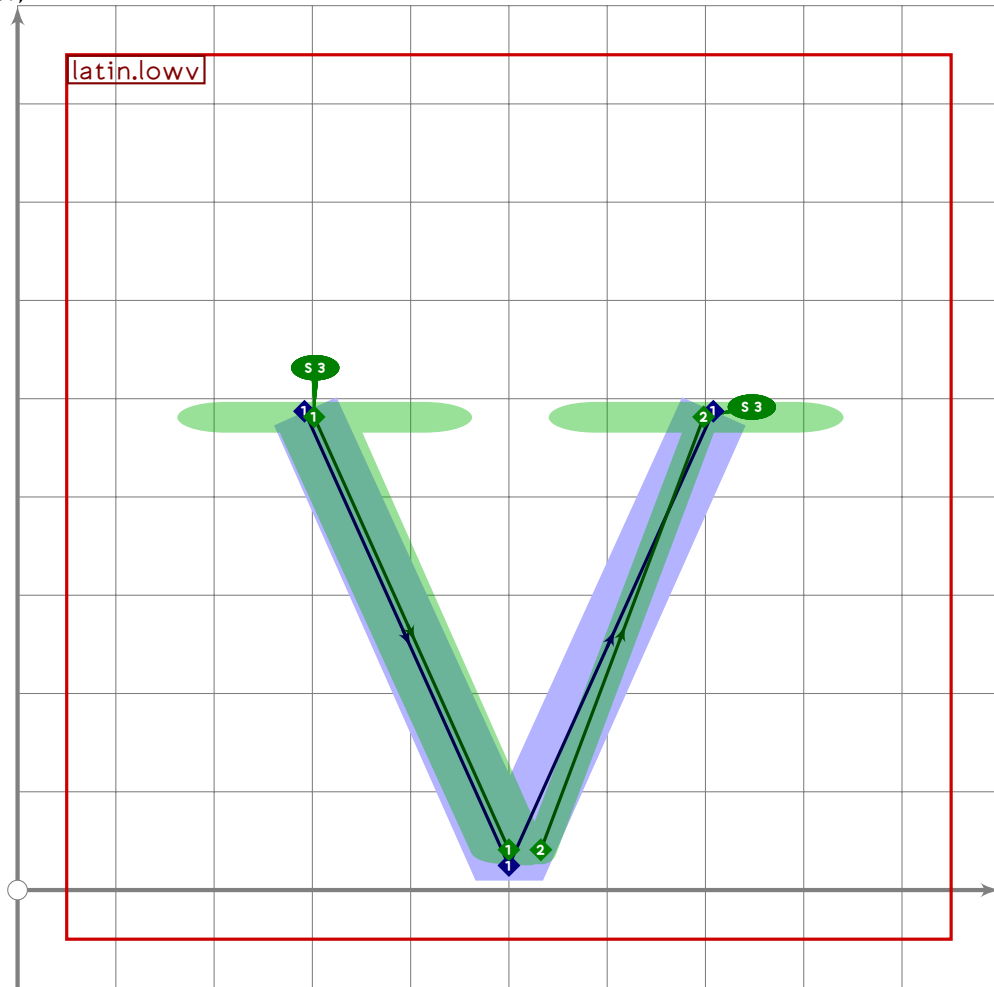


```
1450
1451 vardef latin.lowu =
1452   push_pbox_toexpand("latin.lowu");
1453   (x1+x5)/2=450;
1454   (x1-x5)=(y2-y1)*0.75;
1455   x2=x1=x3;
1456   x4=0.65[x3,x5];
1457   x6=x5;
1458
1459   y1=latin_wide_low_v;
1460   y2=y6=latin_wide_xheight_v;
1461   y3=0.73[y2,y4];
1462   y4=latin_wide_low_h;
1463   y5=0.60[y2,y4];
1464
1465   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1466   set_boserif(0,0,2);
1467
1468   push_stroke(z3..z4{left}..z5{dir 93}-z6,
1469     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
```

```

1470 replace_stroke(0)(subpath (0,3) of oldp);
1471 expand_pbox;
1472 enddef;

```



```

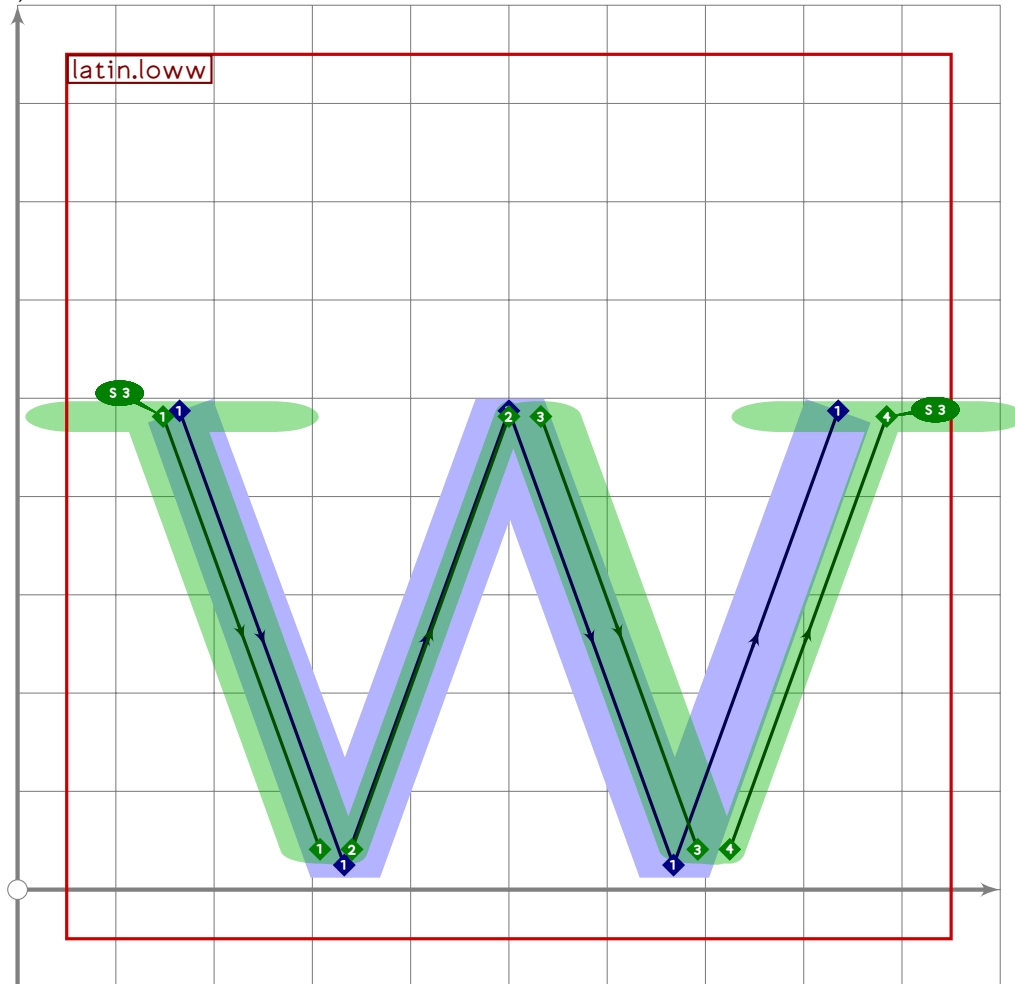
1473
1474 vardef latin.lowv =
1475   push_pbox_toexpand("latin.lowv");
1476   (x1+x3)/2=x2=500;
1477
1478   y1=y3=latin_wide_xheight_v;
1479   y2=latin_wide_low_v;
1480
1481   (x3-x1)=(y1-y2)*0.9;
1482
1483   if do_alteration:
1484     push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1485     set_boserif(0,0,3);
1486
1487     push_stroke((z2+alternate_adjust*right)-z3,(1.6,1.6)-(1.6,1.6));
1488     set_boserif(0,1,3);
1489     set_boalternate(0);
1490   else:

```

```

1491   push_stroke(z1-z2-z3,(1,6,1,6)-(1,6,1,6)-(1,6,1,6));
1492   set_botip(0,1,0);
1493   set_boserif(0,0,1);
1494   fi;
1495   expand_pbox;
1496 enddef;

```



```

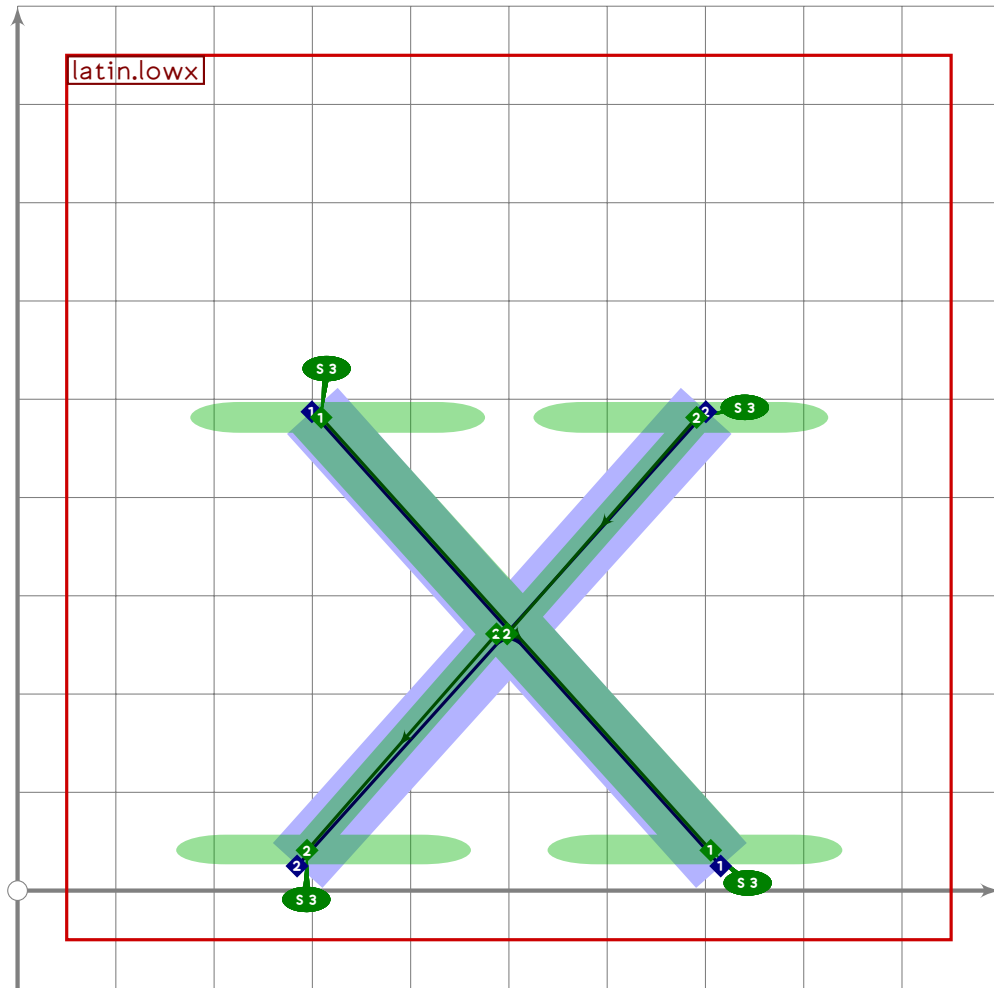
1497
1498 vardef latin.loww =
1499   push_pbox_toexpand("latin.loww");
1500   (x1+x5)/2=(x2+x4)/2=x3=500;
1501   (x3-x2)=(x2-x1);
1502
1503   y1=y3=y5=latin_wide_xheight_v;
1504   y2=y4=latin_wide_low_v;
1505
1506   (x5-x1)=(y1-y2)*1.45;
1507
1508   if do_alteration:
1509     push_stroke((z1-z2) shifted (alternate_adjust*left),
1510               (1,6,1,6)-(1,6,1,6));
1511     set_boserif(0,0,3);

```

```

1512
1513     push_stroke(z2-z3,
1514         (1.6,1.6)-(1.6,1.6));
1515     set_boalternate(0);
1516
1517     push_stroke((z3-z4) shifted (alternate_adjust*right),
1518         (1.6,1.6)-(1.6,1.6));
1519
1520     push_stroke((z4-z5) shifted (alternate_adjust*right*2),
1521         (1.6,1.6)-(1.6,1.6));
1522     set_boserif(0,1,3);
1523     set_boalternate(0);
1524 else:
1525     push_stroke(z1-z2-z3-z4-z5,
1526         (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1527     set_botip(0,1,0);
1528     set_botip(0,2,0);
1529     set_botip(0,3,0);
1530     set_boserif(0,0,1);
1531 fi;
1532 expand_pbox;
1533 endif;

```



```

1534
1535 vardef latin.lowx =
1536   push_pbox_toexpand("latin.lowx");
1537   (x1+x3)/2=500;
1538   (x2+x4)/2=500;
1539   (x2+x3-x1-x4)=((y1-y2)*0.9)*2;
1540   (x3-x1)=(x2-x4)*0.93;
1541
1542   y1=y3=latin_wide_xheight_v;
1543   y2=y4=latin_wide_low_v;
1544
1545   push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1546   set_boserif(0,0,3);
1547   set_boserif(0,1,3);
1548
1549   if do_alteration:
1550     push_stroke(z3-(0.5[z3,z4]+alternate_adjust*right/6)
1551       -(0.5[z3,z4]+alternate_adjust*left/6)-z4,
1552       (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1553     set_boserif(0,0,3);
1554     set_boserif(0,3,3);

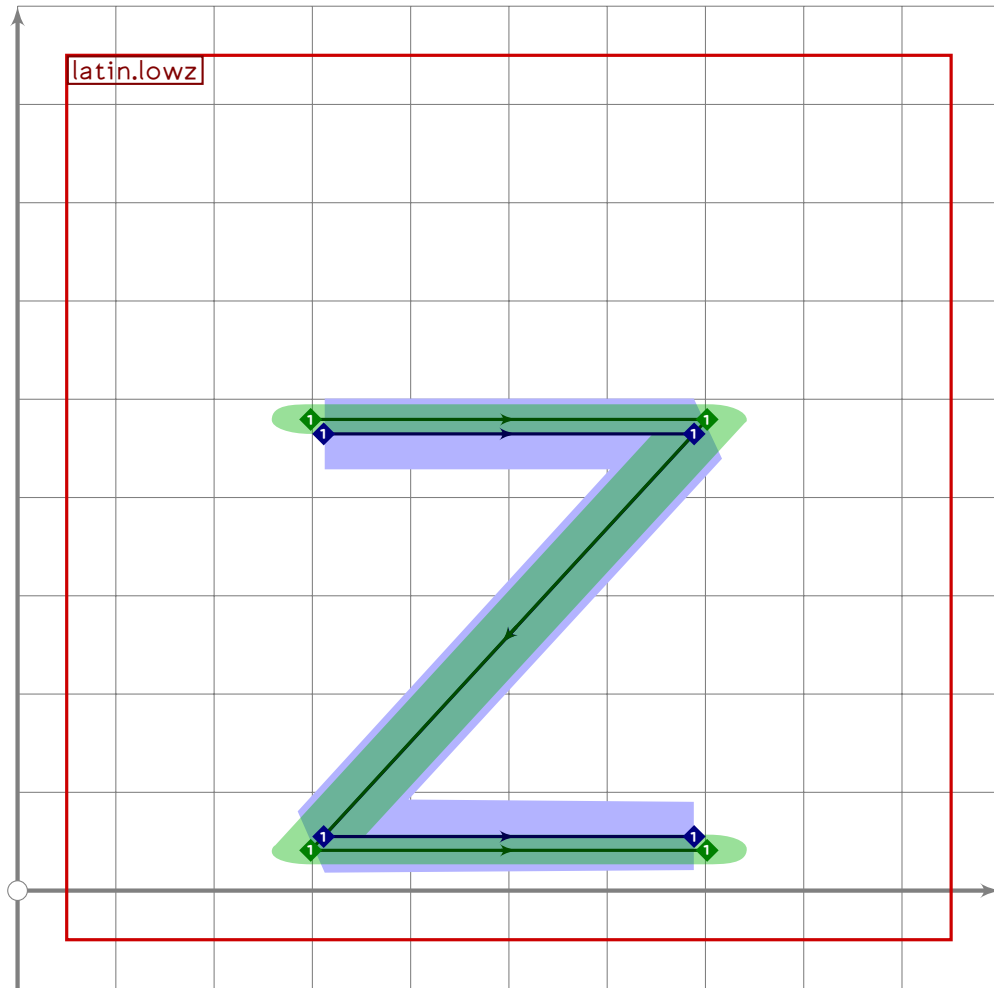
```



```

1573 y5=0.5[y4,latin_wide_low_h]=latin_wide_desc_h;
1574
1575 push_stroke(z1-z2,(1.6,1.6)-(1.6,1.6));
1576
1577 push_stroke(z3..tension 10..(0.6[z3,z4])..tension 0.8 and 3.{left}z5,
1578 (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1579
1580 numeric xchgtime;
1581 xchgtime:=ypart (get_strokep(-1) intersectiontimes get_strokep(0));
1582
1583 replace_strokep(-1)(z1-subpath (xchgtime,infinity) of get_strokep(0));
1584 replace_strokeq(-1)
1585 ((1.6,1.6)-subpath (xchgtime,infinity) of get_strokeq(0));
1586
1587 replace_strokep(0)(subpath (0,xchgtime) of oldp);
1588 replace_strokeq(0)(subpath (0,xchgtime) of oldq);
1589
1590 set_boserif(-1,0,3);
1591 set_boserif(0,0,3);
1592 set_botip(0,1,1);
1593 set_boalternate(0);
1594
1595 if do_alteration:
1596   replace_strokep(-1)(oldp shifted (alternate_adjust*left/2));
1597   replace_strokeq(0)(oldq shifted (alternate_adjust*right/2));
1598 fi;
1599 expand_pbox;
1600 endif;

```



```

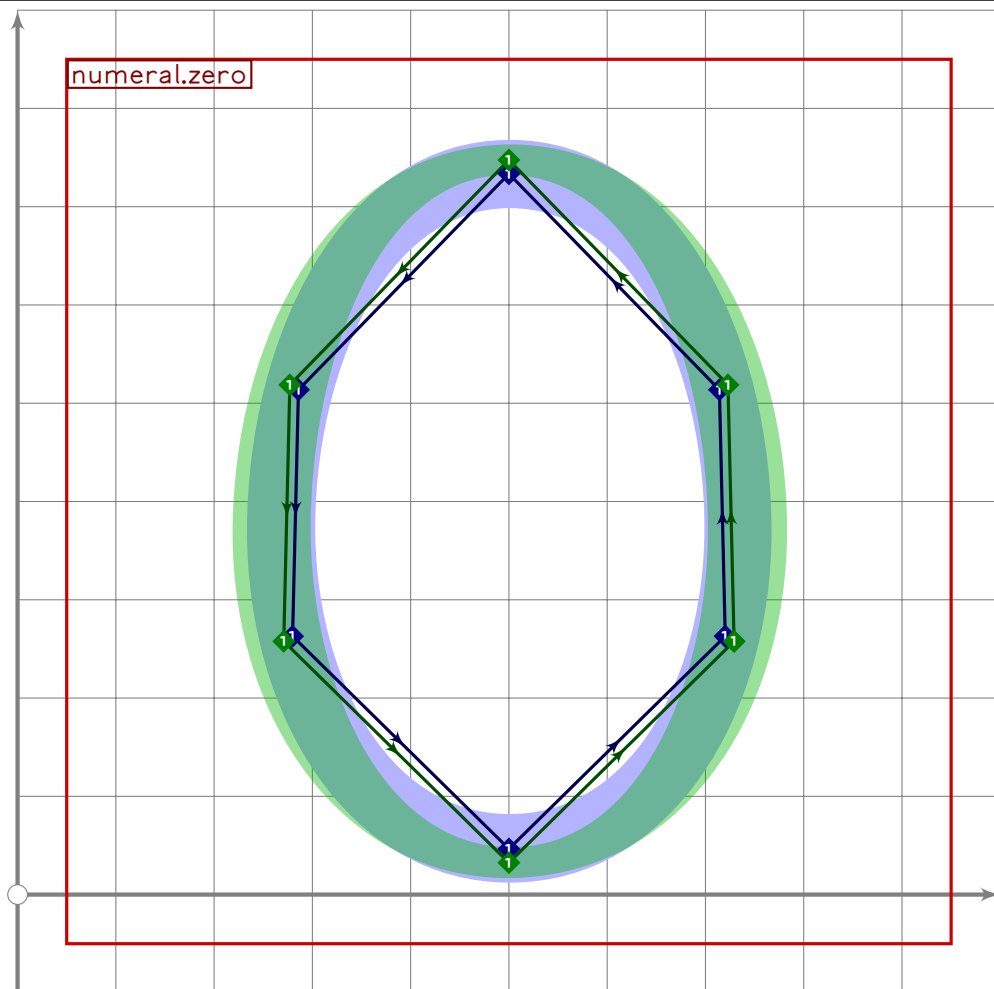
1601
1602 vardef latin.lowz =
1603   push_pbox_toexpand("latin.lowz");
1604   y1=y2=latin_wide_xheight_h;
1605   y3=y4=latin_wide_low_h;
1606
1607   x1=x3;
1608   x2=x4;
1609   (x1+x2)/2=500;
1610   (x2-x1)=(y1-y3)*0.92;
1611
1612   push_stroke(z1-z2-z3-z4,(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1613   set_botip(0,1,0);
1614   set_botip(0,2,0);
1615   expand_pbox;
1616 enddef;

```

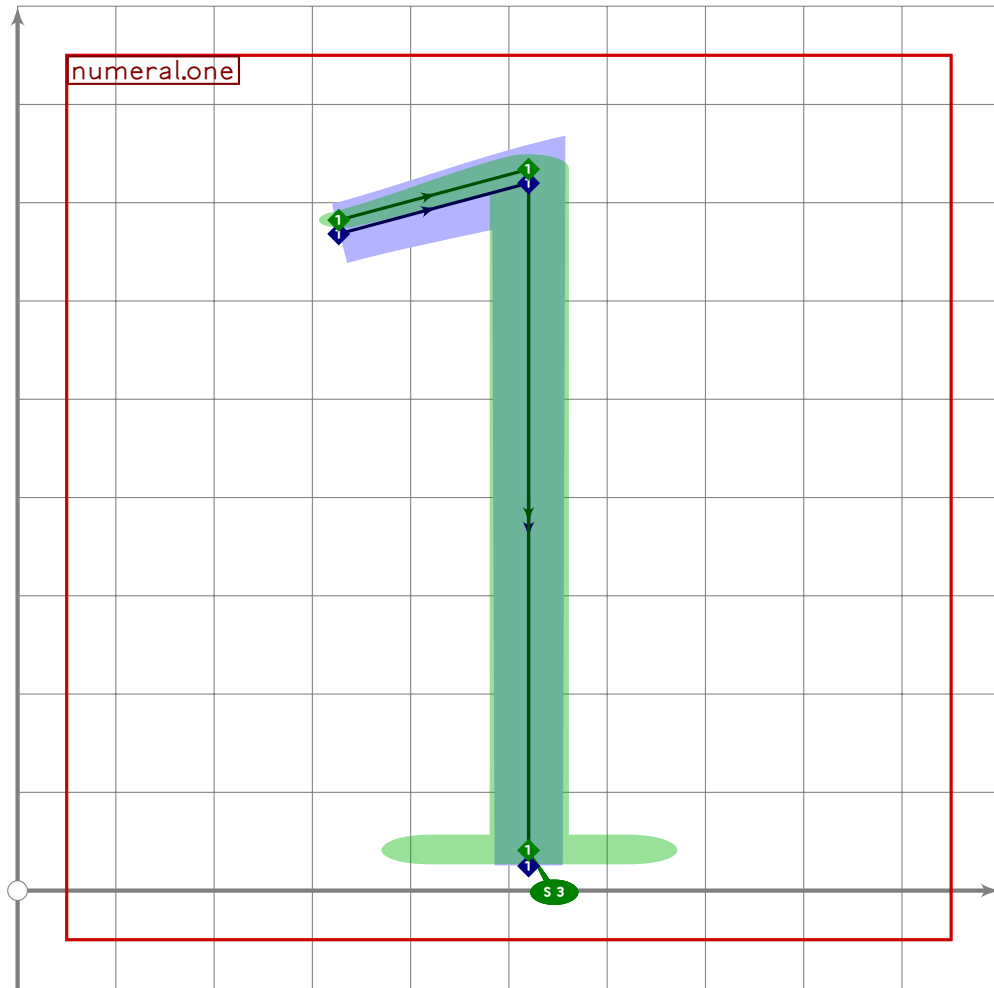


# numerals.mp

```
1 %  
2 % Hindu/Arabic numerals for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(numerals);  
32  
33
```



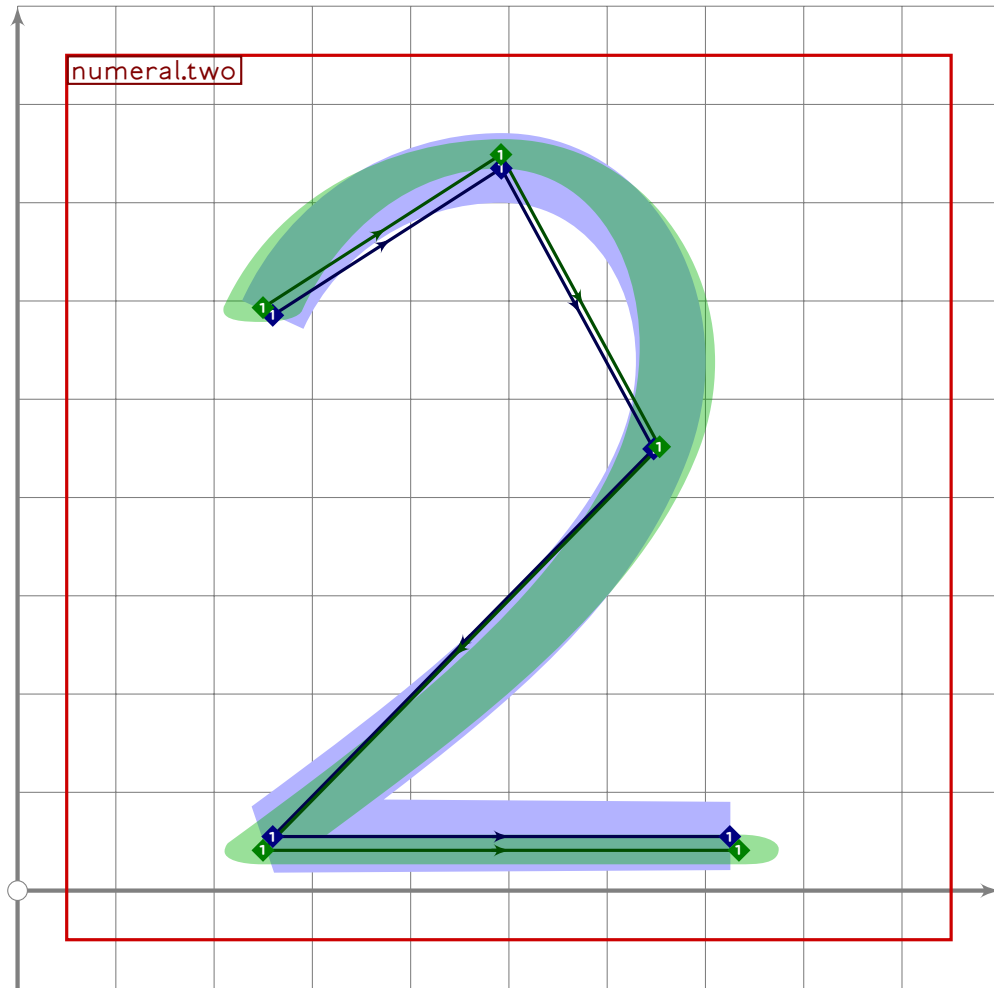
```
34  
35 vardef numeral.zero =  
36   push_pbox_toexpand("numeral.zero");  
37   push_stroke(((0.74*dir 330)..(0.72*dir 30)..(up)..  
38     (0.72*dir 150)..(0.74*dir 210)..(down)..cycle)  
39     scaled ((latin_wide_high_r-latin_wide_low_r)/2)  
40     shifted centre_pt,  
41     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);  
42   expand_pbox;  
43 enddef;
```



```

44
45 vardef numeral.one =
46   push_pbox_toexpand("numeral.one");
47   x3=x2=520;
48
49   y2=latin_wide_high_h;
50   y3=latin_wide_low_v;
51
52   z1=z2+200*dir 195;
53
54   push_stroke(z1-z2-z3,(1,1,1)-(1.6,1.6)-(1.6,1.6));
55   set_botip(0,1,1);
56   set_boserif(0,2,3);
57   expand_pbox;
58 enddef;

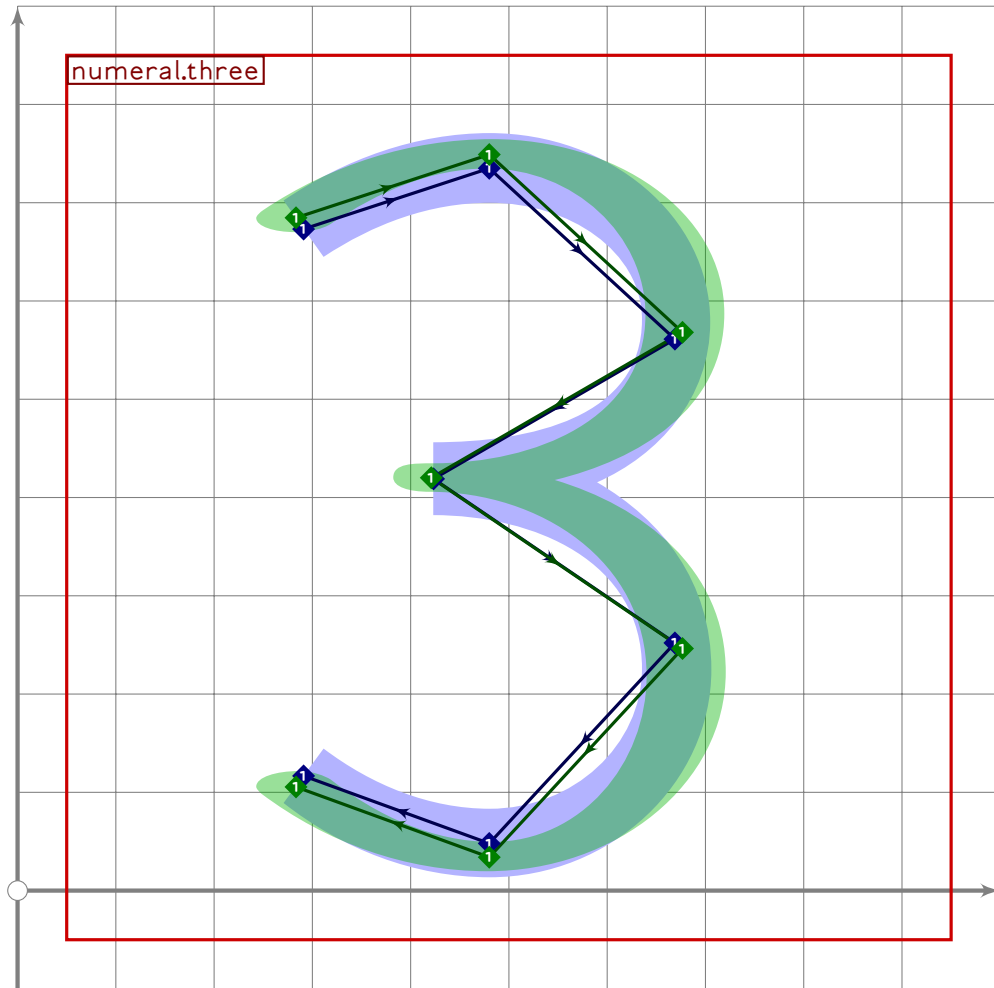
```



```

59
60 vardef numeral.two =
61   push_pbox_toexpand("numeral.two");
62   x1=x4;
63   0.62[x1,x3]=500;
64   x2=0.6[x1,x3];
65   x5=1.2[x1,x3];
66   x3-x1=0.57*(y2-y4);
67
68   y1=0.78[y4,y2];
69   y2=latin_wide_high_r;
70   y3=0.58[y4,y2];
71   y4=y5=latin_wide_low_h;
72
73   push_stroke(z1..z2{right}..z3..tension 1.2..{curl 0}z4-z5,
74     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
75   set_botip(0,3,0);
76   expand_pbox;
77 enddef;

```



```

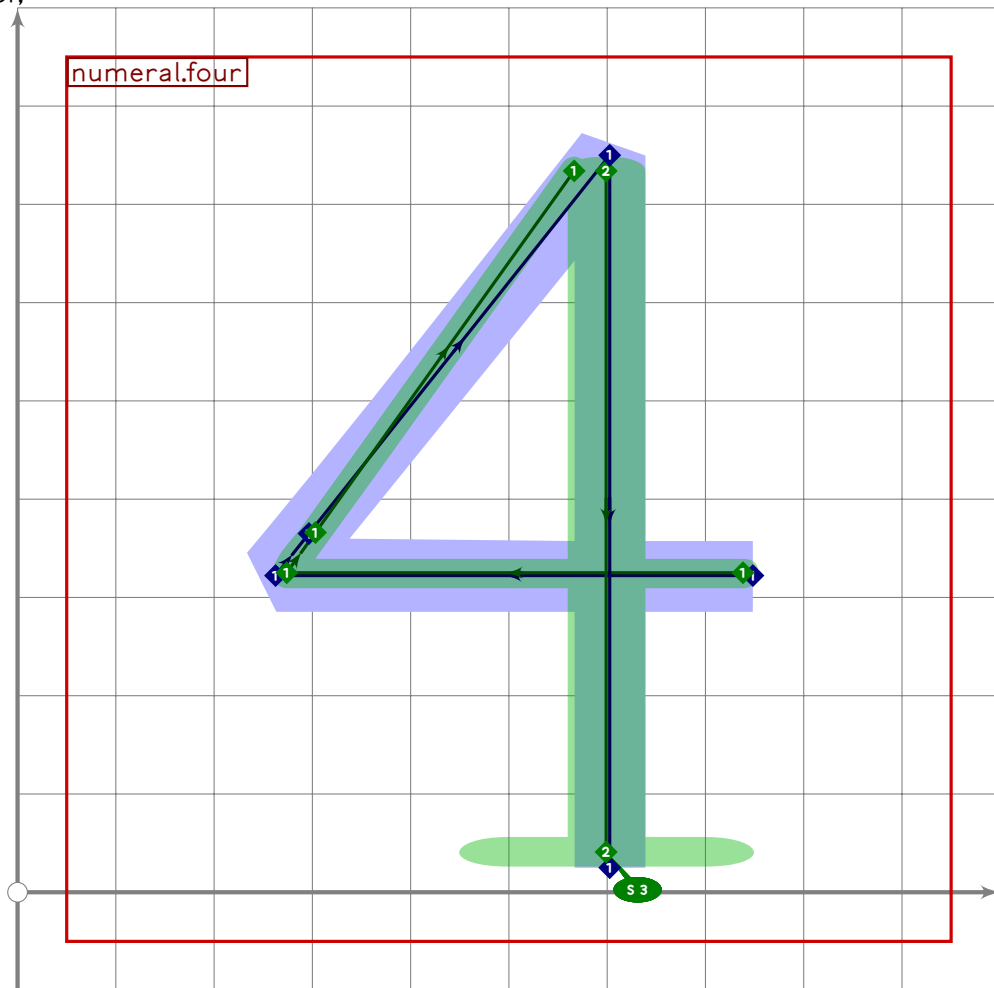
78
79 vardef numeral.three =
80   push_pbox_toexpand("numeral.three");
81   x1=x7;
82   x2=x6=0.5[x1,x3];
83   x3=x5;
84   x4=0.35[x1,x3];
85   (x1+x3)/2=480;
86   (x3-x1)=0.55*(y2-y6);
87
88   y1=0.91[y6,y2];
89   y2=latin_wide_high_r;
90   y3=0.45[y4,y2];
91   y4=0.54[y6,y2];
92   y5=0.45[y4,y6];
93   y6=latin_wide_low_r;
94   y7=0.1[y6,y2];
95
96   push_stroke(z1{curl 0.7}..z2{right}..z3.{left}z4{right}..
97     z5..z6{left}..{curl 0.7}z7,
98     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-

```

```

99     (1.6,1.6)-(1.6,1.6));
100  set_botip(0,3,0);
101  expand_pbox;
102  enddef;

```



```

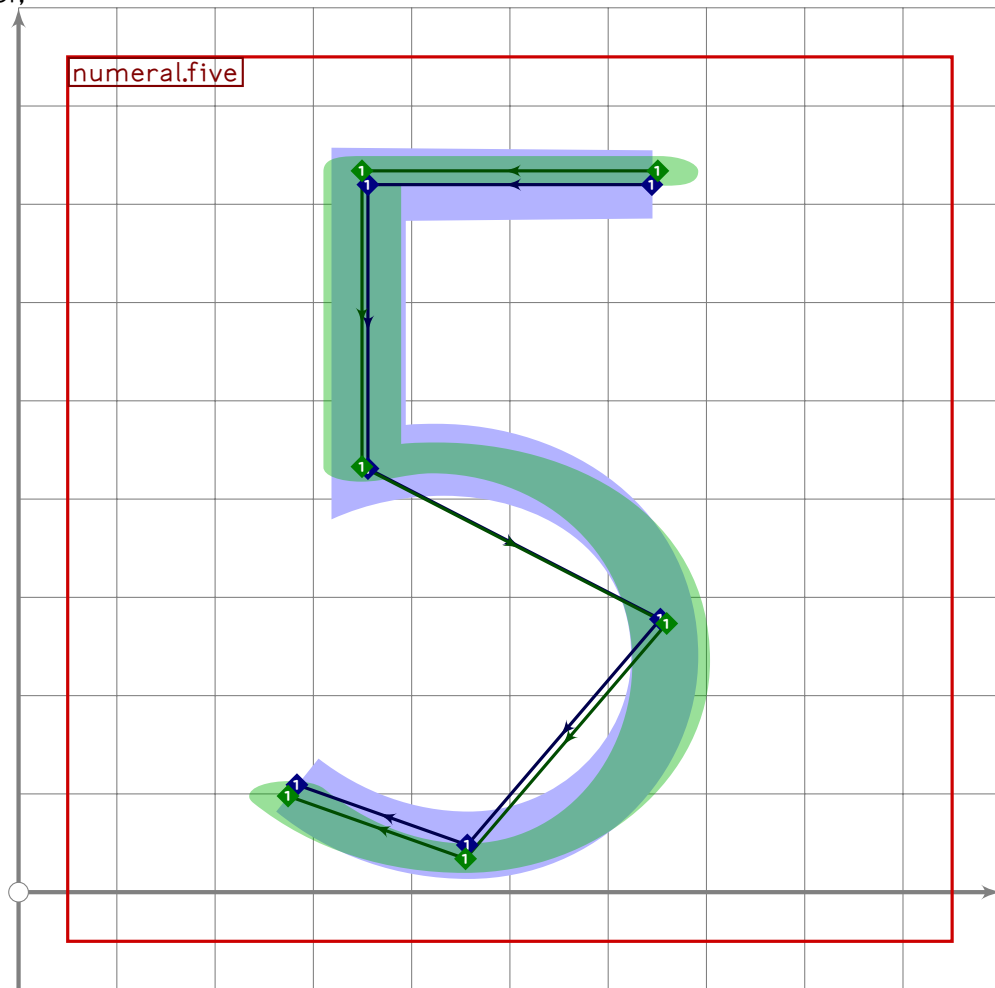
103
104  vardef numeral.four =
105  push_pbox_toexpand("numeral.four");
106  x3=x4=0.7[x2,x1];
107  0.53[x2,x1]=520;
108  (x1-x2)=0.67(y3-y4);
109
110  y1=y2=0.41[y4,y3];
111  y3=latin_wide_high_v;
112  y4=latin_wide_low_v;
113
114  if do_alteration:
115  push_stroke(z1-z2-(0.1[z2,(z3+alternate_adjust*left)])-
116  (z3+alternate_adjust*left),
117  (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
118  set_botip(0,1,0);
119  set_botip(0,2,0);

```

```

120 set_boalternate(0);
121
122 push_stroke(z3-z4,(1.6,1.6)-(1.6,1.6));
123 set_botip(0,0,0);
124 set_boserif(0,1,3);
125 else:
126 push_stroke(z1-z2-(0.1[z2,z3])-z3-z4,
127 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
128 set_botip(0,1,0);
129 set_botip(0,3,0);
130 set_boserif(0,4,3);
131 fi;
132 expand_pbox;
133 enddef;

```



```

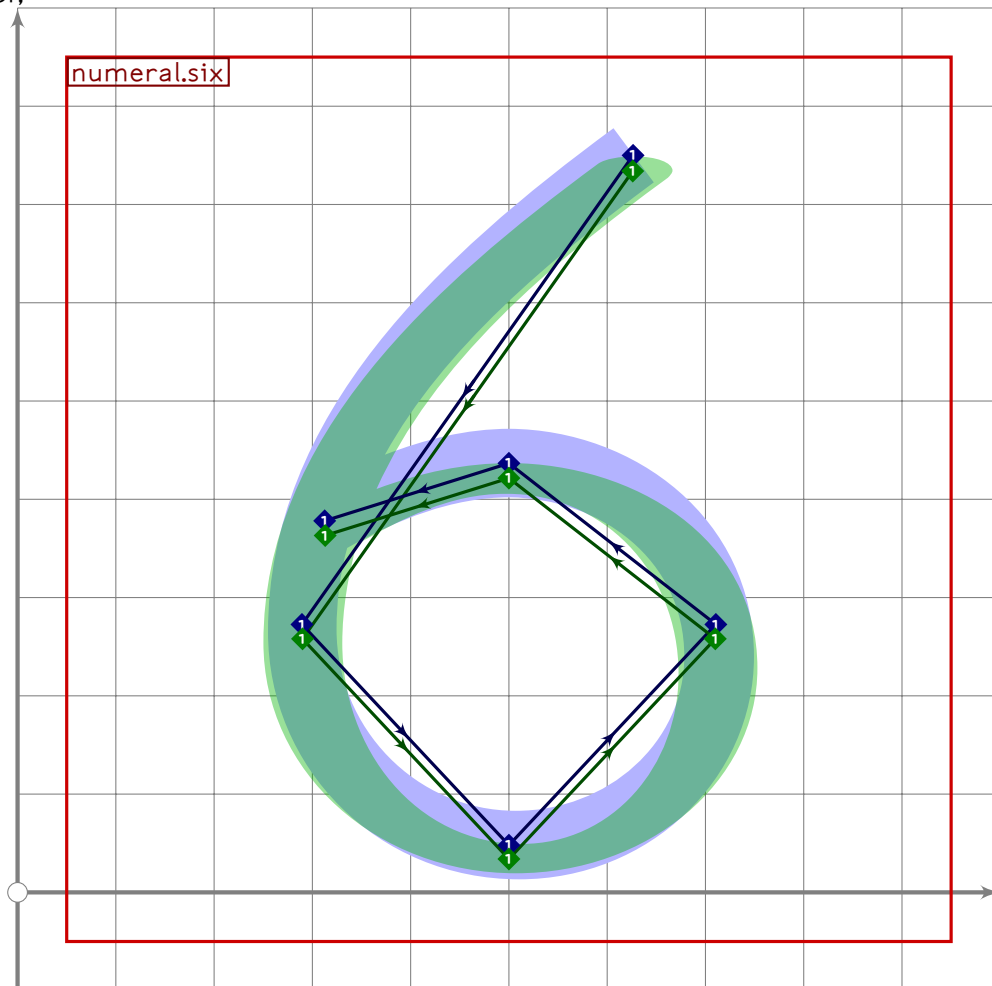
134
135 vardef numeral.five =
136 push_pbox_toexpand("numeral.five");
137 (x1+x2)/2=500;
138 (x1-x2)=(y2-y3);
139 x2=x3;
140 x4=1.03[x2,x1];

```

```

141 x5=0.35[x2,x1];
142 x6=(-0.25)[x2,x1];
143
144 y1=y2=latin_wide_high_h;
145 y3=0.57[y5,y1];
146 y4=0.6[y5,y3];
147 y5=latin_wide_low_r;
148 y6=0.16[y5,y3];
149
150 push_stroke(z1-z2-z3{curl 0.5}..z4..z5{left}..z6,
151   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
152 set_botip(0,1,1);
153 set_botip(0,2,1);
154 expand_pbox;
155 enddef;

```



```

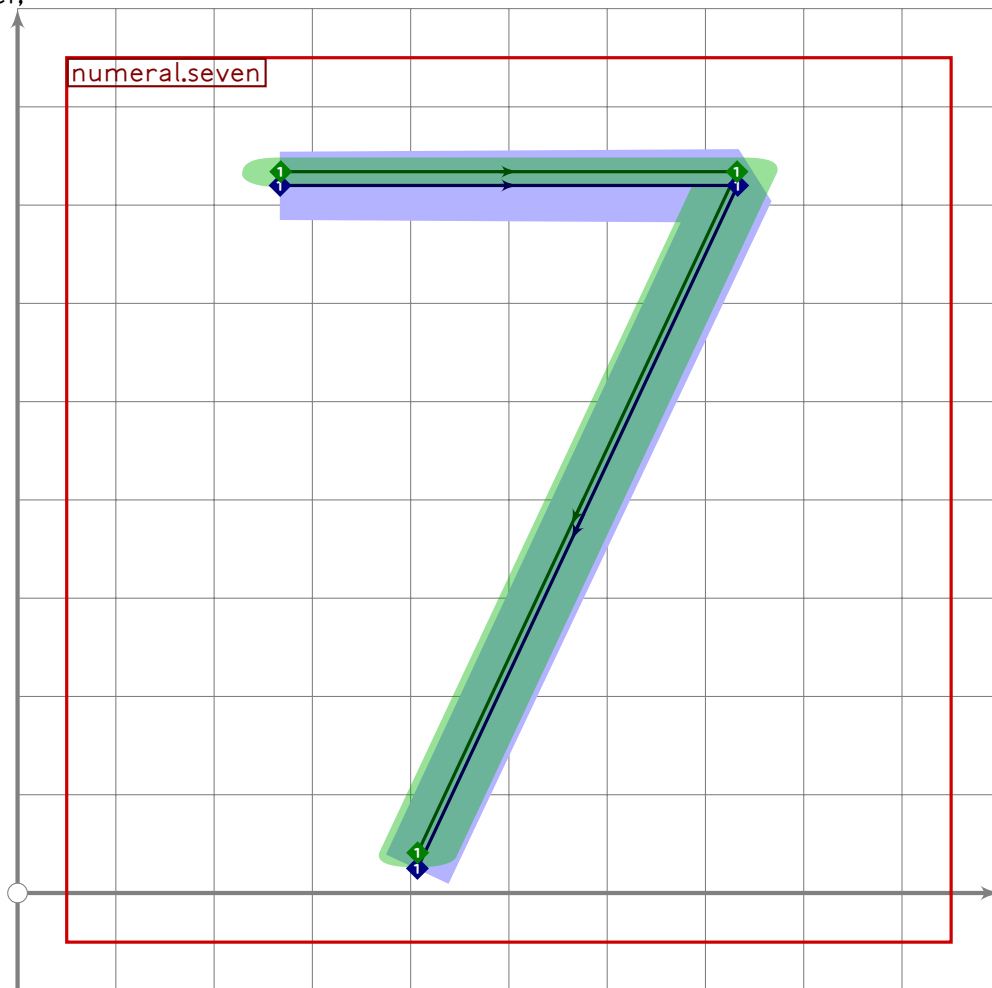
156
157 vardef numeral.six =
158   push_pbox_toexpand("numeral.six");
159   x1=0.8[x2,x4];
160   (x2+x4)/2=x3=500;
161   (x4-x2)=0.6(y1-y3);

```

```

162 x5=x3;
163
164 y1=latin_wide_high_v;
165 y2=y4=0.32[y3,y1];
166 y3=latin_wide_low_r;
167 y5-y4=0.73*(y4-y3);
168
169 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 100},
170 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
171 replace_stroke(0)(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 100}..
172 z5.{curl 0.2}(point 0.8 of oldp));
173 expand_pbox;
174 enddef;

```



```

175
176 vardef numeral.seven =
177   push_pbox_toexpand("numeral.seven");
178   (x1+x2)/2=500;
179   x3=0.3[x1,x2];
180   (x2-x1)=0.67*(y1-y3);
181
182   y1=y2=latin_wide_high_h;

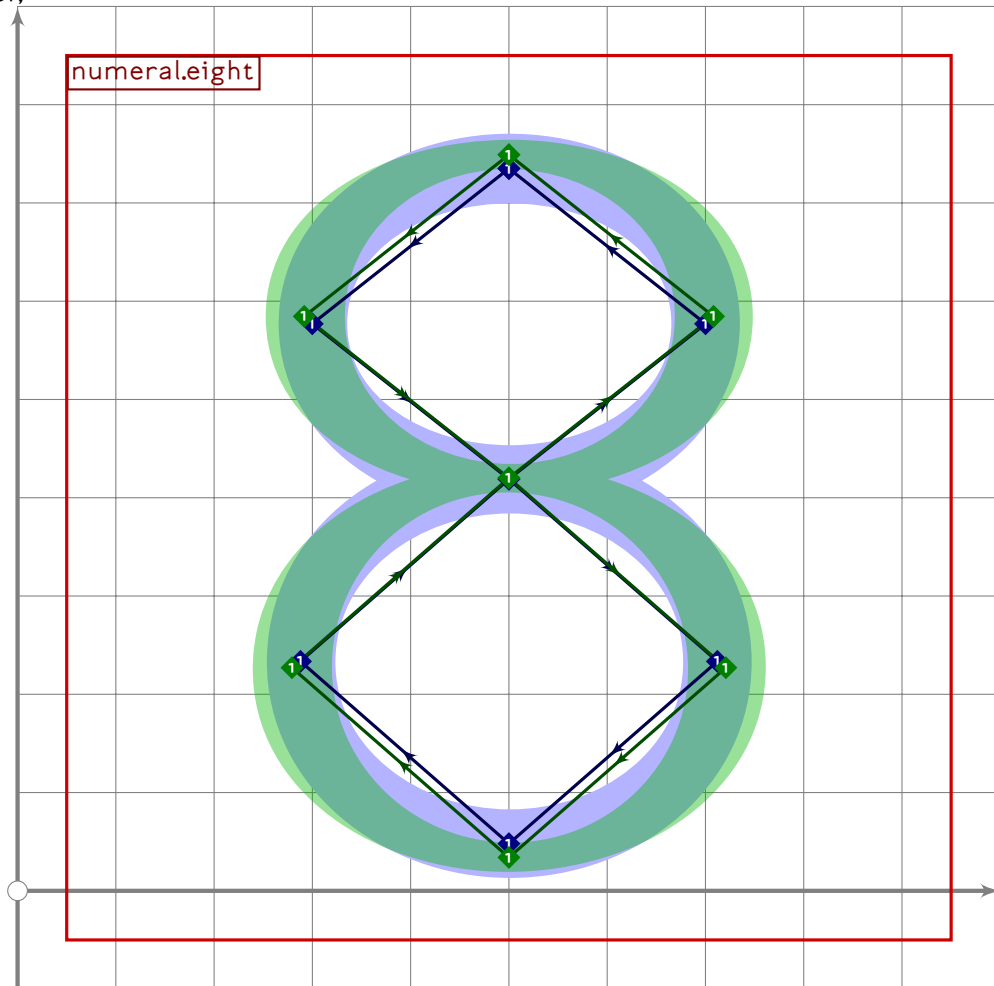
```



```

183 y3=latin_wide_low_v;
184
185 push_stroke(z1-z2-z3,
186   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
187 set_botip(0,1,0);
188 expand_pbox;
189 enddef;

```



```

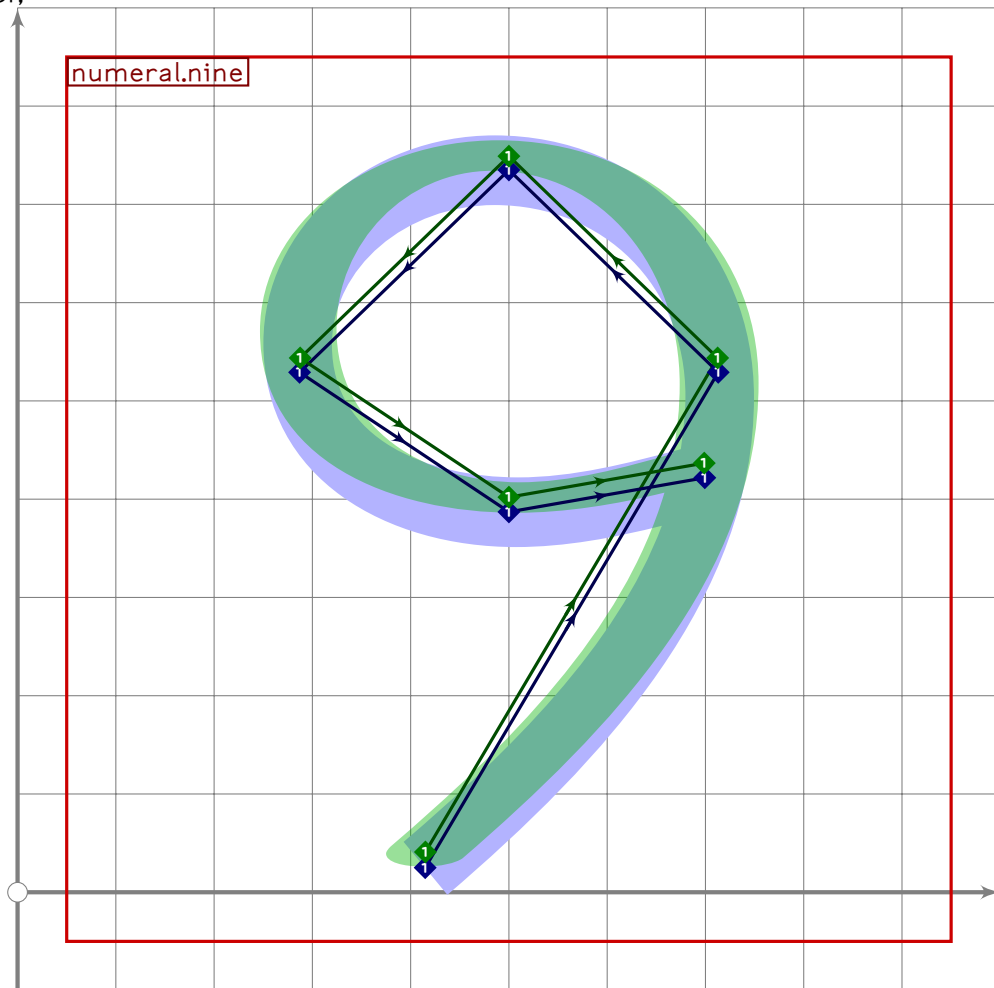
190
191 vardef numeral.eight =
192   push_pbox_toexpand("numeral.eight");
193   x1=x3=x5=x7=(x2+x8)/2=(x4+x6)/2=500;
194   (x4-x6)=1.06*(x8-x2);
195   (x4+x8-x6-x2)/2=0.6*(y1-y5);
196
197   y1=latin_wide_high_r;
198   y2=y8=0.5[y3,y1];
199   y3=y7=0.54[y5,y1];
200   y4=y6=0.5[y5,y3];
201   y5=latin_wide_low_r;
202
203   push_stroke(z1..z2..z3{right}..z4..z5..z6..z7{right}..z8..cycle,

```

```

204 (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
205 (1.6,1.6)-(1.6,1.6)-cycle);
206 expand_pbox;
207 enddef;

```



```

208
209 vardef numeral.nine =
210   push_pbox_toexpand("numeral.nine");
211   x1=0.3[x4,x2];
212   (x2+x4)/2=x3=500;
213   (x2-x4)=0.6(y3-y1);
214   x5=x3;
215
216   y1=latin_wide_low_v;
217   y2=y4=0.29[y3,y1];
218   y3=latin_wide_high_r;
219   y5-y4=0.69*(y4-y3);
220
221   push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280},
222     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
223   replace_strokep(0)(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
224     z5..{curl 0.2}(point 0.8 of oldp));

```

```
225 expand_pbox;  
226 endif;
```

# obstack.mp

```
1 %
2 % Object stack for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
```

```
30
31 inclusion_lock(obstack);
32
33
34
```

---

## Object Stack Data

```
35 % OBJECT STACK DATA
36
37 % object types:
38 % "anchor" - uses transform, numeric
39 % "hook" - uses string, numeric
40 % "lcblob" - uses path p
41 % "null" - uses nothing
42 % "pbox" - uses transform
43 % "stroke" - uses path p, path q, numeric array, bool array
44
45 vardef init_obstack =
46   numeric obstacktype[];
47   numeric obstackn[];
48   numeric obstackna[][];
49   numeric obstacknaa[][][];
50   boolean obstackb[];
51   boolean obstackba[][];
52   path obstackp[];
53   path obstackq[];
54   transform obstackt[];
55   string obstacks[];
56   numeric sp;
57   sp:=1;
58 enddef;
59
60 % numeric values, needed for syntax reasons
61
62 def boalternate = 1924 enddef;
63 def boserif = 1746 enddef;
64 def bosize = 1393 enddef;
65 def botip = 1322 enddef;
66 def botoexpand = 1972 enddef;
67
68 def hsmain_render = 1304 enddef;
```

```

69
70 def otanchor = 1882 enddef;
71 def othook = 1753 enddef;
72 def otlcblob = 1722 enddef;
73 def otnull = 1699 enddef;
74 def otpbox = 1007 enddef;
75 def otstroke = 1069 enddef;
76
77
78

```

---

## Object Stack Methods

```

79 % OBJECT STACK METHODS
80
81 vardef expand_pbox =
82   begingroup
83     save mysp,i;
84     numeric mysp;
85     for i=sp-1 downto 1:
86       if (obstacktype[i]=otpbox) and (known obstackba.botoexpand[i]):
87         if obstackba.botoexpand[i]:
88           mysp:=i;
89           fi;
90         fi;
91       exitif known mysp;
92     endfor;
93     if known mysp:
94       obstackba.botoexpand[mysp]:=false;
95 % message "expanding " & decimal mysp;
96     save x,y,myxf;
97     numeric x[],y[];
98     transform myxf;
99     z1=(70,830);
100    z2=(930,-30);
101    for i=mysp+1 upto sp-1:
102      if obstacktype[i]=otpbbox:
103        x3:=xpart ((0,0.5) transformed obstackt[i]);
104        if x3<x1: x1:=x3; fi;
105        y3:=ypart ((0.5,1) transformed obstackt[i]);
106        if y3>y1: y1:=y3; fi;
107        x4:=xpart ((1,0.5) transformed obstackt[i]);
108        if x4>x2: x2:=x4; fi;
109        y4:=ypart ((0.5,0) transformed obstackt[i]);
110        if y4<y2: y2:=y4; fi;
111      fi;
112    endfor;
113    z0=(x1,y2);

```

```

114     (0,0) transformed myxf=z0+(-20,-20);
115     (0,1) transformed myxf=z1+(-20,20);
116     (1,0) transformed myxf=z2+(20,-20);
117     obstackt[myp]:=myxf;
118     else:
119         errmessage "Can't find PBOX to expand";
120     fi;
121 endgroup;
122 perl_structure:=perl_structure&"];";
123 enddef;
124
125 vardef find_stroke(expr idx) =
126     (find_whatever(otstroke,idx))
127 enddef;
128
129 vardef find_whatever(expr w,idx) =
130     begingroup
131         save i,j;
132         numeric i,j;
133         i:=sp-1;
134         j:=-idx;
135         forever:
136             exitif i<=0;
137             if obstacktype[i]=w:
138                 j:=j-1;
139                 fi;
140             exitif j<0;
141             i:=i-1;
142         endfor;
143     i
144 endgroup
145 enddef;
146
147 vardef get_bosize(expr idx) =
148     obstackna.bosize[find_whatever(otstroke,idx)]
149 enddef;
150
151 vardef get_anchor_with_default(expr atype,default_anchor) =
152     begingroup
153         save i,j;
154         numeric i,j;
155         i:=0;
156         forever:
157             j:=find_whatever(otanchor,i);
158             exitif j<=0;
159             exitif obstackn[j]=atype;
160             j:=j-1;
161         endfor;

```

```

162     if j<=0: default_anchor else: obstackt[j] fi
163 endgroup
164 enddef;
165
166 vardef get_anchor(expr atype) =
167     get_anchor_with_default(atype,identity)
168 enddef;
169
170 vardef get_lcblob(expr idx) =
171     obstackp[find_whatever(otlcblob,idx)]
172 enddef;
173
174 vardef get_strokep(expr idx) =
175     obstackp[find_whatever(otstroke,idx)]
176 enddef;
177
178 vardef get_strokeq(expr idx) =
179     obstackq[find_whatever(otstroke,idx)]
180 enddef;
181
182 vardef pop_lcblob =
183     obstacktype[find_whatever(otlcblob,0)]:=otnull;
184 enddef;
185
186 vardef pop_stroke =
187     obstacktype[find_whatever(otstroke,0)]:=otnull;
188 enddef;
189
190 vardef push_anchor(expr atype,anchor) =
191     obstacktype[sp]:=otanchor;
192     obstackn[sp]:=atype;
193     if pair anchor:
194         obstackt[sp]:=identity shifted anchor;
195     else:
196         obstackt[sp]:=anchor;
197     fi;
198     sp:=sp+1;
199 enddef;
200
201 vardef push_hook(expr stage,htext) =
202     obstacktype[sp]:=othook;
203     obstackn[sp]:=stage;
204     obstacks[sp]:=htext;
205     sp:=sp+1;
206 enddef;
207
208 vardef push_lcblob(expr blob) =
209     obstacktype[sp]:=otlcblob;

```

```

210  obstackp[sp]:=blob;
211  sp:=sp+1;
212  endif;
213
214  vardef push_pbox(expr pbox) =
215    obstacktype[sp]:=otpbox;
216    obstackt[sp]:=identity scaled 900 shifted (50;50);
217    obstacks[sp]:=pbox;
218    sp:=sp+1;
219  endif;
220
221  vardef push_pbox_explicit(expr pbox,pbox) =
222    obstacktype[sp]:=otpbox;
223    obstackt[sp]:=pbox;
224    obstacks[sp]:=pbox;
225    sp:=sp+1;
226  endif;
227
228  vardef push_pbox_toexpand(expr pbox) =
229    obstacktype[sp]:=otpbox;
230    obstackt[sp]:=identity scaled 1000 shifted (0;100);
231    obstacks[sp]:=pbox;
232    obstackba.botoexpand[sp]:=true;
233    % message "to expand " & decimal sp;
234    sp:=sp+1;
235    perl_structure:=perl_structure&"["&pbox&";";
236  endif;
237
238  vardef push_stroke(expr p,q) =
239    obstacktype[sp]:=otstroke;
240    obstackp[sp]:=p;
241    obstackq[sp]:=q;
242    obstackna.bosize[sp]:=100;
243    sp:=sp+1;
244    perl_structure:=perl_structure&"push_stroke";";
245  endif;
246
247  vardef replace_lcblob(expr idx)(text blob) =
248    begingroup
249      save oldblob;
250      path oldblob;
251      oldblob:=obstackp[find_whatever(otlcblob,idx)];
252      obstackp[find_whatever(otlcblob,idx)]:=blob;
253    endgroup;
254  endif;
255
256  vardef replace_strokep(expr idx)(text curves) =
257    begingroup

```



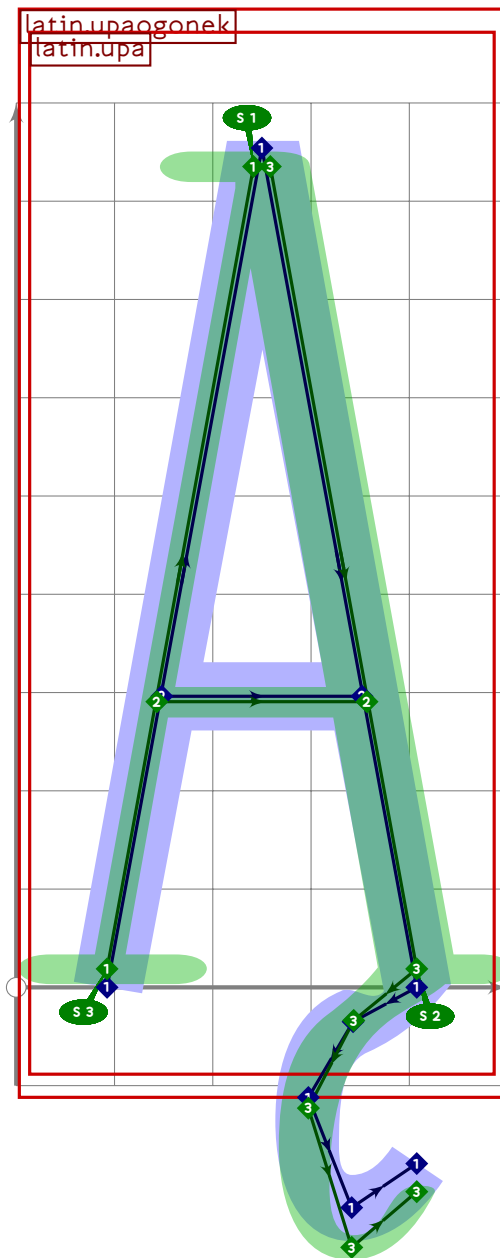
```

258     save oldp;
259     path oldp;
260     oldp:=obstackp[find_whatever(otstroke,idx)];
261     obstackp[find_whatever(otstroke,idx)]:=curves;
262 endgroup;
263 perl_structure:=perl_structure&"replace_stroke;";
264 enddef;
265
266 vardef replace_strokeq(expr idx)(text curves) =
267   begingroup
268     save oldq;
269     path oldq;
270     oldq:=obstackq[find_whatever(otstroke,idx)];
271     obstackq[find_whatever(otstroke,idx)]:=curves;
272   endgroup;
273 enddef;
274
275 vardef set_boalternate(expr idx) =
276   obstackba.boalternate[find_stroke(idx)]:=true;
277 enddef;
278
279 vardef set_boserif(expr idx,t,srf) =
280   obstacknaa.boserif[find_stroke(idx)][t]:=srf;
281 enddef;
282
283 vardef set_bosize(expr idx,bos) =
284   obstackna.bosize[find_stroke(idx)]:=bos;
285   if bos=0:
286     perl_structure:=perl_structure&"bosize0;";
287   fi;
288 enddef;
289
290 vardef set_botip(expr idx,t,bt) =
291   obstacknaa.botip[find_stroke(idx)][t]:=bt;
292 enddef;

```

# ogonek.mp

```
1 %  
2 % Ogonek letters for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(ogonek);  
32  
33
```

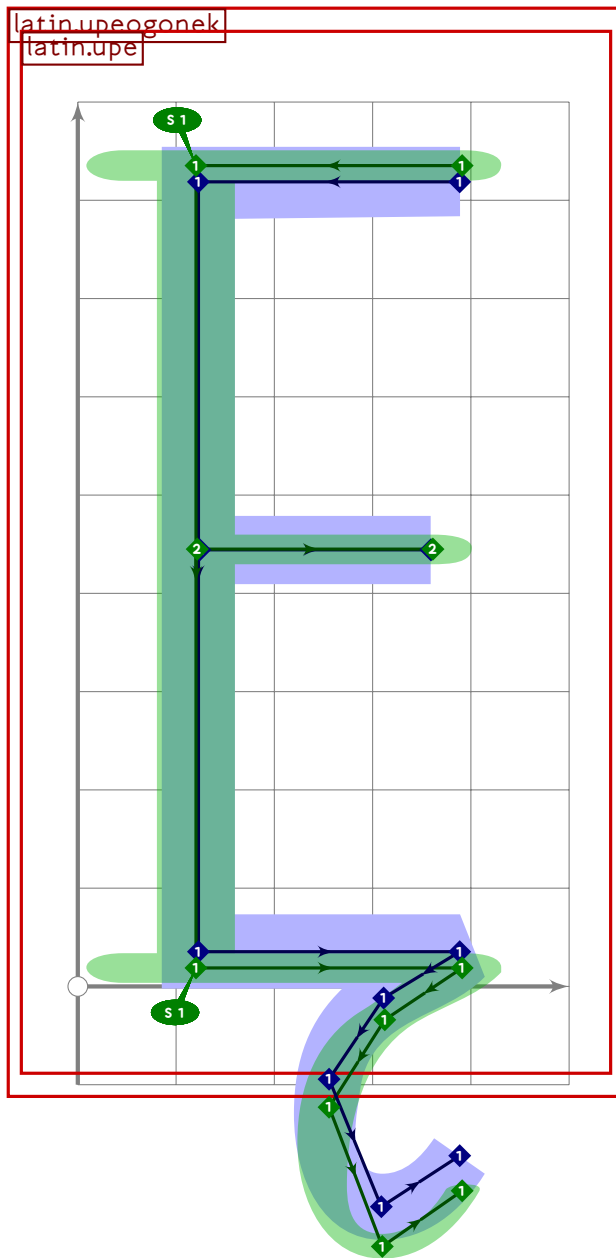


```
34  
35 vardef latin.upaogonek =  
36   push_pbox_toexpand("latin.upaogonek");
```

```

37 latin.upa;
38
39 x6=0.3[x2,x3];
40 x7=0.4[x6,x8];
41 x8=x3;
42
43 y6=0.5[y7,y3];
44 y7=latin_wide_desc_r;
45 y8=0.2[y7,y3];
46
47 if do_alteration:
48   replace_strokep(0)(oldp{dir 210}..z6..z7{right}..z8);
49   replace_strokep(0)(insert_nodes(oldp)(length(oldp)-2.5));
50   replace_strokeq(0)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
51   set_boserif(0,1,2);
52   set_botip(0,length(get_strokep(0))-4,1);
53 else:
54   replace_strokep(-1)(oldp{dir 210}..z6..z7{right}..z8);
55   replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
56   replace_strokeq(-1)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
57   set_boserif(-1,1,2);
58   set_botip(-1,length(get_strokep(0))-4,1);
59 fi;
60 expand_pbox;
61 enddef;

```



```

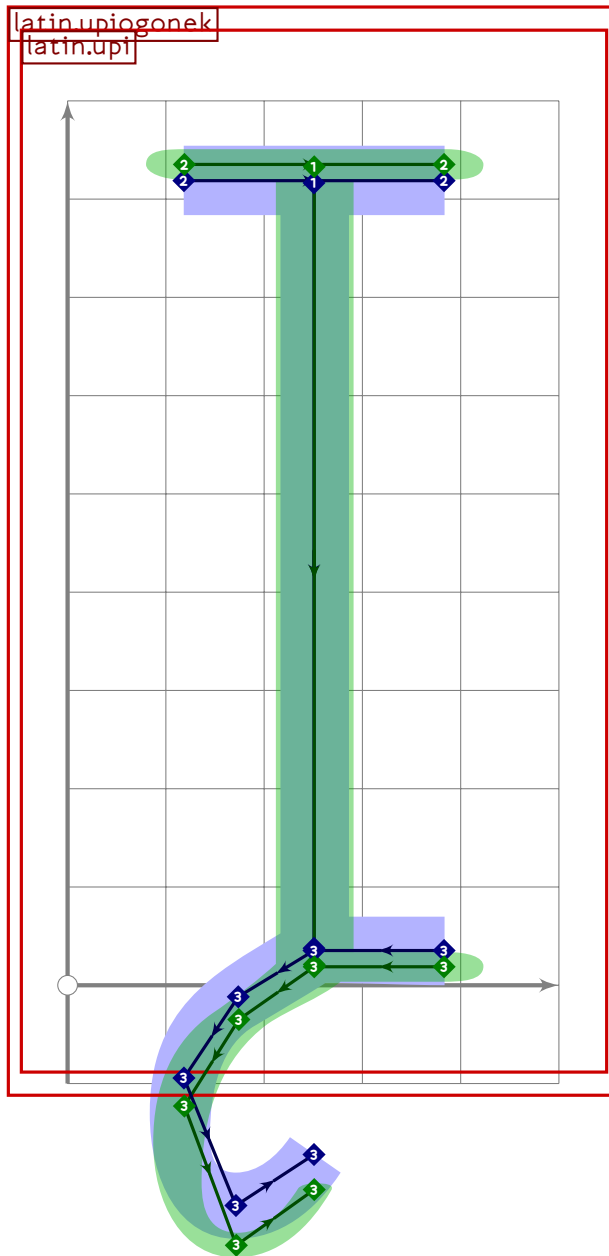
62
63 vardef latin.upeogonek =
64   push_pbox_toexpand("latin.upeogonek");
65   latin.upe;
66
67   x7=0.5[x3,x4];
68   x8=0.4[x7,x9];
69   x9=x4;
70
71   y7=0.5[y8,y4];
72   y8=latin_wide_desc_r;
73   y9=0.2[y8,y4];
74
75   replace_strokep(-1)(oldp{dir 210}.z7..z8{right}.z9);

```

```

76 replace_stroke(-1)(insert_nodes(oldp)(length(oldp)-2.5));
77 replace_strokeq(-1)(oldq-(1,4,1,4)-(1,3,1,3)-(1,4,1,4)-(1,1));
78 set_botip(-1,length(get_strokep(-1))-4,0);
79 expand_pbox;
80 endif;

```



```

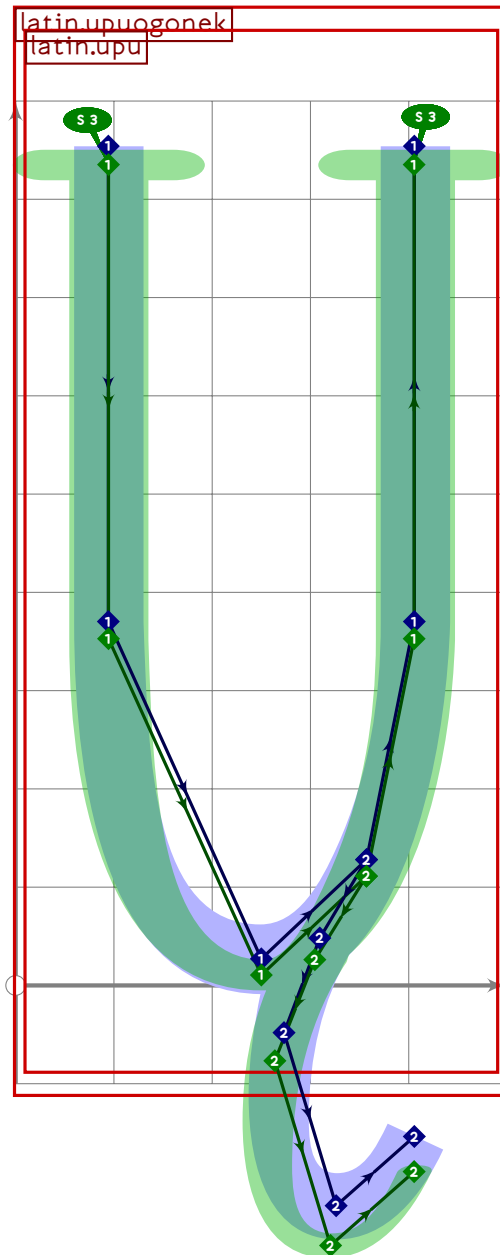
81
82 vardef latin.upiogonek =
83   push_pbox_toexpand("latin.upiogonek");
84   latin.upi;
85
86   x1=x4=500;
87   x2=300;
88   x3=0.4[x2,x4];
89

```

```

90 y1=latin_wide_low_h;
91 y2=0.5[y3,y1];
92 y3=latin_wide_desc_r;
93 y4=0.2[y3,y1];
94
95 replace_strokep(0)((700,latin_wide_low_h)-z1{dir 210}..z2..z3{right}..z4);
96 replace_strokep(0)(insert_nodes(oldp)(1.5));
97 replace_strokeq(0)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-
98 (1.3,1.3)-(1.4,1.4)-(1,1));
99 expand_pbox;
100 enddef;

```



```

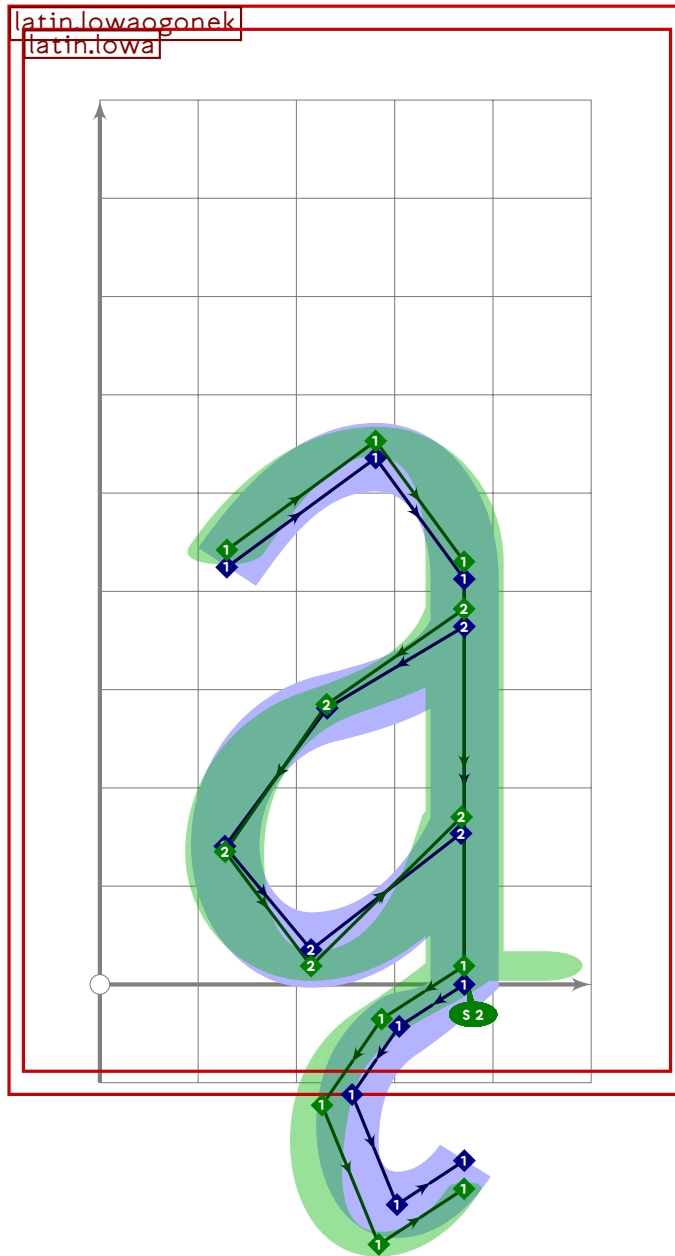
101
102 vardef latin.upuogonek =
103   push_pbox_toexpand("latin.upuogonek");

```

```

104 latin.upu;
105
106 replace_strokep(0)(insert_nodes(oldp)(2.5));
107 replace_strokeq(0)(insert_nodes(oldq)(2.5));
108 set_boserif(0,5,3);
109 set_boserif(0,4,whatever);
110
111 z6=point 3 of get_strokep(0);
112
113 y7=0.5[y8,y6];
114 y8=latin_wide_desc_r;
115 y9=0.2[y8,y6];
116
117 x9-x7=(x4-x2)*((y6-y8)/(y1-y3));
118 x8=0.4[x7,x9];
119 x9=x4;
120
121 push_stroke(z6{direction 3 of get_strokep(0)}..z7..z8{right}..z9,
122 (1,1,1)-(1,4,1,4)-(1,3,1,3)-(1,4,1,4)-(1,1));
123 replace_strokep(0,insert_nodes(oldp)(length(oldp)-2.5));
124 expand_pbox;
125 endif;

```



```

126
127 vardef latin.lowaogonek =
128   push_pbox_toexpand("latin.lowaogonek");
129   latin.lowa;
130
131   y9=0.5[y10,y4];
132   y10=latin_wide_desc_r;
133   y11=0.2[y10,y4];
134
135   x11-x9=(x4-x1)*((y4-y10)/(y2-y4));
136   x10=0.4[x9,x11];
137   x11=x4;
138
139   replace_strokep(-1)(oldp{dir 210}..z9..z10{right}..z11);

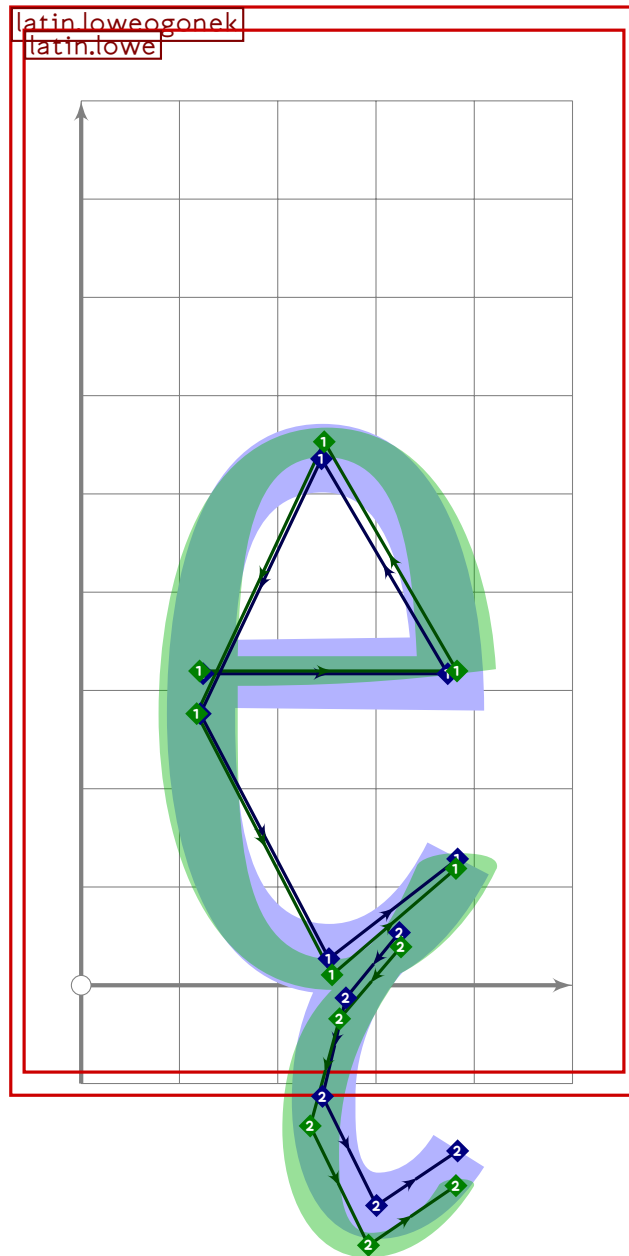
```



```

140 replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
141 replace_strokeq(-1)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
142 set_botip(0,length(get_strokep(-1))-4,1);
143 expand_pbox;
144 endif;

```



```

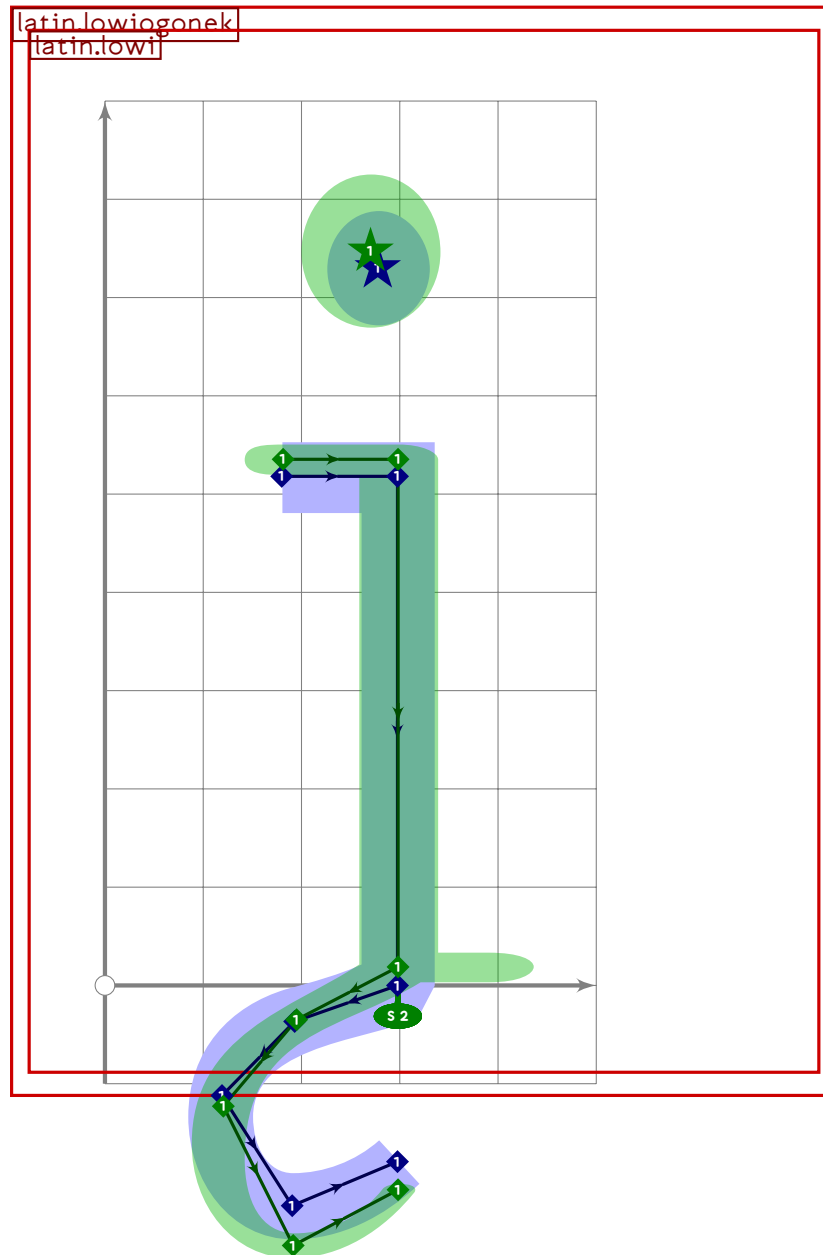
145
146 vardef latin.loveogonek =
147   push_pbox_toexpand("latin.loveogonek");
148   latin.love;
149
150   z7=point 4.5 of get_strokep(0);
151
152   y8=0.4[y9,y7];
153   y9=latin_wide_desc_r;

```

```

154 y10=0.2[y9,y7];
155
156 x10-x8=(x2-x4)*((y7-y9)/(y3-y5));
157 x9=0.4[x8,x10];
158 x10=x6;
159
160 push_stroke(z7{direction 4.5 of get_strokep(0)}.z8..z9{right}.z10,
161   (1,1,1)-(1,4,1)-(1,3,1)-(1,4,1)-(1,1));
162 replace_strokep(0,insert_nodes(oldp)(length(oldp)-2.5));
163 expand_pbox;
164 enddef;

```

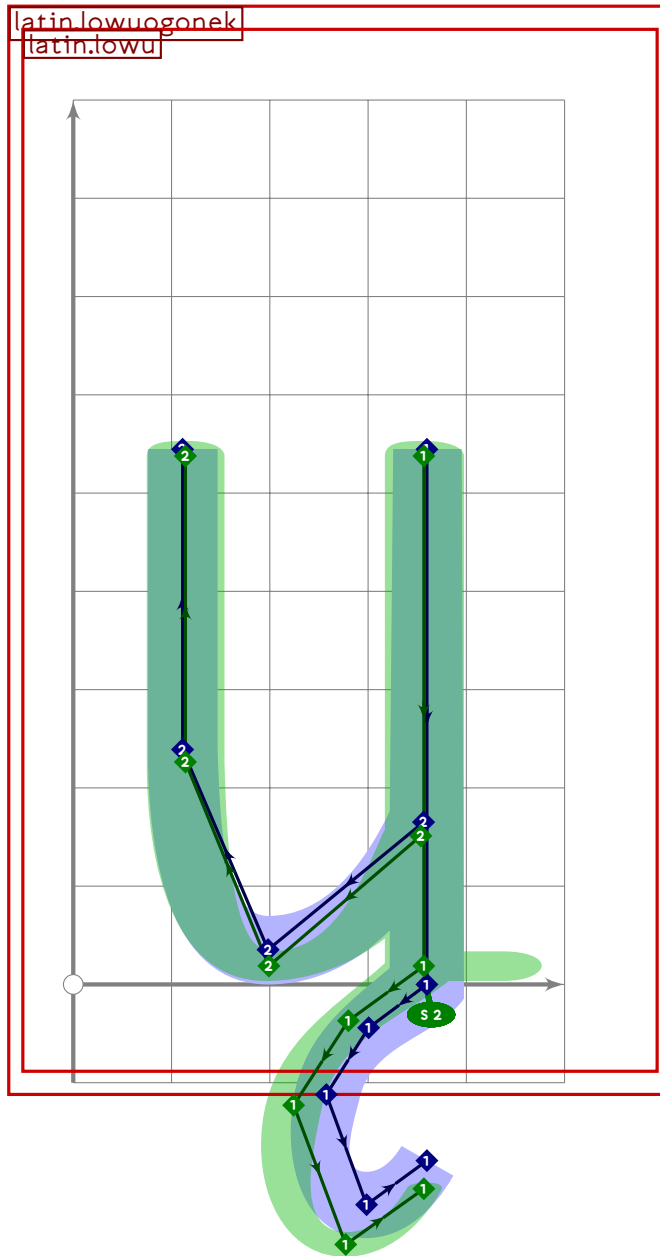


```

165
166 vardef latin.lowiogonek =
167   push_pbox_toexpand("latin.lowiogonek");

```

```
168 latin.lowi;
169
170 x5=x7-200;
171 x6=0.4[x5,x7];
172 x7=x3;
173
174 y5=0.5[y6,y3];
175 y6=latin_wide_desc_r;
176 y7=0.2[y6,y3];
177
178 replace_strokep(0)(oldp{dir 210}..z5..z6{right}..z7);
179 replace_strokep(0)(insert_nodes(oldp)(2.5));
180 replace_strokeq(0)(oldq-(1.4,1.4)-(1.3,1.3)-(1.4,1.4)-(1,1));
181 set_boserif(0,2,2);
182 set_botip(0,2,1);
183 expand_pbox;
184 endif;
```



```

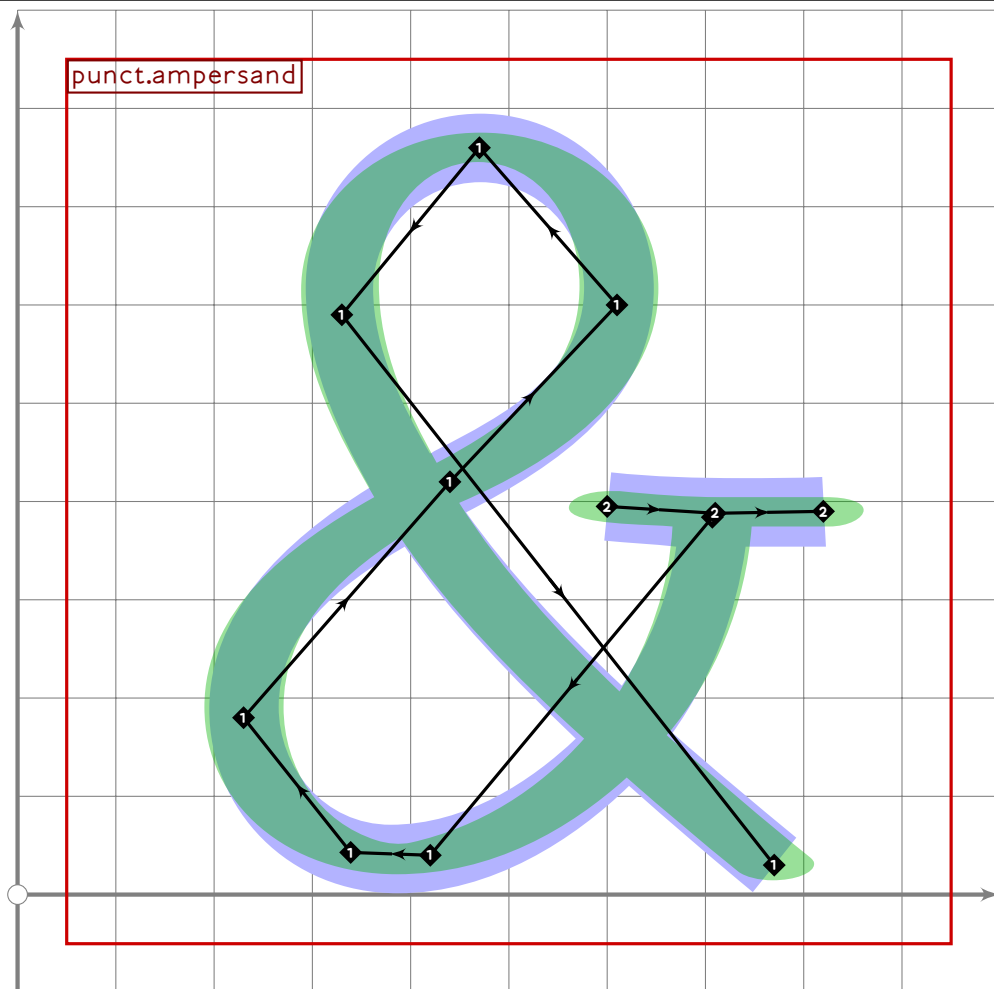
185
186 vardef latin.lowuogonek =
187   push_pbox_toexpand("latin.lowuogonek");
188   latin.lowu;
189
190   y7=0.5[y8,y1];
191   y8=latin_wide_desc_r;
192   y9=0.2[y8,y1];
193
194   x9-x7=(x1-x6)*((y1-y8)/(y2-y1));
195   x8=0.4[x7,x9];
196   x9=x1;
197
198   replace_strokep(-1)(z2-z1{dir 210}..z7..z8{right}..z9);

```

```
199 replace_strokep(-1)(insert_nodes(oldp)(length(oldp)-2.5));
200 replace_strokeq(-1)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.3,1.3)-
201   (1.4,1.4)-(1,1));
202 set_botip(-1,1,1);
203 set_boserif(-1,0,whatever);
204 set_boserif(-1,1,2);
205 expand_pbox;
206 endif;
```

# punct.mp

```
1 %  
2 % Punctuation for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(punct);  
32  
33
```

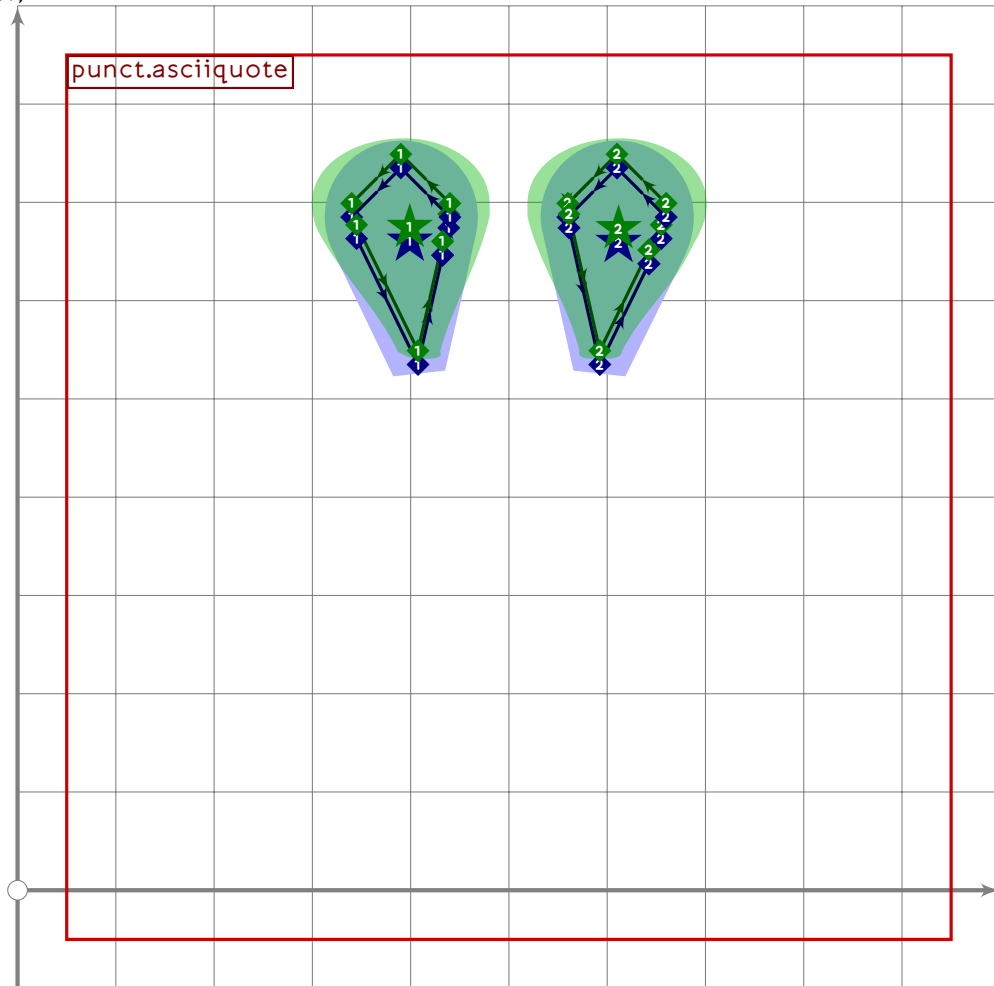


```
34  
35 vardef punct.ampersand =  
36   push_pbox_toexpand("punct.ampersand");  
37  
38   push_stroke((707,384)..tension 1.3..(420,40)..(230,180)..(440,420)..  
39     (610,600)..(470,760)..(330,590)..tension 1.5 and 4..(770,30),  
40     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-  
41     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));  
42   replace_strokep(0)(insert_nodes(oldp)(1.3));  
43
```

```

44 push_stroke((600,395)..(710,388)..(820,390),
45   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
46 expand_pbox;
47 enddef;

```



```

48
49 vardef punct.asciiquote =
50   push_pbox_toexpand("punct.asciiquote");
51
52   numeric dx;
53   dx=tsu_punct_size;
54
55   (x1+x2)/2=(x3+x4)/2=500;
56   x2-x1=1.2*dx+tsu_punct_size;
57   x4-x3=tsu_punct_size*1.85;
58
59   y1=y2=latin_wide_high_r-dx/2;
60   y3=y4=y1-1.5*dx;
61
62   path ptmp;
63   ptmp:=(down..right..up..left..cycle)
64     scaled (abs(z3-z1)++(dx/2));

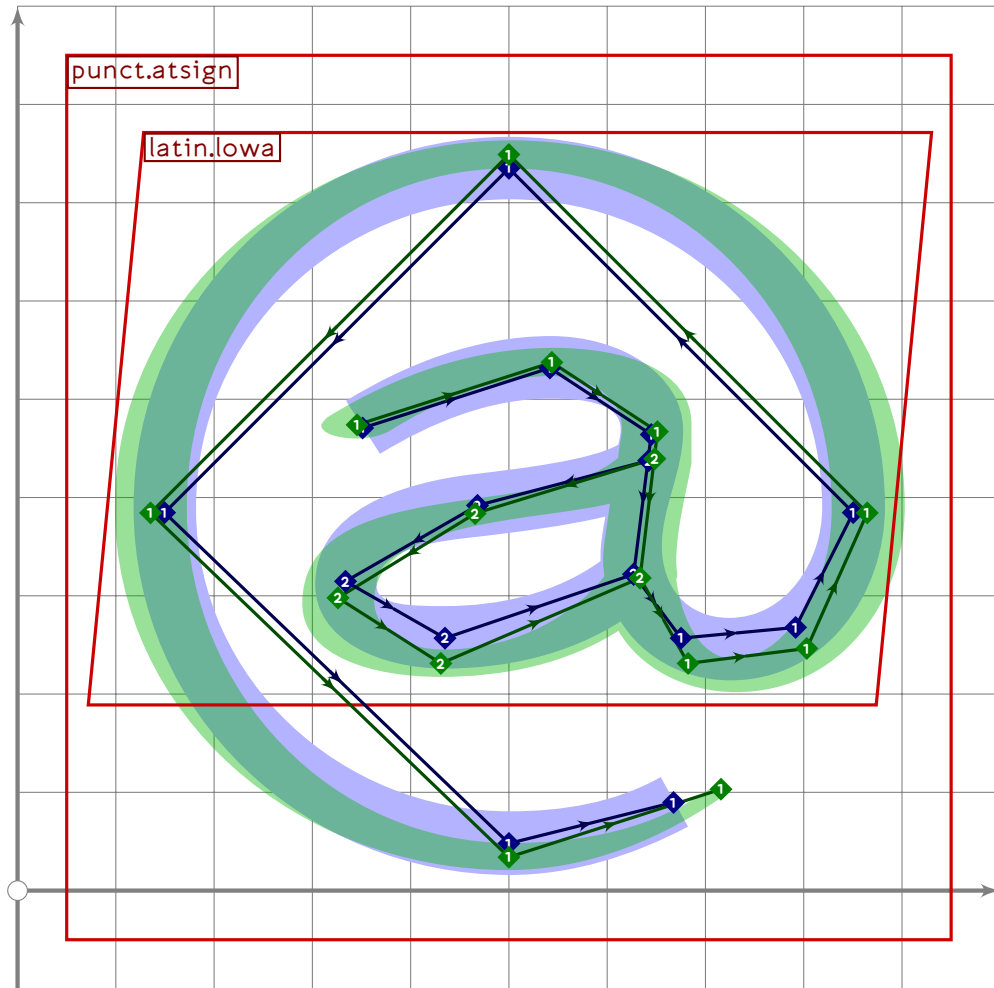
```

```

65
66 push_stroke((down..right..up..left..cycle) scaled (dx/2) shifted z1,
67   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(1.3,1.3)-cycle);
68 replace_stroke(0)(z3-(subpath ((xpart (oldp intersectiontimes
69   (ptmp shifted z3))),4-xpart ((reverse oldp) intersectiontimes
70   (ptmp shifted z3)))) of oldp)-cycle);
71 replace_stroke(0)((subpath (0.8,6) of oldp)-cycle);
72 set_bosize(0,75);
73 set_botip(0,6,0);;
74
75 push_stroke((down..right..up..left..cycle) scaled (dx/2) shifted z2,
76   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(1.3,1.3)-cycle);
77 replace_stroke(0)(z4-(subpath ((xpart (oldp intersectiontimes
78   (ptmp shifted z4))),4-xpart ((reverse oldp) intersectiontimes
79   (ptmp shifted z4)))) of oldp)-cycle);
80 replace_stroke(0)((subpath (0.8,6) of oldp)-cycle);
81 set_bosize(0,75);
82 set_botip(0,6,0);;
83
84 if tsu_pbrush_size>=30:
85   push_lcblob(get_strokep(-1));
86   push_lcblob(get_strokep(0));
87 fi;
88 expand_pbox;
89 enddef;

```





```

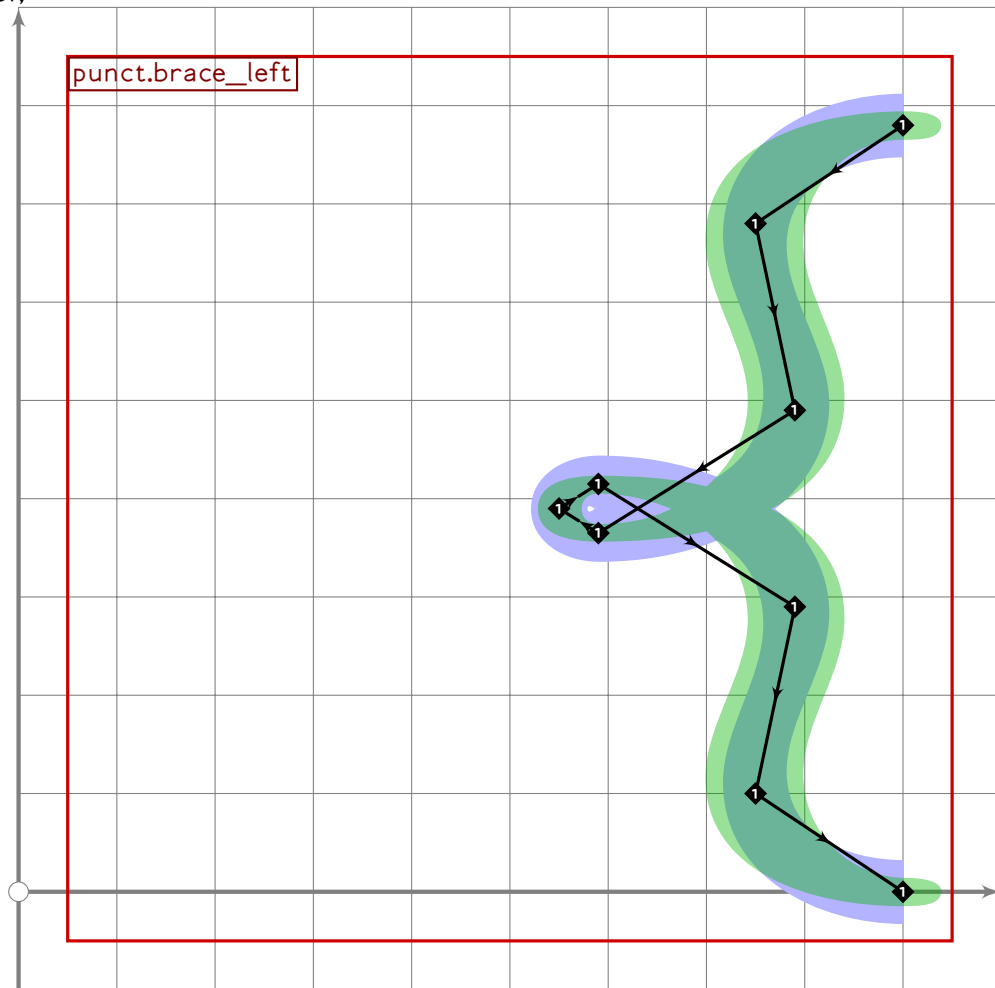
90
91 vardef punct.atsign =
92   push_pbox_toexpand("punct.atsign");
93   begingroup
94     save xsp,ysp;
95     xsp:=sp;
96     latin.lowa;
97     set_boserif(-1,3,whatever);
98     ysp:=sp;
99
100    numeric x[],y[];
101    x1-x2=x2-x3=y2-y1;
102    x2=x4=500;
103    y1=y3=0.49[y4,y2];
104    y2=latin_wide_high_r;
105    y4=latin_wide_low_r;
106
107    transform shrinka;
108    (0.5[lcorner get_stroke(-1),urcorner get_stroke(-1)])
109     transformed shrinka=0.5[z3,z1];
110    (0.5[lrcorner get_stroke(-1),urcorner get_stroke(-1)])

```

```

111   transformed shrinka=0.71[z3,z1];
112   (0.5[ulcorner get_strokep(-1),urcorner get_strokep(-1)])
113   transformed shrinka=z2+(0.07;-1)*0.29*(x1-x3);
114   sp:=xsp;
115   tsu_xform(shrinka shifted (-10,0))(sp:=ysp);
116
117   z5=point infinity of get_strokep(0);
118   y6=ypart lrcorner get_strokep(0);
119   x6=0.5[x2,x1];
120   replace_strokep(-1)((subpath (0,length(oldp)-1) of oldp)..z5..z6..
121     (subpath (0,3.85) of (z1..z2..z3..z4..cycle)));
122   replace_strokep(-1)(insert_nodes(oldp)((length oldp-4.5)));
123   replace_strokeq(-1)(oldq-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
124     (1.6,1.6)-(1.6,1.6)-(0,0));
125   endgroup;
126   expand_pbox;
127   enddef;

```



```

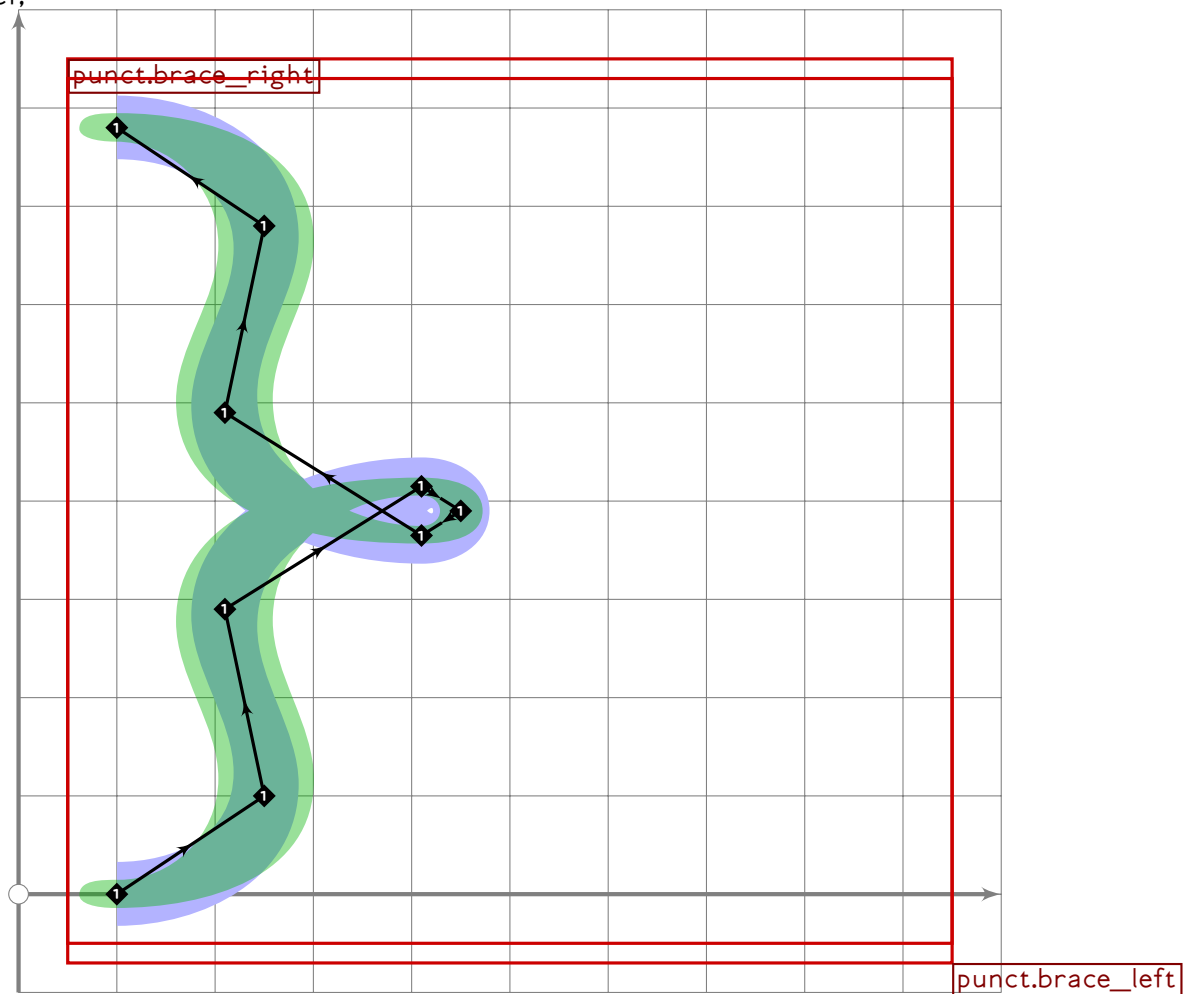
128
129 vardef punct.brace_left =
130   push_pbox_toexpand("punct.brace_left");
131   push_stroke((900,780){left}..

```

```

132 (900-1.5*tsu_punct_size,680)..
133 (900-1.1*tsu_punct_size,490)..
134 (900-3.1*tsu_punct_size,390-0.25*tsu_punct_size){left}..
135 (900-3.5*tsu_punct_size,390)..
136 (900-3.1*tsu_punct_size,390+0.25*tsu_punct_size){right}..
137 (900-1.1*tsu_punct_size,290)..
138 (900-1.5*tsu_punct_size,100)..
139 (900,0){right},
140 (1.7,1.7)-(2,2)-(2,2)-
141 (1.2,1.2)-(1.2,1.2)-(1.2,1.2)-
142 (2,2)-(2,2)-(1.7,1.7));
143 set_bosize(0,90);
144 expand_pbox;
145 enddef;

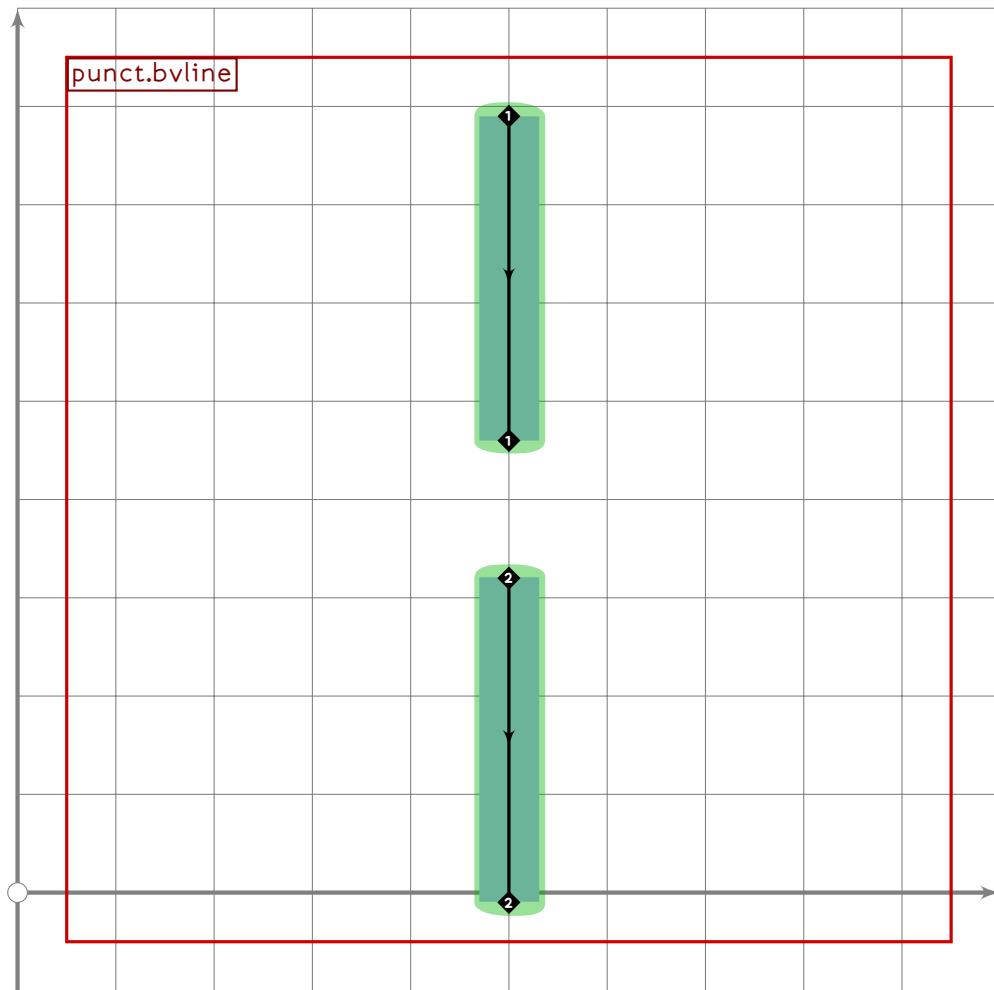
```



```

146 vardef punct.brace_right =
147   push_pbox_toexpand("punct.brace_right");
148   tsu_xform(identity rotatedaround (centre_pt,180))
149   (punct.brace_left);
150   expand_pbox;
151 enddef;

```



```

152
153 vardef punct.bvline =
154   push_pbox_toexpand("punct.bvline");
155
156   push_stroke((500,690+tsu_punct_size)-(500,390+0.7*tsu_punct_size),
157     (1.6,1.6)-(1.6,1.6));
158   set_bsize(0,90);
159
160   push_stroke((500,390-0.7*tsu_punct_size)-(500,90-tsu_punct_size),
161     (1.6,1.6)-(1.6,1.6));
162   set_bsize(0,90);
163   expand_pbox;
164 enddef;
165
166 vardef punct.make_comma(expr cpos,cang) =
167   begingroup
168     save x,y,t,u,xsp;
169     numeric x[],y[];
170     transform t,u;
171     xsp:=sp;
172     sp:=1;

```

```

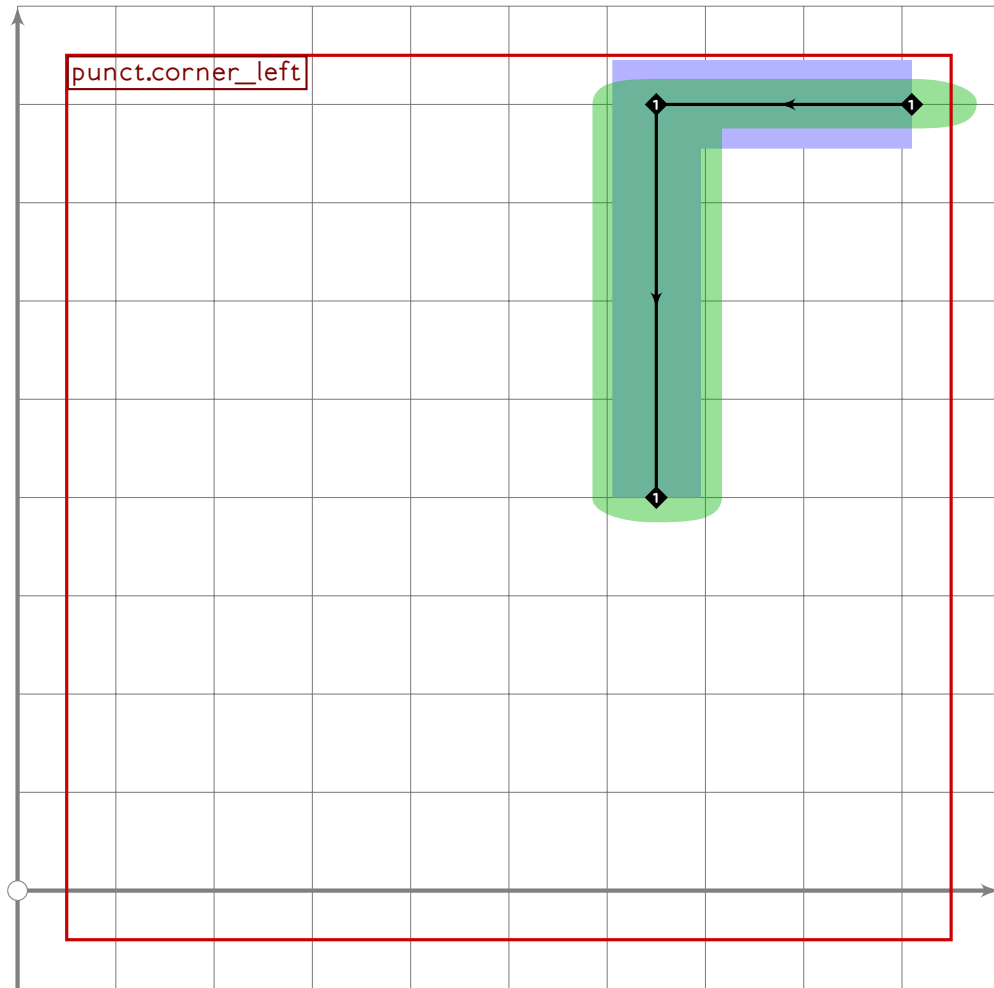
173 t:=tsu_rescale_xform;
174 sp:=xsp;
175
176 x1=0.8[x2,x4];
177 (x2+x4)/2=x3=0;
178 (x2-x4)=0.45*(y3-y1)=tsu_punct_size;
179 x5=x3;
180
181 y2=y4=0.32[y3,y1]=0;
182 y5-y4=0.73*(y4-y3);
183
184 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
185 z5..{curl 0.2}(point 0.8 of (z1{curl 0.2}..tension 1.2..
186 z2..z3..z4{dir 280})),
187 (2,2)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
188 replace_strokep(0)((point 4.2 of oldp)-oldp);
189 (0,0) transformed u=llcorner get_strokep(0);
190 (1,0) transformed u=lrcorner get_strokep(0);
191 (0,1) transformed u=ulcorner get_strokep(0);
192 replace_strokep(0)(oldp rotated (cang-6) shifted (cpos transformed t)
193 transformed inverse t);
194 u:=u scaled 1.3 rotated (cang-6) shifted (cpo transformed t)
195 transformed inverse t;
196 set_botip(0,1,0);
197
198 if tsu_pbrush_size>=30:
199 replace_strokep(0)(subpath (0.03,5.75) of oldp);
200 set_bosize(0,40);
201 push_lcblob((subpath (1.6,4.9) of get_strokep(0))-cycle);
202 else:
203 replace_strokep(0)(subpath (0,5.2) of oldp);
204 set_bosize(0,80);
205 fi;
206 push_pbox_explicit("punct.make_comma",u);
207 endgroup;
208 endif;
209
210 vardef punct.make_revcomma(expr cpos,cang) =
211 begingroup
212 save x,y,t,u,xsp;
213 numeric x[],y[];
214 transform t,u;
215 xsp:=sp;
216 sp:=1;
217 t:=tsu_rescale_xform;
218 sp:=xsp;
219
220 x1=0.8[x2,x4];

```

```

221 (x2+x4)/2=x3=0;
222 (x2-x4)=0.45*(y3-y1)=tsu_punct_size;
223 x5=x3;
224
225 y2=y4=0.32[y3,y1]=0;
226 y5-y4=0.73*(y4-y3);
227
228 push_stroke(z1{curl 0.2}..tension 1.2..z2..z3..z4{dir 280}..
229     z5..{curl 0.2}(point 0.8 of (z1{curl 0.2}..tension 1.2..
230     z2..z3..z4{dir 280})),
231     (2,2)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
232 replace_strokep(0)((point 4.2 of oldp)-oldp);
233 (0,0) transformed u=llcorner get_strokep(0);
234 (1,0) transformed u=lrcorner get_strokep(0);
235 (0,1) transformed u=ulcorner get_strokep(0);
236 replace_strokep(0)(reverse (oldp rotated -6 reflectedabout(up,down)));
237 replace_strokep(0)(oldp rotated (cang-6) shifted (cpos transformed t)
238     transformed inverse t);
239 u:=u scaled 1.3 rotated (cang-6) shifted (cpo transformed t)
240     transformed inverse t;
241 set_botip(0,1,0);
242
243 if tsu_pbrush_size>=30:
244     replace_strokep(0)(subpath (0.25,5.97) of oldp);
245     set_bosize(0,40);
246     push_lcblob((subpath (1.1,4.4) of get_strokep(0))-cycle);
247 else:
248     replace_strokep(0)(subpath (0.8,6) of oldp);
249     set_bosize(0,80);
250 fi;
251 push_pbox_explicit("punct.make_revcomma",u);
252 endgroup;
253 enddef;

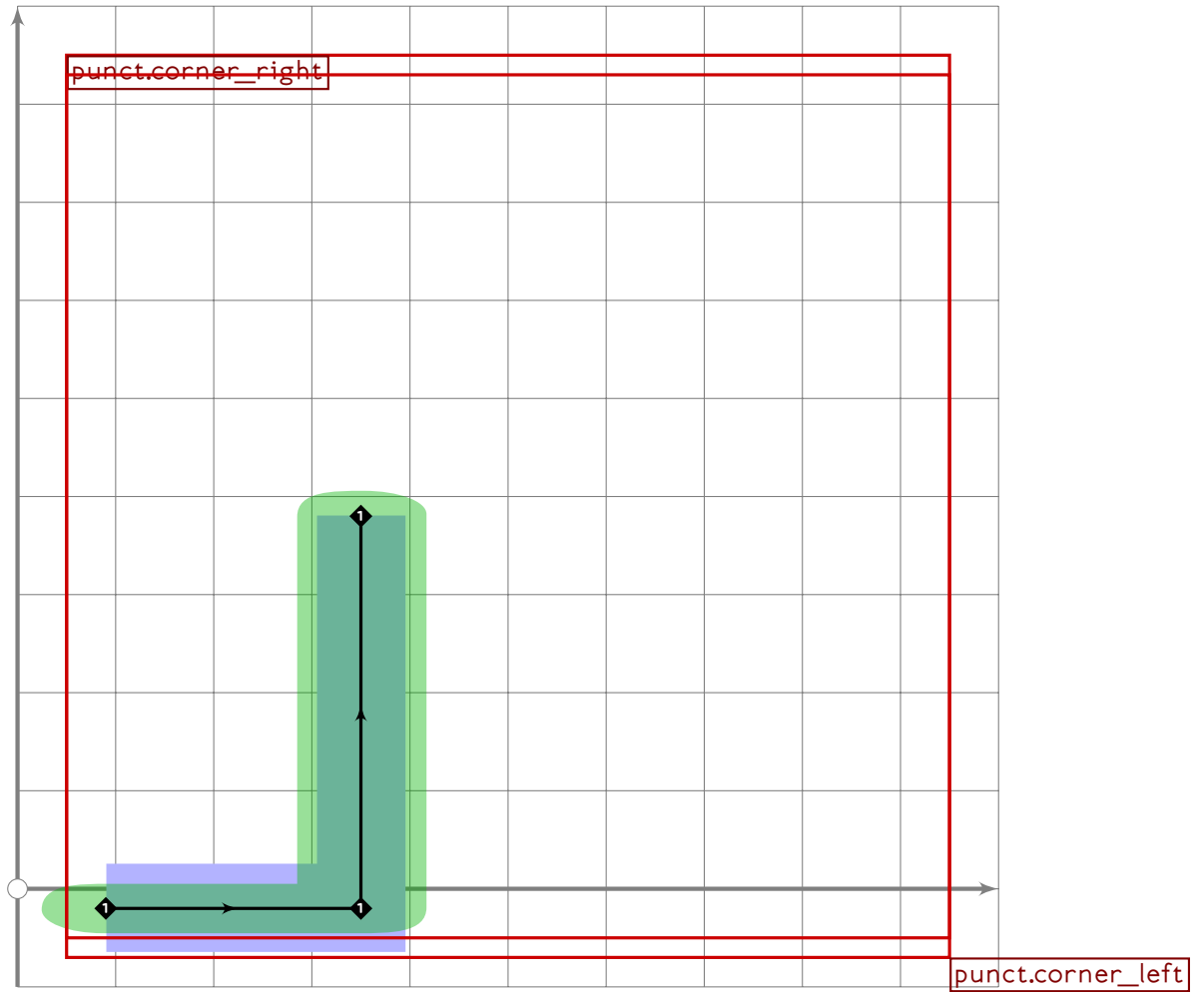
```



```

254
255 vardef punct.corner_left =
256   push_pbox_toexpand("punct.corner_left");
257   push_stroke((910,800)-(650,800)-(650,400),(2,2)-(2,2)-(2,2));
258   set_bosize(0,120);
259   set_botip(0,1,1);
260   expand_pbox;
261 enddef;

```

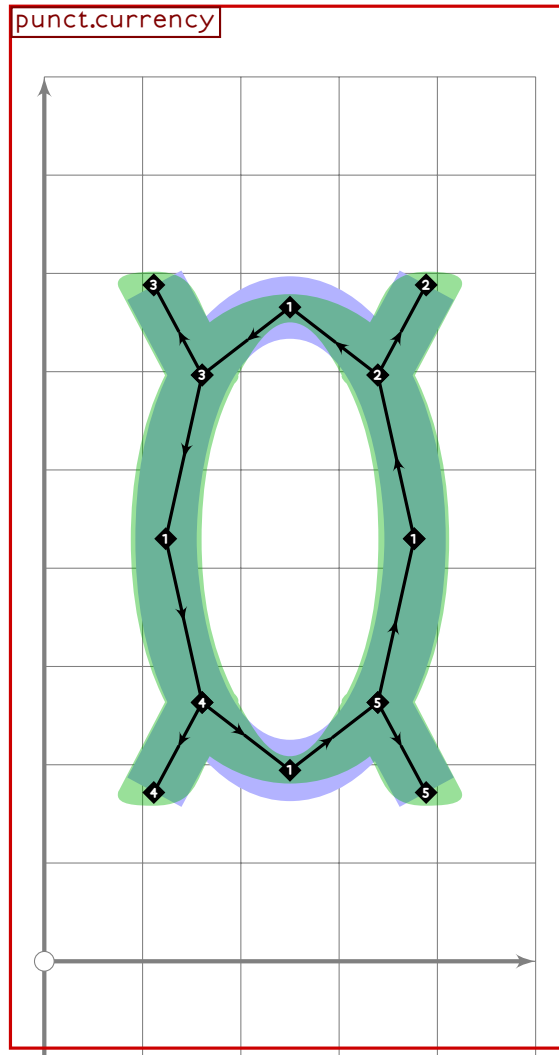


```

262 vardef punct.corner_right =
263   push_pbox_toexpand("punct.corner_right");
264   tsu_xform(identity rotatedaround (centre_pt,180))
265     (punct.corner_left);
266   expand_pbox;
267 enddef;

```





```

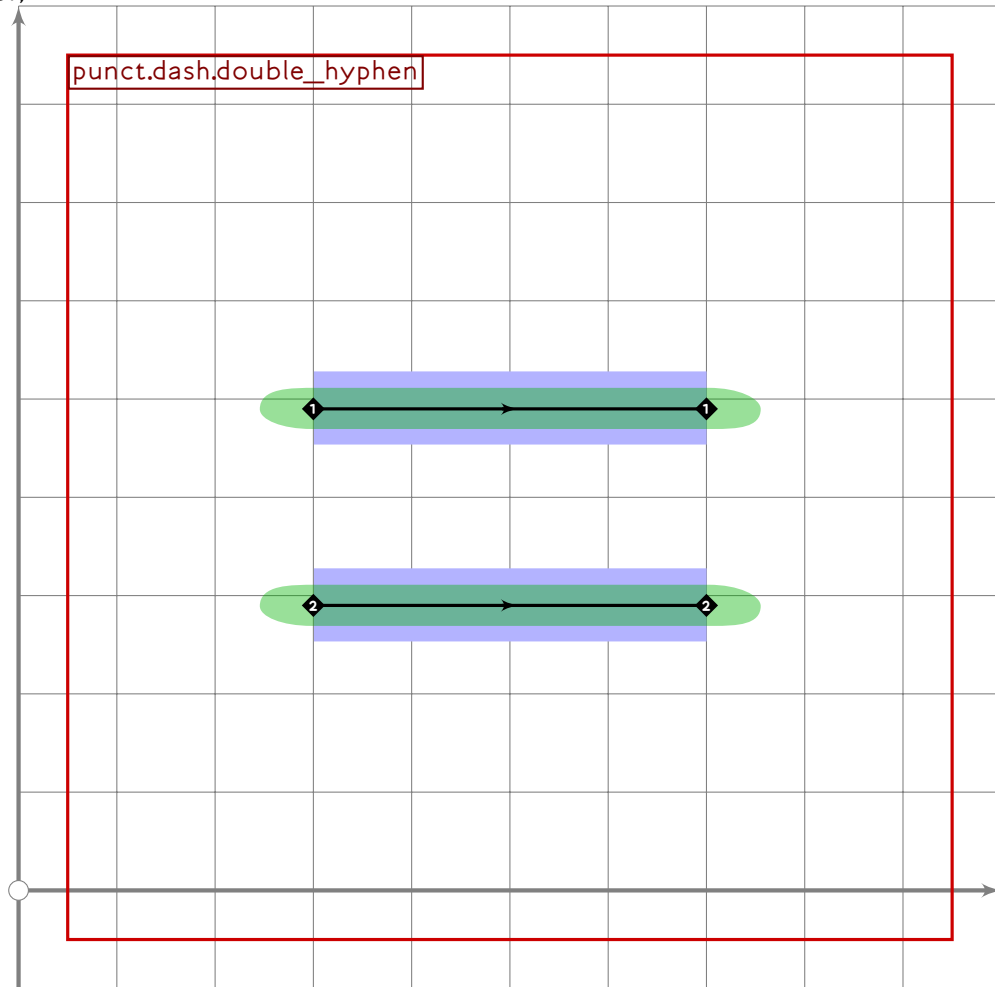
268
269 vardef punct.currency =
270   push_pbox_toexpand("punct.currency");
271
272   push_stroke(fullcircle scaled (4*tsu_punct_size) shifted centre_pt,
273     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
274   set_bosize(0,90);
275
276   push_stroke(((1,0)-(1.55,0)) rotated 45
277     scaled (2*tsu_punct_size) shifted centre_pt,
278     (1.6,1.6)-(1.6,1.6));
279   set_bosize(0,90);
280
281   push_stroke(((1,0)-(1.55,0)) rotated 135
282     scaled (2*tsu_punct_size) shifted centre_pt,
283     (1.6,1.6)-(1.6,1.6));
284   set_bosize(0,90);
285
286   push_stroke(((1,0)-(1.55,0)) rotated 225

```

```

287     scaled (2*tsu_punct_size) shifted centre_pt,
288     (1.6,1.6)-(1.6,1.6));
289     set_bosize(0,90);
290
291     push_stroke(((1,0)-(1.55,0)) rotated 315
292     scaled (2*tsu_punct_size) shifted centre_pt,
293     (1.6,1.6)-(1.6,1.6));
294     set_bosize(0,90);
295     expand_pbox;
296 enddef;

```



```

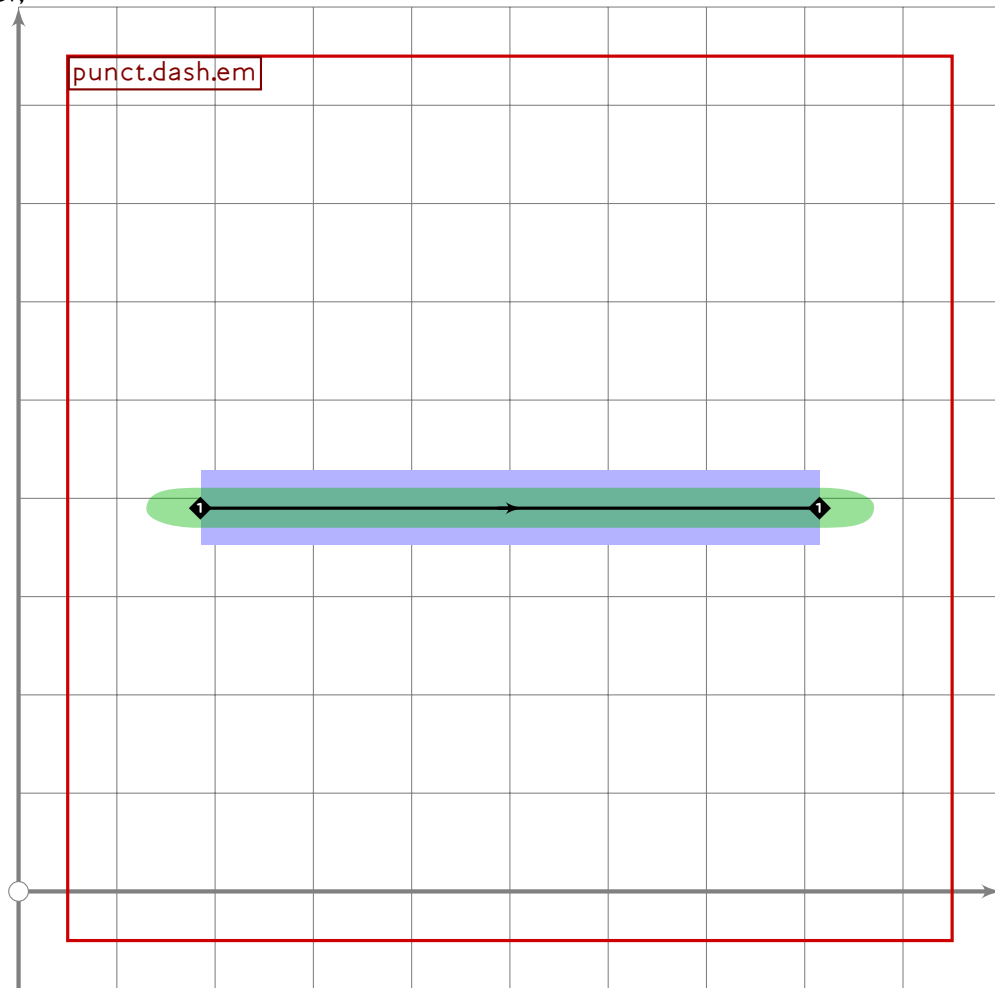
297
298 vardef punct.dash.double_hyphen =
299     push_pbox_toexpand("punct.dash.double_hyphen");
300
301     (z1+z4)/2=centre_pt;
302     x2-x1=400;
303     y1-y3=200;
304     y1=y2;
305     y3=y4;
306     x1=x3;
307     x2=x4;

```

```

308
309 push_stroke(z1-z2,(2,2)-(2,2));
310 push_stroke(z3-z4,(2,2)-(2,2));
311 expand_pbox;
312 enddef;

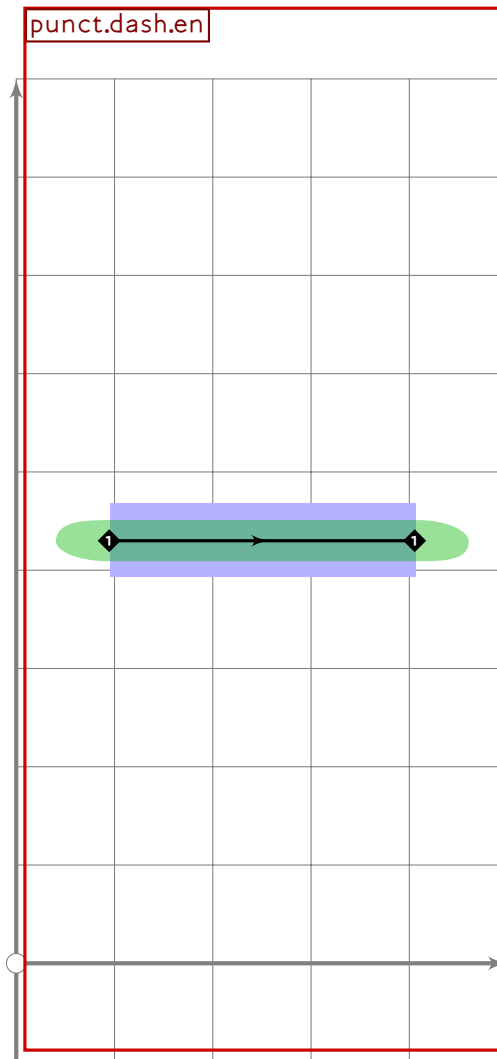
```



```

313
314 vardef punct.dash.em =
315   push_pbox_toexpand("punct.dash.em");
316   (z1+z2)/2=centre_pt;
317   x2-x1=if is_proportional: 750 else: 630 fi;
318   y1=y2;
319   push_stroke(z1-z2,(2,2)-(2,2));
320   expand_pbox;
321 enddef;

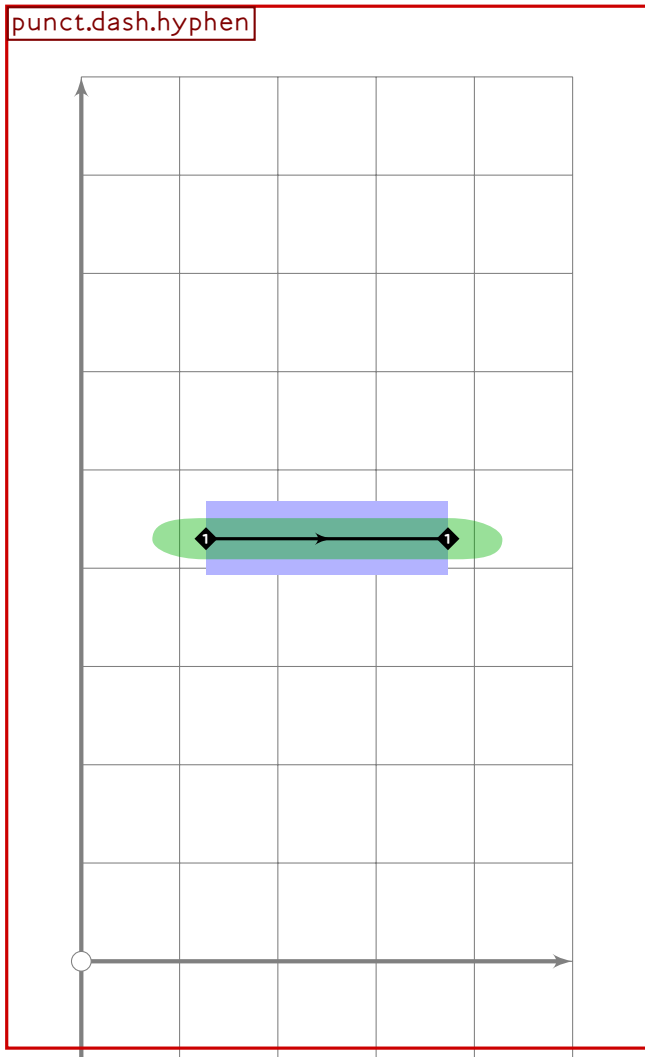
```



```

322
323 vardef punct.dash.en =
324   push_pbox_toexpand("punct.dash.en");
325   (z1+z2)/2=centre_pt;
326   x2-x1=580;
327   y1=y2;
328   push_stroke(z1-z2,(2,2)-(2,2));
329   expand_pbox;
330 enddef;

```



```

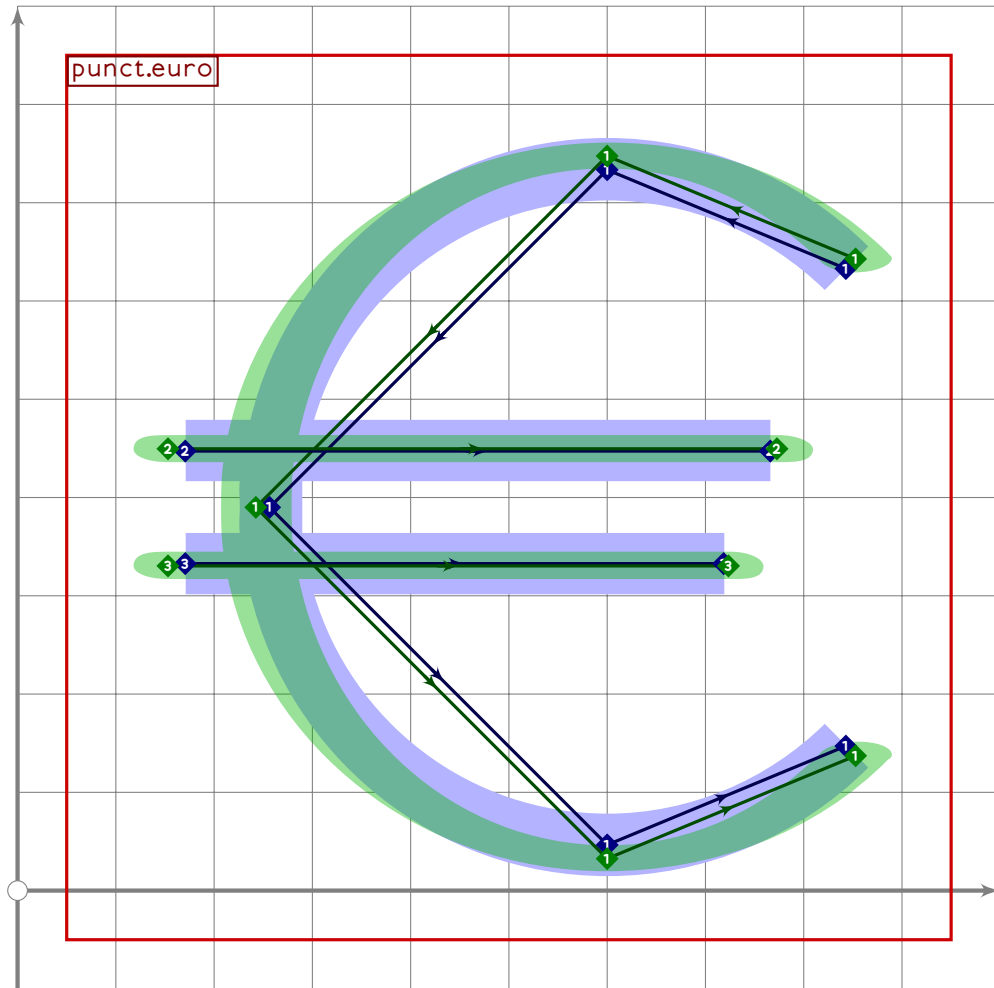
331
332 vardef punct.dash.hyphen =
333   push_pbox_toexpand("punct.dash.hyphen");
334   (z1+z2)/2=centre_pt;
335   x2-x1=340;
336   y1=y2;
337   push_stroke(z1-z2,(2,2)-(2,2));
338   expand_pbox;
339 enddef;
340
341 vardef punct.dash.long =
342   push_pbox_toexpand("punct.dash.long");
343   (z1+z2)/2=centre_pt;
344   x2-x1=340;
345   y1=y2;
346   push_stroke(z1-z2,(2,2)-(2,2));
347   expand_pbox;
348 enddef;
349

```

```

350 vardef punct.dividedby(expr t) =
351   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
352   set_bosize(0,90);
353
354   push_lcblob(fullcircle scaled (0.65*tsu_punct_size/xxpart t)
355     shifted (0,0.9) transformed t);
356   push_lcblob(fullcircle scaled (0.65*tsu_punct_size/xxpart t)
357     shifted (0,-0.9) transformed t);
358
359   push_pbox_explicit("punct.dividedby",
360     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
361 enddef;
362
363 vardef punct.equals(expr t) =
364   push_stroke(((1,0.667)-(1,0.667)) transformed t,(2,2)-(2,2));
365   set_bosize(0,90);
366
367   push_stroke(((1,-0.667)-(1,-0.667)) transformed t,(2,2)-(2,2));
368   set_bosize(0,90);
369
370   push_pbox_explicit("punct.equals",
371     identity shifted (-0.5,-0.5) xyscaled (2.4,1.8) transformed t);
372 enddef;

```



```

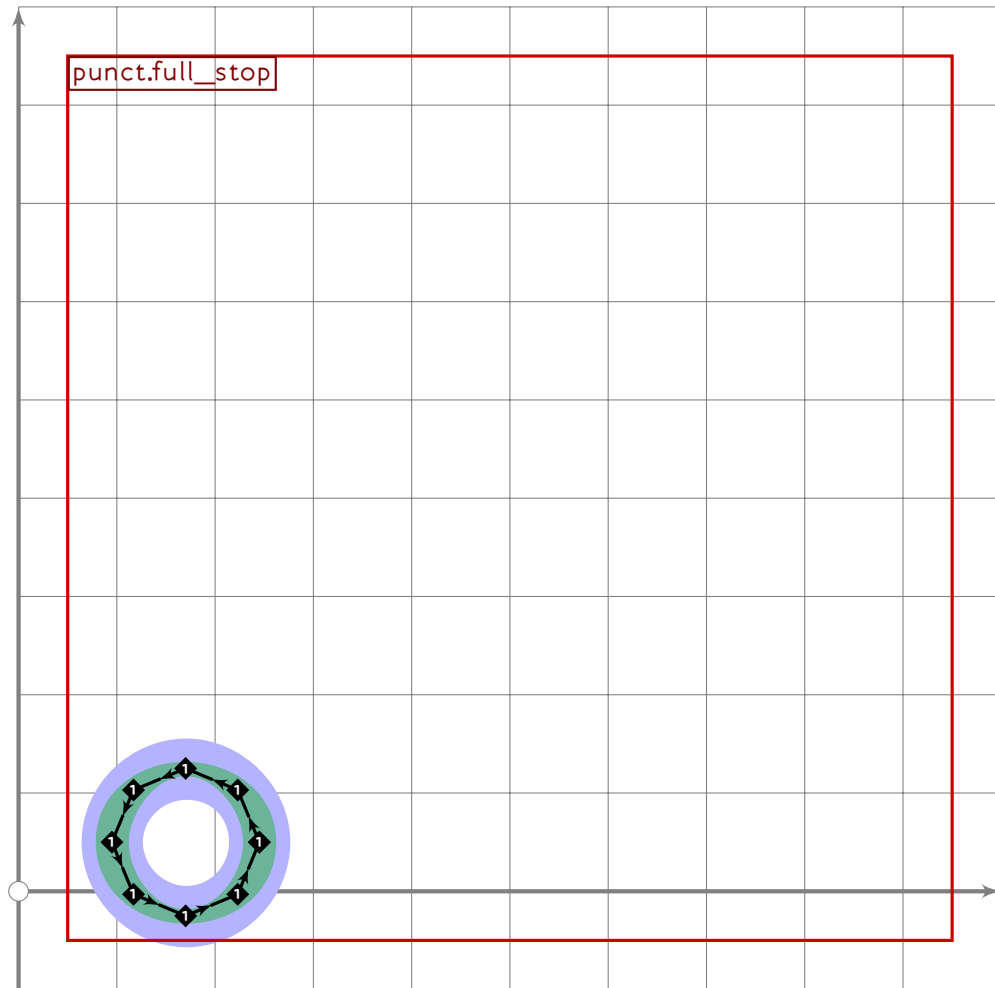
373
374 vardef punct.euro =
375   push_pbox_toexpand("punct.euro");
376
377   push_stroke((subpath (0.5,3.5) of ((1,0)..(0,1)..(-1,0)..(0,-1)..cycle))
378     scaled ((latin_width_high_r-latin_width_low_r)/2)
379     shifted (centre_pt+(100,0)),
380     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
381   set_bosize(0,90);
382
383   push_stroke(((1.25,0.1667)-
384     (((0,0.1667)-(1,0.1667)) intersectionpoint ((0.707,0.707)-(0,-1))))
385     scaled ((latin_width_high_r-latin_width_low_r)/2)
386     shifted (centre_pt+(100,0)),
387     (1.6,1.6)-(1.6,1.6));
388   set_bosize(0,90);
389
390   push_stroke(((1.25,-0.1667)-
391     (((0,-0.1667)-(1,-0.1667)) intersectionpoint ((0.707,0.707)-(0,-1))))
392     scaled ((latin_width_high_r-latin_width_low_r)/2)
393     shifted (centre_pt+(100,0)),

```

```

394 (1.6,1.6)-(1.6,1.6));
395 set_bosize(0,90);
396 expand_pbox;
397 endif;
398

```



```

399 % this is *ideographic* full stop, not Latin period
400 vardef punct.full_stop =
401   push_pbox_toexpand("punct.full_stop");
402
403   if tsu_pbrush_size>=tsu_punct_size:
404     push_lcblob(fullcircle
405       xscaled (1.5*tsu_punct_size+tsu_pbrush_size)
406       yscaled (1.5*tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
407       rotated tsu_pbrush_angle
408       shifted (170,50));
409   else:
410     push_stroke(fullcircle scaled (1.5*tsu_punct_size) shifted (170,50),
411       (1,1)-(1,1)-(1,1)-(1,1)-cycle);
412   fi;
413   expand_pbox;
414 endif;

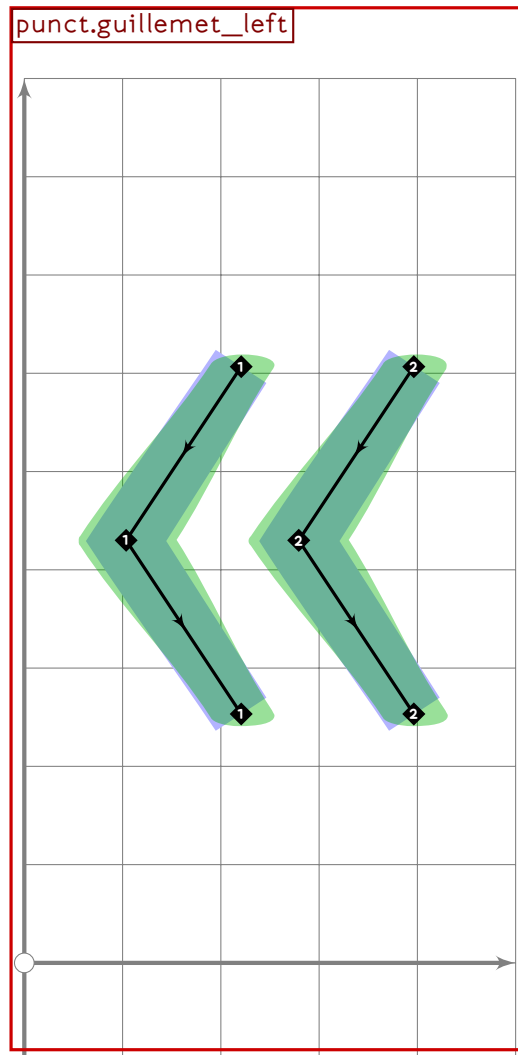
```



```

415
416 vardef punct.greater_than(expr t) =
417   push_stroke(((−1,1)−(1,0)−(−1,1)) transformed t,(2,2)−(2,2)−(2,2));
418   set_bosize(0,90);
419   set_botip(0,1,1);
420
421   push_pbox_explicit("punct.greater_than",
422     identity shifted (−0.5,−0.5) scaled 2.4 transformed t);
423 enddef;

```



```

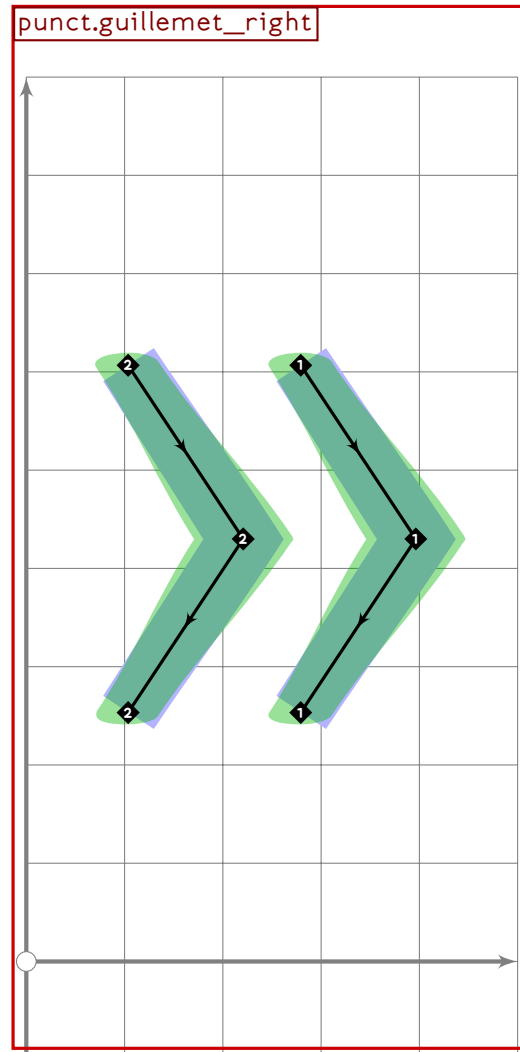
424
425 vardef punct.guillemet_left =
426   push_pbox_toexpand("punct.guillemet_left");
427
428   push_stroke(((−0.5,1.5)−(−2.5,0)−(−0.5,1.5))
429     scaled tsu_punct_size shifted centre_pt,
430     (1.5,1.5)−(2,2)−(1.5,1.5));
431   set_bosize(0,90);
432   set_botip(0,1,1);
433

```

```

434 push_stroke(((2.5,1.5)-(0.5,0)-(2.5,-1.5))
435     scaled tsu_punct_size shifted centre_pt,
436     (1.5,1.5)-(2,2)-(1.5,1.5));
437 set_bosize(0,90);
438 set_botip(0,1,1);
439 expand_pbox;
440 endif;

```



```

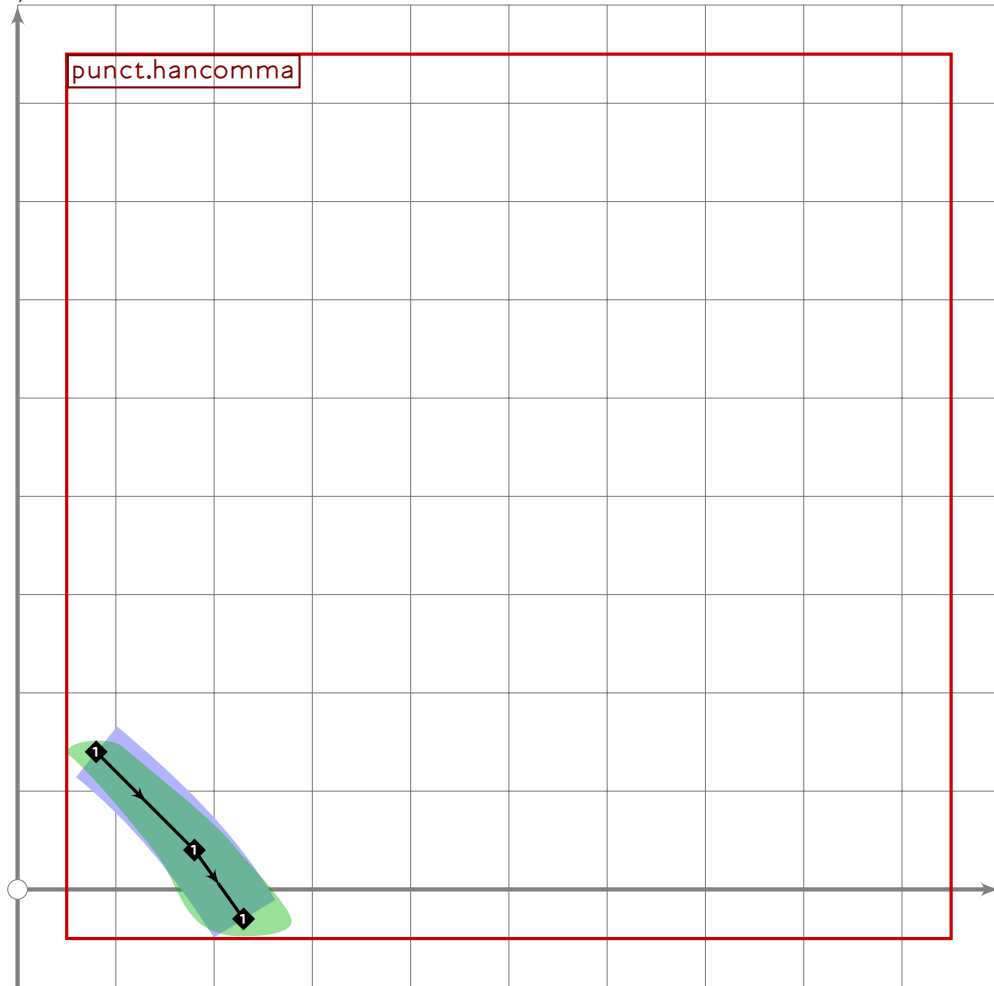
441
442 vardef punct.guillemet_right =
443   push_pbox_toexpand("punct.guillemet_right");
444
445   push_stroke(((0.5,1.5)-(2.5,0)-(0.5,-1.5))
446     scaled tsu_punct_size shifted centre_pt,
447     (1.5,1.5)-(2,2)-(1.5,1.5));
448   set_bosize(0,90);
449   set_botip(0,1,1);
450
451   push_stroke(((2.5,1.5)-(-0.5,0)-(-2.5,-1.5))
452     scaled tsu_punct_size shifted centre_pt,

```

```

453 (1.5,1.5)-(2,2)-(1.5,1.5));
454 set_bosize(0,90);
455 set_botip(0,1,1);
456 expand_pbox;
457 enddef;

```



```

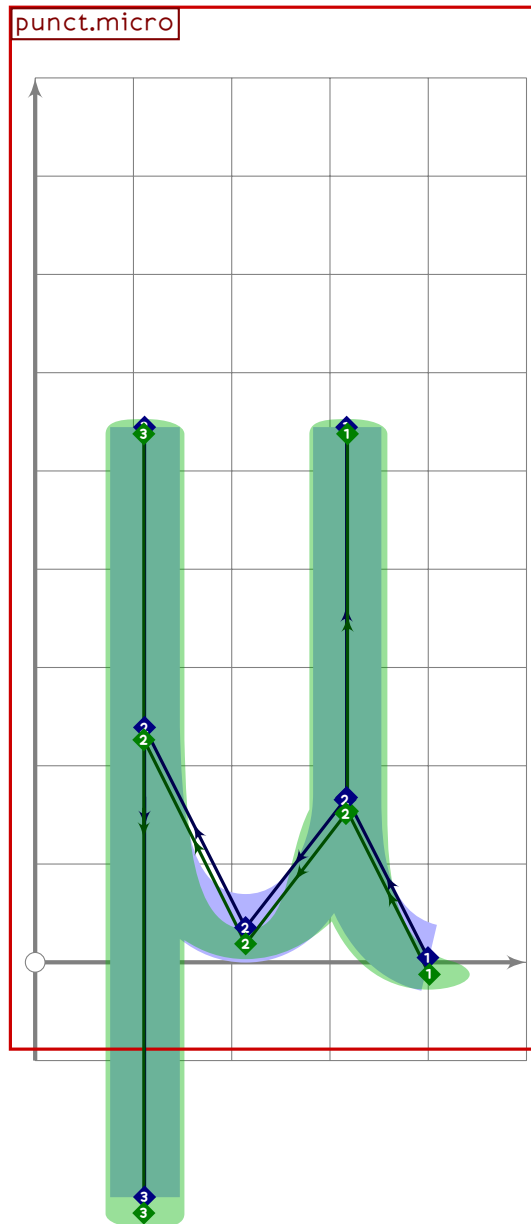
458
459 vardef punct.hancomma =
460   push_pbox_toexpand("punct.hancomma");
461   push_stroke((80,140)..(180,40)..(230,-30),(1,3,1,3)..(1,6,1,6)..(1,8,1,8));
462   expand_pbox;
463 enddef;
464
465 vardef punct.hminus(expr t) =
466   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
467
468   push_pbox_explicit("punct.hminus";
469     identity shifted (-0.5,-0.5) xyscaled (2.4,0.6) transformed t);
470 enddef;
471
472 vardef punct.less_than(expr t) =
473   push_stroke(((1,1)-(1,0)-(1,-1)) transformed t,(2,2)-(2,2)-(2,2));

```

```

474 set_bosize(0,90);
475 set_botip(0,1,1);
476
477 push_pbox_explicit("punct.less_than",
478   identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
479 enddef;
480

```



```

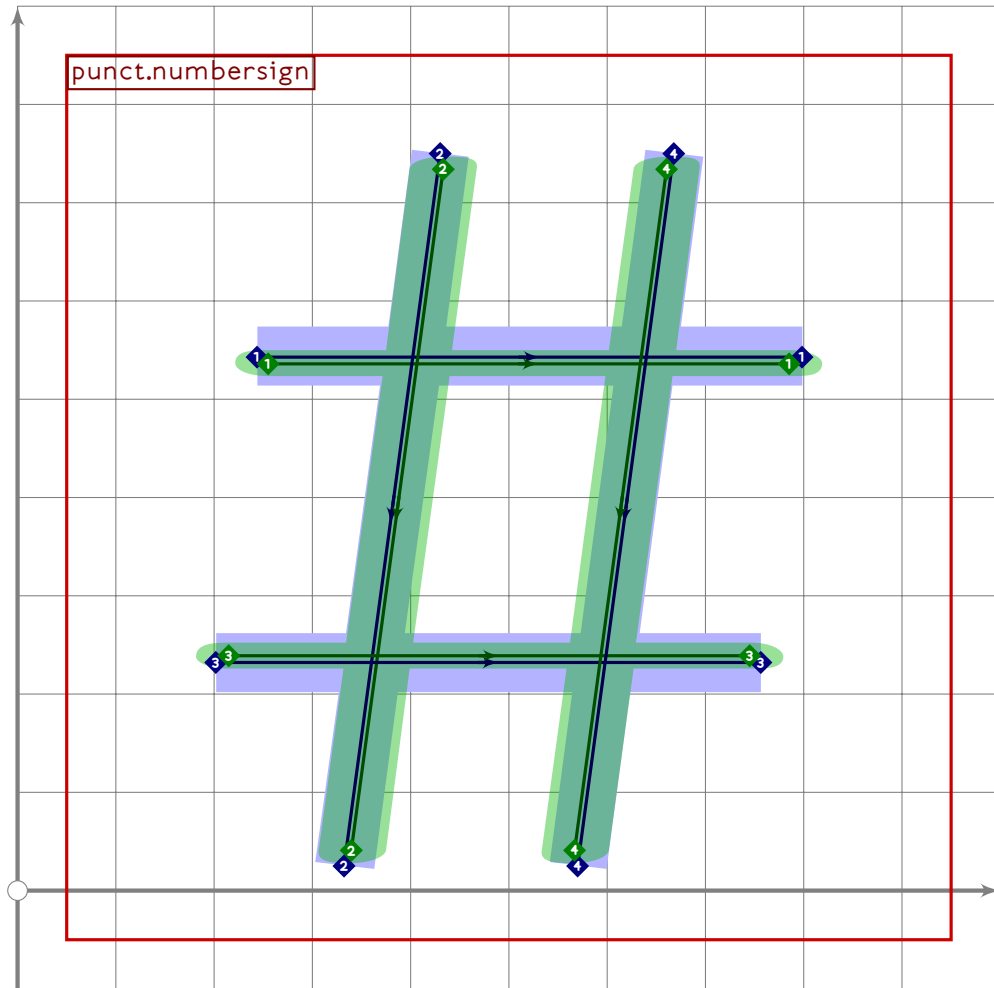
481 % in the future, this will probably become greek.lowmu
482 vardef punct.micro =
483   push_pbox_toexpand("punct.micro");
484
485   x1-x2=y2-y1;
486   (x2+x6)/2=450;
487   (x2-x6)=(y3-y1)*0.75;
488   x3=x2=x4;

```

```

489 x5=0.5[x4,x6];
490 x7=x8=x6;
491
492 y1=(-0.06)[y5,y3];
493 y2=0.26[y5,y3];
494 y3=y7=latin_wide_xheight_v;
495 y4=0.73[y3,y5];
496 y5=latin_wide_low_h;
497 y6=0.60[y3,y5];
498 y8=latin_wide_desc_v;
499
500 push_stroke(z1{dir 173}{.up}z2-z3,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
501 push_stroke(subpath (0.03,2) of (z4..z5{left}..z6{dir 93}),
502   (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
503 push_stroke(z7-z8,(1.6,1.6)-(1.6,1.6));
504 expand_pbox;
505 enddef;
506
507 vardef punct.notsign(expr t) =
508   push_stroke(((1,0)-(1,0)-(1,-1)) transformed t,(2,2)-(2,2)-(2,2));
509   set_bosize(0,90);
510   set_botip(0,1,1);
511
512   push_pbox_explicit("punct.notsign",
513     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
514 enddef;

```



```

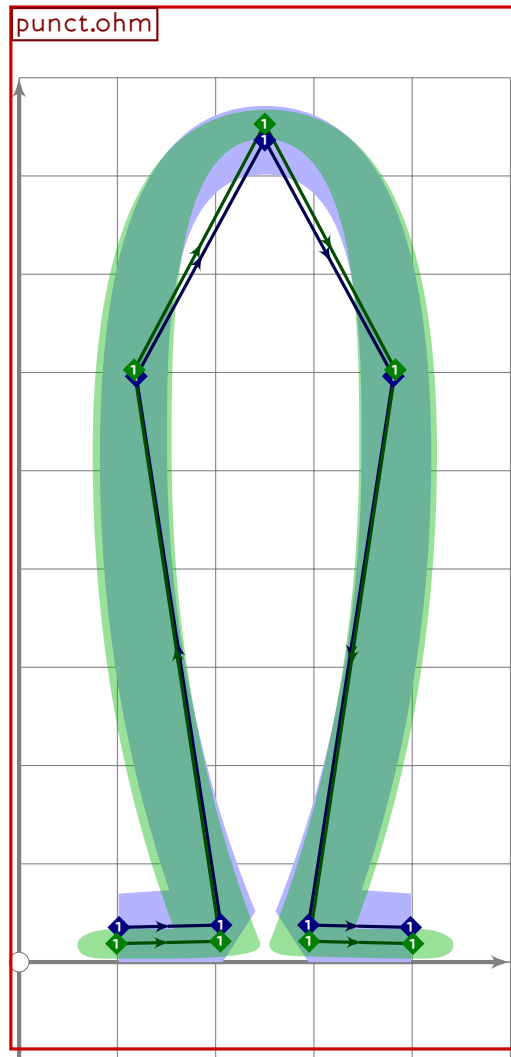
515
516 vardef punct.numbersign =
517   push_pbox_toexpand("punct.numbersign");
518
519   (x1+x2)/2=500;
520   (x2-x1)=0.9*(y2-y1);
521   x3=0.15[x1,x2];
522
523   y1=latin_wide_low_v;
524   y2=y3=latin_wide_high_v;
525
526   transform xf_num;
527   (0,0) transformed xf_num = z1;
528   (3.5,3.5) transformed xf_num = z2;
529   (0,3.5) transformed xf_num = z3;
530
531   push_stroke(((0,2.5)-(3.5,2.5)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
532   set_bosize(0,85);
533   push_stroke(((1,3.5)-(1,0)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
534   set_bosize(0,85);
535   push_stroke(((0,1)-(3.5,1)) transformed xf_num,(1.6,1.6)-(1.6,1.6));

```

```

536 set_bosize(0,85);
537 push_stroke(((2.5,3.5)-(2.5,0)) transformed xf_num,(1.6,1.6)-(1.6,1.6));
538 set_bosize(0,85);
539 expand_pbox;
540 endif;
541

```



```

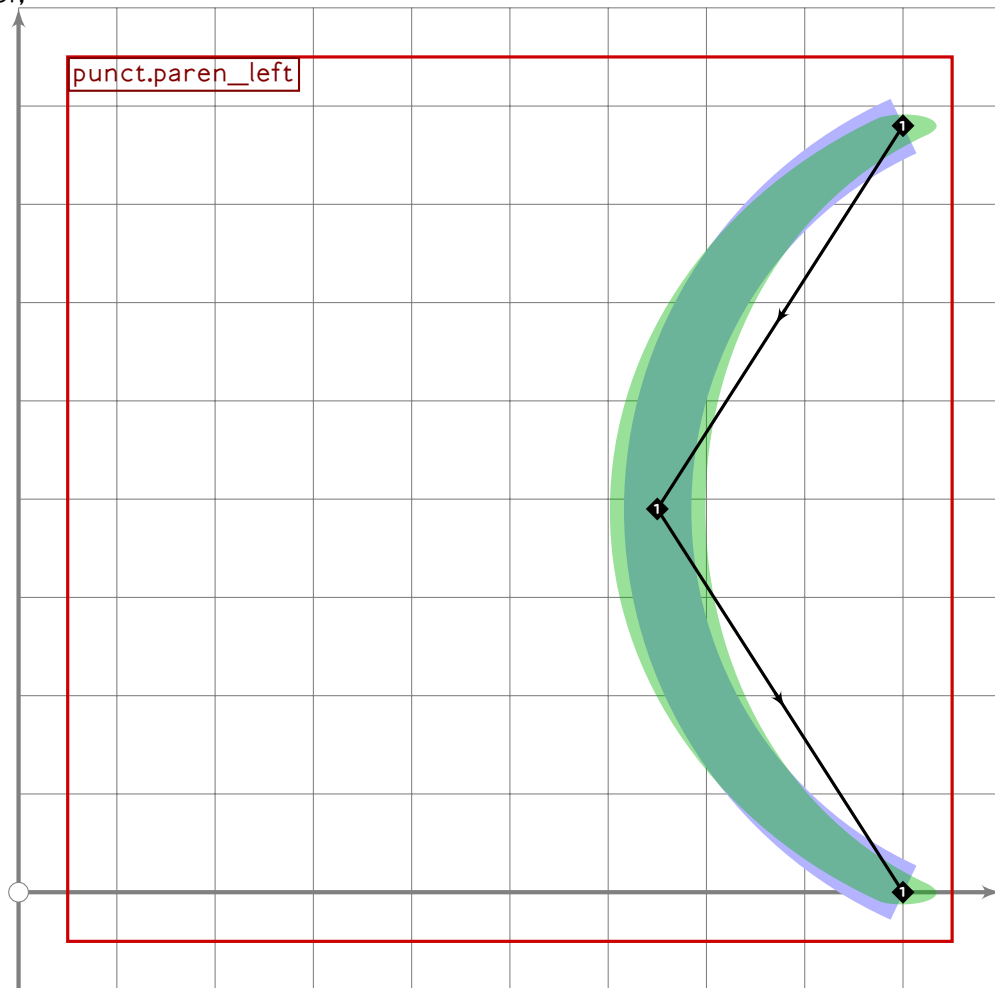
542 % in the future, this will probably become greek.upomega
543 vardef punct.ohm =
544   push_pbox_toexpand("punct.ohm");
545
546   (x5+x3)/2=(x6+x2)/2=(x7+x1)/2=x4=500;
547   x2=0.7[x1,x4];
548   x7-x1=0.76*(y4-y1);
549   x5-x3=0.67*(y4-y1);
550
551   y1=y7=latin_wide_low_h;
552   y2=y6=y1+2;
553   y3=y5=0.7[y1,y4];
554   y4=latin_wide_high_r;

```

```

555
556 push_stroke(z1-z2..tension 1.5 and 1.3..z3..z4..
557     z5..tension 1.3 and 1.5..z6-z7,
558     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-
559     (1.6,1.6)-(1.6,1.6));
560 set_botip(0,1,0);
561 set_botip(0,5,0);
562 expand_pbox;
563 enddef;

```

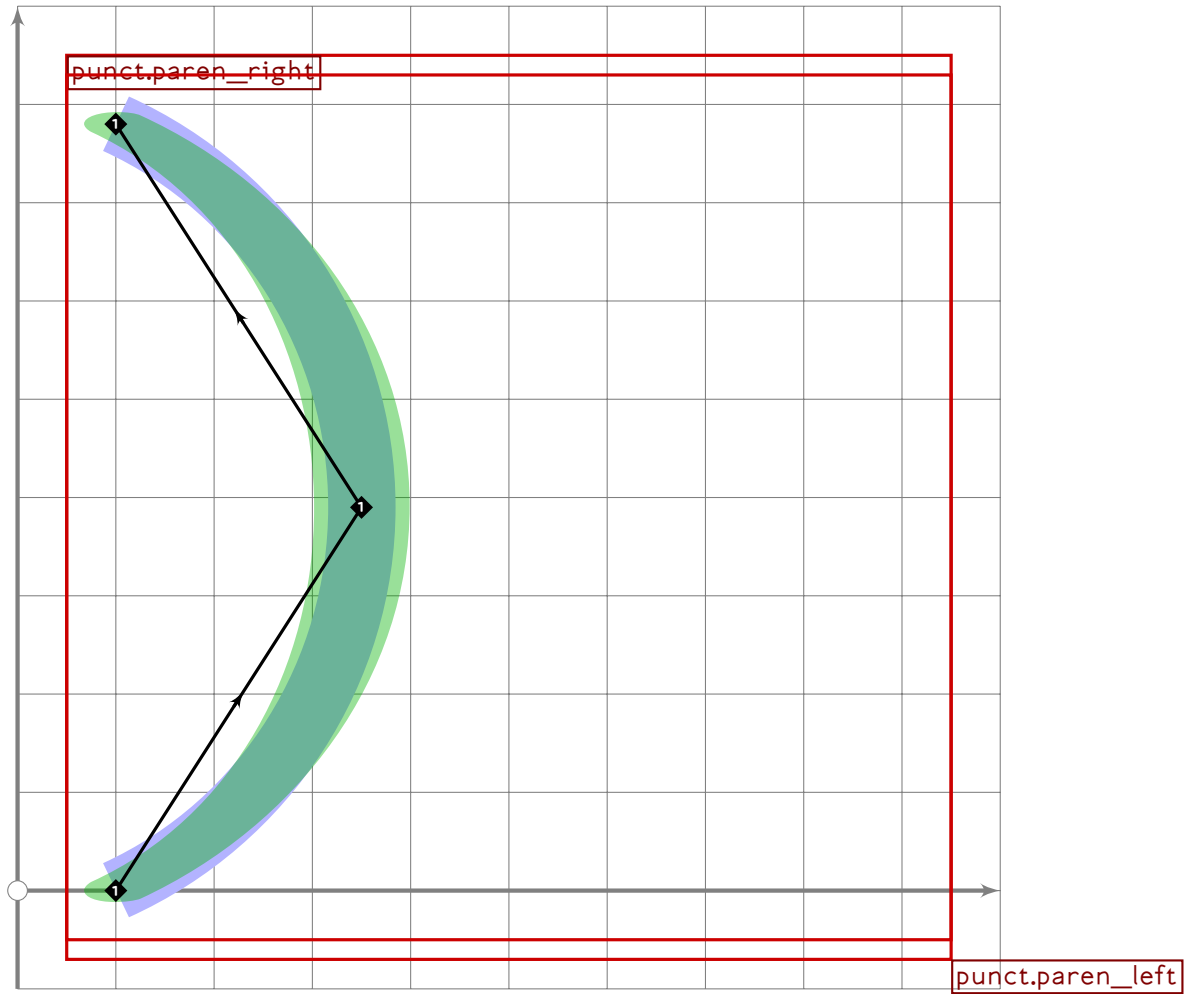


```

564
565 vardef punct.paren_left =
566     push_pbox_toexpand("punct.paren_left");
567     push_stroke((900,780)..(900-2.5*tsu_punct_size,390)..(900,0),
568     (1.5,1.5)-(2,2)-(1.5,1.5));
569     set_bosize(0,90);
570     expand_pbox;
571 enddef;

```

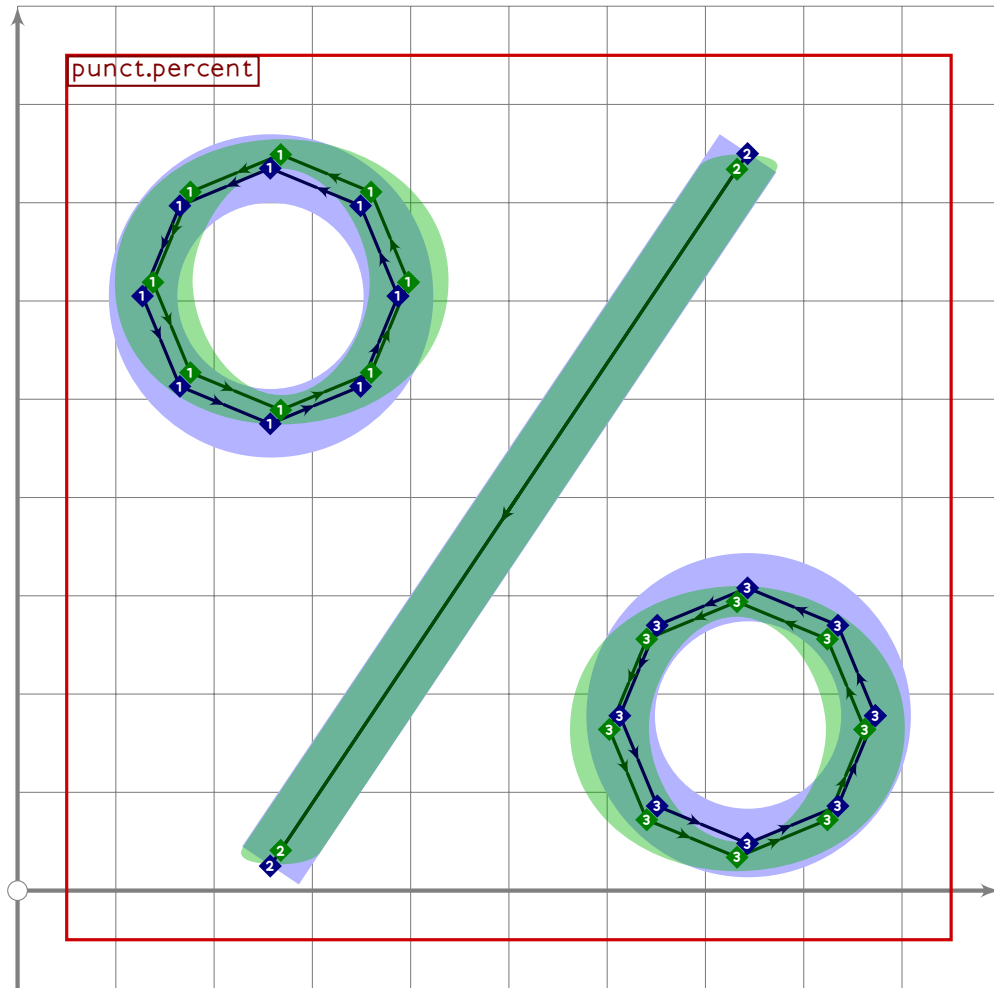




```

572
573 vardef punct.paren_right =
574   push_pbox_toexpand("punct.paren_right");
575   tsu_xform(identity rotatedaround (centre_pt,180))
576   (punct.paren_left);
577   expand_pbox;
578 enddef;

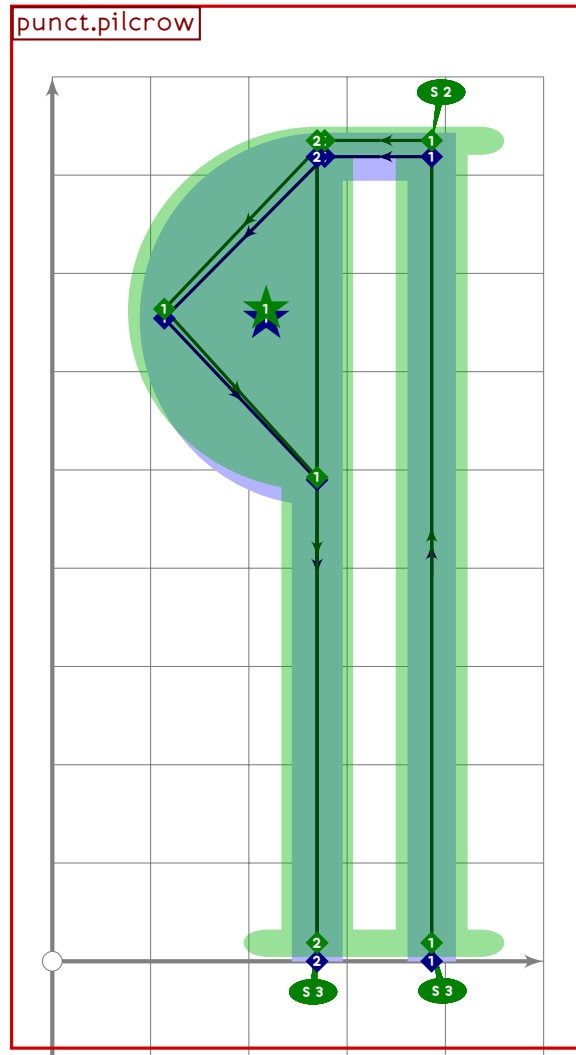
```



```

579
580 vardef punct.percent =
581   push_pbox_toexpand("punct.percent");
582
583   (x1+x2)/2=500;
584   (x1-x2)=0.67(y1-y2);
585
586   y1=latin_wide_high_v;
587   y2=latin_wide_low_v;
588
589   push_stroke(fullcircle scaled 260 shifted (x2,latin_wide_high_r-130),
590     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
591
592   push_stroke((z1-z2)
593     shifted -centre_pt scaled (tsu_punct_size/100) shifted centre_pt,
594     (1.6,1.6)-(1.6,1.6));
595
596   push_stroke(fullcircle scaled 260 shifted (x1,latin_wide_low_r+130),
597     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
598   expand_pbox;
599 enddef;

```



```

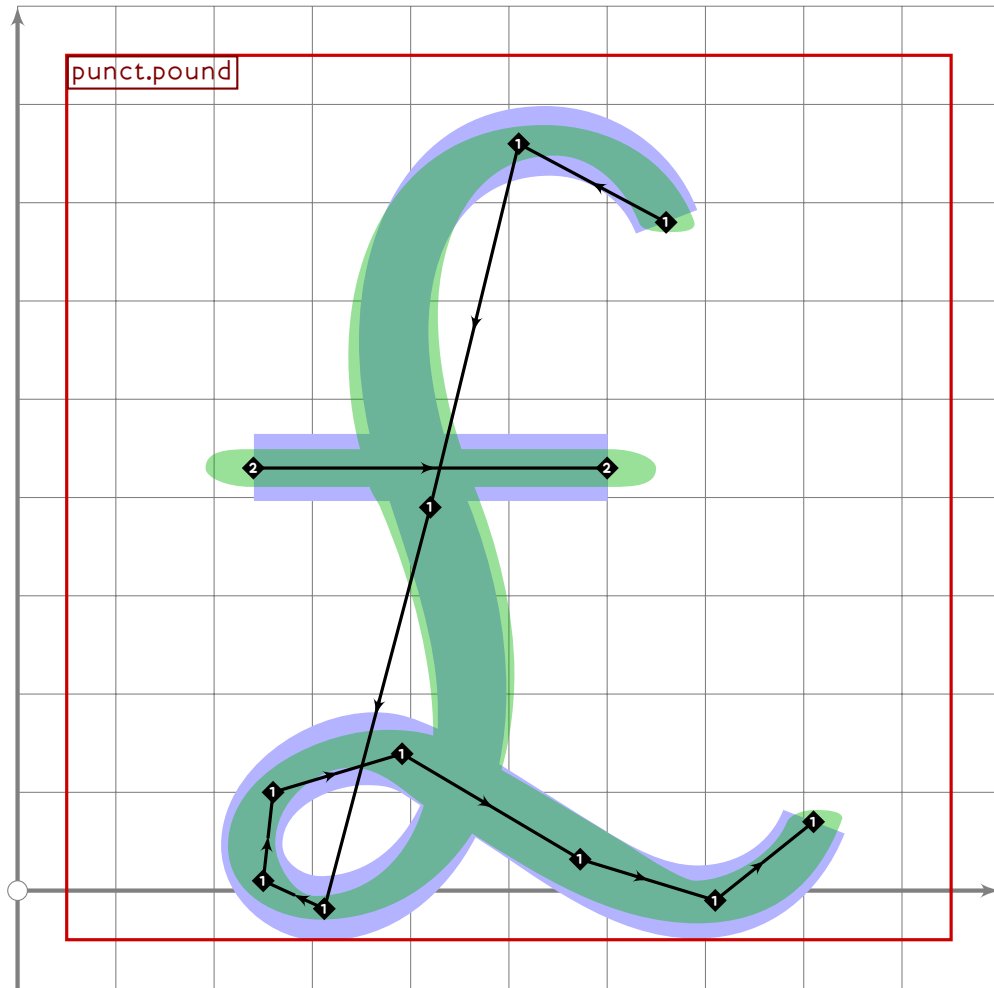
600
601 vardef punct.pilcrow =
602   push_pbox_toexpand("punct.pilcrow");
603
604   x1=x2=x6=710;
605   x3=x5=x1-420*0.4;
606   x4=x1-420;
607
608   y1=latin_wide_low_v;
609   y2=y3=latin_wide_high_h;
610   y4=(y3+y5)/2;
611   y5=y6=vmetric(0.58);
612
613   x7=x8=x9=x1-1.8*tsu_punct_size;
614   y7=y2+50;
615   y8=y4;
616   y9=y1;
617
618   push_stroke(z1-z2-z3{left}..z4.{right}z5-z6,

```

```

619 (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2));
620 replace_strokeq(0)(subpath (0,xpart (get_strokep(0) intersectiontimes
621 (z8-z9))) of oldq);
622 replace_strokep(0)(subpath (0,xpart (oldp intersectiontimes
623 (z8-z9))) of oldp);
624 set_bosize(0,67);
625 set_botip(0,1,1);
626 set_boserif(0,0,3);
627 set_boserif(0,1,2);
628
629 push_stroke(((z7-z8) intersectionpoint get_strokep(0))-z9,(2,2)-(2,2));
630 set_bosize(0,67);
631 set_boserif(0,1,3);
632
633 if tsu_pbrush_size>=30:
634   push_lcblob((subpath (xpart (get_strokep(-1) intersectiontimes (z7-z8)),
635     infinity) of get_strokep(-1))-cycle);
636   fi;
637   expand_pbox;
638 enddef;
639
640 vardef punct.plus(expr t) =
641   push_stroke(((1,0)-(1,0)) transformed t,(2,2)-(2,2));
642   push_stroke(((0,1)-(0,-1)) transformed t,(2,2)-(2,2));
643   push_pbox_explicit("punct.plus",
644     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
645 enddef;
646
647 vardef punct.plusminus(expr t) =
648   push_stroke(((1,0.25)-(1,0.25)) transformed t,(2,2)-(2,2));
649   push_stroke(((0,1.25)-(0,-0.75)) transformed t,(2,2)-(2,2));
650   push_stroke(((1,-1.25)-(1,-1.25)) transformed t,(2,2)-(2,2));
651
652   push_pbox_explicit("punct.plusminus",
653     identity shifted (-0.5,-0.5) xyscaled (2.4,3.2) transformed t);
654 enddef;

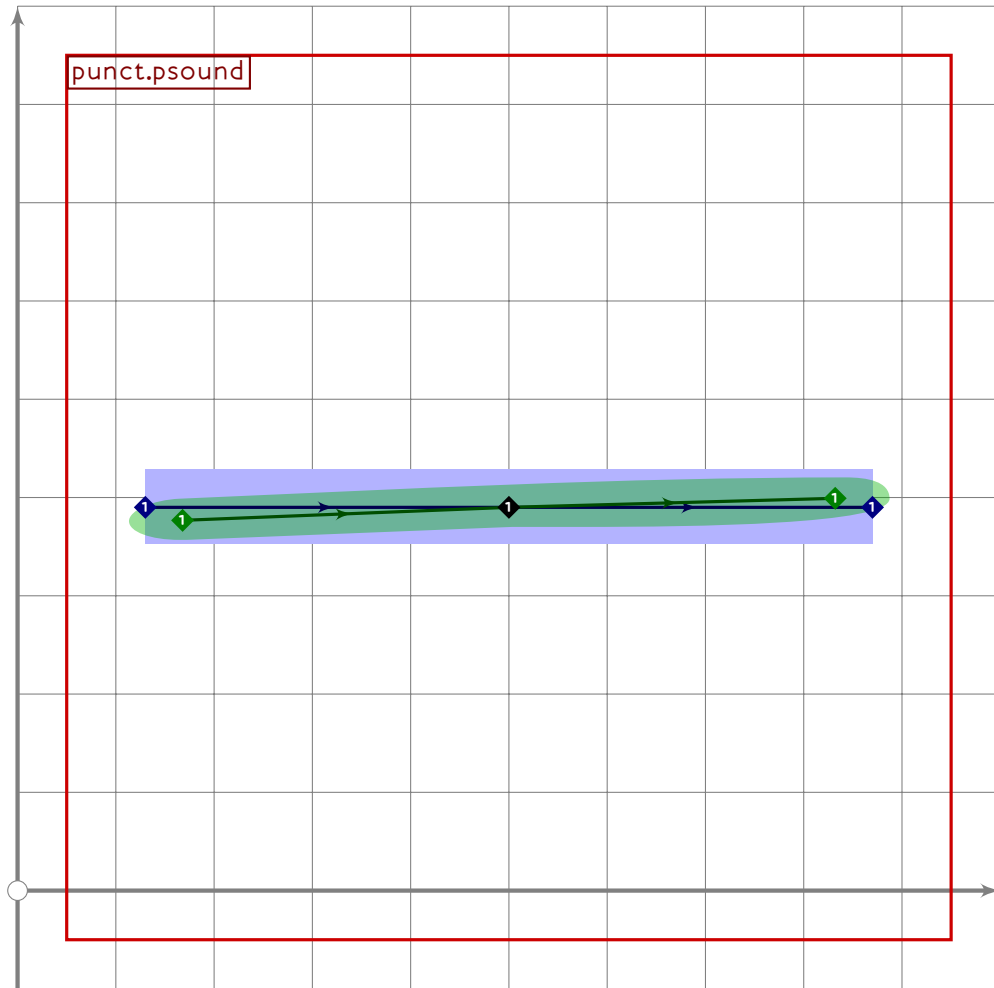
```



```

655
656 vardef punct.pound =
657   push_pbox_toexpand("punct.pound");
658
659   push_stroke((660,680)..(510,760)..(420,390)..tension 1.1..(250,10)..
660     (260,100)..(710,-10)..(810,70),
661     (1.3,1.3)-(1.7,1.7)-(1.9,1.9)-(1.4,1.4)-(1.2,1.2)-
662     (1.1,1.2)-(2,2)-(2.1,2.1)-(2,2)-(1.3,1.3));
663   replace_stroke(0)(insert_nodes(oldp)(2.8,4.3,4.7));
664
665   push_stroke((240,430)-(600,430),(2,2)-(2,2));
666   set_bosize(0,90);
667   expand_pbox;
668 enddef;

```

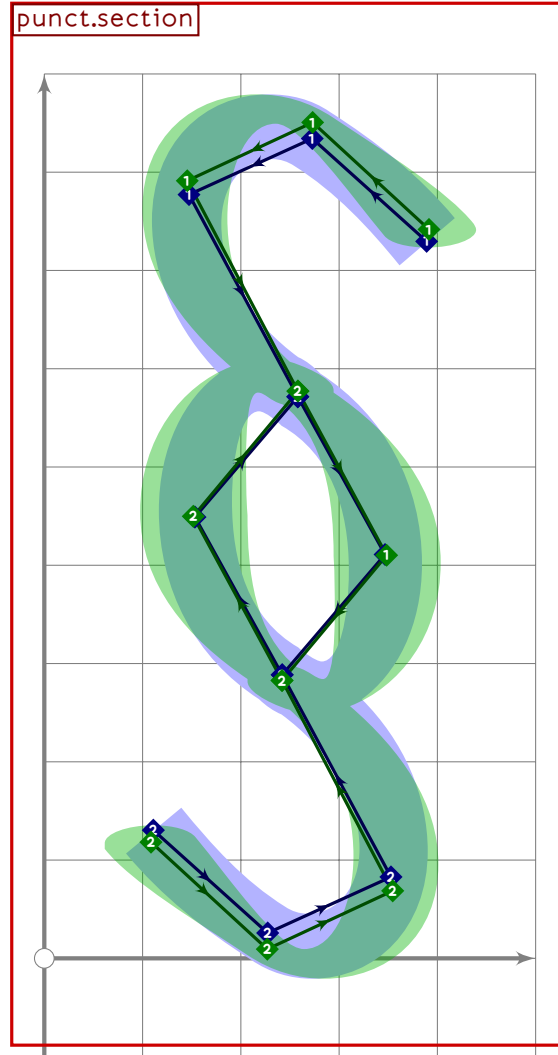


```

669
670 vardef punct.psound =
671   push_pbox_toexpand("punct.psound");
672   push_stroke((130,390-15*mincho)..(500,390)..(870,390+10*mincho),
673     (0.7,3.3)-(2,2)-(0.7,3.3));
674   expand_pbox;
675 enddef;
676
677 vardef punct.make_period(expr cpos) =
678   push_stroke(fullcircle scaled (tsu_punct_size*1.15) shifted cpos,
679     (2,2)-(2,2)-(2,2)-(2,2)-cycle);
680
681   if tsu_pbrush_size>=30:
682     set_bosize(0,40);
683     push_lcblob(get_strokep(0));
684   else:
685     set_bosize(0,80);
686   fi;
687
688   push_pbox_explicit("punct.make_period",
689     identity shifted (-0.5,-0.5) scaled (tsu_punct_size*1.5) shifted cpos);

```

```
690 endif;
```

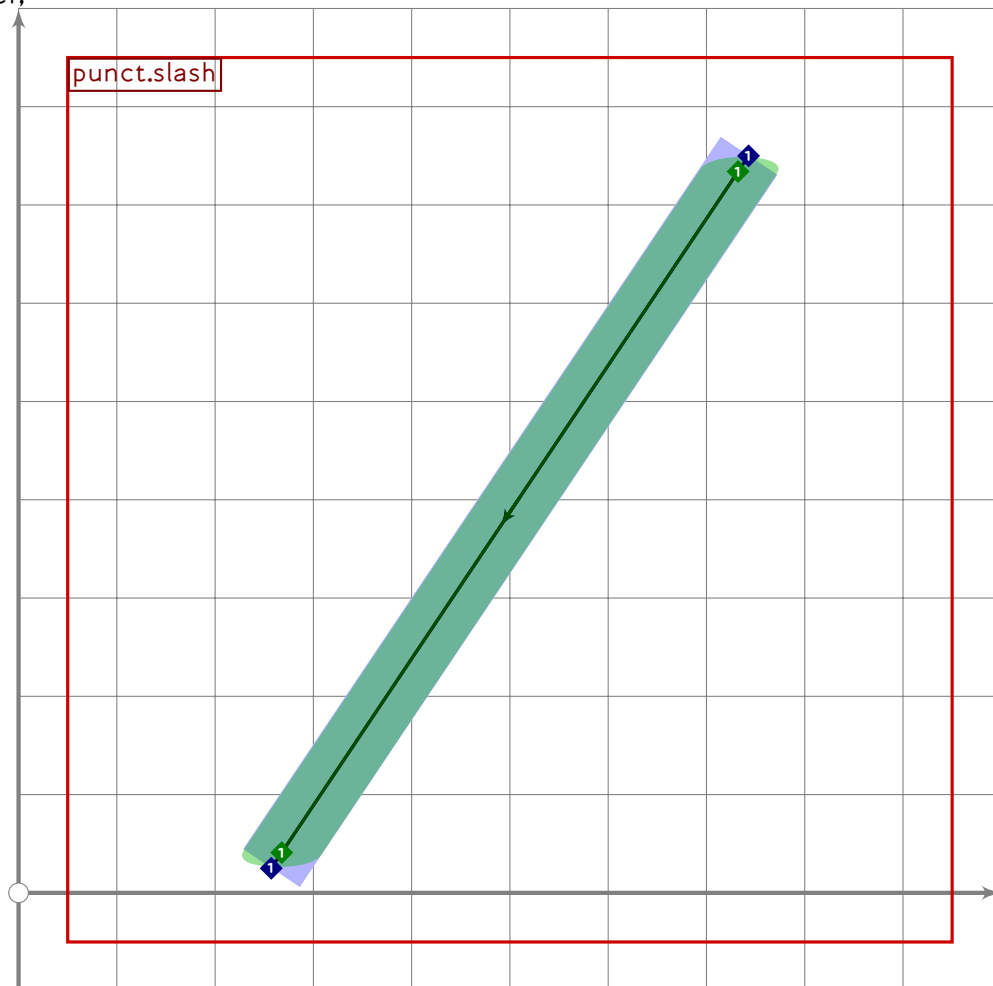


```
691
692 vardef punct.section =
693   push_pbox_toexpand("punct.section");
694
695   (x1+x3)/2=x2=x4=x6=500;
696   x5=0.8[x2,x1];
697   2*(x5-x2)=0.45*(latin_wide_high_r-latin_wide_low_r);
698
699   y1=y3=0.8[ypart centre_pt,latin_wide_high_r];
700   y2=latin_wide_high_r;
701   y4=0.35[ypart centre_pt,latin_wide_high_r];
702   y5=ypart centre_pt;
703   y4-y5=y5-y6;
704
705   push_stroke((z1..z2..z3..z4..z5..z6) rotatedaround (centre_pt,-6),
706     (1.8,1.8)-(1.2,1.2)-(1.7,1.7)-(1.3,1.3)-(2,2)-(1.5,1.5));
707
708   push_stroke(get_strokep(0) rotatedaround (centre_pt,180),get_strokeq(0));
```

```

709 expand_pbox;
710 enddef;

```

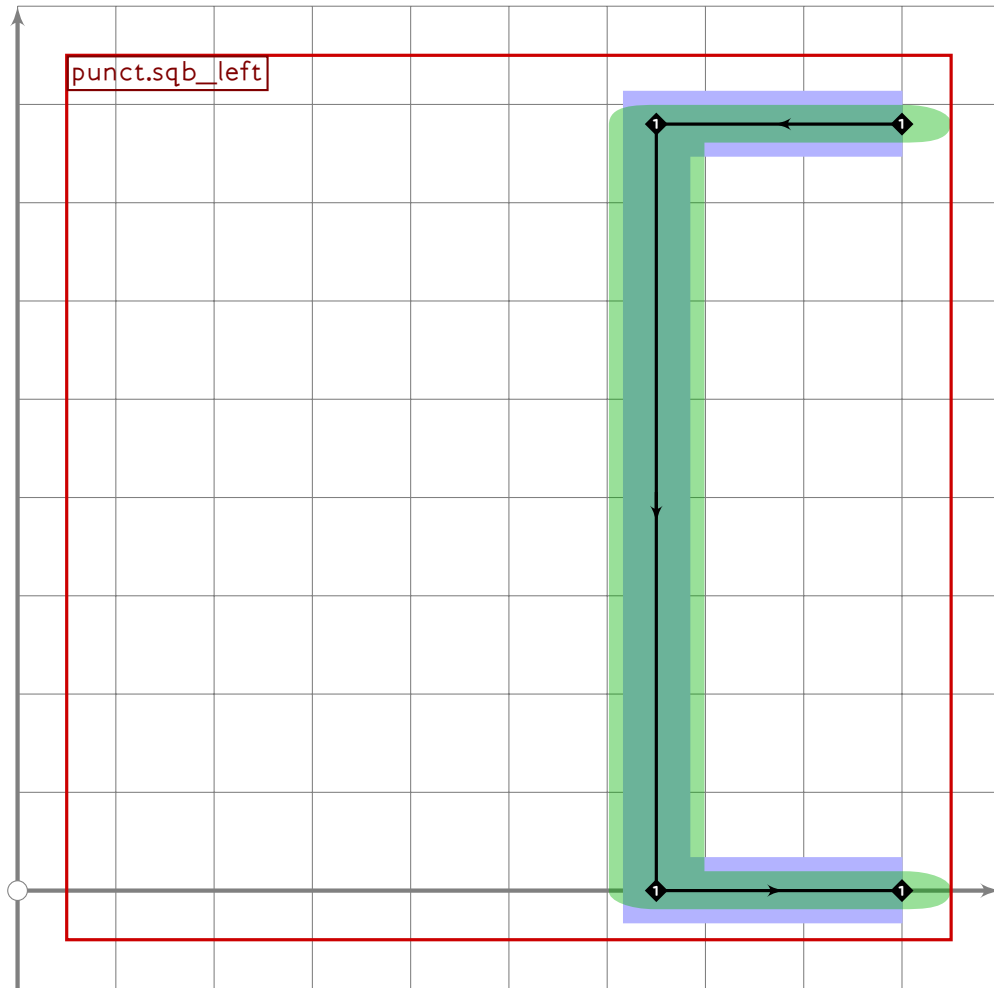


```

711
712 vardef punct.slash =
713   push_pbox_toexpand("punct.slash");
714   (x1+x2)/2=500;
715   (x1-x2)=0.67(y1-y2);
716
717   y1=latin_wide_high_v;
718   y2=latin_wide_low_v;
719
720   push_stroke((z1-z2)
721     shifted -centre_pt scaled (tsu_punct_size/100) shifted centre_pt,
722     (1.6,1.6)-(1.6,1.6));
723   expand_pbox;
724 enddef;

```

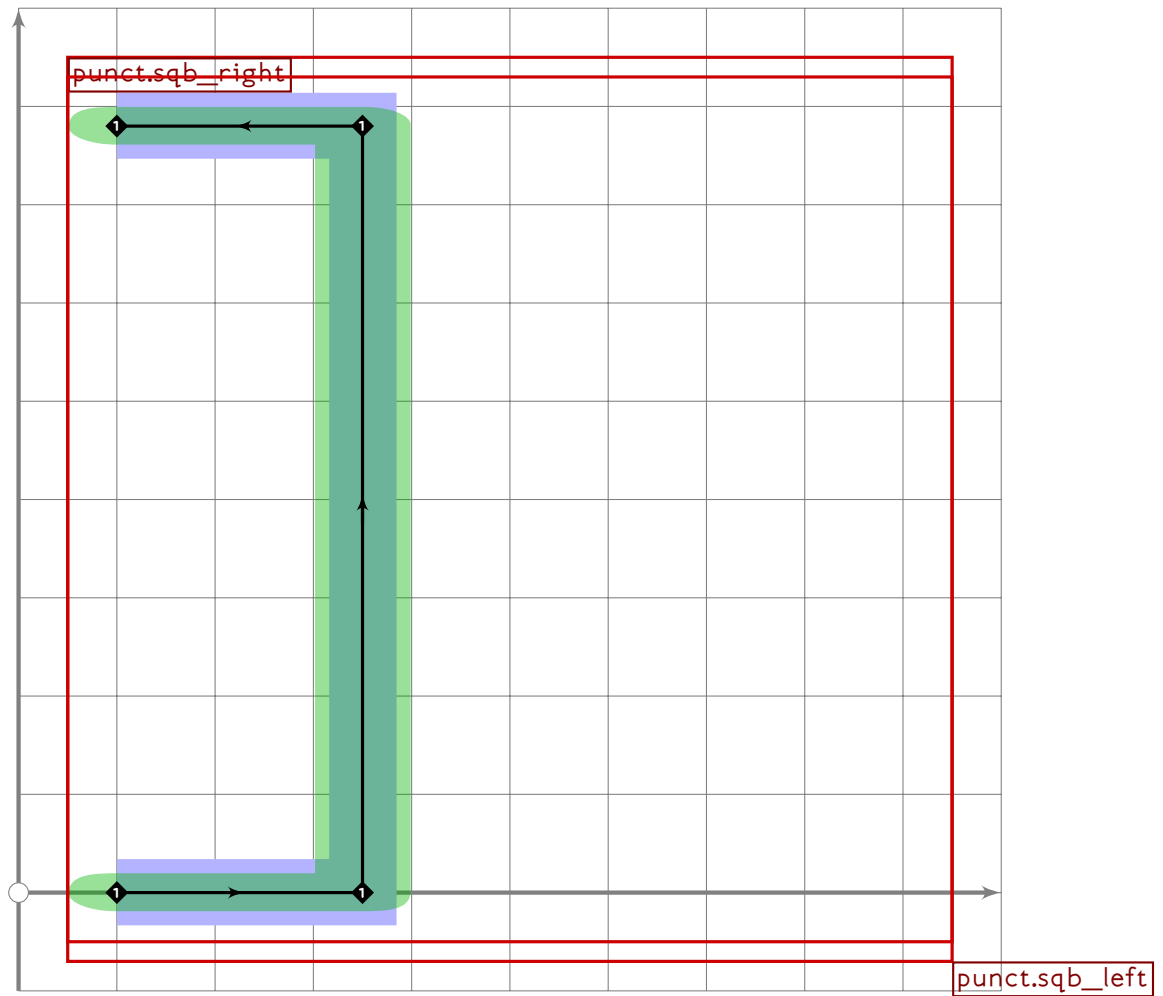




```

725
726 vardef punct.sqb_left =
727   push_pbox_toexpand("punct.sqb_left");
728   push_stroke((900,780)-
729     (900-2.5*tsu_punct_size,780)-
730     (900-2.5*tsu_punct_size,0)-
731     (900,0),
732     (2,2)-(2,2)-(2,2)-(2,2));
733   set_bosize(0,90);
734   set_botip(0,1,1);
735   set_botip(0,2,1);
736   expand_pbox;
737 enddef;

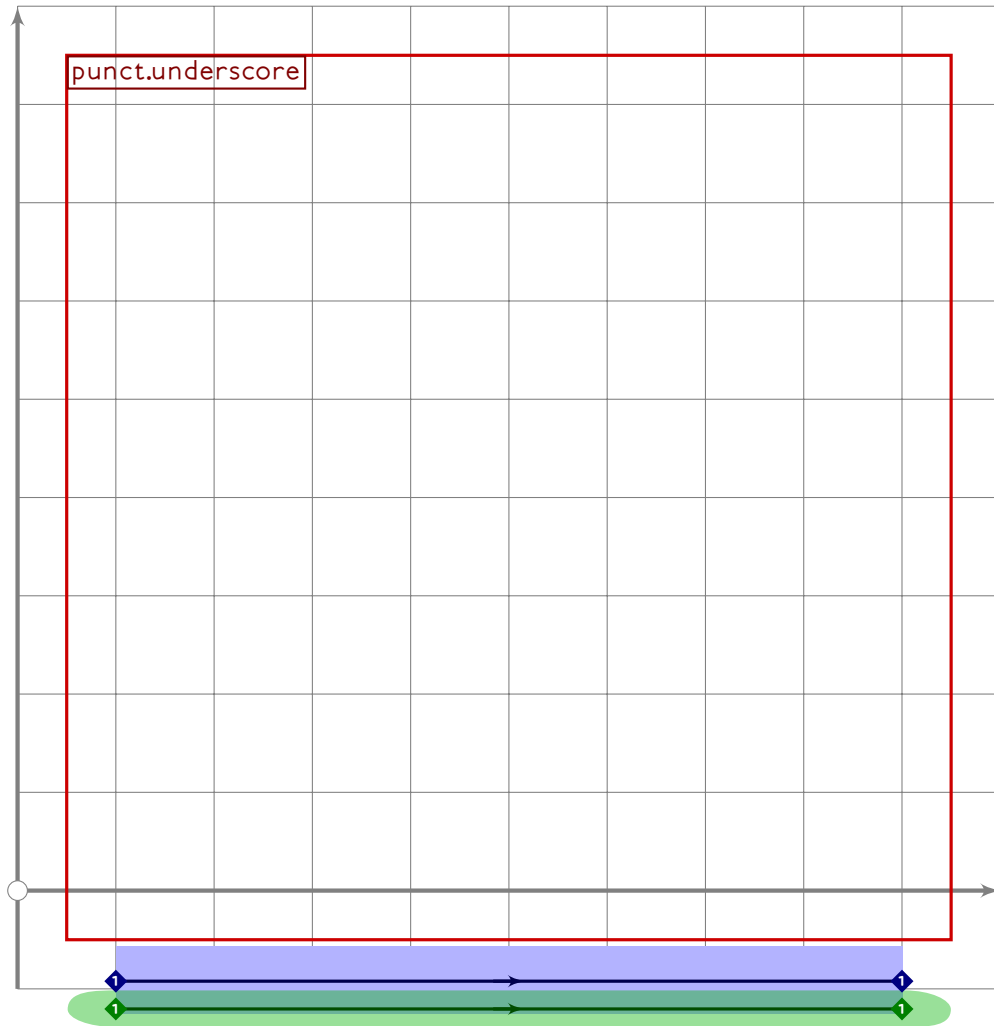
```



```

738
739 vardef punct.sqb_right =
740   push_pbox_toexpand("punct.sqb_right");
741   tsu_xform(identity rotatedaround (centre_pt,180))
742   (punct.sqb_left);
743   expand_pbox;
744 enddef;
745
746 vardef punct.times(expr t) =
747   push_stroke(((1,1)-(1,1)) transformed t,(2,2)-(2,2));
748   set_bosize(0,90);
749   push_stroke(((1,1)-(1,-1)) transformed t,(2,2)-(2,2));
750   set_bosize(0,90);
751
752   push_pbox_explicit("punct.times",
753     identity shifted (-0.5,-0.5) scaled 2.4 transformed t);
754 enddef;

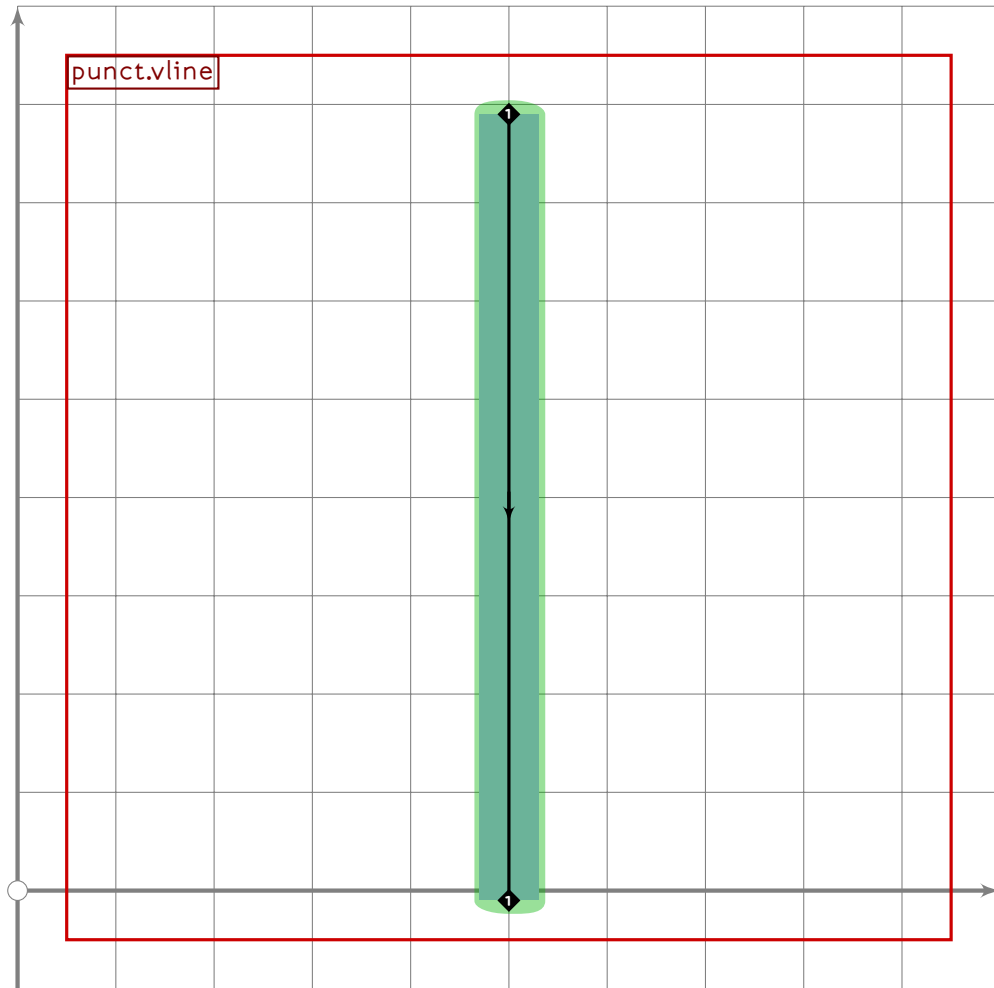
```



```

755
756 vardef punct.underscore =
757   push_pbox_toexpand("punct.underscore");
758   push_stroke((100,0.3[latin_wide_desc_h,latin_wide_low_h])-
759     (900,0.3[latin_wide_desc_h,latin_wide_low_h]),
760     (2,2)-(2,2));
761   set_bosize(0,90);
762   expand_pbox;
763 enddef;

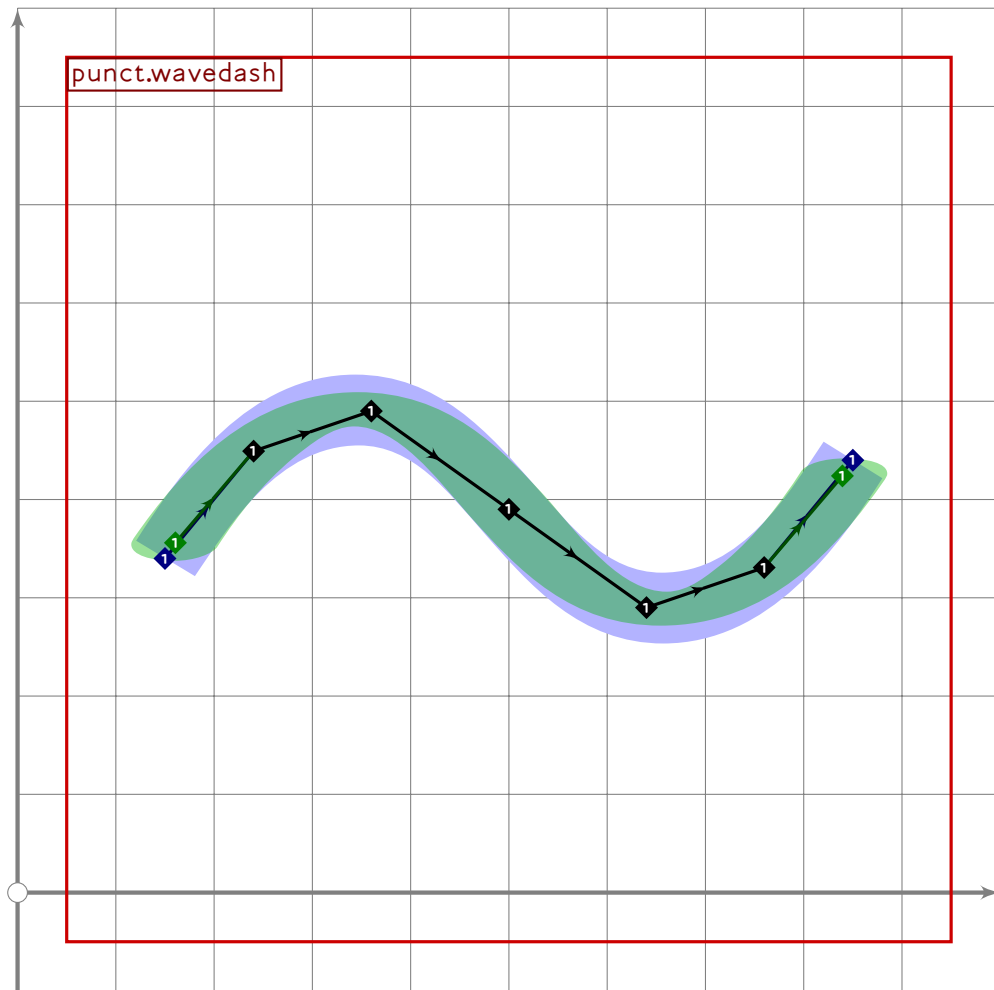
```



```

764
765 vardef punct.vline =
766   push_pbox_toexpand("punct.vline");
767   push_stroke((500,690+tsu_punct_size)-(500,90-tsu_punct_size),
768     (1.6,1.6)-(1.6,1.6));
769   set_bosize(0,90);
770   expand_pbox;
771 enddef;

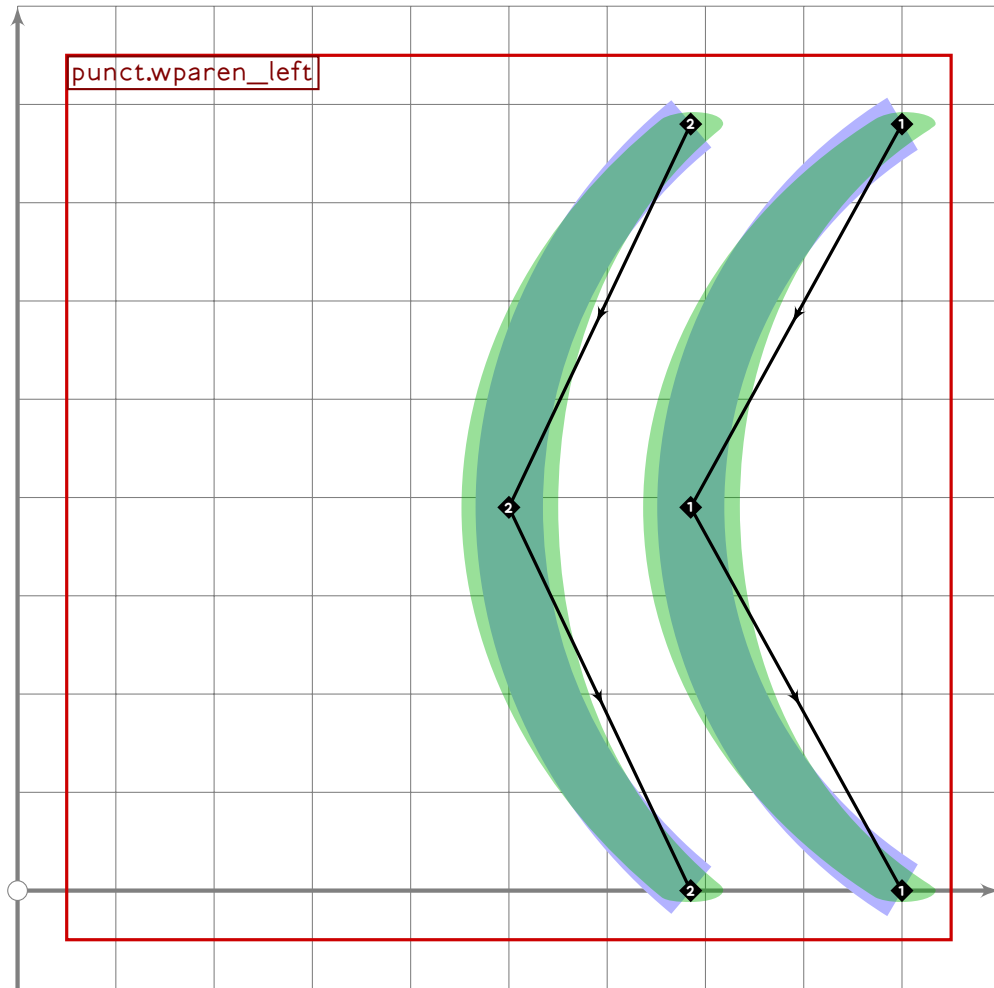
```



```

772
773 vardef punct.wavedash =
774   push_pbox_toexpand("punct.wavedash");
775   push_stroke((( -3.5, -0.5) {curl 0} .. (14, 1) .. (0, 0) .. (14, 1) ..
776     {curl 0} (3.5, 0.5)) scaled tsu_punct_size shifted centre_pt,
777     (0.7, 2.7) - (1.7, 1.7) - (1.7, 1.7) - (1.7, 1.7) - (1.7, 1.7) -
778     (1.7, 1.7) - (0.7, 2.7));
779   replace_stroke(0)(insert_nodes(oldp)(0.5, 3.5));
780   expand_pbox;
781 enddef;

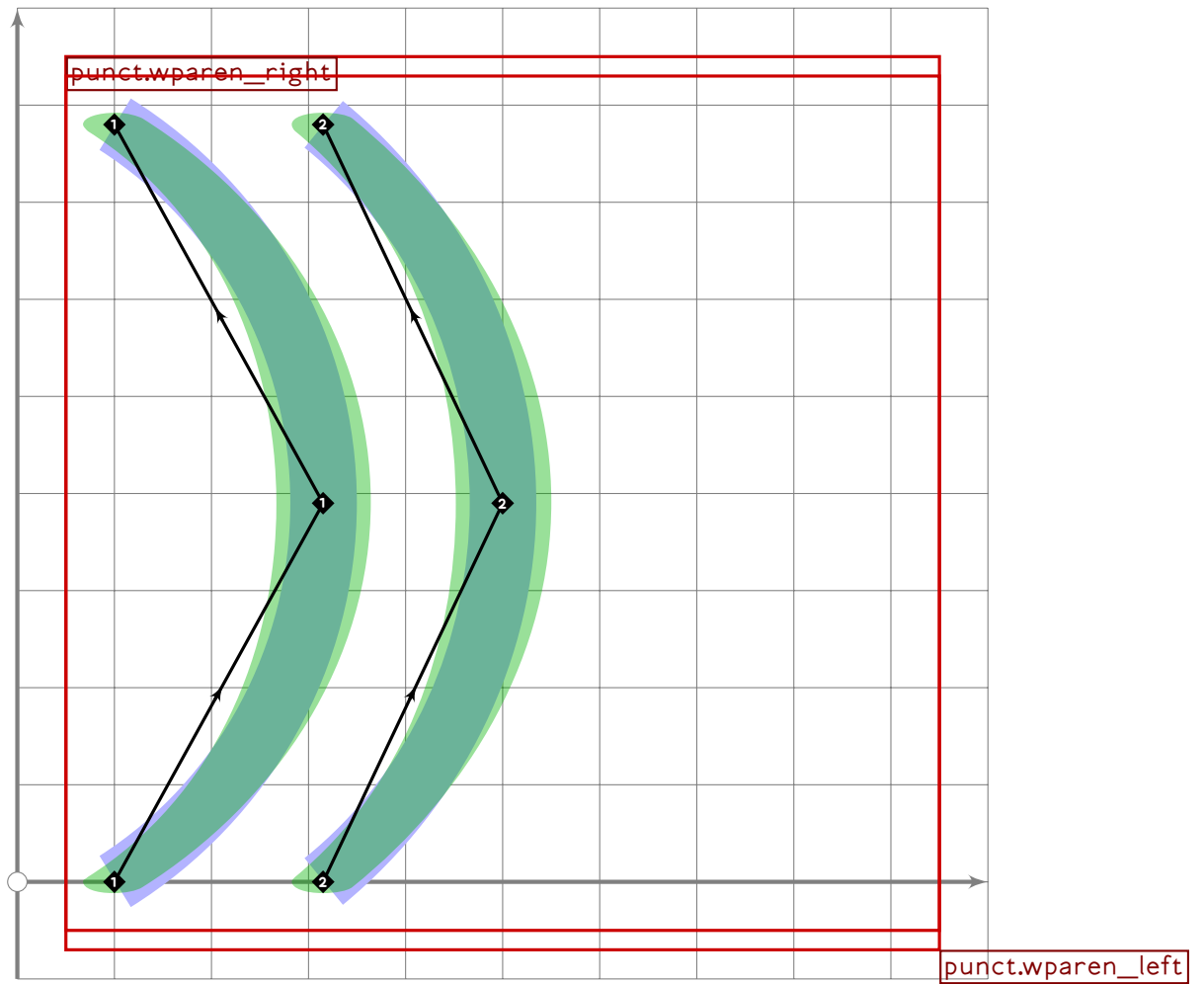
```



```

782
783 vardef punct.wparen_left =
784   push_pbox_toexpand("punct.wparen_left");
785
786   push_stroke((900,780)..(900-2.15*tsu_punct_size,390)..(900,0),
787     (1.5,1.5)-(2,2)-(1.5,1.5));
788   set_bsize(0,90);
789
790   push_stroke((900-2.15*tsu_punct_size,780)..
791     (900-4*tsu_punct_size,390)..
792     (900-2.15*tsu_punct_size,0),
793     (1.5,1.5)-(2,2)-(1.5,1.5));
794   set_bsize(0,90);
795   expand_pbox;
796 enddef;

```



```

797
798 vardef punct.wparen_right =
799   push_pbox_toexpand("punct.wparen_right");
800   tsu_xform(identity rotatedaround (centre_pt,180))
801   (punct.wparen_left);
802   expand_pbox;
803 enddef;

```

# serif.mp

```
1 %
2 % Serifs for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(serif);
32
33 

---


34
35 % figure out size of brush
36 (sbrush_width,sbrush_height)=urcorner (
37   fullcircle yscaled tsu_brush_shape
38   rotated tsu_brush_angle
39 );
40 if sbrush_width>sbrush_height:
41   sbrush_long:=sbrush_width;
42   sbrush_short:=sbrush_height;
43 else:
44   sbrush_short:=sbrush_width;
45   sbrush_long:=sbrush_height;
46 fi;
47
48 

---


49
50 vardef tsu_serif.latin.lrcore(expr bst,plp,dlp,l,bts,bos) =
51   serif:=serif xscaled sbrush_long yscaled sbrush_short;
52   serif:=serif xscaled ((1+3*xxpart tsu_rescaling_xf)/4)
53     yscaled bos scaled bts;
54   glstk[ngls]:=regenerate(serif shifted plp);
55   ngls:=ngls+1;
56 enddef;
57
58 vardef tsu_serif.latin.left(expr bst,plp,dlp,l,bts,bos) =
59   begingroup
60     save serif;
61     path serif;
62     if sharp_corners:
63       serif:=(-serif_size,1)-(-serif_size,-1)-
64         (0,-1)-(0,1)-cycle;
65     else:
66       serif:=(-serif_size,1){left}..{right}(-serif_size,-1)-
67         (0,-1)-(0,1)-cycle;
68     fi;
69     tsu_serif.latin.lrcore(bst,plp,dlp,l,bts,bos);
70   endgroup;
```



```

71 enddef;
72
73 vardef tsu_serif.latin.right(expr bst,plp,dlp,l,bts,bos) =
74   begingroup
75     save serif;
76     path serif;
77     if sharp_corners:
78       serif:=(0,1)-(0,-1)-
79         (serif_size,-1)-(serif_size,1)-cycle;
80     else:
81       serif:=(0,1)-(0,-1)-
82         (serif_size,-1){right}..{left}(serif_size,1)-cycle;
83     fi;
84     tsu_serif.latin.lrcore(bst,plp,dlp,l,bts,bos);
85   endgroup;
86 enddef;
87
88 vardef tsu_serif.latin.leftright(expr bst,plp,dlp,l,bts,bos) =
89   begingroup
90     save serif,xoffs;
91     path serif;
92     if sharp_corners:
93       serif:=(-serif_size,1)-(-serif_size,-1)-
94         (serif_size,-1)-(serif_size,1)-cycle;
95     else:
96       serif:=(-serif_size,1){left}..{right}(-serif_size,-1)-
97         (serif_size,-1){right}..{left}(serif_size,1)-cycle; fi;
98     numeric xoffs;
99     xoffs=xpart (dlp/abs(dlp));
100    tsu_serif.latin.lrcore(bst,
101      plp+if l=0: right else: left fi*50*sbrush_long*xoffs,
102      dlp,l,bts,bos);
103  endgroup;
104 enddef;
105
106 

---


107
108 vardef tsu_serif.mincho.corner(expr bst,plp,dlp,l,bts,bos) =
109   begingroup
110     save serif;
111     path serif;
112     serif:=(-1,-0.3)..(0.25,-1.3)..(1,-1.2)..tension 1.2..
113       (1,0.6)..(-0.25,1.3)..(-1,1.2)..tension 1.2..cycle;
114     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
115       scaled (bts*0.43);
116     glstk[ngls]:=regenerate(serif shifted plp);
117     ngls:=ngls+1;
118   endgroup;

```

```

119 enddef;
120
121 vardef tsu_serif.mincho.ulpoint(expr bst,plp,dlp,l,bts,bos) =
122   begingroup
123     save serif;
124     path serif;
125     serif=(-1.5,2.7)..tension 2..(-1,0)..(-0.4,-0.3)..tension 1.5..
126       (0.707,0)..(0.2,0.6)..(-0.1,1.1)..tension 2..(-1.2,2.9)..cycle;
127     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
128       scaled (bts*0.5);
129     glstk[nngls]:=regenerate(serif shifted
130       (plp+(-1,0)*0.25*bts*(xpart dlp/abs(dlp))));
131     nngls:=nngls+1;
132   endgroup;
133 enddef;
134
135 vardef tsu_serif.mincho.triangle(expr bst,plp,dlp,l,bts,bos) =
136   begingroup
137     save serif;
138     path serif;
139     serif=(-1.2,0)..(0,-0.8)..(1.2,0.4)..tension 2..(0.2,1.3)..
140       (-0.2,1.3)..tension 2..cycle;
141     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
142       scaled (bts*0.5);
143     glstk[nngls]:=regenerate(serif shifted (plp+0.25*bts*dlp/abs(dlp)));
144     nngls:=nngls+1;
145   endgroup;
146 enddef;
147
148 vardef tsu_serif.mincho.llpoint(expr bst,plp,dlp,l,bts,bos) =
149   begingroup
150     save serif;
151     path serif;
152     serif=(-2.1,-1.9)..(-1.8,-2.1)..tension 2..(-0.1,-1.2)..(0.2,-1.1)..
153       (0.707,0.707)..(-1,-0.3)..tension 2..cycle;
154     serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
155       scaled (bts*0.5);
156     glstk[nngls]:=regenerate(serif shifted plp);
157     nngls:=nngls+1;
158   endgroup;
159 enddef;
160
161 vardef tsu_serif.mincho.lpoint(expr bst,plp,dlp,l,bts,bos) =
162   begingroup
163     save serif;
164     path serif;
165     serif=(-1.5,1.7)..tension 2..(-1,0)..(-0.4,-0.3)..tension 1.8..
166       (0.707,0.2)..(0.2,0.8)..(-0.4,1.1)..tension 2..(-1.2,2.0)..cycle;

```

```

167 serif:=reverse serif reflectedabout ((-1,1),(1,-1))
168   xyscaled (0.7,0.9) shifted (0.3,-0.3);
169 serif:=serif yscaled sqrt(tsu_brush_shape) rotated tsu_brush_angle
170   scaled bts;
171 glstk[ngls]:=regenerate(serif shifted plp);
172   ngls:=ngls+1;
173 endgroup;
174 enddef;
175
176 vardef tsu_serif.mincho.ktriangle(expr bst,plp,dlp,l,bts,bos) =
177   begingroup;
178   save serif,x,y,t,q;
179   path serif;
180   transform t;
181   (0,0) transformed t=(0,0);
182   right transformed t=(dlp/abs(dlp));
183   z1=(dlp/abs(dlp)) rotated 90;
184   if y1<-x1: x1:=-x1; y1:=-y1; fi;
185   up transformed t=z1;
186   q1:=2;
187   q2:=q1++0.5;
188   q3:=0.5*q2/q1;
189   q5:=0.5++q3;
190   z2=(0,q1);
191   z3=(-q3,q5);
192   z4=(q3,q5);
193   serif:=((0.1[z2,z4]){z2-z4}..{z3-z2}(0.1[z2,z3])
194     -z3-z4-cycle)
195     transformed t yscaled tsu_brush_shape
196     rotated tsu_brush_angle
197     scaled (bts*bos*0.98) shifted plp;
198   if (xxpart t)*(yypart t)<0: serif:=reverse serif; fi;
199   glstk[ngls]:=regenerate(serif);
200   ngls:=ngls+1;
201 endgroup;
202 enddef;
203
204 vardef tsu_serif.mincho.kellipse(expr bst,plp,dlp,l,bts,bos) =
205   begingroup;
206   save serif,x,y,t,q;
207   path serif;
208   transform t;
209   (0,0) transformed t=(0,0);
210   right transformed t=(dlp/abs(dlp));
211   z1=(dlp/abs(dlp)) rotated 90;
212   up transformed t=z1;
213   t:=t rotated -tsu_brush_angle yscaled tsu_brush_shape
214     rotated tsu_brush_angle scaled (bts*bos*0.99) shifted plp;

```

```

215     z2=(0.5[x3,x4],1);
216     if l=0:
217         z3=(-0.5,0);
218         z4=(1.3,0);
219     else:
220         z3=(-1.3,0);
221         z4=(0.5,0);
222     fi;
223     serif=((subpath (0.2,2) of (z4{up}..z2..{down}z3))-cycle) transformed t;
224     glstk[ngls]:=regenerate(serif);
225     ngls:=ngls+1;
226 endgroup;
227 enddef;
228
229 % standard serif codes:
230 % 1 - Latin left
231 % 2 - Latin right
232 % 3 - Latin left and right
233 % 4 - Mincho corner blob
234 % 5 - Mincho blob, pointy to ul
235 % 6 - Mincho blob, triangular
236 % 7 - Mincho blob, point to ll
237 % 8 - Mincho blob, point to l
238 % 9 - Mincho kanji triangle
239 % 10 - Mincho kanji half-ellipse
240
241 boolean tsu_do_serif[];
242
243 vardef tsu_serif.standard(expr bst,plp,dlp,l,bts,bos) =
244   if known tsu_do_serif[1]:
245     if tsu_do_serif[1] and (bst=1):
246       tsu_serif.latin.left(bst,plp,dlp,l,bts,bos);
247     fi;
248   fi;
249   if known tsu_do_serif[2]:
250     if tsu_do_serif[2] and (bst=2):
251       tsu_serif.latin.right(bst,plp,dlp,l,bts,bos);
252     fi;
253   fi;
254   if known tsu_do_serif[3]:
255     if tsu_do_serif[3] and (bst=3):
256       tsu_serif.latin.leftright(bst,plp,dlp,l,bts,bos);
257     fi;
258   fi;
259   if known tsu_do_serif[4]:
260     if tsu_do_serif[4] and (bst=4):
261       tsu_serif.mincho.corner(bst,plp,dlp,l,bts,bos);
262     fi;

```

```

263 fi;
264 if known tsu_do_serif[5]:
265   if tsu_do_serif[5] and (bst=5):
266     tsu_serif.mincho.ulpoint(bst,plp,dlp,l,bts,bos);
267   fi;
268 fi;
269 if known tsu_do_serif[6]:
270   if tsu_do_serif[6] and (bst=6):
271     tsu_serif.mincho.triangle(bst,plp,dlp,l,bts,bos);
272   fi;
273 fi;
274 if known tsu_do_serif[7]:
275   if tsu_do_serif[7] and (bst=7):
276     tsu_serif.mincho.llpoint(bst,plp,dlp,l,bts,bos);
277   fi;
278 fi;
279 if known tsu_do_serif[8]:
280   if tsu_do_serif[8] and (bst=8):
281     tsu_serif.mincho.lpoint(bst,plp,dlp,l,bts,bos);
282   fi;
283 fi;
284 if known tsu_do_serif[9]:
285   if tsu_do_serif[9] and (bst=9):
286     tsu_serif.mincho.ktriangle(bst,plp,dlp,l,bts,bos);
287   fi;
288 fi;
289 if known tsu_do_serif[10]:
290   if tsu_do_serif[10] and (bst=10):
291     tsu_serif.mincho.khellipse(bst,plp,dlp,l,bts,bos);
292   fi;
293 fi;
294 enddef;
295
296 vardef tsu_serif.choose(expr bst,plp,dlp,l,bts,bos) =
297   tsu_serif.standard(bst,plp,dlp,l,bts,bos);
298 enddef;

```

# buildkanji.mp

```
1 %
2 % Build a kanji character by assembling parts
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(buildkanji);
32
33 _____
34
35 % a beret is a tilted hat
36 vardef build_kanji.add_beret(text curves) =
37   perl_structure:=perl_structure
38   &"[build_kanji.add_beret;eids.u2FF1.u4E3F._1";
39   begingroup
40     save osp;
41     numeric osp;
42     osp:=sp;
43     curves;
44     save i,lox,hix,toppt,myxf;
45     lox:=infinity;
46     hix:=-infinity;
47     pair toppt;
48     toppt:=(500,-infinity);
49     i:=0;
50     forever:
51       exitif find_stroke(i)<osp;
52       if xpart llcorner get_strokep(i)<lox:
53         lox:=xpart llcorner get_strokep(i);
54       fi;
55       if xpart urcorner get_strokep(i)>hix:
56         hix:=xpart urcorner get_strokep(i);
57       fi;
58       if ypart point 0 of get_strokep(i)>ypart toppt:
59         toppt:=point 0 of get_strokep(i);
60       fi;
61       if ypart point infinity of get_strokep(i)>ypart toppt:
62         toppt:=point infinity of get_strokep(i);
63       fi;
64       i:=i-1;
65     endfor;
66     i:=0;
67     forever:
68       exitif find_stroke(i)<osp;
69       if point 0 of get_strokep(i)=toppt:
70         set_boserif(i,0,whatever);
```

```

71     fi;
72     if point infinity of get_strokep(i)=toppt:
73         set_boserif(i,length get_strokep(i),whatever);
74     fi;
75     i:=i-1;
76 endfor;
77 transform myxf;
78 (-500,810) transformed myxf=(lox,(ypart toppt)+30);
79 (500,900) transformed myxf=(hix,900);
80 (0,780) transformed myxf=toppt;
81 push_stroke(
82     ((-400,750)..(0,780)..tension 1..(360,840)) transformed myxf,
83     (1,1,1)-(1,6,1,6)-(2,0,2,0));
84 endgroup;
85 perl_structure:=perl_structure&"];";
86 enddef;
87
88 vardef build_kanji.add_jtail(expr idx) =
89     replace_strokep(idx)(oldp-(xpart point infinity of oldp,30){down}.
90     {curl 0.2}{(xpart point infinity of oldp)-150,0));
91     replace_strokep(idx)(insert_nodes(oldp)((length oldp)-0.5));
92     replace_strokeq(idx)(oldq-(1.5,1.5)-(1,4,1,4)-(1,2,1,2));
93 enddef;
94
95 % hook used by extend_ltail_enclose
96 numeric last_ltail;
97
98 vardef build_kanji.add_ltail(expr idx) =
99     begingroup
100     save x,y;
101     numeric x[],y[];
102     z1=point infinity of get_strokep(idx);
103     last_ltail:=find_stroke(idx);
104     x2=x1;
105     y2=80-40*mincho;
106     x3=0.4[x2,800];
107     y3=mincho[0,20];
108     z4=point 0.5 of (z2{down}..{right}z3..(750+100*mincho,0));
109     replace_strokep(idx)(interpath(mincho,
110     oldp-z2{down}..z4..{right}z3..(750,0)..(810,30)..
111     tension 2..(850,230),
112     oldp-z2{down}..z4..{right}z3..(850,0){curl 0.2}..(810,60)..
113     tension 2..(810,170)));
114     replace_strokeq(idx)(oldq-(1,6,1,6)-(1,85,1,85)-(1,9,1,9)-(1,9,1,9)
115     -(1,3,1,3)-(0,8,0,8));
116 endgroup;
117 enddef;
118

```

```

119 vardef build_kanji.attach_fishhook(expr scaleamt)(text curves) =
120 perl_structure:=
121   perl_structure&"['build_kanji.attach_fishhook',eids.u2FF1.u2E88._2,['";
122 begingroup
123   save osp;
124   numeric osp;
125   osp:=sp;
126   tsu_xform(identity shifted (0,50) yscaled scaleamt shifted (0,-50))
127     (curves);
128   perl_structure:=perl_structure&"]";
129   save i,j,x,y,pp,myxf;
130   path pp;
131   transform myxf;
132   z1=z2=(-infinity,-infinity);
133   i:=0;
134   forever:
135     exitif find_stroke(i)<osp;
136     pp:=get_strokep(i) rotated -45;
137     for j=0 upto length pp:
138       x3:=xpart point j of pp;
139       y3:=ypart point j of pp;
140       if x3>x1:
141         x1:=x3;
142         y1:=y3;
143       fi;
144       if y3>y2:
145         x2:=x3;
146         y2:=y3;
147       fi;
148     endfor;
149     i:=i+1;
150   endfor;
151   (0,0) transformed myxf=(z2 rotated 45);
152   (1.8,0) transformed myxf=(z1 rotated 45);
153   xpart myxf=0;
154   ypart ((0,1) transformed myxf)=830;
155   push_stroke(
156     ((0.5,0.9)..tension 1.2..(0,0)..(-0.5,-0.5)) transformed myxf,
157     (1.7,1.7)-(1.3,1.3)-(1,1));
158   set_boserif(0,0,10);
159   push_stroke(
160     ((0.4,0.65)-(1.3,0.65)..tension 1.2..(1.14,0.3)..(0.88,0))
161     transformed myxf,
162     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
163   set_boserif(0,1,4);
164   set_botip(0,1,0);
165 endgroup;
166 perl_structure:=perl_structure&"]";

```



```

167 endif;
168
169 vardef hook.box_bottom(expr sides_i,bottom_i) =
170   if (obstacktype[sides_i]=otstroke) and (obstacktype[bottom_i]=otstroke):
171     if (3=length obstackp[sides_i]) and (1=length obstackp[bottom_i]):
172       begingroup;
173         save x,y,p,e;
174         numeric x[],y[],e[];
175         path p[];
176
177         p1=obstackp[sides_i];
178         p2=obstackp[bottom_i];
179
180         z1=-(direction 0 of p1)/abs(direction 0 of p1);
181         z2=(direction 0.5 of p2)/abs(direction 0.5 of p2);
182         z3=(direction 3 of p1)/abs(direction 3 of p1);
183
184         if (abs(z1 dotprod z2)<0.1) and (abs(z3 dotprod z2)<0.1):
185           point 0 of p1=z4+e1*z1;
186           z4=(point 0 of p2)+whatever*z2;
187           point 3 of p1=z5+e2*z3;
188           z5=(point 1 of p2)+whatever*z2;
189           e3=obstackna.bosize[bottom_i]*tsu_brush_max*tsu_brush_shape*0.5;
190
191           if e1<e3:
192             p1:=(z4+e3*z1)-(subpath (1,3) of p1);
193             fi;
194           if e2<e3:
195             p1:=(subpath (0,2) of p1)-(z5+e3*z3);
196             fi;
197             obstackp[sides_i]:=p1;
198             fi;
199         endgroup;
200     fi;
201 fi;
202 endif;
203
204 vardef build_kanji.box(expr ul,lr) =
205   perl_structure:=perl_structure&"['build_kanji.box";
206   begingroup
207     save boxext;
208     if (ypart (ul-lr))>500:
209       boxext:=-100/(ypart (ul-lr));
210     else:
211       boxext:=-0.2;
212     fi;
213     if (boxext)[ypart lr,ypart ul]<-60:
214       boxext:=(-60+ypart lr)/(ypart ul-ypart lr);

```

```

215     fi;
216     push_stroke((xpart ul,(boxext)[ypart lr,ypart ul])–ul–
217         (xpart lr,ypart ul)–(xpart lr,(boxext)[ypart lr,ypart ul]),
218         (1.5,1.5)–(1.7,1.7)–(1.7,1.7)–(1.5,1.5));
219 endgroup;
220 set_botip(0,1,1);
221 set_botip(0,2,1);
222 set_boserif(0,1,4);
223 set_boserif(0,2,4);
224 push_stroke((xpart ul,ypart lr)–lr,
225     (1.5,1.5)–(1.5,1.5));
226 push_hook(hsmain_render,
227     "hook.box_bottom("&(decimal find_stroke(-1))&"
228         &(decimal find_stroke(0))&");" );
229 perl_structure:=perl_structure&""];
230 endif;
231
232 vardef build_kanji.cliff_enclose(text contents) =
233     push_pbox_toexpand("build_kanji.cliff_enclose");
234     perl_structure:=perl_structure&"eids.u2FF8.u5382.1_";
235     push_stroke((50,-50)..(120,100)..(160,300)..tension 1.2..(180,760)
236         –(850,760),
237         (1,1)–(1.3,1.3)–(1.5,1.5)–(1.6,1.6)–(1.6,1.6));
238     set_botip(0,3,1);
239     begingroup
240         save t;
241         transform t;
242         (50,-50) transformed t=(230,-50);
243         (500,-50) transformed t=(560,-50);
244         (500,850) transformed t=(560,730);
245         tsu_xform(t)(contents);
246     endgroup;
247     expand_pbox;
248 endif;
249
250 vardef build_kanji.cup(expr ul,lr) =
251     push_stroke(ul–(xpart ul,(-0.2)[ypart lr,ypart ul]),
252         (1.6,1.6)–(1.4,1.4));
253     set_boserif(0,0,10);
254     push_stroke((xpart lr,ypart ul)–(xpart lr,(-0.2)[ypart lr,ypart ul]),
255         (1.6,1.6)–(1.4,1.4));
256     set_boserif(0,0,10);
257     push_stroke((xpart ul,ypart lr)–lr,
258         (1.5,1.5)–(1.5,1.5));
259     perl_structure:=perl_structure&"build_kanji.cup";
260 endif;
261
262 vardef build_kanji.dotcliff_enclose(text contents) =

```

```

263 push_pbox_toexpand("build_kanji.dotcliff_enclose");
264 perl_structure:=perl_structure&"eids.u2FF8.u5E7F.2_";
265 push_stroke((550,810)-(550,660),
266   (1.6,1.6)-(1.5,1.5));
267 set_boserif(0,0,10);
268 push_stroke(
269   (50,-50)..(120,100)..(160,300)..tension 1.2..(180,660)-(850,660),
270   (1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6));
271 set_botip(0,3,1);
272 begingroup
273   save t;
274   transform t;
275   (50,-50) transformed t=(230,-50);
276   (500,-50) transformed t=(560,-50);
277   (500,850) transformed t=(560,630);
278   tsu_xform(t)(contents);
279 endgroup;
280 expand_pbox;
281 enddef;
282
283 vardef build_kanji.gate_enclose(text contents) =
284   perl_structure:=perl_structure&"['build_kanji.gate_enclose";
285   perl_structure:=perl_structure&"eids.u2FF5.u9580.1_";
286   kanji.grtwo.gate;
287   begingroup
288     transform xf;
289     (50,-50) transformed xf=(220,40);
290     (950,850) transformed xf=(780,420);
291     xypart xf=yxpart xf=0;
292     tsu_xform(xf)(contents);
293   endgroup;
294   perl_structure:=perl_structure&"]";
295 enddef;
296
297 vardef build_kanji.harmonic(expr gap,sval,lsread)(text curves) =
298   perl_structure:=perl_structure&"['build_kanji.harmonic,['";
299   begingroup
300     save myxf;
301     transform myxf;
302     (50,-50) transformed myxf=(50,-50);
303     (950,-50) transformed myxf=(950,-50);
304     (50,850) transformed myxf=(50,850-gap);
305     tsu_xform(myxf)(curves);
306     save hsp;
307     hsp:=sp;
308     tsu_xform(myxf)(build_kanji.spread_legs(lsread)(curves));
309     save i,tp;
310     numeric i;

```

```

311 path tp;
312 i:=0;
313 forever:
314   tp:=get_strokep(i);
315   if (ypart ulcorner tp<450)
316     or (abs(ypart (direction 0 of tp)/abs(direction 0 of tp))>0.95)
317     or (abs(ypart (direction infinity of tp)/
318       abs(direction infinity of tp))>0.95):
319     set_bosize(i,0);
320   else:
321     replace_strokep(i)
322       (tp shifted -(0.5[ulcorner tp,lrcorner tp])
323         scaled sval
324         shifted ((0,gap)+0.5[ulcorner tp,lrcorner tp]));
325     set_bosize(i)(get_bosize(i)*sqrt(sval));
326   fi;
327   i:=i-1;
328   exitif find_stroke(i)<hsp;
329 endfor;
330 endgroup;
331 perl_structure:=perl_structure&"]];";
332 enddef;
333
334 vardef build_kanji.level(text curves) =
335   begingroup
336     save xsp;
337     xsp:=sp;
338     curves;
339     save lsum,denom,i;
340     lsum:=0;
341     denom:=0;
342     i:=0;
343     forever:
344       exitif find_stroke(i)<xsp;
345       if unknown get_bosize(i):
346         set_bosize(i,100);
347       fi;
348       if (get_bosize(i)>0):
349         lsum:=lsum+mlog(get_bosize(i));
350         denom:=denom+1;
351       fi;
352       i:=i-1;
353     endfor;
354     i:=0;
355     forever:
356       exitif find_stroke(i)<xsp;
357       if get_bosize(i)>0:
358         set_bosize(i,mexp(lsum/denom));

```

```

359     fi;
360     i:=i-1;
361   endfor;
362 endgroup;
363 enddef;
364
365 vardef build_kanji.lstransform(expr thresh,dist,mypt) =
366   if ypart mypt>thresh:
367     mypt
368   else:
369     (xpart mypt,
370      (ypart mypt)*((thresh-dist)/thresh)
371      +(xpart mypt/1000)[(dist/thresh)*ypart mypt,dist])
372   fi
373 enddef;
374
375 vardef build_kanji.lift_skirt(expr thresh,dist)(text curves) =
376   begingroup
377     save osp;
378     numeric osp;
379     osp:=sp;
380     curves;
381     save i,boti,x,y;
382     numeric x[],y[];
383     i:=0;
384     boti:=whatever;
385     y0:=1000;
386     forever:
387       exitif find_stroke(i)<osp;
388       if (ypart llcorner get_stroke(i))=(ypart urcorner get_stroke(i)):
389         if (unknown boti) or (ypart llcorner get_stroke(i)<y0):
390           y0:=ypart llcorner get_stroke(i);
391           boti:=i;
392         fi;
393       fi;
394       replace_stroke(i)(
395         for j=0 upto length oldp-1:
396           build_kanji.lstransform(thresh,dist)(point j of oldp)
397           ..controls build_kanji.lstransform(thresh,dist)(postcontrol j of oldp)
398           and build_kanji.lstransform(thresh,dist)(precontrol j+1 of oldp)..
399         endfor
400         if cycle oldp:
401           cycle
402         else:
403           build_kanji.lstransform(thresh,dist)(point infinity of oldp)
404         fi);
405       i:=i-1;
406     endfor;

```

```

407   if (known boti) and (y0<=thresh):
408       replace_strokep(boti)
409           (((0,7)+point 0 of oldp)..tension 1.2..((0,-5)+point 0.5 of oldp)..
410             ((0,10)+point 1 of oldp));
411       replace_strokeq(boti)((1.7,1.7)-(1.5,1.5)-(1,1));
412       set_boserif(boti,1,whatever);
413   fi;
414 endgroup;
415 enddef;
416
417 vardef build_kanji.lr(expr splitpoint,overlap)
418 (text leftstuff)(text rightstuff) =
419 perl_structure:=perl_structure
420 &"["'build_kanji.lr";eids.u2ff0._1.1_';[";
421 begingroup
422   save t;
423   transform t[];
424   yypart t1=yypart t2=1;
425   ypart t1=yxpart t1=yxpart t1=yxpart t2=yxpart t2=yxpart t2=0;
426   (50,0) transformed t1=(50,0);
427   (950,0) transformed t1=(splitpoint+overlap/2,0);
428   (50,0) transformed t2=(splitpoint-overlap/2,0);
429   (950,0) transformed t2=(950,0);
430   tsu_xform(t1)(leftstuff);
431   perl_structure:=perl_structure&"],[";
432   tsu_xform(t2)(rightstuff);
433 endgroup;
434 perl_structure:=perl_structure&""]];
435 enddef;
436
437 vardef build_kanji.road_enclose(text contents) =
438 push_pbox_toexpand("build_kanji.road_enclose");
439 perl_structure:=perl_structure&"eids.u2FFA.u2ECC._3";
440 begingroup
441   save myxf;
442   transform myxf;
443   (50,850) transformed myxf=(315,850);
444   (50,50) transformed myxf=(315,50);
445   (950,-50) transformed myxf=(950,50);
446   tsu_xform(myxf)(contents);
447   push_stroke((100,770)..tension 1.2..(180,690)..(220,630),
448     (1,1)-(1.3,1.3)-(1.9,1.9));
449   set_bosize(0,92);
450   push_stroke((80,453)-(240,450)..(mincho[230,210],250)
451     ..tension 1.2..(mincho[180,140],50)..{curl 0.4}(60,-40),
452     (1.4,1.4)-(1.6,1.6)-(1.4,1.4)-(1.2,1.2)-(1,1));
453   set_botip(0,1,1);
454   set_botip(0,2,1);

```

```

455   set_boserif(0,14);
456   set_bosize(0,92);
457   push_stroke((point (2.3+mincho) of get_strokep(0))
458     {(1-2*mincho)*direction (2.3+mincho) of get_strokep(0)}..
459     (240,100)..(270,45+15*mincho)..(400,-10)..tension 3..(950,-20),
460     (1,1)-(1,1,1)-(1,1,1)-(1,7,7)-(1,9,9));
461   set_bosize(0,92);
462   endgroup;
463   expand_pbox;
464   enddef;
465
466   vardef build_kanji.sscale(text tran)(text curves) =
467     tsu_xform(identity shifted (-centre_pt) tran shifted centre_pt)(curves);
468   enddef;
469
470   vardef build_kanji.spread_legs(expr dist)(text curves) =
471     begingroup
472       save osp;
473       numeric osp;
474       osp:=sp;
475       curves;
476       save mytr;
477       transform mytr[];
478       (50,-50) transformed mytr1=(50,-50);
479       (500,-50) transformed mytr1=(500-dist/2,-50);
480       (500,850) transformed mytr1=(500-dist/2,850);
481       (950,-50) transformed mytr2=(950,-50);
482       (500,-50) transformed mytr2=(500+dist/2,-50);
483       (500,850) transformed mytr2=(500+dist/2,850);
484       save i;
485       i:=0;
486       forever:
487         exitif find_stroke(i)<osp;
488         if xpart 0.75[llcorner get_strokep(i),urcorner get_strokep(i)]<475:
489           replace_strokep(i,oldp transformed mytr1);
490         elseif xpart 0.25[llcorner get_strokep(i),urcorner get_strokep(i)]>525:
491           replace_strokep(i,oldp transformed mytr2);
492         fi;
493         i:=i-1;
494       endfor;
495     endgroup;
496   enddef;
497
498   vardef build_kanji.steam_enclose(expr ur)(text contents) =
499     push_pbox_toexpand("build_kanji.steam_enclose");
500   begingroup
501     save xfa,xfb,xfc,xfd;
502     transform xfa,xfb,xfc,xfd;

```

```

503 (50,50) transformed xfc=(50,-50);
504 (950,850) transformed xfc=ur;
505 xypart xfc=yxpart xfc=0;
506 tsu_xform(xfc)(contents);
507
508 (0,0) transformed xfa=(0,950) transformed xfc;
509 (1,1) transformed xfa=(280,810);
510 xypart xfa=yxpart xfa=0;
511 (0,0) transformed xfb=(1100,950) transformed xfc;
512 (1,1) transformed xfb=(970,810);
513 xypart xfb=yxpart xfb=0;
514 (0,1) transformed xfd=(1100,950) transformed xfc;
515 (1,0) transformed xfd=(1000,-50);
516 xypart xfd=yxpart xfd=0;
517
518 push_stroke((1,1)..tension 1.2..(0.5,0.45)..(0,0.2)) transformed xfa,
519 (1.7,1.7)-(1.5,1.5)-(1.2,1.2));
520 set_boserif(0,0,10);
521 set_bosize(0,90);
522
523 push_stroke((get_strokep(0) intersectionpoint
524 ((0,0.8)-(1,0.8)) transformed xfa))-
525 ((0.5,0.8) transformed xfb),
526 (1.5,1.5)-(1.6,1.6));
527 set_boserif(0,1,9);
528 set_bosize(0,90);
529
530 push_stroke((0.8,0.4) transformed xfa)-((0.15,0.4) transformed xfb),
531 (1.6,1.6)-(1.6,1.6));
532 set_boserif(0,1,9);
533 set_bosize(0,90);
534
535 push_stroke((0.2,0) transformed xfa)-(interpath(mincho,
536 (0,1)..tension 1.6..(0.4,0)..(0.6,0)..tension 1.5..
537 (0.73,0.2)..(0.8,0.4),
538 (0,1)..tension 1.6..(0.25,0.2)..{right}(0.8,0){curl 1}..
539 (0.6,0.2)..(0.6,0.4)
540 ) transformed xfd),
541 (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-
542 (1.4,1.4)-(1.2,1.2)-(0.9,0.9));
543 set_boserif(0,1,4);
544 set_botip(0,1,1);
545 set_bosize(0,90);
546 endgroup;
547 expand_pbox;
548 endif;
549
550 vardef build_kanji.tb(expr splitpoint,overlap)

```



```

551 (text topstuff)(text bottomstuff) =
552 perl_structure:=perl_structure
553 &"["build_kanji.tb";eids.u2ff1._1,1,[";
554 begingroup
555   save t;
556   transform t[];
557   xpart t1=xxpart t2=1;
558   xpart t1=yxpart t1=yxpart t1=xpart t2=xy part t2=yxpart t2=0;
559   (0,850) transformed t1=(0,850);
560   (0,-50) transformed t1=(0,splitpoint-overlap/2);
561   (0,850) transformed t2=(0,splitpoint+overlap/2);
562   (0,-50) transformed t2=(0,-50);
563   tsu_xform(t1)(topstuff);
564   perl_structure:=perl_structure&"],[";
565   tsu_xform(t2)(bottomstuff);
566 endgroup;
567 perl_structure:=perl_structure&""]];";
568 endif;
569
570 vardef build_kanji.thickness(expr amount)(text curves) =
571   begingroup
572     save xsp;
573     xsp:=sp;
574     curves;
575     i:=0;
576     forever:
577       exitif find_stroke(i)<xsp;
578       if unknown get_bosize(i):
579         set_bosize(i,100);
580       fi;
581       if get_bosize(i)>0:
582         set_bosize(i,get_bosize(i)*amount);
583       fi;
584       i:=i-1;
585     endfor;
586   endgroup;
587 endif;
588
589 vardef build_kanji.tricluster(expr topxscale)
590 (text topstuff)(text leftstuff)(text rightstuff) =
591   build_kanji.tb(500,0)
592   (build_kanji.sscale(xscaled topxscale)(topstuff))
593   (build_kanji.lr(480,0)
594     (leftstuff)
595     (rightstuff));
596 endif;
597
598 vardef build_kanji.wind_enclose(text contents) =

```

```

599 push_pbox_toexpand("build_kanji.wind_enclose");
600 push_stroke((50,-50)..(120,100)..(160,300)..tension 1.2..(180,760)
601   -interpath(mincho,
602     (770,760){down}..tension 1.2 and 1.6..(810,0)..(860,0)..tension 1.5..
603     (890,100)..(910,200),
604     (760,760){down}..(780,100)..{right}(910,-40){curl 1}..
605     (890,60)..(890,160)),
606     (1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6)-
607     (14,14)-(14,14)-(1.2,1.2)-(0.9,0.9));
608 set_botip(0,3,1);
609 set_botip(0,4,1);
610 set_boserif(0,3,4);
611 set_boserif(0,4,4);
612 begingroup
613   save t;
614   transform t;
615   (50,-50) transformed t=(230,-50);
616   (950,-50) transformed t=(700,-50);
617   (950,850) transformed t=(700,660+20*mincho);
618   tsu_xform(t)(contents);
619 endgroup;
620 expand_pbox;
621 endif;

```

# leftrad.mp

```
1 %
2 % Radicals for left side (often special forms of other radicals)
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(leftrad);
32
33 _____
34
35 vardef kanji.leftrad.boat =
36   push_pbox_toexpand("kanji.leftrad.boat");
37   push_stroke((560,850)..tension 1.2..(500,750)..(450,700),
38     (1.6,1.6)-(1.4,1.4)-(1.2,1.2));
39   set_boserif(0,0,10);
40   push_stroke(
41     (150,0)..(260,200){dir 89.5}(300,700)-(730,700),
42     (1.5,1.5)-(1.6,1.6)-(1.7,1.7)-(1.7,1.7));
43   build_kanji.add_jtail(0);
44   set_botip(0,2,1);
45   set_botip(0,3,0);
46   set_boserif(0,2,4);
47   set_boserif(0,3,4);
48   push_stroke((410,610)..tension 1.2..(520,540)..(560,480),
49     (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
50   set_bosize(0,90);
51   push_stroke((110,350)..tension 1.2..(500,380)..(890,440),
52     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
53   push_stroke((500,300)-(500,100),
54     (1.6,1.6)-(1.4,1.4));
55   set_boserif(0,0,10);
56   set_bosize(0,90);
57   expand_pbox;
58 enddef;
59
60 vardef kanji.leftrad.day =
61   push_pbox_toexpand("kanji.leftrad.day");
62   tsu_xform(identity shifted (0,-600) yscaled 0.62 shifted (0,600))
63     (kanji.grone.day);
64   expand_pbox;
65 enddef;
66
67 vardef kanji.leftrad.earth =
68   push_pbox_toexpand("kanji.leftrad.earth");
69   build_kanji.sscale(yscaled 0.9)
70     (build_kanji.lift_skirt(370,150+30*mincho)(kanji.grone.earth));
```

```

71 expand_pbox;
72 enddef;
73
74 vardef kanji.leftrad.eat =
75   push_pbox_toexpand("kanji.leftrad.eat");
76   kanji.grtwo.eat;
77   pop_stroke;
78   replace_strokep(-6)(subpath(0,175) of oldp);
79   replace_strokep(-1)
80     ((130,-20)..tension 1.2..(point 0 of get_strokep(-4)..(720,80));
81   replace_strokep(0)((650,170)..tension 1.3..(720,80)..(770,-20));
82   replace_strokeq(0)((1,1)-(1.5,1.5)-(1.8,1.8));
83   expand_pbox;
84 enddef;
85
86 vardef kanji.leftrad.hand =
87   push_pbox_toexpand("kanji.leftrad.hand");
88   build_kanji.sscale(xscaled 1.5)
89     (push_stroke((500,810),(1.6,1.6));
90     build_kanji.add_jtail(0);
91     set_boserif(0,0,10));
92   push_stroke((100,580)-(900,580),(1.6,1.6)-(1.6,1.6));
93   set_boserif(0,1,9);
94   push_stroke((120,280)..tension 1.2..(500,330)..(910,420),
95     (1.8,1.8)-(1.5,1.5)-(1.1,1.1));
96   expand_pbox;
97 enddef;
98
99 vardef kanji.leftrad.heart =
100  push_pbox_toexpand("kanji.leftrad.heart");
101  kanji.radical.vline;
102  push_stroke((320,630)..tension 1.2..(210,470)..(60,380),
103    (1,1)-(1.4,1.4)-(1.7,1.7));
104  push_stroke((660,660)..tension 1.2..(840,530)..(890,470),
105    (1,1)-(1.5,1.5)-(1.8,1.8));
106  expand_pbox;
107 enddef;
108
109 vardef kanji.leftrad.ice =
110  push_pbox_toexpand("kanji.leftrad.ice");
111  push_stroke((450,790)..tension 1.2..(600,730)..(750,650),
112    (1,1)-(1.3,1.3)-(1.9,1.9));
113  push_stroke(
114    interpath(mincho,
115      (880,350)..(810,270)..(750,210)..(600,90)..(450,0),
116      (880,480)..tension 1.2..(630,300)..{dir 180}(360,240){dir 350}..
117      (500,130)..{curl 0}(550,-20)),
118  interpath(mincho,

```

```

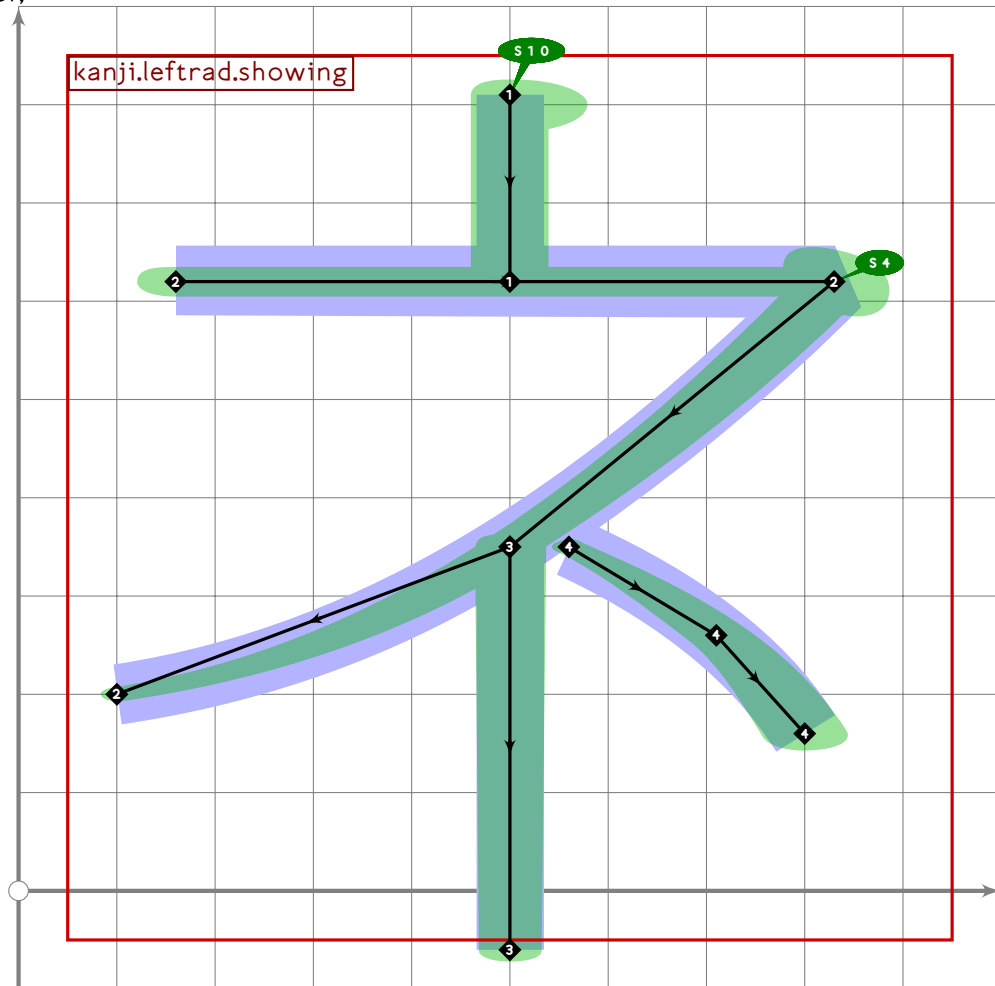
119     (1.4,1.4)–(1.45,1.45)–(1.5,1.5)–(1.6,1.6)–(1.7,1.7),
120     (0.8,0.8)–(1.2,1.2)–(2.1,2.1)–(1.2,1.2)–(1.9,1.9));
121     expand_pbox;
122 enddef;
123
124 vardef kanji.leftrad.king =
125     push_pbox_toexpand("kanji.leftrad.king");
126     build_kanji.sscale(yscaled 0.9)
127     (build_kanji.lift_skirt(370,150+30*mincho)(kanji.grone.king));
128     expand_pbox;
129 enddef;
130
131 vardef kanji.leftrad.long_hair =
132     push_pbox_toexpand("kanji.leftrad.long_hair");
133     build_kanji.level(
134         kanji.grtwo.long;
135         pop_stroke;pop_stroke;pop_stroke;
136         replace_stroke(-3)((300,320)–(300,770)–(800,770));
137         build_kanji.sscale(xyscaled (0.9,0.38) shifted (0,-240))
138         (kanji.radical.mu));
139     expand_pbox;
140 enddef;
141
142 vardef kanji.leftrad.mouth =
143     push_pbox_toexpand("kanji.leftrad.mouth");
144     build_kanji.box((200,700),(800,230));
145     replace_stroke(-1)((subpath (0,2) of oldp)–((0,40)+point 3 of oldp));
146     expand_pbox;
147 enddef;
148
149 vardef kanji.leftrad.person =
150     push_pbox_toexpand("kanji.leftrad.person");
151     push_stroke((900,800)..(500,520)..(0,330),
152         (1.6,1.6)–(1.4,1.4)–(0.8,0.8));
153     set_bosize(0,115);
154     set_boserif(0,0,10);
155     push_stroke(
156         (point 0.7 of get_stroke(0))..(xpart point 0.7 of get_stroke(0),-40),
157         (1.6,1.6)–(1.4,1.4));
158     set_bosize(0,115);
159     expand_pbox;
160 enddef;
161
162 vardef kanji.leftrad.seven =
163     push_pbox_toexpand("kanji.leftrad.seven");
164     build_kanji.sscale(shifted (0,-300) yscaled 0.7 shifted (0,300))
165     (kanji.grone.seven);
166     set_boserif(-1,3,whatever);

```

```

167 expand_pbox;
168 enddef;

```



```

169
170 vardef kanji.leftrad.showing =
171   push_pbox_toexpand("kanji.leftrad.showing");
172   push_stroke((500,810)-(500,620),(1.6,1.6)-(1.57,1.57));
173   set_boserif(0,0,10);
174   push_stroke((160,620)-(830,620)..tension 1.2..
175     (500,350)..(100,200),
176     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
177   set_botip(0,1,0);
178   set_boserif(0,1,4);
179   push_stroke((500,350)-(500,-60),(1.5,1.5)-(1.4,1.4));
180   push_stroke((560,350)..tension 1.2..(710,260)..(800,160),
181     (1,1)-(1.4,1.4)-(1.7,1.7));
182   expand_pbox;
183 enddef;
184
185 vardef kanji.leftrad.two_branch_tree =
186   push_pbox_toexpand("kanji.leftrad.two_branch_tree");
187   tsu_xform(identity shifted (0,-50))

```

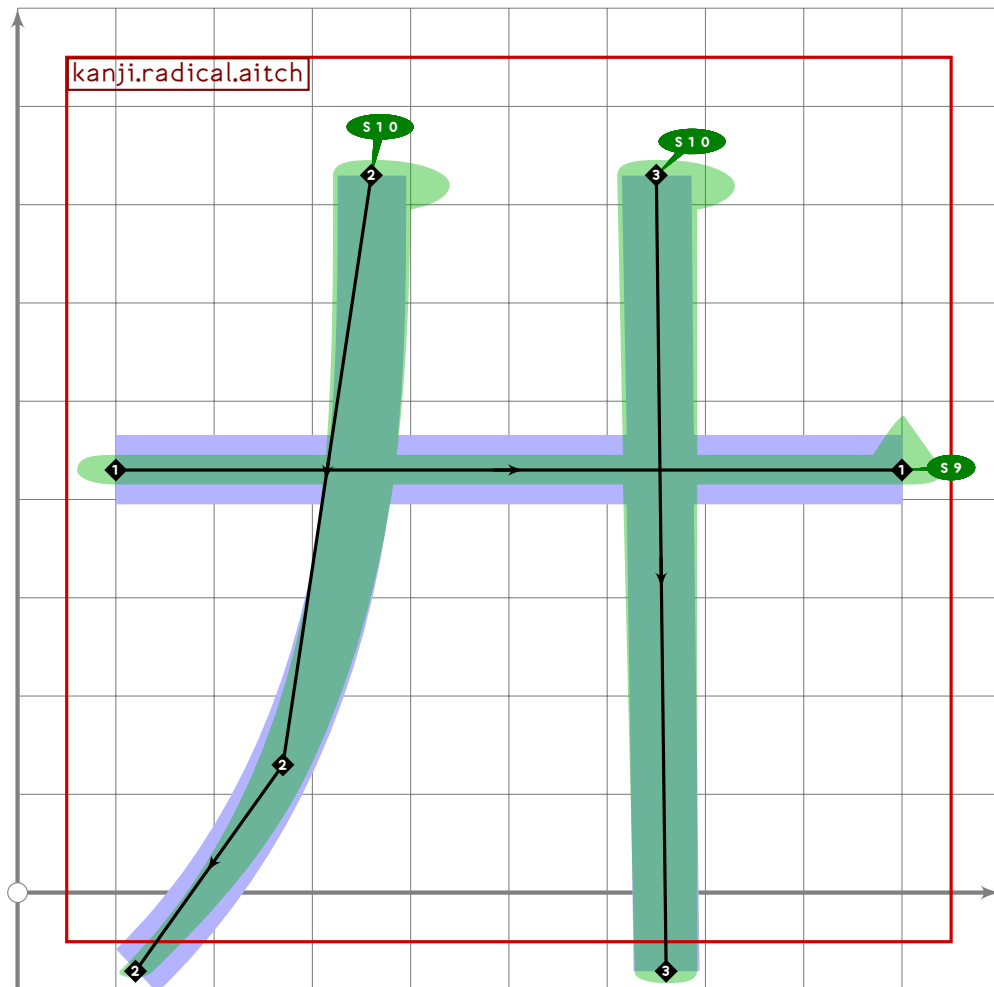
```

188     (build_kanji.add_beret(kanji.leftrad.wood));
189     expand_pbox;
190 enddef;
191
192 vardef kanji.leftrad.water =
193     push_pbox_toexpand("kanji.leftrad.water");
194     kanji.leftrad.ice;
195     push_stroke((230,590)..tension 1.2..(390,530)..(540,450),
196         (1,1)-(1.3,1.3)-(1.9,1.9));
197     expand_pbox;
198 enddef;
199
200 vardef kanji.leftrad.woman =
201     push_pbox_toexpand("kanji.leftrad.woman");
202     perl_structure:=perl_structure&"eids.softhead.u5973";
203     push_stroke((100,580)-(800,580){curl 0}..(550,170)..{curl 0.3}(80,-40),
204         (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(0.94,0.94));
205     set_botip(0,1,0);
206     set_boserif(0,1,4);
207     push_stroke((450,830)..(310,510)..(140,220),
208         (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
209     set_boserif(0,0,10);
210     push_stroke((point 1.75 of get_stroke(0))..(530,200)..(840,60),
211         (0.85,0.85)-(1.5,1.5)-(1.8,1.8)-(1.6,1.6));
212     replace_stroke(0)(insert_nodes(oldp)(1.5));
213     expand_pbox;
214 enddef;
215
216 vardef kanji.leftrad.wood =
217     push_pbox_toexpand("kanji.leftrad.wood");
218     perl_structure:=perl_structure&"eids.softhead.u6728";
219     push_stroke((500,780)-(500,0),
220         (1.6,1.6)-(1.6,1.6));
221     set_boserif(0,0,10);
222     push_stroke((100,580)-(830,580),
223         (1.6,1.6)-(1.6,1.6));
224     set_boserif(0,1,9);
225     push_stroke((500,580)..(250,200)..(80,70),
226         (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
227     push_stroke((500,470)..(680,320)..(800,210),
228         (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
229     expand_pbox;
230 enddef;

```

# radical.mp

```
1 %  
2 % Radicals that are not common kanji in themselves  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(radical);  
32  
33
```



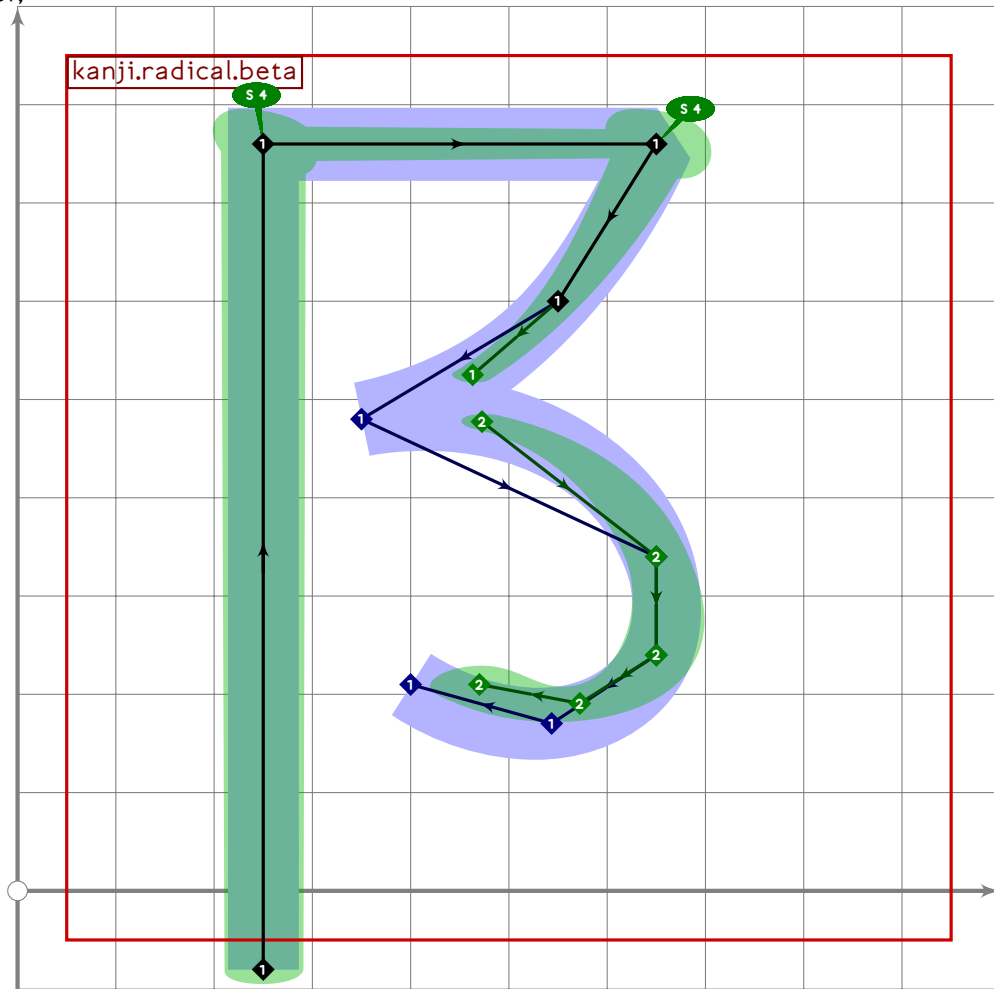
```
34  
35 vardef kanji.radical.aitch =  
36   push_pbox_toexpand("kanji.radical.aitch");  
37   push_stroke((100,430)-(900,430),(1.6,1.6)-(1.6,1.6));  
38   set_boserif(0,1,9);  
39   push_stroke((360,730){down}..(270,130)..(120,-80),  
40     (1.6,1.6)-(1.3,1.3)-(1,1));  
41   set_boserif(0,0,10);  
42   push_stroke((650,730)-(660,-80),(1.6,1.6)-(1.4,1.4));  
43   set_boserif(0,0,10);
```



```

44 expand_pbox;
45 enddef;

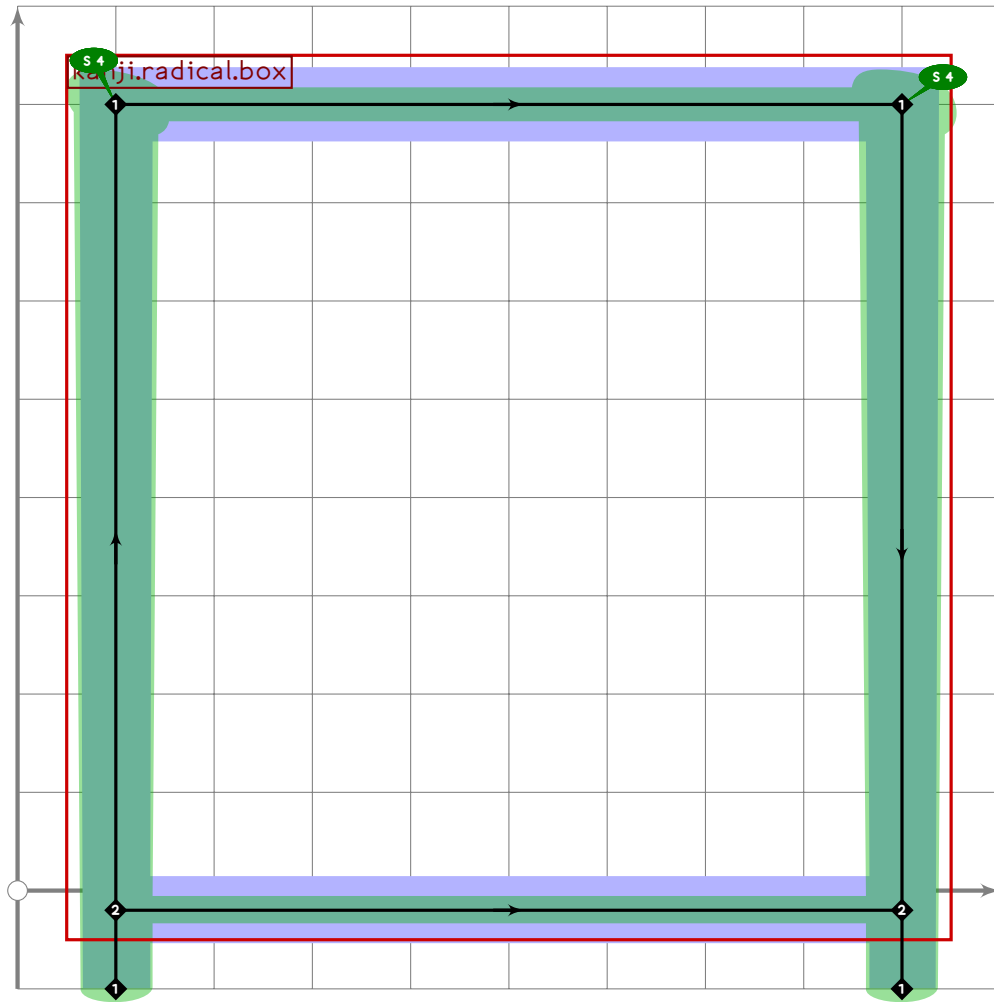
```



```

46
47 vardef kanji.radical.beta =
48   push_pbox_toexpand("kanji.radical.beta");
49   push_stroke((250,-80)-(250,760)-(650,760)..tension 1.2..
50     (550,600)..{curl 1}(350,480){curl 0.5}..
51     (650,340)..(650,240)..{curl 0.3}(400+70*mincho,210),
52     (1.6,1.6)-(1.7,1.7)-(1.6,1.6)-
53     (1.1,1.3)-(0.55,1.4)-
54     (1.4,1.4)-(1.6,1.6)-(1.8,1.8)-(1.9,1.9));
55   set_botip(0,1,1);
56   set_botip(0,2,0);
57   set_botip(0,4,1);
58   set_boserif(0,1,4);
59   set_boserif(0,2,4);
60   replace_strokep(0)(insert_nodes(oldp)(6.5));
61   expand_pbox;
62 enddef;

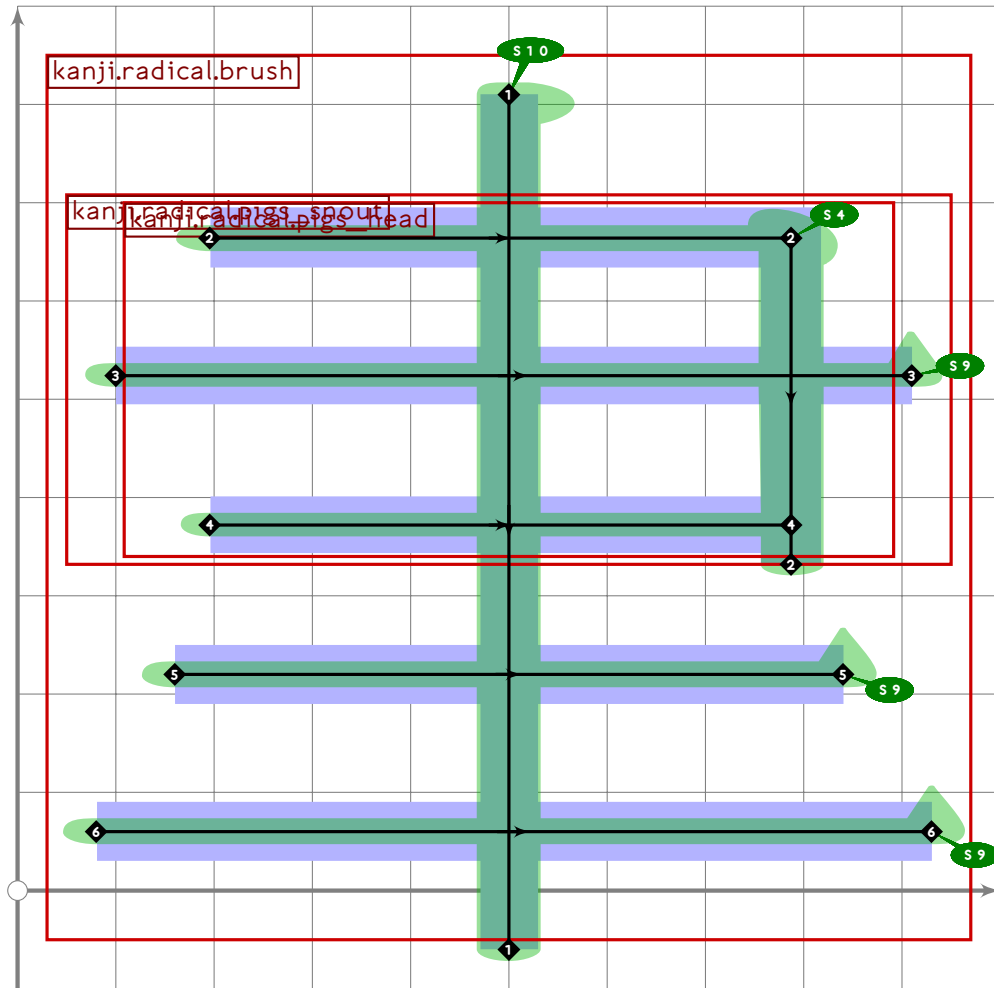
```



```

63
64 vardef kanji.radical.box =
65 perl_structure:=perl_structure&"eids.u2FF4.u56D71_";
66 push_pbox_toexpand("kanji.radical.box");
67 build_kanji.box((100,800),(900,-20));
68 expand_pbox;
69 enddef;

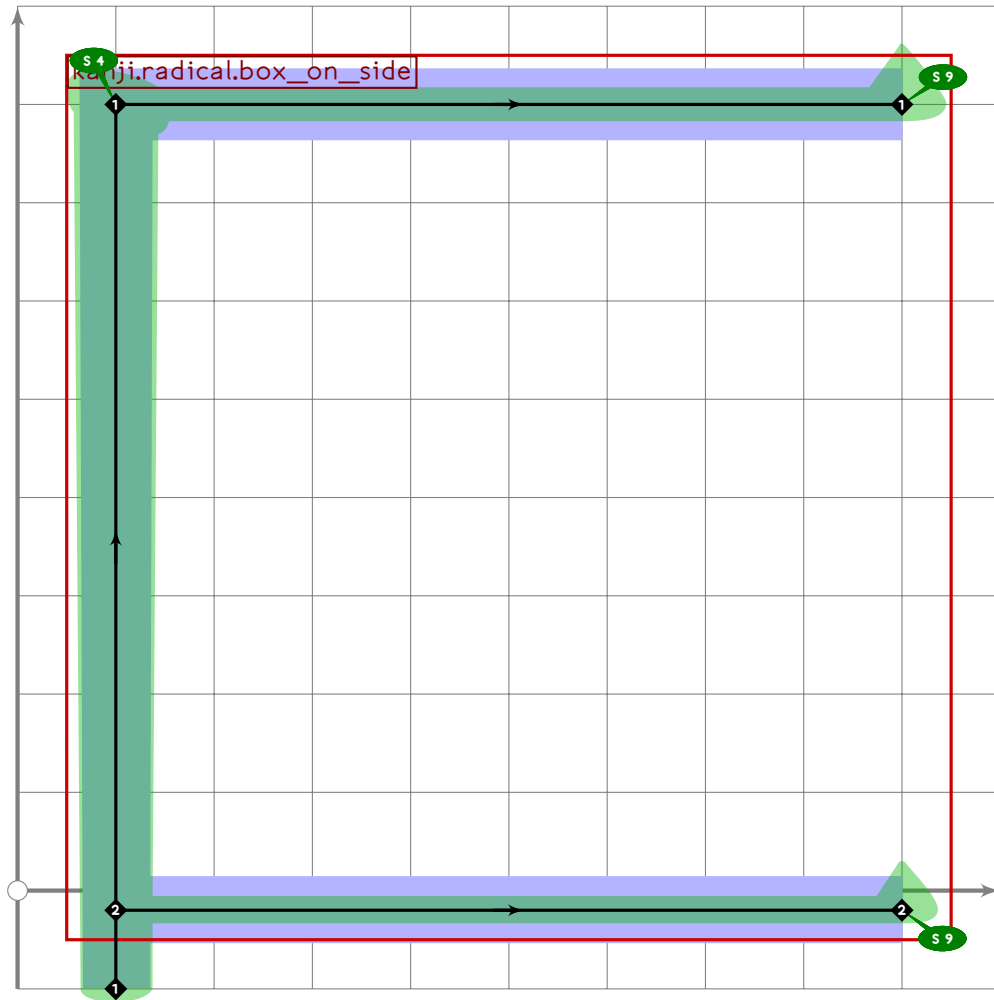
```



```

70
71 vardef kanji.radical.brush =
72   push_pbox_toexpand("kanji.radical.brush");
73   push_stroke((500,810)-(500,-60),(1.6,1.6)-(1.5,1.5));
74   set_boserif(0,0,10);
75   tsu_xform(identity yscaled 0.4 shifted (0,360))
76     (kanji.radical.pigs_snout);
77   push_stroke((160,220)-(840,220),
78     (1.6,1.6)-(1.6,1.6));
79   set_boserif(0,1,9);
80   push_stroke((80,60)-(930,60),
81     (1.6,1.6)-(1.6,1.6));
82   set_boserif(0,1,9);
83   for i=-5 upto 0: set_bosize(i,85); endfor;
84   expand_pbox;
85 enddef;

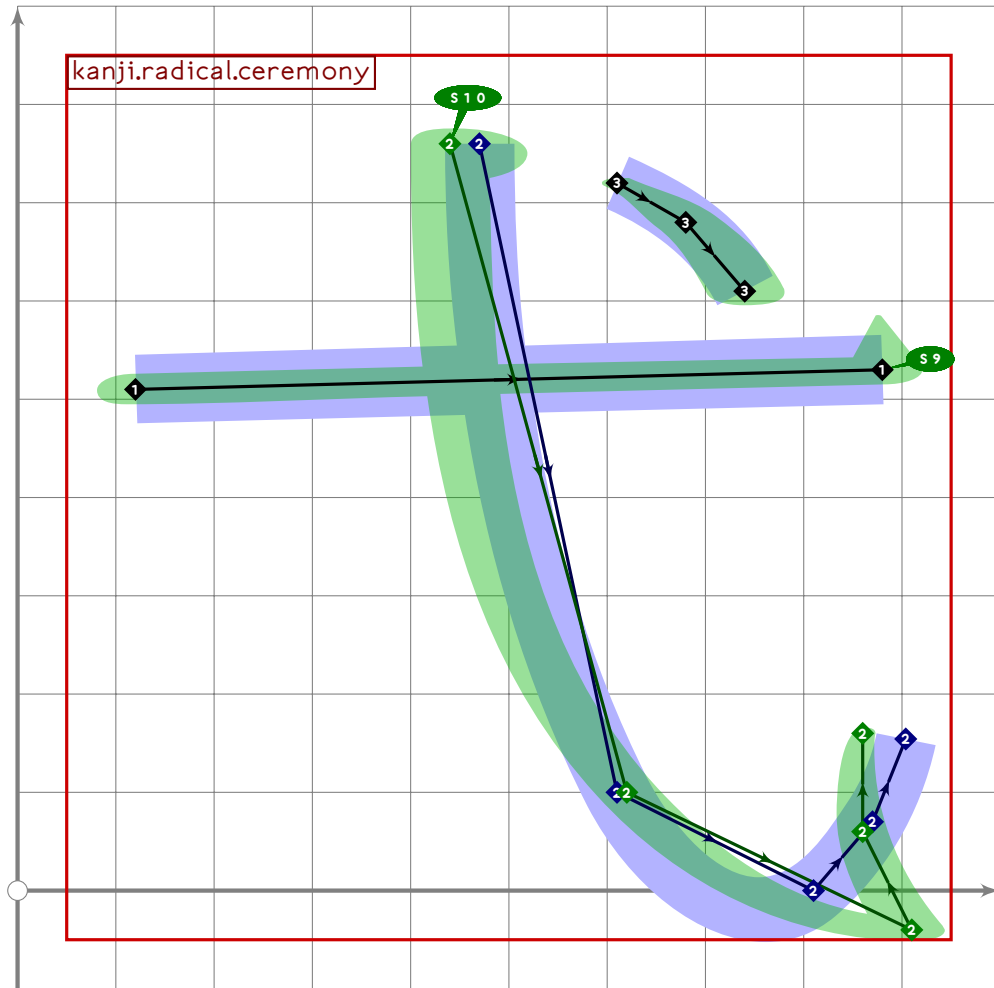
```



```

86
87 vardef kanji.radical.box_on_side =
88   push_pbox_toexpand("kanji.radical.box_on_side");
89   build_kanji.box((100,800),(900,-20));
90   replace_stroke(-1)(subpath (0,2) of oldp);
91   replace_strokeq(-1)(subpath (0,2) of oldq);
92   set_boserif(-1,2,9);
93   set_botip(-1,2,whatever);
94   set_boserif(0,1,9);
95   expand_pbox;
96 enddef;

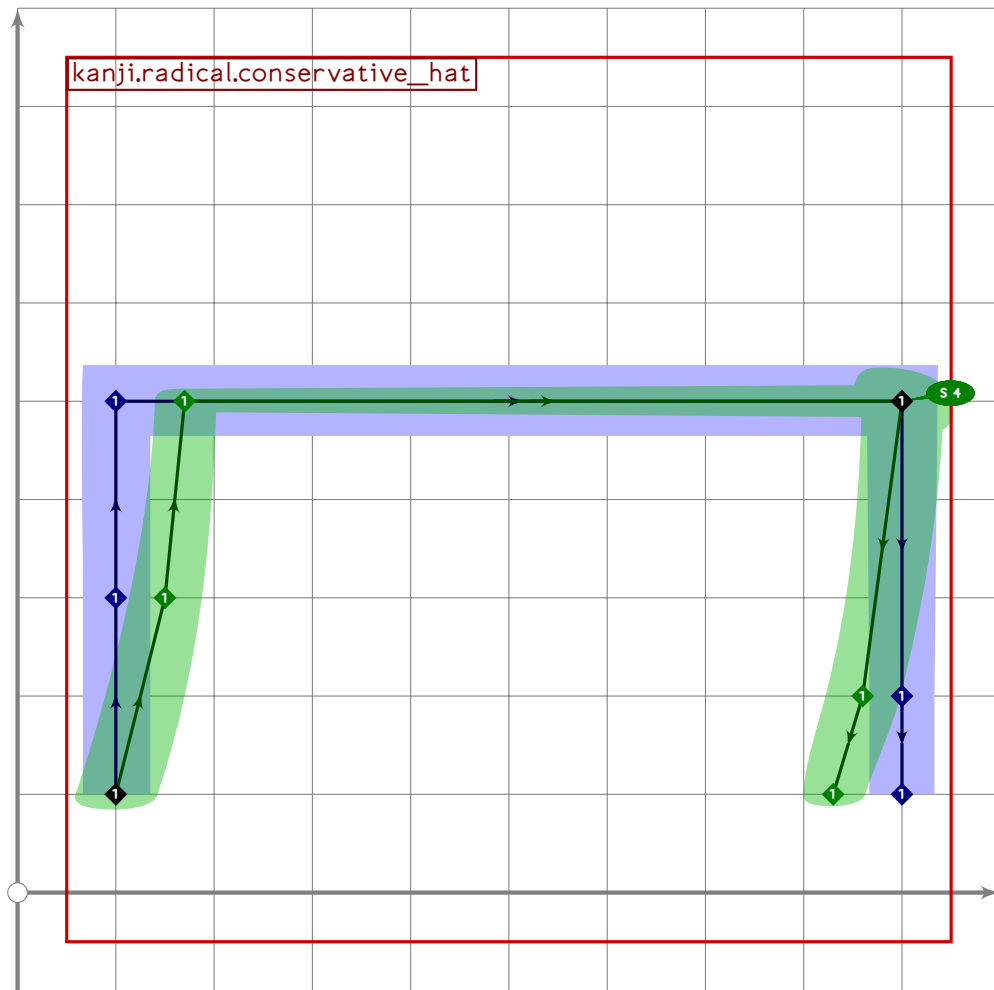
```



```

97
98 vardef kanji.radical.ceremony =
99   push_pbox_toexpand("kanji.radical.ceremony");
100   push_stroke((120,510)-(880,530),(1.6,1.6)-(1.6,1.6));
101   set_boserif(0,1,9);
102   push_stroke(interpath(mincho,
103     (470,760){down}..(610,100)..(810,0)..tension 1.5..
104     (870,70)..{curl 0.3}(910,200),
105     (440,760){down}..(620,100)..{right}(910,-40){curl 1}..
106     (860,60)..(860,160)),
107     (1.6,1.6)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(0.9,0.9));
108   set_boserif(0,0,10);
109   push_stroke((610,720)..tension 1.2..(680,680)..(740,610),
110     (1,1)..(1.5,1.5)-(1.7,1.7));
111   set_bosize(0,90);
112   expand_pbox;
113 enddef;

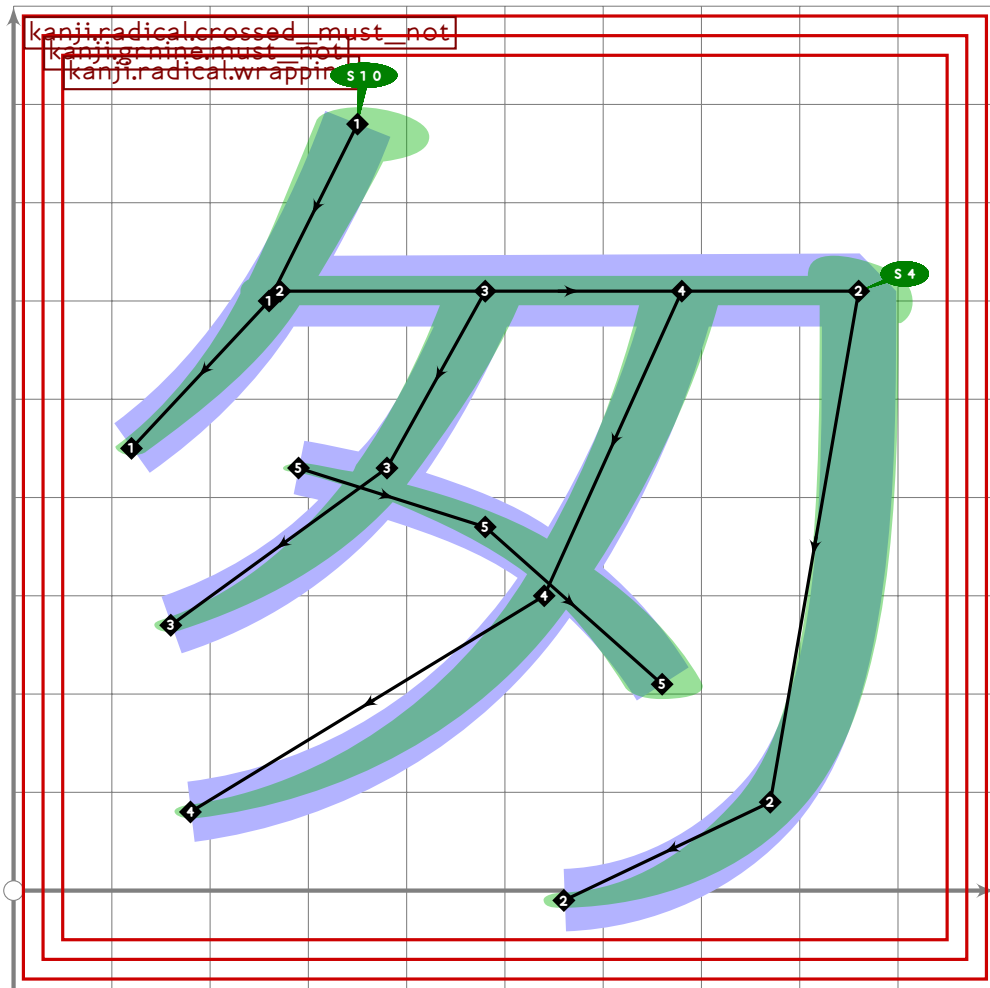
```



```

114
115 vardef kanji.radical.conservative_hat =
116   push_pbox_toexpand("kanji.radical.conservative_hat");
117   push_stroke((100,100)..(100+50*mincho,300)..(100+70*mincho,500)-
118     (900,500)..(900-40*mincho,200)..(900-70*mincho,100),
119     (1.7,1.7)-(1.6,1.6)-(1.4,1.4)-(1.7,1.7)-(1.6,1.6)-(1.4,1.4));
120   set_bosize(0,95);
121   set_botip(0,2,1);
122   set_botip(0,3,1);
123   set_boserif(0,3,4);
124   expand_pbox;
125 enddef;

```



```

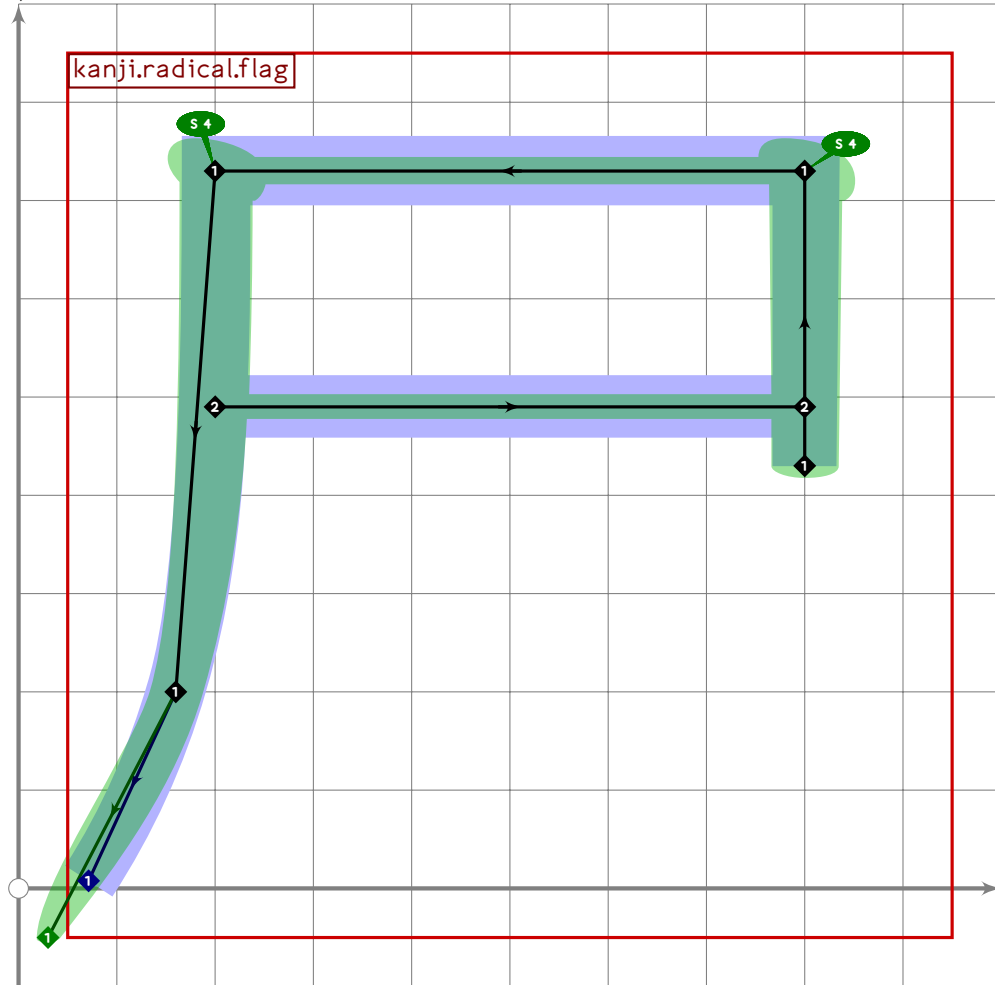
126
127 vardef kanji.radical.crossed_must_not =
128   push_pbox_toexpand("kanji.radical.crossed_must_not");
129   kanji.grnine.must_not;
130   push_stroke((290,430)..tension 1.2..(480,370)..(660,210),
131     (1,1)-(14,14)-(17,17));
132   set_bosize(0,90);
133   expand_pbox;
134 enddef;
135
136 vardef kanji.radical.cut_the_grass =
137   push_pbox_toexpand("kanji.radical.cut_the_grass");
138   push_stroke((150,750)..(500,500)..(850,50),
139     (1.3,1.3)-(1.5,1.5)-(1.7,1.7));
140   push_stroke((700,800)..(500,330)..(70,-30),
141     (1.6,1.6)-(1.5,1.5)-(1,1));
142   set_bosize(0,0,10);
143   expand_pbox;
144 enddef;
145
146 vardef kanji.radical.eight =

```

```

147 push_pbox_toexpand("kanji.radical.eight");
148 push_stroke((610,760)..tension 1.3..(760,240)..(880,-10),
149   (1,1)-(14,14)-(18,18));
150 set_bosize(0,110);
151 push_stroke((350,740)..(280,360)..(160,80)..(40,-30),
152   (1.6,1.6)-(14,14)-(1.3,1.3)-(0.88,0.88));
153 set_bosize(0,110);
154 set_boserif(0,0,10);
155 expand_pbox;
156 enddef;

```



```

157
158 vardef kanji.radical.flag =
159   perl_structure:=perl_structure&"eids.u2FF8.u5C381_";
160   push_pbox_toexpand("kanji.radical.flag");
161   push_stroke((800,430)-(800,730)-(200,730){down}..(160,200)..(30,-50),
162     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.9,0.9));
163   set_botip(0,1,1);
164   set_botip(0,2,1);
165   set_boserif(0,1,4);
166   set_boserif(0,2,4);
167   set_bosize(0,93);

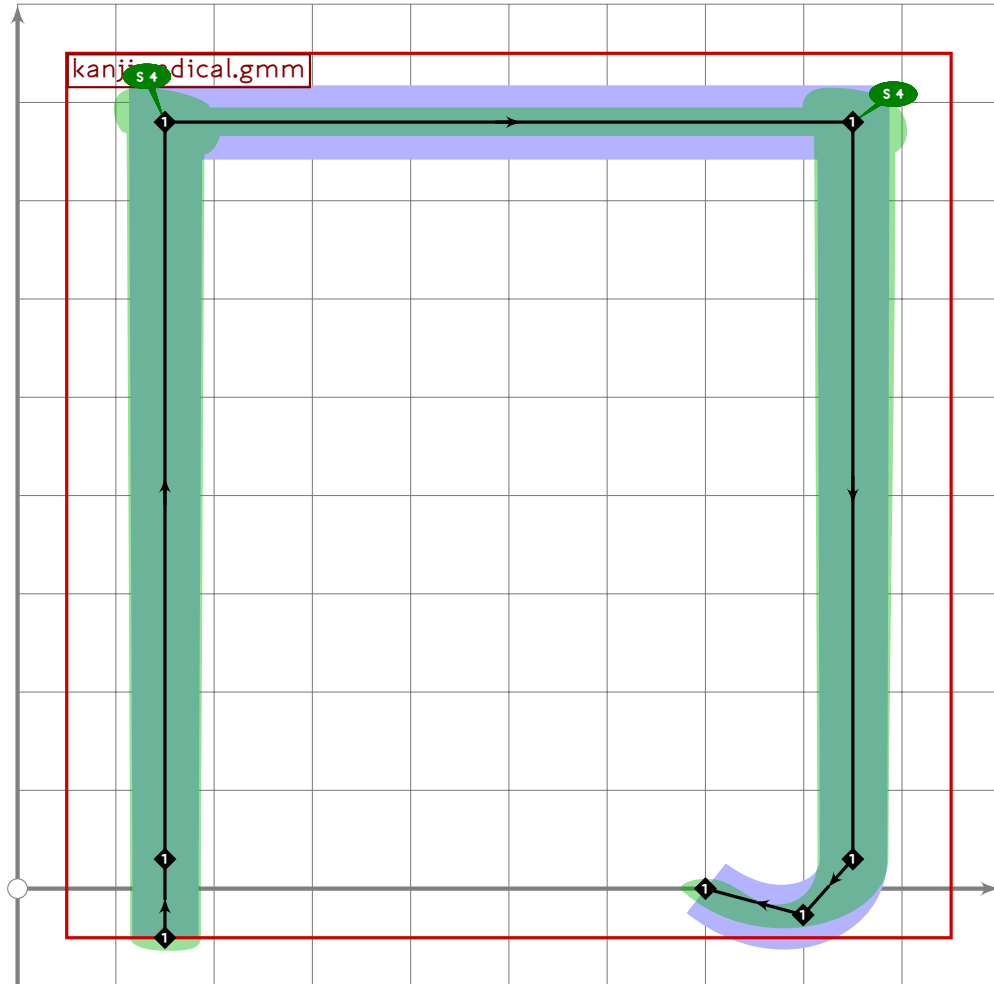
```



```

168 push_stroke((((0,490)-(1000,490))
169     intersectionpoint reverse get_strokep(0))-(800,490),
170     (1.5,1.5)-(1.5,1.5));
171 set_bosize(0,93);
172 expand_pbox;
173 endif;
174

```



```

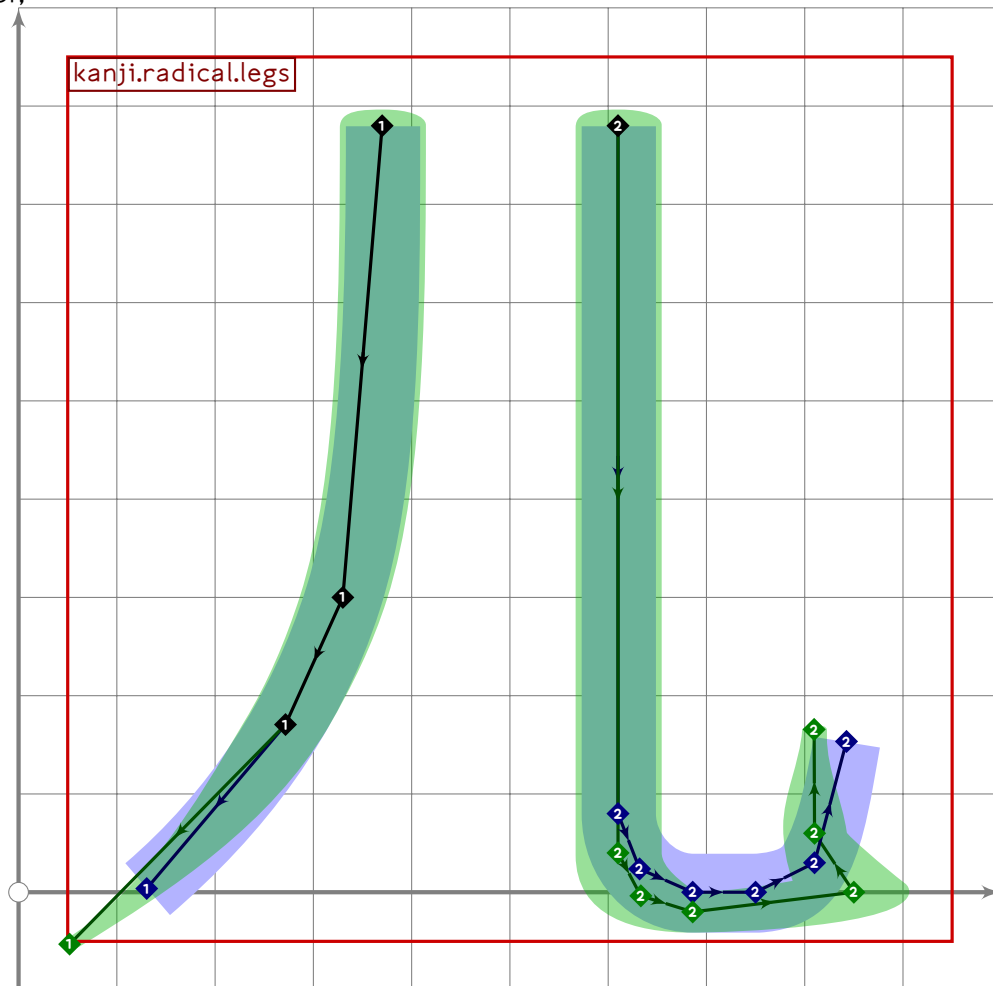
175 % "George Michael's Moustache" radical, according to Schultzzz
176 vardef kanji.radical.gmm =
177   push_pbox_toexpand("kanji.radical.gmm");
178   push_stroke(((150,-50)-(150,30)-(150,780)-(850,780),
179     (1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6)));
180   build_kanji.add_jtail(0);
181   set_botip(0,2,1);
182   set_botip(0,3,1);
183   set_boserif(0,2,4);
184   set_boserif(0,3,4);
185   expand_pbox;
186 endif;
187
188 vardef kanji.radical.kettle_lid =

```

```

189 push_pbox_toexpand("kanji.radical.kettle_lid");
190 push_stroke((500,700)..(500,160),(1.6,1.6)-(1.5,1.5));
191 set_bosize(0,125);
192 set_boserif(0,0,10);
193 push_stroke((100,160)-(900,160),(1.7,1.7)-(1.7,1.7));
194 set_bosize(0,125);
195 set_boserif(0,1,9);
196 expand_pbox;
197 enddef;

```



```

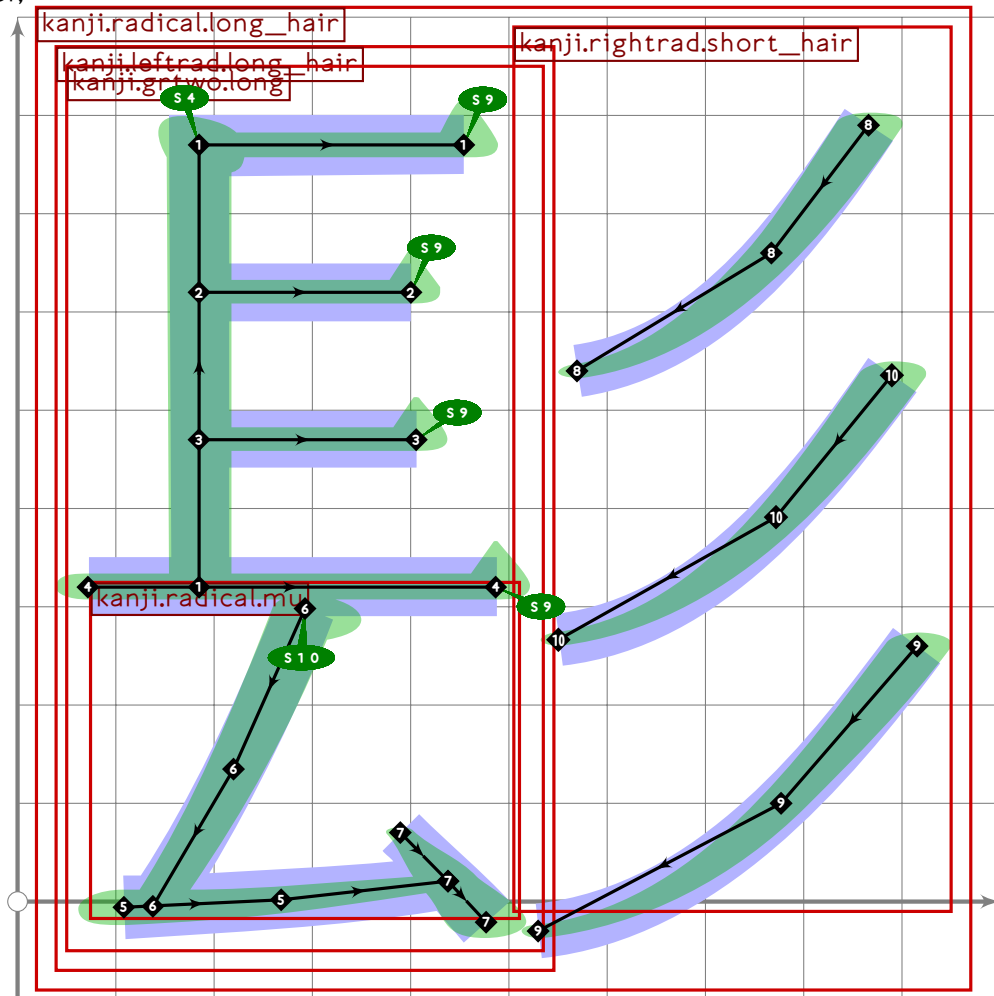
198
199 vardef kanji.radical.legs =
200   push_pbox_toexpand("kanji.radical.legs");
201   push_stroke((370,780){down}..(330,300)..(40,-60),
202     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(0.8,0.7));
203   replace_strokep(0)(insert_nodes(oldp)(1.3));
204   set_bosize(0,110);
205   push_stroke((610,780),
206     (1.6,1.6));
207   build_kanji.add_ltail(0);
208   set_bosize(0,110);
209   expand_pbox;

```

```

210 endif;
211
212 vardef kanji.radical.life_minus =
213   push_pbox_toexpand("kanji.radical.life_minus");
214   push_stroke((500,780)-(500,0),(1.6,1.6)-(1.6,1.6));
215   set_boserif(0,0,10);
216   push_stroke((280,700)..(220,360)..(140,120),
217     (1.6,1.6)-(1.2,1.2)-(0.8,0.8));
218   set_boserif(0,0,10);
219   push_stroke((point 0.9 of get_strokep(0))-
220     (820,ypart point 0.9 of get_strokep(0)),
221     (1.6,1.6)-(1.6,1.6));
222   set_boserif(0,1,9);
223   push_stroke((120,0)-(880,0),(1.6,1.6)-(1.6,1.6));
224   set_boserif(0,1,9);
225   expand_pbox;
226 endif;

```



```

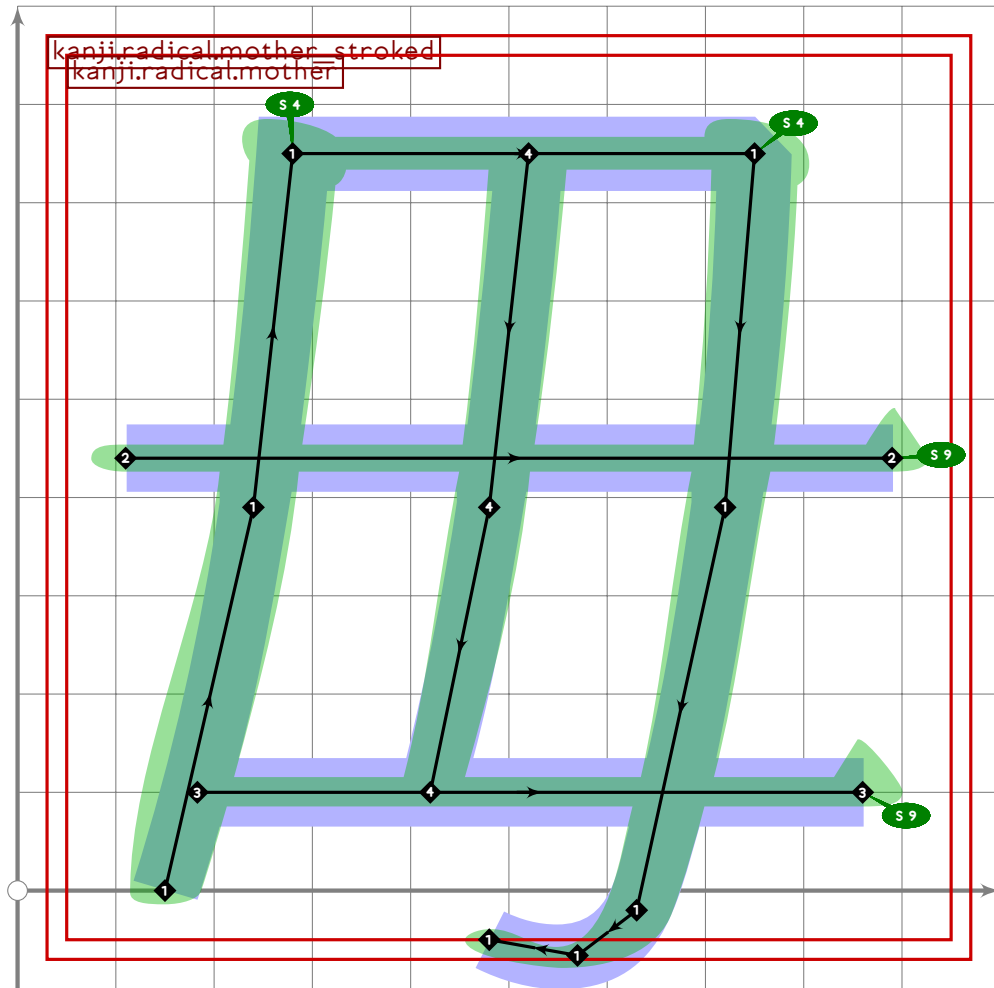
227
228 vardef kanji.radical.long_hair =
229   push_pbox_toexpand("kanji.radical.long_hair");
230   build_kanji.level(build_kanji.lr(520,30)

```

```

231 (kanji.leftrad.long_hair)
232 (tsu_xform(identity shifted (0,40))
233 (kanji.rightrad.short_hair));
234 expand_pbox;
235 enddef;
236
237 vardef kanji.radical.long_kimono =
238 push_pbox_toexpand("kanji.radical.long_kimono");
239 build_kanji.level(build_kanji.tb(600,-50)
240 (kanji.grone.earth)
241 (kanji.bottomrad.long_kimono));
242 expand_pbox;
243 enddef;
244
245 vardef kanji.radical.mother =
246 push_pbox_toexpand("kanji.radical.mother");
247 push_stroke(
248 (150,0)..(240,390)..tension 1.2..(280,750)-
249 (750,750)..(720,390)..tension 1.2..(630,-20){dir 250}{curl 0.2}(480,-50),
250 (1.5,1.5)-(1.6,1.6)-(1.7,1.7)-(1.7,1.7)-(1.6,1.6)-(1.5,1.5));
251 replace_strokeq(0)(insert_nodes(oldp)((length oldp)-0.5));
252 replace_strokeq(0)(oldq-(1.4,1.4)-(1.2,1.2));
253 set_botip(0,2,1);
254 set_botip(0,3,0);
255 set_boserif(0,2,4);
256 set_boserif(0,3,4);
257 push_stroke((110,440)-(890,440),(1.5,1.5)-(1.5,1.5));
258 set_boserif(0,1,9);
259 push_stroke((183,100)-(860,100),(1.6,1.6)-(1.6,1.6));
260 set_boserif(0,1,9);
261 expand_pbox;
262 enddef;

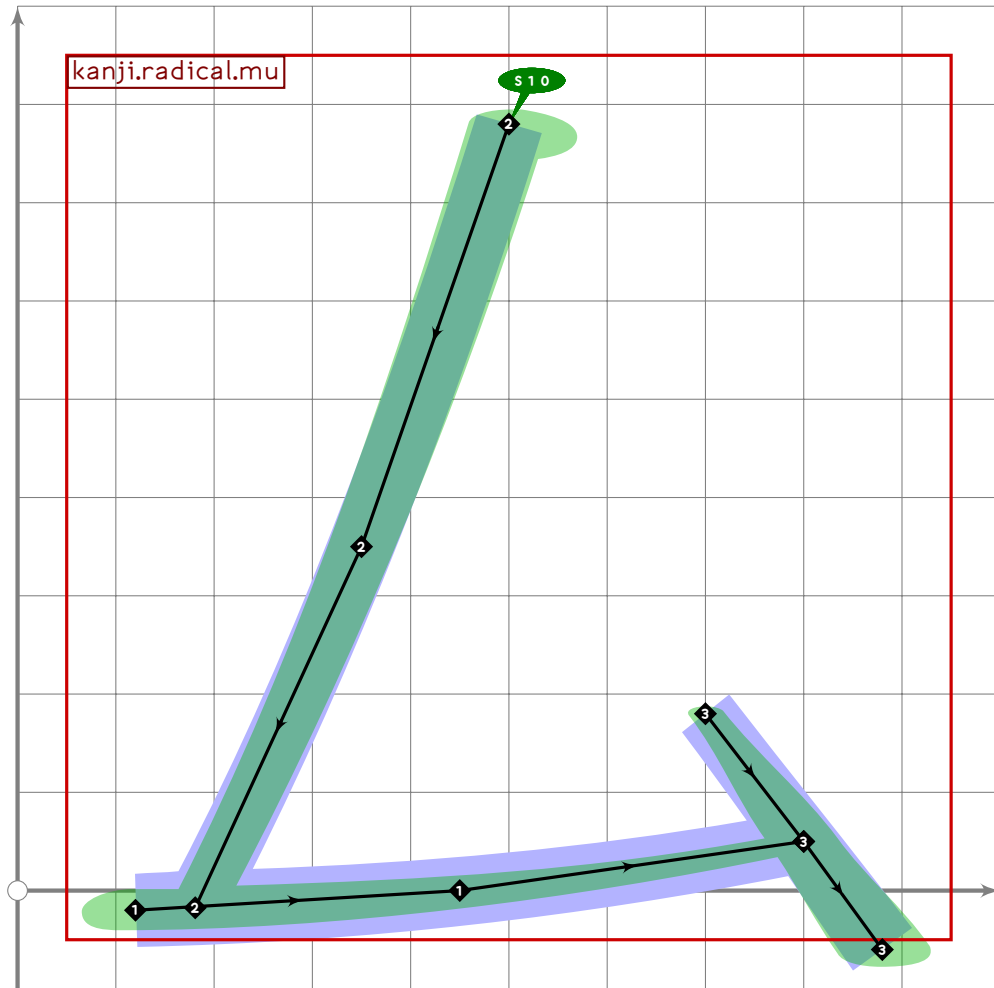
```



```

263
264 vardef kanji.radical.mother_stroked =
265   push_pbox_toexpand("kanji.radical.mother_stroked");
266   kanji.radical.mother;
267   push_stroke((520,750)..tension 1.2..(480,390)..(420,100),
268     (1.6,1.6)-(1.5,1.5)-(1.4,1.4));
269   expand_pbox;
270 enddef;

```



```

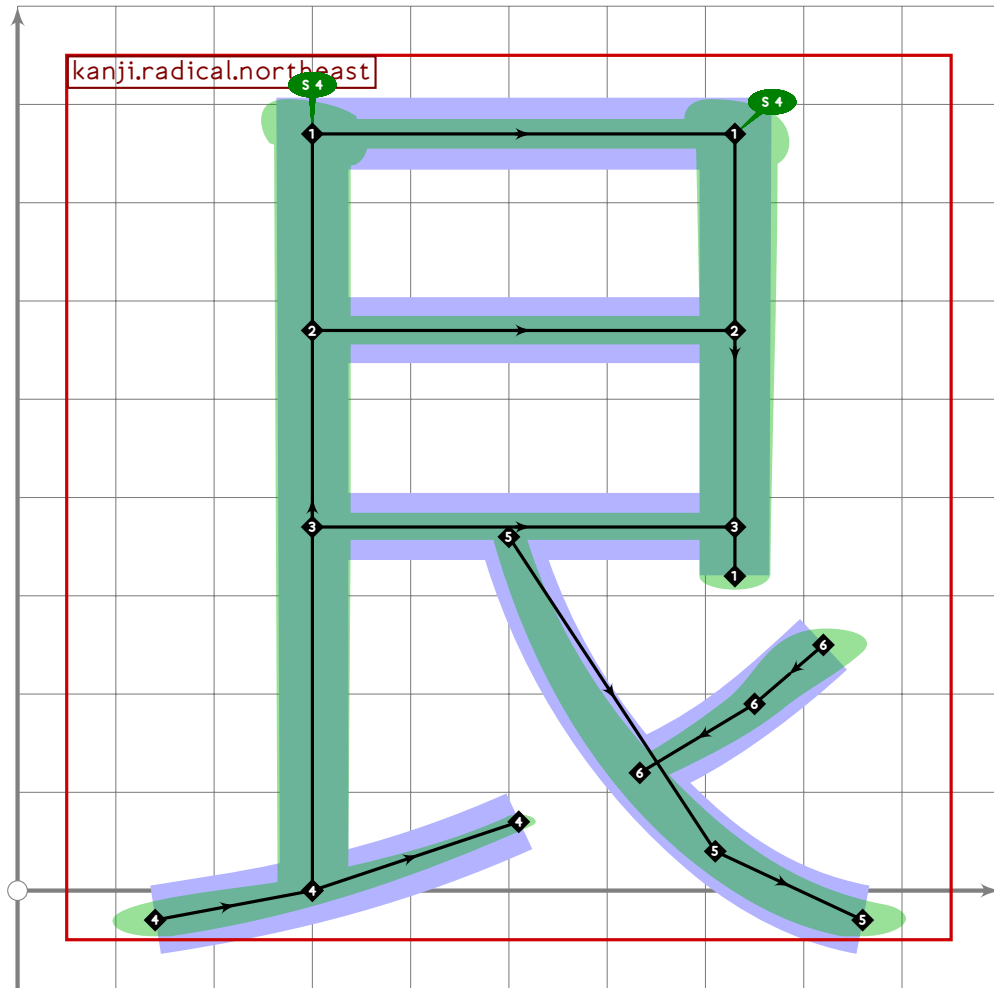
271
272 vardef kanji.radical.mu =
273   push_pbox_toexpand("kanji.radical.mu");
274   push_stroke((120,-20)..tension 1.2..(450,0)..(800,50),
275     (2,2)-(1.7,1.7)-(1.2,1.2));
276   push_stroke(
277     (500,780)..tension 1.2..(350,350)..(point 0.2 of get_strokep(0)),
278     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
279   set_boserif(0,0,10);
280   push_stroke((700,180)..tension 1.3..(800,50)..(880,-60),
281     (1,1)-(1.5,1.5)-(1.8,1.8));
282   expand_pbox;
283 enddef;
284
285 vardef kanji.radical.mu_bar =
286   push_pbox_toexpand("kanji.radical.mu_bar");
287   push_stroke((140,780)-(860,780),(1.6,1.6)-(1.6,1.6));
288   set_boserif(0,1,9);
289   build_kanji.sscale(xyscaled (0.92,1.5) shifted (0,250))
290     (kanji.radical.mu);
291   replace_strokep(-1)(subpath

```

```

292     (xpart (oldp intersectiontimes get_strokep(-3)),infinity) of oldp);
293 set_bosertif(-1,0,whatever);
294 replace_strokep(0)(oldp rotatedaround (point 1 of oldp,-15));
295 expand_pbox;
296 enddef;
297
298 vardef kanji.radical.narrow_flag =
299   perl_structure:=perl_structure&"eids.u2FF8.u5C38.1_";
300   push_pbox_toexpand("kanji.radical.narrow_flag");
301   push_stroke((800,560)-(800,730)-(200,730){down}..(160,200)..(30,-50),
302     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.9,0.9));
303   set_botip(0,1,1);
304   set_botip(0,2,1);
305   set_bosertif(0,1,4);
306   set_bosertif(0,2,4);
307   set_bosize(0,93);
308   push_stroke(((((0,610)-(1000,610))
309     intersectionpoint reverse get_strokep(0))-(800,610),
310     (1.5,1.5)-(1.5,1.5));
311   set_bosize(0,93);
312   expand_pbox;
313 enddef;

```

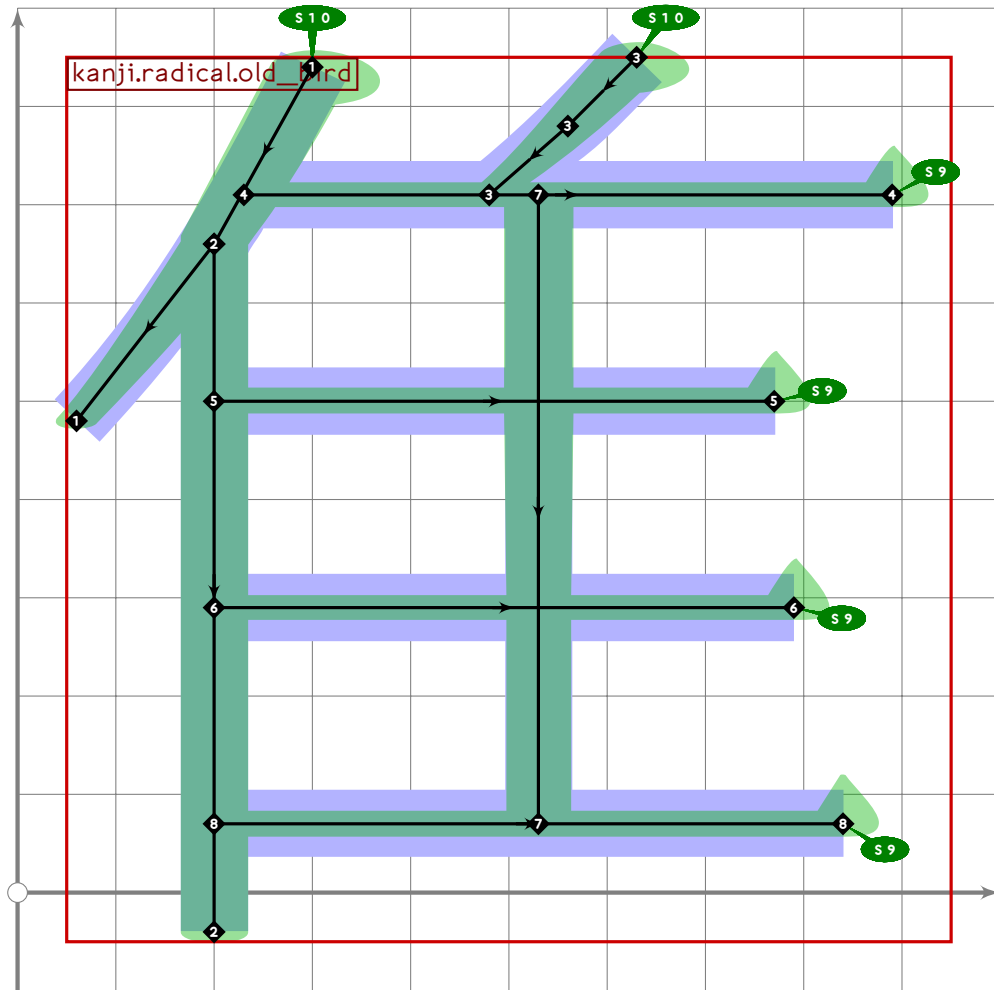


```

314
315 vardef kanji.radical.northeast =
316   push_pbox_toexpand("kanji.radical.northeast");
317   push_stroke((300,0)-(300,770)-(730,770)-(730,320),
318     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
319   set_boserif(0,1,4);
320   set_boserif(0,2,4);
321   set_botip(0,1,1);
322   set_botip(0,2,1);
323   push_stroke((300,570)-(730,570),(1.5,1.5)-(1.5,1.5));
324   push_stroke((300,370)-(730,370),(1.5,1.5)-(1.5,1.5));
325   push_stroke((140,-30)..tension 1.2..(300,0)..(510,70),
326     (1.7,1.7)-(1.5,1.5)-(1,1));
327   push_stroke((500,360)..tension 1.2..(710,40)..(860,-30),
328     (1,1)-(1.4,1.4)-(1.7,1.7));
329   push_stroke((820,250)..tension 1.2..(750,190)..
330     (point 0.7 of get_strokep(0)),
331     (1.7,1.7)-(1.4,1.4)-(1.2,1.2));
332   expand_pbox;
333 enddef;

```





```

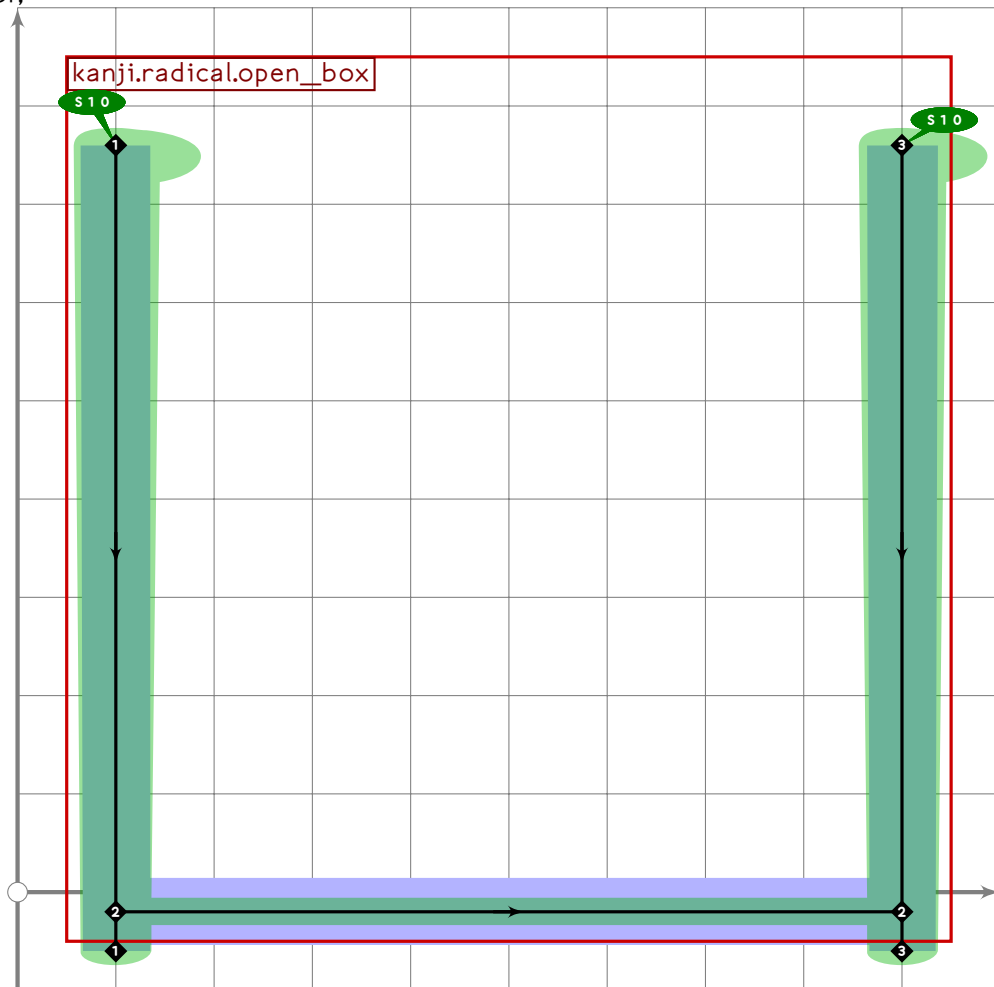
334
335 vardef kanji.radical.old_bird =
336   push_pbox_toexpand("kanji.radical.old_bird");
337   push_stroke((300,840){curl 0.1}..(200,660)..(60,480),
338     (1.7,1.7)-(1.5,1.5)-(1.1,1.1));
339   set_boserif(0,0,10);
340   push_stroke((200,660)-(200,-40),
341     (1.49,1.49)-(1.4,1.4));
342   push_stroke((630,850){curl 0.1}..(560,780)..(480,710),
343     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
344   set_boserif(0,0,10);
345   push_stroke(
346     (((0,710)-(1000,710)) intersectionpoint get_stroke(-2))-(890,710),
347     (1.4,1.4)-(1.5,1.5));
348   set_boserif(0,1,9);
349   push_stroke((200,500)-(770,500),
350     (1.4,1.4)-(1.5,1.5));
351   set_boserif(0,1,9);
352   push_stroke((200,290)-(790,290),
353     (1.4,1.4)-(1.5,1.5));
354   set_boserif(0,1,9);

```

```

355 push_stroke((530,710)-(530,70),(1.5,1.5)-(1.4,1.4));
356 push_stroke((200,70)-(840,70),
357   (1.4,1.4)-(1.5,1.5));
358 set_boserif(0,1,9);
359 expand_pbox;
360 endif;
361
362 % pass in some code that goes in the bottom
363 vardef kanji.radical.old_man(text curves) =
364   push_pbox_toexpand("kanji.radical.old_man");
365   build_kanji.level(
366     build_kanji.tb(480,-110)
367     (kanji.grone.earth;
368       replace_stroke(-1)(oldp shifted (-500,0) xscaled 0.75 shifted (480,0)))
369     (curves);
370     push_stroke((880,780)..tension 1.2..(600,530)..(50,260),
371       (1.6,1.6)-(1.5,1.5)-(1,1)));
372   expand_pbox;
373 endif;

```



```

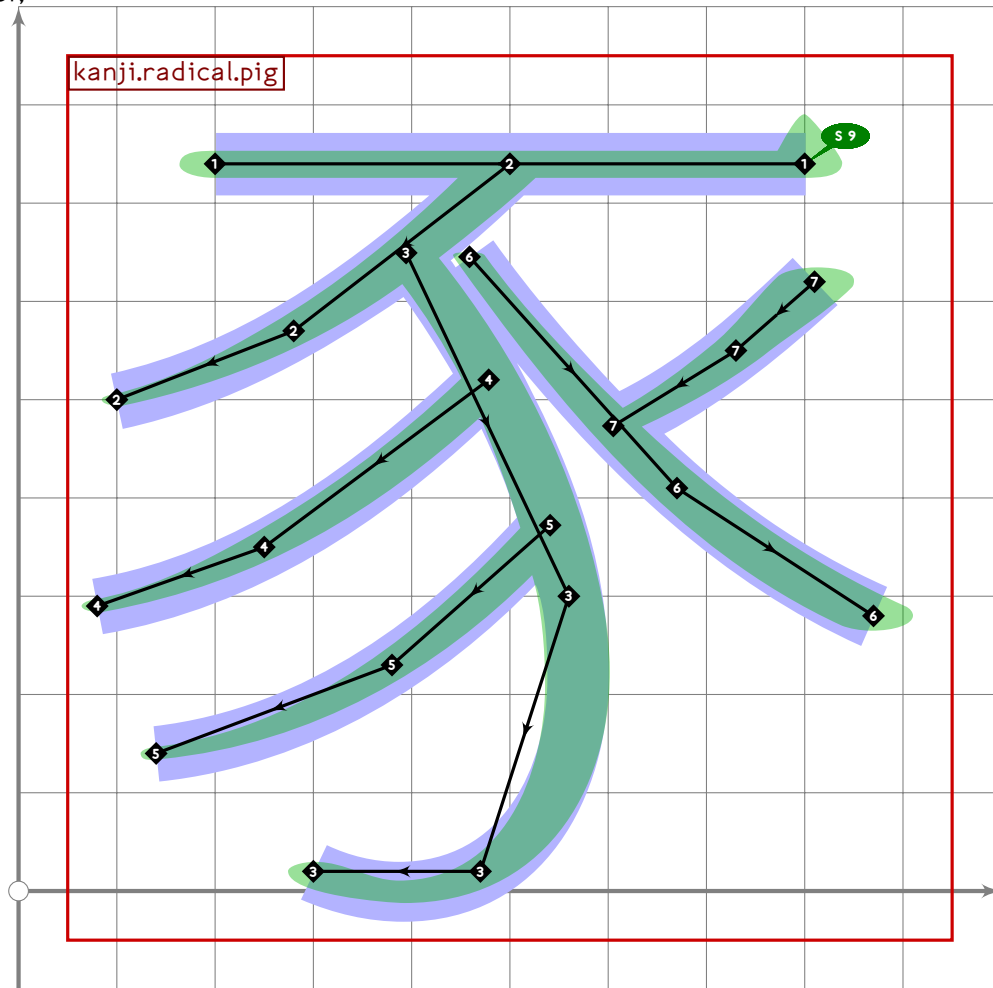
374
375 vardef kanji.radical.open_box =

```

```

376 push_pbox_toexpand("kanji.radical.open_box");
377 push_stroke((100,760)-(100,-60),(1,7,1,7)-(1,5,1,5));
378 set_boserif(0,0,10);
379 push_stroke((100,-20)-(900,-20),(1,5,1,5)-(1,5,1,5));
380 push_stroke((900,760)-(900,-60),(1,7,1,7)-(1,5,1,5));
381 set_boserif(0,0,10);
382 expand_pbox;
383 enddef;

```



```

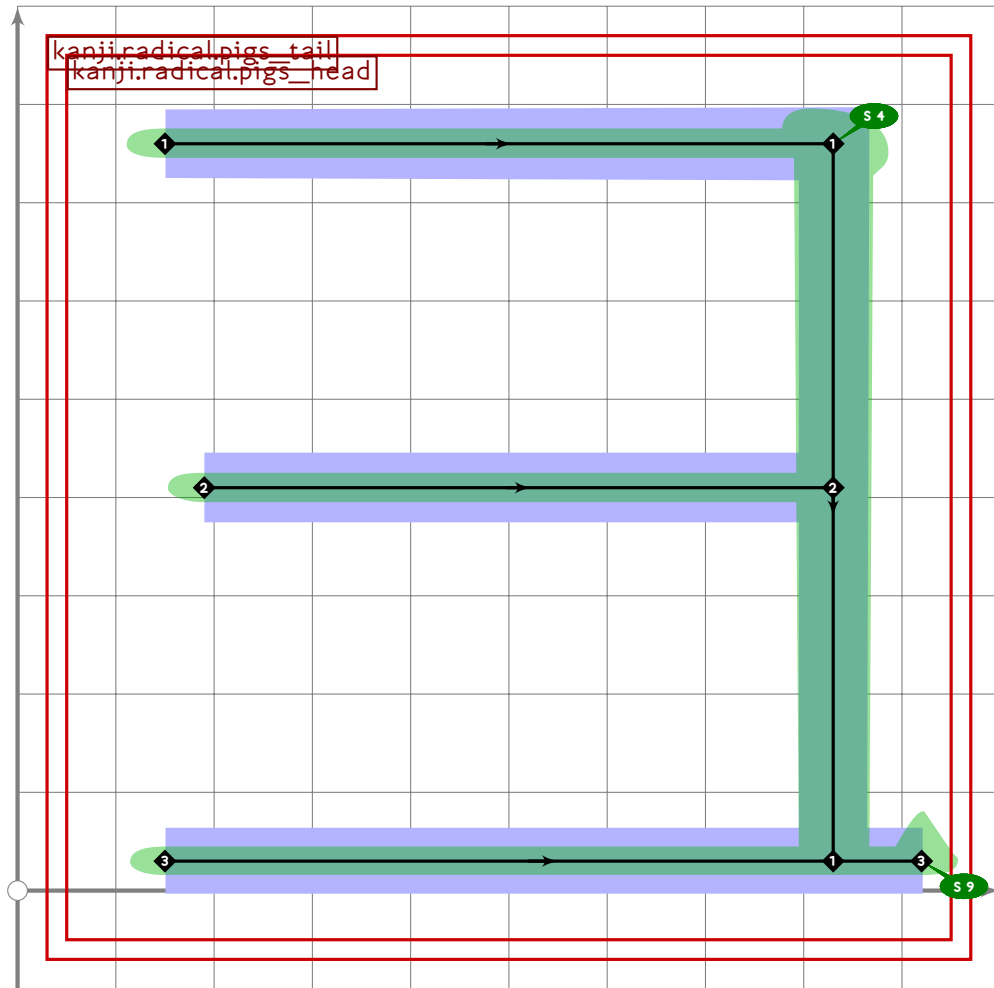
384
385 vardef kanji.radical.pig =
386   push_pbox_toexpand("kanji.radical.pig");
387   push_stroke((200,740)-(800,740),(1,6,1,6)-(1,6,1,6));
388   set_boserif(0,1,9);
389   push_stroke((500,740)..tension 1.2..(280,570)..(100,500),
390     (1,6,1,6)-(1,4,1,4)-(1,0,1,0));
391   push_stroke(
392     (point 0.5 of get_stroke(0))..tension 1.1..(560,300)..
393     (470,20)..{curl 0.6}(300,20),
394     (1,3,1,3)-(1,5,1,5)-(1,4,1,4)-(1,3,1,3));
395   push_stroke(
396     (point 0.4 of get_stroke(0))..tension 1.2..(250,350)..(80,290),

```

```

397 (1.35,1.35)-(14,14)-(10,10));
398 push_stroke(
399 (point 0.8 of get_stroke(-1)..tension 1.2..(380,230)..(140,140),
400 (1.35,1.35)-(14,14)-(10,10));
401 push_stroke(
402 ((0,90)+point 0.3 of get_stroke(-2)..tension 1.2..(670,410)..(870,280),
403 (1,1)-(14,14)-(17,17));
404 push_stroke(
405 (810,620)..tension 1.2..(730,550)..(point 0.7 of get_stroke(0)),
406 (17,17)-(14,14)-(12,12));
407 for i=-6 upto 0: set_bosize(i,92); endfor;
408 expand_pbox;
409 enddef;
410
411 vardef kanji.radical.pigs_head =
412 push_pbox_toexpand("kanji.radical.pigs_head");
413 push_stroke((150,760)-(830,760)-(830,70),
414 (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
415 set_botip(0,1,1);
416 set_boserif(0,1,4);
417 push_stroke((190,410)-(830,410),(1.55,1.55)-(1.55,1.55));
418 push_stroke((150,30)-(830,30),(1.5,1.5)-(1.5,1.5));
419 expand_pbox;
420 enddef;
421
422 % name is mine - it has central horizontal line lengthened
423 vardef kanji.radical.pigs_snout =
424 push_pbox_toexpand("kanji.radical.pigs_snout");
425 build_kanji.level(
426 build_kanji.sscale(xscaled 0.87)(kanji.radical.pigs_head);
427 replace_stroke(-1)((100,410)-(910,410));
428 set_boserif(-1,1,9);
429 );
430 expand_pbox;
431 enddef;
432

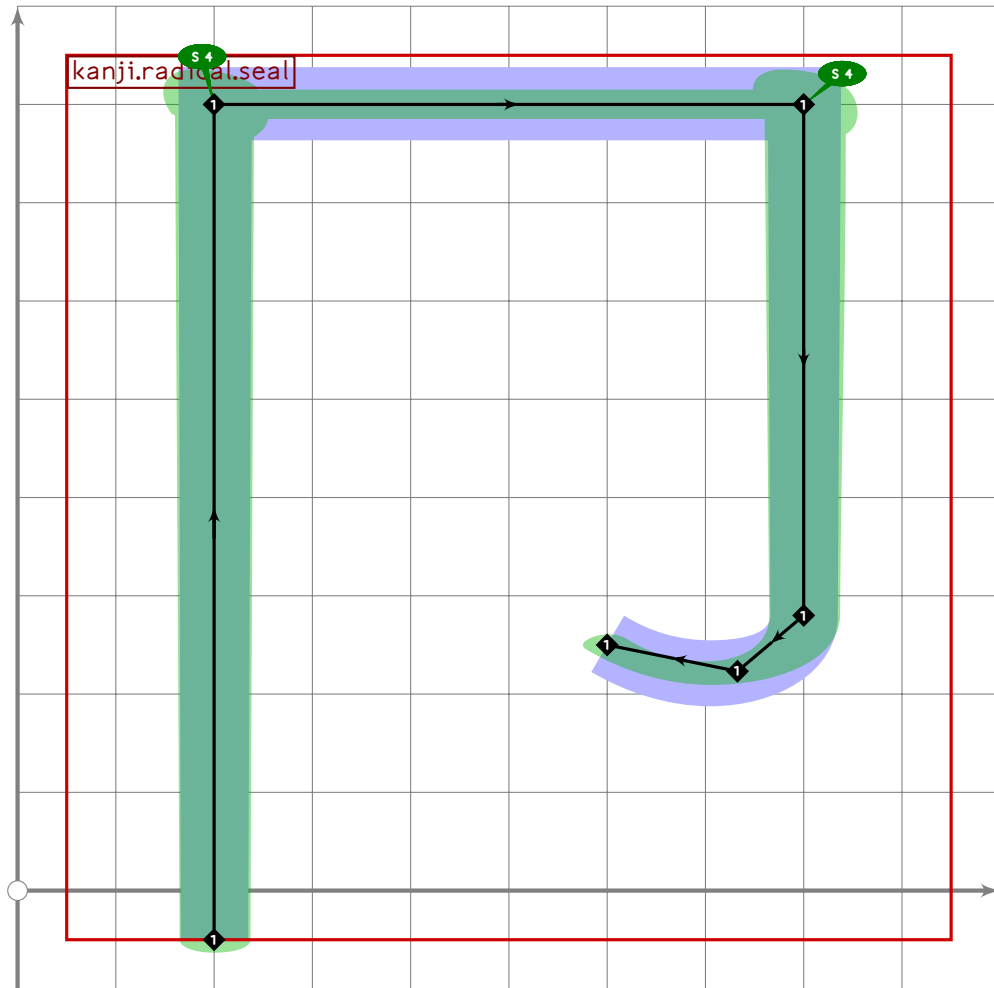
```



```

433 % name is mine - it has bottom horizontal line lengthened, vertical clipped
434 vardef kanji.radical.pigs_tail =
435   push_pbox_toexpand("kanji.radical.pigs_tail");
436   kanji.radical.pigs_head;
437   replace_stroke(-2)((150,760)-(830,760)-(830,30));
438   replace_stroke(0)((150,30)-(920,30));
439   set_boserif(0,1,9);
440   expand_pbox;
441 enddef;

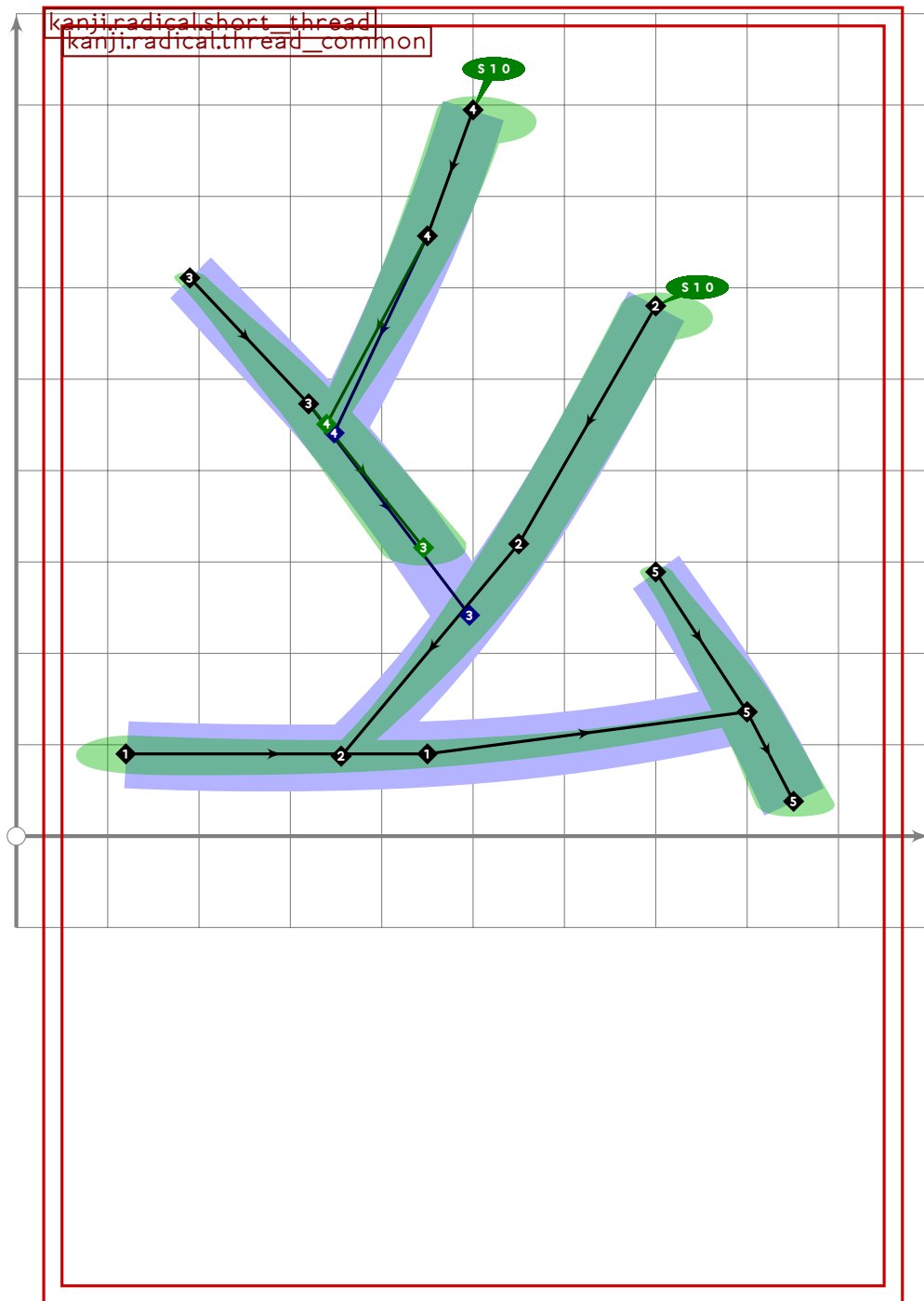
```



```

442
443 vardef kanji.radical.seal =
444   push_pbox_toexpand("kanji.radical.seal");
445   push_stroke((150,-300)-(150,550)-(600,550),
446     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
447   build_kanji.add_jtail(0);
448   replace_stroke(0)(oldp shifted (0,250) xscaled 1.3333);
449   set_boserif(0,1,4);
450   set_boserif(0,2,4);
451   set_botip(0,1,1);
452   set_botip(0,2,1);
453   expand_pbox;
454 enddef;

```



```

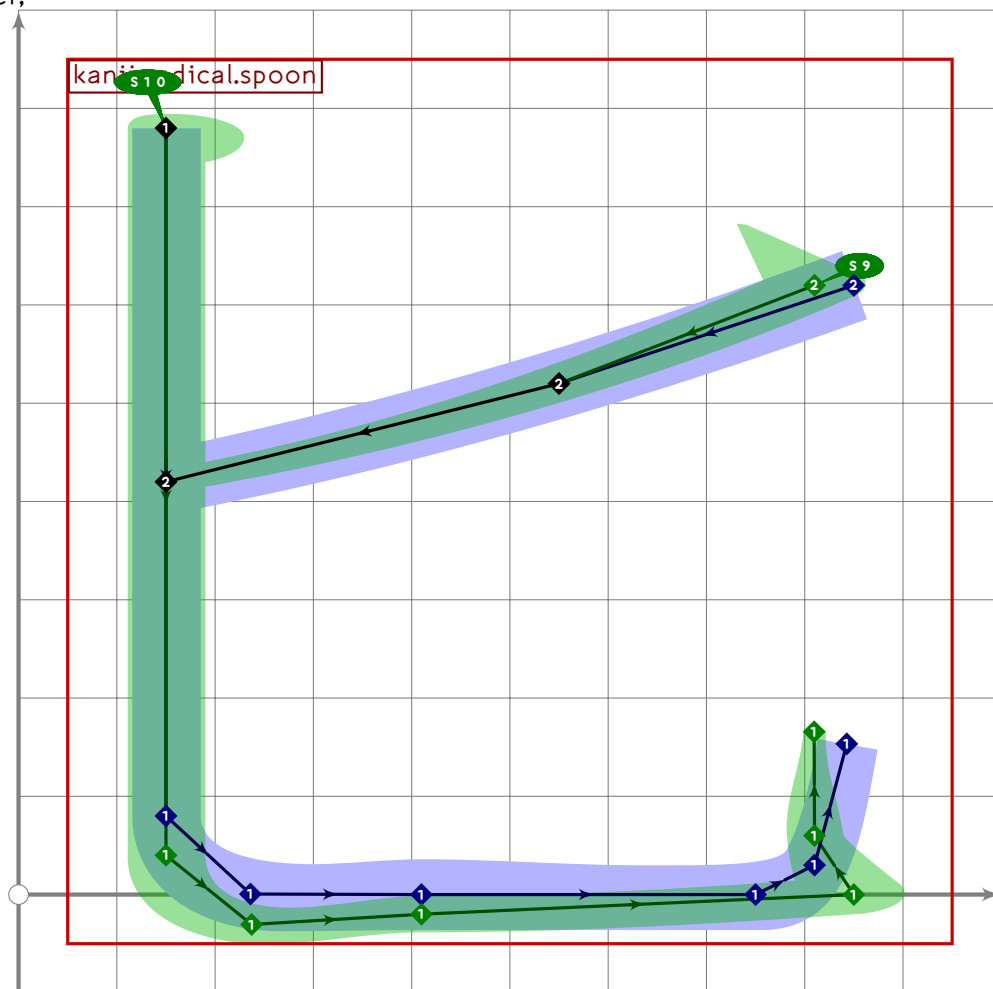
455
456 vardef kanji.radical.short_thread =
457   push_pbox_toexpand("kanji.radical.short_thread");
458   tsu_xform(begingroup
459     save myxf;
460     transform myxf;
461     xpart myxf=yxpart myxf=0;
462     xxpart myxf=1;
463     (500,330) transformed myxf=(500,90);
464     (500,800) transformed myxf=(500,810);

```

```

465 myxf
466 endgroup)(kanji.radical.thread_common);
467 replace_stroke(0)(subpath(0,1,6) of oldp);
468 replace_strokeq(0)(subpath(0,1,6) of oldq);
469 for i=-4 upto 0: set_bosize(i,100); endfor;
470 expand_pbox;
471 enddef;
472
473 vardef kanji.radical.silly_hat =
474 push_pbox_toexpand("kanji.radical.silly_hat");
475 push_stroke((500,800)..(500,500),(1,6,1,6)-(1,5,1,5));
476 set_bosize(0,95);
477 set_boserif(0,0,10);
478 kanji.radical.conservative_hat;
479 expand_pbox;
480 enddef;

```



```

481
482 vardef kanji.radical.spoon =
483 push_pbox_toexpand("kanji.radical.spoon");
484 push_stroke((150,780),(1,6,1,6));
485 build_kanji.add_ltail(0);

```



```

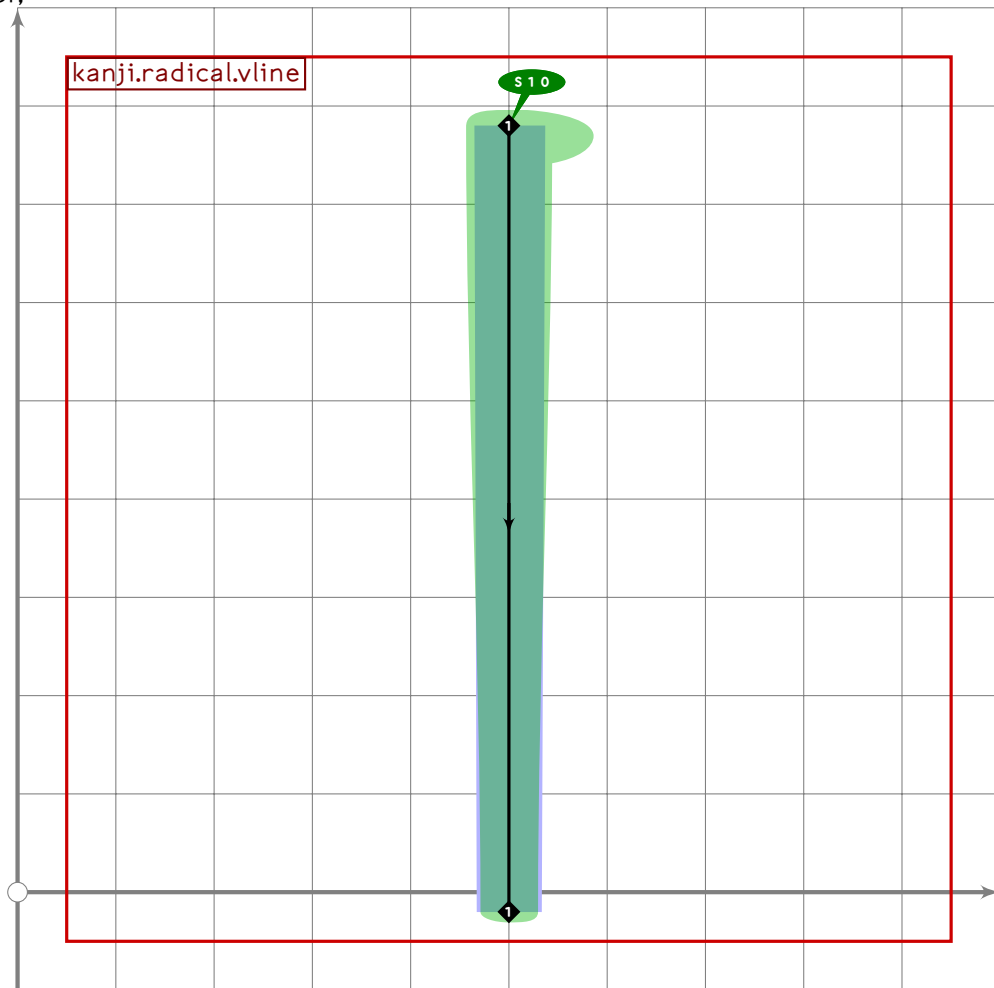
486 set_bosserif(0,0,10);
487 push_stroke(
488   (xpart point infinity of get_strokep(0),620)..(550,520)..(150,420),
489   (1.9,1.9)..(1.6,1.6)..(1.3,1.3));
490 set_bosserif(0,0,9);
491 expand_pbox;
492 enddef;
493
494 vardef kanji.radical.tent =
495   perl_structure:=perl_structure&"eids.u2FF1.u4EBA.1_";
496   push_pbox_toexpand("kanji.radical.tent");
497   push_stroke((510,800)..(450,700)..(300,540)..(60,360),
498     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.9));
499   set_bosserif(0,0,10);
500   push_stroke(
501     (point 0.2 of get_strokep(0)..tension 1.2..(640,620)..(920,400),
502     (1,1)-(1.3,1.3)-(2.25,0.95));
503   push_stroke((330,470)-(660,470),(1.6,1.6)-(1.6,1.6));
504   set_bosserif(0,1,9);
505   expand_pbox;
506 enddef;
507
508 vardef kanji.radical.thread_common =
509   push_pbox_toexpand("kanji.radical.thread_common");
510   push_stroke((120,330)..tension 1.2..(450,330)..(800,360),
511     (2,2)-(1.7,1.7)-(1.2,1.2));
512   push_stroke((700,650)..tension 1.3..(550,480)..(point 0.7 of get_strokep(0)),
513     (1.6,1.6)-(1.5,1.5)-(1,1));
514   set_bosserif(0,0,10);
515   push_stroke(subpath (0,2-0.3*mincho) of
516     ((190,670)..tension 1.3..(320,580)..(point 1.3 of get_strokep(0))),
517     (1,1)-(1.5,1.5)-(1.8,1.8));
518   push_stroke((500,790)..(450,700)..(point 1.15 of get_strokep(0)),
519     (1.6,1.6)-(1.5,1.5)-(1,1));
520   set_bosserif(0,0,10);
521   push_stroke((700,460)..tension 1.3..(800,360)..(880,250),
522     (1,1)-(1.5,1.5)-(1.8,1.8));
523   expand_pbox;
524 enddef;
525
526 vardef kanji.radical.topped_aitch =
527   push_pbox_toexpand("kanji.radical.topped_aitch");
528   push_stroke((160,730)-(840,730),(1.6,1.6)-(1.6,1.6));
529   set_bosserif(0,1,9);
530   kanji.radical.aitch;
531   set_bosserif(-1,0,whatever);
532   set_bosserif(0,0,whatever);
533   expand_pbox;

```

```

534 endif;
535
536 % insert "Scottish tsundere" joke here
537 vardef kanji.radical.twin_tailed_sheep =
538   push_pbox_toexpand("kanji.radical.twin_tailed_sheep");
539   kanji.grthree.sheep;
540   replace_stroke(0)
541     ((510,615){down}..(500,260)..(370,70)..{curl 0.5}(50,-60));
542   replace_strokeq(0)((1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
543   push_stroke(((get_strokep(0) intersectionpoint get_strokep(-3))+50,0)..
544     (650,80)..(900,-50),
545     (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
546   expand_pbox;
547 endif;

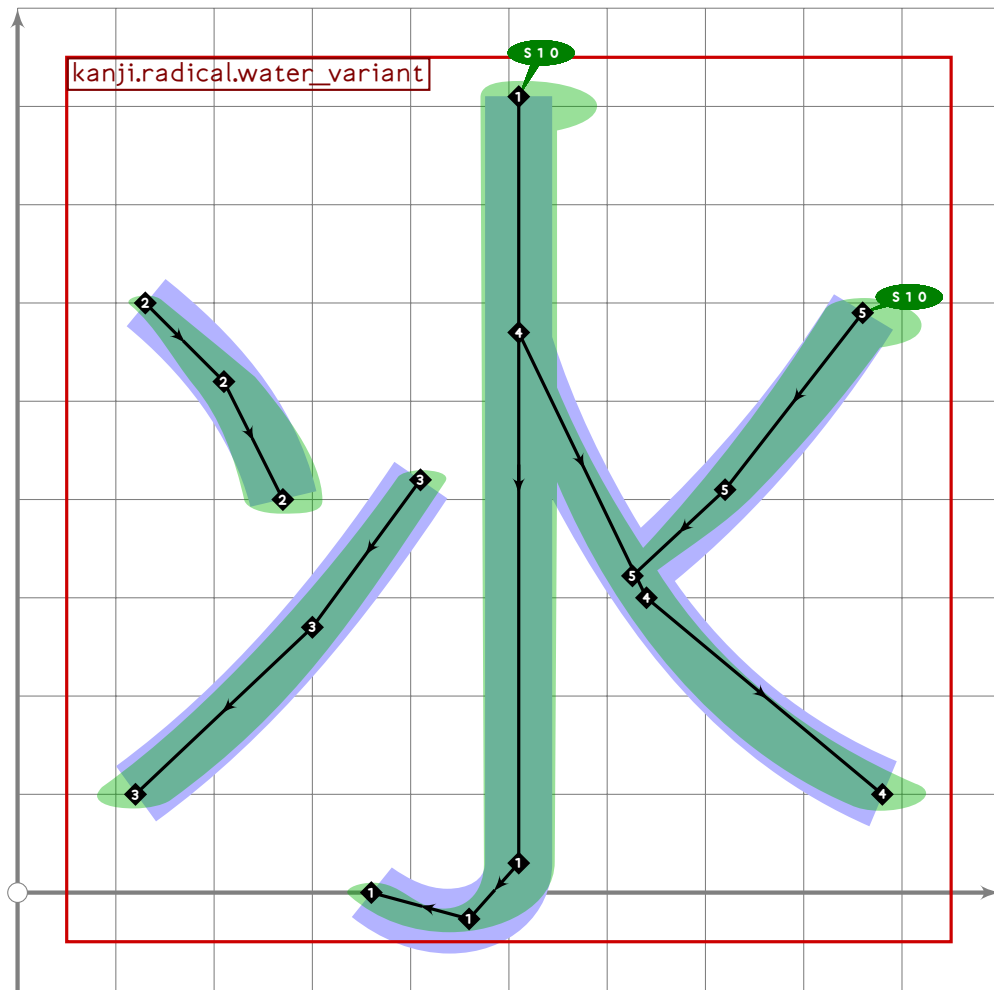
```



```

548
549 vardef kanji.radical.vline =
550   push_pbox_toexpand("kanji.radical.vline");
551   push_stroke((500,780)-(500,-20),(1.7,1.7)-(1.3,1.3));
552   set_boserif(0,0,10);
553   expand_pbox;
554 endif;

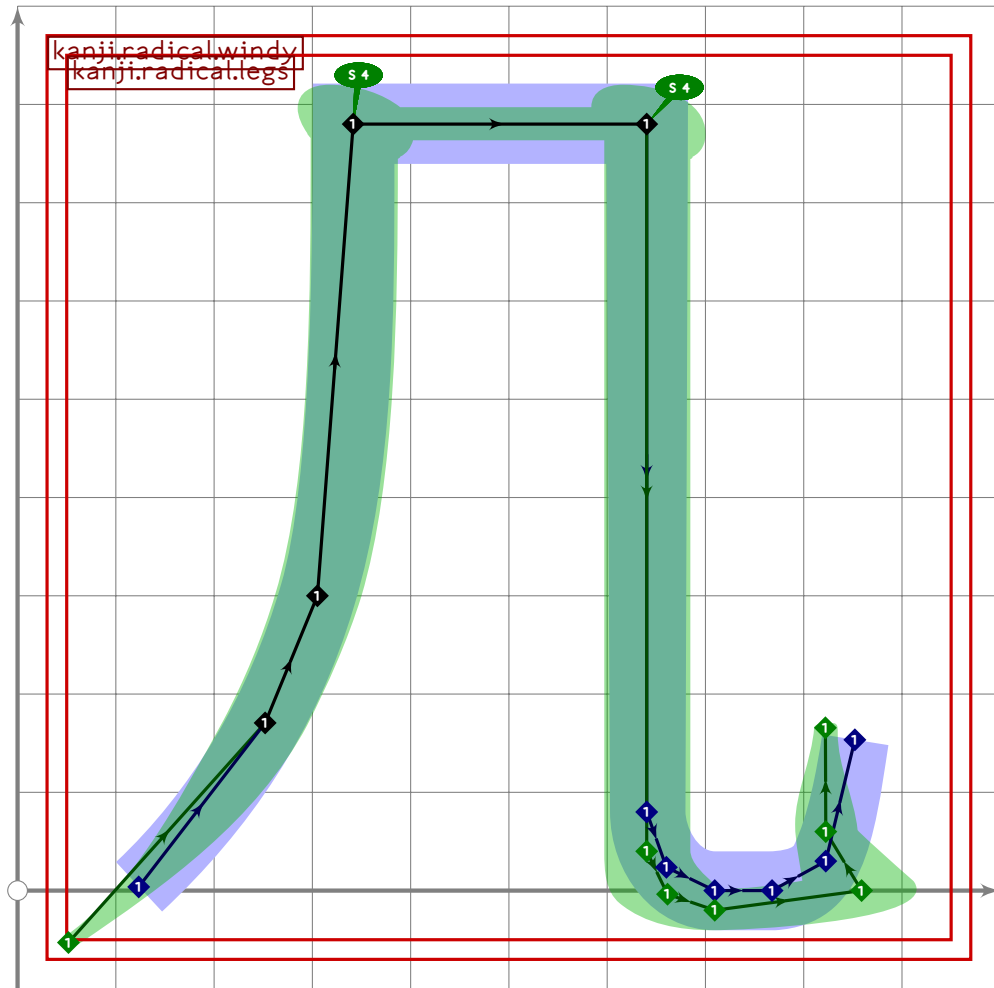
```



```

555
556 vardef kanji.radical.water_variant =
557   push_pbox_toexpand("kanji.radical.water_variant");
558   push_stroke((510,810),(1,6,1,6));
559   build_kanji.add_jtail(0);
560   set_boserif(0,0,10);
561   push_stroke((130,600)..tension 1.2..(210,520)..(270,400),
562     (1,1)-(1,4,1,4)-(1,6,1,6));
563   push_stroke((410,420)..tension 1.2..(300,270)..(120,100),
564     (1,2,1,2)-(1,4,1,4)-(1,6,1,6));
565   push_stroke((510,570)..tension 1.2..(640,300)..(880,100),
566     (1,1)-(1,3,1,3)-(1,7,1,7));
567   push_stroke((860,590)..(720,410)..(point 0.9 of get_stroke(0)),
568     (1,6,1,6)-(1,4,1,4)-(1,1));
569   set_boserif(0,0,10);
570   expand_pbox;
571 enddef;

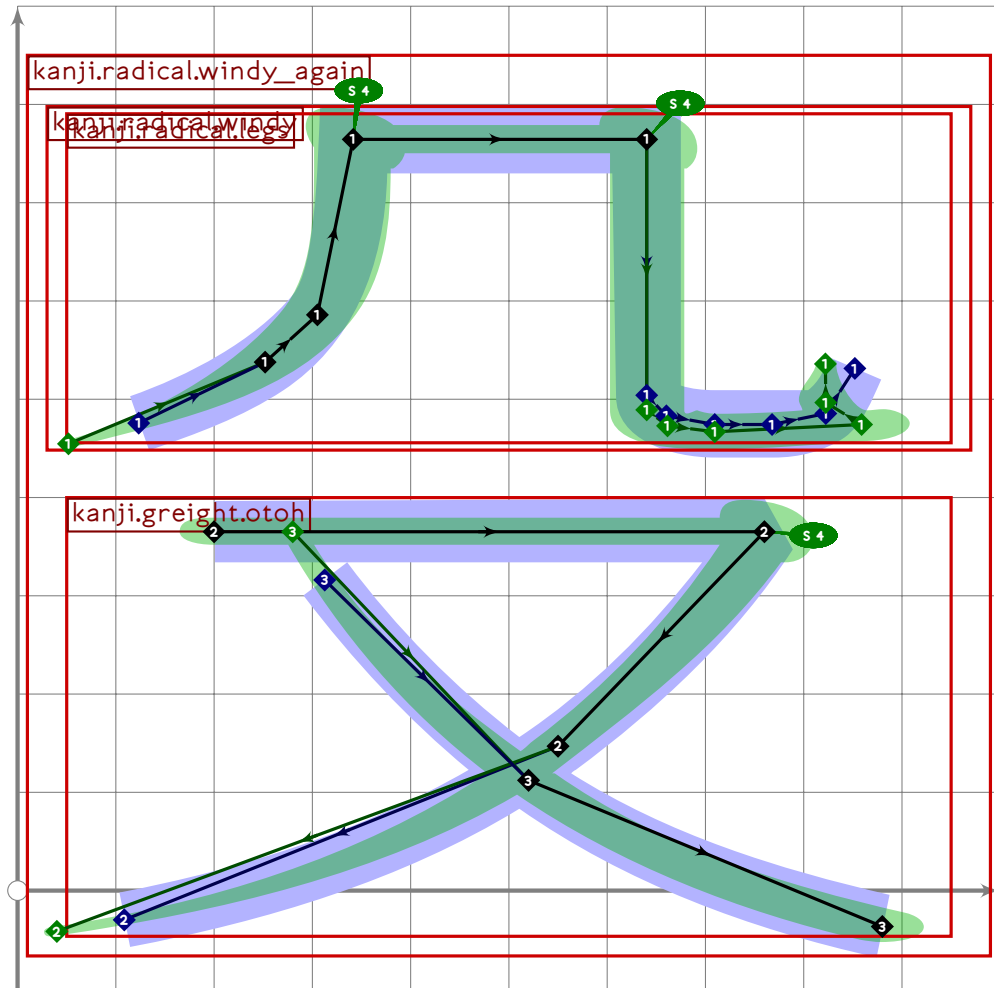
```



```

572
573 vardef kanji.radical.windy =
574   push_pbox_toexpand("kanji.radical.windy");
575   build_kanji.spread_legs(80)(kanji.radical.legs);
576   replace_stroke(-1)((reverse oldp)-get_strokep(0));
577   replace_strokeq(-1)((reverse oldq)-get_strokeq(0));
578   pop_stroke;
579   set_boserif(0,3,4);
580   set_boserif(0,4,4);
581   set_botip(0,3,1);
582   set_botip(0,4,1);
583   expand_pbox;
584 enddef;

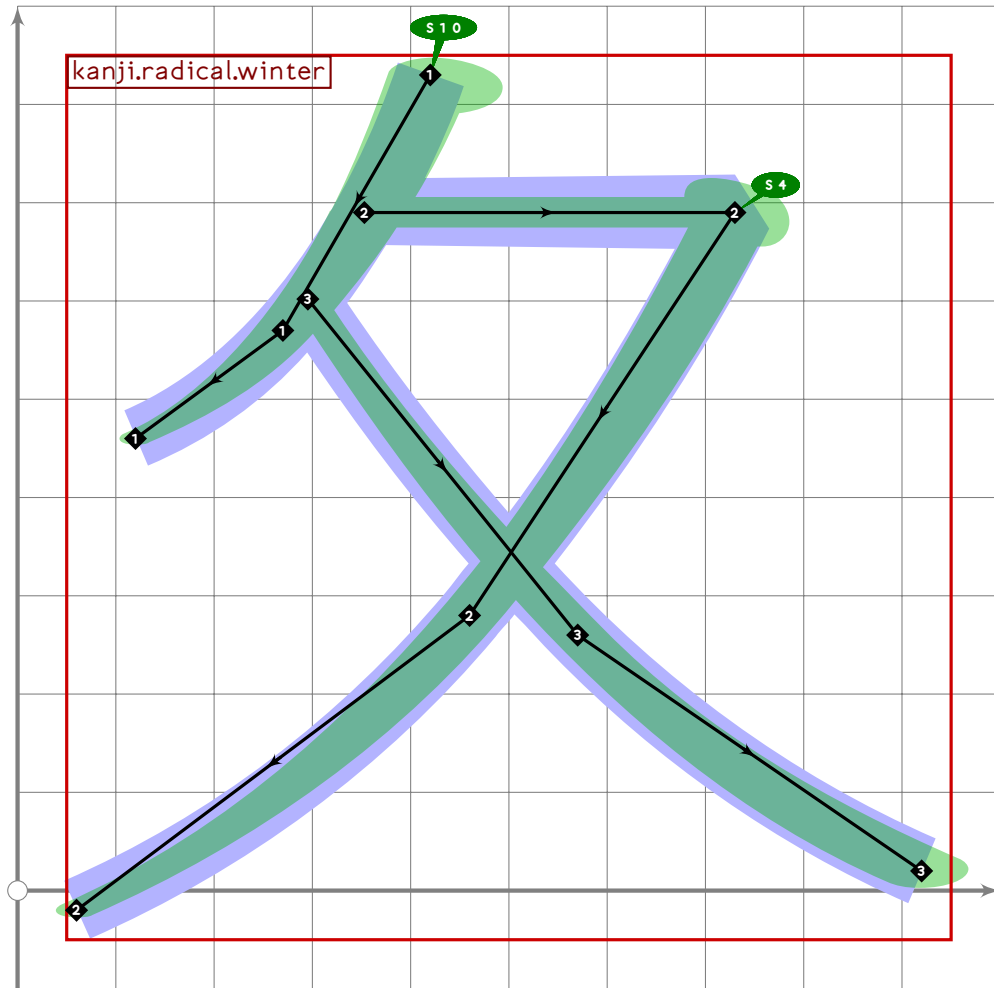
```



```

585
586 vardef kanji.radical.windy_again =
587   push_pbox_toexpand("kanji.radical.windy_again");
588   tsu_xform(identity yscaled 0.93)
589     (build_kanji.tb(460;-60)
590       (kanji.radical.windy)
591       (kanji.greight.otoh));
592   expand_pbox;
593 enddef;

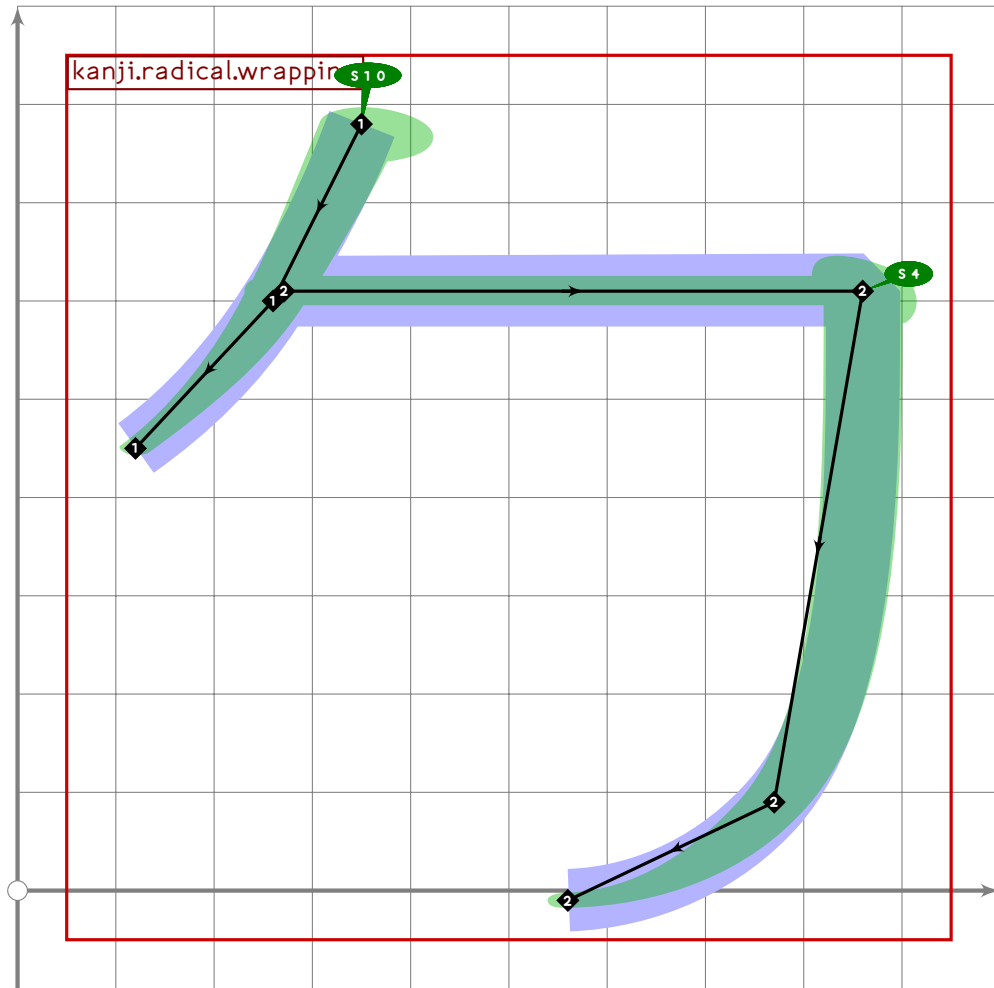
```



```

594
595 vardef kanji.radical.winter =
596   push_pbox_toexpand("kanji.radical.winter");
597   push_stroke((420,830)..tension 1.2..(270,570)..(120,460),
598     (1.7,1.7)-(1.4,1.4)-(1,1));
599   set_boserif(0,0,10);
600   push_stroke((get_strokep(0) intersectionpoint ((0,690)-(1000,690)))-
601     (730,690)..tension 1.2..(460,280)..(60,-20),
602     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
603   set_boserif(0,1,4);
604   set_botip(0,1,0);
605   push_stroke((point 0.85 of get_strokep(-1))..tension 1.2..
606     (570,260)..(920,20),
607     (1,1)-(1.3,1.3)-(1.8,1.8));
608   expand_pbox;
609 enddef;

```



```

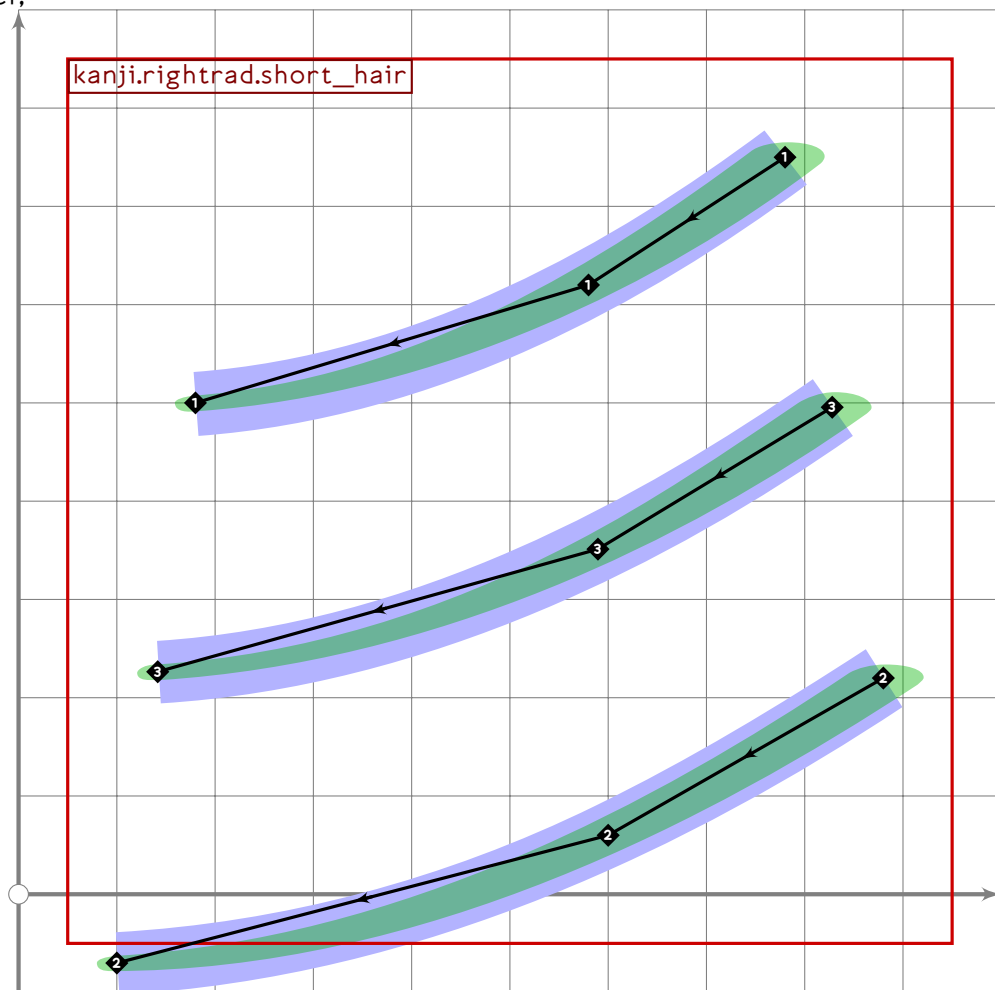
610
611 vardef kanji.radical.wrapping =
612   push_pbox_toexpand("kanji.radical.wrapping");
613   push_stroke((350,780)..tension 1.2..(260,600)..(120,450),
614     (1.7,1.7)-(1.4,1.4)-(1,1));
615   set_boserif(0,0,10);
616   push_stroke(
617     ((5,0)+((get_strokep(0) intersectionpoint ((0,610)-(1000,610)))))-
618     (860,610){down}..(770,90)..(560,-10),
619     (1.6,1.6)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));
620   set_boserif(0,1,4);
621   set_botip(0,1,0);
622   expand_pbox;
623 enddef;
624
625
626
627 vardef kanji.rightrad.beta =
628   push_pbox_toexpand("kanji.rightrad.beta");
629   kanji.radical.beta;
630   replace_strokep(0)

```

```

631 (oldp shifted (-250,760) xyscaled (1.2,630/550) shifted (300,760));
632 replace_stroke(0)((300,-60)-(subpath (1,infinity) of oldp));
633 expand_pbox;
634 enddef;

```

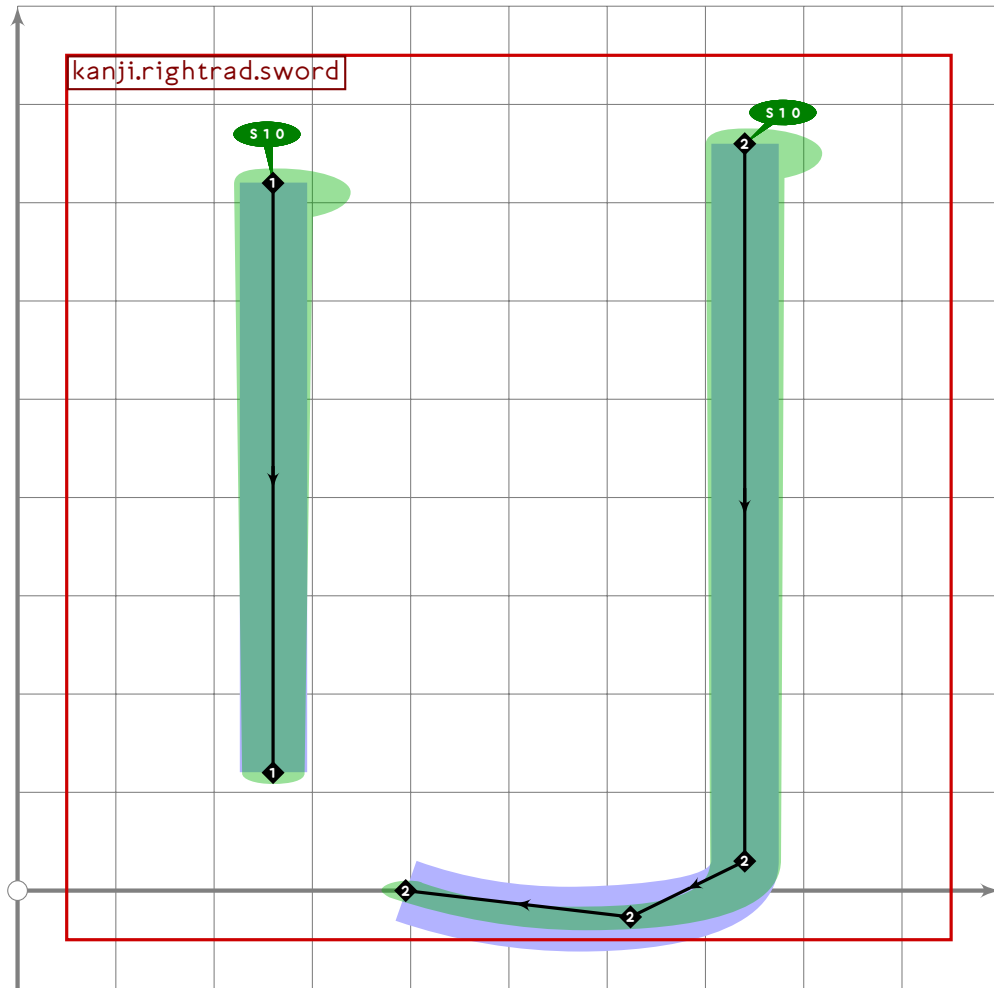


```

635
636 vardef kanji.rightrad.short_hair =
637   push_pbox_toexpand("kanji.rightrad.short_hair");
638   push_stroke((780,750)..tension 1.2..(580,620)..(180,500),
639     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
640   push_stroke((880,220)..tension 1.2..(600,60)..(100,70),
641     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
642   push_stroke(interpath(0.52,get_stroke(0),get_stroke(-1)),
643     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
644   expand_pbox;
645 enddef;

```





```

646
647 vardef kanji.rightrad.sword =
648   push_pbox_toexpand("kanji.rightrad.sword");
649   push_stroke((260,720)-(260,120),(1.6,1.6)-(1.4,1.4));
650   set_boserif(0,0,10);
651   push_stroke((740,760),(1.6,1.6));
652   set_boserif(0,0,10);
653   build_kanji.add_jtail(0);
654   replace_stroke(0)(oldp shifted (-740,0) xscaled 2.3 shifted (740,0));
655   expand_pbox;
656 enddef;

```

# toprad.mp

```
1 %
2 % Radicals for top (often special forms of other radicals)
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(toprad);
32
33 

---


34
35 vardef kanji.toprad.bamboo =
36   push_pbox_toexpand("kanji.toprad.bamboo");
37   push_stroke((250,780)..(190,590)..(70,420),
38     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
39   set_boserif(0,0,10);
40   push_stroke((190,590)-(490,590),(1.6,1.6)-(1.6,1.6));
41   set_boserif(0,1,9);
42   push_stroke((270,590)..tension 1.2..(360,480)..(390,370),
43     (1.1,1.1)-(1.5,1.5)-(1.7,1.7));
44   push_stroke((650,780)..(590,590)..(480,440),
45     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
46   set_boserif(0,0,10);
47   push_stroke((590,590)-(930,590),(1.6,1.6)-(1.6,1.6));
48   set_boserif(0,1,9);
49   push_stroke((680,590)..tension 1.2..(770,480)..(800,370),
50     (1.1,1.1)-(1.5,1.5)-(1.7,1.7));
51   expand_pbox;
52 enddef;
53
54 vardef kanji.toprad.blue =
55   push_pbox_toexpand("kanji.toprad.blue");
56   push_stroke((120,560)-(880,560),
57     (1.6,1.6)-(1.6,1.6));
58   set_boserif(0,1,9);
59   push_stroke((500,780)-(500,40),
60     (1.6,1.6)-(1.5,1.5));
61   set_boserif(0,0,10);
62   push_stroke((160,310)-(840,310),
63     (1.6,1.6)-(1.6,1.6));
64   set_boserif(0,1,9);
65   push_stroke((80,40)-(920,40),
66     (1.6,1.6)-(1.6,1.6));
67   set_boserif(0,1,9);
68   expand_pbox;
69 enddef;
70
```

```

71 vardef kanji.toprad.cave =
72   push_pbox_toexpand("kanji.toprad.cave");
73   build_kanji.level(build_kanji.tb(400,360)
74     (kanji.radical.silly_hat)
75     (kanji.radical.legs));
76   expand_pbox;
77 enddef;
78
79 vardef kanji.toprad.grass =
80   push_pbox_toexpand("kanji.toprad.grass");
81   push_stroke((350,800)-(350,-30),
82     (1.6,1.6)-(1.4,1.4));
83   set_boserif(0,0,10);
84   push_stroke((650,800)-(650,-30),
85     (1.6,1.6)-(1.4,1.4));
86   set_boserif(0,0,10);
87   push_stroke((100,400)-(900,400),
88     (1.6,1.6)-(1.6,1.6));
89   set_boserif(0,1,9);
90   expand_pbox;
91 enddef;
92
93 vardef kanji.toprad.rain =
94   push_pbox_toexpand("kanji.toprad.rain");
95   push_stroke((120,720)-(880,720),(1.6,1.6)-(1.6,1.6));
96   set_boserif(0,1,9);
97   push_stroke((500,720)-(500,30),(1.6,1.6)-(1.5,1.5));
98   push_stroke((100,150)..(100+50*mincho,400)..(100+70*mincho,540)-
99     (900,540)..(900-40*mincho,275)..(900-70*mincho,150),
100     (1.7,1.7)-(1.6,1.6)-(1.4,1.4)-
101     (1.7,1.7)-(1.6,1.6)-(1.4,1.4));
102   set_botip(0,2,1);
103   set_botip(0,3,1);
104   set_boserif(0,3,4);
105   push_stroke((230,380)..(400,380),(1.6,1.6)-(1.6,1.6));
106   set_boserif(0,1,9);
107   set_bosize(0,80);
108   push_stroke(get_strokep(0) shifted (350,0),get_strokeq(0));
109   set_boserif(0,1,9);
110   set_bosize(0,80);
111   push_stroke(get_strokep(-1) shifted (0,-220),get_strokeq(-1));
112   set_boserif(0,1,9);
113   set_bosize(0,80);
114   push_stroke(get_strokep(-2) shifted (350,-220),get_strokeq(-2));
115   set_boserif(0,1,9);
116   set_bosize(0,80);
117   expand_pbox;
118 enddef;

```

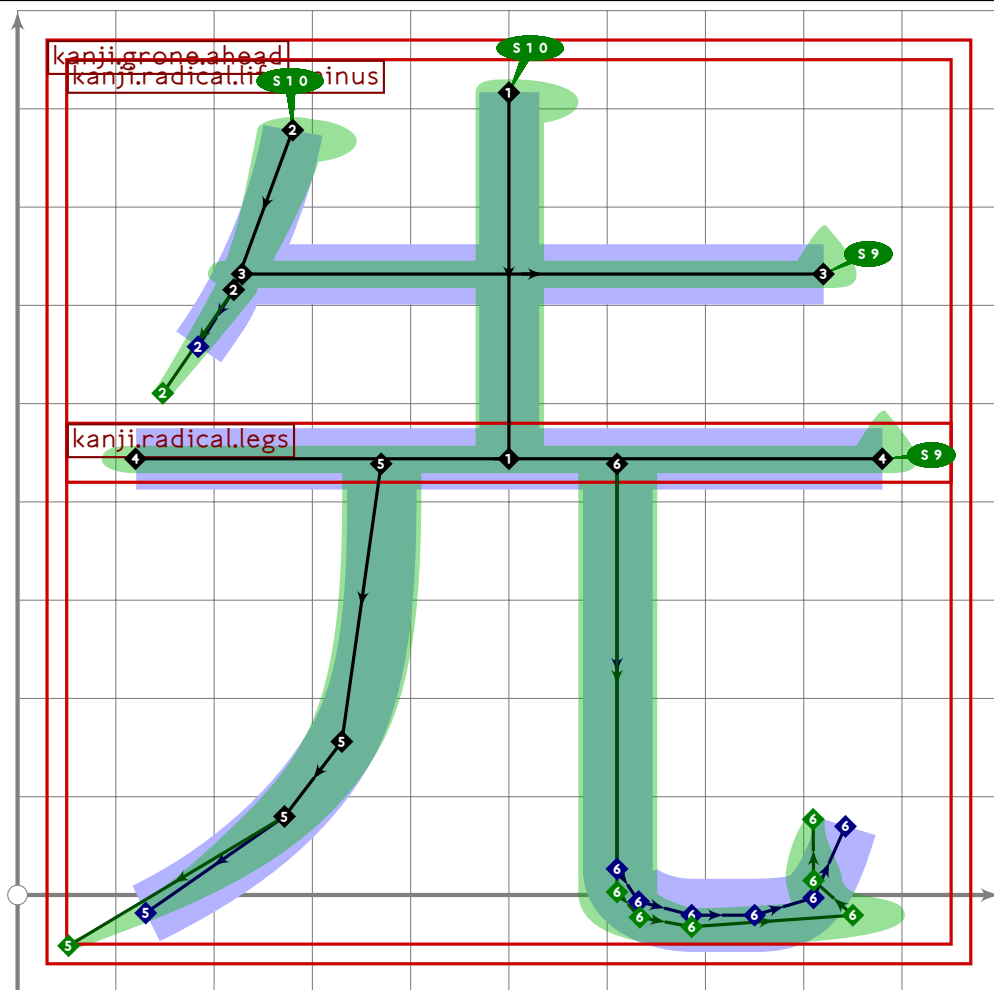
```

119
120 vardef kanji.toprad.sheep =
121   push_pbox_toexpand("kanji.toprad.sheep");
122   kanji.grthree.sheep;
123   replace_strokep(0)
124   ((point 0 of oldp)-(oldp intersectionpoint get_strokep(-3)));
125   expand_pbox;
126 enddef;
127
128 vardef kanji.toprad.sparkle_four =
129   push_pbox_toexpand("kanji.toprad.sparkle_four");
130   push_stroke((150,600)..tension 1.2..(200,440)..(270,160),
131     (1,1)-(1.3,1.3)-(1.9,1.9));
132   push_stroke((390,780)-(390,-20),
133     (1.6,1.6)-(1.5,1.5));
134   set_boserif(0,0,10);
135   push_stroke((610,780)-(610,-20),
136     (1.6,1.6)-(1.5,1.5));
137   set_boserif(0,0,10);
138   push_stroke((840,620)..tension 1.2..(780,370)..(720,170),
139     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
140   set_boserif(0,0,10);
141   expand_pbox;
142 enddef;
143
144 vardef kanji.toprad.sparkle_three =
145   push_pbox_toexpand("kanji.toprad.sparkle_three");
146   kanji.toprad.sparkle_two;
147   push_stroke((500,780)-(500,-20),
148     (1.6,1.6)-(1.5,1.5));
149   set_boserif(0,0,10);
150   expand_pbox;
151 enddef;
152
153 vardef kanji.toprad.sparkle_two =
154   push_pbox_toexpand("kanji.toprad.sparkle_two");
155   push_stroke((200,600)..tension 1.2..(250,440)..(320,160),
156     (1,1)-(1.3,1.3)-(1.9,1.9));
157   push_stroke((790,620)..tension 1.2..(730,370)..(670,170),
158     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
159   set_boserif(0,0,10);
160   expand_pbox;
161 enddef;

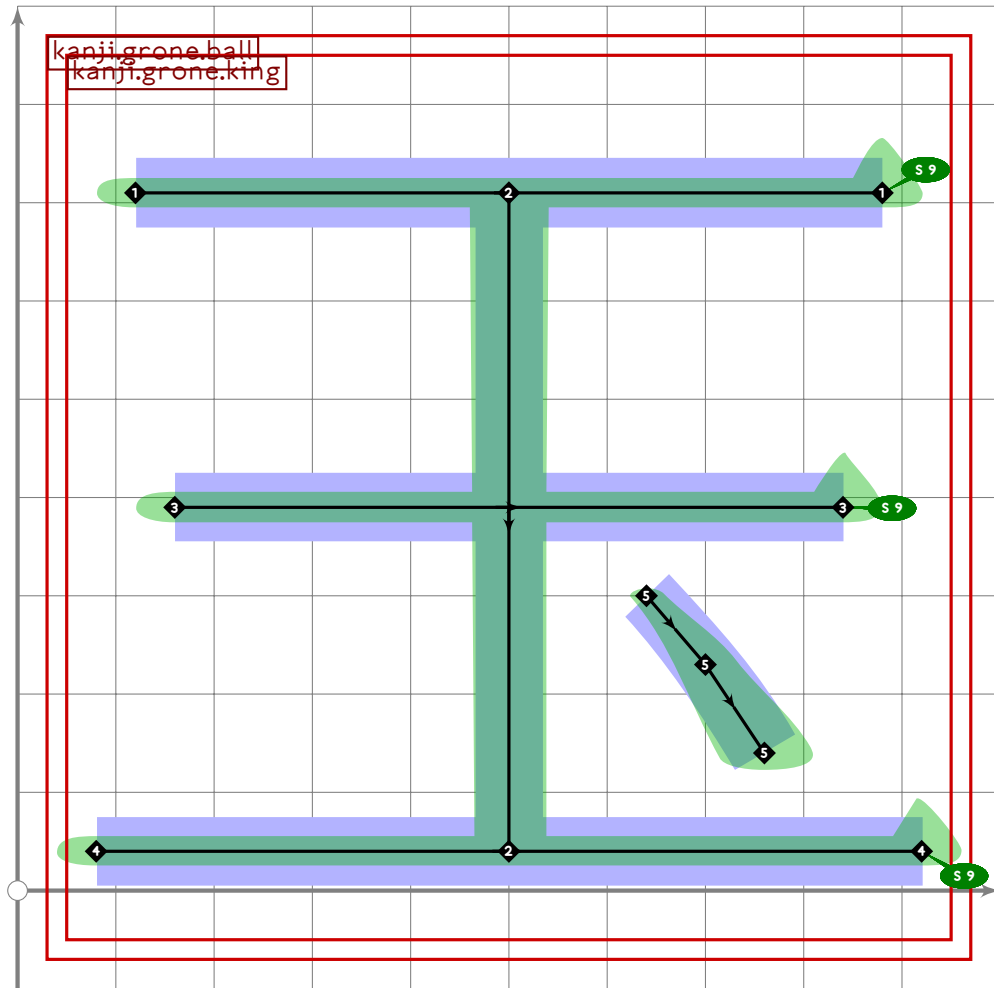
```

# gradeone.mp

```
1 %  
2 % Grade One kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradeone);  
32  
33
```



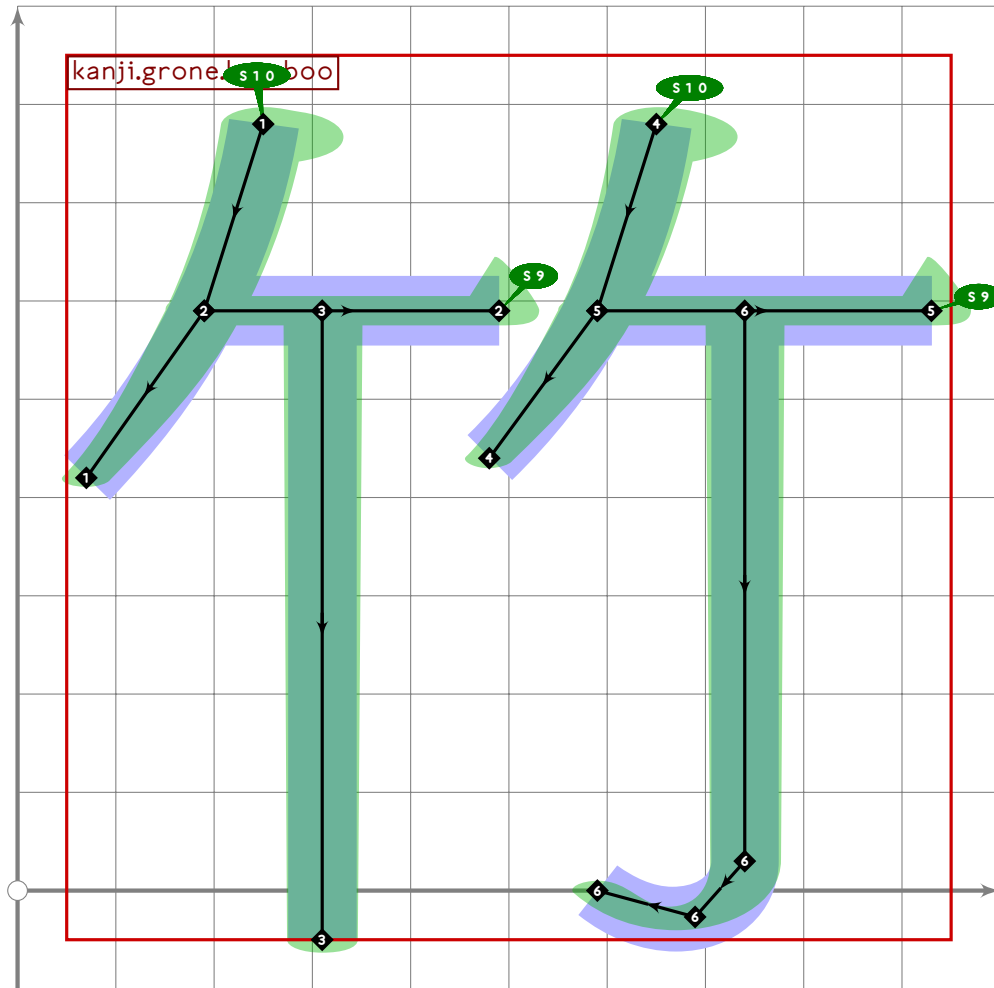
```
34  
35 vardef kanji.grone.ahead =  
36   push_pbox_toexpand("kanji.grone.ahead");  
37   build_kanji.tb(450,60)  
38     (kanji.radical.life_minus)  
39     (kanji.radical.legs);  
40   expand_pbox;  
41 enddef;
```



```

42
43 vardef kanji.grone.ball =
44   push_pbox_toexpand("kanji.grone.ball");
45   kanji.grone.king;
46   push_stroke((640,300)..(700,230)..(760,140),
47     (1,1)-(14,14)-(18,18));
48   expand_pbox;
49 enddef;

```

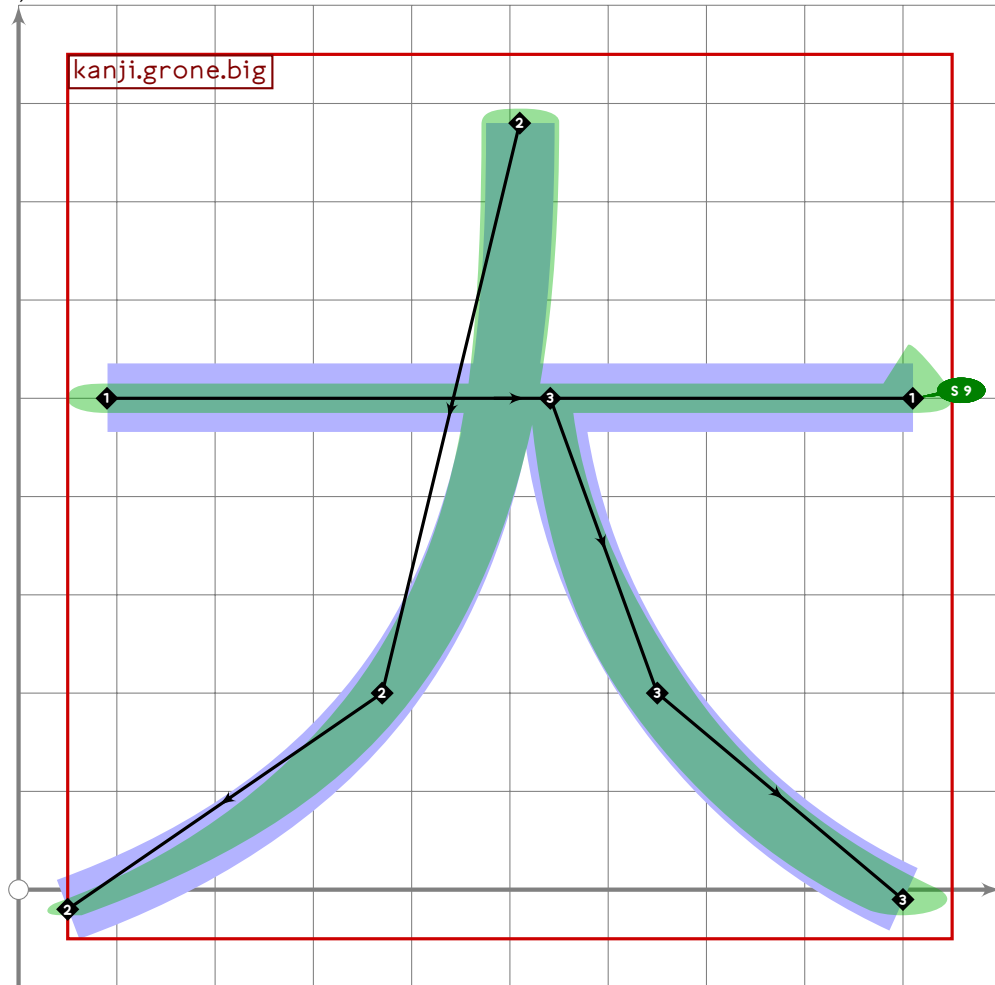


```

50
51 vardef kanji.grone.bamboo =
52   push_pbox_toexpand("kanji.grone.bamboo");
53   push_stroke((250,780)..(190,590)..(70,420),
54     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
55   set_boserif(0,0,10);
56   push_stroke((190,590)-(490,590),
57     (1.6,1.6)-(1.6,1.6));
58   set_boserif(0,1,9);
59   push_stroke((310,590)-(310,-50),
60     (1.6,1.6)-(1.5,1.5));
61   push_stroke((650,780)..(590,590)..(480,440),
62     (1.7,1.7)-(1.6,1.6)-(1.2,1.2));
63   set_boserif(0,0,10);
64   push_stroke((590,590)-(930,590),
65     (1.6,1.6)-(1.6,1.6));
66   set_boserif(0,1,9);
67   push_stroke((740,590),
68     (1.6,1.6));
69   build_kanji.add_jtail(0);
70   expand_pbox;

```

71 enddef;



72

73 vardef kanji.grone.big =

74 push\_pbox\_toexpand("kanji.grone.big");

75 push\_stroke((90,500)-(910,500),

76 (1.6,1.6)-(1.6,1.6));

77 set\_boserif(0,1,9);

78 push\_stroke((510,780){down}..(370,200)..{curl 0.5}(50,-20),

79 (1.6,1.6)-(1.4,1.4)-(1.1,1.1));

80 push\_stroke(((get\_strokep(-1) intersectionpoint get\_strokep(0))+50,0)..

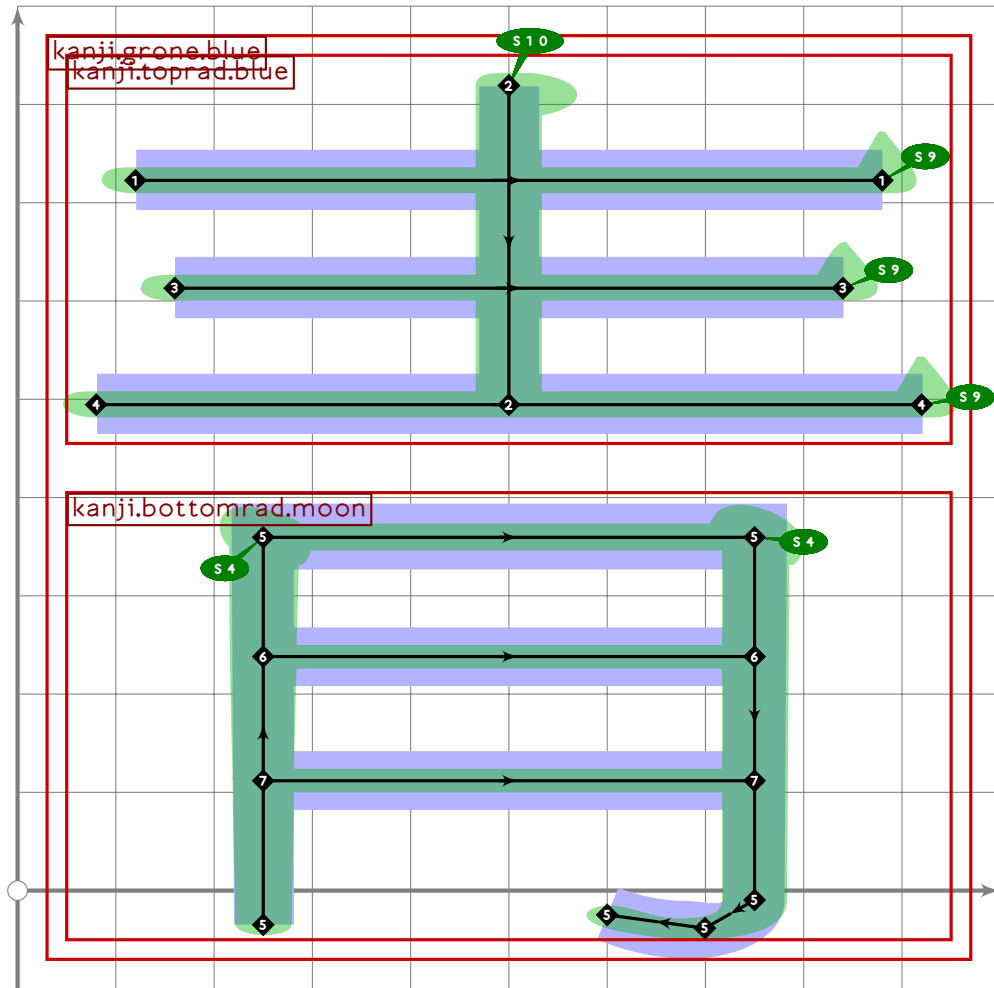
81 (650,200)..(900,-10),

82 (1.1,1.1)-(1.5,1.5)-(1.7,1.7));

83 expand\_pbox;

84 enddef;

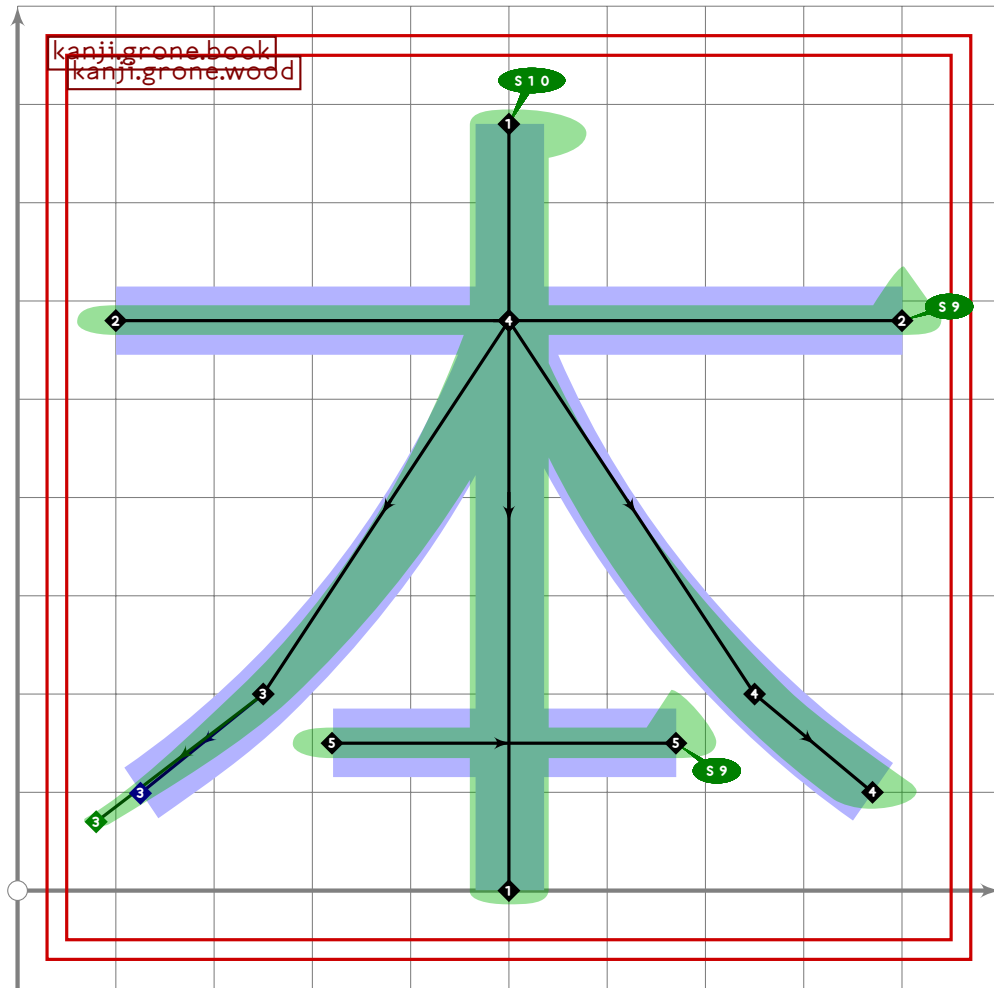




```

85
86 vardef kanji.grone.blue =
87   push_pbox_toexpand("kanji.grone.blue");
88   build_kanji.level(build_kanji.tb(430,-50)
89     (kanji.toprad.blue)
90     (kanji.bottomrad.moon));
91   expand_pbox;
92 enddef;

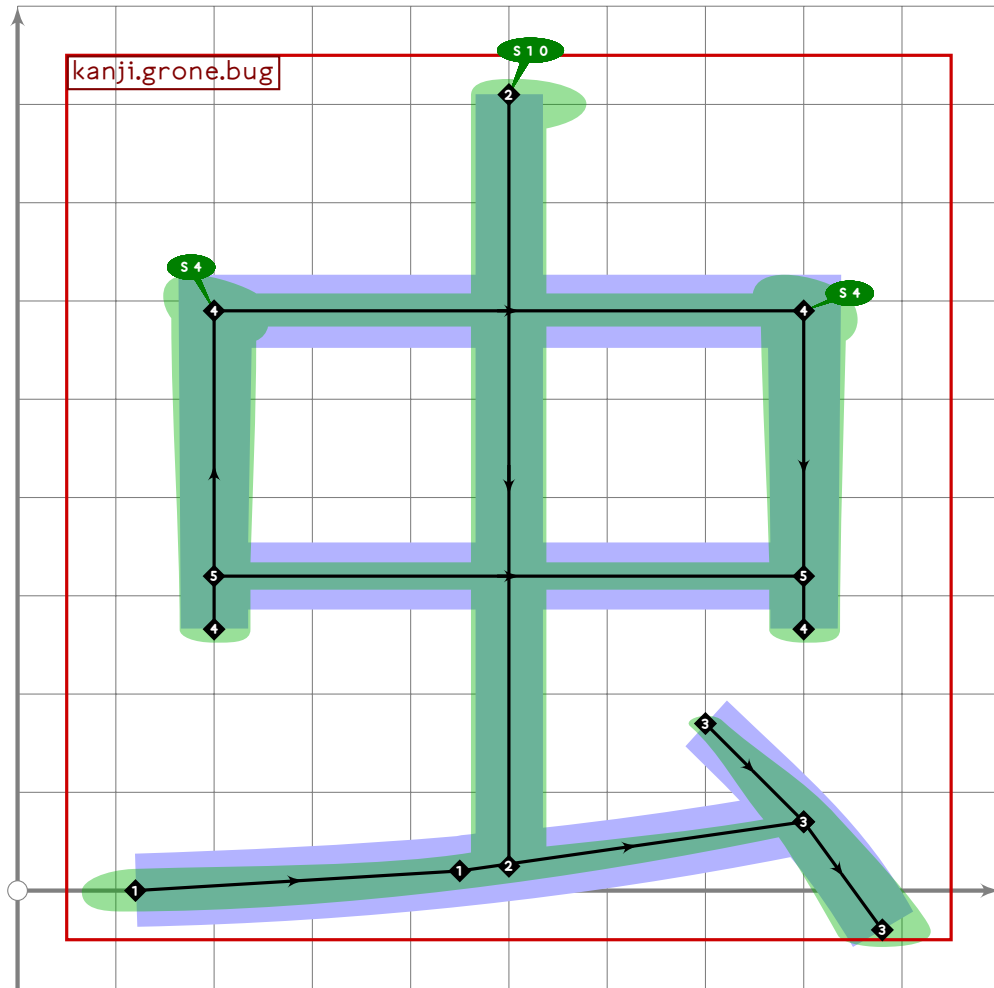
```



```

93
94 vardef kanji.grone.book =
95   push_pbox_toexpand("kanji.grone.book");
96   kanji.grone.wood;
97   push_stroke((320,150)-(670,150),
98     (1.6,1.6)-(1.6,1.6));
99   set_boserif(0,1,9);
100  expand_pbox;
101 enddef;

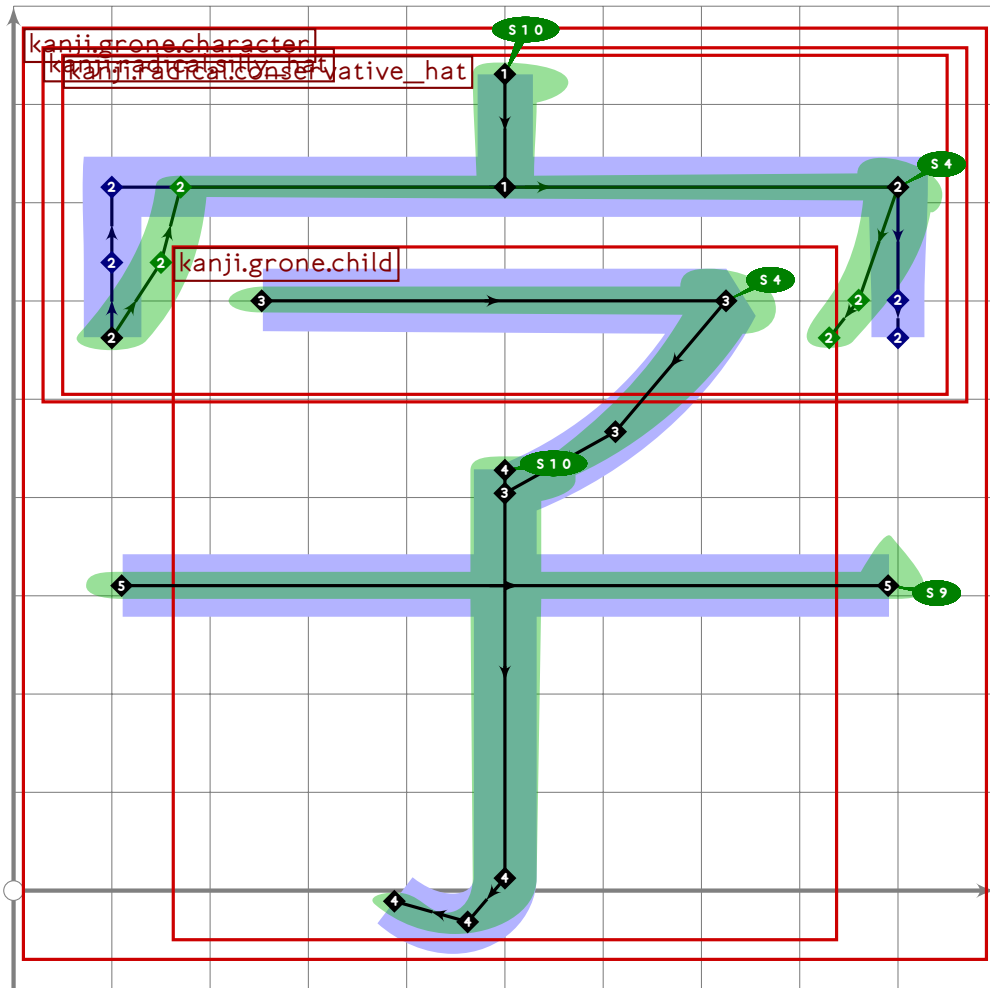
```



```

102
103 vardef kanji.grone.bug =
104   push_pbox_toexpand("kanji.grone.bug");
105   push_stroke((120,0)..tension 1.2..(450,20)..(800,70),
106     (2,2)-(1.7,1.7)-(1.2,1.2));
107   push_stroke(
108     (500,810)-(get_stroke(0) intersectionpoint ((500,1000)-(500,0))),
109     (1.6,1.6)-(1.5,1.5));
110   set_boserif(0,0,10);
111   push_stroke((700,170)..tension 1.3..(800,70)..(880,-40),
112     (1,1)-(1.5,1.5)-(1.8,1.8));
113   build_kanji.box((200,590),(800,320));
114   expand_pbox;
115 enddef;

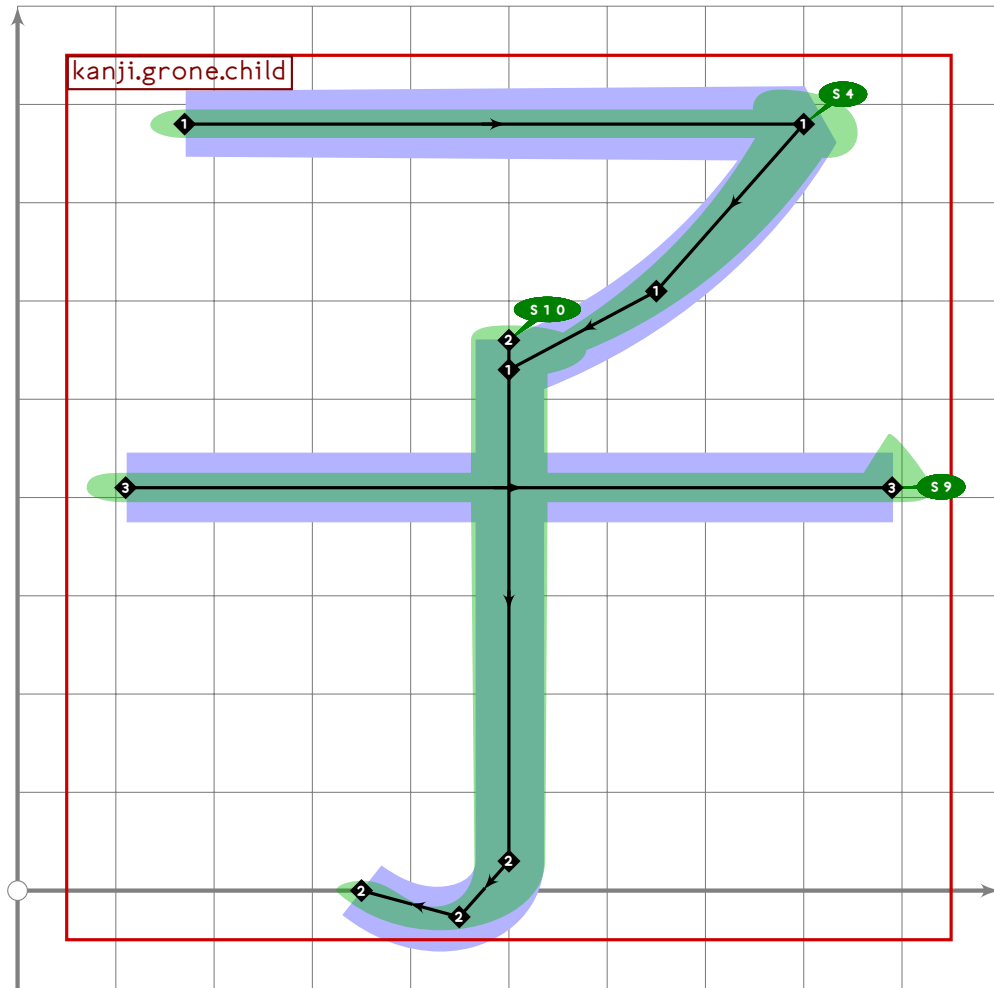
```



```

116
117 vardef kanji.grone.character =
118   push_pbox_toexpand("kanji.grone.character");
119   begingroup
120     save charsvp;
121     path charsvp;
122     build_kanji.tb(580,150)
123       (kanji.radical.silly_hat)
124       (build_kanji.sscale(xscaled 0.75)
125         (kanji.grone.child;
126           charsvp:=get_strokep(0);
127           replace_strokep(0)(charsvp));
128     endgroup;
129     expand_pbox;
130 enddef;

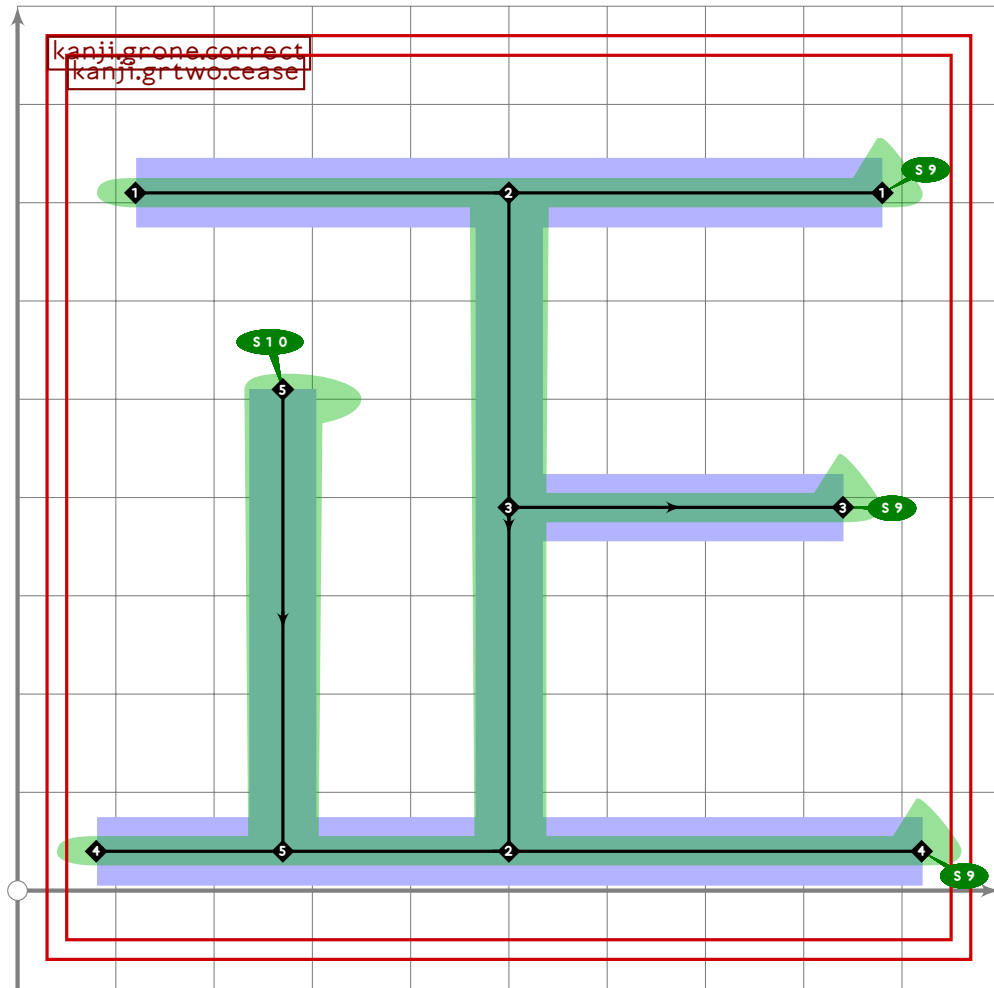
```



```

131
132 vardef kanji.grone.child =
133   push_pbox_toexpand("kanji.grone.child");
134   push_stroke((170,780)-(800,780)..(650,610)..(500,530),
135     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
136   set_boserif(0,1,4);
137   set_botip(0,1,0);
138   push_stroke((500,560),
139     (1.6,1.6));
140   build_kanji.add_jtail(0);
141   set_boserif(0,0,10);
142   push_stroke((110,410)-(890,410),
143     (1.6,1.6)-(1.6,1.6));
144   set_boserif(0,1,9);
145   expand_pbox;
146 enddef;

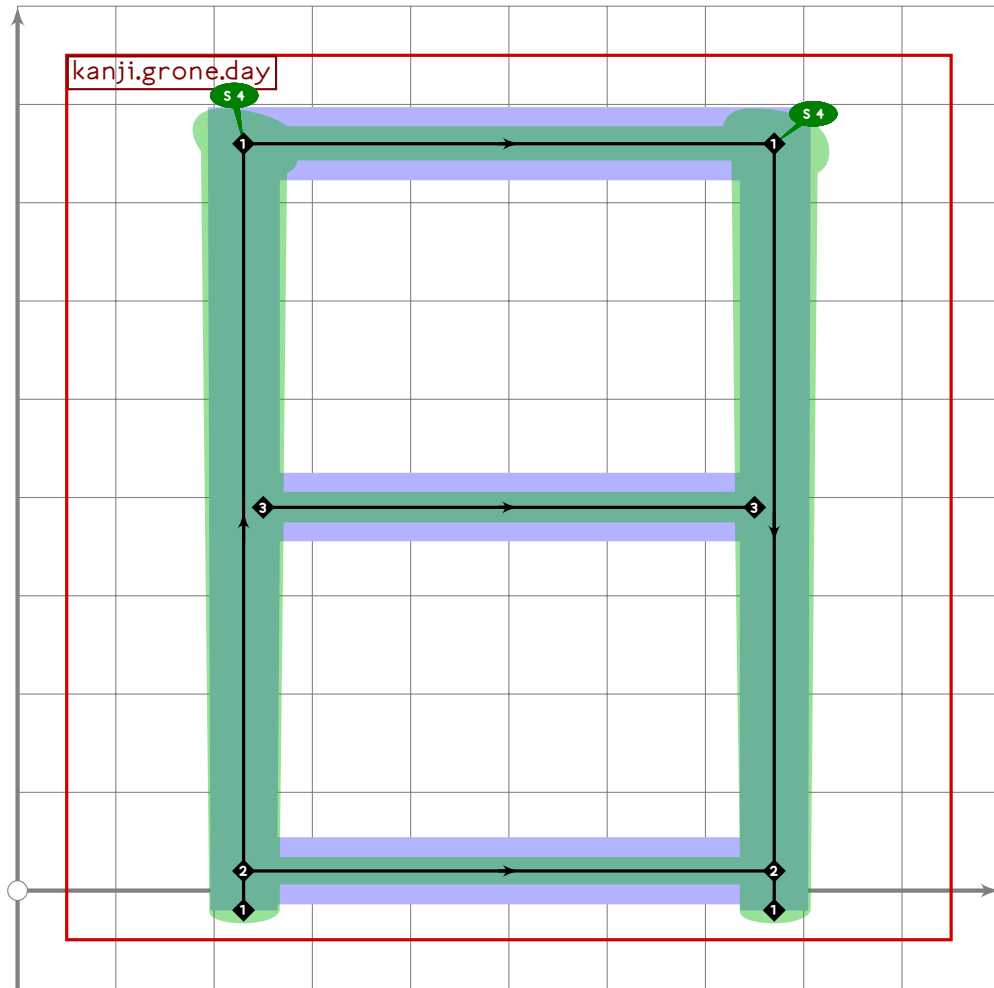
```



```

147
148 vardef kanji.grone.correct =
149   push_pbox_toexpand("kanji.grone.correct");
150   push_stroke((120,710)-(880,710),
151     (1.6,1.6)-(1.6,1.6));
152   set_boserif(0,1,9);
153   kanji.grtwo.cease;
154   expand_pbox;
155 enddef;

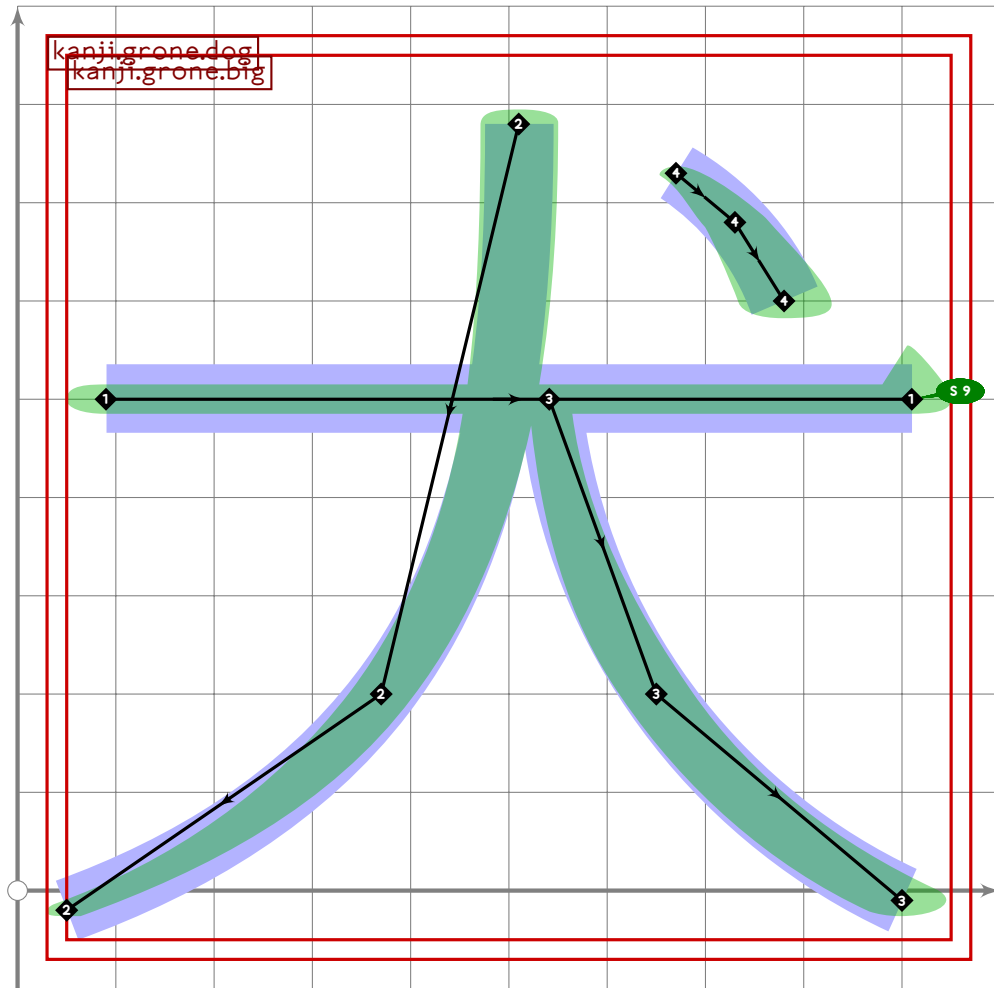
```



```

156
157 vardef kanji.grone.day =
158   push_pbox_toexpand("kanji.grone.day");
159   build_kanji.box((230,760),(770,20));
160   push_stroke((250,390)-(750,390),
161     (1.6,1.6)-(1.6,1.6));
162   expand_pbox;
163 enddef;

```

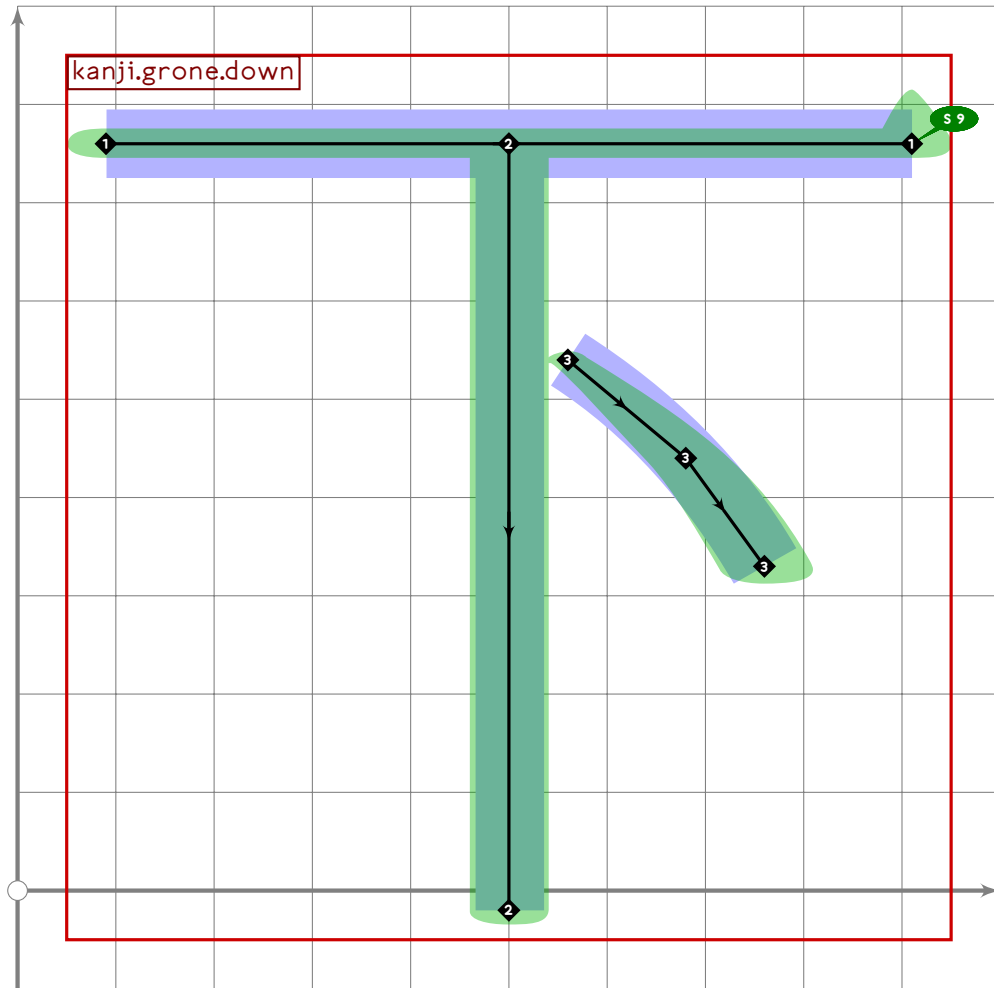


```

164
165 vardef kanji.grone.dog =
166   push_pbox_toexpand("KANJI.GRONE.DOG");
167   kanji.grone.big;
168   push_stroke((670,730)..(730,680)..(780,600),
169     (1,1)-(14,14)-(18,18));
170   expand_pbox;
171 enddef;

```

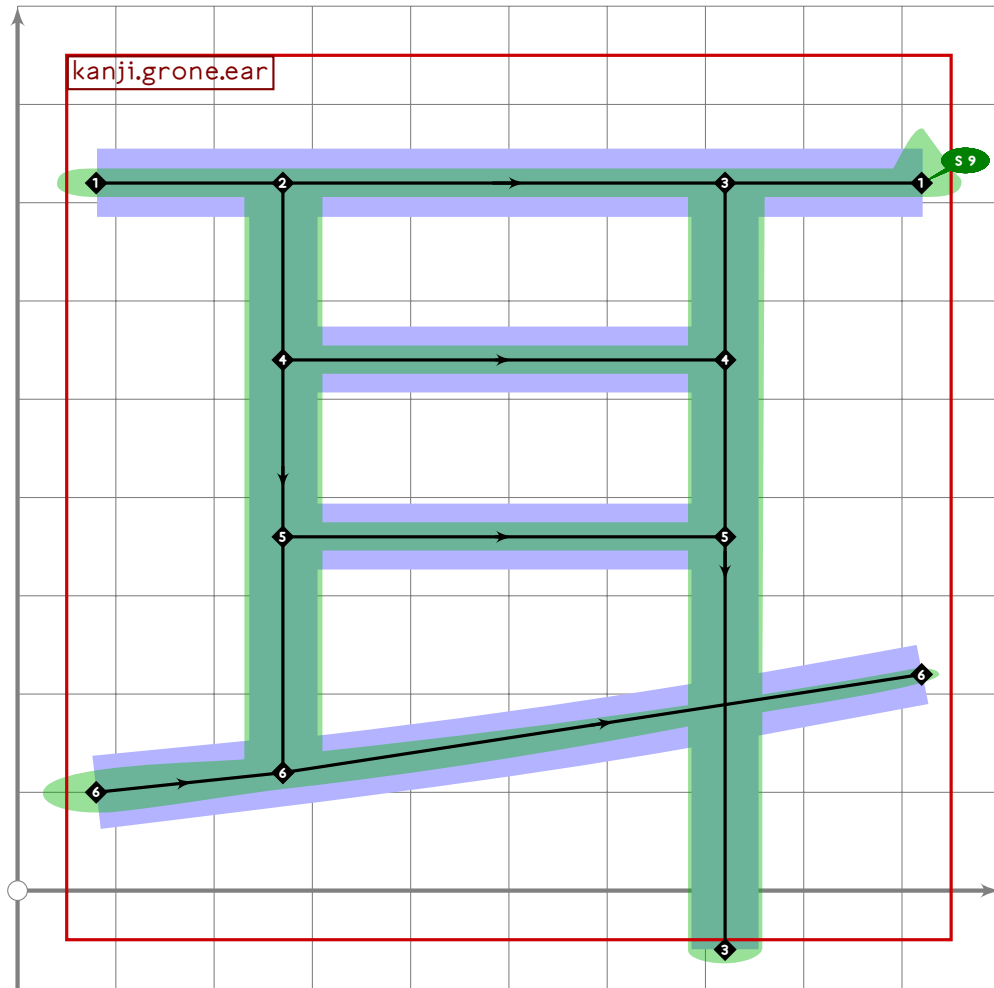




```

172
173 vardef kanji.grone.down =
174   push_pbox_toexpand("kanji.grone.down");
175   push_stroke((90,760)-(910,760),
176     (1.6,1.6)-(1.6,1.6));
177   set_boserif(0,1,9);
178   push_stroke((500,760)-(500,-20),
179     (1.6,1.6)-(1.6,1.6));
180   push_stroke((560,540)..(680,440)..(760,330),
181     (1.1,1.1)-(1.6,1.6)-(1.8,1.8));
182   expand_pbox;
183 enddef;

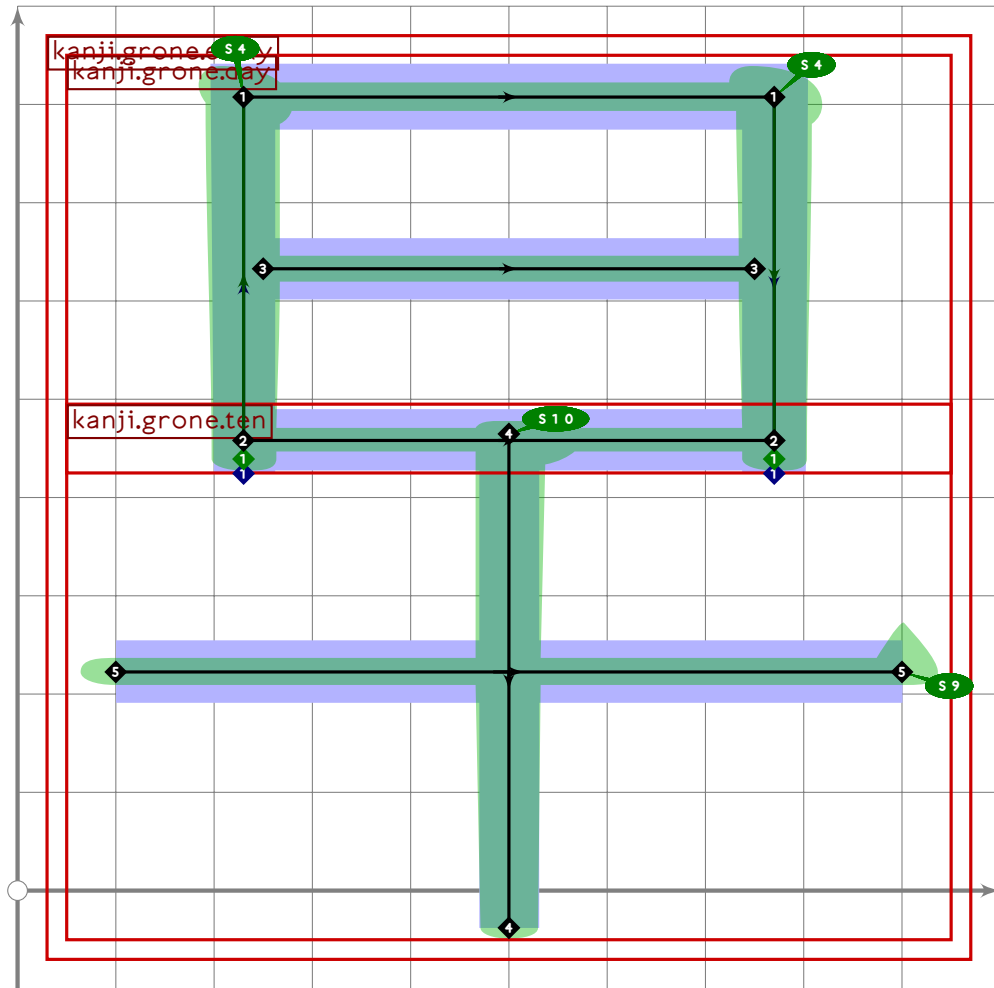
```



```

184
185 vardef kanji.grone.ear =
186   push_pbox_toexpand("kanji.grone.ear");
187   push_stroke((80,720)-(920,720),
188     (1.6,1.6)-(1.6,1.6));
189   set_boserif(0,1,9);
190   push_stroke((270,720)-(270,120),
191     (1.6,1.6)-(1.6,1.6));
192   push_stroke((720,720)-(720,-60),
193     (1.6,1.6)-(1.5,1.5));
194   push_stroke((270,540)-(720,540),
195     (1.5,1.5)-(1.5,1.5));
196   push_stroke((270,360)-(720,360),
197     (1.5,1.5)-(1.5,1.5));
198   push_stroke((80,100)..tension 1.3..(270,120)..(920,220),
199     (2,2)-(1.7,1.7)-(1,1));
200   expand_pbox;
201 enddef;

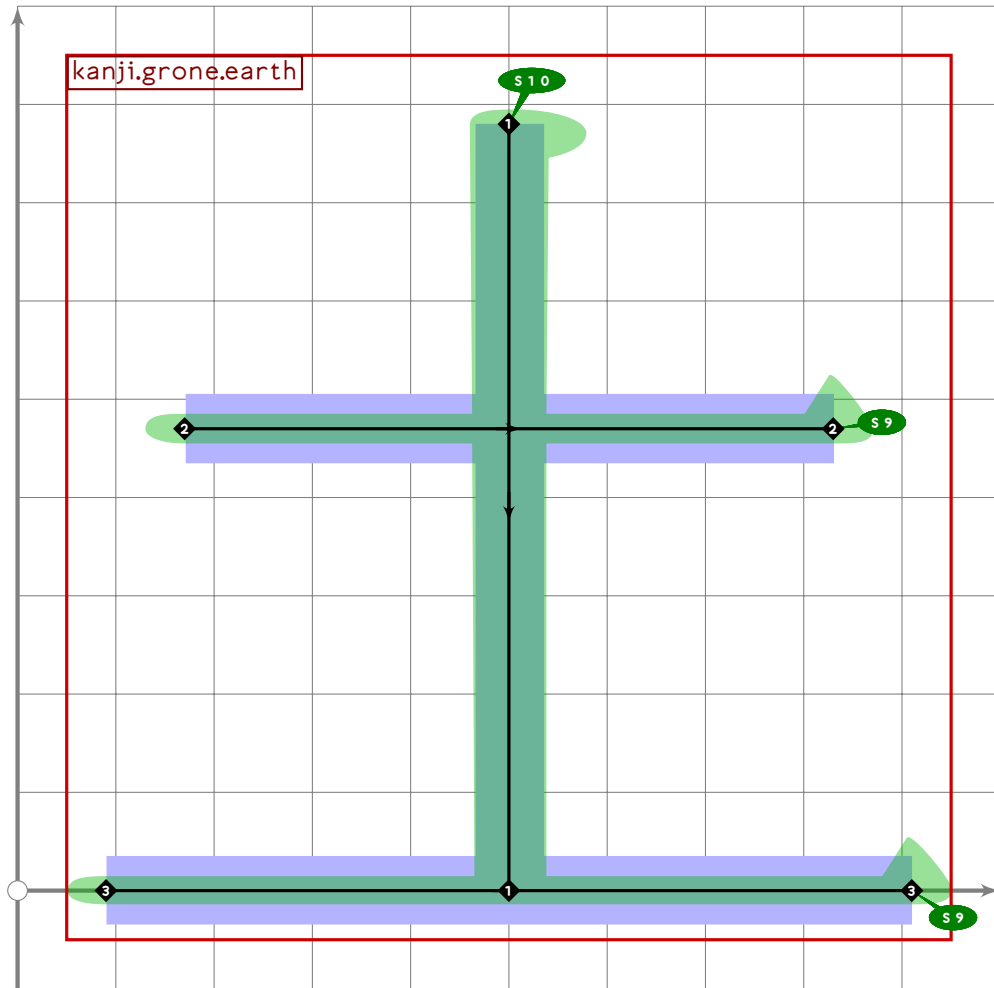
```



```

202
203 vardef kanji.grone.early =
204   push_pbox_toexpand("kanji.grone.early");
205   build_kanji.level(build_kanji.tb(460,70)
206     (kanji.grone.day)
207     (kanji.grone.ten));
208   set_boserif(0,0,whatever);
209   expand_pbox;
210 enddef;

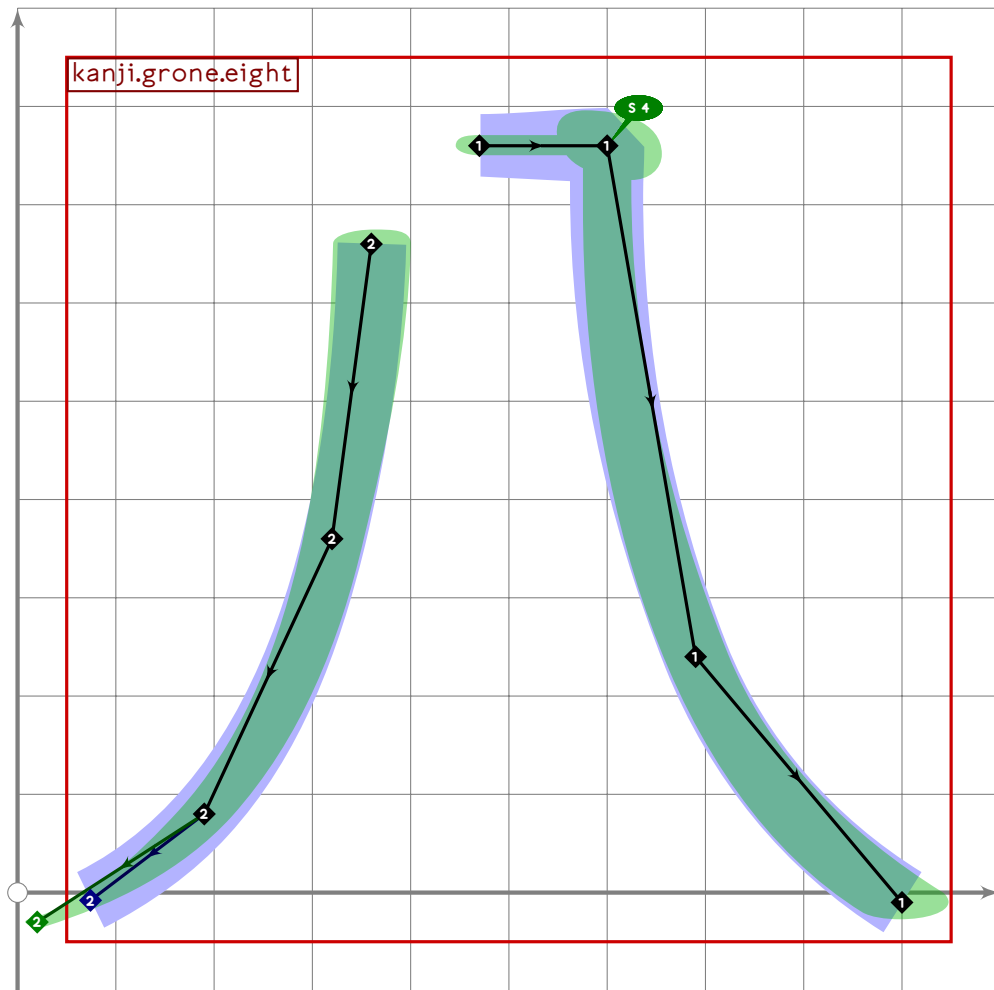
```



```

211
212 vardef kanji.grone.earth =
213   push_pbox_toexpand("kanji.grone.earth");
214   push_stroke((500,780)-(500,0),
215     (1.6,1.6)-(1.5,1.5));
216   set_boserif(0,0,10);
217   push_stroke((170,470)-(830,470),
218     (1.6,1.6)-(1.6,1.6));
219   set_boserif(0,1,9);
220   push_stroke((90,0)-(910,0),
221     (1.6,1.6)-(1.6,1.6));
222   set_boserif(0,1,9);
223   expand_pbox;
224 enddef;

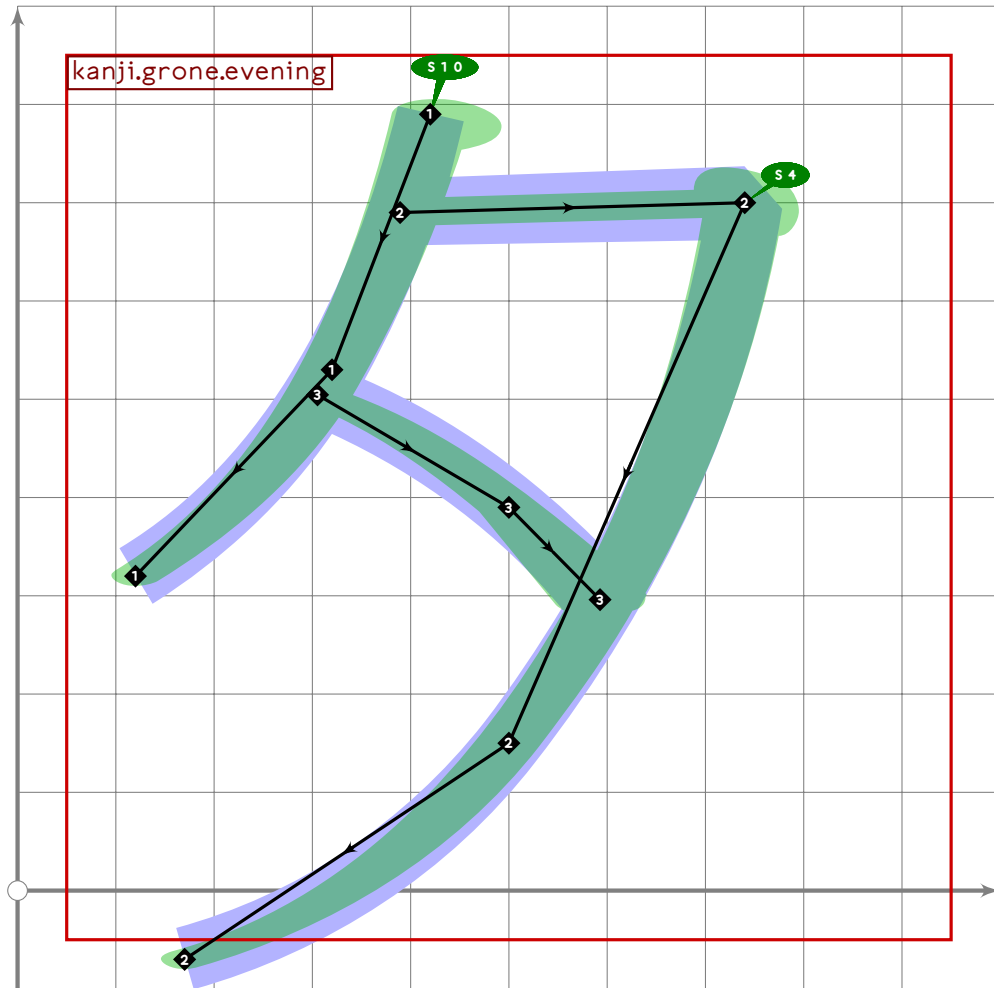
```



```

225
226 vardef kanji.grone.eight =
227   push_pbox_toexpand("kanji.grone.eight");
228   push_stroke((470,760)-(600,760)..tension 1.3..(690,240)..(900,-10),
229     (1.2,1.2)-(1.2,1.2)-(1.4,1.4)-(1.8,1.8));
230   set_botip(0,1,0);
231   set_boserif(0,1,4);
232   push_stroke((360,660)..(320,360)..(190,80)..(20,-30),
233     (1.6,1.6)-(1.4,1.4)-(1.3,1.3)-(0.88,0.88));
234   expand_pbox;
235 enddef;

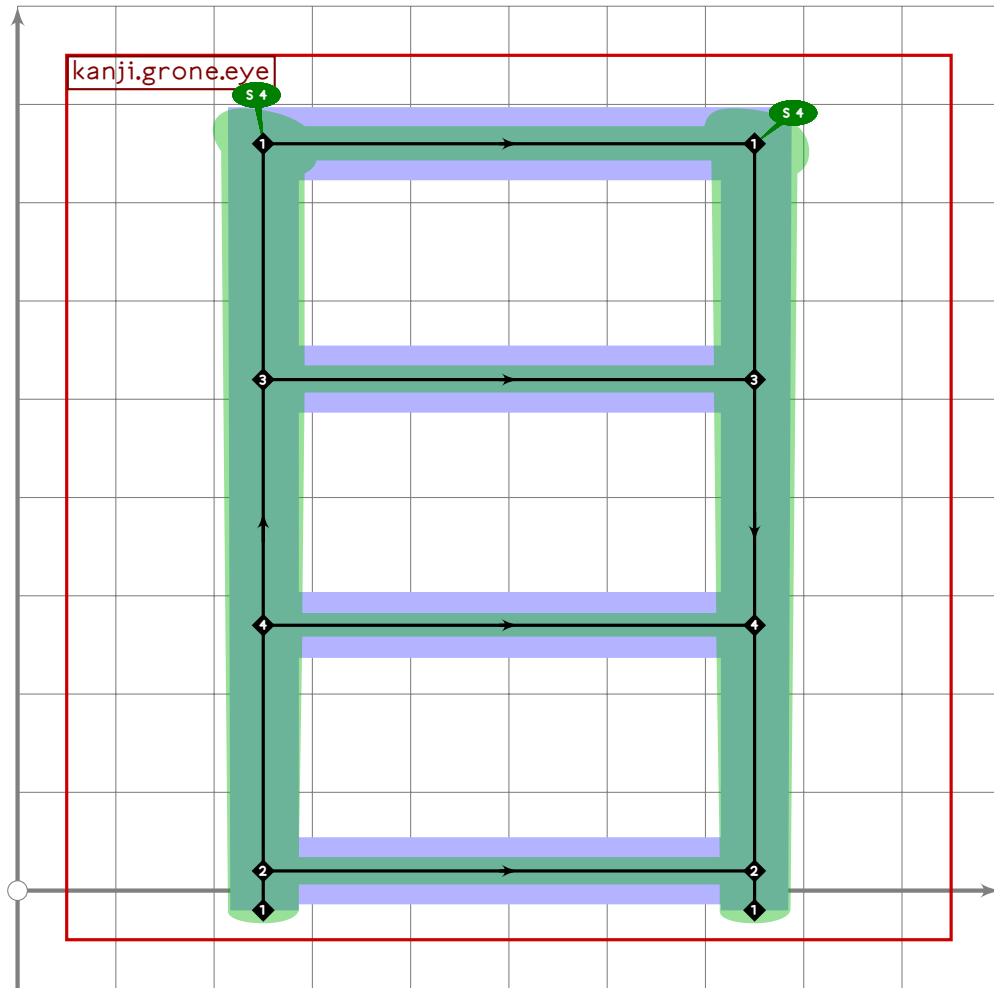
```



```

236
237 vardef kanji.grone.evening =
238   push_pbox_toexpand("KANJI.GRONE.EVENING");
239   push_stroke((420,790)..tension 1.2..(320,530)..(120,320),
240     (1.6,1.6)-(1.5,1.5)-(1.2,1.2));
241   set_boserif(0,0,10);
242   push_stroke(
243     (get_strokep(0) intersectionpoint ((-infinity,690)-(-infinity,690)))-
244     (740,700)..tension 1.2..(500,150)..(170,70),
245     (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.2,1.2));
246   set_botip(0,1,0);
247   set_boserif(0,1,4);
248   push_stroke(
249     (point 1.1 of get_strokep(-1))..(500,390)..(point 1.7 of get_strokep(0)),
250     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
251   expand_pbox;
252 enddef;

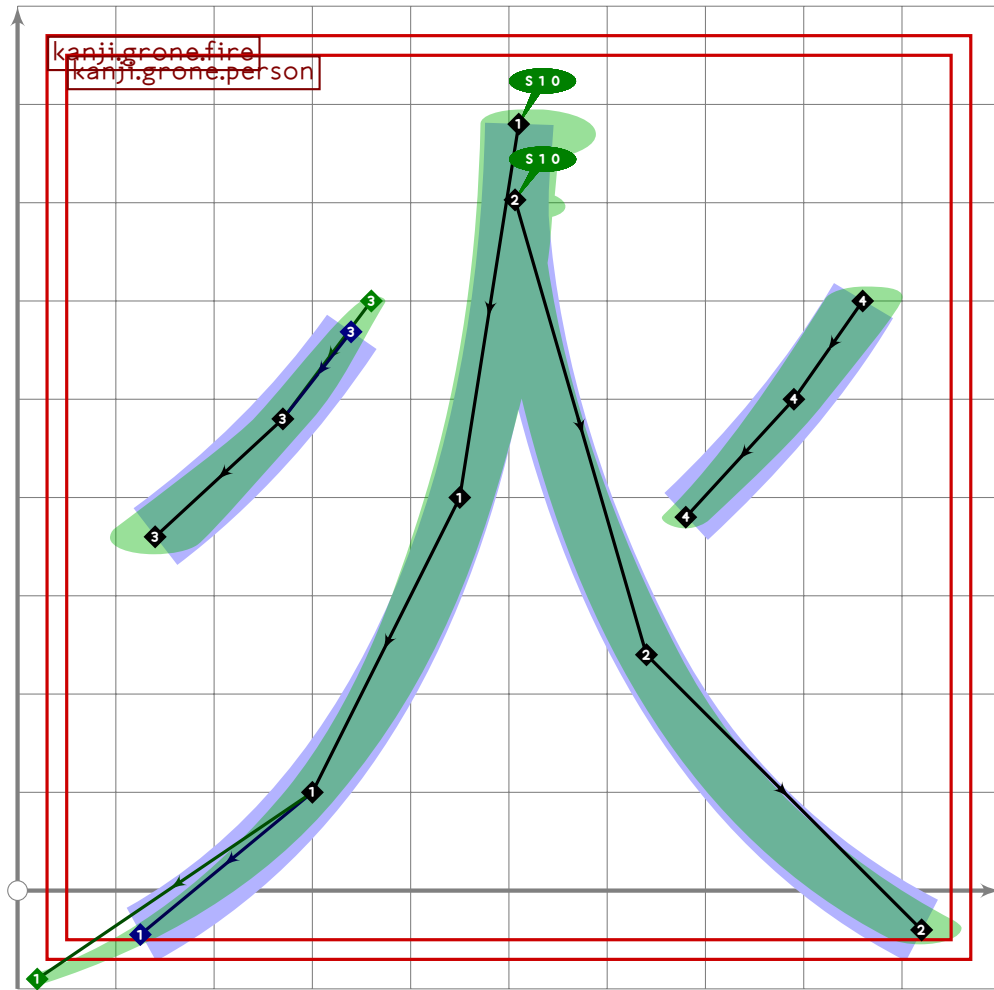
```



```

253
254 vardef kanji.grone.eye =
255   push_pbox_toexpand("kanji.grone.eye");
256   build_kanji.box((250,760),(750,20));
257   push_stroke((250,520)-(750,520),
258     (1.5,1.5)-(1.5,1.5));
259   push_stroke((250,270)-(750,270),
260     (1.4,1.4)-(1.4,1.4));
261   expand_pbox;
262 enddef;

```

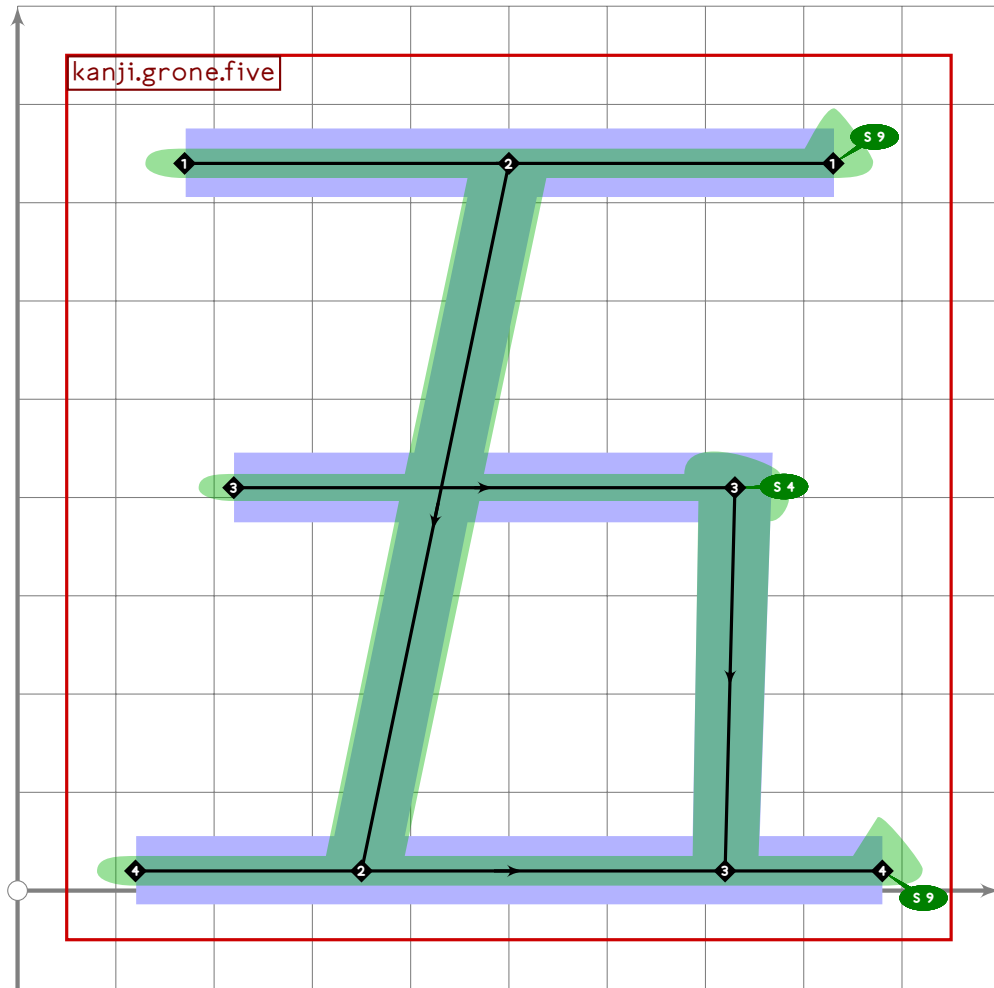


```

263
264 vardef kanji.grone.fire =
265   push_pbox_toexpand("KANJI.GRONE.FIRE");
266   kanji.grone.person;
267   set_boserif(0,0,10);
268   push_stroke((360,600)..(270,480)..(140,360),
269     (0.9,0.9)-(1.3,1.3)-(1.8,1.8));
270   push_stroke((860,600)..(790,500)..(680,380),
271     (1.6,1.6)-(1.4,1.4)-(1.2,1.2));
272   expand_pbox;
273 enddef;

```





```

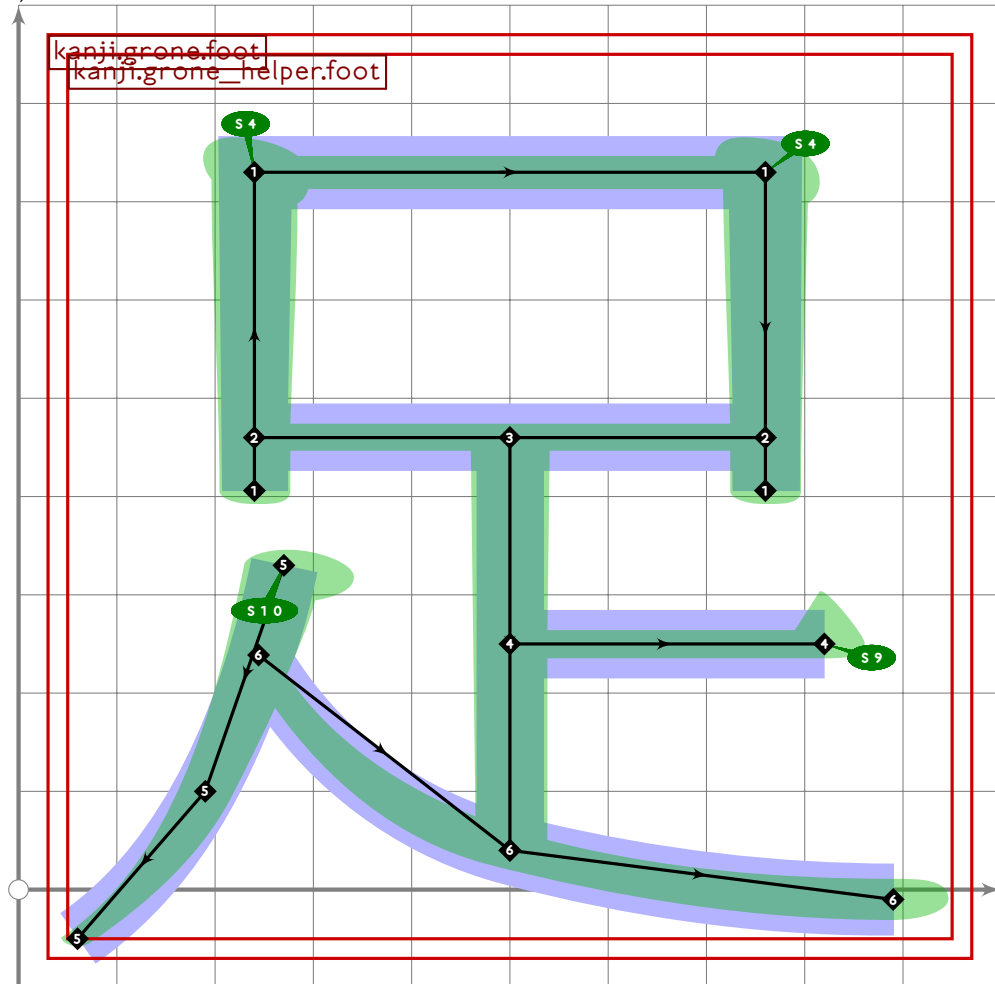
274
275 vardef kanji.grone.five =
276   push_pbox_toexpand("kanji.grone.five");
277   push_stroke((170,740)-(830,740),
278     (1.6,1.6)-(1.6,1.6));
279   set_boserif(0,1,9);
280   push_stroke((500,740)-(350,20),
281     (1.6,1.6)-(1.6,1.6));
282   push_stroke((220,410)-(730,410)-(720,20),
283     (1.5,1.5)-(1.5,1.5)-(1.4,1.4));
284   set_boserif(0,1,4);
285   set_botip(0,1,1);
286   push_stroke((120,20)-(880,20),
287     (1.6,1.6)-(1.6,1.6));
288   set_boserif(0,1,9);
289   expand_pbox;
290 enddef;
291
292 vardef kanji.grone_helper.foot =
293   push_pbox_toexpand("kanji.grone_helper.foot");
294   push_stroke((270,330)..tension 1.3..(190,100)..(60,-50),

```

```

295 (1.6,1.6)-(1.3,1.3)-(1,1);
296 set_boserif(0,0,10);
297 push_stroke((point 0.4 of get_strokep(0)).(500,40)..tension 1.5..(890,-10),
298 (1,1)-(1.7,1.7)-(2,2));
299 expand_pbox;
300 enddef;

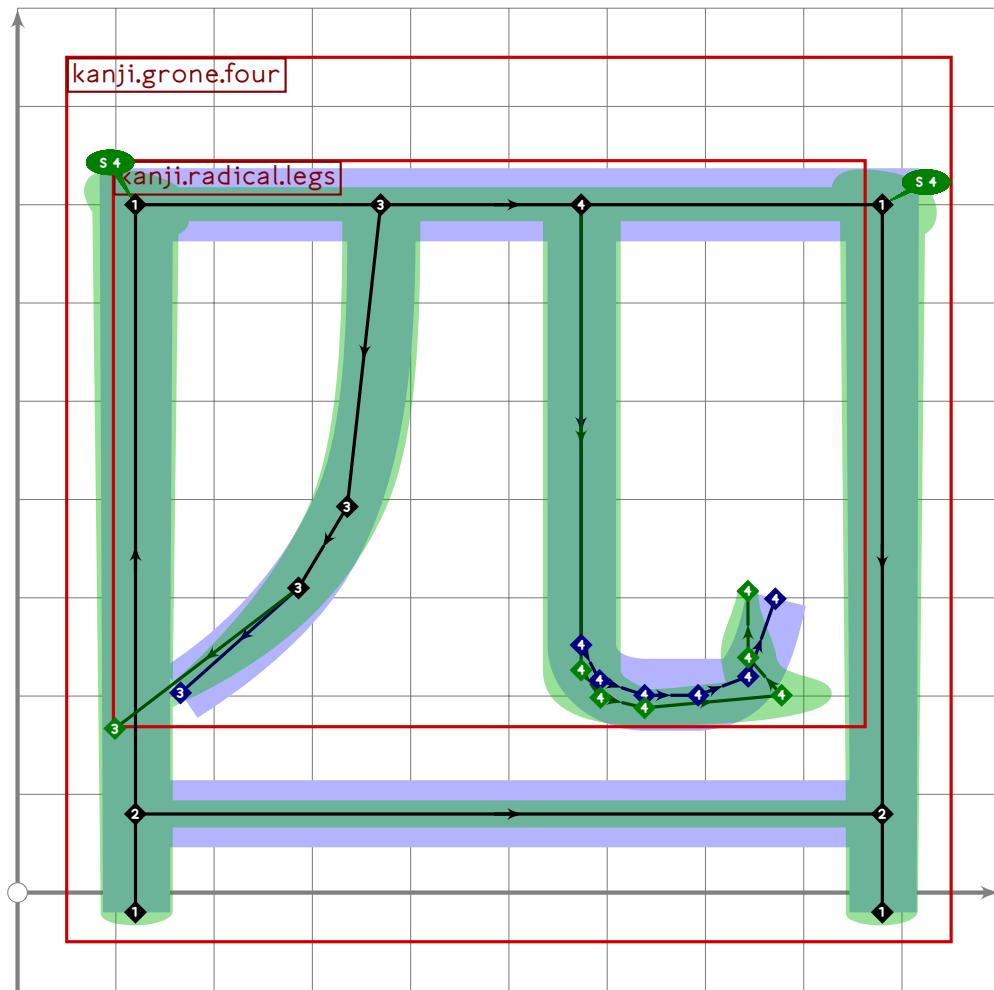
```



```

301
302 vardef kanji.grone.foot =
303   push_pbox_toexpand("kanji.grone.foot");
304   build_kanji.box((240,730),(760,460));
305   push_stroke((500,460)-(500,40),(1.6,1.6)-(1.5,1.5));
306   push_stroke((500,250)-(820,250),(1.5,1.5)-(1.6,1.6));
307   set_boserif(0,1,9);
308   kanji.grone_helper.foot;
309   expand_pbox;
310 enddef;

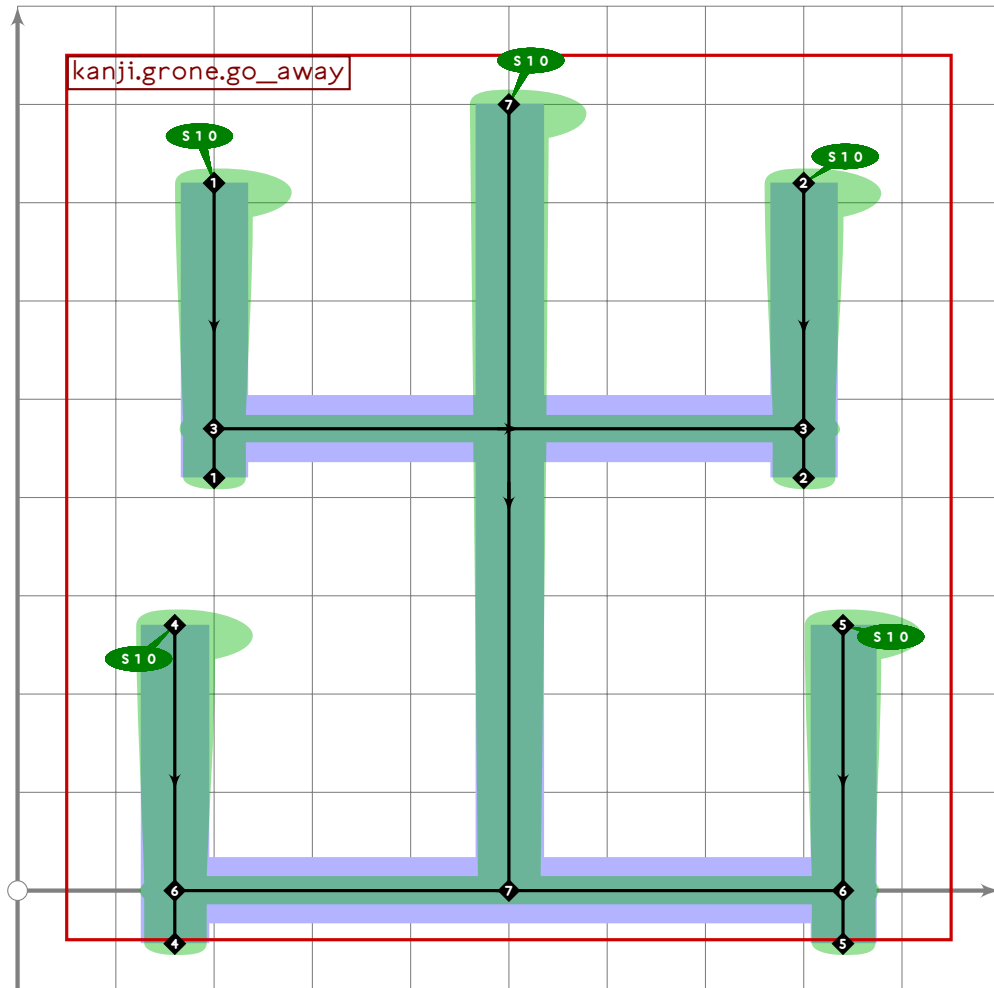
```



```

311
312 vardef kanji.grone.four =
313   push_pbox_toexpand("kanji.grone.four");
314   perl_structure:=perl_structure&"eids.u2FF4.u56D7.u513F";
315   build_kanji.box((120,700),(880,80));
316   tsu_xform
317     (identity shifted (-500,780) xyscaled (0.85,0.64) shifted (480,700))
318     (kanji.radical.legs);
319   expand_pbox;
320 enddef;

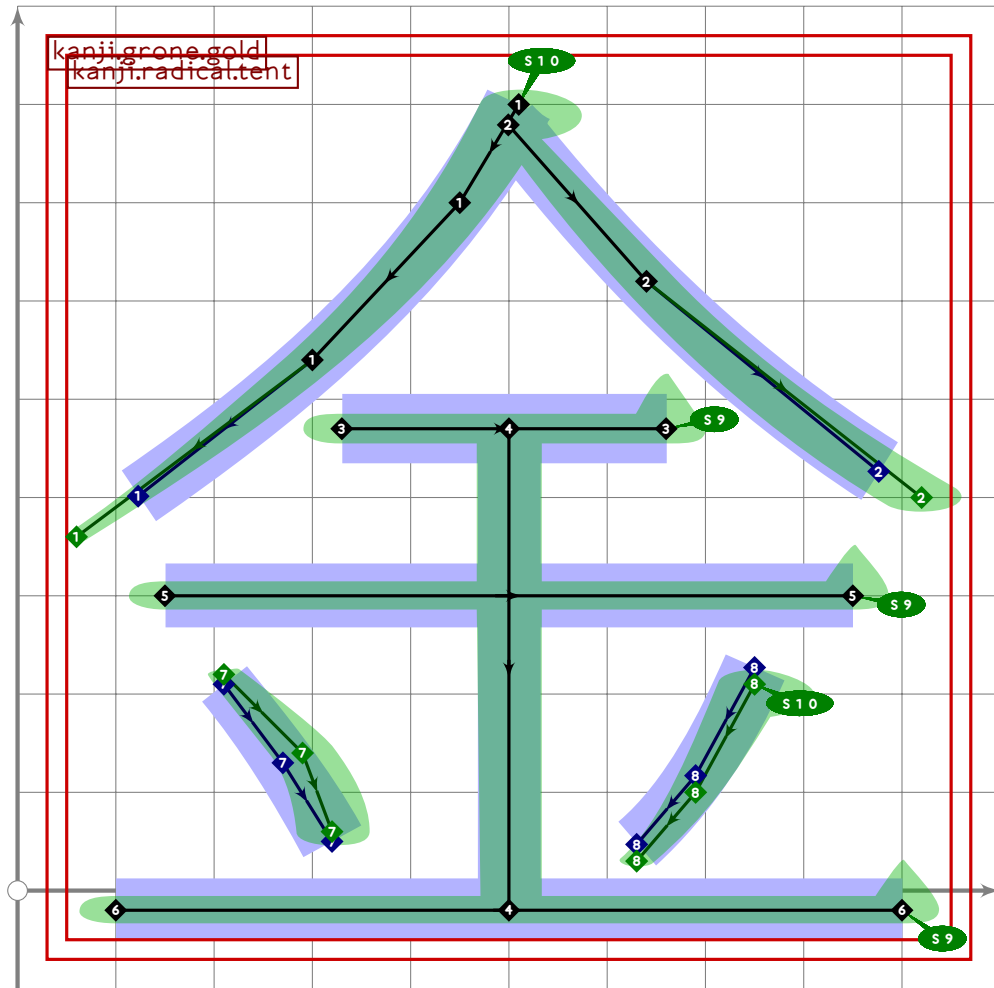
```



```

321
322 vardef kanji.grone.go_away =
323   push_pbox_toexpand("kanji.grone.go_away");
324   build_kanji.cup((200,720),(800,470));
325   build_kanji.cup((160,270),(840,0));
326   push_stroke((500,800)-(500,0),
327     (1.6,1.6)-(1.4,1.4));
328   set_boserif(0,0,10);
329   expand_pbox;
330 enddef;

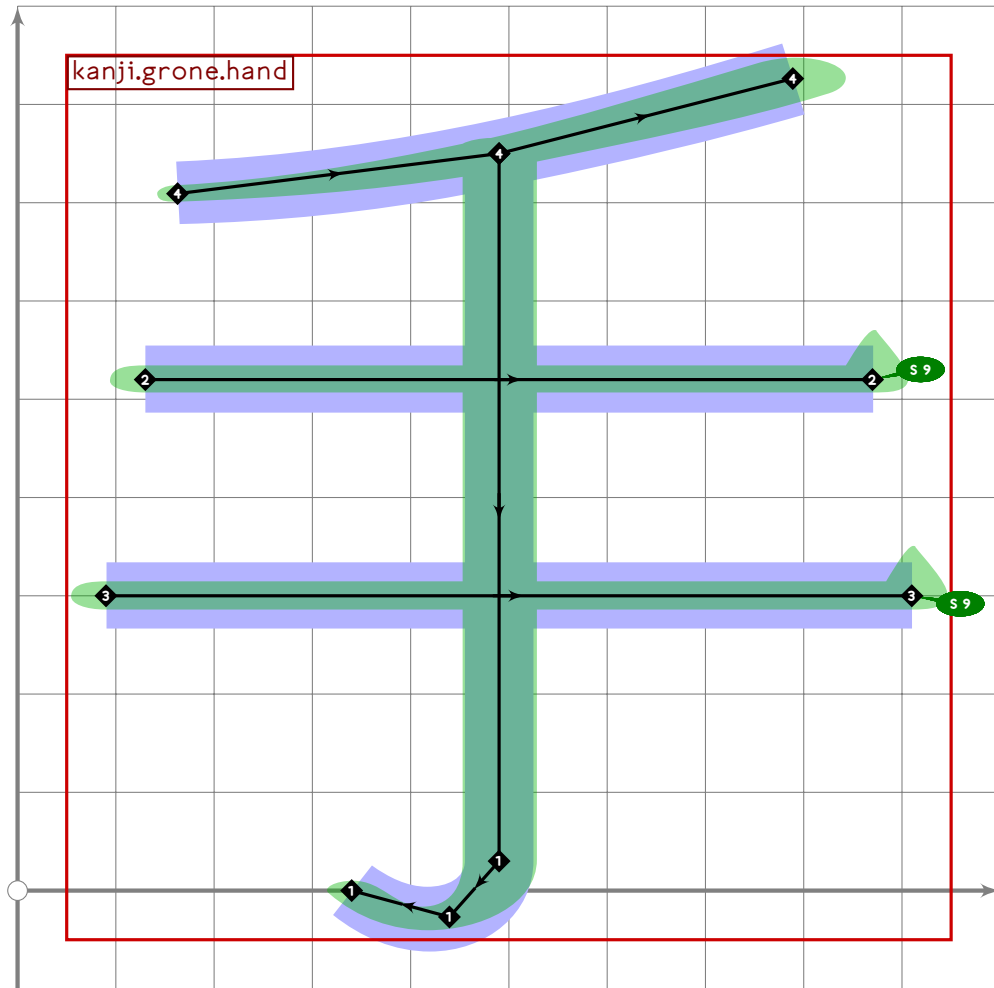
```



```

331
332 vardef kanji.grone.gold =
333   push_pbox_toexpand("kanji.grone.gold");
334   kanji.radical.tent;
335   push_stroke((500,470)-(500,-20),(1.5,1.5)-(1.4,1.4));
336   push_stroke((150,300)-(850,300),(1.6,1.6)-(1.6,1.6));
337   set_boserif(0,1,9);
338   push_stroke((100,-20)-(900,-20),(1.6,1.6)-(1.6,1.6));
339   set_boserif(0,1,9);
340   push_stroke(((210,220)..tension 1.3..(270+20*mincho,140)..(320,60))
341     shifted ((1-mincho)*10*down),
342     (1,1)-(1.5,1.5)-(1.6,1.6));
343   push_stroke(((750,210)..tension 1.3..(690,100)..(630,30))
344     shifted ((1-mincho)*17*up),
345     (1.6,1.6)-(1.3,1.3)-(1,1));
346   set_boserif(0,0,10);
347   for i=-4 upto 0: set_bosize(i,93); endfor;
348   expand_pbox;
349 enddef;

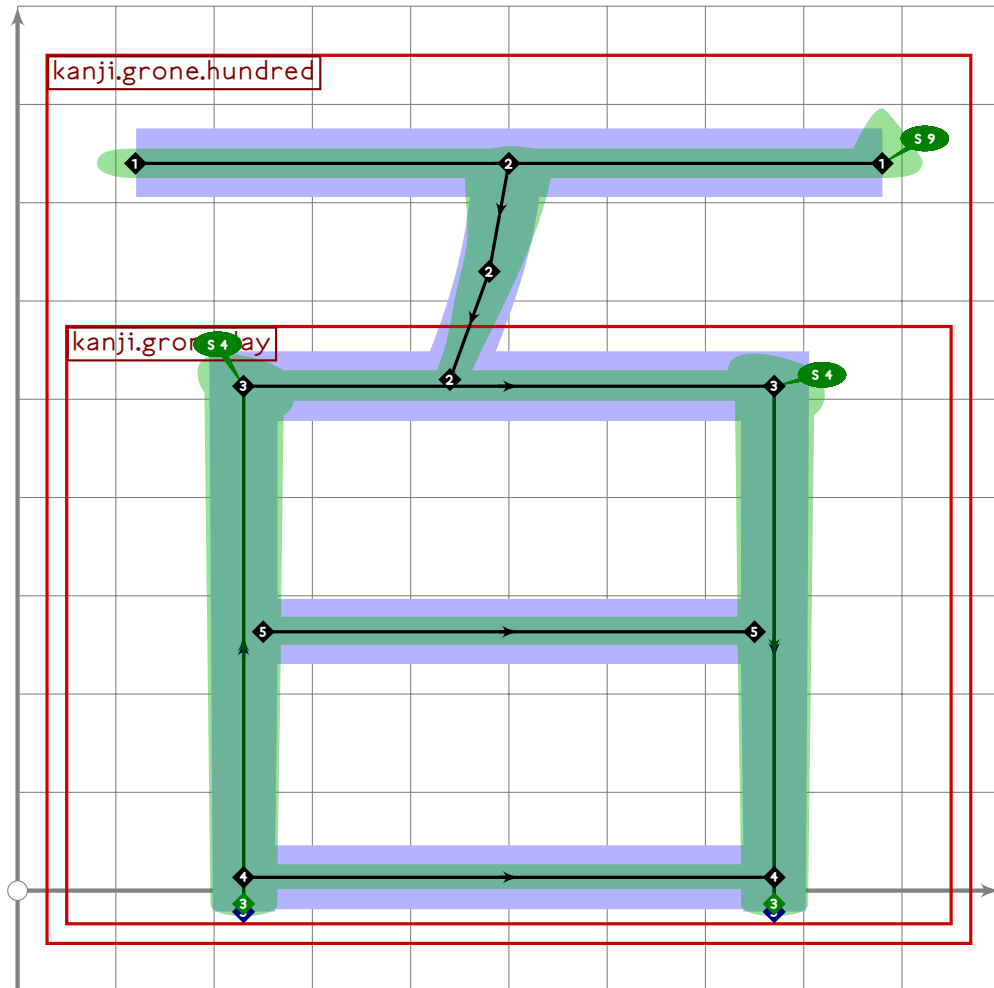
```



```

350
351 vardef kanji.grone.hand =
352   push_pbox_toexpand("kanji.grone.hand");
353   build_kanji.add_beret(
354     push_stroke((490,750),(1,6,1,6));
355     build_kanji.add_jtail(0);
356     push_stroke((130,520)-(870,520),(1,5,1,5)-(1,5,1,5));
357     set_boserif(0,1,9);
358     push_stroke((90,300)-(910,300),(1,5,1,5)-(1,5,1,5));
359     set_boserif(0,1,9);
360   );
361   expand_pbox;
362 enddef;

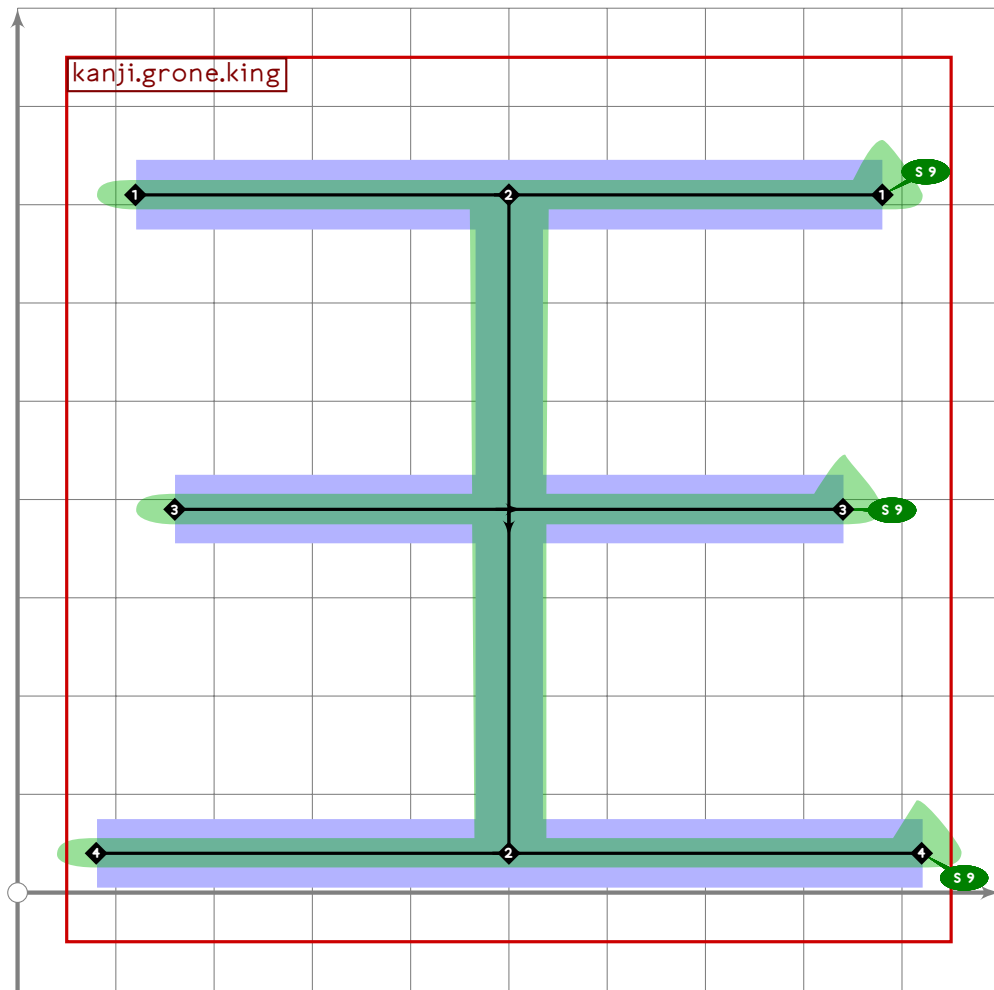
```



```

363
364 vardef kanji.grone.hundred =
365   push_pbox_toexpand("kanji.grone.hundred");
366   push_stroke((120,740)-(880,740),
367     (1.6,1.6)-(1.6,1.6));
368   set_boserif(0,1,9);
369   push_stroke((500,740)..(480,630)..(440,520),
370     (1.7,1.7)-(1.3,1.3)-(1,1));
371   tsu_xform(identity yscaled (520/770))(kanji.grone.day);
372   expand_pbox;
373 enddef;

```

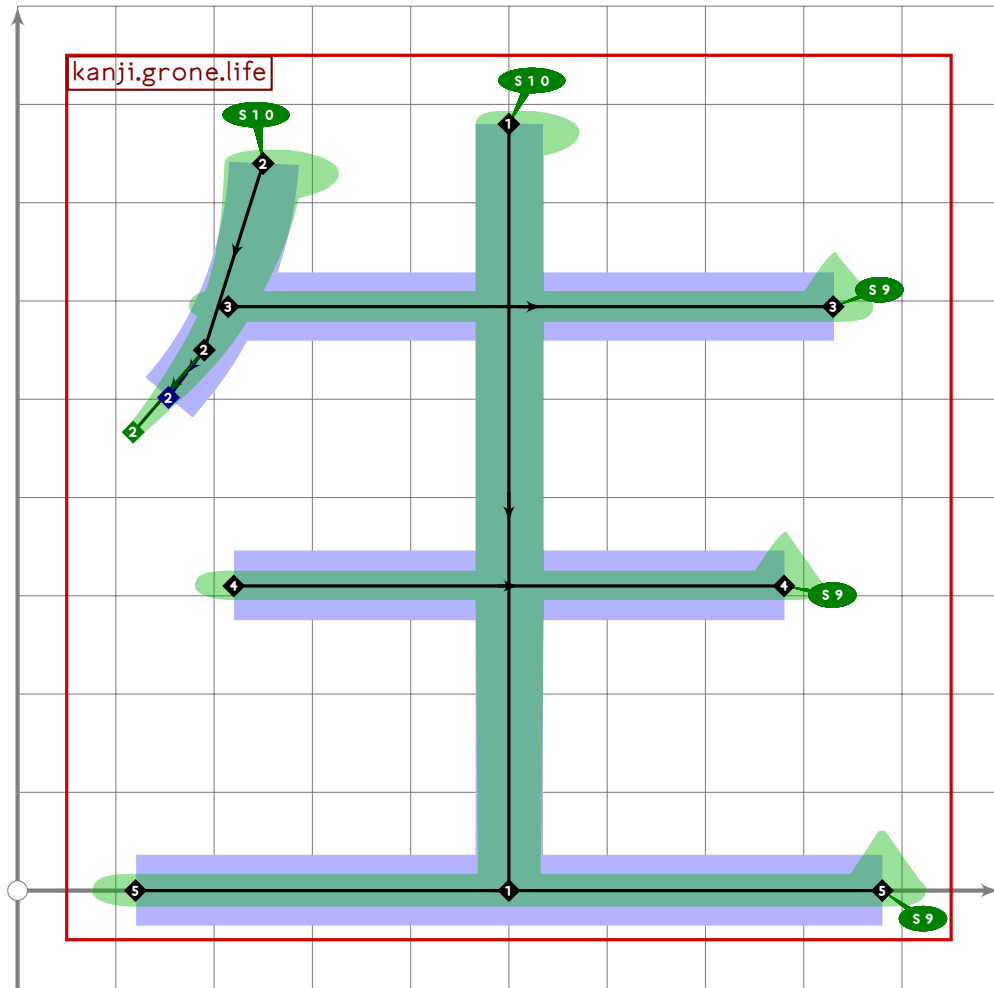


```

374
375 vardef kanji.grone.king =
376   push_pbox_toexpand("kanji.grone.king");
377   push_stroke((120,710)-(880,710),
378     (1.6,1.6)-(1.6,1.6));
379   set_boserif(0,1,9);
380   push_stroke((500,710)-(500,40),
381     (1.6,1.6)-(1.5,1.5));
382   push_stroke((160,390)-(840,390),
383     (1.6,1.6)-(1.6,1.6));
384   set_boserif(0,1,9);
385   push_stroke((80,40)-(920,40),
386     (1.6,1.6)-(1.6,1.6));
387   set_boserif(0,1,9);
388   expand_pbox;
389 enddef;

```

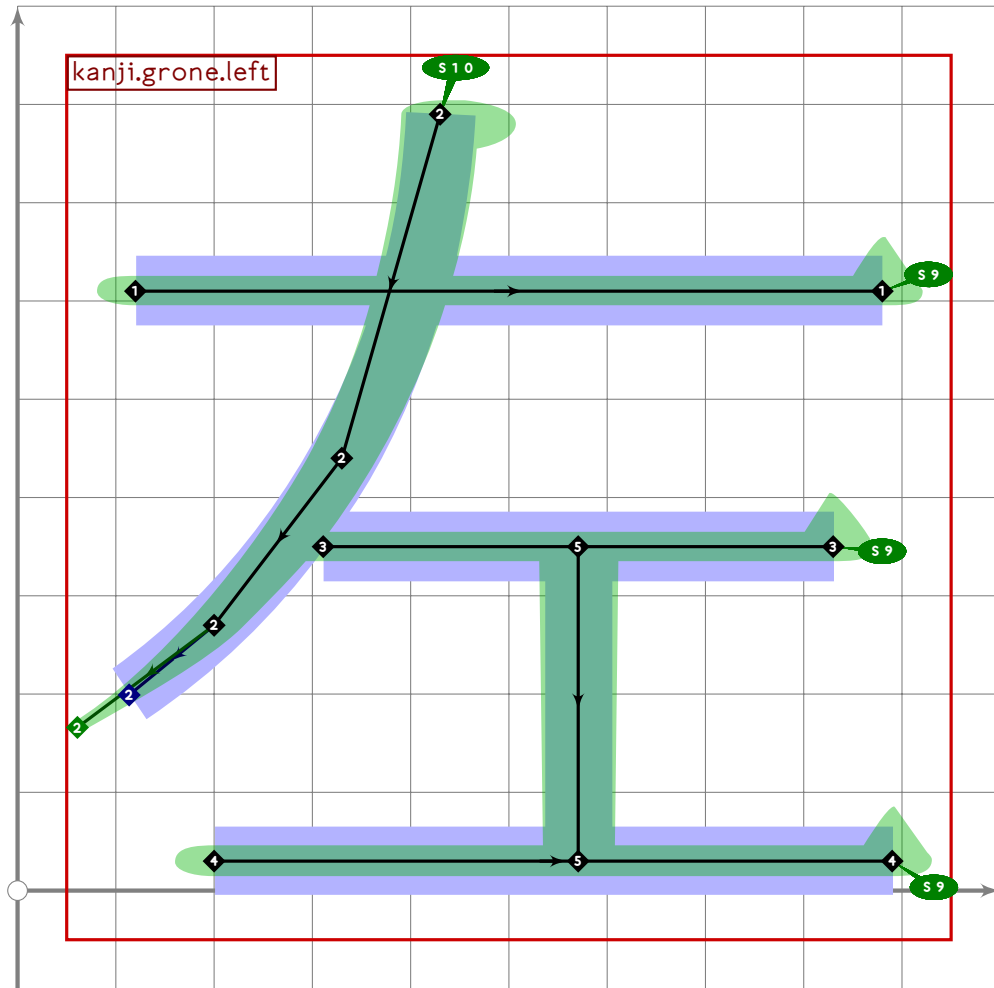




```

390
391 vardef kanji.grone.life =
392   push_pbox_toexpand("kanji.grone.life");
393   push_stroke((500,780)-(500,0),
394     (1.5,1.5)-(1.4,1.4));
395   set_boserif(0,0,10);
396   push_stroke((250,740)..(190,550)..(110,460),
397     (1.6,1.6)-(1.2,1.2)-(0.8,0.8));
398   set_boserif(0,0,10);
399   push_stroke((point 0.75 of get_strokep(0))-
400     (830,ypart point 0.75 of get_strokep(0)),
401     (1.6,1.6)-(1.6,1.6));
402   set_boserif(0,1,9);
403   push_stroke((220,310)-(780,310),
404     (1.6,1.6)-(1.6,1.6));
405   set_boserif(0,1,9);
406   push_stroke((120,0)-(880,0),
407     (1.7,1.7)-(1.7,1.7));
408   set_boserif(0,1,9);
409   expand_pbox;
410 enddef;

```

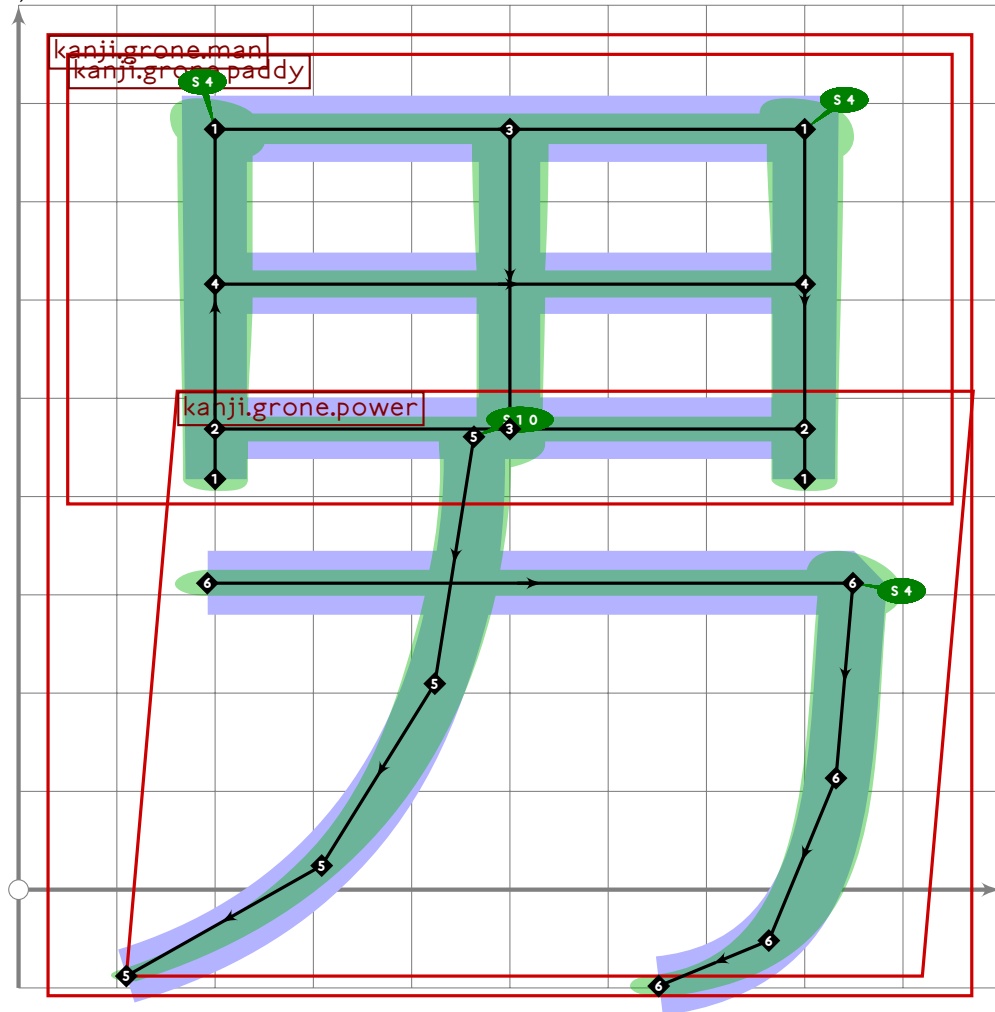


```

411
412 vardef kanji.grone.left =
413   push_pbox_toexpand("kanji.grone.left");
414   push_stroke((120,610)..(880,610),
415     (1.6,1.6)-(1.6,1.6));
416   set_boserif(0,1,9);
417   push_stroke((430,790)..(330,440)..(200,270)..(50,160),
418     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,0.8));
419   set_boserif(0,0,10);
420   push_stroke(
421     (((0,350)-(1000,350)) intersectionpoint get_stroke(0)+(40,0))..
422     (830,350),
423     (1.6,1.6)-(1.6,1.6));
424   set_boserif(0,1,9);
425   push_stroke((200,30)..(890,30),
426     (1.6,1.6)-(1.6,1.6));
427   set_boserif(0,1,9);
428   push_stroke(
429     (point 0.5 of get_stroke(-1))-(xpart point 0.5 of get_stroke(-1),30),
430     (1.6,1.6)-(1.5,1.5));
431   expand_pbox;

```

432 enddef;



433

434 vardef kanji.grone.man =

435 push\_pbox\_toexpand("kanji.grone.man");

436 build\_kanji.level(build\_kanji.tb(430,75)

437 (kanji.grone.paddy)

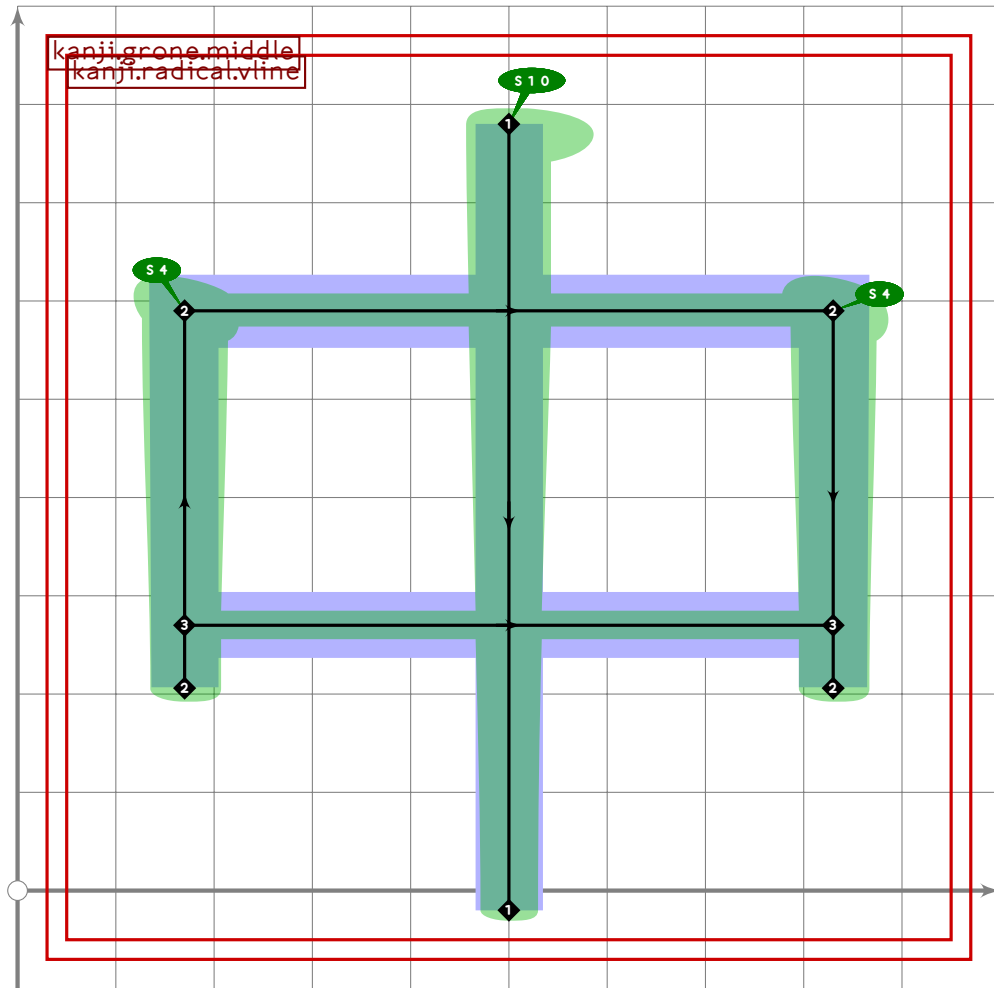
438 (build\_kanji.sscale(xyscaled (0,91,115) slanted 0.05 shifted (40,0))

439 (kanji.grone.power)));

440 replace\_stroke(0)(oldp shifted (0,-30));

441 expand\_pbox;

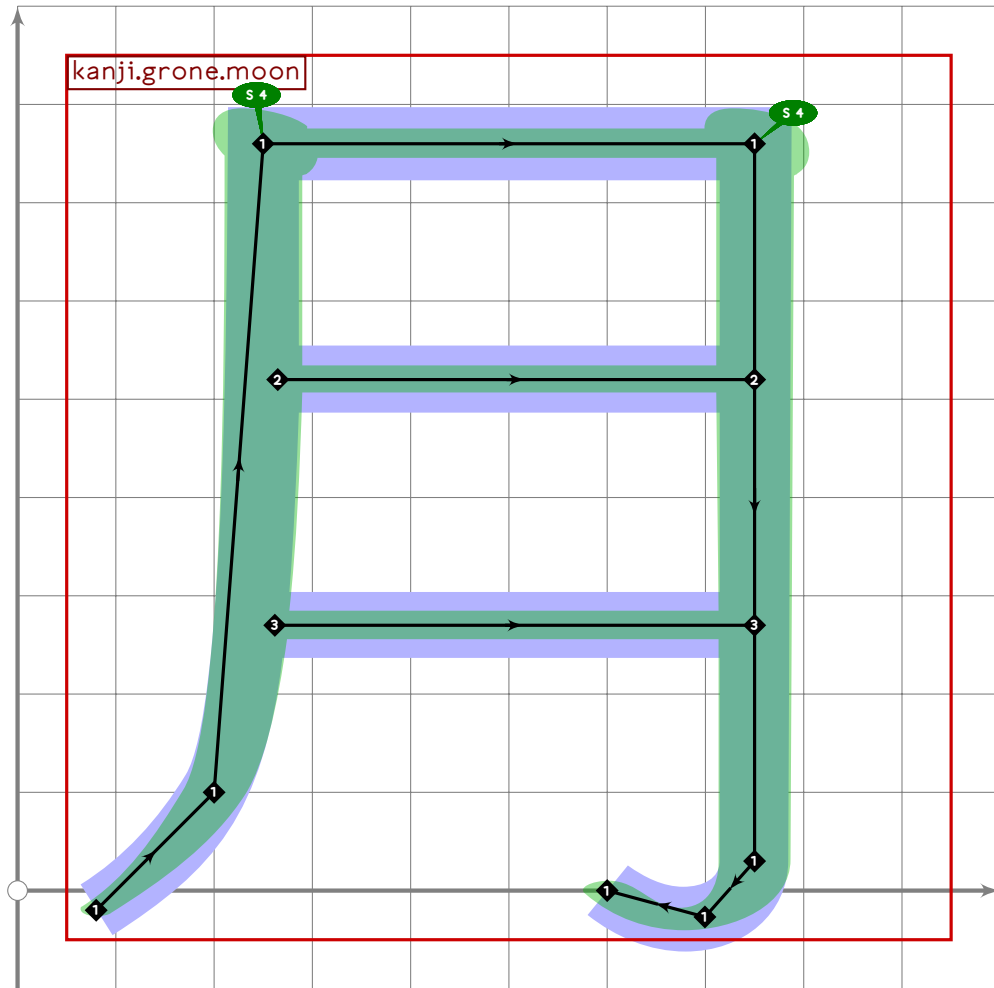
442 enddef;



```

443
444 vardef kanji.grone.middle =
445   push_pbox_toexpand("kanji.grone.middle");
446   kanji.radical.vline;
447   build_kanji.box((170,590),(830,270));
448   expand_pbox;
449 enddef;

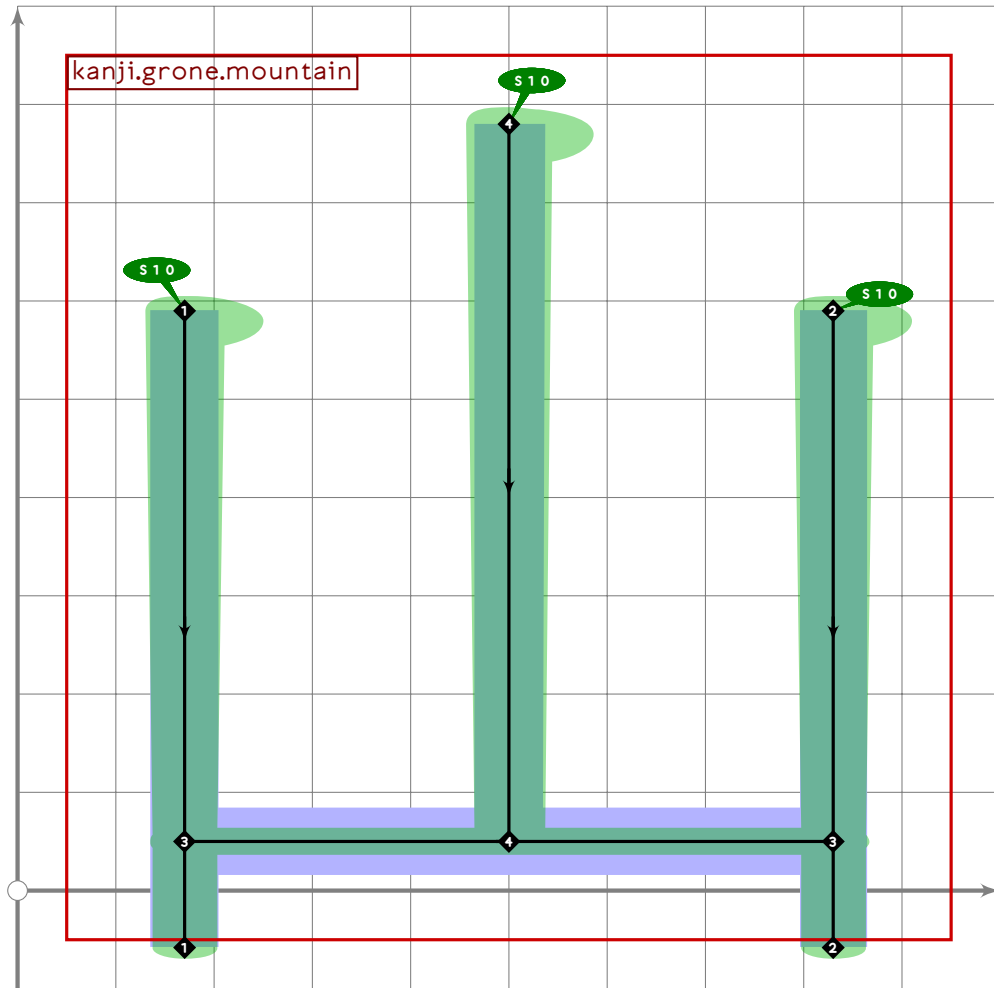
```



```

450
451 vardef kanji.grone.moon =
452   push_pbox_toexpand("kanji.grone.moon");
453   push_stroke((80;-20)..(200,100)..{up}(250,760)-(750,760),
454     (1,1)-(14,14)-(16,16)-(16,16));
455   build_kanji.add_jtail(0);
456   set_botip(0,2,1);
457   set_botip(0,3,1);
458   set_boserif(0,2,4);
459   set_boserif(0,3,4);
460   push_stroke(
461     (get_strokep(0) intersectionpoint ((0,520)-(1000,520)))-(750,520),
462     (1.5,1.5)-(1.5,1.5));
463   push_stroke(
464     (get_strokep(-1) intersectionpoint ((0,270)-(1000,270)))-(750,270),
465     (1.5,1.5)-(1.5,1.5));
466   expand_pbox;
467 enddef;

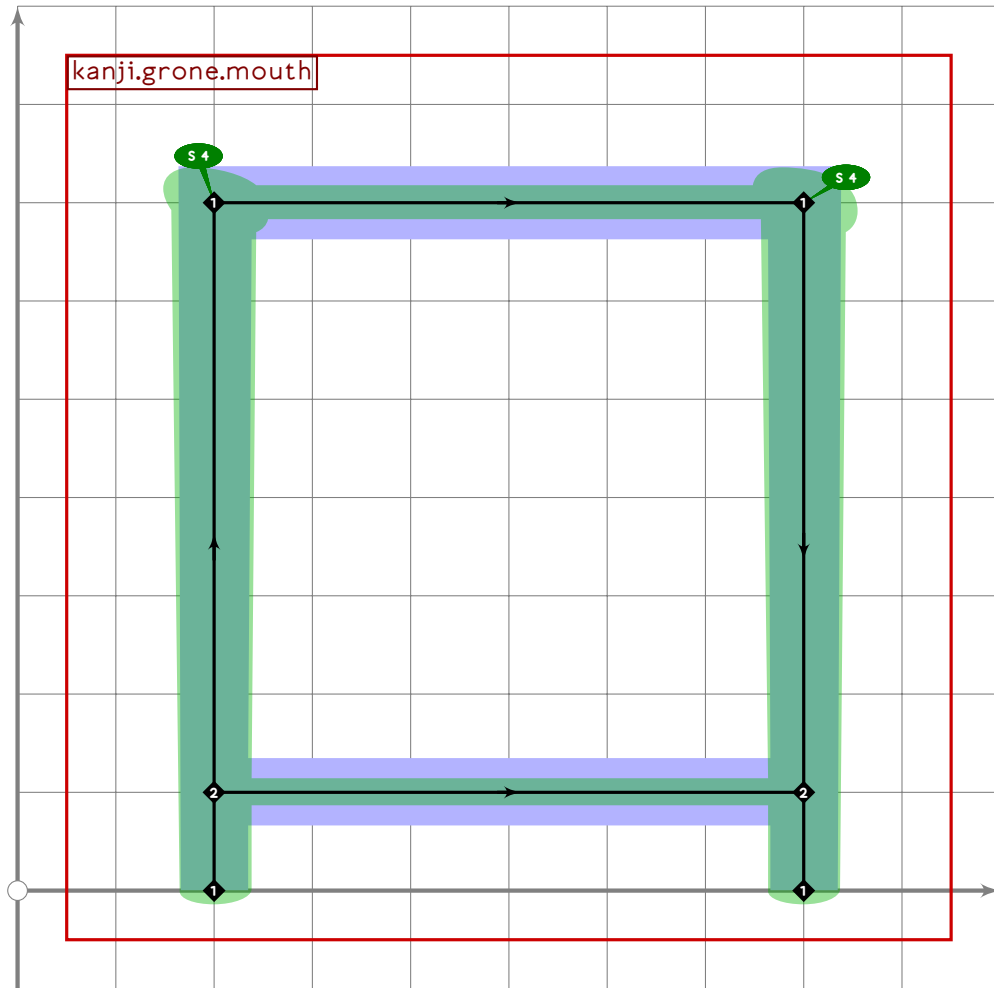
```



```

468
469 vardef kanji.grone.mountain =
470   push_pbox_toexpand("kanji.grone.mountain");
471   build_kanji.cup((170,590),(830,50));
472   push_stroke((500,780)-(500,50),
473     (1.7,1.7)-(1.5,1.5));
474   set_boserif(0,0,10);
475   expand_pbox;
476 enddef;

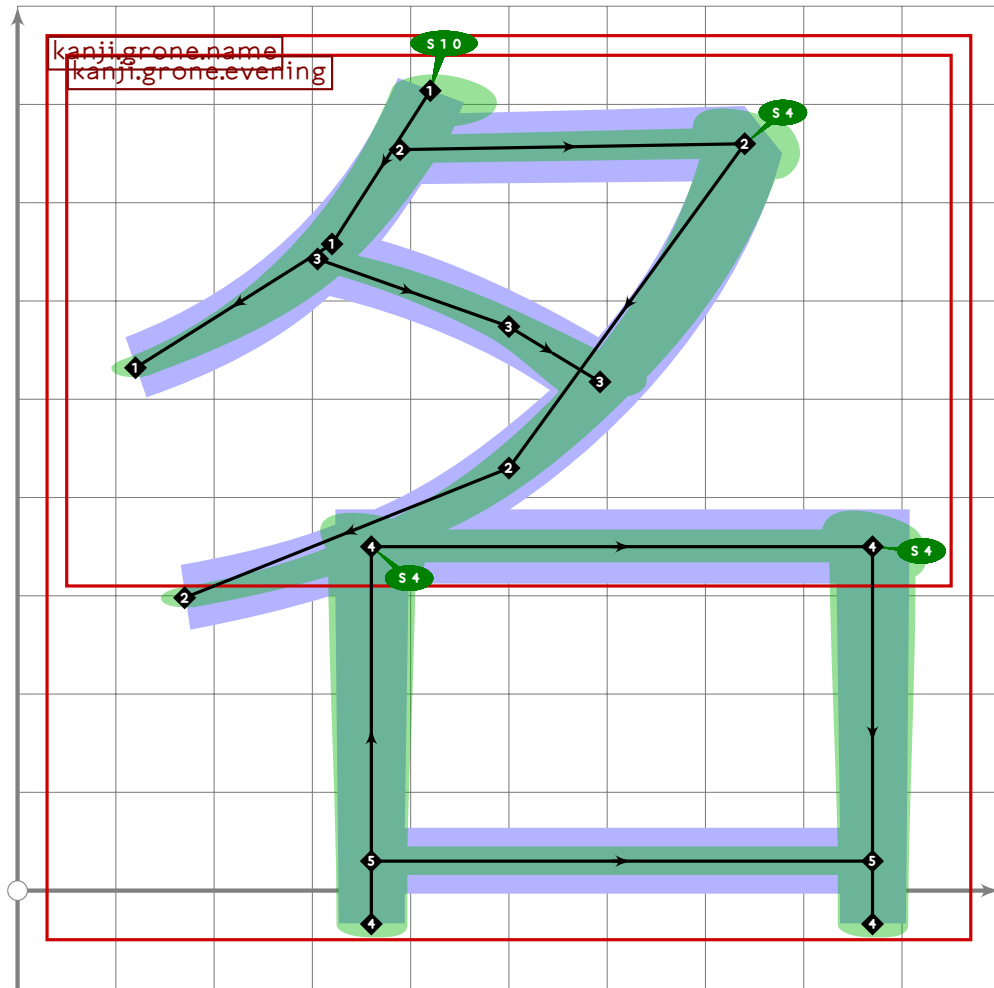
```



```

477
478 vardef kanji.grone.mouth =
479   push_pbox_toexpand("kanji.grone.mouth");
480   build_kanji.box((200,700),(800,100));
481   expand_pbox;
482 enddef;

```

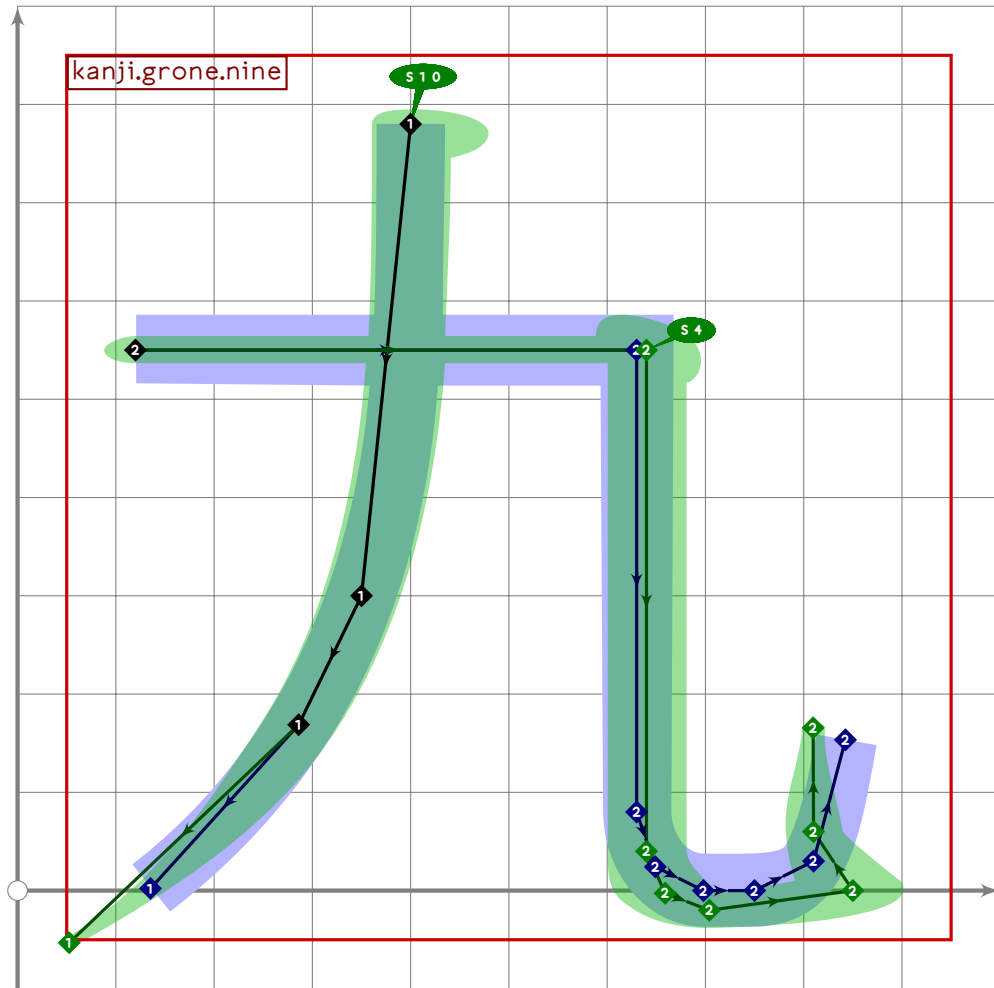


```

483
484 vardef kanji.grone.name =
485   push_pbox_toexpand("kanji.grone.name");
486   tsu_xform(identity shifted (-50,-850) yscaled 0.6 shifted (50,850))
487   (kanji.grone.everling);
488   set_bosize(-2,102);
489   set_bosize(-1,102);
490   set_bosize(0,102);
491   build_kanji.box((360,350),(870,30));
492   expand_pbox;
493 enddef;

```

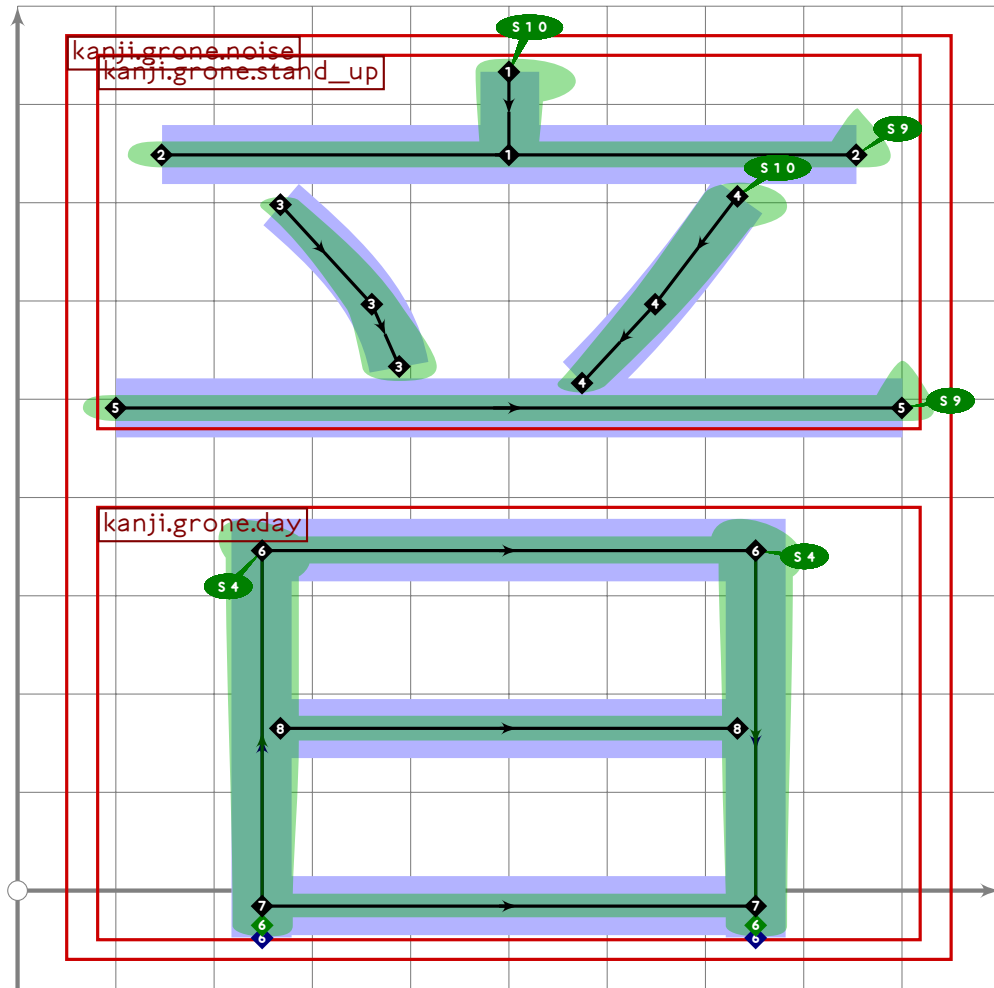




```

494
495 vardef kanji.grone.nine =
496   push_pbox_toexpand("kanji.grone.nine");
497   push_stroke((400,780){down}..(350,300)..(40,-60),
498     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(0.8,0.7));
499   replace_stroke(0)(insert_nodes(oldp)(1.3));
500   set_boserif(0,0,10);
501   push_stroke((120,550)-(630*10*mincho,550),
502     (1.4,1.4)-(1.6,1.6));
503   build_kanji.add_ltail(0);
504   set_botip(0,1,1);
505   set_boserif(0,1,4);
506   expand_pbox;
507 enddef;

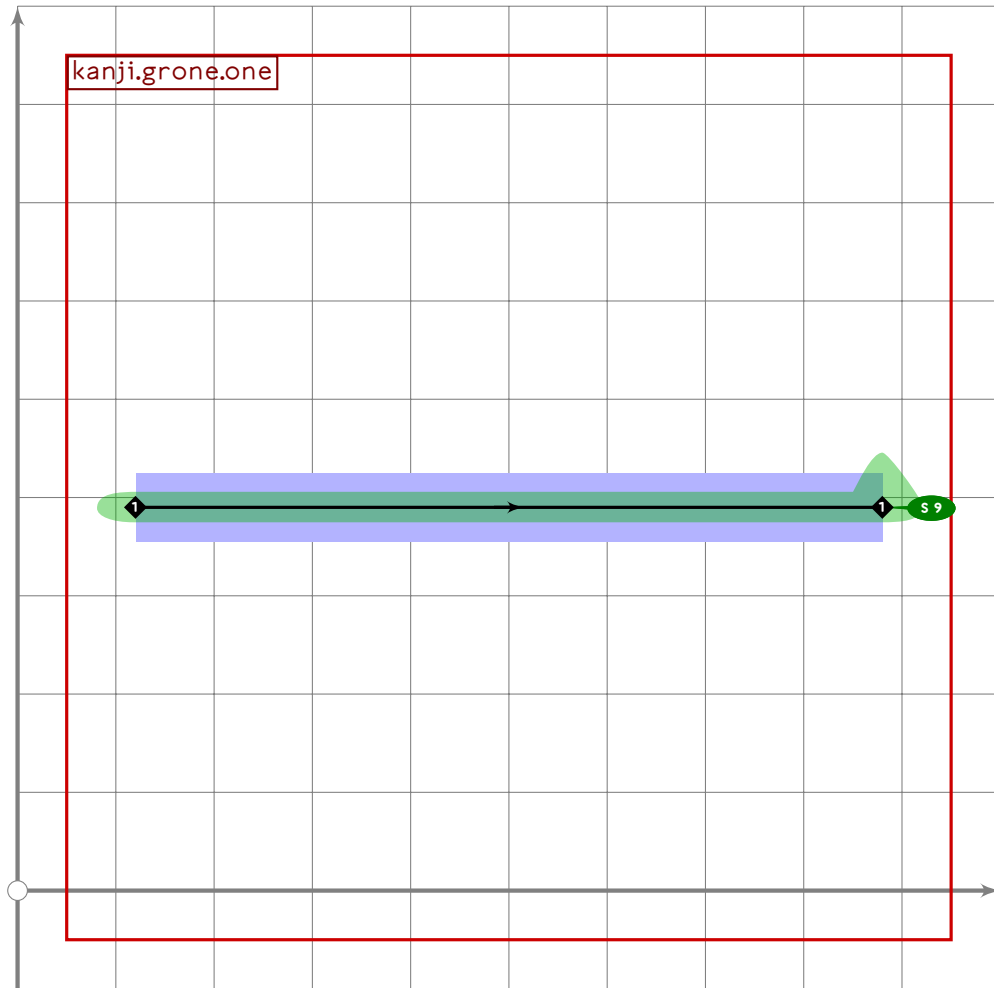
```



```

508
509 vardef kanji.grone.noise =
510   push_pbox_toexpand("kanji.grone.noise");
511   build_kanji.level(build_kanji.sscale(xscaled 0.93)(
512     build_kanji.tb(430;-80)
513     (kanji.grone.stand_up)
514     (kanji.grone.day)));
515   expand_pbox;
516 enddef;

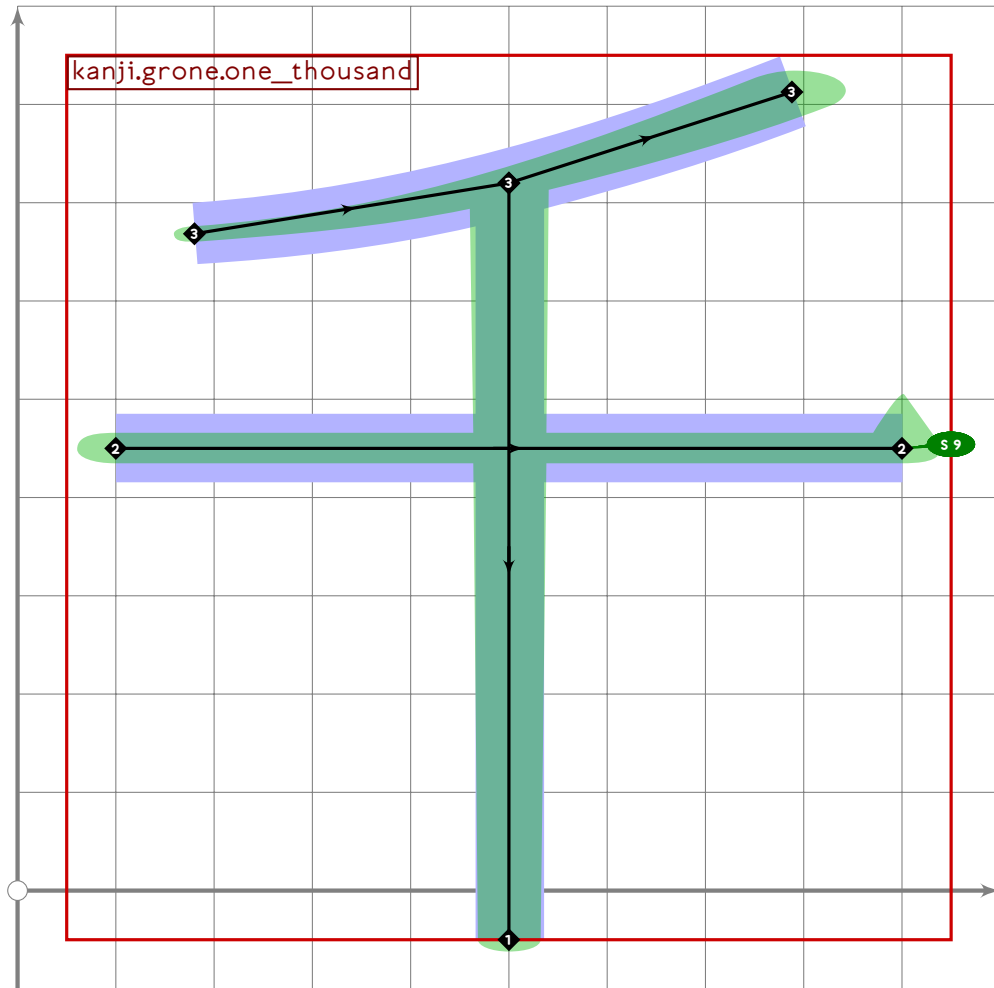
```



```

517
518 vardef kanji.grone.one =
519   push_pbox_toexpand("kanji.grone.one");
520   push_stroke((120,390)-(880,390),
521     (1.6,1.6)-(1.6,1.6));
522   set_boserif(0,1,9);
523   expand_pbox;
524 enddef;

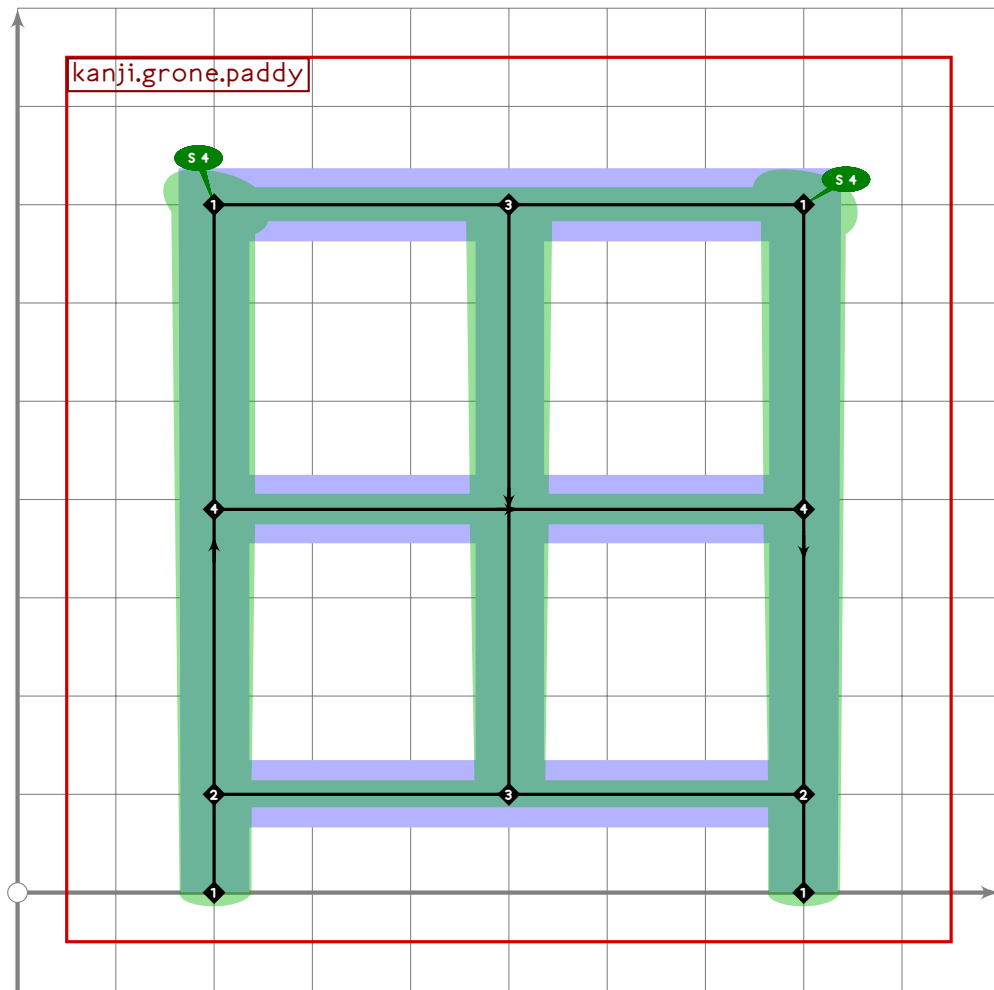
```



```

525
526 vardef kanji.grone.one_thousand =
527   push_pbox_toexpand("kanji.grone.one_thousand");
528   build_kanji.add_beret(
529     push_stroke((500,720)-(500,-50),(1.6,1.6)-(1.4,1.4));
530     push_stroke((100,450)-(900,450),(1.6,1.6)-(1.6,1.6));
531     set_boserif(0,1,9);
532   );
533   expand_pbox;
534 enddef;

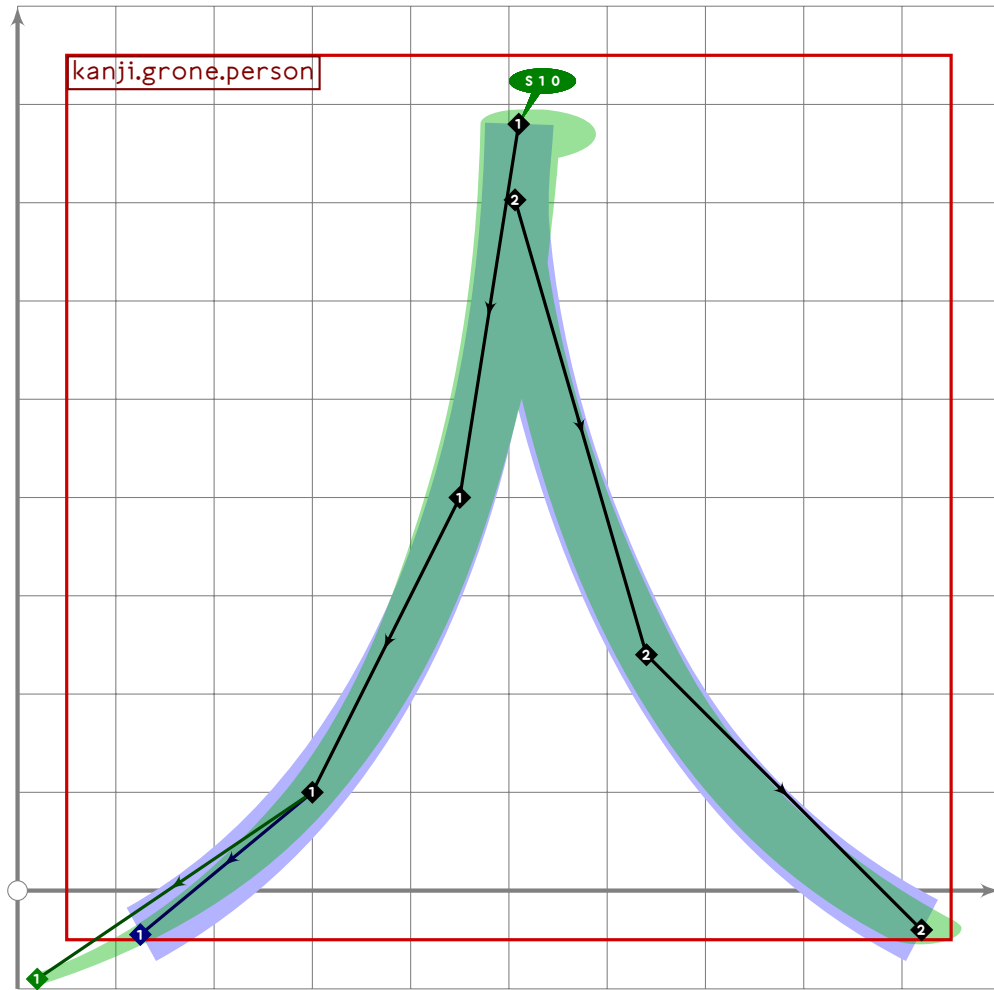
```



```

535
536 vardef kanji.grone.paddy =
537   push_pbox_toexpand("kanji.grone.paddy");
538   build_kanji.box((200,700),(800,100));
539   push_stroke((500,700)-(500,100),
540     (1.7,1.7)-(1.5,1.5));
541   push_stroke((200,390)-(800,390),
542     (1.6,1.6)-(1.6,1.6));
543   expand_pbox;
544 enddef;

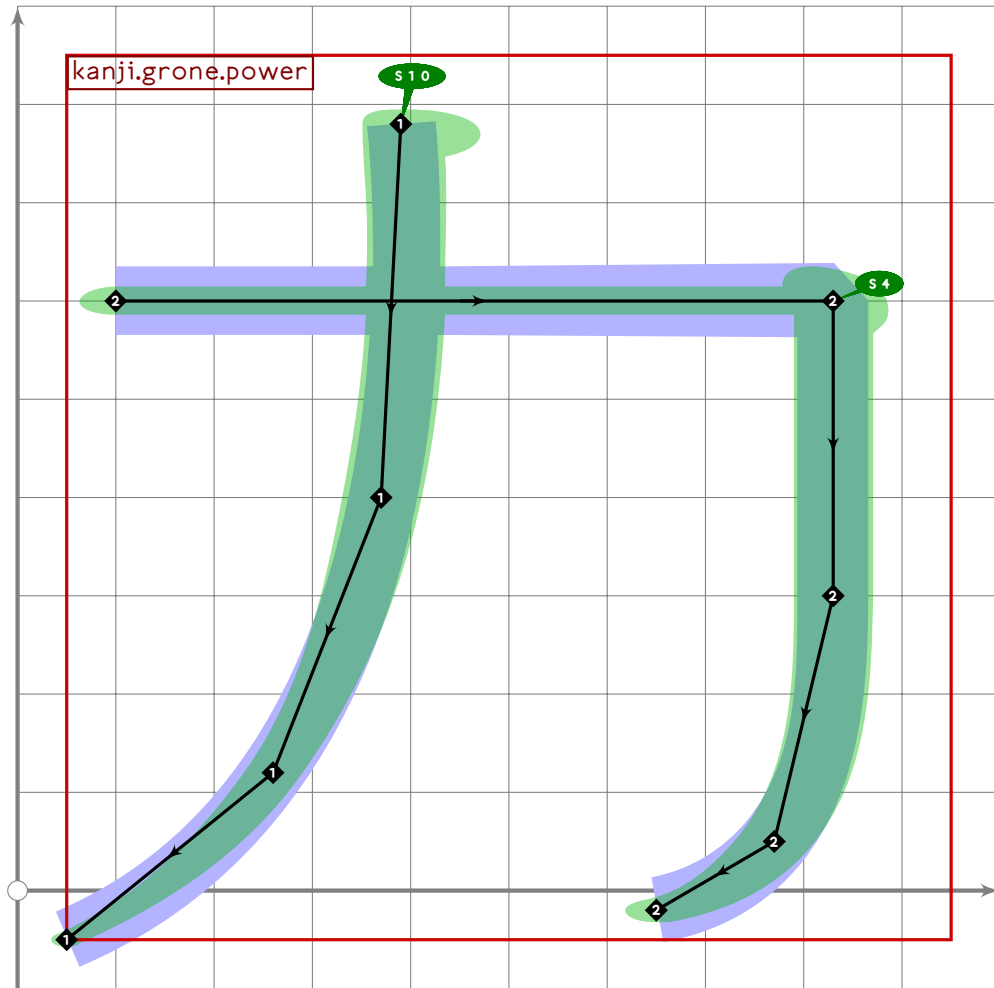
```



```

545
546 vardef kanji.grone.person =
547   push_pbox_toexpand("kanji.grone.person");
548   push_stroke((510,780)..(450,400)..(300,100)..(20,-90),
549     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.85));
550   set_boserif(0,0,10);
551   push_stroke(
552     (point 0.2 of get_strokep(0))..tension 1.2..(640,240)..(920,-40),
553     (1.2,1.2)-(1.4,1.4)-(1.6,1.6));
554   expand_pbox;
555 enddef;

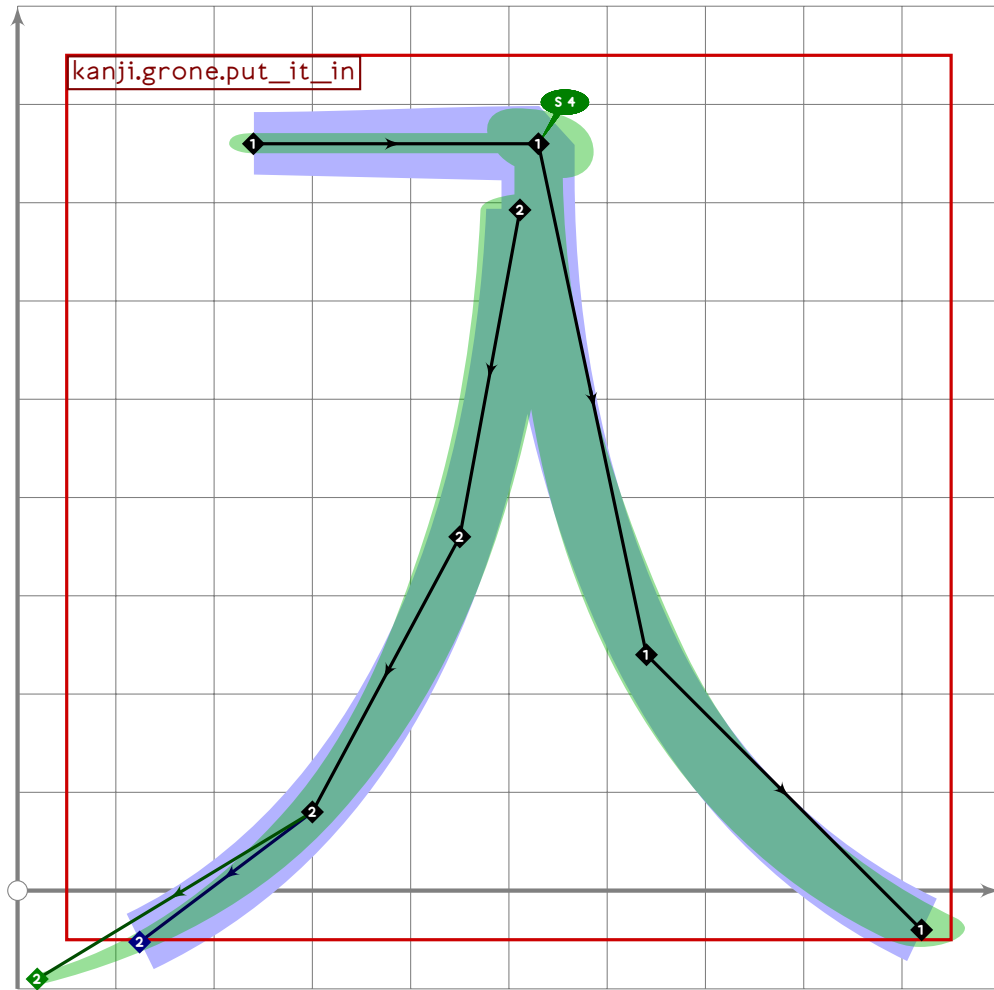
```



```

556
557 vardef kanji.grone.power =
558   push_pbox_toexpand("kanji.grone.power");
559   push_stroke((390,780)..(370,400)..(260,120)..(50,-50),
560     (1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(1,1));
561   set_boserif(0,0,10);
562   push_stroke(
563     (100,600)-(830,600)..tension 1.1..(830,300)..(770,50)..(650,-20),
564     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.4,1.4));
565   set_botip(0,1,0);
566   set_boserif(0,1,4);
567   expand_pbox;
568 enddef;

```

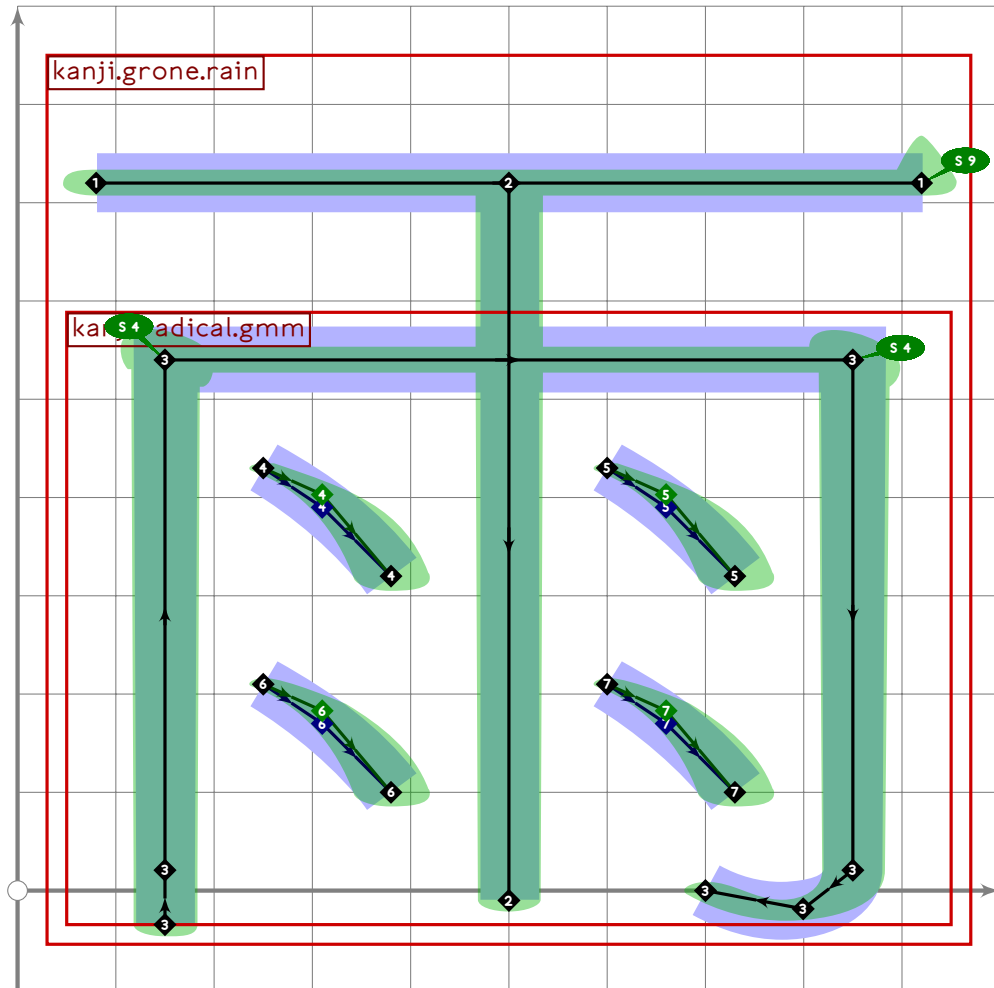


```

569
570 vardef kanji.grone.put_it_in =
571   push_pbox_toexpand("kanji.grone.put_it_in");
572   push_stroke((240,760)-(530,760)..tension 1.2..(640,240)..(920,-40),
573     (1.2,1.2)-(1.2,1.2)-(1.6,1.6)-(1.7,1.7));
574   set_botip(0,1,0);
575   set_boserif(0,1,4);
576   push_stroke(
577     ((-20,0)+point 1.14 of get_stroke(0)..(450,360)..(300,80)..(20,-90),
578     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.85,0.85));
579   expand_pbox;
580 enddef;

```

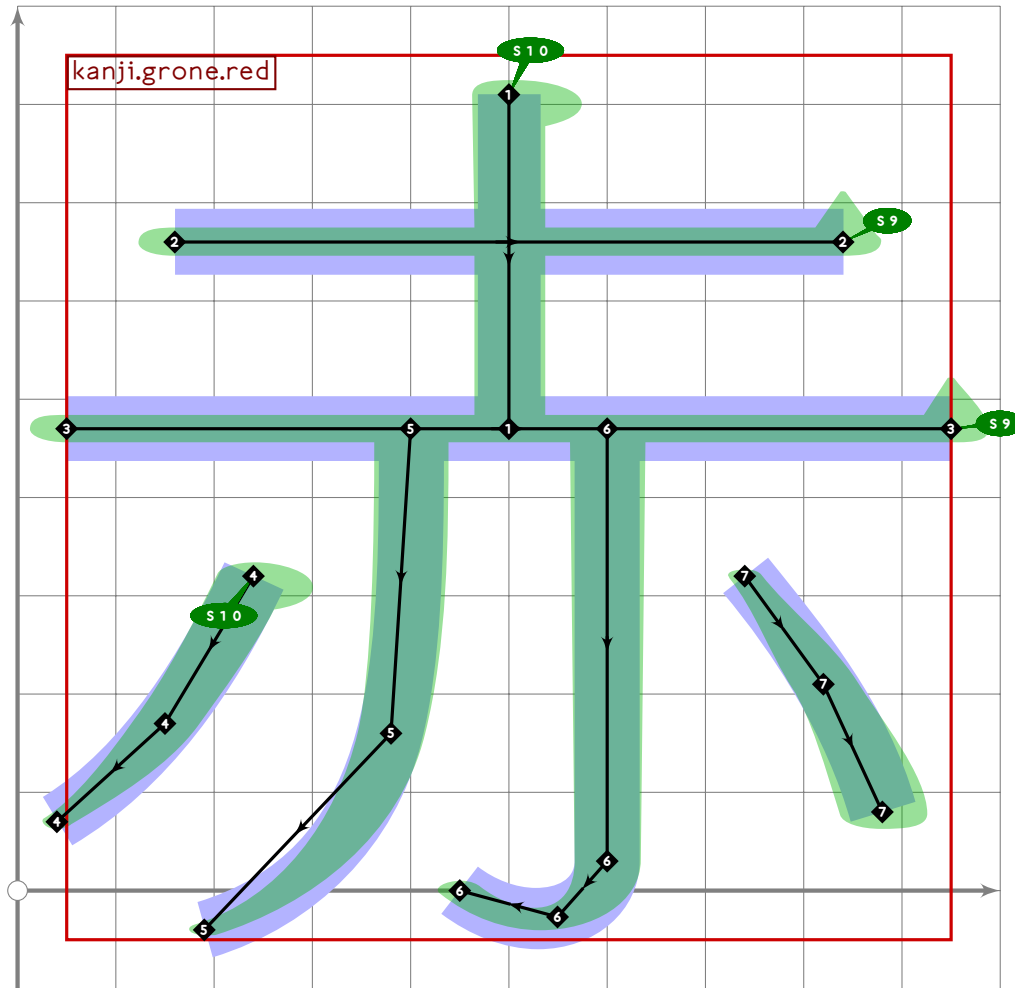




```

581
582 vardef kanji.grone.rain =
583   push_pbox_toexpand("kanji.grone.rain");
584   build_kanji.level(
585     push_stroke((80,720)-(920,720),(1.6,1.6)-(1.6,1.6));
586     set_boseref(0,19);
587     push_stroke((500,720)-(500,-10),(1.6,1.6)-(1.5,1.5));
588     tsu_xform(identity yscaled (540/780))(kanji.radical.gmm);
589     push_stroke((250,430)..tension 1.2..(310,390+13*mincho)..(380,320),
590       (1,1)-(14,14)-(17,17));
591     set_bosize(0,80);
592     push_stroke(get_strokeq(0) shifted (350,0),get_strokeq(0));
593     set_bosize(0,80);
594     push_stroke(get_strokeq(-1) shifted (0,-220),get_strokeq(-1));
595     set_bosize(0,80);
596     push_stroke(get_strokeq(-2) shifted (350,-220),get_strokeq(-2));
597     set_bosize(0,80);
598   );
599   expand_pbox;
600 enddef;

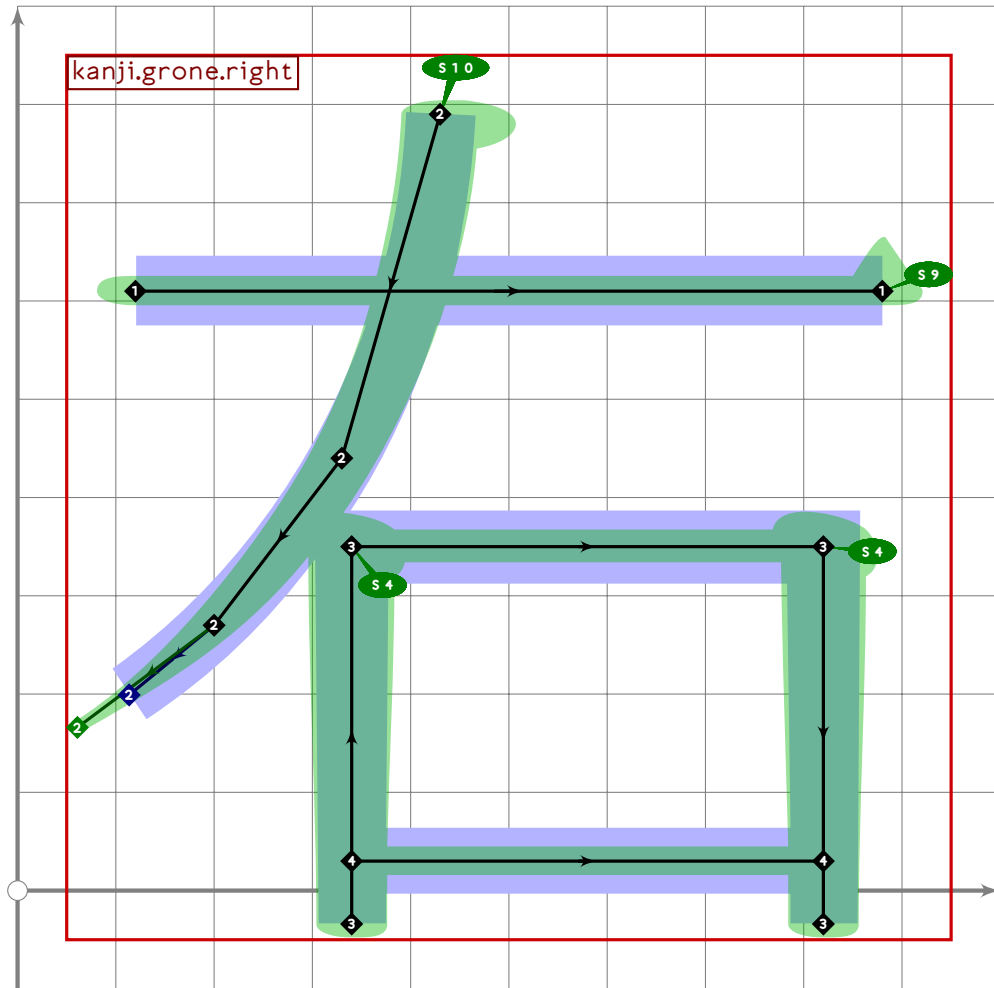
```



```

601
602 vardef kanji.grone.red =
603   push_pbox_toexpand("kanji.grone.red");
604   push_stroke((500,810)-(500,470),(1.6,1.6)-(1.5,1.5));
605   set_boserif(0,0,10);
606   push_stroke((160,660)-(840,660),(1.6,1.6)-(1.6,1.6));
607   set_boserif(0,1,9);
608   push_stroke((50,470)-(950,470),(1.6,1.6)-(1.6,1.6));
609   set_boserif(0,1,9);
610   push_stroke((240,320)..tension 1.3..(150,170)..(40,70),
611     (1.6,1.6)-(1.5,1.5)-(1,1));
612   set_boserif(0,0,10);
613   push_stroke((400,470){down}..tension 1.3..(380,160)..(190,-40),
614     (1.6,1.6)-(1.5,1.5)-(1,1));
615   push_stroke((600,470),(1.6,1.6));
616   build_kanji.add_jtail(0);
617   push_stroke((740,320)..tension 1.3..(820,210)..(880,80),
618     (1,1)-(1.5,1.5)-(1.8,1.8));
619   for i=-6 upto 0: set_bosize(i,94); endfor;
620   expand_pbox;
621 enddef;

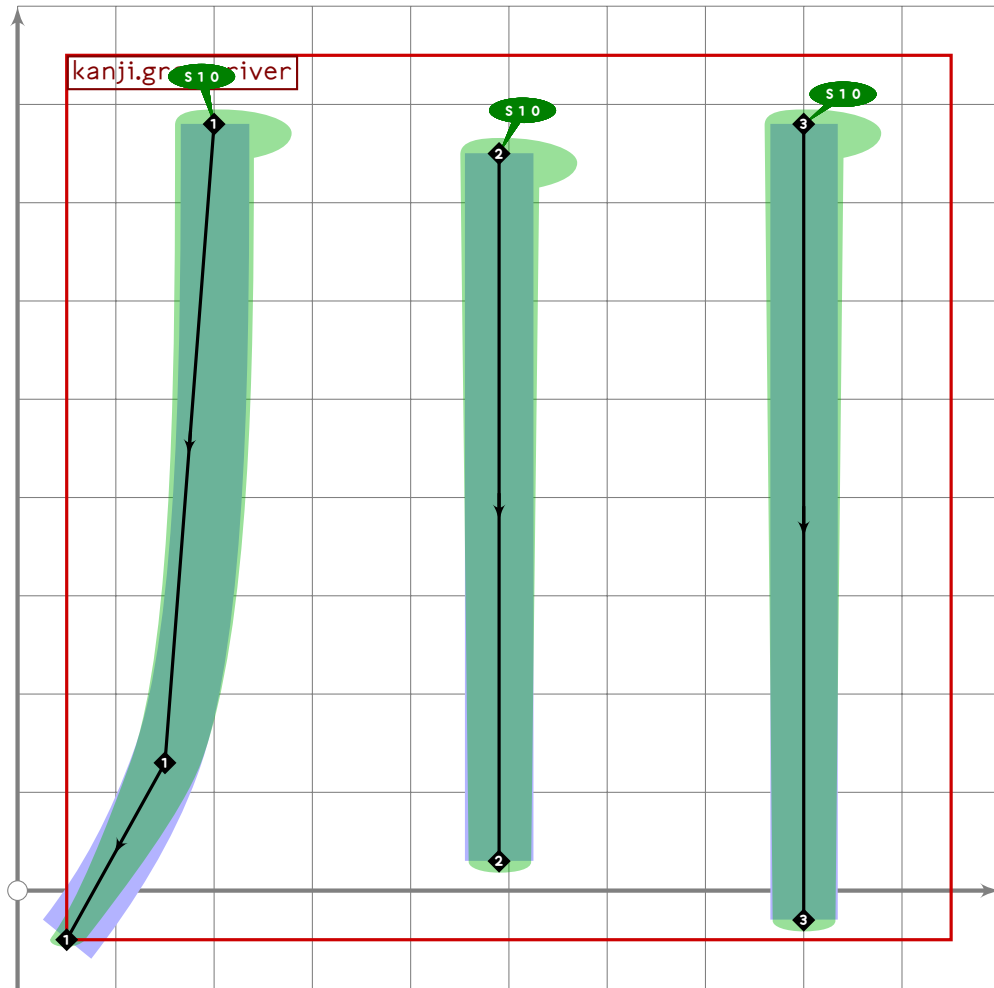
```



```

622
623 vardef kanji.grone.right =
624   push_pbox_toexpand("kanji.grone.right");
625   push_stroke((120,610)..(880,610),
626     (1.6,1.6)-(1.6,1.6));
627   set_boserif(0,1,9);
628   push_stroke((430,790)..(330,440)..(200,270)..(50,160),
629     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,0.8));
630   set_boserif(0,0,10);
631   build_kanji.box((340,350),(820,30));
632   expand_pbox;
633 enddef;

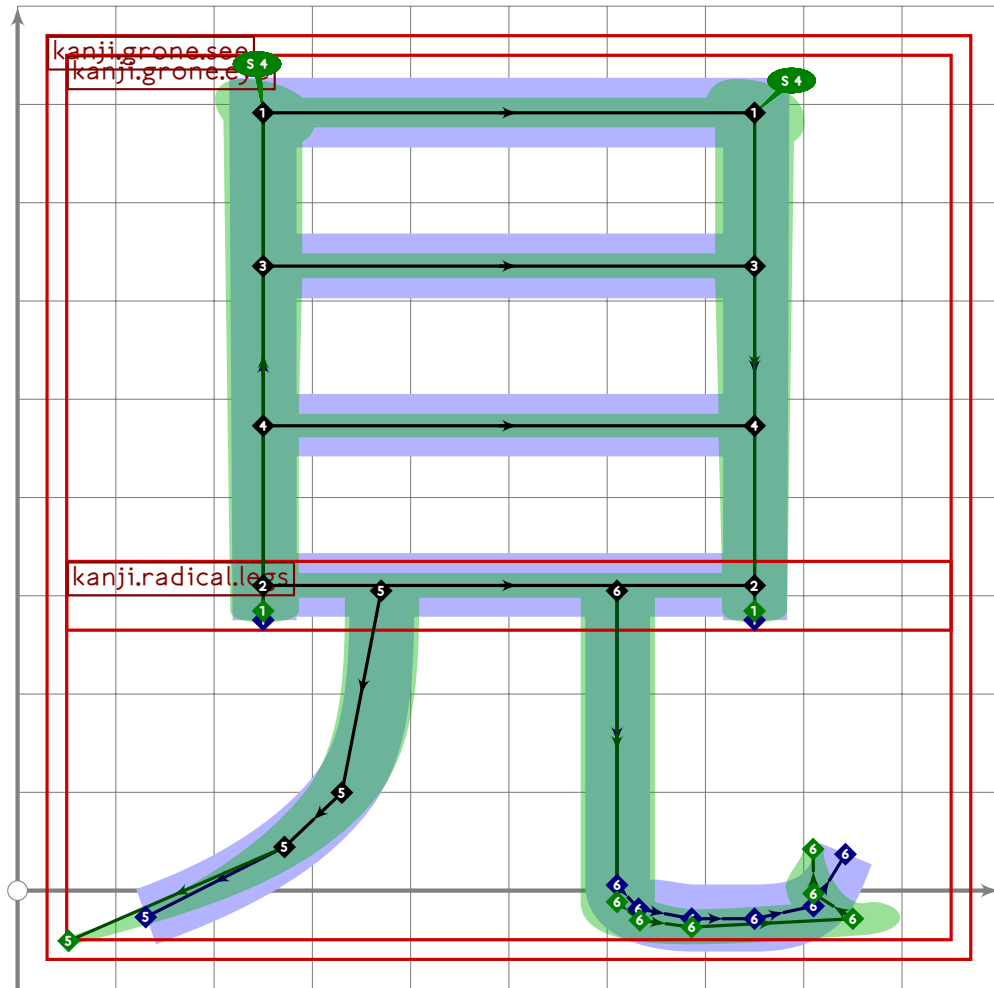
```



```

634
635 vardef kanji.grone.river =
636   push_pbox_toexpand("kanji.grone.river");
637   push_stroke((200,780){down}..(150,130)..(50,-50),
638     (1.6,1.6)-(1.5,1.5)-(1,1));
639   set_boserif(0,0,10);
640   push_stroke((490,750)-(490,30),
641     (1.6,1.6)-(1.4,1.4));
642   set_boserif(0,0,10);
643   push_stroke((800,780)-(800,-30),
644     (1.6,1.6)-(1.4,1.4));
645   set_boserif(0,0,10);
646   expand_pbox;
647 enddef;

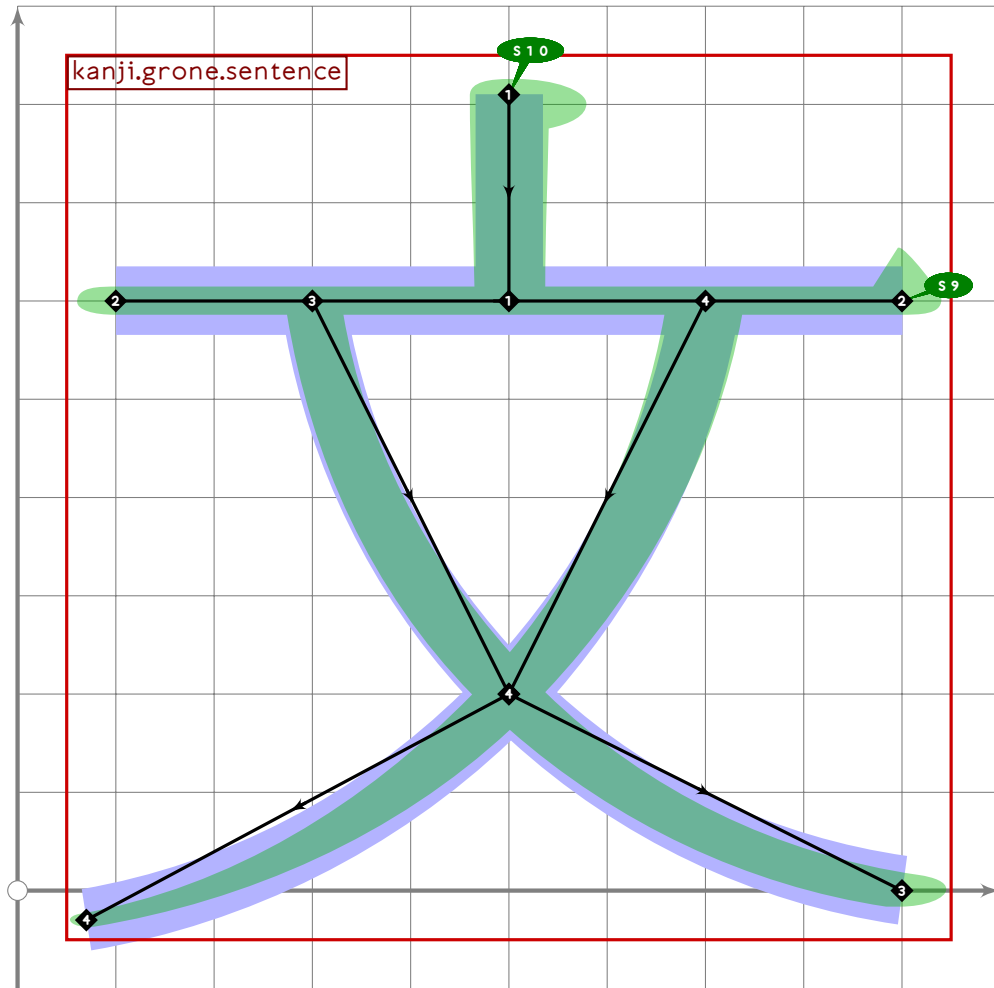
```



```

648
649 vardef kanji.grone.see =
650   push_pbox_toexpand("kanji.grone.see");
651   build_kanji.level(build_kanji.tb(300,70)
652     (kanji.grone.ey)
653     (kanji.radical.legs));
654   expand_pbox;
655 enddef;

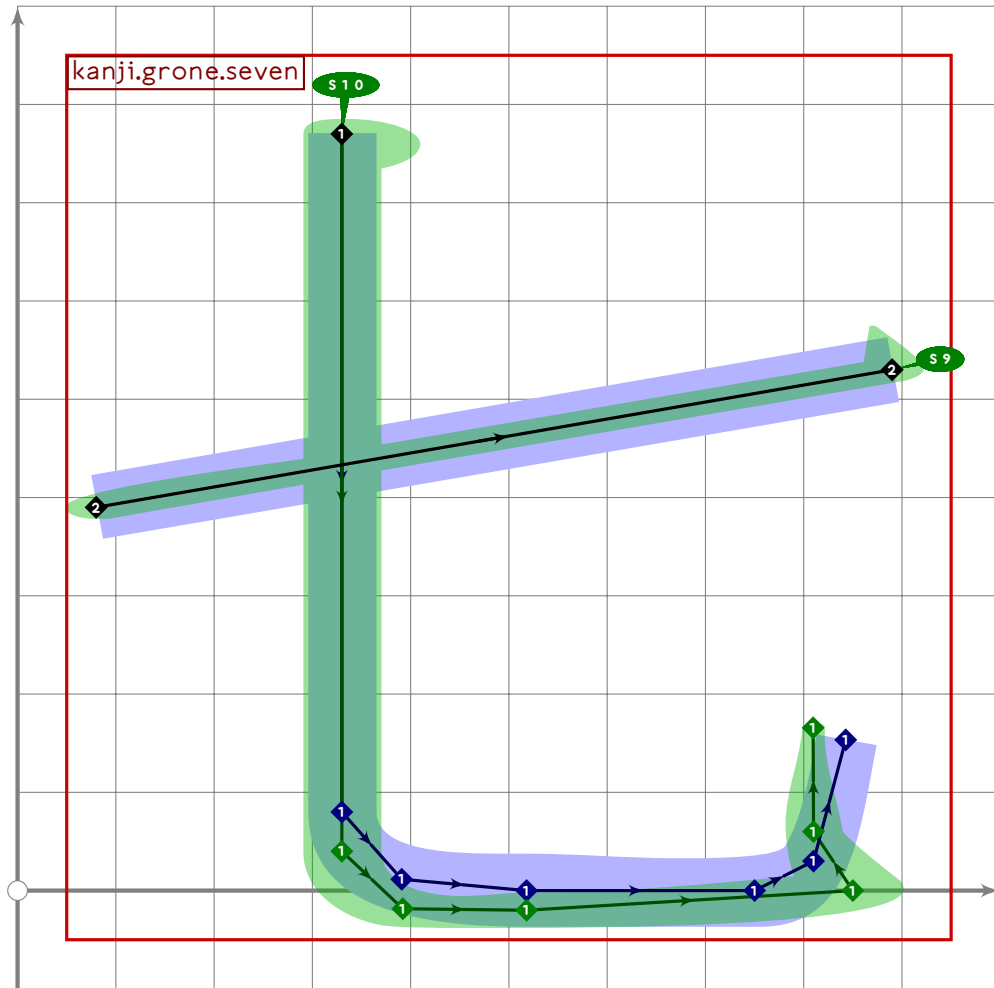
```



```

656
657 vardef kanji.grone.sentence =
658   push_pbox_toexpand("kanji.grone.sentence");
659   push_stroke((500,810)-(500,600),
660     (1.6,1.6)-(1.5,1.5));
661   set_boserif(0,0,10);
662   push_stroke((100,600)-(900,600),
663     (1.6,1.6)-(1.6,1.6));
664   set_boserif(0,1,9);
665   push_stroke((300,600)..(500,200)..(900,0),
666     (1.3,1.3)-(1.5,1.5)-(1.7,1.7));
667   push_stroke((700,600)..(500,200)..(70,-30),
668     (1.6,1.6)-(1.5,1.5)-(1,1));
669   expand_pbox;
670 enddef;

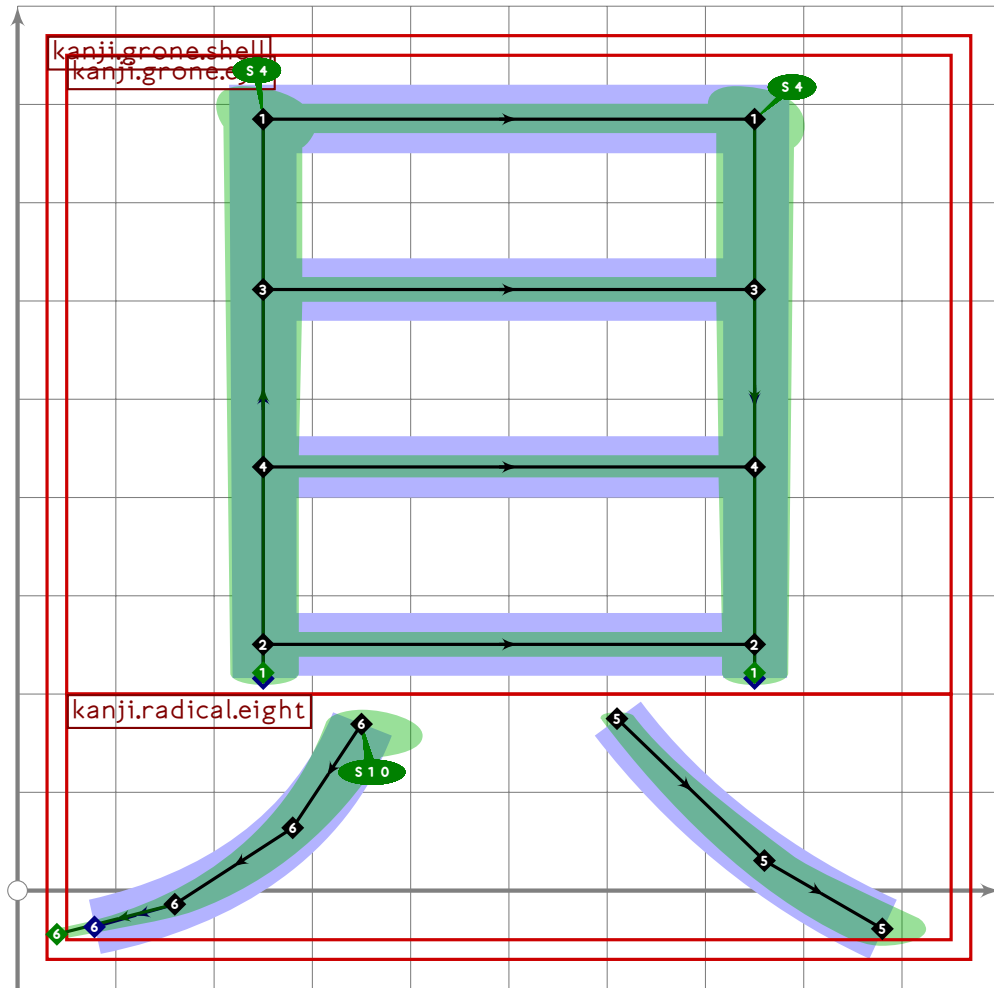
```



```

671
672 vardef kanji.grone.seven =
673   push_pbox_toexpand("kanji.grone.seven");
674   push_stroke((330,770),
675     (1.6,1.6));
676   build_kanji.add_ltail(0);
677   set_boserif(0,0,10);
678   push_stroke((80,390)-(890,530),
679     (14,14)-(14,14));
680   set_boserif(0,1,9);
681   expand_pbox;
682 enddef;

```

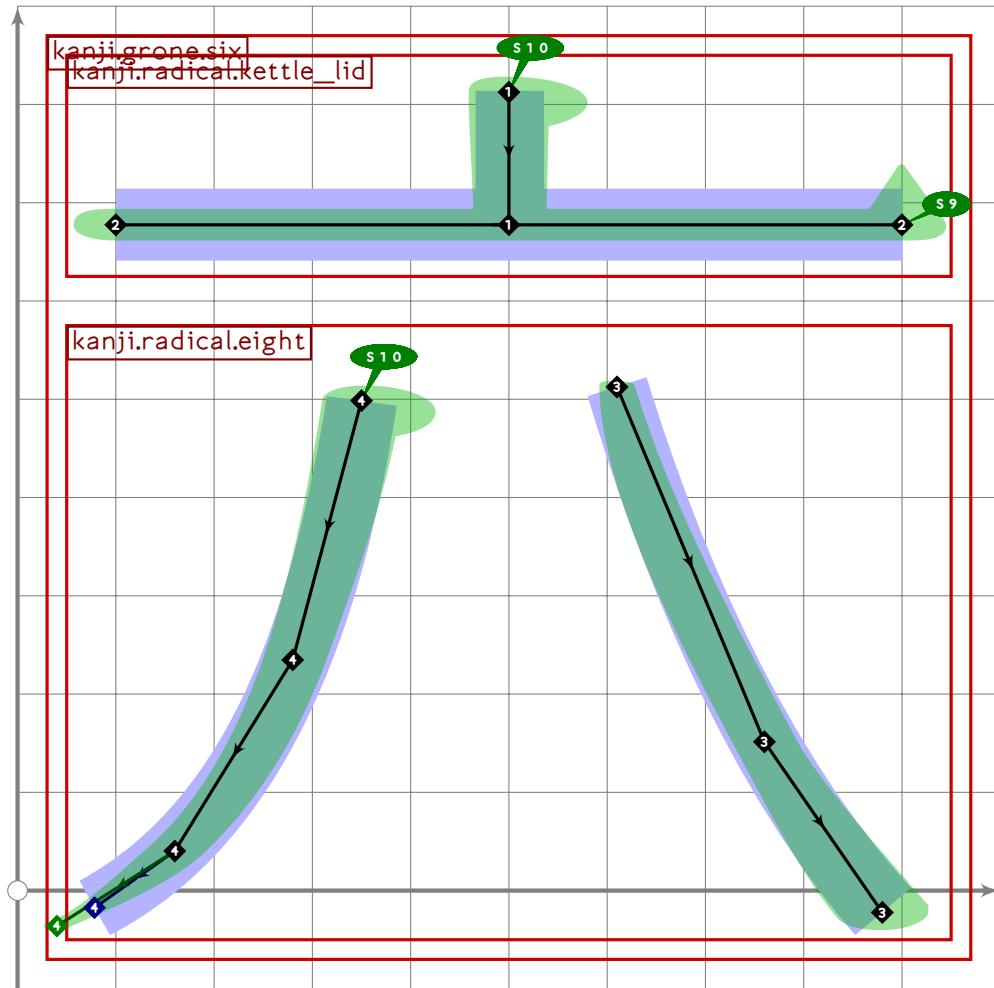


```

683
684 vardef kanji.grone.shell =
685   push_pbox_toexpand("kanji.grone.shell");
686   build_kanji.level(build_kanji.tb(200,0)
687     (kanji.grone.eye)
688     (kanji.radical.eight));
689   expand_pbox;
690 enddef;

```

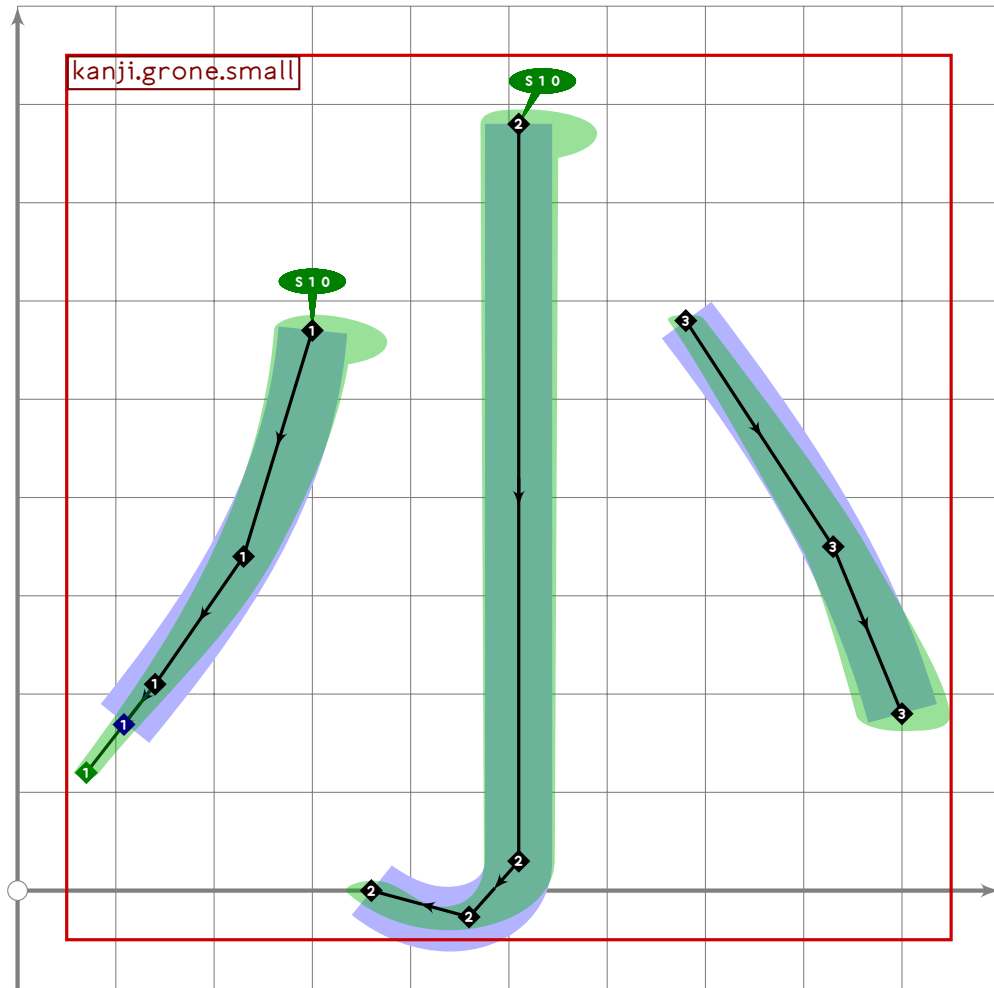




```

691
692 vardef kanji.grone.six =
693   push_pbox_toexpand("kanji.grone.six");
694   build_kanji.level(build_kanji.tb(600;-50)
695     (kanji.radical.kettle_lid)
696     (kanji.radical.eight));
697   expand_pbox;
698 enddef;

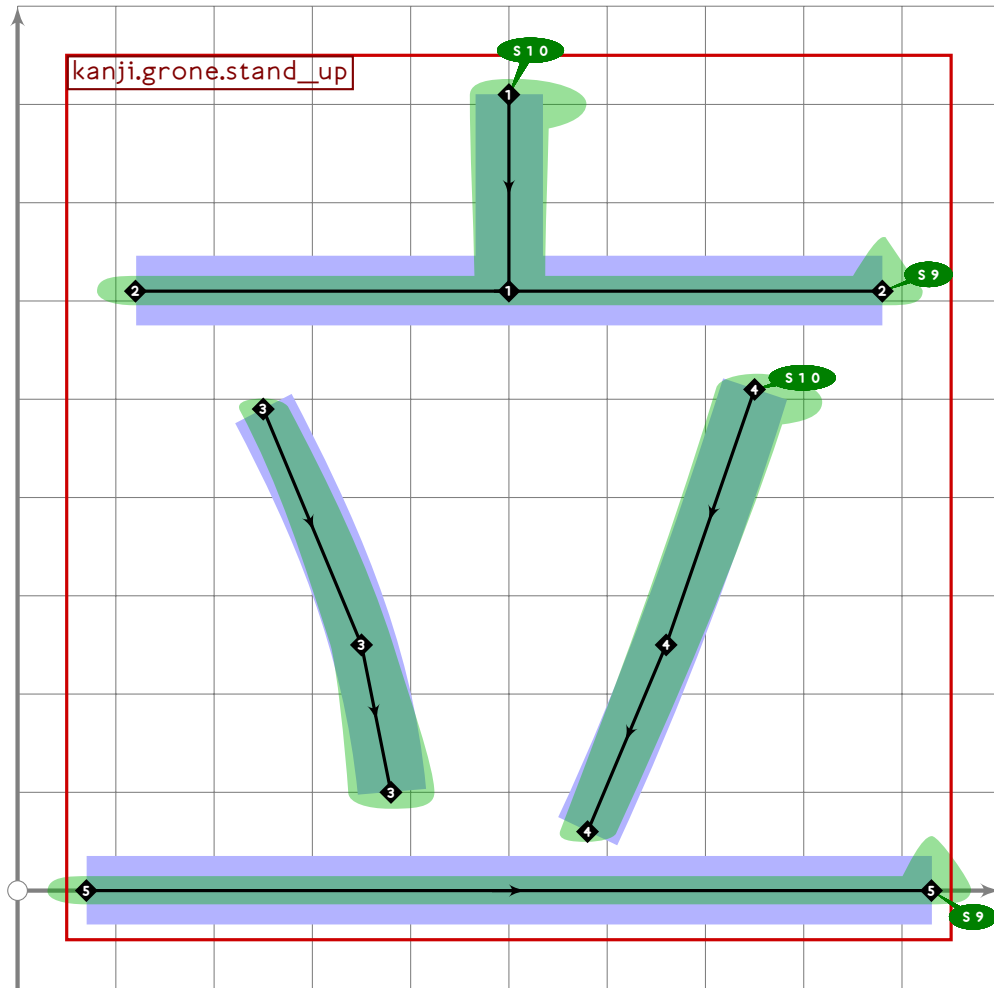
```



```

699
700 vardef kanji.grone.small =
701   push_pbox_toexpand("kanji.grone.small");
702   push_stroke((300,570)..(230,340)..(140,210)..(70,120),
703     (1.6,1.6)-(14,14)-(11,11)-(0.88,0.88));
704   set_boserif(0,0,10);
705   push_stroke((510,780),
706     (1.6,1.6));
707   set_boserif(0,0,10);
708   build_kanji.add_jtail(0);
709   push_stroke((680,580)..tension 1.3..(830,350)..(900,180),
710     (1,1)-(14,14)-(1.8,1.8));
711   expand_pbox;
712 enddef;

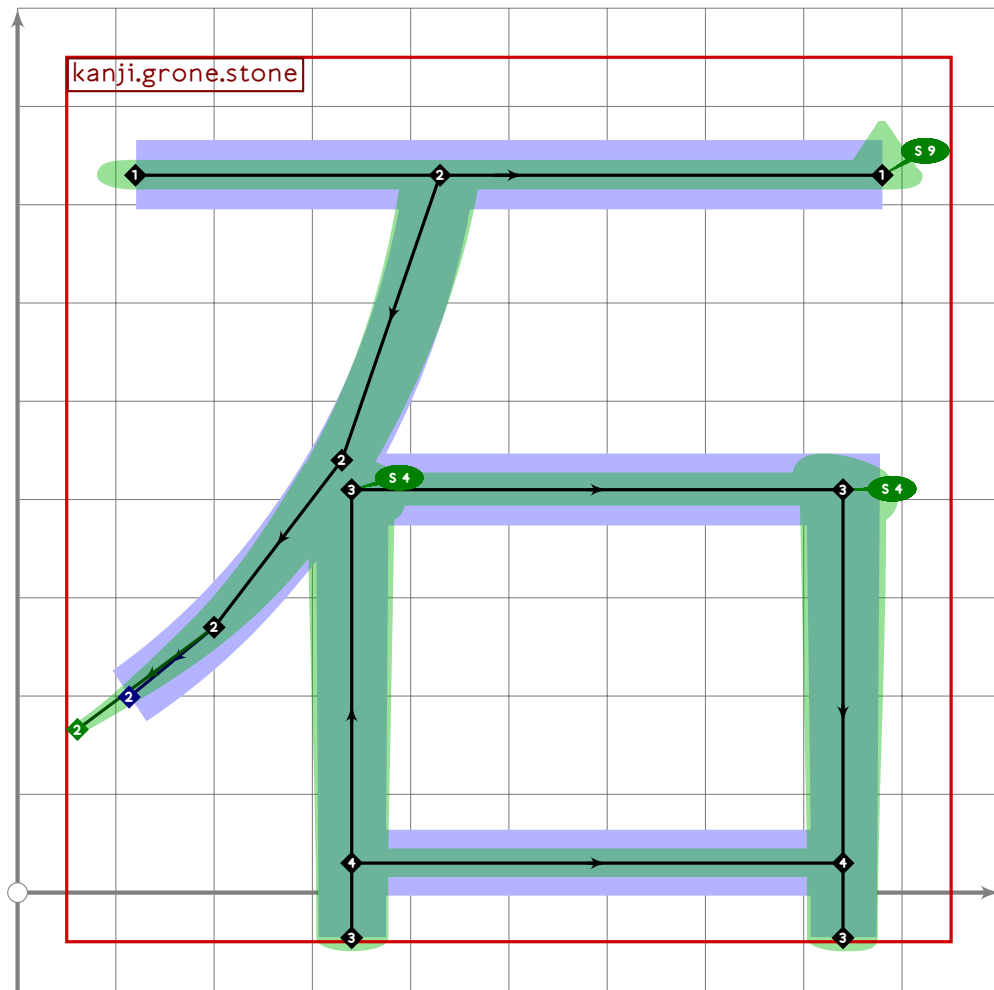
```



```

713
714 vardef kanji.grone.stand_up =
715   push_pbox_toexpand("kanji.grone.stand_up");
716   push_stroke((500,810)-(500,610),
717     (1.6,1.6)-(1.5,1.5));
718   set_boserif(0,0,10);
719   push_stroke((120,610)-(880,610),
720     (1.6,1.6)-(1.6,1.6));
721   set_boserif(0,1,9);
722   push_stroke((250,490)..tension 1.2..(350,250)..(380,100),
723     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
724   push_stroke((750,510)..tension 1.2..(660,250)..(580,60),
725     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
726   set_boserif(0,0,10);
727   push_stroke((70,0)-(930,0),
728     (1.6,1.6)-(1.6,1.6));
729   set_boserif(0,1,9);
730   expand_pbox;
731 enddef;

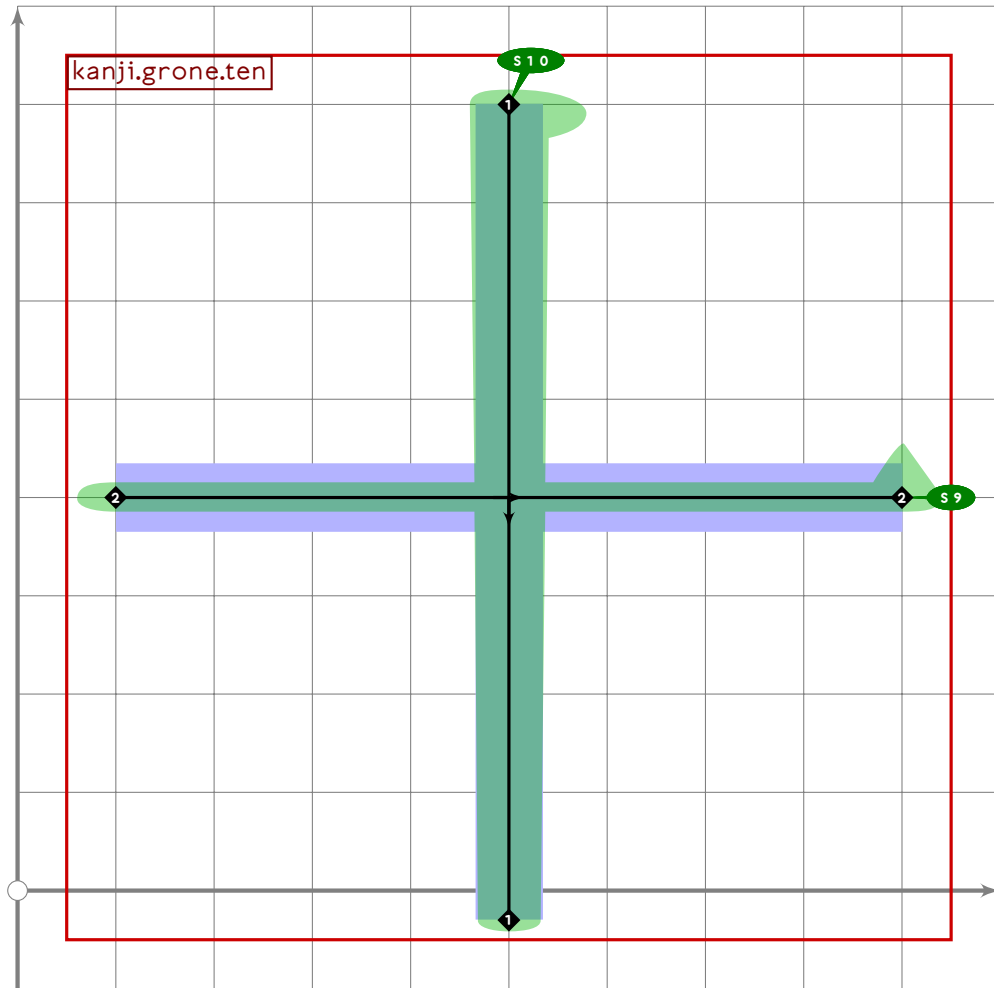
```



```

732
733 vardef kanji.grone.stone =
734   push_pbox_toexpand("kanji.grone.stone");
735   push_stroke((120,730)..(880,730),(1.6,1.6)-(1.6,1.6));
736   set_boserif(0,1,9);
737   push_stroke((430,730)..(330,440)..(200,270)..(50,160),
738     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(0.8,0.8));
739   build_kanji.box((340,410),(840,30));
740   expand_pbox;
741 enddef;

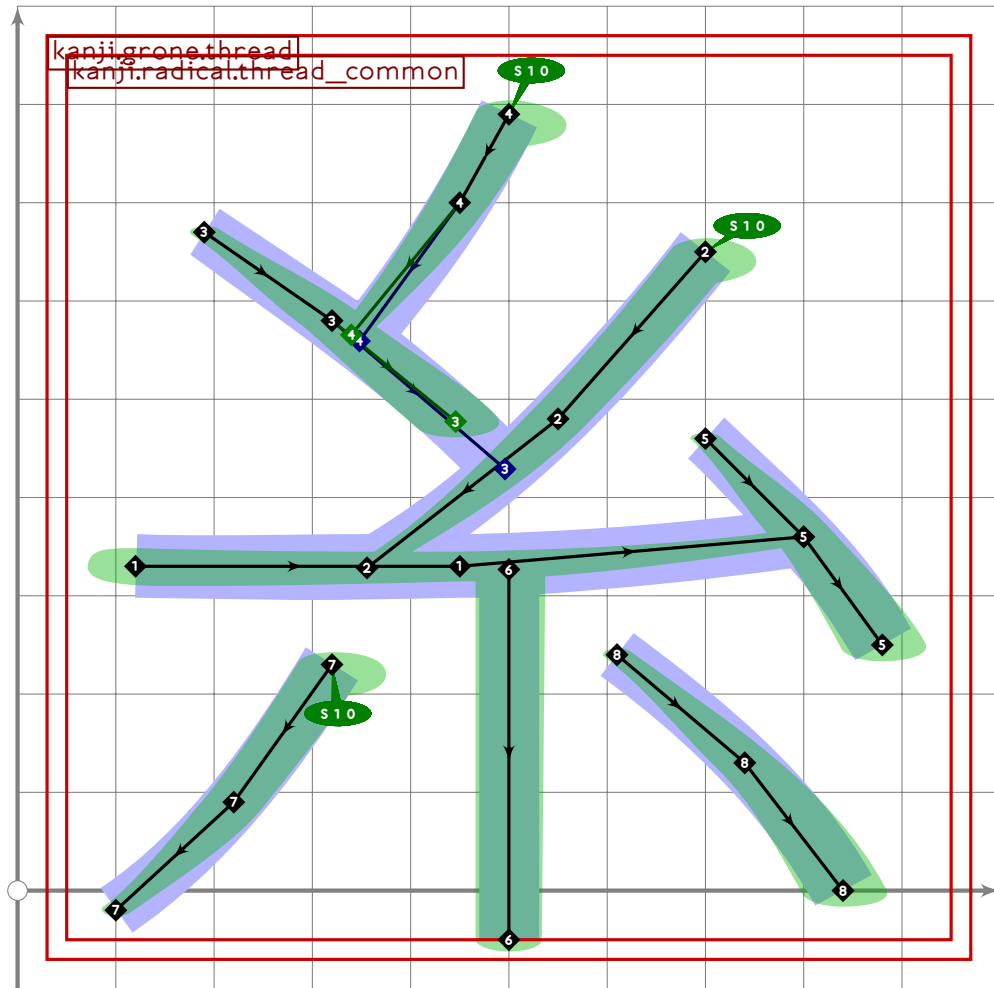
```



```

742
743 vardef kanji.grone.ten =
744   push_pbox_toexpand("kanji.grone.ten");
745   push_stroke((500,800)-(500,-30),(1,6,1,6)-(1,4,1,4));
746   set_boserif(0,0,10);
747   push_stroke((100,400)-(900,400),(1,6,1,6)-(1,6,1,6));
748   set_boserif(0,1,9);
749   expand_pbox;
750 enddef;

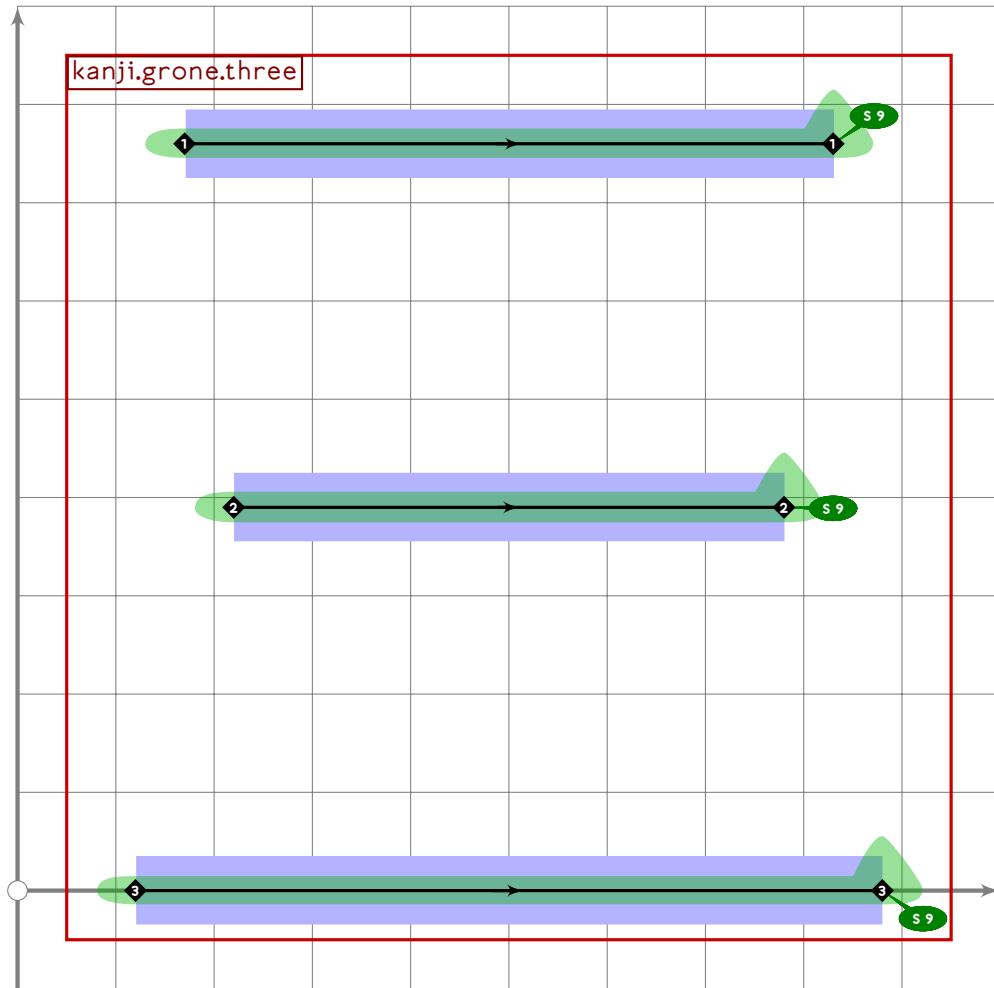
```



```

751
752 vardef kanji.grone.thread =
753   push_pbox_toexpand("kanji.grone.thread");
754   kanji.radical.thread_common;
755   push_stroke(
756     ((get_stroke(-4) intersectionpoint ((500,1000)-(500,0)))+(0,-5))
757     -(500,-50),
758     (1.6,1.6)-(1.5,1.5));
759   push_stroke((320,230)..tension 1.3..(220,90)..(100,-20),
760     (1.6,1.6)-(1.5,1.5)-(1,1));
761   set_boserif(0,0,10);
762   push_stroke((610,240)..tension 1.3..(740,130)..(840,0),
763     (1,1)-(1.5,1.5)-(1.8,1.8));
764   for i=-7 upto 0: set_bosize(i,90); endfor;
765   expand_pbox;
766 enddef;

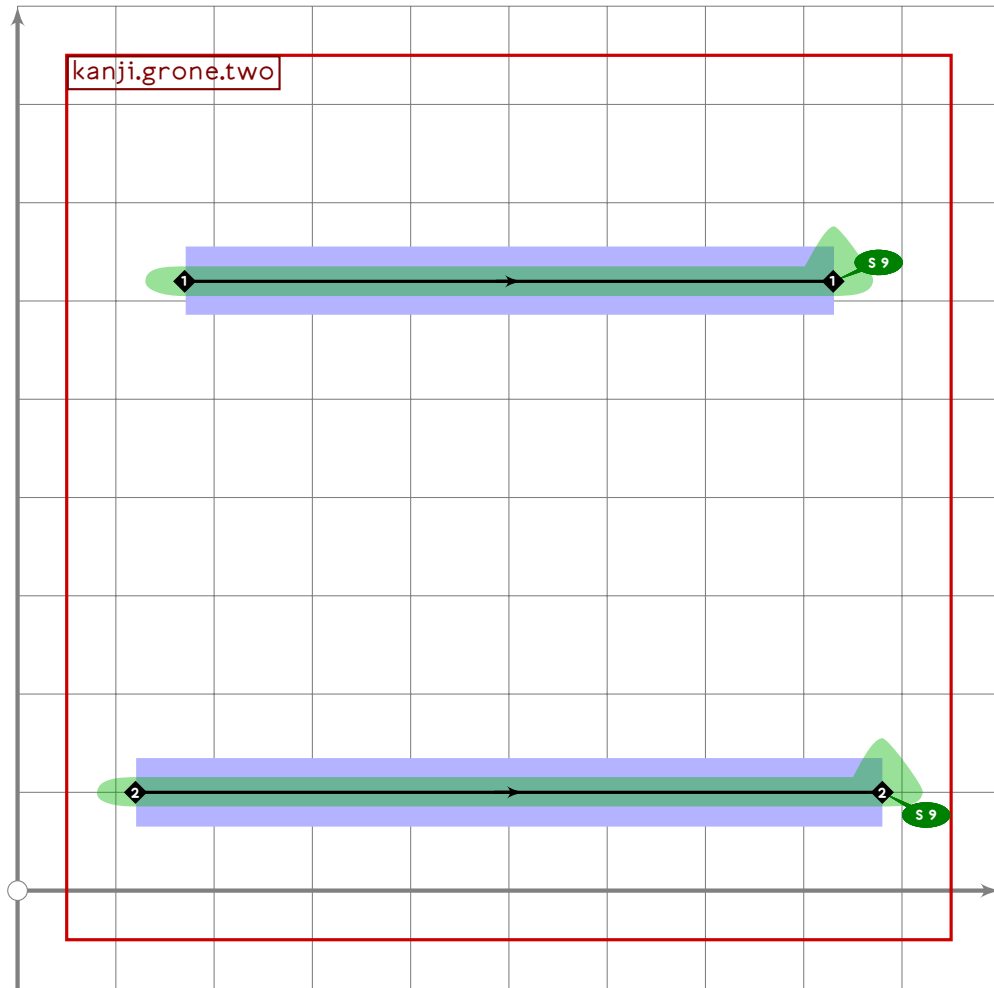
```



```

767
768 vardef kanji.grone.three =
769   push_pbox_toexpand("kanji.grone.three");
770   push_stroke((170,760)-(830,760),
771     (1.6,1.6)-(1.6,1.6));
772   set_boserif(0,1,9);
773   push_stroke((220,390)-(780,390),
774     (1.6,1.6)-(1.6,1.6));
775   set_boserif(0,1,9);
776   push_stroke((120,0)-(880,0),
777     (1.6,1.6)-(1.6,1.6));
778   set_boserif(0,1,9);
779   expand_pbox;
780 enddef;

```

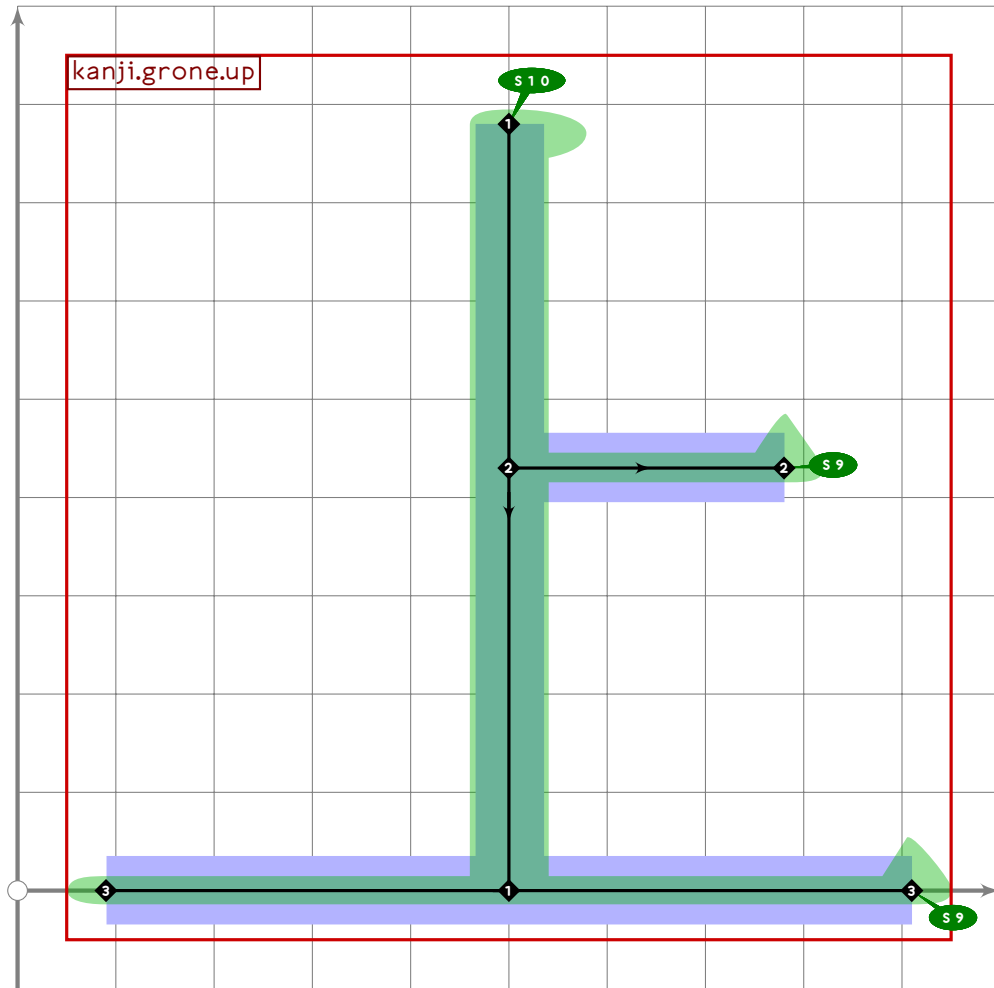


```

781
782 vardef kanji.grone.two =
783   push_pbox_toexpand("kanji.grone.two");
784   push_stroke((170,620)-(830,620),(1.6,1.6)-(1.6,1.6));
785   set_boserif(0,9);
786   push_stroke((120,100)-(880,100),(1.6,1.6)-(1.6,1.6));
787   set_boserif(0,1,9);
788   expand_pbox;
789 enddef;

```

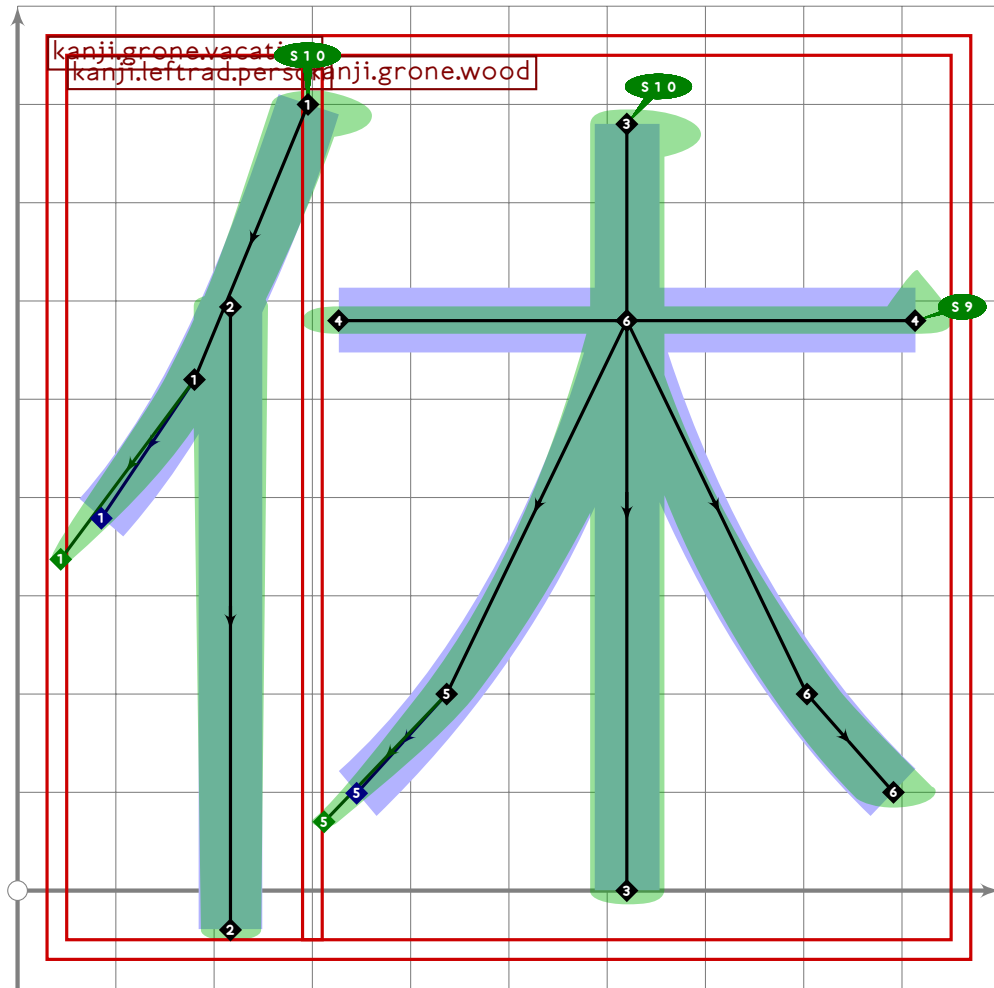




```

790
791 vardef kanji.grone.up =
792   push_pbox_toexpand("kanji.grone.up");
793   push_stroke((500,780)-(500,0),
794     (1.6,1.6)-(1.6,1.6));
795   set_boserif(0,0,10);
796   push_stroke((500,430)-(780,430),
797     (1.6,1.6)-(1.6,1.6));
798   set_boserif(0,1,9);
799   push_stroke((90,0)-(910,0),
800     (1.6,1.6)-(1.6,1.6));
801   set_boserif(0,1,9);
802   expand_pbox;
803 enddef;

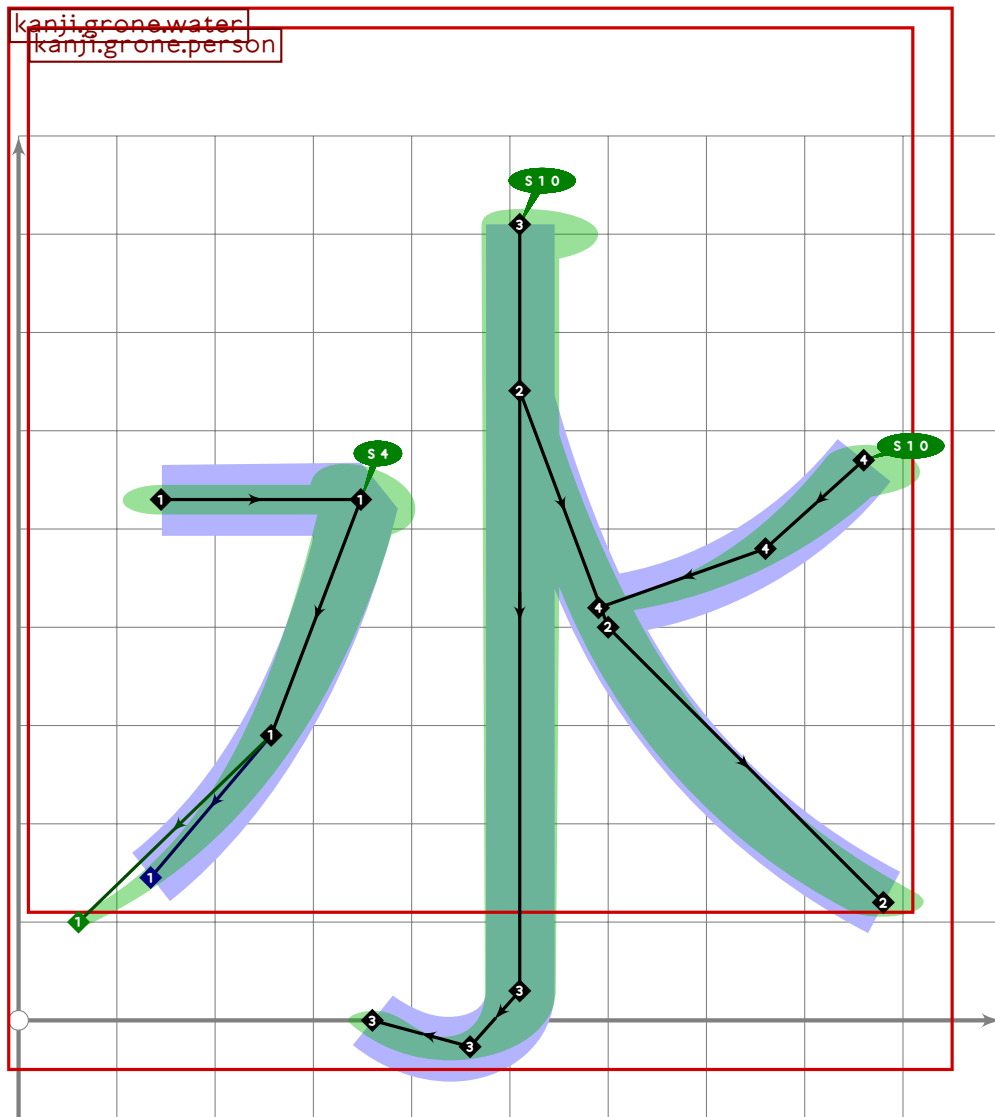
```



```

804
805 vardef kanji.grone.vacation =
806   push_pbox_toexpand("KANJI.GRONE.VACATION");
807   build_kanji.lr(300,20)
808     (KANJI.LEFTRAD.PERSON)
809     (KANJI.GRONE.WOOD);
810   expand_pbox;
811 enddef;

```



```

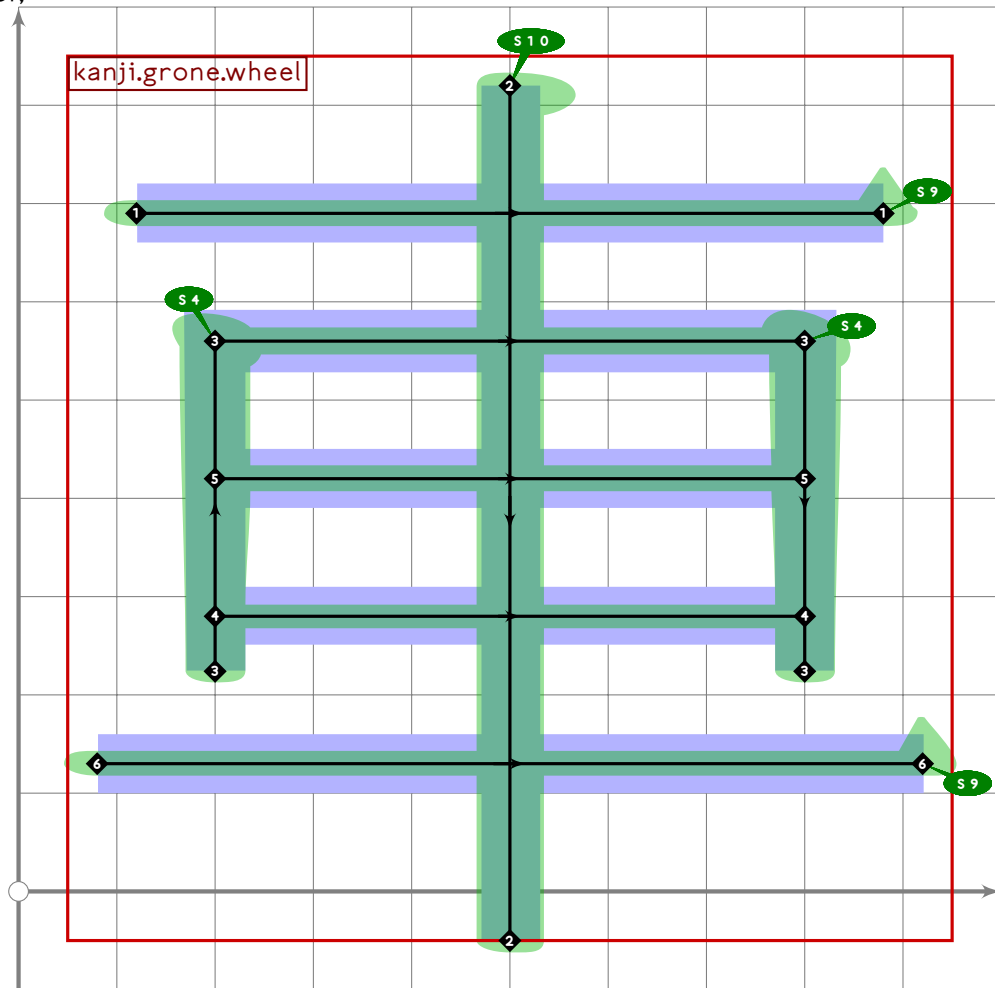
812
813 vardef kanji.grone.water =
814   push_pbox_toexpand("kanji.grone.water");
815   tsu_xform(identity shifted (-40,160))(kanji.grone.person);
816   replace_stroke(-1)((100,500)-
817     (subpath (xpart (oldp intersectiontimes
818       ((0,500)-(1000,500))),infinity) of oldp))
819     shifted (-250,0) xscaled 0.7 shifted (250,30));
820   replace_stroke(-1)((1.6,1.6)-(1.6,1.6)-(1.3,1.3)-(0.85,0.85));
821   set_boserif(-1,0,whatever);
822   set_boserif(-1,1,4);
823   set_botip(-1,1,0);
824   push_stroke((510,810),(1.6,1.6));
825   build_kanji.add_jtail(0);
826   set_boserif(0,0,10);
827   replace_stroke(-1)(
828     subpath (xpart (oldp intersectiontimes get_strokep(0)),infinity)
829     of oldp);

```

```

830 push_stroke((860,570)..(760,480)..(point 0.9 of get_stroke(-1)),
831   (1.6,1.6)-(1.4,1.4)-(1,1));
832 set_boserif(0,0,10);
833 expand_pbox;
834 enddef;

```



```

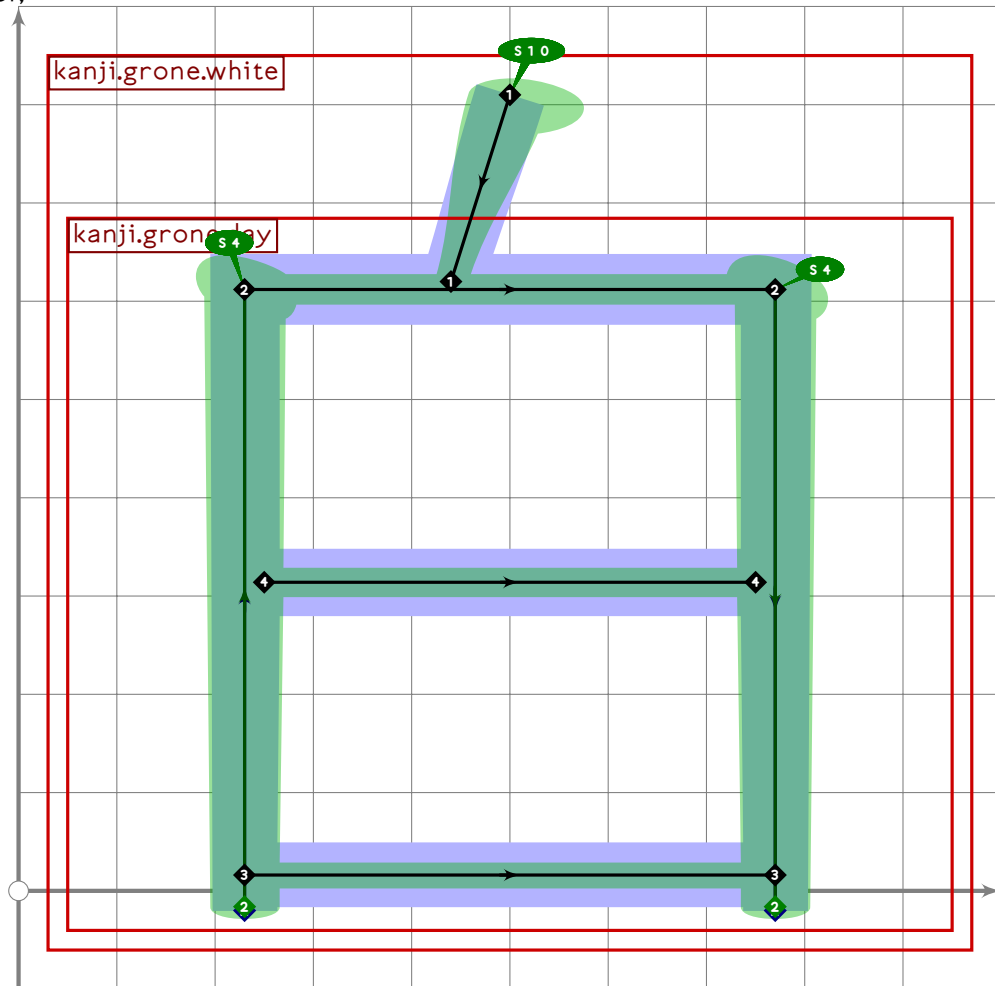
835
836 vardef kanji.grone.wheel =
837   push_pbox_toexpand("kanji.grone.wheel");
838   push_stroke((120,690)-(880,690),
839     (1.6,1.6)-(1.6,1.6));
840   set_boserif(0,1,9);
841   push_stroke((500,820)-(500,-50),
842     (1.6,1.6)-(1.6,1.6));
843   set_boserif(0,0,10);
844   build_kanji.box((200,560),(800,280));
845   push_stroke((200,420)-(800,420),
846     (1.6,1.6)-(1.6,1.6));
847   push_stroke((80,130)-(920,130),
848     (1.6,1.6)-(1.6,1.6));
849   set_boserif(0,1,9);
850   for i=-5 upto 0: set_bosize(i,85); endfor;

```

```

851 expand_pbox;
852 enddef;

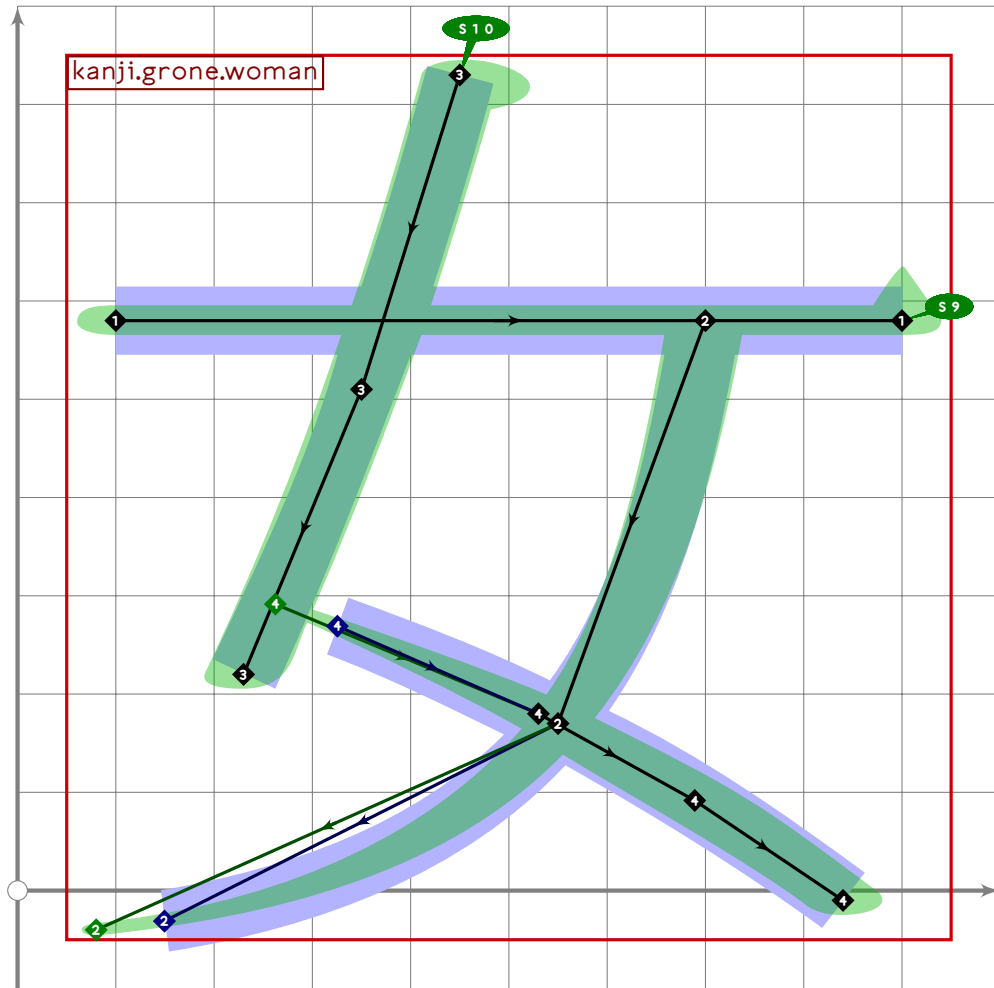
```



```

853
854 vardef kanji.grone.white =
855   push_pbox_toexpand("kanji.grone.white");
856   push_stroke((500,810)-(440,620),
857     (1.7,1.7)-(1,1));
858   set_bosserif(0,0,10);
859   tsu_xform(identity yscaled (620/770))(kanji.grone.day);
860   expand_pbox;
861 enddef;

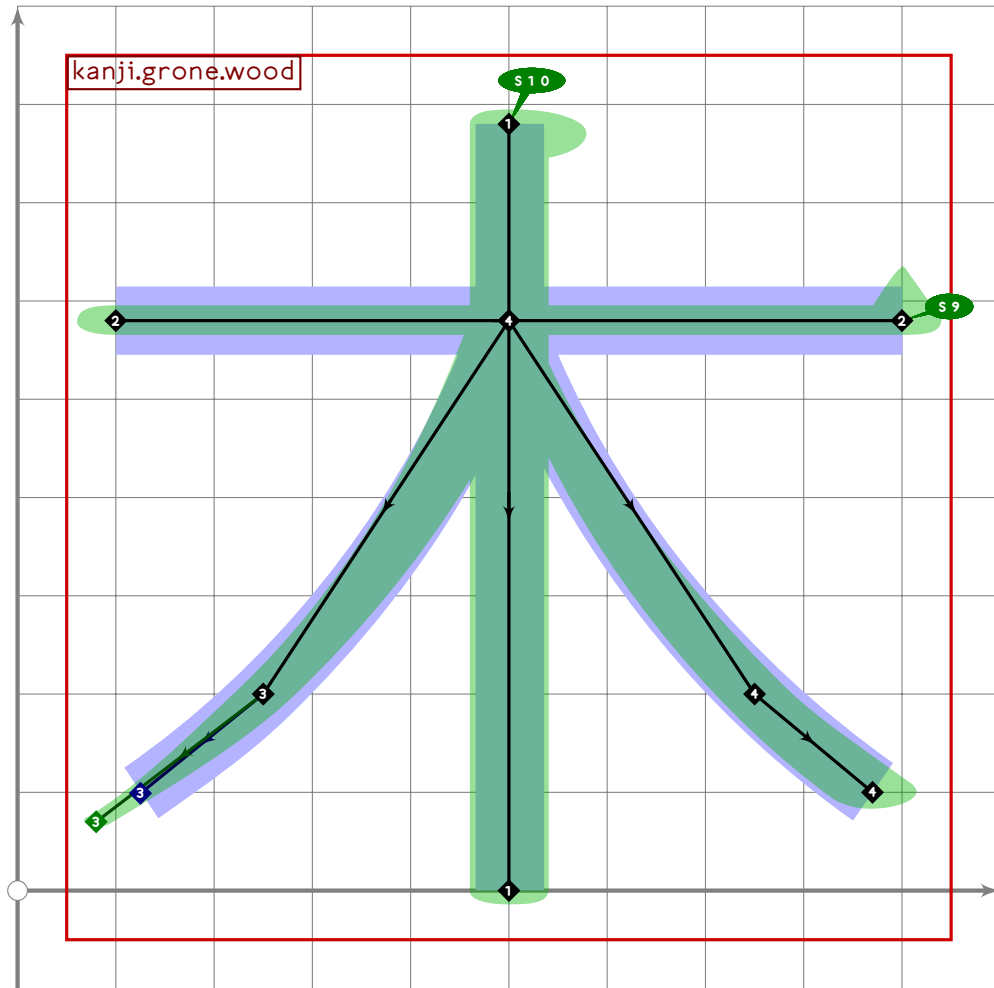
```



```

862
863 vardef kanji.grone.woman =
864   push_pbox_toexpand("kanji.grone.woman");
865   push_stroke((100,580)-(900,580),
866     (1.6,1.6)-(1.6,1.6));
867   set_boserif(0,1,9);
868   push_stroke((700,580){curl 0}..(550,170)..{curl 0.3}(80,-40),
869     (1.6,1.6)-(14,14)-(0.94,0.94));
870   push_stroke((450,830)..(350,510)..(230,220),
871     (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
872   set_boserif(0,0,10);
873   push_stroke((point 1.75 of get_strokep(0))..(530,180)..(840,-10),
874     (0.85,0.85)-(1.5,1.5)-(1.8,1.8)-(1.6,1.6));
875   replace_stroke(0)(insert_nodes(oldp)(1.5));
876   expand_pbox;
877 enddef;

```



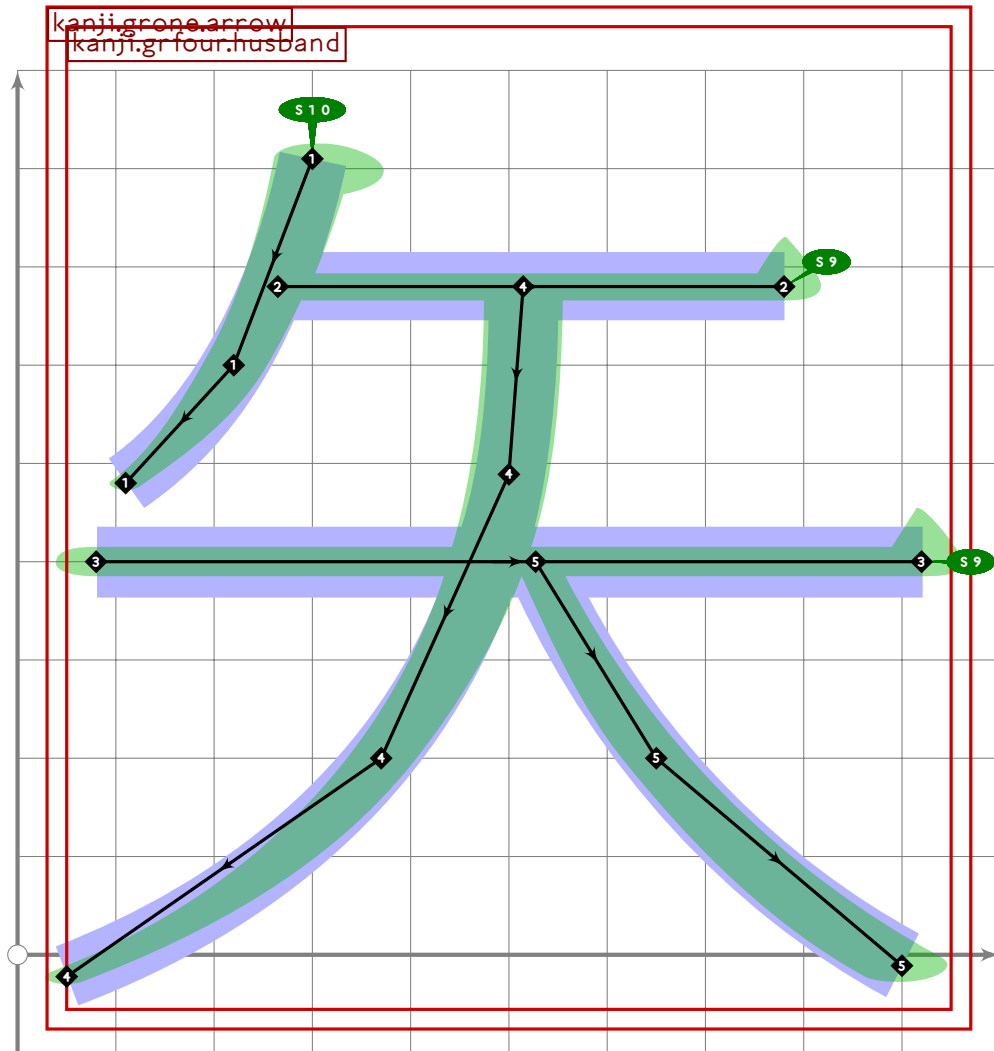
```

878
879 vardef kanji.grone.wood =
880   push_pbox_toexpand("kanji.grone.wood");
881   push_stroke((500,780)-(500,0),
882     (1.6,1.6)-(1.6,1.6));
883   set_boserif(0,0,10);
884   push_stroke((100,580)-(900,580),
885     (1.6,1.6)-(1.6,1.6));
886   set_boserif(0,1,9);
887   push_stroke((500,580)..(250,200)..(80,70),
888     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
889   push_stroke((500,580)..(750,200)..(870,100),
890     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
891   expand_pbox;
892 enddef;

```

# gradetwo.mp

```
1 %  
2 % Grade Two kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradetwo);  
32  
33
```



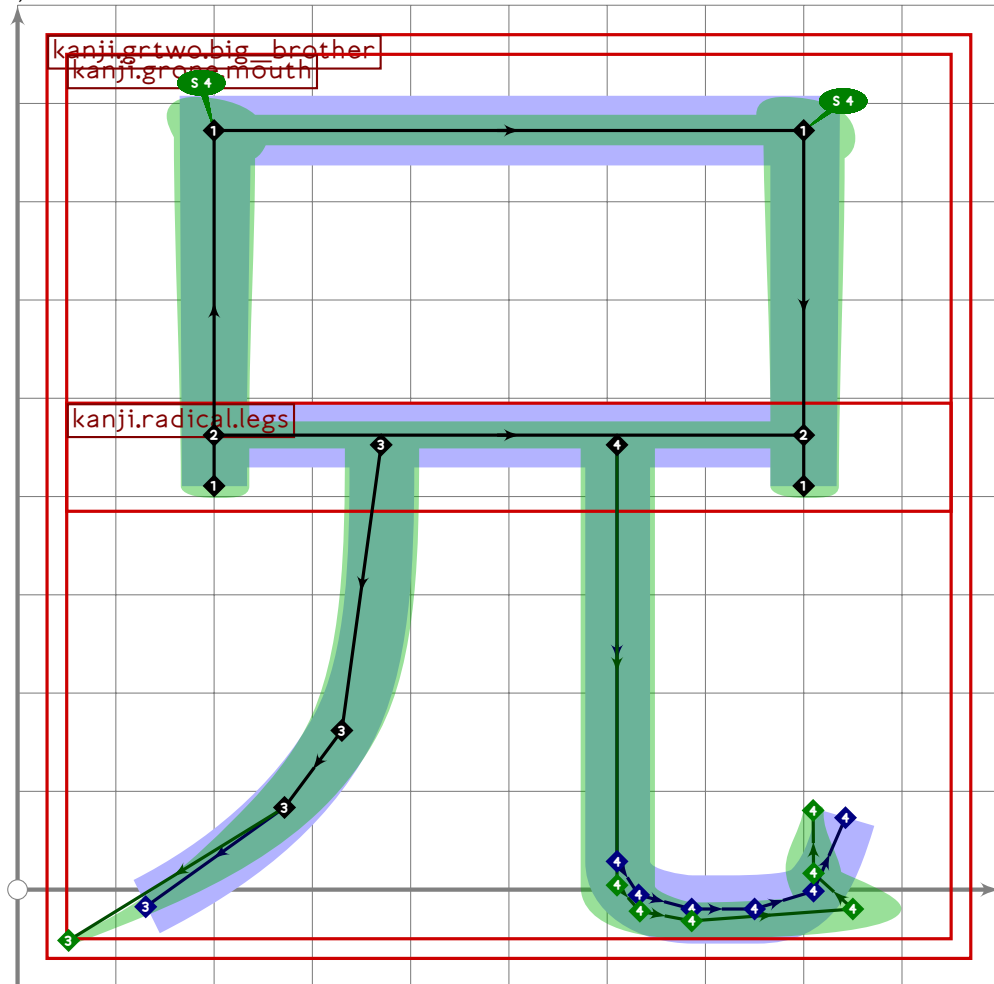
```
34  
35 vardef kanji.grtwo.arrow =  
36   push_pbox_toexpand("kanji.grtwo.arrow");  
37   push_stroke((300,810)..tension 1.2..(220,600)..(110,480),  
38     (1.6,1.6)-(1.4,1.4)-(1,1));  
39   set_boserif(0,0,10);  
40   tsu_xform(identity yscaled (400/360))(kanji.grfour.husband);  
41   replace_stroke(-3)((100,680)-(780,680));  
42   replace_stroke(-3)(subpath
```



```

43 (0.01*xpart (oldp intersectiontimes get_strokep(-4)),1) of oldp);
44 replace_stroke(-1)(subpath
45 (xpart (oldp intersectiontimes get_strokep(-3)),infinity) of oldp);
46 set_boserif(-1,0,whatever);
47 expand_pbox;
48 enddef;

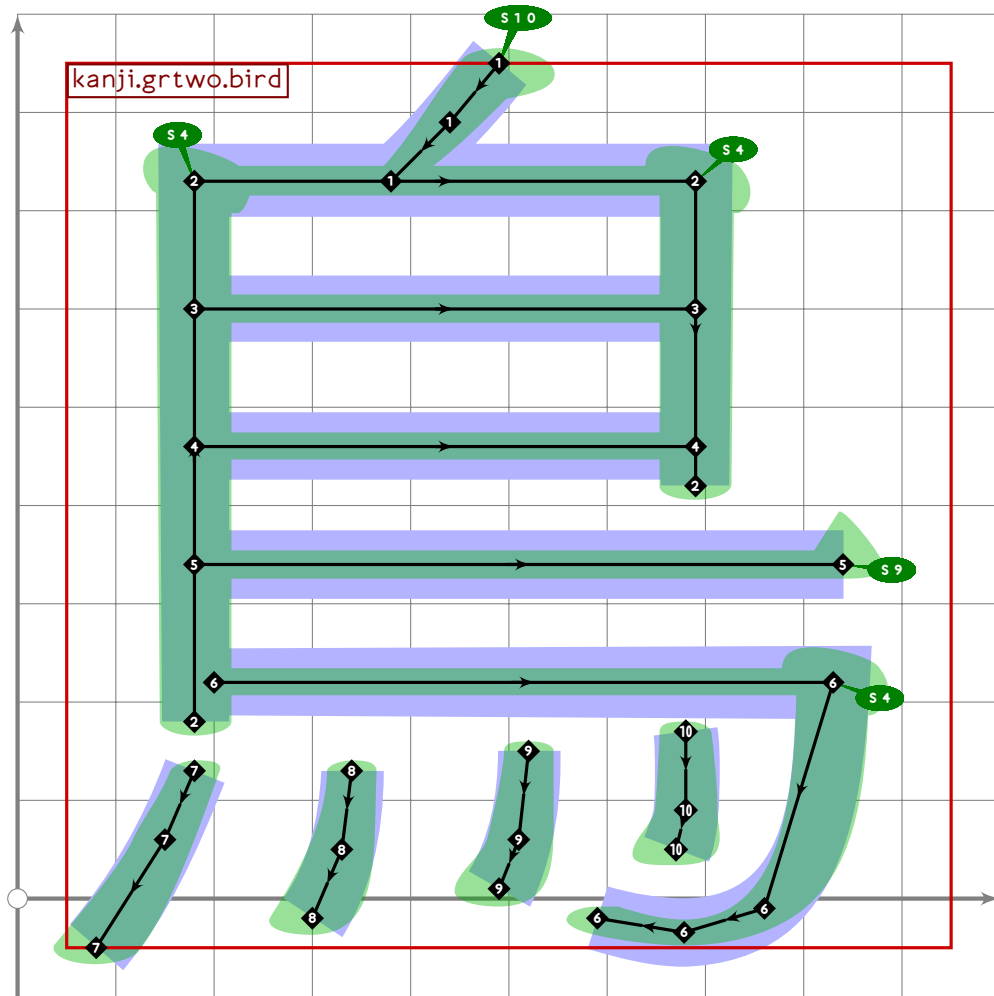
```



```

49
50 vardef kanji.grtwo.big_brother =
51   push_pbox_toexpand("kanji.grtwo.big_brother");
52   build_kanji.level(build_kanji.tb(440,110)
53     (kanji.grone.mouth)
54     (kanji.radical.legs));
55   expand_pbox;
56 enddef;

```



```

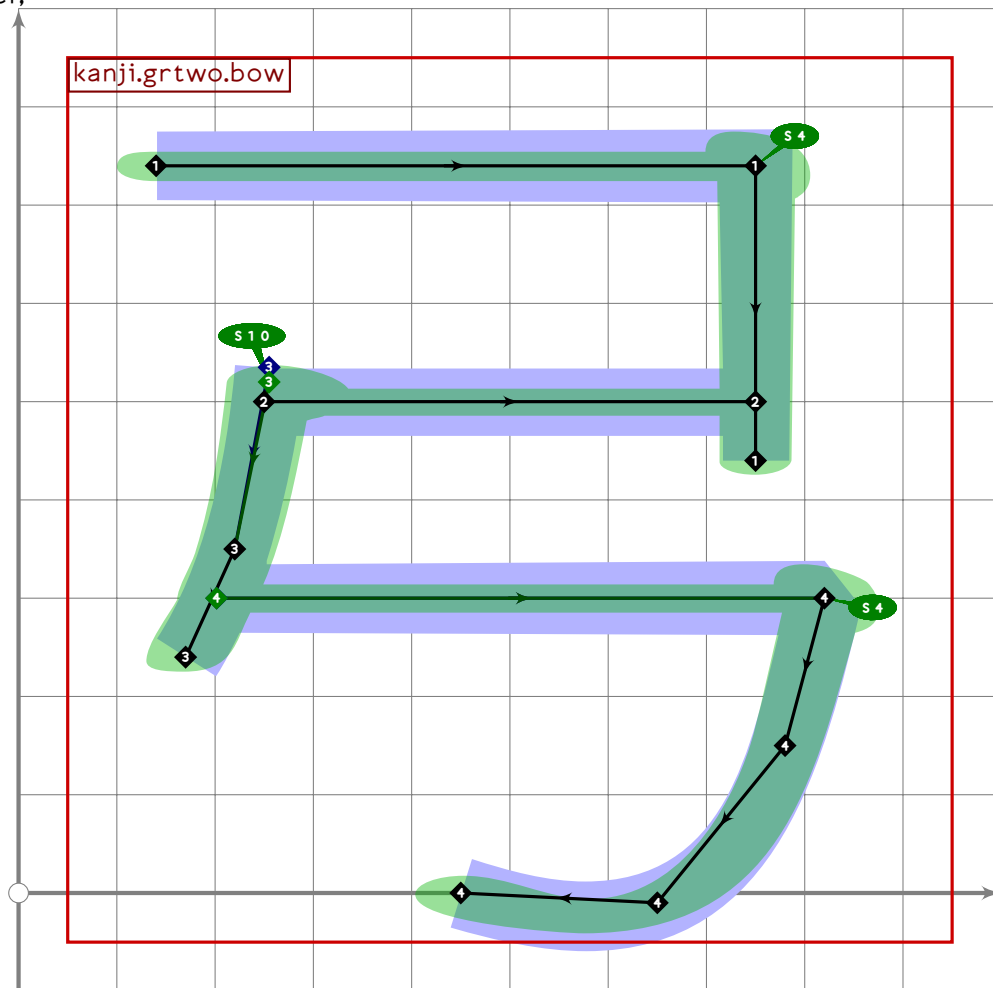
57
58 vardef kanji.grtwo.bird =
59   push_pbox_toexpand("kanji.grtwo.bird");
60   push_stroke((490,850){curl 0.1}..(440,790)..(380,730),
61     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
62   set_boserif(0,0,10);
63   push_stroke((180,180)-(180,730)-(690,730)-(690,420),
64     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
65   set_boserif(0,1,4);
66   set_boserif(0,2,4);
67   set_botip(0,1,1);
68   set_botip(0,2,1);
69   push_stroke((180,600)-(690,600),
70     (1.5,1.5)-(1.5,1.5));
71   push_stroke((180,460)-(690,460),
72     (1.5,1.5)-(1.5,1.5));
73   push_stroke((180,340)-(840,340),
74     (1.5,1.5)-(1.6,1.6));
75   set_boserif(0,1,9);
76   push_stroke((200,220)-(830,220){dir 268}..(760,-10)..{curl 0.2}(590,-20),
77     (1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.4,1.4)-(1.2,1.2));

```

```

78 replace_stroke(0)(insert_nodes(oldp)((length oldp)-0.5));
79 set_boserif(0,1,4);
80 set_botip(0,1,1);
81 push_stroke((180,130)..tension 1.2..(150,60)..(80,-50),
82   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
83 push_stroke((340,130)..tension 1.2..(330,50)..(300,-20),
84   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
85 push_stroke((520,150)..tension 1.2..(510,60)..(490,10),
86   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
87 push_stroke((680,170)..tension 1.2..(680,90)..(670,50),
88   (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
89 expand_pbox;
90 enddef;

```



```

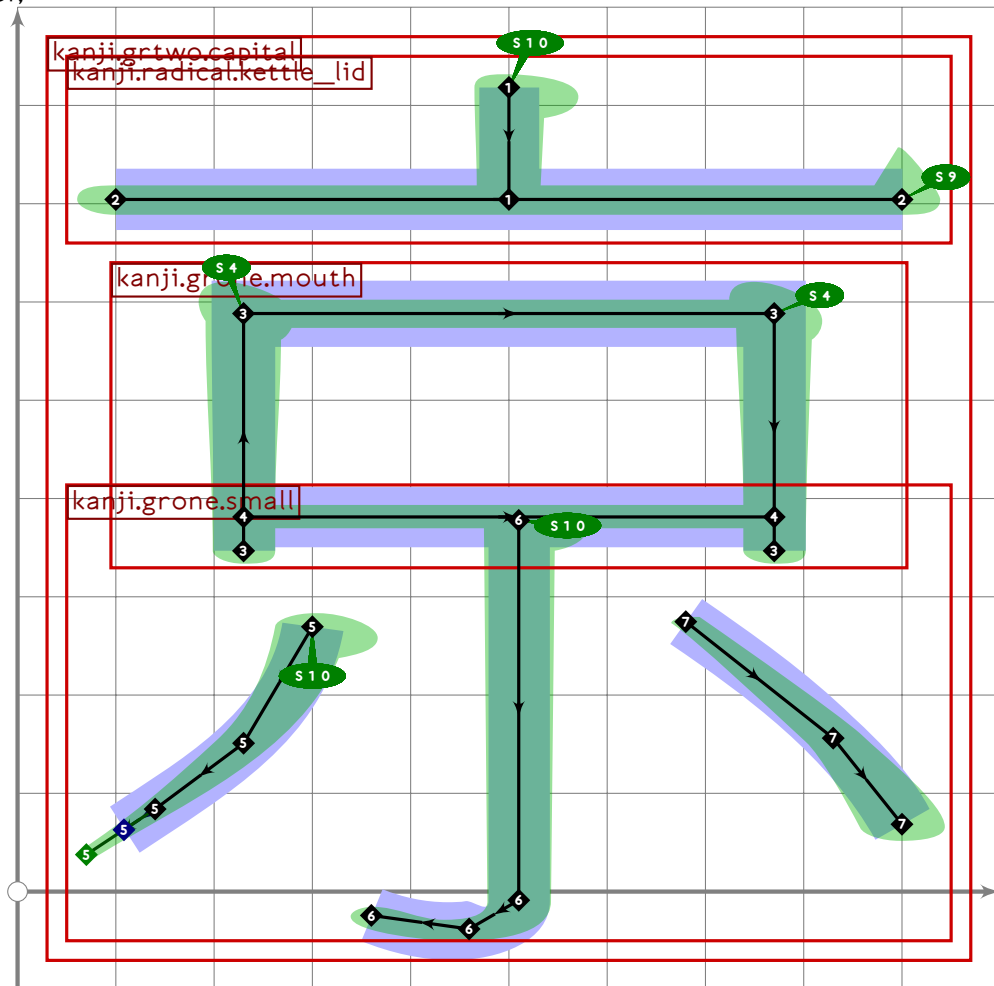
91
92 vardef kanji.grtwo.bow =
93   push_pbox_toexpand("kanji.grtwo.bow");
94   push_stroke((140,740)-(750,740)-(750,440),
95     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
96   set_botip(0,1,1);
97   set_boserif(0,1,4);
98   push_stroke((250,500)-(750,500),

```

```

99 (1.5,1.5)-(1.5,1.5));
100 push_stroke((255,535-15*mincho)..tension 1.2..(220,350)..(170,240),
101 (1.7,1.7)-(1.6,1.6)-(1.6,1.6));
102 set_boserif(0,0,10);
103 push_stroke((get_strokep(0) intersectionpoint ((0,300)-(1000,300)))-
104 (820,300)..tension 1.7..(780,150)..(650,-10)..{curl 0.1}(450,0),
105 (1.6,1.6)-(1.6,1.6)-(1.5,1.5)-(1.7,1.7)-(1.8,1.8));
106 set_botip(0,1,1);
107 set_boserif(0,1,4);
108 expand_pbox;
109 enddef;

```



```

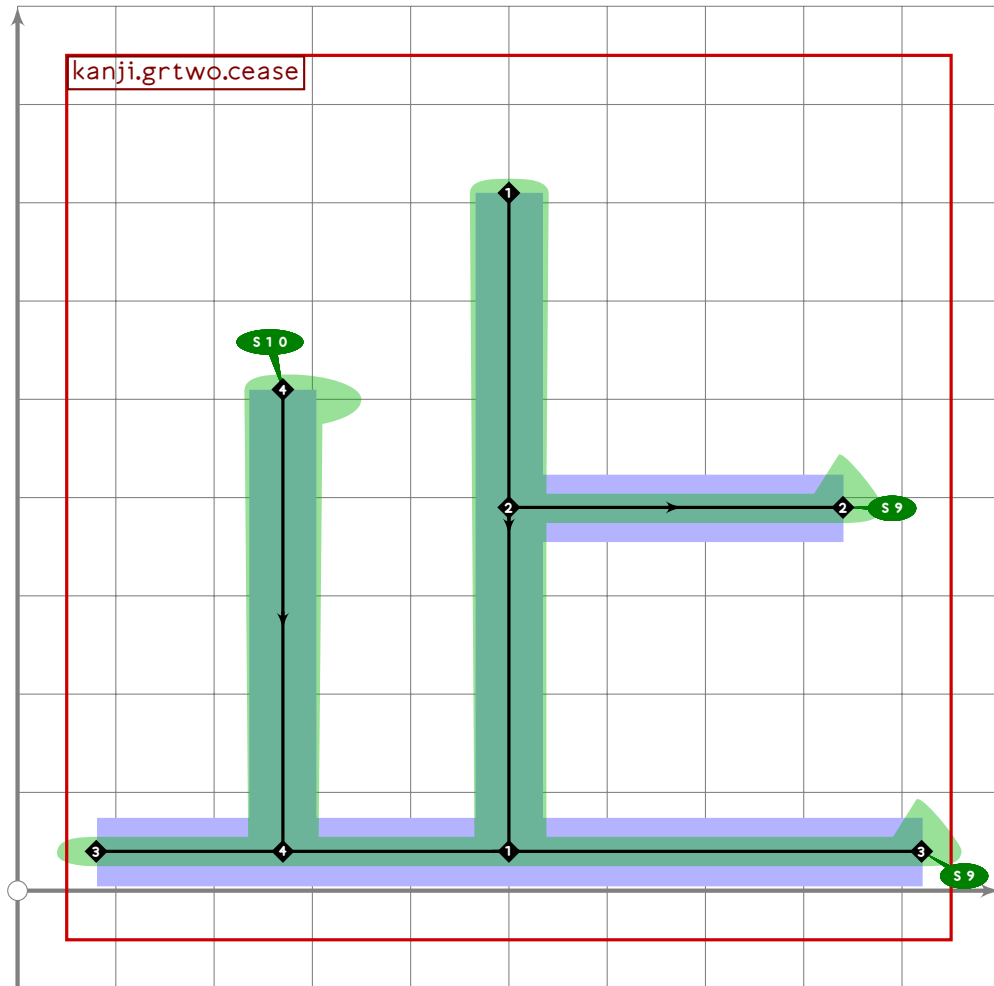
110
111 vardef kanji.grtwo.capital =
112   push_pbox_toexpand("kanji.grtwo.capital");
113   build_kanji.level(build_kanji.tb(650,-20)
114     (kanji.radical.kettle_lid)
115     (build_kanji.tb(500,110)
116       (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth))
117       (kanji.grone.small)));
118   set_boserif(0,0,whatever);
119   expand_pbox;

```

```

120 enddef;
121

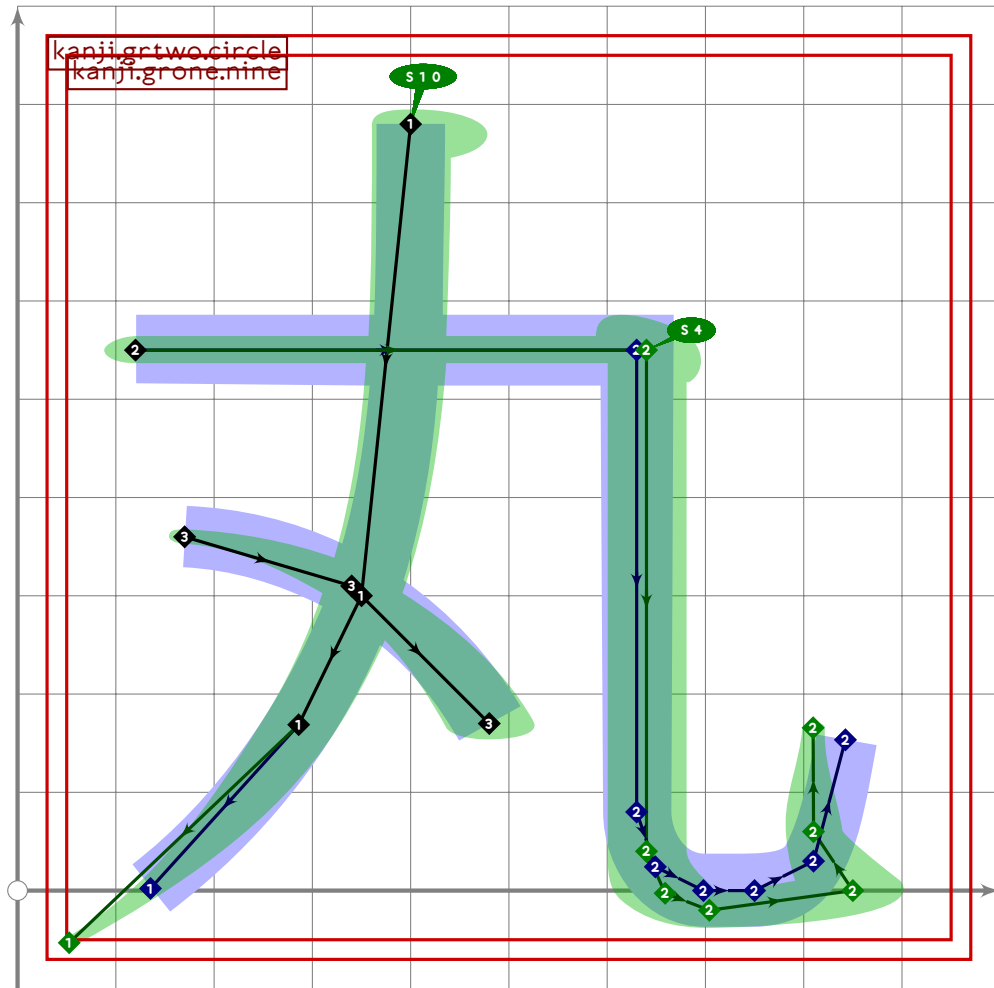
```



```

122 % can't use "stop," it is reserved by Metafont
123 vardef kanji.grtwo.cease =
124   push_pbox_toexpand("kanji.grtwo.cease");
125   push_stroke((500,710)-(500,40),(1.6,1.6)-(1.5,1.5));
126   push_stroke((500,390)-(840,390),(1.5,1.5)-(1.6,1.6));
127   set_boserif(0,1,9);
128   push_stroke((80,40)-(920,40),(1.6,1.6)-(1.6,1.6));
129   set_boserif(0,1,9);
130   push_stroke((270,510)-(270,40),(1.6,1.6)-(1.5,1.5));
131   set_boserif(0,0,10);
132   expand_pbox;
133 enddef;

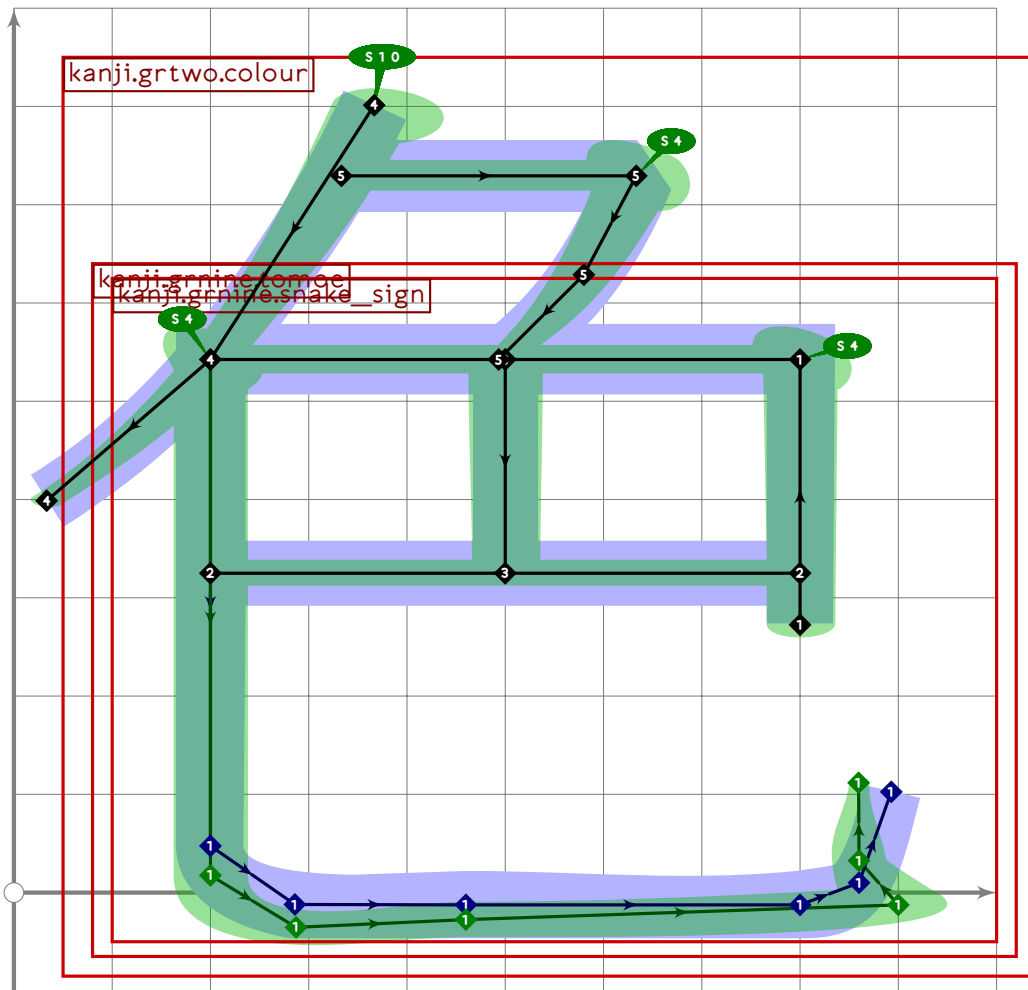
```



```

134
135 vardef kanji.grtwo.circle =
136   push_pbox_toexpand("kanji.grtwo.circle");
137   kanji.grone.nine;
138   push_stroke((170,360)..(340,310)..(480,170),
139     (1,1)-(14,14)-(17,17));
140   expand_pbox;
141 enddef;

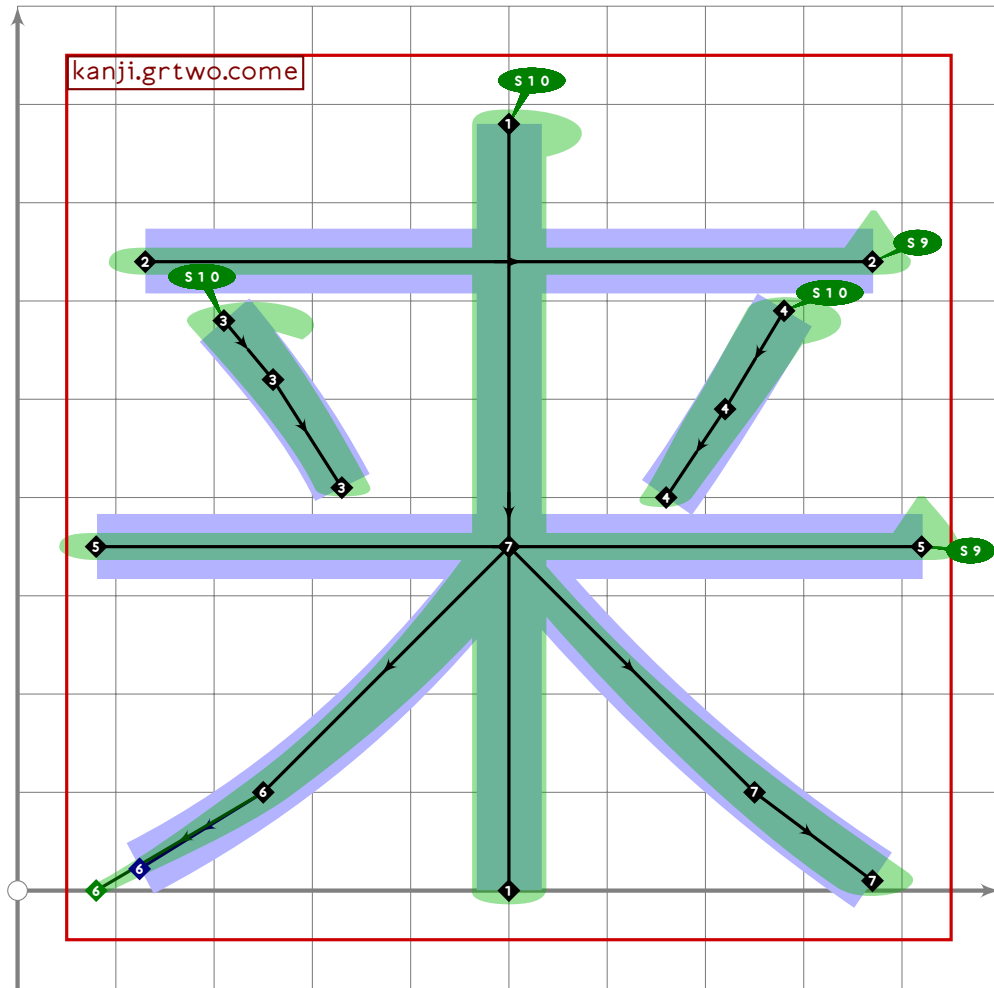
```



```

142
143 vardef kanji.grtwo.colour =
144   push_pbox_toexpand("kanji.grtwo.colour");
145   build_kanji.attach_fishhook(0.75)
146   (tsu_xform(identity shifted (50,0))(kanji.grnine.tomoe));
147   expand_pbox;
148 enddef;

```



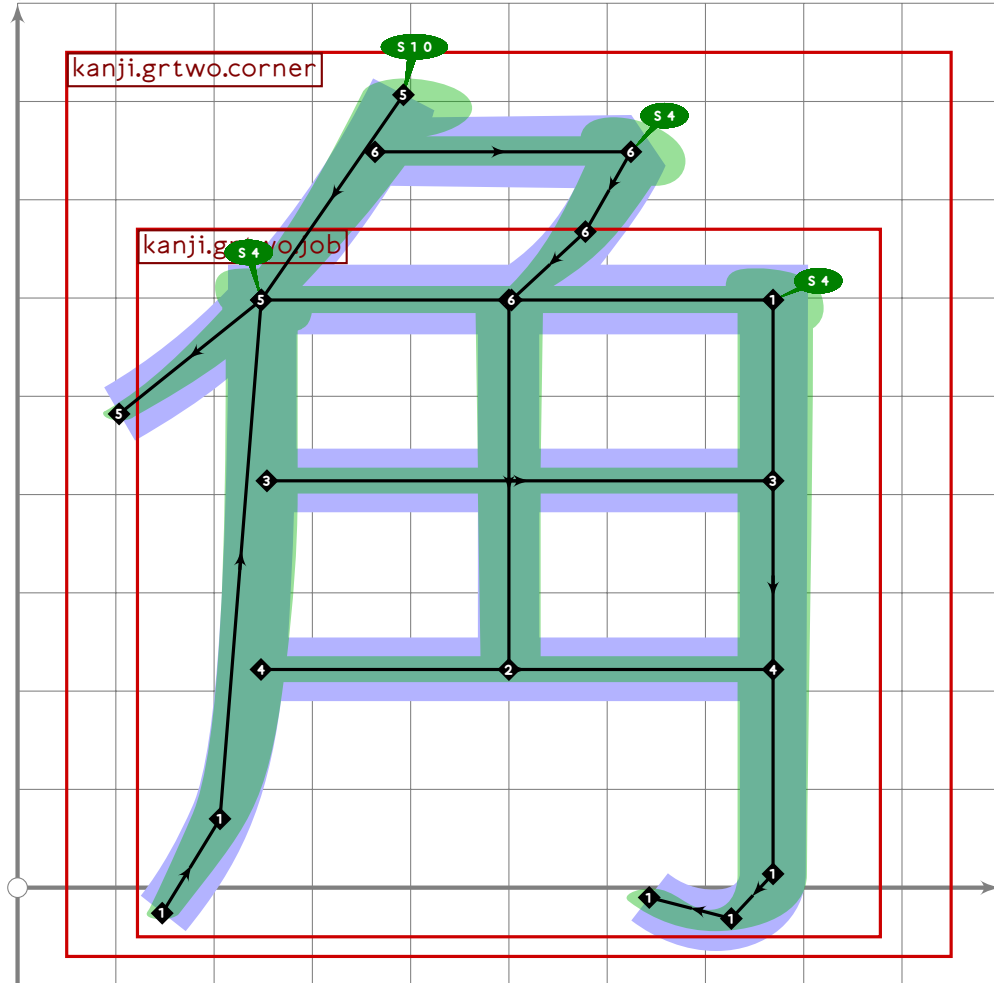
```

149
150 vardef kanji.grtwo.come =
151   push_pbox_toexpand("kanji.grtwo.come");
152   push_stroke((500,780)-(500,0),(1.6,1.6)-(1.6,1.6));
153   set_boserif(0,0,10);
154   push_stroke((130,640)-(870,640),(1.6,1.6)-(1.6,1.6));
155   set_boserif(0,1,9);
156   push_stroke((210,580)..tension 1.2..(260,520)..(330,410),
157     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
158   set_boserif(0,0,10);
159   push_stroke((780,590)..tension 1.2..(720,490)..(660,400),
160     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
161   set_boserif(0,0,10);
162   push_stroke((80,350)-(920,350),(1.6,1.6)-(1.6,1.6));
163   set_boserif(0,1,9);
164   push_stroke((500,350)..(250,100)..(80,0),
165     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
166   push_stroke((500,350)..(750,100)..(870,10),
167     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
168   for i=-6 upto 0: set_bosize(i,94); endfor;
169   expand_pbox;

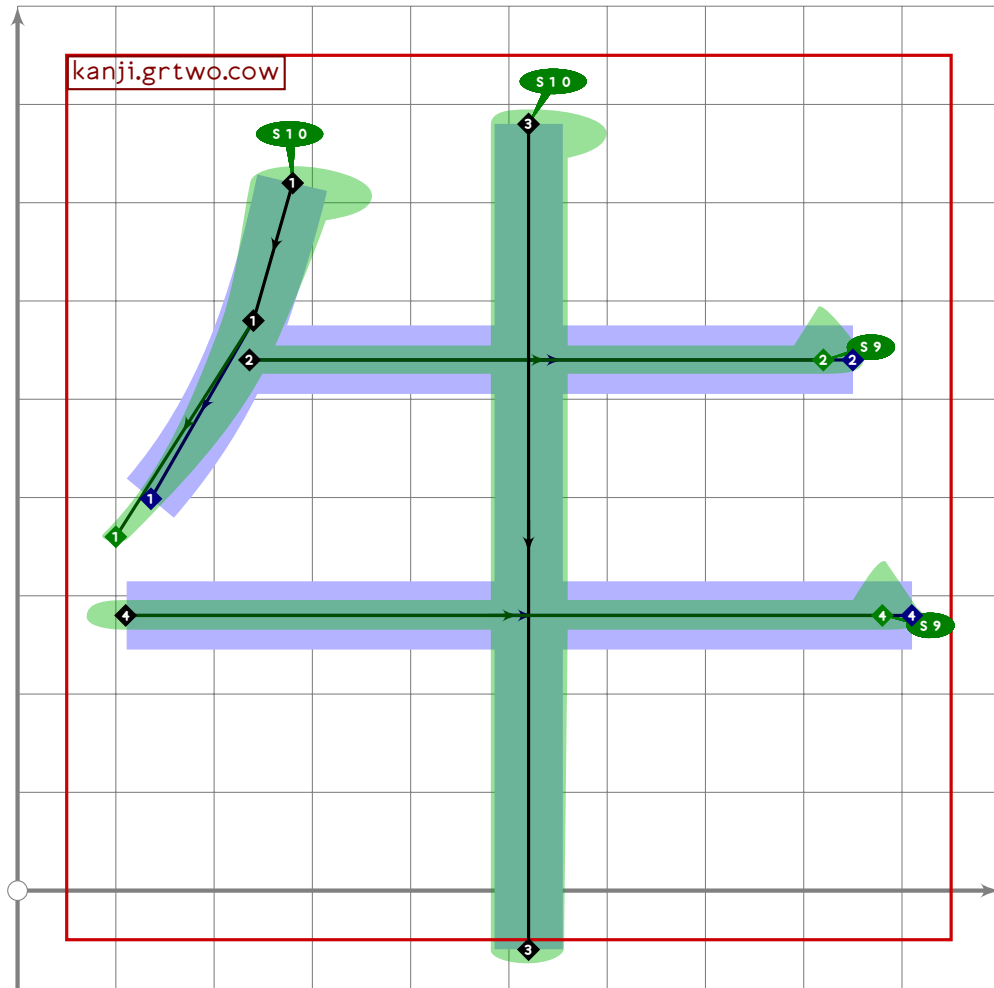
```



170 endif;



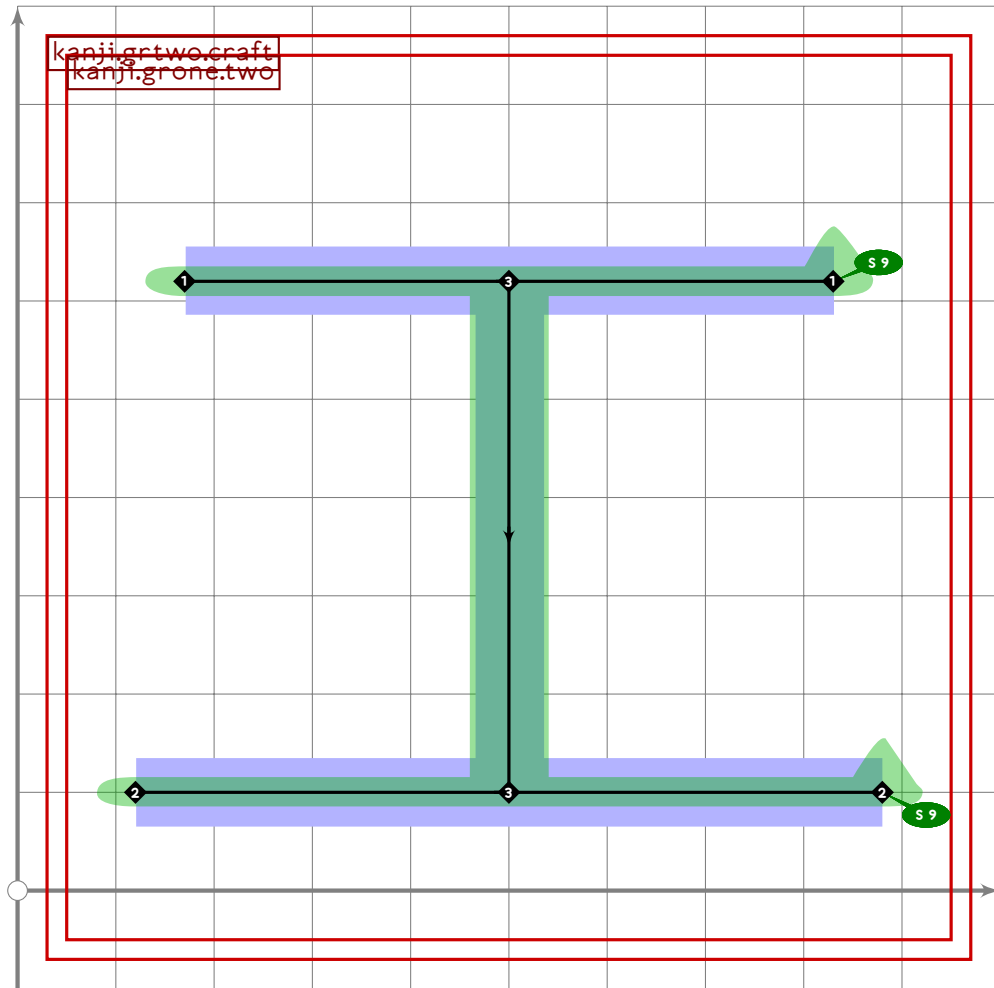
```
171
172 vardef kanji.grtwo.corner =
173   push_pbox_toexpand("kanji.grtwo.corner");
174   build_kanji.attach_fishhook(0.8)(
175     build_kanji.sscale(xscaled 0.84)(kanji.grtwo.job);
176     replace_stroke(-2)((500,760)-(500,290)));
177   expand_pbox;
178 endif;
```



```

179
180 vardef kanji.grtwo.cow =
181   push_pbox_toexpand("kanji.grtwo.cow");
182   push_stroke(((280,720)..tension 1.2..(240,580)..(100,360),
183     (1.7,1.7)-(1.4,1.4)-(0.9,0.9));
184   set_boserif(0,0,10);
185   push_stroke((((0,540)-(1000,540)) intersectionpoint
186     get_stroke(0))+(12,0)-(850-30*mincho,540),
187     (1.6,1.6)-(1.6,1.6));
188   set_boserif(0,1,9);
189   push_stroke(((520,780)-(520,-60),(1.6,1.6)-(1.5,1.5));
190   set_boserif(0,0,10);
191   push_stroke(((110,280)-(910-30*mincho,280),(1.6,1.6)-(1.6,1.6));
192   set_boserif(0,1,9);
193   expand_pbox;
194 enddef;

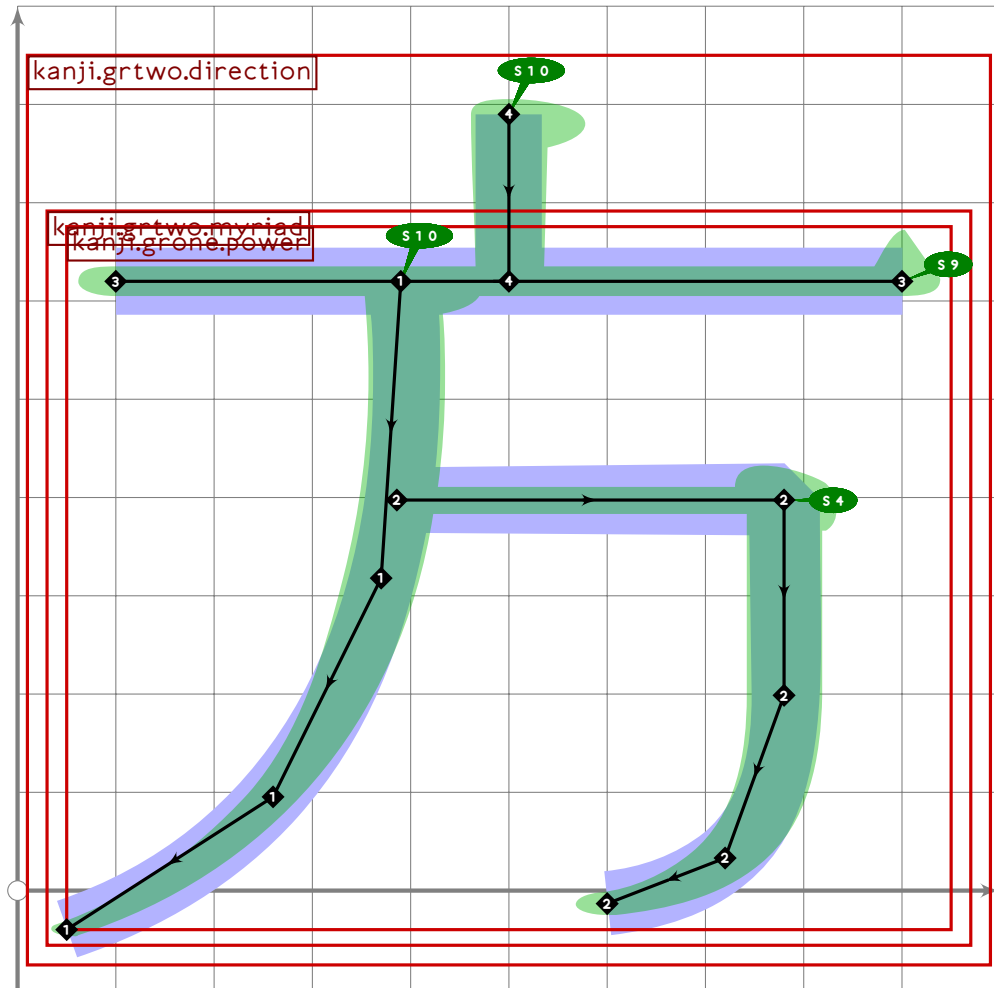
```



```

195
196 vardef kanji.grtwo.craft =
197   push_pbox_toexpand("kanji.grtwo.craft");
198   kanji.grone.two;
199   push_stroke((point 0.5 of get_stroke(-1))-(point 0.5 of get_stroke(0)),
200     (1.6,1.6)-(1.6,1.6));
201   expand_pbox;
202 enddef;

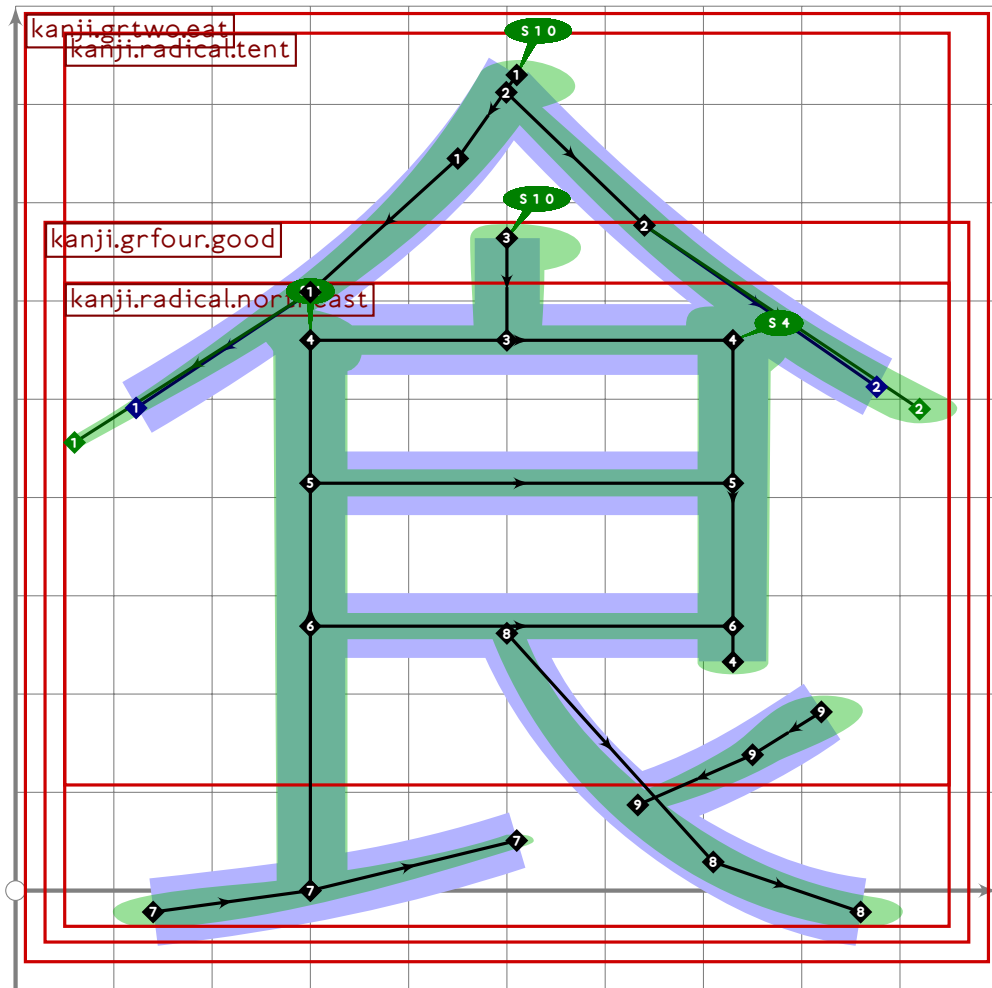
```



```

203
204 vardef kanji.grtwo.direction =
205   push_pbox_toexpand("kanji.grtwo.direction");
206   build_kanji.level(
207     tsu_xform(identity yscaled (620/780))
208     (kanji.grtwo.myriad);
209     push_stroke((500,790)..(500,620),(1.6,1.6)-(1.5,1.5));
210     set_boserif(0,0,10);
211   );
212   expand_pbox;
213 enddef;

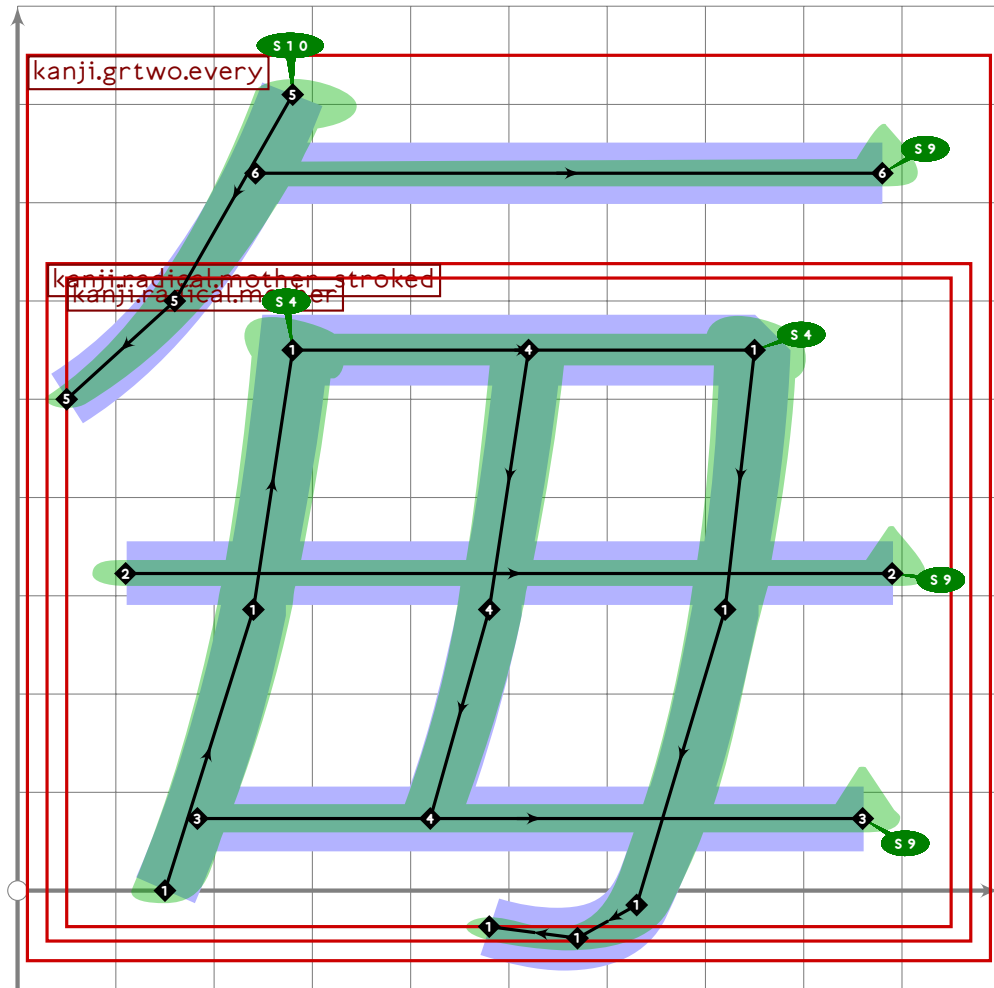
```



```

214
215 vardef kanji.grtwo.eat =
216   push_pbox_toexpand("kanji.grtwo.eat");
217   build_kanji.level(
218     tsu_xform(identity yscaled 0.85 shifted (0,150))
219     (kanji.radical.tent);
220   pop_stroke;
221   tsu_xform(identity yscaled 0.8)(kanji.grfour.good));
222   expand_pbox;
223 enddef;

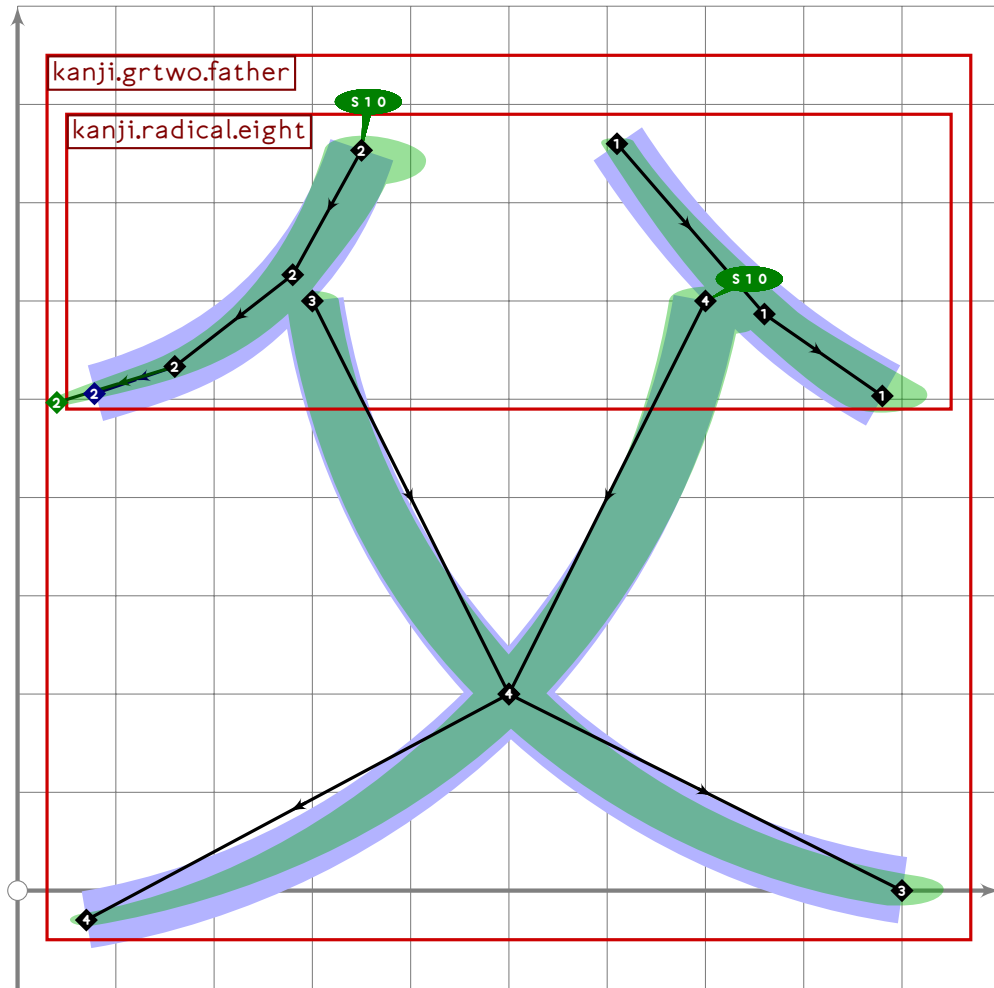
```



```

224
225 vardef kanji.grtwo.every =
226   push_pbox_toexpand("kanji.grtwo.every");
227   tsu_xform(identity yscaled (550/750))
228     (kanji.radical.mother_stroked);
229   push_stroke((280,810)..tension 1.2..(160,600)..(50,500),
230     (1.7,1.7)-(1.5,1.5)-(1.2,1.2));
231   set_boserif(0,0,10);
232   set_bosize(0,90);
233   push_stroke((get_strokep(0) intersectionpoint ((0,730)-(1000,730)))-
234     (880,730),
235     (1.5,1.5)-(1.6,1.6));
236   set_boserif(0,1,9);
237   set_bosize(0,90);
238   expand_pbox;
239 enddef;

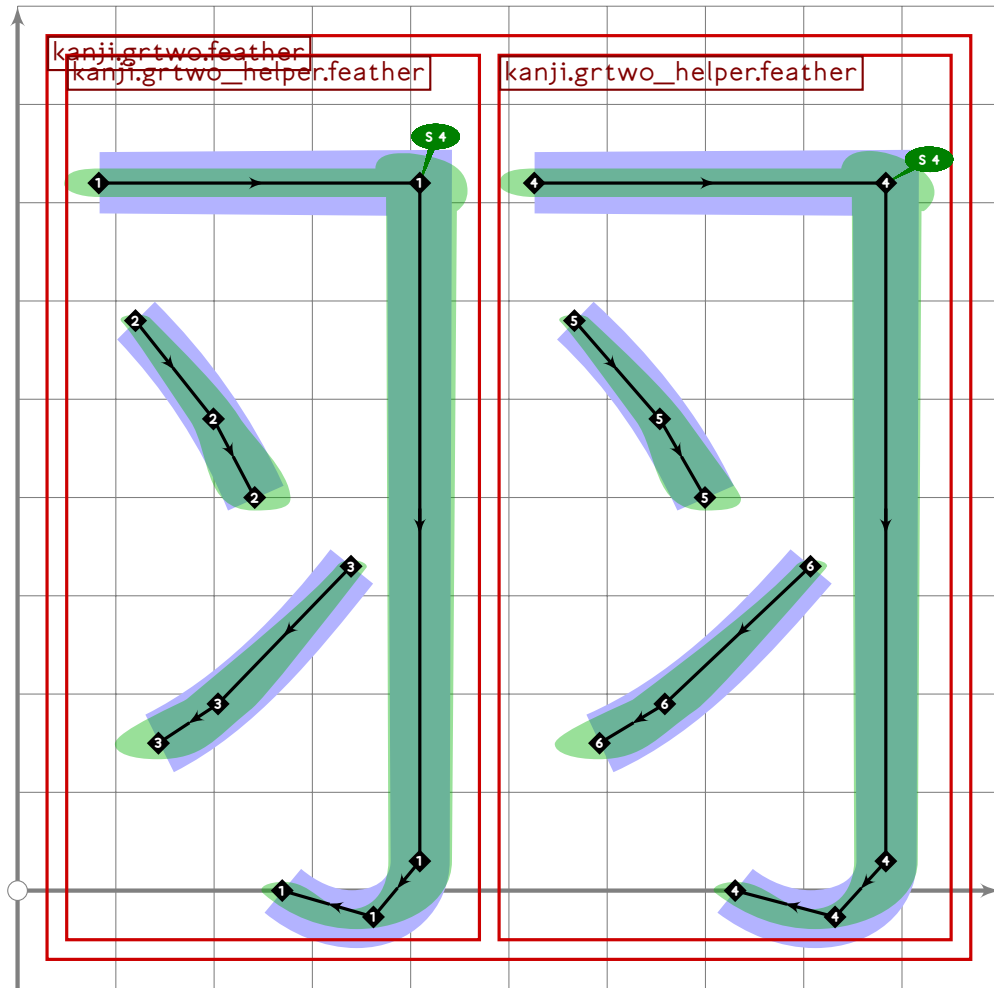
```



```

240
241 vardef kanji.grtwo.father =
242   push_pbox_toexpand("kanji.grtwo.father");
243   build_kanji.level(build_kanji.tb(700,300)
244     (tsu_xform(identity shifted (0,-180))(kanji.radical.eight))
245     (push_stroke((300,600)..(500,200)..(900,0),
246       (1,3,1,3)-(1,5,1,5)-(1,7,1,7));
247     push_stroke((700,600)..(500,200)..(70,-30),
248       (1,6,1,6)-(1,5,1,5)-(1,1));
249     set_boserif(0,0,10);
250   ));
251   expand_pbox;
252 enddef;

```



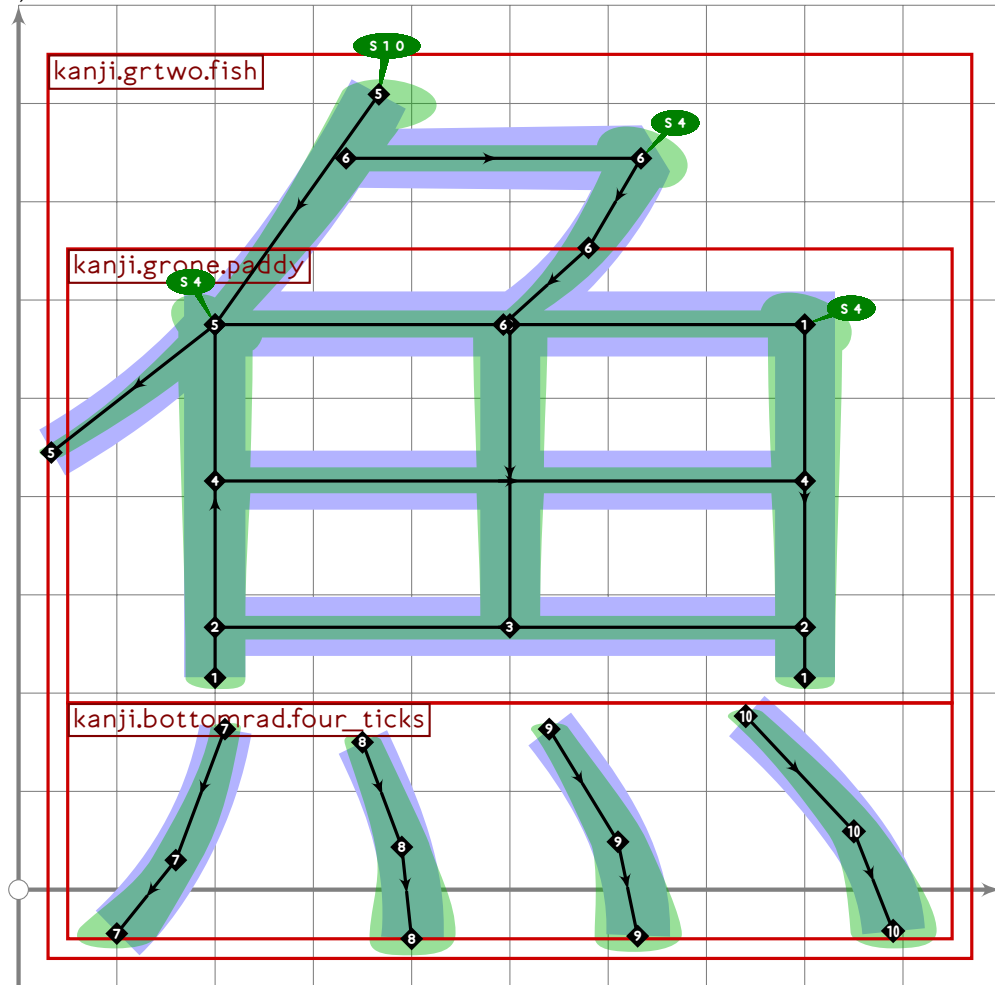
```

253
254 vardef kanji.grtwo.feather =
255   push_pbox_toexpand("kanji.grtwo.feather");
256   build_kanji.lr(480,-20)
257     (kanji.grtwo_helper.feather)
258     (kanji.grtwo_helper.feather);
259   expand_pbox;
260 enddef;
261
262 vardef kanji.grtwo_helper.feather =
263   push_pbox_toexpand("kanji.grtwo_helper.feather");
264   push_stroke((60,720)-(410,720),(1.6,1.6)-(1.6,1.6));
265   build_kanji.add_jtail(0);
266   replace_strokep(0)(oldp xscaled 2);
267   set_botip(0,1,1);
268   set_boserif(0,1,4);
269   push_stroke((200,580)..tension 1.2..(370,480)..(460,400),
270     (1,1)-(1.3,1.3)-(1.6,1.6));
271   push_stroke((670,330)..tension 1.2..(380,190)..(250,150),
272     (1,1)-(1.6,1.6)-(1.9,1.9));
273   expand_pbox;

```



274 endif;



275

276 vardef kanji.grtwo.fish =

277 push\_pbox\_toexpand("kanji.grtwo.fish");

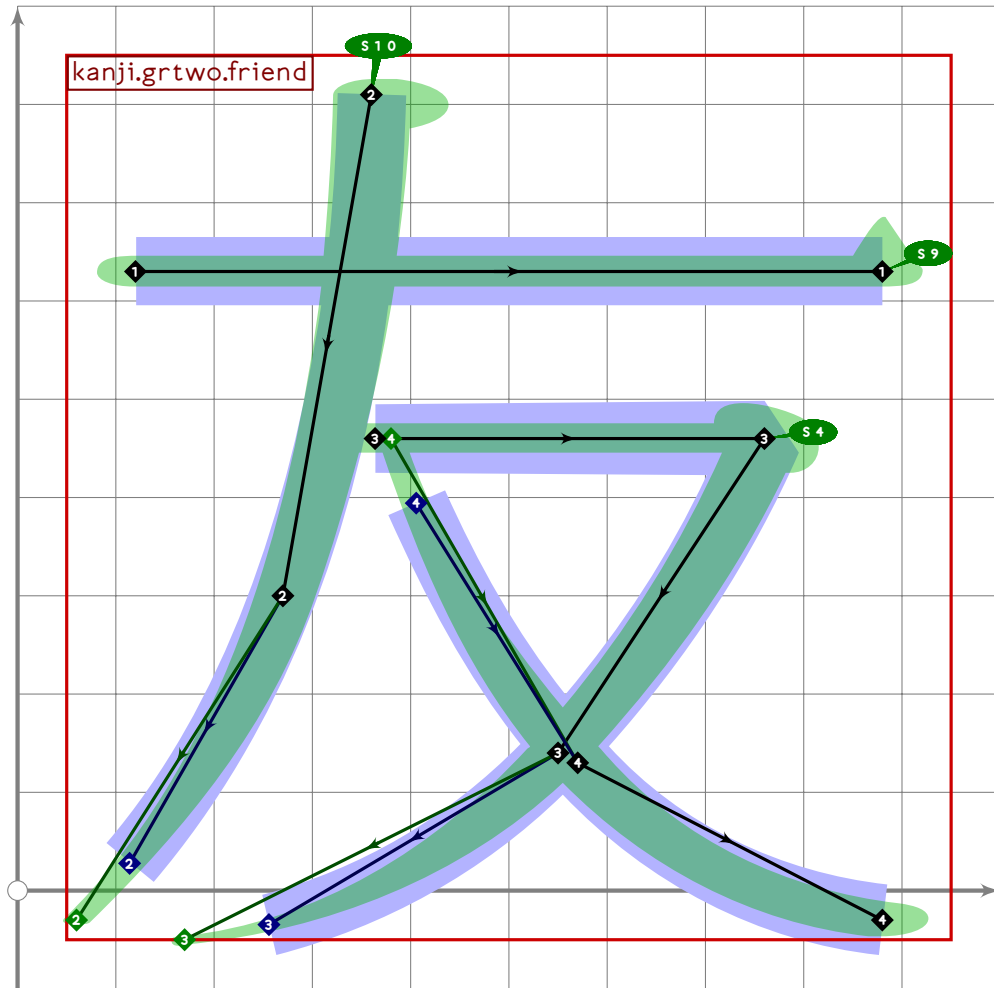
278 build\_kanji.level(build\_kanji.tb(190,0)

279 (build\_kanji.attach\_fishhook(0.7)(kanji.grone.paddy))

280 (kanji.bottomrad.four\_ticks));

281 expand\_pbox;

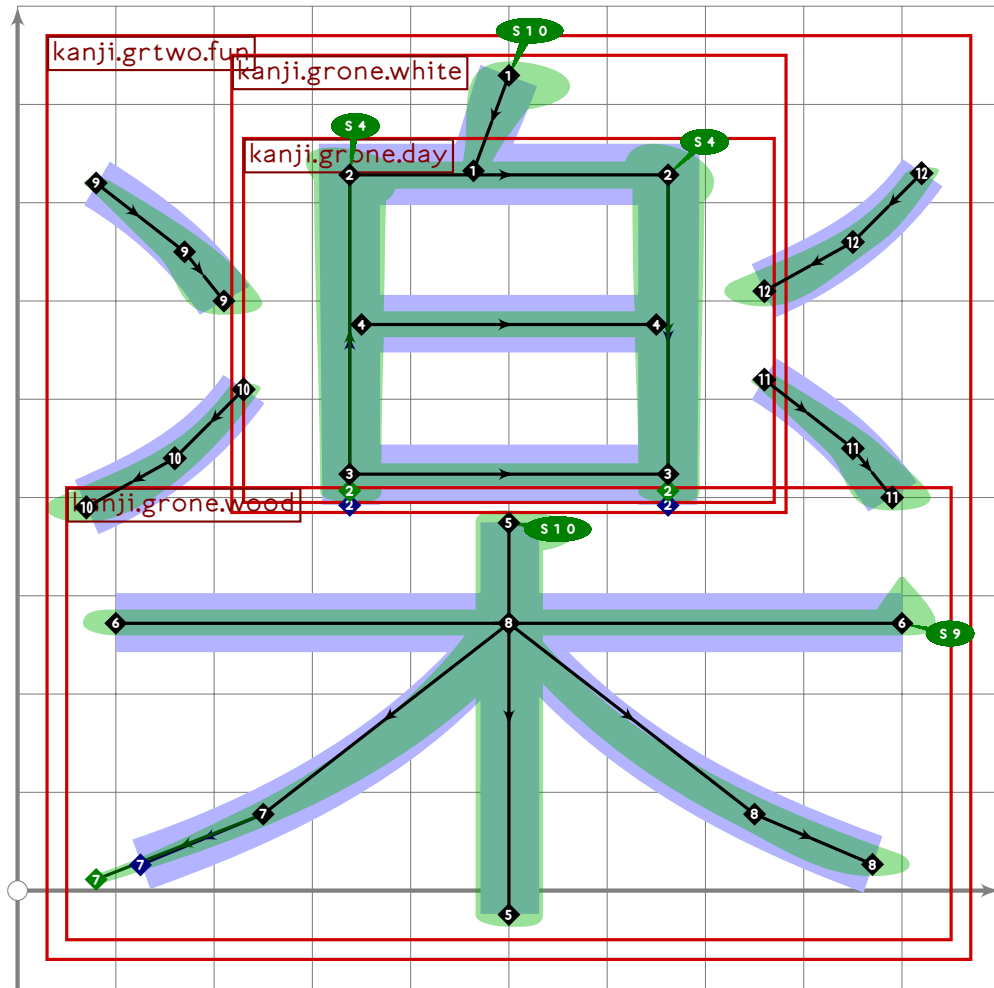
282 endif;



```

283
284 vardef kanji.grtwo.friend =
285   push_pbox_toexpand("kanji.grtwo.friend");
286   push_stroke((120,630)-(880,630),(1.6,1.6)-(1.6,1.6));
287   set_boserif(0,1,9);
288   push_stroke((360,810)..tension 1.2..(270,300)..(60,-30),
289     (1.6,1.6)-(14,14)-(0.9,0.9));
290   set_boserif(0,0,10);
291   push_stroke(
292     ((50,0)+(get_strokep(0) intersectionpoint ((0,460)-(1000,460))))-
293     (760,460)..tension 1.2..(550,140)..(170,-50),
294     (1.6,1.6)-(1.5,1.5)-(14,14)-(0.9,0.9));
295   set_botip(0,1,0);
296   set_boserif(0,1,4);
297   push_stroke((380,460)..tension 1.2..(570,130)..(880,-30),
298     (0.9,0.9)-(14,14)-(1.8,1.8));
299   expand_pbox;
300 enddef;

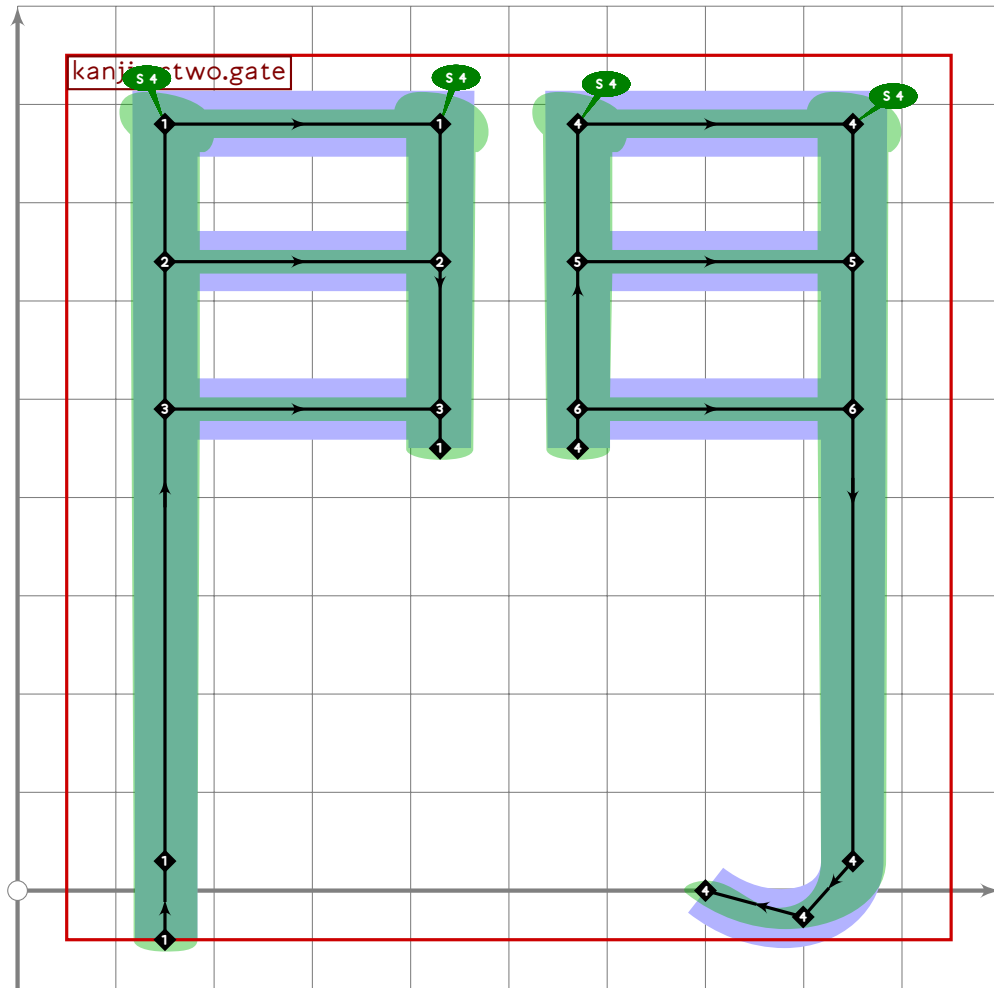
```



```

301
302 vardef kanji.grtwo.fun =
303   push_pbox_toexpand("kanji.grtwo.fun");
304   build_kanji.level(
305     build_kanji.tb(400,20)
306     (build_kanji.sscale(xscaled 0.6)(kanji.grone.white))
307     (kanji.grone.wood));
308   push_stroke((80,720)..tension 1.2..(170,650)..(210,600),
309     (1,1)-(1.5,1.5)-(1.8,1.8));
310   set_bosize(0,80);
311   push_stroke((230,510)..(160,440)..tension 1.2..(70,390),
312     (1,1,1)-(1.4,1.4)-(1.9,1.9));
313   set_bosize(0,80);
314   push_stroke(get_stroke(-1) shifted ((760,520)-point 0 of get_stroke(-1)),
315     get_stroke(-1));
316   set_bosize(0,80);
317   push_stroke(get_stroke(-1) shifted ((760,610)-point 2 of get_stroke(-1)),
318     get_stroke(-1));
319   set_bosize(0,80);
320   expand_pbox;
321 enddef;

```



```

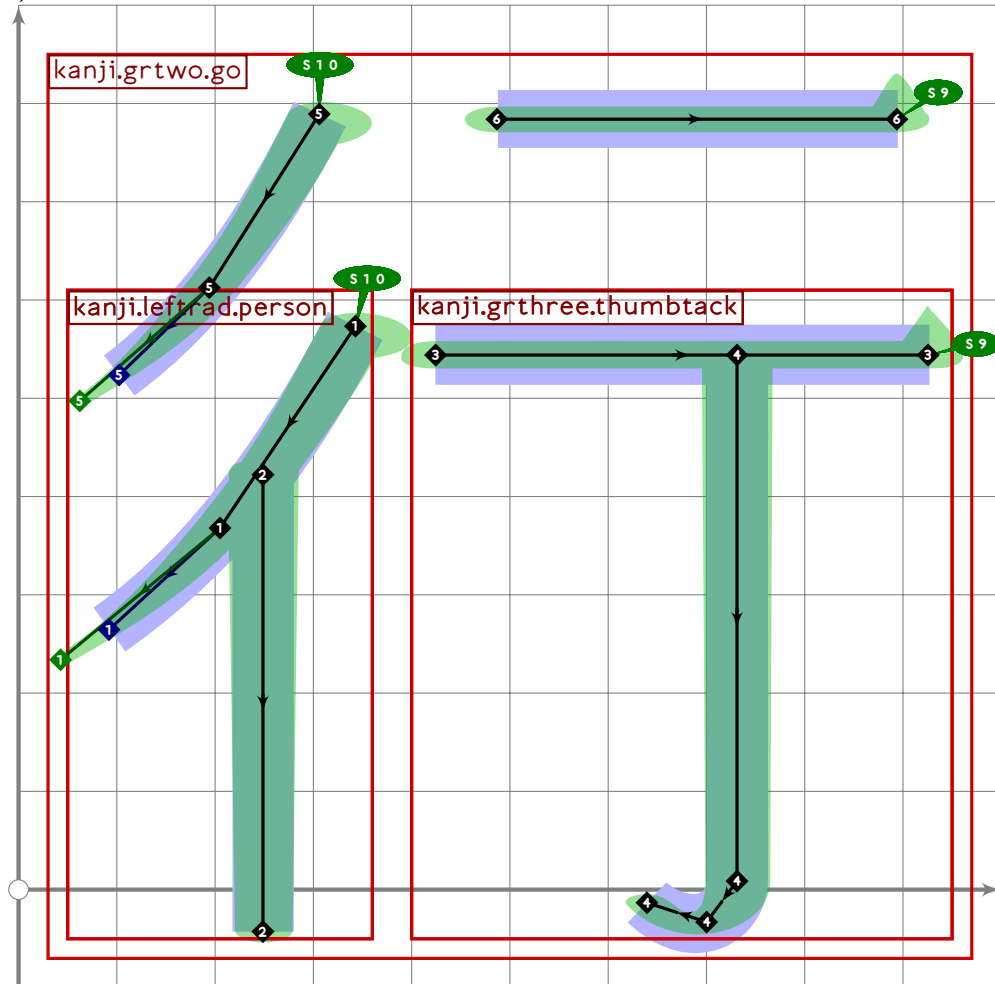
322
323 vardef kanji.grtwo.gate =
324   push_pbox_toexpand("kanji.grtwo.gate");
325   push_stroke((150,50)-(150,30)-(150,780)-(430,780)-(430,450),
326     (1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.5,1.5));
327   set_botip(0,2,1);
328   set_botip(0,3,1);
329   set_boserif(0,2,4);
330   set_boserif(0,3,4);
331   push_stroke((150,640)-(430,640),
332     (1.5,1.5)-(1.5,1.5));
333   push_stroke((150,490)-(430,490),
334     (1.5,1.5)-(1.5,1.5));
335   push_stroke((570,450)-(570,780)-(850,780),
336     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
337   build_kanji.add_jtail(0);
338   set_botip(0,1,1);
339   set_botip(0,2,1);
340   set_boserif(0,1,4);
341   set_boserif(0,2,4);
342   push_stroke((570,640)-(850,640),

```

```

343 (1.5,1.5)-(1.5,1.5);
344 push_stroke((570,490)-(850,490),
345 (1.5,1.5)-(1.5,1.5));
346 for i=-5 upto 0: set_bosize(i,90); endfor;
347 expand_pbox;
348 enddef;

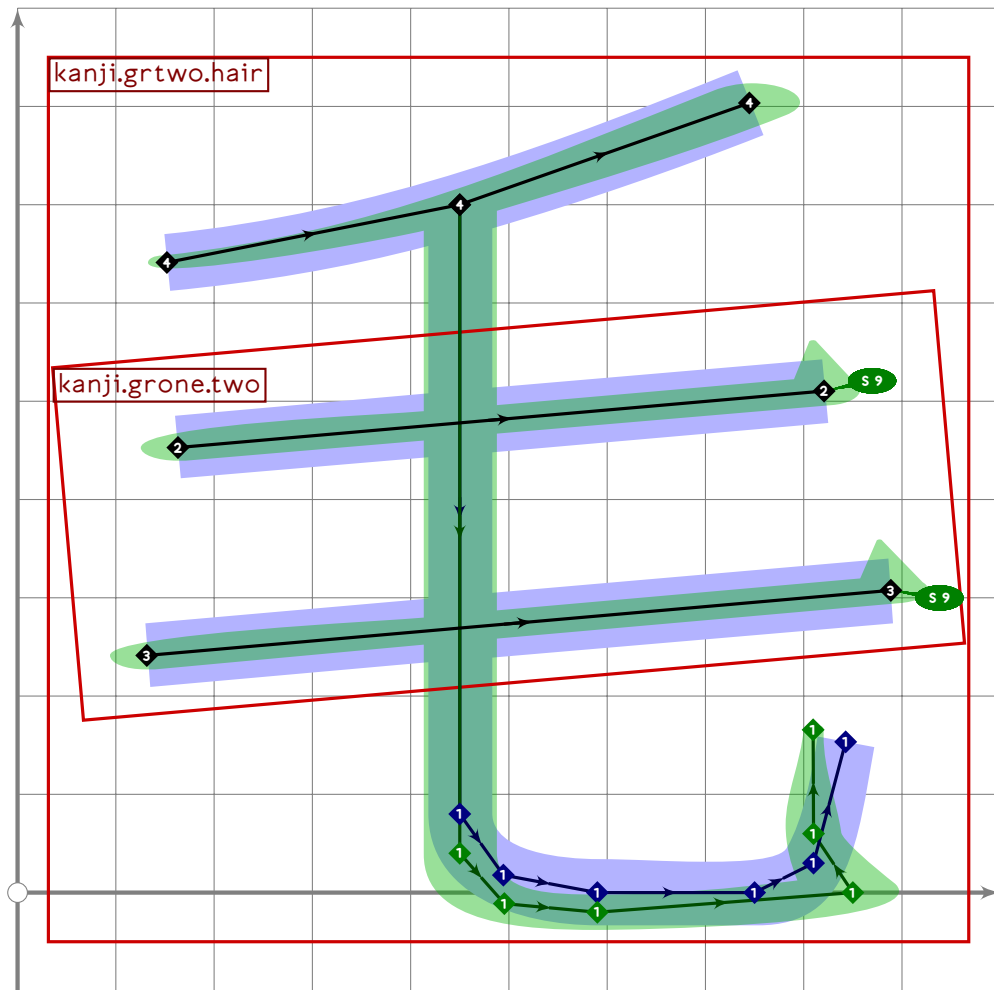
```



```

349
350 vardef kanji.grtwo.go =
351   push_pbox_toexpand("kanji.grtwo.go");
352   build_kanji.harmonic(240,0.86,50)
353     (build_kanji.level(build_kanji.lr(380,-40)
354       (kanji.leftrad.person)
355       (kanji.grthree.thumbtack)));
356   replace_stroke(-4)(oldp shifted (50,0));
357   expand_pbox;
358 enddef;

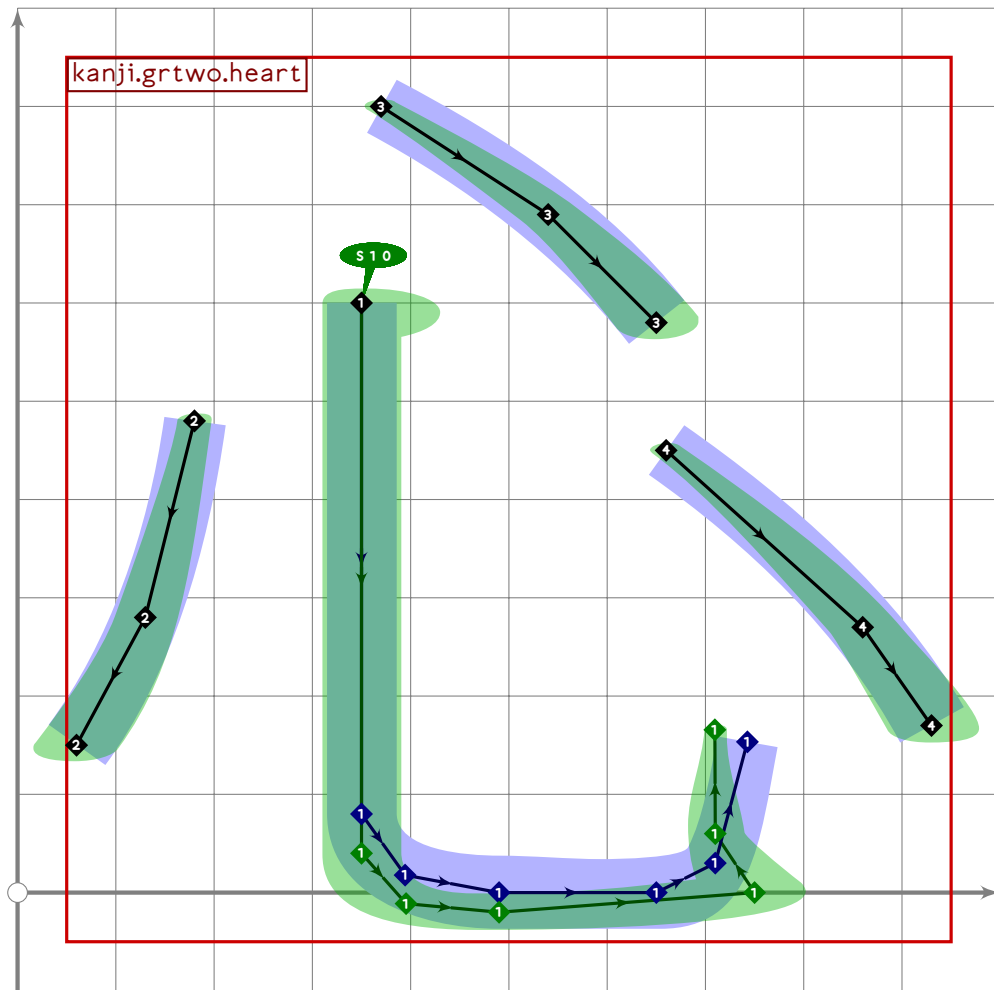
```



```

359
360 vardef kanji.grtwo.hair =
361   push_pbox_toexpand("kanji.grtwo.hair");
362   build_kanji.level(build_kanji.add_beret(
363     push_stroke((450,700),(1.6,1.6));
364     build_kanji.add_ltail(0);
365     build_kanji.sscale(yscaled 0.4 rotated 5)(kanji.grone.two)));
366   expand_pbox;
367 enddef;

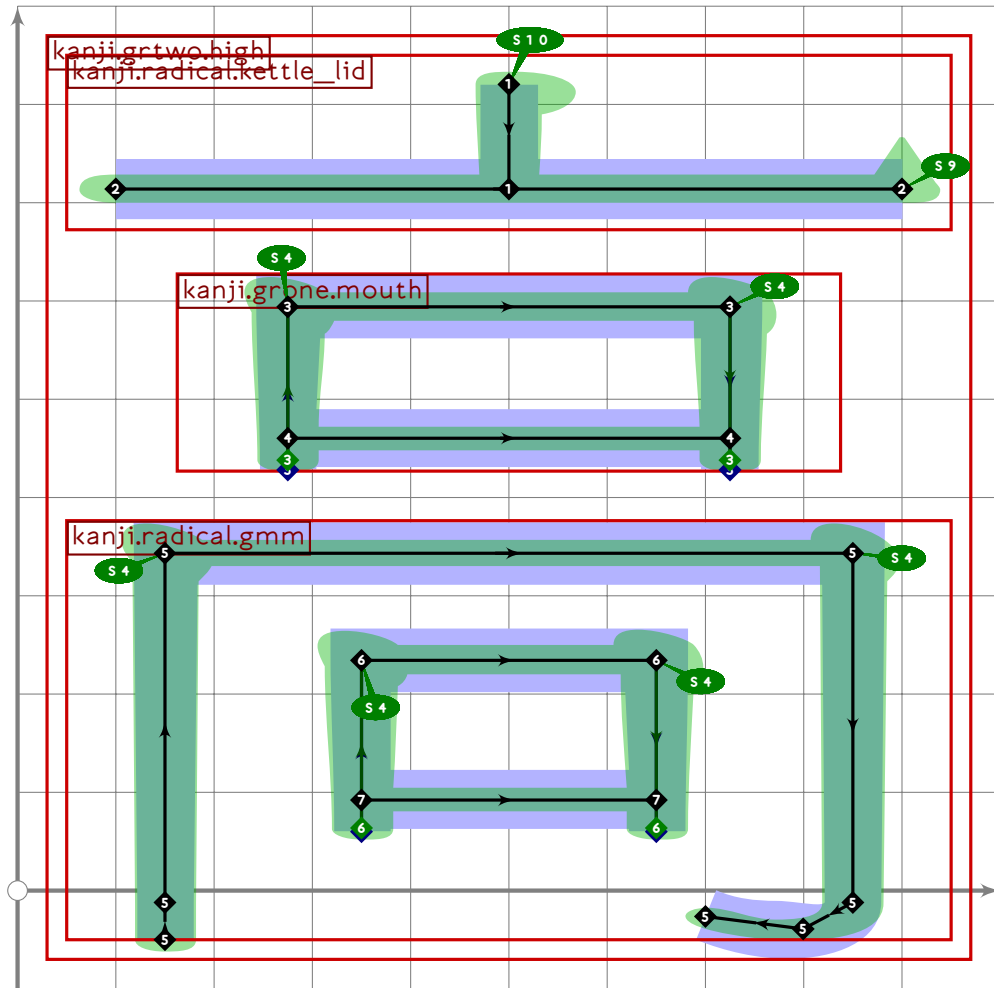
```



```

368
369 vardef kanji.grtwo.heart =
370   push_pbox_toexpand("kanji.grtwo.heart");
371   tsu_xform(identity shifted (-100,0))
372     (push_stroke((450,600),(1.6,1.6));
373       build_kanji.add_ltail(0));
374   set_boserif(0,0,10);
375   push_stroke((180,480)..tension 1.2..(130,280)..(60,150),
376     (1,1)-(1.4,1.4)-(1.7,1.7));
377   push_stroke((370,800)..tension 1.2..(540,690)..(650,580),
378     (1,1)-(1.4,1.4)-(1.7,1.7));
379   push_stroke((660,450)..tension 1.2..(860,270)..(930,170),
380     (1,1)-(1.5,1.5)-(1.8,1.8));
381   expand_pbox;
382 enddef;

```



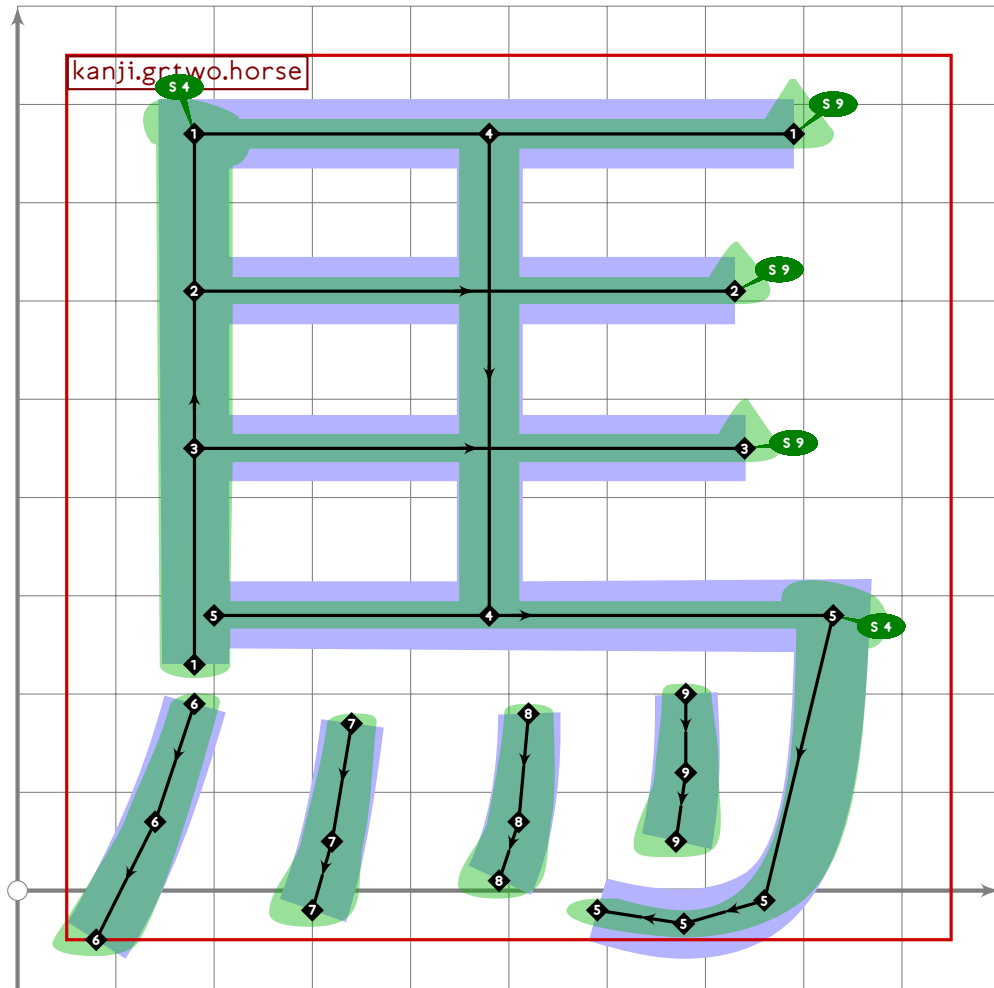
```

383
384 vardef kanji.grtwo.high =
385   push_pbox_toexpand("kanji.grtwo.high");
386   build_kanji.level(build_kanji.tb(650,-45)
387     (kanji.radical.kettle_lid)
388     (build_kanji.tb(550,-67)
389       (build_kanji.sscale(xscaled 0.75)(kanji.grone.mouth))
390       (kanji.radical.gmm;
391         build_kanji.box((350,550),(650,250));
392       ));
393   expand_pbox;
394 enddef;

```







```

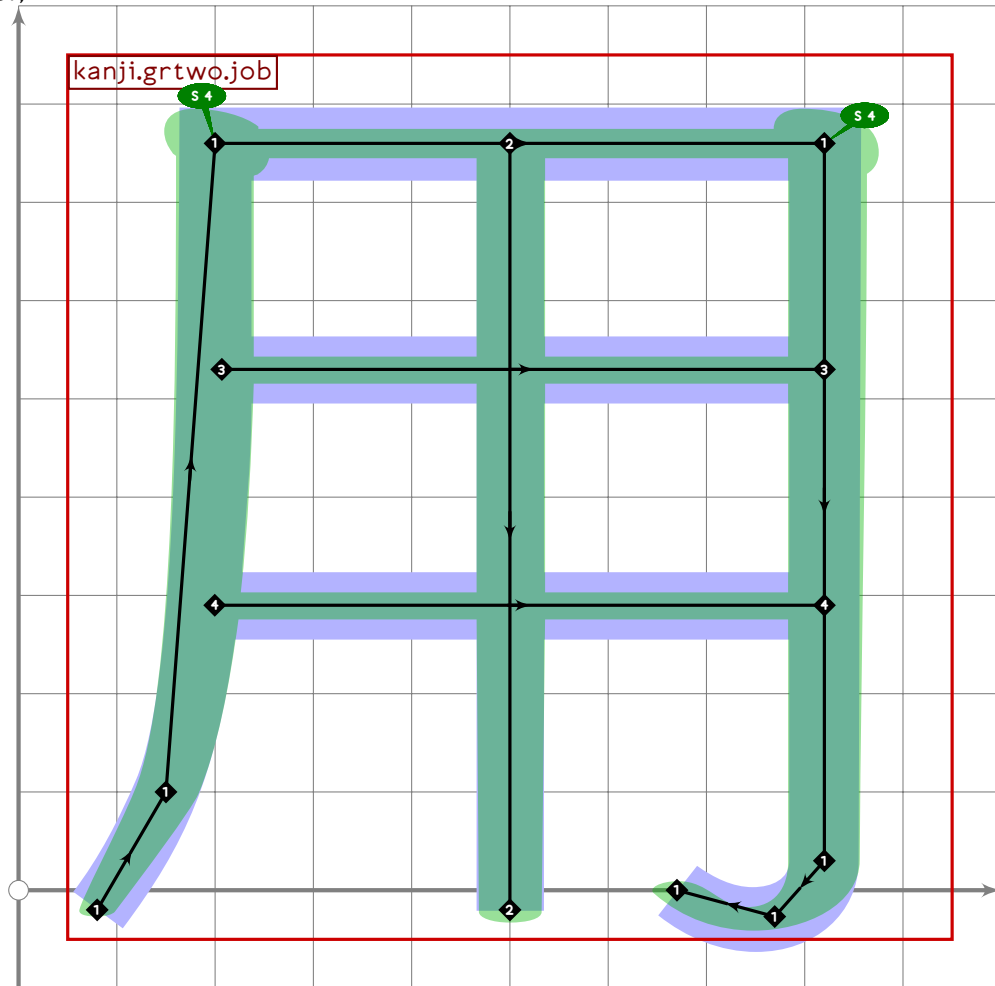
407
408 vardef kanji.grtwo.horse =
409   push_pbox_toexpand("kanji.grtwo.horse");
410   push_stroke((180,230)-(180,770)-(790,770),
411     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
412   set_boserif(0,1,4);
413   set_boserif(0,2,9);
414   set_botip(0,1,1);
415   push_stroke((180,610)-(730,610),
416     (1.5,1.5)-(1.5,1.5));
417   set_boserif(0,1,9);
418   push_stroke((180,450)-(740,450),
419     (1.5,1.5)-(1.5,1.5));
420   set_boserif(0,1,9);
421   push_stroke((480,770)-(480,280),(14,14)-(1.3,1.3));
422   push_stroke((200,280)-(830,280){dir 268}..(760,-10)..{curl 0.2}(590,-20),
423     (1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(1.5,1.5)-(14,14)-(1.2,1.2));
424   replace_stroked(0)(insert_nodes(oldp)((length oldp)-0.5));
425   set_boserif(0,1,4);
426   set_botip(0,1,1);
427   push_stroke((180,190)..tension 1.2..(140,70)..(80,-50),

```

```

428 (1,2,1,2)-(1,4,1,4)-(1,7,1,7));
429 push_stroke((340,170)..tension 1.2..(320,50)..(300,-20),
430 (1,2,1,2)-(1,4,1,4)-(1,7,1,7));
431 push_stroke((520,180)..tension 1.2..(510,70)..(490,10),
432 (1,2,1,2)-(1,4,1,4)-(1,7,1,7));
433 push_stroke((680,200)..tension 1.2..(680,120)..(670,50),
434 (1,2,1,2)-(1,4,1,4)-(1,7,1,7));
435 expand_pbox;
436 enddef;

```



```

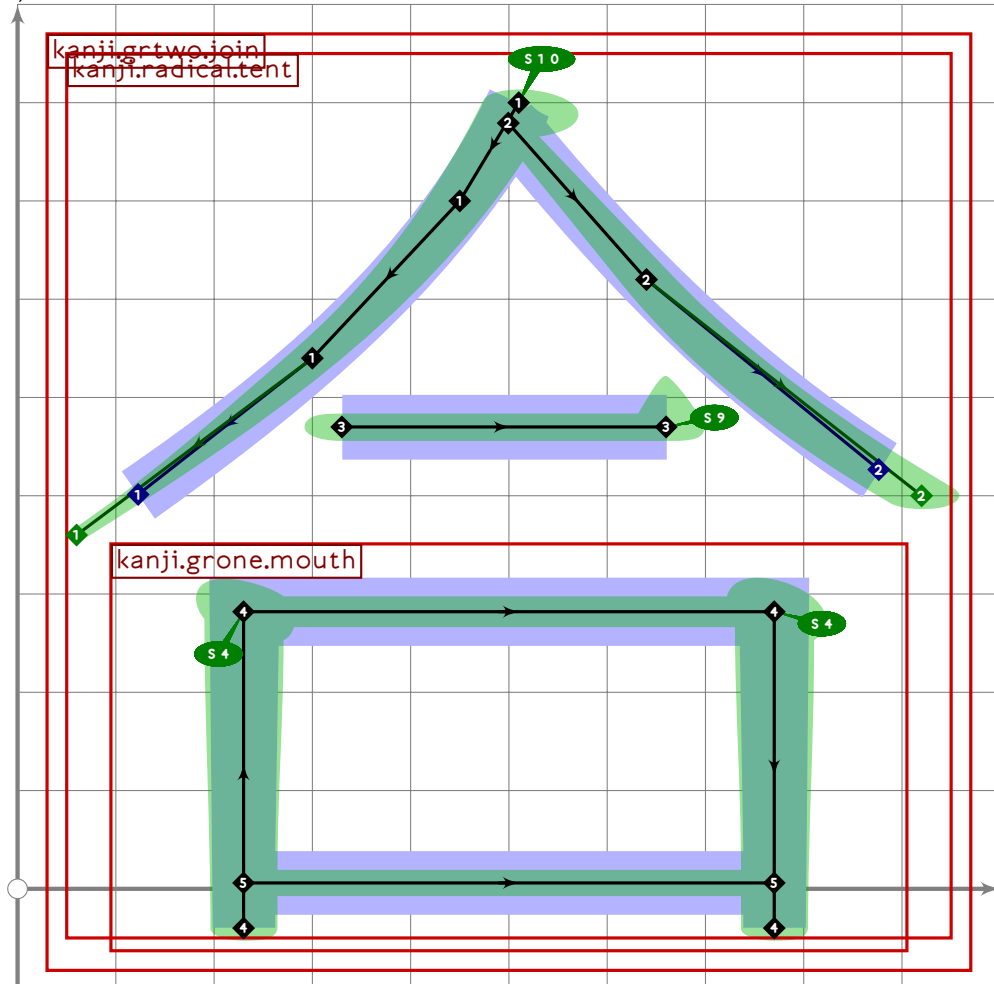
437
438 vardef kanji.grtwo.job =
439   push_pbox_toexpand("kanji.grtwo.job");
440   push_stroke((80,-20)..(150,100)..{up}(200,760){right}-(820,760),
441 (1,1)-(1,4,1,4)-(1,6,1,6)-(1,6,1,6));
442   build_kanji.add_jtail(0);
443   set_botip(0,2,0,8);
444   set_botip(0,3,1);
445   set_boserif(0,2,4);
446   set_boserif(0,3,4);
447   push_stroke((500,760)-(500,-20),(1,5,1,5)-(1,4,1,4));
448   push_stroke(

```

```

449 (get_stroke(-1) intersectionpoint ((0,530)-(1000,530)))-(820,530),
450 (1.5,1.5)-(1.5,1.5));
451 push_stroke(
452 (get_stroke(-2) intersectionpoint ((0,290)-(1000,290)))-(820,290),
453 (1.5,1.5)-(1.5,1.5));
454 expand_pbox;
455 enddef;

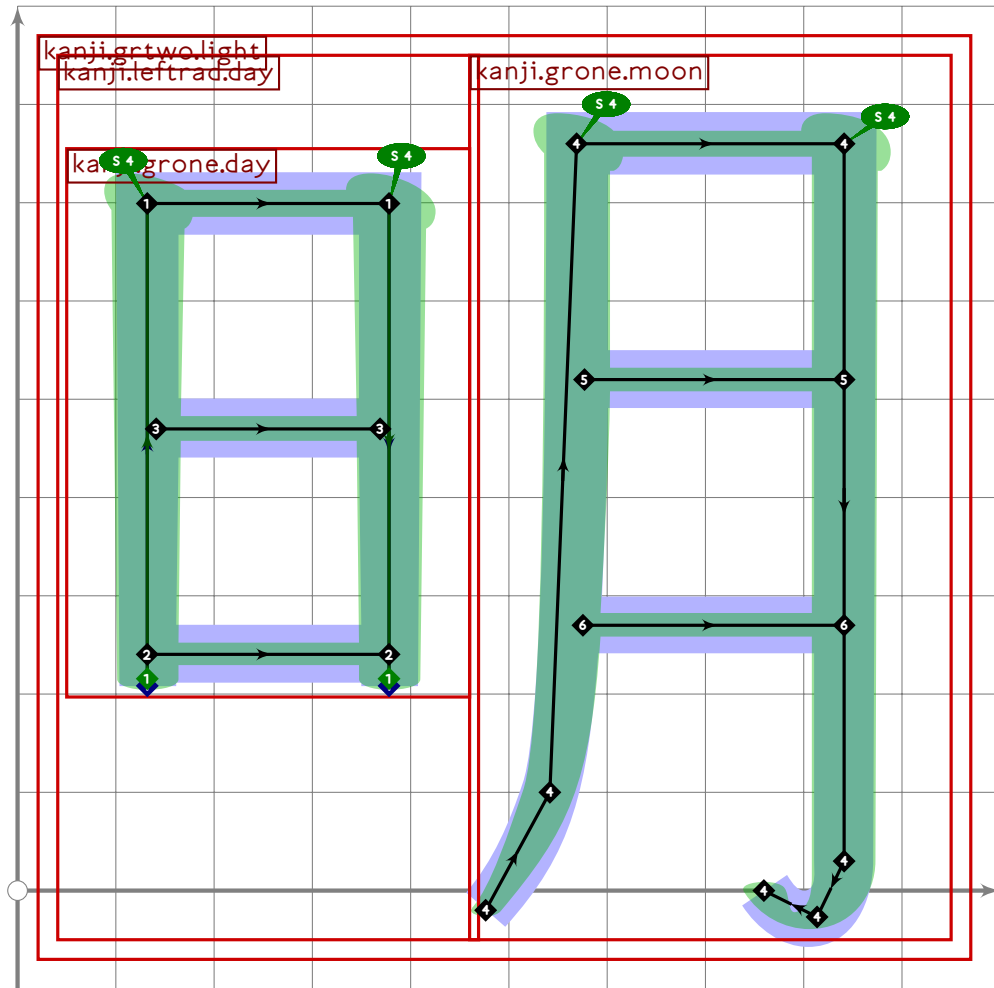
```



```

456
457 vardef kanji.grtwo.join =
458   push_pbox_toexpand("kanji.grtwo.join");
459   build_kanji.level(
460     kanji.radical.tent;
461     tsu_xform(identity shifted (-500,0) xyscaled (0.9,0.46) shifted (500,-40))
462     (kanji.grone.mouth);
463   );
464   expand_pbox;
465 enddef;

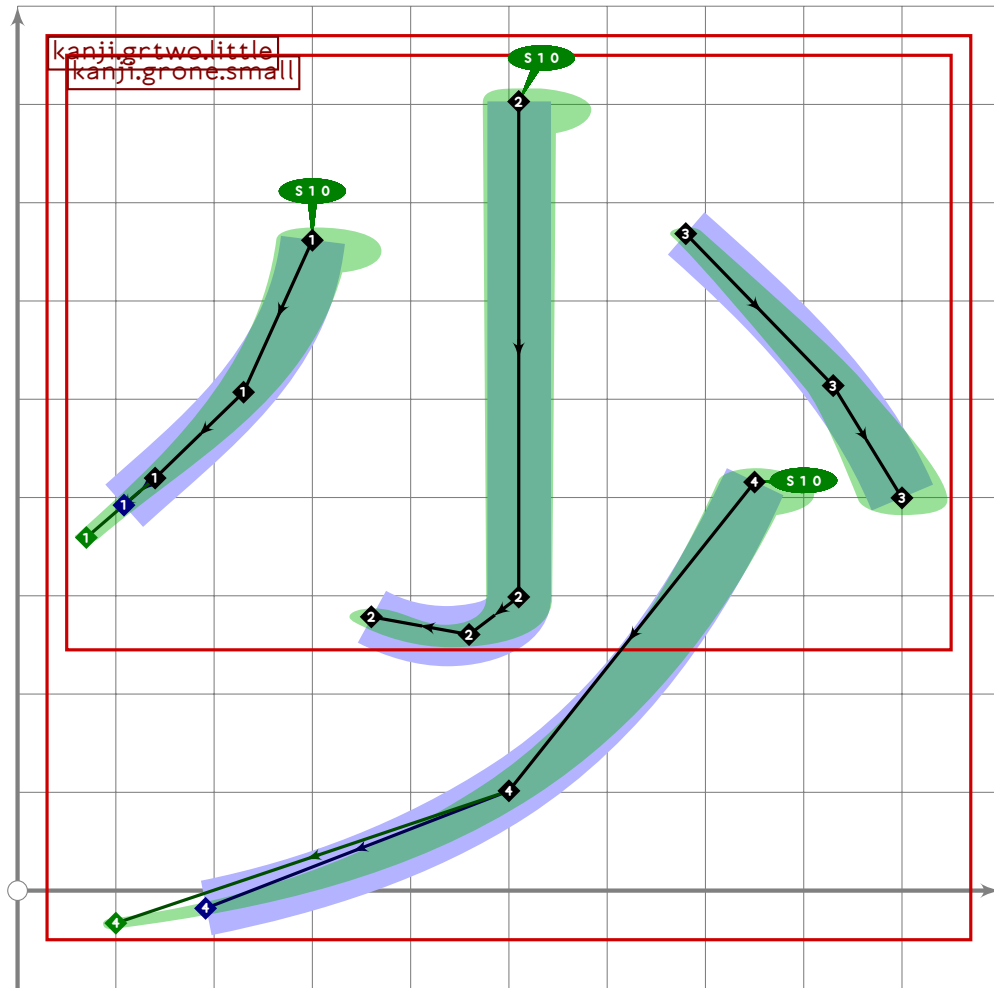
```



```

466
467 vardef kanji.grtwo.light =
468   push_pbox_toexpand("kanji.grtwo.light");
469   build_kanji.level(build_kanji.lr(460,0)
470     (kanji.leftrad.day)
471     (kanji.grone.moon));
472   expand_pbox;
473 enddef;

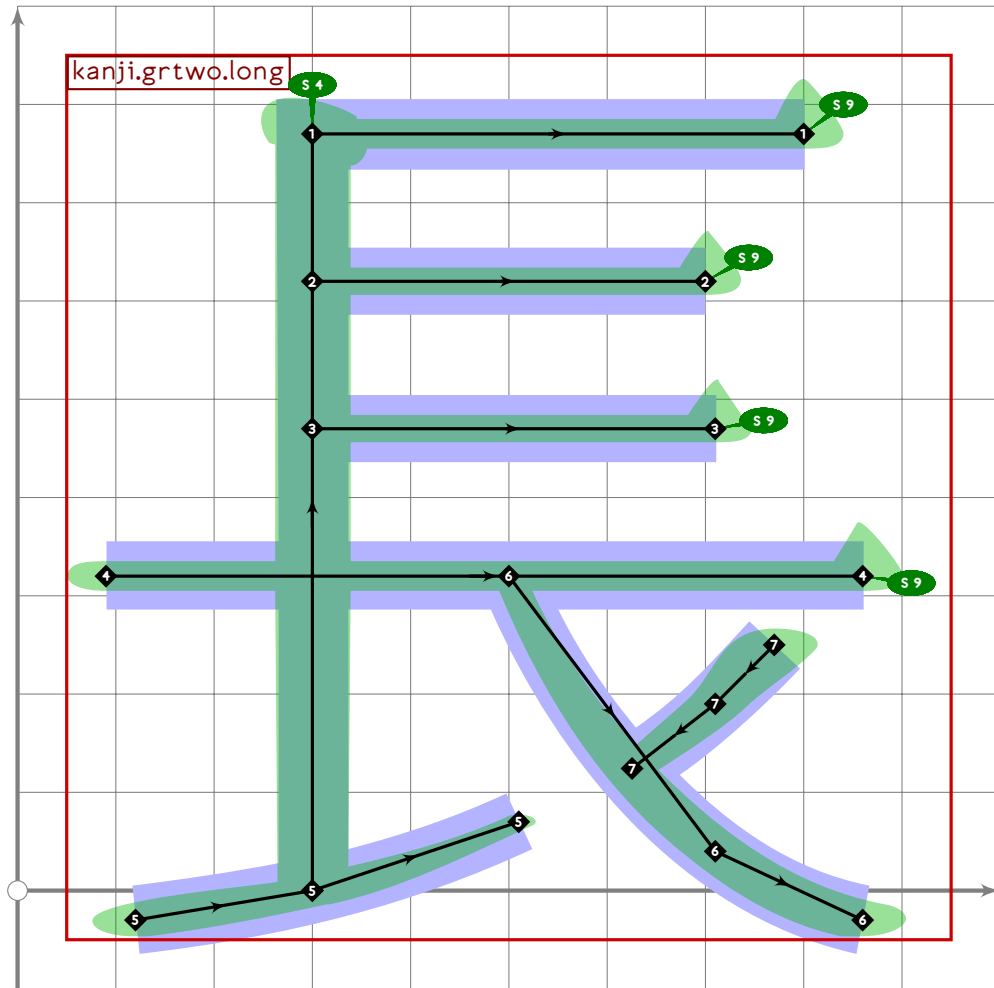
```



```

474
475 vardef kanji.grtwo.little =
476   push_pbox_toexpand("kanji.grtwo.little");
477   build_kanji.level(build_kanji.tb(350,210)
478     (kanji.grone.small)
479     (
480       push_stroke((750,780){curl 0.1}..(500,220)..(100,-20),
481         (1.6,1.6)-(1.4,1.4)-(0.9,0.9));
482       set_boserif(0,0,10);
483     ));
484   expand_pbox;
485 enddef;

```



```

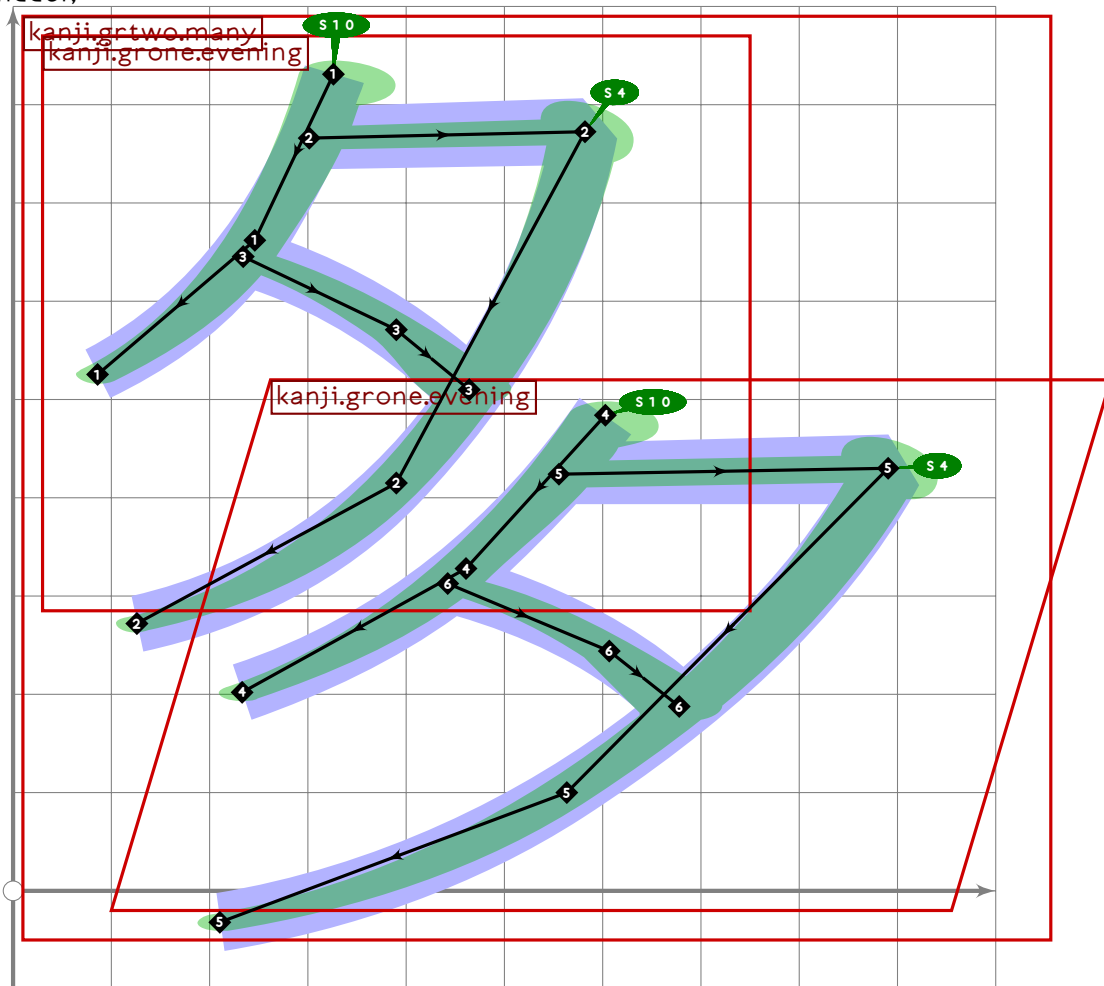
486
487 vardef kanji.grtwo.long =
488   push_pbox_toexpand("kanji.grtwo.long");
489   push_stroke((300,0)-(300,770)-(800,770),
490     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
491   set_boserif(0,1,4);
492   set_boserif(0,2,9);
493   set_botip(0,1,1);
494   push_stroke((300,620)-(700,620),(1.5,1.5)-(1.5,1.5));
495   set_boserif(0,1,9);
496   push_stroke((300,470)-(710,470),(1.5,1.5)-(1.5,1.5));
497   set_boserif(0,1,9);
498   push_stroke((90,320)-(860,320),(1.6,1.6)-(1.6,1.6));
499   set_boserif(0,1,9);
500   push_stroke((120,-30)..tension 1.2..(300,0)..(510,70),
501     (1.7,1.7)-(1.5,1.5)-(1,1));
502   push_stroke((500,320)..tension 1.2..(710,40)..(860,-30),
503     (1,1)-(1.4,1.4)-(1.7,1.7));
504   push_stroke((770,250)..tension 1.2..(710,190)..
505     (point 0.65 of get_strokep(0)),
506     (1.7,1.7)-(1.4,1.4)-(1.2,1.2));

```

```

507 expand_pbox;
508 enddef;

```

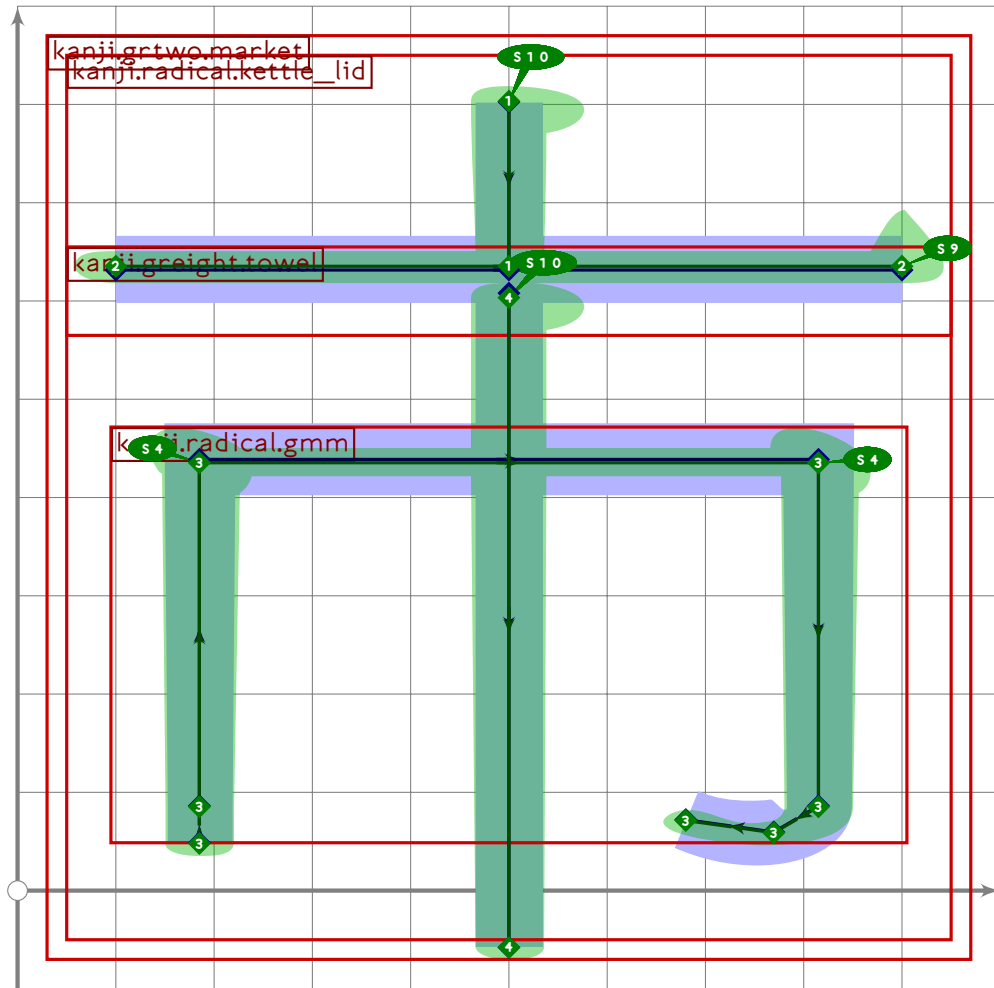


```

509
510 vardef kanji.grtwo.many =
511   push_pbox_toexpand("kanji.grtwo.many");
512   tsu_xform(identity shifted (-50,-850) xyscaled (0.8,0.65) shifted (30,870))
513     (kanji.grone.evening);
514   tsu_xform(identity shifted (-50,50)
515     xyscaled (0.95,0.6) slanted 0.3 shifted (100,-20))
516     (kanji.grone.evening);
517   expand_pbox;
518 enddef;

```

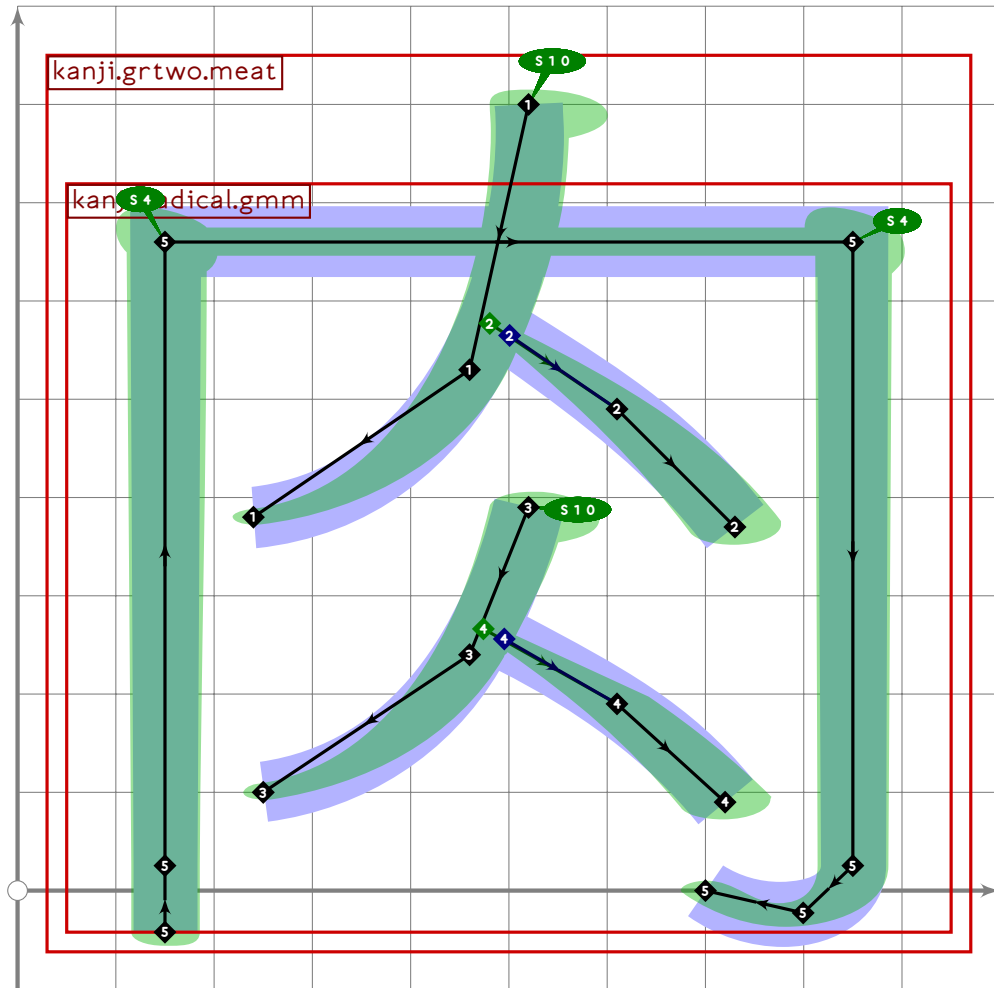




```

519
520 vardef kanji.grtwo.market =
521   push_pbox_toexpand("kanji.grtwo.market");
522   build_kanji.level(build_kanji.tb(610,90-10*mincho)
523     (kanji.radical.kettle_lid)
524     (kanji.greight.towel));
525   expand_pbox;
526 enddef;

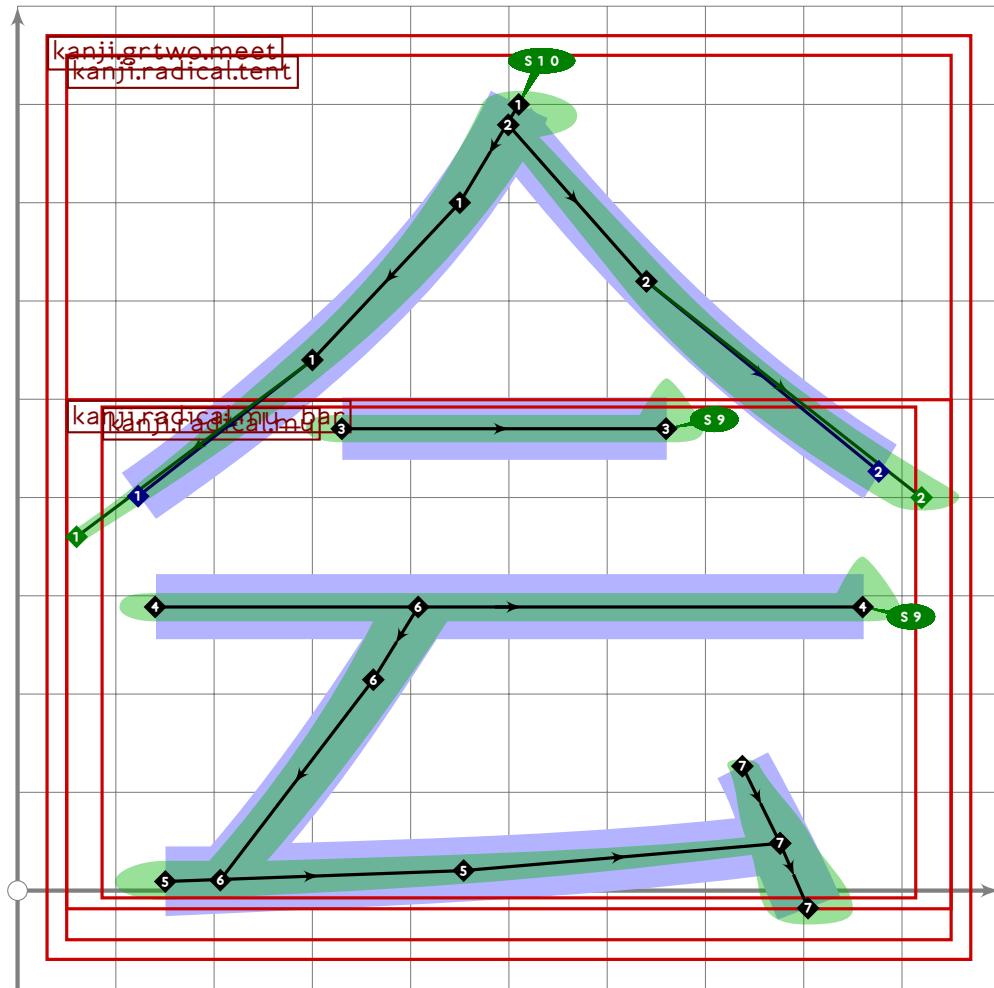
```



```

527
528 vardef kanji.grtwo.meat =
529   push_pbox_toexpand("kanji.grtwo.meat");
530   push_stroke((520,800)..tension 1.2..(460,530)..(240,380),
531     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
532   set_boserif(0,0,10);
533   push_stroke((point 0.8 of get_stroke(0))..tension 1.2..(610,490)..(730,370),
534     (0.9,0.9)-(1.5,1.5)-(1.8,1.8));
535   push_stroke((520,390)..tension 1.2..(460,240)..(250,100),
536     (1.6,1.6)-(1.5,1.5)-(1.1,1.1));
537   set_boserif(0,0,10);
538   push_stroke((point 0.8 of get_stroke(0))..tension 1.2..(610,190)..(720,90),
539     (0.9,0.9)-(1.5,1.5)-(1.8,1.8));
540   tsu_xform(identity yscaled (660/780))(kanji.radical.gmm);
541   expand_pbox;
542 enddef;

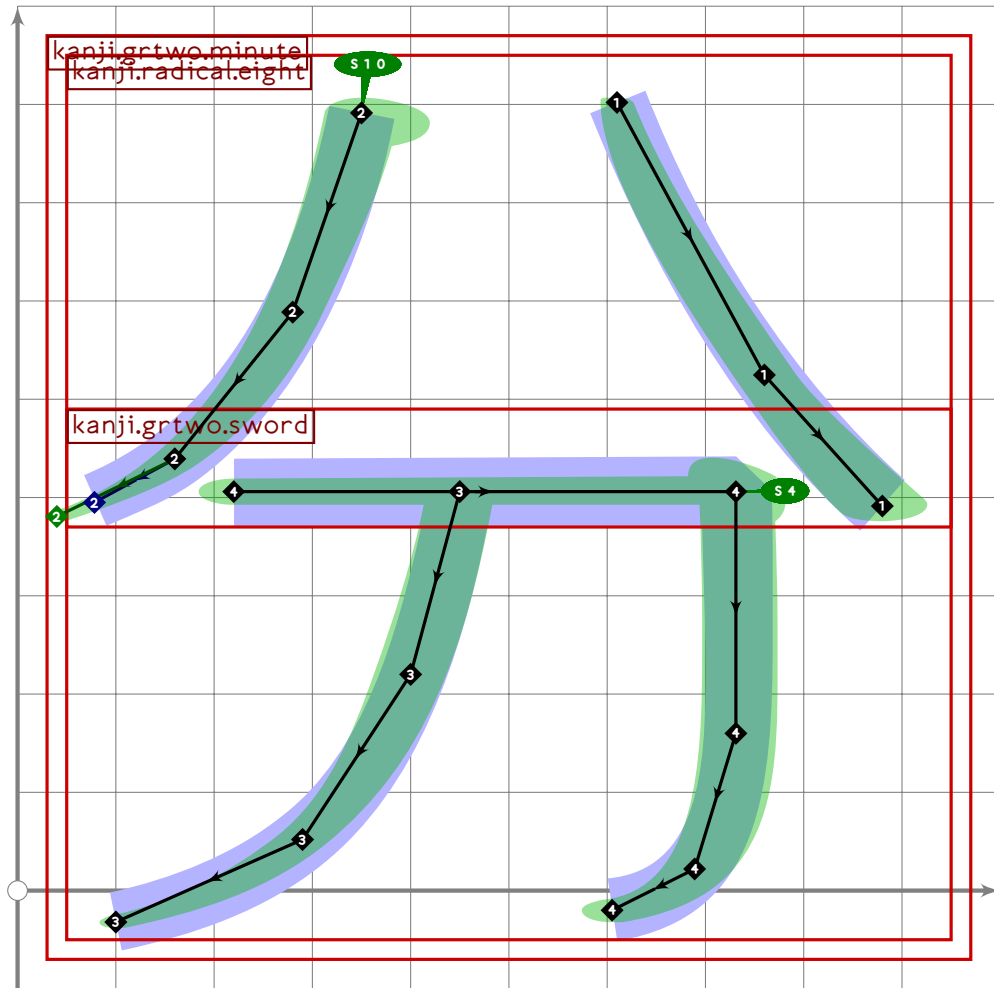
```



```

543
544 vardef kanji.grtwo.meet =
545   push_pbox_toexpand("kanji.grtwo.meet");
546   build_kanji.level(
547     kanji.radical.tent;
548     tsu_xform(identity yscaled 0.37)(kanji.radical.mu_bar);
549   );
550   expand_pbox;
551 enddef;

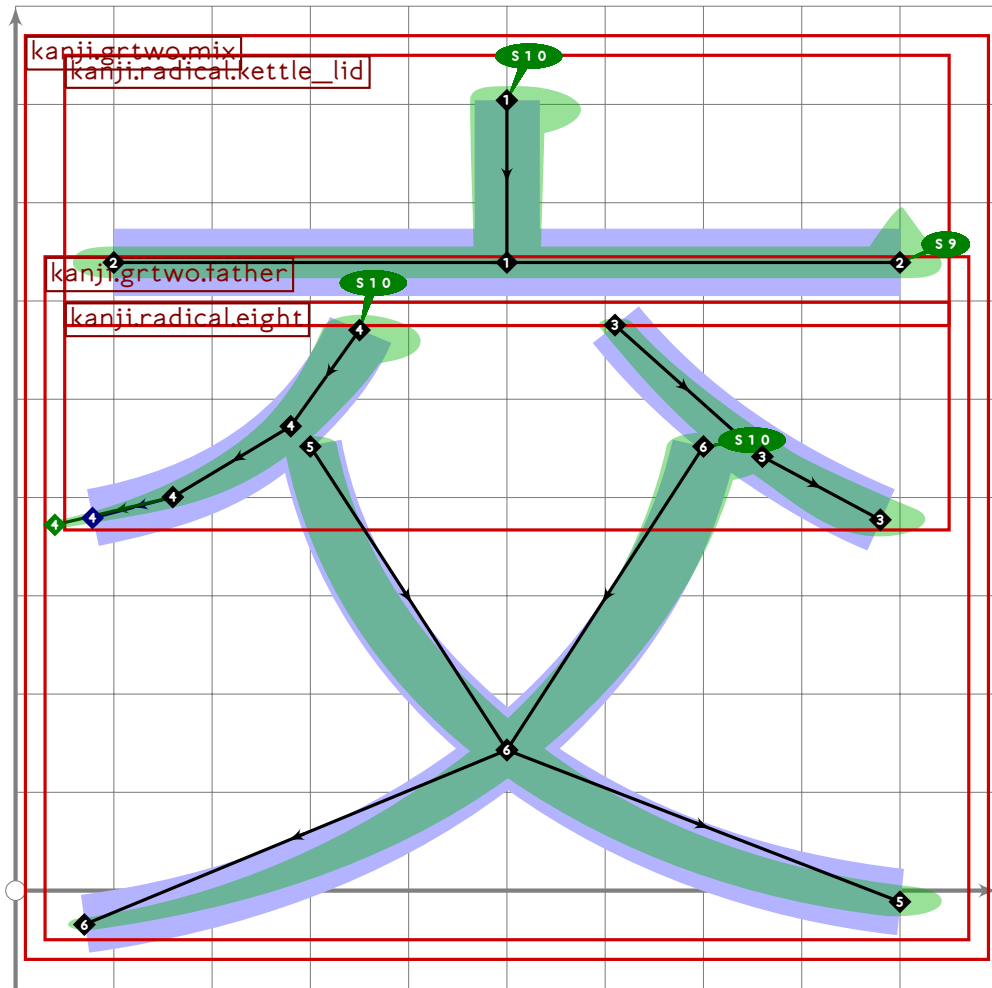
```



```

552
553 vardef kanji.grtwo.minute =
554   push_pbox_toexpand("kanji.grtwo.minute");
555   build_kanji.level(build_kanji.tb(430,120)
556     (kanji.radical.eight)
557     (kanji.grtwo.sword;
558       replace_strokep(0)(oldp shifted (-500,0) xscaled 0.7 shifted (500,0))));
559   expand_pbox;
560 enddef;

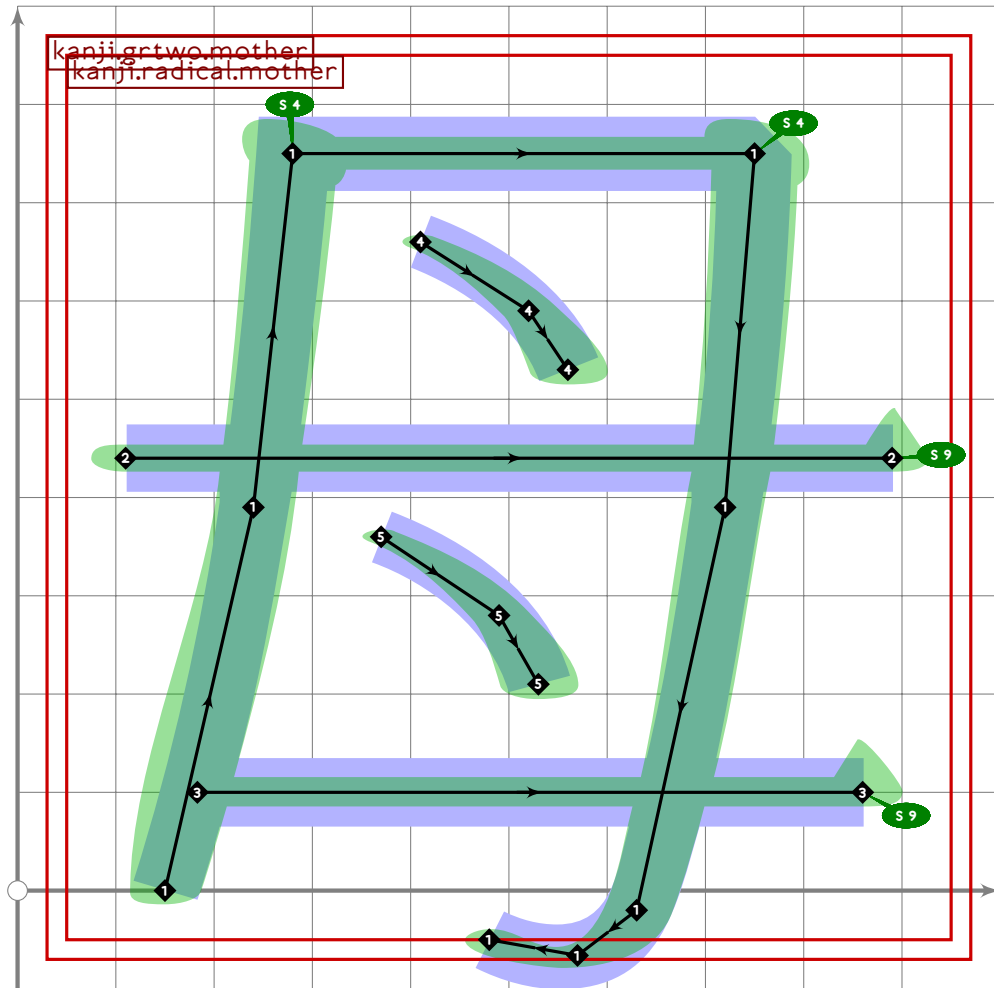
```



```

561
562 vardef kanji.grtwo.mix =
563   push_pbox_toexpand("kanji.grtwo.mix");
564   build_kanji.level(build_kanji.tb(610,70)
565     (kanji.radical.kettle_lid)
566     (kanji.grtwo.father));
567   expand_pbox;
568 enddef;

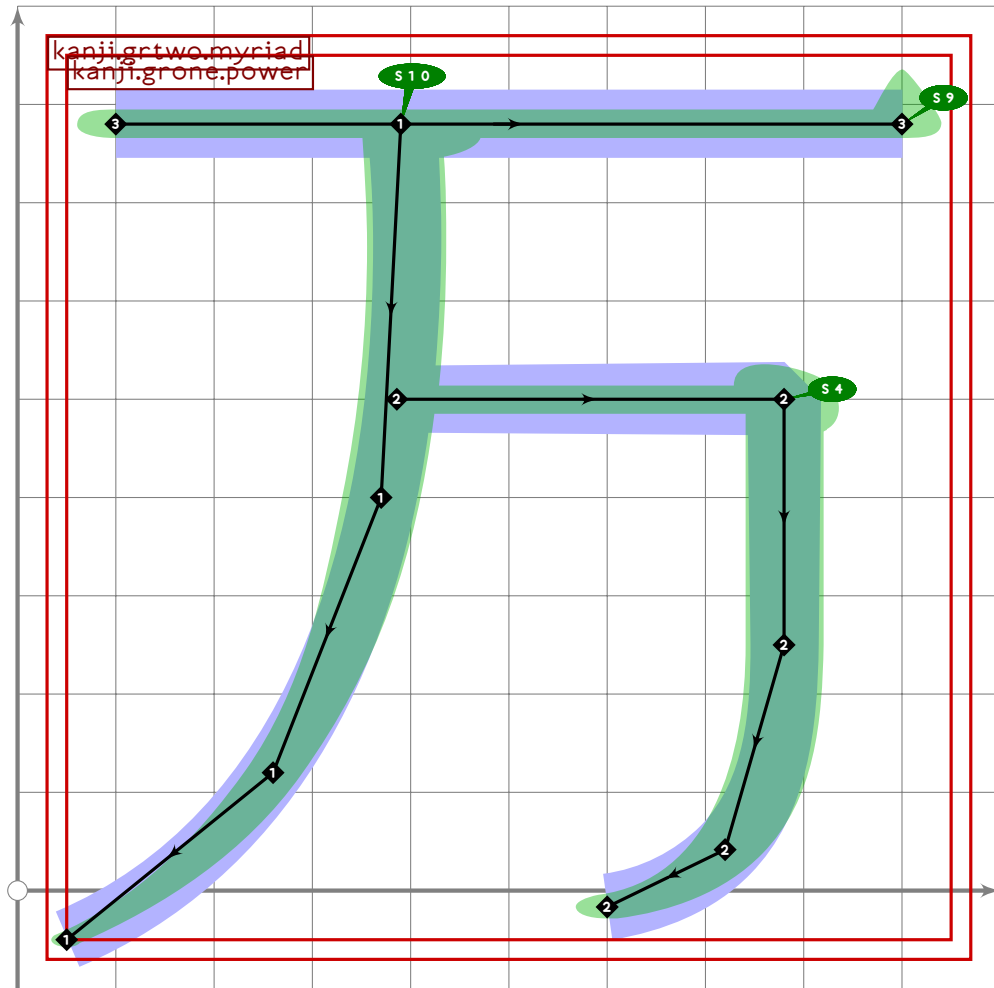
```



```

569
570 vardef kanji.grtwo.mother =
571   push_pbox_toexpand("kanji.grtwo.mother");
572   kanji.radical.mother;
573   push_stroke((410,660)..tension 1.2..(520,590)..(560,530),
574     (1,1,1)-(14,14)-(17,17));
575   set_bosize(0,90);
576   push_stroke((370,360)..tension 1.2..(490,280)..(530,210),
577     (1,1,1)-(14,14)-(17,17));
578   set_bosize(0,90);
579   expand_pbox;
580 enddef;

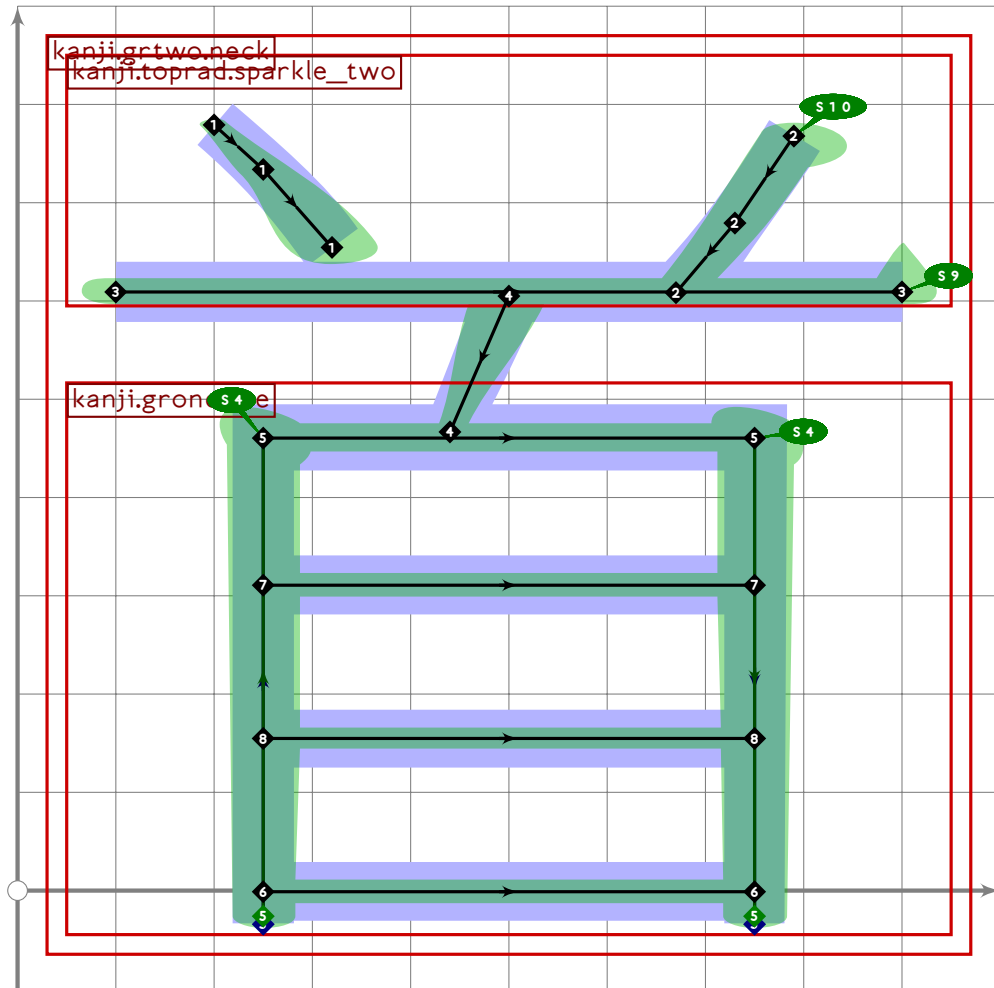
```



```

581
582 vardef kanji.grtwo.myriad =
583   push_pbox_toexpand("kanji.grtwo.myriad");
584   kanji.grone.power;
585   set_boserif(0,0,whatever);
586   replace_stroke(0)(oldp yscaled (500/600) shifted (-50,0));
587   replace_stroke(0)(
588     subpath (xpart (oldp intersectiontimes get_stroke(-1)),infinity) of oldp);
589   push_stroke((100,780)-(900,780),(1.6,1.6)-(1.6,1.6));
590   set_boserif(0,1,9);
591   expand_pbox;
592 enddef;

```

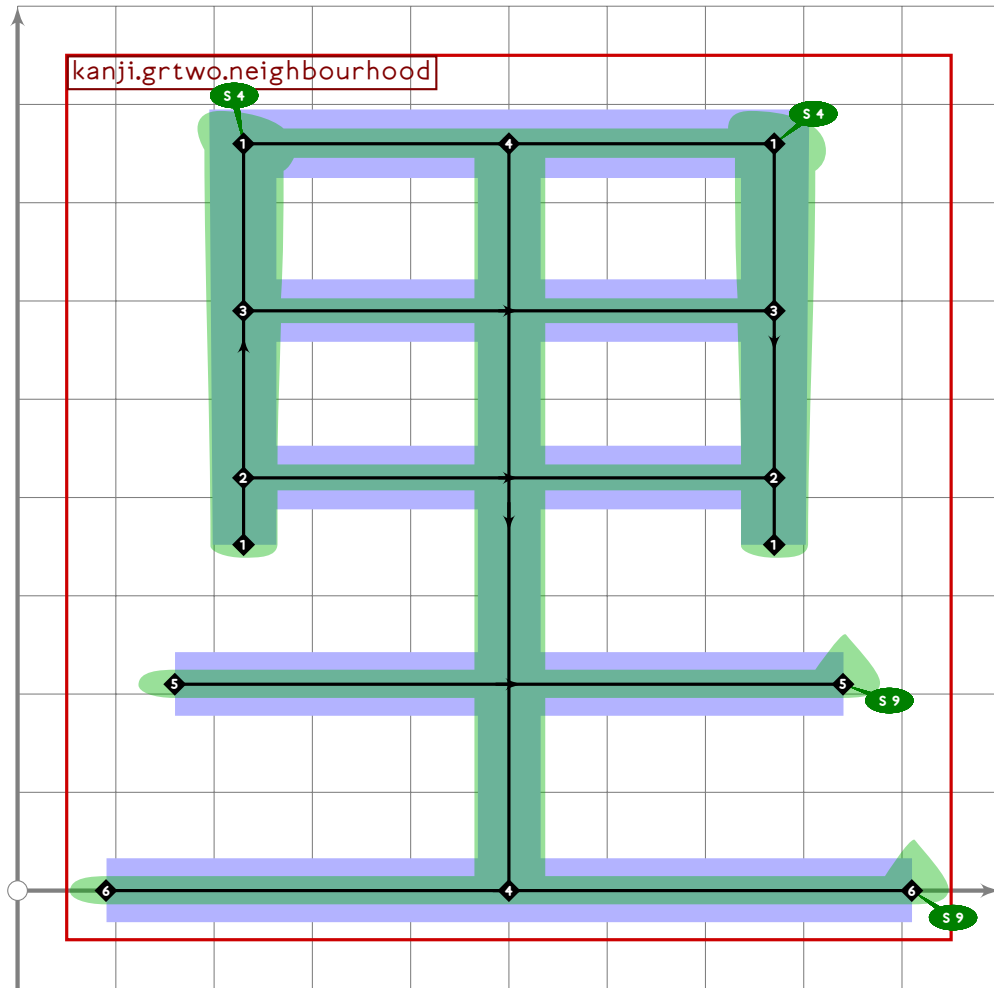


```

593
594 vardef kanji.grtwo.neck =
595   push_pbox_toexpand("kanji.grtwo.neck");
596   build_kanji.level(build_kanji.tb(600,10)
597     (kanji.toprad.sparkle_two;
598       replace_strokep(0)(oldp shifted (-point 0 of oldp)
599         yscaled 1.25 shifted (point 0 of oldp) shifted (0,-60));
600       push_stroke((100,0)-(900,0),(1.6,1.6)-(1.6,1.6));
601       set_boserif(0,19))
602     (push_stroke((500,850)-(440,660),(1.7,1.7)-(1,1));
603       tsu_xform(identity yscaled (660/770))(kanji.grone.eyee)));
604   expand_pbox;
605 enddef;

```

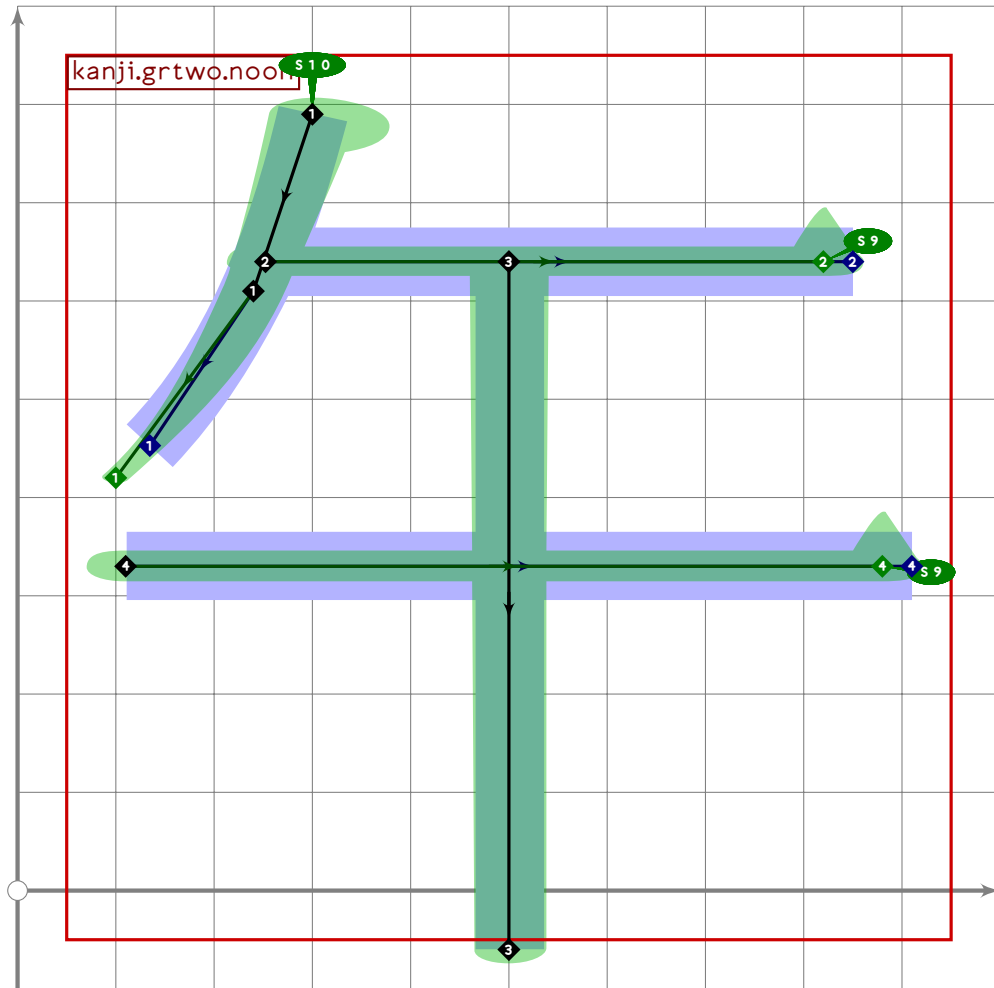




```

606
607 vardef kanji.grtwo.neighbourhood =
608   push_pbox_toexpand("kanji.grtwo.neighbourhood");
609   build_kanji.box((230,760),(770,420));
610   push_stroke((230,590)-(770,590),(1.5,1.5)-(1.5,1.5));
611   push_stroke((500,760)-(500,0),(1.6,1.6)-(1.5,1.5));
612   push_stroke((160,210)-(840,210),(1.6,1.6)-(1.6,1.6));
613   set_boserif(0,1,9);
614   push_stroke((90,0)-(910,0),(1.6,1.6)-(1.6,1.6));
615   set_boserif(0,1,9);
616   for i=-6 upto 0: set_bosize(i,93); endfor;
617   expand_pbox;
618 enddef;

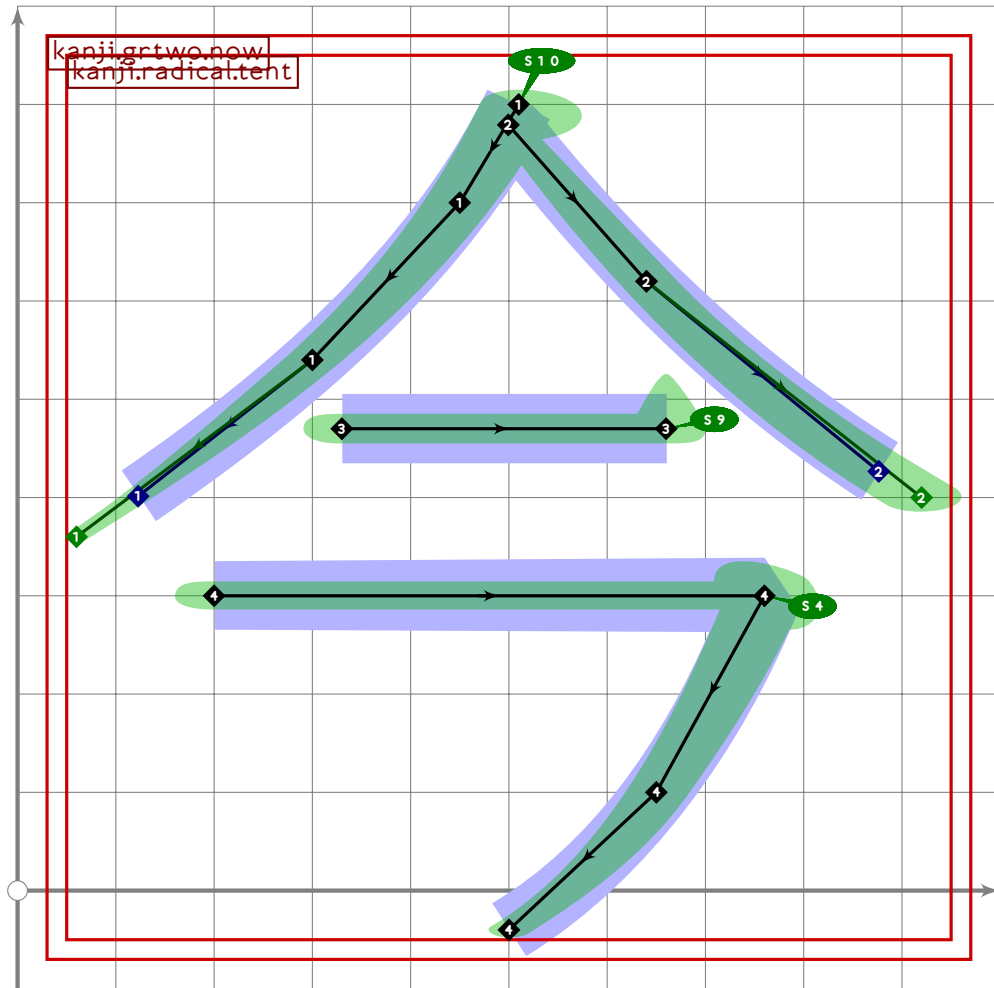
```



```

619
620 vardef kanji.grtwo.noon =
621   push_pbox_toexpand("kanji.grtwo.noon");
622   push_stroke(((300,790)..tension 1.2..(240,610)..(100,420),
623     (1,7,1,7)-(1,4,1,4)-(0,9,0,9));
624   set_boserif(0,0,10);
625   push_stroke((((0,640)-(1000,640)) intersectionpoint get_strokep(0))-
626     (850-30*mincho,640),
627     (1,6,1,6)-(1,6,1,6));
628   set_boserif(0,1,9);
629   push_stroke((500,640)-(500,-60),(1,6,1,6)-(1,5,1,5));
630   push_stroke(((110,330)-(910-30*mincho,330),
631     (1,6,1,6)-(1,6,1,6));
632   set_boserif(0,1,9);
633   expand_pbox;
634 enddef;

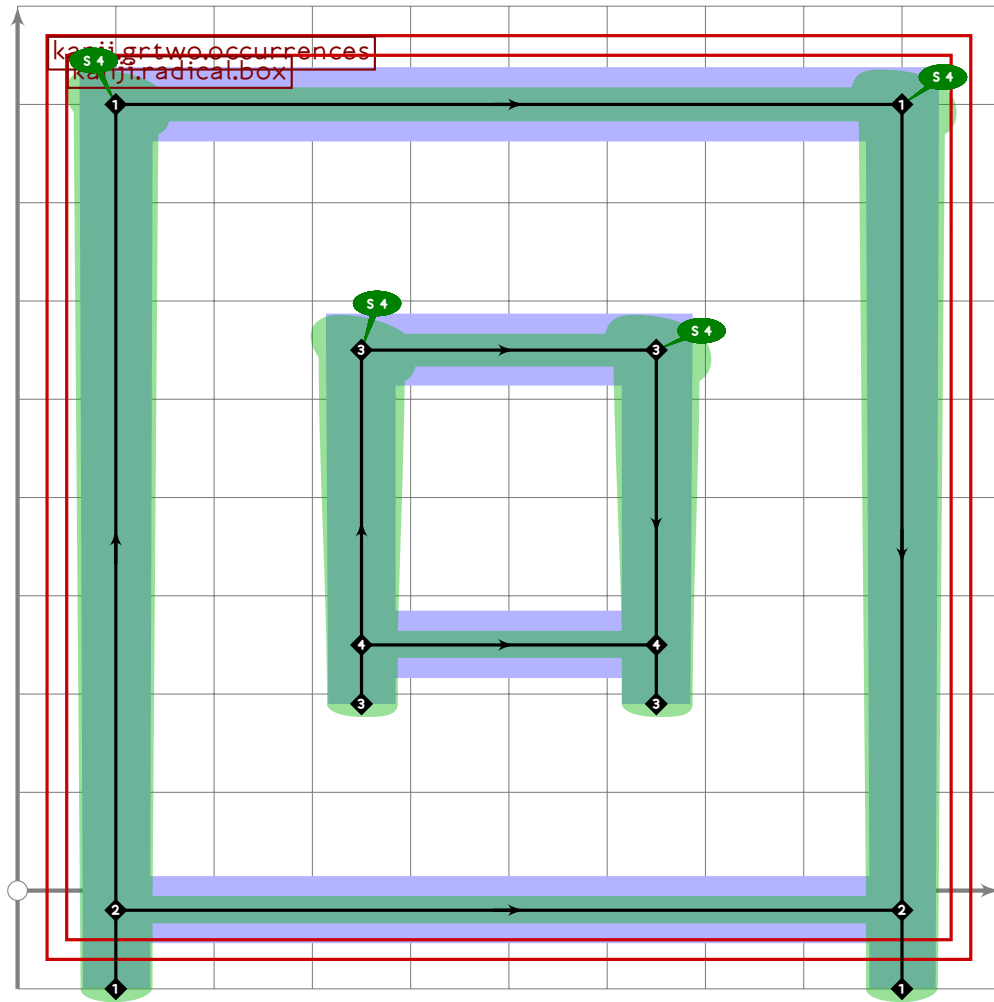
```



```

635
636 vardef kanji.grtwo.now =
637   push_pbox_toexpand("kanji.grtwo.now");
638   kanji.radical.tent;
639   push_stroke((200,300)-(760,300)..tension 1.2..(650,100)..(500,-40),
640     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
641   set_boserif(0,1,4);
642   set_botip(0,1,0);
643   expand_pbox;
644 enddef;

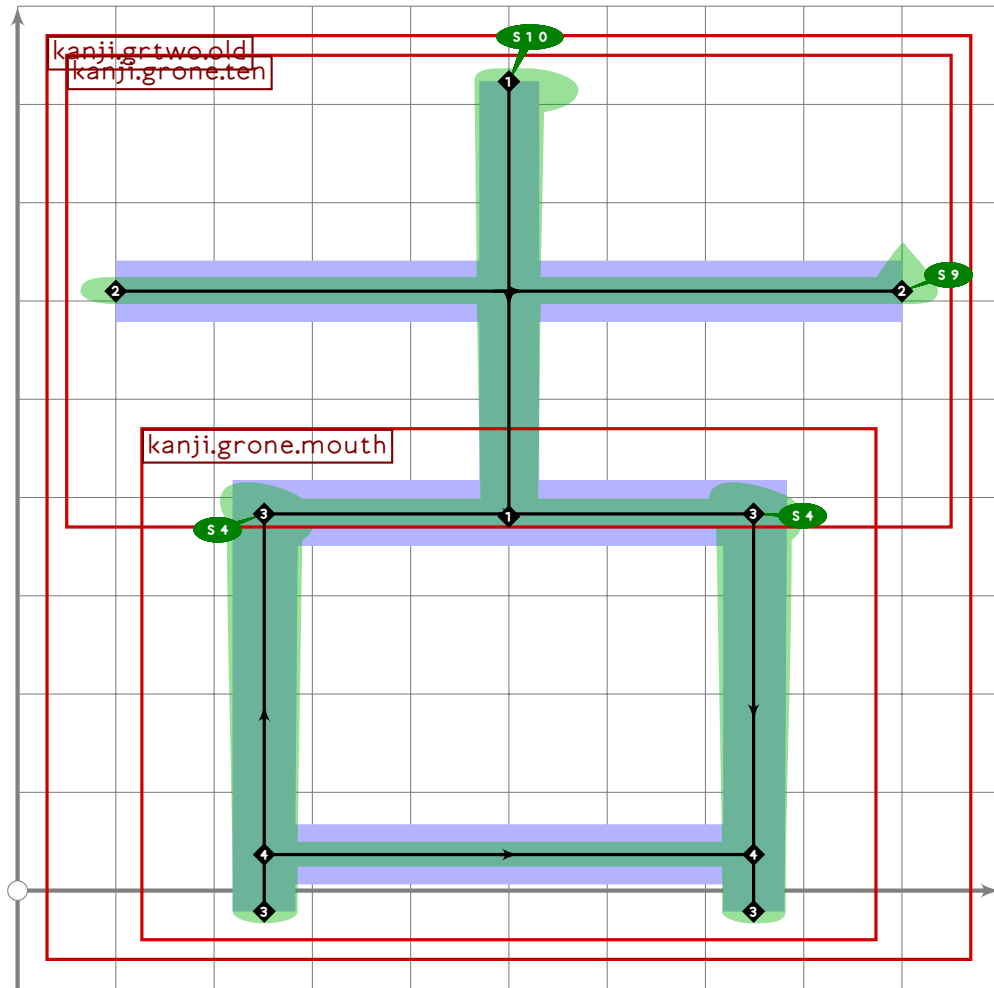
```



```

645
646 vardef kanji.grtwo.occurrences =
647   push_pbox_toexpand("kanji.grtwo.occurrences");
648   kanji.radical.box;
649   build_kanji.box((350,550),(650,250));
650   expand_pbox;
651 enddef;

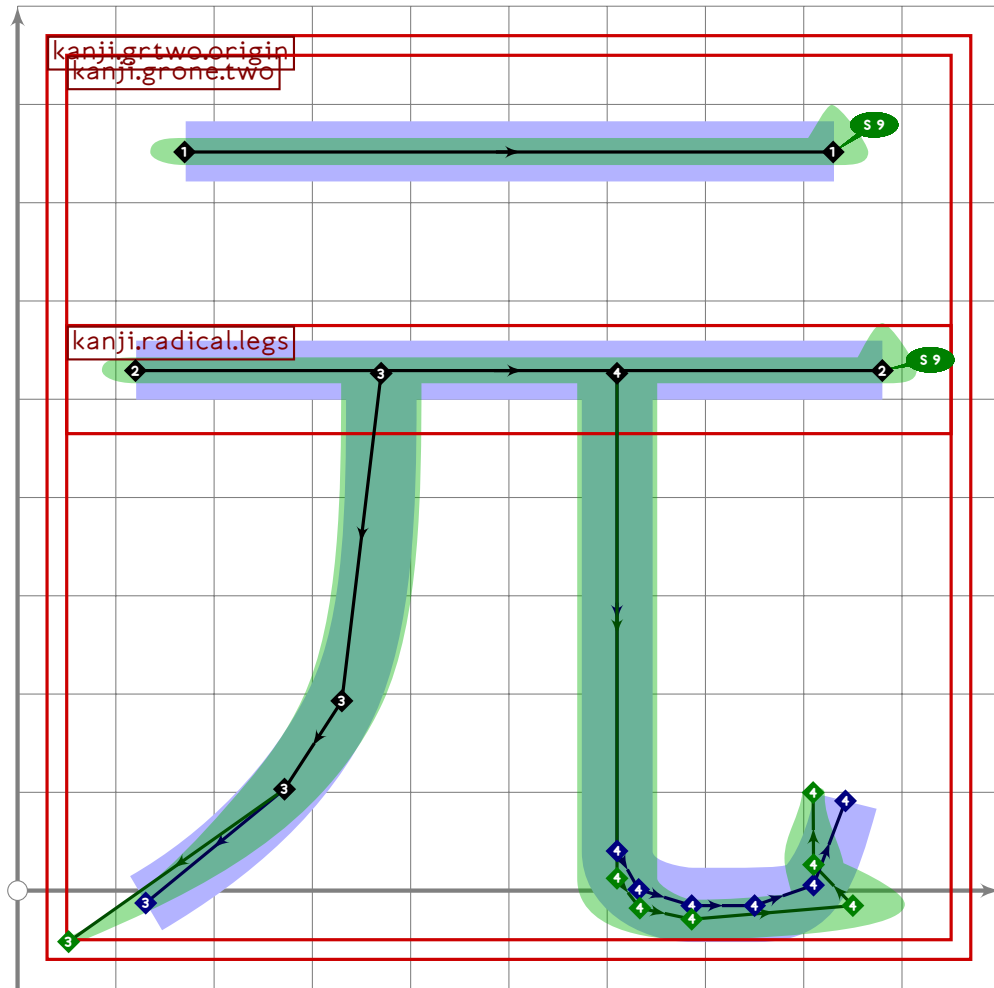
```



```

652
653 vardef kanji.grtwo.old =
654   push_pbox_toexpand("kanji.grtwo.old");
655   build_kanji.level(build_kanji.tb(420,100)
656     (kanji.grone.ten)
657     (build_kanji.sscale(xscaled 0.83)(kanji.grone.mouth)));
658   expand_pbox;
659 enddef;

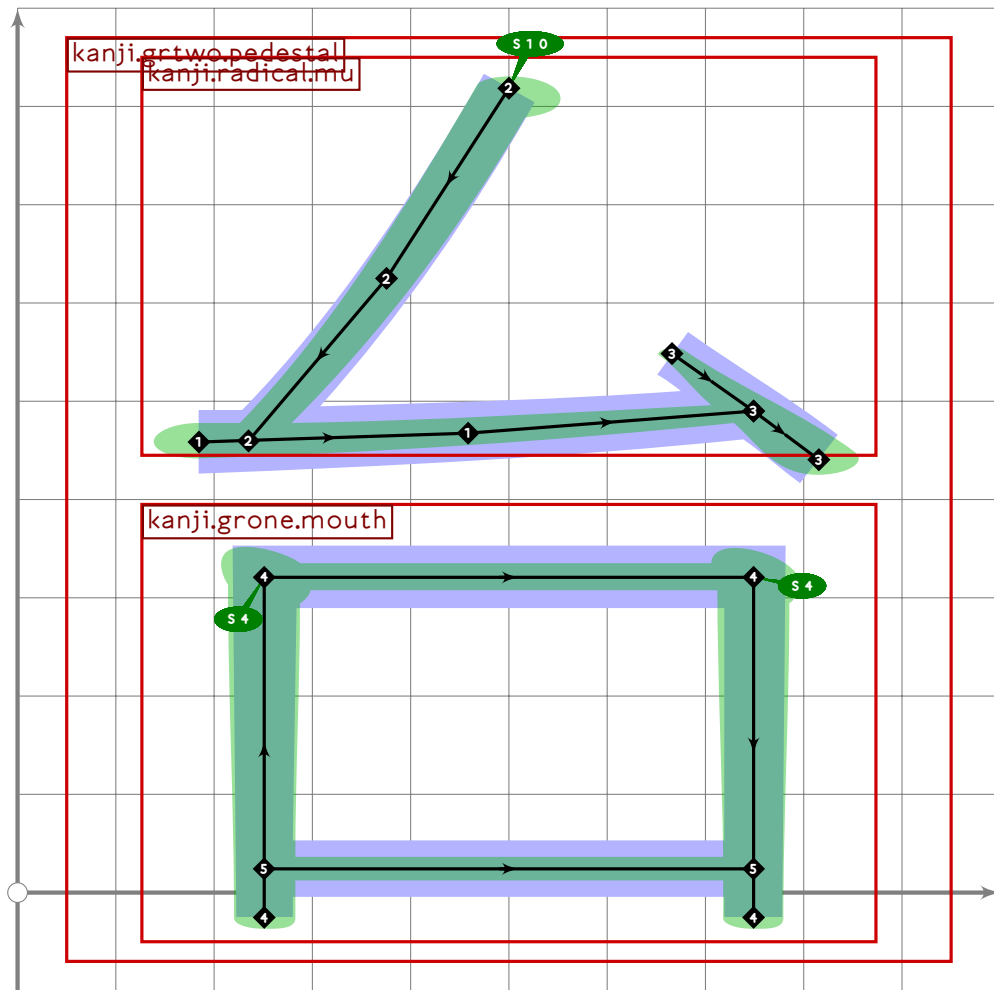
```



```

660
661 vardef kanji.grtwo.origin =
662   push_pbox_toexpand("kanji.grtwo.origin");
663   build_kanji.tb(520,110)
664     (kanji.grone.two)
665     (kanji.radical.legs);
666   expand_pbox;
667 enddef;

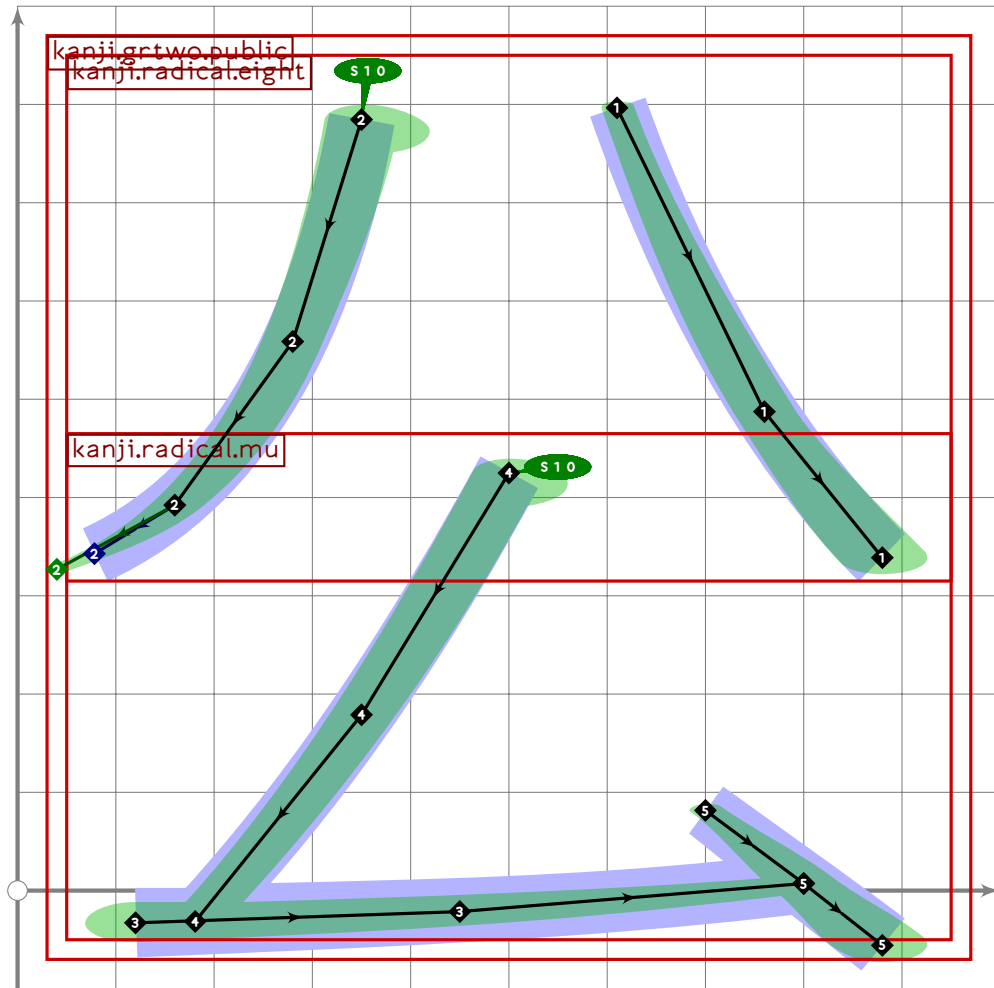
```



```

668
669 vardef kanji.grtwo.pedestal =
670   push_pbox_toexpand("kanji.grtwo.pedestal");
671   build_kanji.sscale(xscaled 0.83)(
672     build_kanji.level(build_kanji.tb(420;-50)
673       (kanji.radical.mu)
674       (kanji.grone.mouth)));
675   expand_pbox;
676 enddef;

```

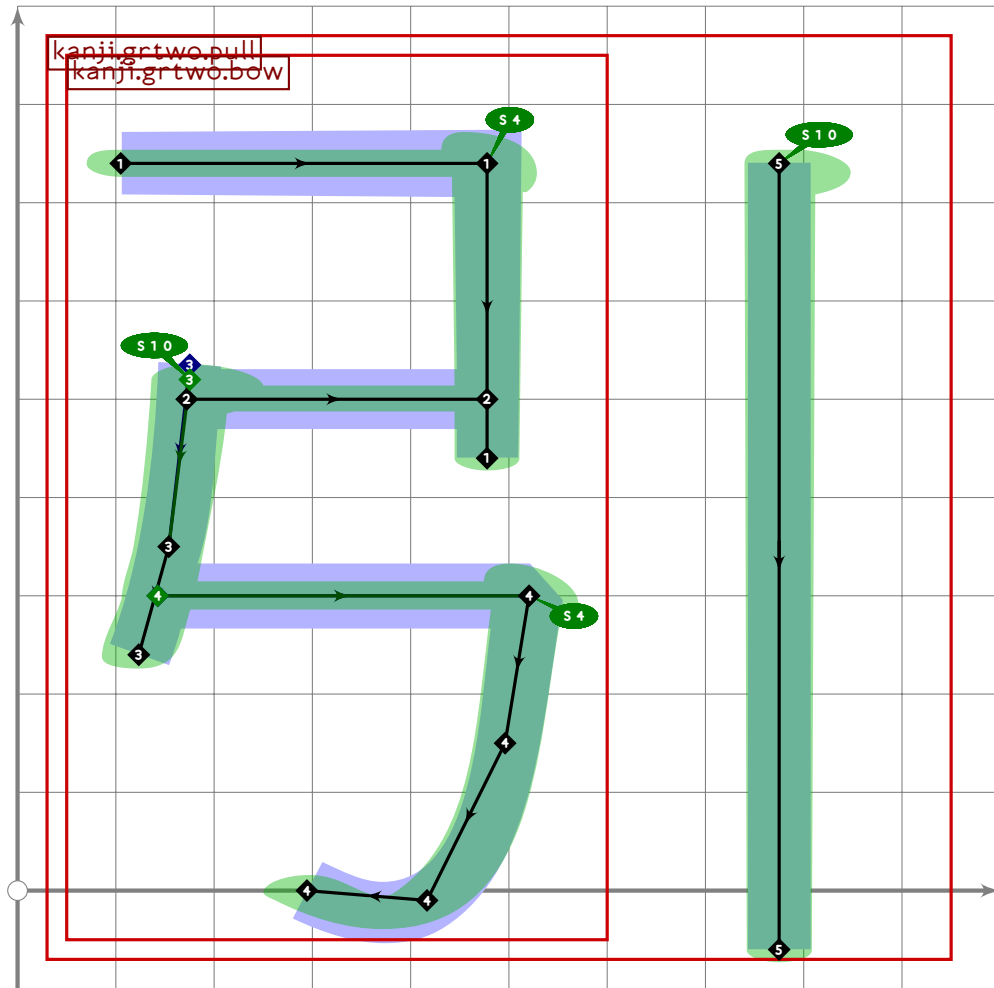


```

677
678 vardef kanji.grtwo.public =
679   push_pbox_toexpand("kanji.grtwo.public");
680   build_kanji.level(build_kanji.tb(390,150)
681     (kanji.radical.eight)
682     (kanji.radical.mu));
683   expand_pbox;
684 enddef;

```

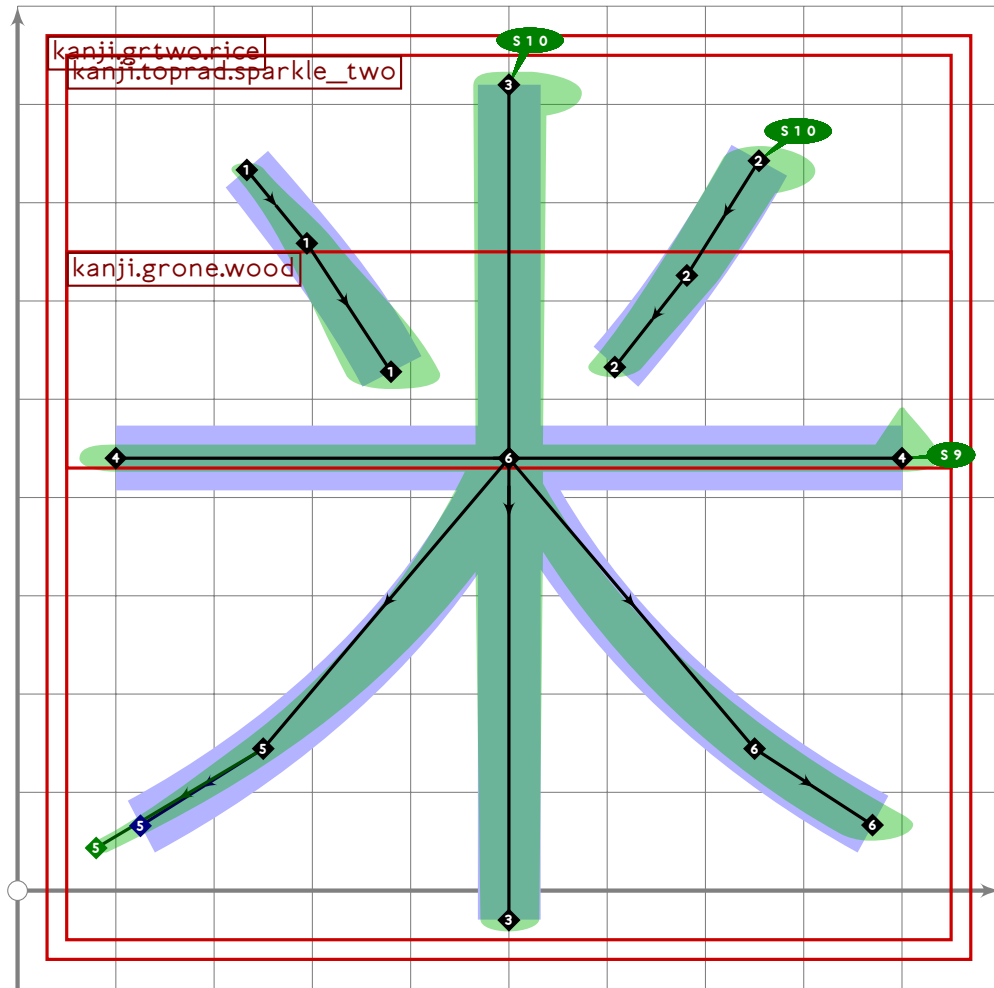




```

685
686 vardef kanji.grtwo.pull =
687   push_pbox_toexpand("kanji.grtwo.pull");
688   build_kanji.level(build_kanji.lr(600,0)
689     (kanji.grtwo.bow)
690     (push_stroke((500,740)-(500,-60),(1,6,1,6)-(1,5,1,5));
691       set_boserif(0,0,10);
692     ));
693   expand_pbox;
694 enddef;

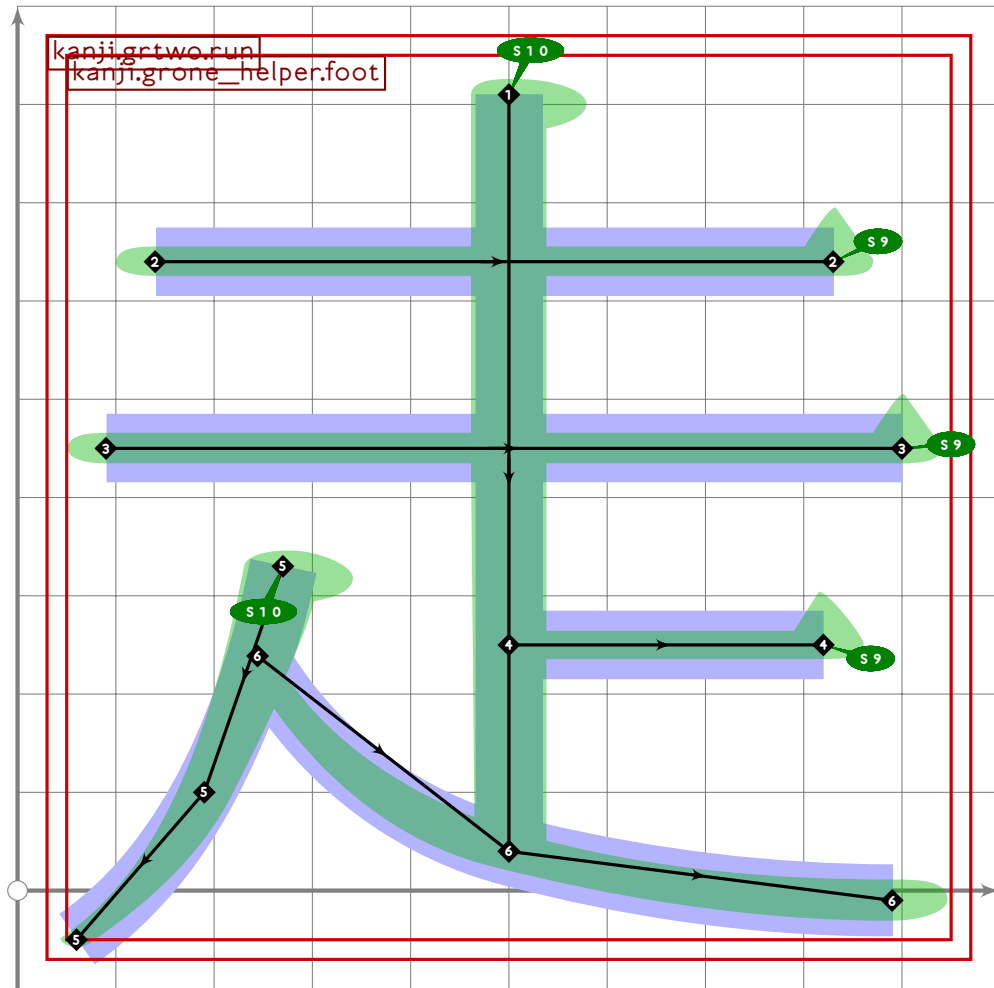
```



```

695
696 vardef kanji.grtwo.rice =
697   push_pbox_toexpand("kanji.grtwo.rice");
698   build_kanji.level(build_kanji.tb(540,220)
699     (build_kanji.spread_legs(-200)(kanji.toprad.sparkle_two))
700     (kanji.grone.wood));
701   replace_stroke(-3)((500,820)-(500,-30));
702   replace_strokeq(-3)((1.6,1.6)-(1.4,1.4));
703   expand_pbox;
704 enddef;

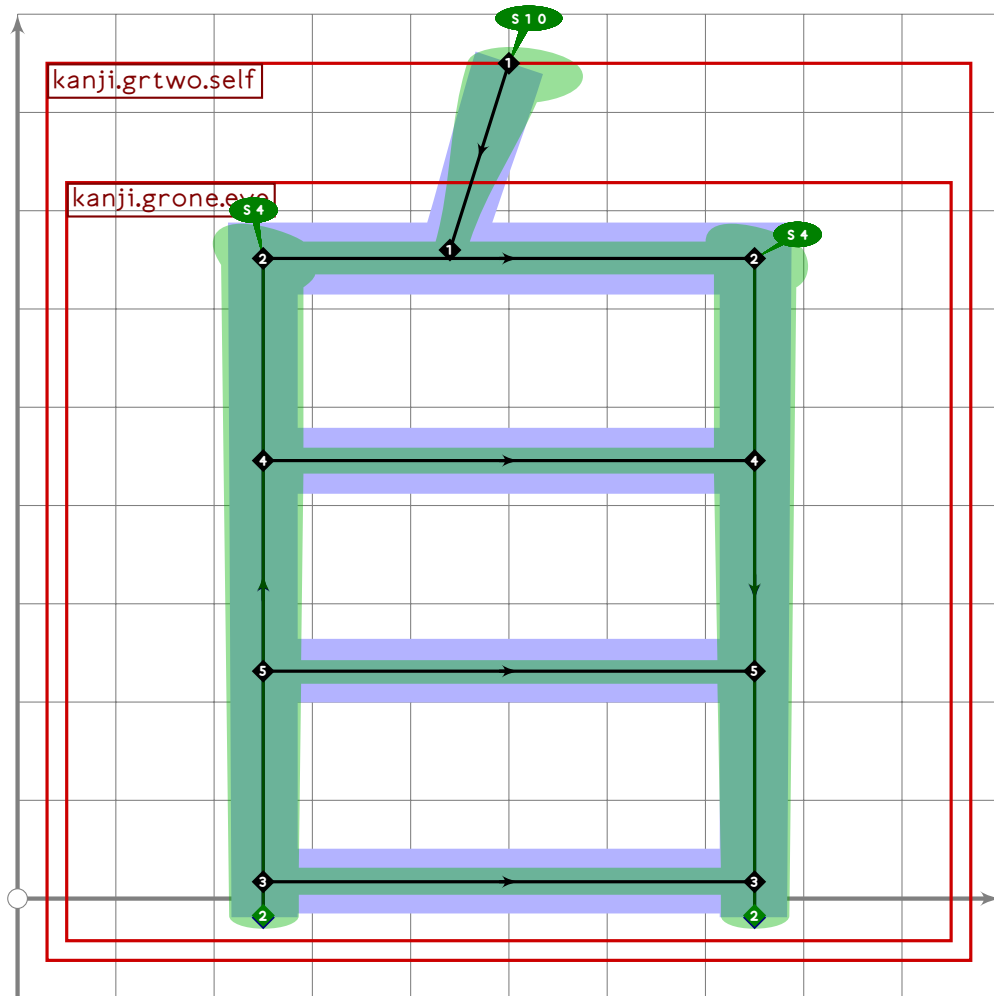
```



```

705
706 vardef kanji.grtwo.run =
707   push_pbox_toexpand("kanji.grtwo.run");
708   push_stroke((500,810)-(500,40),(1.6,1.6)-(1.5,1.5));
709   set_boserif(0,0,10);
710   push_stroke((140,640)-(830,640),(1.6,1.6)-(1.6,1.6));
711   set_boserif(0,1,9);
712   push_stroke((90,450)-(900,450),(1.6,1.6)-(1.6,1.6));
713   set_boserif(0,1,9);
714   push_stroke((500,250)-(820,250),(1.5,1.5)-(1.6,1.6));
715   set_boserif(0,1,9);
716   kanji.grone_helper.foot;
717   expand_pbox;
718 enddef;

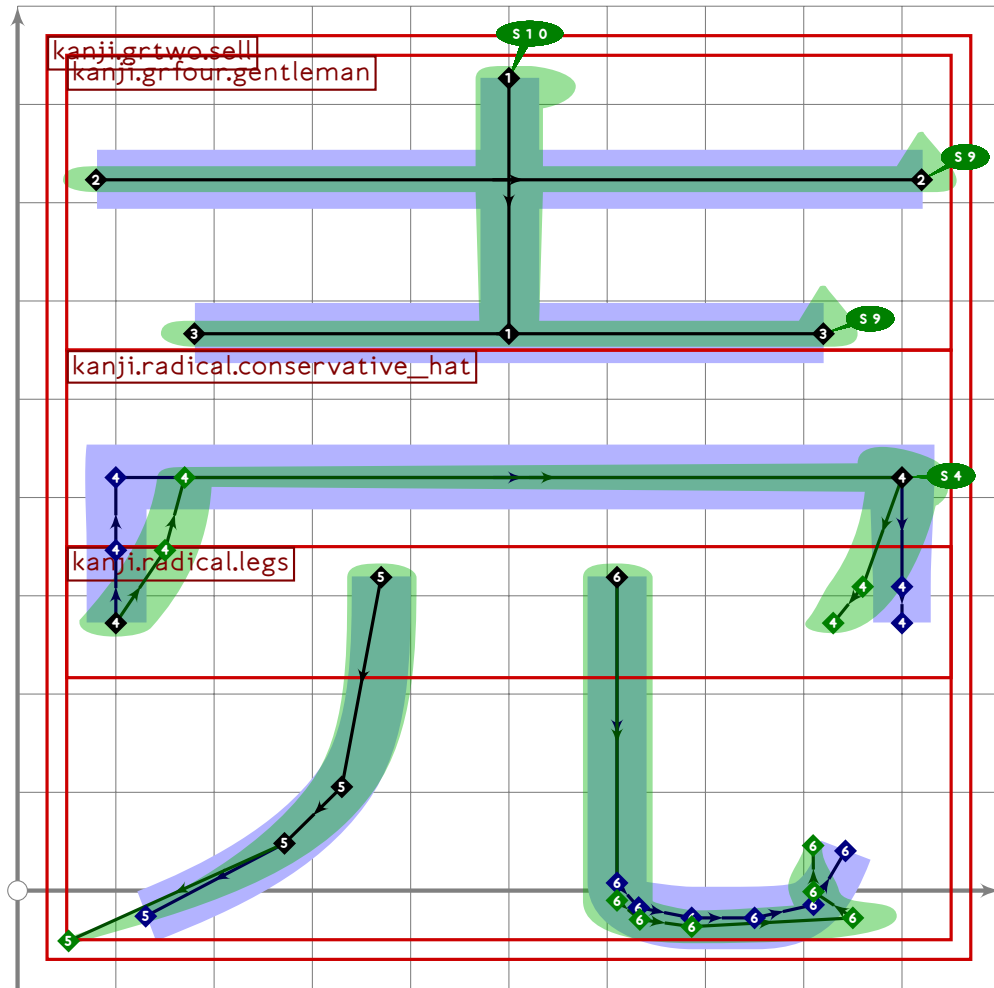
```



```

719
720 vardef kanji.grtwo.self =
721   push_pbox_toexpand("kanji.grtwo.self");
722   push_stroke((500,850)-(440,660),(1,7,1.7)-(1,1));
723   set_boserif(0,0,10);
724   tsu_xform(identity yscaled (660/770))(kanji.grone.eye);
725   expand_pbox;
726 enddef;

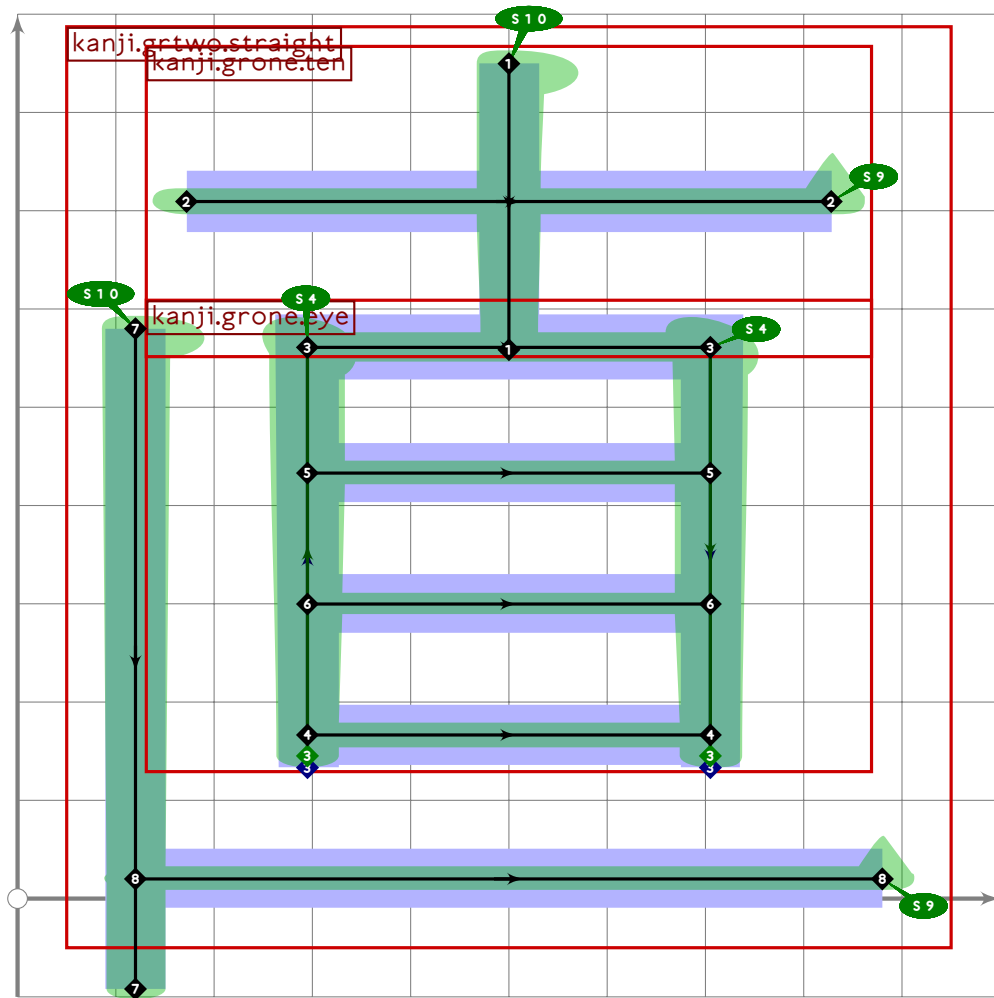
```



```

727
728 vardef kanji.grtwo.sell =
729   push_pbox_toexpand("kanji.grtwo.sell");
730   build_kanji.level(build_kanji.tb(550,0)
731     (kanji.grfour.gentleman)
732     (build_kanji.tb(450,200)
733       (kanji.radical.conservative_hat)
734       (kanji.radical.legs)));
735   expand_pbox;
736 enddef;

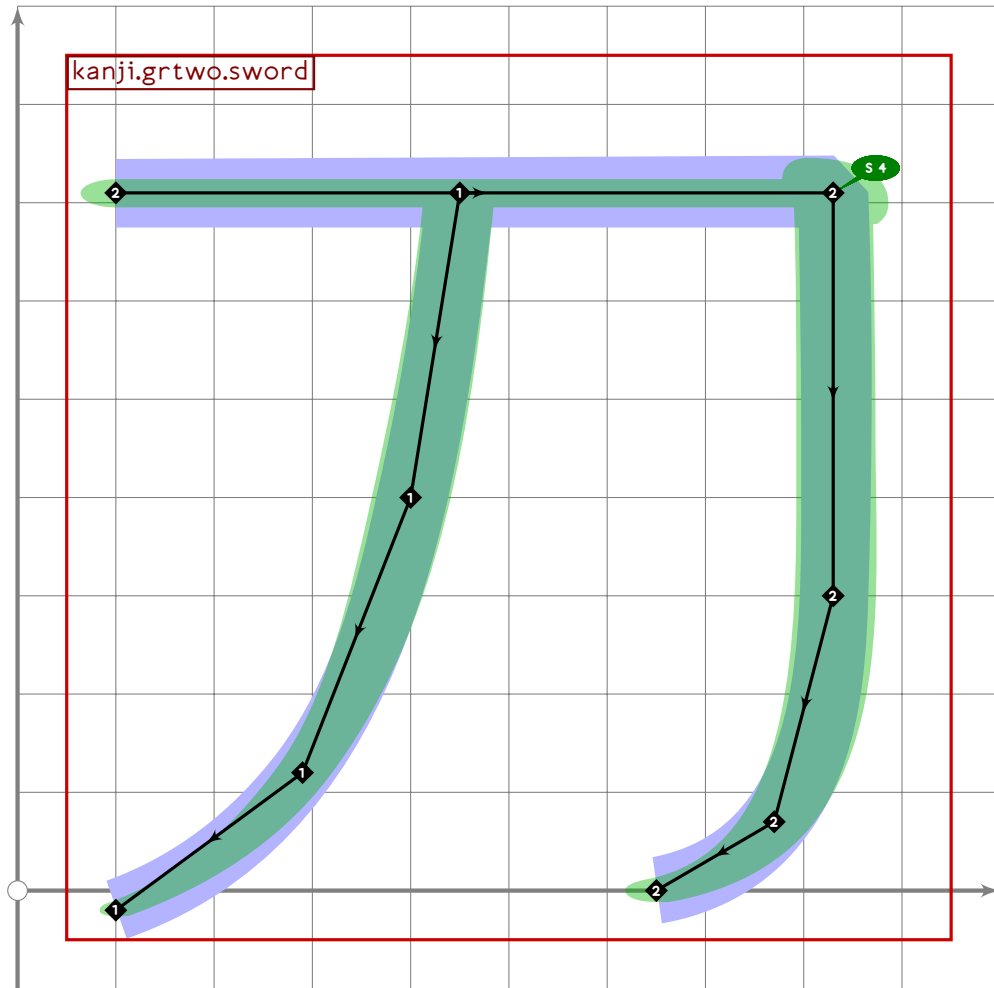
```



```

737
738 vardef kanji.grtwo.straight =
739   push_pbox_toexpand("kanji.grtwo.straight");
740   build_kanji.level(
741     build_kanji.scale(scaled 0.82 shifted (0,100))
742     (build_kanji.tb(500,70)
743       (kanji.grone.ten)
744       (kanji.grone.eye));
745     build_kanji.cup((120,580),(880,20));
746     set_bosize(-1,0);
747     set_boserif(0,1,9);
748   );
749   expand_pbox;
750 enddef;

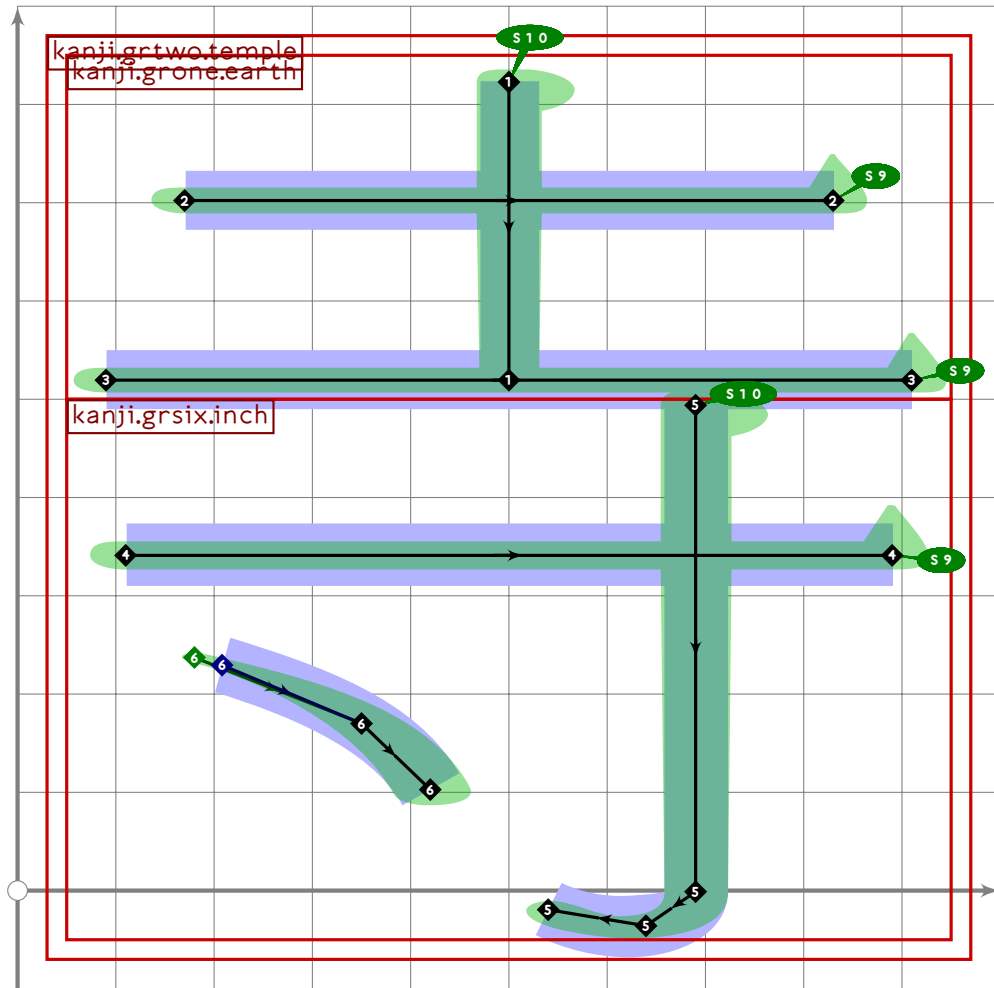
```



```

751
752 vardef kanji.grtwo.sword =
753   push_pbox_toexpand("kanji.grtwo.sword");
754   push_stroke((450,710)..(400,400)..(290,120)..(100,-20),
755     (1.5,1.5)-(1.6,1.6)-(1.3,1.3)-(1,1));
756   push_stroke((100,710)-(830,710)..tension 11..(830,300)..(770,70)..(650,0),
757     (1.5,1.5)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.4,1.4));
758   set_botip(0,1,0);
759   set_boserif(0,1,4);
760   expand_pbox;
761 enddef;

```

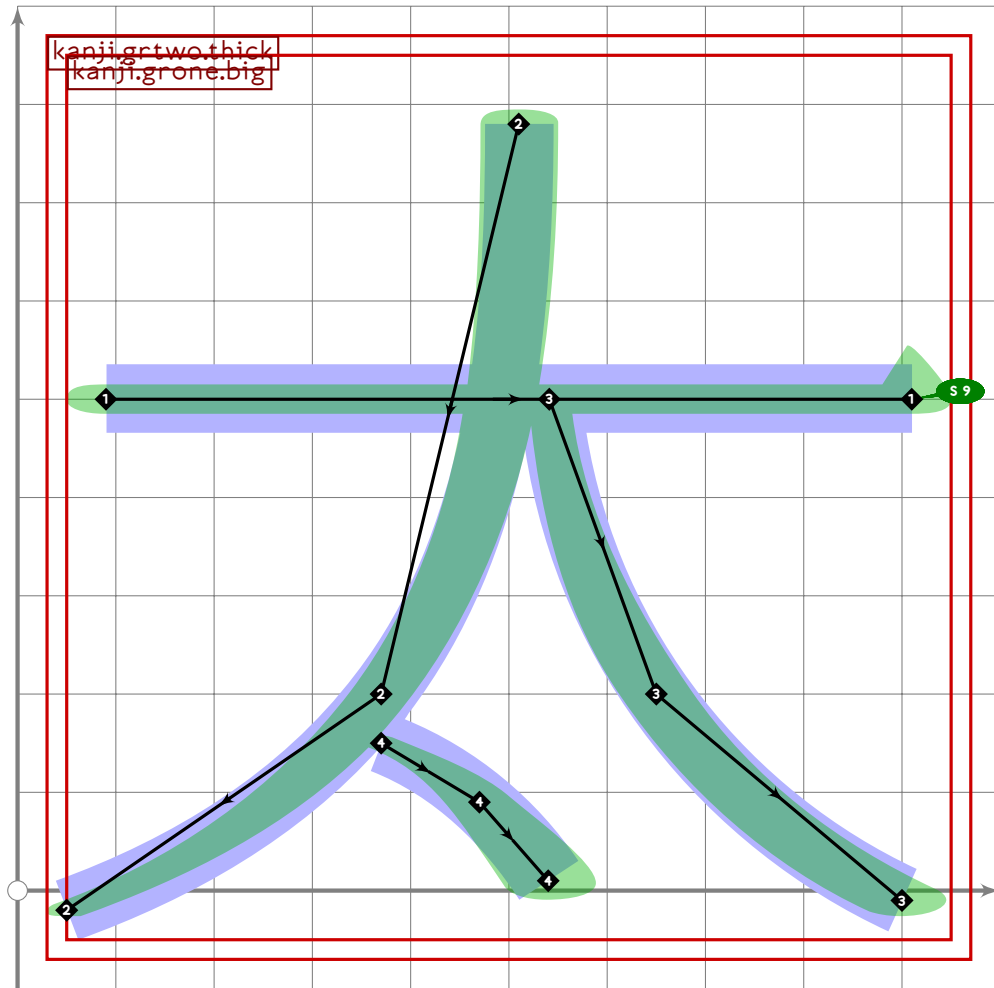


```

762
763 vardef kanji.grtwo.temple =
764   push_pbox_toexpand("kanji.grtwo.temple");
765   build_kanji.tb(500,0)
766     (kanji.grone.earth)
767     (kanji.grsix.inch;
768       replace_strokep(-1)((point 0 of oldp)+(0,60))
769         -(subpath (1,infinity) of oldp)));
770   expand_pbox;
771 enddef;

```

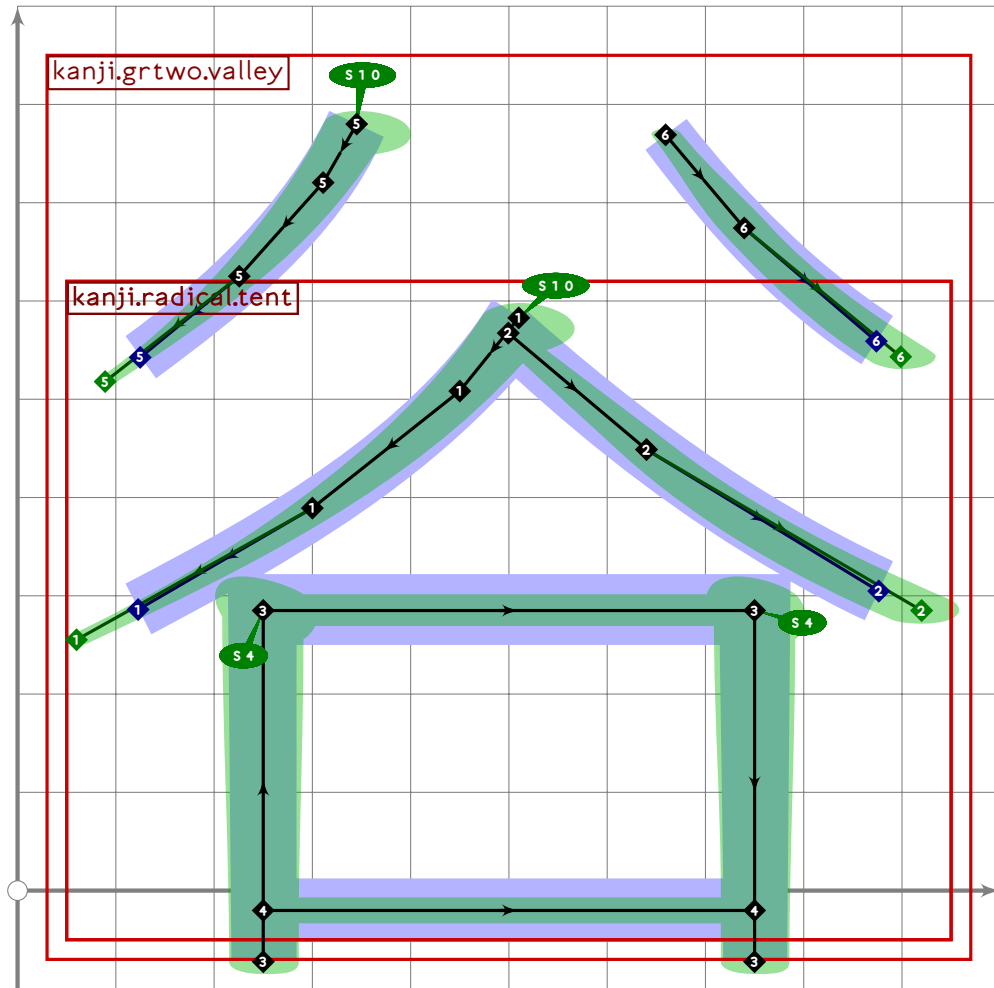




```

772
773 vardef kanji.grtwo.thick =
774   push_pbox_toexpand("kanji.grtwo.thick");
775   kanji.grone.big;
776   push_stroke((370,150)..(470,90)..(540,10),
777     (1,1)-(14,14)-(18,18));
778   expand_pbox;
779 enddef;

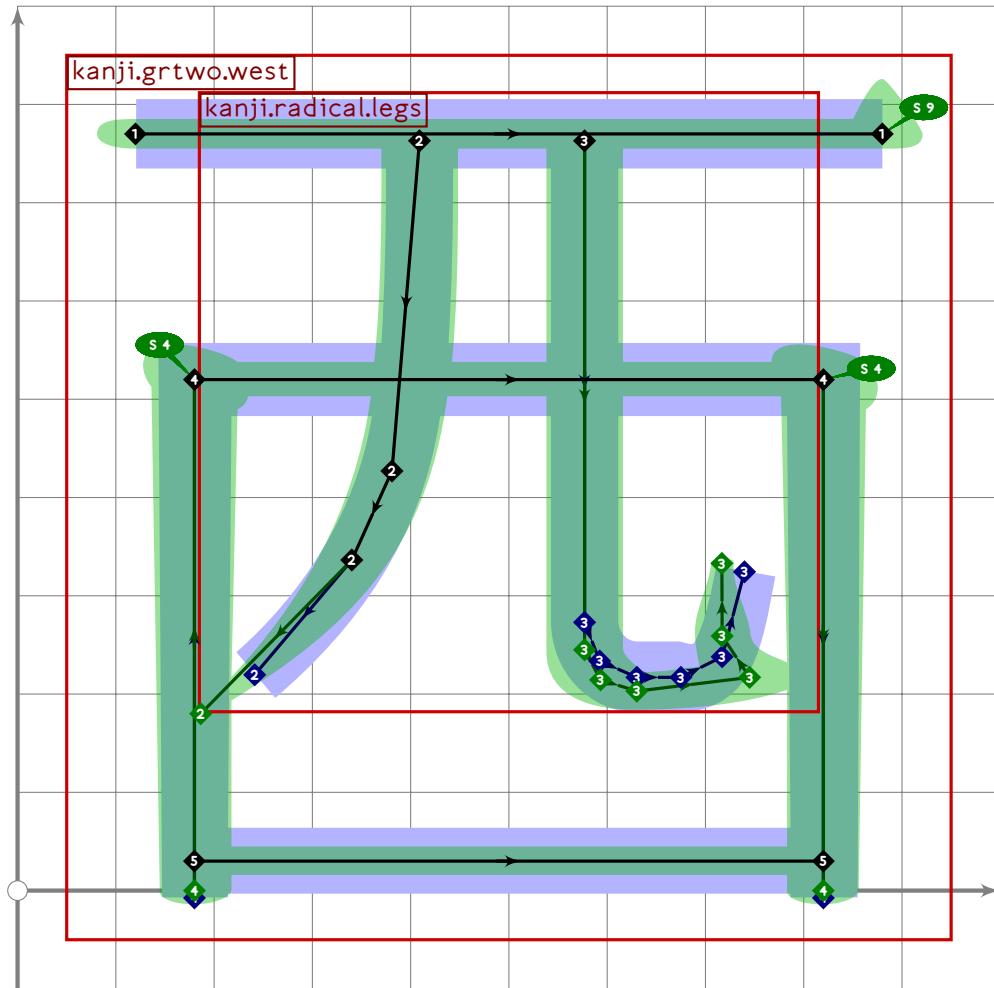
```



```

780
781 vardef kanji.grtwo.valley =
782   push_pbox_toexpand("kanji.grtwo.valley");
783   build_kanji.harmonic(230,0.8,260)(build_kanji.level(
784     kanji.radical.tent;
785     pop_stroke;
786     build_kanji.box((250,400),(750,-10));
787   ));
788   expand_pbox;
789 enddef;

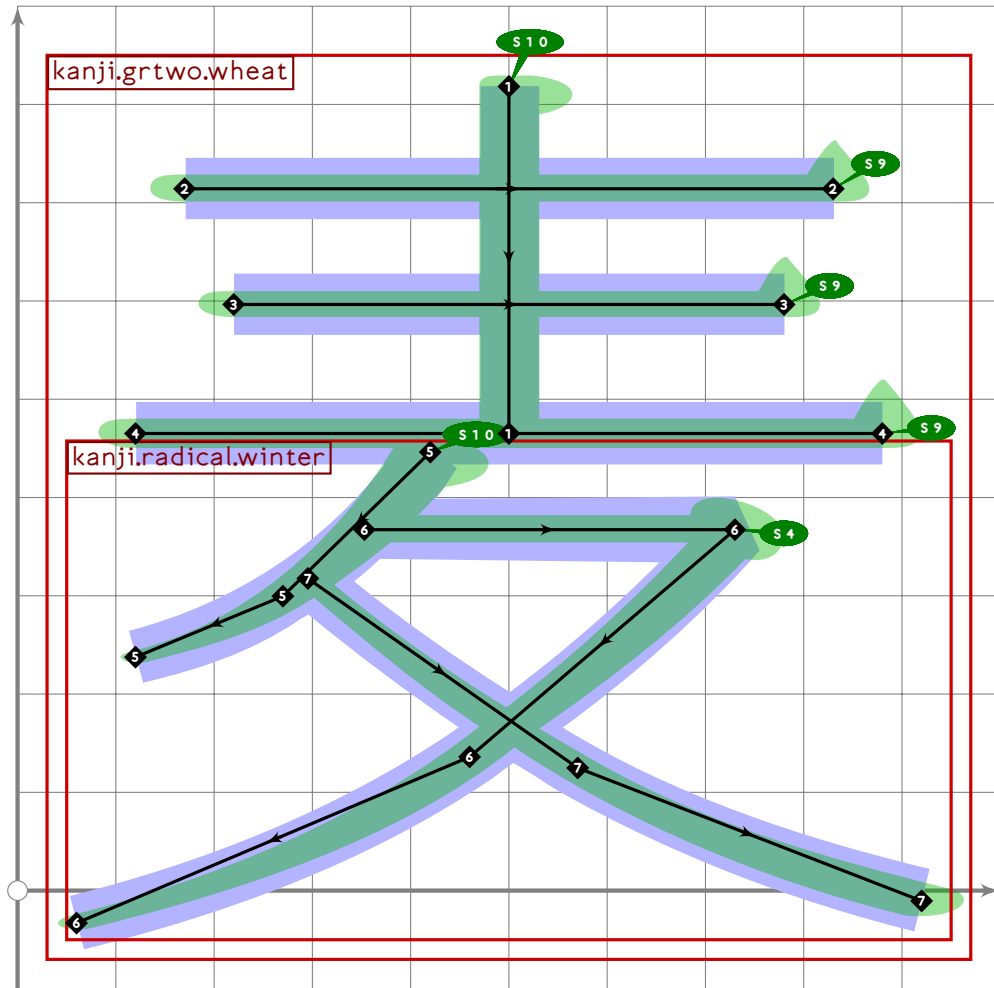
```



```

790
791 vardef kanji.grtwo.west =
792   push_pbox_toexpand("kanji.grtwo.west");
793   push_stroke((120,770)-(880,770),(1.6,1.6)-(1.6,1.6));
794   set_boserif(0,1,9);
795   build_kanji.sscale(scaled 0.7 shifted (0,100))
796     (kanji.radical.legs);
797   build_kanji.box((180,520),(820,30));
798   expand_pbox;
799 enddef;

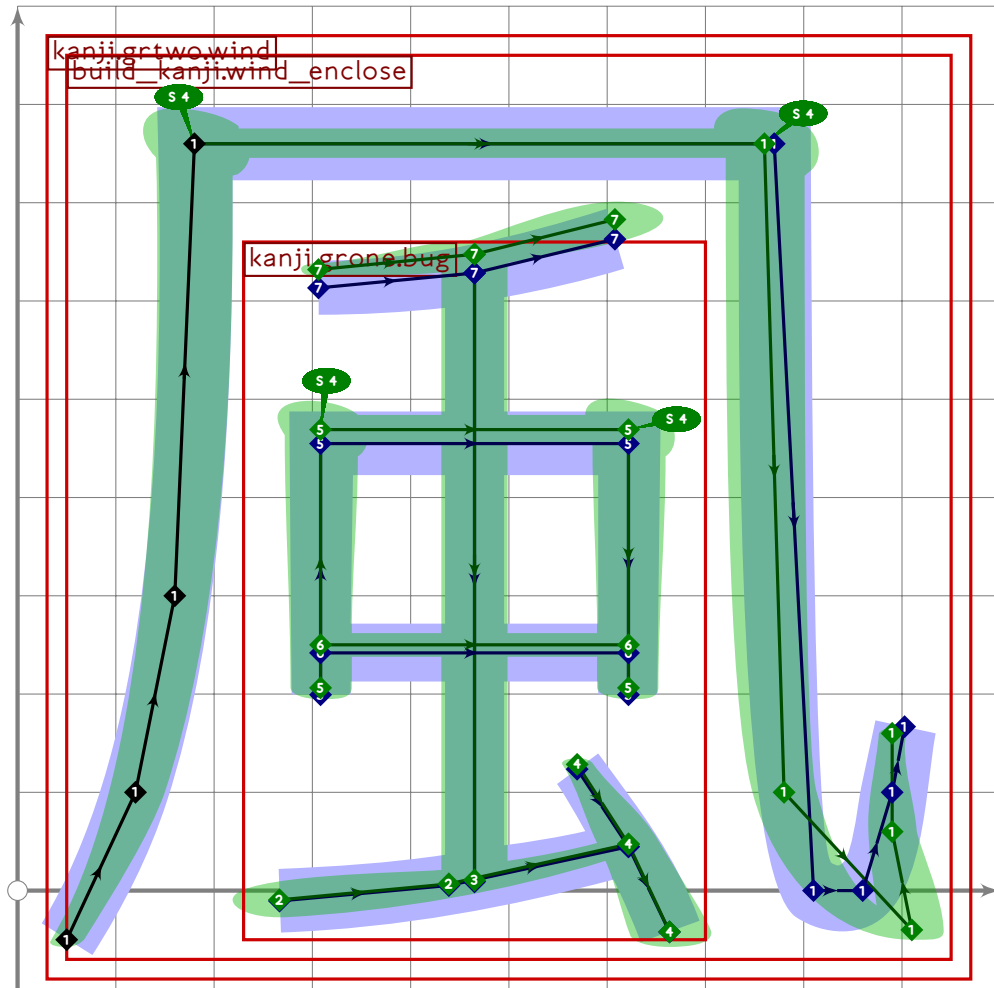
```



```

800
801 vardef kanji.grtwo.wheat =
802   push_pbox_toexpand("kanji.grtwo.wheat");
803   build_kanji.level(build_kanji.tb(450,15)
804     (push_stroke((500,780)-(500,0),
805       (1.5,1.5)-(1.4,1.4));
806     set_boserif(0,0,10);
807     push_stroke((170,550)-(830,550),
808       (1.6,1.6)-(1.6,1.6));
809     set_boserif(0,1,9);
810     push_stroke((220,290)-(780,290),
811       (1.6,1.6)-(1.6,1.6));
812     set_boserif(0,1,9);
813     push_stroke((120,0)-(880,0),
814       (1.7,1.7)-(1.7,1.7));
815     set_boserif(0,1,9))
816     (kanji.radical.winter));
817   expand_pbox;
818 enddef;

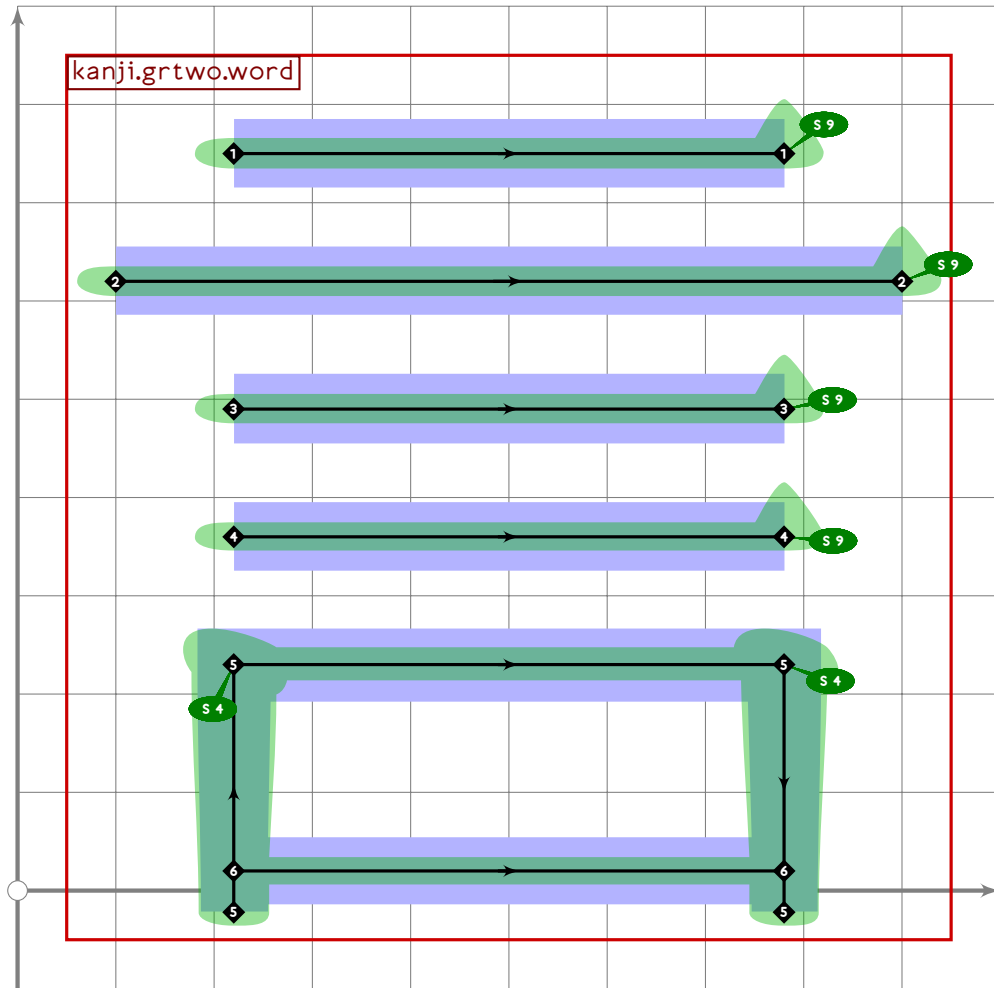
```



```

819
820 vardef kanji.grtwo.wind =
821   push_pbox_toexpand("kanji.grtwo.wind");
822   build_kanji.wind_enclose(build_kanji.add_beret(kanji.grone.bug));
823   expand_pbox;
824 enddef;

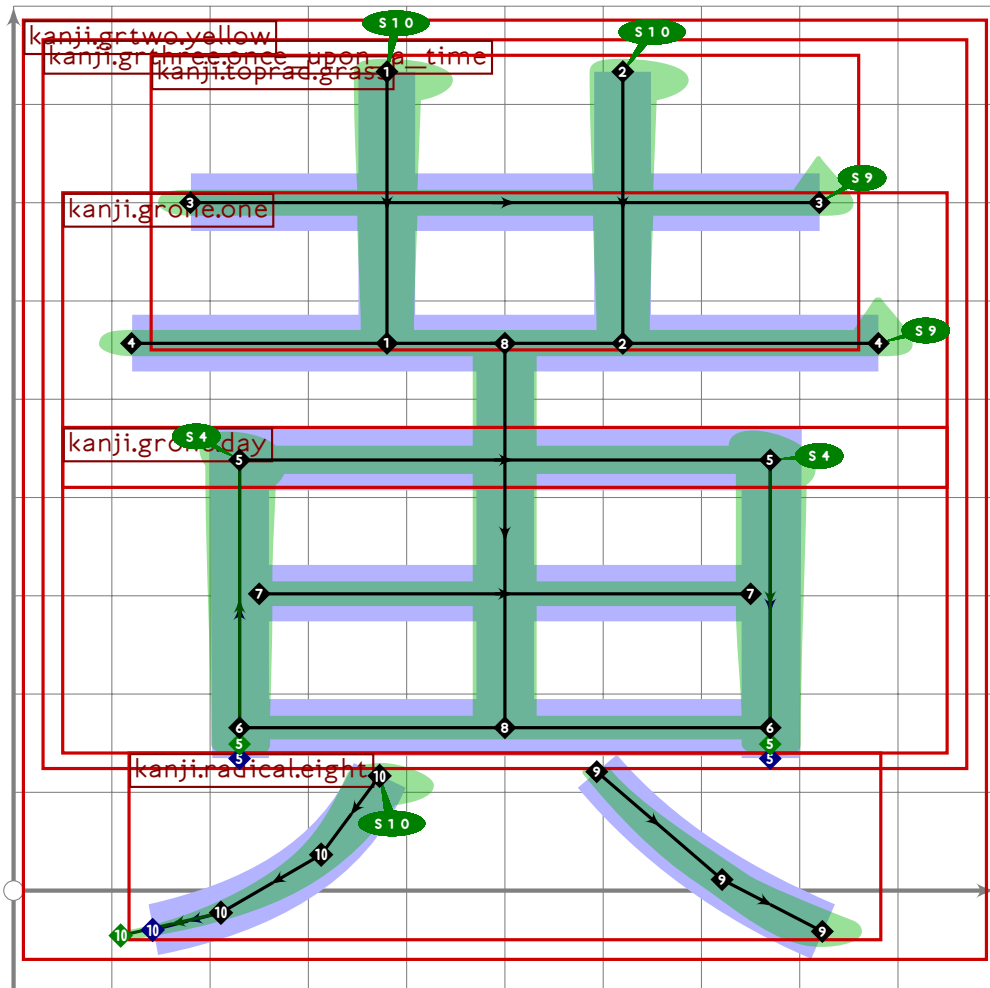
```



```

825
826 vardef kanji.grtwo.word =
827   push_pbox_toexpand("kanji.grtwo.word");
828   push_stroke((220,750)-(780,750),(1.6,1.6)-(1.6,1.6));
829   set_boserif(0,1,9);
830   push_stroke((100,620)-(900,620),(1.6,1.6)-(1.6,1.6));
831   set_boserif(0,1,9);
832   push_stroke((220,490)-(780,490),(1.6,1.6)-(1.6,1.6));
833   set_boserif(0,1,9);
834   push_stroke((220,360)-(780,360),(1.6,1.6)-(1.6,1.6));
835   set_boserif(0,1,9);
836   build_kanji.box((220,230),(780,20));
837   expand_pbox;
838 enddef;

```



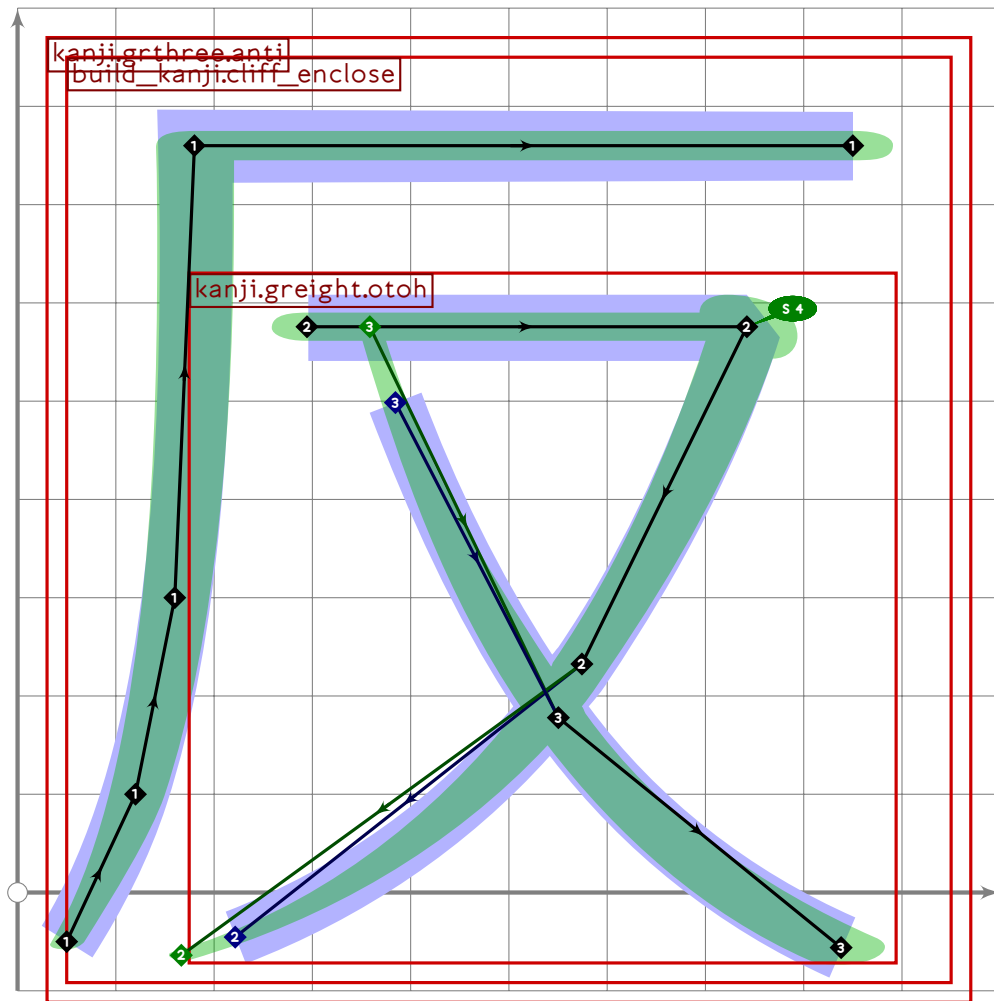
```

839
840 vardef kanji.grtwo.yellow =
841   push_pbox_toexpand("kanji.grtwo.yellow");
842   build_kanji.level(build_kanji.tb(140,0)
843     (kanji.grthree.once_upon_a_time;
844       push_stroke((point 0.5 of get_stroke(-3))–
845         (point 0.5 of get_stroke(-1)),
846         (1.6,1.6)–(1.5,1.5)));
847     (build_kanji.sscale(xscaled 0.85)(kanji.radical.eight)));
848   expand_pbox;
849 enddef;

```

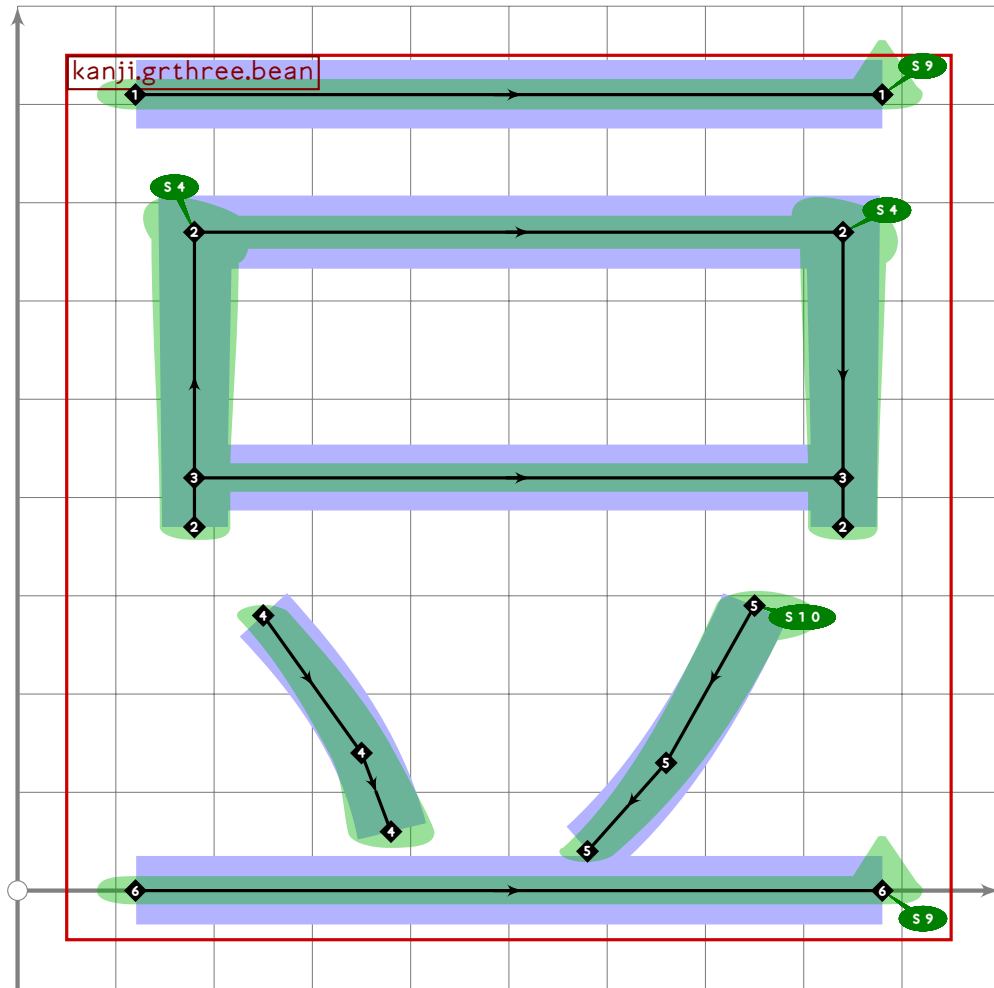
# gradethree.mp

```
1 %  
2 % Grade Three kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradethree);  
32  
33
```



```
34  
35 vardef kanji.grthree.anti =  
36   push_pbox_toexpand("kanji.grthree.anti");  
37   build_kanji.cliff_enclose  
38     (tsu_xform(identity xyscaled (1.09,0.9) shifted (-80,-30))  
39     (kanji.greight.otoh));  
40   expand_pbox;  
41 enddef;
```

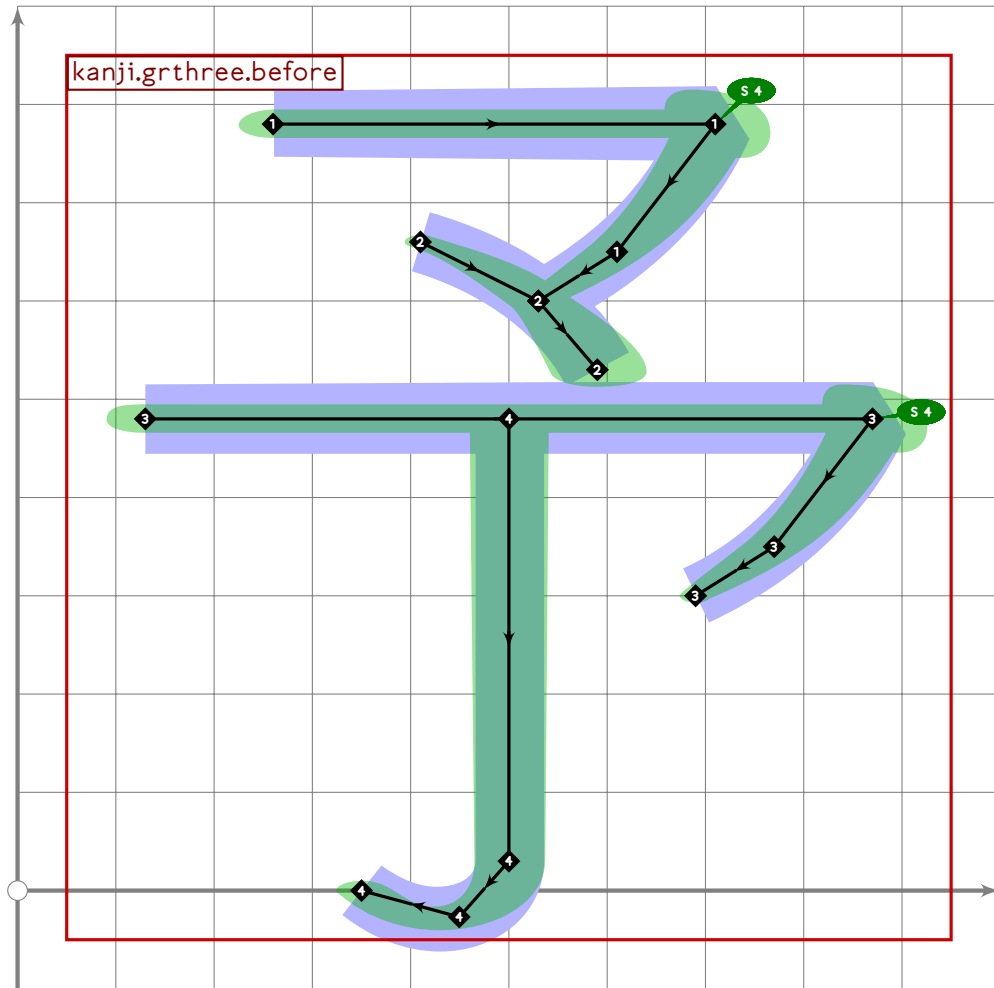




```

42
43 vardef kanji.grthree.bean =
44   push_pbox_toexpand("kanji.grthree.bean");
45   push_stroke((120,810)-(880,810),
46     (1.6,1.6)-(1.6,1.6));
47   set_boserif(0,1,9);
48   build_kanji.box((180,670),(840,420));
49   push_stroke((250,280)..tension 1.2..(350,140)..(380,60),
50     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));
51   push_stroke((750,290)..tension 1.2..(660,130)..(580,40),
52     (1.6,1.6)-(1.5,1.5)-(1.3,1.3));
53   set_boserif(0,0,10);
54   push_stroke((120,0)-(880,0),
55     (1.6,1.6)-(1.6,1.6));
56   set_boserif(0,1,9);
57   expand_pbox;
58 enddef;

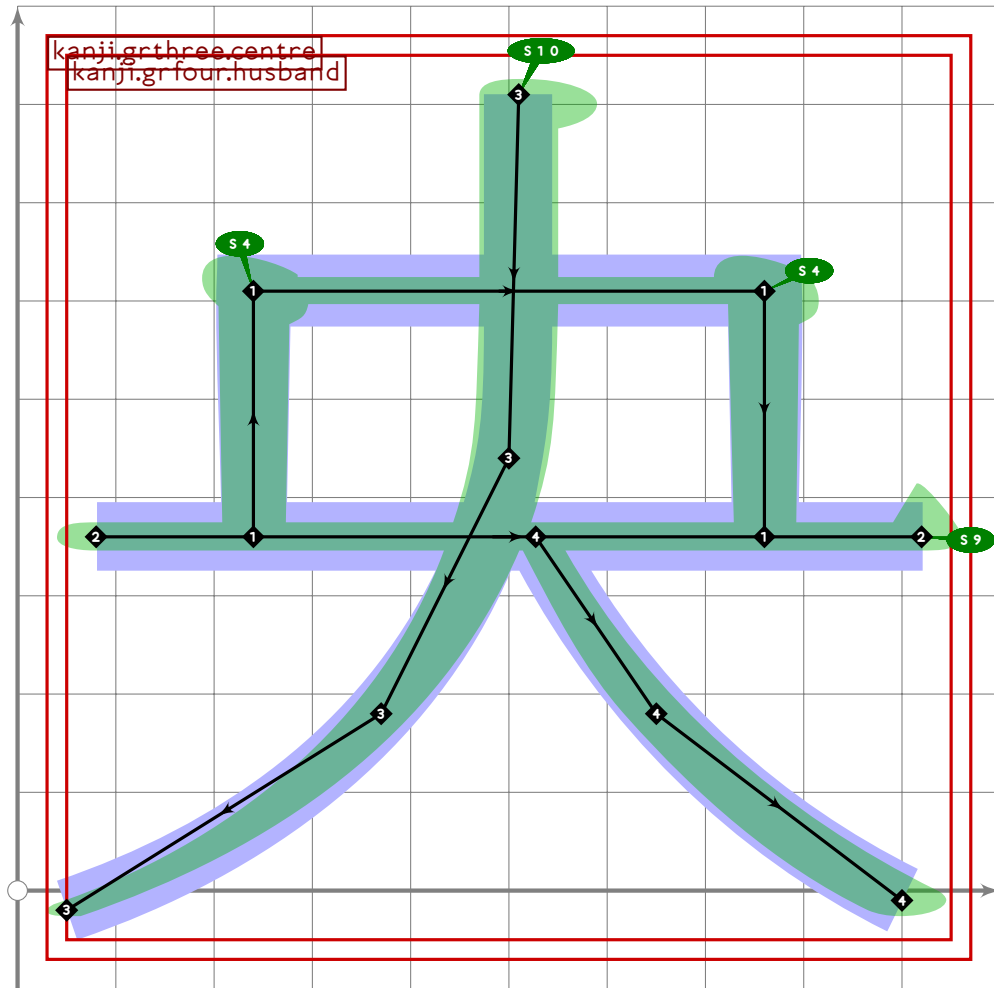
```



```

59
60 vardef kanji.grthree.before =
61   push_pbox_toexpand("kanji.grthree.before");
62   push_stroke((260,780)-(710,780)..(610,650)..(530,600),
63     (1.5,1.5)-(1.6,1.6)-(14,14)-(1,1));
64   set_boserif(0,14);
65   set_botip(0,1,0);
66   push_stroke((410,660)..tension 1.2..(530,600)..(590,530),
67     (1,1)-(14,14)-(18,18));
68   push_stroke((130,480)-(870,480)..(770,350)..(690,300),
69     (1.6,1.6)-(1.6,1.6)-(14,14)-(1,1));
70   set_boserif(0,14);
71   set_botip(0,1,0);
72   push_stroke((500,480),
73     (1.6,1.6));
74   build_kanji.add_jtail(0);
75   expand_pbox;
76 enddef;

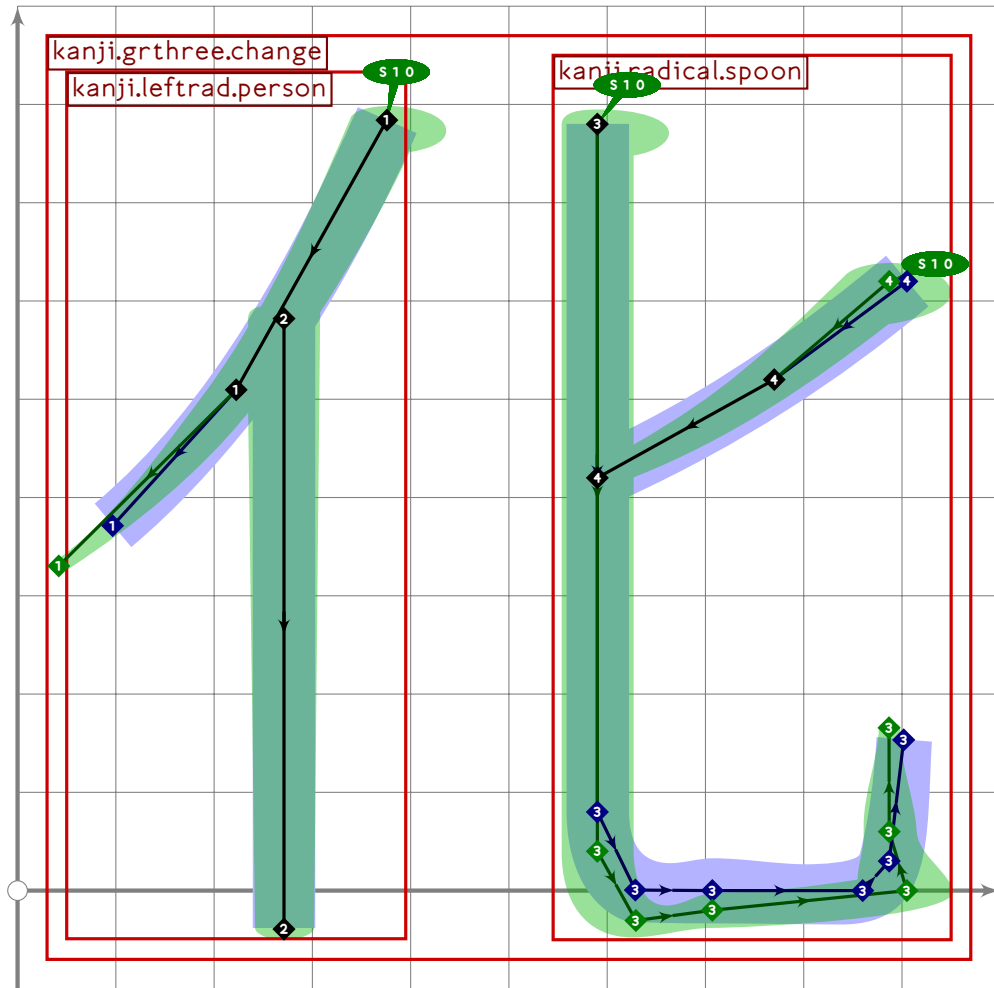
```



```

77
78 vardef kanji.grthree centre =
79   push_pbox_toexpand("kanji.grthree centre");
80   kanji.grfour.husband;
81   replace_stroke(-3)((240,360)-(240,610)-(760,610)-(760,360));
82   replace_strokeq(-3)((14,14)-(15,15)-(15,15)-(14,14));
83   set_boserif(-3,1,4);
84   set_boserif(-3,2,4);
85   set_botip(-3,1,1);
86   set_botip(-3,2,1);
87   expand_pbox;
88 enddef;

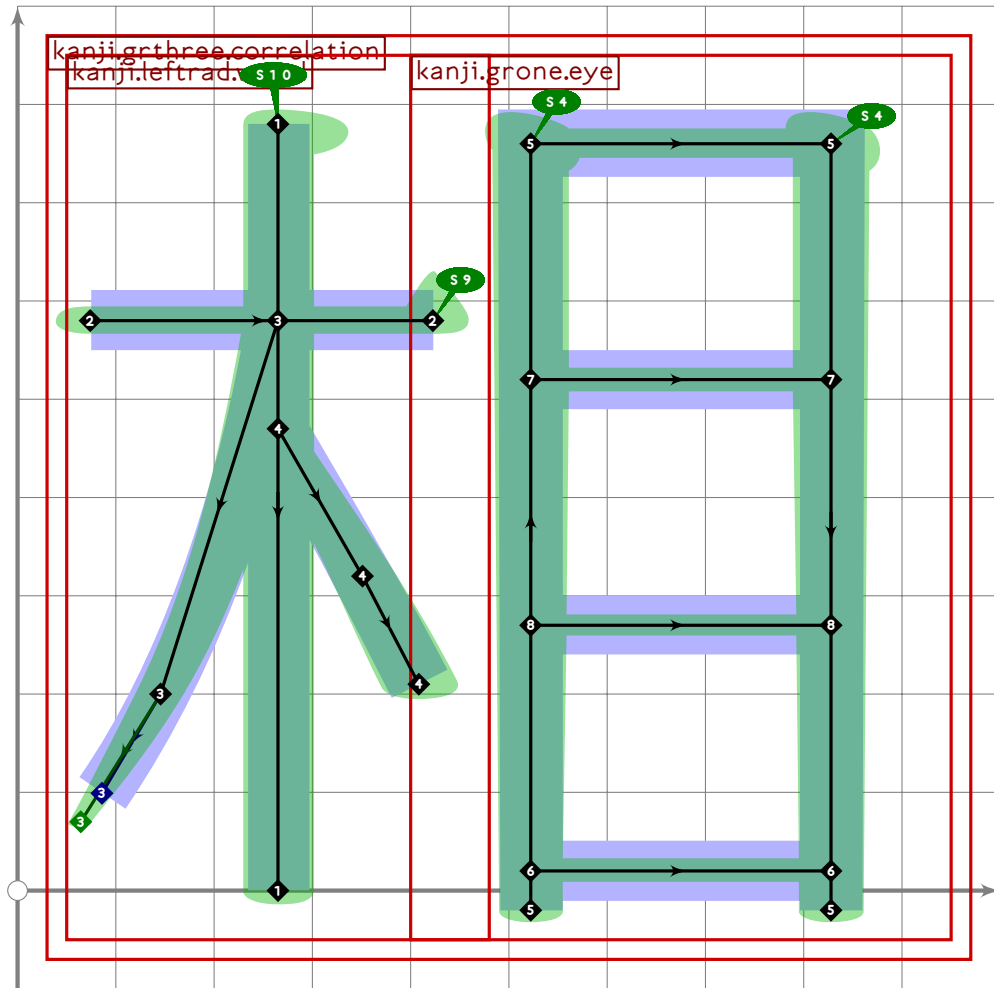
```



```

89
90 vardef kanji.grthree.change =
91   push_pbox_toexpand("kanji.grthree.change");
92   build_kanji.level(build_kanji.lr(470;-150)
93     (tsu_xform(identity yscaled 0.98)(kanji.leftrad.person))
94     (kanji.radical.spoon));
95   set_boserif(0,0,10);
96   expand_pbox;
97 enddef;

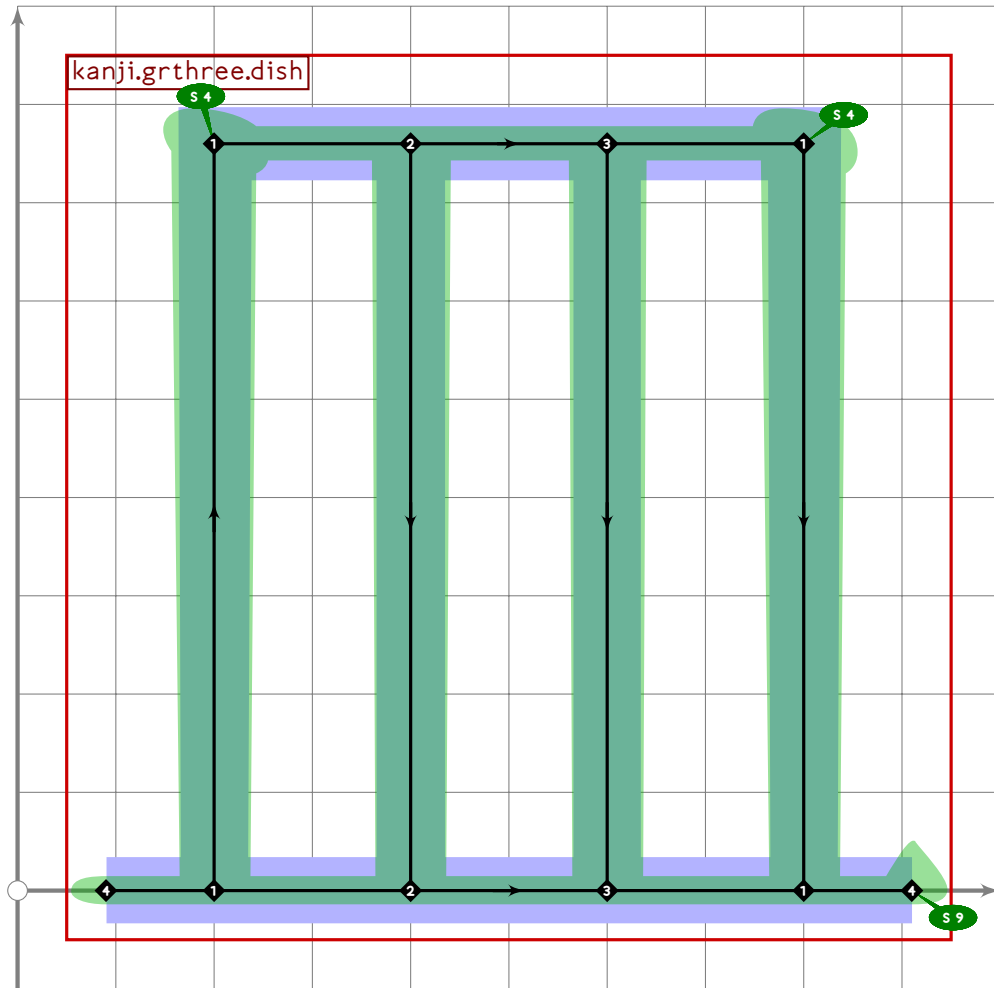
```



```

98
99 vardef kanji.grthree.correlation =
100   push_pbox_toexpand("kanji.grthree.correlation");
101   build_kanji.level(build_kanji.lr(440,80)
102     (kanji.leftrad.wood)
103     (kanji.grone.eye));
104   expand_pbox;
105 enddef;

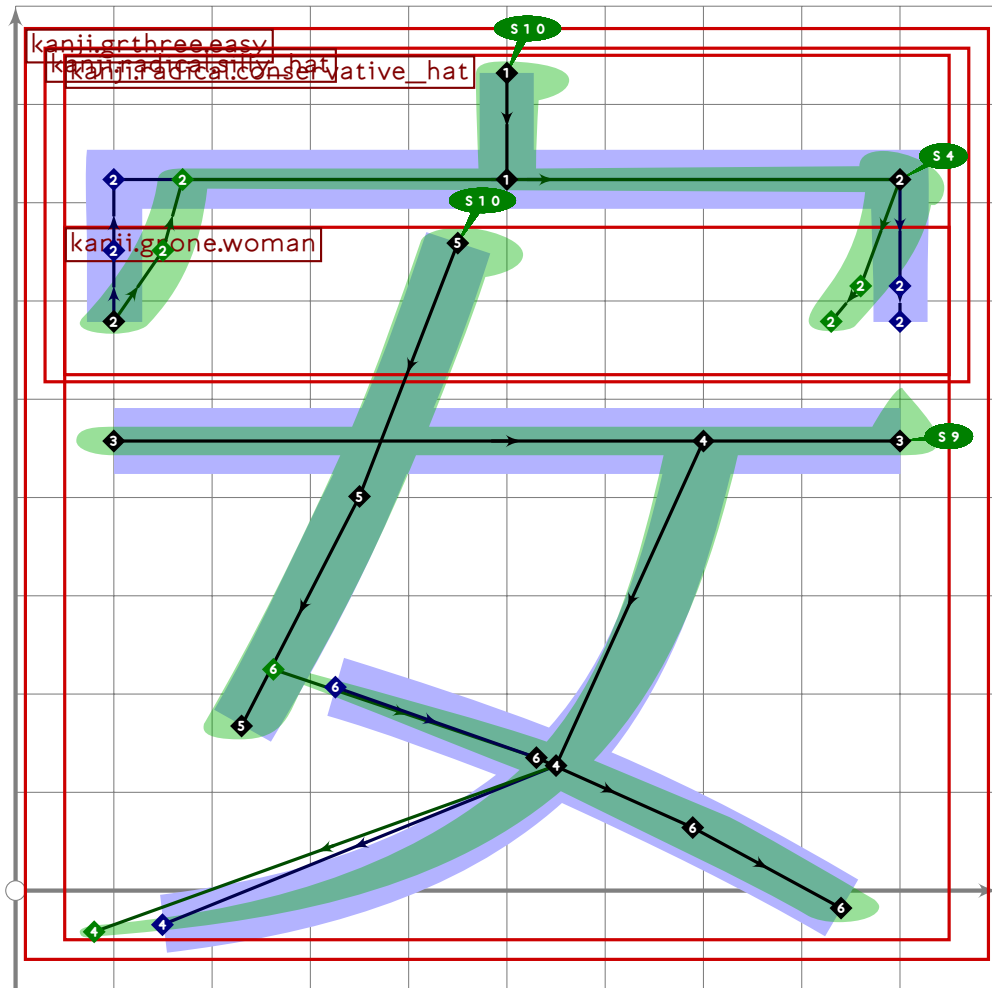
```



```

106
107 vardef kanji.grthree.dish =
108   push_pbox_toexpand("kanji.grthree.dish");
109   push_stroke((200,0)-(200,760)-(800,760)-(800,0),
110     (1.5,1.5)-(1.7,1.7)-(1.7,1.7)-(1.5,1.5));
111   set_botip(0,1);
112   set_botip(0,2,1);
113   set_boserif(0,1,4);
114   set_boserif(0,2,4);
115   push_stroke((400,760)-(400,0),(1.6,1.6)-(1.5,1.5));
116   push_stroke((600,760)-(600,0),(1.6,1.6)-(1.5,1.5));
117   push_stroke((90,0)-(910,0),(1.5,1.5)-(1.5,1.5));
118   set_boserif(0,1,9);
119   expand_pbox;
120 enddef;

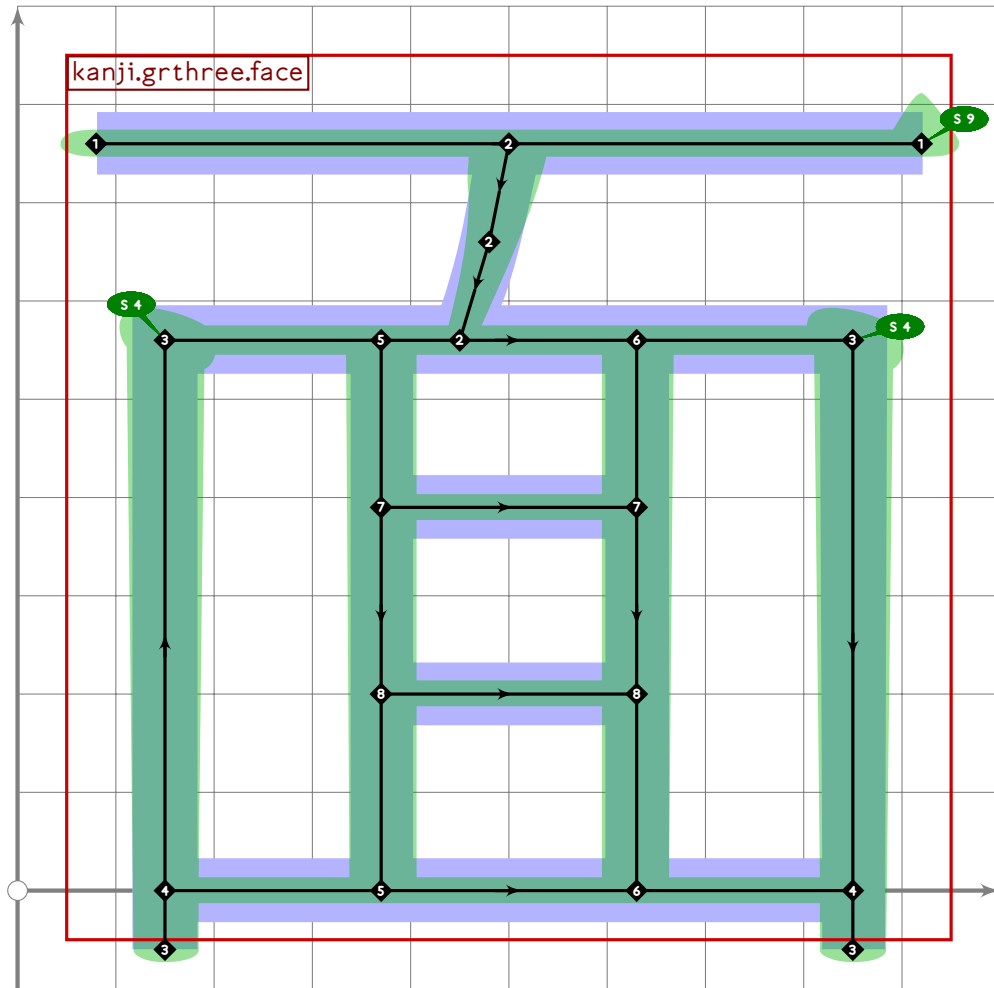
```



```

121
122 vardef kanji.grthree.easy =
123   push_pbox_toexpand("kanji.grthree.easy");
124   build_kanji.tb(600,150)
125     (kanji.radical.silly_hat)
126     (kanji.grone.woman);
127   expand_pbox;
128 enddef;

```

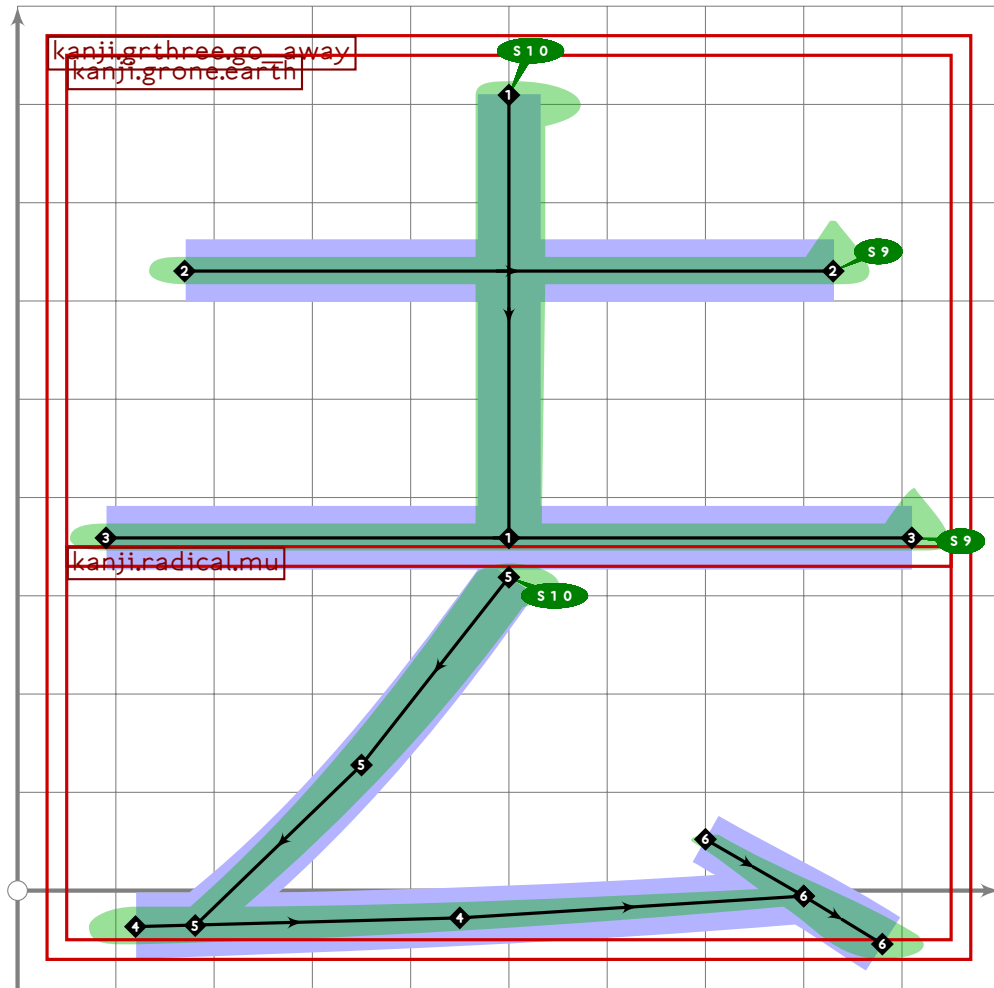


```

129
130 vardef kanji.grthree.face =
131   push_pbox_toexpand("kanji.grthree.face");
132   push_stroke((80,760)-(920,760),
133     (1.6,1.6)-(1.6,1.6));
134   set_boserif(0,1,9);
135   push_stroke((500,760)..(480,660)..(450,560),
136     (1.7,1.7)-(1.3,1.3)-(1,1));
137   build_kanji.box((150,560),(850,0));
138   push_stroke((370,560)-(370,0),(1.6,1.6)-(1.5,1.5));
139   push_stroke((630,560)-(630,0),(1.6,1.6)-(1.5,1.5));
140   push_stroke((370,390)-(630,390),(1.5,1.5)-(1.5,1.5));
141   push_stroke((370,200)-(630,200),(1.5,1.5)-(1.5,1.5));
142   for i=-7 upto 0: set_bosize(i,92); endfor;
143   expand_pbox;
144 enddef;

```

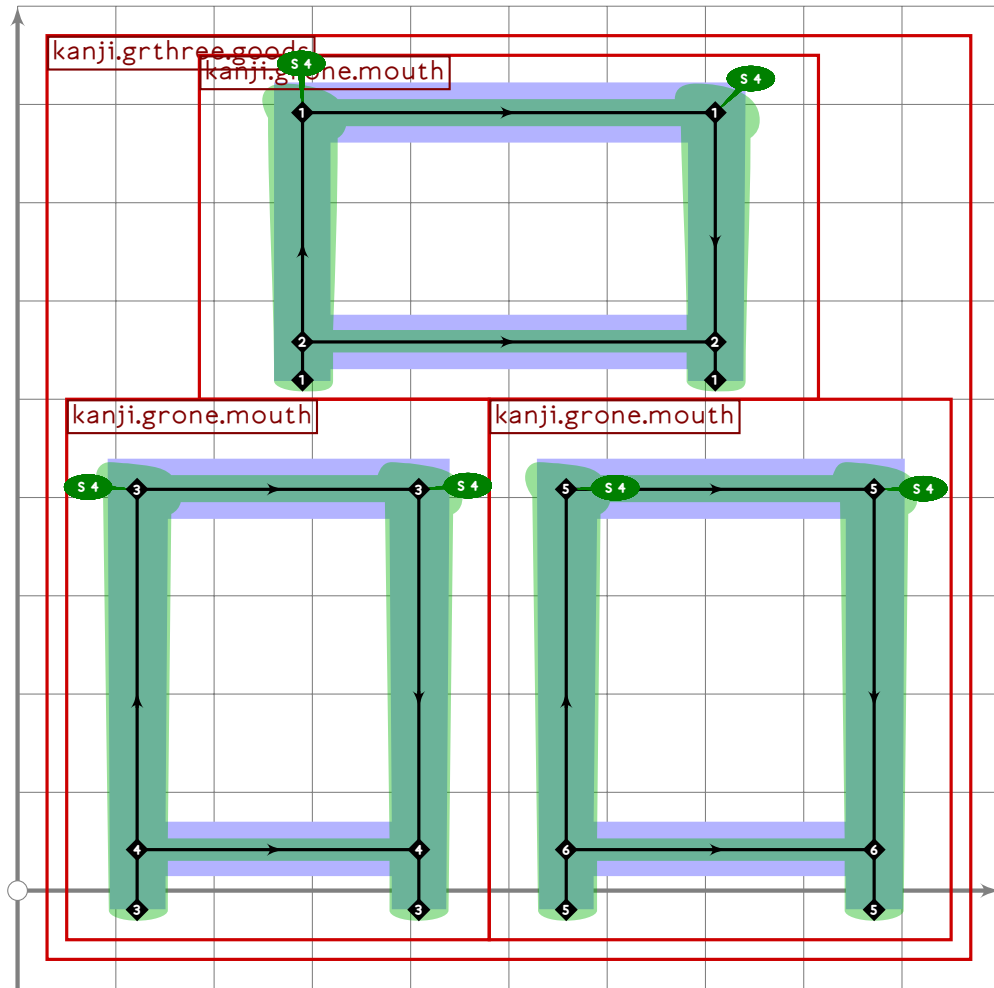




```

145
146 vardef kanji.grthree.go_away =
147   push_pbox_toexpand("kanji.grthree.go_away");
148   build_kanji.tb(340,20)
149     (kanji.grone.earth)
150     (kanji.radical.mu);
151   expand_pbox;
152 enddef;

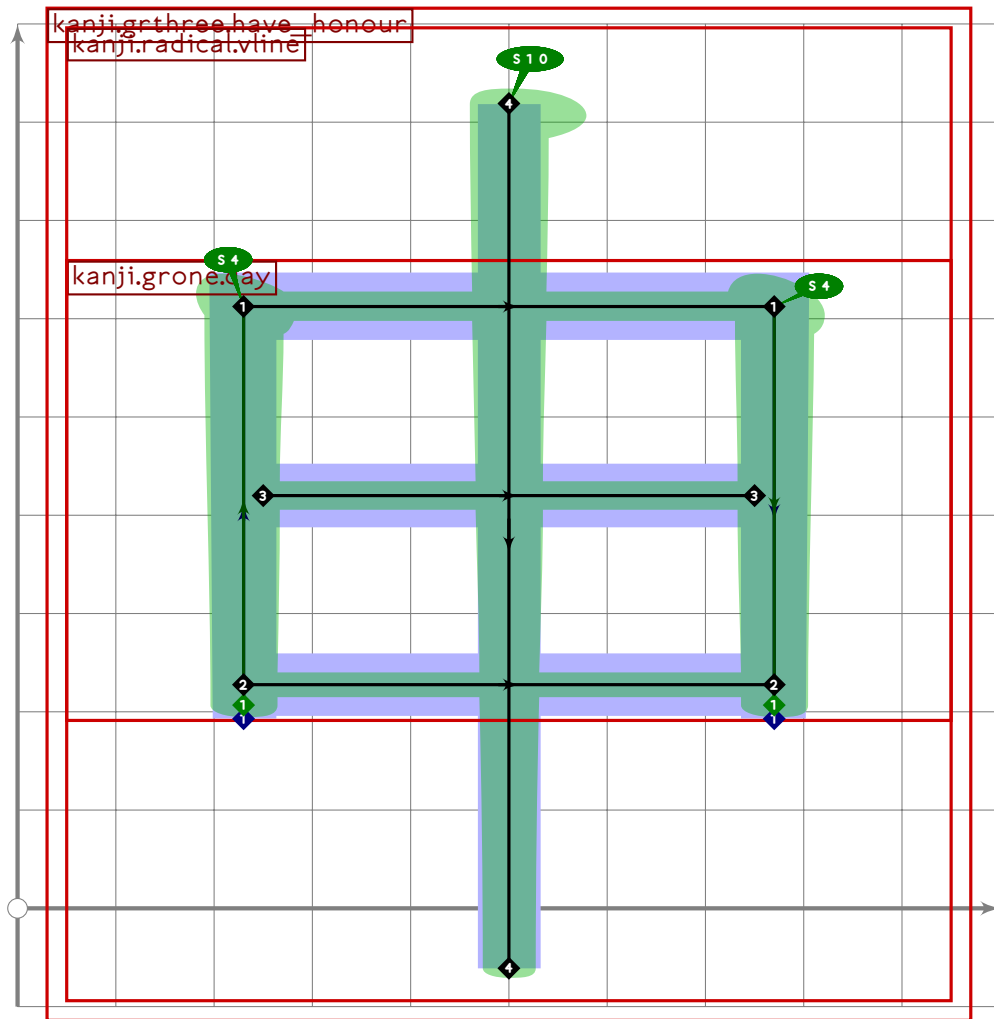
```



```

153
154 vardef kanji.grthree.goods =
155   push_pbox_toexpand("kanji.grthree.goods");
156   build_kanji.level(build_kanji.tricluster(0.7)
157     (kanji.grone.mouth)
158     (kanji.grone.mouth)
159     (kanji.grone.mouth));
160   expand_pbox;
161 enddef;

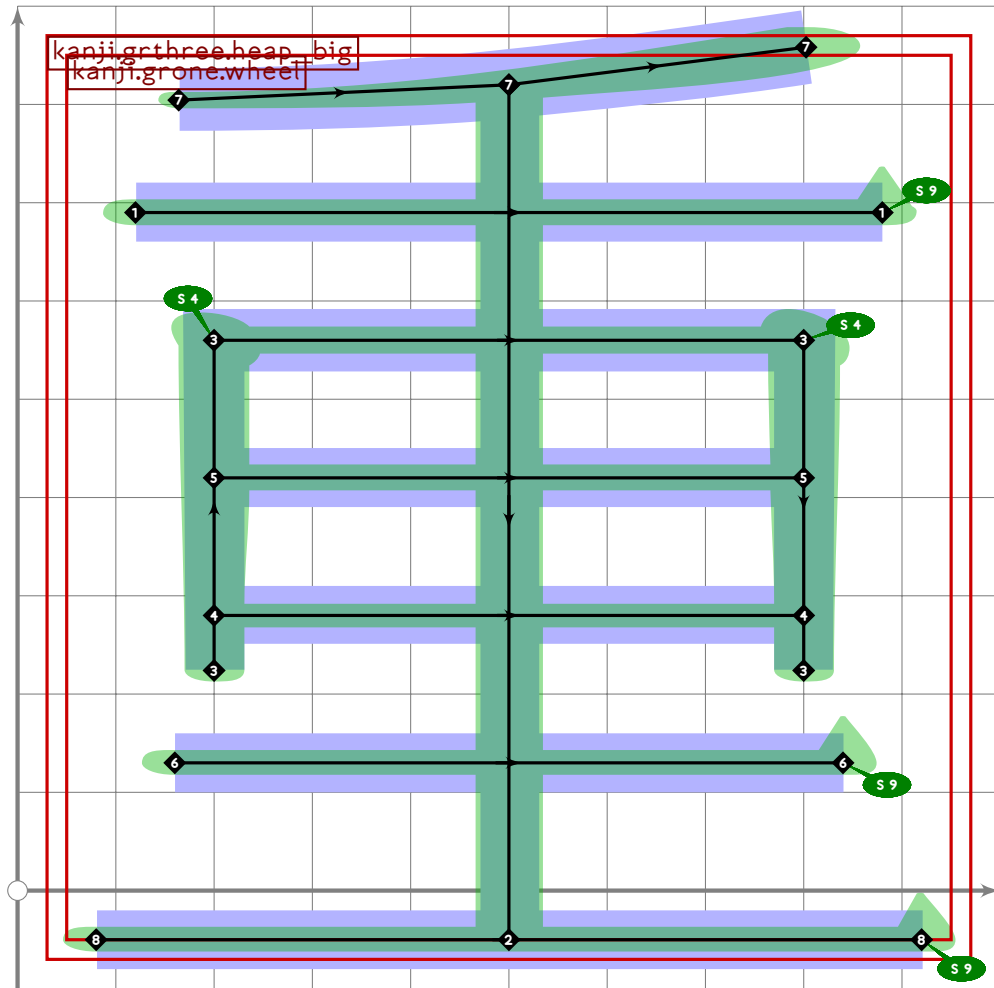
```



```

162
163 vardef kanji.grthree.have_honour =
164   push_pbox_toexpand("kanji.grthree.have_honour");
165   build_kanji.level(
166     build_kanji.sscale(yscaled 0.52 shifted (0,30))(kanji.grone.day);
167     build_kanji.sscale(yscaled 1.1)(kanji.radical.vline));
168   expand_pbox;
169 enddef;

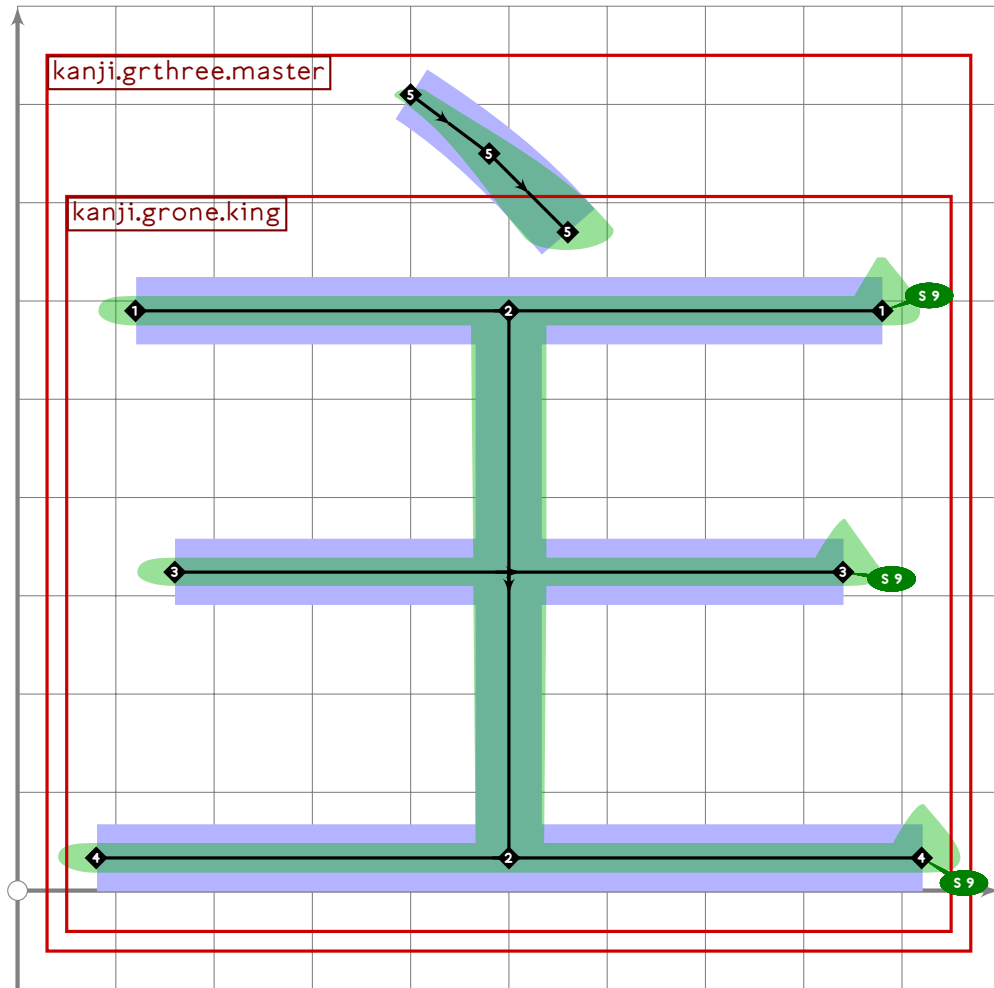
```



```

170
171 vardef kanji.grthree.heap_big =
172   push_pbox_toexpand("kanji.grthree.heap_big");
173   build_kanji.add_beret(kanji.grone.wheel);
174   push_stroke(get_stroke(-1),(1.6,1.6)-(1.6,1.6));
175   replace_stroke(0)(oldp shifted (0,-50-ypart llcorner oldp));
176   replace_stroke(-2)
177     ((160,ypart point 0 of oldp)-(840,ypart point 1 of oldp));
178   set_boserif(0,1,9);
179   set_bosize(0,get_bosize(-2));
180   expand_pbox;
181 enddef;

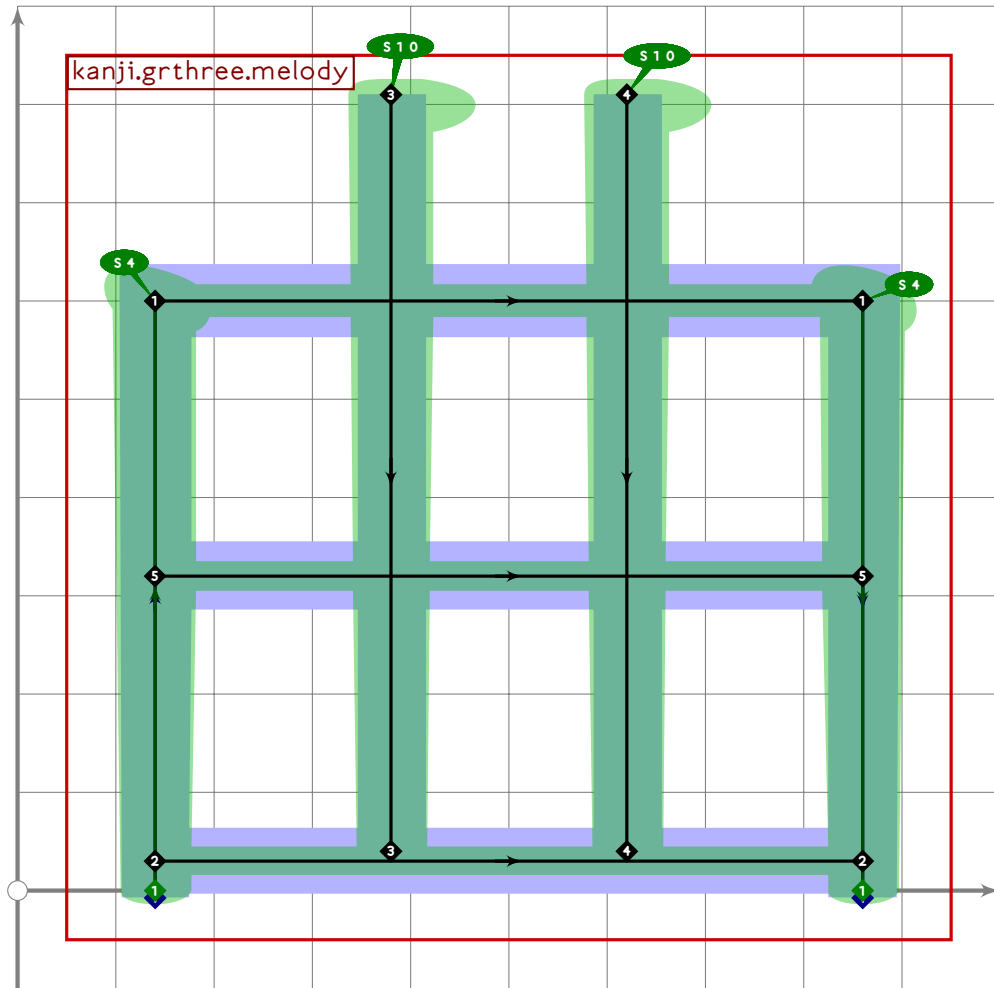
```



```

182
183 vardef kanji.grthree.master =
184   push_pbox_toexpand("kanji.grthree.master");
185   build_kanji.level(
186     tsu_xform(identity yscaled (590/710))(kanji.grone.king);
187     push_stroke((400,810)..(480,750)..(560,670),
188       (1,1)-(14,14)-(18,18)));
189   expand_pbox;
190 enddef;

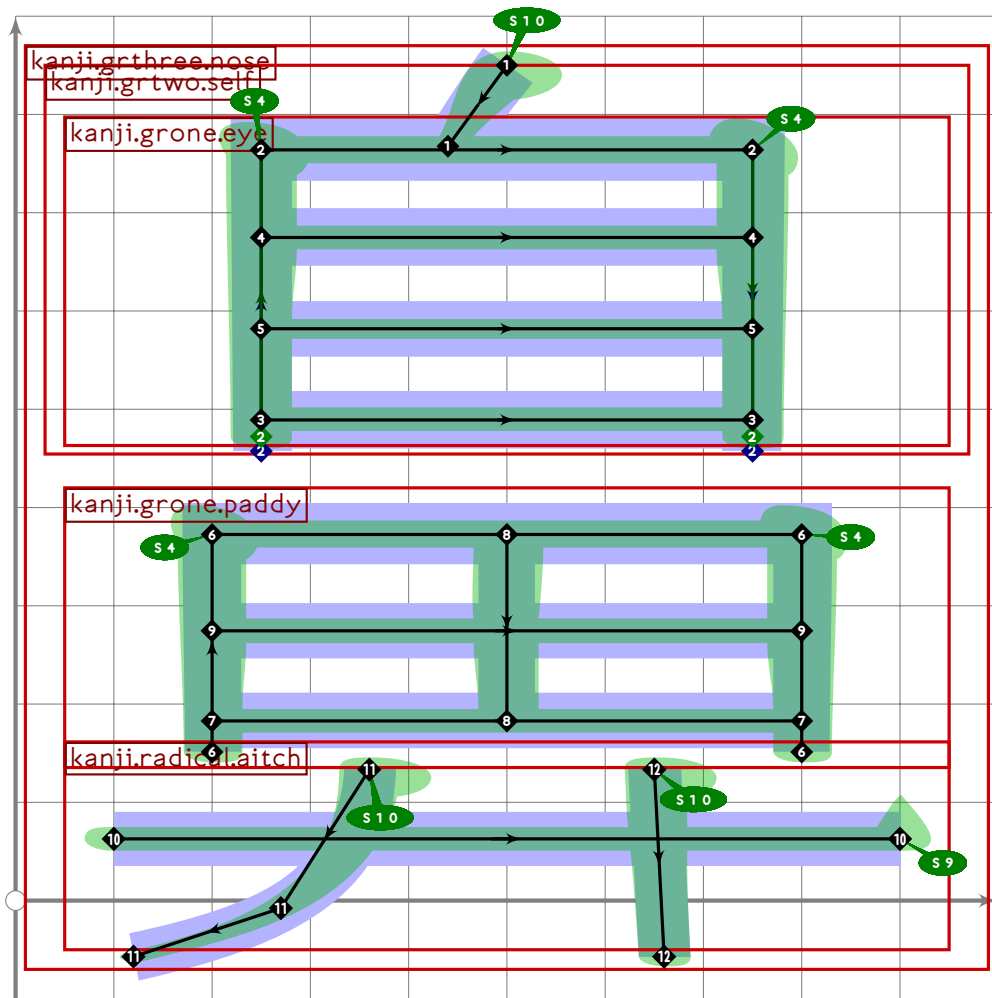
```



```

191
192 vardef kanji.grthree.melody =
193   push_pbox_toexpand("kanji.grthree.melody");
194   build_kanji.box((140,600),(860,30));
195   push_stroke((380,810)-(380,40),
196     (1.7,1.7)-(1.5,1.5));
197   set_boserif(0,0,10);
198   push_stroke((620,810)-(620,40),
199     (1.7,1.7)-(1.5,1.5));
200   set_boserif(0,0,10);
201   push_stroke((140,320)-(860,320),
202     (1.6,1.6)-(1.6,1.6));
203   expand_pbox;
204 enddef;

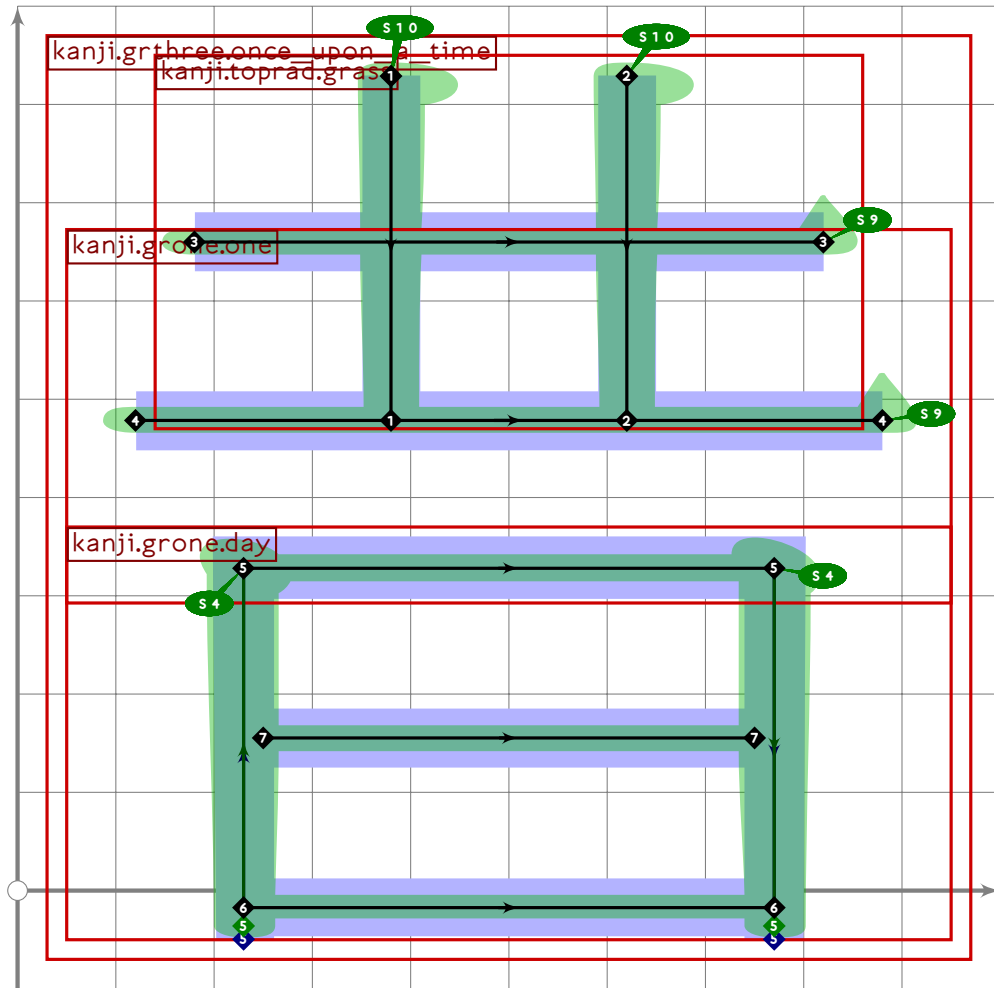
```



```

205
206 vardef kanji.grthree.nose =
207   push_pbox_toexpand("kanji.grthree.nose");
208   build_kanji.tb(440,-40)
209     (kanji.grtwo.self)
210     (build_kanji.tb(330,50)
211       (kanji.grone.paddy)
212       (kanji.radical.aitch));
213   expand_pbox;
214 enddef;

```

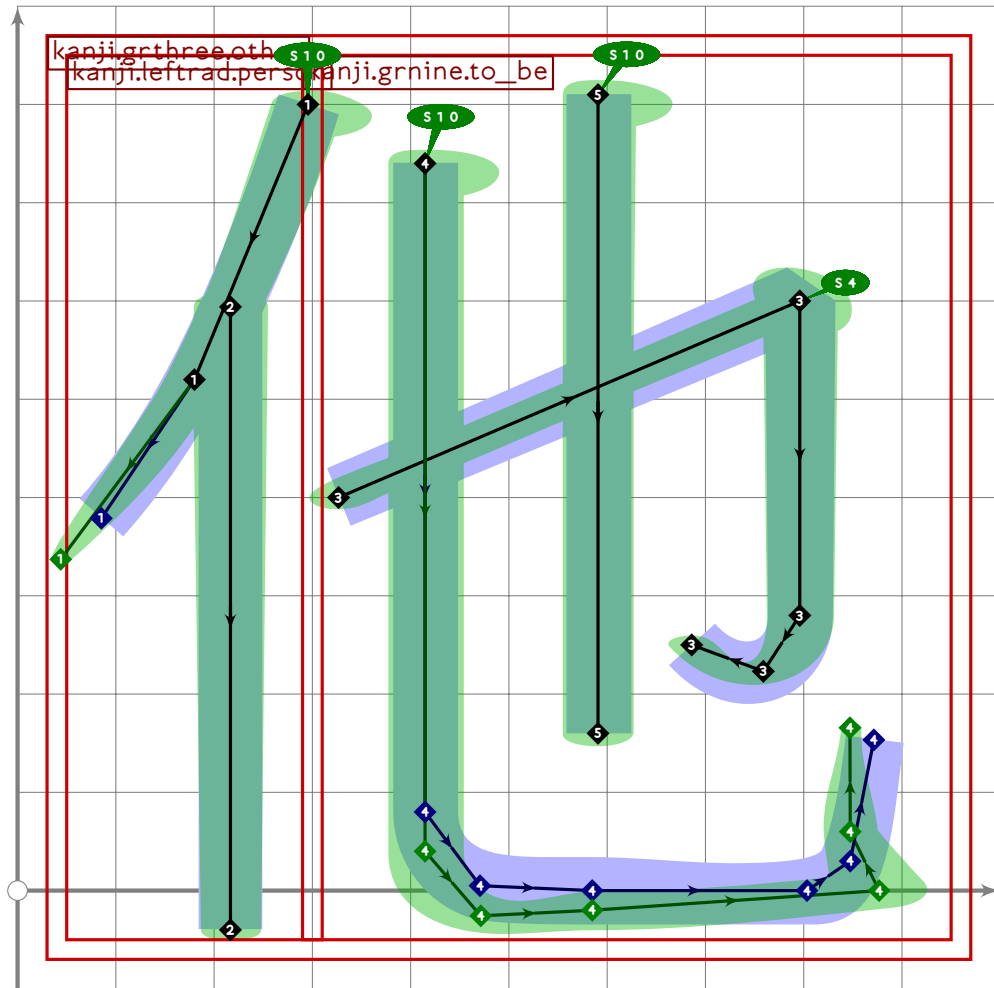


```

215
216 vardef kanji.grthree.once_upon_a_time =
217   push_pbox_toexpand("kanji.grthree.once_upon_a_time");
218   build_kanji.level(build_kanji.tb(420,-100)
219     (build_kanji.sscale(xscaled 0.8)(kanji.toprad.grass);
220     tsu_xform(identity shifted (0,-420))(kanji.grone.one))
221     (kanji.grone.day));
222   expand_pbox;
223 enddef;

```

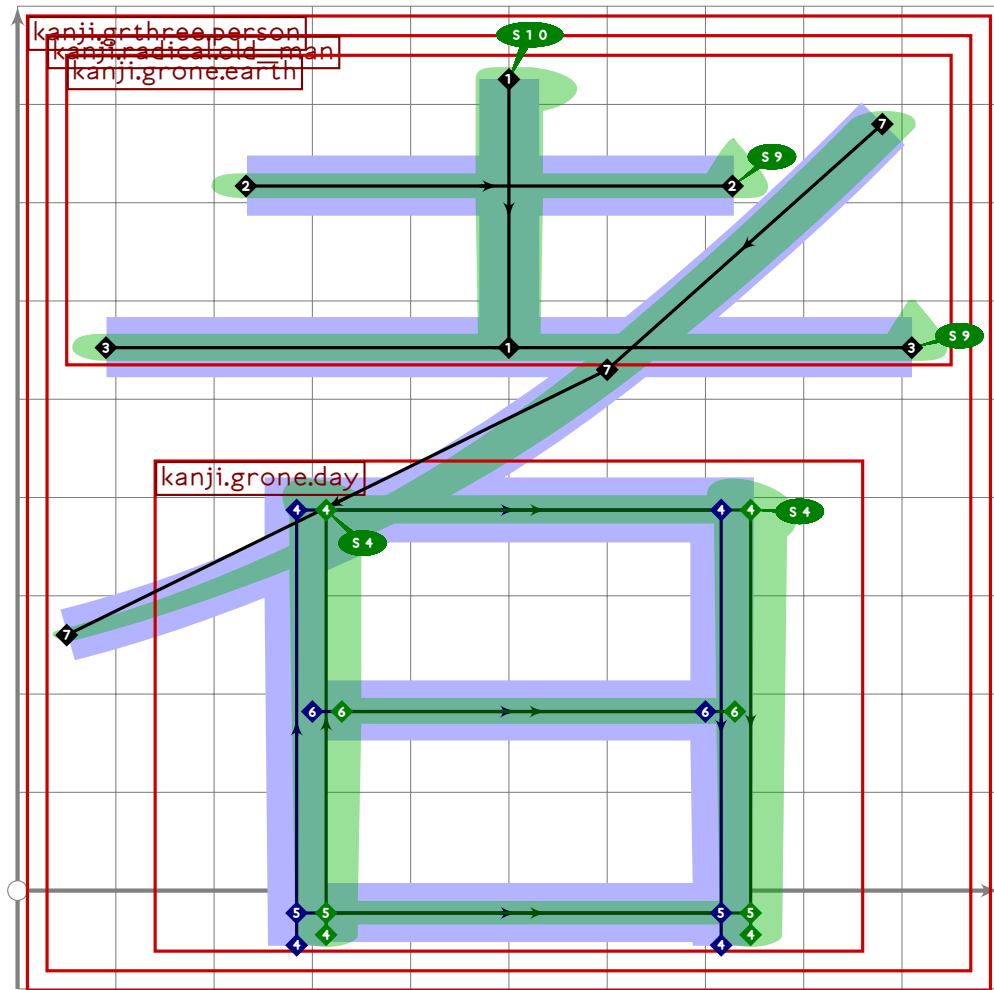




```

224
225 vardef kanji.grthree.other =
226   push_pbox_toexpand("KANJI.GRTHREE.OTH");
227   build_kanji.lr(300,20)
228     (KANJI.LEFTRAD.PERSON)
229     (KANJI.GRNINE.TO_BE);
230   expand_pbox;
231 enddef;

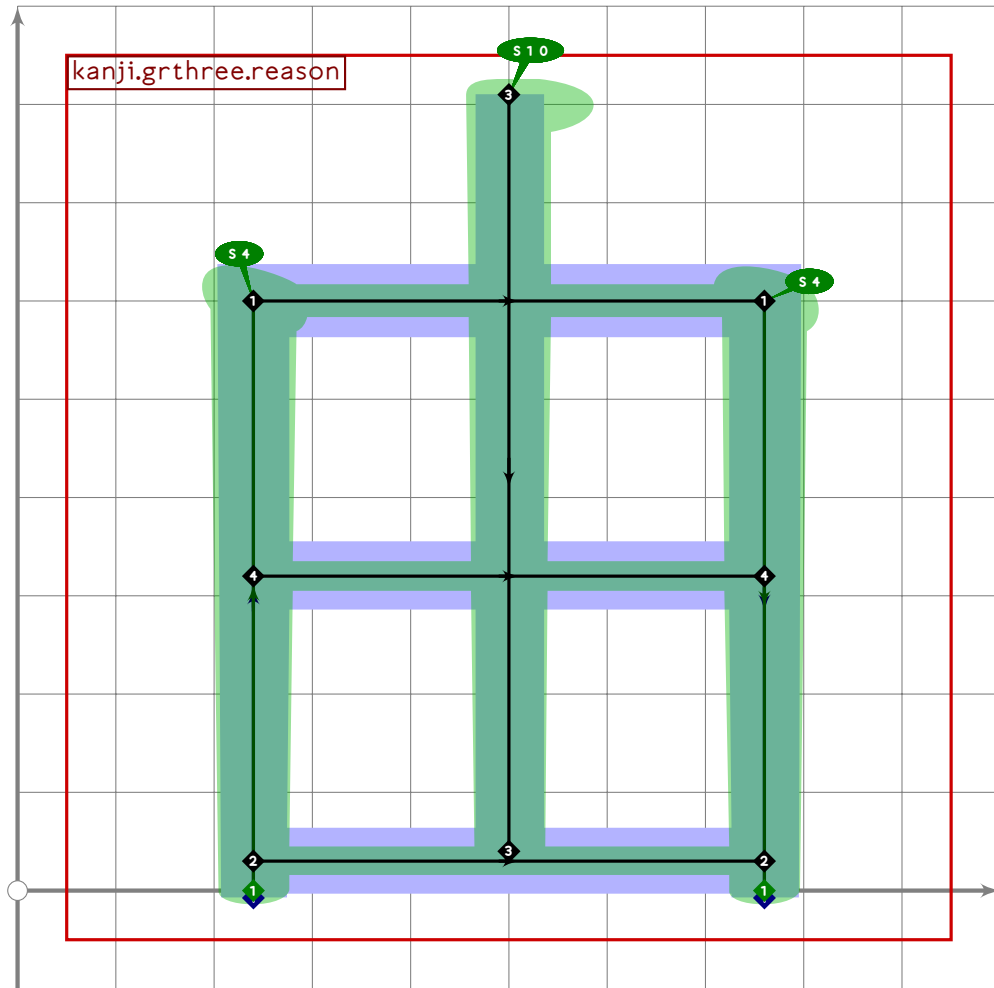
```



```

232
233 vardef kanji.grthree.person =
234   push_pbox_toexpand("kanji.grthree.person");
235   kanji.radical.old_man(
236     build_kanji.scale(xyscaled (0.8,1.05) shifted (30*mincho,0))
237     (kanji.grone.day));
238   expand_pbox;
239 enddef;

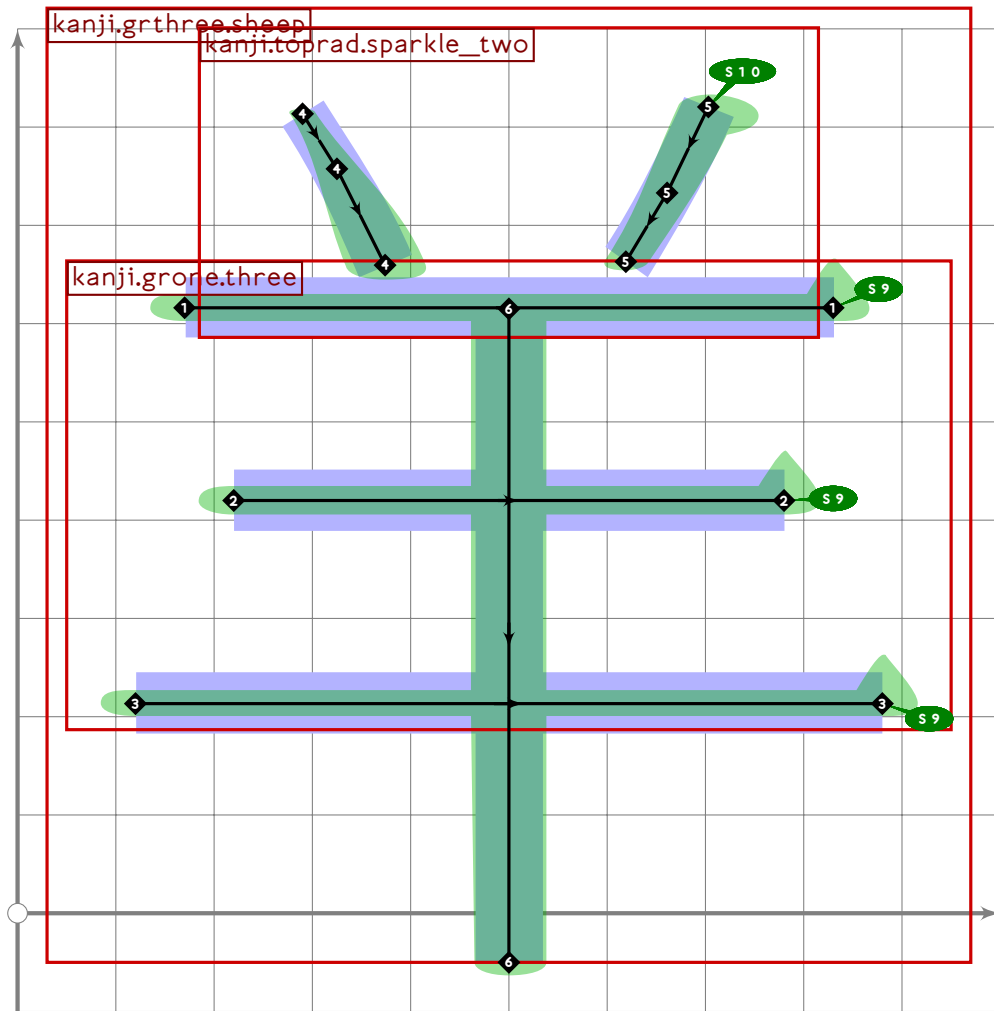
```



```

240
241 vardef kanji.grthree.reason =
242   push_pbox_toexpand("kanji.grthree.reason");
243   build_kanji.box((240,600),(760,30));
244   push_stroke((500,810)-(500,40),
245     (1.7,1.7)-(1.5,1.5));
246   set_boserif(0,0,10);
247   push_stroke((240,320)-(760,320),
248     (1.6,1.6)-(1.6,1.6));
249   expand_pbox;
250 enddef;

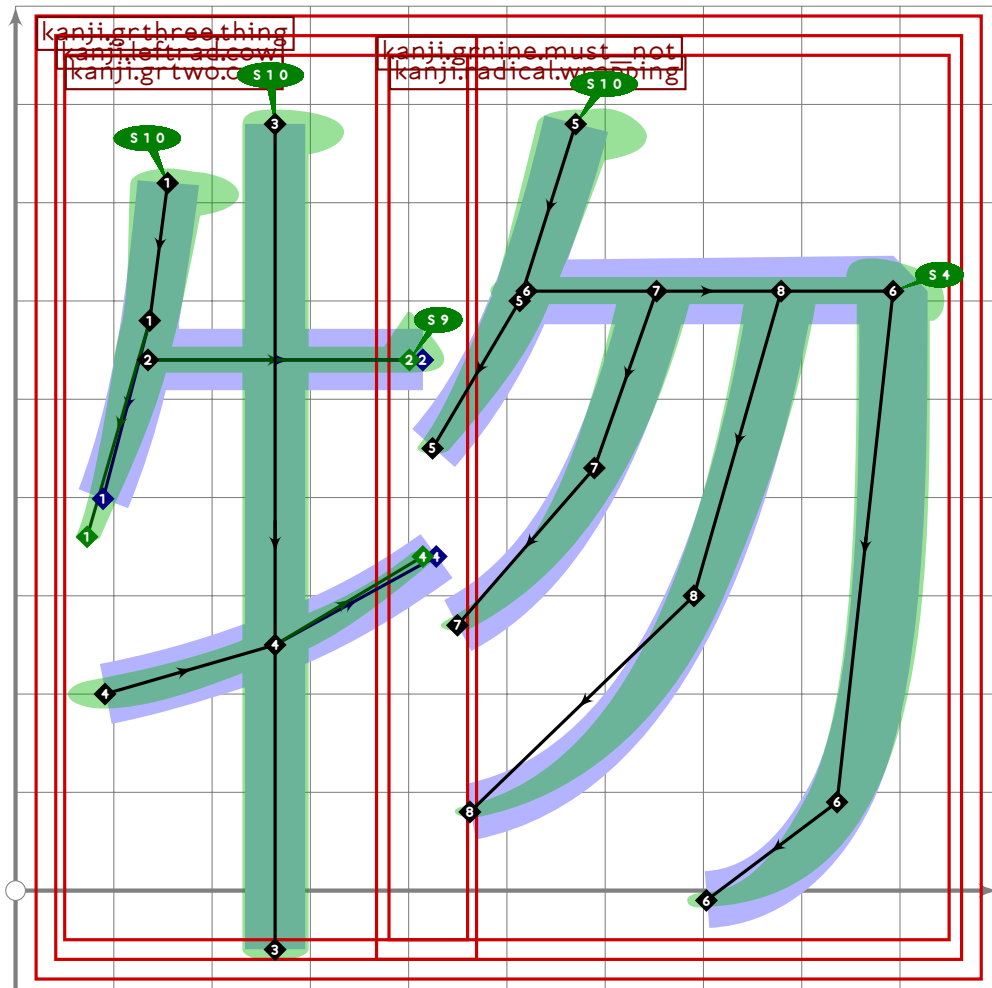
```



```

251
252 vardef kanji.grthree.sheep =
253   push_pbox_toexpand("kanji.grthree.sheep");
254   build_kanji.sscale(yscaled 0.53 shifted (0,30))
255     (kanji.grone.three);
256   build_kanji.sscale(xyscaled (0.7,0.35) shifted (0,350))
257     (kanji.toprad.sparkle_two);
258   push_stroke((500,615)-(500,-50),(1,6,1,6)-(1,5,1,5));
259   expand_pbox;
260 enddef;

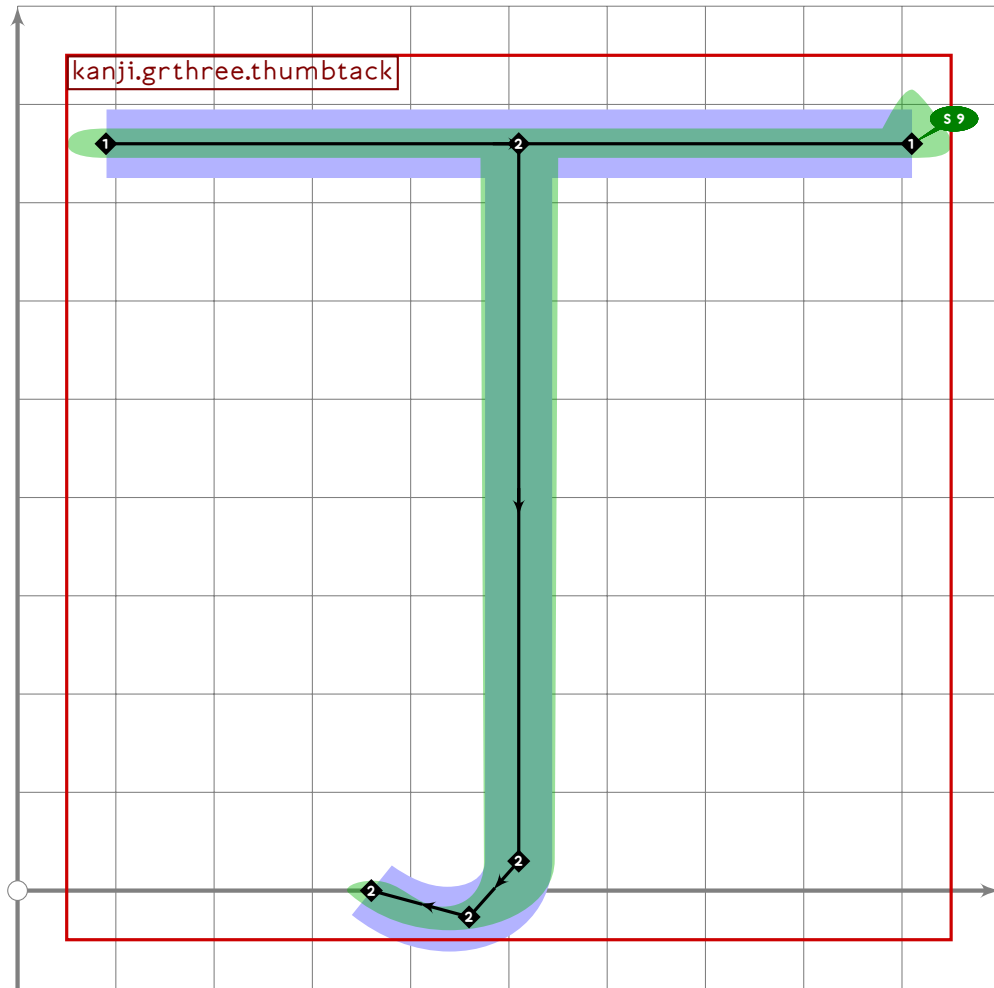
```



```

261
262 vardef kanji.grthree.thing =
263   push_pbox_toexpand("kanji.grthree.thing");
264   push_stroke((500,840),(1.6,1.6));
265   set_boserif(0,0,10);
266   build_kanji.add_jtail(0);
267   push_stroke((80,740)-(920,740),(1.6,1.6)-(1.6,1.6));
268   set_boserif(0,1,9);
269   build_kanji.box((230,620),(770,500));
270   tsu_xform(identity yscaled 0.37 shifted (0,100))
271     (kanji.radical.pigs_snout);
272   for i=-7 upto 0: set_bosize(i,85); endfor;
273   expand_pbox;
274 enddef;

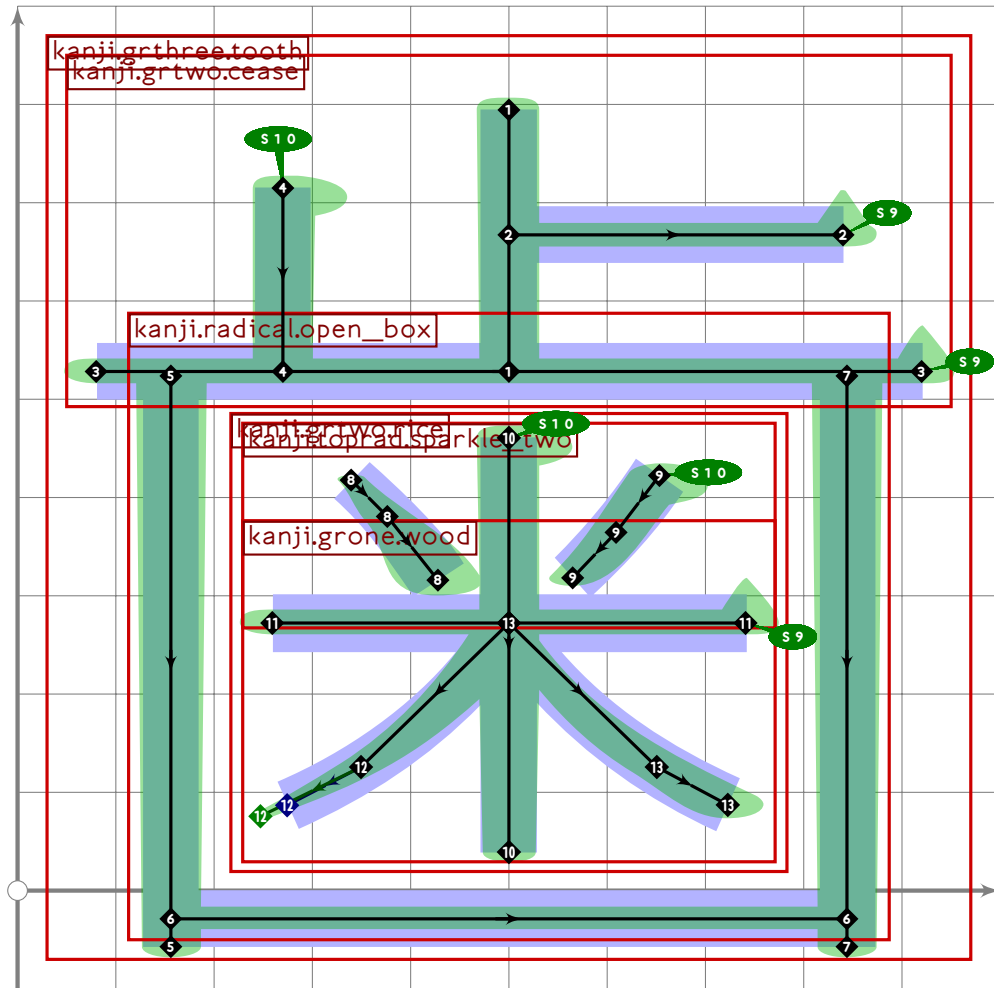
```



```

275
276 vardef kanji.grthree.thumbtack =
277   push_pbox_toexpand("kanji.grthree.thumbtack");
278   push_stroke((90,760)-(910,760),(1.6,1.6)-(1.6,1.6));
279   set_boserif(0,1,9);
280   push_stroke((510,760),(1.6,1.6));
281   build_kanji.add_jtail(0);
282   expand_pbox;
283 enddef;

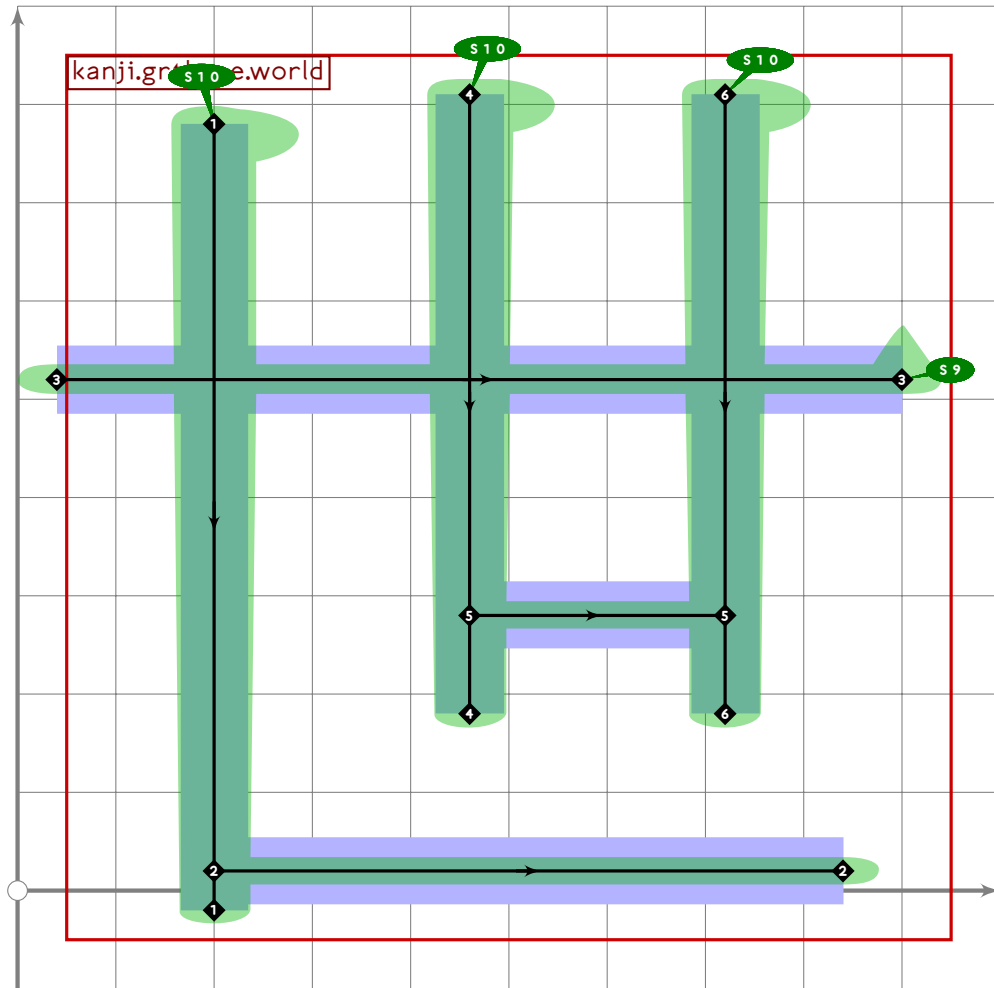
```



```

284
285 vardef kanji.grthree.tooth =
286   push_pbox_toexpand("kanji.grthree.tooth");
287   build_kanji.level(build_kanji.tb(540,95)
288     (kanji.grtwo.cease)
289     (build_kanji.sscale(xscaled 0.86)(
290       kanji.radical.open_box;
291       set_boserif(-2,0,whatever);
292       set_boserif(0,0,whatever);
293       build_kanji.sscale(scaled 0.7 shifted (0;-20))(kanji.grtwo.rice)))));
294   expand_pbox;
295 enddef;

```



```

296
297 vardef kanji.grthree.world =
298   push_pbox_toexpand("kanji.grthree.world");
299   build_kanji.box((200,780),(840,20));
300   replace_stroke(-1)(reverse subpath (0,1) of oldp);
301   replace_strokeq(-1)(reverse subpath (0,1) of oldq);
302   set_boserif(-1,0,10);
303   set_boserif(-1,1,whatever);
304   set_botip(-1,1,whatever);
305   push_stroke((40,520)-(900,520),
306     (1.6,1.6)-(1.6,1.6));
307   set_boserif(0,1,9);
308   build_kanji.box((460,810),(720,280));
309   set_boserif(-1,0,10);
310   set_boserif(-1,1,whatever);
311   set_botip(-1,1,whatever);
312   push_stroke(subpath (2,3) of get_stroke(-1),
313     subpath (2,3) of get_strokeq(-1));
314   replace_stroke(-2)(reverse subpath (0,1) of oldp);
315   replace_strokeq(-2)(reverse subpath (0,1) of oldq);
316   set_boserif(0,0,10);

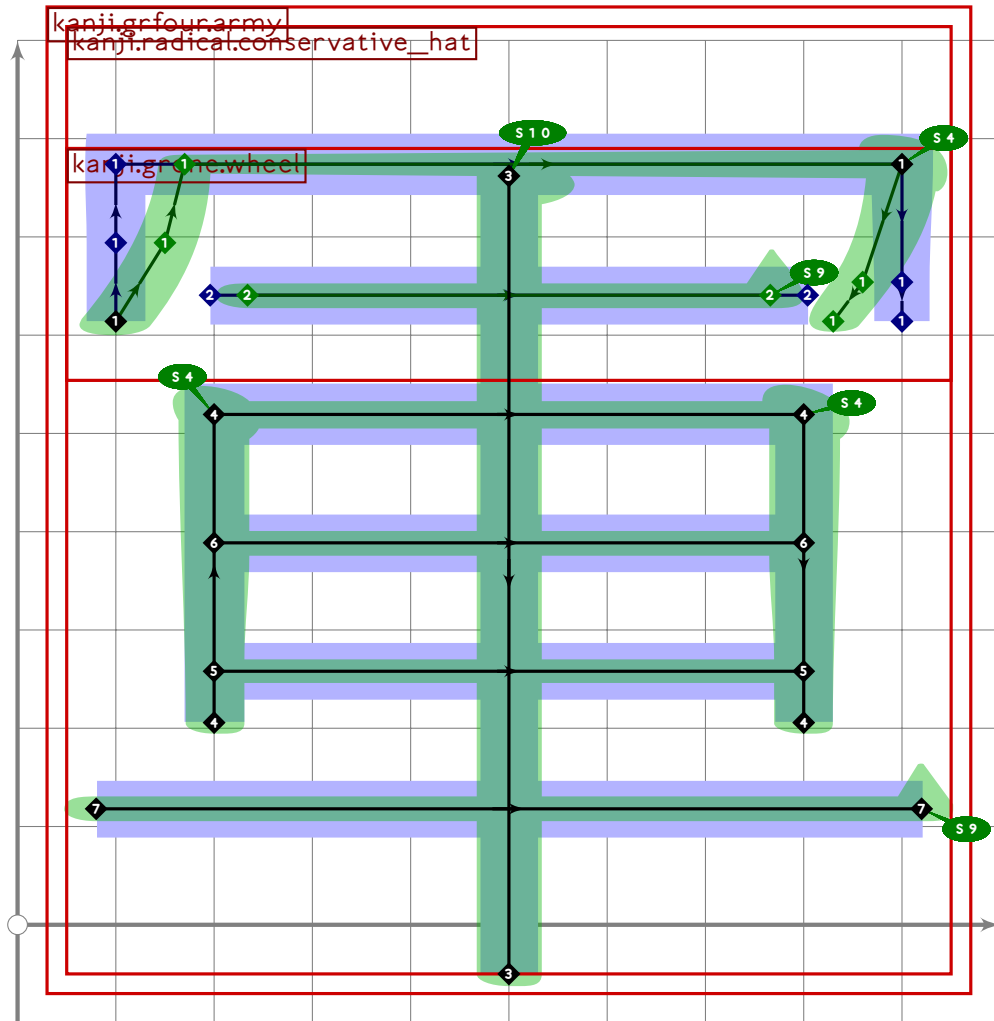
```



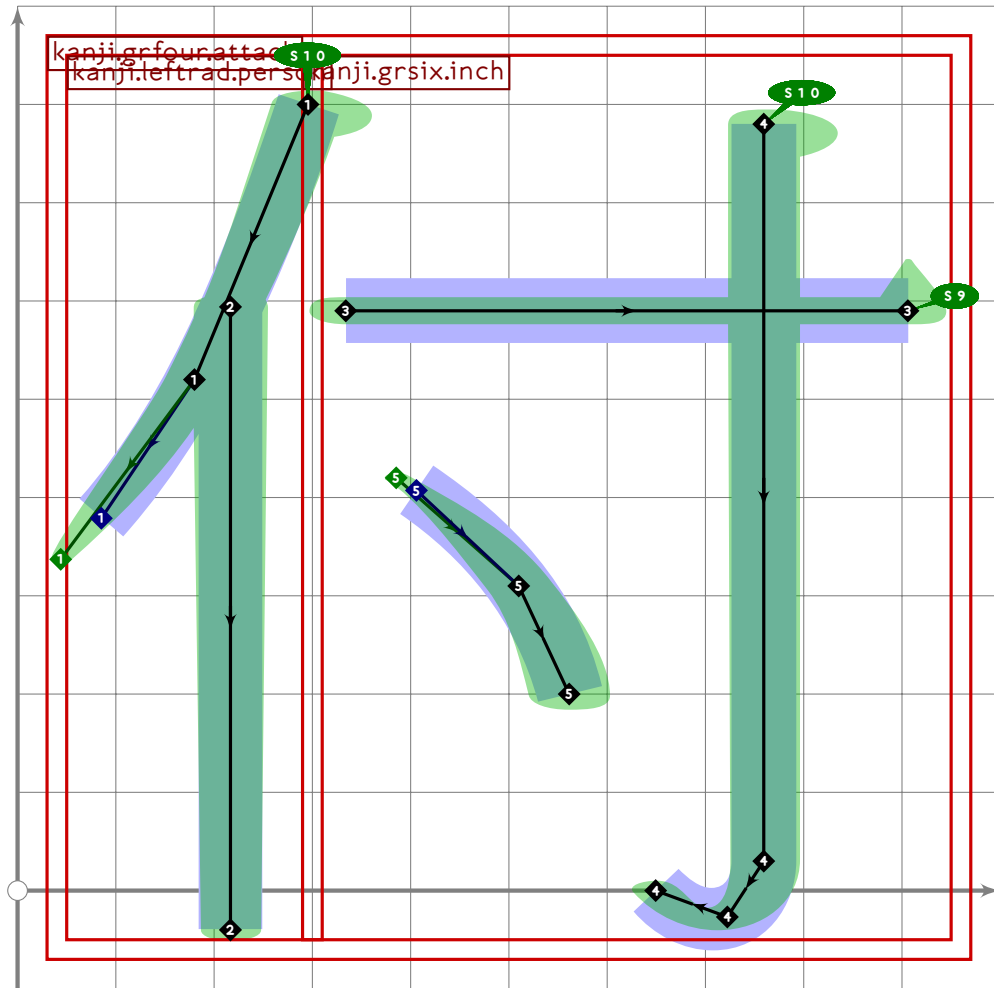
```
317 expand_pbox;  
318 enddef;
```

# gradefour.mp

```
1 %
2 % Grade Four kanji used on more than one page
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(gradefour);
32
33
```



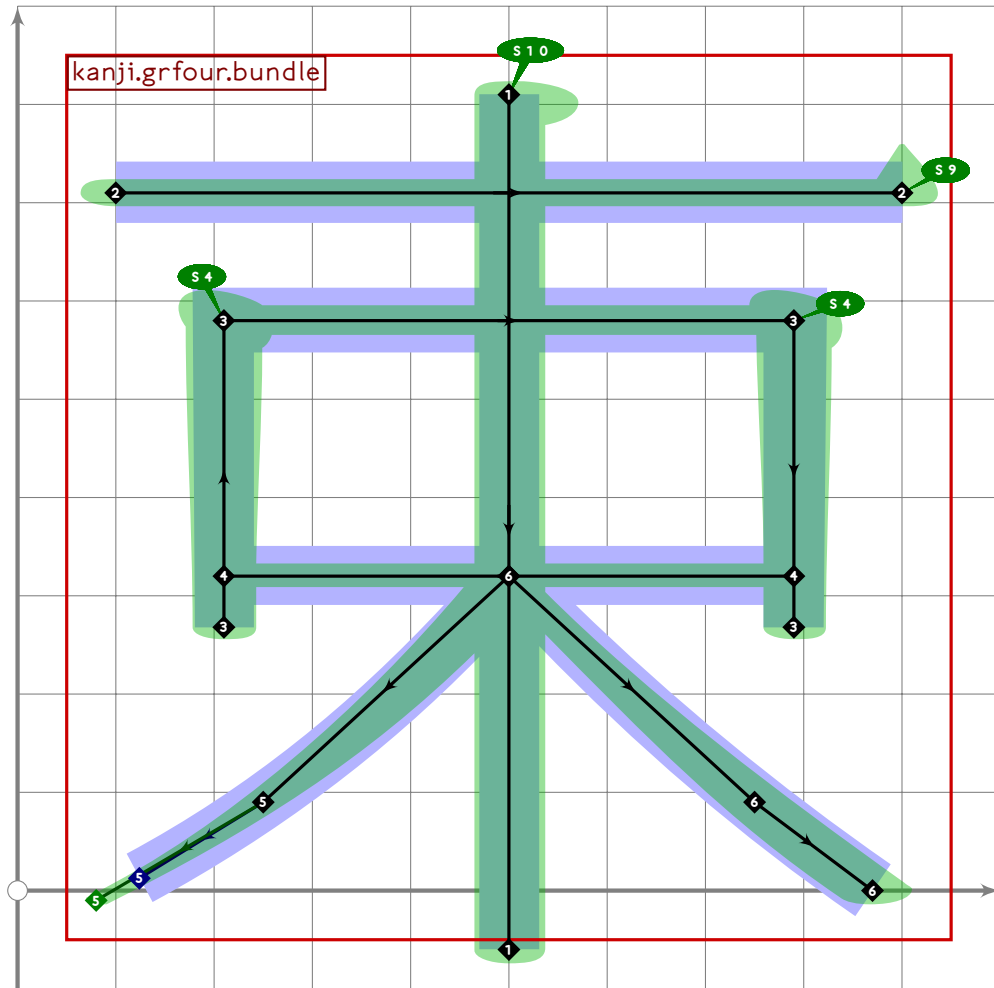
```
34
35 vardef kanji.grfour.army =
36   push_pbox_toexpand("kanji.grfour.army");
37   build_kanji.level(build_kanji.tb(640,300)
38     (tsu_xform(identity shifted (0,160))(kanji.radical.conservative_hat))
39     (kanji.grone.wheel;
40     replace_stroke(-5)(subpath (0.1+0.05*mincho,0.9-0.05*mincho) of oldp)));
41   expand_pbox;
42 enddef;
```



```

43
44 vardef kanji.grfour.attach =
45   push_pbox_toexpand("kanji.grfour.attach");
46   build_kanji.lr(300,20)
47     (kanji.leftrad.person)
48     (kanji.grsix.inch);
49   expand_pbox;
50 enddef;

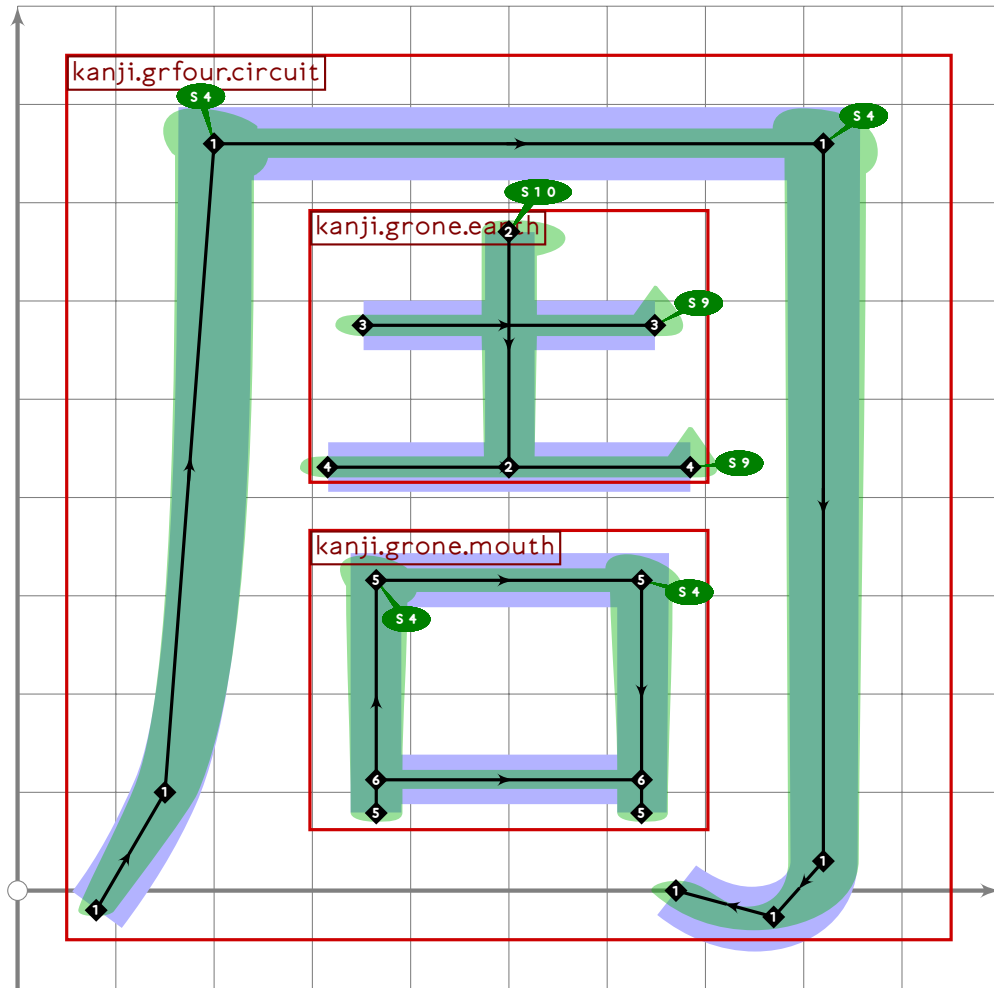
```



```

51
52 vardef kanji.grfour.bundle =
53   push_pbox_toexpand("kanji.grfour.bundle");
54   push_stroke((500,810)-(500,-60),
55     (1.6,1.6)-(1.6,1.6));
56   set_boserif(0,0,10);
57   push_stroke((100,710)-(900,710),
58     (1.6,1.6)-(1.6,1.6));
59   set_boserif(0,1,9);
60   build_kanji.box((210,580),(790,320));
61   push_stroke((500,320)..(250,90)..(80,-10),
62     (1.6,1.6)..(1.3,1.3)..(0.9,0.9));
63   push_stroke((500,320)..(750,90)..(870,0),
64     (1.1,1.1)..(1.5,1.5)..(1.7,1.7));
65   for i=-6 upto 0: set_bosize(i,89); endfor;
66   expand_pbox;
67 enddef;

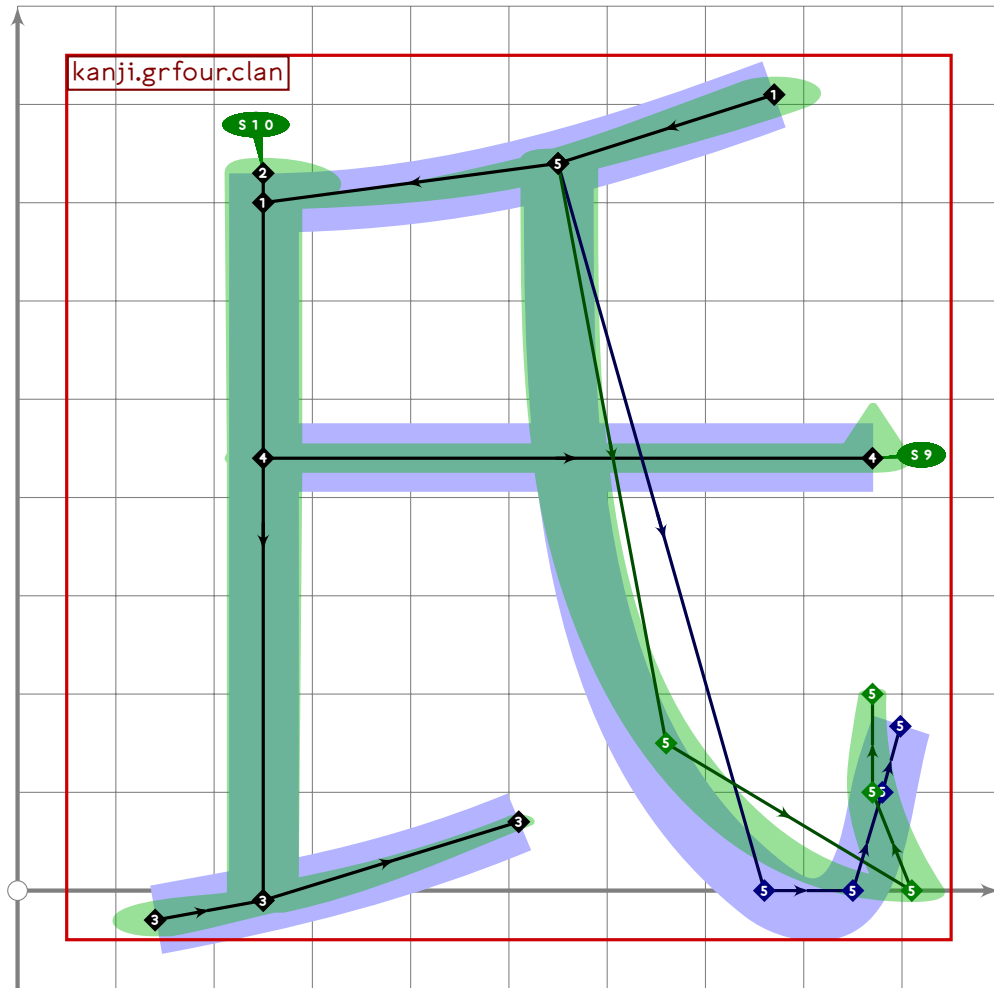
```



```

68
69 vardef kanji.grfour.circuit =
70   push_pbox_toexpand("kanji.grfour.circuit");
71   push_stroke((80,-20)..(150,100)..{\up}(200,760){right}-(820,760),
72     (1,1)-(14,14)-(16,16)-(16,16));
73   build_kanji.add_jtail(0);
74   set_botip(0,2,0.8);
75   set_botip(0,3,1);
76   set_boserif(0,2,4);
77   set_boserif(0,3,4);
78   build_kanji.sscale(xyscaled (0.45,0.7) shifted (0,-20))
79     (build_kanji.tb(420,70)
80       (kanji.grone.earth)
81       (kanji.grone.mouth));
82   expand_pbox;
83 enddef;

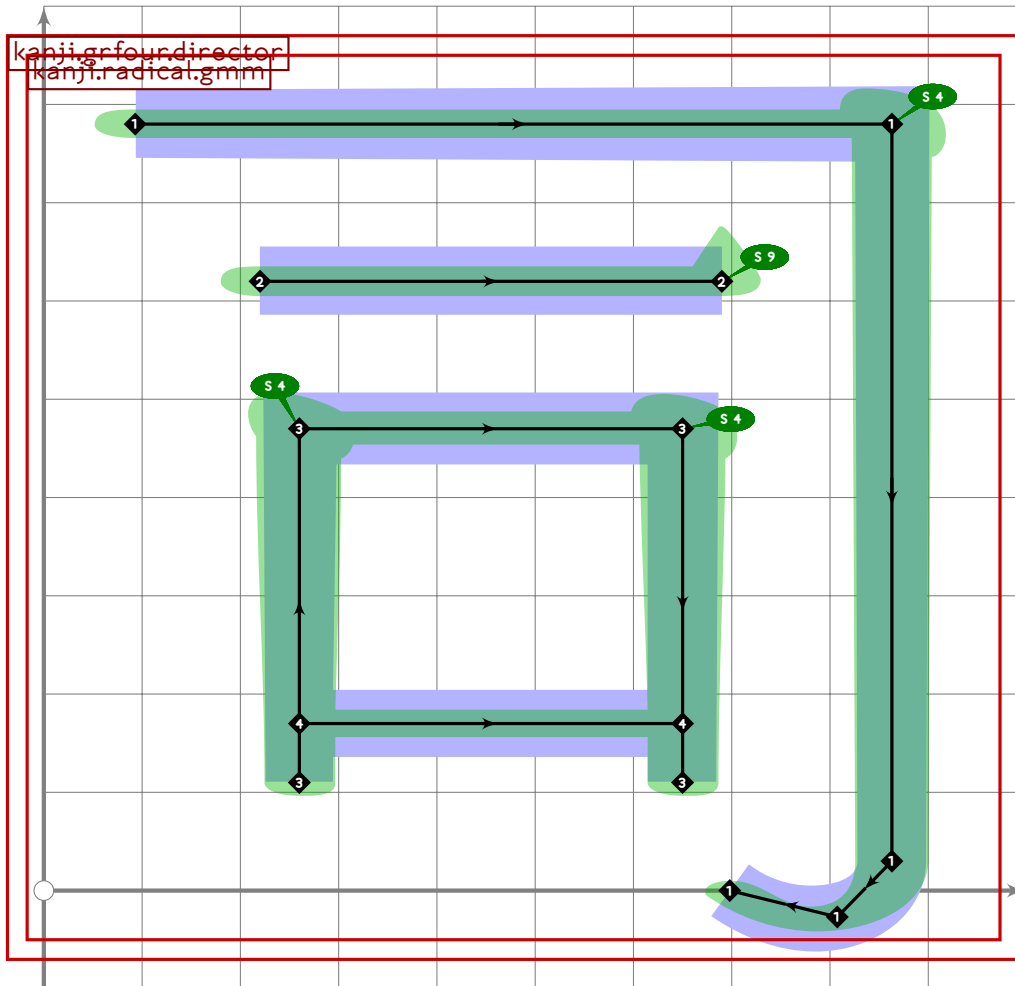
```



```

84
85 vardef kanji.grfour.clan =
86   push_pbox_toexpand("kanji.grfour.clan");
87   push_stroke((770,810)..tension 1.2..(550,740)..(250,700),
88     (1.8,1.8)-(1.5,1.5)-(1,1));
89   push_stroke((250,730)-(250,-10),
90     (1.6,1.6)-(1.5,1.5));
91   set_boserif(0,0,10);
92   push_stroke((140,-30)..tension 1.2..(250,-10)..(510,70),
93     (1.7,1.7)-(1.5,1.5)-(1,1));
94   push_stroke((250,440)-(870,440),(1.6,1.6)-(1.6,1.6));
95   set_boserif(0,1,9);
96   push_stroke(interpath(mincho,
97     (550,740){down}.tension 1.2 and 1.6..(760,0)..(850,0)..tension 1.5..
98     (880,100)..(910,200),
99     (550,740){down}..(660,150)..{right}(910,0){curl 1}..
100     (870,100)..(870,200)),
101     (1.6,1.6)-(1.4,1.4)-(1.4,1.4)-(1.2,1.2)-(0.9,0.9));
102   expand_pbox;
103 enddef;

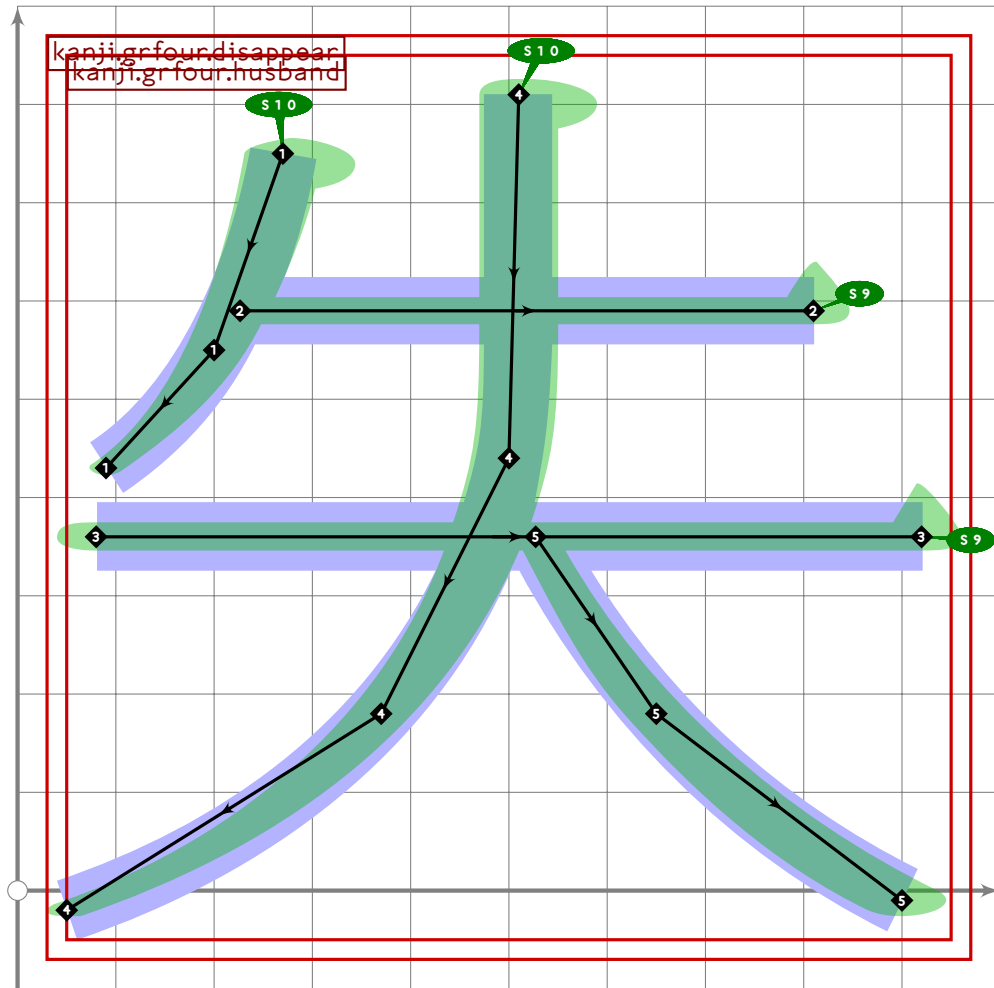
```



```

104
105 vardef kanji.grfour.director =
106   push_pbox_toexpand("kanji.grfour.director");
107   build_kanji.sscale(shifted (-20,0) xscaled 1.1)
108     (kanji.radical.gmm);
109   replace_stroke(0)(subpath (2,infinity) of oldp);
110   replace_strokeq(0)(subpath (2,infinity) of oldq);
111   set_botip(0,1,4);
112   set_boserif(0,1,4);
113   set_botip(0,2,whatever);
114   set_boserif(0,2,whatever);
115   set_botip(0,3,whatever);
116   set_boserif(0,3,whatever);
117   push_stroke((220,620)-(690,620),
118     (1.6,1.6)-(1.6,1.6));
119   set_boserif(0,1,9);
120   build_kanji.box((260,470),(650,170));
121   expand_pbox;
122 enddef;

```

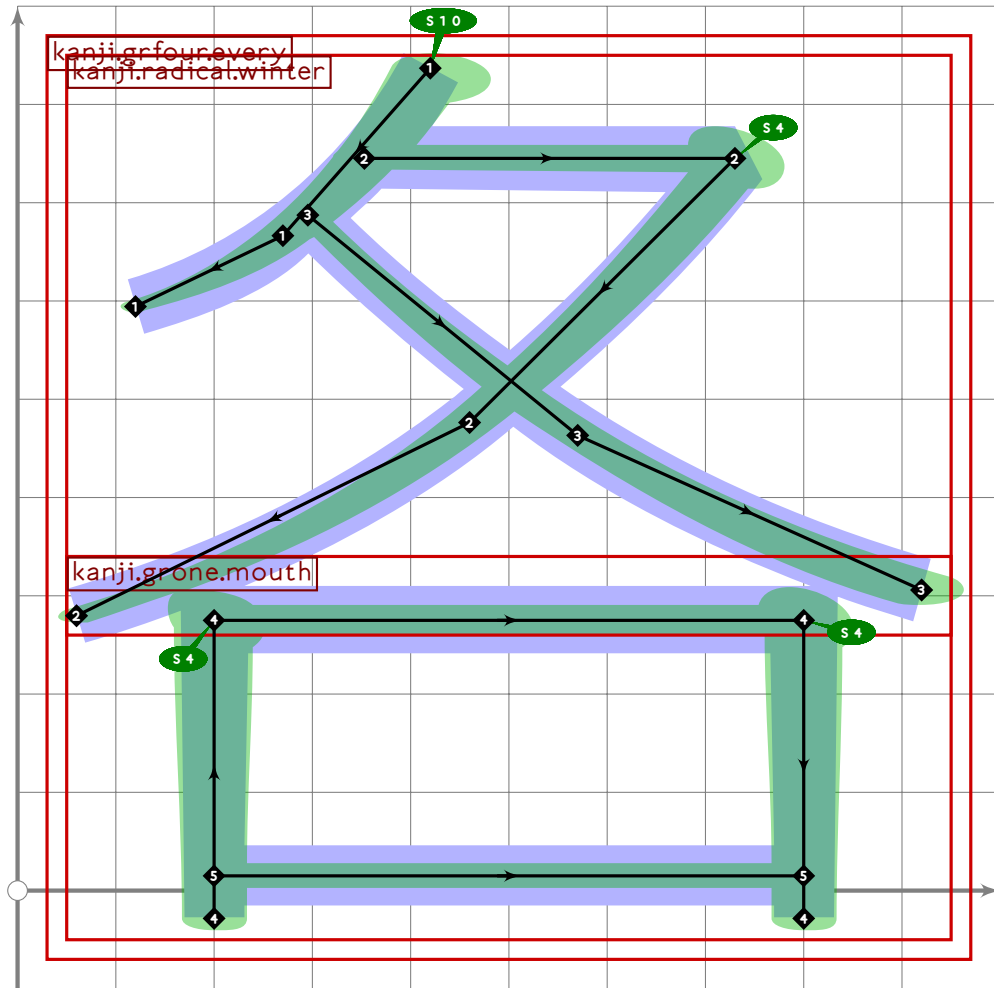


```

123
124 vardef kanji.grfour.disappear =
125   push_pbox_toexpand("kanji.grfour.disappear");
126   push_stroke((270,750)..tension 1.2..(200,550)..(90,430),
127     (1.6,1.6)-(14,14)-(1,1));
128   set_boserif(0,0,10);
129   kanji.grfour.husband;
130   replace_stroke(-3)((100,590)-(810,590));
131   replace_stroke(-3)(subpath
132     (0.01*xpart (oldp intersectiontimes get_stroke(-4)),1) of oldp);
133   expand_pbox;
134 enddef;

```

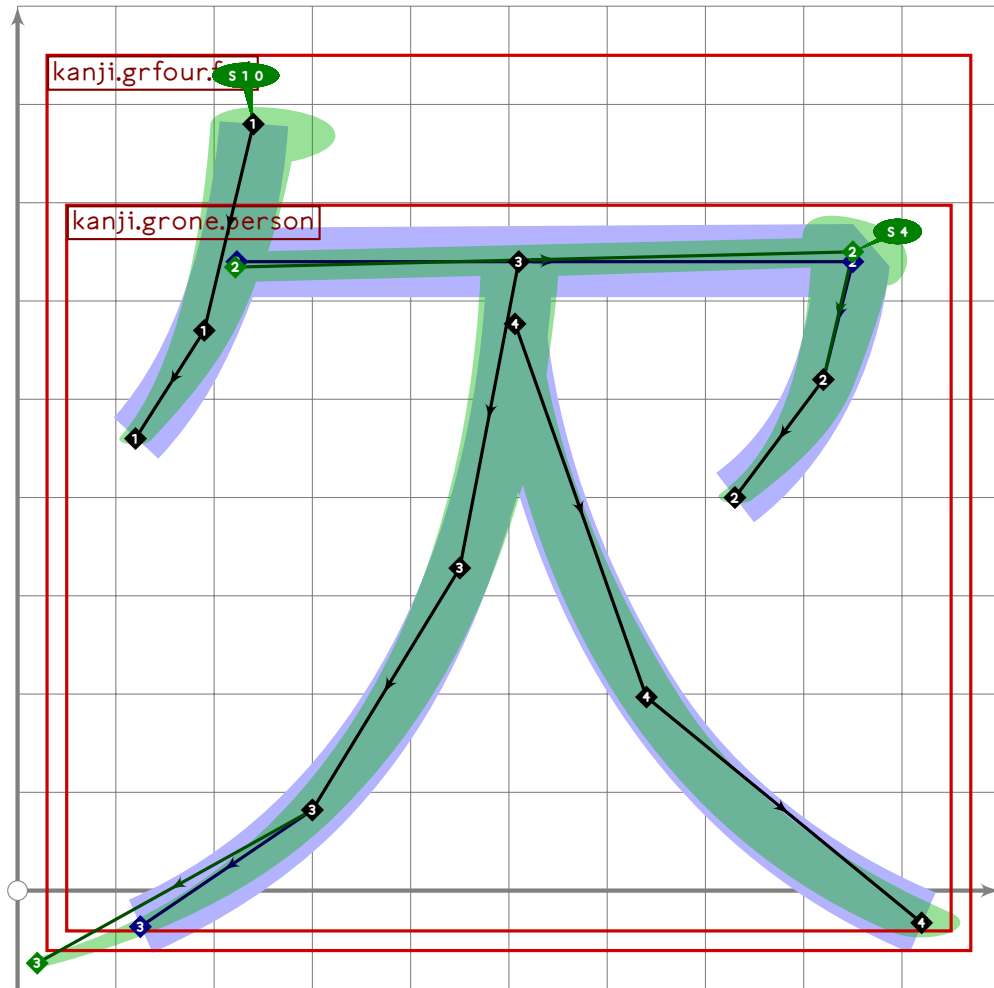




```

135
136 vardef kanji.grfour.every =
137   push_pbox_toexpand("kanji.grfour.every");
138   build_kanji.level(build_kanji.tb(300,80)
139     (kanji.radical.winter)
140     (kanji.grone.mouth));
141   expand_pbox;
142 enddef;

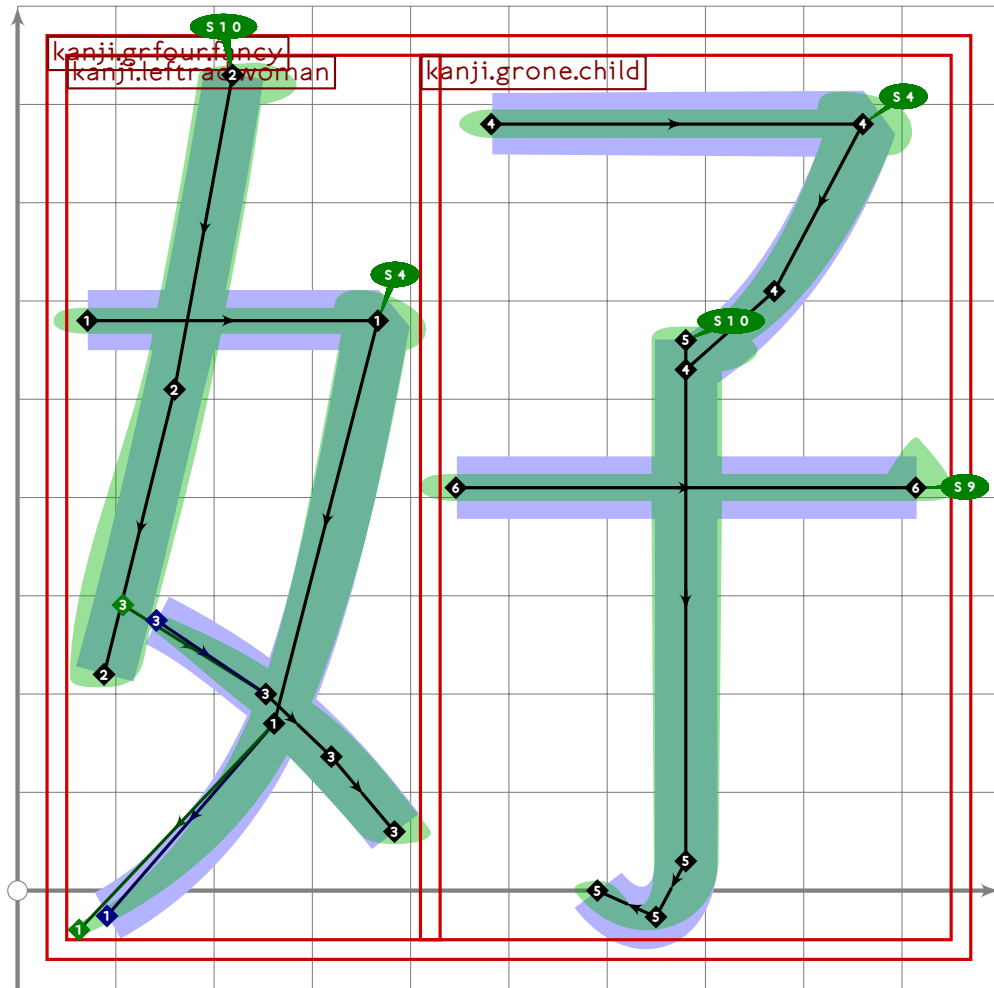
```



```

143
144 vardef kanji.grfour.fail =
145   push_pbox_toexpand("kanji.grfour.fail");
146   push_stroke((240,780)..tension 1.2..(190,570)..(120,460),
147     (1.7,1.7)-(1.4,1.4)-(1,1));
148   set_boserif(0,0,10);
149   push_stroke(
150     ((get_strokep(0) intersectionpoint
151       ((0,640-7*mincho)-(1000,640))+10,0))-
152     ((850,640)+mincho*(0,10))..tension 1.2..(820,520)..(730,400),
153     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1,1));
154   set_boserif(0,1,4);
155   set_botip(0,1,0);
156   tsu_xform(identity yscaled (640/780))(kanji.grone.person);
157   set_boserif(-1,0,whatever);
158   expand_pbox;
159 enddef;

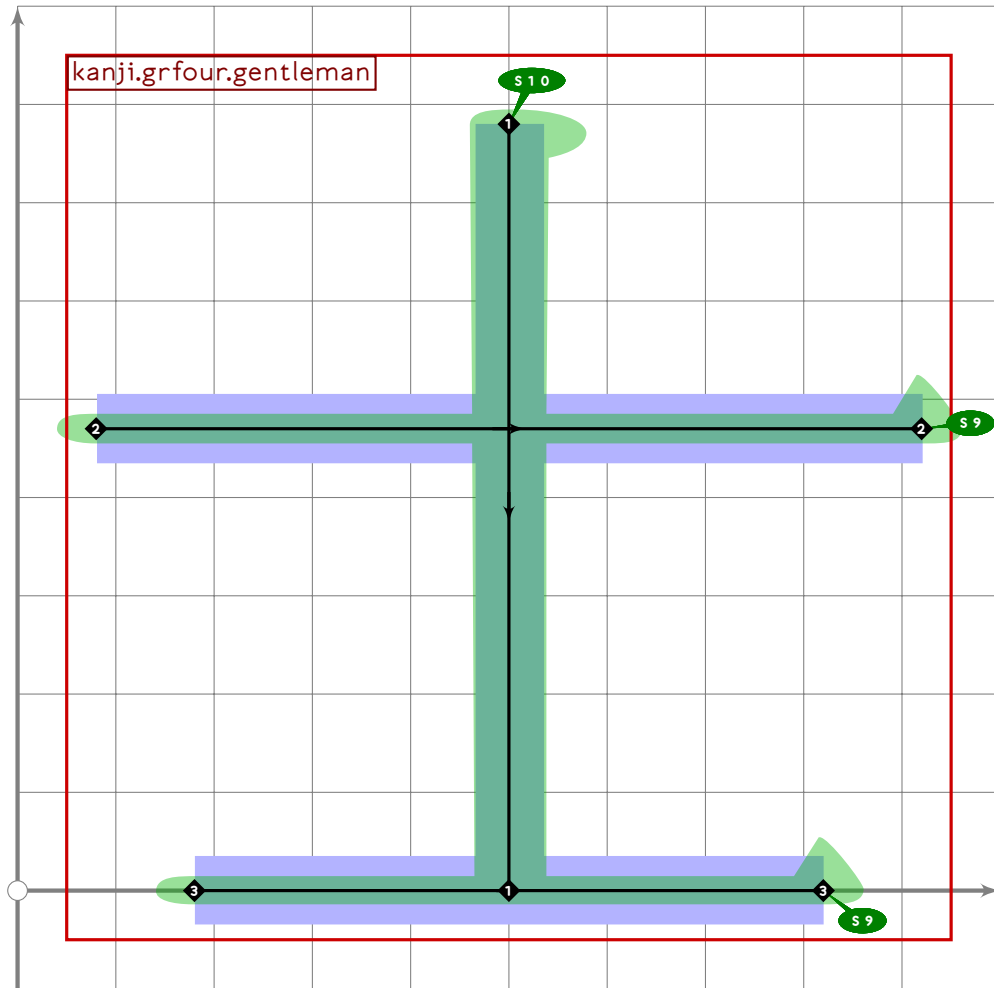
```



```

160
161 vardef kanji.grfour.fancy =
162   push_pbox_toexpand("kanji.grfour.fancy");
163   build_kanji.lr(420,20)
164     (kanji.leftrad.woman)
165     (kanji.grone.child);
166   expand_pbox;
167 enddef;

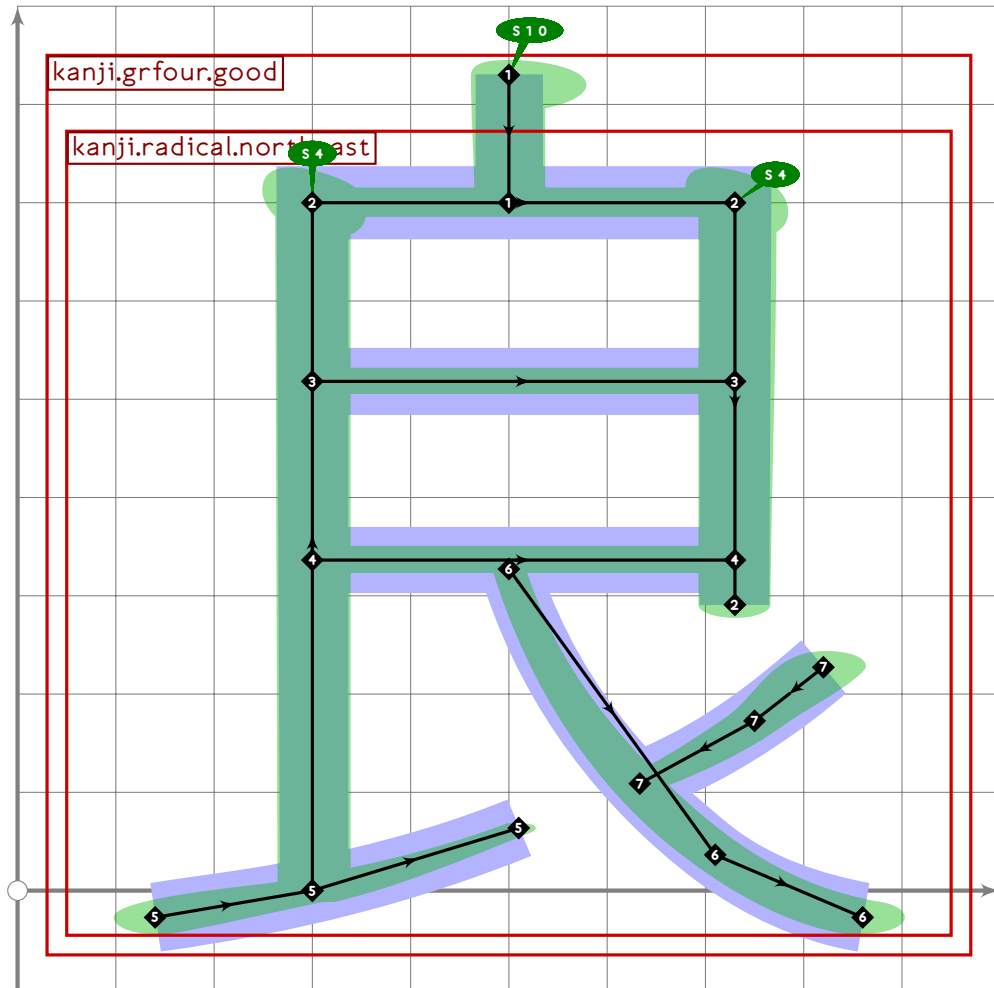
```



```

168
169 vardef kanji.grfour.gentleman =
170   push_pbox_toexpand("kanji.grfour.gentleman");
171   push_stroke((500,780)-(500,0),
172     (1.6,1.6)-(1.5,1.5));
173   set_boserif(0,0,10);
174   push_stroke((80,470)-(920,470),
175     (1.6,1.6)-(1.6,1.6));
176   set_boserif(0,1,9);
177   push_stroke((180,0)-(820,0),
178     (1.6,1.6)-(1.6,1.6));
179   set_boserif(0,1,9);
180   expand_pbox;
181 enddef;

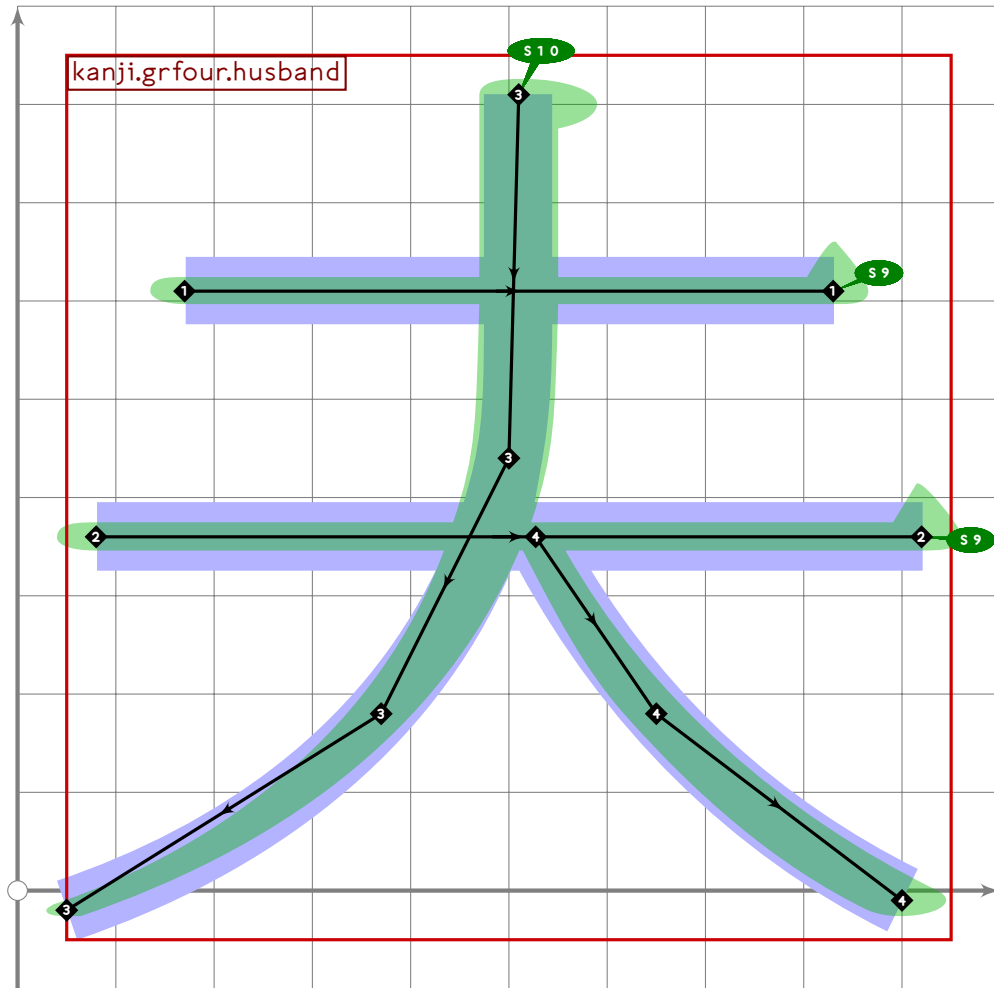
```



```

182
183 vardef kanji.grfour.good =
184   push_pbox_toexpand("kanji.grfour.good");
185   build_kanji.level(
186     push_stroke((500,830)-(500,700),(1.6,1.6)-(1.5,1.5));
187     set_boserif(0,0,10);
188     tsu_xform(identity yscaled (700/770))(kanji.radical.northeast));
189   expand_pbox;
190 enddef;

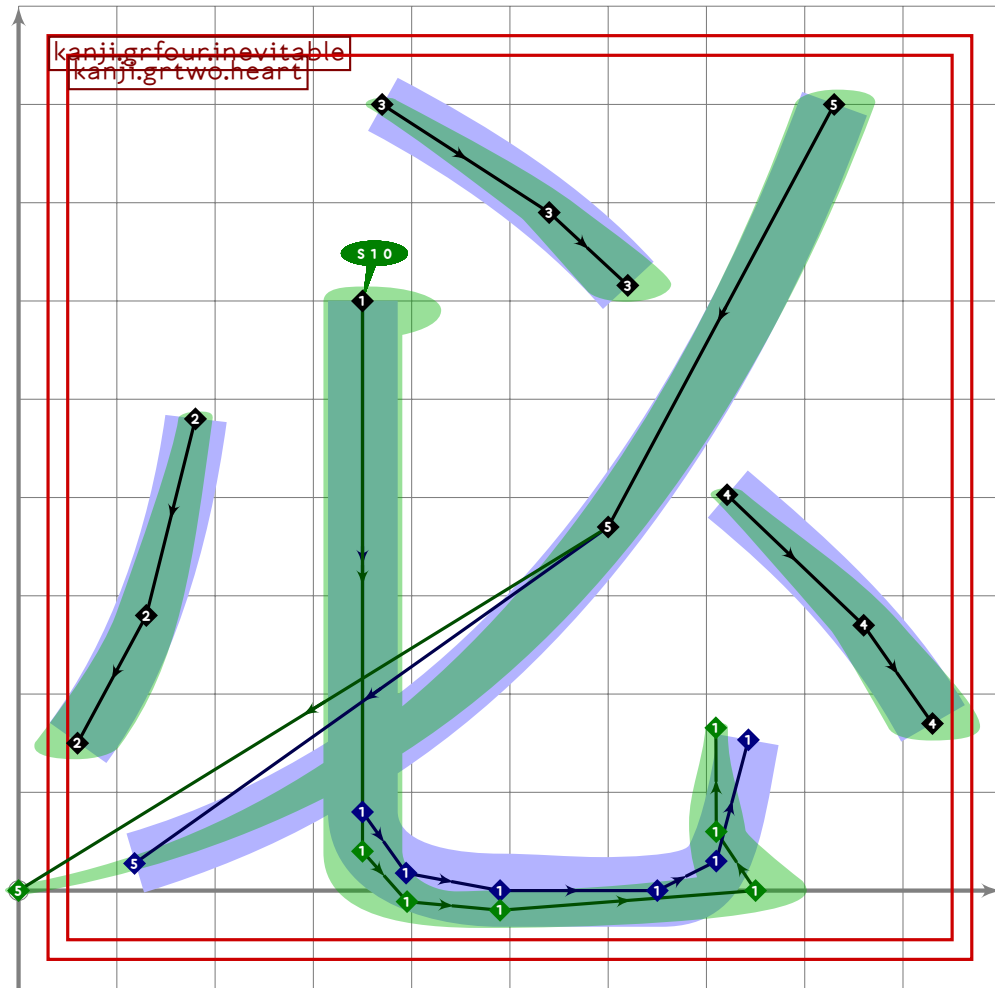
```



```

191
192 vardef kanji.grfour.husband =
193   push_pbox_toexpand("kanji.grfour.husband");
194   push_stroke((170,610)-(830,610),
195     (1.5,1.5)-(1.5,1.5));
196   set_boserif(0,1,9);
197   push_stroke((80,360)-(920,360),
198     (1.6,1.6)-(1.6,1.6));
199   set_boserif(0,1,9);
200   push_stroke((510,810){down}..(500,440)..(370,180)..{curl 0.5}{50,-20},
201     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
202   set_boserif(0,0,10);
203   push_stroke(((get_stroke(-1) intersectionpoint get_stroke(0))+{50,0})..
204     (650,180)..(900,-10),
205     (1.1,1.1)-(1.4,1.4)-(1.7,1.7));
206   expand_pbox;
207 enddef;

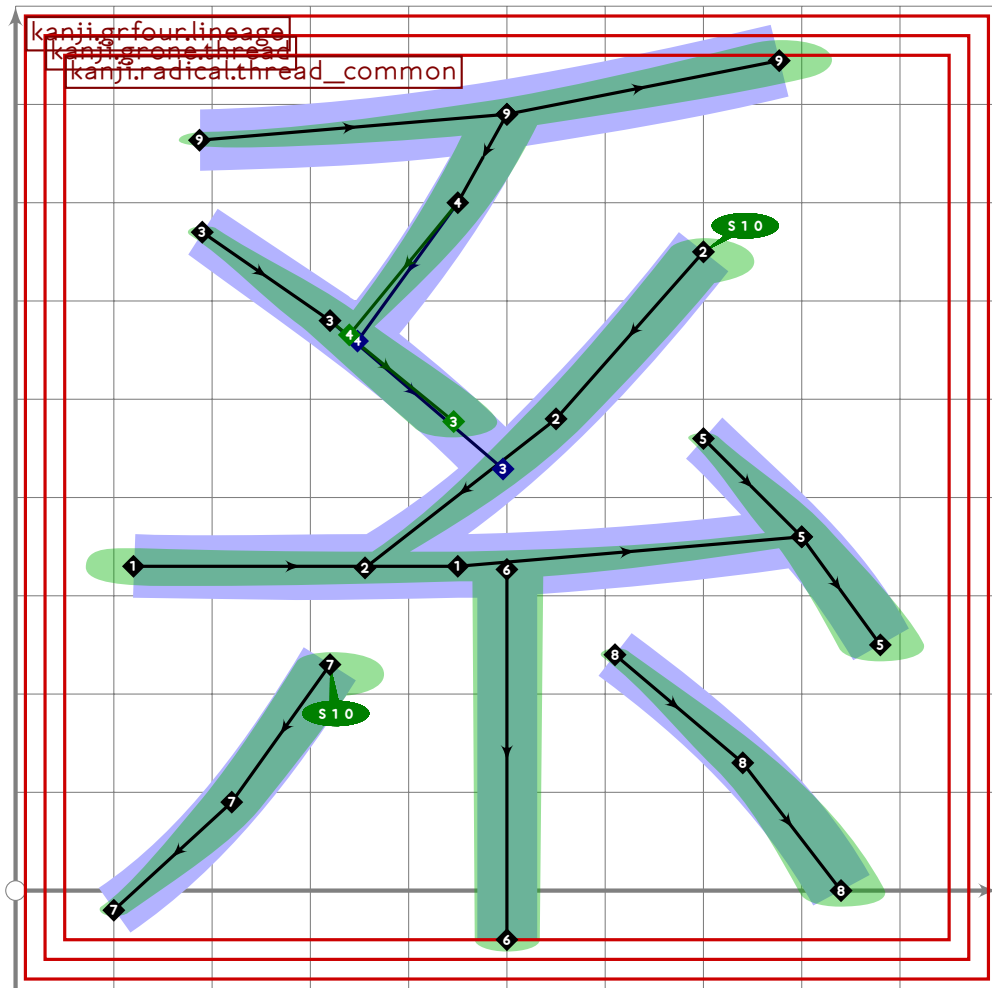
```



```

208
209 vardef kanji.grfour.inevitable =
210   push_pbox_toexpand("kanji.grfour.inevitable");
211   kanji.grtwo.heart;
212   replace_stroke(-1)(subpath (0,1,7) of oldp);
213   replace_stroke(0)(subpath (0,3,2) of oldp);
214   push_stroke((830,800)..tension 1.2..(600,370)..(0,0),
215     (1.6,1.6)-(1.5,1.5)-(0.9,0.9));
216   expand_pbox;
217 enddef;

```

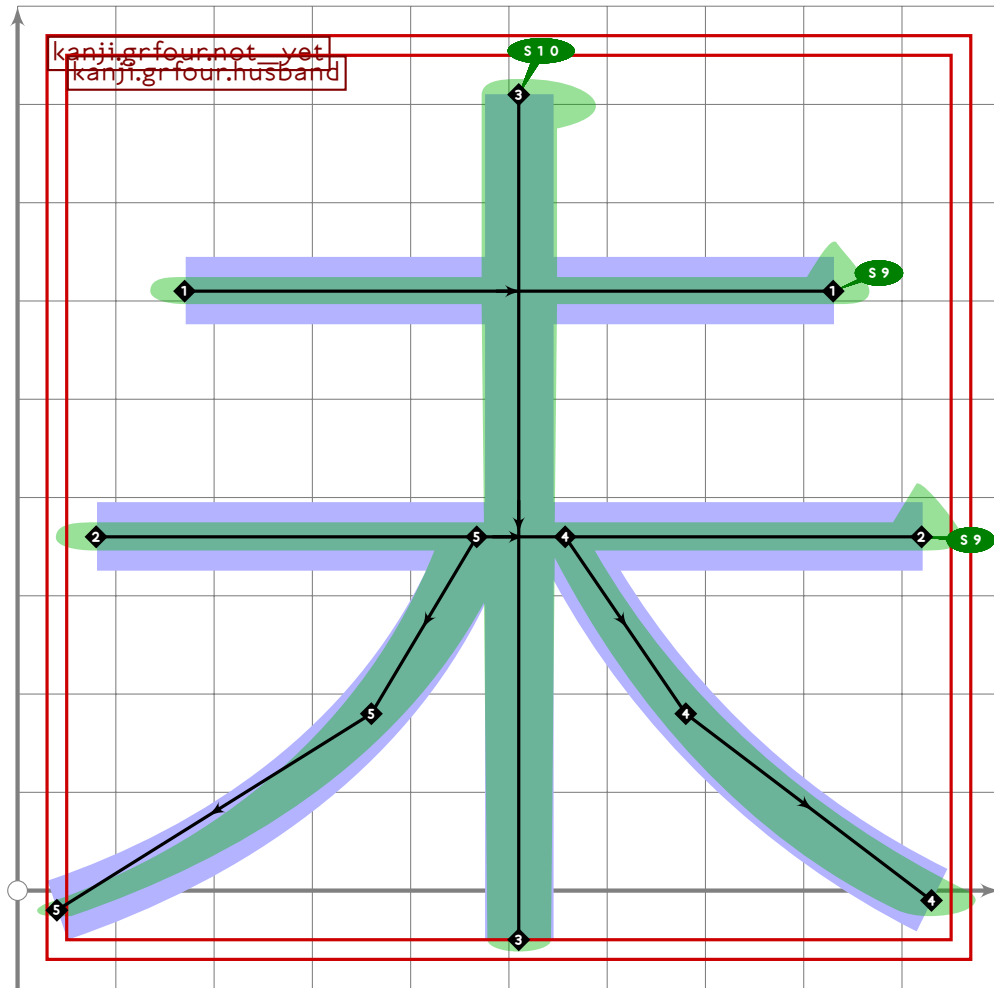


```

218
219 vardef kanji.grfour.lineage =
220   push_pbox_toexpand("kanji.grfour.lineage");
221   build_kanji.add_beret(kanji.grone.thread);
222   expand_pbox;
223 enddef;

```

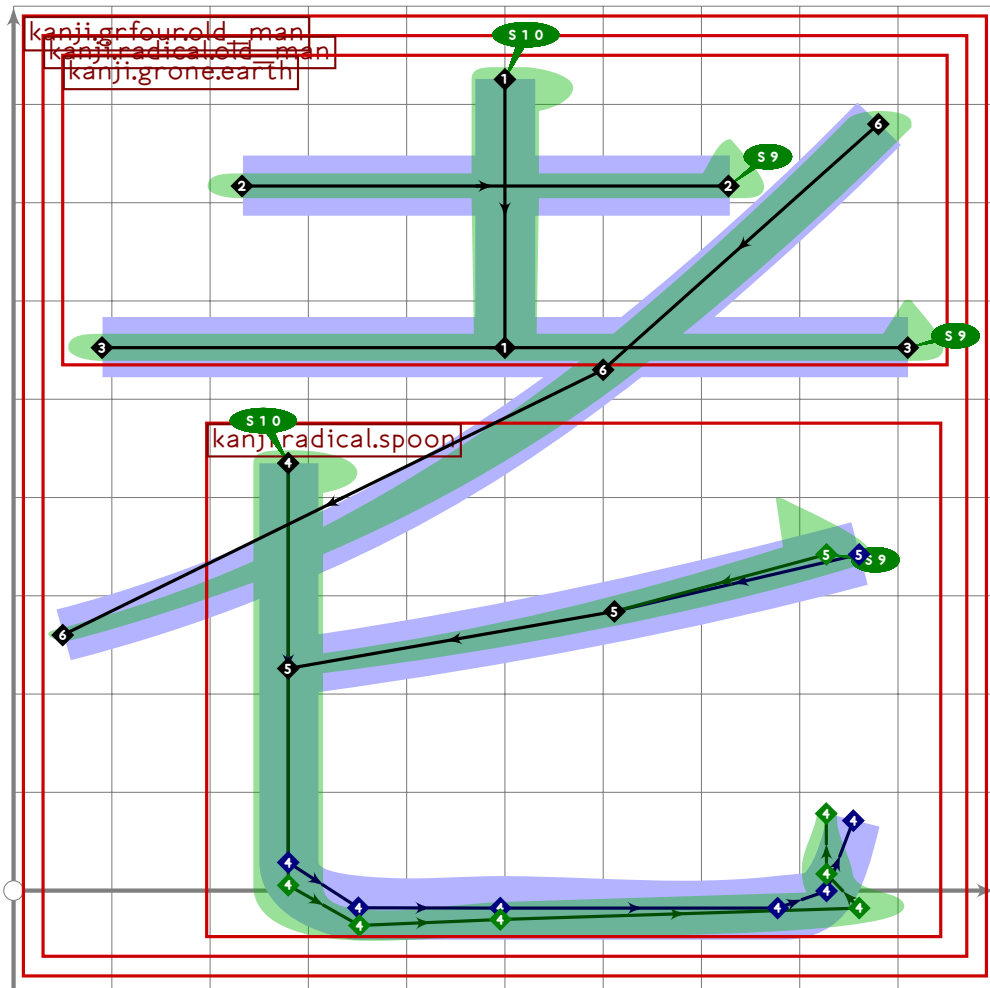




```

224
225 vardef kanji.grfour.not_yet =
226   push_pbox_toexpand("kanji.grfour.not_yet");
227   kanji.grfour.husband;
228   begingroup
229     save it;
230     numeric it;
231     it:=xpart (get_strokep(-1) intersectiontimes get_strokep(-2));
232     push_stroke(subpath(it,infinity) of get_strokep(-1) shifted (-10,0),
233       subpath(it,infinity) of get_strokeq(-1));
234   endgroup;
235   replace_stroke(-2)((510,810)-(510,-50));
236   replace_strokeq(-2)((1,6,1,6)-(14,14));
237   replace_stroke(-1)(oldp shifted (30,0));
238   expand_pbox;
239 enddef;

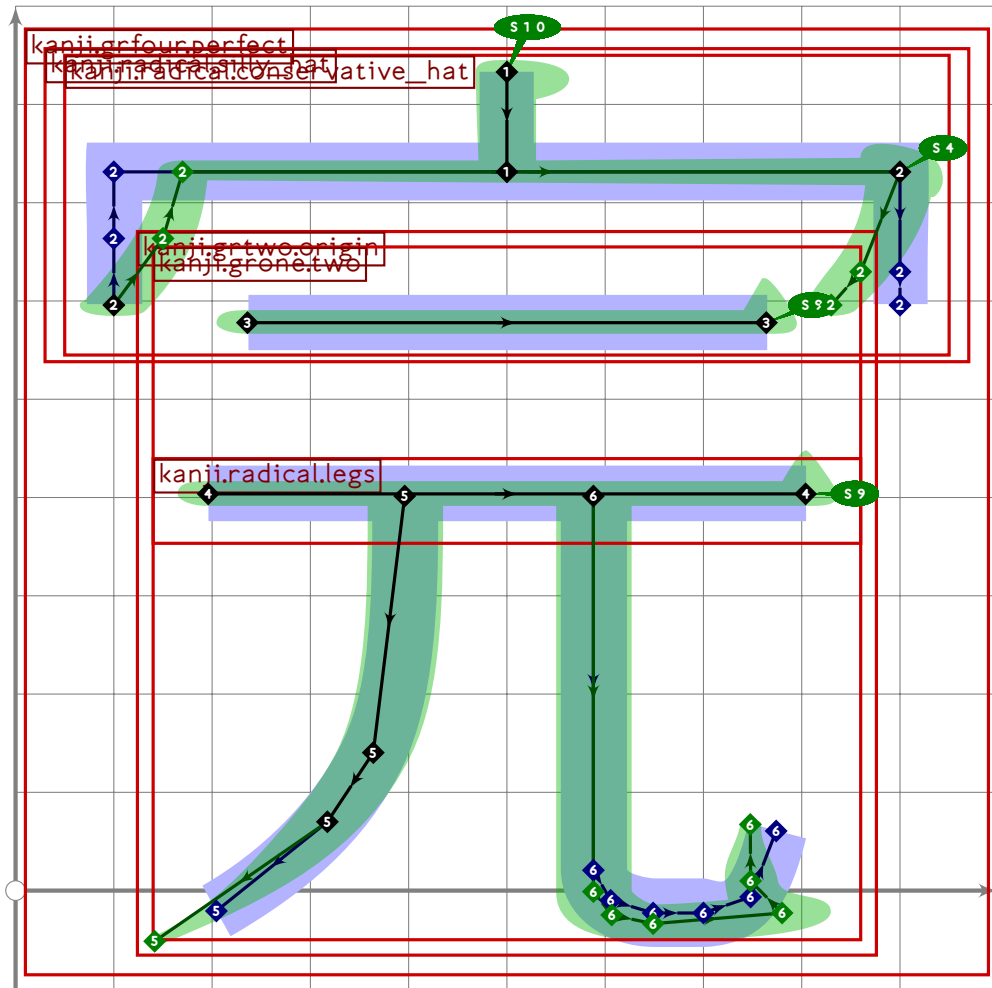
```



```

240
241 vardef kanji.grfour.old_man =
242   push_pbox_toexpand("kanji.grfour.old_man");
243   kanji.radical.old_man(
244     build_kanji.scale(xyscaled (0.83,1.1) shifted (70,50))
245     (kanji.radical.spoon));
246   expand_pbox;
247 enddef;

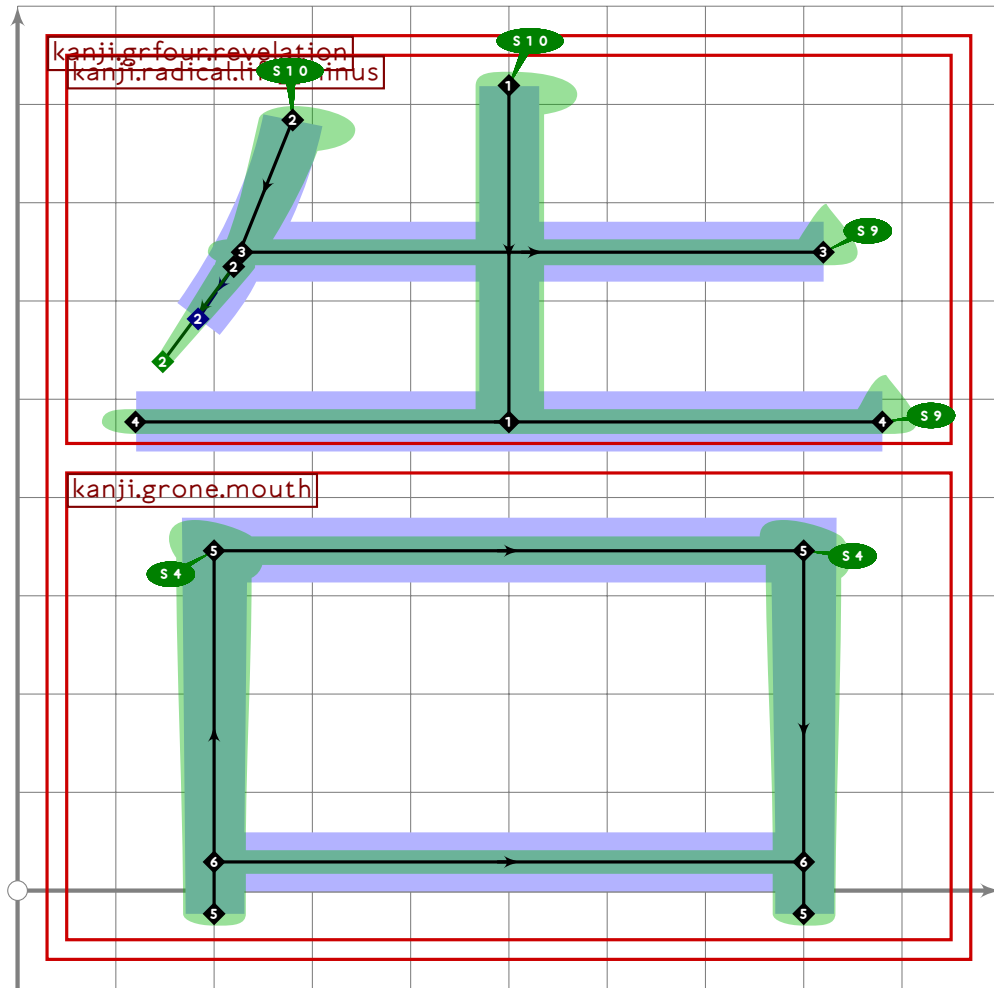
```



```

248
249 vardef kanji.grfour.perfect =
250   push_pbox_toexpand("kanji.grfour.perfect");
251   build_kanji.tb(600,110)
252     (kanji.radical.silly_hat)
253     (build_kanji.sscale(xscaled 0.8)(kanji.grtwo.origin));
254   expand_pbox;
255 enddef;

```



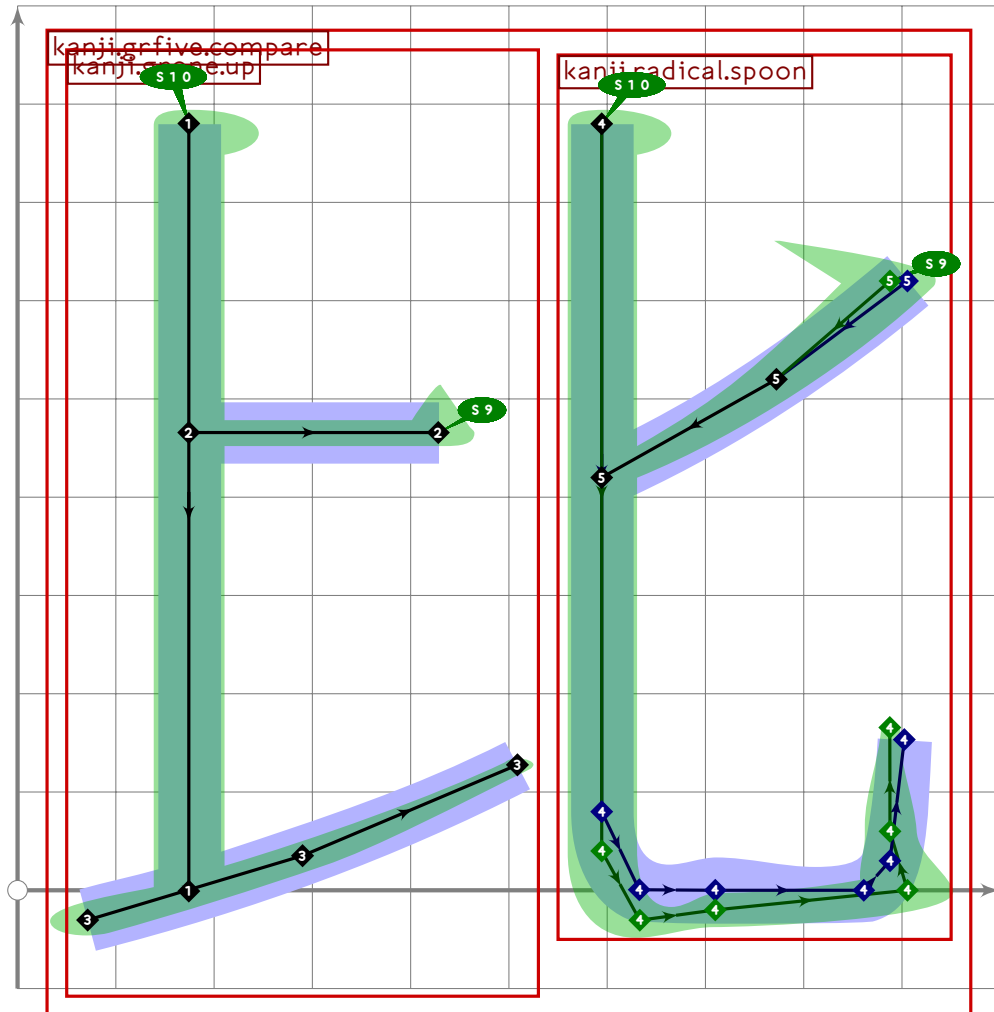
```

256
257 vardef kanji.grfour.revelation =
258   push_pbox_toexpand("kanji.grfour.revelation");
259   build_kanji.level(build_kanji.tb(440,-30)
260     (kanji.radical.life_minus)
261     (kanji.grone.mouth));
262   expand_pbox;
263 enddef;

```

# gradefive.mp

```
1 %  
2 % Grade Five kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradefive);  
32  
33
```

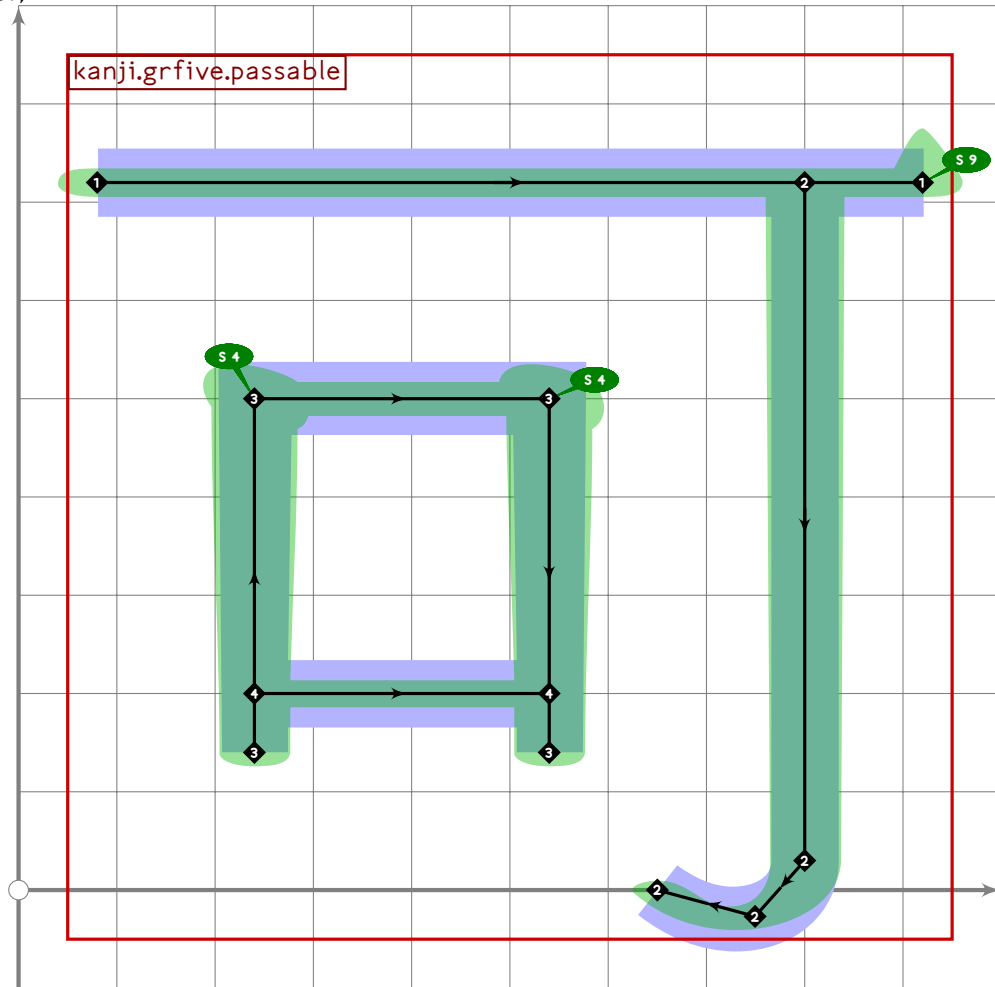


```
34  
35 vardef kanji.grfive.compare =  
36   push_pbox_toexpand("kanji.grfive.compare");  
37   build_kanji.level(build_kanji.lr(540,-20)  
38     (build_kanji.lift_skirt(300,160)  
39     (build_kanji.sscale(yscaled 1.07 shifted (0,-27))(kanji.grone.up);  
40     replace_strokep(-1)  
41     (oldp shifted (-810,0) xscaled 1.7 shifted (810,60));  
42     replace_strokep(-2)  
43     (oldp shifted (-810,0) xscaled 1.7 shifted (810,0))))))
```

```

44 (kanji.radical.spoon));
45 expand_pbox;
46 enddef;

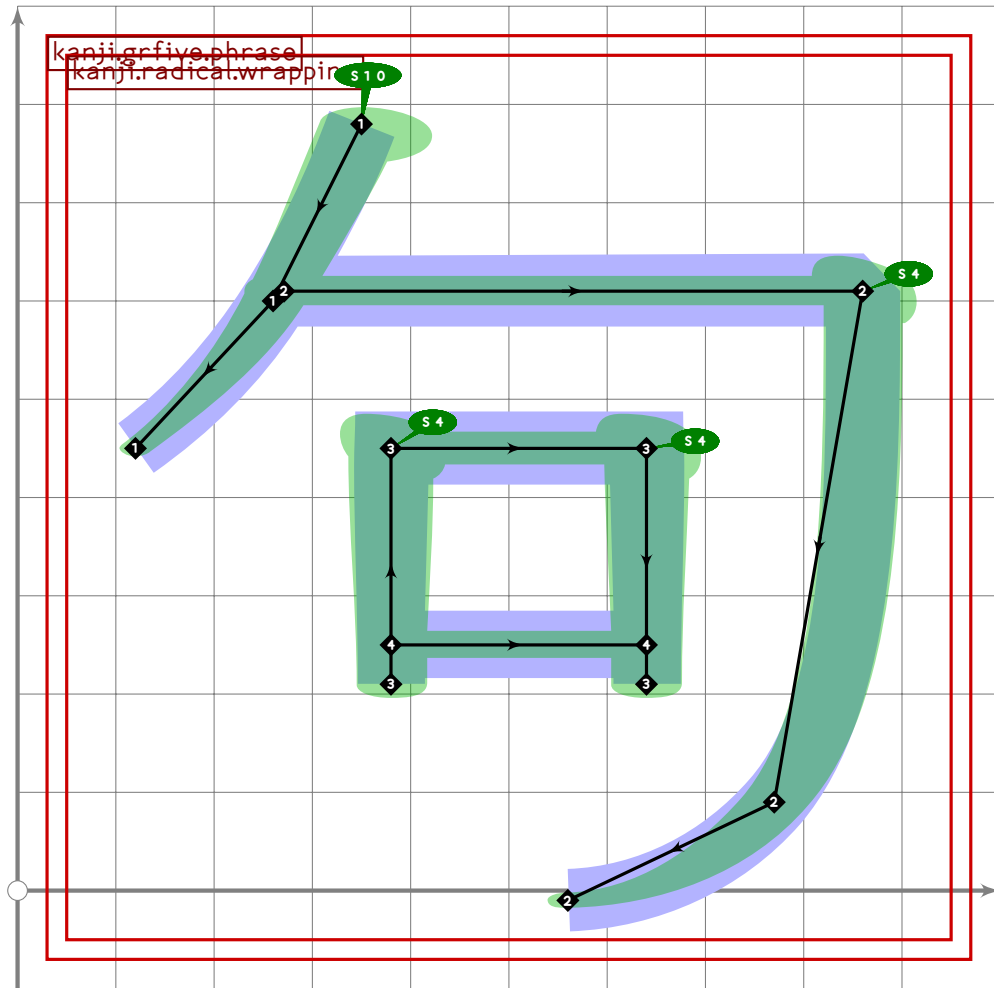
```



```

47
48 vardef kanji.grfive.passable =
49   push_pbox_toexpand("kanji.grfive.passable");
50   push_stroke((80,720)-(920,720),
51     (1.6,1.6)-(1.6,1.6));
52   set_boserif(0,1,9);
53   push_stroke((800,720),
54     (1.6,1.6));
55   build_kanji.add_jtail(0);
56   build_kanji.box((240,500),(540,200));
57   expand_pbox;
58 enddef;

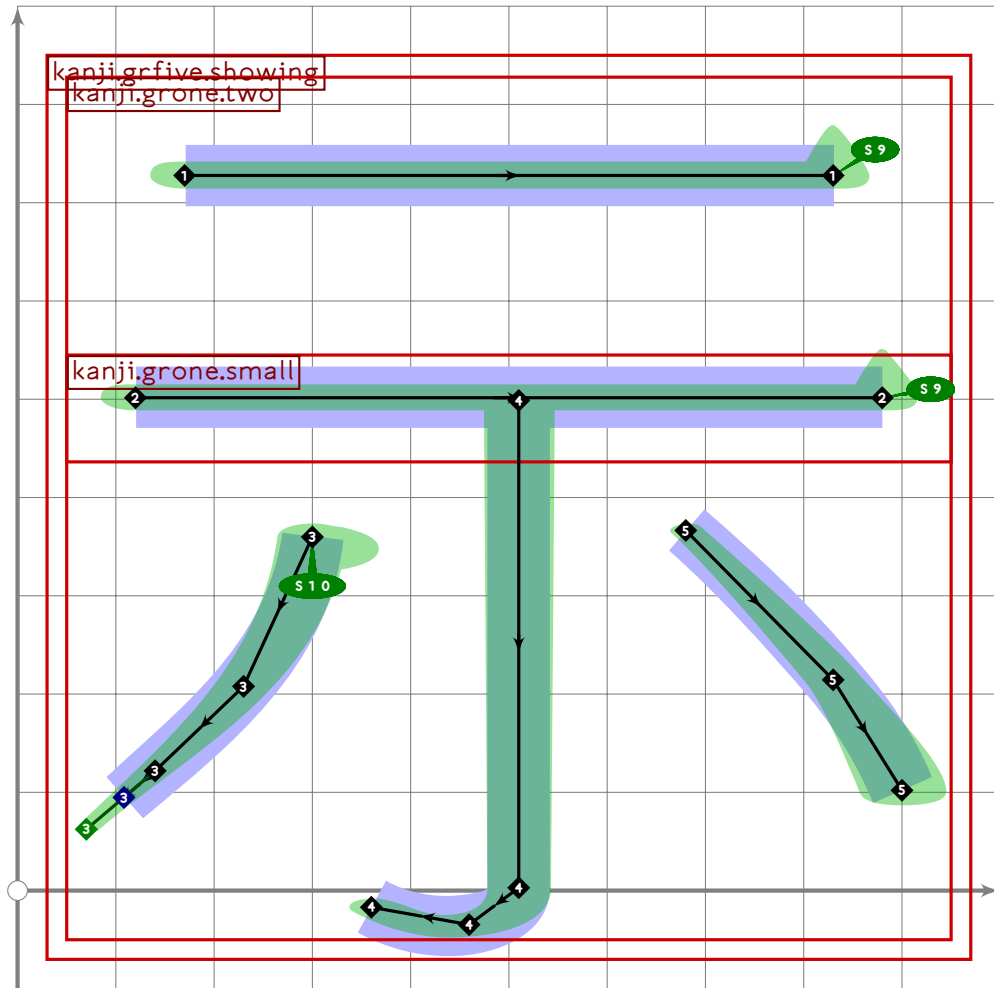
```



```

59
60 vardef kanji.grfive.phrase =
61   push_pbox_toexpand("kanji.grfive.phrase");
62   kanji.radical.wrapping;
63   build_kanji.box((380,450),(640,250));
64   expand_pbox;
65 enddef;

```

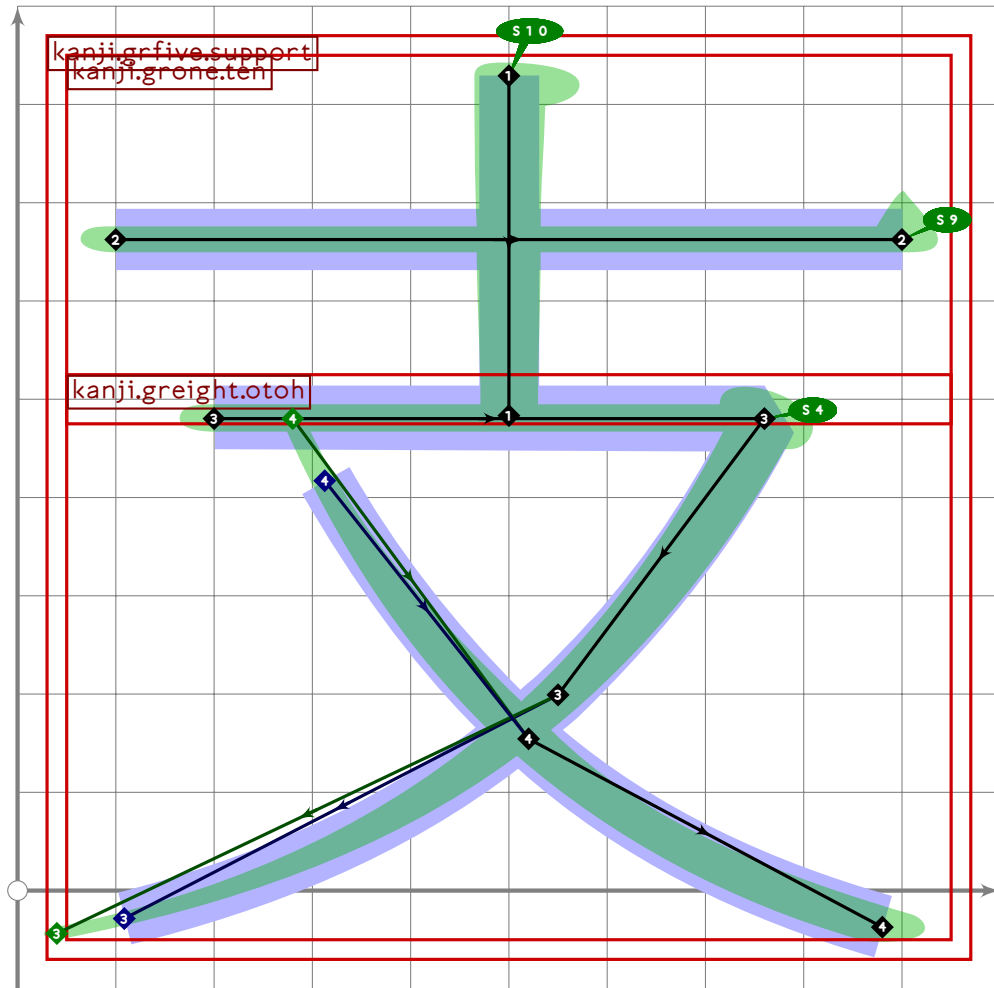


```

66
67 vardef kanji.grfive.showing =
68   push_pbox_toexpand("kanji.grfive.showing");
69   build_kanji.level(build_kanji.tb(480,130)
70     (build_kanji.sscale(yscaled 0.9)(kanji.grone.two))
71     (kanji.grone.small));
72   set_boserif(-1,0,whatever);
73   expand_pbox;
74 enddef;

```

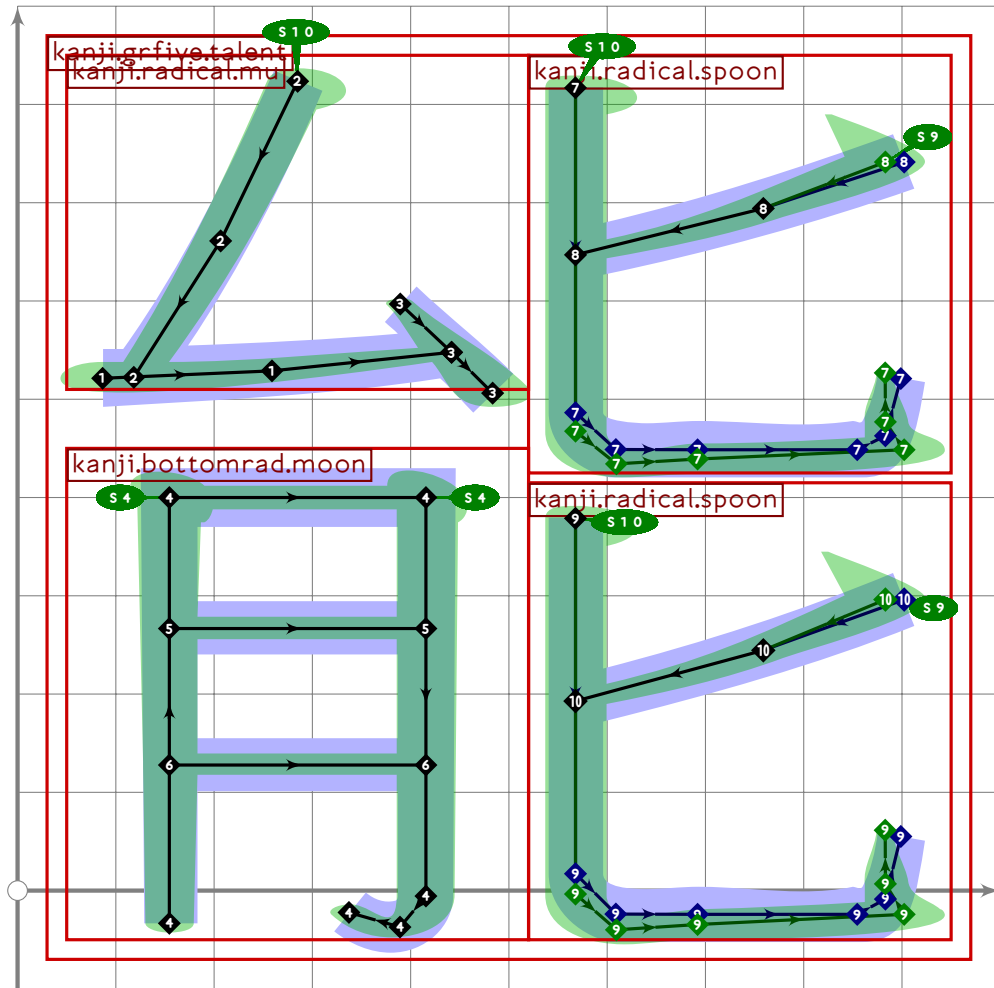




```

75
76 vardef kanji.grfive.support =
77   push_pbox_toexpand("kanji.grfive.support");
78   build_kanji.level(build_kanji.tb(500,50)
79     (kanji.grone.ten)
80     (kanji.greight.otoh));
81   expand_pbox;
82 enddef;

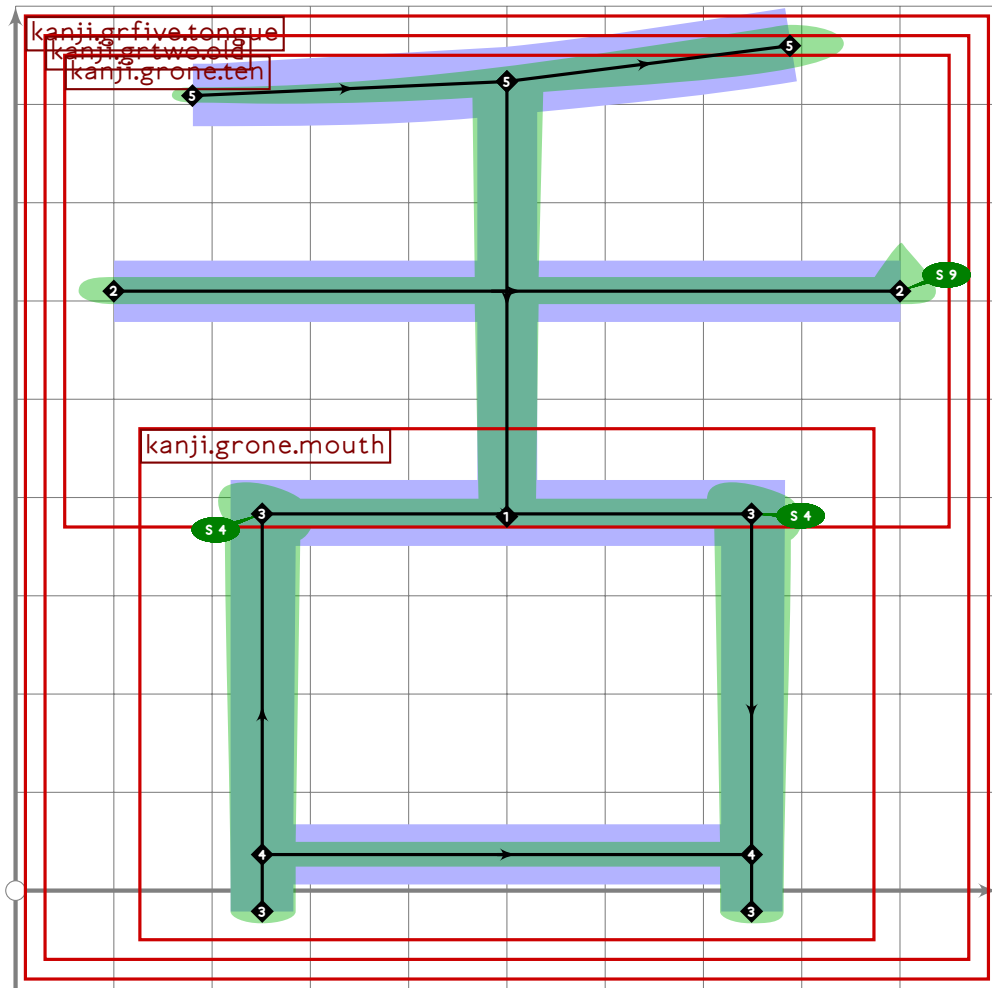
```



```

83
84 vardef kanji.grfive.talent =
85   push_pbox_toexpand("kanji.grfive.talent");
86   build_kanji.level(build_kanji.lr(520,0)
87     (build_kanji.tb(480,-60)
88       (kanji.radical.mu)
89       (kanji.bottomrad.moon))
90     (build_kanji.tb(420,-10)
91       (kanji.radical.spoon)
92       (kanji.radical.spoon)));
93   expand_pbox;
94 enddef;

```



```

95
96 vardef kanji.grfive.tongue =
97   push_pbox_toexpand("kanji.grfive.tongue");
98   build_kanji.add_beret(kanji.grtwo.old);
99   expand_pbox;
100 enddef;

```

# gradesix.mp

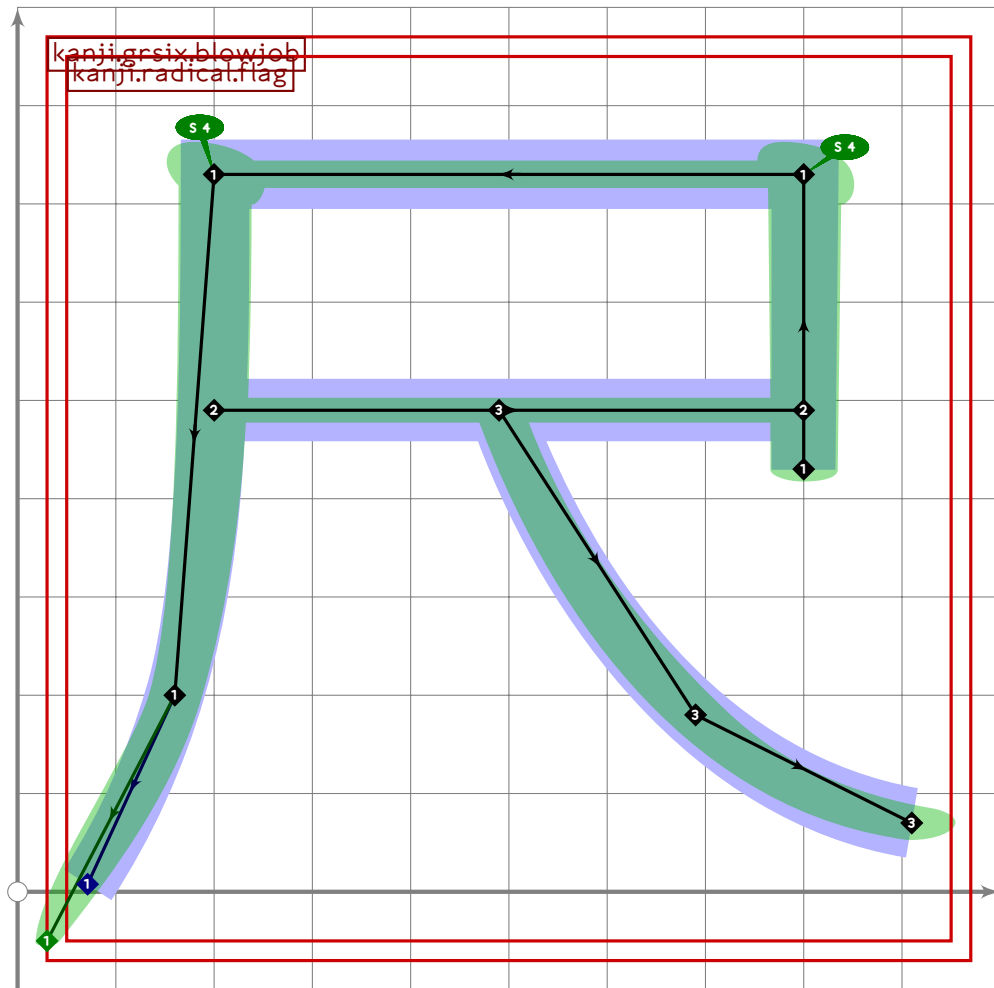
```
1 %  
2 % Grade Six kanji used on more than one page  
3 % Copyright (C) 2011 Matthew Skala  
4 %
```

```
5-29 [Standard copyright notice]
```

```
30  
31 inclusion_lock(gradesix);  
32
```

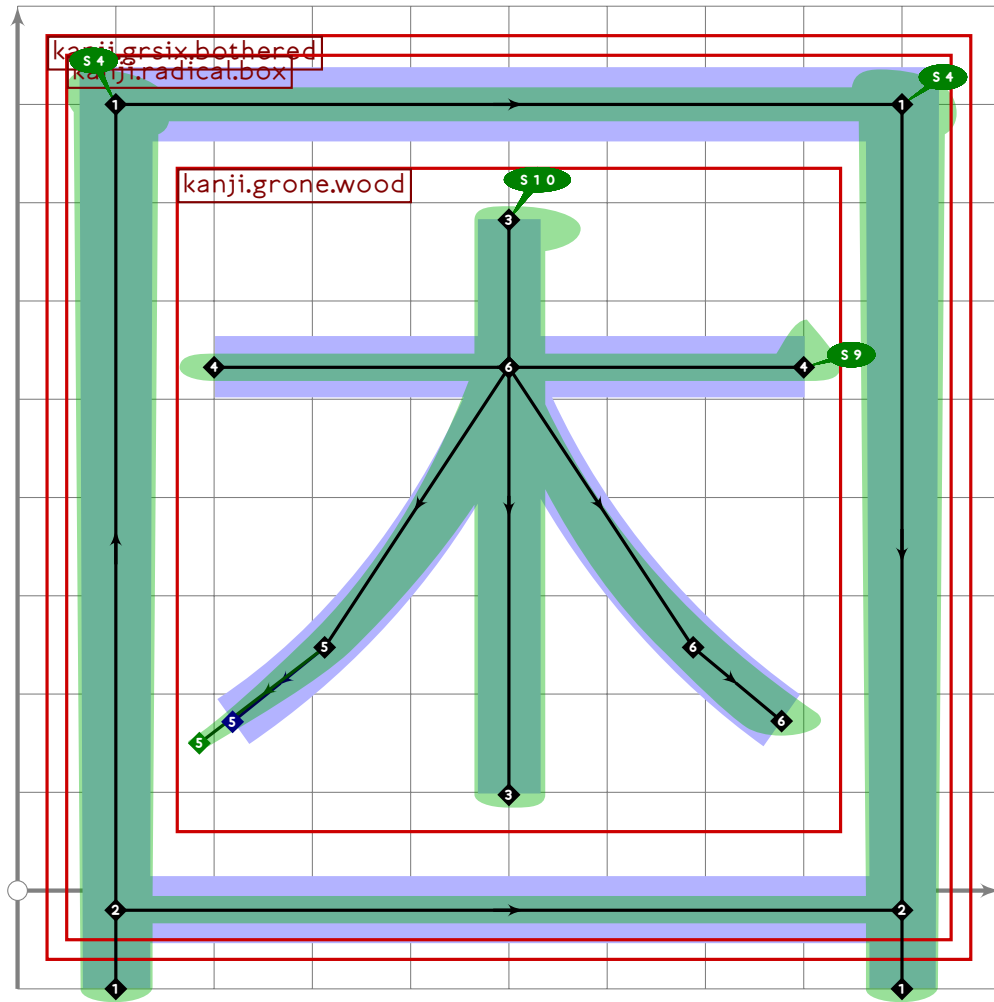
```
33
```

```
34
```



```
35 % the other common word using this kanji is "foot (unit of measure)" but  
36 % that is a poor mnemonic because it's ambiguous with "foot (body part)"
```

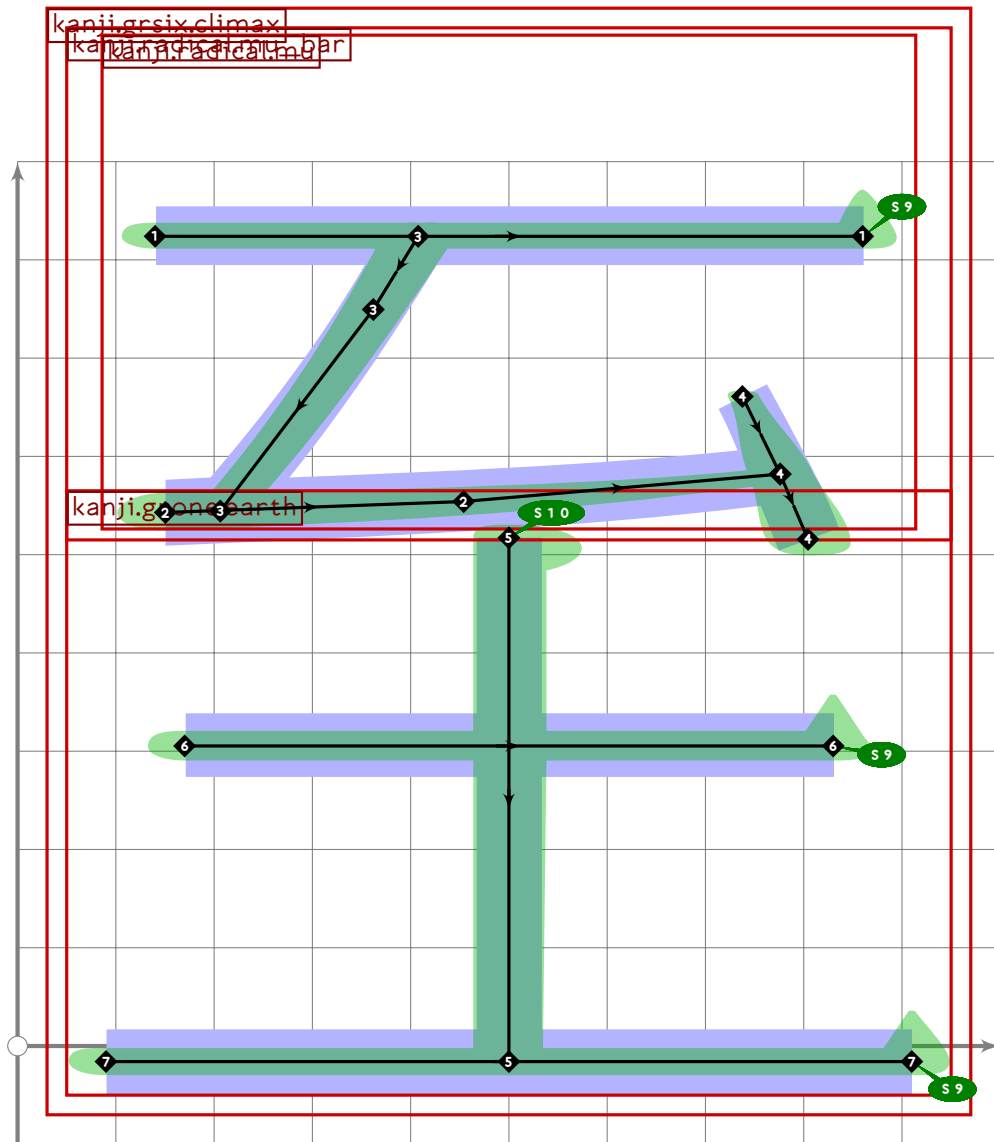
```
37 vardef kanji.grsix.blowjob =  
38   push_pbox_toexpand("kanji.grsix.blowjob");  
39   kanji.radical.flag;  
40   push_stroke((490,490)..tension 1.2..(690,180)..(910,70),  
41     (1.2,1.2)-(1.4,1.4)-(1.7,1.7));  
42   expand_pbox;  
43 enddef;
```



```

44
45 vardef kanji.grsix.bothered =
46   push_pbox_toexpand("kanji.grsix.bothered");
47   kanji.radical.box;
48   build_kanji.sscale(scaled 0.75)(kanji.grone.wood);
49   expand_pbox;
50 enddef;

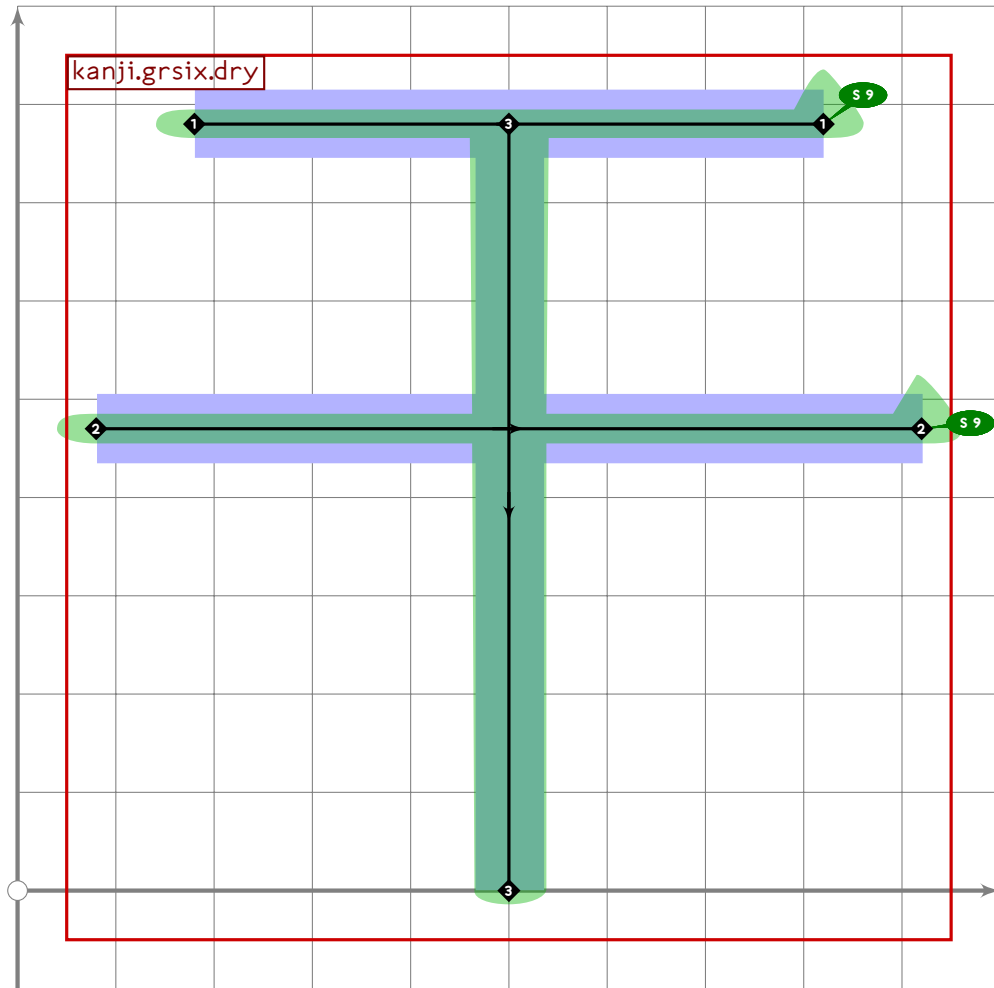
```



```

51
52 vardef kanji.grsix.climax =
53   push_pbox_toexpand("kanji.grsix.climax");
54   build_kanji.tb(540,50)
55     (kanji.radical.mu_bar)
56     (kanji.grone.earth);
57   expand_pbox;
58 enddef;

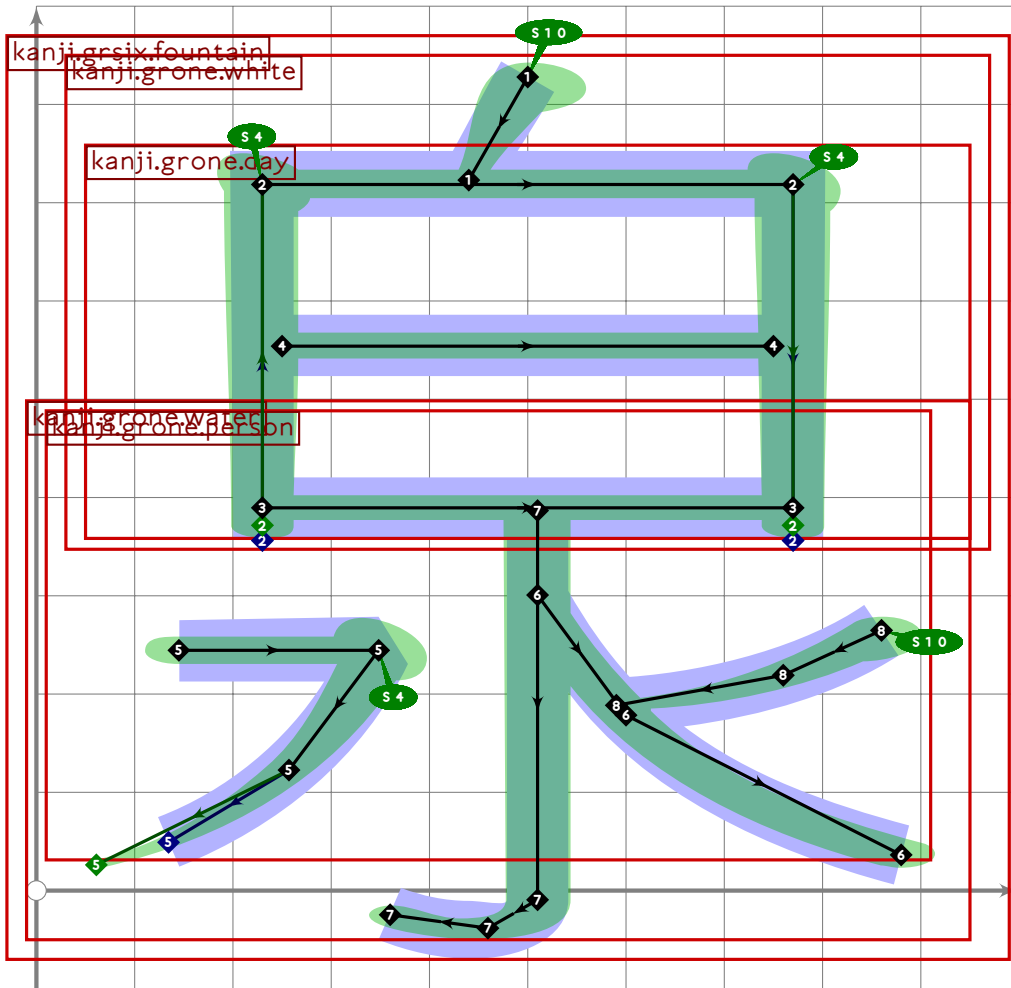
```



```

59
60 vardef kanji.grsix.dry =
61   push_pbox_toexpand("kanji.grsix.dry");
62   push_stroke((180,780)-(820,780),
63     (1.6,1.6)-(1.6,1.6));
64   set_boserif(0,1,9);
65   push_stroke((80,470)-(920,470),
66     (1.6,1.6)-(1.6,1.6));
67   set_boserif(0,1,9);
68   push_stroke((500,780)-(500,0),
69     (1.6,1.6)-(1.5,1.5));
70   expand_pbox;
71 enddef;

```

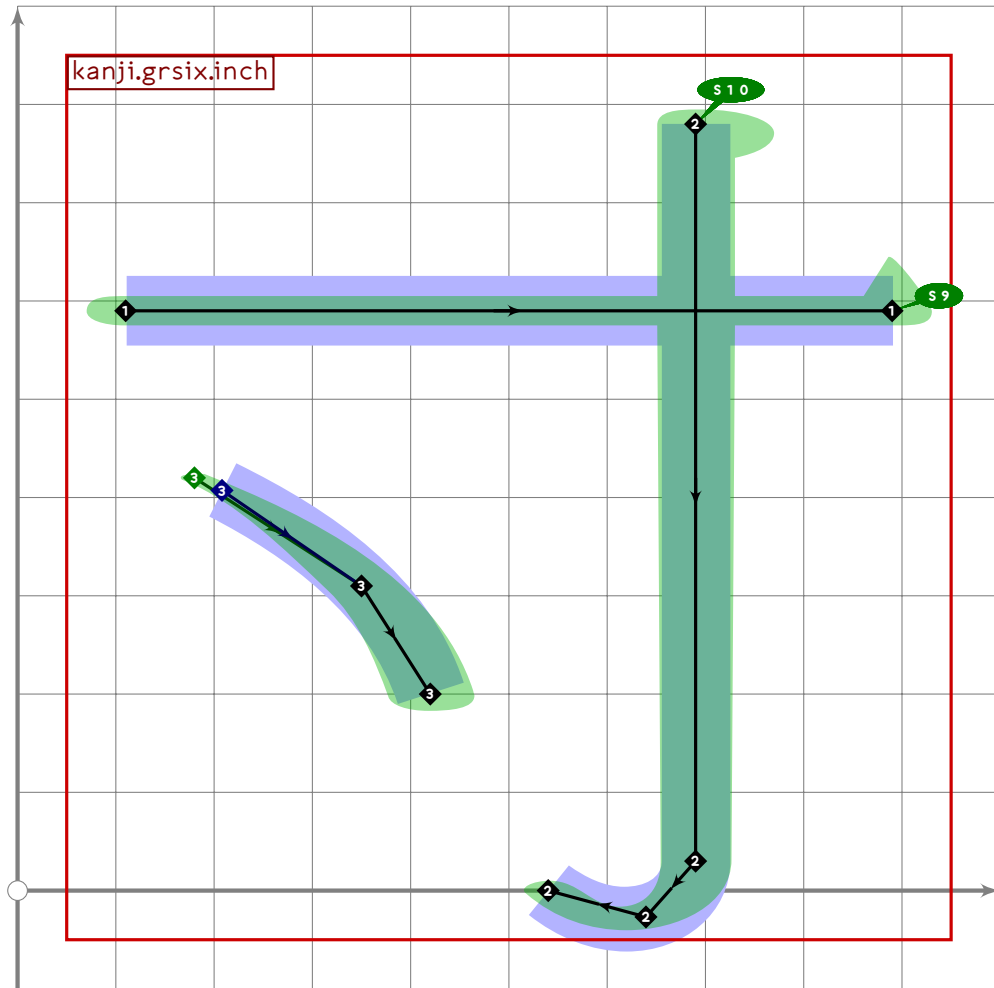


```

72
73 vardef kanji.grsix.fountain =
74   push_pbox_toexpand("kanji.grsix.fountain");
75   build_kanji.level(build_kanji.tb(380,54)
76     (kanji.grone.white)
77     (kanji.grone.water;
78       set_boserif(-1,0,whatever)));
79   expand_pbox;
80 enddef;

```

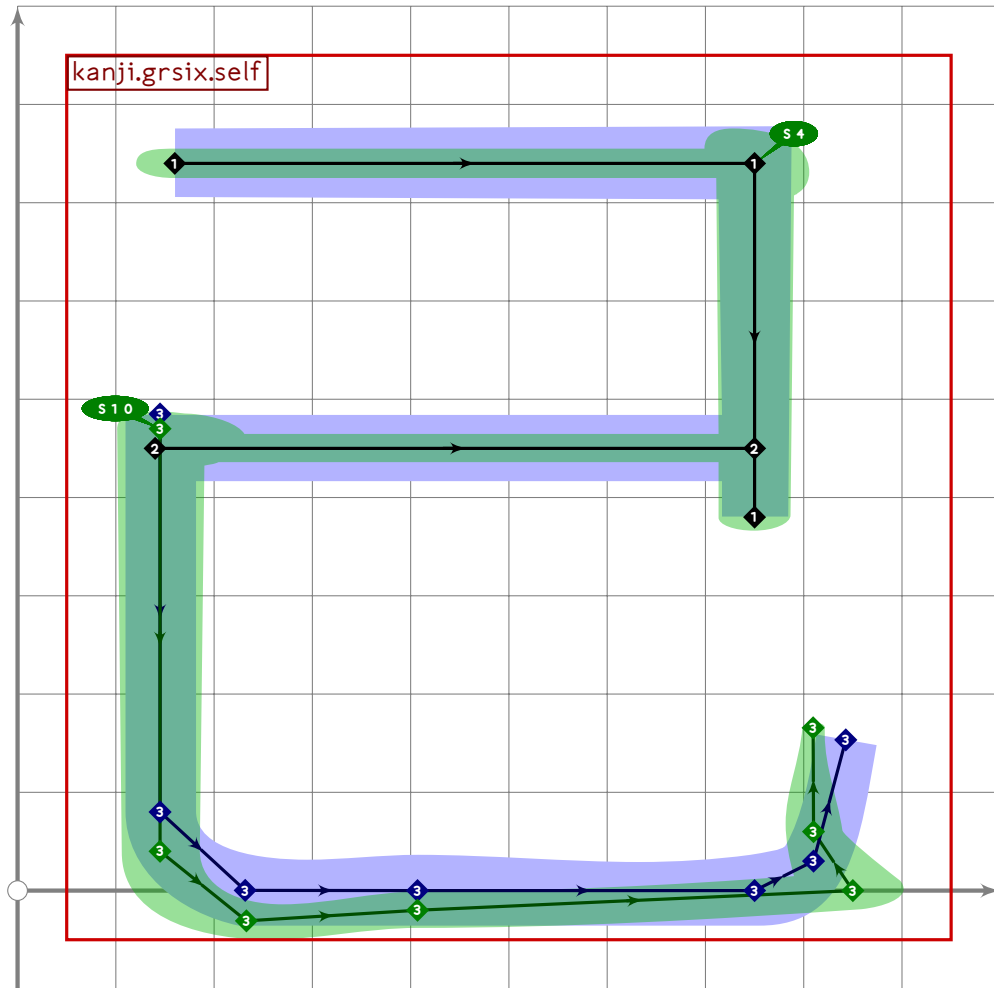




```

81
82 vardef kanji.grsix.inch =
83   push_pbox_toexpand("kanji.grsix.inch");
84   push_stroke((110,590)-(890,590),(1.6,1.6)-(1.6,1.6));
85   set_boserif(0,1,9);
86   push_stroke((690,780),(1.6,1.6));
87   build_kanji.add_jtail(0);
88   set_boserif(0,0,10);
89   push_stroke((180,420)..tension 1.2..(350,310)..(420,200),
90     (0,90,9)-(1.5,1.5)-(1.7,1.7));
91   expand_pbox;
92 enddef;

```



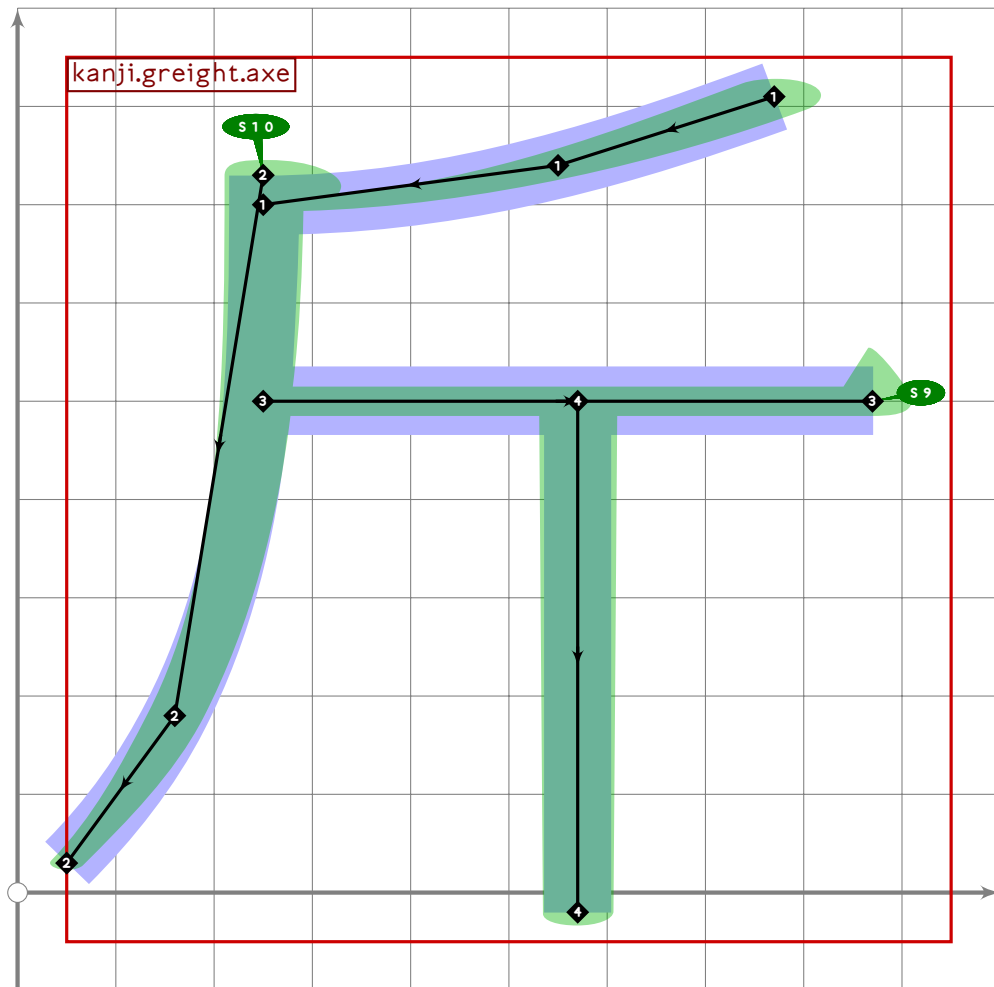
```

93
94 vardef kanji.grsix.self =
95   push_pbox_toexpand("kanji.grsix.self");
96   push_stroke((160,740)-(750,740)-(750,380),
97     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
98   set_botip(0,1);
99   set_boserif(0,1,4);
100  push_stroke((140,450)-(750,450),
101    (1.5,1.5)-(1.5,1.5));
102  push_stroke((145,485-15*mincho),(1.7,1.7));
103  set_boserif(0,0,10);
104  build_kanji.add_tail(0);
105  expand_pbox;
106 enddef;

```

# gradeeight.mp

```
1 %  
2 % Grade Eight kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradeeight);  
32  
33
```

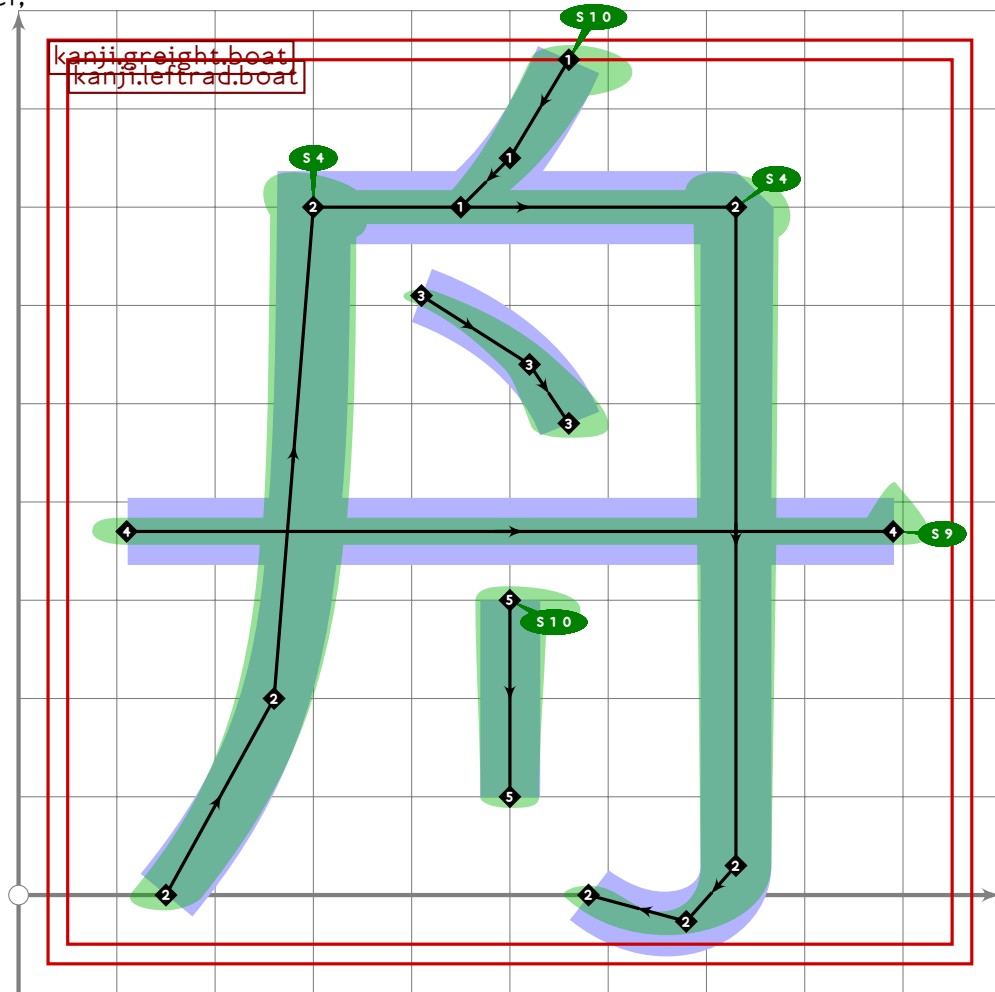


```
34  
35 vardef kanji.greight.axe =  
36   push_pbox_toexpand("kanji.greight.axe");  
37   push_stroke((770,810)..tension 1.2..(550,740)..(250,700),  
38     (1.8,1.8)-(1.5,1.5)-(1,1));  
39   push_stroke((250,730){down}..(160,180)..(50,30),  
40     (1.6,1.6)-(1.3,1.3)-(1,1));  
41   set_boserif(0,0,10);  
42   push_stroke((250,500)-(870,500),(1.6,1.6)-(1.6,1.6));  
43   set_boserif(0,1,9);
```

```

44 push_stroke((570,500)-(570,20),(1,6,1,6)-(1,5,1,5));
45 expand_pbox;
46 enddef;

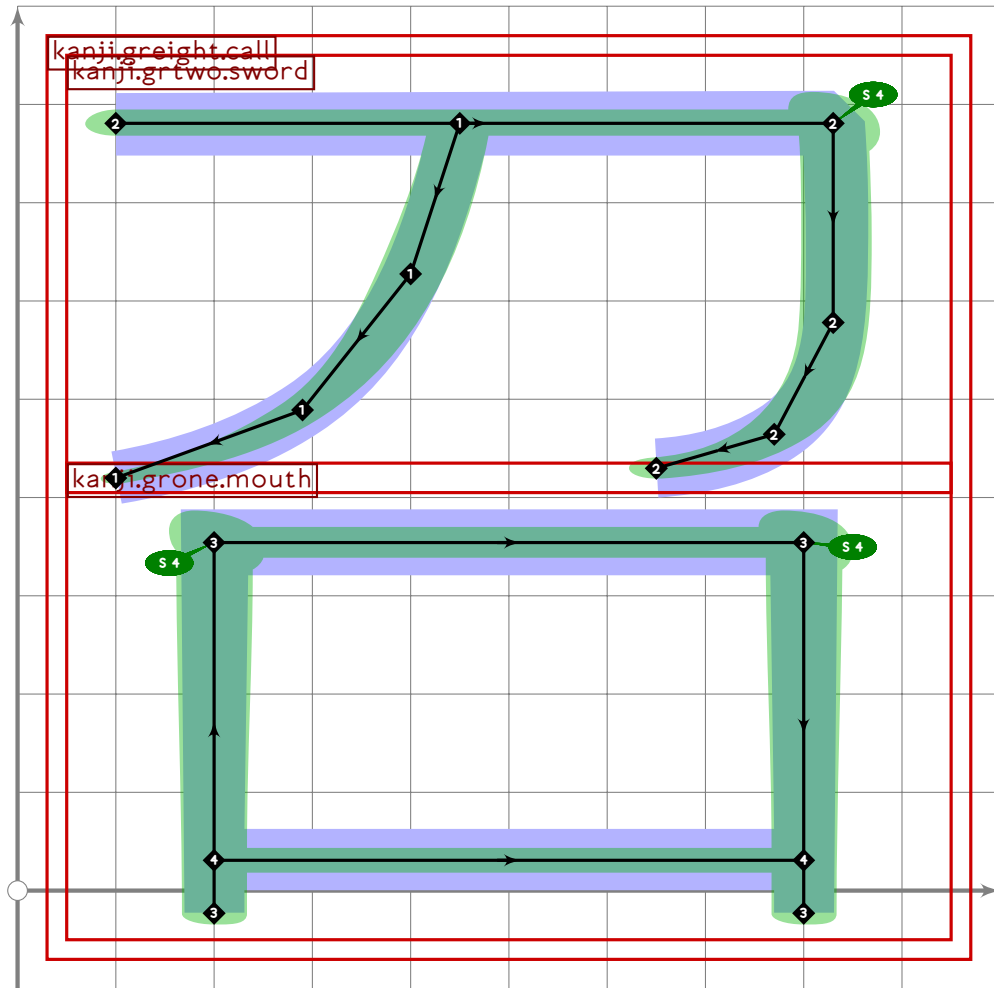
```



```

47
48 vardef kanji.greight.boat =
49   push_pbox_toexpand("kanji.greight.boat");
50   kanji.leftrad.boat;
51   replace_stroke(-1)((110,370)-(890,370));
52   replace_stroke(-1)((1,5,1,5)-(1,5,1,5));
53   set_boserif(-1,9);
54   expand_pbox;
55 enddef;

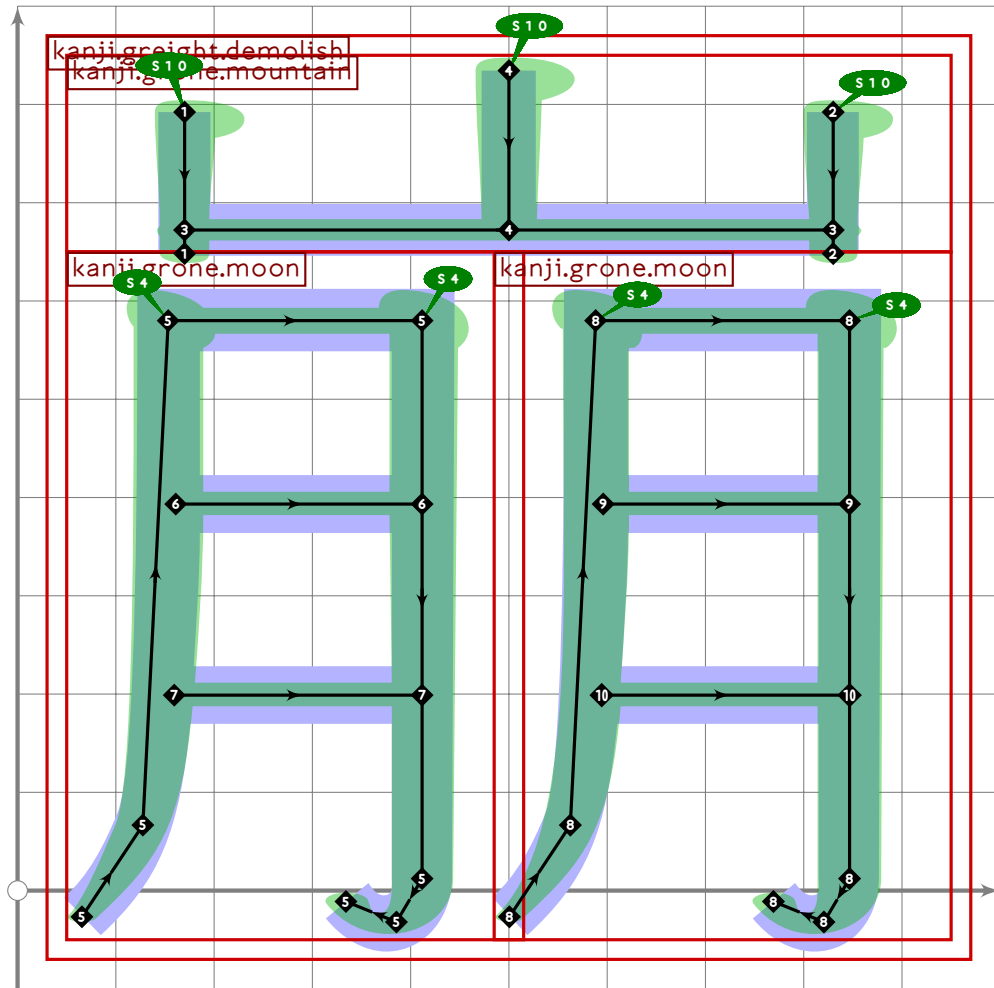
```



```

56
57 vardef kanji.greight.call =
58   push_pbox_toexpand("kanji.greight.call");
59   build_kanji.tb(420,30)
60     (kanji.grtwo.sword)
61     (kanji.grone.mouth);
62   expand_pbox;
63 enddef;

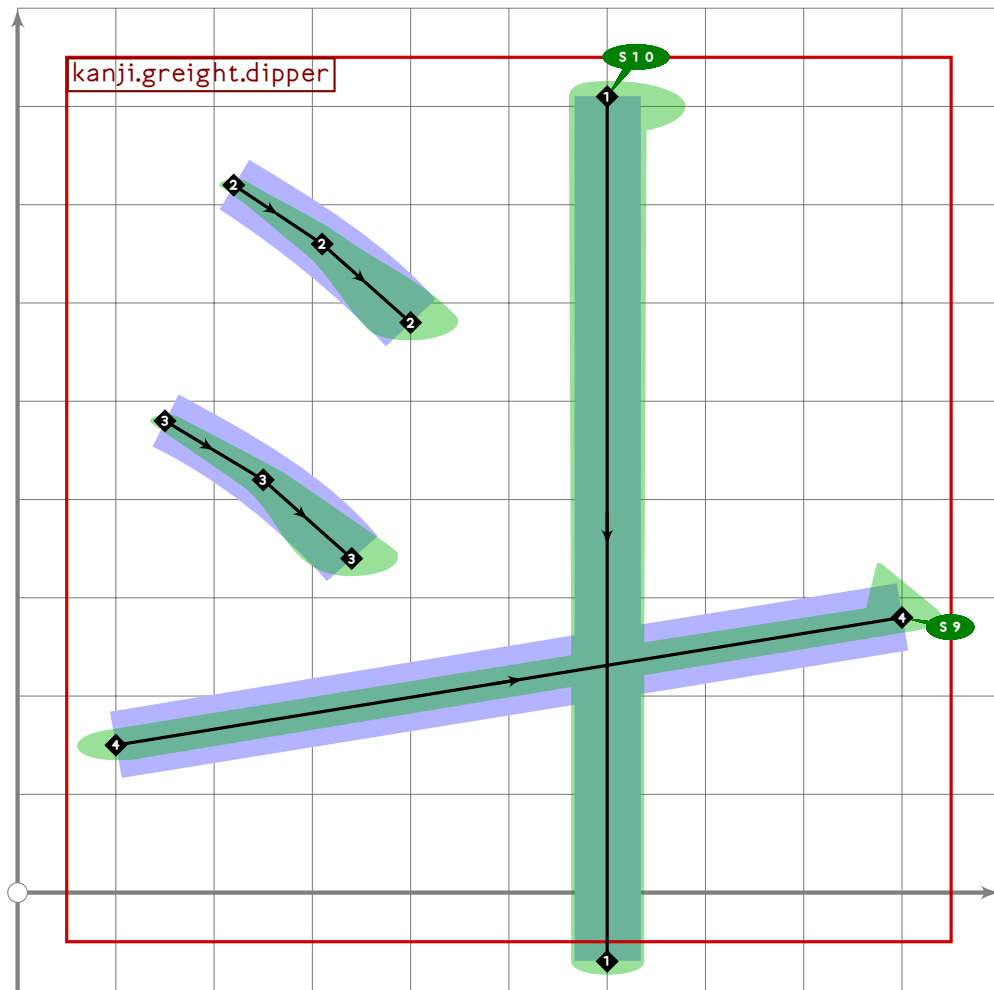
```



```

64
65 vardef kanji.greight.demolish =
66   push_pbox_toexpand("kanji.greight.demolish");
67   build_kanji.tb(650,0)
68     (kanji.grone.mountain)
69     (build_kanji.lr(500,30)
70       (kanji.grone.moon)
71       (kanji.grone.moon));
72   expand_pbox;
73 enddef;

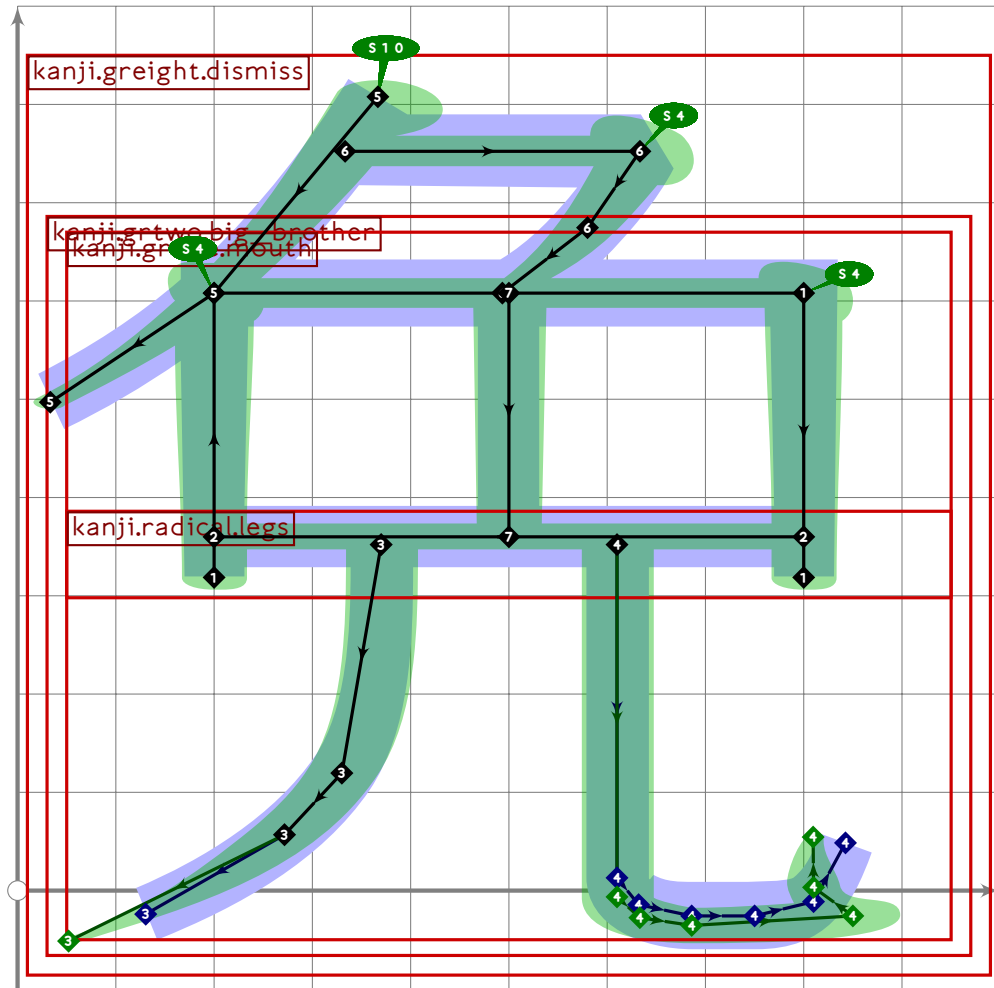
```



```

74
75 vardef kanji.greight.dipper =
76   push_pbox_toexpand("kanji.greight.dipper");
77   push_stroke((600,810)-(600,-70),(1.6,1.6)-(1.5,1.5));
78   set_boserif(0,0,10);
79   push_stroke((220,720)..tension 1.2..(310,660)..(400,580),
80     (1,1)-(1.3,1.3)-(1.9,1.9));
81   set_bosize(0,94);
82   push_stroke((150,480)..tension 1.2..(250,420)..(340,340),
83     (1,1)-(1.3,1.3)-(1.9,1.9));
84   set_bosize(0,94);
85   push_stroke((100,150)-(900,280),(1.6,1.6)-(1.6,1.6));
86   set_boserif(0,1,9);
87   expand_pbox;
88 enddef;

```

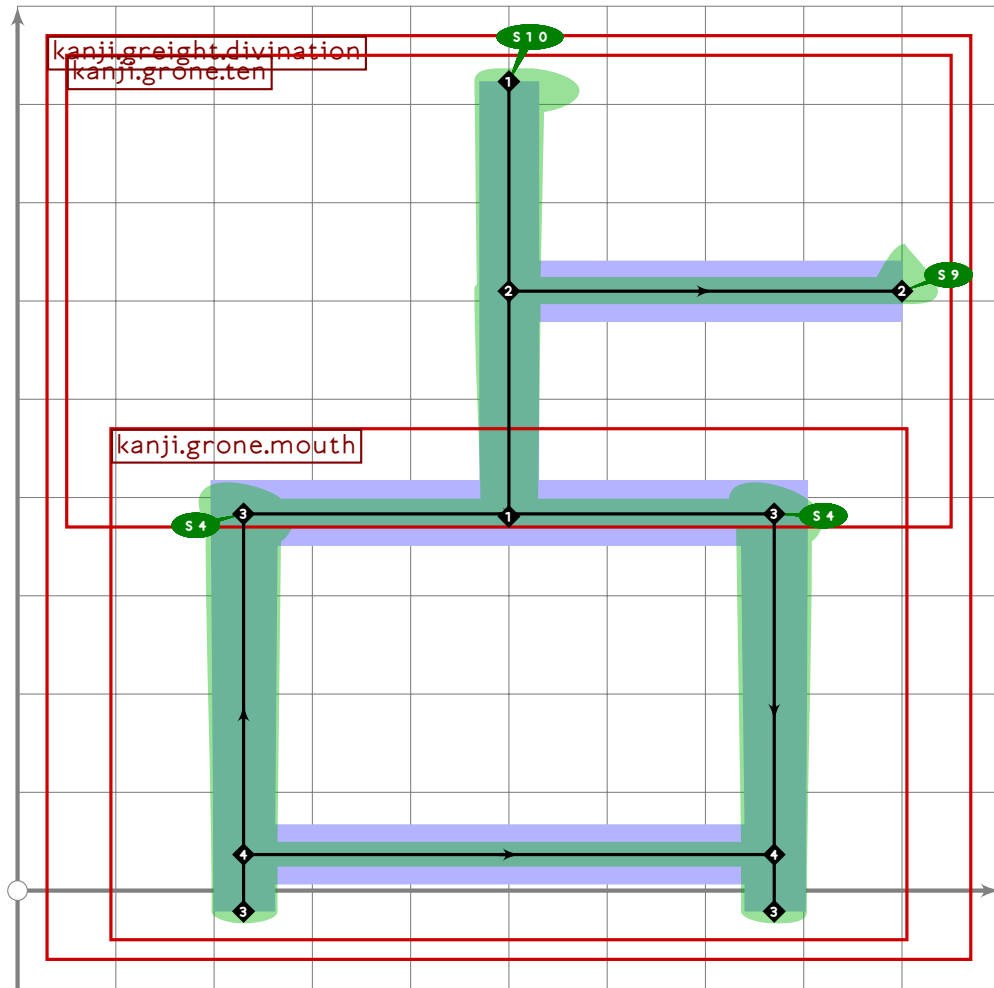


```

89
90 vardef kanji.greight.dismiss =
91   push_pbox_toexpand("kanji.greight.dismiss");
92   build_kanji.attach_fishhook(0.8)(kanji.grtwo.big_brother);
93   push_stroke(
94     (point 1.5 of get_stroke(-5))-(point 0.5 of get_stroke(-4)),
95     (1.6,1.6)-(1.5,1.5));
96   set_bosize(0,get_bosize(-5));
97   expand_pbox;
98 enddef;

```

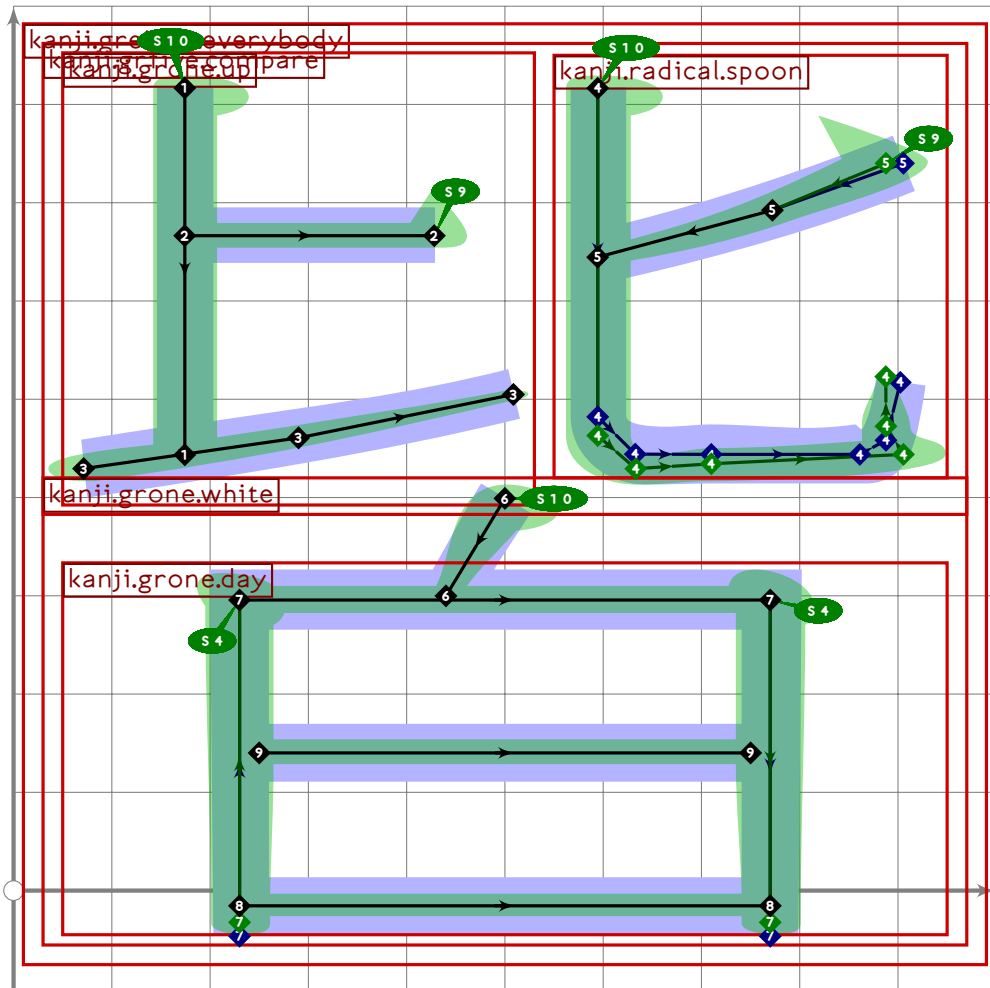




```

99
100 vardef kanji.greight.divination =
101   push_pbox_toexpand("kanji.greight.divination");
102   build_kanji.level(build_kanji.tb(420,100)
103     (kanji.grone.ten;
104       replace_stroke(0)(subpath (0.5,1) of oldp))
105     (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth)));
106   expand_pbox;
107 enddef;

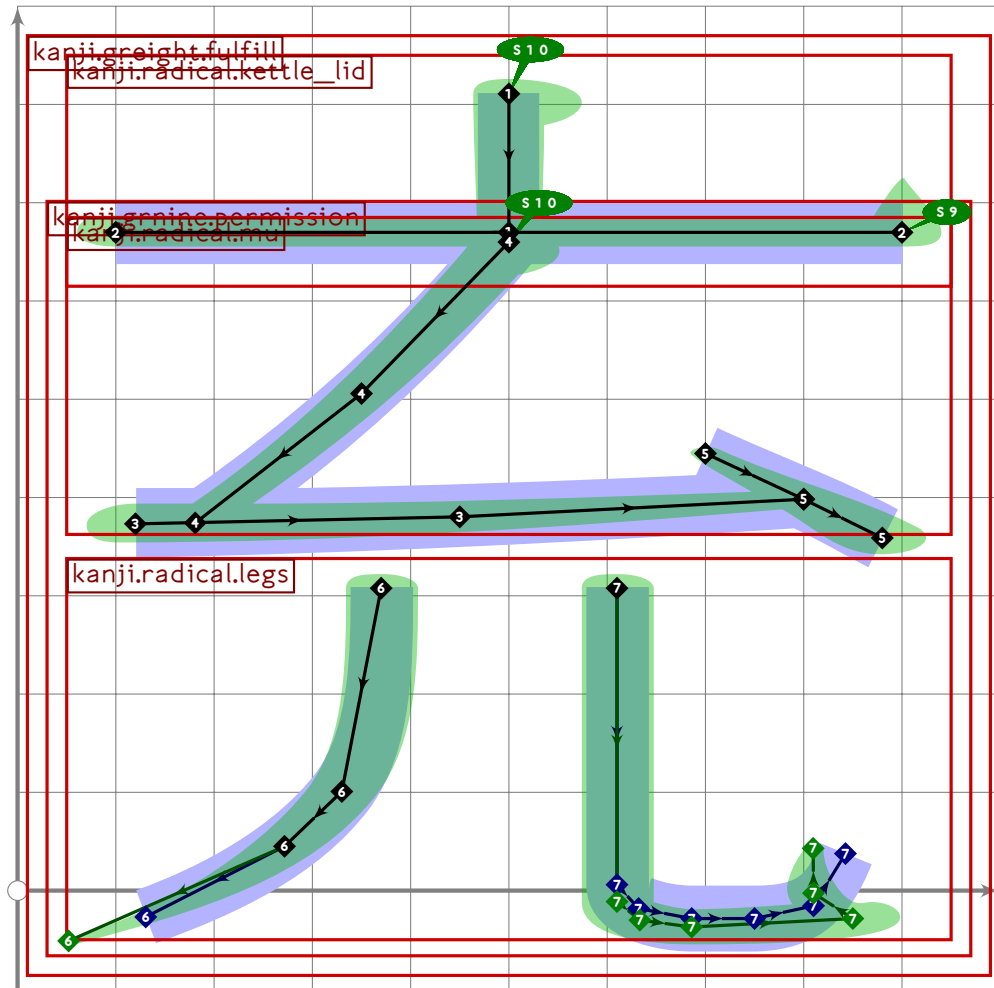
```



```

108
109 vardef kanji.greight.everybody =
110   push_pbox_toexpand("kanji.greight.everybody");
111   build_kanji.level(build_kanji.tb(420,0)
112     (kanji.grfive.compare)
113     (kanji.grone.white));
114   expand_pbox;
115 enddef;

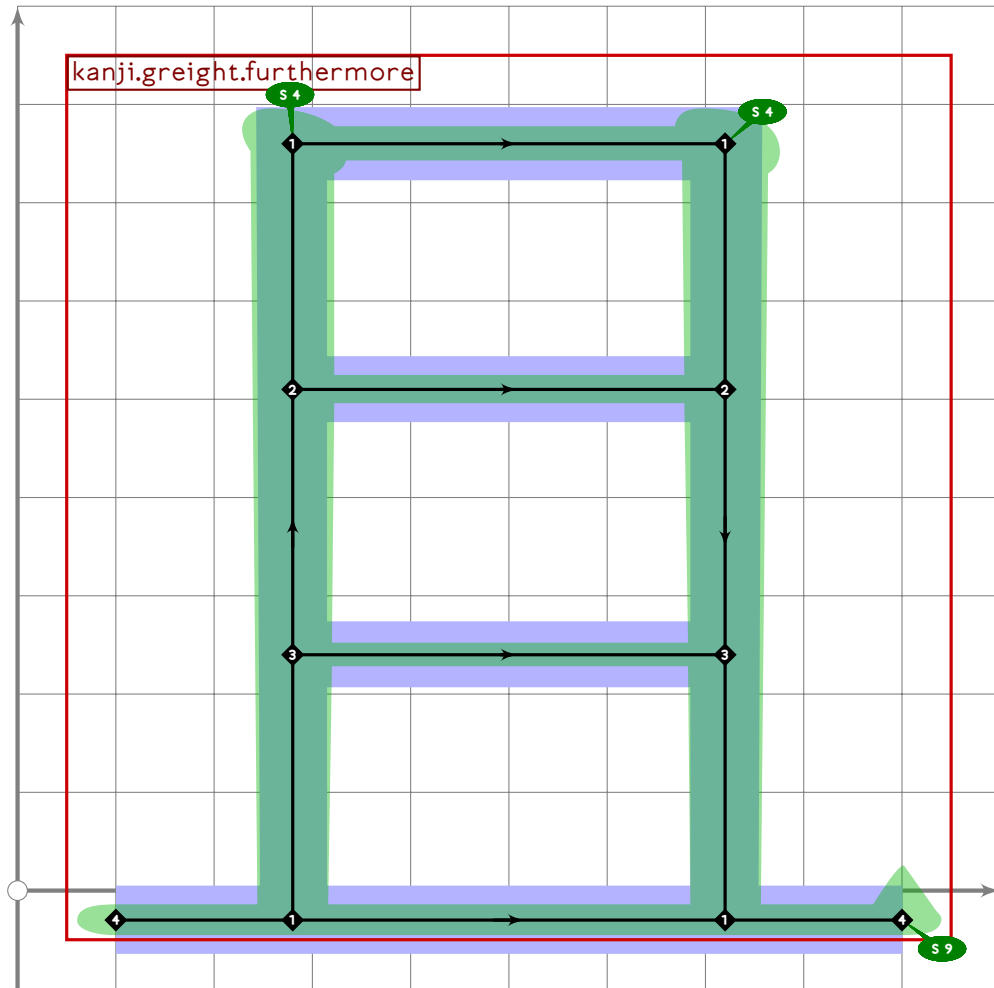
```



```

116
117 vardef kanji.greight. fulfill =
118   push_pbox_toexpand("kanji.greight. fulfill");
119   build_kanji.level(build_kanji.tb(650,70)
120     (kanji.radical.kettle_lid)
121     (kanji.grnine.permission));
122   expand_pbox;
123 enddef;

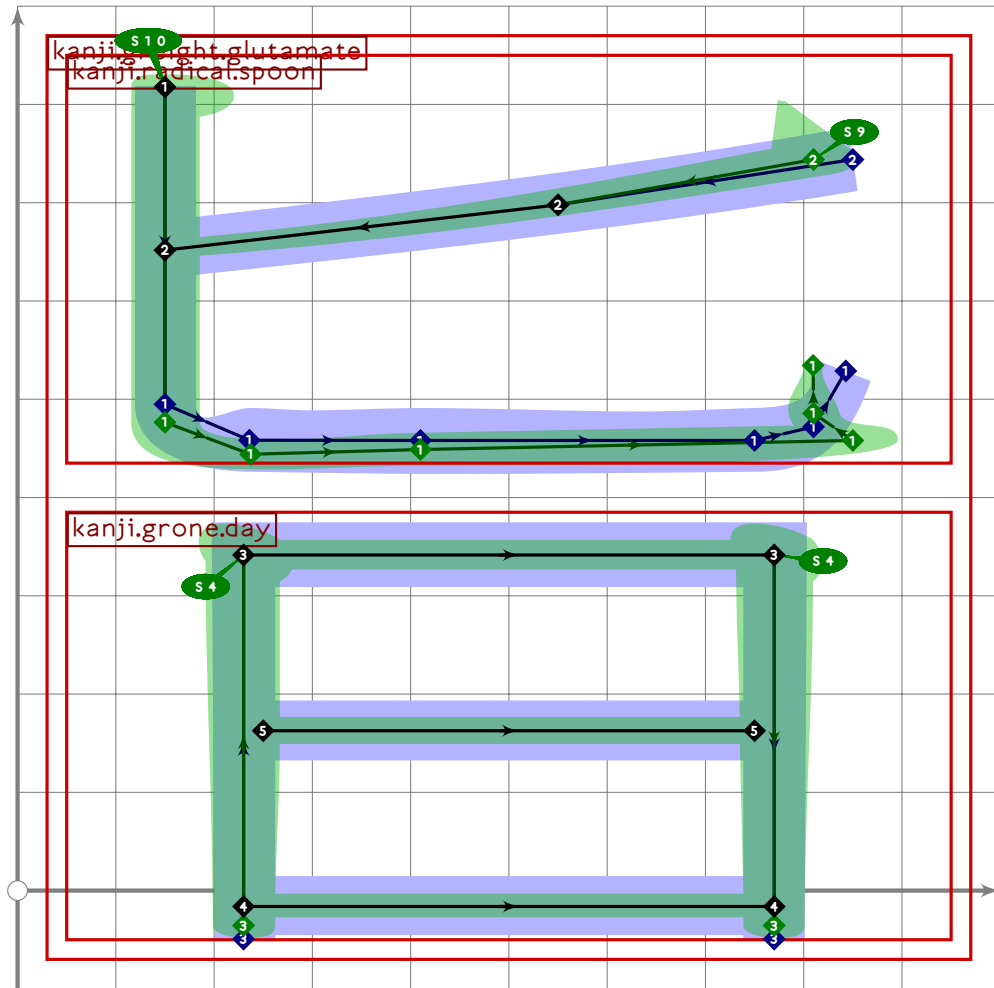
```



```

124
125 vardef kanji.greight.furthermore =
126   push_pbox_toexpand("kanji.greight.furthermore");
127   push_stroke((280,-30)-(280,760)-(720,760)-(720,-30),
128     (1.5,1.5)-(1.7,1.7)-(1.7,1.7)-(1.5,1.5));
129   set_botip(0,1);
130   set_botip(0,2,1);
131   set_boserif(0,1,4);
132   set_boserif(0,2,4);
133   push_stroke((280,510)-(720,510),
134     (1.5,1.5)-(1.5,1.5));
135   push_stroke((280,240)-(720,240),
136     (1.4,1.4)-(1.4,1.4));
137   push_stroke((100,-30)-(900,-30),
138     (1.6,1.6)-(1.6,1.6));
139   set_boserif(0,1,9);
140   expand_pbox;
141   enddef;
142

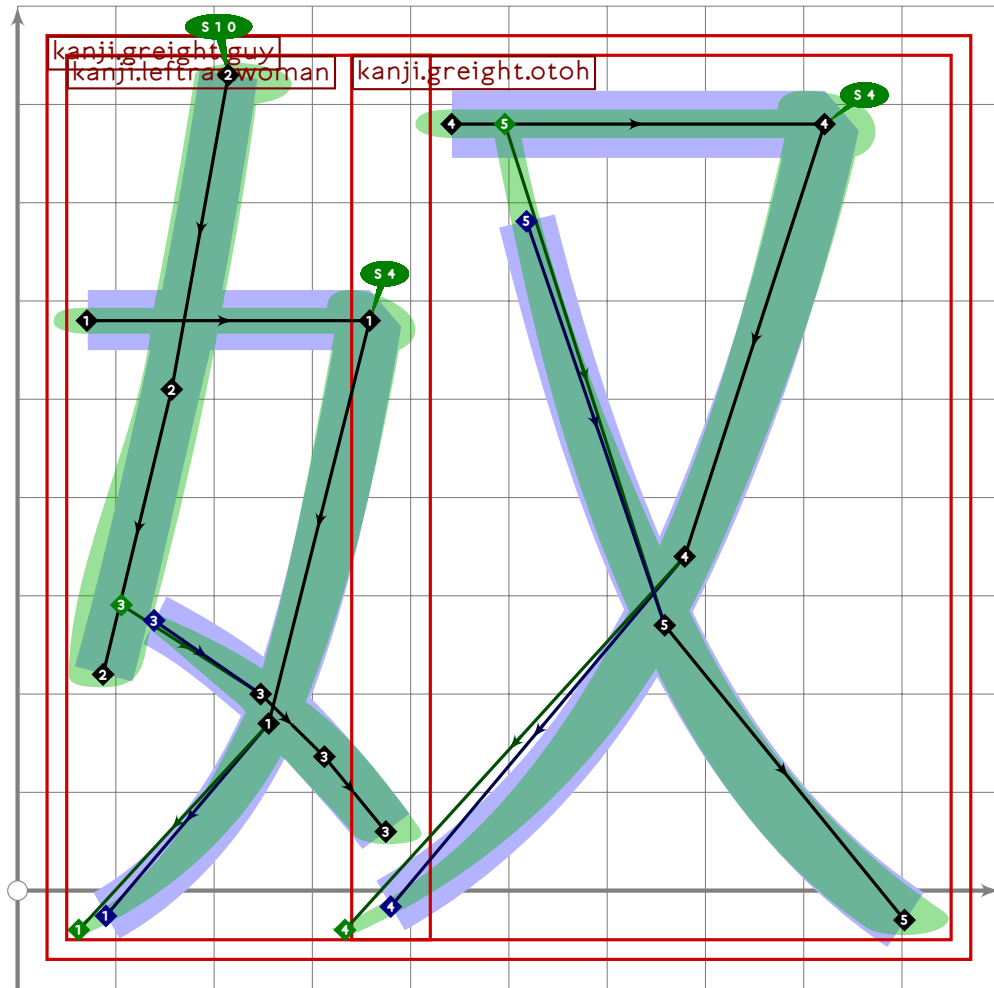
```



```

143 % this actually means sort of generically "good", but it's "uma" in
144 % "umami" and needs to be distinguished from other vague kanji
145 vardef kanji.greight.glutamate =
146   push_pbox_toexpand("kanji.greight.glutamate");
147   build_kanji.level(build_kanji.tb(410;-50)
148     (kanji.radical.spoon)
149     (kanji.grone.day));
150   expand_pbox;
151 enddef;

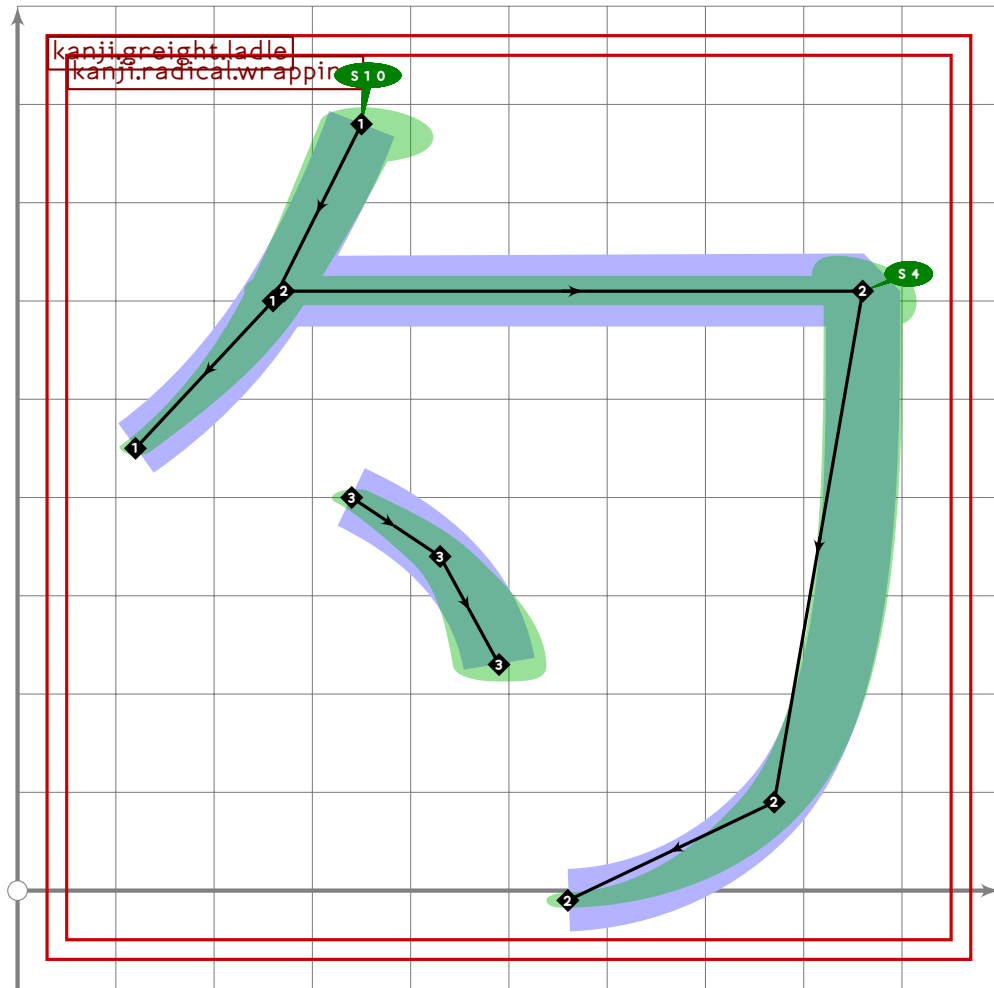
```



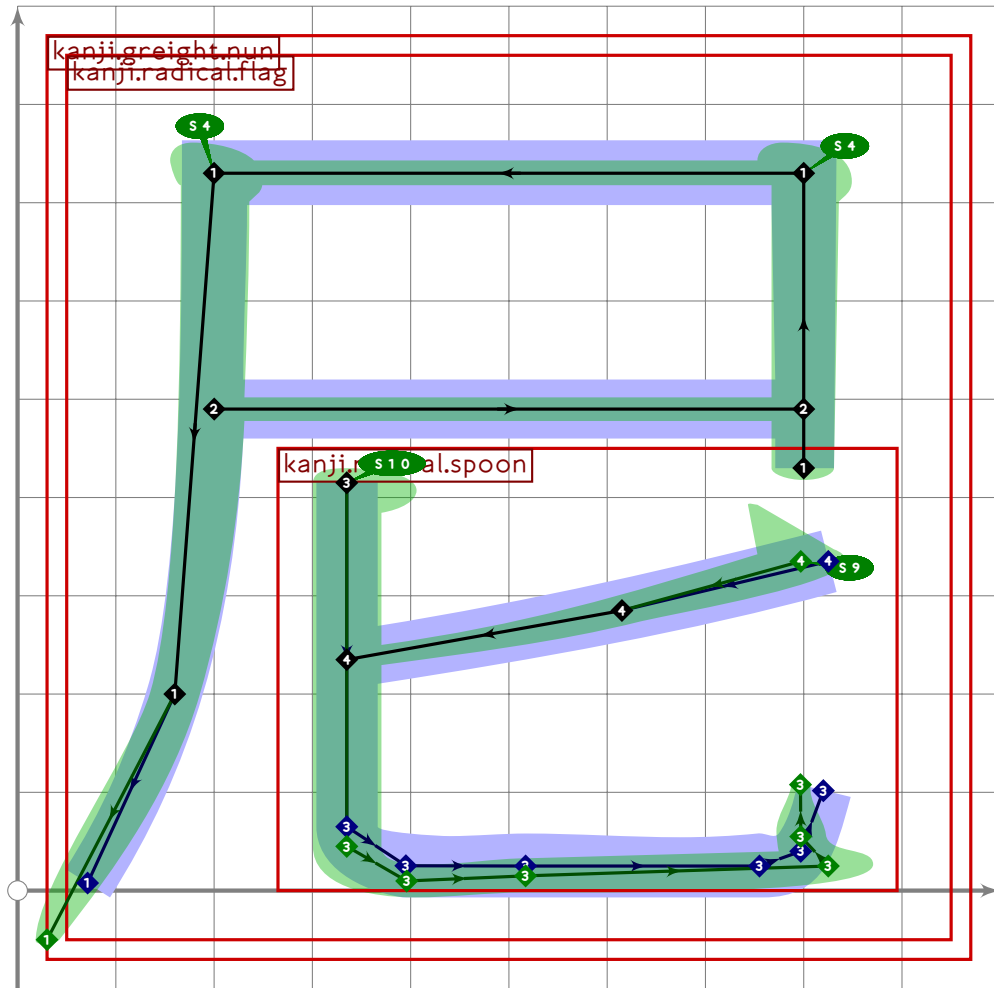
```

152
153 vardef kanji.greight.guy =
154   push_pbox_toexpand("kanji.greight.guy");
155   build_kanji.lr(380,80)
156     (kanji.leftrad.woman)
157     (kanji.greight.otoh);
158   expand_pbox;
159 enddef;

```



```
160  
161 vardef kanji.greight.ladle =  
162   push_pbox_toexpand("kanji.greight.ladle");  
163   kanji.radical.wrapping;  
164   push_stroke((340,400)..tension 1.2..(430,340)..(490,230),  
165     (1,1,1)-(1,4,14)-(1,8,18));  
166   expand_pbox;  
167 enddef;
```

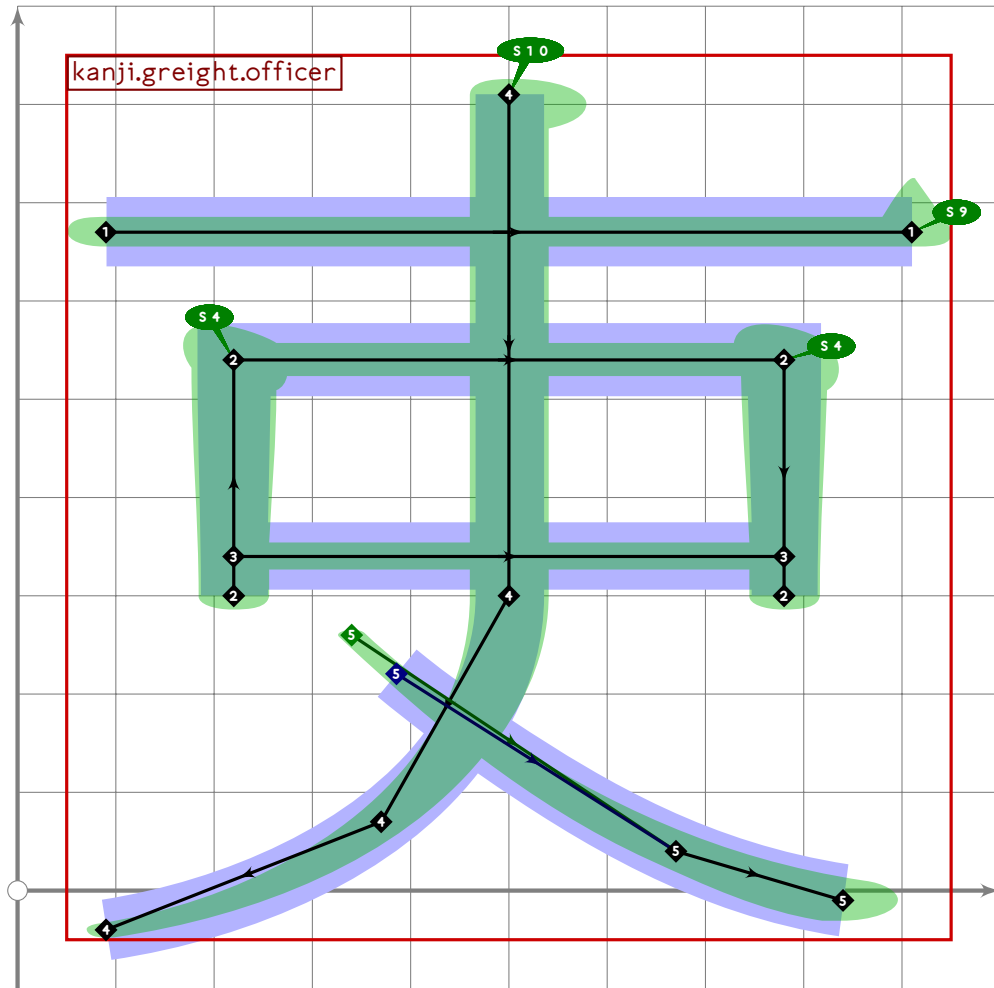


```

168
169 vardef kanji.greight.nun =
170   push_pbox_toexpand("kanji.greight.nun");
171   build_kanji.level(
172     kanji.radical.flag;
173     build_kanji.sscale(xyscaled (0.7,0.5) shifted (80,-170))
174     (kanji.radical.spoon));
175   expand_pbox;
176 enddef;

```

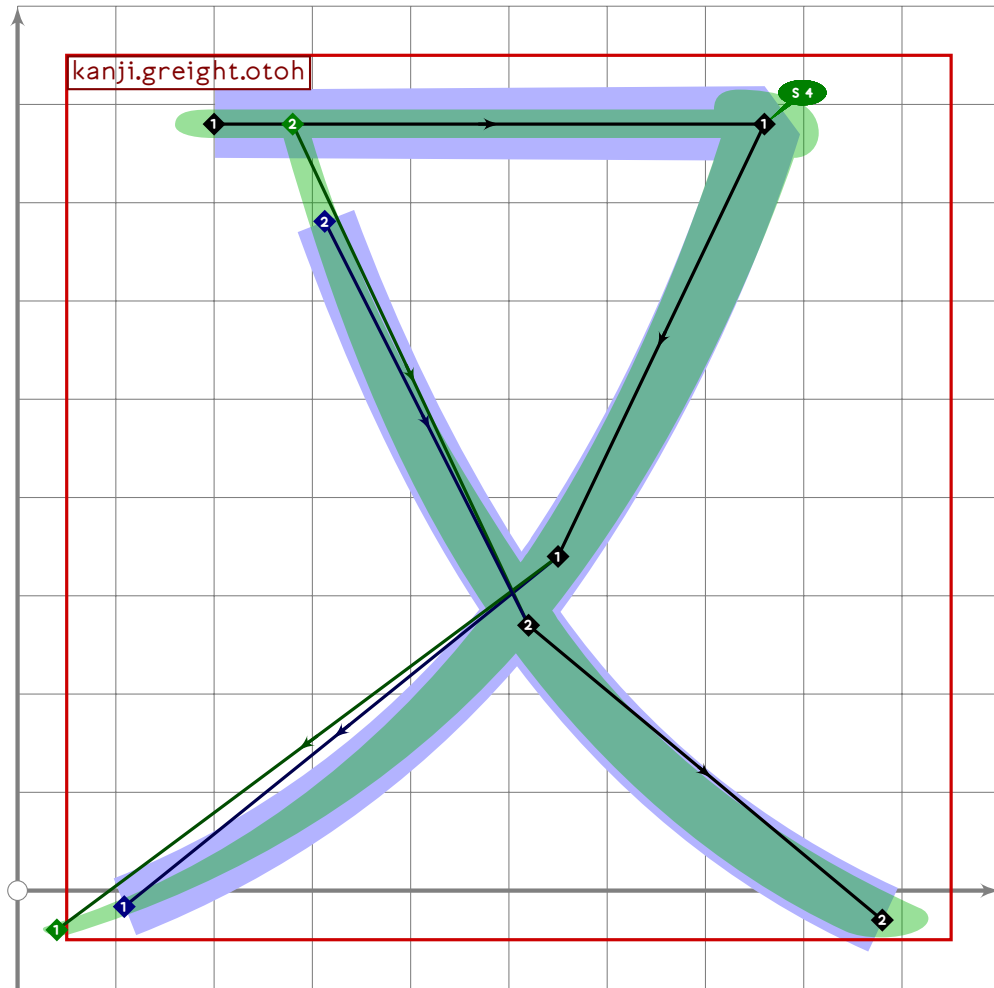




```

177
178 vardef kanji.greight.officer =
179   push_pbox_toexpand("kanji.greight.officer");
180   push_stroke((90,670)-(910,670),(1.6,1.6)-(1.6,1.6));
181   set_boserif(0,1,9);
182   build_kanji.box((220,540),(780,340));
183   push_stroke((500,810)-(500,300){down}..(370,70)..{curl 0.5}(90,-40),
184     (1.6,1.6)-(1.6,1.6)-(14,14)-(11,11));
185   set_boserif(0,0,10);
186   push_stroke((340,260)..tension 1.2..(670,40)..(840,-10),
187     (0.9,0.9)-(1.5,1.5)-(2,2));
188   expand_pbox;
189 enddef;

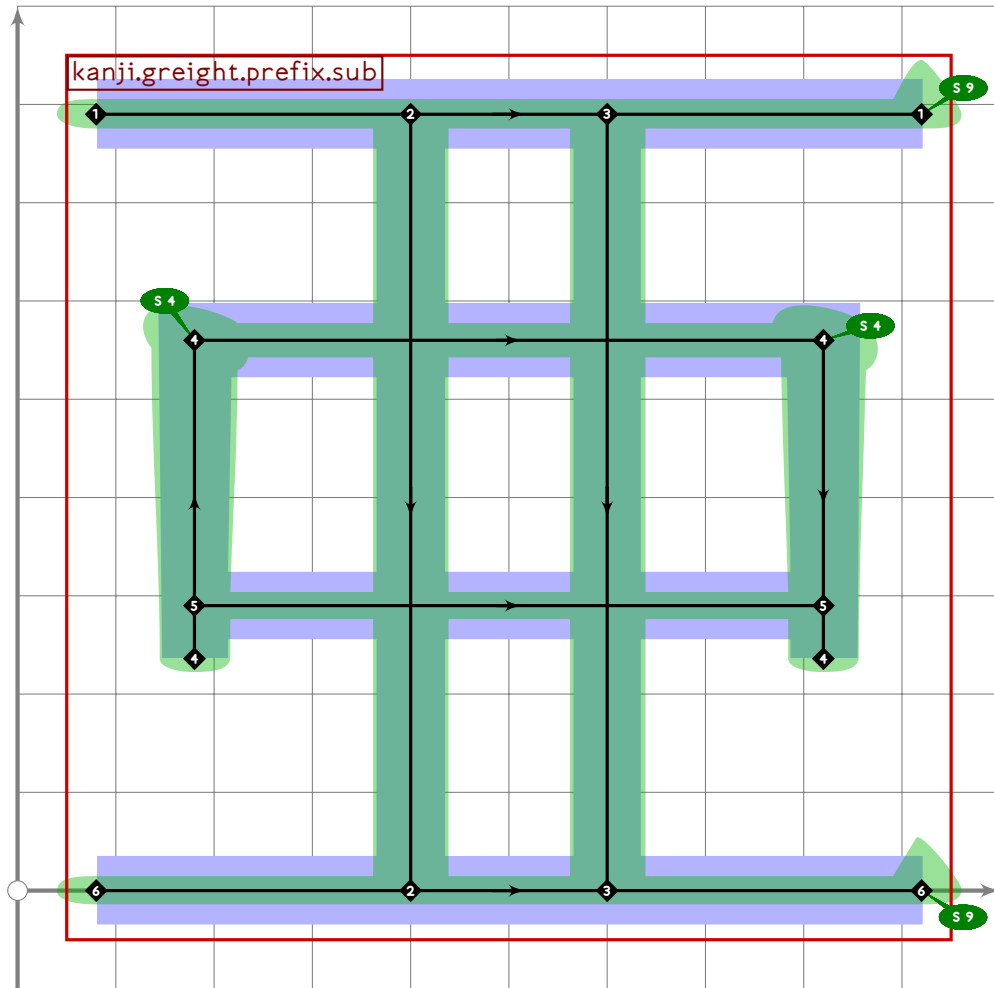
```



```

190
191 vardef kanji.greight.otoh =
192   push_pbox_toexpand("kanji.greight.otoh");
193   push_stroke(
194     (200,780)-(760,780)..tension 1.2..(550,340)..(40,-40),
195     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(0.9,0.95));
196   set_botip(0,1,0);
197   set_boserif(0,1,4);
198   push_stroke((280,780)..tension 1.2..(520,270)..(880,-30),
199     (0.9,0.9)-(1.4,1.4)-(1.8,1.8));
200   expand_pbox;
201 enddef;

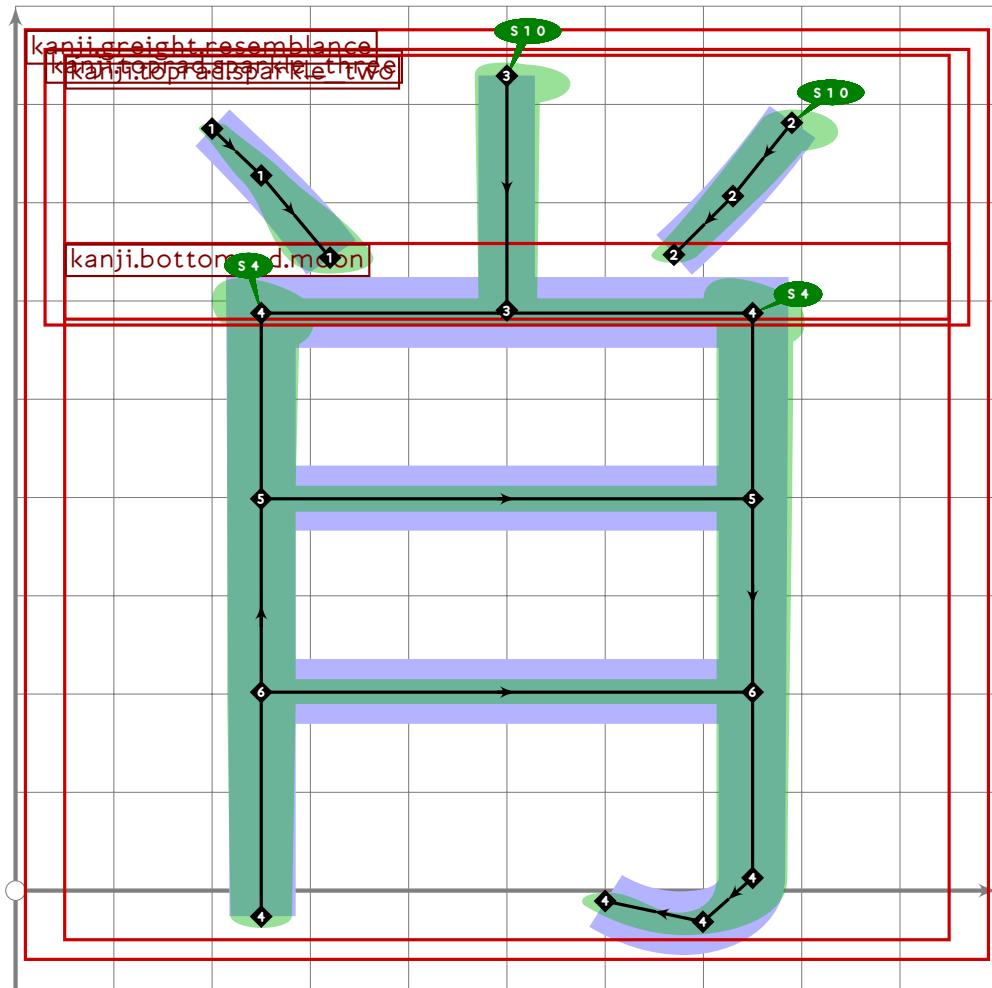
```



```

202
203 vardef kanji.greight.prefix_sub =
204   push_pbox_toexpand("kanji.greight.prefix.sub");
205   push_stroke((80,790)-(920,790),(1.6,1.6)-(1.6,1.6));
206   set_boserif(0,1,9);
207   push_stroke((400,790)-(400,0),(1.6,1.6)-(1.5,1.5));
208   push_stroke((600,790)-(600,0),(1.6,1.6)-(1.5,1.5));
209   build_kanji.box((180,560),(820,290));
210   push_stroke((80,0)-(920,0),(1.6,1.6)-(1.6,1.6));
211   set_boserif(0,1,9);
212   expand_pbox;
213 enddef;

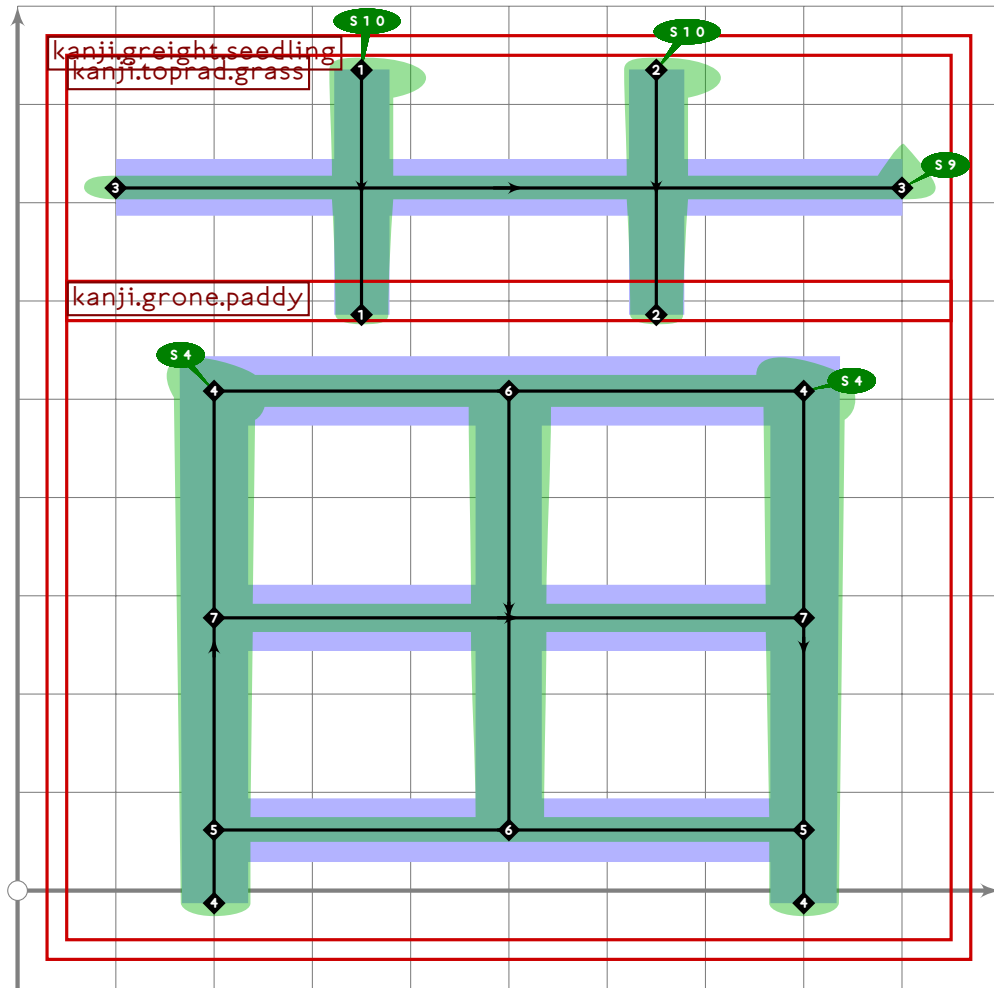
```



```

214
215 vardef kanji.greight.resemblance =
216   push_pbox_toexpand("kanji.greight.resemblance");
217   build_kanji.tb(620,77)
218     (kanji.toprad.sparkle_three)
219     (kanji.bottomrad.moon);
220   expand_pbox;
221 enddef;

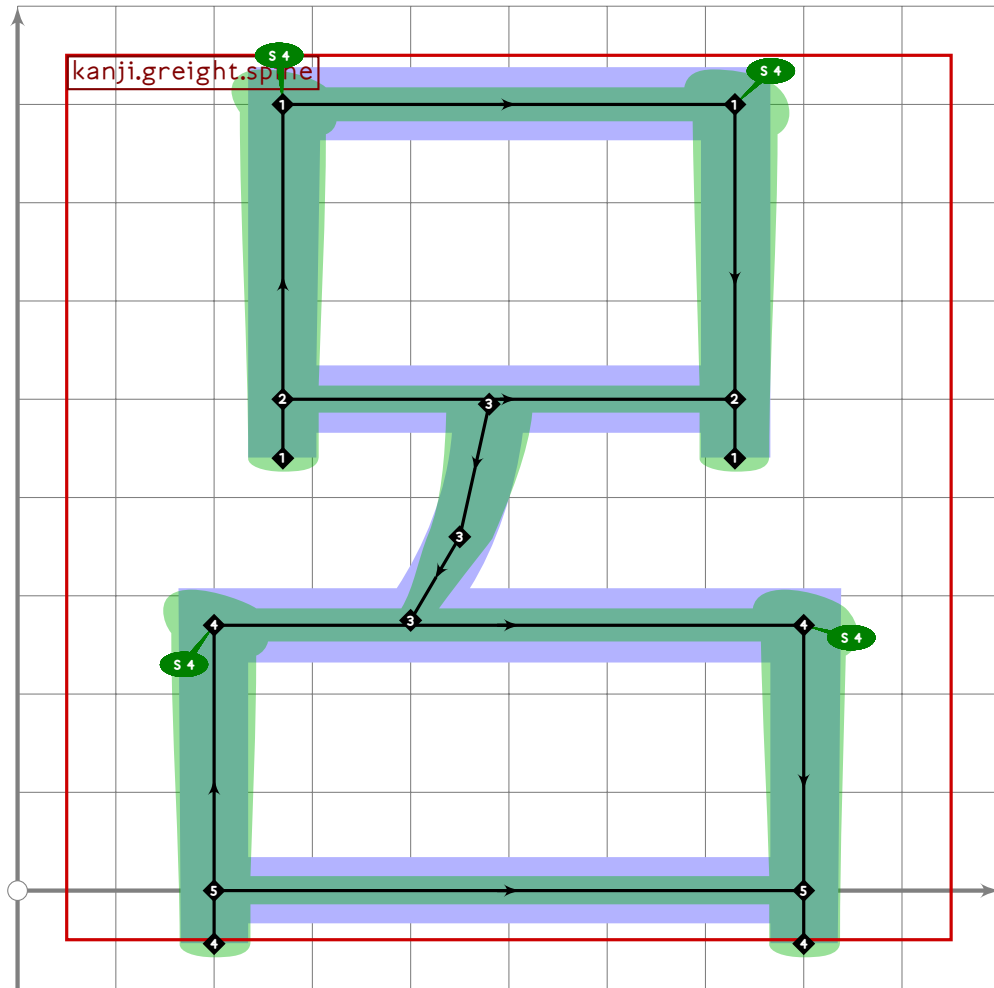
```



```

222
223 vardef kanji.greight.seedling =
224   push_pbox_toexpand("kanji.greight.seedling");
225   build_kanji.tb(600,40)
226     (kanji.toprad.grass)
227     (kanji.grone.paddy);
228   expand_pbox;
229 enddef;

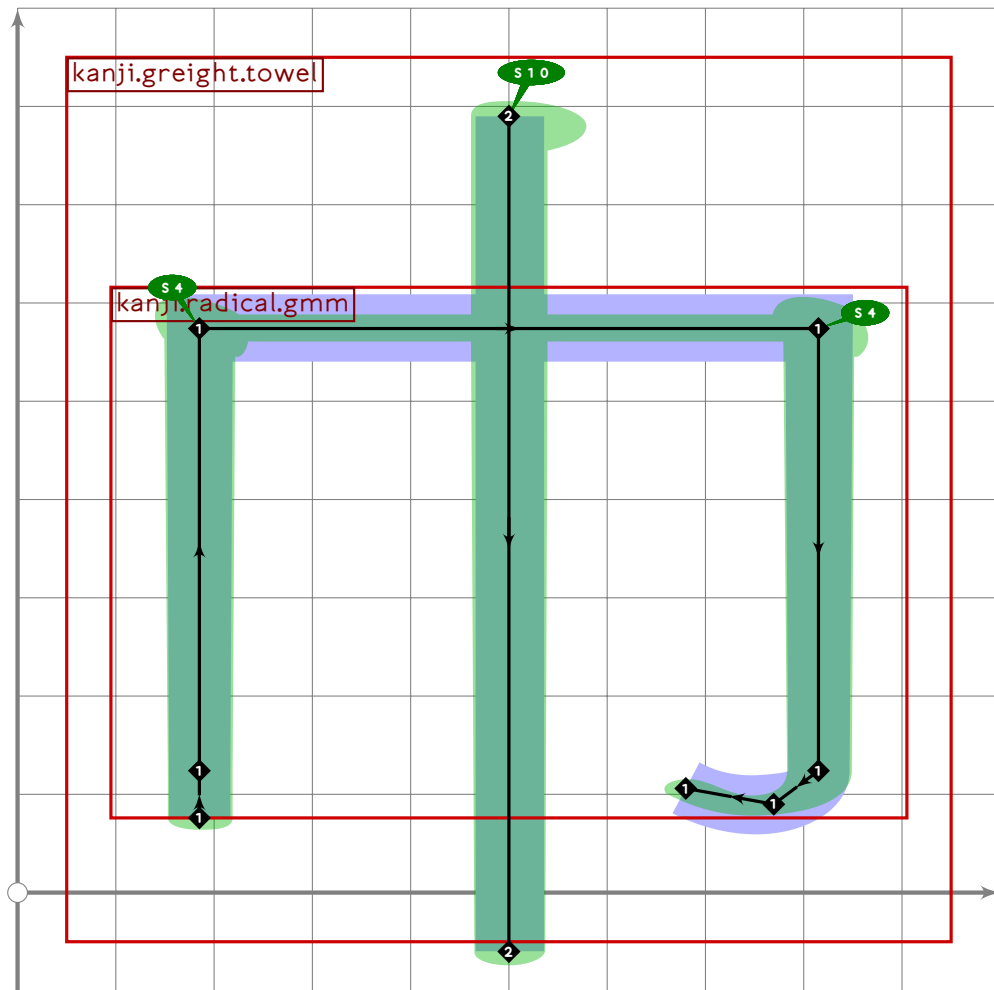
```



```

230
231 vardef kanji.greight.spine =
232   push_pbox_toexpand("kanji.greight.spine");
233   build_kanji.box((270,800),(730,500));
234   push_stroke((480,495)..(450,360)..(400,275),
235     (1,1.7)-(1.4,1.4)-(1,1));
236   build_kanji.box((200,270),(800,0));
237   expand_pbox;
238 enddef;

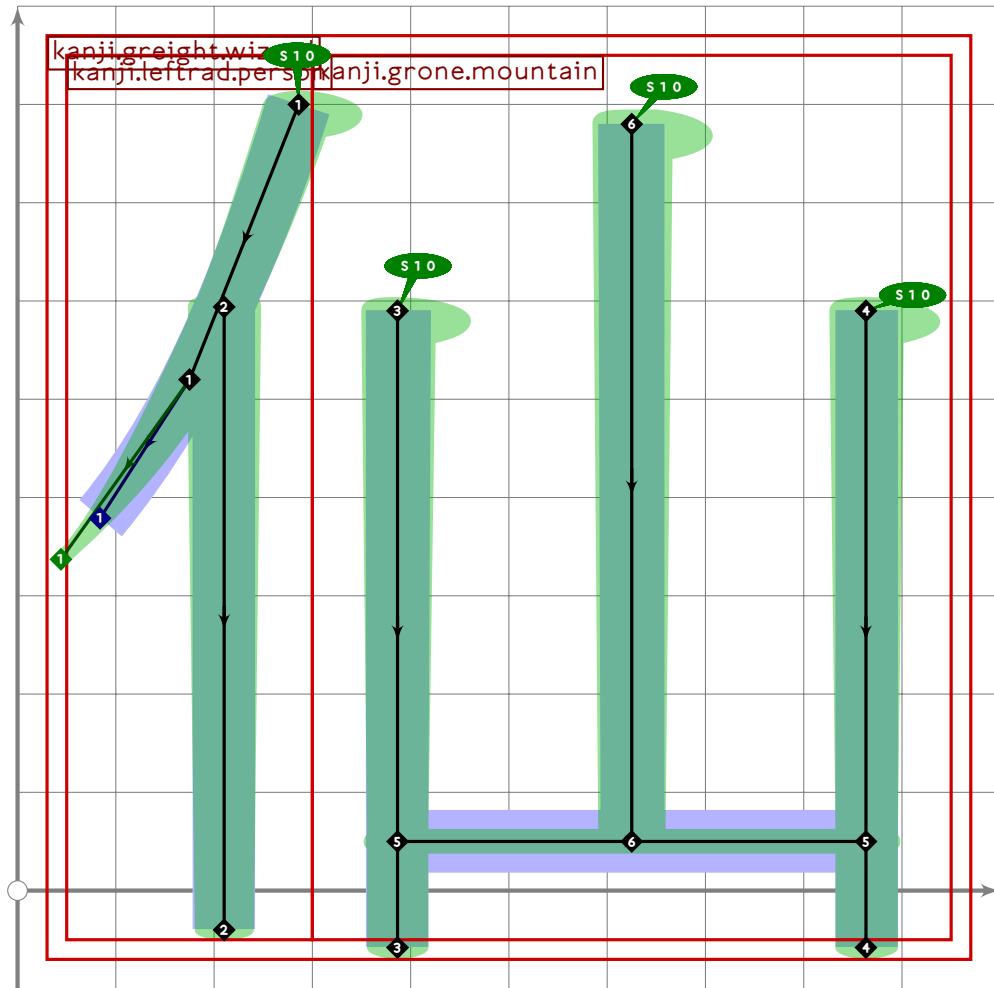
```



```

239
240 vardef kanji.greight.towel =
241   push_pbox_toexpand("kanji.greight.towel");
242   build_kanji.sscale(xyscaled (0,9,0,6) shifted (0,-50))
243     (kanji.radical.gmm);
244   push_stroke((500,790)-(500,-60),
245     (1,6,1,6)-(1,5,1,5));
246   set_boserif(0,0,10);
247   expand_pbox;
248 enddef;

```



```

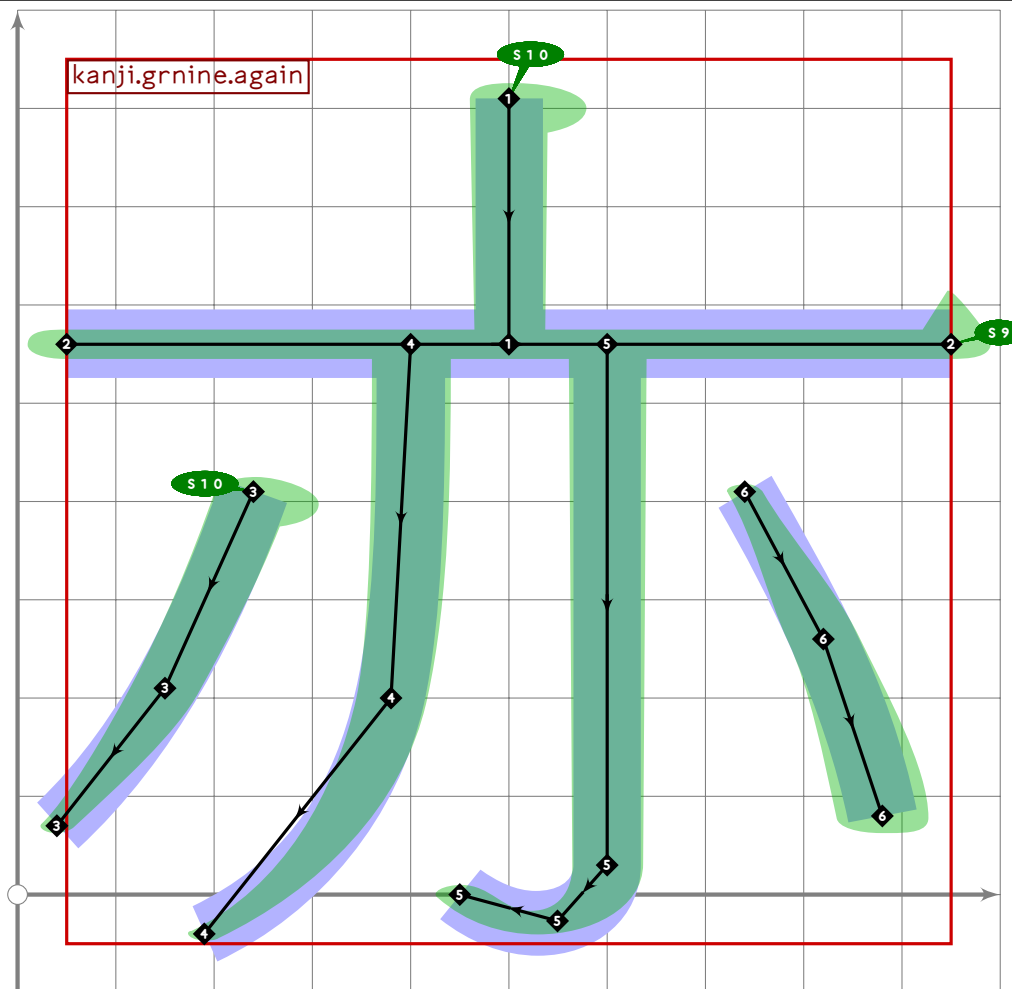
249
250 vardef kanji.greight.wizard =
251   push_pbox_toexpand("kanji.greight.wizard");
252   build_kanji.lr(300,0)
253     (kanji.leftrad.person)
254     (kanji.grone.mountain);
255   expand_pbox;
256 enddef;

```



# gradenine.mp

```
1 %  
2 % Grade Nine kanji used on more than one page  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(gradenine);  
32  
33
```

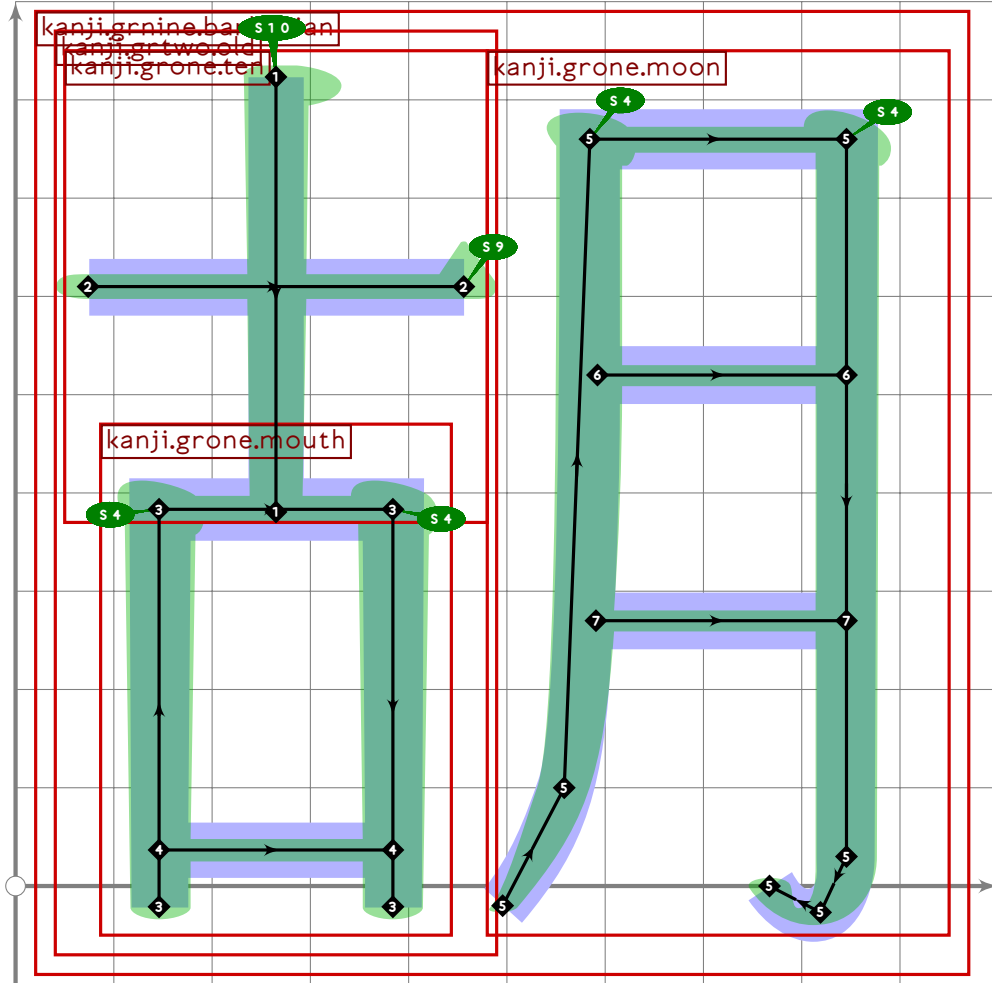


```
34  
35 vardef kanji.grnine.again =  
36   push_pbox_toexpand("kanji.grnine.again");  
37   push_stroke((500,810)-(500,560),(1.6,1.6)-(1.5,1.5));  
38   set_boserif(0,0,10);  
39   push_stroke((50,560)-(950,560),(1.6,1.6)-(1.6,1.6));  
40   set_boserif(0,1,9);  
41   push_stroke((240,410)..tension 1.3..(150,210)..(40,70),  
42     (1.6,1.6)-(1.5,1.5)-(1,1));  
43   set_boserif(0,0,10);
```

```

44 push_stroke((400,560){down}..tension 1.3..(380,200)..(190,-40),
45   (1.6,1.6)-(1.5,1.5)-(1,1));
46 push_stroke((600,560),(1.6,1.6));
47 build_kanji.add_jtail(0);
48 push_stroke((740,410)..tension 1.3..(820,260)..(880,80),
49   (1,1)-(1.5,1.5)-(1.8,1.8));
50 expand_pbox;
51 enddef;

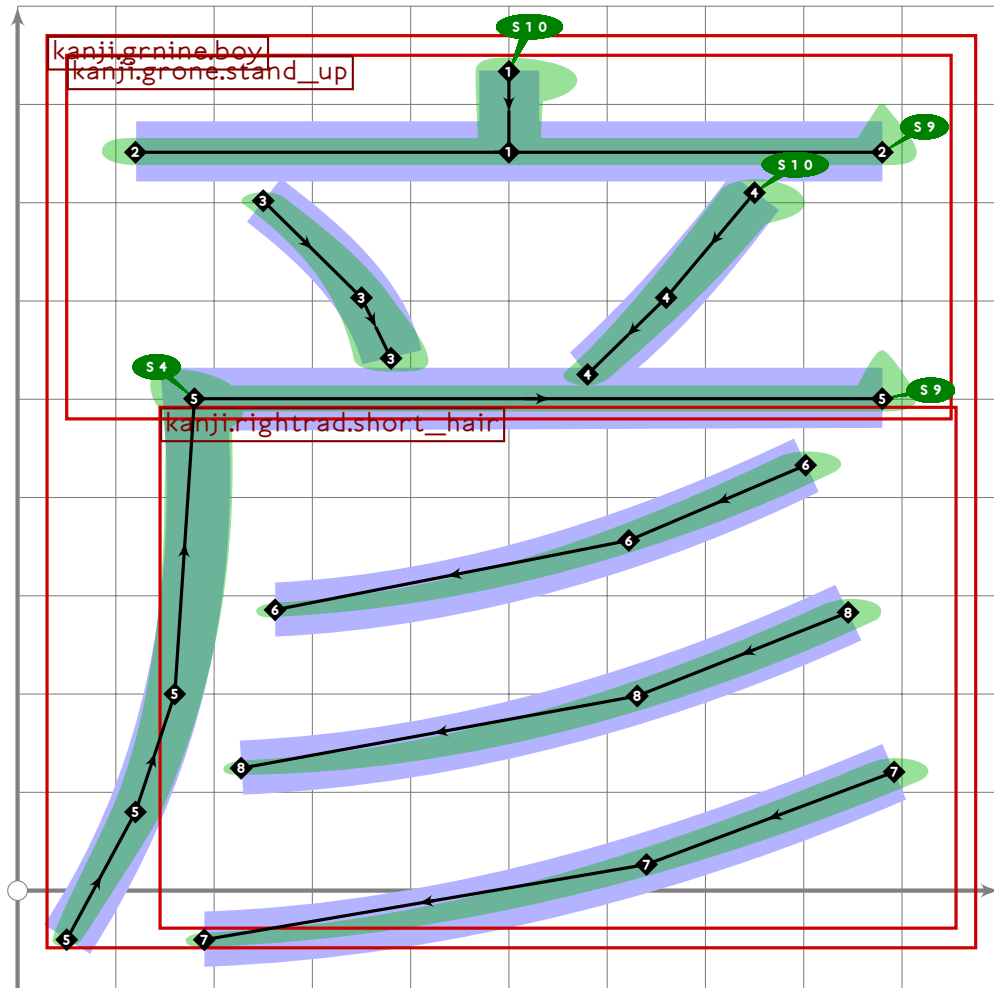
```



```

52
53 vardef kanji.grnine.barbarian =
54   push_pbox_toexpand("kanji.grnine.barbarian");
55   build_kanji.level(build_kanji.lr(480,0)
56     (kanji.grtwo.old)
57     (kanji.grone.moon));
58   expand_pbox;
59 enddef;

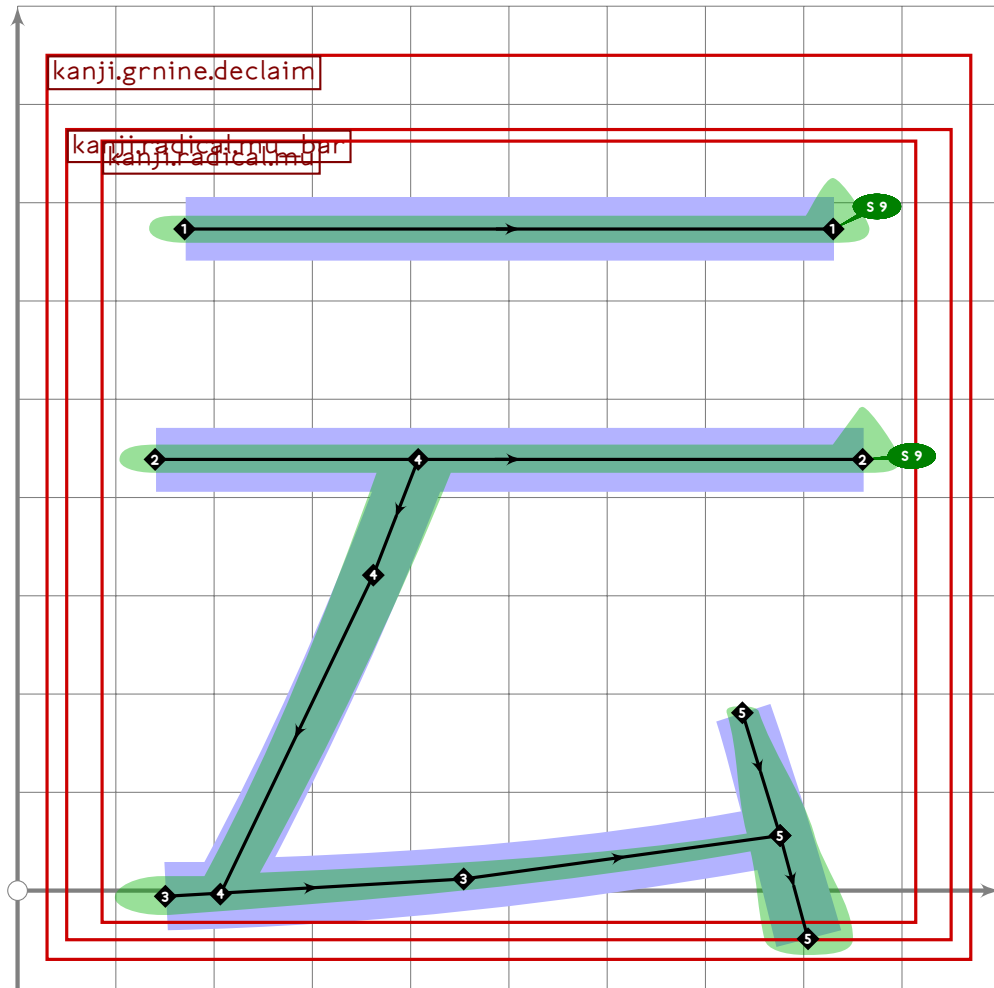
```



```

60
61 vardef kanji.grnine.boy =
62   push_pbox_toexpand("kanji.grnine.boy");
63   build_kanji.level(build_kanji.tb(480,0)
64     (kanji.grone.stand_up)
65     (build_kanji.sscale(xscaled 0.9 shifted (50,20))
66       (kanji.rightrad.short_hair)));
67   replace_strokep(-3)((50,50)..(120,80)..(160,200)..tension 1.2..
68     (180,ypart point 0 of oldp)-(880,ypart point 1 of oldp));
69   replace_strokeq(-3)((1,1)-(1.3,1.3)-(1.5,1.5)-(1.6,1.6)-(1.6,1.6));
70   set_botip(-3,3,1);
71   set_boserif(-3,1,whatever);
72   set_boserif(-3,3,4);
73   set_boserif(-3,4,9);
74   expand_pbox;
75 enddef;

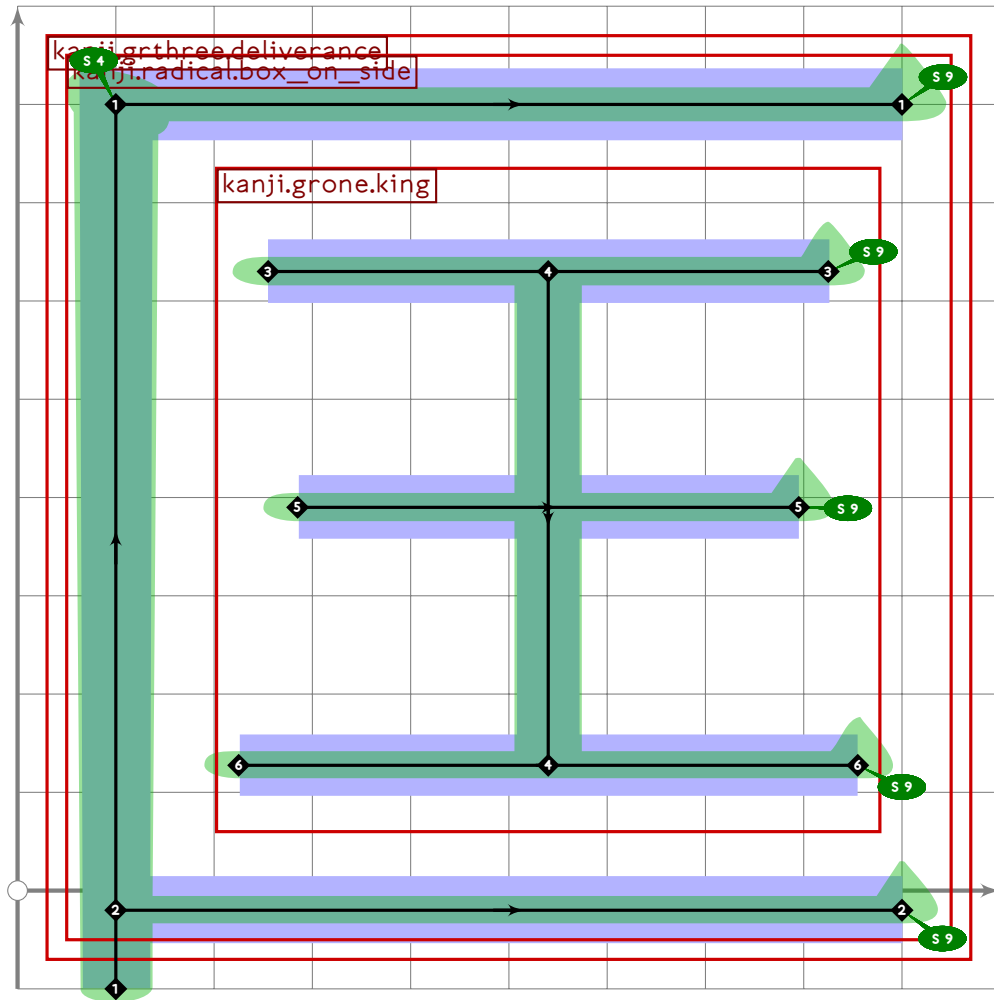
```



```

76
77 vardef kanji.grnine.declaim =
78   push_pbox_toexpand("kanji.grnine.declaim");
79   build_kanji.level(build_kanji.tb(480,0)
80     (push_stroke((170,420)-(830,420),
81       (1.6,1.6)-(1.6,1.6));
82     set_boserif(0,1,9);
83   )
84   (kanji.radical.mu_bar));
85   expand_pbox;
86 enddef;

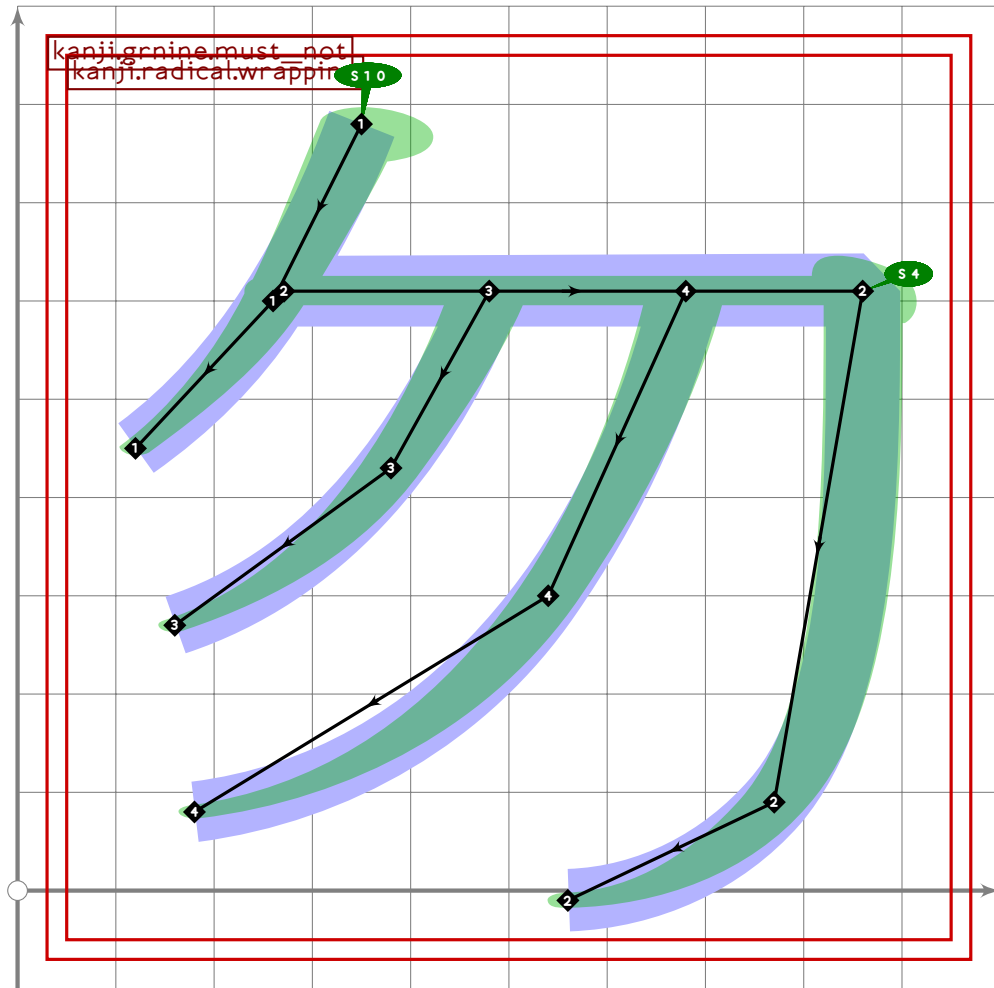
```



```

87
88 vardef kanji.grnine.deliverance =
89   push_pbox_toexpand("kanji.grthree.deliverance");
90   kanji.radical.box_on_side;
91   build_kanji.sscale(scaled 0.75 shifted (40,0))(kanji.grone.king);
92   expand_pbox;
93 enddef;

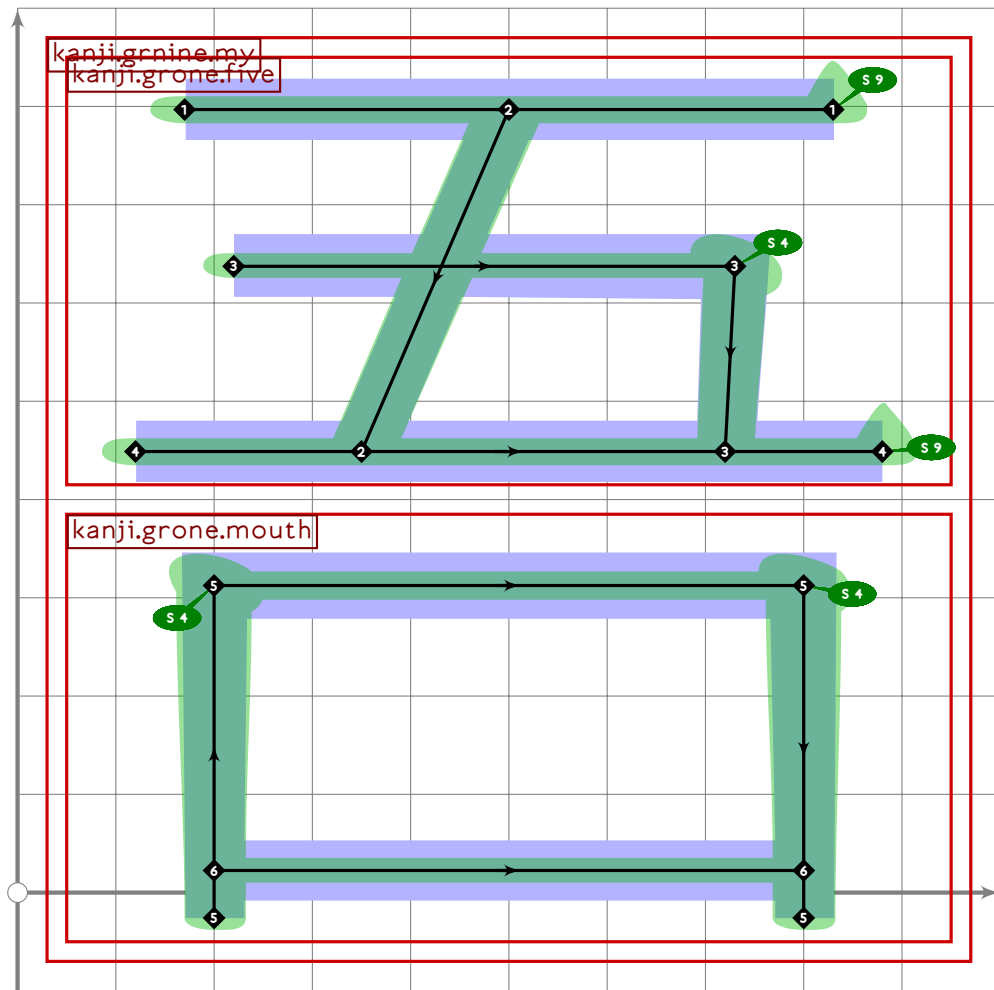
```



```

94
95 vardef kanji.grnine.must_not =
96   push_pbox_toexpand("kanji.grnine.must_not");
97   kanji.radical.wrappir;
98   push_stroke(
99     (480,610)..tension 1.2..(380,430)..(160,270),
100    (1.6,1.6)-(1.4,1.4)-(1.0,1.0));
101   push_stroke(
102     (680,610)..tension 1.2..(540,300)..(180,80),
103    (1.6,1.6)-(1.4,1.4)-(1.0,1.0));
104   expand_pbox;
105 enddef;

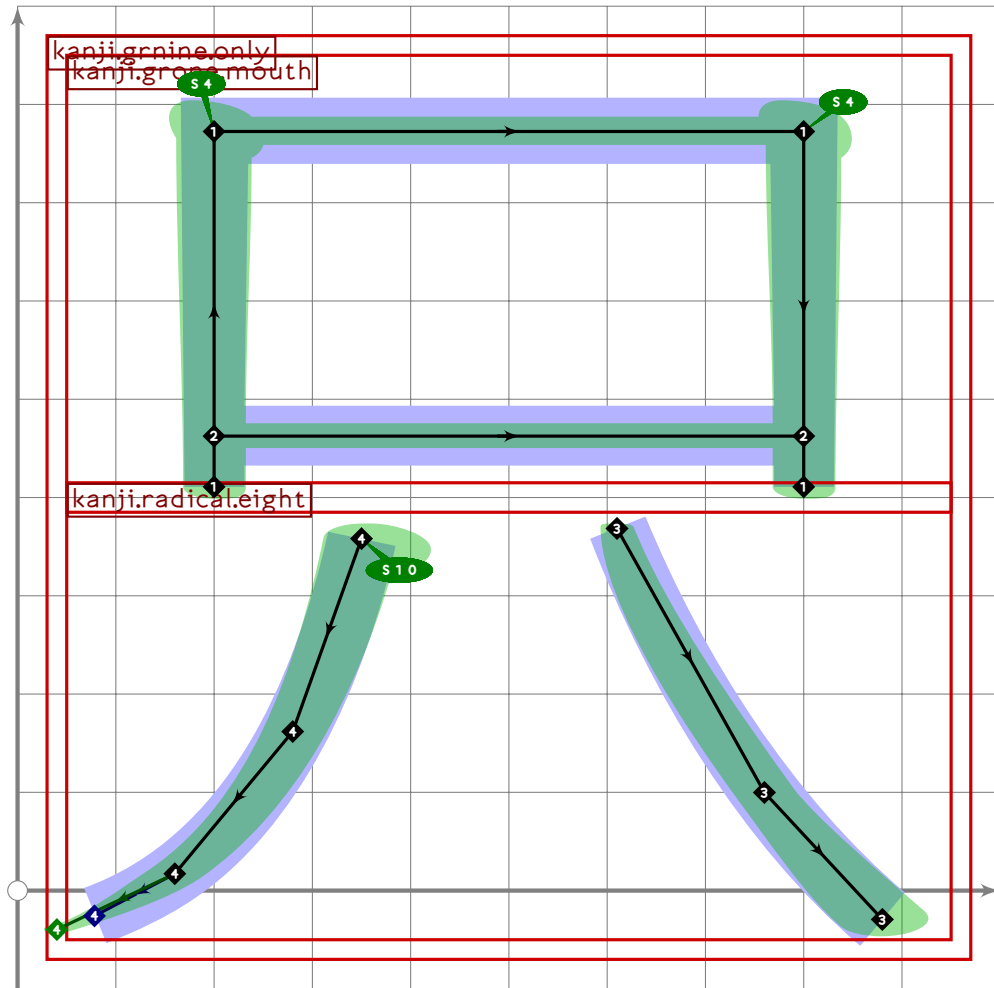
```



```

106
107 vardef kanji.grnine.my =
108   push_pbox_toexpand("kanji.grnine.my");
109   build_kanji.level(build_kanji.tb(400,-30)
110     (kanji.grnine.five)
111     (kanji.grone.mouth));
112   expand_pbox;
113 enddef;

```

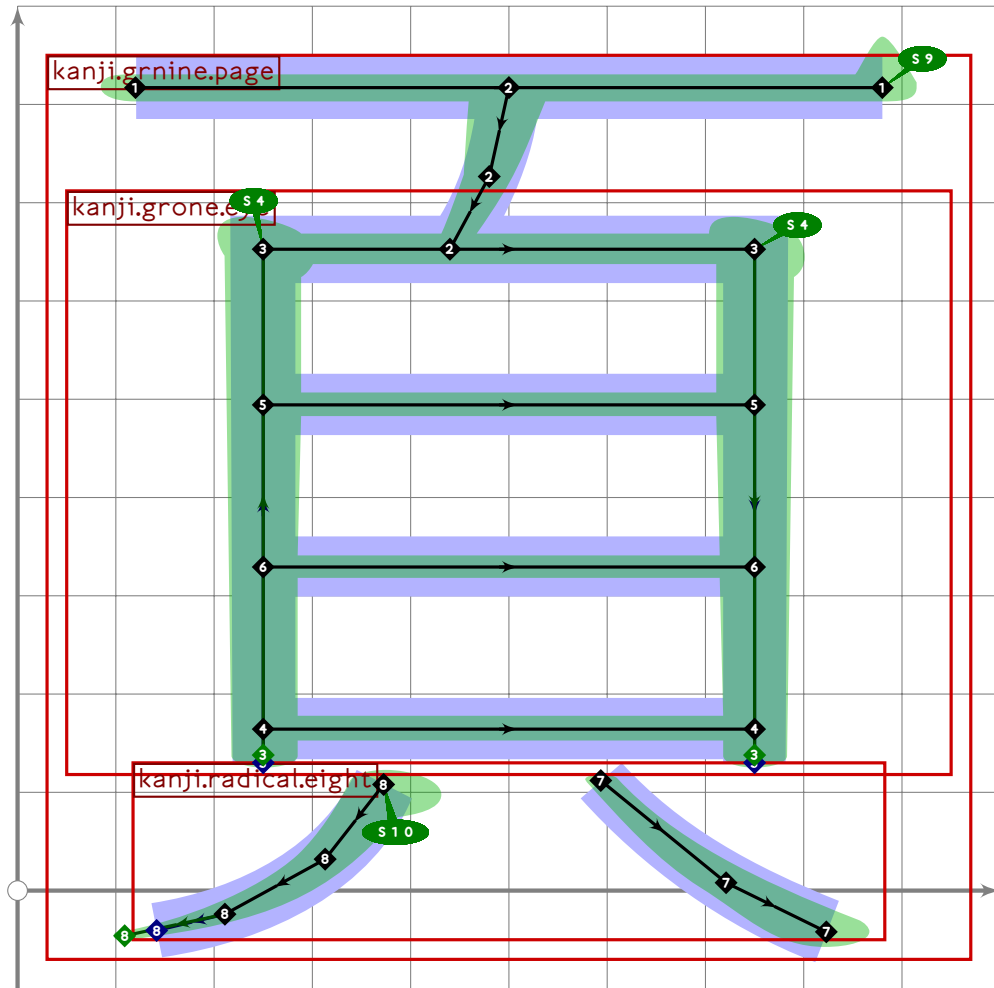


```

114
115 vardef kanji.grnine.only =
116   push_pbox_toexpand("kanji.grnine.only");
117   build_kanji.tb(400,30)
118     (kanji.grone.mouth)
119     (kanji.radical.eight);
120   expand_pbox;
121 enddef;

```

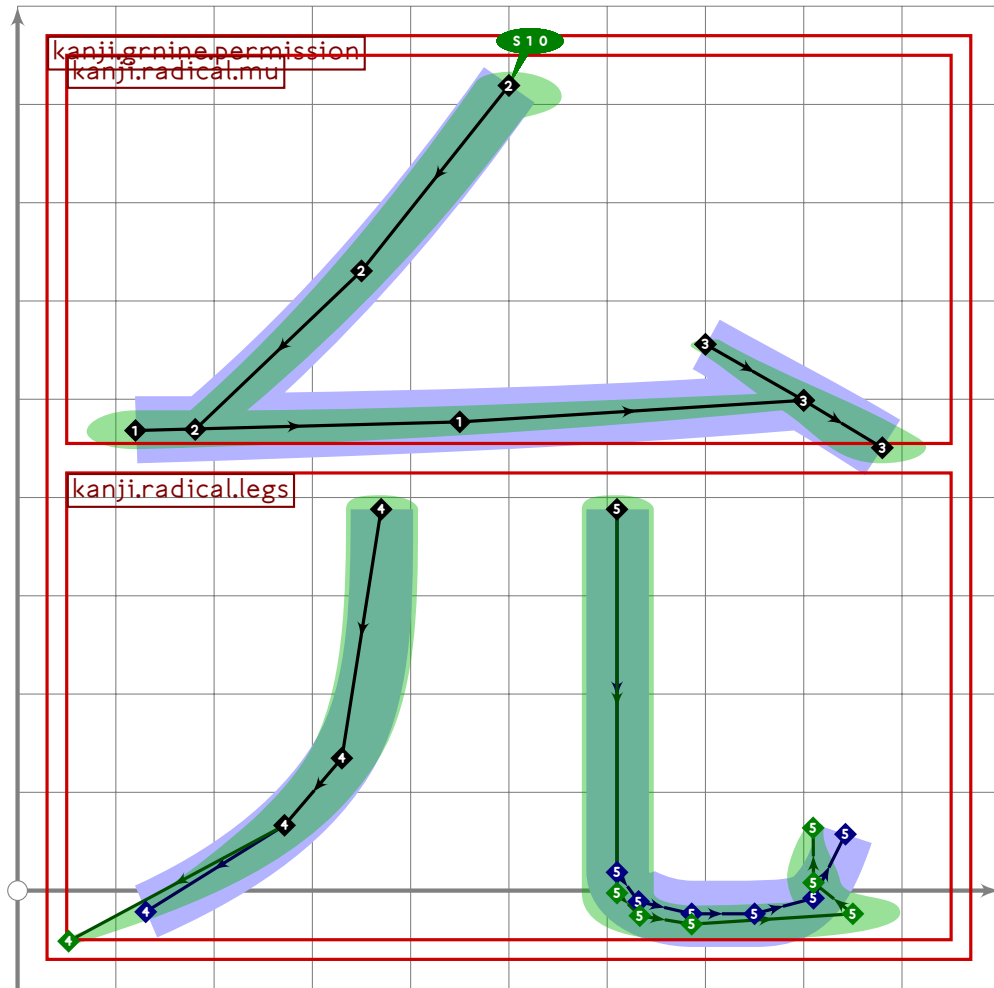




```

122
123 vardef kanji.grnine.page =
124   push_pbox_toexpand("kanji.grnine.page");
125   build_kanji.level(build_kanji.tb(120,20)
126     (push_stroke((120,810)-(880,810),
127       (1.6,1.6)-(1.6,1.6));
128     set_boserif(0,1,9);
129     push_stroke((500,810)..(480,700)..(440,610),
130       (1.7,1.7)-(1.3,1.3)-(1,1));
131     tsu_xform(identity yscaled (610/760))(kanji.grone.ey))
132     (build_kanji.sscale(xscaled 0.85)(kanji.radical.eight)));
133   expand_pbox;
134 enddef;

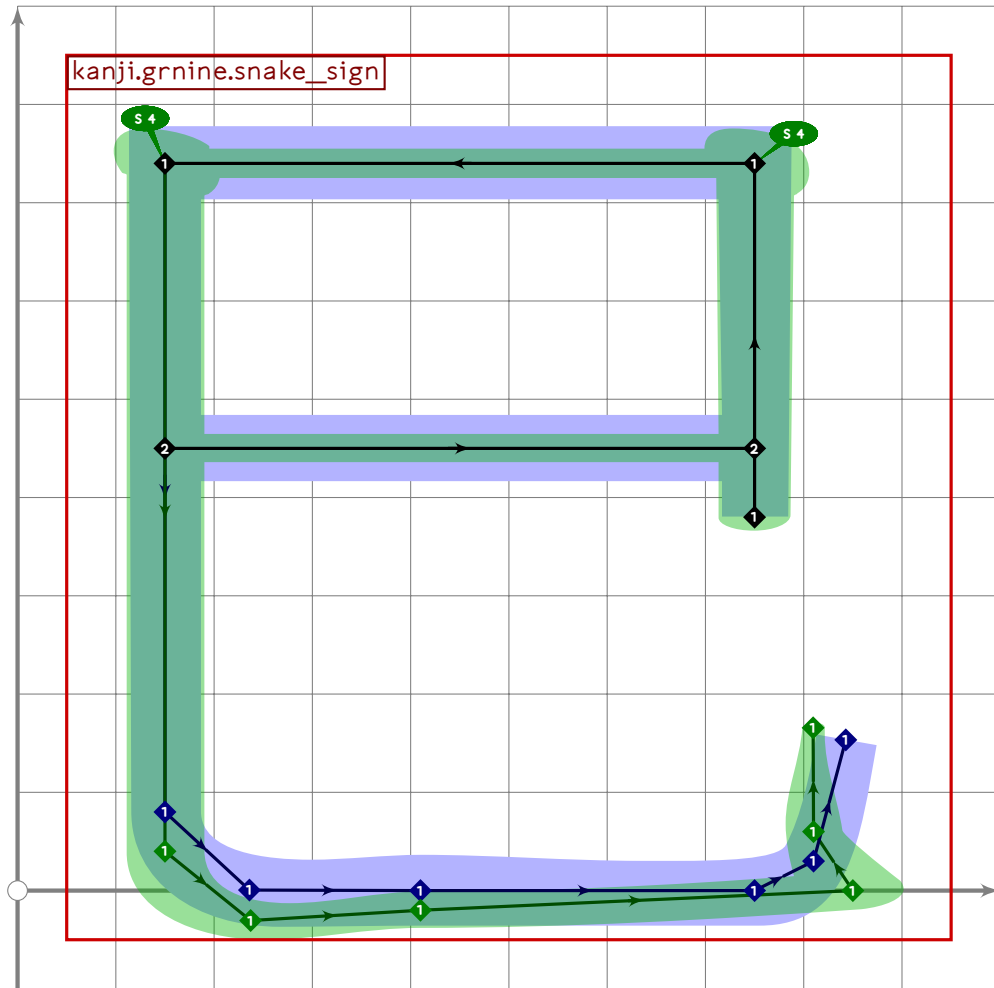
```



```

135
136 vardef kanji.grnine.permission =
137   push_pbox_toexpand("kanji.grnine.permission");
138   build_kanji.level(build_kanji.tb(440,30)
139     (kanji.radical.mu)
140     (kanji.radical.legs));
141   expand_pbox;
142 enddef;

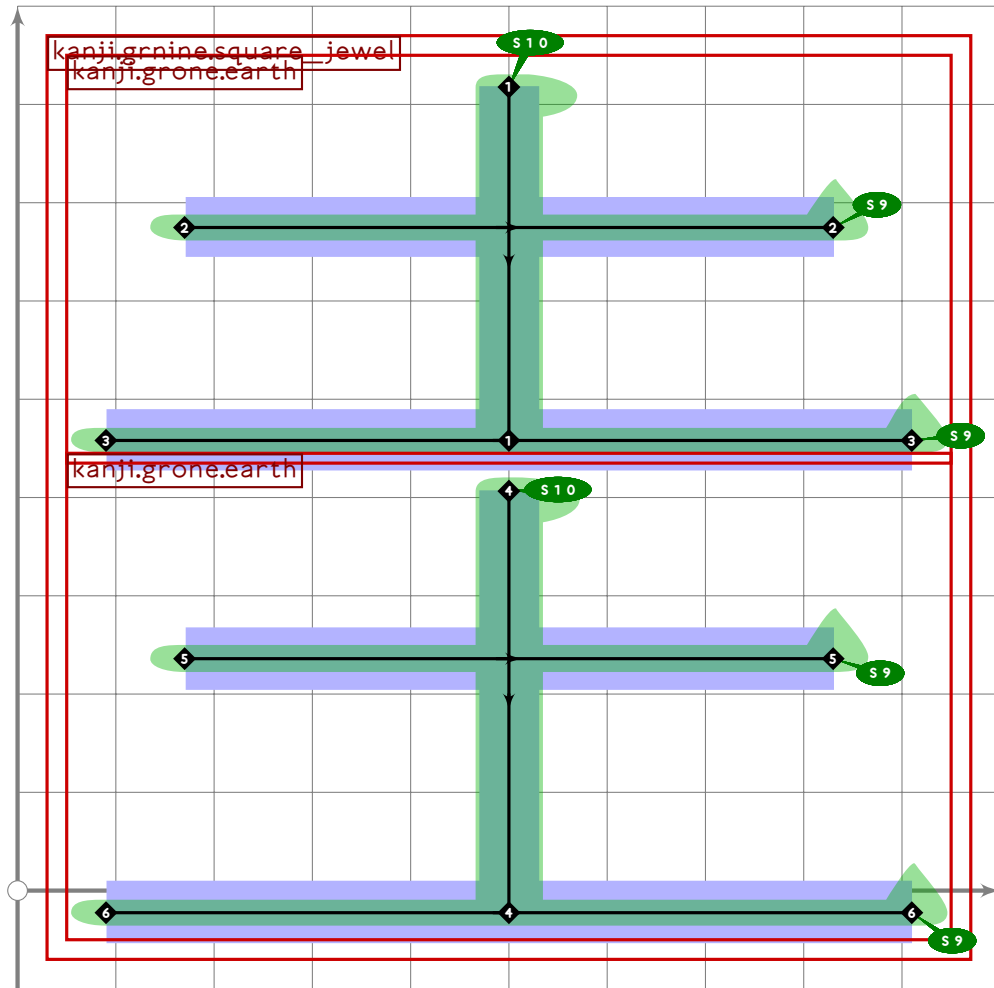
```



```

143
144 vardef kanji.grnine.snake_sign =
145   push_pbox_toexpand("kanji.grnine.snake_sign");
146   push_stroke((750,380)-(750,740)-(150,740),
147     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
148   set_botip(0,1,1);
149   set_botip(0,2,1);
150   set_boserif(0,1,4);
151   set_boserif(0,2,4);
152   build_kanji.add_tail(0);
153   push_stroke((150,450)-(750,450),
154     (1.5,1.5)-(1.5,1.5));
155   expand_pbox;
156 enddef;

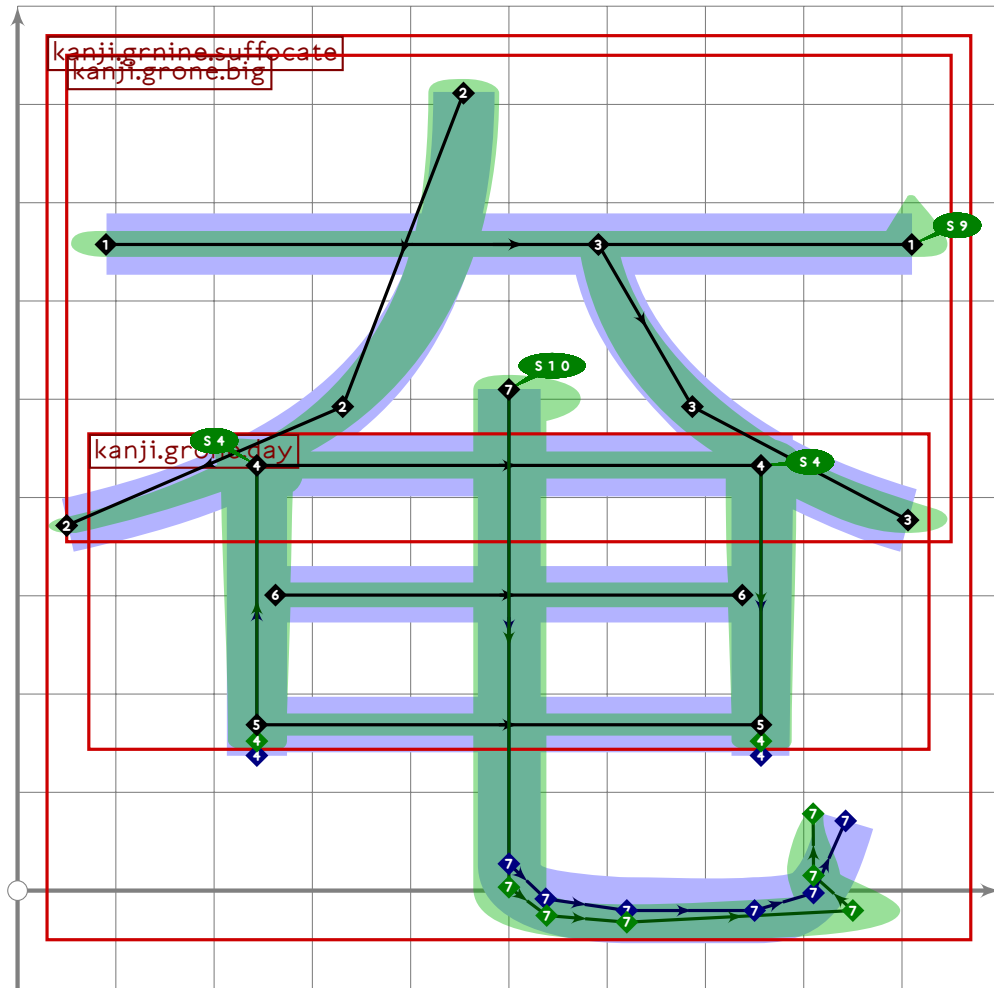
```



```

157
158 vardef kanji.grnine.square_jewel =
159   push_pbox_toexpand("kanji.grnine.square_jewel");
160   build_kanji.tb(440,10)
161     (kanji.grone.earth)
162     (kanji.grone.earth);
163   expand_pbox;
164 enddef;

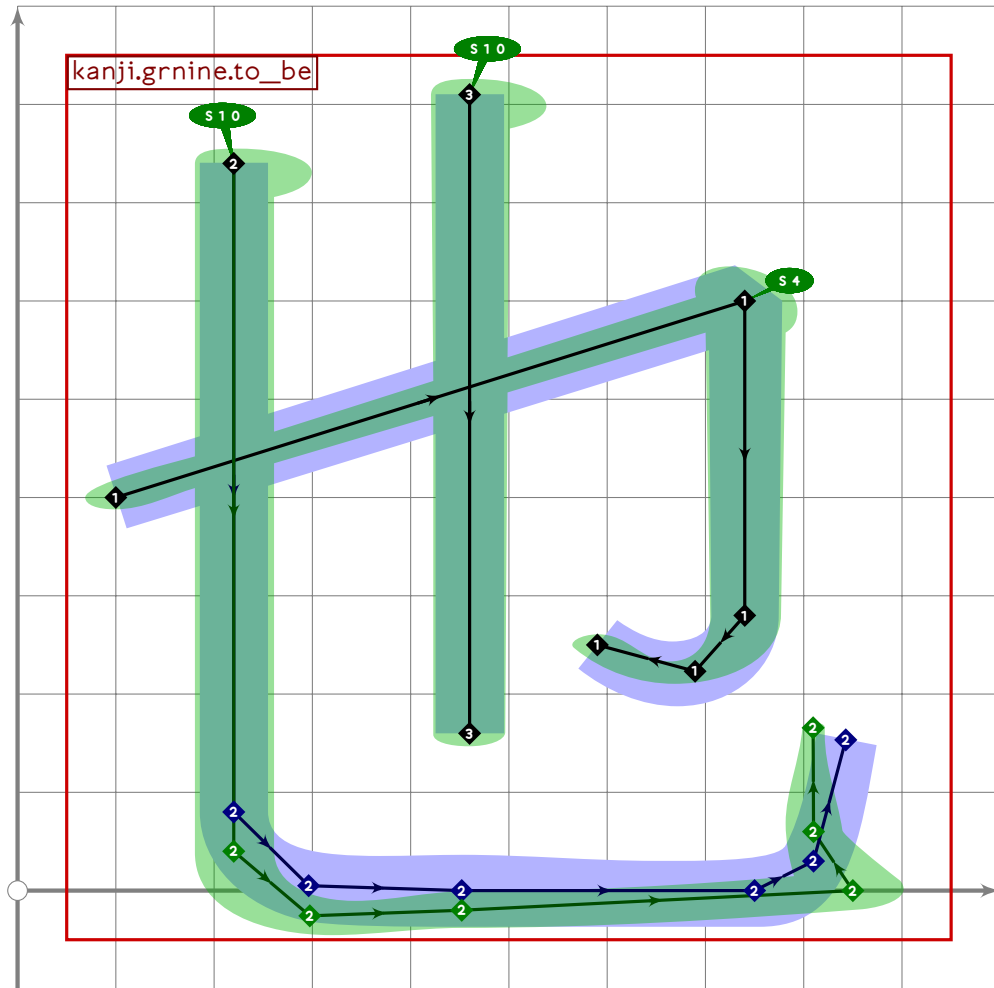
```



```

165
166 vardef kanji.grnine.suffocate =
167   push_pbox_toexpand("kanji.grnine.suffocate");
168   build_kanji.tb(420,130)
169     (build_kanji.spread_legs(110)
170      (kanji.grone.big))
171     (build_kanji.sscale(xyscaled (0.95,0.6) shifted (0,150))
172      (kanji.grone.day);
173     push_stroke(((0,130)+point 1.5 of get_stroke(-2)),(1.6,1.6));
174     build_kanji.add_ltail(0);
175     set_boserif(0,0,10);
176   expand_pbox;
177 enddef;

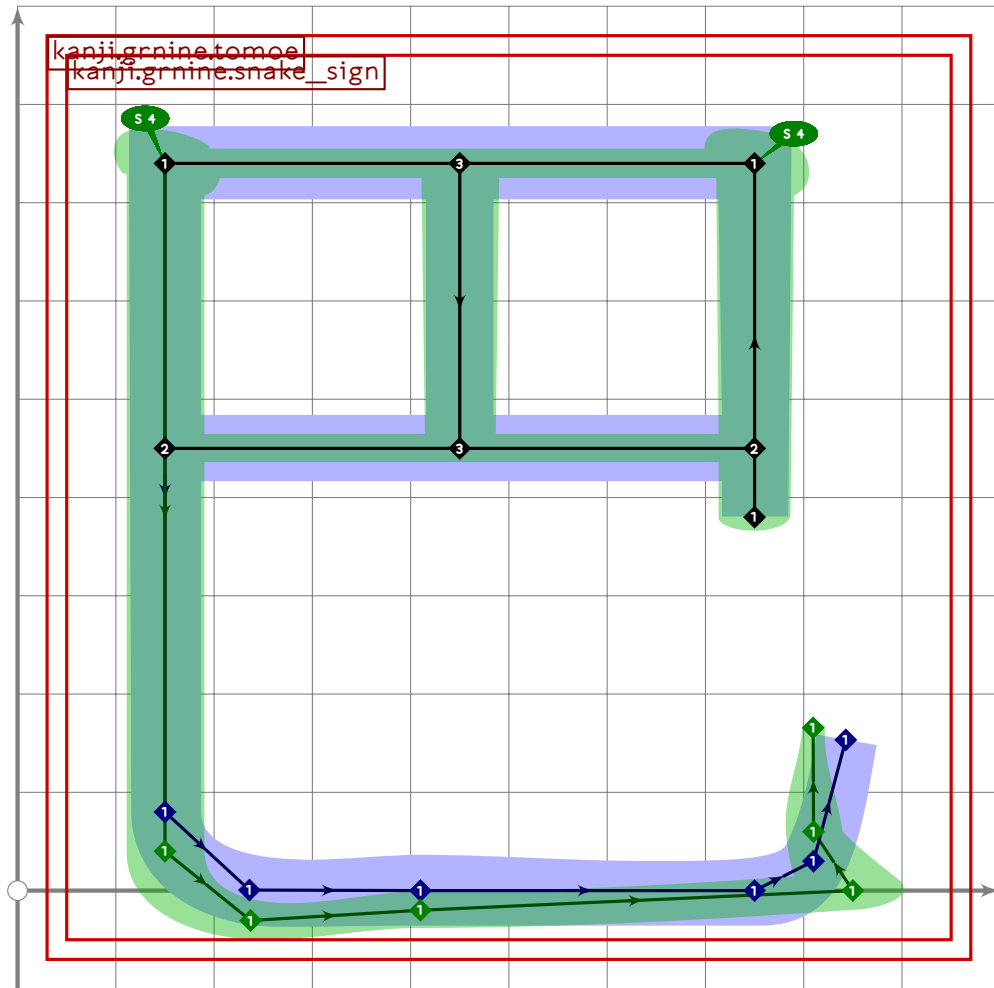
```



```

178
179 vardef kanji.grnine.to_be =
180   push_pbox_toexpand("kanji.grnine.to_be");
181   tsu_xform(identity shifted (0,250))(
182     push_stroke((100,150)-(740,350),
183       (1.4,1.4)-(1.6,1.6));
184     set_botip(0,1,0);
185     set_boserif(0,1,4);
186     build_kanji.add_jtail(0);
187   );
188   push_stroke((220,740),(1.6,1.6));
189   build_kanji.add_ltail(0);
190   set_boserif(0,0,10);
191   push_stroke((460,810)-(460,160),
192     (1.6,1.6)-(1.5,1.5));
193   set_boserif(0,0,10);
194   expand_pbox;
195 enddef;

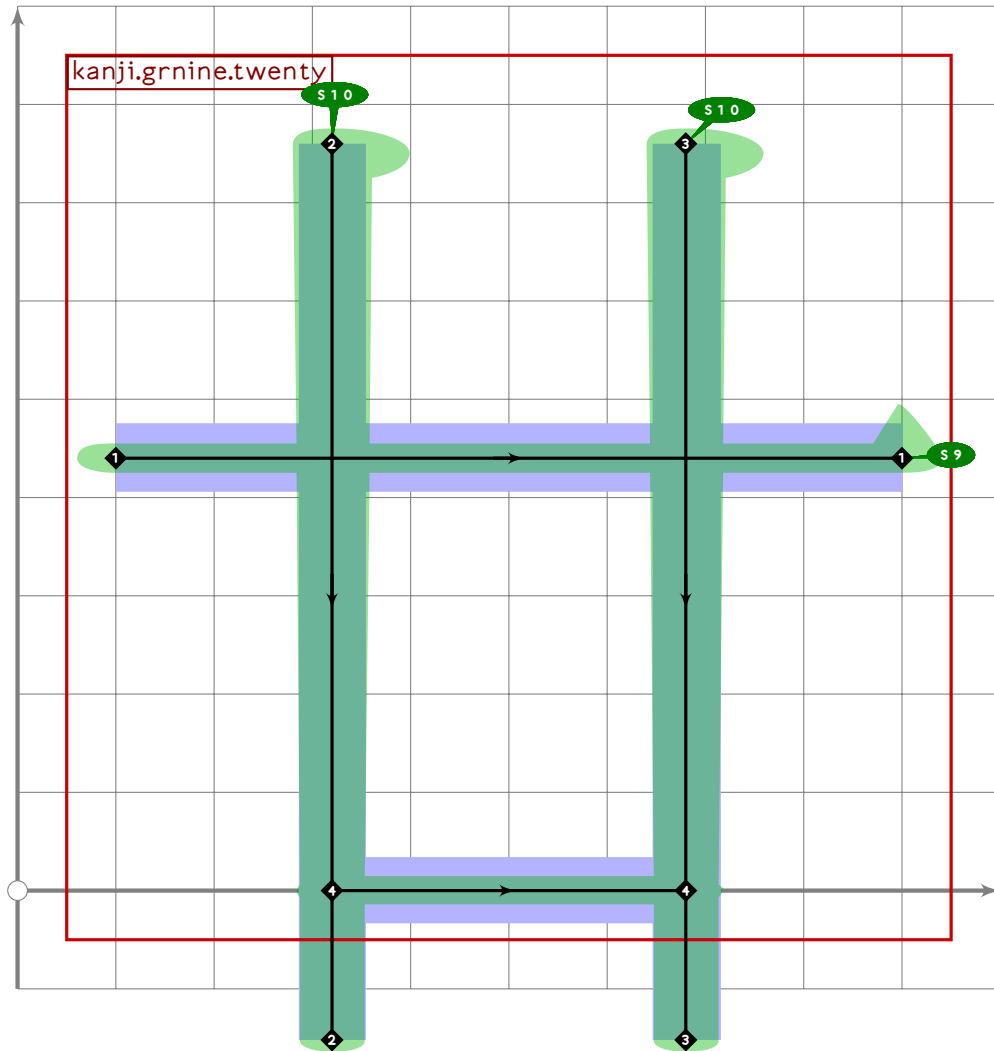
```



```

196
197 vardef kanji.grnine.tomoe =
198   push_pbox_toexpand("kanji.grnine.tomoe");
199   kanji.grnine.snake_sign;
200   push_stroke((450,740)-(450,450),(1.6,1.6)-(1.5,1.5));
201   expand_pbox;
202 enddef;

```

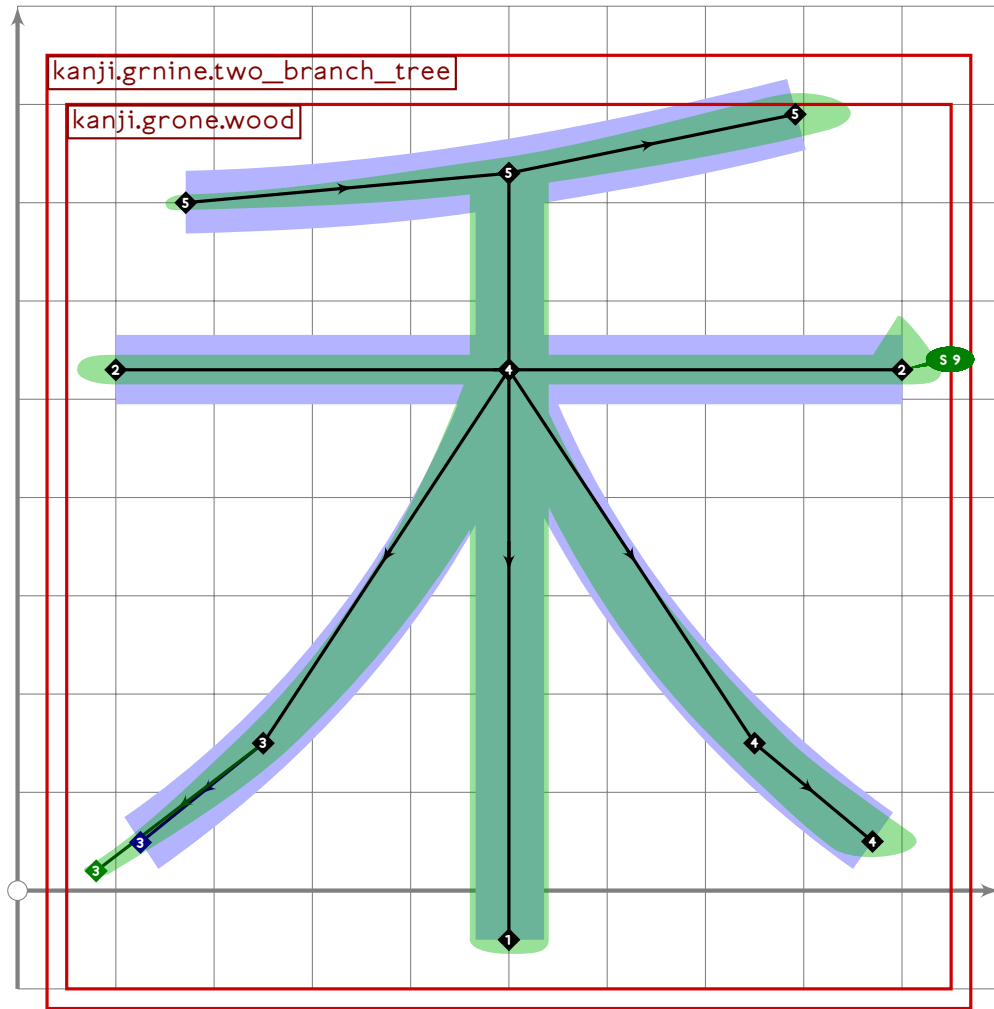


```

203
204 vardef kanji.grnine.twenty =
205   push_pbox_toexpand("KANJI.GRNINE.TWENTY");
206   push_stroke((100,440)-(900,440),(1.6,1.6)-(1.6,1.6));
207   set_boserif(0,1,9);
208   build_kanji.cup((320,760),(680,0));
209   expand_pbox;
210 enddef;

```





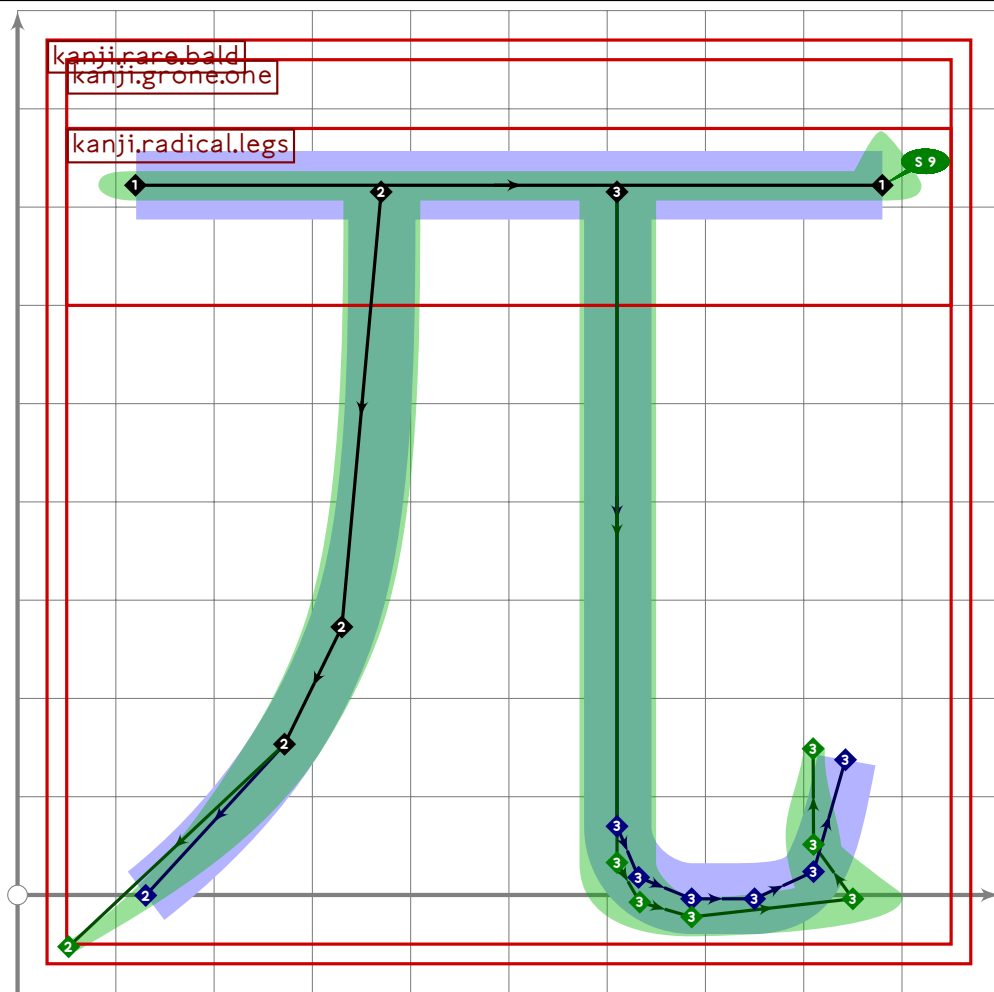
```

211
212 vardef kanji.grnine.two_branch_tree =
213   push_pbox_toexpand("kanji.grnine.two_branch_tree");
214   tsu_xform(identity shifted (0,-50))
215     (build_kanji.add_beret(kanji.grone.wood));
216   expand_pbox;
217 enddef;

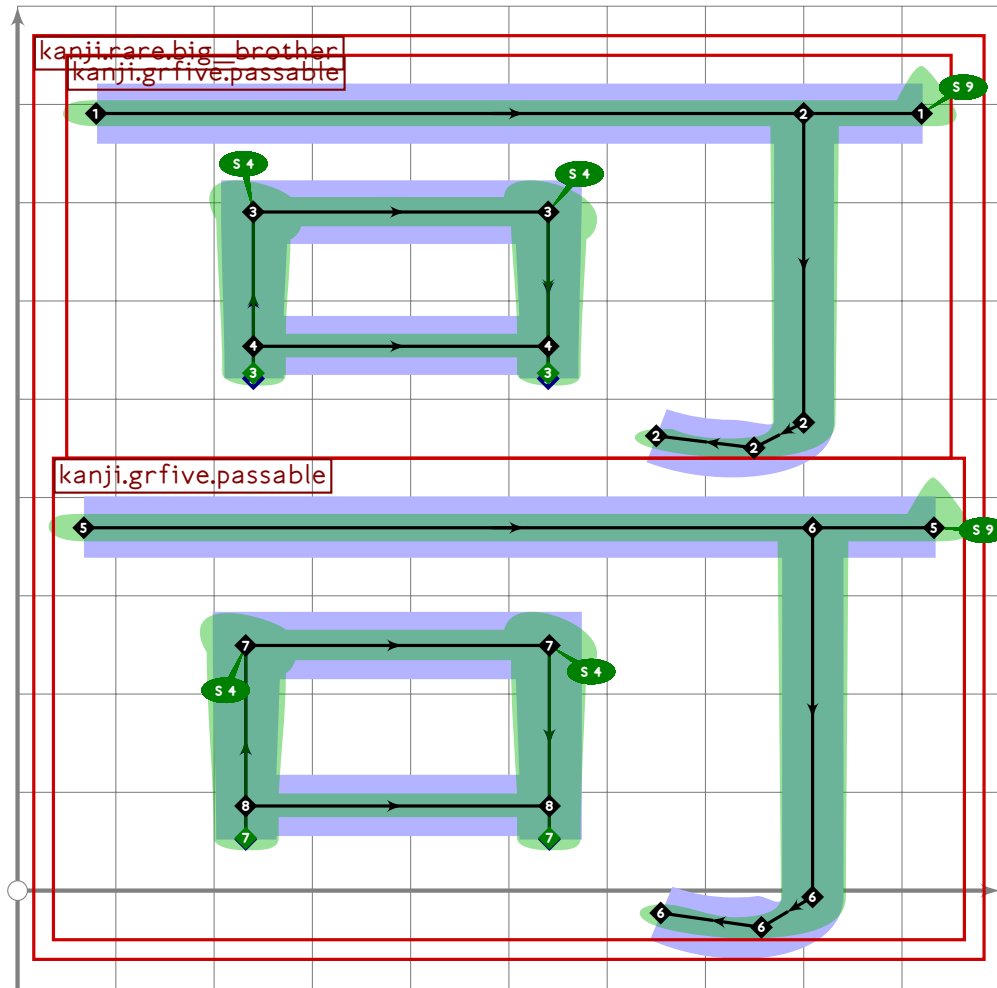
```

# rare.mp

```
1 %  
2 % Rare kanji needed to build others  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 inclusion_lock(rare);  
32  
33
```



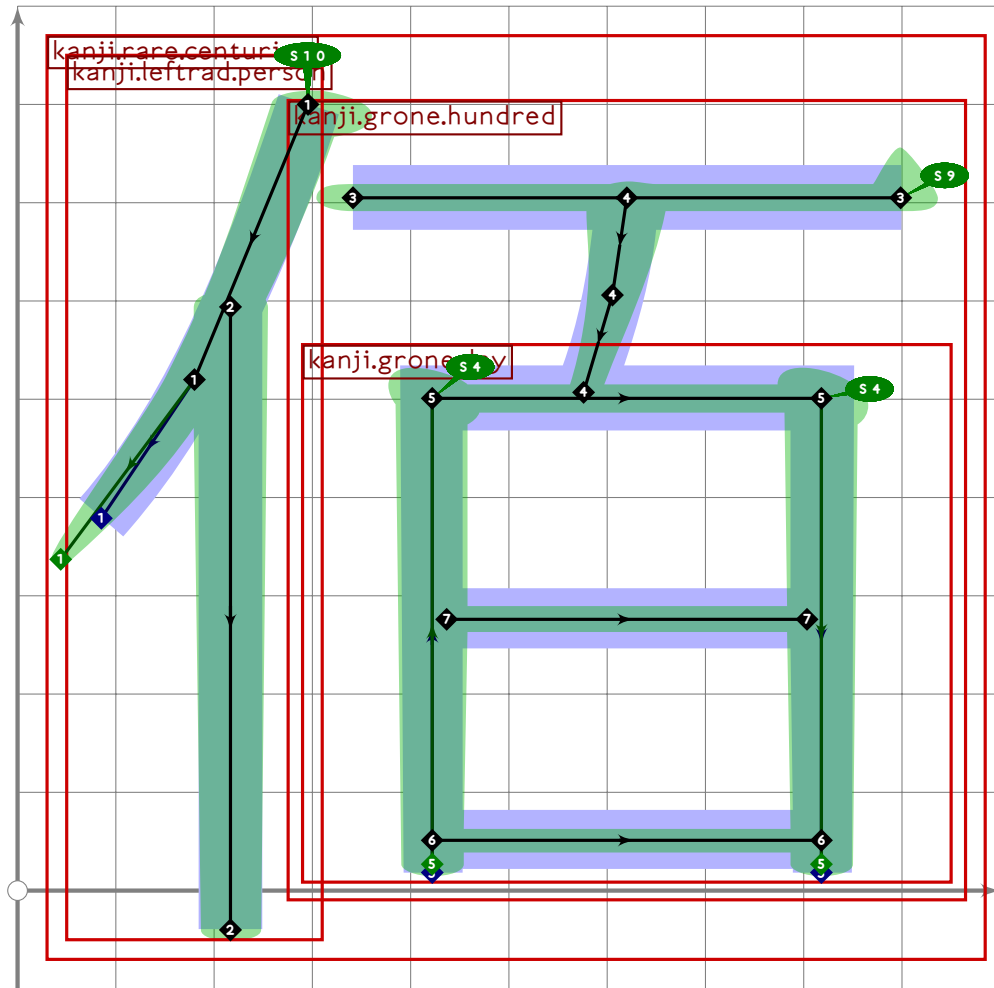
```
34  
35 vardef kanji.rare.bald =  
36   push_pbox_toexpand("kanji.rare.bald");  
37   build_kanji.level(build_kanji.tb(690,180)  
38     (kanji.grone.one)  
39     (kanji.radical.legs));  
40   expand_pbox;  
41 enddef;
```



```

42
43 vardef kanji.rare.big_brother =
44   push_pbox_toexpand("kanji.rare.big_brother");
45   build_kanji.tb(440,0)
46   (kanji.grfive.passable)
47   (build_kanji.sscale(xscaled 1.03)(kanji.grfive.passable));
48   expand_pbox;
49 enddef;

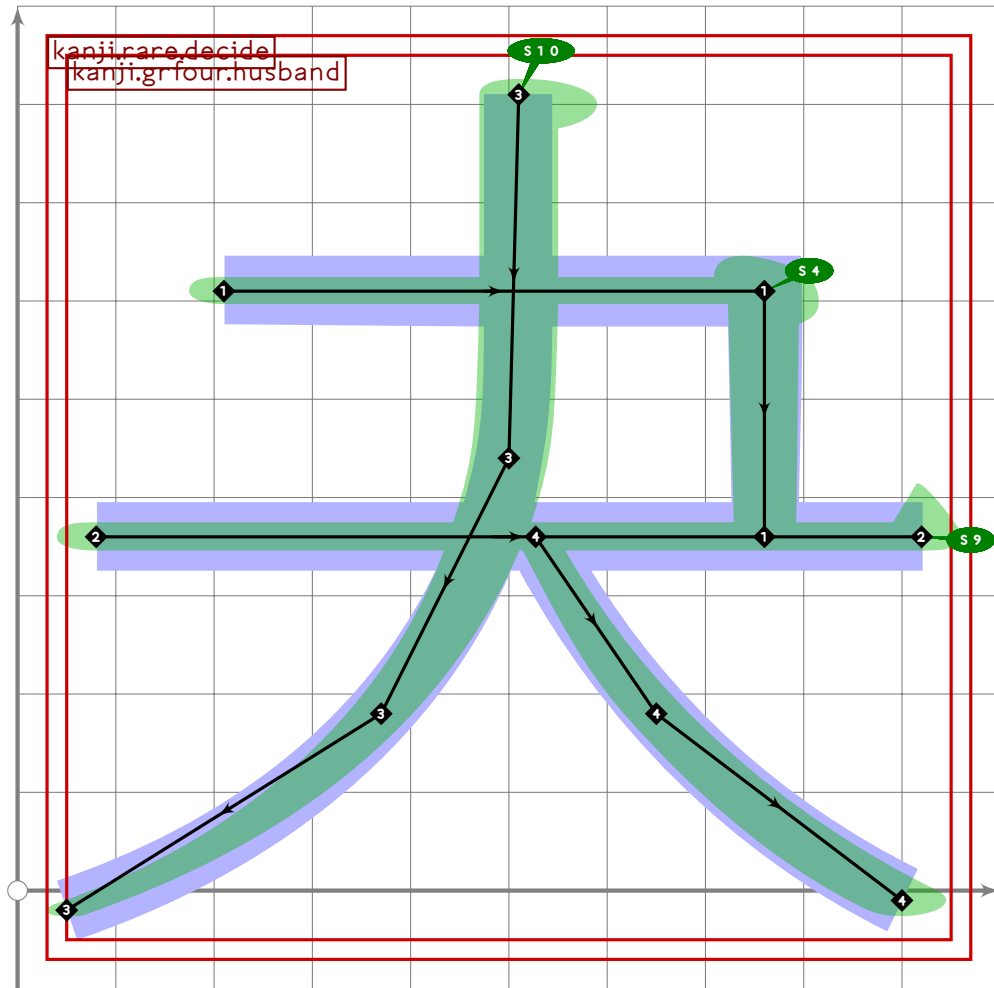
```



```

50
51 vardef kanji.rare.centurion =
52   push_pbox_toexpand("kanji.rare.centurion");
53   build_kanji.lr(300,20)
54   (kanji.leftrad.person)
55   (build_kanji.sscale(yscaled 0.9)(kanji.grone.hundred));
56   expand_pbox;
57 enddef;

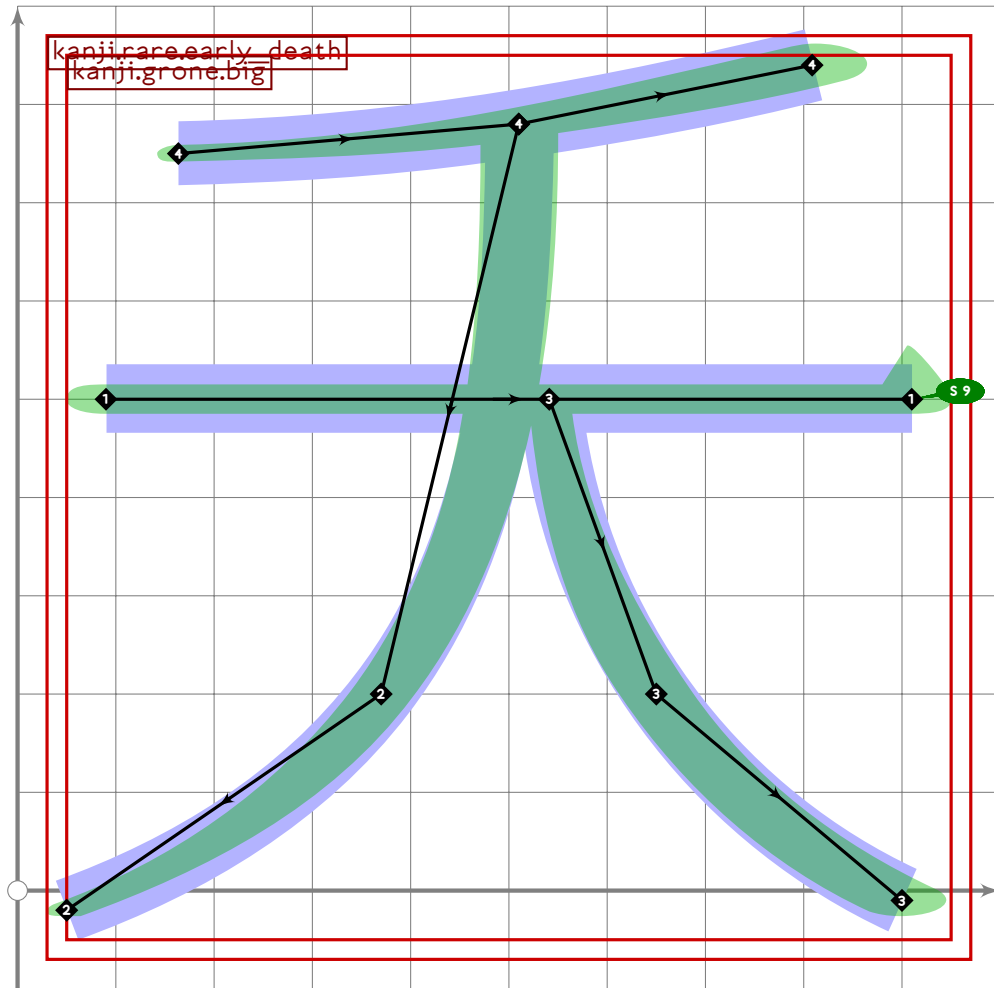
```



```

58
59 vardef kanji.rare.decide =
60   push_pbox_toexpand("kanji.rare.decide");
61   kanji.grfour.husband;
62   replace_strokep(-3)((210,610)-(760,610)-(760,360));
63   replace_strokeq(-3)((1.5,1.5)-(1.5,1.5)-(1.4,1.4));
64   set_boserif(-3,1,4);
65   set_botip(-3,1,1);
66   expand_pbox;
67 enddef;

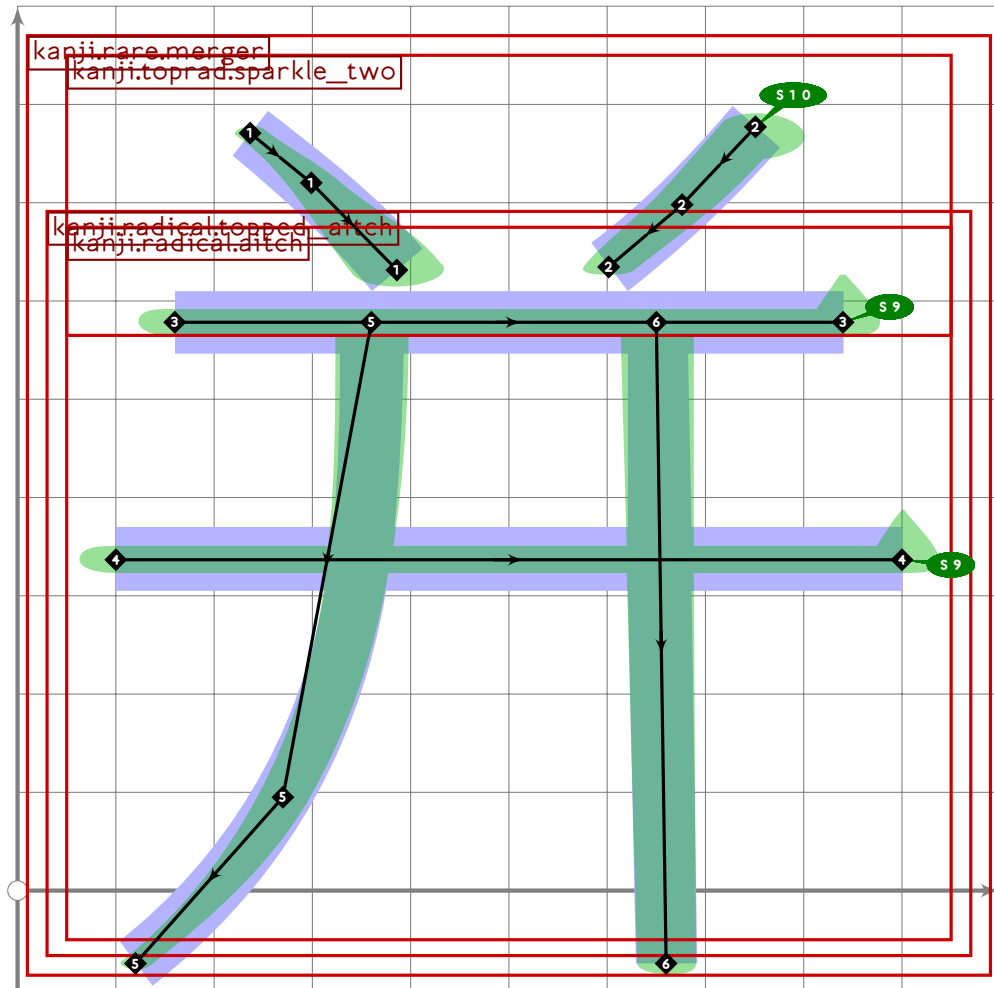
```



```

68
69 vardef kanji.rare.early_death =
70   push_pbox_toexpand("kanji.rare.early_death");
71   build_kanji.add_beret(kanji.grone.big);
72   expand_pbox;
73 enddef;

```



```

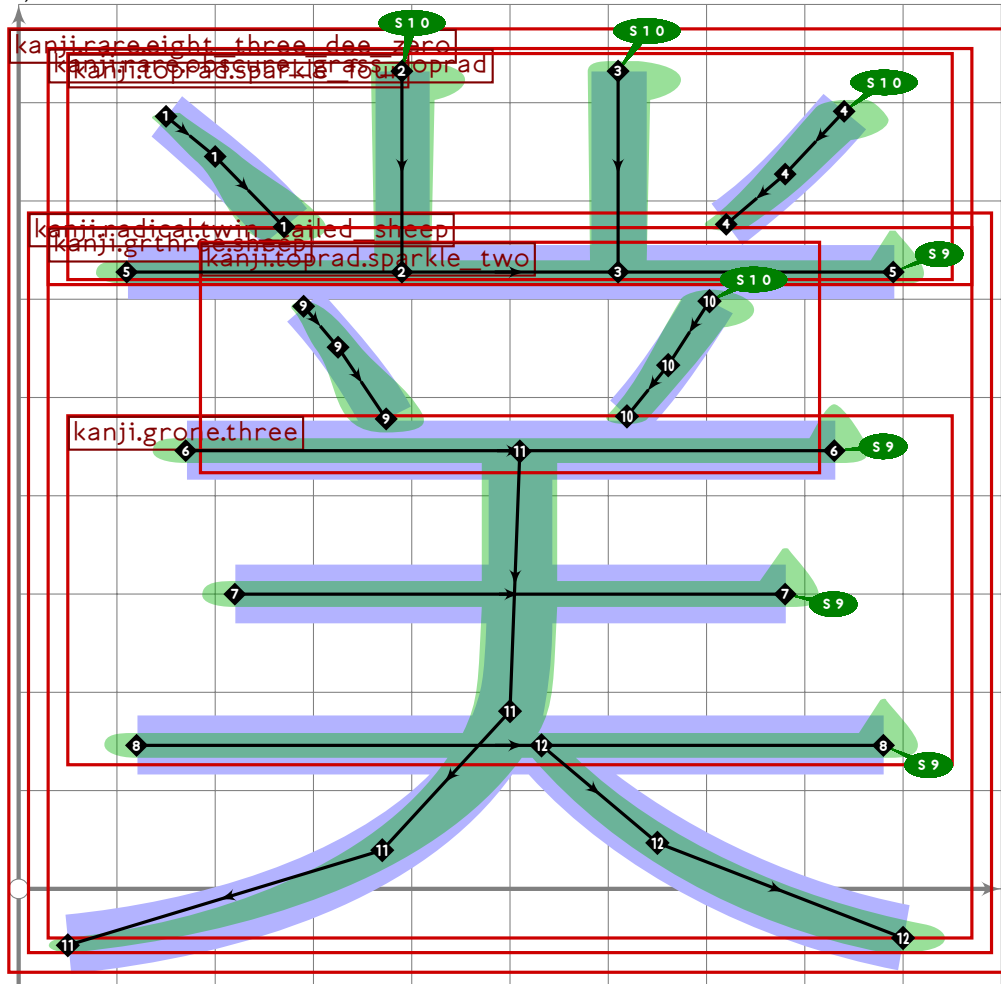
74
75 vardef kanji.rare.merger =
76   push_pbox_toexpand("kanji.rare.merger");
77   build_kanji.level(build_kanji.tb(620,110)
78     (build_kanji.spread_legs(-220)(kanji.toprad.sparkle_two))
79     (kanji.radical.topped_aitch));
80   expand_pbox;
81 enddef;
82
83 % This obscure form of the "grass" radical seems to be used only in U+83D0,
84 % an obscure kanji that doesn't seem to have a meaning of its own but forms
85 % the right-hand side of the fairly common kanji for the masculine
86 % first-person pronoun "boku," which we need in order to spell the type
87 % style name "Bokukko." It's not even clear that it really is a form of the
88 % "grass" radical at all, but that's how Unicode seems to classify it.
89
90 vardef kanji.rare.obscure_grass_toprad =
91   push_pbox_toexpand("kanji.rare.obscure_grass_toprad");
92   kanji.toprad.sparkle_four;
93   push_stroke((110,-20)-(890,-20),(1.6,1.6)-(1.6,1.6));
94   set_boserif(0,1,9);

```

```

95 expand_pbox;
96 enddef;

```

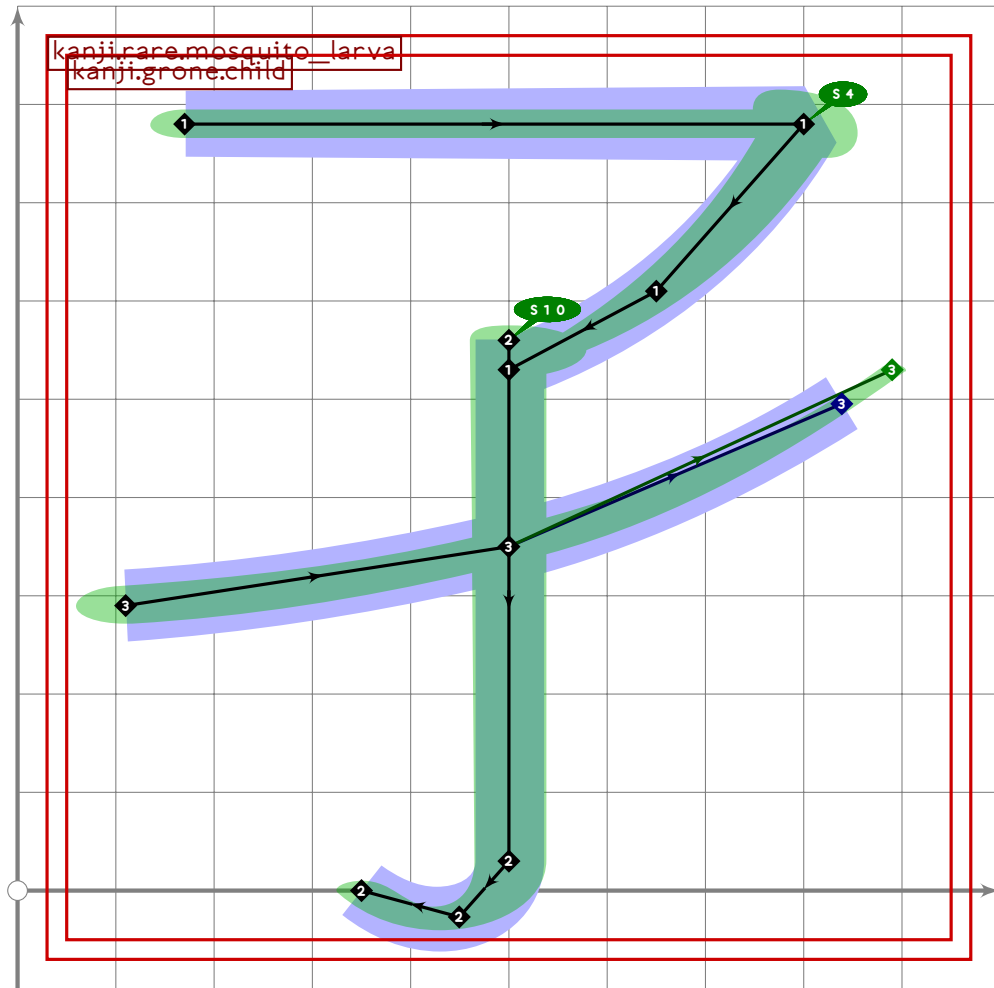


```

97
98 vardef kanji.rare.eight_three_dee_zero =
99   push_pbox_toexpand("kanji.rare.eight_three_dee_zero");
100   build_kanji.tb(620,0)
101     (kanji.rare.obscure_grass_toprad)
102     (kanji.radical.twin_tailed_sheep);
103   expand_pbox;
104 enddef;

```

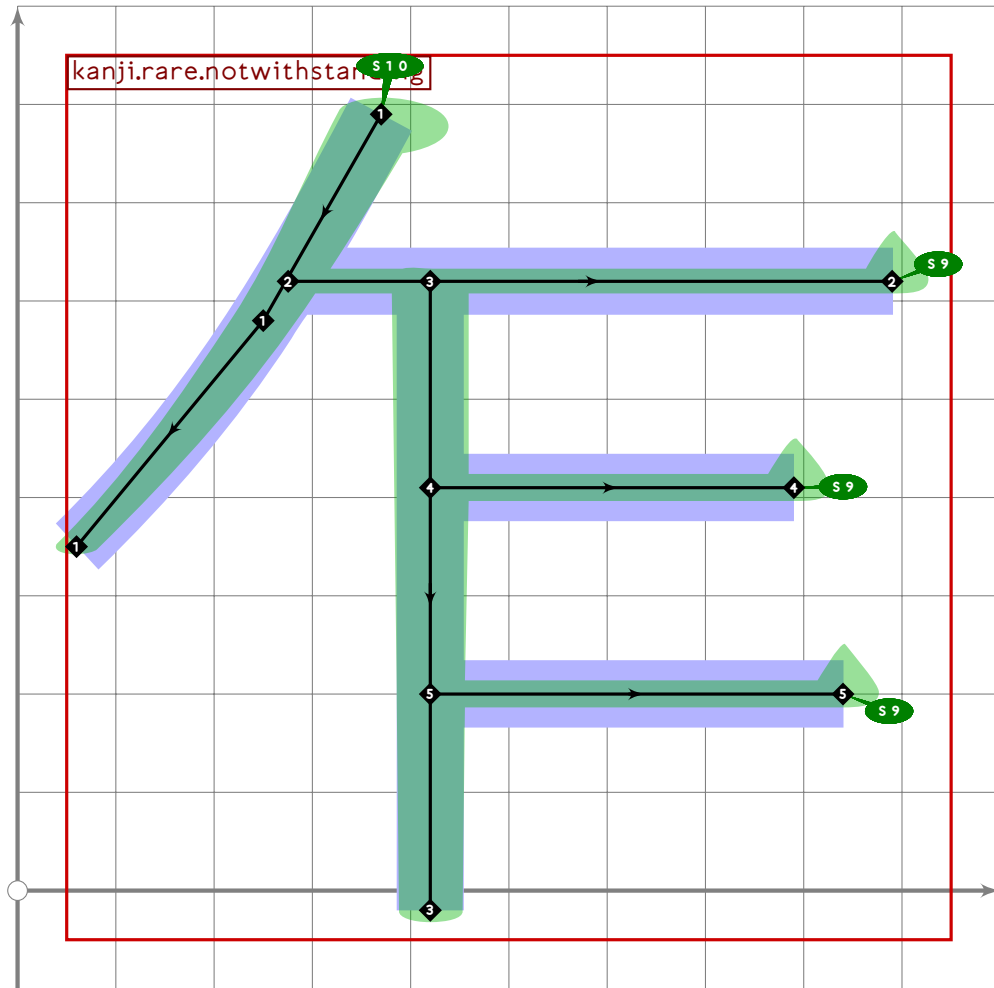




```

105
106 vardef kanji.rare.mosquito_larva =
107   push_pbox_toexpand("kanji.rare.mosquito_larva");
108   kanji.grone.child;
109   replace_strokep(0)((110,290)..tension 1.2..(500,350)..(890,530));
110   replace_strokeq(0)((19,1.9)-(1.6,1.6)-(0.9,0.9));
111   set_boserif(0,1,whatever);
112   expand_pbox;
113 enddef;

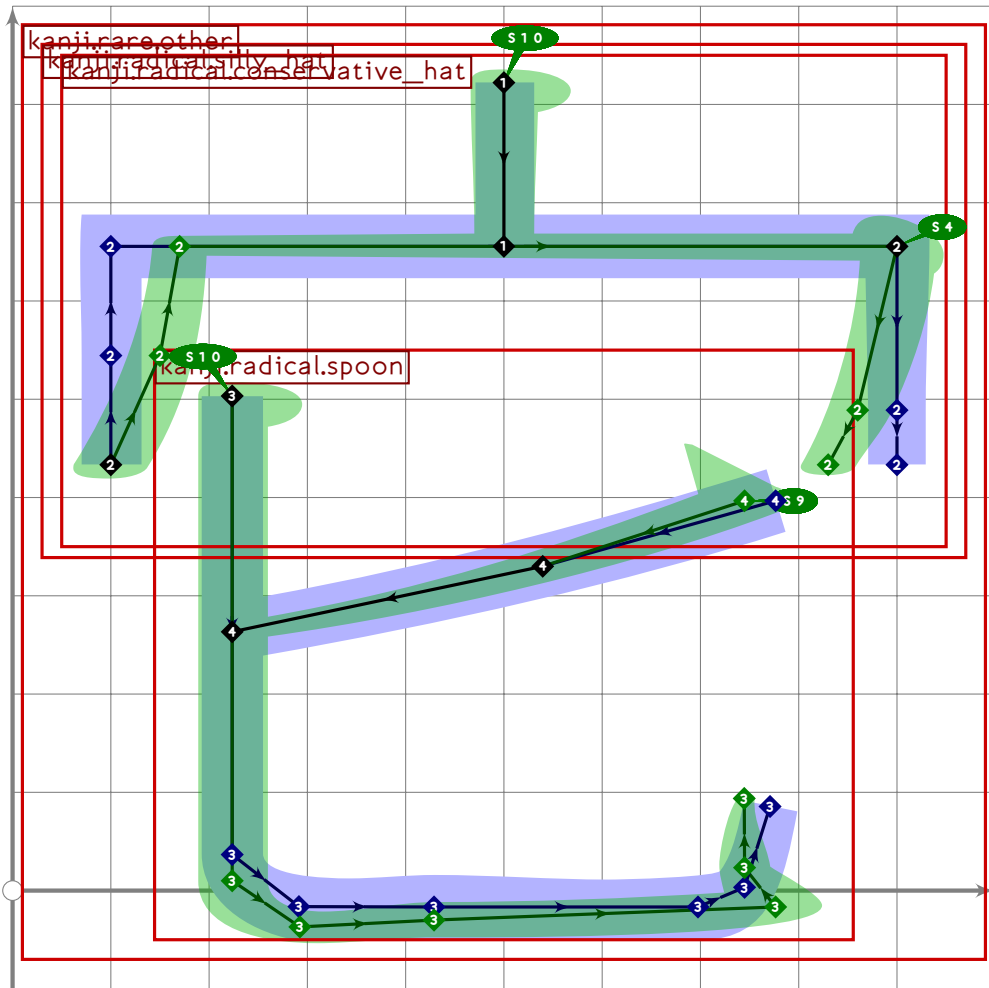
```



```

114
115 vardef kanji.rare.notwithstanding =
116   push_pbox_toexpand("kanji.rare.notwithstanding");
117   push_stroke((370,790){curl 0.1}..(250,580)..(60,350),
118     (1.7,1.7)-(1.4,1.4)-(1.1,1.1));
119   set_boserif(0,0,10);
120   push_stroke(
121     (((0,620)-(1000,620)) intersectionpoint get_stroke(0))-(890,620),
122     (1.4,1.4)-(1.5,1.5));
123   set_boserif(0,1,9);
124   push_stroke((420,620)-(420,-20),
125     (1.6,1.6)-(1.4,1.4));
126   push_stroke((420,410)-(790,410),
127     (1.5,1.5)-(1.5,1.5));
128   set_boserif(0,1,9);
129   push_stroke((420,200)-(840,200),
130     (1.5,1.5)-(1.5,1.5));
131   set_boserif(0,1,9);
132   expand_pbox;
133 enddef;

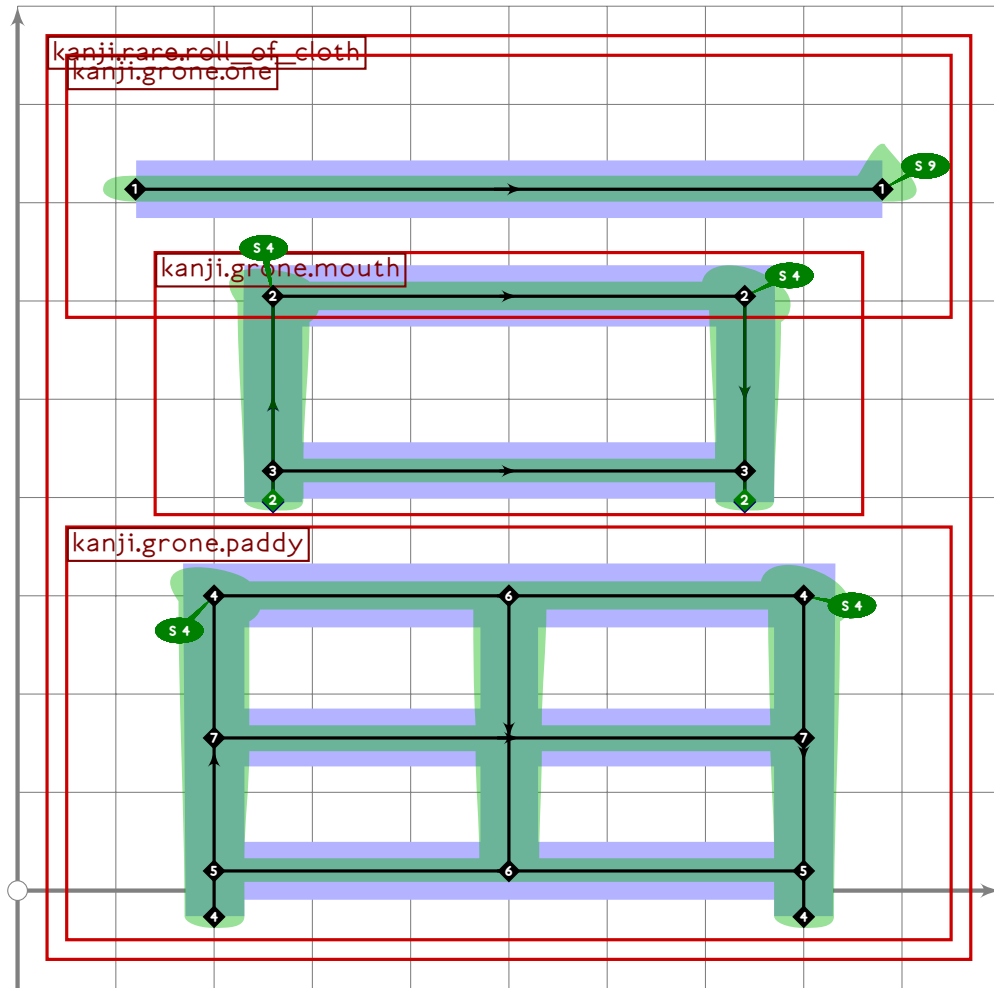
```



```

134
135 vardef kanji.rare.other =
136   push_pbox_toexpand("kanji.rare.other");
137   build_kanji.tb(450,200)
138     (kanji.radical.silly_hat)
139     (build_kanji.sscale(xscaled 0.79)
140       (kanji.radical.spoon));
141   expand_pbox;
142 enddef;

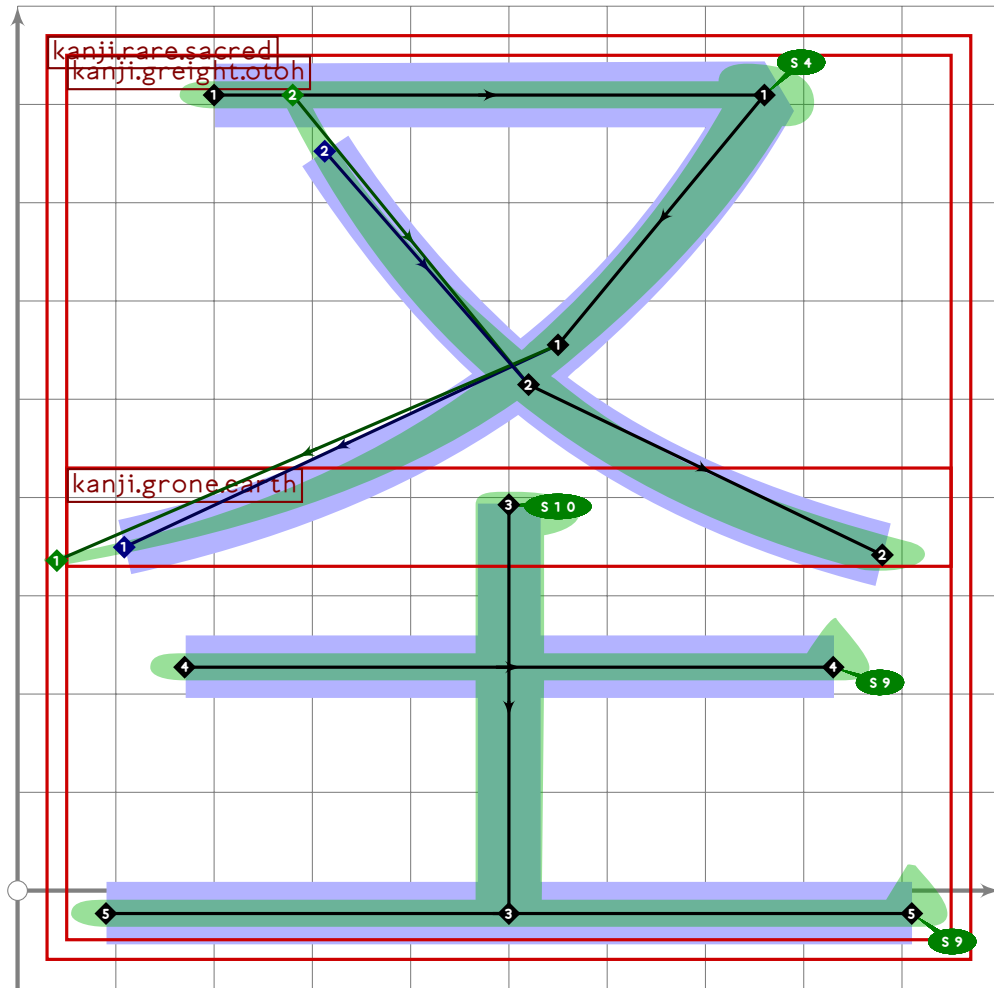
```



```

143
144 vardef kanji.rare.roll_of_cloth =
145   push_pbox_toexpand("kanji.rare.roll_of_cloth");
146   build_kanji.level(build_kanji.tb(360,20)
147     (build_kanji.tb(460,180)
148       (kanji.grone.one)
149       (build_kanji.sscale(scaled 0.8)(kanji.grone.mouth)))
150     (kanji.grone.paddy));
151   expand_pbox;
152 enddef;

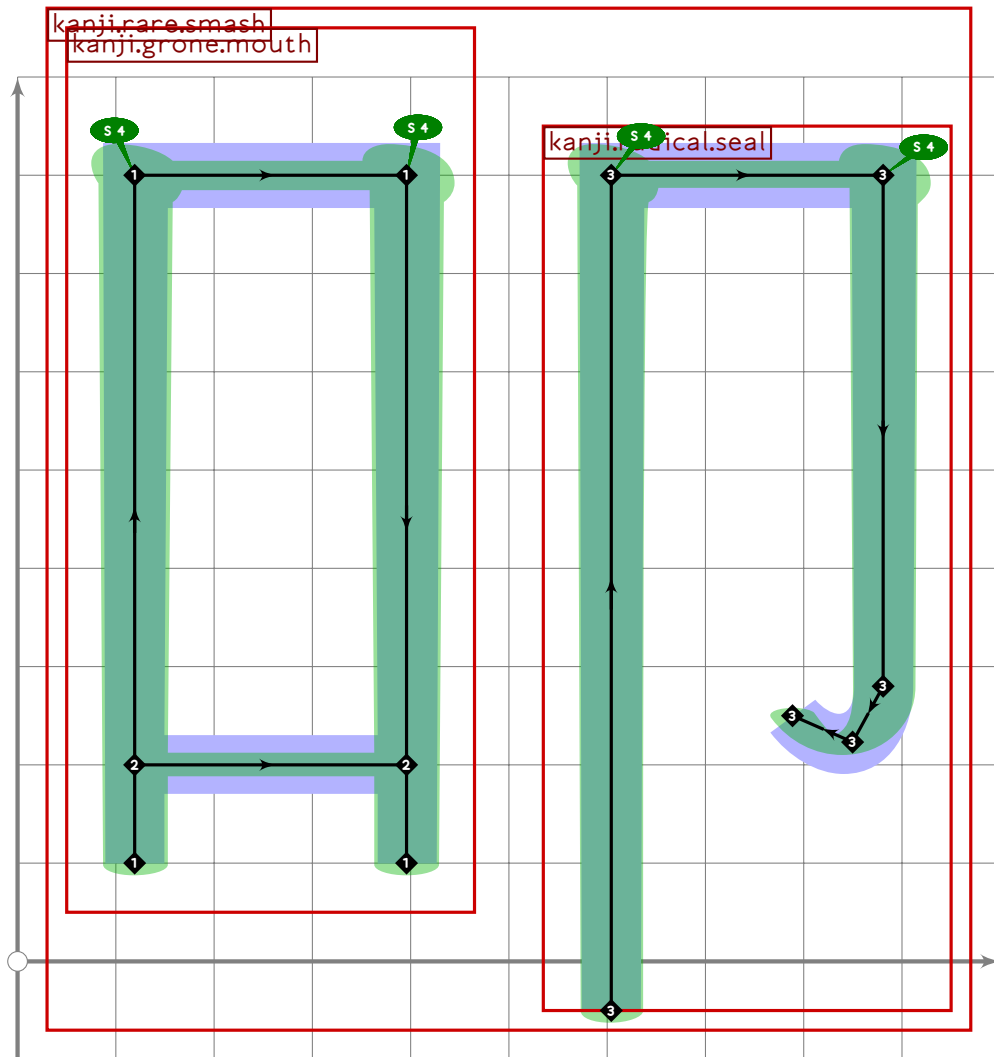
```



```

153
154 vardef kanji.rare.sacred =
155   push_pbox_toexpand("kanji.rare.sacred");
156   build_kanji.level(build_kanji.tb(380,100)
157     (kanji.greight.otoh)
158     (kanji.grone.earth));
159   expand_pbox;
160 enddef;

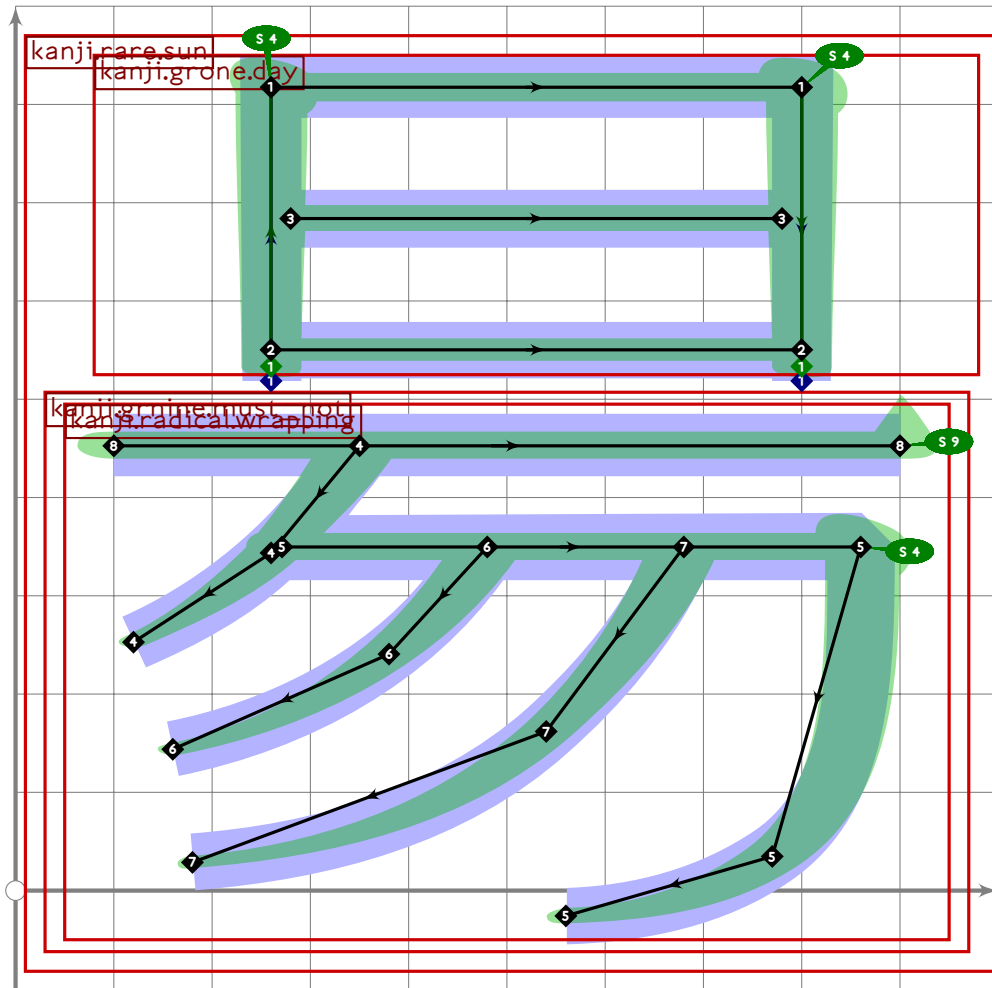
```



```

161
162 vardef kanji.rare.smash =
163   push_pbox_toexpand("kanji.rare.smash");
164   build_kanji.level(build_kanji.lr(500,70)
165     (tsu_xform(identity shifted (0,100))(kanji.grone.mouth))
166     (kanji.radical.seal));
167   expand_pbox;
168 enddef;

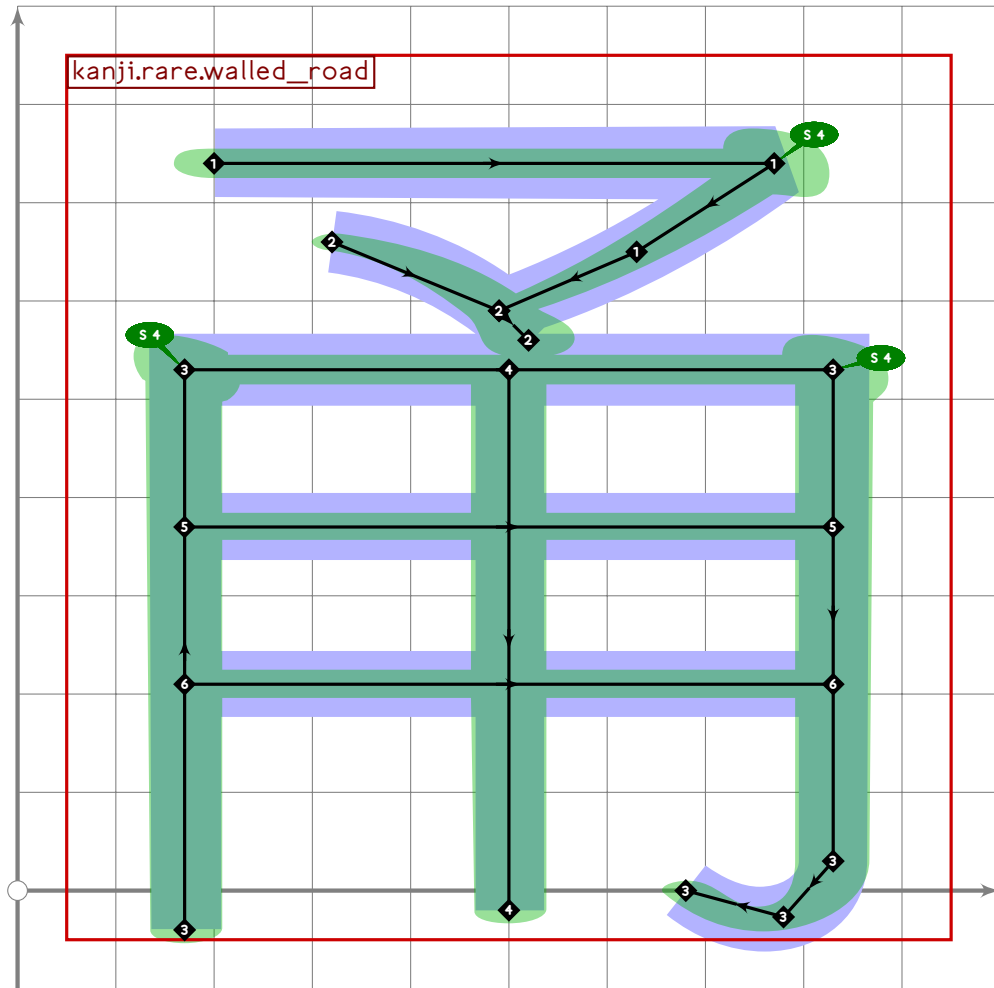
```



```

169
170 vardef kanji.rare.sun =
171   push_pbox_toexpand("kanji.rare.sun");
172   build_kanji.tb(510,-30)
173     (tsu_xform(identity shifted (30,0))(kanji.grone.day))
174     (kanji.grnine.must_not;
175     set_boserif(-3,0,whatever);
176     push_stroke((100,780)-(900,780),(1.6,1.6)-(1.6,1.6));
177     set_boserif(0,1,9));
178   expand_pbox;
179 enddef;

```



```

180
181 vardef kanji.rare.walled_road =
182   push_pbox_toexpand("kanji.rare.walled_road");
183   push_stroke((200,740)-(770,740)..tension 1.2..(630,650)..(490,590),
184     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
185   set_botip(0,1,0);
186   set_boserif(0,1,4);
187   push_stroke((320,660)..tension 1.2..(490,590)..(520,560),
188     (1.1,1.1)-(1.5,1.5)-(1.8,1.8));
189   push_stroke((170,-40)-(170,530)-(830,530),
190     (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
191   build_kanji.add_jtail(0);
192   set_botip(0,1,1);
193   set_botip(0,2,1);
194   set_boserif(0,1,4);
195   set_boserif(0,2,4);
196   push_stroke((500,530)-(500,-20),(1.6,1.6)-(1.5,1.5));
197   push_stroke((170,370)-(830,370),(1.5,1.5)-(1.5,1.5));
198   push_stroke((170,210)-(830,210),(1.5,1.5)-(1.5,1.5));
199   expand_pbox;
200 enddef;

```



Part II

U+0000 to U+2FFF



# tsuku-00.mp

```
1 %
2 % Unicode page 00 (ASCII/ISO Latin-1) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input numerals.mp;
41 input punct.mp;
42
43 

---

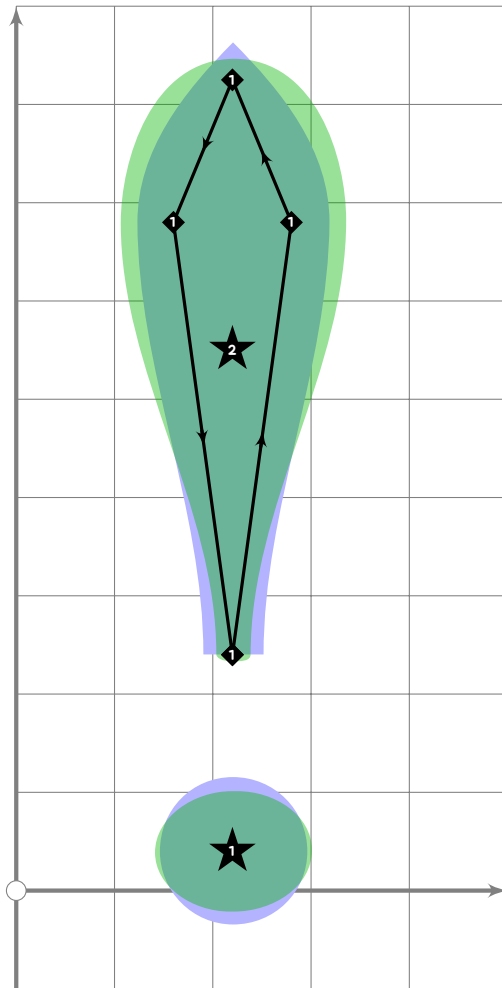

44
45 transform ascii_punct_xf;
46 if is_proportional:
47   ascii_punct_xf:=identity scaled (1.7*tsu_punct_size) shifted centre_pt;
48 else:
49   ascii_punct_xf:=
50     identity scaled (1.1*tsu_punct_size) shifted (250,latin_vcentre);
51 fi;
52
53 

---


54
```

## Ascii

```
55 % ASCII
56
57 % WARNING this code is substantially duplicated in tsuku-ff; just
58 % enough differences to make sharing impractical
59
60 % exclamation point
61 tsu_rescale_native_narrow;
```

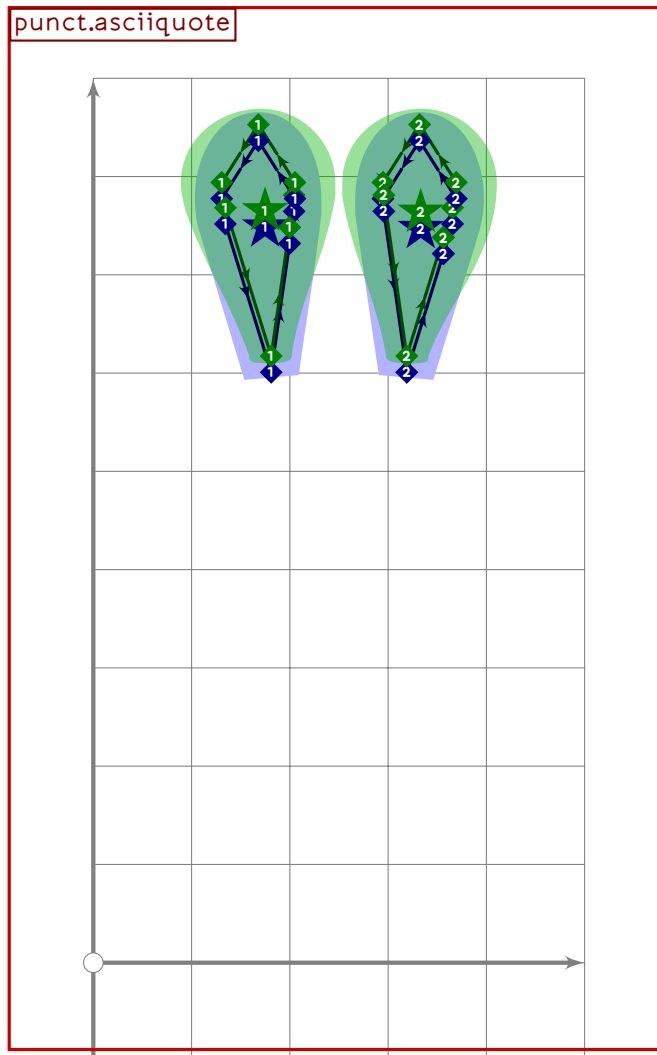


```

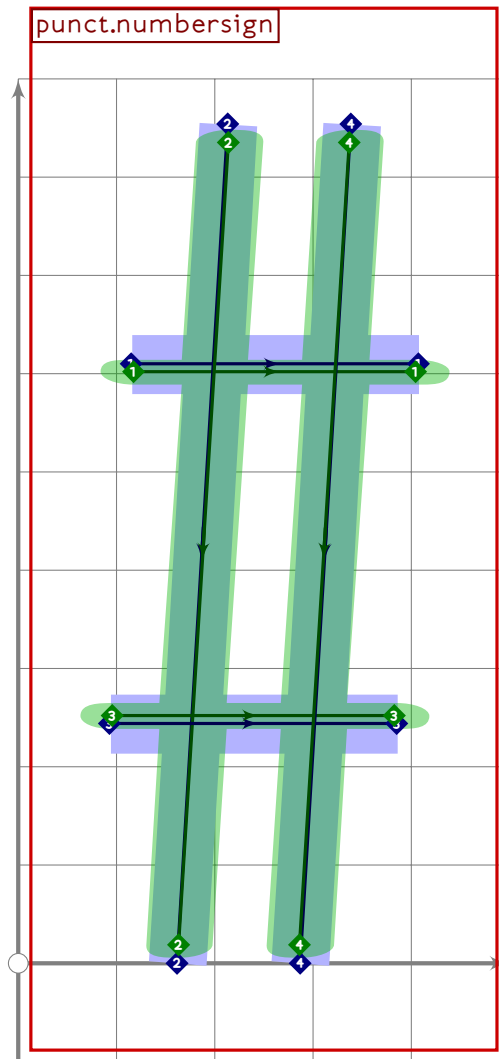
62 begint Suglyph("exclam",33);
63 if tsu_pbrush_size>=(tsu_punct_size*0.5):
64     push_lcblob(fullcircle
65         xscaled (tsu_punct_size+tsu_pbrush_size)
66         yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
67         rotated tsu_pbrush_angle
68         shifted (220,40));
69 else:
70     push_stroke(fullcircle scaled tsu_punct_size shifted (220,40),
71         (2,2)-(2,2)-(2,2)-(2,2)-cycle);
72     push_lcblob(get_strokep(0));
73 fi;
74
75 push_stroke((220,240){up}..(280,680){up}..{curl 1}(220,825){curl 1}..
76     (160,680){down}..{down}(220,240),
77     (1,1)-(2,2)-(2,2)-(2,2)-(1,1));
78
79 if tsu_pbrush_size>=30:
80     push_lcblob((subpath (0,1,3,9) of get_strokep(0))-cycle);
81 fi;
82

```

```
83 tsu_render;  
84 endtsuglyph;  
85 tsu_rescale_half;  
86
```



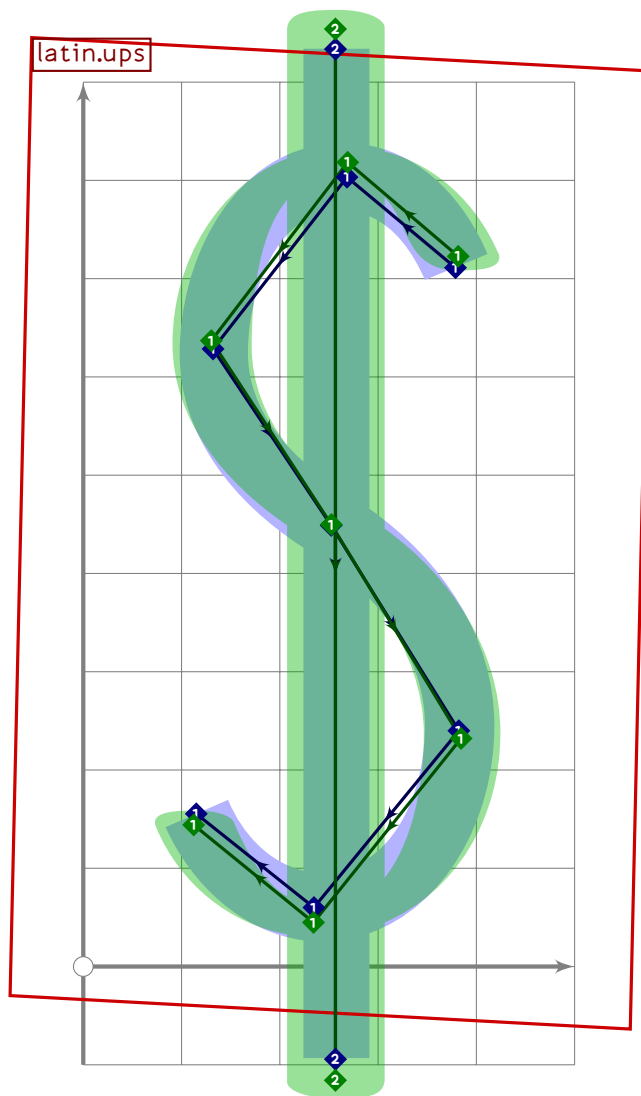
```
87 % ASCII (neither left nor right) quotation mark  
88 begint Suglyph("quotedbl",34);  
89 punct.asciiquote;  
90 tsu_render;  
91 endtsuglyph;  
92
```



```

93 % number sign
94 begintsuglyph("numbersign";35);
95 punct.numbersign;
96 tsu_render;
97 endtsuglyph;
98

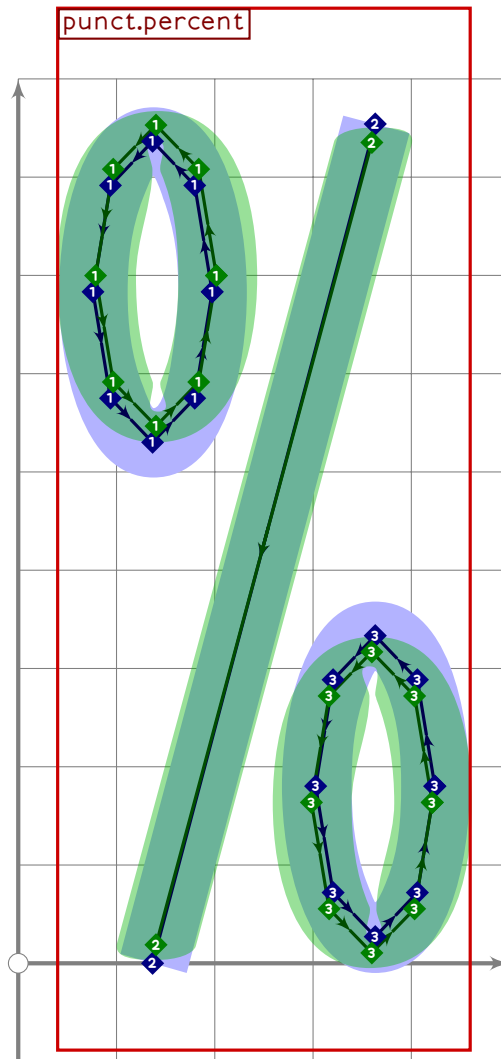
```



```

99 % dollar sign
100 begintsuglyph("dollar";36);
101 tsu_xform(identity shifted -centre_pt
102   rotated -2 xyscaled (1.06,0.92) shifted centre_pt)(latin.ups);
103
104 numeric x[],y[];
105 x1=x2=0.53[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
106 y1=1.12[latin_wide_low_r,latin_wide_high_r];
107 y2=(-0.15)[latin_wide_low_r,latin_wide_high_r];
108
109 push_stroke(z1-z2,(2,2)-(2,2));
110 set_bsize(0,90);
111
112 tsu_render;
113 endtsuglyph;
114

```

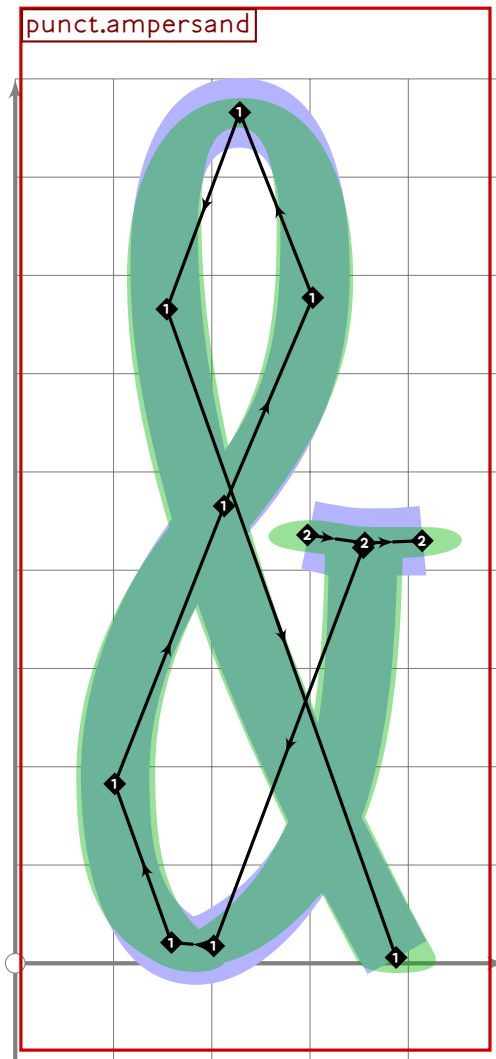


```

115 % percent
116 begint Suglyph("percent";37);
117 punct.percent;
118 tsu_render;
119 endtsuglyph;
120

```





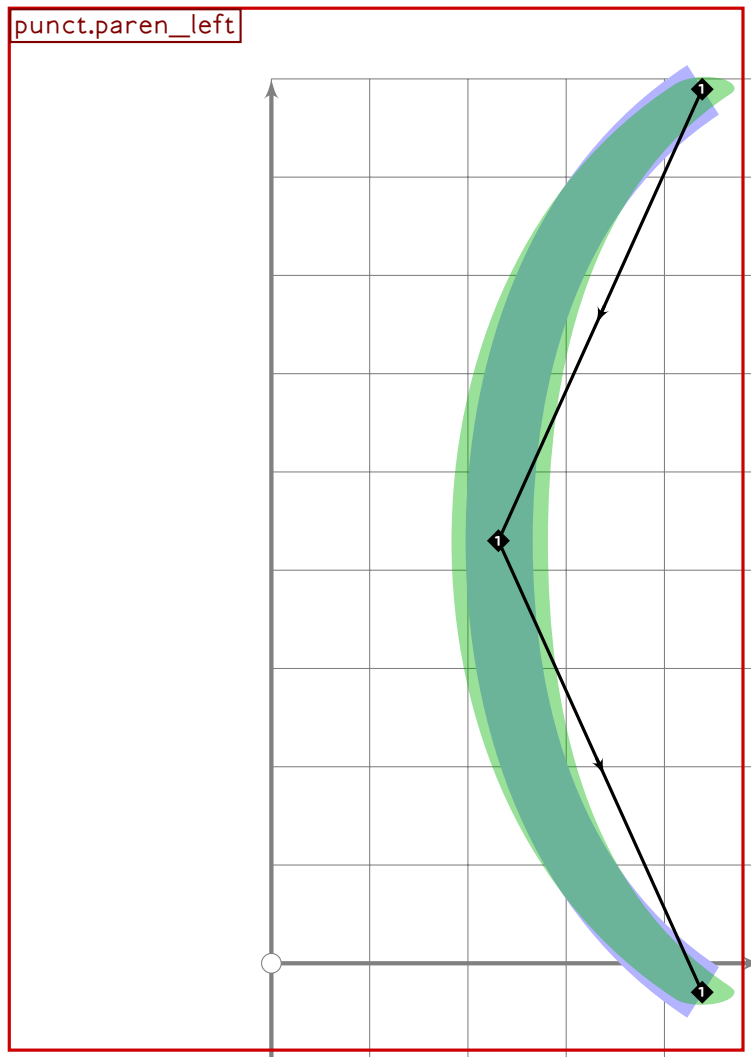
```
121 % ampersand
122 begintsuglyph("ampersand",38);
123 punct.ampersand;
124 tsu_render;
125 endtsuglyph;
126
```



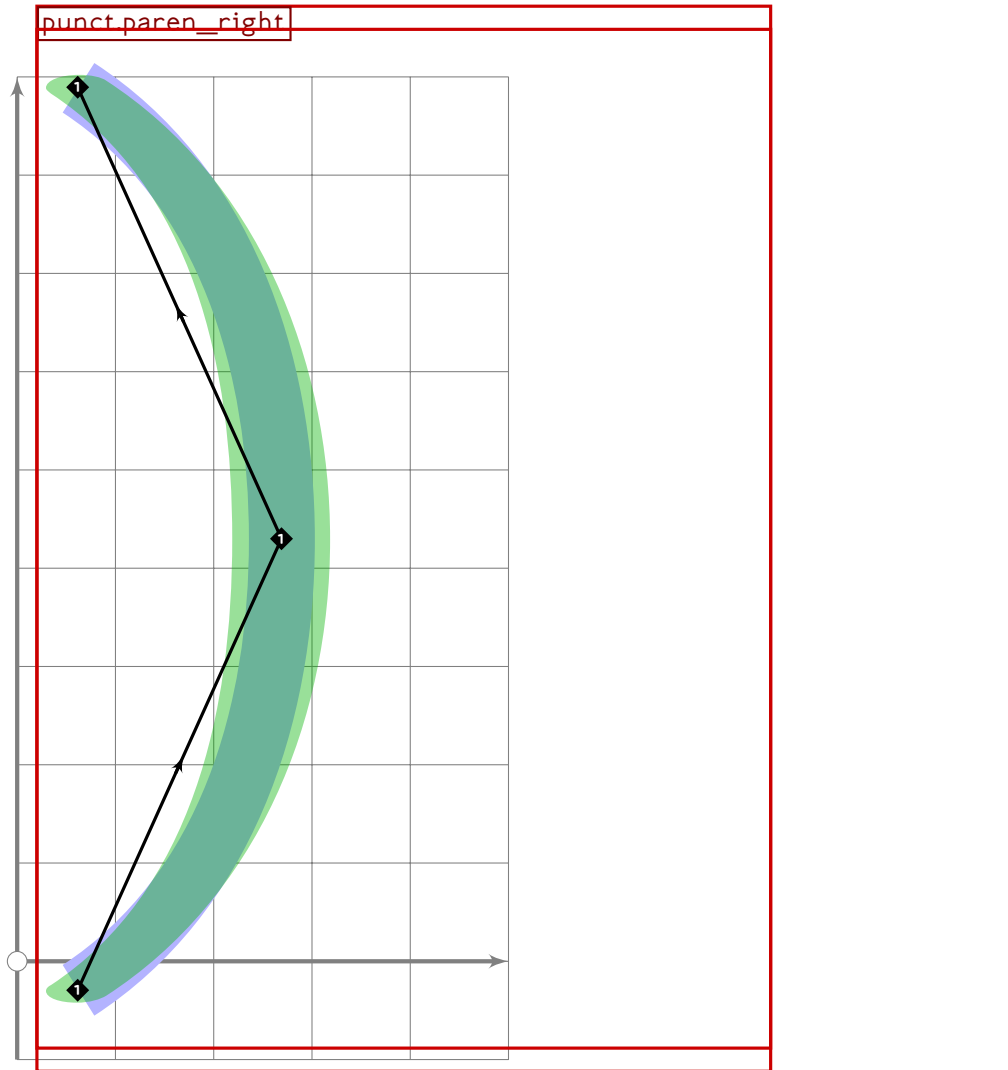
```

127 % apostrophe
128 begintsuglyph("quotesingle",39);
129 punct.make_comma((480,vmetric(0.94)),0);
130 tsu_render;
131 endtsuglyph;
132

```



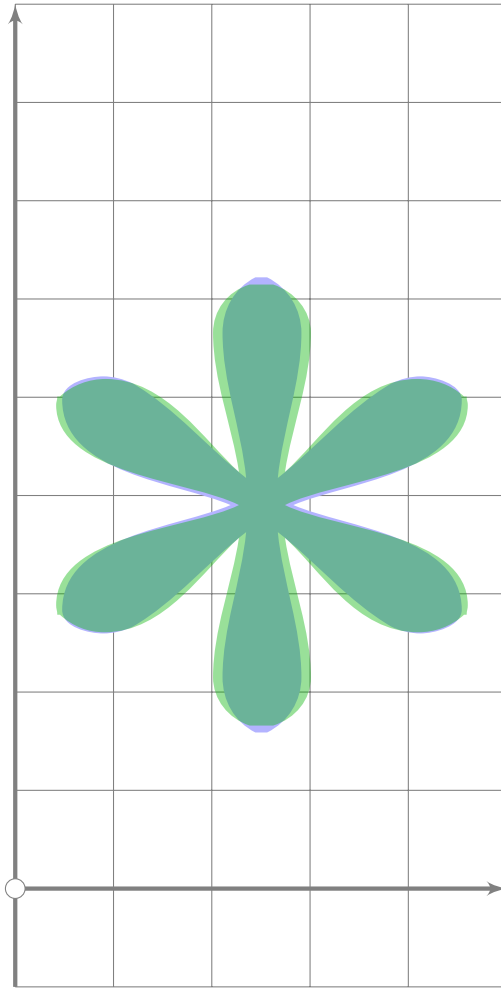
```
133 % left and right parentheses
134 begintsuglyph("parenleft";40);
135 punct.paren_left;
136 tsu_render;
137 endtsuglyph;
```



```

138 beginsuglyph("parenright";41);
139 punct.paren_right;
140 tsu_render;
141 endsuglyph;
142
143 % WARNING changing rescale setting
144 tsu_rescale_native_conditional;
145

```



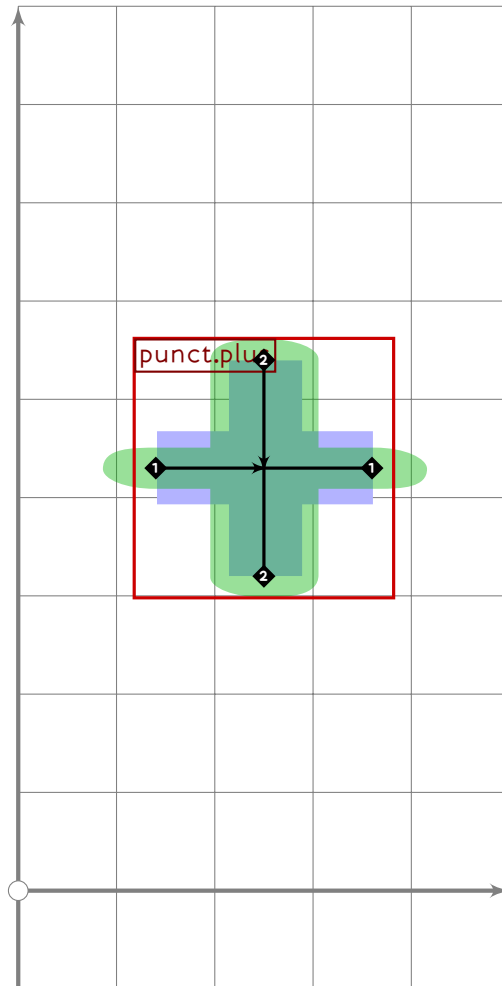
```

146 % asterisk
147 begint Suglyph("asterisk";42);
148   beingroup
149     path lobe, glyph[];
150
151     lobe:=(1,0){up}..((1+tsu_brush_max)*tsu_punct_size/8,140){up}
152       ..{curl 1}(0,175){curl 1}
153       ..(-(1+tsu_brush_max)*tsu_punct_size/8,140){down};
154     lobe:=(lobe..(lobe rotated 180)..cycle) scaled (tsu_punct_size/80);
155
156     default_nib:=fix_nib(35*tsu_brush_max,
157       35*tsu_brush_max*tsu_brush_shape,
158       tsu_brush_angle);
159     pen_stroke()(lobe shifted centre_pt shifted (-250,0))(glyph1);
160     pen_stroke()(lobe rotated 60 shifted centre_pt shifted (-250,0))(glyph2);
161     pen_stroke()(lobe rotated 120 shifted centre_pt shifted (-250,0))(glyph3);
162
163     dangerousFill glyph1.r;
164     dangerousFill glyph2.r;
165     dangerousFill glyph3.r;
166   endgroup;

```

```
167 endtsuglyph;
```

```
168
```



```
169 % plus
```

```
170 begint Suglyph("plus";43);
```

```
171 punct.plus(ascii_punct_xf);
```

```
172 tsu_render;
```

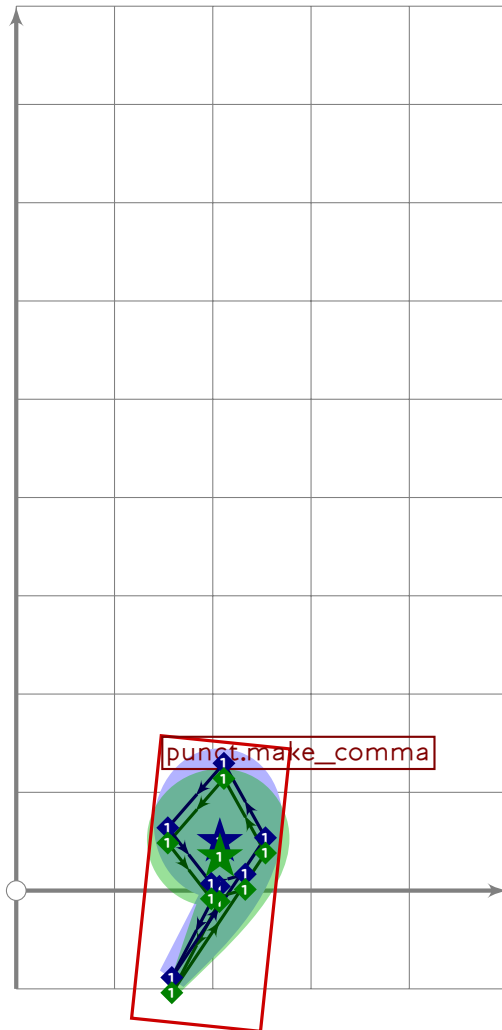
```
173 endtsuglyph;
```

```
174
```

```
175 % WARNING changing rescale setting
```

```
176 tsu_rescale_half;
```

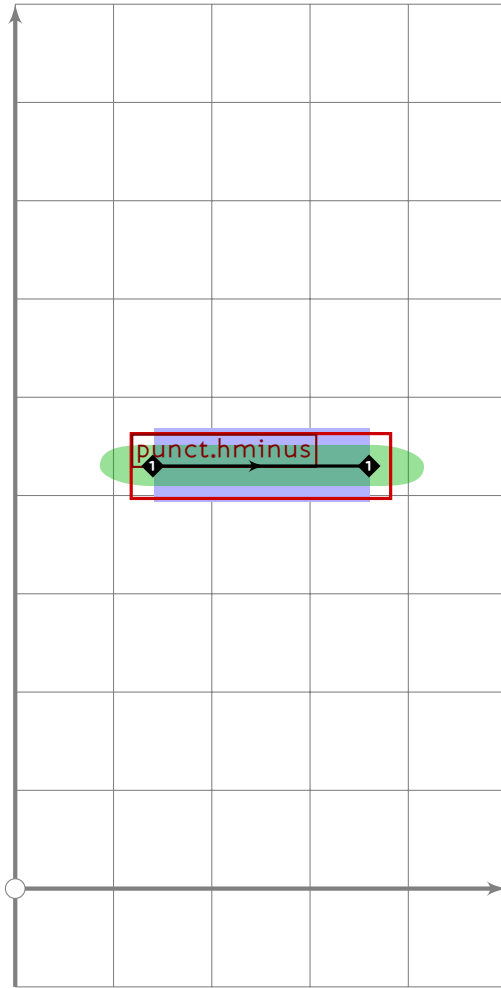
```
177
```



```

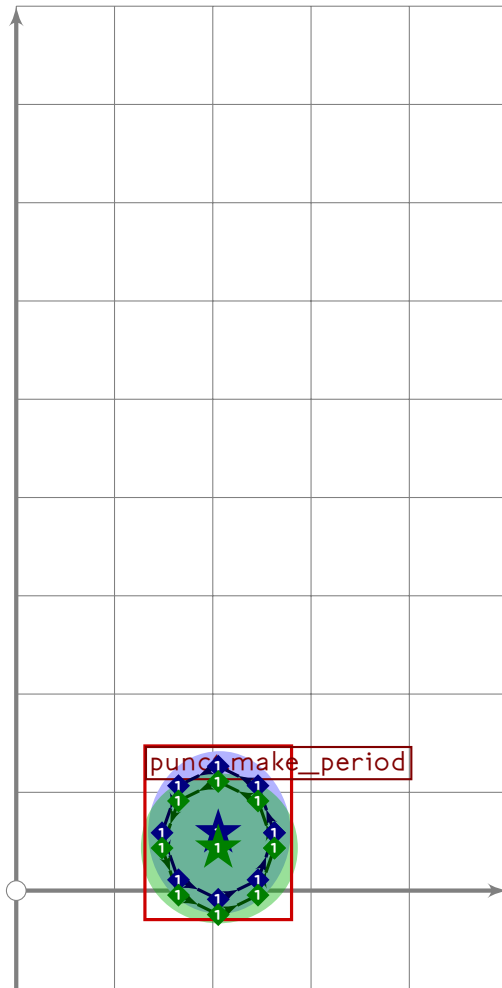
178 % comma
179 begint Suglyph("comma";44);
180 punct.make_comma((380,vmetric(0.03)),0);
181 tsu_render;
182 endtsuglyph;
183
184 % hyphen-minus
185 tsu_rescale_native_conditional;

```

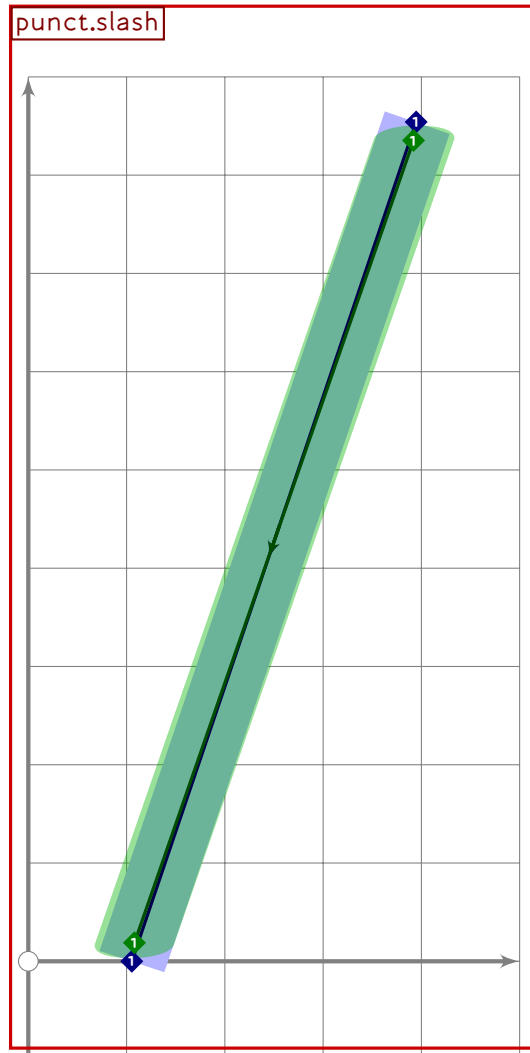


```
186 begint Suglyph("hyphen";45);  
187 punct.hminus(ascii_punct_xf);  
188 tsu_render;  
189 endtsuglyph;  
190 tsu_rescale_half;  
191
```

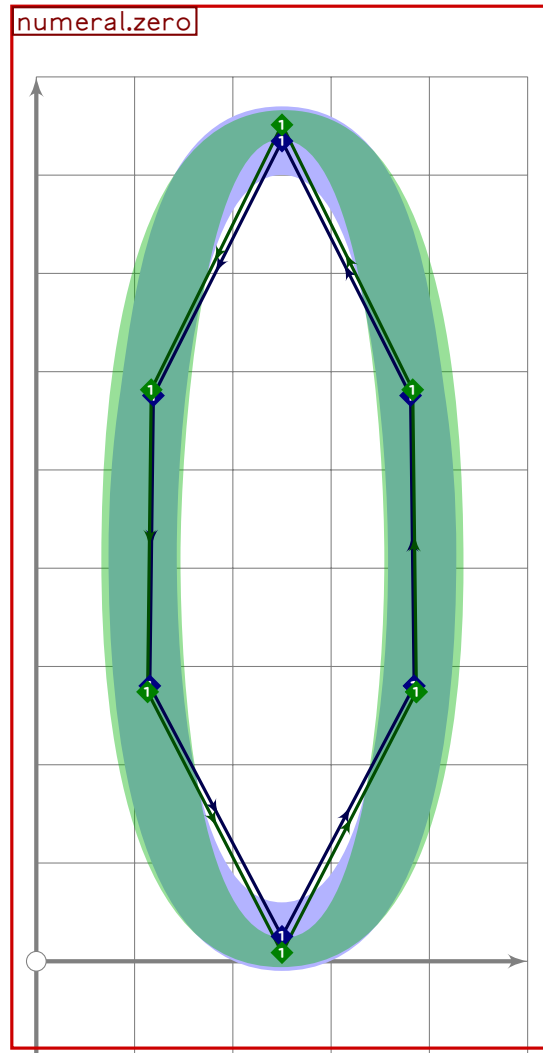




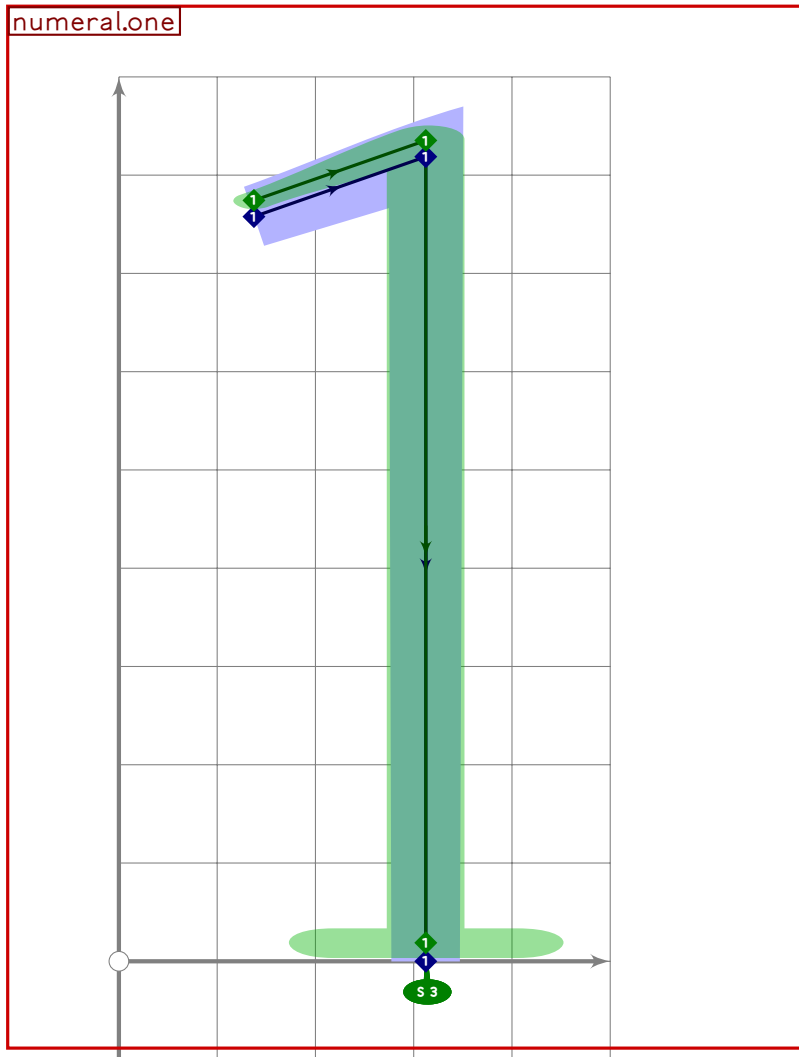
```
192 % period
193 beginsuglyph("period";46);
194 punct.make_period((380,vmetric(0.03)));
195 tsu_render;
196 endsuglyph;
197
```



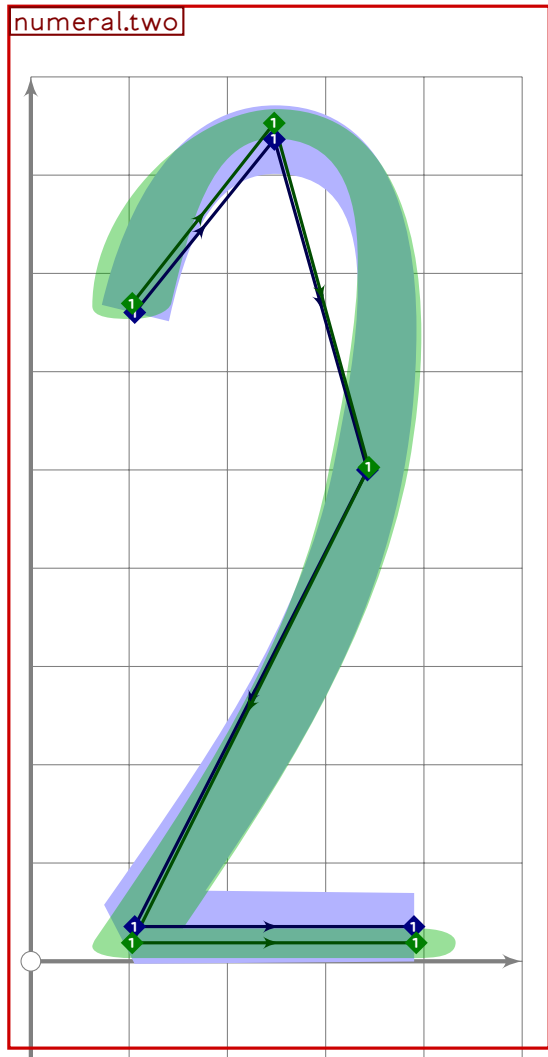
```
198 % slash  
199 begintuglyph("slash";47);  
200 punct.slash;  
201 tsu_render;  
202 endtuglyph;  
203
```



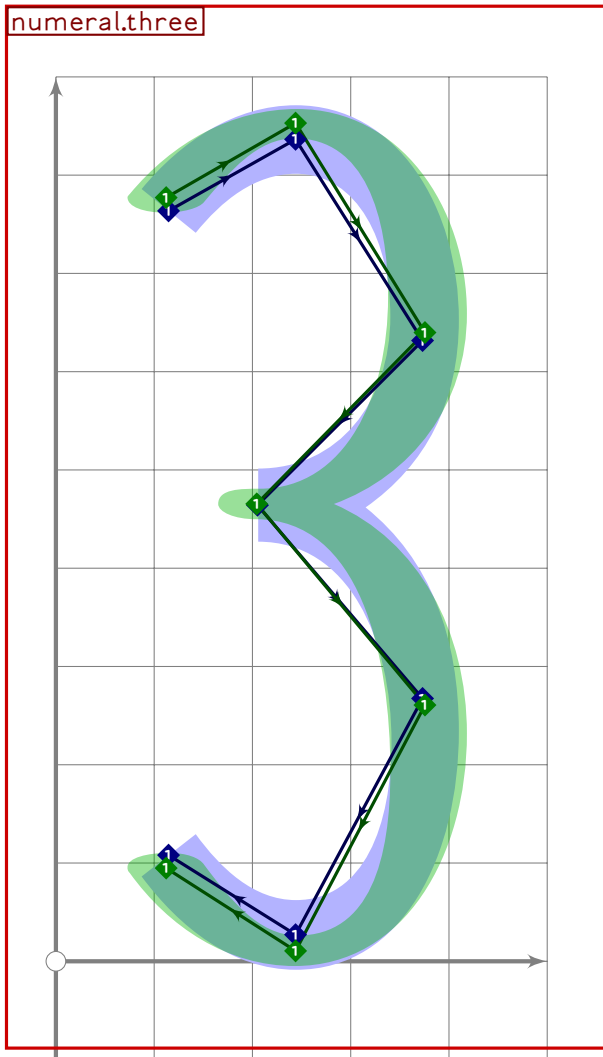
```
204 % 0
205 begint Suglyph("zero";48);
206 numeral.zero;
207 tsu_render;
208 endtsuglyph;
209
```



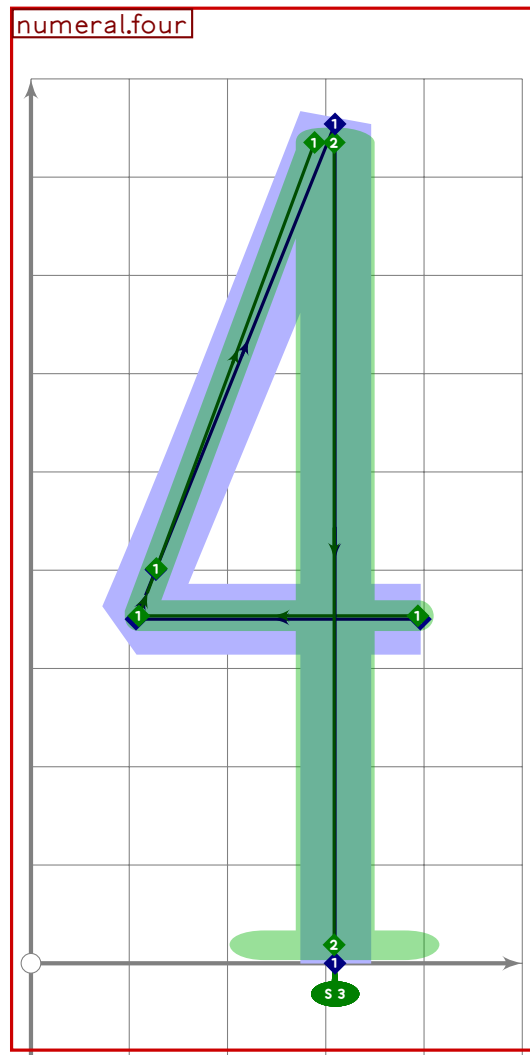
```
210 % 1
211 begint Suglyph("one";49);
212 numeral.one;
213 tsu_render;
214 endtsuglyph;
215
```



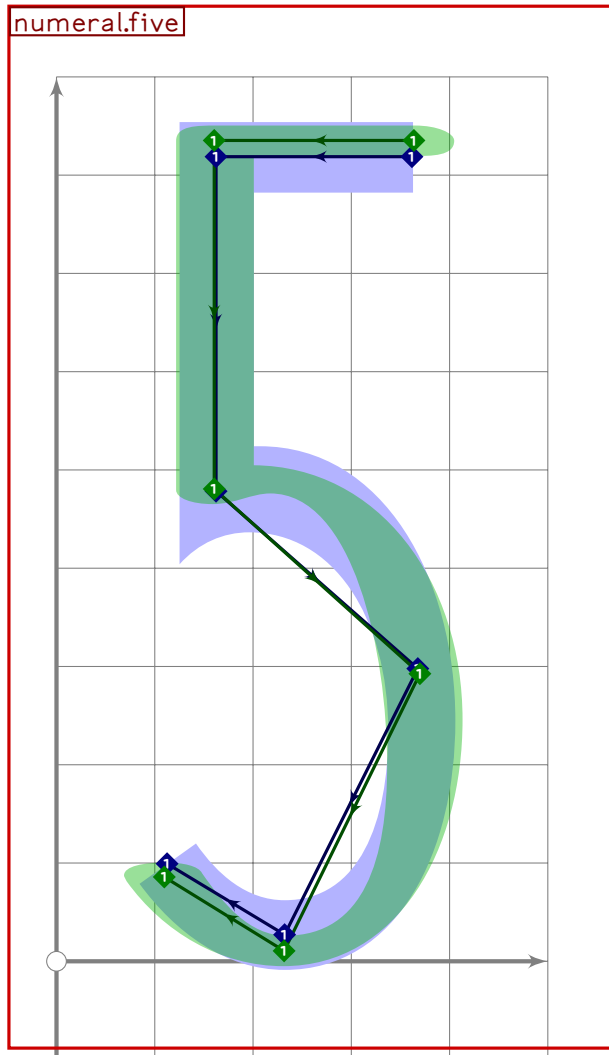
```
216 % 2
217 begint Suglyph("two",50);
218 numeral.two;
219 tsu_render;
220 endsuglyph;
221
```



```
222 % 3
223 beginsuglyph("three";51);
224 numeral.three;
225 tsu_render;
226 endsuglyph;
227
```

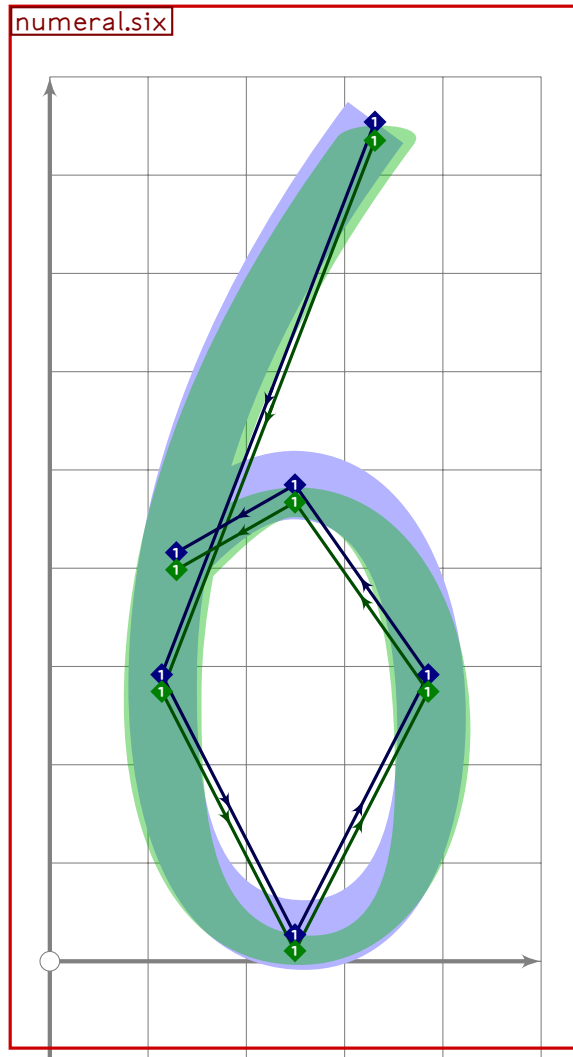


```
228 % 4  
229 begintsuglyph("four";52);  
230 numeral.four;  
231 tsu_render;  
232 endtsuglyph;  
233
```



```
234 % 5
235 begint Suglyph("five",53);
236 numeral.five;
237 tsu_render;
238 endtsuglyph;
239
```

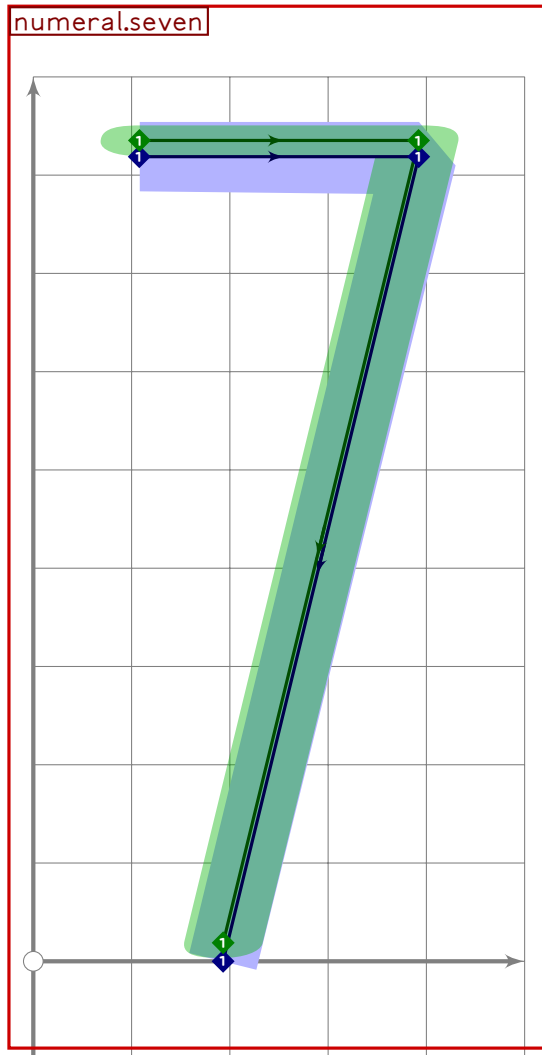




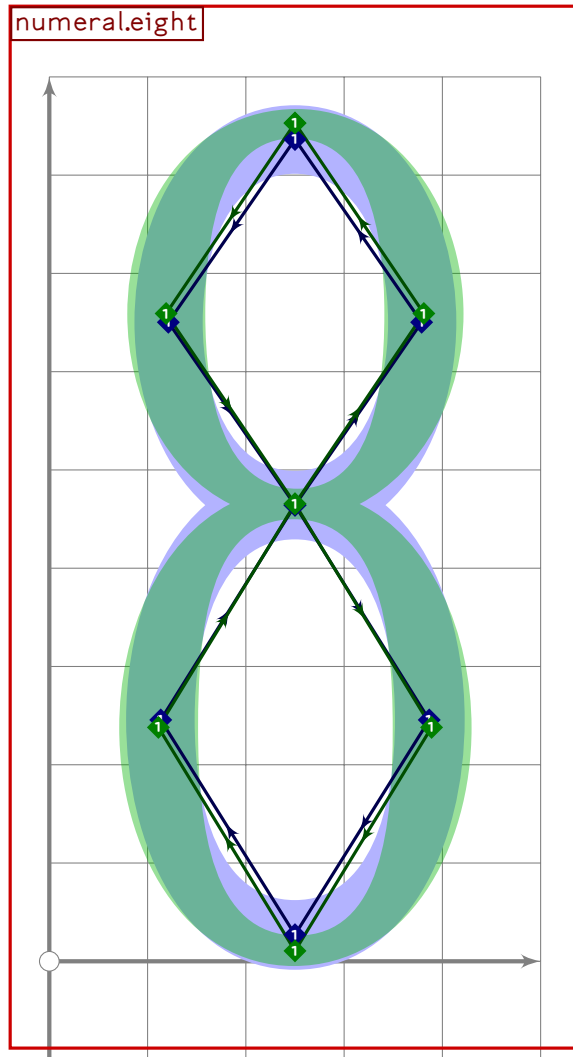
```

240 % 6
241 begint Suglyph("six",54);
242 numeral.six;
243 tsu_render;
244 endtsuglyph;
245

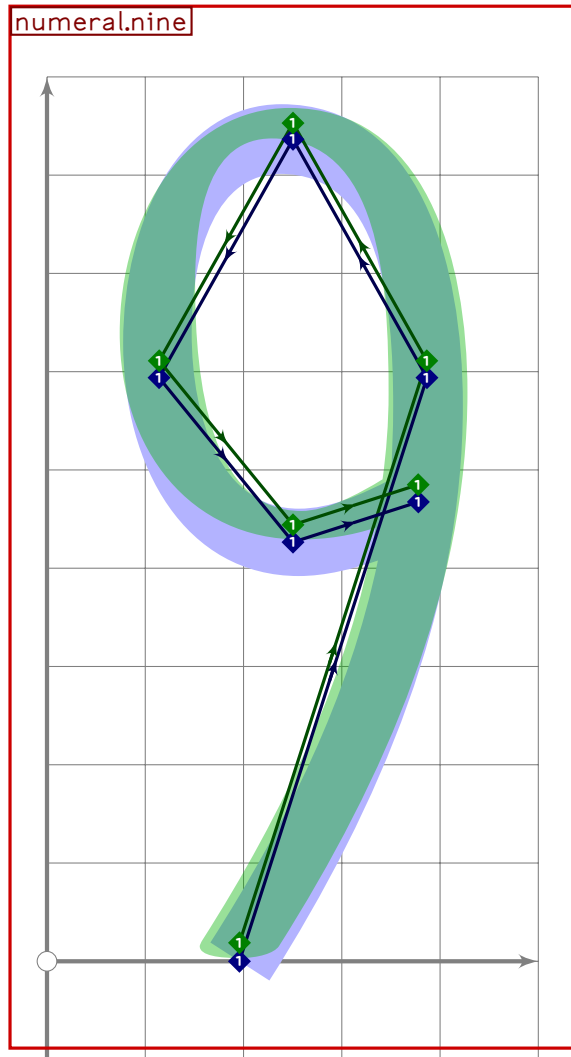
```



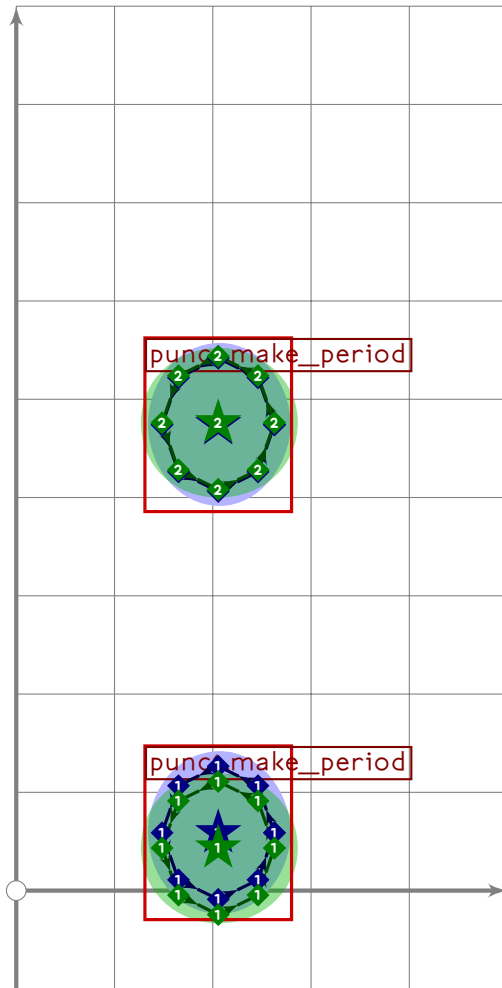
```
246 % 7  
247 begintsuglyph("seven";55);  
248 numeral.seven;  
249 tsu_render;  
250 endtsuglyph;  
251
```



```
252 % 8  
253 begint Suglyph("eight",56);  
254 numeral.eight;  
255 tsu_render;  
256 endtsuglyph;  
257
```



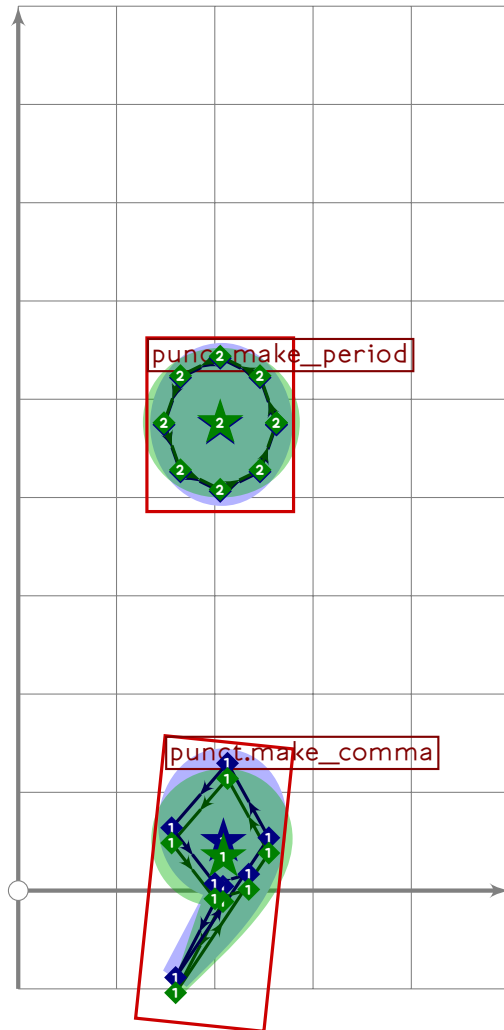
```
258 % 9
259 begintuglyph("nine",57);
260 numeral.nine;
261 tsu_render;
262 endtuglyph;
263
```



```

264 % colon
265 beginsuglyph("colon",58);
266 punct.make_period((380,vmetric(0.03)));
267 punct.make_period((380,vmetric(0.56)));
268 tsu_render;
269 endsuglyph;
270

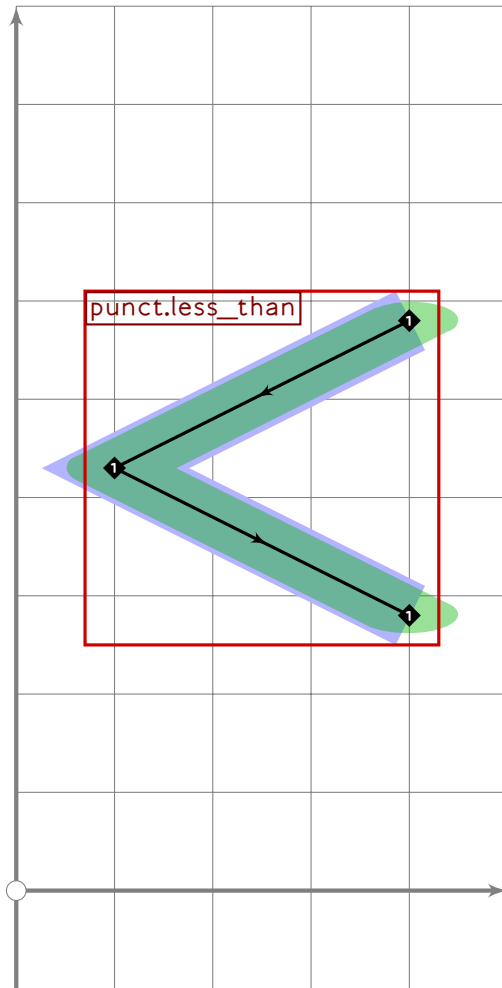
```



```

271 % semicolon
272 beginsuglyph("semicolon";59);
273 punct.make_comma((380,vmetric(0.03)),0);
274 punct.make_period((380,vmetric(0.56)));
275 tsu_render;
276 endsuglyph;
277
278 % WARNING, changing rescale setting
279 tsu_rescale_native_conditional;
280

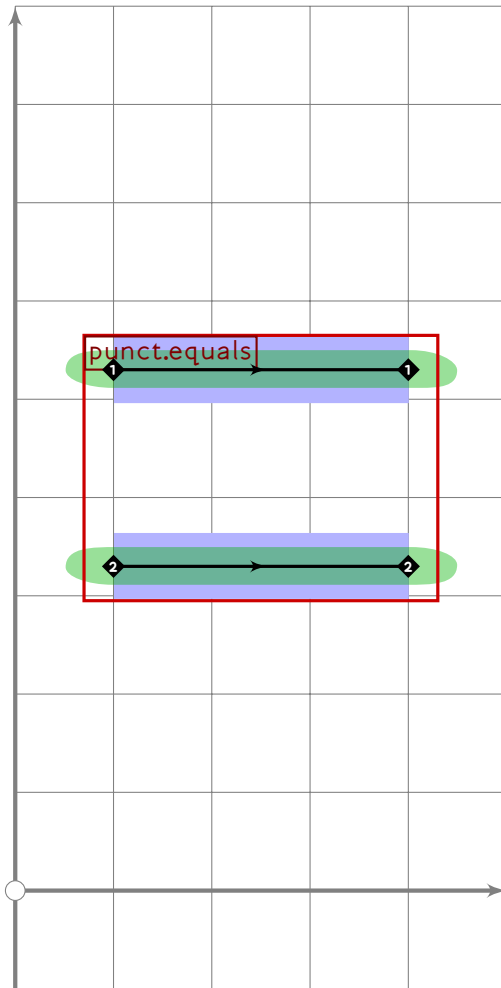
```



```

281 % less than
282 begintsuglyph("less",60);
283 punct.less_than
284     (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
285       shifted (250,latin_vcentre));
286 tsu_render;
287 endtsuglyph;
288

```

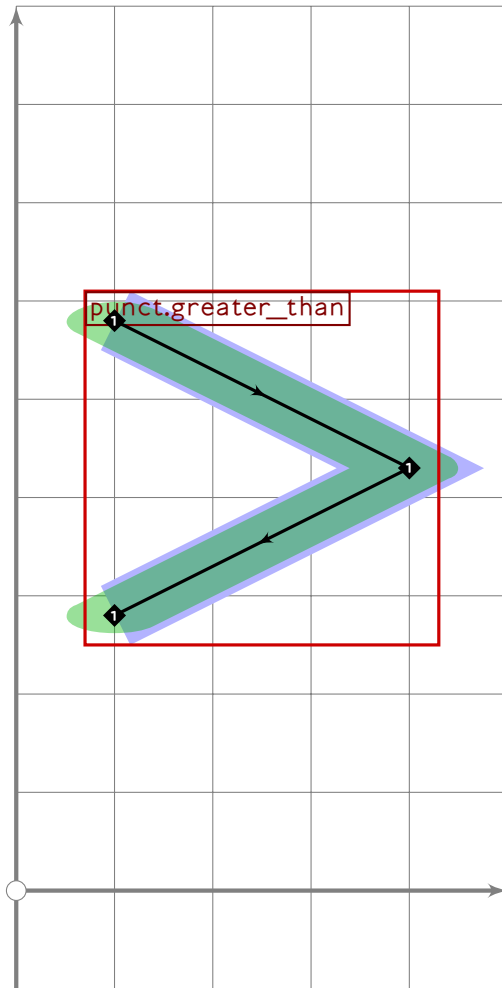


```

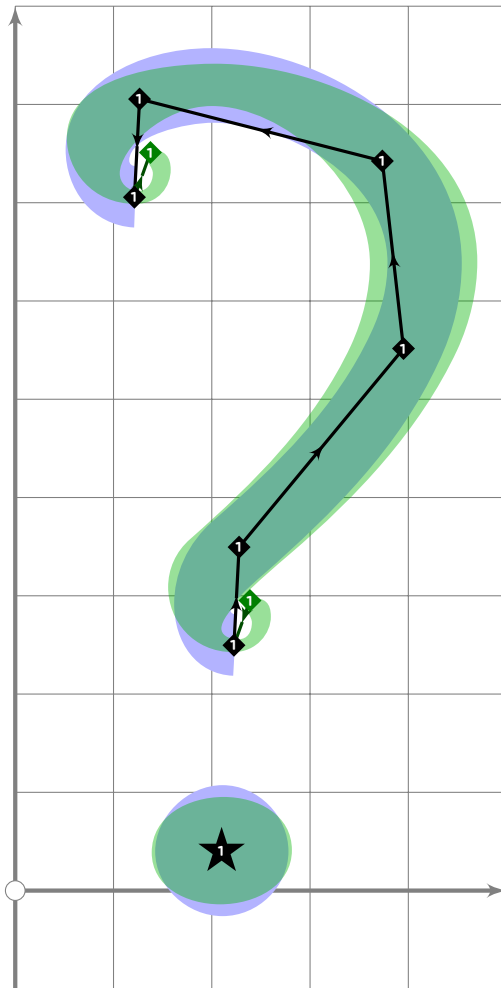
289 % equals
290 begintsuglyph("equals",61);
291 punct.equals
292     (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
293     shifted (250,latin_vcentre));
294 tsu_render;
295 endtsuglyph;
296

```





```
297 % greater than
298 begintsuglyph("greater",62);
299 punct.greater_than
300     (identity scaled (if is_proportional: 2.1 else: 1.5 fi*tsu_punct_size)
301       shifted (250,latin_vcentre));
302 tsu_render;
303 endtsuglyph;
304
```



```

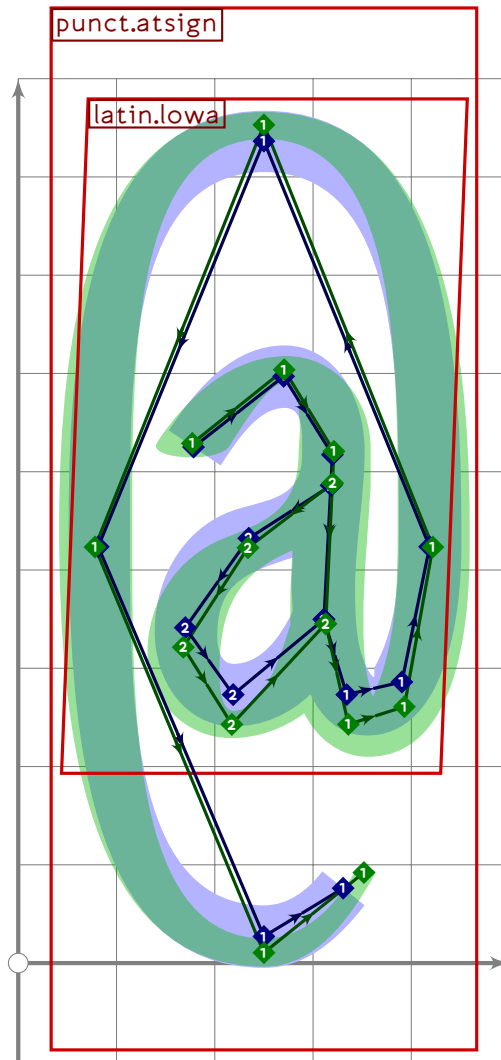
305 % question mark
306 begintsuglyph("question",63);
307     numeric r;
308     if tsu_pbrush_size>=(tsu_punct_size*0.5):
309         push_lcblob(fullcircle
310             xscaled ((tsu_punct_size+tsu_pbrush_size)*0.89)
311             yscaled ((tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)*0.89)
312             rotated tsu_pbrush_angle
313             shifted (210,40));
314     else:
315         push_stroke(fullcircle scaled tsu_punct_size shifted (210,40),
316             (2,2)-(2,2)-(2,2)-(2,2));
317         if tsu_pbrush_size>=30:
318             push_lcblob(get_strokep(0));
319         fi;
320     fi;
321     r:=tsu_punct_size/2;
322
323     push_stroke((210,300){right}..(210,300-r){left}..
324         (210,300+r)..(210+2.5*r,750)..
325         tension 1.3..(210-2.5*r,750+r)..

```

```

326     (210-2.5*r,750-r){right}..
327     (210-2.5*r,750){left},
328     (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
329     replace_strokep(0)(insert_nodes(oldp)(2.5) rotatedaround ((210,10),-3));
330
331     tsu_render;
332 endtsuglyph;
333
334 % WARNING, changing rescale setting
335 tsu_rescale_half;
336

```



```

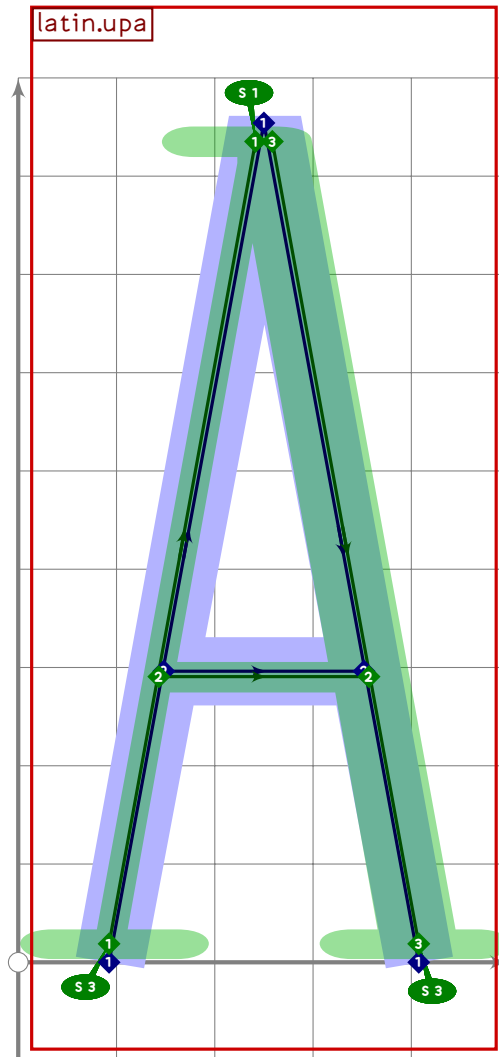
337 % commercial at
338 begint Suglyph("at";64);
339     punct.at sign;
340     tsu_render;
341 endtsuglyph;
342
343 tsu_default_anchor(anc_upper_accent,tsu_xf.cap_upper_accent);
344 tsu_default_anchor(anc_lower_accent,accent_default[anc_lower_accent]);

```

```

345 tsu_default_anchor(anc_centre_accent,tsu_xf.low_centre_accent);
346 tsu_default_anchor(anc_upper_left,tsu_xf.cap_upper_accent);
347 tsu_default_anchor(anc_upper_right,tsu_xf.cap_upper_accent);
348 tsu_default_anchor(anc_upper_ring,tsu_xf.cap_upper_accent);
349 tsu_default_anchor(anc_caron_comma,
350 accent_default[anc_caron_comma] shifted (200,0));
351

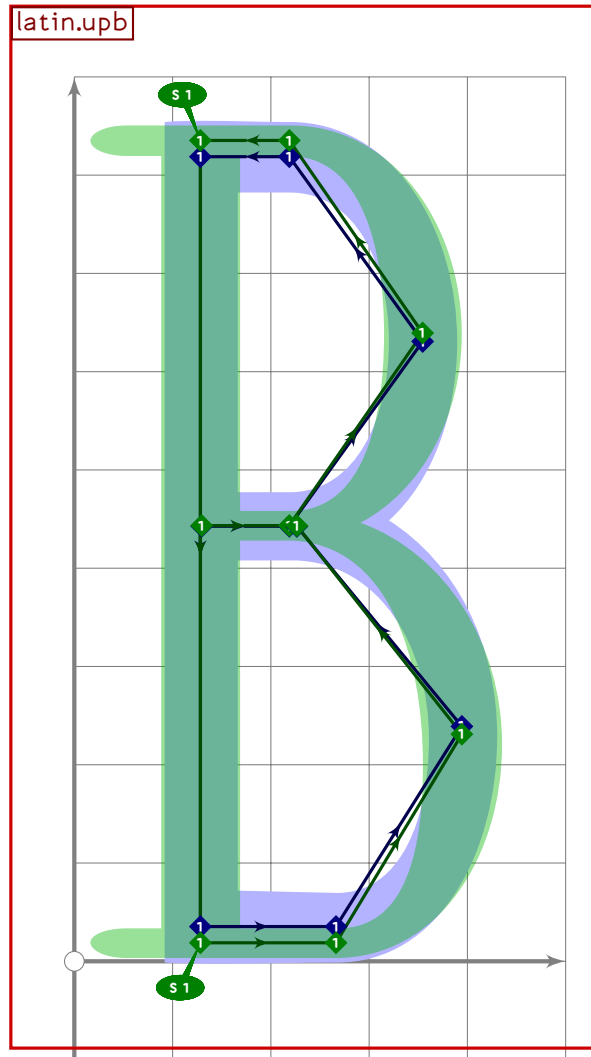
```



```

352 % A
353 beginsuglyph("A";65);
354 latin.upa;
355 tsu_render;
356 endsuglyph;
357

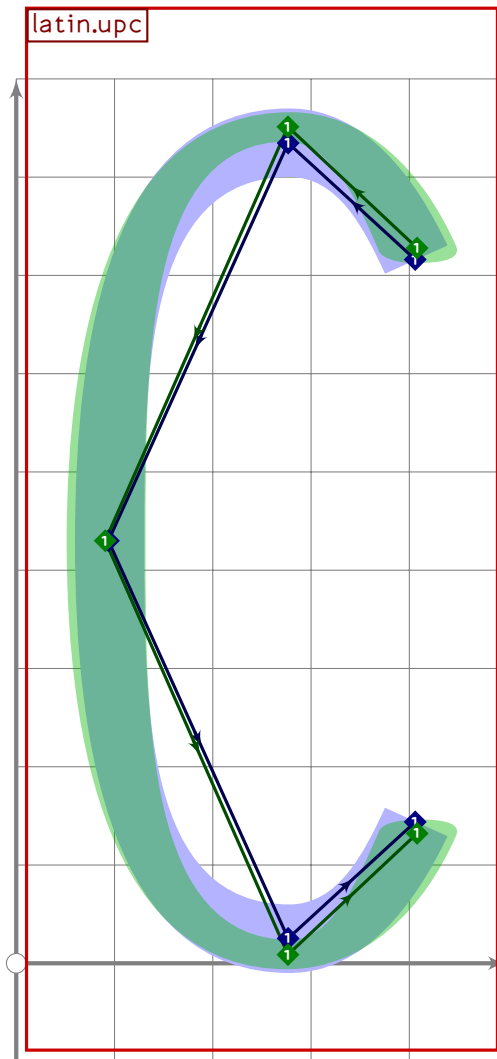
```



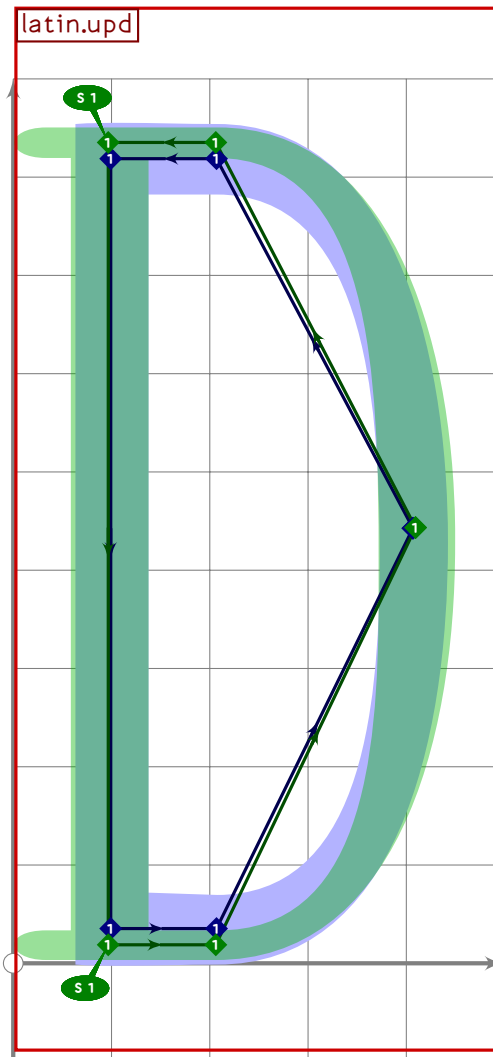
```

358 % B
359 begint Suglyph("B",66);
360 latin.upb;
361 tsu_render;
362 endtsuglyph;
363

```



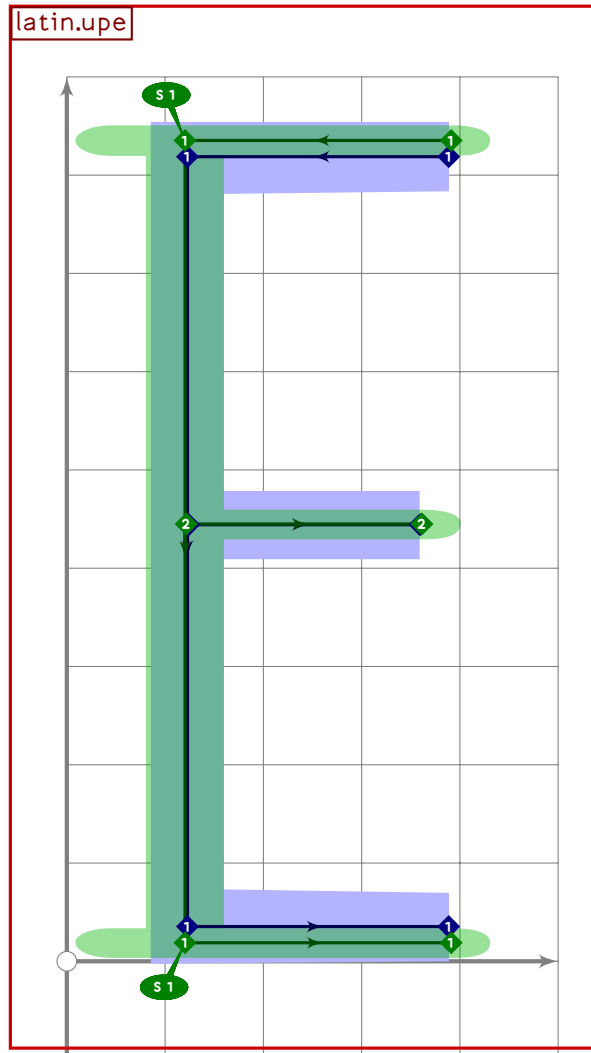
```
364 % C
365 begintsuglyph("C",67);
366 latin.upc;
367 tsu_render;
368 endtsuglyph;
369
```



```

370 % D
371 begint Suglyph("D";68);
372 latin.upd;
373 tsu_render;
374 endtsuglyph;
375

```

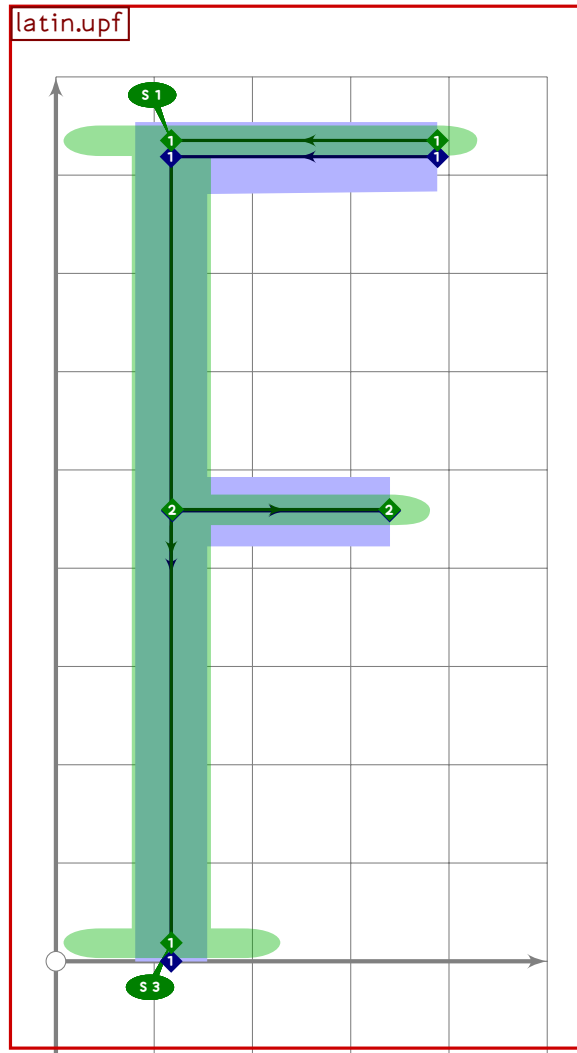


```

376 % E
377 begint Suglyph("E",69);
378 latin.upe;
379 tsu_render;
380 endtsuglyph;
381

```

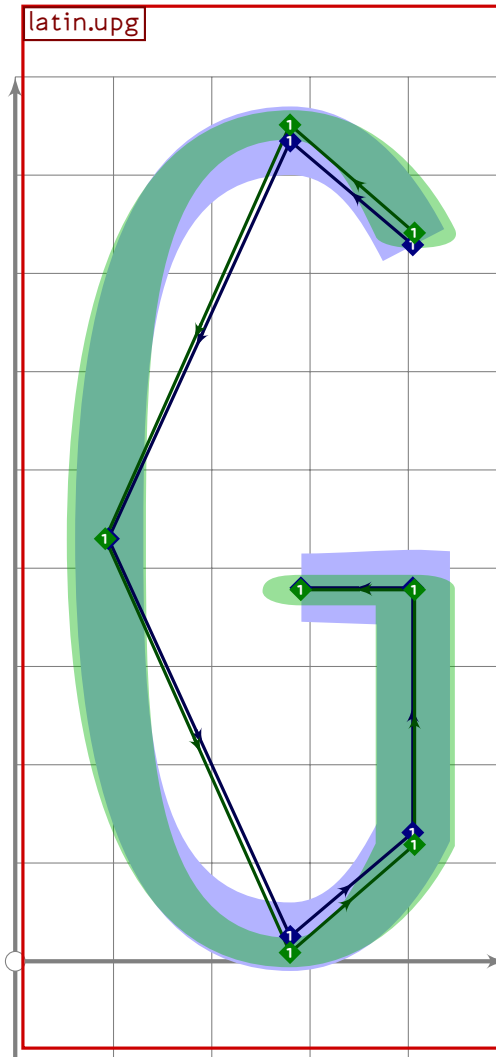




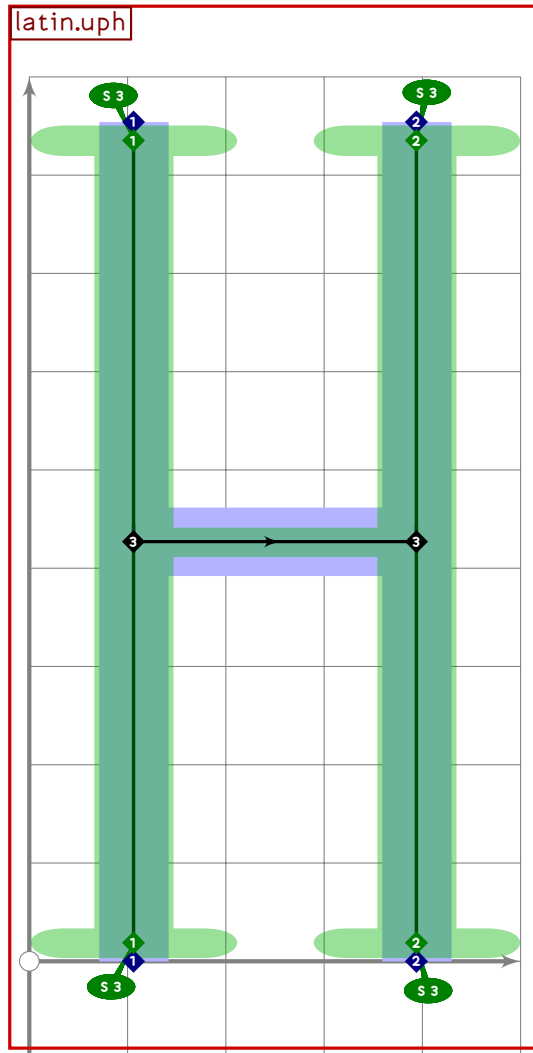
```

382 % F
383 beginsuglyph("F",70);
384 latin.upf;
385 tsu_render;
386 endsuglyph;
387

```



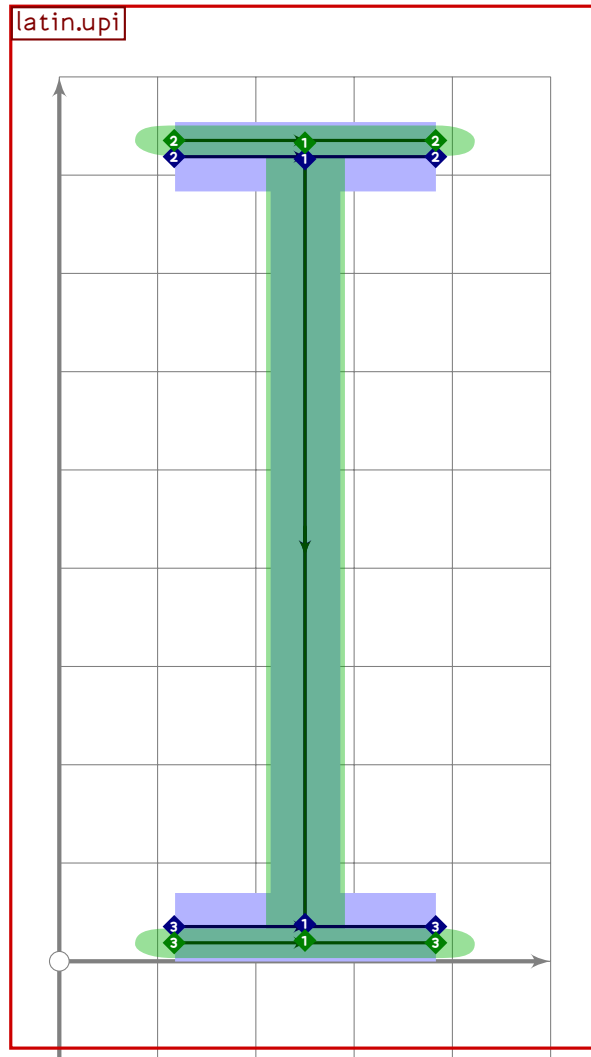
```
388 % G
389 begintsuglyph("G";71);
390 latin.upg;
391 tsu_render;
392 endtsuglyph;
393
```



```

394 % H
395 begint Suglyph("H";72);
396 latin.uph;
397 tsu_render;
398 endtsuglyph;
399

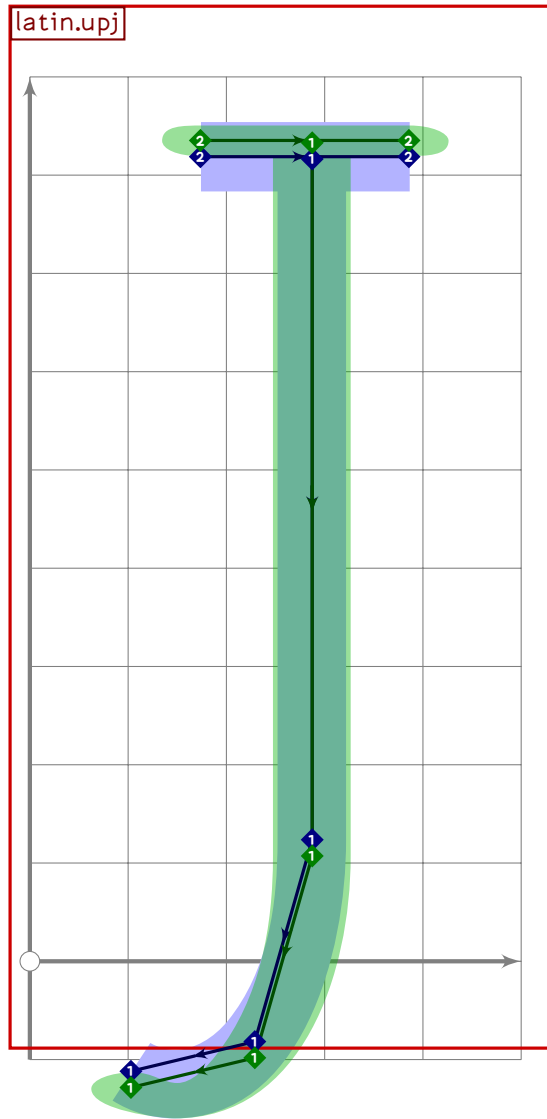
```



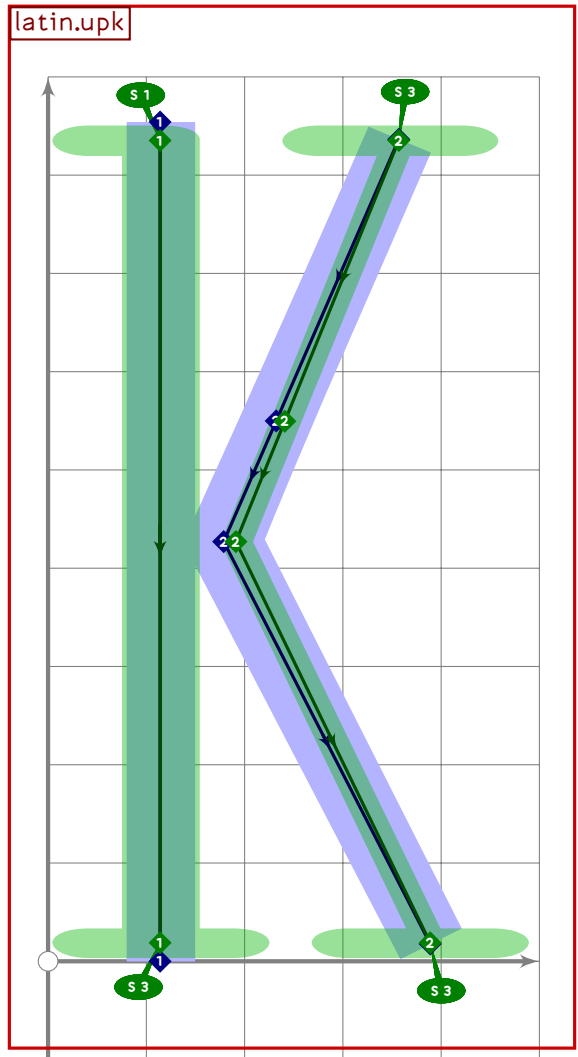
```

400 % I
401 beginsuglyph("I",73);
402 latin.upi;
403 tsu_render;
404 endsuglyph;
405

```



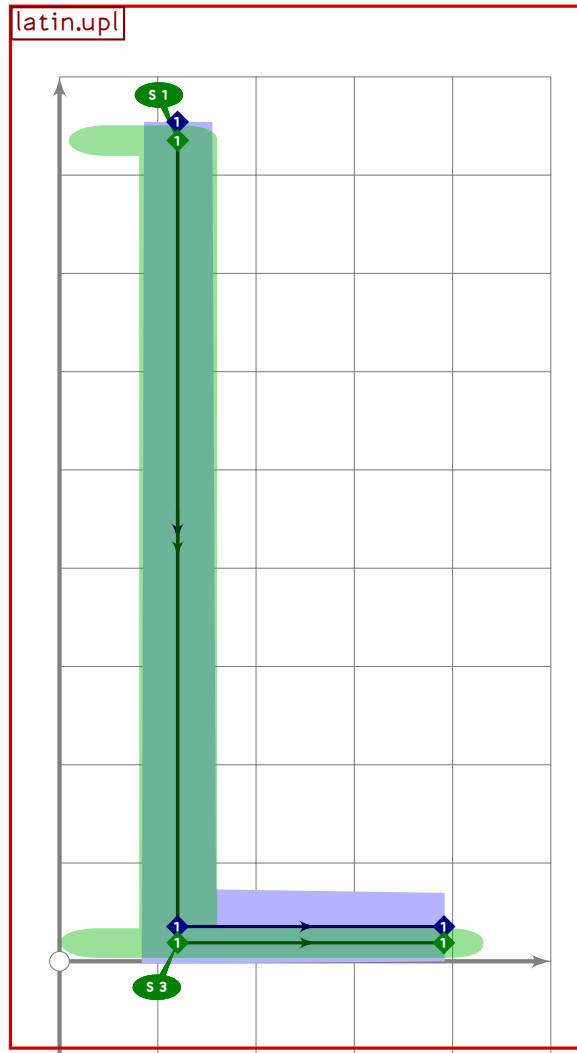
```
406 % J
407 begint Suglyph("J";74);
408 latin.upj;
409 tsu_render;
410 endsuglyph;
411
```



```

412 % K
413 begint Suglyph("K",75);
414 latin.upk;
415 tsu_render;
416 endtsuglyph;
417

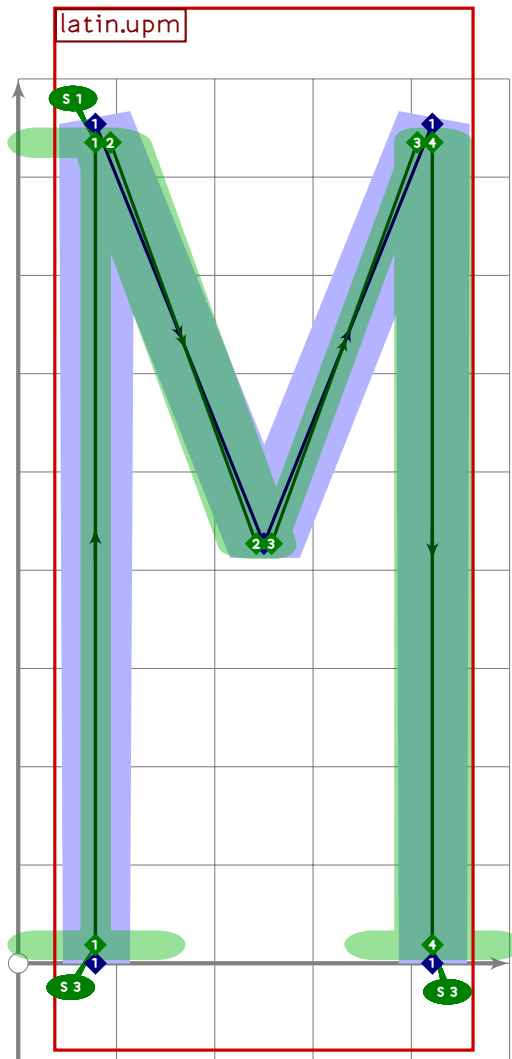
```



```

418 % L
419 begint Suglyph("L",76);
420 latin.upl;
421 tsu_render;
422 endtsuglyph;
423

```

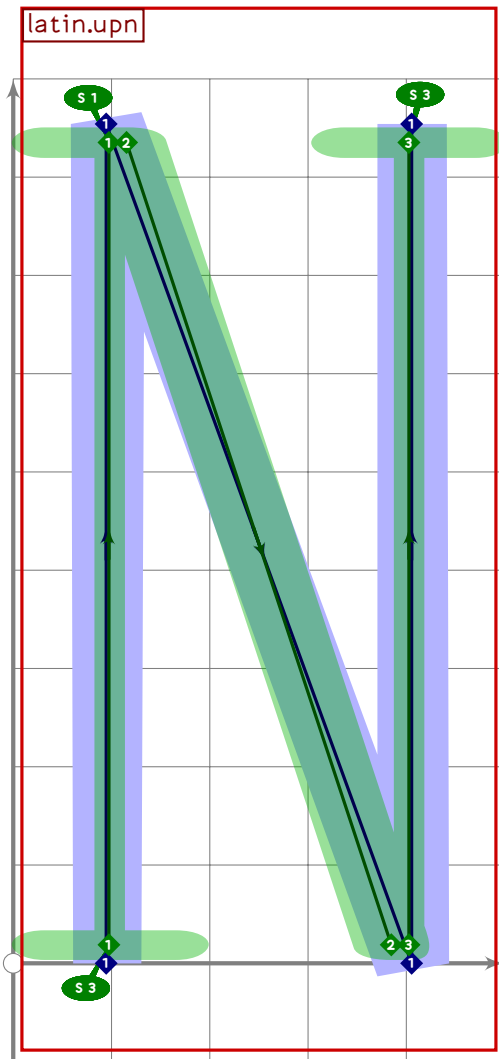


```

424 % M
425 begint Suglyph("M";77);
426 latin.upm;
427 tsu_render;
428 endtsuglyph;
429

```

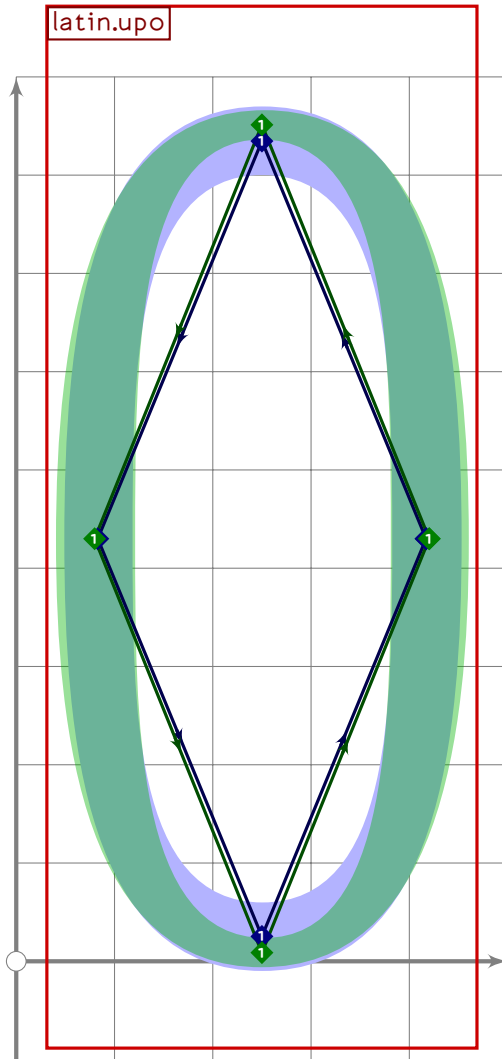




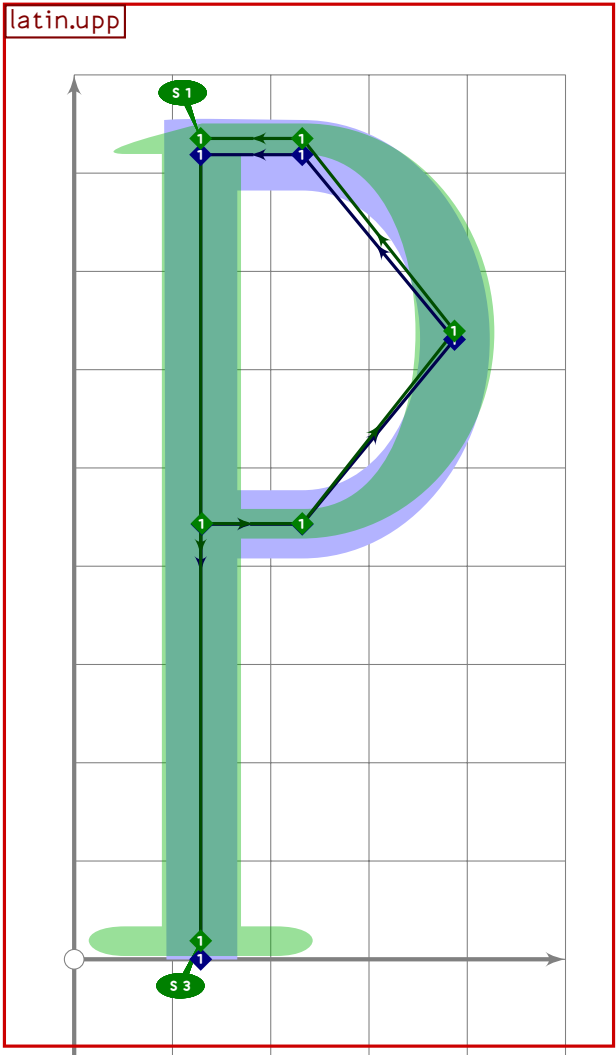
```

430 % N
431 begint Suglyph("N";78);
432 latin.upn;
433 tsu_render;
434 endtsuglyph;
435

```



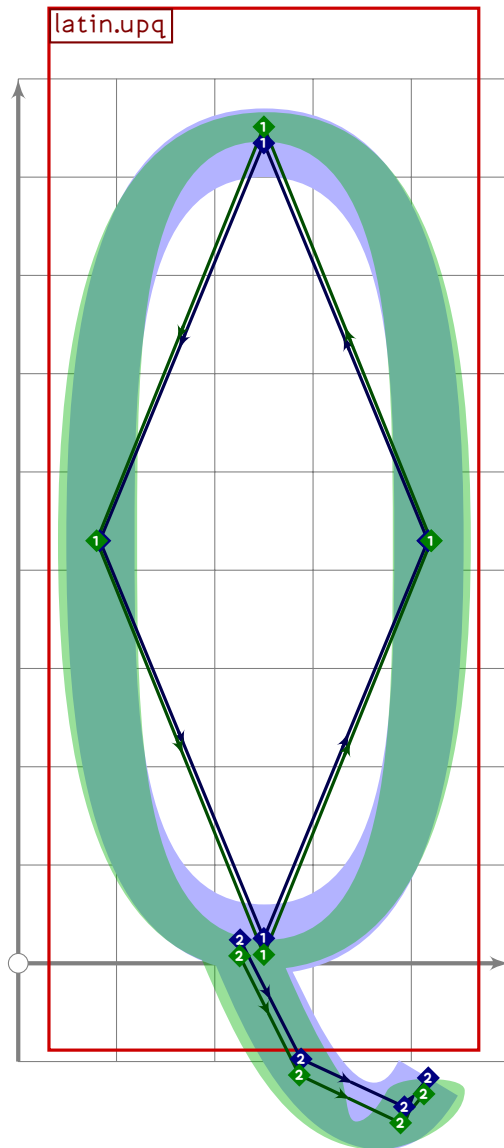
```
436 % O  
437 begint Suglyph("O";79);  
438 latin.upo;  
439 tsu_render;  
440 endtsuglyph;  
441
```



```

442 % P
443 begint Suglyph("P";80);
444 latin.upp;
445 tsu_render;
446 endsuglyph;
447

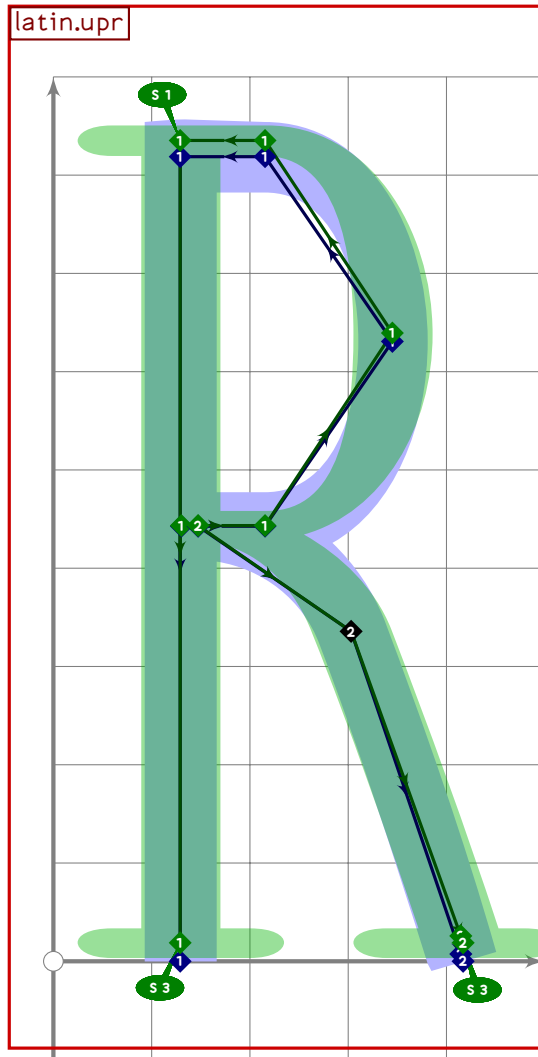
```



```

448 % Q
449 begintuglyph("Q";81);
450 latin.upq;
451 tsu_render;
452 endtuglyph;
453

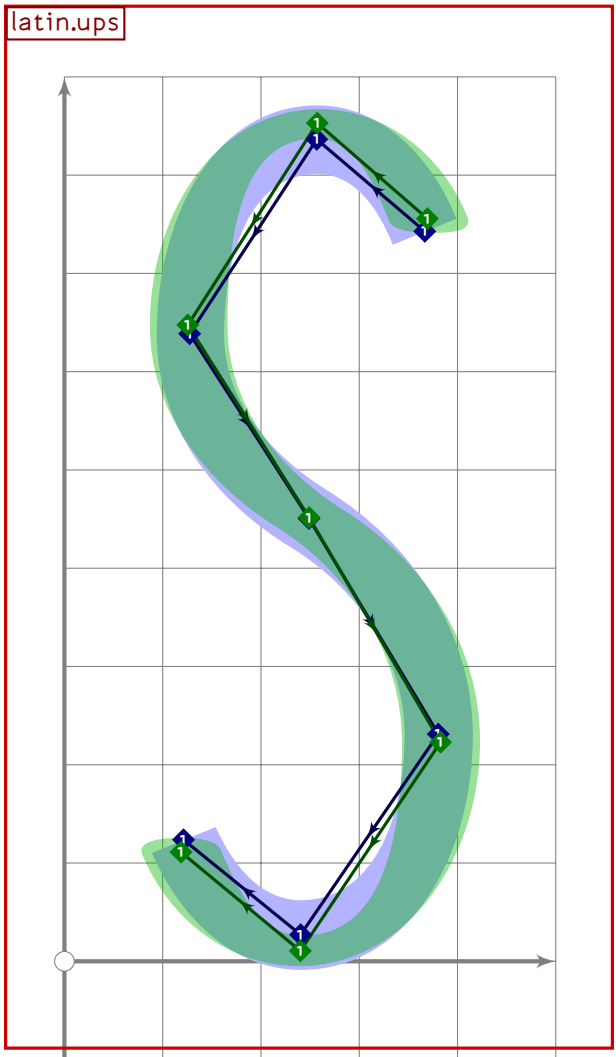
```



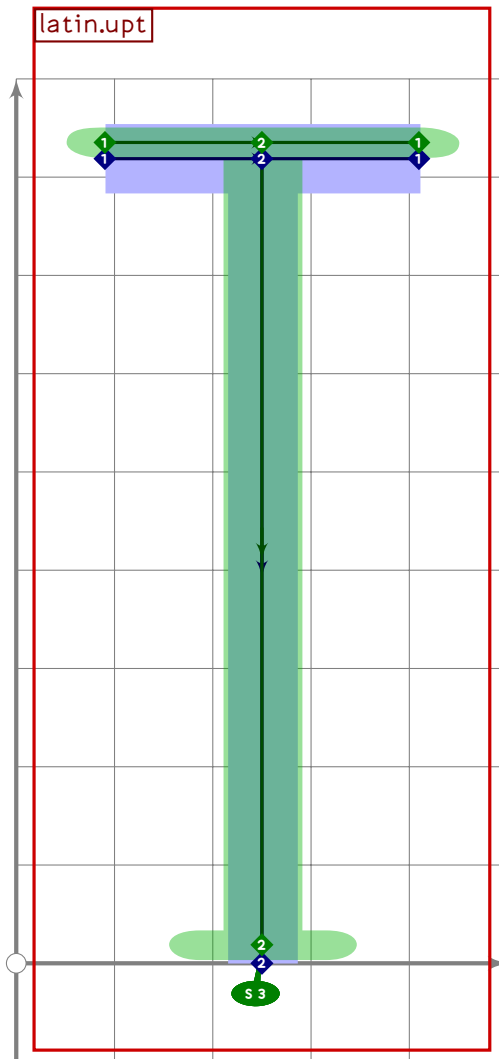
```

454 % R
455 begint Suglyph("R";82);
456 latin.upr;
457 tsu_render;
458 endsuglyph;
459

```



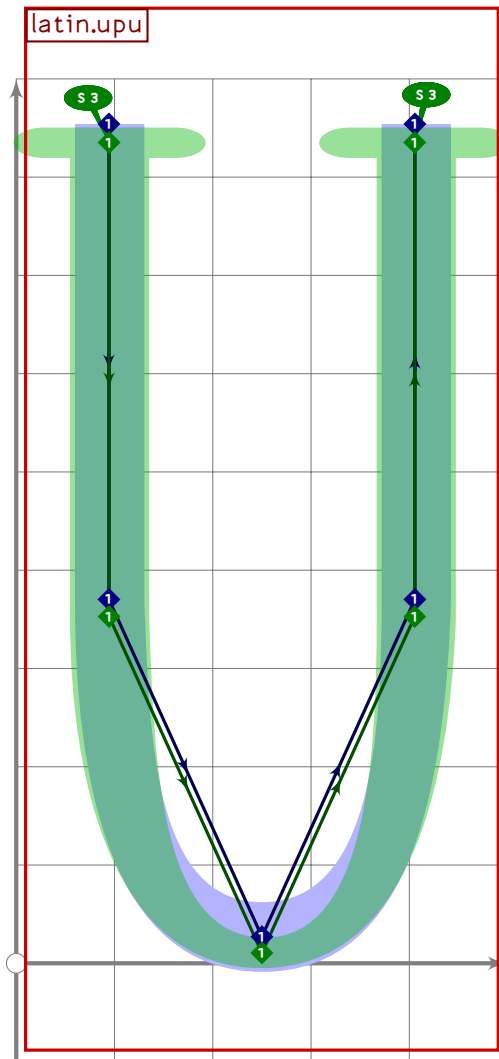
```
460 % S
461 begint Suglyph("S",83);
462 latin.ups;
463 tsu_render;
464 endsuglyph;
465
```



```

466 % T
467 begintsuglyph("T";84);
468 latin.upt;
469 tsu_render;
470 endtsuglyph;
471

```

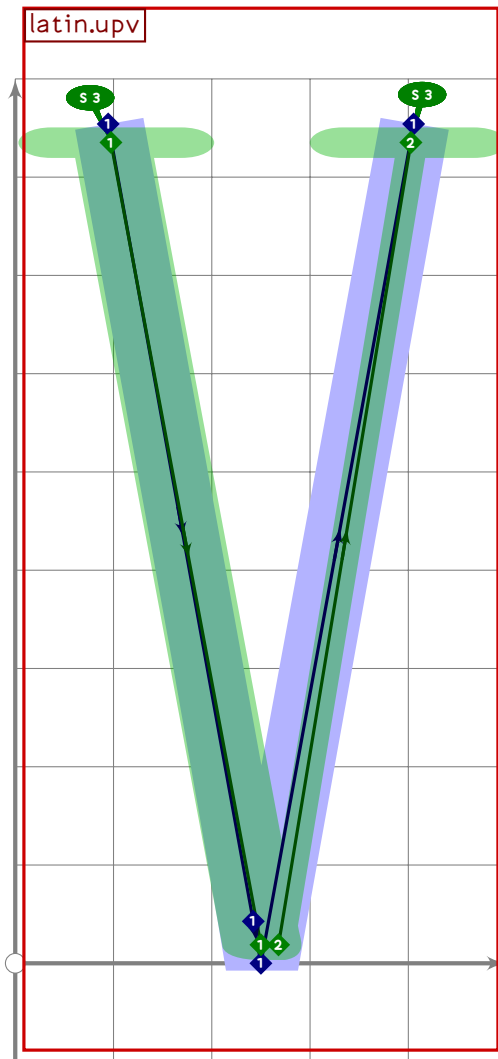


```

472 % U
473 \beginttsuglyph("U";85);
474   latin.upu;
475   tsu_render;
476 \endtsuglyph;
477

```

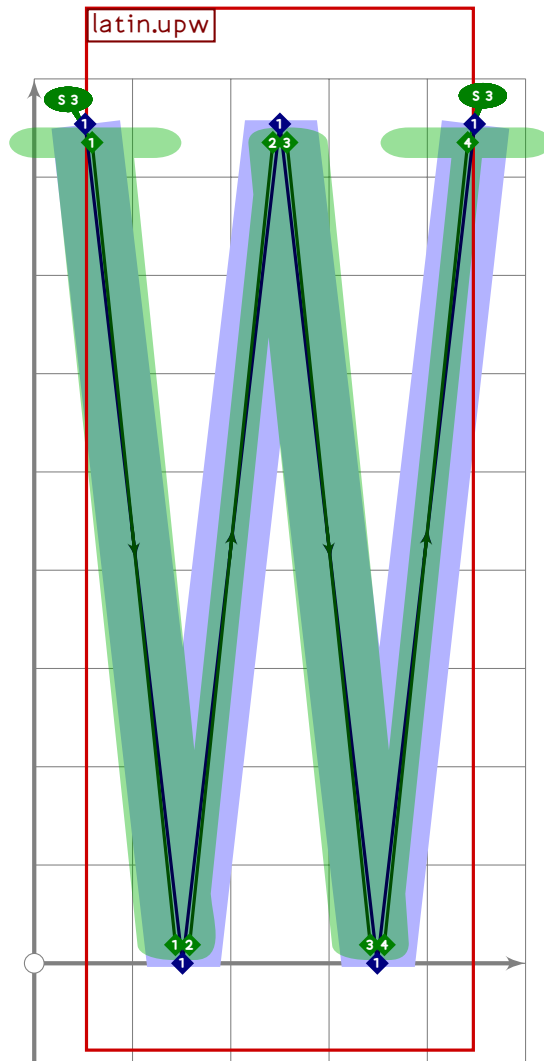




```

478 % V
479 begint Suglyph("V";86);
480 latin.upv;
481 tsu_render;
482 endtsuglyph;
483

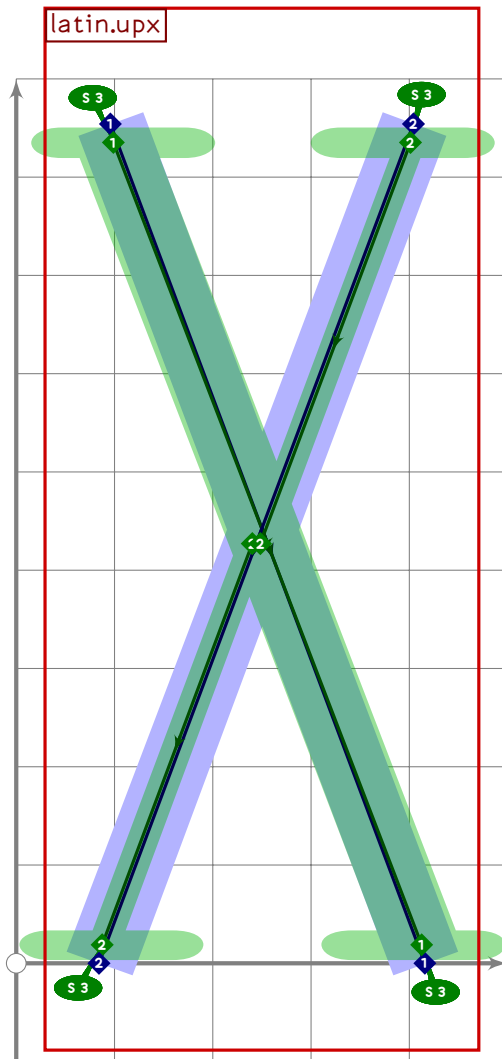
```



```

484 % W
485 begint Suglyph("W";87);
486 latin.upw;
487 tsu_render;
488 endsuglyph;
489

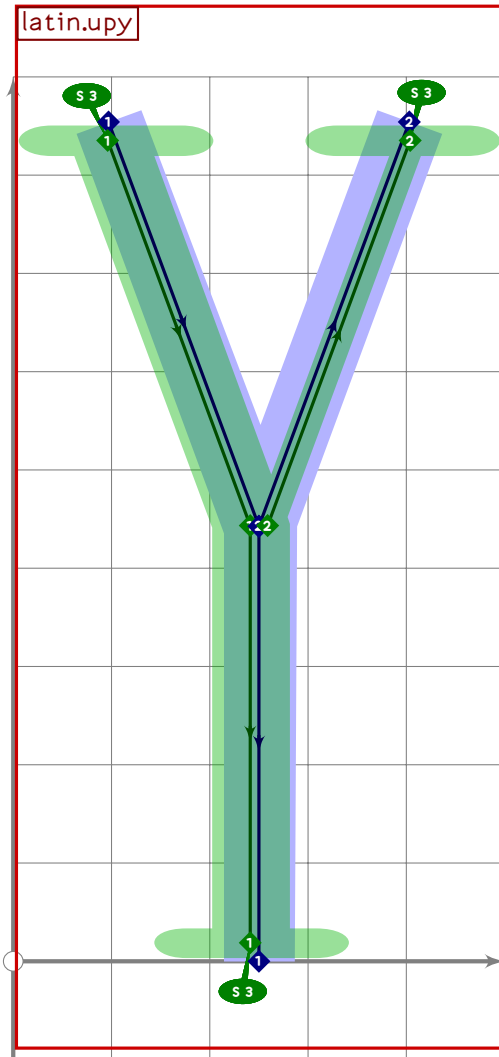
```



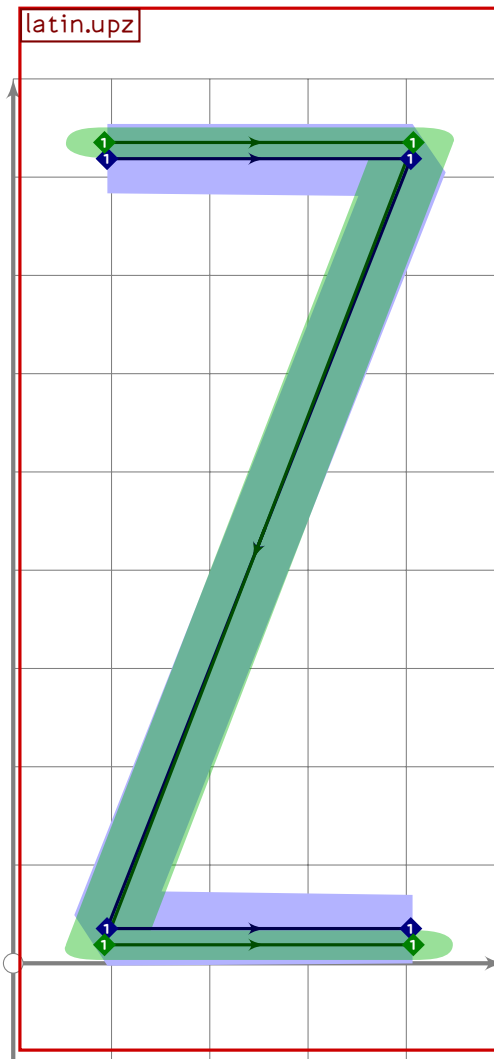
```

490 % X
491 begint Suglyph("X";88);
492 latin.upx;
493 tsu_render;
494 endtsuglyph;
495

```



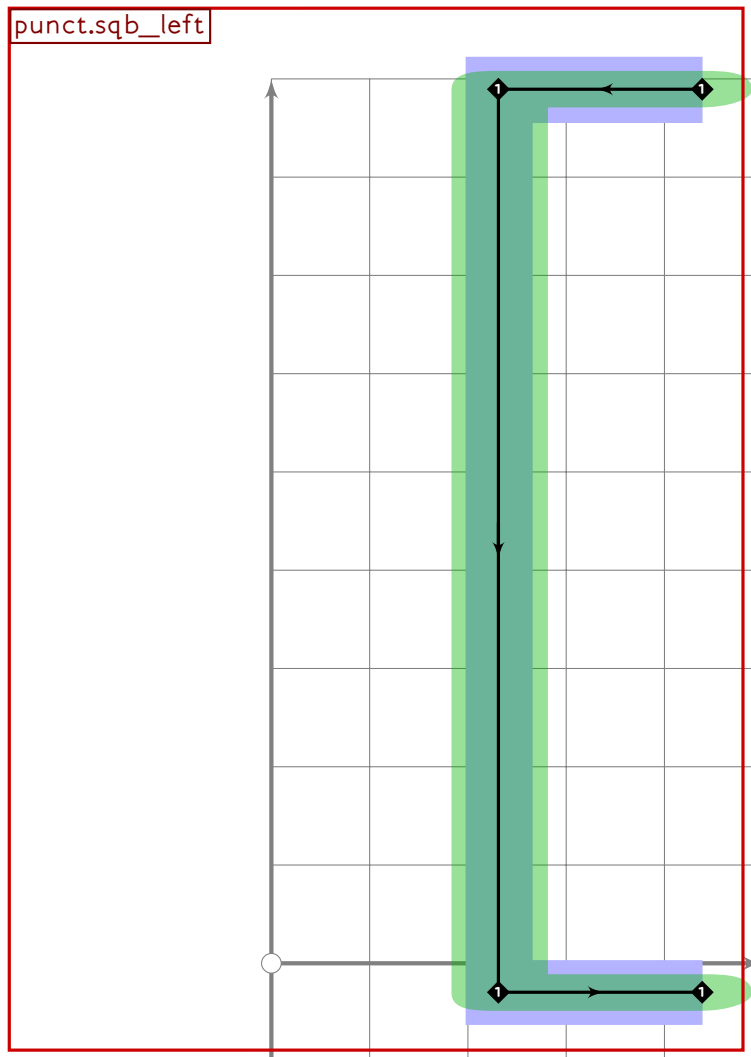
```
496 % Y
497 begintsuglyph("Y";89);
498 latin.upy;
499 tsu_render;
500 endtsuglyph;
501
```



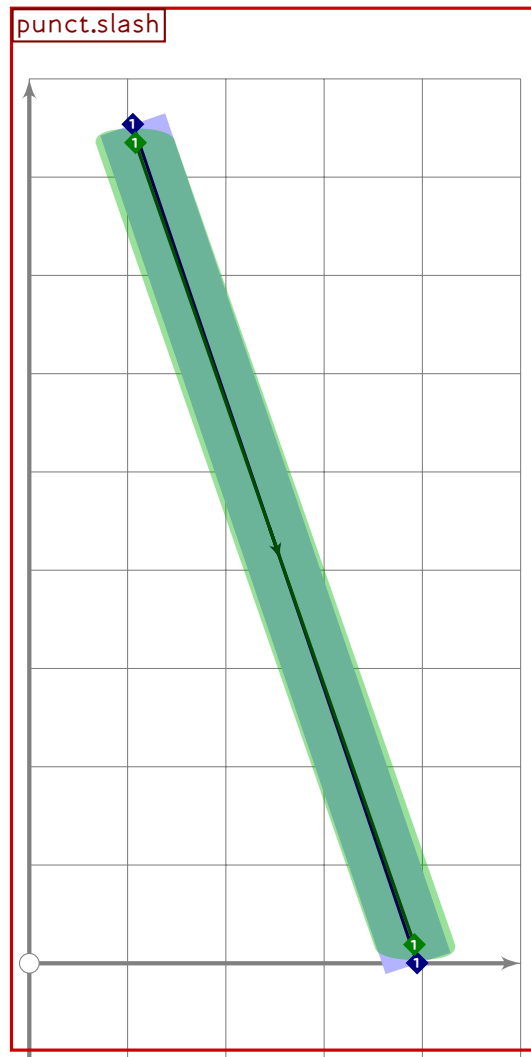
```

502 % Z
503 begint Suglyph("Z";90);
504 latin.upz;
505 tsu_render;
506 endtsuglyph;
507
508 tsu_default_anchor(anc_upper_accent,0);
509 tsu_default_anchor(anc_lower_accent,0);
510 tsu_default_anchor(anc_centre_accent,0);
511 tsu_default_anchor(anc_upper_left,0);
512 tsu_default_anchor(anc_upper_right,0);
513 tsu_default_anchor(anc_upper_ring,0);
514 tsu_default_anchor(anc_caron_comma,0);
515

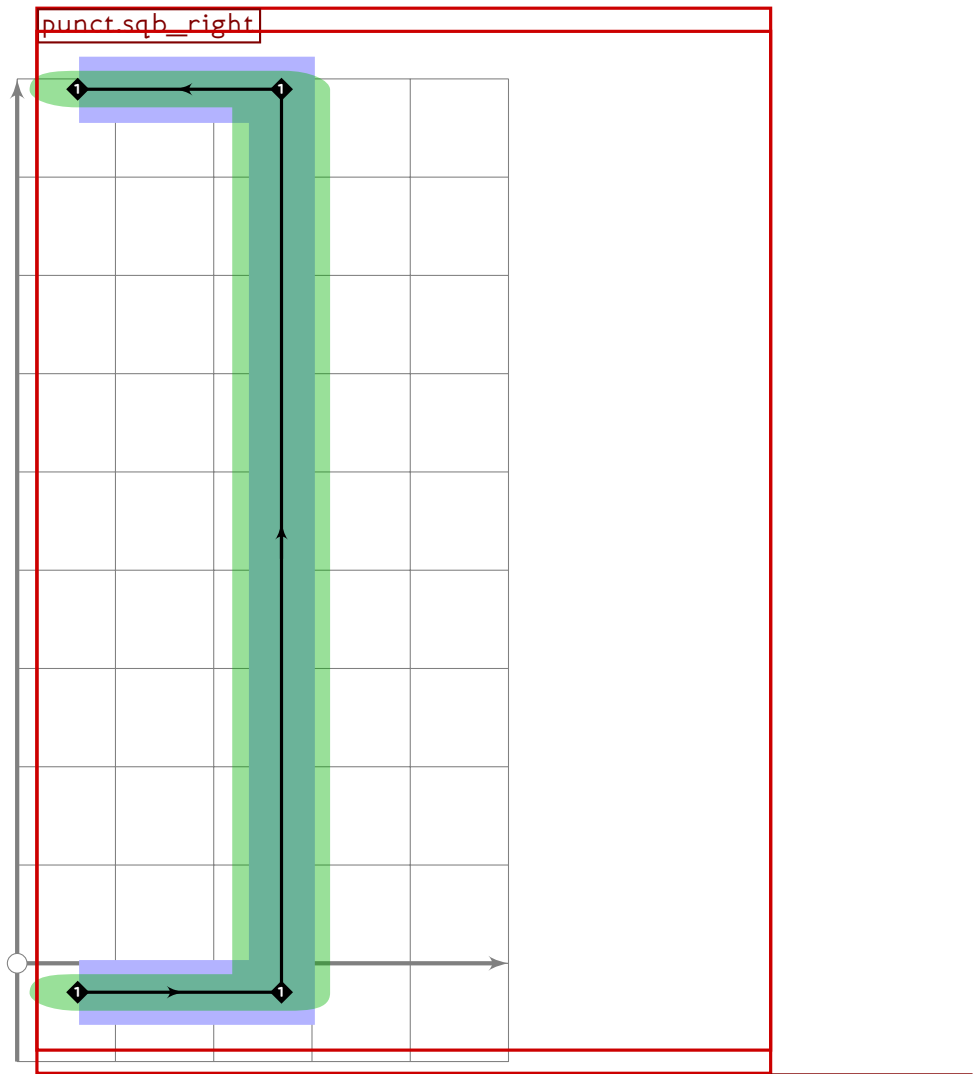
```



```
516 % left and right square brackets, backslash between
517 begintsuglyph("bracketleft";91);
518 punct.sqb_left;
519 tsu_render;
520 endtsuglyph;
```



```
521 % backslash
522 begintuglyph("backslash",92);
523 punct.slash;
524 replace_strokep(0)(oldp reflectedabout (centre_pt,(centre_pt+down)));
525 tsu_render;
526 endtuglyph;
```



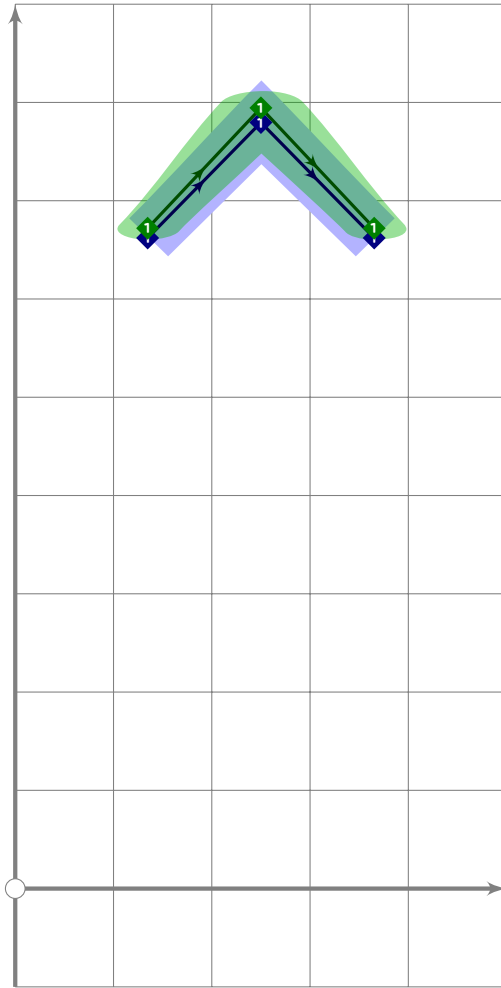
```

527 begintuglyph("bracketright";93);
528   punct.sqb_right;
529   tsu_render;
530   endtuglyph;
531

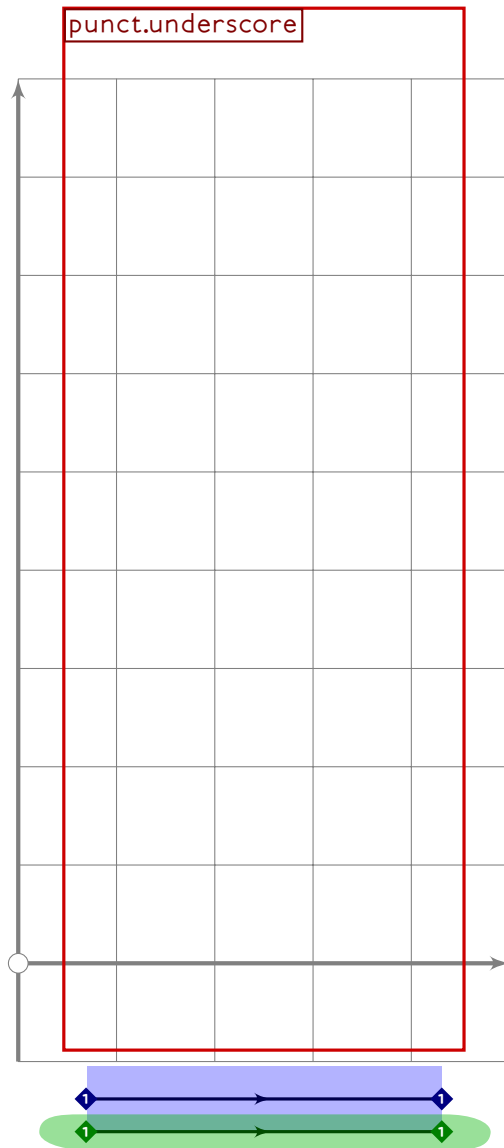
```

punct.sqb\_left





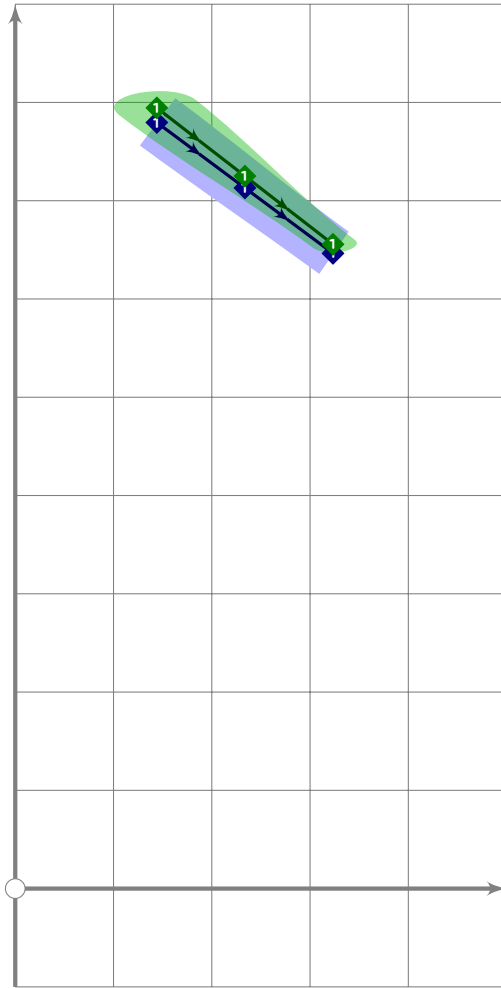
```
532 % circumflex accent/caret
533 begintsuglyph("asciicircum",94);
534 tsu_accent.circumflex;
535 tsu_render;
536 endtsuglyph;
537
```



```

538 % underscore
539 begintsuglyph("underscore";95);
540 punct.underscore;
541 tsu_render;
542 endtsuglyph;
543

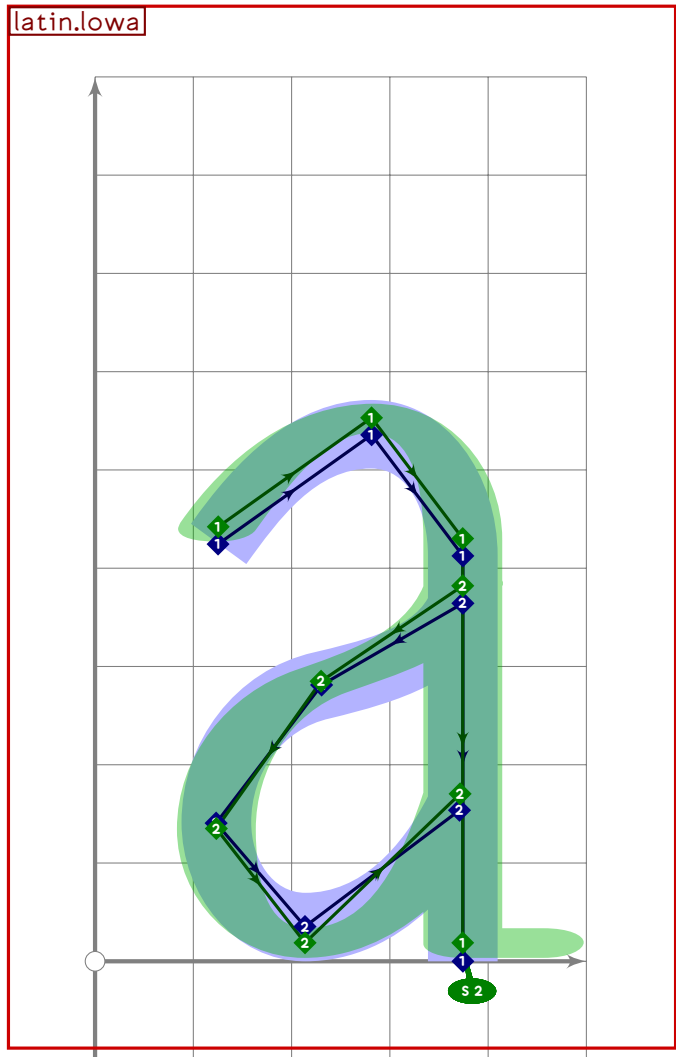
```



```

544 % grave accent
545 begint Suglyph("grave",96);
546   tsu_accent,grave;
547   tsu_render;
548 endtsuglyph;
549
550 % WARNING changing rescale setting
551 tsu_rescale_half_lc;
552
553 tsu_default_anchor(anc_upper_accent,accent_default[anc_upper_accent]);
554 tsu_default_anchor(anc_lower_accent,accent_default[anc_lower_accent]);
555 tsu_default_anchor(anc_centre_accent,tsu_xf.low_centre_accent);
556 tsu_default_anchor(anc_upper_left,accent_default[anc_upper_accent]);
557 tsu_default_anchor(anc_upper_right,accent_default[anc_upper_accent]);
558 tsu_default_anchor(anc_upper_ring,accent_default[anc_upper_accent]);
559 tsu_default_anchor(anc_caron_comma,accent_default[anc_caron_comma]);
560

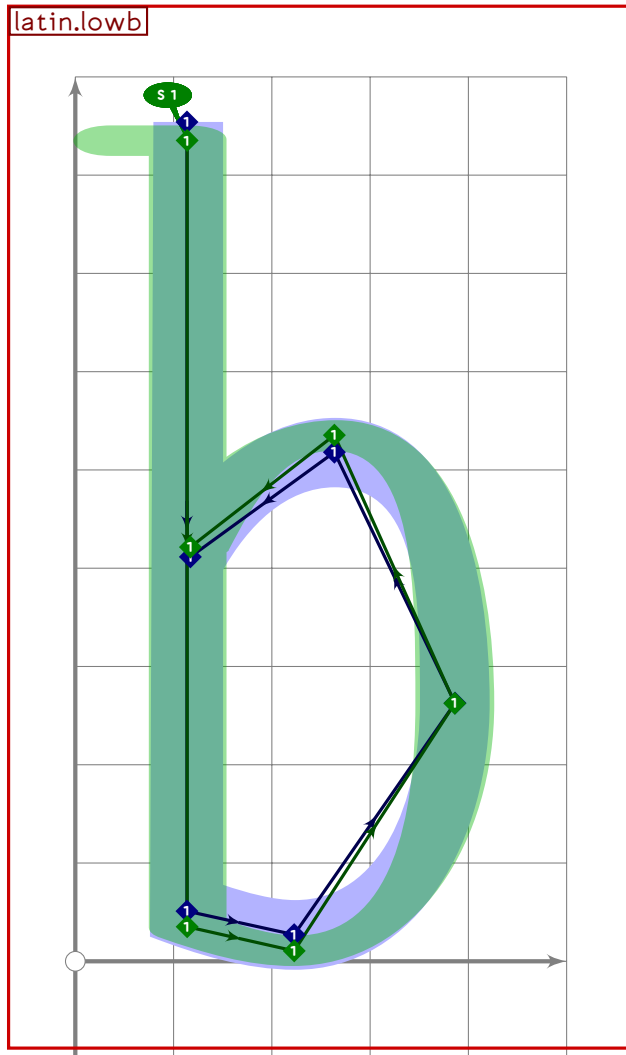
```



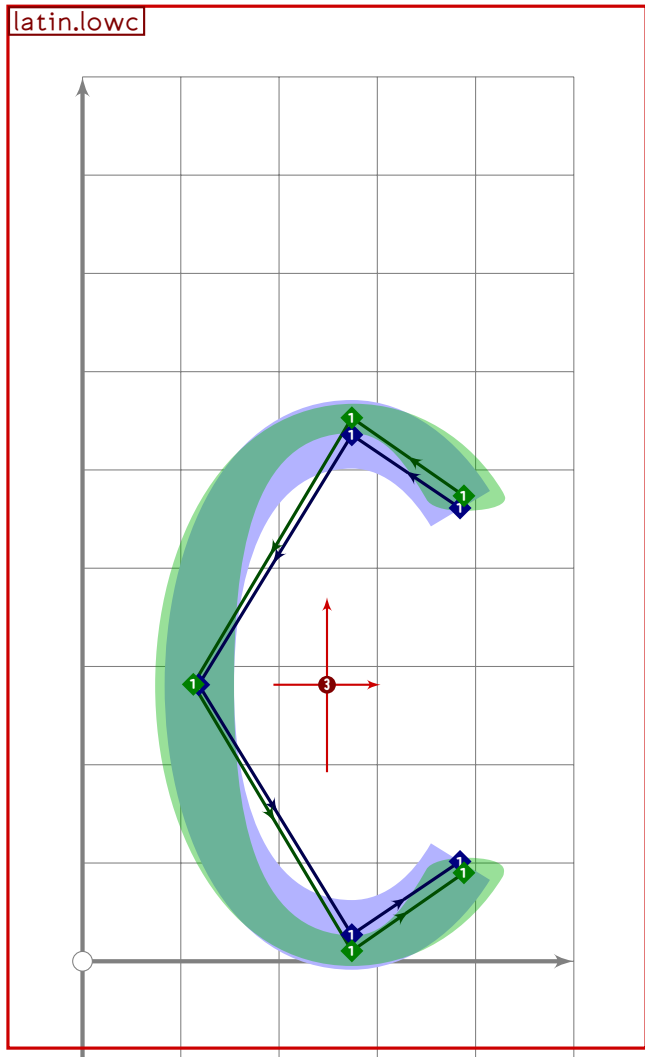
```

561 % a
562 begintsuglyph("a";97);
563 latin.low;
564 tsu_render;
565 endsuglyph;
566

```



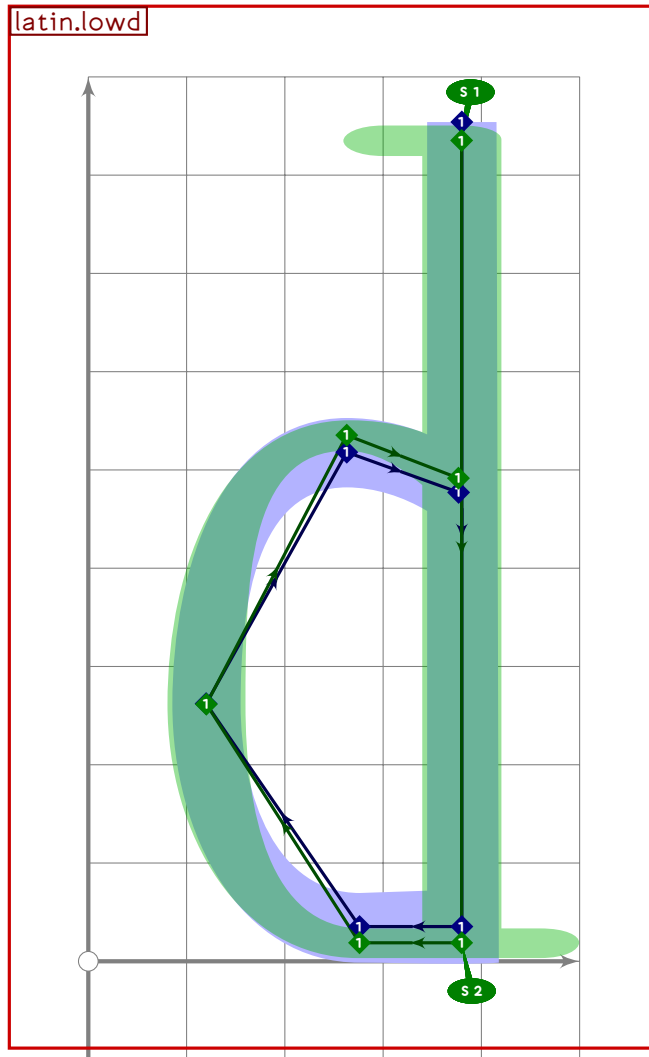
```
567 % b  
568 begint Suglyph("b";98);  
569 latin.lowb;  
570 tsu_render;  
571 endtsuglyph;  
572
```



```

573 % c
574 beginsuglyph("c";99);
575 latin.lowc;
576 tsu_render;
577 endsuglyph;
578

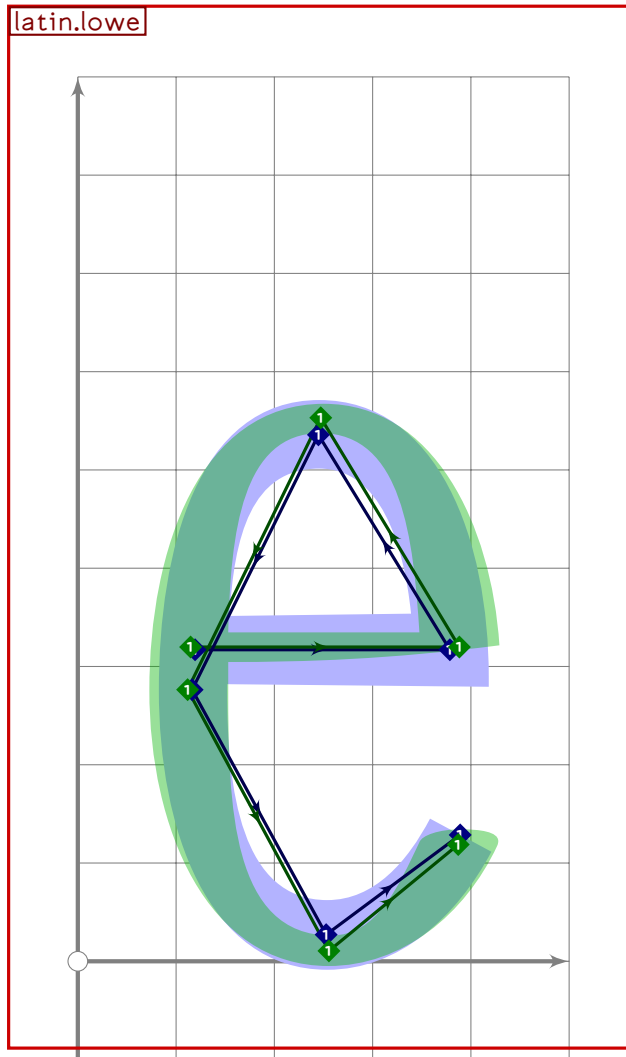
```



```

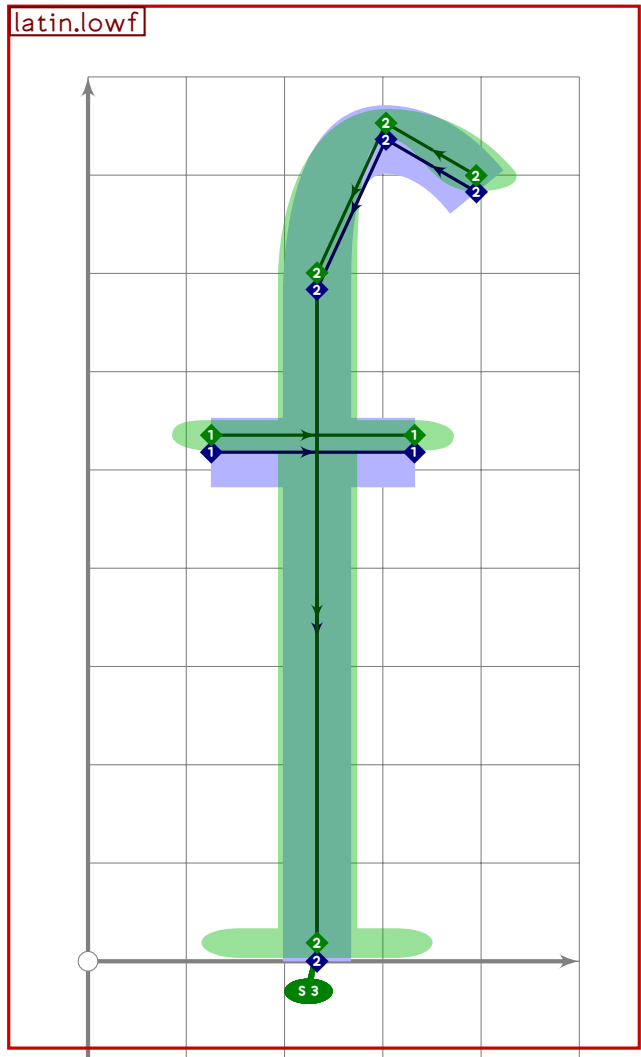
579 % d
580 begintsuglyph("d",100);
581 latin.lowd;
582 tsu_render;
583 endtsuglyph;
584

```



```
585 % e
586 begintuglyph("e",101);
587 latin.lower;
588 tsu_render;
589 endtuglyph;
590
```

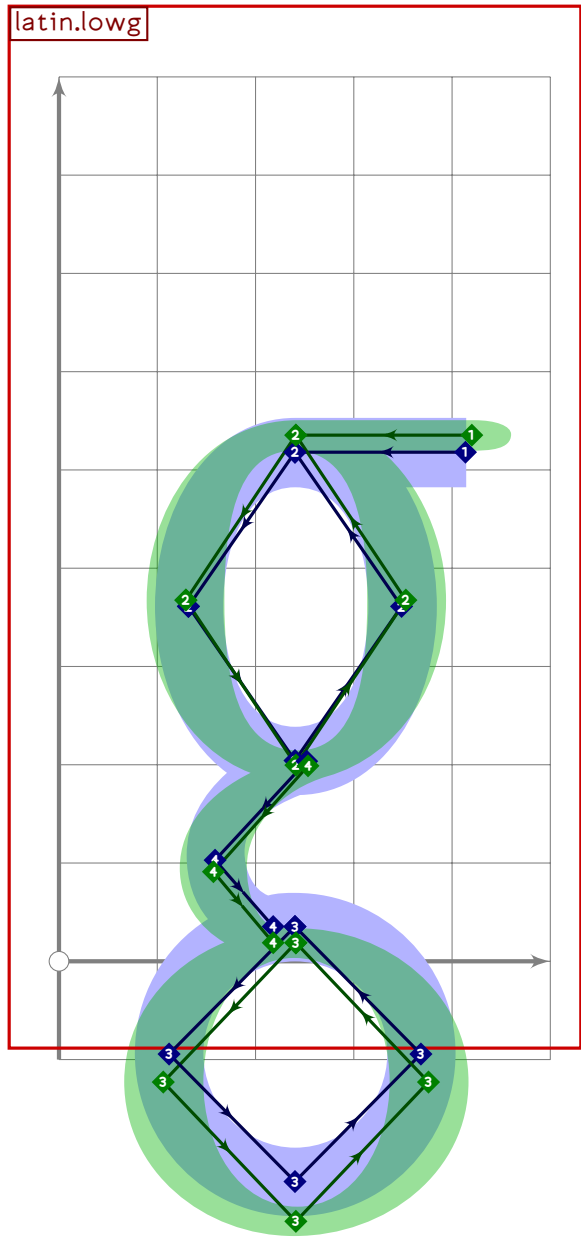




```

591 % f
592 beginsuglyph("f",102);
593 latin.lowf;
594 tsu_render;
595 endsuglyph;
596

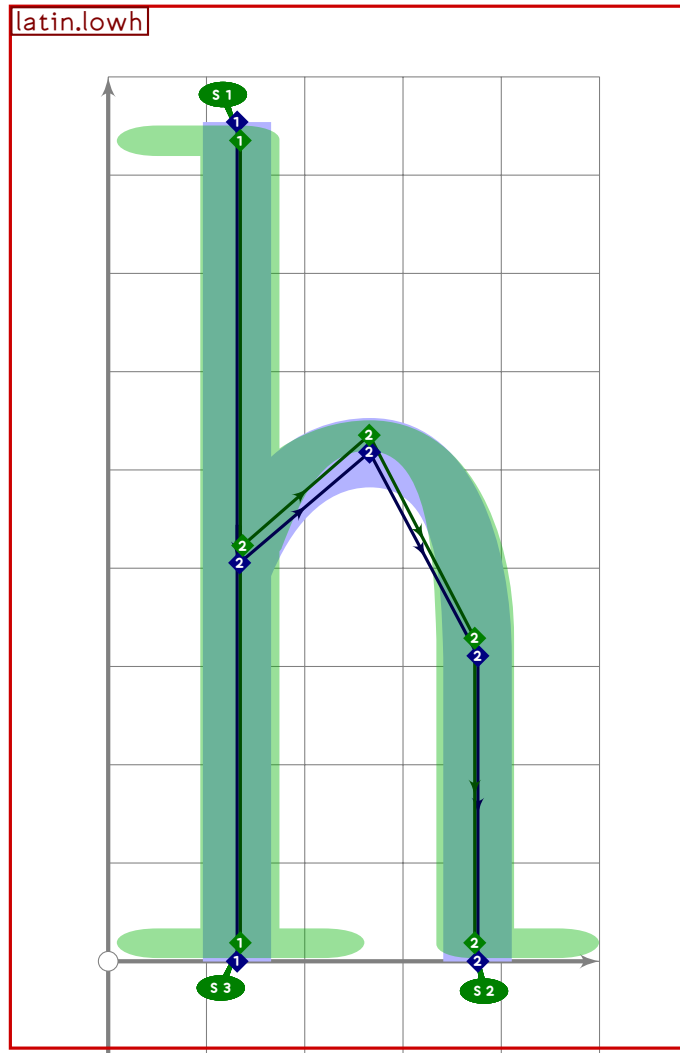
```



```

597 % g
598 begintuglyph("g",103);
599 latin.lowg;
600 tsu_render;
601 endtuglyph;
602

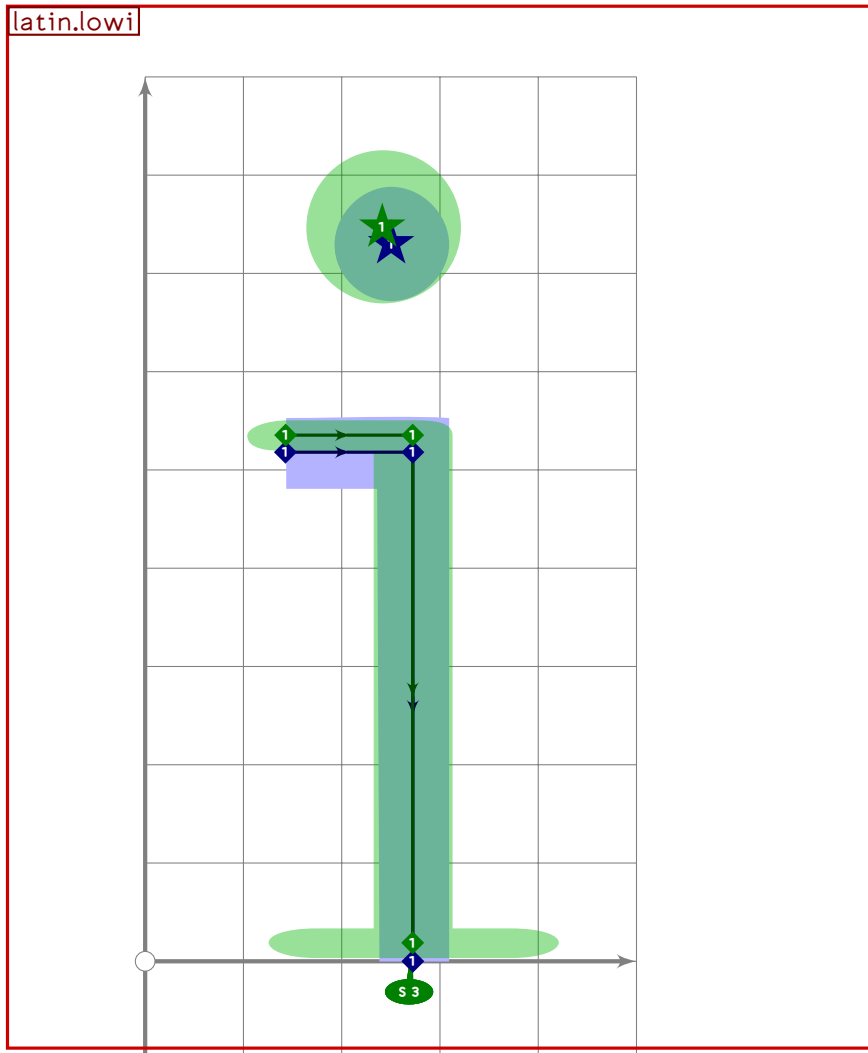
```



```

603 % h
604 begint Suglyph("h",104);
605 latin.lowh;
606 tsu_render;
607 endtsuglyph;
608

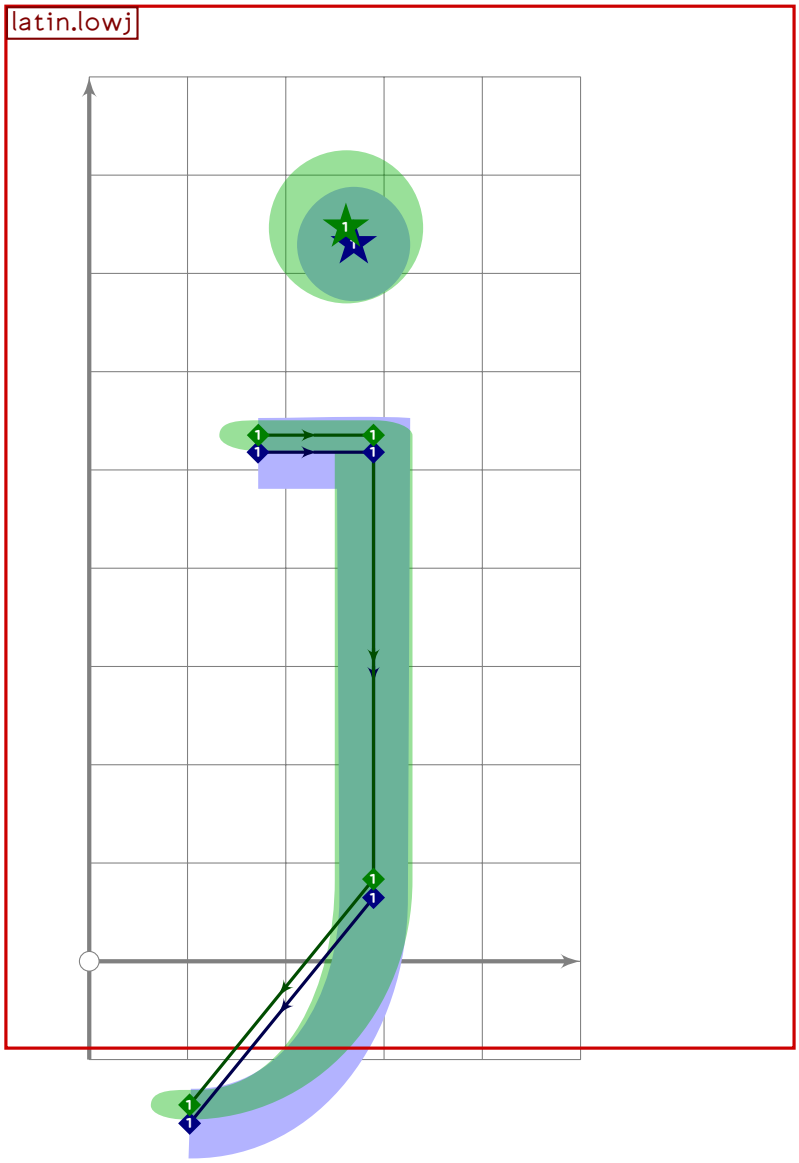
```



```

609 % i
610 begint Suglyph("i",105);
611 latin.lowi;
612 tsu_render;
613 endtsuglyph;
614

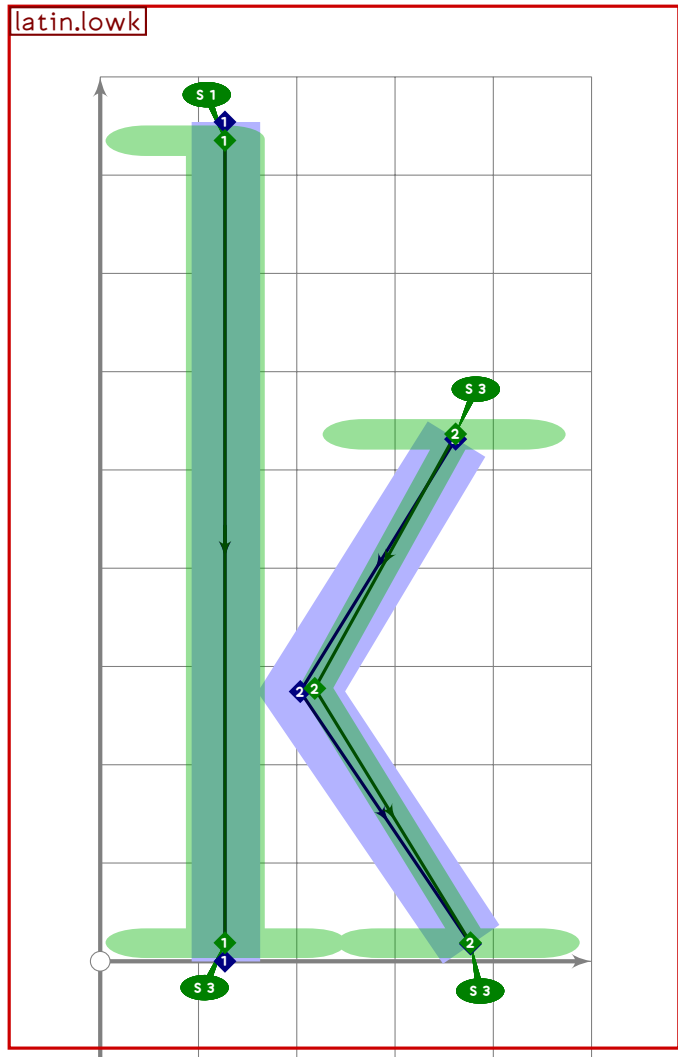
```



```

615 % j
616 begintsuglyph("j",106);
617 latin.lowj;
618 tsu_render;
619 endtsuglyph;
620

```

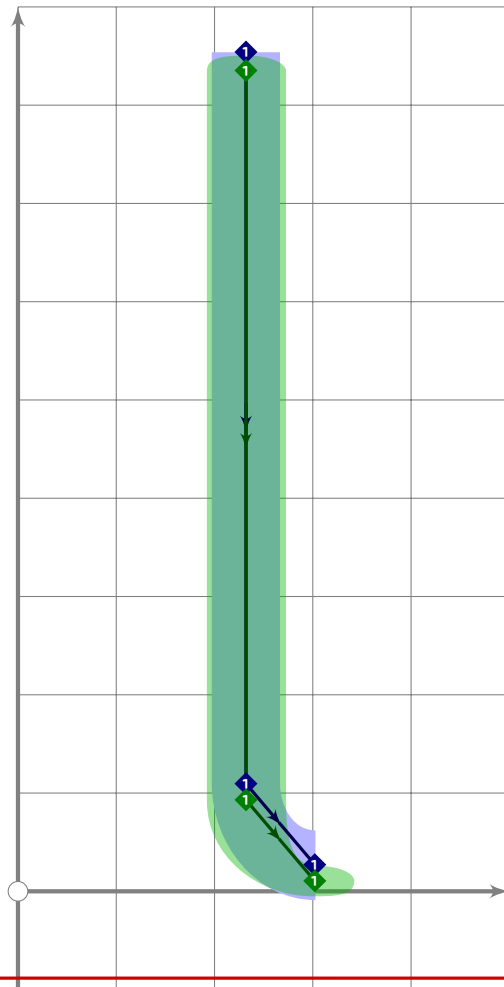


```

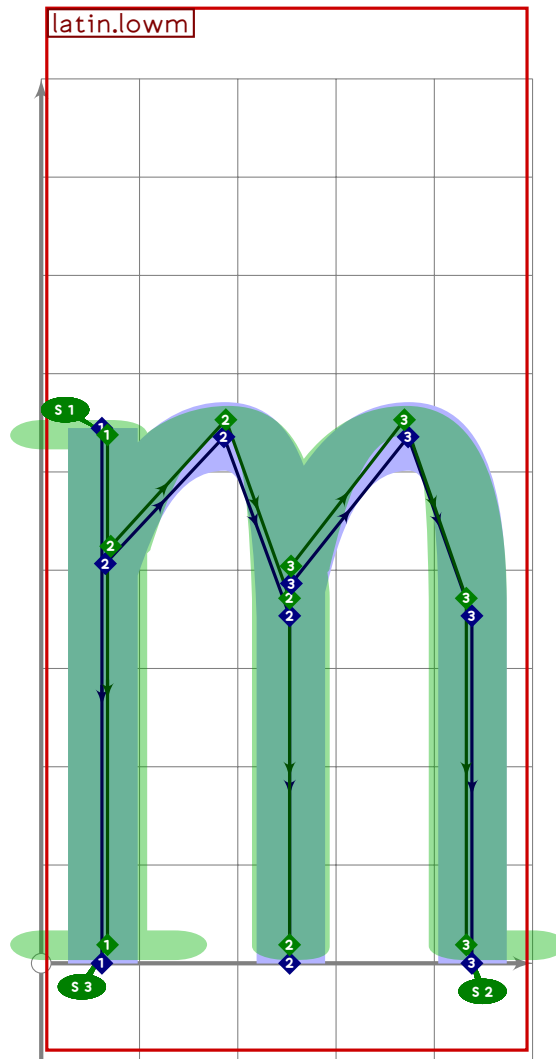
621 % k
622 beginsuglyph("k",107);
623 latin.lowk;
624 tsu_render;
625 endsuglyph;
626

```

latin.lowl



```
627 % l  
628 begint Suglyph("l";108);  
629 latin.lowl;  
630 tsu_render;  
631 endtsuglyph;  
632
```



```

633 % m
634 begint Suglyph("m";109);
635 latin.lowm;
636 tsu_render;
637 endtsuglyph;
638

```

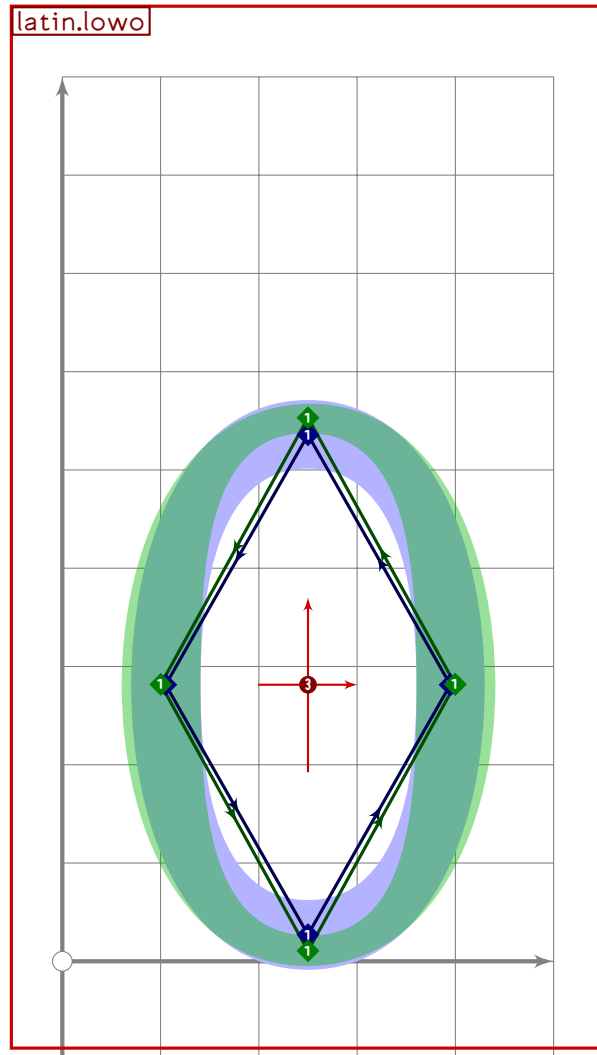




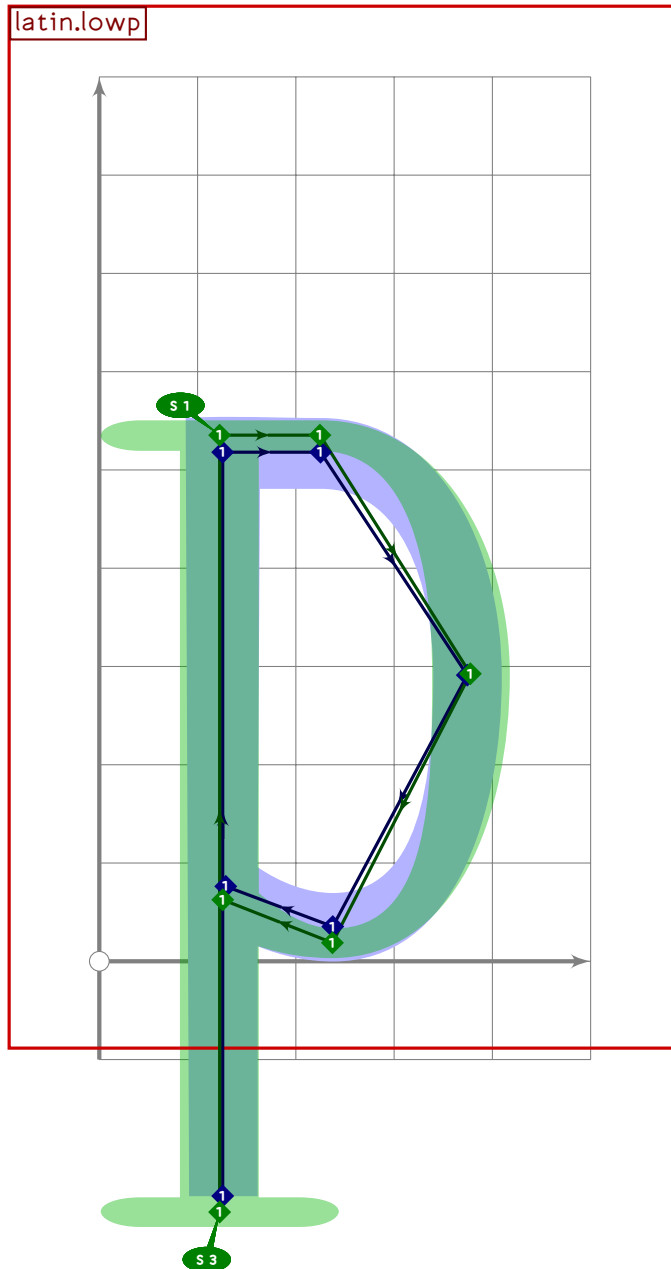
```

639 % n
640 begint Suglyph("n",110);
641 latin.lown;
642 tsu_render;
643 endtsuglyph;
644

```



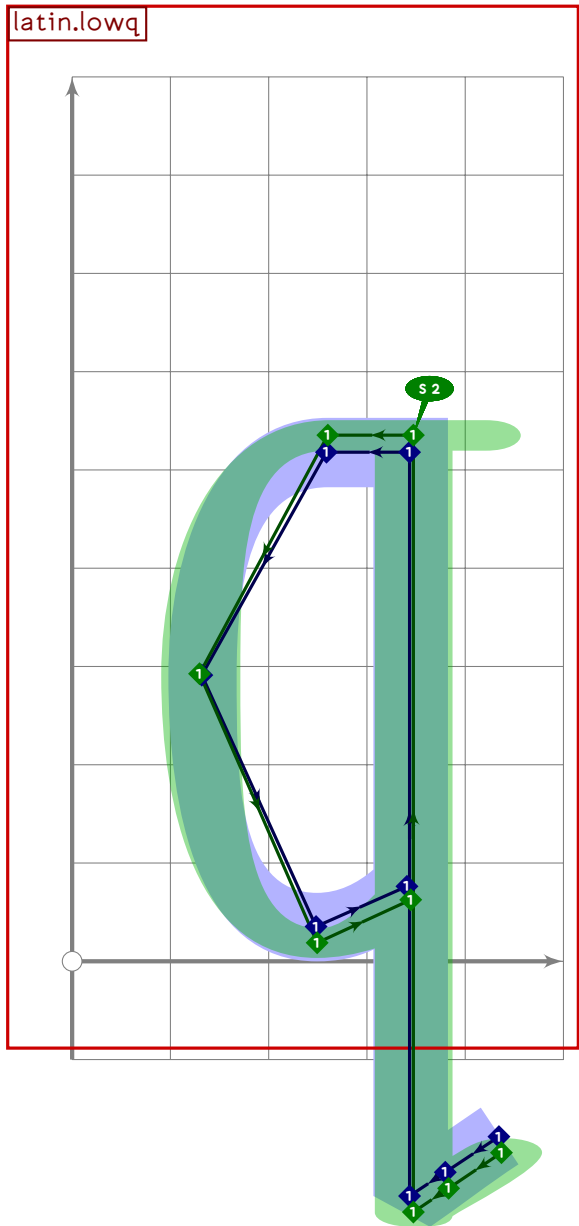
```
645 % o
646 begint Suglyph("o",111);
647 latin.lowo;
648 tsu_render;
649 endsuglyph;
650
```



```

651 % p
652 begint Suglyph("p",112);
653 latin.lowp;
654 tsu_render;
655 endtsuglyph;
656

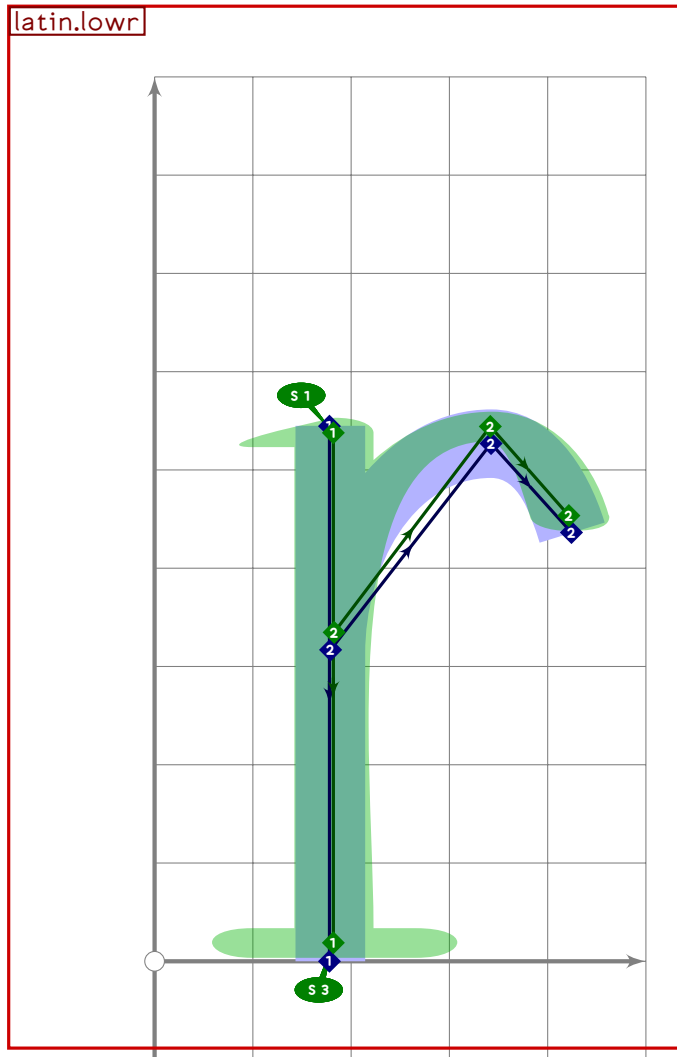
```



```

657 % q
658 begintuglyph("q",113);
659   latin.lowq;
660   tsu_render;
661 endtsuglyph;
662

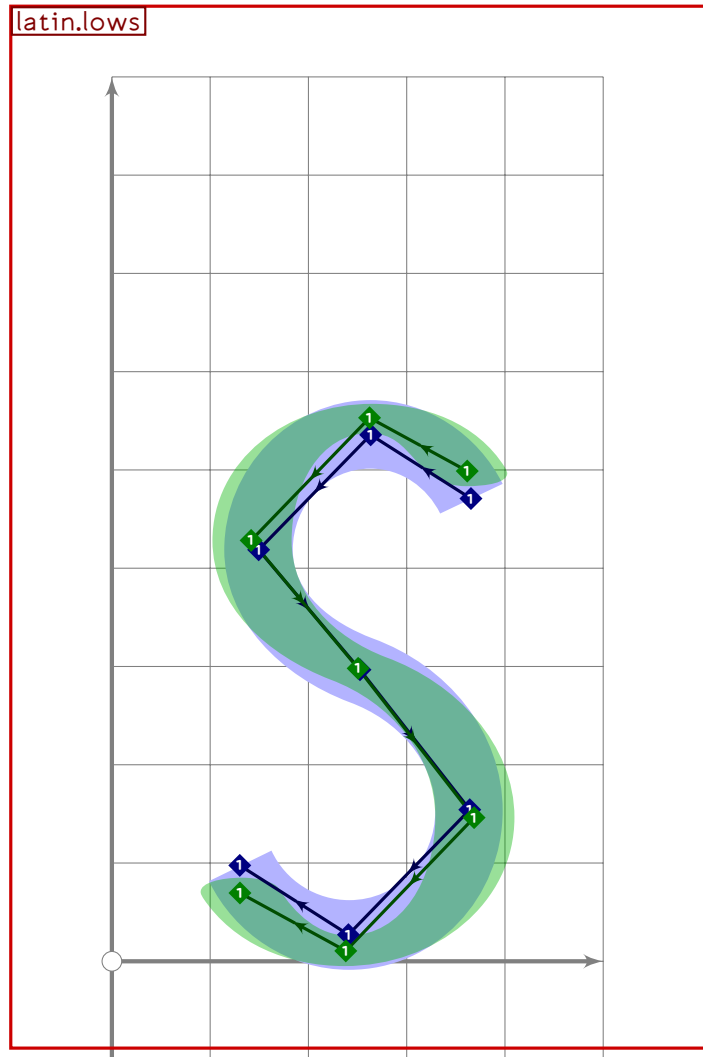
```



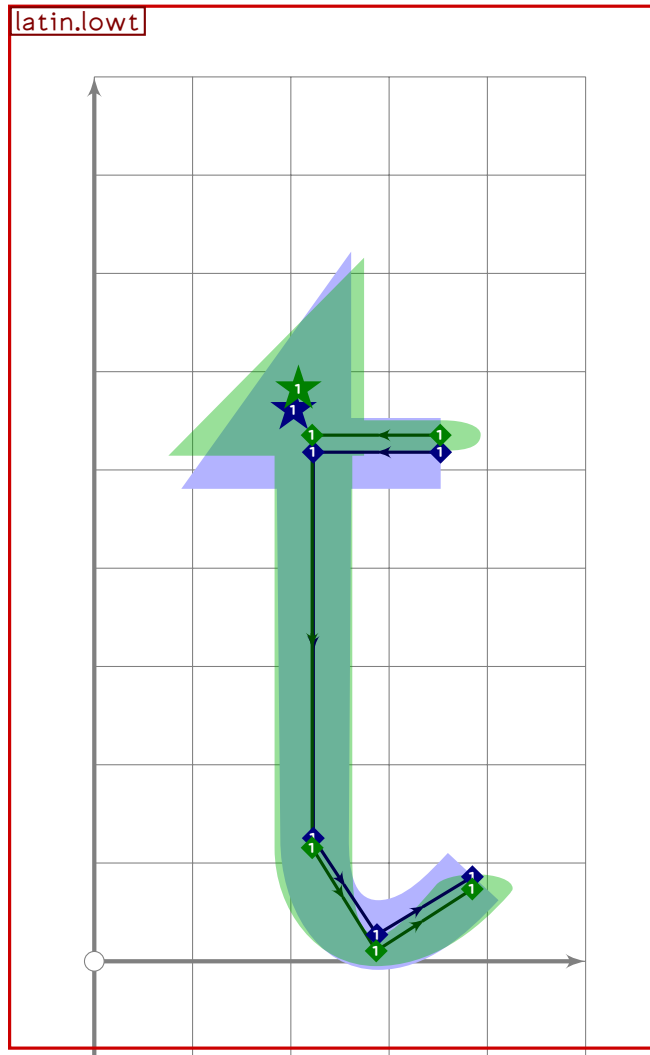
```

663 % r
664 begint Suglyph("r",114);
665 latin.lower;
666 tsu_render;
667 endtsuglyph;
668

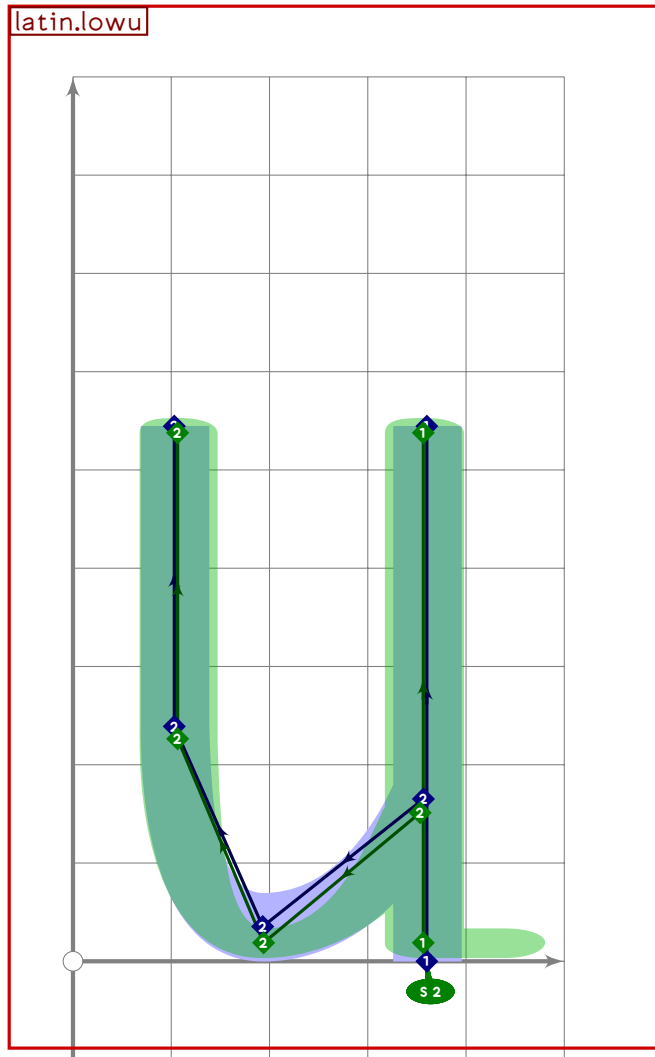
```



```
669 % s  
670 begint Suglyph("s";115);  
671 latin.lows;  
672 tsu_render;  
673 endtsuglyph;  
674
```



```
675 % t
676 beginsuglyph("t",116);
677 latin.lowt;
678 tsu_render;
679 endsuglyph;
680
```

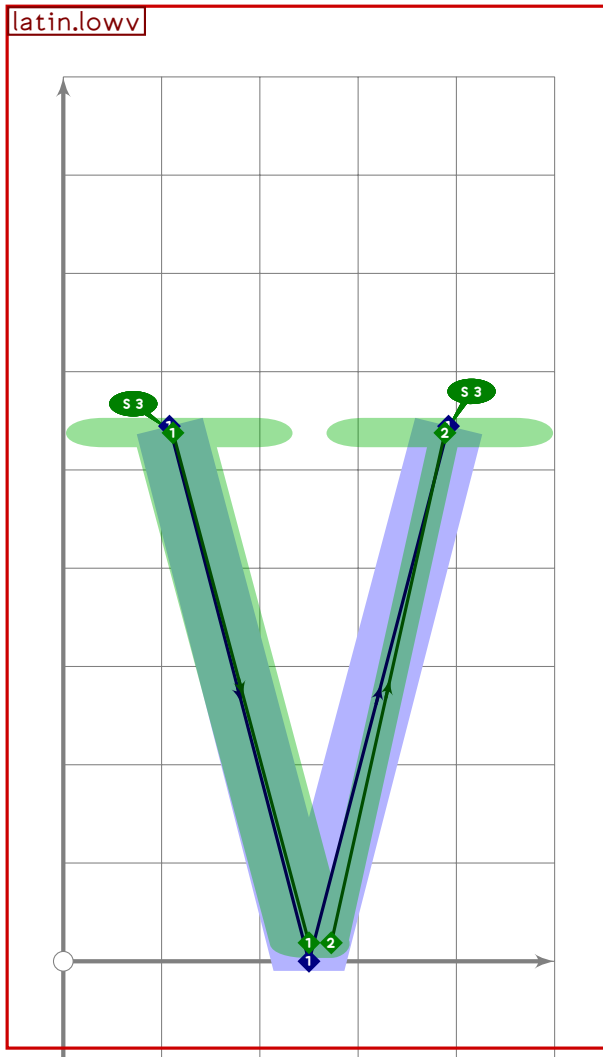


```

681 % u
682 begint Suglyph("u",17);
683 latin.lowu;
684 tsu_render;
685 endsuglyph;
686

```

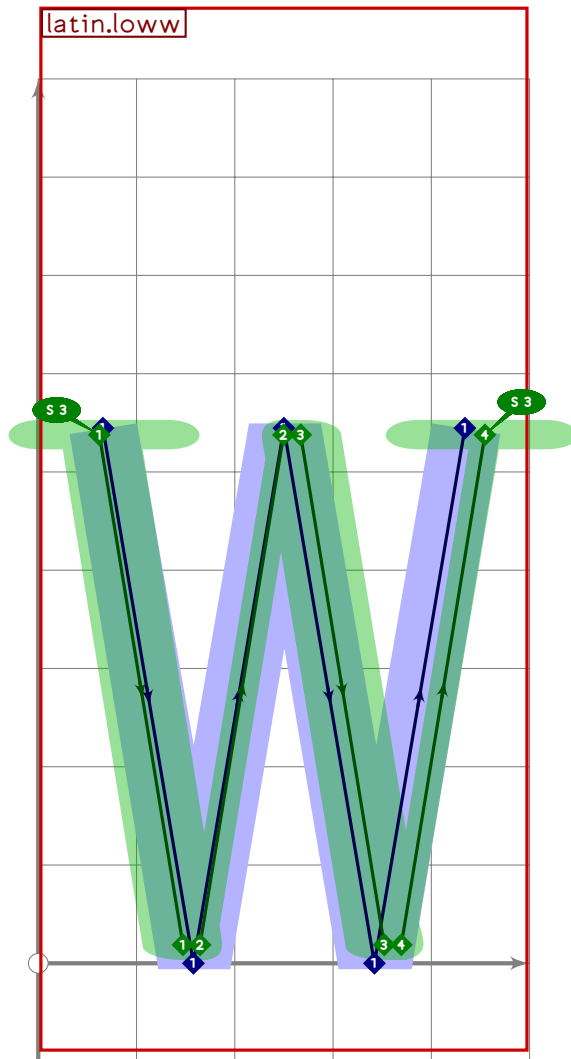




```

687 % v
688 begint Suglyph("v",118);
689 latin.lowv;
690 tsu_render;
691 endtsuglyph;
692

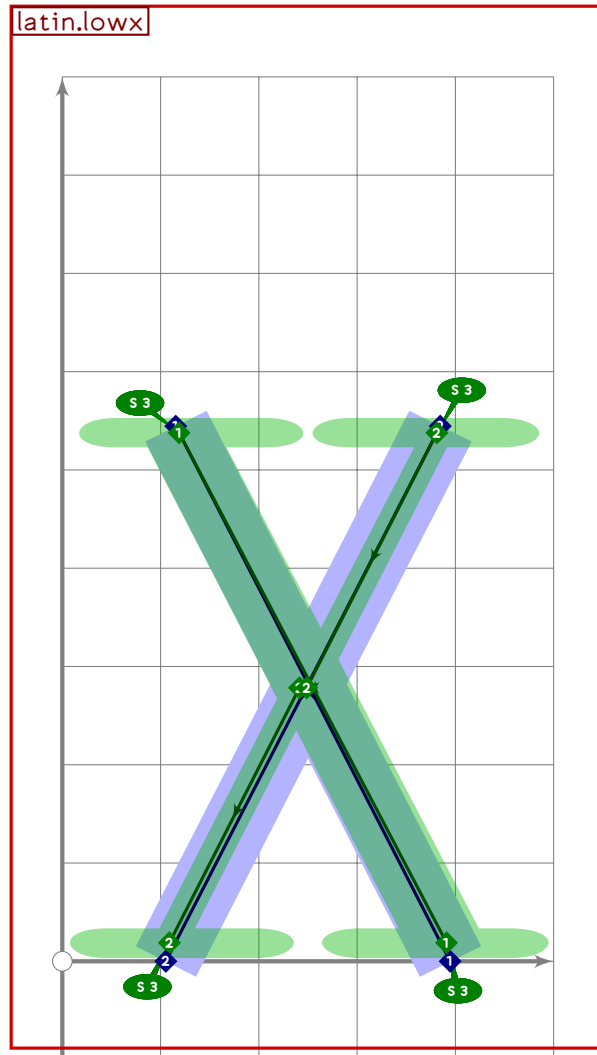
```



```

693 % w
694 begint Suglyph("w",119);
695 latin.loww;
696 tsu_render;
697 endtsuglyph;
698

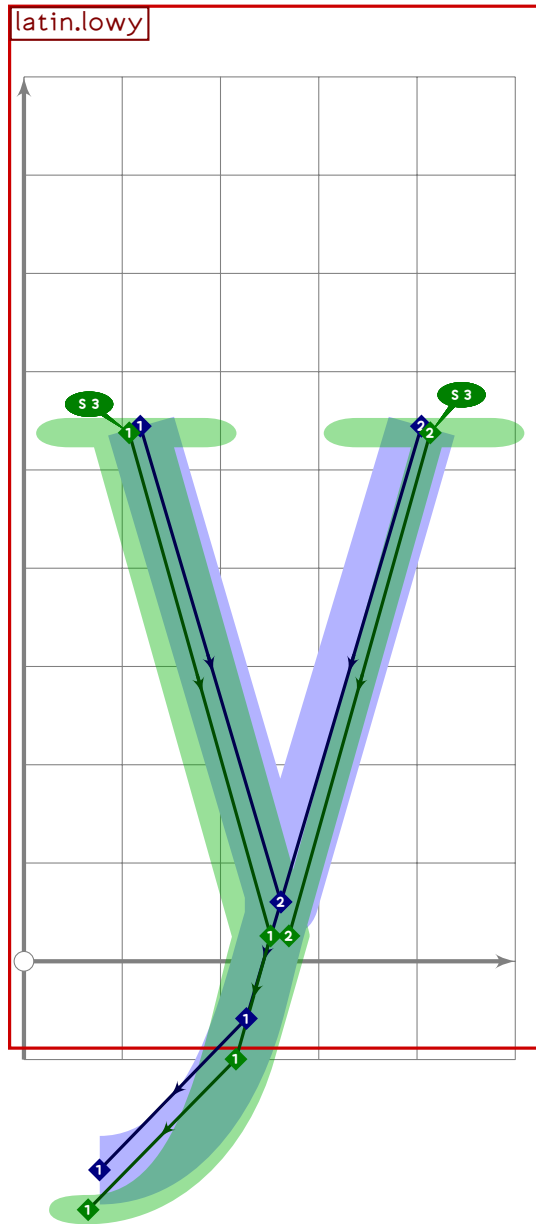
```



```

699 % x
700 begint Suglyph("x",120);
701 latin.lowx;
702 tsu_render;
703 endtsuglyph;
704

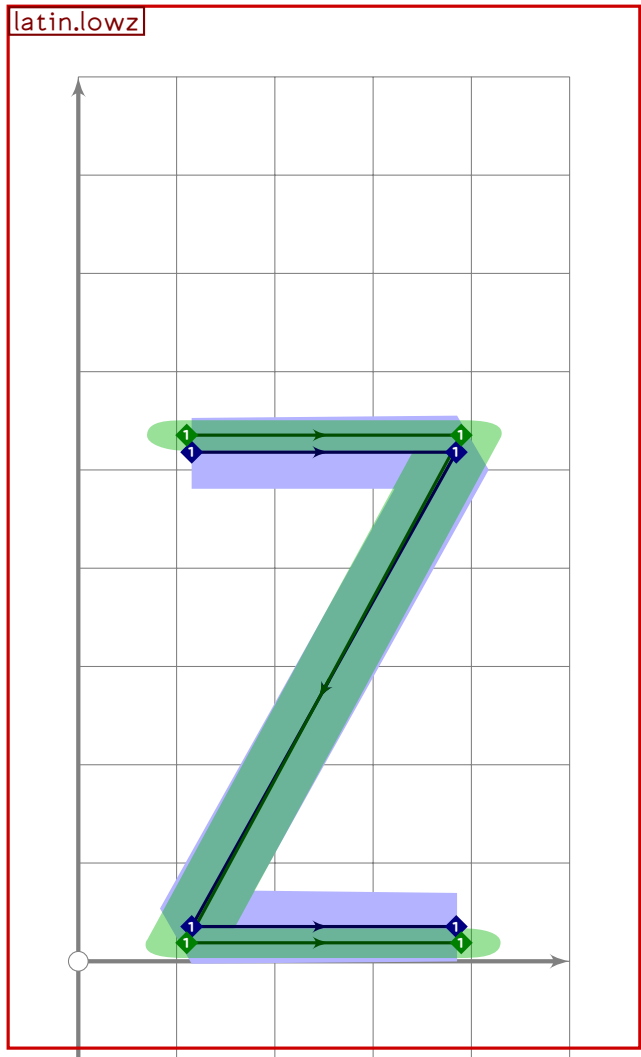
```



```

705 % y
706 begint Suglyph("y";121);
707 latin.lowy;
708 tsu_render;
709 endtsuglyph;
710

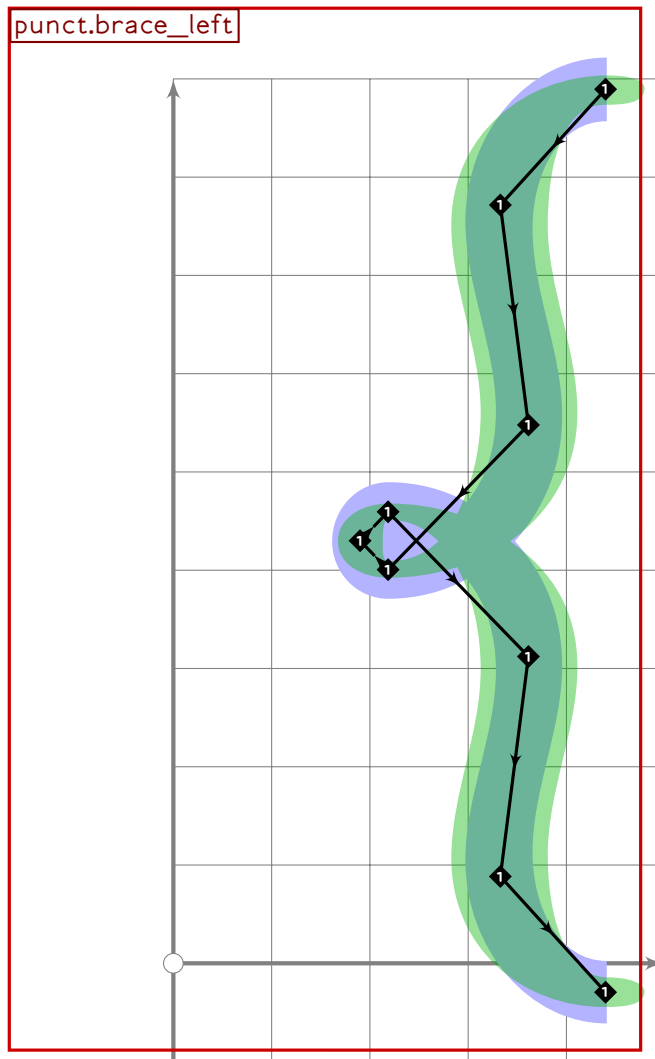
```



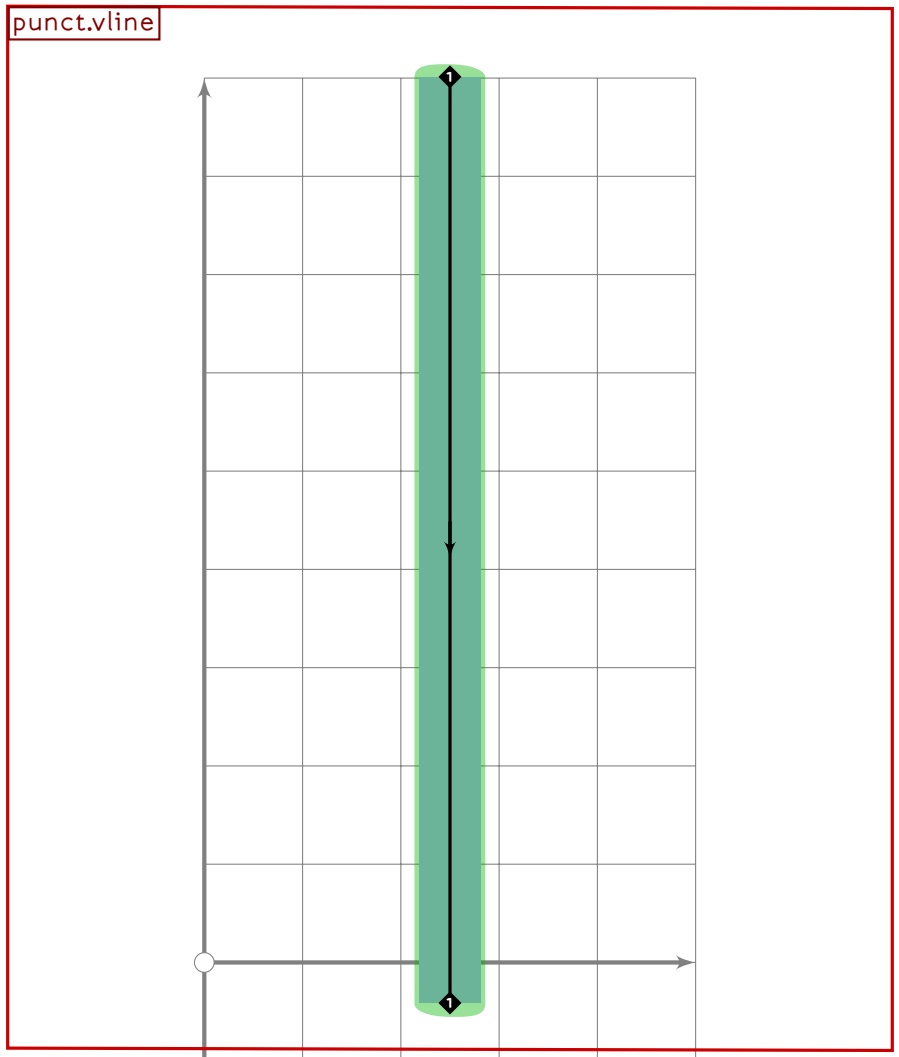
```

711 % z
712 begint Suglyph("z";122);
713   latin.lowz;
714   tsu_render;
715 endtsuglyph;
716
717 tsu_default_anchor(anc_upper_accent,0);
718 tsu_default_anchor(anc_lower_accent,0);
719 tsu_default_anchor(anc_centre_accent,0);
720 tsu_default_anchor(anc_upper_left,0);
721 tsu_default_anchor(anc_upper_right,0);
722 tsu_default_anchor(anc_upper_ring,0);
723 tsu_default_anchor(anc_caron_comma,0);
724
725 % WARNING changing rescale setting
726 tsu_rescale_half;
727

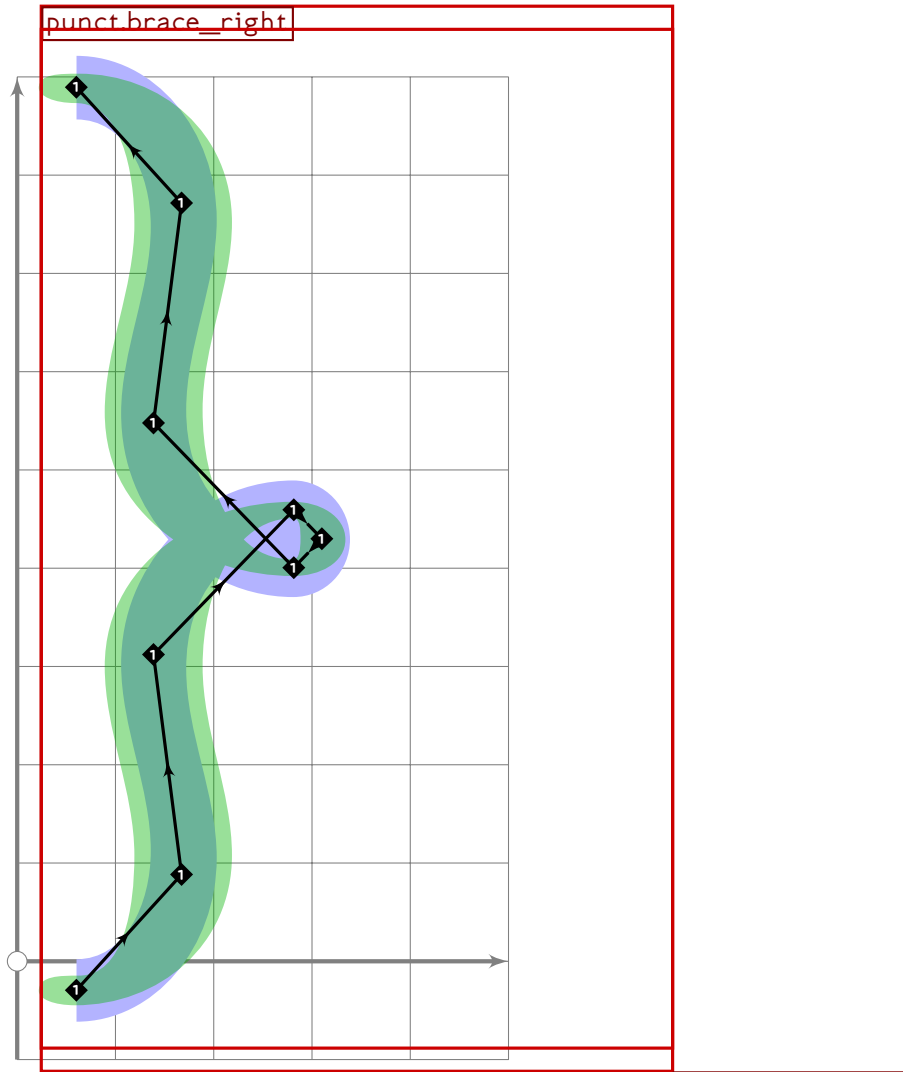
```



```
728 % left and right square brackets
729 begintsuglyph("braceleft";123);
730 punct.brace_left;
731 tsu_render;
732 endsuglyph;
```



```
733 begintsuglyph("bar",124);  
734 punct.vline;  
735 tsu_render;  
736 endsuglyph;
```

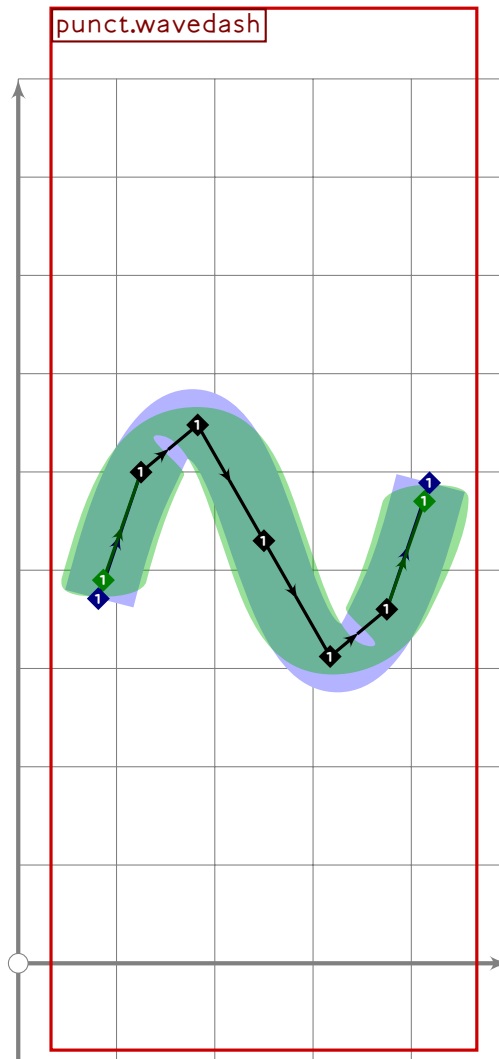


```

737 begint Suglyph("braceright",125);
738   punct.brace_right;
739   tsu_render;
740 endtsuglyph;
741

```





```

742 % "tilde" - rescaled "wave dash"
743 begint Suglyph("asciitilde",126);
744 punct.wavedash;
745 tsu_render;
746 endtsuglyph;
747
748 -----
749
750 % 007F through 009F are nonprinting control characters.
751 % 00A0 is a space, supplied by the make-font script later
752
753 -----
754

```

## Latin-1 Extra Characters

```

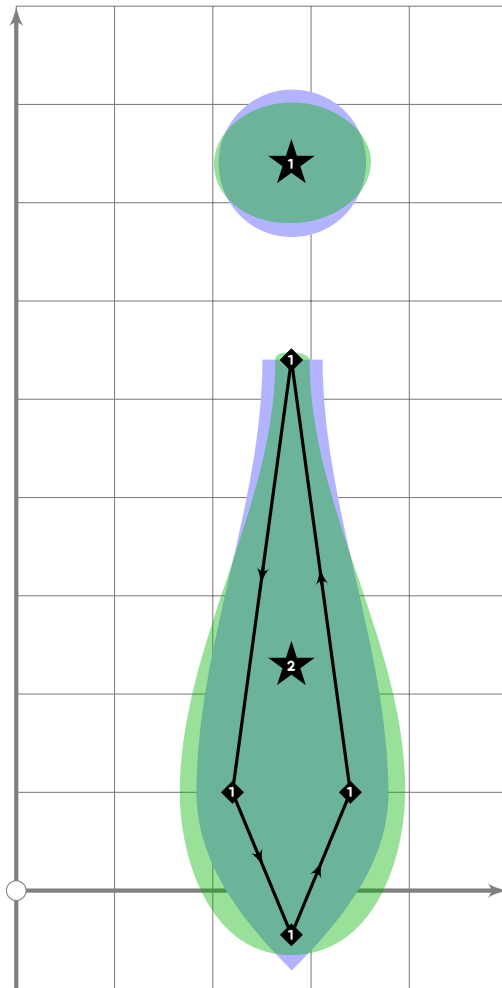
755 % LATIN-1 EXTRA CHARACTERS
756
757 transform tsu_xf.latin_one_super,tsu_xf.latin_one_circled,
758 tsu_xf.latin_one_cbound;

```

```

759
760 if is_proportional:
761     xypart tsu_xf.latin_one_super=yxpart tsu_xf.latin_one_super=0;
762     xxpart tsu_xf.latin_one_super=yypart tsu_xf.latin_one_super=0.65;
763     (500,latin_wide_xheight_r) transformed tsu_xf.latin_one_super=
764     (500,2*latin_vcentre);
765
766     xypart tsu_xf.latin_one_circled=yxpart tsu_xf.latin_one_circled=0;
767     xxpart tsu_xf.latin_one_circled=yypart tsu_xf.latin_one_circled=0.5;
768     centre_pt transformed tsu_xf.latin_one_circled=centre_pt;
769
770     tsu_xf.latin_one_cbound=identity scaled 225 shifted centre_pt;
771
772 else:
773     xypart tsu_xf.latin_one_super=yxpart tsu_xf.latin_one_super=0;
774     xxpart tsu_xf.latin_one_super=yypart tsu_xf.latin_one_super=0.55;
775     (500,latin_wide_xheight_r) transformed tsu_xf.latin_one_super=
776     (250,2*latin_vcentre);
777
778     xypart tsu_xf.latin_one_circled=yxpart tsu_xf.latin_one_circled=0;
779     xxpart tsu_xf.latin_one_circled=yypart tsu_xf.latin_one_circled=0.333;
780     centre_pt transformed tsu_xf.latin_one_circled=(250,latin_vcentre);
781
782     tsu_xf.latin_one_cbound=identity scaled 150 shifted (250,latin_vcentre);
783 fi;
784
785 % inverted exclamation point
786 tsu_rescale_native_narrow;

```



```

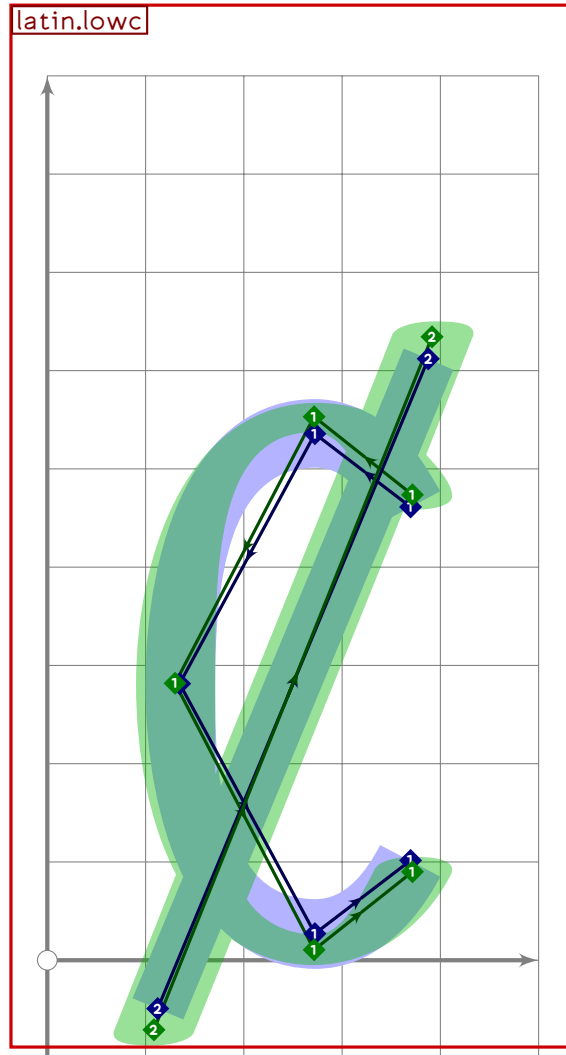
787 begint Suglyph("exclamdown",161);
788 if tsu_pbrush_size>=(tsu_punct_size*0.5):
789     push_lcblob(fullcircle
790         xscaled (tsu_punct_size+tsu_pbrush_size)
791         yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
792         rotated tsu_pbrush_angle
793         shifted (220,40)
794         rotatedaround ((250,390),180));
795 else:
796     push_stroke(fullcircle
797         scaled tsu_punct_size
798         shifted (220,40)
799         rotatedaround ((250,390),180),
800         (2,2)-(2,2)-(2,2)-(2,2));
801     if tsu_pbrush_size>=30:
802         push_lcblob(get_strokep(0));
803     fi;
804 fi;
805
806 push_stroke(((220,240){up}..(280,680){up}..{curl 1}(220,825){curl 1}..
807     (160,680){down}..{down}(220,240))

```

```

808     rotatedaround ((250,390),180),
809     (1,1)-(2,2)-(2,2)-(2,2)-(1,1));
810
811     if tsu_pbrush_size>=30:
812         push_lcblob((subpath (0,1,3.9) of get_strokep(0))-cycle);
813     fi;
814
815     tsu_render;
816 endtsuglyph;
817 tsu_rescale_half;

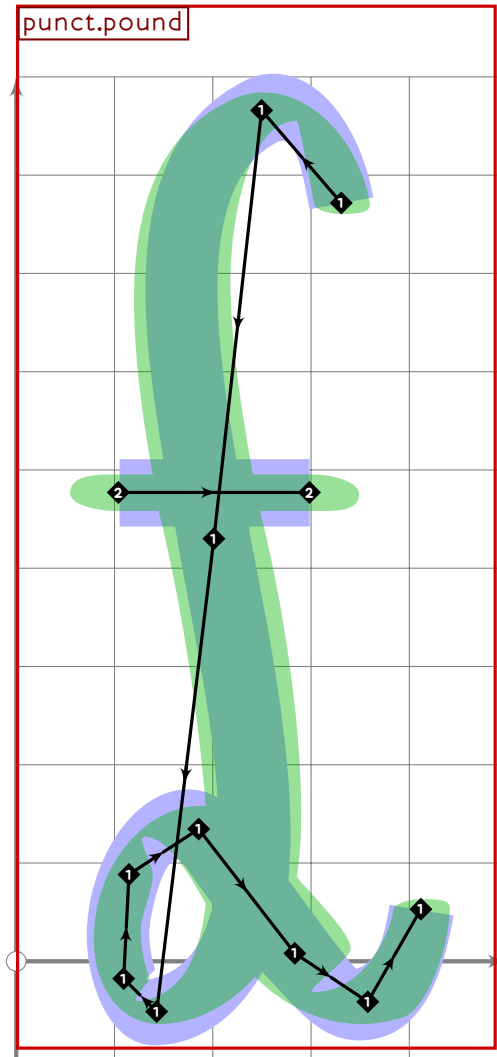
```



```

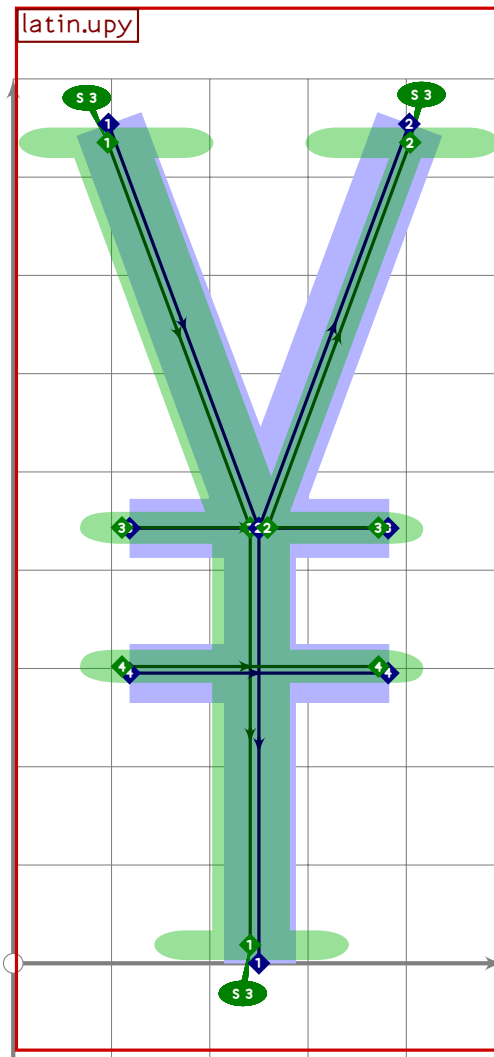
818
819     begint Suglyph("cent";162);
820     tsu_accent.apply(latin.lowc)(tsu_accent.slash);
821     tsu_render;
822 endtsuglyph;

```



```
823
824 begintsuglyph("sterling",163);
825 punct.pound;
826 tsu_render;
827 endtsuglyph;
828
829 begintsuglyph("currency",164);
830 punct.currency;
831 tsu_render;
832 endtsuglyph;
833
```

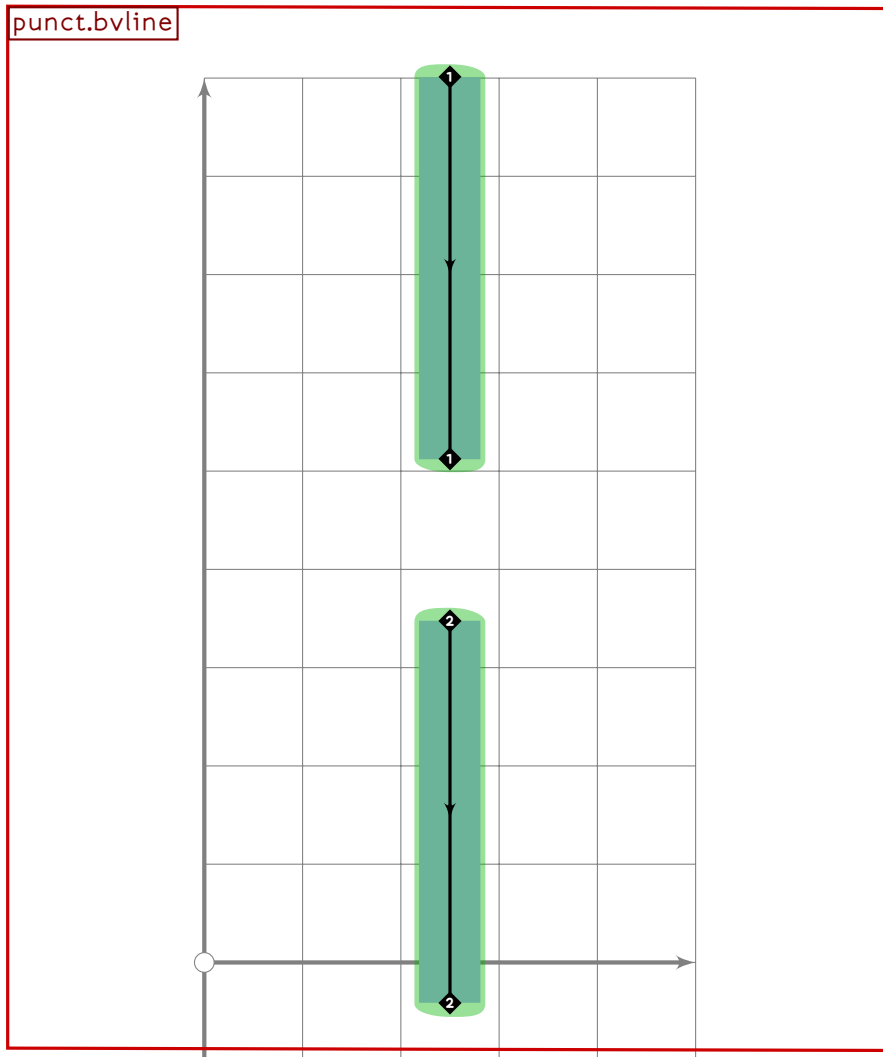
[see page 285]



```

834 % yen sign
835 begintsuglyph("yen",165);
836 latin.upy;
837 push_stroke(((-240,0)-(240,0)) shifted point 1 of get_strokep(-1),
838   (2,2)-(2,2));
839 set_bosize(0,80);
840 push_stroke(((-240,0)-(240,0)) shifted point 1.333 of get_strokep(-2),
841   (2,2)-(2,2));
842 set_bosize(0,80);
843 tsu_render;
844 endtsuglyph;

```



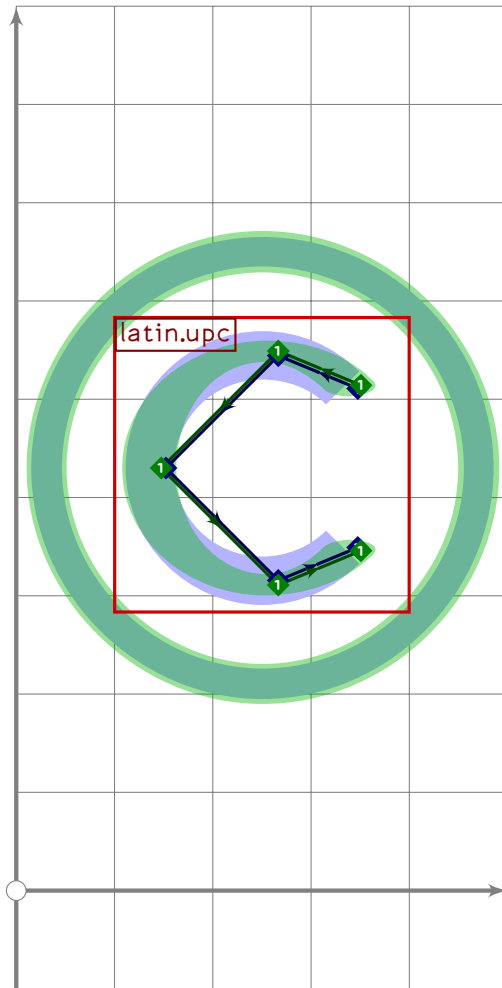
```

845
846 begintsuglyph("brokenbar",166);
847 punct.bvline;
848 tsu_render;
849 endtsuglyph;
850
851 begintsuglyph("section",167);
852 punct.section;
853 tsu_render;
854 endtsuglyph;
855
856 % naked umlaut
857 begintsuglyph("dieresis",168);
858 tsu_accent.umlaut;
859 tsu_render;
860 endtsuglyph;
861
862 % WARNING, setting rescale
863 tsu_rescale_native_conditional;

```

[see page 307]

[see page 54]

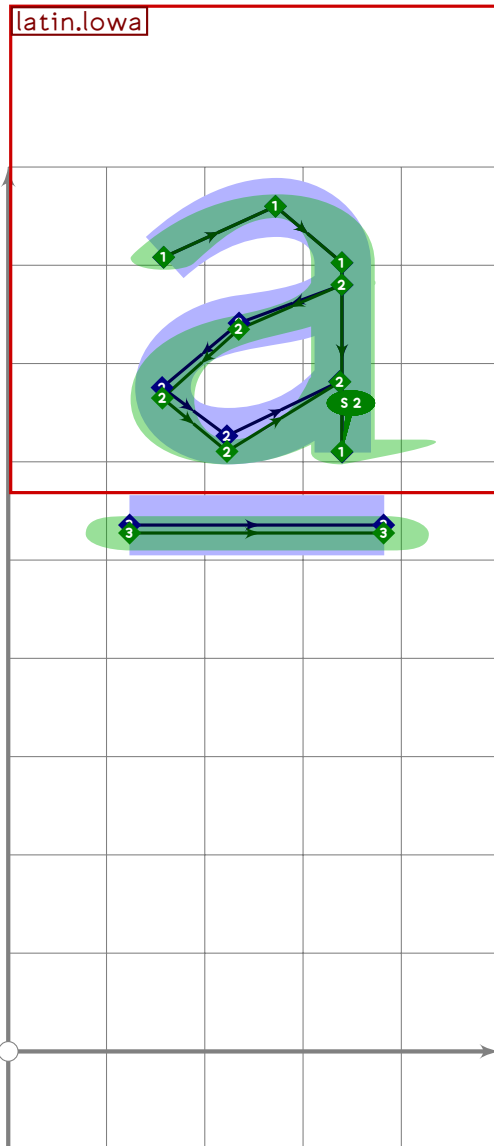


```

864
865 begintsuglyph("copyright",169);
866   Fill fullcircle scaled (1320+120*tsu_brush_max) shifted centre_pt
867     transformed tsu_xf.latin_one_circled;
868   unFill reverse fullcircle scaled (1320-120*tsu_brush_max)
869     shifted centre_pt transformed tsu_xf.latin_one_circled;
870   tsu_xform(tsu_xf.latin_one_circled)(latin.upc);
871   tsu_render_in_circle(tsu_xf.latin_one_cbound);
872 endtsuglyph;

```





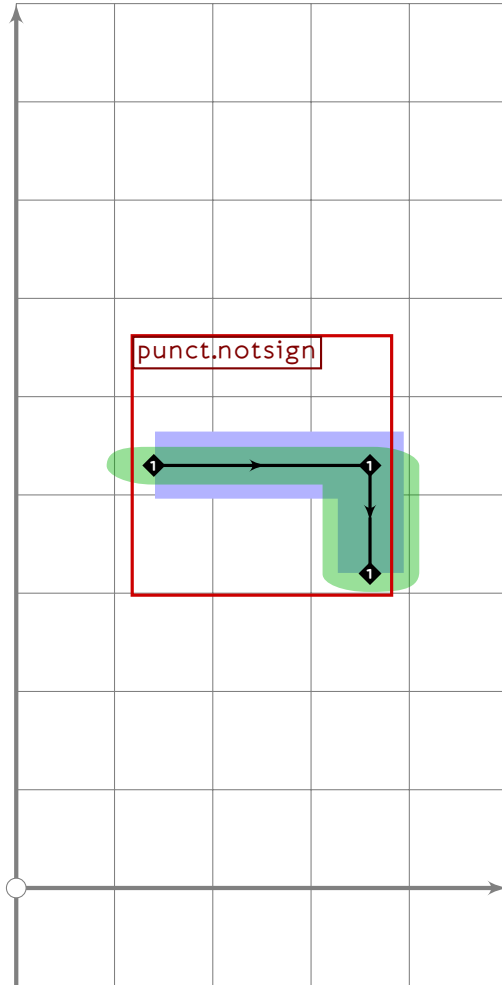
```

873
874 begintsuglyph("ordfeminine",170);
875 tsu_xform(tsu_xf.latin_one_super)(
876 latin.low;
877 push_stroke((270,-110)-(740,-110),(2,2)-(2,2));
878 set_bosize(0,get_bosize(-1));
879 tsu_render;
880 endtsuglyph;
881
882 % WARNING, changing rescale setting
883 tsu_rescale_half;
884
885 begintsuglyph("guillemotleft",171);
886 punct.guillemet_left;
887 tsu_render;
888 endtsuglyph;
889

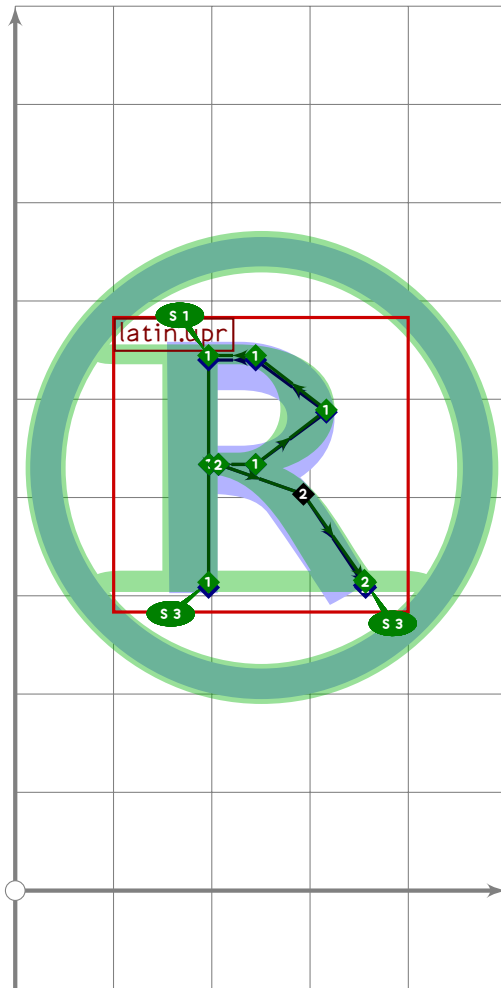
```

[see page 293]

```
890 % WARNING, setting rescale
891 tsu_rescale_native_conditional;
```



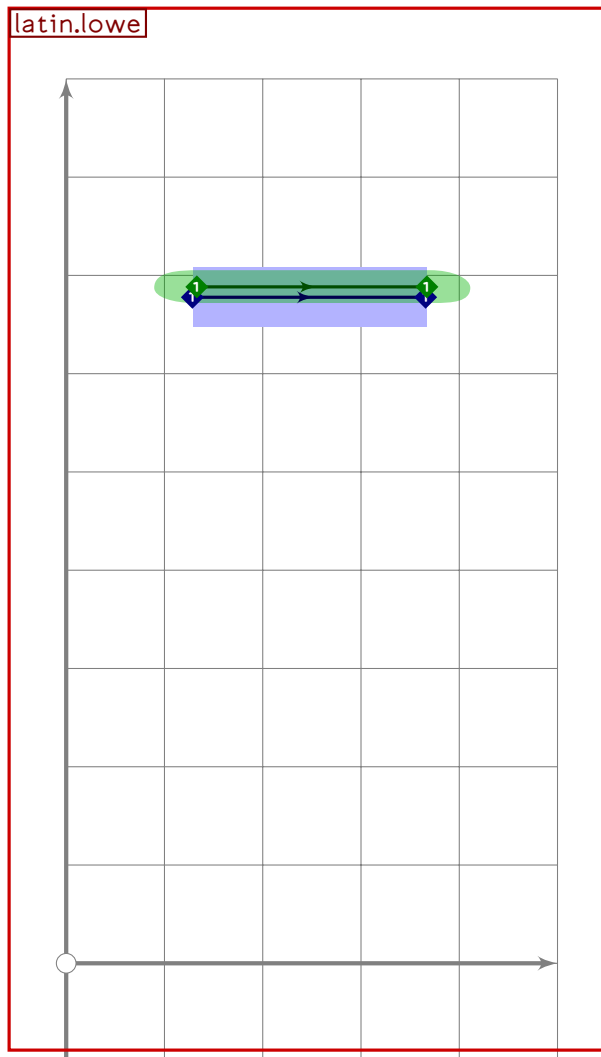
```
892
893 begint Suglyph("logicalnot";172);
894 punct.notsign(ascii_punct_xf);
895 tsu_render;
896 endtsuglyph;
897
898 % soft hyphen is a zero-width space and added by make-font script
```



```

899
900 begintsuglyph("registered",174);
901   Fill fullcircle scaled (1320+120*tsu_brush_max) shifted centre_pt
902     transformed tsu_xf.latin_one_circled;
903   unFill reverse fullcircle scaled (1320-120*tsu_brush_max)
904     shifted centre_pt transformed tsu_xf.latin_one_circled;
905   tsu_xform(tsu_xf.latin_one_circled)(latin.upr);
906   tsu_render_in_circle(tsu_xf.latin_one_cbound);
907 endtsuglyph;
908
909 % WARNING, setting rescale
910 tsu_rescale_half;
911

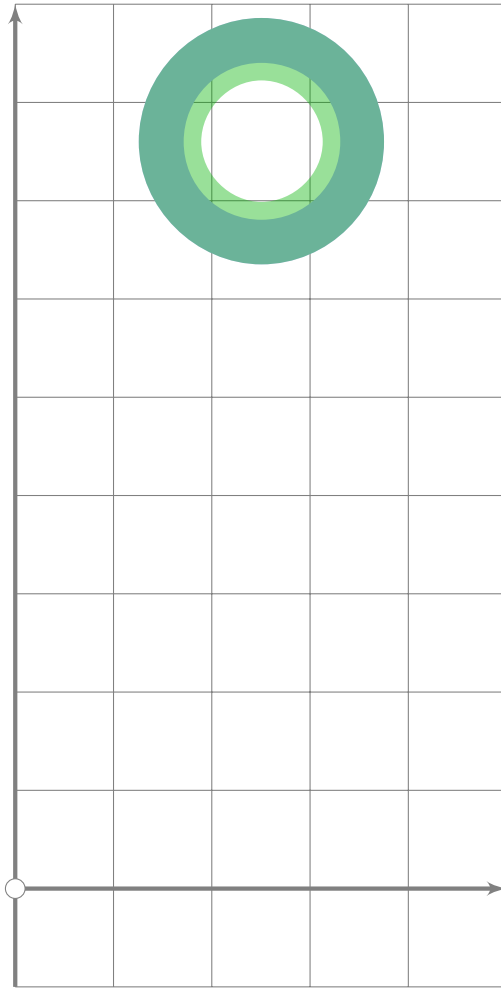
```



```

912 % naked macron
913 begintsuglyph("macron";175);
914 tsu_accent.apply(latin.lower;set_bosize(0,0))(tsu_accent.macron);
915 tsu_render;
916 endtsuglyph;
917
918 % WARNING, setting rescale
919 tsu_rescale_native_conditional;

```



920

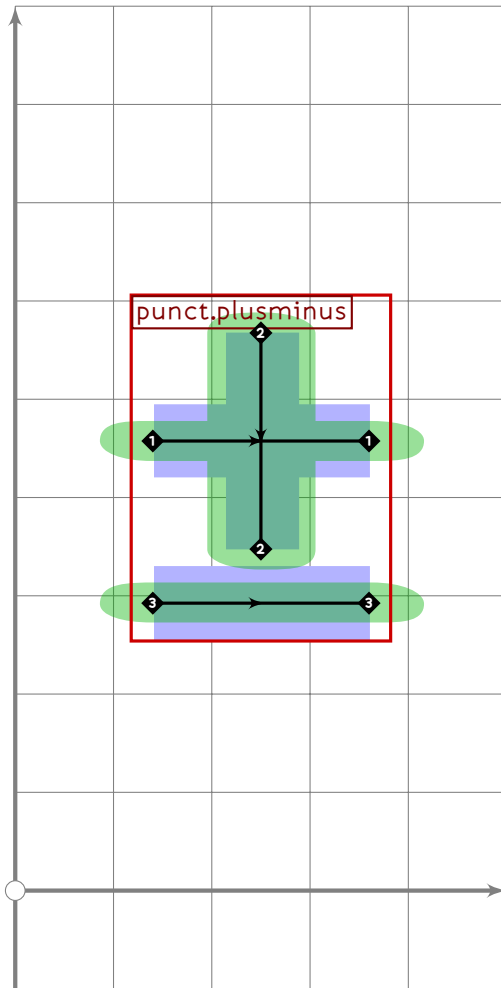
```
921 begintsuglyph("degree",176);
```

```
922   Fill fullcircle scaled (2.5*tsu_punct_size) shifted (250,760);
```

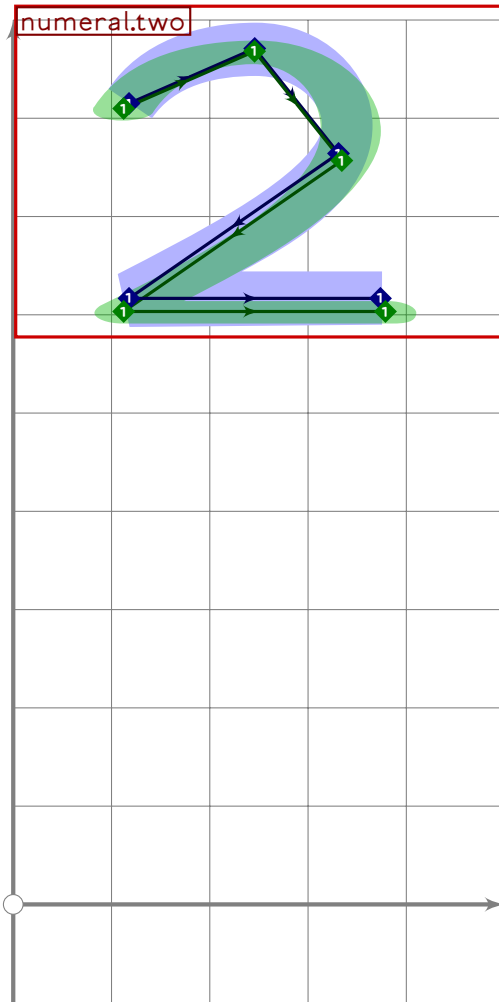
```
923   unFill reverse fullcircle
```

```
924     scaled (2.5*tsu_punct_size-120*tsu_brush_max) shifted (250,760);
```

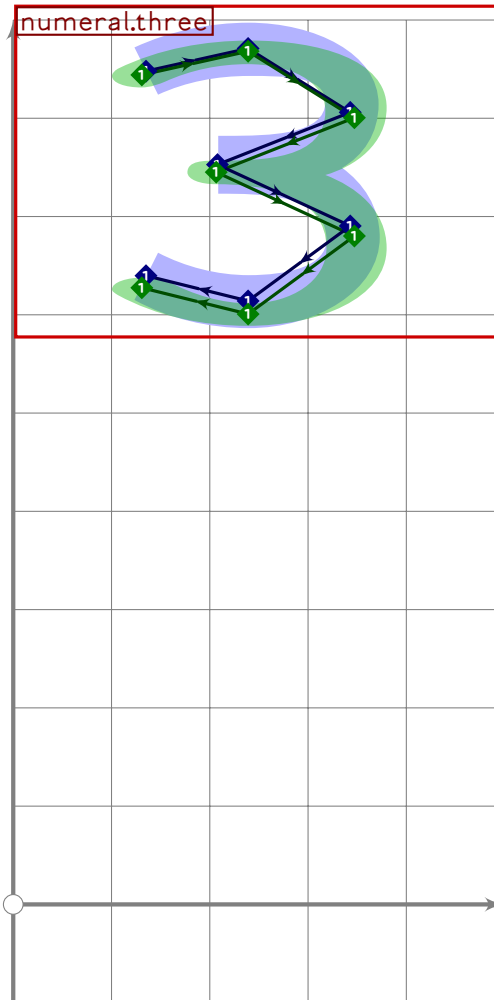
```
925 endtsuglyph;
```



```
926  
927 begintsuglyph("plusminus",177);  
928 punct.plusminus(ascii_punct_xf);  
929 tsu_render;  
930 endsuglyph;
```



```
931  
932 begintsuglyph("uni00B2",178);  
933 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(  
934 numeral.two);  
935 tsu_render;  
936 endtsuglyph;
```



```

937
938 begintsuglyph("uni00B3",179);
939 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(
940 numeral.three);
941 tsu_render;
942 endtsuglyph;
943
944 % WARNING, changing rescale setting
945 tsu_rescale_half;
946
947 % naked acute
948 begintsuglyph("acute",180);
949 tsu_accent.acute;
950 tsu_render;
951 endtsuglyph;
952
953 % micro
954 begintsuglyph("mu",181);
955 punct.micro;
956 tsu_render;
957 endtsuglyph;

```

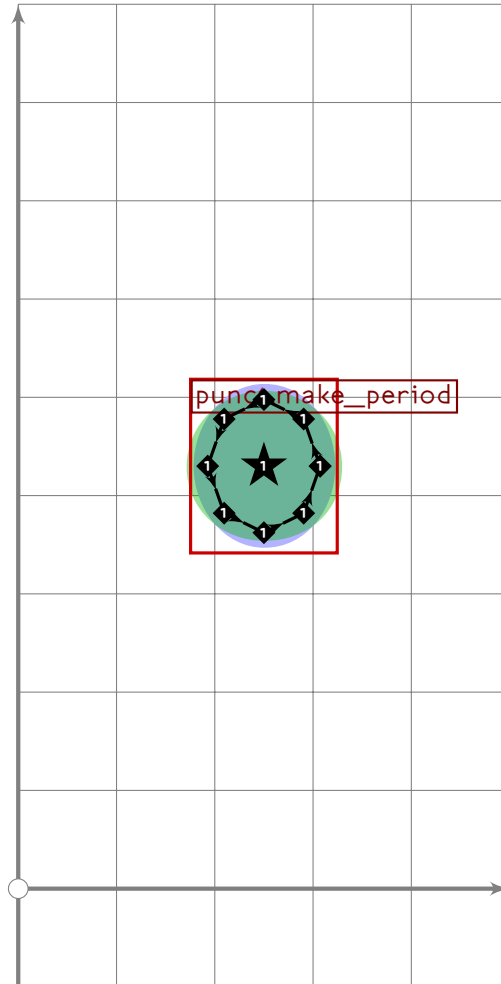
[see page 43]

[see page 296]

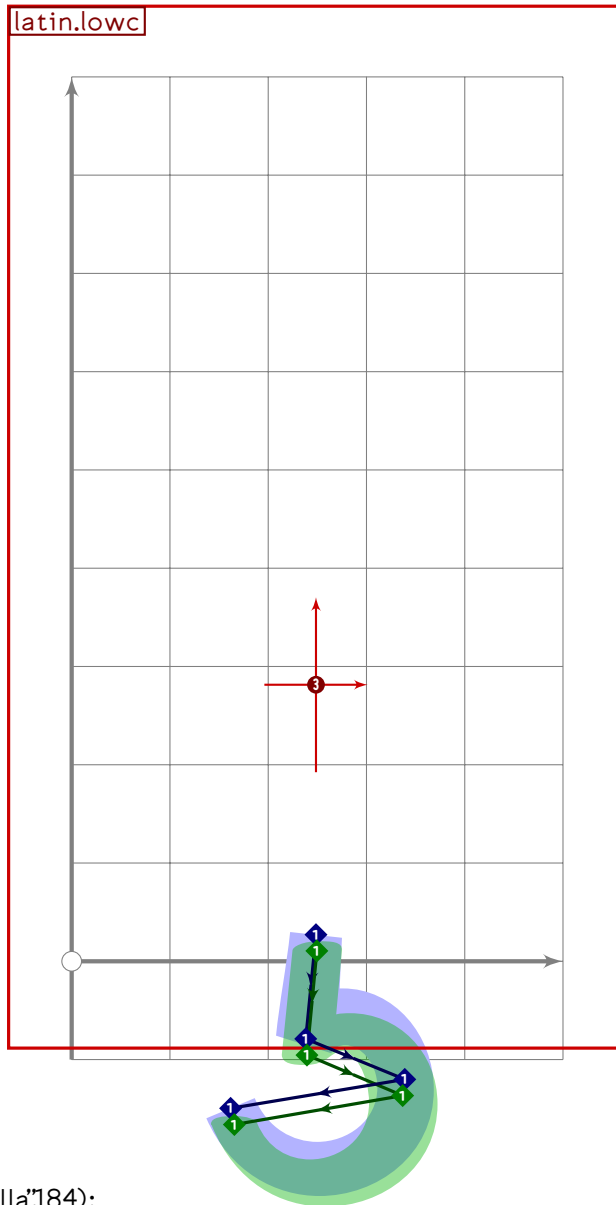


```
958
959 % pilcrow
960 begintsuglyph("paragraph",182);
961 punct.pilcrow;
962 tsu_render;
963 endtsuglyph;
964
```

[see page 303]



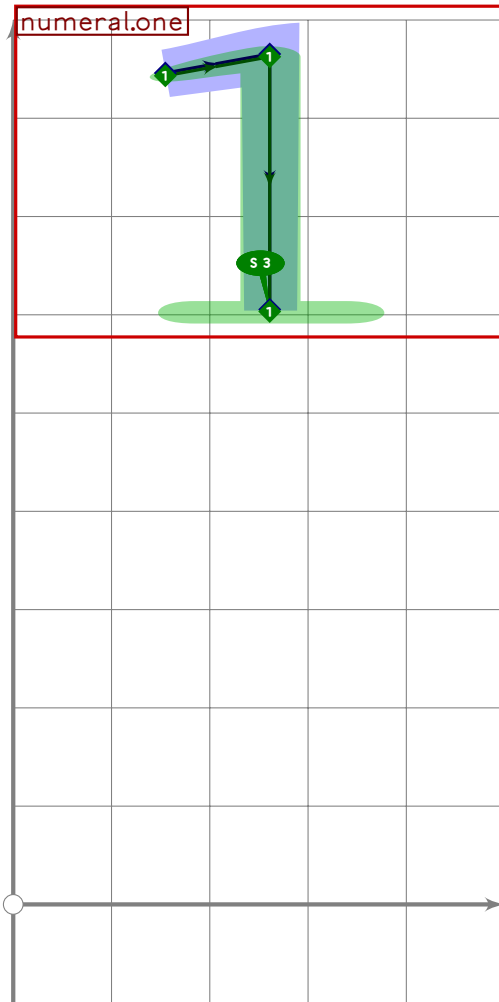
```
965 % period at centre
966 begintsuglyph("periodcentered",183);
967 punct.make_period(centre_pt);
968 tsu_render;
969 endtsuglyph;
970
```



```

971 % naked cedilla
972 begintsuglyph("cedilla",184);
973 tsu_accent.apply(latin.lowc;set_bosize(0,0))(tsu_accent.cedilla);
974 tsu_render;
975 endtsuglyph;
976
977 % WARNING, changing rescale setting
978 tsu_rescale_native_conditional;

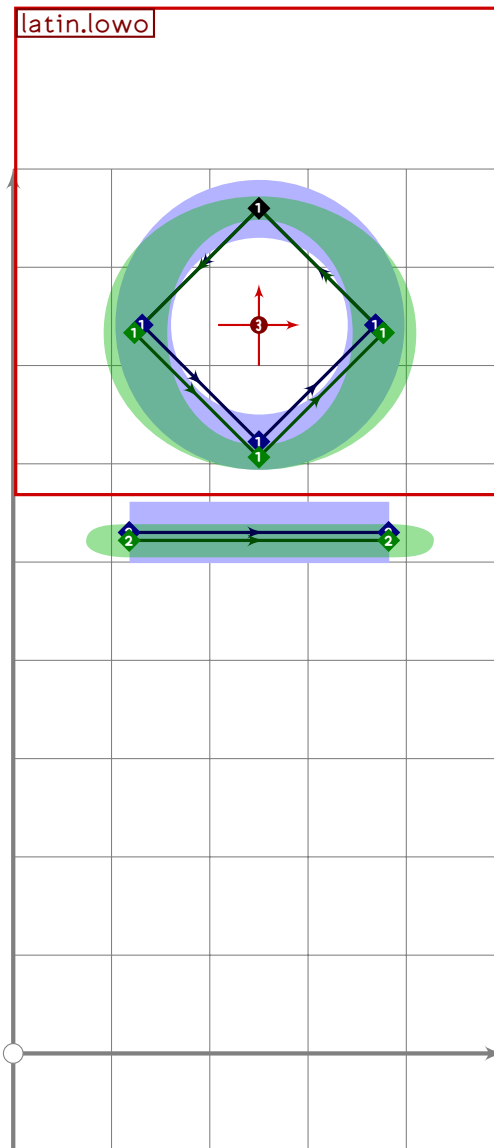
```



```

979
980 begintsuglyph("uni00B9",185);
981 tsu_xform(identity yscaled 0.68 transformed tsu_xf.latin_one_super)(
982 numeral.one);
983 tsu_render;
984 endtsuglyph;

```



```

985
986 begintsuglyph("ordmasculine",186);
987 tsu_xform(tsu_xf.latin_one_super)(
988     latin.lowo;
989     push_stroke((260,-120)-(740,-120),(2,2)-(2,2)));
990 tsu_render;
991 endtsuglyph;
992
993 % WARNING, changing rescale setting
994 tsu_rescale_half;
995
996 begintsuglyph("guillemotright",187);
997 punct.guillemet_right;
998 tsu_render;
999 endtsuglyph;
1000
1001 % WARNING, changing rescale setting

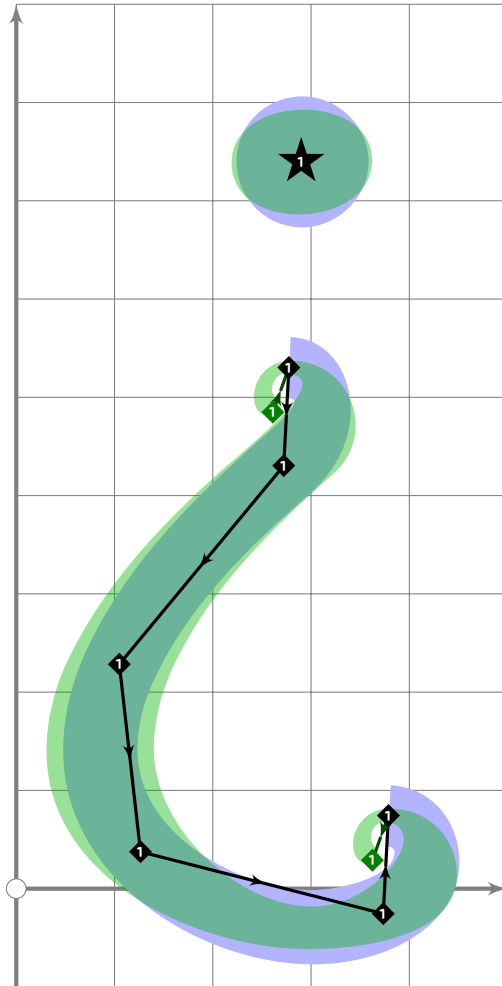
```

[see page 294]

```

1002 tsu_rescale_native_conditional;
1003

```



```

1004 % question mark
1005 begint Suglyph("questiondown",191);
1006 if tsu_pbrush_size>=(tsu_punct_size*0.5):
1007     push_lcblob(fullcircle
1008         xscaled ((tsu_punct_size+tsu_pbrush_size)*0.89)
1009         yscaled ((tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)*0.89)
1010         rotated tsu_pbrush_angle
1011         shifted (210,40)
1012         rotatedaround ((250,390),180));
1013 else:
1014     push_stroke(fullcircle scaled tsu_punct_size shifted (210,40)
1015         rotatedaround ((250,390),180),
1016         (1,1)..(2,2)..(2,2)..(1,1));
1017     if tsu_pbrush_size>=30:
1018         push_lcblob(get_strokep(0));
1019     fi;
1020 fi;
1021 r:=tsu_punct_size/2;
1022

```

```

1023  push_stroke((210,300){right}..(210,300-r){left}..
1024      (210,300+r)..(210+2.5*r,750)..
1025      tension 1.3..(210-2.5*r,750+r)..
1026      (210-2.5*r,750-r){right}..
1027      (210-2.5*r,750){left},
1028      (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
1029  replace_strokep(0)(insert_nodes(oldp)(2.5)
1030      rotatedaround ((210,10),-3) rotatedaround ((250,390),180));
1031
1032  tsu_render;
1033  endtsuglyph;
1034
1035  _____
1036

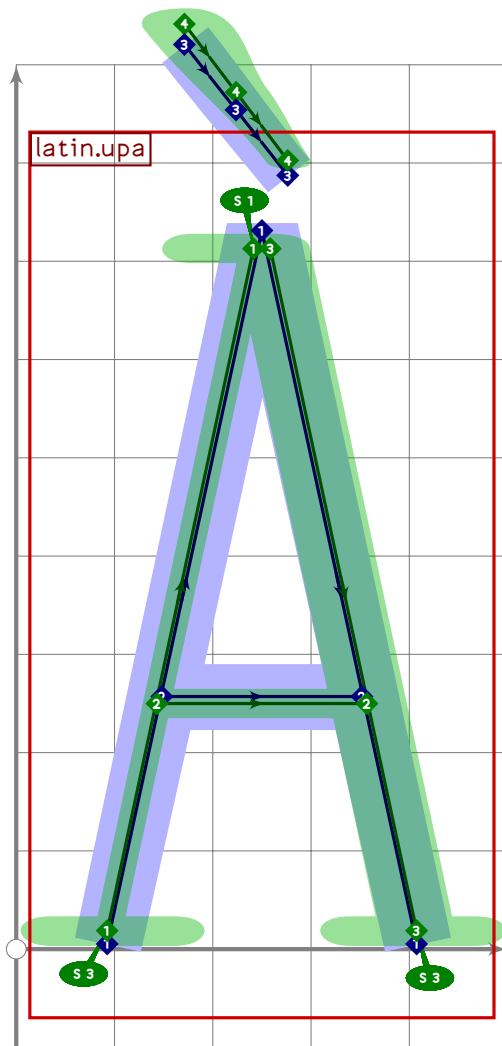
```

## Accented Latin

```

1037 % ACCENTED LATIN
1038
1039 % WARNING, setting rescale
1040 tsu_rescale_half;
1041

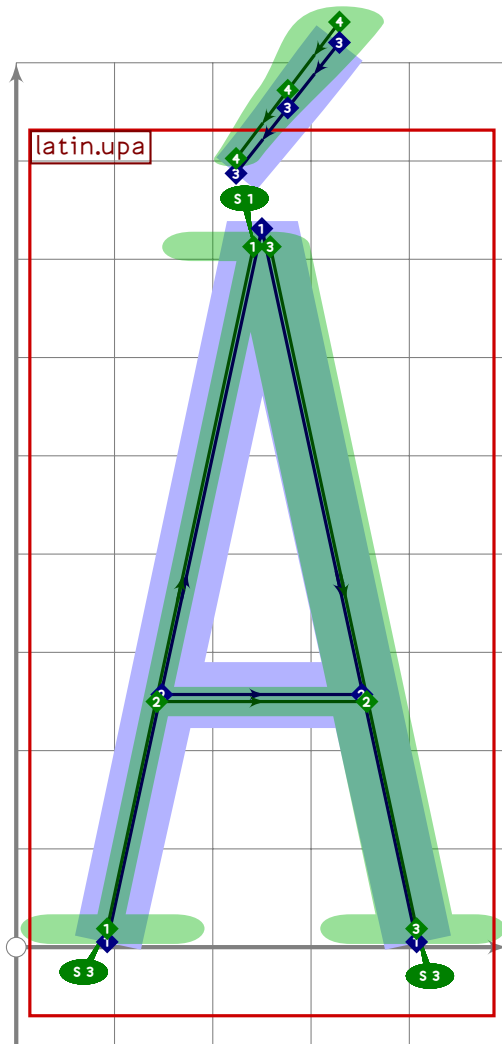
```



```

1042 % A with grave
1043 begintsuglyph("Agrave",192);
1044 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.grave);
1045 tsu_render;
1046 endtsuglyph;
1047

```

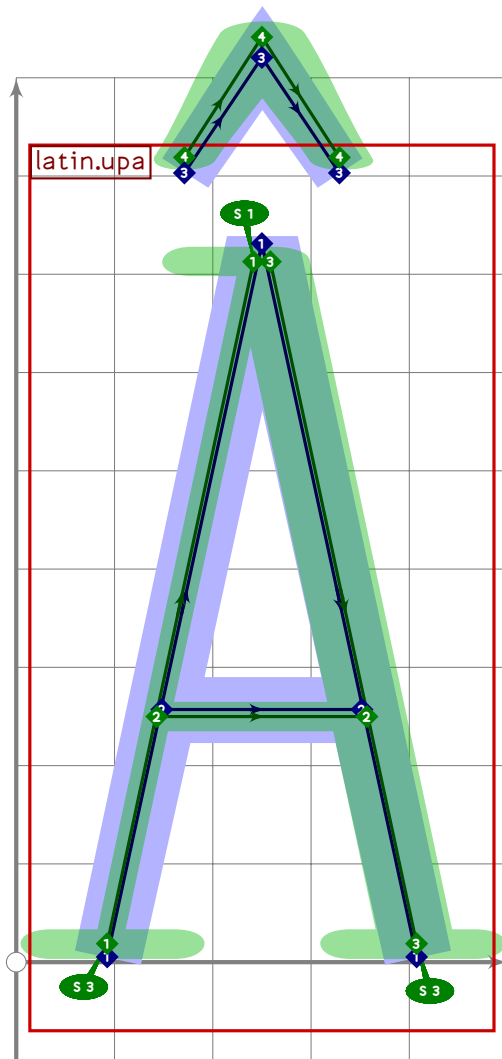


```

1048 % A with acute
1049 begintsuglyph("Aacute",193);
1050 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.acute);
1051 tsu_render;
1052 endsuglyph;
1053

```

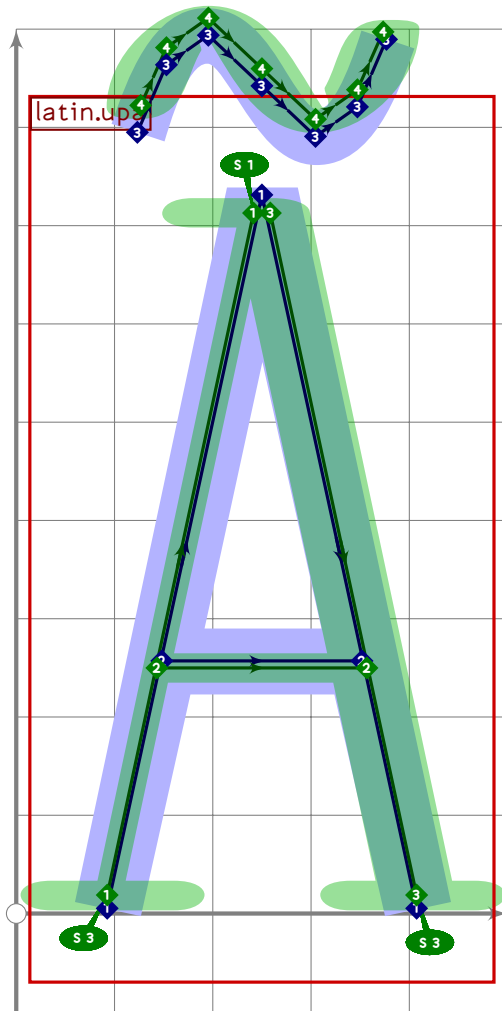




```

1054 % A with circumflex
1055 begintsuglyph("Acircumflex",194);
1056 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.circumflex);
1057 tsu_render;
1058 endsuglyph;
1059

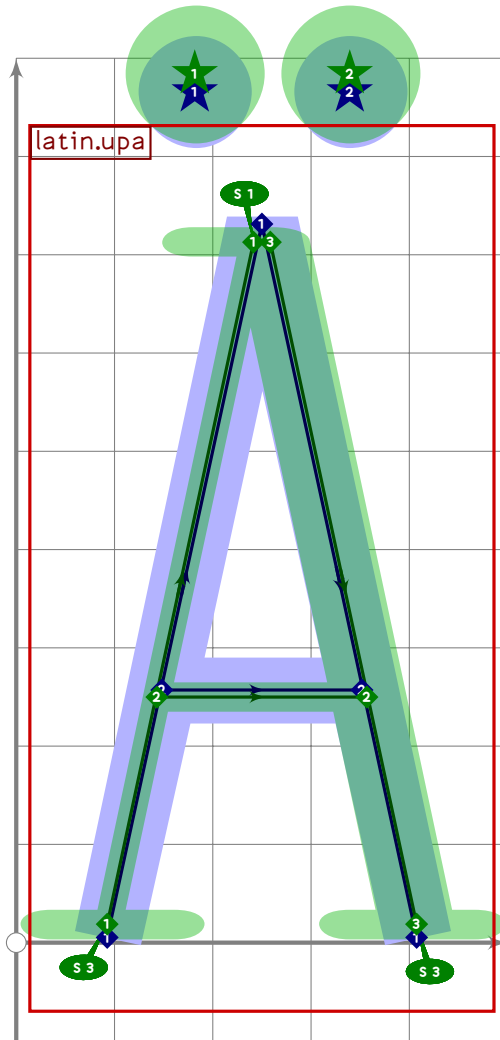
```



```

1060 % A with tilde
1061 begintsuglyph("Atilde";195);
1062 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.tilde);
1063 tsu_render;
1064 endtsuglyph;
1065

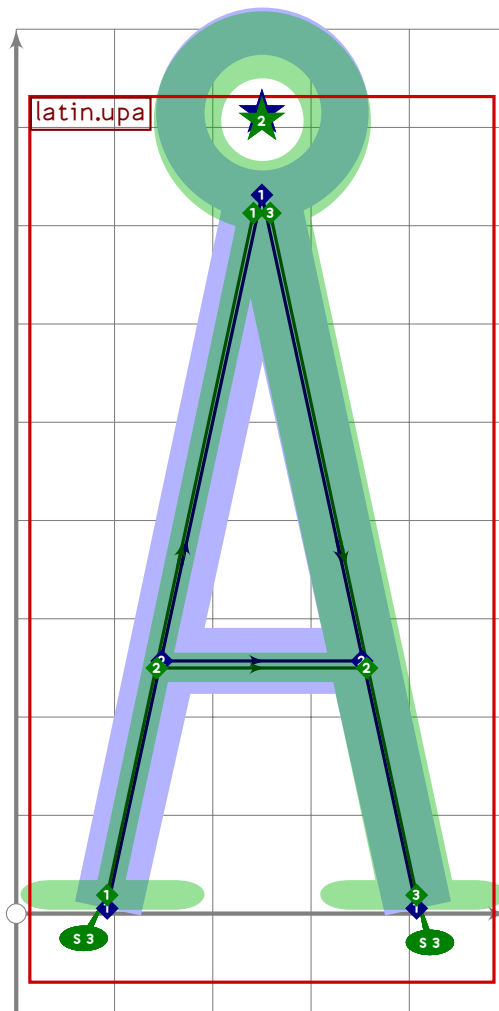
```



```

1066 % A with dieresis/umlaut
1067 begint Suglyph("Adieresis";196);
1068   tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.umlaut);
1069   tsu_render;
1070 endsuglyph;
1071

```

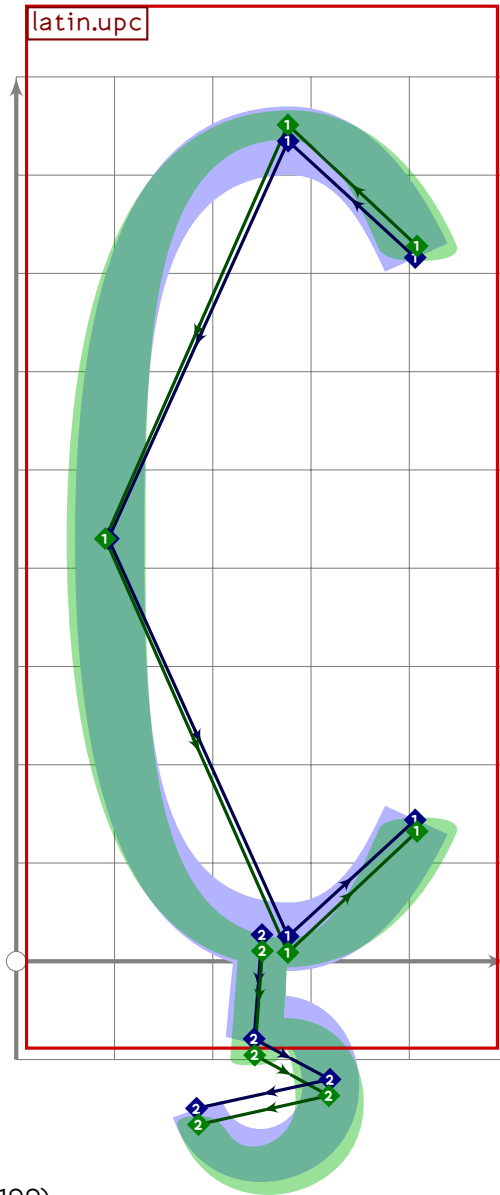


```

1072 % A with ring above
1073 begintsuglyph("Aring";197);
1074 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.ringabove);
1075 if do_alteration:
1076   set_boserif(-2,1,whatever);
1077 else:
1078   set_boserif(-1,1,whatever);
1079 fi;
1080 tsu_render;
1081 endtsuglyph;
1082
1083 % AE ligature
1084 begintsuglyph("AE";198);
1085 latin.upae;
1086 tsu_render;
1087 endtsuglyph;
1088

```

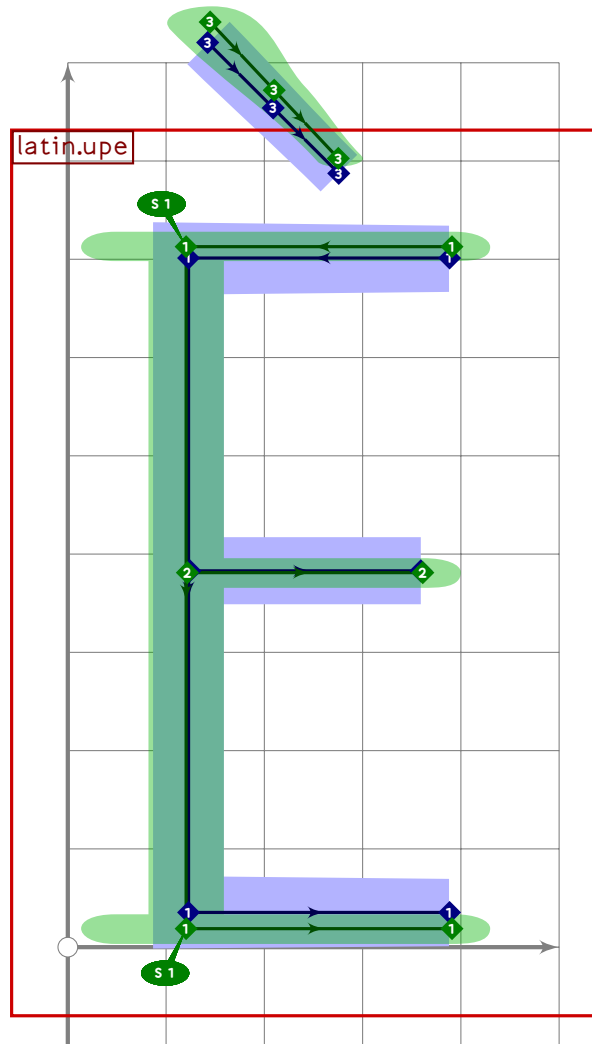
[see page 170]



```

1089 % C with cedilla
1090 begintsuglyph("Ccedilla";199);
1091 tsu_accent.apply(latin.upc)(tsu_accent.cedilla);
1092 tsu_render;
1093 endtsuglyph;
1094

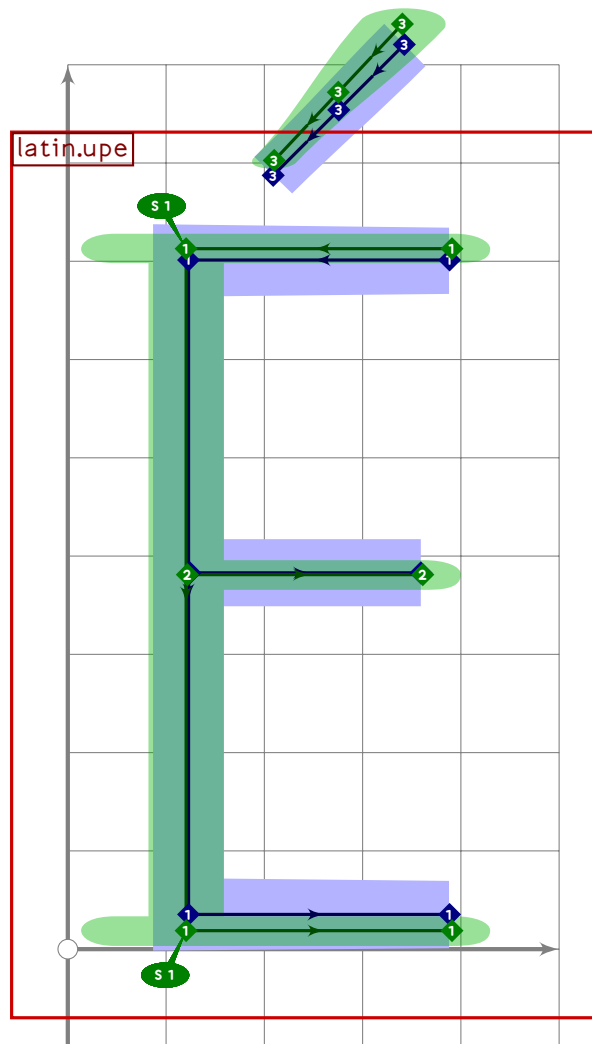
```



```

1095 % E with grave
1096 begintsuglyph("Egrave";200);
1097   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.grave);
1098   tsu_render;
1099   endtsuglyph;
1100

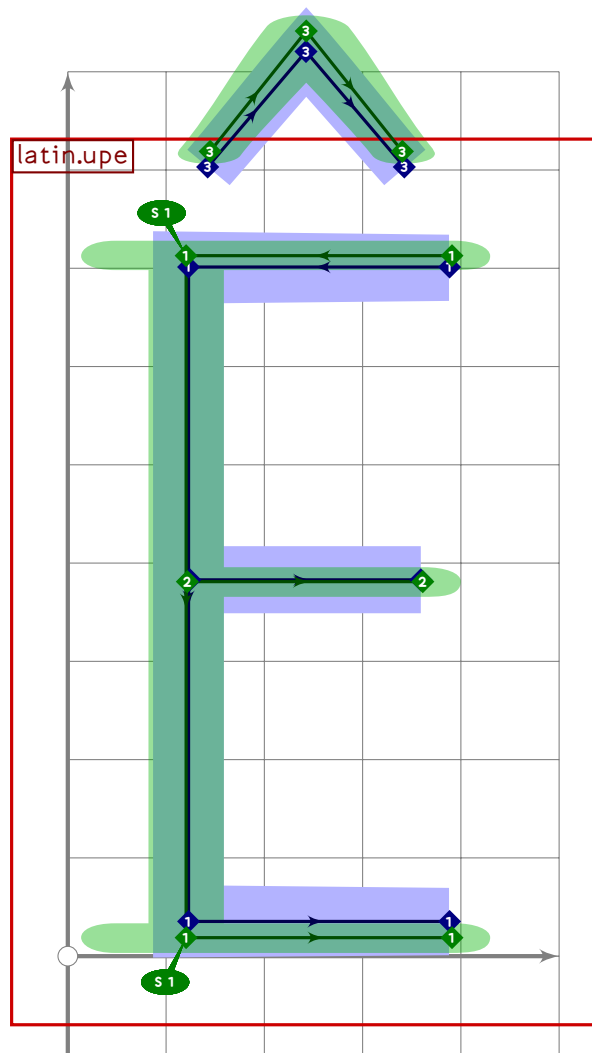
```



```

1101 % E with acute
1102 begint Suglyph("Eacute";201);
1103   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.acute);
1104   tsu_render;
1105   endtsuglyph;
1106

```

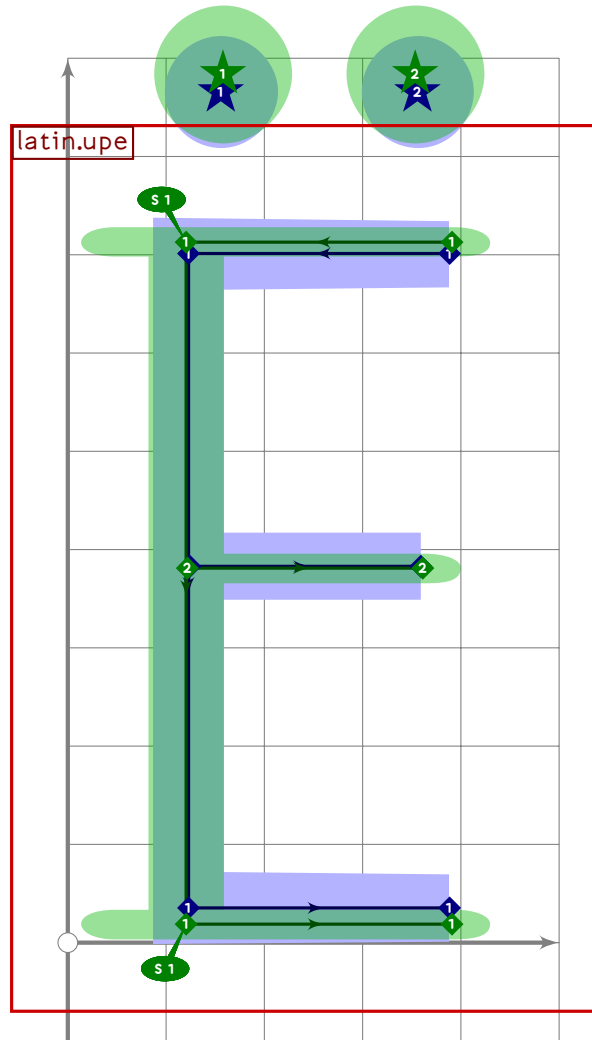


```

1107 % E with circumflex
1108 begintsuglyph("Ecircumflex";202);
1109 tsu_accent.apply(tsu_accent.capital(latin.ue))(tsu_accent.circumflex);
1110 tsu_render;
1111 endtsuglyph;
1112

```

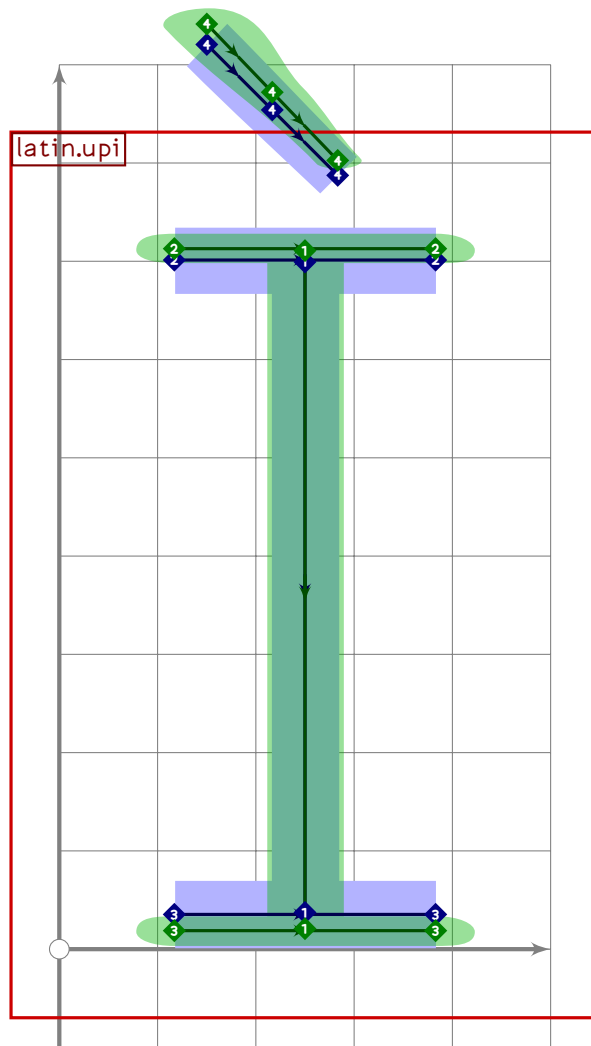




```

1113 % E with dieresis/umlaut
1114 begint Suglyph("Edieresis";203);
1115   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.umlaut);
1116   tsu_render;
1117   endtsuglyph;
1118

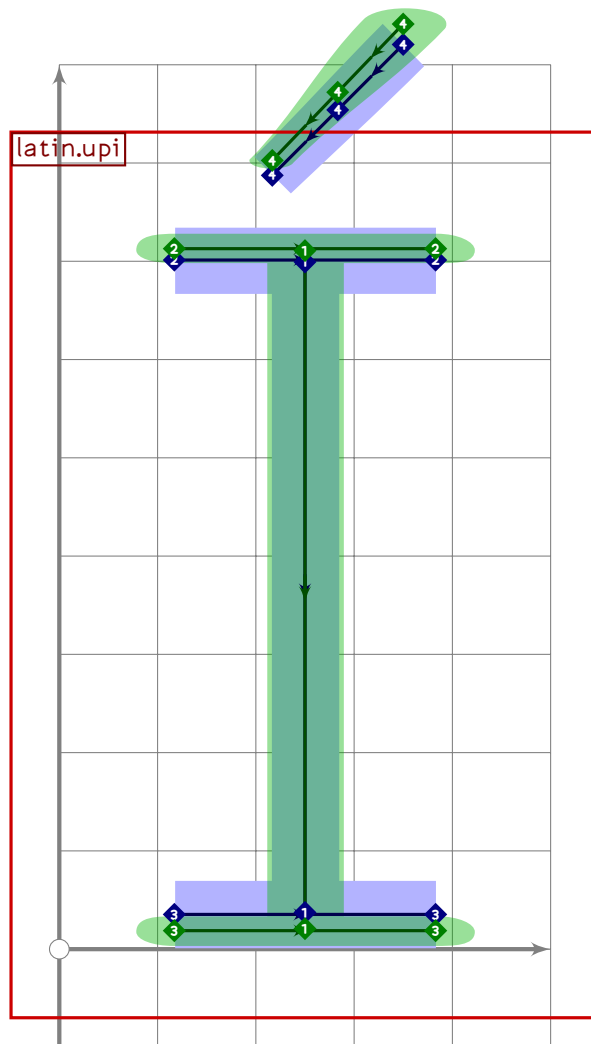
```



```

1119 % I with grave
1120 begintsuglyph("Igrave";204);
1121 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.grave);
1122 tsu_render;
1123 endtsuglyph;
1124

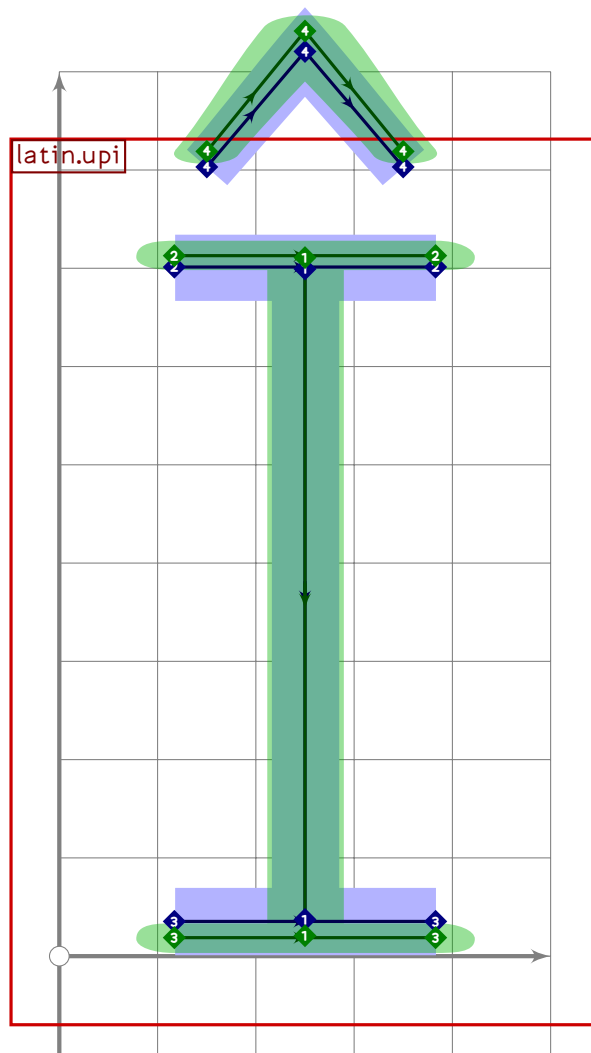
```



```

1125 % I with acute
1126 begintsuglyph("Iacute";205);
1127 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.acute);
1128 tsu_render;
1129 endtsuglyph;
1130

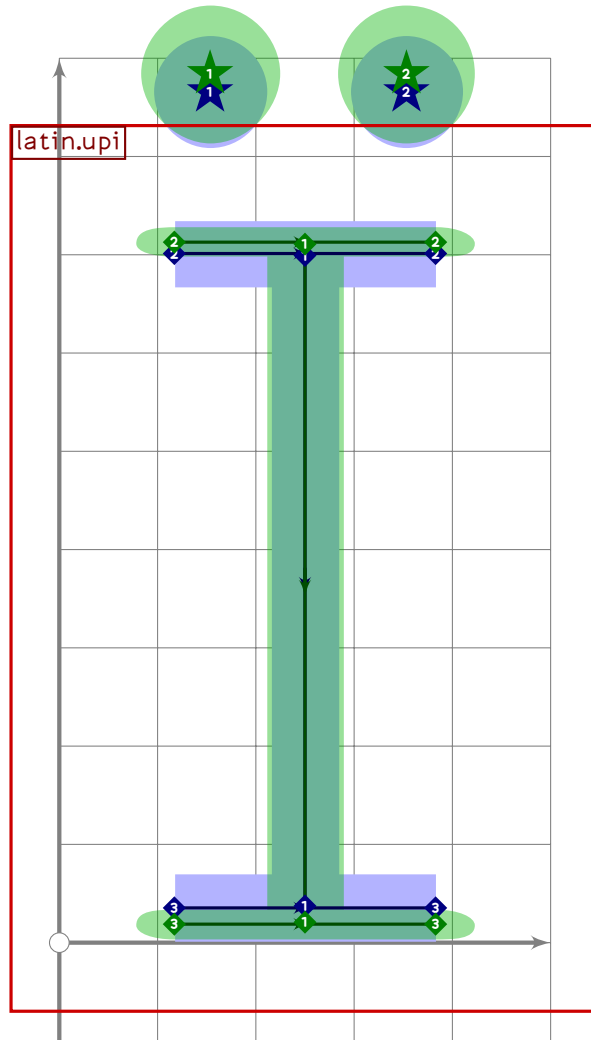
```



```

1131 % I with circumflex
1132 begintsuglyph("Icircumflex";206);
1133   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.circumflex);
1134   tsu_render;
1135   endsuglyph;
1136

```

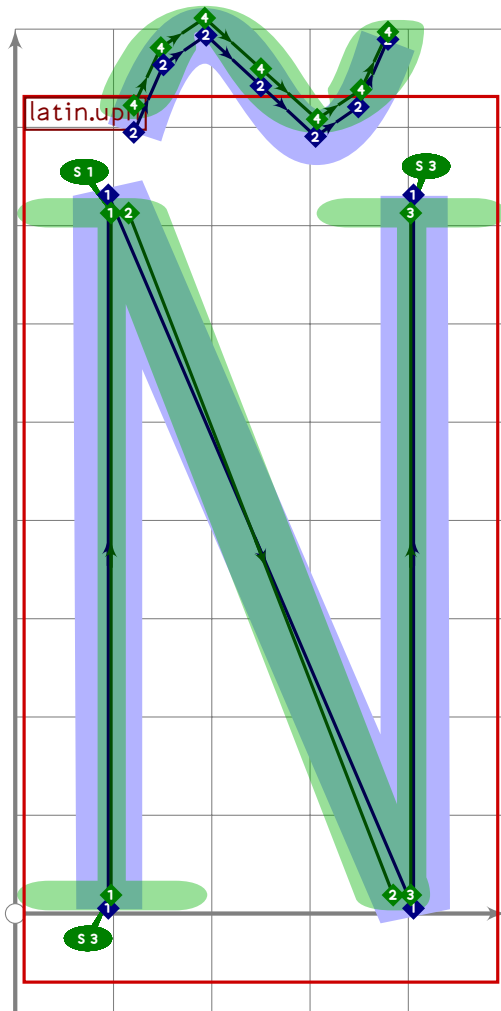


```

1137 % I with dieresis/umlaut
1138 begintsuglyph("Idieresis";207);
1139 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.umlaut);
1140 replace_lcblob(-1)(oldblob shifted (15*left));
1141 replace_lcblob(0)(oldblob shifted (15*left));
1142 tsu_render;
1143 endtsuglyph;
1144
1145 % uppercase Icelandic Eth
1146 begintsuglyph("Eth";208);
1147 latin.upeth;
1148 tsu_render;
1149 endtsuglyph;
1150

```

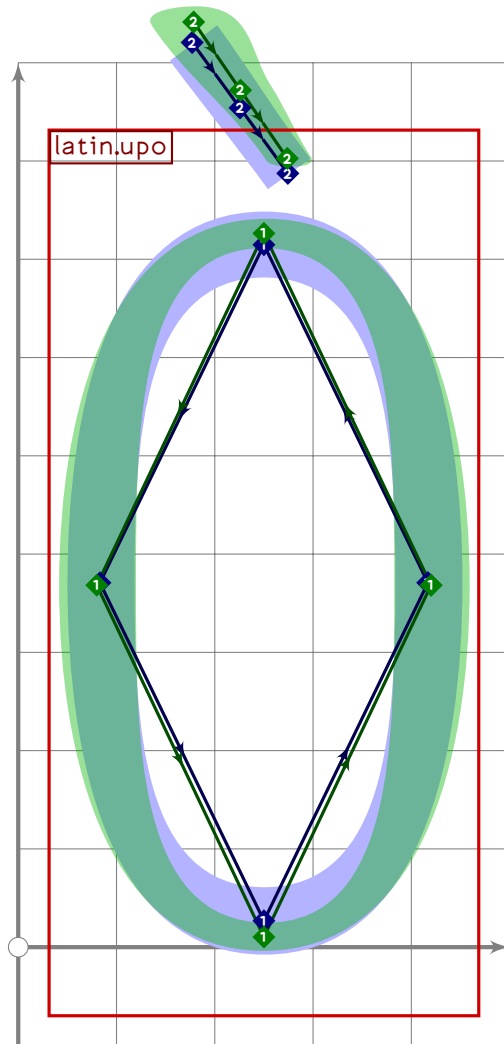
[see page 174]



```

1151 % N with tilde
1152 begintsuglyph("Ntilde";209);
1153   tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.tilde);
1154   tsu_render;
1155   endtsuglyph;
1156

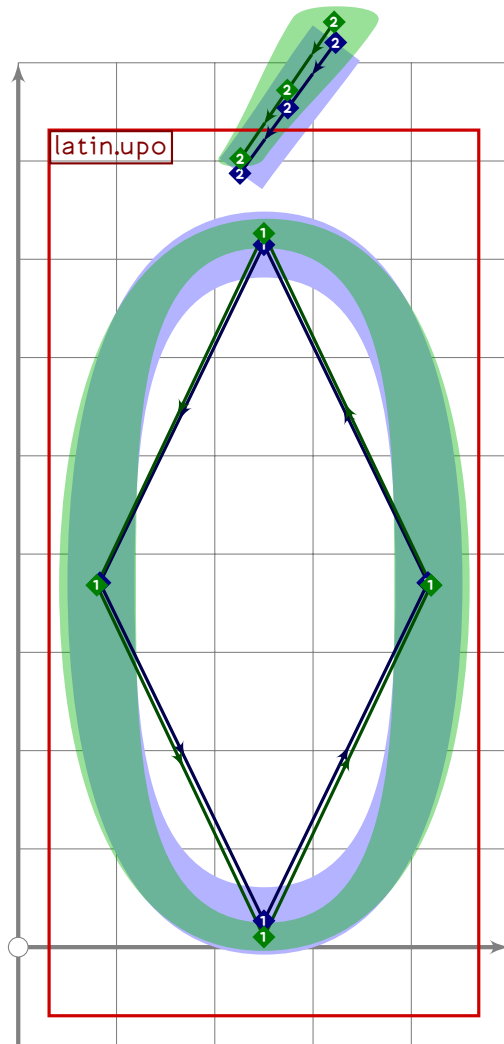
```



```

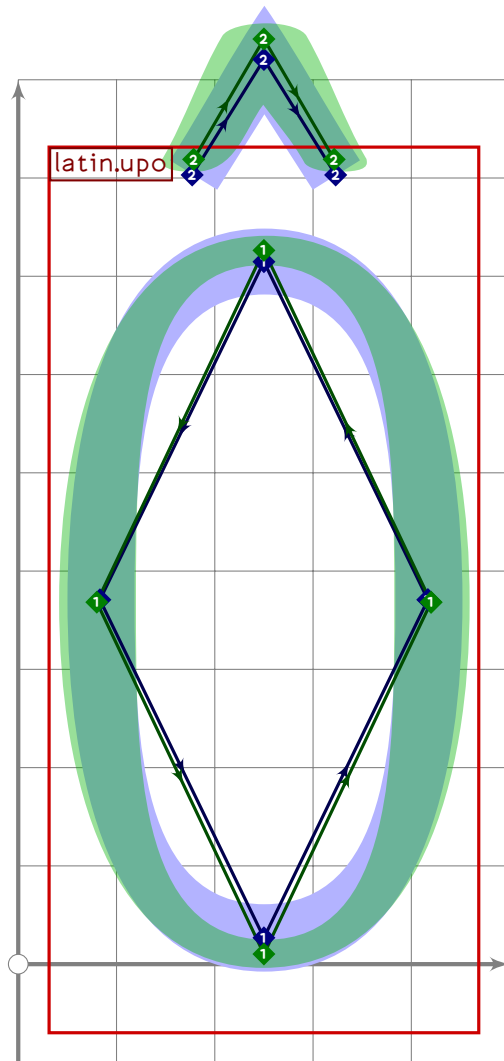
1157 % O with grave
1158 begintsuglyph("Ograve";210);
1159 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.grave);
1160 tsu_render;
1161 endtsuglyph;
1162

```



```
1163 % O with acute
1164 begintsuglyph("Oacute",211);
1165 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.acute);
1166 tsu_render;
1167 endsuglyph;
1168
```

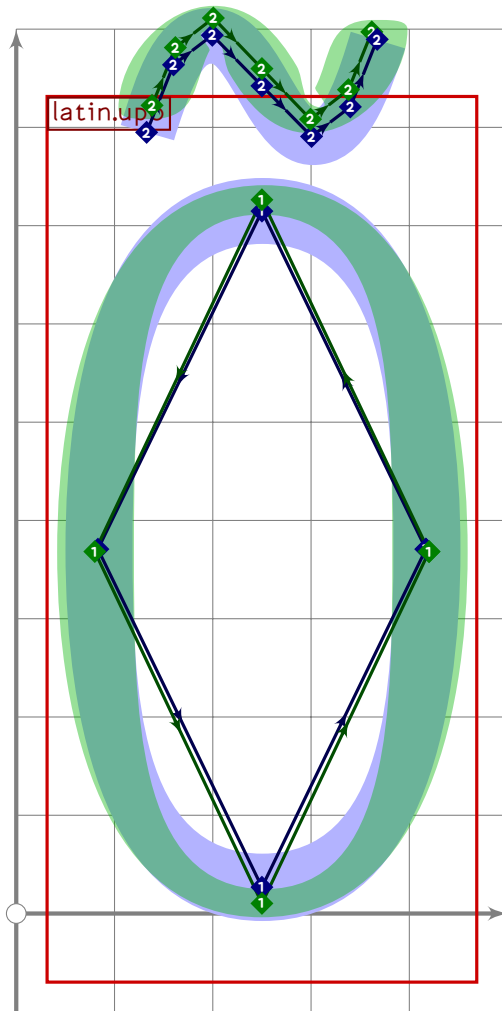




```

1169 % O with circumflex
1170 begintsuglyph("Ocircumflex";212);
1171 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.circumflex);
1172 tsu_render;
1173 endtsuglyph;
1174

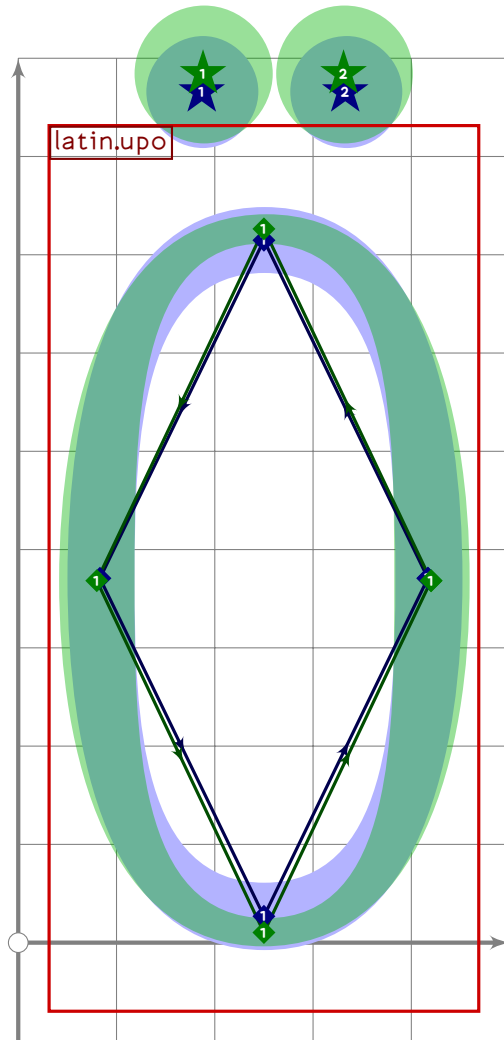
```



```

1175 % O with tilde
1176 begintsuglyph("Otilde";213);
1177 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.tilde);
1178 tsu_render;
1179 endsuglyph;
1180

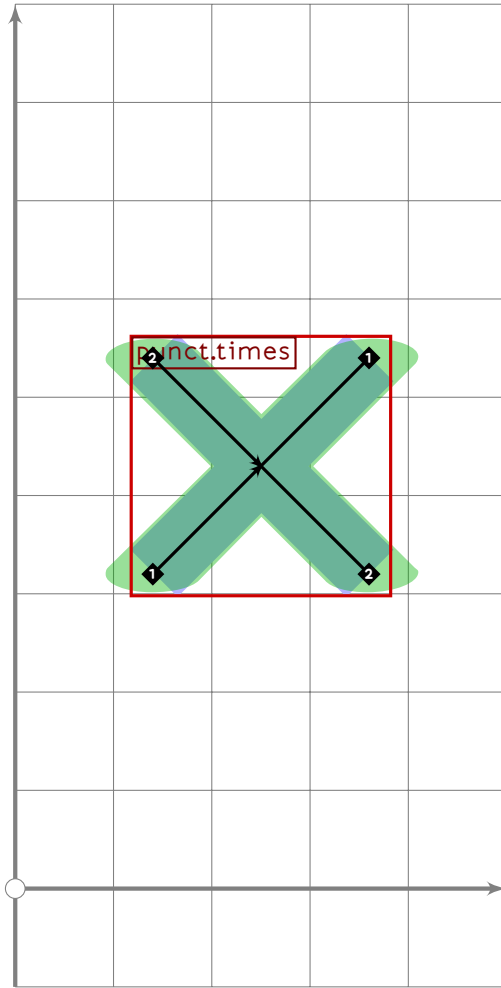
```



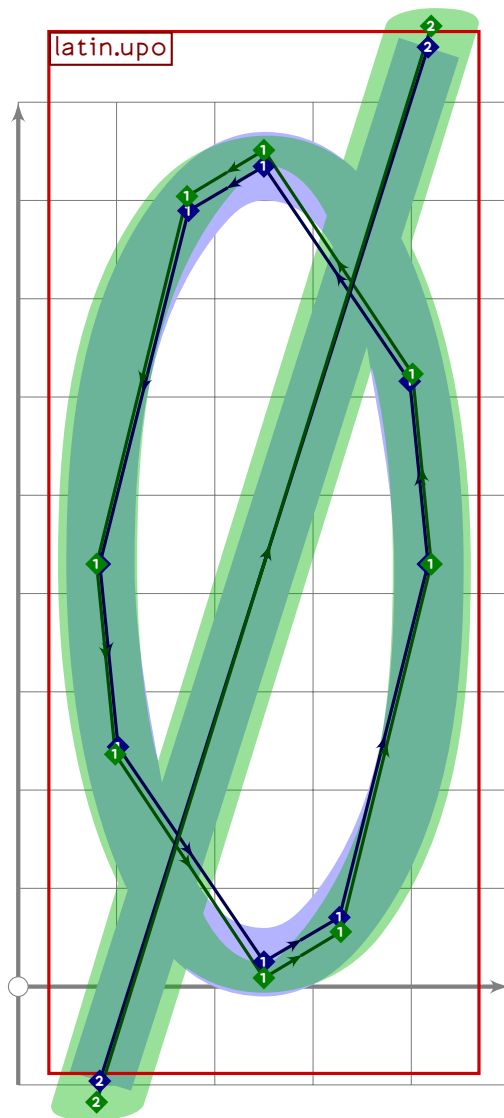
```

1181 % O with dieresis/umlaut
1182 beginsuglyph("Odiereis";214);
1183 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.umlaut);
1184 tsu_render;
1185 endsuglyph;
1186
1187 % times
1188 tsu_rescale_native_conditional;

```



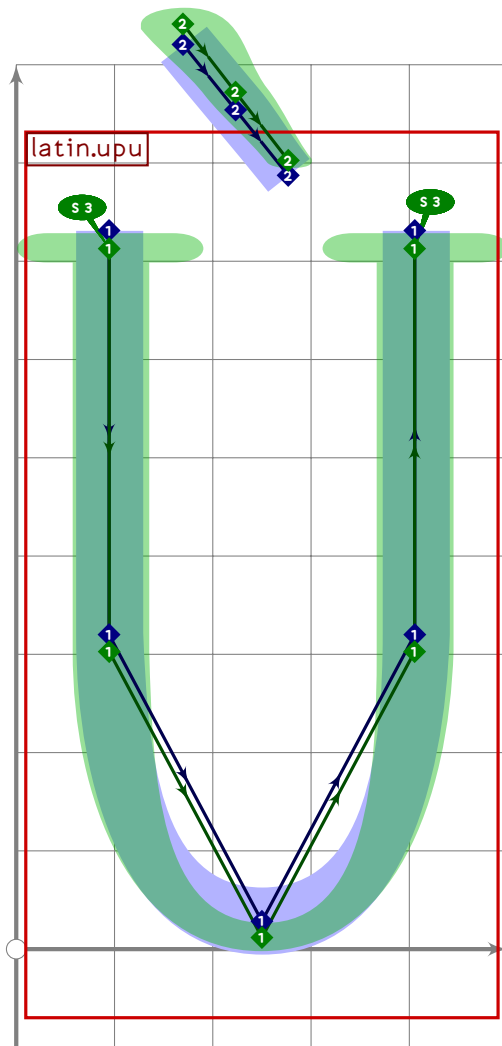
```
1189 begintsuglyph("multiply";215);  
1190 punct.times(ascii_punct_xf);  
1191 tsu_render;  
1192 endtsuglyph;  
1193 tsu_rescale_half;  
1194
```



```

1195 % O with stroke
1196 begintsuglyph("Oslash",216);
1197 tsu_accent.apply(latin.upo)(tsu_accent.slash);
1198 replace_strokep(-1)(insert_nodes(oldp)(0.3,1.3,2.3,3.3));
1199 replace_strokeq(-1)(insert_nodes(oldq)(0.3,1.3,2.3,3.3));
1200 tsu_render;
1201 endtsuglyph;
1202

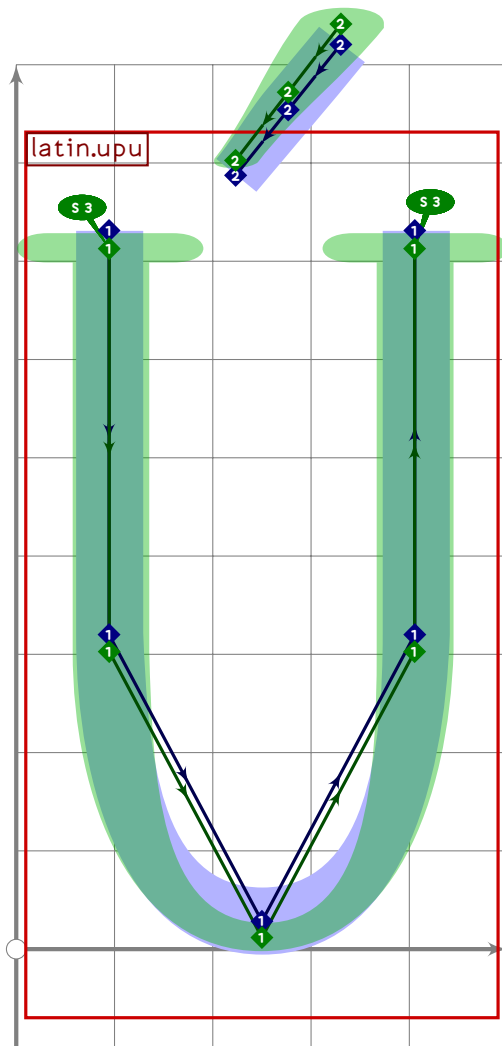
```



```

1203 % U with grave
1204 begintsuglyph("Ugrave";217);
1205 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.grave);
1206 tsu_render;
1207 endtsuglyph;
1208

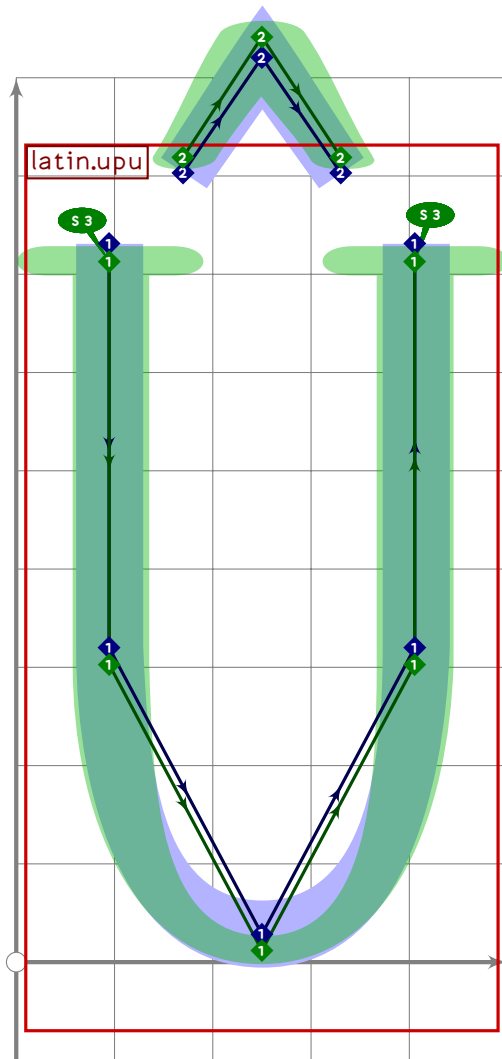
```



```

1209 % U with acute
1210 begintsuglyph("Uacute",218);
1211 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.acute);
1212 tsu_render;
1213 endtsuglyph;
1214

```

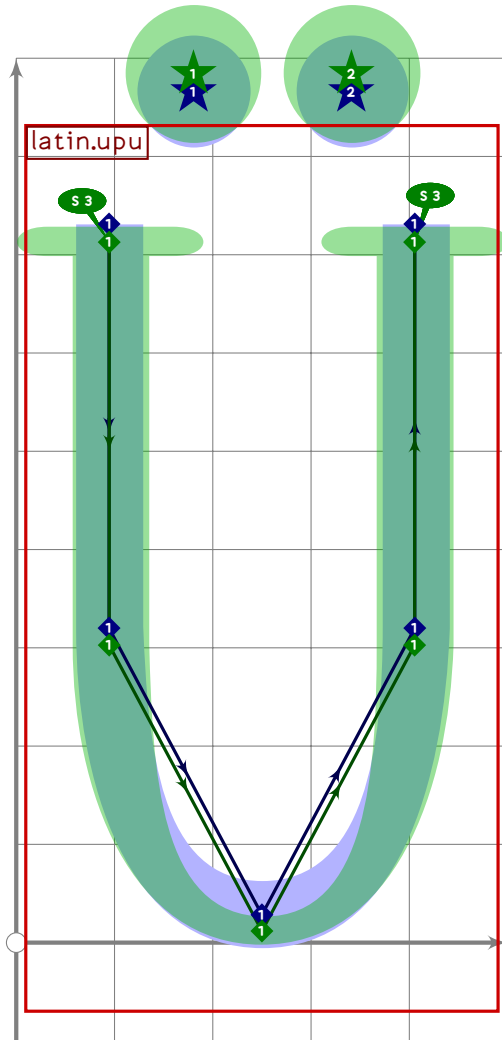


```

1215 % U with circumflex
1216 begintsuglyph("Ucircumflex";219);
1217 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.circumflex);
1218 tsu_render;
1219 endtsuglyph;
1220

```

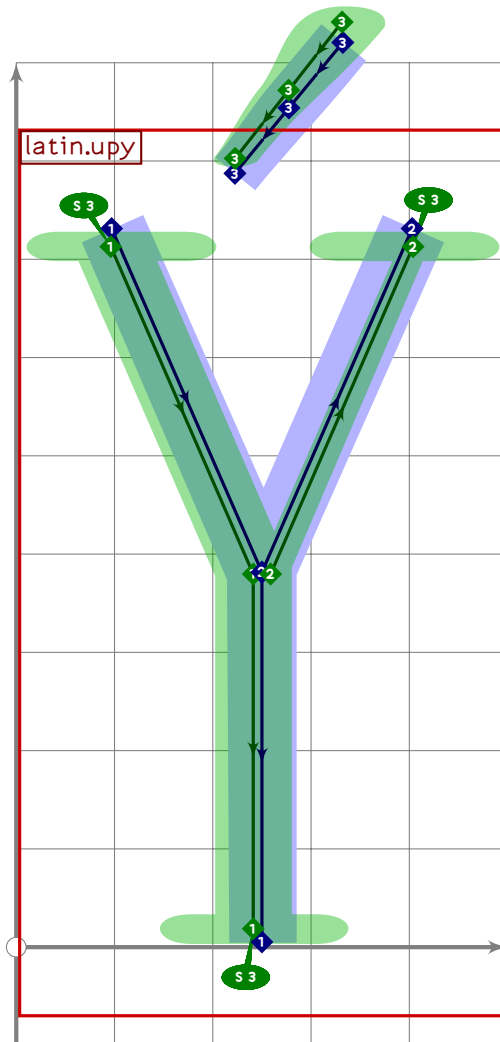




```

1221 % U with dieresis/umlaut
1222 begint Suglyph("Udieresis";220);
1223   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.umlaut);
1224   tsu_render;
1225 endtsuglyph;
1226

```



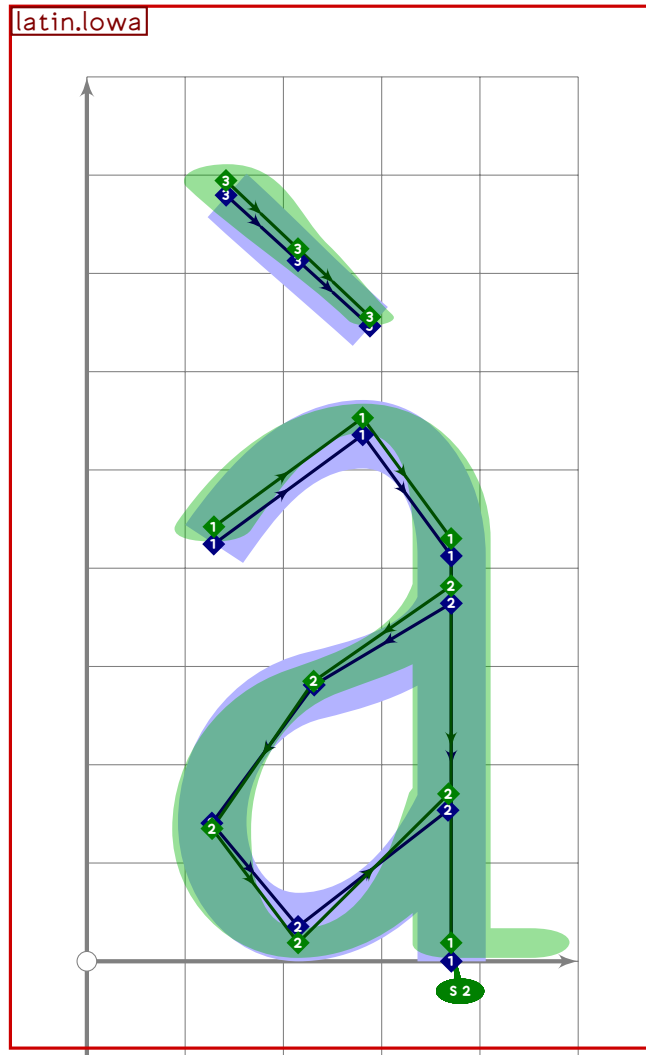
```

1227 % Y with acute
1228 begintsuglyph("Yacute";221);
1229 tsu_accent.apply(tsu_accent.capital(latin.upy))(tsu_accent.acute);
1230 tsu_render;
1231 endtsuglyph;
1232
1233 % uppercase Thorn
1234 begintsuglyph("Thorn";222);
1235 latin.upthorn;
1236 tsu_render;
1237 endtsuglyph;
1238
1239 % eszett
1240 begintsuglyph("germandbls";223);
1241 latin.loweszett;
1242 tsu_render;
1243 endtsuglyph;
1244

```

[see page 195]

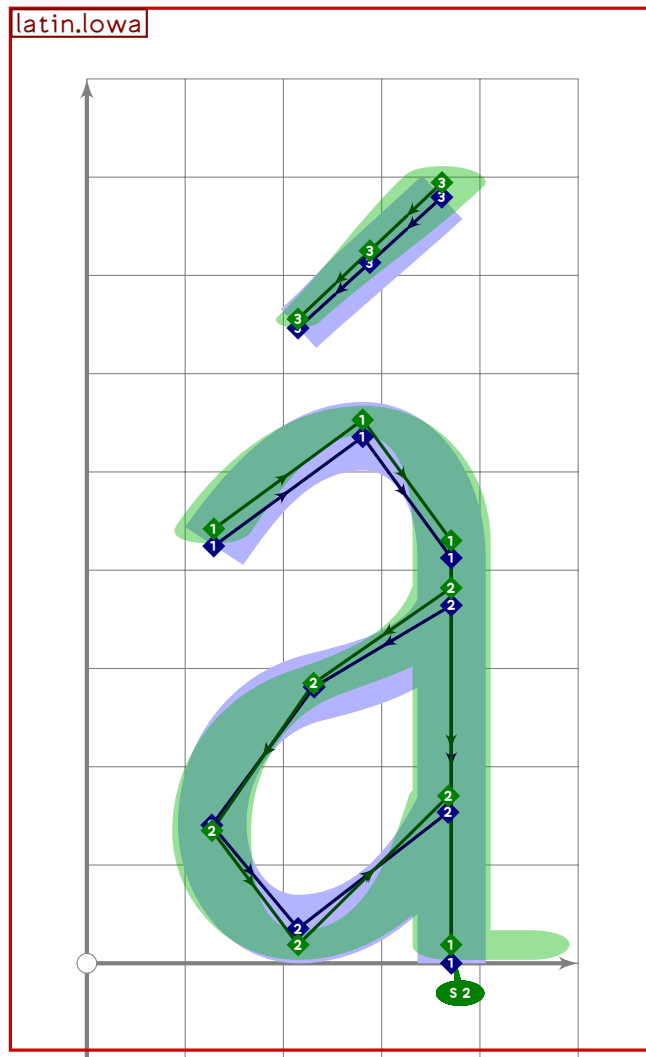
[see page 210]



```

1245 % a with grave
1246 begint Suglyph("agrave";224);
1247 tsu_accent.apply(latin.lowa)(tsu_accent.grave);
1248 tsu_render;
1249 endtsuglyph;
1250

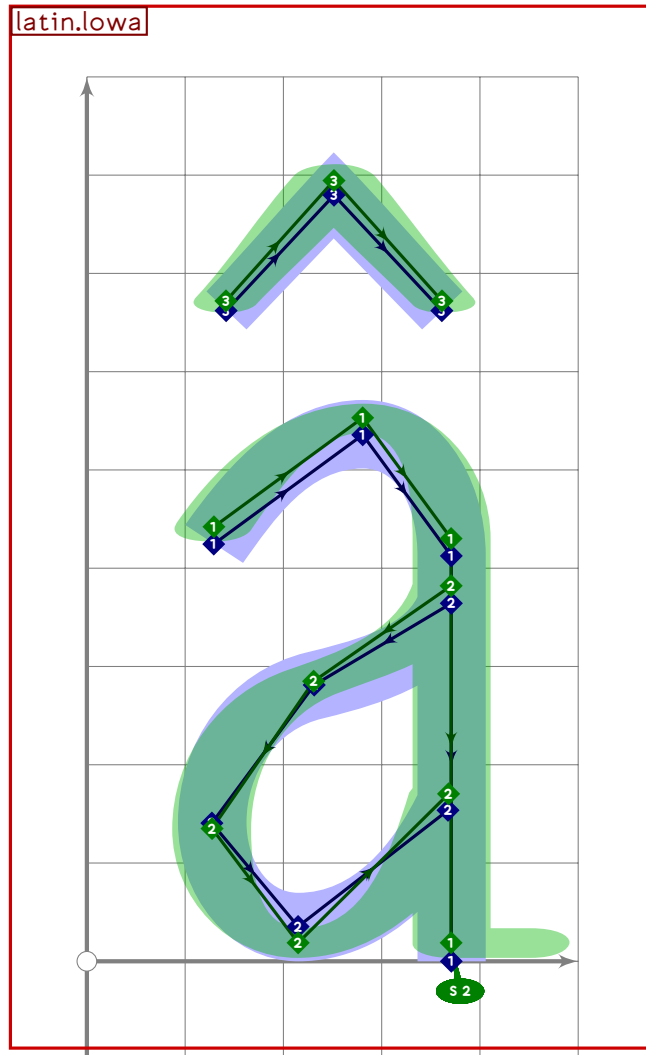
```



```

1251 % a with acute
1252 begintuglyph("acute";225);
1253   tsu_accent.apply(latin.lowa)(tsu_accent.acute);
1254   tsu_render;
1255 endtuglyph;
1256

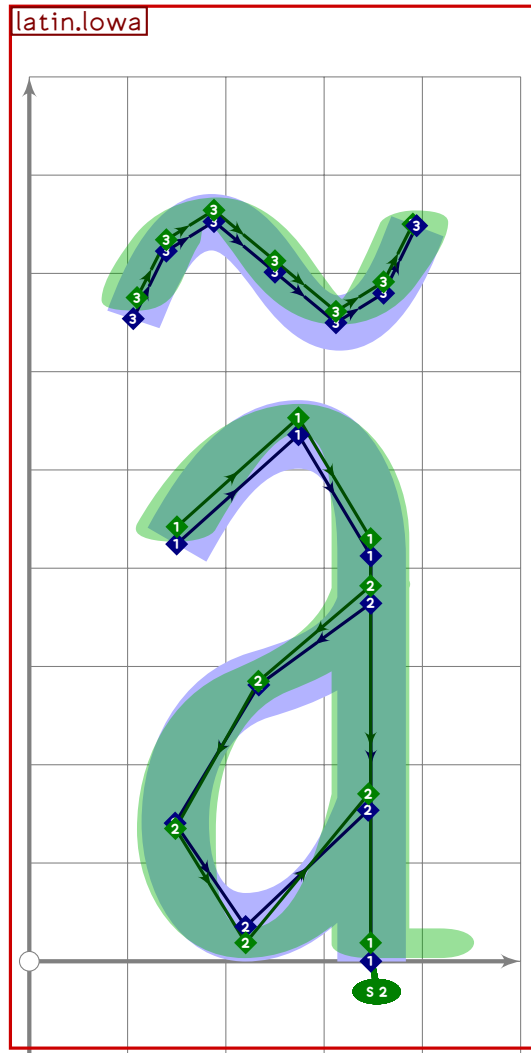
```



```

1257 % a with circumflex
1258 begint Suglyph("acircumflex";226);
1259 tsu_accent.apply(latin.lowa)(tsu_accent.circumflex);
1260 tsu_render;
1261 endtsuglyph;
1262

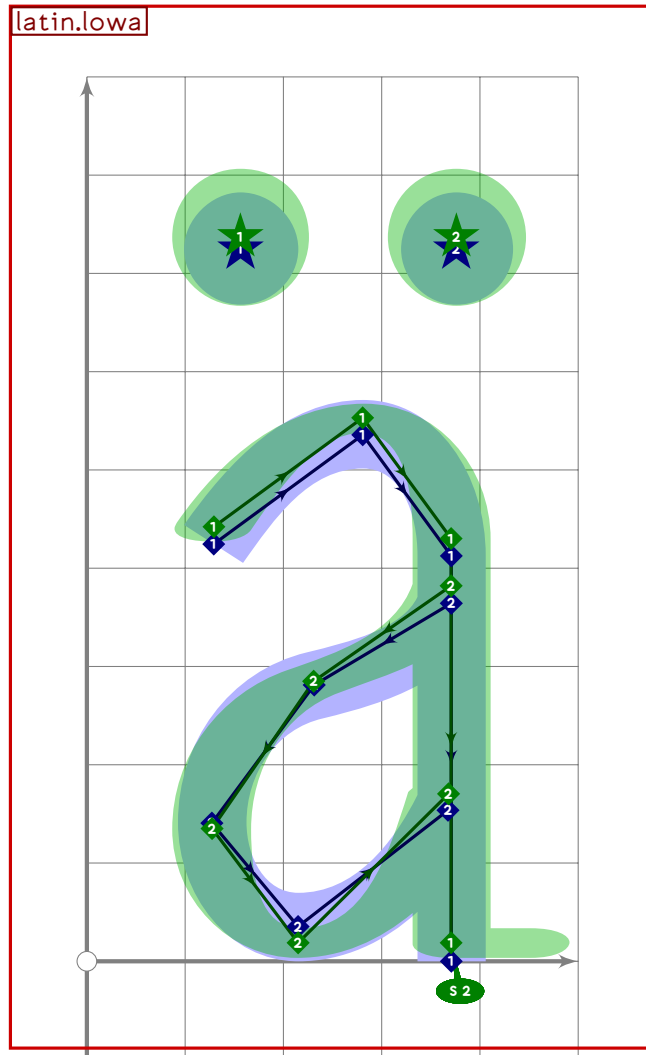
```



```

1263 % a with tilde
1264 begintsuglyph("atilde";227);
1265 tsu_accent.apply(latin.low)(tsu_accent.tilde);
1266 tsu_render;
1267 endtsuglyph;
1268

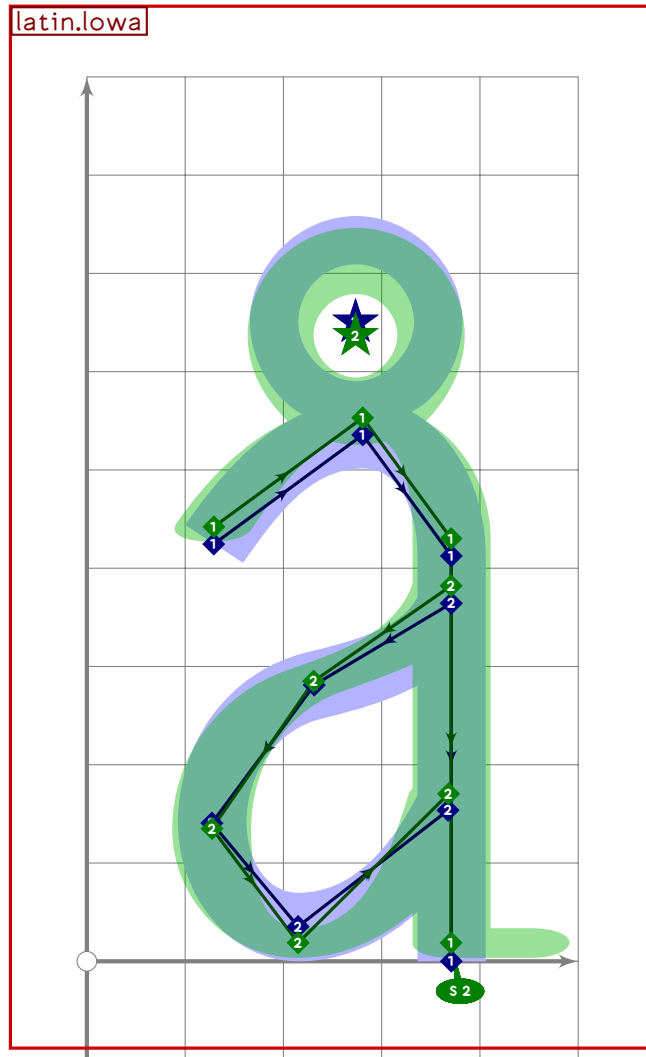
```



```

1269 % a with dieresis/umlaut
1270 begint Suglyph("adieresis";228);
1271   tsu_accent.apply(latin.low)(tsu_accent.umlaue);
1272   tsu_render;
1273 endtsuglyph;
1274

```



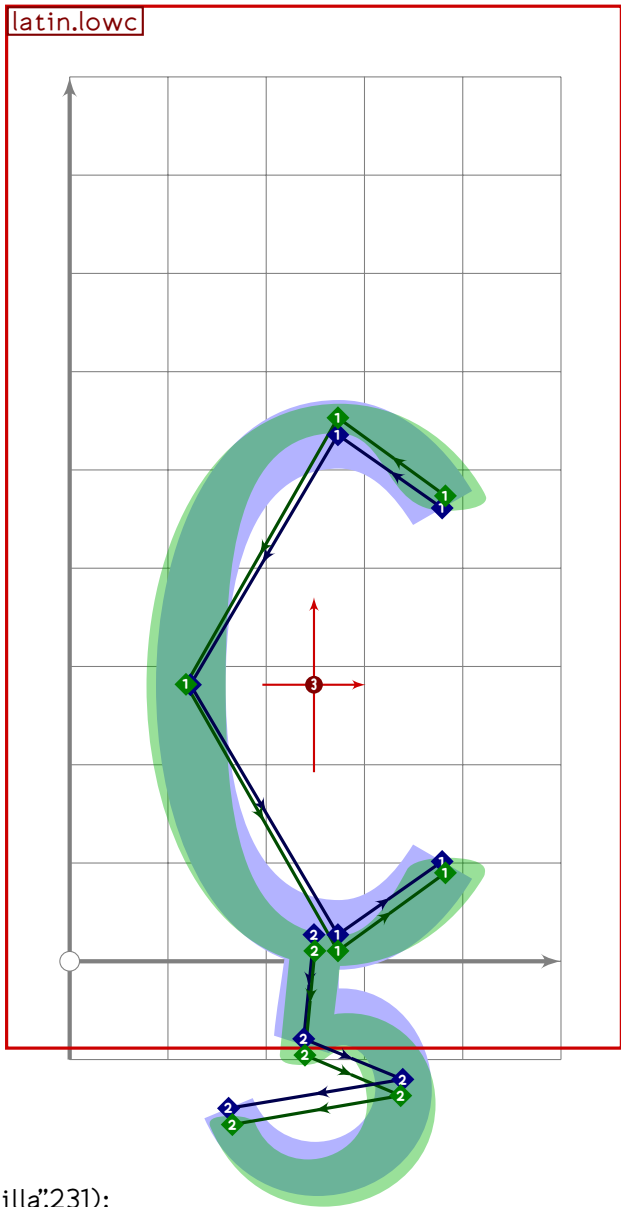
```

1275 % a with ring above
1276 begint Suglyph("aring";229);
1277   tsu_accent.apply(latin.lowa)(tsu_accent.ringabove);
1278   replace_lcblob(-1)(oldblob shifted (30,-20));
1279   replace_lcblob(0)(oldblob shifted (30,-20));
1280   tsu_render;
1281 endtsuglyph;
1282
1283 % ae ligature
1284 begint Suglyph("ae";230);
1285   latin.lowae;
1286   tsu_render;
1287 endtsuglyph;
1288

```

[see page 205]

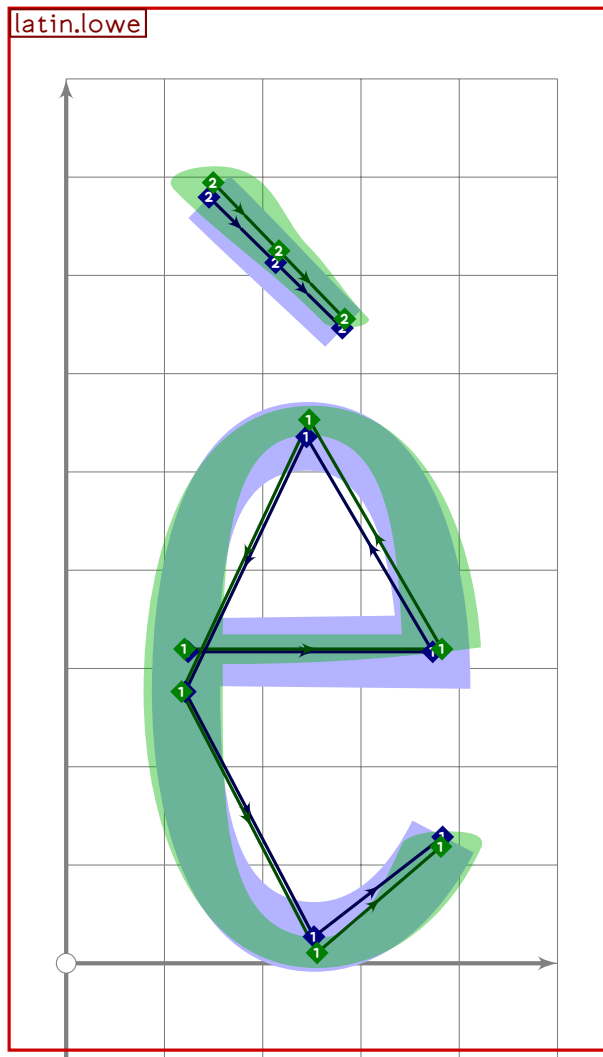




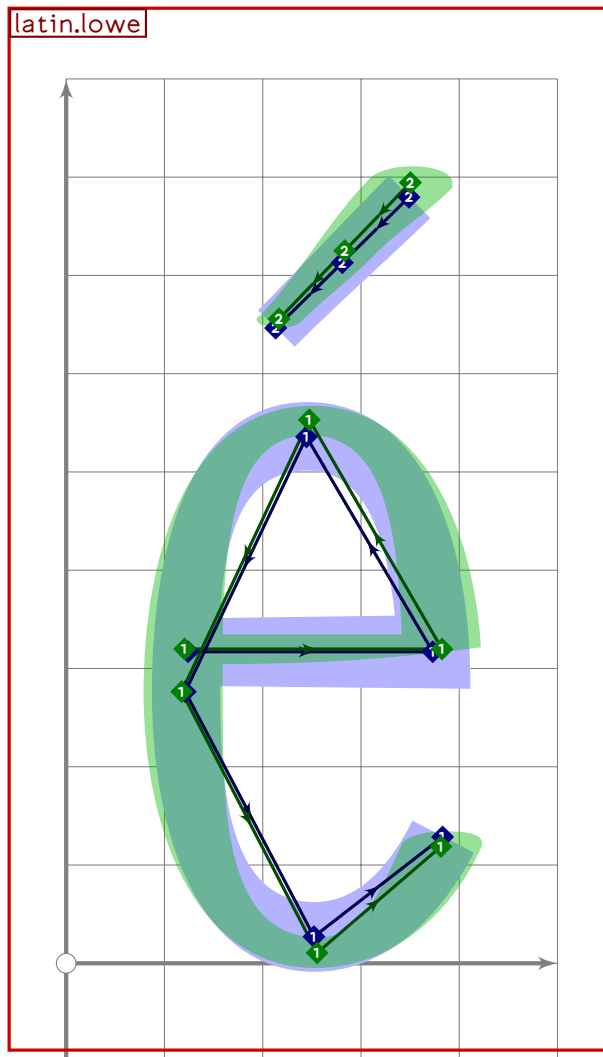
```

1289 % c with cedilla
1290 begintsuglyph("ccedilla",231);
1291 tsu_accent.apply(latin.lowc)(tsu_accent.cedilla);
1292 tsu_render;
1293 endtsuglyph;
1294

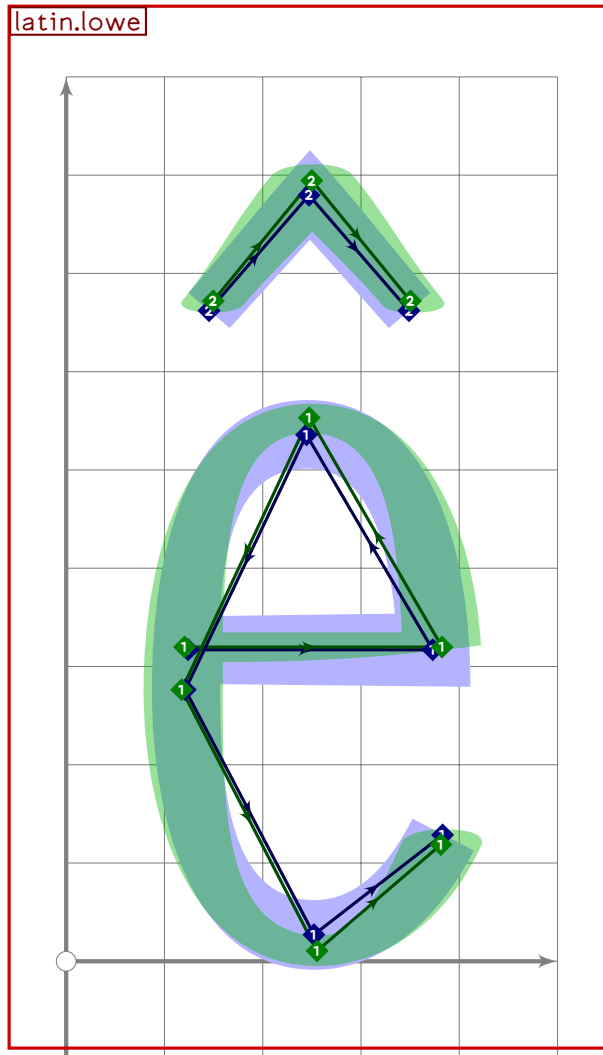
```



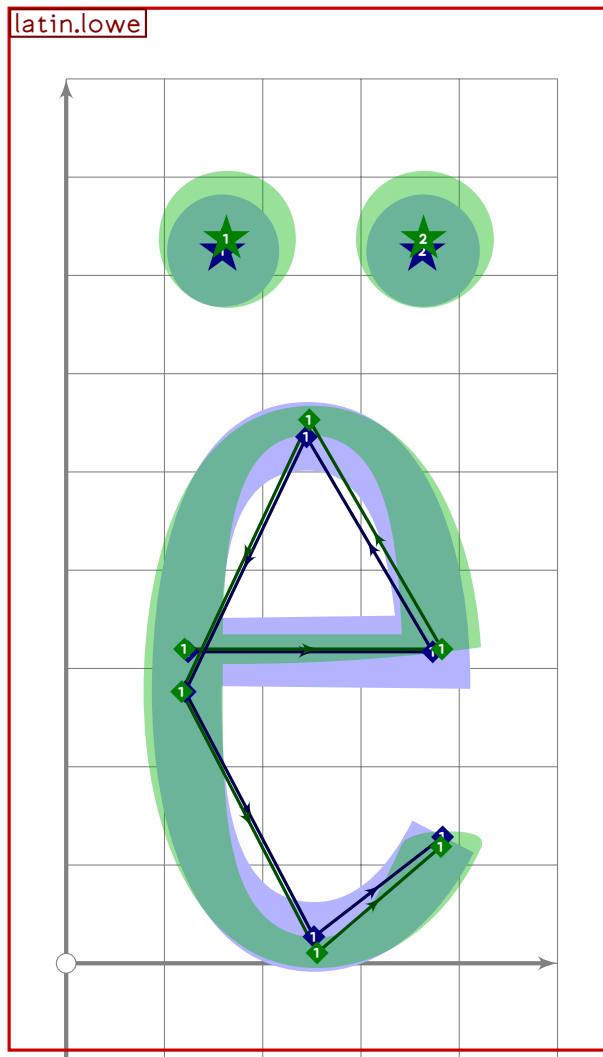
```
1295 % e with grave  
1296 begint Suglyph("egrave";232);  
1297 tsu_accent.apply(latin.lower)(tsu_accent.grave);  
1298 tsu_render;  
1299 endtsuglyph;  
1300
```



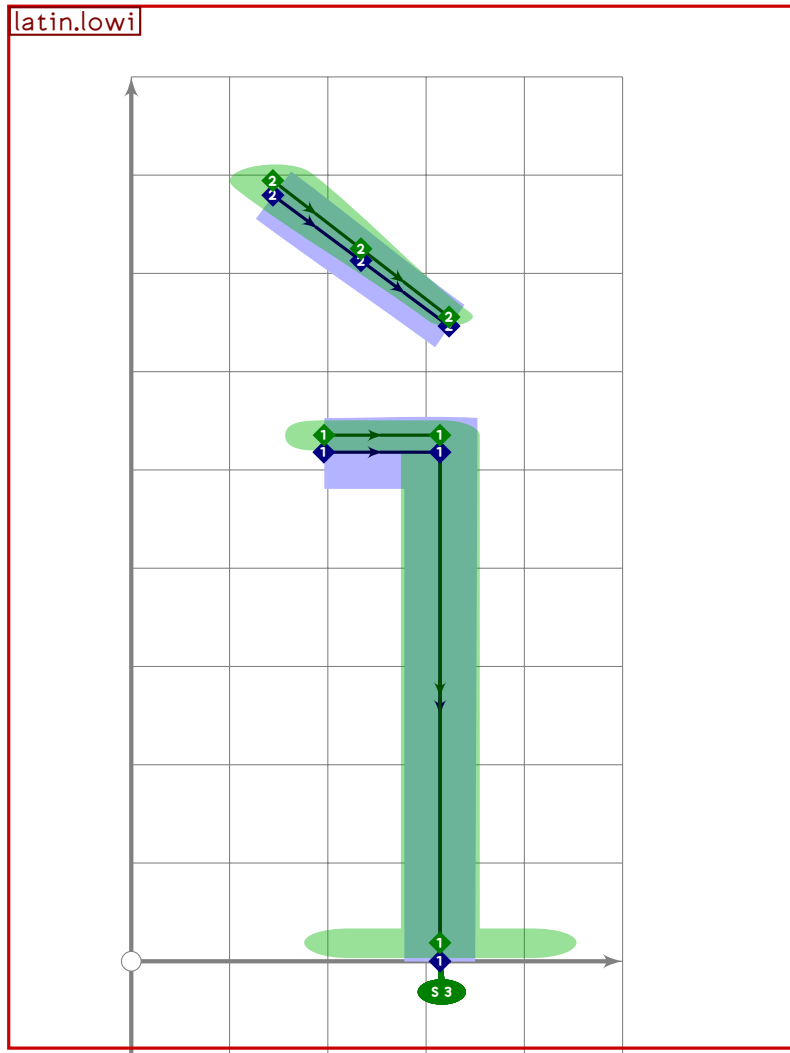
```
1301 % e with acute
1302 begintsuglyph("eacute";233);
1303 tsu_accent.apply(latin.lower)(tsu_accent.acute);
1304 tsu_render;
1305 endtsuglyph;
1306
```



```
1307 % e with circumflex
1308 begint Suglyph("ecircumflex";234);
1309 tsu_accent.apply(latin.lowe)(tsu_accent.circumflex);
1310 tsu_render;
1311 endtsuglyph;
1312
```



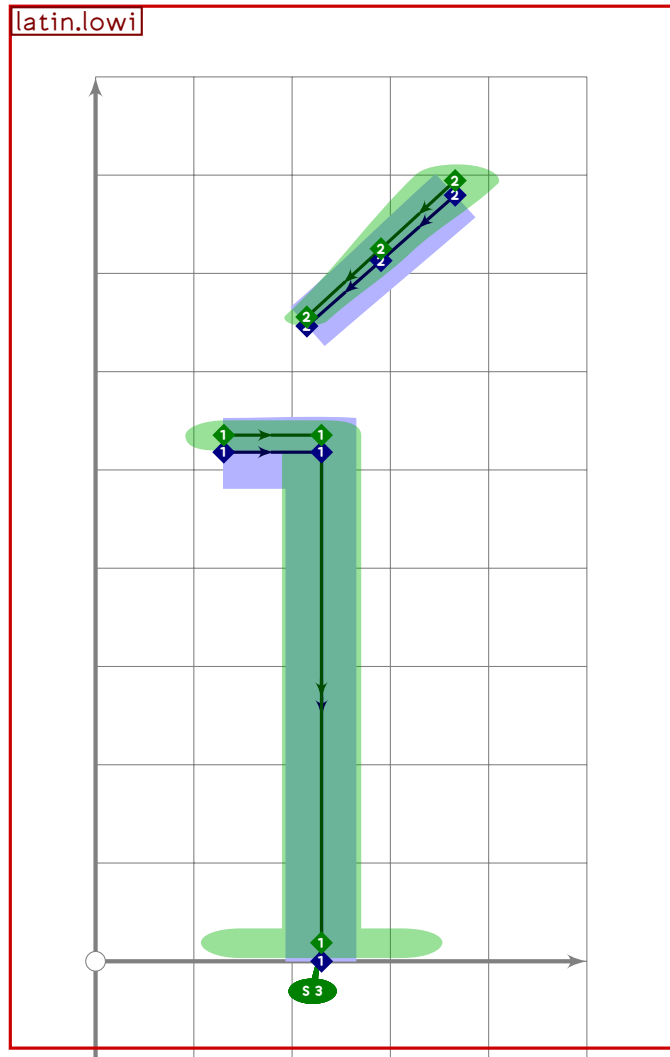
```
1313 % e with dieresis/umlaut
1314 begintsuglyph("edieresis";235);
1315 tsu_accent.apply(latin.love)(tsu_accent.umlaut);
1316 tsu_render;
1317 endtsuglyph;
1318
```



```

1319 % i with grave
1320 begintsuglyph("igrave";236);
1321 tsu_accent.apply(
1322     latin.lowi;
1323     replace_strokep(0)(oldp shifted (70*right));
1324     pop_lcblob;
1325 )(tsu_accent.grave);
1326 tsu_render;
1327 endtsuglyph;
1328

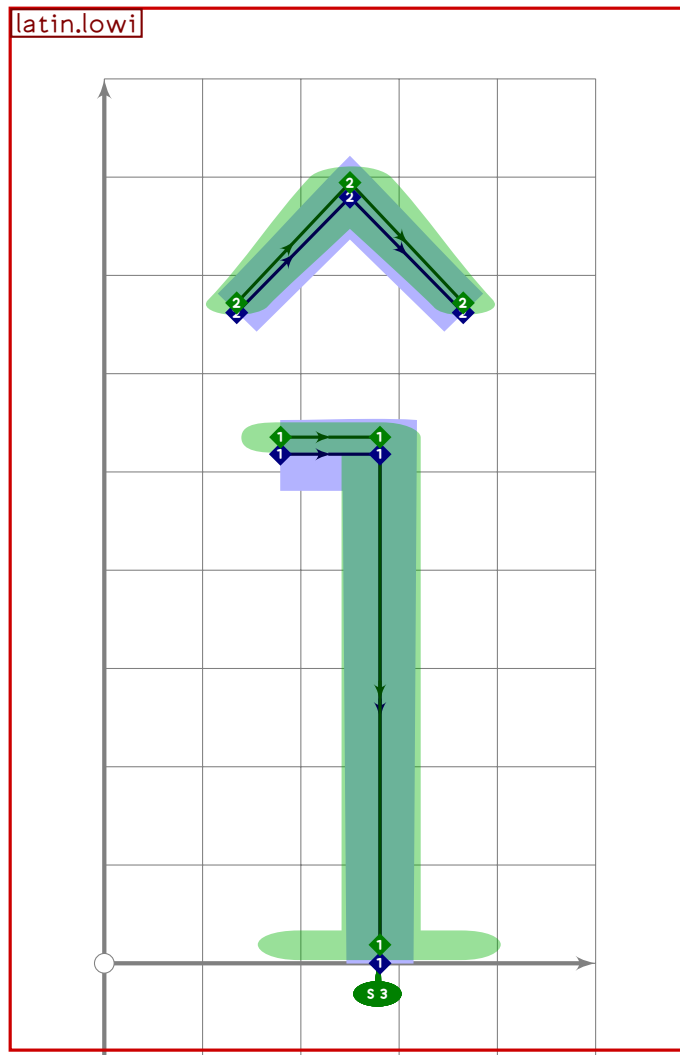
```



```

1329 % i with acute
1330 begintsuglyph("iacute",237);
1331 tsu_accent.apply(latin.lowi;pop_lcblob)(tsu_accent.acute);
1332 tsu_render;
1333 endtsuglyph;
1334

```

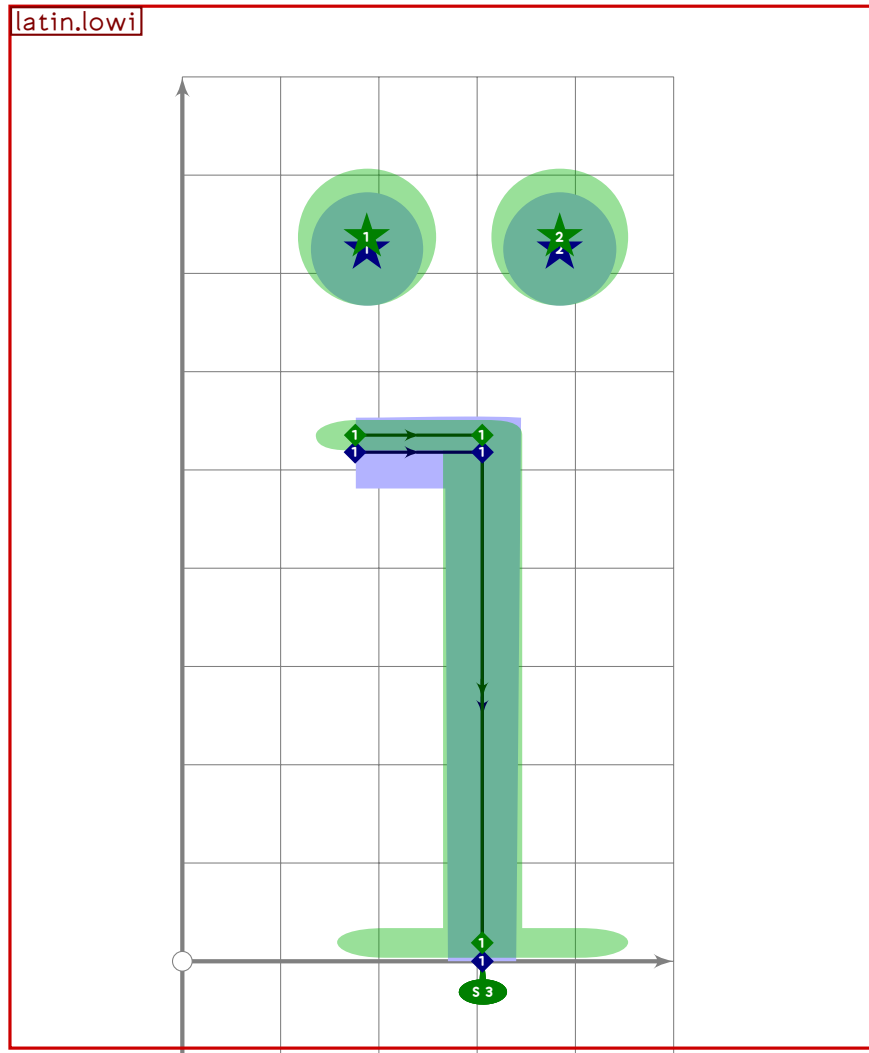


```

1335 % i with circumflex
1336 begint Suglyph("icircumflex";238);
1337 tsu_accent.apply(
1338     latin.lowi;
1339     replace_stroke(0)(oldp shifted (70*right));
1340     pop_lcblob;
1341 )(tsu_accent.circumflex);
1342 tsu_render;
1343 endtsuglyph;
1344

```



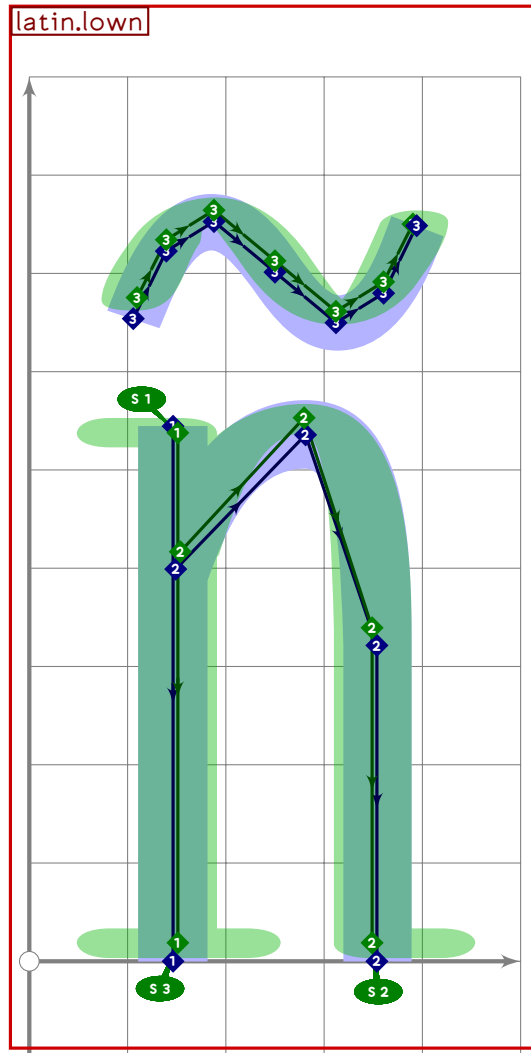


```

1345 % i with dieresis/umlaut
1346 begintsuglyph("idieresis";239);
1347   tsu_accent.apply(
1348     latin.lowi;
1349     replace_stroke(0)(oldp shifted (70*right));
1350     pop_lcblob;
1351   )(tsu_accent.umlaut);
1352   replace_lcblob(-1)(oldblob shifted (50*right));
1353   replace_lcblob(0)(oldblob shifted (50*left));
1354   tsu_render;
1355 endtsuglyph;
1356
1357 % lowercase Icelandic eth
1358 begintsuglyph("eth";240);
1359   latin.loweth;
1360   tsu_render;
1361 endtsuglyph;
1362

```

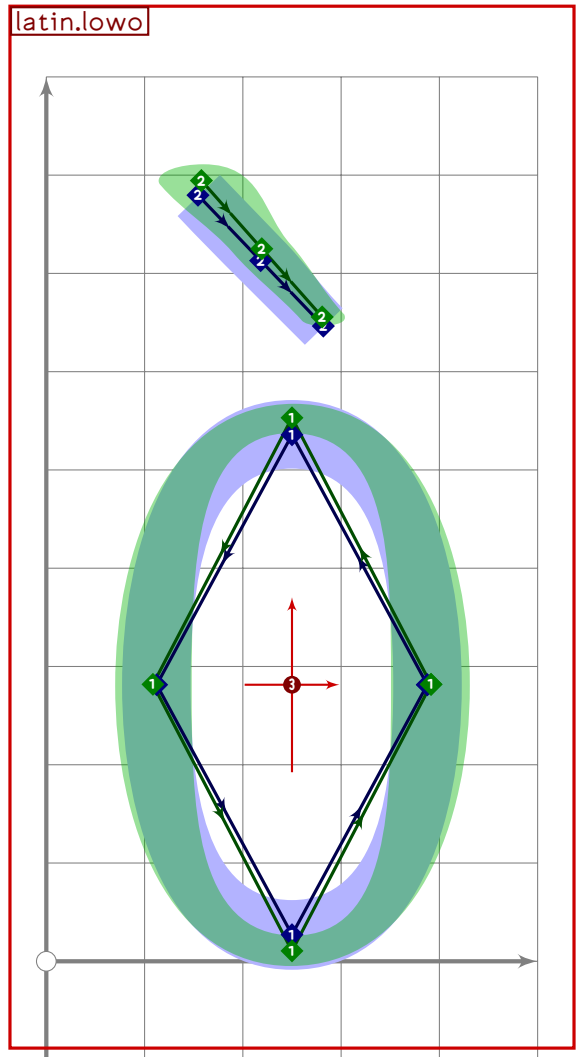
[see page 211]



```

1363 % n with tilde
1364 begintsuglyph("ntilde";241);
1365 tsu_accent.apply(latin.lown)(tsu_accent.tilde);
1366 tsu_render;
1367 endtsuglyph;
1368

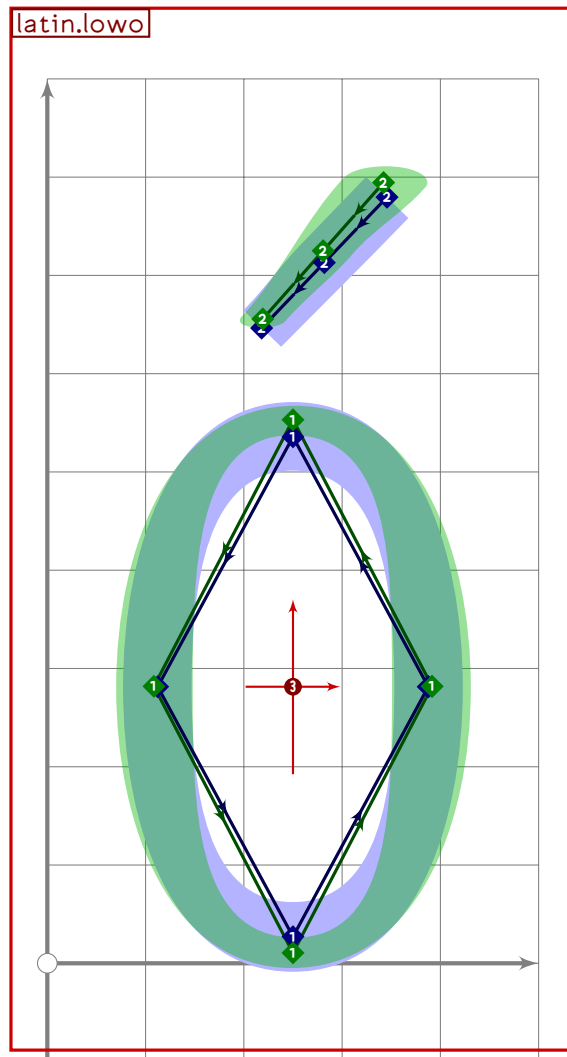
```



```

1369 % o with grave
1370 begint Suglyph("grave";242);
1371   tsu_accent.apply(latin.lowo)(tsu_accent.grave);
1372   tsu_render;
1373 endtsuglyph;
1374

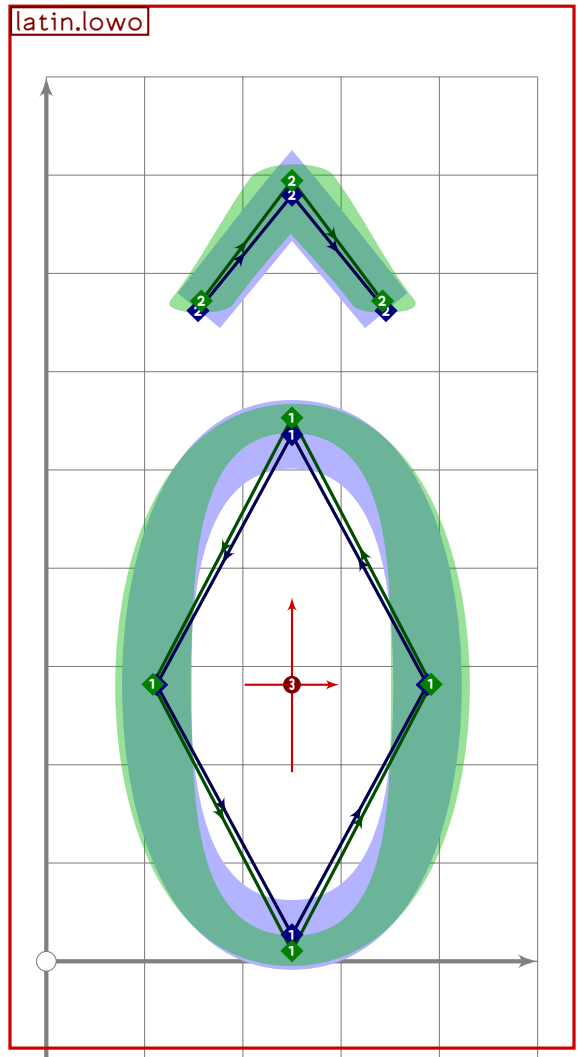
```



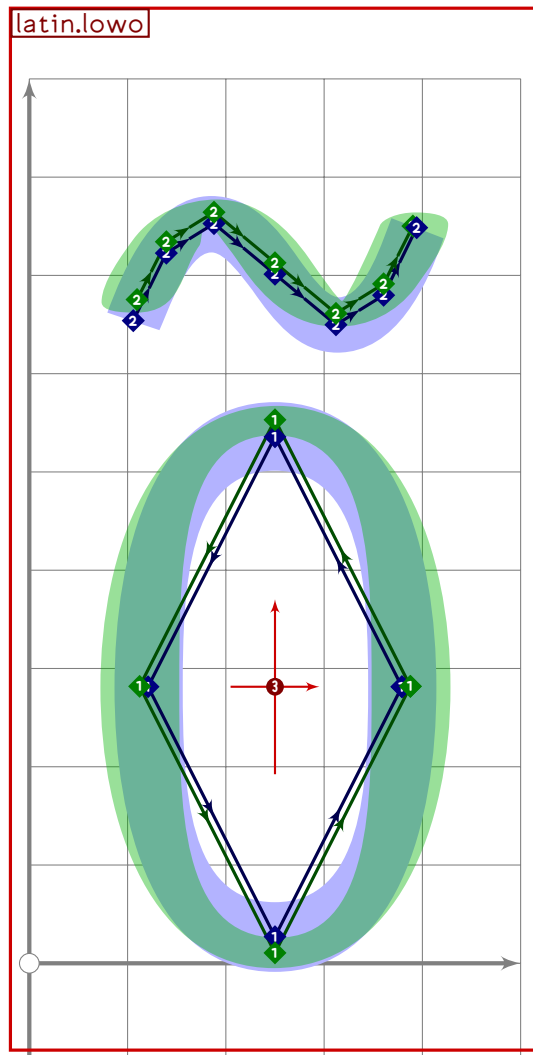
```

1375 % o with acute
1376 begintsuglyph("acute";243);
1377 tsu_accent.apply(latin.lowo)(tsu_accent.acute);
1378 tsu_render;
1379 endtsuglyph;
1380

```



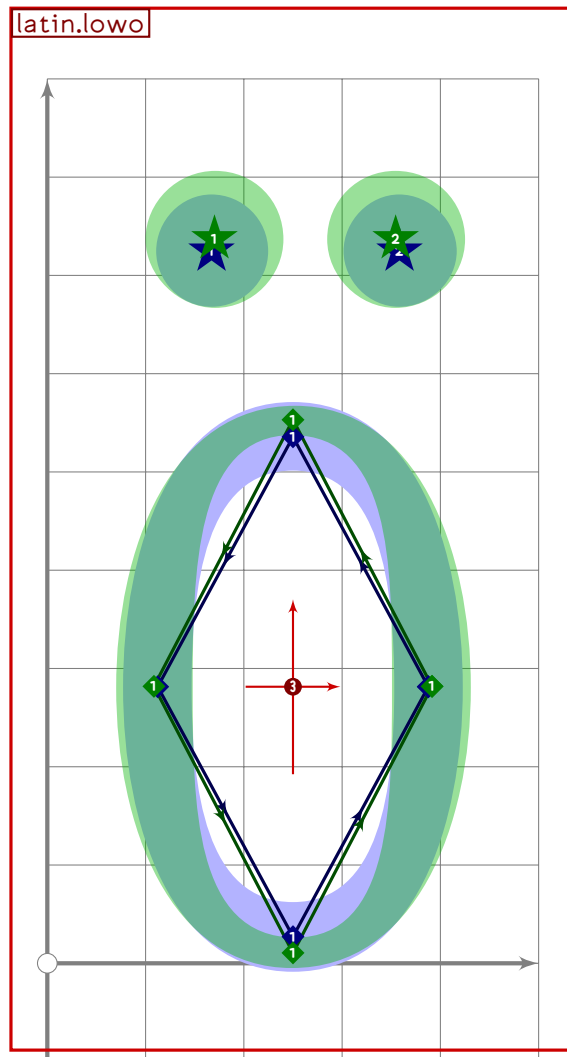
```
1381 % o with circumflex
1382 begintsuglyph("bcircumflex";244);
1383 tsu_accent.apply(latin.lowo)(tsu_accent.circumflex);
1384 tsu_render;
1385 endtsuglyph;
1386
```



```

1387 % o with tilde
1388 begintsuglyph("otilde";245);
1389 tsu_accent.apply(latin.lowo)(tsu_accent.tilde);
1390 tsu_render;
1391 endtsuglyph;
1392

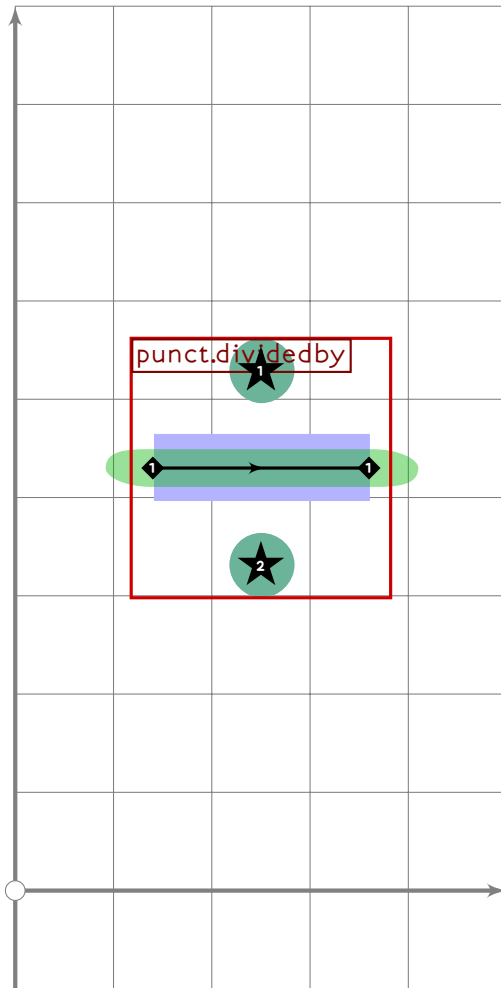
```



```

1393 % o with dieresis/umlaut
1394 begintsuglyph("bdieresis";246);
1395 tsu_accent.apply(latin.lowo)(tsu_accent.umlaut);
1396 tsu_render;
1397 endtsuglyph;
1398
1399 % division sign
1400 tsu_rescale_native_conditional;

```

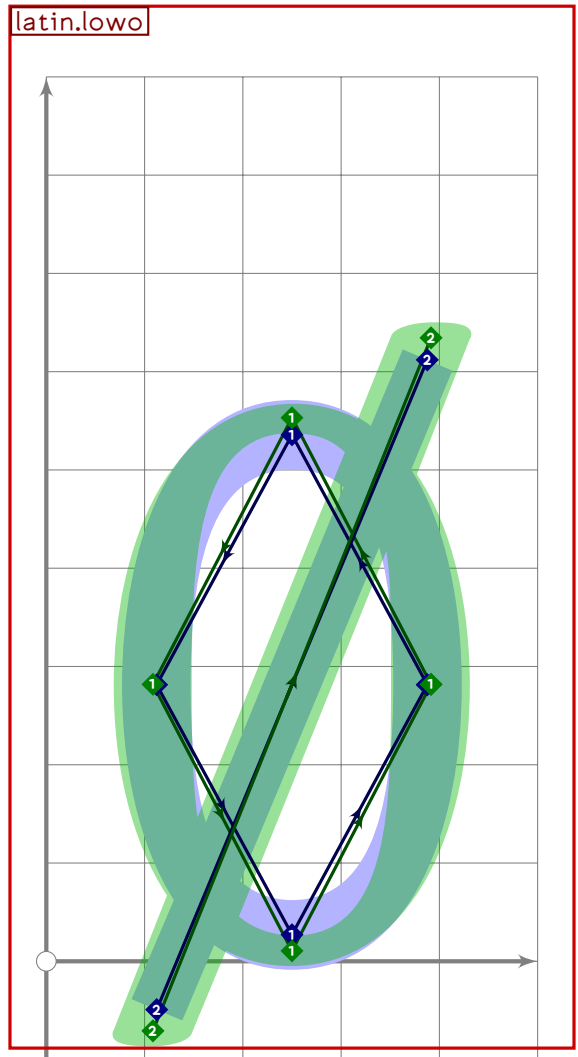


```

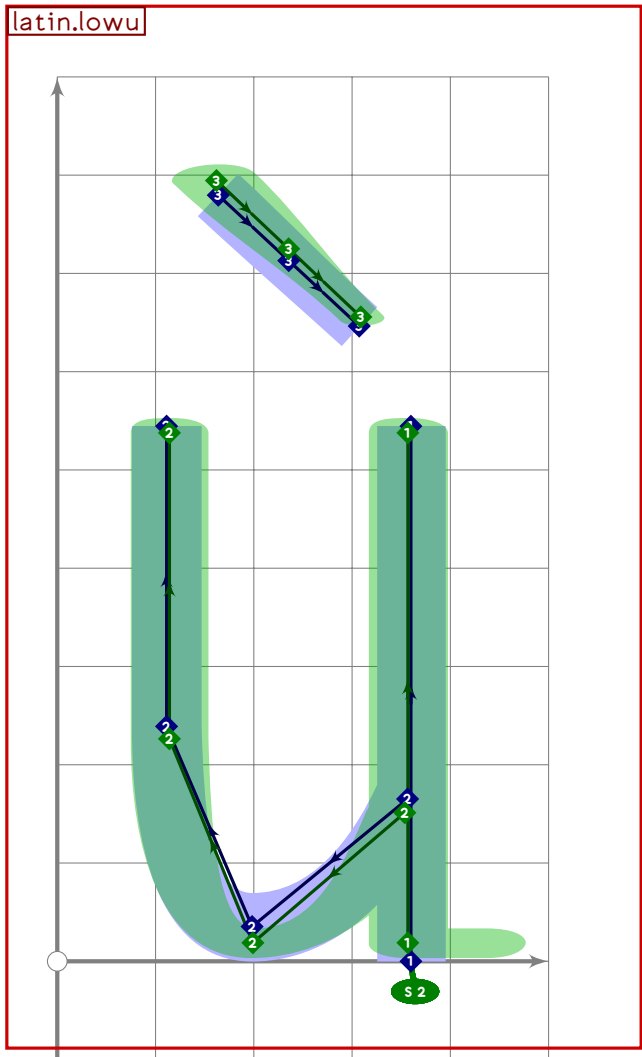
1401 begint Suglyph("divide";247);
1402 punct.dividedby(ascii_punct_xf);
1403 tsu_render;
1404 endtsuglyph;
1405 tsu_rescale_half;
1406

```





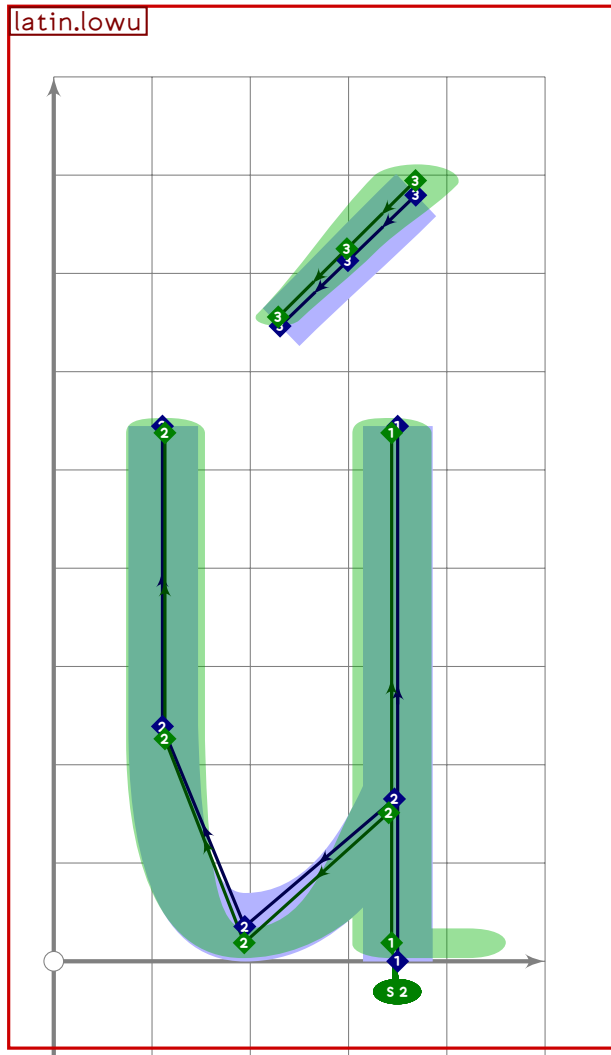
```
1407 % o with stroke
1408 begintsuglyph("oslash";248);
1409 tsu_accent.apply(latin.lowo)(tsu_accent.slash);
1410 tsu_render;
1411 endtsuglyph;
1412
```



```

1413 % u with grave
1414 begintsuglyph("ugrave";249);
1415 tsu_accent.apply(latin.lowu)(tsu_accent.grave);
1416 tsu_render;
1417 endtsuglyph;
1418

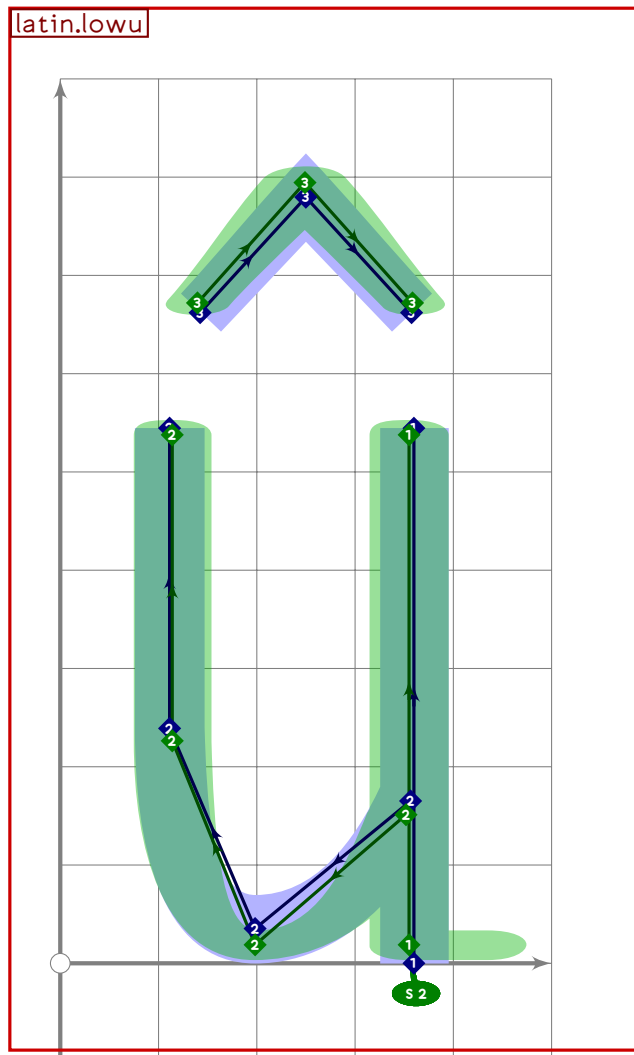
```



```

1419 % u with acute
1420 begint Suglyph("uacute";250);
1421   tsu_accent.apply(latin.lowu)(tsu_accent.acute);
1422   tsu_render;
1423 endtsuglyph;
1424

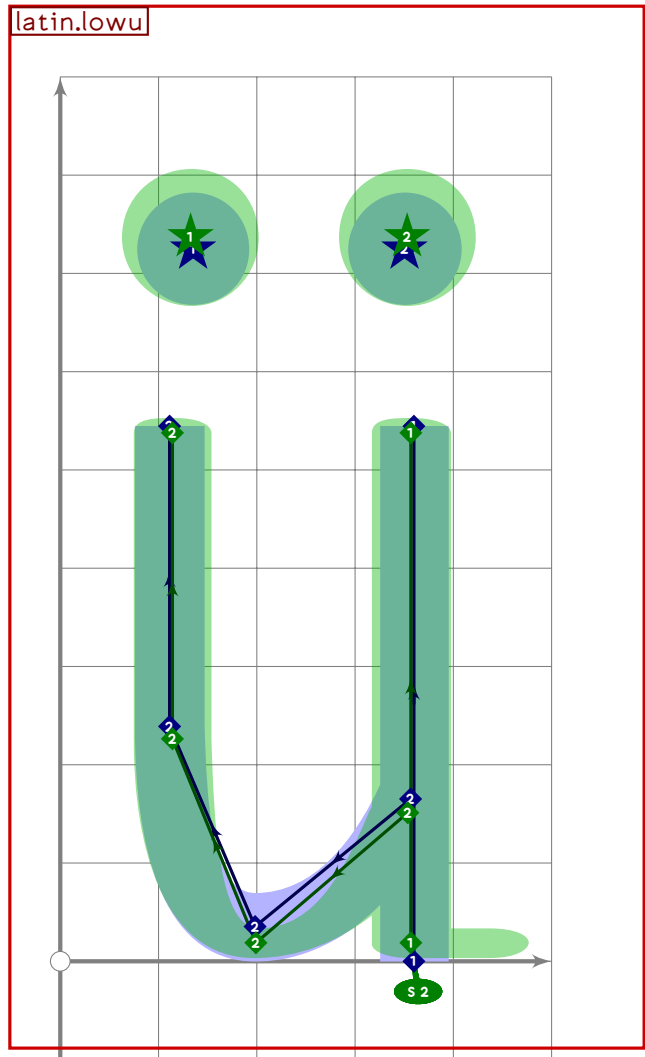
```



```

1425 % u with circumflex
1426 beginsuglyph("ucircumflex";251);
1427 tsu_accent.apply(latin.lowu)(tsu_accent.circumflex);
1428 replace_strokep(0)(oldp shifted (-30,0));
1429 tsu_render;
1430 endsuglyph;
1431

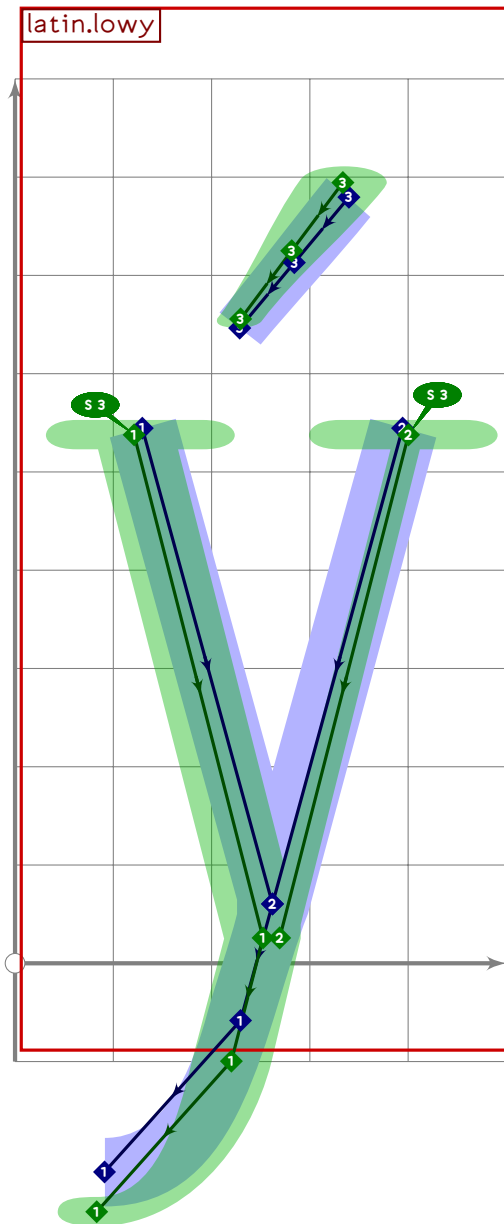
```



```

1432 % u with dieresis/umlaut
1433 begintsuglyph("udieresis";252);
1434 tsu_accent.apply(latin.lowu)(tsu_accent.umlaut);
1435 replace_lcblob(-1)(oldblob shifted (-60,0));
1436 replace_lcblob(0)(oldblob shifted (-60,0));
1437 tsu_render;
1438 endtsuglyph;
1439

```

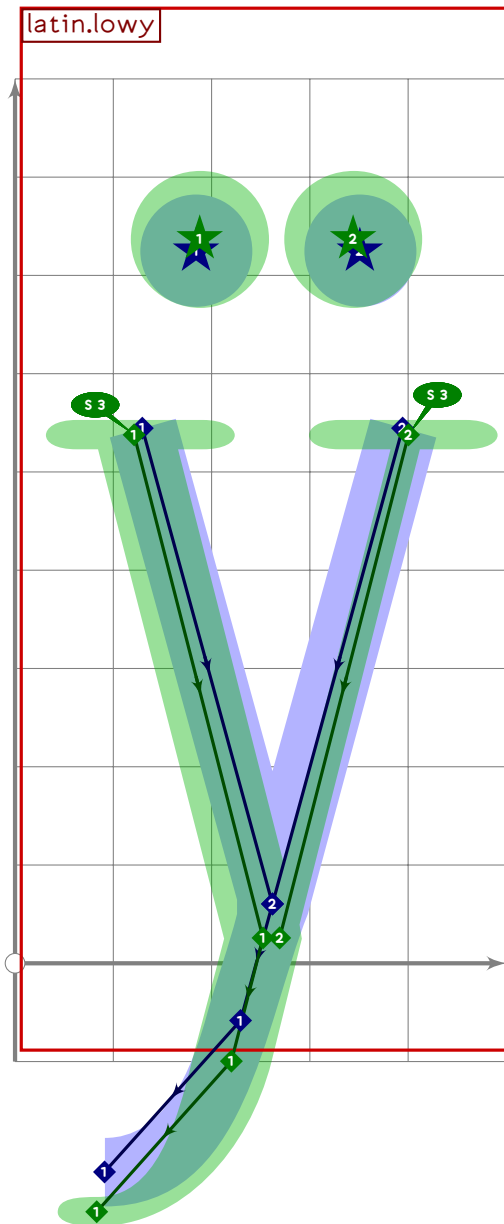


```

1440 % y with acute
1441 begintsuglyph("yacute";253);
1442 tsu_accent.apply(latin.lowy)(tsu_accent.acute);
1443 tsu_render;
1444 endtsuglyph;
1445
1446 % thorn
1447 begintsuglyph("thorn";254);
1448 latin.lowthorn;
1449 tsu_render;
1450 endtsuglyph;
1451

```

[see page 236]



```

1452 % y with dieresis/umlaut
1453 begint Suglyph("ydieresis";255);
1454   tsu_accent.apply(latin.lowy)(tsu_accent.umlaut);
1455   tsu_render;
1456 endtsuglyph;
1457
1458 -----
1459
1460 endfont;
1461
1462 -----

```

# tsuku-01.mp

```
1 %
2 % Unicode page 01 (Latin Extended A) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input ogonek.mp;
41 input punct.mp;
42
43 

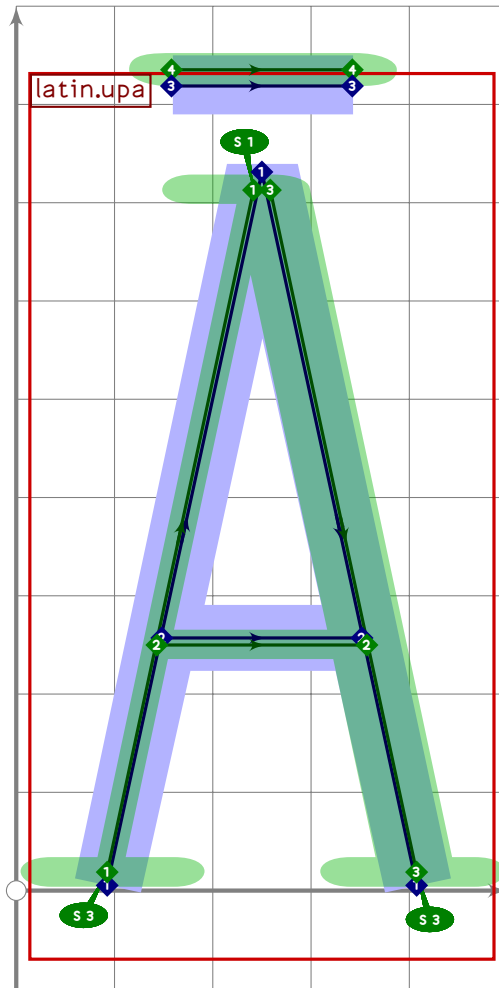
---


44
```

## Latin Extended A

```
45 % LATIN EXTENDED A
46
47 tsu_rescale_half;
48
```

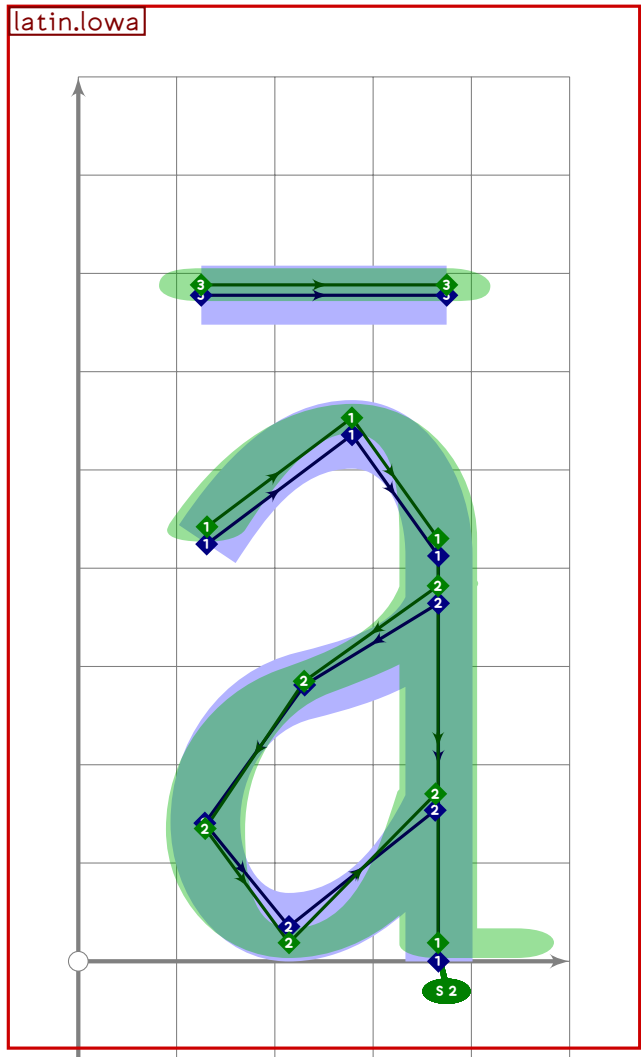




```

49 % A with macron
50 begint Suglyph("A macron",0);
51   tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.macron);
52   tsu_render;
53 endtsuglyph;
54

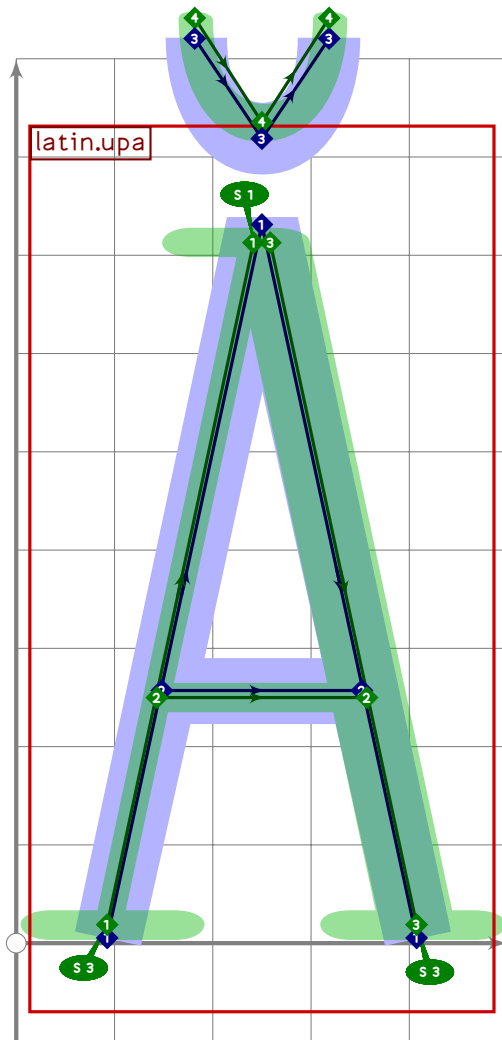
```



```

55 % a with macron
56 begint Suglyph("amacron",1);
57   tsu_accent.apply(latin.lowa)(tsu_accent.macron);
58   tsu_render;
59 endtsuglyph;
60

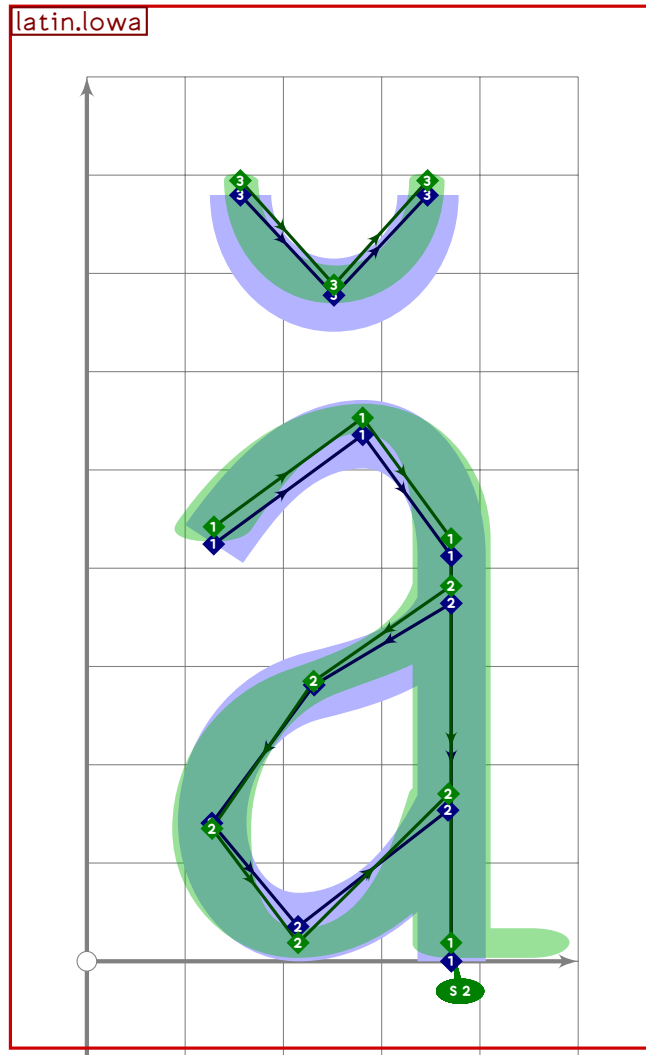
```



```

61 % A with breve
62 begintsuglyph("Abreve";2);
63 tsu_accent.apply(tsu_accent.capital(latin.upa))(tsu_accent.breve);
64 tsu_render;
65 endsuglyph;
66

```



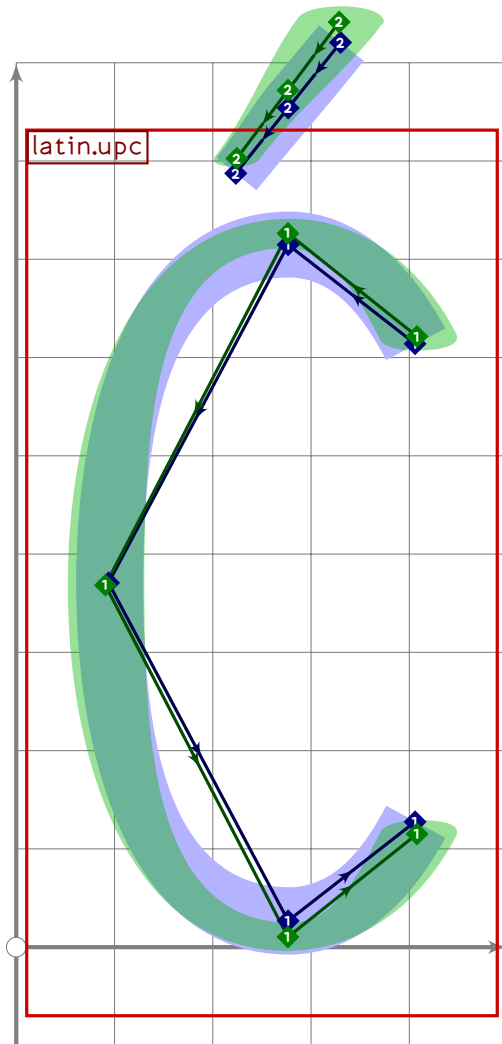
```

67 % a with breve
68 begintsuglyph("abreve";3);
69 tsu_accent.apply(latin.lowa)(tsu_accent.breve);
70 tsu_render;
71 endtsuglyph;
72
73 % A with ogonek
74 begintsuglyph("Aogonek";4);
75 latin.upaogonek;
76 tsu_render;
77 endtsuglyph;
78
79 % a with ogonek
80 begintsuglyph("aogonek";5);
81 latin.lowaogonek;
82 tsu_render;
83 endtsuglyph;
84

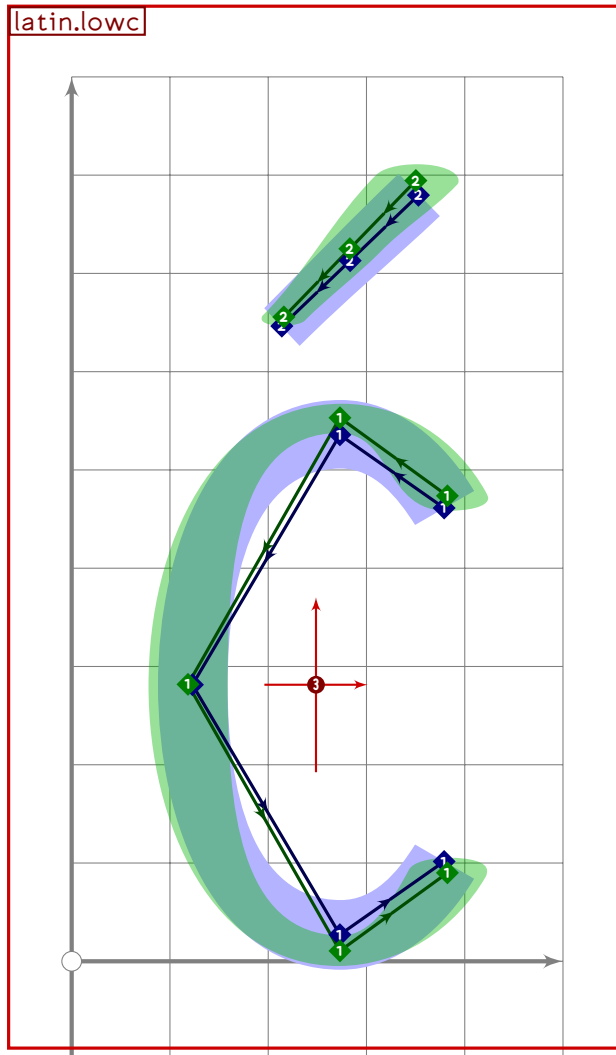
```

[see page 262]

[see page 268]



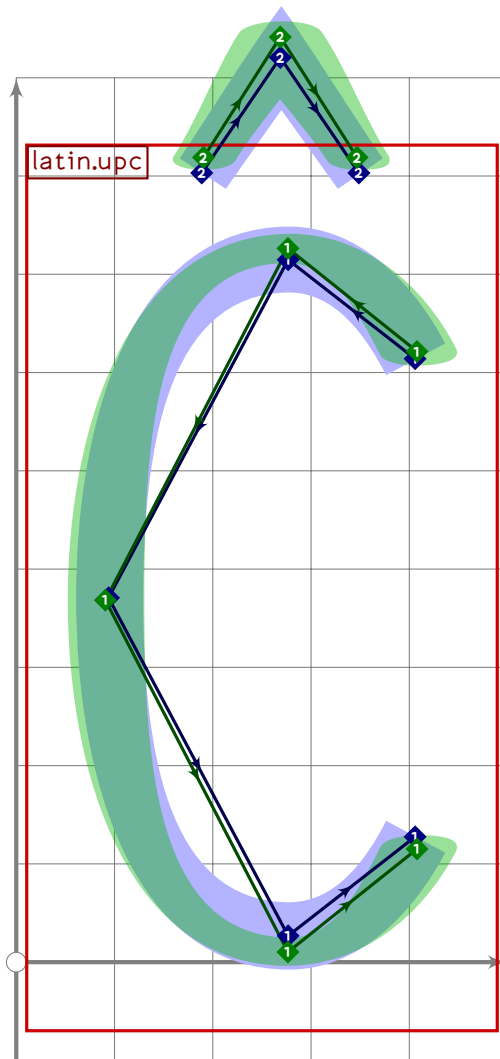
```
85 % C with acute
86 begintsuglyph("Cacute";6);
87   tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.acute);
88   tsu_render;
89 endtsuglyph;
90
```



```

91 % c with acute
92 begint Suglyph("cacute",7);
93   tsu_accent.apply(latin.lowc)(tsu_accent.acute);
94   tsu_render;
95 endtsuglyph;
96

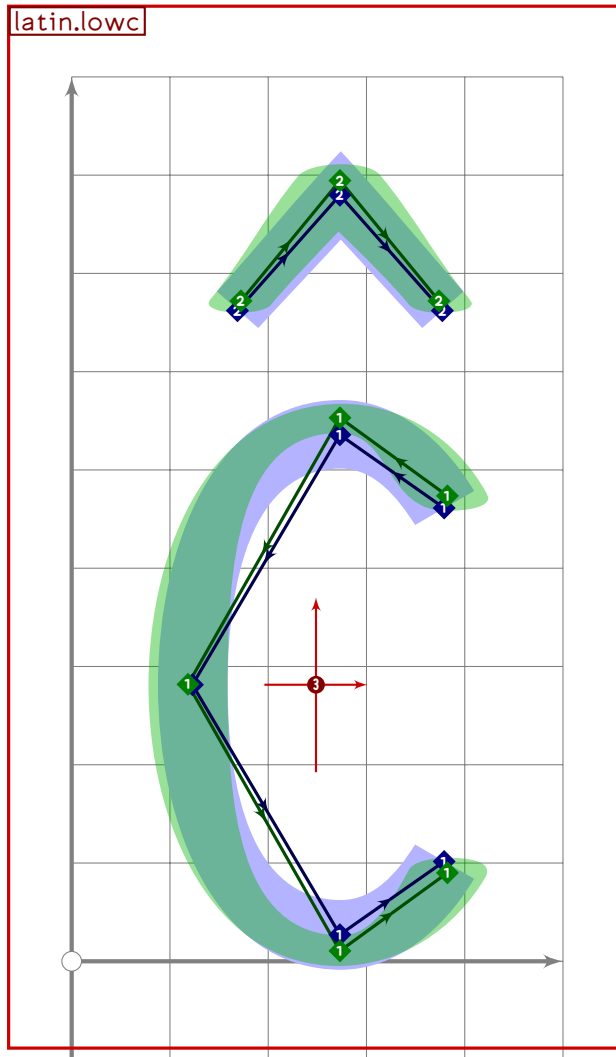
```



```

97 % C with circumflex
98 begintsuglyph("Ccircumflex";8);
99 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.circumflex);
100 replace_strokep(0)(oldp shifted (35,0));
101 tsu_render;
102 endsuglyph;
103

```

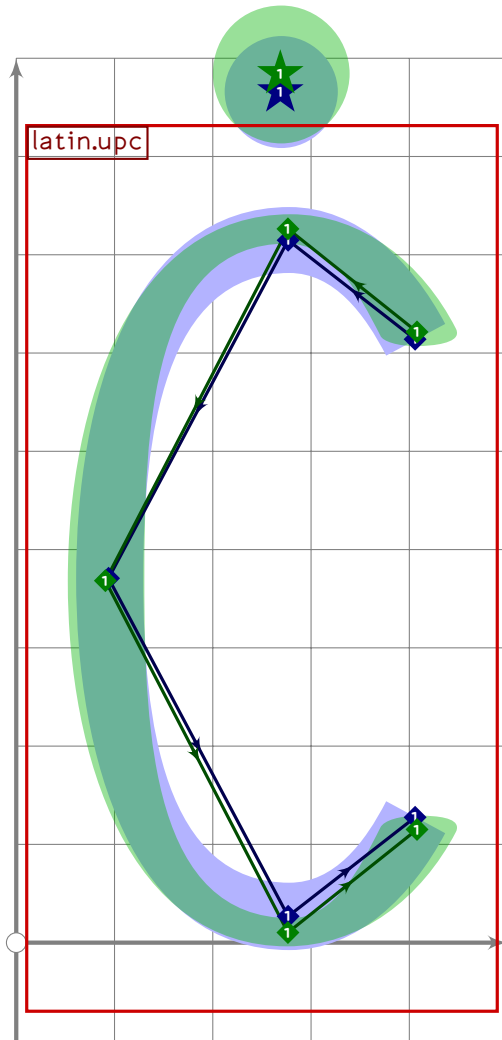


```

104 % c with circumflex
105 begint Suglyph("ccircumflex";9);
106 tsu_accent.apply(latin.lowc)(tsu_accent.circumflex);
107 replace_strokep(0)(oldp shifted (35,0));
108 tsu_render;
109 endtsuglyph;
110

```

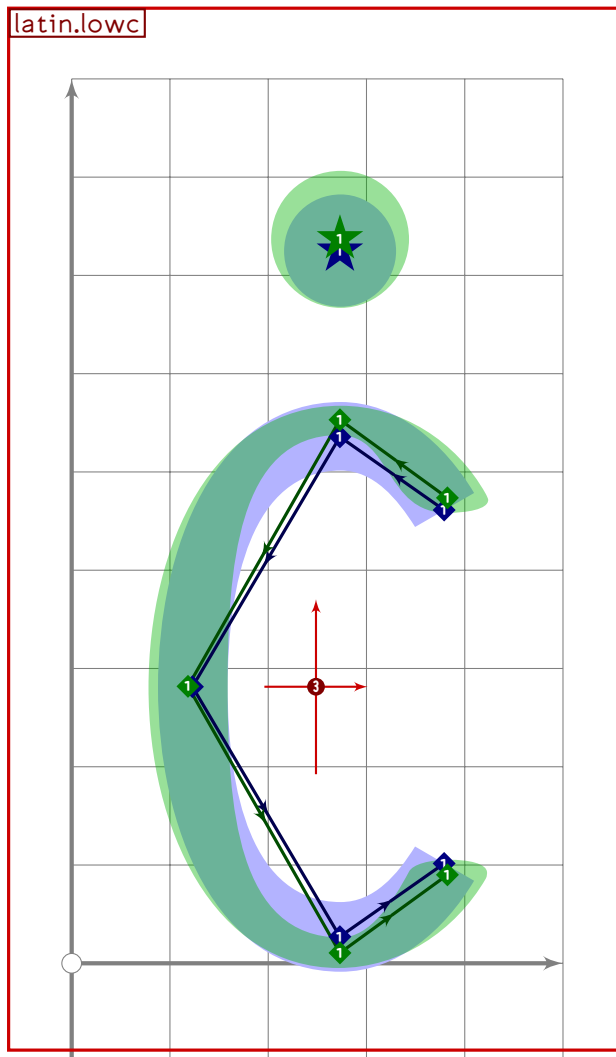




```

111 % C with dot above
112 begint Suglyph("Cdotaccent";10);
113   tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.dotabove);
114   replace_lcblob(0)(oldblob shifted (35,0));
115   tsu_render;
116 endtsuglyph;
117

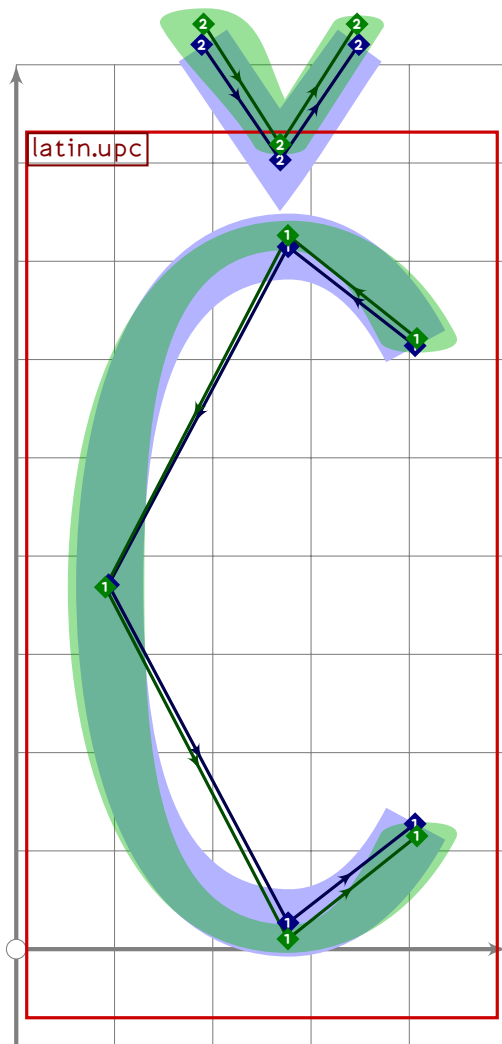
```



```

118 % c with dot above
119 begint Suglyph("c dotaccent";11);
120 tsu_accent.apply(latin.lowc)(tsu_accent.dotabove);
121 replace_lcblob(0)(oldblob shifted (35,0));
122 tsu_render;
123 endsuglyph;
124

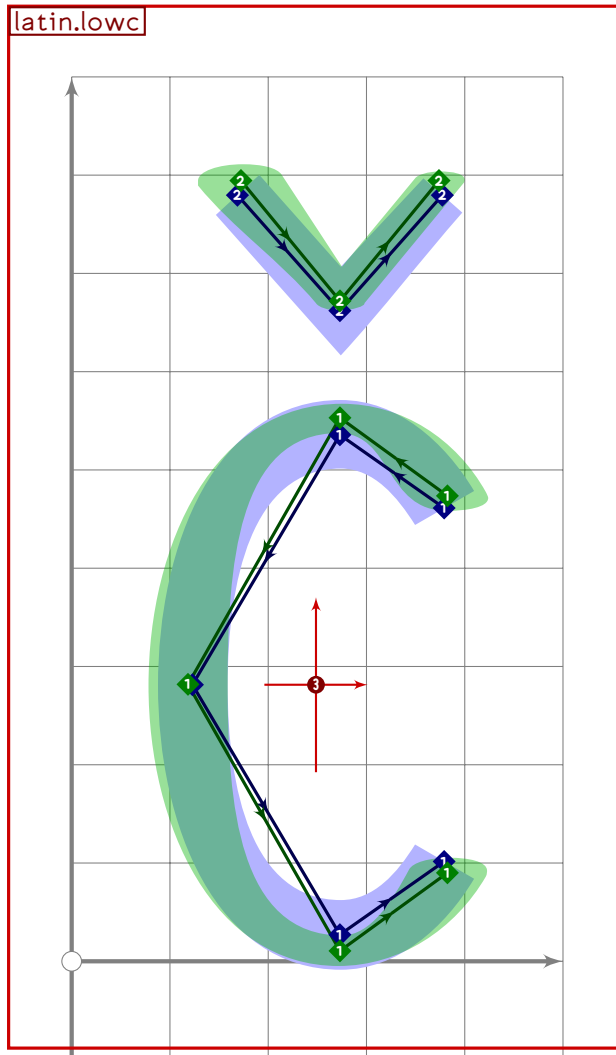
```



```

125 % C with caron
126 begintsuglyph("Ccaron",12);
127 tsu_accent.apply(tsu_accent.capital(latin.upc))(tsu_accent.caron);
128 replace_strokep(0)(oldp shifted (35,0));
129 tsu_render;
130 endsuglyph;
131

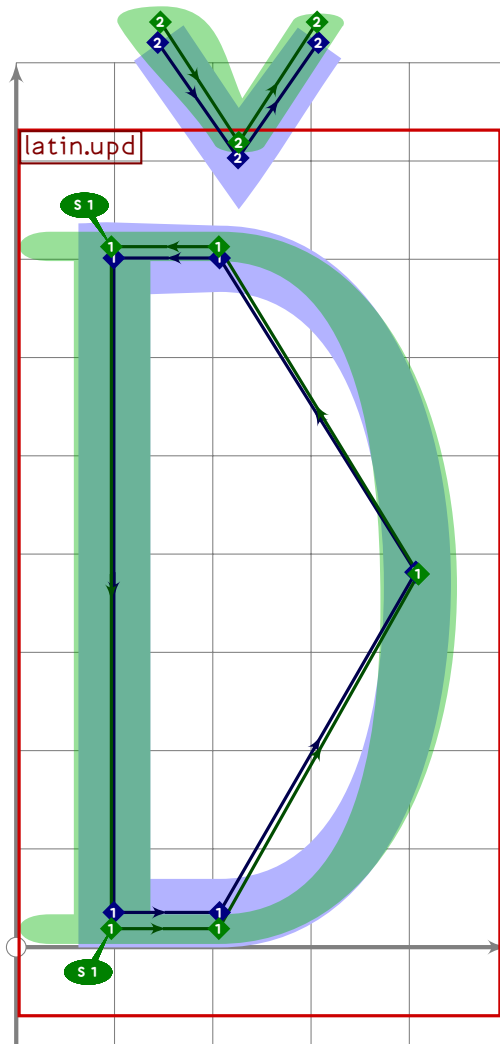
```



```

132 % c with caron
133 beginsuglyph("ccaron",13);
134 tsu_accent.apply(latin.lowc)(tsu_accent.caron);
135 replace_strokep(0)(oldp shifted (35,0));
136 tsu_render;
137 endsuglyph;
138

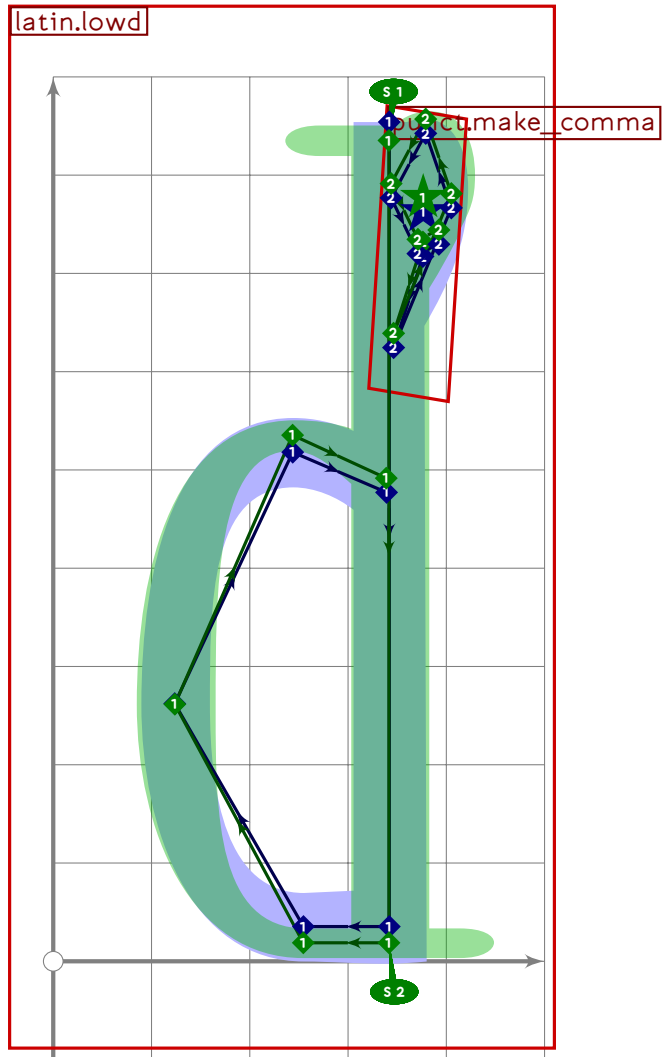
```



```

139 % D with caron
140 begintsuglyph("Dcaron",14);
141 tsu_accent.apply(tsu_accent.capital(latin.upd))(tsu_accent.caron);
142 replace_strokep(0)(oldp shifted (-40,0));
143 tsu_render;
144 endsuglyph;
145

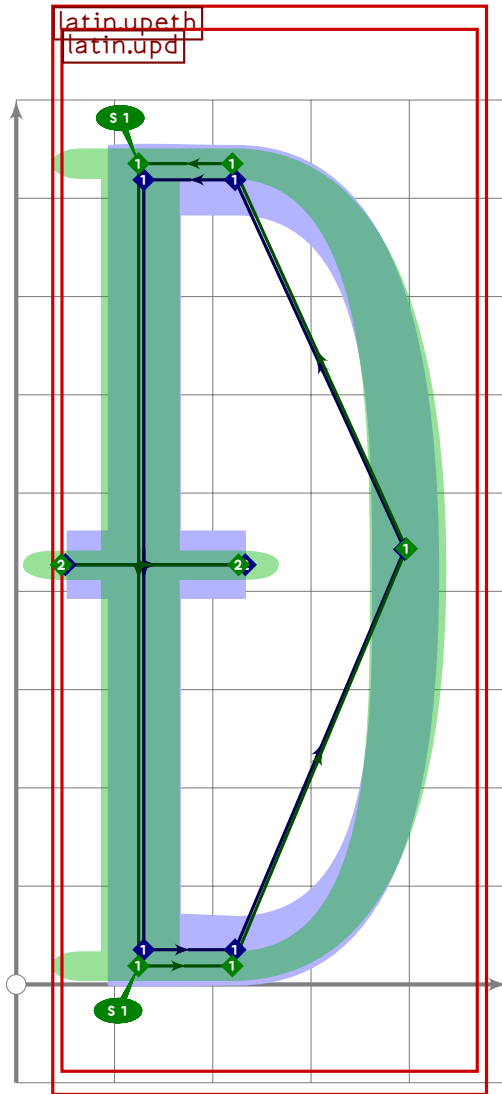
```



```

146 % d with caron apostrophe
147 begintsuglyph("dcaron";15);
148 tsu_accent.apply(latin.lowd)(tsu_accent.caron_comma);
149 tsu_render;
150 endsuglyph;
151

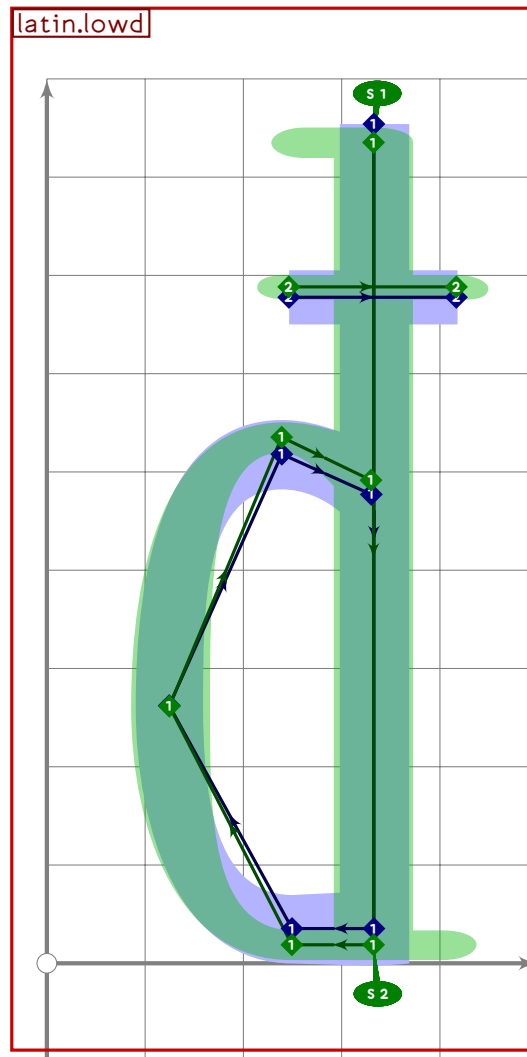
```



```

152 % D with stroke - same as capital Eth
153 begintsuglyph("Dcroat",16);
154 latin.upeth;
155 tsu_render;
156 endsuglyph;
157

```

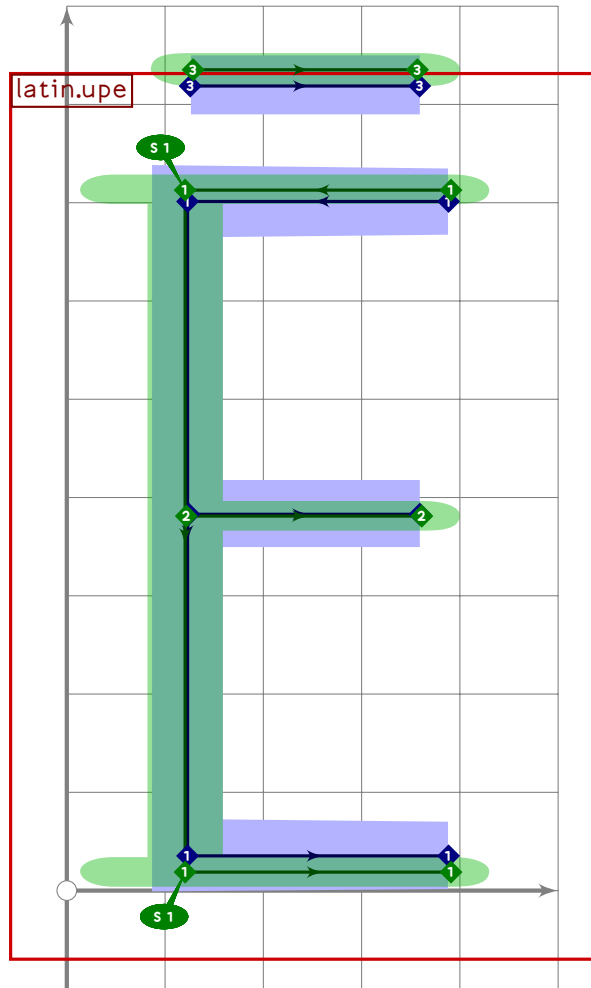


```

158 % d with bar
159 begint Suglyph("dcroat",17);
160 latin.lowd;
161 push_stroke((530,vmetric(0.82))-(820,vmetric(0.82)),
162   (1.6,1.6)-(1.6,1.6));
163 set_bosize(0,80);
164 tsu_render;
165 endtsuglyph;
166

```

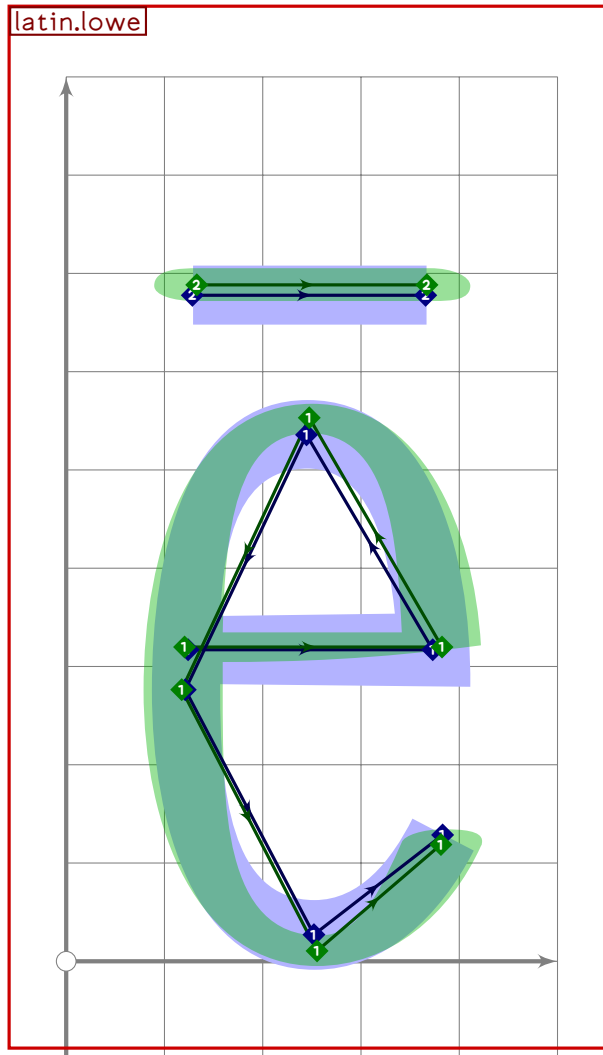




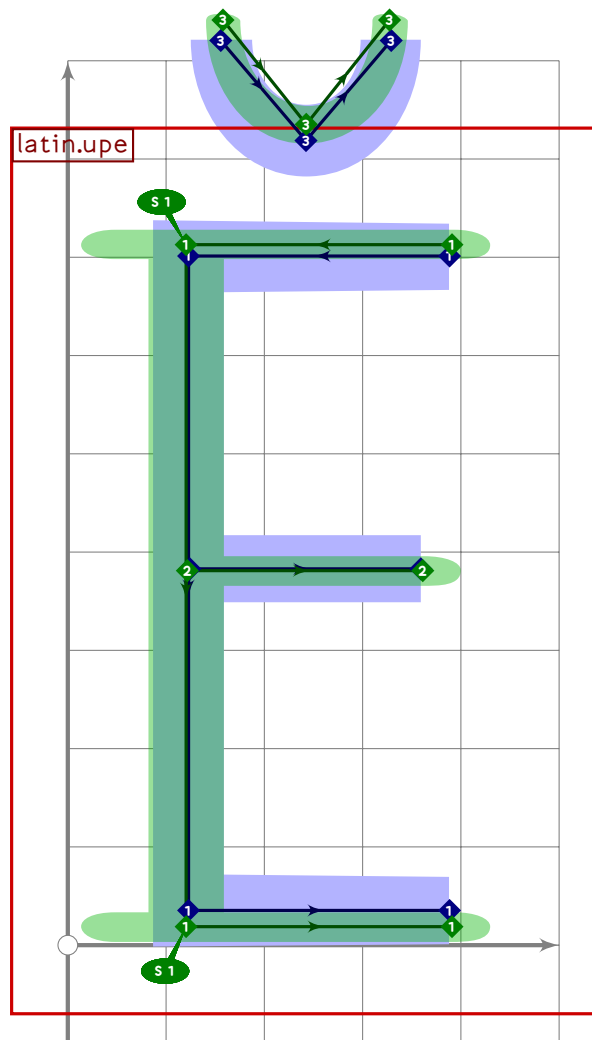
```

167 % E with macron
168 begintsuglyph("Emacron",18);
169 tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.macron);
170 tsu_render;
171 endtsuglyph;
172

```



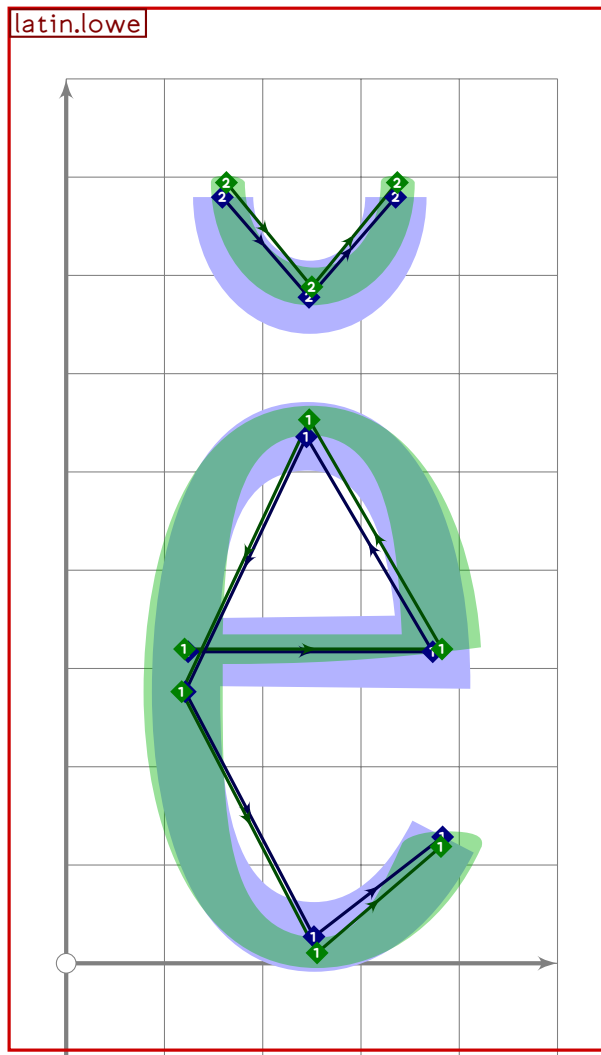
```
173 % e with macron
174 begint Suglyph("emacron",19);
175 tsu_accent.apply(latin.low e)(tsu_accent.macron);
176 tsu_render;
177 endtsuglyph;
178
```



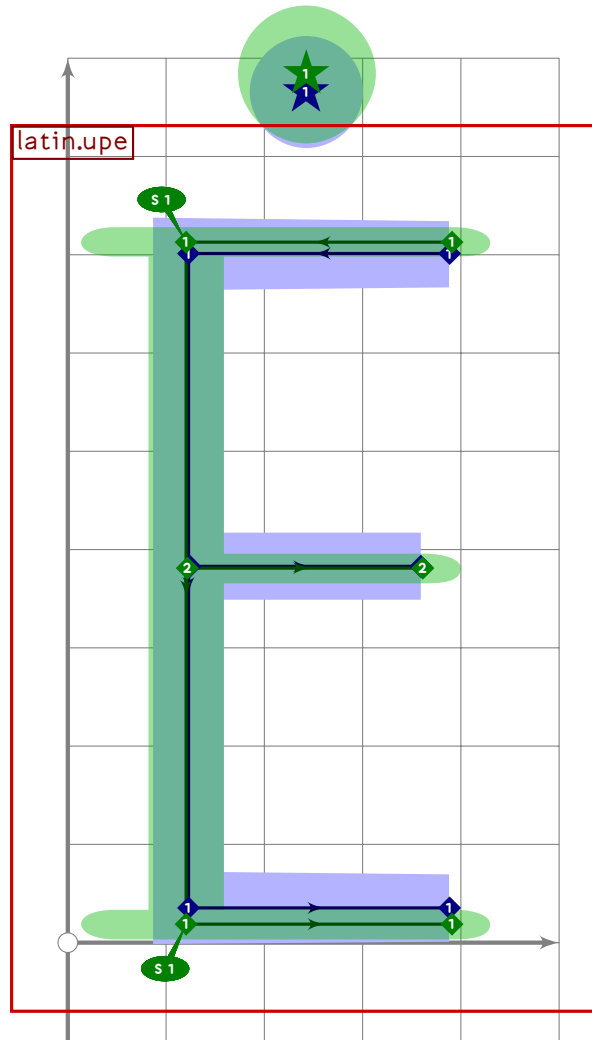
```

179 % E with breve
180 \begintsuglyph("Ebreve";20);
181   \tsu_accent.apply(\tsu_accent.capital(latin.upe))(\tsu_accent.breve);
182   \tsu_render;
183 \endtsuglyph;
184

```



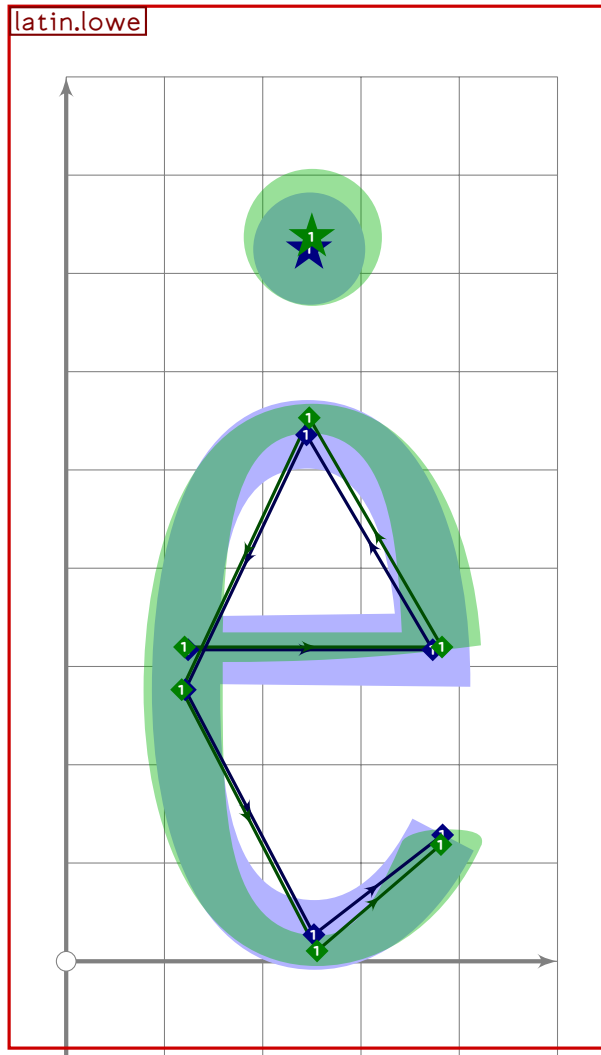
```
185 % e with breve
186 begint Suglyph("ebreve";21);
187 tsu_accent.apply(latin.lower)(tsu_accent.breve);
188 tsu_render;
189 endtsuglyph;
190
```



```

191 % E with dot
192 begint Suglyph("Edotaccent";22);
193   tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.dotabove);
194   tsu_render;
195   endtsuglyph;
196

```



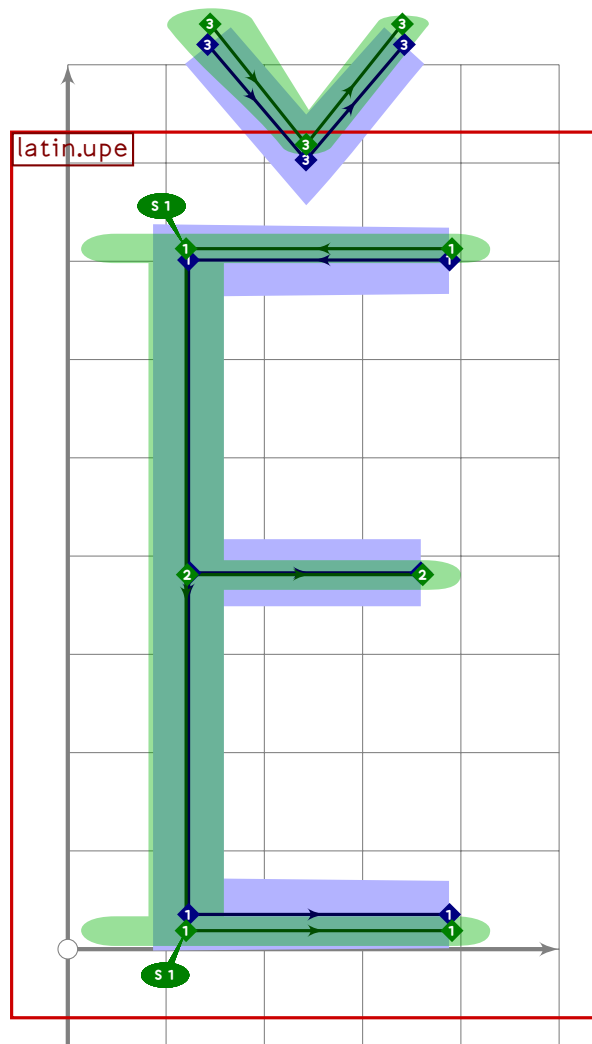
```

197 % e with dot
198 begintsuglyph("edotaccent";23);
199 tsu_accent.apply(latin.lowe)(tsu_accent.dotabove);
200 tsu_render;
201 endtsuglyph;
202
203 % E with ogonek
204 begintsuglyph("Eogonek";24);
205 latin.upeogonek;
206 tsu_render;
207 endtsuglyph;
208
209 % e with ogonek
210 begintsuglyph("eogonek";25);
211 latin.loweogonek;
212 tsu_render;
213 endtsuglyph;
214

```

[see page 264]

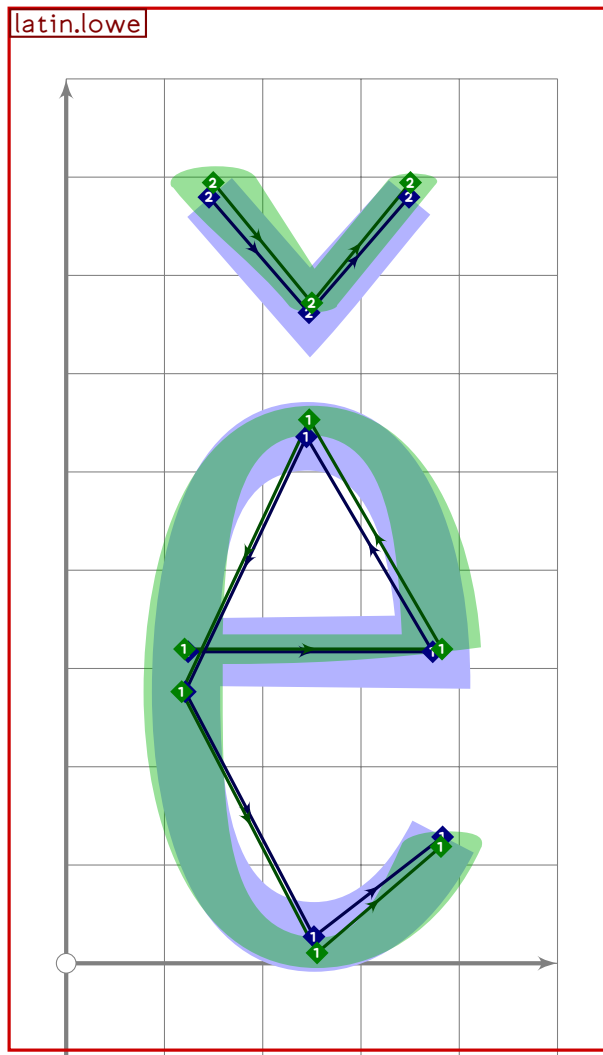
[see page 269]



```

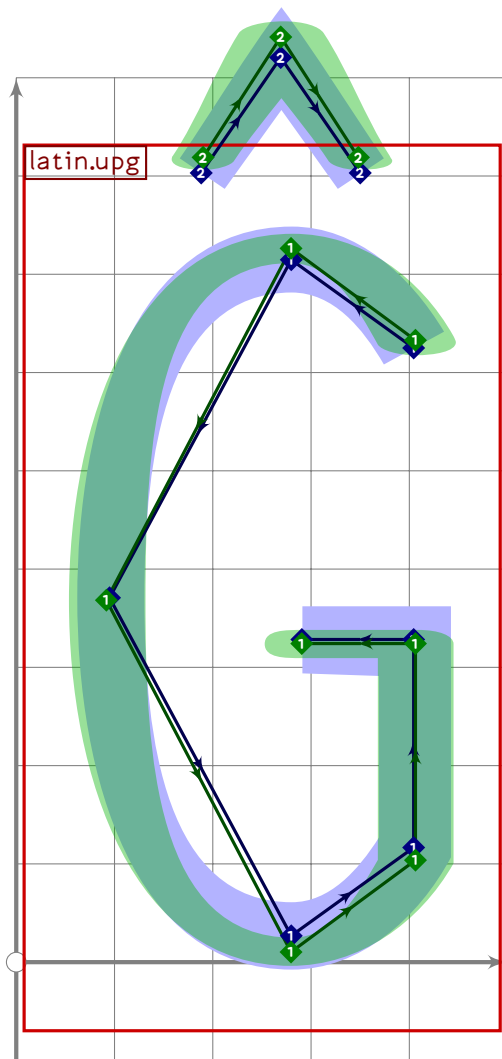
215 % E with caron
216 begintsuglyph("Ecaron",26);
217 tsu_accent.apply(tsu_accent.capital(latin.upe))(tsu_accent.caron);
218 tsu_render;
219 endtsuglyph;
220

```



```
221 % e with caron
222 begint Suglyph("ecaron";27);
223 tsu_accent.apply(latin.low e)(tsu_accent.caron);
224 tsu_render;
225 endtsuglyph;
226
```

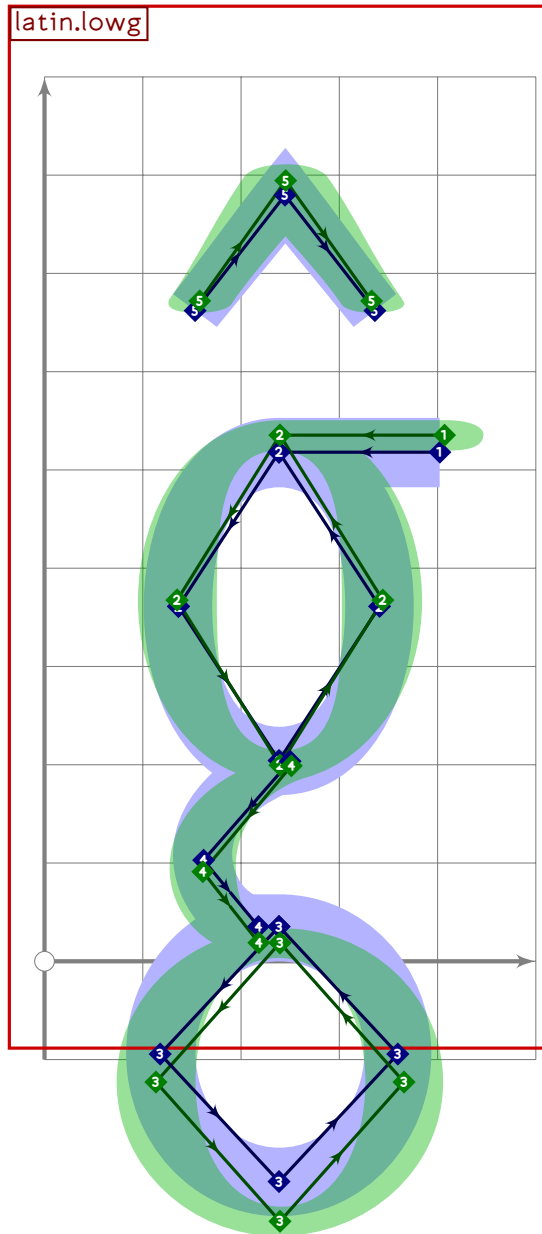




```

227 % G with circumflex
228 begintsuglyph("Gcircumflex";28);
229 tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.circumflex);
230 replace_strokep(0)(oldp shifted (35,0));
231 tsu_render;
232 endsuglyph;
233

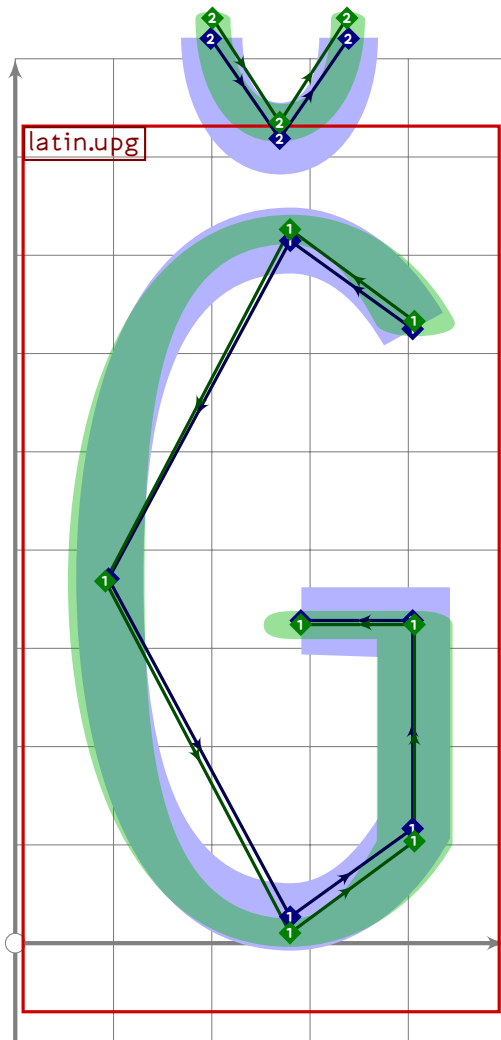
```



```

234 % g with circumflex
235 begint Suglyph("gcircumflex";29);
236 tsu_accent.apply(latin.lowg)(tsu_accent.circumflex);
237 replace_strokep(0)(oldp shifted (10,0));
238 tsu_render;
239 endtsuglyph;
240

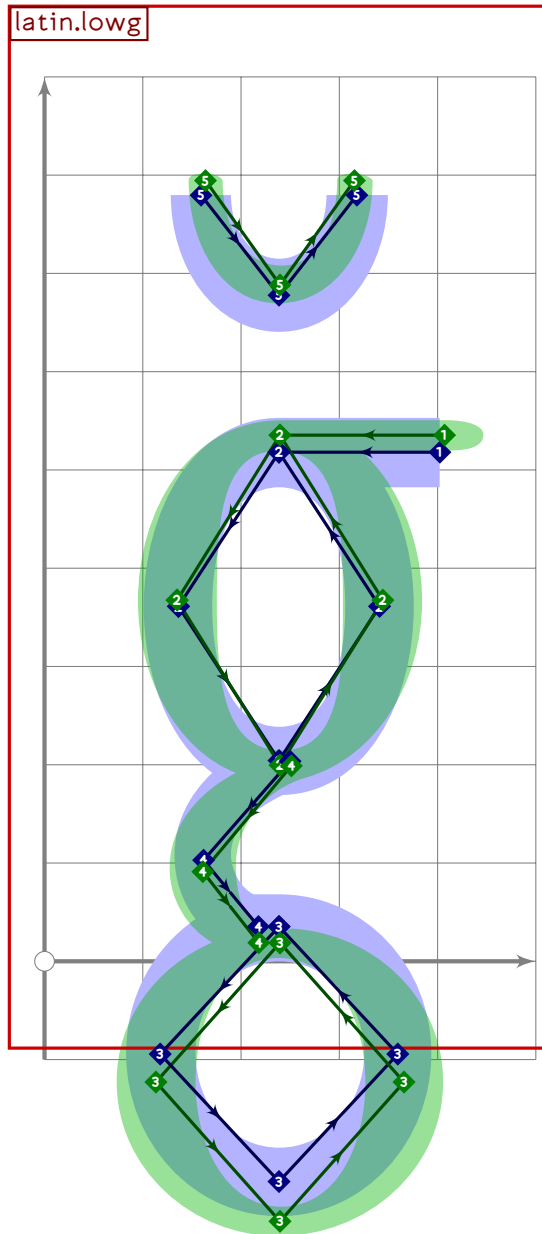
```



```

241 % G with breve
242 begintsuglyph("Gbreve",30);
243 tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.breve);
244 replace_strokep(0)(oldp shifted (35,0));
245 tsu_render;
246 endsuglyph;
247

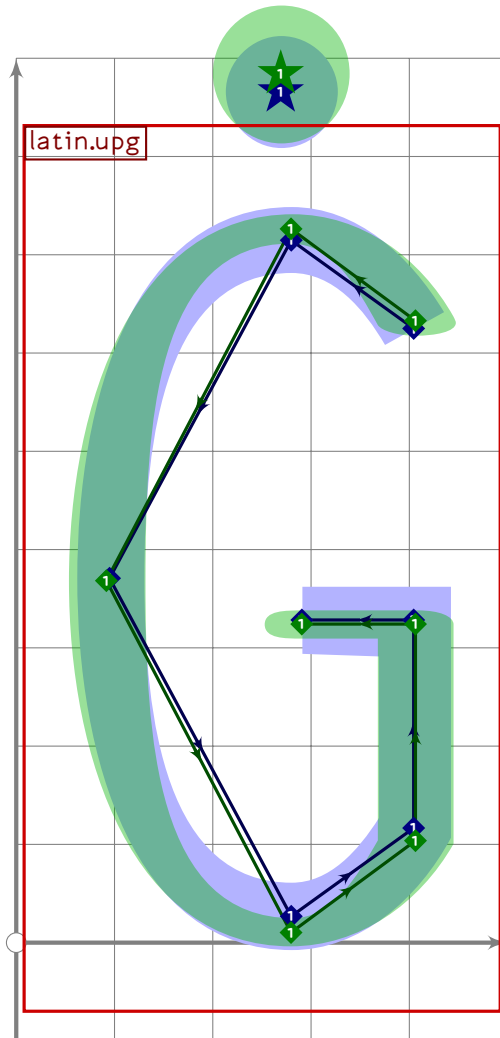
```



```

248 % g with breve
249 begintuglyph("gbreve";31);
250 tsu_accent.apply(latin.lowg)(tsu_accent.breve);
251 tsu_render;
252 endtuglyph;
253

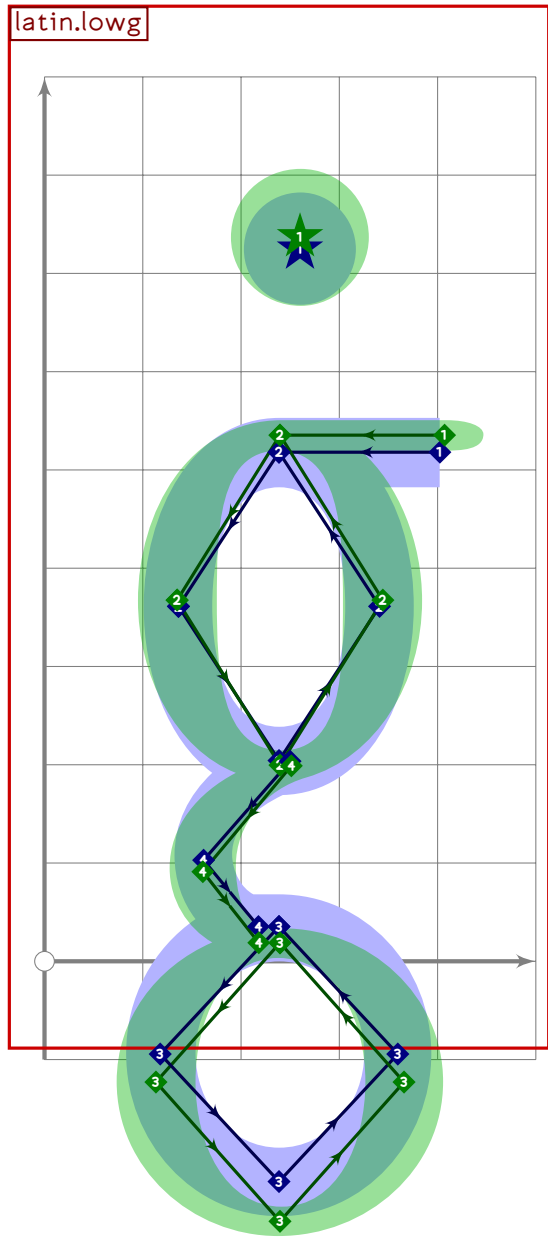
```



```

254 % G with dot
255 begint Suglyph("Gdotaccent";32);
256   tsu_accent.apply(tsu_accent.capital(latin.upg))(tsu_accent.dotabove);
257   replace_lcblob(0)(oldblob shifted (35,0));
258   tsu_render;
259 endtsuglyph;
260

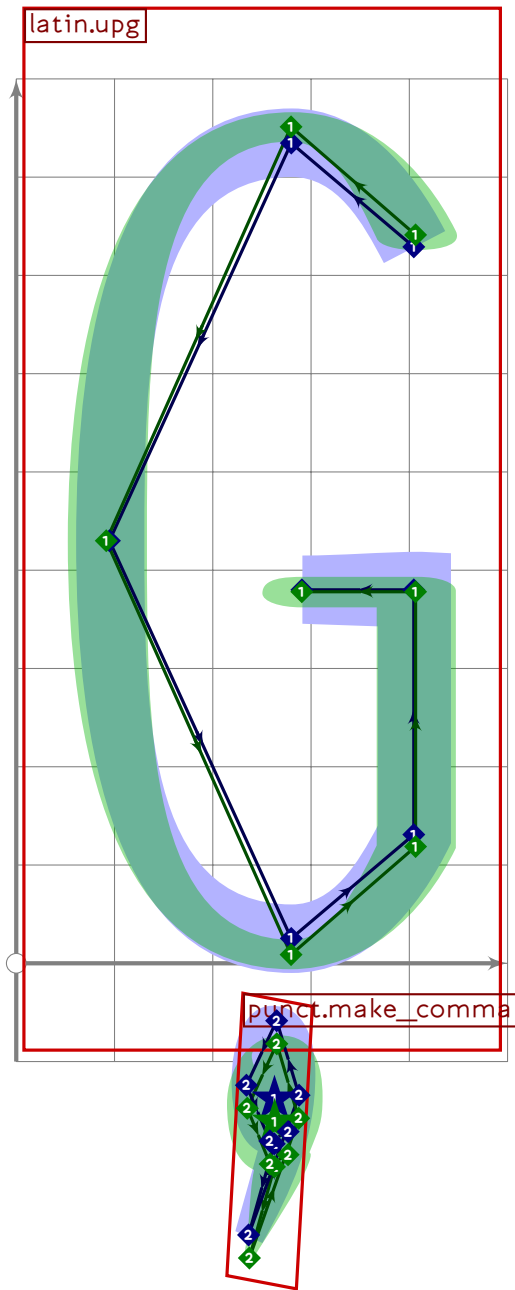
```



```

261 % g with dot
262 begintsuglyph("gdotaccent",33);
263 tsu_accent.apply(latin.lowg)(tsu_accent.dotabove);
264 replace_lcblob(0)(oldblob shifted (35,0));
265 tsu_render;
266 endsuglyph;
267

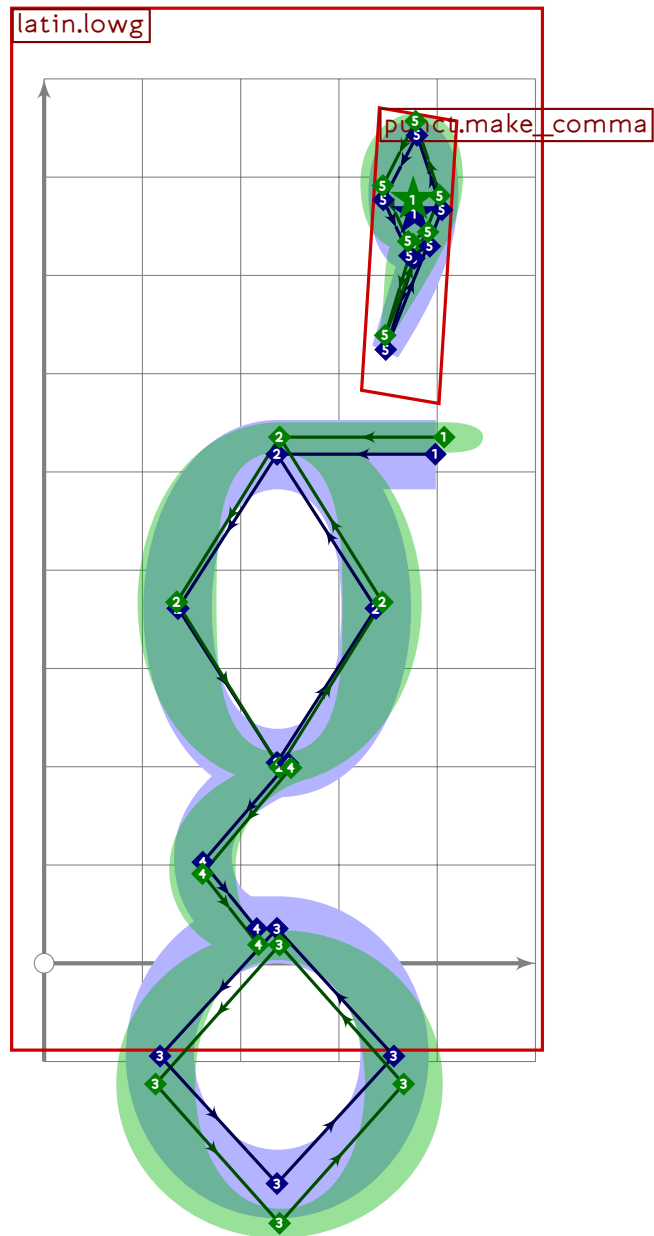
```



```

268 % G with comma below
269 beginsuglyph("uni0122";34);
270 tsu_accent.apply(latin.upg)(tsu_accent.commabelow);
271 tsu_render;
272 endsuglyph;
273

```

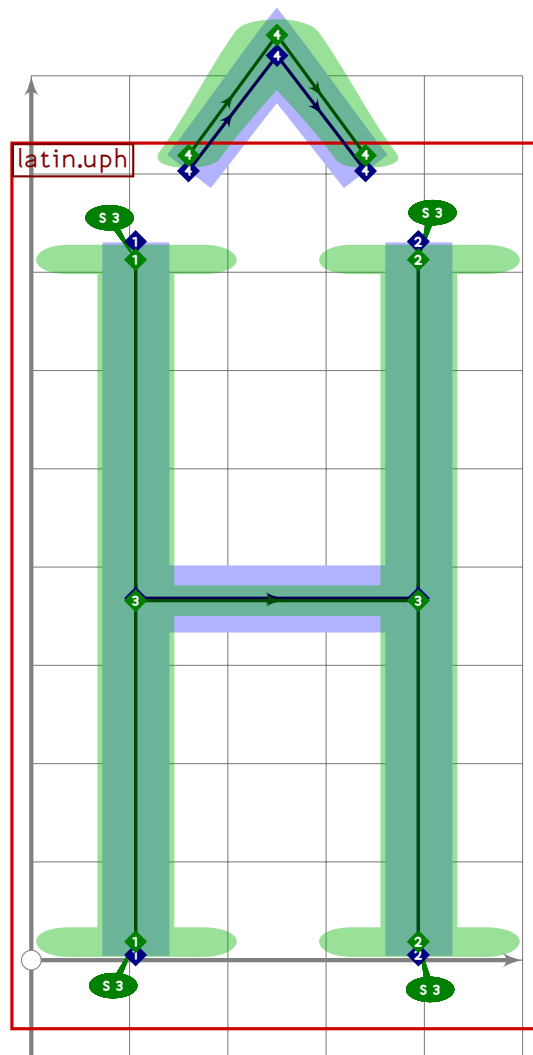


```

274 % g with comma upside-down above
275 begintsuglyph("uni0123";35);
276 tsu_accent.apply(latin.lowg)(tsu_accent.comma);
277 tsu_render;
278 endsuglyph;
279

```

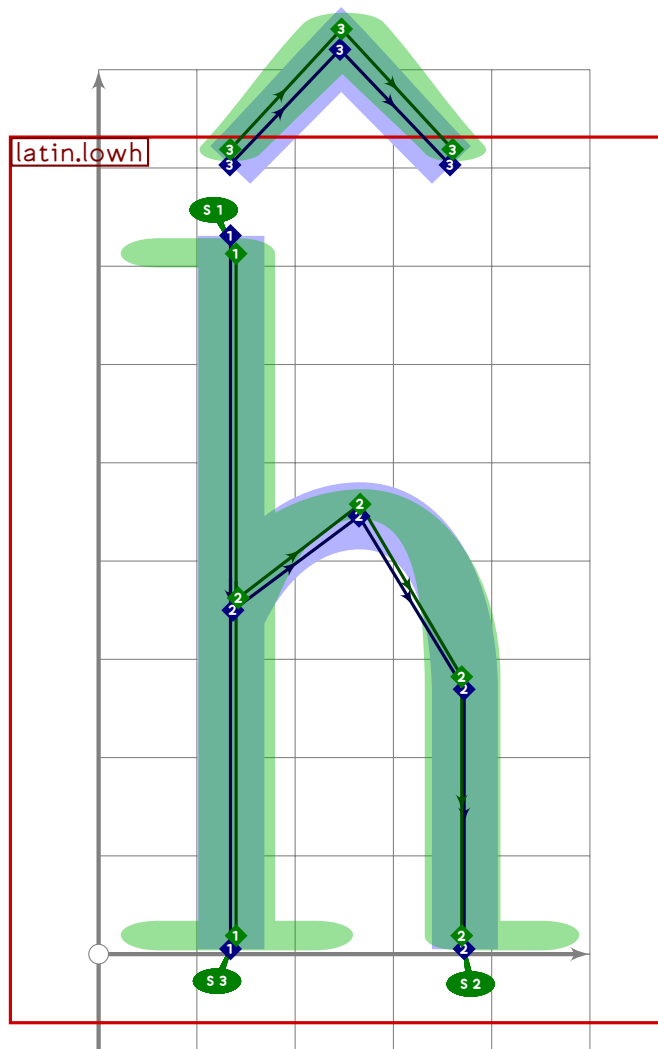




```

280 % H with circumflex
281 begintuglyph("Hcircumflex";36);
282   tsu_accent.apply(tsu_accent.capital(latin.uph))(tsu_accent.circumflex);
283   tsu_render;
284   endtuglyph;
285

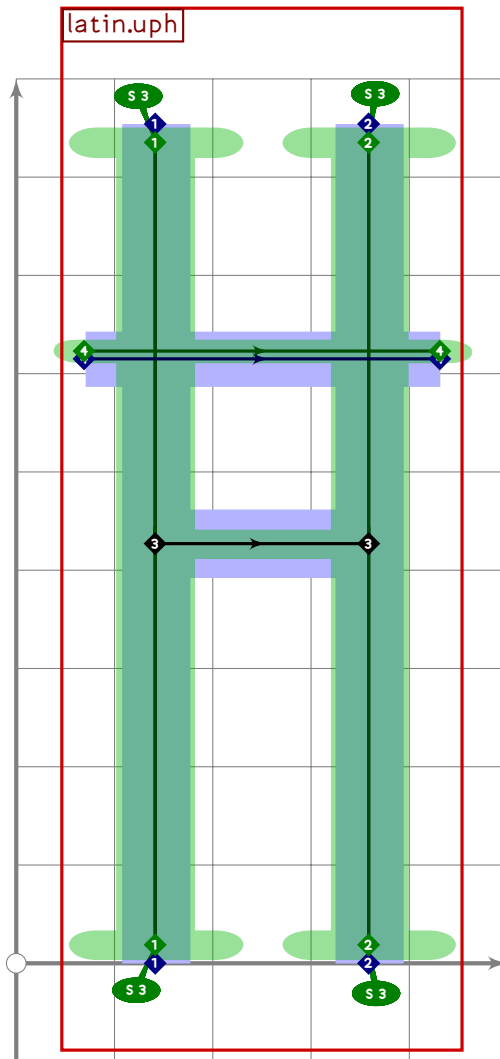
```



```

286 % h with circumflex
287 beginsuglyph("hcircumflex";37);
288   tsu_accent.apply(tsu_accent.capital(latin.lowh))(tsu_accent.circumflex);
289   tsu_render;
290 endsuglyph;
291

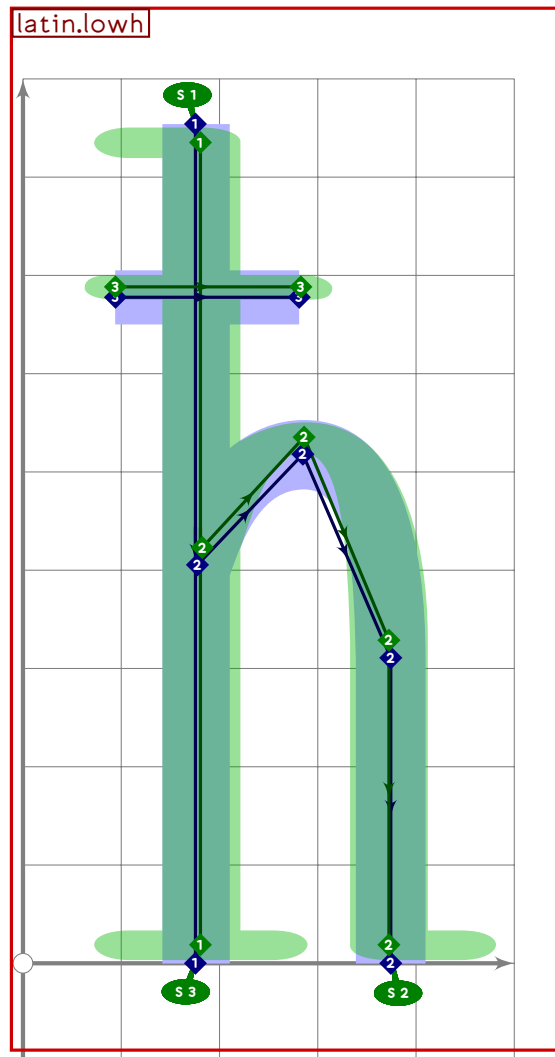
```



```

292 % H with bar
293 begintsuglyph("Hbar";38);
294 latin.uph;
295 push_stroke((100,vmetric(0.74))-(900,vmetric(0.74)),
296   (1.6,1.6)-(1.6,1.6));
297 set_bosize(0,80);
298 tsu_render;
299 endtsuglyph;
300

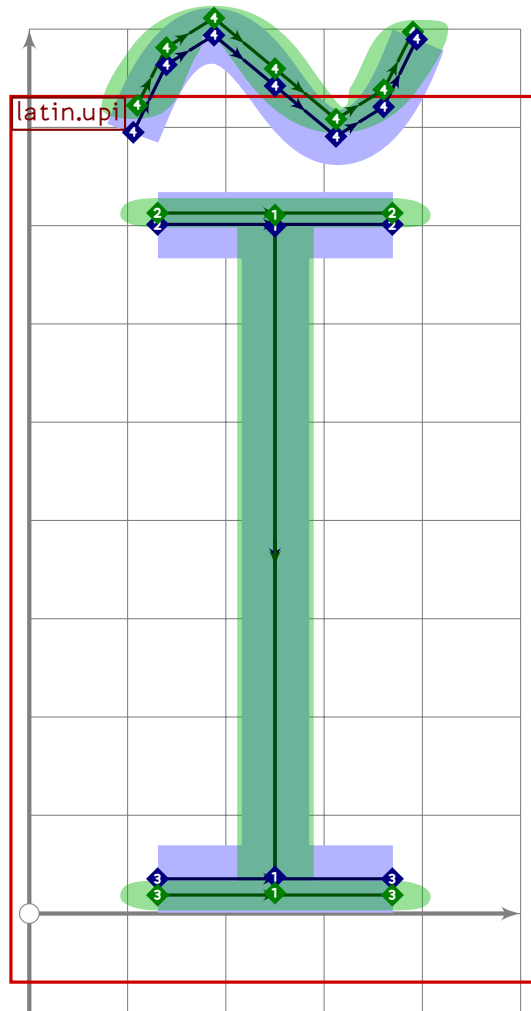
```



```

301 % h with bar
302 beginsuglyph("hbar",39);
303 latin.lowh;
304 push_stroke(((220,vmetric(0.82))-(520,vmetric(0.82)),
305   (1.6,1.6)-(1.6,1.6));
306 set_bosize(0,80);
307 tsu_render;
308 endsuglyph;
309

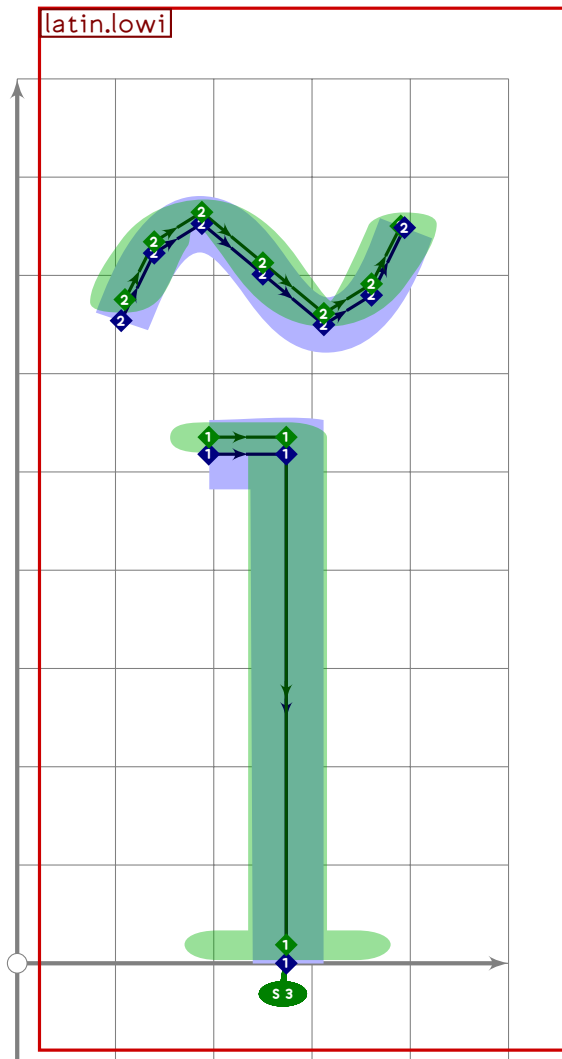
```



```

310 % I with tilde
311 begintuglyph("Itilde";40);
312   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.tilde);
313   tsu_render;
314   endtsuglyph;
315

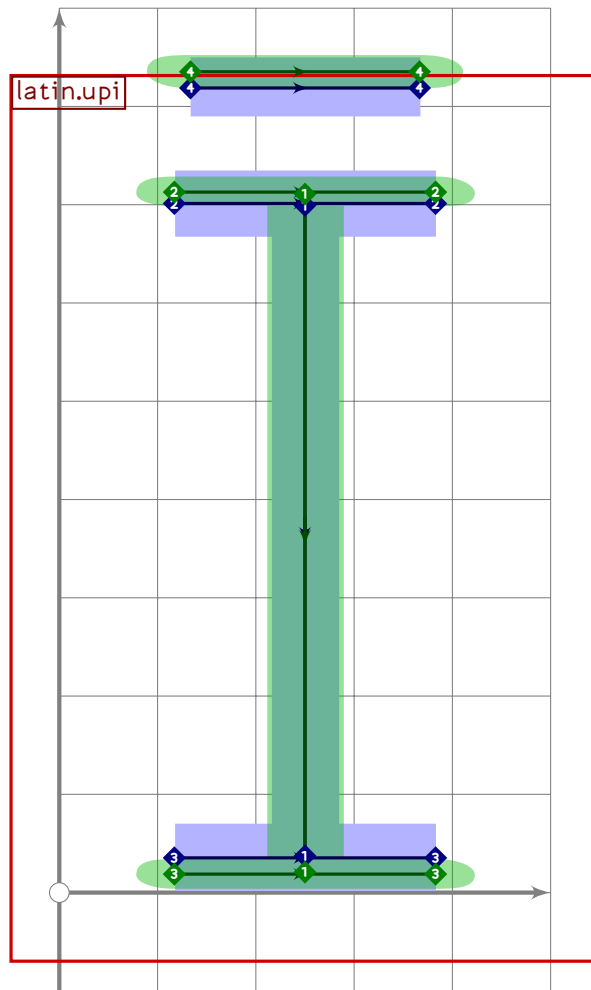
```



```

316 % i with tilde
317 begintsuglyph("itilde;41);
318   tsu_accent.apply(
319     tsu_xform(identity shifted (70,0))(latin.lowi);
320     pop_lcblob;
321   )(tsu_accent.tilde);
322   tsu_render;
323 endsuglyph;
324

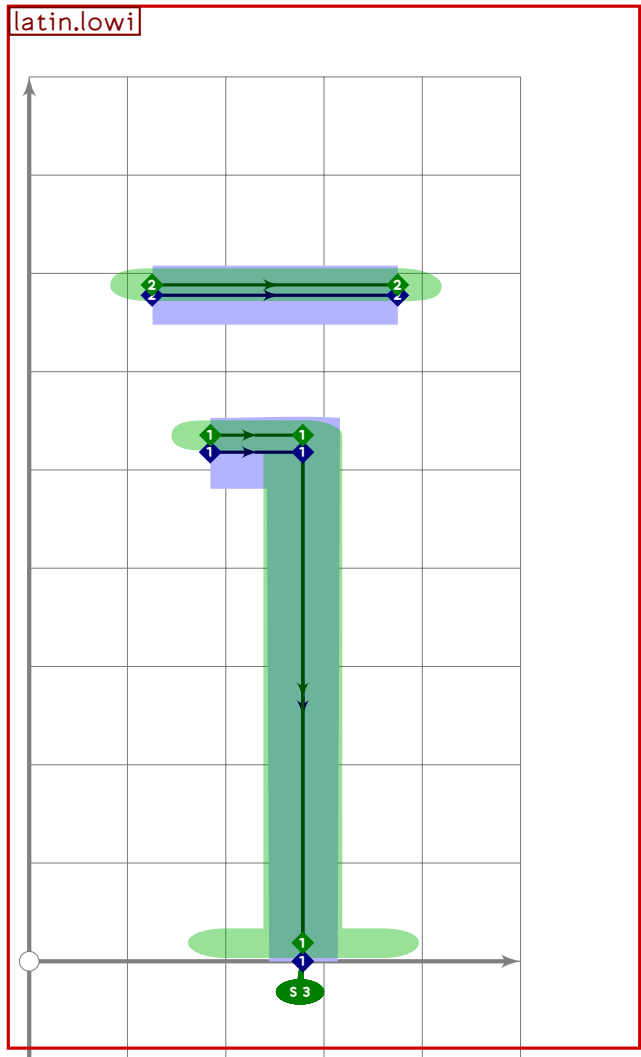
```



```

325 % I with macron
326 begintuglyph("Imacron";42);
327 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.macron);
328 tsu_render;
329 endtuglyph;
330

```

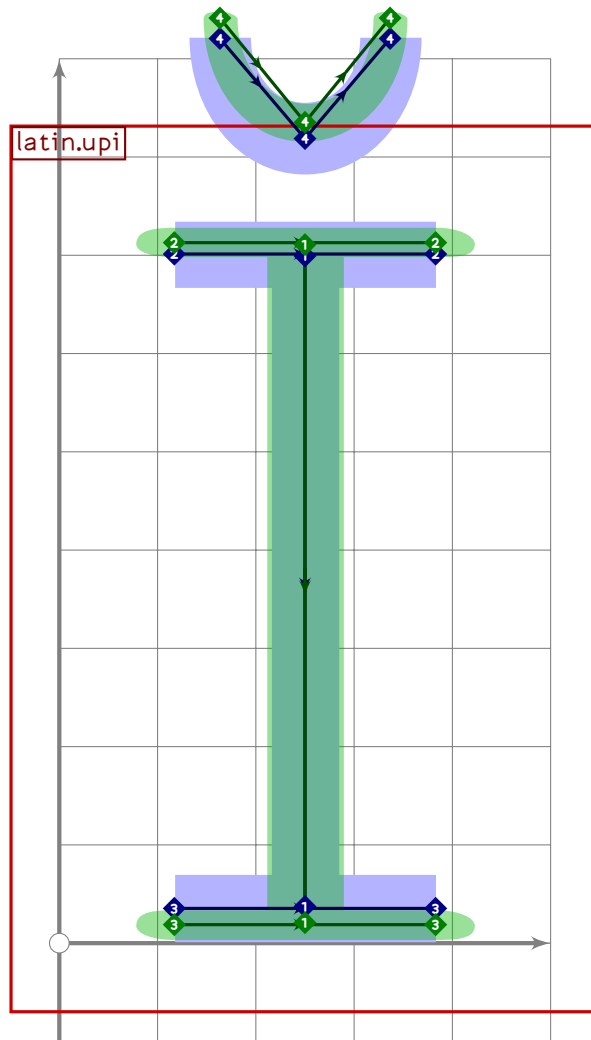


```

331 % i with macron
332 beginsuglyph("imacron",43);
333   tsu_accent.apply(
334     tsu_xform(identity shifted (70,0))(latin.lowi);
335     pop_lcblob;
336   )(tsu_accent.macron);
337   tsu_render;
338 endsuglyph;
339

```

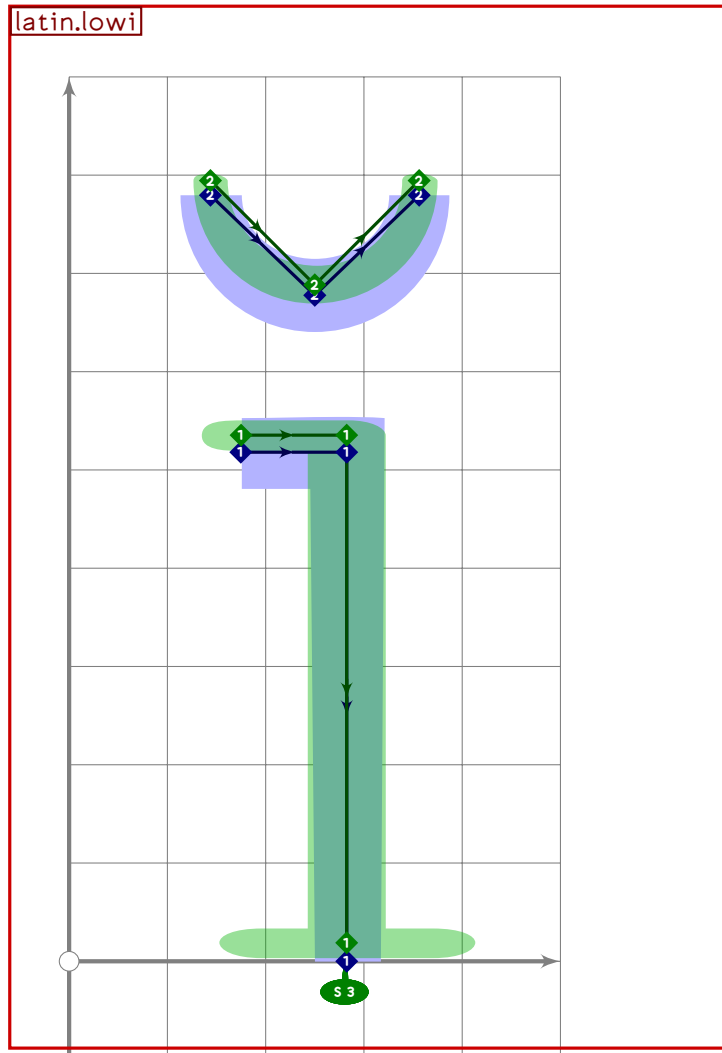




```

340 % I with breve
341 begintsuglyph("Ibreve";44);
342   tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.breve);
343   tsu_render;
344 endsuglyph;
345

```



```

346 % i with breve
347 begintsuglyph("ibreve";45);
348   tsu_accent.apply(
349     tsu_xform(identity shifted (70,0))(latin.lowi);
350     pop_lcblob;
351   )(tsu_accent.breve);
352   tsu_render;
353 endsuglyph;
354
355 % I with ogonek
356 begintsuglyph("Iogonek";46);
357   latin.upiogonek;
358   tsu_render;
359 endsuglyph;
360
361 % i with ogonek
362 begintsuglyph("iogonek";47);
363   latin.lowiogonek;
364   tsu_render;

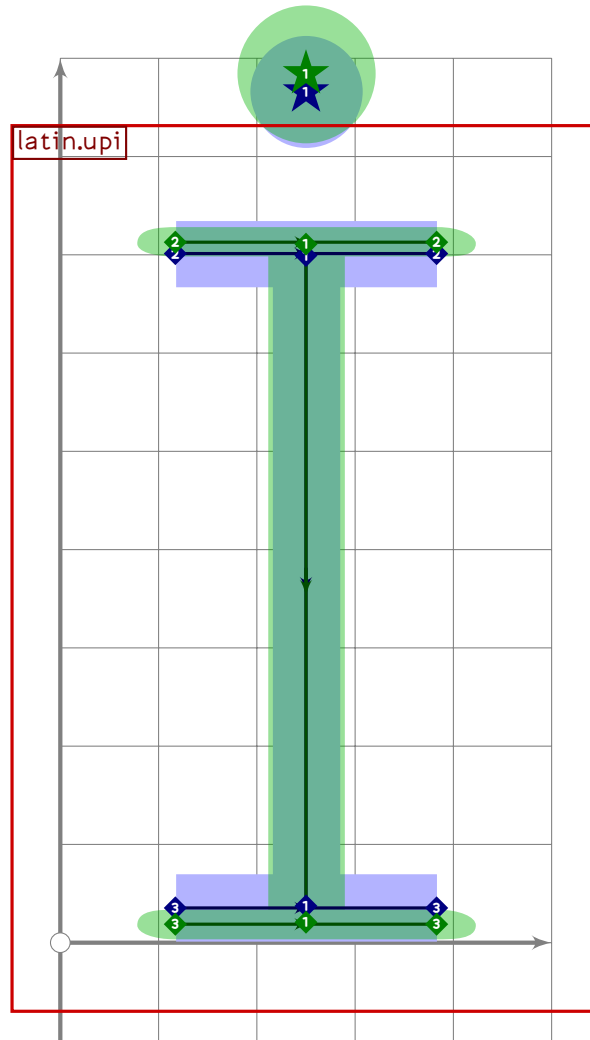
```

[see page 265]

[see page 270]

```
365 endtsuglyph;
```

```
366
```



```
367 % I with dot
```

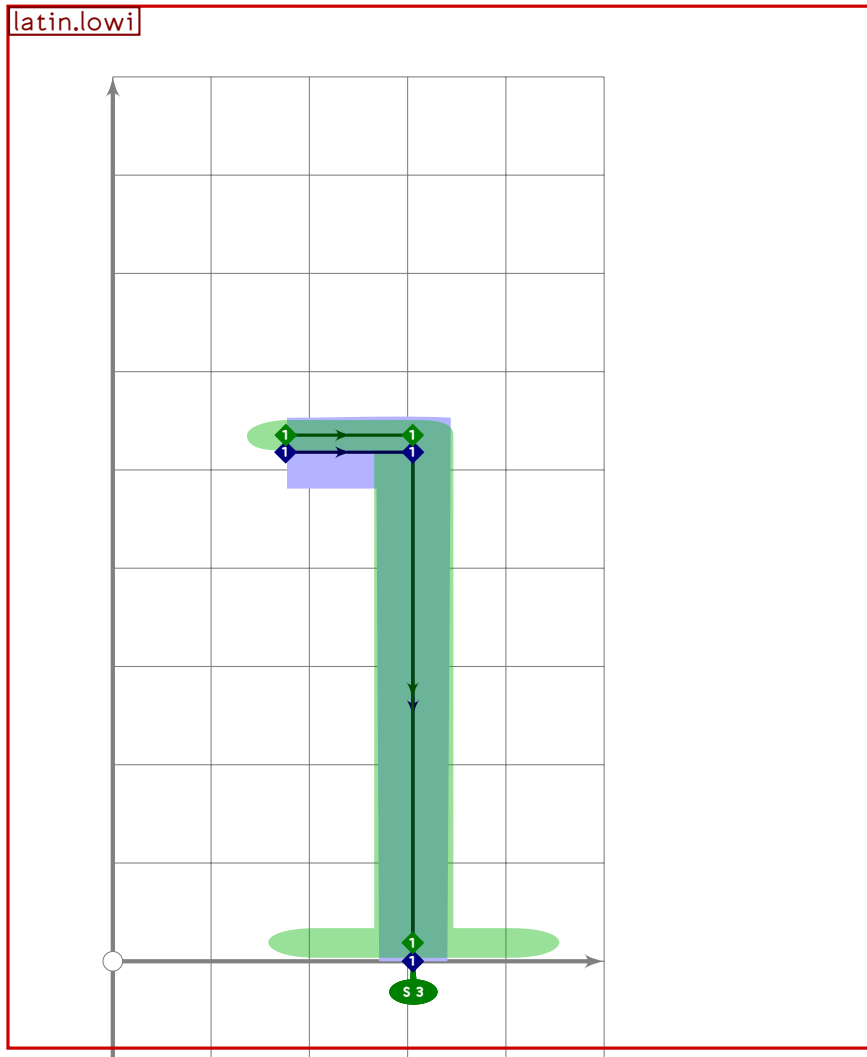
```
368 begint Suglyph("Idotaccent";48);
```

```
369 tsu_accent.apply(tsu_accent.capital(latin.upi))(tsu_accent.dotabove);
```

```
370 tsu_render;
```

```
371 endtsuglyph;
```

```
372
```



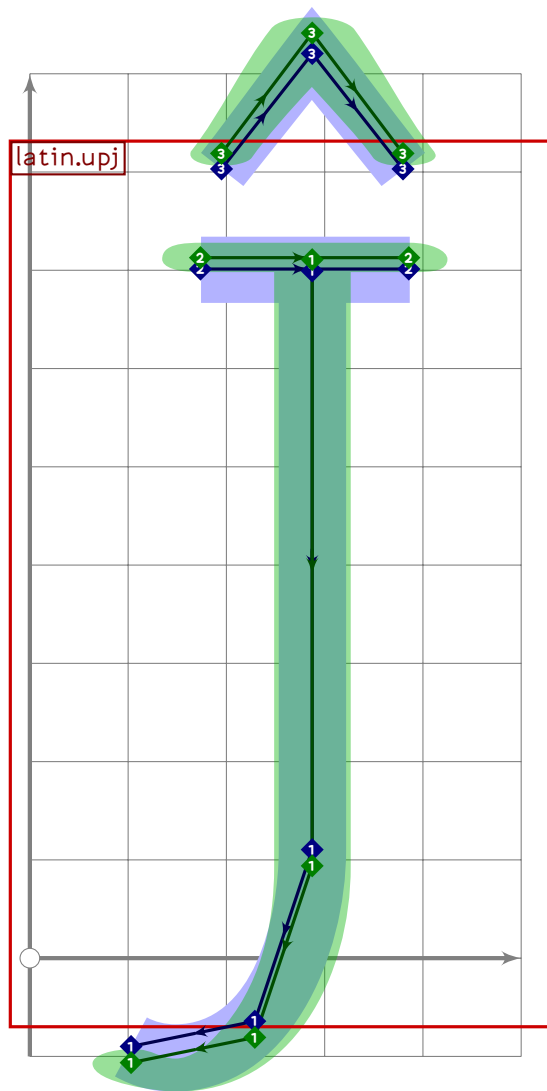
```

373 % i without dot
374 begintsuglyph("dotlessi";49);
375 tsu_xform(identity shifted (70,0))(latin.lowi);
376 pop_lcblob;
377 tsu_render;
378 endtsuglyph;
379
380 % Dutch IJ ligature
381 begintsuglyph("IJ";50);
382 latin.upij;
383 tsu_render;
384 endtsuglyph;
385
386 % Dutch ij ligature
387 begintsuglyph("ij";51);
388 latin.lowij;
389 tsu_render;
390 endtsuglyph;
391

```

[see page 181]

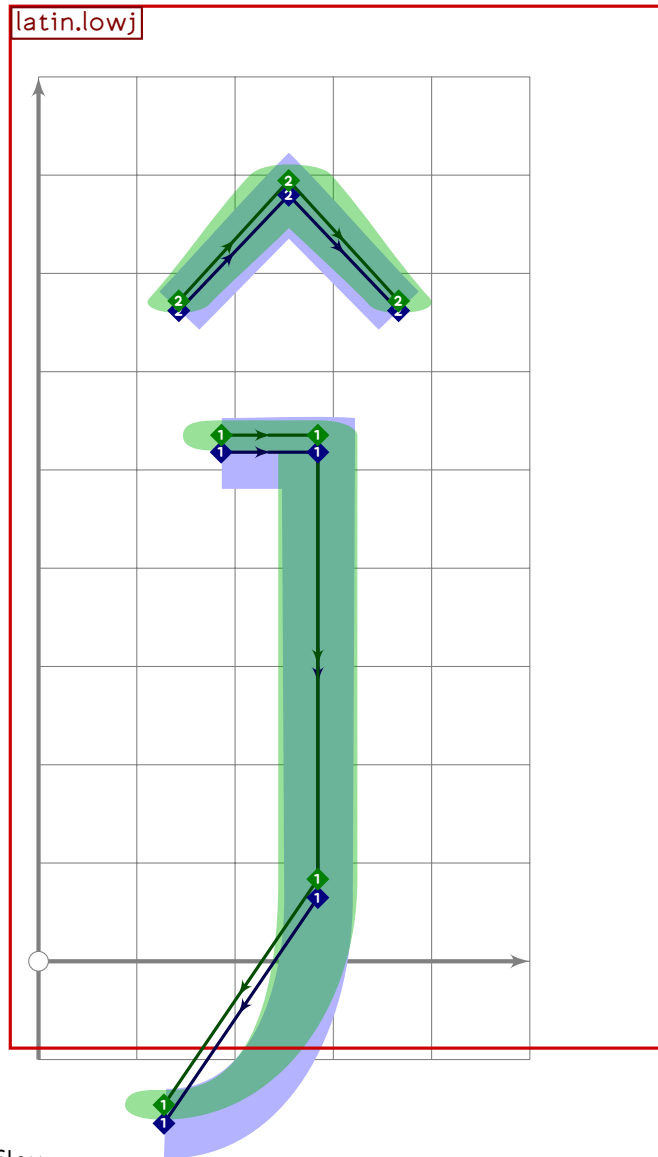
[see page 219]



```

392 % J with circumflex
393 beginsuglyph("Jcircumflex";52);
394 tsu_accent.apply(tsu_accent.capital(latin.upj))(tsu_accent.circumflex);
395 replace_strokep(0)(oldp shifted (50,0));
396 tsu_render;
397 endsuglyph;
398

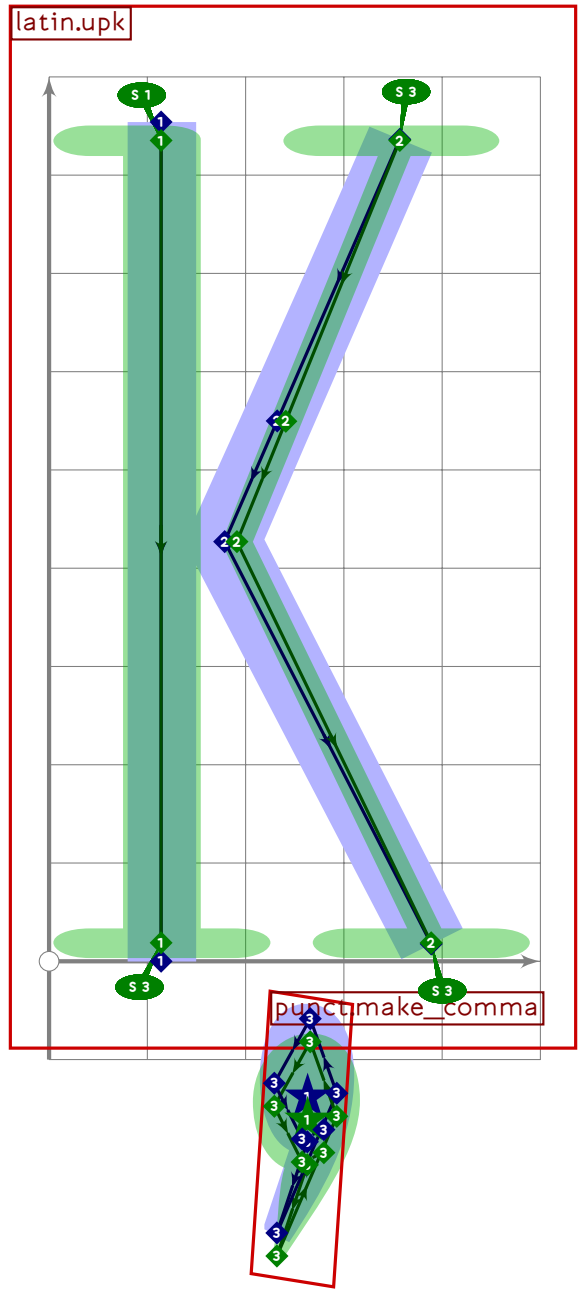
```



```

399 % j with circumflex
400 beginsuglyph("jcircumflex";53);
401   tsu_accent.apply(
402     tsu_xform(identity shifted (70,0))(latin.lowj);
403     pop_lcblob;
404   )(tsu_accent.circumflex);
405   tsu_render;
406 endsuglyph;
407

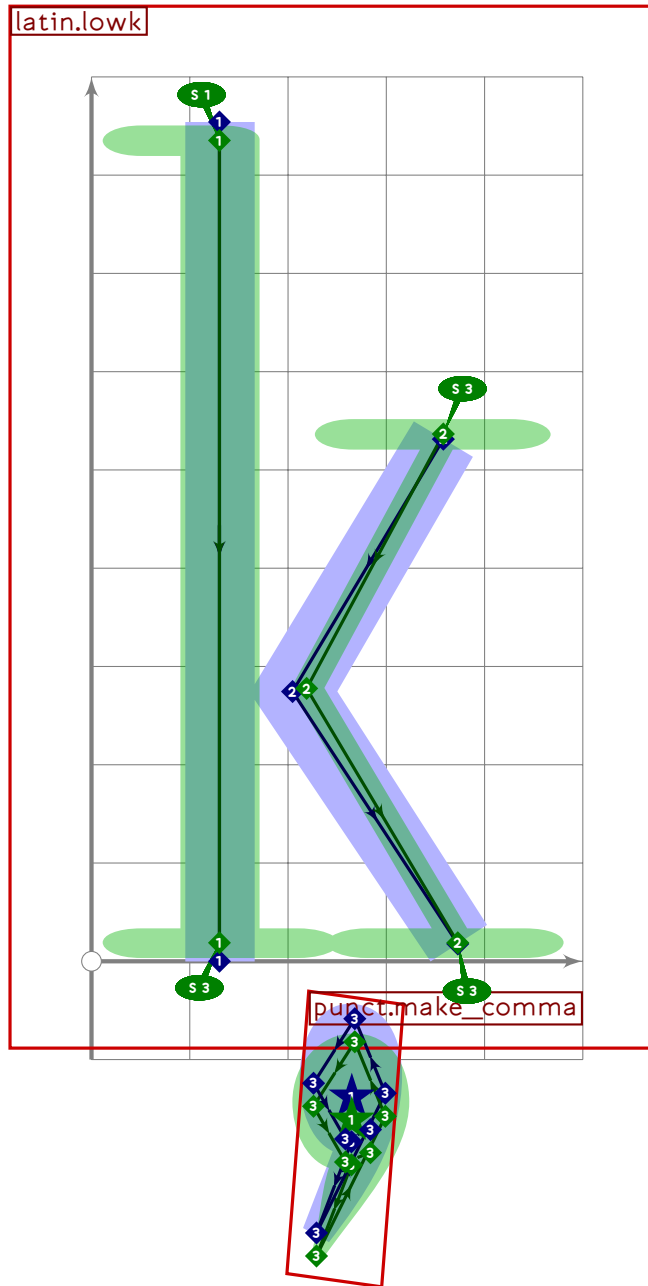
```



```

408 % K with comma below
409 begint Suglyph("uni0136";54);
410 tsu_accent.apply(latin.upk)(tsu_accent.commbelow);
411 tsu_render;
412 endtsuglyph;
413

```

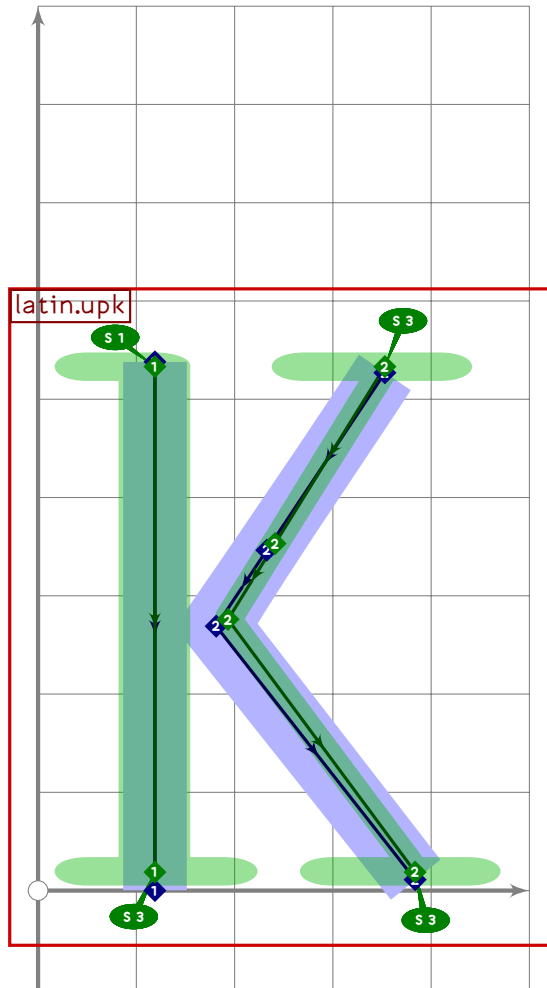


```

414 % k with comma below
415 begintsuglyph("uni0137";55);
416 tsu_accent.apply(latin.lowk)(tsu_accent.commabelow);
417 tsu_render;
418 endsuglyph;
419

```

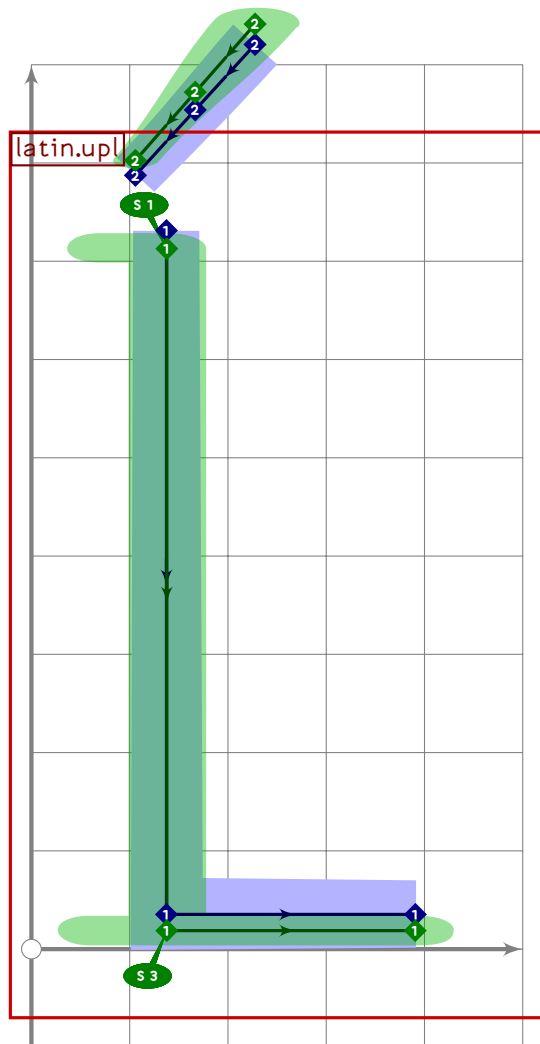




```

420 % Greenlandic k, which I'm interpreting as a squashed K
421 begintsuglyph("kgreenlandic",56);
422 tsu_xform(identity shifted (-500,latin_wide_low_v) xyscaled (0.92,0.63)
423   shifted (500,latin_wide_low_v))(latin.upk);
424 tsu_render;
425 endtsuglyph;
426

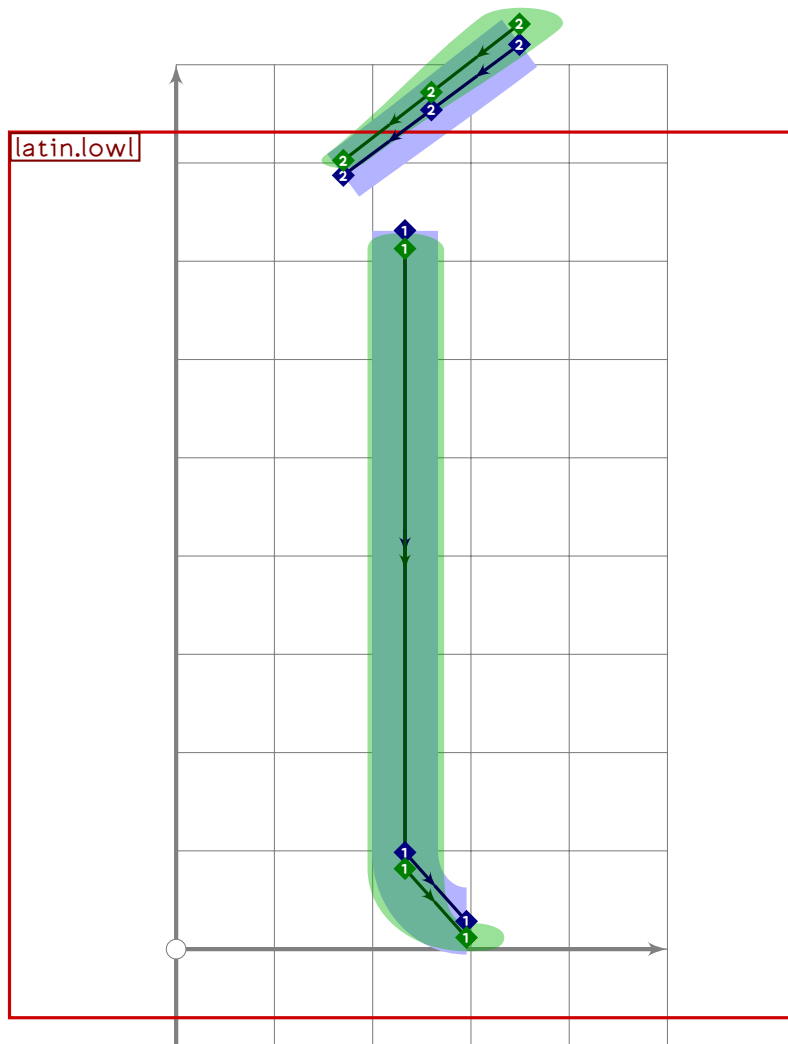
```



```

427 % L with acute
428 begintsuglyph("Lacute";57);
429 tsu_accent.apply(tsu_accent.capital(latin.upl))(tsu_accent.acute);
430 replace_strokep(0)(oldp shifted (-190,0));
431 tsu_render;
432 endsuglyph;
433

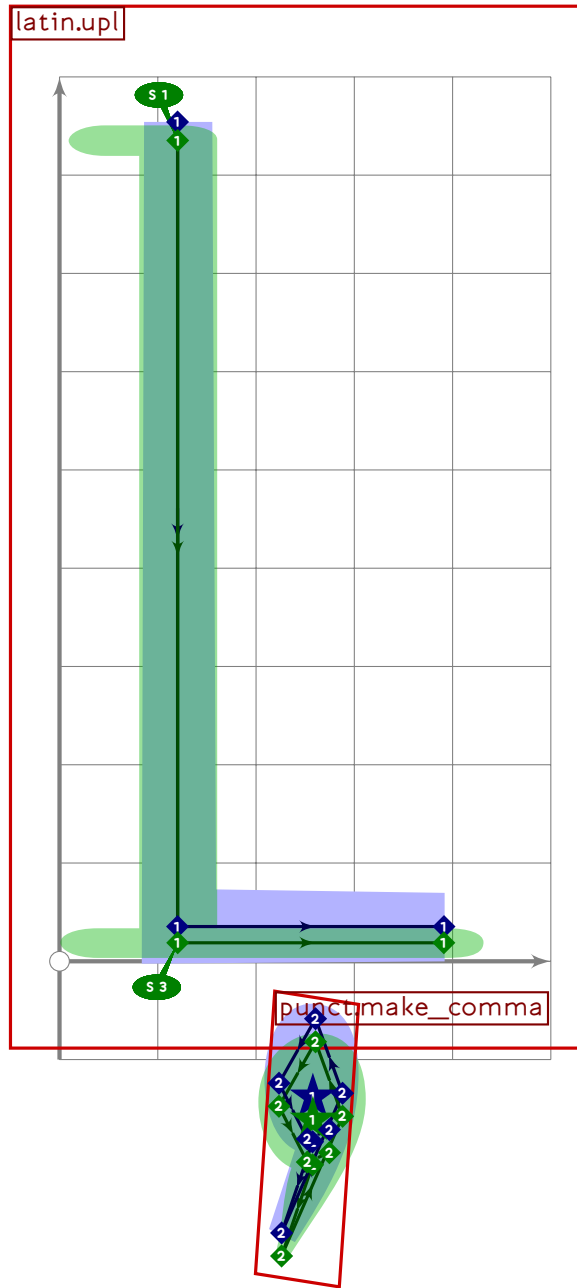
```



```

434 % l with acute
435 begintsuglyph("lacute",58);
436 tsu_accent.apply(tsu_accent.capital(latin.lowl))(tsu_accent.acute);
437 replace_strokep(0)(oldp shifted (-20,0));
438 tsu_render;
439 endtsuglyph;
440

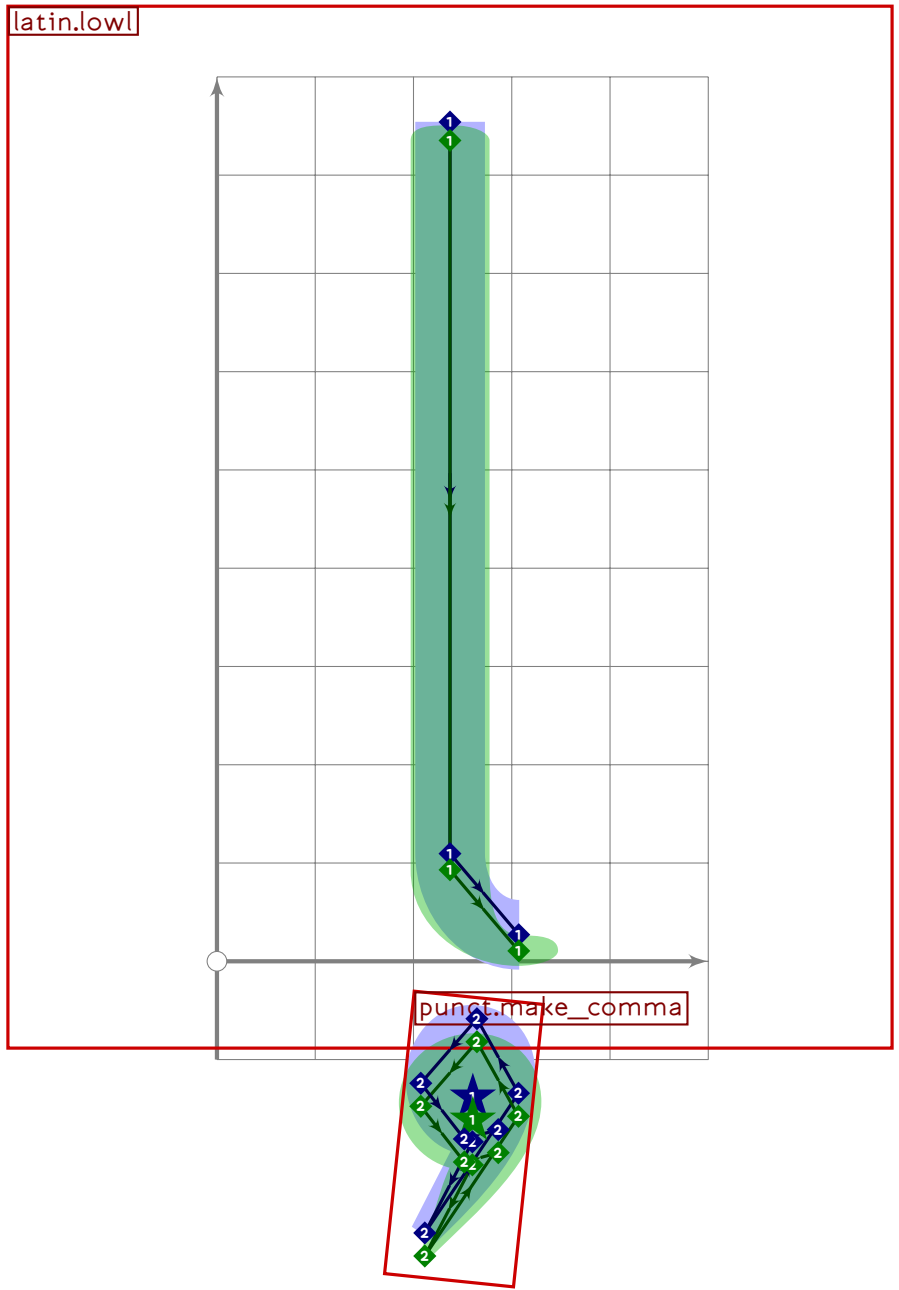
```



```

441 % L with comma below
442 begint Suglyph("uni013B";59);
443 tsu_accent.apply(latin.upl)(tsu_accent.commbelow);
444 tsu_render;
445 endsuglyph;
446

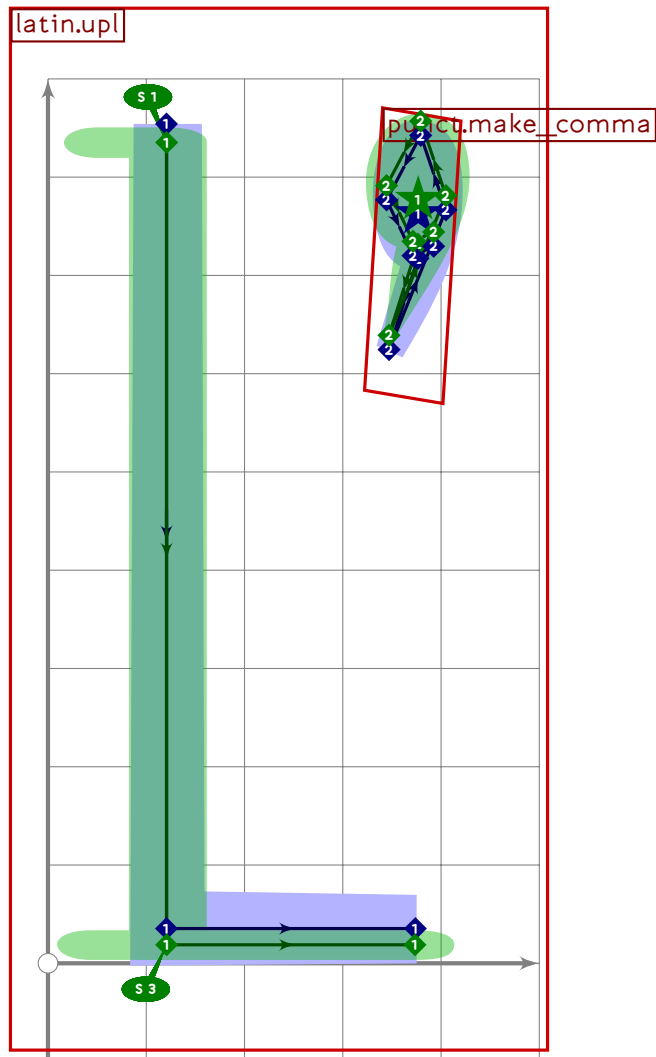
```



```

447 % l with comma below
448 begint Suglyph("uni013C";60);
449 tsu_accent.apply(latin.lowl)(tsu_accent.commabelow);
450 tsu_render;
451 endtsuglyph;
452

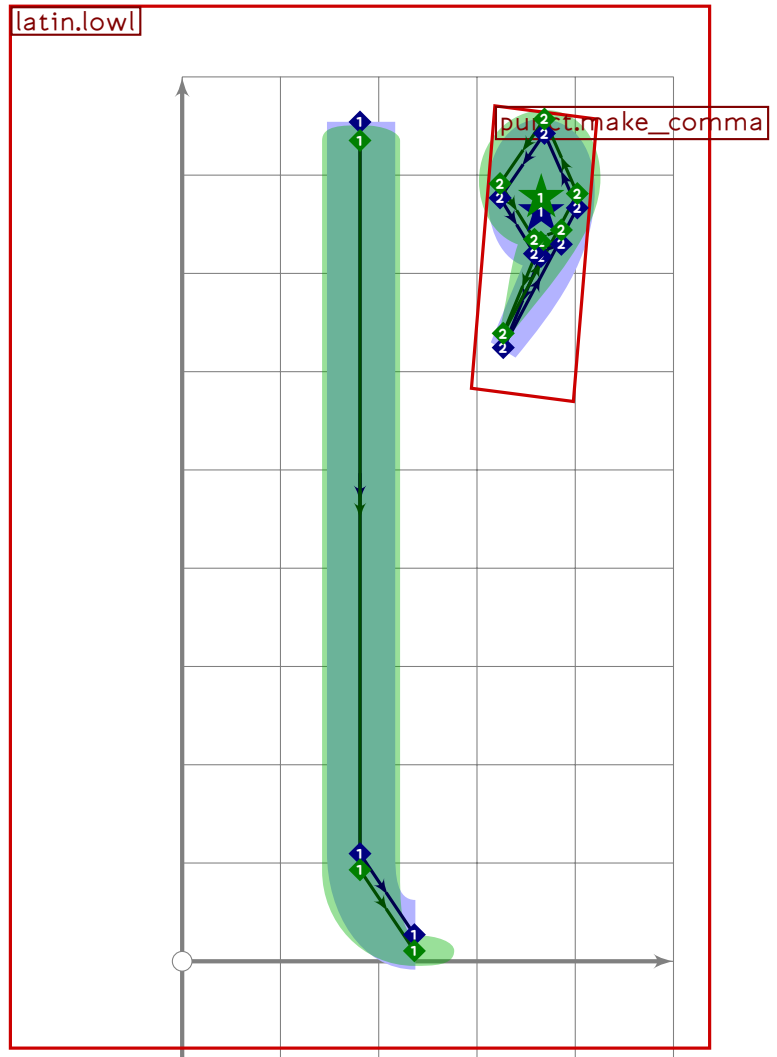
```



```

453 % L with apostrophe caron
454 begint Suglyph("Lcaron";61);
455   tsu_accent.apply(latin.upl)(tsu_accent.caron_comma);
456   tsu_render;
457 endtsuglyph;
458

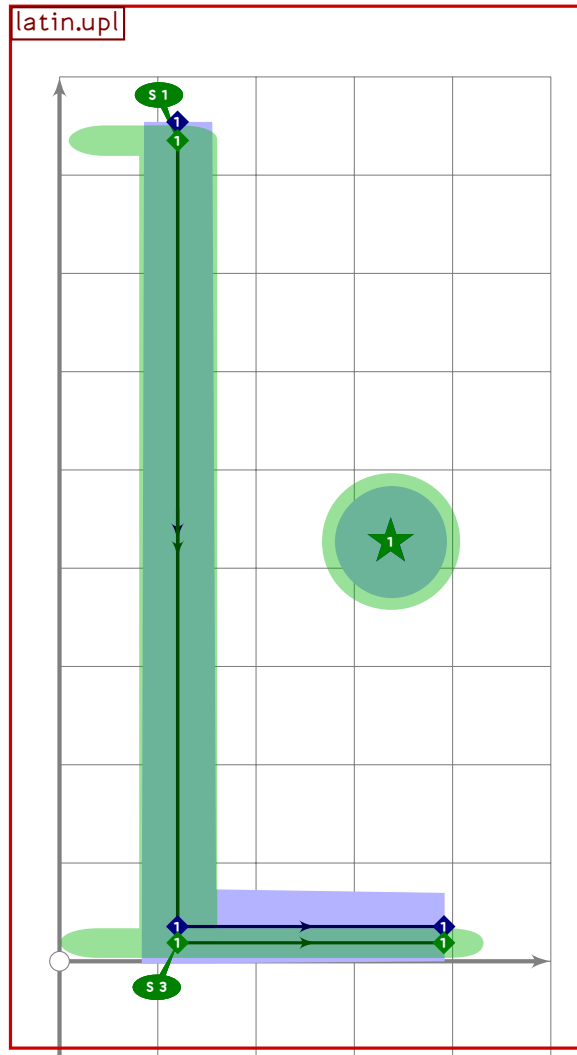
```



```

459 % l with apostrophe caron
460 begintsuglyph("lcaron";62);
461 tsu_accent.apply(latin.lowl)(tsu_accent.caron_comma);
462 tsu_render;
463 endtsuglyph;
464

```

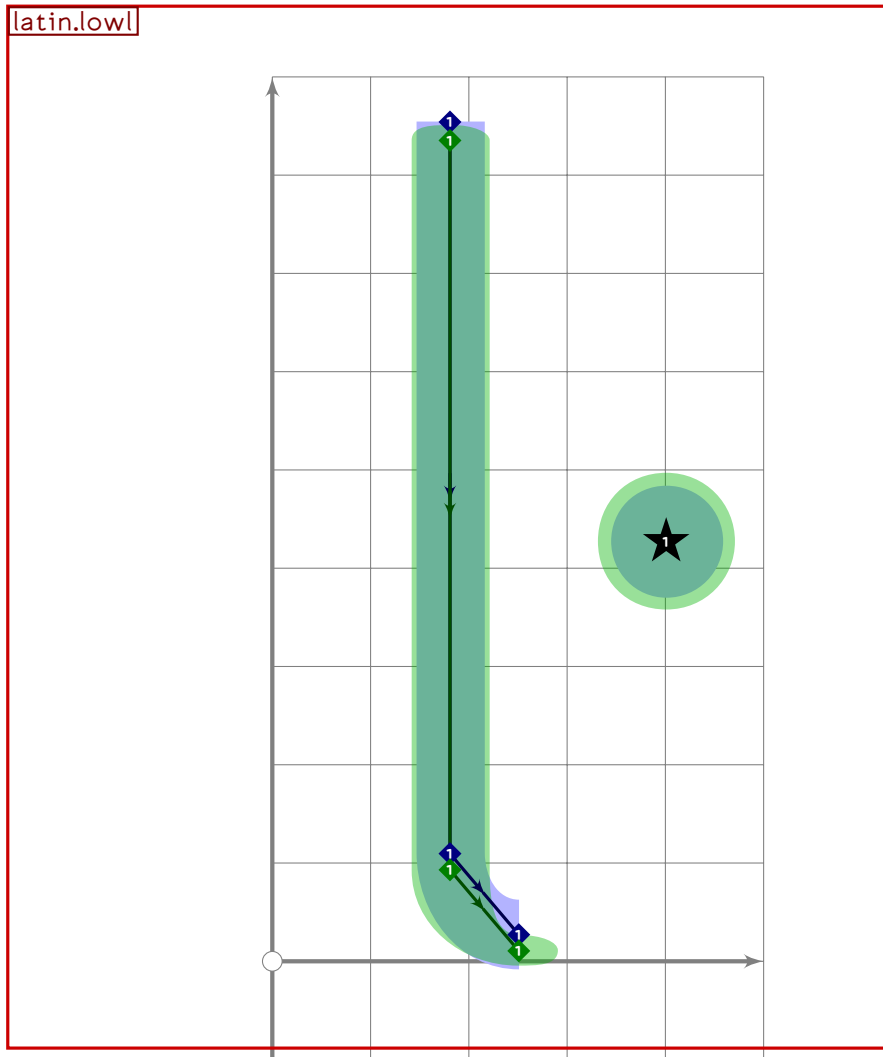


```

465 % L with dot
466 begintsuglyph("Ldot";63);
467 tsu_accent.apply(latin.upl)(tsu_accent.dotabove);
468 replace_lcblob(0)(oldblob
469   shifted ((xpart 0.8[[lcorner get_strokep(0),lrcorner get_strokep(0)],vmetric(0.5))-
470     0.5[[lcorner oldblob,urcorner oldblob]]));
471 tsu_render;
472 endtsuglyph;
473

```

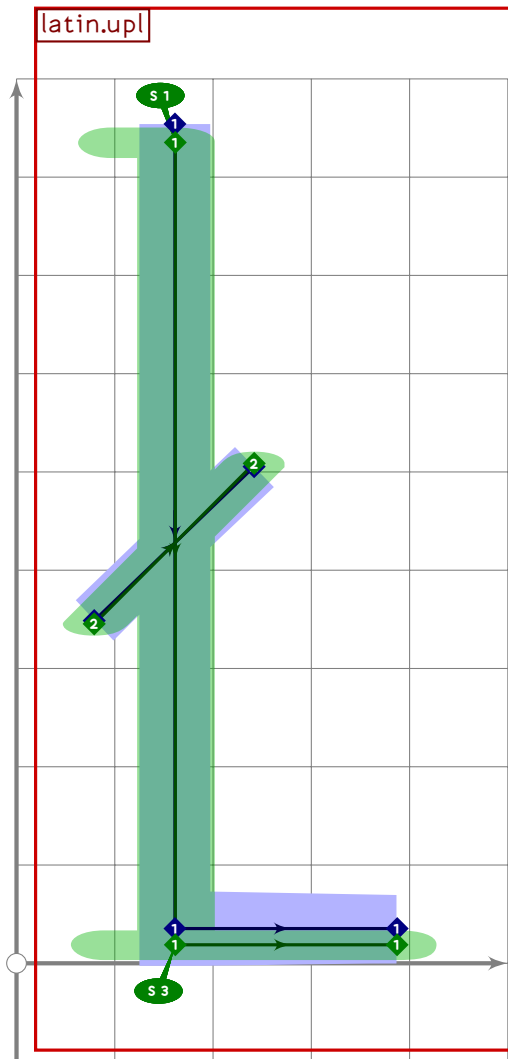




```

474 % l with dot
475 begintsuglyph("ldot",64);
476 tsu_accent.apply(tsu_xform(identity shifted (-120,0))
477   (latin.lowl))(tsu_accent.dotabove);
478 replace_lcblob(0)(oldblob
479   shifted ((220*xpart llcorner get_strokep(0),vmetric(0.5))-
480     0.5[llcorner oldblob,urcorner oldblob]));
481 tsu_render;
482 endtsuglyph;
483

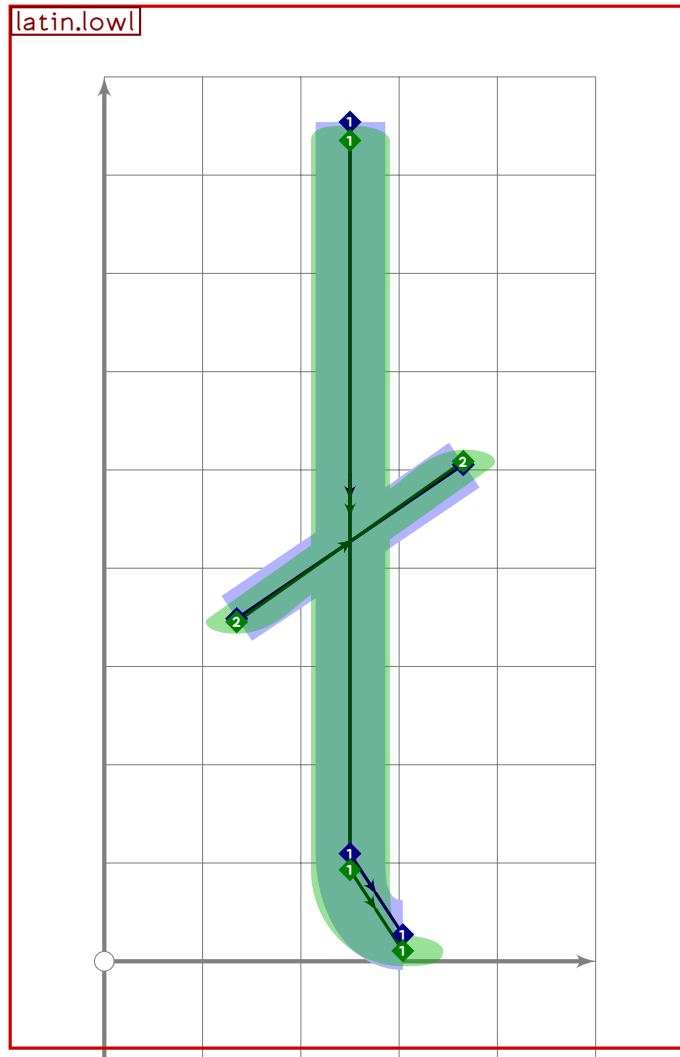
```



```

484 % L with slash
485 begint Suglyph("Lslash",65);
486 latin.upl;
487 push_stroke((160,vmetric(0.40))-(460,vmetric(0.60)),
488   (1.6,1.6)-(1.6,1.6));
489 set_bsize(0,80);
490 tsu_render;
491 endtsuglyph;
492

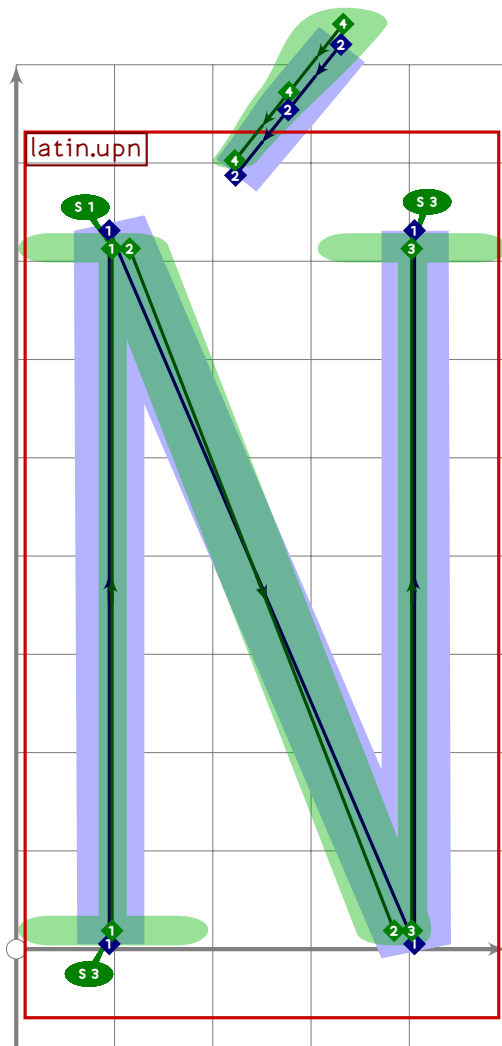
```



```

493 % l with slash
494 begint Suglyph("lslash";66);
495 latin.lowl;
496 push_stroke((350,vmetric(0.40))-(650,vmetric(0.60)),
497   (1.6,1.6)-(1.6,1.6));
498 set_bosize(0,80);
499 tsu_render;
500 endtsuglyph;
501

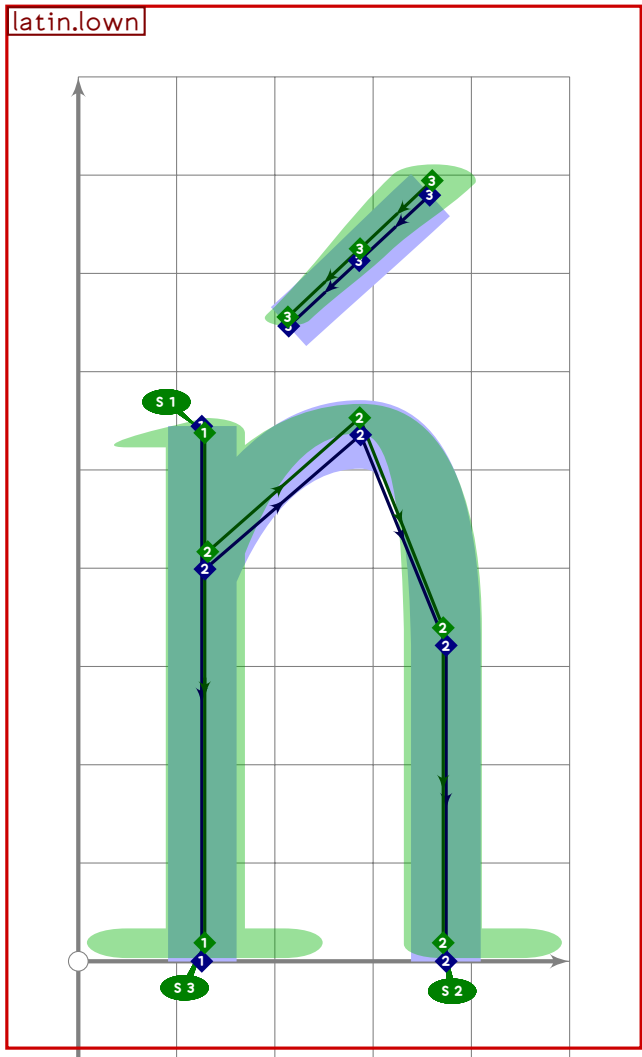
```



```

502 % N with acute
503 begintsuglyph("Nacute",67);
504 tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.acute);
505 tsu_render;
506 endtsuglyph;
507

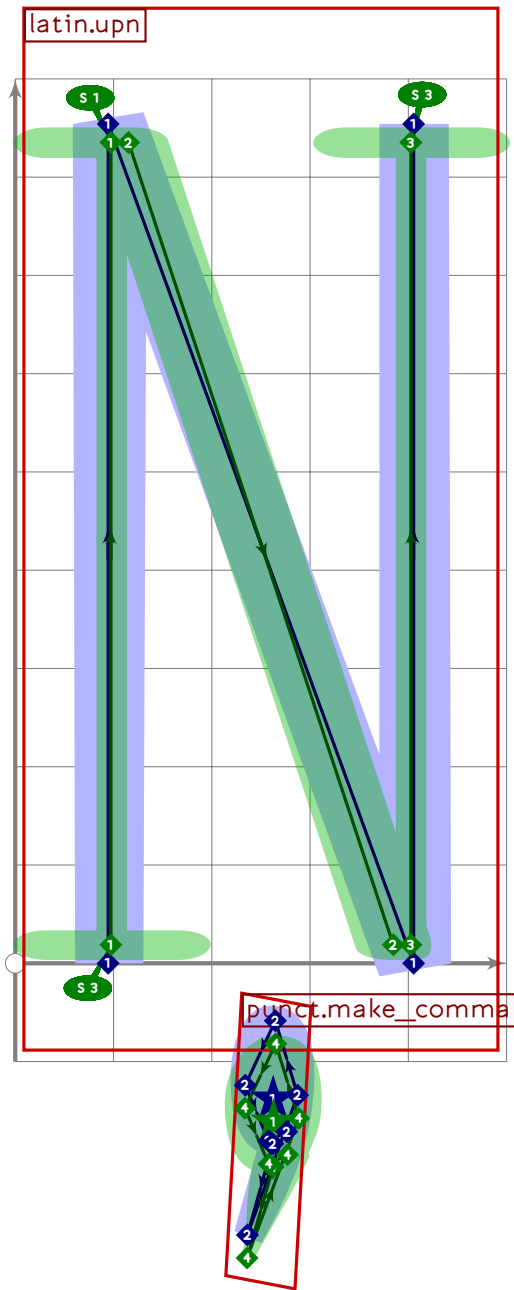
```



```

508 % n with acute
509 begintsuglyph("nacute",68);
510 tsu_accent.apply(latin.lown)(tsu_accent.acute);
511 tsu_render;
512 endtsuglyph;
513

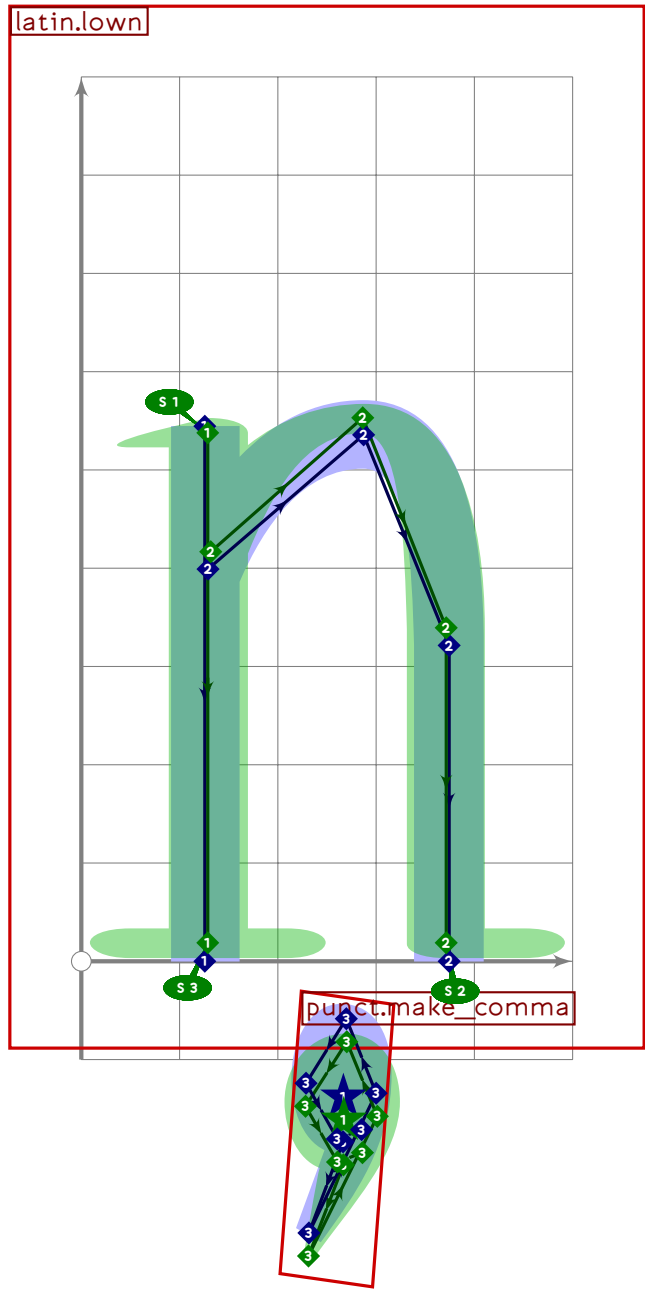
```



```

514 % N with comma below
515 begint Suglyph("uni0145",69);
516 tsu_accent.apply(latin.upn)(tsu_accent.comma below);
517 tsu_render;
518 endtsuglyph;
519

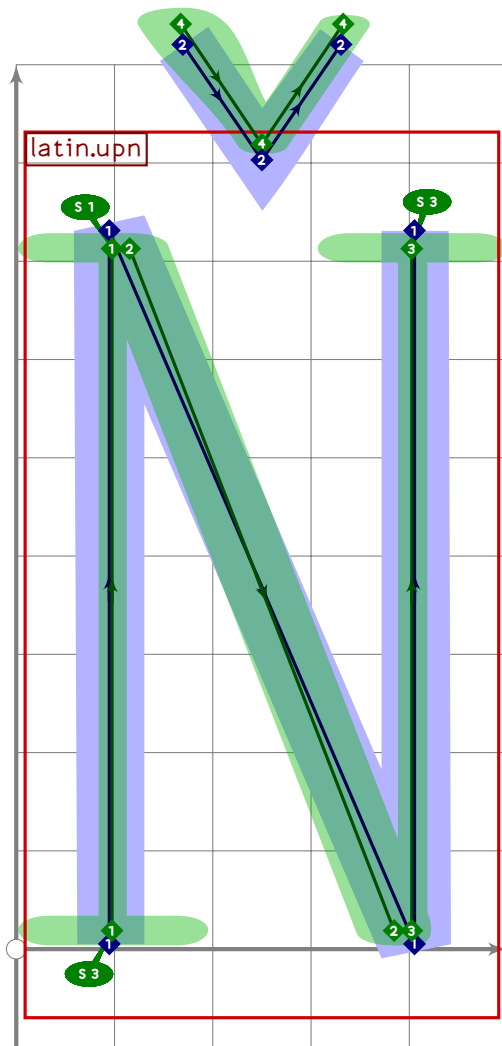
```



```

520 % n with comma below
521 begint Suglyph("uni0146";70);
522   tsu_accent.apply(latin.lown)(tsu_accent.commabelow);
523   tsu_render;
524 endtsuglyph;
525

```

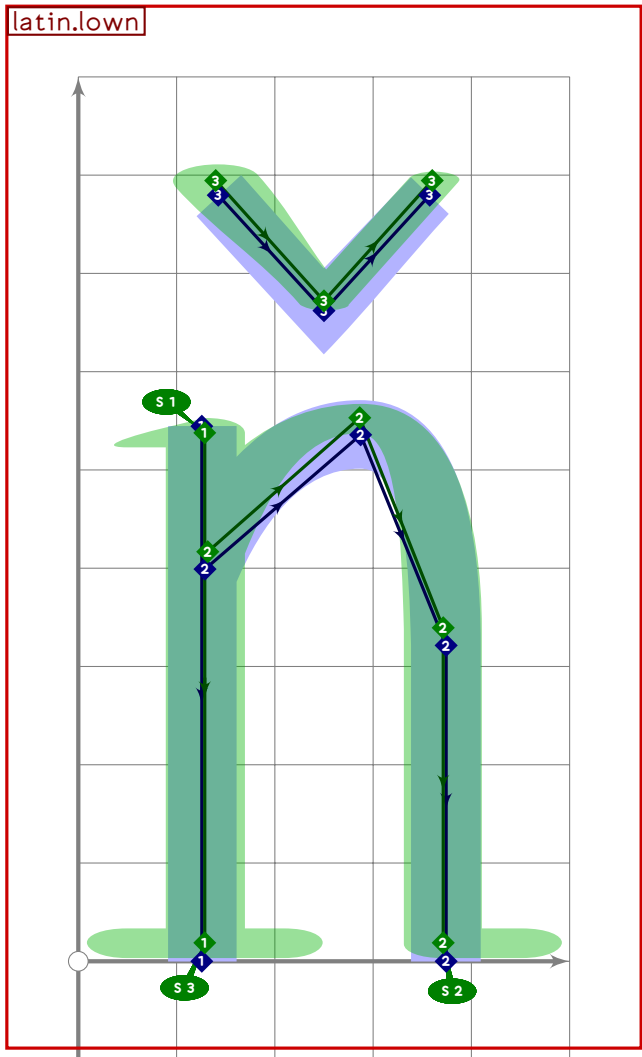


```

526 % N with caron
527 begintsuglyph("Ncaron",71);
528   tsu_accent.apply(tsu_accent.capital(latin.upn))(tsu_accent.caron);
529   tsu_render;
530 endsuglyph;
531

```

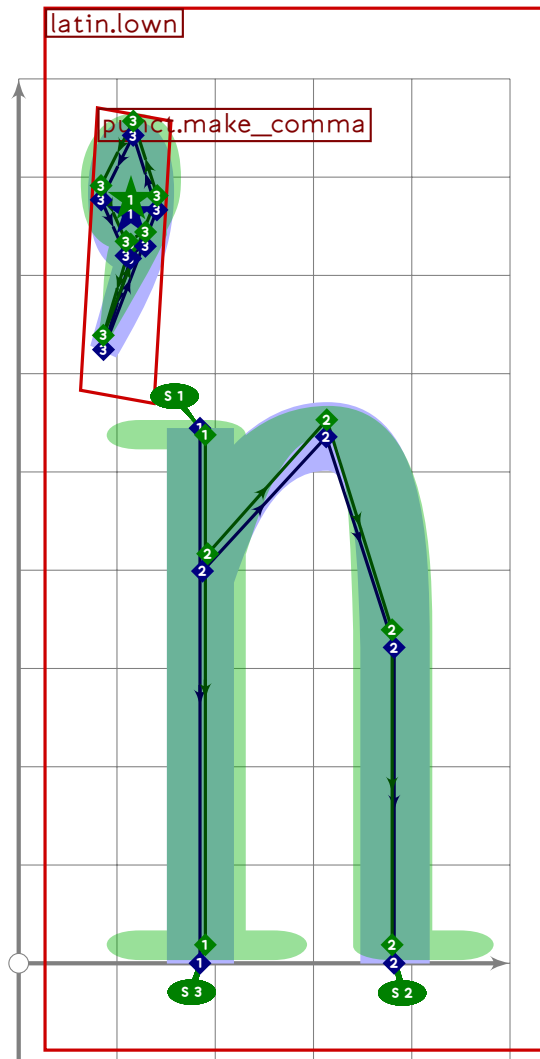




```

532 % n with caron
533 begint Suglyph("ncaron";72);
534   tsu_accent.apply(latin.lown)(tsu_accent.caron);
535   tsu_render;
536 endtsuglyph;
537

```



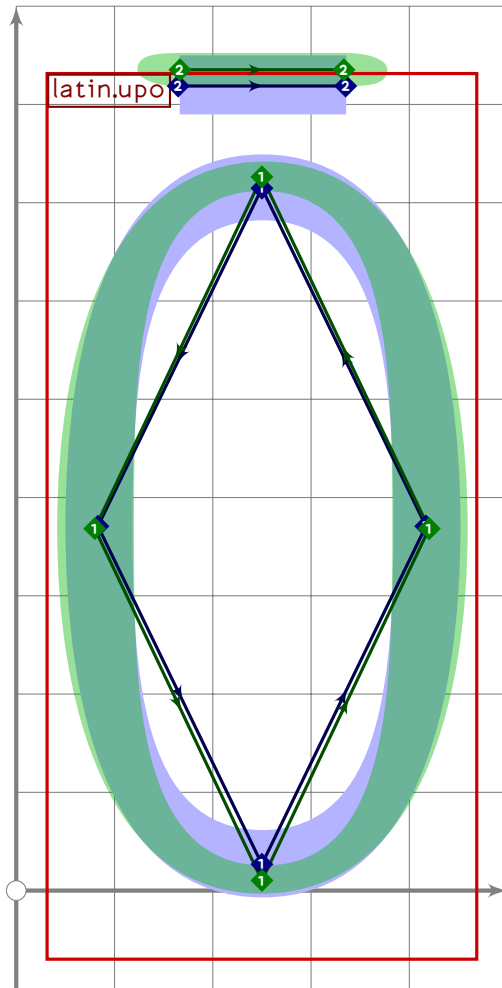
```

538 % n with apostrophe before
539 begint Suglyph("napostrophe",73);
540 tsu_xform(identity shifted (30,0))(latin.lown);
541 punct.make_comma((230,vmetric(0.94)),0);
542 tsu_render;
543 endsuglyph;
544
545 % uppercase Eng
546 begint Suglyph("Eng",74);
547 latin.upeng;
548 tsu_render;
549 endsuglyph;
550
551 % lowercase eng
552 begint Suglyph("eng",75);
553 latin.loweng;
554 tsu_render;
555 endsuglyph;
556

```

[see page 187]

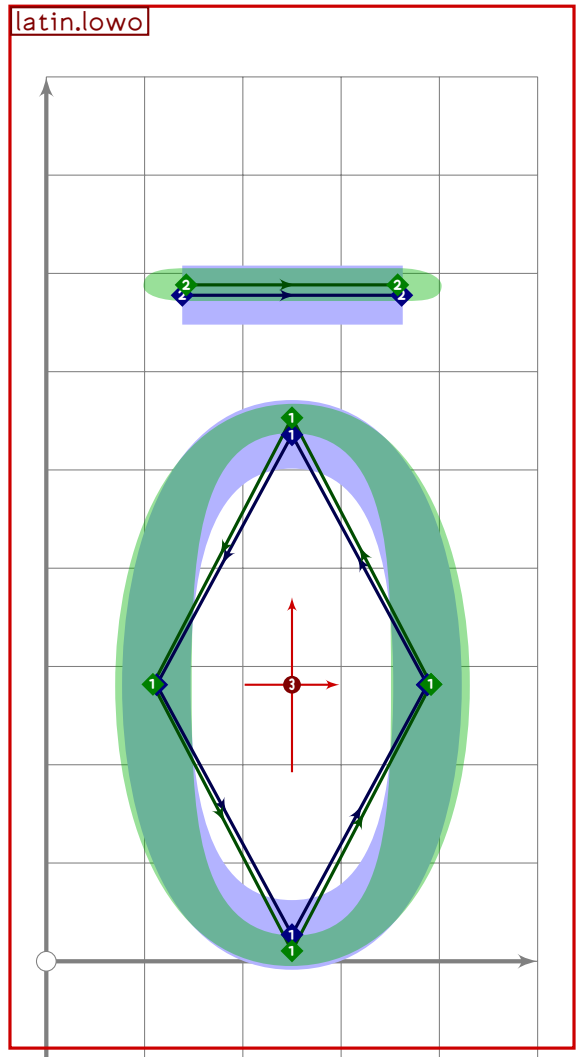
[see page 225]



```

557 % O with macron
558 begintsuglyph("Omacron",76);
559 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.macron);
560 tsu_render;
561 endtsuglyph;
562

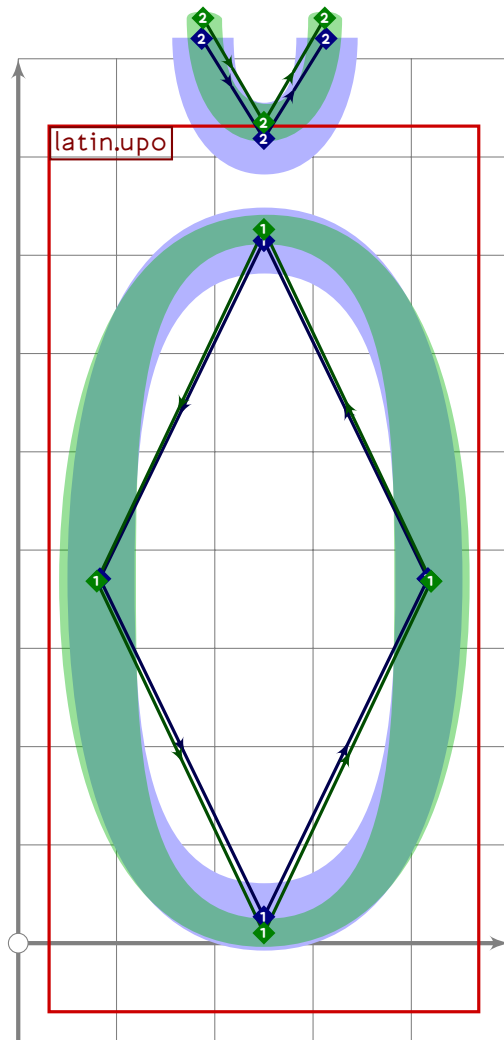
```



```

563 % o with macron
564 begintsuglyph("omacron",77);
565 tsu_accent.apply(latin.lowo)(tsu_accent.macron);
566 tsu_render;
567 endtsuglyph;
568

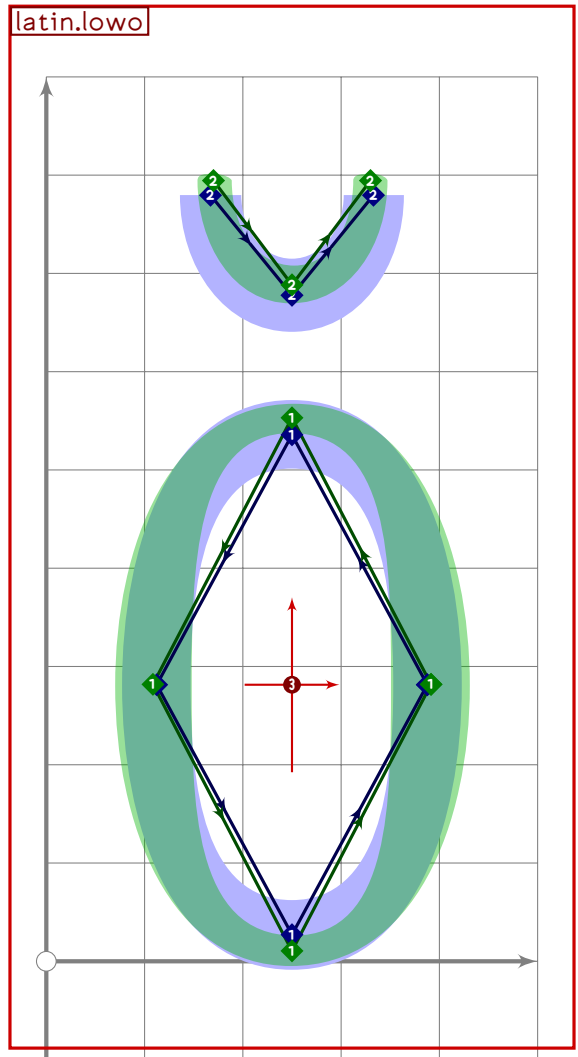
```



```

569 % O with breve
570 begintsuglyph("Obreve;78);
571 tsu_accent.apply(tsu_accent.capital(latin.upo))(tsu_accent.breve);
572 tsu_render;
573 endtsuglyph;
574

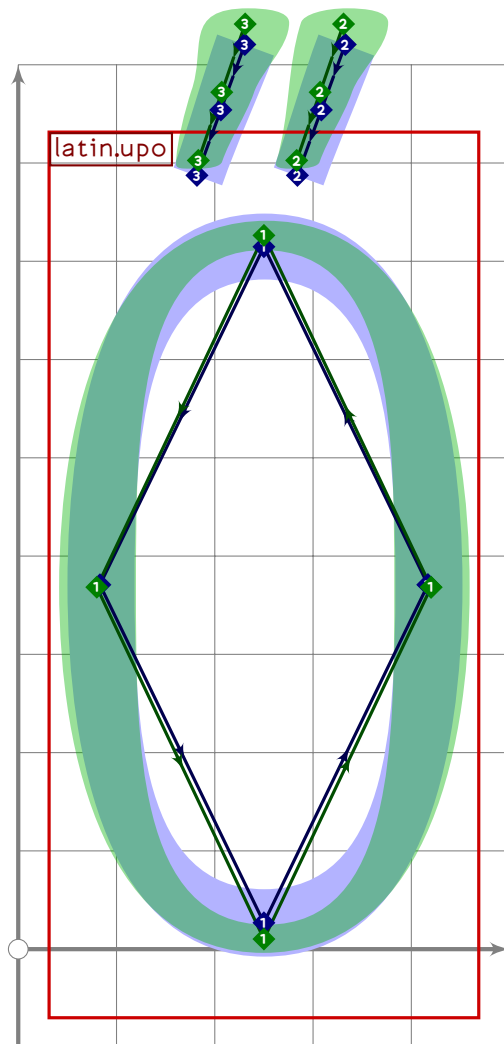
```



```

575 % o with breve
576 begint Suglyph("obreve";79);
577   tsu_accent.apply(latin.lowo)(tsu_accent.breve);
578   tsu_render;
579 endtsuglyph;
580

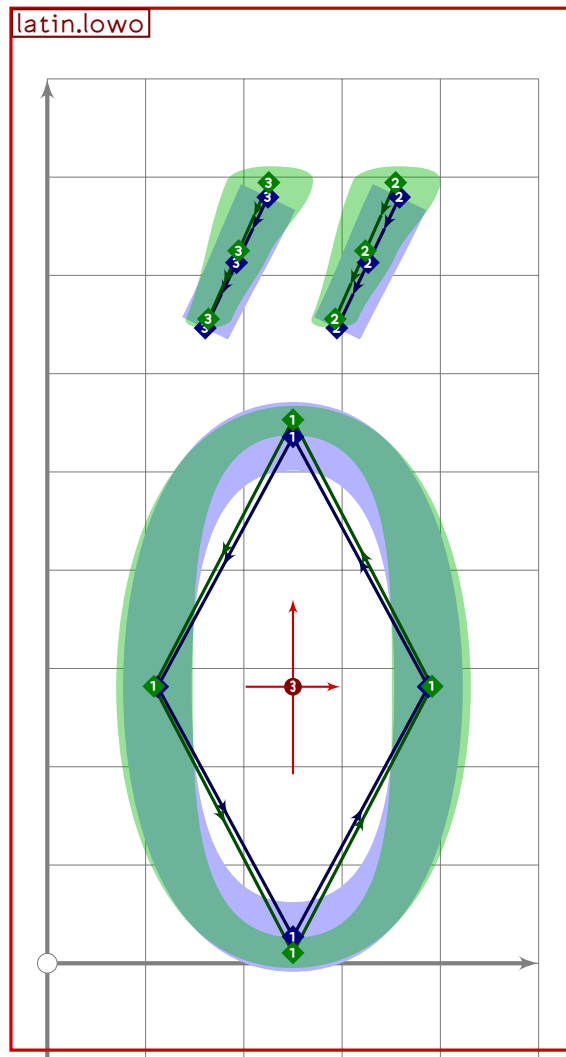
```



```

581 % O with Hunarian umlaut
582 \begintsuglyph{"Ohungarumlaut";80};
583 \tsu_accent.apply(\tsu_accent.capital(latin.upo))(\tsu_accent.hungarian_umlaut);
584 \tsu_render;
585 \endtsuglyph;
586

```



```

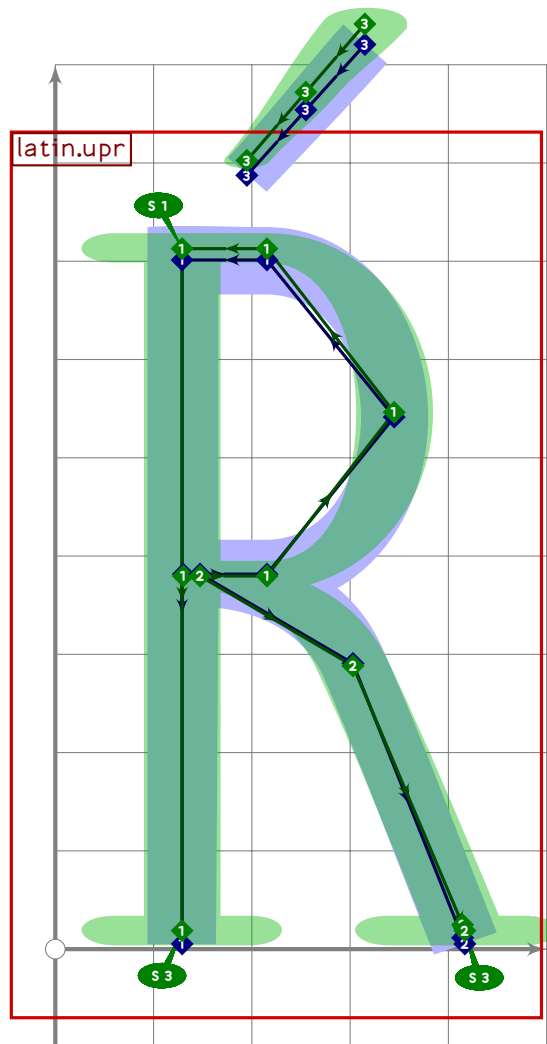
587 % o with hungarian umlaut
588 begintsuglyph("ohungarumlaut";81);
589 tsu_accent.apply(latin.lowo)(tsu_accent.hungarian_umlaut);
590 tsu_render;
591 endtsuglyph;
592
593 % OE ligature
594 begintsuglyph("OE";82);
595 latin.upoe;
596 tsu_render;
597 endtsuglyph;
598
599 % oe ligature
600 begintsuglyph("oe";83);
601 latin.lowoe;
602 tsu_render;
603 endtsuglyph;
604

```

[see page 189]

[see page 227]

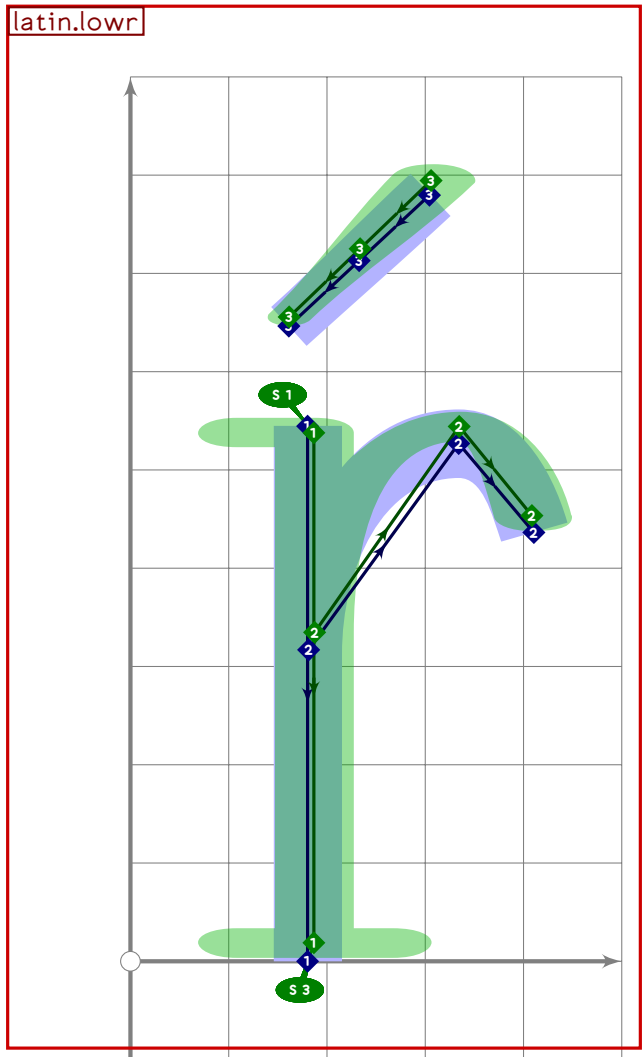




```

605 % R with acute
606 begint Suglyph("Racute";84);
607   tsu_accent.apply(tsu_accent.capital(latin.upr))(tsu_accent.acute);
608   tsu_render;
609 endtsuglyph;
610

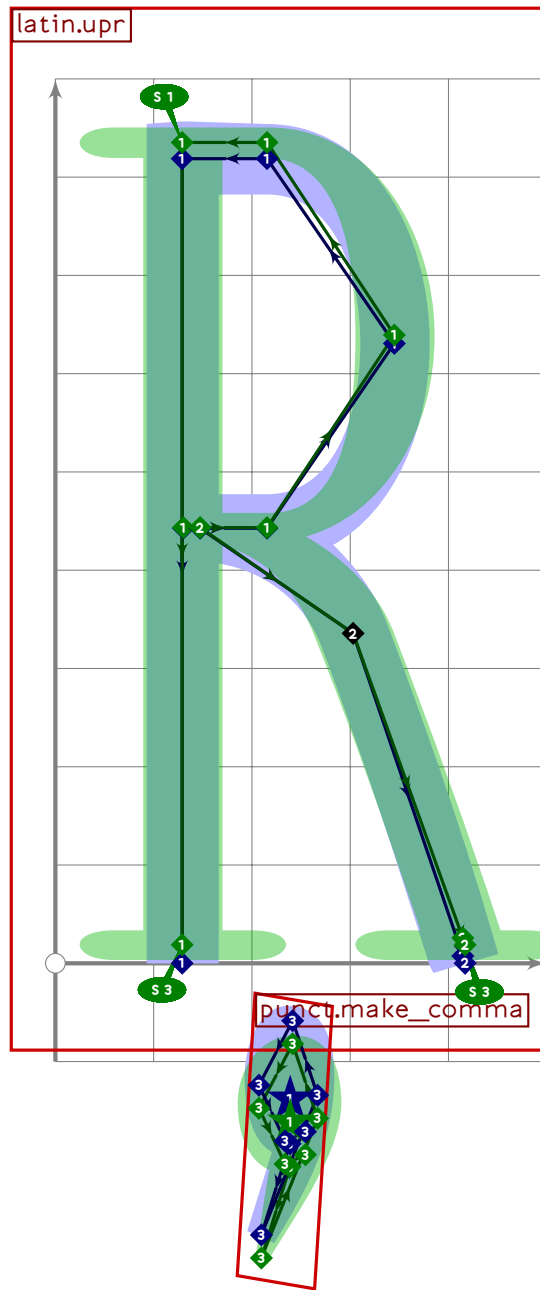
```



```

611 % r with acute
612 begint Suglyph("racute";85);
613   tsu_accent.apply(latin.lower)(tsu_accent.acute);
614   tsu_render;
615 endtsuglyph;
616

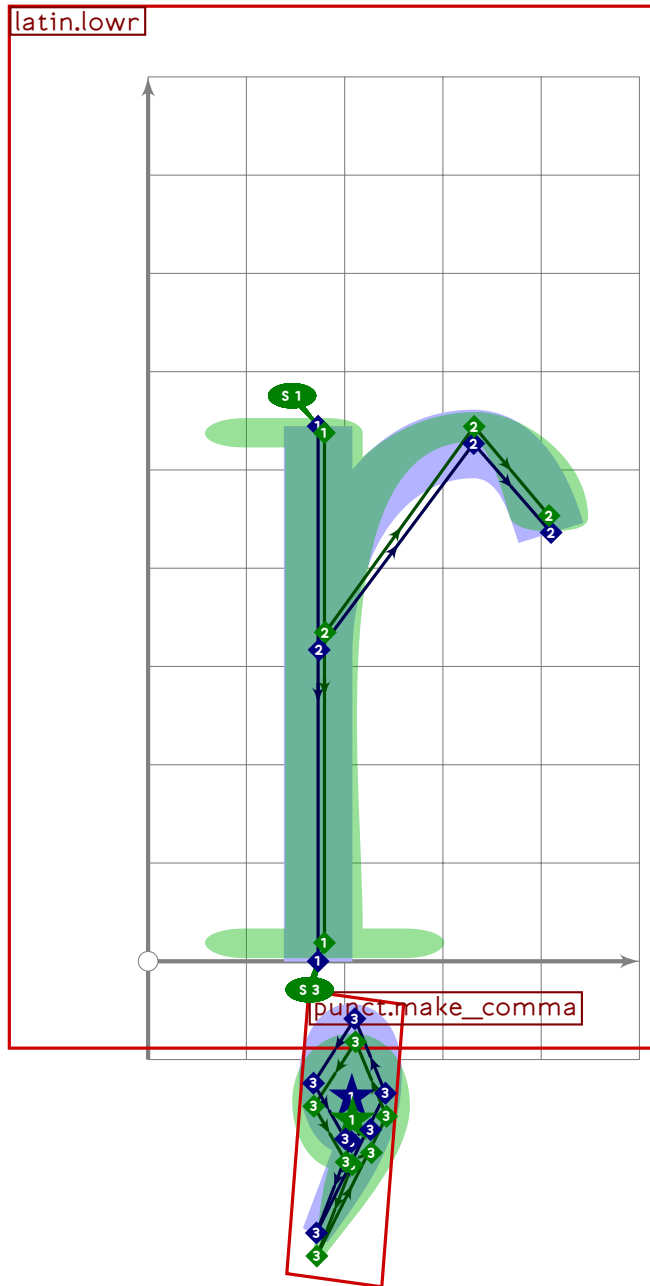
```



```

617 % R with comma below
618 begint Suglyph("uni0156";86);
619 tsu_accent.apply(latin.upr)(tsu_accent.commbelow);
620 tsu_render;
621 endtsuglyph;
622

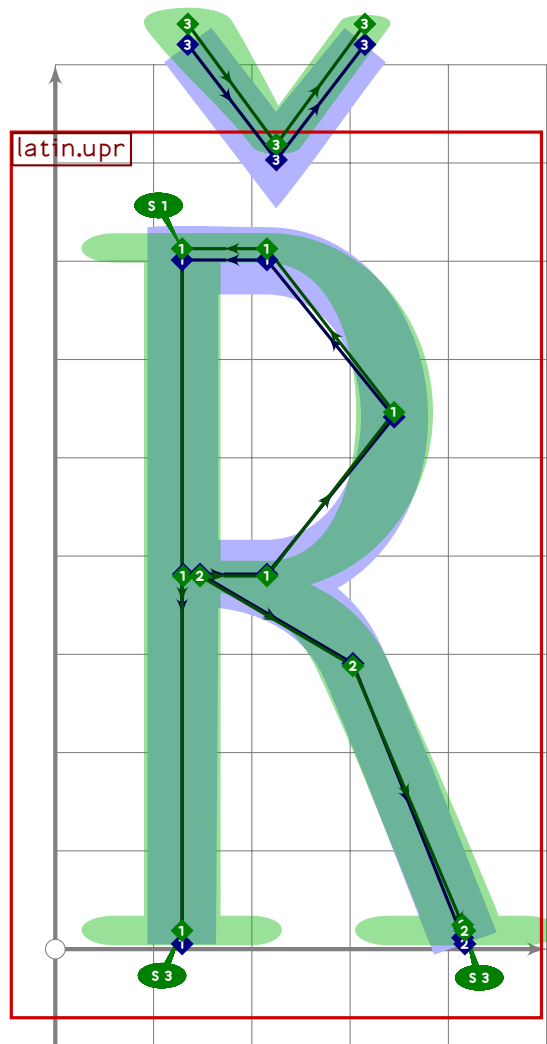
```



```

623 % r with comma below
624 begint Suglyph("uni0157";87);
625   tsu_accent.apply(latin.lowr)(tsu_accent.commabelow);
626   tsu_render;
627 endtsuglyph;
628

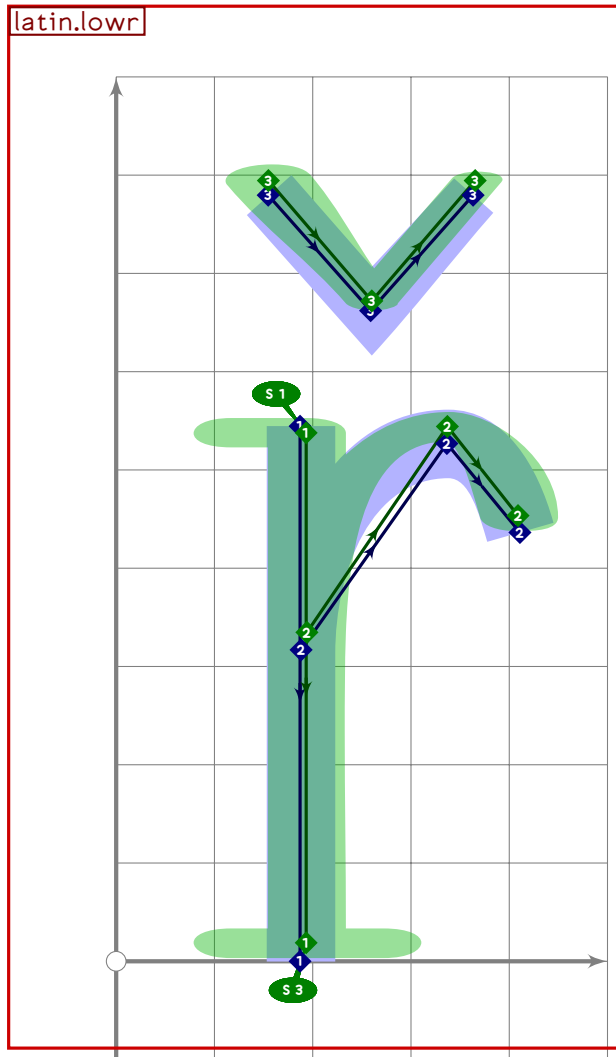
```



```

629 % R with caron
630 begintsuglyph("Rcaron";88);
631 tsu_accent.apply(tsu_accent.capital(latin.upr))(tsu_accent.caron);
632 tsu_render;
633 endsuglyph;
634

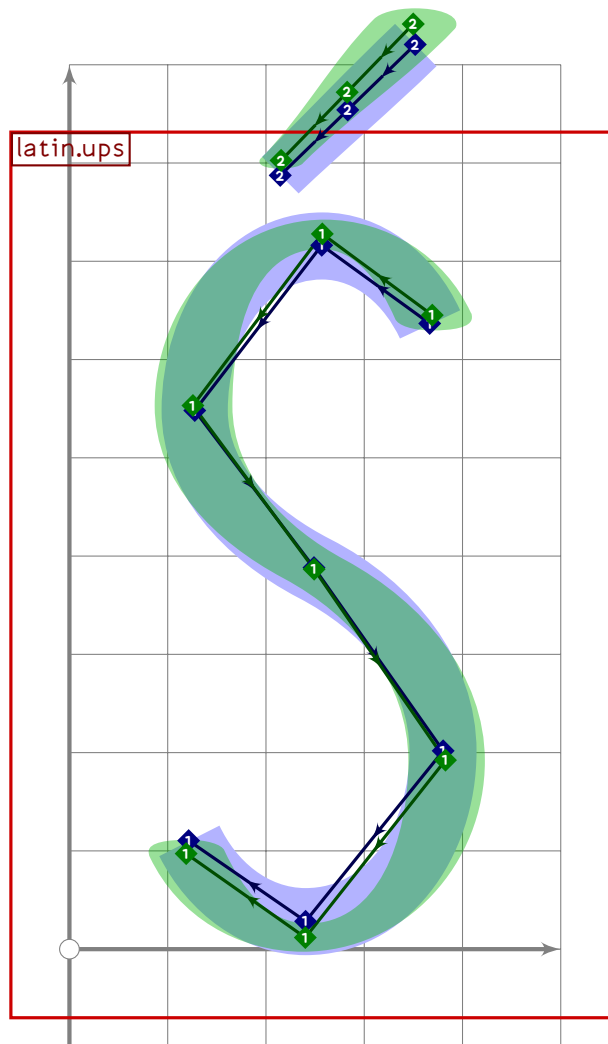
```



```

635 % r with caron
636 beginsuglyph("rcaron";89);
637 tsu_accent.apply(latin.lower)(tsu_accent.caron);
638 replace_strokep(0)(oldp shifted (80,0));
639 tsu_render;
640 endsuglyph;
641

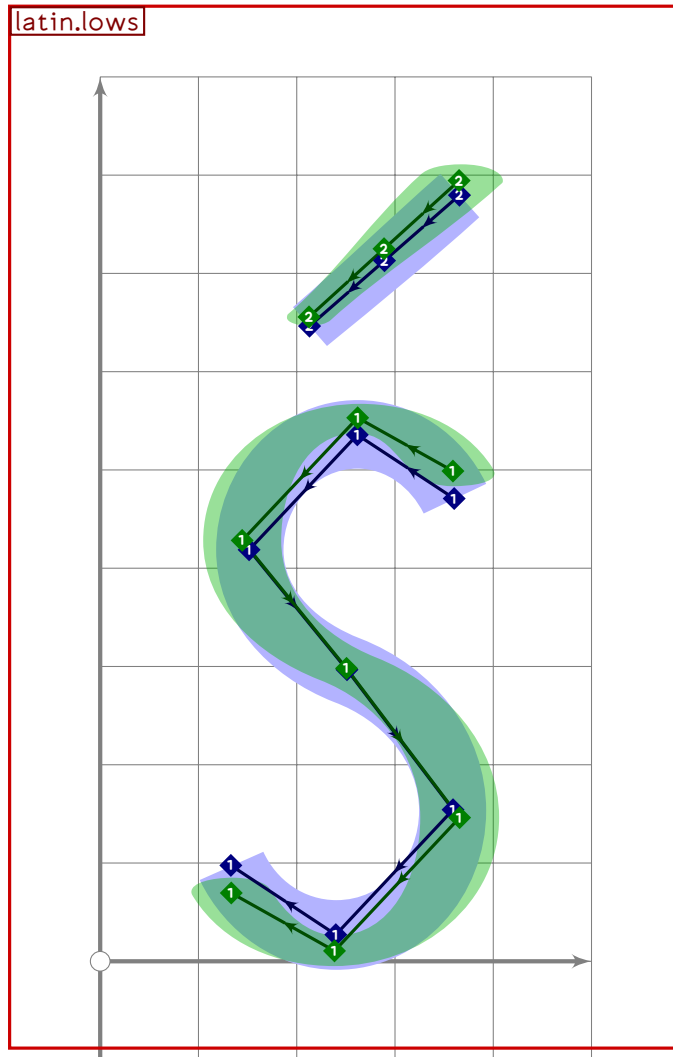
```



```

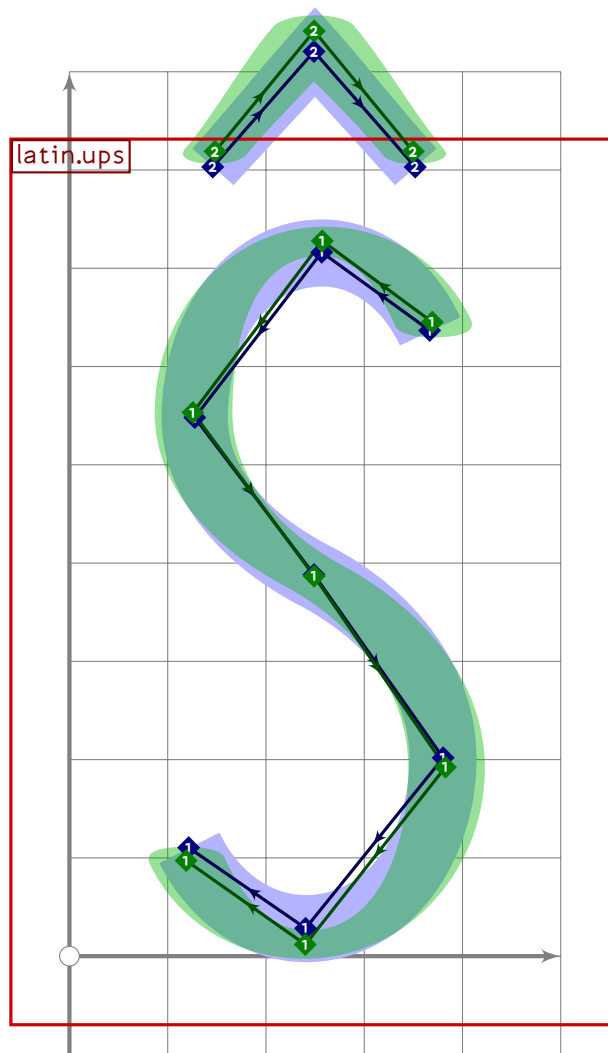
642 % S with acute
643 begintsuglyph("Sacute";90);
644 tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.acute);
645 tsu_render;
646 endsuglyph;
647

```



```
648 % s with acute
649 begint Suglyph("sacute";91);
650 tsu_accent.apply(latin.lows)(tsu_accent.acute);
651 tsu_render;
652 endtsuglyph;
653
```

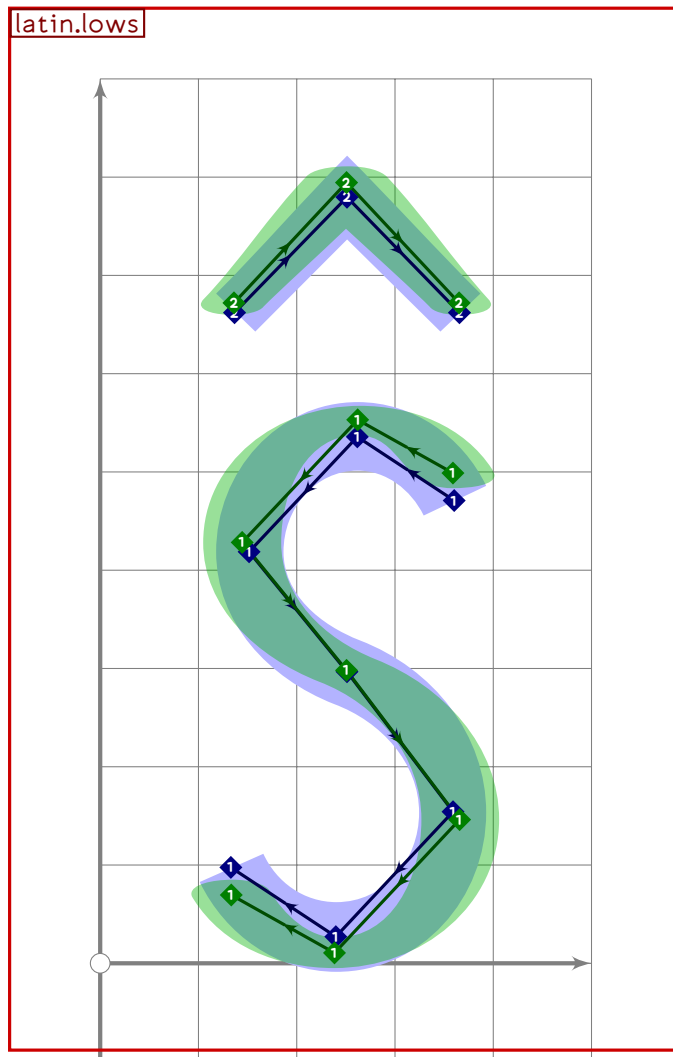




```

654 % S with circumflex
655 begint Suglyph("Scircumflex";92);
656   tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.circumflex);
657   tsu_render;
658   endtsuglyph;
659

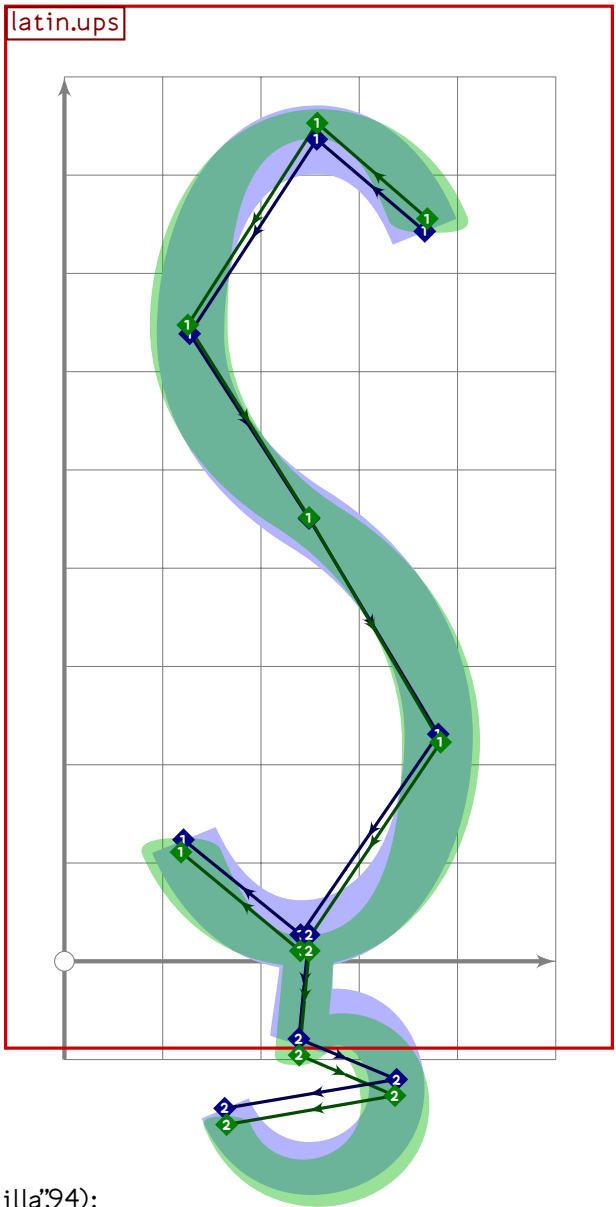
```



```

660 % s with circumflex
661 begint Suglyph("scircumflex";93);
662 tsu_accent.apply(latin.lows)(tsu_accent.circumflex);
663 tsu_render;
664 endtsuglyph;
665

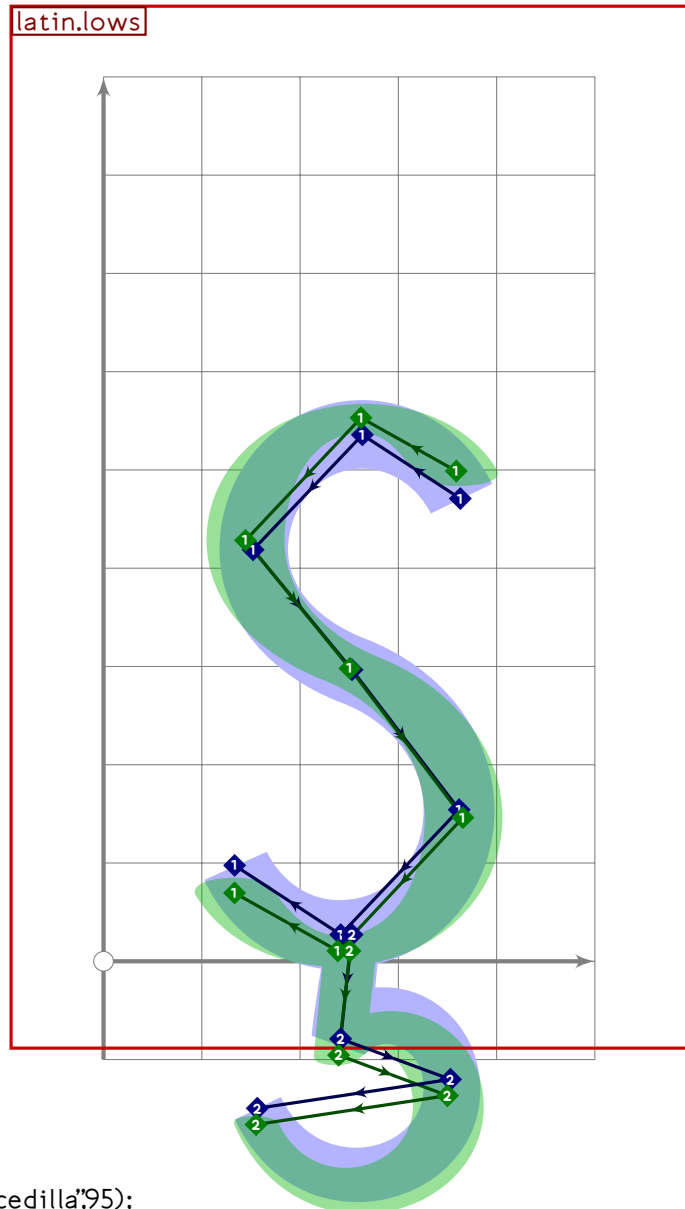
```



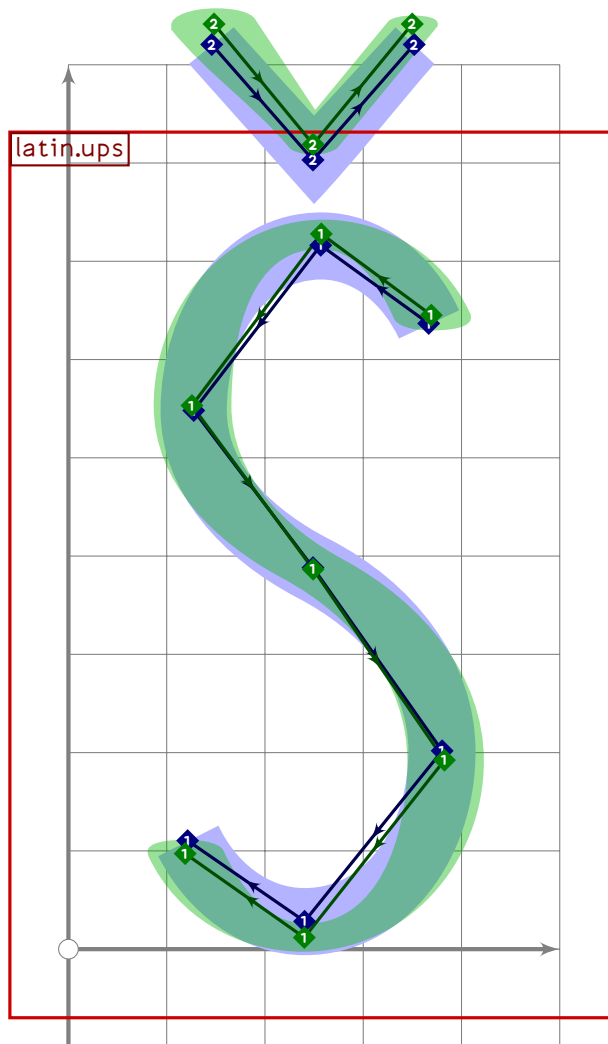
```

666 % S with cedilla
667 begintsuglyph("Scedilla",94);
668   tsu_accent.apply(latin.ups)(tsu_accent.cedilla);
669   tsu_render;
670   endtsuglyph;
671

```



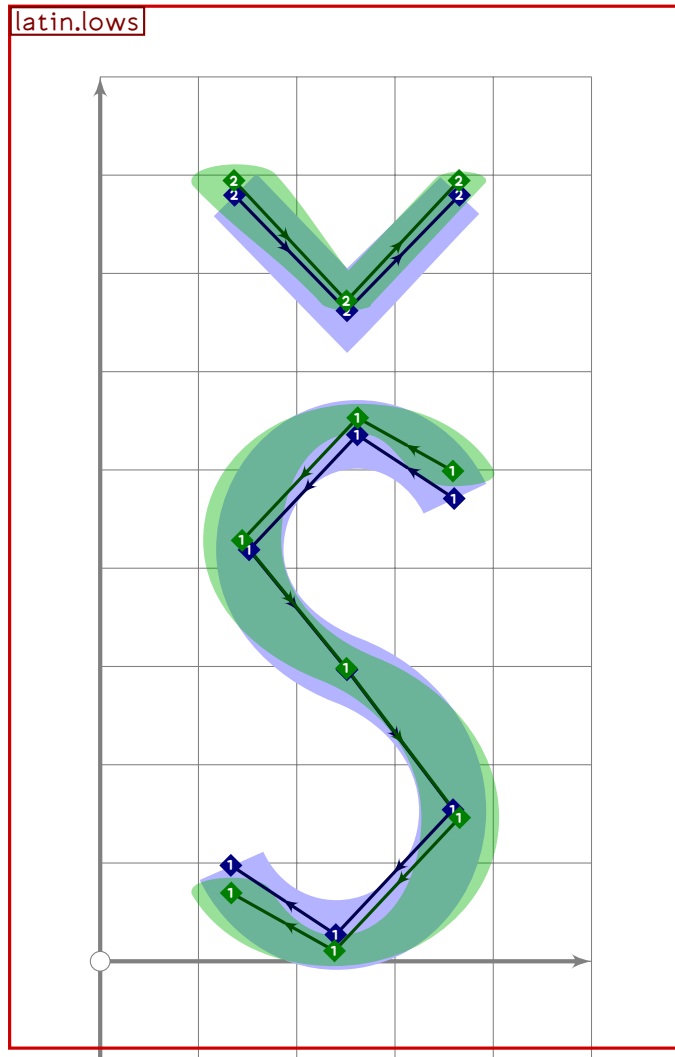
```
672 % s with cedilla
673 begintsuglyph("scedilla";95);
674 tsu_accent.apply(latin.lows)(tsu_accent.cedilla);
675 tsu_render;
676 endtsuglyph;
677
```



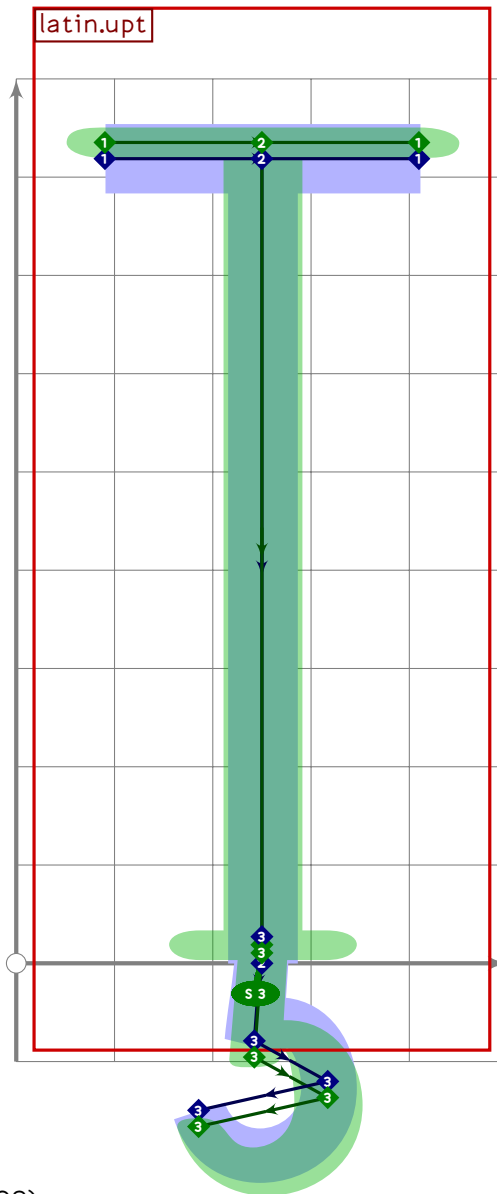
```

678 % S with caron
679 begintsuglyph("Scaron",96);
680 tsu_accent.apply(tsu_accent.capital(latin.ups))(tsu_accent.caron);
681 tsu_render;
682 endtsuglyph;
683

```



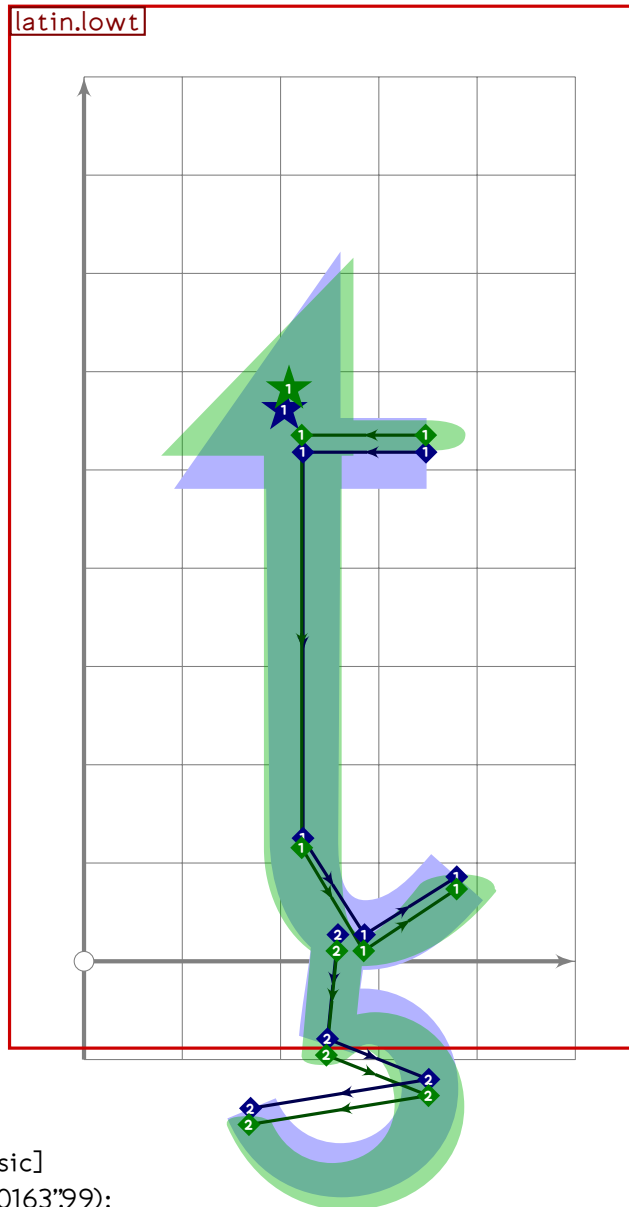
```
684 % s with caron
685 begint Suglyph("scaron";97);
686 tsu_accent.apply(latin.lows)(tsu_accent.caron);
687 tsu_render;
688 endtsuglyph;
689
```



```

690 % T with cedilla [sic]
691 begintsuglyph("uni0162";98);
692   tsu_accent.apply(latin.upt)(tsu_accent.cedilla);
693   tsu_render;
694 endsuglyph;
695

```

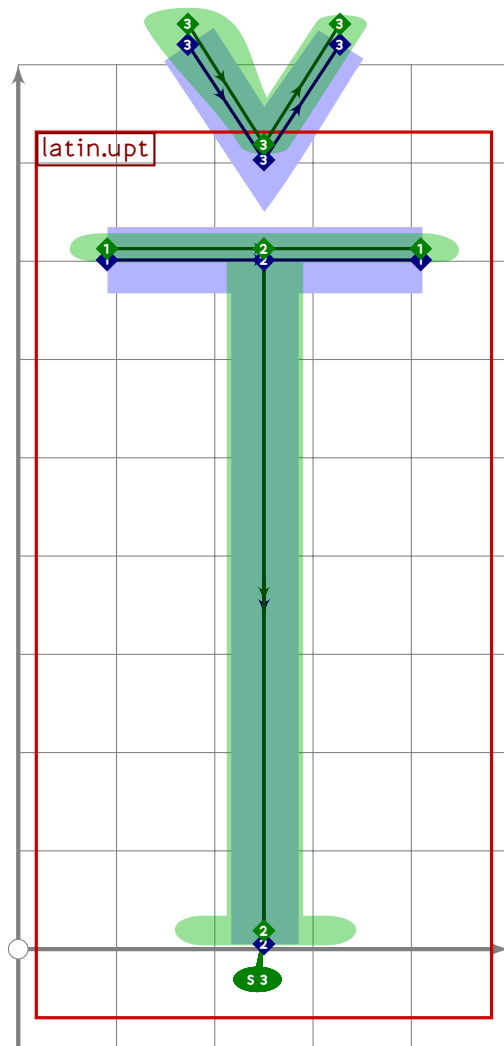


```

696 % t with cedilla [sic]
697 begintsuglyph("uni0163";99);
698 tsu_accent.apply(latin.lowt)(tsu_accent.cedilla);
699 replace_stroke(0)(oldp shifted (20,0));
700 tsu_render;
701 endtsuglyph;
702

```

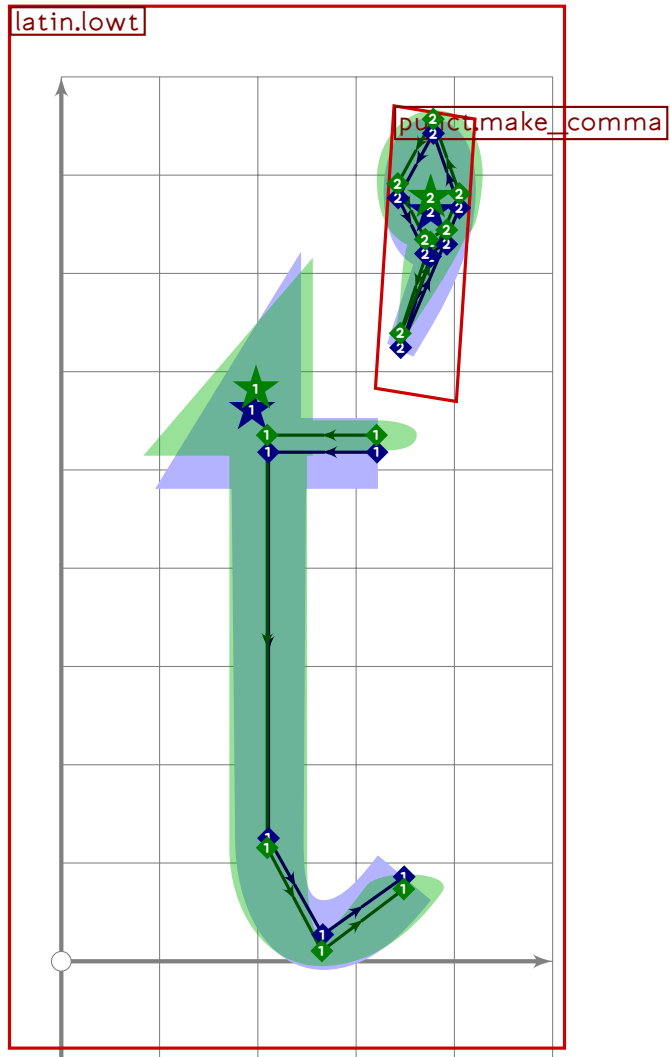




```

703 % T with caron
704 begintsuglyph("Tcaron",100);
705 tsu_accent.apply(tsu_accent.capital(latin.upt))(tsu_accent.caron);
706 tsu_render;
707 endtsuglyph;
708

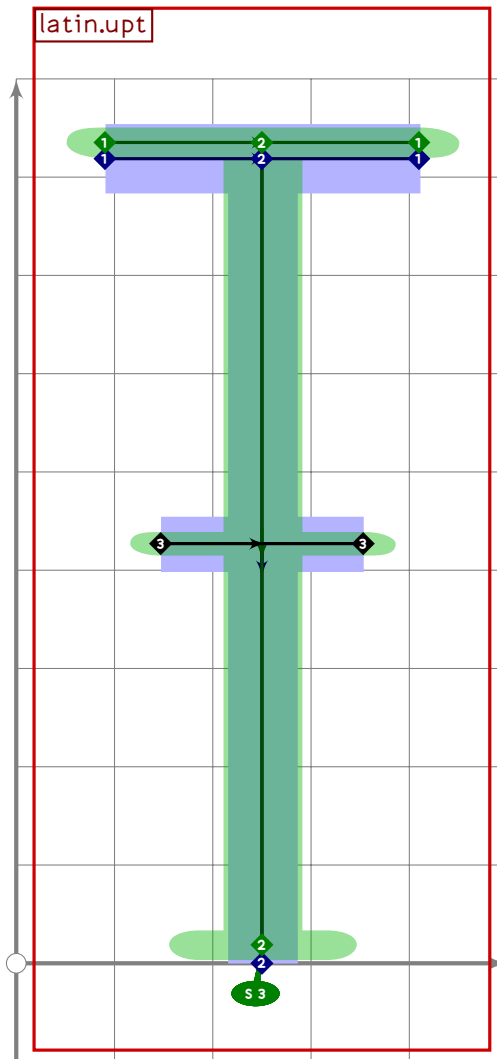
```



```

709 % t with apostrophe caron
710 begint Suglyph("tcaron";101);
711 tsu_accent.apply(latin.lowt)(tsu_accent.caron_comma);
712 tsu_render;
713 endtsuglyph;
714

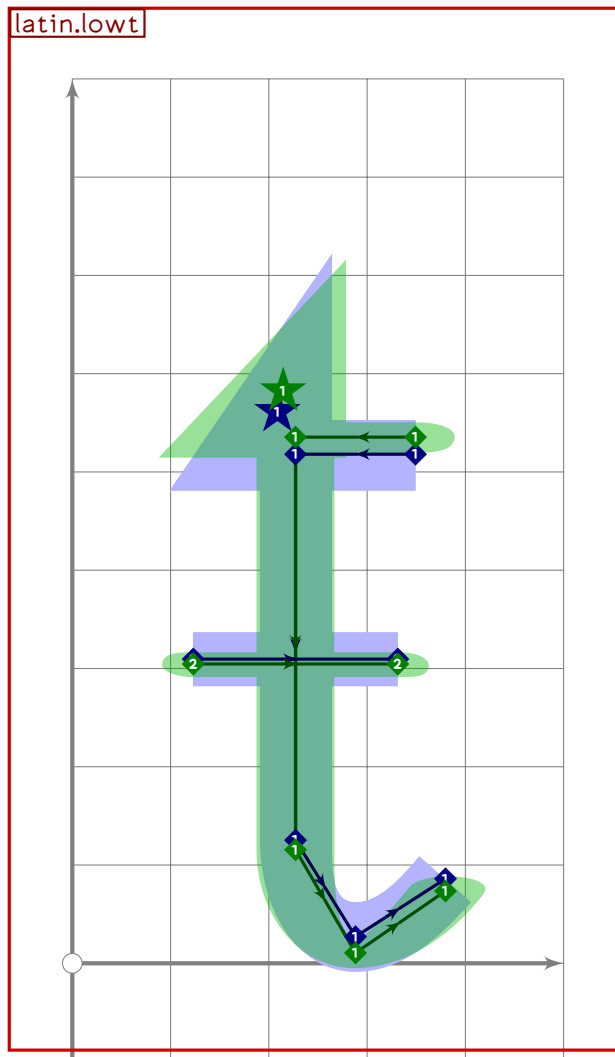
```



```

715 % T with bar
716 begintsuglyph("Tbar",102);
717 latin.upt;
718 push_stroke((300,vmetric(0.5))-(700,vmetric(0.5)),
719   (1.6,1.6)-(1.6,1.6));
720 set_bosize(0,80);
721 tsu_render;
722 endtsuglyph;
723

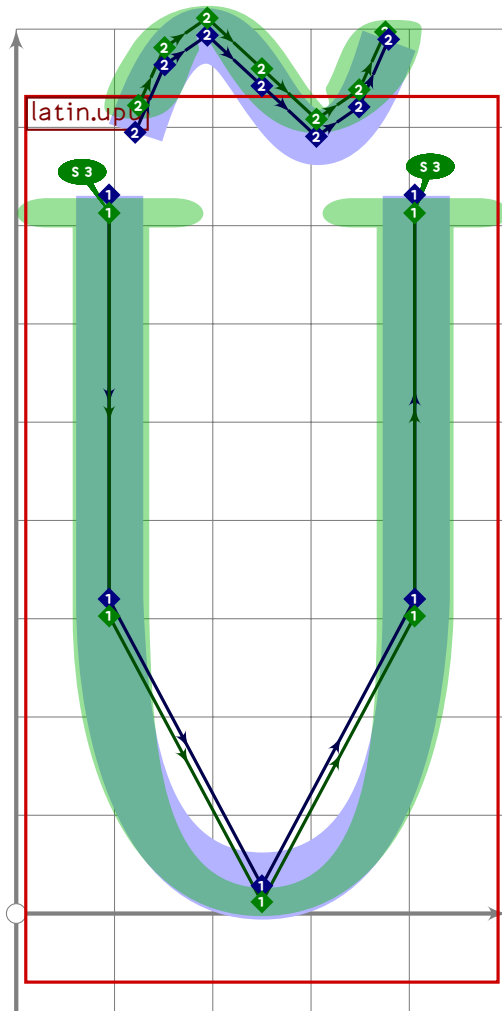
```



```

724 % t with bar
725 beginsuglyph("tbar";103);
726 latin.lowt;
727 push_stroke((320,vmetric(0.35))-(620,vmetric(0.35)),
728   (1.6,1.6)-(1.6,1.6));
729 set_bosize(0,80);
730 tsu_render;
731 endsuglyph;
732

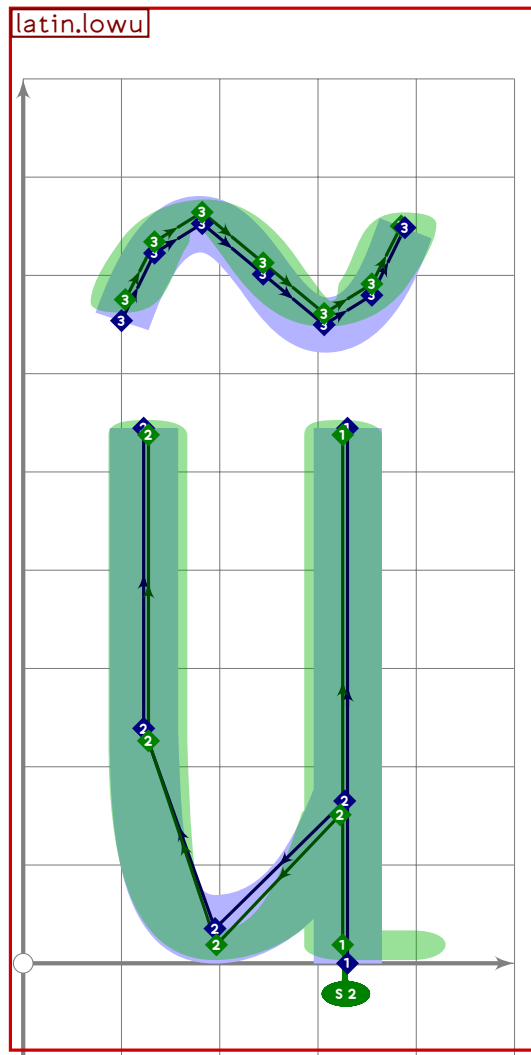
```



```

733 % U with tilde
734 begintsuglyph("Utilde",104);
735   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.tilde);
736   tsu_render;
737   endtsuglyph;
738

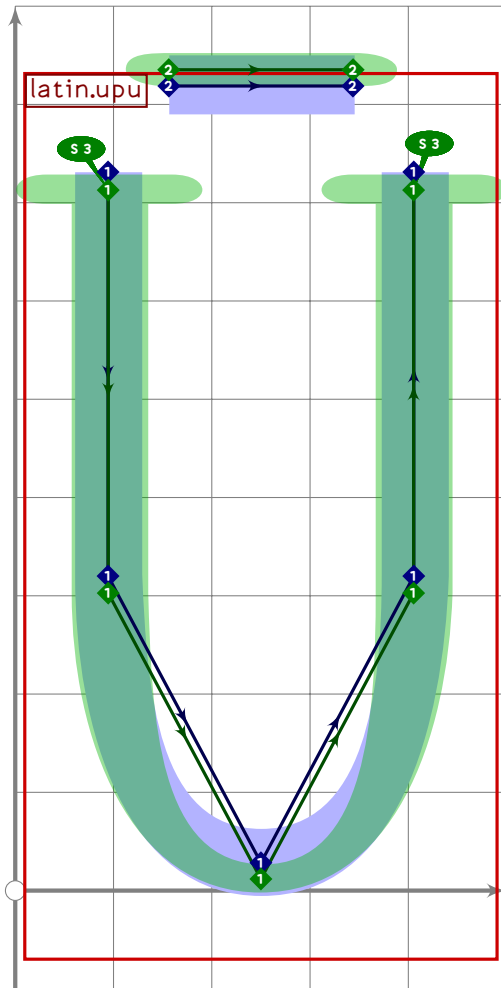
```



```

739 % u with tilde
740 beginsuglyph("utilde";105);
741 tsu_accent.apply(latin.lowu)(tsu_accent.tilde);
742 replace_strokep(0)(oldp shifted (-20,0));
743 tsu_render;
744 endsuglyph;
745

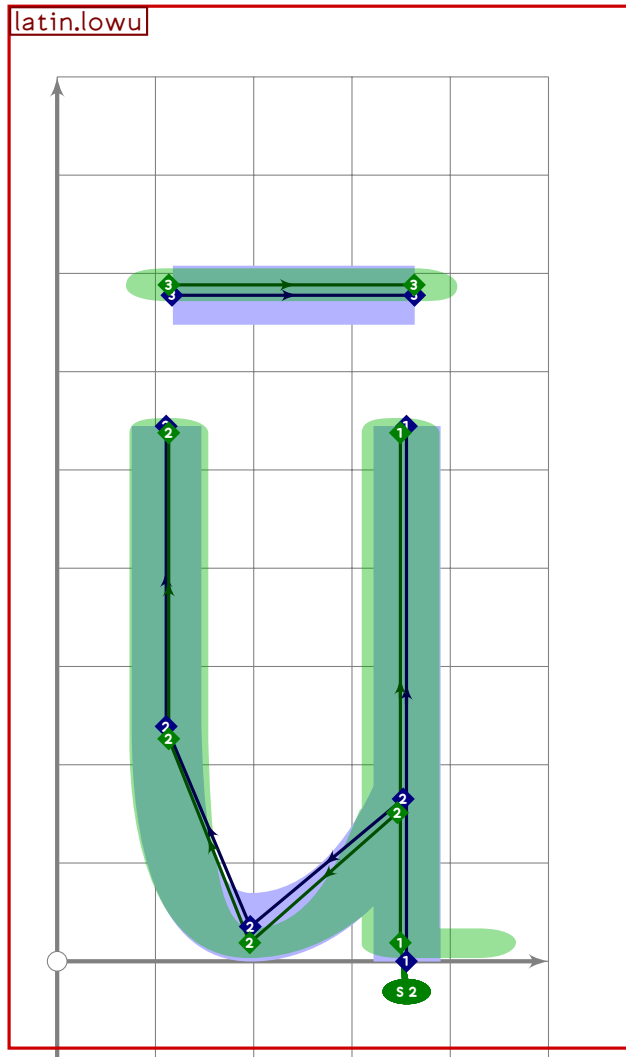
```



```

746 % U with macron
747 begint Suglyph("Umacron",106);
748   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.macron);
749   tsu_render;
750 endtsuglyph;
751

```

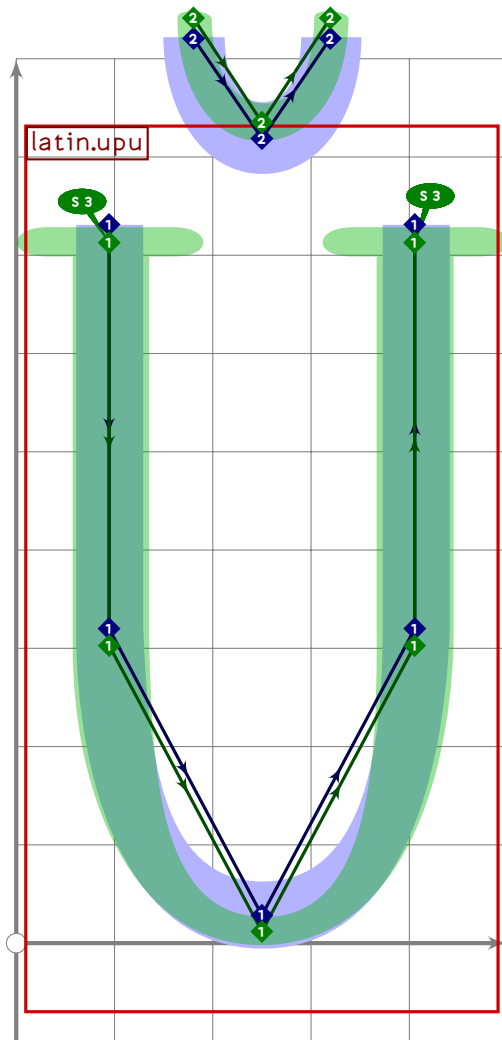


```

752 % u with macron
753 beginsuglyph("umacron",107);
754 tsu_accent.apply(latin.lowu)(tsu_accent.macron);
755 replace_strokep(0)(oldp shifted (-40,0));
756 tsu_render;
757 endsuglyph;
758

```

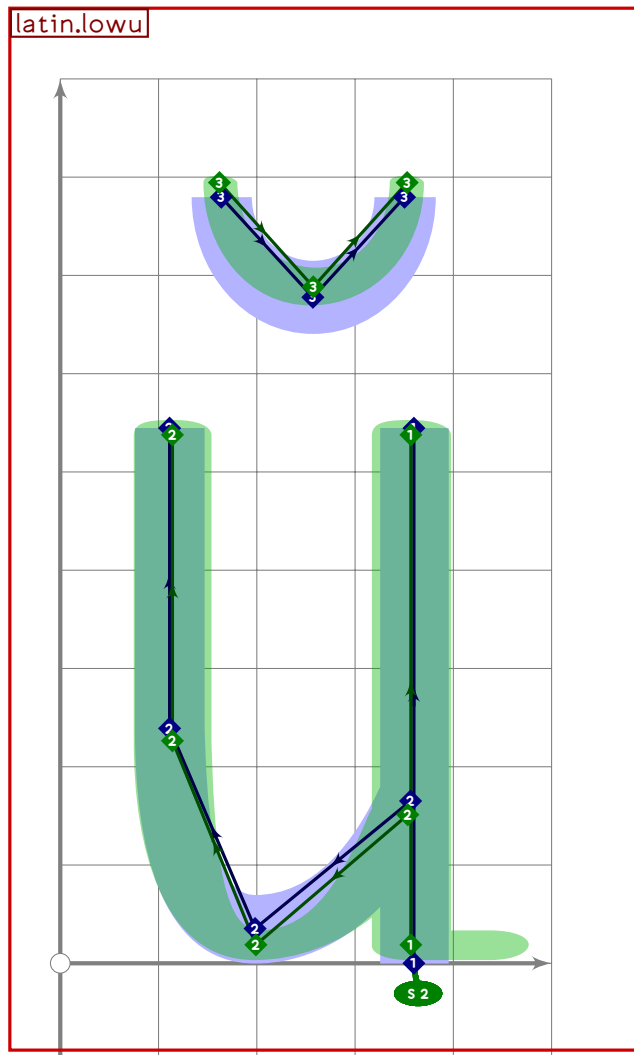




```

759 % U with breve
760 begintsuglyph("Ubreve",108);
761 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.breve);
762 tsu_render;
763 endtsuglyph;
764

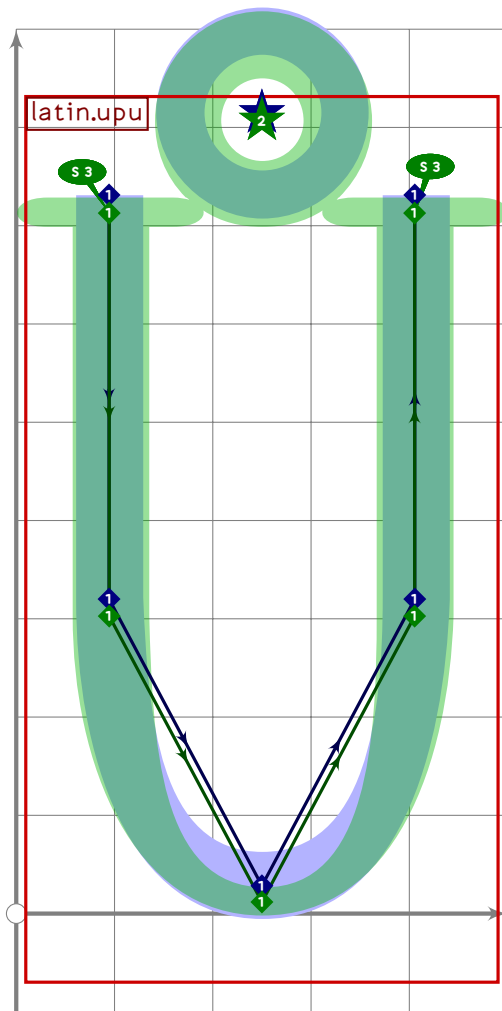
```



```

765 % u with breve
766 begintsuglyph("ubreve";109);
767 tsu_accent.apply(latin.lowu)(tsu_accent.breve);
768 replace_strokep(0)(oldp shifted (-20,0));
769 tsu_render;
770 endsuglyph;
771

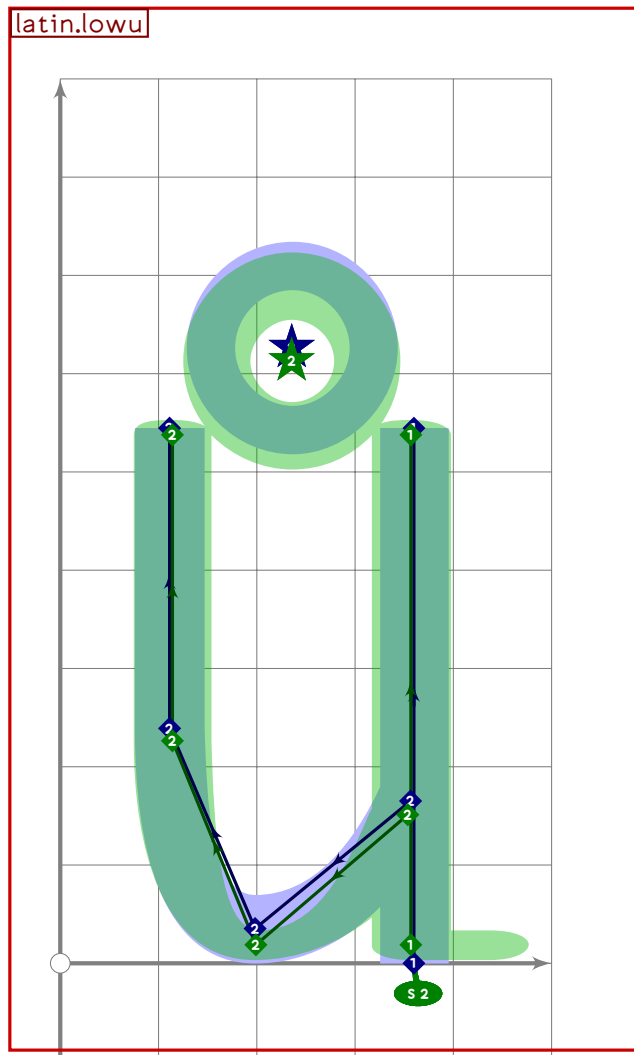
```



```

772 % U with ring above
773 begint Suglyph("Uring",110);
774 tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.ringabove);
775 tsu_render;
776 endtsuglyph;
777

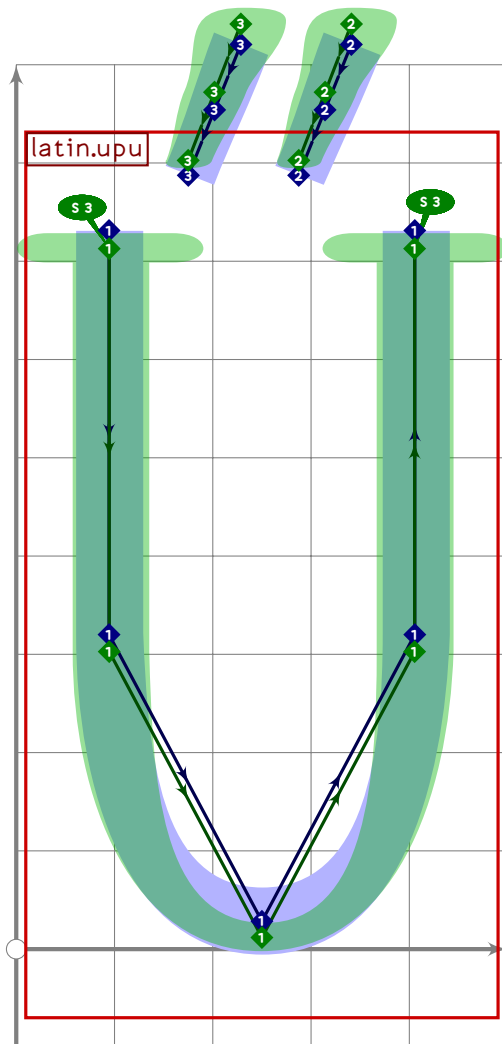
```



```

778 % u with ring above
779 begint Suglyph("uring";111);
780 tsu_accent.apply(latin.lowu)(tsu_accent.ringabove);
781 replace_lcblob(-1)(oldblob shifted (-50,-40));
782 replace_lcblob(0)(oldblob shifted (-50,-40));
783 tsu_render;
784 endtsuglyph;
785

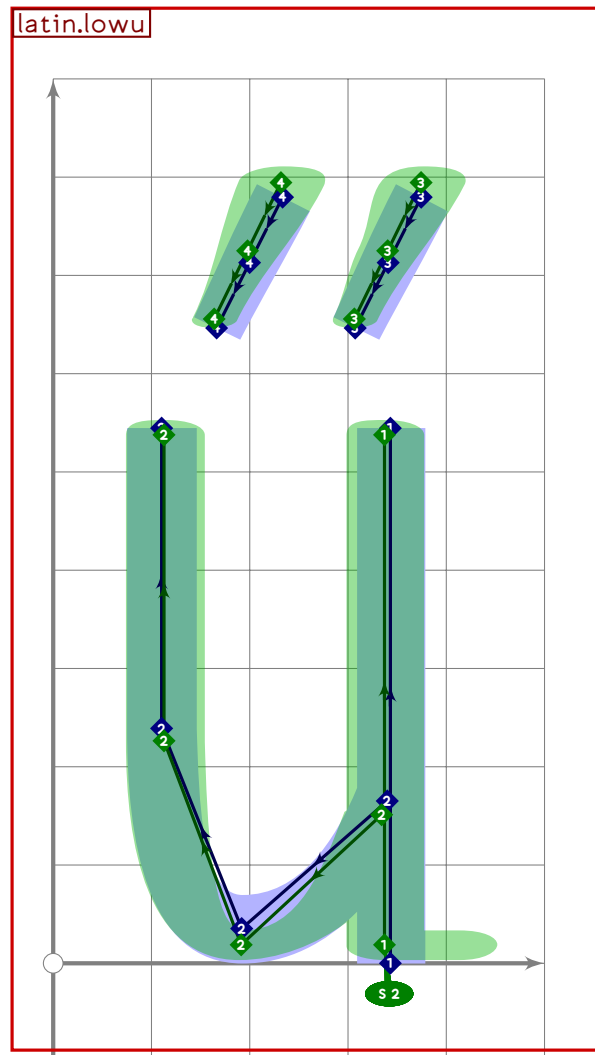
```



```

786 % U with Hungarian umlaut
787 begintsuglyph("Uhungarumlaut",112);
788   tsu_accent.apply(tsu_accent.capital(latin.upu))(tsu_accent.hungarian_umlaut);
789   tsu_render;
790 endsuglyph;
791

```



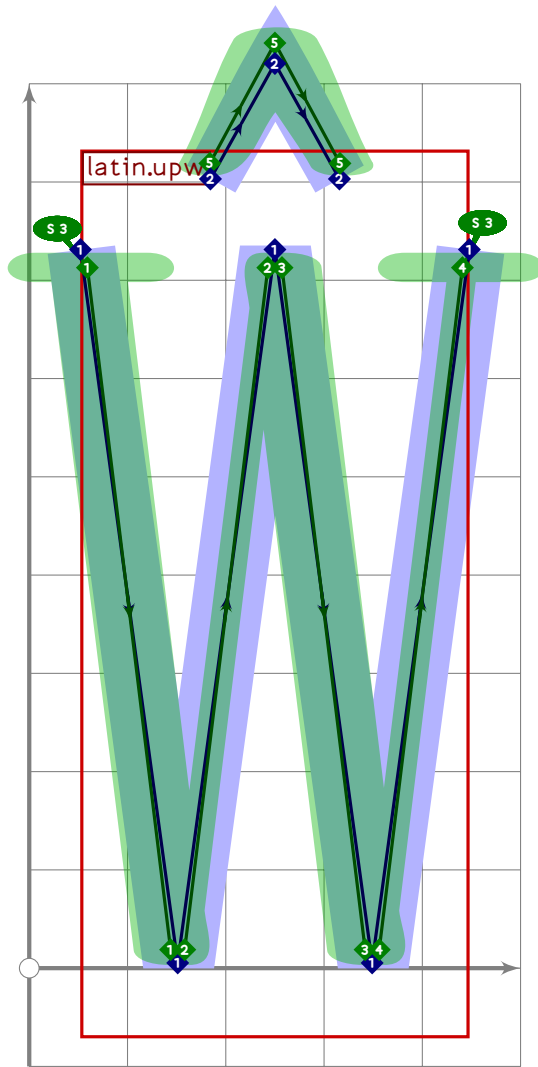
```

792 % u with Hungarian umlaut
793 begintsuglyph("uhungarumlaut";113);
794 tsu_accent.apply(latin.lowu)(tsu_accent.hungarian_umlaut);
795 tsu_render;
796 endtsuglyph;
797
798 % U with ogonek
799 begintsuglyph("Uogonek";114);
800 latin.upuogonek;
801 tsu_render;
802 endtsuglyph;
803
804 % u with ogonek
805 begintsuglyph("uogonek";115);
806 latin.lowuogonek;
807 tsu_render;
808 endtsuglyph;
809

```

[see page 266]

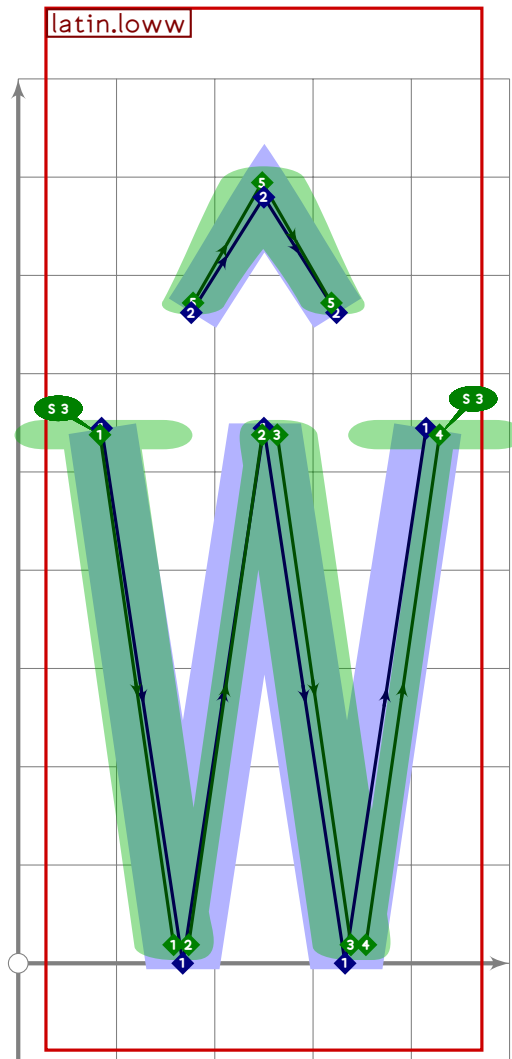
[see page 272]



```

810 % W with circumflex
811 begintsuglyph("Wcircumflex",116);
812 tsu_accent.apply(tsu_accent.capital(latin.upw))(tsu_accent.circumflex);
813 tsu_render;
814 endtsuglyph;
815

```

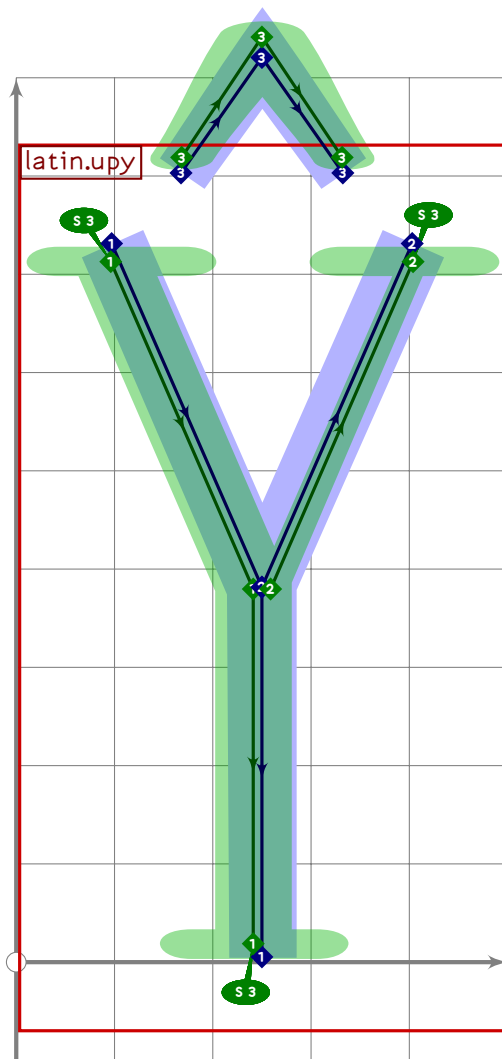


```

816 % w with circumflex
817 begint Suglyph("wcircumflex",117);
818 tsu_accent.apply(latin.loww)(tsu_accent.circumflex);
819 tsu_render;
820 endtsuglyph;
821

```

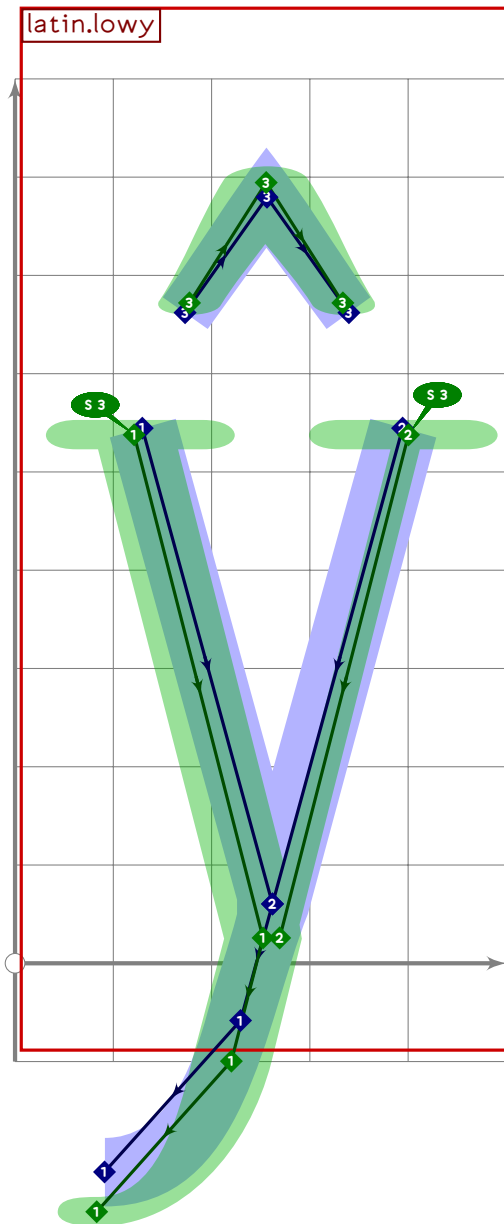




```

822 % Y with circumflex
823 begintsuglyph("Ycircumflex",118);
824 tsu_accent.apply(tsu_accent.capital(latin.upy))(tsu_accent.circumflex);
825 tsu_render;
826 endtsuglyph;
827

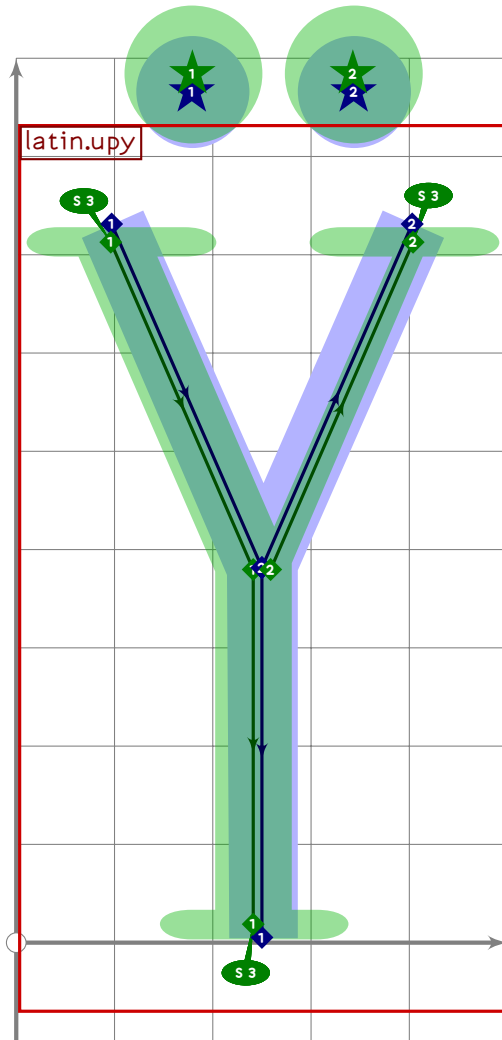
```



```

828 % y with circumflex
829 begint Suglyph("ycircumflex",119);
830 tsu_accent.apply(latin.lowy)(tsu_accent.circumflex);
831 tsu_render;
832 endtsuglyph;
833

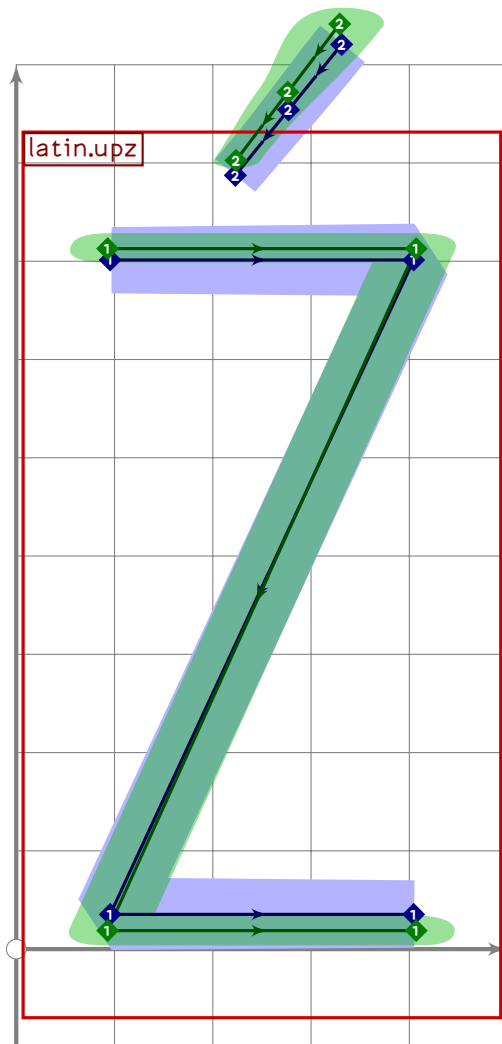
```



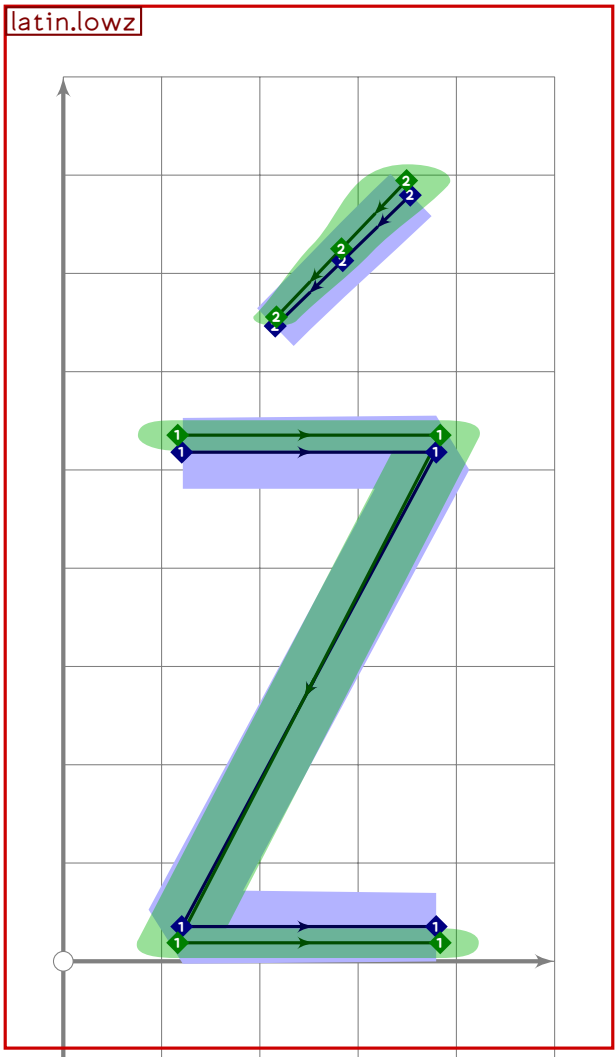
```

834 % Y with umlaut/dieresis
835 begint Suglyph("Ydieresis";120);
836 tsu_accent.apply(tsu_accent.capital(latin.upy))(tsu_accent.umlaut);
837 tsu_render;
838 endsuglyph;
839

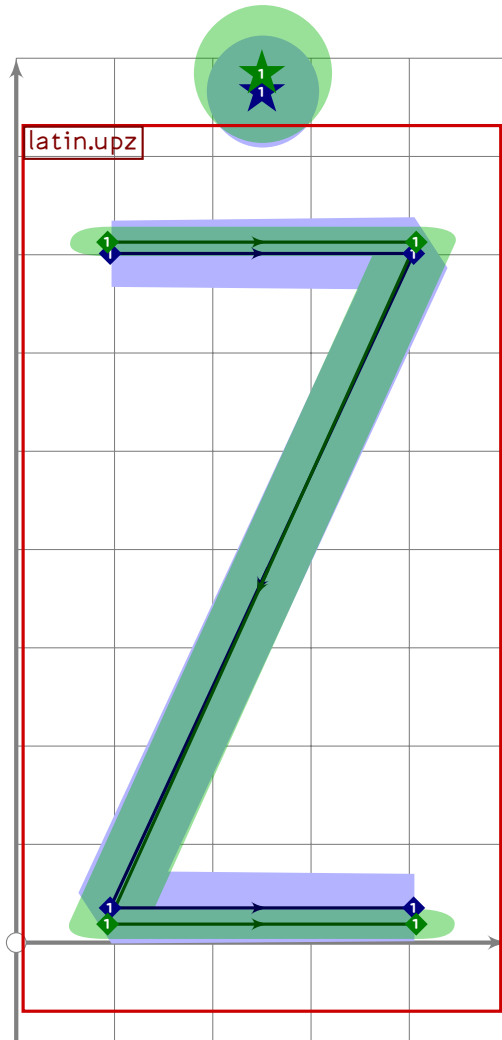
```



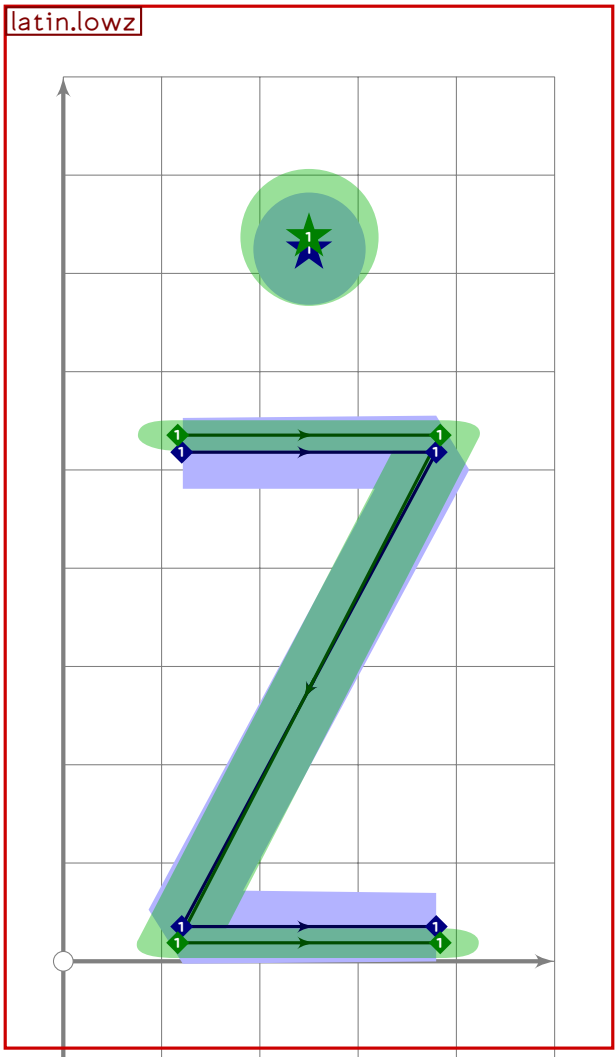
```
840 % Z with acute
841 begint Suglyph("Zacute",121);
842   tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.acute);
843   tsu_render;
844 endtsuglyph;
845
```



```
846 % z with acute
847 begint Suglyph("zacute",122);
848   tsu_accent.apply(latin.lowz)(tsu_accent.acute);
849   tsu_render;
850 endtsuglyph;
851
```



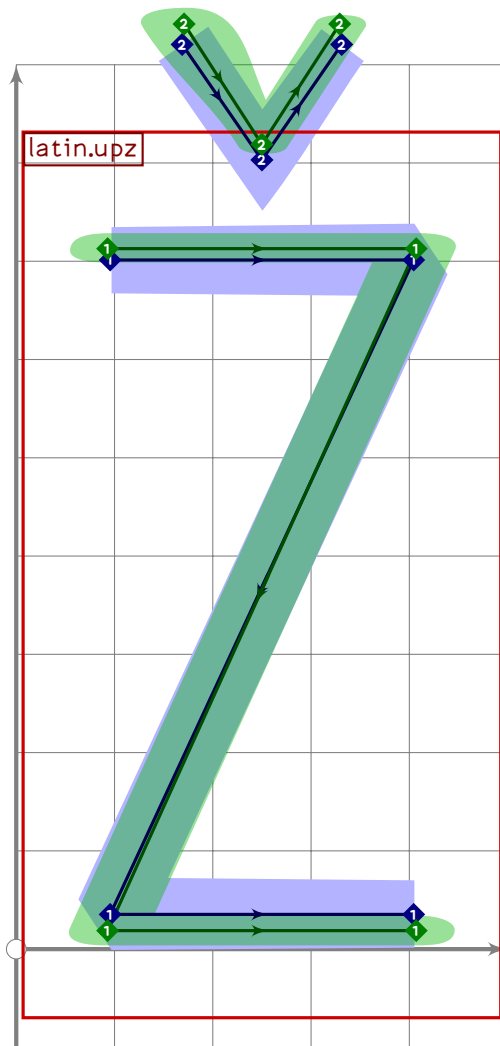
```
852 % Z with dot
853 begint Suglyph("Zdotaccent";123);
854   tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.dotabove);
855   tsu_render;
856 endsuglyph;
857
```



```

858 % z with dot
859 begintsuglyph("zdotaccent",124);
860 tsu_accent.apply(latin.lowz)(tsu_accent.dotabove);
861 tsu_render;
862 endtsuglyph;
863

```

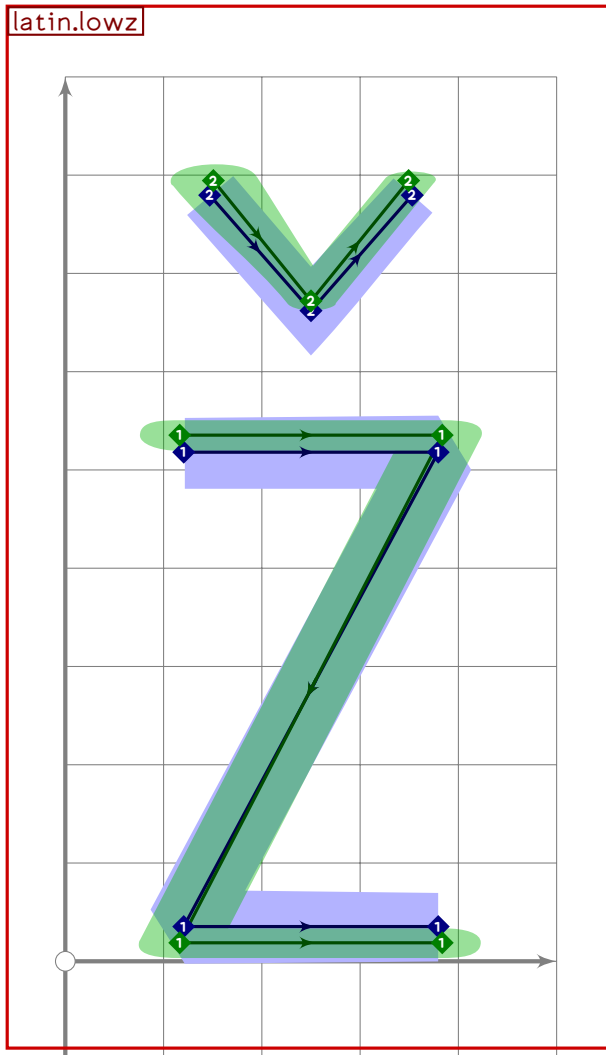


```

864 % Z with caron
865 begintuglyph("Zcaron",125);
866   tsu_accent.apply(tsu_accent.capital(latin.upz))(tsu_accent.caron);
867   tsu_render;
868   endtuglyph;
869

```





```

870 % z with caron
871 begintsuglyph("zcaron";126);
872   tsu_accent.apply(latin.lowz)(tsu_accent.caron);
873   tsu_render;
874 endtsuglyph;
875
876 % long s
877 begintsuglyph("longs";127);
878   latin.lowlongs;
879   tsu_render;
880 endtsuglyph;
881
882 _____
883
884 endfont;
885
886 _____

```

[see page 233]

# tsuku-02.mp

```
1 %
2 % Unicode page 02 (Spacing Modifier Letters) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

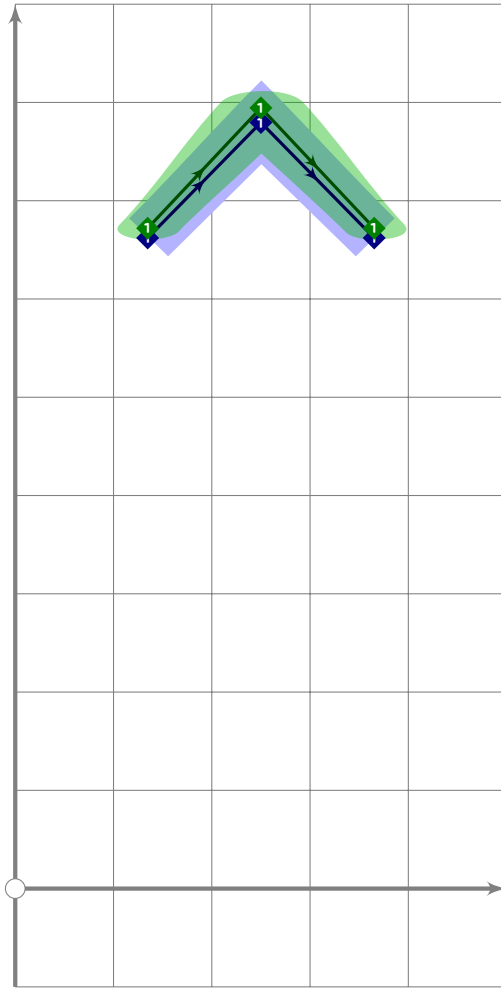

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input latin.mp;
40 input ogonek.mp;
41
42 

---


43
```

## Spacing Modifier Letters

```
44 % SPACING MODIFIER LETTERS
45
46 tsu_rescale_half;
47
```



```

48 % circumflex accent
49 begintsuglyph("circumflex";198);
50   tsu_accent.circumflex;
51   tsu_render;
52 endtsuglyph;
53
54 % caron
55 begintsuglyph("caron";199);
56   tsu_accent.caron;
57   tsu_render;
58 endtsuglyph;
59
60 % breve
61 begintsuglyph("breve";216);
62   tsu_accent.breve;
63   tsu_render;
64 endtsuglyph;
65
66 % dot above
67 begintsuglyph("dotaccent";217);
68   tsu_accent.dotabove;

```

[see page 45]

[see page 44]

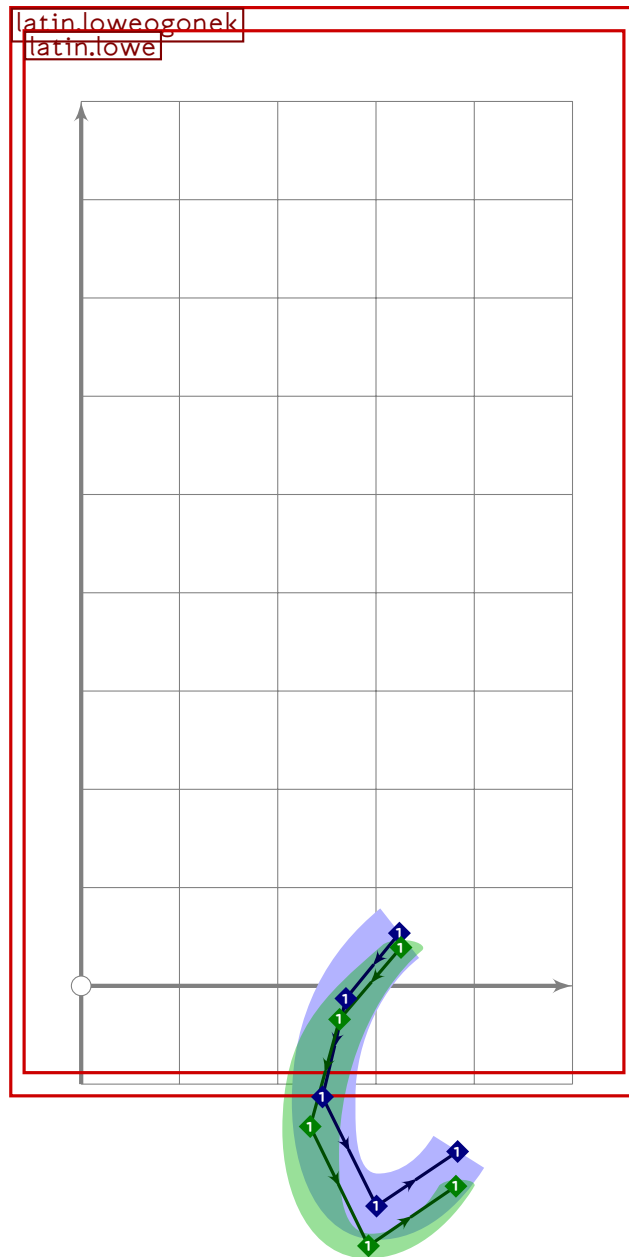
[see page 47]

```

69 tsu_render;
70 endsuglyph;
71
72 % ring above
73 begintsuglyph("ring";218);
74 tsu_accent.ringabove;
75 tsu_render;
76 endsuglyph;
77

```

[see page 52]



```

78 % ogonek
79 begintsuglyph("ogonek";219);
80 latin.loweogonek;
81 set_bosize(-1,0);
82 tsu_render;

```

```
83 endtsuglyph;
84
85 % small tilde
86 begintsuglyph("tilde";220); [see page 53]
87 tsu_accent.tilde;
88 tsu_render;
89 endtsuglyph;
90
91 % double acute accent
92 begintsuglyph("hungarumlaut";221); [see page 50]
93 tsu_accent.hungarian_umlaut;
94 tsu_render;
95 endtsuglyph;
96
97 

---


98
99 endfont;
100
101 

---


```

# tsuku-03.mp

```
1 %
2 % Unicode page 03 (Combining Diacritical Marks) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

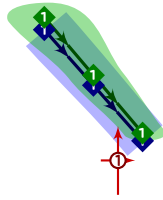

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input punct.mp;
40
41 

---

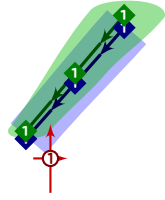

42
```

## Combining Diacritical Marks

```
43 % COMBINING DIACRITICAL MARKS
44
45 tsu_rescale_native_zero;
46
47 transform tsu_xf.backspace;
48 if is_proportional:
49   tsu_xf.backspace:=identity shifted (-1000,0);
50 else:
51   tsu_xf.backspace:=identity xscaled 0.5 shifted (-500,0);
52 fi;
53
```

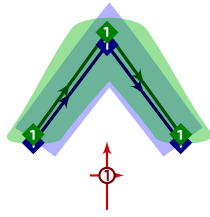


```
54 % grave accent
55 begint Suglyph("gravecomb",0);
56 tsu_xform(tsu_xf.backspace)(tsu_accent,grave);
57 tsu_render;
58 endtsuglyph;
59
```

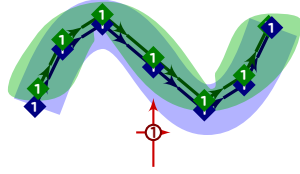


```
60 % acute accent
61 begint Suglyph("acutecomb",1);
62   tsu_xform(tsu_xf.backspace)(tsu_accent.acute);
63   tsu_render;
64   endtsuglyph;
65
```

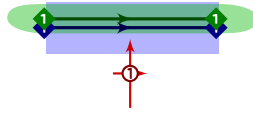




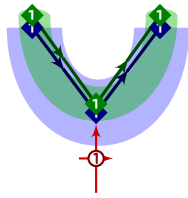
```
66 % circumflex accent
67 begint Suglyph("uni0302";2);
68   tsu_xform(tsu_xf.backspace)(tsu_accent.circumflex);
69   tsu_render;
70 endtsuglyph;
71
```



```
72 % tilde accent
73 begint Suglyph("tildecomb",3);
74 tsu_xform(tsu_xf.backspace)(tsu_accent.tilde);
75 tsu_render;
76 endtsuglyph;
77
```



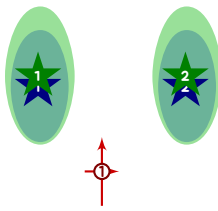
```
78 % macron
79 begint Suglyph("uni0304";4);
80 tsu_xform(tsu_xf.backspace)(tsu_accent.macron);
81 tsu_render;
82 endtsuglyph;
83
```



```
84 % breve
85 begintuglyph("uni0306",6);
86 tsu_xform(tsu_xf.backspace)(tsu_accent.breve);
87 tsu_render;
88 endtsuglyph;
89
```



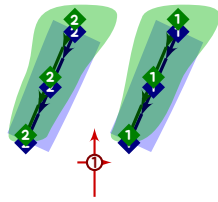
```
90 % dot above
91 begint Suglyph("uni0307";7);
92 tsu_xform(tsu_xf.backspace)(tsu_accent.dotabove);
93 tsu_render;
94 endtsuglyph;
95
```



```
96 % umlaut/diaeresis
97 begint Suglyph("uni0308";8);
98 tsu_xform(tsu_xf.backspace)(tsu_accent.umlaut);
99 tsu_render;
100 endtsuglyph;
101
102 % 0309;hookabovecomb;COMBINING HOOK ABOVE
103
```

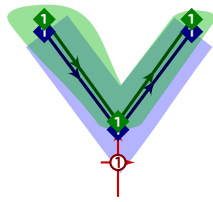


```
104 % ring above
105 begint Suglyph("uni030A",10);
106 tsu_xform(tsu_xf.backspace)(tsu_accent.ringabove);
107 tsu_render;
108 endtsuglyph;
109
```



```
110 % double acute/hungarian umlaut
111 begint Suglyph("uni030B",11);
112 tsu_xform(tsu_xf.backspace)(tsu_accent.hungarian_umlaut);
113 tsu_render;
114 endtsuglyph;
115
```

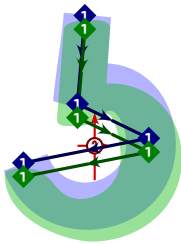




```
116 % caron/hacek
117 begintsuglyph("uni030C",12);
118 tsu_xform(tsu_xf.backspace)(tsu_accent.caron);
119 tsu_render;
120 endtsuglyph;
121
122 % 0323;dotbelowcomb;COMBINING DOT BELOW
123
```



```
124 % comma below
125 begintsuglyph("uni0326";38);
126 tsu_xform(tsu_xf.backspace)(tsu_accent.commabelow);
127 tsu_render;
128 endtsuglyph;
129
```



```
130 % cedilla
131 begint Suglyph("uni0327";39);
132 tsu_xform(tsu_xf.backspace)(tsu_accent.cedilla);
133 tsu_render;
134 endtsuglyph;
```

135-136

---

138

139 endfont;

140

---

141

# tsuku-20.mp

```
1 %
2 % Unicode page 20 (Punctuation) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input punct.mp;
39
40 

---

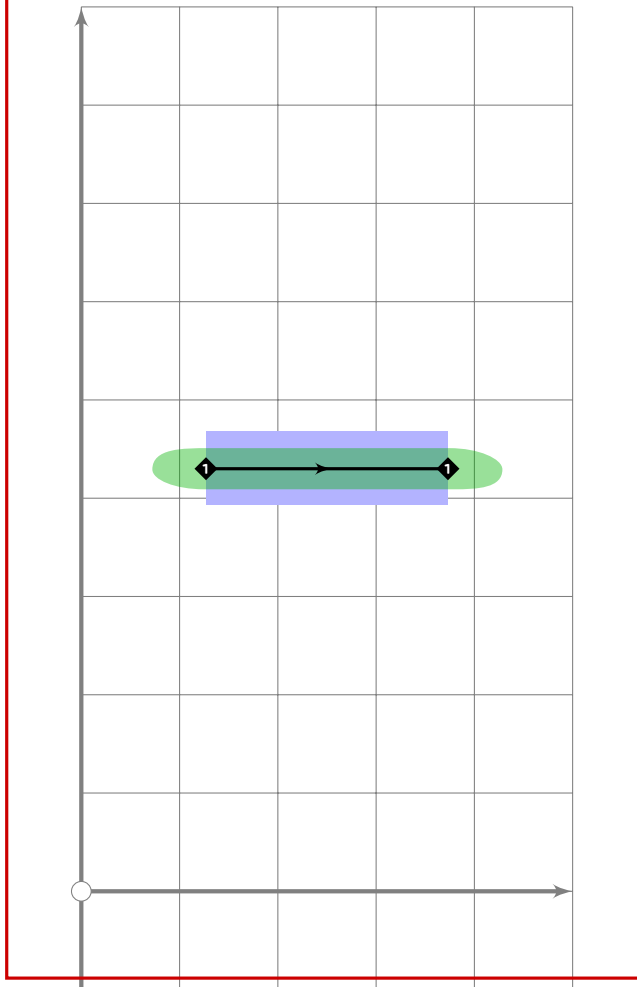

41
```

## General Punctuation

```
42 % GENERAL PUNCTUATION
43
44 % WARNING changing rescale setting
45 tsu_rescale_half;
46
47 % hyphen
48 begintsuglyph("uni2010";16);
49 punct.dash.hyphen;
50 tsu_render;
51 endtsuglyph;
52
```

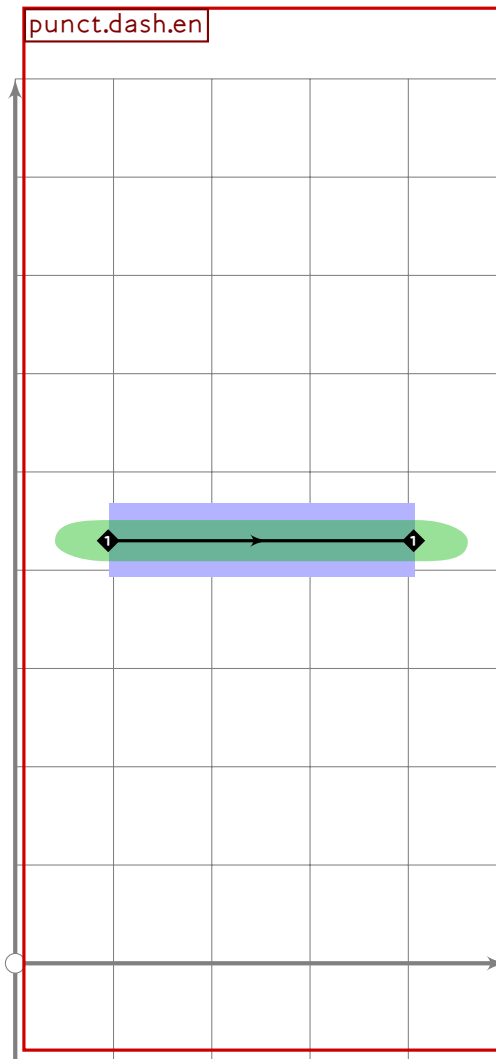
[see page 289]

punct.dash.hyphen



```
53 % non-breaking hyphen
54 begintsuglyph("uni2011",17);
55 punct.dash.hyphen;
56 tsu_render;
57 endtsuglyph;
58
59 % figure dash
60 begintsuglyph("figuredash",18);
61 punct.dash.en;
62 tsu_render;
63 endtsuglyph;
64
```

[see page 288]

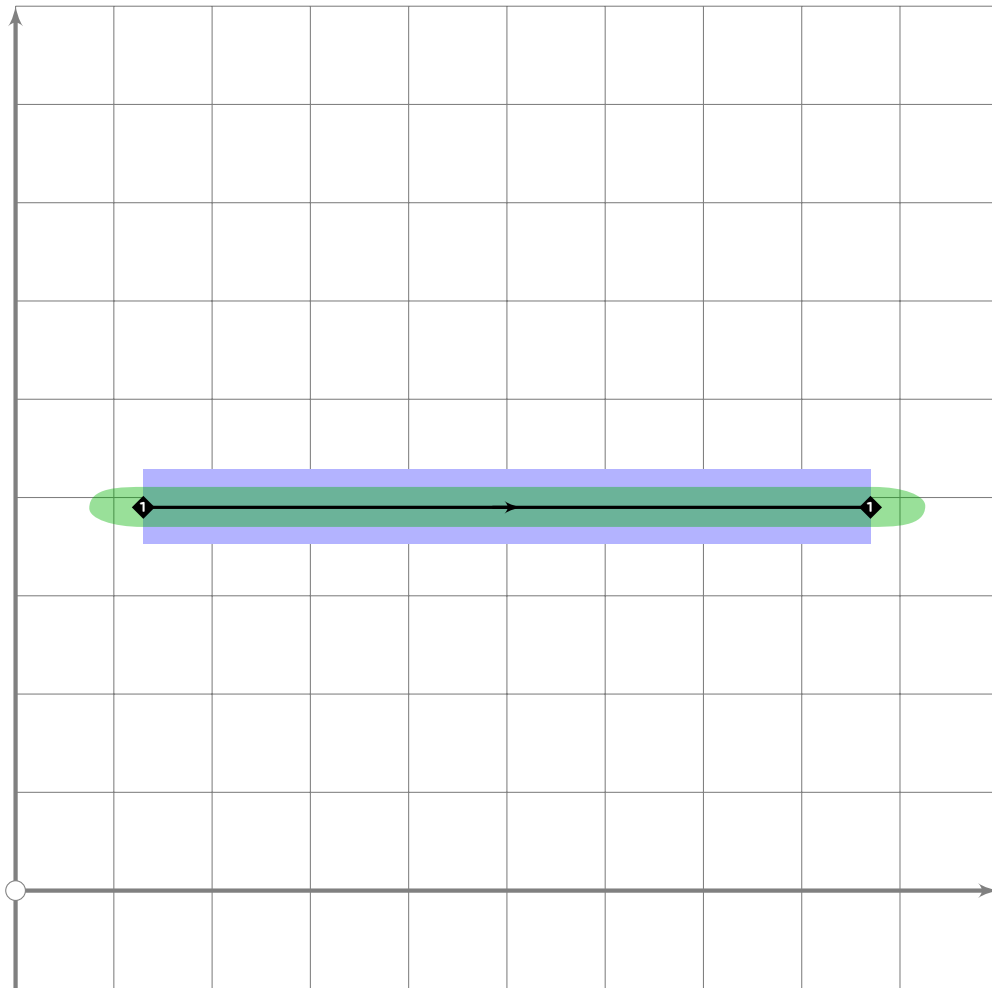


```

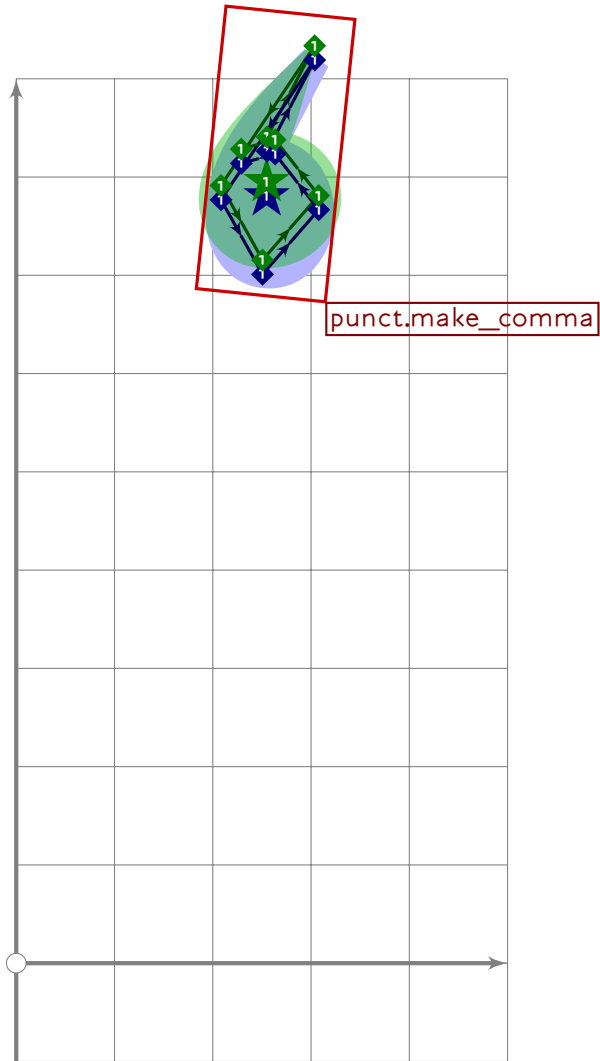
65 % en dash
66 begint Suglyph("endash";19);
67 punct.dash.en;
68 tsu_render;
69 endtsuglyph;
70
71 % WARNING changing rescale setting
72 tsu_rescale_full;
73
74 % em dash
75 begint Suglyph("emdash";20);
76 punct.dash.em;
77 tsu_render;
78 endtsuglyph;
79

```

[see page 287]



```
80 % horizontal bar
81 begint Suglyph("uni2015",21);
82 push_stroke((130,390)-(870,390),(2,2)-(2,2));
83 tsu_render;
84 endtsuglyph;
85
86 % WARNING changing rescale setting
87 tsu_rescale_half;
88
```



```

89 % high-6
90 begint Suglyph("quoteleft";24);
91 punct.make_comma((520,vmetric(0.94)),180);
92 tsu_render;
93 endsuglyph;
94

```

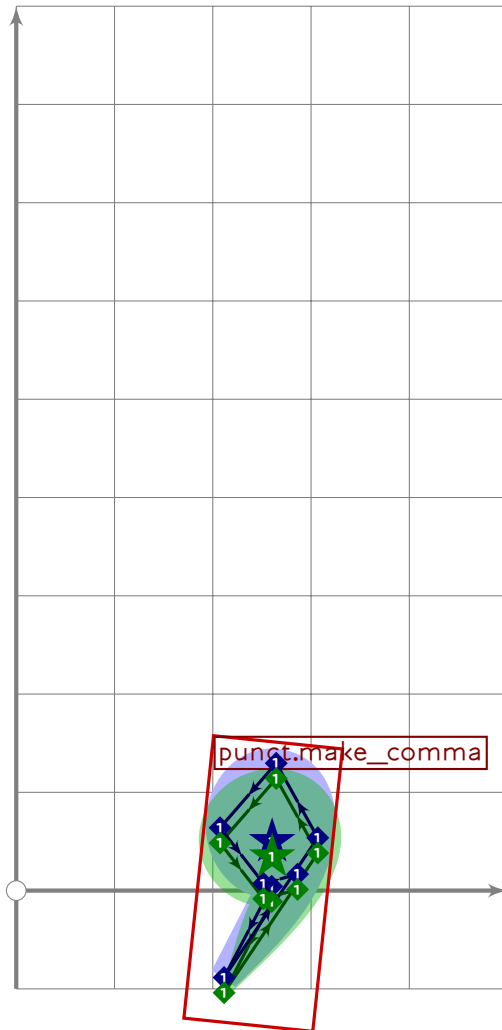




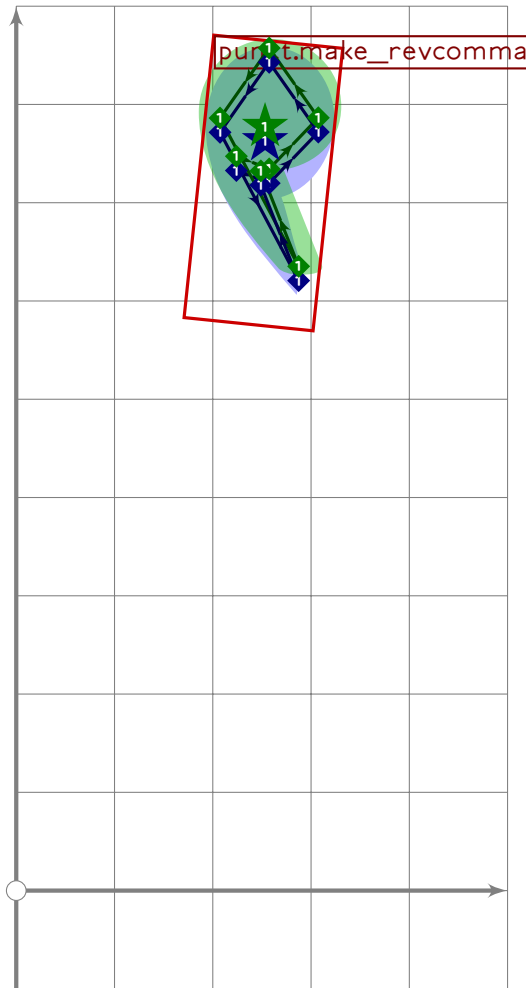
```

95 % high-9
96 beginsuglyph("quoteright",25);
97 punct.make_comma((480,vmetric(0.94)),0);
98 tsu_render;
99 endsuglyph;
100

```



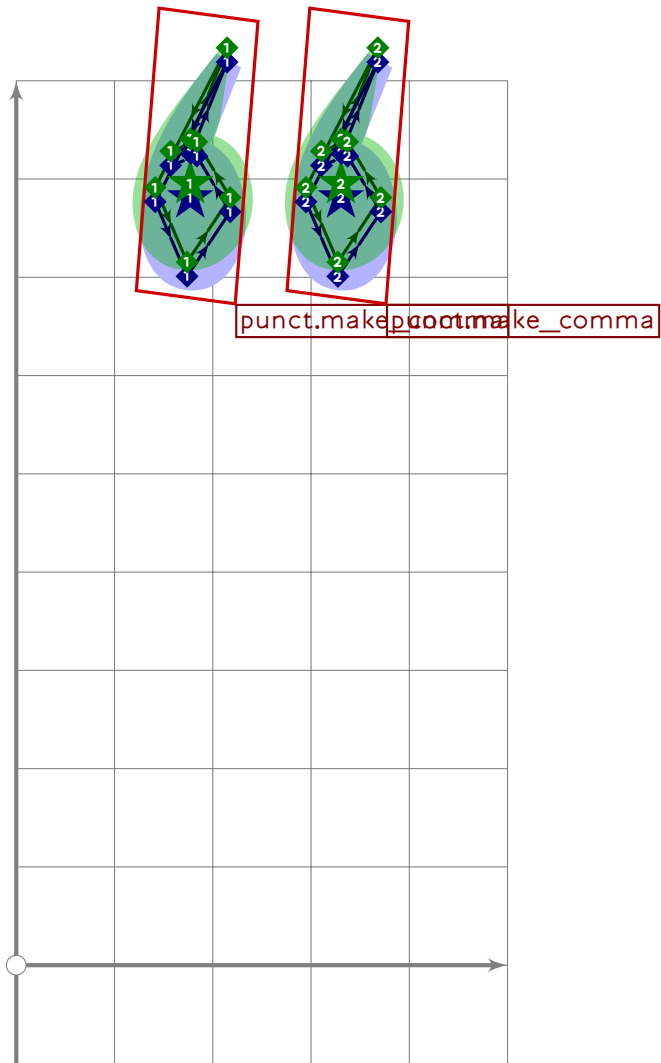
```
101 % low-9
102 beginsuglyph("quotesinglbase";26);
103 punct.make_comma((520,vmetric(0.03)),0);
104 tsu_render;
105 endsuglyph;
106
```



```

107 % high-rev-9
108 begintsuglyph("quotereversed",27);
109 punct.make_revcomma((520,vmetric(0.94)),0);
110 tsu_render;
111 endtsuglyph;
112

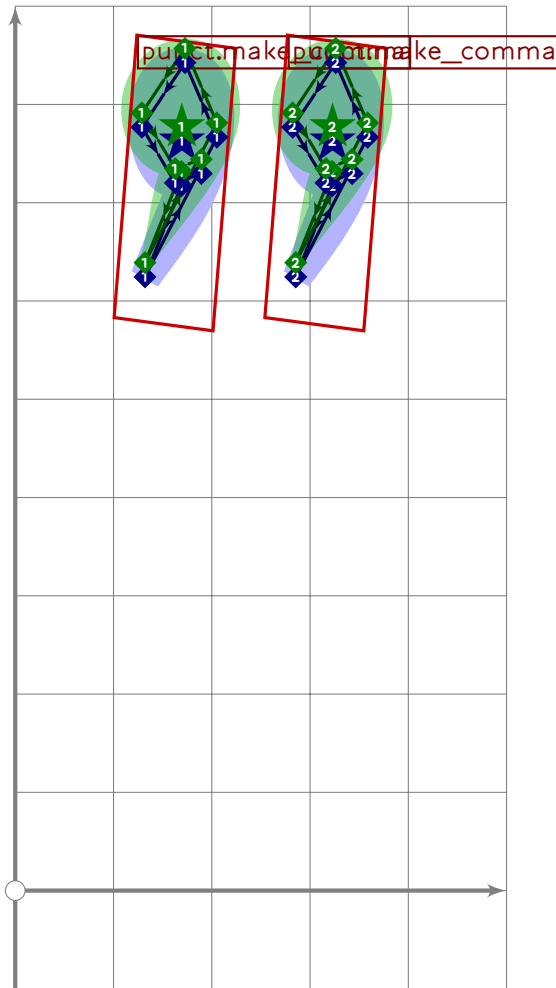
```



```

113 % high-66
114 begintsuglyph("quotedblleft";28);
115 punct.make_comma((520-tsu_punct_size,vmetric(0.94)),180);
116 punct.make_comma((520+tsu_punct_size,vmetric(0.94)),180);
117 tsu_render;
118 endsuglyph;
119

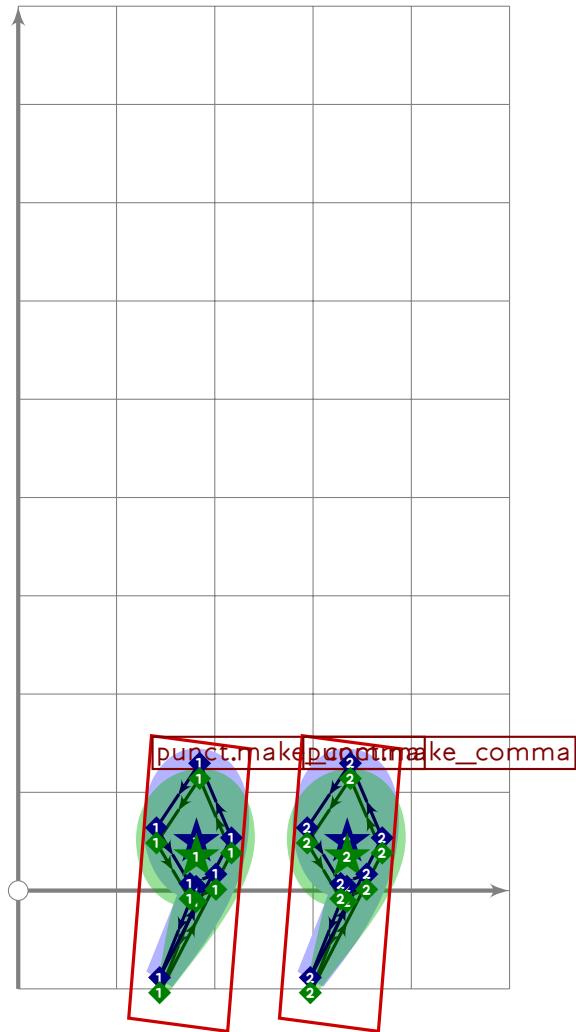
```



```

120 % high-99
121 begintsuglyph("quotedblright",29);
122 punct.make_comma((480-tsu_punct_size,vmetric(0.94)),0);
123 punct.make_comma((480+tsu_punct_size,vmetric(0.94)),0);
124 tsu_render;
125 endtsuglyph;
126

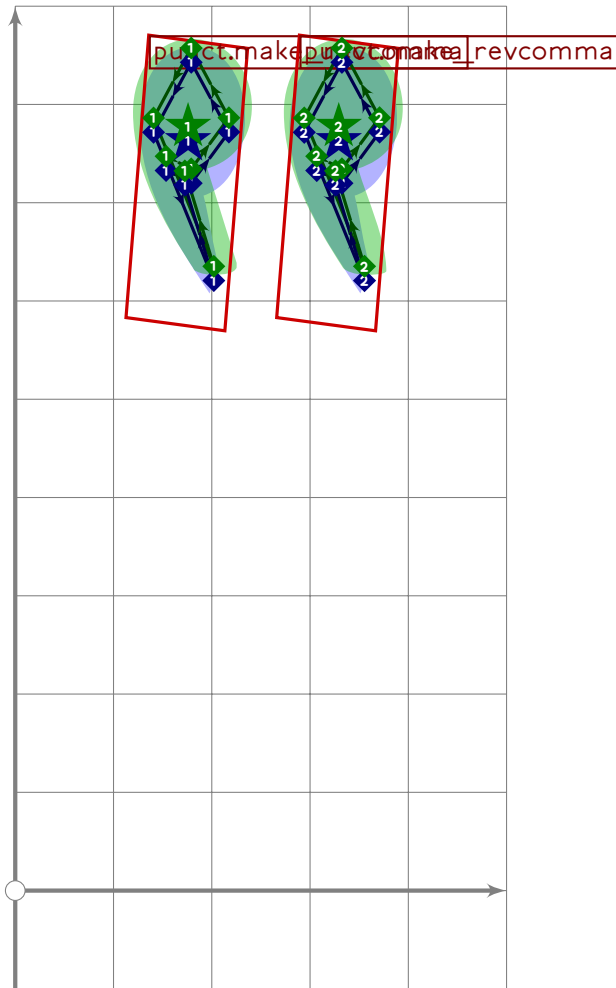
```



```

127 % low-99
128 begintsuglyph("quotedblbase",30);
129 punct.make_comma((520-tsu_punct_size,vmetric(0.03)),0);
130 punct.make_comma((520+tsu_punct_size,vmetric(0.03)),0);
131 tsu_render;
132 endtsuglyph;
133

```



```

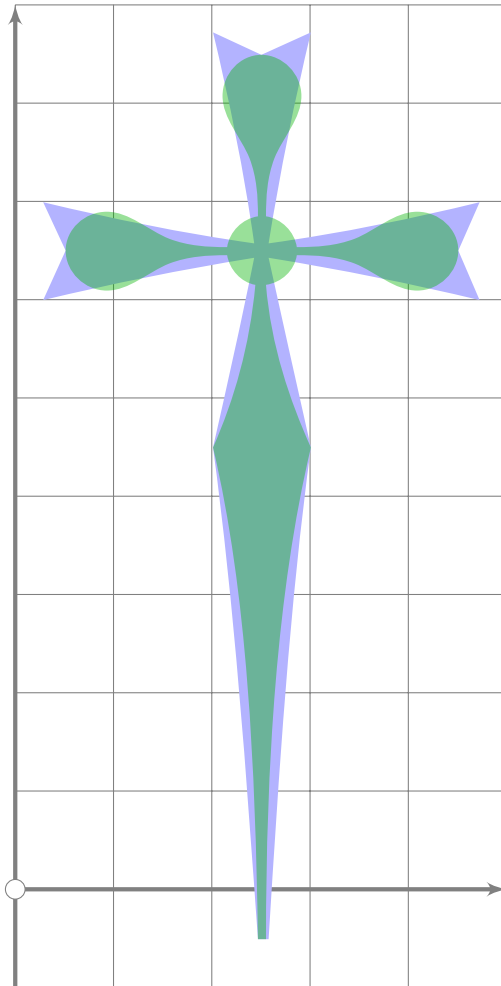
134 % high-rev-99
135 begint Suglyph("quotedblreversed",31);
136 punct.make_revcomma((520-tsu_punct_size,vmetric(0.94)),0);
137 punct.make_revcomma((520+tsu_punct_size,vmetric(0.94)),0);
138 tsu_render;
139 endtsuglyph;
140
141 % WARNING changing rescale setting
142 tsu_rescale_native_narrow;
143
144 vardef dagger_spur =
145   if sharp_corners:
146     (4,mincho*30){curl 0}..
147     (0.5[(0,mincho*20),(50,222-mincho*72)]+mincho*(-74))..
148     {curl 1}(50,222-mincho*72)-(0,200)-(-50,222-mincho*72){curl 1}..
149     (0.5[(0,mincho*20),(-50,222-mincho*72)]+mincho*(74))..
150     {curl 0}(-4,mincho*30)-cycle
151   else:
152     (4,mincho*30){curl 0}..
153     (0.5[(0,mincho*20),(40,160)]+mincho*(-74))..
154     (40,160)..(0,200)..(-40,160)..

```

```

155     (0.5[(0,mincho*20),(-40,160)]+mincho*(74))..
156     {curl 0}{(-4,mincho*30)-cycle
157     fi
158 enddef;
159

```

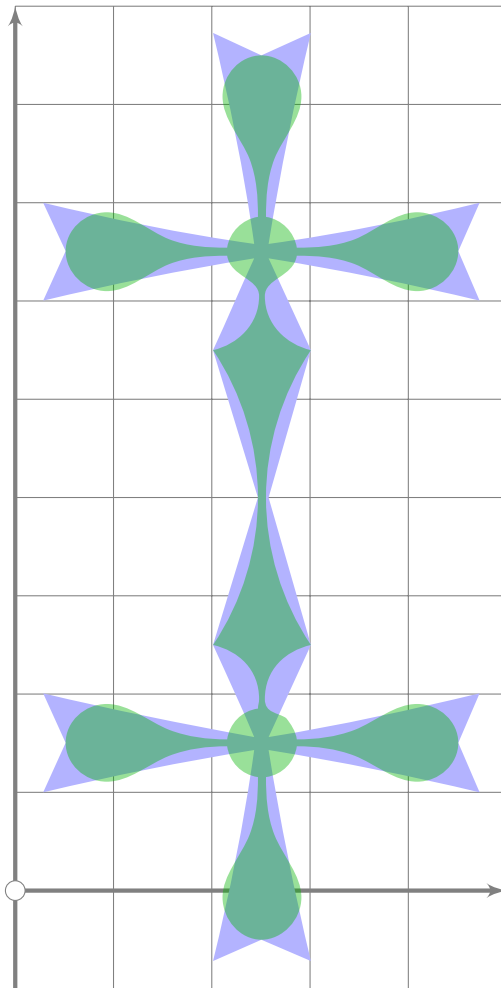


```

160 % dagger
161 beginsuglyph("dagger";32);
162 dangerousFill dagger_spur rotated 90 shifted (250,650);
163 dangerousFill dagger_spur shifted (250,650);
164 dangerousFill dagger_spur rotated -90 shifted (250,650);
165 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,650);
166 dangerousFill
167     (246,650){curl 1}..(mincho[(223,550),(230,535)])..
168     {curl 1}(200,450){curl 1}..(mincho[(223,250),(230,280)])..
169     {curl 0}(246,-50)-
170     (254,-50){curl 0}..(mincho[(277,250),(270,280)])..
171     {curl 1}(300,450){curl 1}..(mincho[(277,550),(270,535)])..
172     {curl 1}(254,650)-cycle;
173 endsuglyph;
174

```





```

175 % double dagger
176 beginsuglyph("daggerdbl",33);
177 dangerousFill dagger_spur rotated 90 shifted (250,650);
178 dangerousFill dagger_spur shifted (250,650);
179 dangerousFill dagger_spur rotated -90 shifted (250,650);
180 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,650);
181 dangerousFill dagger_spur rotated -90 shifted (250,150);
182 dangerousFill dagger_spur rotated 180 shifted (250,150);
183 dangerousFill dagger_spur rotated 90 shifted (250,150);
184 dangerousFill fullcircle scaled (20+mincho*50) shifted (250,150);
185 begingroup
186   save x,y;
187   numeric x[],y[];
188
189   x1=x4=x7=246;
190   x3=x5=200;
191   x2=x6=0.5[x1,x3];
192   x8=x11=x14=500-x1;
193   x9=x13=500-x2;
194   x10=x12=500-x3;
195

```

```

196 y1=y14=650-mincho*30;
197 y3=y12=550;
198 y2=y13=0.5[y1,y3];
199 y4=y11=400;
200 y5=y10=800-y3;
201 y6=y9=800-y2;
202 y7=y8=800-y1;
203
204 x15=x16=x2+7*mincho;
205 x17=x18=500-x15;
206
207 y15=y18=y2-20*mincho;
208 y16=y17=800-y15;
209
210 dangerousFill interpath(mincho,
211   z1-z2-z3-z4-z5-z6-z7-z8-z9-z10-z11-z12-z13-z14-cycle,
212   z1{curl 1}..z15..{curl 1}z3{curl 1}..z4..
213   {curl 1}z5{curl 1}..z16..{curl 1}z7-
214   z8{curl 1}..z17..{curl 1}z10{curl 1}..z11..
215   {curl 1}z12{curl 1}..z18..{curl 1}z14-cycle);
216 endgroup;
217 endtsuglyph;
218
219 % WARNING changing rescale setting
220 tsu_rescale_full;
221
222 % euro symbol
223 begintsuglyph("Euro",172); [see page 291]
224 punct.euro;
225 tsu_render;
226 endtsuglyph;
227
228 

---


229
230 endfont;
231
232 

---



```

# tsuku-21.mp

```
1 %
2 % Unicode page 21 (Symbols) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

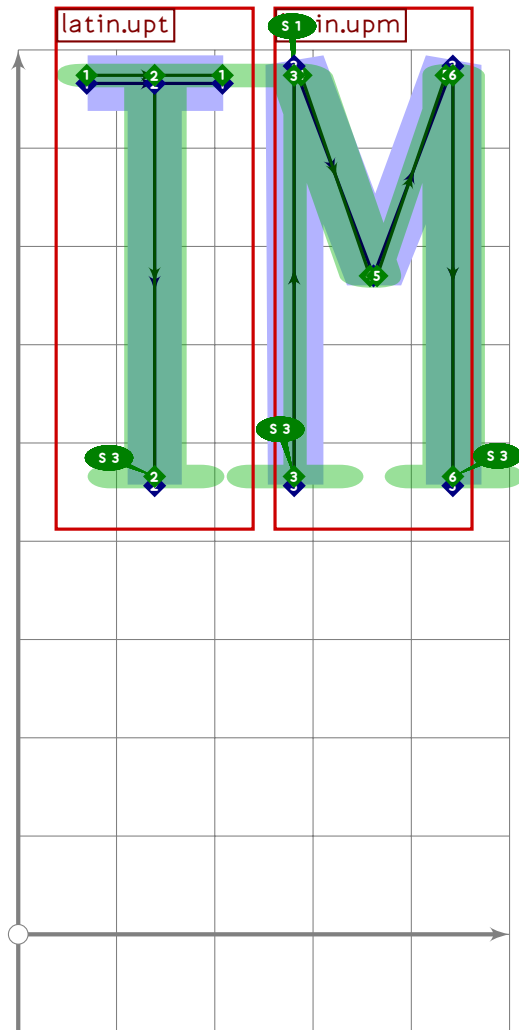

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input latin.mp;
39 input punct.mp;
40
41 

---


42
```

## Symbols Required By Mes-1

```
43 % SYMBOLS REQUIRED BY MES-1
44
45 % WARNING changing rescale setting
46 tsu_rescale_half;
47
```



```

48 % trademark symbol
49 begintsuglyph("trademark",34);
50 tsu_xform(identity scaled 0.5 shifted (0,400))(latin.upt);
51 numeric x[],y[];
52 tsu_xform(identity scaled 0.5 shifted (500,400))(latin.upm);
53 tsu_render;
54 endtsuglyph;
55
56 % ohm (resistance unit) symbol
57 begintsuglyph("uni2126",38);
58 punct.ohm;
59 tsu_render;
60 endtsuglyph;
61
62 % Note: 0x5B through 0x5E, which are x/8 fractions, are assembled by the
63 % assemble-font script
64
65 % WARNING changing rescale setting
66 tsu_rescale_full;
67

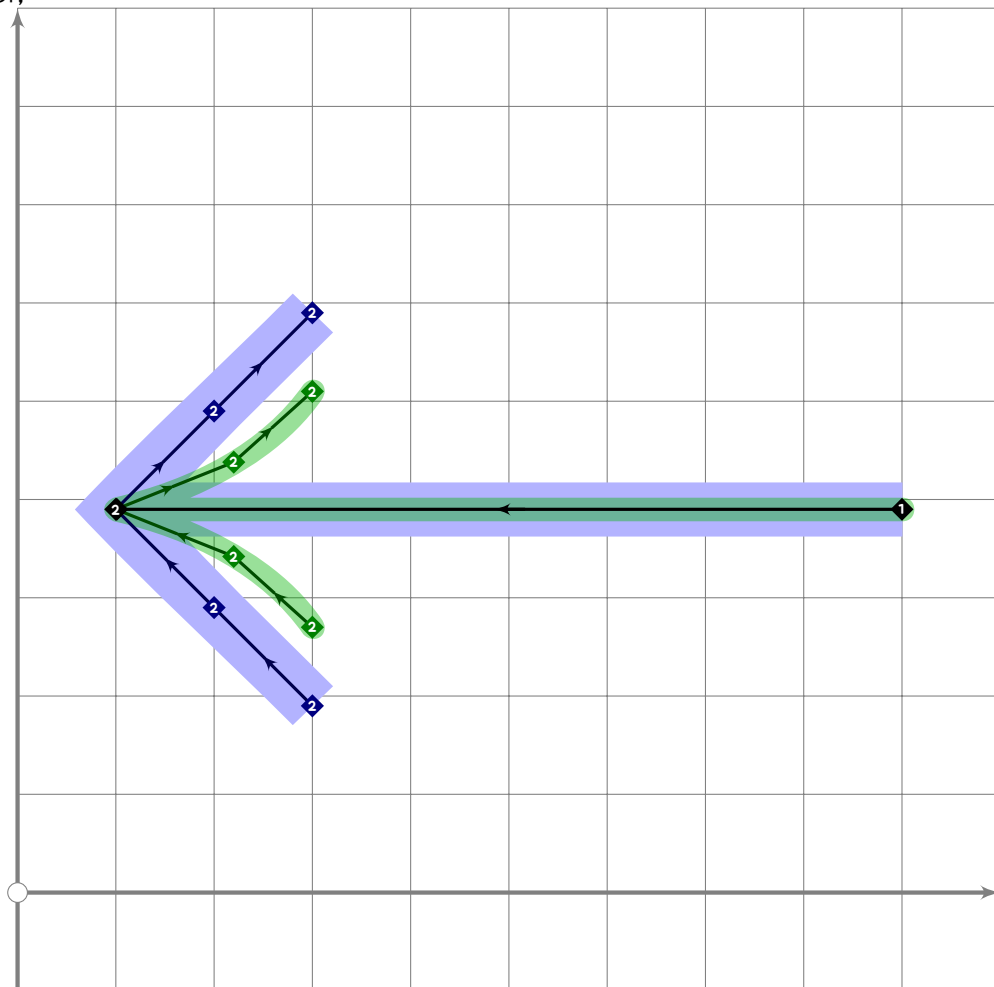
```

[see page 299]

```

68 vardef arrow(expr rot) =
69   push_stroke((( -4,0)-(3.99,0))
70     scaled tsu_punct_size rotated rot shifted centre_pt,
71     (1.6,1.6)-(1.6,1.6));
72   set_boalternate(0);
73   set_bosize(0,80);
74   push_stroke(((2,2)..((3,1)+(0.2*mincho*(-1,-1)))..
75     {curl 1}(4,0){curl 1}..
76     ((3,-1)+(0.2*mincho*(-1,1)))..(2,-2))
77     xyscaled (1,1-0.4*mincho)
78     scaled tsu_punct_size rotated rot shifted centre_pt,
79     (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
80   set_botip(0,2,1);
81   set_boalternate(0);
82   set_bosize(0,80);
83 enddef;

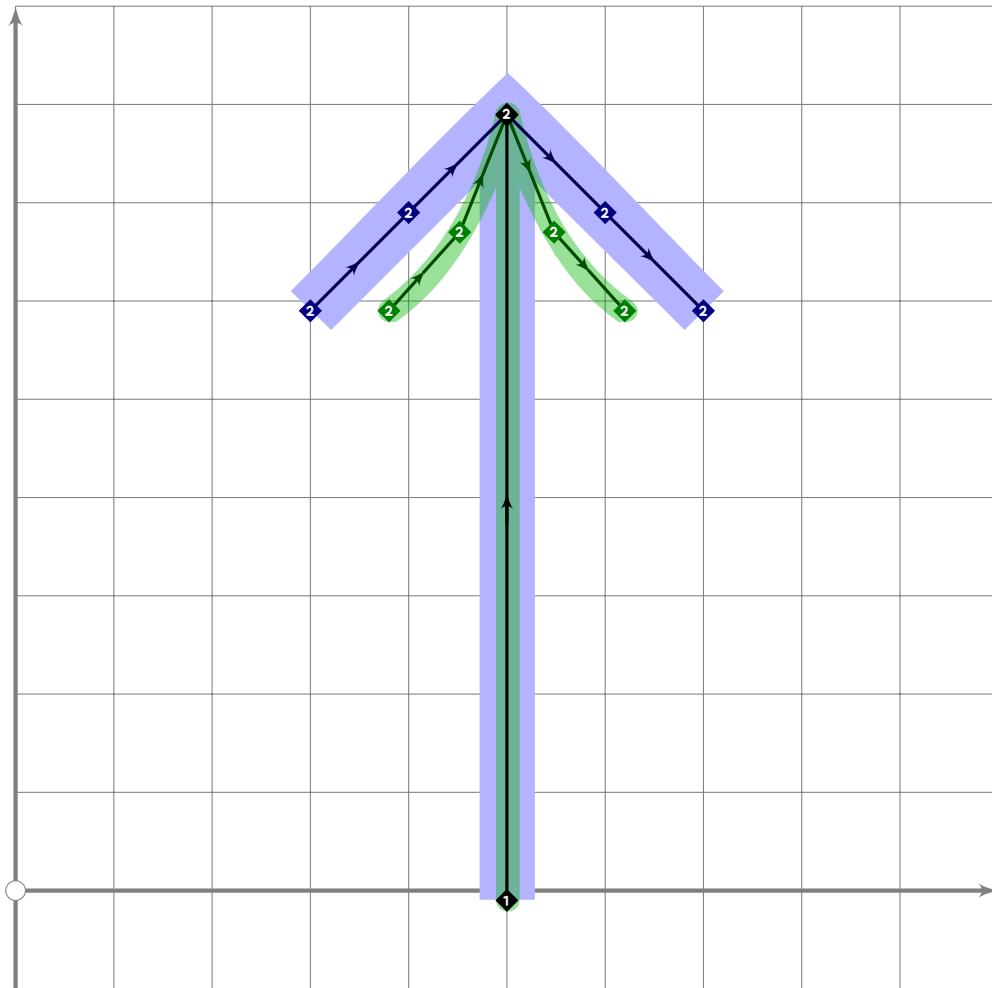
```



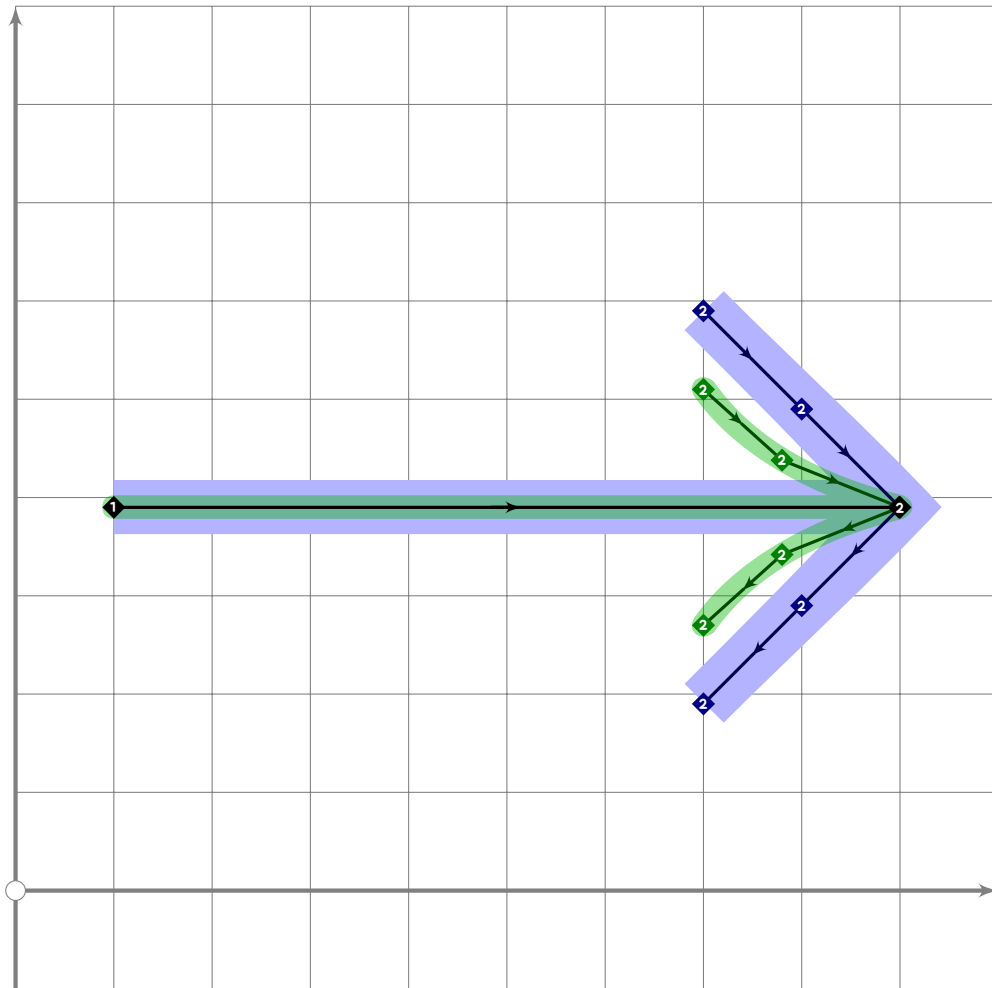
```

84
85   begint Suglyph("arrowleft",144);
86   arrow(180);
87   tsu_render;
88   endtsuglyph;

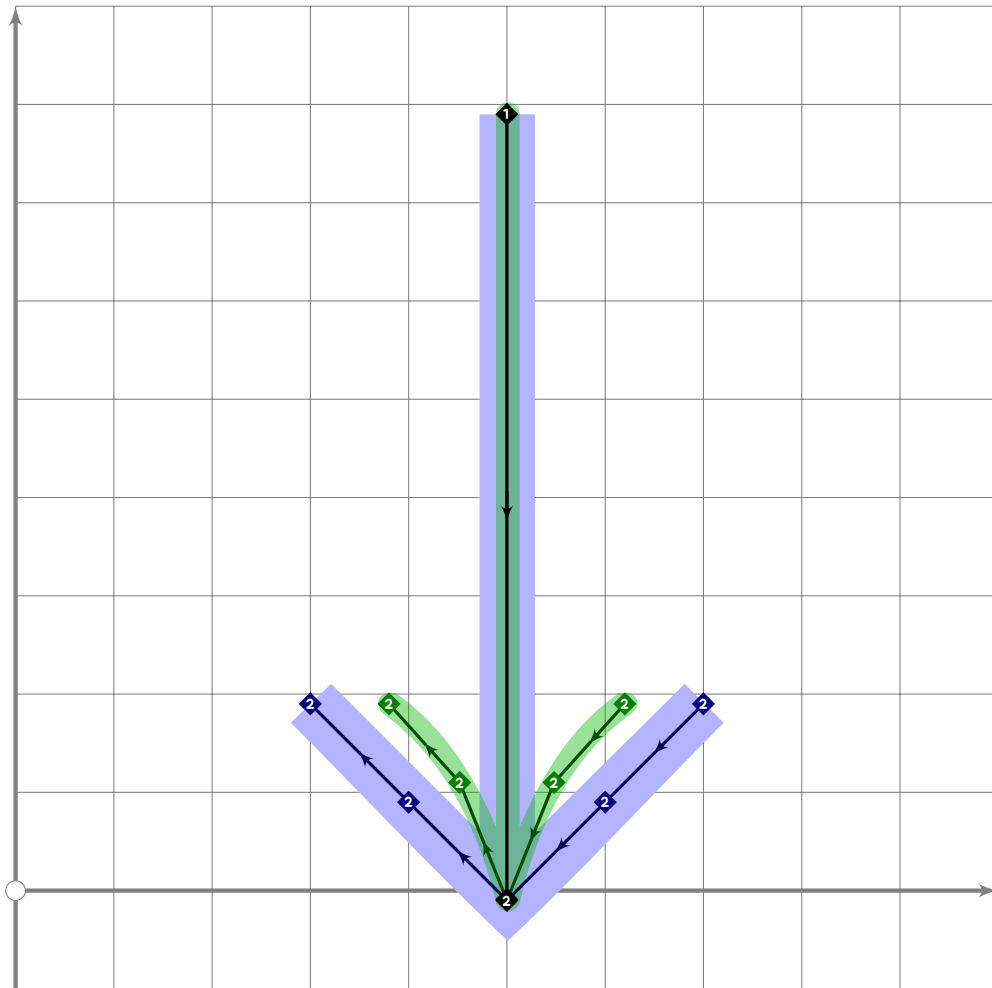
```



```
89  
90 begintsuglyph("arrowup",145);  
91 arrow(90);  
92 tsu_render;  
93 endsuglyph;
```



```
94  
95 begintsuglyph("arrowright",146);  
96 arrow(0);  
97 tsu_render;  
98 endtsuglyph;
```



```
99  
100 begintsuglyph("arrowdown",147);  
101 arrow(270);  
102 tsu_render;  
103 endtsuglyph;  
104  
105 _____  
106  
107 endfont;  
108  
109 _____
```



# tsuku-24.mp

```
1 %
2 % Unicode page 24 (Enclosed Numerics) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

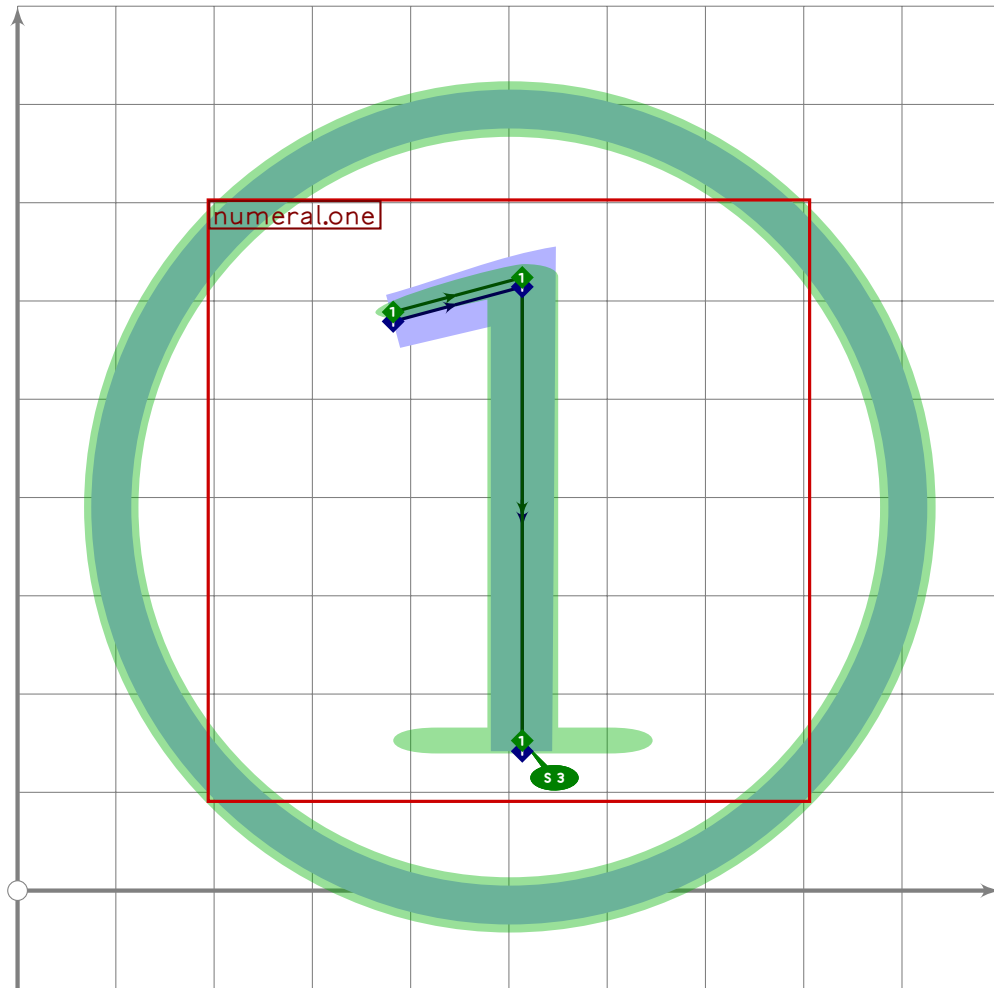

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input enclosed.mp;
39 input latin.mp;
40 input numerals.mp;
41
42 

---

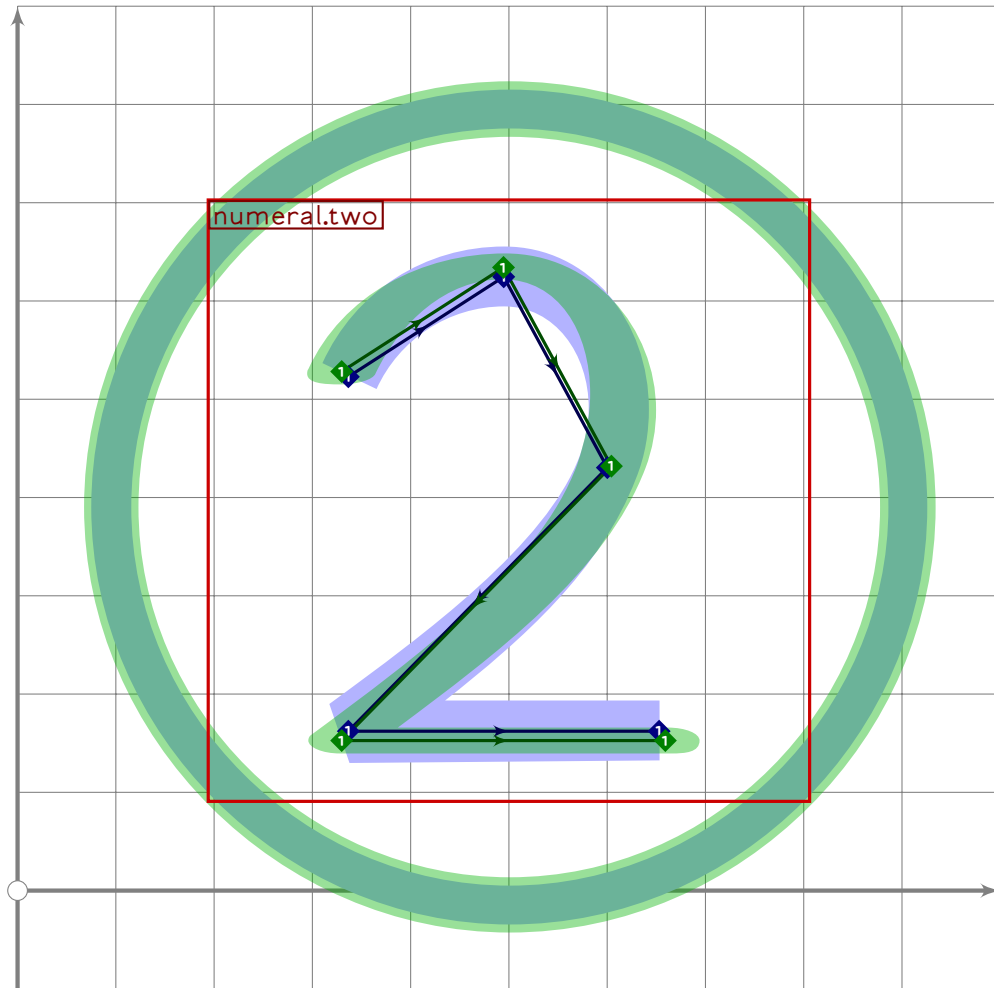

43
```

## Circled Numerals

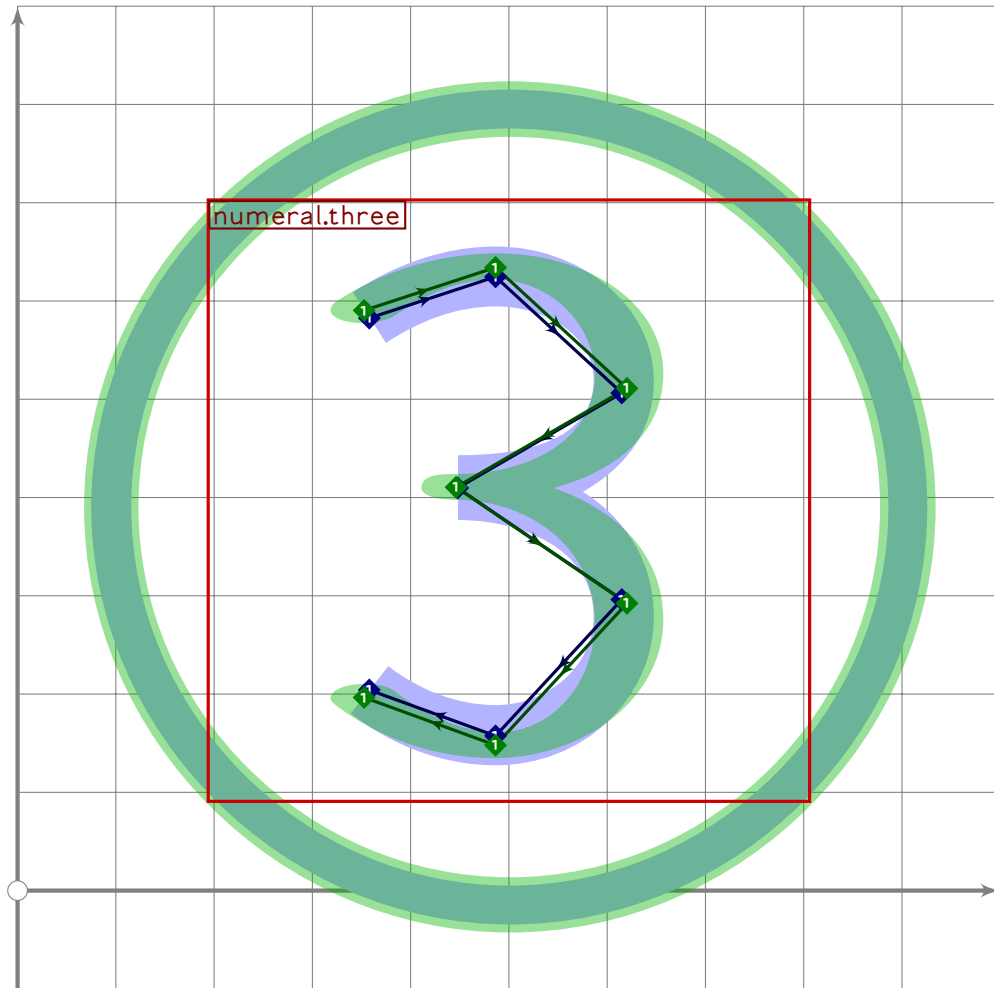
```
44 % CIRCLED NUMERALS
45
```



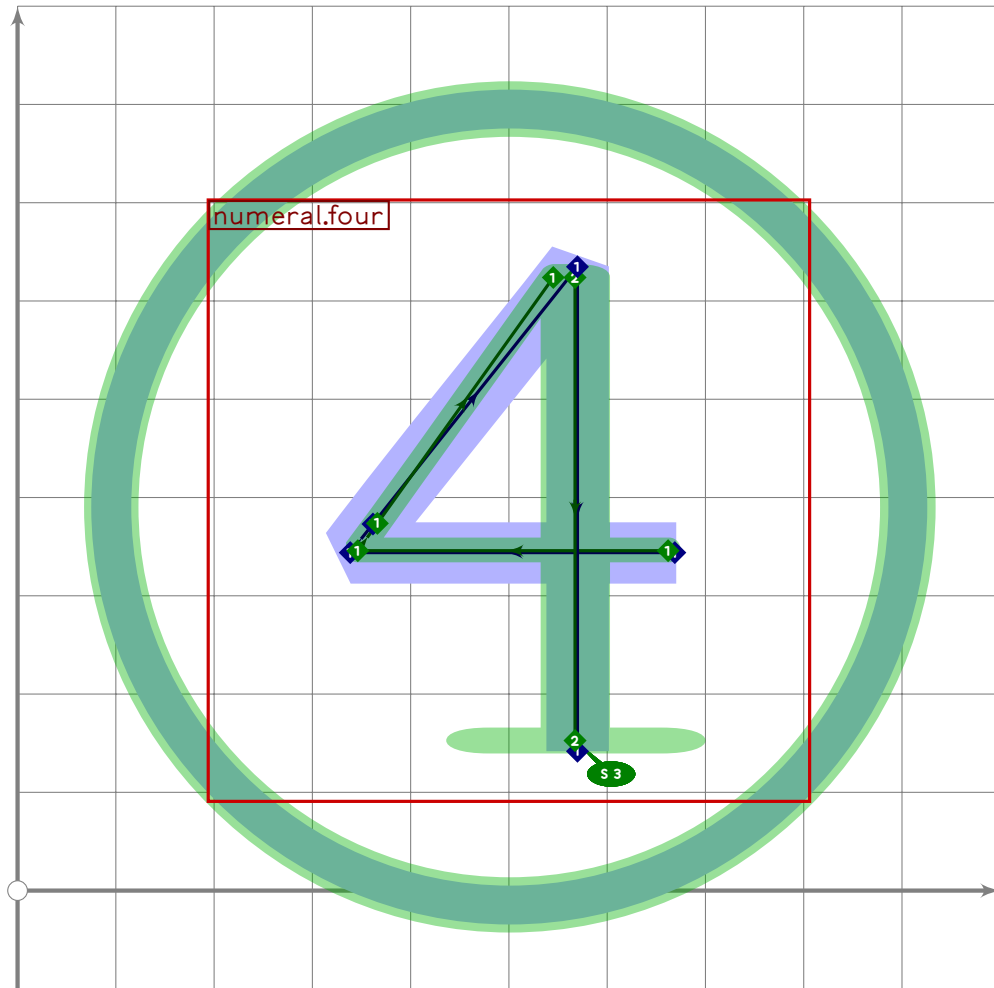
```
46 % 1
47 begint Suglyph("uni2460",96);
48 circle.single;
49 tsu_xform(tsu_xf.circled)(numeral.one);
50 tsu_render;
51 endtsuglyph;
52
```



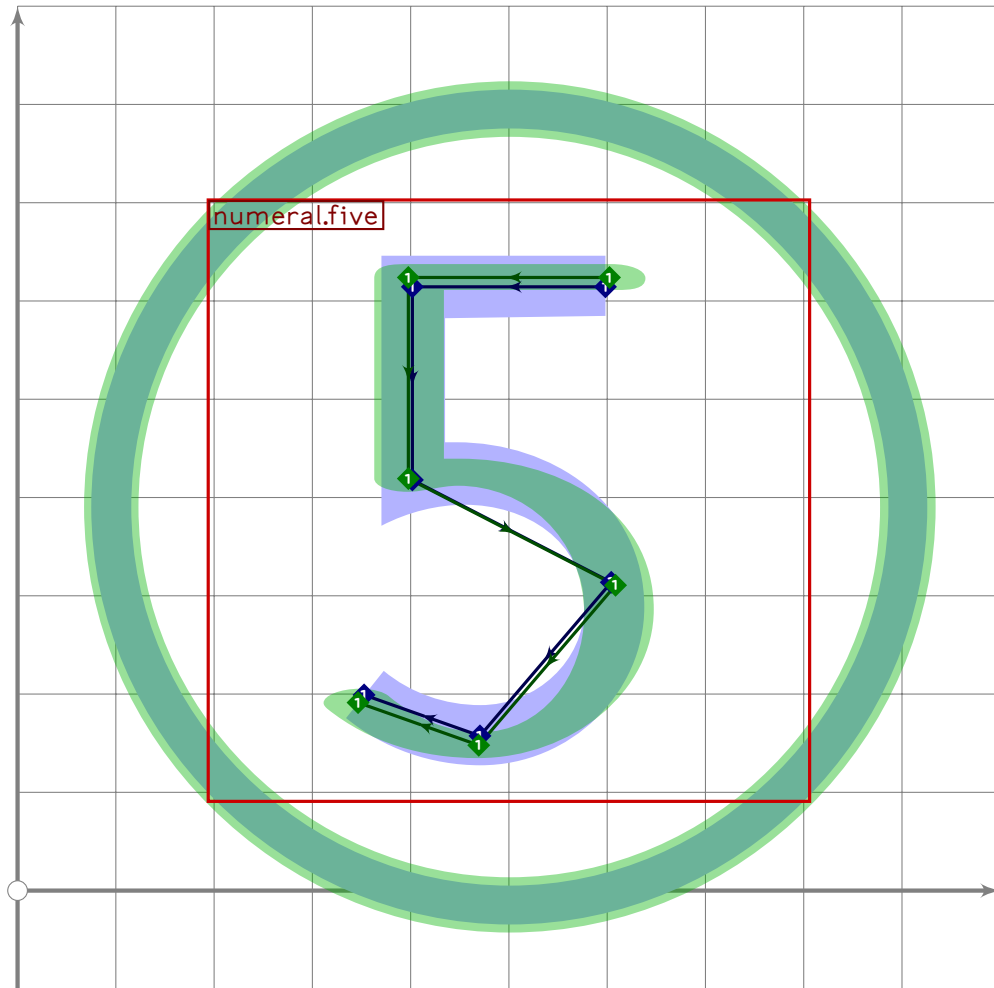
```
53 % 2
54 begintsuglyph("uni2461";97);
55 circle.single;
56 tsu_xform(tsu_xf.circled)(numeral.two);
57 tsu_render;
58 endtsuglyph;
59
```



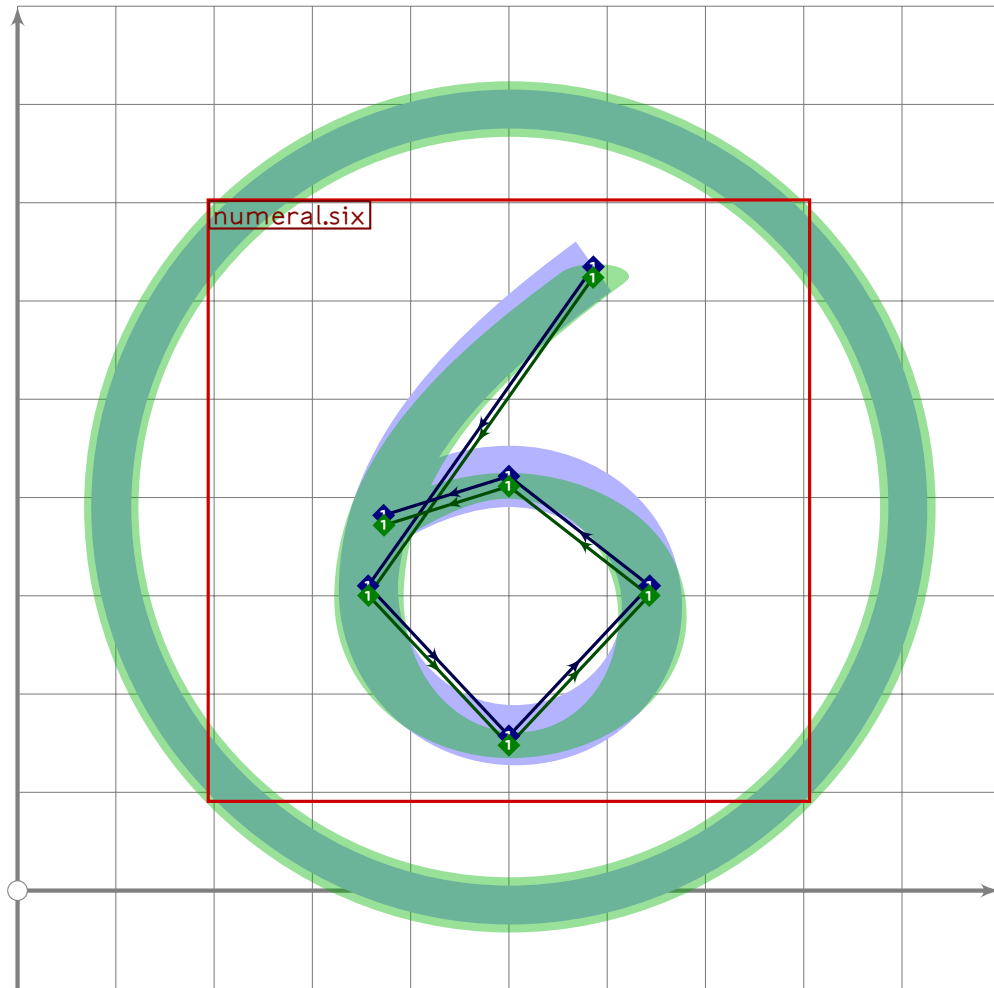
```
60 % 3
61 begintuglyph("uni2462;98);
62 circle.single;
63 tsu_xform(tsu_xf.circled)(numeral.three);
64 tsu_render;
65 endtuglyph;
66
```



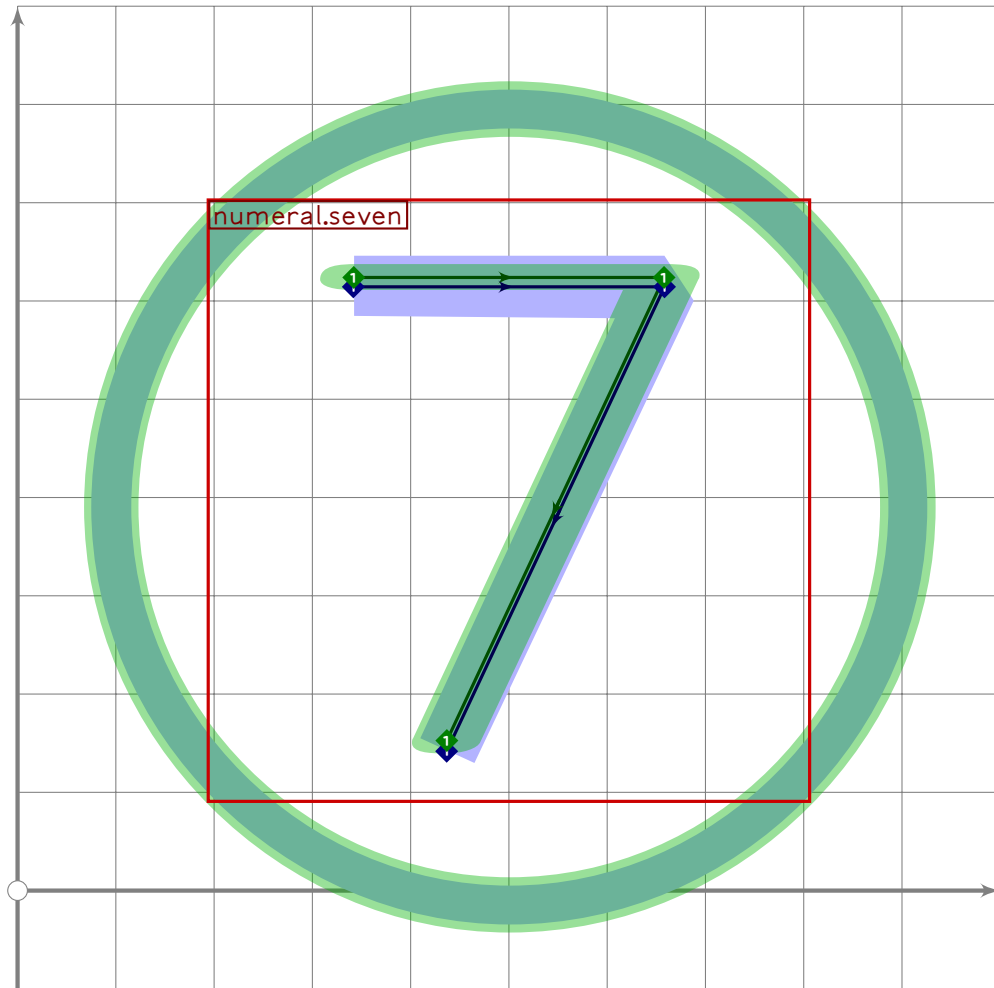
```
67 % 4
68 beginsuglyph("uni2463;99);
69 circle.single;
70 tsu_xform(tsu_xf.circled)(numeral.four);
71 tsu_render;
72 endsuglyph;
73
```



```
74 % 5
75 beginsuglyph("uni2464",100);
76 circle.single;
77 tsu_xform(tsu_xf.circled)(numeral.five);
78 tsu_render;
79 endsuglyph;
80
```

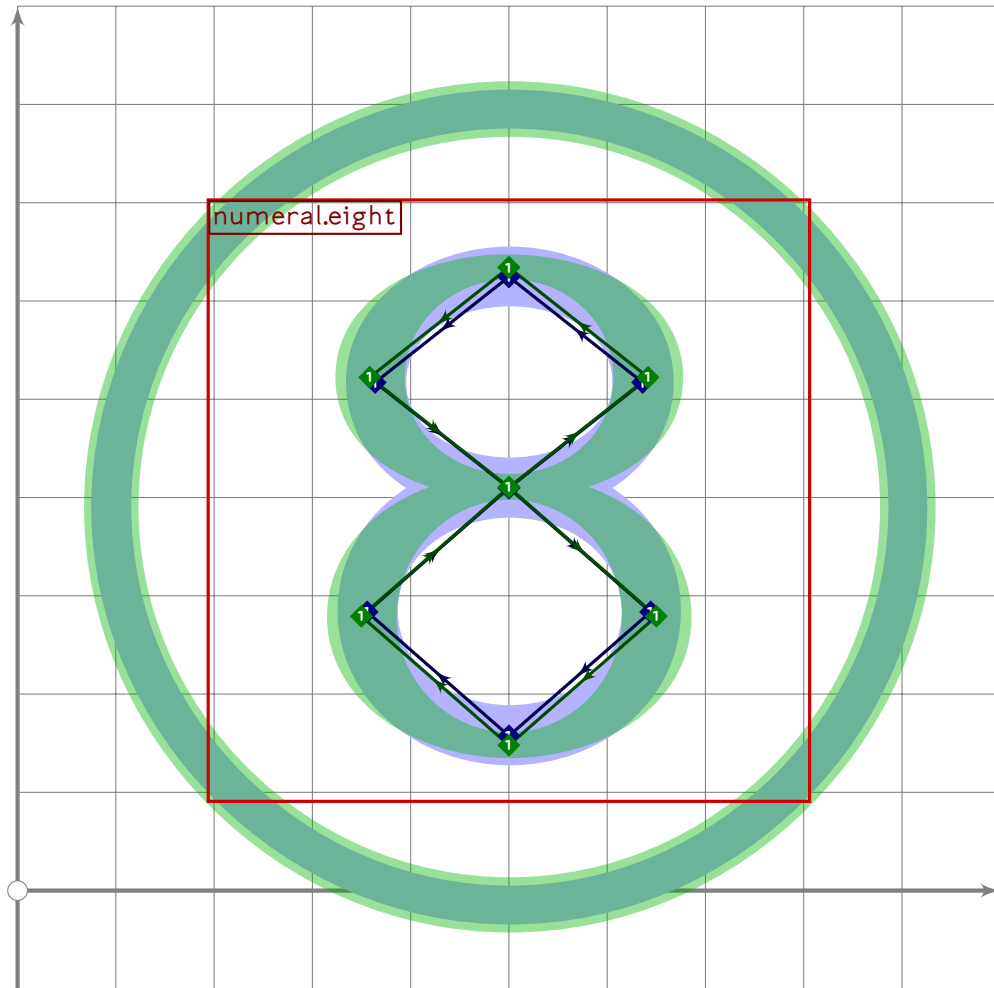


```
81 % 6
82 beginsuglyph("uni2465";101);
83 circle.single;
84 tsu_xform(tsu_xf.circled)(numeral.six);
85 tsu_render;
86 endsuglyph;
87
```

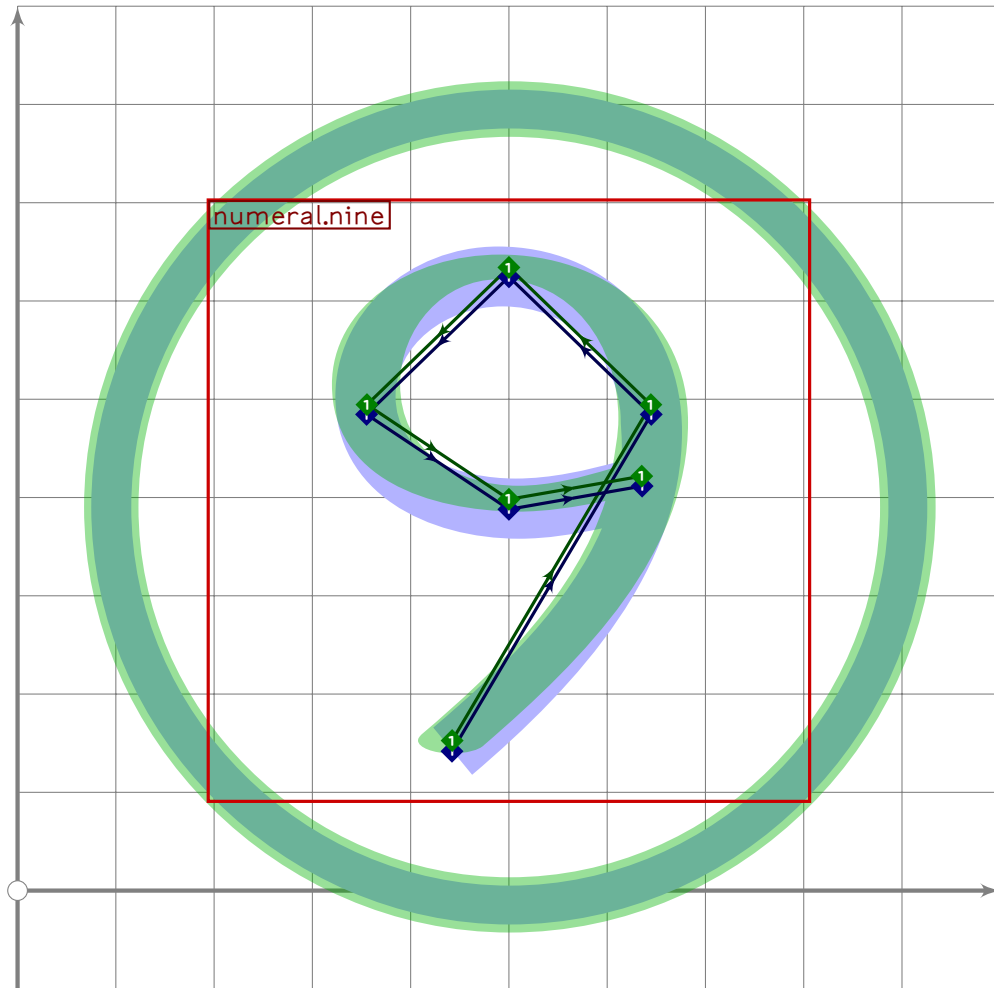


```
88 % 7
89 begintsuglyph("uni2466",102);
90 circle.single;
91 tsu_xform(tsu_xf.circled)(numeral.seven);
92 tsu_render;
93 endtsuglyph;
94
```

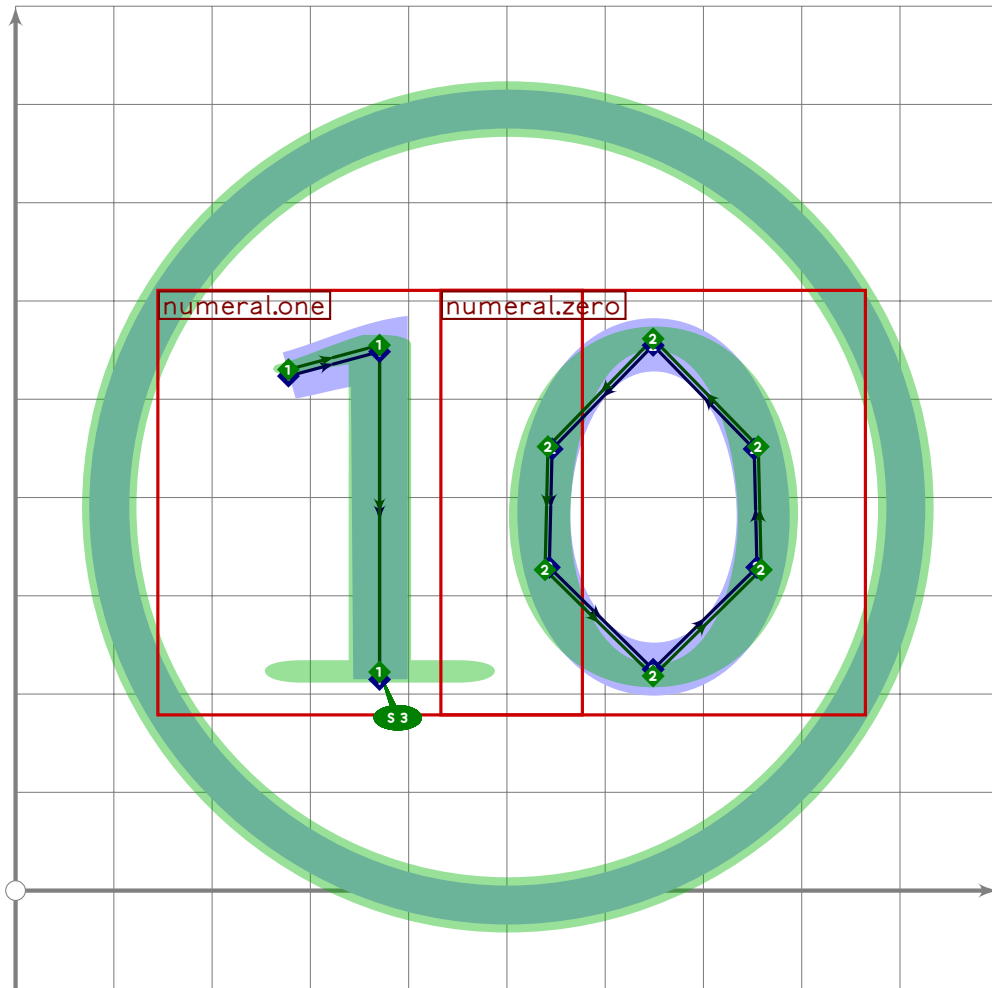




```
95 % 8
96 beginsuglyph("uni2467";103);
97 circle.single;
98 tsu_xform(tsu_xf.circled)(numeral.eight);
99 tsu_render;
100 endsuglyph;
101
```



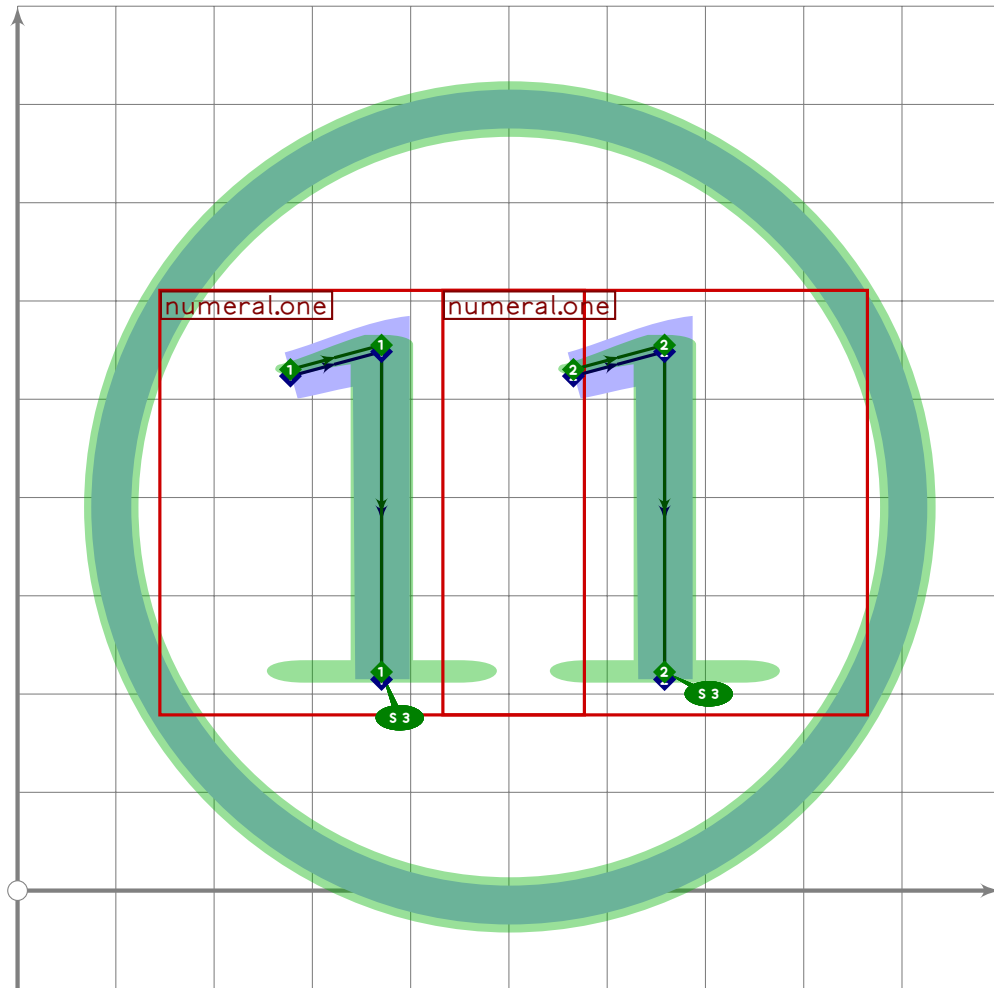
```
102 % 9
103 begintsuglyph("uni2468",104);
104 circle.single;
105 tsu_xform(tsu_xf.circled)(numeral.nine);
106 tsu_render;
107 endtsuglyph;
108
```



```

109 % 10
110 begint Suglyph("uni2469";105);
111   circle.single;
112   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
113   numeric x[],y[];
114   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
115   tsu_render;
116 endtsuglyph;
117

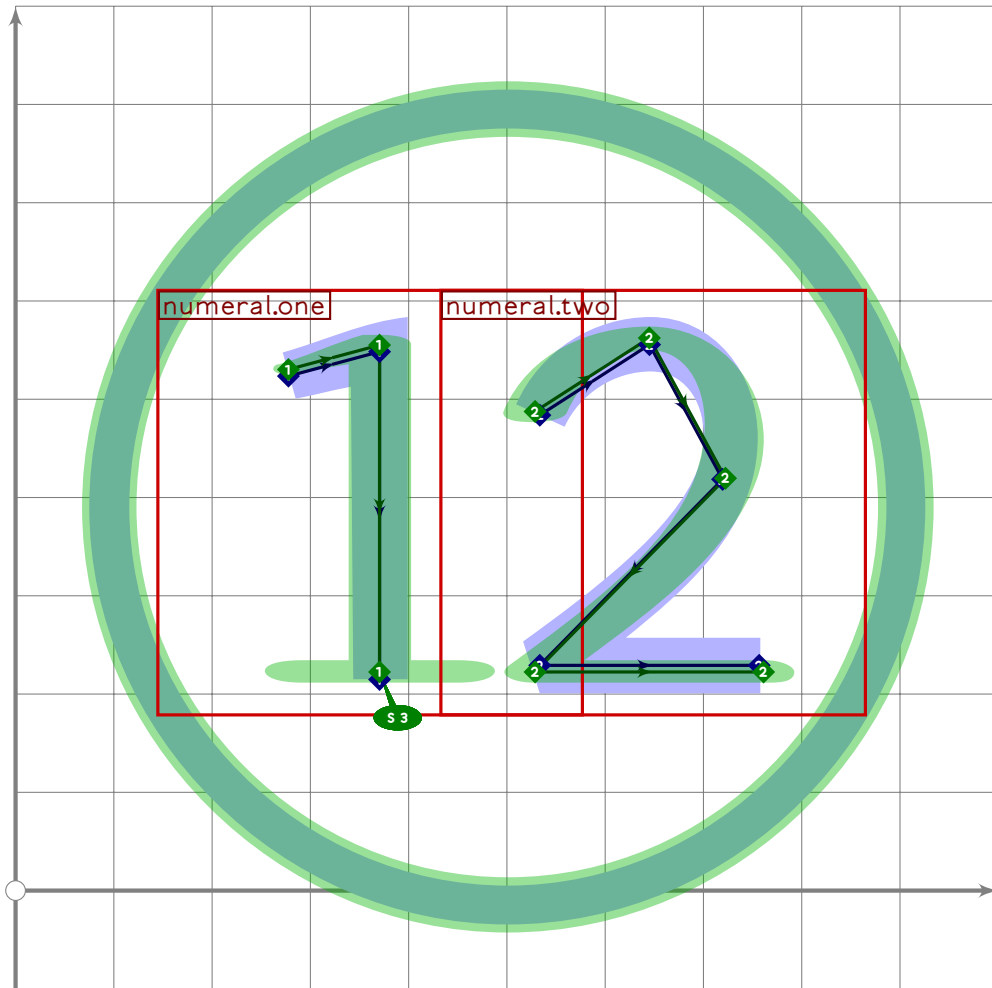
```



```

118 % 11
119 beginsuglyph("uni246A",106);
120 circle.single;
121 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
122 numeric x[],y[];
123 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
124 tsu_render;
125 endsuglyph;
126

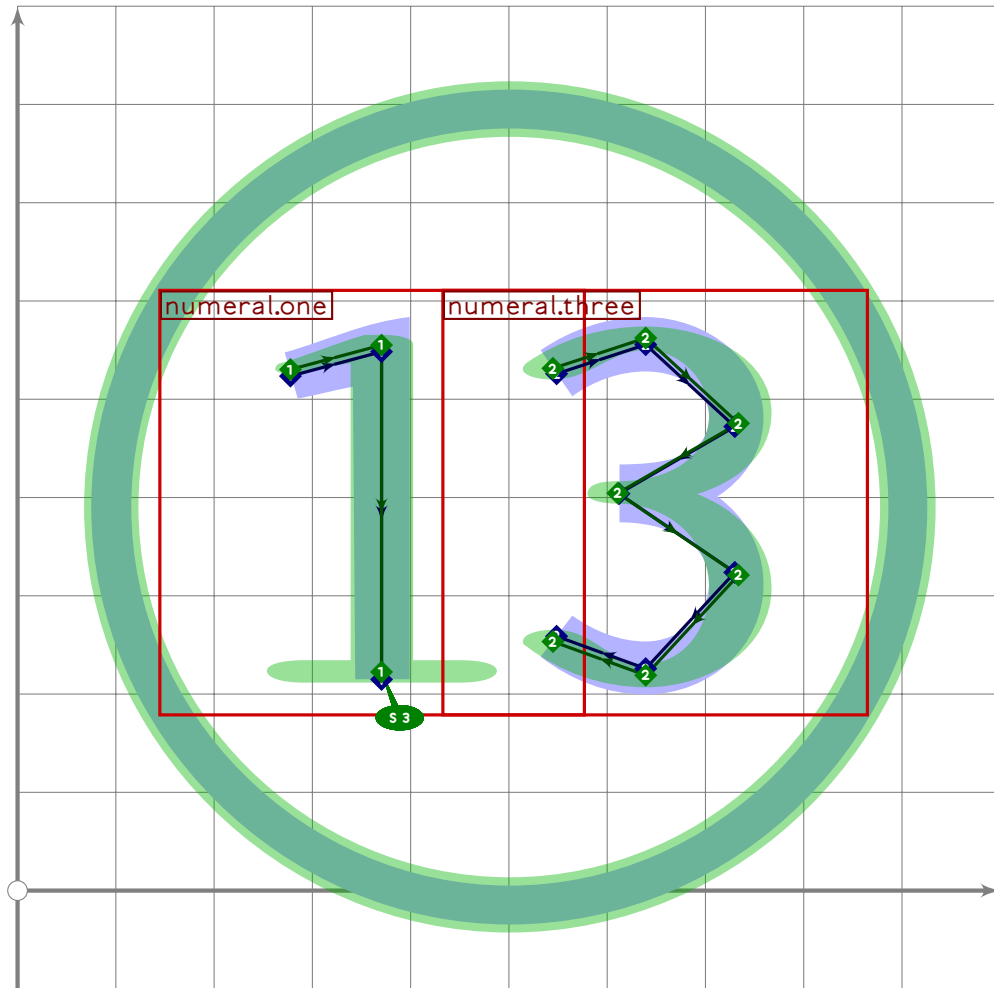
```



```

127 % 12
128 beginsuglyph("uni246B",107);
129 circle.single;
130 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
131 numeric x[],y[];
132 tsu_xform(tsu_xf.ctwo.right)(numeral.two);
133 tsu_render;
134 endsuglyph;
135

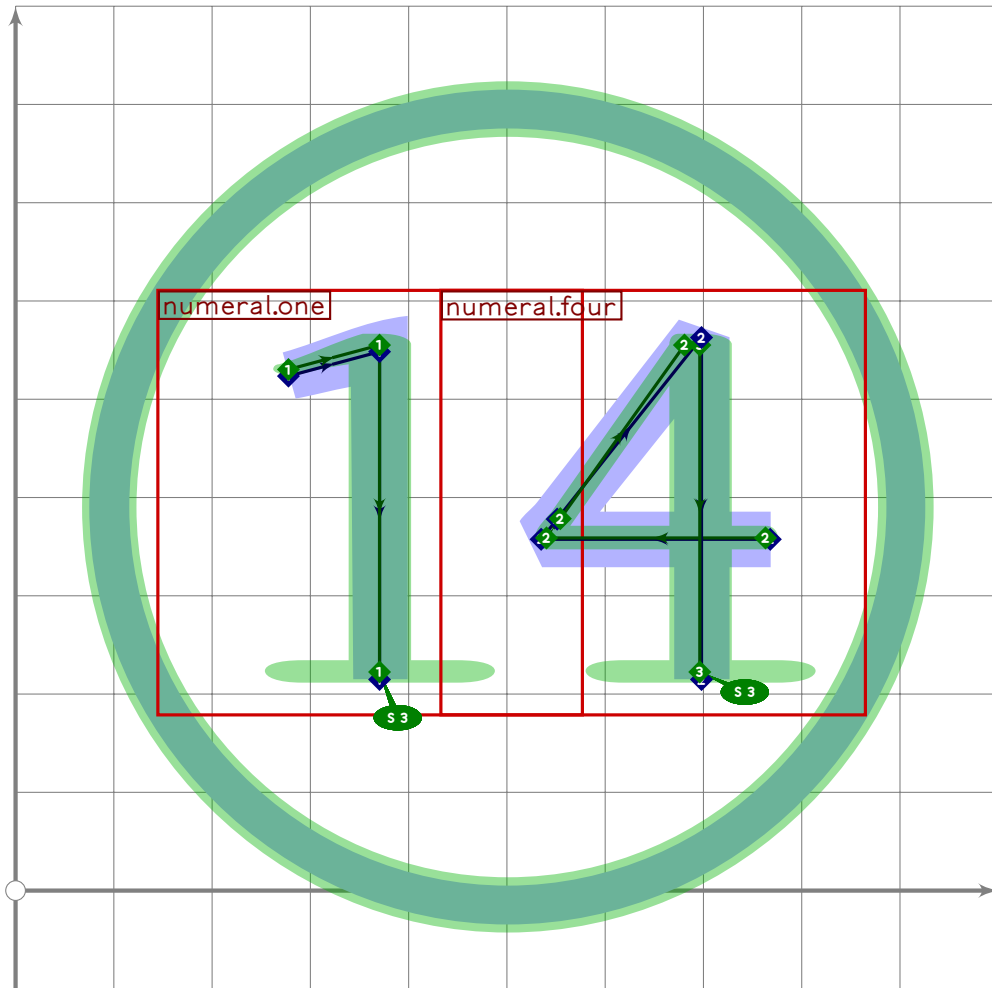
```



```

136 % 13
137 begint Suglyph("uni246C",108);
138 circle.single;
139 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
140 numeric x[],y[];
141 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
142 tsu_render;
143 endtsuglyph;
144

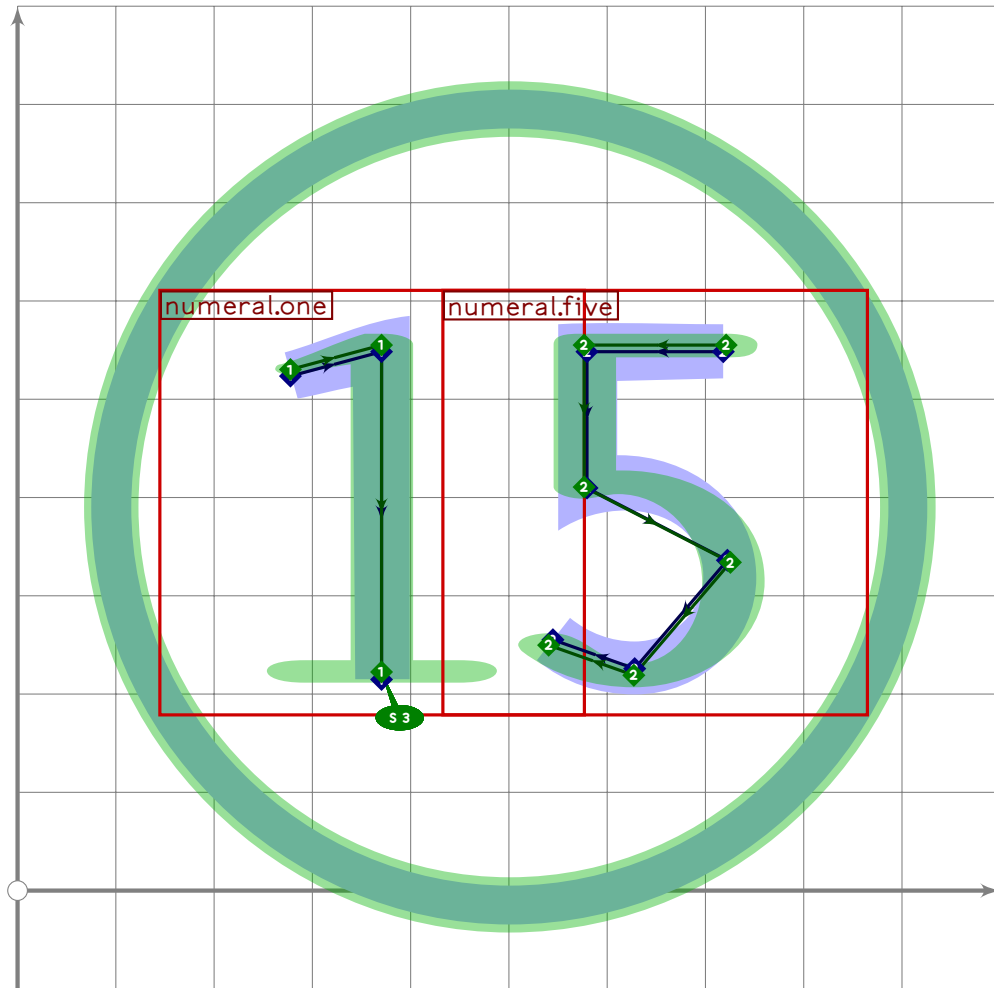
```



```

145 % 14
146 beginsuglyph("uni246D",109);
147   circle.single;
148   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
149   numeric x[],y[];
150   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
151   tsu_render;
152 endsuglyph;
153

```

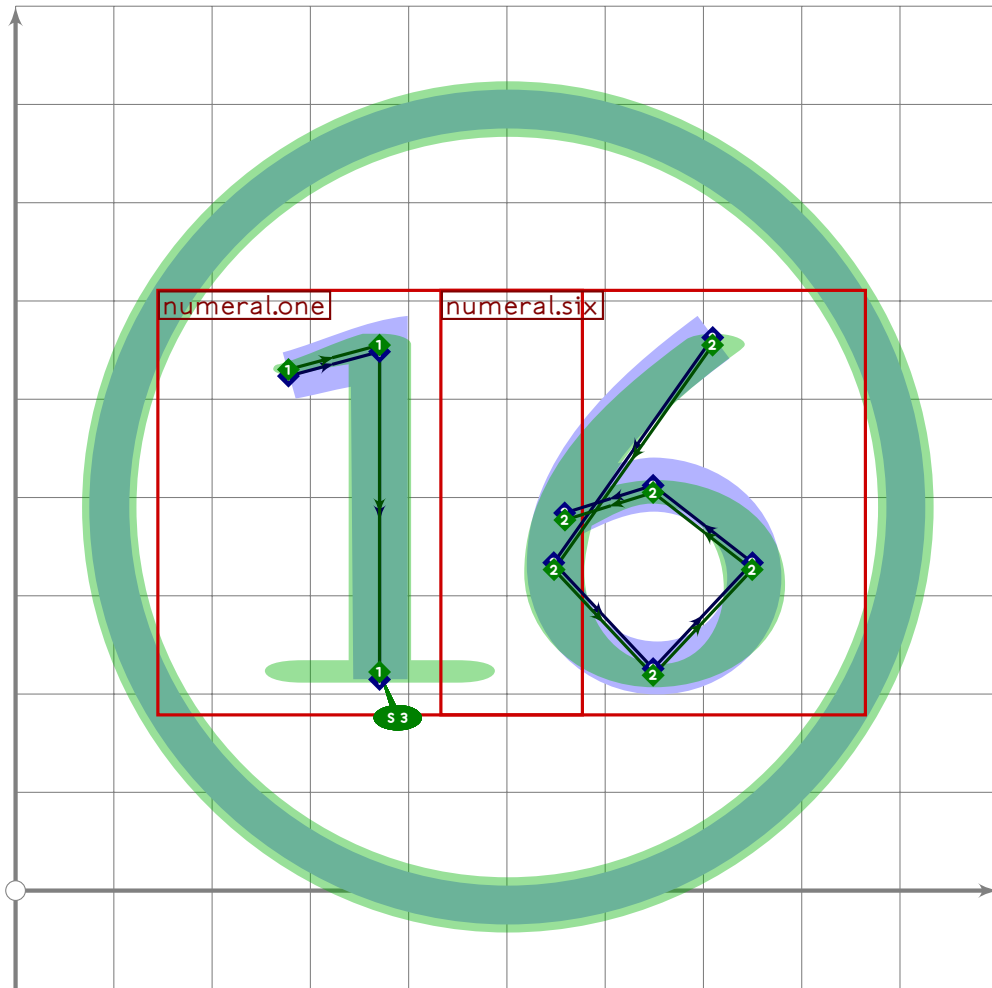


```

154 % 15
155 begint Suglyph("uni246E";110);
156   circle.single;
157   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
158   numeric x[],y[];
159   tsu_xform(tsu_xf.ctwo.right)(numeral.five);
160   tsu_render;
161   endtsuglyph;
162

```

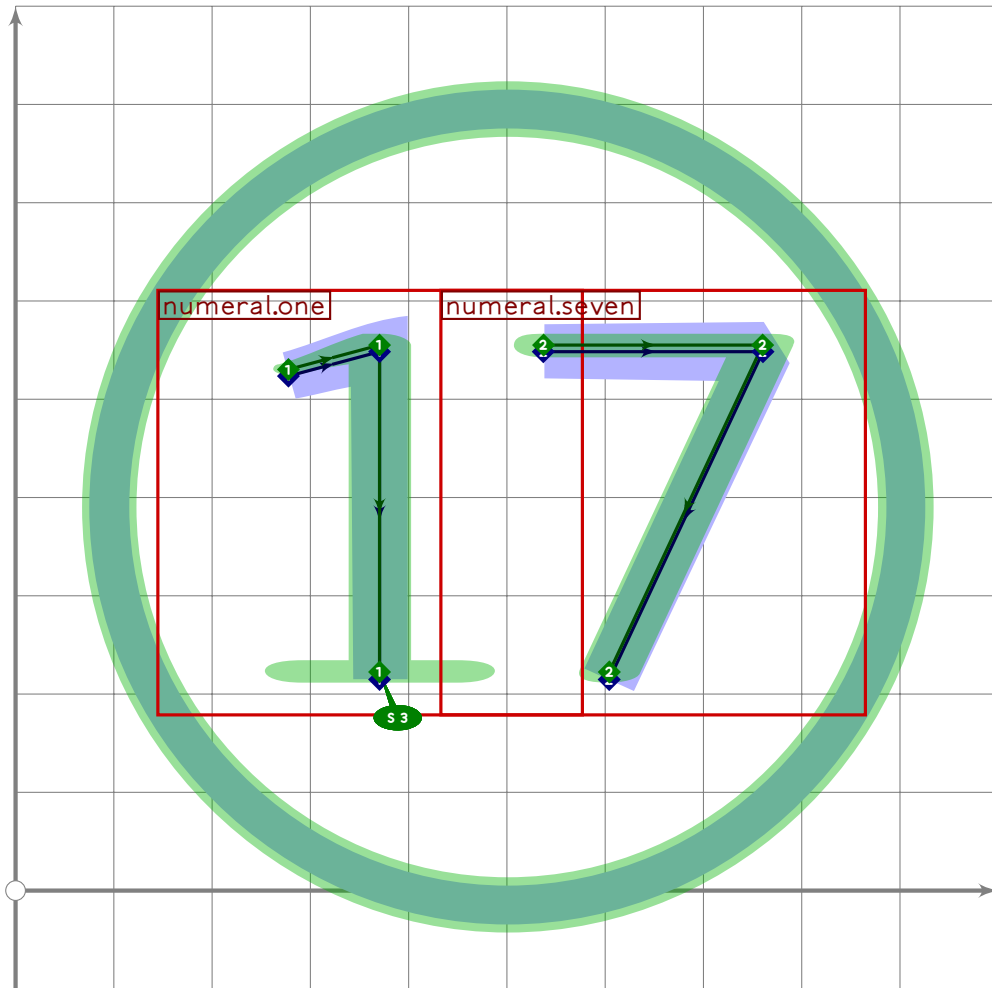




```

163 % 16
164 begint Suglyph("uni246F",11);
165   circle.single;
166   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
167   numeric x[],y[];
168   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
169   tsu_render;
170 endtsuglyph;
171

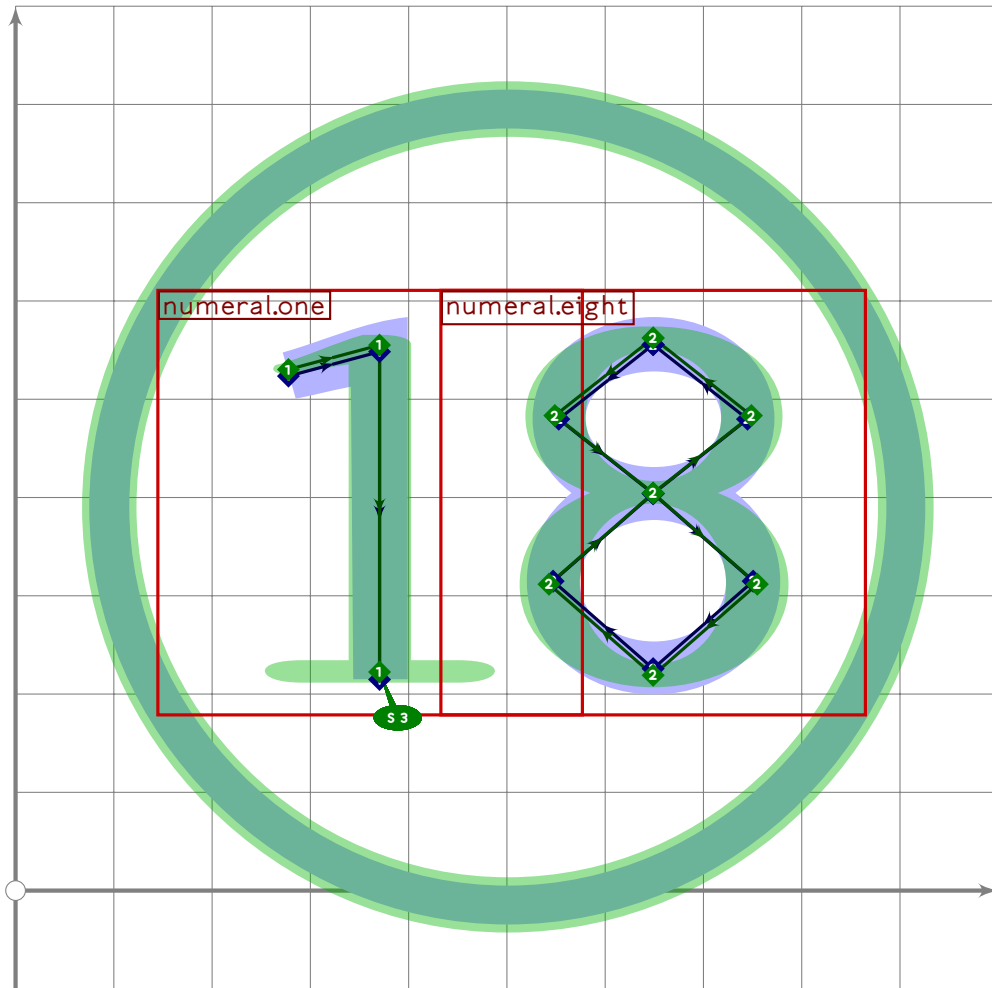
```



```

172 % 17
173 beginsuglyph("uni2470";112);
174 circle.single;
175 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
176 numeric x[],y[];
177 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
178 tsu_render;
179 endsuglyph;
180

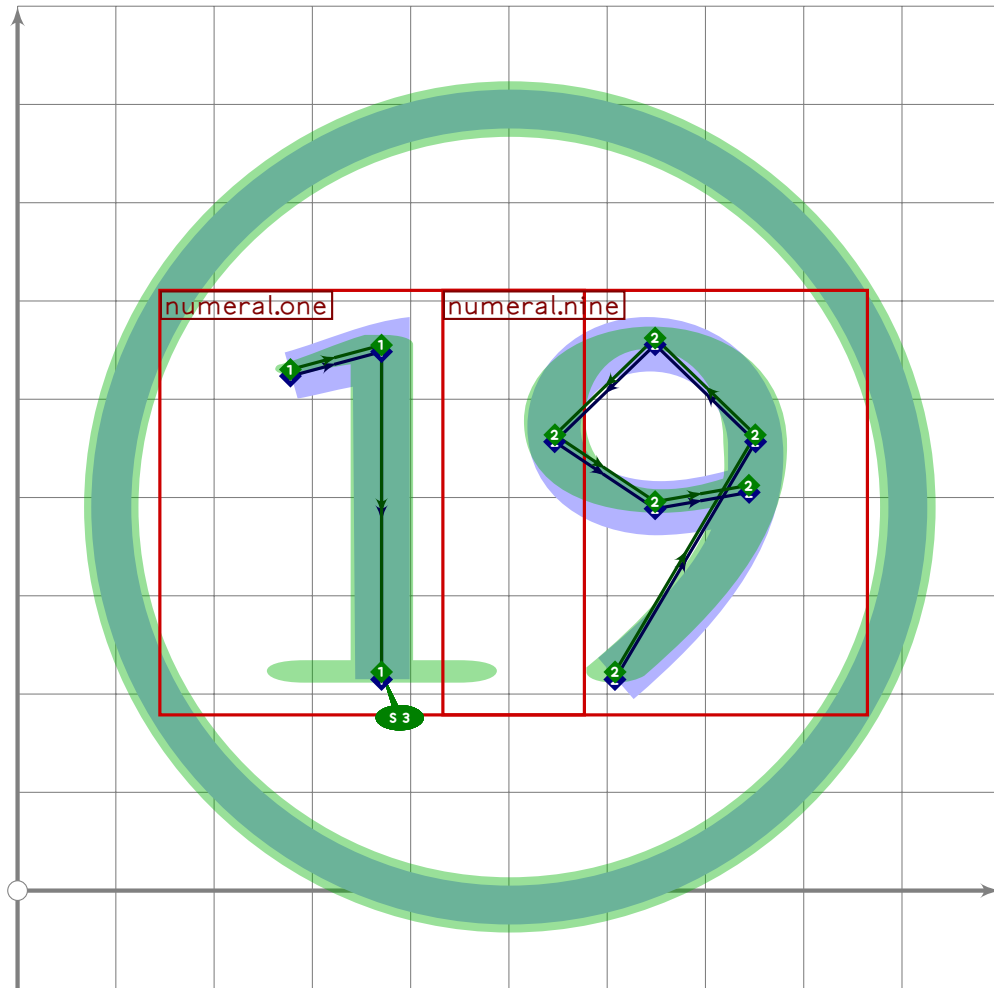
```



```

181 % 18
182 beginsuglyph("uni2471",113);
183   circle.single;
184   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
185   numeric x[],y[];
186   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
187   tsu_render;
188 endsuglyph;
189

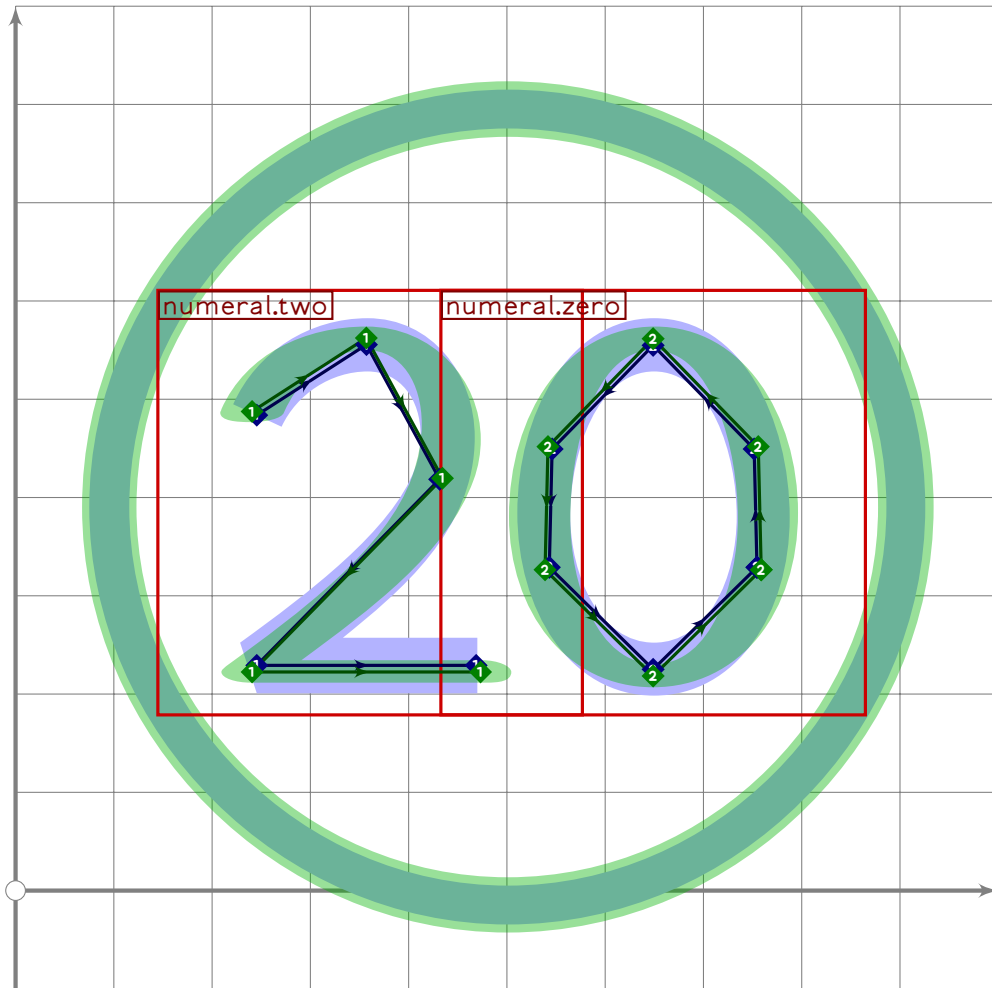
```



```

190 % 19
191 beginsuglyph("uni2472";114);
192   circle.single;
193   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
194   numeric x[],y[];
195   tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
196   tsu_render;
197   endsuglyph;
198

```



```

199 % 20
200 begint Suglyph("uni2473";115);
201   circle.single;
202   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
203   numeric x[],y[];
204   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
205   tsu_render;
206 endtsuglyph;
207
208
209

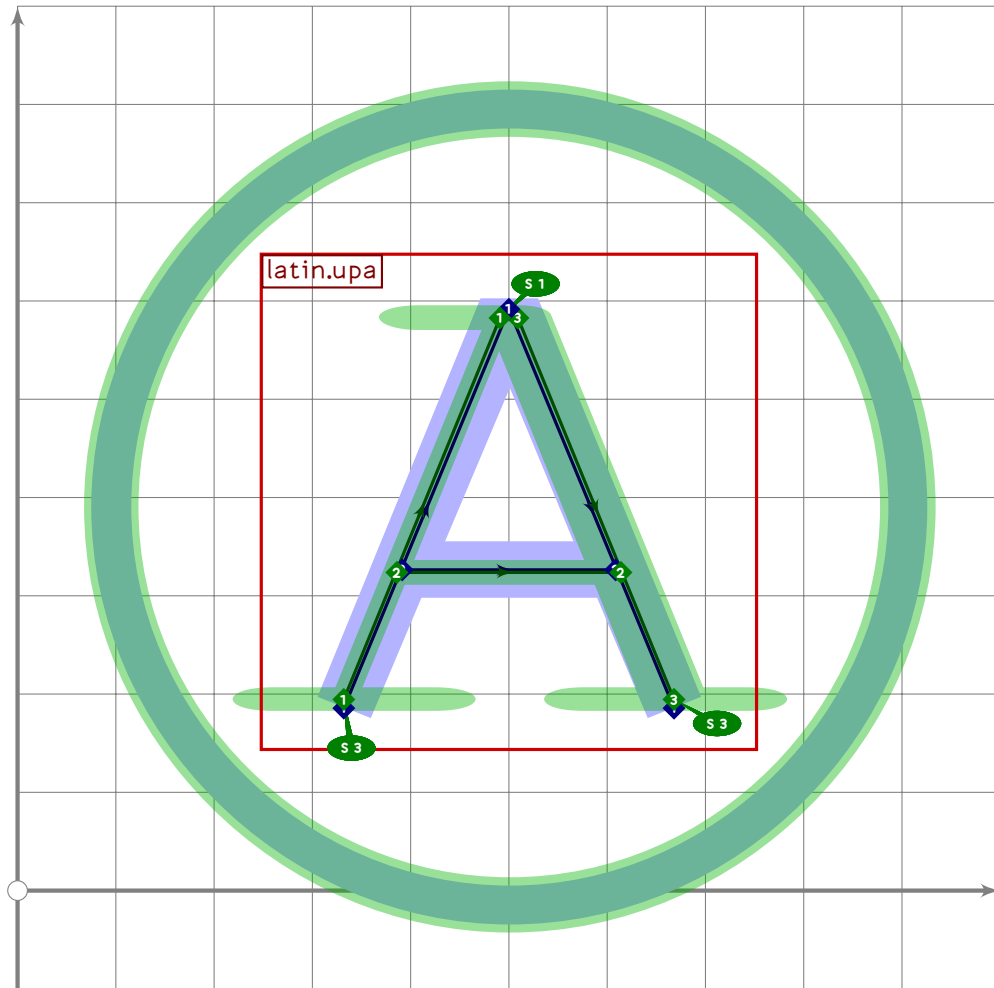
```

## Circled Latin And Zero

```

210 % CIRCLED LATIN AND ZERO
211

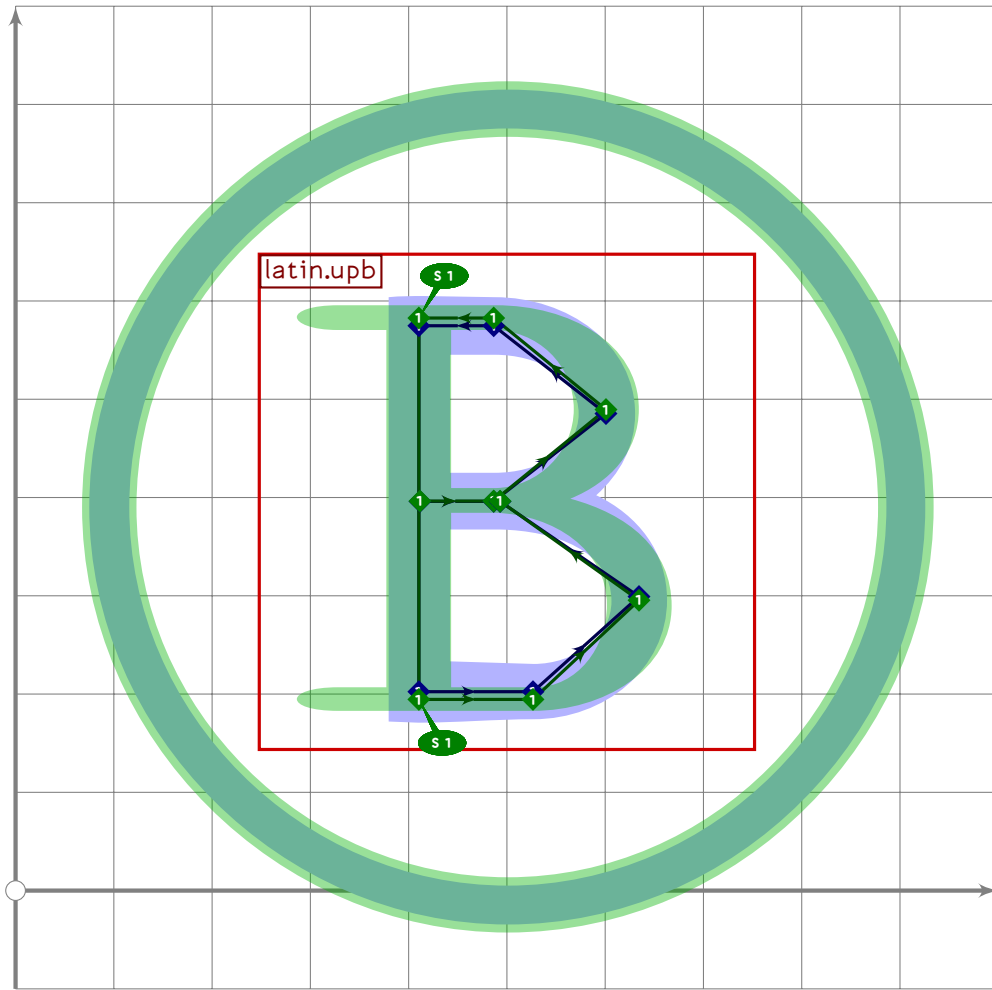
```



```

212 % A
213 beginsuglyph("uni24B6",182);
214 circle.single;
215 tsu_xform(tsu_xf.cletter)(latin.upa);
216 tsu_render;
217 endsuglyph;
218

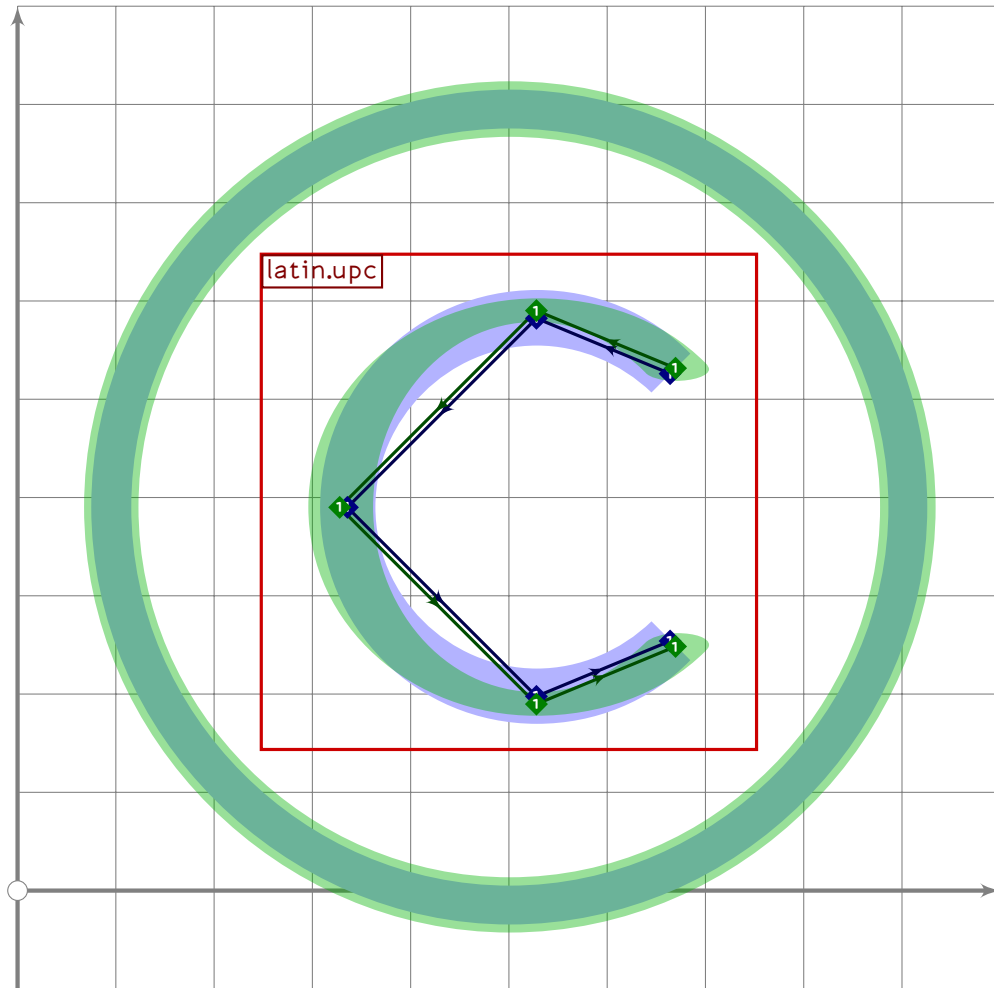
```



```

219 % B
220 begintsuglyph("uni24B7";183);
221 circle.single;
222 tsu_xform(tsu_xf.cletter)(latin.upb);
223 tsu_render;
224 endsuglyph;
225

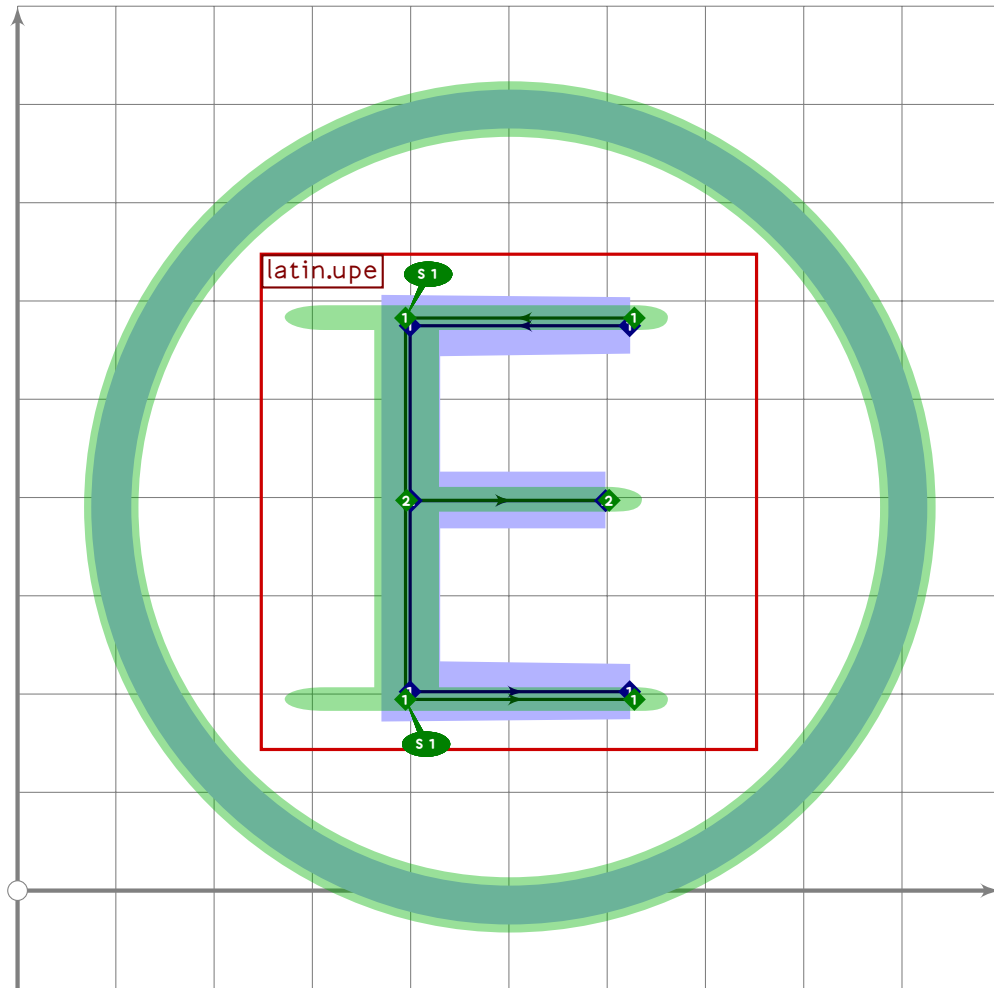
```



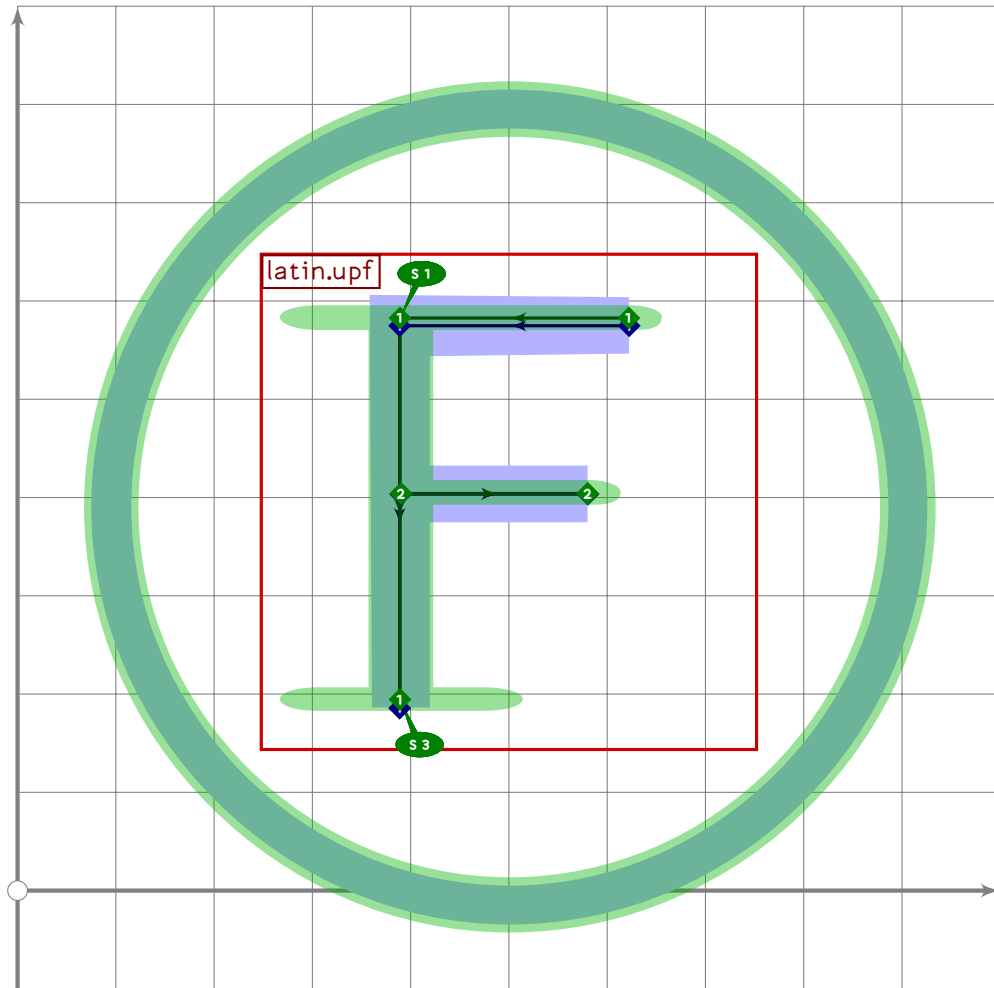
```
226 % C
227 beginsuglyph("uni24B8",184);
228 circle.single;
229 tsu_xform(tsu_xf.cletter)(latin.upc);
230 tsu_render;
231 endsuglyph;
232
```







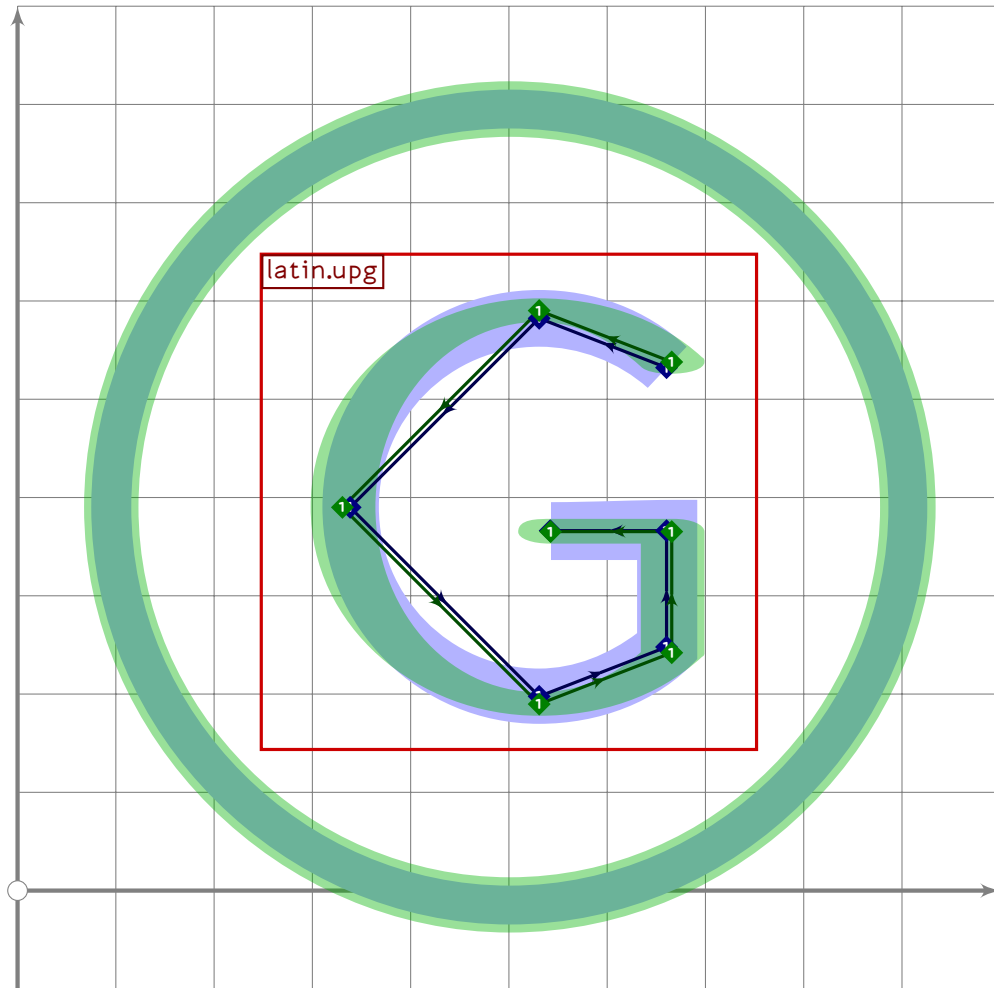
```
240 % E
241 begintsuglyph("uni24BA",186);
242 circle.single;
243 tsu_xform(tsu_xf.cletter)(latin.upe);
244 tsu_render;
245 endsuglyph;
246
```



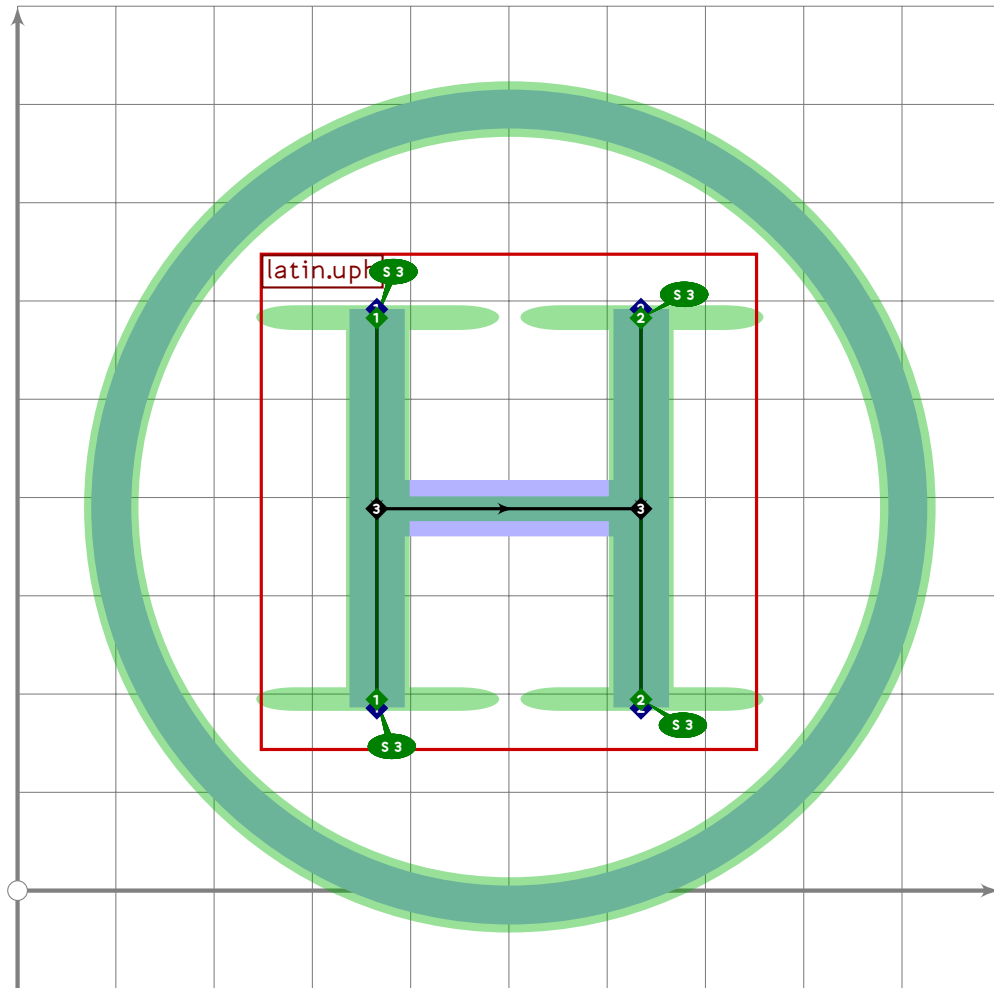
```

247 % F
248 begintsuglyph("uni24BB",187);
249 circle.single;
250 tsu_xform(tsu_xf.cletter)(latin.upf);
251 tsu_render;
252 endtsuglyph;
253

```



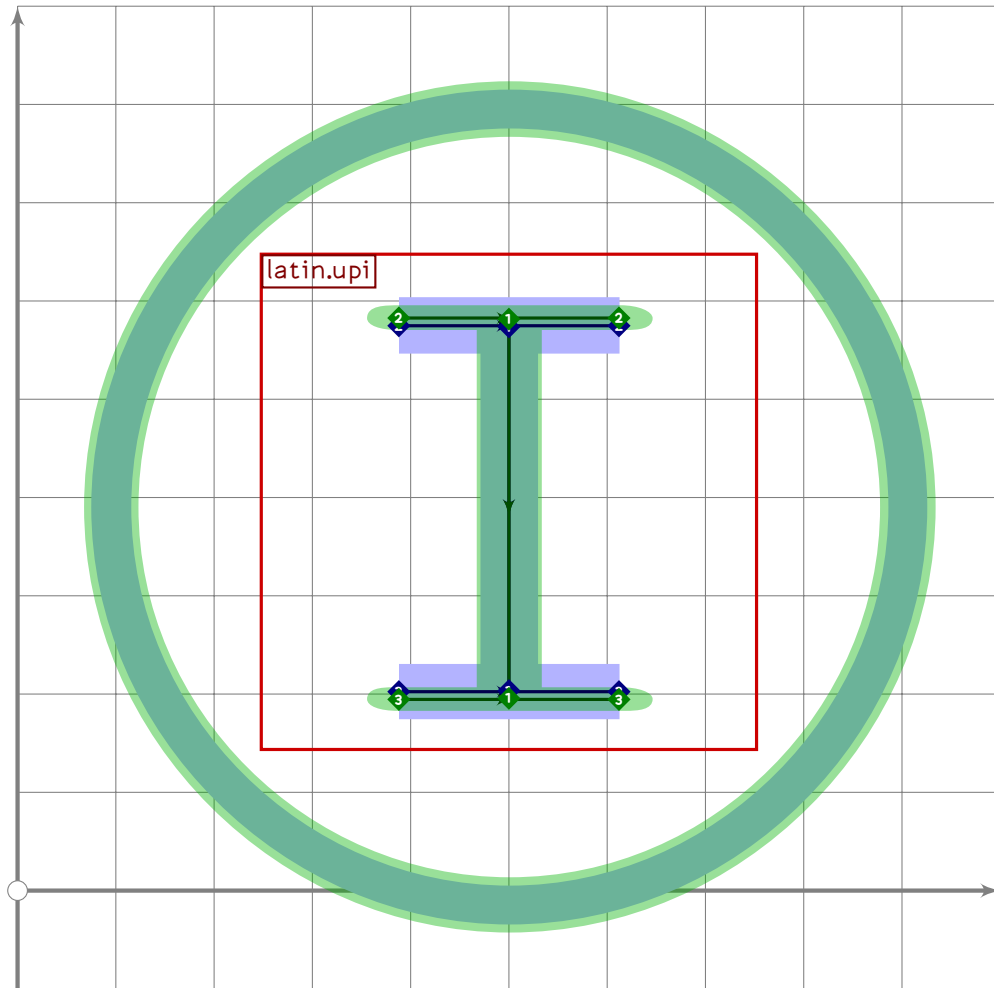
```
254 % G
255 begintsuglyph("uni24BC",188);
256 circle.single;
257 tsu_xform(tsu_xf.cletter)(latin.upg);
258 tsu_render;
259 endsuglyph;
260
```



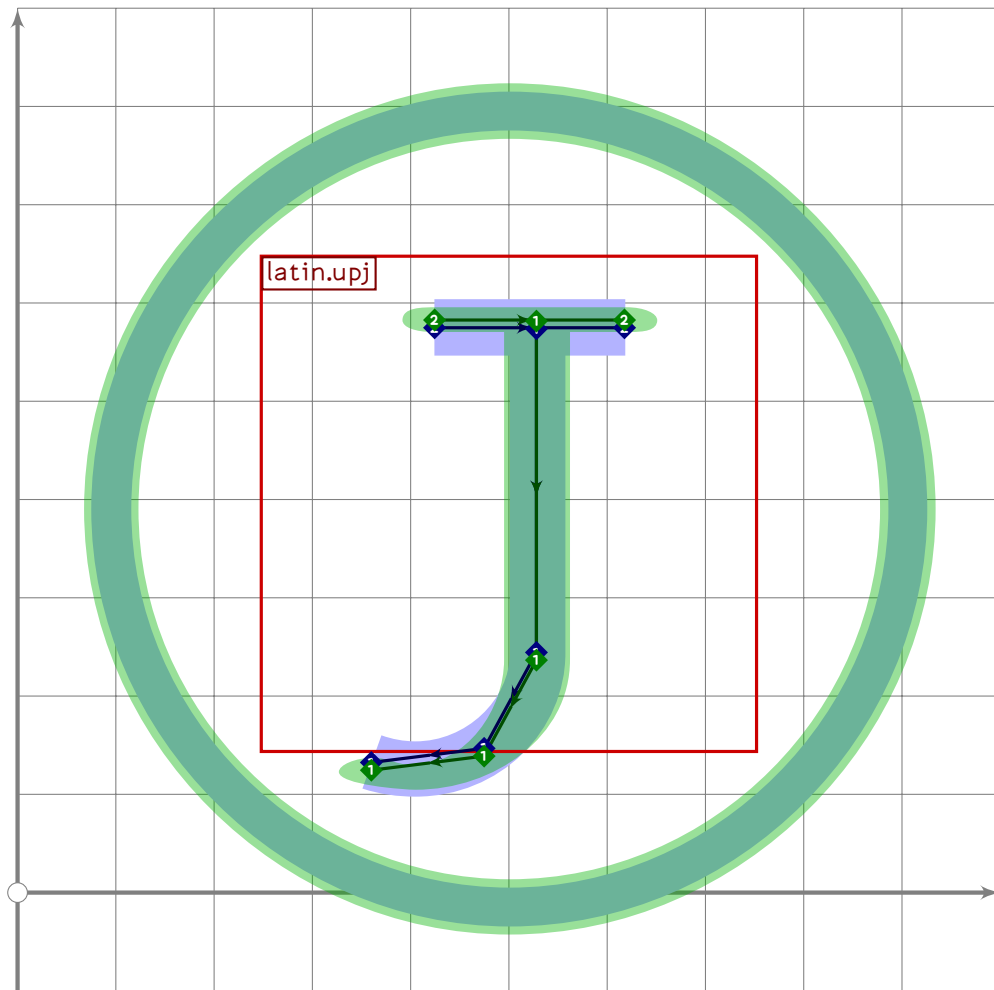
```

261 % H
262 begint Suglyph("uni24BD",189);
263 circle.single;
264 tsu_xform(tsu_xf.cletter)(latin.uph);
265 tsu_render;
266 endtsuglyph;
267

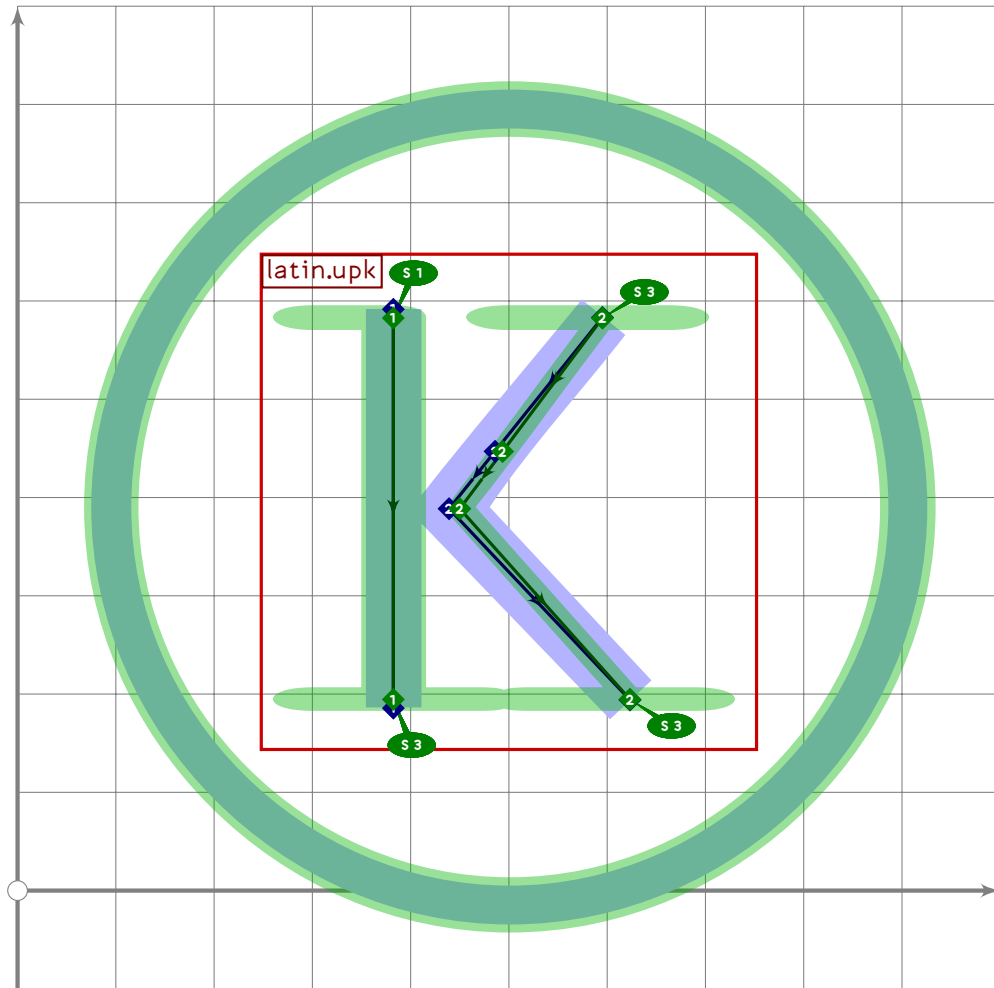
```



```
268 % I
269 begintsuglyph("uni24BE",190);
270 circle.single;
271 tsu_xform(tsu_xf.cletter)(latin.upi);
272 tsu_render;
273 endsuglyph;
274
```



```
275 % J
276 begintsuglyph("uni24BF",191);
277 circle.single;
278 tsu_xform(tsu_xf.cletter)(latin.upj);
279 tsu_render;
280 endtsuglyph;
281
```

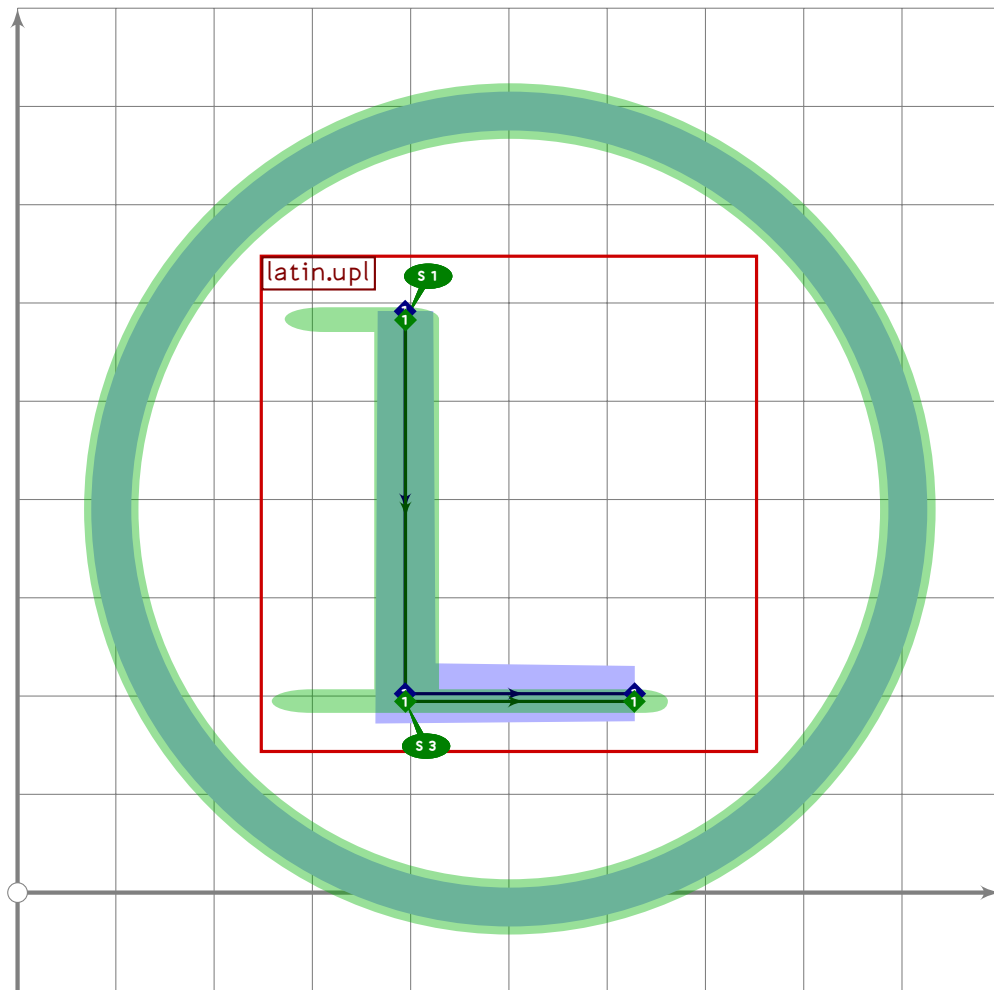


```

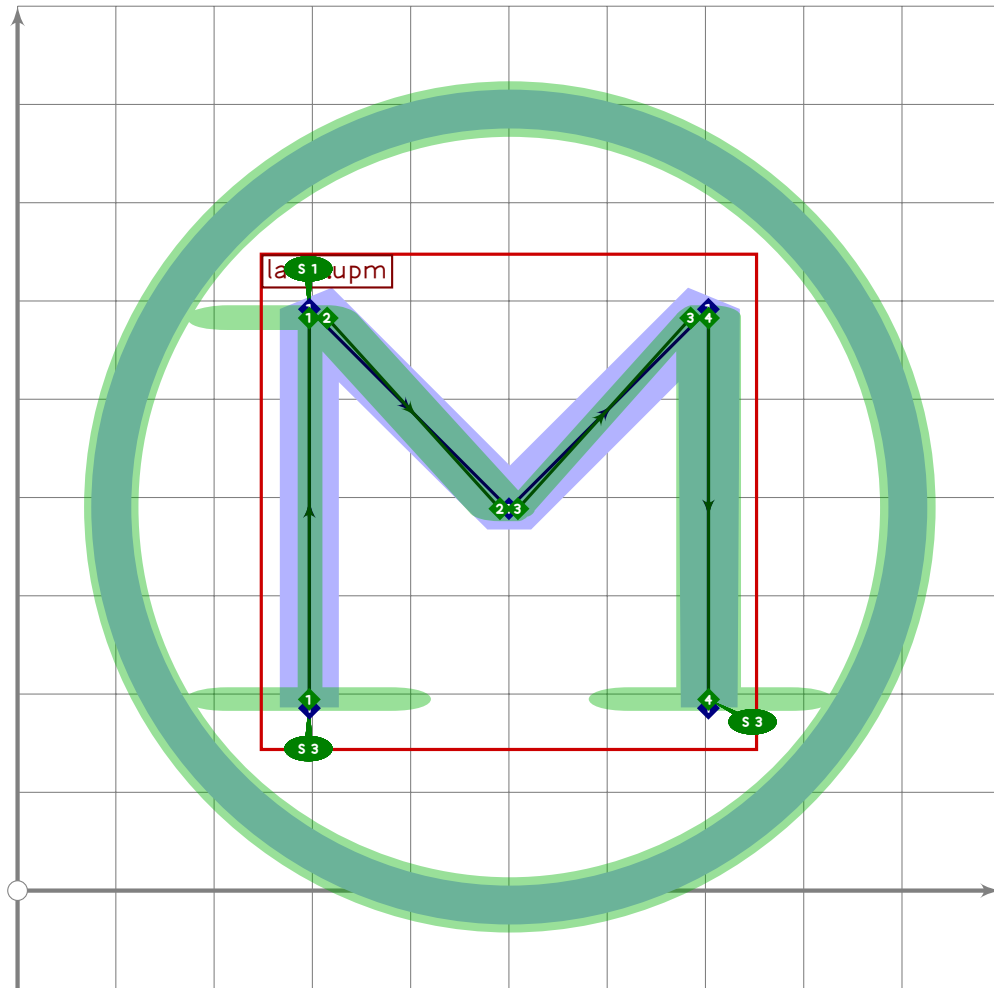
282 % K
283 begint Suglyph("uni24C0",192);
284 circle.single;
285 tsu_xform(tsu_xf.cletter)(latin.upk);
286 tsu_render;
287 endtsuglyph;
288

```





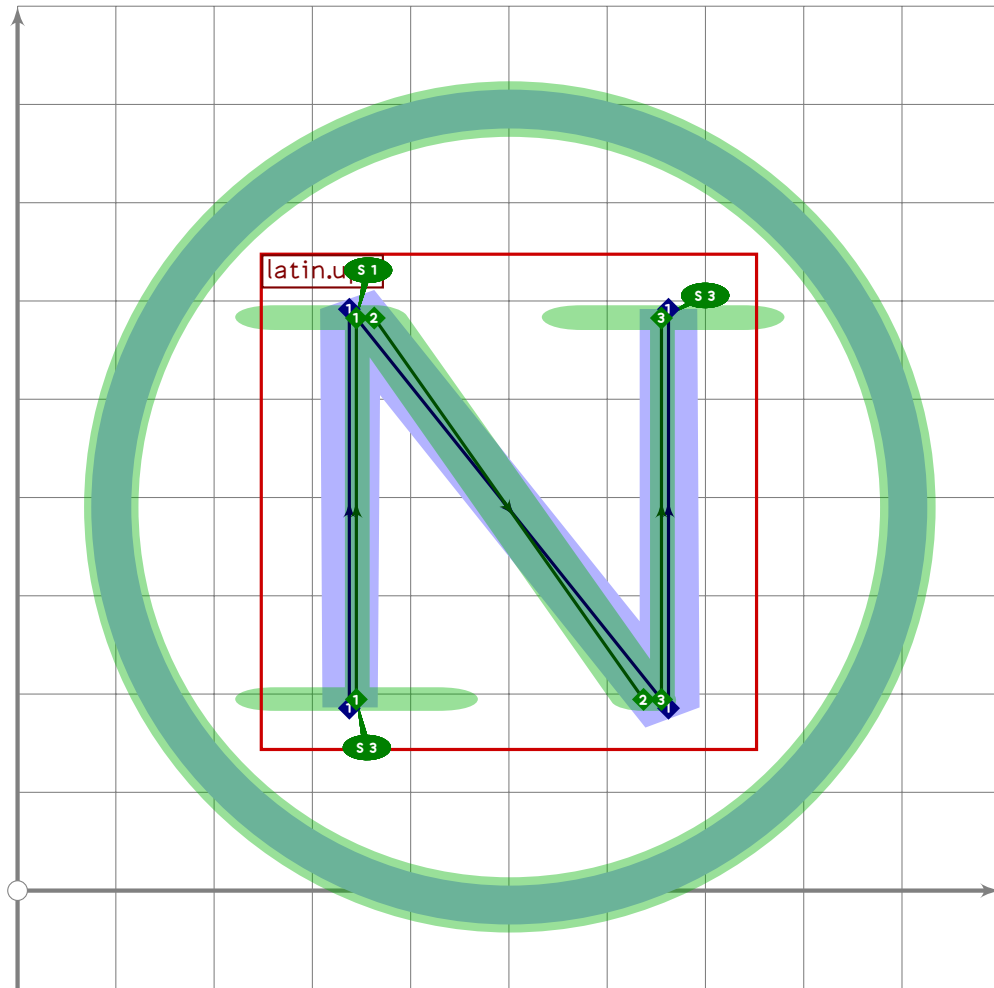
```
289 % L
290 begintsuglyph("uni24C1";193);
291 circle.single;
292 tsu_xform(tsu_xf.cletter)(latin.upl);
293 tsu_render;
294 endtsuglyph;
295
```



```

296 % M
297 begint Suglyph("uni24C2",194);
298 circle.single;
299 tsu_xform(tsu_xf.cletter)(latin.upm);
300 tsu_render;
301 endtsuglyph;
302

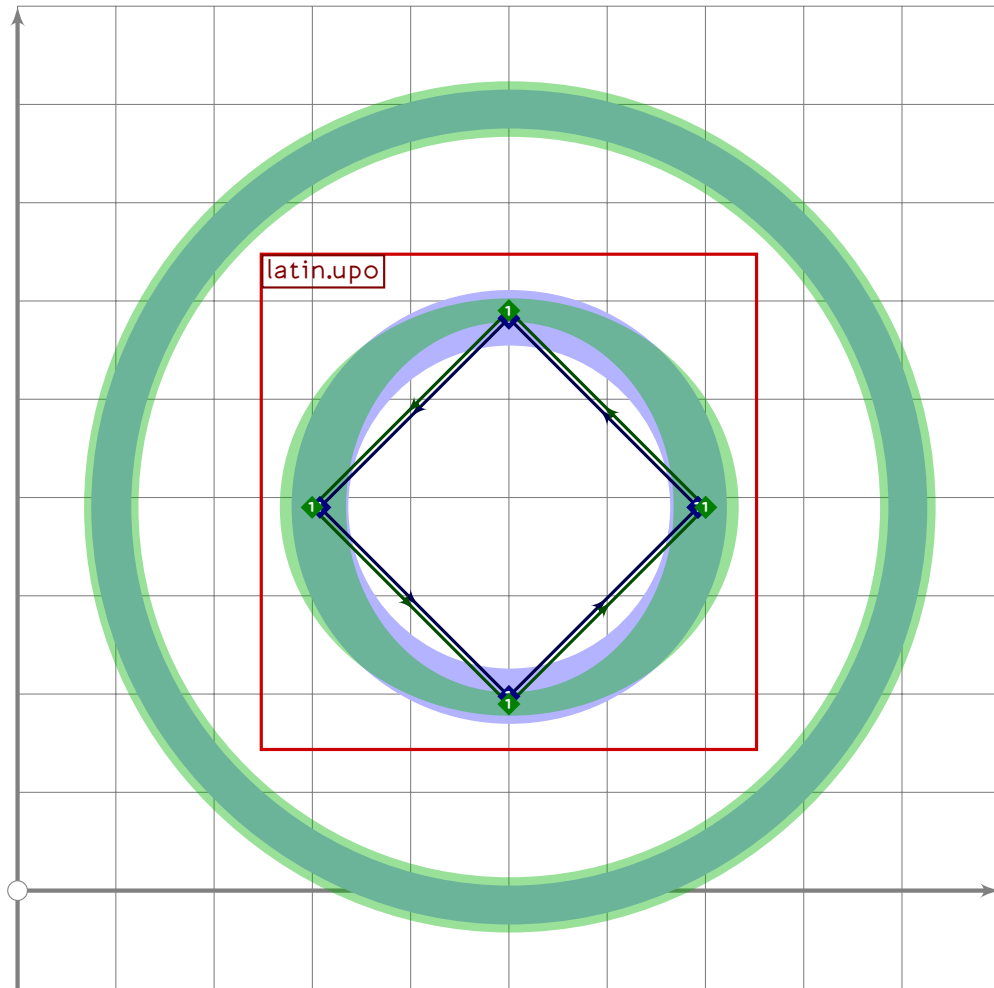
```



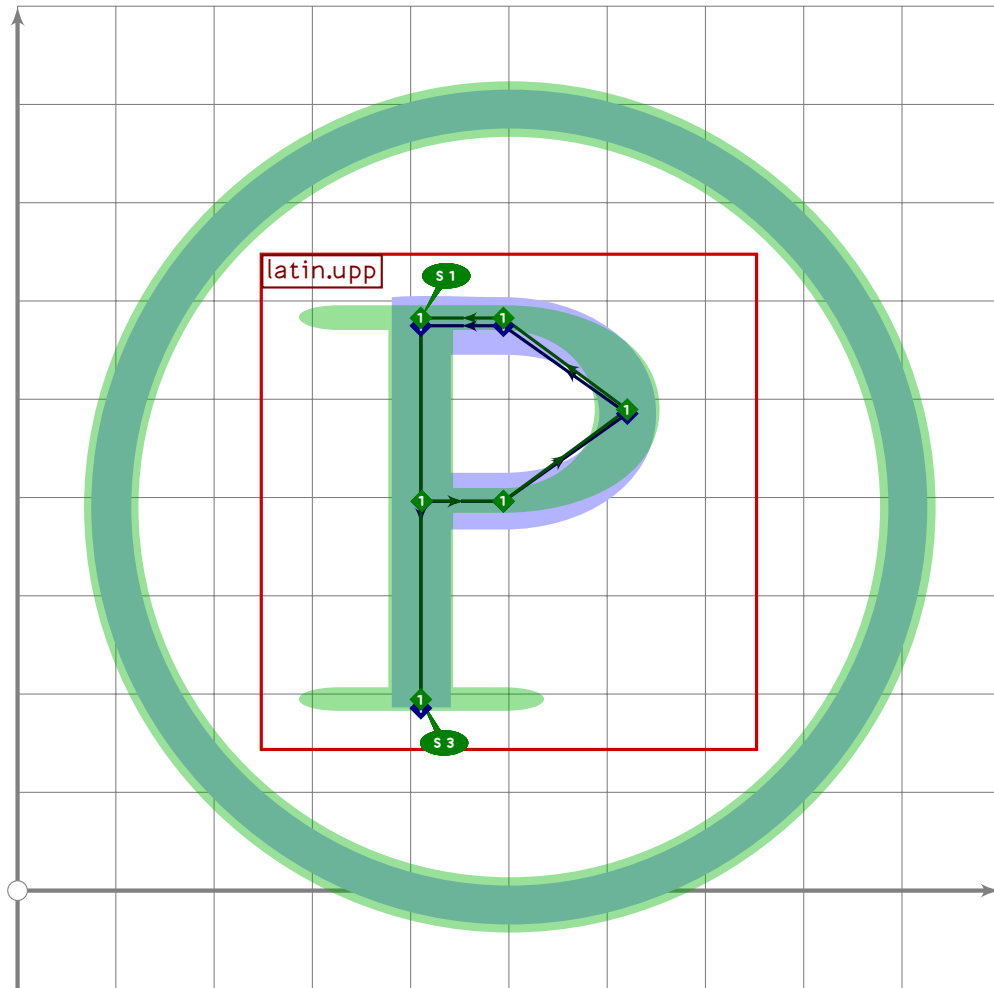
```

303 % N
304 begint Suglyph("uni24C3",195);
305   circle.single;
306   tsu_xform(tsu_xf.cletter)(latin.upn);
307   tsu_render;
308   endtsuglyph;
309

```



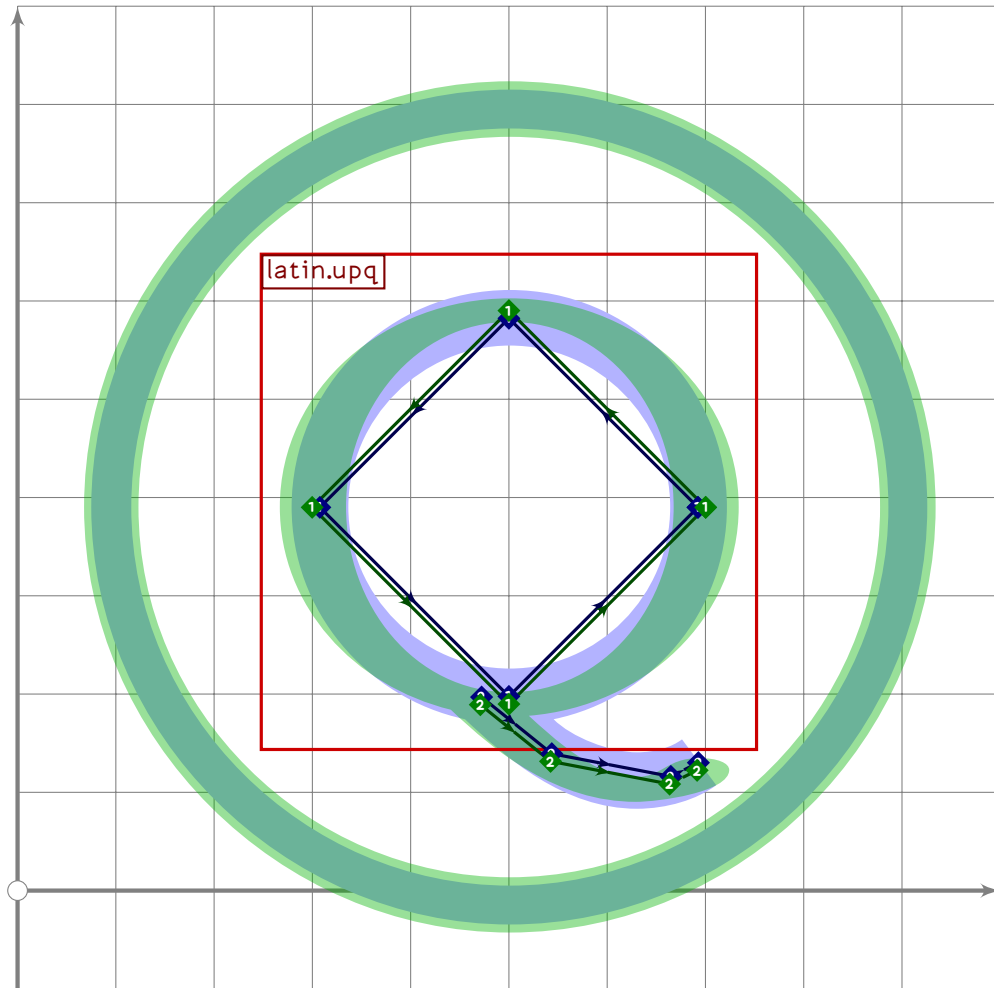
```
310 % O
311 beginsuglyph("uni24C4",196);
312 circle.single;
313 tsu_xform(tsu_xf.cletter)(latin.upo);
314 tsu_render;
315 endsuglyph;
316
```



```

317 % P
318 begintsuglyph("uni24C5",197);
319 circle.single;
320 tsu_xform(tsu_xf.cletter)(latin.upp);
321 tsu_render;
322 endsuglyph;
323

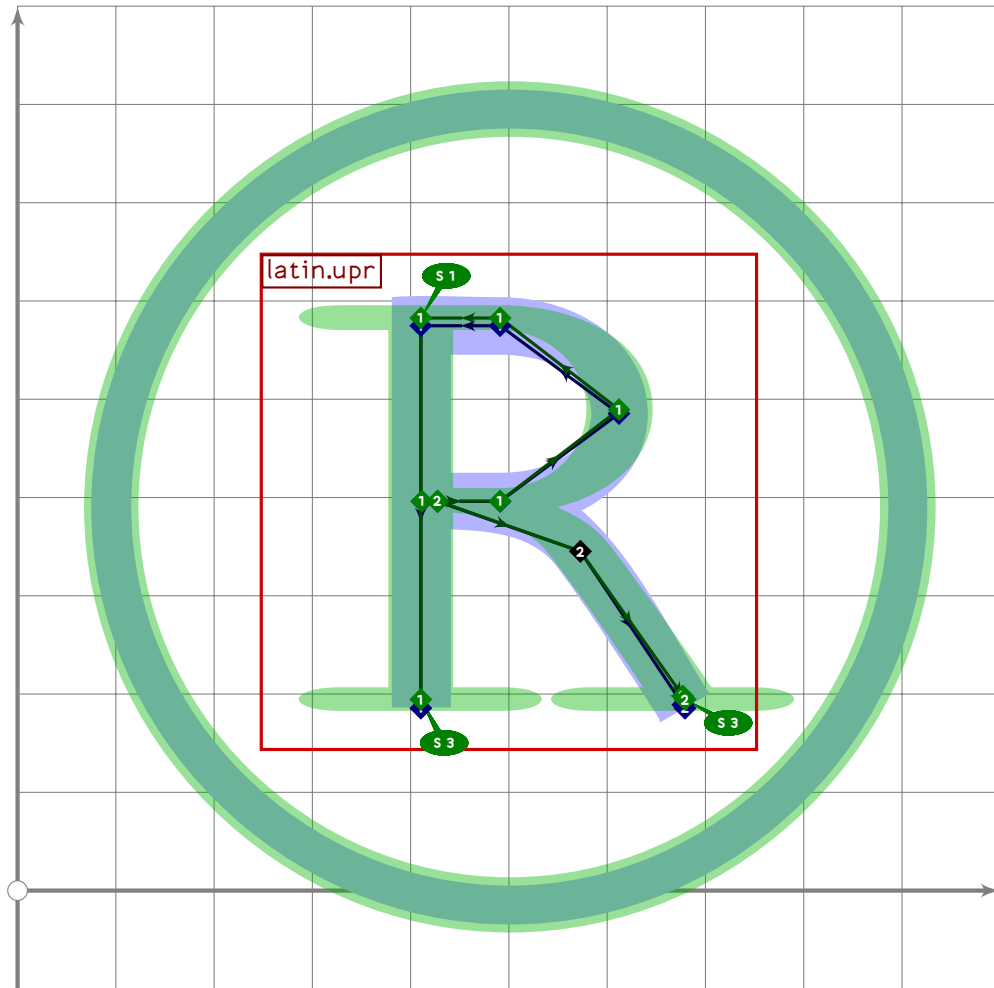
```



```

324 % Q
325 begintuglyph("uni24C6",198);
326 circle.single;
327 tsu_xform(tsu_xf.cletter)(latin.upq);
328 tsu_render;
329 endsuglyph;
330

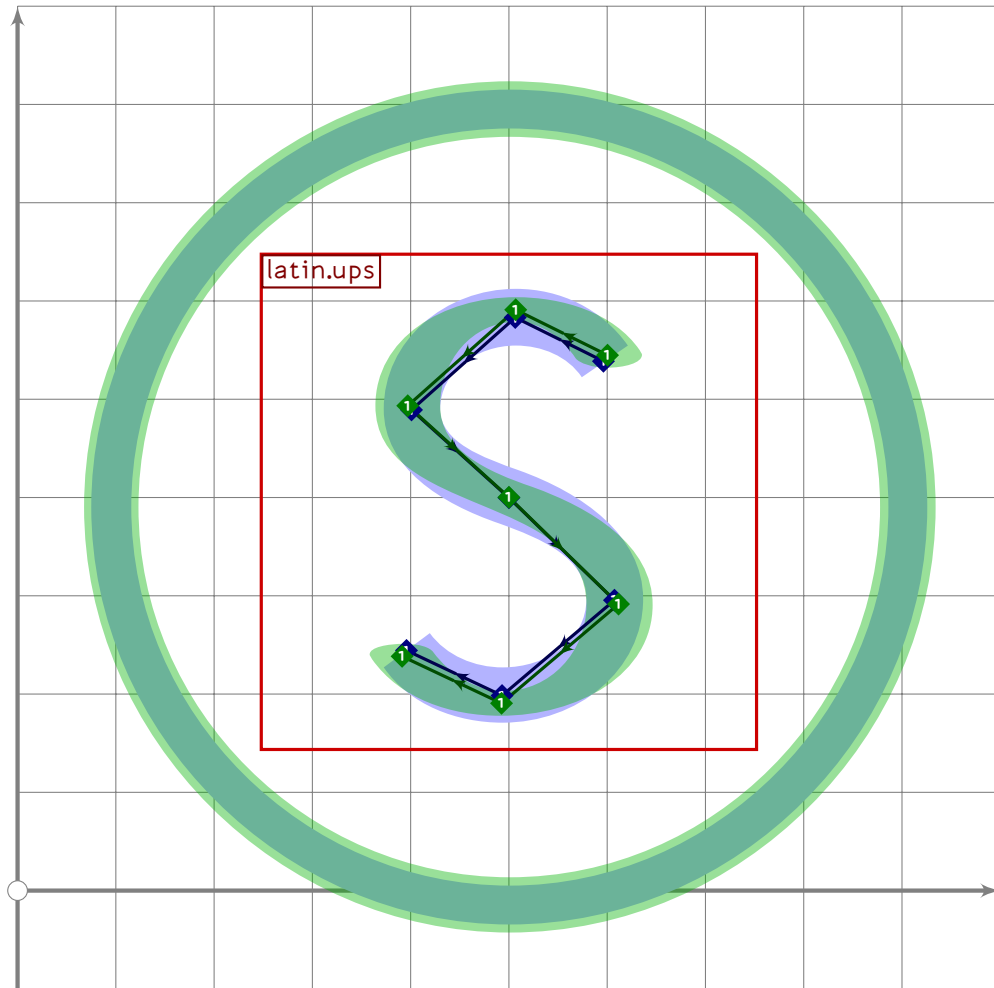
```



```

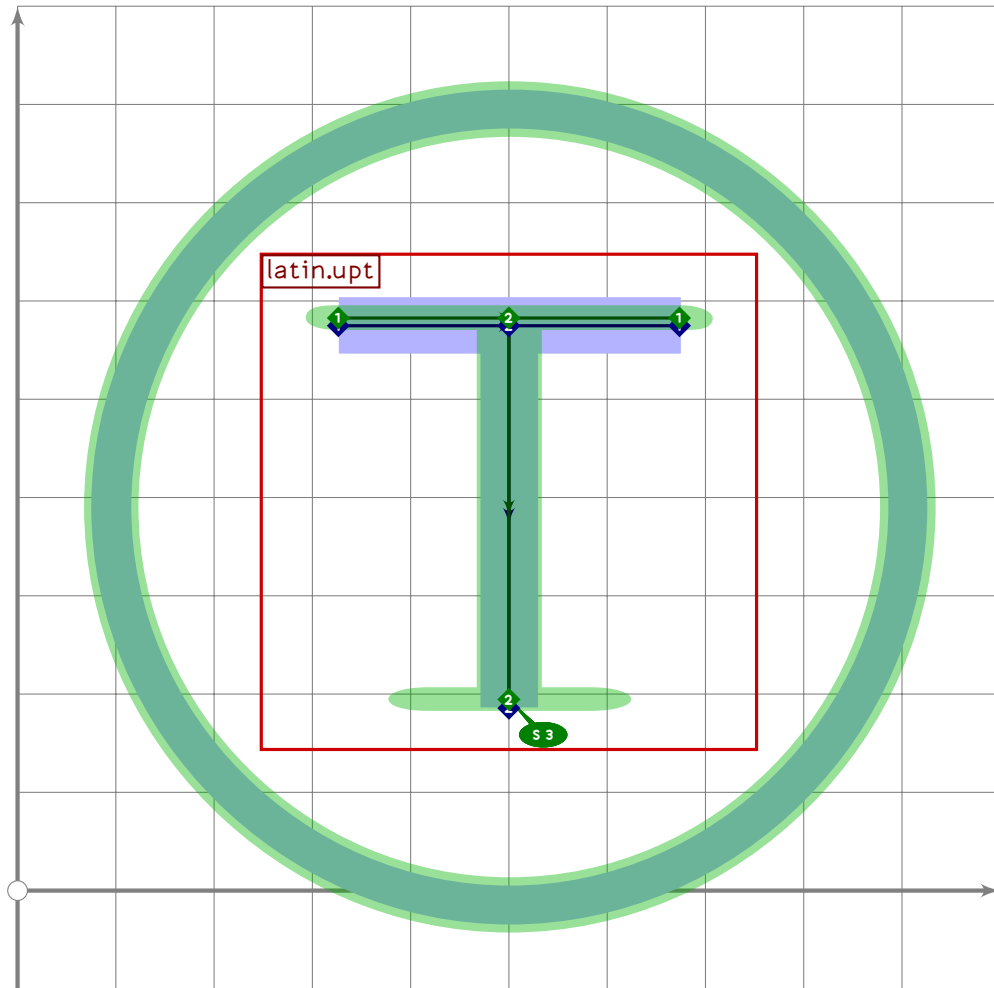
331 % R
332 beginsuglyph("uni24C7",199);
333 circle.single;
334 tsu_xform(tsu_xf.cletter)(latin.upr);
335 tsu_render;
336 endsuglyph;
337

```

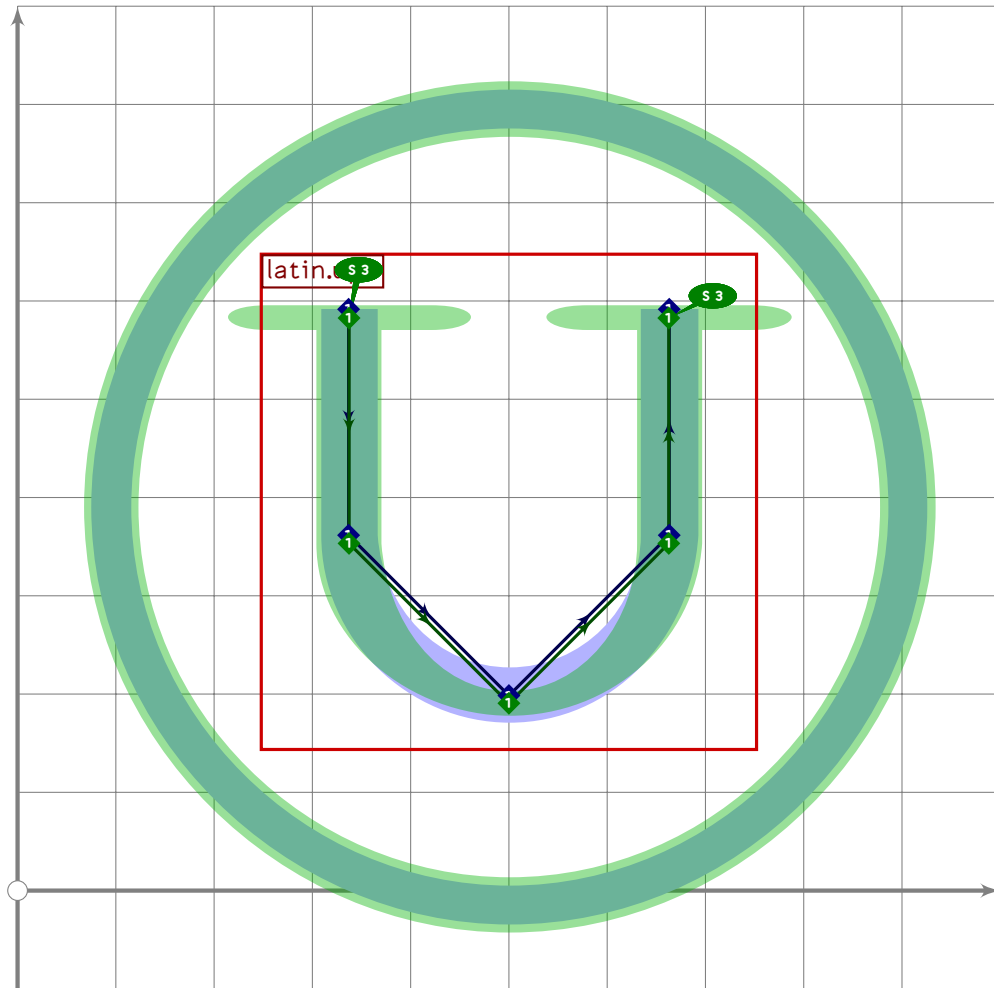


```
338 % S
339 begintsuglyph("uni24C8",200);
340 circle.single;
341 tsu_xform(tsu_xf.cletter)(latin.ups);
342 tsu_render;
343 endtsuglyph;
344
```





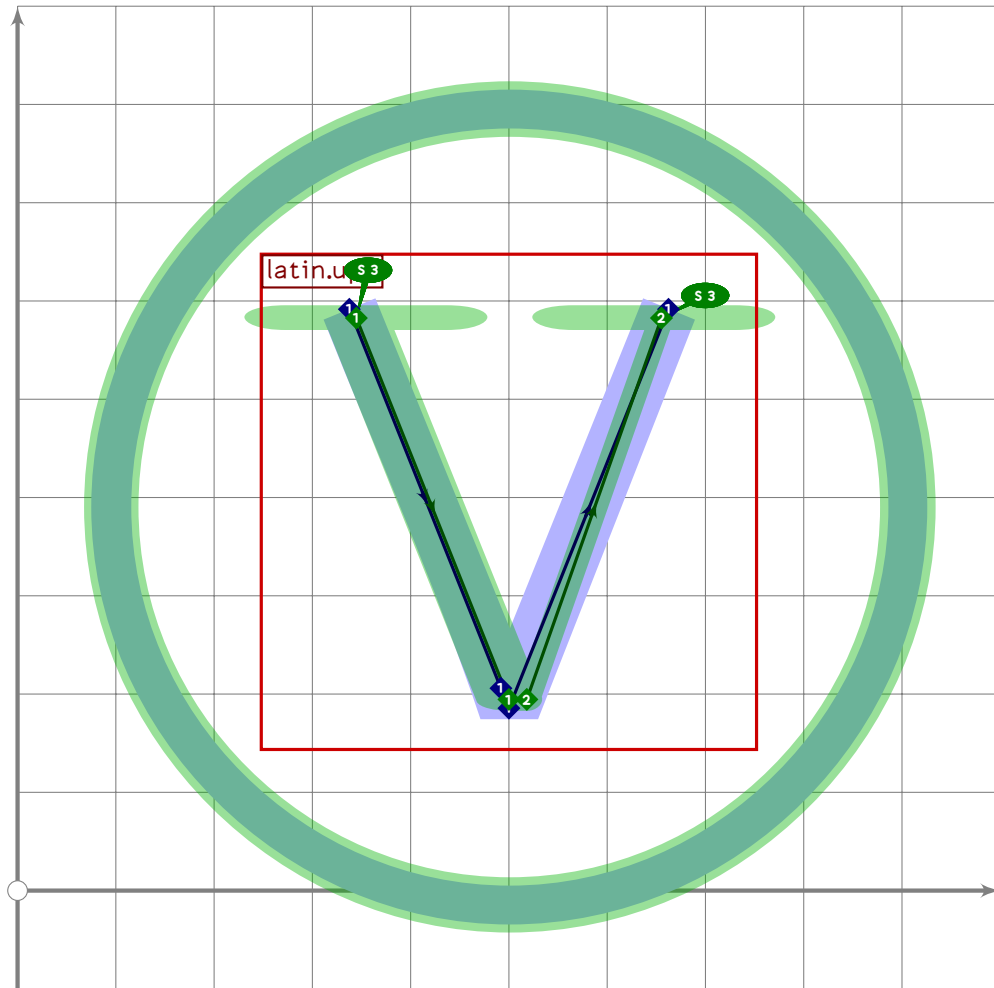
```
345 % T
346 beginsuglyph("uni24C9",201);
347 circle.single;
348 tsu_xform(tsu_xf.cletter)(latin.upt);
349 tsu_render;
350 endsuglyph;
351
```



```

352 % U
353 begint Suglyph("uni24CA",202);
354 circle.single;
355 tsu_xform(tsu_xf.cletter)(latin.upu);
356 tsu_render;
357 endtsuglyph;
358

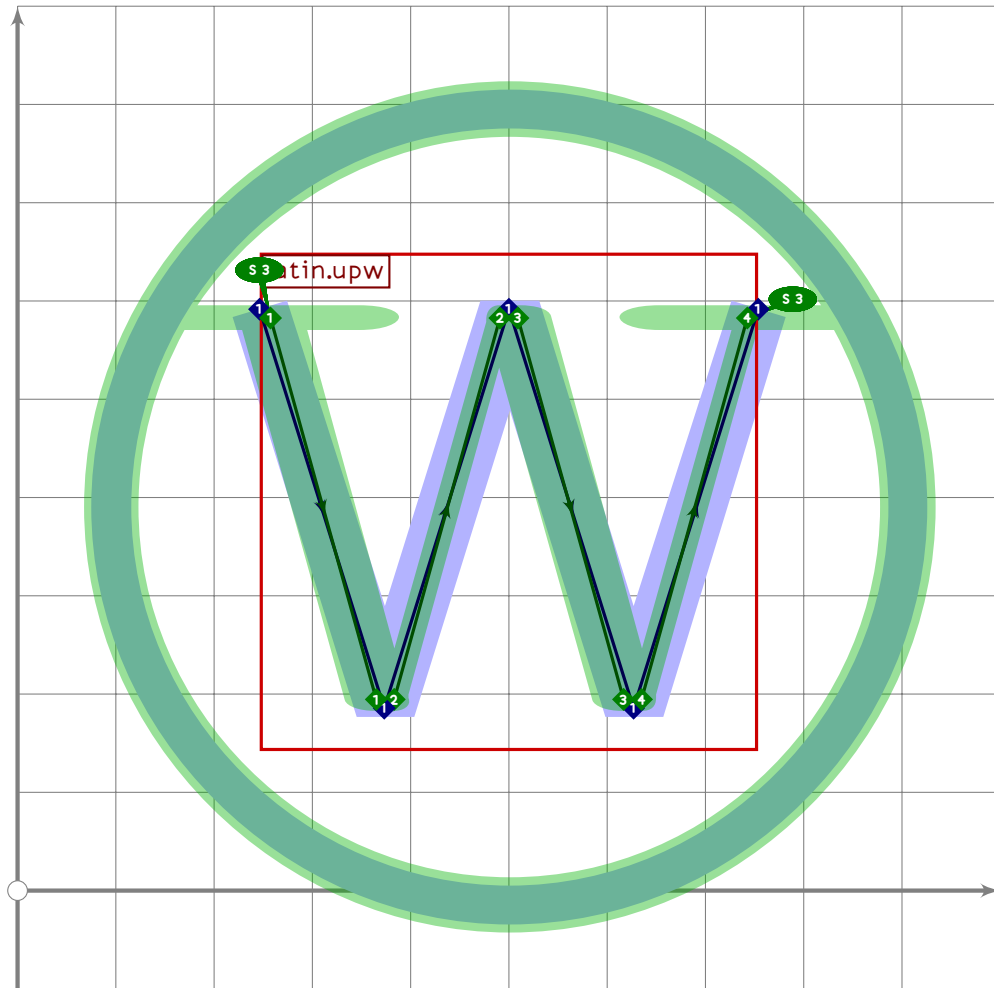
```



```

359 % V
360 begint Suglyph("uni24CB",203);
361 circle.single;
362 tsu_xform(tsu_xf.cletter)(latin.upv);
363 tsu_render;
364 endtsuglyph;
365

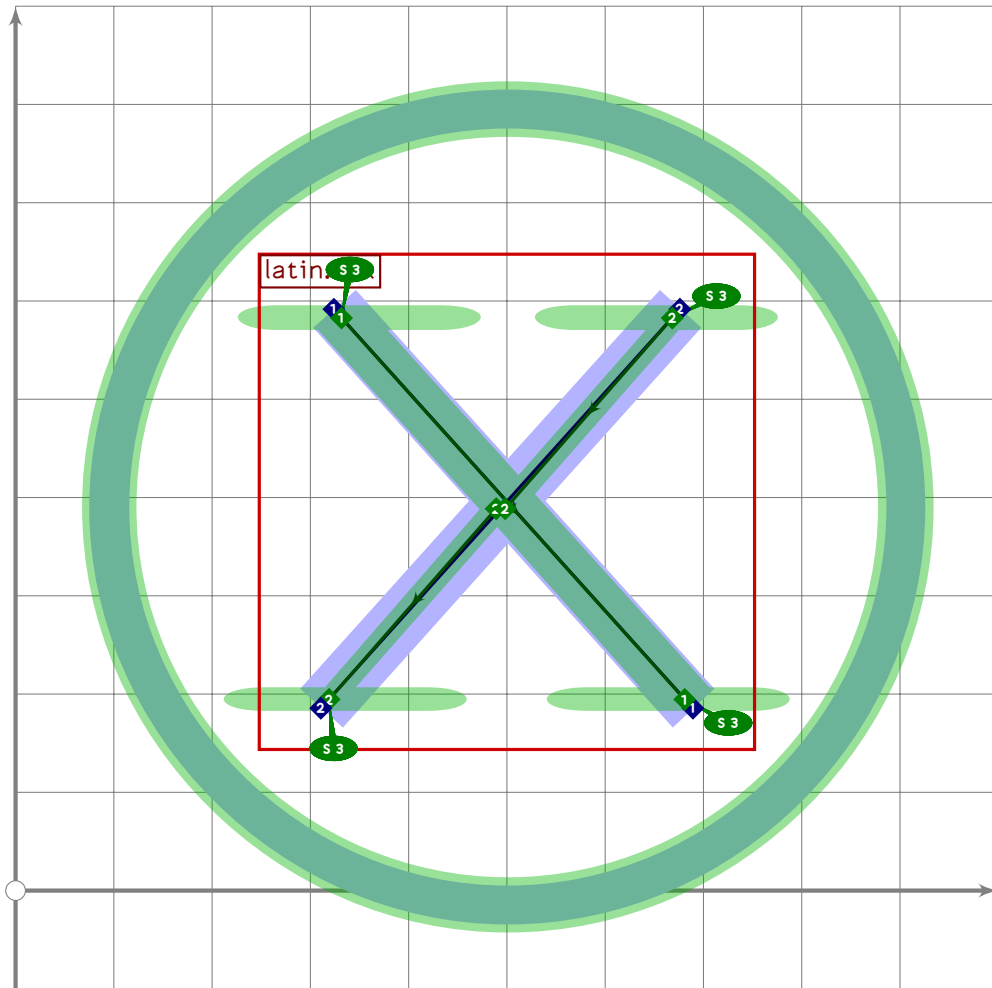
```



```

366 % W
367 begint Suglyph("uni24CC",204);
368 circle.single;
369 tsu_xform(tsu_xf.cletter)(latin.upw);
370 tsu_render;
371 endtsuglyph;
372

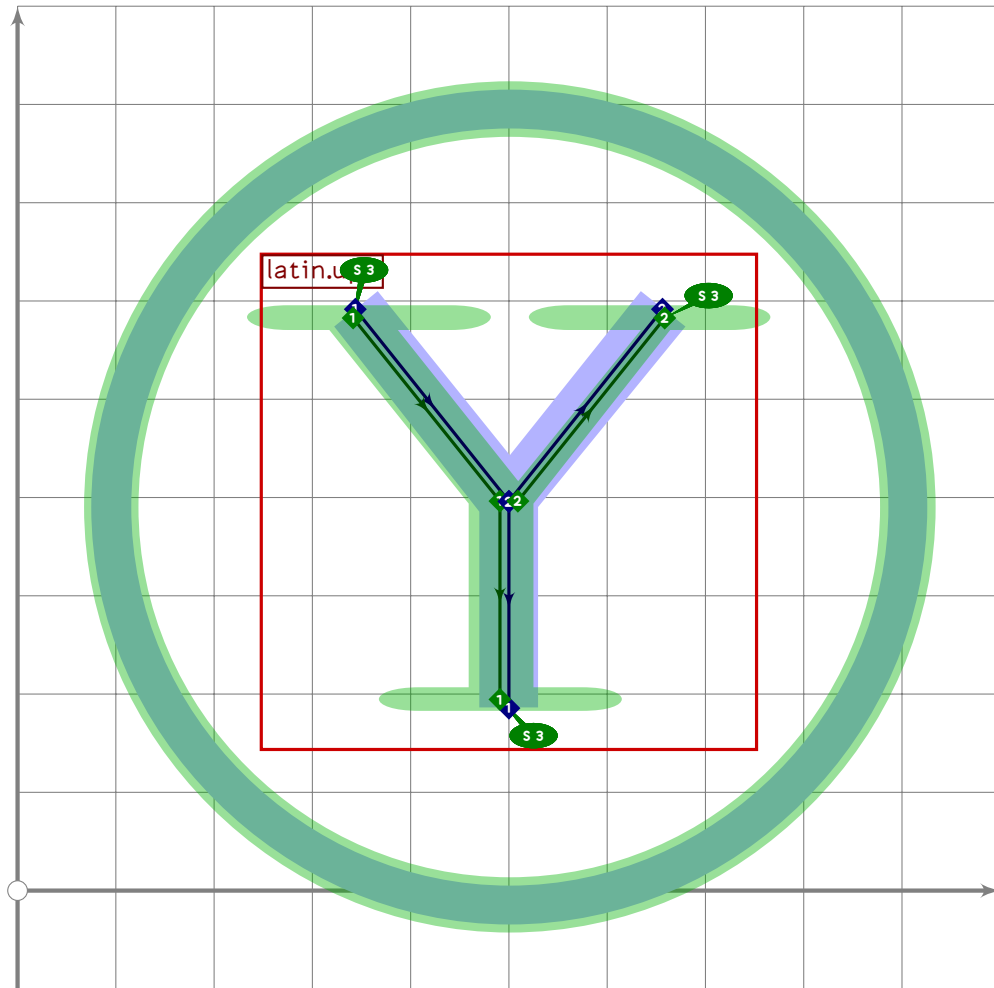
```



```

373 % X
374 beginsuglyph("uni24CD",205);
375   circle.single;
376   tsu_xform(tsu_xf.cletter)(latin.upx);
377   tsu_render;
378   endtsuglyph;
379

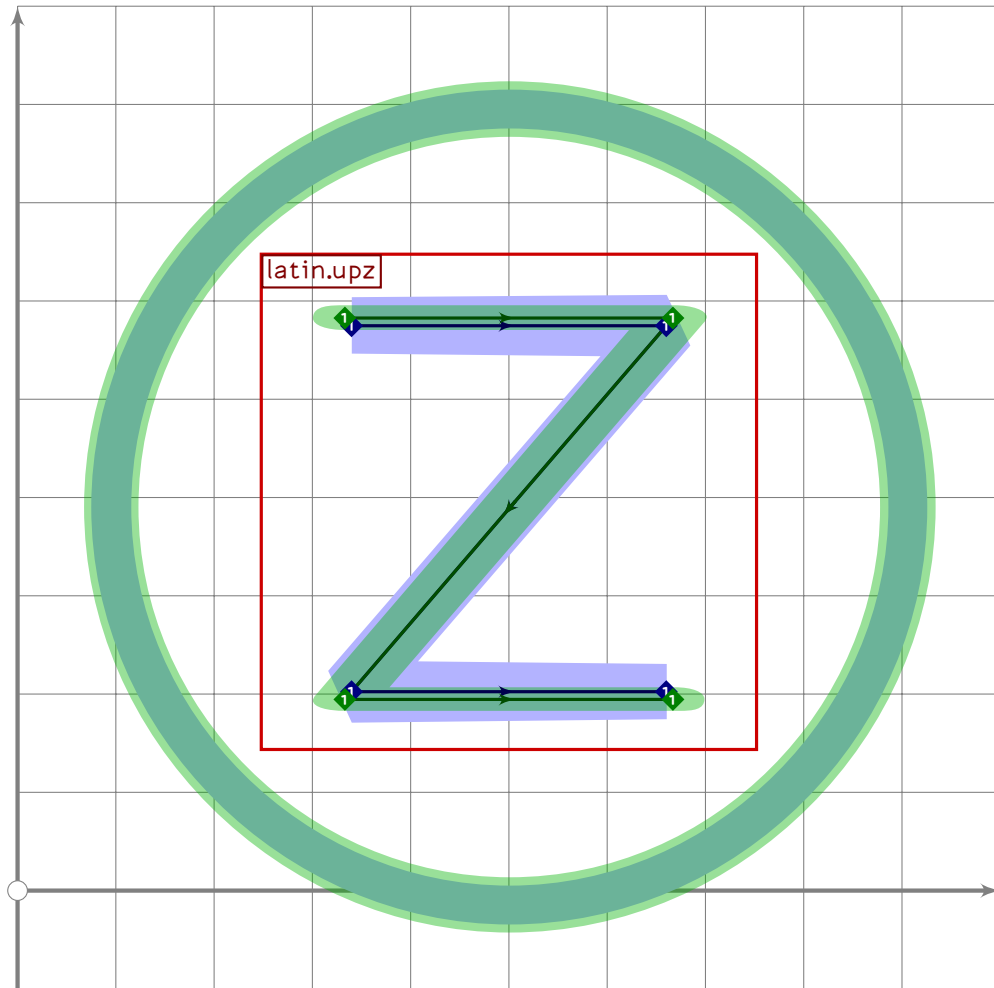
```



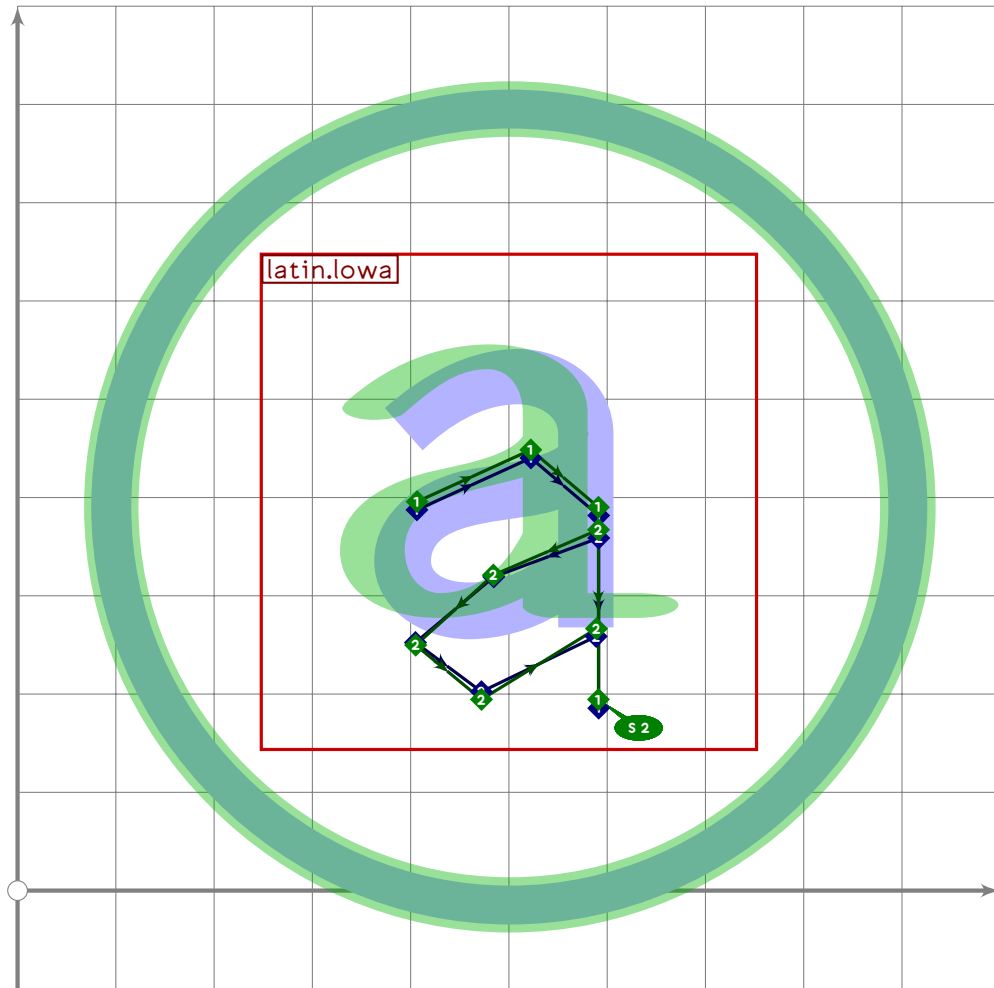
```

380 % Y
381 begintsuglyph("uni24CE",206);
382 circle.single;
383 tsu_xform(tsu_xf.cletter)(latin.upy);
384 tsu_render;
385 endtsuglyph;
386

```



```
387 % Z
388 beginsuglyph("uni24CF",207);
389 circle.single;
390 tsu_xform(tsu_xf.cletter)(latin.upz);
391 tsu_render;
392 endsuglyph;
393
```

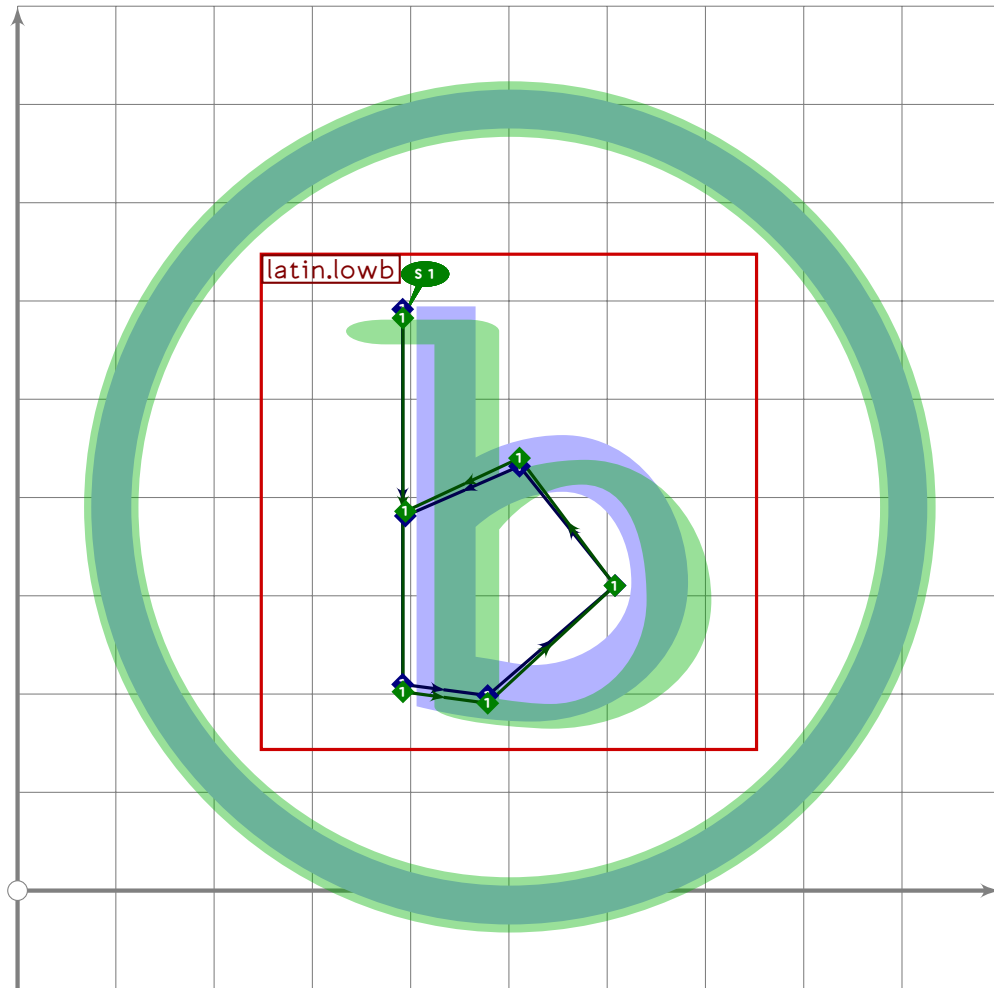


```

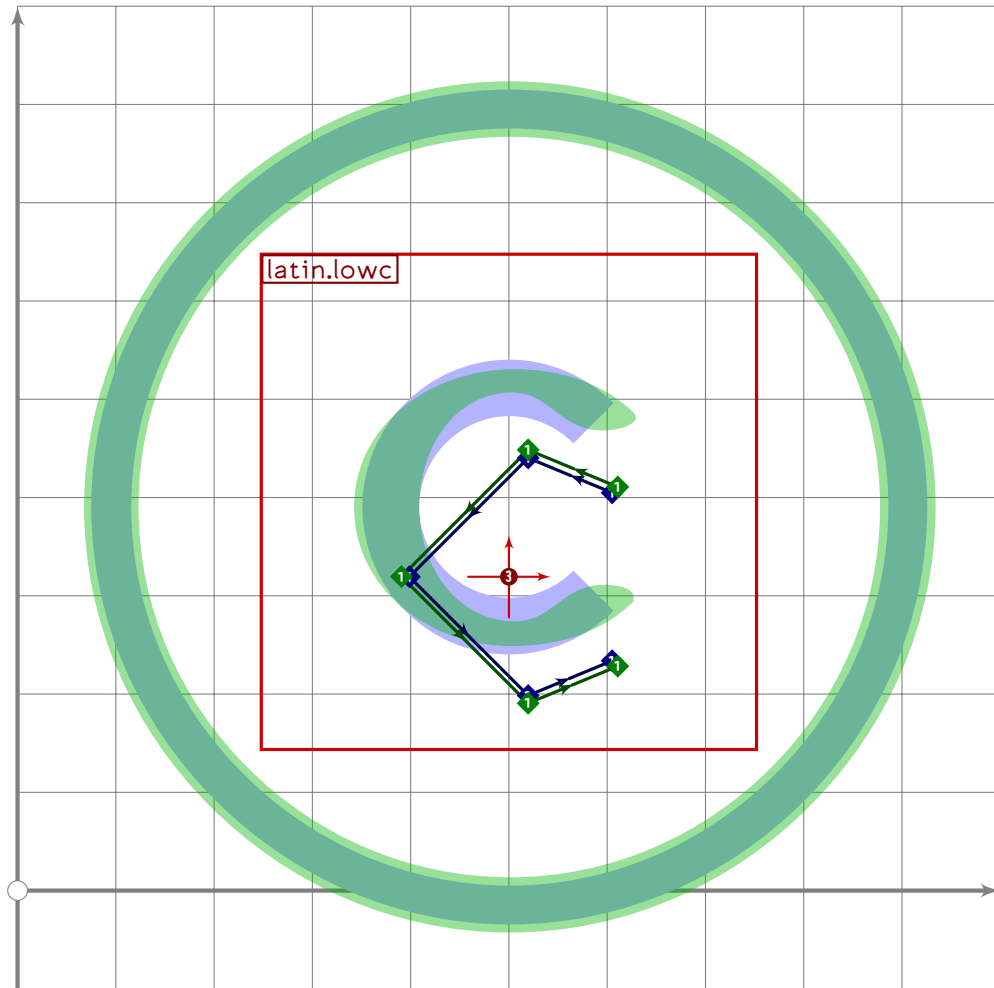
394 % a
395 begint Suglyph("uni24D0",208);
396 circle.single;
397 tsu_xform(tsu_xf.cletter)(latin.lowa);
398 tsu_render_in_circle(tsu_xf.cbound);
399 endsuglyph;
400

```





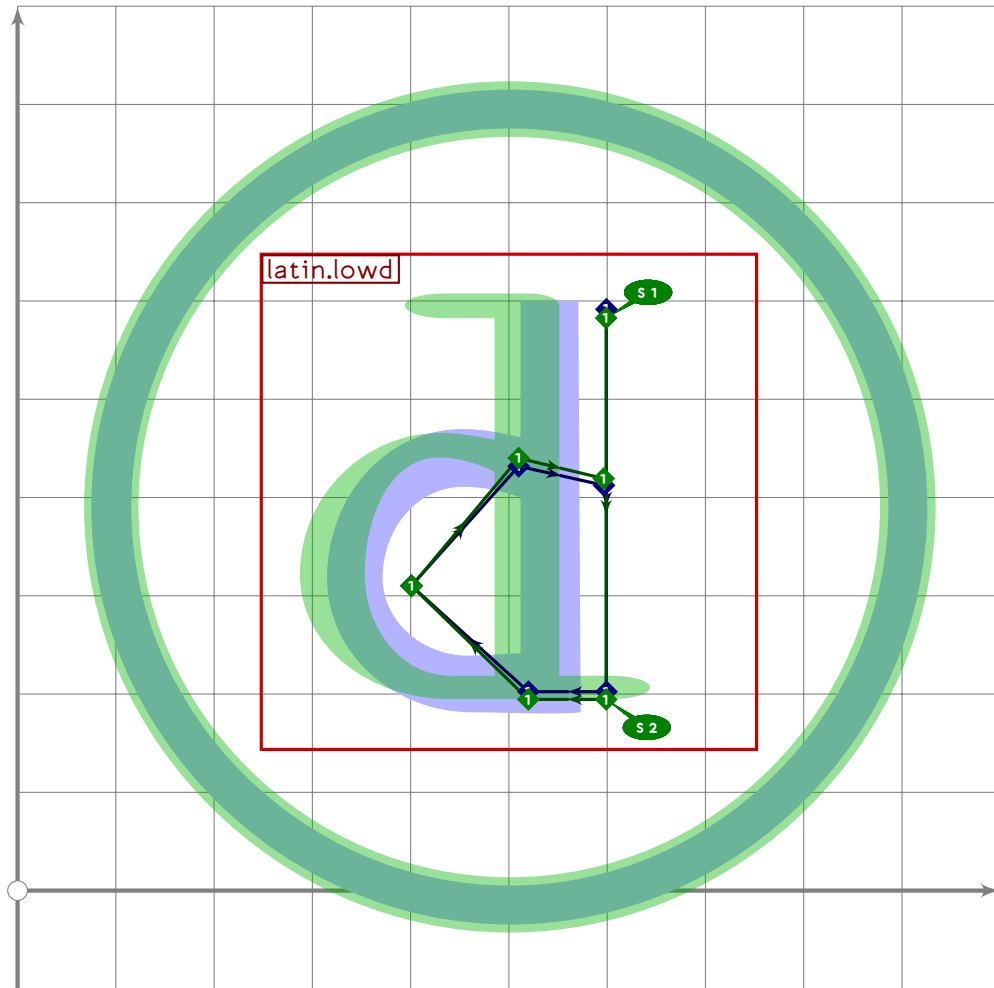
```
401 % b
402 beginsuglyph("uni24D1",209);
403 circle.single;
404 tsu_xform(tsu_xf.cletter)(latin.lowb);
405 tsu_render_in_circle(tsu_xf.cbound);
406 endsuglyph;
407
```



```

408 % c
409 beginsuglyph("uni24D2",210);
410 circle.single;
411 tsu_xform(tsu_xf.cletter)(latin.lowc);
412 tsu_render_in_circle(tsu_xf.cbound);
413 endsuglyph;
414

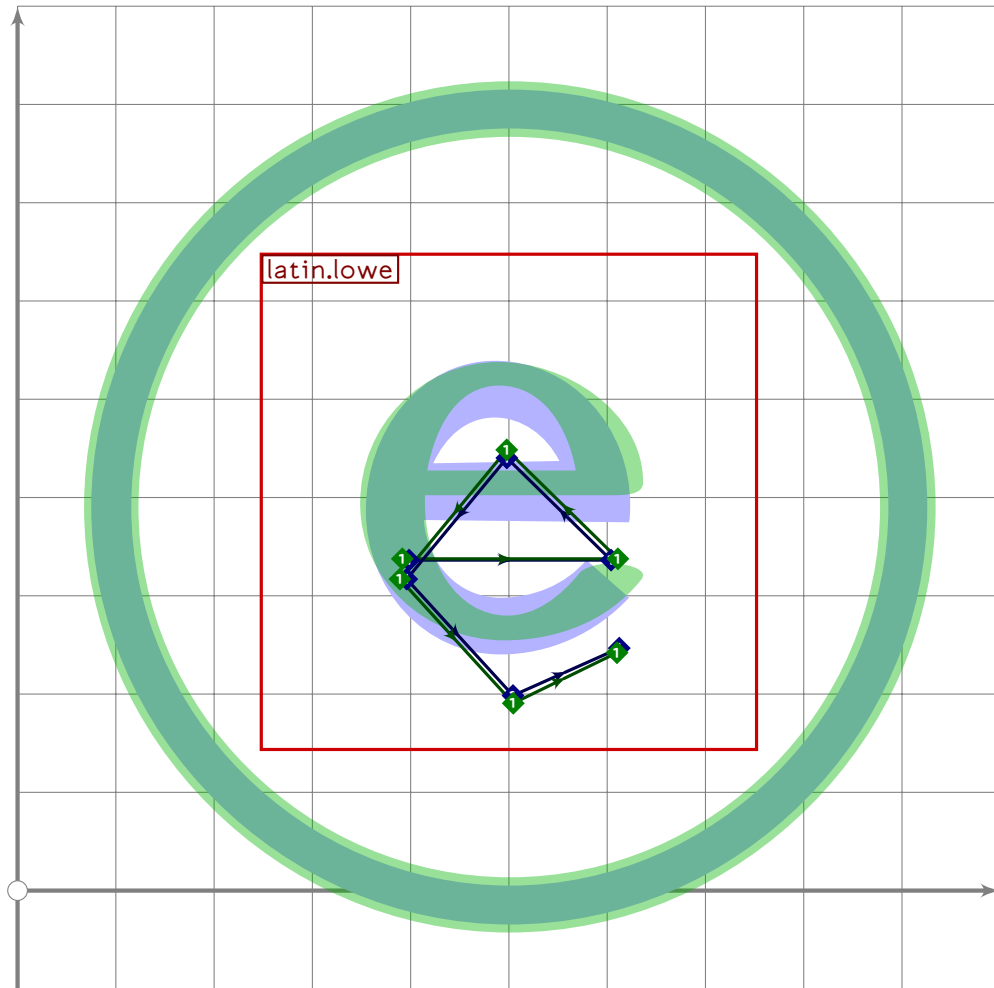
```



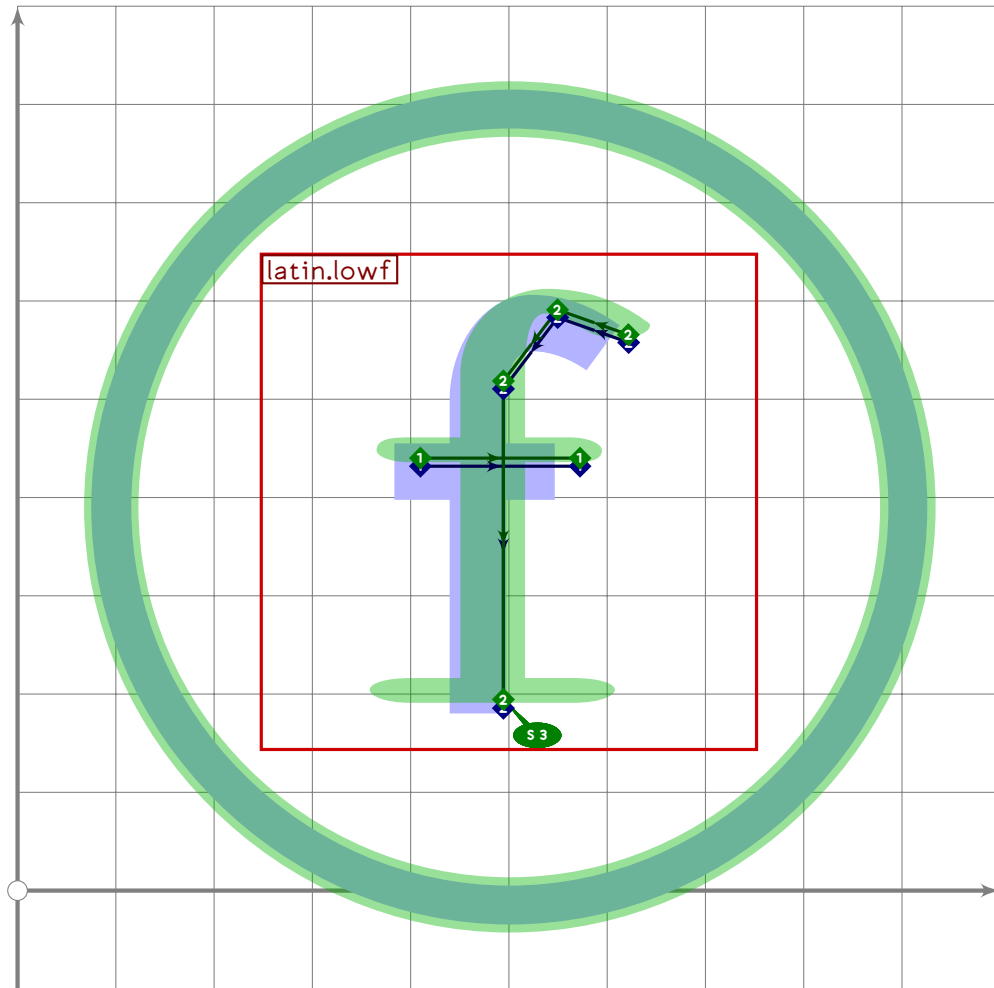
```

415 % d
416 beginsuglyph("uni24D3",211);
417 circle.single;
418 tsu_xform(tsu_xf.cletter)(latin.lowd);
419 tsu_render_in_circle(tsu_xf.cbound);
420 endsuglyph;
421

```



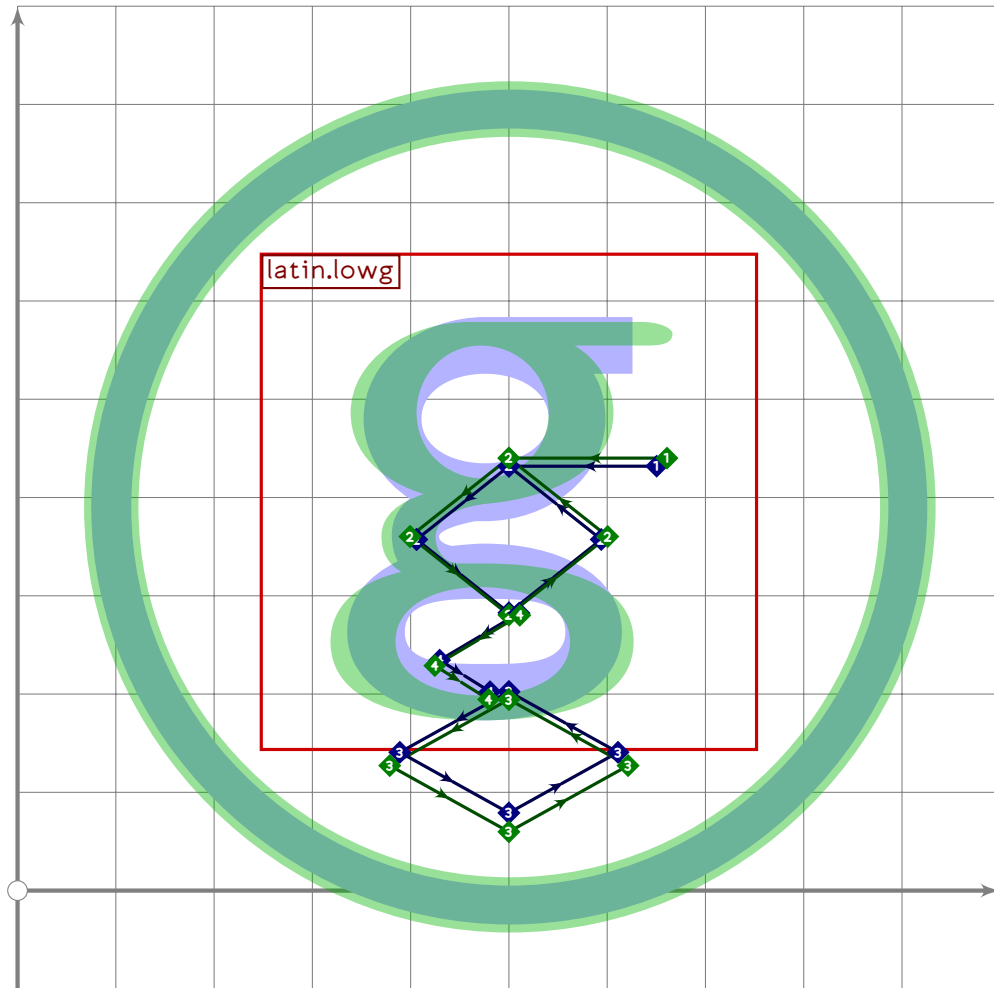
```
422 % e
423 beginsuglyph("uni24D4",212);
424 circle.single;
425 tsu_xform(tsu_xf.cletter)(latin.loewe);
426 tsu_render_in_circle(tsu_xf.cbound);
427 endsuglyph;
428
```



```

429 % f
430 beginsuglyph("uni24D5",213);
431 circle.single;
432 tsu_xform(tsu_xf.cletter)(latin.lowf);
433 tsu_render_in_circle(tsu_xf.cbound);
434 endsuglyph;
435

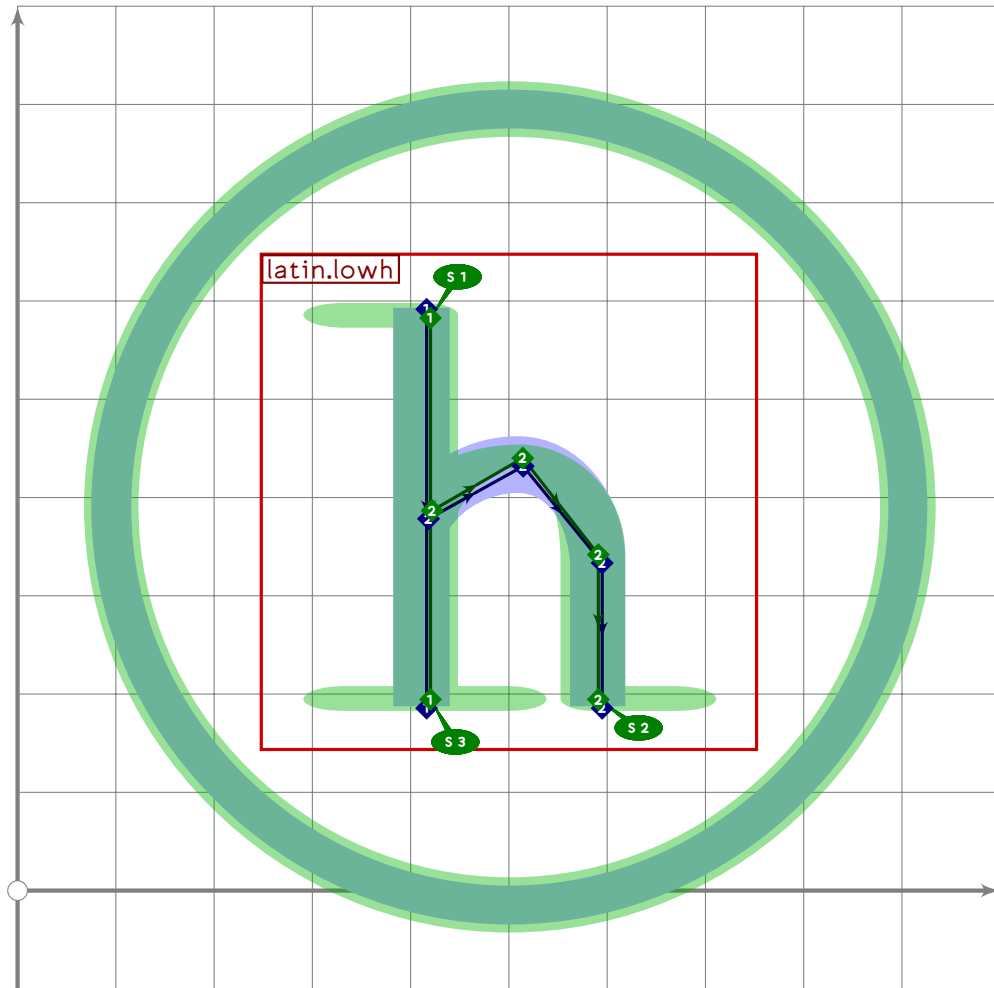
```



```

436 % g
437 begintuglyph("uni24D6",214);
438 circle.single;
439 tsu_xform(tsu_xf.cletter)(latin.lowg);
440 tsu_render_in_circle(tsu_xf.cbound);
441 endtuglyph;
442

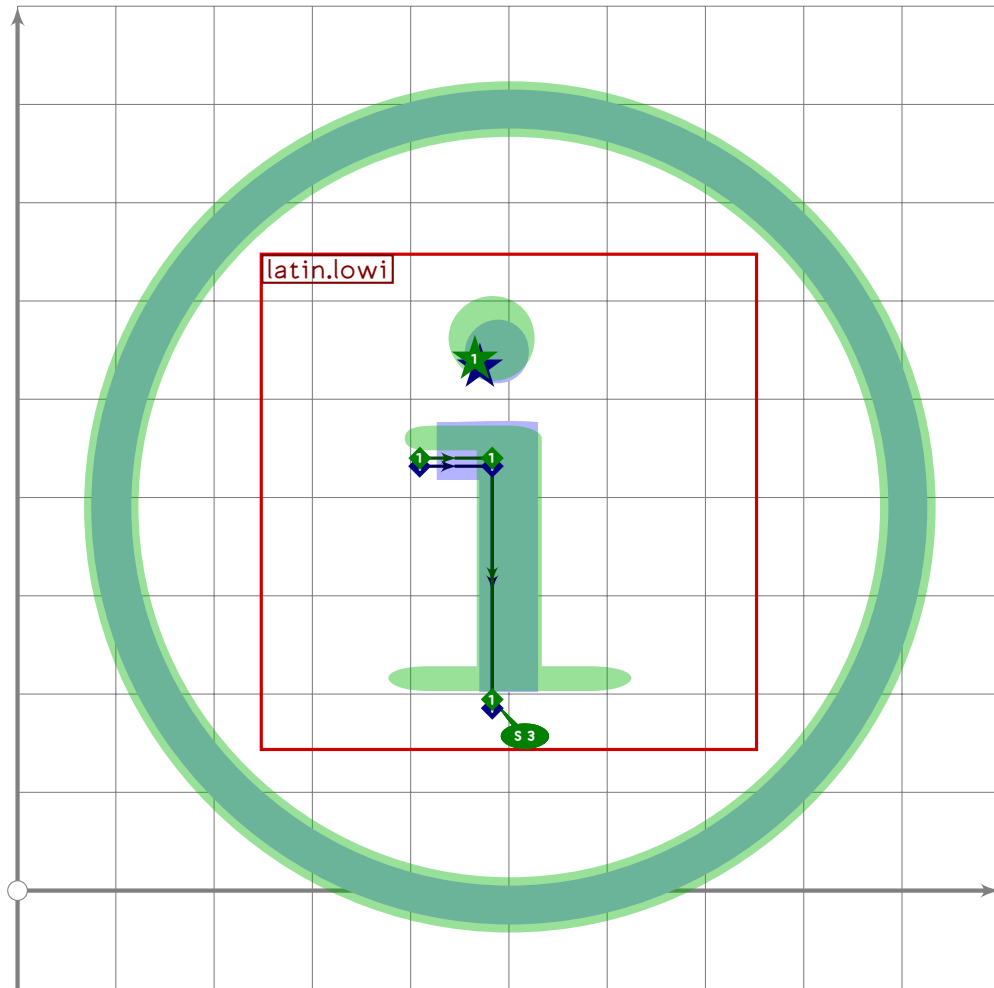
```



```

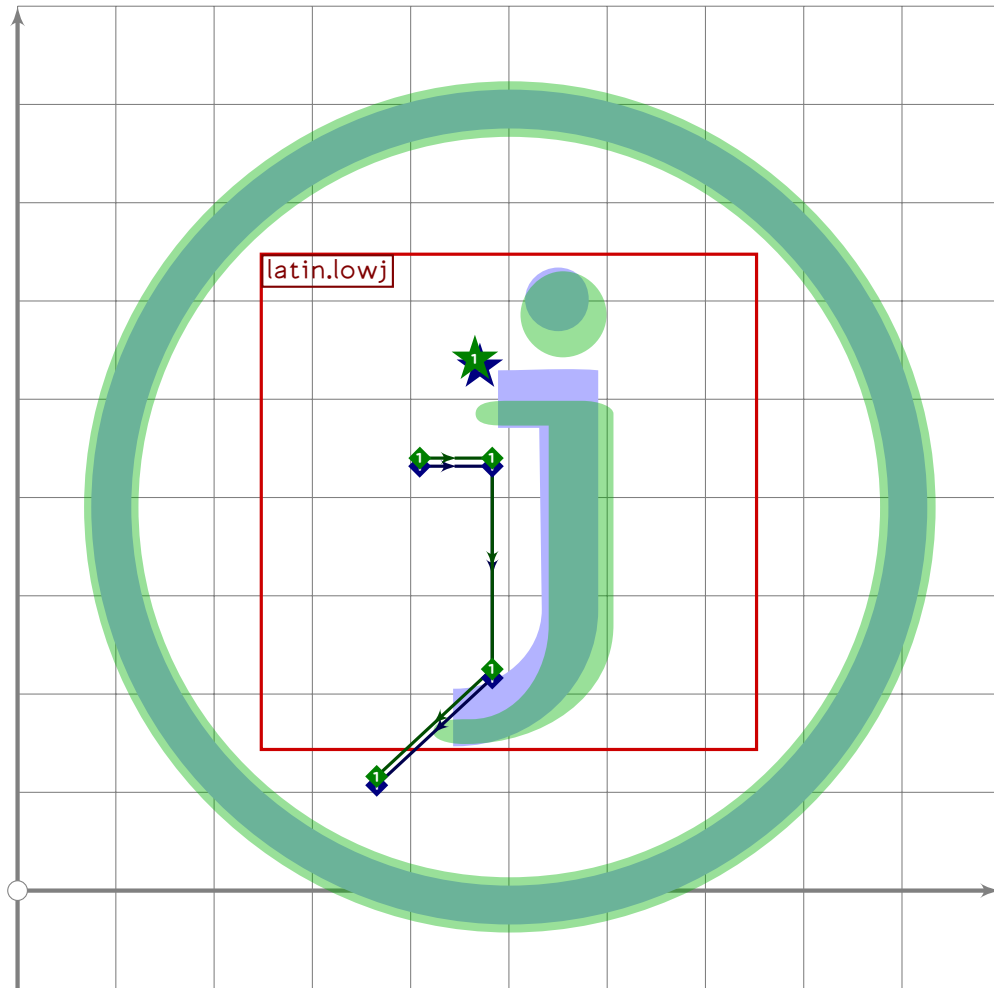
443 % h
444 begintsuglyph("uni24D7",215);
445 circle.single;
446 tsu_xform(tsu_xf.cletter)(latin.lowh);
447 tsu_render_in_circle(tsu_xf.cbound);
448 endsuglyph;
449

```

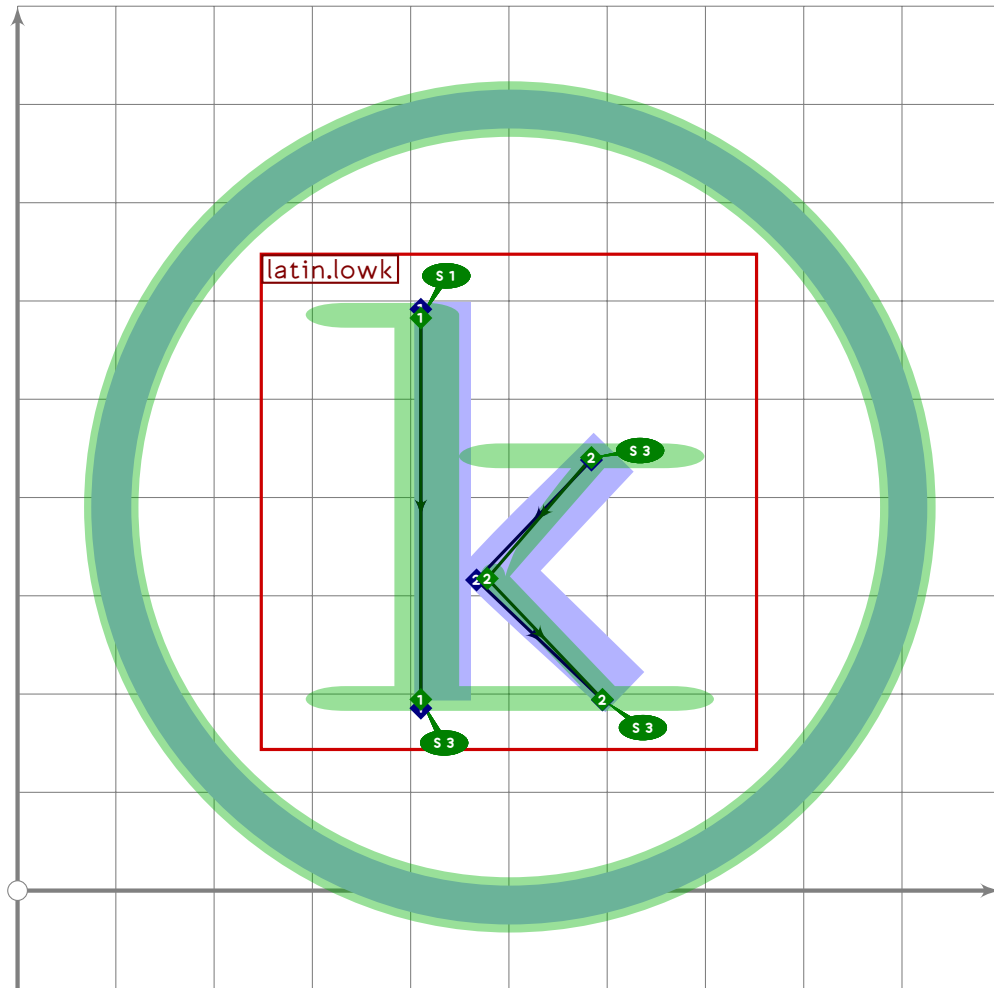


```
450 % i
451 beginsuglyph("uni24D8",216);
452 circle.single;
453 tsu_xform(tsu_xf.cletter)(latin.lowi);
454 tsu_render_in_circle(tsu_xf.cbound);
455 endsuglyph;
456
```





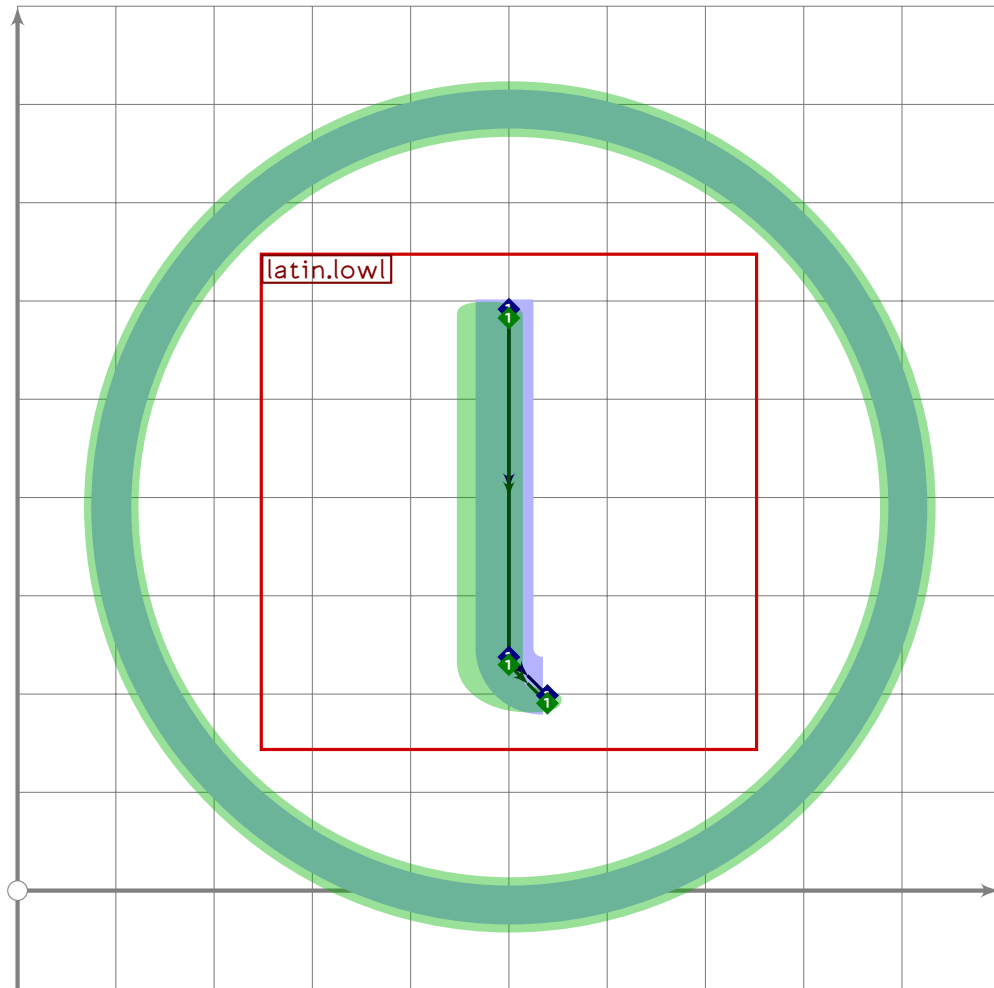
```
457 % j
458 beginsuglyph("uni24D9",217);
459 circle.single;
460 tsu_xform(tsu_xf.cletter)(latin.lowj);
461 tsu_render_in_circle(tsu_xf.cbound);
462 endsuglyph;
463
```



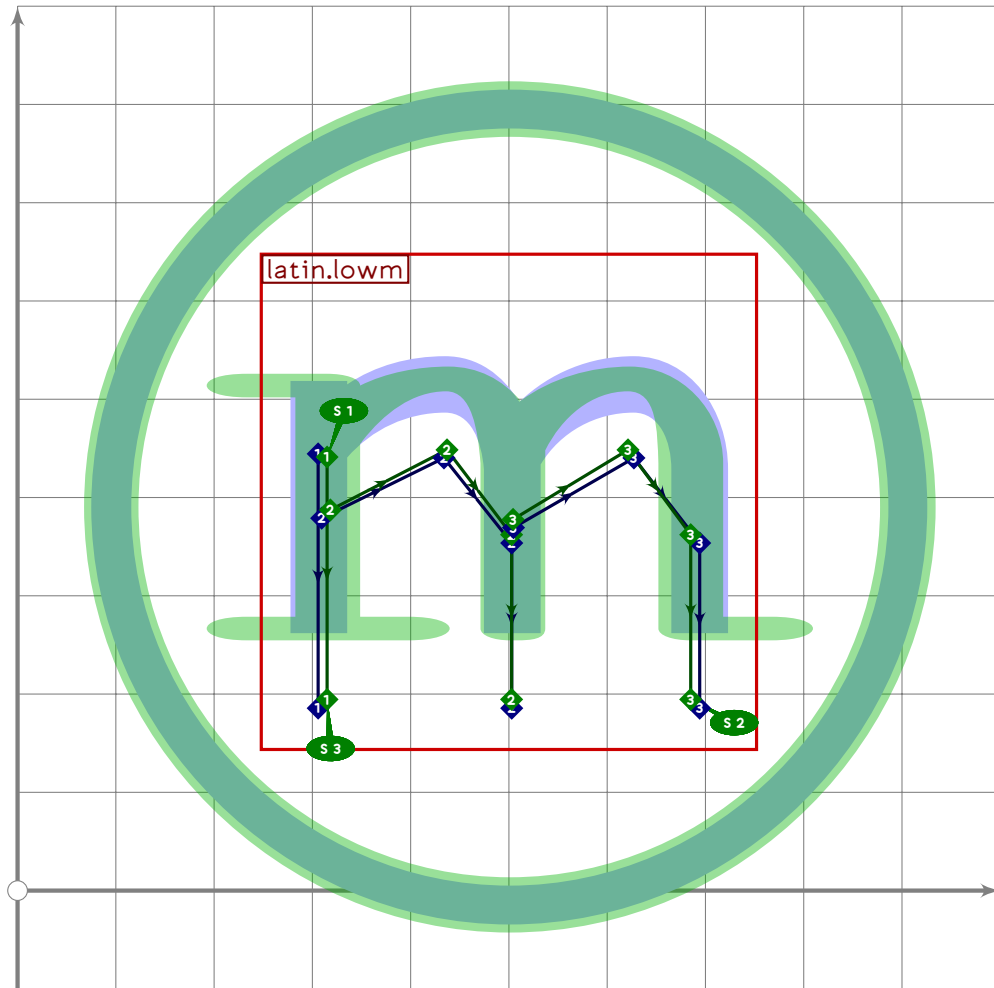
```

464 % k
465 begintsuglyph("uni24DA",218);
466 circle.single;
467 tsu_xform(tsu_xf.cletter)(latin.lowk);
468 tsu_render_in_circle(tsu_xf.cbound);
469 endsuglyph;
470

```



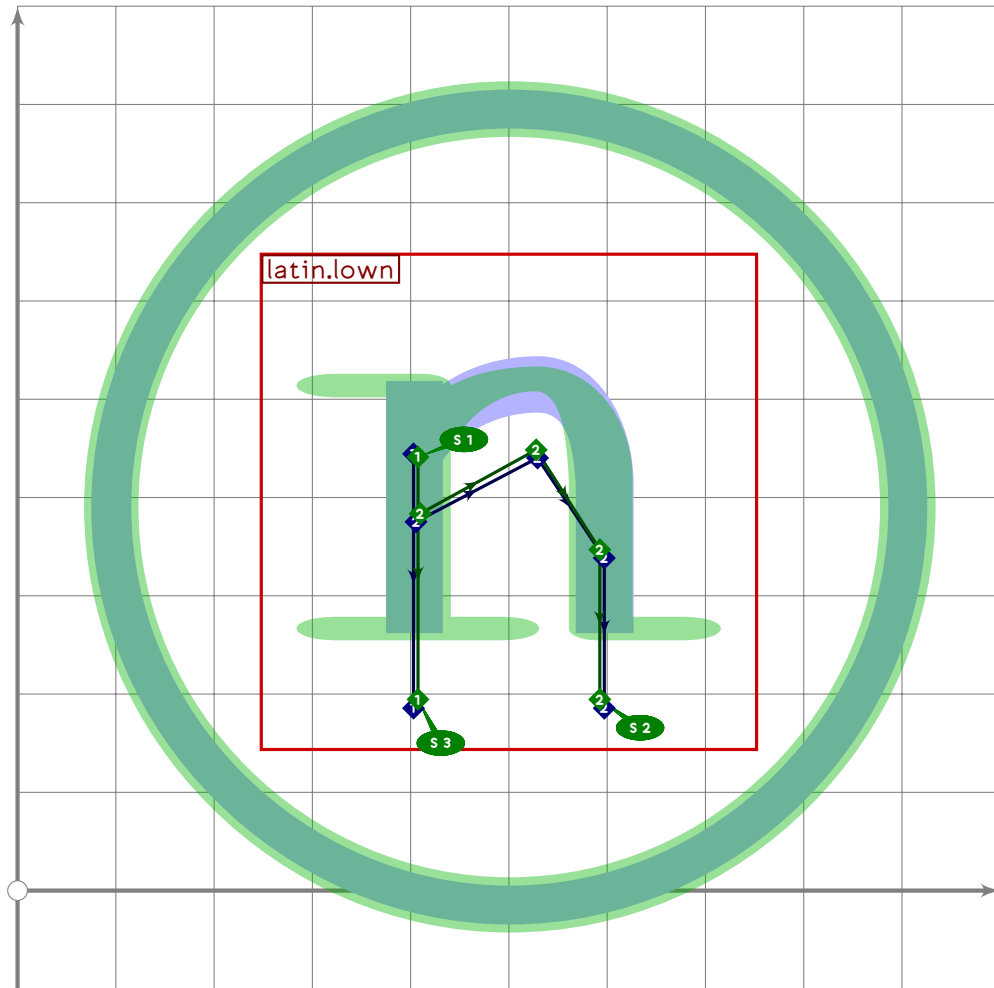
```
471 % l
472 begint Suglyph("uni24DB",219);
473 circle.single;
474 tsu_xform(tsu_xf.cletter)(latin.lowl);
475 tsu_render_in_circle(tsu_xf.cbound);
476 endsuglyph;
477
```



```

478 % m
479 begintsuglyph("uni24DC";220);
480 circle.single;
481 tsu_xform(tsu_xf.cletter)(latin.lowm);
482 tsu_render_in_circle(tsu_xf.cbound);
483 endsuglyph;
484

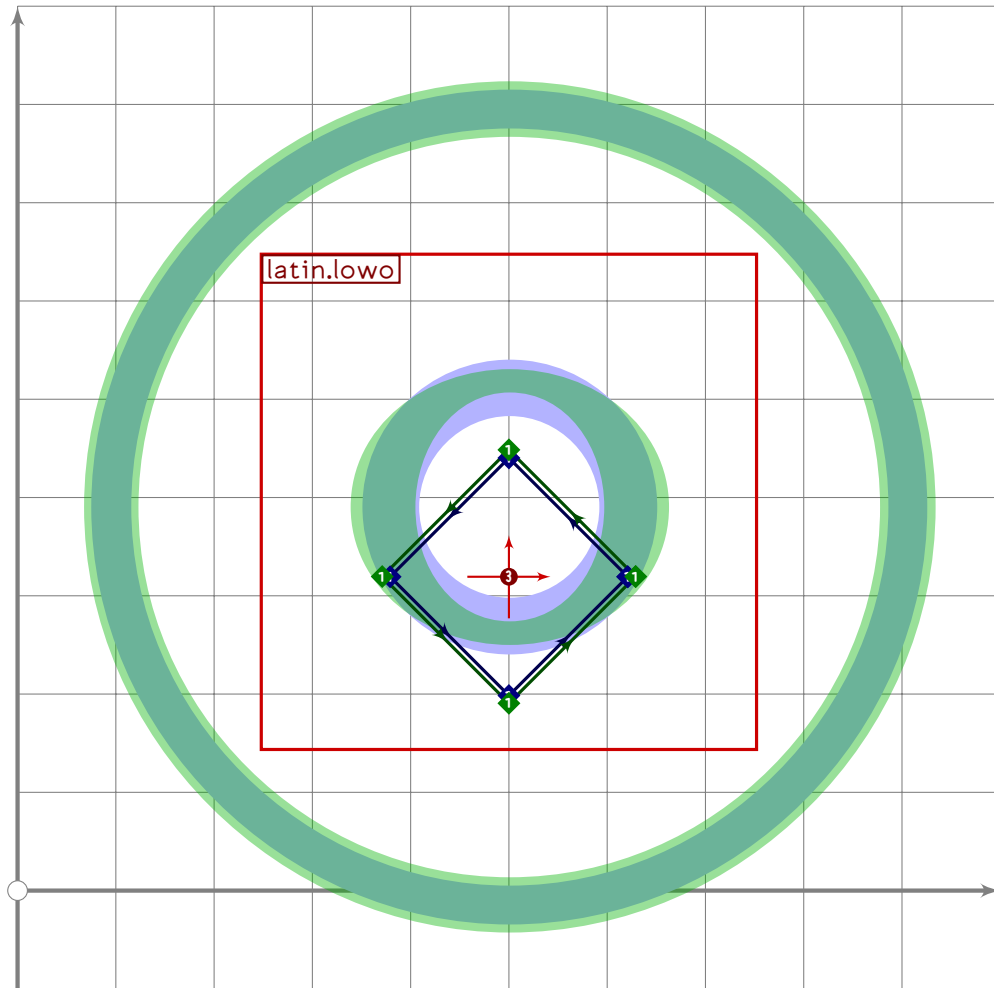
```



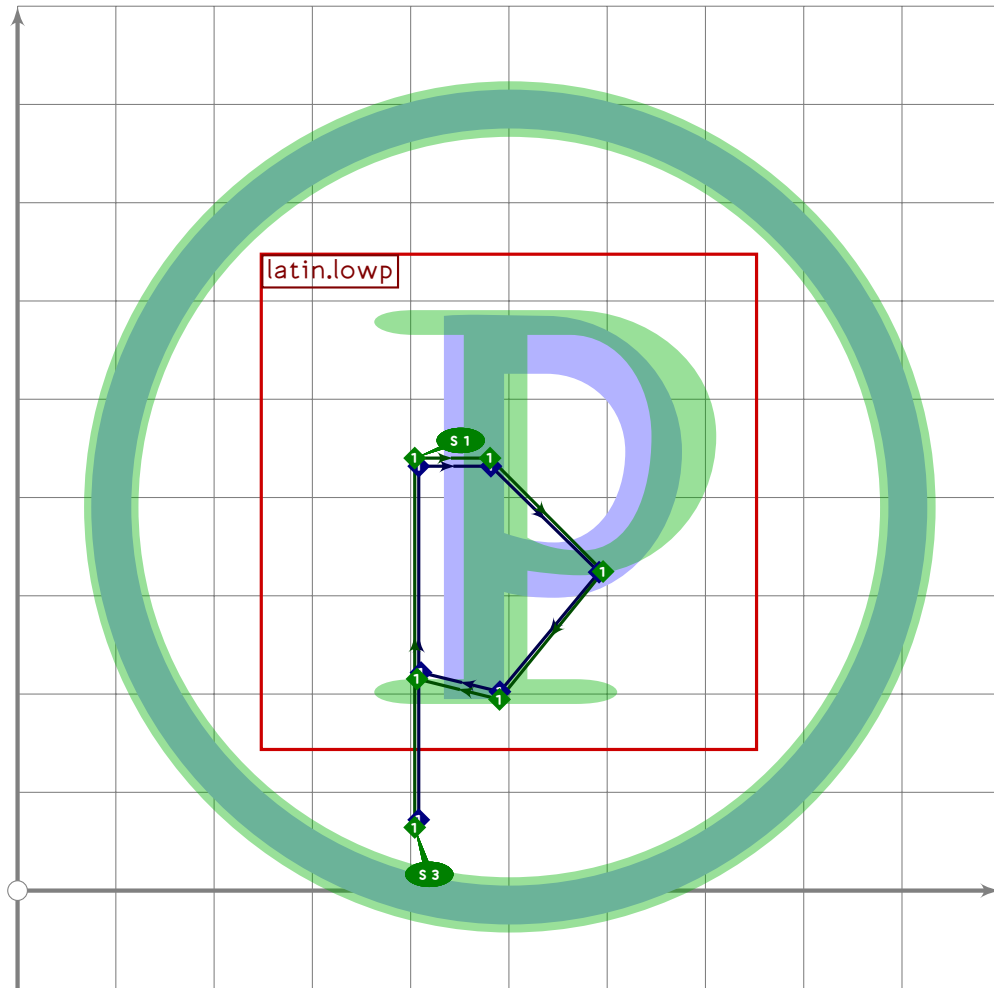
```

485 % n
486 beginsuglyph("uni24DD",221);
487   circle.single;
488   tsu_xform(tsu_xf.cletter)(latin.lown);
489   tsu_render_in_circle(tsu_xf.cbound);
490 endsuglyph;
491

```



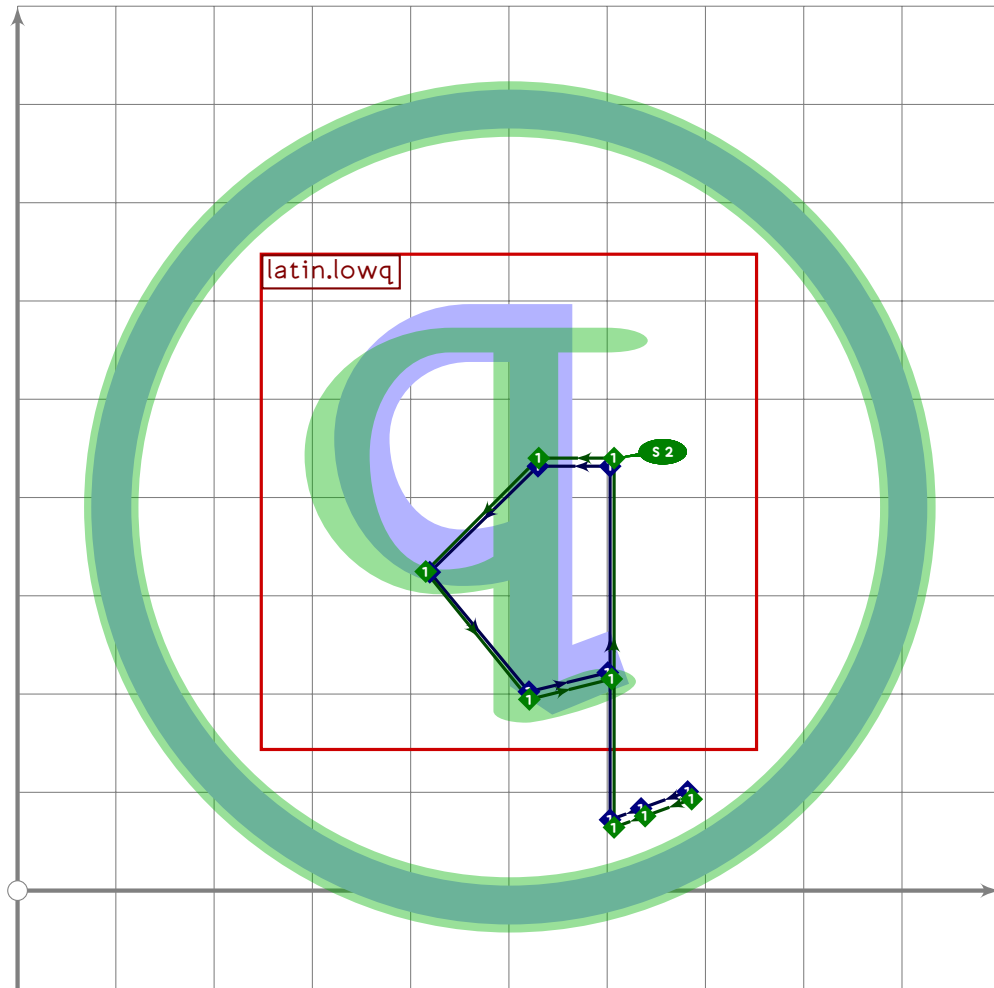
```
492 % o
493 begintsuglyph("uni24DE",222);
494 circle.single;
495 tsu_xform(tsu_xf.cletter)(latin.lowo);
496 tsu_render_in_circle(tsu_xf.cbound);
497 endsuglyph;
498
```



```

499 % p
500 beginsuglyph("uni24DF",223);
501 circle.single;
502 tsu_xform(tsu_xf.cletter)(latin.lowp);
503 tsu_render_in_circle(tsu_xf.cbound);
504 endsuglyph;
505

```

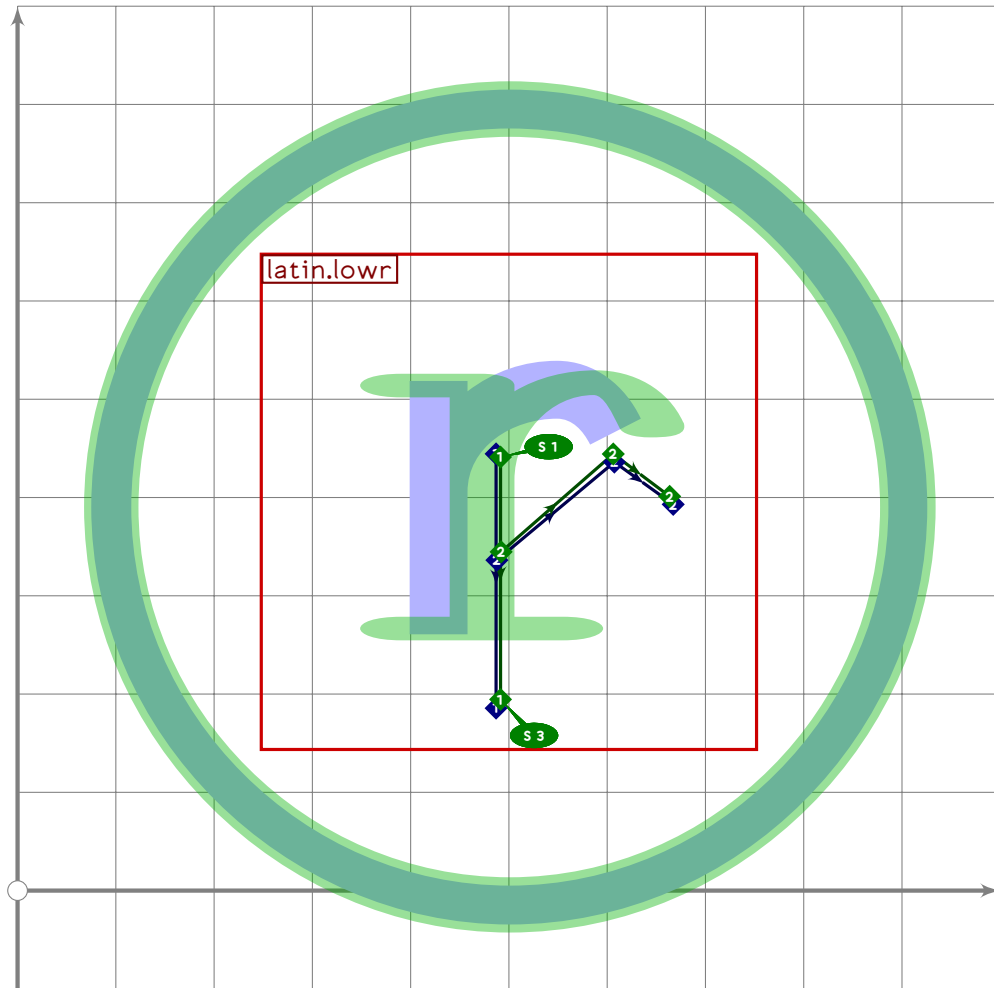


```

506 % q
507 begintuglyph("uni24E0";224);
508 circle.single;
509 tsu_xform(tsu_xf.cletter)(latin.lowq);
510 tsu_render_in_circle(tsu_xf.cbound);
511 endtuglyph;
512

```

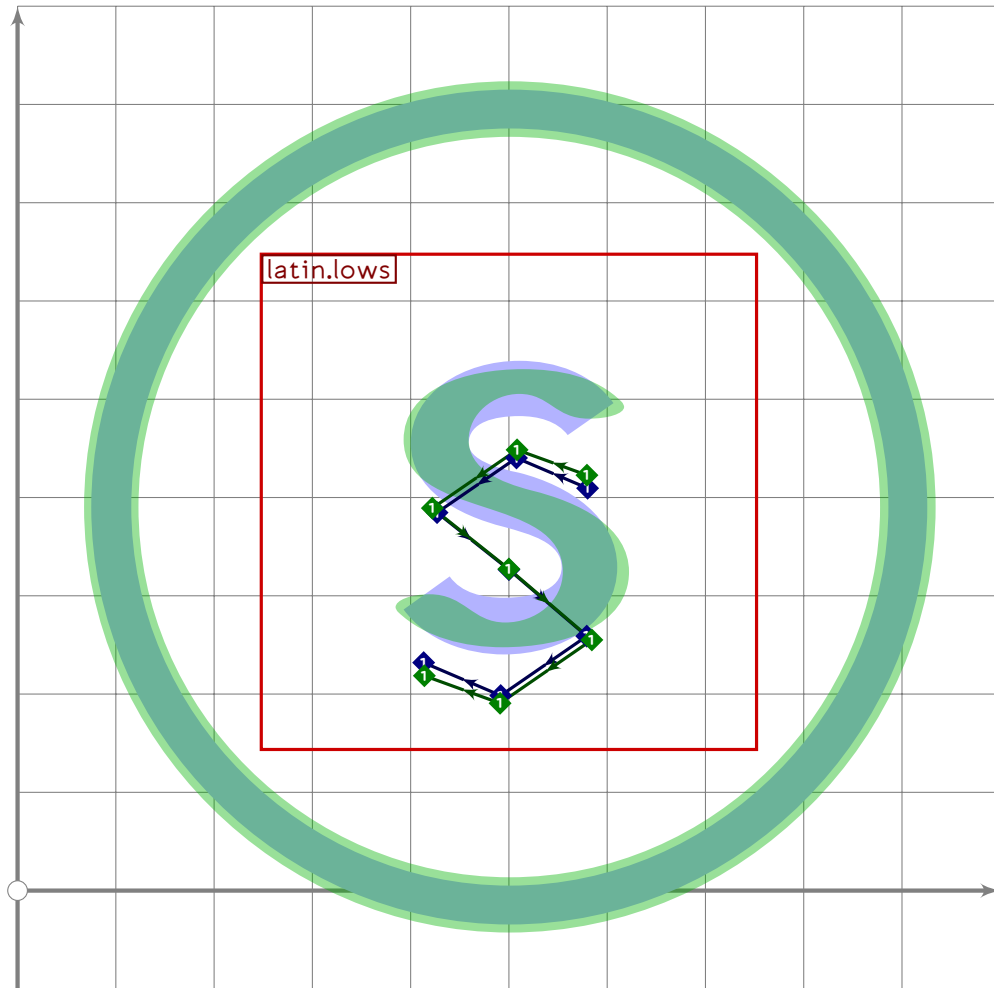




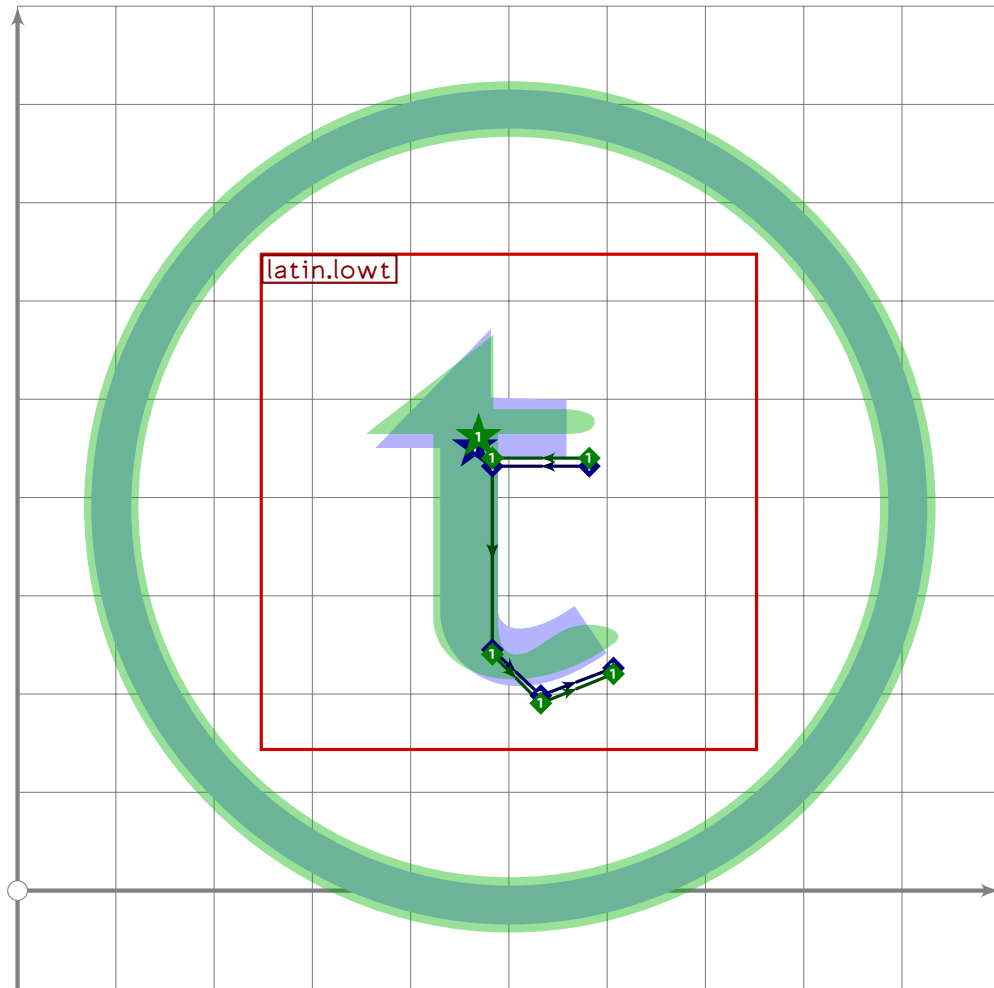
```

513 % r
514 begint Suglyph("uni24E1";225);
515 circle.single;
516 tsu_xform(tsu_xf.cletter)(latin.lowr);
517 tsu_render_in_circle(tsu_xf.cbound);
518 endsuglyph;
519

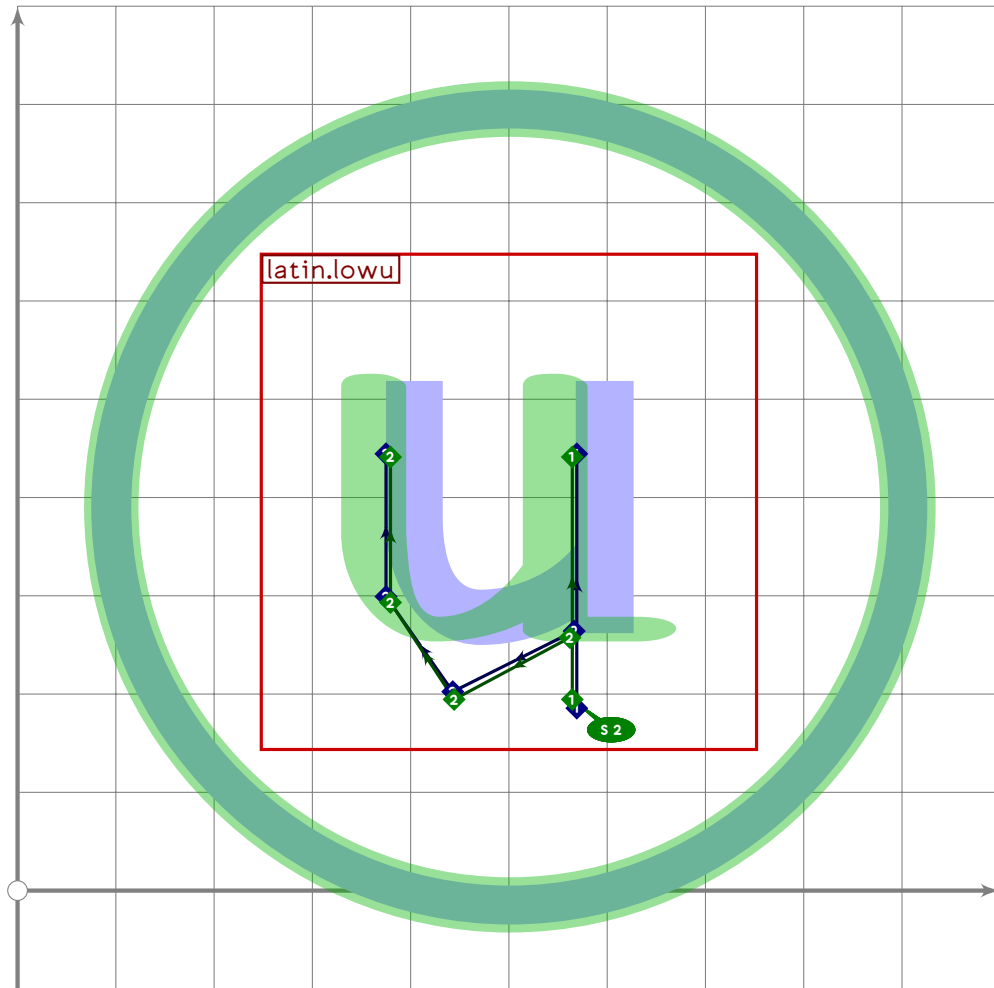
```



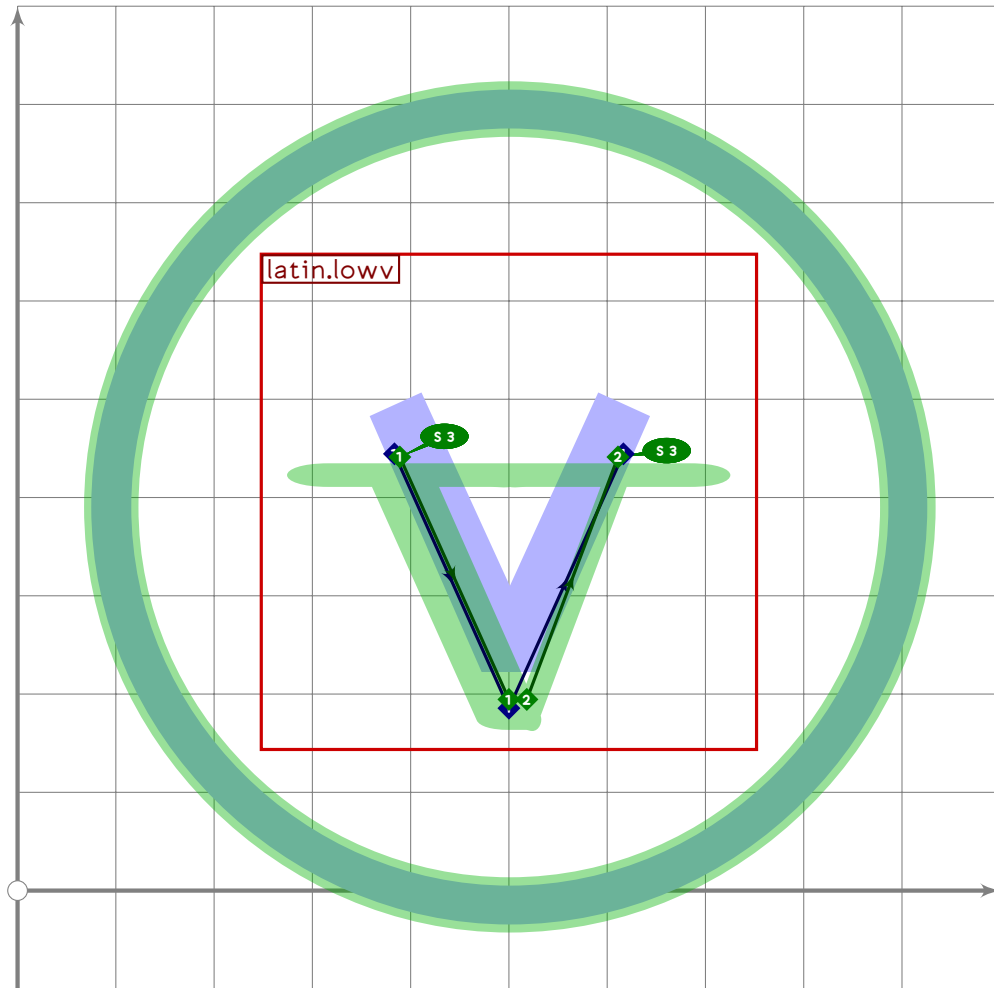
```
520 % s
521 begintsuglyph("uni24E2";226);
522 circle.single;
523 tsu_xform(tsu_xf.cletter)(latin.lows);
524 tsu_render_in_circle(tsu_xf.cbound);
525 endsuglyph;
526
```



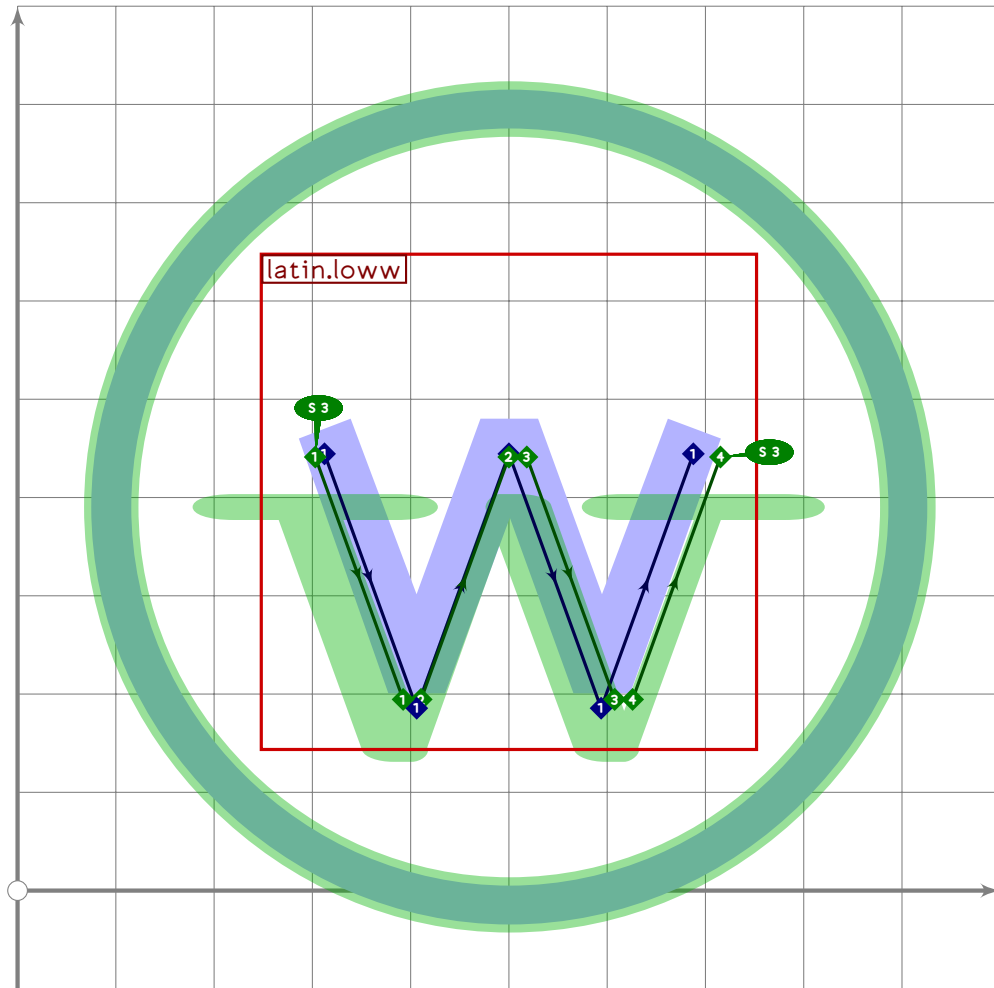
```
527 % t
528 begintsuglyph("uni24E3";227);
529 circle.single;
530 tsu_xform(tsu_xf.cletter)(latin.lowt);
531 tsu_render_in_circle(tsu_xf.cbound);
532 endsuglyph;
533
```



```
534 % u
535 begintsuglyph("uni24E4",228);
536 circle.single;
537 tsu_xform(tsu_xf.cletter)(latin.lowu);
538 tsu_render_in_circle(tsu_xf.cbound);
539 endsuglyph;
540
```



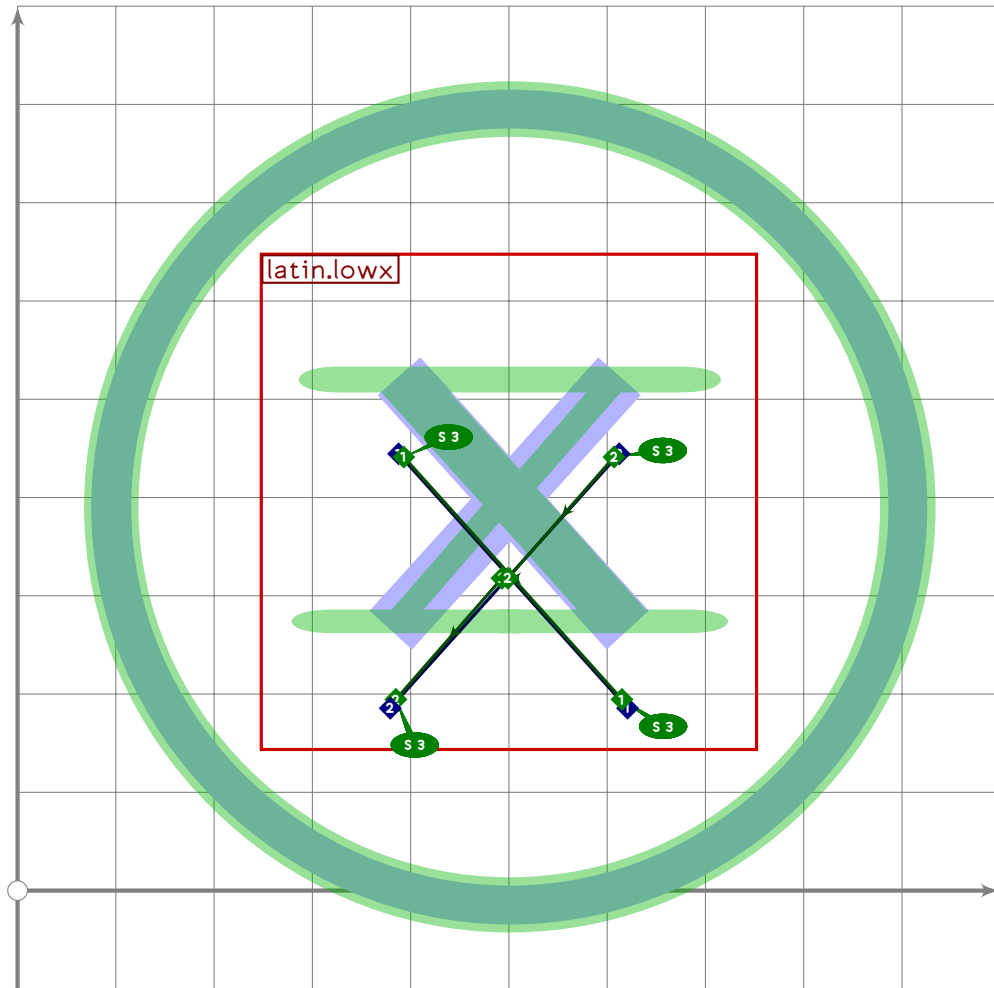
```
541 % v
542 begint Suglyph("uni24E5",229);
543 circle.single;
544 tsu_xform(tsu_xf.cletter)(latin.lowv);
545 tsu_render_in_circle(tsu_xf.cbound);
546 endsuglyph;
547
```



```

548 % w
549 begintsuglyph("uni24E6",230);
550 circle.single;
551 tsu_xform(tsu_xf.cletter)(latin.loww);
552 tsu_render_in_circle(tsu_xf.cbound);
553 endsuglyph;
554

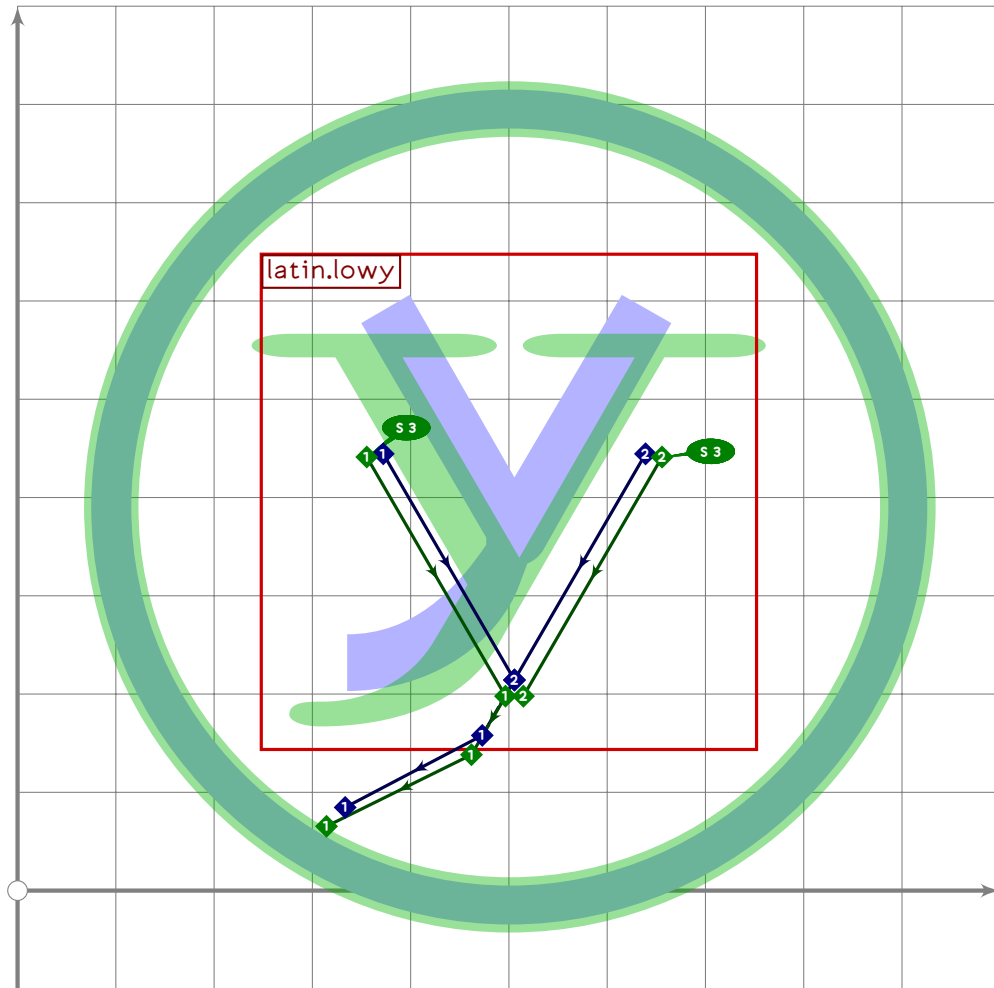
```



```

555 % x
556 begintsuglyph("uni24E7";231);
557 circle.single;
558 tsu_xform(tsu_xf.cletter)(latin.lowx);
559 tsu_render_in_circle(tsu_xf.cbound);
560 endsuglyph;
561

```

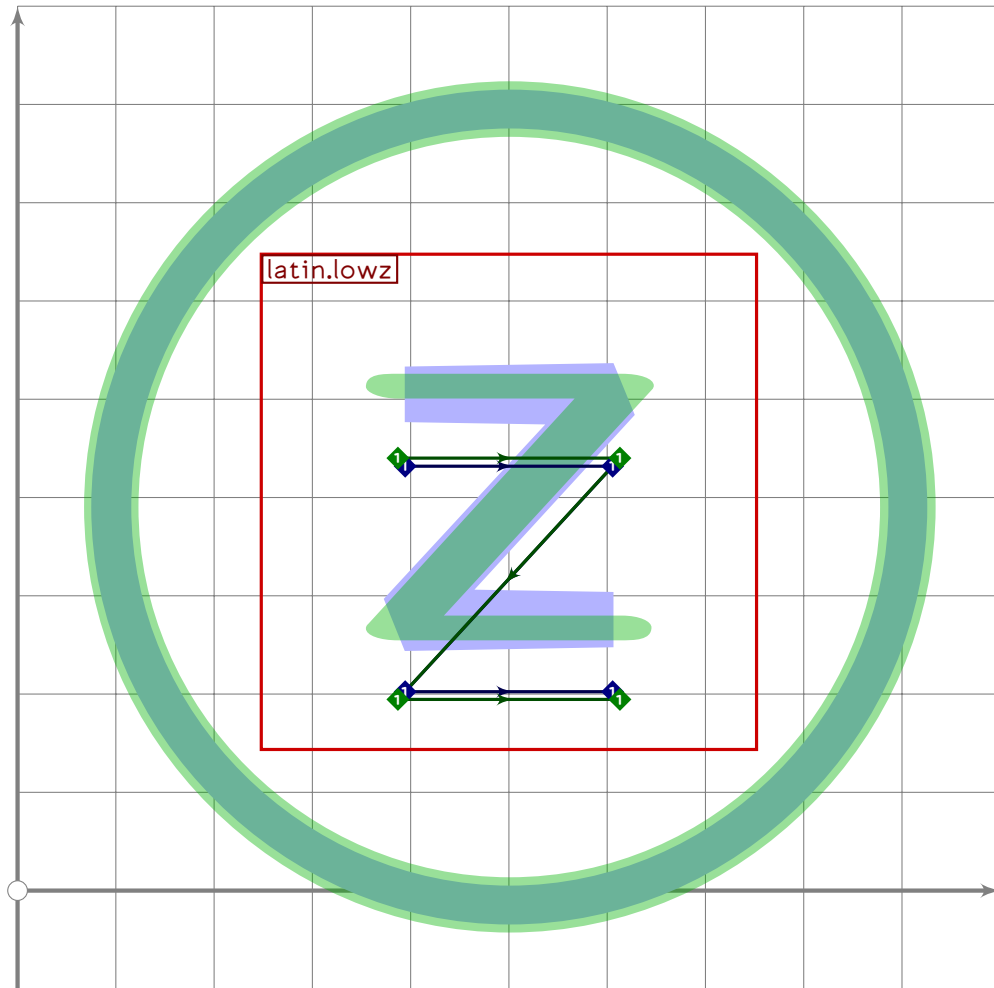


```

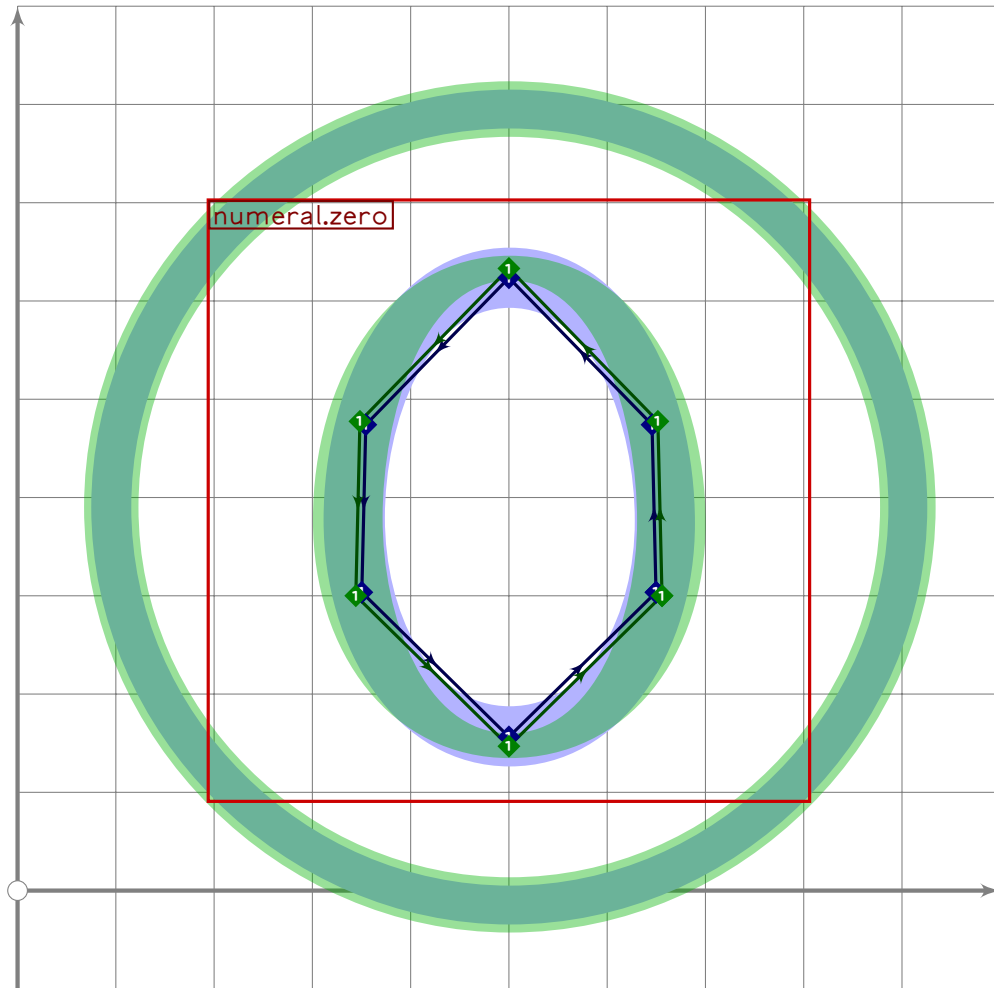
562 % y
563 begint Suglyph("uni24E8";232);
564 circle.single;
565 tsu_xform(tsu_xf.cletter)(latin.lowy);
566 tsu_render_in_circle(tsu_xf.cbound);
567 endtsuglyph;
568

```





```
569 % z
570 begintsuglyph("uni24E9";233);
571 circle.single;
572 tsu_xform(tsu_xf.cletter)(latin.lowz);
573 tsu_render_in_circle(tsu_xf.cbound);
574 endsuglyph;
575
```



```

576 % 0
577 begint Suglyph("uni24EA";234);
578   circle.single;
579   tsu_xform(tsu_xf.circled)(numeral.zero);
580   tsu_render;
581 endtsuglyph;
582
583
584

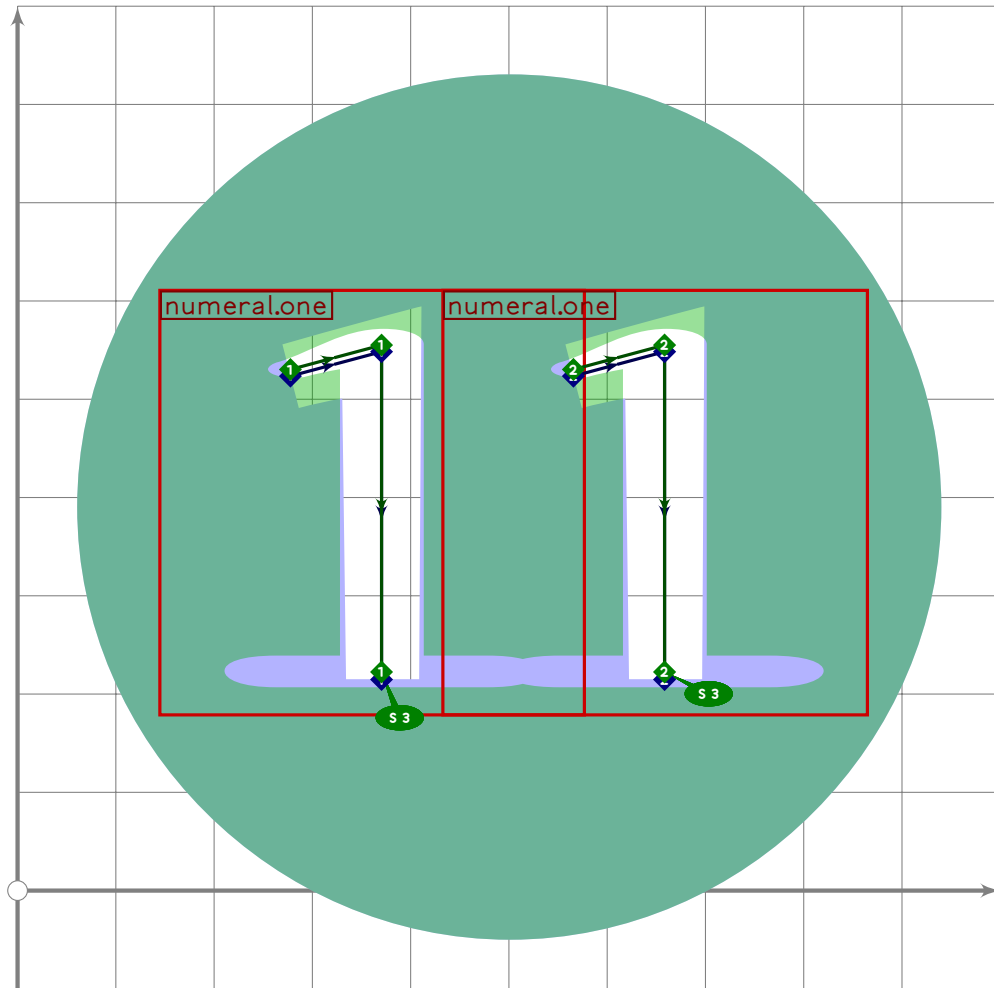
```

## Inverted Circled Numerals

```

585 % INVERTED CIRCLED NUMERALS
586

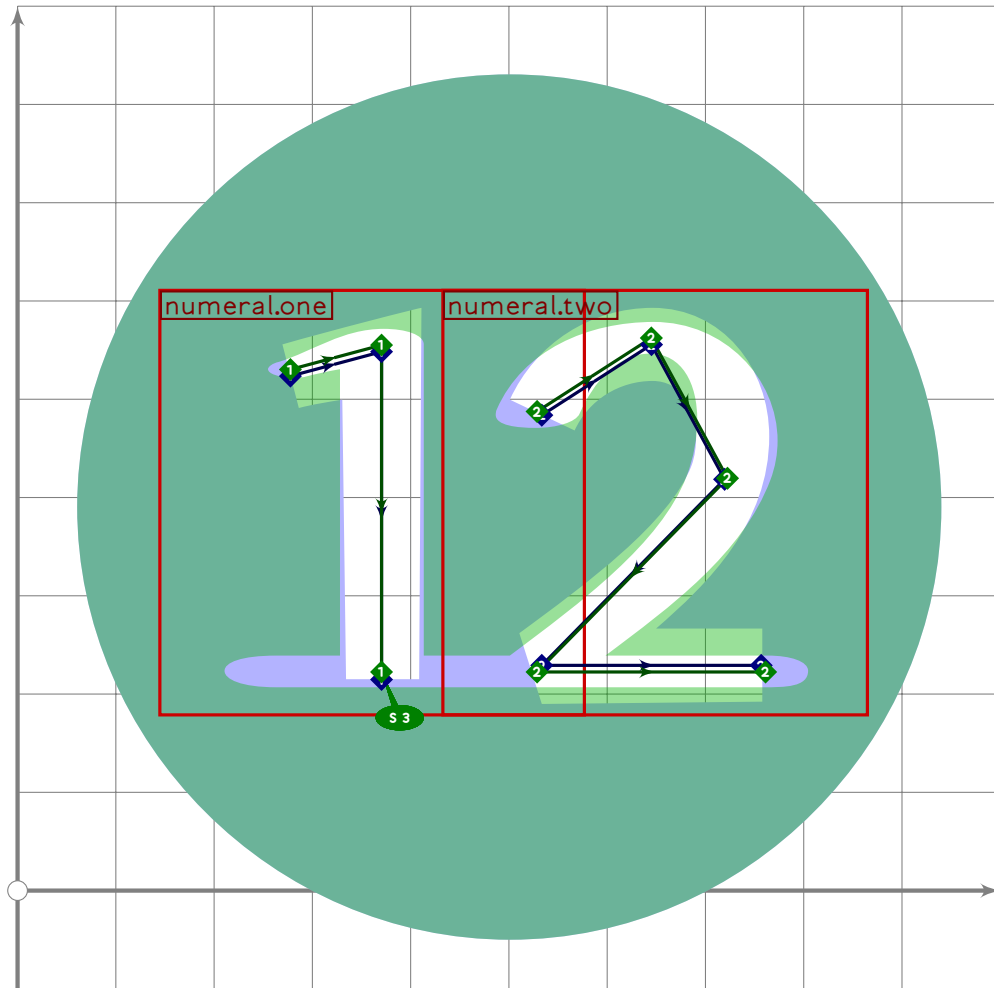
```



```

587 % 11
588 % BACKGROUND 25CF
589 beginsuglyph("uni24EB";235);
590 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
591 numeric x[],y[];
592 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
593 i:=0; forever: exitif find_stroke(i)<1;
594   set_bosize(i,107); i:=i-1; endfor;
595 tsu_render;
596 endtsuglyph;
597

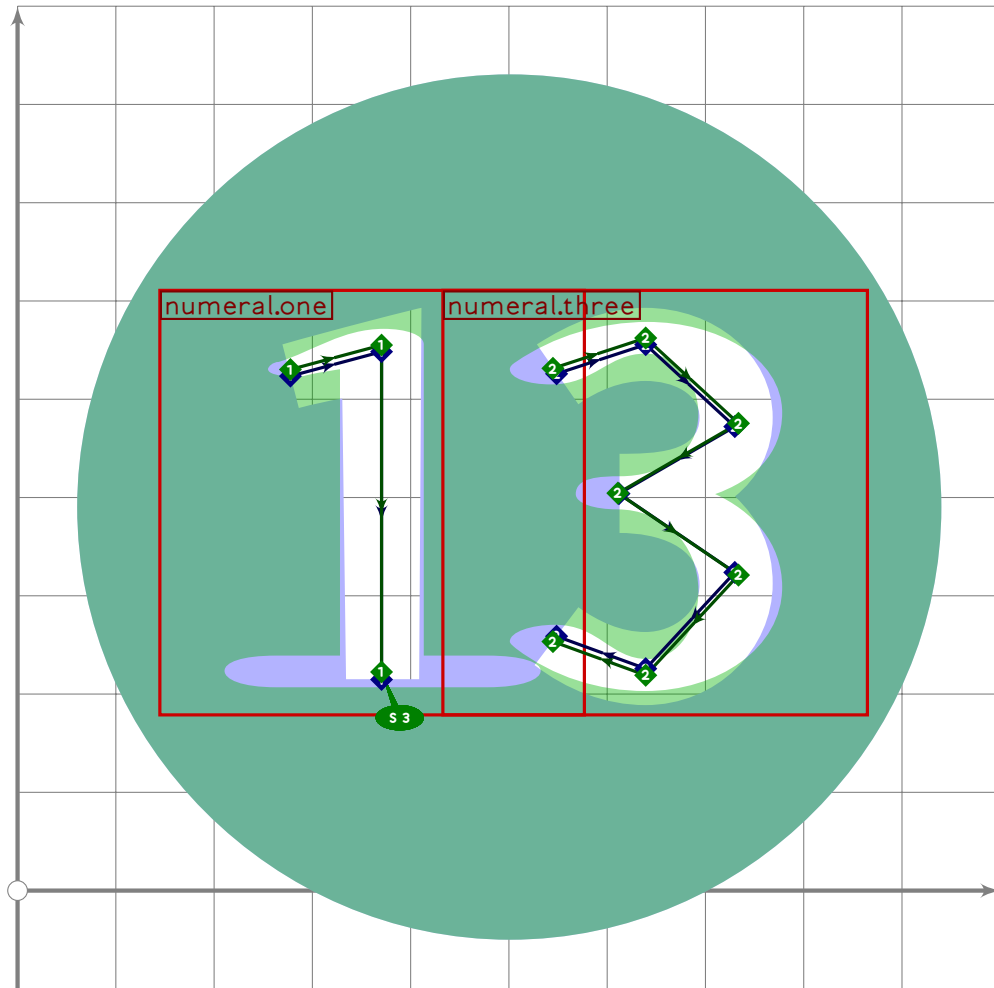
```



```

598 % 12
599 % BACKGROUND 25CF
600 begint Suglyph("uni24EC";236);
601   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
602   numeric x[],y[];
603   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
604   i:=0; forever: exitif find_stroke(i)<1;
605     set_bosize(i,107); i:=i-1; endfor;
606   tsu_render;
607 endtsuglyph;
608

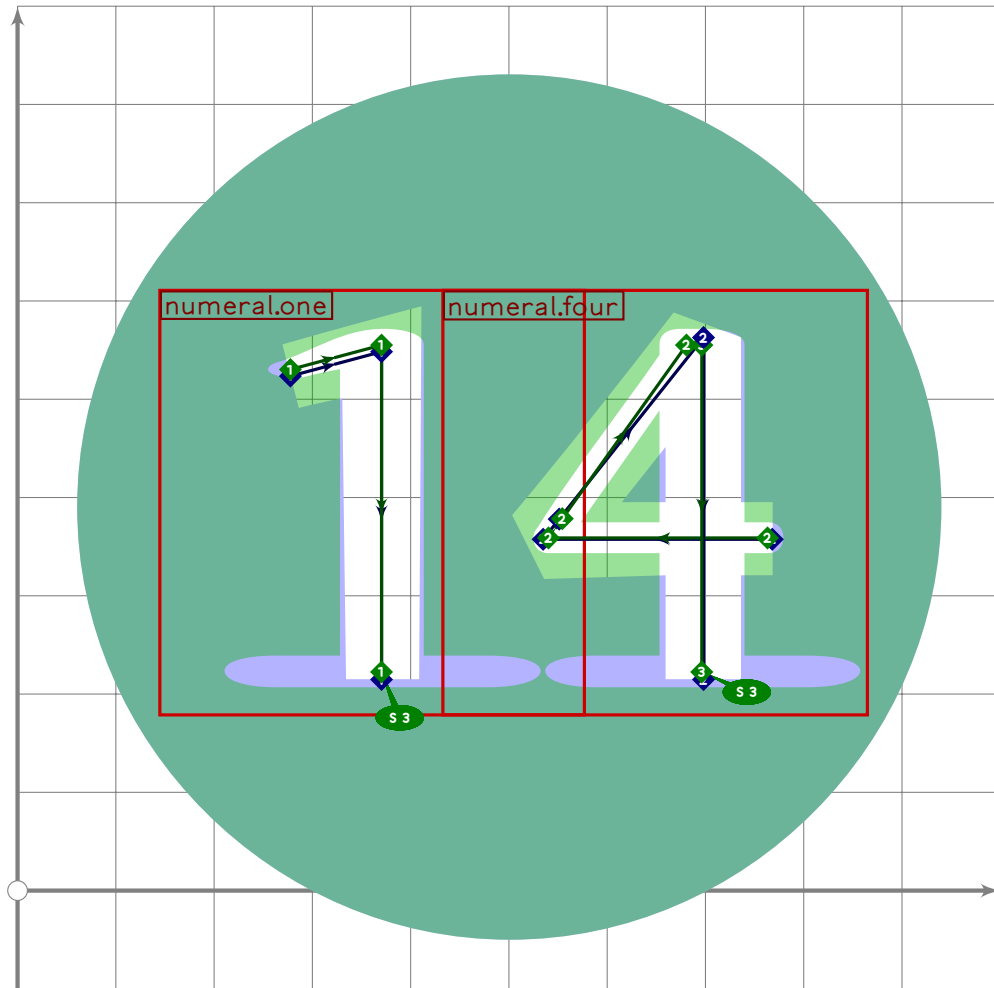
```



```

609 % 13
610 % BACKGROUND 25CF
611 beginsuglyph("uni24ED";237);
612 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
613 numeric x[],y[];
614 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
615 i:=0; forever: exitif find_stroke(i)<1;
616     set_bosize(i,107); i:=i-1; endfor;
617 tsu_render;
618 endsuglyph;
619

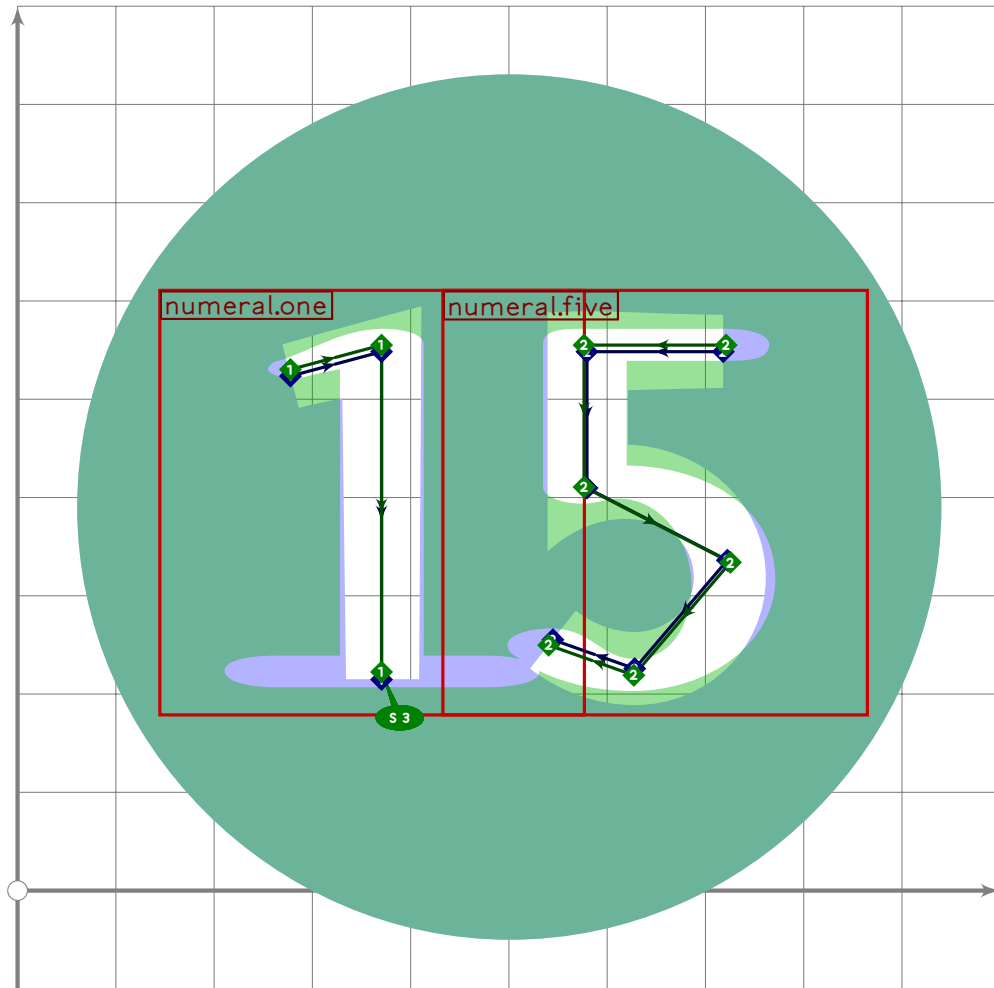
```



```

620 % 14
621 % BACKGROUND 25CF
622 begintsuglyph("uni24EE";238);
623 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
624 numeric x[],y[];
625 tsu_xform(tsu_xf.ctwo.right)(numeral.four);
626 i:=0; forever: exitif find_stroke(i)<1;
627   set_bosize(i,107); i:=i-1; endfor;
628 tsu_render;
629 endtsuglyph;
630

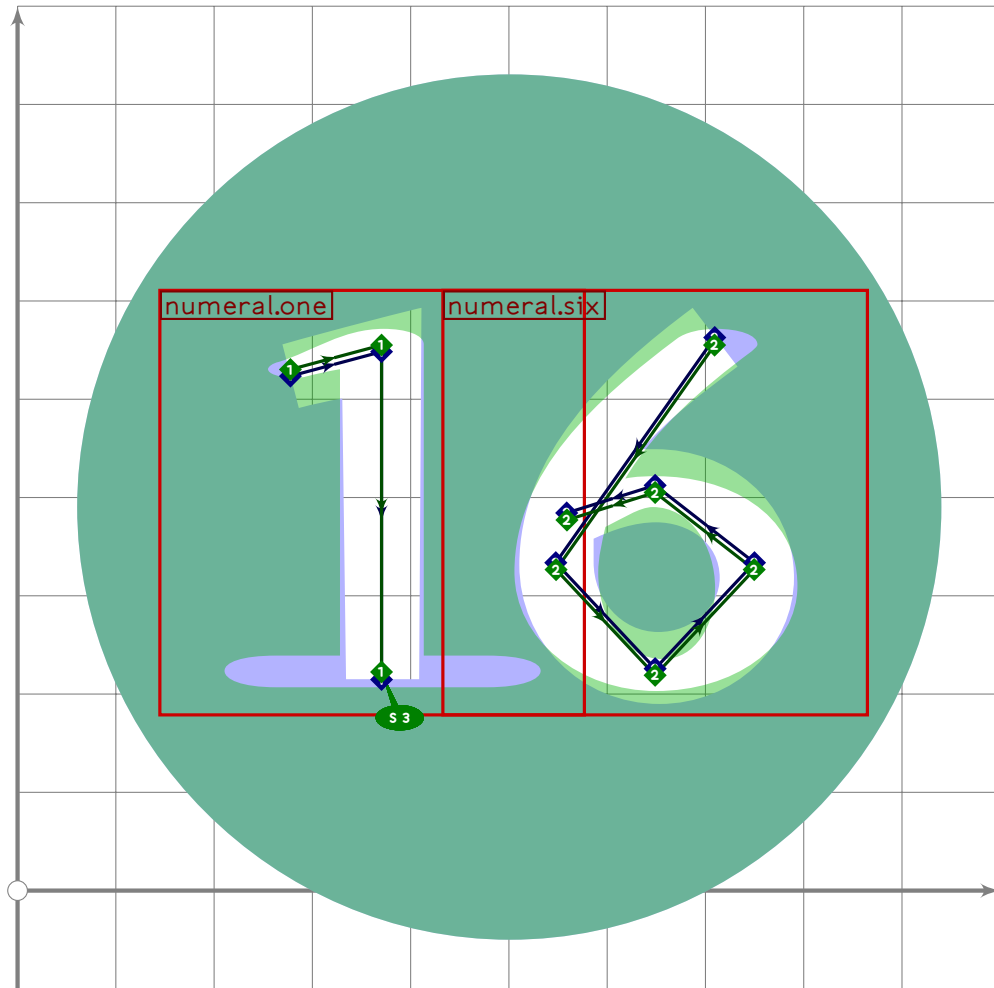
```



```

631 % 15
632 % BACKGROUND 25CF
633 begintglyph("uni24EF";239);
634 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
635 numeric x[],y[];
636 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
637 i:=0; forever: exitif find_stroke(i)<1;
638   set_bosize(i,107); i:=i-1; endfor;
639 tsu_render;
640 endtsuglyph;
641

```

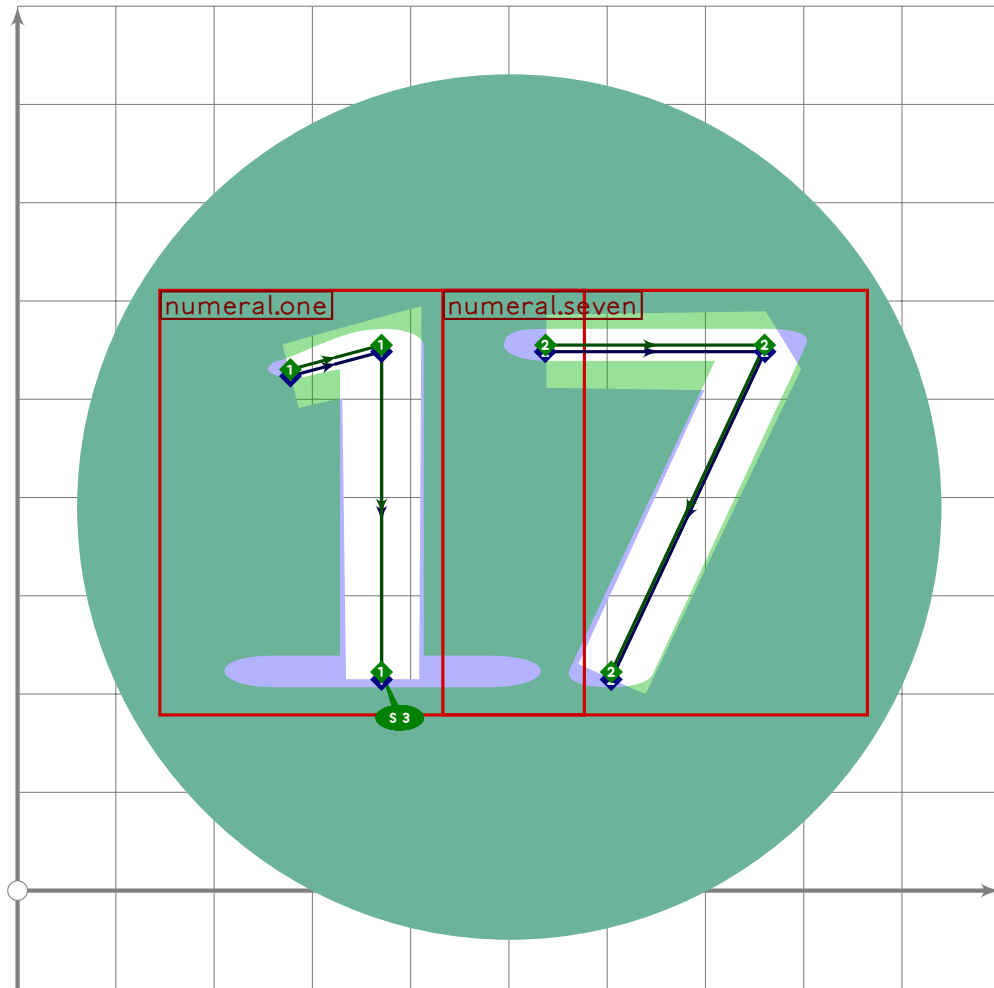


```

642 % 16
643 % BACKGROUND 25CF
644 begint Suglyph("uni24F0";240);
645 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
646 numeric x[],y[];
647 tsu_xform(tsu_xf.ctwo.right)(numeral.six);
648 i:=0; forever: exitif find_stroke(i)<1;
649     set_bosize(i,107); i:=i-1; endfor;
650 tsu_render;
651 endtsuglyph;
652

```

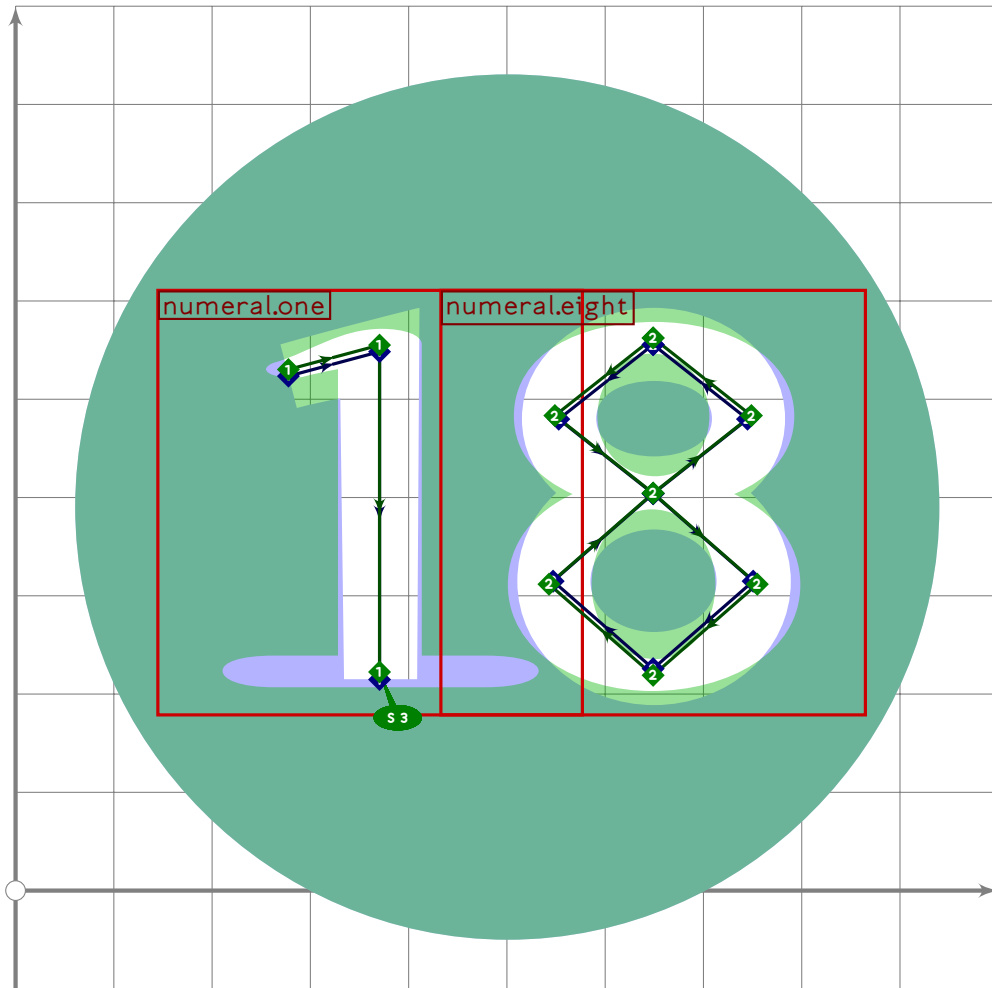




```

653 % 17
654 % BACKGROUND 25CF
655 begint Suglyph("uni24F1";241);
656 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
657 numeric x[],y[];
658 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
659 i:=0; forever: exitif find_stroke(i)<1;
660   set_bosize(i,107); i:=i-1; endfor;
661 tsu_render;
662 endtsuglyph;
663

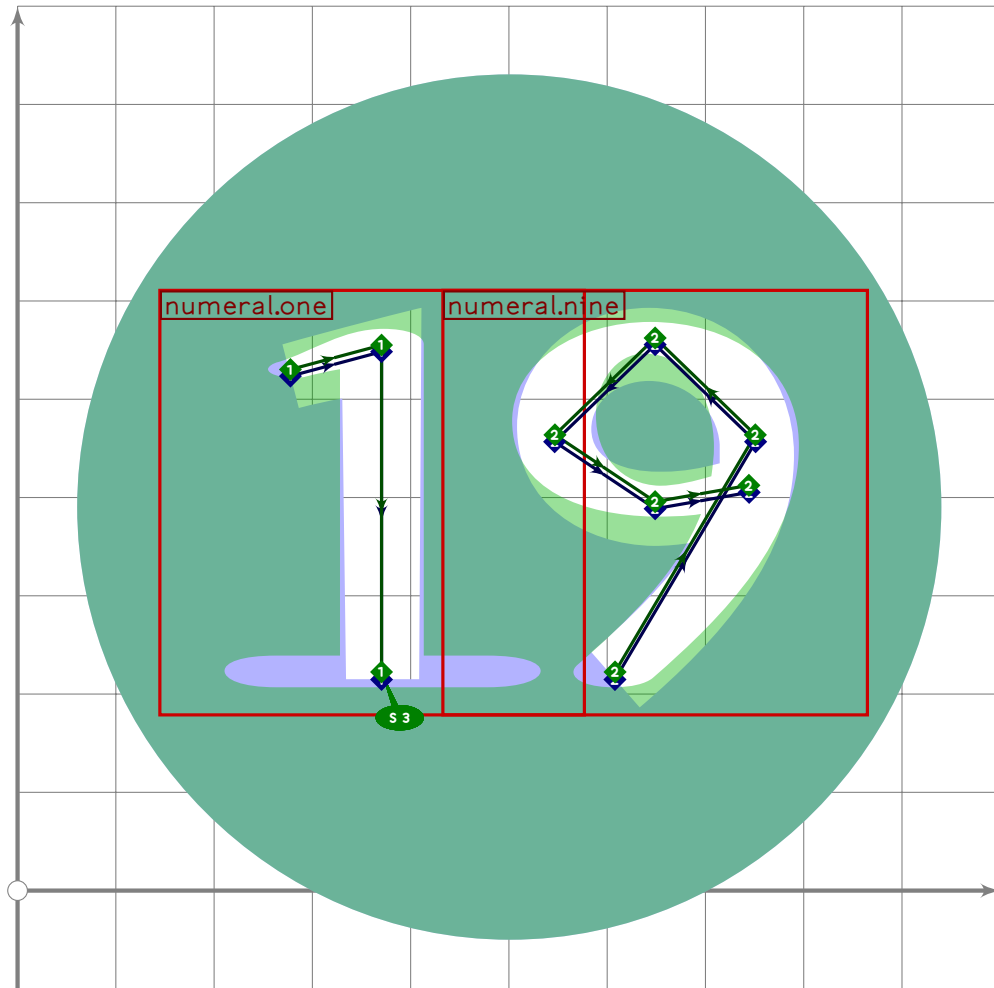
```



```

664 % 18
665 % BACKGROUND 25CF
666 begint Suglyph("uni24F2";242);
667 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
668 numeric x[],y[];
669 tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
670 i:=0; forever: exitif find_stroke(i)<1;
671     set_bosize(i,107); i:=i-1; endfor;
672 tsu_render;
673 endtsuglyph;
674

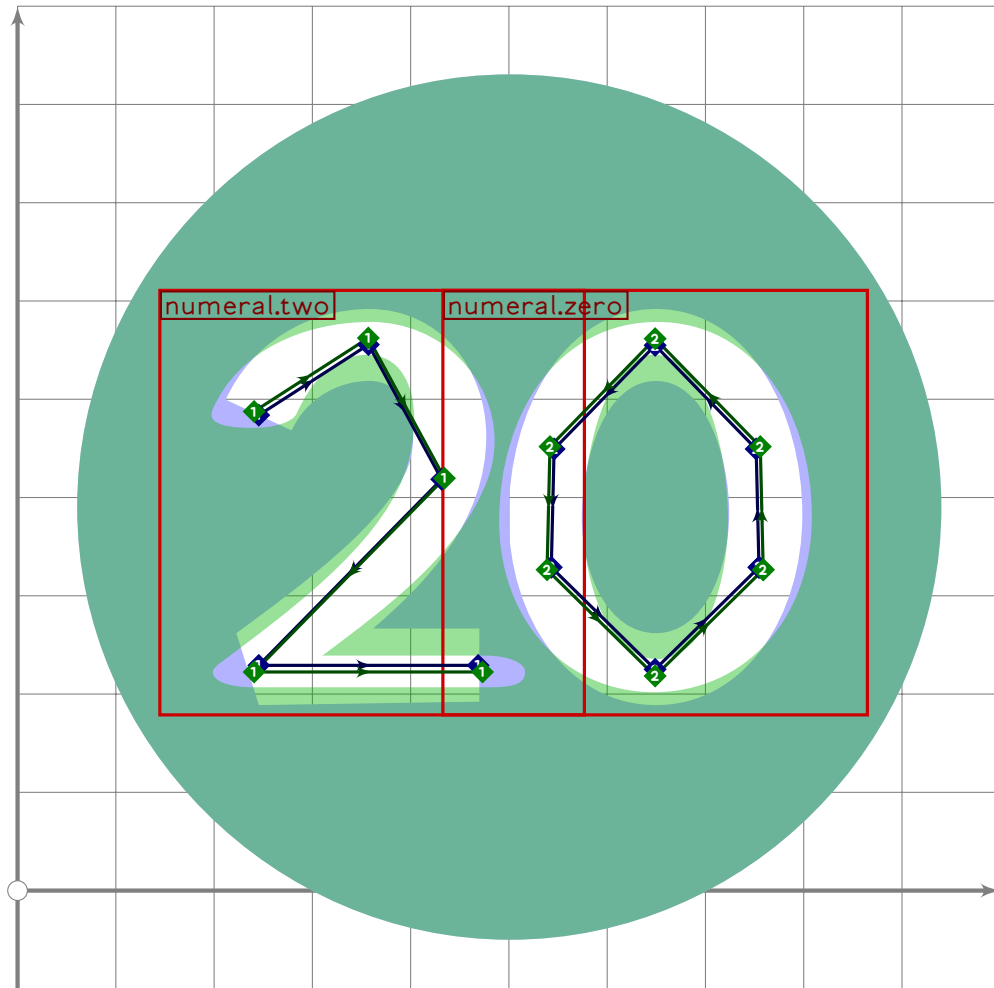
```



```

675 % 19
676 % BACKGROUND 25CF
677 begint Suglyph("uni24F3";243);
678   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
679   numeric x[],y[];
680   tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
681   i:=0; forever: exitif find_stroke(i)<1;
682     set_bosize(i,107); i:=i-1; endfor;
683   tsu_render;
684 endtsuglyph;
685

```



```

686 % 20
687 % BACKGROUND 25CF
688 begint Suglyph("uni24F4";244);
689 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
690 numeric x[],y[];
691 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
692 i:=0; forever: exitif find_stroke(i)<1;
693   set_bosize(i,107); i:=i-1; endfor;
694 tsu_render;
695 endtsuglyph;
696
697
698

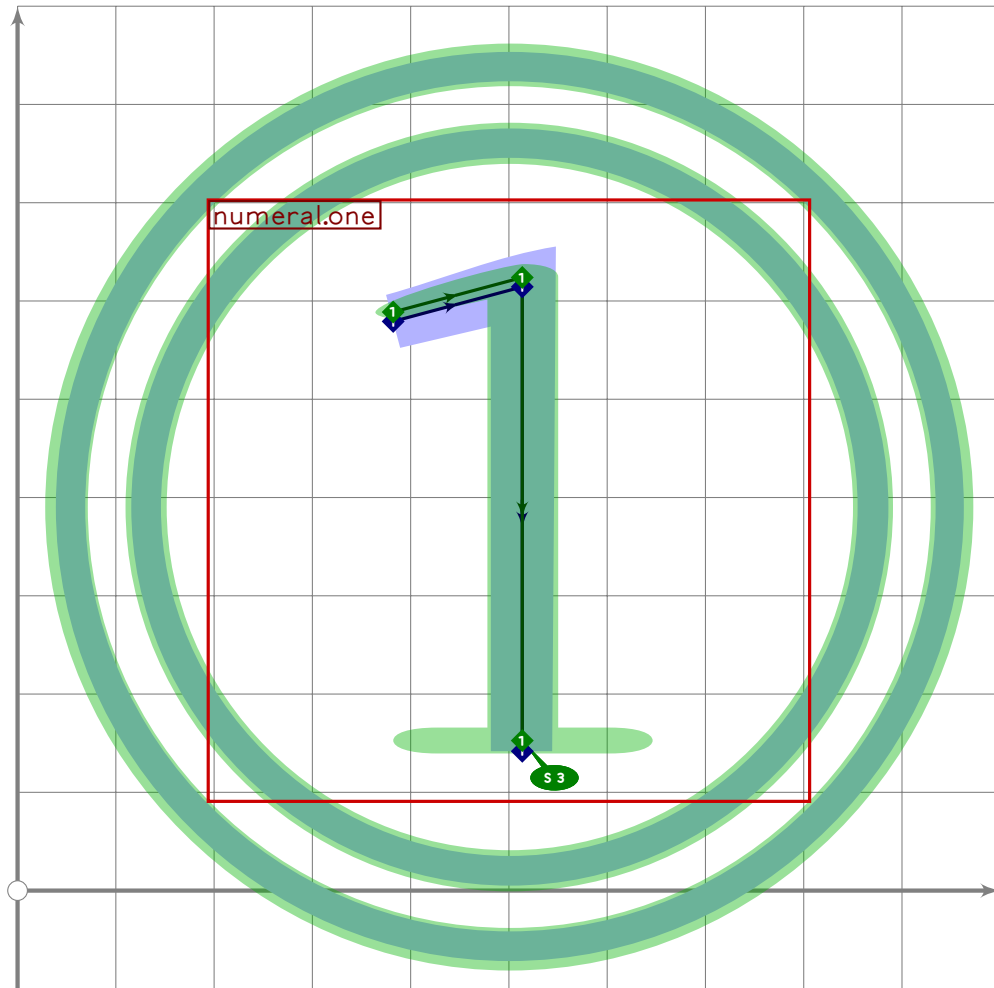
```

## Doubly Circled Numerals

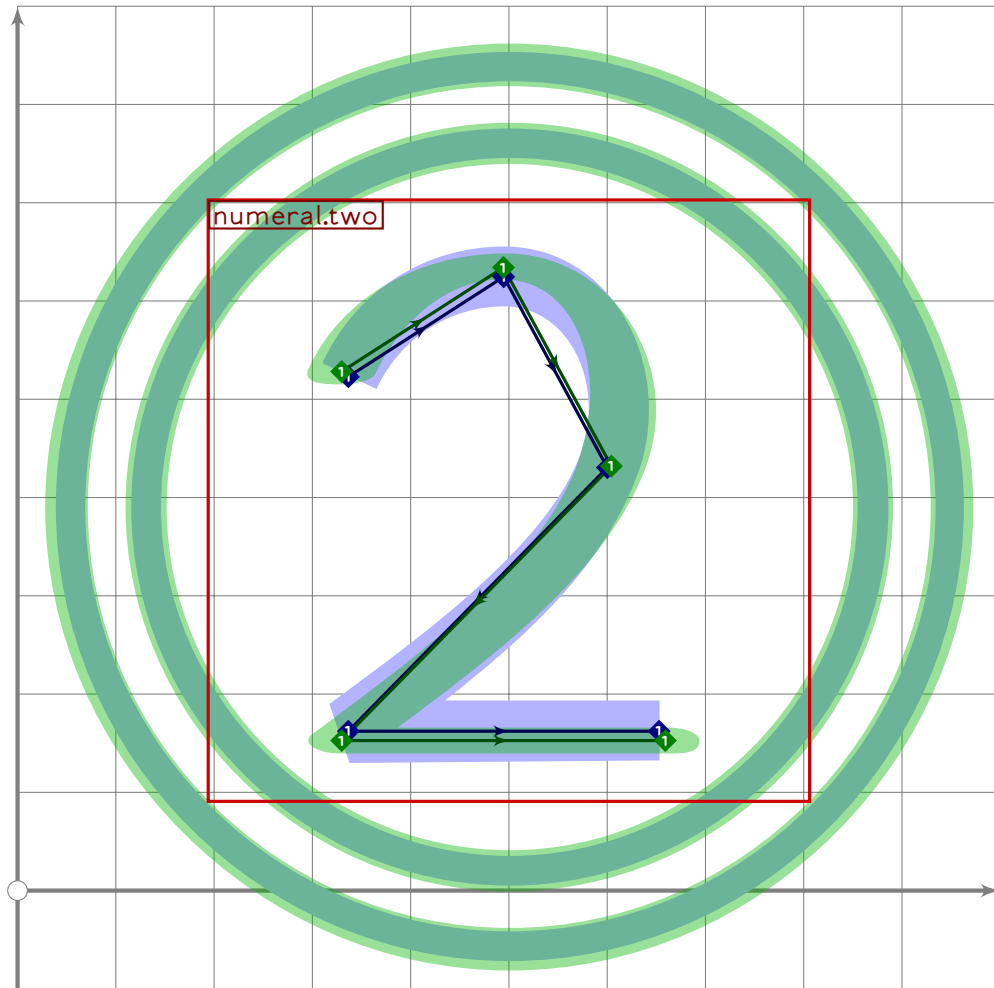
```

699 % DOUBLY CIRCLED NUMERALS
700

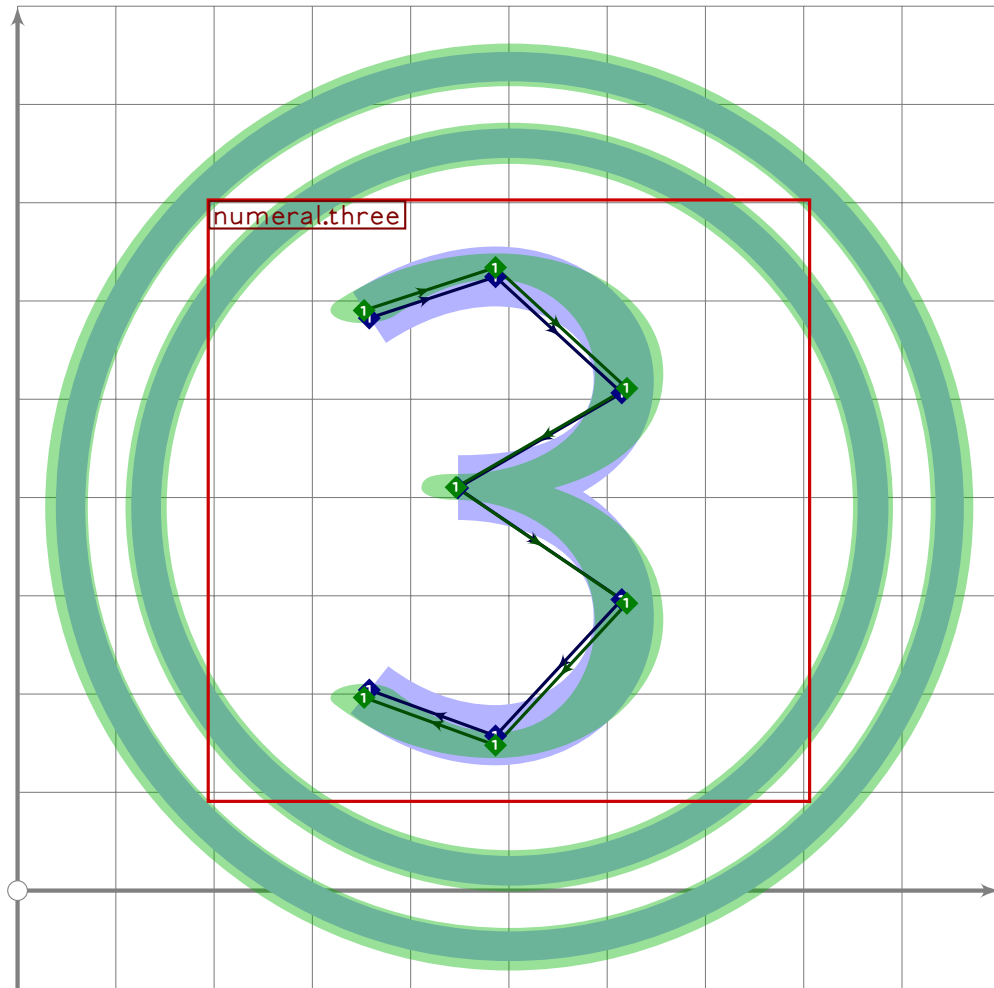
```



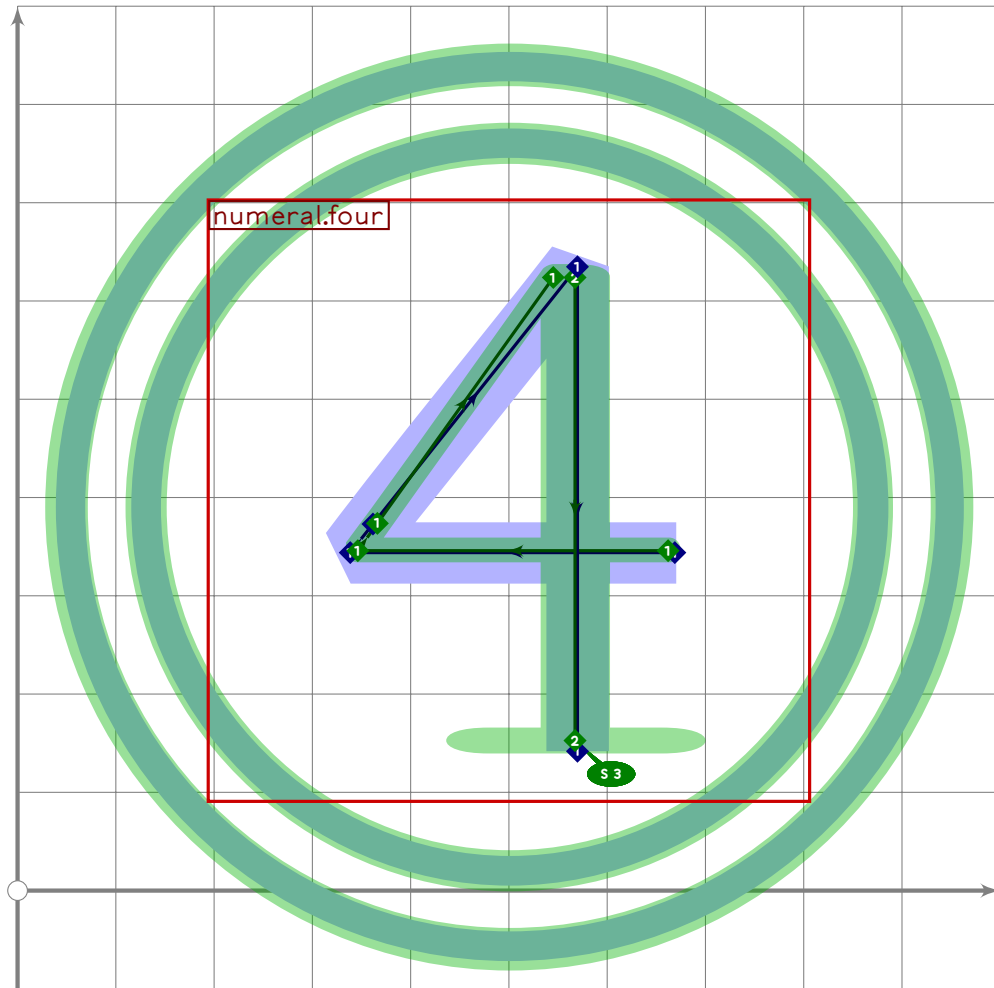
```
701 % 1
702 begint Suglyph("uni24F5",245);
703 circle.double;
704 tsu_xform(tsu_xf.circled)(numeral.one);
705 tsu_render;
706 endtsuglyph;
707
```



```
708 % 2
709 begintsuglyph("uni24F6",246);
710 circle.double;
711 tsu_xform(tsu_xf.circled)(numeral.two);
712 tsu_render;
713 endtsuglyph;
714
```

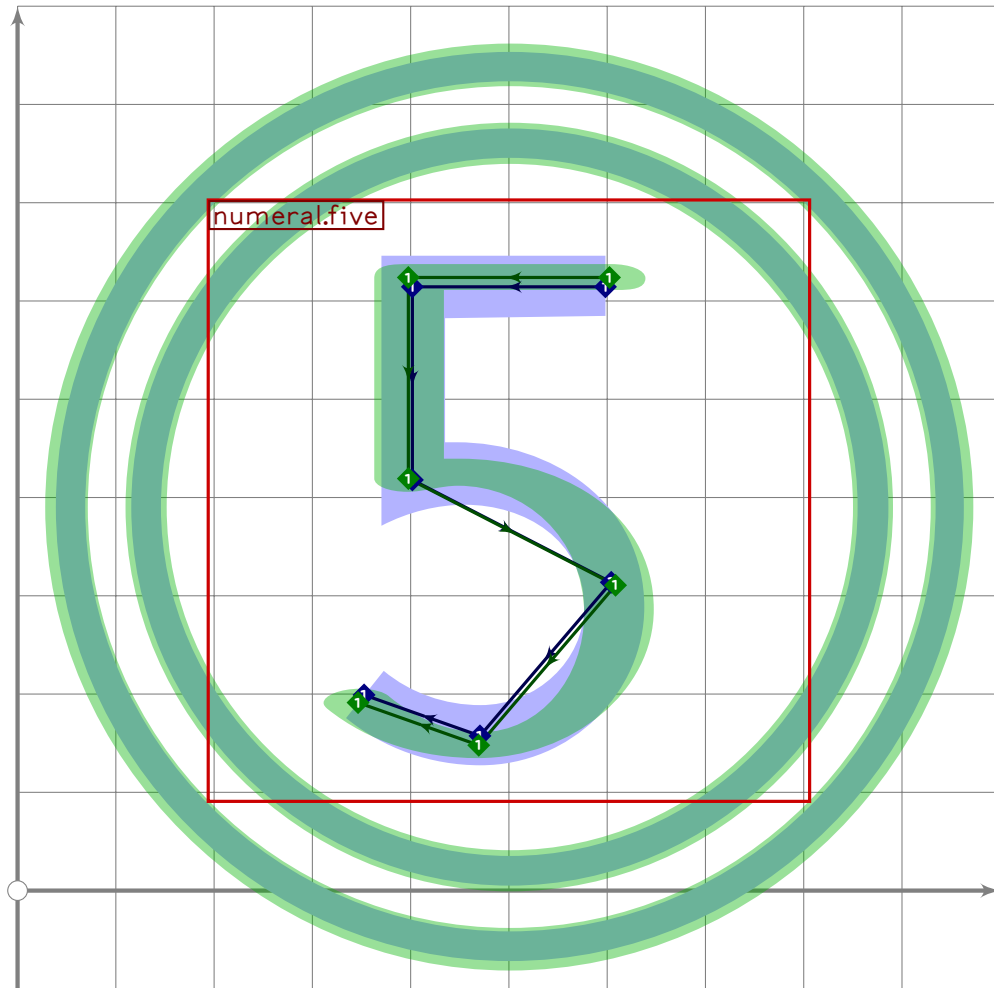


```
715 % 3
716 beginsuglyph("uni24F7";247);
717 circle.double;
718 tsu_xform(tsu_xf.circled)(numeral.three);
719 tsu_render;
720 endsuglyph;
721
```

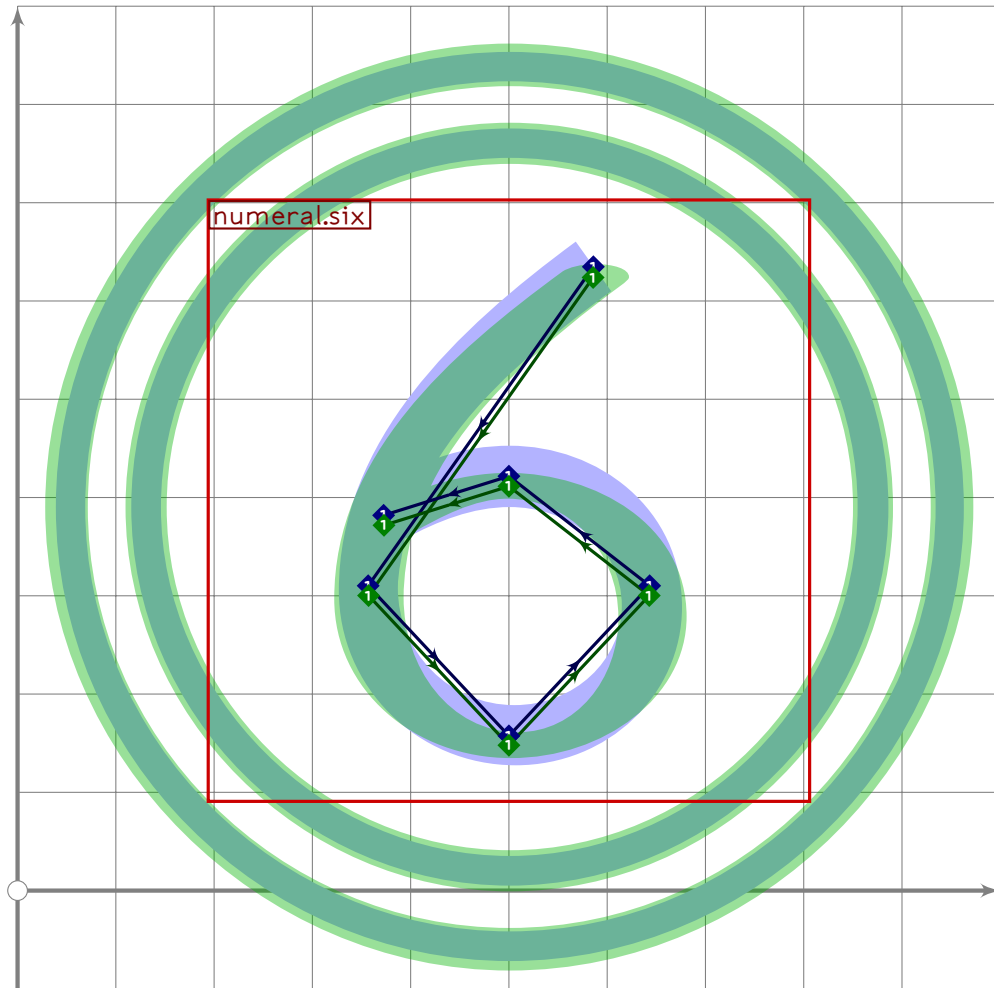


```
722 % 4
723 beginsuglyph("uni24F8";248);
724 circle.double;
725 tsu_xform(tsu_xf.circled)(numeral.four);
726 tsu_render;
727 endtsuglyph;
728
```

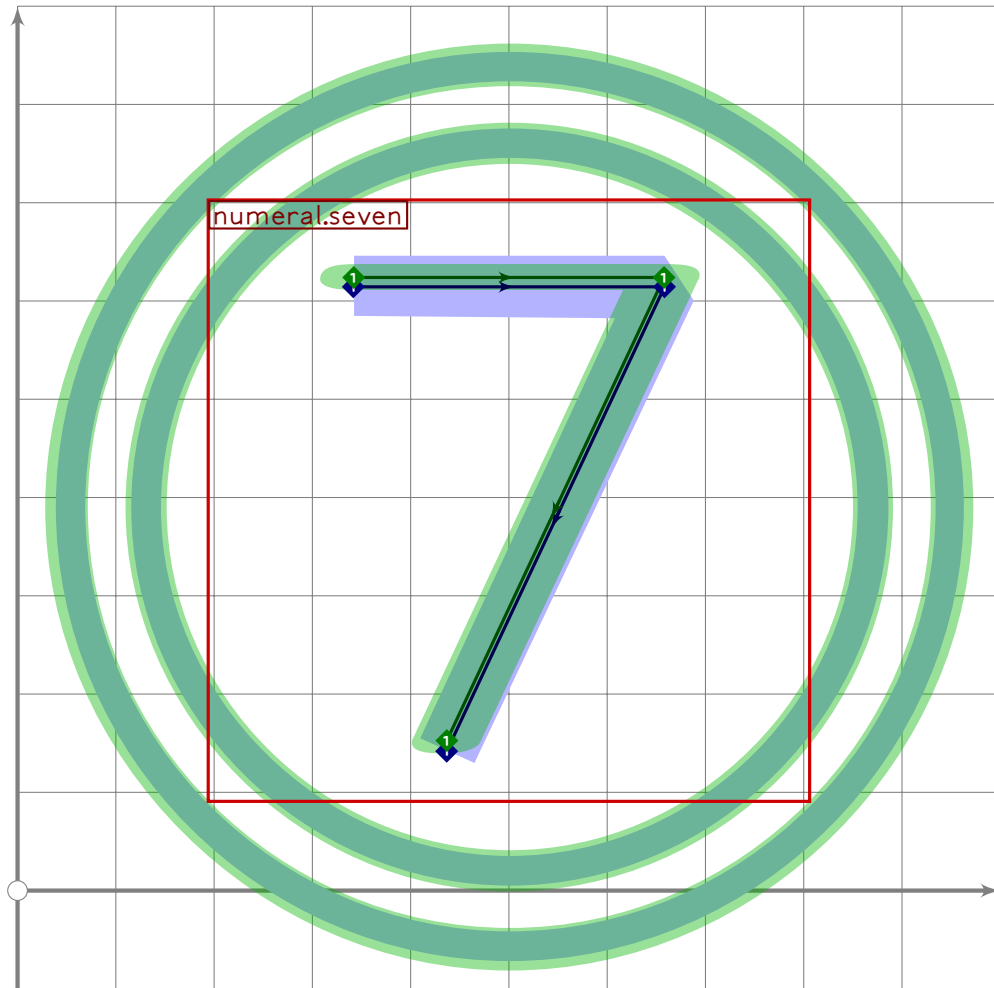




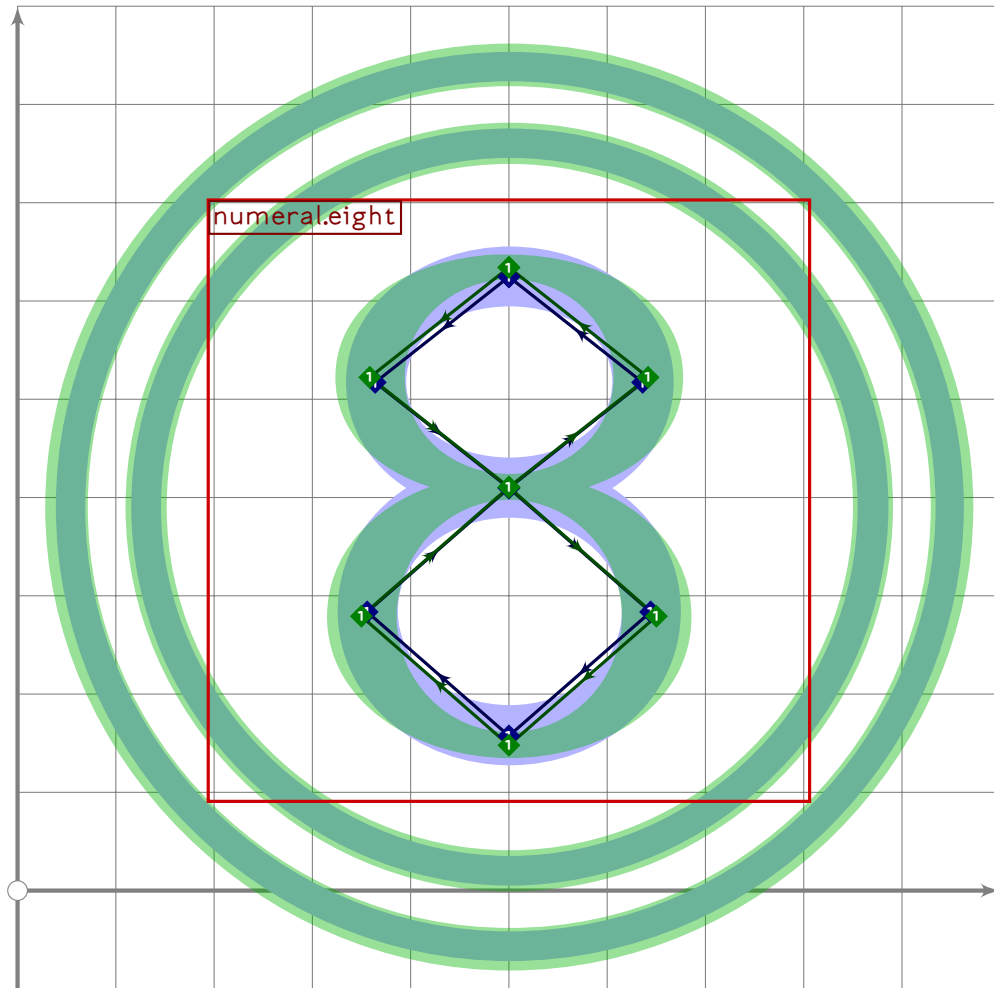
```
729 % 5
730 beginsuglyph("uni24F9";249);
731 circle.double;
732 tsu_xform(tsu_xf.circled)(numeral.five);
733 tsu_render;
734 endsuglyph;
735
```



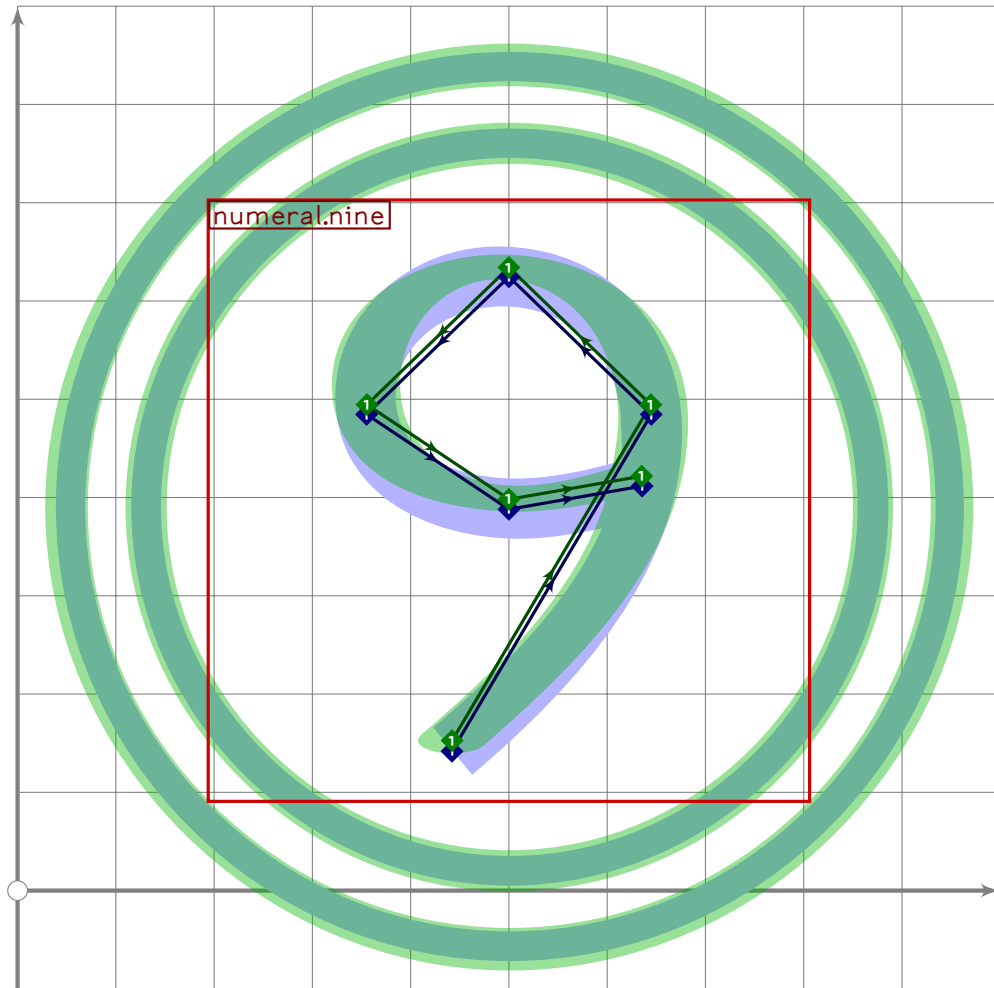
```
736 % 6  
737 beginsuglyph("uni24FA";250);  
738 circle.double;  
739 tsu_xform(tsu_xf.circled)(numeral.six);  
740 tsu_render;  
741 endtsuglyph;  
742
```



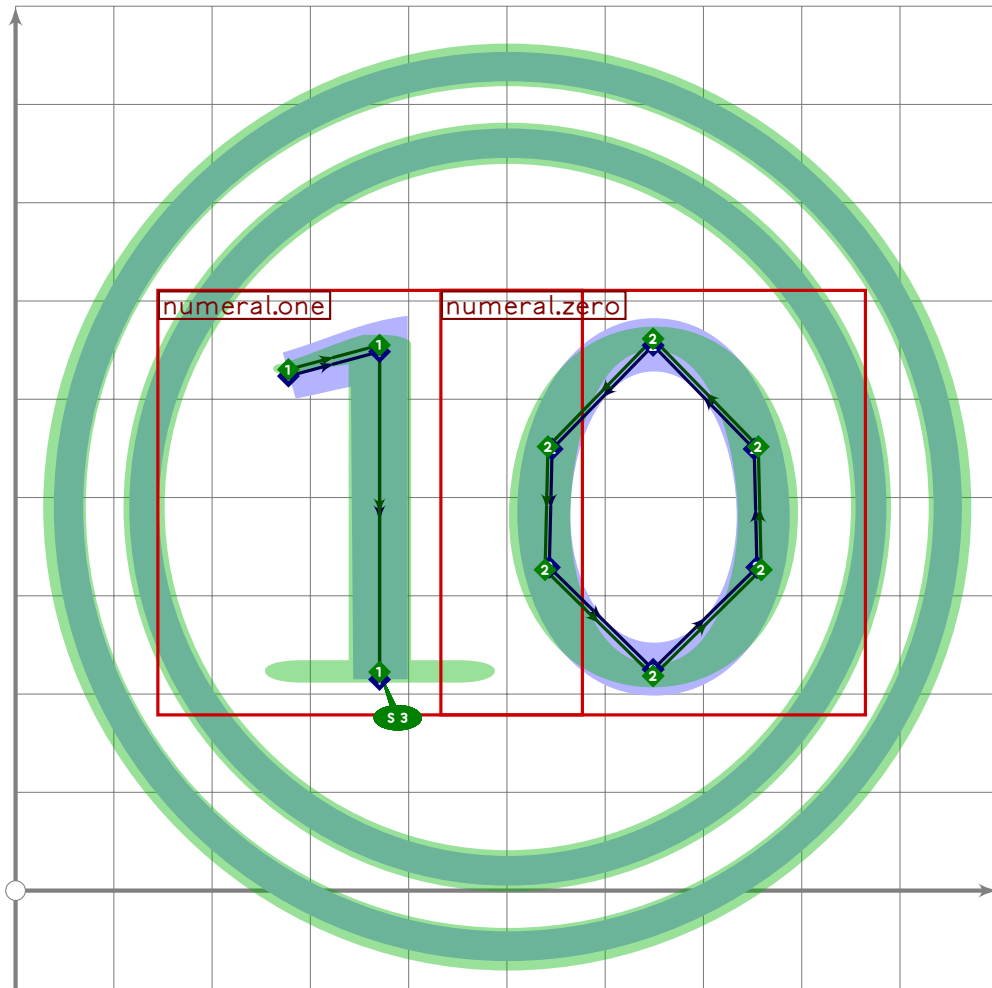
```
743 % 7
744 beginsuglyph("uni24FB";251);
745 circle.double;
746 tsu_xform(tsu_xf.circled)(numeral.seven);
747 tsu_render;
748 endsuglyph;
749
```



```
750 % 8
751 beginsuglyph("uni24FC",252);
752 circle.double;
753 tsu_xform(tsu_xf.circled)(numeral.eight);
754 tsu_render;
755 endsuglyph;
756
```



```
757 % 9
758 begintsuglyph("uni24FD",253);
759 circle.double;
760 tsu_xform(tsu_xf.circled)(numeral.nine);
761 tsu_render;
762 endtsuglyph;
763
```



```

764 % 10
765 begint Suglyph("uni24FE";254);
766   circle.double;
767   tsu_xform(tsu_xf.ctwo.left)(numeral.one);
768   numeric x[],y[];
769   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
770   tsu_render;
771 endtsuglyph;
772
773 _____
774

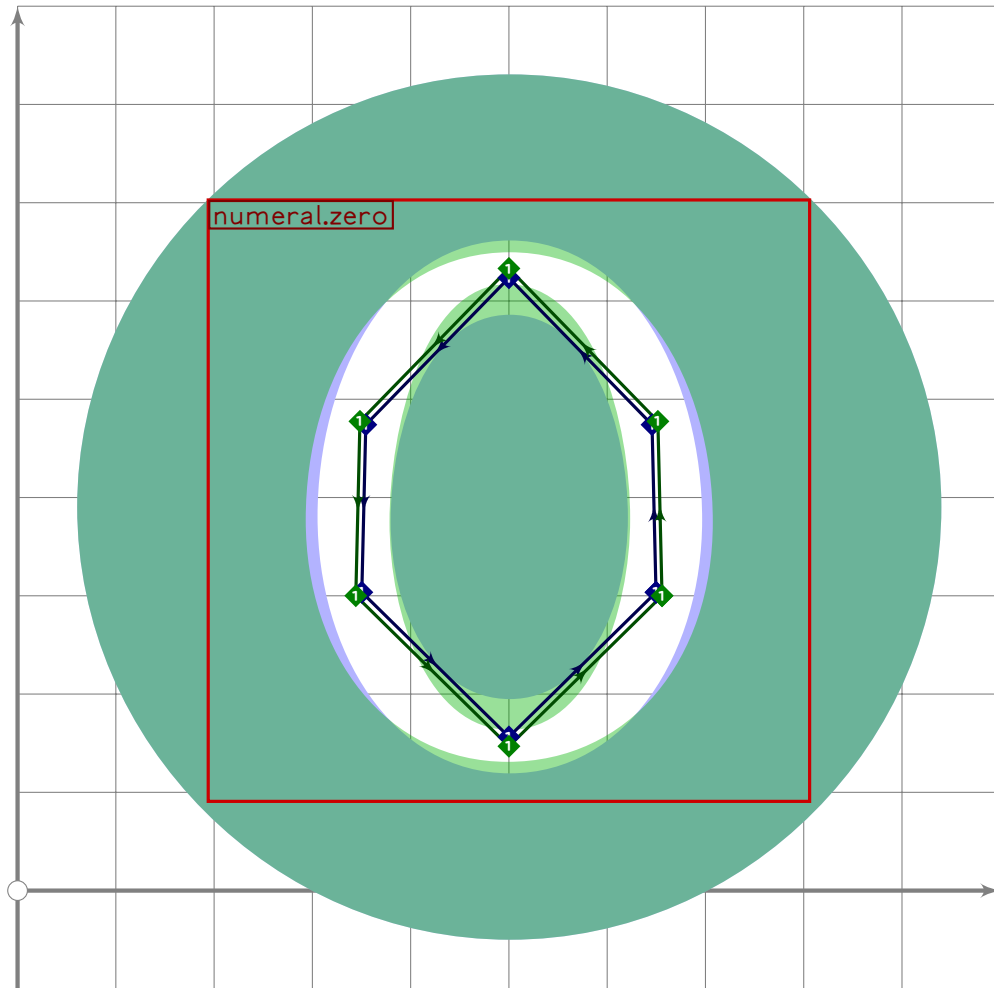
```

## One More Inverted Circled Numeral

```

775 % ONE MORE INVERTED CIRCLED NUMERAL
776

```



```

777 % 9
778 % BACKGROUND 25CF
779 beginsuglyph("uni24FF";255);
780 tsu_xform(tsu_xf.circled)(numeral.zero);
781 i:=0; forever: exitif find_stroke(i)<1;
782   set_bosize(i,107); i:=i-1; endfor;
783 tsu_render;
784 endsuglyph;
785
786 _____
787
788 endfont;
789
790 _____

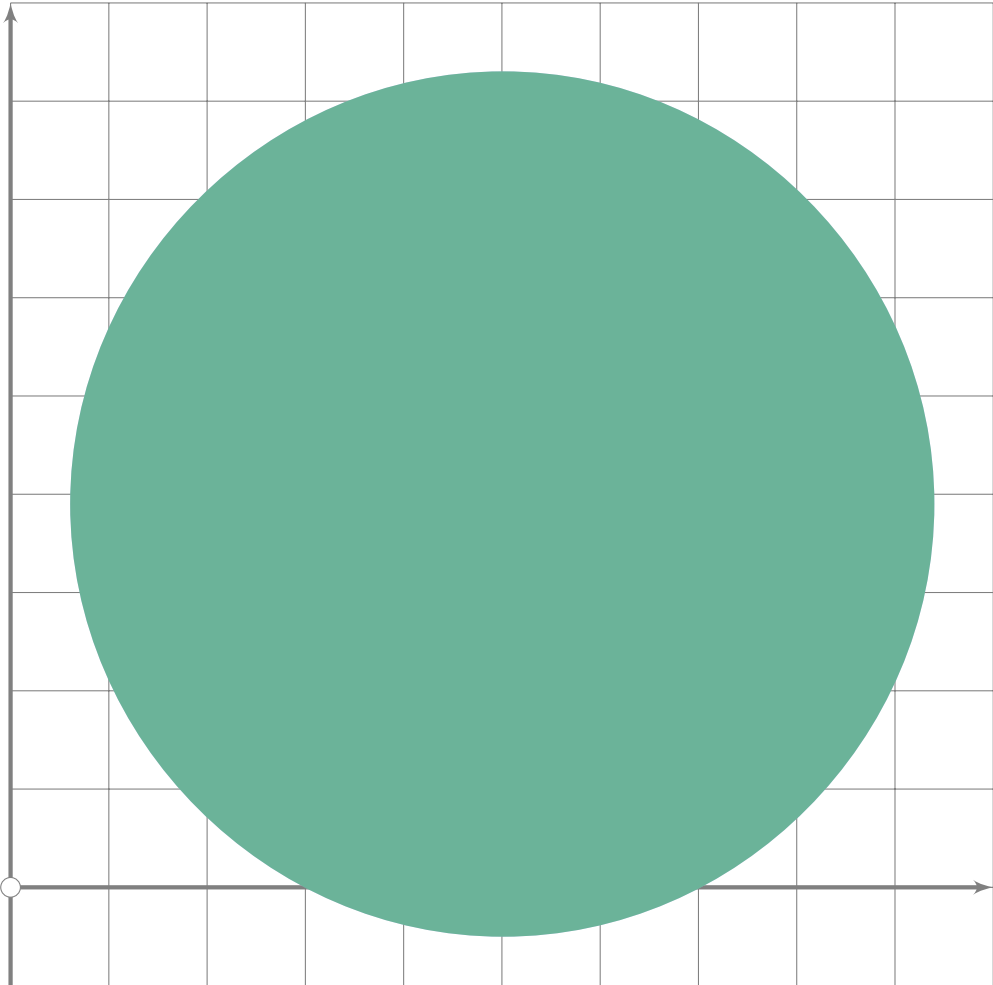
```

# tsuku-25.mp

```
1 %  
2 % Unicode page 24 (Geometric Shapes) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36  
37 _____  
38
```

## Geometric Shapes

```
39 % GEOMETRIC SHAPES  
40
```



```
41 % black circle - used as background for inverted dingbats
```



```
42 begintsuglyph("uni25CF",207);  
43   Fill fullcircle scaled 880 shifted centre_pt;  
44 endsuglyph;  
45  
46 

---

  
47  
48 endfont;  
49  
50 

---


```

# tsuku-26.mp

```
1 %
2 % Unicode page 26 (Misc. Symbols) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

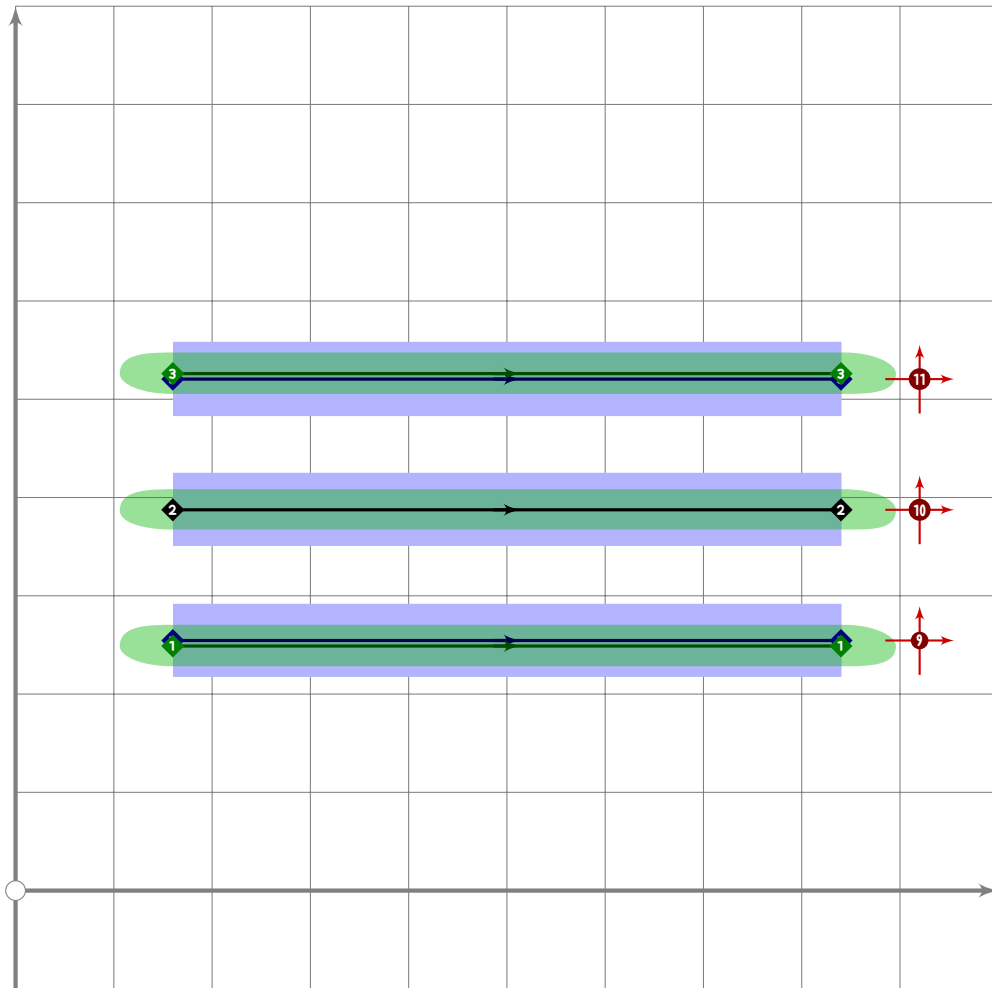

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input iching.mp;
39
40 

---


41
```

## I Ching

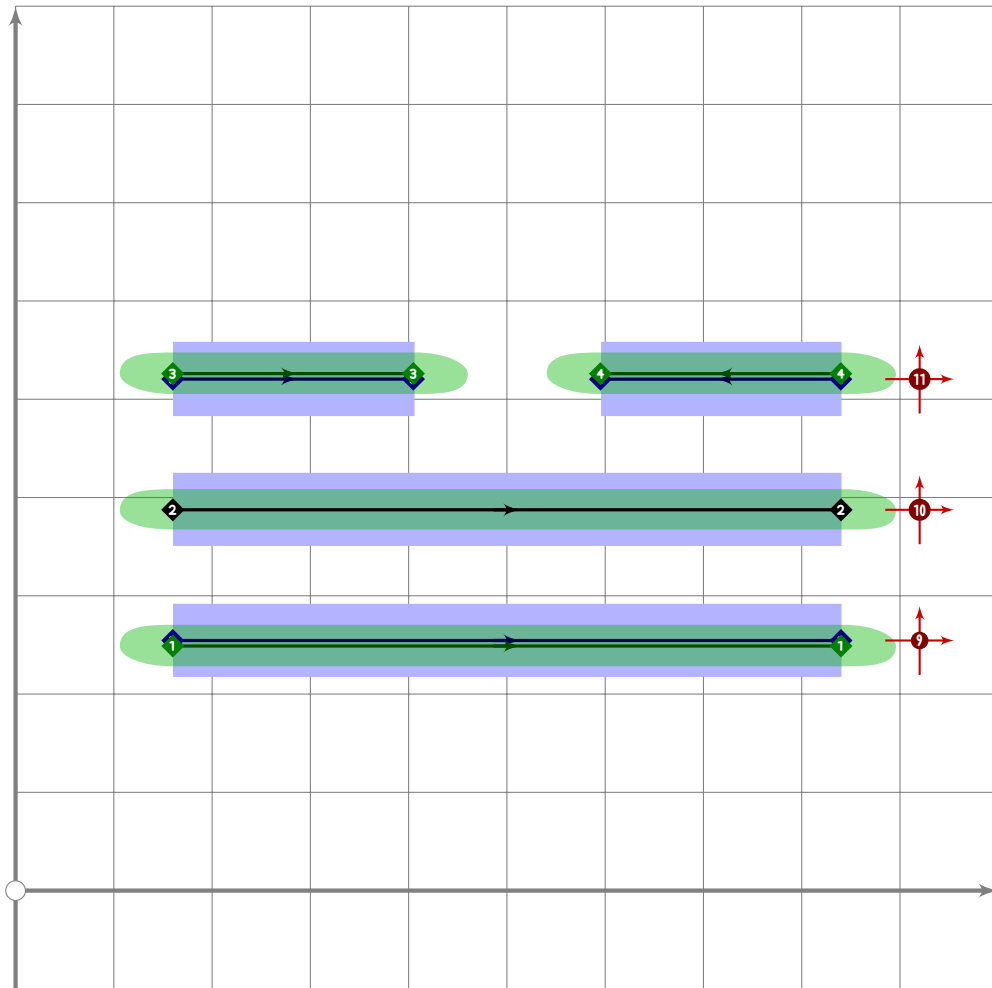
42 % I CHING



```

43
44 begintsuglyph("ichingtri1",48);
45 iching.line(1,3,1);
46 iching.line(2,3,1);
47 iching.line(3,3,1);
48 tsu_render;
49 endtsuglyph;

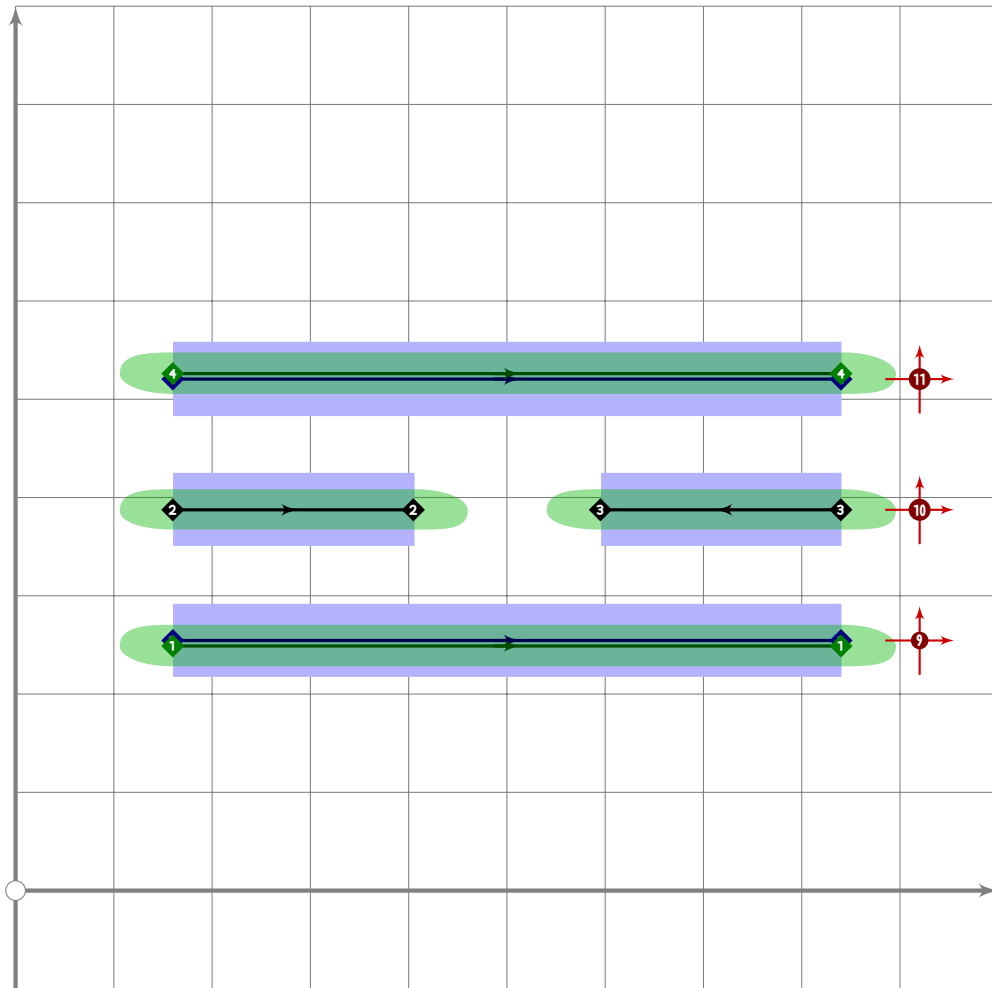
```



```

50
51 begint Suglyph("ichingtri2"49);
52  iching.line(1,3,1);
53  iching.line(2,3,1);
54  iching.line(3,3,0);
55  tsu_render;
56 endtsuglyph;

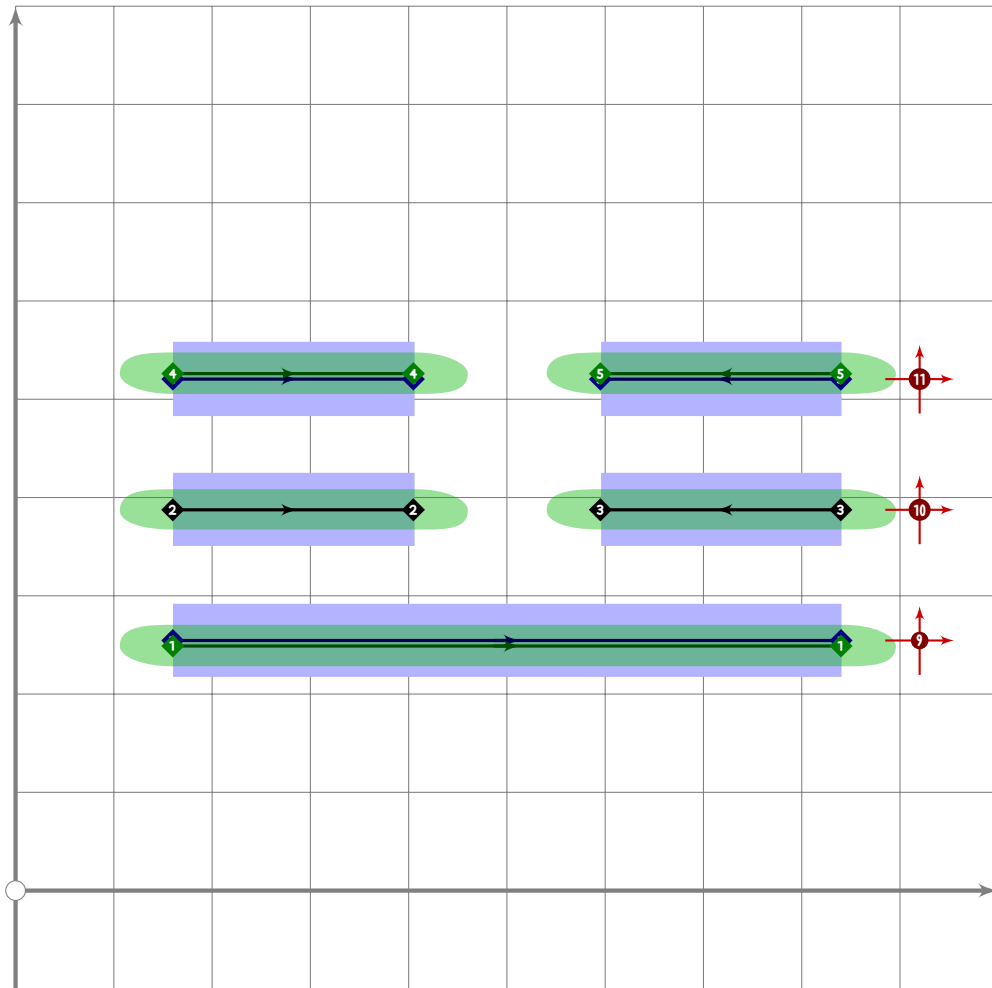
```



```

57
58 begint Suglyph("ichingtri3",50);
59  iching.line(1,3,1);
60  iching.line(2,3,0);
61  iching.line(3,3,1);
62  tsu_render;
63 endtsuglyph;

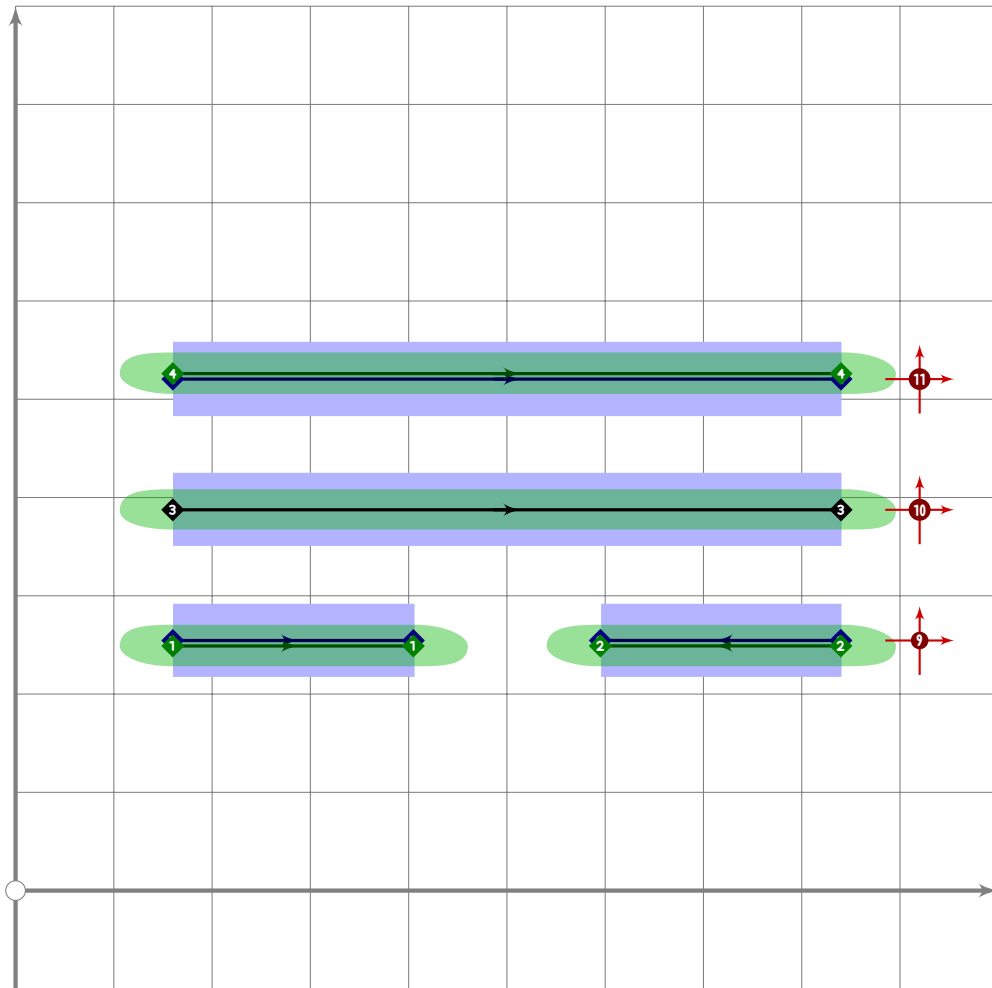
```



```

64
65 begint Suglyph("ichingtri4",51);
66  iching.line(1,3,1);
67  iching.line(2,3,0);
68  iching.line(3,3,0);
69  tsu_render;
70 endtsuglyph;

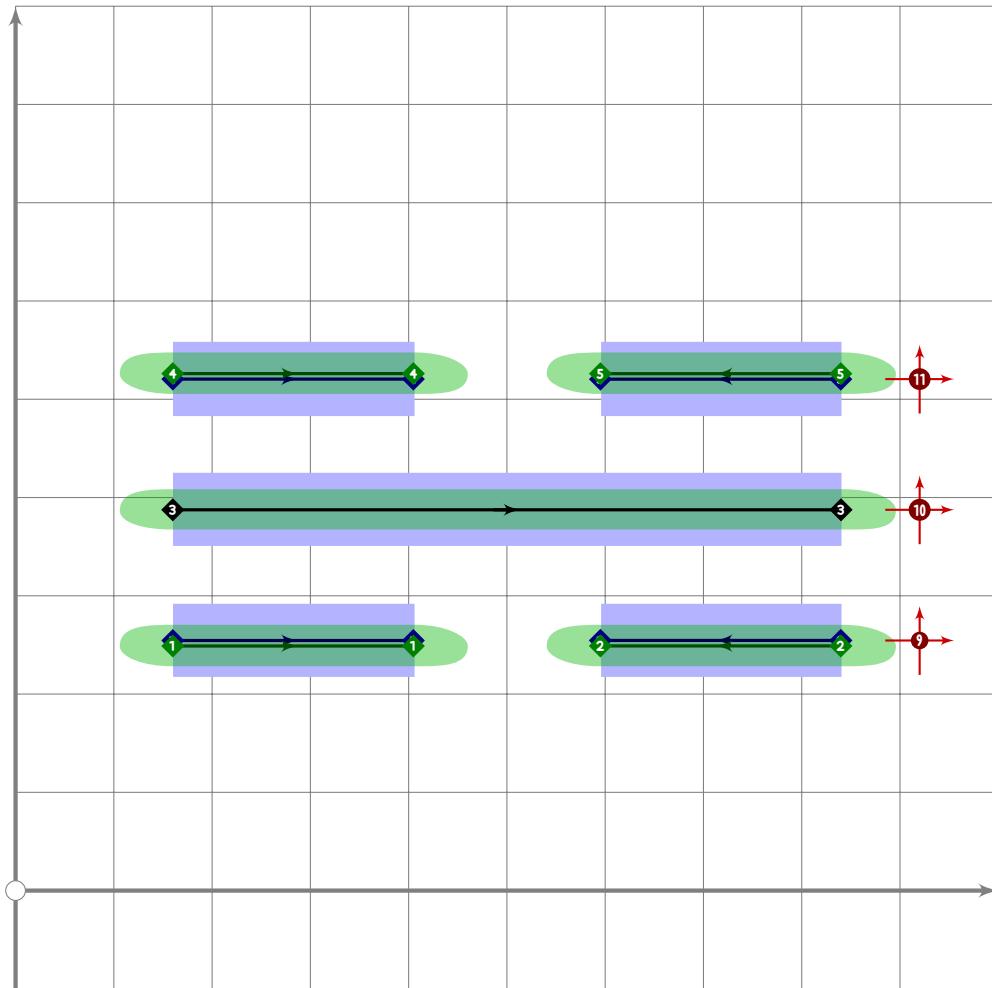
```



```

71
72 begintsuglyph("ichingtri5",52);
73 iching.line(1,3,0);
74 iching.line(2,3,1);
75 iching.line(3,3,1);
76 tsu_render;
77 endtsuglyph;

```

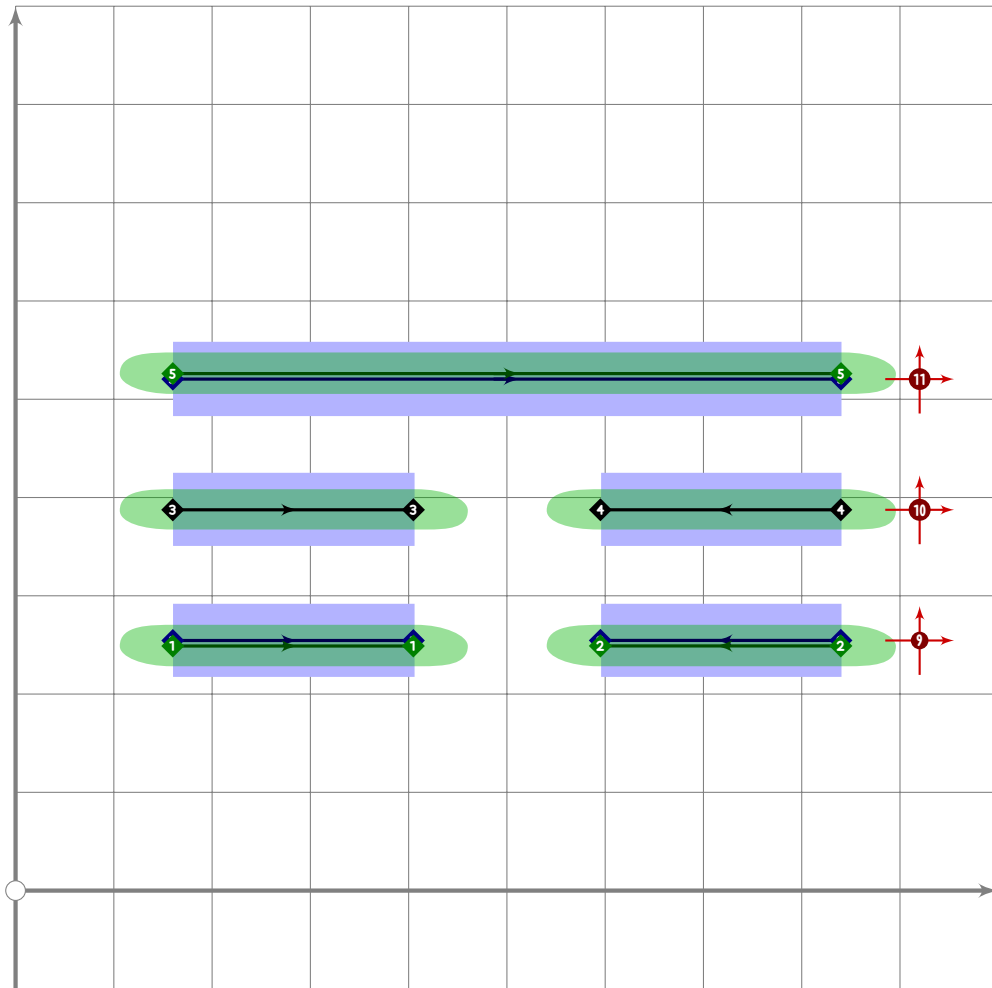


```

78
79 begint Suglyph("ichingtri6",53);
80  iching.line(1,3,0);
81  iching.line(2,3,1);
82  iching.line(3,3,0);
83  tsu_render;
84 endtsuglyph;

```

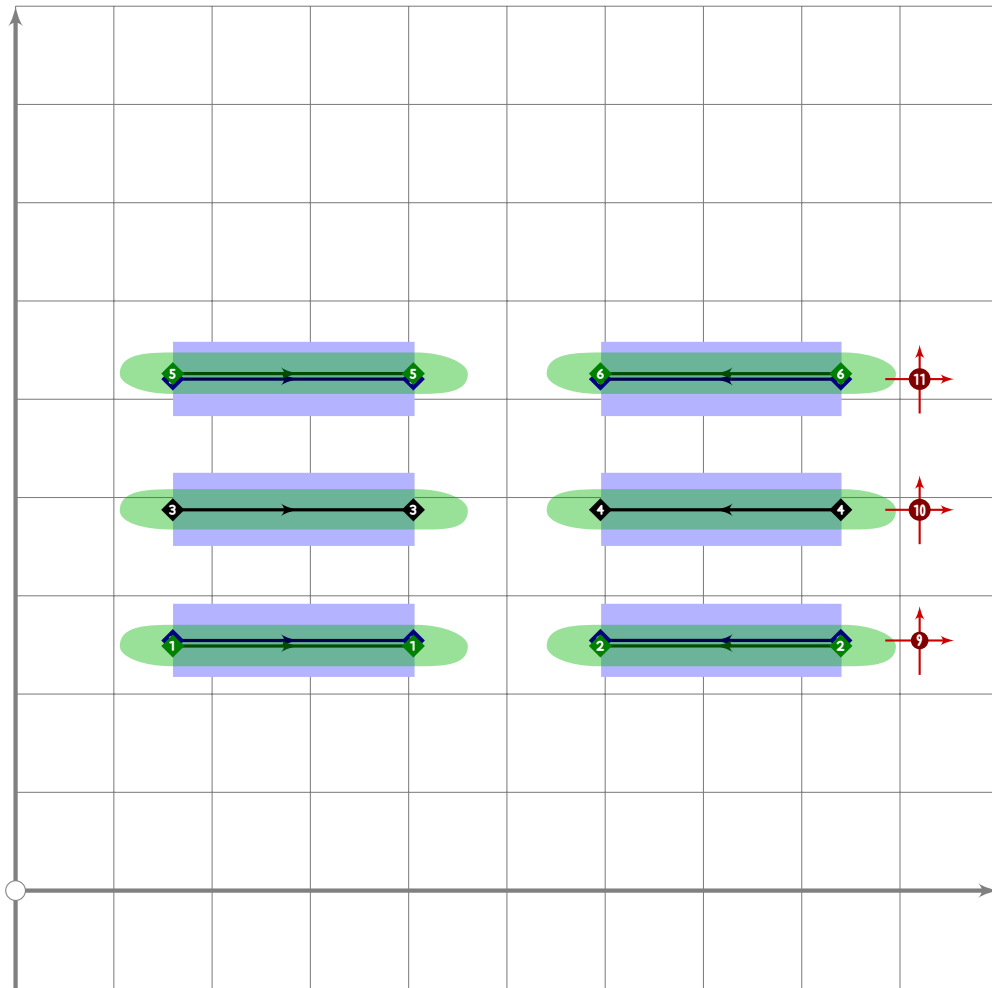




```

85
86 begint Suglyph("ichingtri7",54);
87   iching.line(1,3,0);
88   iching.line(2,3,0);
89   iching.line(3,3,1);
90   tsu_render;
91   endtsuglyph;

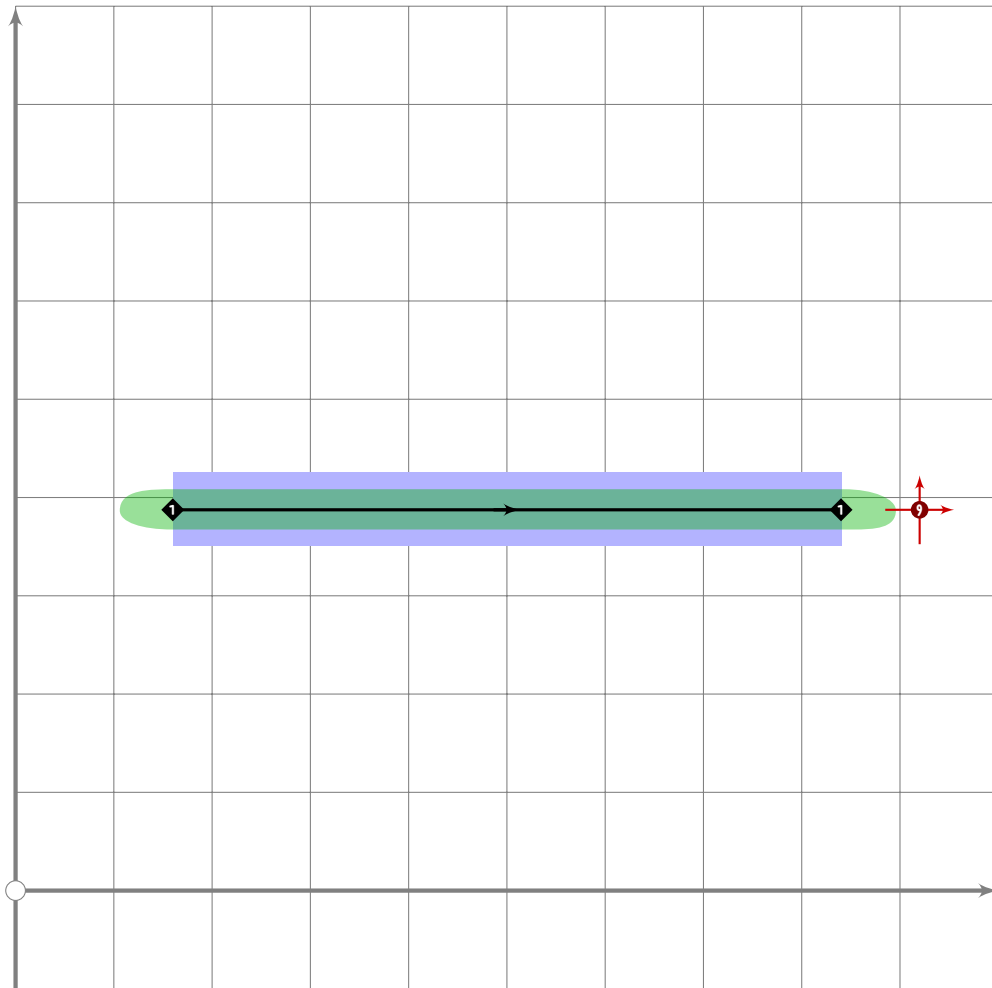
```



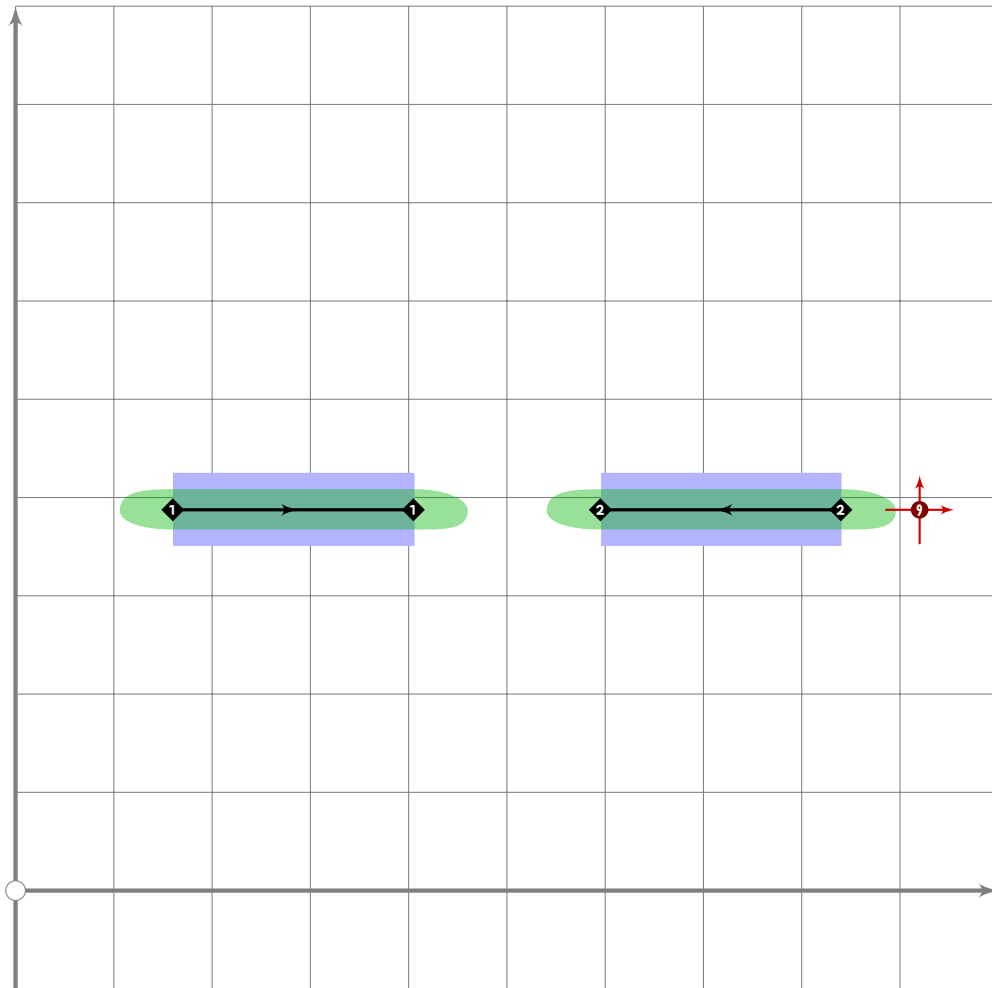
```

92
93 begint Suglyph("ichingtri8",55);
94   iching.line(1,3,0);
95   iching.line(2,3,0);
96   iching.line(3,3,0);
97   tsu_render;
98 endtsuglyph;

```



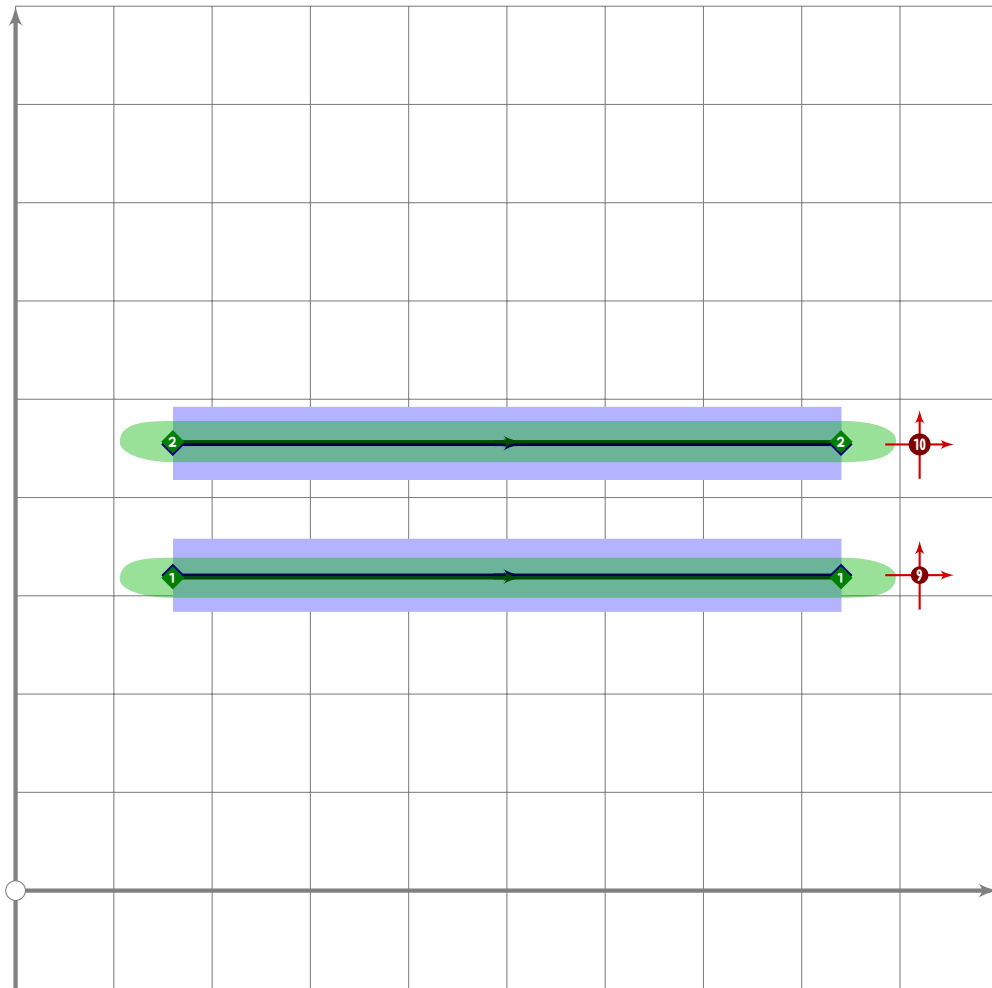
```
99  
100 begintsuglyph("ichingmono",138);  
101 iching.line(1,1);  
102 tsu_render;  
103 endtsuglyph;
```



```

104
105 begintsuglyph("ichingmono2",139);
106 iching.line(1,1,0);
107 tsu_render;
108 endtsuglyph;

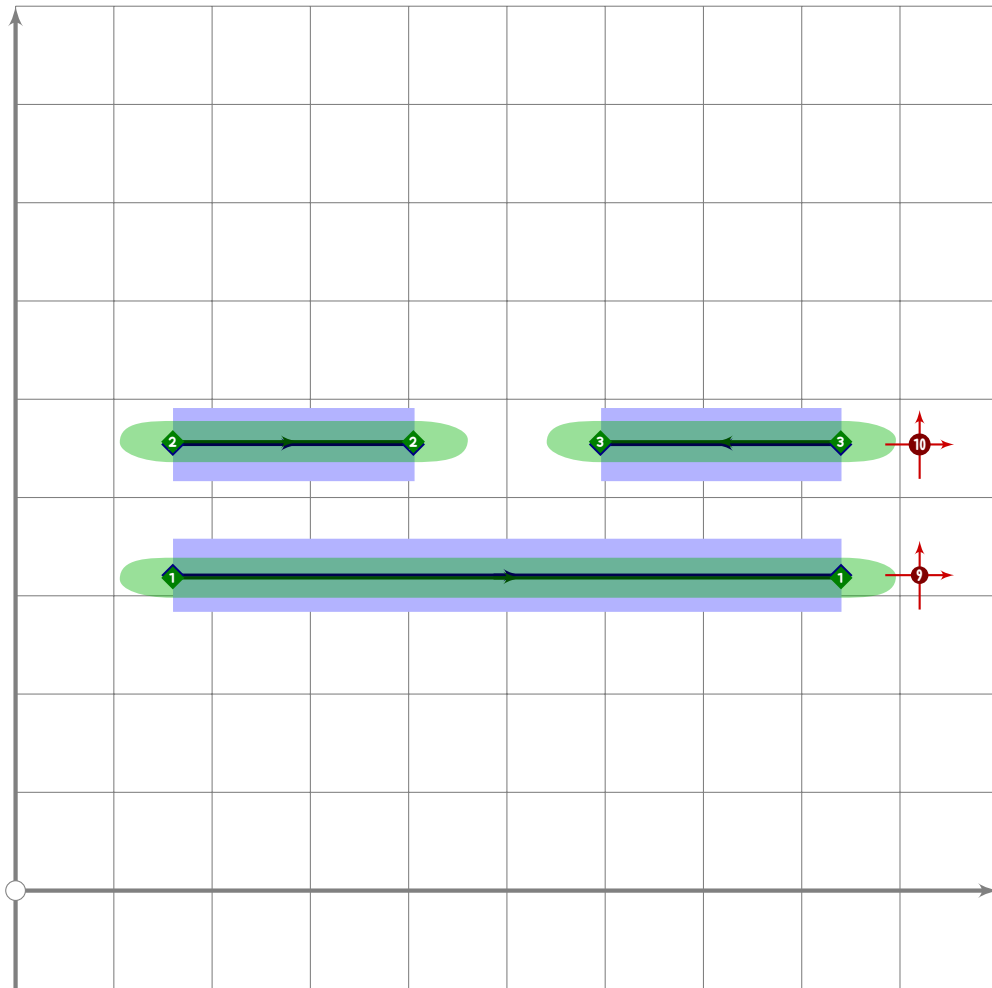
```



```

109
110 begintsuglyph("ichingdi",140);
111 iching.line(1,2,1);
112 iching.line(2,2,1);
113 tsu_render;
114 endtsuglyph;

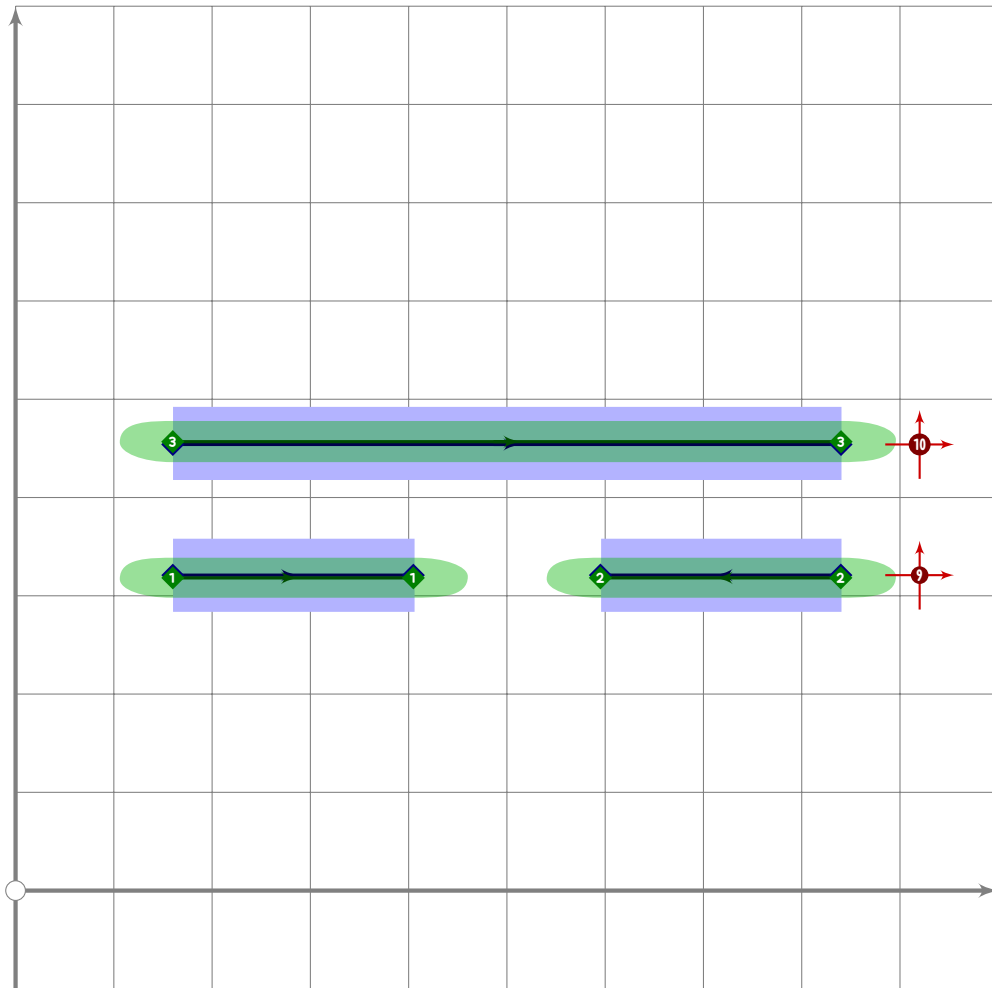
```



```

115
116 begintsuglyph("ichingdi2",141);
117 iching.line(1,2,1);
118 iching.line(2,2,0);
119 tsu_render;
120 endtsuglyph;

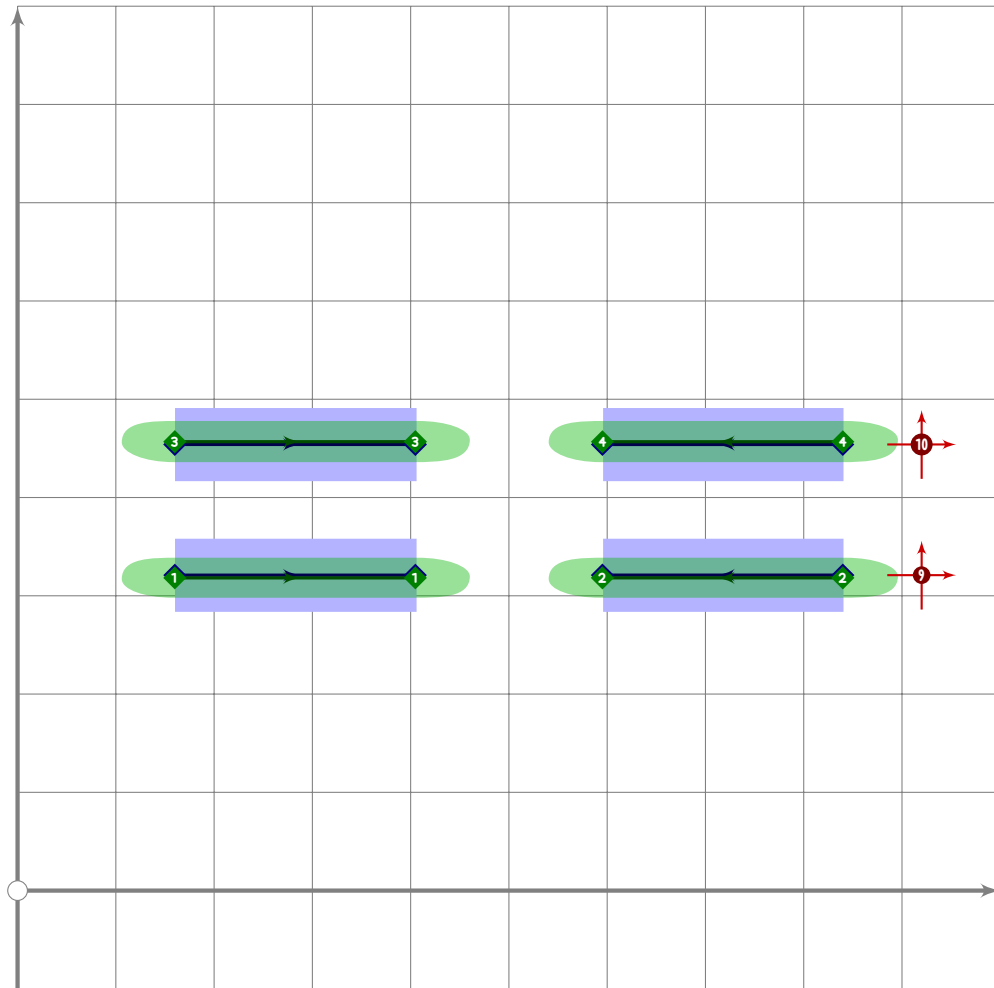
```



```

121
122 begintsuglyph("ichingdi3",142);
123 iching.line(1,2,0);
124 iching.line(2,2,1);
125 tsu_render;
126 endtsuglyph;

```

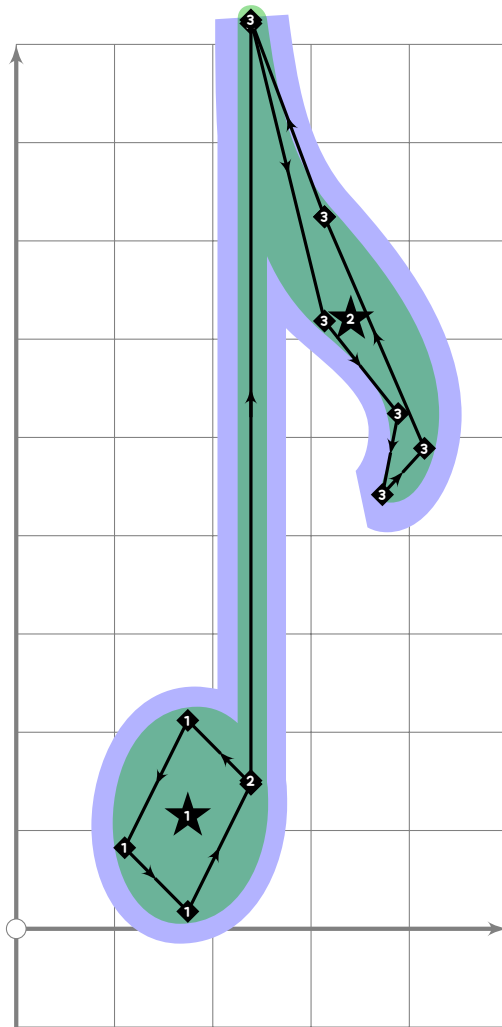


```

127
128 begintsuglyph("ichingdi4",143);
129 iching.line(1,2,0);
130 iching.line(2,2,0);
131 tsu_render;
132 endtsuglyph;
133
134 _____
135
136 % musical eighth note, required for MES-1
137 tsu_rescale_half;

```





```

138 begint Suglyph("musicalnote";106);
139 push_stroke((500,150)..(380,205)..(260,95)..(380,40)..cycle,
140   (1,6,1,6)-(1,4,1,4)-(1,4,1,4)-(1,4,1,4)-cycle);
141 set_boalternate(0);
142 push_stroke((500,153)-(500,807),(1,6,1,6)-(1,6,1,6));
143 set_boalternate(0);
144 push_stroke((640,640)..{curl 1}(500,810){down}(640,550)..(780,470)..
145   {curl 1}(750,400){curl 1}(830,440)..cycle,
146   (1,3,1,3)-(1,6,1,6)-(1,3,1,3)-(1,3,1,3)-(1,1)-(1,3,1,3));
147 set_botip(0,1,0);
148 set_botip(0,4,0);
149 set_boalternate(0);
150 if tsu_pbrush_size>=30:
151   push_lcblob(get_stroke(-2));
152   push_lcblob(get_stroke(0));
153 fi;
154 tsu_render;
155 endtsuglyph;
156
157

```

158

159 **endfont;**

160

161

---

# tsuku-27.mp

```
1 %
2 % Unicode page 27 (Zapfian Dingbats) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

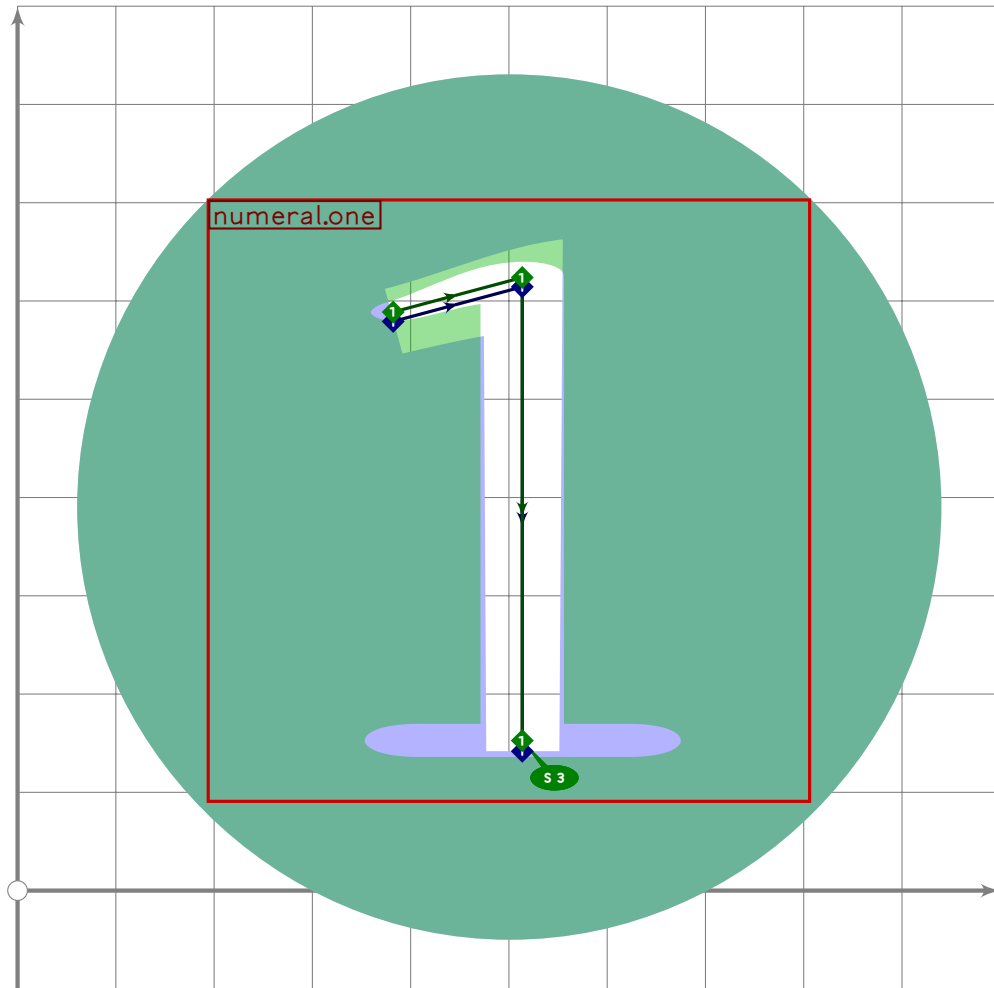

32
33 beginfont
34
35 input latin-intro.mp;
36 input enclosed.mp;
37
38 % AUTODEPS
39 input numerals.mp;
40
41 

---


42
```

## Inverted Circled Numerals

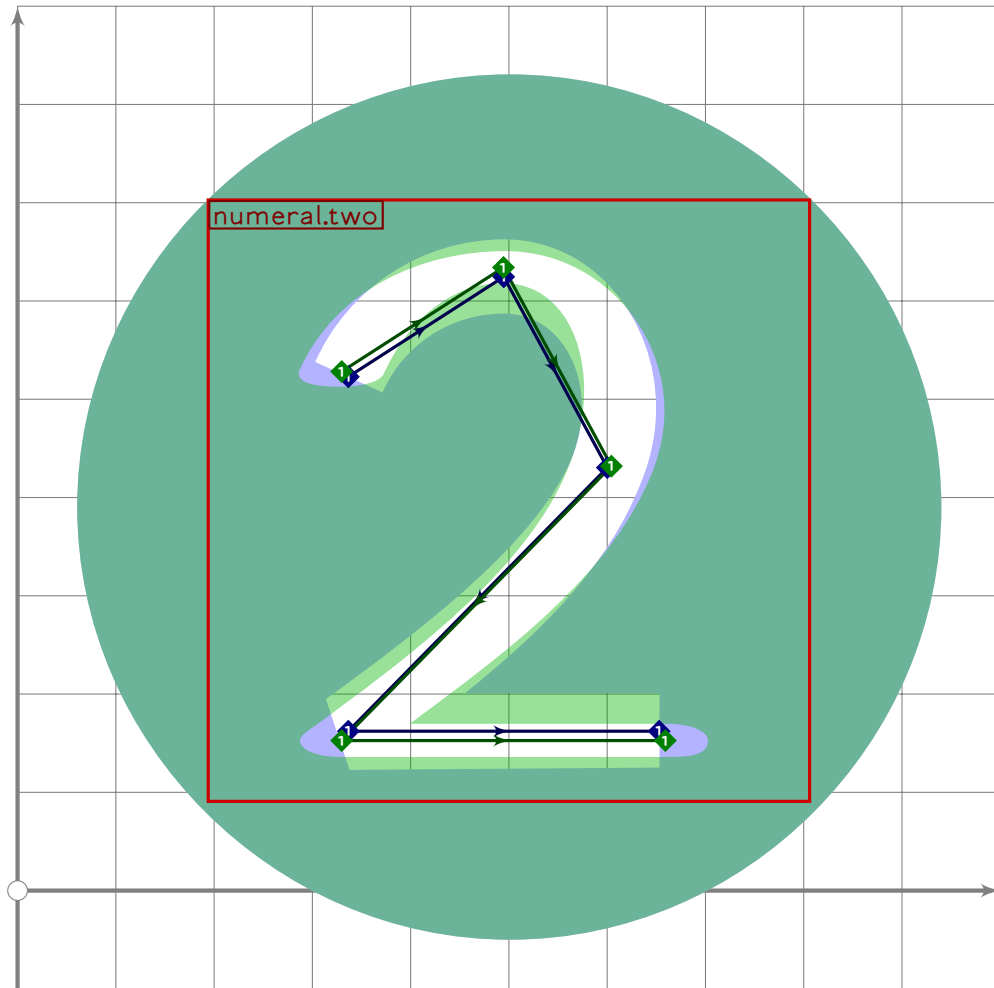
```
43 % INVERTED CIRCLED NUMERALS
44
```



```

45 % 1
46 % BACKGROUND 25CF
47 begint Suglyph("uni2776";118);
48   tsu_xform(tsu_xf.circled)(numeral.one);
49   i:=0; forever: exitif find_stroke(i)<1;
50     set_bosize(i,107); i:=i-1; endfor;
51   tsu_render;
52 endtsuglyph;
53

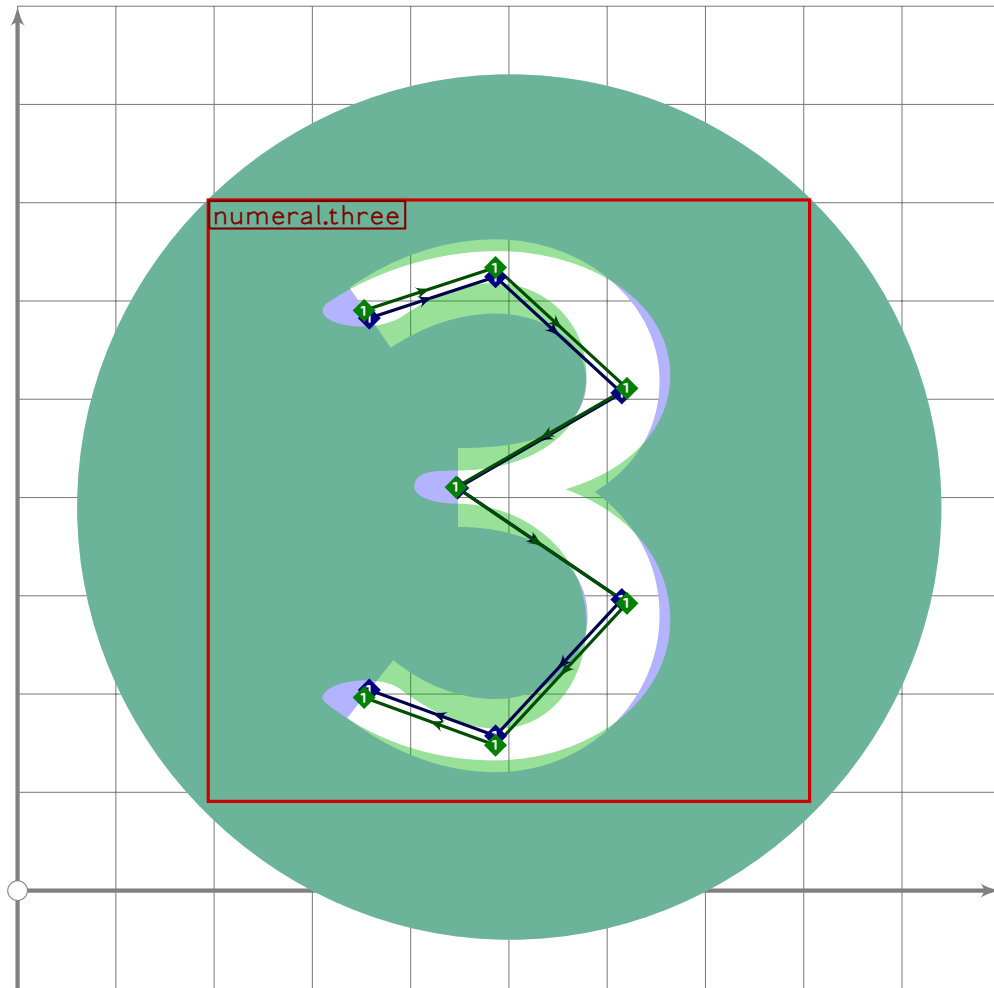
```



```

54 % 2
55 % BACKGROUND 25CF
56 begintuglyph("uni2777";19);
57   tsu_xform(tsu_xf.circled)(numeral.two);
58   i:=0; forever: exitif find_stroke(i)<1;
59     set_bosize(i,107); i:=i-1; endfor;
60   tsu_render;
61 endtuglyph;
62

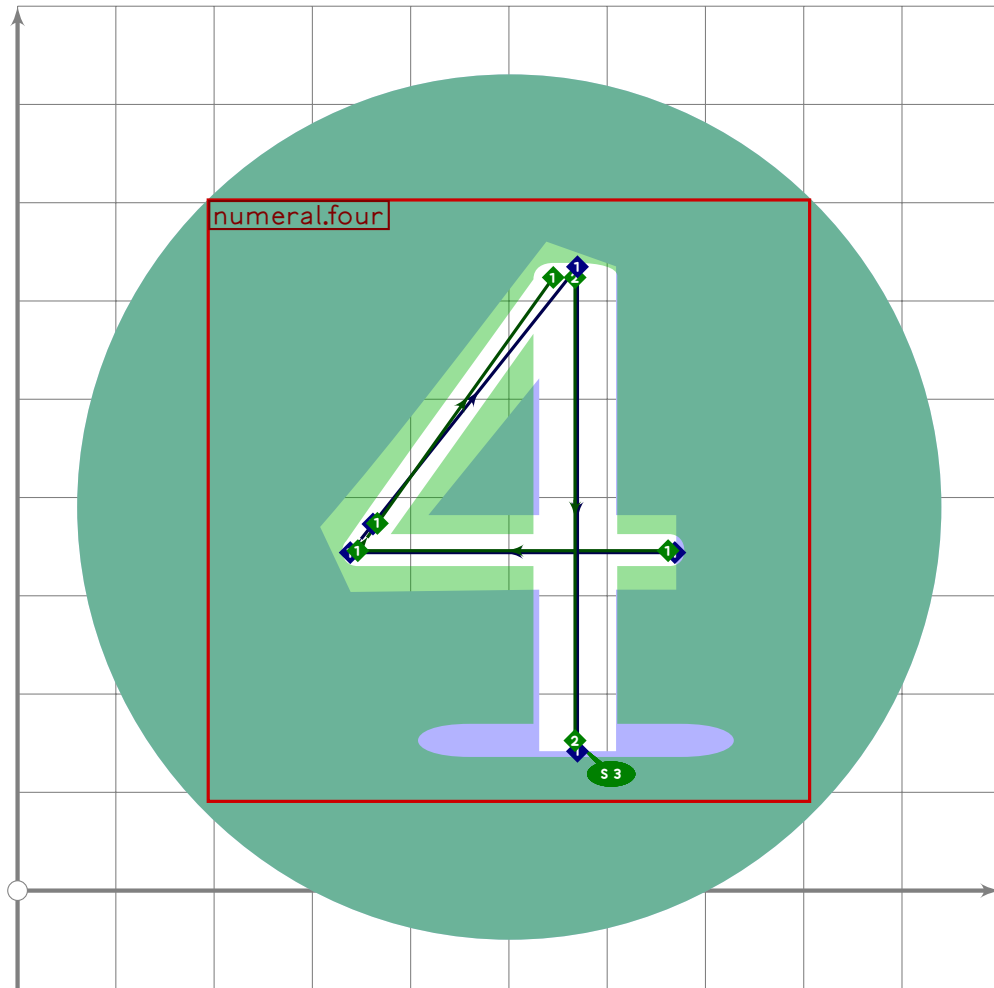
```



```

63 % 3
64 % BACKGROUND 25CF
65 begint Suglyph("uni2778";120);
66 tsu_xform(tsu_xf.circled)(numeral.three);
67 i:=0; forever: exitif find_stroke(i)<1;
68   set_bosize(i,107); i:=i-1; endfor;
69 tsu_render;
70 endtsuglyph;
71

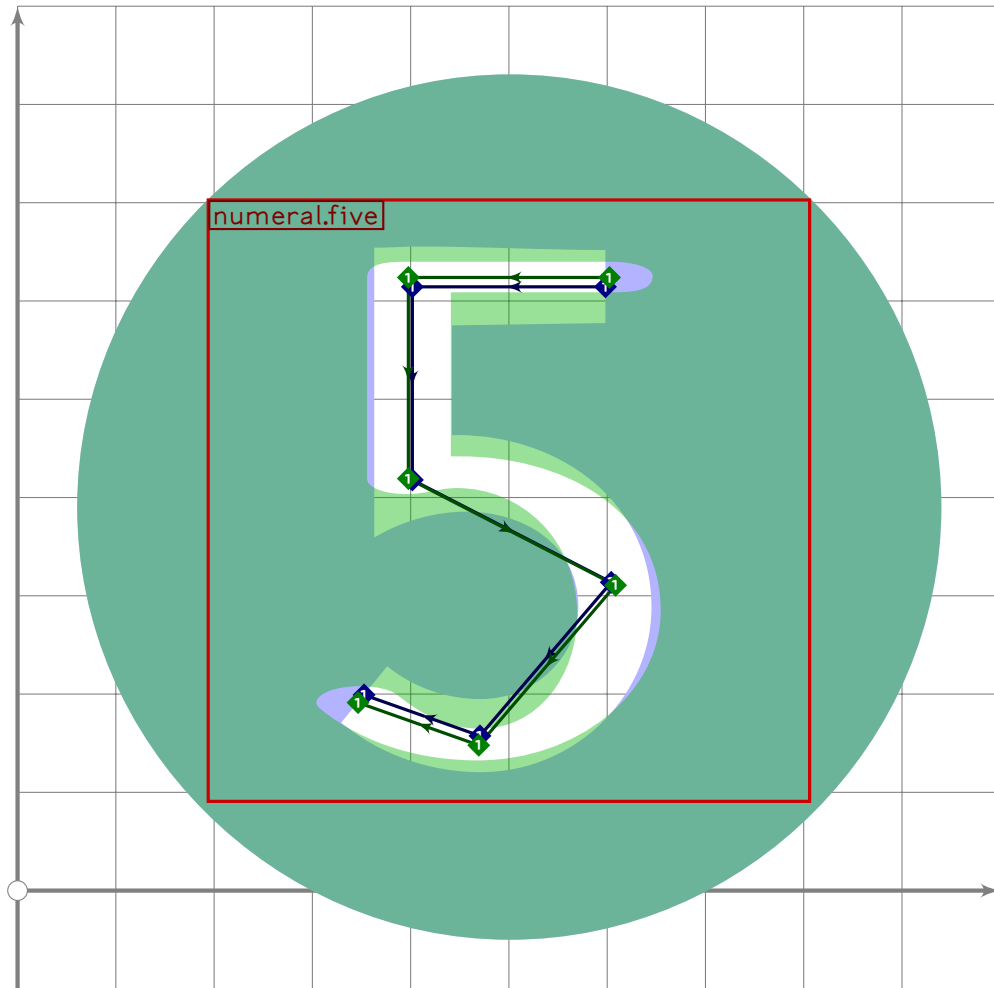
```



```

72 % 4
73 % BACKGROUND 25CF
74 begintuglyph("uni2779";121);
75 tsu_xform(tsu_xf.circled)(numeral.four);
76 i:=0; forever: exitif find_stroke(i)<1;
77   set_bosize(i,107); i:=i-1; endfor;
78 tsu_render;
79 endtsuglyph;
80

```

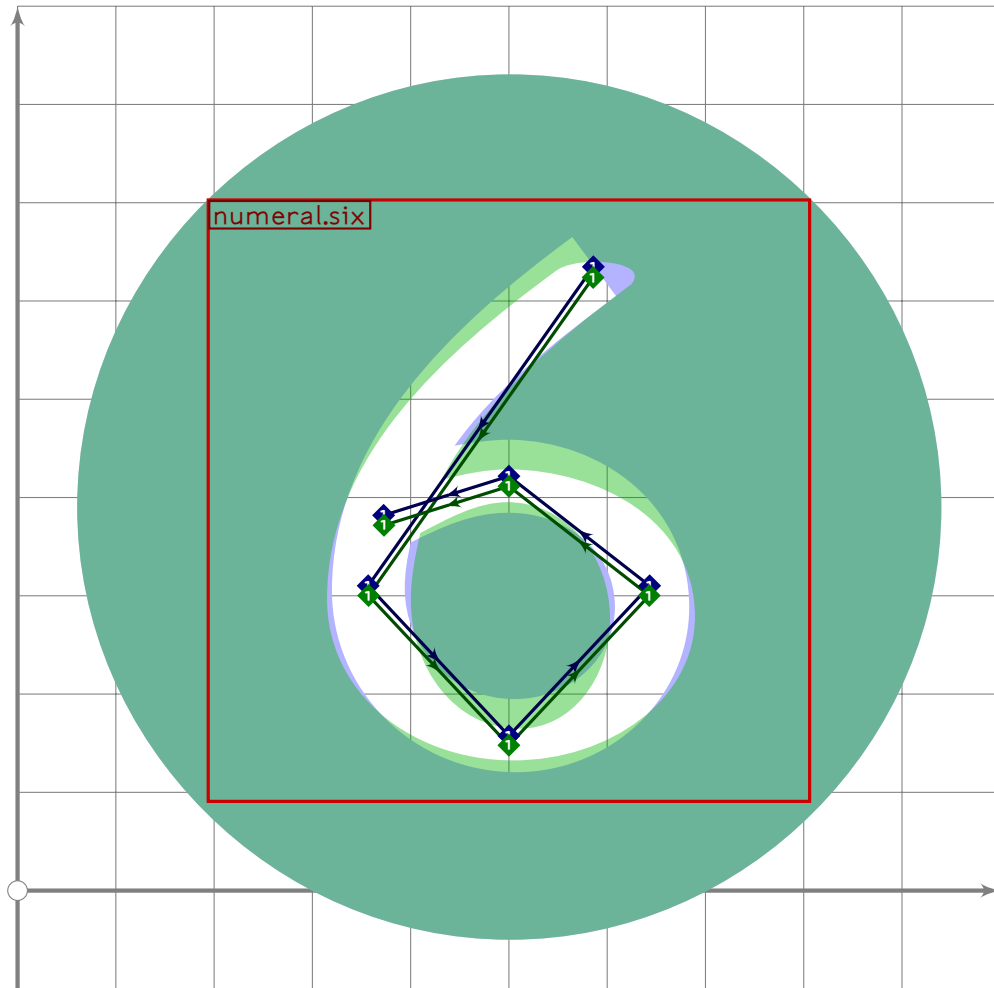


```

81 % 5
82 % BACKGROUND 25CF
83 beginsuglyph("uni277A",122);
84 tsu_xform(tsu_xf.circled)(numeral.five);
85 i:=0; forever: exitif find_stroke(i)<1;
86   set_bosize(i,107); i:=i-1; endfor;
87 tsu_render;
88 endsuglyph;
89

```

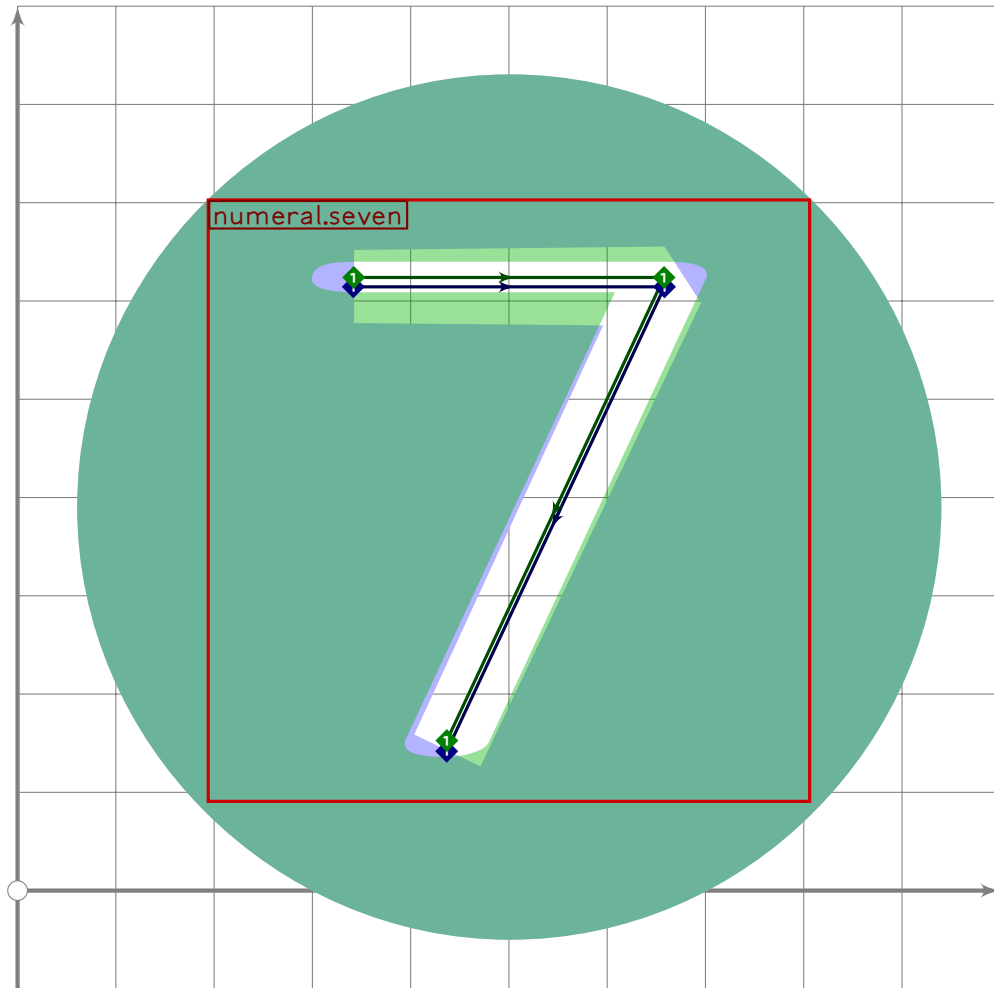




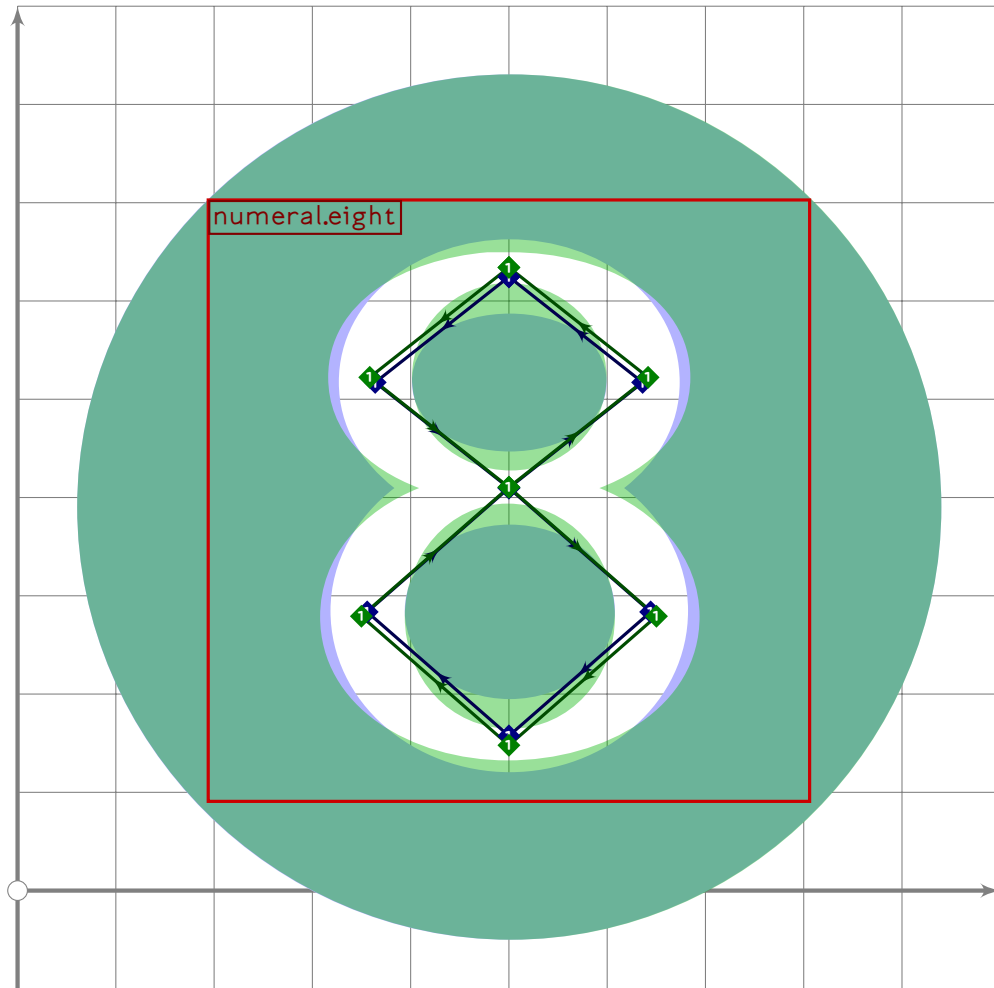
```

90 % 6
91 % BACKGROUND 25CF
92 beginsuglyph("uni277B";123);
93 tsu_xform(tsu_xf.circled)(numeral.six);
94 i:=0; forever: exitif find_stroke(i)<1;
95     set_bosize(i,107); i:=i-1; endfor;
96 tsu_render;
97 endsuglyph;
98

```



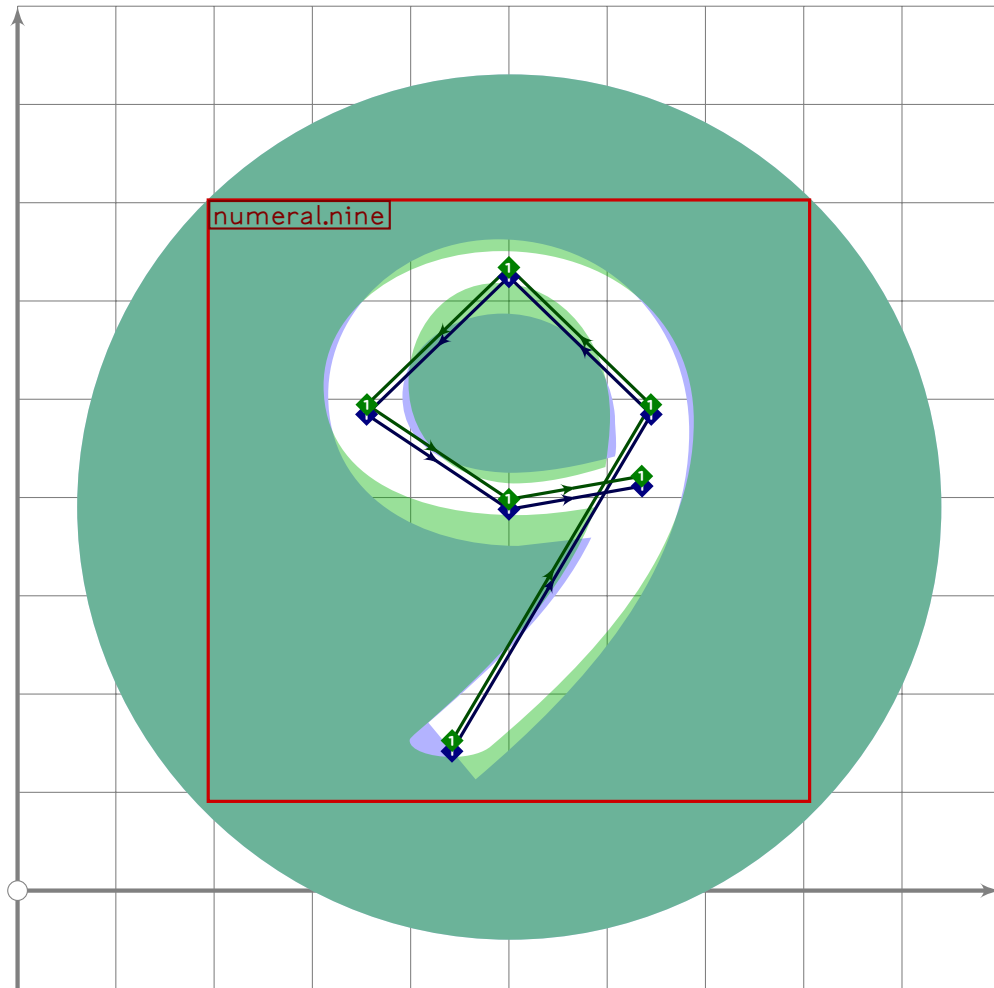
```
99 % 7
100 % BACKGROUND 25CF
101 begintsuglyph("uni277C",124);
102 tsu_xform(tsu_xf.circled)(numeral.seven);
103 i:=0; forever: exitif find_stroke(i)<1;
104   set_bosize(i,107); i:=i-1; endfor;
105 tsu_render;
106 endsuglyph;
107
```



```

108 % 8
109 % BACKGROUND 25CF
110 beginsuglyph("uni277D",125);
111   tsu_xform(tsu_xf.circled)(numeral.eight);
112   i:=0; forever: exitif find_stroke(i)<1;
113     set_bosize(i,107); i:=i-1; endfor;
114   tsu_render;
115 endsuglyph;
116

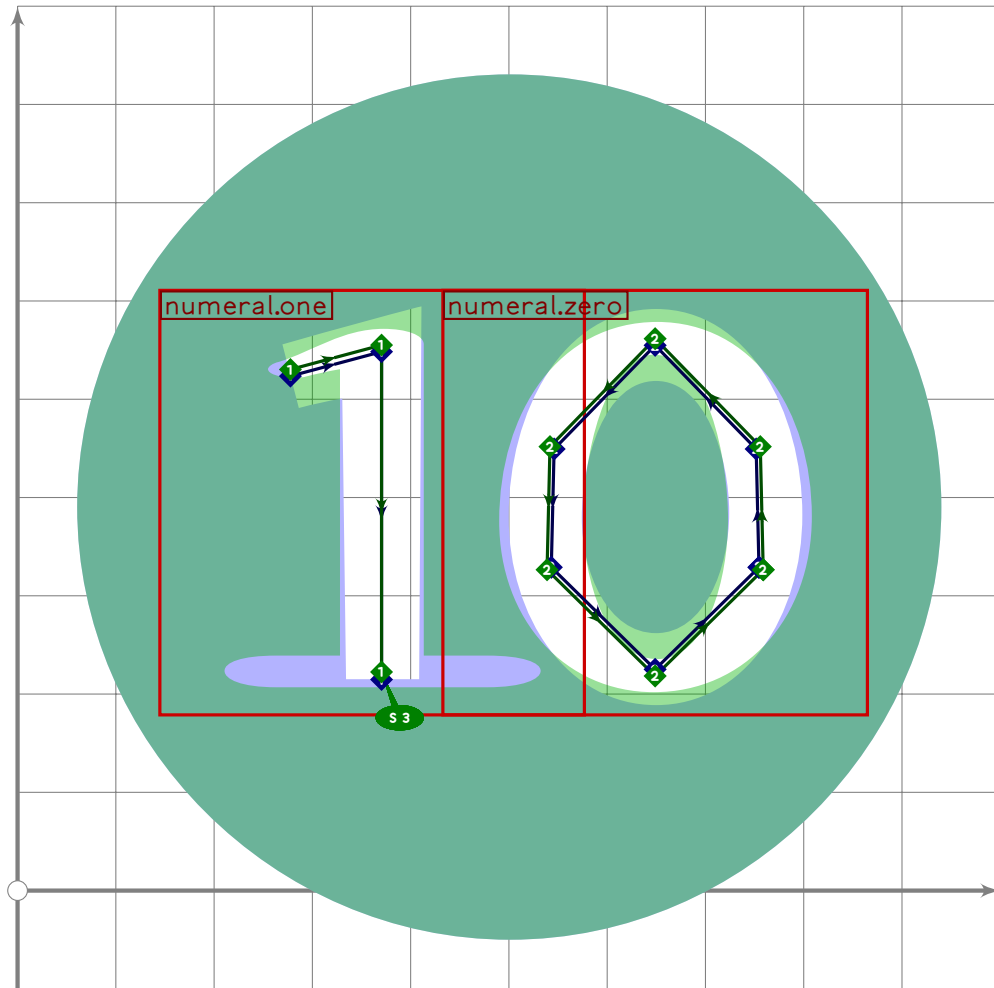
```



```

117 % 9
118 % BACKGROUND 25CF
119 begintsuglyph("uni277E";126);
120 tsu_xform(tsu_xf.circled)(numeral.nine);
121 i:=0; forever: exitif find_stroke(i)<1;
122   set_bosize(i,107); i:=i-1; endfor;
123 tsu_render;
124 endsuglyph;
125

```



```

126 % 10
127 % BACKGROUND 25CF
128 beginsuglyph("uni277F";127);
129 tsu_xform(tsu_xf.ctwo.left)(numeral.one);
130 numeric x[],y[];
131 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
132 i:=0; forever: exitif find_stroke(i)<1;
133   set_bosize(i,107); i:=i-1; endfor;
134 tsu_render;
135 endsuglyph;
136
137 _____
138
139 endfont;
140
141 _____

```

# tsuku-2e.mp

```
1 %
2 % Unicode page 2e (Radicals Supplement) for Tsukurimashou
3 % Copyright (C) 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

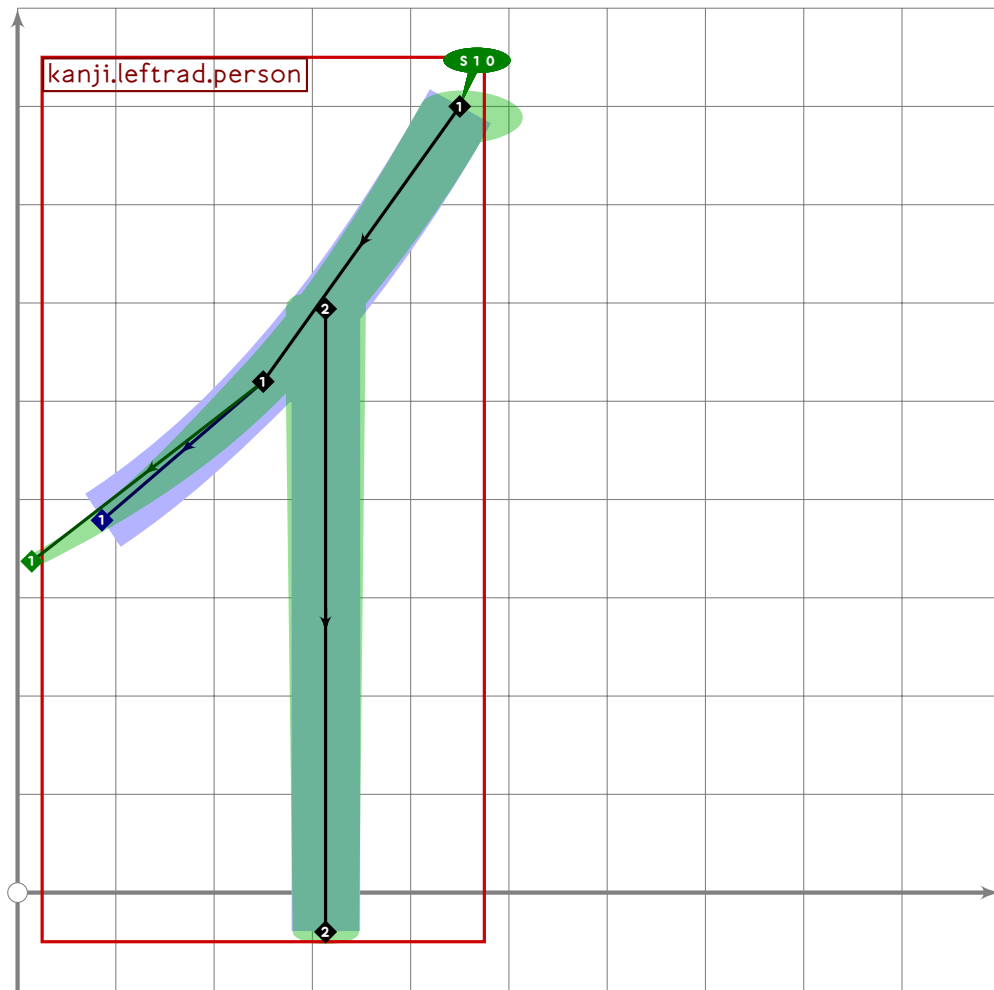

32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input toprad.mp;
47
48 

---


49
```

## Cjk Radicals Supplement

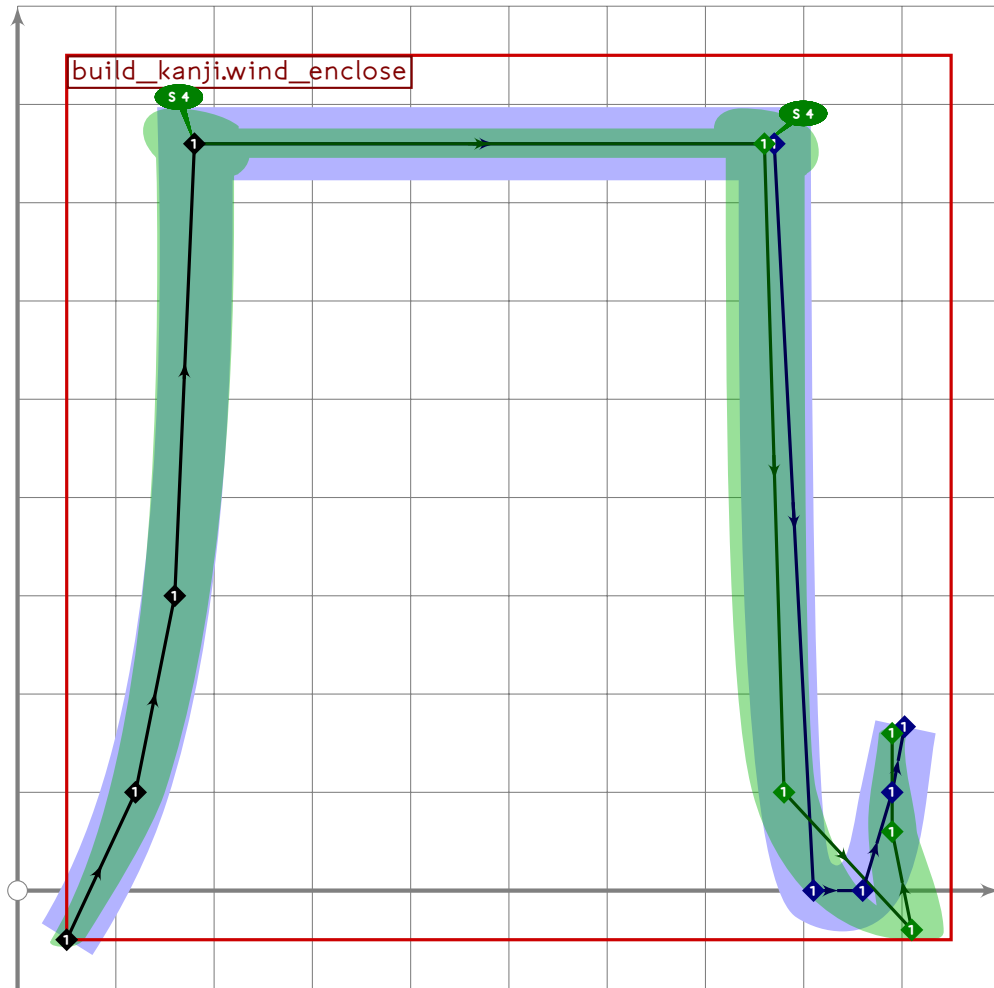
```
50 % CJK RADICALS SUPPLEMENT
51
```



```

52 % hito/jin "person" as radical
53 begint Suglyph("uni2E85",133);
54 tsu_xform(identity xscaled 0.5)(kanji.leftrad.person);
55 tsu_render;
56 endtsuglyph;
57

```

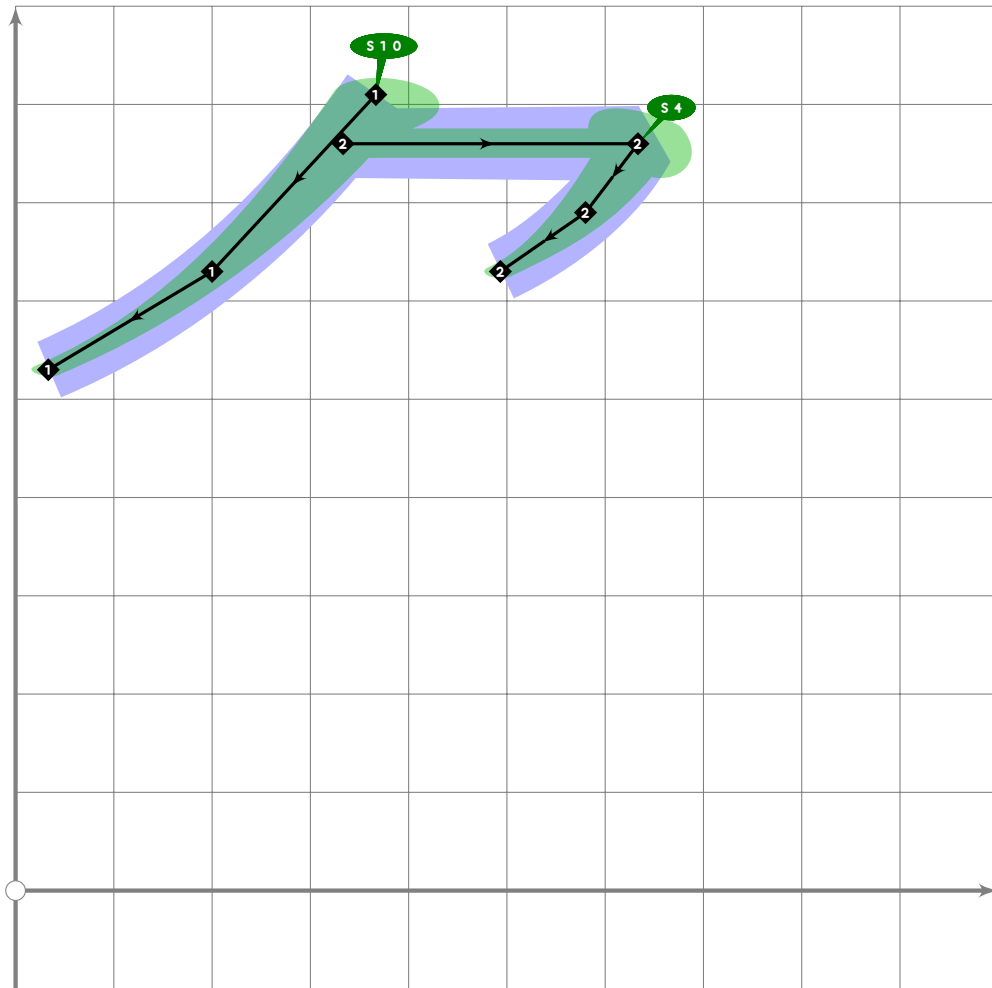


```

58 % Unicode calls it "table"
59 begint Suglyph("uni2E87",135);
60 build_kanji.wind_enclose();
61 tsu_render;
62 endtsuglyph;
63

```

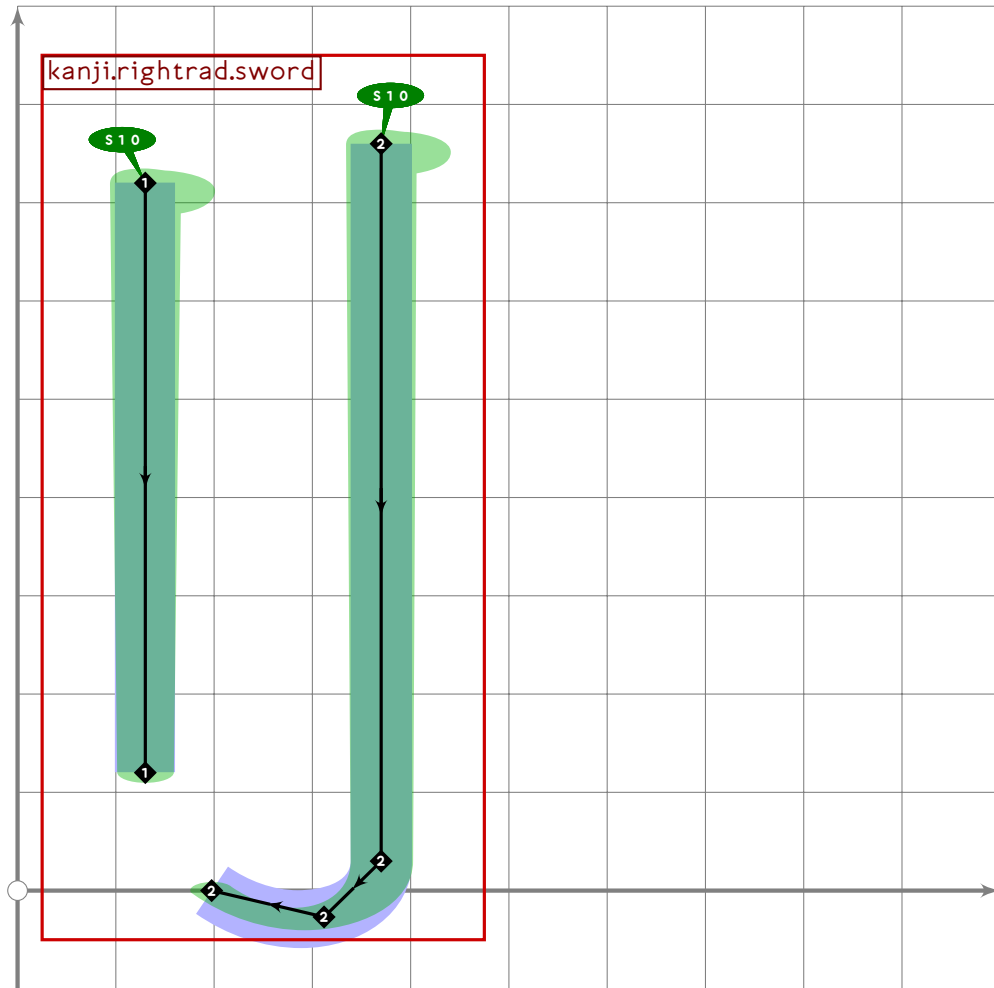




```

64 % Unicode calls it "knife one"
65 begint Suglyph("uni2E88",136);
66 build_kanji.attach_fishhook(0.8)(
67     perl_structure:=perl_structure&"eids.u003F";
68     push_stroke((200,0)-(200,800)-(800,800),
69         (1.5,1.5)-(1.6,1.6)-(1.6,1.6));
70     set_bosize(0,0));
71 tsu_render;
72 endtsuglyph;
73

```



74 % tou "sword radical"

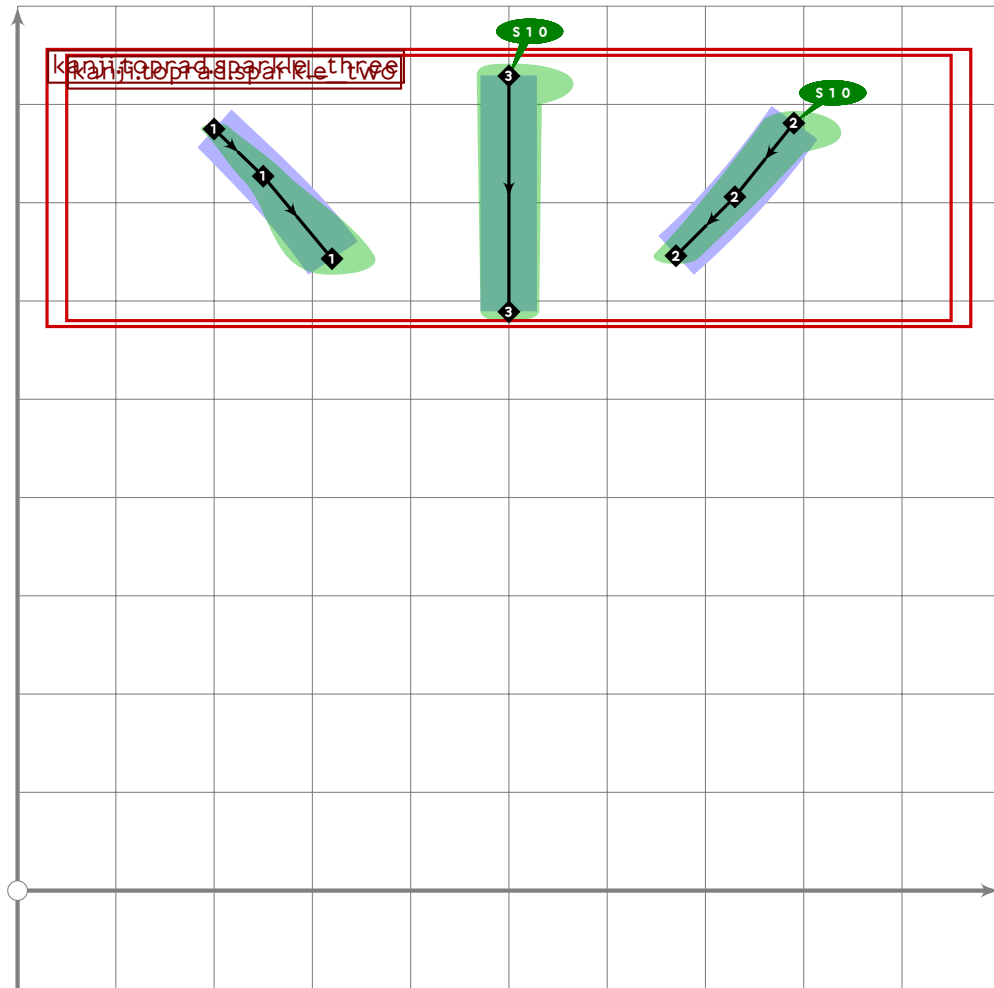
75 `begintsuglyph("uni2E89",137);`

76 `tsu_xform(identity xscaled 0.5)(kanji.rightrad.sword);`

77 `tsu_render;`

78 `endtsuglyph;`

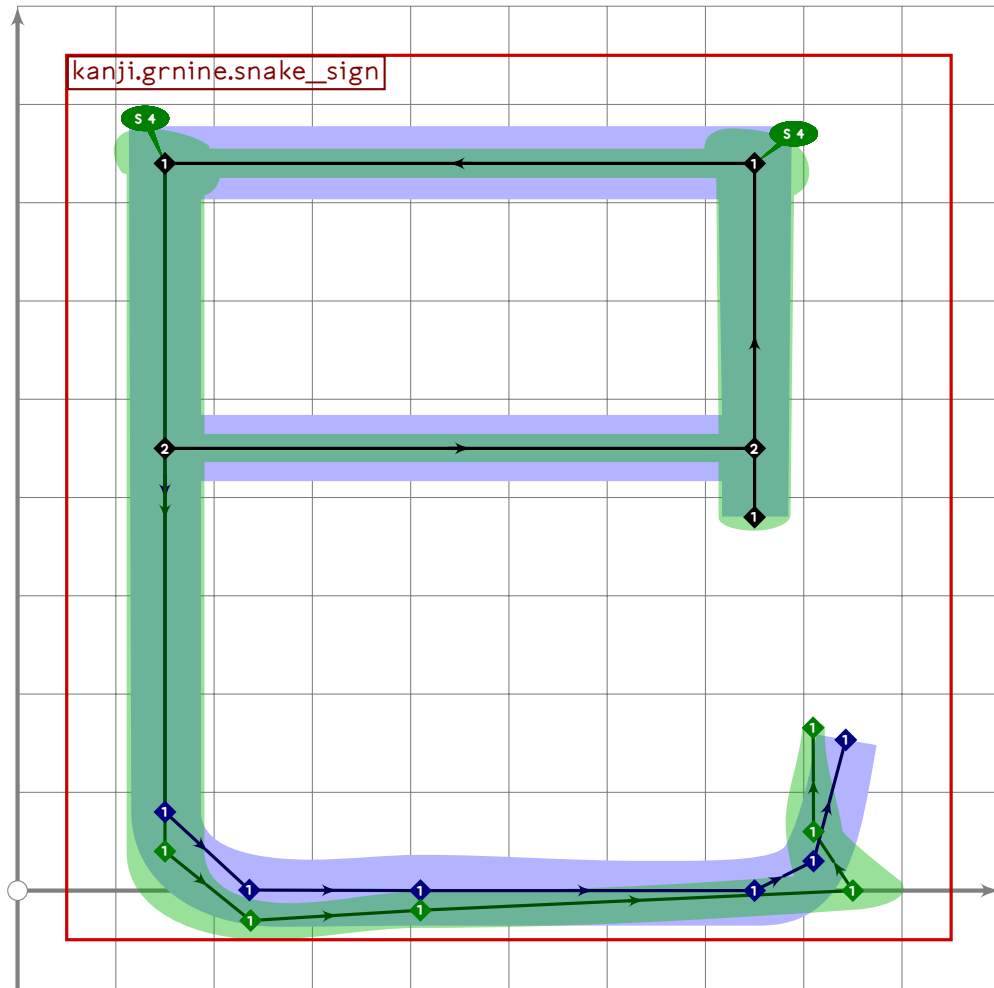
79



```

80 % Unicode calls it "small one"
81 begint Suglyph("uni2E8C",140);
82 build_kanji.tb(620,80)
83   (kanji.toprad.sparkle_three)
84   ();
85   tsu_render;
86   endtsuglyph;
87

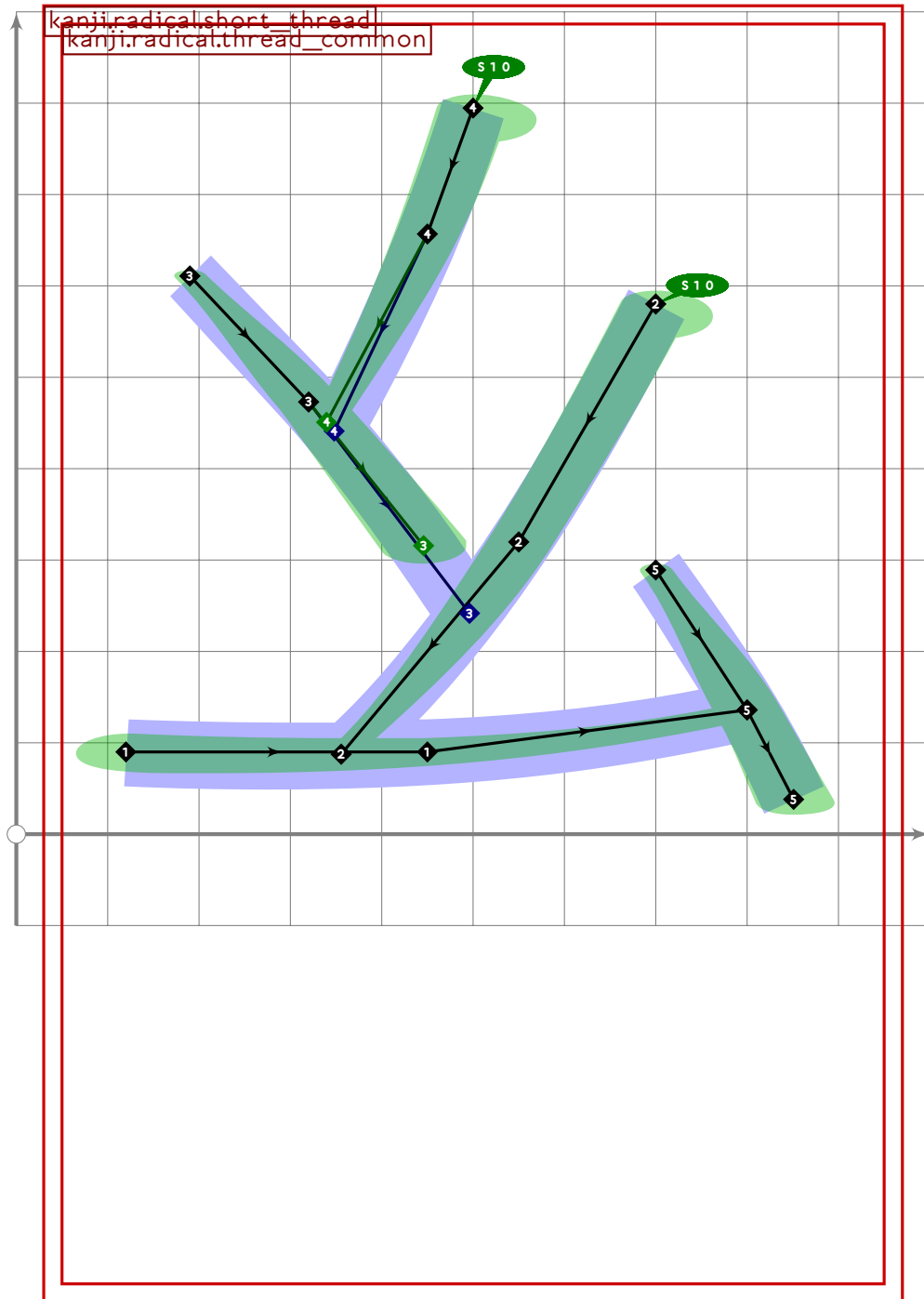
```



```

88 % shi/mi "snake zodiac sign"
89 begint Suglyph("uni2E92";146);
90 kanji.grnine.snake_sign;
91 tsu_render;
92 endtsuglyph;
93

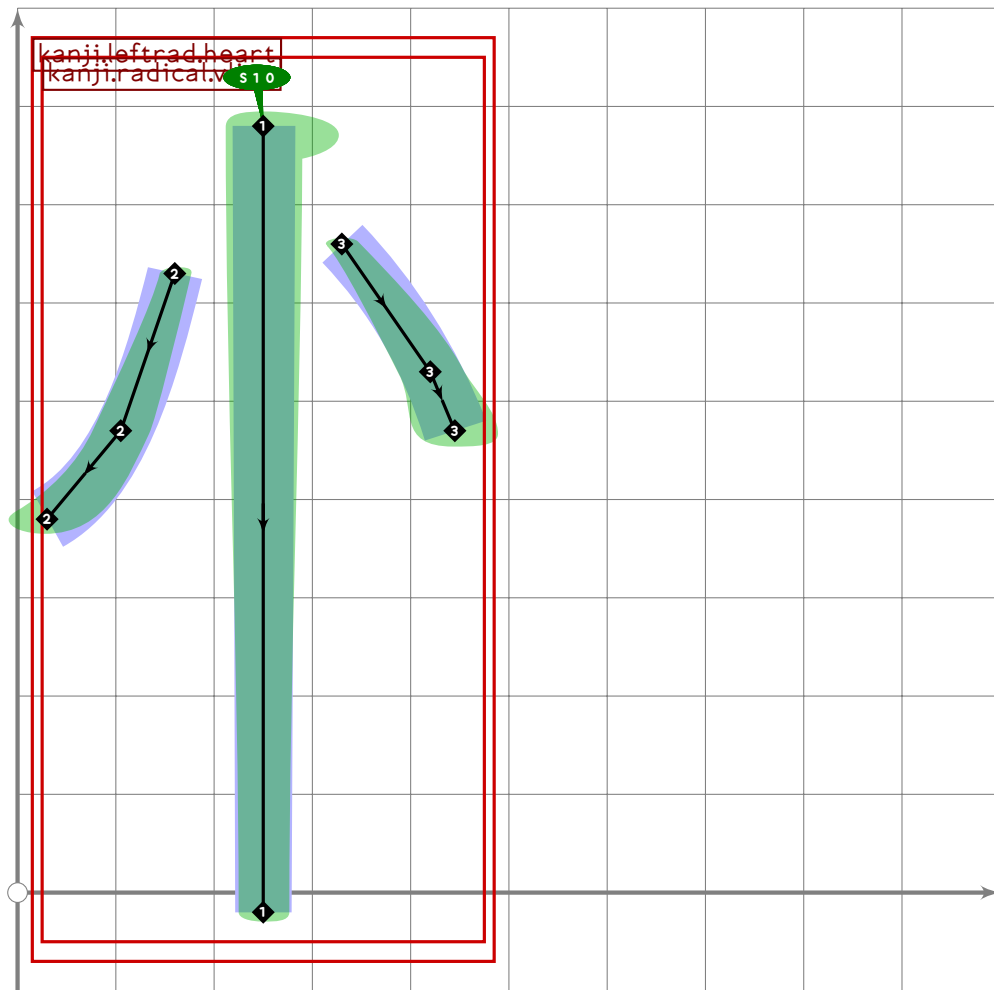
```



```

94 % you/chiisai "short thread radical"
95 begint Suglyph("uni2E93";147);
96 kanji.radical.short_thread;
97 tsu_render;
98 endsuglyph;
99

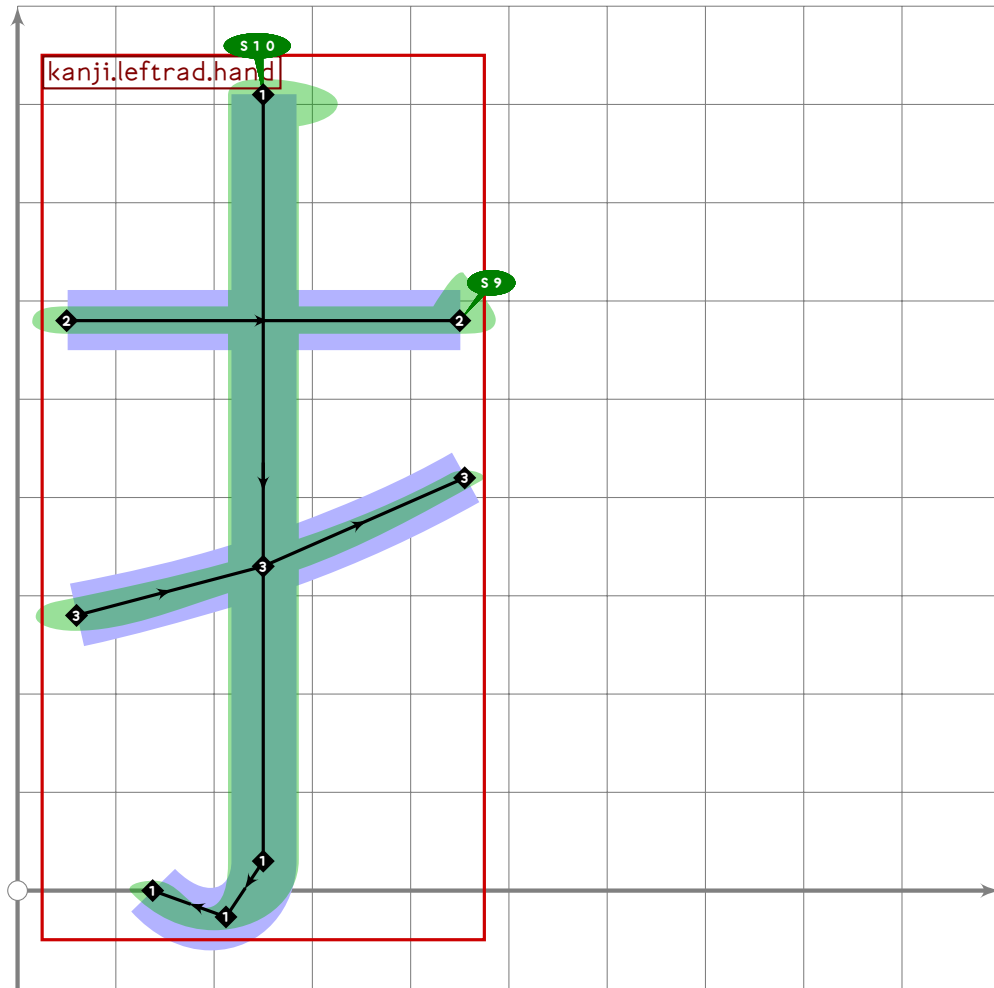
```



```

100 % left radical version of "heart"
101 begint Suglyph("uni2E96",150);
102 tsu_xform(identity xscaled 0.5)(kanji.leftrad.heart);
103 tsu_render;
104 endtsuglyph;
105

```

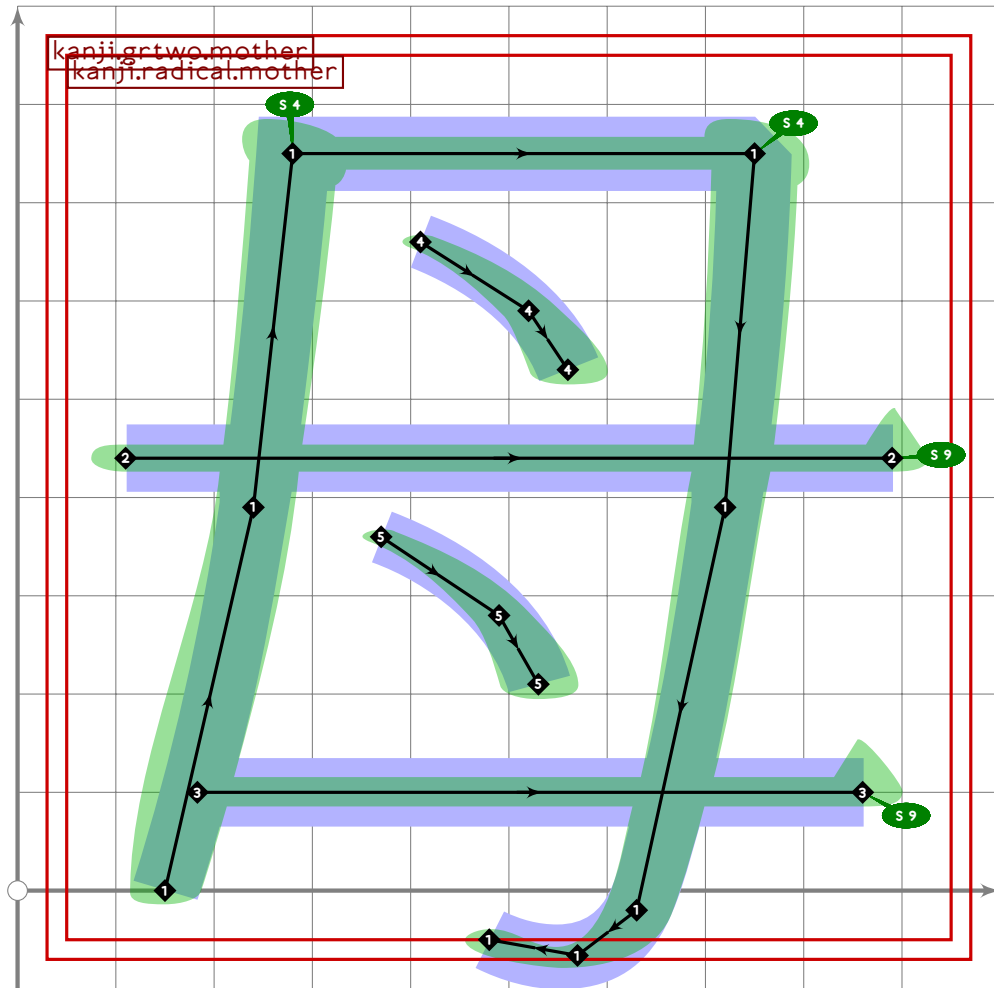


```

106 % hand radical
107 begintsuglyph("uni2E98",152);
108 tsu_xform(identity xscaled 0.5)(kanji.leftrad.hand);
109 tsu_render;
110 endtsuglyph;
111
112 % special form with straight left side
113 begintsuglyph("uni2E9D",157);
114 kanji.bottomrad.moon;
115 tsu_render;
116 endtsuglyph;
117

```

[see page 60]

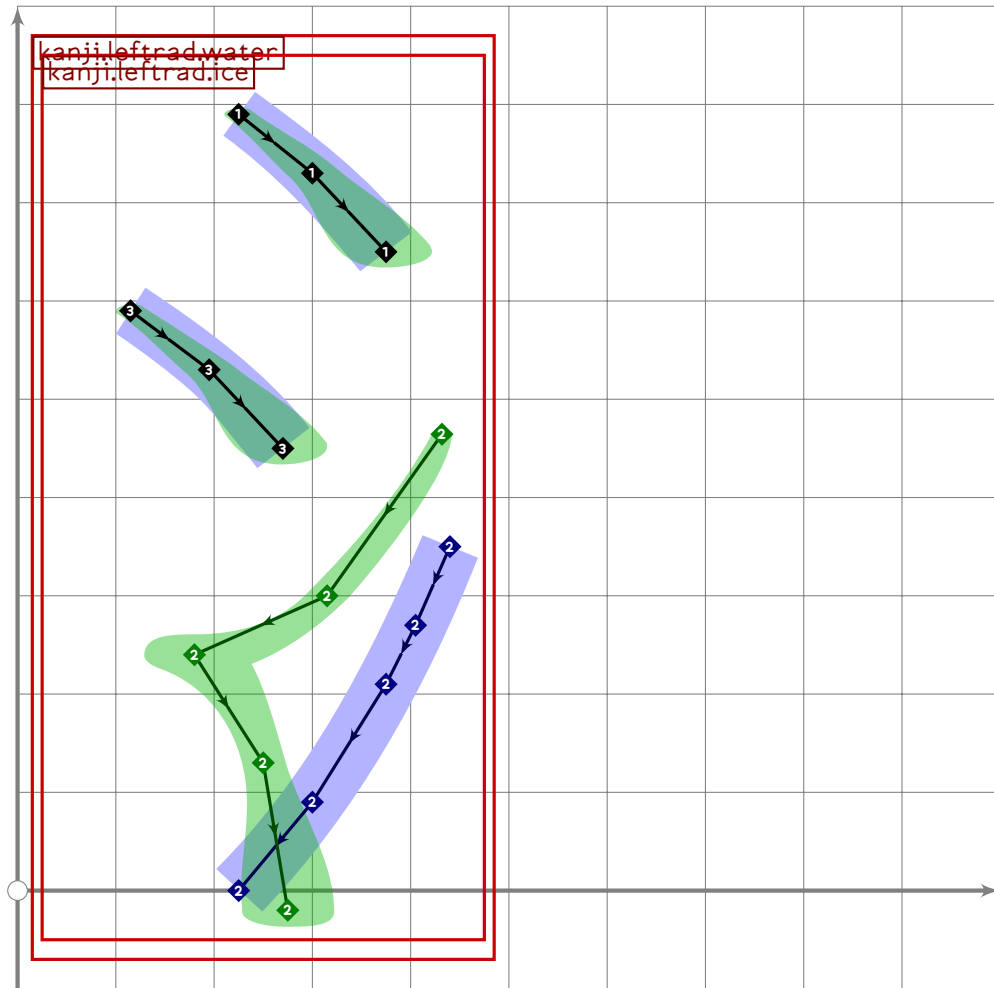


```

118 % bo/haha "mother"
119 begintsuglyph("uni2E9F",159);
120 kanji.grtwo.mother;
121 tsu_render;
122 endtsuglyph;
123

```

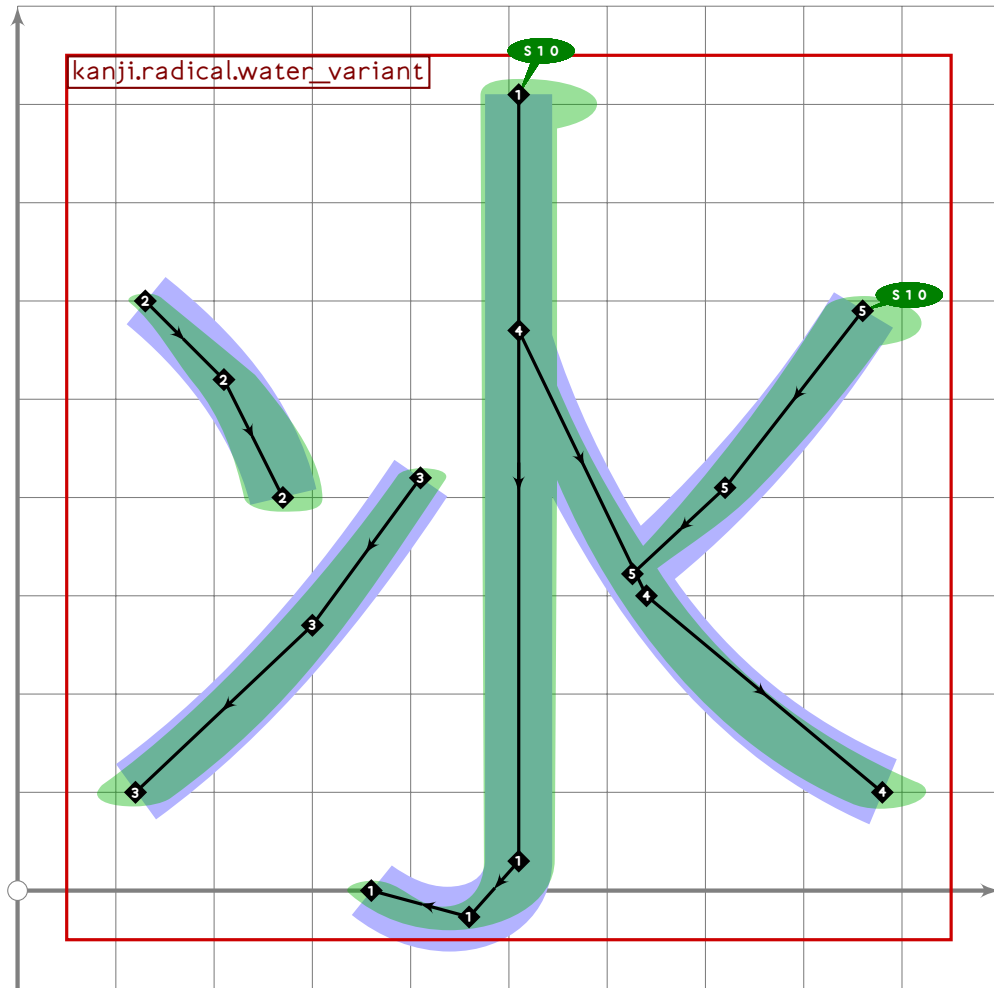




```

124 % extra "water side radical"
125 begint Suglyph("uni2EA1",161);
126 tsu_xform(identity xscaled 0.5)(kanji.leftrad.water);
127 tsu_render;
128 endtsuglyph;
129

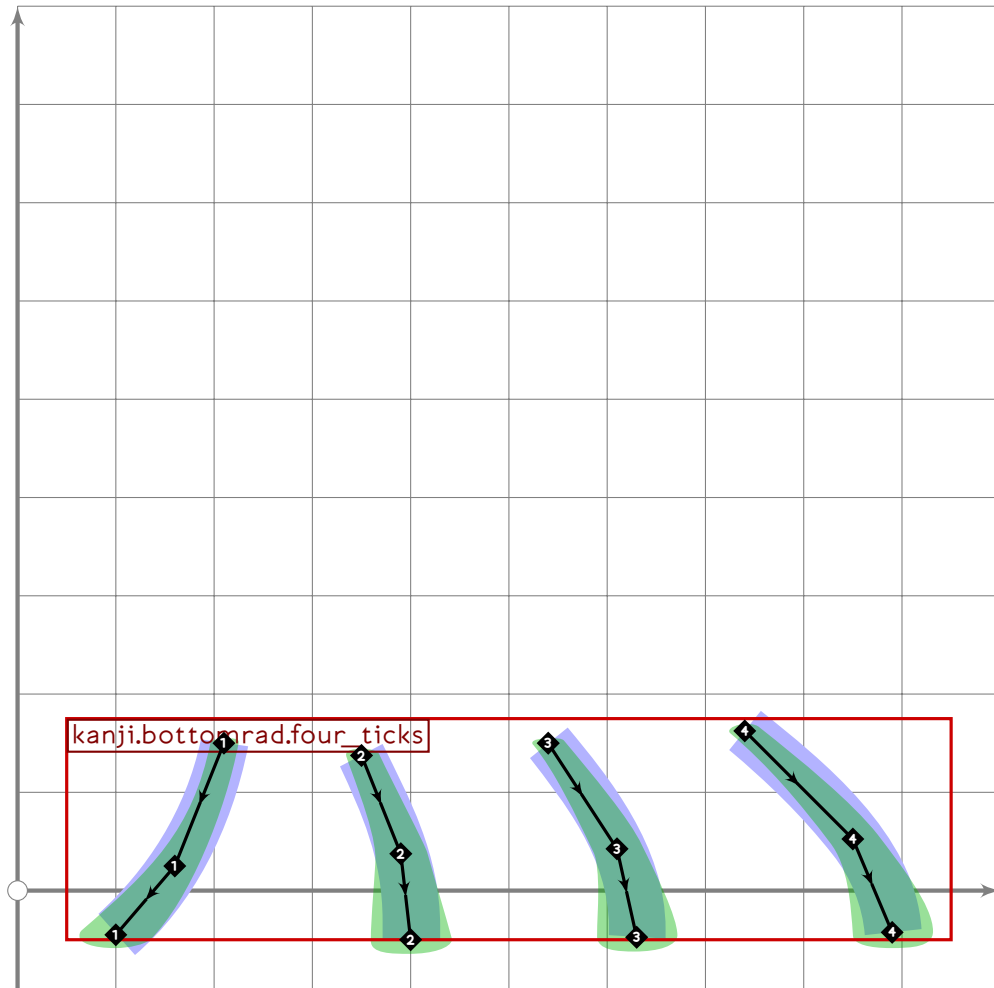
```



```

130 % water radical variant
131 begintsuglyph("uni2EA2",162);
132 kanji.radical.water_variant;
133 tsu_render;
134 endtsuglyph;
135

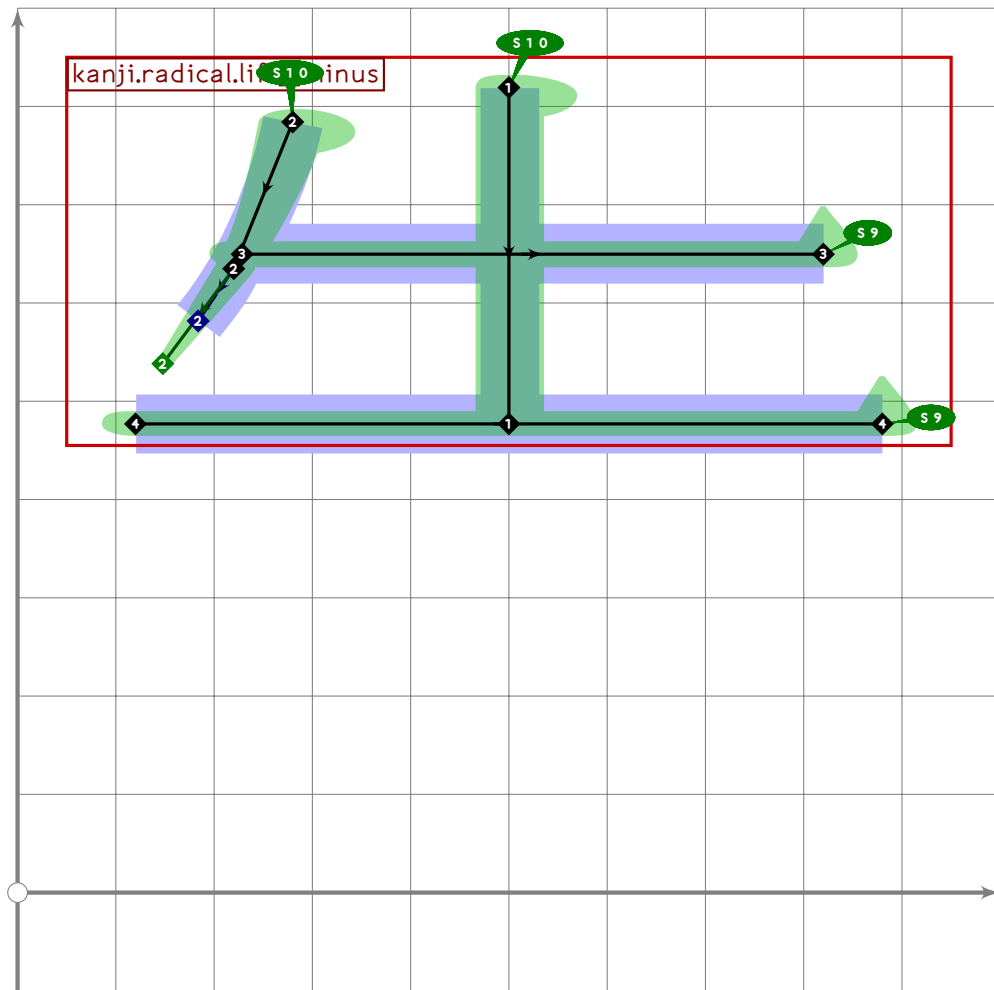
```



```

136 % Unicode calls it "fire"
137 begint Suglyph("uni2EA3",163);
138 build_kanji.tb(190,-30)
139   ()
140   (kanji.bottomrad.four_ticks);
141   tsu_render;
142 endsuglyph;
143

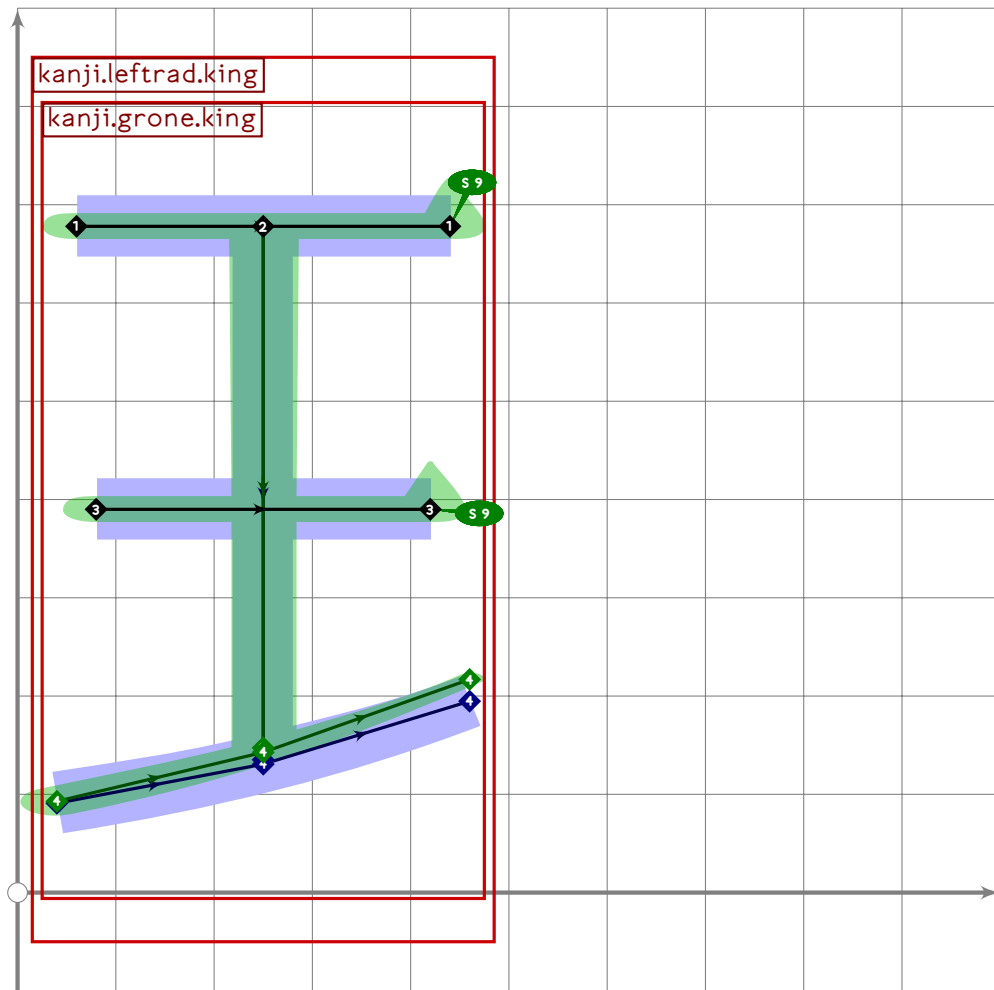
```



```

144 % Unicode calls it "cow"
145 begint Suglyph("uni2EA7",167);
146 build_kanji.tb(440,-30)
147   (kanji.radical.life_minus)
148   ();
149   tsu_render;
150 endtsuglyph;
151

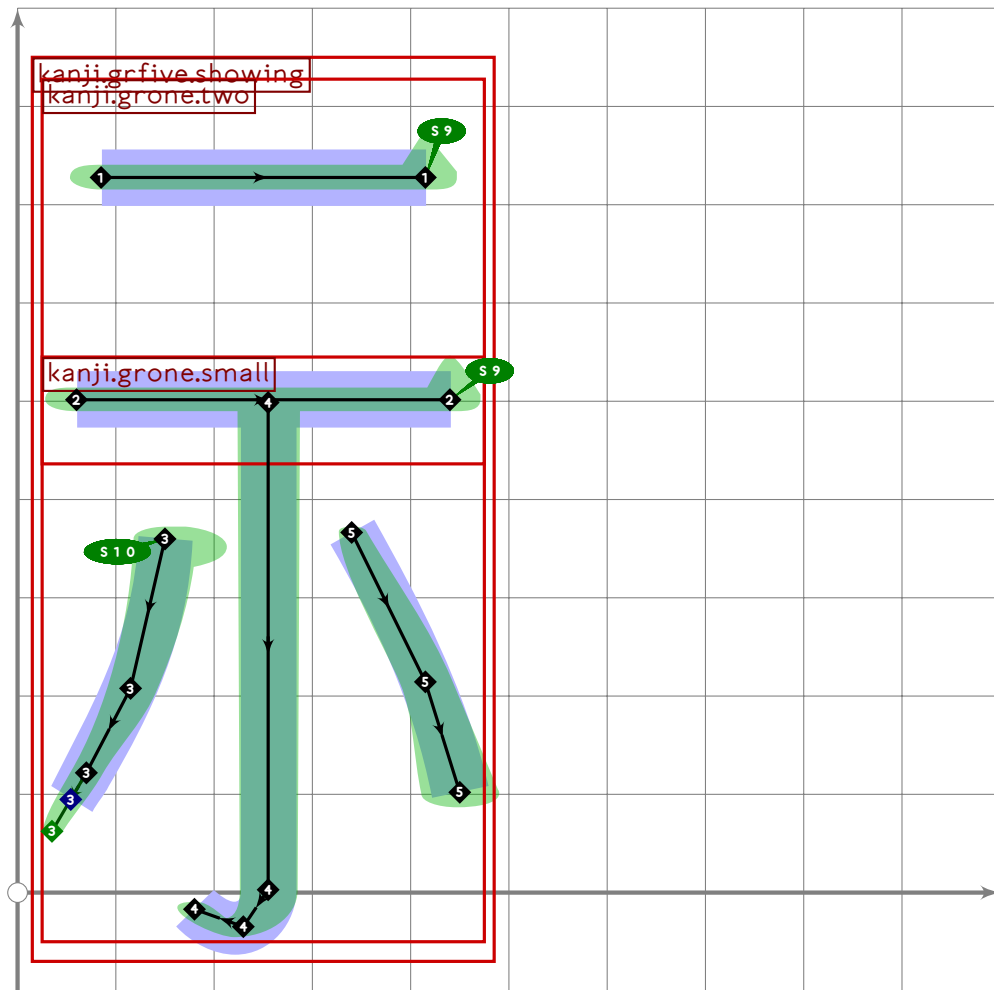
```



```

152 % Unicode calls it "jade"
153 begintsuglyph("uni2EA9",169);
154 tsu_xform(identity xscaled 0.5)(kanji.leftrad.king);
155 tsu_render;
156 endsuglyph;
157

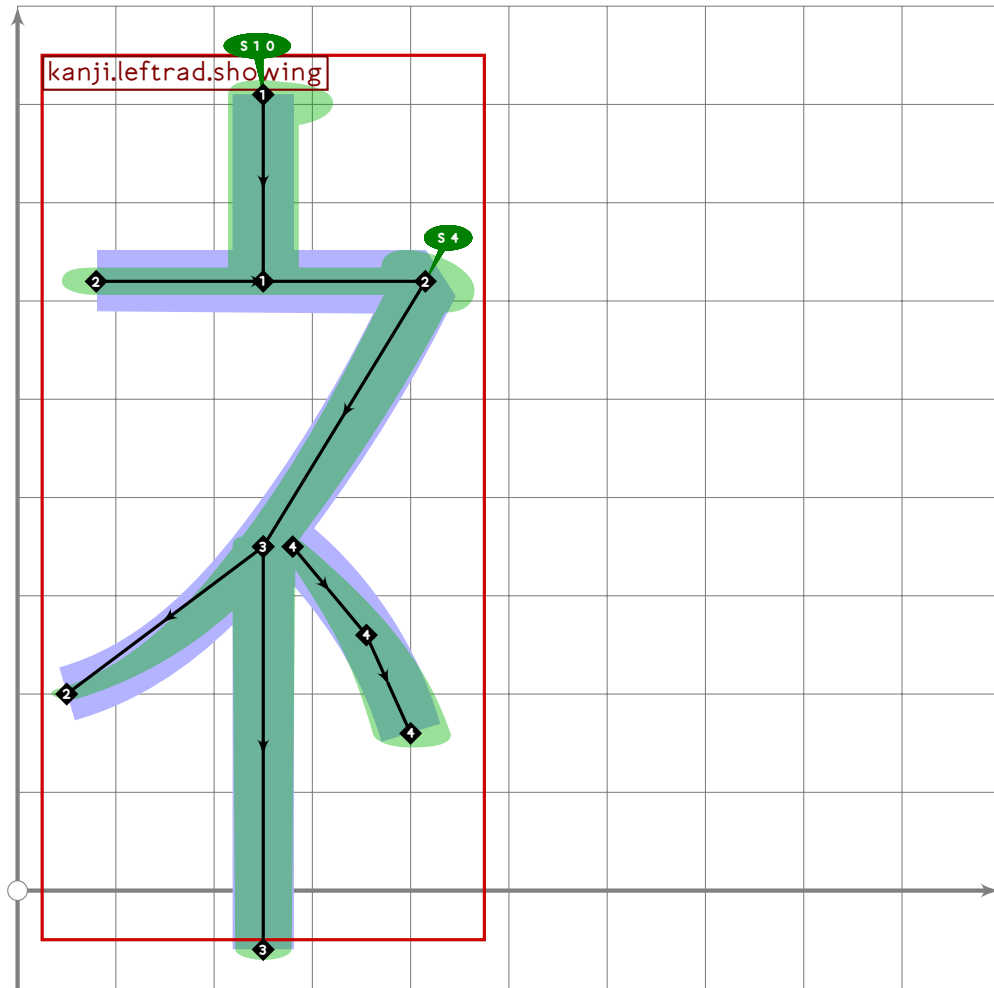
```



```

158 % Unicode calls it "spirit one"
159 begintsuglyph("uni2EAC",172);
160 tsu_xform(identity xscaled 0.5)(kanji.grfive.showing);
161 tsu_render;
162 endtsuglyph;
163

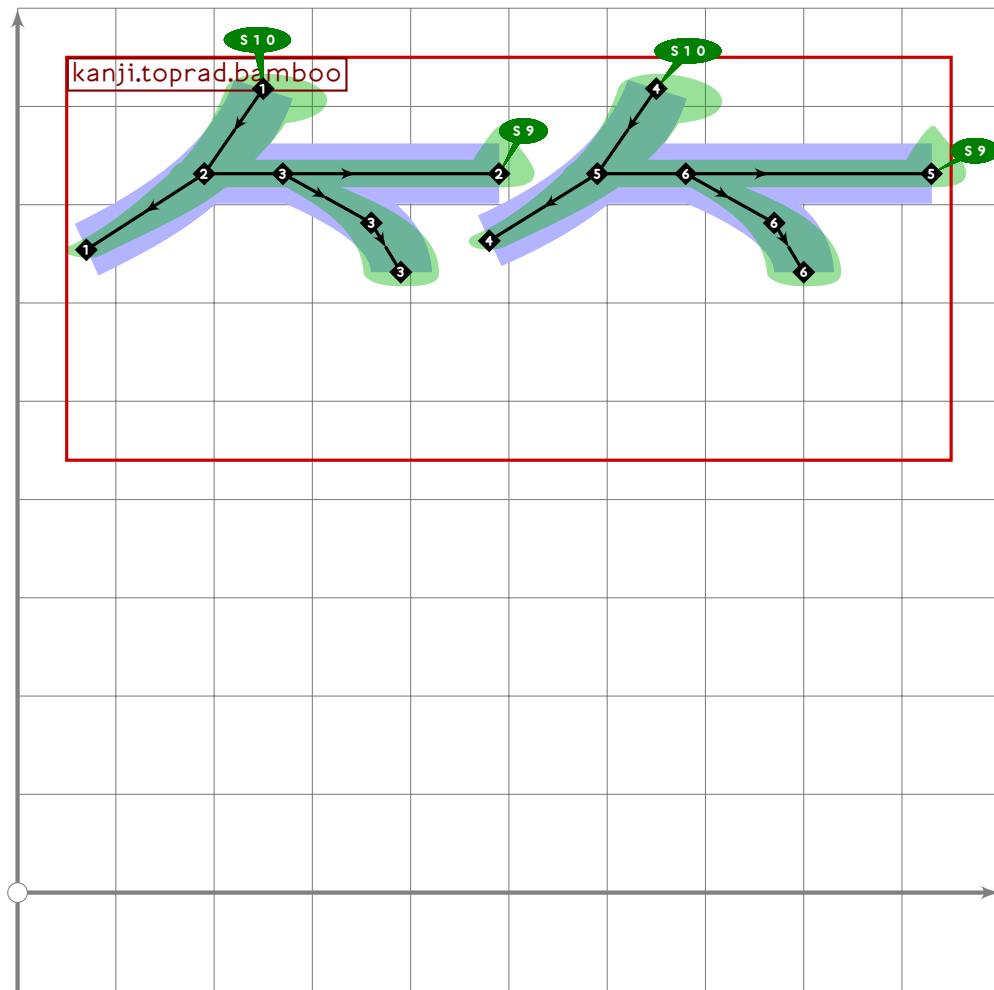
```



```

164 % Unicode calls it "spirit two"
165 begintsuglyph("uni2EAD",173);
166 tsu_xform(identity xscaled 0.5)(kanji.leftrad.showing);
167 tsu_render;
168 endtsuglyph;
169

```

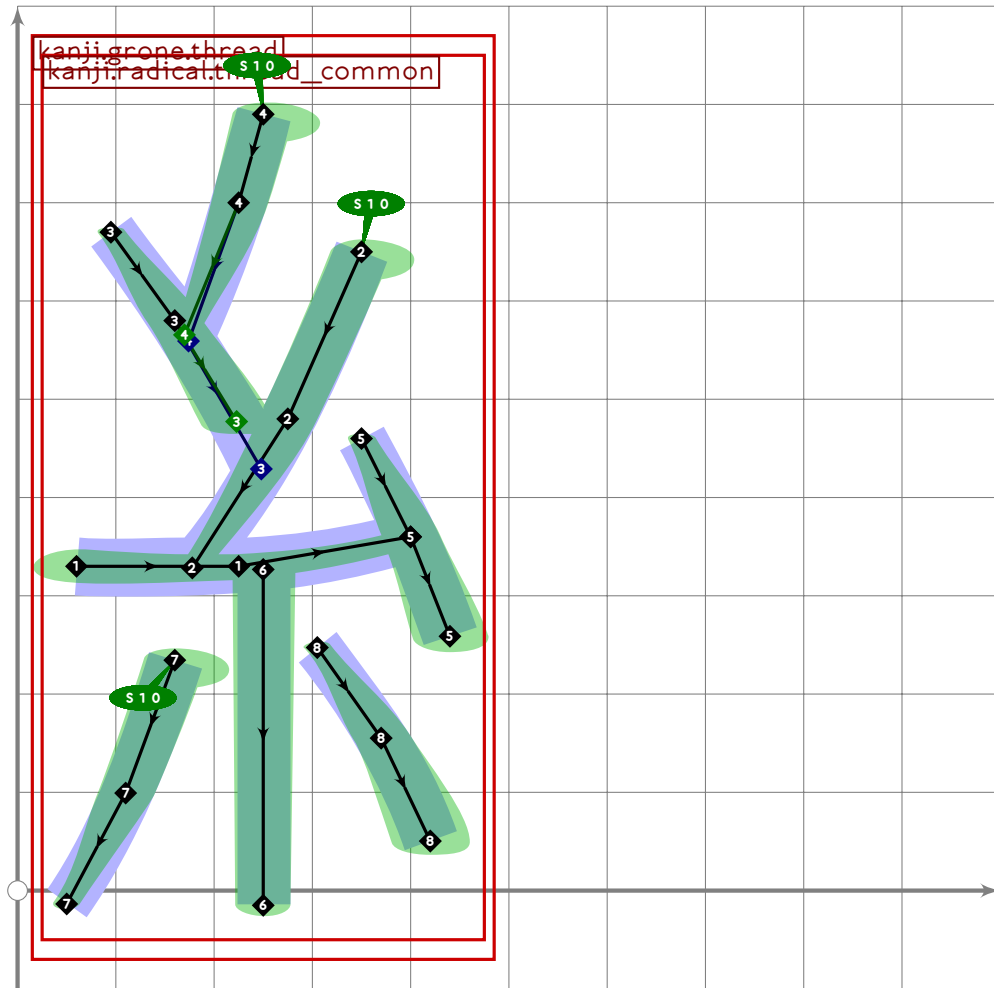


```

170 % "bamboo" top radical
171 begintsuglyph("uni2EAE",174);
172 build_kanji.tb(540,200)
173   (kanji.toprad.bamboo)
174   ();
175   tsu_render;
176   endtsuglyph;
177

```

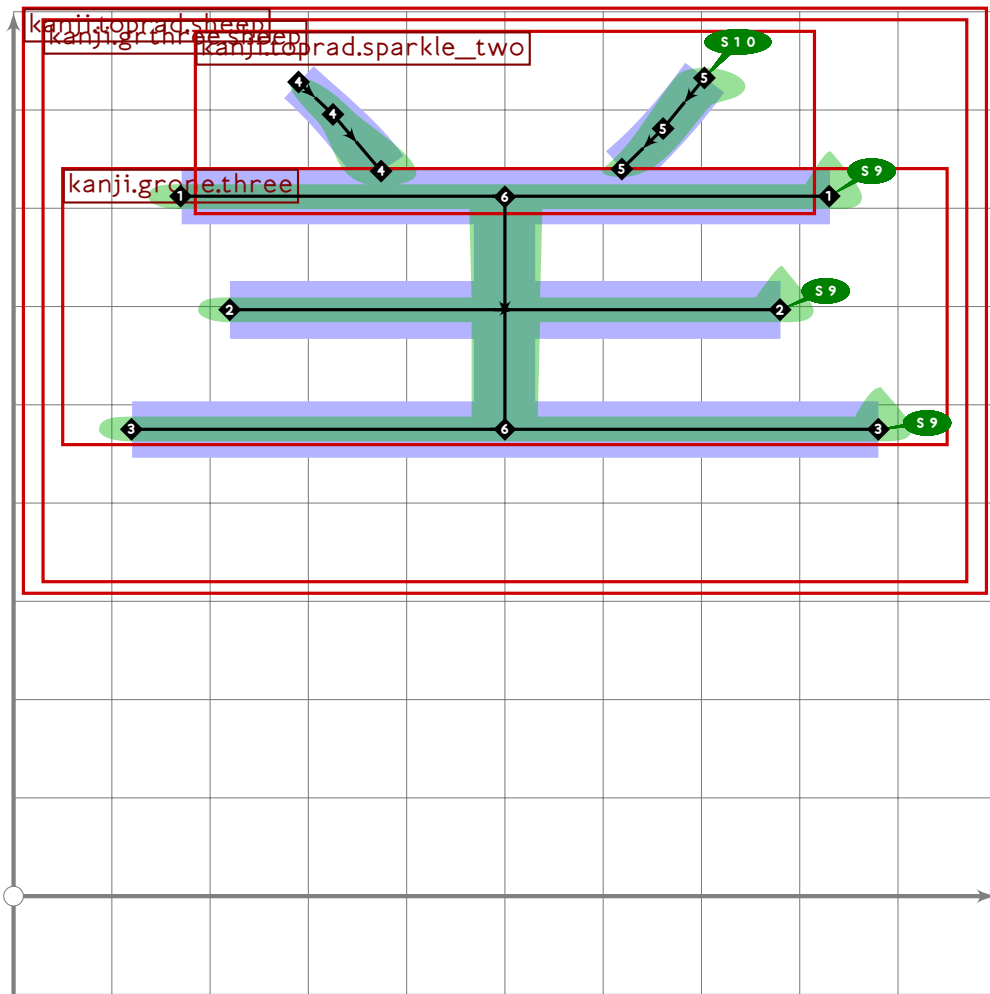




```

178 % Unicode calls it "sil"
179 begintsuglyph("uni2EAF",175);
180 tsu_xform(identity xscaled 0.5
181   (build_kanji.lift_skirt(300,60)(kanji.grone.thread));
182 tsu_render;
183 endtsuglyph;
184

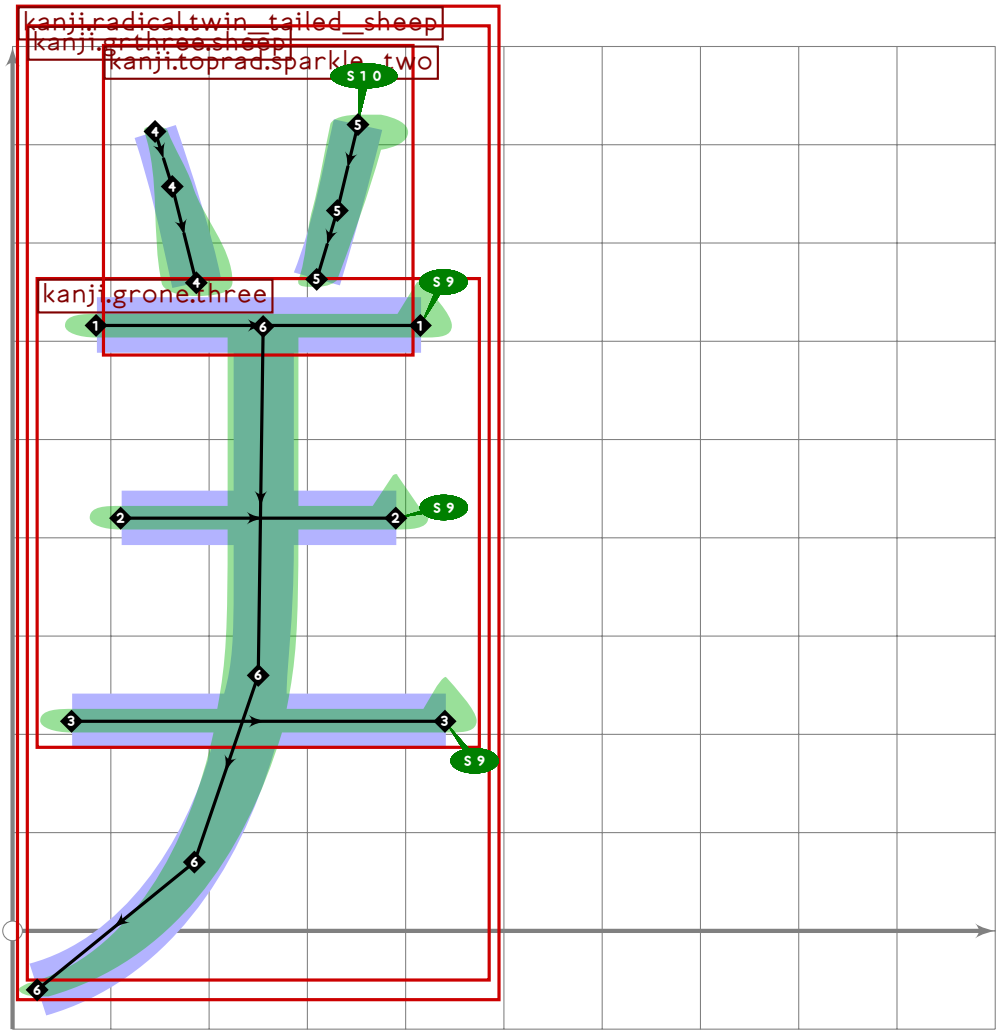
```



```

185 % "sheep" (ram) top radical
186 beginsuglyph("uni2EB7",183);
187 build_kanji.tb(420,200)
188   (kanji.toprad.sheep)
189   ();
190   tsu_render;
191   endtsuglyph;
192

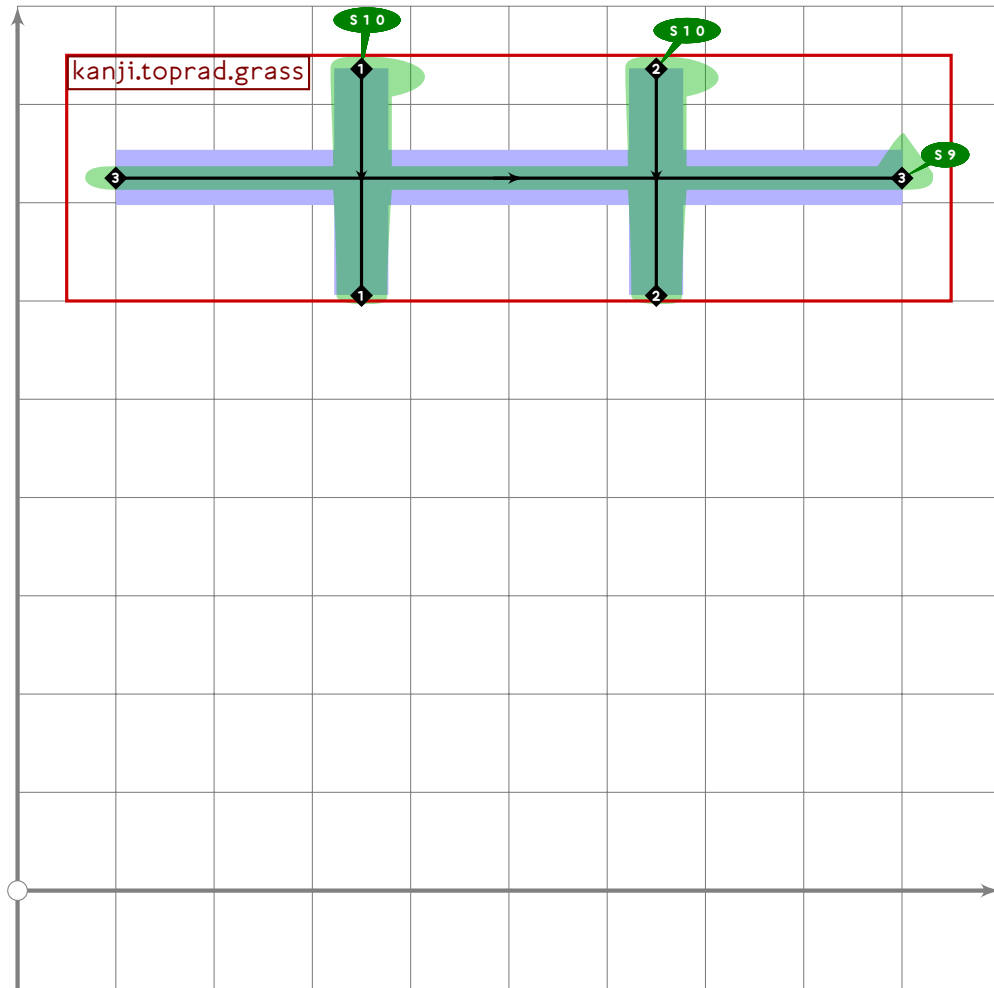
```



```

193 % "sheep" left-side radical
194 begint Suglyph("uni2EB8",184);
195   tsu_xform(identity xscaled 0.5)
196     (kanji.radical.twin_tailed_sheep;
197       pop_stroke);
198   tsu_render;
199   endtsuglyph;
200

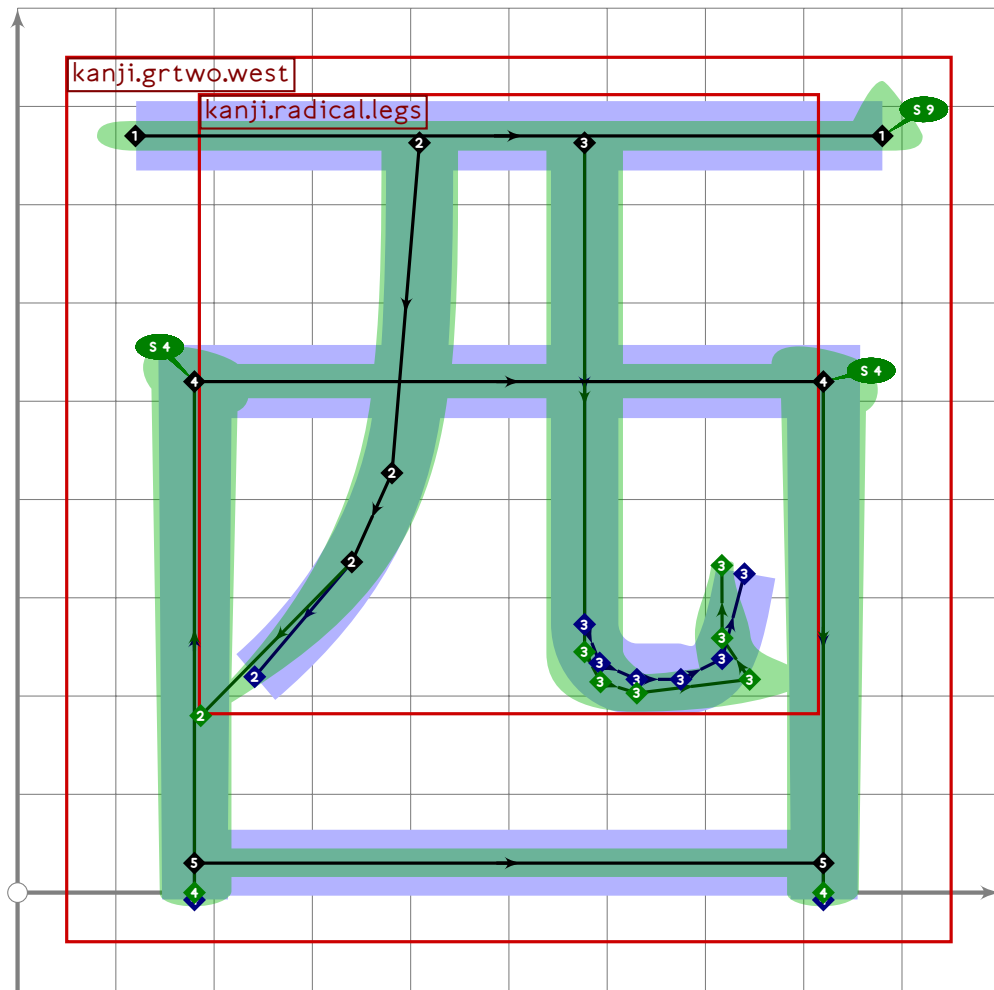
```



```

201 % Japanese form of "grass" top radical
202 begint Suglyph("uni2EBE",190);
203 build_kanji.tb(600,0)
204   (kanji.toprad.grass)
205   ();
206   tsu_render;
207   endtsuglyph;
208

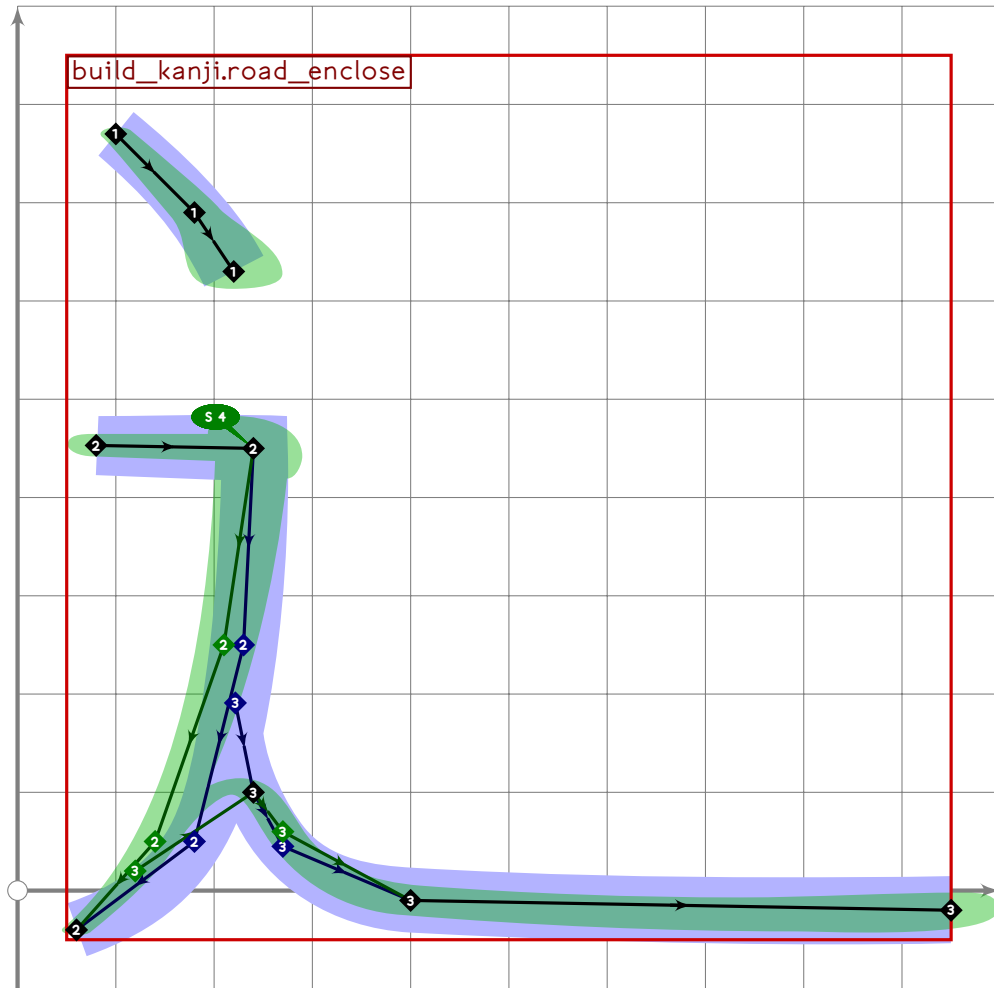
```



```

209 % sai/nishi "West" or "Spain"
210 begint Suglyph("uni2EC4",196);
211 kanji.grtwo.west;
212 tsu_render;
213 endtsuglyph;
214

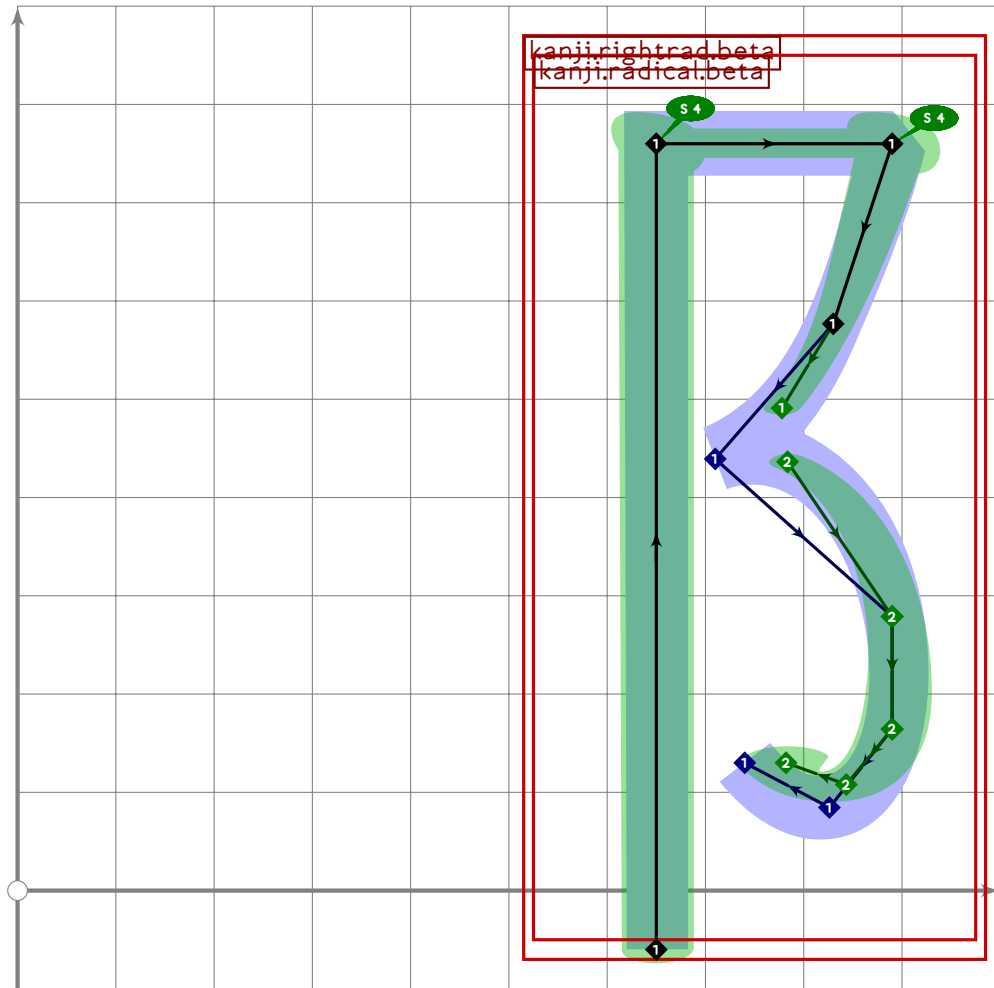
```



```

215 % Unicode calls it "simplified walk"
216 begint Suglyph("uni2ECC",204);
217 build_kanji.road_enclose();
218 tsu_render;
219 endtsuglyph;
220

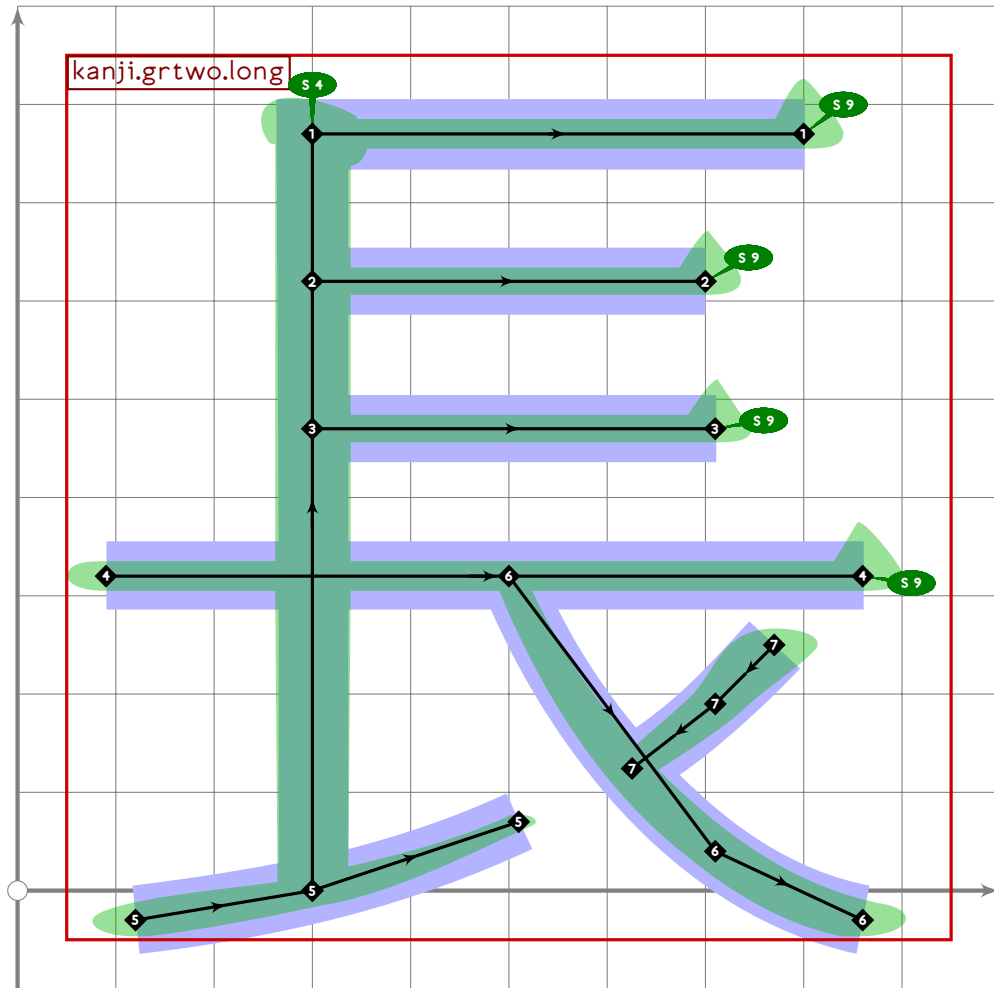
```



```

221 % Unicode calls it "city"
222 begint Suglyph("uni2ECF",207);
223 tsu_xform(identity xscaled 0.5 shifted (500,0))
224   (kanji.rightrad.beta);
225 tsu_render;
226 endtsuglyph;
227

```

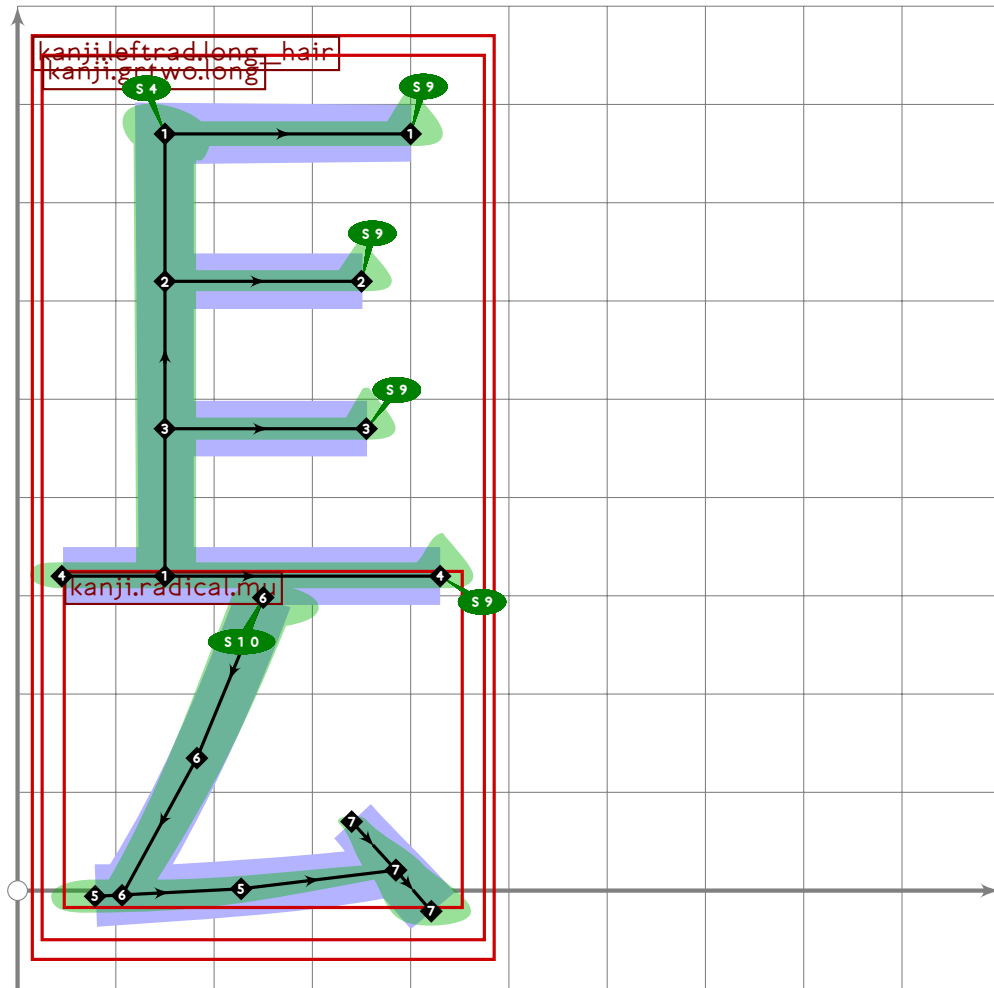


```

228 % chou/naga "long"
229 begintsuglyph("uni2ED1";209);
230 kanji.grtwo.long;
231 tsu_render;
232 endtsuglyph;
233

```

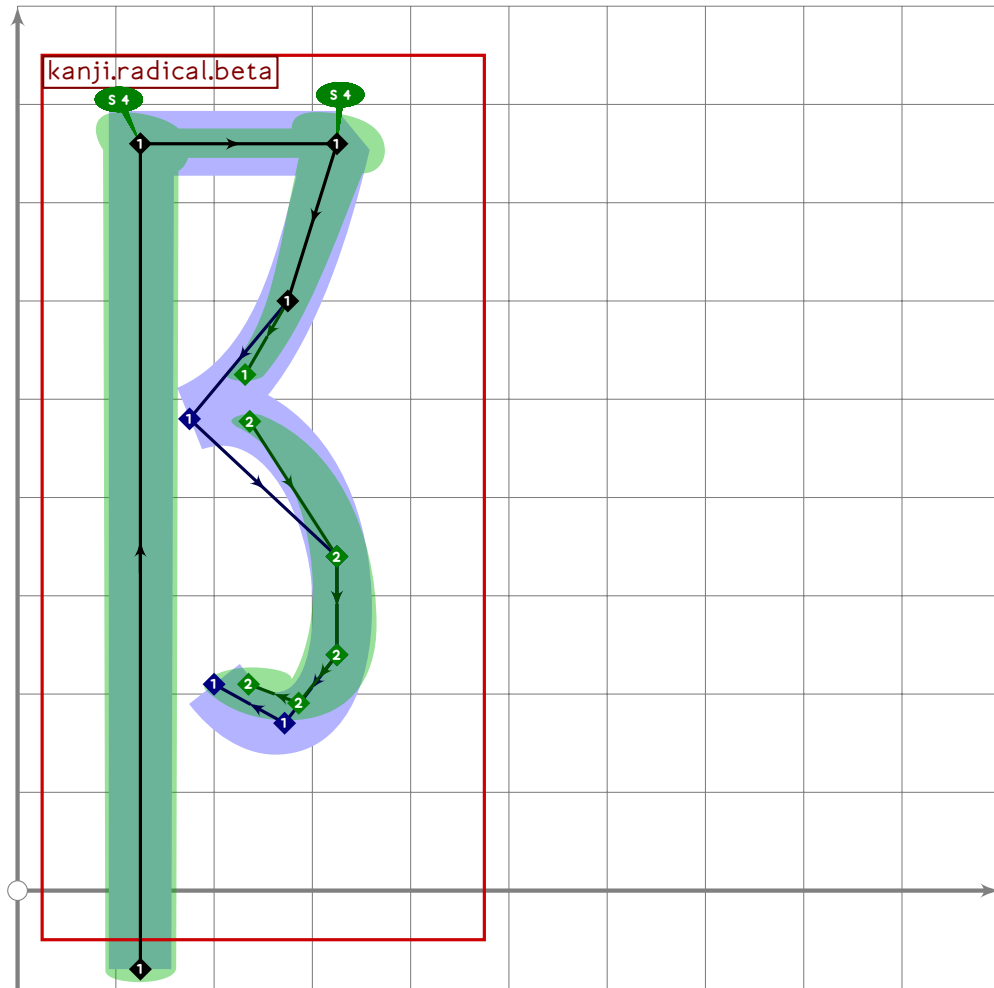




```

234 % Unicode calls it "long two"
235 begint Suglyph("uni2ED2",210);
236 tsu_xform(identity xscaled 0.5)(kanji.leftrad.long_hair);
237 tsu_render;
238 endtsuglyph;
239

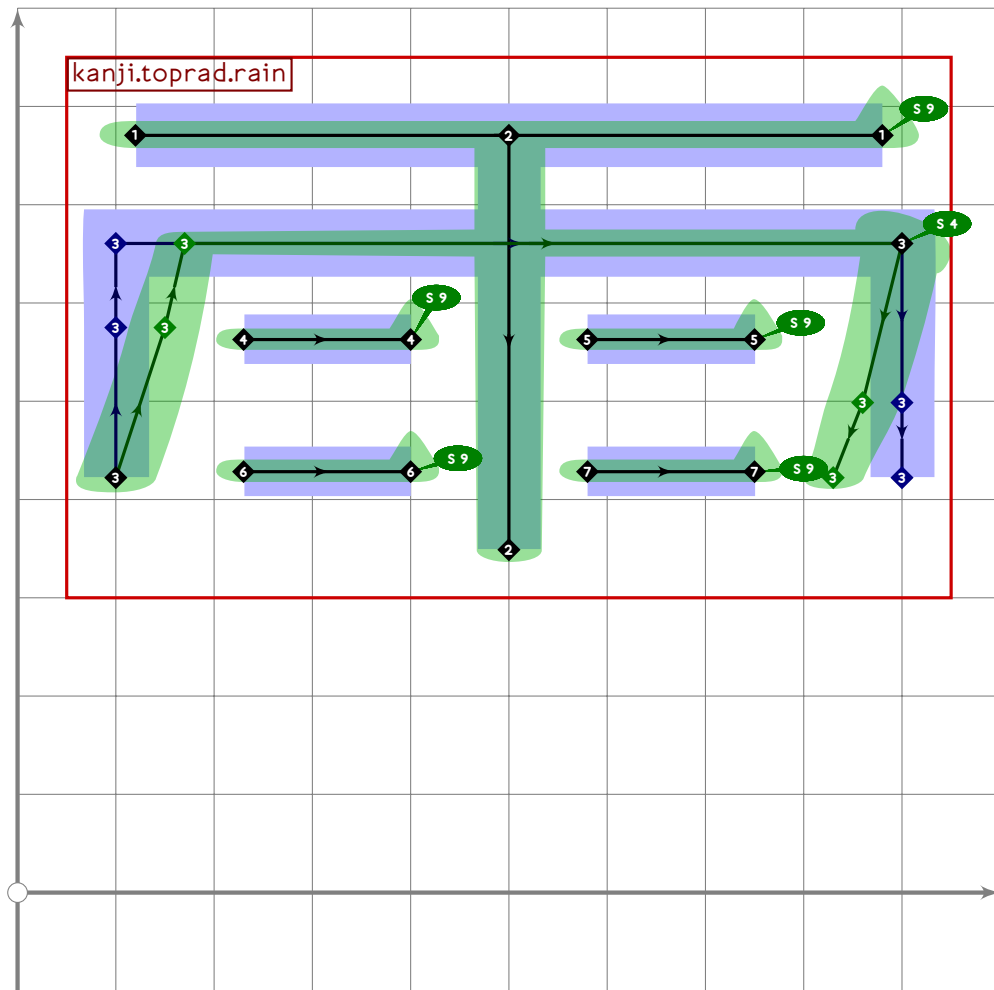
```



```

240 % Unicode calls it "mound two"
241 begintsuglyph("uni2ED6",214);
242 tsu_xform(identity xscaled 0.5)
243   (kanji.radical.beta);
244 tsu_render;
245 endtsuglyph;
246

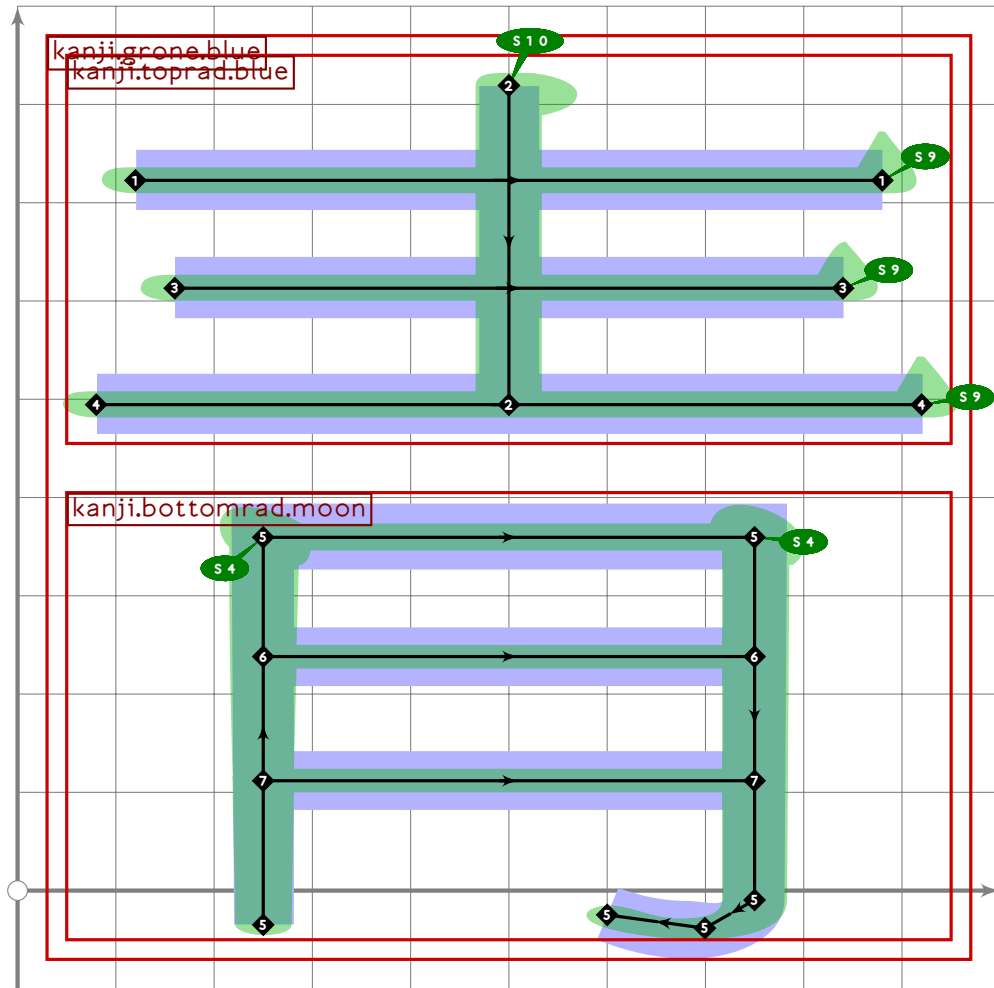
```



```

247 % "rain" top radical
248 begintsuglyph("uni2ED7";215);
249 build_kanji.tb(300,0)
250   (kanji.toprad.rain)
251   ();
252   tsu_render;
253   endsuglyph;
254

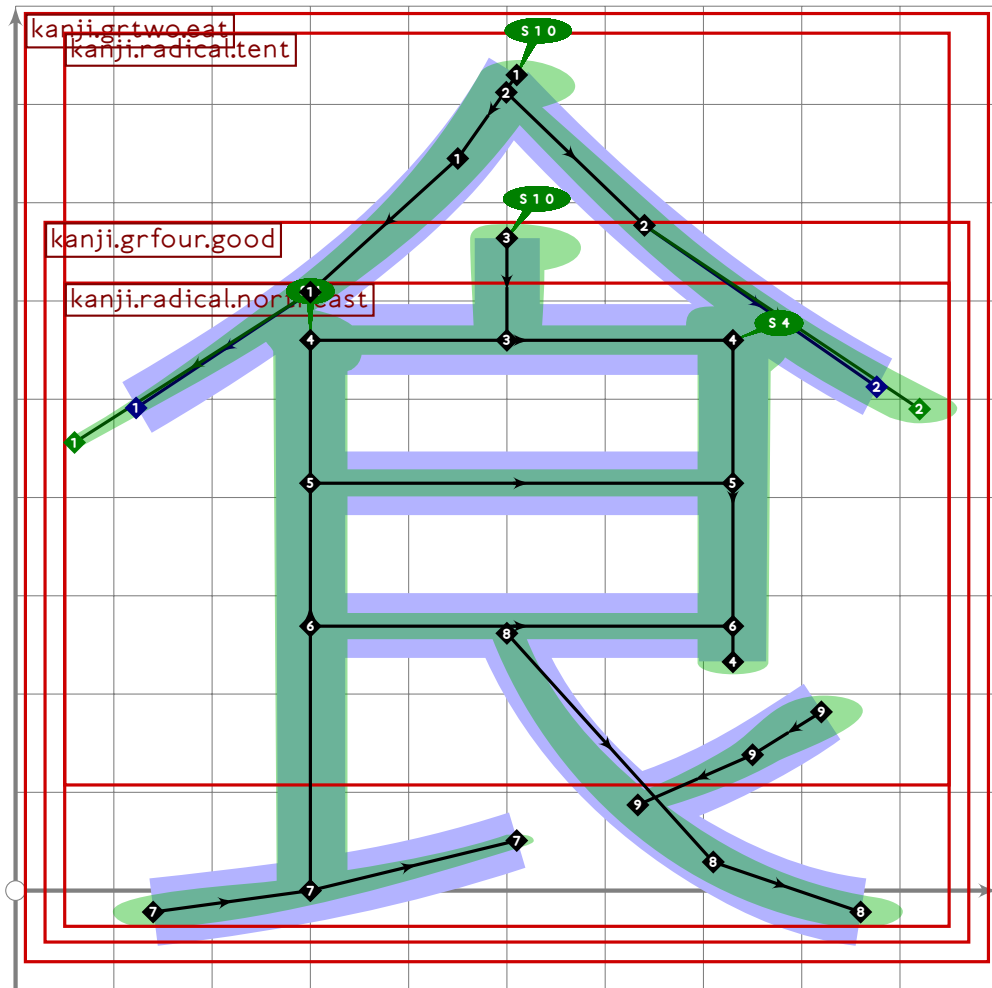
```



```

255 % ao "blue"
256 begintsuglyph("uni2ED8",216);
257   kanji.grone.blue;
258   tsu_render;
259   endtsuglyph;
260

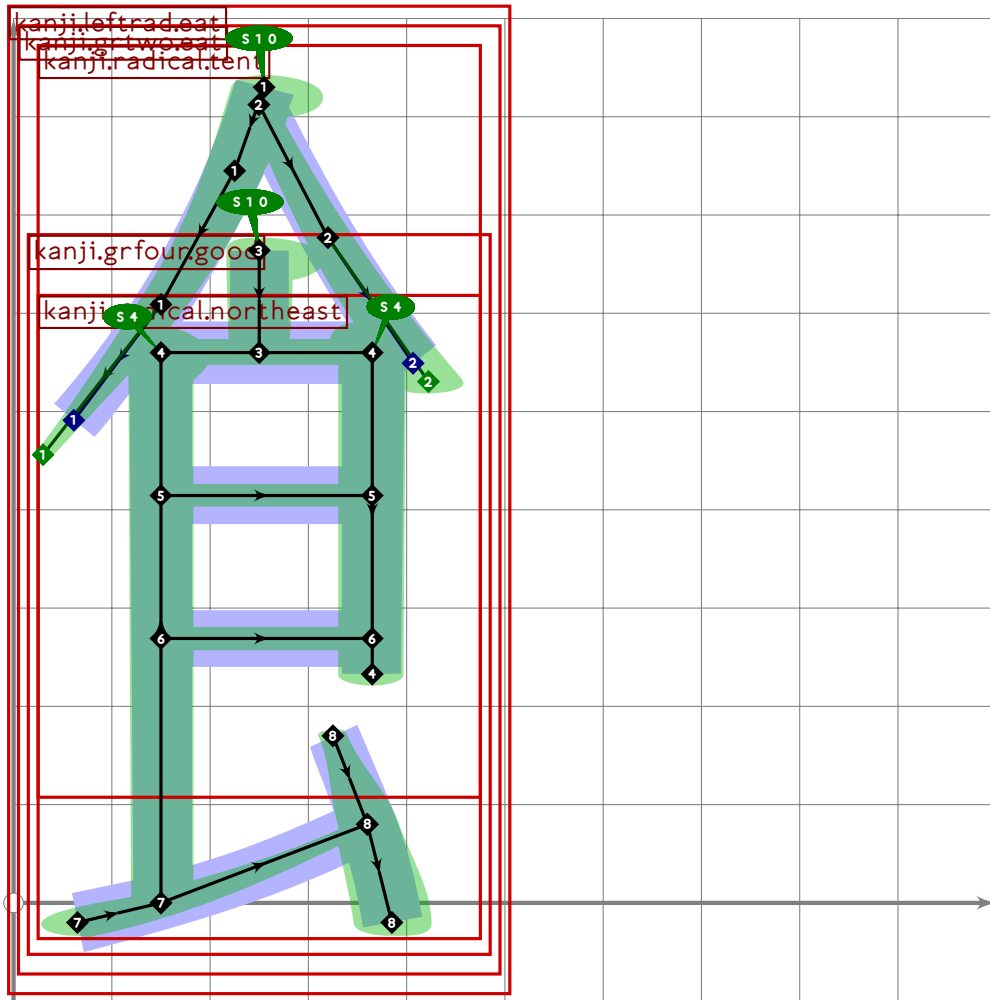
```



```

261 % shoku/ta "eat"
262 begintsuglyph("uni2EDD",221);
263 kanji.grtwo.eat;
264 tsu_render;
265 endtsuglyph;
266

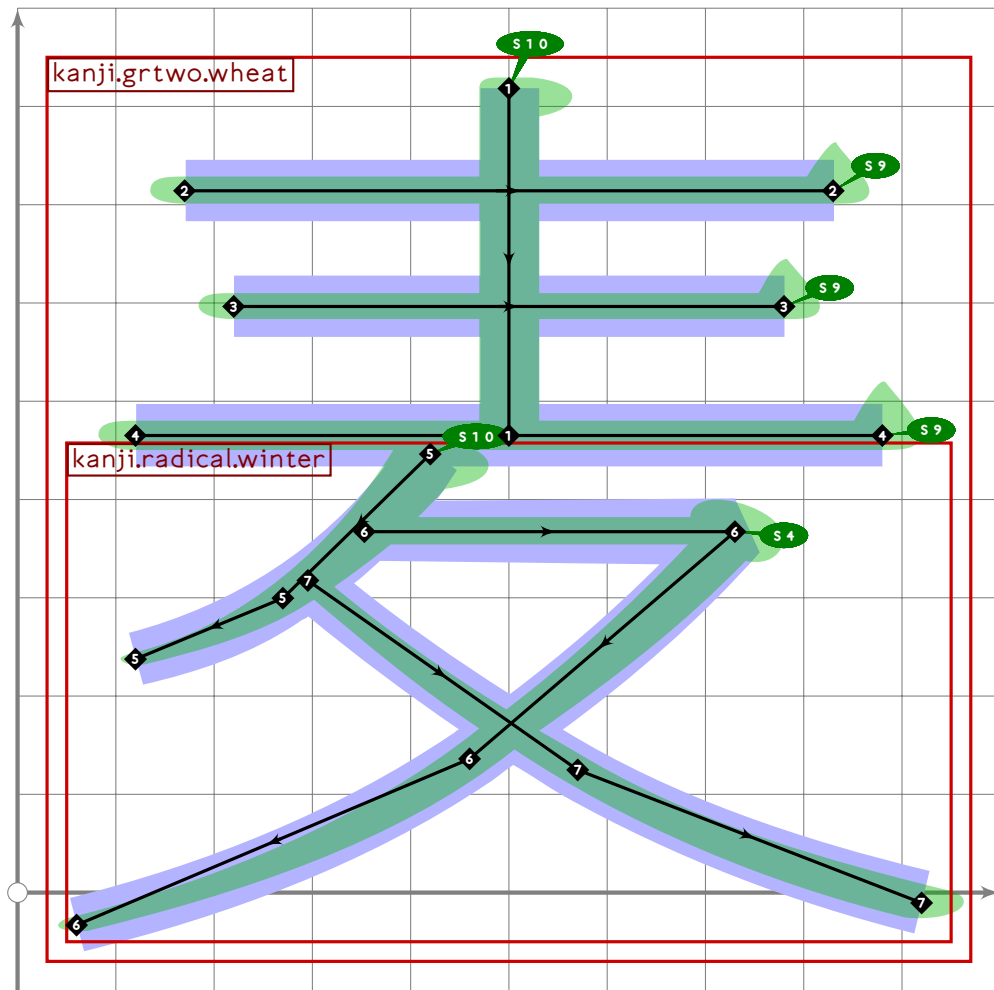
```



```

267 % simplified "eat" for use as radical
268 \begin{suglyph}{"uni2EDF";223};
269 \tsu_xform(identity xscaled 0.5)(kanji.leftrad.eat);
270 \tsu_render;
271 \end{suglyph};
272

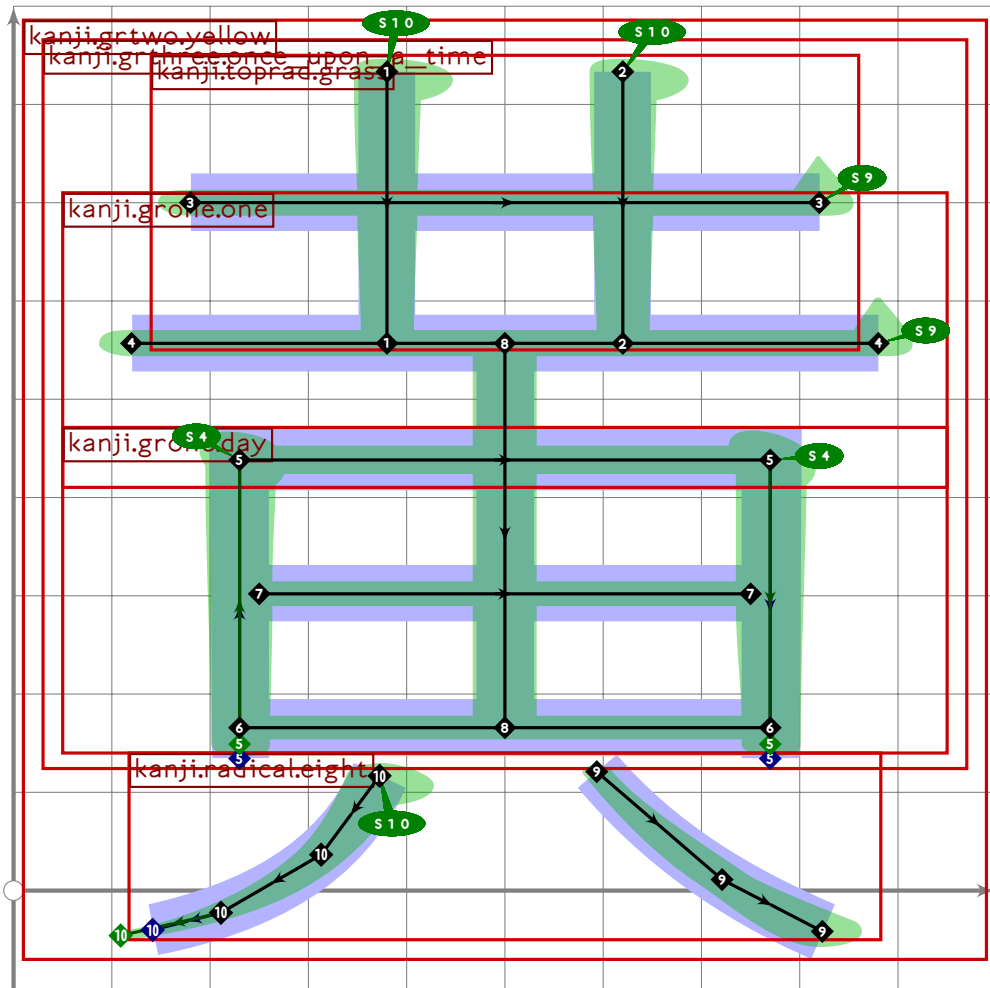
```



```

273 % baku/mugi "wheat"
274 begintsuglyph("uni2EE8",232);
275 kanji.grtwo.wheat;
276 tsu_render;
277 endtsuglyph;
278

```

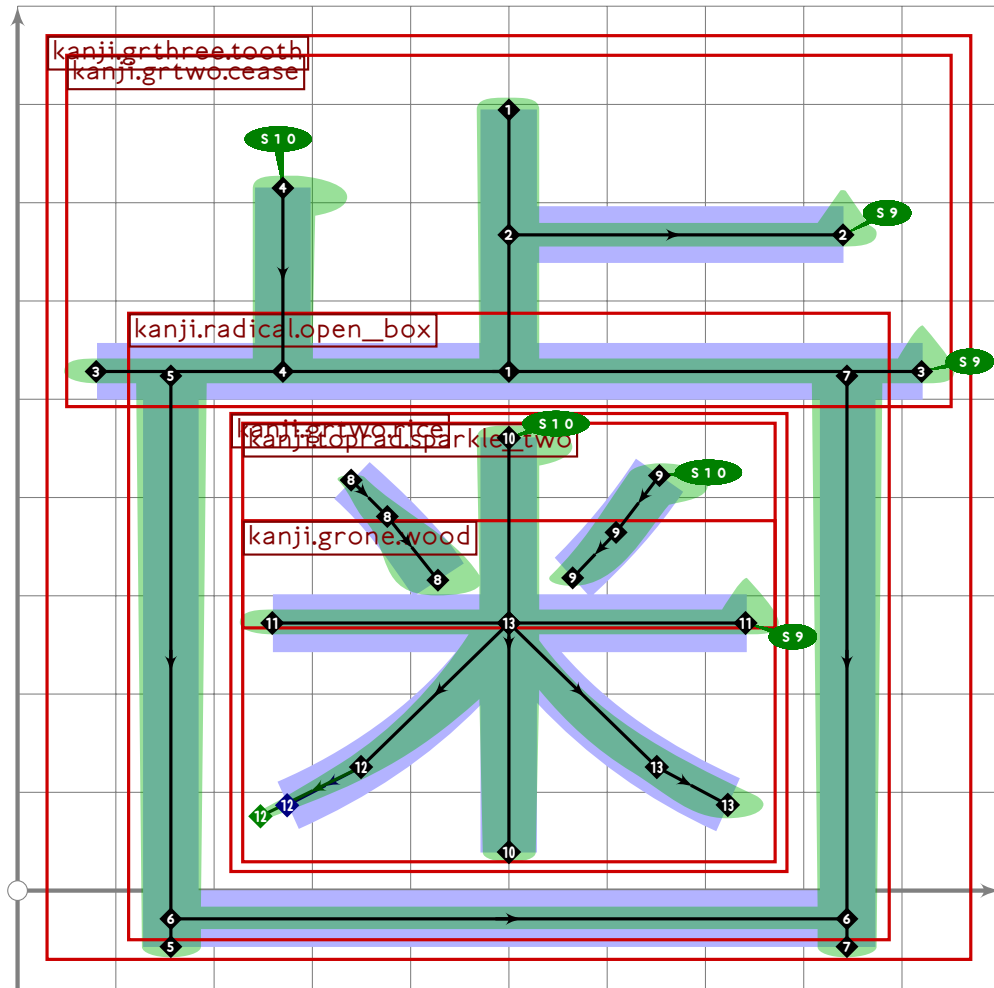


```

279 % kou/ki "yellow"
280 begint Suglyph("uni2EE9";233);
281   kanji.grtwo.yellow;
282   tsu_render;
283   endtsuglyph;
284

```





```

285 % shi/ha "tooth"
286 begint Suglyph("uni2EED",237);
287   kanji.grthree.tooth;
288   tsu_render;
289 endtsuglyph;
290
291 _____
292
293 endfont;
294
295 _____

```

# tsuku-2f.mp

```
1 %
2 % Unicode page 2f (Radicals and IDCs) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

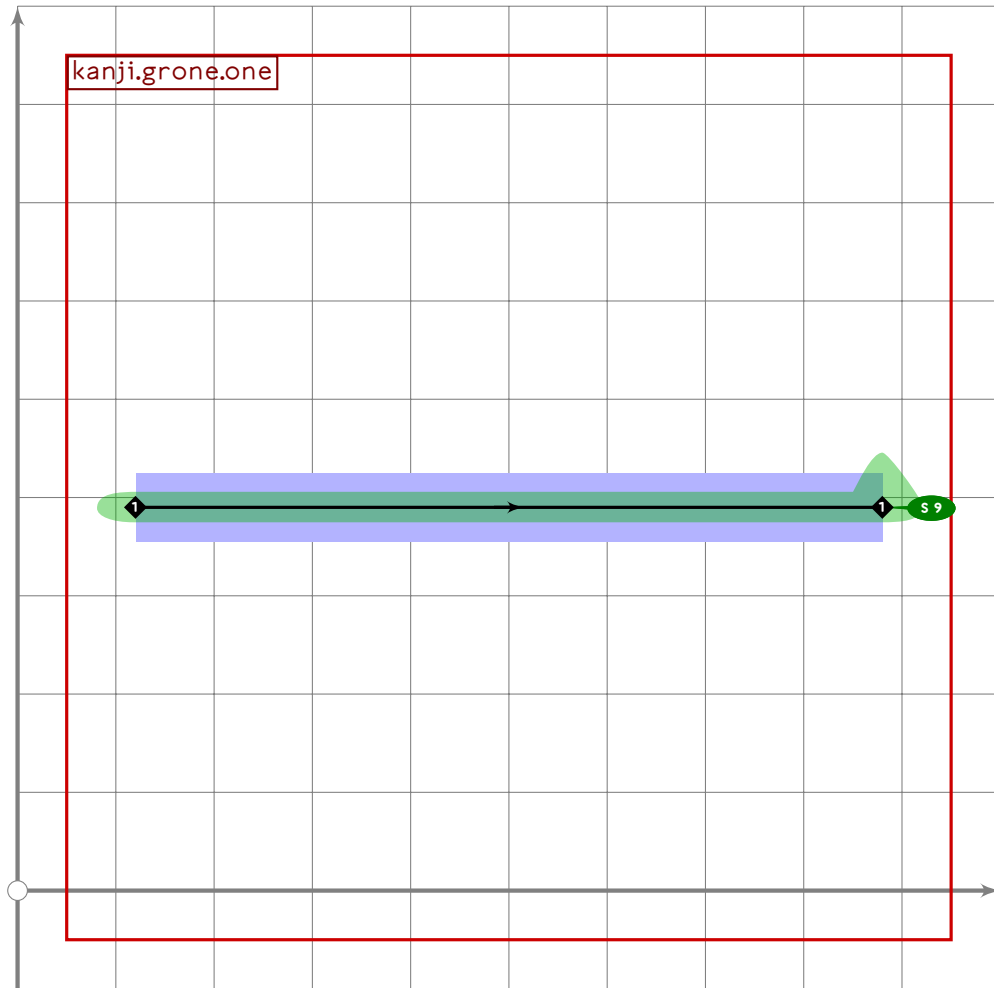

32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradesix.mp;
44 input gradethree.mp;
45 input gradetwo.mp;
46 input leftrad.mp;
47 input radical.mp;
48 input toprad.mp;
49
50 

---


51
```

## Kangxi Radicals

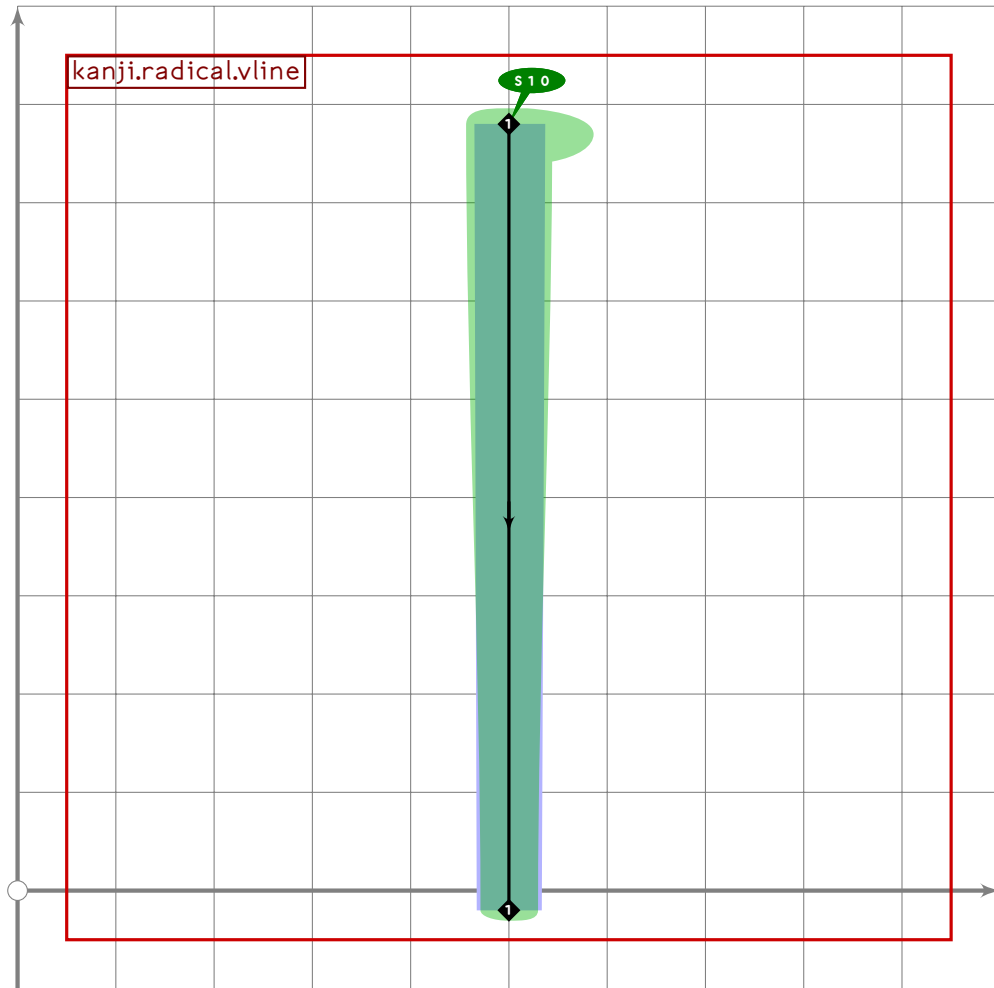
```
52 % KANGXI RADICALS
53
```



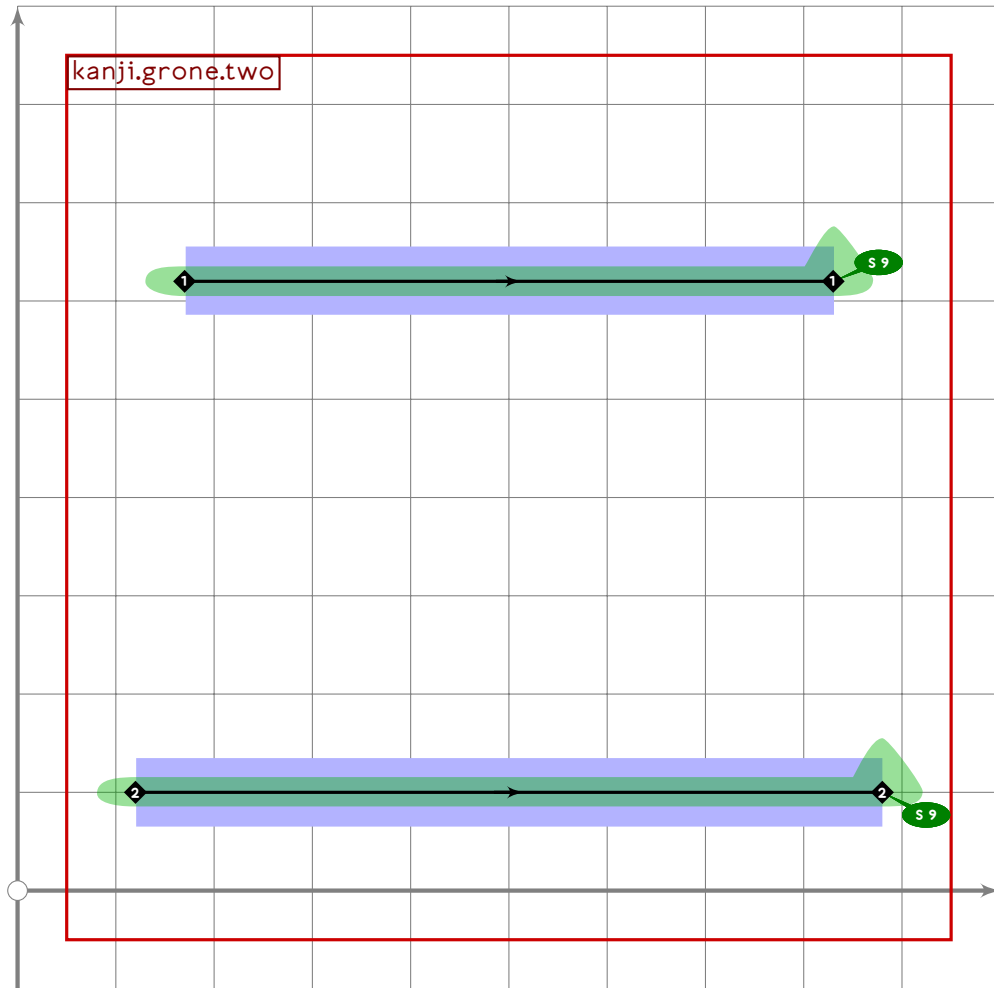
```

54 % ichi/hito "one"
55 begintsuglyph("uni2F00",0);
56 kanji.grone.one;
57 tsu_render;
58 endtsuglyph;
59

```



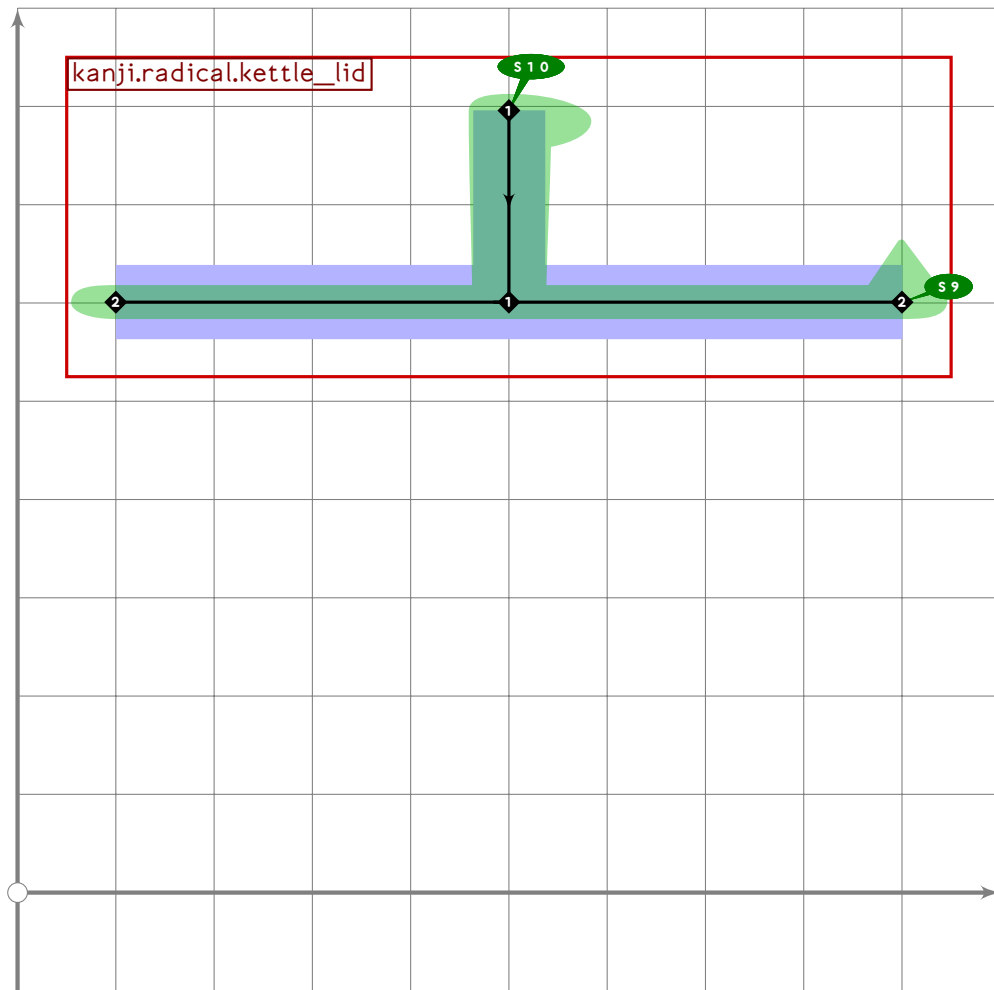
```
60 % extra "vertical line"  
61 beginsuglyph("uni2F01",1);  
62   kanji.radical.vline;  
63   tsu_render;  
64 endsuglyph;  
65
```



```

66 % ni/futa "two"
67 begintsuglyph("uni2F06",6);
68 kanji.grone.two;
69 tsu_render;
70 endtsuglyph;
71

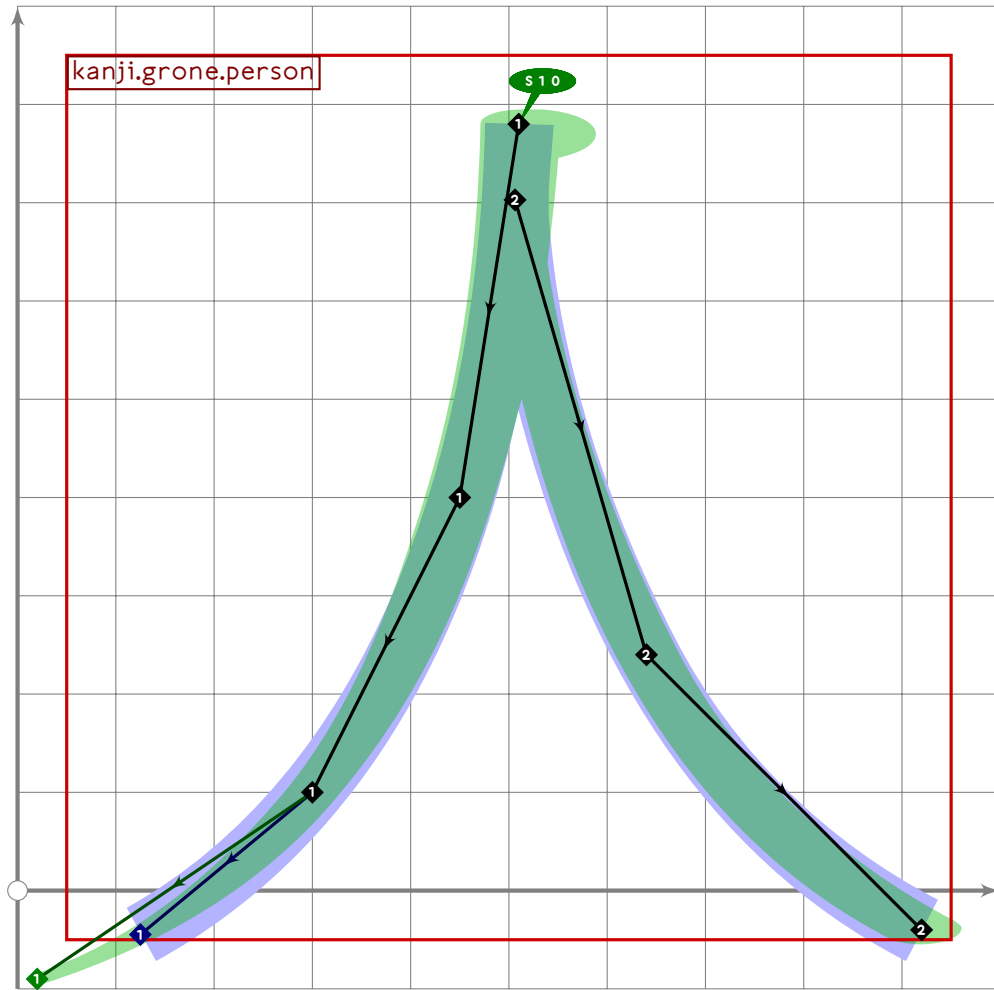
```



```

72 % "kettle lid radical"
73 begintsuglyph("uni2F07";7);
74 build_kanji.tb(500;50)
75   (kanji.radical.kettle_lid)
76   ();
77   tsu_render;
78   endtsuglyph;
79

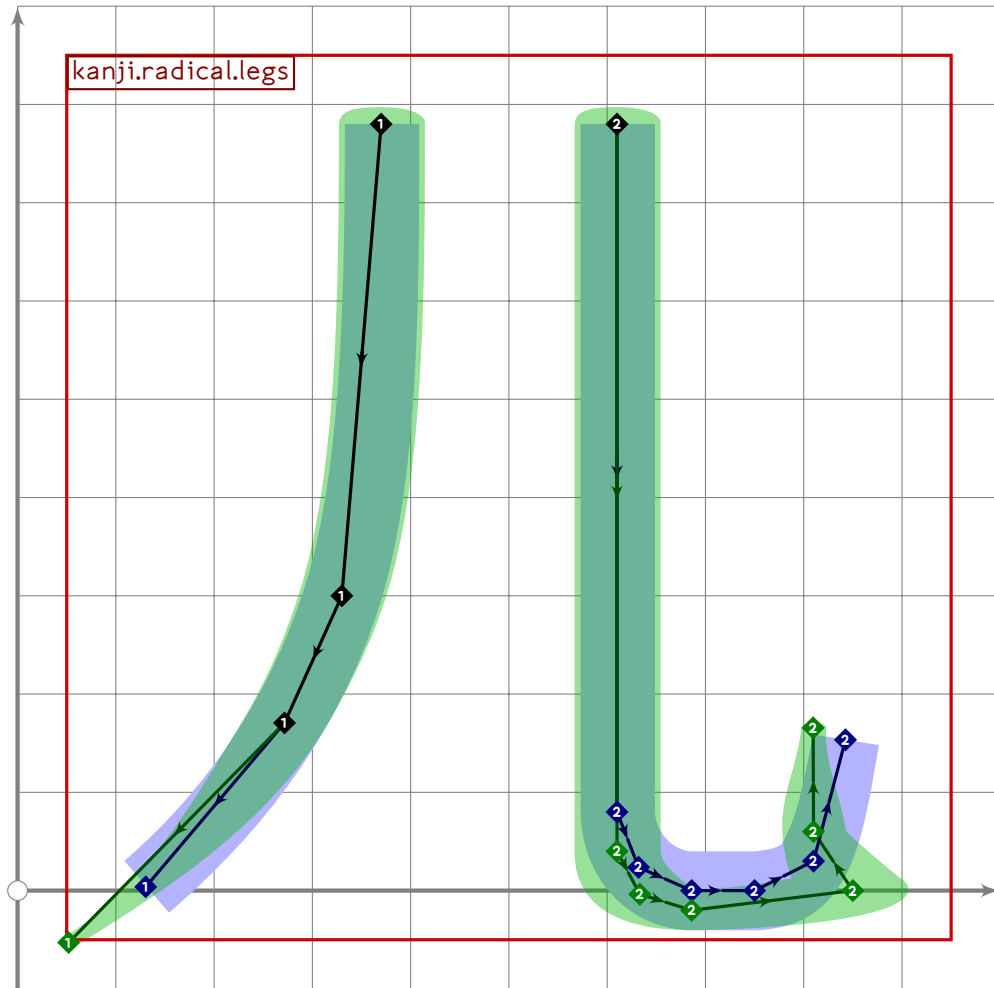
```



```

80 % hito/jin "person"
81 begint Suglyph("uni2F08";8);
82 kanji.grone.person;
83 tsu_render;
84 endtsuglyph;
85

```

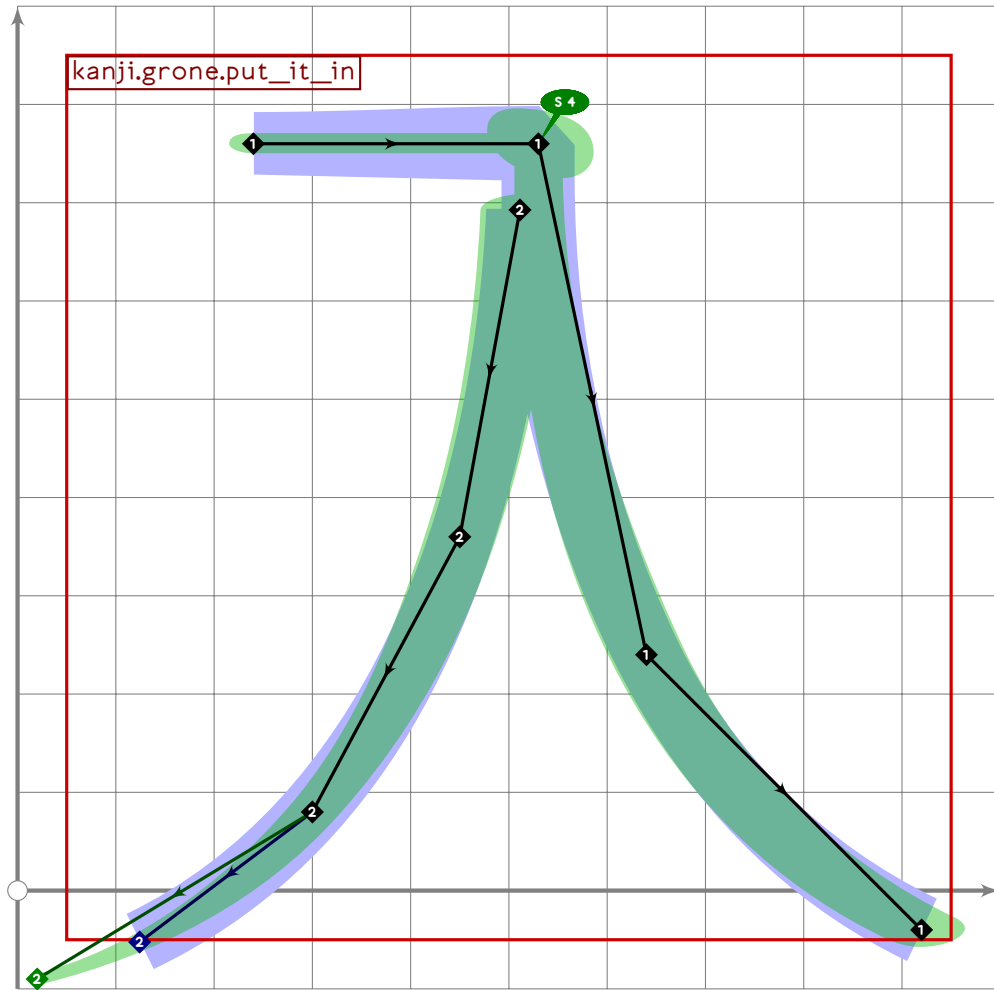


```

86 % legs radical
87 begintsuglyph("uni2F09"9);
88 kanji.radical.legs;
89 tsu_render;
90 endtsuglyph;
91

```

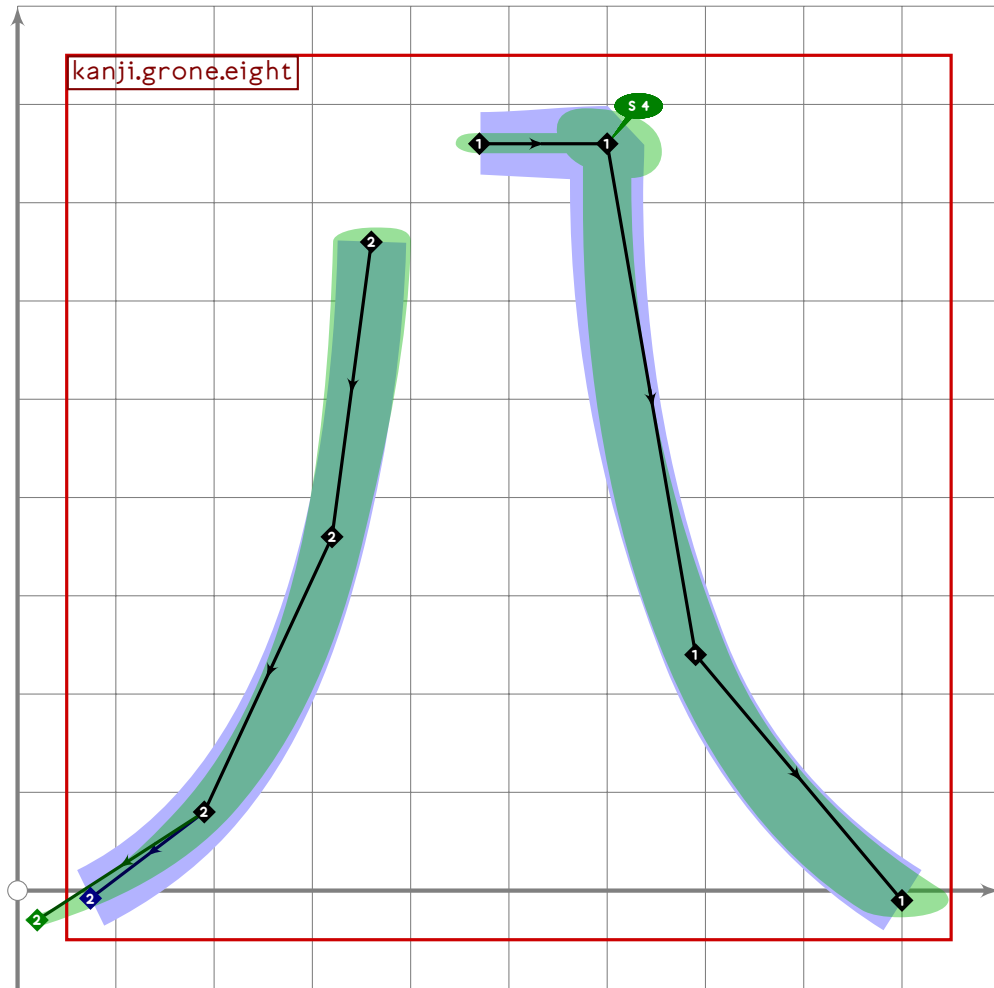




```

92 % hai/i "put it in"
93 beginsuglyph("uni2FOA";10);
94 kanji.grone.put_it_in;
95 tsu_render;
96 endsuglyph;
97

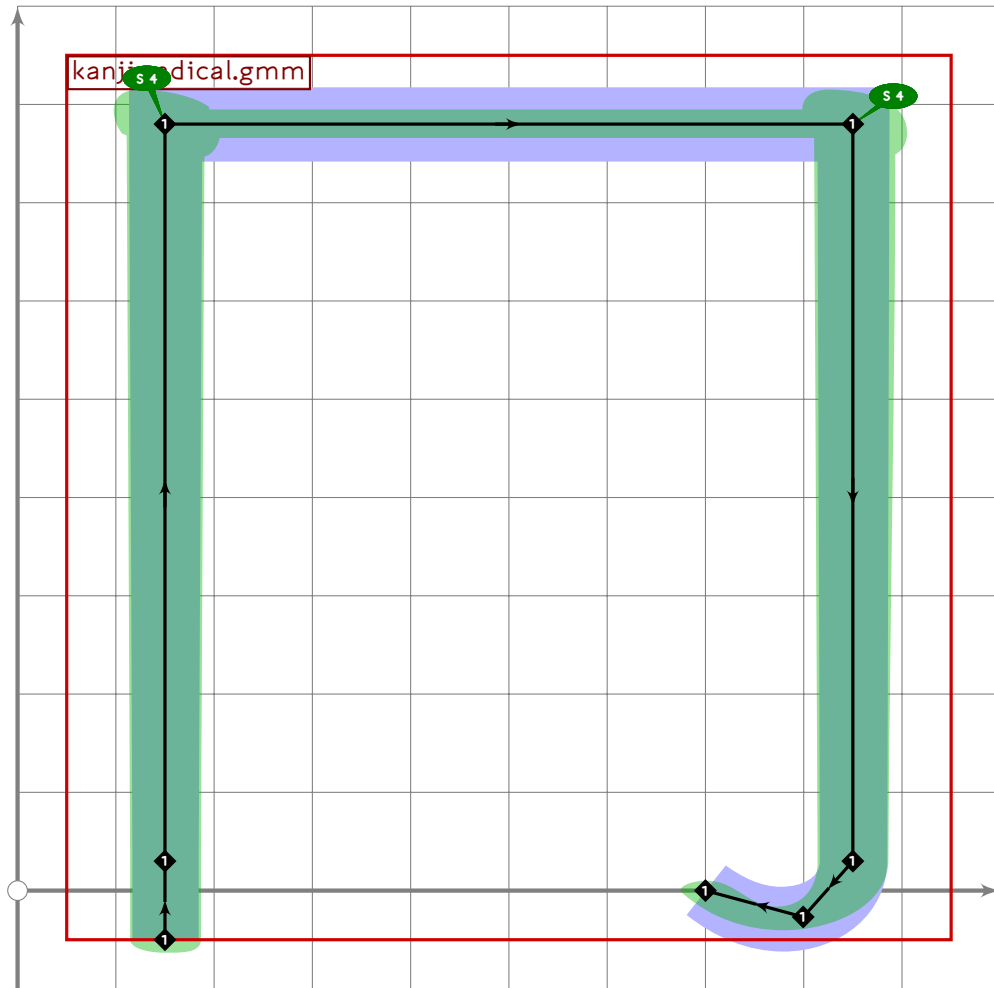
```



```

98 % hachi/ya "eight"
99 begintsuglyph("uni2FOB",11);
100 kanji.grone.eight;
101 tsu_render;
102 endtsuglyph;
103

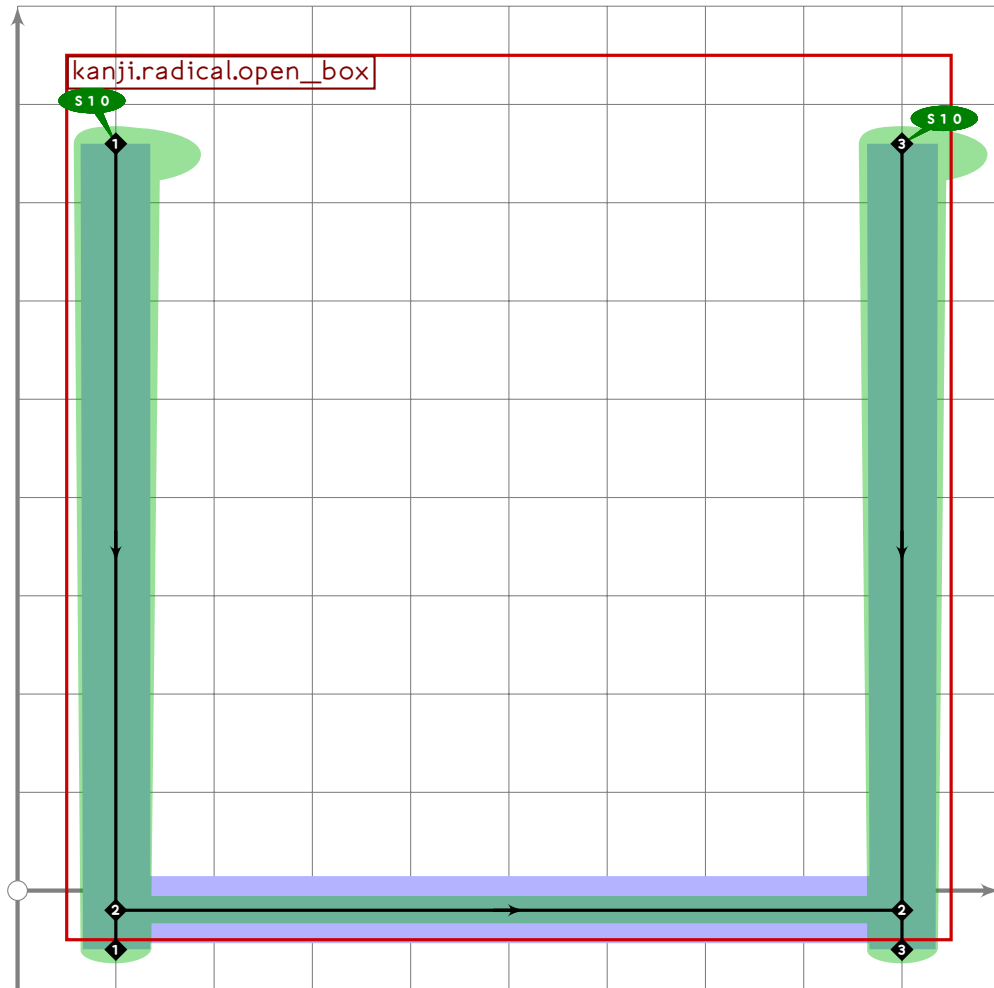
```



```

104 % George Michael's Moustache
105 beginsuglyph("uni2FOC",12);
106 kanji.radical.gmm;
107 tsu_render;
108 endsuglyph;
109

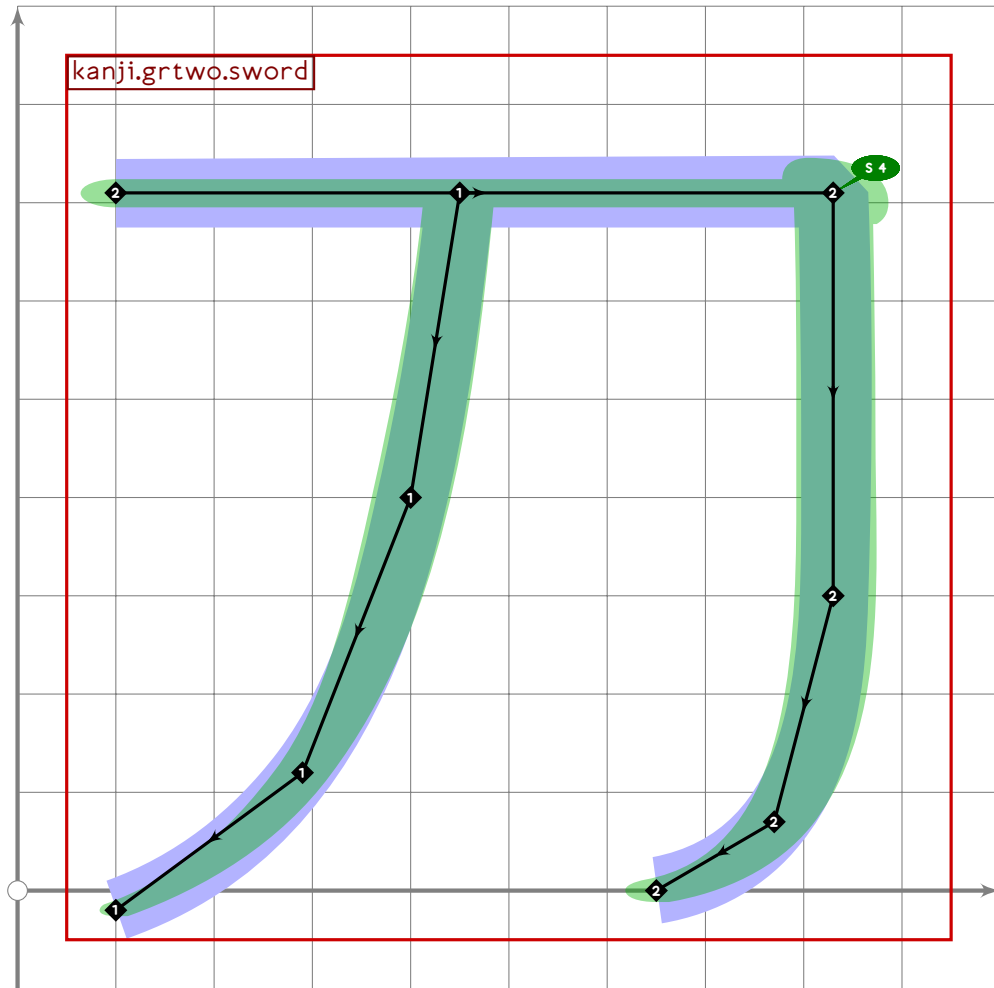
```



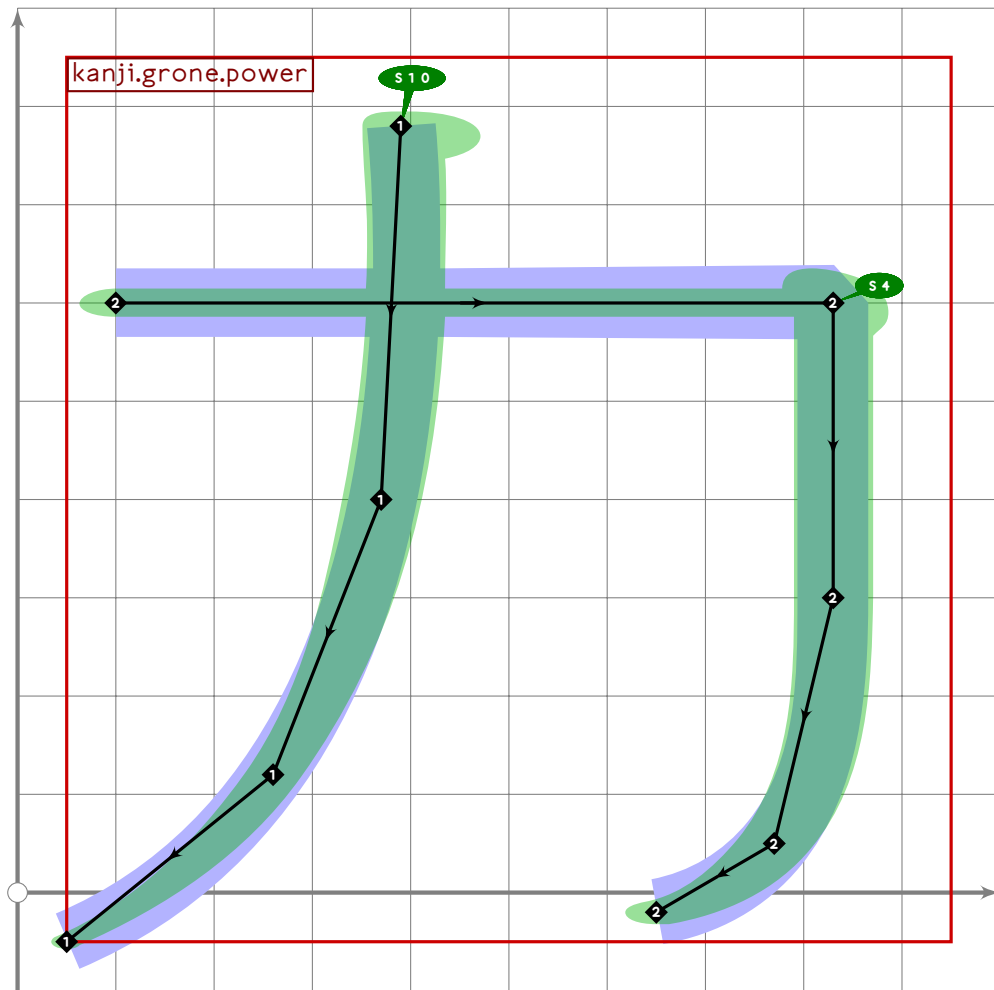
```

110 % kan "open box radical"
111 begintsuglyph("uni2F10",16);
112   kanji.radical.open_box;
113   tsu_render;
114   endtsuglyph;
115

```



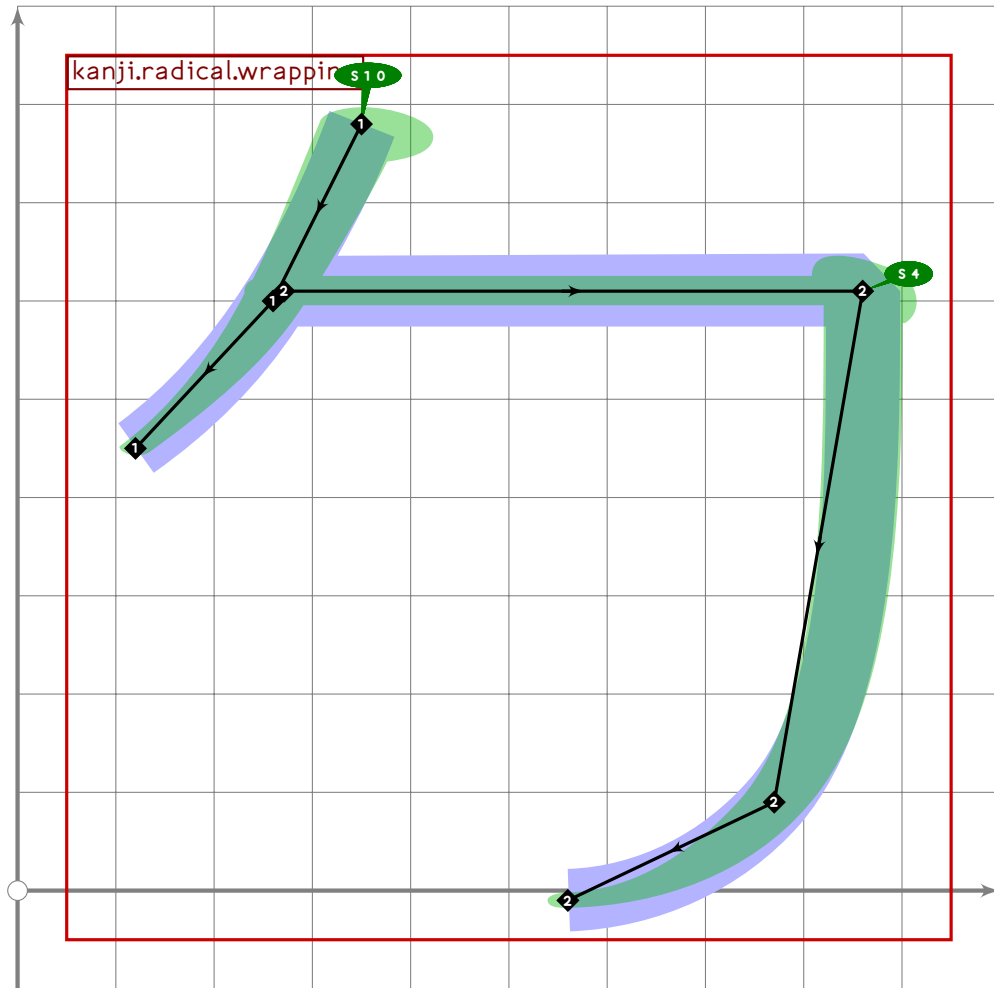
```
116 % tou/katana "sword"  
117 begintsuglyph("uni2F11",17);  
118 kanji.grtwo.sword;  
119 tsu_render;  
120 endtsuglyph;  
121
```



```

122 % ryoku "power", as in Koizumi Itsuki has teh "chounouryoku"
123 begintsuglyph("uni2F12",18);
124 kanji.grone.power;
125 tsu_render;
126 endtsuglyph;
127

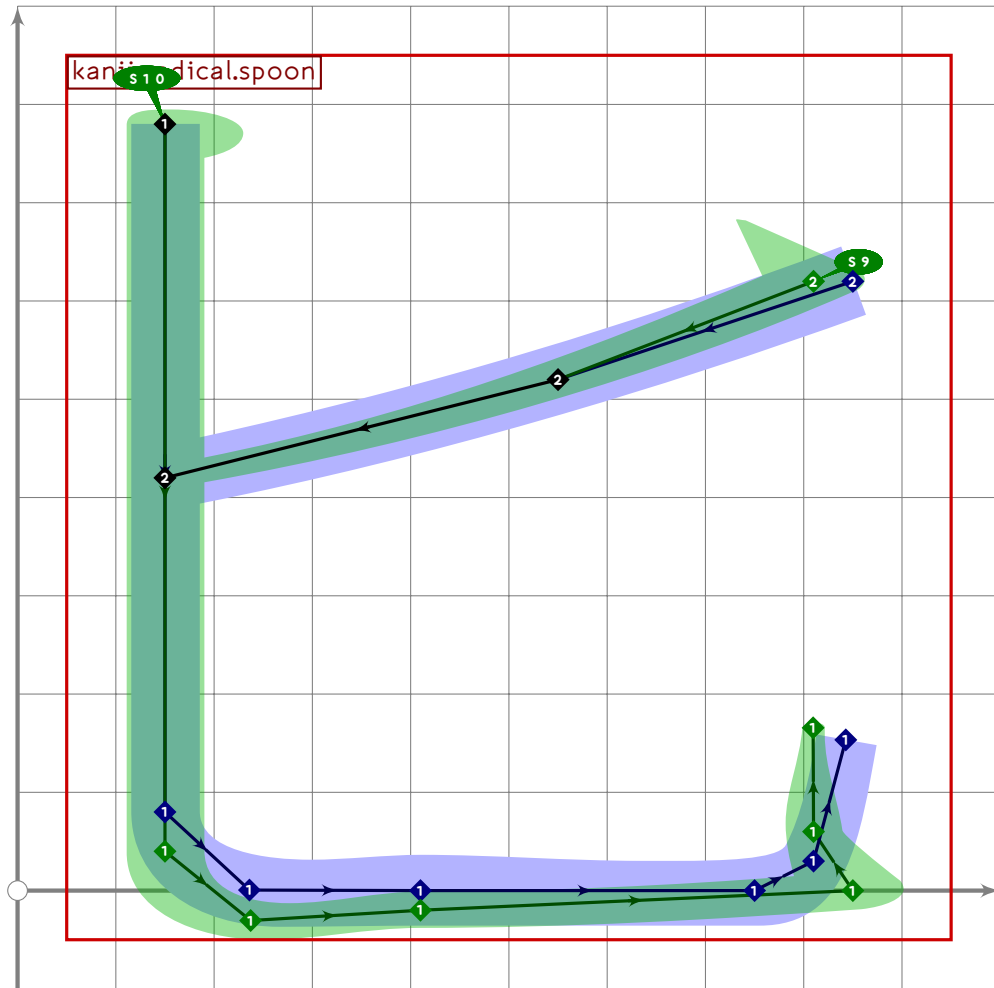
```



```

128 % hou/tsutsu "wrapping radical"
129 begintsuglyph("uni2F13",19);
130 kanji.radical.wrapping;
131 tsu_render;
132 endtsuglyph;
133

```

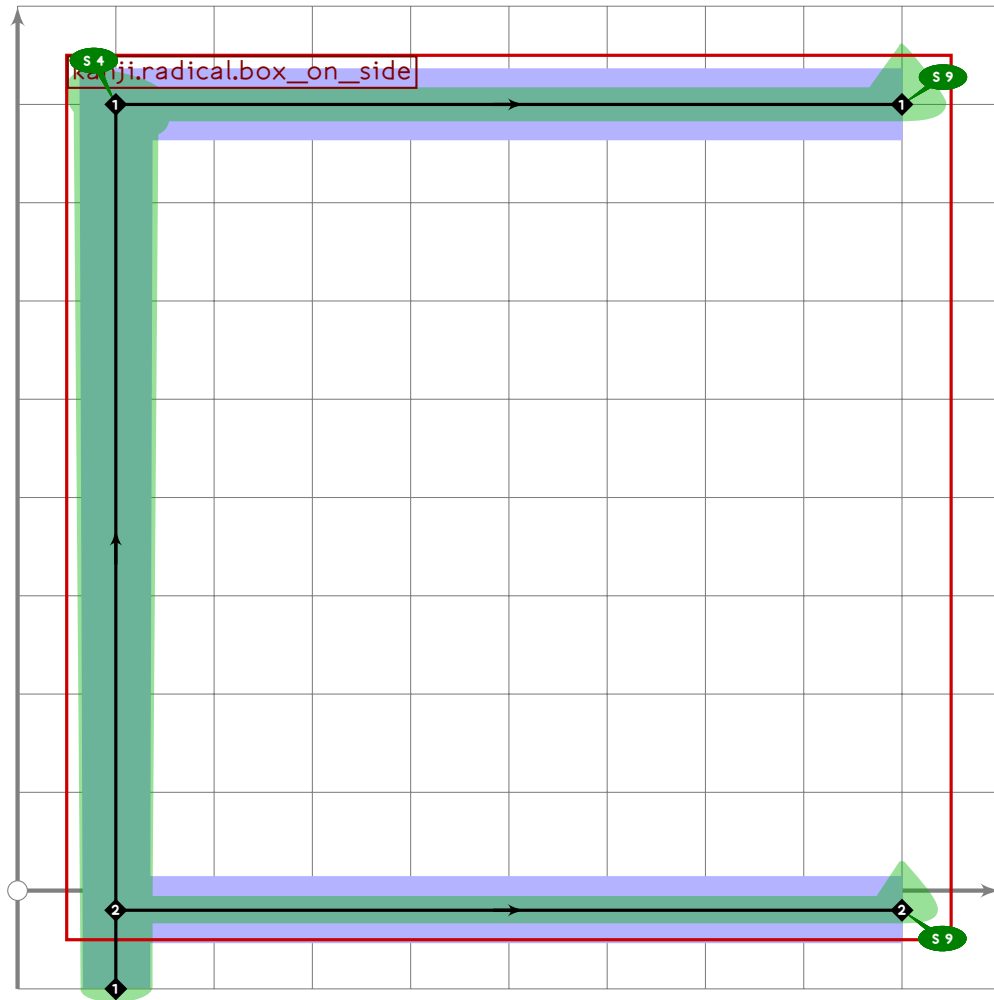


```

134 % hi/saji "spoon"
135 begint Suglyph("uni2F14",20);
136 kanji.radical.spoon;
137 tsu_render;
138 endtsuglyph;
139

```

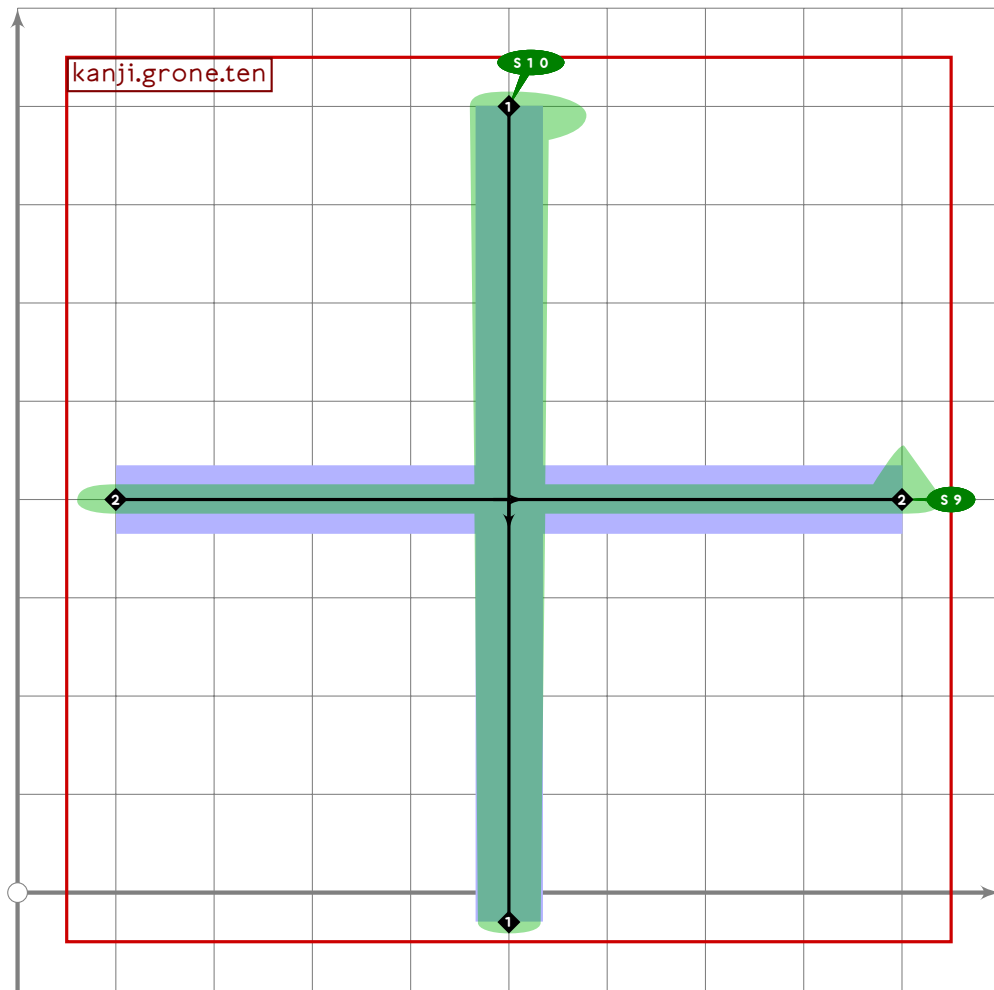




```

140 % hou/hakogamae "box on side radical"
141 begint Suglyph("uni2F15";21);
142   kanji.radical.box_on_side;
143   tsu_render;
144 endtsuglyph;
145

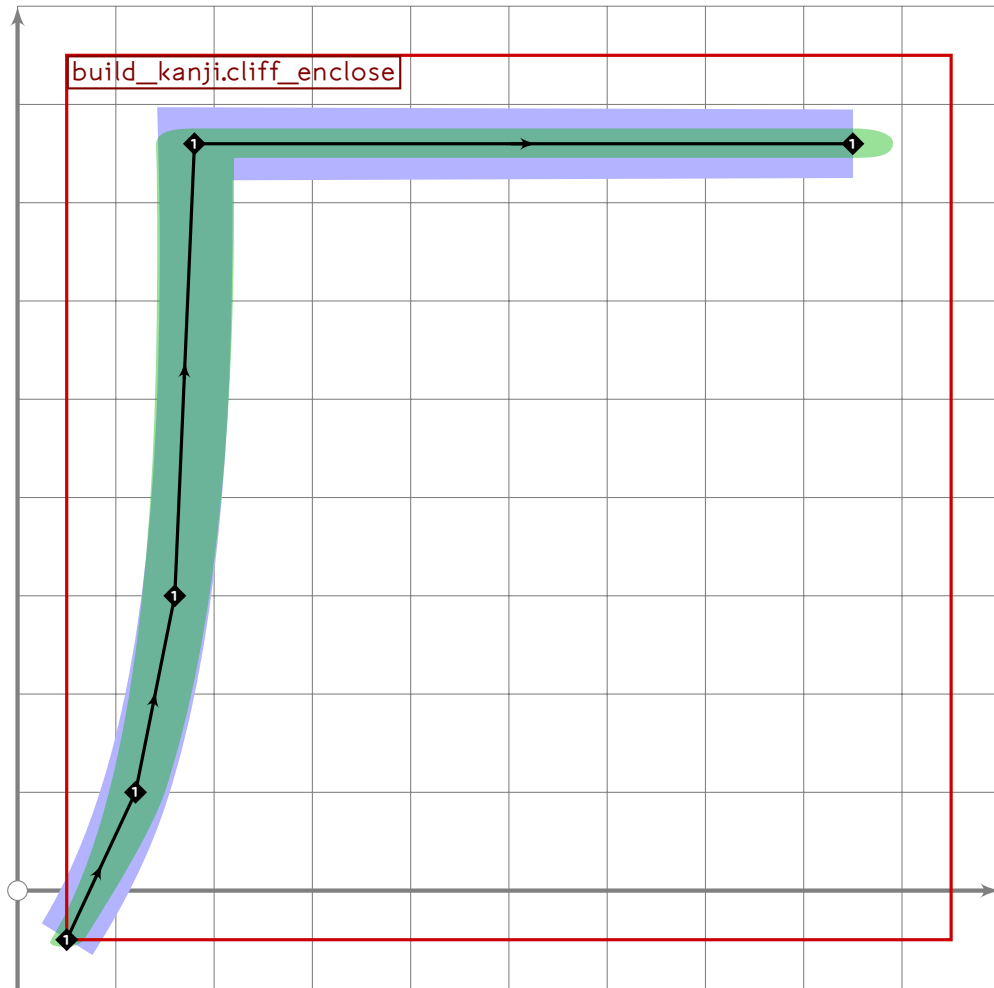
```



```

146 % juu/too "ten"
147 begintuglyph("uni2F17";23);
148   kanji.grone.ten;
149   tsu_render;
150   endtsuglyph;
151

```

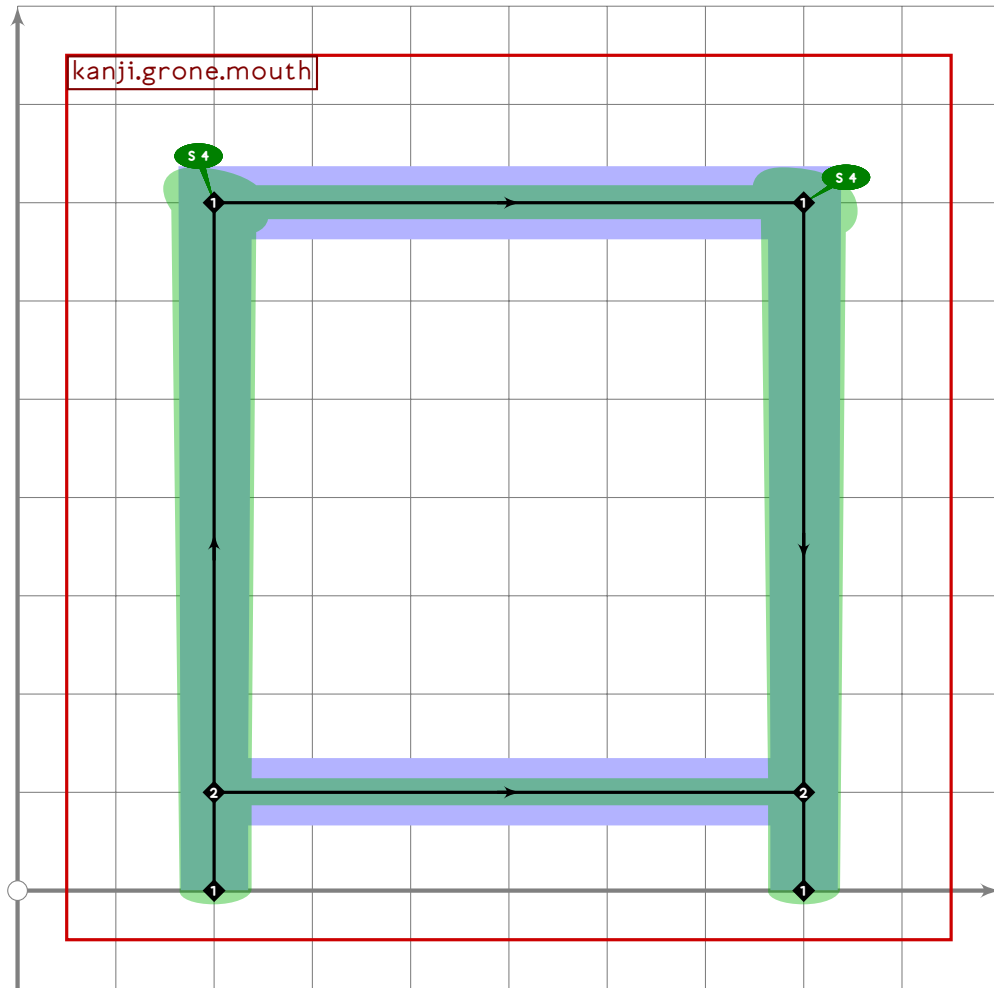


```

152 % karigane "cliff radical"
153 begintsuglyph("uni2F1A",26);
154 build_kanji.cliff_enclose();
155 tsu_render;
156 endtsuglyph;
157

```

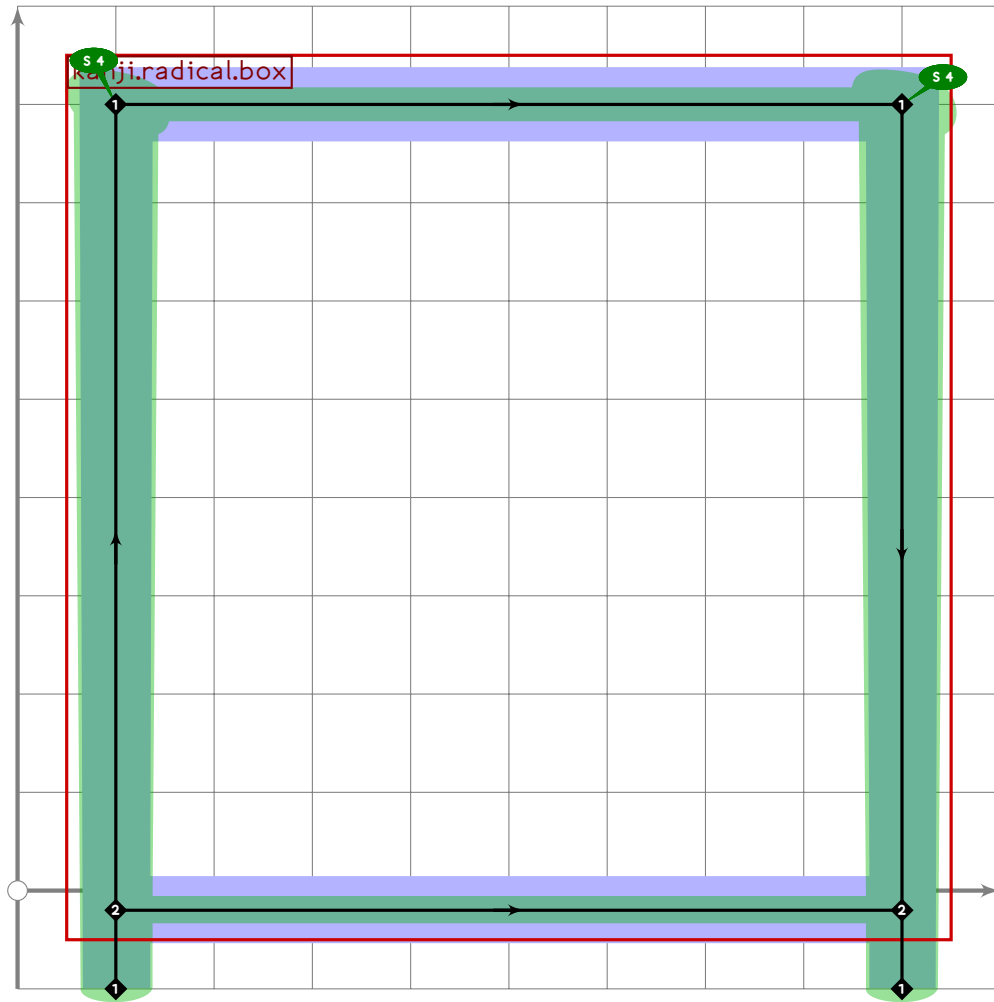




```

164 % kou/kuchi "mouth"
165 begint Suglyph("uni2F1D";29);
166   kanji.grone.mouth;
167   tsu_render;
168   endtsuglyph;
169

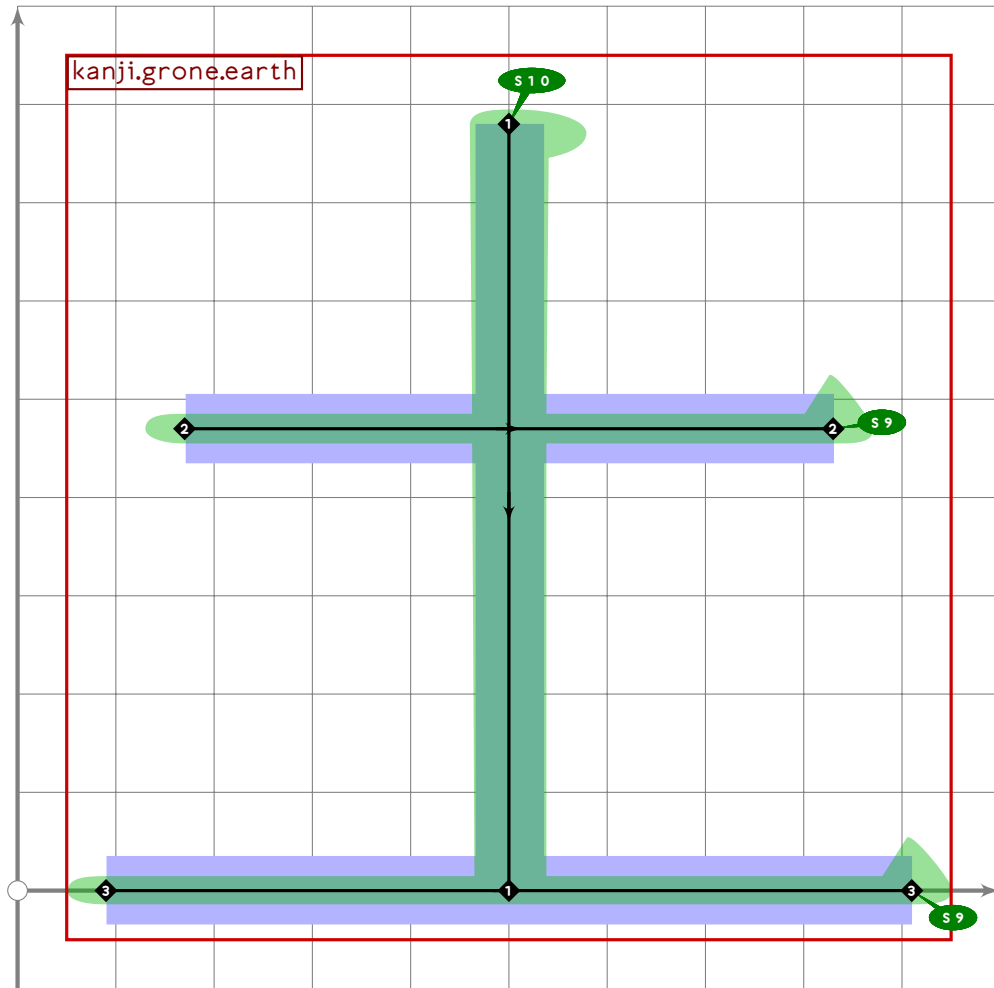
```



```

170 % box radical
171 begint Suglyph("uni2F1E";30);
172   kanji.radical.box;
173   tsu_render;
174 endtsuglyph;
175

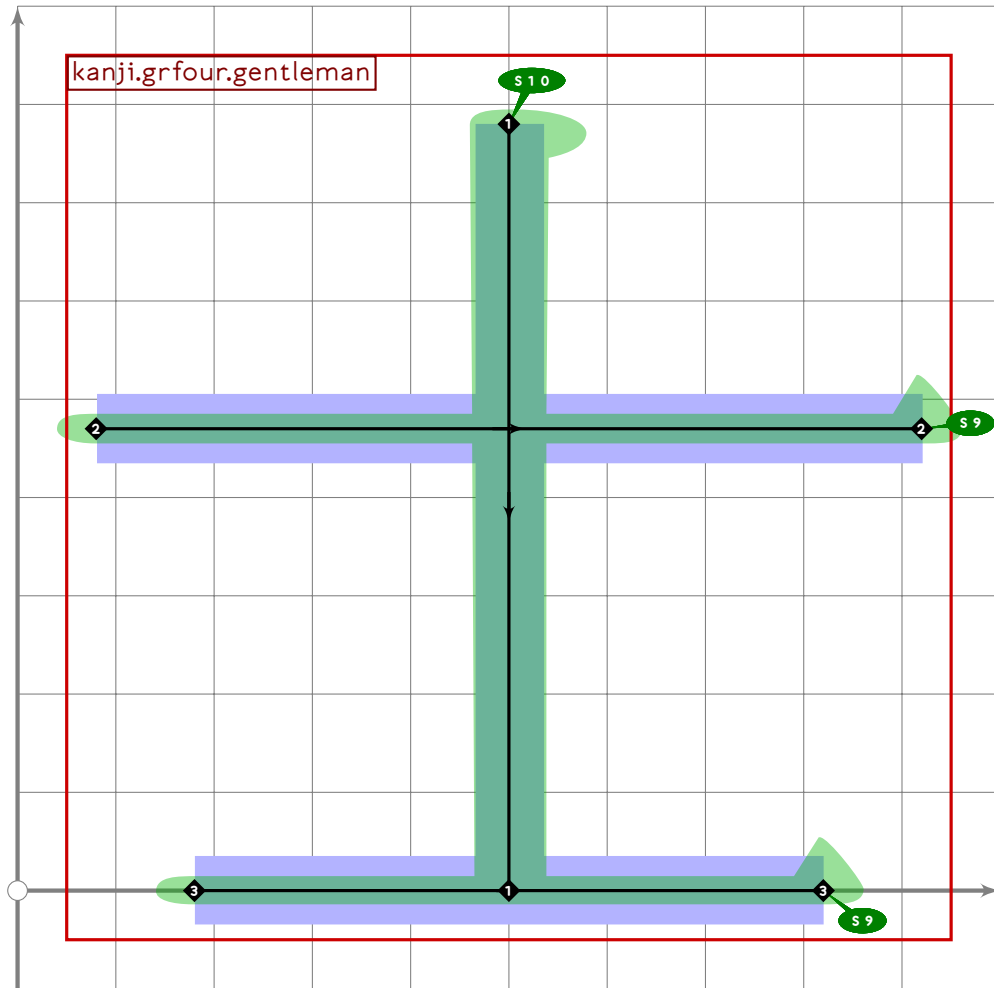
```



```

176 % tsuchi/do "earth"
177 begintsuglyph("uni2F1F";31);
178 kanji.grone.earth;
179 tsu_render;
180 endtsuglyph;
181

```

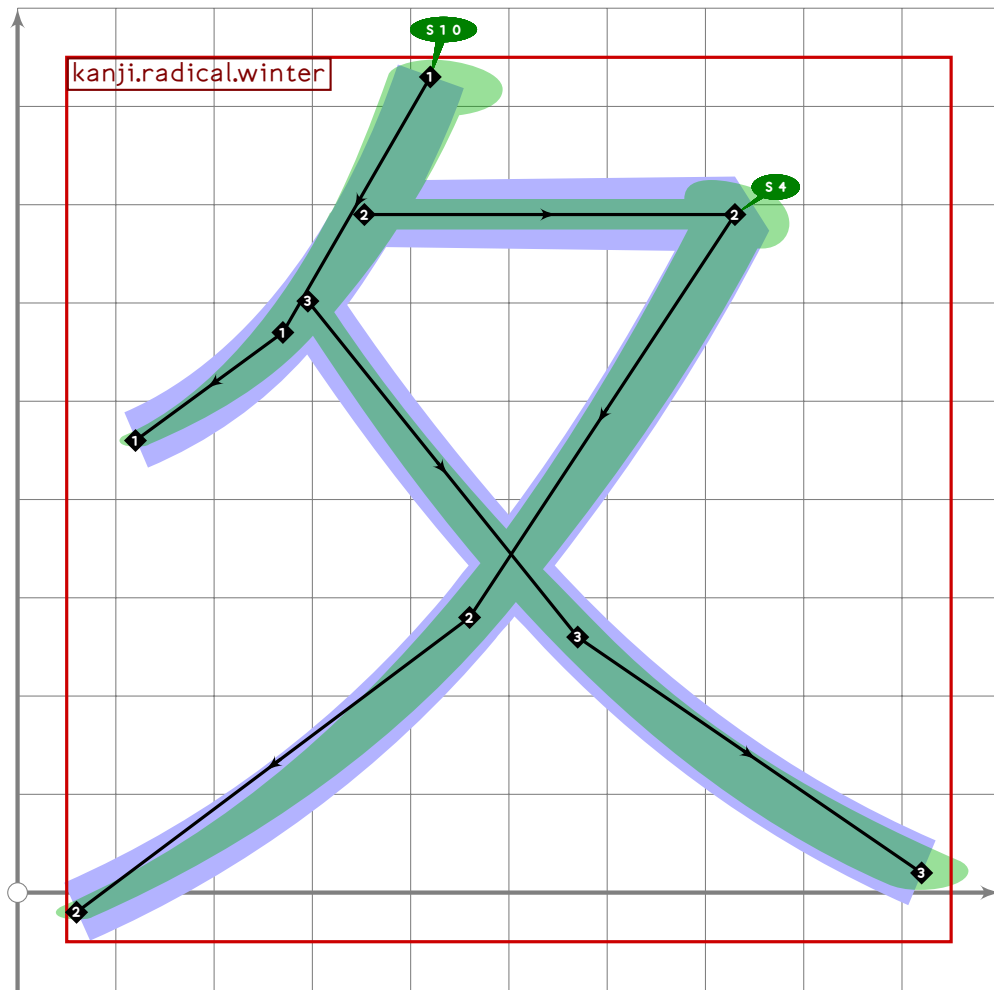


```

182 % shi "gentleman" ("samurai" radical)
183 begintsuglyph("uni2F20";32);
184 kanji.grfour.gentleman;
185 tsu_render;
186 endtsuglyph;
187

```

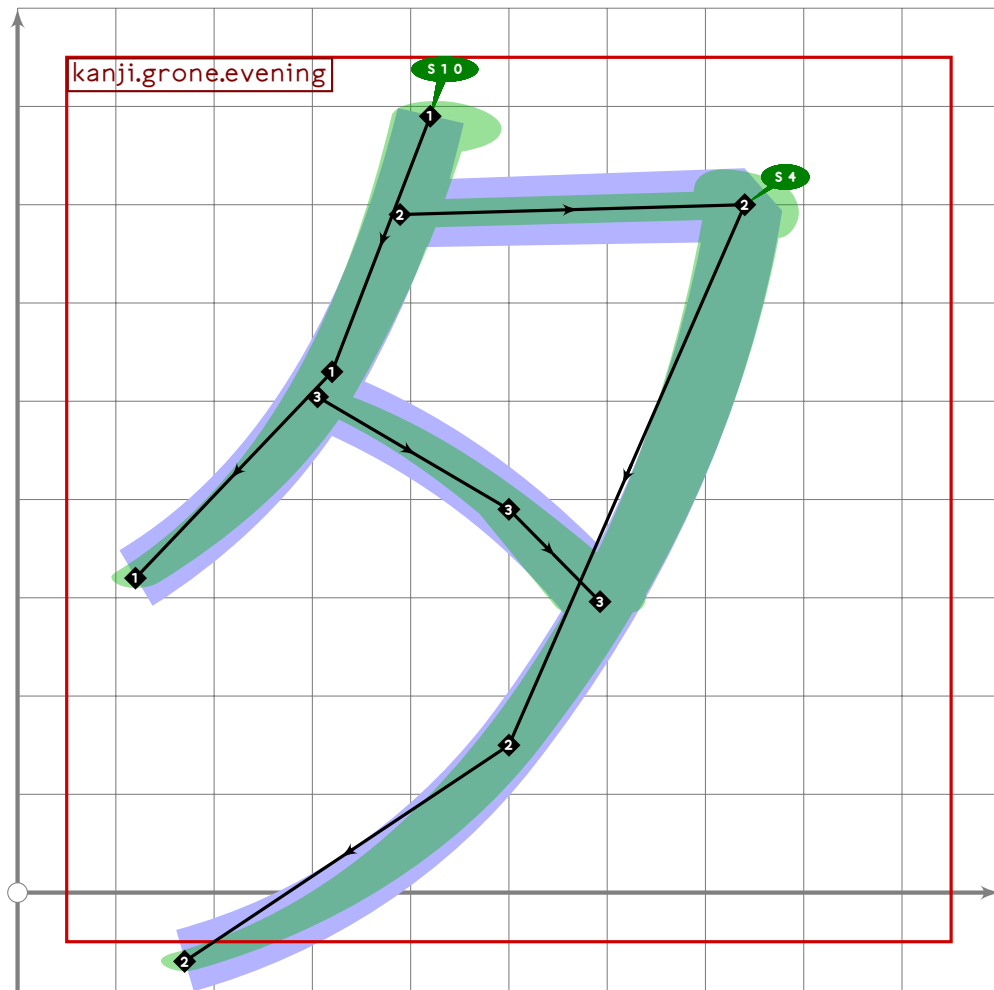




```

188 % chi/shuu "winter radical"
189 begintsuglyph("uni2F21",33);
190 kanji.radical.winter;
191 tsu_render;
192 endtsuglyph;
193

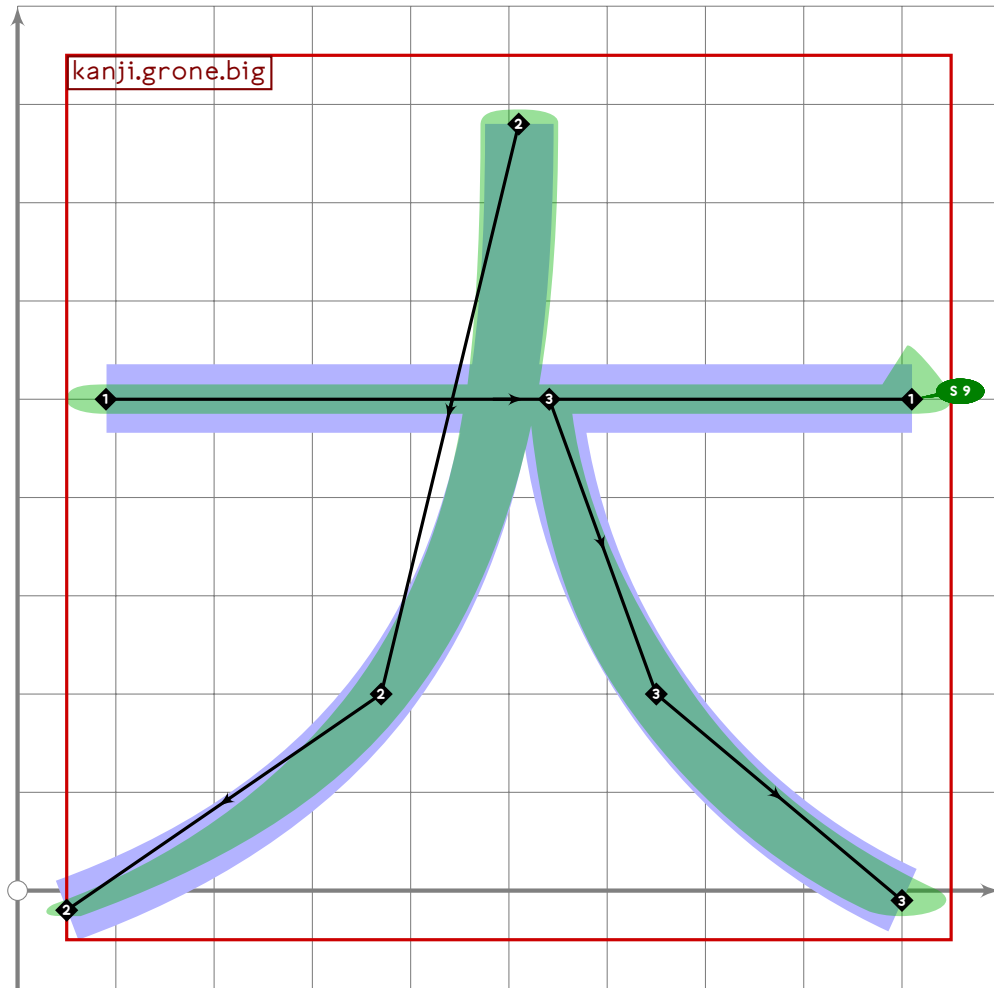
```



```

194 % yuu/seki "evening"
195 begint Suglyph("uni2F23",35);
196 kanji.grone.evening;
197 tsu_render;
198 endtsuglyph;
199

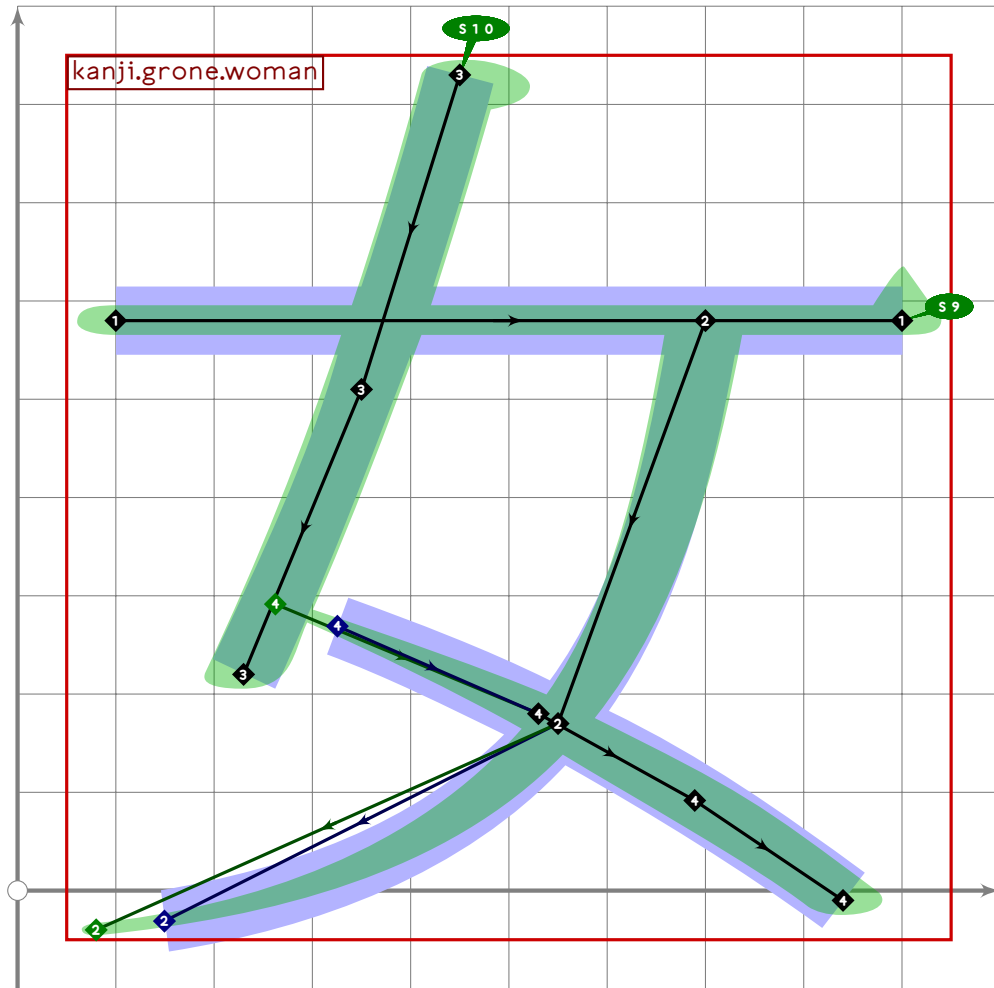
```



```

200 % dai/oo "big"
201 begint Suglyph("uni2F24";36);
202   kanji.grone.big;
203   tsu_render;
204   endtsuglyph;
205

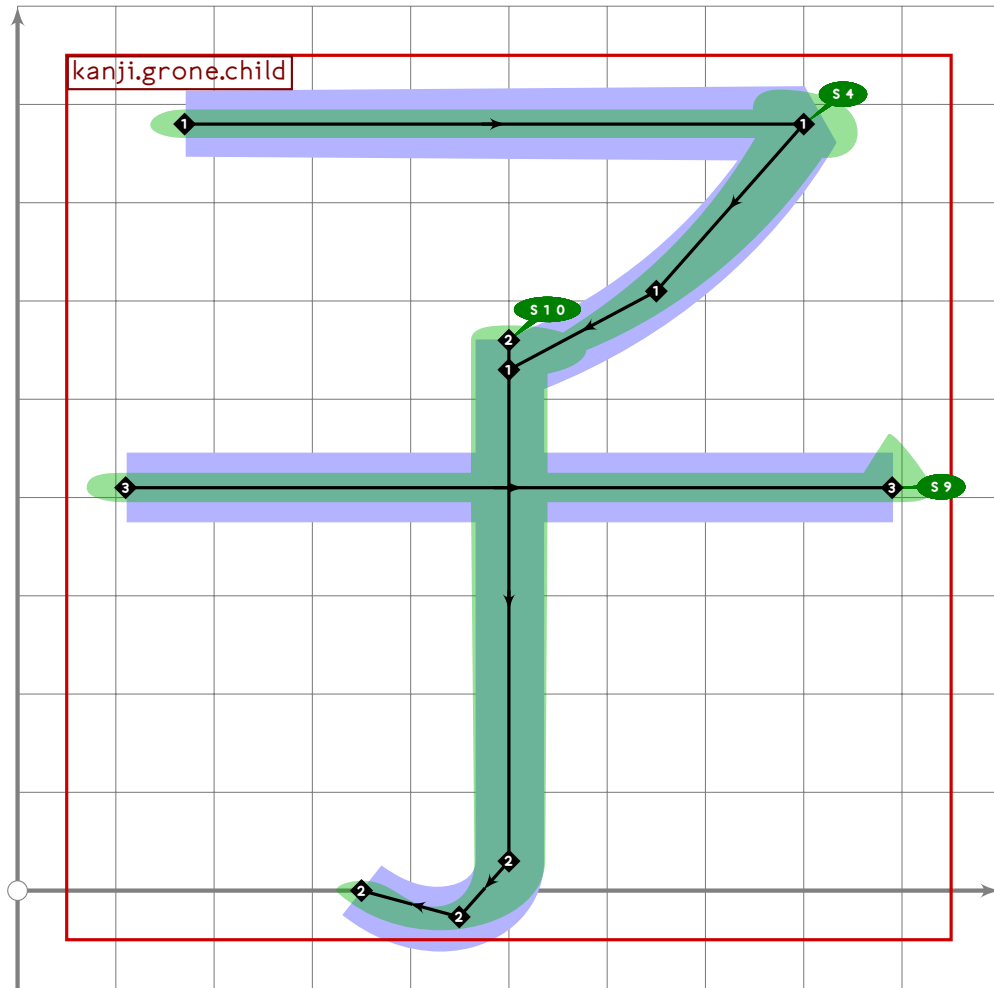
```



```

206 % jo/onna "woman"
207 begint Suglyph("uni2F25",37);
208 kanji.grone.woman;
209 tsu_render;
210 endtsuglyph;
211

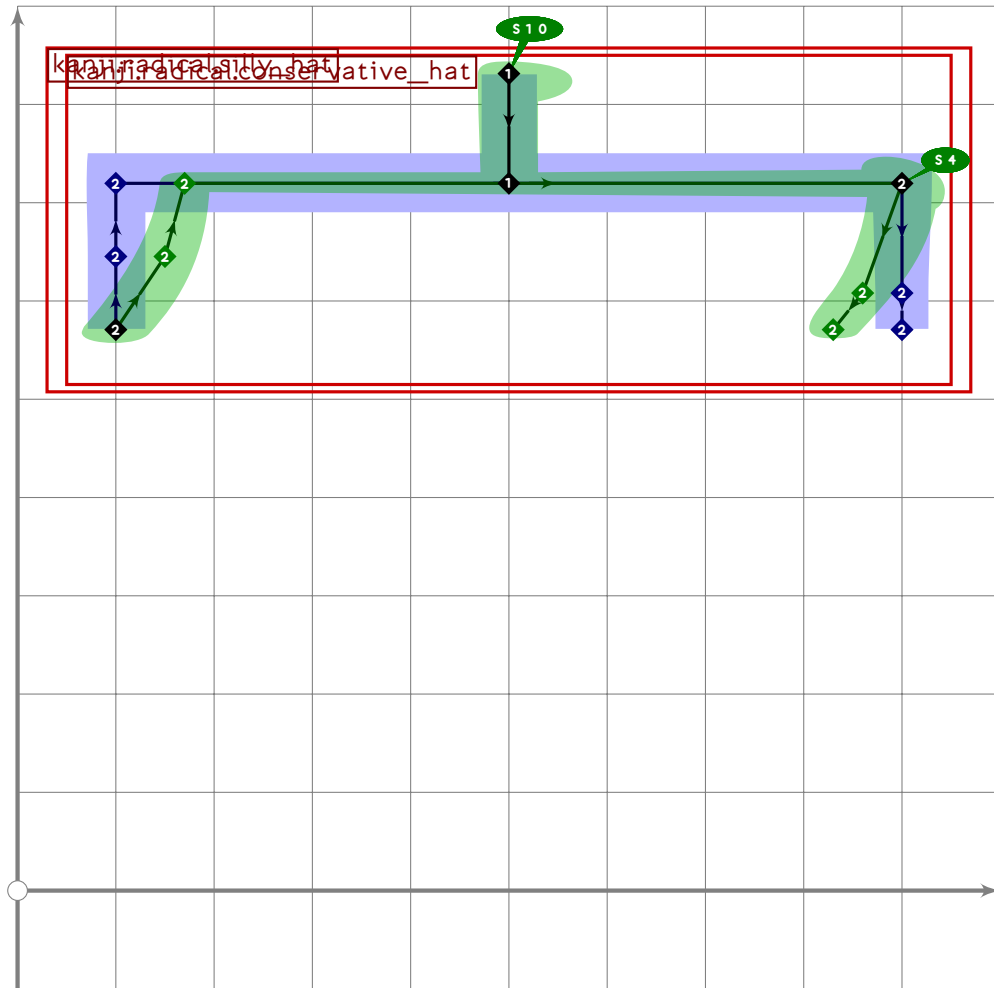
```



```

212 % ko "child"
213 begint Suglyph("uni2F26",38);
214 kanji.grone.child;
215 tsu_render;
216 endtsuglyph;
217

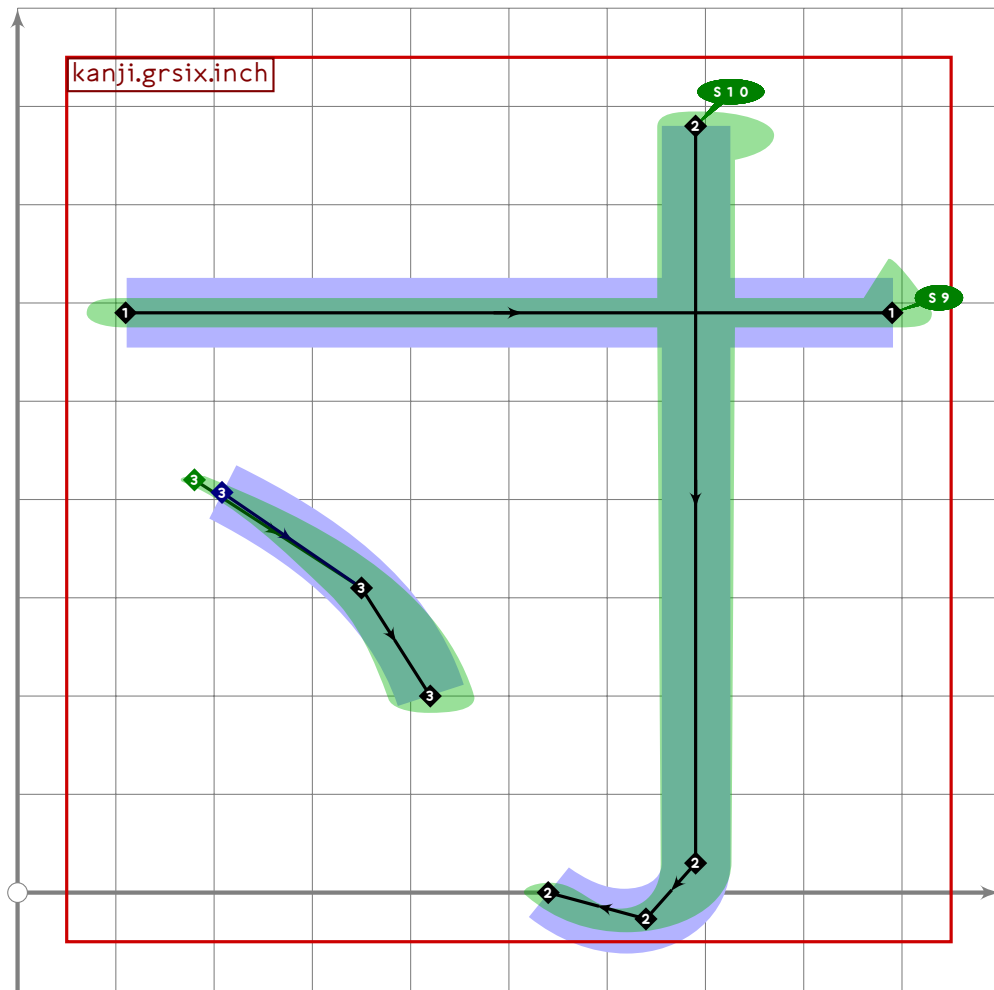
```



```

218 % silly hat radical
219 begintsuglyph("uni2F27";39);
220 build_kanji.tb(500,30)
221   (kanji.radical.silly_hat)
222   ();
223 tsu_render;
224 endtsuglyph;
225

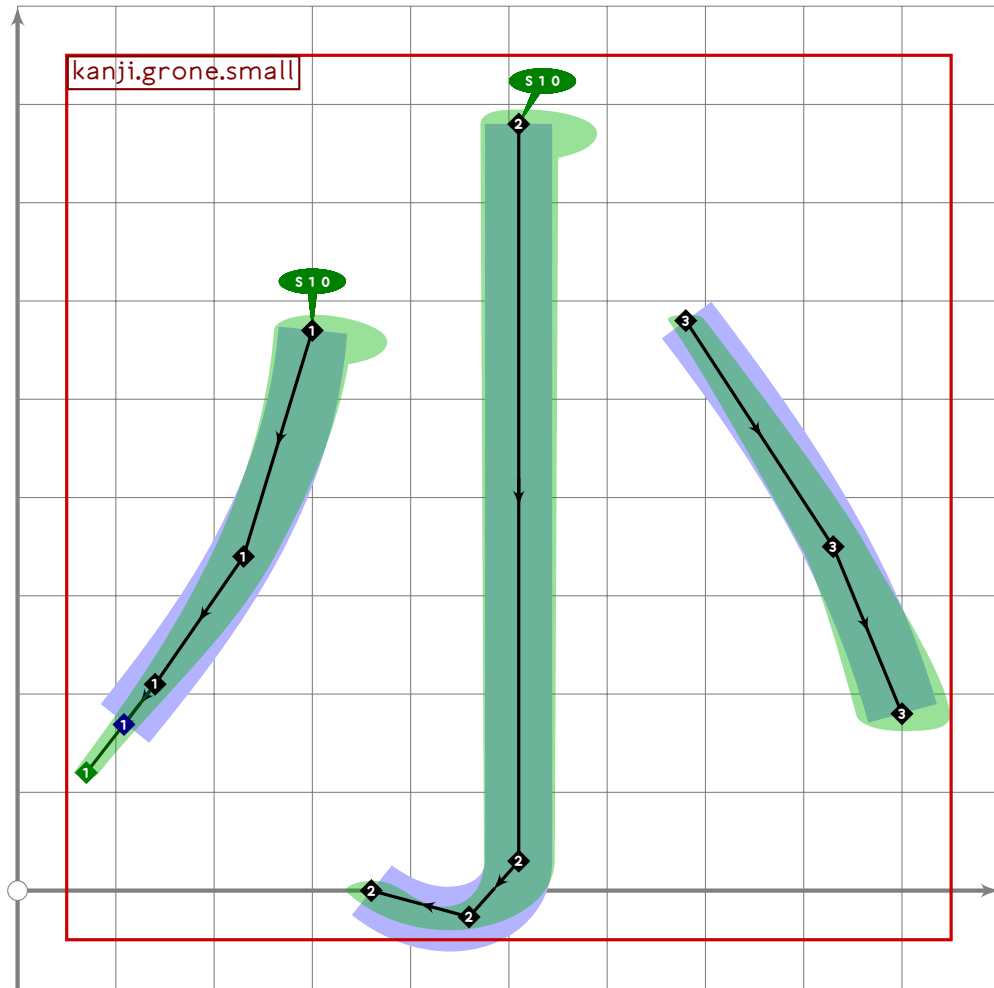
```



```

226 % su/miki "inch"; also often a radical
227 begintsuglyph("uni2F28"40);
228 kanji.grsix.inch;
229 tsu_render;
230 endtsuglyph;
231

```

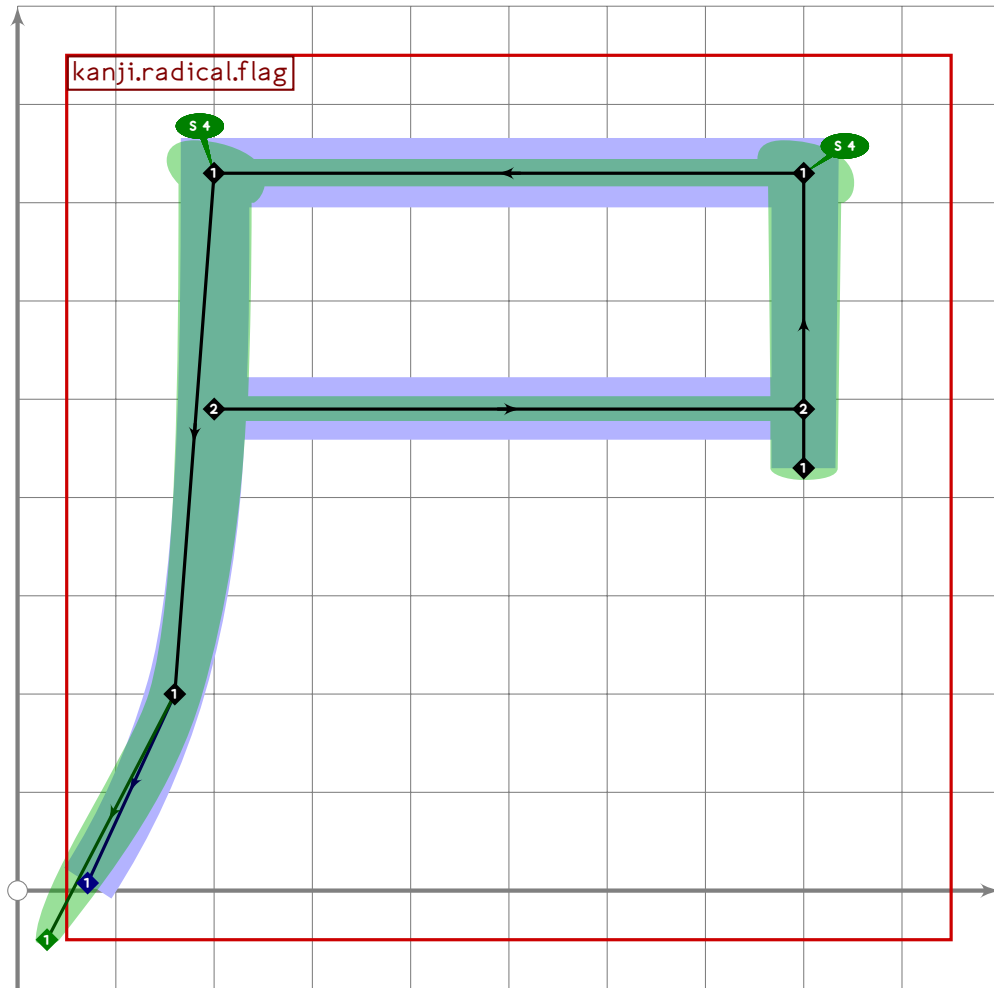


```

232 % shuu/chii "small"
233 begintsuglyph("uni2F29";41);
234 kanji.grone.small;
235 tsu_render;
236 endsuglyph;
237

```

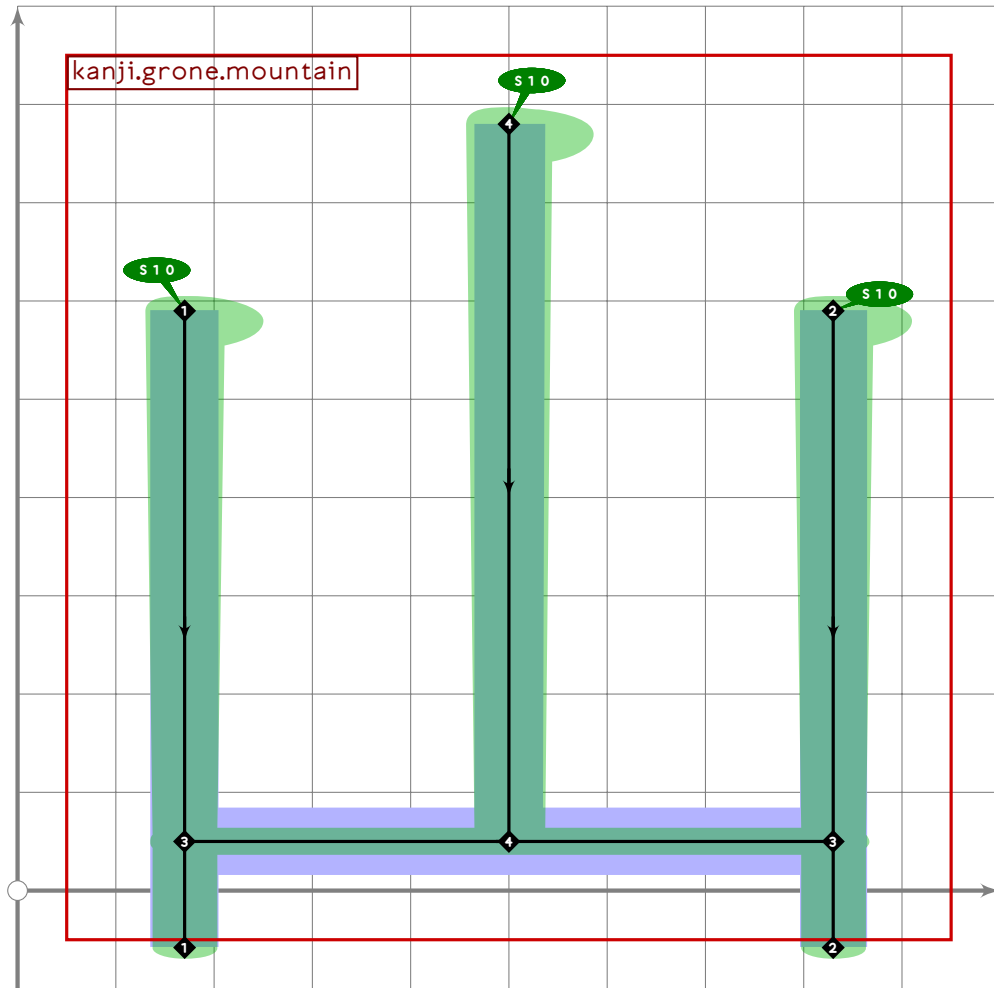




```

238 % shi/katashiro "corpse" or "flag radial"
239 begint Suglyph("uni2F2B"43);
240   kanji.radical.flag;
241   tsu_render;
242   endtsuglyph;
243

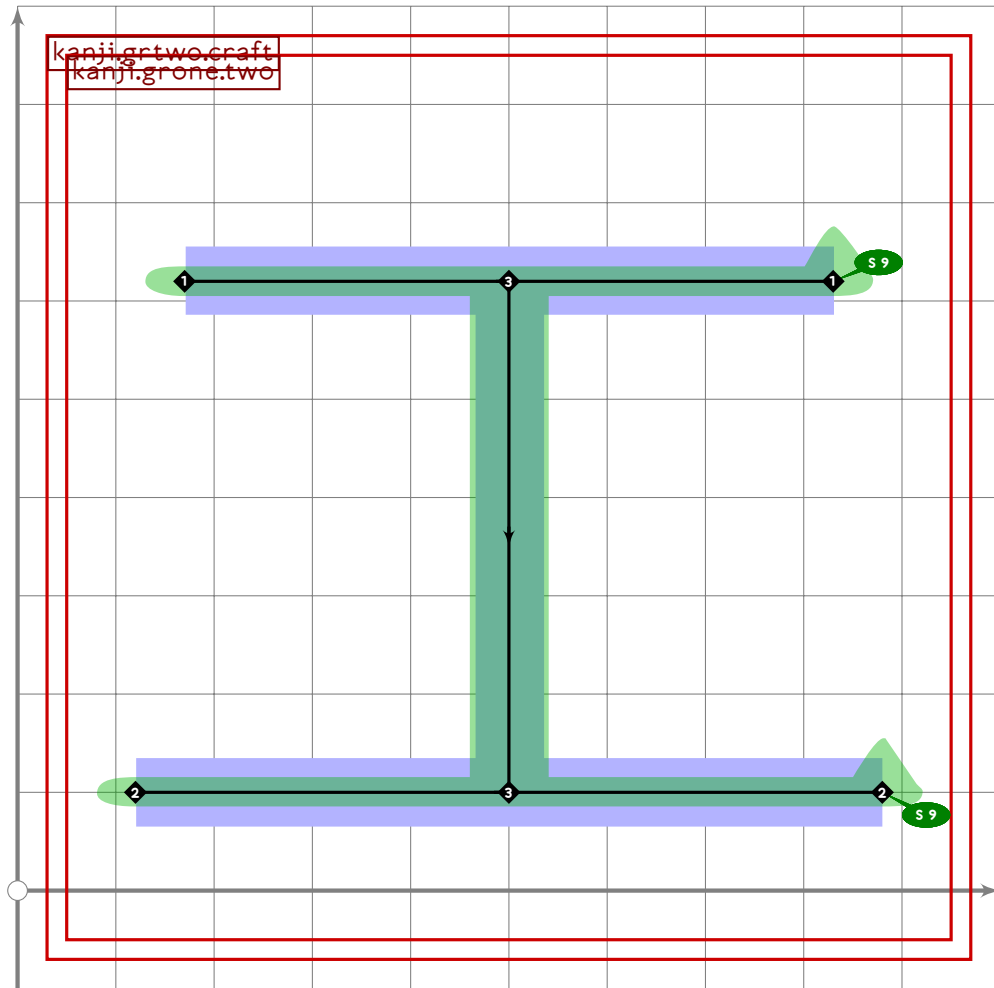
```



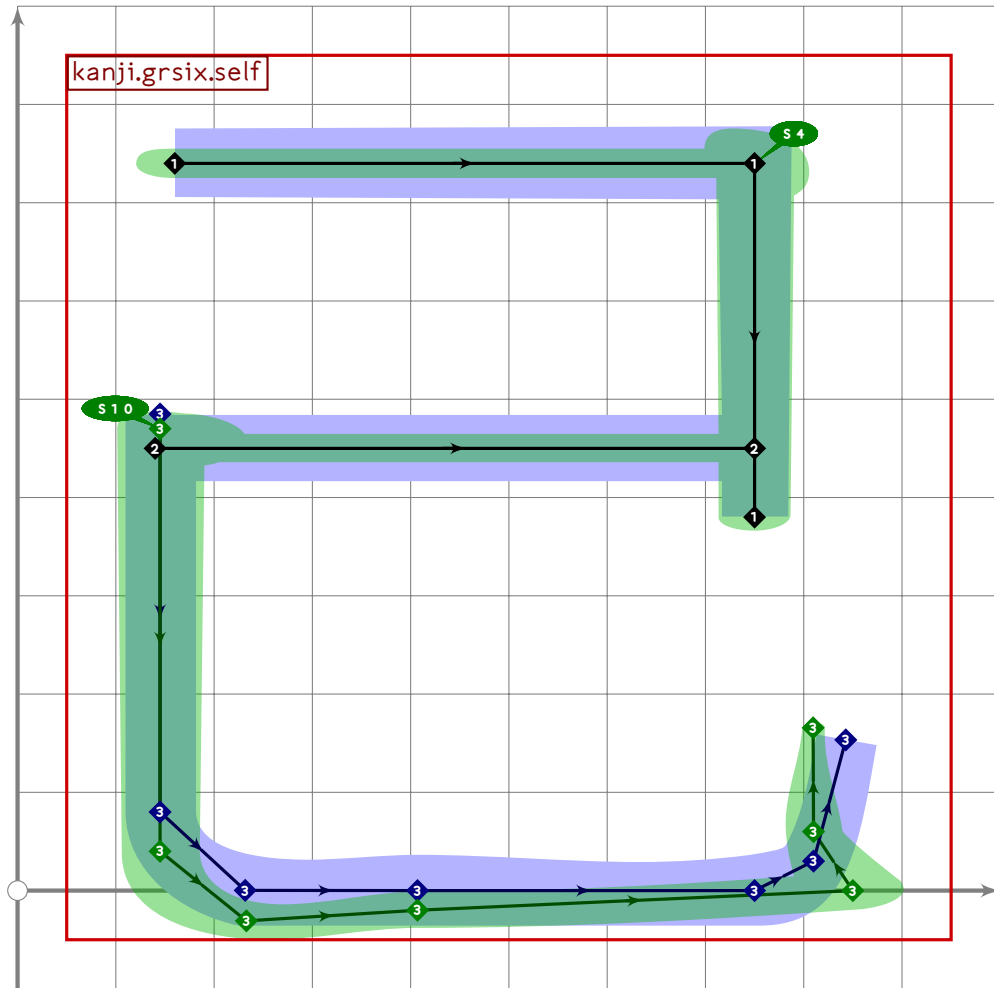
```

244 % yama/san "mountain"
245 begintsuglyph("uni2F2D";45);
246   kanji.grone.mountain;
247   tsu_render;
248   endsuglyph;
249

```



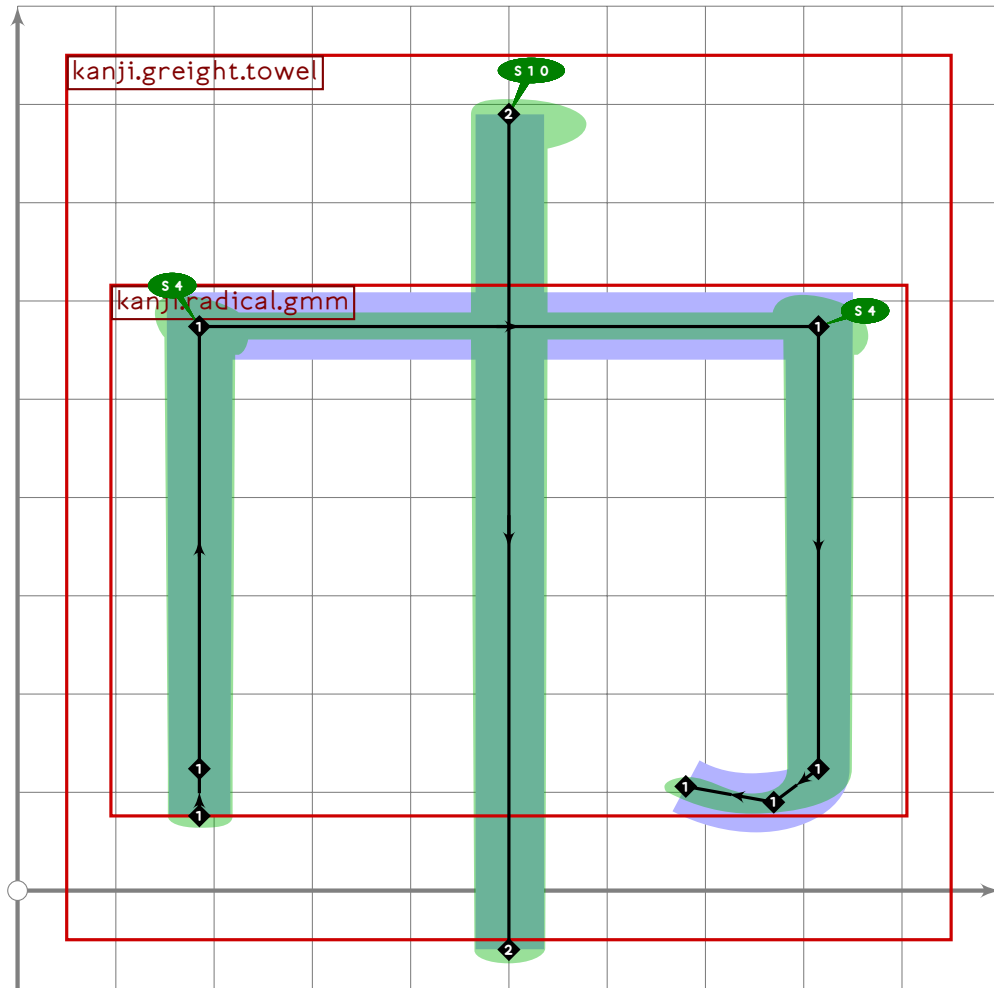
```
250 % takumi "craft"  
251 beginsuglyph("uni2F2F"47);  
252 kanji.grtwo.craft;  
253 tsu_render;  
254 endsuglyph;  
255
```



```

256 % ko/ki "self" (dict. says also "snake" but almost no words use it that way)
257 begint Suglyph("uni2F30";48);
258   kanji.grsix.self;
259   tsu_render;
260 endtsuglyph;
261

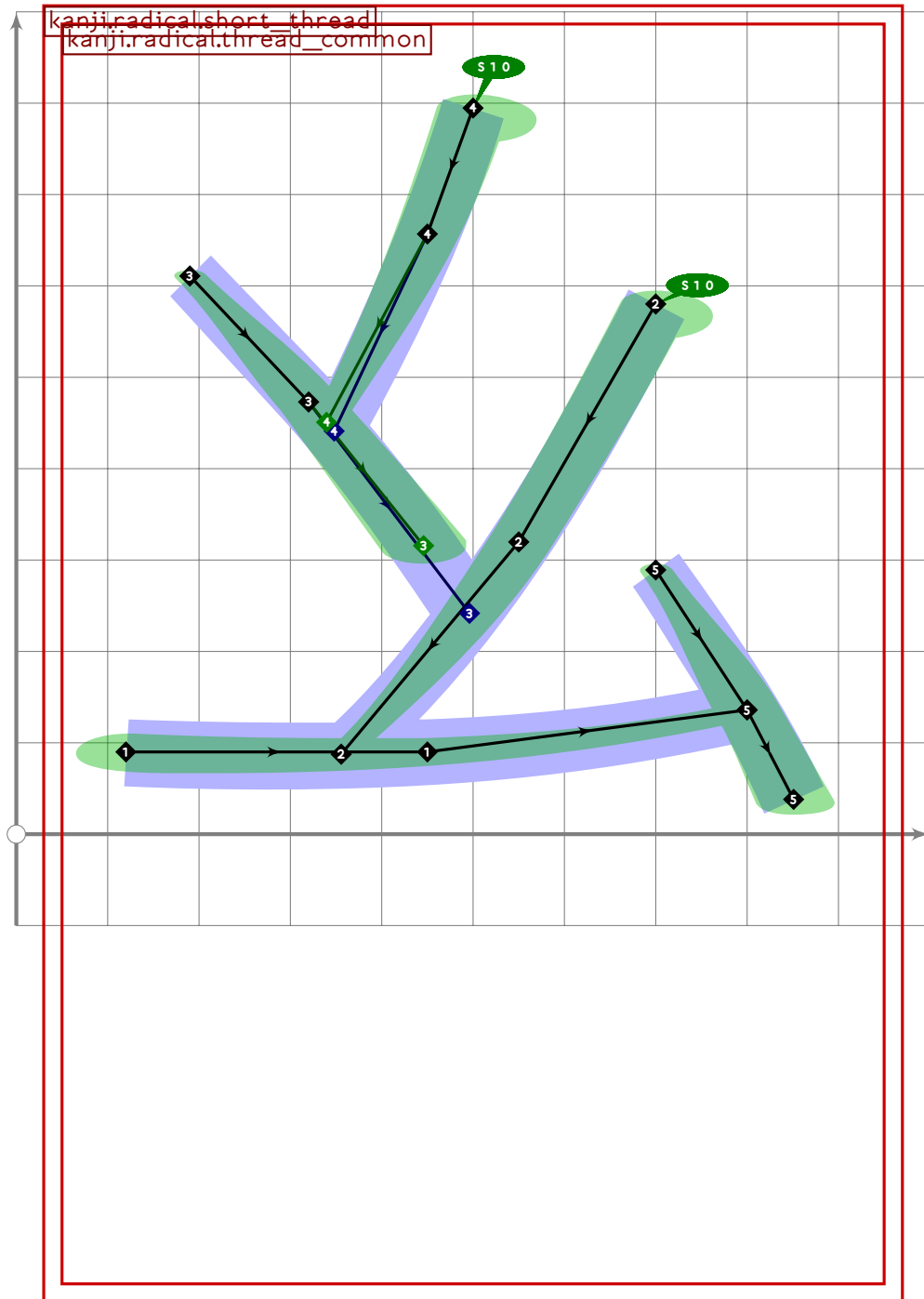
```



```

262 % kin/oo/haiba "towel" or "hanging scroll"
263 begintsuglyph("uni2F31";49);
264   kanji.greight.towel;
265   tsu_render;
266 endtsuglyph;
267

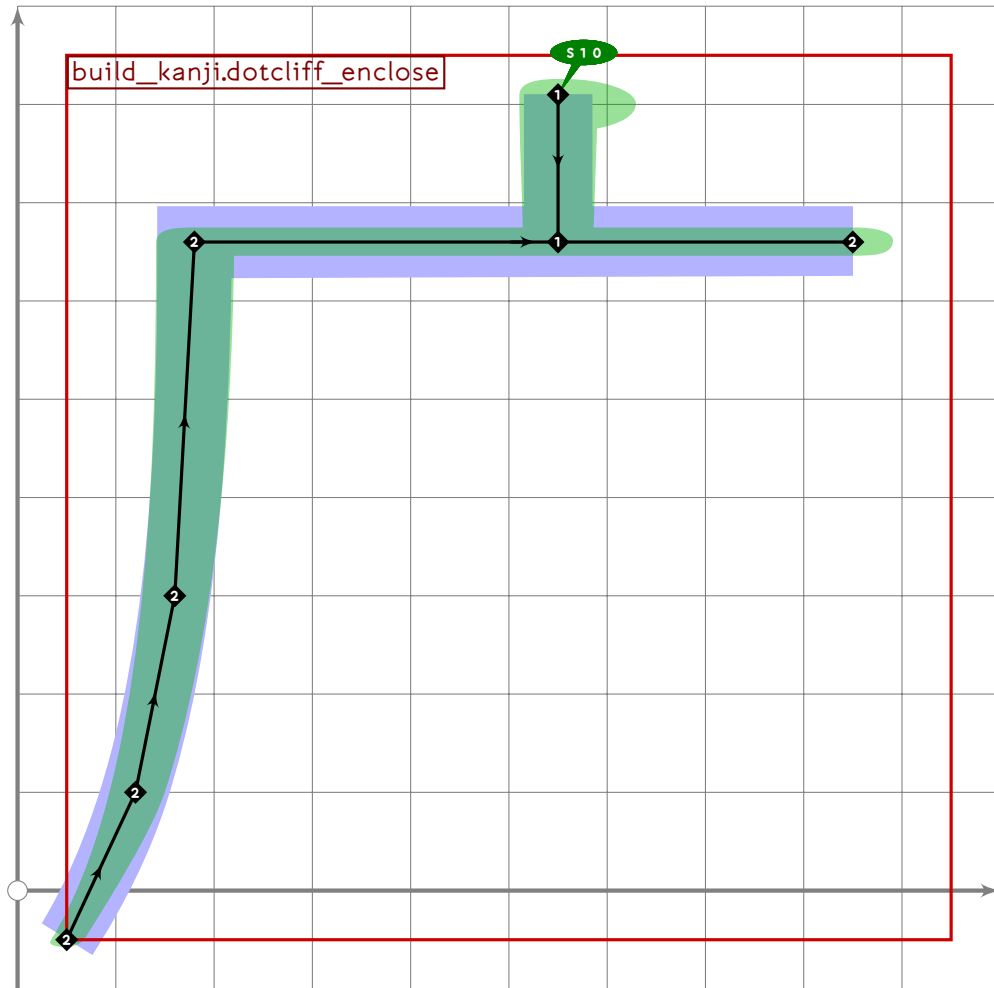
```



```

268 % you/chiisai "short thread radical"
269 begint Suglyph("uni2F33";51);
270 kanji.radical.short_thread;
271 tsu_render;
272 endsuglyph;
273

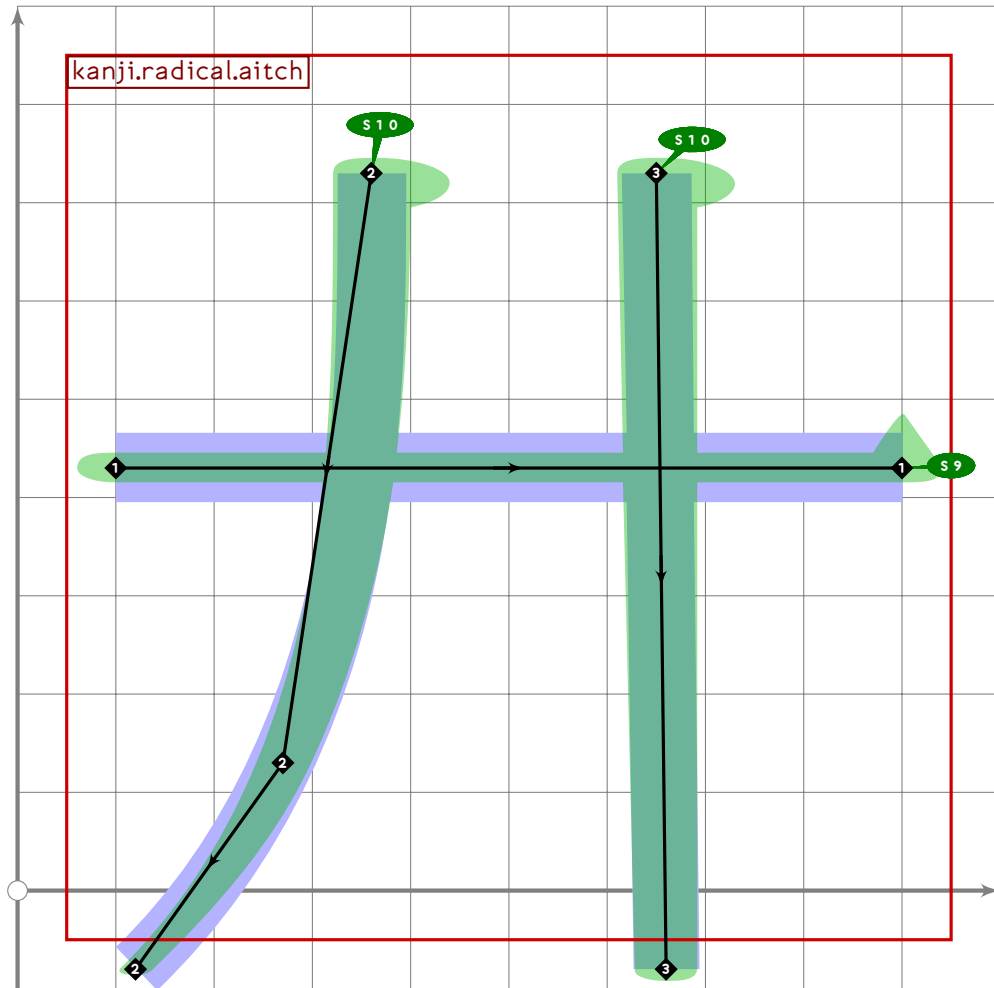
```



```

274 % madare "dotted cliff radical"
275 begintsuglyph("uni2F34",52);
276 build_kanji.dotcliff_enclose();
277 tsu_render;
278 endtsuglyph;
279

```

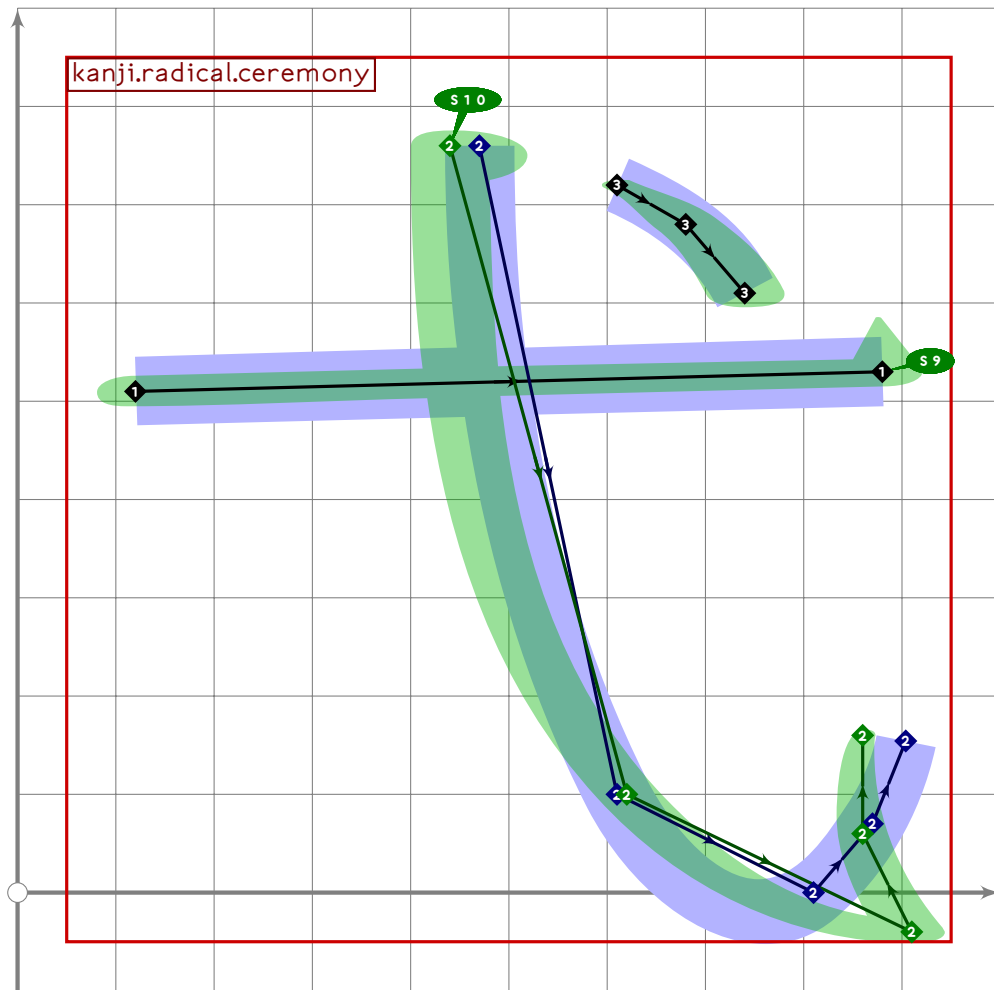


```

280 % extra
281 begintsuglyph("uni2F36",54);
282 kanji.radical.aitch;
283 tsu_render;
284 endtsuglyph;
285

```

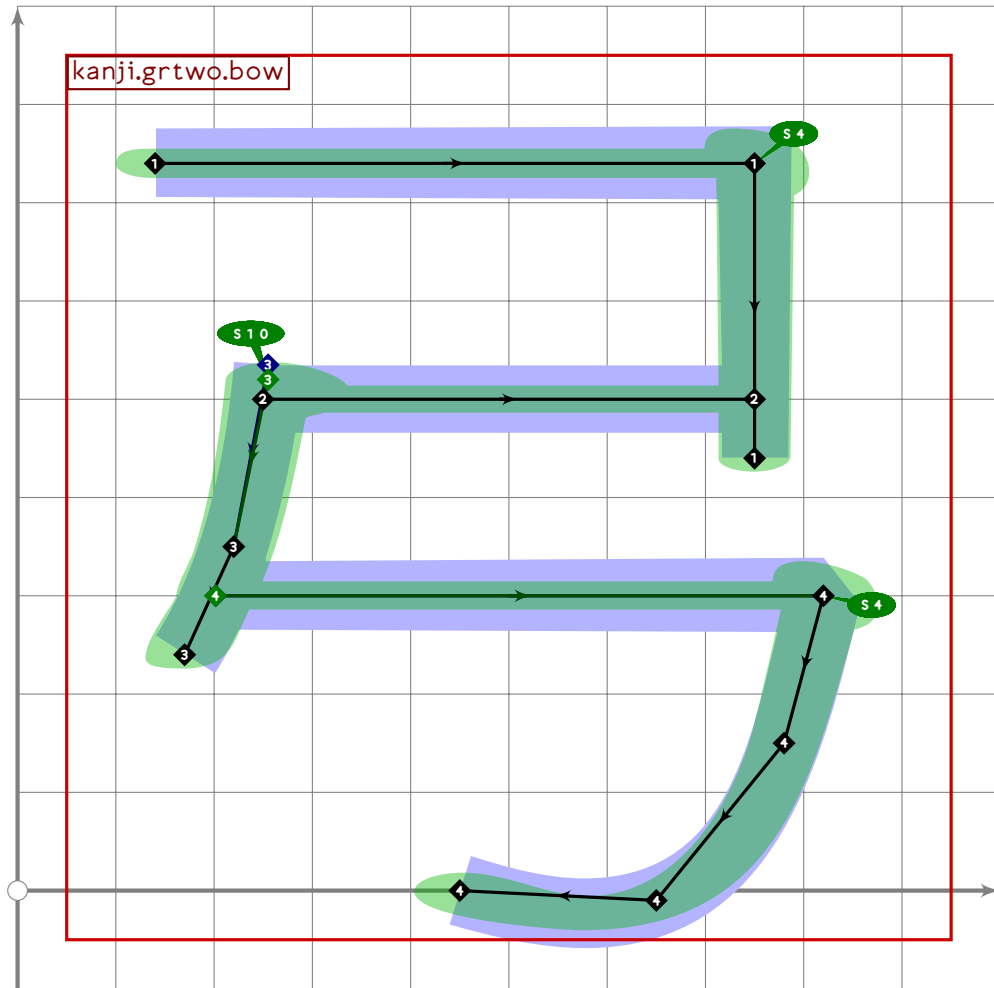




```

286 % yoku/iguromi "ceremony radical"
287 begintsuglyph("uni2F37";55);
288   kanji.radical.ceremony;
289   tsu_render;
290   endtsuglyph;
291

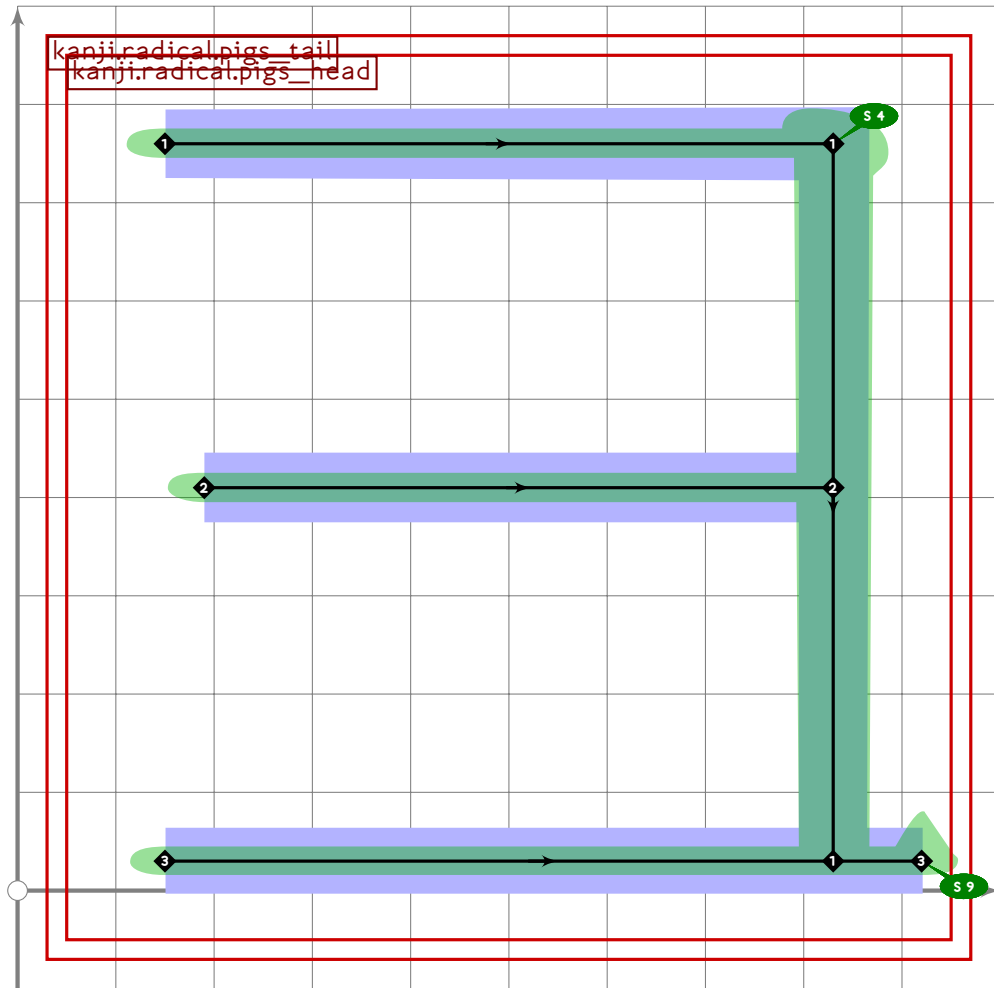
```



```

292 % kyu/yumi "bow" (projectile weapon)
293 begintsuglyph("uni2F38",56);
294 kanji.grtwo.bow;
295 tsu_render;
296 endtsuglyph;
297

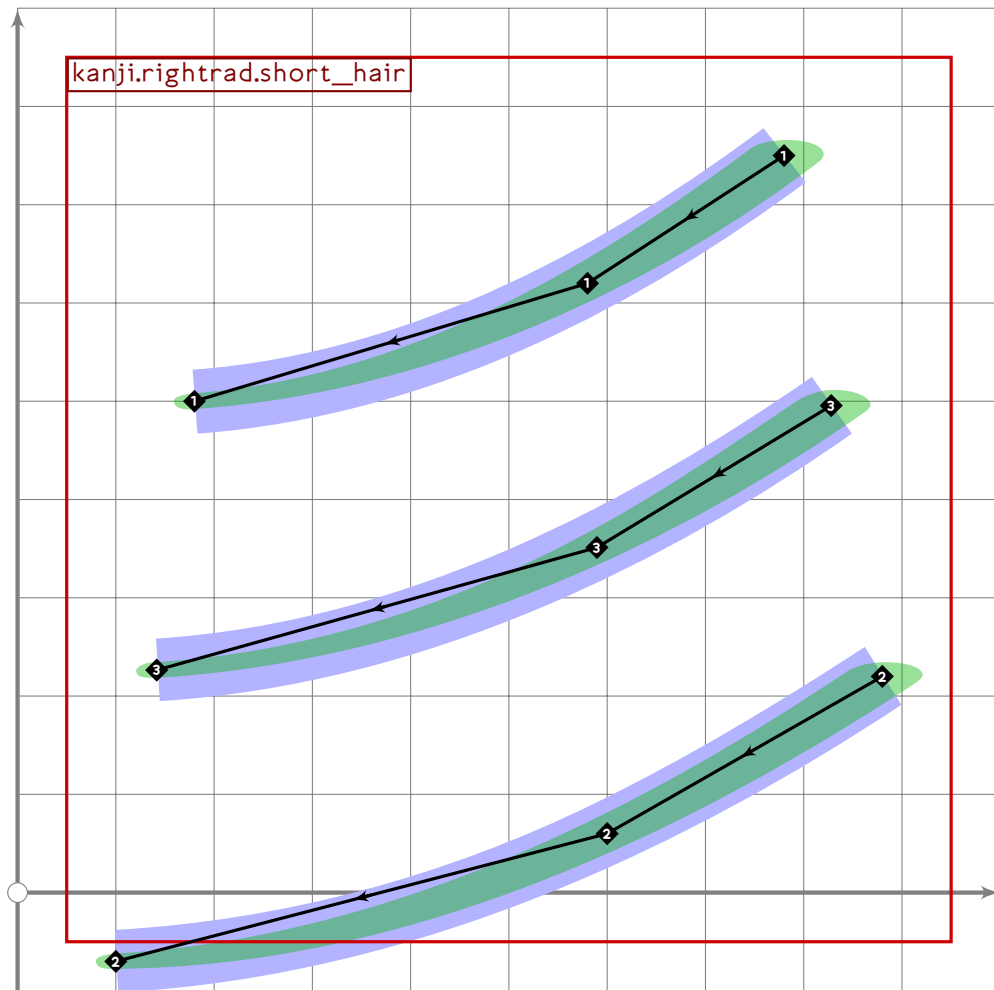
```



```

298 % needed for lots of other things, rare by itself
299 begint Suglyph("uni2F39",57);
300 kanji.radical.pigs_tail;
301 tsu_render;
302 endtsuglyph;
303

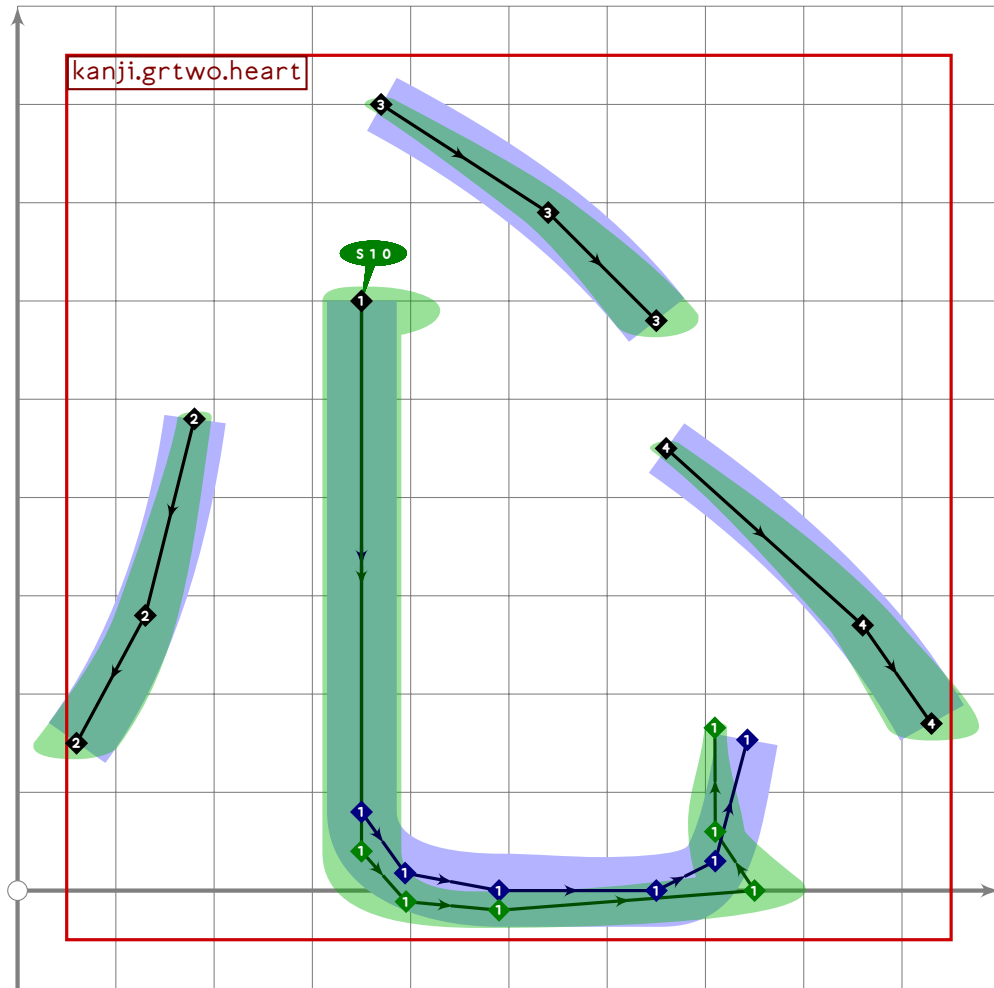
```



```

304 % san "short hair radical"
305 begintsuglyph("uni2F3A";58);
306 kanji.rightrad.short_hair;
307 tsu_render;
308 endsuglyph;
309

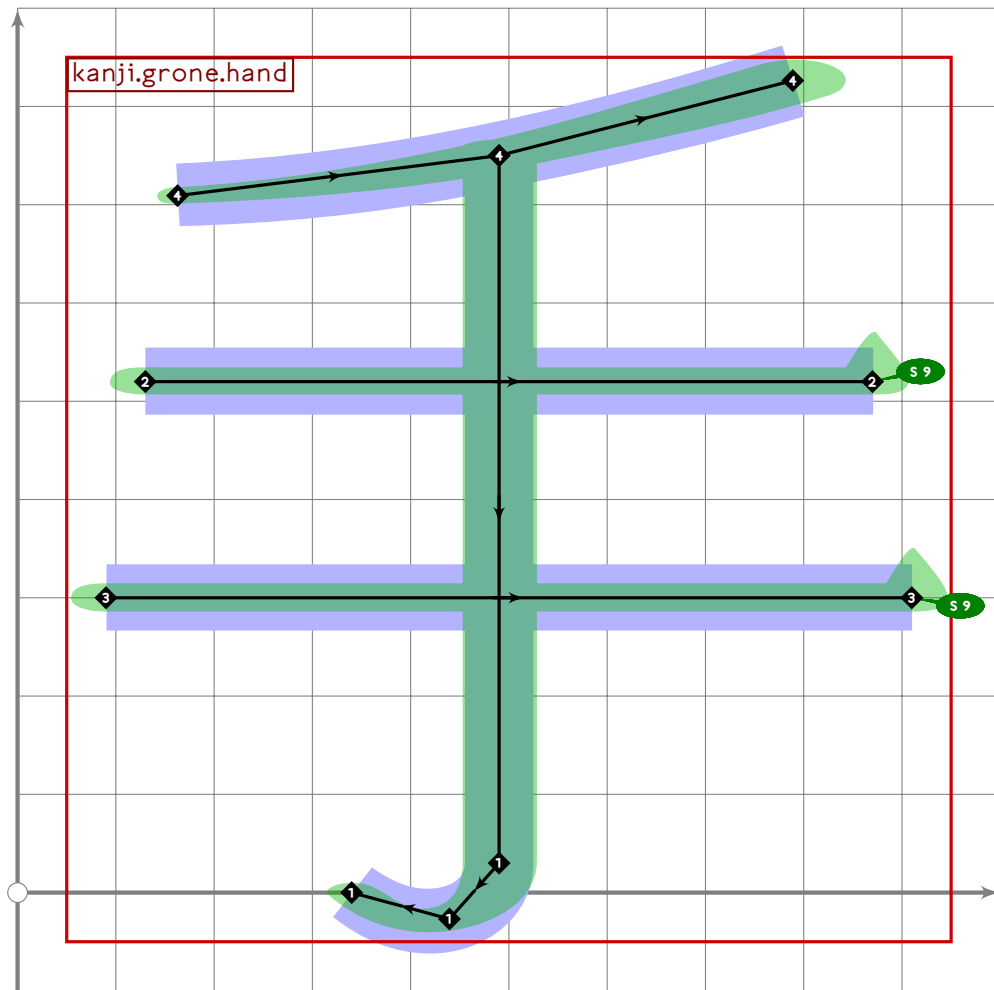
```



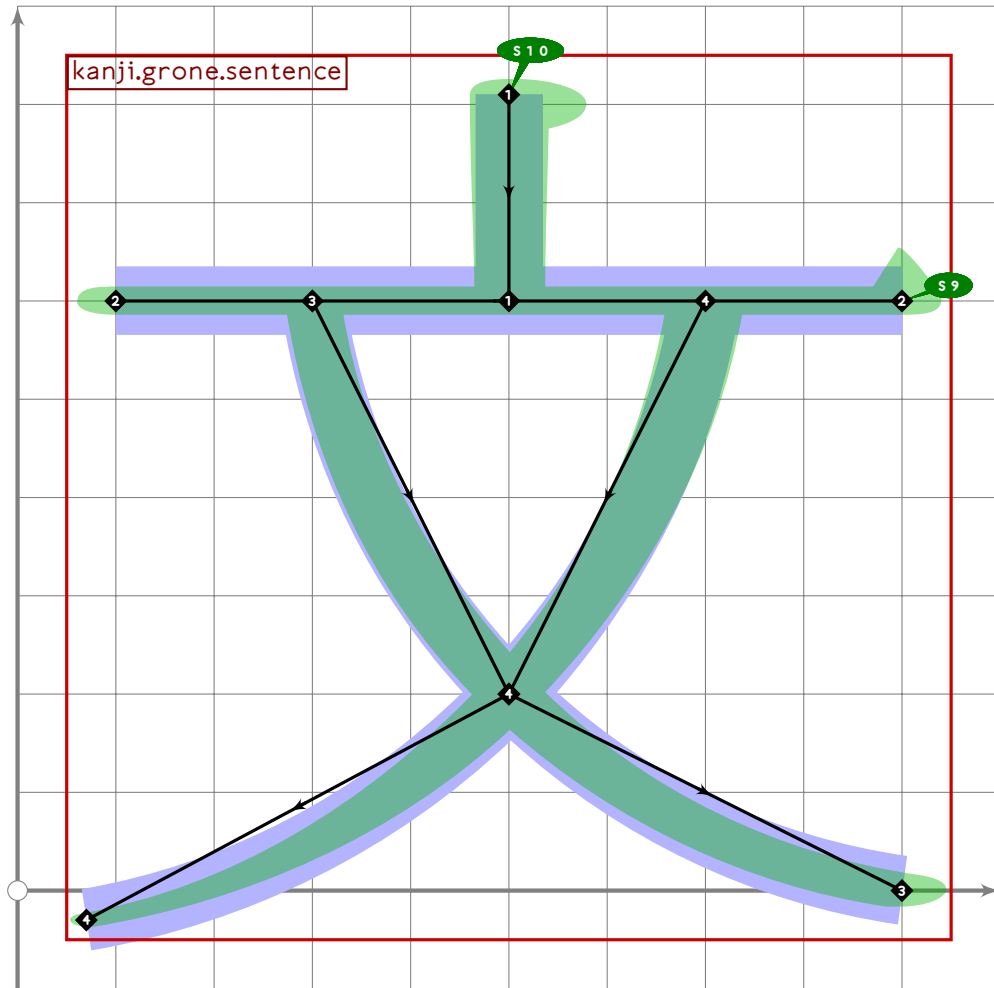
```

310 % shin/kokoro "heart"
311 begintsuglyph("uni2F3C",60);
312 kanji.grtwo.heart;
313 tsu_render;
314 endtsuglyph;
315

```



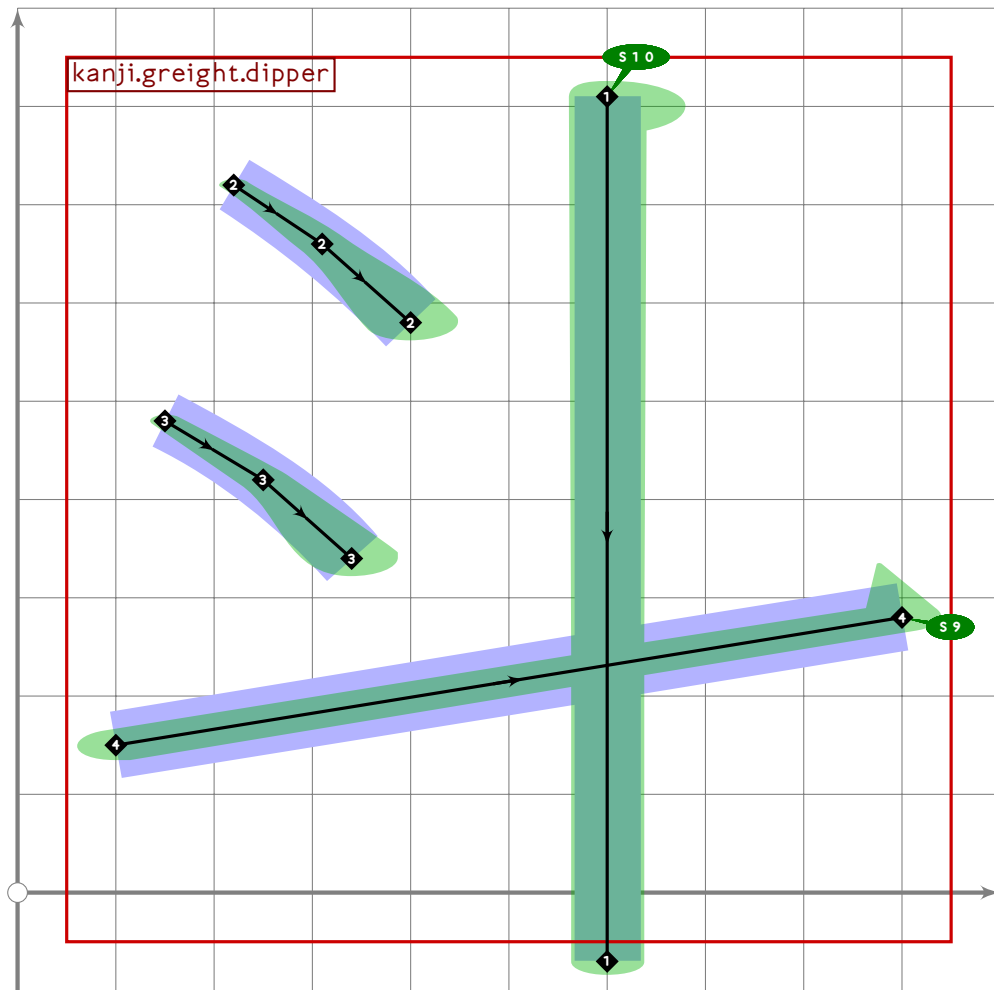
```
316 % te "hand"  
317 begintsuglyph("uni2F3F";63);  
318 kanji.grone.hand;  
319 tsu_render;  
320 endtsuglyph;  
321
```



```

322 % bun/fumi "sentence"
323 begintsuglyph("uni2F42";66);
324 kanji.grone.sentence;
325 tsu_render;
326 endtsuglyph;
327

```

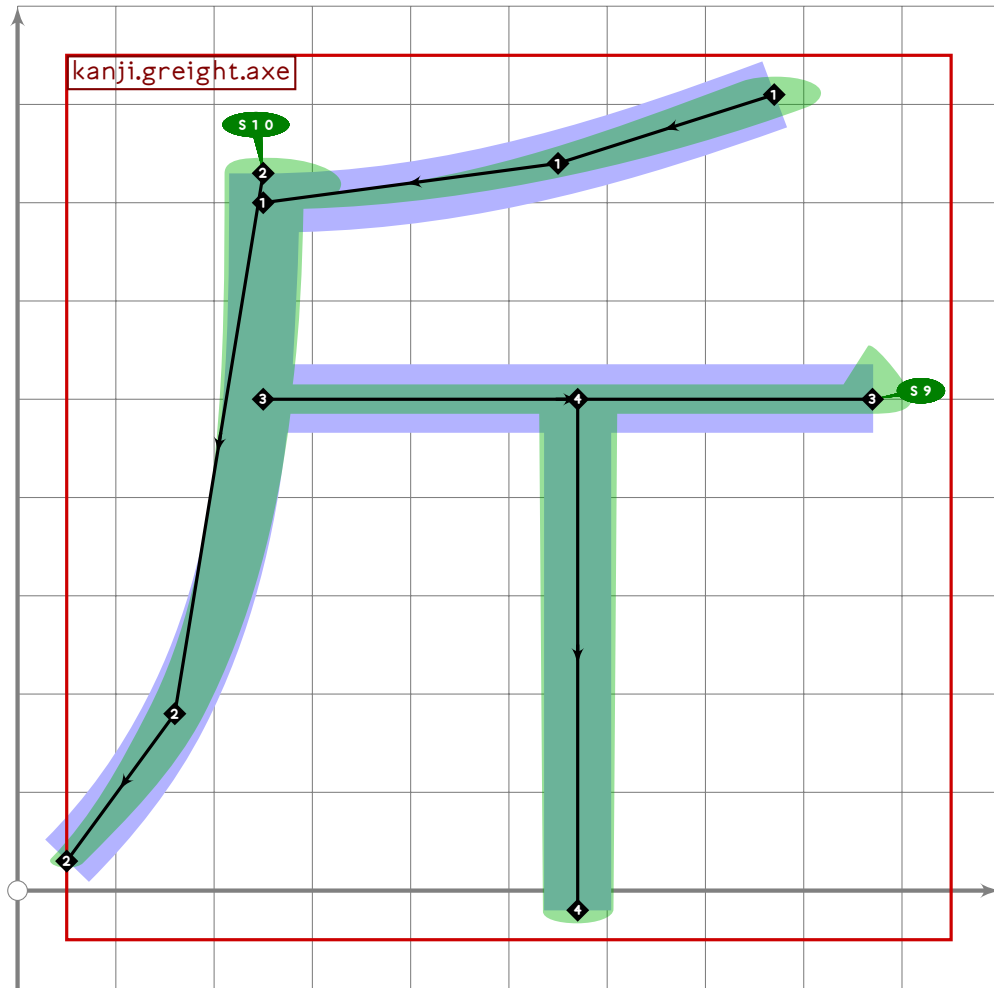


```

328 % to/masu "dipper"
329 begintsuglyph("uni2F43",67);
330 kanji.greight.dipper;
331 tsu_render;
332 endtsuglyph;
333

```

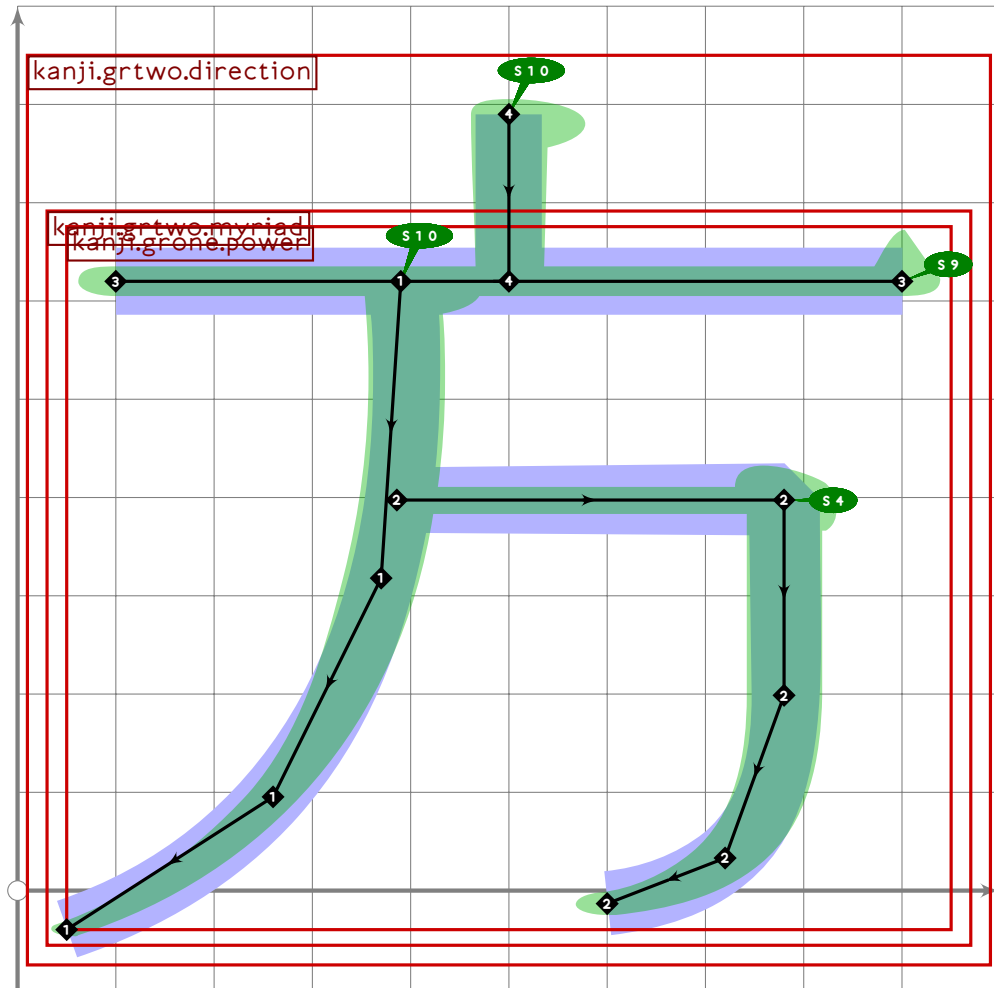




```

334 % kin/ono "axe"
335 begint Suglyph("uni2F44";68);
336 kanji.greight.axe;
337 tsu_render;
338 endtsuglyph;
339

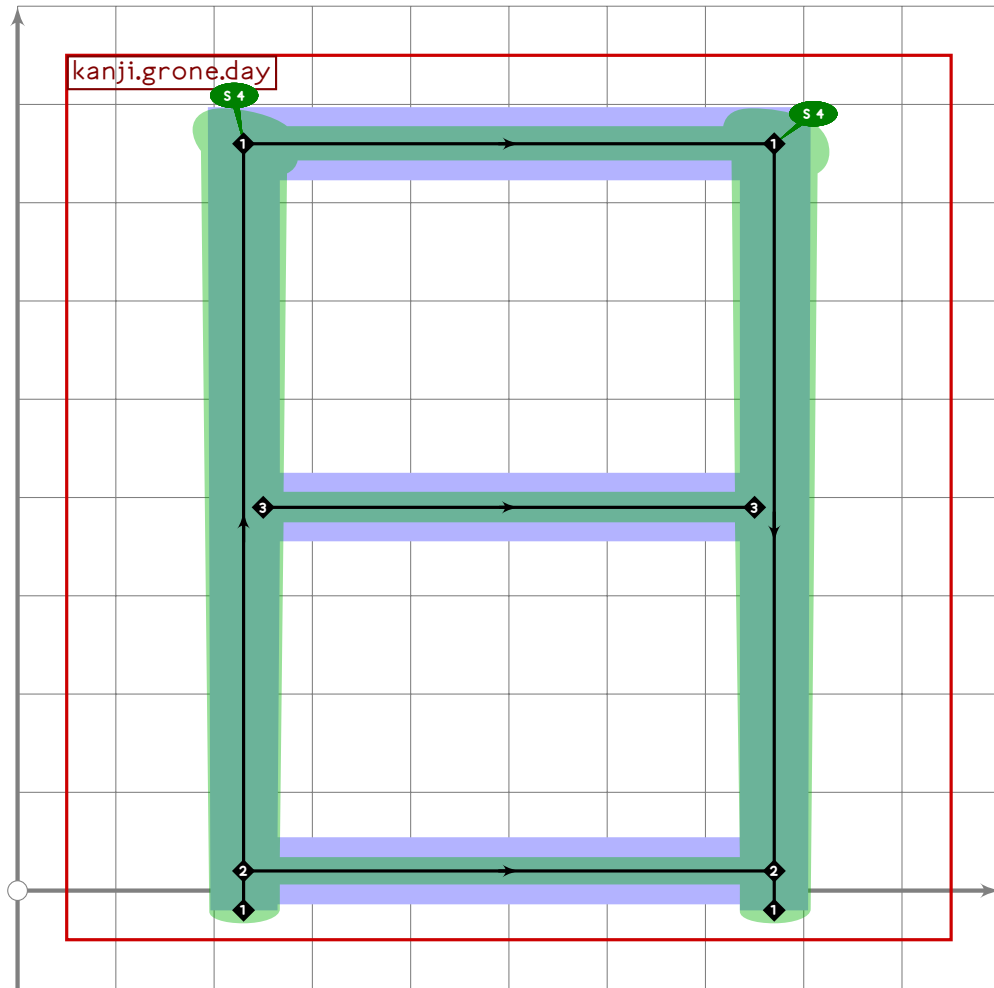
```



```

340 % hou/kata "direction" or "how to do it"
341 begint Suglyph("uni2F45",69);
342   kanji.grtwo.direction;
343   tsu_render;
344   endtsuglyph;
345

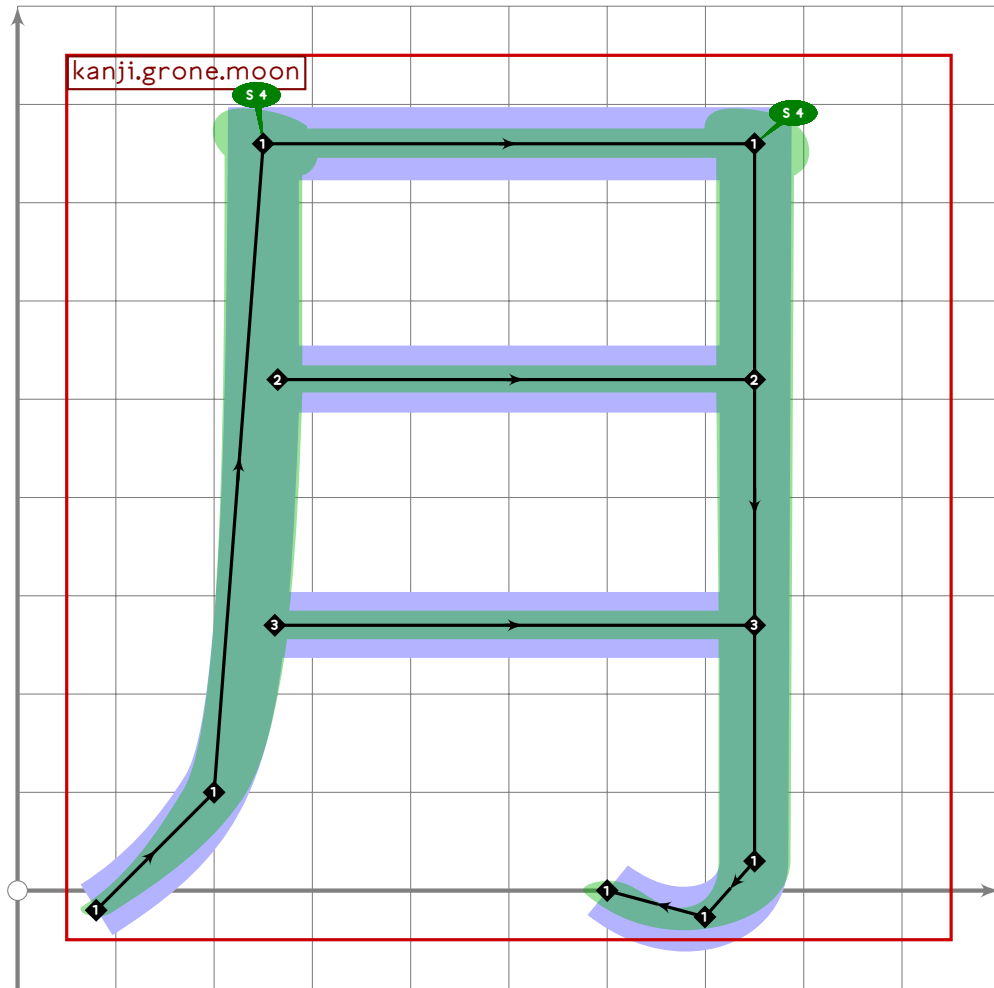
```



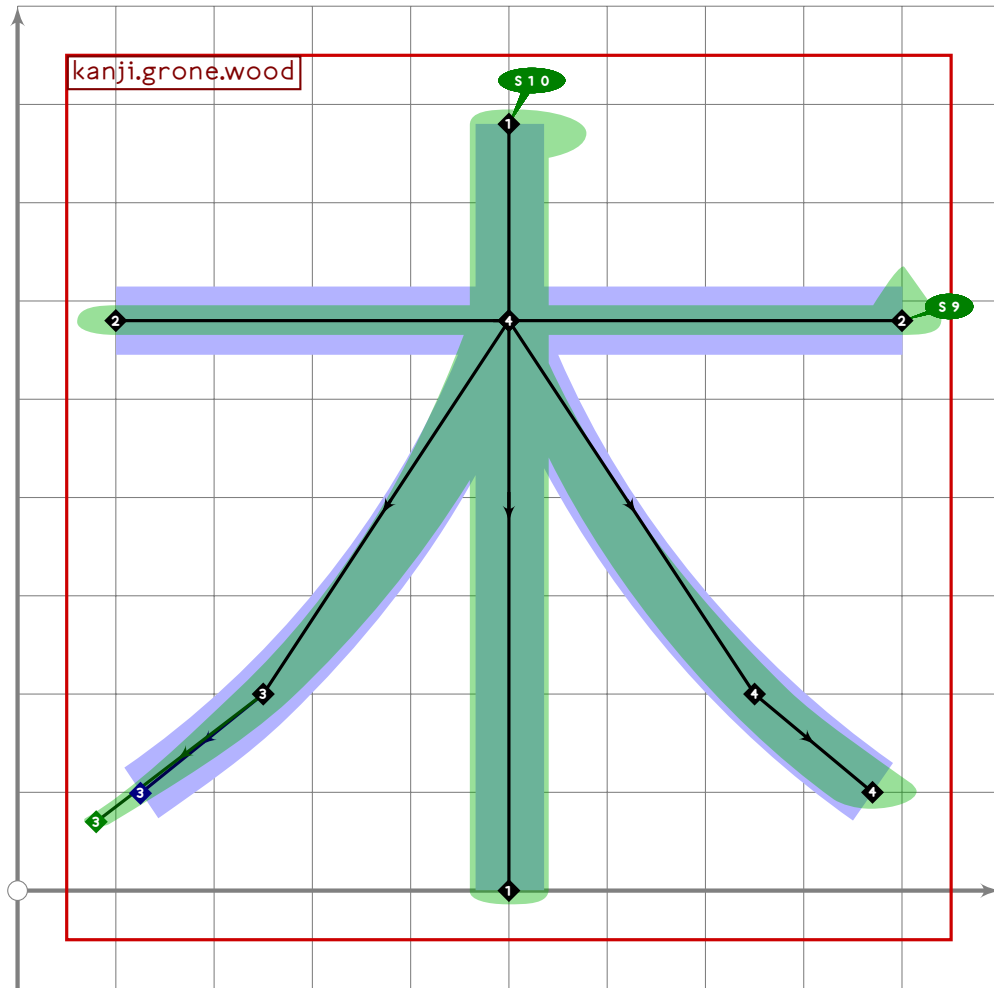
```

346 % hi/nichi "day"
347 begint Suglyph("uni2F47";71);
348   kanji.grone.day;
349   tsu_render;
350 endtsuglyph;
351

```



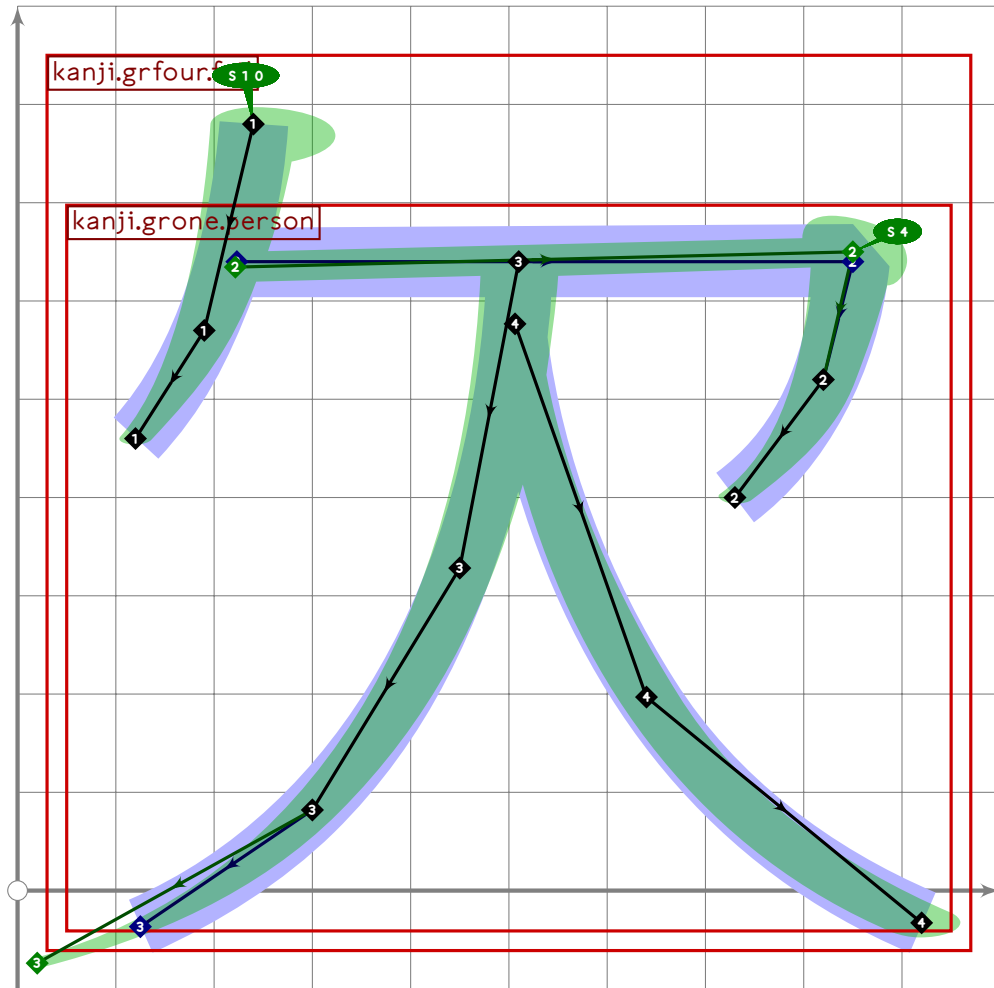
```
352 % tsuki/getsu "moon"  
353 begintsuglyph("uni2F49";73);  
354 kanji.grone.moon;  
355 tsu_render;  
356 endtsuglyph;  
357
```



```

358 % ki "wood"
359 begintsuglyph("uni2F4A;74);
360 kanji.grone.wood;
361 tsu_render;
362 endtsuglyph;
363

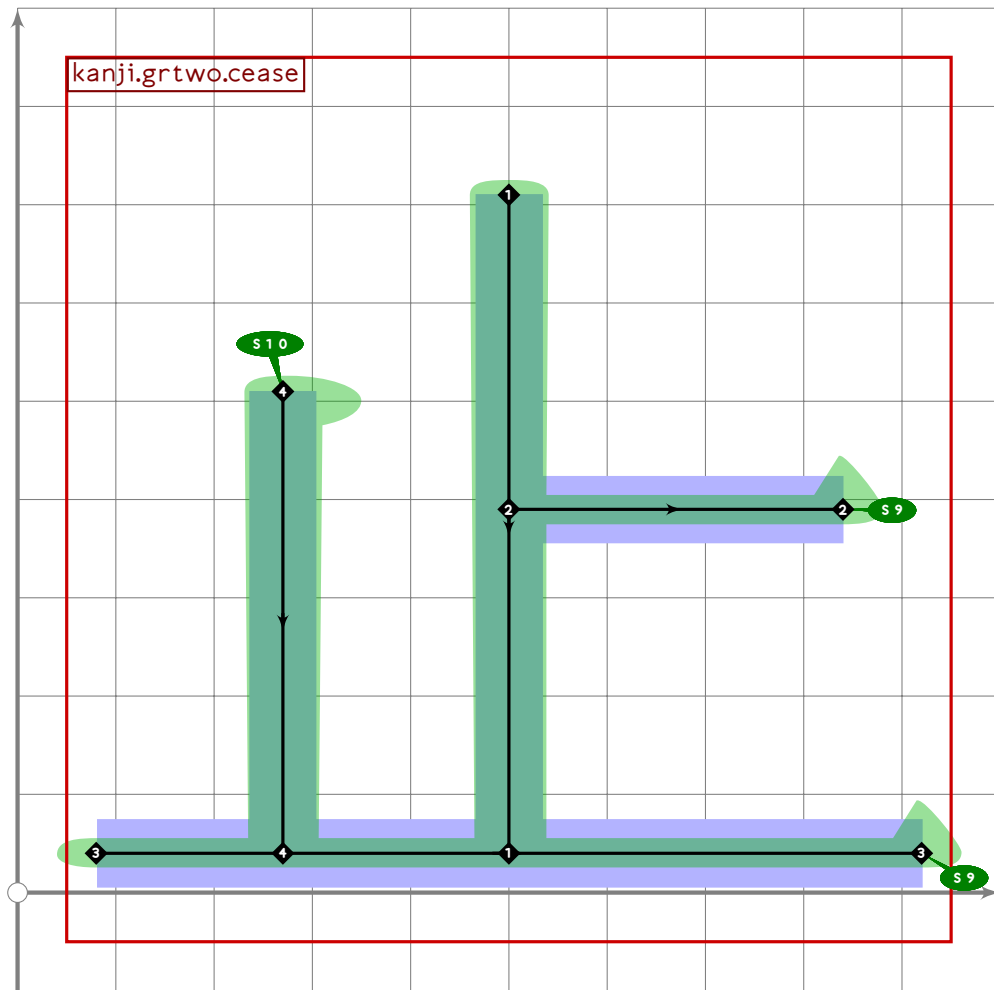
```



```

364 % ketsu/ka/akubi "fai" or "yawn"
365 begintsuglyph("uni2F4B",75);
366 kanji.grfour.fail;
367 tsu_render;
368 endtsuglyph;
369

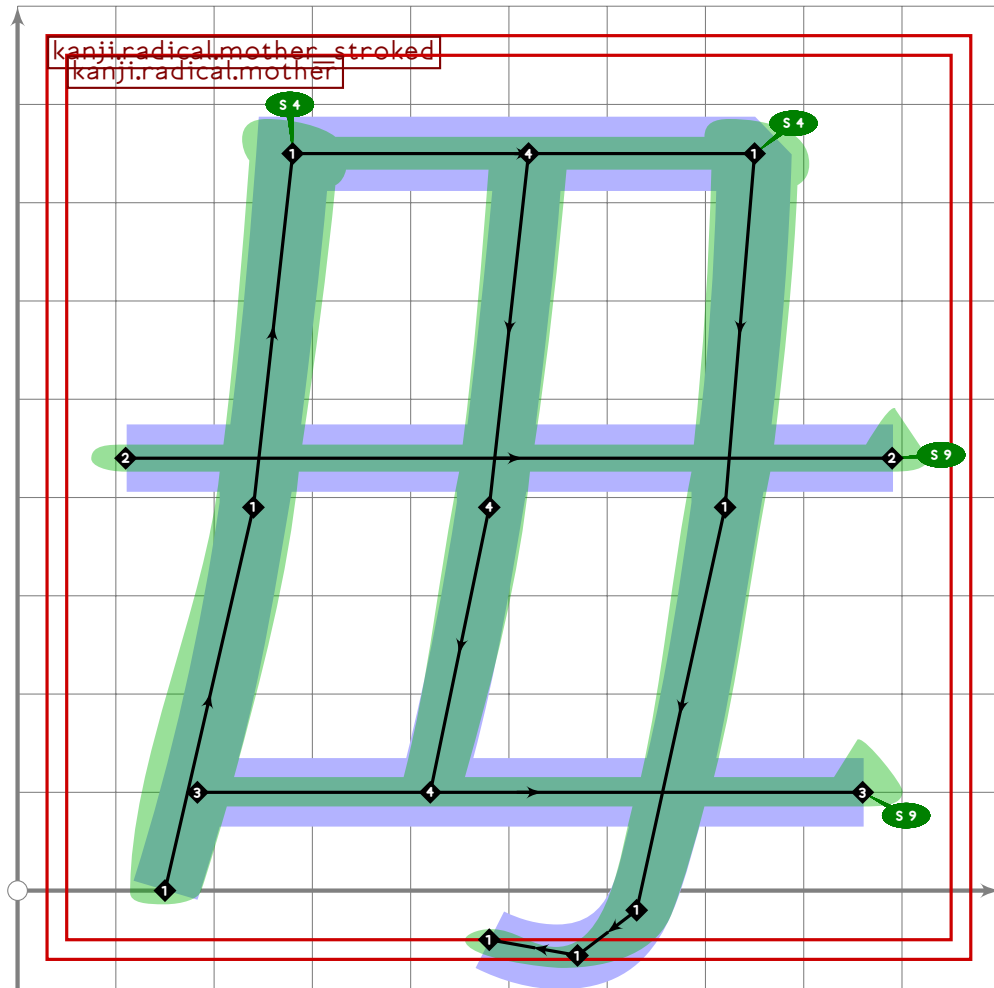
```



```

370 % shi/toma "stop"
371 begintsuglyph("uni2F4C",76);
372 kanji.grtwo.cease;
373 tsu_render;
374 endtsuglyph;
375

```

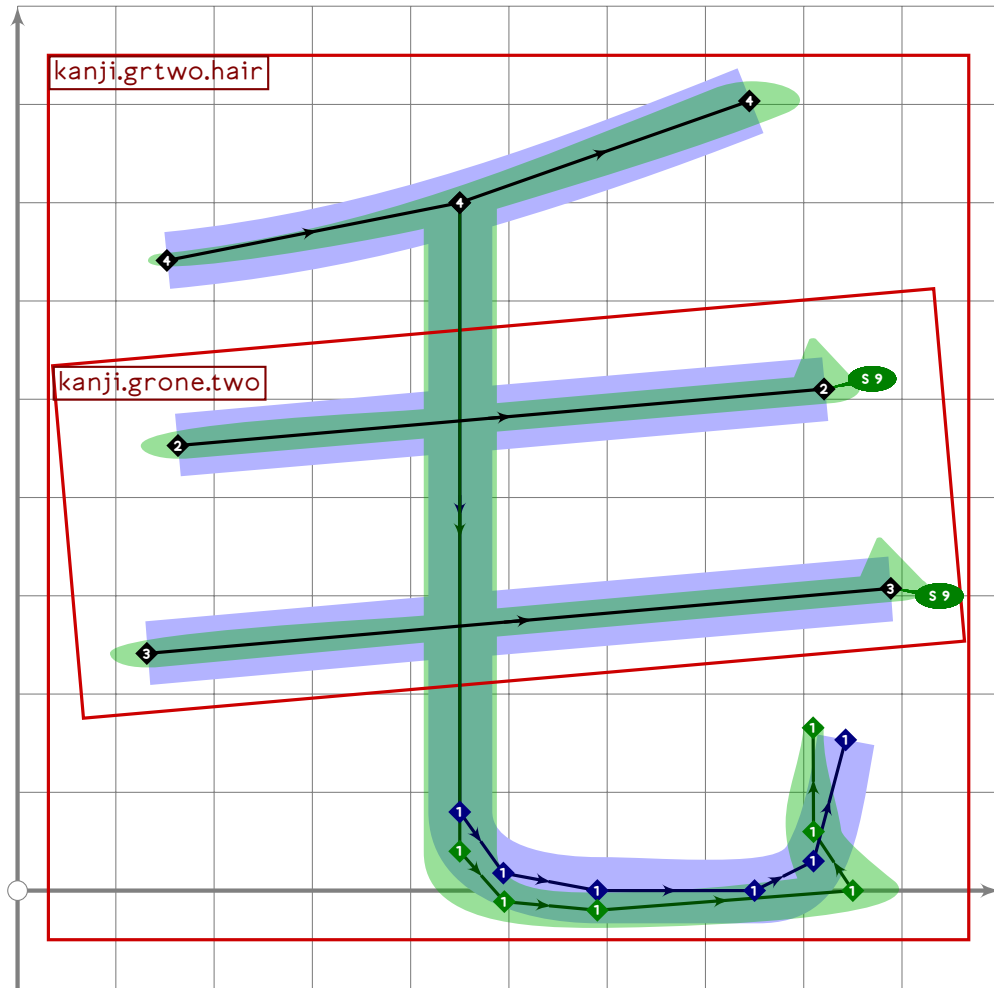


```

376 % extra: mother radical, stroked version
377 begintuglyph("uni2F4F";79);
378   kanji.radical.mother_stroked;
379   tsu_render;
380   endtuglyph;
381

```

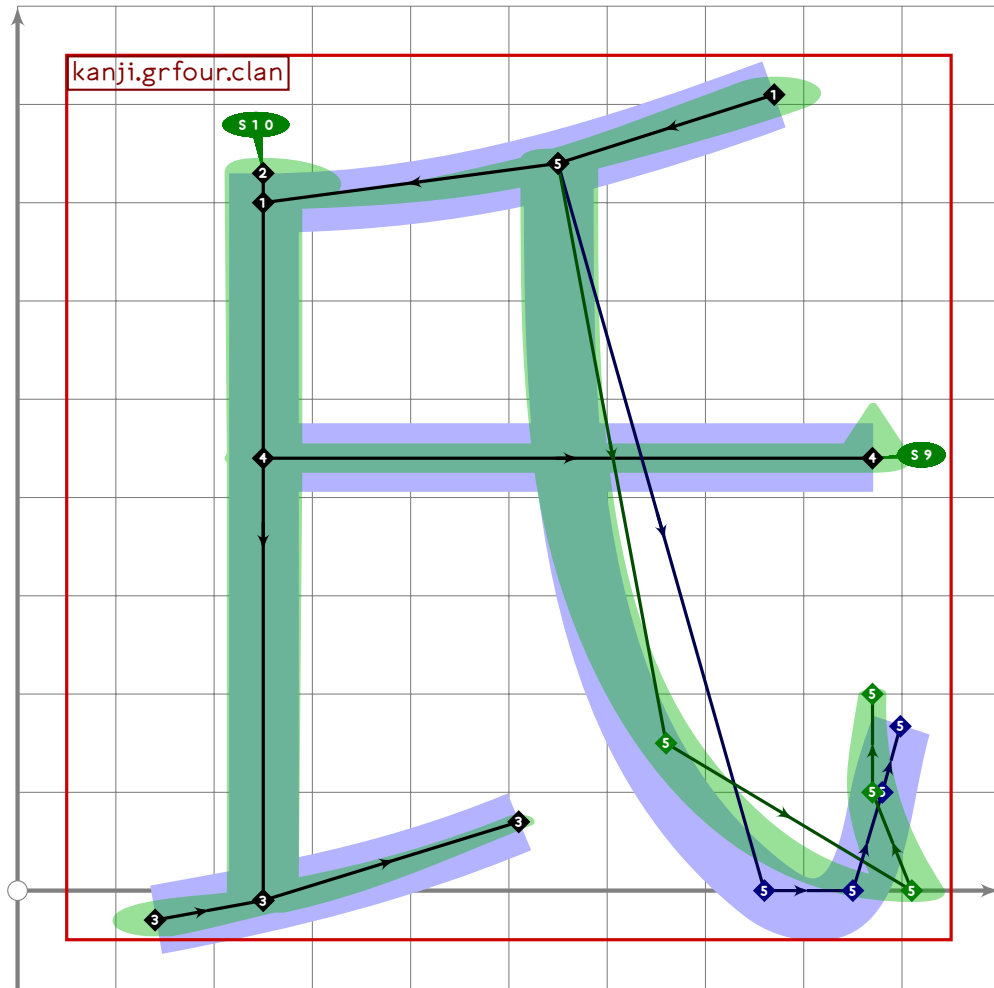




```

382 % mou/ke "hair"
383 begintsuglyph("uni2F51",81);
384 kanji.grtwo.hair;
385 tsu_render;
386 endtsuglyph;
387

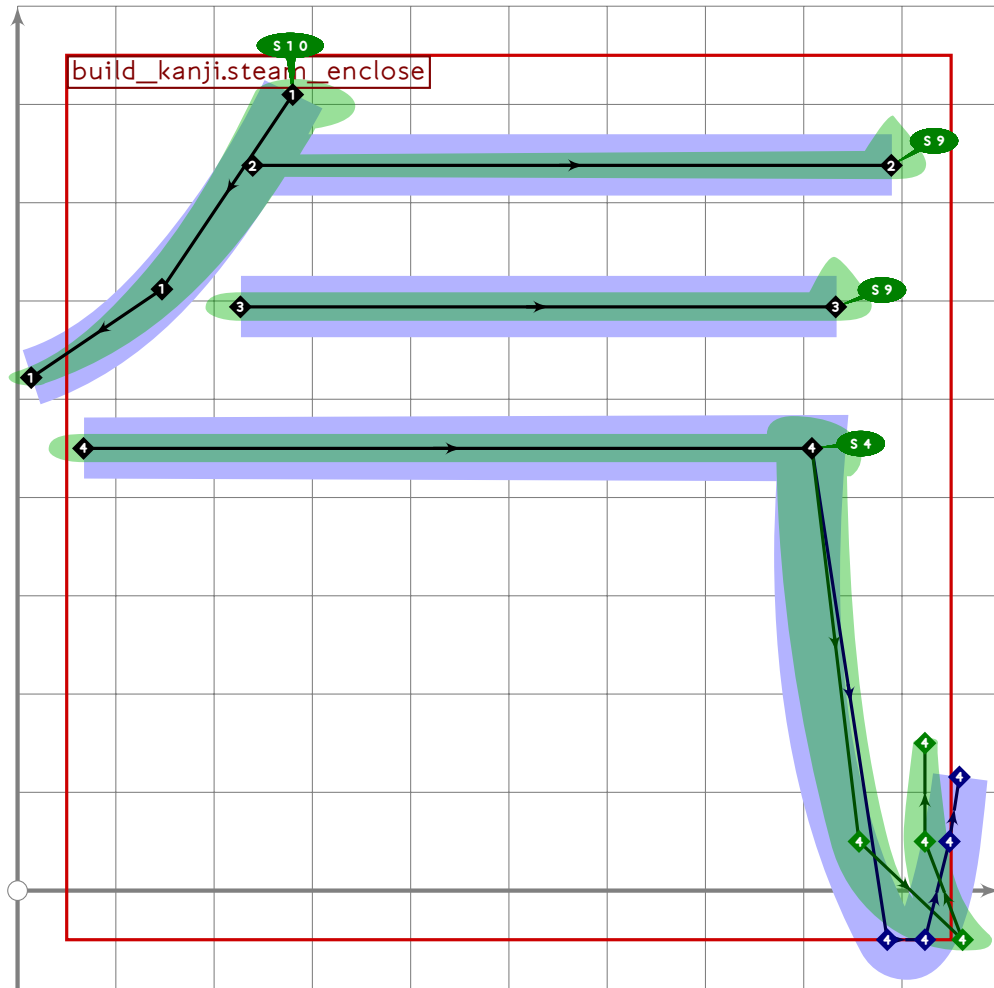
```



```

388 % shi/uji "clan"
389 begint Suglyph("uni2F52";82);
390 kanji.grfour.clan;
391 tsu_render;
392 endtsuglyph;
393

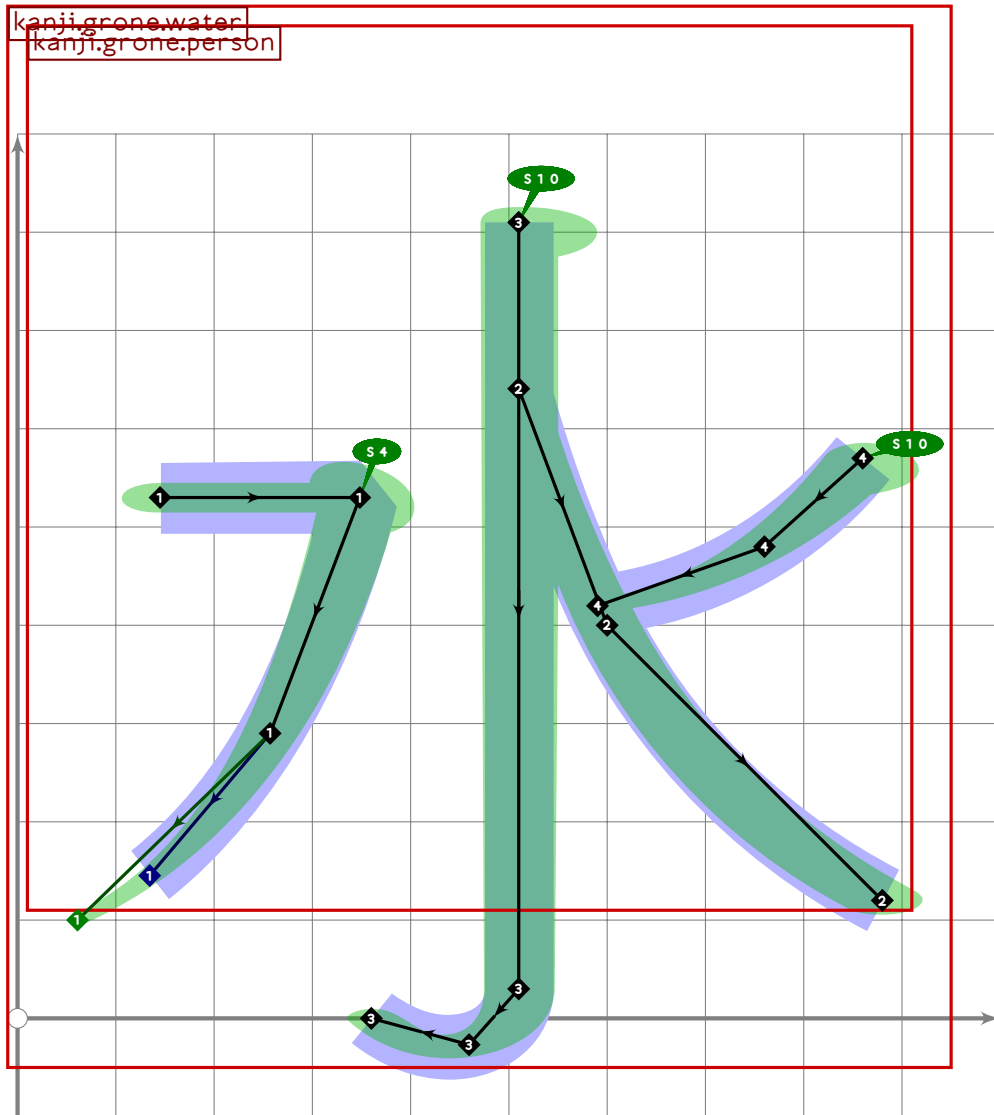
```



```

394 % sei/tada/machi "correct"
395 begint Suglyph("uni2F53",83);
396 build_kanji.steam_enclose((700,400))();
397 tsu_render;
398 endtsuglyph;
399

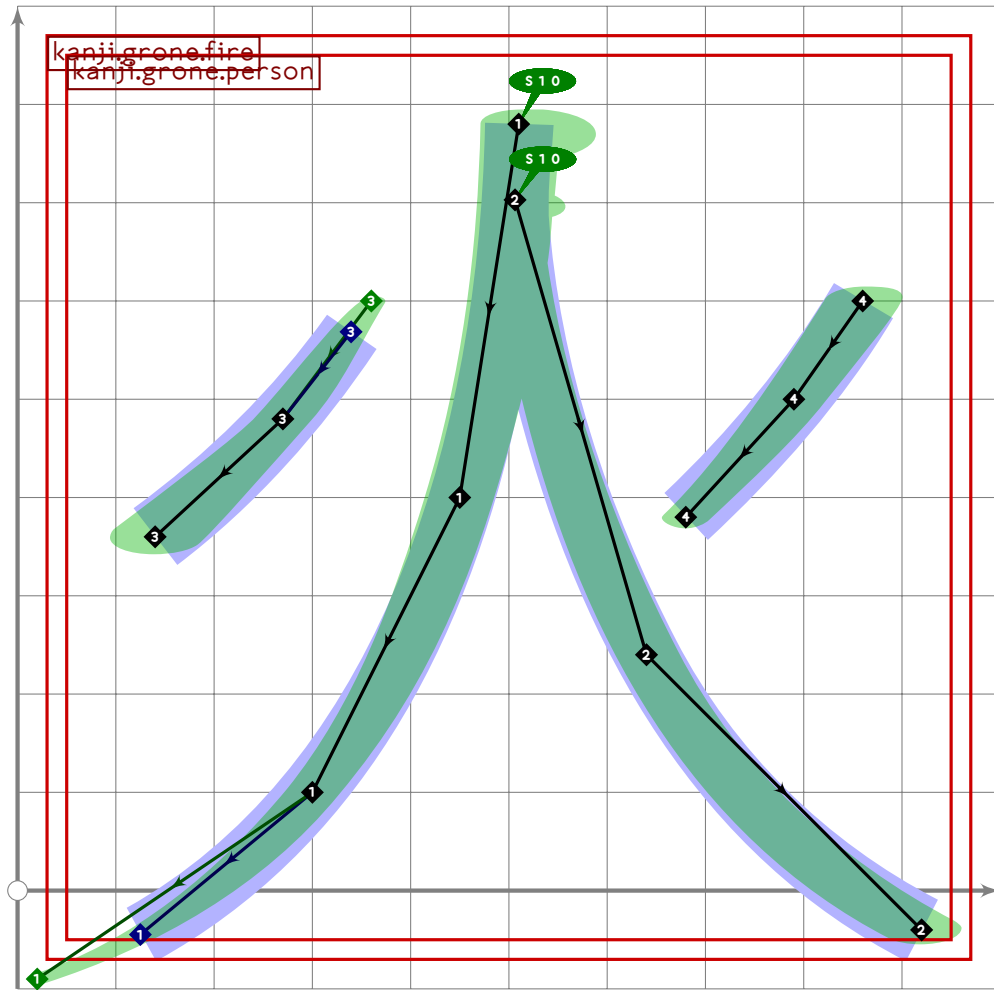
```



```

400 % sui/mizu "water"
401 begint Suglyph("uni2F54";84);
402   kanji.grone.water;
403   tsu_render;
404   endtsuglyph;
405

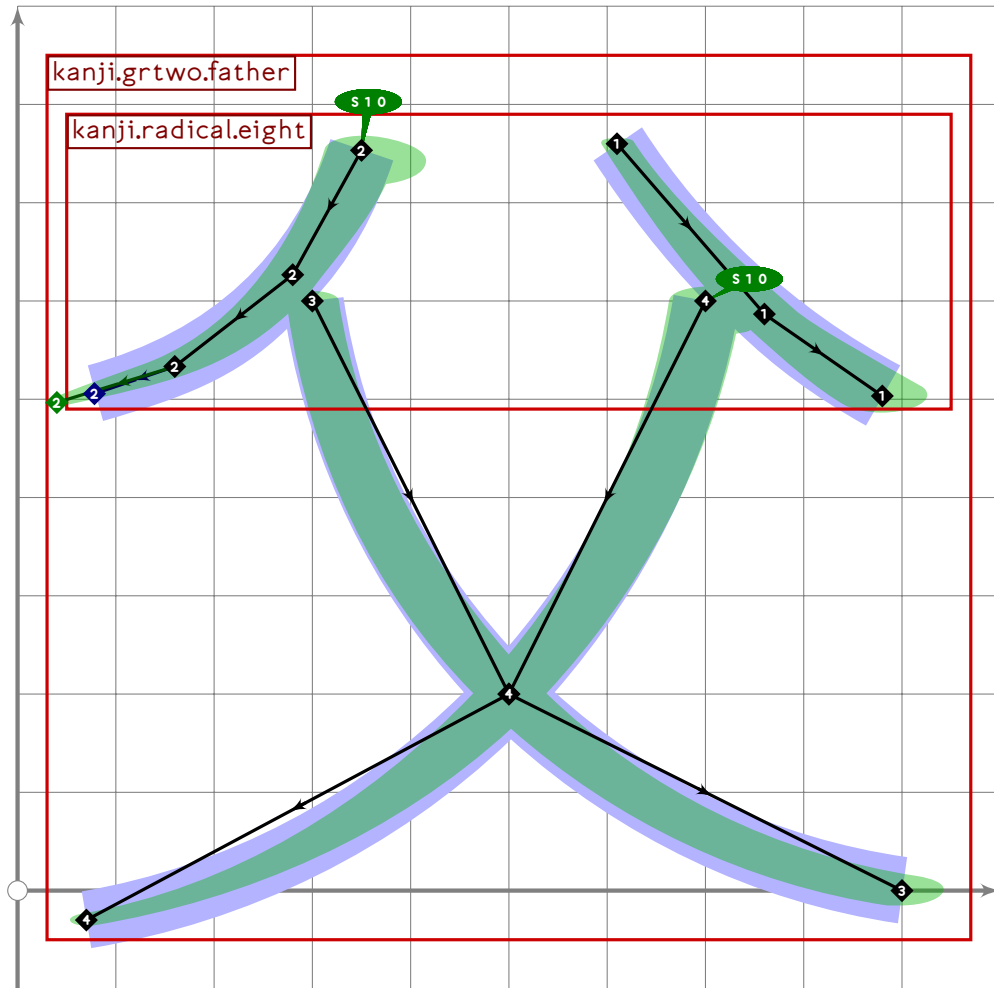
```



```

406 % hi/ka "fire"
407 begint Suglyph("uni2F55",85);
408   kanji.grone.fire;
409   tsu_render;
410   endtsuglyph;
411

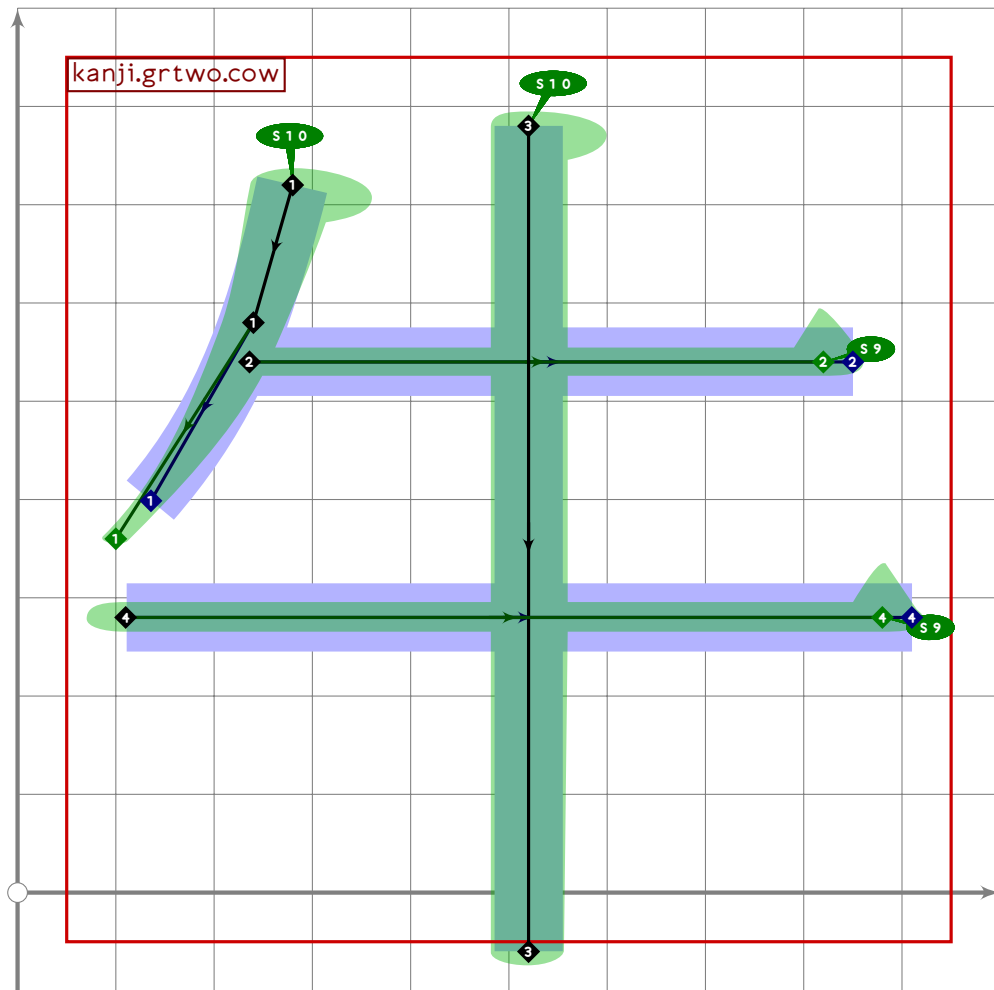
```



```

412 % chichi "father"
413 begintsuglyph("uni2F57";87);
414 kanji.grtwo.father;
415 tsu_render;
416 endtsuglyph;
417

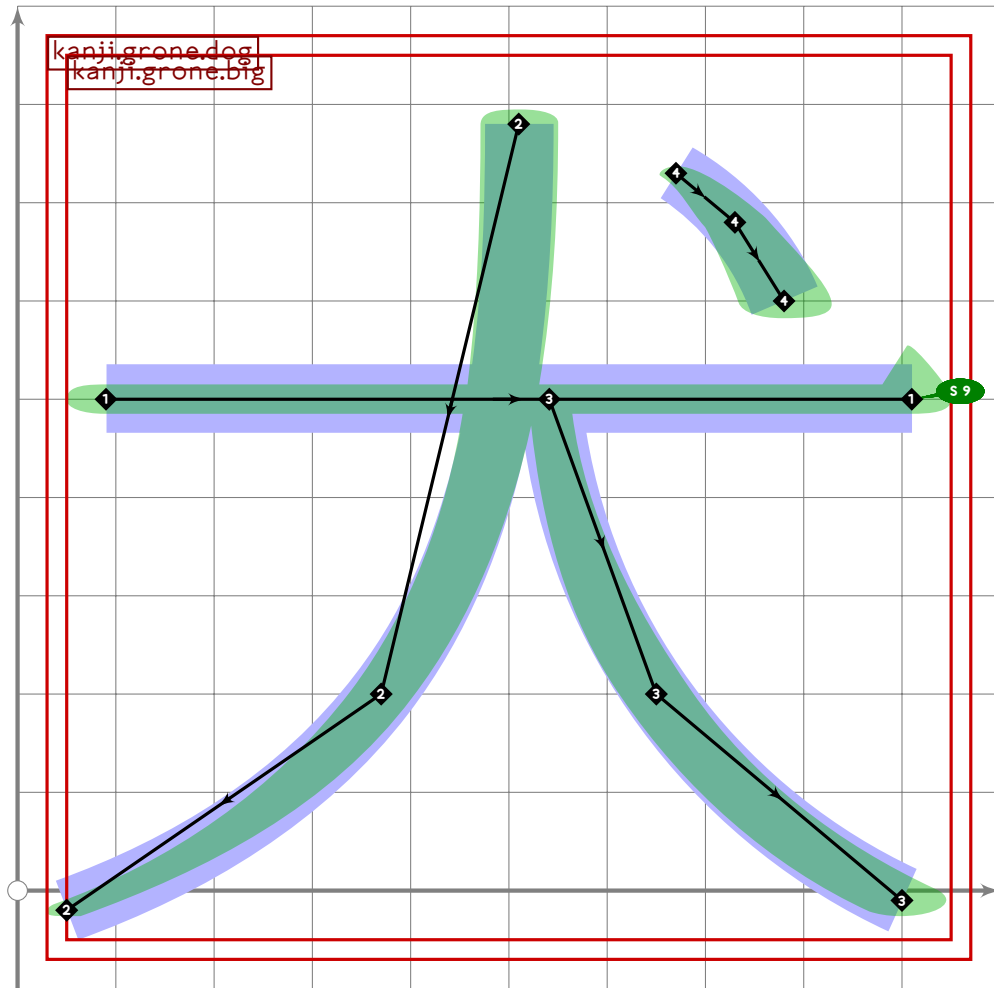
```



```

418 % kyu/ushi "cow"
419 begintsuglyph("uni2F5C";92);
420 kanji.grtwo.cow;
421 tsu_render;
422 endtsuglyph;
423

```

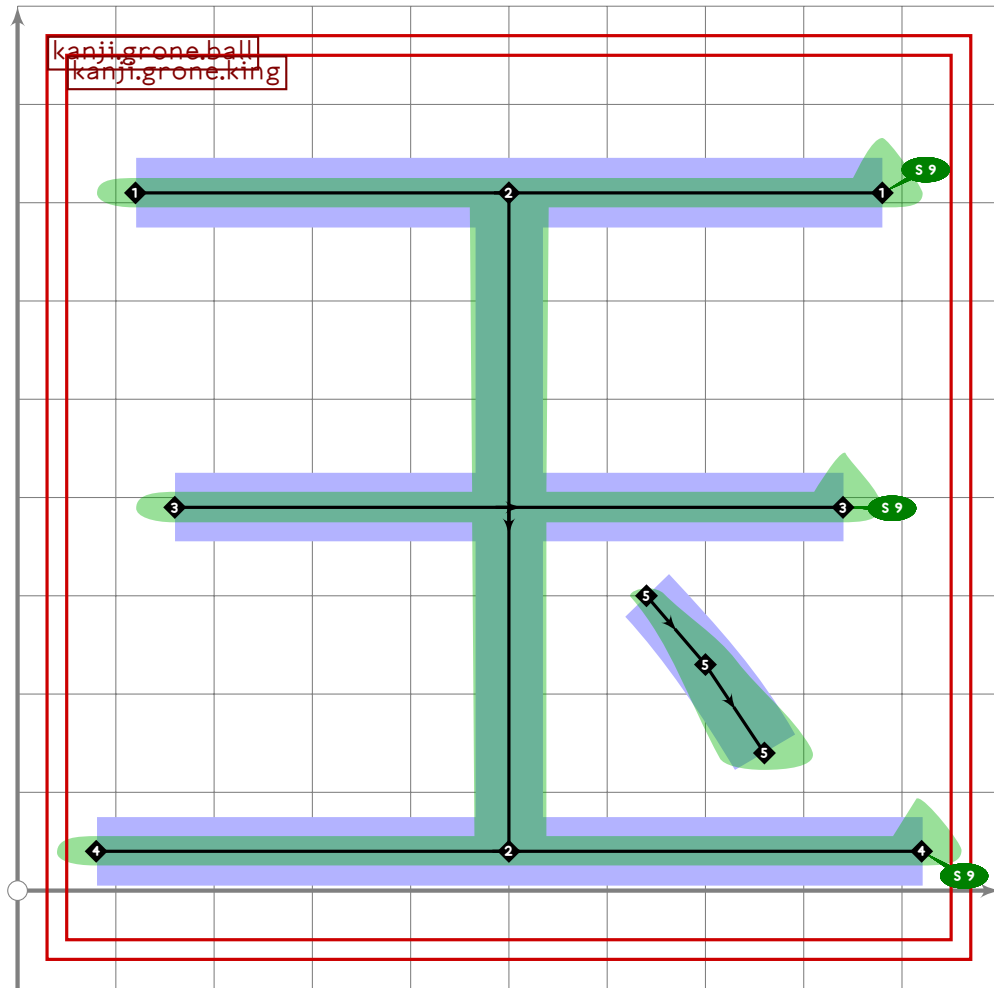


```

424 % inu "dog"
425 begintsuglyph("uni2F5D";93);
426 kanji.grone.dog;
427 tsu_render;
428 endtsuglyph;
429

```

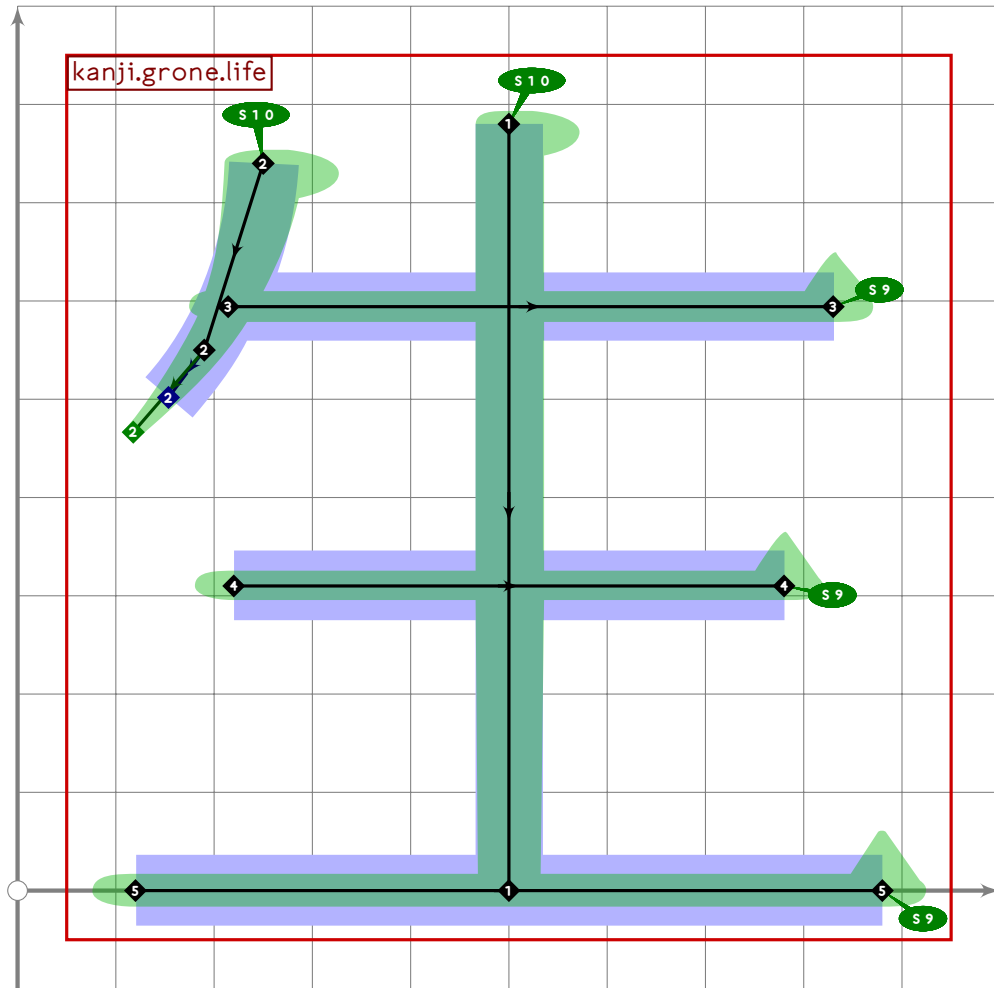




```

430 % gyoku/tama "ball" or "precious"
431 begint Suglyph("uni2F5F";95);
432   kanji.grone.ball;
433   tsu_render;
434   endtsuglyph;
435

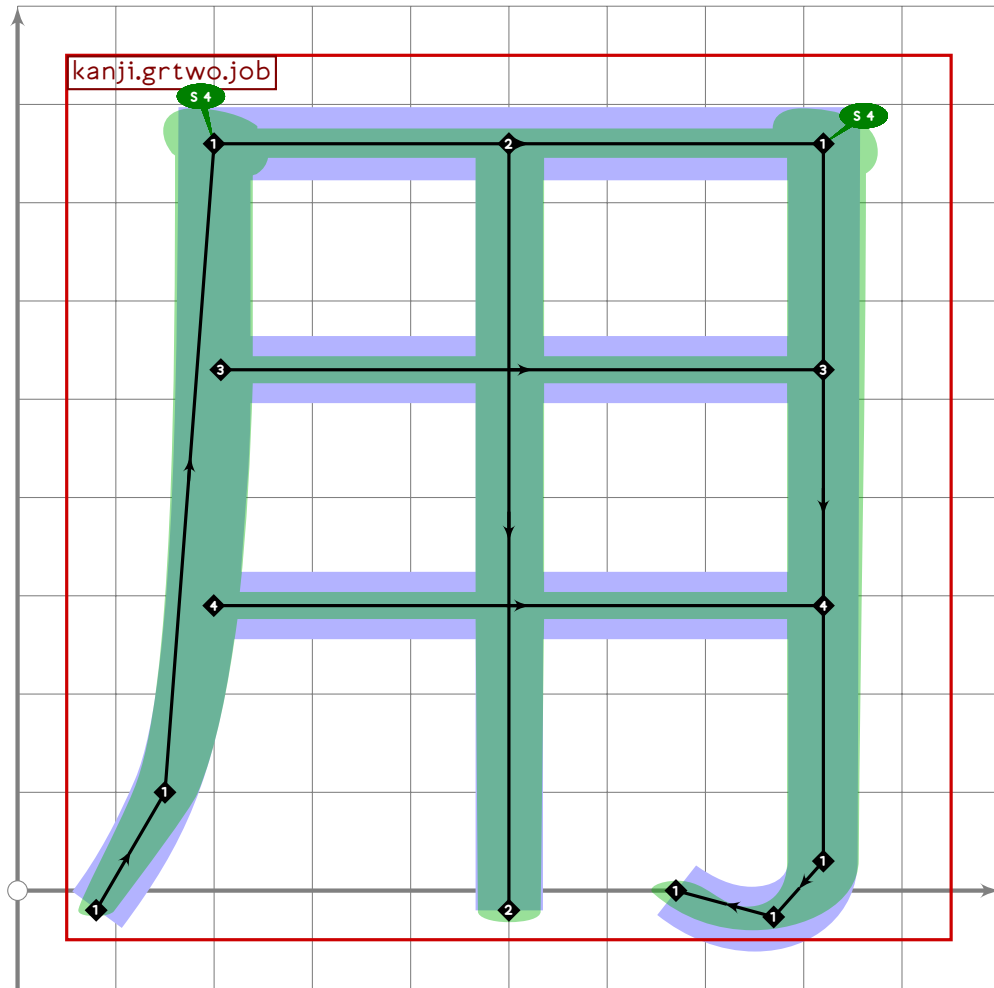
```



```

436 % sei/ki "life"
437 begint Suglyph("uni2F63";99);
438 kanji.grone.life;
439 tsu_render;
440 endtsuglyph;
441

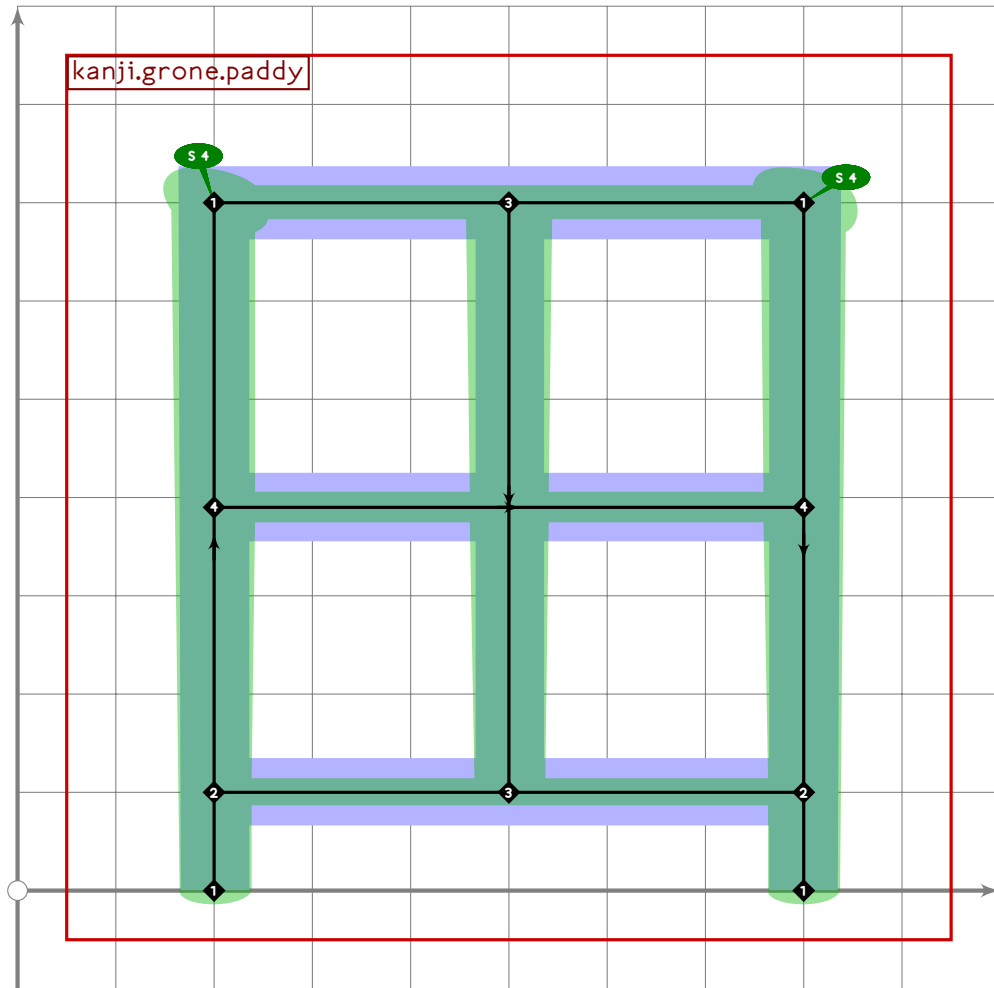
```



```

442 % you/mochi "job"
443 begintsuglyph("uni2F64";100);
444 kanji.grtwo.job;
445 tsu_render;
446 endtsuglyph;
447

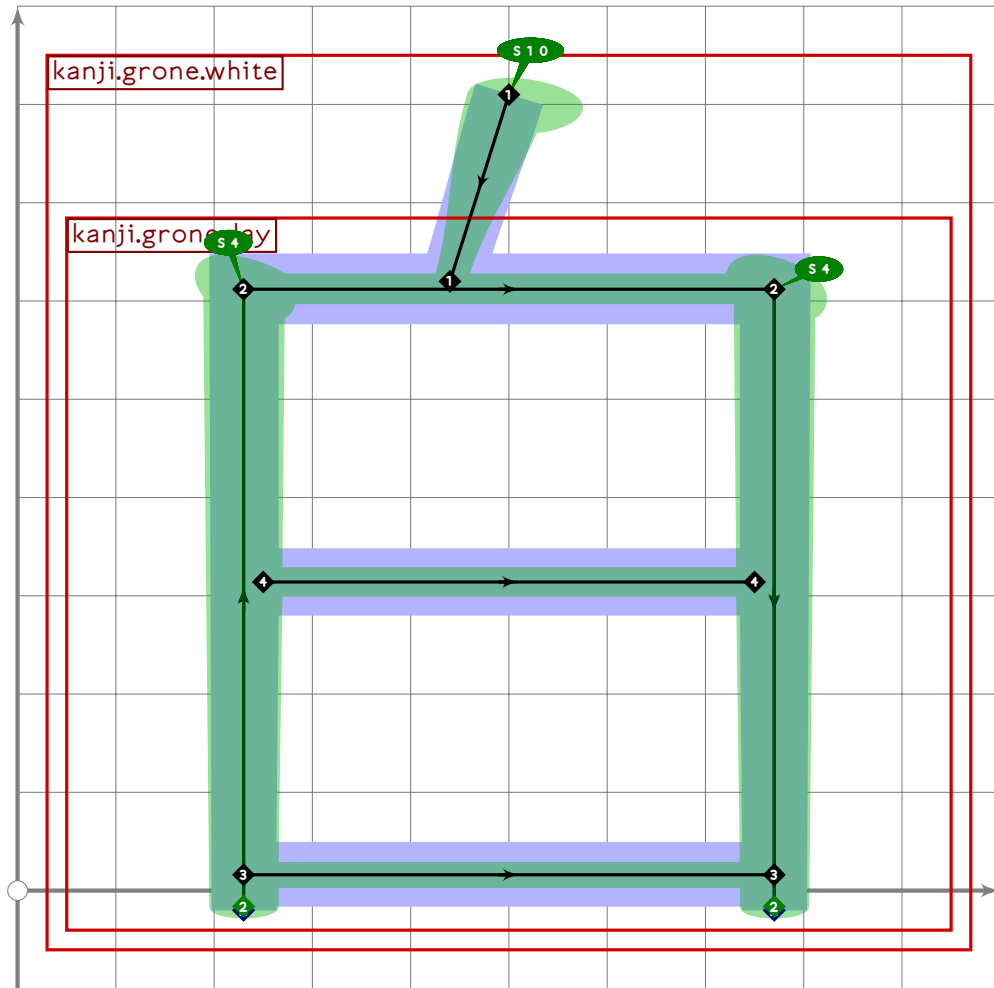
```



```

448 % ta "rice paddy"
449 begintsuglyph("uni2F65";101);
450   kanji.grone.paddy;
451   tsu_render;
452   endtsuglyph;
453

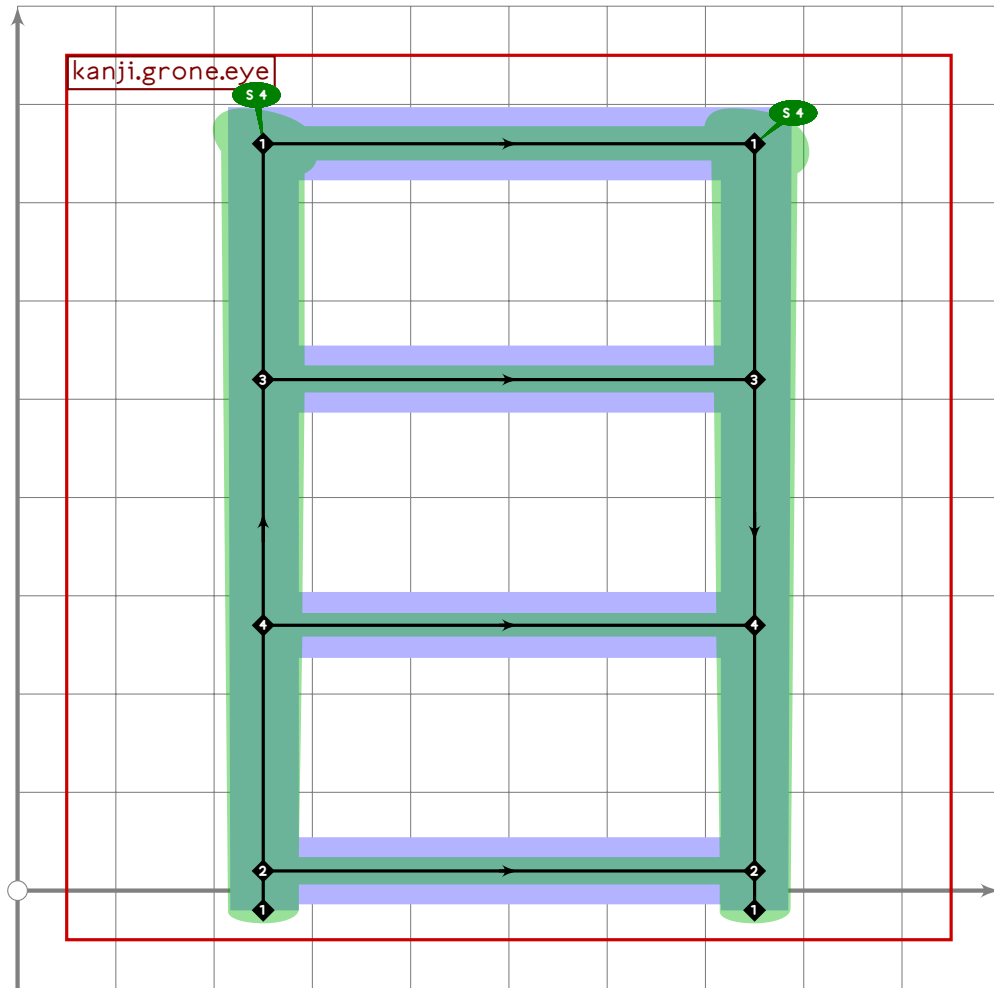
```



```

454 % shiro "white"
455 begintsuglyph("uni2F69";105);
456   kanji.grone.white;
457   tsu_render;
458   endtsuglyph;
459

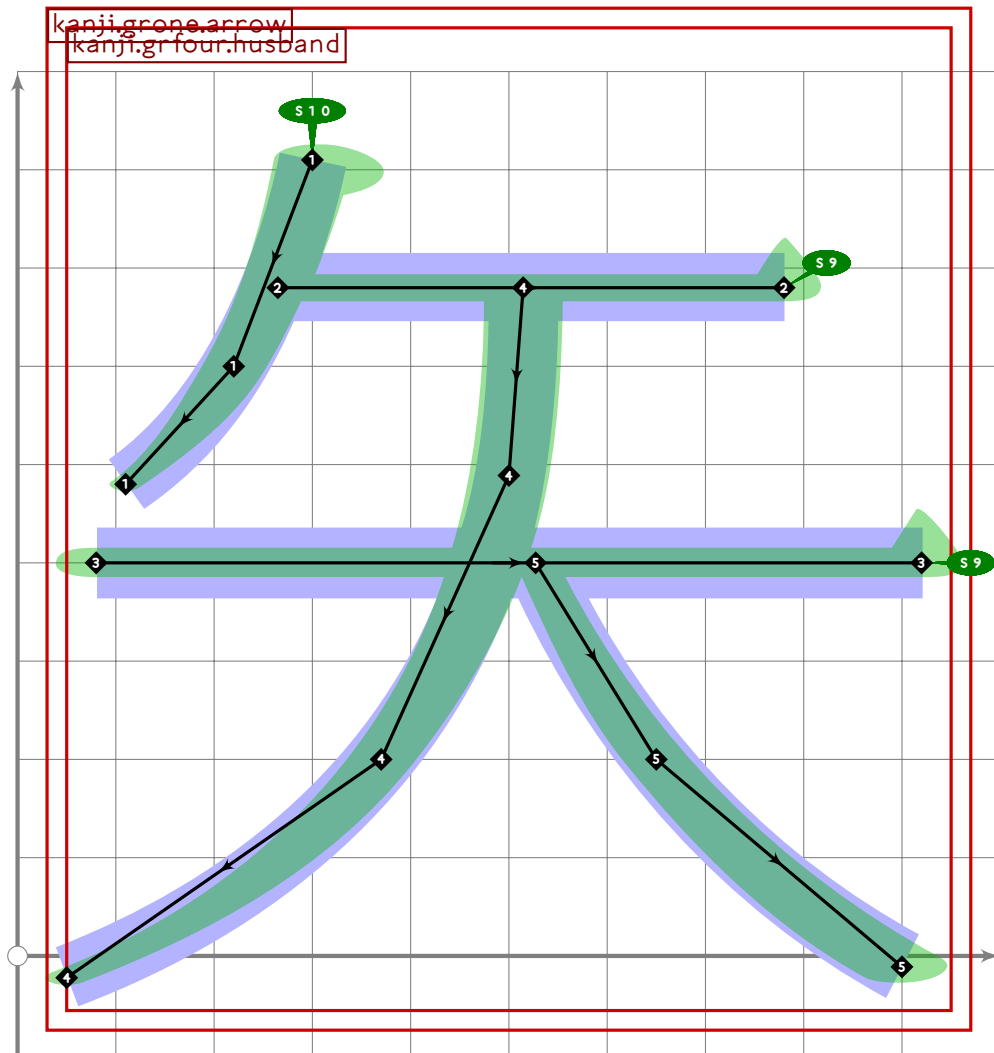
```



```

460 % moku/me "eye"
461 beginsuglyph("uniF6C";108);
462   kanji.grone.eye;
463   tsu_render;
464   endtsuglyph;
465

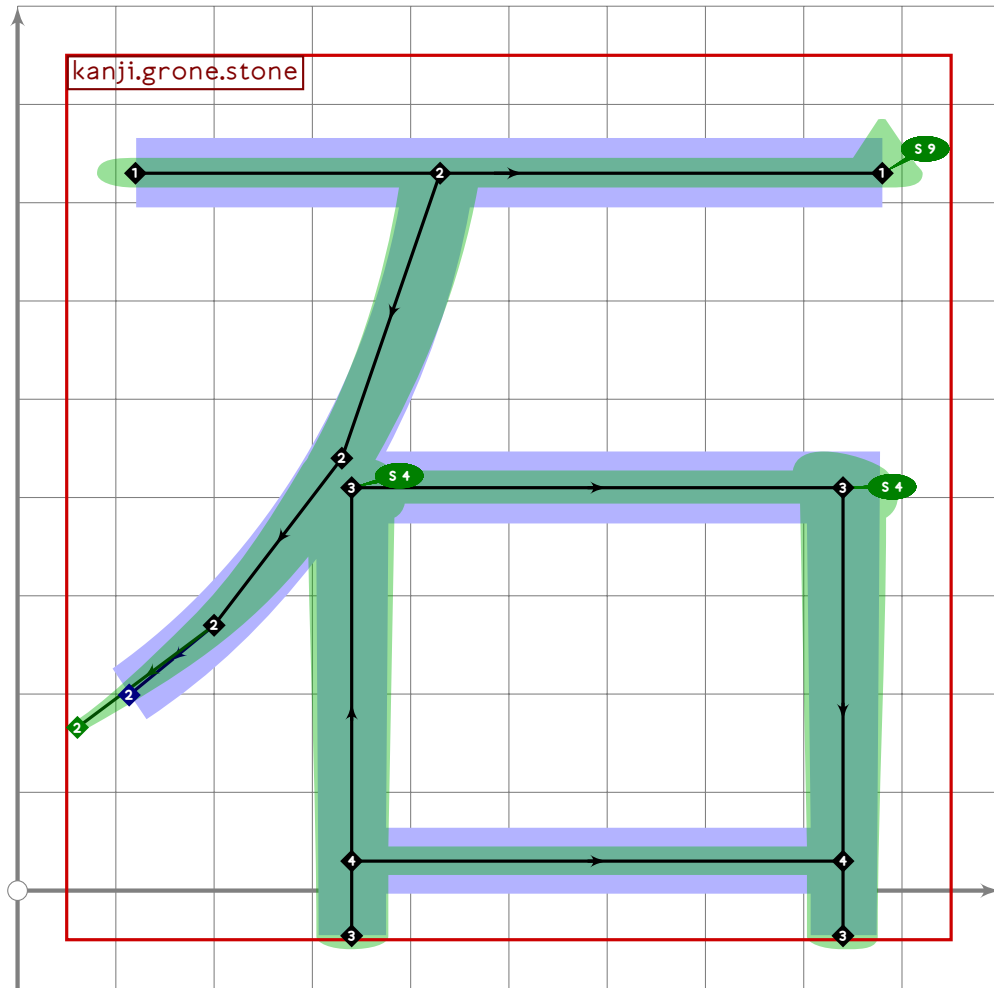
```



```

466 % shi/ya "arrow"
467 begint Suglyph("uni2F6E";110);
468   kanji.grtwo.arrow;
469   tsu_render;
470   endtsuglyph;
471

```

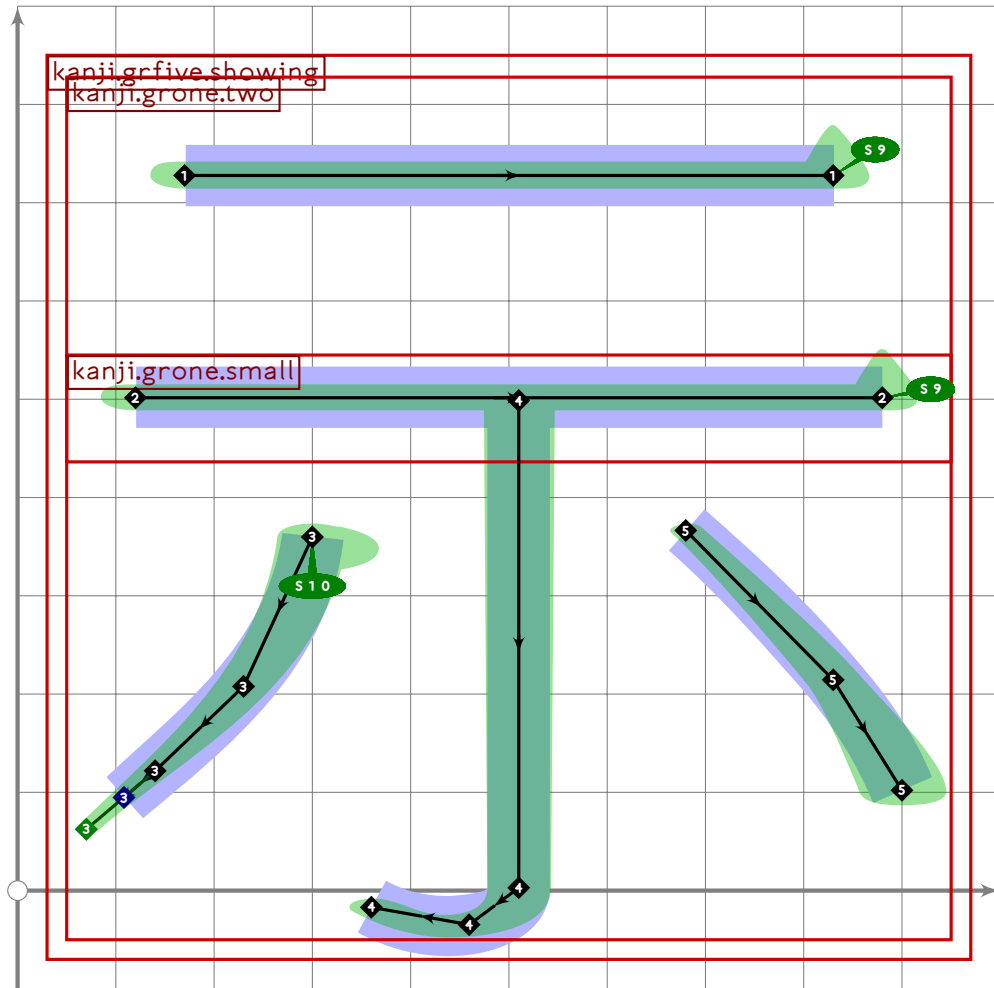


```

472 % seki/ishi "stone"
473 begint Suglyph("uni2F6F";111);
474   kanji.grone.stone;
475   tsu_render;
476   endtsuglyph;
477

```



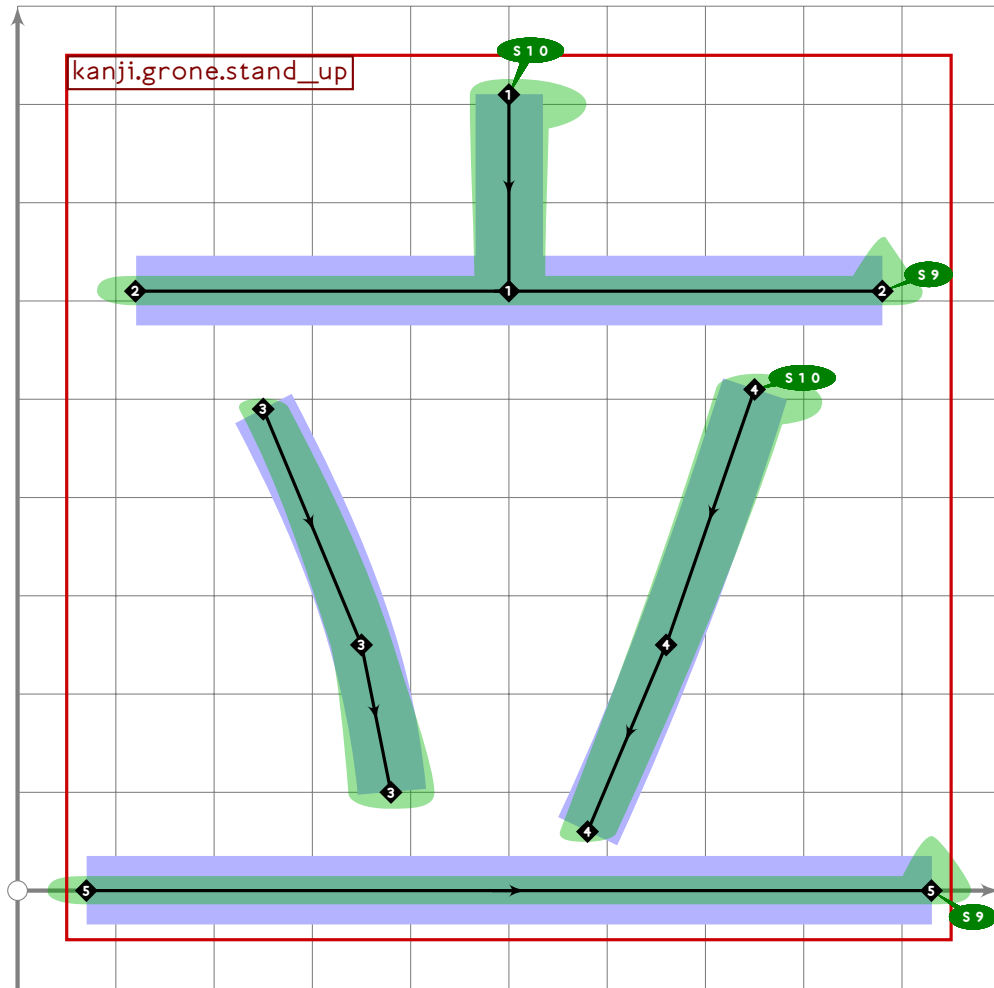


```

478 % ji/shime "show" (also older radical form)
479 begintuglyph("uni2F70",112);
480 kanji.grfive.showing;
481 tsu_render;
482 endtuglyph;
483

```

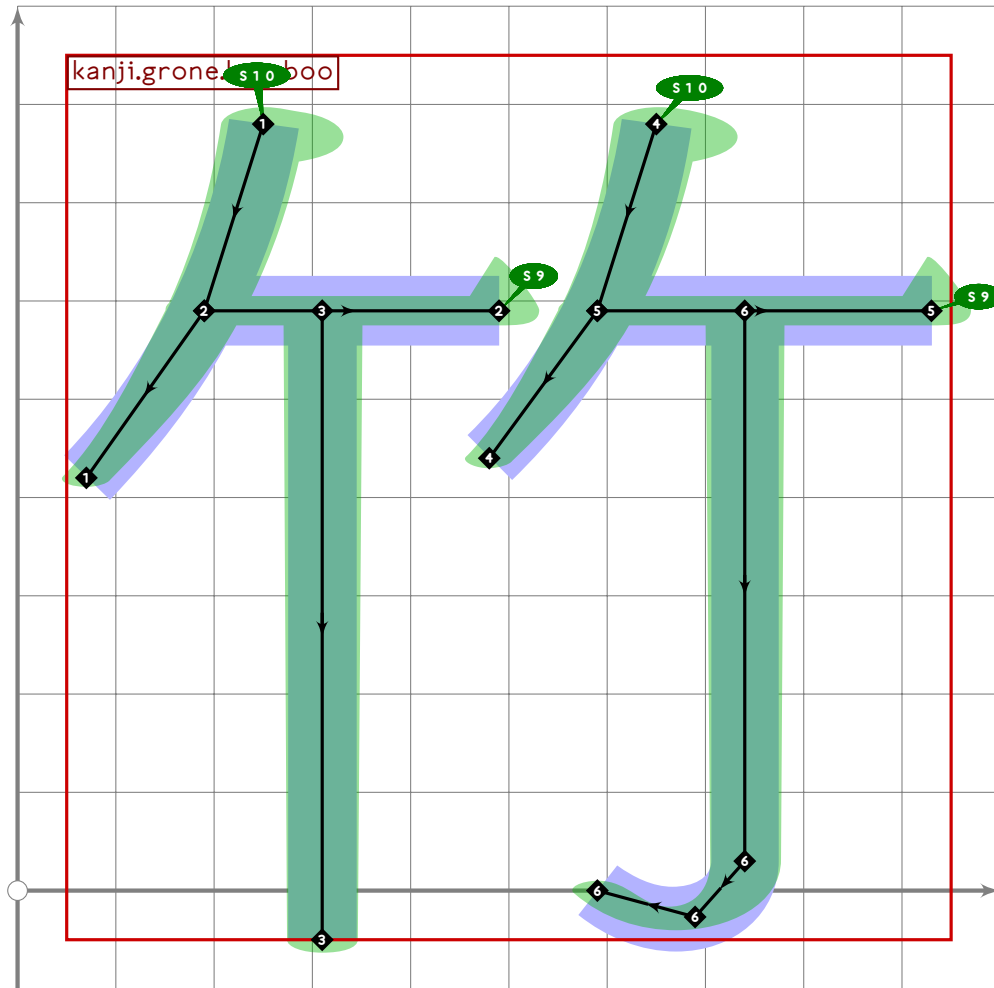




```

490 % ta "stand up"
491 begintsuglyph("uni2F74";116);
492 kanji.grone.stand_up;
493 tsu_render;
494 endtsuglyph;
495

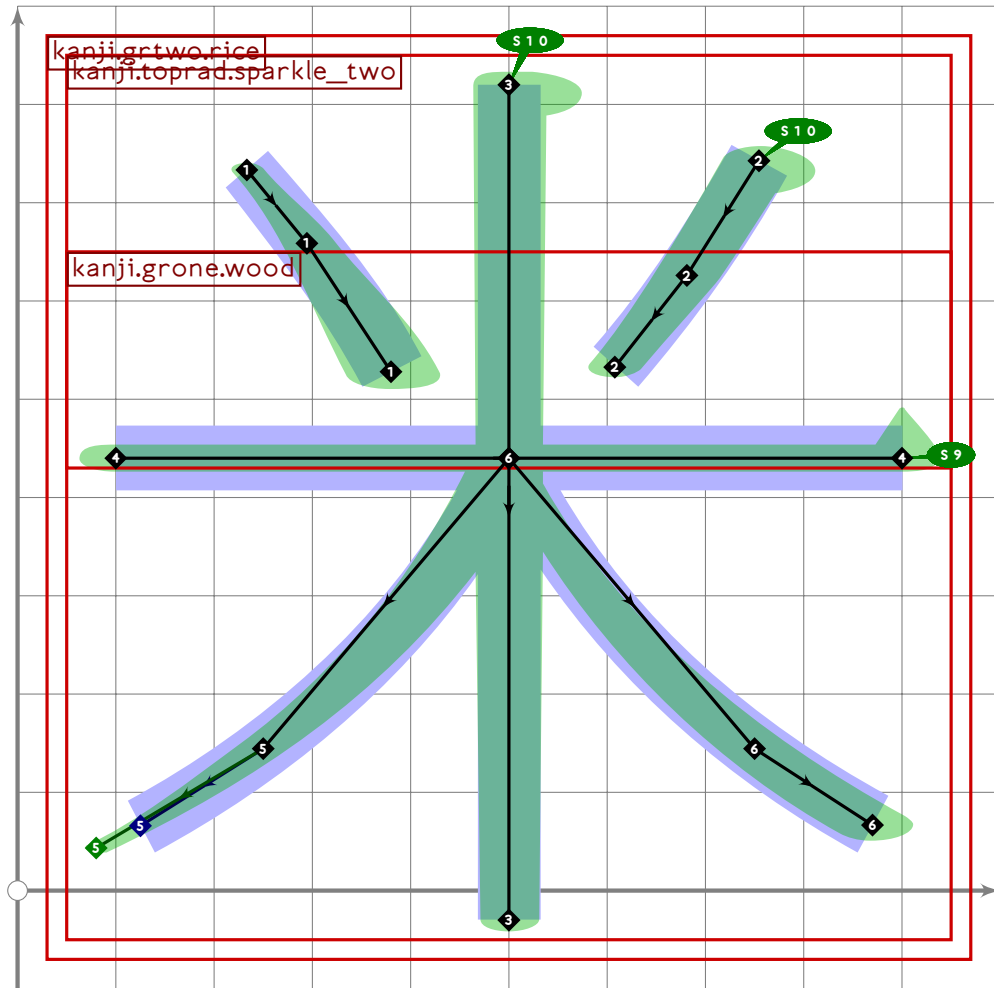
```



```

496 % chiku/take "bamboo"
497 begint Suglyph("uni2F75";117);
498   kanji.grone.bamboo;
499   tsu_render;
500   endtsuglyph;
501

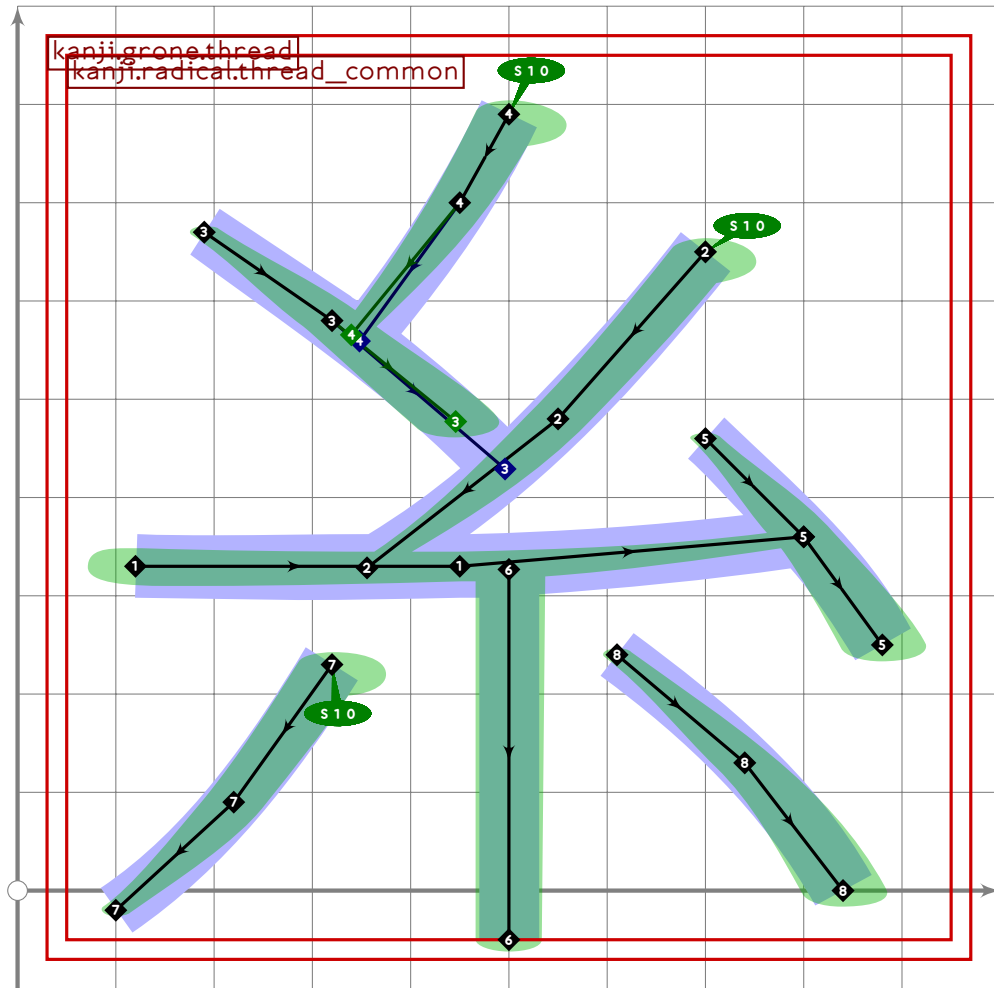
```



```

502 % bei/kome "rice", also "USA" and "metre"
503 begintsuglyph("uni2F76",118);
504 kanji.grtwo.rice;
505 tsu_render;
506 endtsuglyph;
507

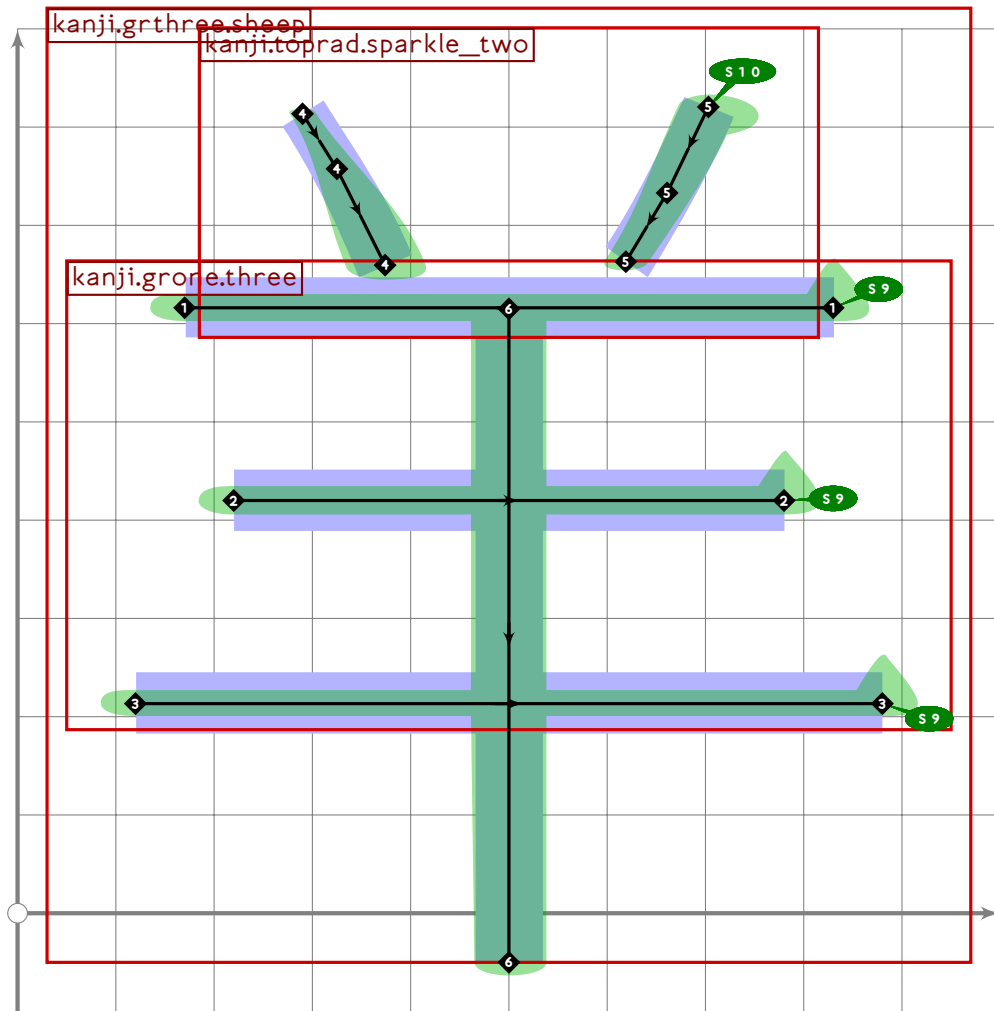
```



```

508 % shi/ito "thread"
509 begintsuglyph("uni2F77";119);
510 kanji.grone.thread;
511 tsu_render;
512 endtsuglyph;
513

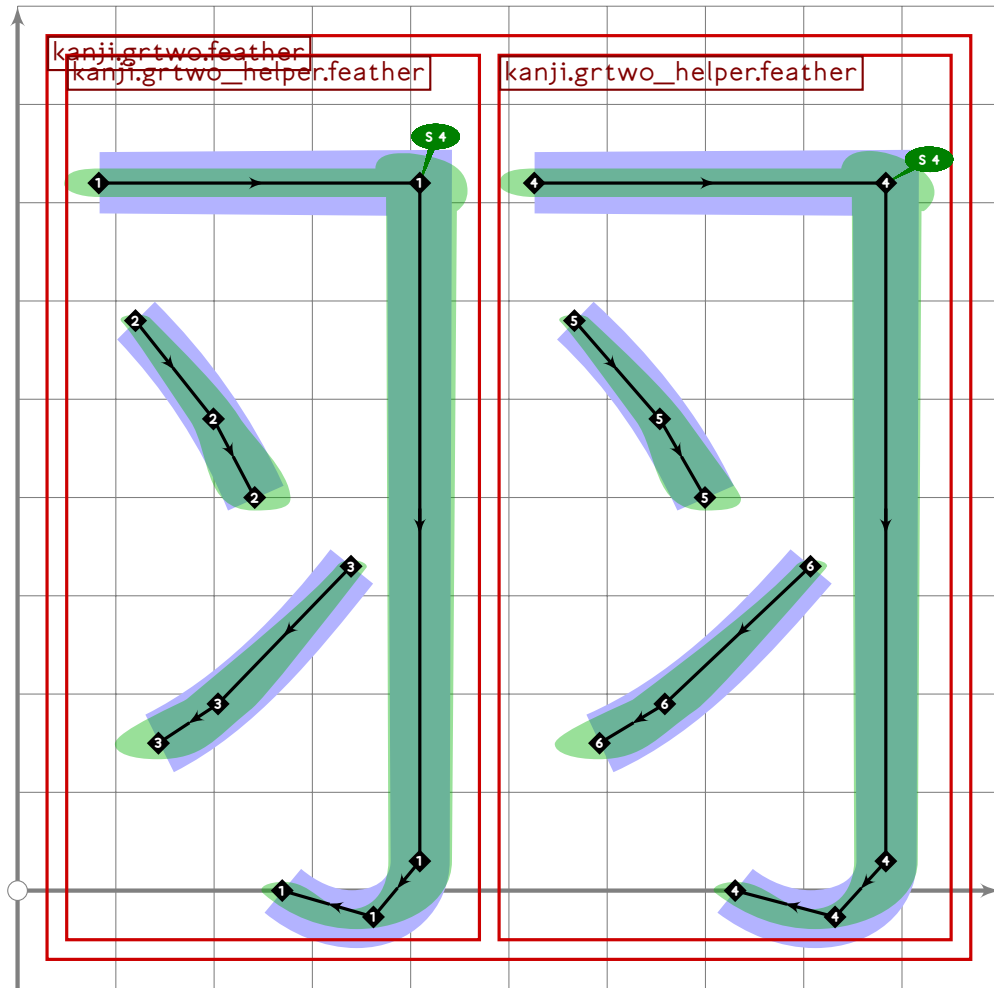
```



```

514 % you/hitsuji "sheep"
515 begintsuglyph("uni2F7A";122);
516 kanji.grthree.sheep;
517 tsu_render;
518 endtsuglyph;
519

```

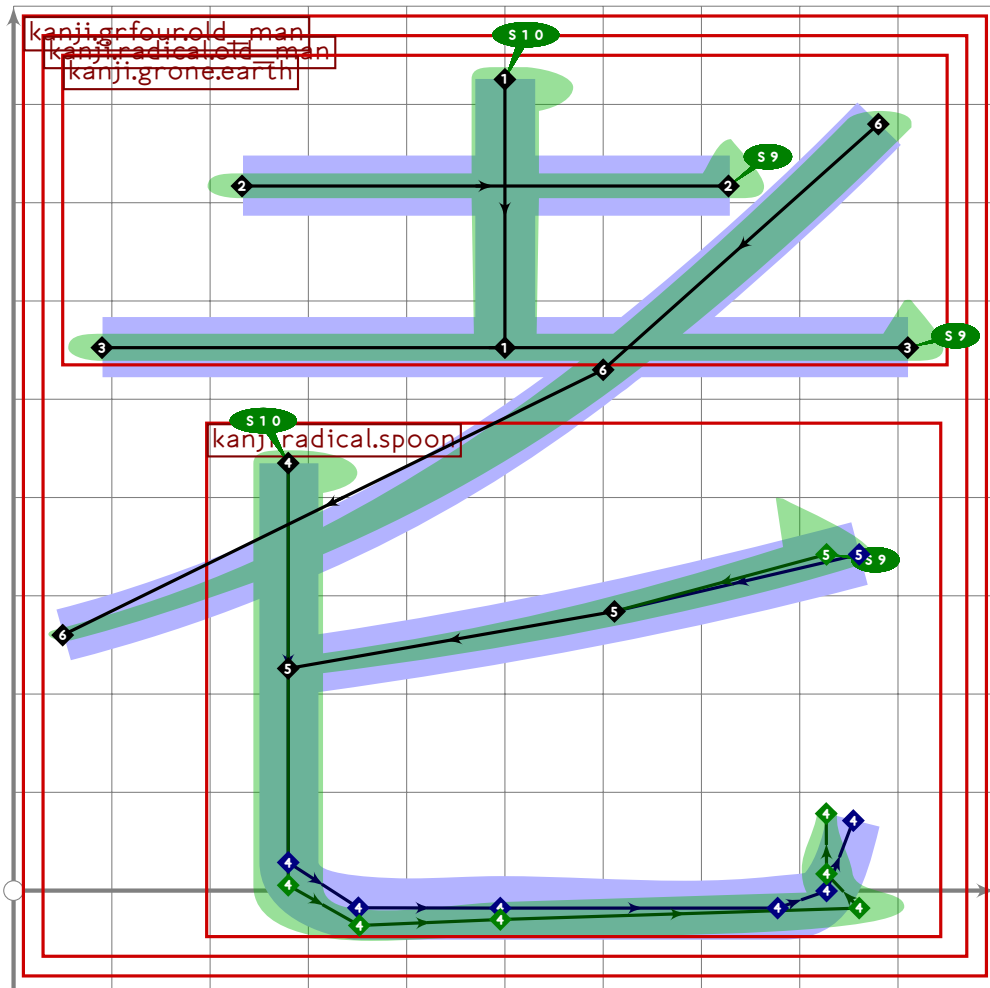


```

520 % u/hane "feather"
521 begint Suglyph("uni2F7B",123);
522   kanji.grtwo.feather;
523   tsu_render;
524   endtsuglyph;
525

```

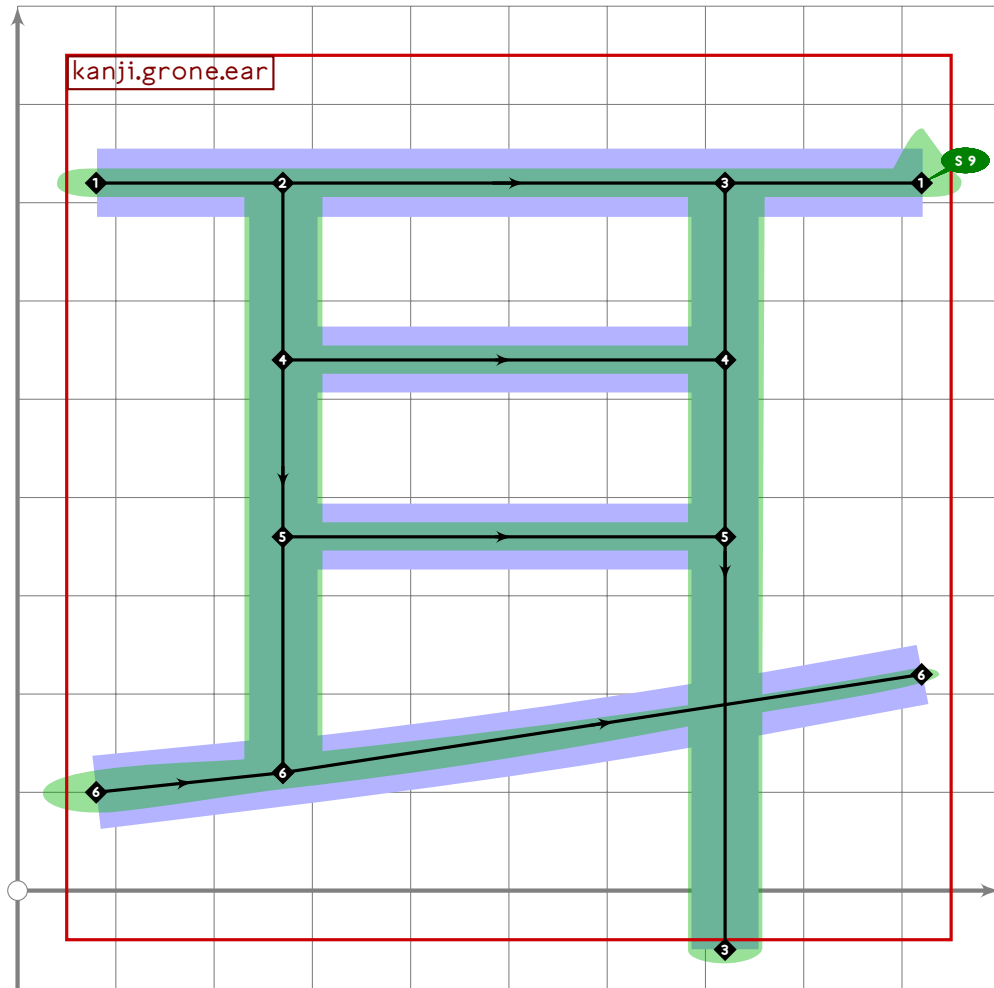




```

526 % rou/o "old man"
527 begintuglyph("uni2F7C",124);
528   kanji.grfour.old_man;
529   tsu_render;
530 endtuglyph;
531

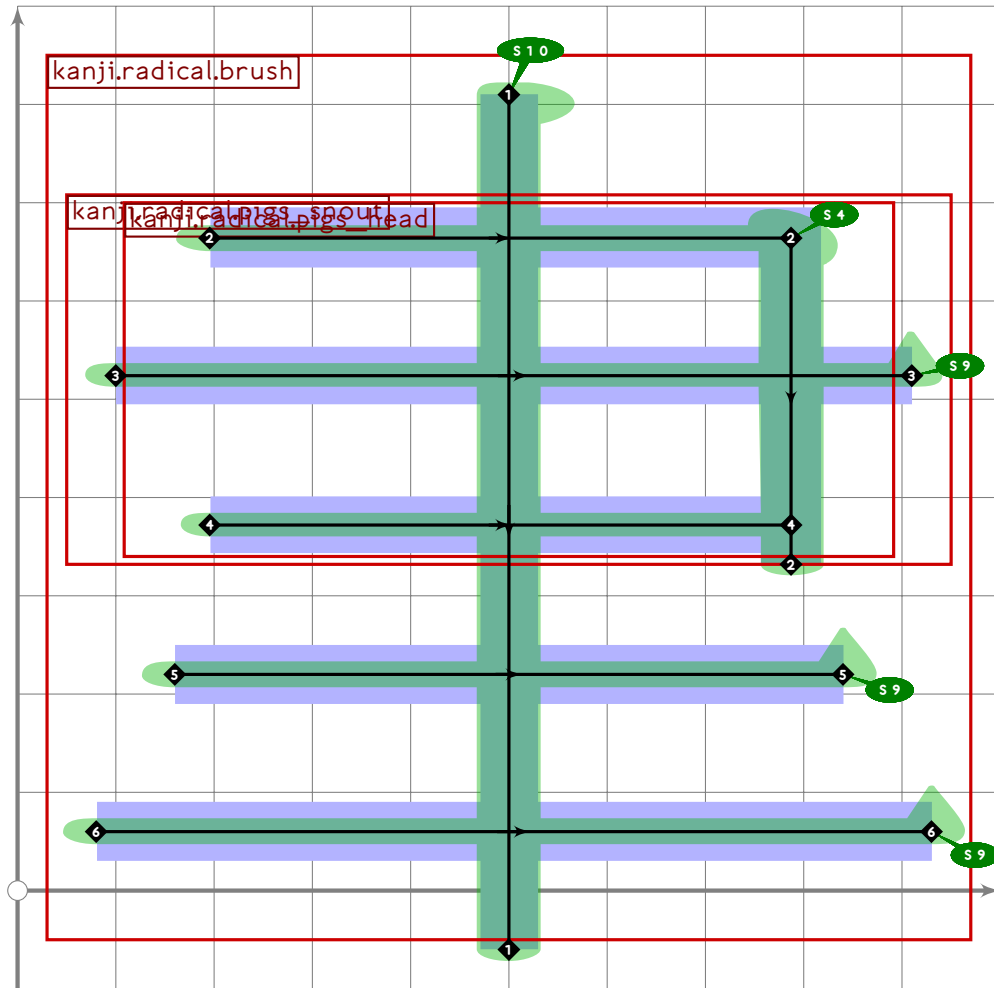
```



```

532 % ken/mi "ear"
533 begintsuglyph("uni2F7F",127);
534 kanji.grone.ear;
535 tsu_render;
536 endtsuglyph;
537

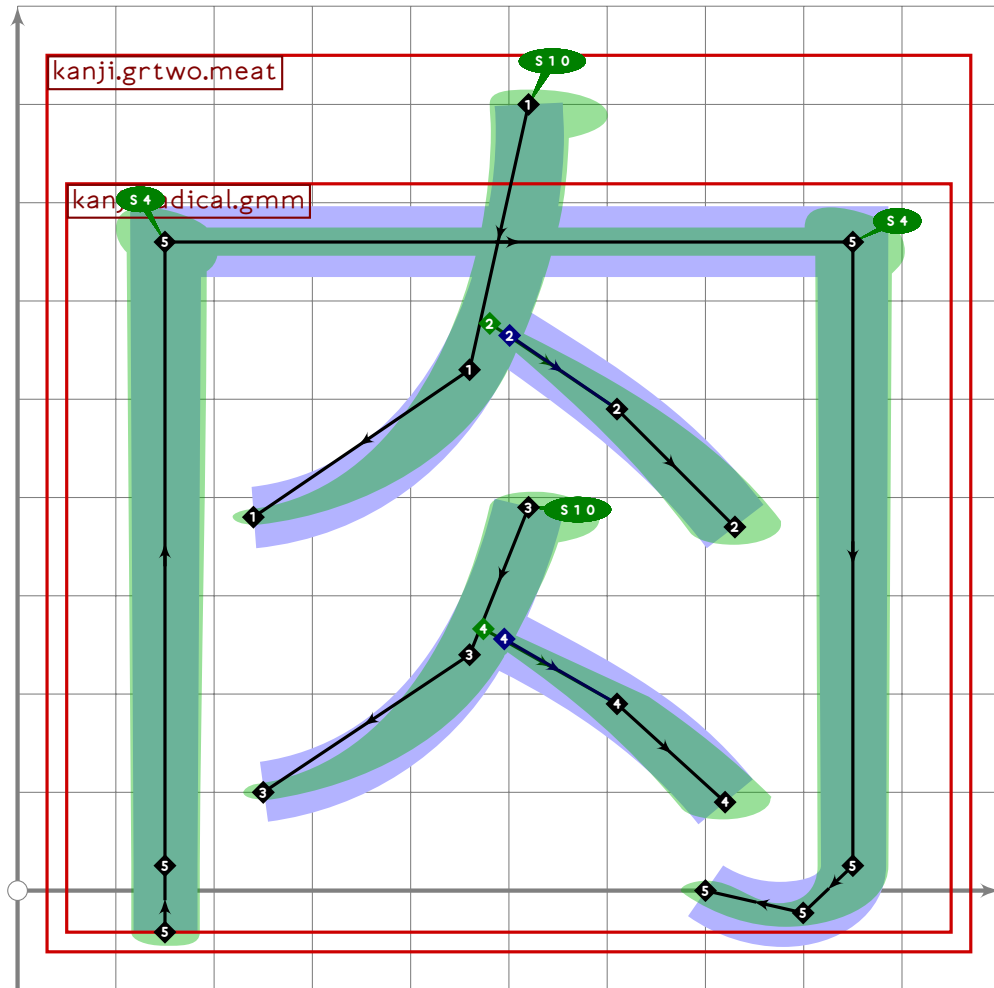
```



```

538 % brush radical
539 begintsuglyph("uni2F80",128);
540 kanji.radical.brush;
541 tsu_render;
542 endtsuglyph;
543

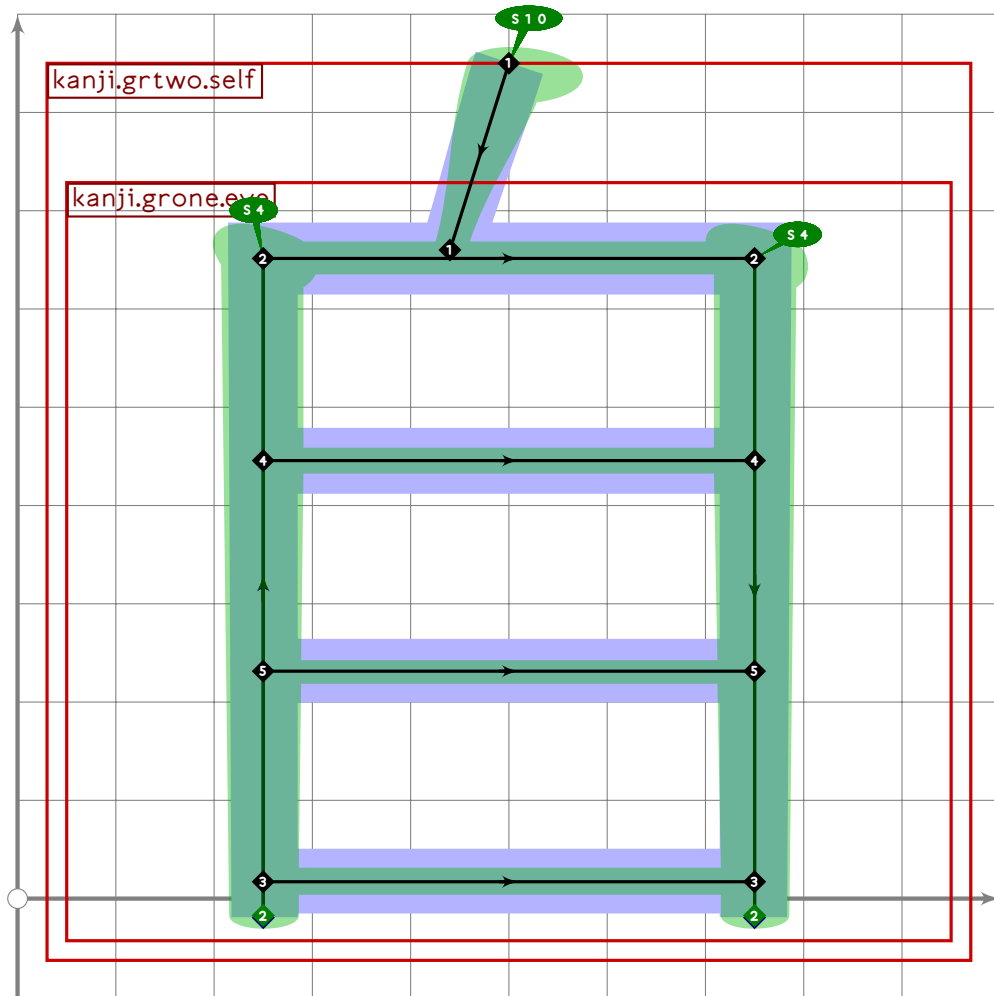
```



```

544 % niku "meat"
545 begintsuglyph("uni2F81",129);
546 kanji.grtwo.meat;
547 tsu_render;
548 endsuglyph;
549

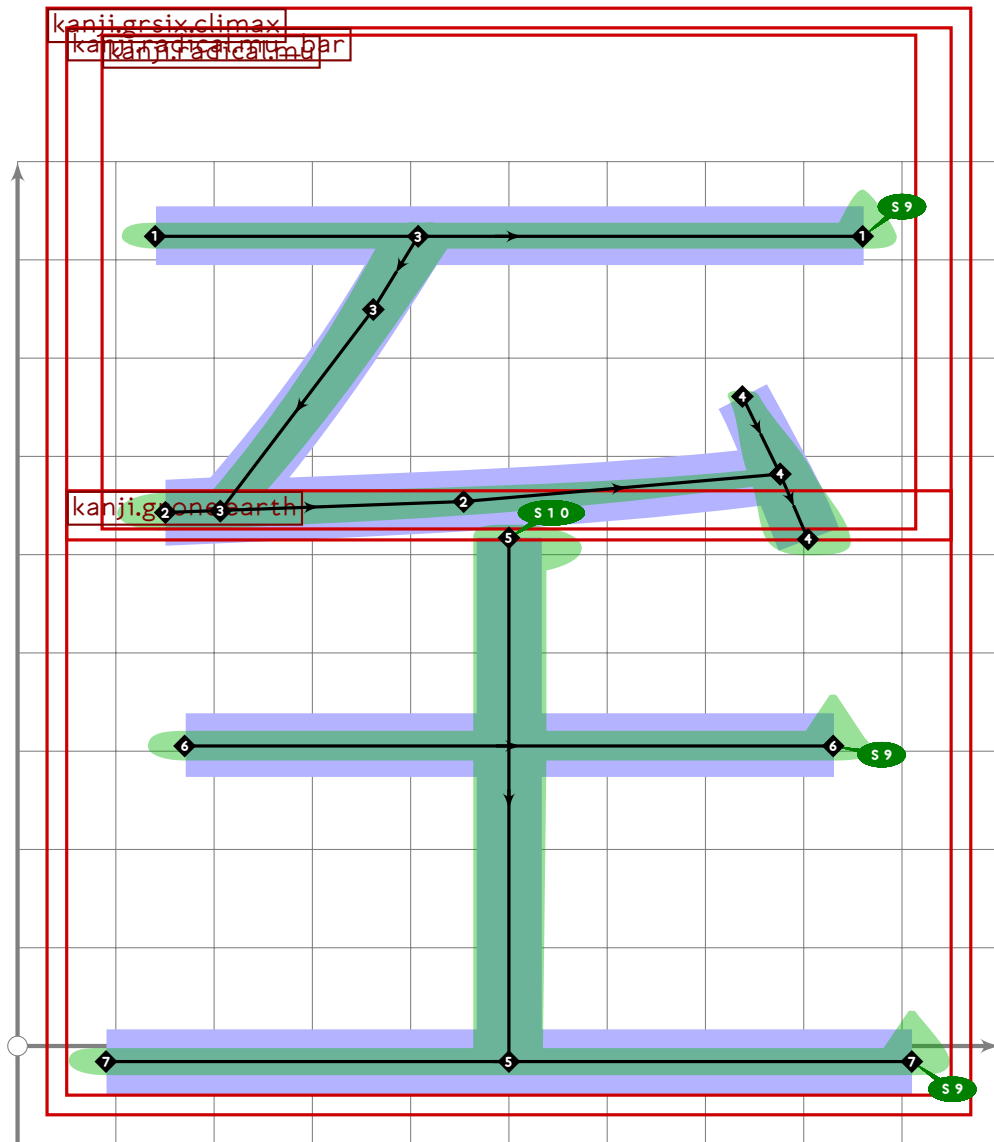
```



```

550 % ji as in jibun "self"
551 beginsuglyph("uni2F83",131);
552   kanji.grtwo.self;
553   tsu_render;
554   endsuglyph;
555

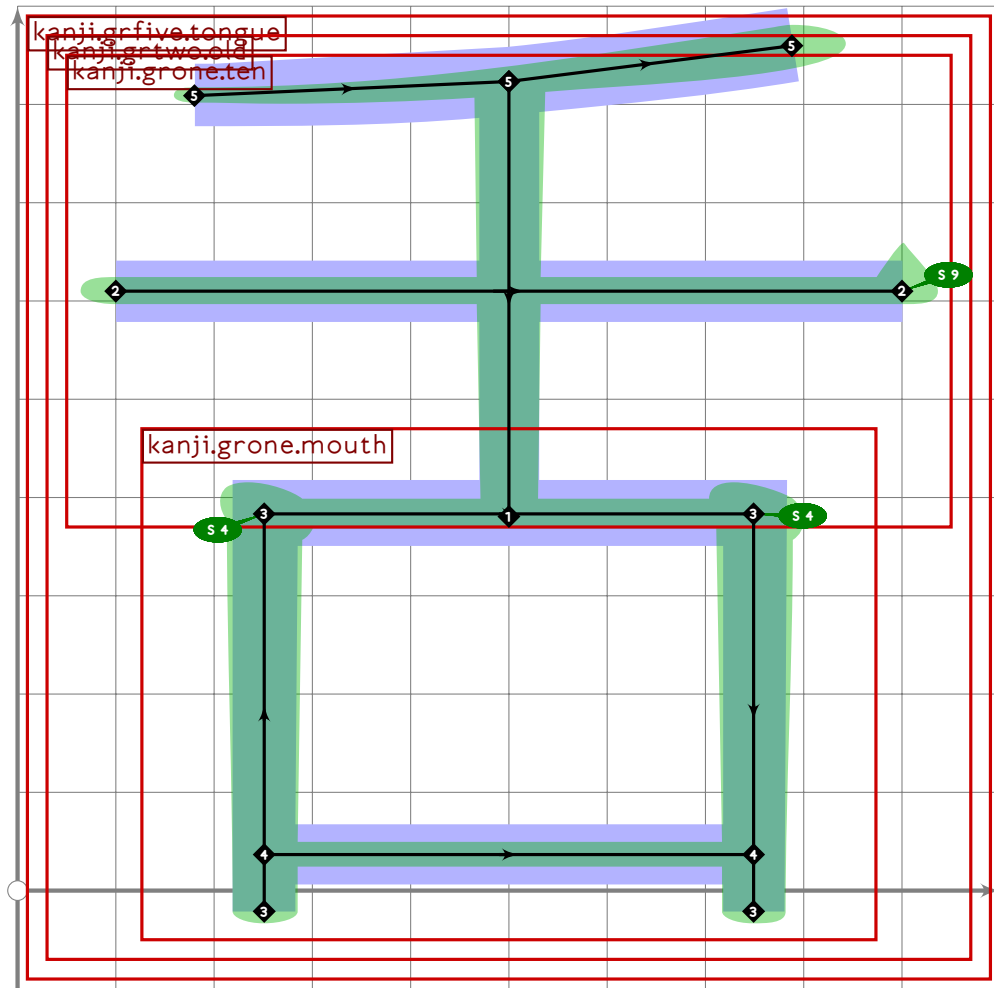
```



```

556 % shi/ita "climax"
557 begintsuglyph("uni2F84";132);
558 kanji.grsix.climax;
559 tsu_render;
560 endsuglyph;
561

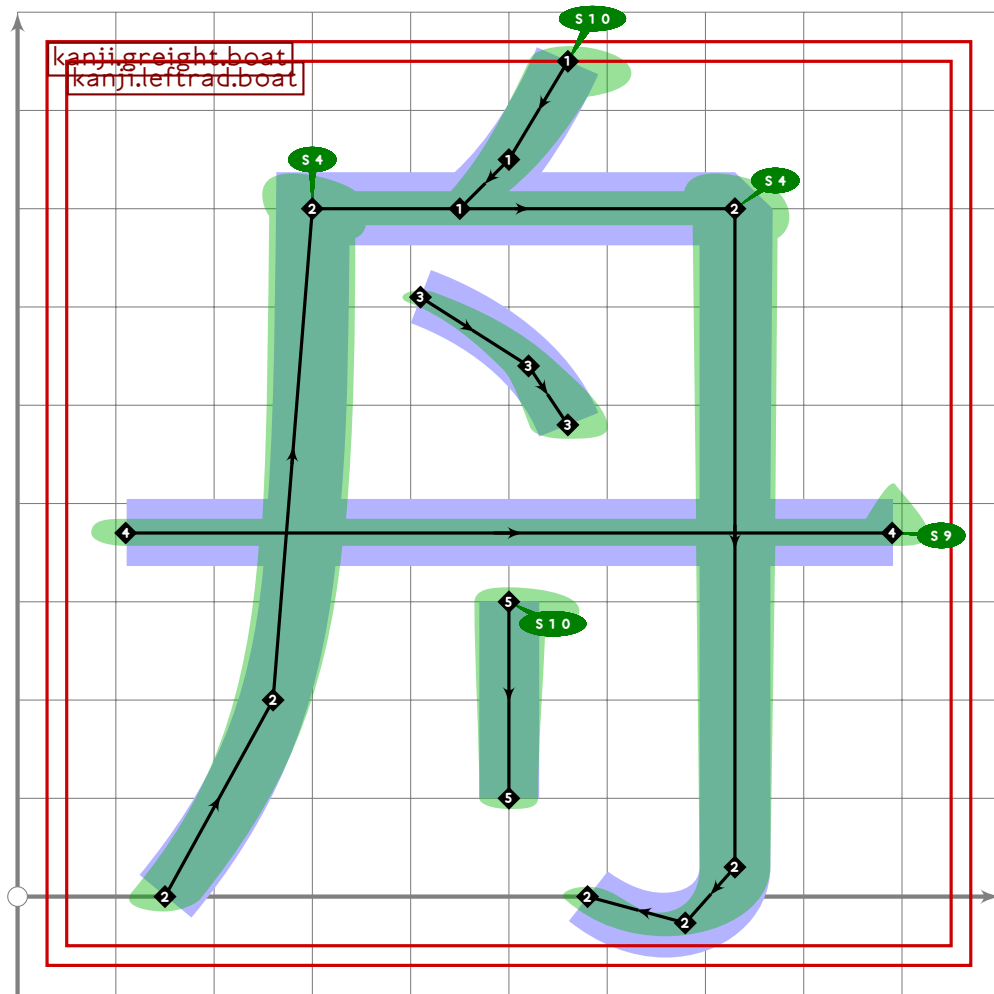
```



```

562 % zetsu/shita "tongue"
563 begint Suglyph("uni2F86",134);
564 kanji.grfive.tongue;
565 tsu_render;
566 endtsuglyph;
567

```

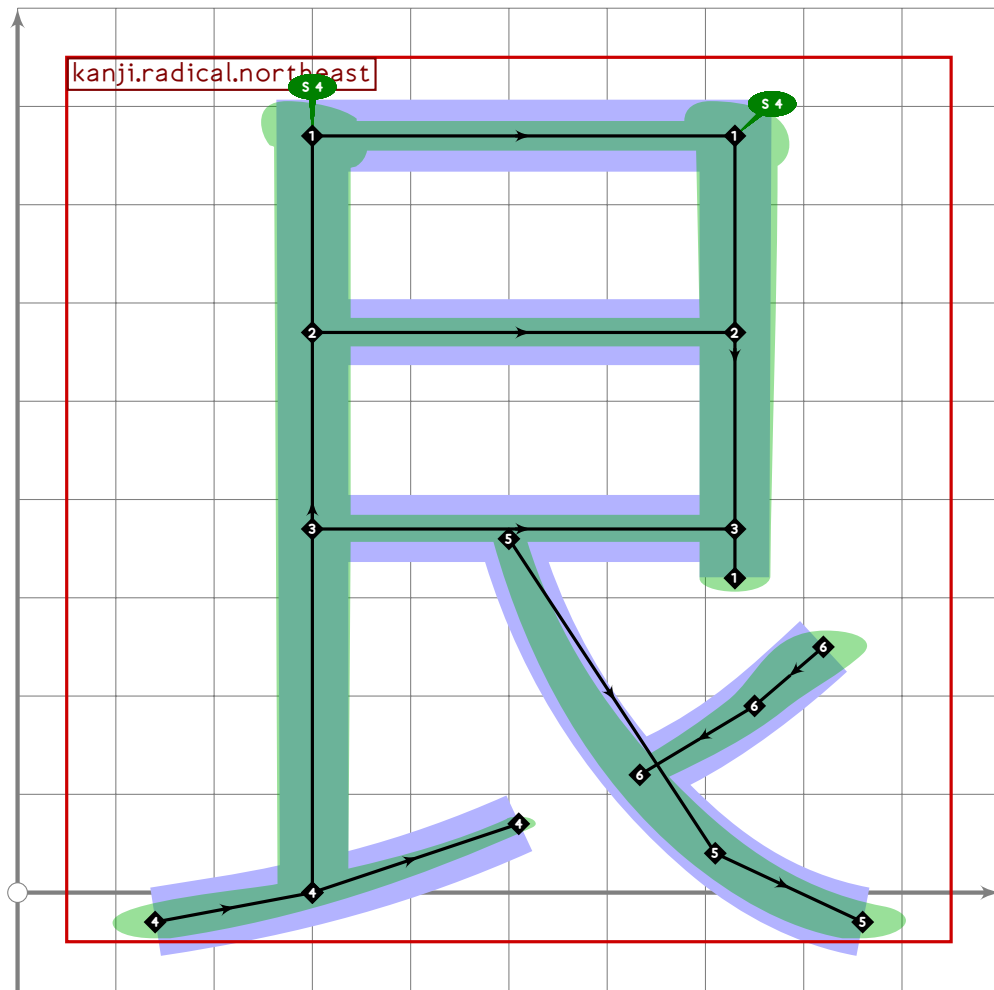


```

568 % shuu/fune "boat"
569 begintuglyph("uni2F88",136);
570 kanji.greight.boat;
571 tsu_render;
572 endtsuglyph;
573

```

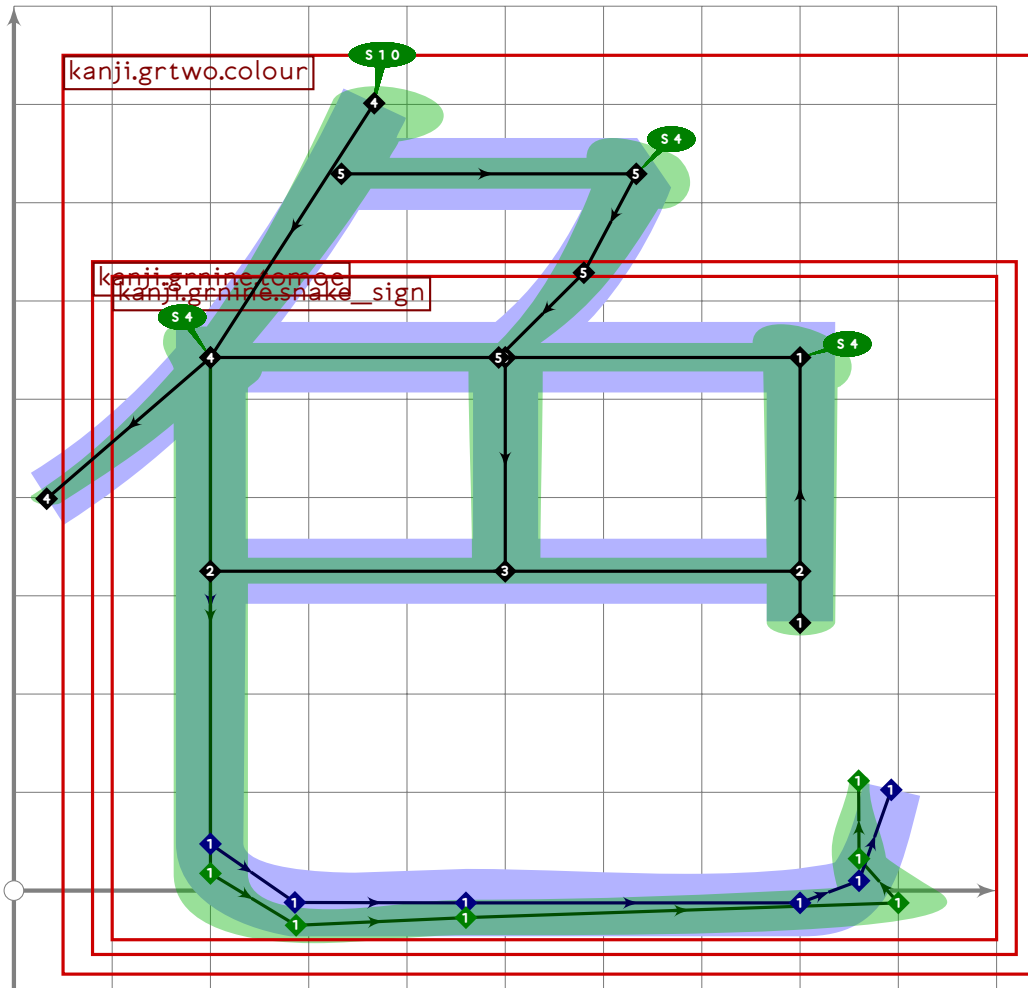




```

574 % kon/ushitora "northeast"
575 begintsuglyph("uni2F89",137);
576 kanji.radical.northeast;
577 tsu_render;
578 endtsuglyph;
579

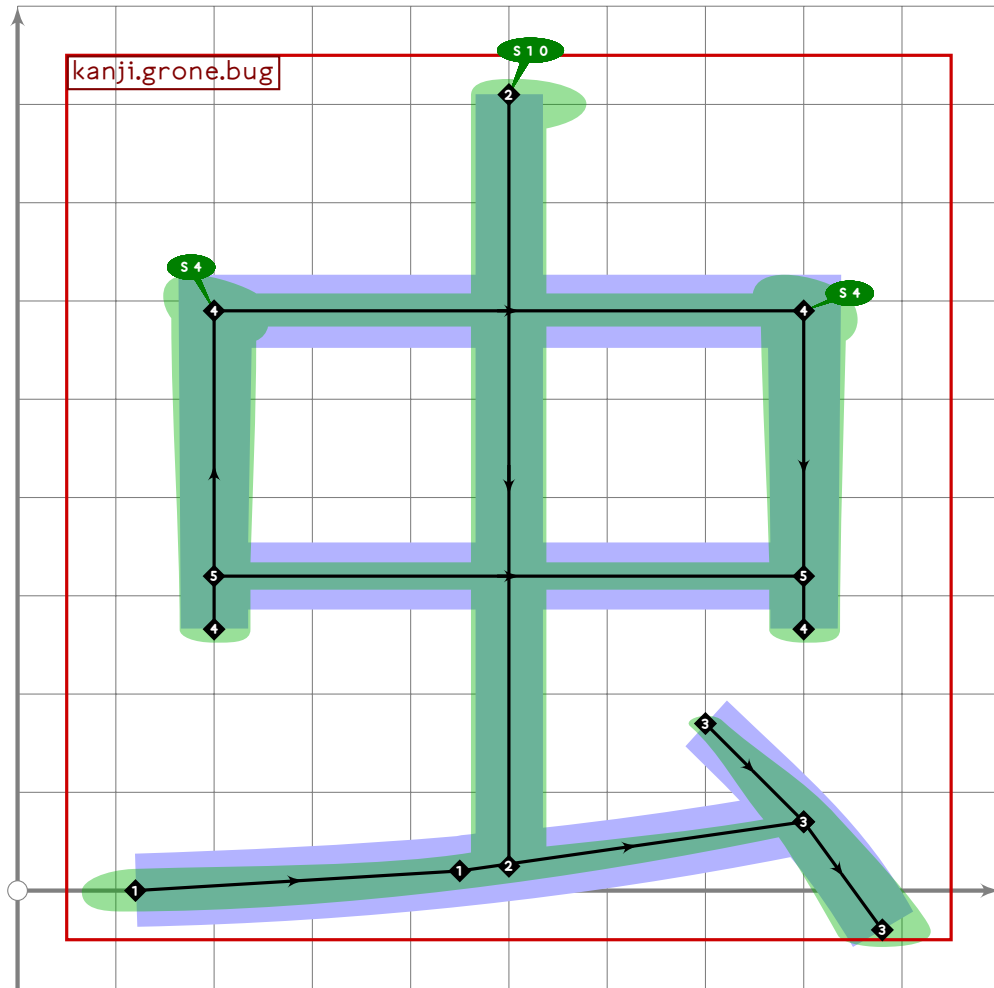
```



```

580 % shoku/iro "colour"
581 begintsuglyph("uni2F8A",138);
582 kanji.grtwo.colour;
583 tsu_render;
584 endtsuglyph;
585

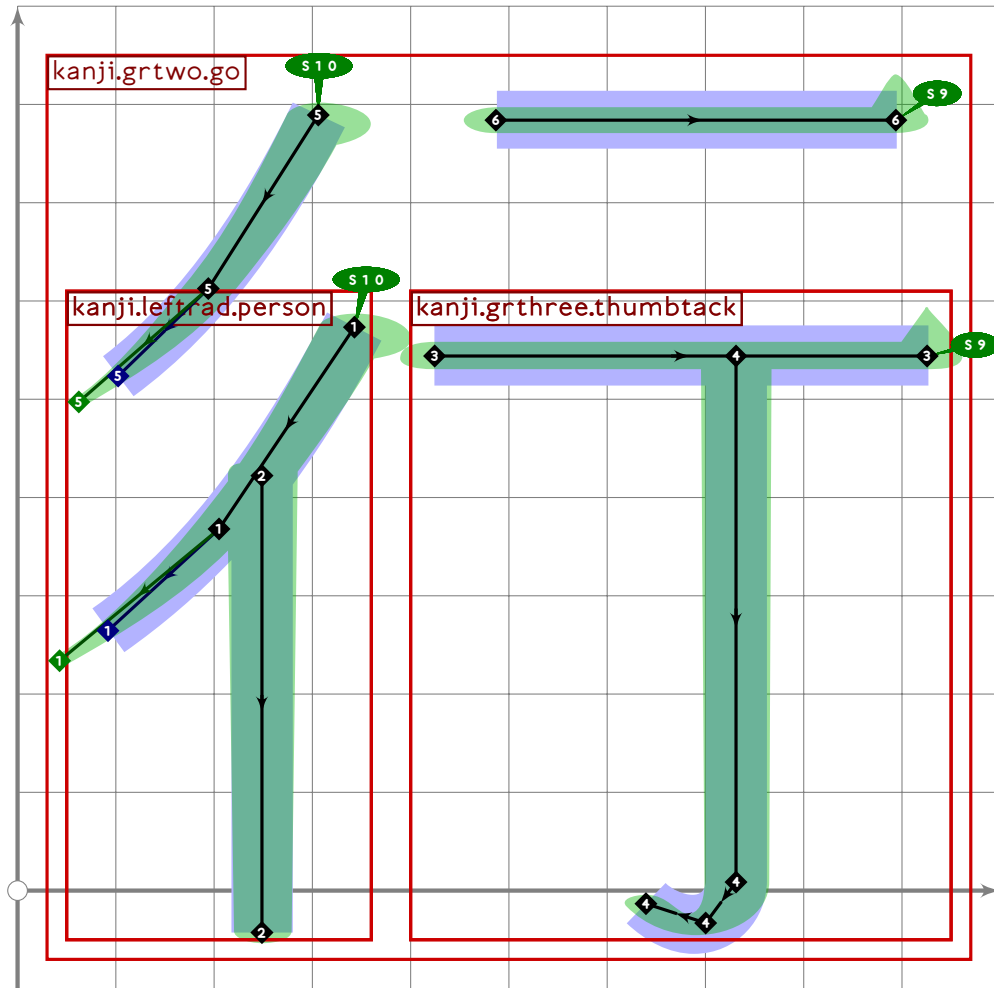
```



```

586 % mushi "bug"
587 begintsuglyph("uni2F8D",141);
588   kanji.grone.bug;
589   tsu_render;
590   endsuglyph;
591

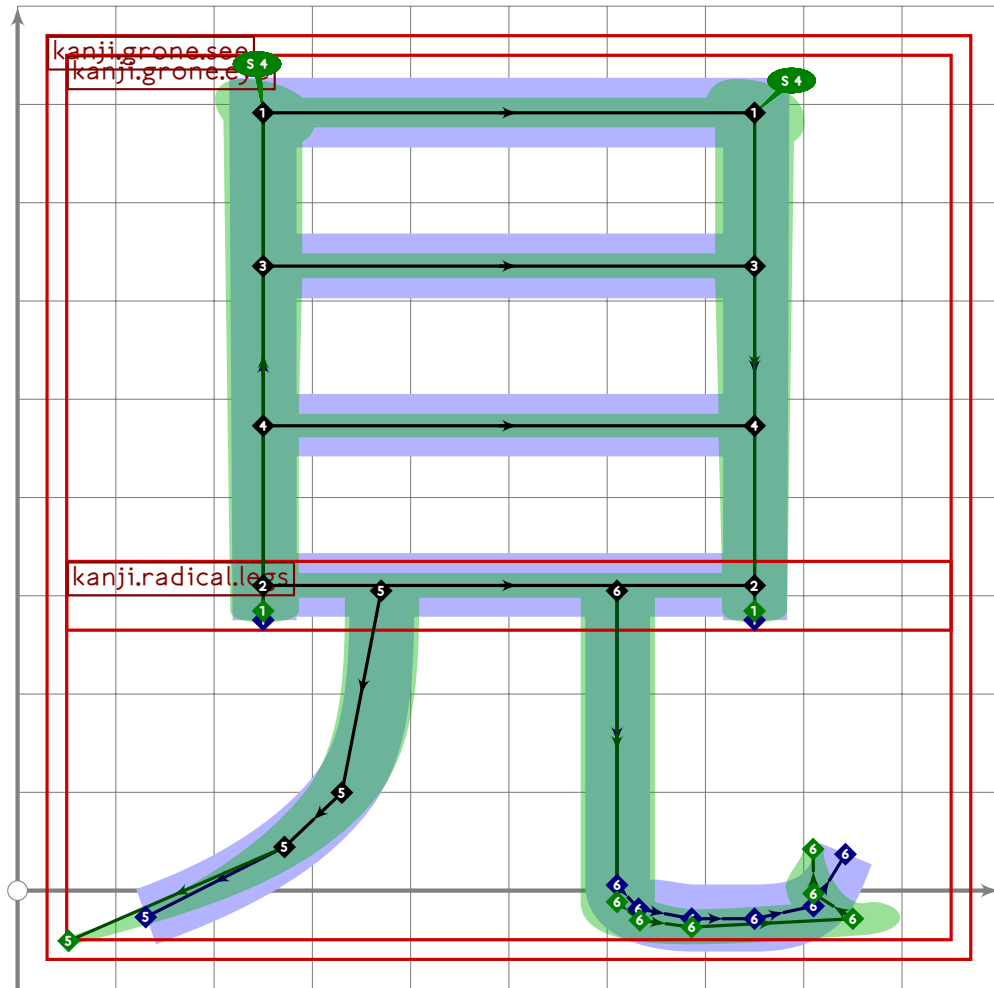
```



```

592 % kou/i(ku) "go"
593 begintsuglyph("uni2F8F",143);
594 kanji.grtwo.go;
595 tsu_render;
596 endtsuglyph;
597

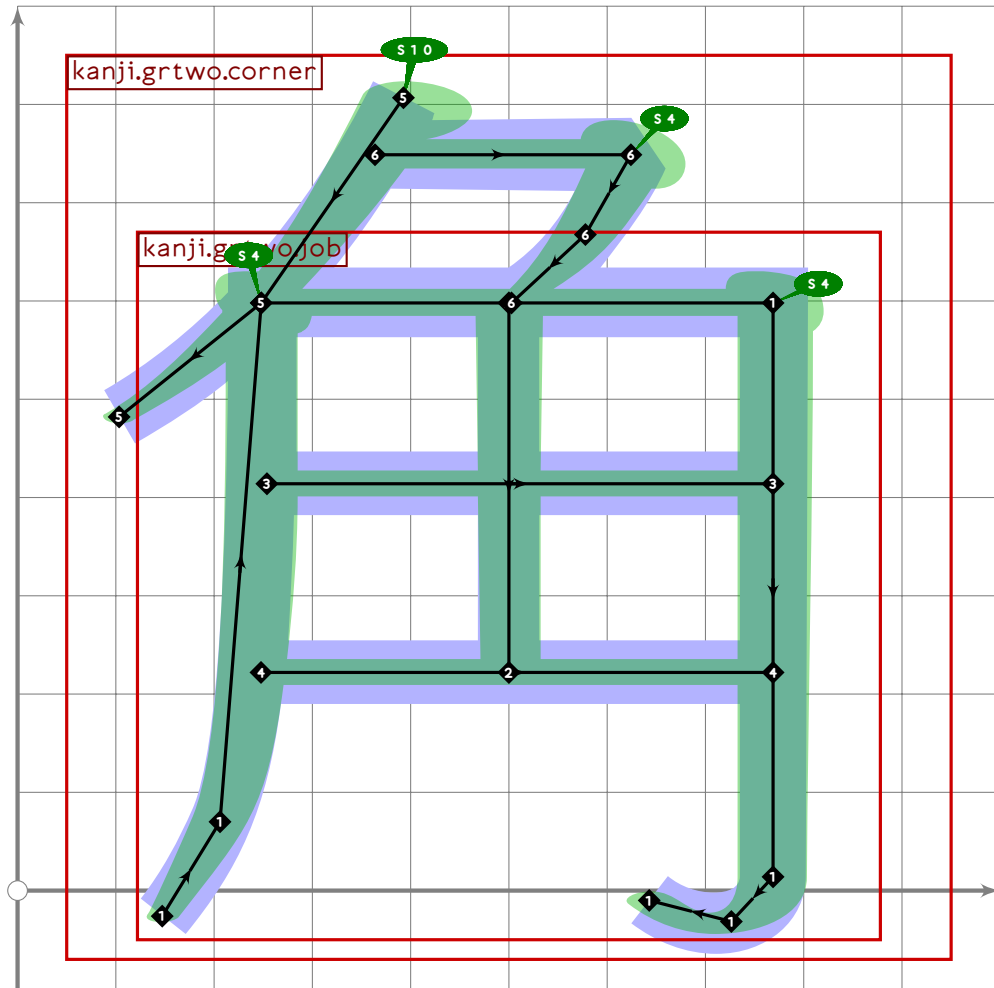
```



```

598 % ken/mi "see"
599 begintsuglyph("uni2F92",146);
600 kanji.grone.see;
601 tsu_render;
602 endtsuglyph;
603

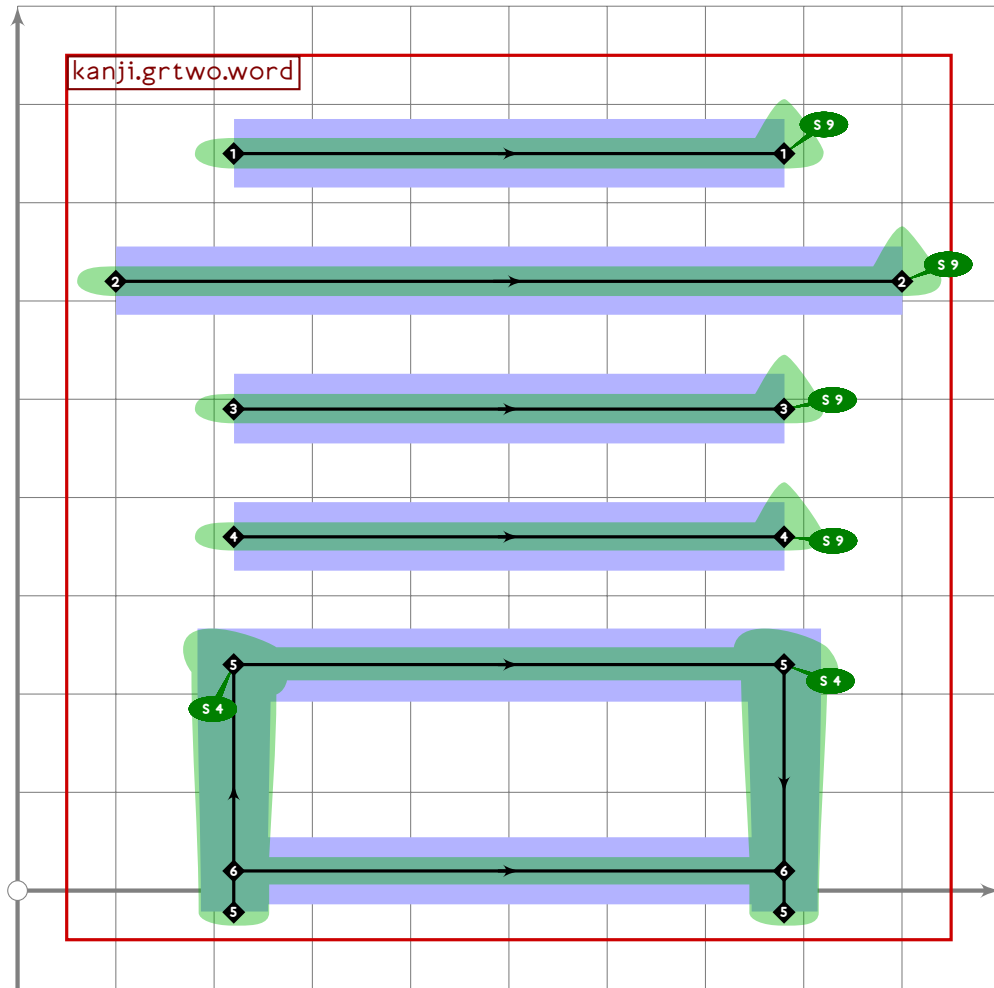
```



```

604 % kaku/kado "corner"
605 begintsuglyph("uni2F93",147);
606 kanji.grtwo.corner;
607 tsu_render;
608 endtsuglyph;
609

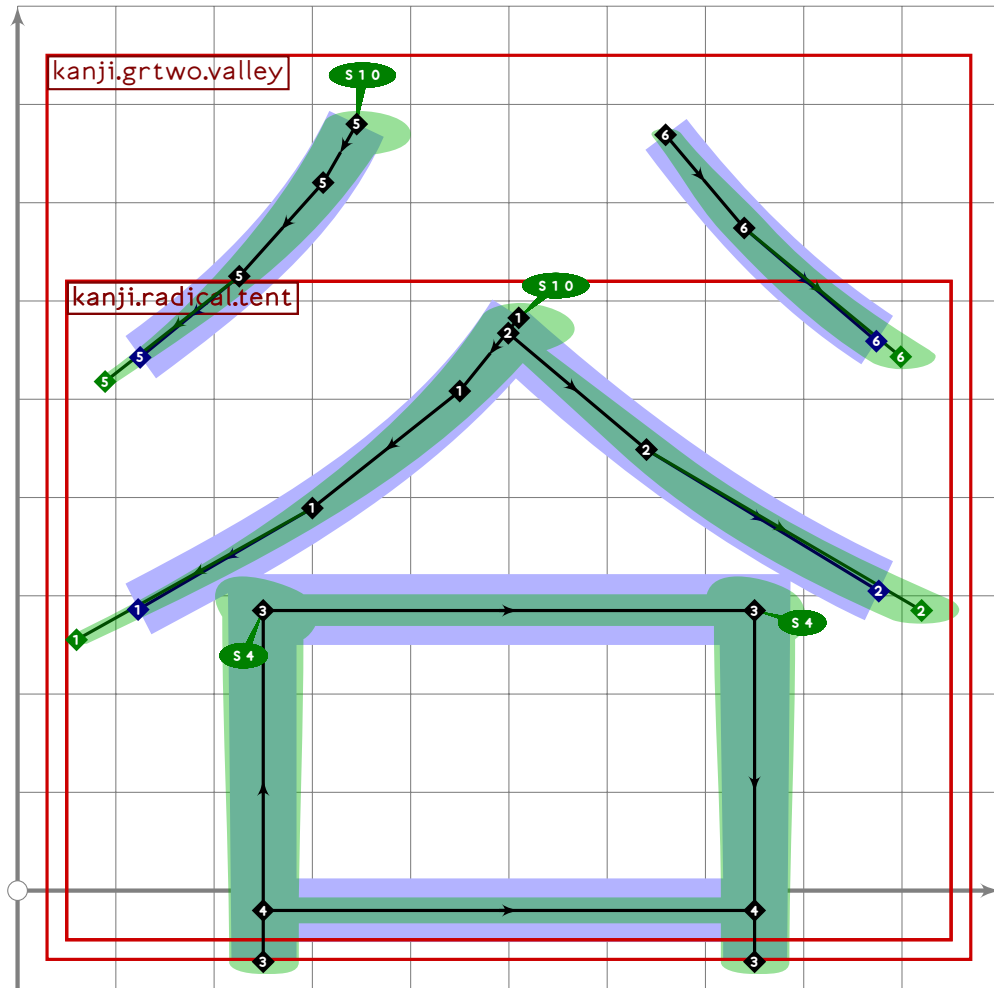
```



```

610 % gen/i "word"
611 begint Suglyph("uni2F94",148);
612 kanji.grtwo.word;
613 tsu_render;
614 endtsuglyph;
615

```

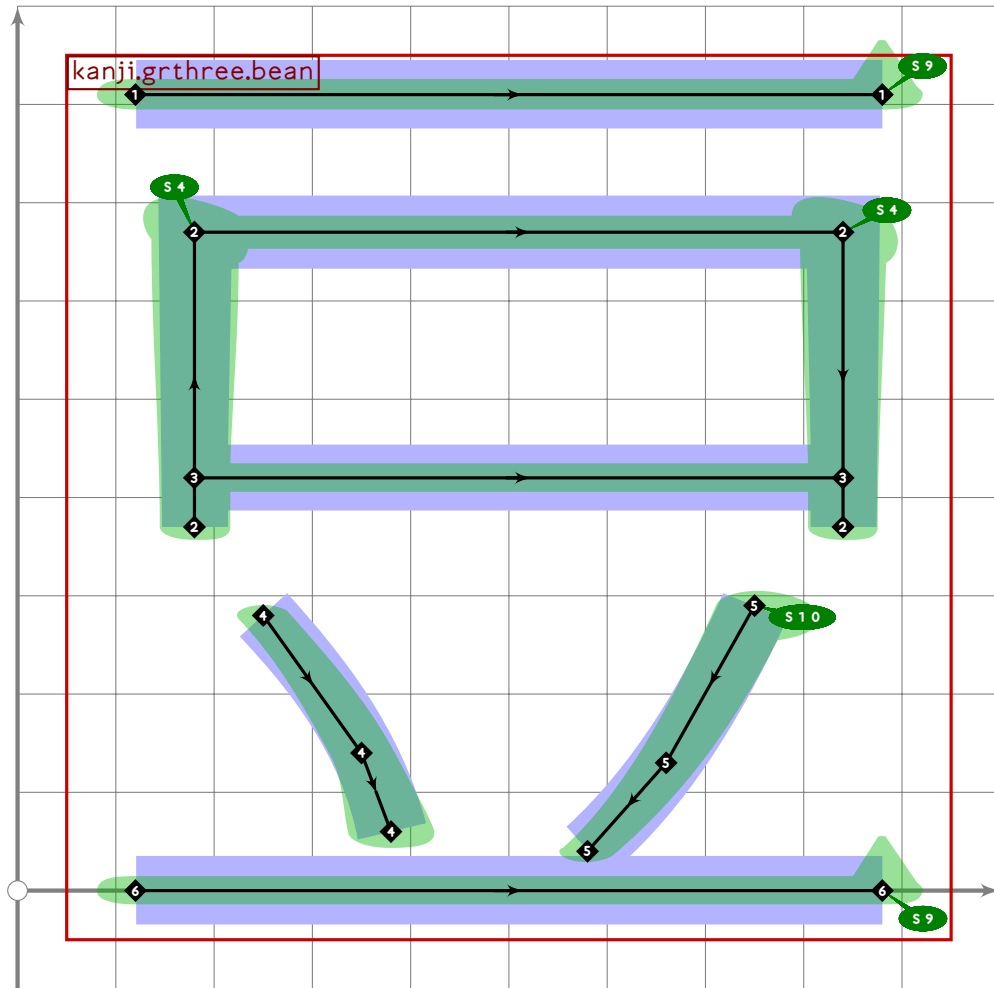


```

616 % koku/tani "valley"
617 begintsuglyph("uni2F95";149);
618 kanji.grtwo.valley;
619 tsu_render;
620 endtsuglyph;
621

```

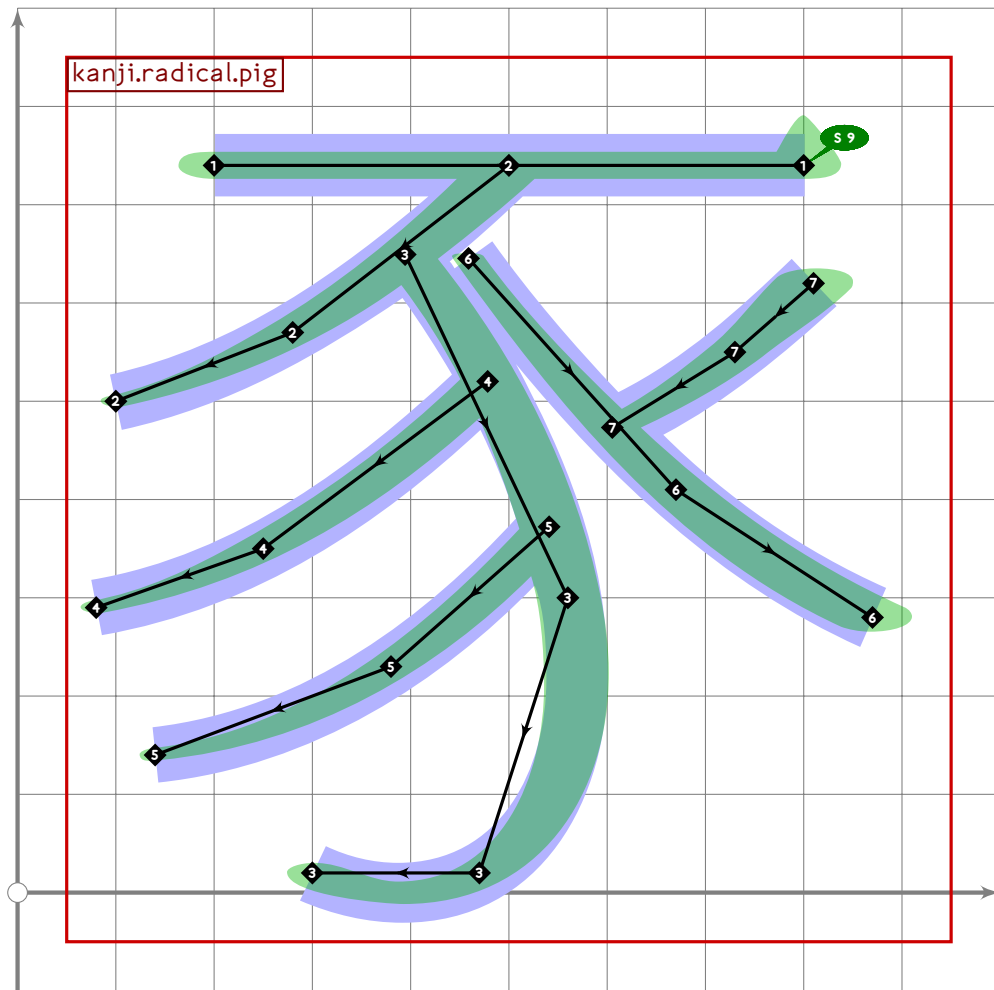




```

622 % tou/mame "bean"
623 begintsuglyph("uni2F96",150);
624 kanji.grthree.bean;
625 tsu_render;
626 endtsuglyph;
627

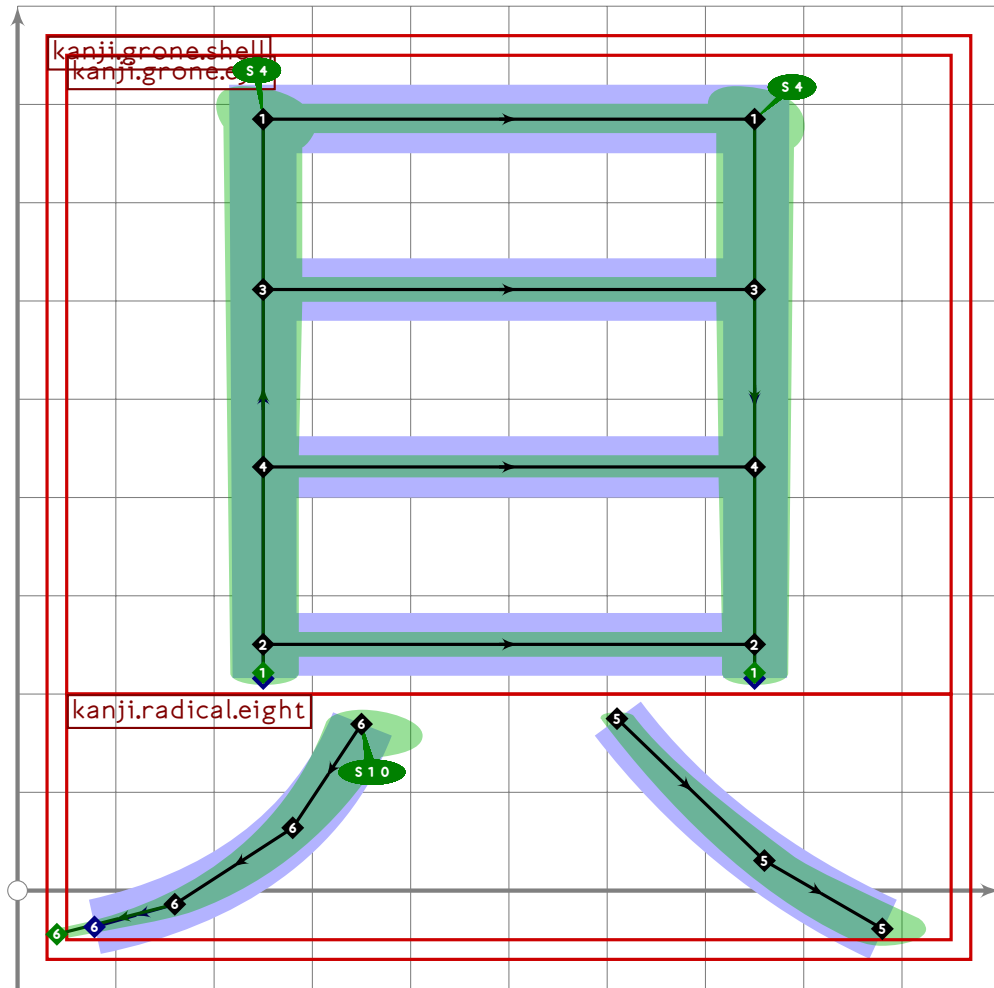
```



```

628 % inoko "pig" radical
629 begintsuglyph("uni2F97";151);
630 kanji.radical.pig;
631 tsu_render;
632 endtsuglyph;
633

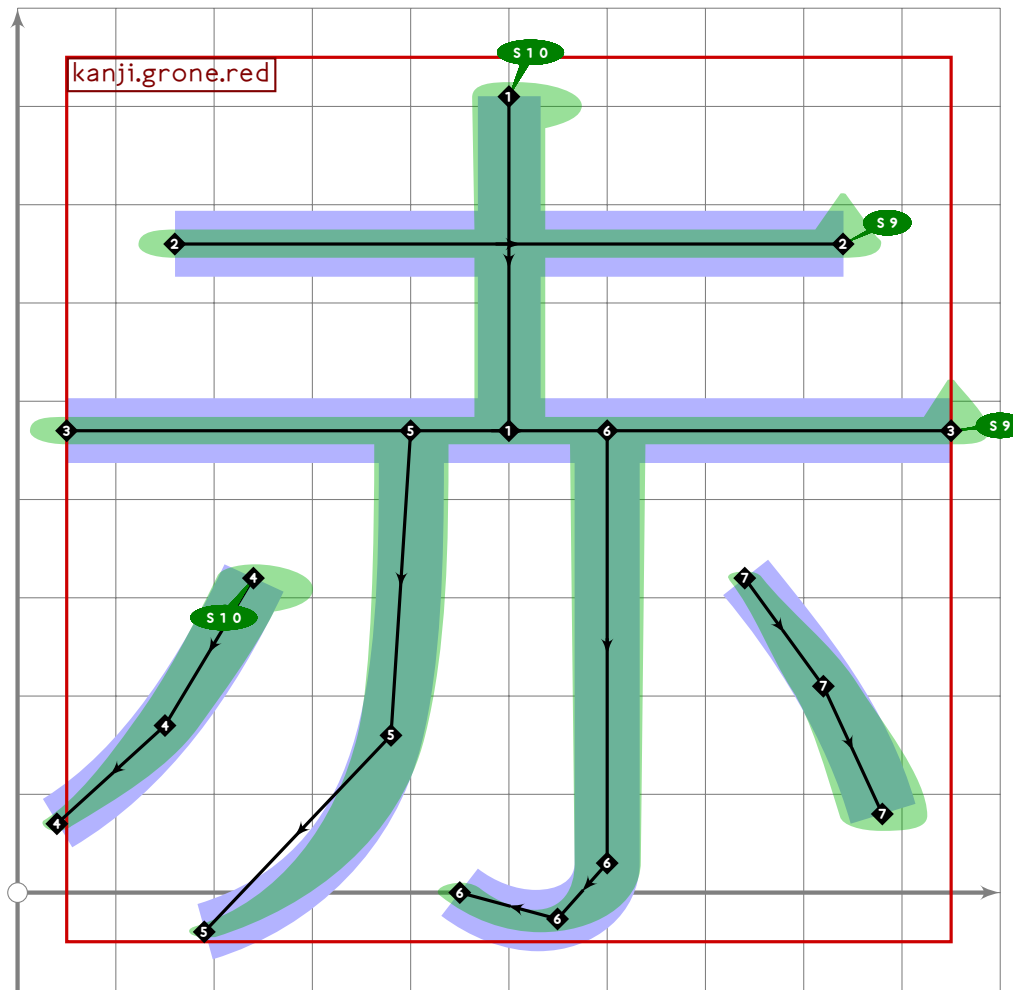
```



```

634 % bai/kai "shellfish"
635 begint Suglyph("uni2F99";153);
636   kanji.grone.shell;
637   tsu_render;
638   endtsuglyph;
639

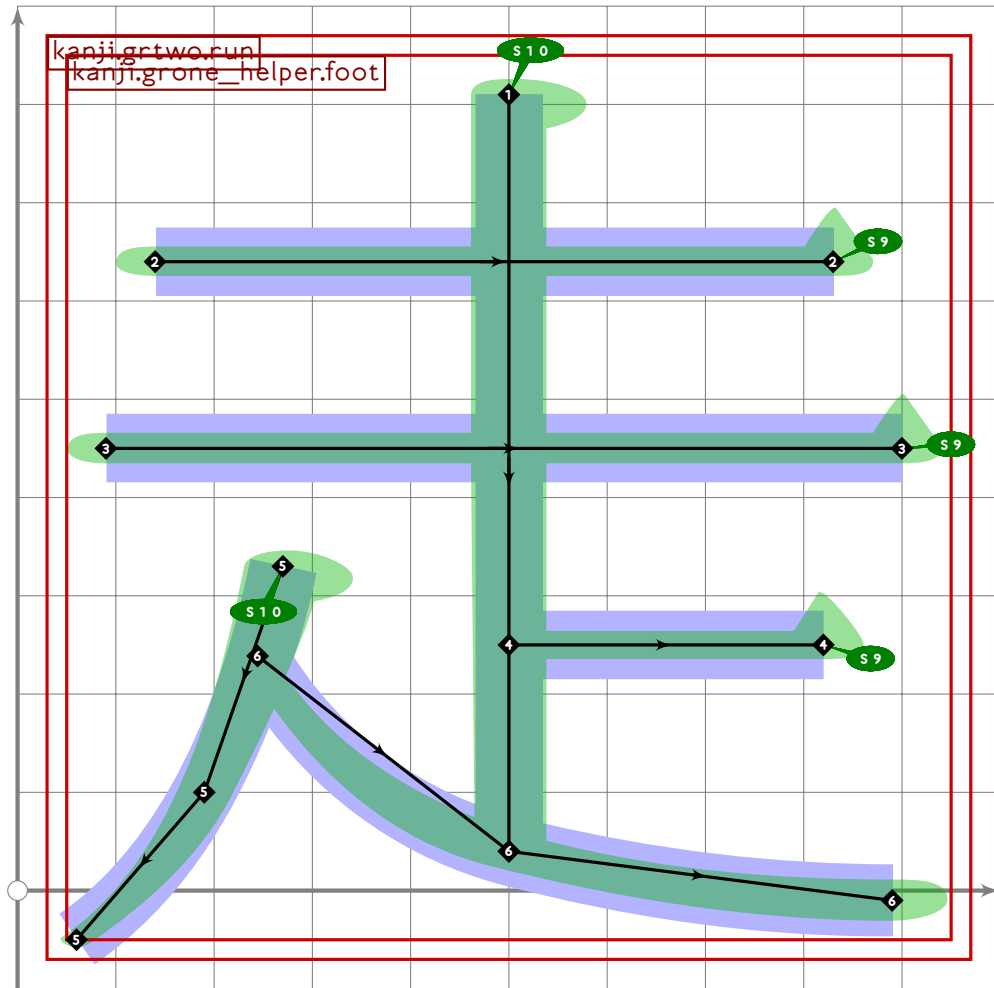
```



```

640 % aka/seki "red"
641 begintsuglyph("uni2F9A",154);
642 kanji.grone.red;
643 tsu_render;
644 endtsuglyph;
645

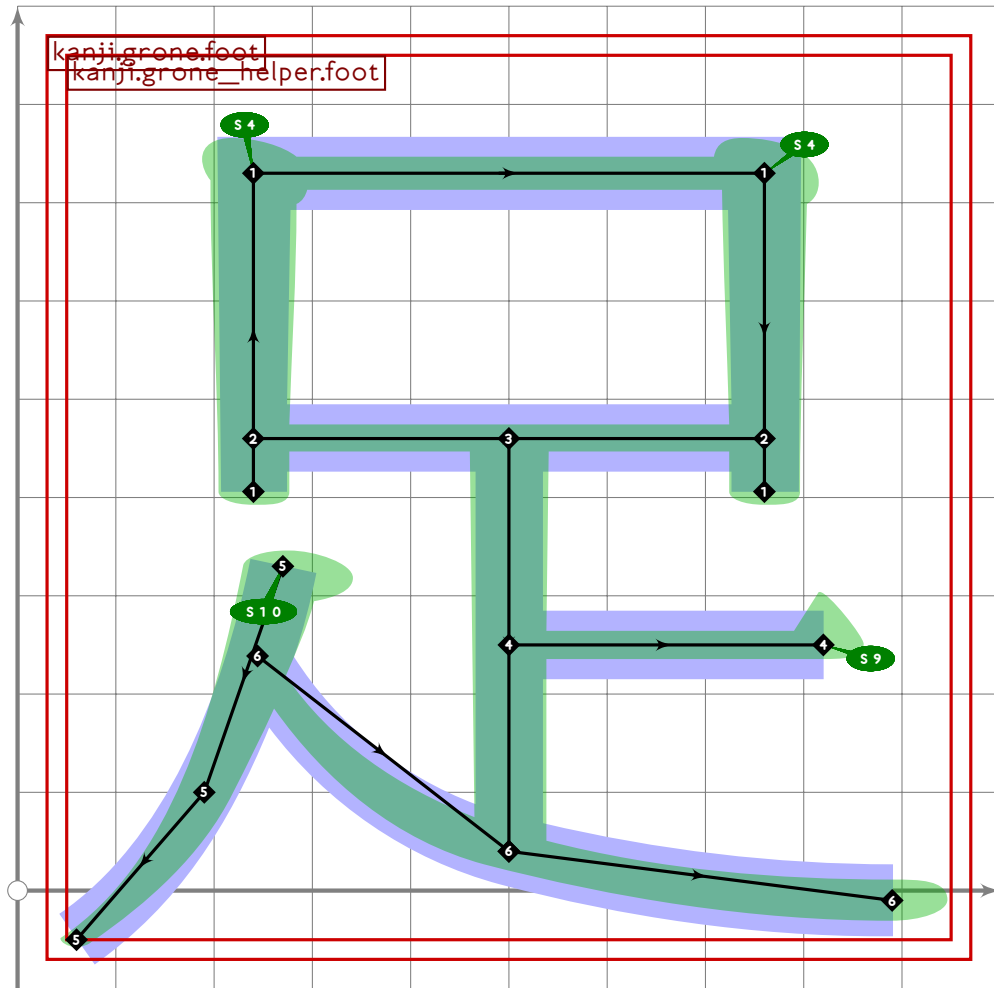
```



```

646 % sou/hasi "run"
647 begint Suglyph("uni2F9B",155);
648   kanji.grtwo.run;
649   tsu_render;
650   endtsuglyph;
651

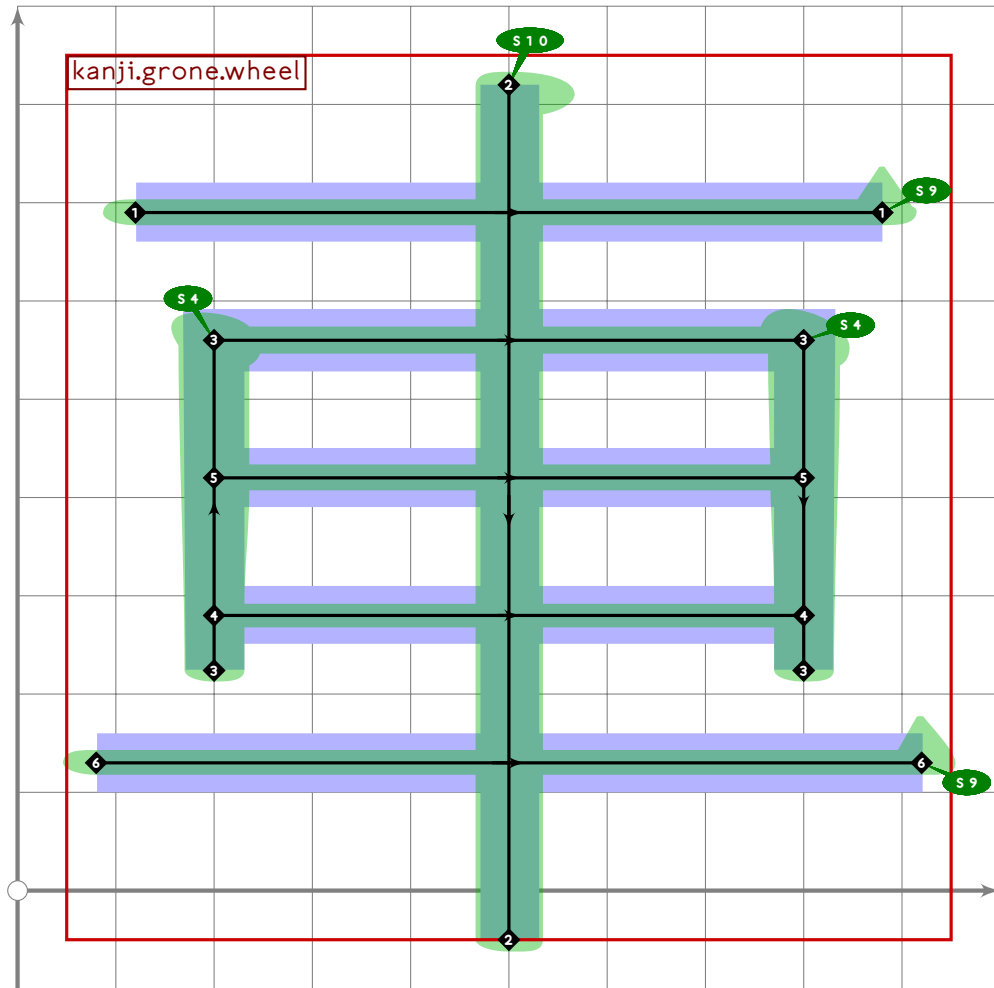
```



```

652 % ashi/soku "foot"
653 begintuglyph("uni2F9C",156);
654 kanji.grone.foot;
655 tsu_render;
656 endtuglyph;
657

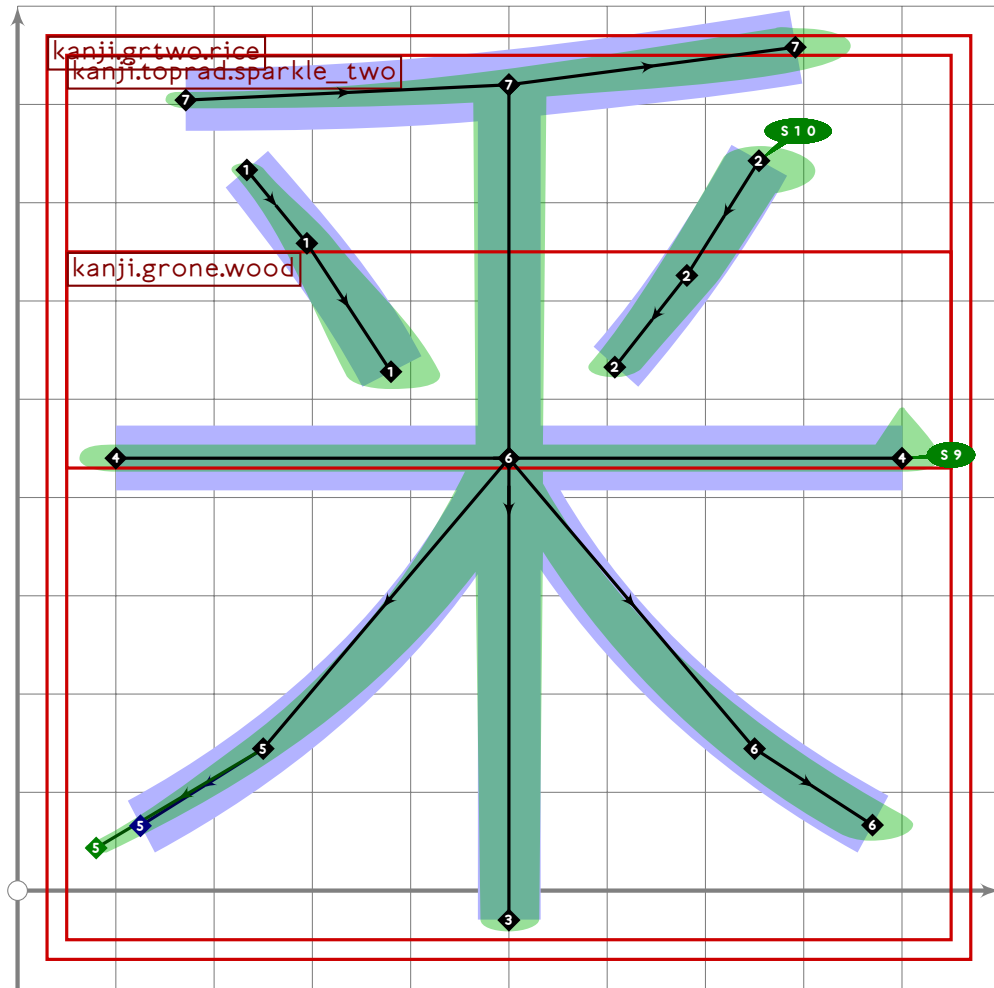
```



```

658 % kuruma "car/wheel"
659 begintsuglyph("uni2F9E",158);
660 kanji.grone.wheel;
661 tsu_render;
662 endsuglyph;
663

```

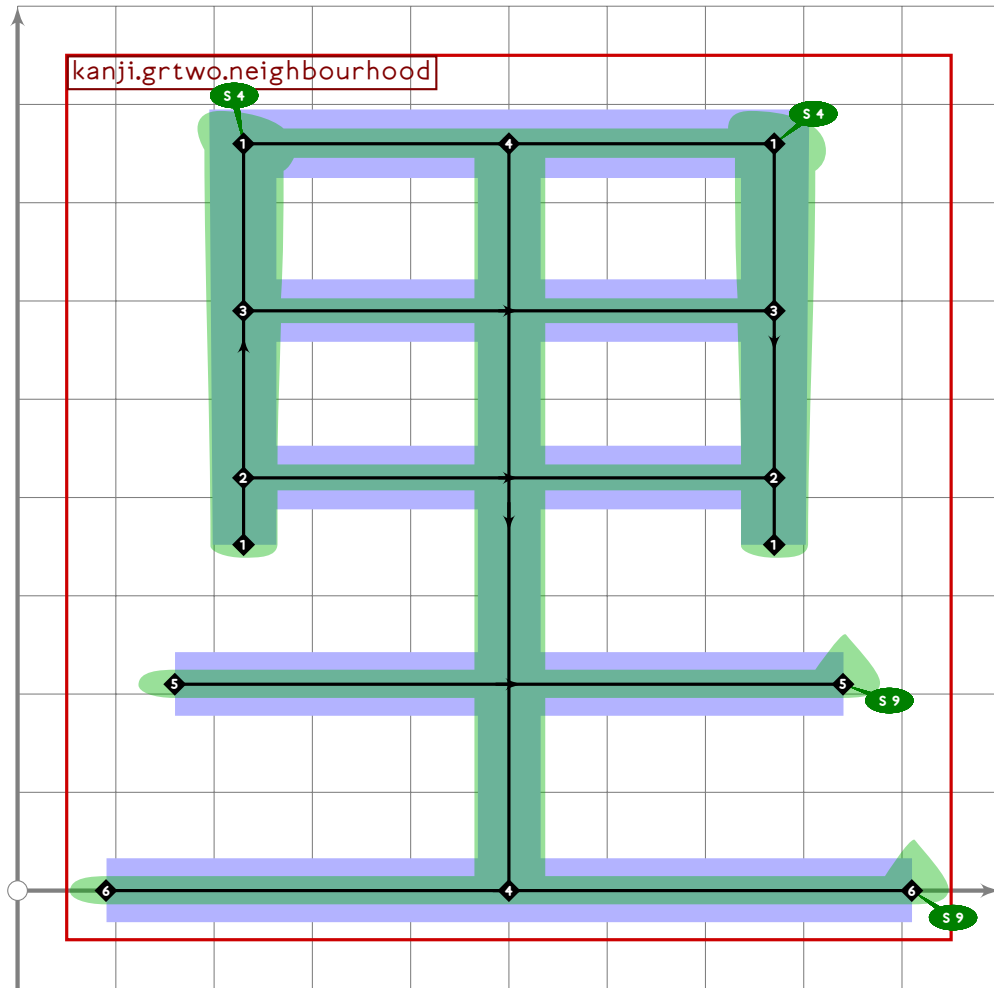


```

664 % han/irodori "separate" or "divide" but mostly "topped rice radical"
665 begint Suglyph("uni2FA4";164);
666 build_kanji.add_beret(kanji.grtwo.rice);
667 tsu_render;
668 endtsuglyph;
669

```

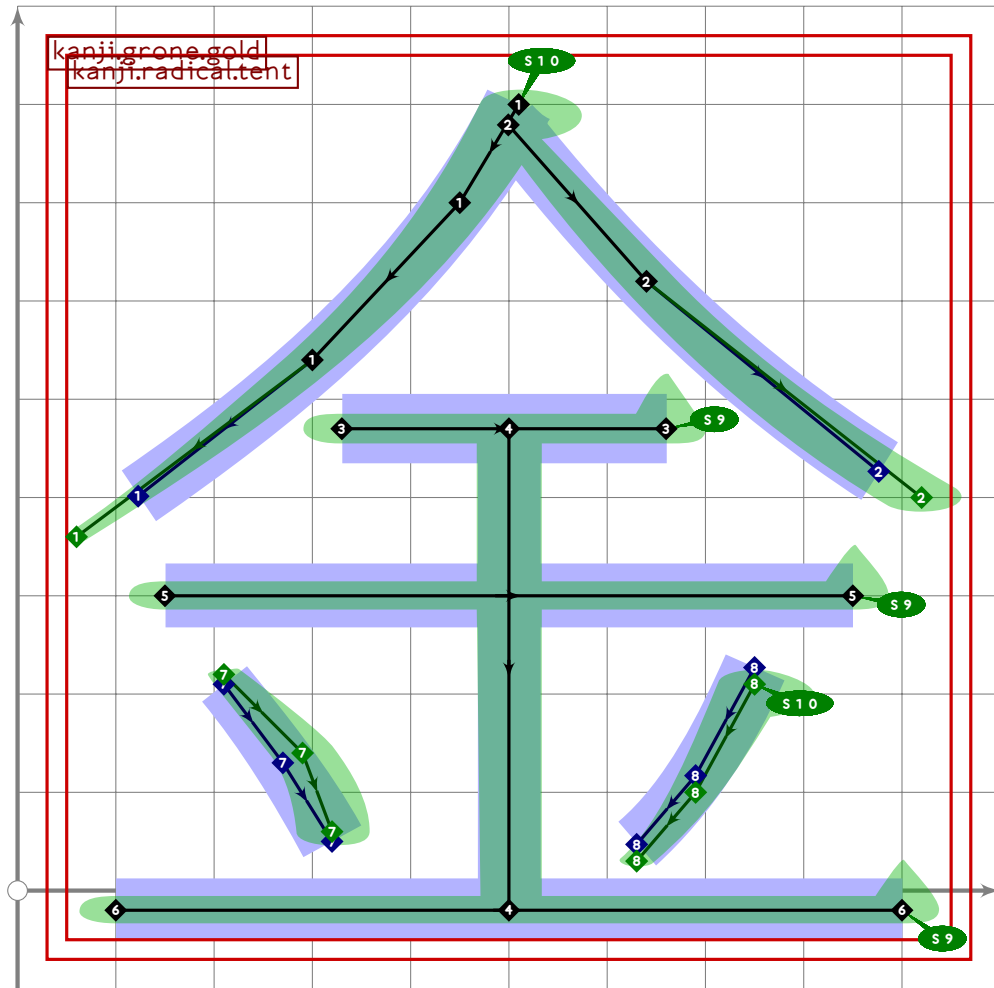




```

670 % ri/sato, multiple meanings including 3.929km and "neighbourhood"
671 begintsuglyph("uni2FA5";165);
672 kanji.grtwo.neighbourhood;
673 tsu_render;
674 endtsuglyph;
675

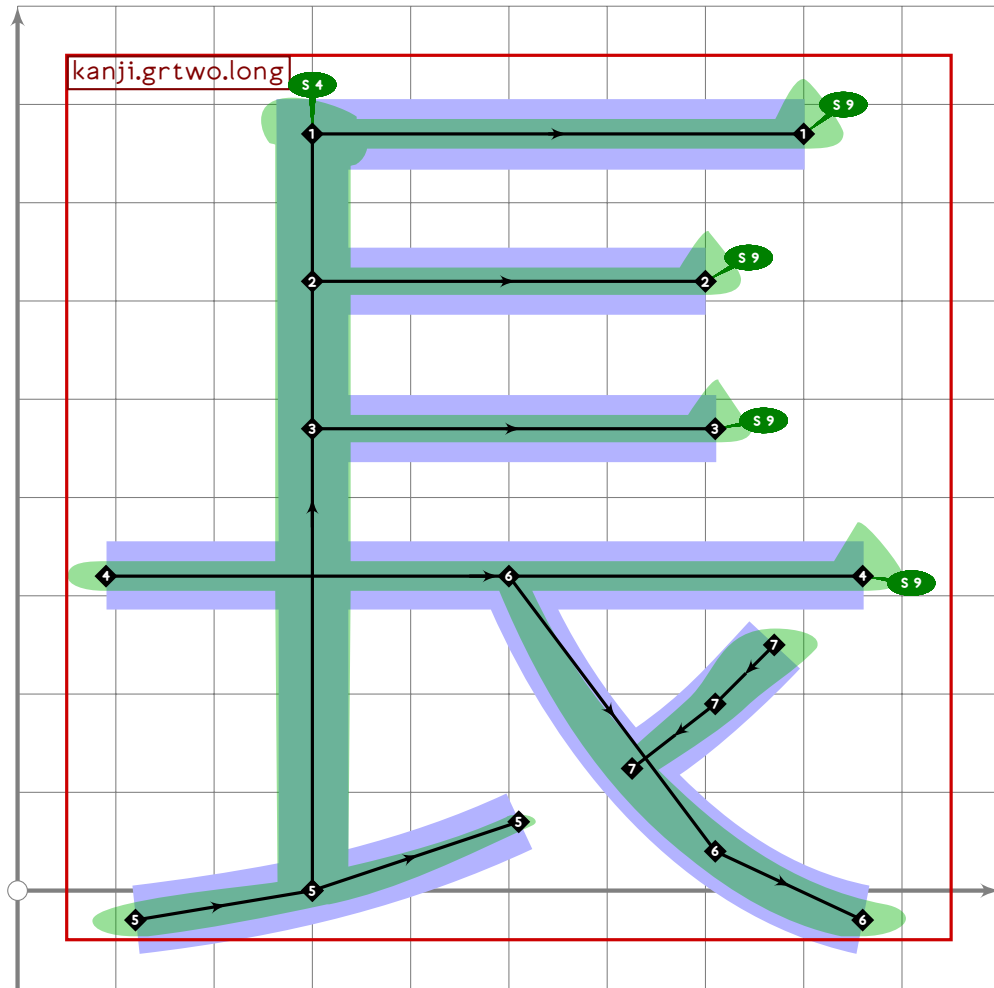
```



```

676 % kane/kin "gold"
677 begintsuglyph("uni2FA6",166);
678   kanji.grone.gold;
679   tsu_render;
680   endtsuglyph;
681

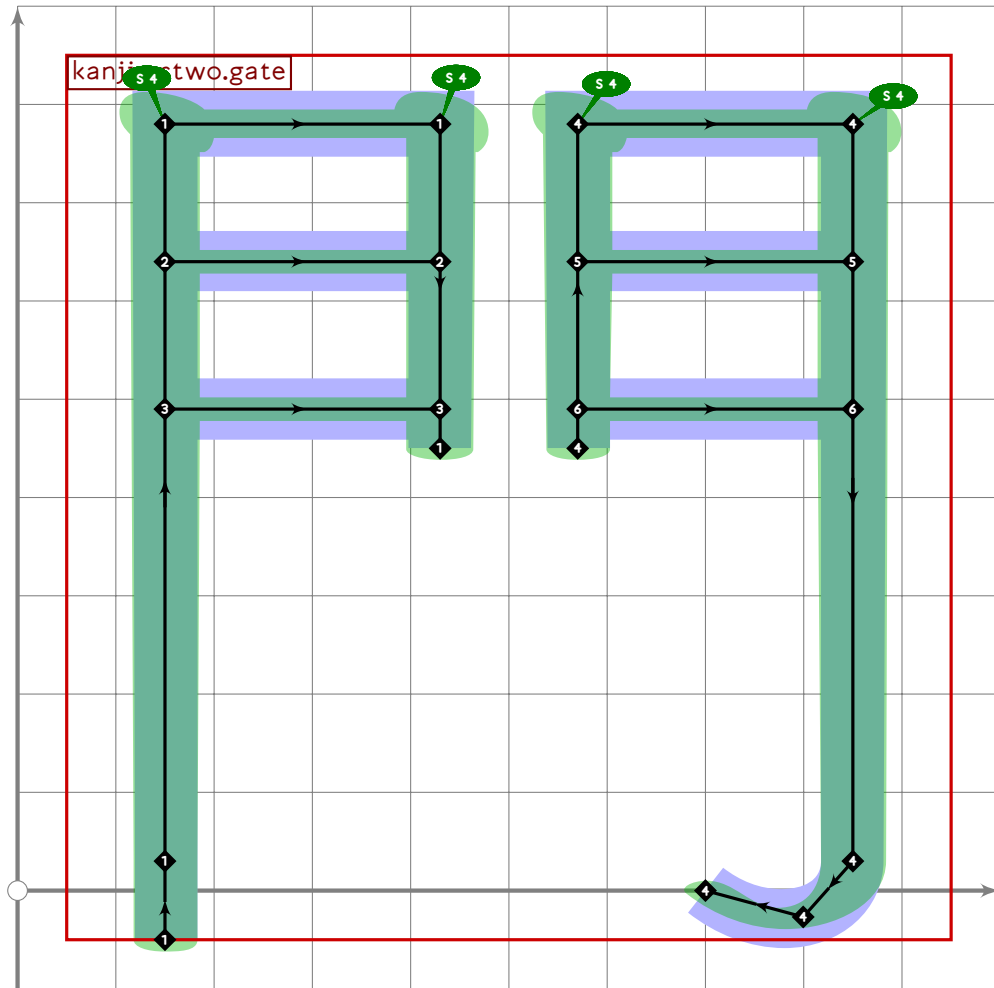
```



```

682 % chou/naga "long"
683 begintsuglyph("uni2FA7";167);
684 kanji.grtwo.long;
685 tsu_render;
686 endtsuglyph;
687

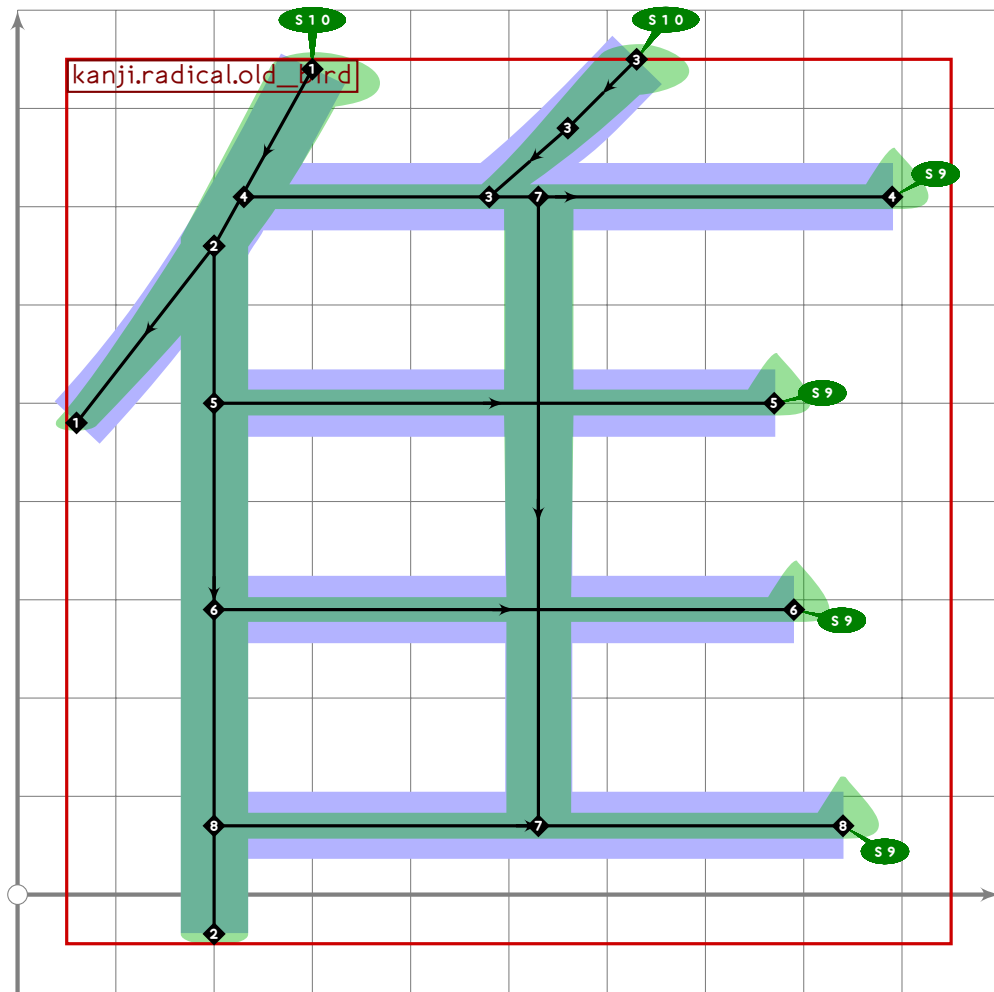
```



```

688 % mon/kado "gate"
689 begintsuglyph("uni2FA8",168);
690 kanji.grtwo.gate;
691 tsu_render;
692 endtsuglyph;
693

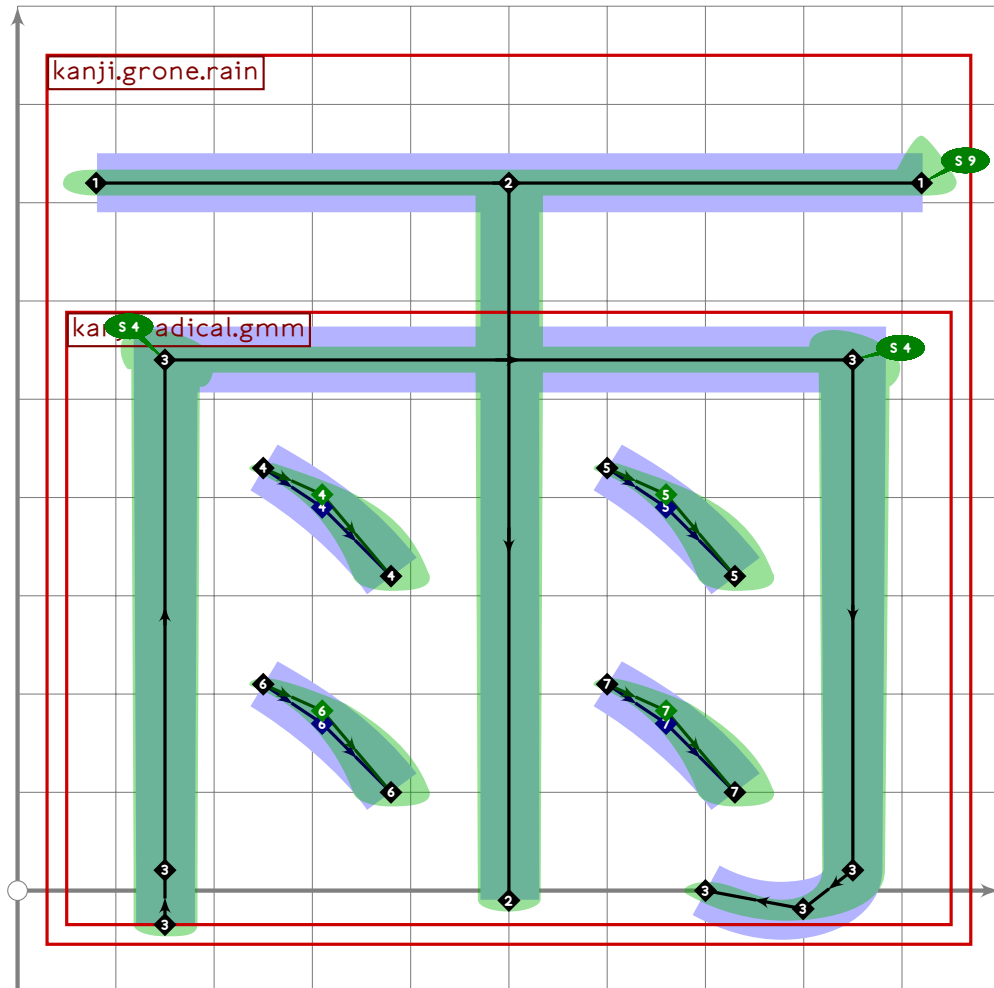
```



```

694 % sai/tori "old bird" radical
695 begintuglyph("uni2FAB",171);
696 kanji.radical.old_bird;
697 tsu_render;
698 endtuglyph;
699

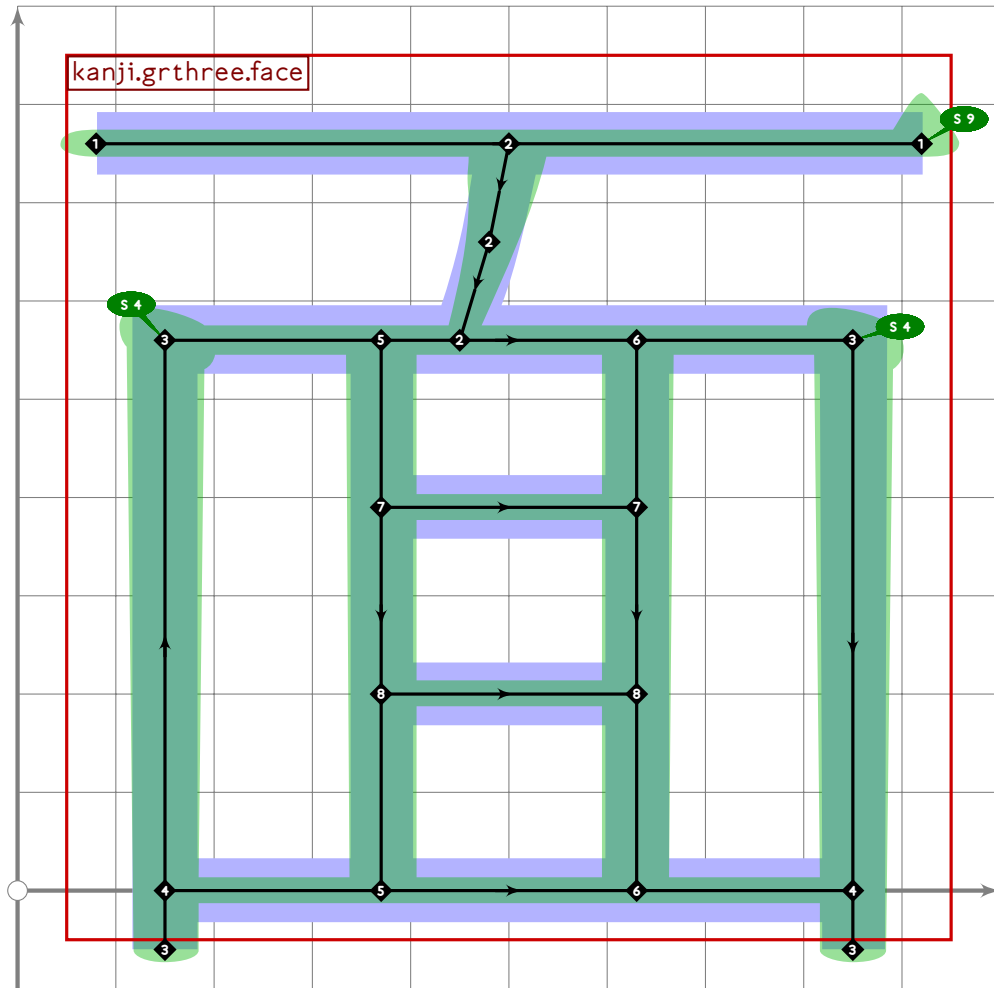
```



```

700 % u/ame "rain"
701 begintsuglyph("uni2FAC",172);
702 kanji.grone.rain;
703 tsu_render;
704 endtsuglyph;
705

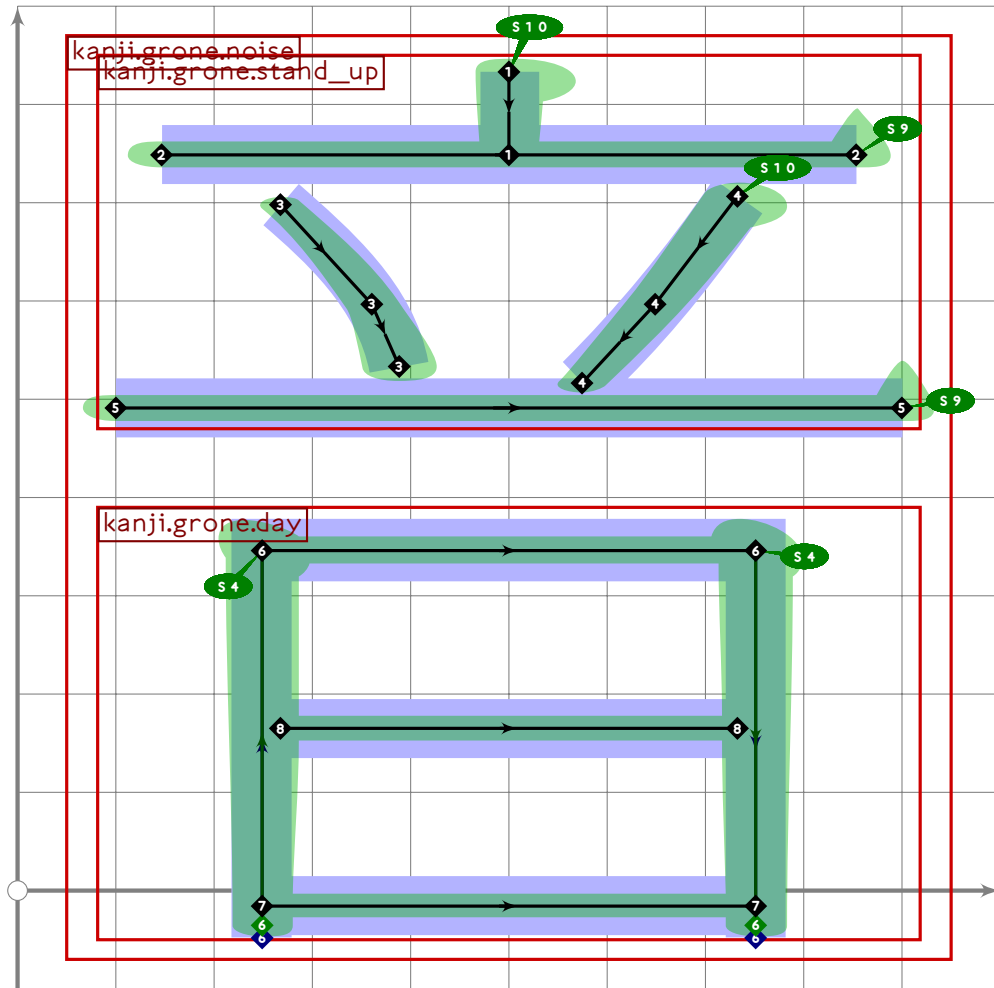
```



```

706 % men/omo "face"
707 begintsuglyph("uni2FAF";175);
708 kanji.grthree.face;
709 tsu_render;
710 endsuglyph;
711

```

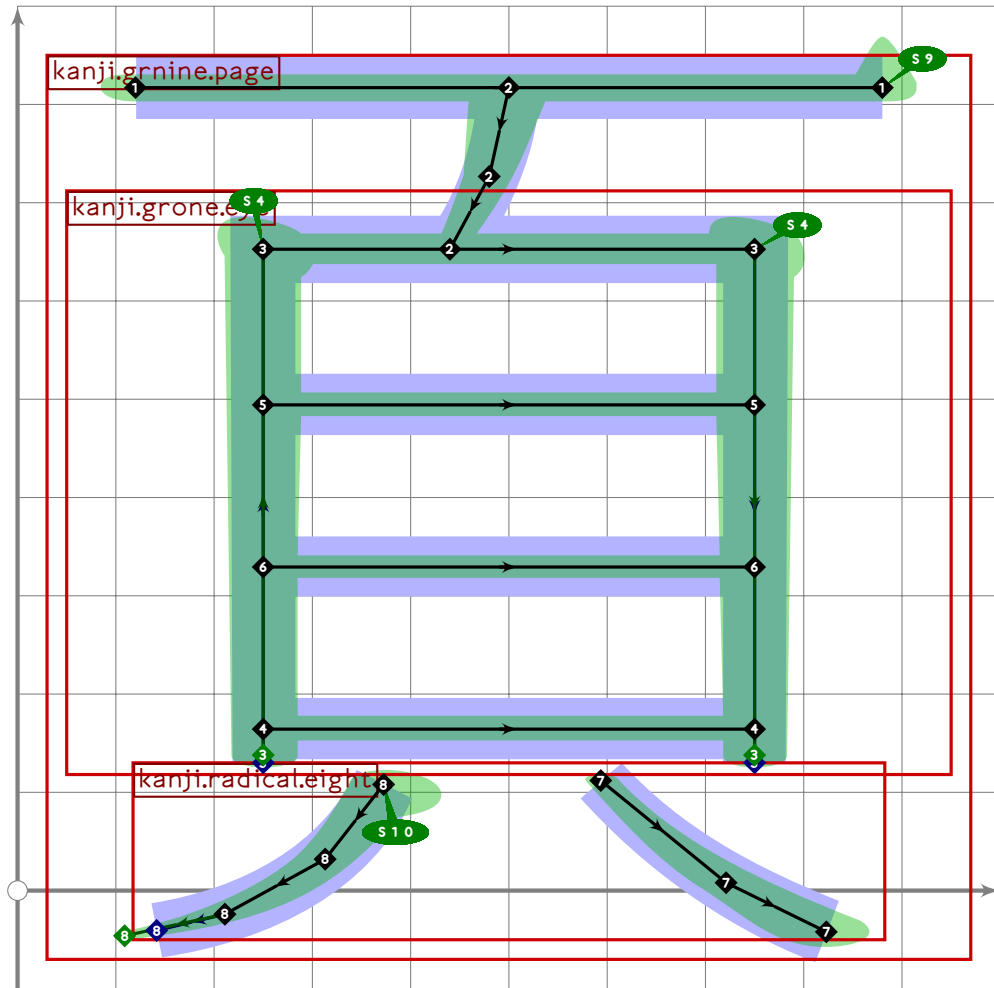


```

712 % oto/on "noise"
713 begintsuglyph("uni2FB3",179);
714 kanji.grone.noise;
715 tsu_render;
716 endtsuglyph;
717

```

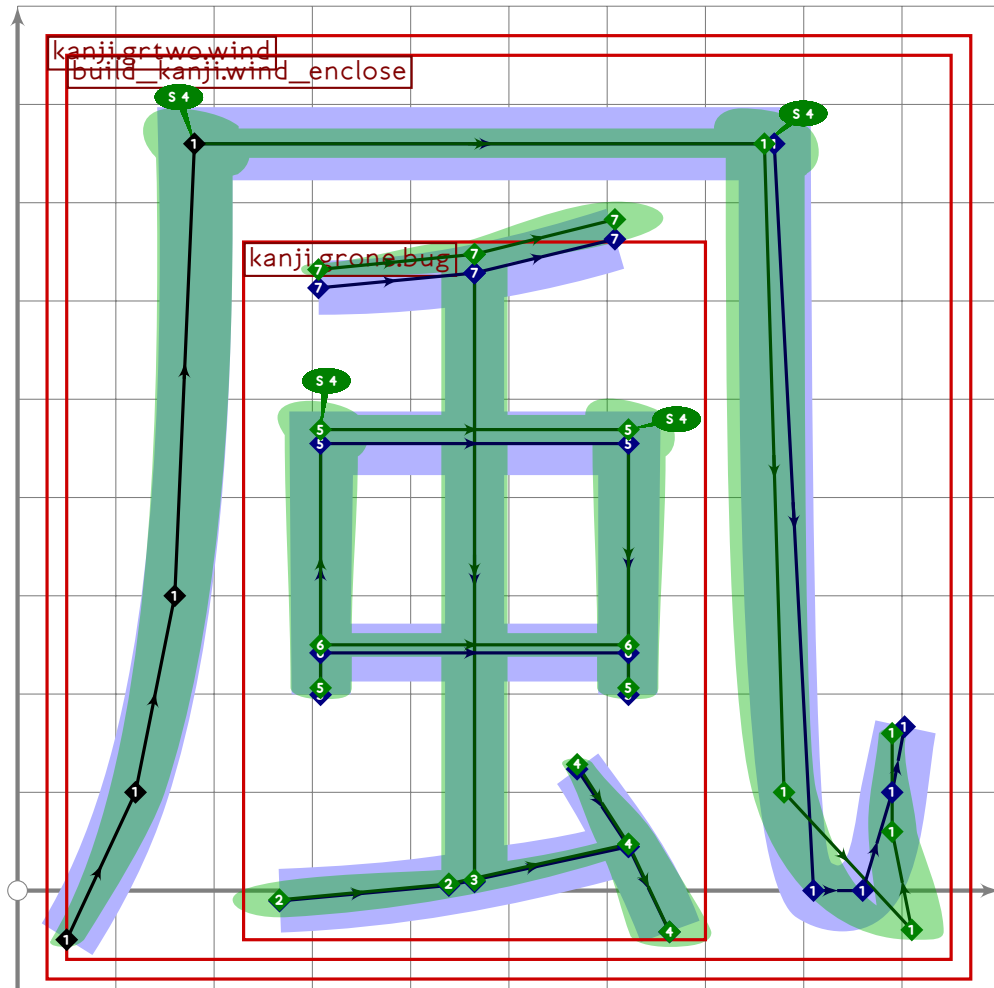




```

718 % ketsu/peeji "page"
719 begintsuglyph("uni2FB4",180);
720 kanji.grnine.page;
721 tsu_render;
722 endtsuglyph;
723

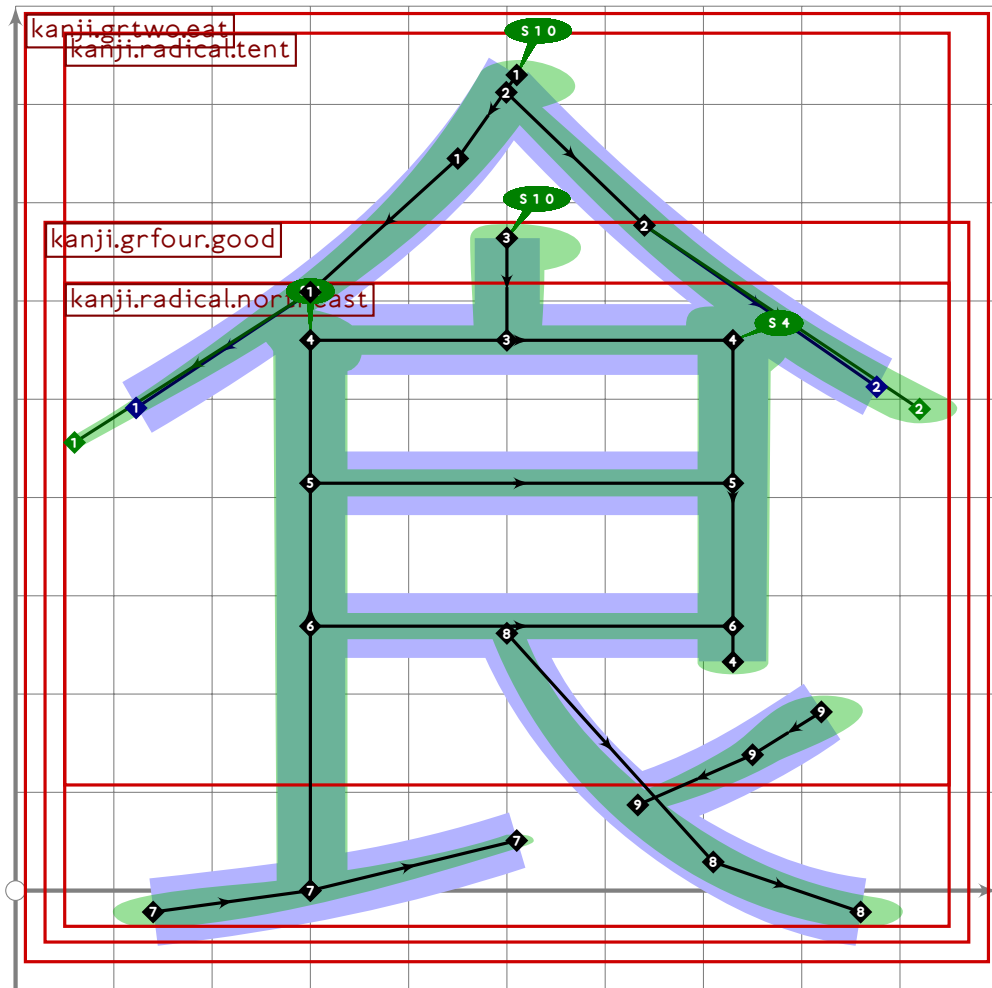
```



```

724 % fuu/kaze "wind"
725 begintsuglyph("uni2FB5";181);
726 kanji.grtwo.wind;
727 tsu_render;
728 endtsuglyph;
729

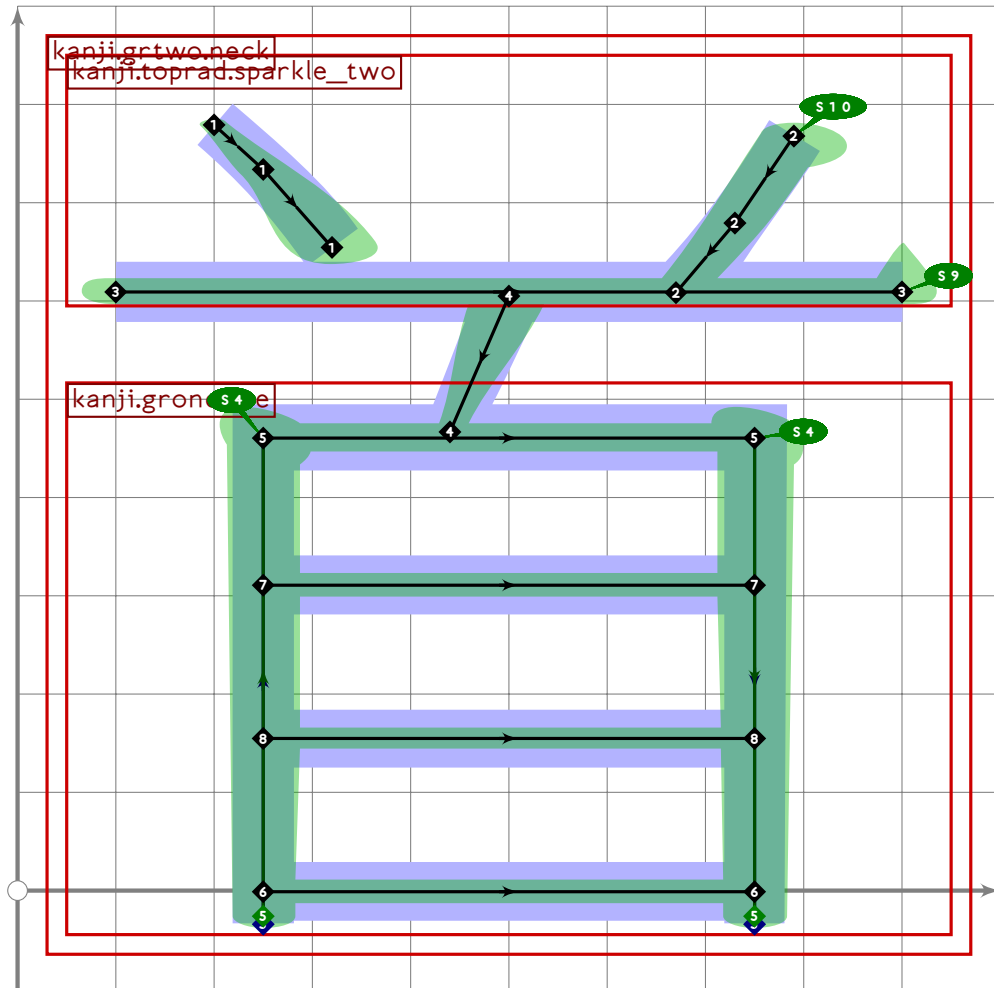
```



```

730 % shoku/ta "eat"
731 begintuglyph("uni2FB7",183);
732 kanji.grtwo.eat;
733 tsu_render;
734 endtuglyph;
735

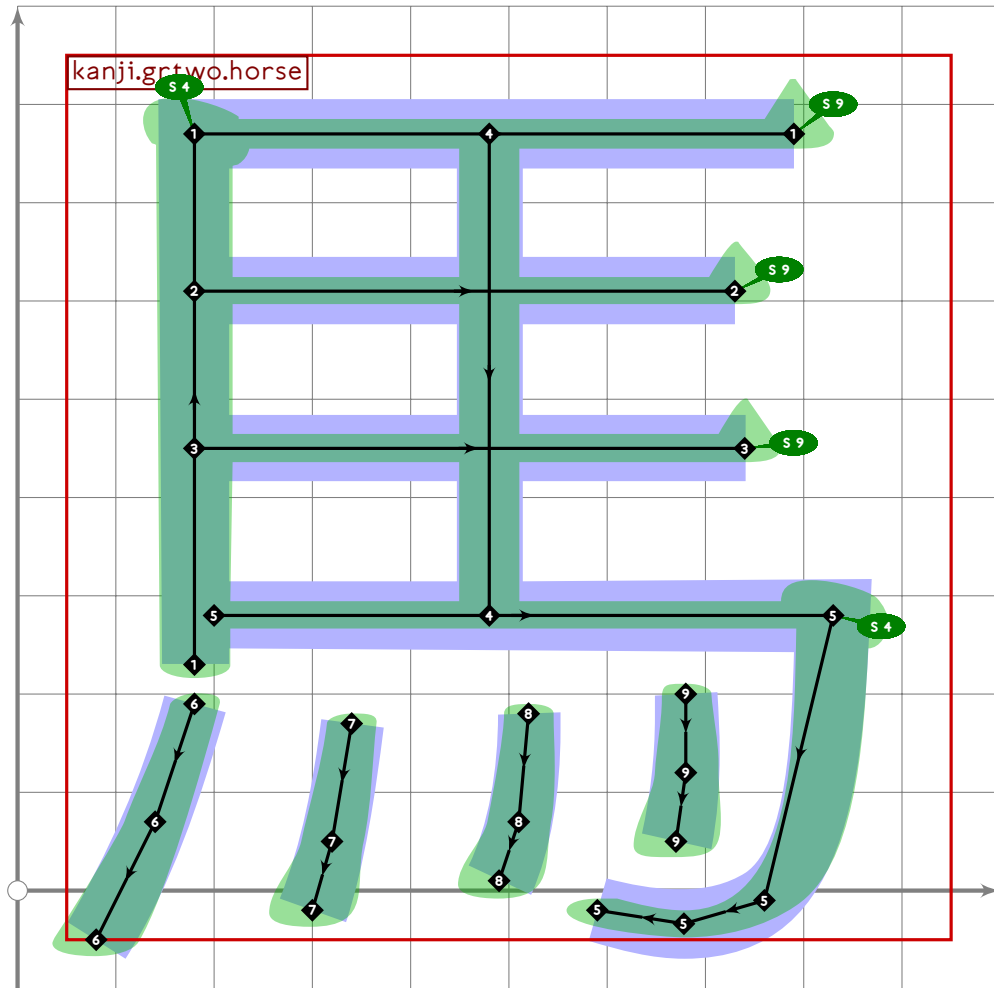
```



```

736 % shu/kubi "neck"
737 begintsuglyph("uni2FB8",184);
738   kanji.grtwo.neck;
739   tsu_render;
740   endtsuglyph;
741

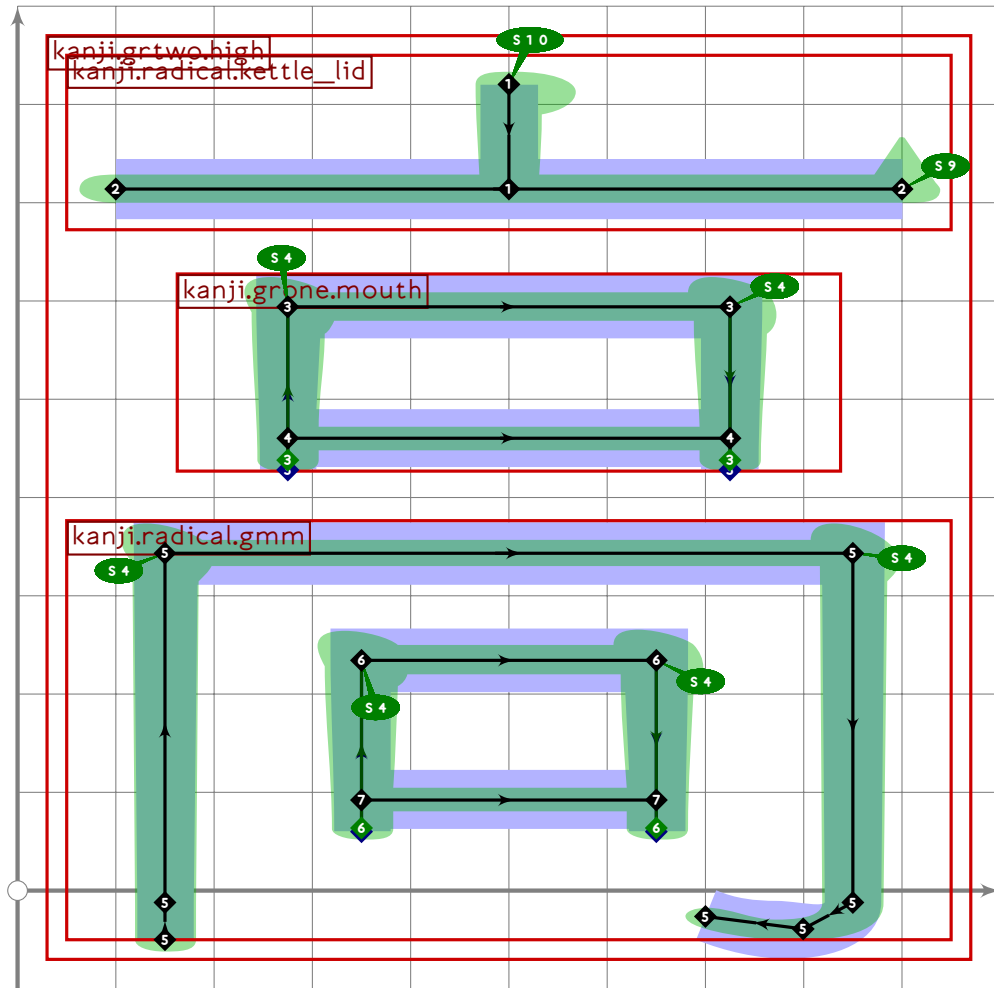
```



```

742 % ba/uma "horse"
743 begintsuglyph("uni2FBA",186);
744 kanji.grtwo.horse;
745 tsu_render;
746 endtsuglyph;
747

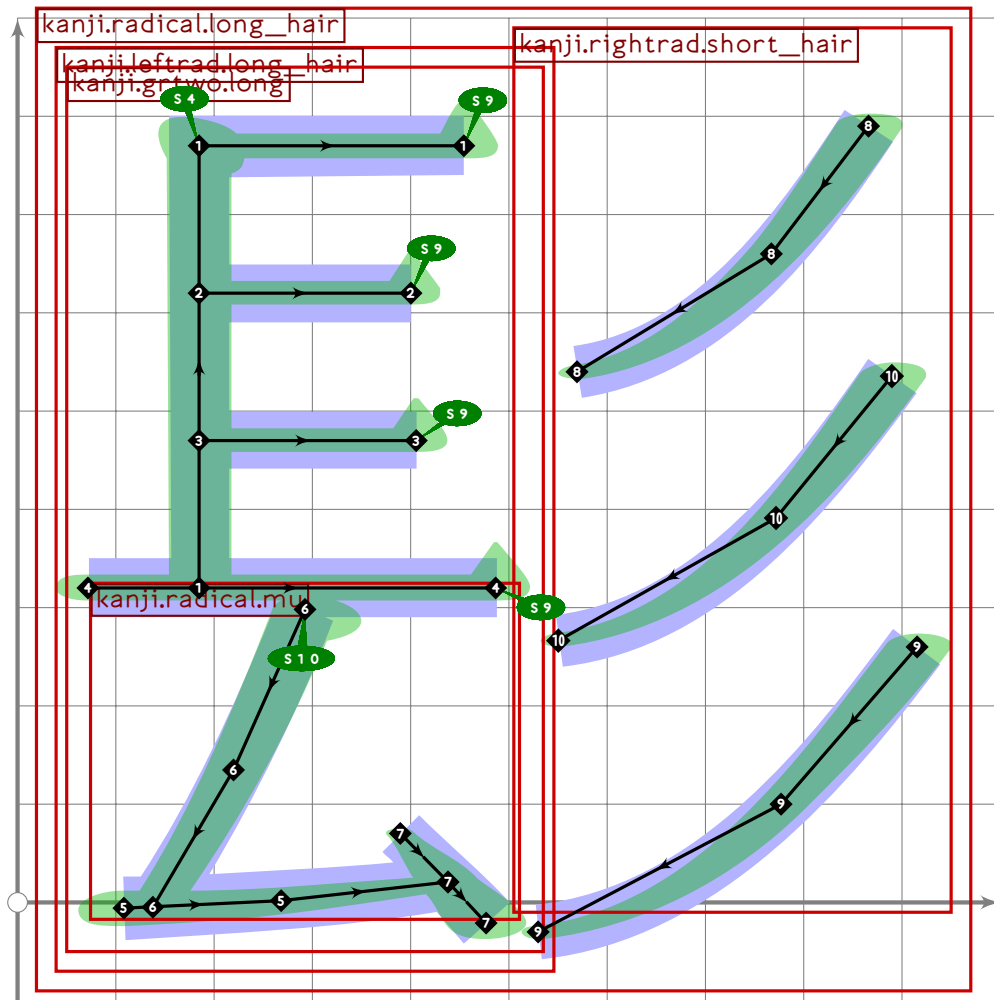
```



```

748 % kou/taka "high"
749 begint Suglyph("uni2FBC",188);
750 kanji.grtwo.high;
751 tsu_render;
752 endsuglyph;
753

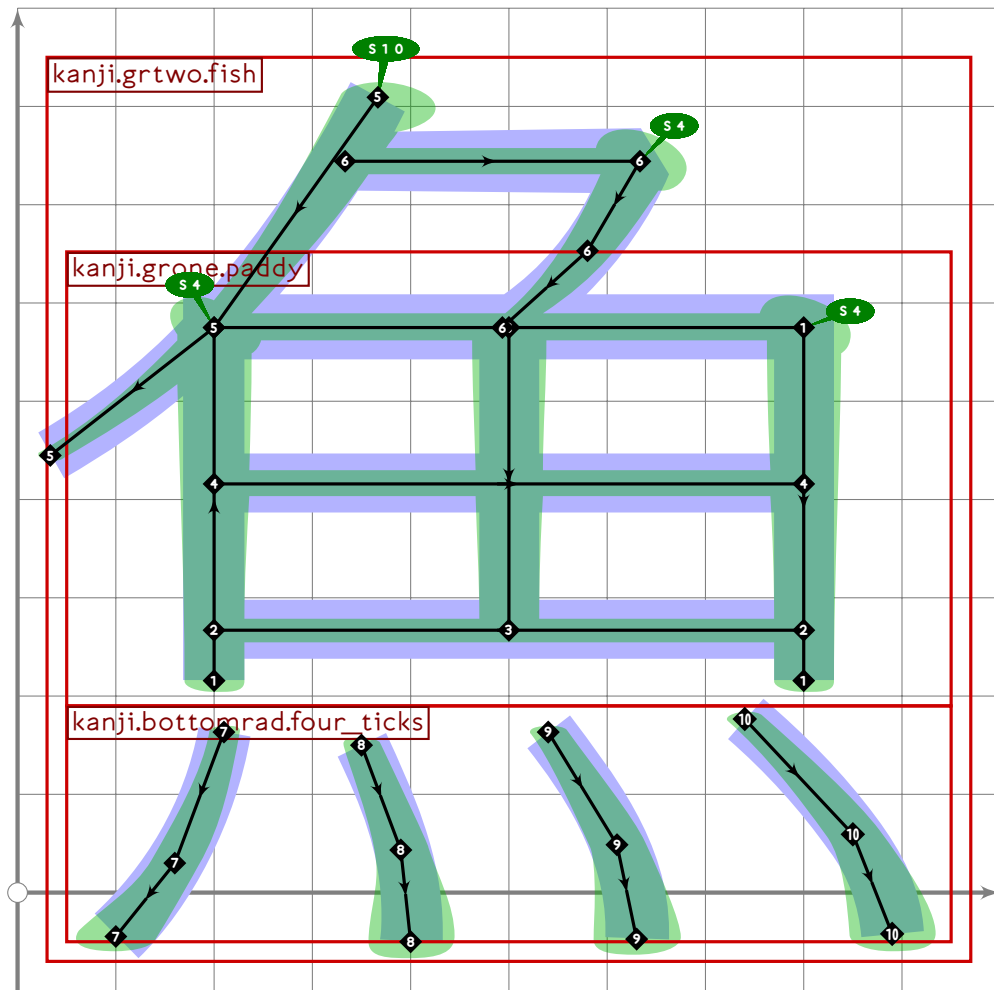
```



```

754 % hyuu/kamigashira "long hair radical"
755 begintsuglyph("uni2FBD",189);
756 kanji.radical.long_hair;
757 tsu_render;
758 endsuglyph;
759

```

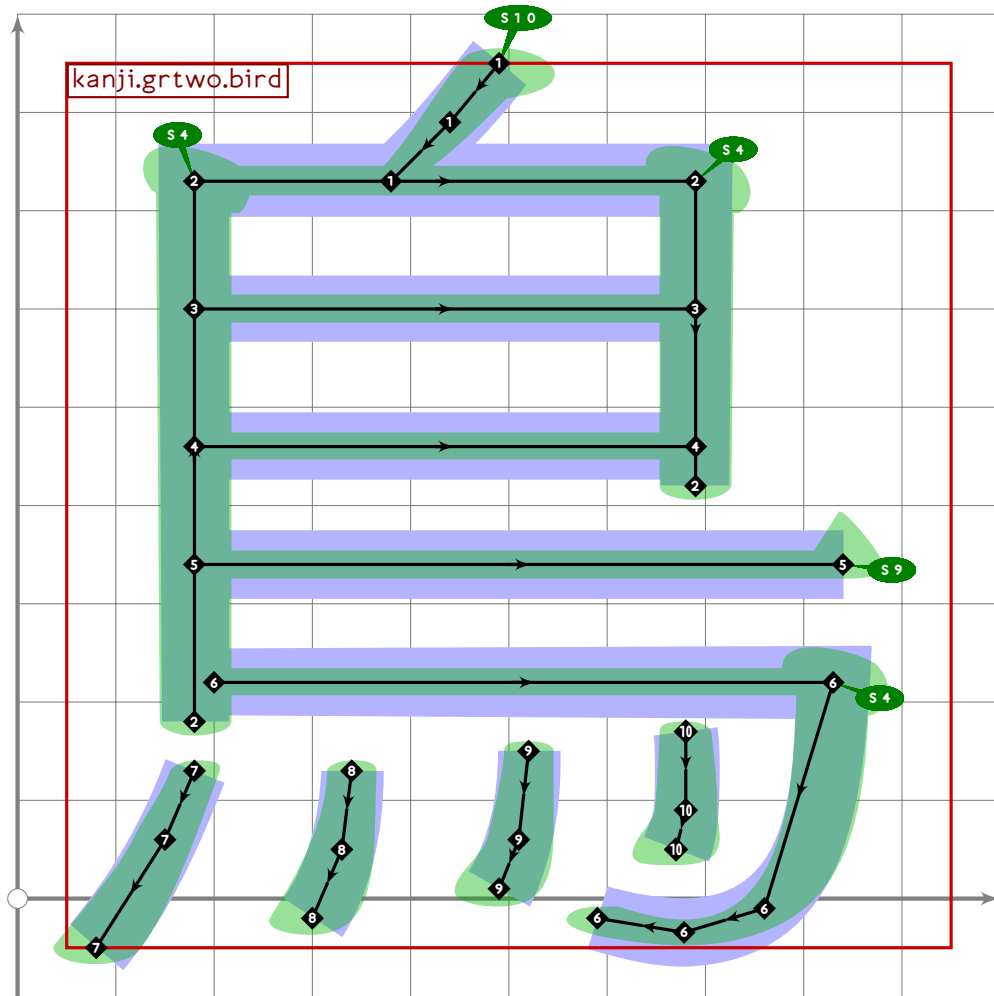


```

760 % gyo/sakana "fish"
761 begintsuglyph("uni2FC2",194);
762 kanji.grtwo.fish;
763 tsu_render;
764 endtsuglyph;
765

```

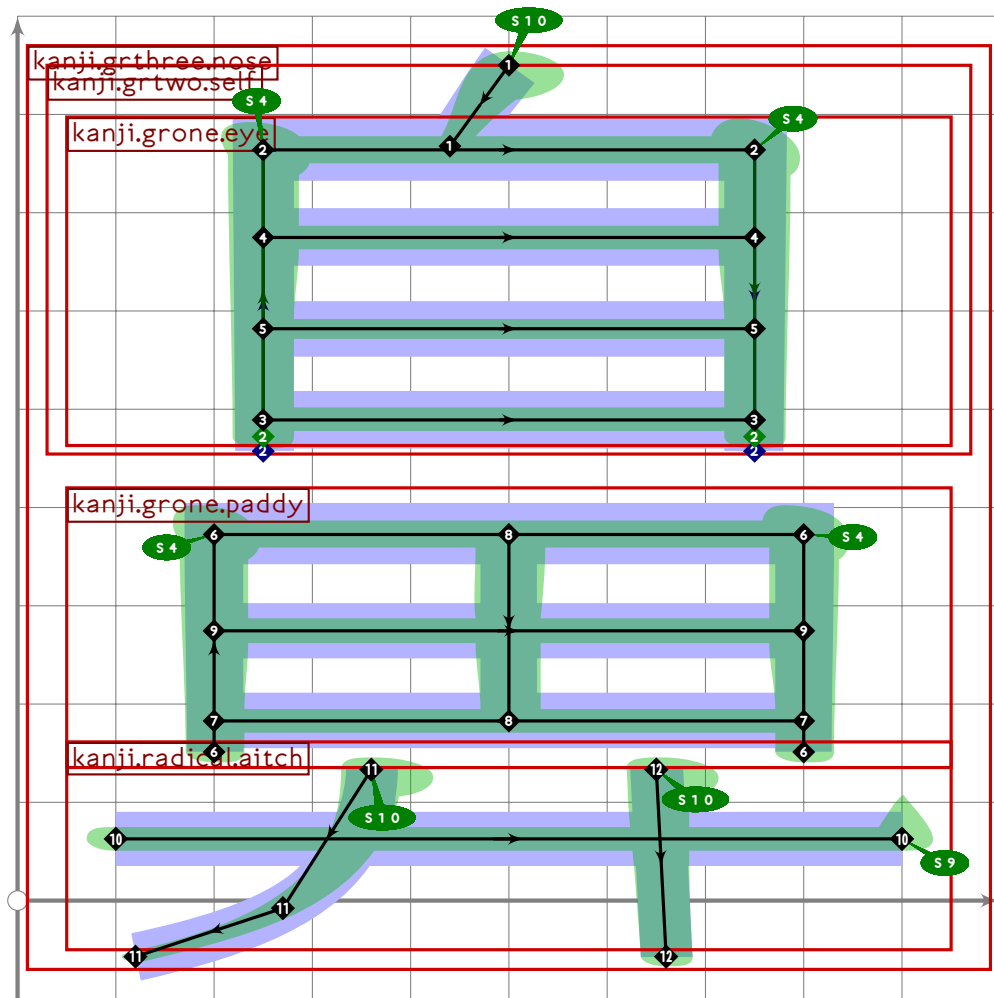




```

766 % chou/tori "bird"
767 begintsuglyph("uni2FC3",195);
768 kanji.grtwo.bird;
769 tsu_render;
770 endtsuglyph;
771

```



```

772 % bi/hana "nose"
773 beginsuglyph("uni2FD0",208);
774 kanji.grthree.nose;
775 tsu_render;
776 endsuglyph;
777
778
779

```

## Ideographic Description Characters

```

780 % IDEOGRAPHIC DESCRIPTION CHARACTERS
781
782 numeric idc_corners;
783
784 vardef idc_horiz(expr v,ha,hb) =
785   for h:=ha upto hb:
786     if h<hb: idc_corners[h][v].r:=1; fi;
787     if h>ha: idc_corners[h][v].l:=1; fi;
788   endfor;
789 enddef;
790

```

```

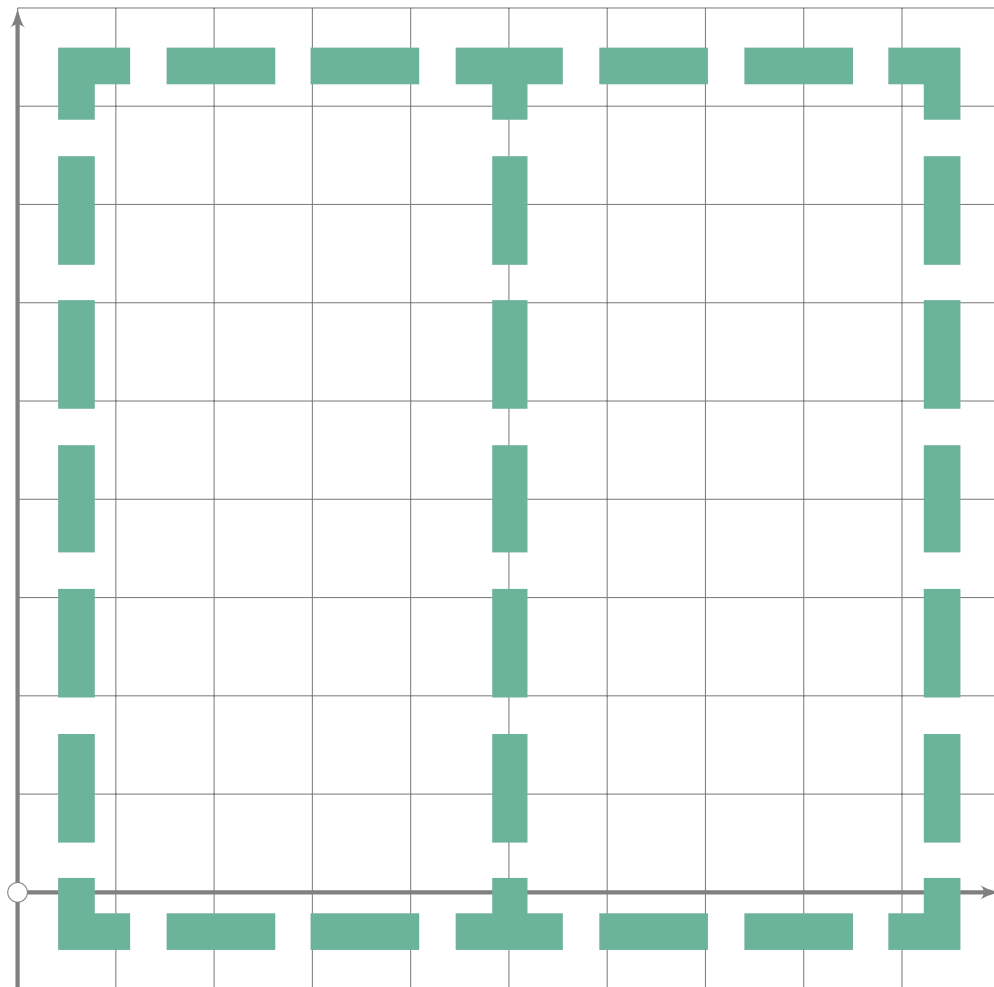
791 vardef idc_vert(expr h,va,vb) =
792   for v:=va upto vb:
793     if v<vb: idc_corners[h][v].d:=1; fi;
794     if v>va: idc_corners[h][v].u:=1; fi;
795   endfor;
796 enddef;
797
798 vardef idc_rect(expr ur,ll) =
799   idc_horiz(ypart ur,xpart ur,xpart ll);
800   idc_vert(xpart ur,ypart ll,ypart ur);
801   idc_vert(xpart ll,ypart ll,ypart ur);
802   idc_horiz(ypart ll,xpart ur,xpart ll);
803 enddef;
804
805 transform idc_drawxf;
806 (-1,1) transformed idc_drawxf=(50,50);
807 (97,1) transformed idc_drawxf=(950,50);
808 (97,97) transformed idc_drawxf=(950,850);
809
810 vardef idc_render =
811   begingroup
812     save glyph;
813     path glyph;
814     for h:=0 upto 6:
815       for v:=0 upto 6:
816         if (known idc_corners[h][v].l) or (known idc_corners[h][v].r)
817           or (known idc_corners[h][v].u) or (known idc_corners[h][v].d):
818           if fine_idcs:
819             glyph:=(
820               (-1,1)-if known idc_corners[h][v].d: (-1,2.5)-(-1,2.5)- fi
821               (1,1)-if known idc_corners[h][v].r: (2.5,1)-(2.5,1)- fi
822               (1,-1)-if known idc_corners[h][v].u: (1,-2.5)-(-1,-2.5)- fi
823               (-1,-1)-if known idc_corners[h][v].l: (-2.5,-1)-(-2.5,-1)- fi
824               cycle) shifted ((h,v) scaled 16);
825             dangerousFill glyph transformed idc_drawxf;
826           if known idc_corners[h][v].d:
827             glyph:=((-1,5.5)-(-1,10.5)-(1,10.5)-(1,5.5)-cycle)
828               shifted ((h,v) scaled 16);
829             dangerousFill glyph transformed idc_drawxf;
830           fi;
831           if known idc_corners[h][v].r:
832             glyph:=((5.5,-1)-(5.5,1)-(10.5,1)-(10.5,-1)-cycle)
833               shifted ((h,v) scaled 16);
834             dangerousFill glyph transformed idc_drawxf;
835           fi;
836         else:
837           glyph:=(
838             (-2,2)-if known idc_corners[h][v].d: (-2,6)-(2,6)- fi

```

```

839         (2,2)-if known idc_corners[h][v].r: (6,2)-(6,2)- fi
840         (2,-2)-if known idc_corners[h][v].u: (2,-6)-(-2,-6)- fi
841         (-2,-2)-if known idc_corners[h][v].l: (-6,2)-(-6,2)- fi
842         cycle) shifted ((h,v) scaled 16);
843     dangerousFill glyph transformed idc_drawxf;
844     fi;
845     fi;
846     idc_corners[h][v].l:=whatever;
847     idc_corners[h][v].r:=whatever;
848     idc_corners[h][v].u:=whatever;
849     idc_corners[h][v].d:=whatever;
850 endfor;
851 endfor;
852 endgroup;
853 enddef;
854

```



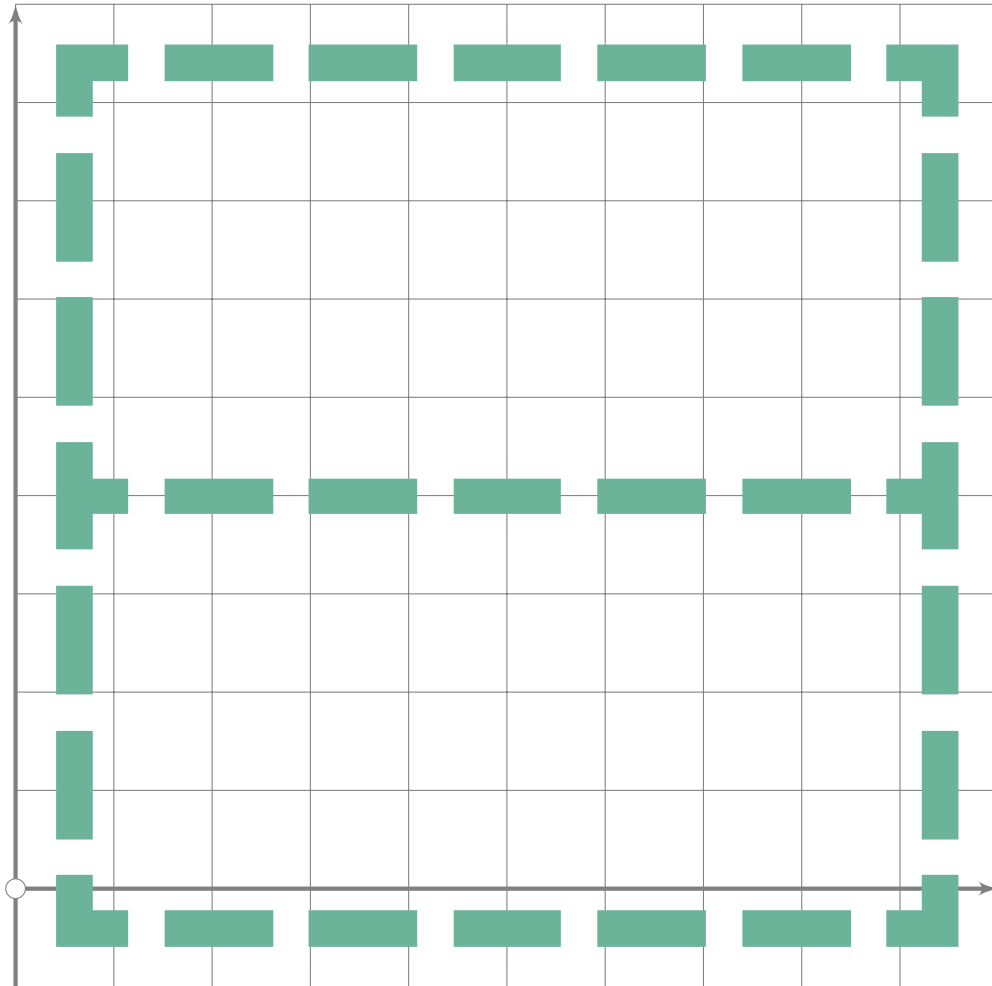
```

855 % left to right
856 beginsuglyph("uni2FF0";240);
857   idc_rect((0,6),(6,0));
858   idc_vert(3,0,6);
859   idc_render;

```

```
860 endtsuglyph;
```

```
861
```



```
862 % above to below
```

```
863 begint Suglyph("uni2FF1";241);
```

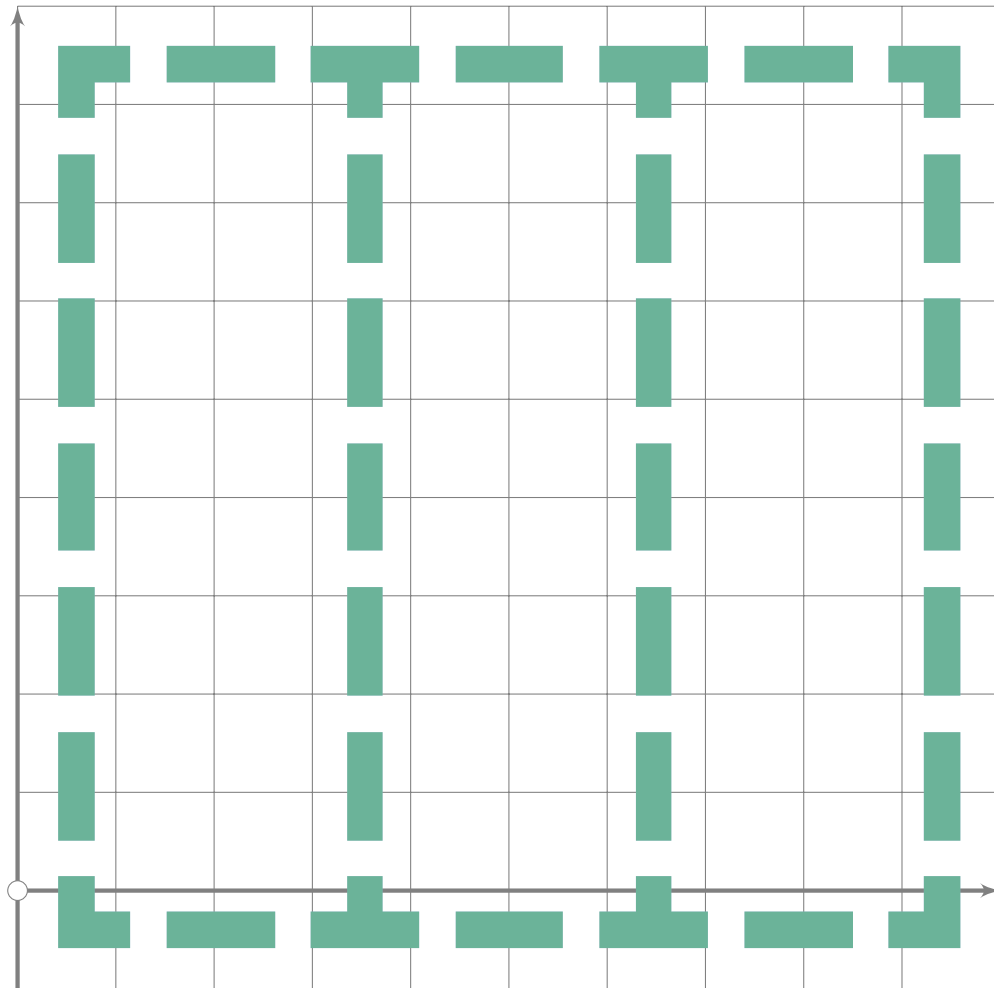
```
864 idc_rect((0,6),(6,0));
```

```
865 idc_horiz(3,0,6);
```

```
866 idc_render;
```

```
867 endtsuglyph;
```

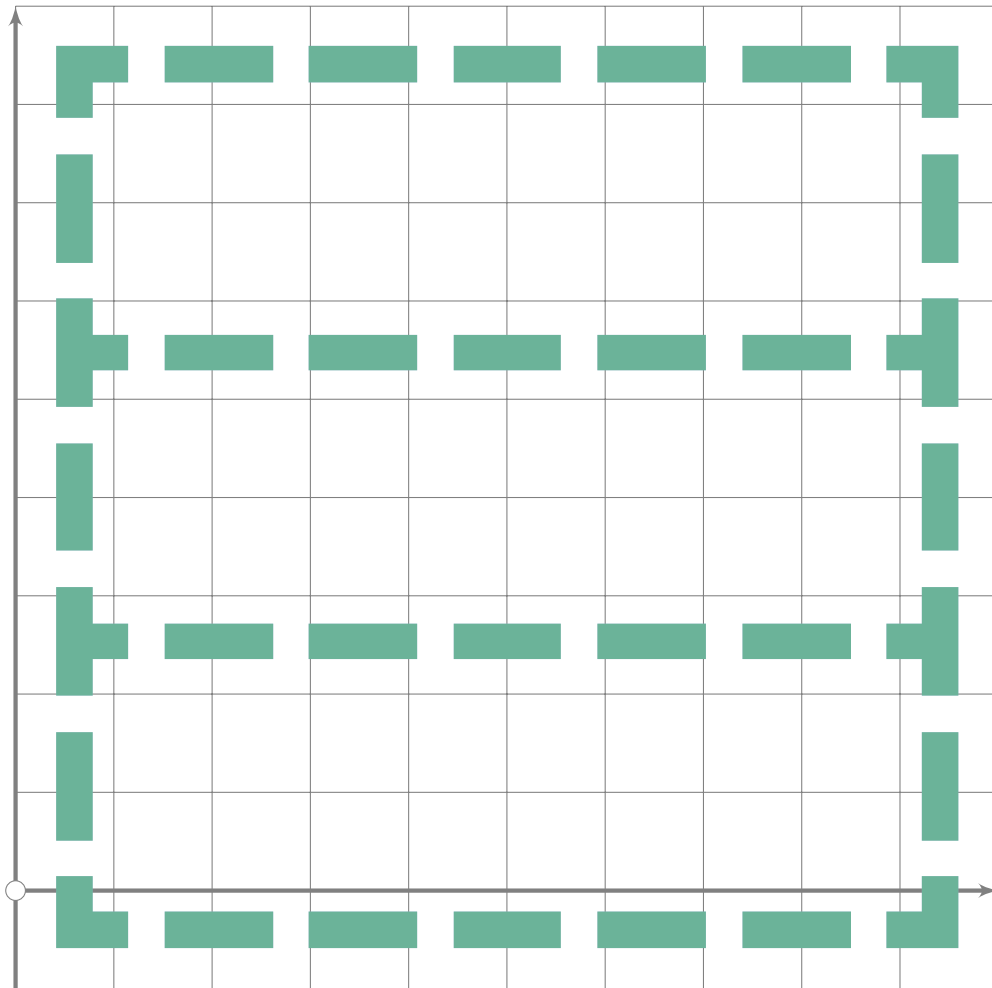
```
868
```



```

869 % left to middle to right
870 begintsuglyph("uni2FF2";242);
871 idc_rect((0,6),(6,0));
872 idc_vert(2,0,6);
873 idc_vert(4,0,6);
874 idc_render;
875 endtsuglyph;
876

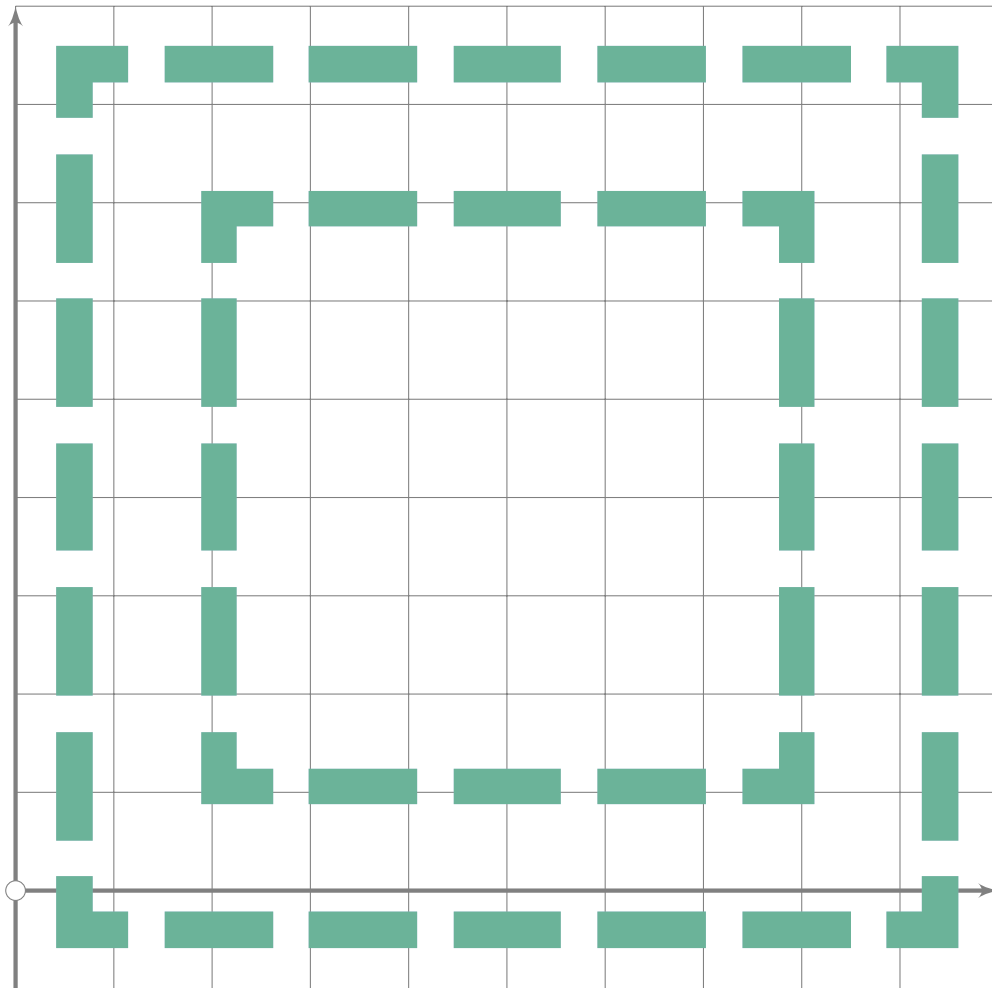
```



```

877 % above to middle to below
878 begintsuglyph("uni2FF3",243);
879 idc_rect((0,6),(6,0));
880 idc_horiz(2,0,6);
881 idc_horiz(4,0,6);
882 idc_render;
883 endtsuglyph;
884

```

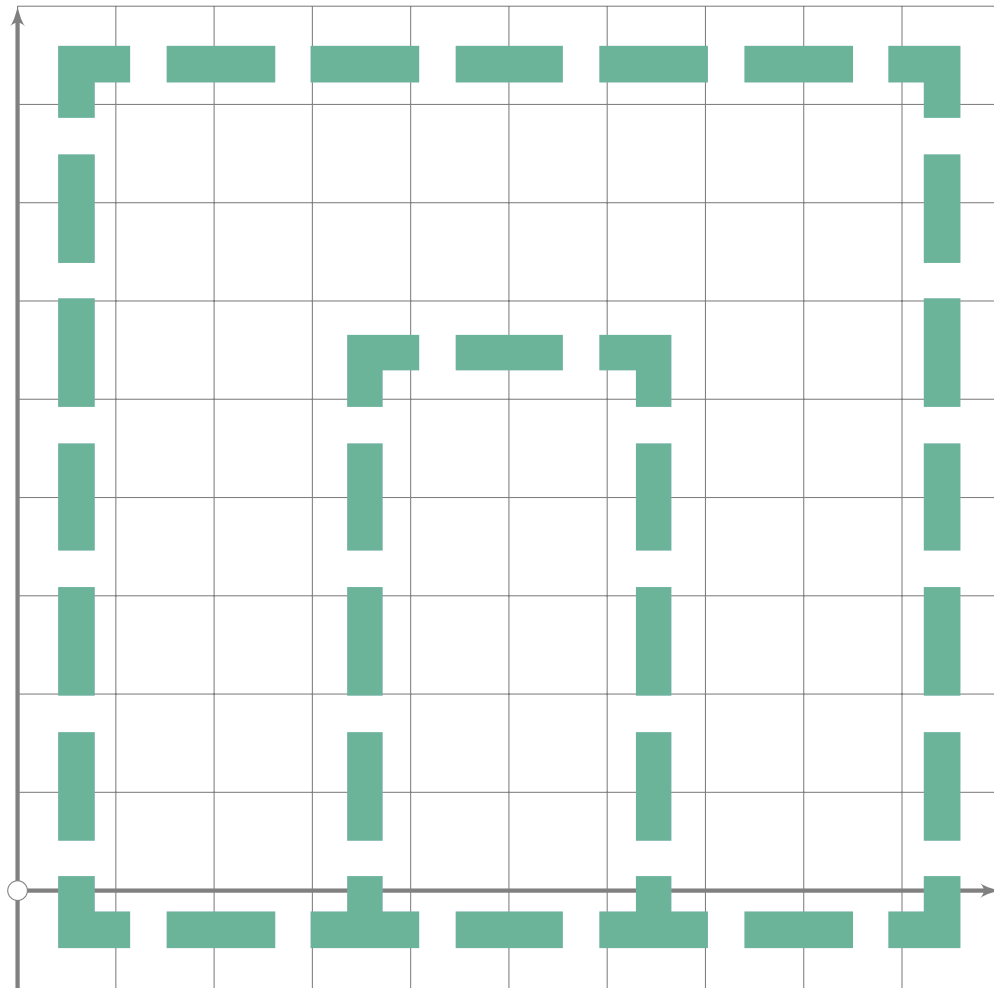


```

885 % full surround
886 begintsuglyph("uni2FF4";244);
887 idc_rect((0,6),(6,0));
888 idc_rect((1,5),(5,1));
889 idc_render;
890 endtsuglyph;
891

```

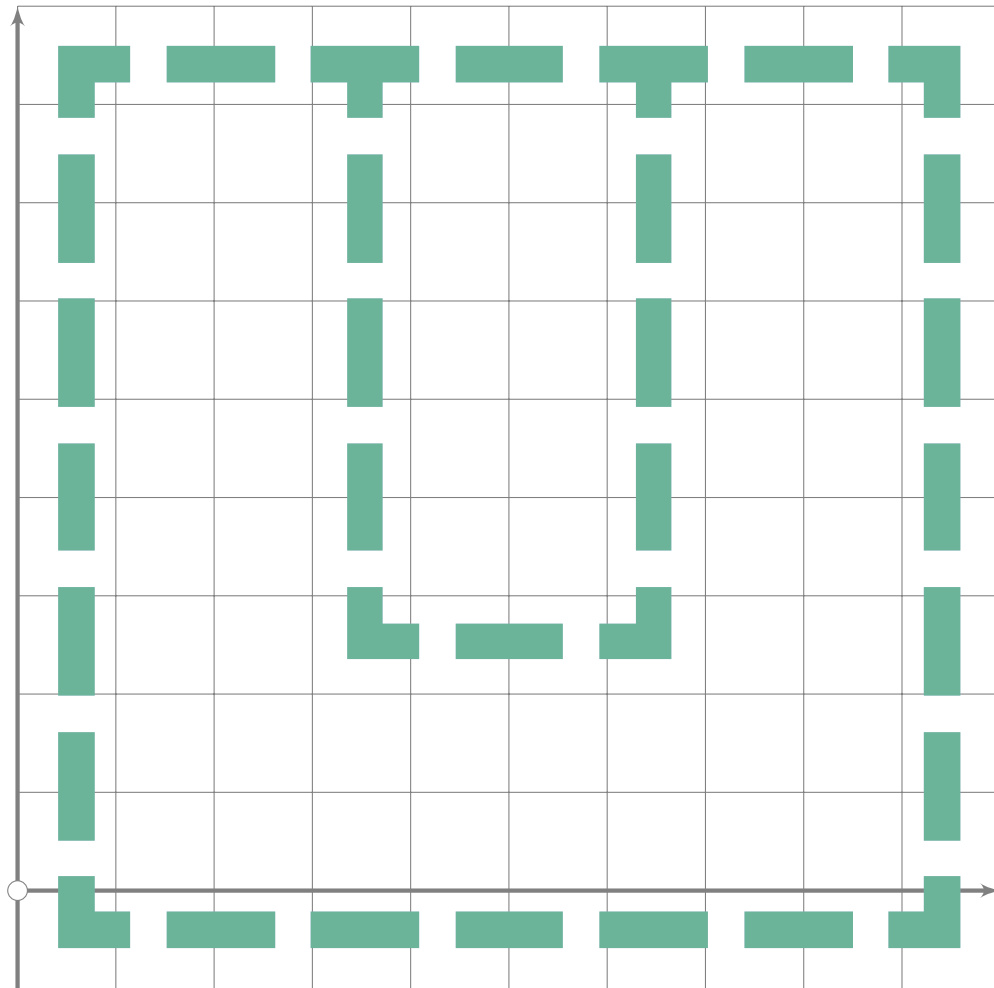




```

892 % surround from above
893 begint Suglyph("uni2FF5";245);
894   idc_rect((0,6),(6,0));
895   idc_rect((2,4),(4,0));
896   idc_render;
897 endsuglyph;
898

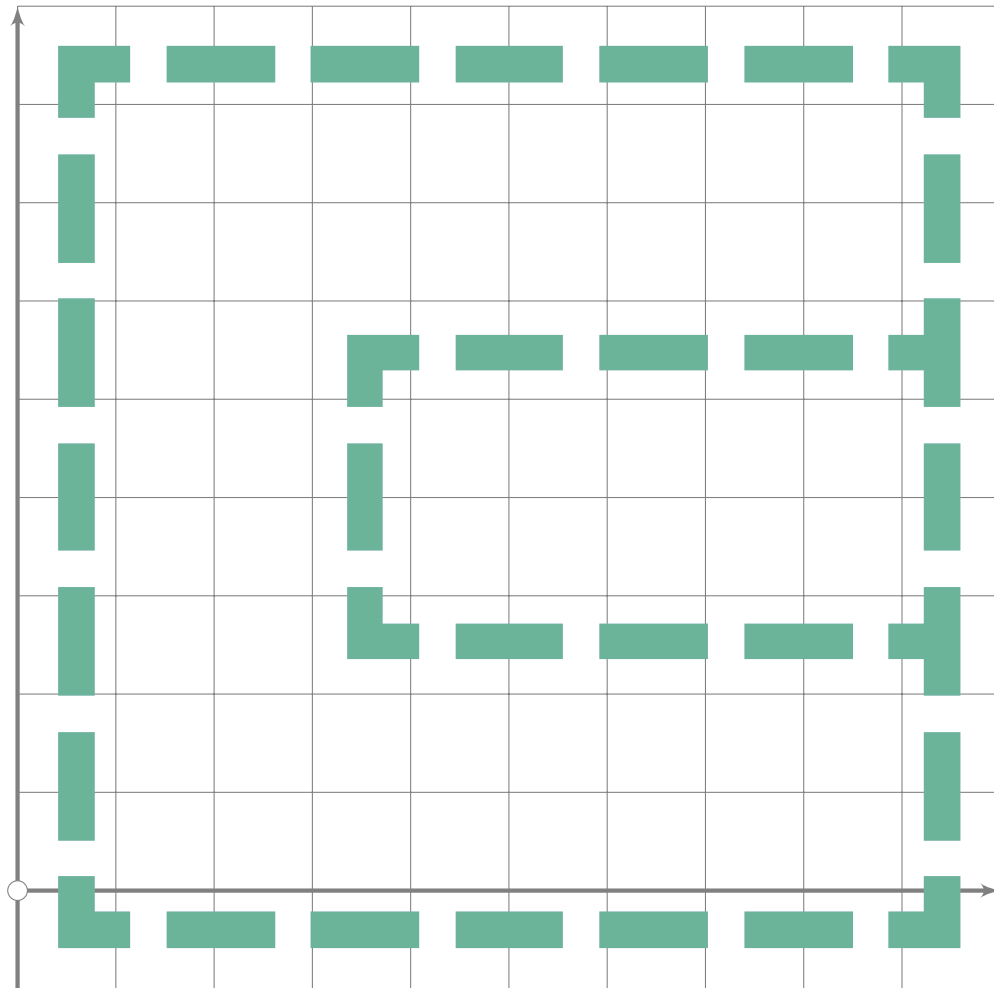
```



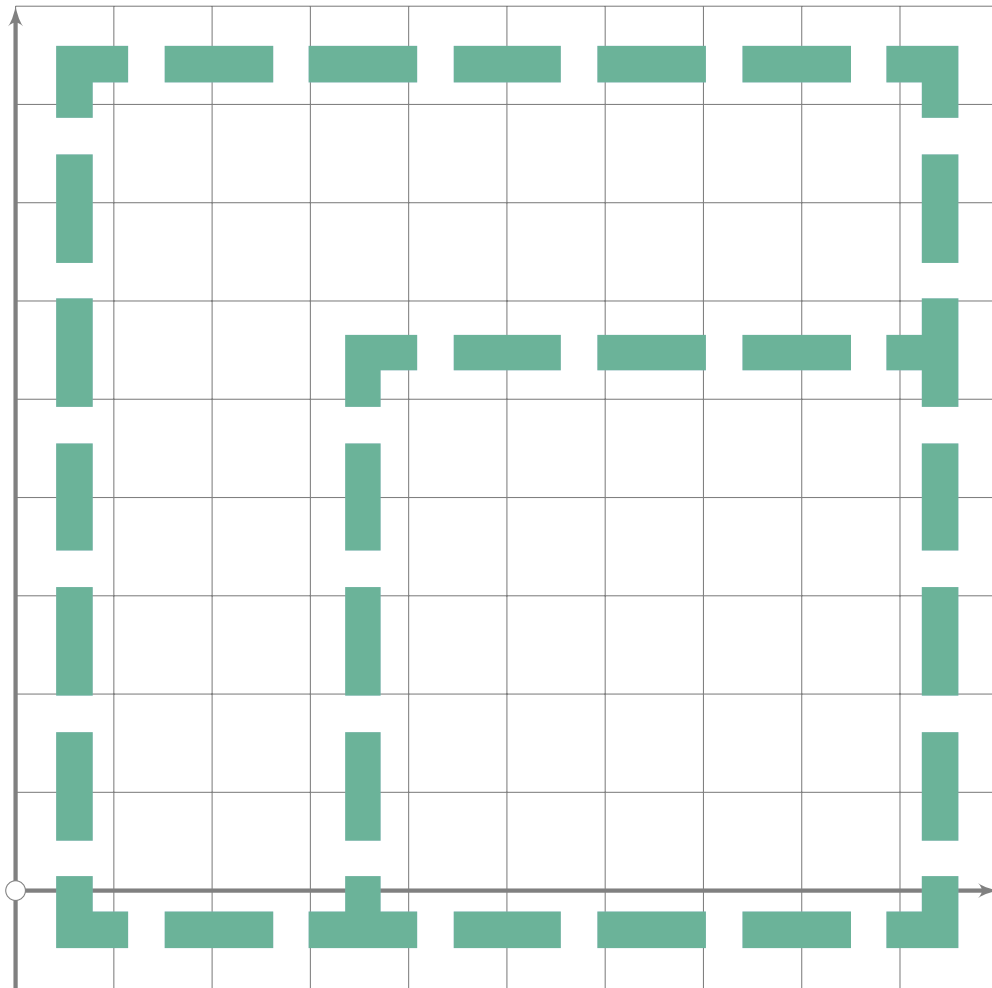
```

899 % surround from below
900 begintsuglyph("uni2FF6",246);
901 idc_rect((0,6),(6,0));
902 idc_rect((2,6),(4,2));
903 idc_render;
904 endtsuglyph;
905

```



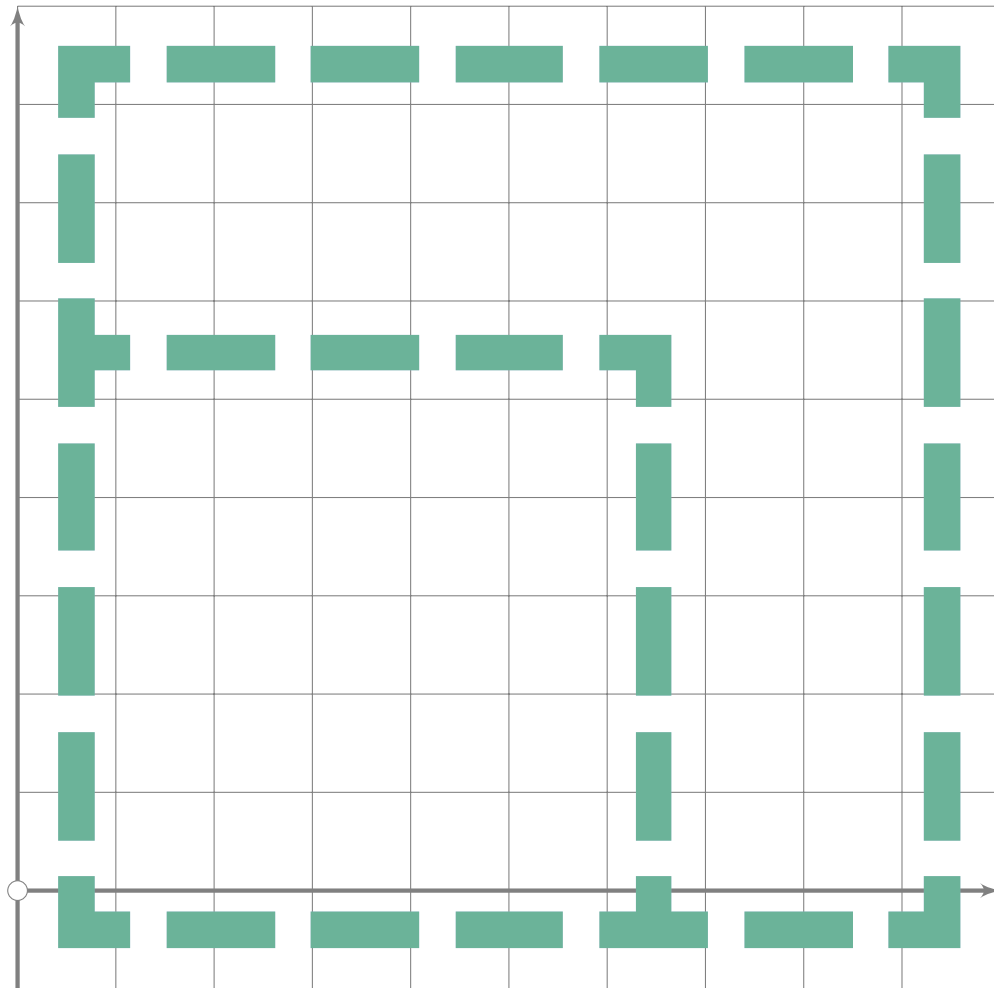
```
906 % surround from left
907 begintsuglyph("uni2FF7";247);
908 idc_rect((0,6),(6,0));
909 idc_rect((2,4),(6,2));
910 idc_render;
911 endtsuglyph;
912
```



```

913 % surround from upper left
914 begintsuglyph("uni2FF8",248);
915 idc_rect((0,6),(6,0));
916 idc_rect((2,4),(6,0));
917 idc_render;
918 endtsuglyph;
919

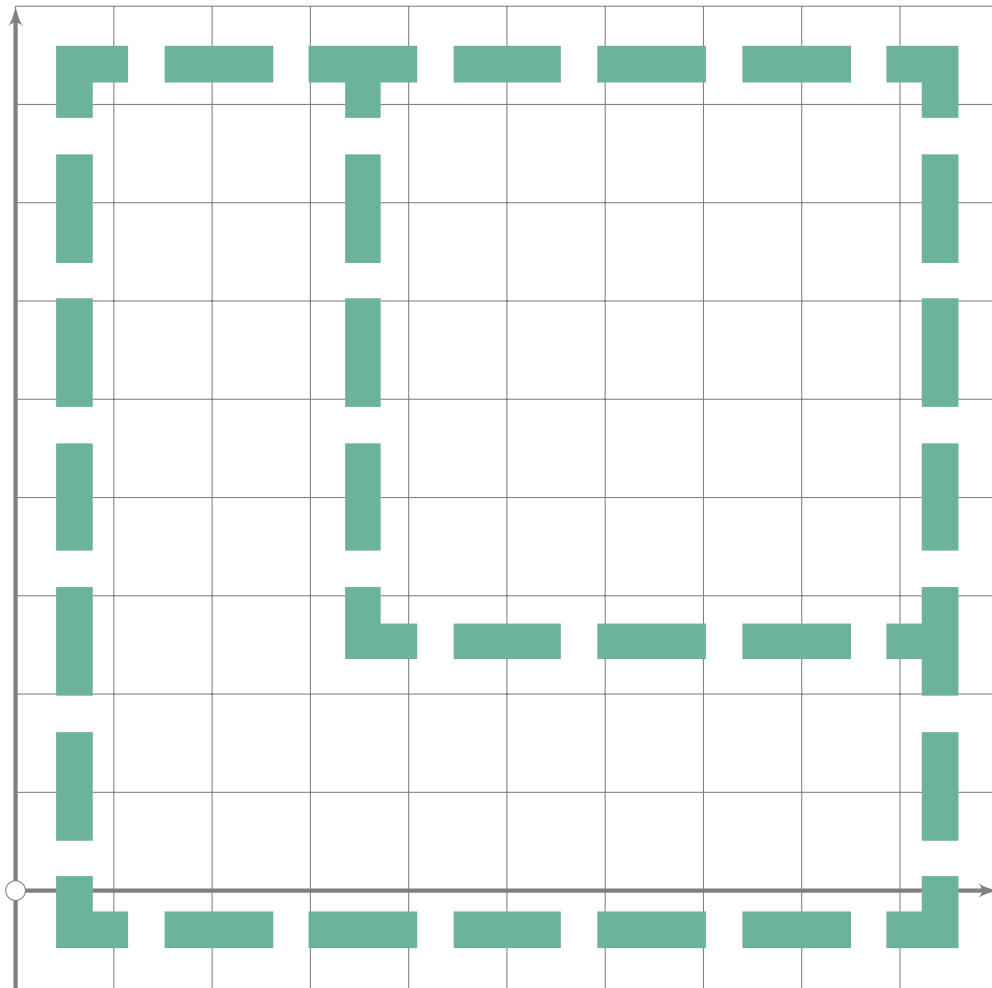
```



```

920 % surround from upper right
921 begint Suglyph("uni2FF9";249);
922   idc_rect((0,6),(6,0));
923   idc_rect((0,4),(4,0));
924   idc_render;
925 endsuglyph;
926

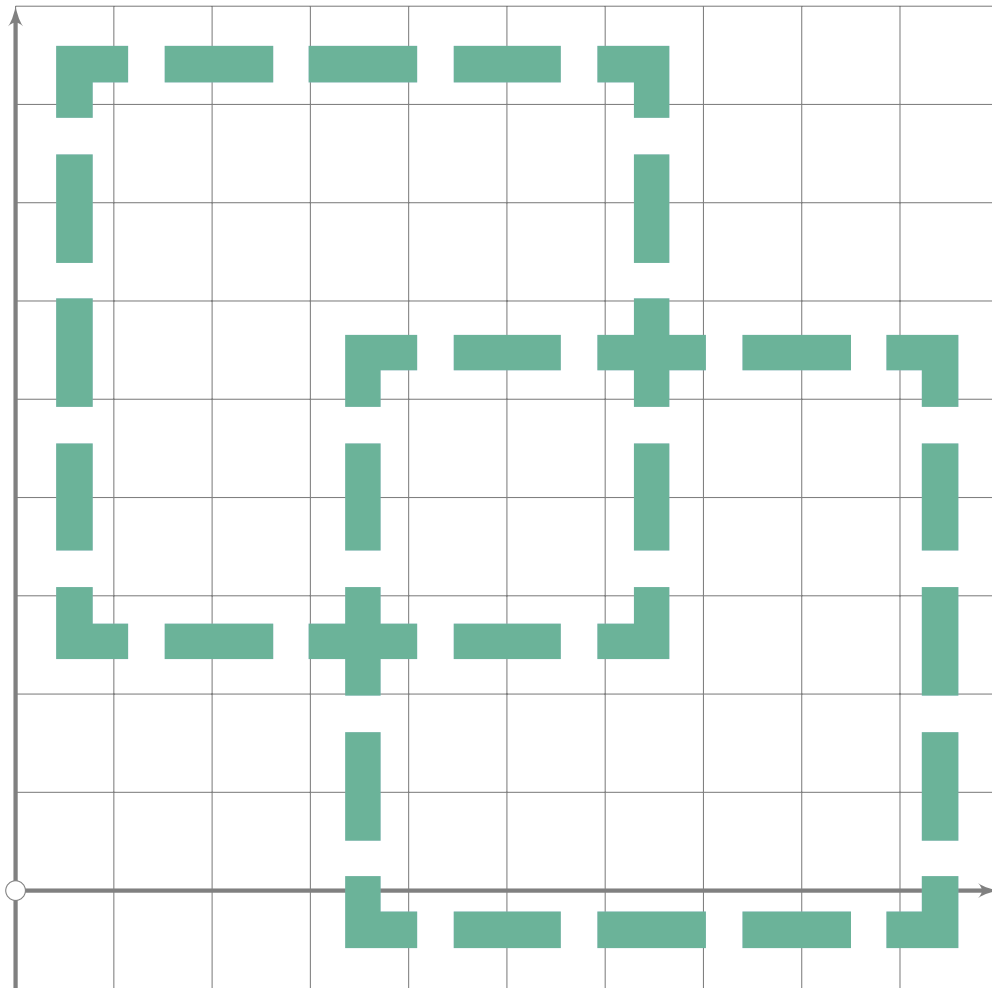
```



```

927 % surround from lower left
928 begintsuglyph("uni2FFA";250);
929 idc_rect((0,6),(6,0));
930 idc_rect((2,6),(6,2));
931 idc_render;
932 endtsuglyph;
933

```



```
934 % overlaid
935 begintsuglyph("uni2FFB";251);
936 idc_rect((0,6),(4,2));
937 idc_rect((2,4),(6,0));
938 idc_render;
939 endsuglyph;
940
941 _____
942
943 endfont;
944
945 _____
```





Part III

U+3000 to U+4DFF



# tsuku-30.mp

```
1 %
2 % Unicode page 30 (Kana) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

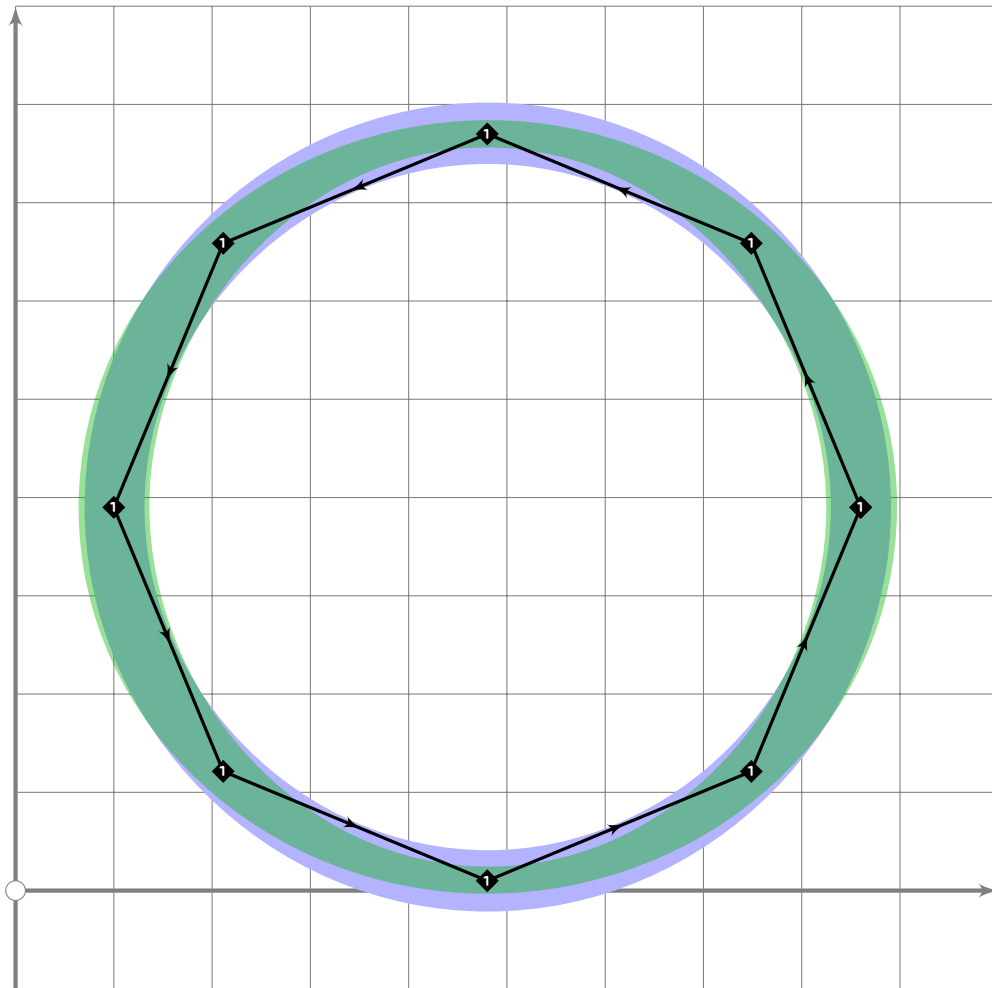

32
33 beginfont
34
35 % AUTODEPS
36 input dakuten.mp;
37 input hiragana.mp;
38 input katakana.mp;
39 input punct.mp;
40
41 

---


42
```

## Ideographic Symbols And Punctuation

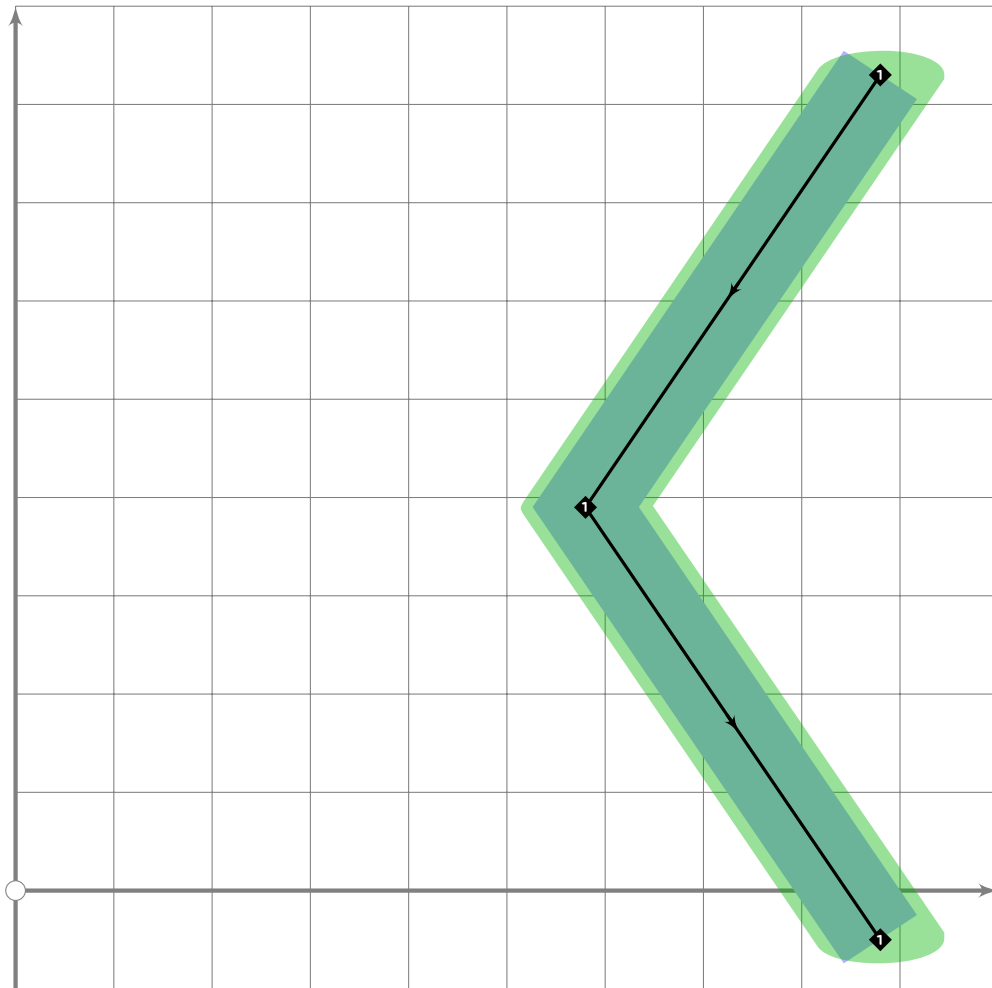
```
43 % IDEOGRAPHIC SYMBOLS AND PUNCTUATION
44
45 % ideographic comma
46 begintsuglyph\("uni3001";1\); [see page 295]
47 punct.hancomma;
48 tsu\_render;
49 endtsuglyph;
50
51 % ideographic full stop
52 begintsuglyph\("uni3002";2\); [see page 292]
53 punct.full\_stop;
54 tsu\_render;
55 endtsuglyph;
56
```



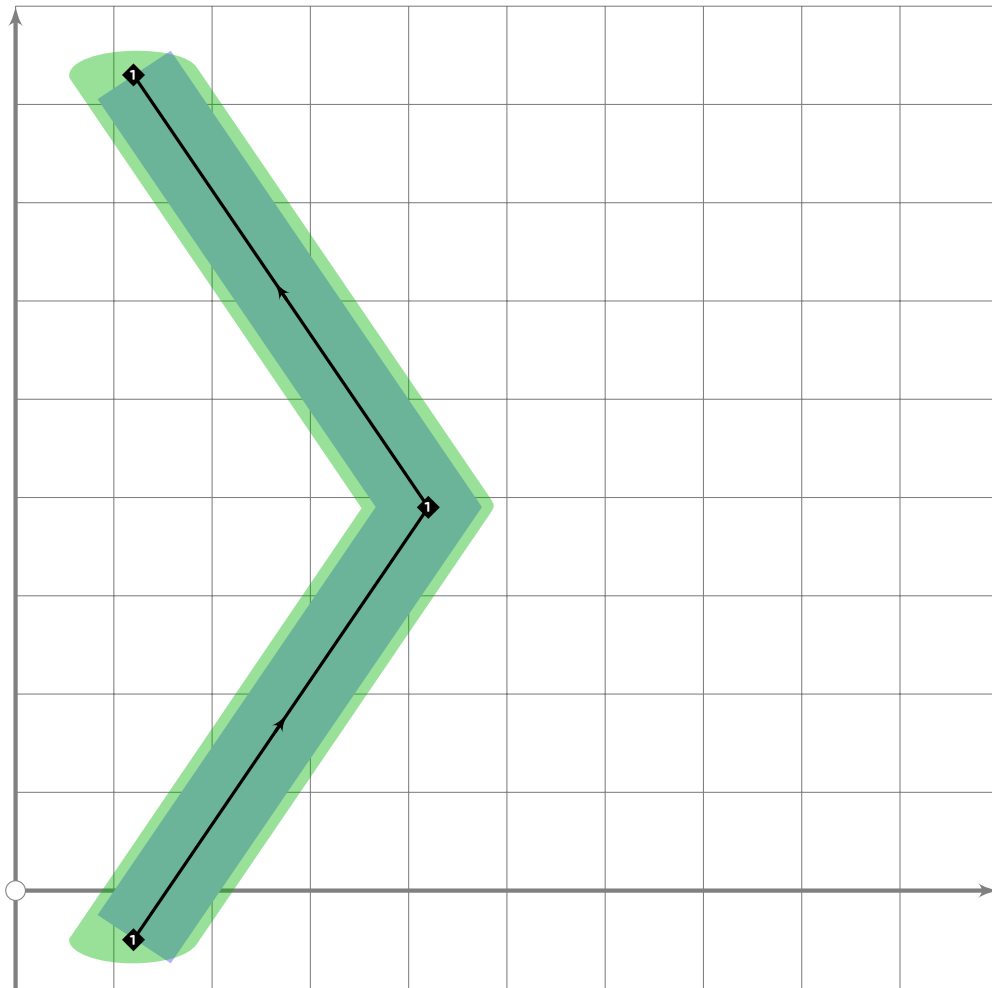
```

57 % kanji zero
58 begintsuglyph("uni3007",7);
59 % letter brush for this so it blends better with other kanji digits;
60 % let's drag the Japanese kicking and screaming into the Sixth Century!
61 push_stroke(fullcircle scaled 760 shifted (480,390),
62   (1.6,1.6)-(1.6,1.6)-(1.6,1.6)-(1.6,1.6)-cycle);
63 set_bosize(0,90);
64 tsu_render;
65 endtsuglyph;
66
67 path bracket[];
68
69 % left and right single angle brackets
70 bracket1:=(880,830)-(580,390)-(880,-50);

```



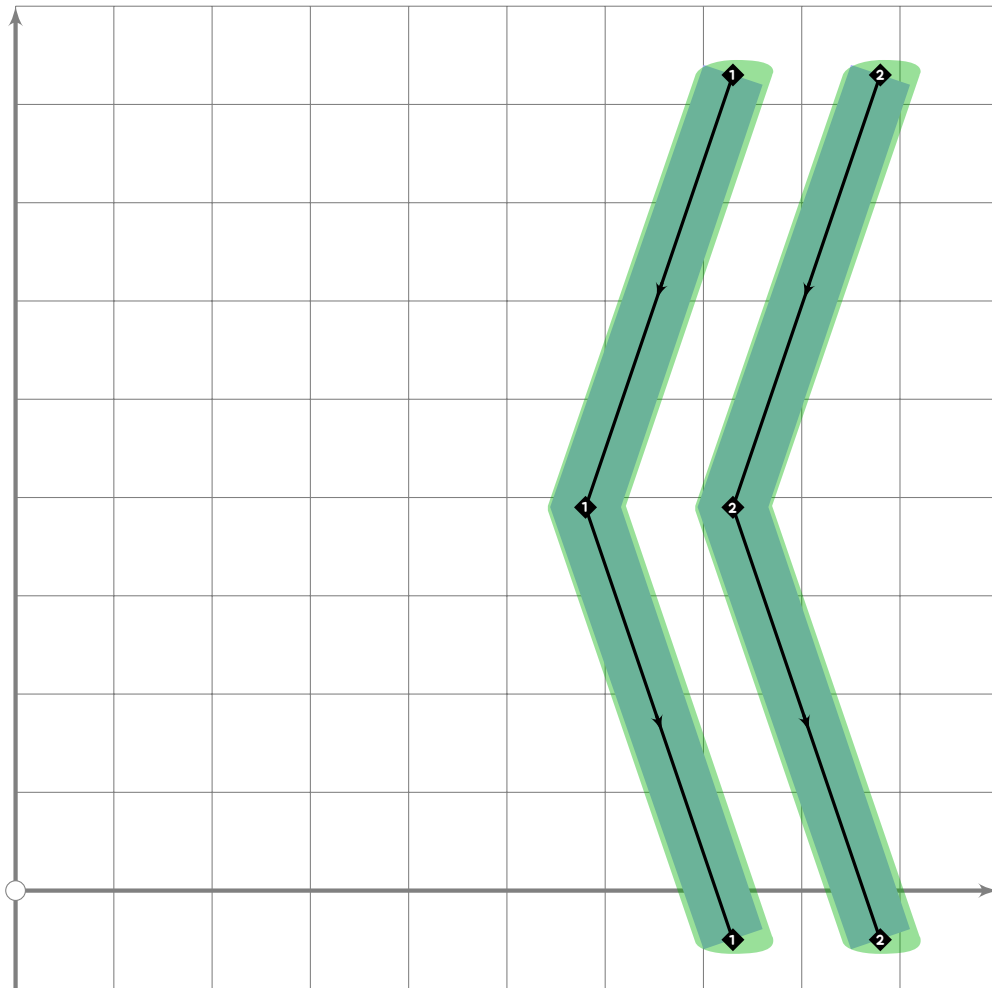
```
71 begint Suglyph("uni3008";8);  
72 push_stroke((880,830)-(580,390)-(880,-50),  
73 (2,2)-(2,2)-(2,2));  
74 set_bosize(0,120);  
75 set_botip(0,1,1);  
76 tsu_render;  
77 endtsuglyph;
```



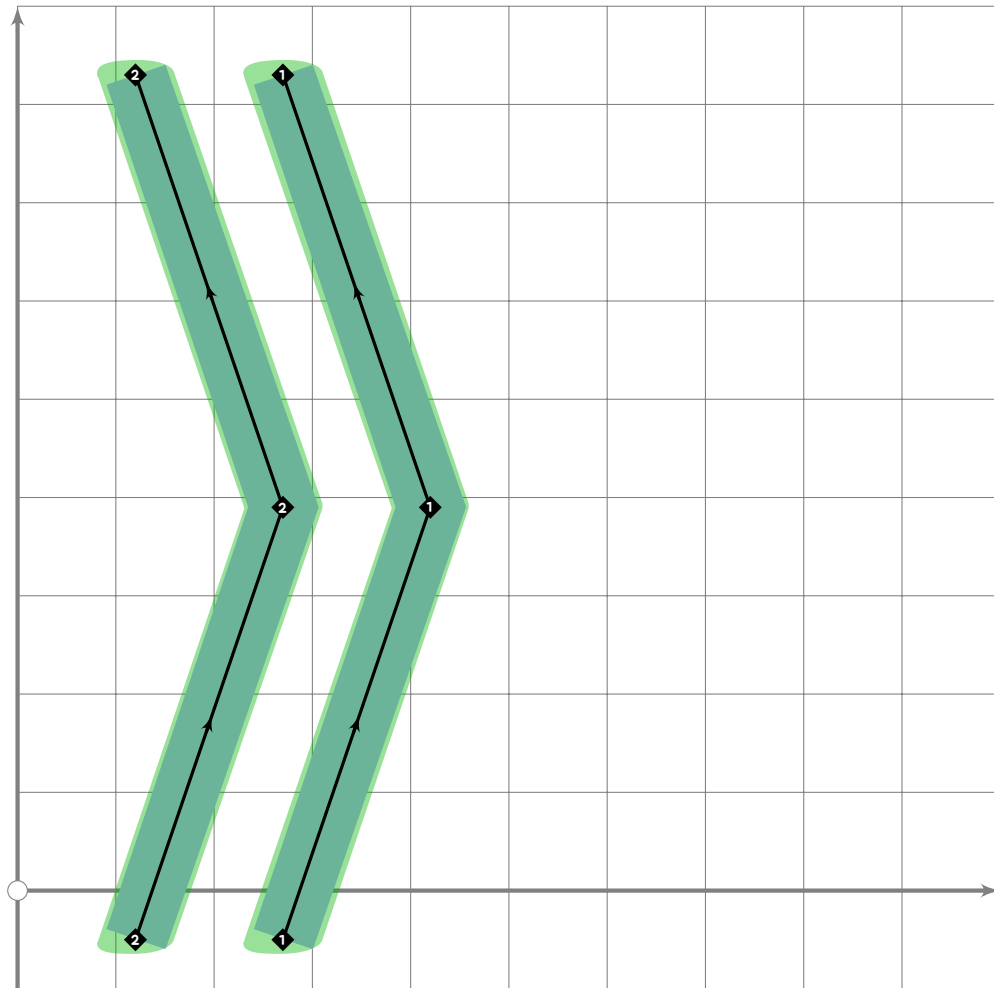
```

78 begint Suglyph("uni3009";9);
79 push_stroke(((880,830)-(580,390)-(880,-50)) rotatedaround (centre_pt,180),
80   (2,2)-(2,2)-(2,2));
81 set_bosize(0,120);
82 set_botip(0,1,1);
83 tsu_render;
84 endtsuglyph;
85
86 % left and right double angle brackets
87 bracket1:=(880-tsu_punct_size*3/2,830)-(580,390)
88   -(880-tsu_punct_size*3/2,-50);
89 bracket2:=(880,830)-(580+tsu_punct_size*3/2,390)-(880,-50);

```



```
90 begintsuglyph("uni300A",10);  
91 push_stroke(bracket1,  
92   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));  
93 set_bosize(0,90);  
94 set_botip(0,1,1);  
95  
96 push_stroke(bracket2,  
97   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));  
98 set_bosize(0,90);  
99 set_botip(0,1,1);  
100  
101 tsu_render;  
102 endtsuglyph;
```



```

103 begintsuglyph("uni300B";11);
104 push_stroke(bracket1 rotatedaround (centre_pt,180),
105   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
106 set_bosize(0,90);
107 set_botip(0,1,1);
108
109 push_stroke(bracket2 rotatedaround (centre_pt,180),
110   (1.7,1.7)-(1.7,1.7)-(1.7,1.7));
111 set_bosize(0,90);
112 set_botip(0,1,1);
113
114 tsu_render;
115 endtsuglyph;
116
117 % left and right corner brackets
118 begintsuglyph("uni300C";12);
119 punct.corner_left;
120 tsu_render;
121 endtsuglyph;
122 begintsuglyph("uni300D";13);
123 punct.corner_right;

```

[see page 283]

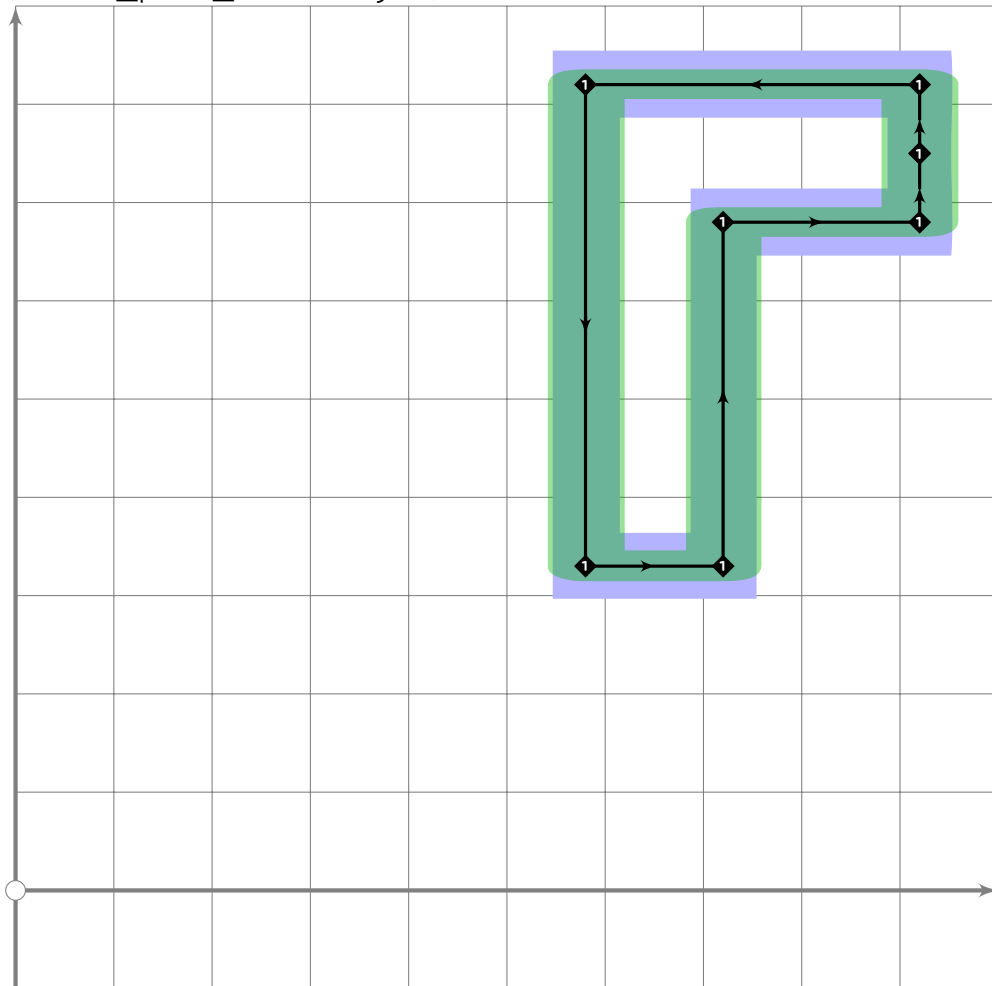
[see page 284]



```

124 tsu_render;
125 endtsuglyph;
126
127 % left and right white corner brackets
128 bracket1:=(920,750)-
129 (920,750+tsu_punct_size*0.7)-
130 (650-tsu_punct_size*0.7,750+tsu_punct_size*0.7)-
131 (650-tsu_punct_size*0.7,400-tsu_punct_size*0.7)-
132 (650+tsu_punct_size*0.7,400-tsu_punct_size*0.7)-
133 (650+tsu_punct_size*0.7,750-tsu_punct_size*0.7)-
134 (920,750-tsu_punct_size*0.7)-cycle;

```



```

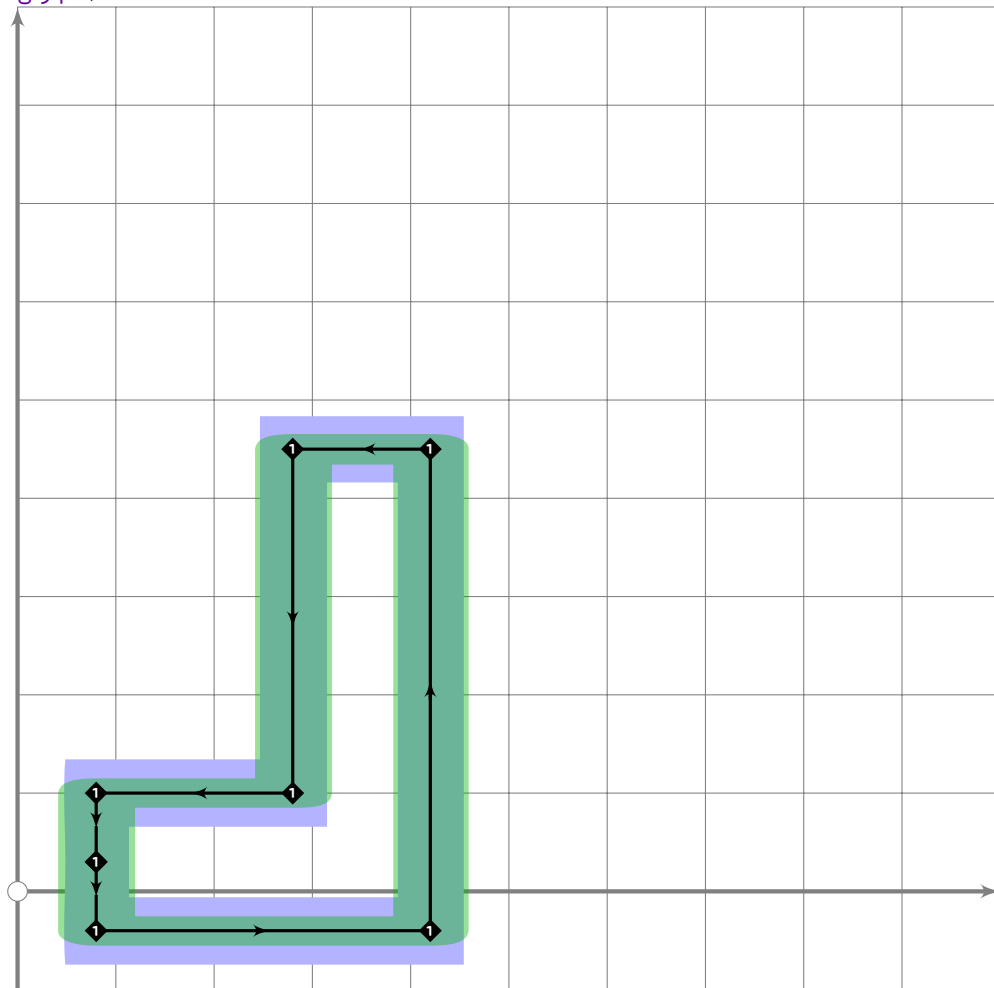
135 begint Suglyph("uni300E",14);
136 push_stroke(bracket1,
137 (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
138 (1.7,1.7)-(1.7,1.7)-cycle);
139 set_bosize(0,90);
140 set_botip(0,1,1);
141 set_botip(0,2,1);
142 set_botip(0,3,1);
143 set_botip(0,4,1);
144 set_botip(0,5,1);

```

```

145 set_botip(0,6,1);
146
147 tsu_render;
148 endtsuglyph;

```



```

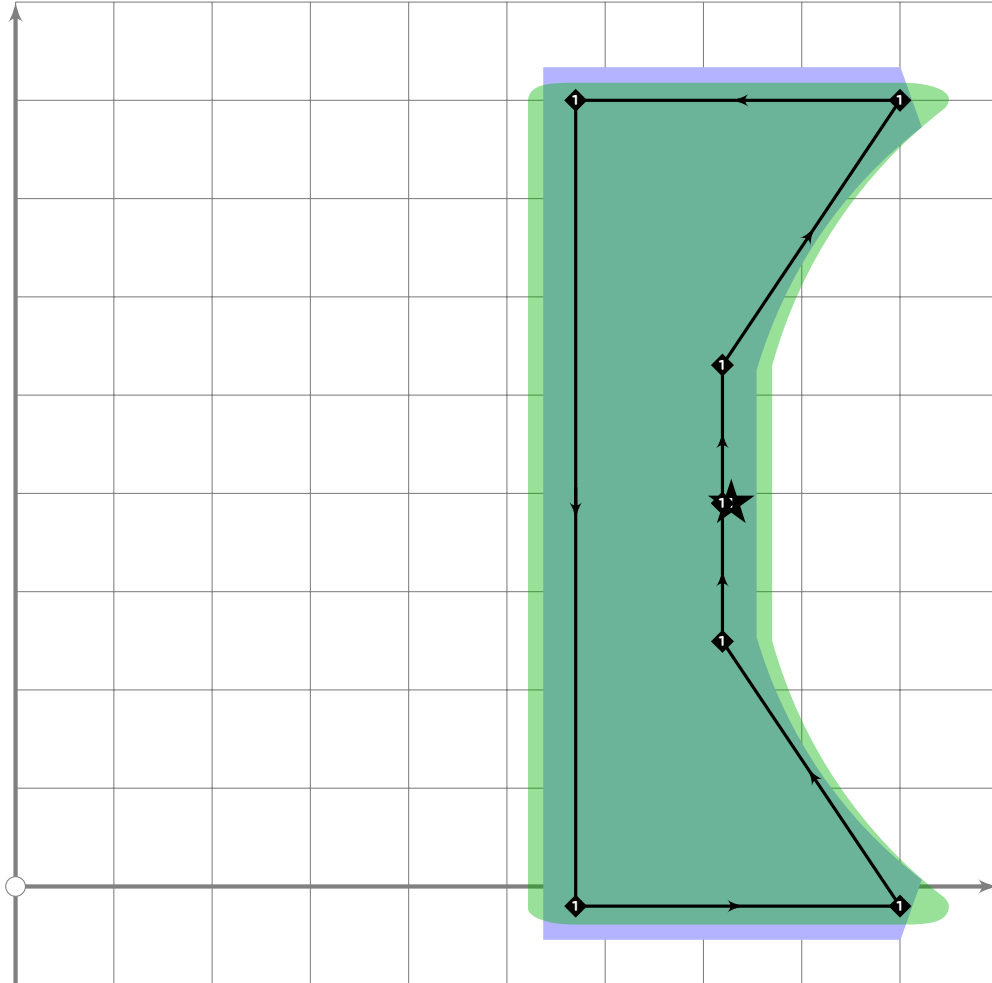
149 begint Suglyph("uni300F";15);
150 push_stroke(bracket1 rotatedaround (centre_pt,180),
151 (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
152 (1.7,1.7)-(1.7,1.7)-cycle);
153 set_bosize(0,90);
154 set_botip(0,1,1);
155 set_botip(0,2,1);
156 set_botip(0,3,1);
157 set_botip(0,4,1);
158 set_botip(0,5,1);
159 set_botip(0,6,1);
160
161 tsu_render;
162 endtsuglyph;
163
164 % left and right white and black lenticular brackets
165 % grouped here, out of Unicode sequence, to share the outline

```

```

166 bracket1:=(900-2*tsu_punct_size,390){up}..
167 (900,800)-(900-3.3*tsu_punct_size,800)-
168 (900-3.3*tsu_punct_size,-20)-(900,-20)..
169 {up}cycle;
170 bracket1:=(0.5[point 0.3 of bracket1,point 4.7 of bracket1])-
171 subpath (0.3,4.7) of bracket1-cycle;

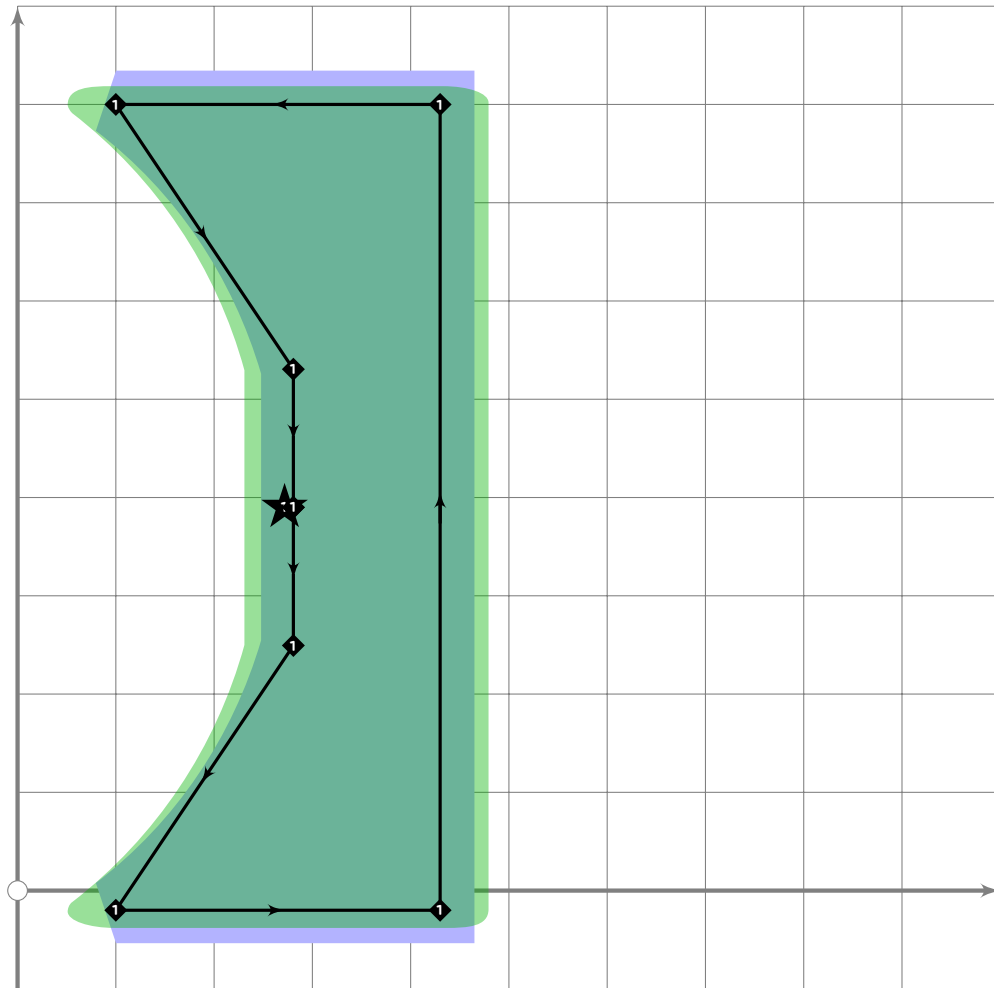
```



```

172 begint Suglyph("uni3010",16);
173 push_stroke(bracket1,
174 (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
175 set_bosize(0,90);
176 set_botip(0,1,1);
177 set_botip(0,2,0);
178 set_botip(0,3,1);
179 set_botip(0,4,1);
180 set_botip(0,5,0);
181 set_botip(0,6,1);
182 push_lcblob(get_strokep(0));
183
184 tsu_render;
185 endsuglyph;

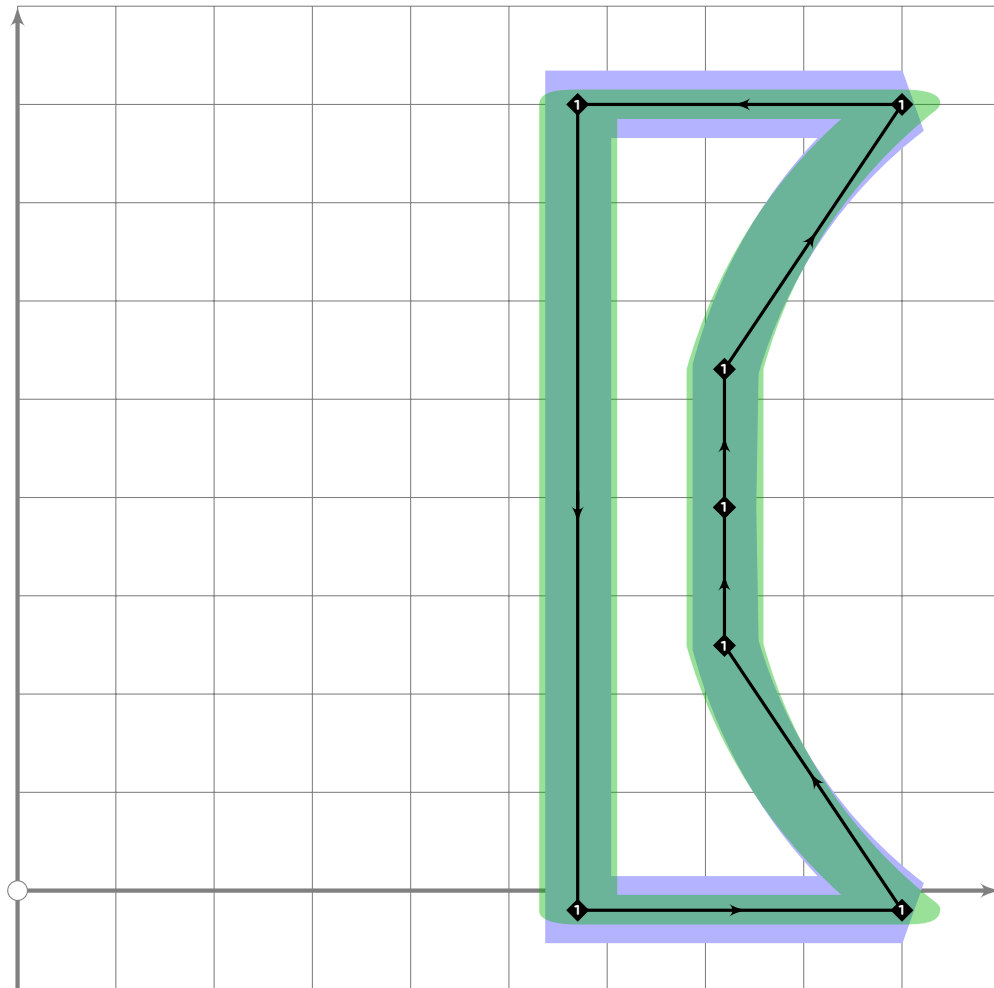
```



```

186 beginsuglyph("uni3011",17);
187 push_stroke(bracket1 rotatedaround (centre_pt,180),
188   (2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-(2,2)-cycle);
189 set_bosize(0,90);
190 set_botip(0,1,1);
191 set_botip(0,2,0);
192 set_botip(0,3,1);
193 set_botip(0,4,1);
194 set_botip(0,5,0);
195 set_botip(0,6,1);
196 push_lcblob(get_strokep(0));
197
198 tsu_render;
199 endtsuglyph;

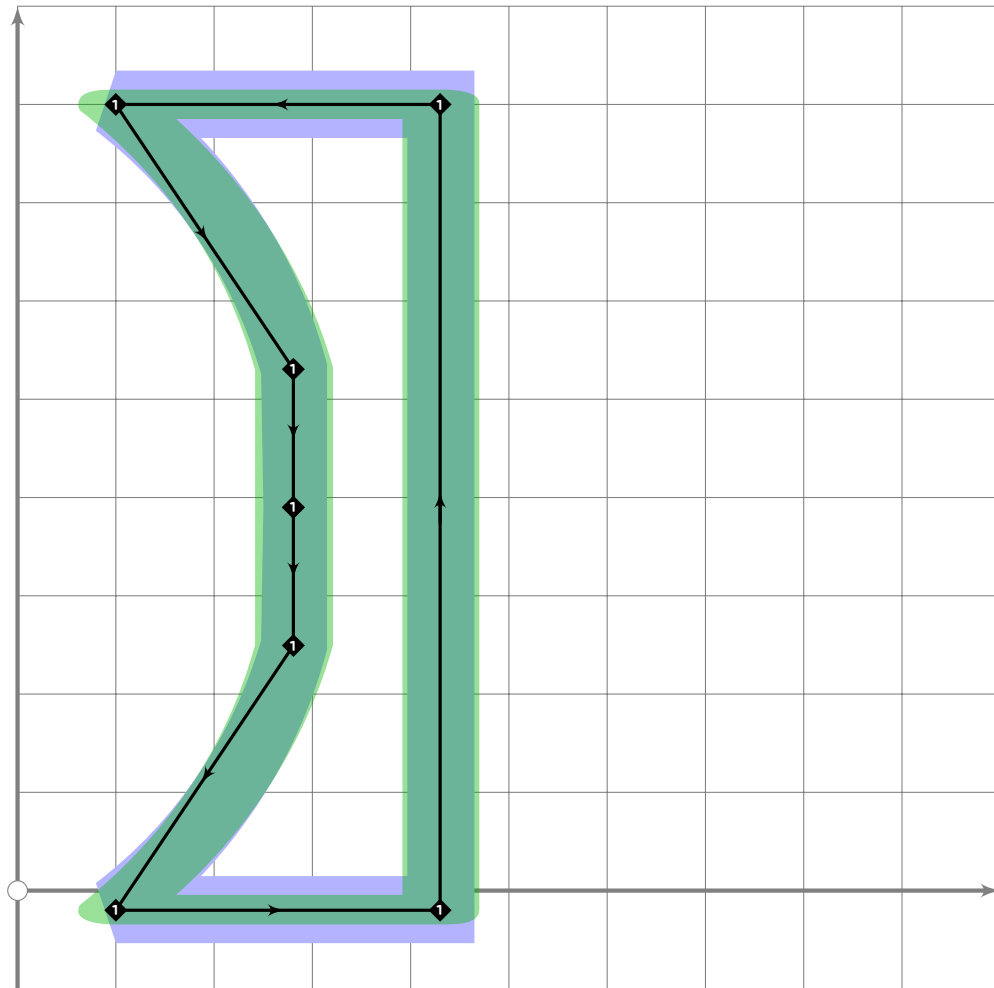
```



```

200 begintsuglyph("uni3016";22);
201 push_stroke(bracket1,
202   (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-
203   (1,7,1,7)-(1,7,1,7)-cycle);
204 set_bosize(0,90);
205 set_botip(0,1,1);
206 set_botip(0,2,0);
207 set_botip(0,3,1);
208 set_botip(0,4,1);
209 set_botip(0,5,0);
210 set_botip(0,6,1);
211
212 tsu_render;
213 endtsuglyph;

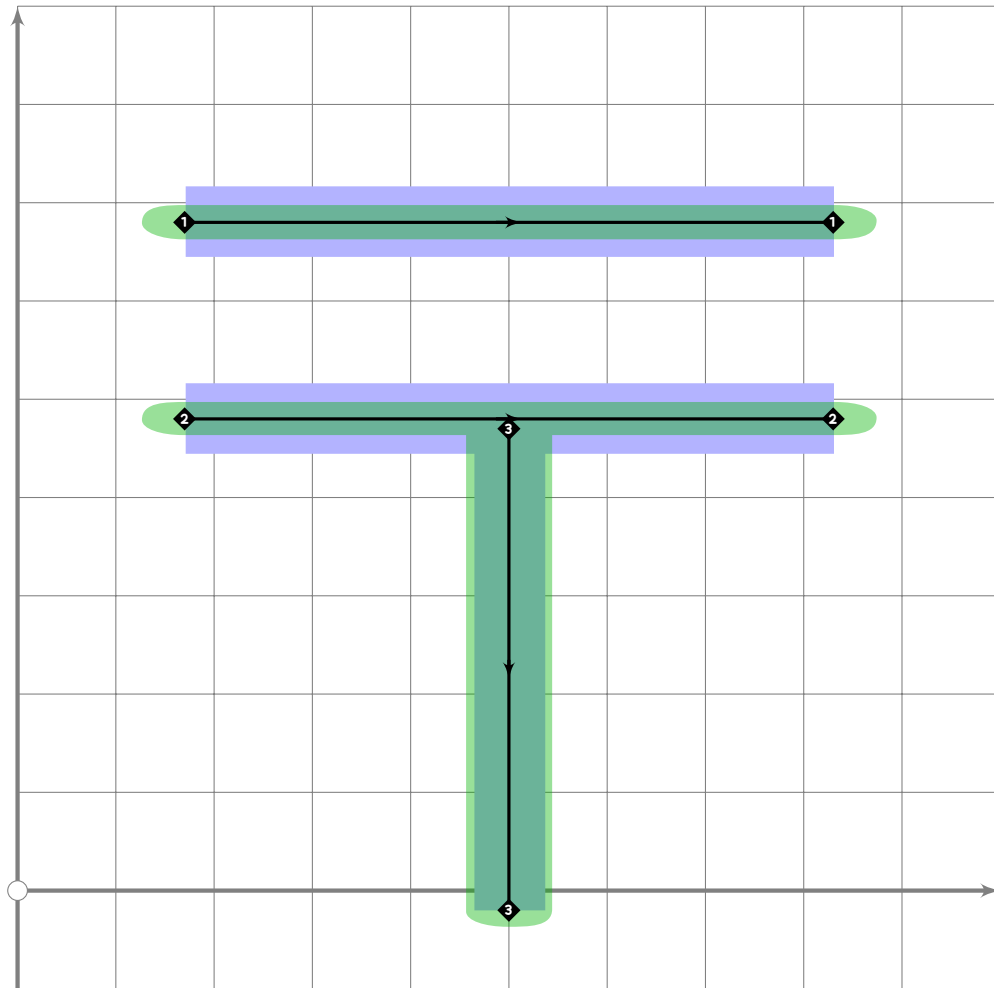
```



```

214 begintsuglyph("uni3017";23);
215 push_stroke(bracketl rotatedaround (centre_pt,180),
216   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-
217   (1.7,1.7)-(1.7,1.7)-cycle);
218 set_bosize(0,90);
219 set_botip(0,1,1);
220 set_botip(0,2,0);
221 set_botip(0,3,1);
222 set_botip(0,4,1);
223 set_botip(0,5,0);
224 set_botip(0,6,1);
225
226 tsu_render;
227 endtsuglyph;
228

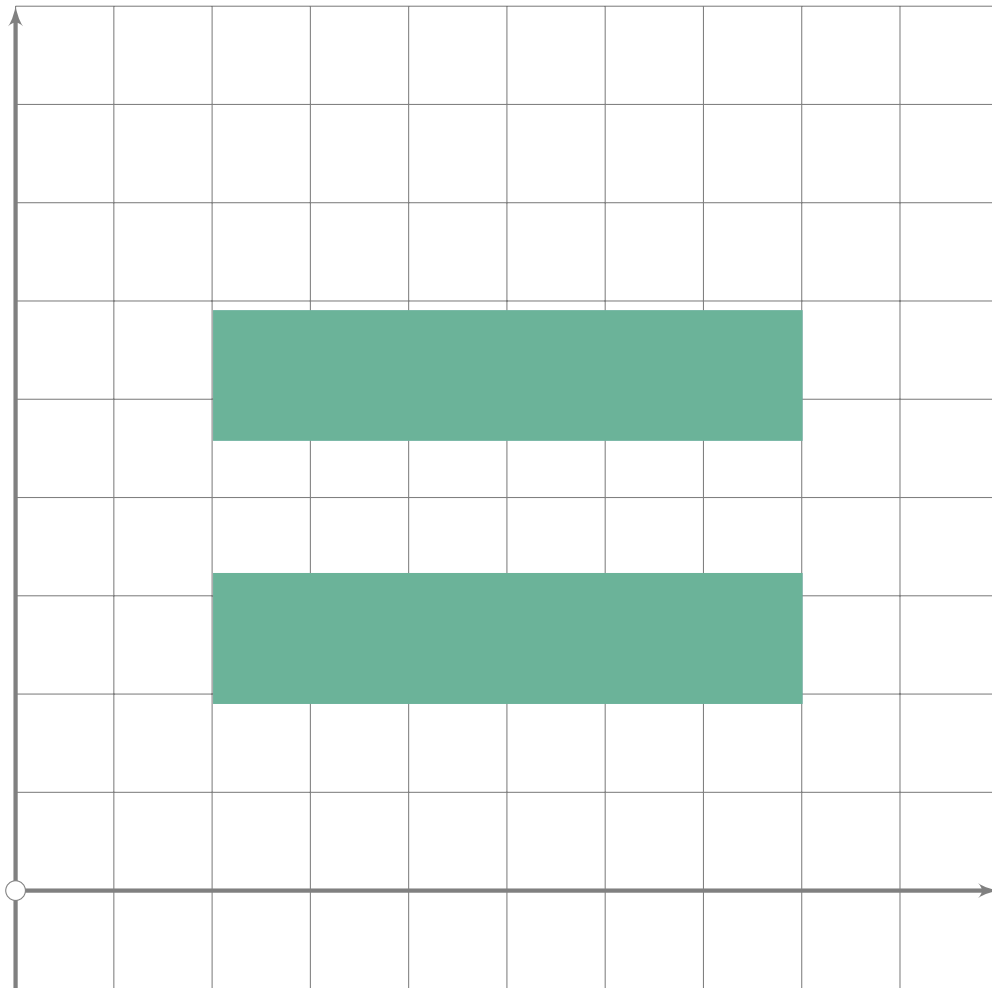
```



```

229 % Japanese postal mark
230 begintsuglyph("uni3012",18);
231 push_stroke((170,680)-(830,680),(1,7,1.7)-(1,7,1.7));
232
233 push_stroke((170,680-2*tsu_punct_size)-(830,680-2*tsu_punct_size),
234   (1,7,1.7)-(1,7,1.7));
235
236 push_stroke((500,720-2.5*tsu_punct_size)-(500,-20),
237   (1,7,1.7)-(1,7,1.7));
238
239 tsu_render;
240 endtsuglyph;
241

```

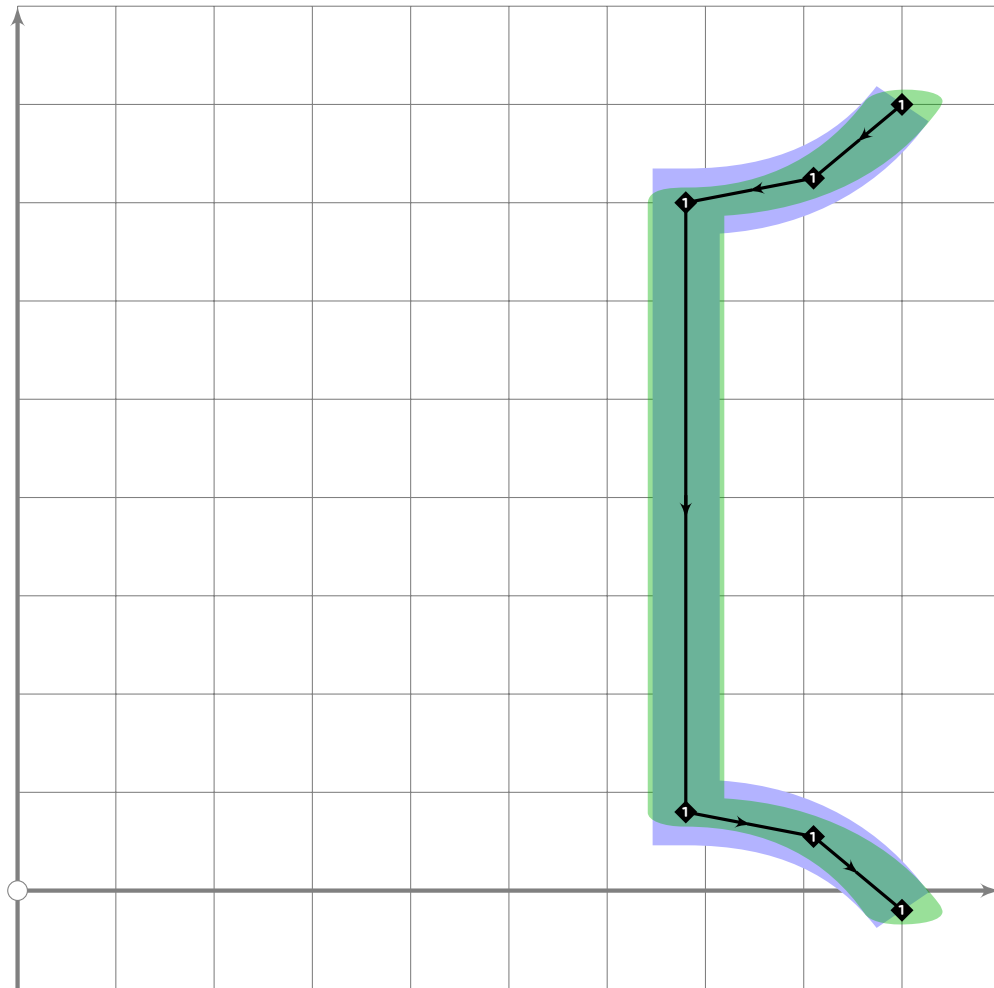


```

242 % "geta" or substitute mark
243 begintsuglyph("uni3013",19);
244   x2-x1=6*tsu_punct_size;
245   0.5[x1,x2]=500;
246   y4-y1=4*tsu_punct_size;
247   y2-y1=y3-y2=y4-y3;
248   0.5[y1,y4]=390;
249   dangerousFill
250     (x1,y4)-(x1,y3)-(x2,y3)-(x2,y4)-cycle,
251     (x1,y2)-(x1,y1)-(x2,y1)-(x2,y2)-cycle;
252 endtsuglyph;
253
254 % left and right plain and white tortoise shell brackets
255 % grouped here, out of Unicode sequence, to share the outline
256 bracket1:=(900,800)..
257   (900-tsu_punct_size*0.9,800-tsu_punct_size*3/4)..
258   {left}(900-2.2*tsu_punct_size,800-tsu_punct_size)-
259   (900-2.2*tsu_punct_size,20+tsu_punct_size){right}..
260   (900-tsu_punct_size*0.9,20+tsu_punct_size*3/4)..
261   (900,20);
262 bracket2:=(point 1 of bracket1)-(point 4 of bracket1);

```

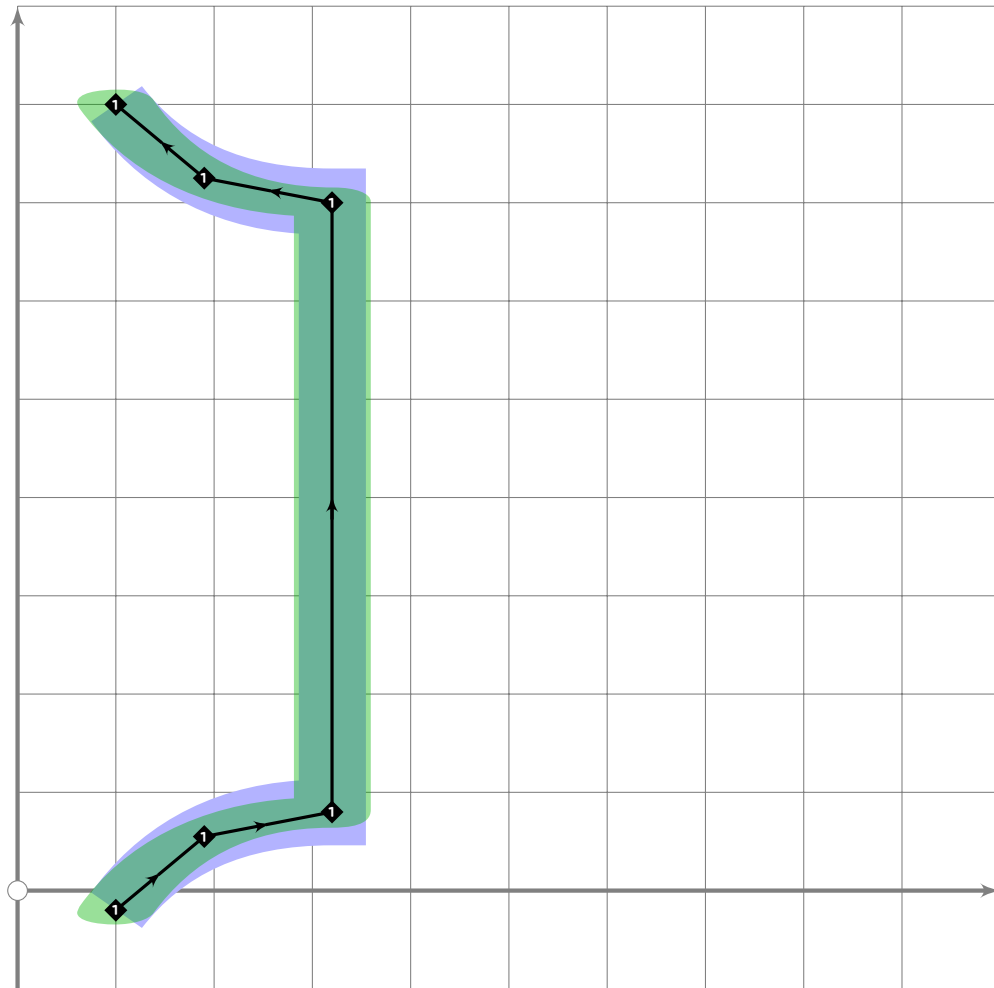




```

263 begint Suglyph("uni3014";20);
264 push_stroke(bracket1,
265   (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7));
266 set_bosize(0,90);
267 set_botip(0,2,1);
268 set_botip(0,3,1);
269
270 tsu_render;
271 endtsuglyph;

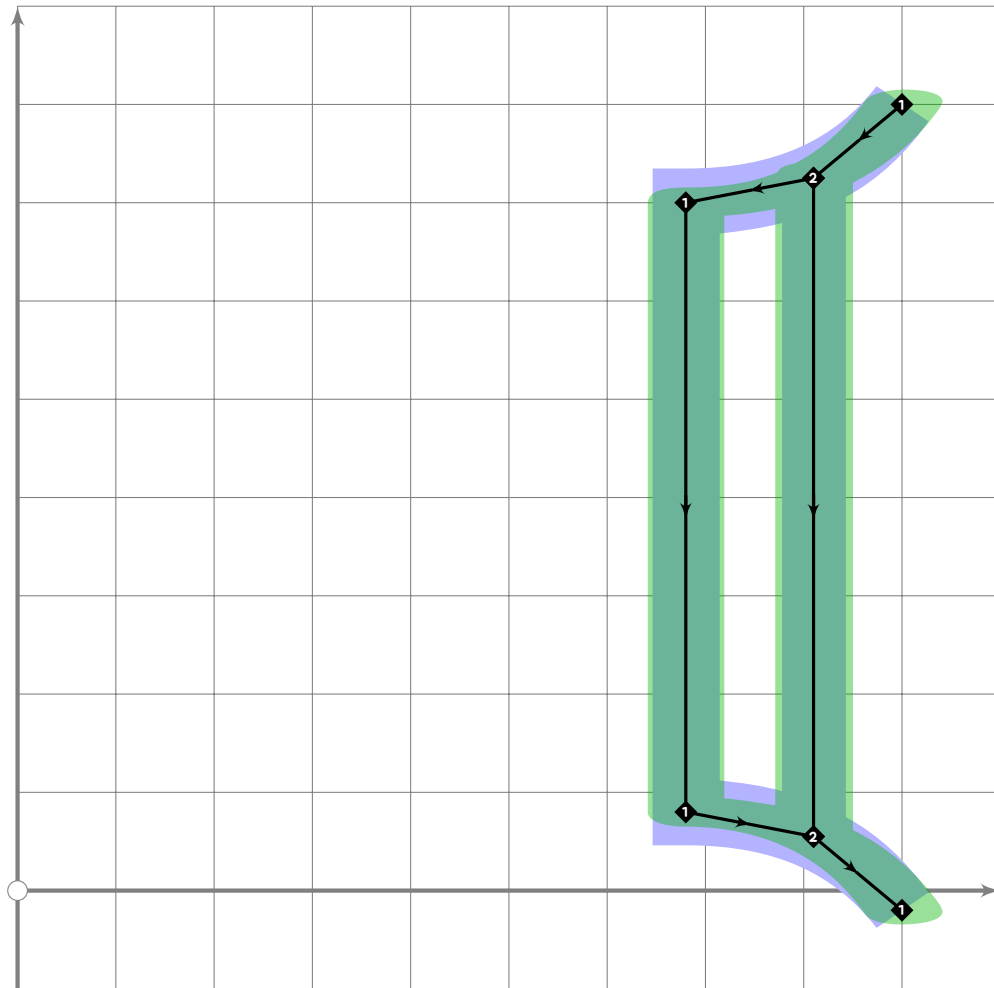
```



```

272 beginsuglyph("uni3015";21);
273 push_stroke(bracket1 rotatedaround (centre_pt,180),
274   (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7));
275 set_bosize(0,90);
276 set_botip(0,2,1);
277 set_botip(0,3,1);
278
279 tsu_render;
280 endtsuglyph;

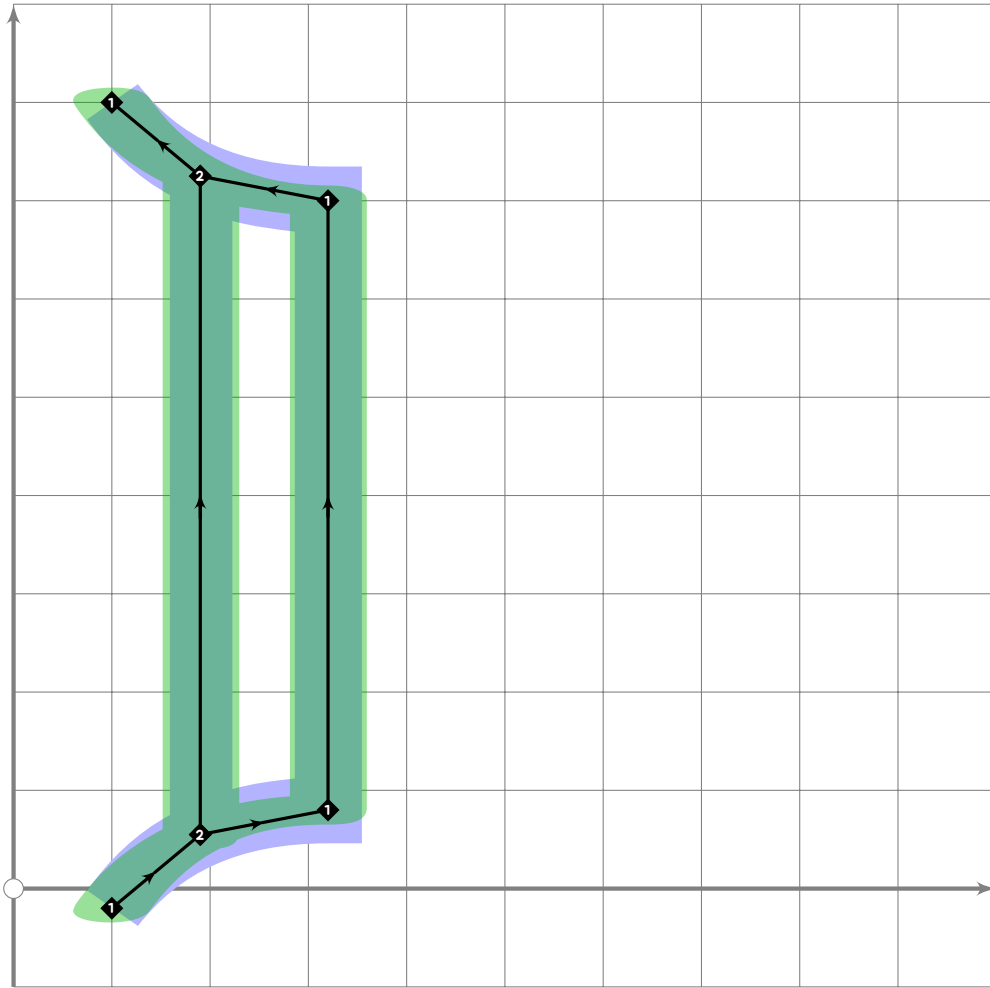
```



```

281 begint Suglyph("uni3018";24);
282 push_stroke(bracket1,
283   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
284 set_bosize(0,90);
285 set_botip(0,2,1);
286 set_botip(0,3,1);
287
288 push_stroke(bracket2,
289   (1.7,1.7)-(1.7,1.7));
290 set_bosize(0,90);
291
292 tsu_render;
293 endtsuglyph;

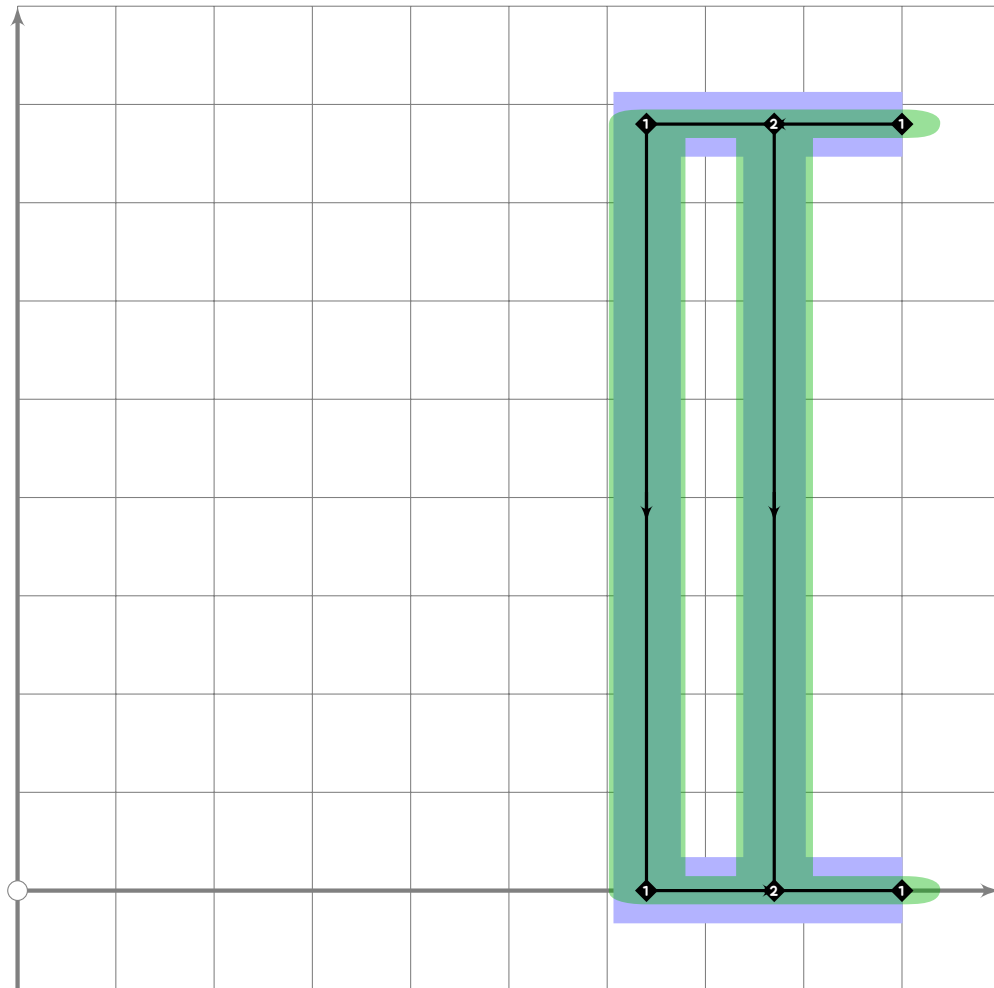
```



```

294 begintsuglyph("uni3019";25);
295 push_stroke(bracket1 rotatedaround (centre_pt,180),
296 (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
297 set_bosize(0,90);
298 set_botip(0,2,1);
299 set_botip(0,3,1);
300
301 push_stroke(bracket2 rotatedaround (centre_pt,180),
302 (1.7,1.7)-(1.7,1.7));
303 set_bosize(0,90);
304
305 tsu_render;
306 endtsuglyph;
307
308 % left and right white square brackets
309 bracket1=(900,780)-
310 (900-2.6*tsu_punct_size,780)-
311 (900-2.6*tsu_punct_size,0)-
312 (900,0);
313 bracket2=(point 0.5 of bracket1)-(point 2.5 of bracket1);

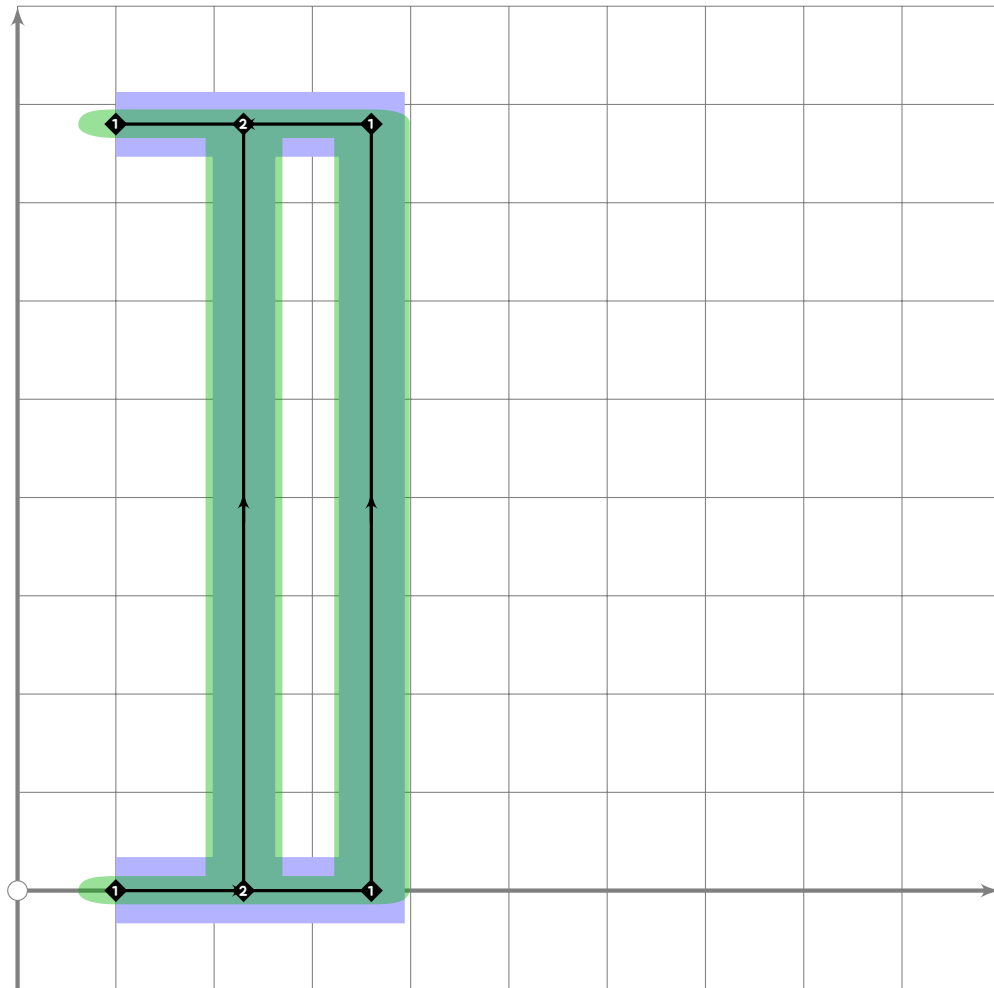
```



```

314 begint Suglyph("uni301A";26);
315 push_stroke(bracket1,
316   (1,7,1,7)-(1,7,1,7)-(1,7,1,7)-(1,7,1,7));
317 set_bosize(0,90);
318 set_botip(0,1,1);
319 set_botip(0,2,1);
320
321 push_stroke(bracket2,
322   (1,7,1,7)-(1,7,1,7));
323 set_bosize(0,90);
324
325 tsu_render;
326 endtsuglyph;

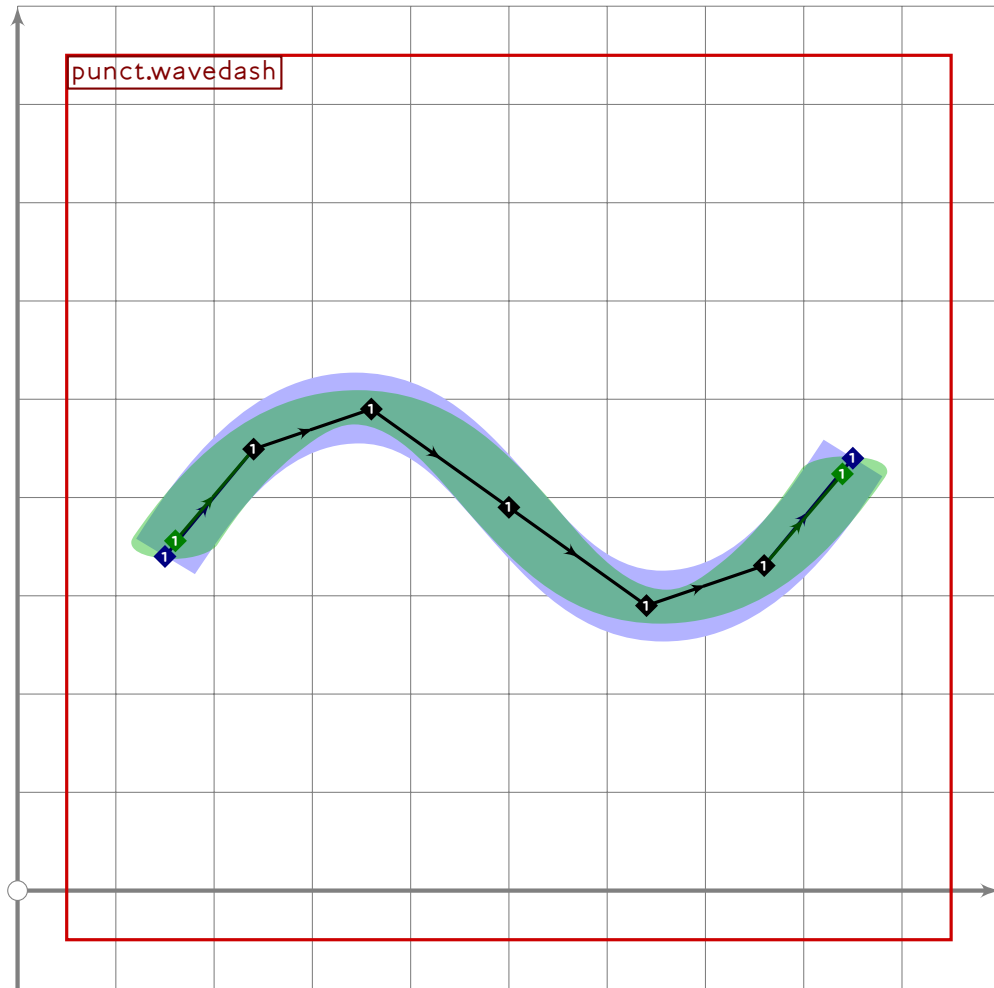
```



```

327 begint Suglyph("uni301B";27);
328 push_stroke(bracket1 rotatedaround (centre_pt,180),
329   (1.7,1.7)-(1.7,1.7)-(1.7,1.7)-(1.7,1.7));
330 set_bosize(0,90);
331 set_botip(0,1,1);
332 set_botip(0,2,1);
333
334 push_stroke(bracket2 rotatedaround (centre_pt,180),
335   (1.7,1.7)-(1.7,1.7));
336 set_bosize(0,90);
337
338 tsu_render;
339 endtsuglyph;
340

```



```

341 % "wave dash"
342 beginsuglyph("uni301C";28);
343   punct.wavedash;
344   bo_serif.a0:=5;
345   bo_serif.a6:=8;
346   tsu_render;
347 endsuglyph;
348
349
350

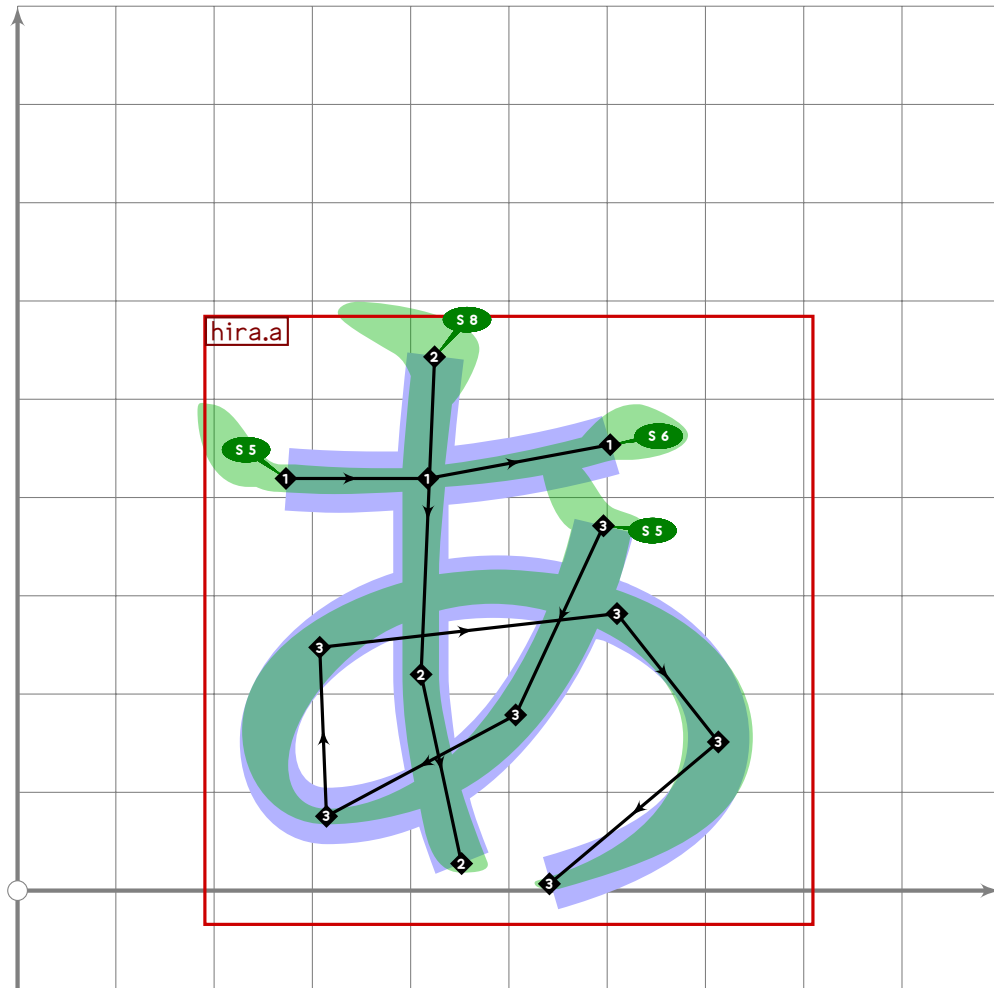
```

## Hiragana

```

351 % HIRAGANA
352

```



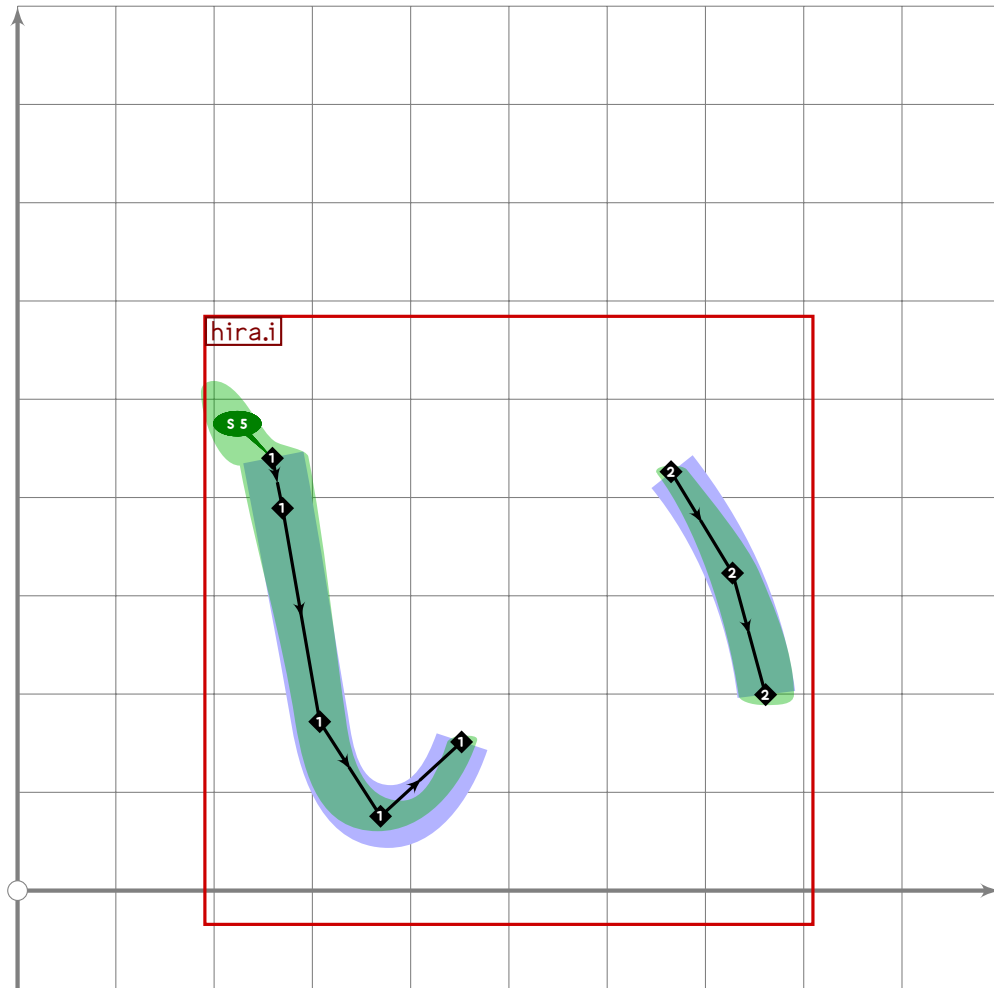
```

353 % hiragana "small a"
354 begintsuglyph("uni3041";65);
355 tsu_xform(tsu_xf.smallkana)(hira.a);
356 tsu_render;
357 endtsuglyph;
358
359 % hiragana "a"
360 begintsuglyph("uni3042";66);
361 hira.a;
362 tsu_render;
363 endtsuglyph;
364

```

[see page 65]



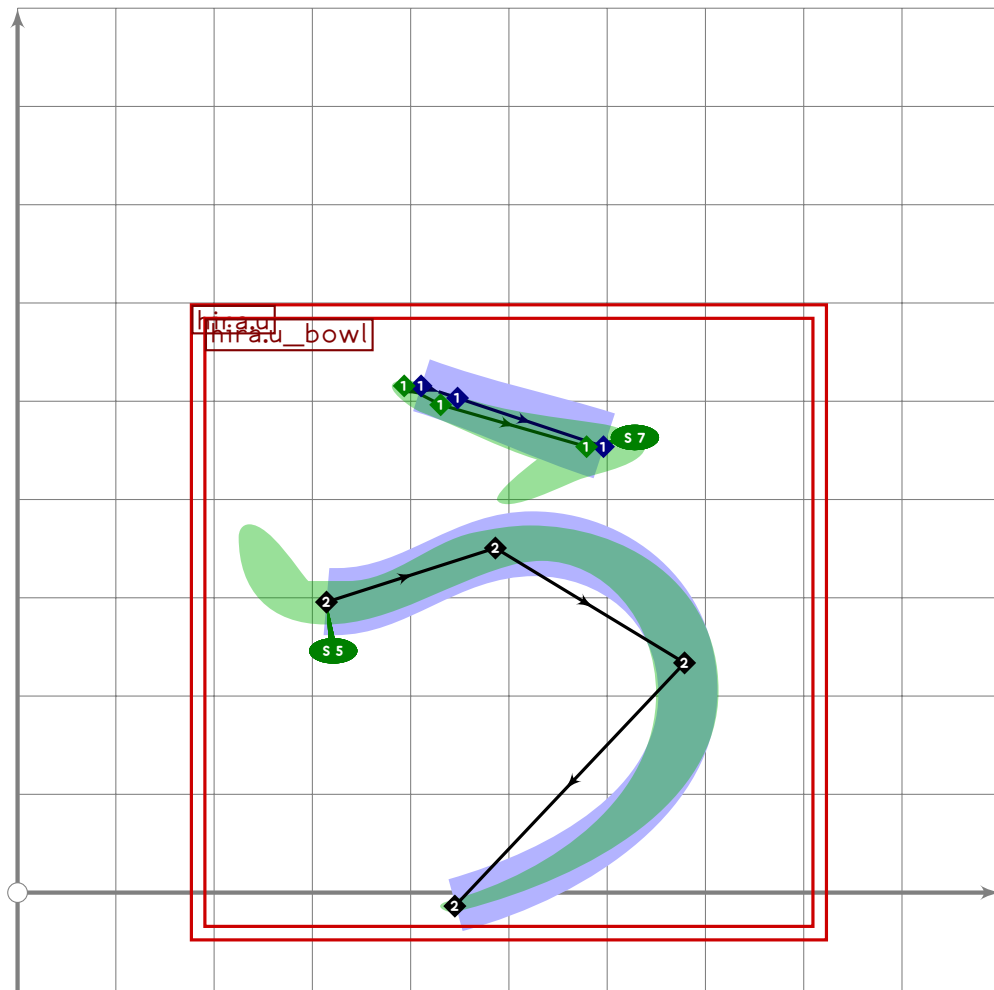


```

365 % hiragana "small i"
366 begintsuglyph("uni3043";67);
367 tsu_xform(tsu_xf.smallkana)(hira.i);
368 tsu_render;
369 endtsuglyph;
370
371 % hiragana "i"
372 begintsuglyph("uni3044";68);
373 hira.i;
374 tsu_render;
375 endtsuglyph;
376

```

[see page 66]

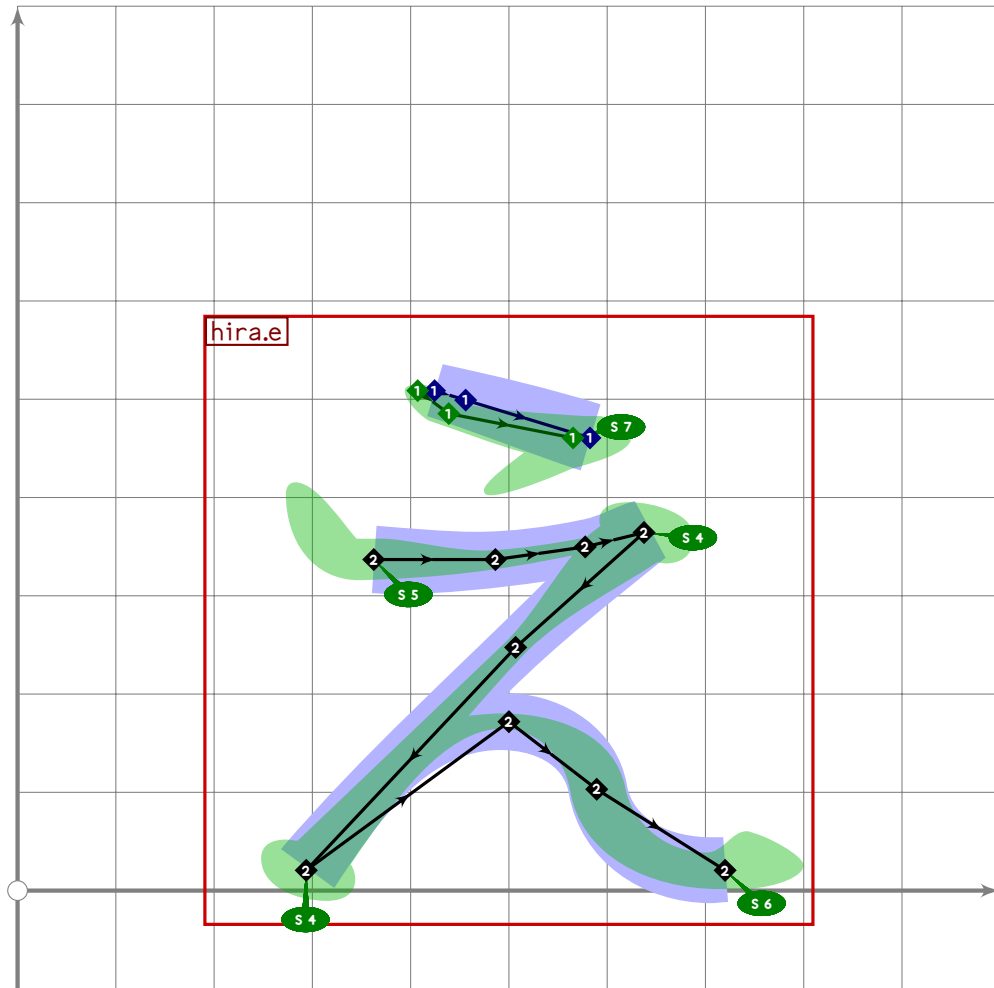


```

377 % hiragana "small u"
378 begintsuglyph("uni3045";69);
379 tsu_xform(tsu_xf.smallkana)(hira.u);
380 tsu_render;
381 endtsuglyph;
382
383 % hiragana "u"
384 begintsuglyph("uni3046";70);
385 hira.u;
386 tsu_render;
387 endtsuglyph;
388

```

[see page 67]

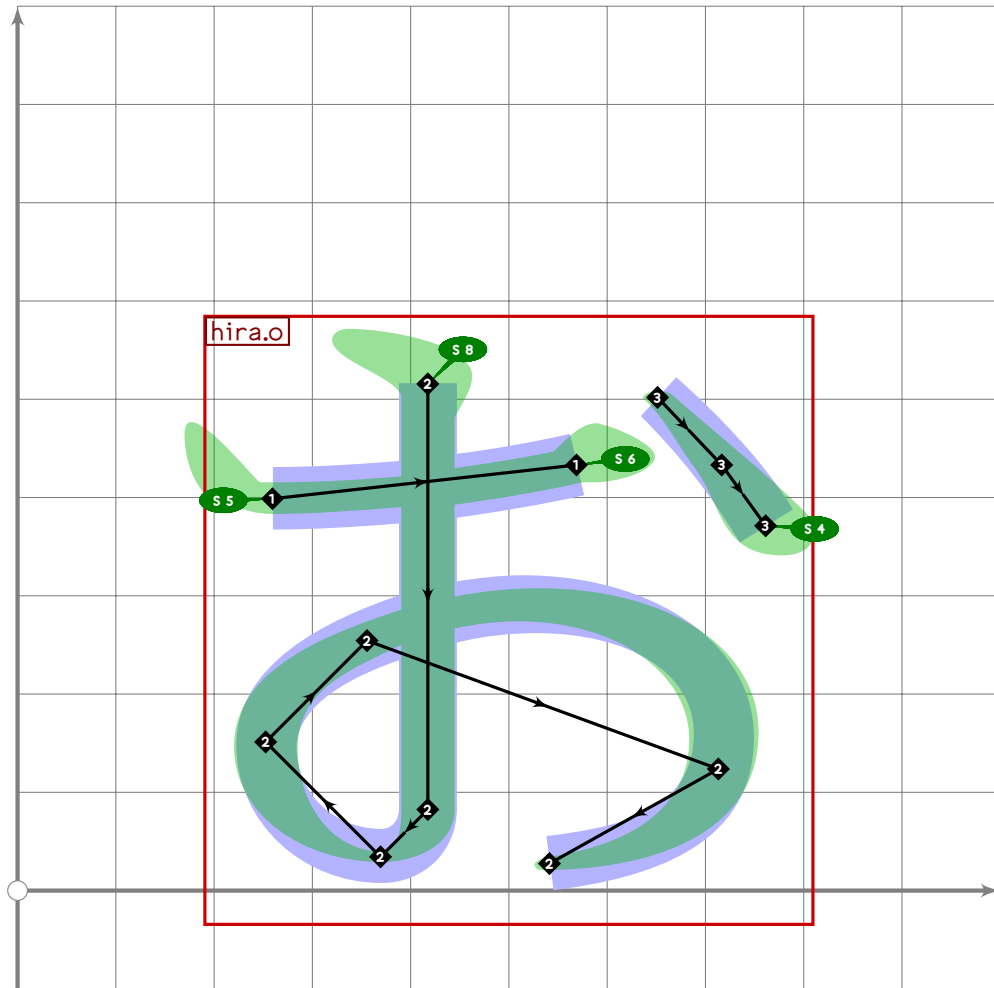


```

389 % hiragana "small e"
390 begintsuglyph("uni3047";71);
391 tsu_xform(tsu_xf.smallkana)(hira.e);
392 tsu_render;
393 endtsuglyph;
394
395 % hiragana "e"
396 begintsuglyph("uni3048";72);
397 hira.e;
398 tsu_render;
399 endtsuglyph;
400

```

[see page 68]



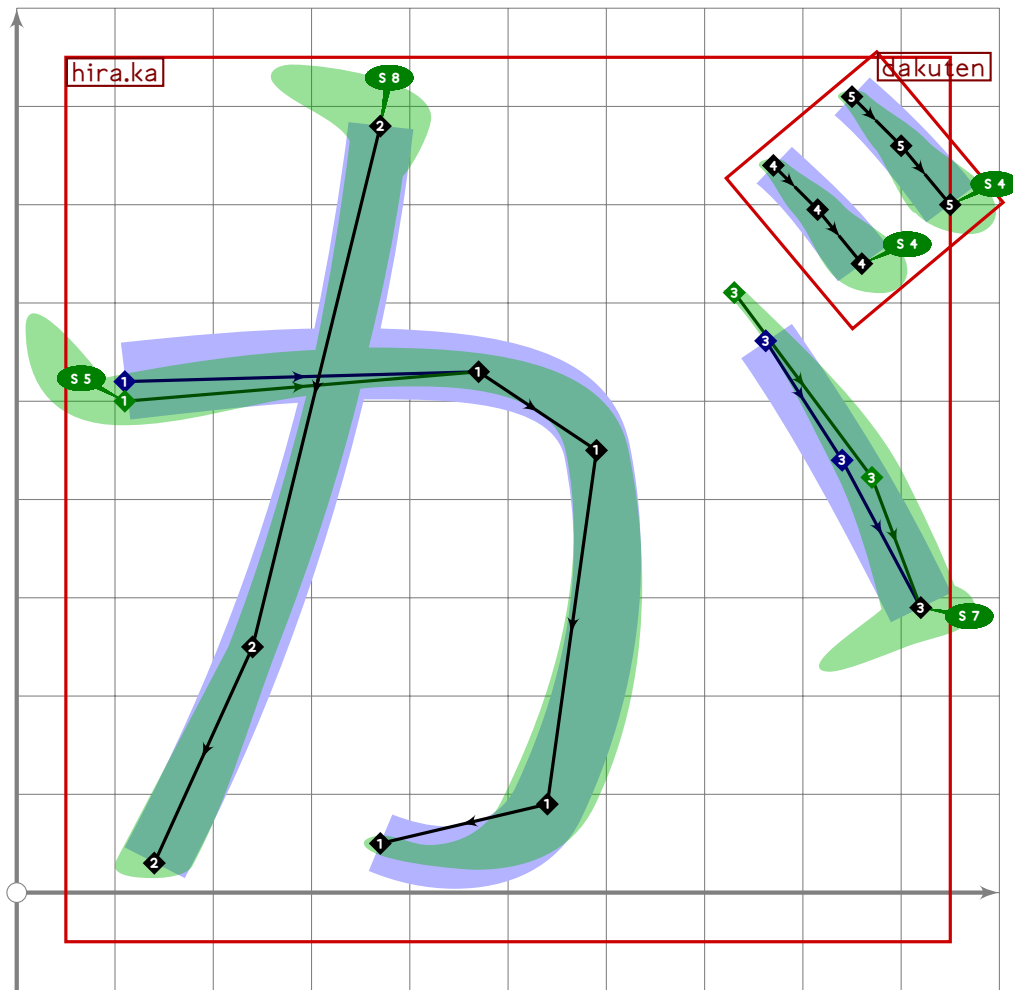
```

401 % hiragana "small o"
402 begintsuglyph("uni3049";73);
403 tsu_xform(tsu_xf.smallkana)(hira.o);
404 tsu_render;
405 endtsuglyph;
406
407 % hiragana "o"
408 begintsuglyph("uni304A";74);
409 hira.o;
410 tsu_render;
411 endtsuglyph;
412
413 % hiragana "ka"
414 begintsuglyph("uni304B";75);
415 hira.ka;
416 tsu_render;
417 endtsuglyph;
418

```

[see page 69]

[see page 70]

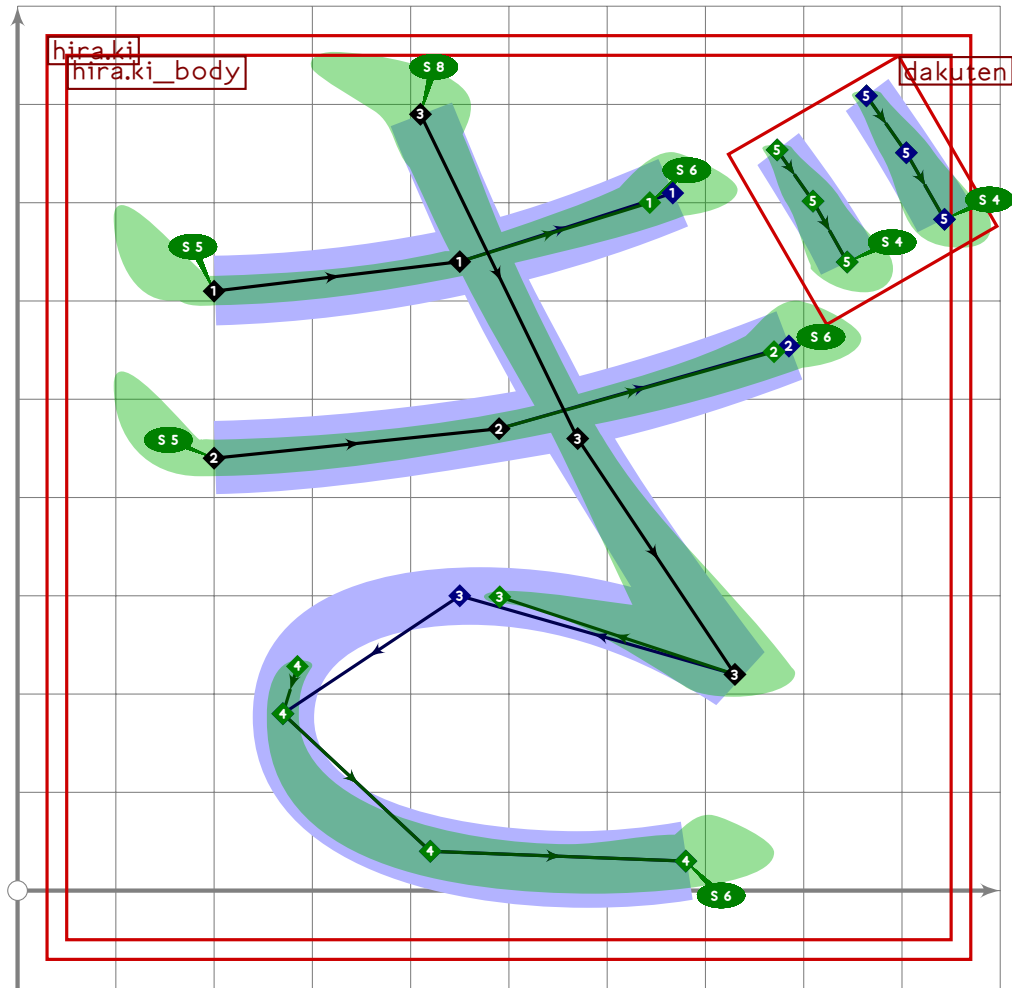


```

419 % hiragana "ga"
420 begintsuglyph("uni304C";76);
421 hira.ka;
422 dakuten(identity shifted (850,730));
423 tsu_render;
424 endtsuglyph;
425
426 % hiragana "ki"
427 begintsuglyph("uni304D";77);
428 hira.ki;
429 tsu_render;
430 endtsuglyph;
431

```

[see page 72]

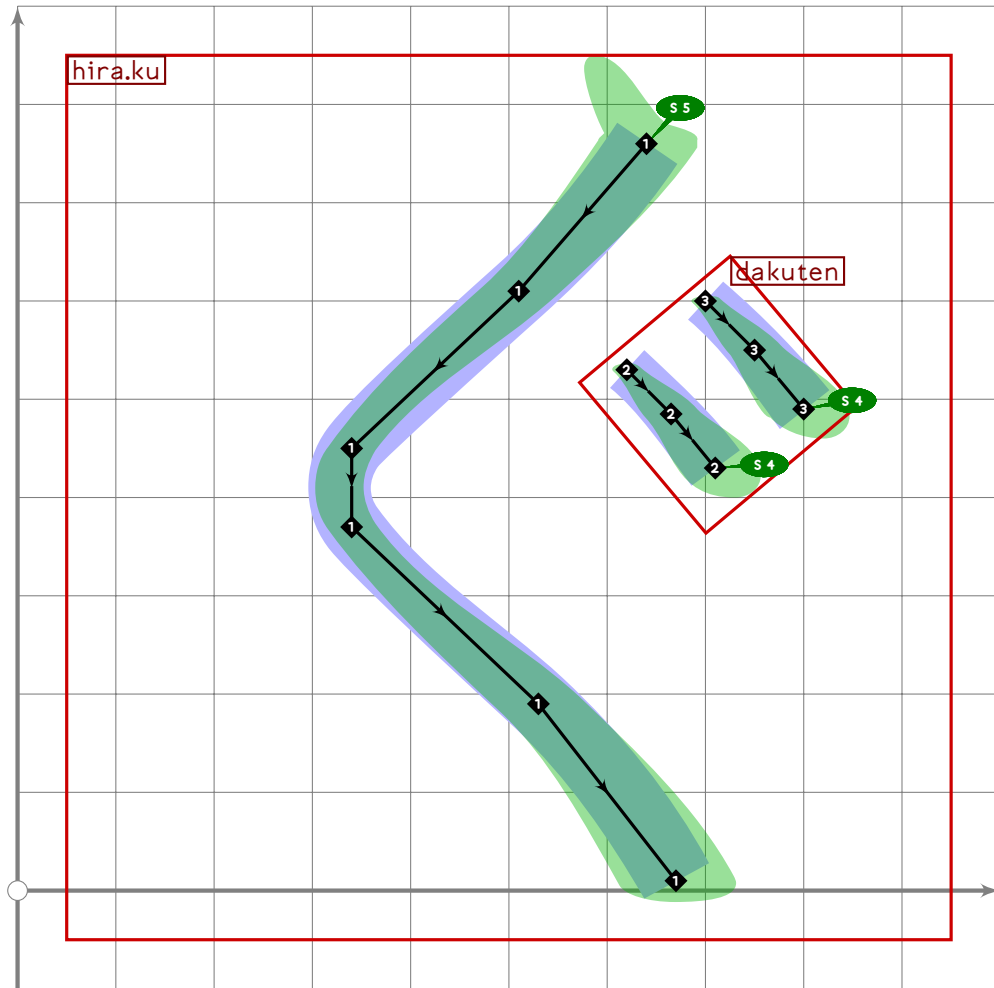


```

432 % hiragana "gi"
433 begintsuglyph("uni304E";78);
434 hira.ki;
435 replace_stroke(-2,subpath (0,1,9-0.1*mincho) of oldp);
436 replace_stroke(-1,subpath (0,1,95-0.05*mincho) of oldp);
437 dakuten(identity rotated -10 shifted (850,730));
438 tsu_render;
439 endsuglyph;
440
441 % hiragana "ku"
442 begintsuglyph("uni304F";79);
443 hira.ku;
444 tsu_render;
445 endsuglyph;
446

```

[see page 72]

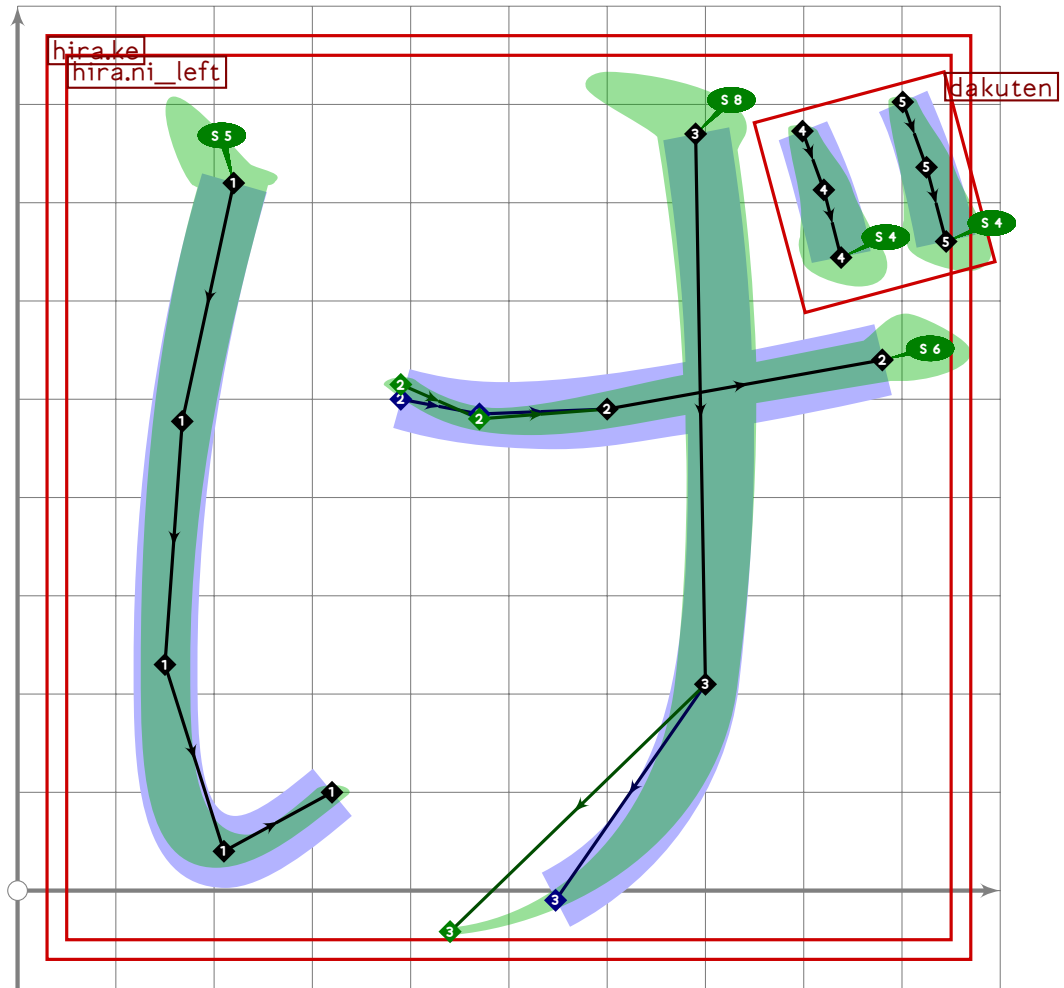


```

447 % hiragana "gu"
448 begint Suglyph("uni3050";80);
449 hira.ku;
450 dakuten(identity shifted (700,520));
451 tsu_render;
452 endtsuglyph;
453
454 % hiragana "ke"
455 begint Suglyph("uni3051";81);
456 hira.ke;
457 tsu_render;
458 endtsuglyph;
459

```

[see page 73]



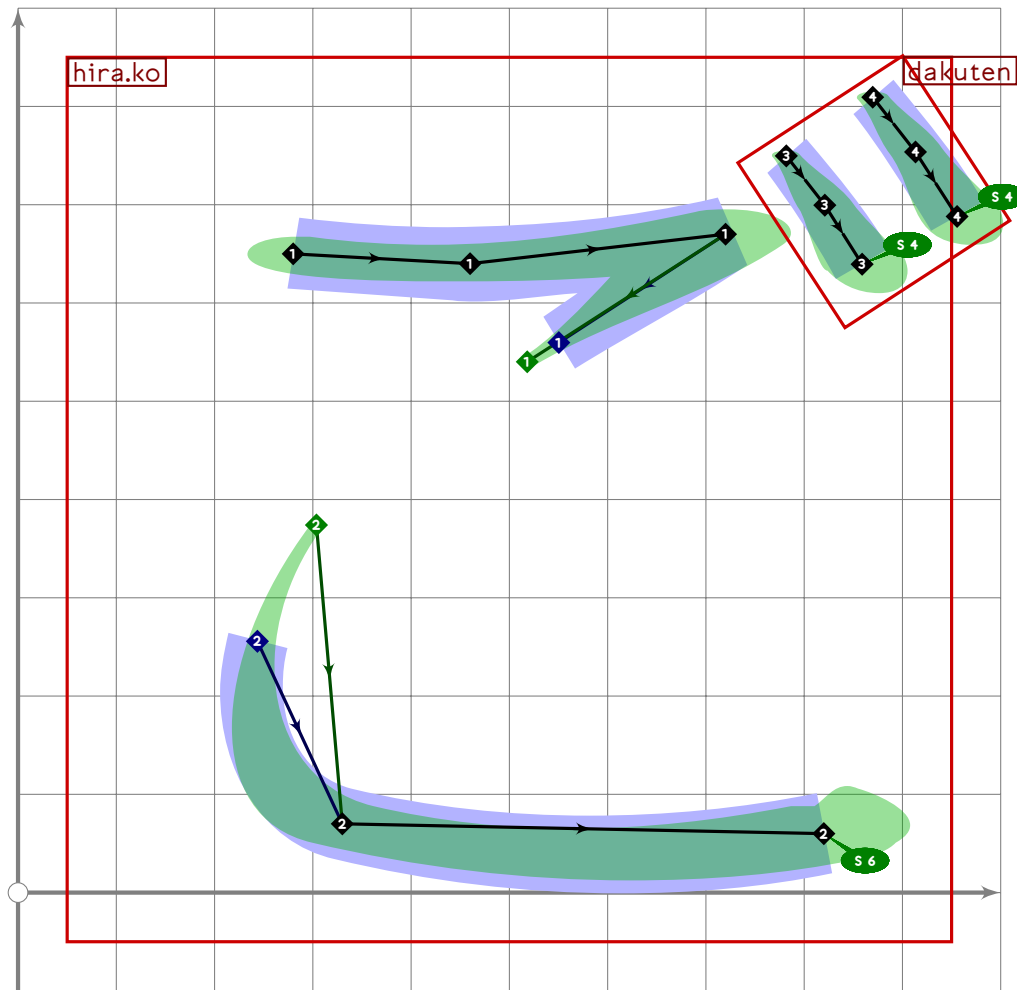
```

460 % hiragana "ge"
461 begint Suglyph("uni3052";82);
462 hira.ke;
463 dakuten(identity rotated -25 shifted (867,730));
464 tsu_render;
465 endtsuglyph;
466
467 % hiragana "ko"
468 begint Suglyph("uni3053";83);
469 hira.ko;
470 tsu_render;
471 endtsuglyph;
472

```

[see page 74]



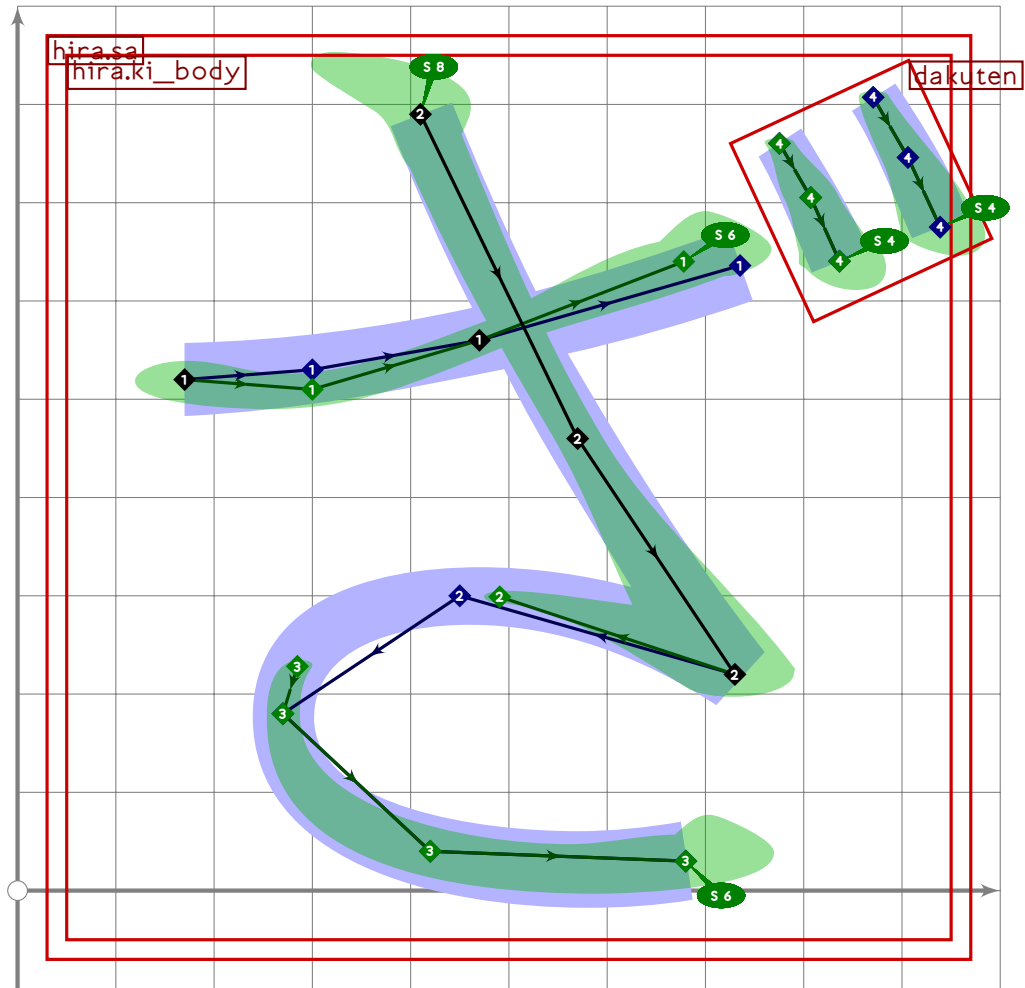


```

473 % hiragana "go"
474 begint Suglyph("uni3054";84);
475 hira.ko;
476 dakuten(identity rotated -7 shifted (860,730));
477 tsu_render;
478 endtsuglyph;
479
480 % hiragana "sa"
481 begint Suglyph("uni3055";85);
482 hira.sa;
483 tsu_render;
484 endtsuglyph;
485

```

[see page 75]

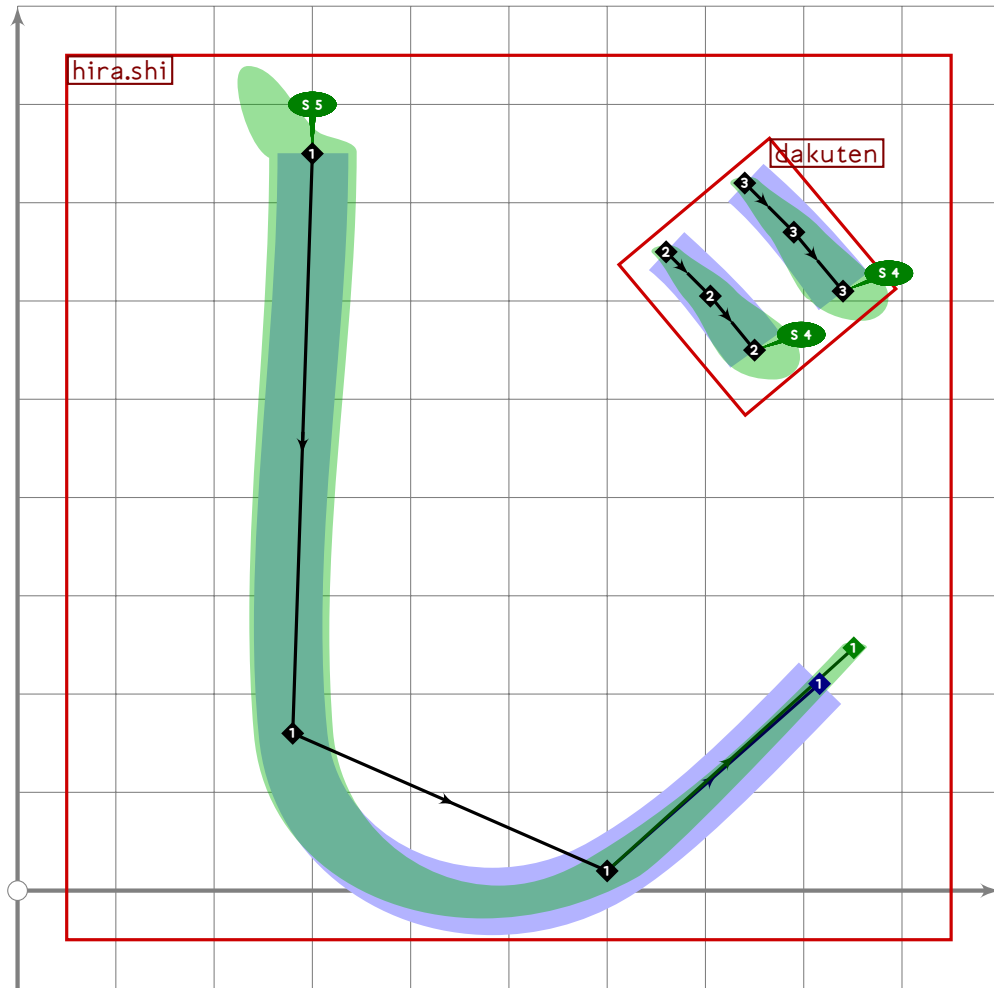


```

486 % hiragana "za"
487 begintsuglyph("uni3056";86);
488 hira.za;
489 replace_stroke(-1,subpath (0,2.8) of oldp);
490 dakuten(identity rotated -15 shifted (850,730));
491 tsu_render;
492 endsuglyph;
493
494 % hiragana "shi"
495 begintsuglyph("uni3057";87);
496 hira.shi;
497 tsu_render;
498 endsuglyph;
499

```

[see page 76]

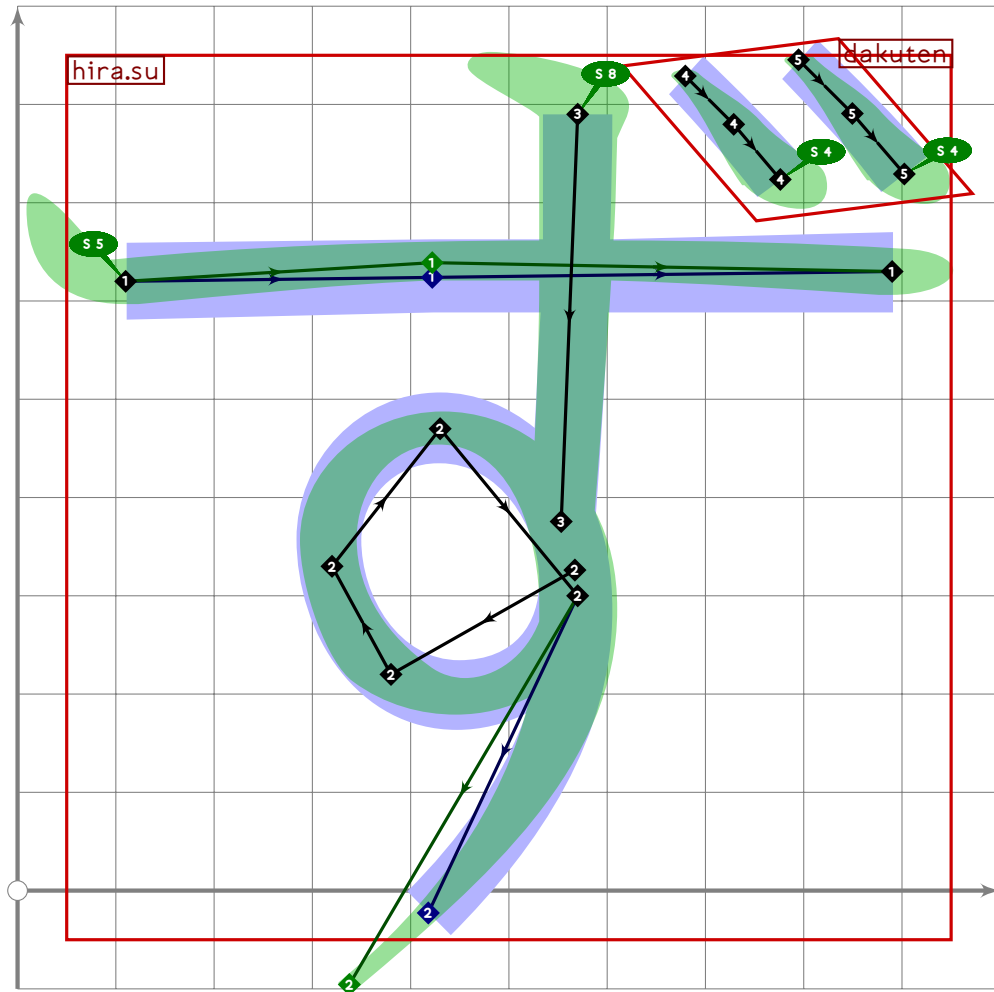


```

500 % hiragana "ji"
501 begint Suglyph("uni3058";88);
502 hira.shi;
503 dakuten(identity shifted (740,640));
504 tsu_render;
505 endtsuglyph;
506
507 % hiragana "su"
508 begint Suglyph("uni3059";89);
509 hira.su;
510 tsu_render;
511 endtsuglyph;
512

```

[see page 77]

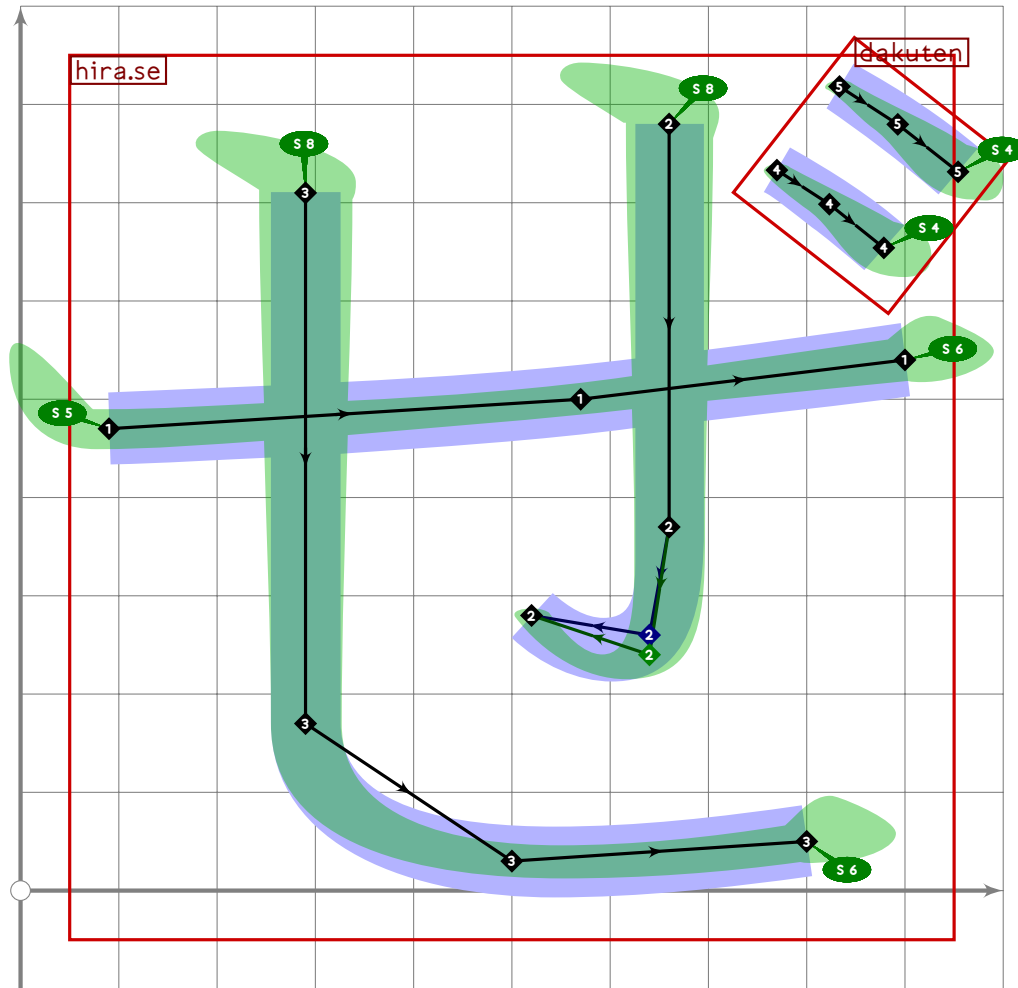


```

513 % hiragana "zu"
514 begint Suglyph("uni305A";90);
515 hira.su;
516 dakuten(identity rotated -30 slanted -0.4 xyscaled (1.2,0.8)
517   shifted (780,790));
518 tsu_render;
519 endtsuglyph;
520
521 % hiragana "se"
522 begint Suglyph("uni305B";91);
523 hira.se;
524 tsu_render;
525 endtsuglyph;
526

```

[see page 78]

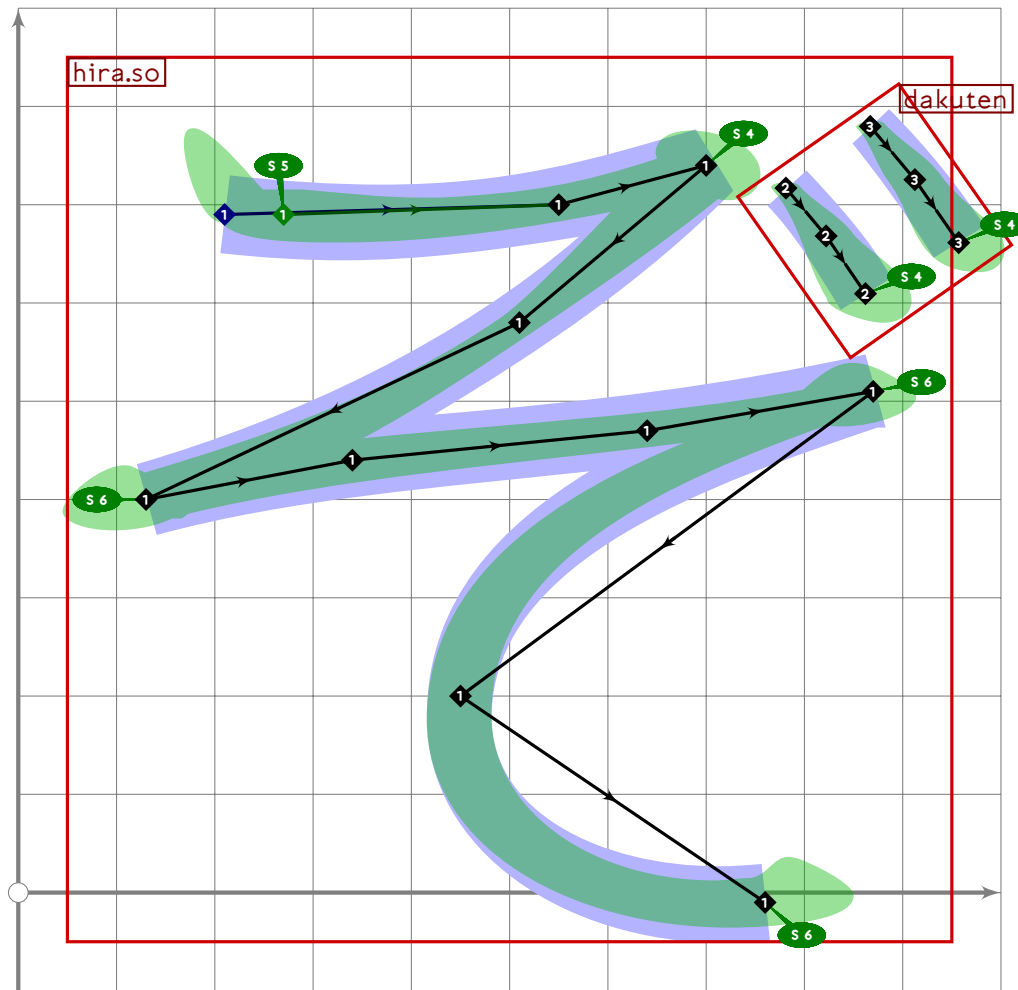


```

527 % hiragana "ze"
528 begintsuglyph("uni305C";92);
529 hira.se;
530 dakuten(identity rotated 12 shifted (850,740));
531 tsu_render;
532 endtsuglyph;
533
534 % hiragana "so"
535 begintsuglyph("uni305D";93);
536 hira.so;
537 tsu_render;
538 endtsuglyph;
539

```

[see page 79]

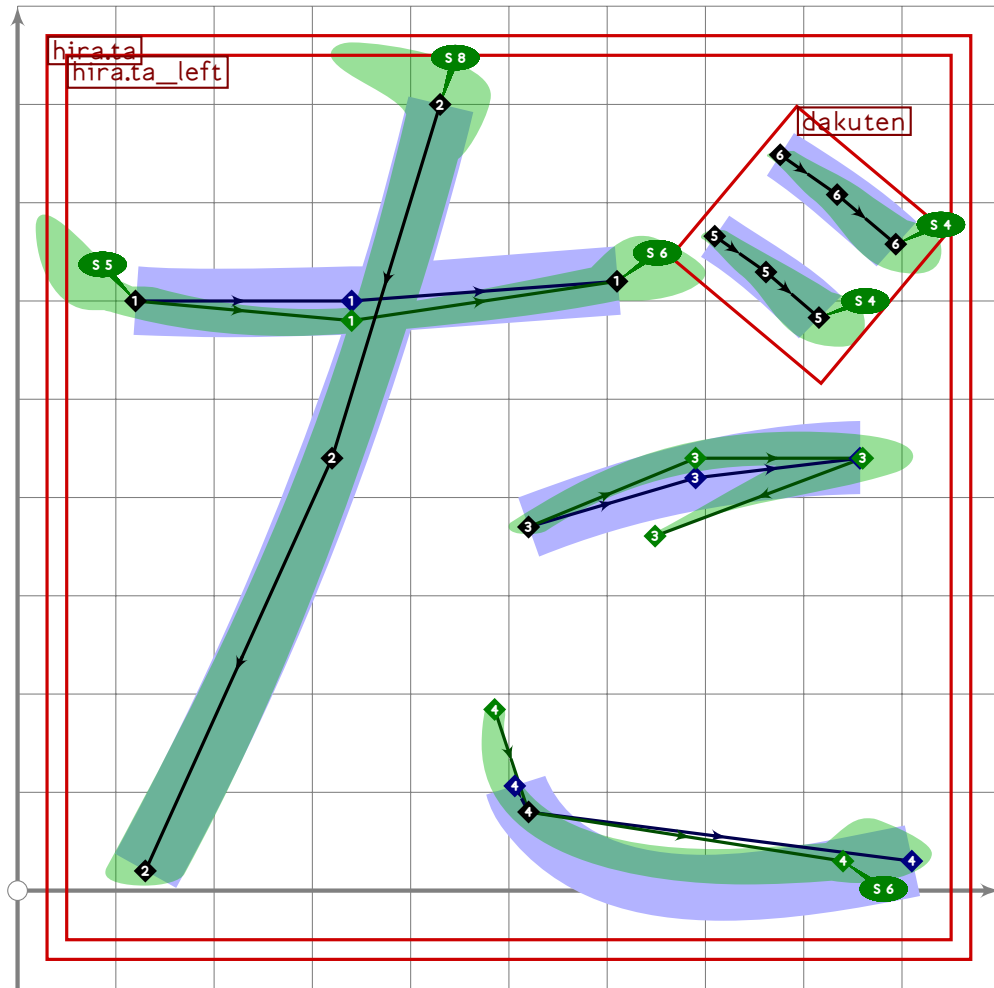


```

540 % hiragana "zo"
541 begintsuglyph("uni305E";94);
542 hira.so;
543 dakuten(identity rotated -5 shifted (860,700));
544 tsu_render;
545 endtsuglyph;
546
547 % hiragana "ta"
548 begintsuglyph("uni305F";95);
549 hira.ta;
550 tsu_render;
551 endtsuglyph;
552

```

[see page 81]

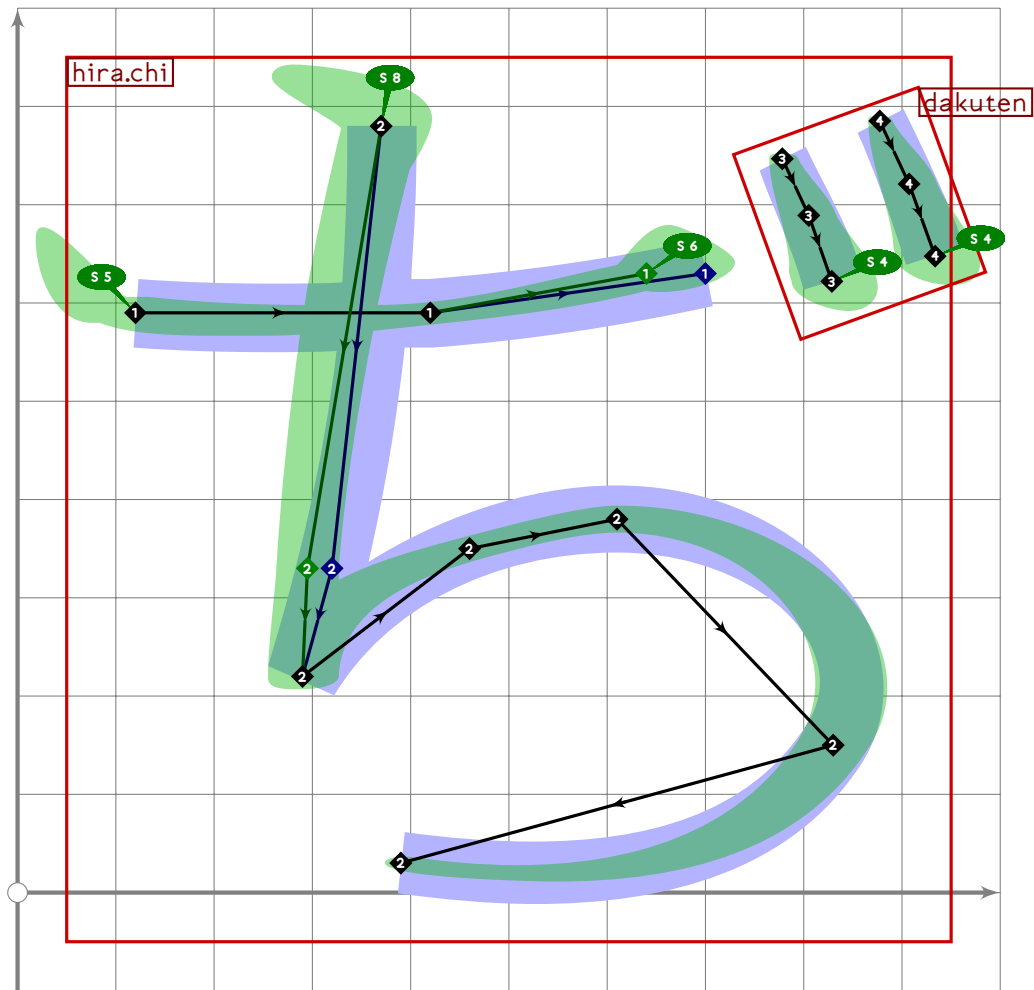


```

553 % hiragana "da"
554 begint Suglyph("uni3060";96);
555 hira.ta;
556 dakuten(identity rotated 10 shifted (790,670));
557 tsu_render;
558 endtsuglyph;
559
560 % hiragana "chi"
561 begint Suglyph("uni3061";97);
562 hira.chi;
563 tsu_render;
564 endtsuglyph;
565

```

[see page 82]

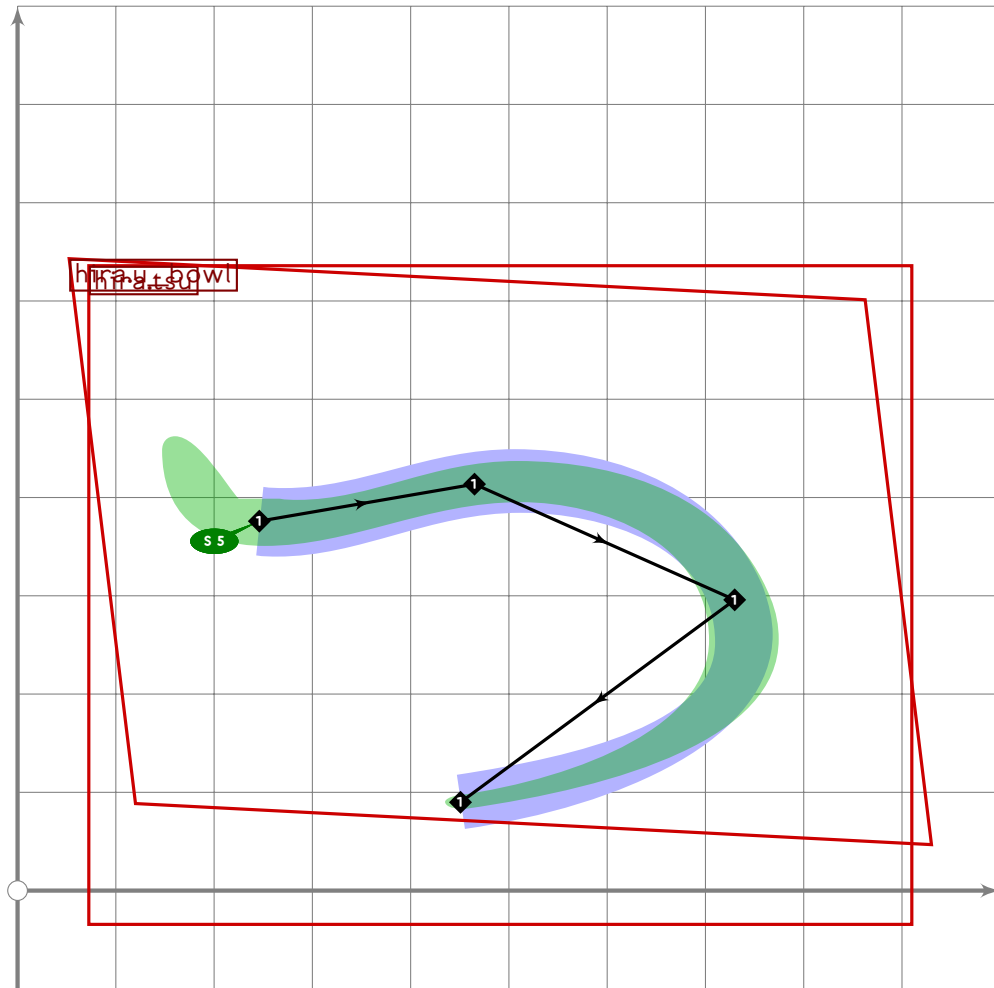


```

566 % hiragana "dji"
567 begint Suglyph("uni3062",98);
568 hira.chi;
569 dakuten(identity rotated -20 shifted (850,710));
570 tsu_render;
571 endtsuglyph;
572

```



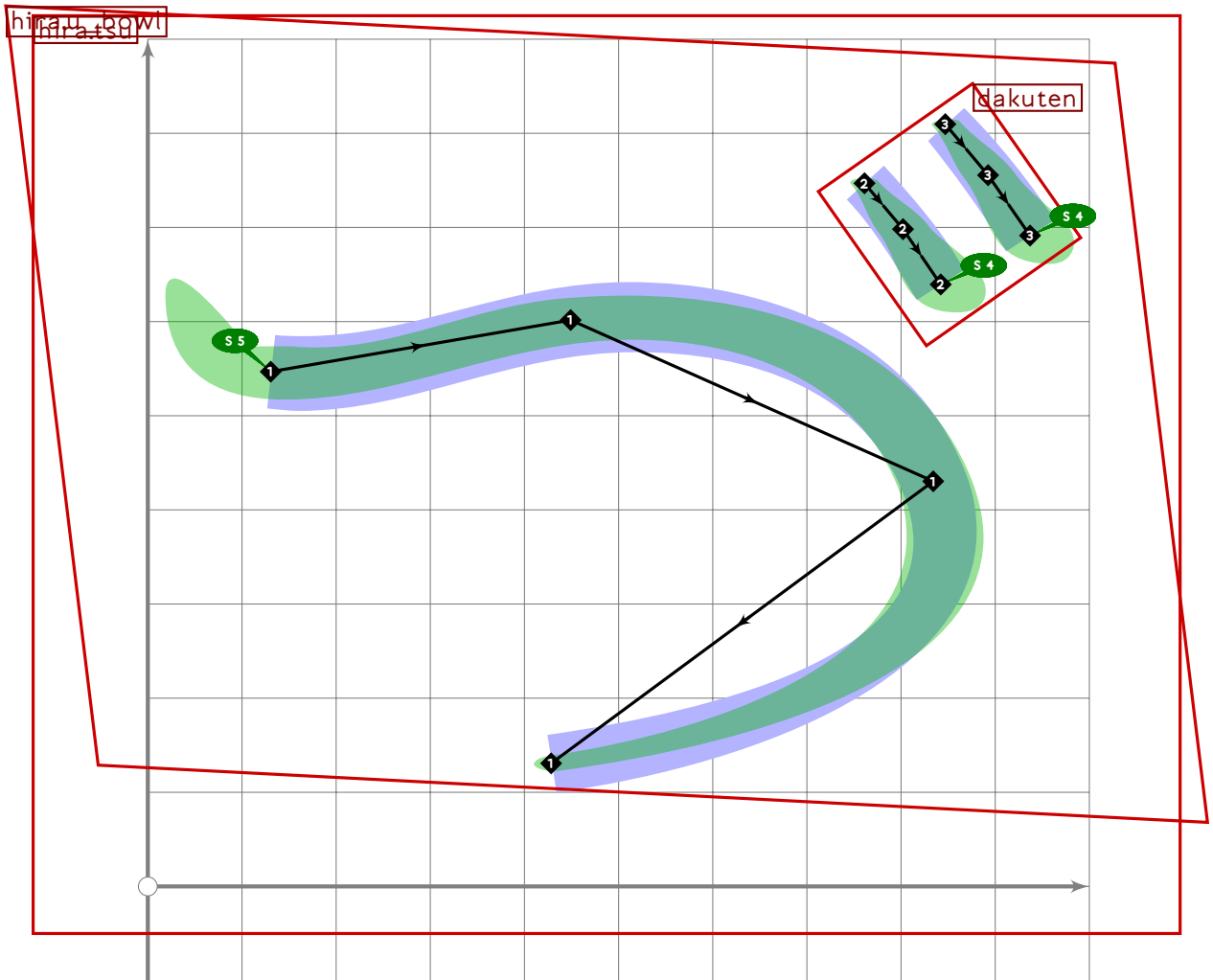


```

573 % hiragana "small tsu"
574 begintsuglyph("uni3063";99);
575 tsu_xform(tsu_xf.smallkana)(hira.tsu);
576 tsu_render;
577 endtsuglyph;
578
579 % hiragana "tsu"
580 begintsuglyph("uni3064";100);
581 hira.tsu;
582 tsu_render;
583 endtsuglyph;
584

```

[see page 82]

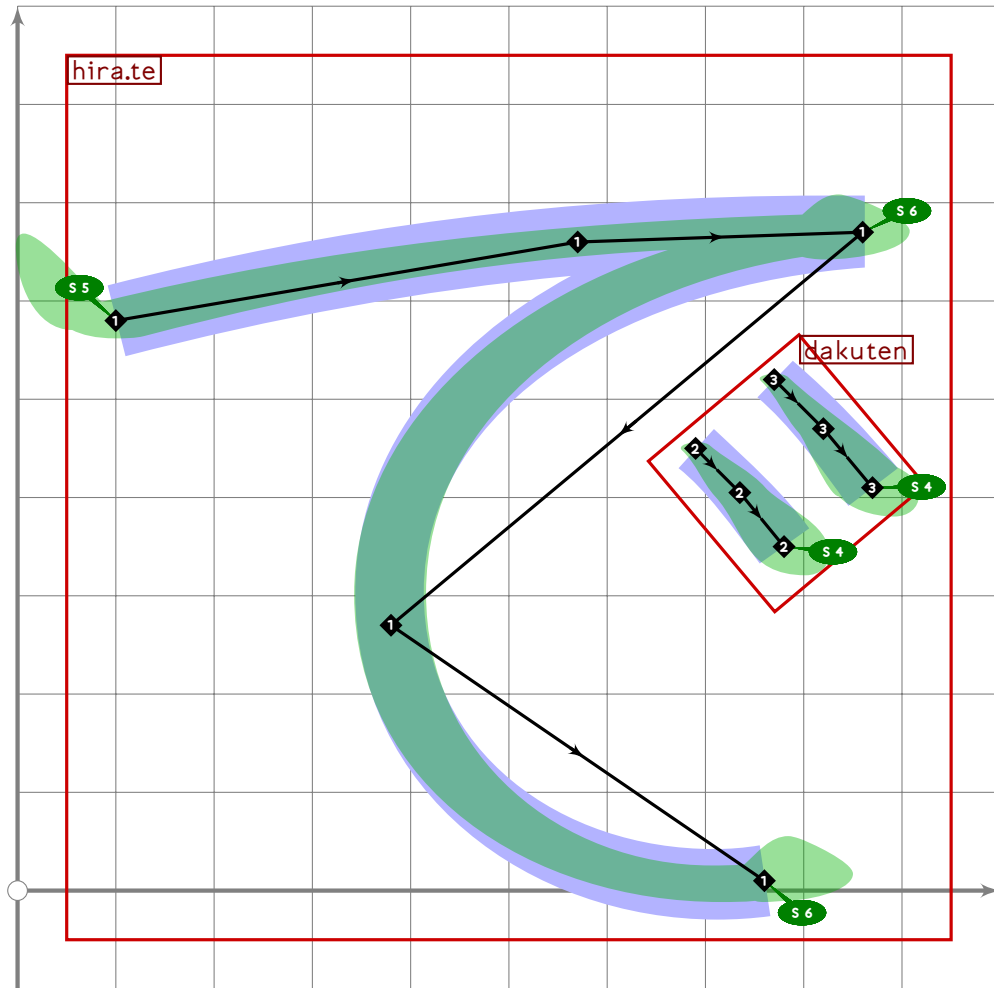


```

585 % hiragana "dzu"
586 begintsuglyph("uni3065",101);
587 hira.tsu;
588 dakuten(identity rotated -5 shifted (840,730));
589 tsu_render;
590 endtsuglyph;
591
592 % hiragana "te"
593 begintsuglyph("uni3066",102);
594 hira.te;
595 tsu_render;
596 endtsuglyph;
597

```

[see page 83]

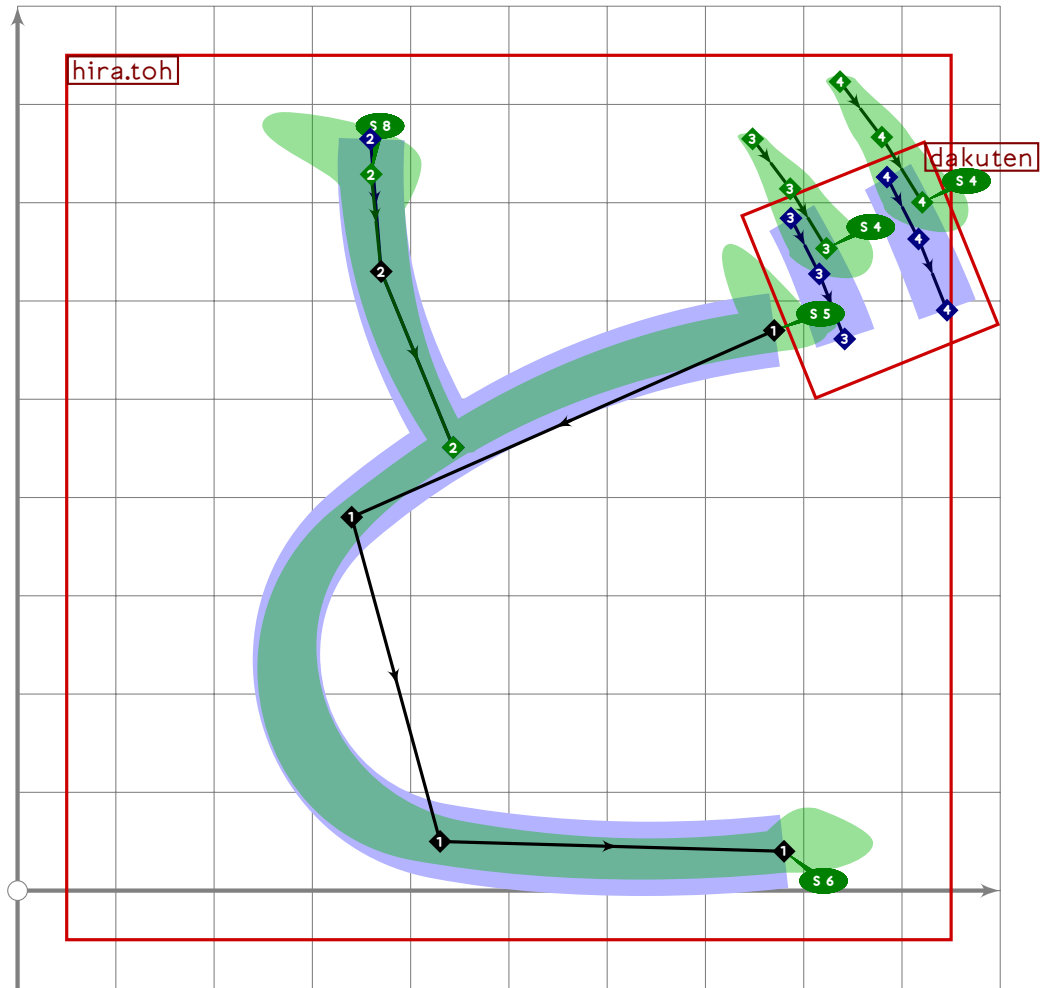


```

598 % hiragana "de"
599 begintsuglyph("uni3067",103);
600 hira.te;
601 dakuten(identity shifted (770,440));
602 tsu_render;
603 endtsuglyph;
604
605 % hiragana "to"
606 begintsuglyph("uni3068",104);
607 hira.toh;
608 tsu_render;
609 endtsuglyph;
610

```

[see page 84]



```

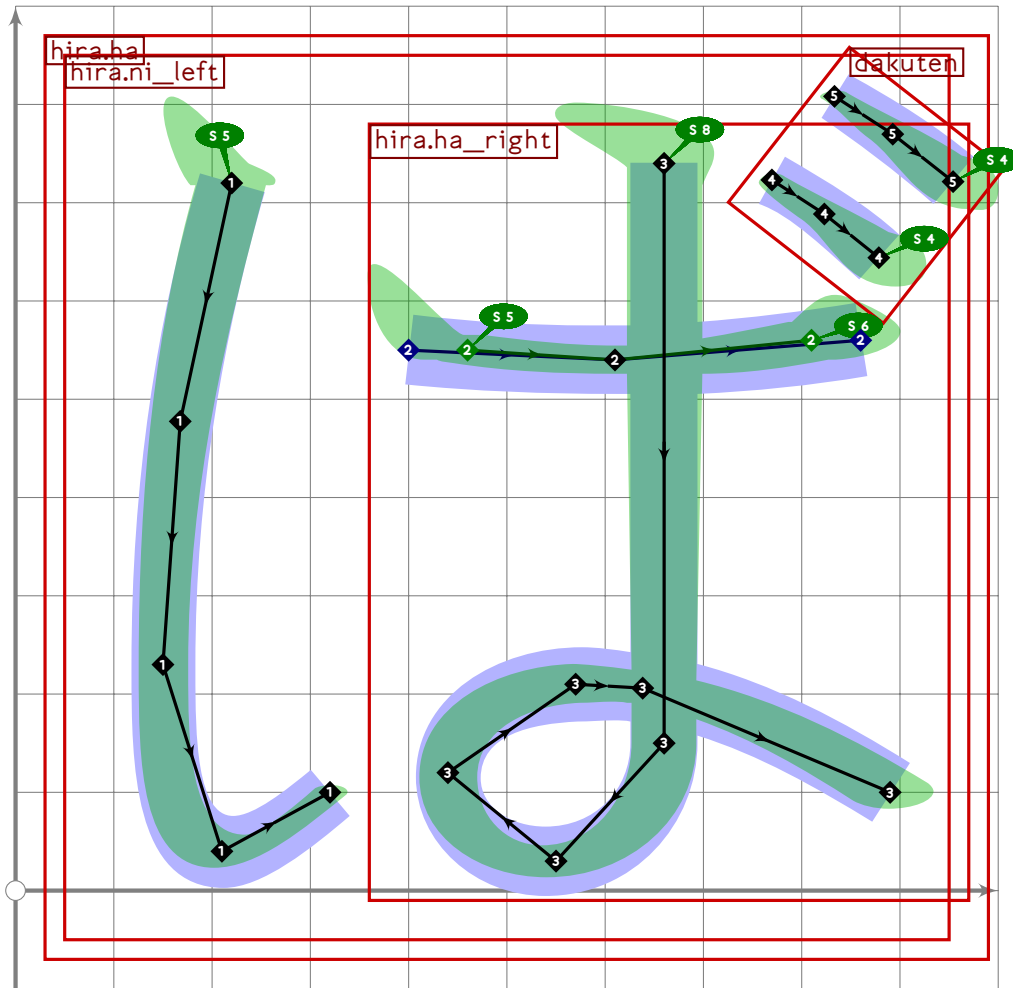
611 % hiragana "do"
612 begintsuglyph("uni3069";105);
613 hira.toh;
614 replace_strokep(0,subpath (0,1,infinity) of oldp);
615 dakuten(identity rotated (-18+10*mincho)
616   shifted ((860,650) shifted (100*mincho*(dir 110))));
617 tsu_render;
618 endtsuglyph;
619
620 % hiragana "na"
621 begintsuglyph("uni306A";106);
622 hira.na;
623 tsu_render;
624 endtsuglyph;
625
626 % hiragana "ni"
627 begintsuglyph("uni306B";107);
628 hira.ni;
629 tsu_render;
630 endtsuglyph;
631

```

[see page 85]

[see page 86]

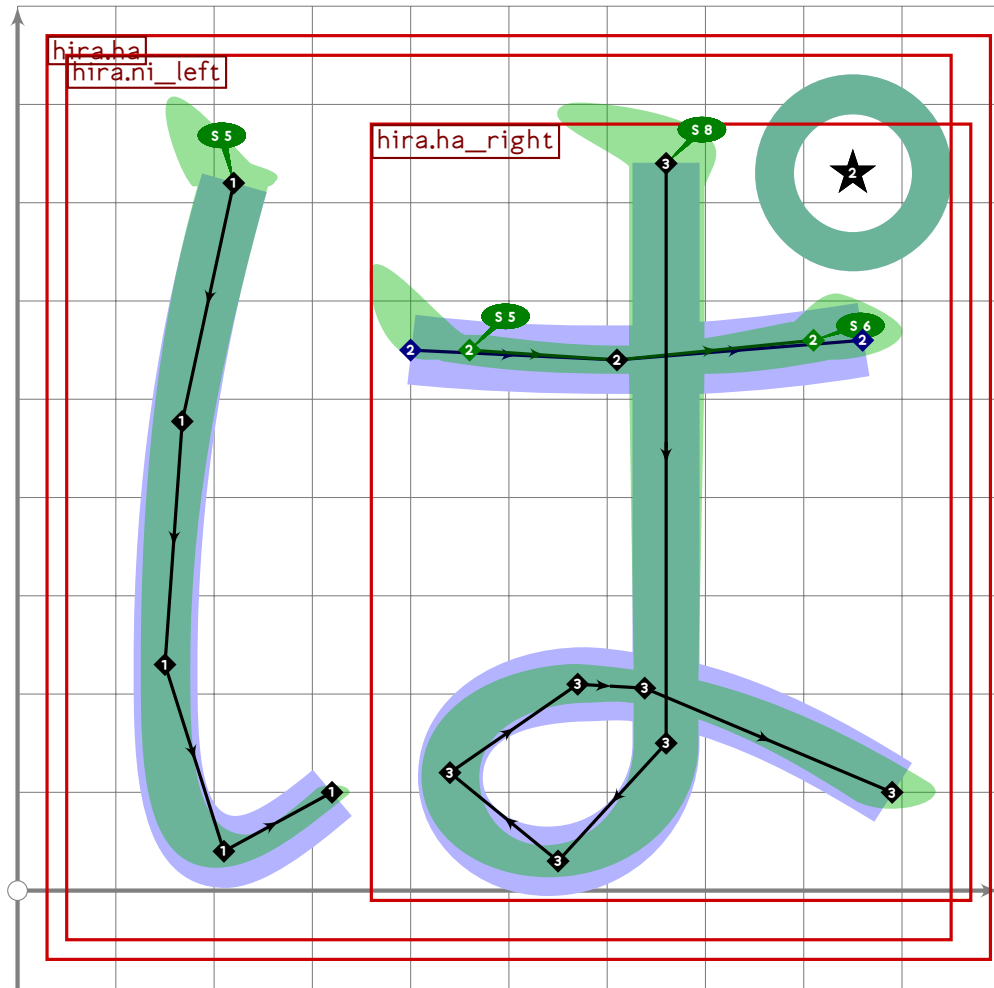
```
632 % hiragana "nu"
633 begintsuglyph("uni306C",108); [see page 87]
634 hira.nu;
635 tsu_render;
636 endtsuglyph;
637
638 % hiragana "ne"
639 begintsuglyph("uni306D",109); [see page 88]
640 hira.ne;
641 tsu_render;
642 endtsuglyph;
643
644 % hiragana "no"
645 begintsuglyph("uni306E",110); [see page 89]
646 hira.no;
647 tsu_render;
648 endtsuglyph;
649
650 % hiragana "ha"
651 begintsuglyph("uni306F",111); [see page 90]
652 hira.ha;
653 tsu_render;
654 endtsuglyph;
655
```



```

656 % hiragana "ba"
657 begint Suglyph("uni3070",112);
658 hira.ha;
659 dakuten(identity rotated 12 shifted (850,730));
660 tsu_render;
661 endtsuglyph;
662

```

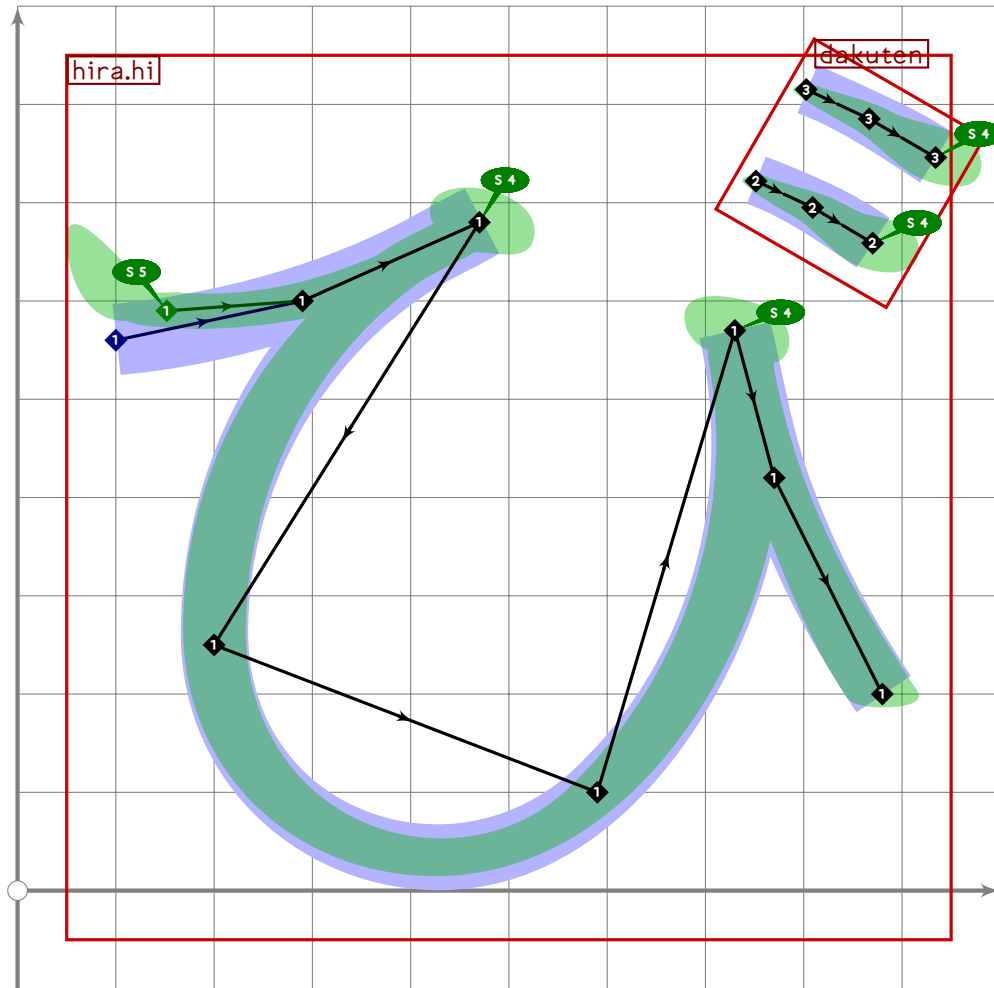


```

663 % hiragana "pa"
664 begintsuglyph("uni3071";113);
665 hira.ha;
666 handakuten((850,730));
667 tsu_render;
668 endtsuglyph;
669
670 % hiragana "hi"
671 begintsuglyph("uni3072";114);
672 hira.hi;
673 tsu_render;
674 endtsuglyph;
675

```

[see page 91]

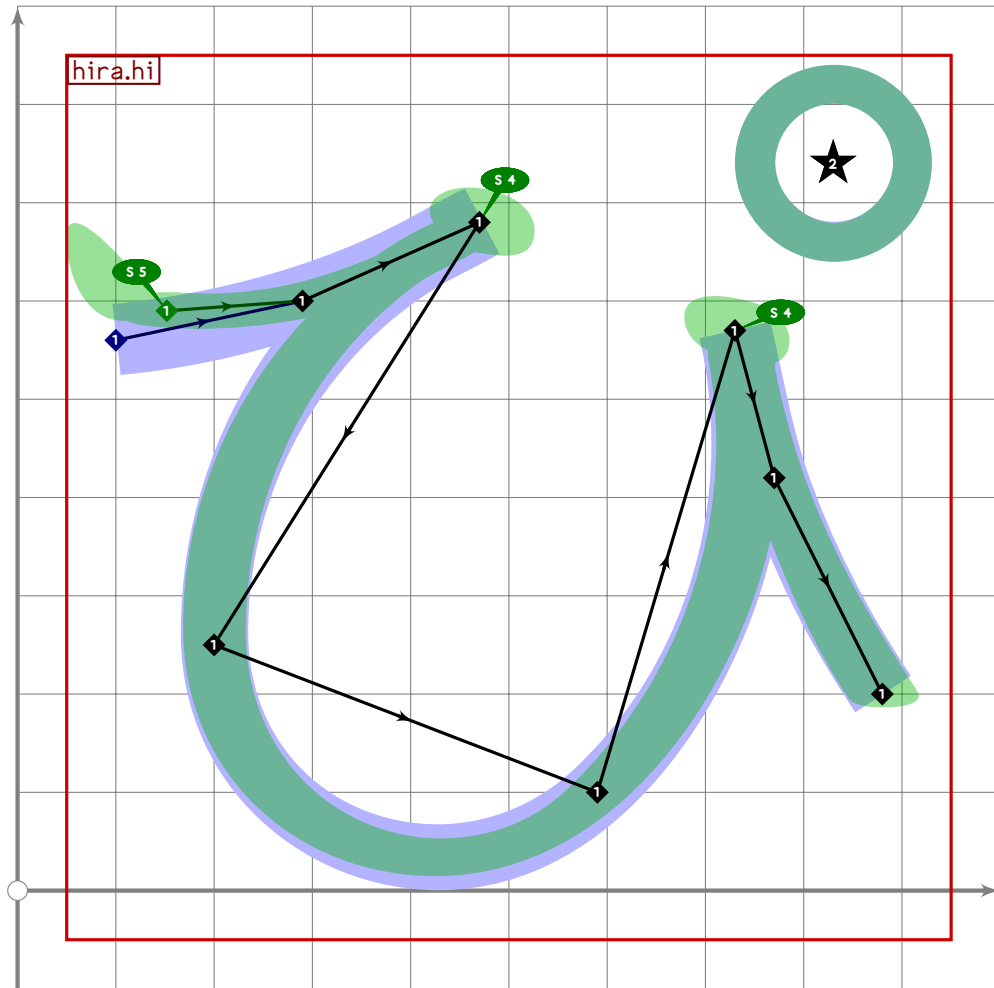


```

676 % hiragana "bi"
677 begintsuglyph("uni3073";115);
678 hira.hi;
679 dakuten(identity rotated 20 shifted (830,740));
680 tsu_render;
681 endtsuglyph;
682

```



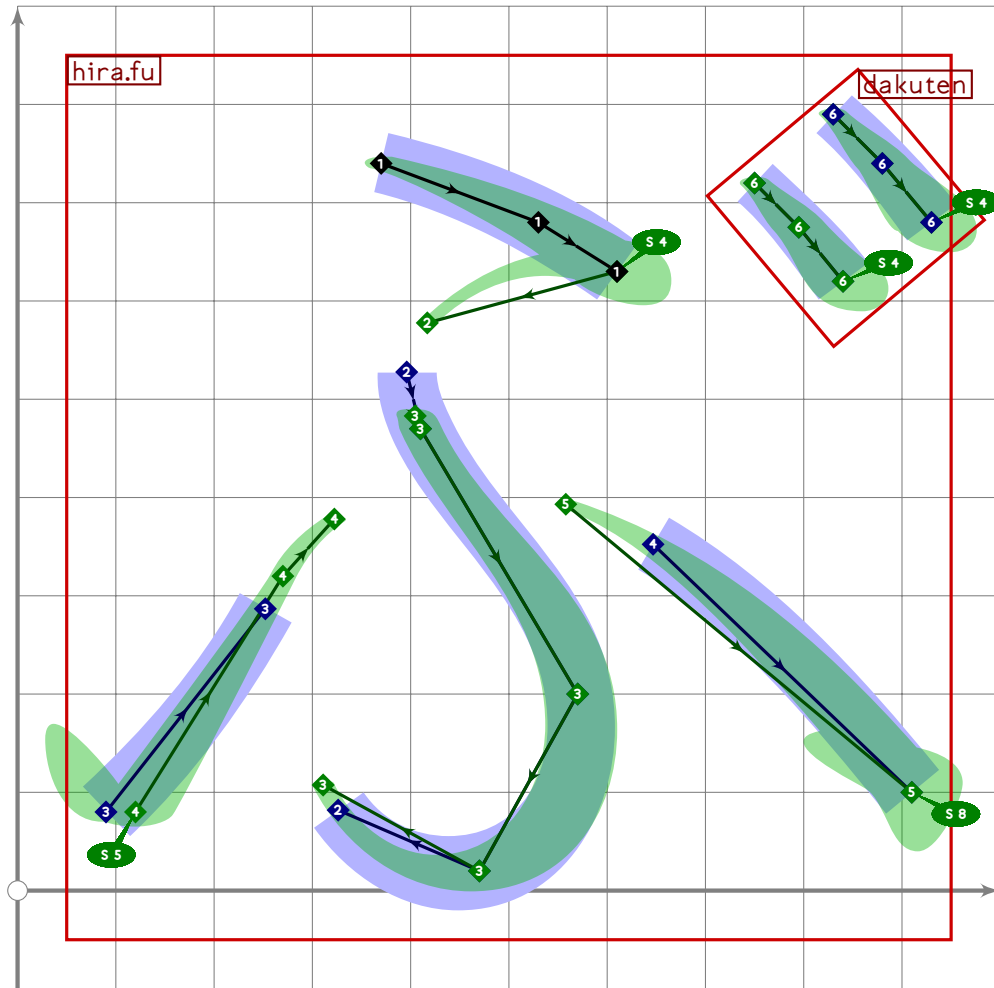


```

683 % hiragana "pi"
684 begint Suglyph("uni3074";116);
685 hira.hi;
686 handakuten((830,740));
687 tsu_render;
688 endtsuglyph;
689
690 % hiragana "fu"
691 begint Suglyph("uni3075";117);
692 hira.fu;
693 tsu_render;
694 endtsuglyph;
695

```

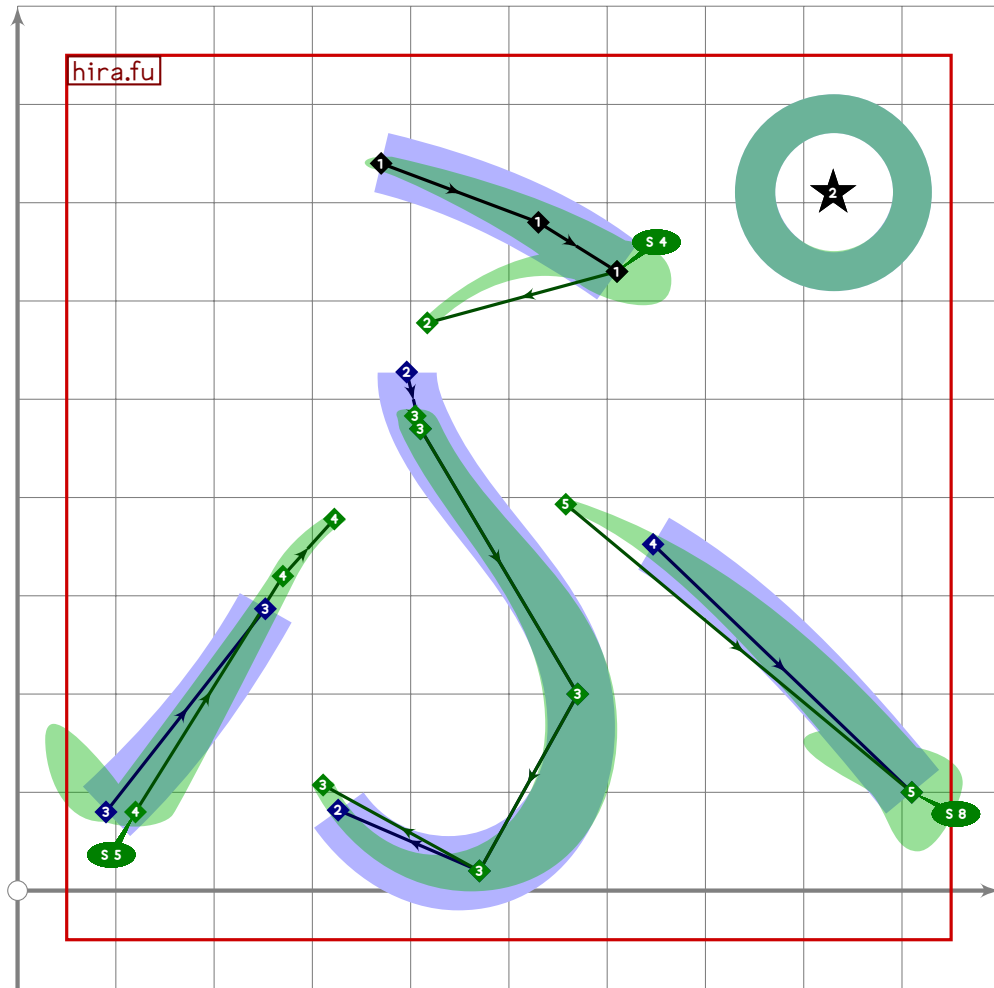
[see page 92]



```

696 % hiragana "bu"
697 begint Suglyph("uni3076",118);
698 hira.fu;
699 dakuten(identity shifted (830,710));
700 tsu_render;
701 endtsuglyph;
702

```

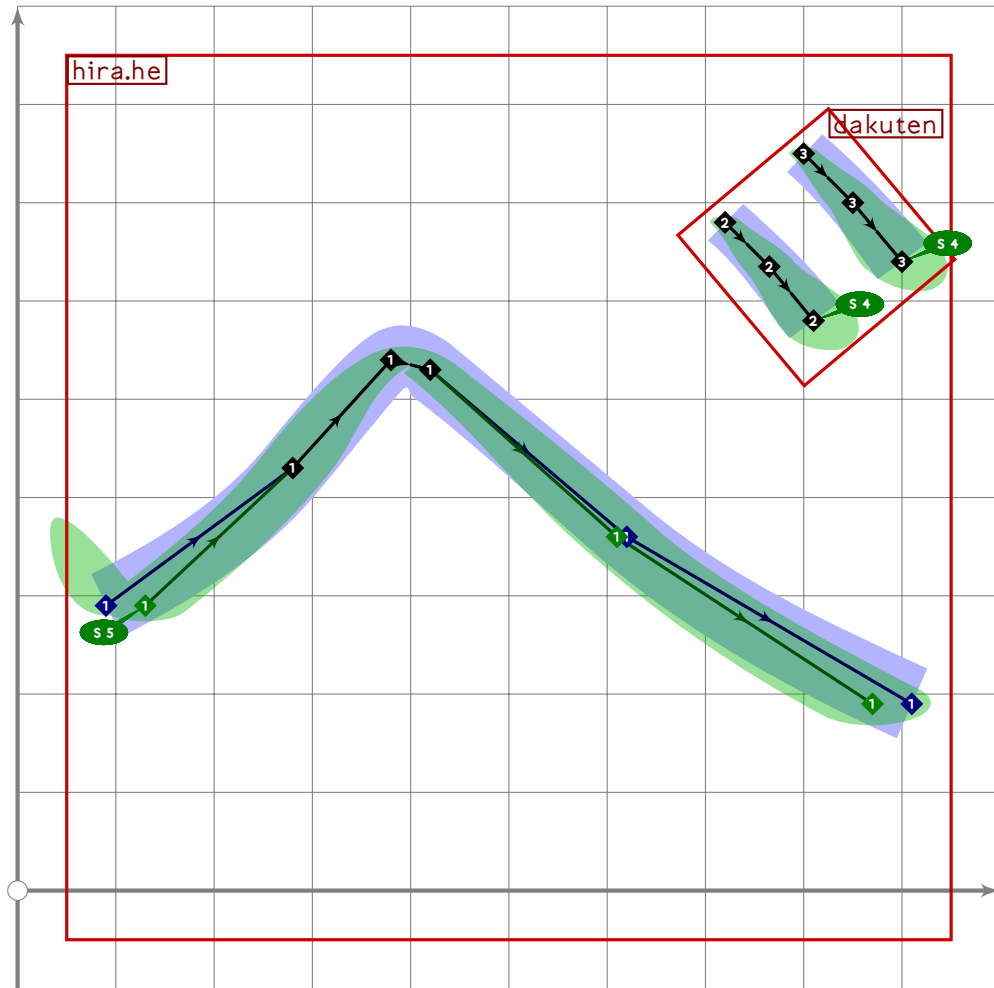


```

703 % hiragana "pu"
704 begint Suglyph("uni3077";119);
705 hira.fu;
706 handakuten((830,710));
707 tsu_render;
708 endtsuglyph;
709
710 % hiragana "he"
711 begint Suglyph("uni3078";120);
712 hira.he;
713 tsu_render;
714 endtsuglyph;
715

```

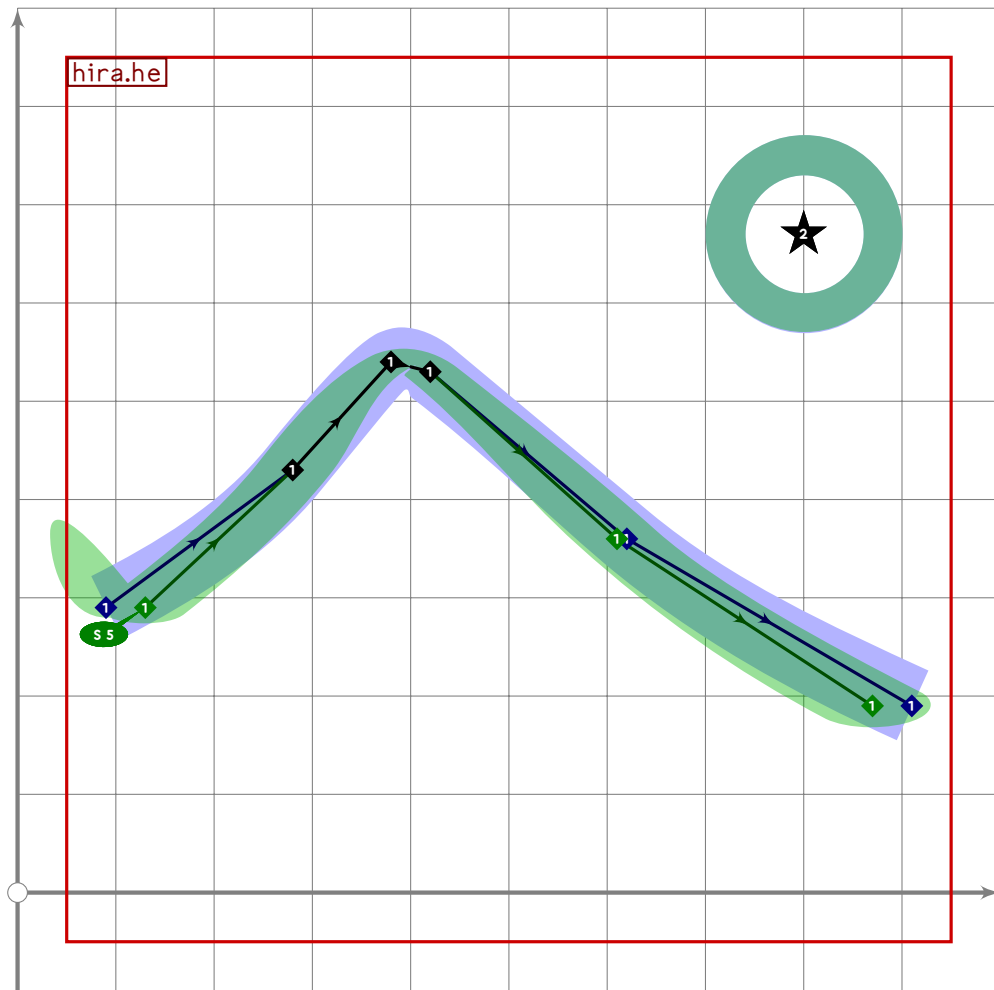
[see page 93]



```

716 % hiragana "be"
717 beginsuglyph("uni3079";121);
718 hira.he;
719 dakuten(identity shifted (800,670));
720 tsu_render;
721 endsuglyph;
722

```

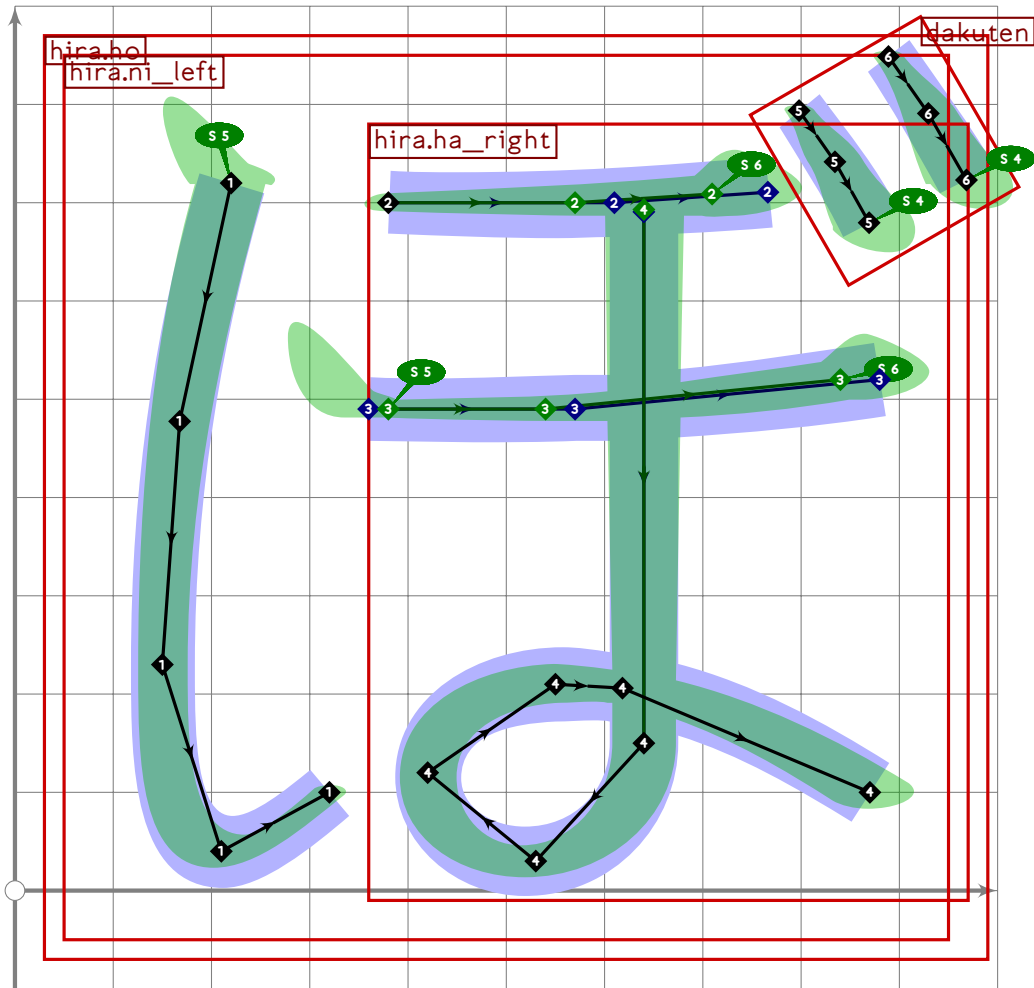


```

723 % hiragana "pe"
724 begintsuglyph("uni307A";122);
725 hira.he;
726 handakuten((800,670));
727 tsu_render;
728 endtsuglyph;
729
730 % hiragana "ho"
731 begintsuglyph("uni307B";123);
732 hira.ho;
733 tsu_render;
734 endtsuglyph;
735

```

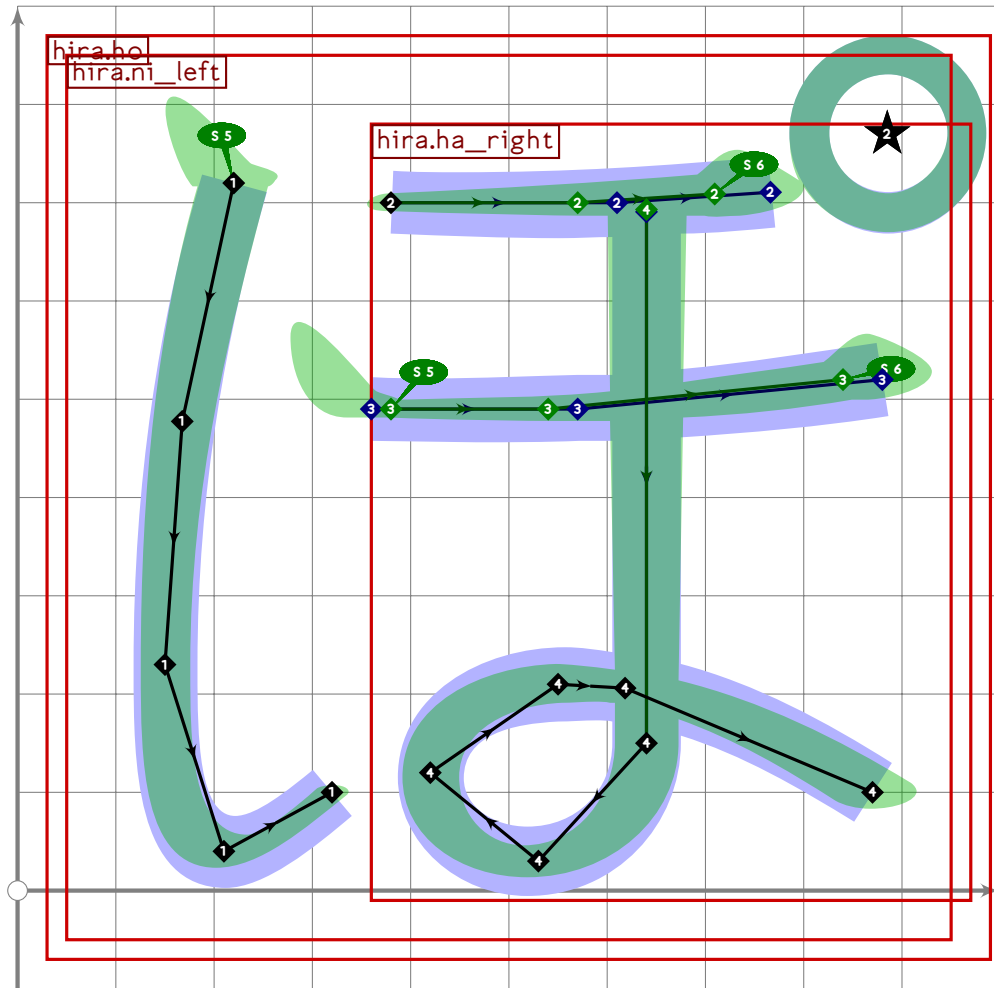
[see page 94]



```

736 % hiragana "bo"
737 begintsuglyph("uni307C",124);
738 hira.ho;
739 replace_stroke(-2,subpath (0,1.65-0.07*mincho) of oldp);
740 replace_stroke(0,oldp shifted (-20,0));
741 dakuten(identity rotated -10 shifted (875,770));
742 tsu_render;
743 endsuglyph;
744

```



```

745 % hiragana "po"
746 \begin{suglyph}{"uni307D";125);
747   hira.ho;
748   \replace_stroke{-2,subpath (0,1.65-0.07*mincho) of oldp};
749   \replace_stroke{0,oldp shifted (-20,0)};
750   \handakuten((885,770));
751   \tsu_render;
752 \end{suglyph};
753
754 % hiragana "ma"
755 \begin{suglyph}{"uni307E";126);
756   hira.ma;
757   \tsu_render;
758 \end{suglyph};
759
760 % hiragana "mi"
761 \begin{suglyph}{"uni307F";127);
762   hira.mi;
763   \tsu_render;
764 \end{suglyph};
765

```

[see page 95]

[see page 97]

```

766 % hiragana "mu"
767 begintsuglyph("uni3080";128);
768 hira.mu;
769 tsu_render;
770 endtsuglyph;

```

[see page 98]

```

771
772 % hiragana "me"
773 begintsuglyph("uni3081";129);
774 hira.me;
775 tsu_render;
776 endtsuglyph;

```

[see page 99]

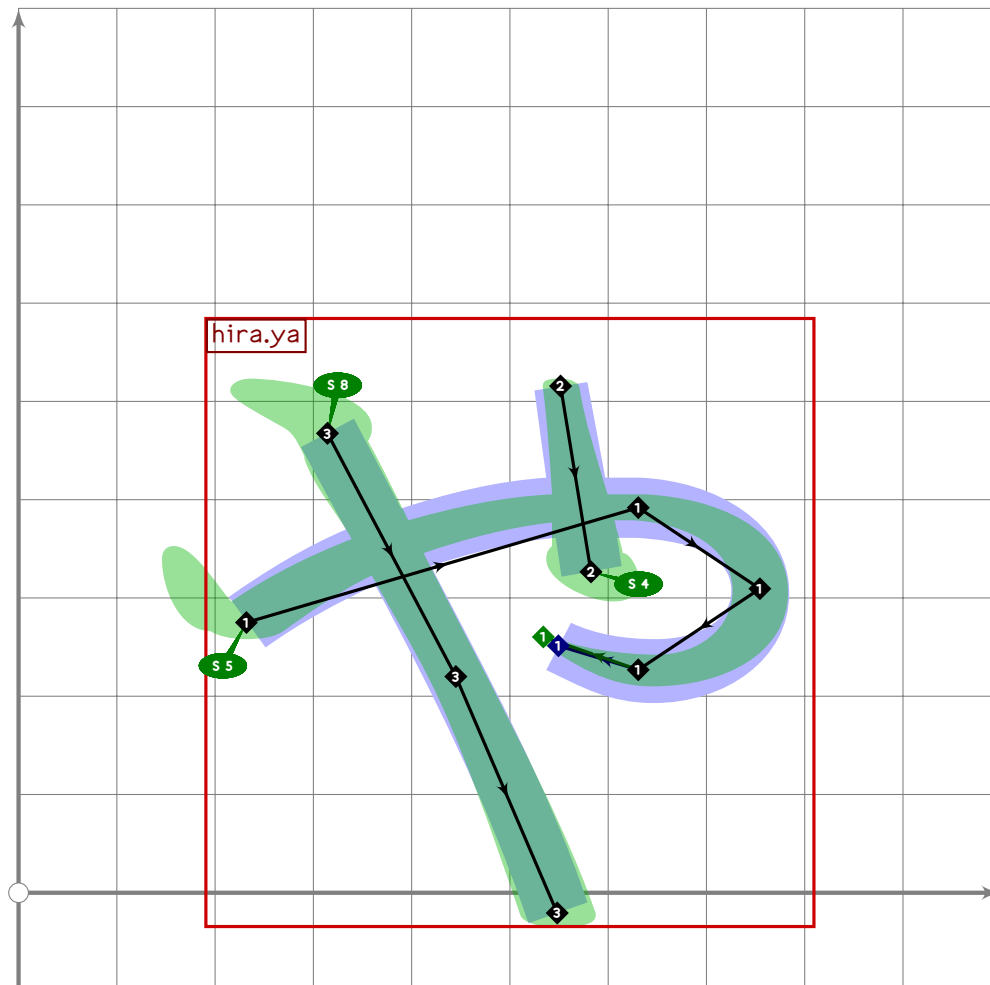
```

777
778 % hiragana "mo"
779 begintsuglyph("uni3082";130);
780 hira.mo;
781 tsu_render;
782 endtsuglyph;

```

[see page 100]

783



```

784 % hiragana "small ya"
785 begintsuglyph("uni3083";131);
786 tsu_xform(tsu_xf.smallkana)(hira.ya);

```

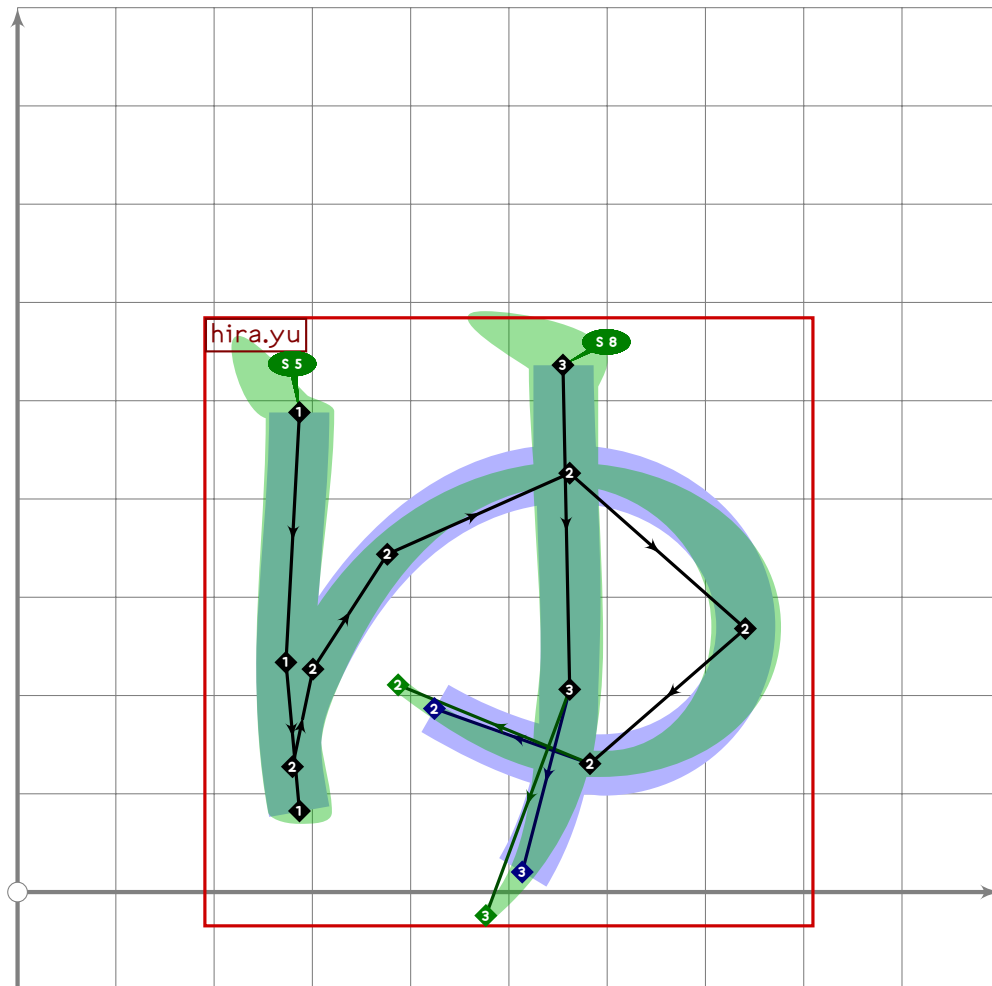


```

787 tsu_render;
788 endtsuglyph;
789
790 % hiragana "ya"
791 begint Suglyph("uni3084",132);
792 hira.ya;
793 tsu_render;
794 endtsuglyph;
795

```

[see page 101]

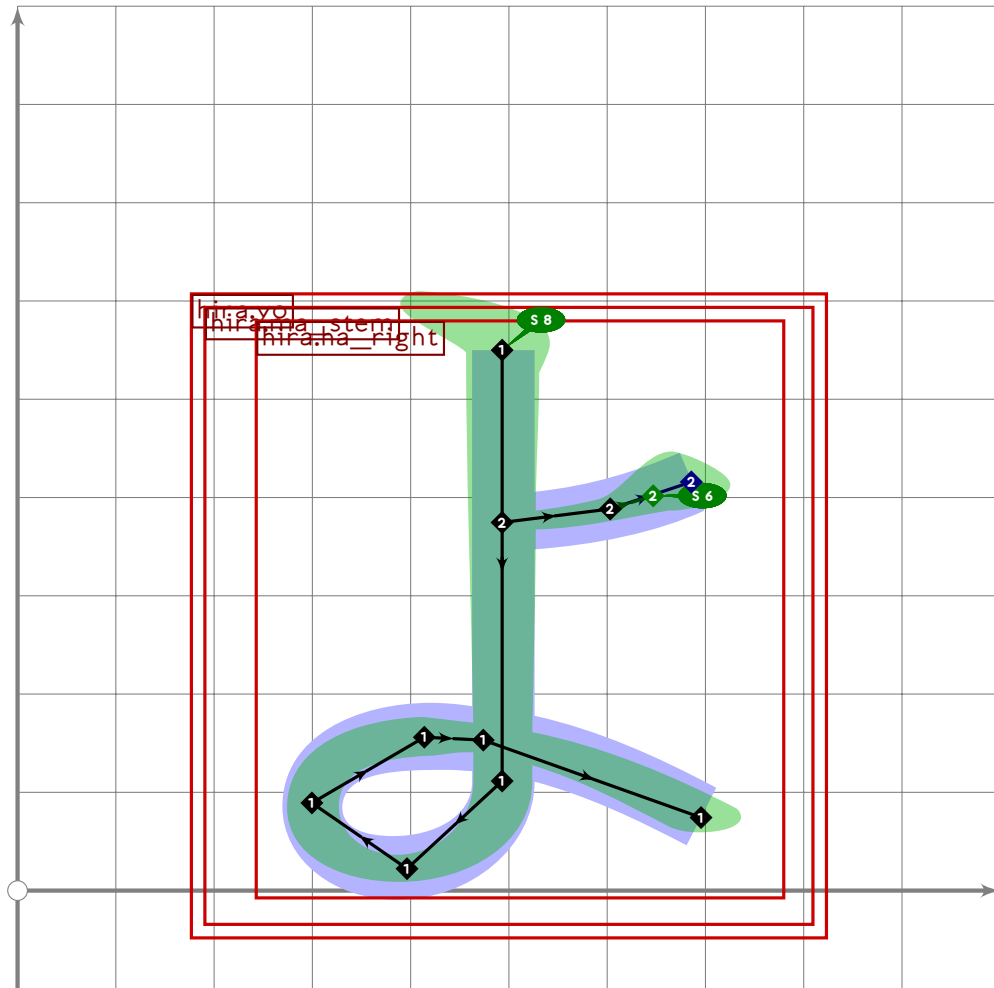


```

796 % hiragana "small yu"
797 begint Suglyph("uni3085",133);
798 tsu_xform(tsu_xf.smallkana)(hira.yu);
799 tsu_render;
800 endtsuglyph;
801
802 % hiragana "yu"
803 begint Suglyph("uni3086",134);
804 hira.yu;
805 tsu_render;
806 endtsuglyph;
807

```

[see page 102]



```

808 % hiragana "small yo"
809 begintsuglyph("uni3087",135);
810 tsu_xform(tsu_xf.smallkana)(hira.yo);
811 tsu_render;
812 endtsuglyph;

```

813

```

814 begintsuglyph("uni3088",136);
815 hira.yo;
816 tsu_render;
817 endtsuglyph;

```

[see page 103]

818

```

819 % hiragana "ra"
820 begintsuglyph("uni3089",137);
821 hira.ra;
822 tsu_render;
823 endtsuglyph;

```

[see page 104]

824

```

825 % hiragana "ri"
826 begintsuglyph("uni308A",138);
827 hira.ri;
828 tsu_render;

```

[see page 105]

```

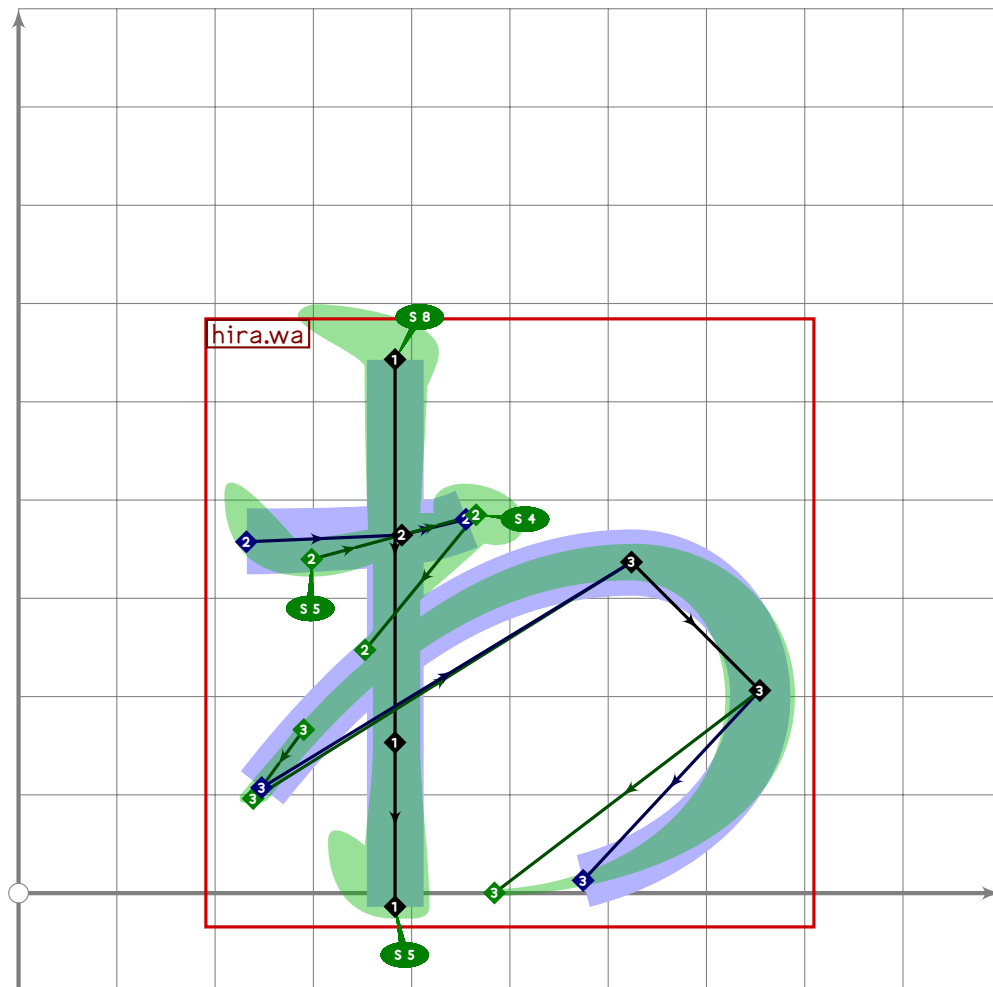
829 endtsuglyph;
830
831 % hiragana "ru"
832 begintsuglyph("uni308B",139);
833 hira.ru;
834 tsu_render;
835 endtsuglyph;
836
837 % hiragana "re"
838 begintsuglyph("uni308C",140);
839 hira.re;
840 tsu_render;
841 endtsuglyph;
842
843 % hiragana "ro"
844 begintsuglyph("uni308D",141);
845 hira.ro;
846 tsu_render;
847 endtsuglyph;
848

```

[see page 106]

[see page 107]

[see page 108]

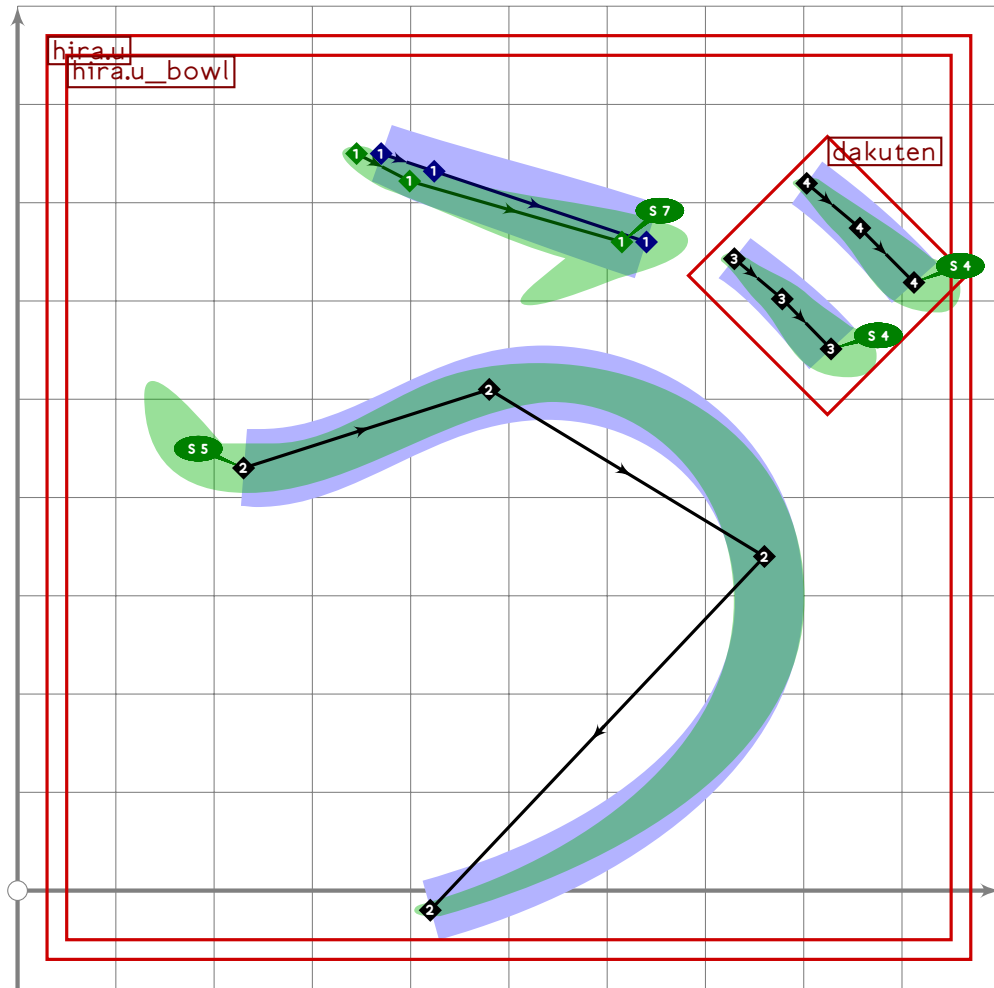


```

849 % hiragana "small wa"

```

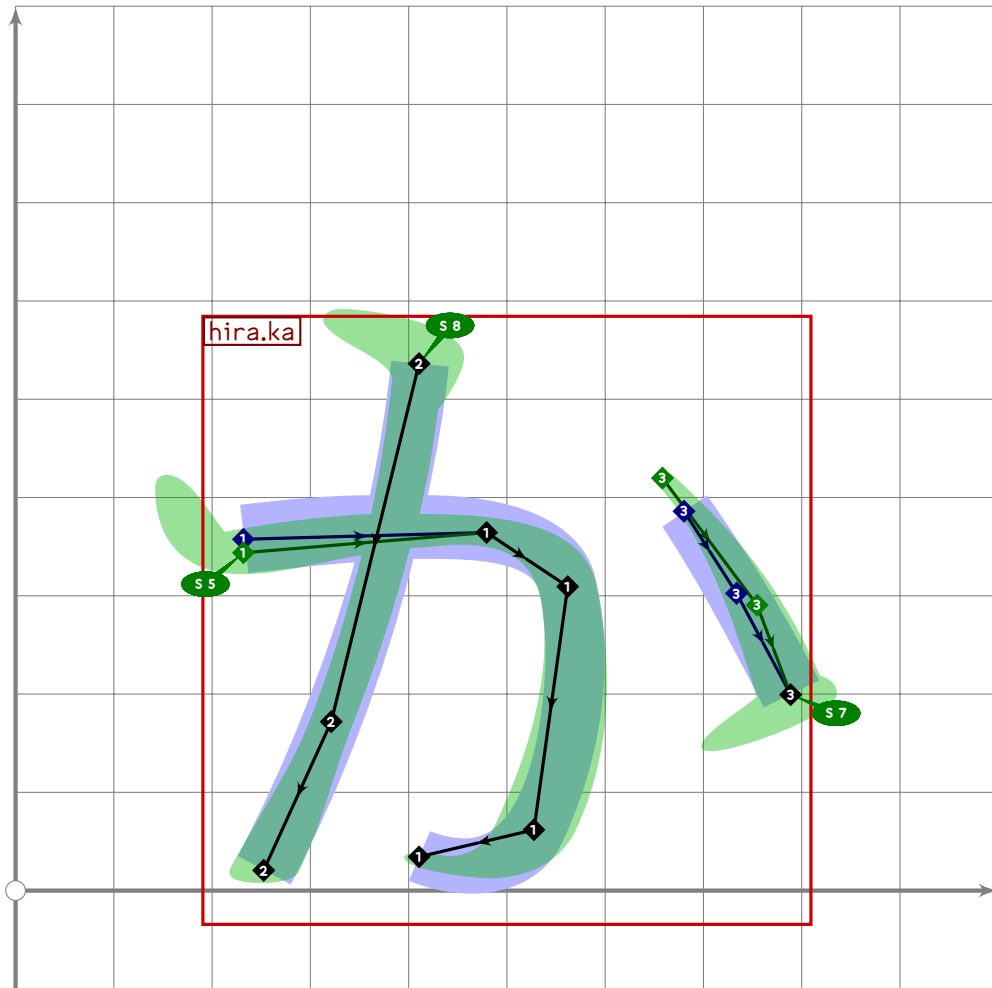
```
850 begintsuglyph("uni308E",142);
851 tsu_xform(tsu_xf.smallkana)(hira.wa);
852 tsu_render;
853 endtsuglyph;
854
855 % hiragana "wa"
856 begintsuglyph("uni308F",143); [see page 109]
857 hira.wa;
858 tsu_render;
859 endtsuglyph;
860
861 % obsolete hiragana "wi"
862 begintsuglyph("uni3090",144); [see page 110]
863 hira.wi;
864 tsu_render;
865 endtsuglyph;
866
867 % obsolete hiragana "we"
868 begintsuglyph("uni3091",145); [see page 111]
869 hira.we;
870 tsu_render;
871 endtsuglyph;
872
873 % hiragana "wo"
874 begintsuglyph("uni3092",146); [see page 112]
875 hira.wo;
876 tsu_render;
877 endtsuglyph;
878
879 % hiragana "n"
880 begintsuglyph("uni3093",147); [see page 113]
881 hira.n;
882 tsu_render;
883 endtsuglyph;
884
```



```

885 % hiragana "vu"
886 begintsuglyph("uni3094",148);
887 hira.u;
888 dakuten(identity rotated 5 shifted (810,640));
889 tsu_render;
890 endtsuglyph;
891

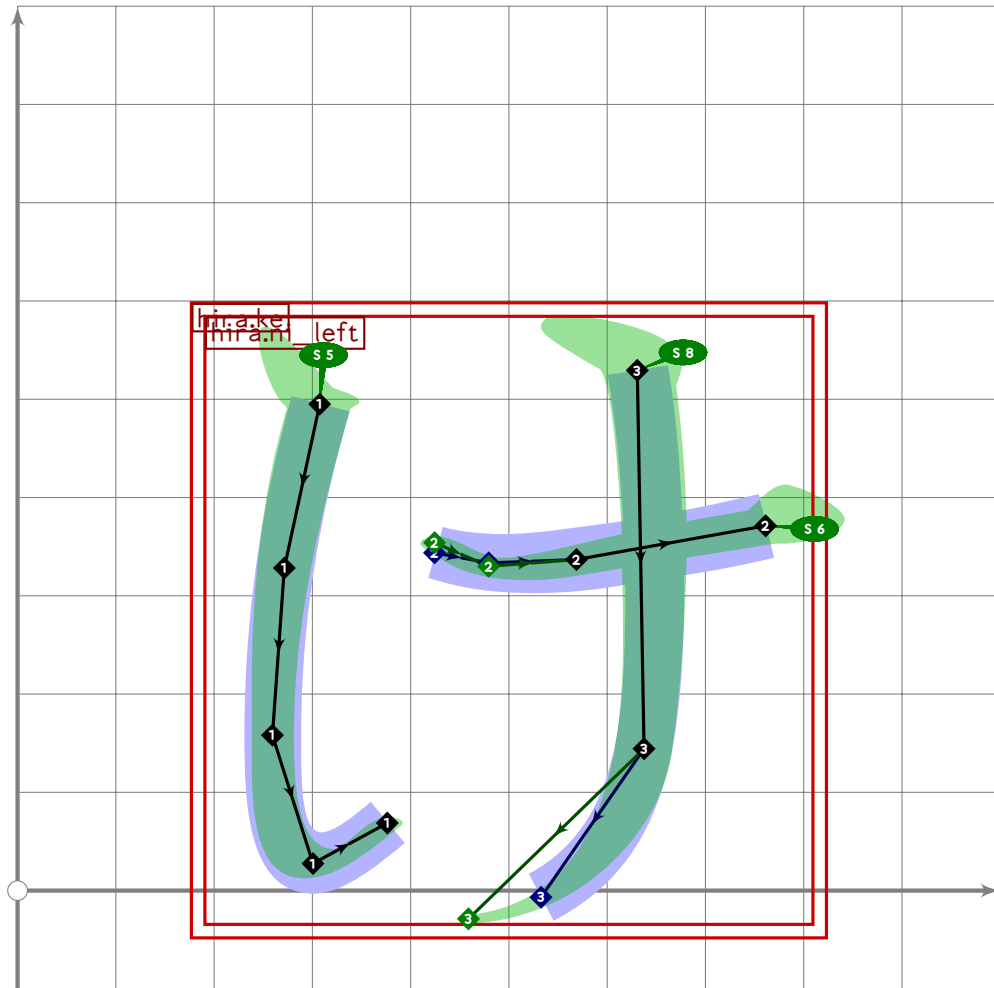
```



```

892 % hiragana "small ka"
893 begint Suglyph("uni3095";149);
894 tsu_xform(tsu_xf.smallkana)(hira.ka);
895 tsu_render;
896 endtsuglyph;
897

```



```

898 % hiragana "small ke"
899 begint Suglyph("uni3096",150);
900 tsu_xform(tsu_xf.smallkana)(hira.ke);
901 tsu_render;
902 endtsuglyph;
903
904 % WARNING changing rescale setting
905 tsu_rescale_native_zero;
906

```

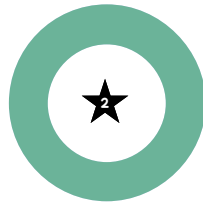


```

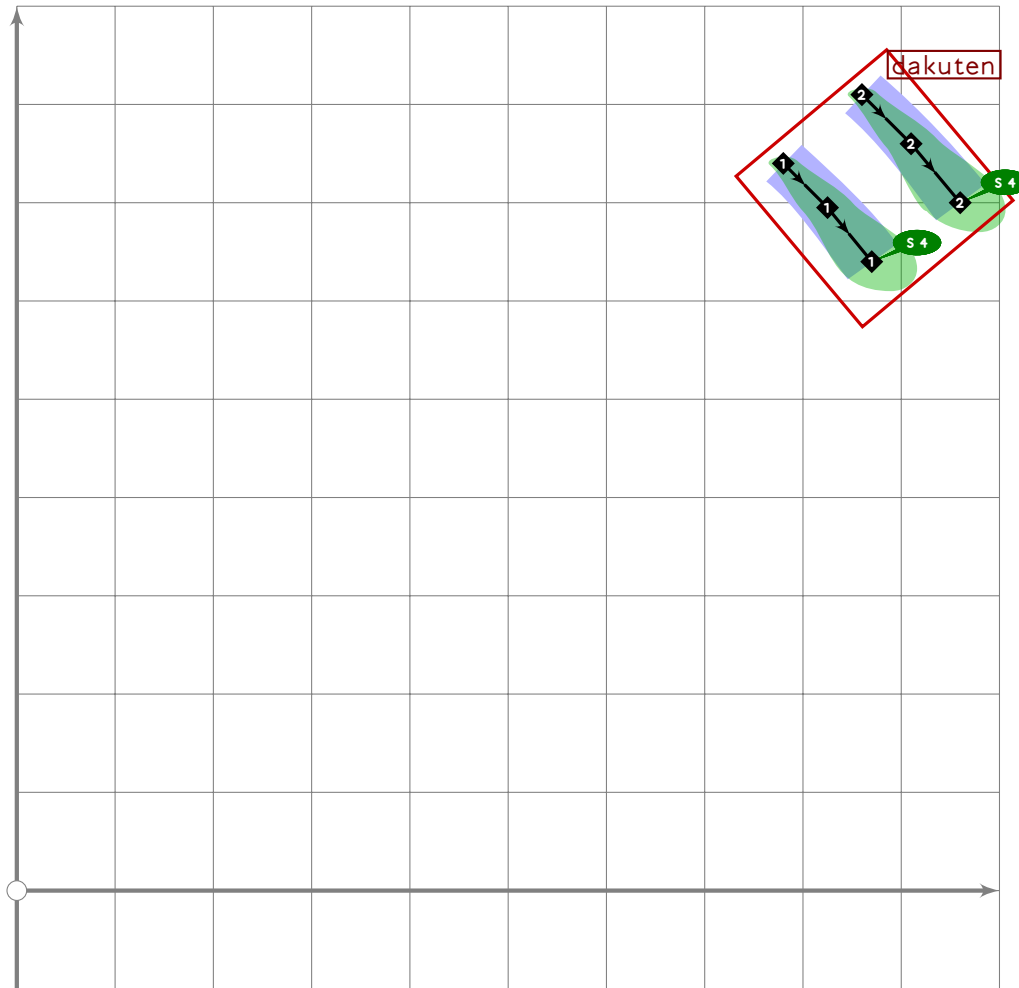
907 % combining dakuten
908 begintsuglyph("uni3099",153);
909 dakuten(identity shifted (-140,730));
910 tsu_render;
911 endtsuglyph;
912

```





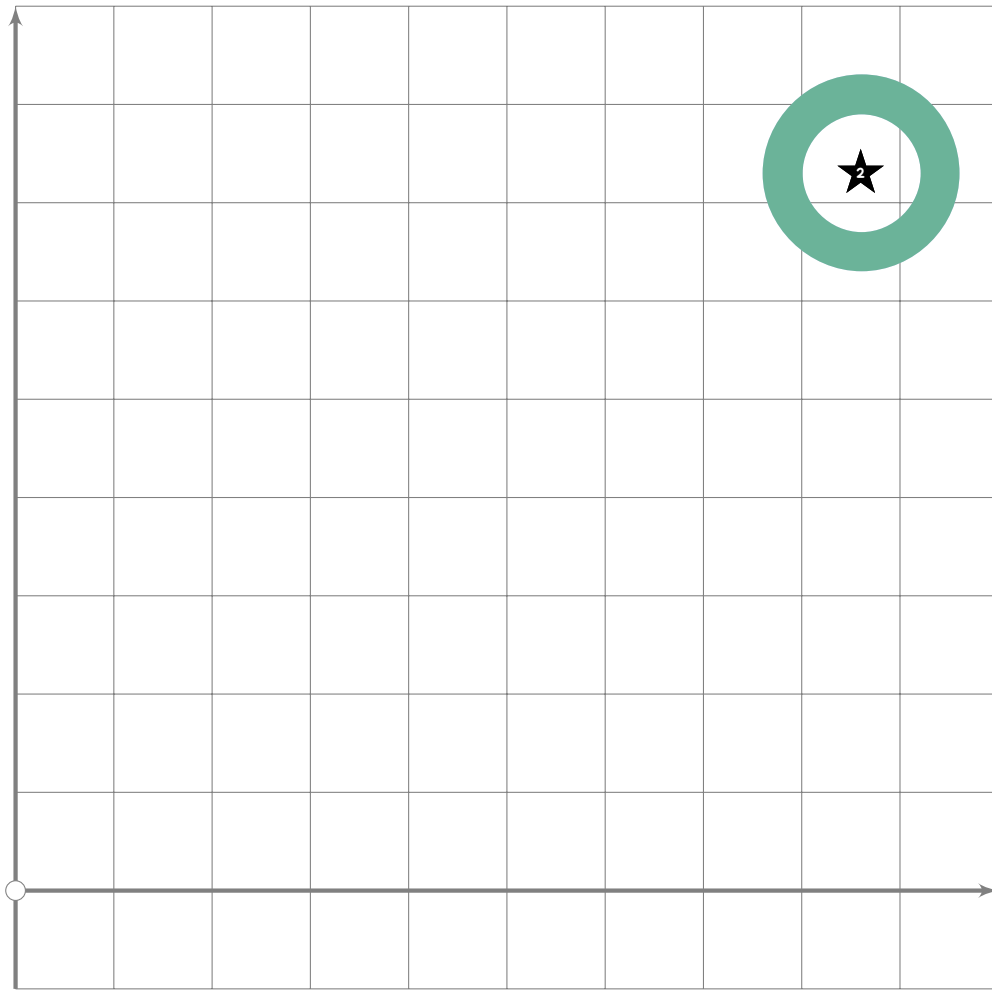
```
913 % combining handakuten
914 begintsuglyph("uni309A",154);
915 handakuten((-140,730));
916 tsu_render;
917 endtsuglyph;
918
919 % WARNING changing rescale setting
920 tsu_rescale_full;
921
```



```

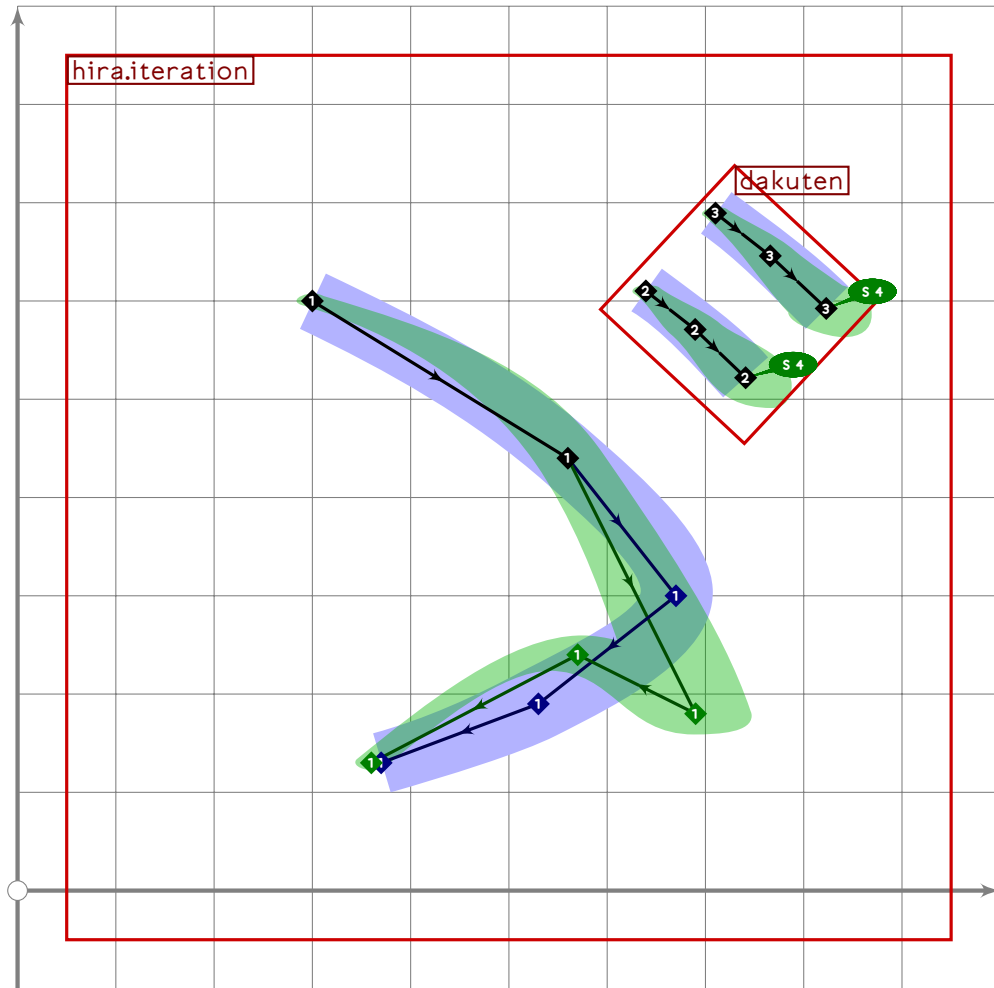
922 % dakuten alone
923 begintsuglyph("uni309B",155);
924 dakuten(identity shifted (860,730));
925 tsu_render;
926 endtsuglyph;
927

```



```
928 % handakuten alone
929 begintsuglyph("uni309C",156);
930 handakuten((860,730));
931 tsu_render;
932 endsuglyph;
933
934 % hiragana "iteration mark"
935 begintsuglyph("uni309D",157);
936 hira.iteration;
937 tsu_render;
938 endsuglyph;
939
```

[see page 114]



```

940 % hiragana "voiced iteration mark"
941 begintsuglyph("uni309E",158);
942 hira.iteration;
943 dakuten(identity rotated 7 shifted (720,610));
944 tsu_render;
945 endtsuglyph;

```

946

```

947 % hiragana "yori ligature"
948 begintsuglyph("uni309F",159);
949 hira.yori;
950 tsu_render;
951 endtsuglyph;

```

[see page 115]

952

953

954

## Katakana

```

955 % KATAKANA
956
957 % katakana double hyphen
958 begintsuglyph("uni30A0",160);

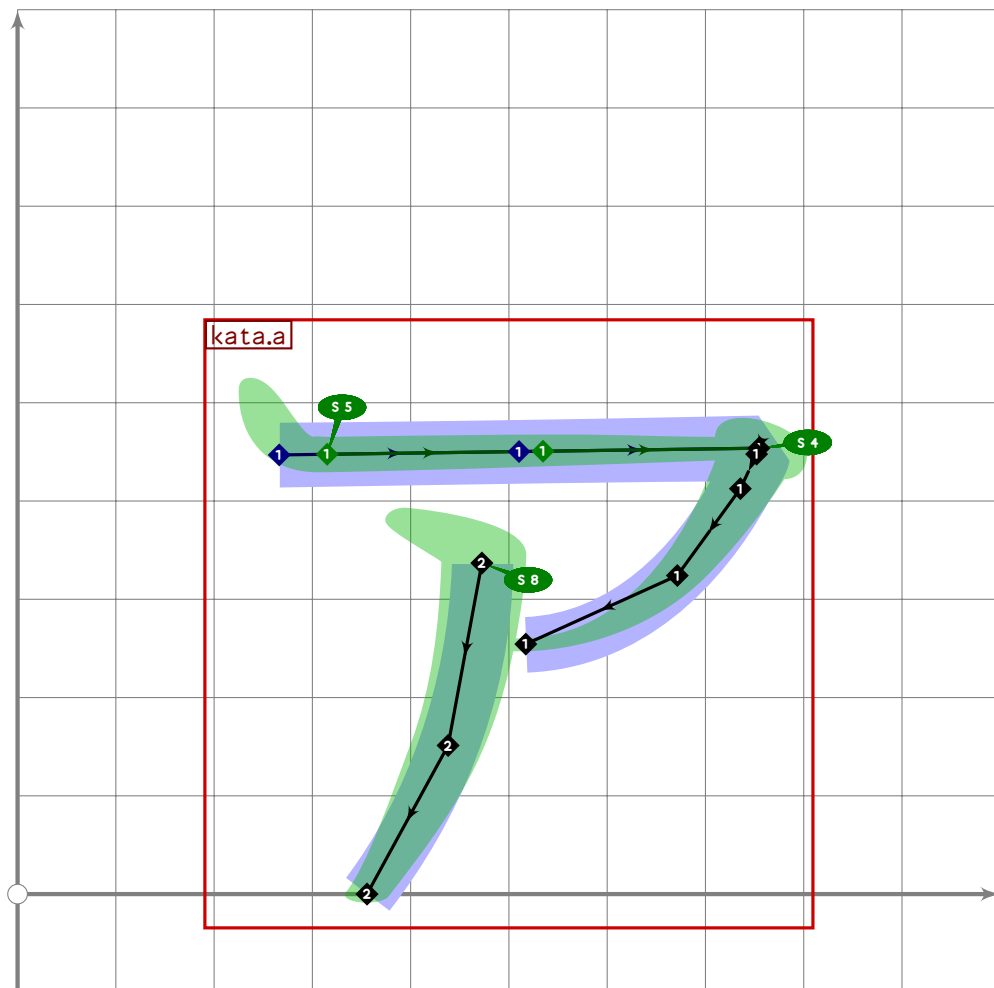
```

[see page 286]

```

959 punct.dash.double_hyphen;
960 tsu_render;
961 endtsuglyph;
962

```

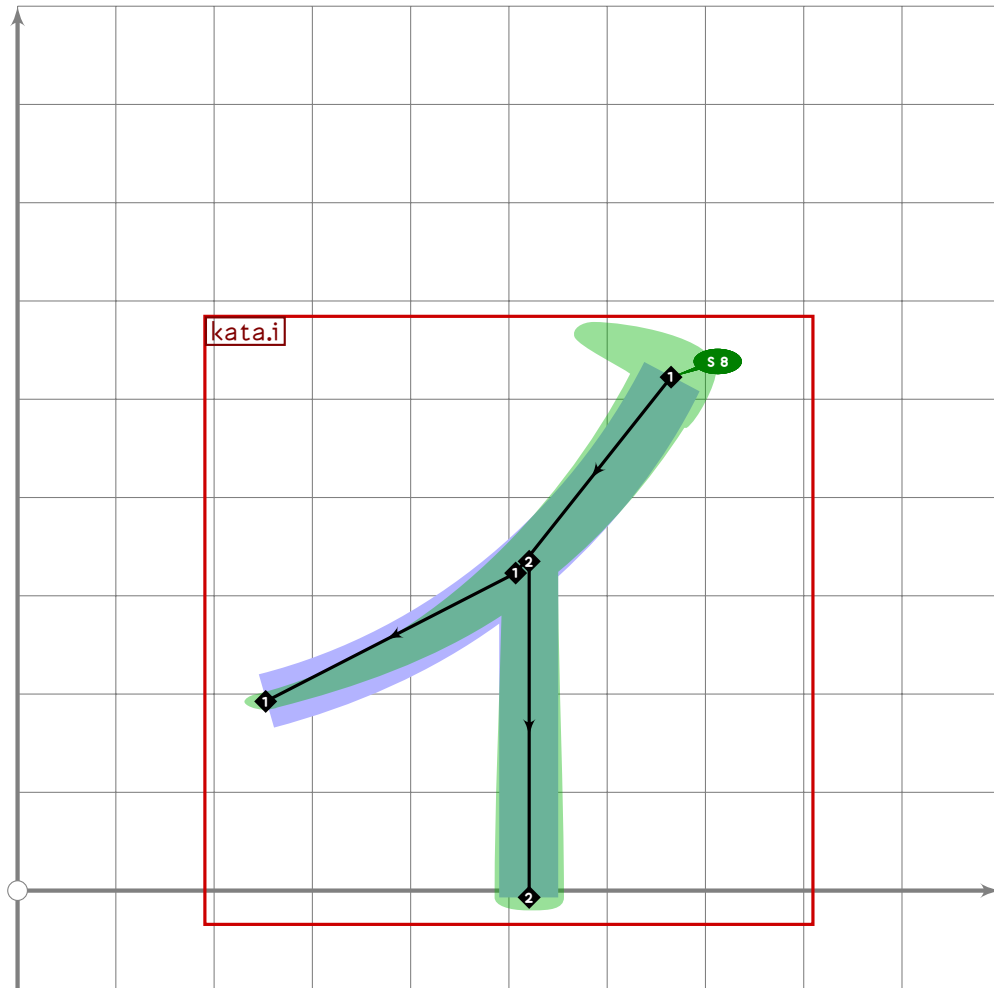


```

963 % katakana "small a"
964 begintsuglyph("uni30A1",161);
965 tsu_xform(tsu_xf.smallkana)(kata.a);
966 tsu_render;
967 endtsuglyph;
968
969 % katakana "a"
970 begintsuglyph("uni30A2",162);
971 kata.a;
972 tsu_render;
973 endtsuglyph;
974

```

[see page 119]

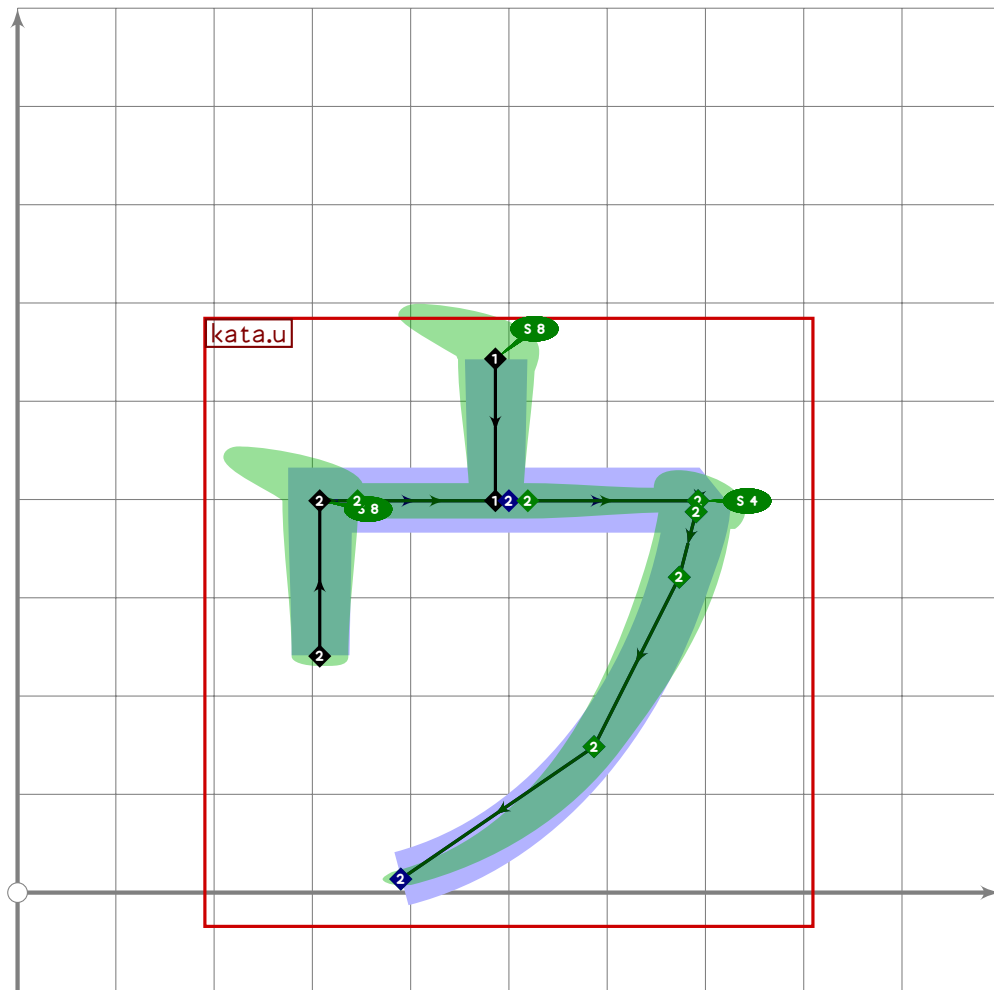


```

975 % katakana "small i"
976 begintsuglyph("uni30A3",163);
977 tsu_xform(tsu_xf.smallkana)(kata.i);
978 tsu_render;
979 endtsuglyph;
980
981 % katakana "i"
982 begintsuglyph("uni30A4",164);
983 kata.i;
984 tsu_render;
985 endtsuglyph;
986

```

[see page 120]

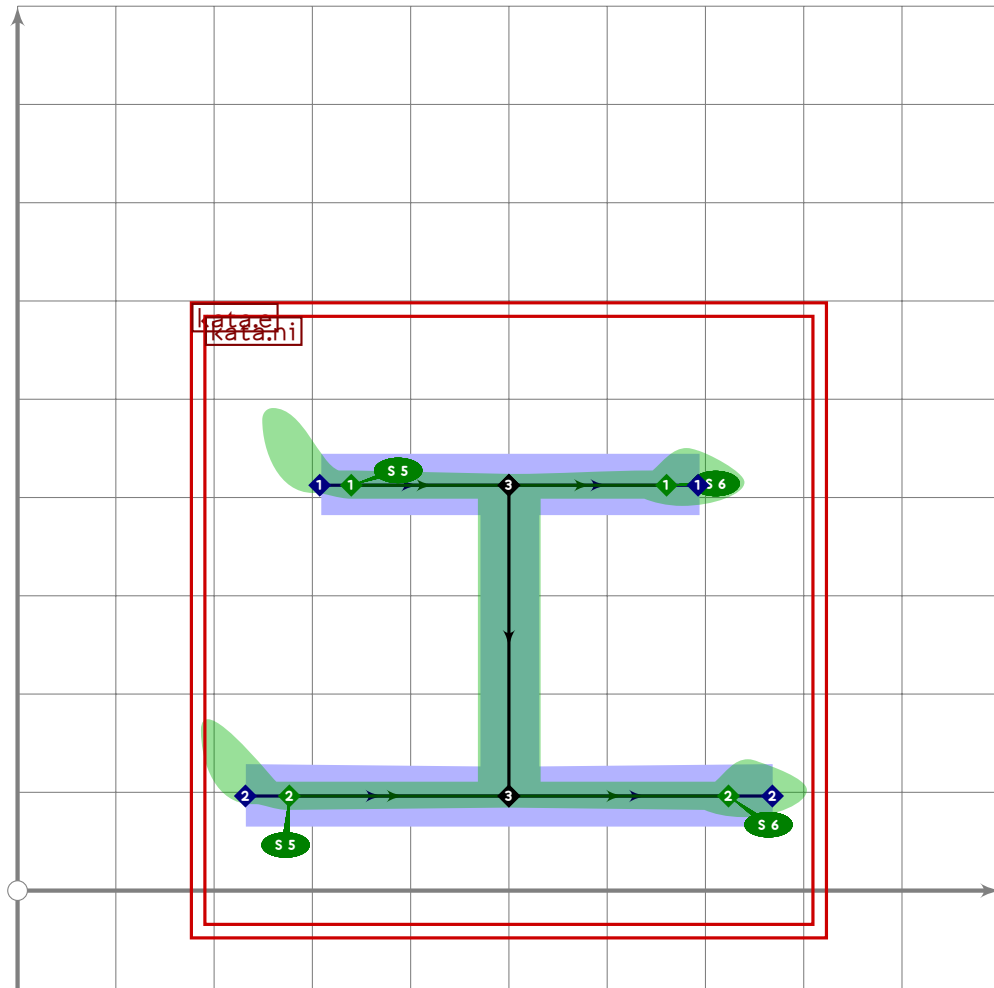


```

987 % katakana "small u"
988 begintsuglyph("uni30A5";165);
989 tsu_xform(tsu_xf.smallkana)(kata.u);
990 tsu_render;
991 endtsuglyph;
992
993 % katakana "u"
994 begintsuglyph("uni30A6";166);
995 kata.u;
996 tsu_render;
997 endtsuglyph;
998

```

[see page 121]



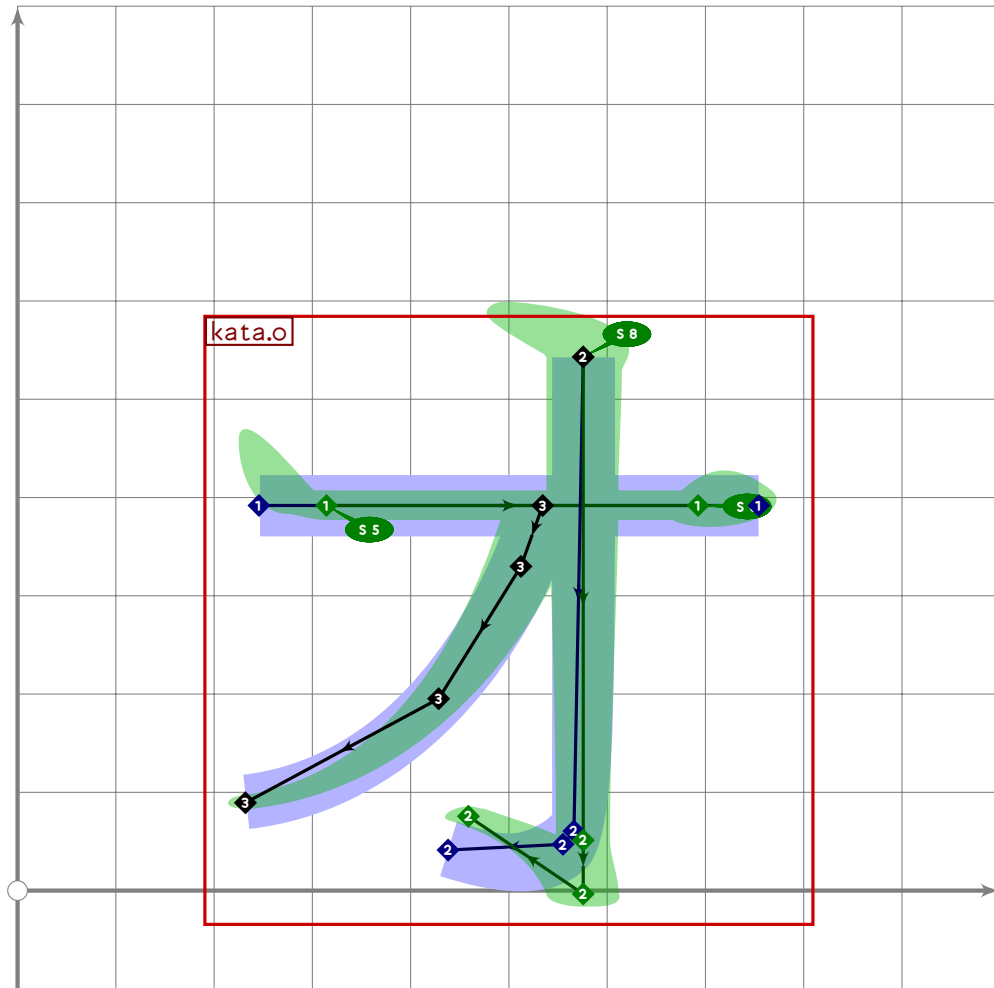
```

999 % katakana "small e"
1000 begintsuglyph("uni30A7",167);
1001 tsu_xform(tsu_xf.smallkana)(kata.e);
1002 tsu_render;
1003 endtsuglyph;
1004
1005 % katakana "e"
1006 begintsuglyph("uni30A8",168);
1007 kata.e;
1008 tsu_render;
1009 endtsuglyph;
1010

```

[see page 122]





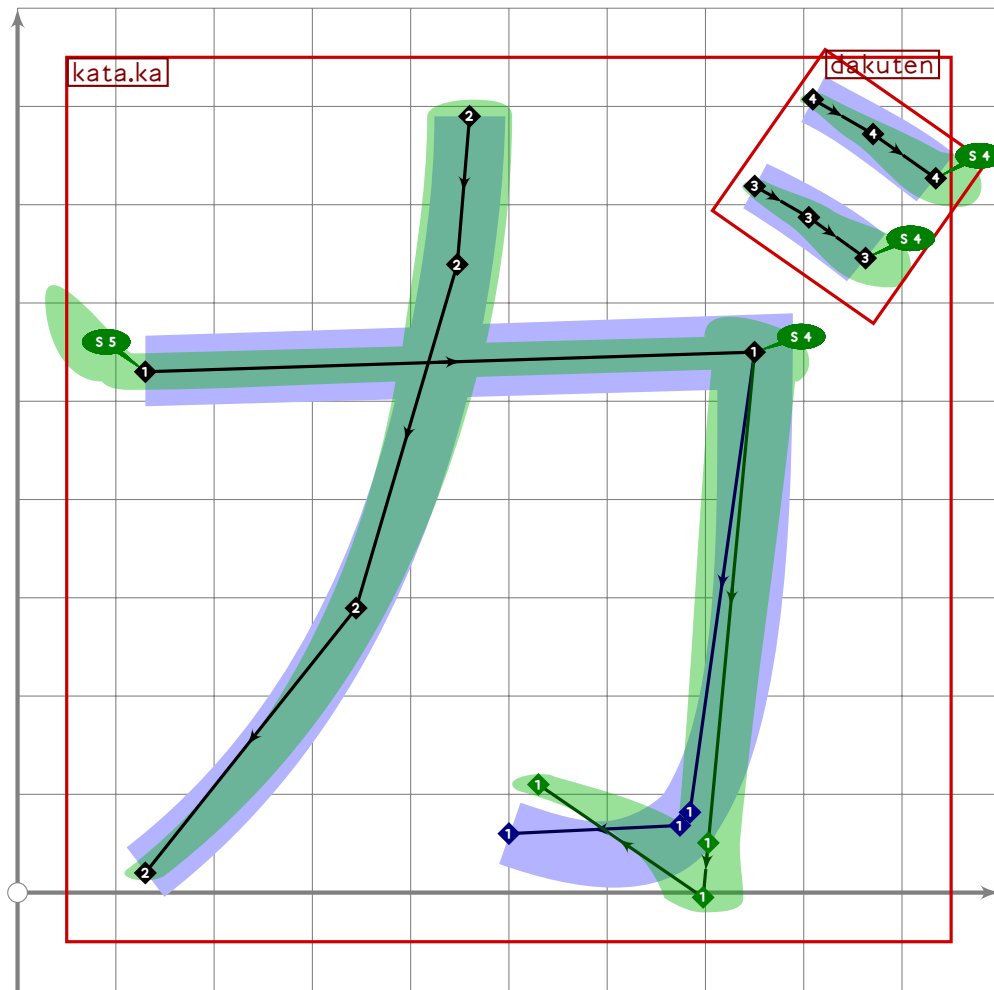
```

1011 % katakana "small o"
1012 begintsuglyph("uni30A9";169);
1013 tsu_xform(tsu_xf.smallkana)(kata.o);
1014 tsu_render;
1015 endtsuglyph;
1016
1017 % katakana "o"
1018 begintsuglyph("uni30AA";170);
1019 kata.o;
1020 tsu_render;
1021 endtsuglyph;
1022
1023 % katakana "ka"
1024 begintsuglyph("uni30AB";171);
1025 kata.ka;
1026 tsu_render;
1027 endtsuglyph;
1028

```

[see page 123]

[see page 124]

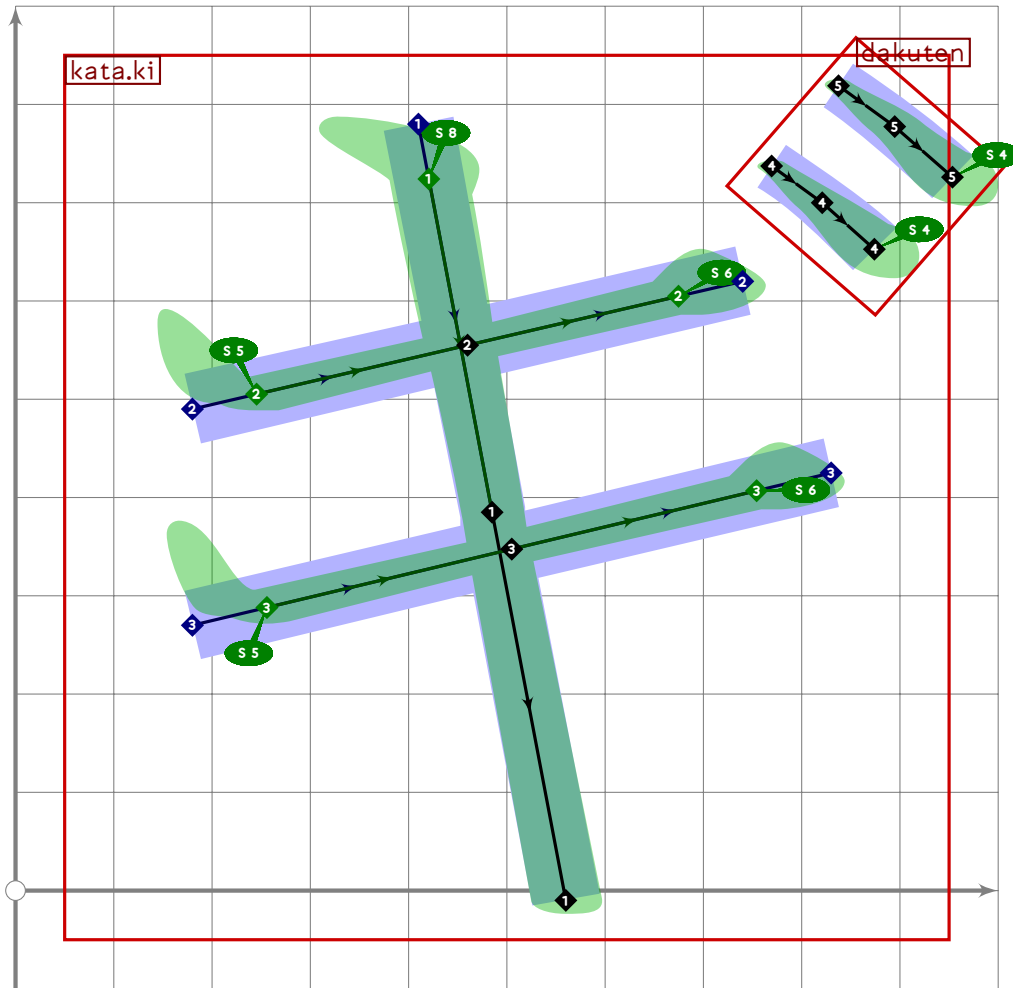


```

1029 % katakana "ga"
1030 beginsuglyph("uni30AC",172);
1031 kata.ka;
1032 dakuten(identity rotated 15 shifted (830,730));
1033 tsu_render;
1034 endsuglyph;
1035
1036 % katakana "ki"
1037 beginsuglyph("uni30AD",173);
1038 kata.ki;
1039 tsu_render;
1040 endsuglyph;
1041

```

[see page 125]

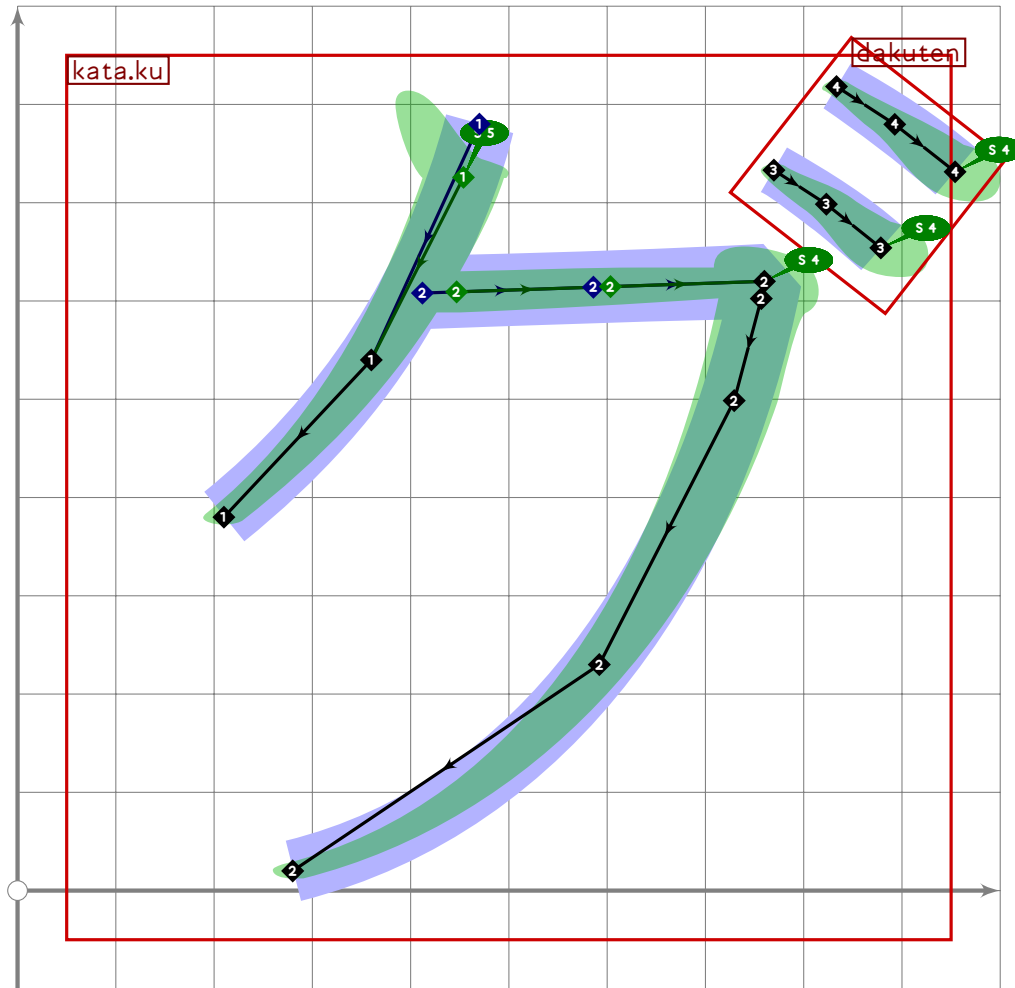


```

1042 % katakana "gi"
1043 beginsuglyph("uni30AE",174);
1044 kata.ki;
1045 dakuten(identity rotated 9 shifted (850,740));
1046 tsu_render;
1047 endsuglyph;
1048
1049 % katakana "ku"
1050 beginsuglyph("uni30AF",175);
1051 kata.ku;
1052 tsu_render;
1053 endsuglyph;
1054

```

[see page 126]

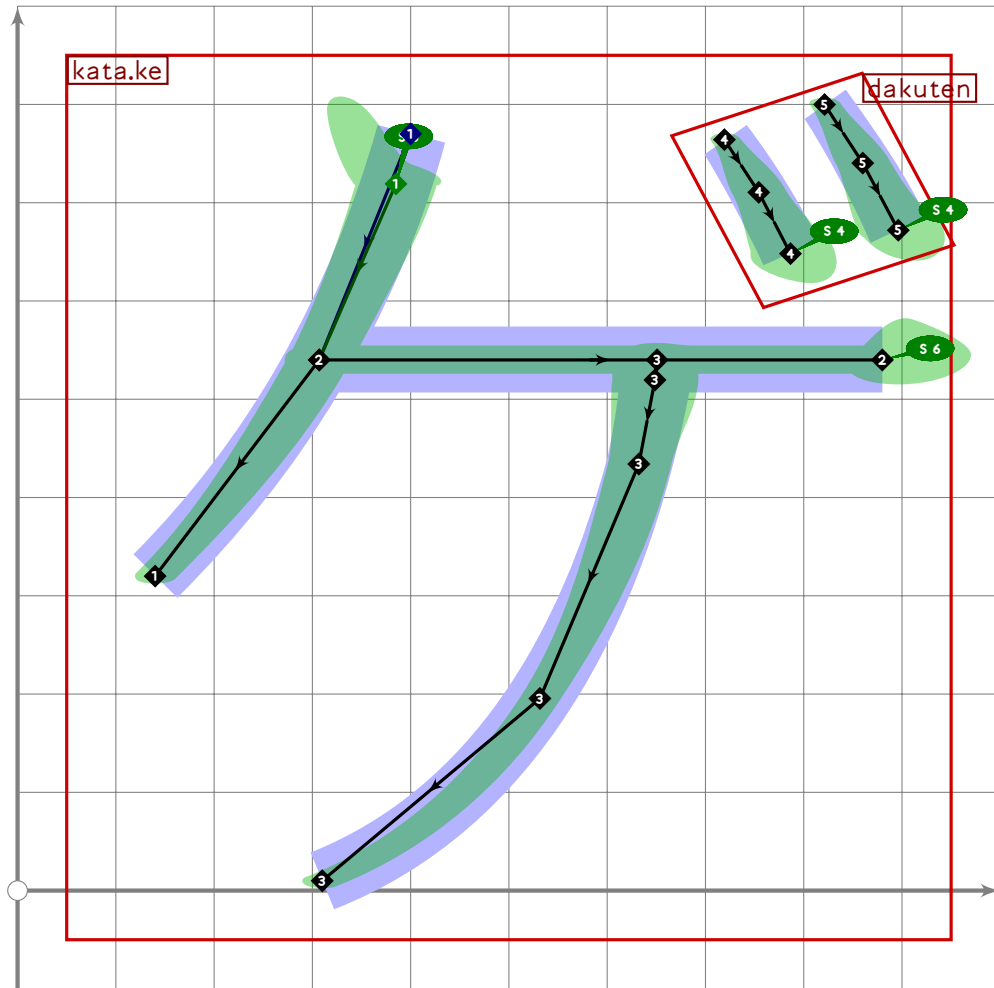


```

1055 % katakana "gu"
1056 beginsuglyph("uni30B0",176);
1057 kata.ku;
1058 dakuten(identity rotated 12 shifted (850,740));
1059 tsu_render;
1060 endsuglyph;
1061
1062 % katakana "ke"
1063 beginsuglyph("uni30B1",177);
1064 kata.ke;
1065 tsu_render;
1066 endsuglyph;
1067

```

[see page 127]

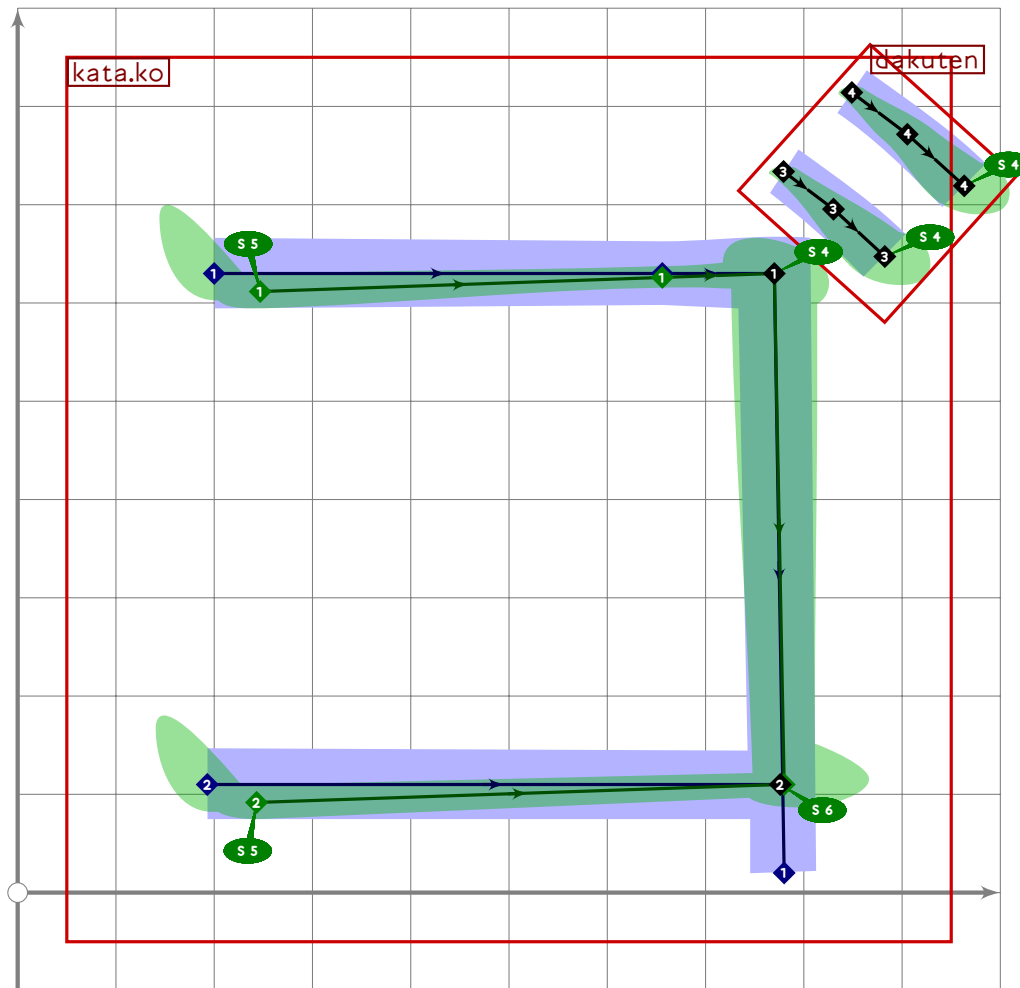


```

1068 % katakana "ge"
1069 beginsuglyph("uni30B2",178);
1070 kata.ke;
1071 dakuten(identity
1072   rotated -20 slanted -0.1 xyscaled (1.07,0.93) shifted (800,730));
1073 tsu_render;
1074 endsuglyph;
1075
1076 % katakana "ko"
1077 beginsuglyph("uni30B3",179);
1078 kata.ko;
1079 tsu_render;
1080 endsuglyph;
1081

```

[see page 128]

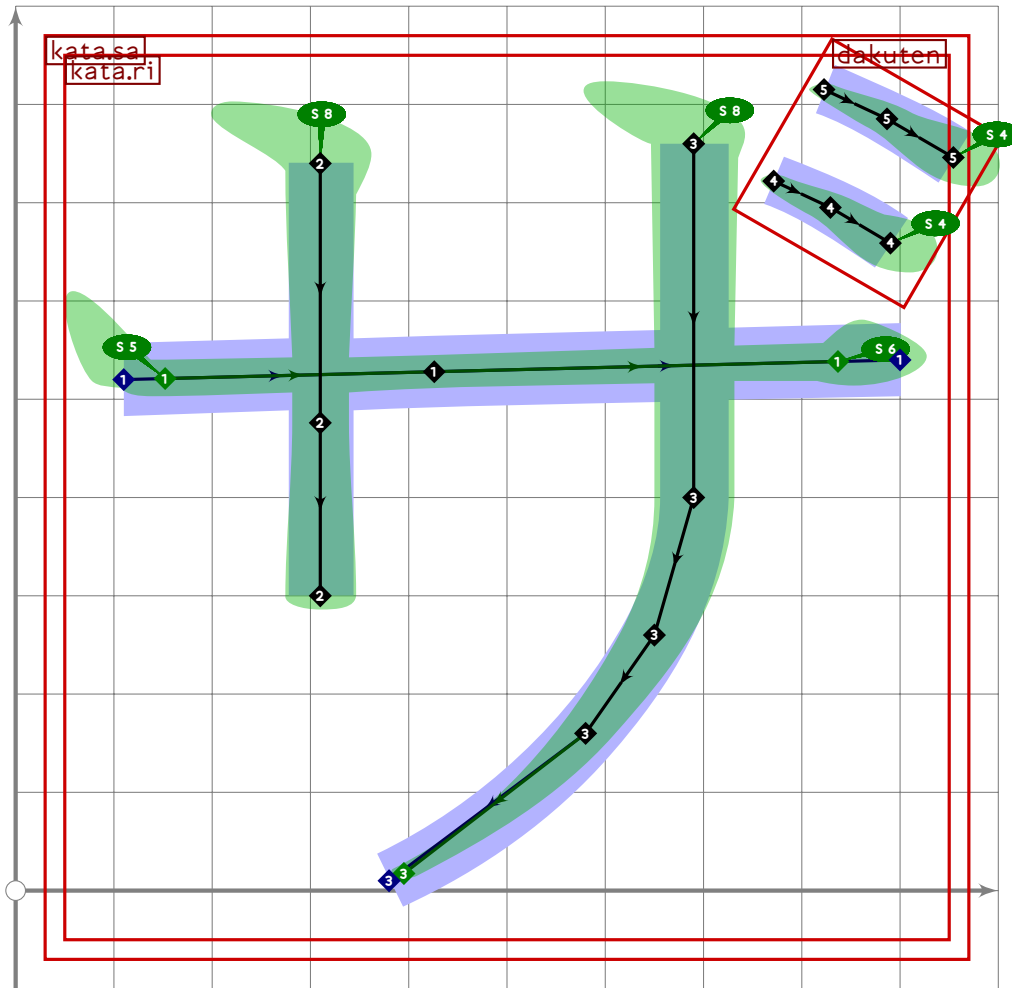


```

1082 % katakana "go"
1083 begintsuglyph("uni30B4";180);
1084 kata.ko;
1085 bo_tip1[1]:=0;
1086 dakuten(identity rotated 8 shifted (860,735));
1087 tsu_render;
1088 endtsuglyph;
1089
1090 % katakana "sa"
1091 begintsuglyph("uni30B5";181);
1092 kata.sa;
1093 tsu_render;
1094 endtsuglyph;
1095

```

[see page 129]

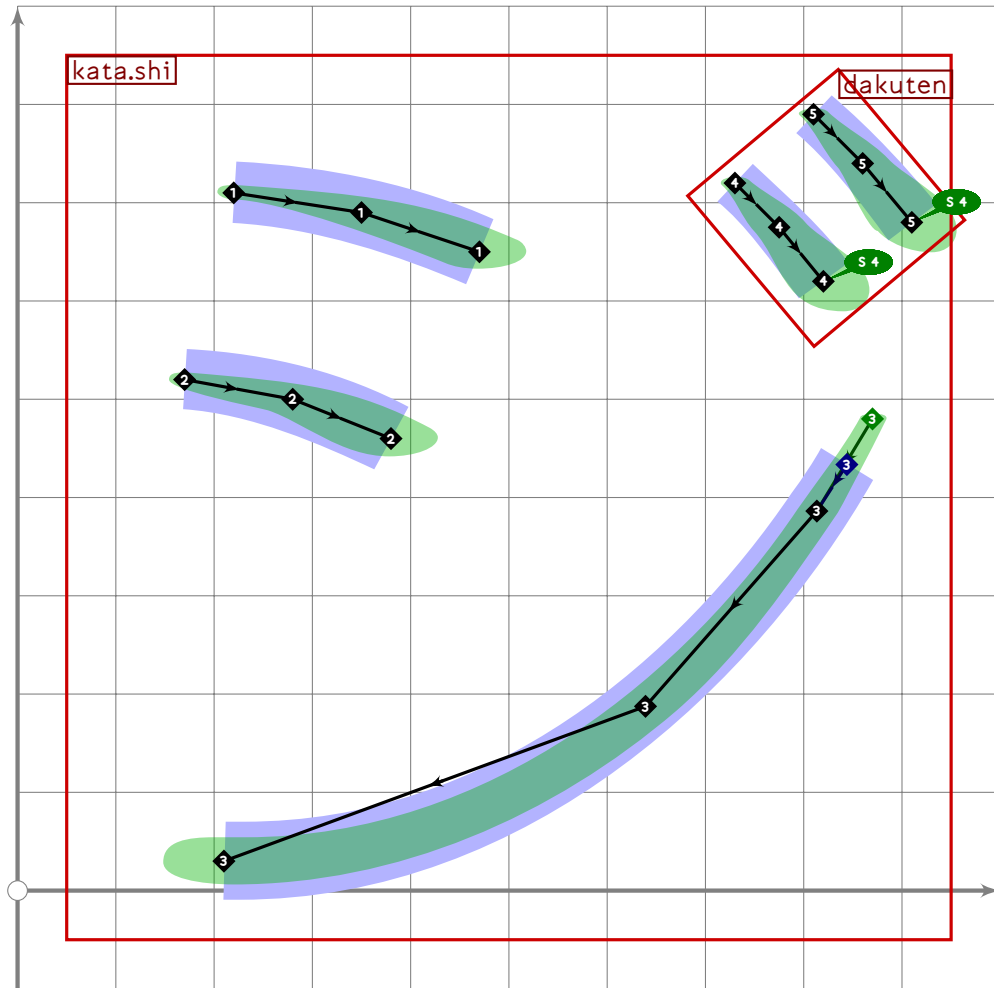


```

1096 % katakana "za"
1097 begintsuglyph("uni30B6",182);
1098 kata.sa;
1099 dakuten(identity rotated 20 shifted (850,740));
1100 tsu_render;
1101 endtsuglyph;
1102
1103 % katakana "shi"
1104 begintsuglyph("uni30B7",183);
1105 kata.shi;
1106 tsu_render;
1107 endtsuglyph;
1108

```

[see page 130]



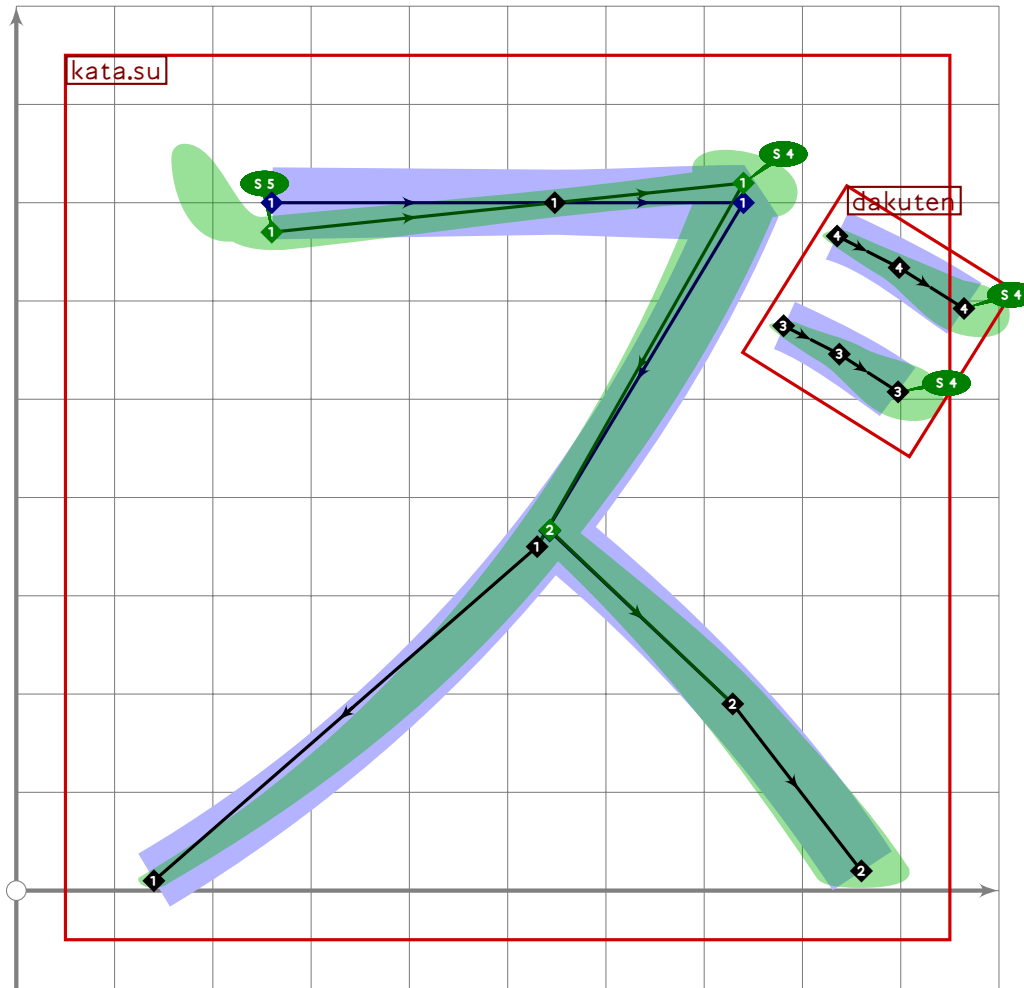
```

1109 % katakana "ji"
1110 begintsuglyph("uni30B8",184);
1111 kata.shi;
1112 dakuten(identity shifted (810,710));
1113 tsu_render;
1114 endtsuglyph;
1115
1116 % katakana "su"
1117 begintsuglyph("uni30B9",185);
1118 kata.su;
1119 tsu_render;
1120 endtsuglyph;
1121

```

[see page 131]



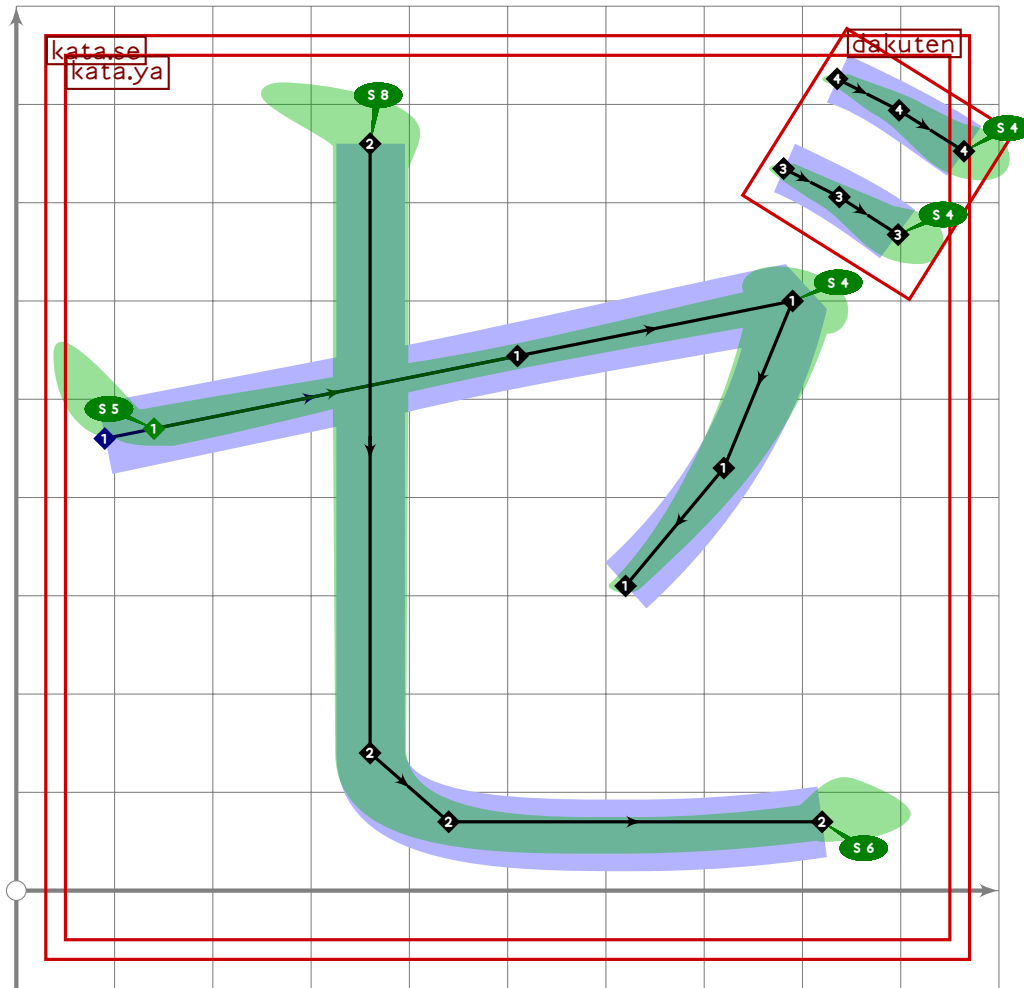


```

1122 % katakana "zu"
1123 beginsuglyph("uni30BA",186);
1124 kata.su;
1125 dakuten(identity rotated 18 shifted (860,590));
1126 tsu_render;
1127 endtsuglyph;
1128
1129 % katakana "se"
1130 beginsuglyph("uni30BB",187);
1131 kata.se;
1132 tsu_render;
1133 endtsuglyph;
1134

```

[see page 132]

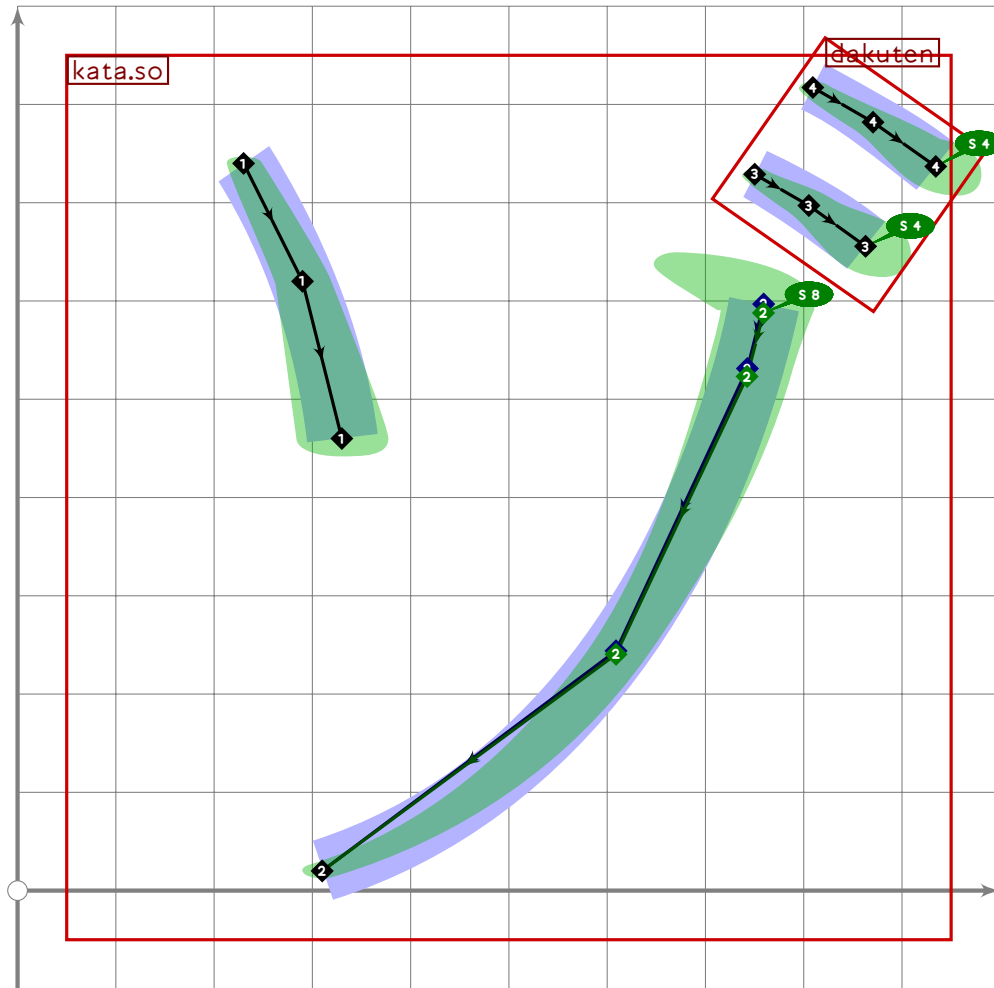


```

1135 % katakana "ze"
1136 begintsuglyph("uni30BC",188);
1137 kata.se;
1138 dakuten(identity rotated 18 shifted (860,750));
1139 tsu_render;
1140 endtsuglyph;
1141
1142 % katakana "so"
1143 begintsuglyph("uni30BD",189);
1144 kata.so;
1145 tsu_render;
1146 endtsuglyph;
1147

```

[see page 133]

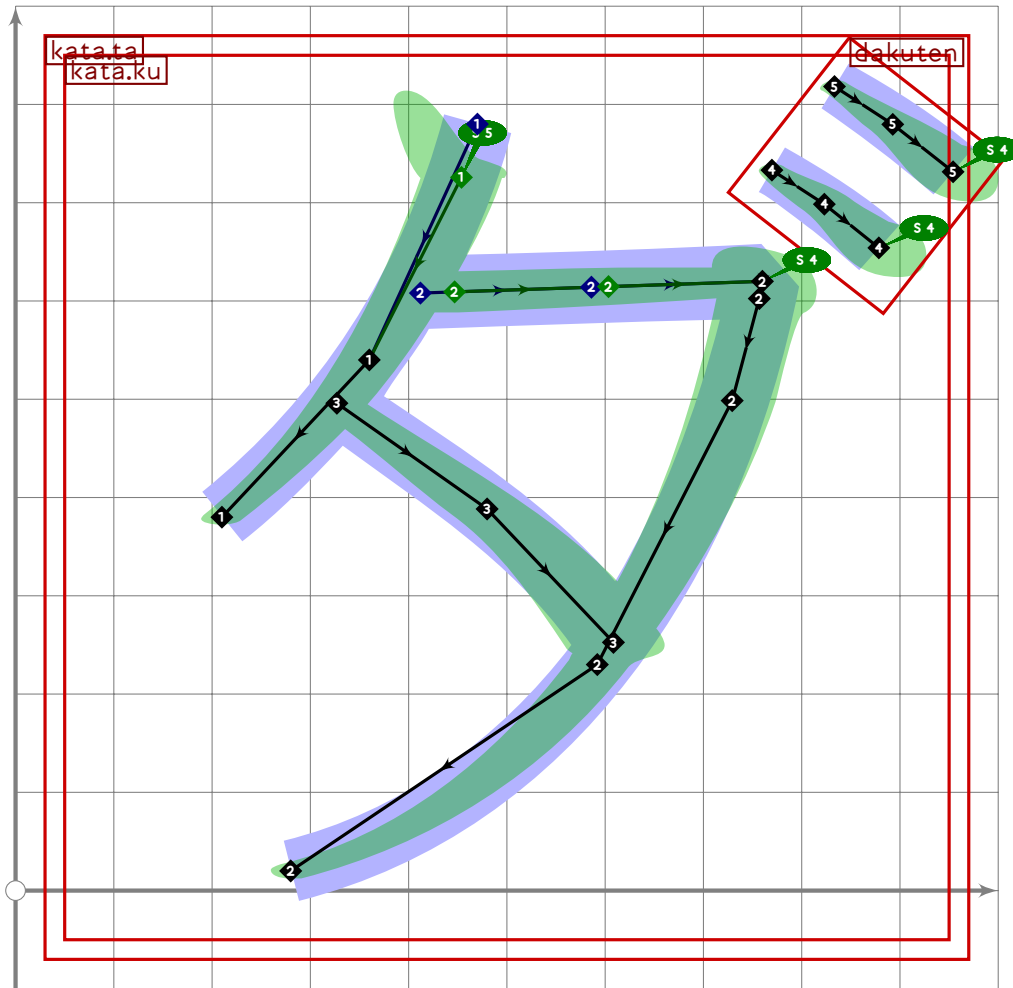


```

1148 % katakana "zo"
1149 begintsuglyph("uni30BE",190);
1150 kata.so;
1151 replace_stroke(0,subpath (0.5,infinity) of oldp);
1152 dakuten(identity rotated 15 shifted (830,740));
1153 tsu_render;
1154 endtsuglyph;
1155
1156 % katakana "ta"
1157 begintsuglyph("uni30BF",191);
1158 kata.ta;
1159 tsu_render;
1160 endtsuglyph;
1161

```

[see page 134]

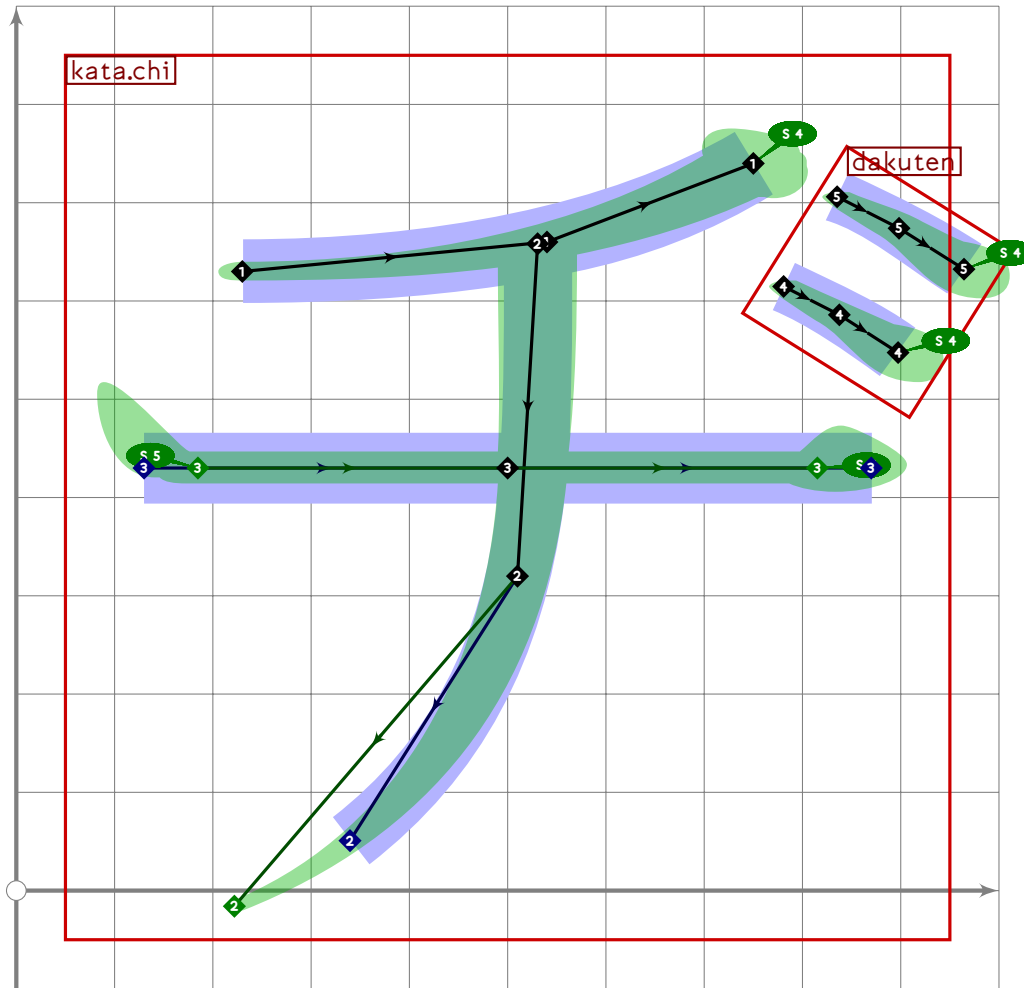


```

1162 % katakana "da"
1163 beginsuglyph("uni30C0";192);
1164 kata.ta;
1165 dakuten(identity rotated 12 shifted (850,740));
1166 tsu_render;
1167 endsuglyph;
1168
1169 % katakana "chi"
1170 beginsuglyph("uni30C1";193);
1171 kata.chi;
1172 tsu_render;
1173 endsuglyph;
1174

```

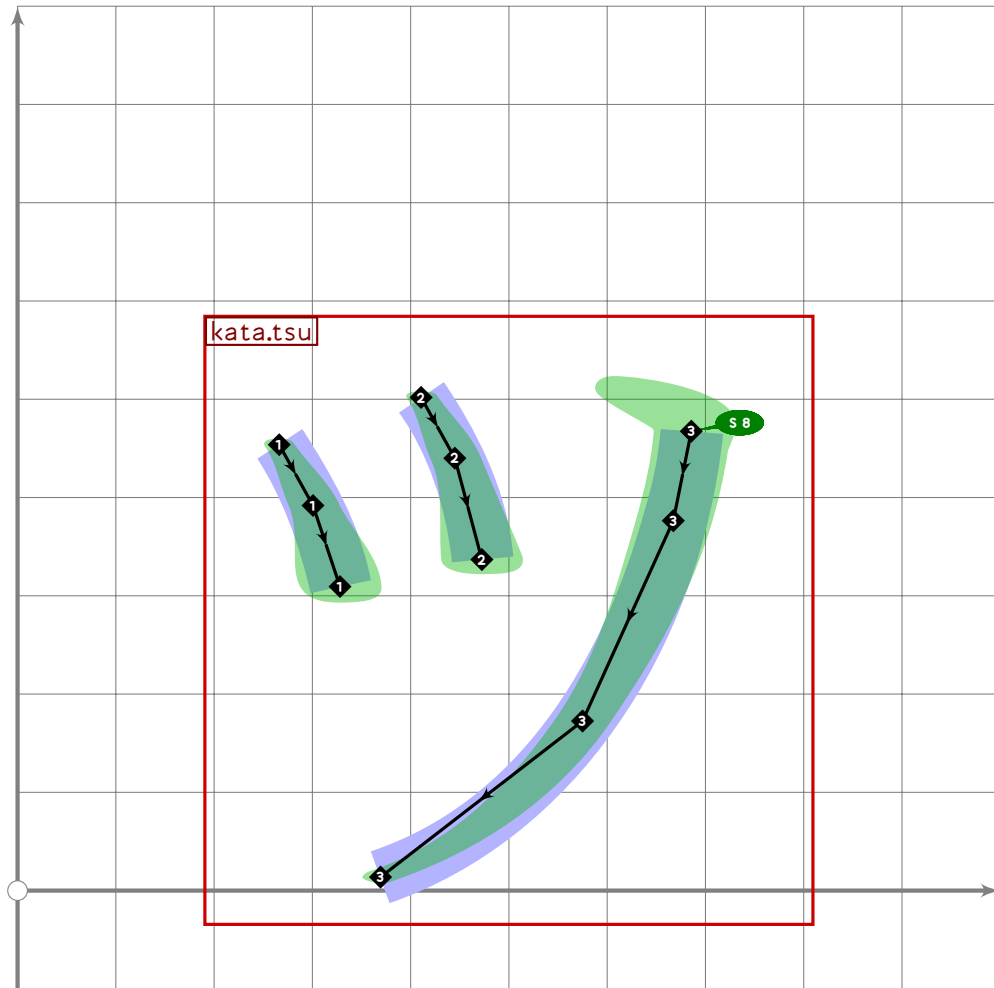
[see page 135]



```

1175 % katakana "dji"
1176 beginsuglyph("uni30C2",194);
1177 kata.chi;
1178 dakuten(identity rotated 18 shifted (860,630));
1179 tsu_render;
1180 endsuglyph;
1181

```

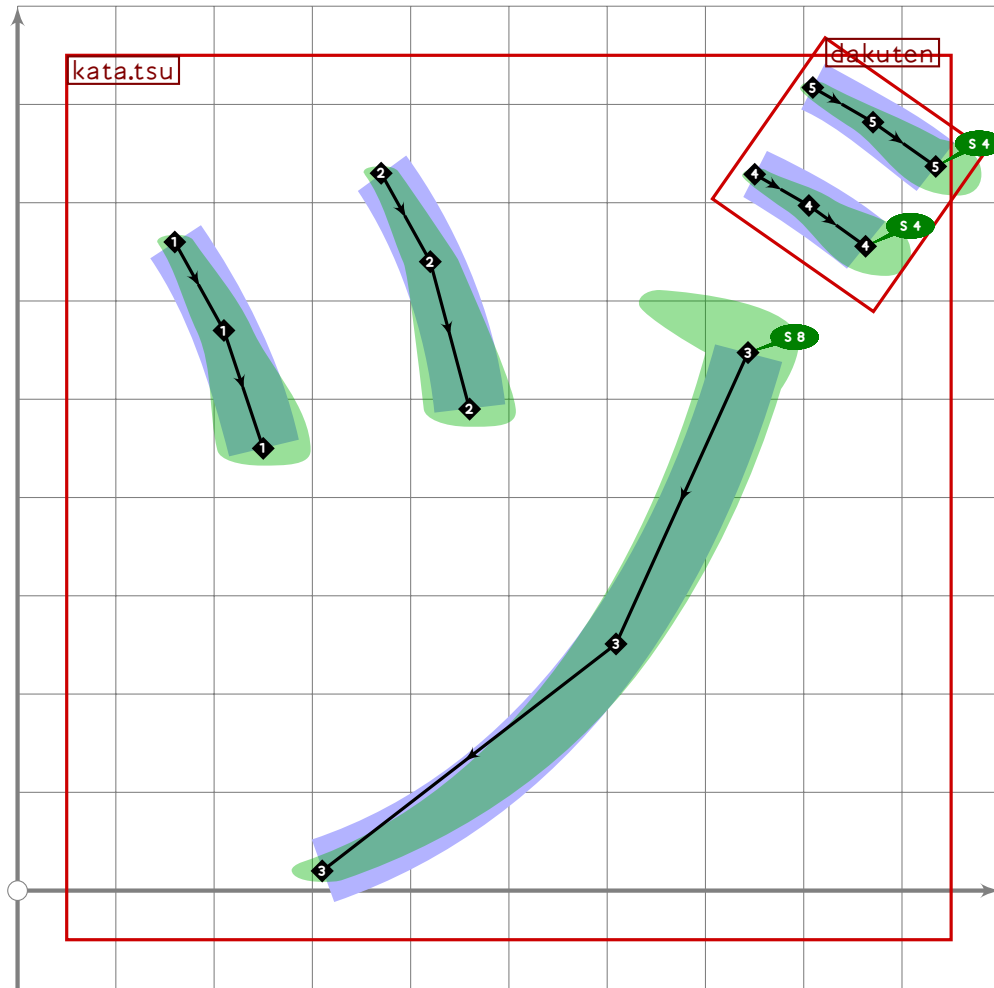


```

1182 % katakana "small tsu"
1183 begintsuglyph("uni30C3";195);
1184 tsu_xform(tsu_xf.smallkana)(kata.tsu);
1185 tsu_render;
1186 endtsuglyph;
1187
1188 % katakana "tsu"
1189 begintsuglyph("uni30C4";196);
1190 kata.tsu;
1191 tsu_render;
1192 endtsuglyph;
1193

```

[see page 136]

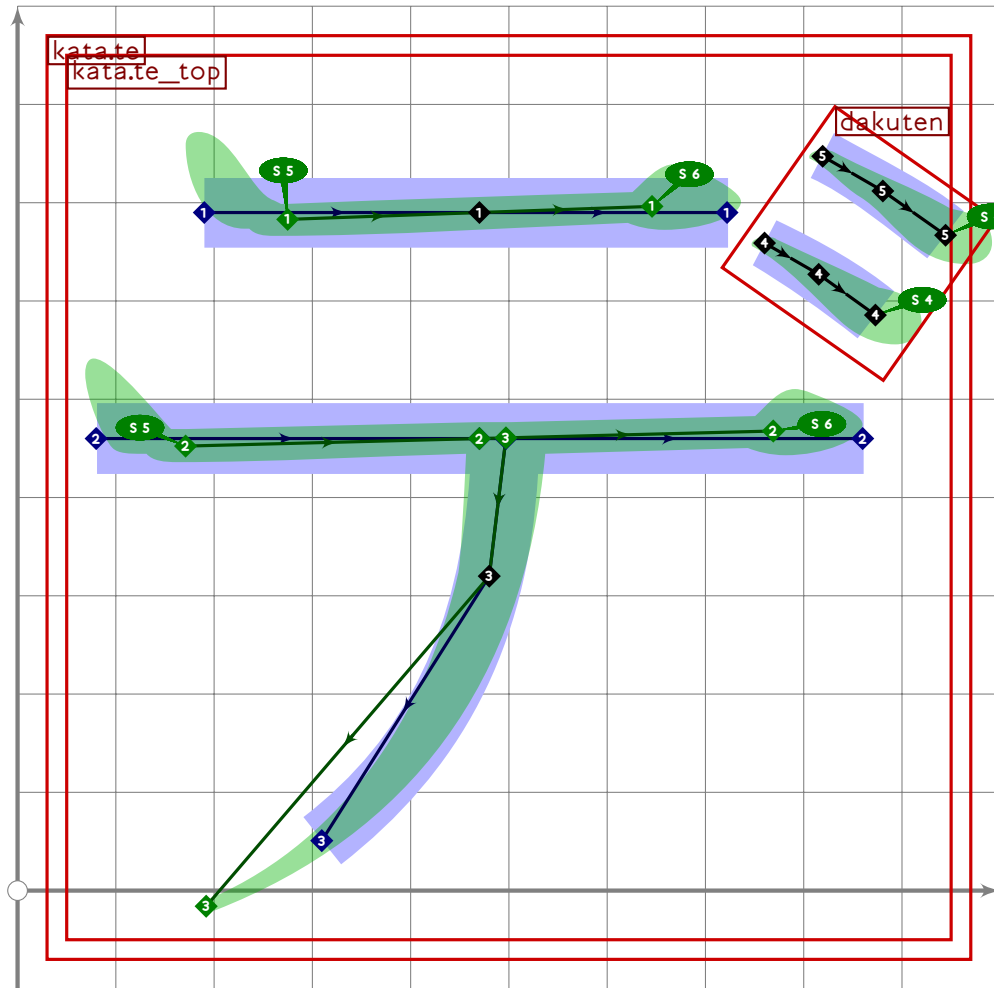


```

1194 % katakana "dzu"
1195 begintsuglyph("uni30C5",197);
1196 kata.tsu;
1197 replace_stroke(0,subpath (1,infinity) of oldp);
1198 dakuten(identity rotated 15 shifted (830,740));
1199 tsu_render;
1200 endsuglyph;
1201
1202 % katakana "te"
1203 begintsuglyph("uni30C6",198);
1204 kata.te;
1205 tsu_render;
1206 endsuglyph;
1207

```

[see page 137]



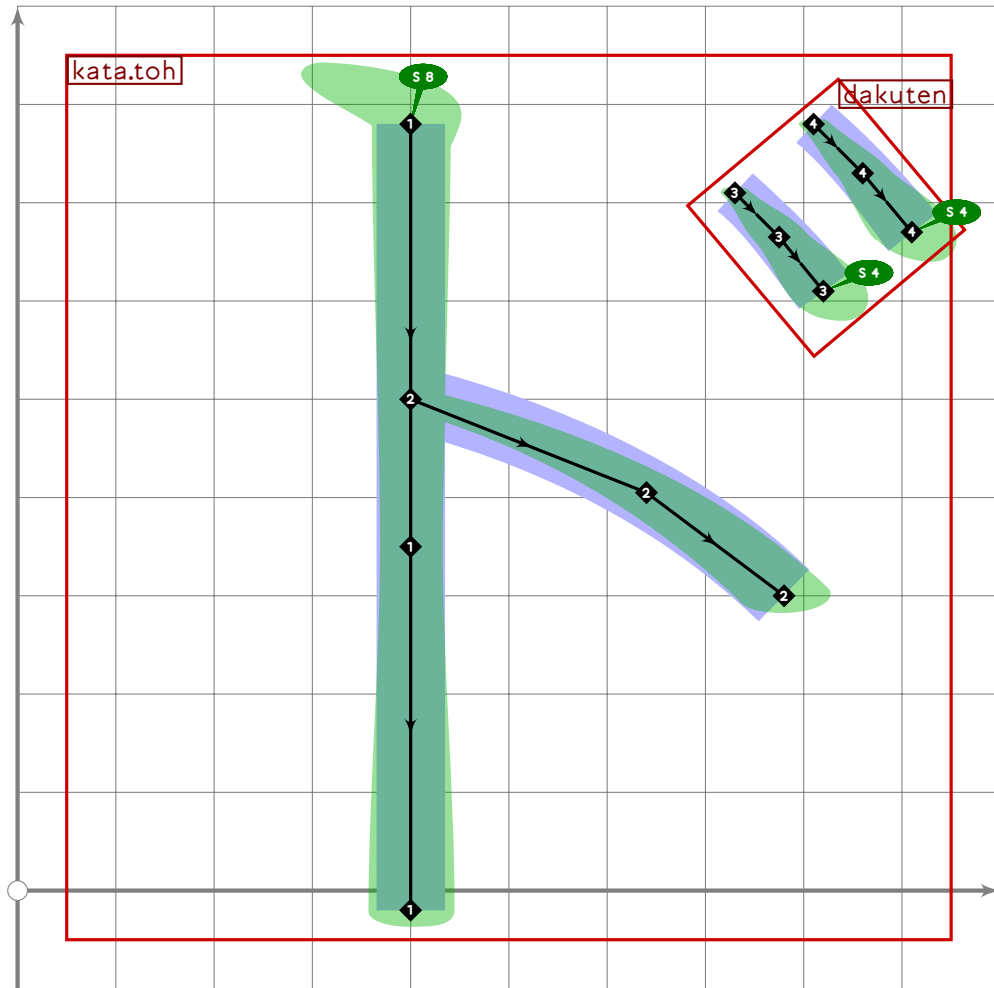
```

1208 % katakana "de"
1209 begintsuglyph("uni30C7",199);
1210 kata.te;
1211 replace_stroke(-2,(subpath (0,1,9) of oldp) shifted (-30,0));
1212 replace_stroke(-1,oldp shifted (-30,0));
1213 replace_stroke(0,oldp shifted (-30,0));
1214 dakuten(identity rotated 15 shifted (840,670));
1215 tsu_render;
1216 endtsuglyph;
1217
1218 % katakana "to"
1219 begintsuglyph("uni30C8",200);
1220 kata.toh;
1221 tsu_render;
1222 endtsuglyph;
1223

```

[see page 138]





```

1224 % katakana "do"
1225 begintsuglyph("uni30C9";201);
1226 kata.toh;
1227 dakuten(identity shifted (810,700));
1228 tsu_render;
1229 endtsuglyph;

```

1230

```

1231 % katakana "na"
1232 begintsuglyph("uni30CA";202);
1233 kata.na;
1234 tsu_render;
1235 endtsuglyph;

```

[see page 139]

1236

```

1237 % katakana "ni"
1238 begintsuglyph("uni30CB";203);
1239 kata.ni;
1240 tsu_render;
1241 endtsuglyph;

```

[see page 140]

1242

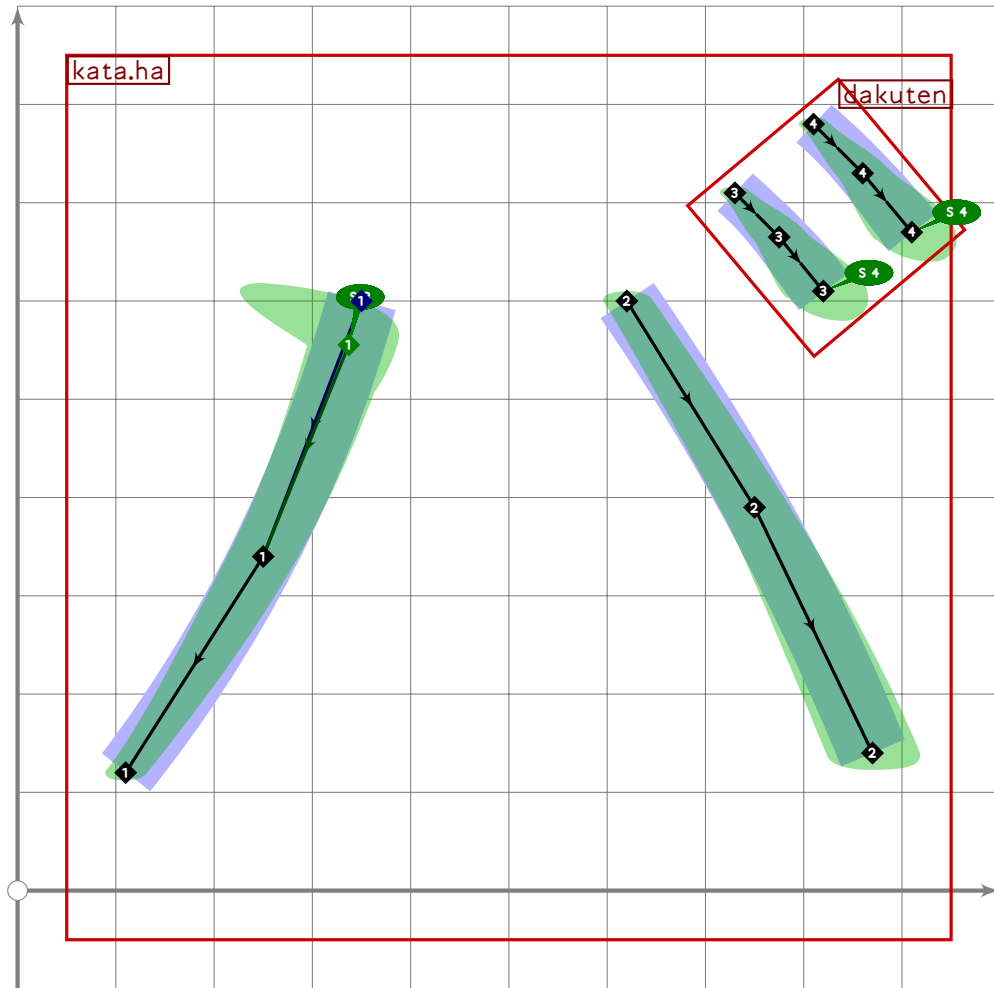
```

1243 % katakana "nu"
1244 begintsuglyph("uni30CC";204);

```

[see page 141]

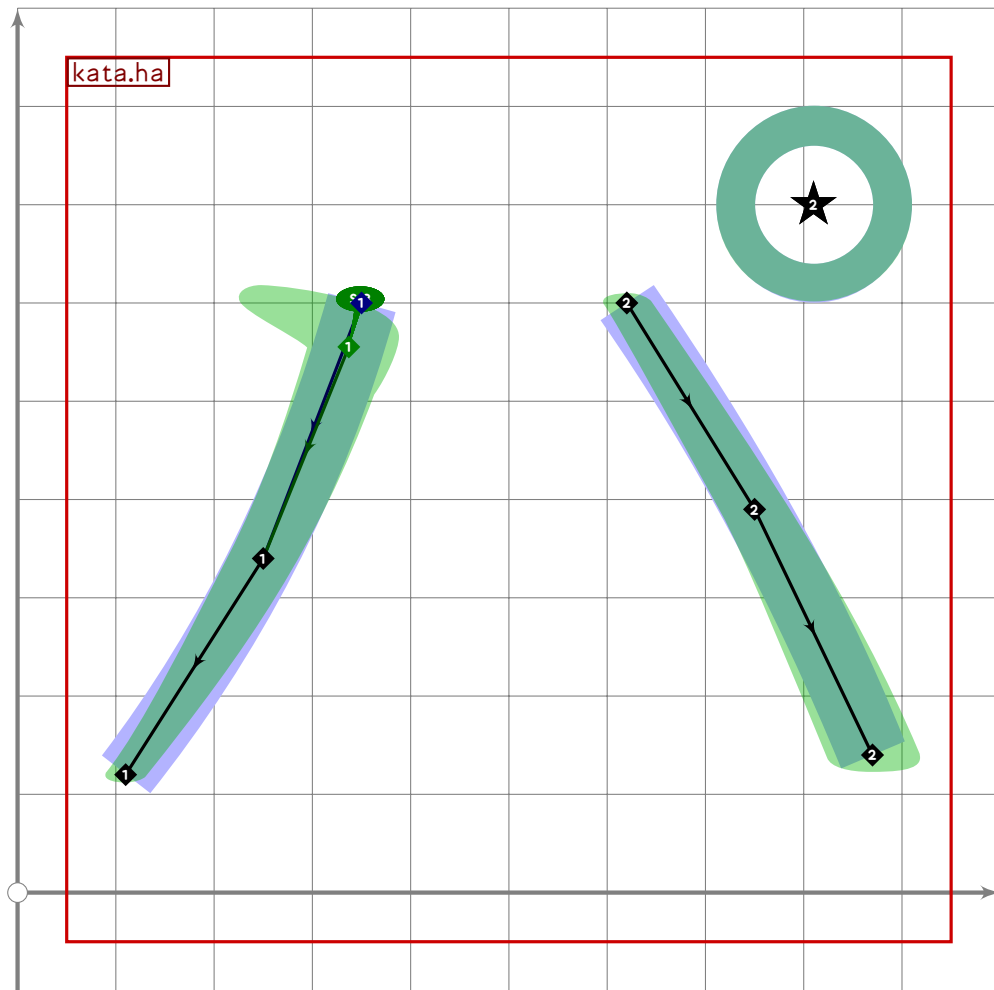
1245 kata.nu;  
1246 tsu\_render;  
1247 endtsuglyph;  
1248  
1249 % katakana "ne"  
1250 begintsuglyph("uni30CD";205); [see page 142]  
1251 kata.ne;  
1252 tsu\_render;  
1253 endtsuglyph;  
1254  
1255 % katakana "no"  
1256 begintsuglyph("uni30CE";206); [see page 143]  
1257 kata.no;  
1258 tsu\_render;  
1259 endtsuglyph;  
1260  
1261 % katakan "ha"  
1262 begintsuglyph("uni30CF";207); [see page 144]  
1263 kata.ha;  
1264 tsu\_render;  
1265 endtsuglyph;  
1266



```

1267 % katakan "ba"
1268 begintsuglyph("uni30D0",208);
1269 kata.ha;
1270 dakuten(identity shifted (810,700));
1271 tsu_render;
1272 endtsuglyph;
1273

```

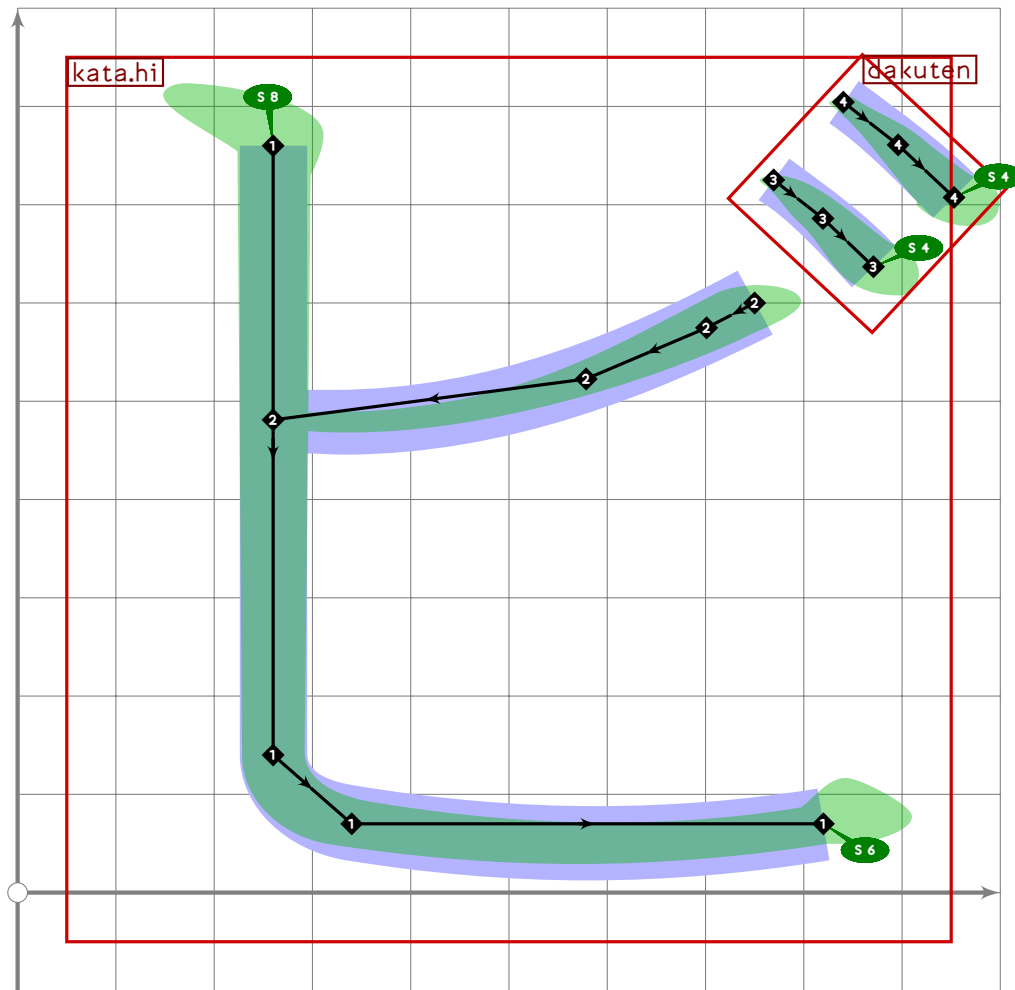


```

1274 % katakan "pa"
1275 begintsuglyph("uni30D1",209);
1276 kata.ha;
1277 handakuten((810,700));
1278 tsu_render;
1279 endtsuglyph;
1280
1281 % katakana "hi"
1282 begintsuglyph("uni30D2",210);
1283 kata.hi;
1284 tsu_render;
1285 endtsuglyph;
1286

```

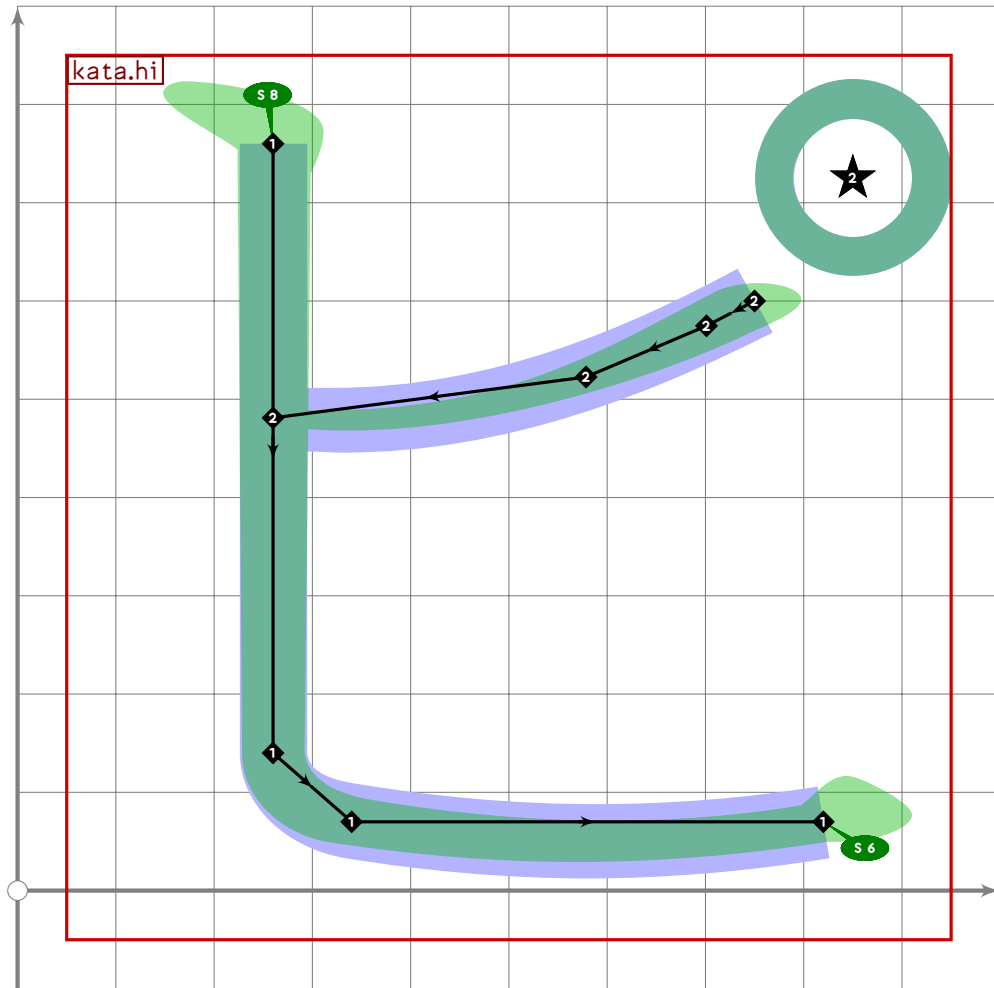
[see page 145]



```

1287 % katakana "bi"
1288 begintsuglyph("uni30D3",211);
1289 kata.hi;
1290 dakuten(identity rotated 7 shifted (850,725));
1291 tsu_render;
1292 endtsuglyph;
1293

```

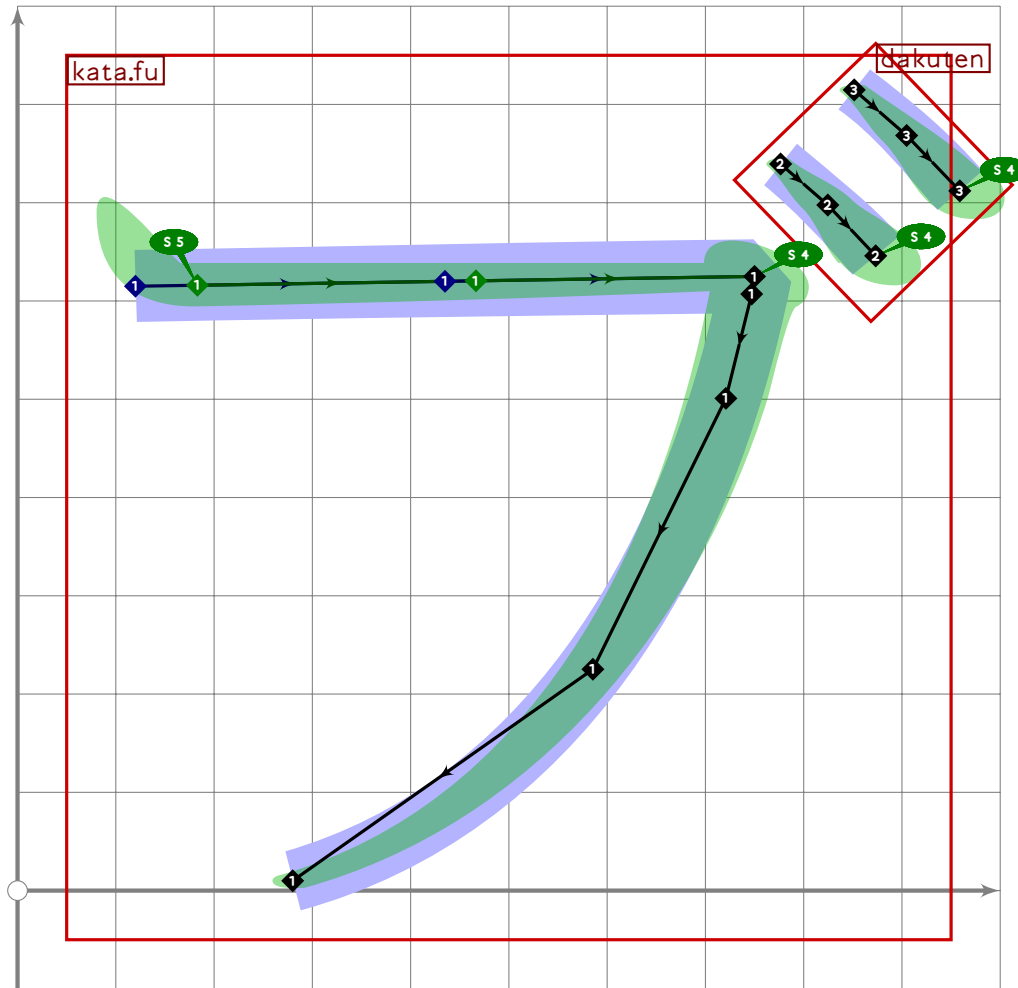


```

1294 % katakana "pi"
1295 begintsuglyph("uni30D4",212);
1296 kata.hi;
1297 handakuten((850,725));
1298 tsu_render;
1299 endtsuglyph;
1300
1301 % katakana "fu"
1302 begintsuglyph("uni30D5",213);
1303 kata.fu;
1304 tsu_render;
1305 endtsuglyph;
1306

```

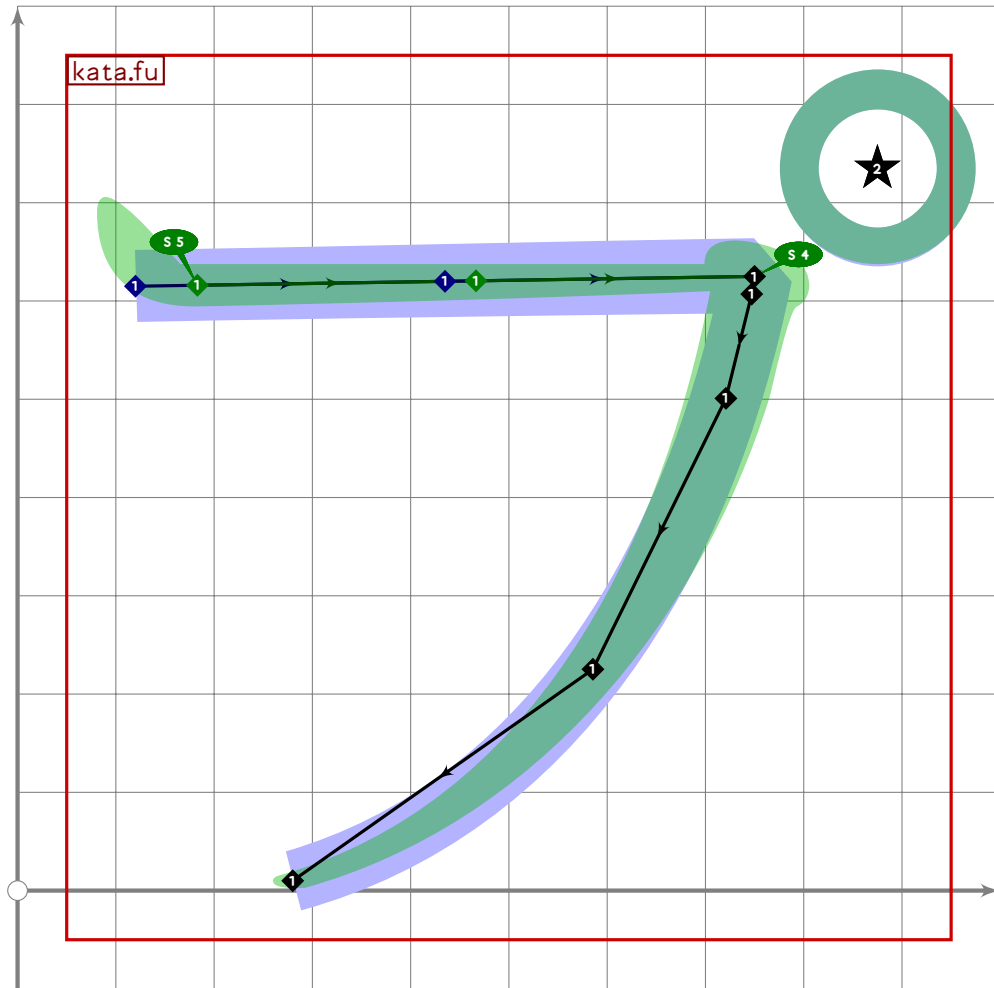
[see page 146]



```

1307 % katakana "bu"
1308 beginsuglyph("uni30D6",214);
1309 kata.fu;
1310 replace_strokep(0,oldp shifted (-40,-10));
1311 dakuten(identity rotated 4 shifted (857,735));
1312 tsu_render;
1313 endsuglyph;
1314

```



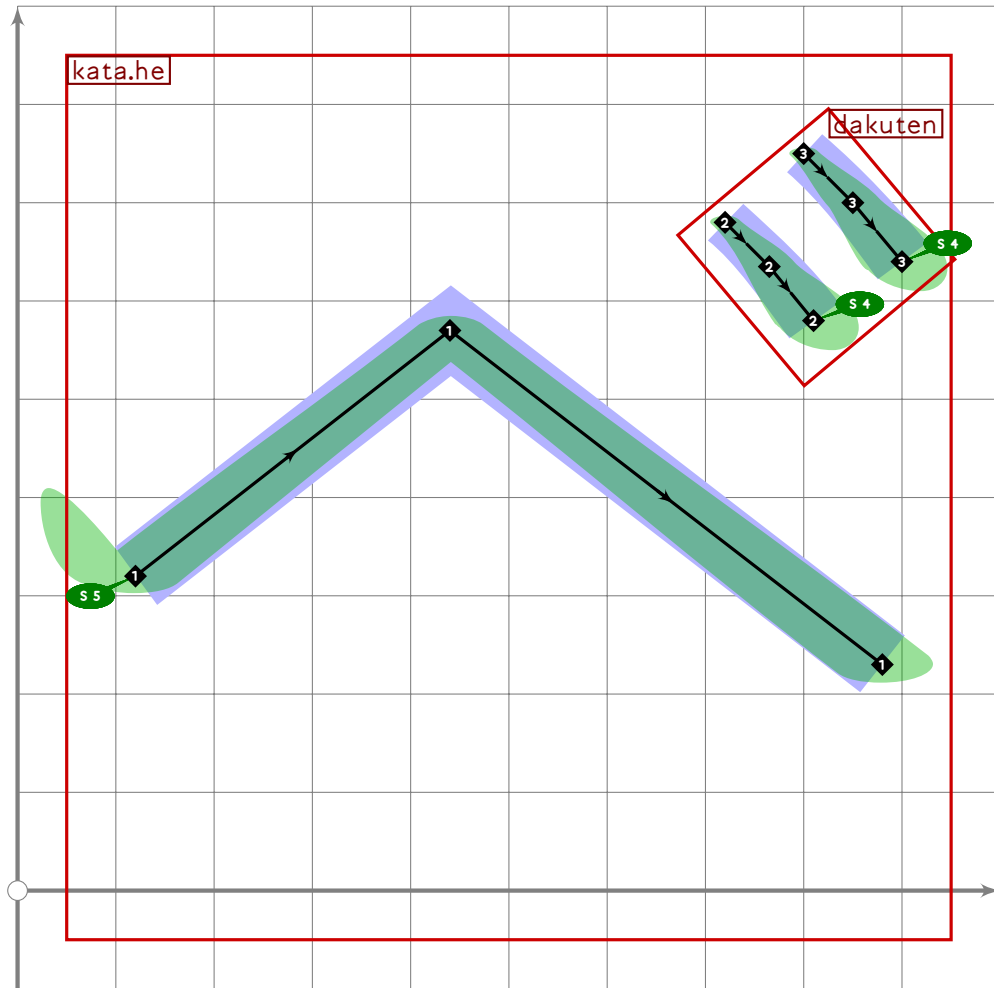
```

1315 % katakana "pu"
1316 begint Suglyph("uni30D7";215);
1317 kata.fu;
1318 replace_stroke(0,oldp shifted (-40,-10));
1319 handakuten((875,735));
1320 tsu_render;
1321 endtsuglyph;
1322
1323 % katakana "he"
1324 begint Suglyph("uni30D8";216);
1325 kata.he;
1326 tsu_render;
1327 endtsuglyph;
1328

```

[see page 147]

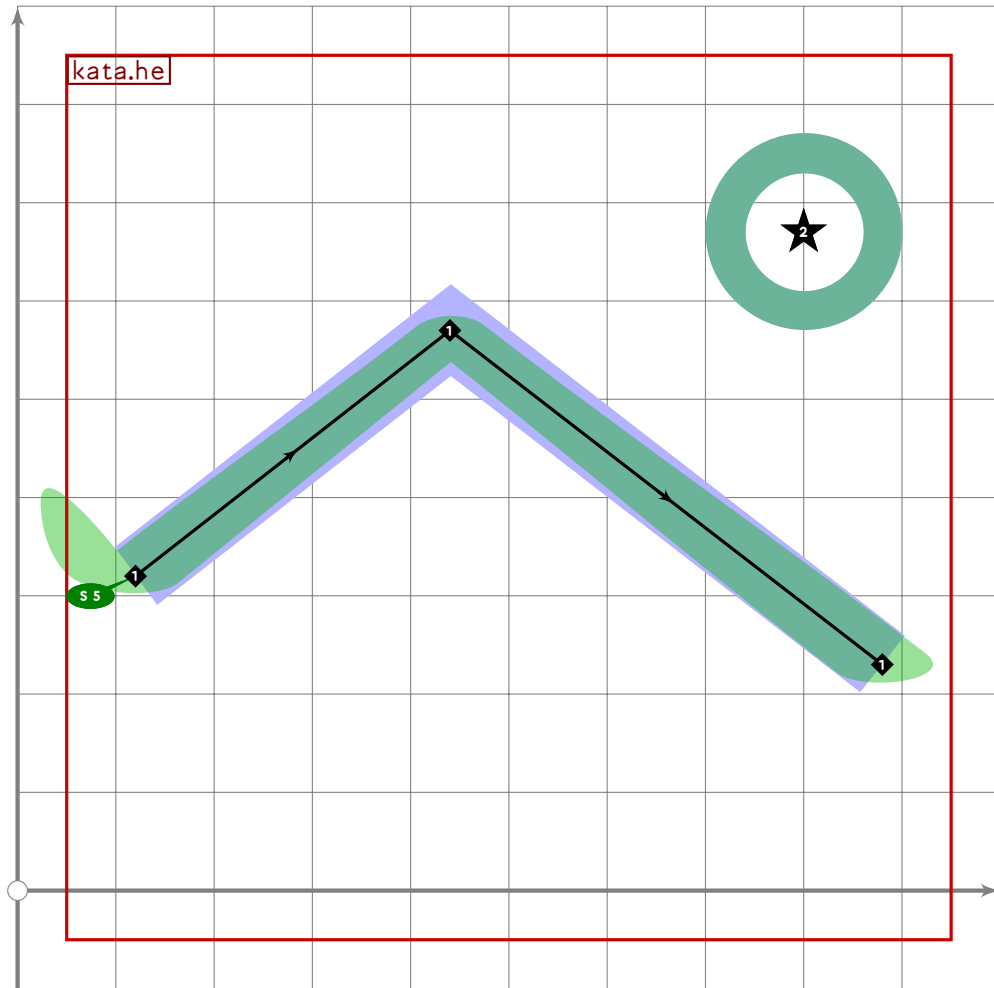




```

1329 % katakana "be"
1330 beginsuglyph("uni30D9",217);
1331 kata.he;
1332 dakuten(identity shifted (800,670));
1333 tsu_render;
1334 endsuglyph;
1335

```

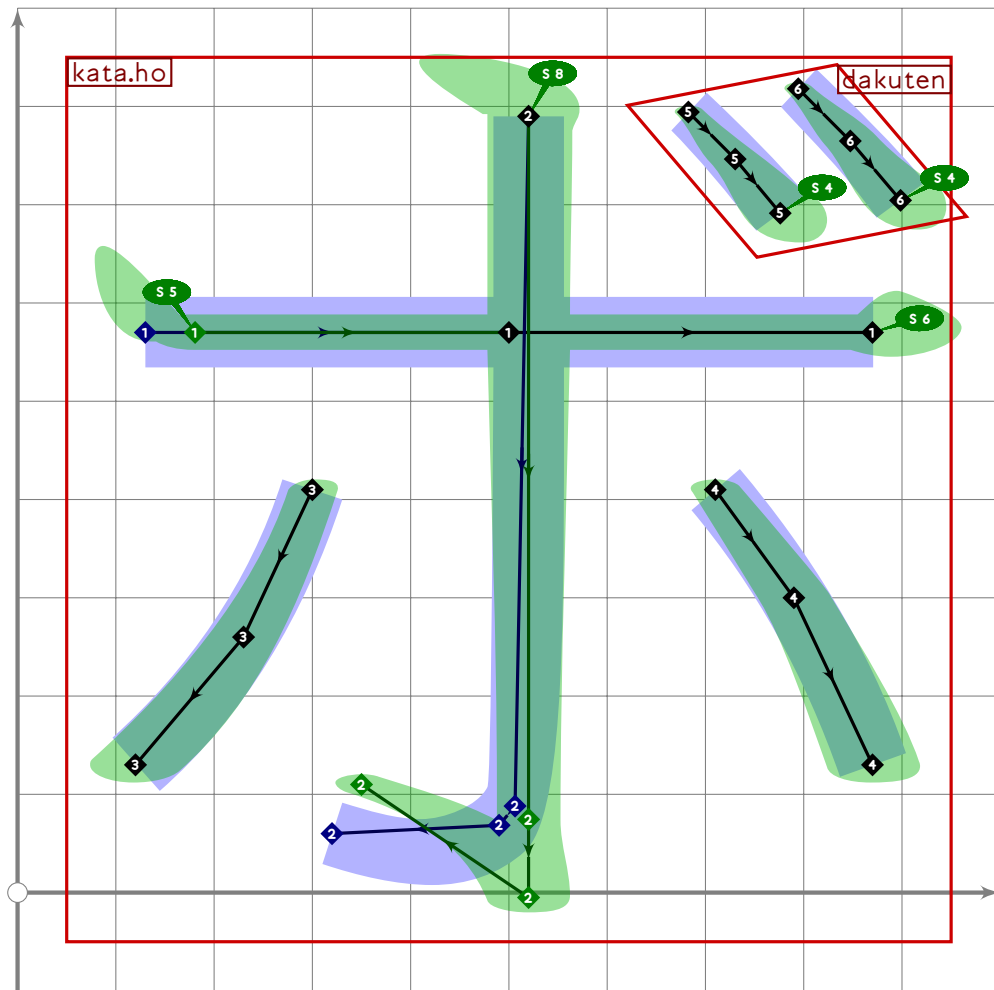


```

1336 % katakana "pe"
1337 begintsuglyph("uni30DA",218);
1338 kata.he;
1339 handakuten((800,670));
1340 tsu_render;
1341 endtsuglyph;
1342
1343 % katakana "ho"
1344 begintsuglyph("uni30DB",219);
1345 kata.ho;
1346 tsu_render;
1347 endtsuglyph;
1348

```

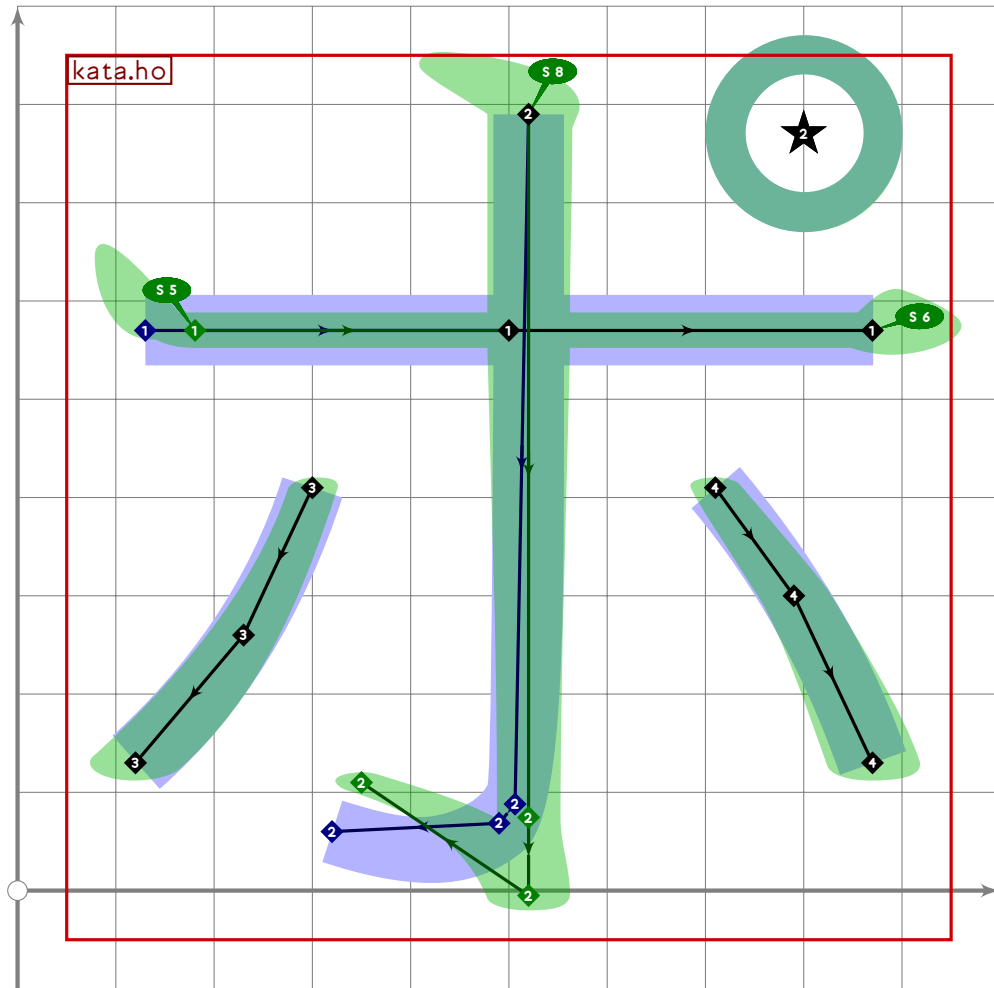
[see page 148]



```

1349 % katakana "bo"
1350 begint Suglyph("uni30DC";220);
1351 kata.ho;
1352 dakuten(identity
1353   rotated -25 slanted -0.3 xyscaled (1.2,0.8) shifted (780,760));
1354 tsu_render;
1355 endsuglyph;
1356

```



```

1357 % katakana "po"
1358 begintsuglyph("uni30DD",221);
1359 kata.ho;
1360 handakuten((800,770));
1361 tsu_render;
1362 endtsuglyph;

```

1363

```

1364 % katakana "ma"
1365 begintsuglyph("uni30DE",222);
1366 kata.ma;
1367 tsu_render;
1368 endtsuglyph;

```

[see page 149]

1369

```

1370 % katakana "mi"
1371 begintsuglyph("uni30DF",223);
1372 kata.mi;
1373 tsu_render;
1374 endtsuglyph;

```

[see page 150]

1375

```

1376 % katakana "mu"
1377 begintsuglyph("uni30E0",224);

```

[see page 151]

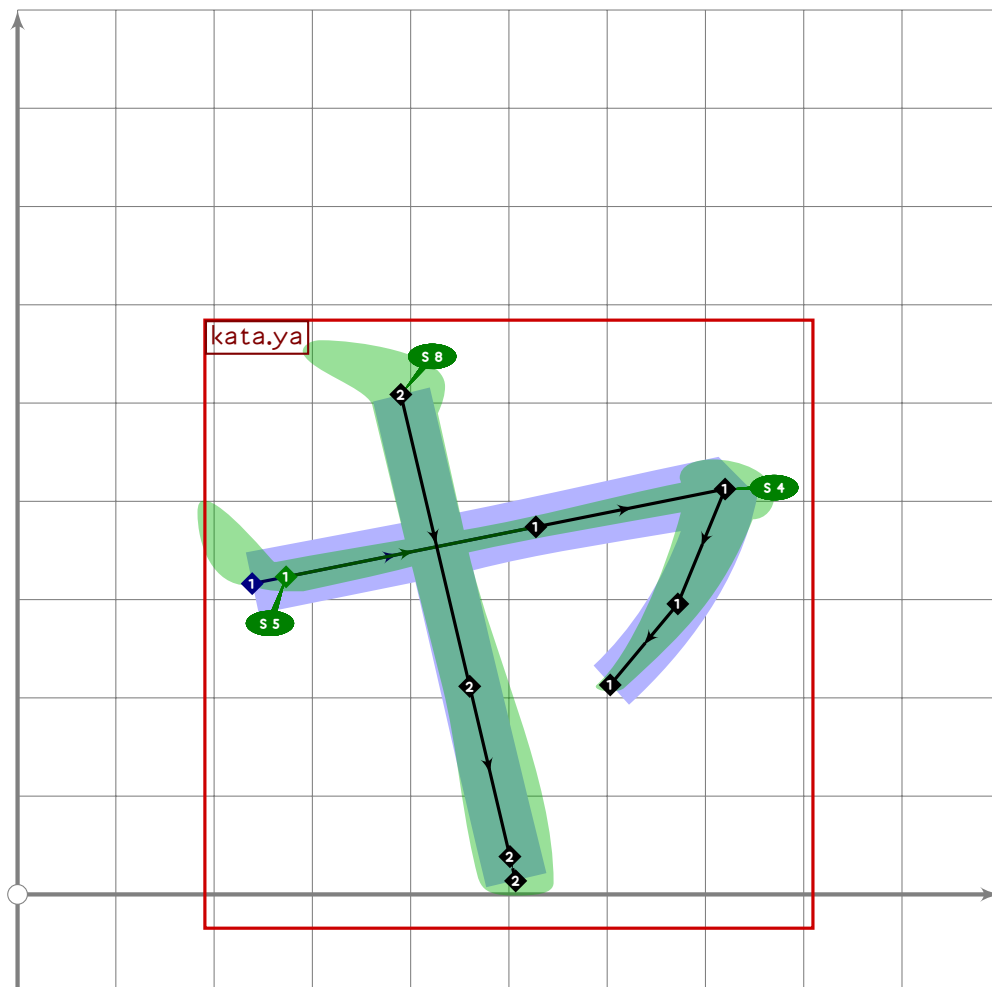
```

1378 kata.mu;
1379 tsu_render;
1380 endtsuglyph;
1381
1382 % katakana "me"
1383 begintsuglyph("uni30E1";225);
1384 kata.me;
1385 tsu_render;
1386 endtsuglyph;
1387
1388 % katakana "mo"
1389 begintsuglyph("uni30E2";226);
1390 kata.mo;
1391 tsu_render;
1392 endtsuglyph;
1393

```

[see page 152]

[see page 153]



```

1394 % katakana "small ya"
1395 begintsuglyph("uni30E3";227);
1396 tsu_xform(tsu_xf.smallkana)(kata.ya);
1397 tsu_render;
1398 endtsuglyph;

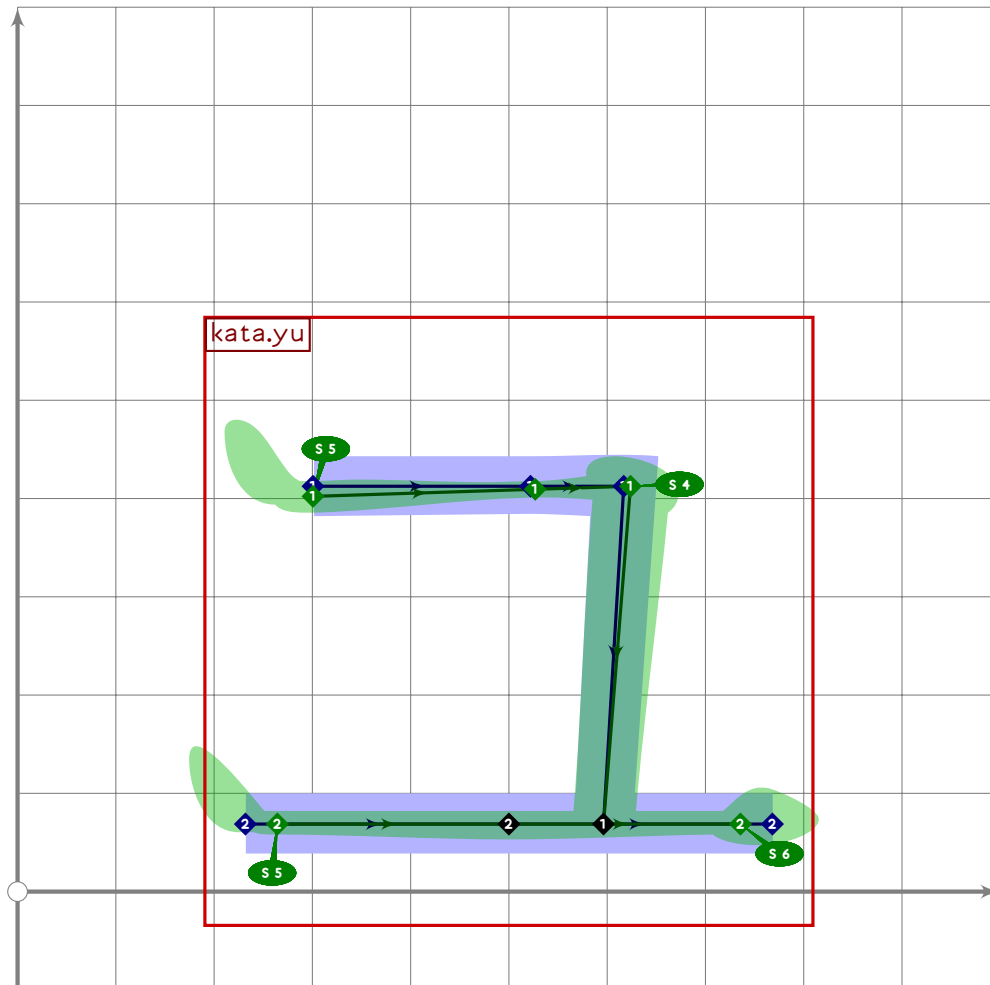
```

```

1399
1400 % katakana "ya"
1401 beginsuglyph("uni30E4";228);
1402 kata.ya;
1403 tsu_render;
1404 endsuglyph;
1405

```

[see page 154]

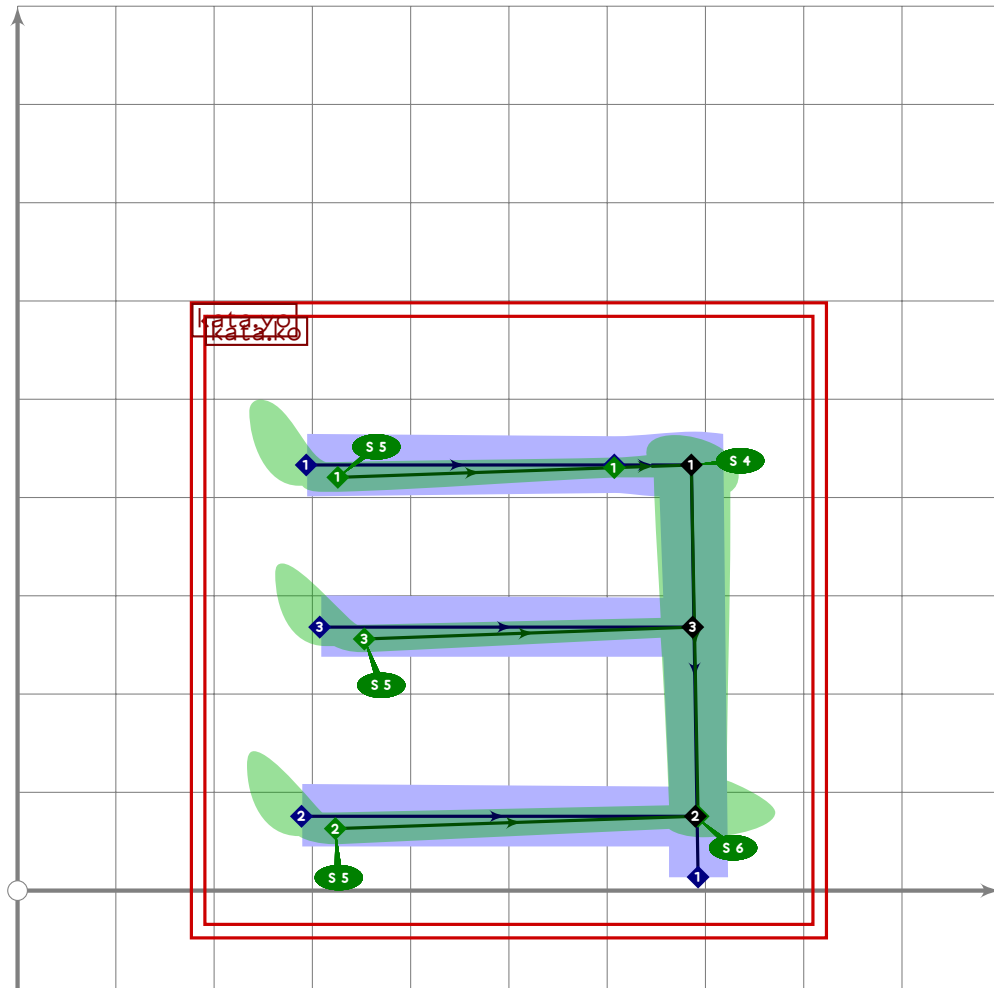


```

1406 % katakana "small yu"
1407 beginsuglyph("uni30E5";229);
1408 tsu_xform(tsu_xf.smallkana)(kata.yu);
1409 tsu_render;
1410 endsuglyph;
1411
1412 % katakana "yu"
1413 beginsuglyph("uni30E6";230);
1414 kata.yu;
1415 tsu_render;
1416 endsuglyph;
1417

```

[see page 155]



```

1418 % katakana "small yo"
1419 begintsuglyph("uni30E7";231);
1420 tsu_xform(tsu_xf.smallkana)(kata.yo);
1421 tsu_render;
1422 endtsuglyph;
1423
1424 % katakana "yo"
1425 begintsuglyph("uni30E8";232);
1426 kata.yo;
1427 tsu_render;
1428 endtsuglyph;
1429
1430 % katakana "ra"
1431 begintsuglyph("uni30E9";233);
1432 kata.ra;
1433 tsu_render;
1434 endtsuglyph;
1435
1436 % katakana "ri"
1437 begintsuglyph("uni30EA";234);
1438 kata.ri;

```

[see page 156]

[see page 157]

[see page 158]

```

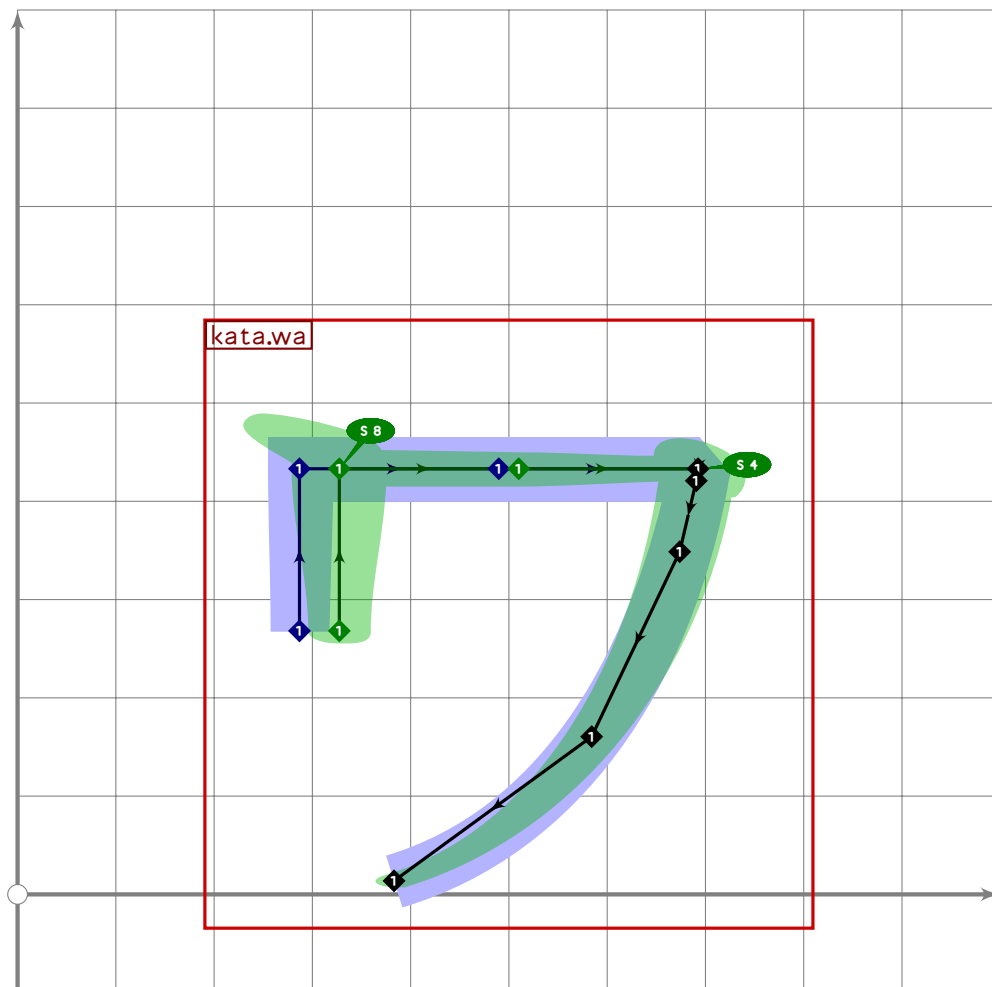
1439 tsu_render;
1440 endtsuglyph;
1441
1442 % katakana "ru"
1443 begintsuglyph("uni30EB";235);
1444 kata.ru;
1445 tsu_render;
1446 endtsuglyph;
1447
1448 % katakana "re"
1449 begintsuglyph("uni30EC";236);
1450 kata.re;
1451 tsu_render;
1452 endtsuglyph;
1453
1454 % katakana "ro"
1455 begintsuglyph("uni30ED";237);
1456 kata.ro;
1457 tsu_render;
1458 endtsuglyph;
1459

```

[see page 159]

[see page 160]

[see page 161]

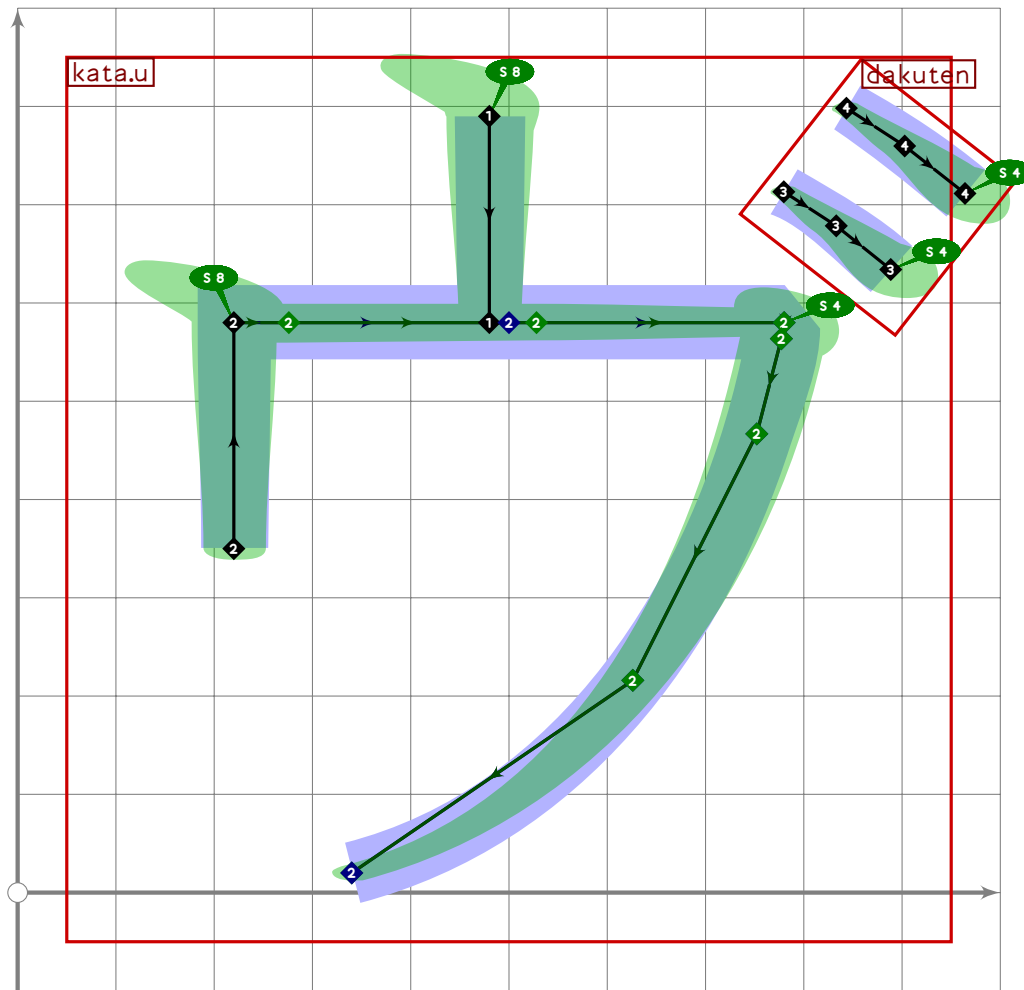




```

1460 % katakana "small wa"
1461 begintsuglyph("uni30EE";238);
1462 tsu_xform(tsu_xf.smallkana)(kata.wa);
1463 tsu_render;
1464 endtsuglyph;
1465
1466 % katakana "wa"
1467 begintsuglyph("uni30EF";239); [see page 162]
1468 kata.wa;
1469 tsu_render;
1470 endtsuglyph;
1471
1472 % katakana "wi"
1473 begintsuglyph("uni30F0";240); [see page 163]
1474 kata.wi;
1475 tsu_render;
1476 endtsuglyph;
1477
1478 % katakana "we"
1479 begintsuglyph("uni30F1";241); [see page 164]
1480 kata.we;
1481 tsu_render;
1482 endtsuglyph;
1483
1484 % katakana "wo"
1485 begintsuglyph("uni30F2";242); [see page 165]
1486 kata.wo;
1487 tsu_render;
1488 endtsuglyph;
1489
1490 % katakana "n"
1491 begintsuglyph("uni30F3";243); [see page 166]
1492 kata.n;
1493 tsu_render;
1494 endtsuglyph;
1495

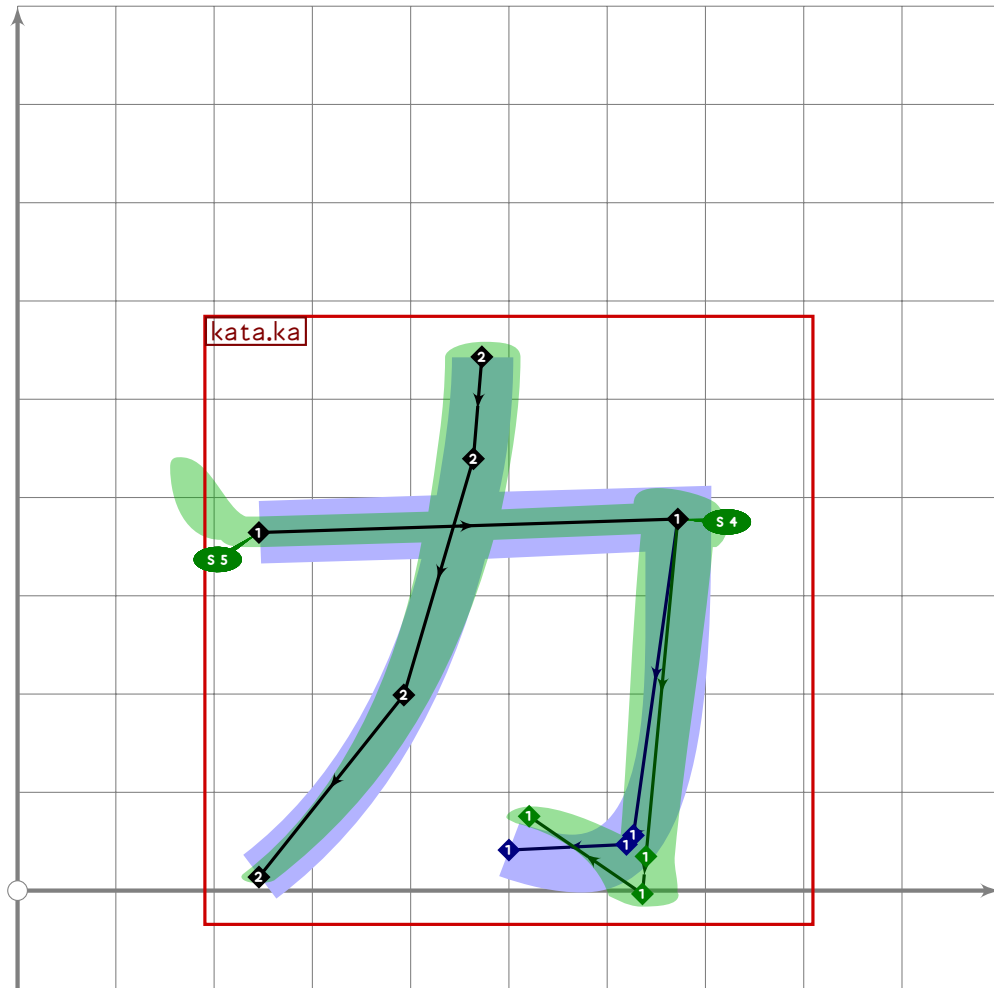
```



```

1496 % katakana "vu"
1497 begint Suglyph("uni30F4";244);
1498 kata.u;
1499 dakuten(identity rotated 12 shifted (860,720));
1500 tsu_render;
1501 endtsuglyph;
1502

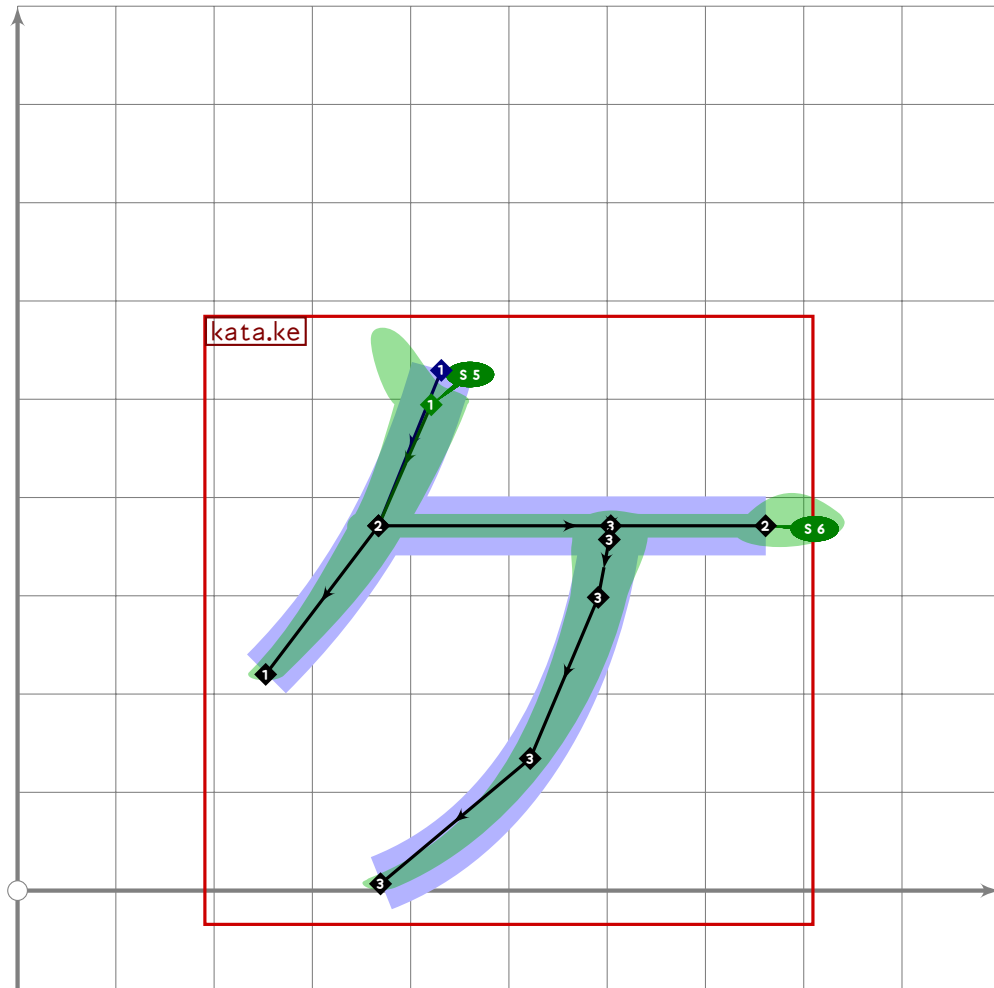
```



```

1503 % katakana "small ka"
1504 begintsuglyph("uni30F5";245);
1505 tsu_xform(tsu_xf.smallkana)(kata.ka);
1506 tsu_render;
1507 endtsuglyph;
1508

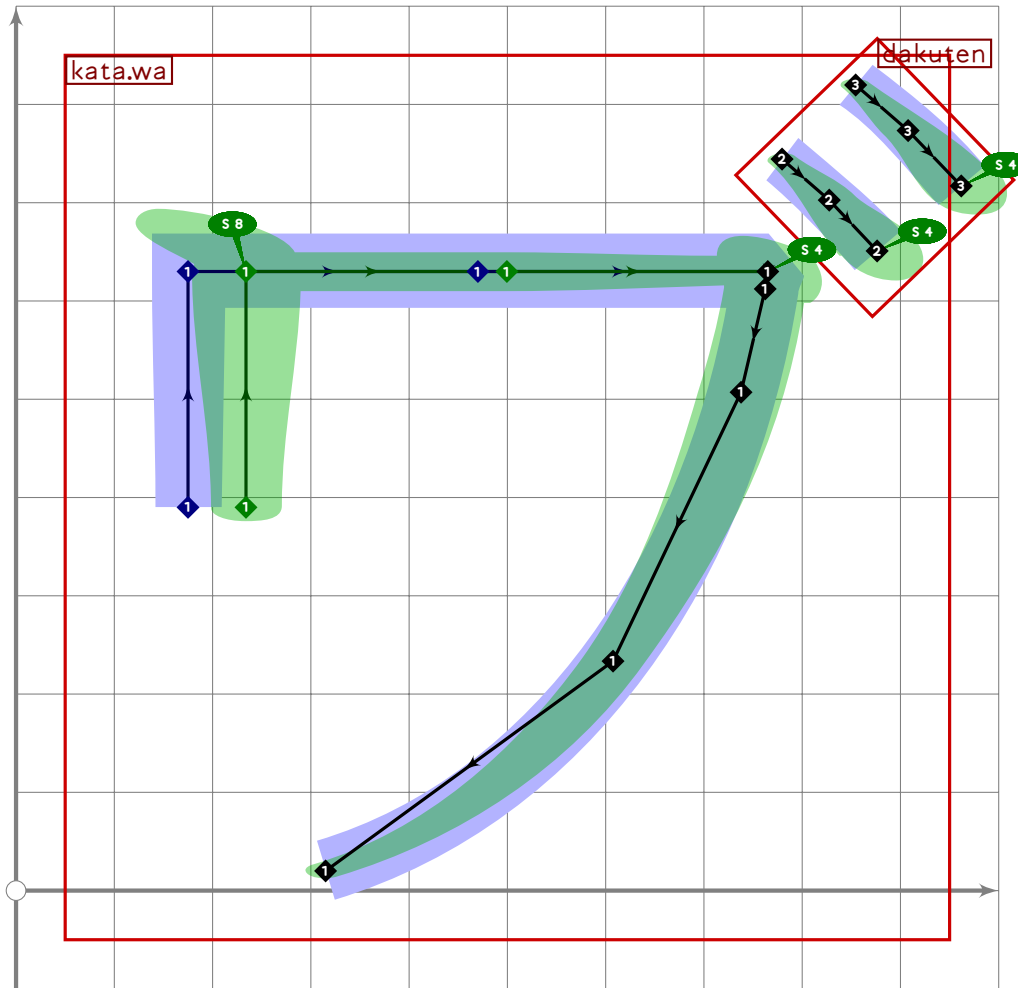
```



```

1509 % katakana "small ke"
1510 begintsuglyph("uni30F6";246);
1511 tsu_xform(tsu_xf.smallkana)(kata.ke);
1512 tsu_render;
1513 endsuglyph;
1514

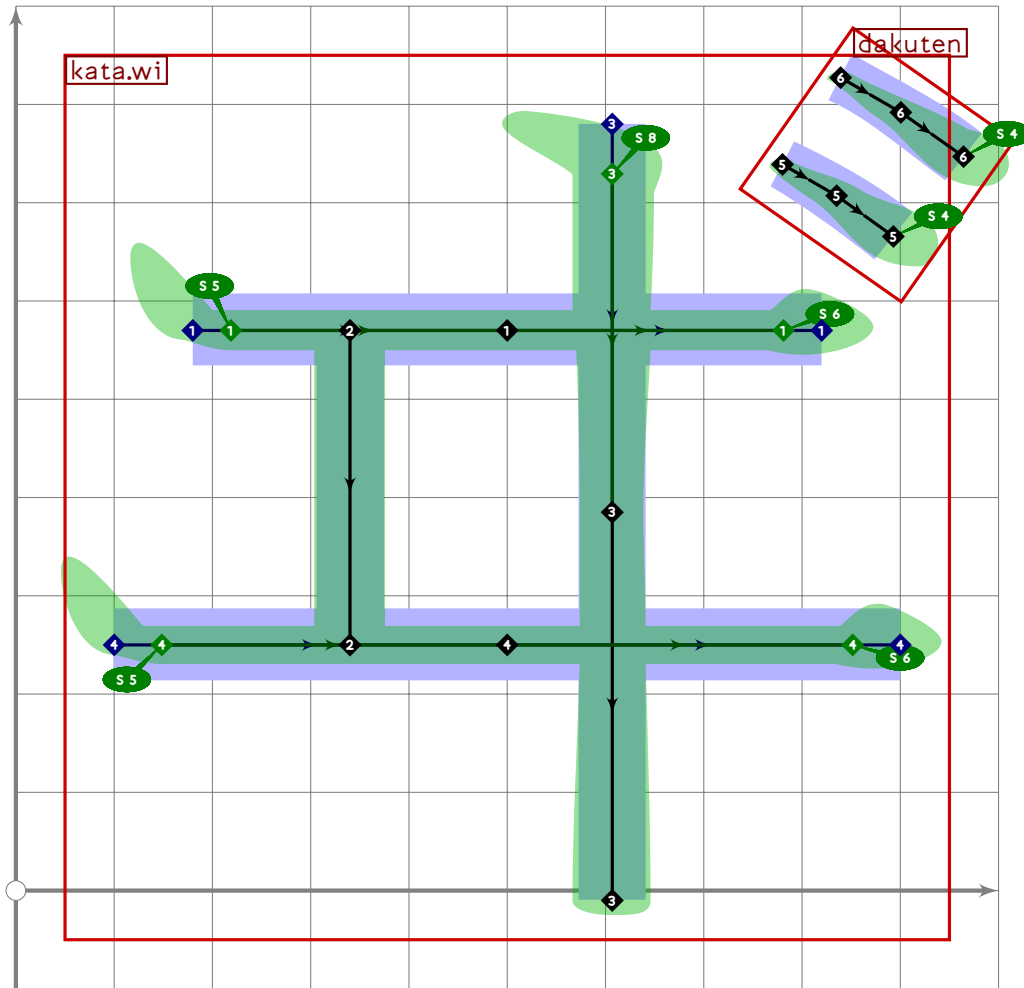
```



```

1515 % katakana "va"
1516 begint Suglyph("uni30F7";247);
1517 kata.wa;
1518 replace_strokep(0,oldp shifted (-15,0));
1519 dakuten(identity rotated 4 shifted (860,740));
1520 tsu_render;
1521 endtsuglyph;
1522

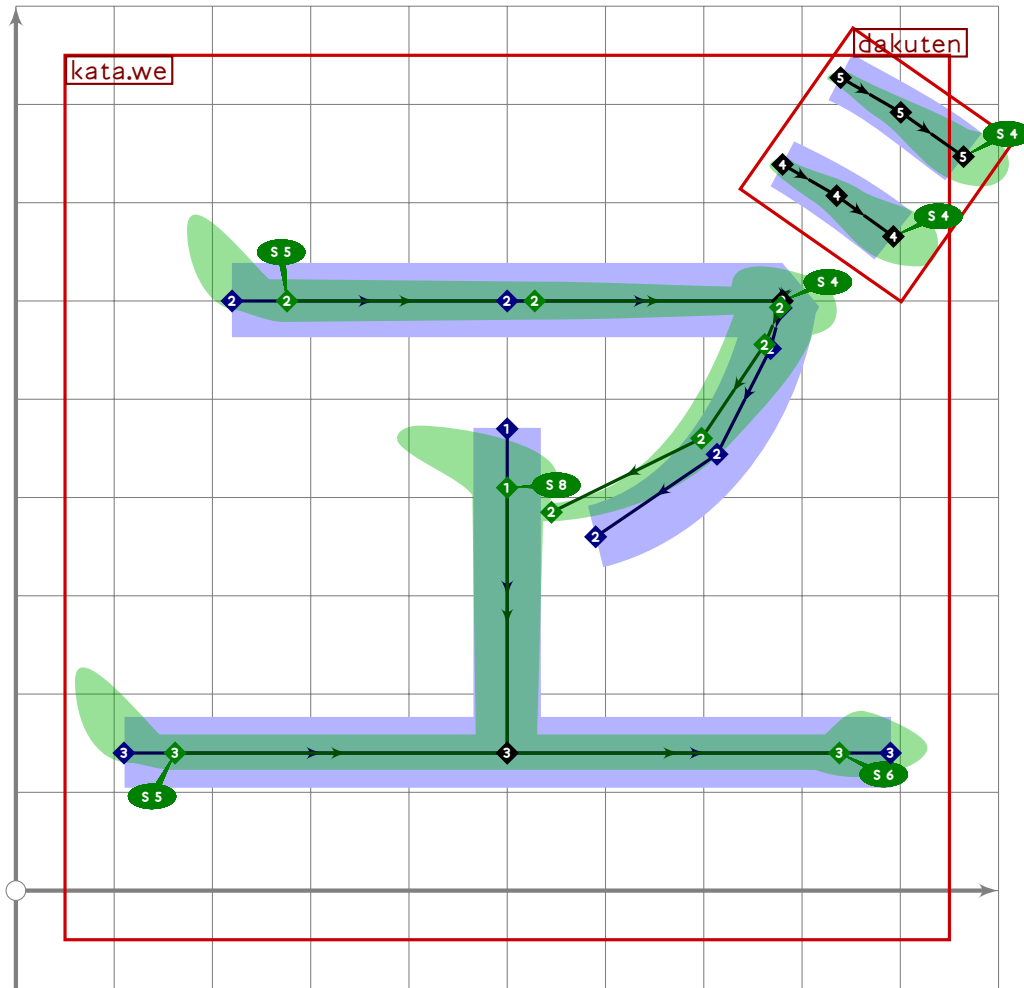
```



```

1523 % katakana "vi"
1524 begintsuglyph("uni30F8",248);
1525 kata.wi;
1526 dakuten(identity rotated 15 shifted (860,750));
1527 tsu_render;
1528 endtsuglyph;
1529

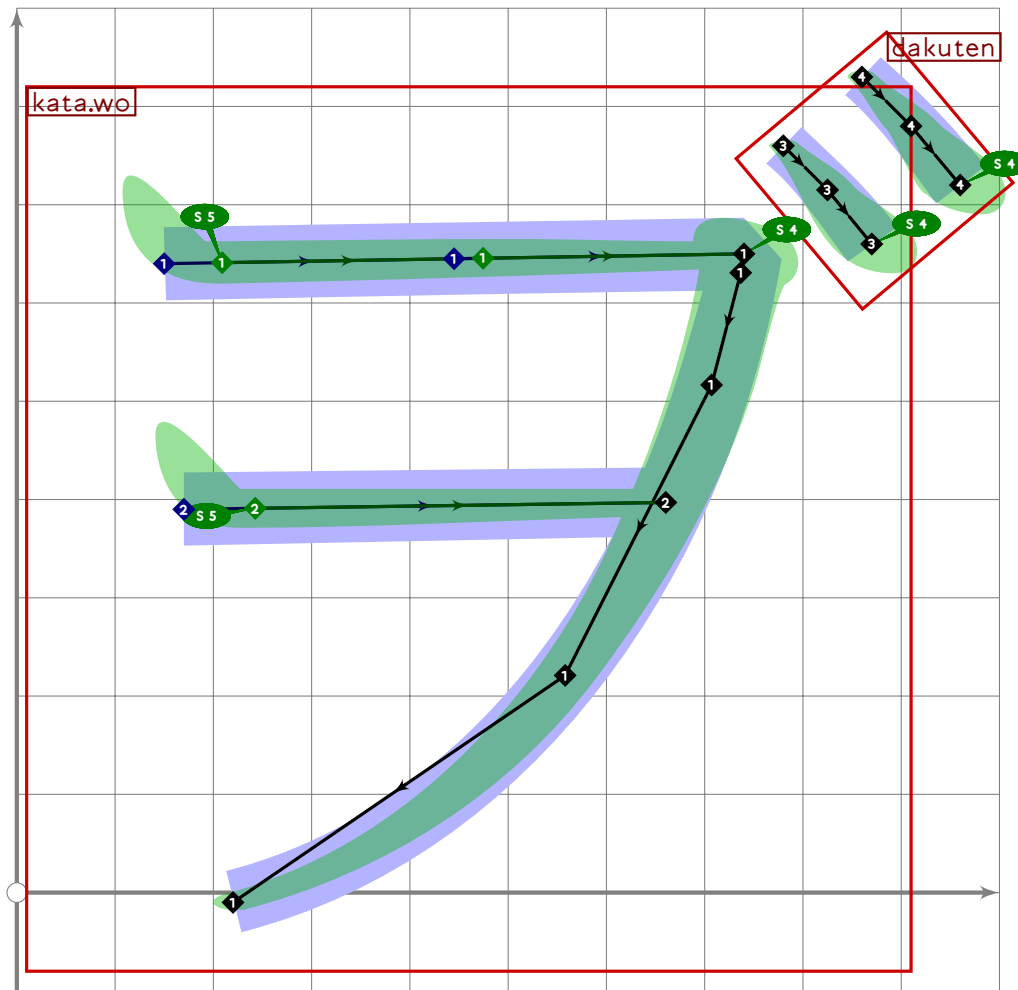
```



```

1530 % katakana "ve"
1531 begint Suglyph("uni30F9";249);
1532 kata.we;
1533 dakuten(identity rotated 15 shifted (860,750));
1534 tsu_render;
1535 endtsuglyph;
1536

```

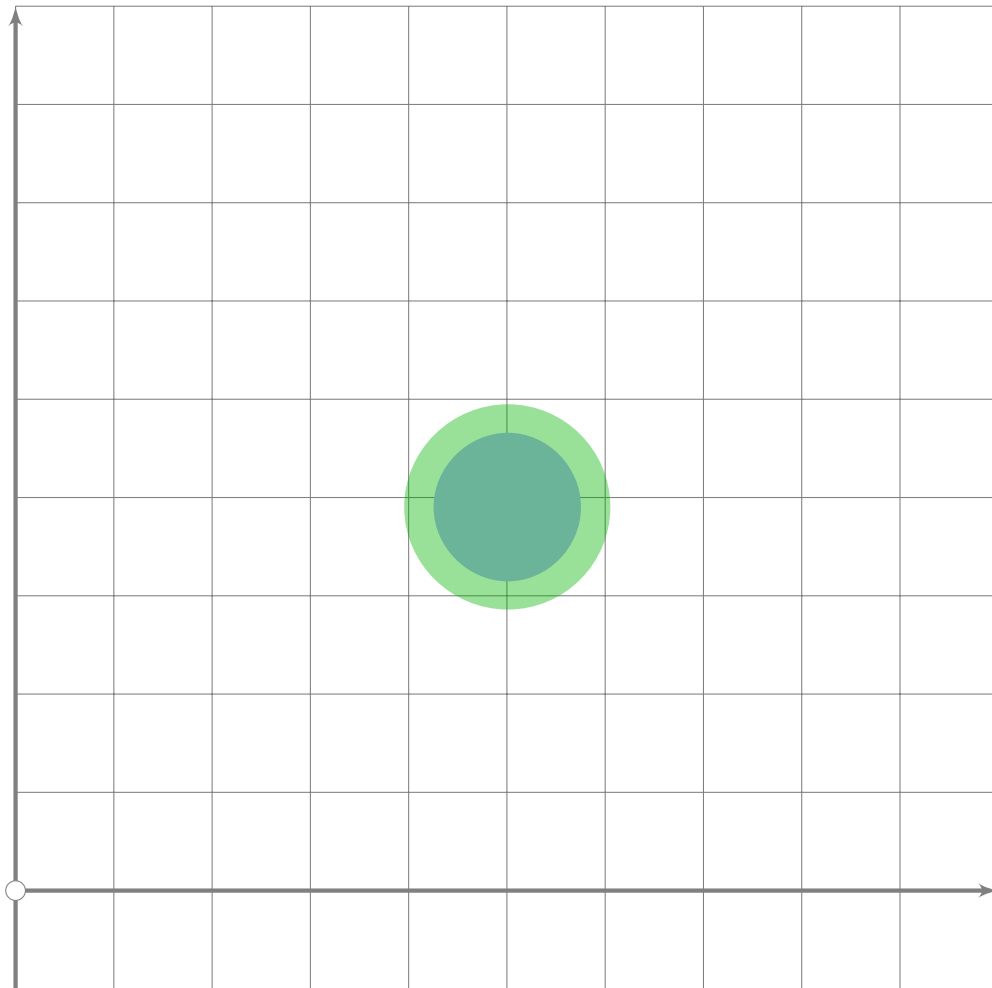


```

1537 % katakana "vo"
1538 begintsuglyph("uni30FA";250);
1539 tsu_xform(identity shifted (-40,-30))(kata.wo);
1540 dakuten(identity shifted (860,750));
1541 tsu_render;
1542 endtsuglyph;
1543

```

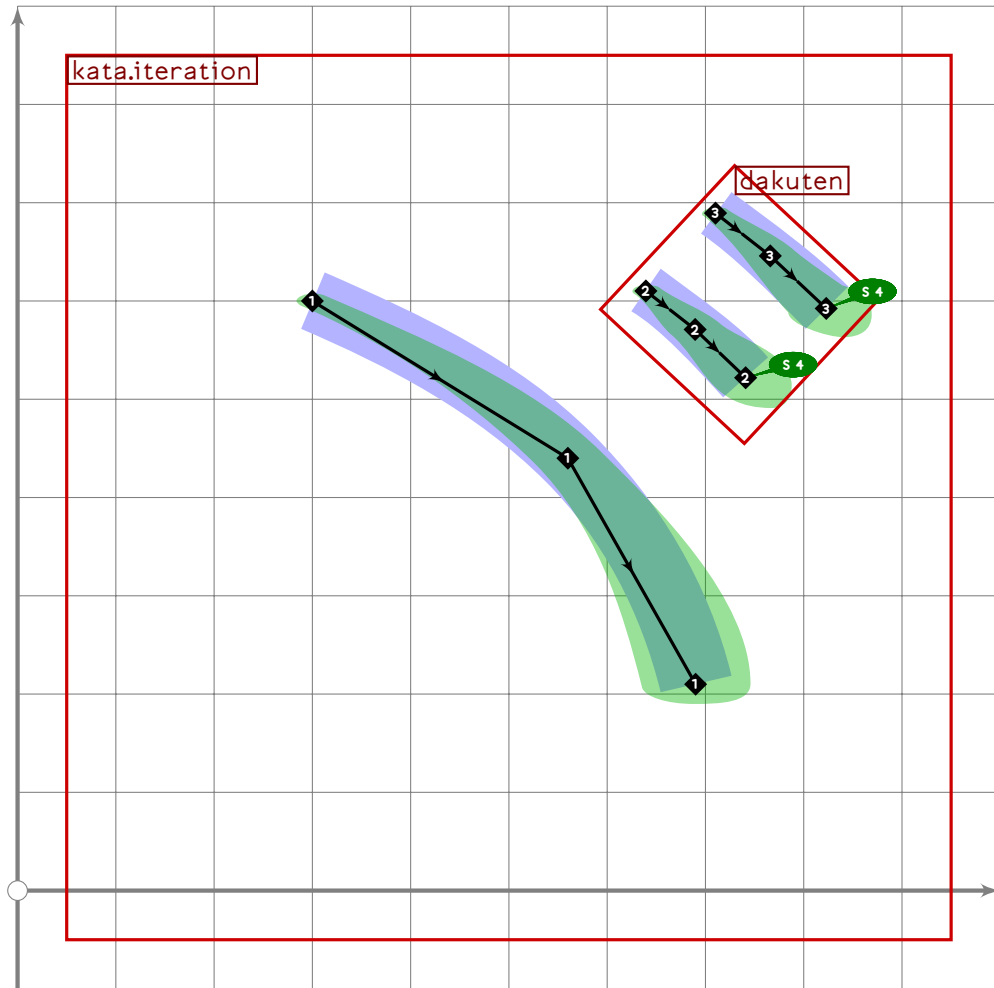




```
1544 % katakana middle dot
1545 begintsuglyph("uni30FB";251);
1546 Fill fullcircle scaled (200*tsu_brush_max) shifted centre_pt;
1547 endsuglyph;
1548
1549 % hira/kata "prolonged sound mark"
1550 begintsuglyph("uni30FC";252);
1551 punct.psound;
1552 tsu_render;
1553 endsuglyph;
1554
1555 % katakana "iteration mark"
1556 begintsuglyph("uni30FD";253);
1557 kata.iteration;
1558 tsu_render;
1559 endsuglyph;
1560
```

[see page 306]

[see page 167]



```

1561 % katakana "voiced iteration mark"
1562 begint Suglyph("uni30FE",254);
1563 kata.iteration;
1564 dakuten(identity rotated 7 shifted (720,610));
1565 tsu_render;
1566 endtsuglyph;
1567
1568 _____
1569
1570 endfont;
1571
1572 _____

```

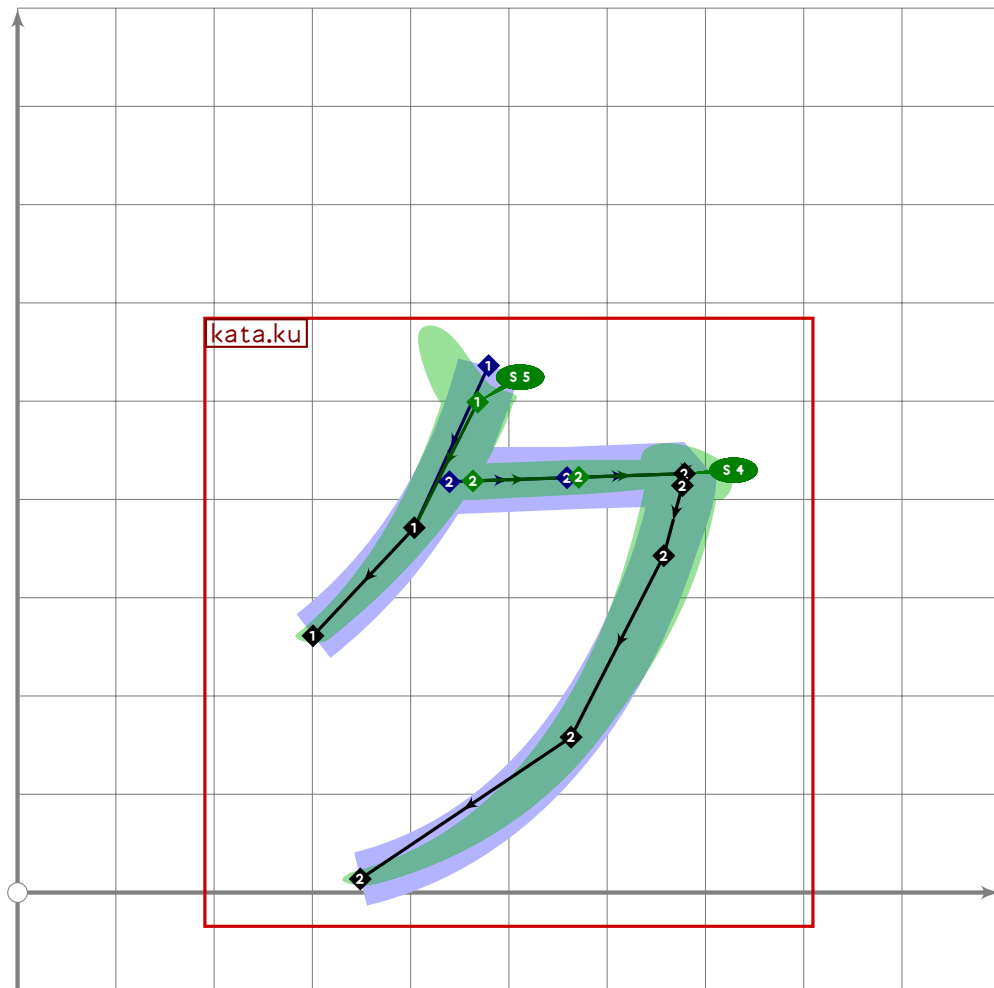
# tsuku-31.mp

```
1 %  
2 % Unicode page 31 (Katakana Phonetic Extensions) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input katakana.mp;  
37  
38 _____  
39
```

## Phonetic Extensions For Ainu

```
40 % PHONETIC EXTENSIONS FOR AINU
```

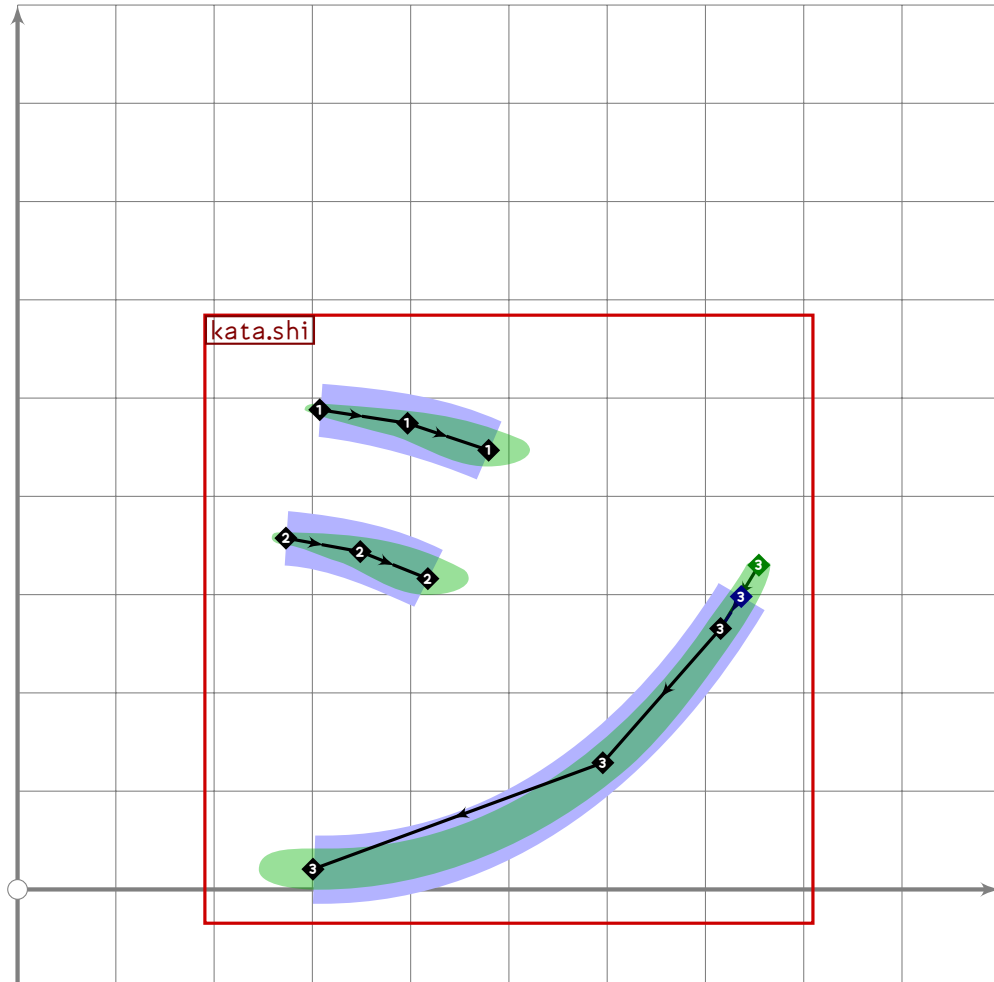
```
41
```



```

42 % katakana "ku"
43 beginsuglyph("uni31F0";240);
44 tsu_xform(tsu_xf.smallkana)(kata.ku);
45 tsu_render;
46 endtsuglyph;
47

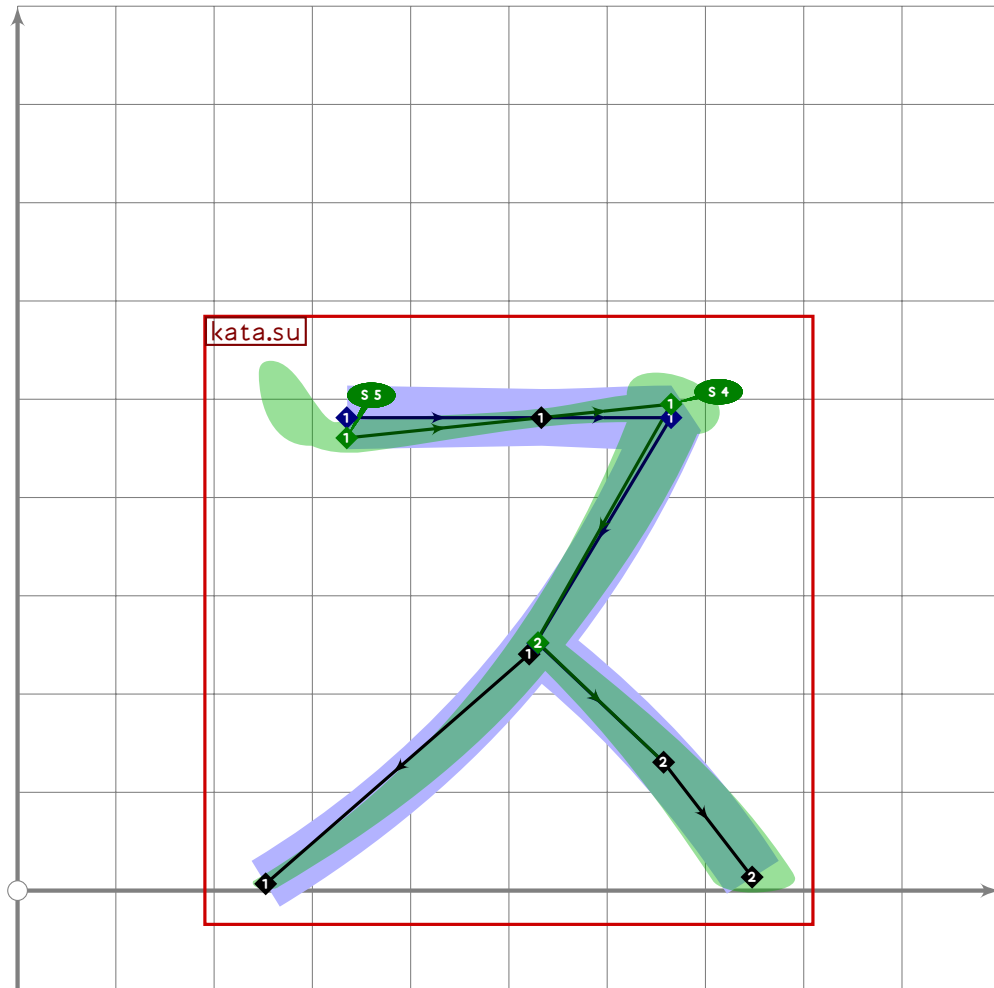
```



```

48 % katakana "shi"
49 beginsuglyph("uni31F1";241);
50 tsu_xform(tsu_xf.smallkana)(kata.shi);
51 tsu_render;
52 endtsuglyph;
53

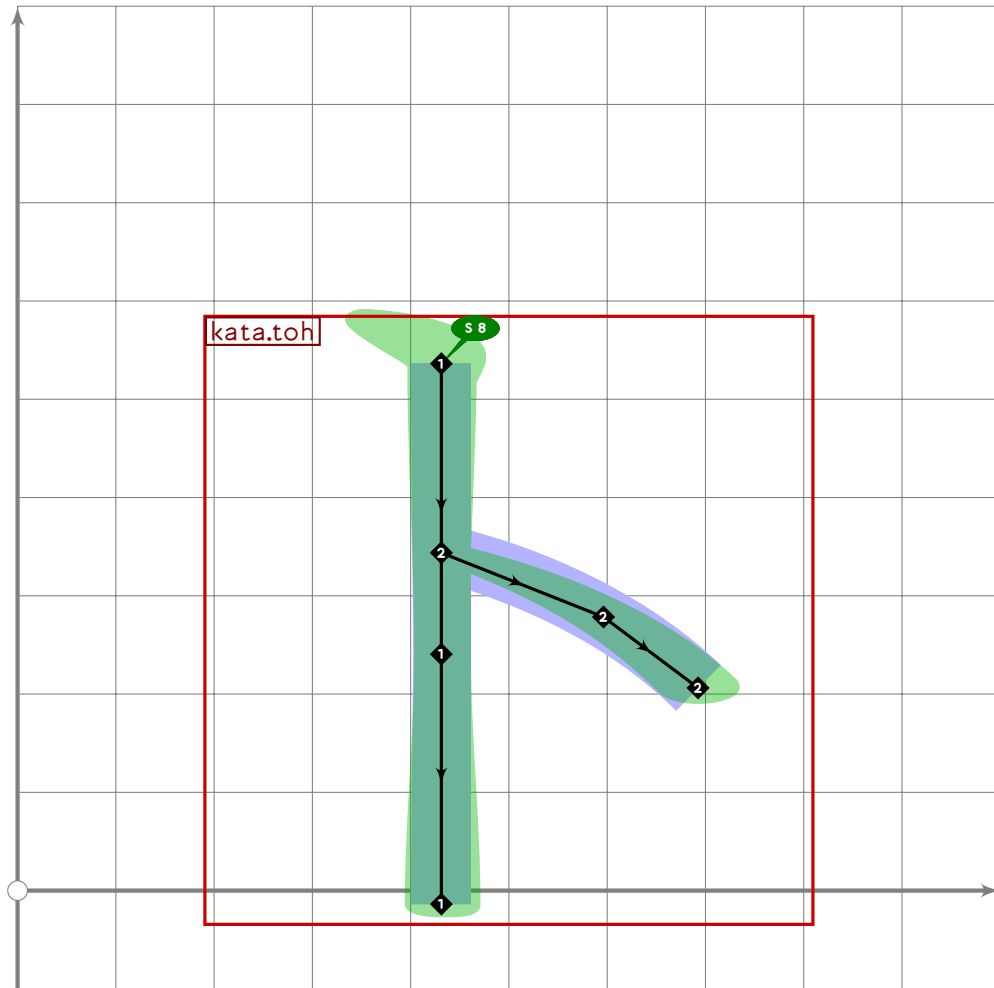
```



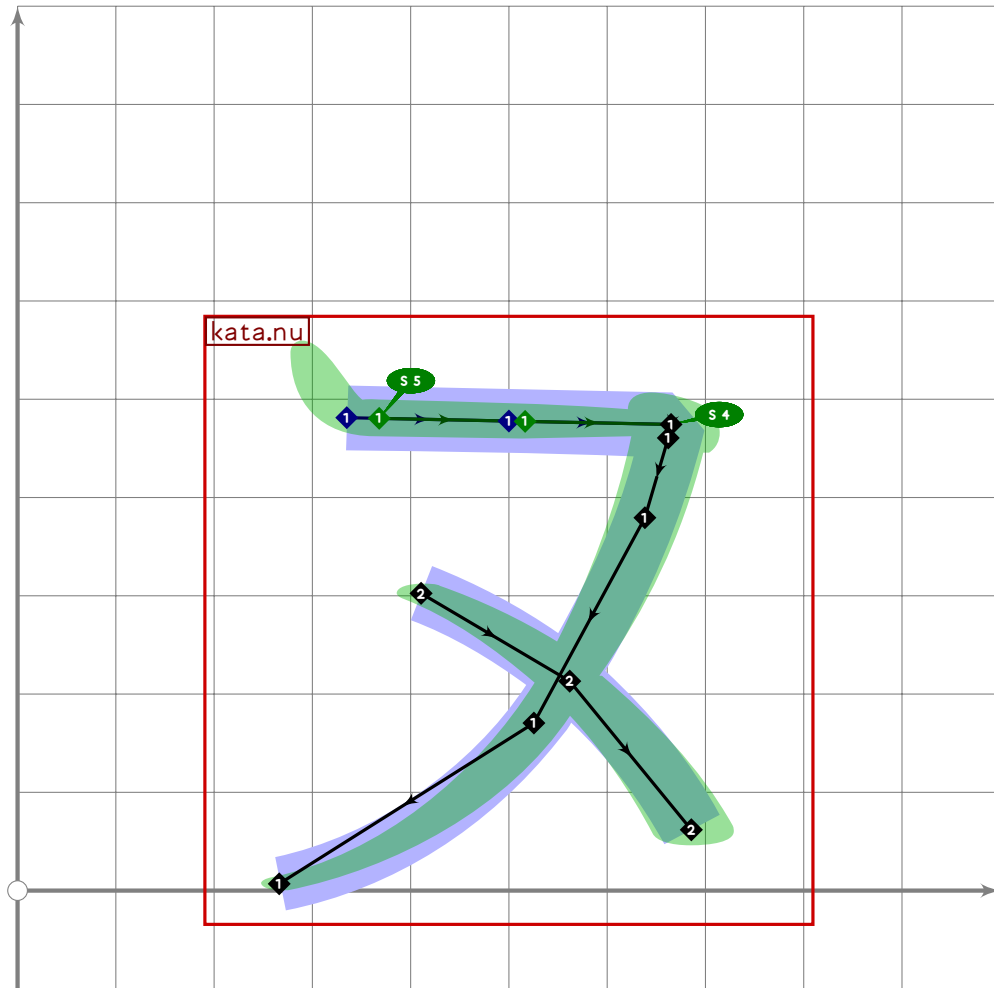
```

54 % katakana "su"
55 begintuglyph("uni31F2",242);
56 tsu_xform(tsu_xf.smallkana)(kata.su);
57 tsu_render;
58 endtsuglyph;
59

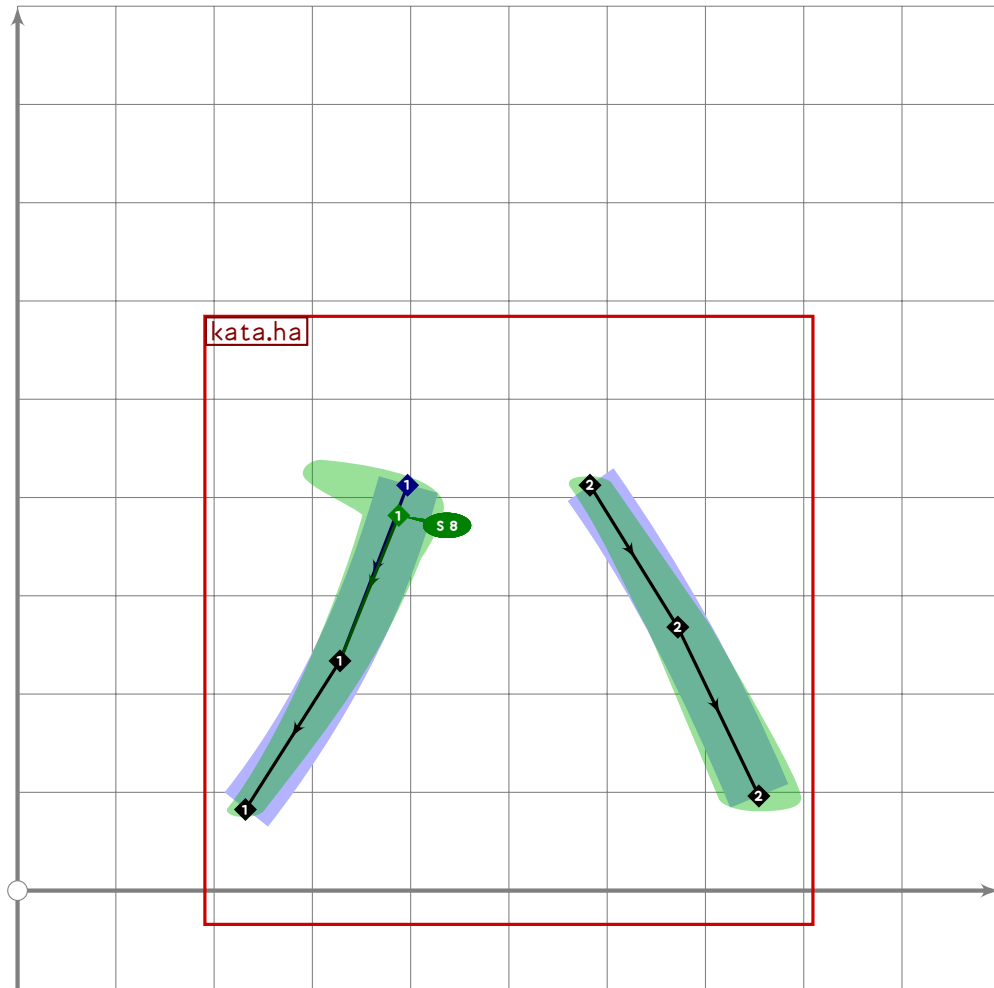
```



```
60 % katakana "to"  
61 beginsuglyph("uni31F3",243);  
62 tsu_xform(tsu_xf.smallkana)(kata.toh);  
63 tsu_render;  
64 endsuglyph;  
65
```

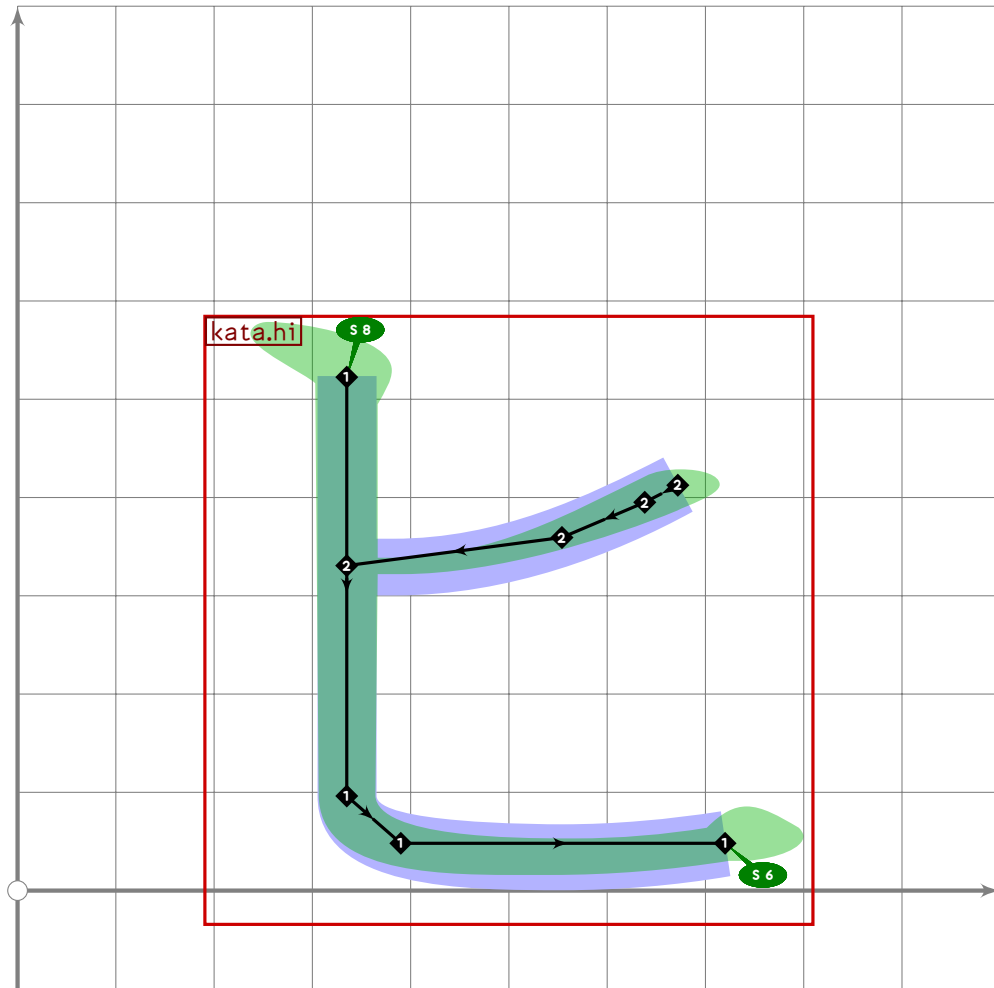


```
66 % katakana "nu"  
67 begintsuglyph("uni31F4",244);  
68 tsu_xform(tsu_xf.smallkana)(kata.nu);  
69 tsu_render;  
70 endtsuglyph;  
71
```

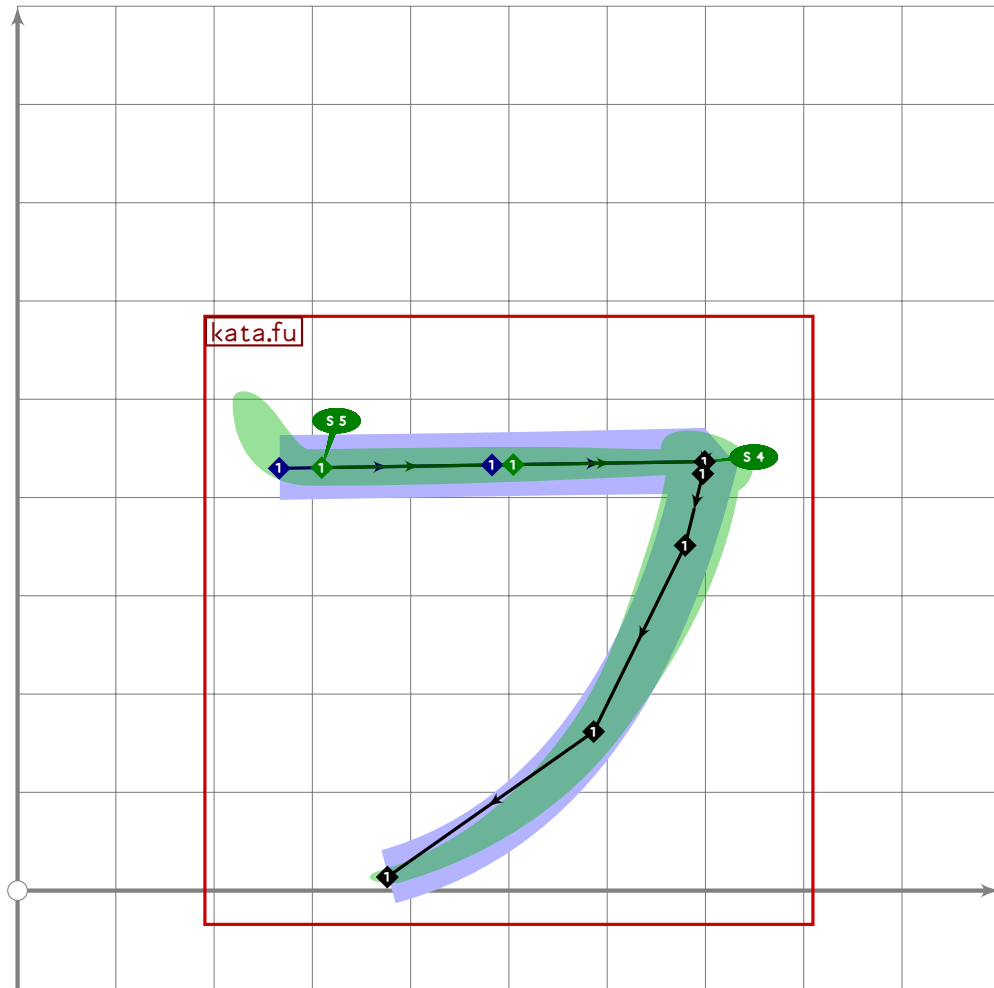


```
72 % katakan "ha"  
73 begintsuglyph("uni31F5",245);  
74 tsu_xform(tsu_xf.smallkana)(kata.ha);  
75 tsu_render;  
76 endtsuglyph;  
77
```

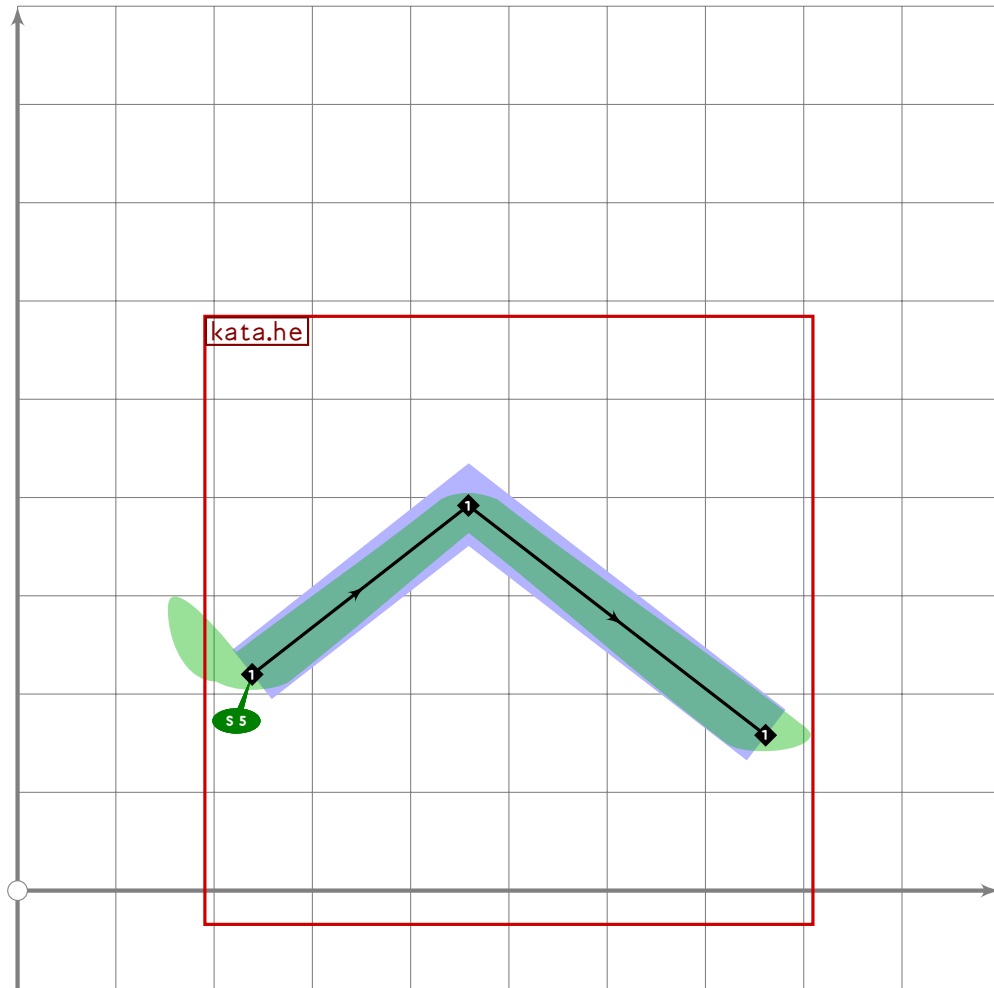




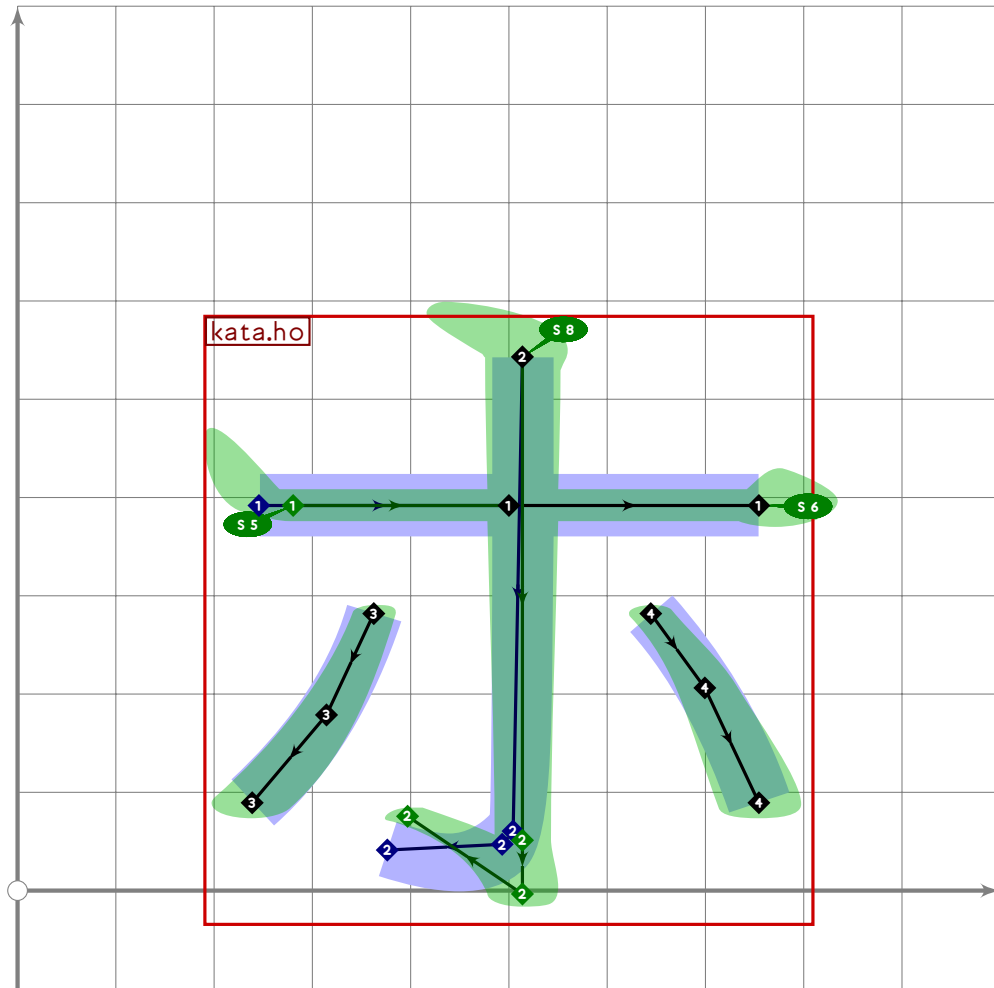
```
78 % hiragana "hi"  
79 begintsuglyph("uni31F6",246);  
80 tsu_xform(tsu_xf.smallkana)(kata.hi);  
81 tsu_render;  
82 endtsuglyph;  
83
```



```
84 % katakana "fu"  
85 begintsuglyph("uni31F7",247);  
86 tsu_xform(tsu_xf.smallkana)(kata.fu);  
87 tsu_render;  
88 endtsuglyph;  
89
```



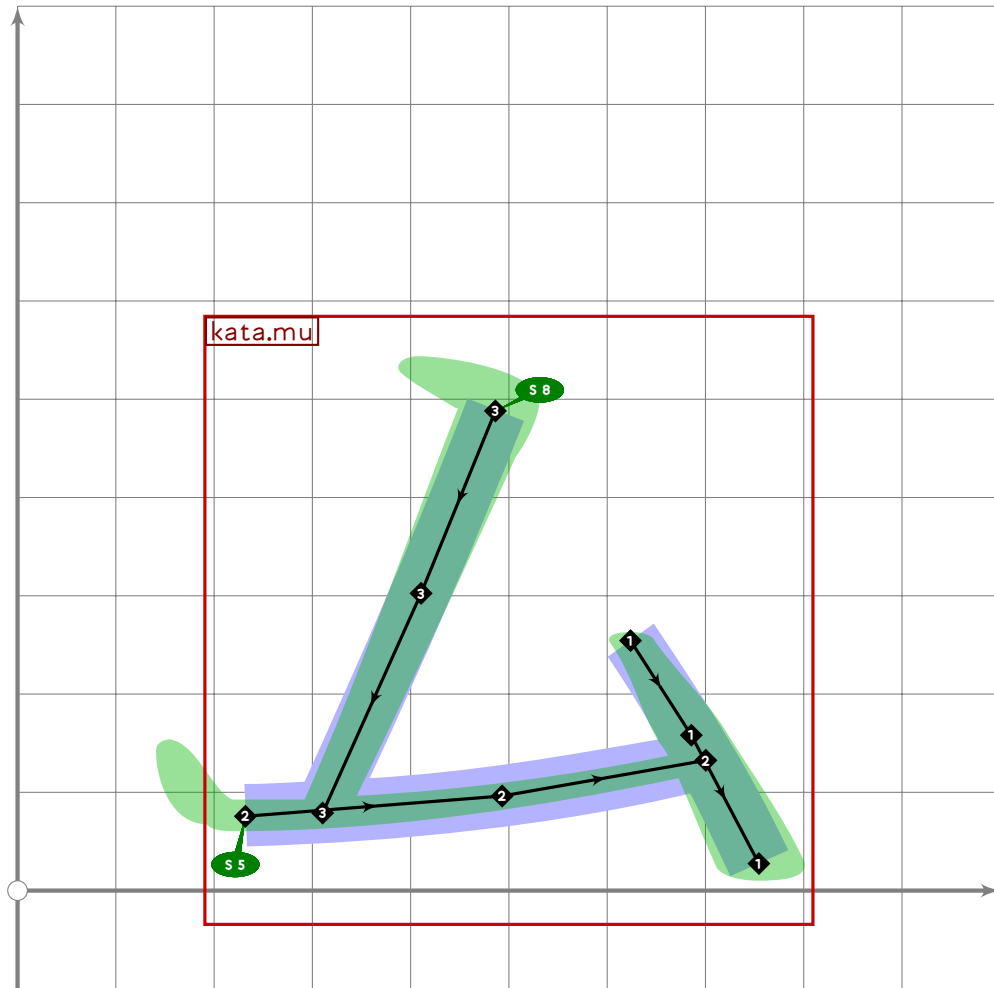
```
90 % katakana "he"  
91 beginsuglyph("uni31F8",248);  
92 tsu_xform(tsu_xf.smallkana)(kata.he);  
93 tsu_render;  
94 endsuglyph;  
95
```



```

96 % katakana "ho"
97 begintuglyph("uni31F9",249);
98 tsu_xform(tsu_xf.smallkana)(kata.ho);
99 tsu_render;
100 endtsuglyph;
101

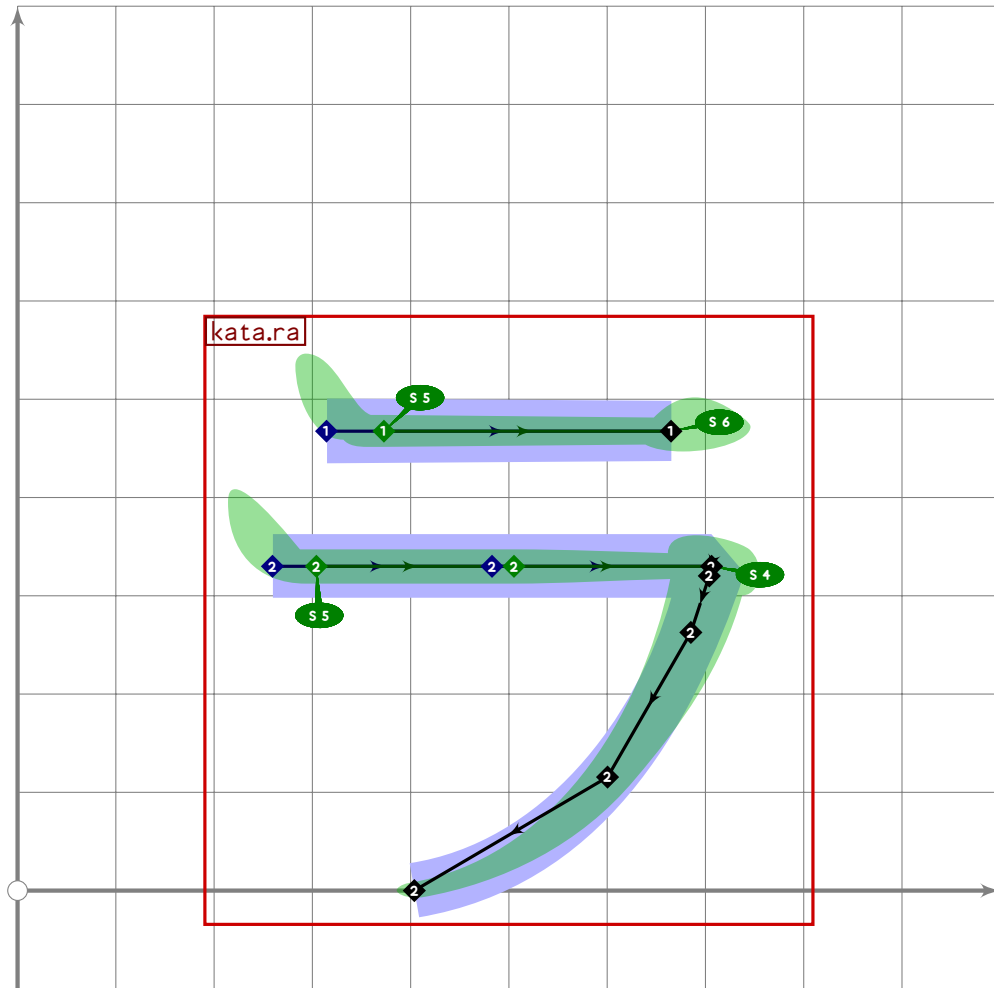
```



```

102 % katakana "mu"
103 begintsuglyph("uni31FA";250);
104 tsu_xform(tsu_xf.smallkana)(kata.mu);
105 tsu_render;
106 endtsuglyph;
107

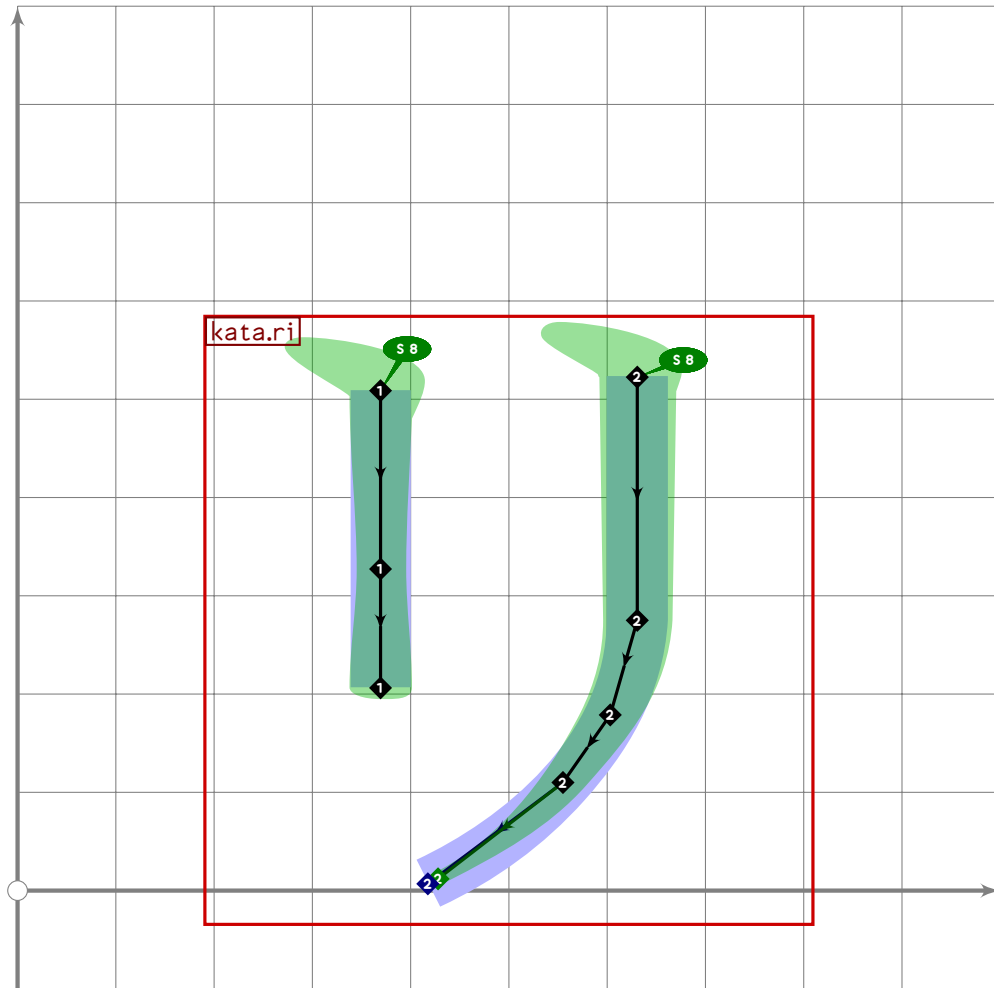
```



```

108 % katakana "ra"
109 begintsuglyph("uni31FB",251);
110 tsu_xform(tsu_xf.smallkana)(kata.ra);
111 tsu_render;
112 endtsuglyph;
113

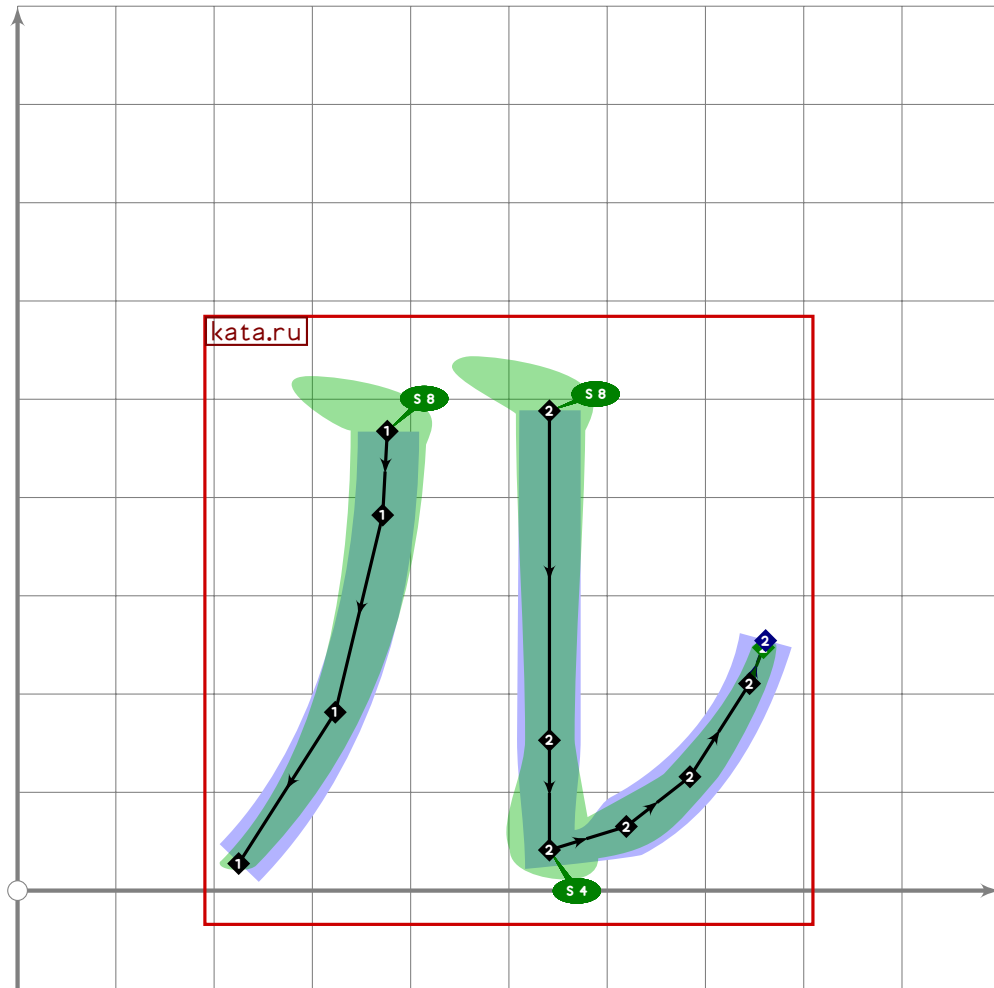
```



```

114 % katakana "ri"
115 begintsuglyph("uni31FC";252);
116 tsu_xform(tsu_xf.smallkana)(kata.ri);
117 tsu_render;
118 endtsuglyph;
119

```

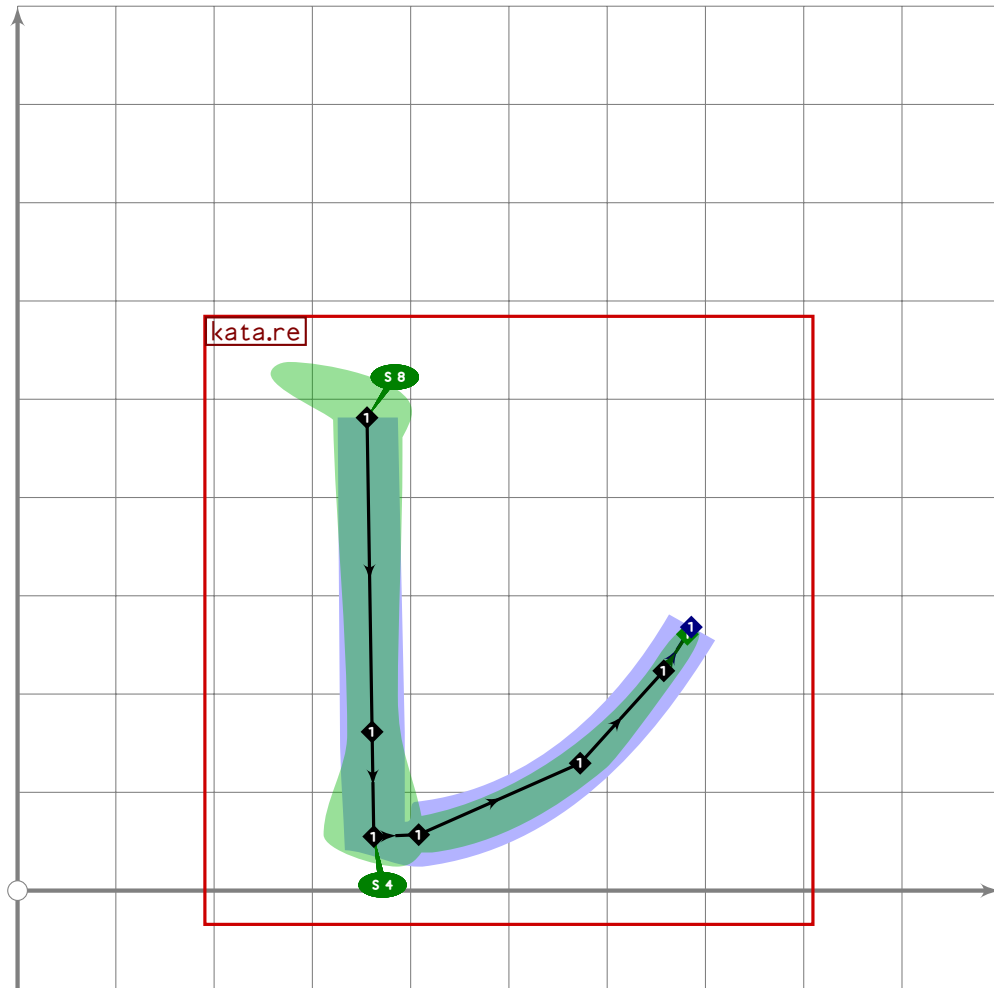


```

120 % katakana "ru"
121 begintuglyph("uni31FD";253);
122 tsu_xform(tsu_xf.smallkana)(kata.ru);
123 tsu_render;
124 endtuglyph;
125

```

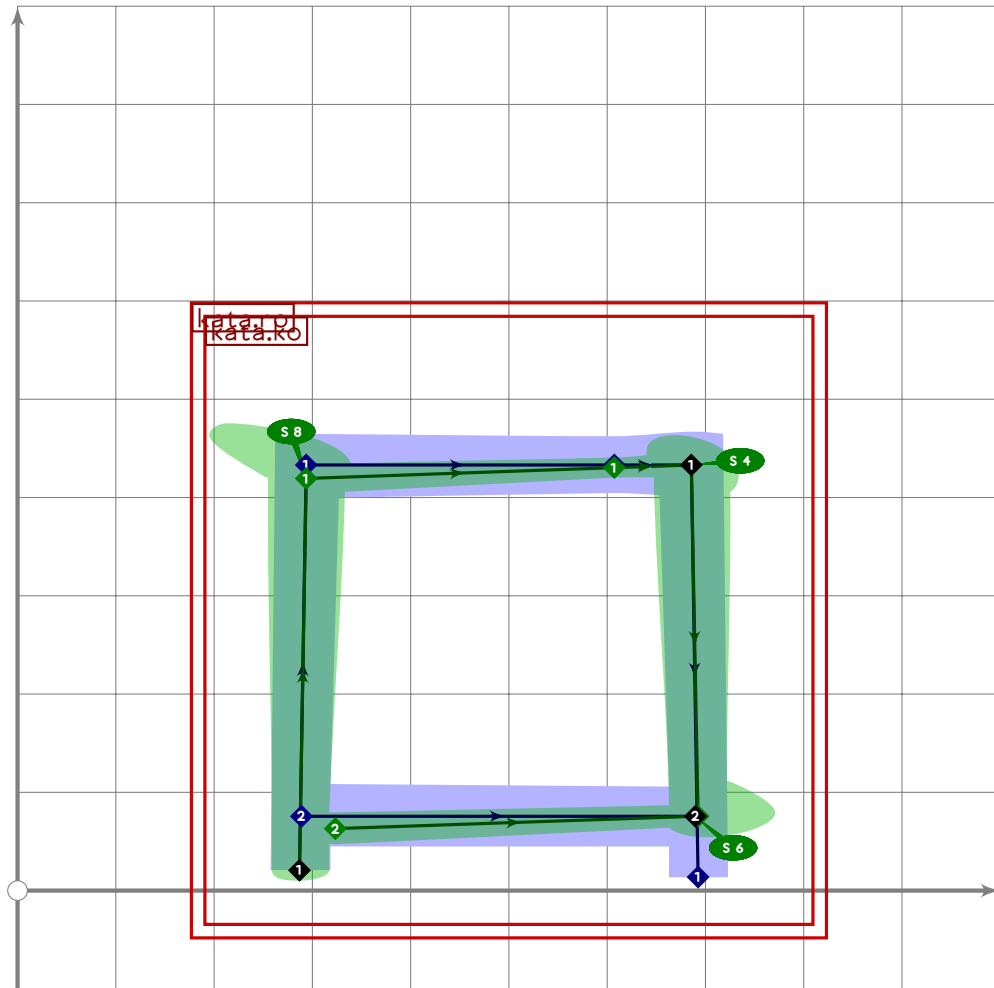




```

126 % katakana "re"
127 begintsuglyph("uni31FE",254);
128 tsu_xform(tsu_xf.smallkana)(kata.re);
129 tsu_render;
130 endtsuglyph;
131

```



```

132 % katakana "ro"
133 beginsuglyph("uni31FF",255);
134 tsu_xform(tsu_xf.smallkana)(kata.ro);
135 tsu_render;
136 endsuglyph;
137
138 _____
139
140 endfont;
141
142 _____

```

# tsuku-32.mp

```
1 %
2 % Unicode page 32 (Enclosed Alpha and Katakana) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

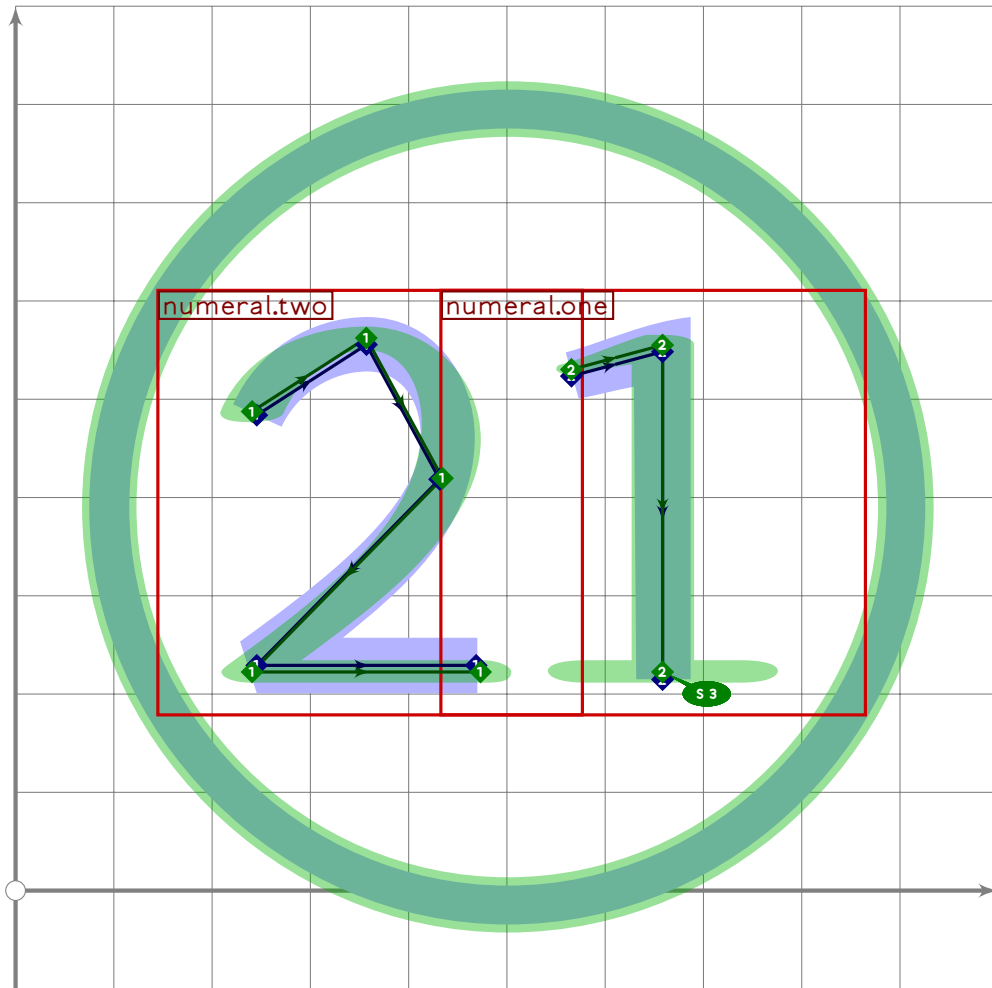

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input enclosed.mp;
39 input katakana.mp;
40 input numerals.mp;
41
42 

---


43
```

## Circled Numerals

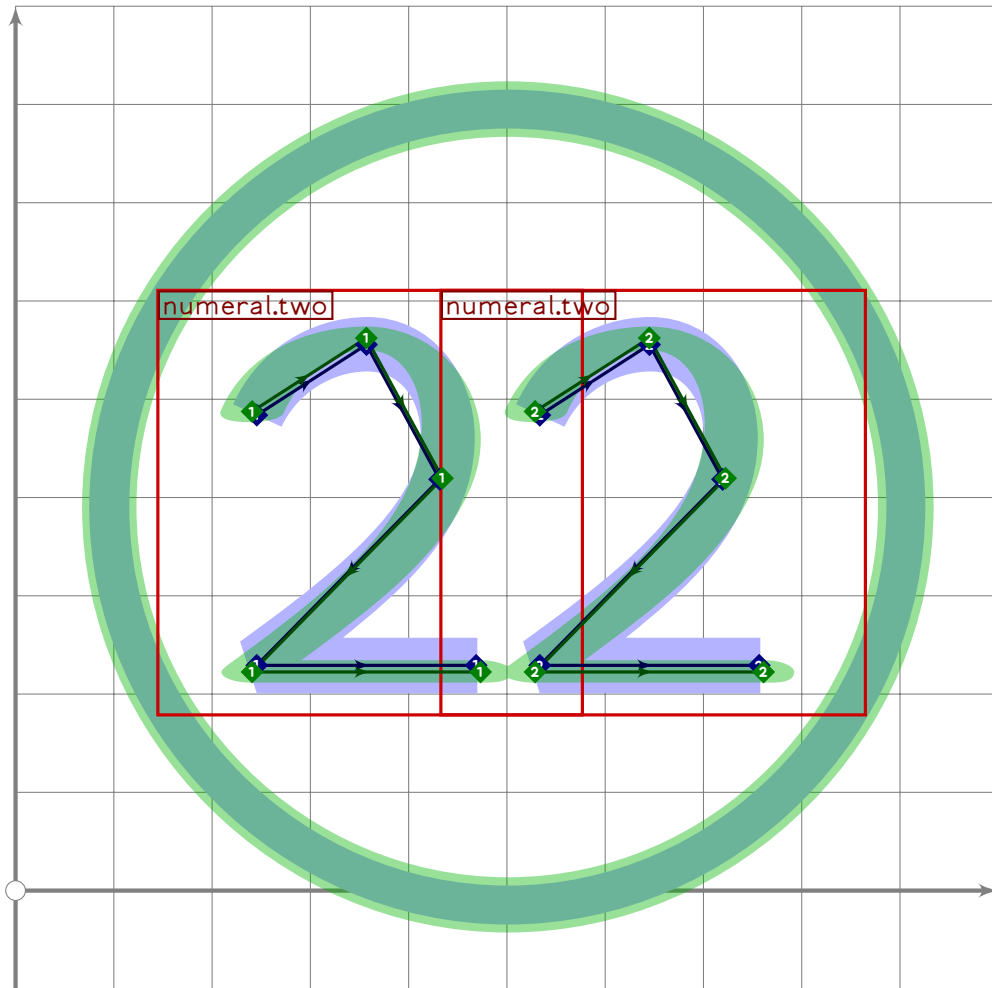
```
44 % CIRCLED NUMERALS
45
```



```

46 % 21
47 begintuglyph("uni3251";81);
48 circle.single;
49 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
50 numeric x[],y[];
51 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
52 tsu_render;
53 endtuglyph;
54

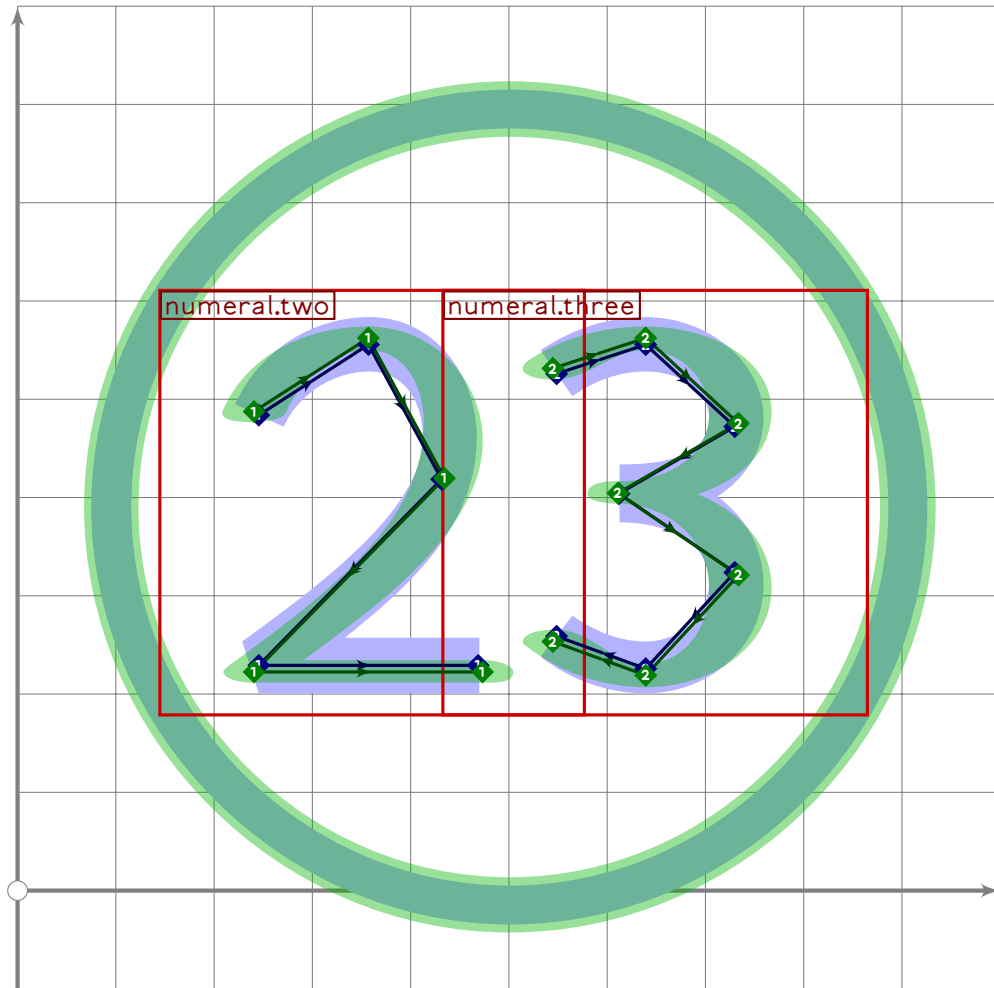
```



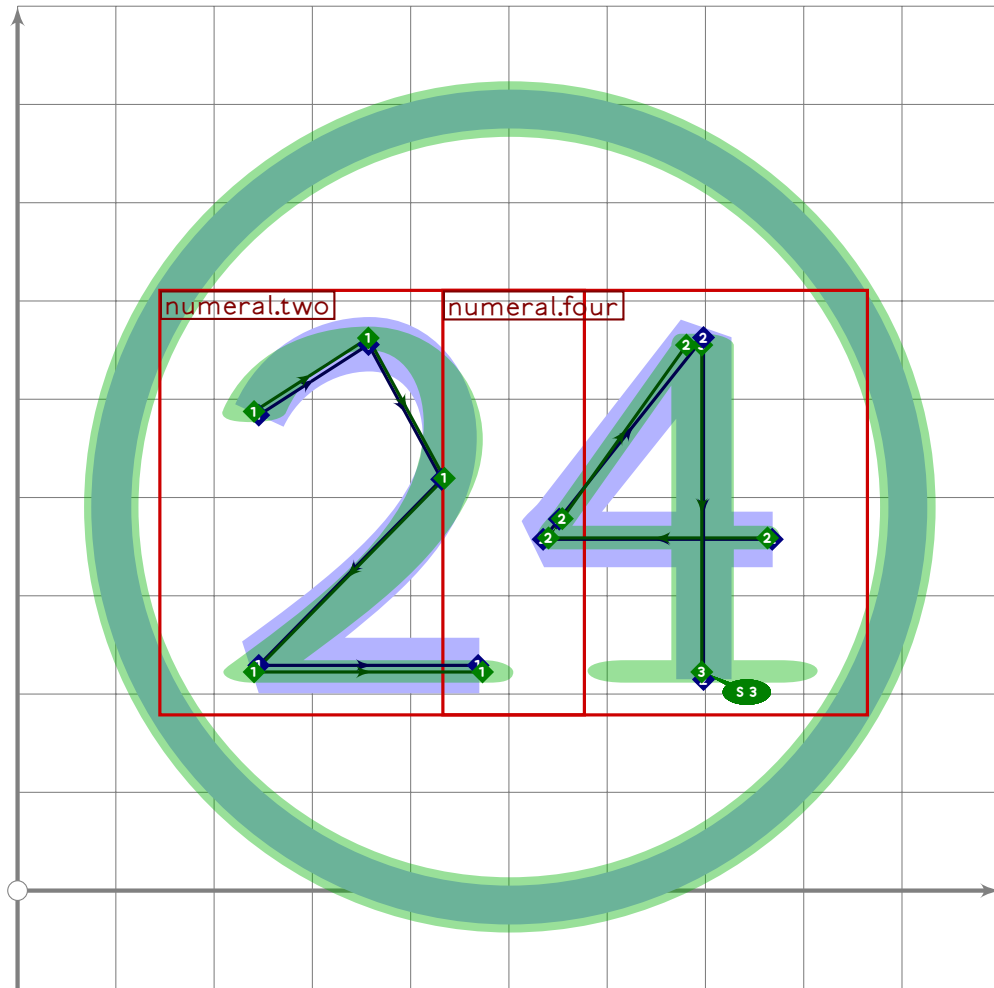
```

55 % 22
56 beginsuglyph("uni3252";82);
57 circle.single;
58 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
59 numeric x[],y[];
60 tsu_xform(tsu_xf.ctwo.right)(numeral.two);
61 tsu_render;
62 endsuglyph;
63

```



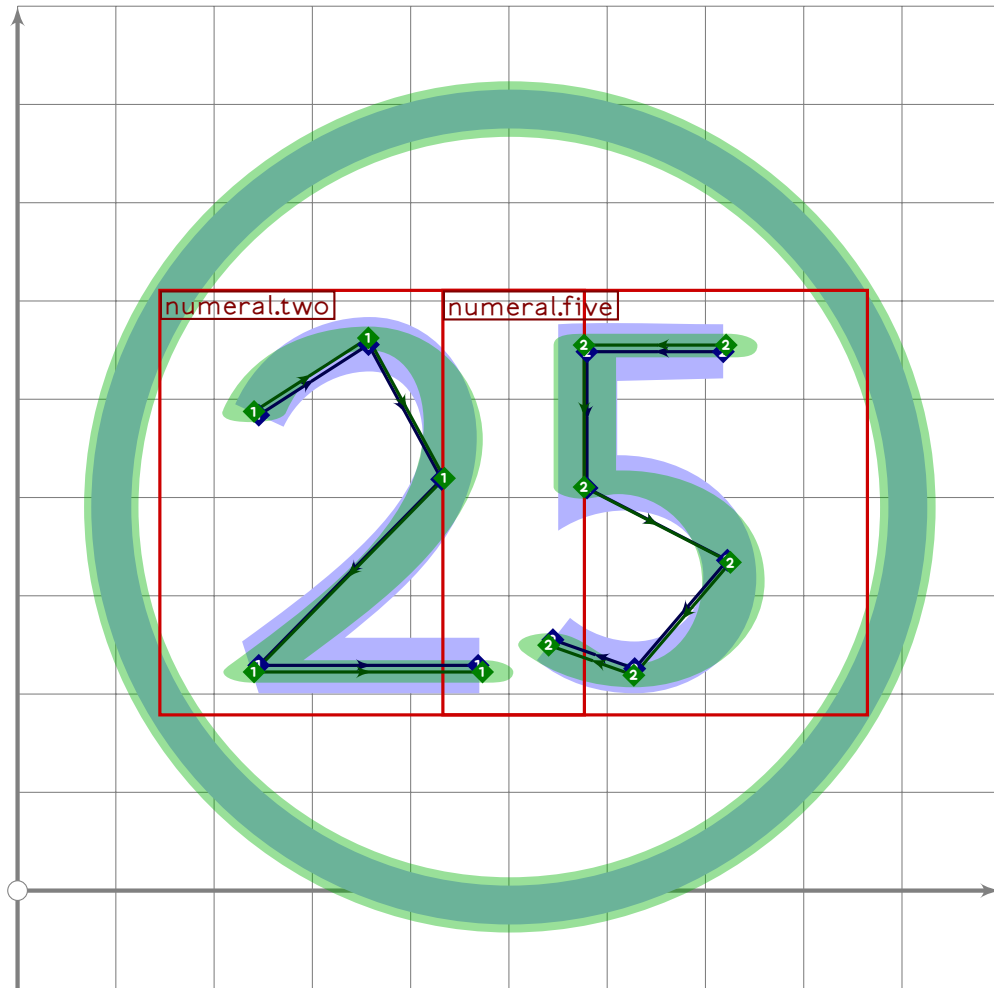
```
64 % 23
65 begintsuglyph("uni3253",83);
66 circle.single;
67 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
68 numeric x[],y[];
69 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
70 tsu_render;
71 endtsuglyph;
72
```



```

73 % 24
74 begintsuglyph("uni3254";84);
75 circle.single;
76 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
77 numeric x[],y[];
78 tsu_xform(tsu_xf.ctwo.right)(numeral.four);
79 tsu_render;
80 endtsuglyph;
81

```

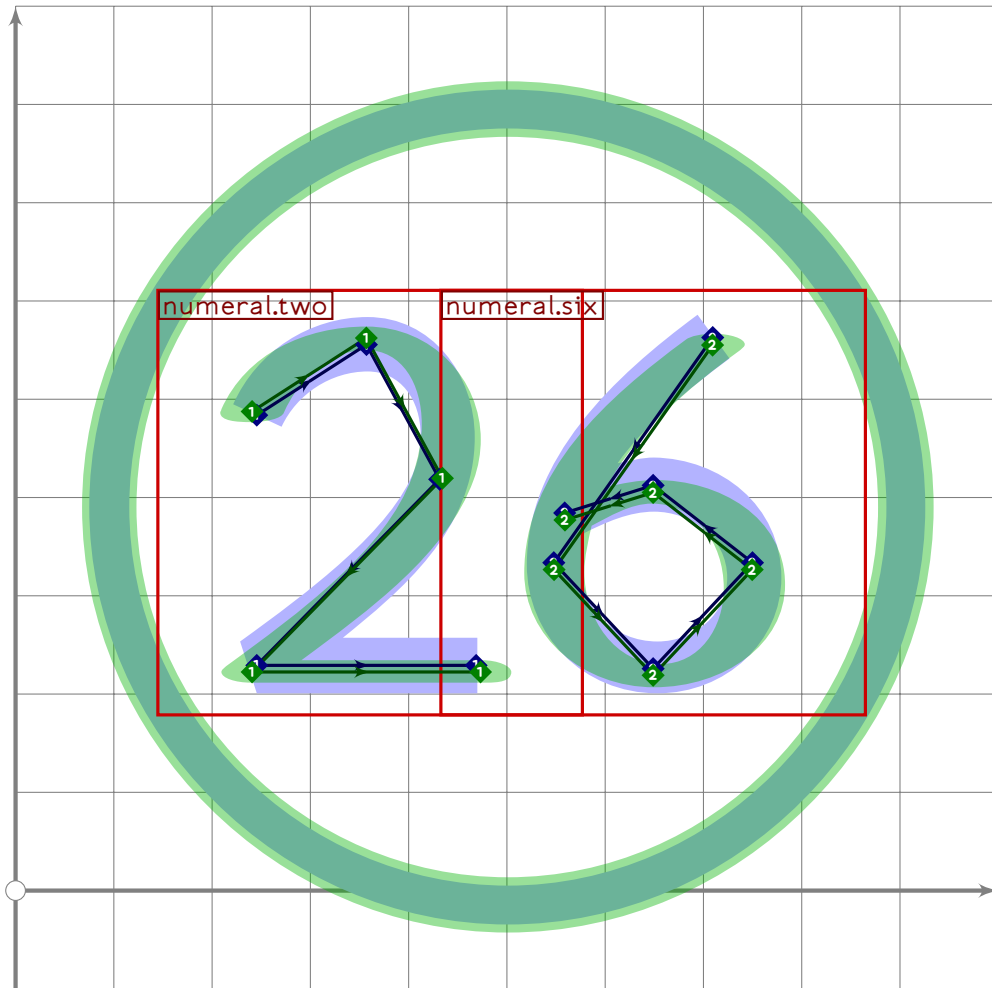


```

82 % 25
83 begint Suglyph("uni3255",85);
84 circle.single;
85 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
86 numeric x[],y[];
87 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
88 tsu_render;
89 endtsuglyph;
90

```

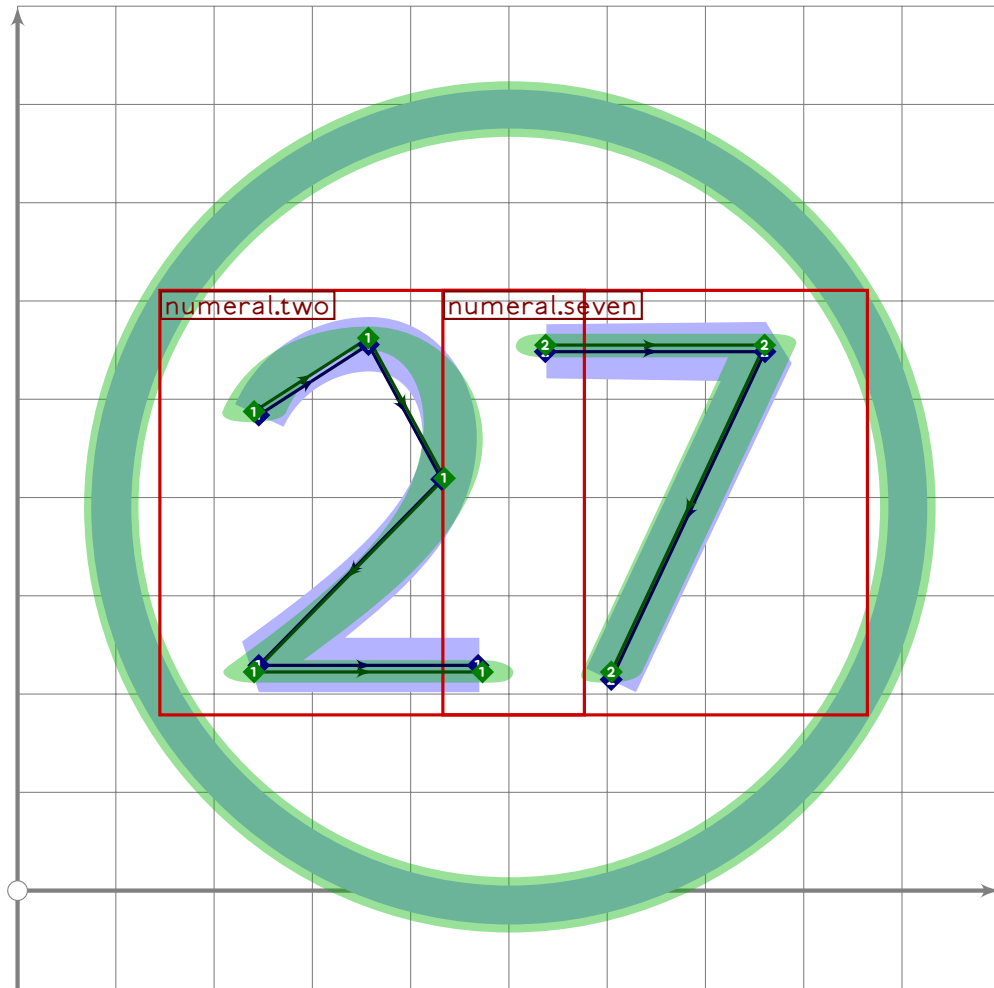




```

91 % 26
92 beginsuglyph("uni3256",86);
93 circle.single;
94 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
95 numeric x[],y[];
96 tsu_xform(tsu_xf.ctwo.right)(numeral.six);
97 tsu_render;
98 endsuglyph;
99

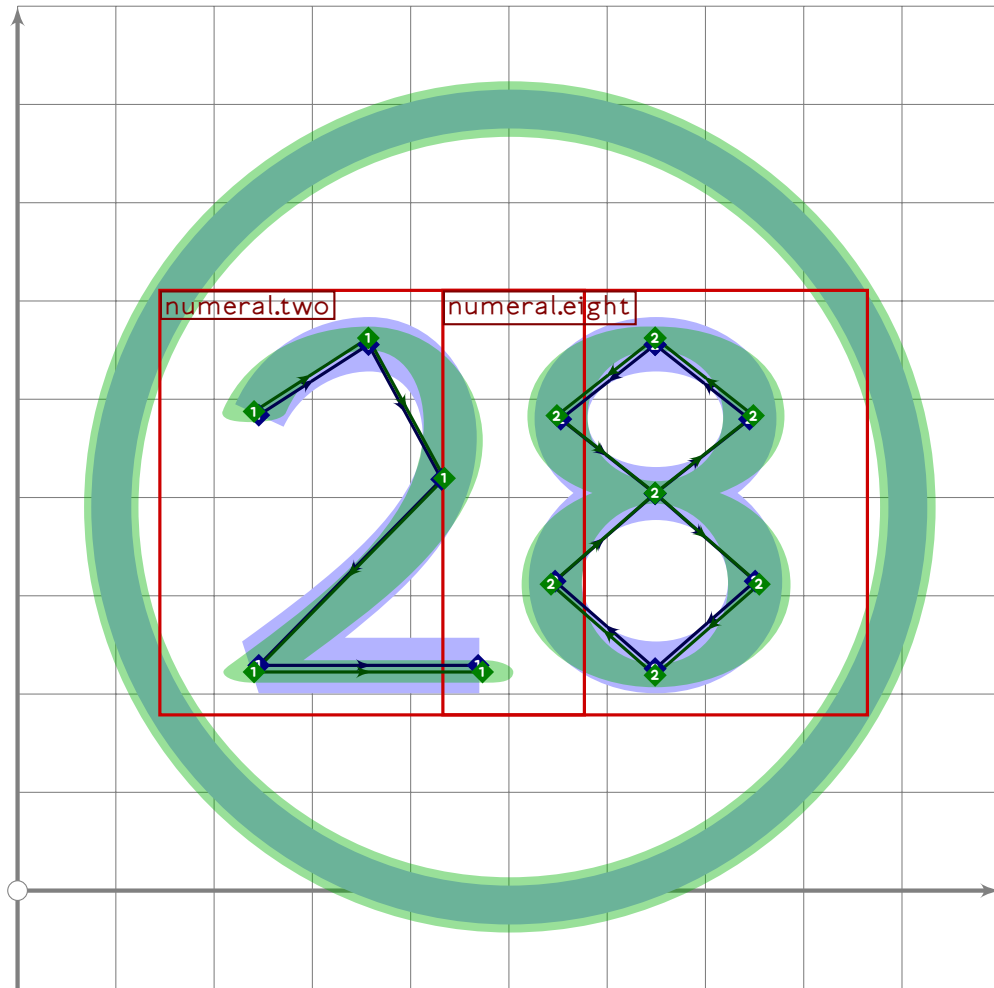
```



```

100 % 27
101 begintuglyph("uni3257";87);
102   circle.single;
103   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
104   numeric x[],y[];
105   tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
106   tsu_render;
107 endtuglyph;
108

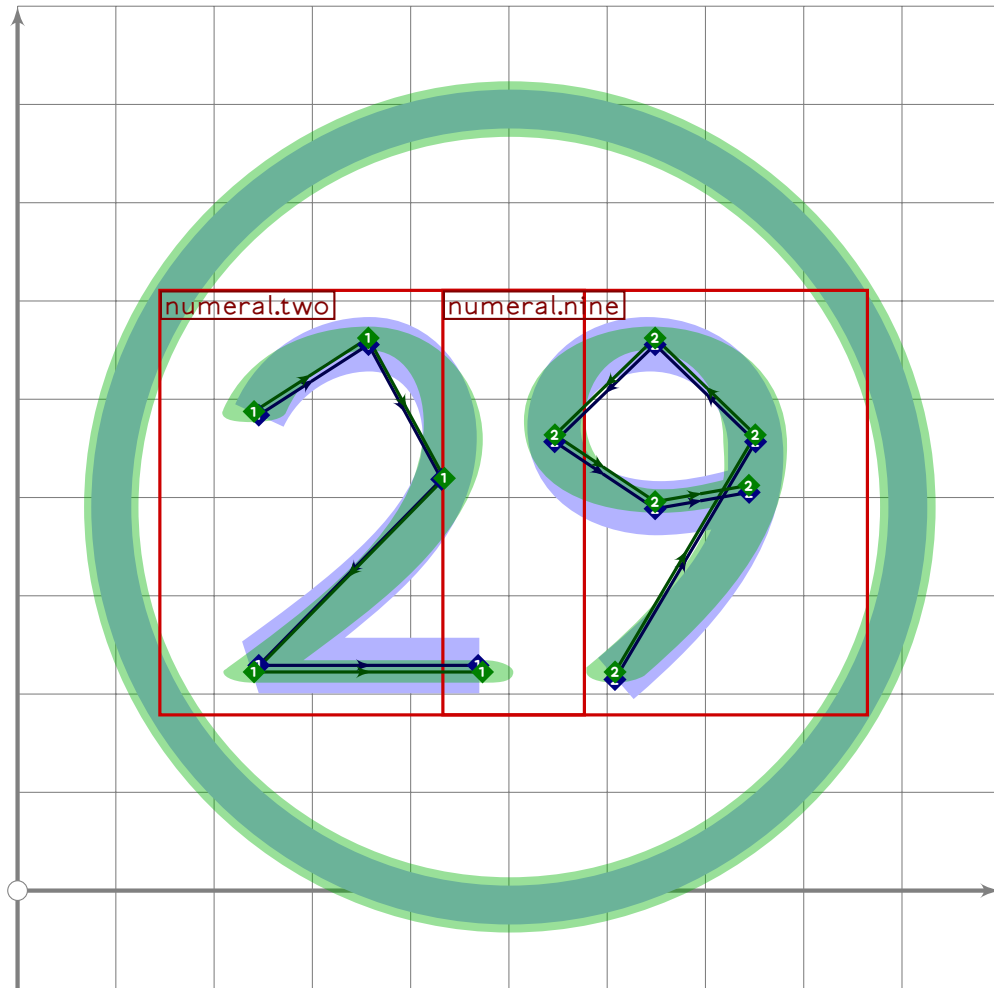
```



```

109 % 28
110 begintuglyph("uni3258",88);
111   circle.single;
112   tsu_xform(tsu_xf.ctwo.left)(numeral.two);
113   numeric x[],y[];
114   tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
115   tsu_render;
116 endtuglyph;
117

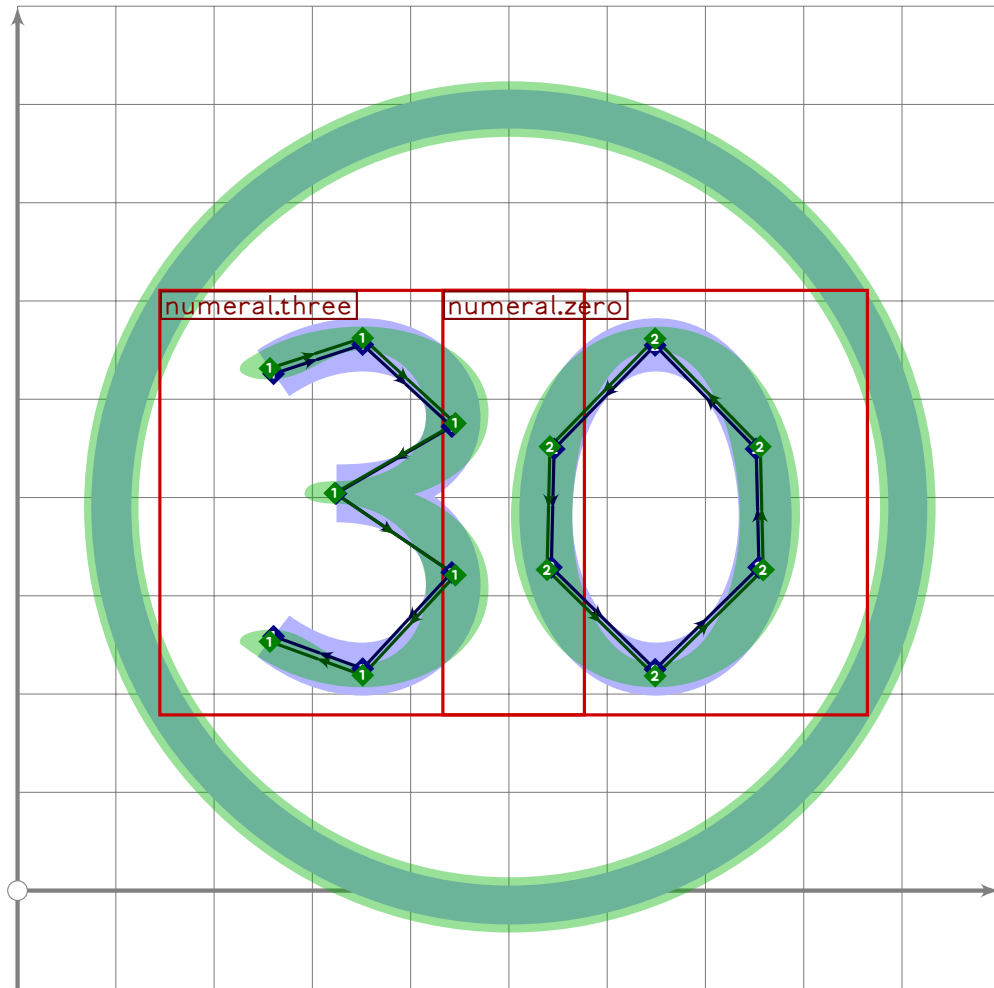
```



```

118 % 29
119 begintuglyph("uni3259",89);
120 circle.single;
121 tsu_xform(tsu_xf.ctwo.left)(numeral.two);
122 numeric x[],y[];
123 tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
124 tsu_render;
125 endtuglyph;
126

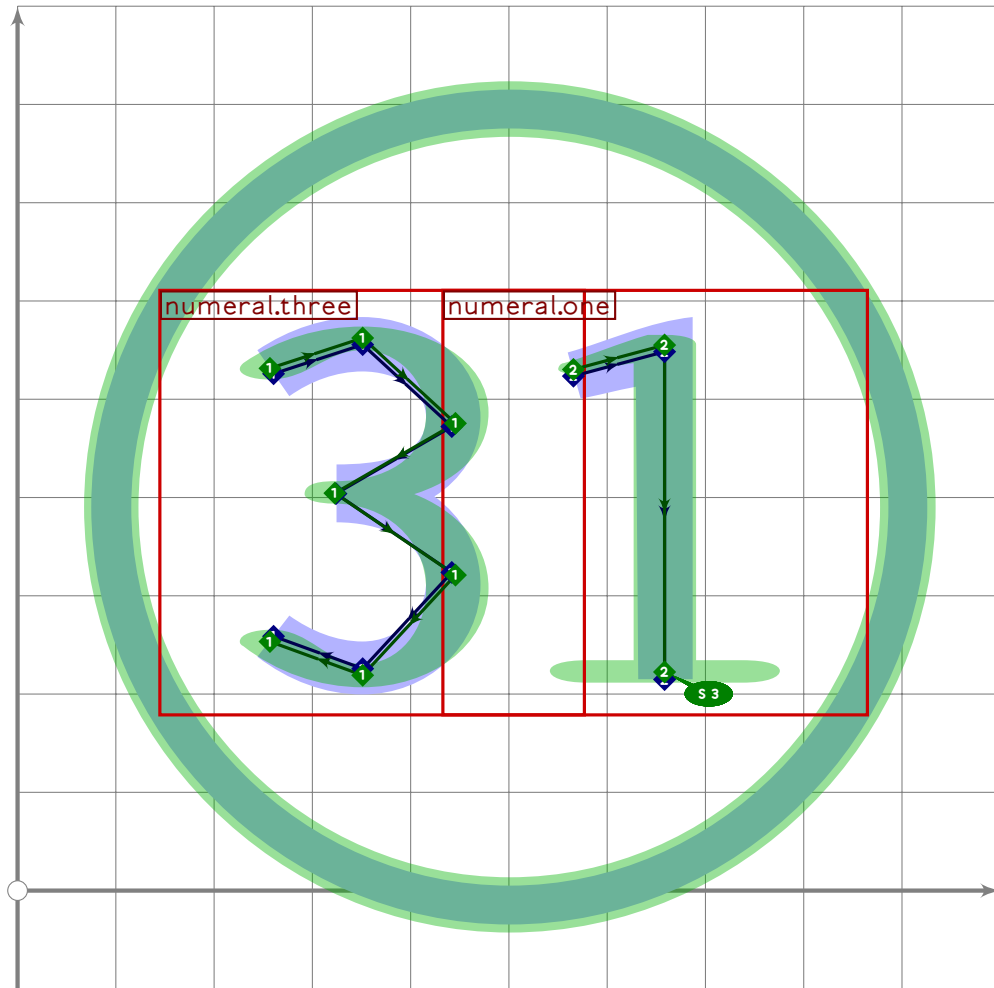
```



```

127 % 30
128 beginsuglyph("uni325A";90);
129 circle.single;
130 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
131 numeric x[],y[];
132 tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
133 tsu_render;
134 endsuglyph;
135

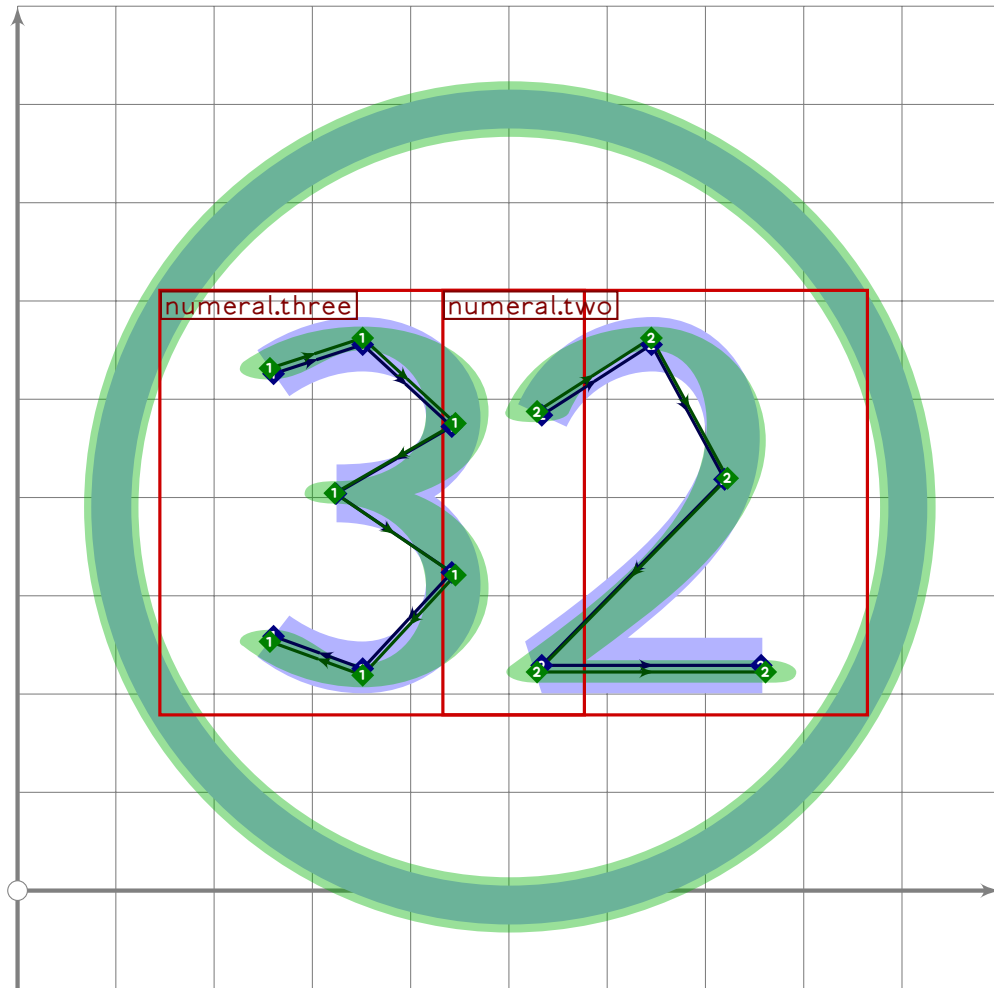
```



```

136 % 31
137 begintsuglyph("uni325B",91);
138 circle.single;
139 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
140 numeric x[],y[];
141 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
142 tsu_render;
143 endtsuglyph;
144

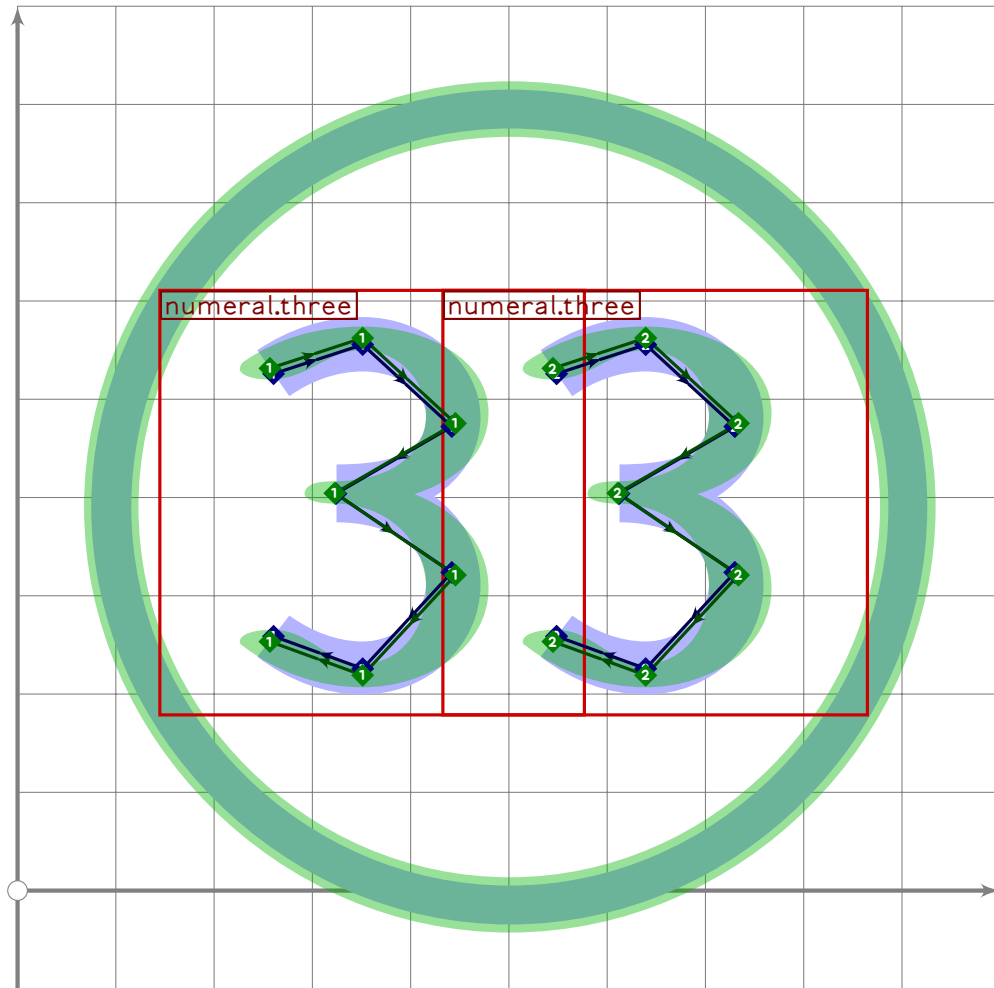
```



```

145 % 32
146 beginsuglyph("uni325C";92);
147   circle.single;
148   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
149   numeric x[],y[];
150   tsu_xform(tsu_xf.ctwo.right)(numeral.two);
151   tsu_render;
152 endsuglyph;
153

```

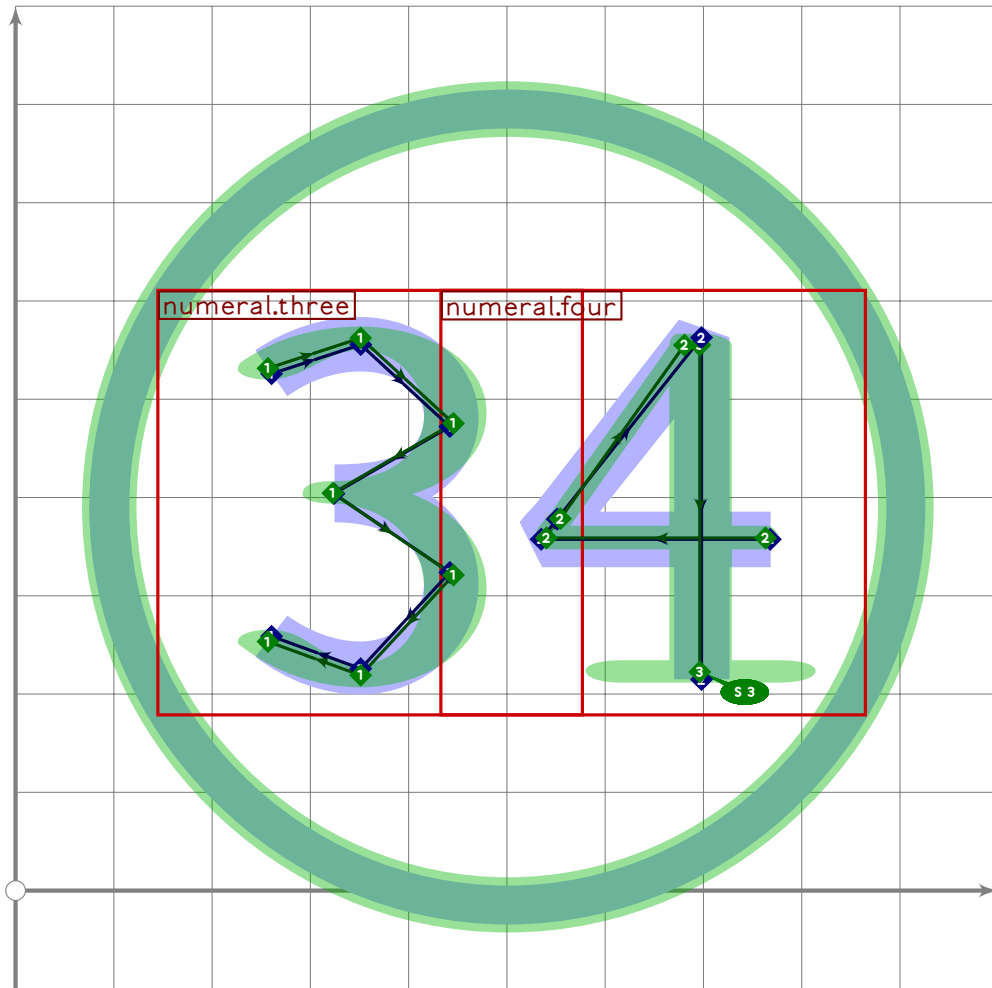


```

154 % 33
155 begintsuglyph("uni325D";93);
156 circle.single;
157 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
158 numeric x[],y[];
159 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
160 tsu_render;
161 endtsuglyph;
162

```

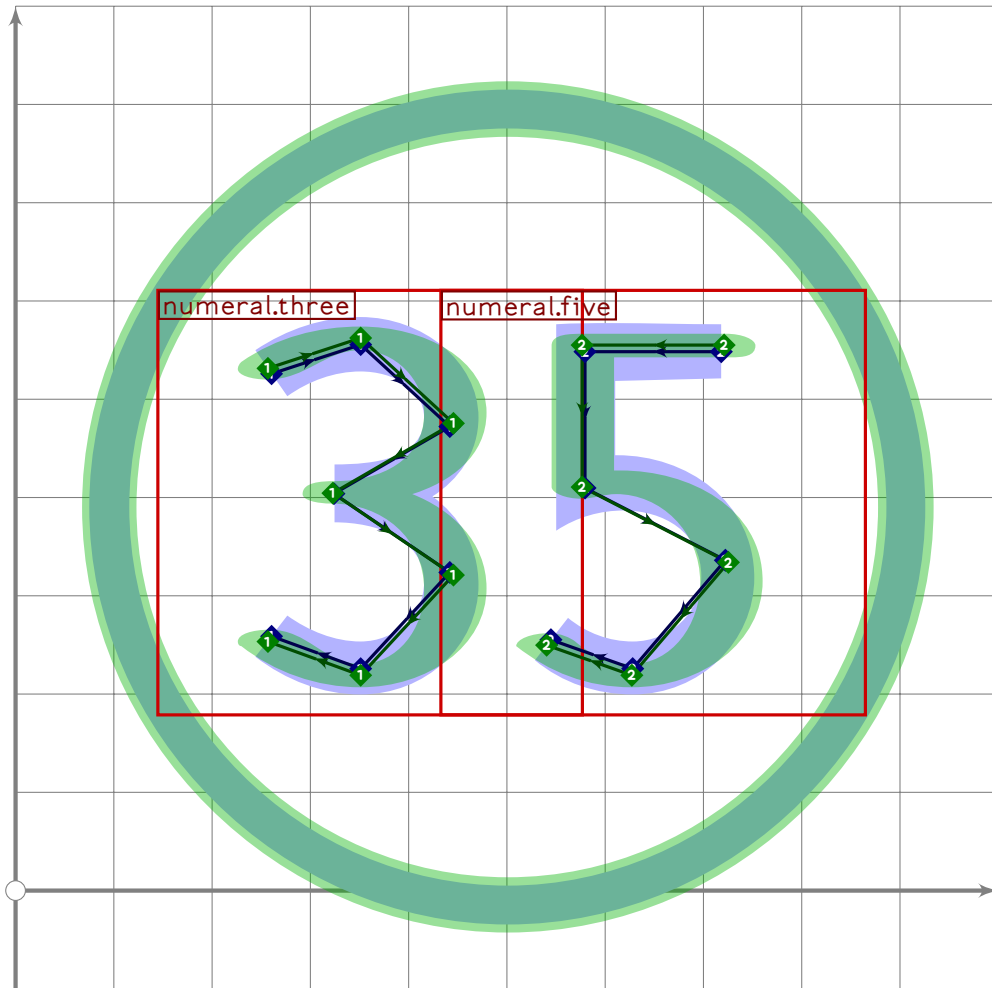




```

163 % 34
164 begintsuglyph("uni325E";94);
165   circle.single;
166   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
167   numeric x[],y[];
168   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
169   tsu_render;
170 endsuglyph;
171

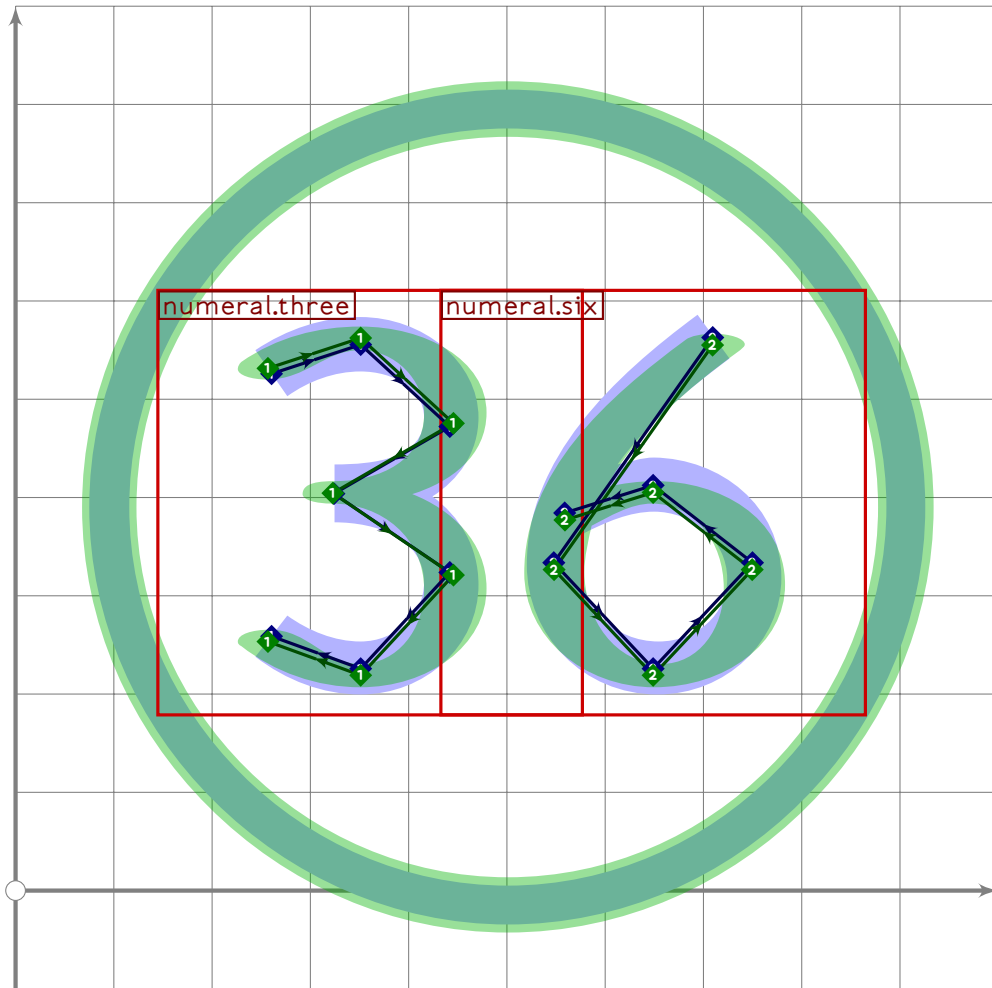
```



```

172 % 35
173 begint Suglyph("uni325F";95);
174 circle.single;
175 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
176 numeric x[],y[];
177 tsu_xform(tsu_xf.ctwo.right)(numeral.five);
178 tsu_render;
179 endtsuglyph;
180
181 % WARNING discontinuous
182

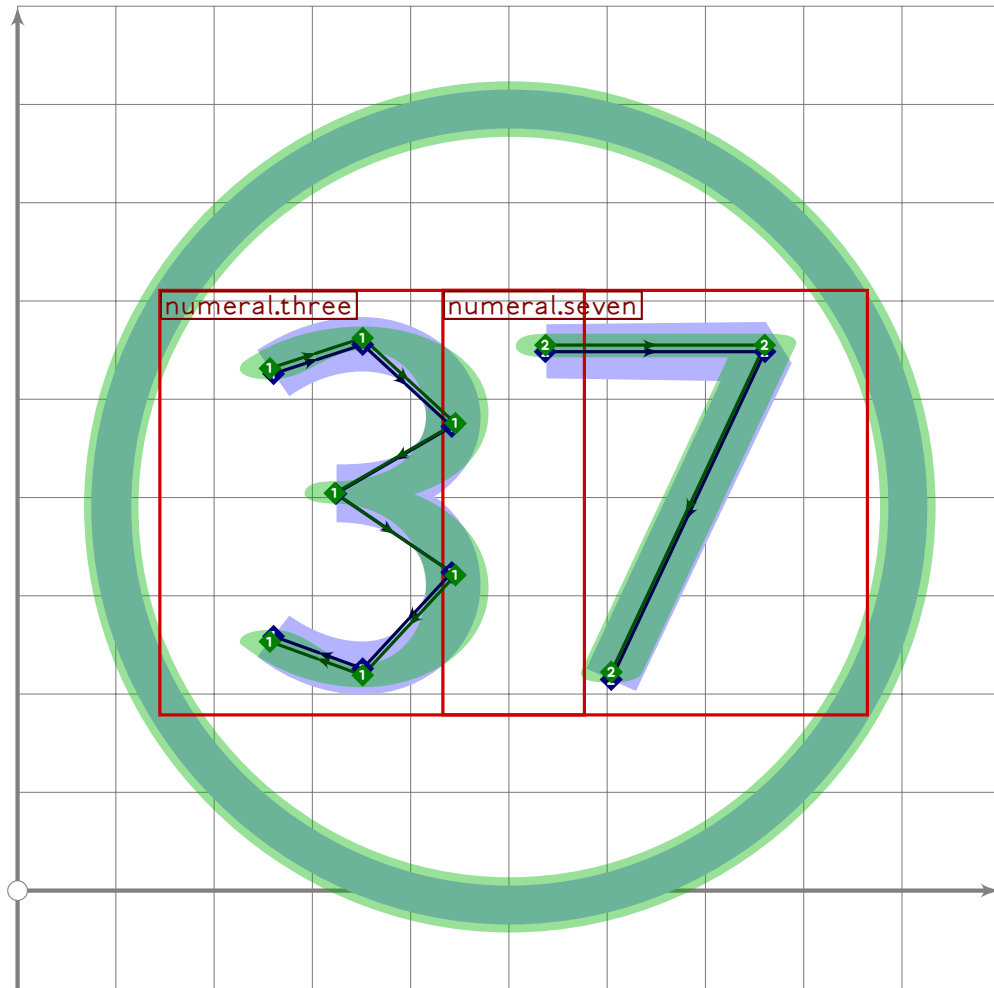
```



```

183 % 36
184 beginsuglyph("uni32B1",177);
185   circle.single;
186   tsu_xform(tsu_xf.ctwo.left)(numeral.three);
187   numeric x[],y[];
188   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
189   tsu_render;
190 endsuglyph;
191

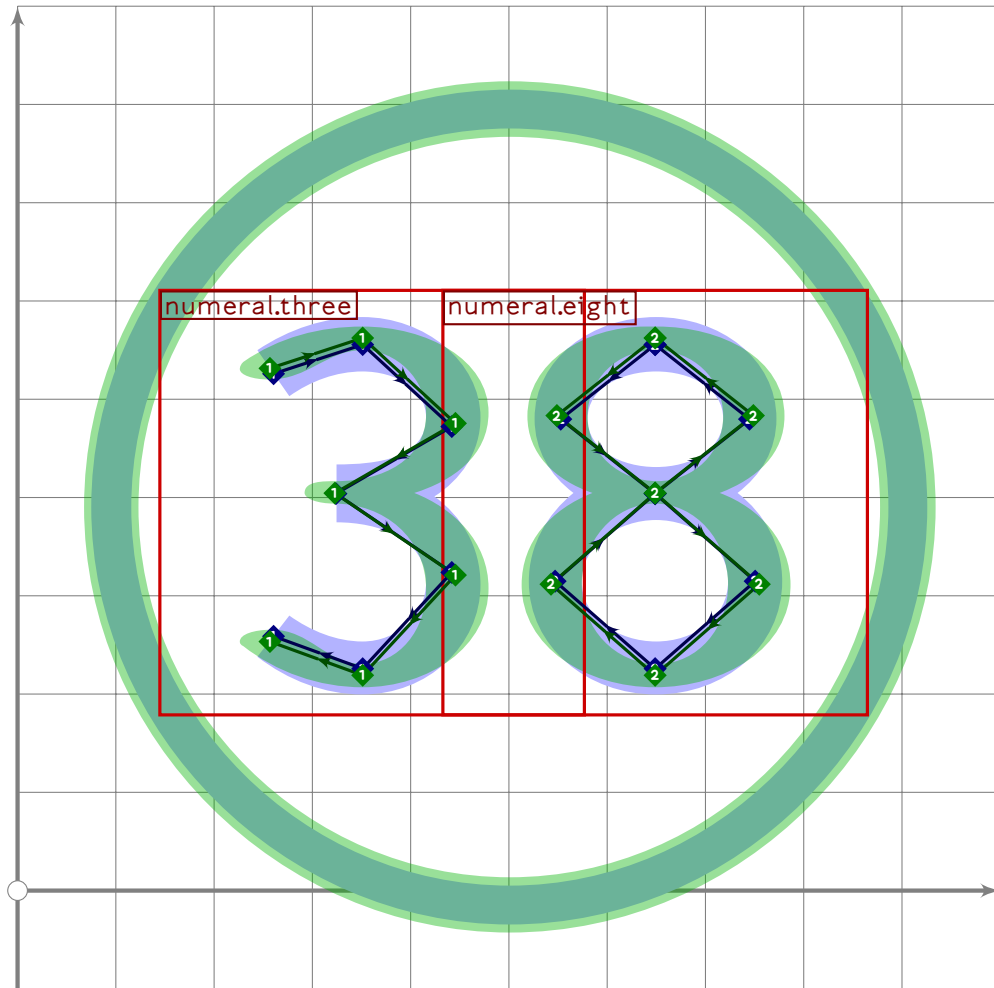
```



```

192 % 37
193 begint Suglyph("uni32B2";178);
194 circle.single;
195 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
196 numeric x[],y[];
197 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
198 tsu_render;
199 endtsuglyph;
200

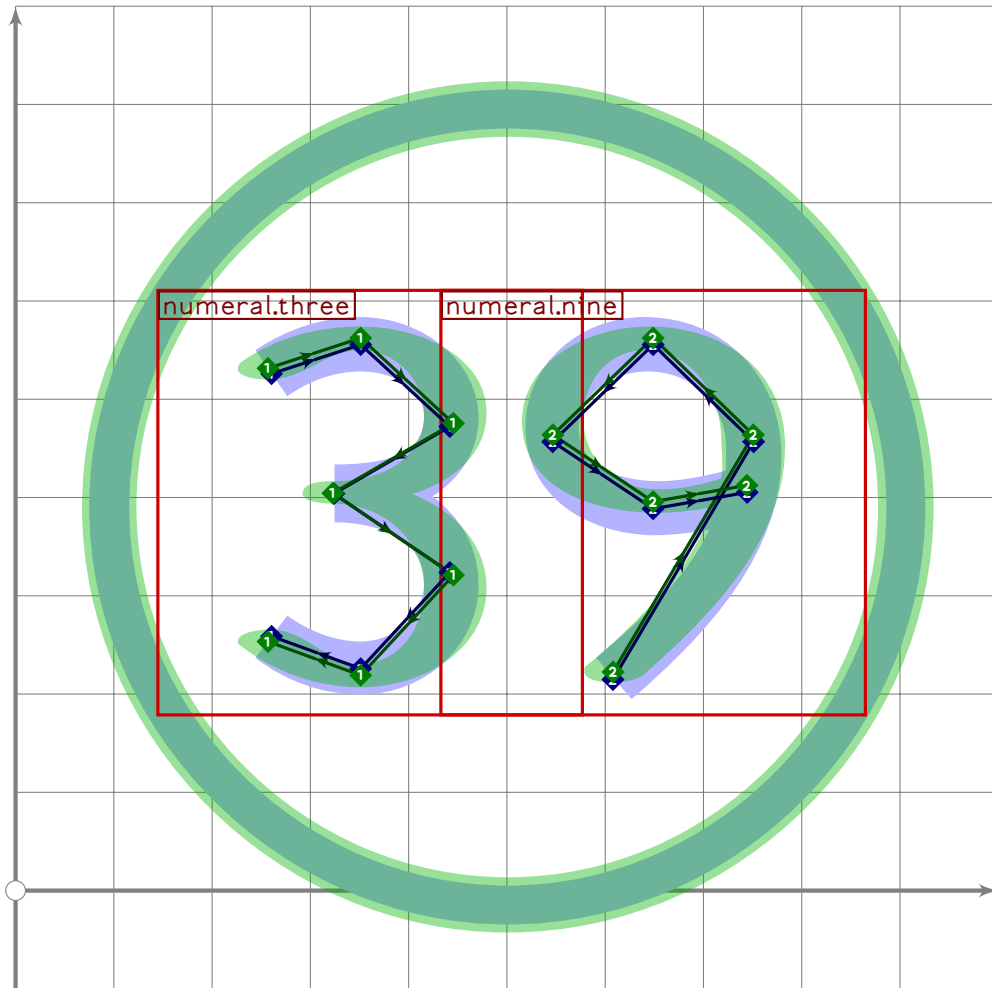
```



```

201 % 38
202 begintsuglyph("uni32B3";179);
203 circle.single;
204 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
205 numeric x[],y[];
206 tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
207 tsu_render;
208 endtsuglyph;
209

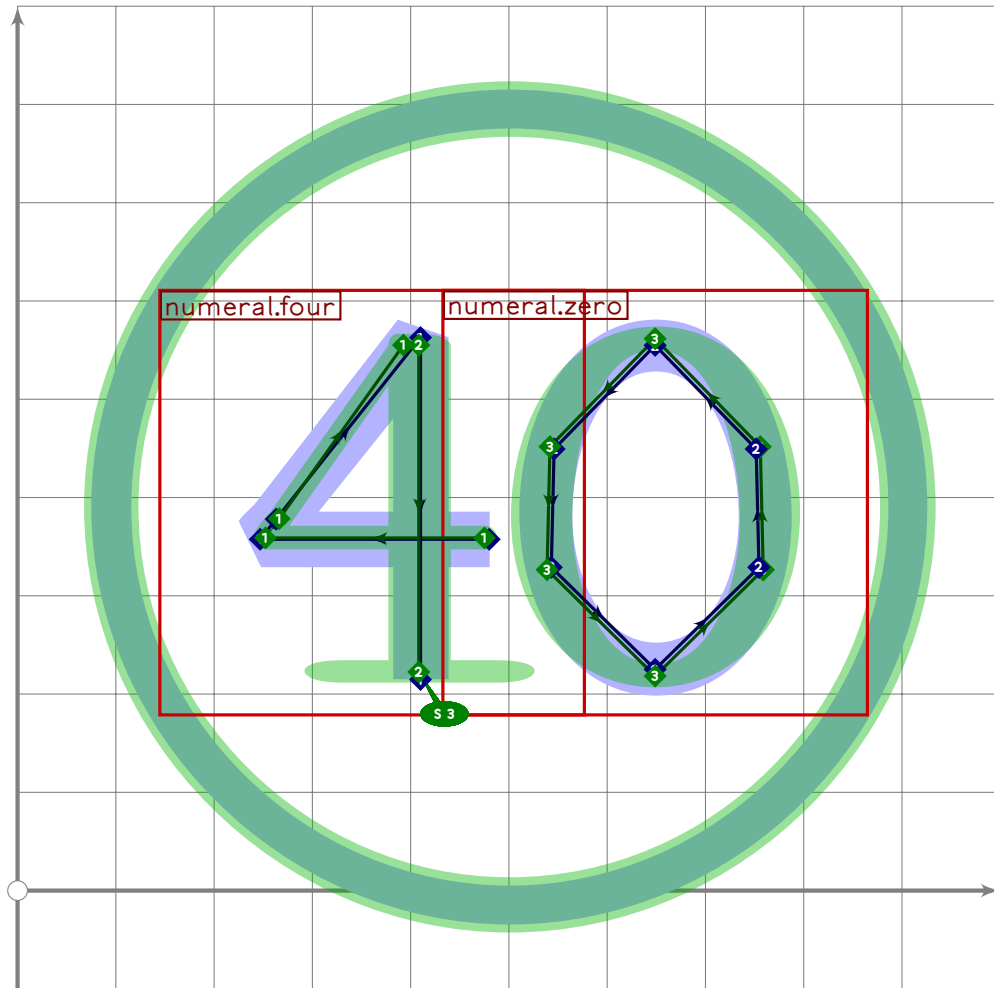
```



```

210 % 39
211 begintsuglyph("uni32B4",180);
212 circle.single;
213 tsu_xform(tsu_xf.ctwo.left)(numeral.three);
214 numeric x[],y[];
215 tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
216 tsu_render;
217 endtsuglyph;
218

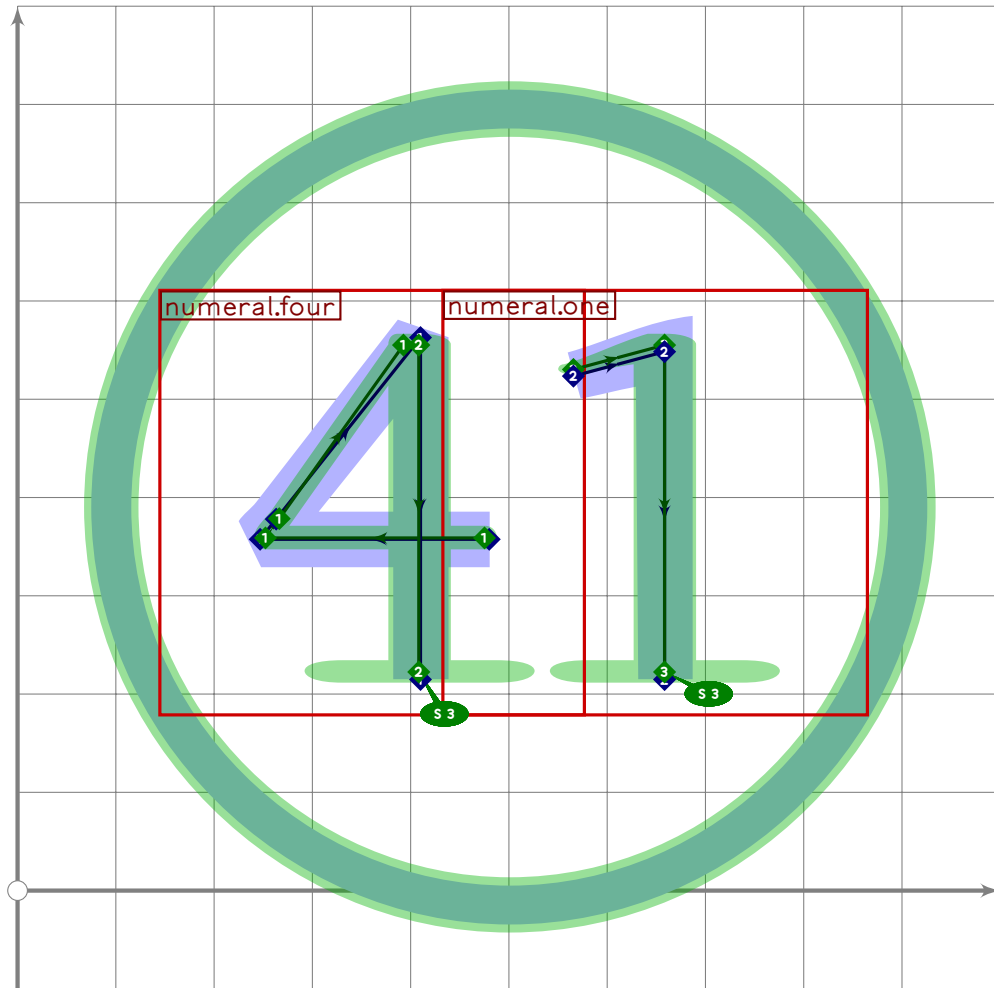
```



```

219 % 40
220 begintuglyph("uni32B5",181);
221   circle.single;
222   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
223   numeric x[],y[];
224   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
225   tsu_render;
226 endtuglyph;
227

```

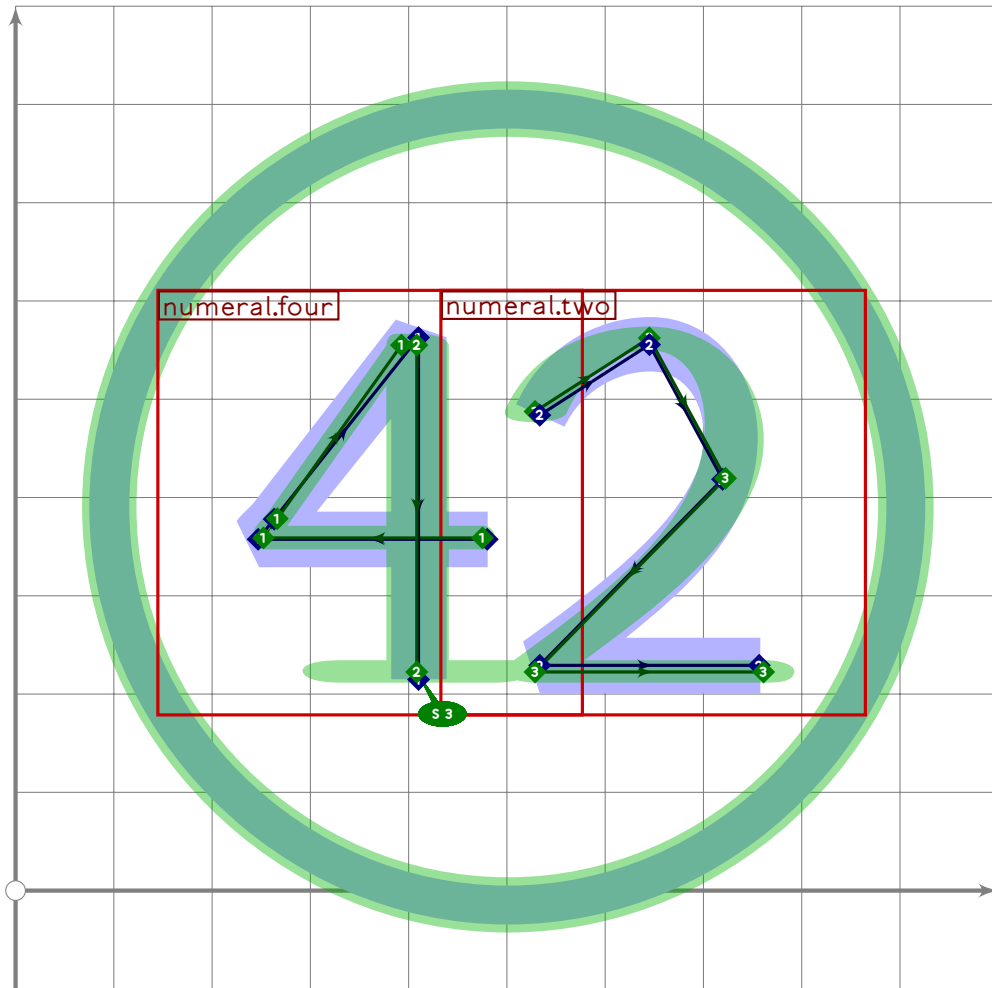


```

228 % 41
229 begintsuglyph("uni32B6",182);
230 circle.single;
231 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
232 numeric x[],y[];
233 tsu_xform(tsu_xf.ctwo.right)(numeral.one);
234 tsu_render;
235 endtsuglyph;
236

```

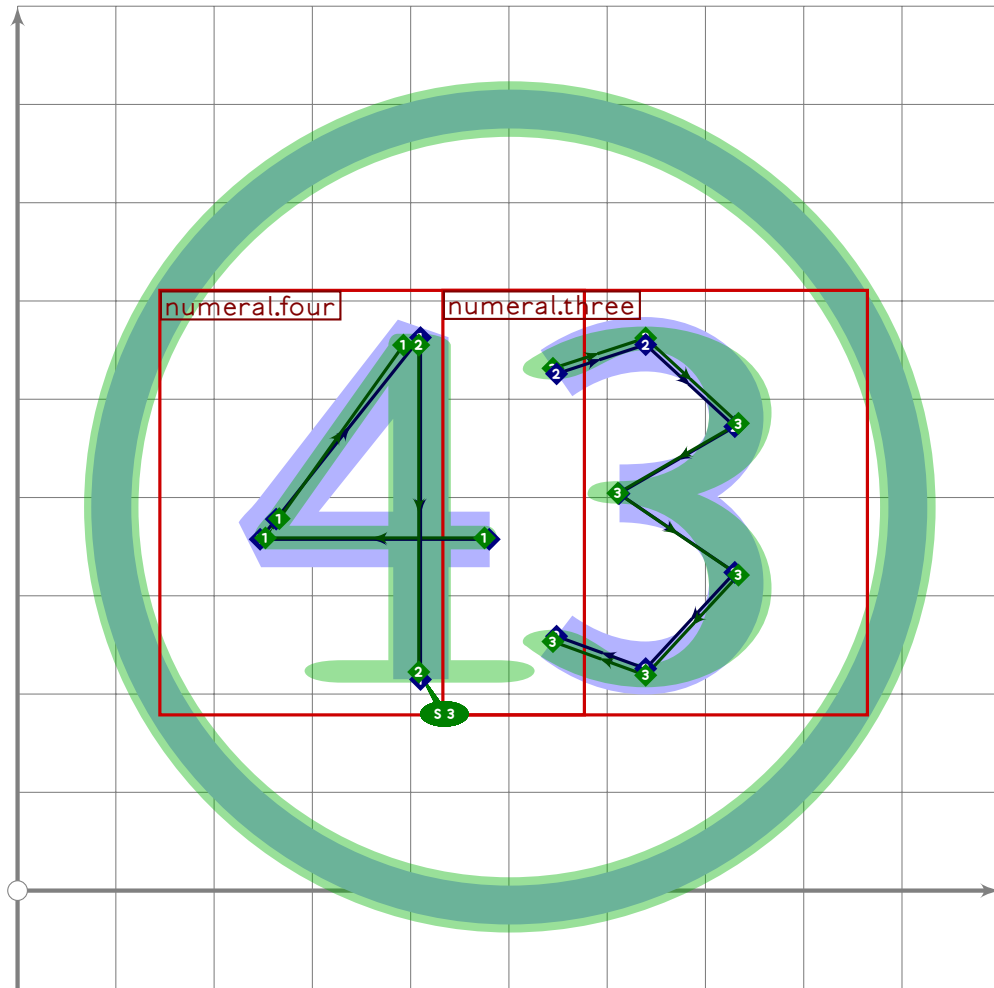




```

237 % 42
238 begintsuglyph("uni32B7";183);
239 circle.single;
240 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
241 numeric x[],y[];
242 tsu_xform(tsu_xf.ctwo.right)(numeral.two);
243 tsu_render;
244 endtsuglyph;
245

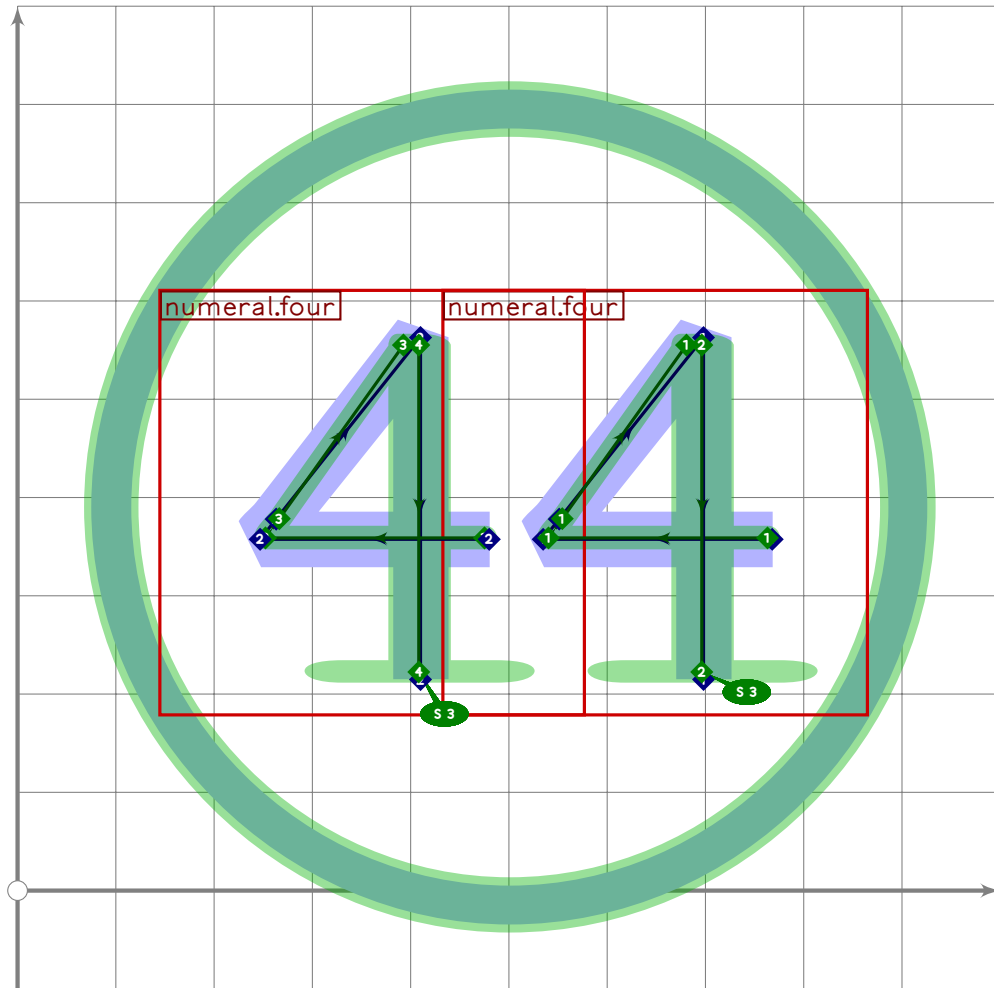
```



```

246 % 43
247 begintsuglyph("uni32B8",184);
248 circle.single;
249 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
250 numeric x[],y[];
251 tsu_xform(tsu_xf.ctwo.right)(numeral.three);
252 tsu_render;
253 endsuglyph;
254

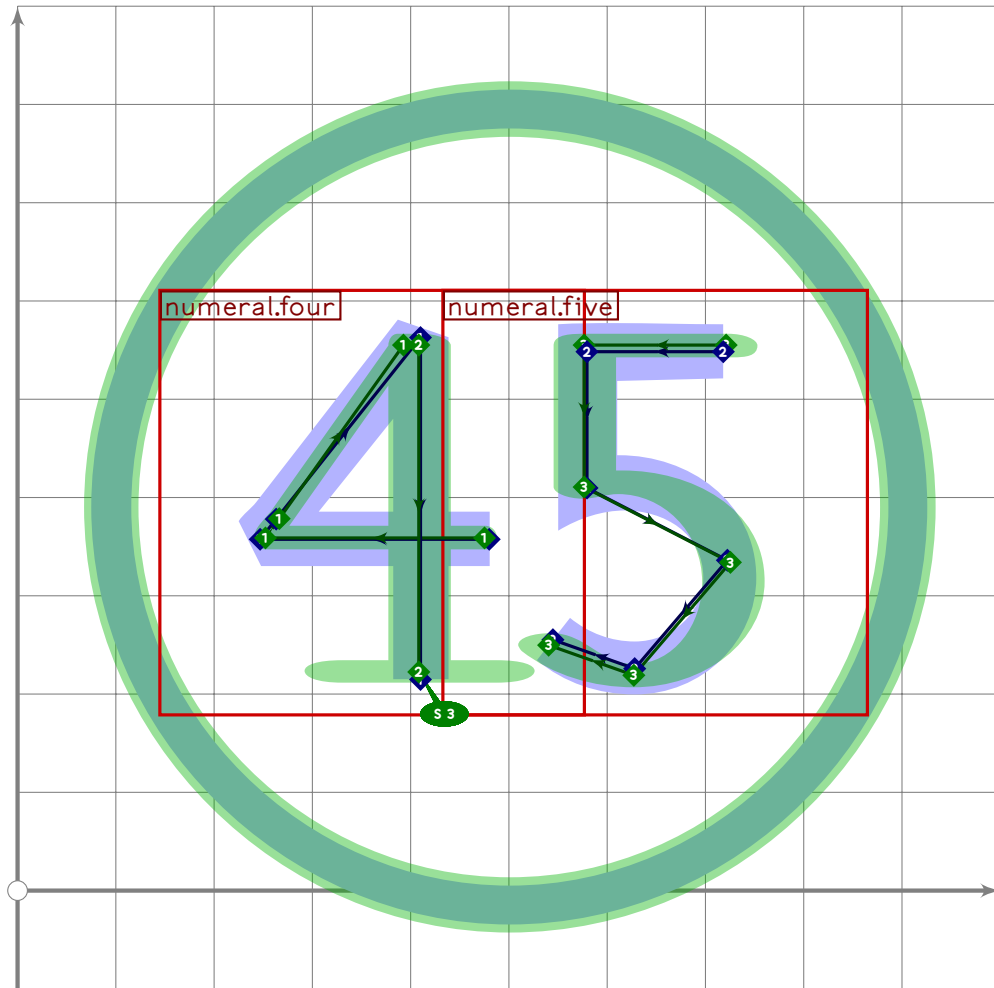
```



```

255 % 44
256 begint Suglyph("uni32B9",185);
257   circle.single;
258   tsu_xform(tsu_xf.ctwo.right)(numeral.four);
259   numeric x[],y[];
260   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
261   tsu_render;
262 endtsuglyph;
263

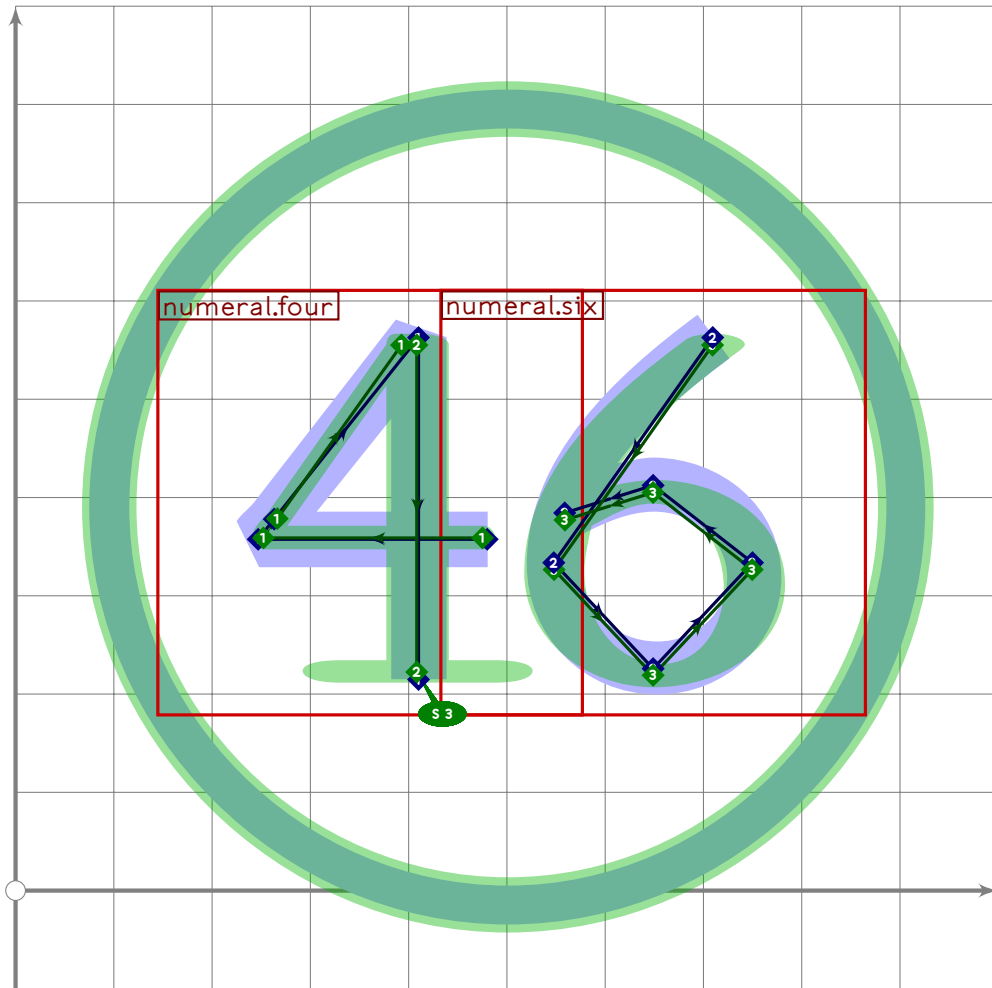
```



```

264 % 45
265 begint Suglyph("uni32BA",186);
266   circle.single;
267   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
268   numeric x[],y[];
269   tsu_xform(tsu_xf.ctwo.right)(numeral.five);
270   tsu_render;
271 endtsuglyph;
272

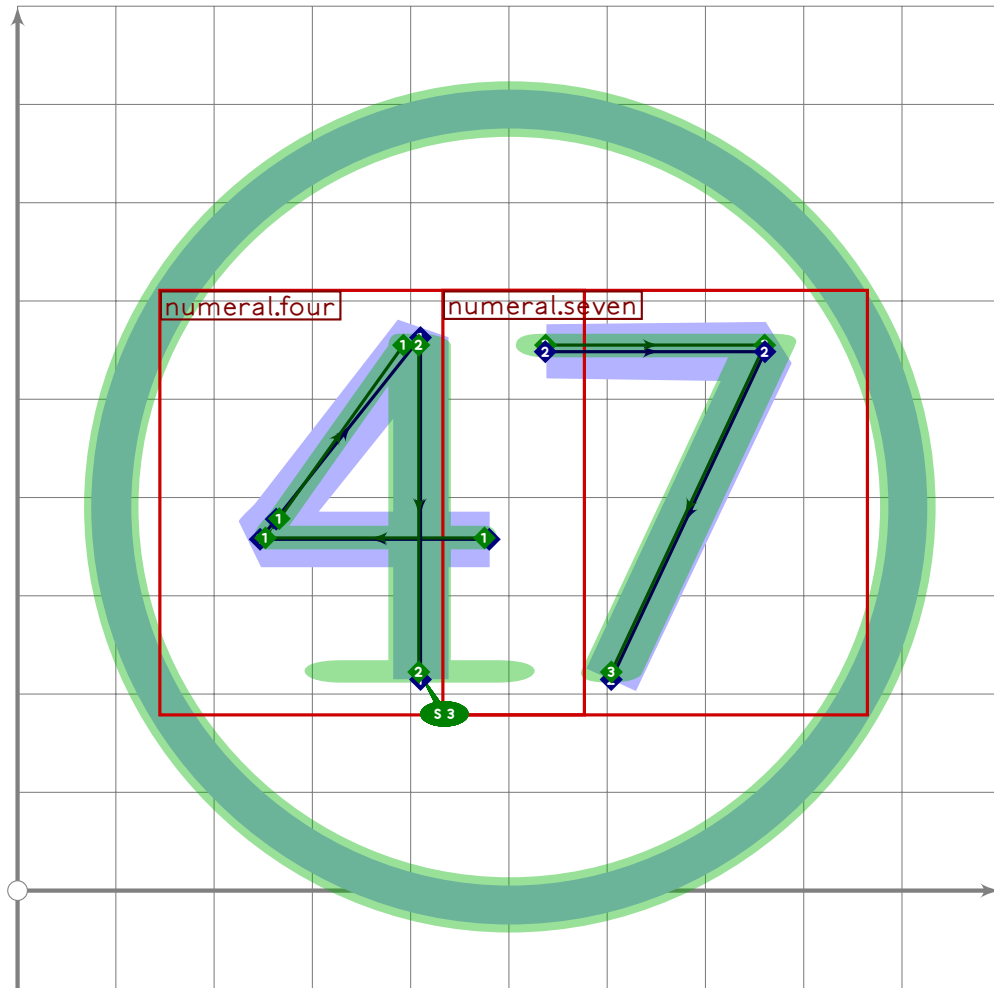
```



```

273 % 46
274 begintsuglyph("uni32BB",187);
275   circle.single;
276   tsu_xform(tsu_xf.ctwo.left)(numeral.four);
277   numeric x[],y[];
278   tsu_xform(tsu_xf.ctwo.right)(numeral.six);
279   tsu_render;
280 endsuglyph;
281

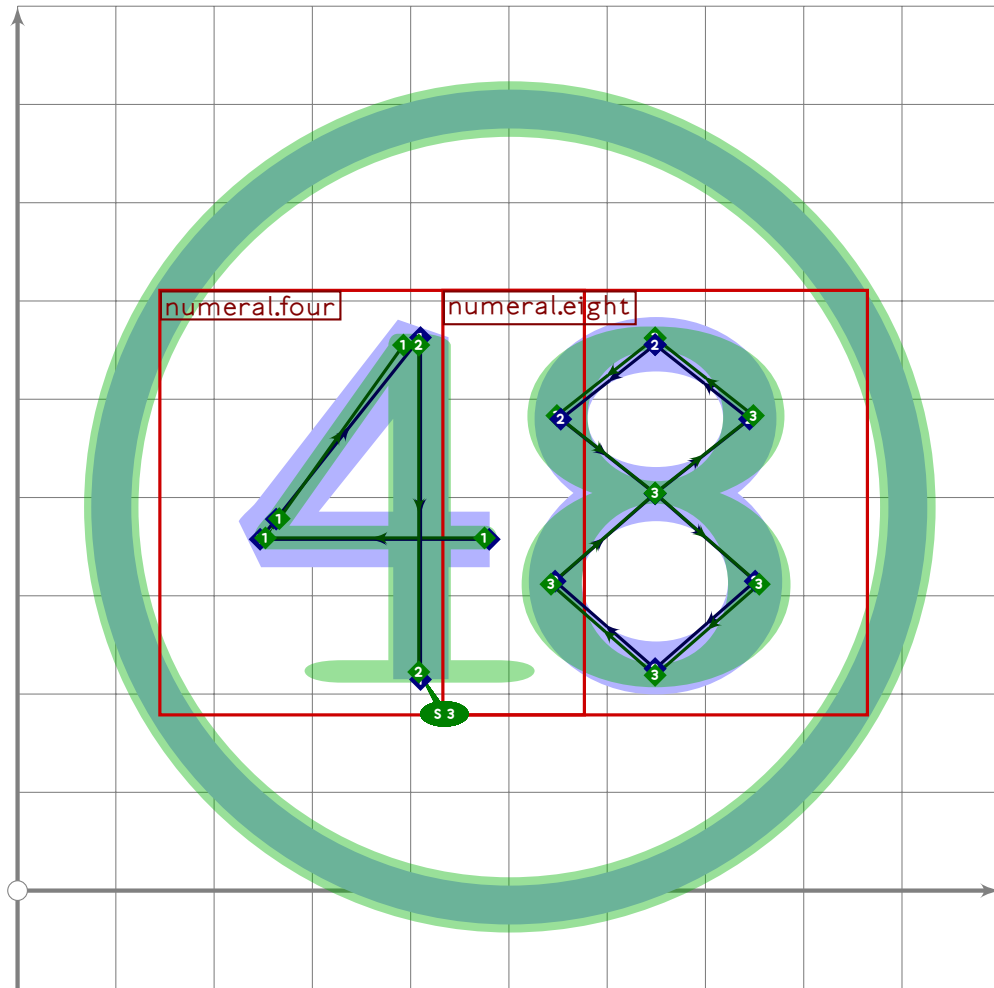
```



```

282 % 47
283 begint Suglyph("uni32BC",188);
284 circle.single;
285 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
286 numeric x[],y[];
287 tsu_xform(tsu_xf.ctwo.right)(numeral.seven);
288 tsu_render;
289 endtsuglyph;
290

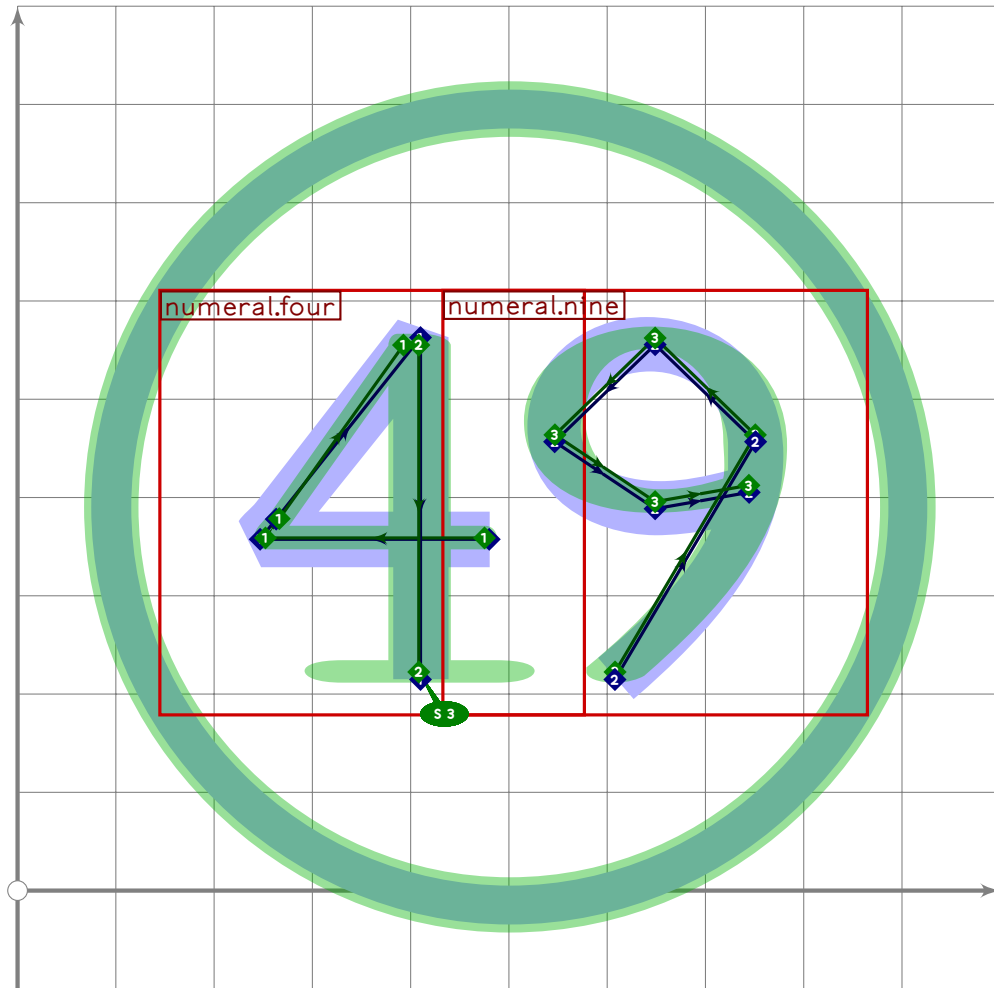
```



```

291 % 48
292 begintuglyph("uni32BD",189);
293 circle.single;
294 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
295 numeric x[],y[];
296 tsu_xform(tsu_xf.ctwo.right)(numeral.eight);
297 tsu_render;
298 endtuglyph;
299

```

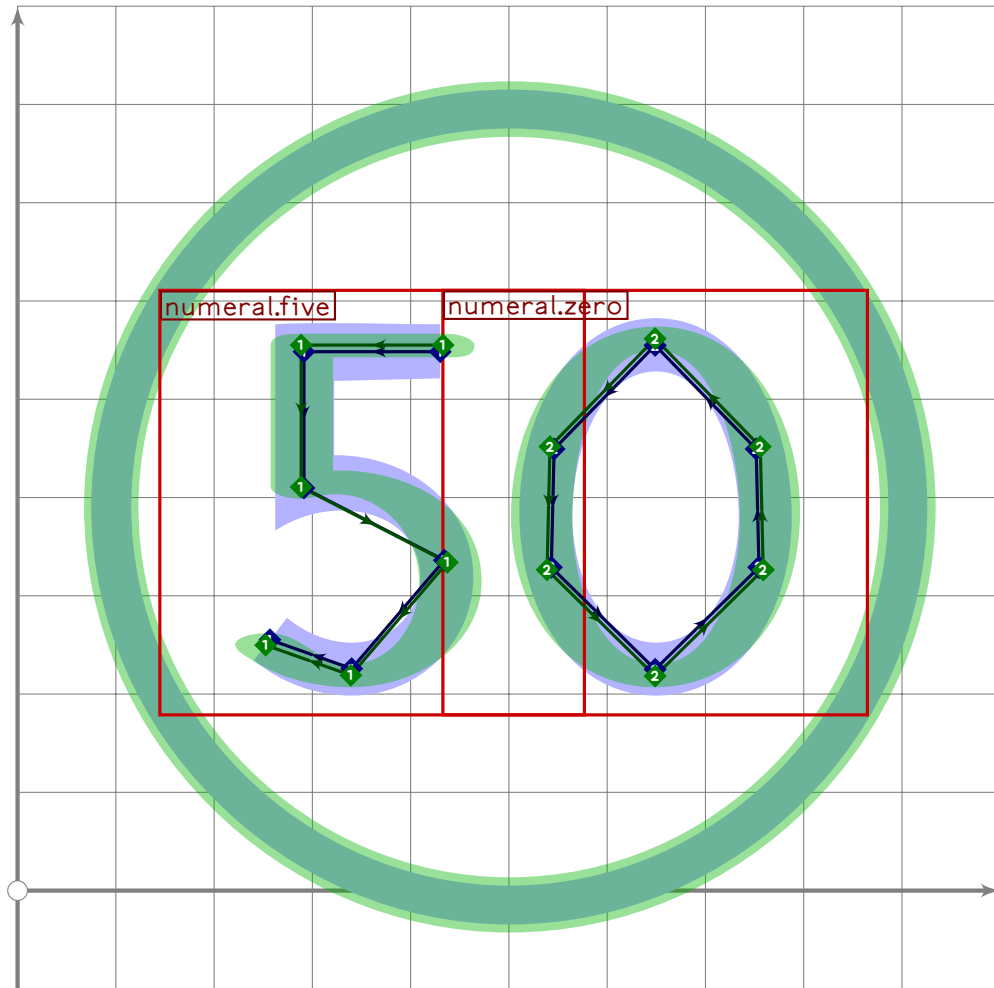


```

300 % 49
301 begintuglyph("uni32BE",190);
302 circle.single;
303 tsu_xform(tsu_xf.ctwo.left)(numeral.four);
304 numeric x[],y[];
305 tsu_xform(tsu_xf.ctwo.right)(numeral.nine);
306 tsu_render;
307 endtuglyph;
308

```





```

309 % 50
310 begint Suglyph("uni32BF",191);
311   circle.single;
312   tsu_xform(tsu_xf.ctwo.left)(numeral.five);
313   numeric x[],y[];
314   tsu_xform(tsu_xf.ctwo.right)(numeral.zero);
315   tsu_render;
316 endtsuglyph;
317
318
319

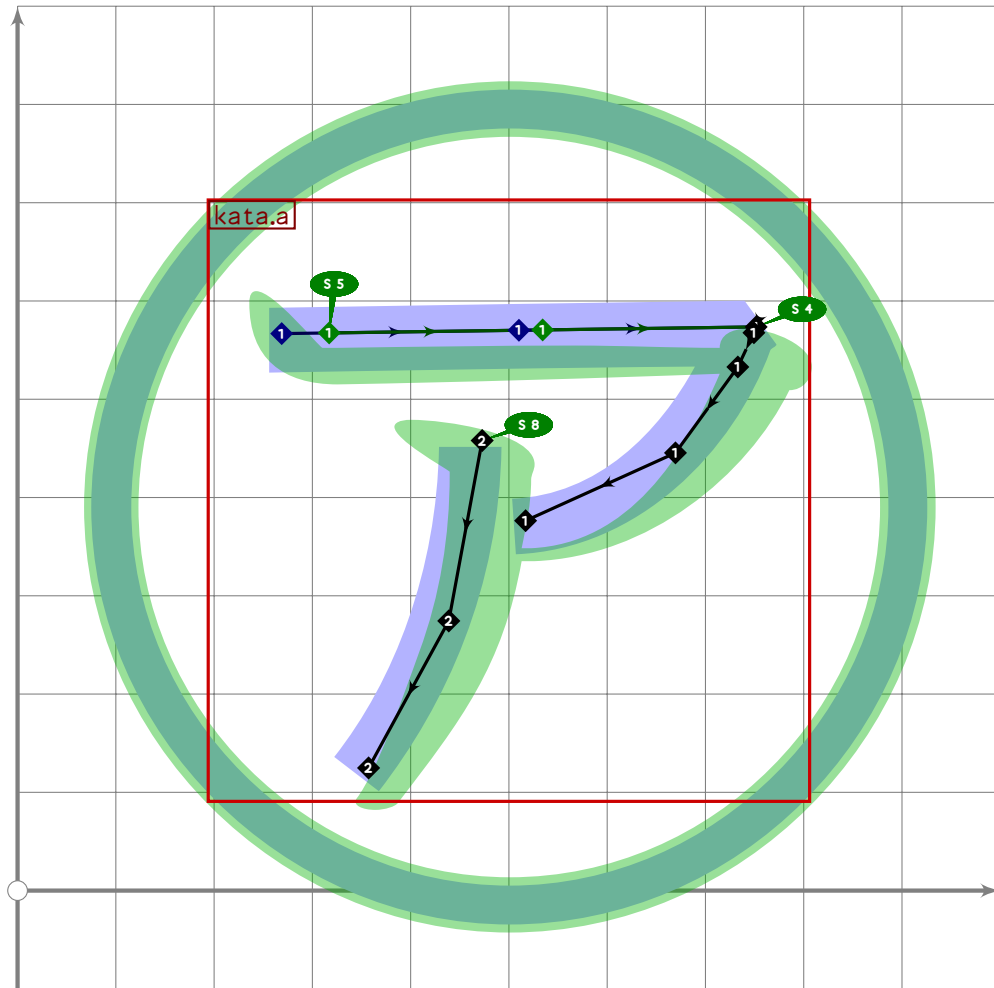
```

## Circled Katakana

```

320 % CIRCLED KATAKANA
321

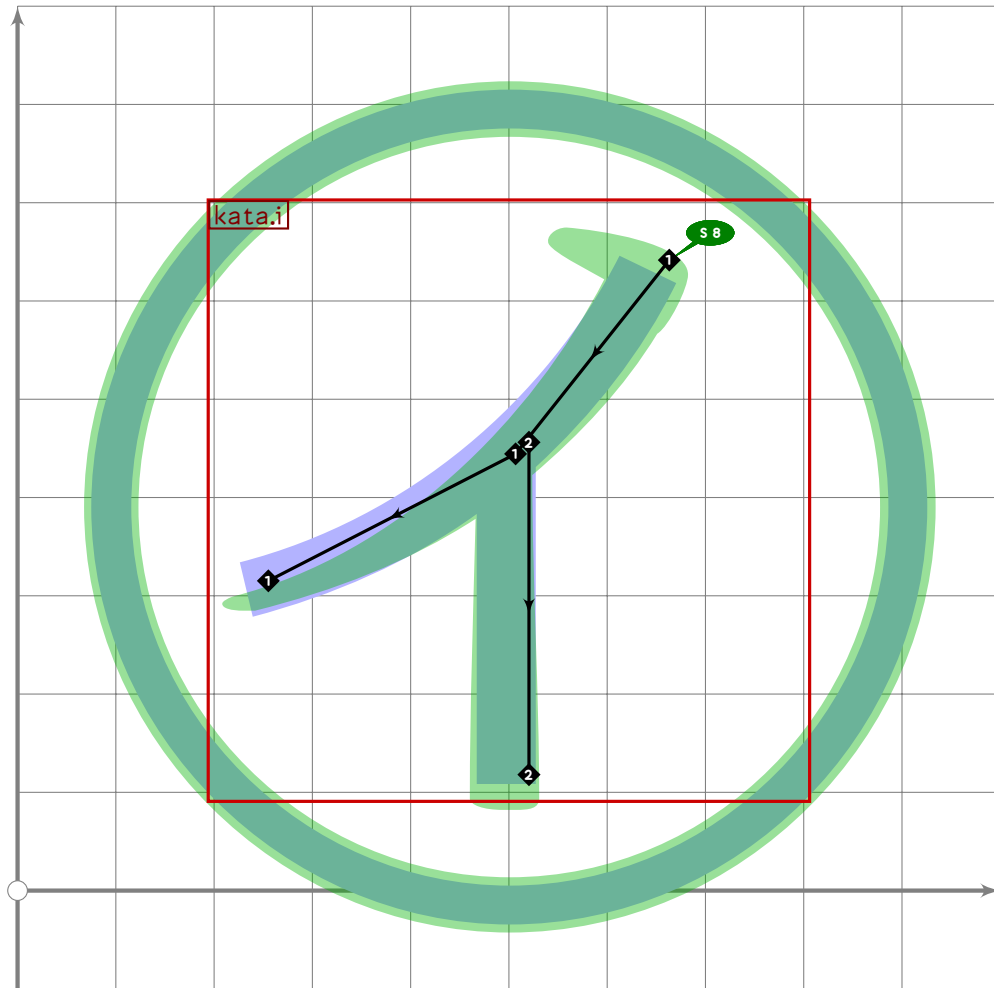
```



```

322 % circled "a"
323 beginsuglyph("uni32D0",208);
324 circle.single;
325 tsu_xform(tsu_xf.circled)(kata.a);
326 tsu_render_in_circle(tsu_xf.cbound);
327 endsuglyph;
328

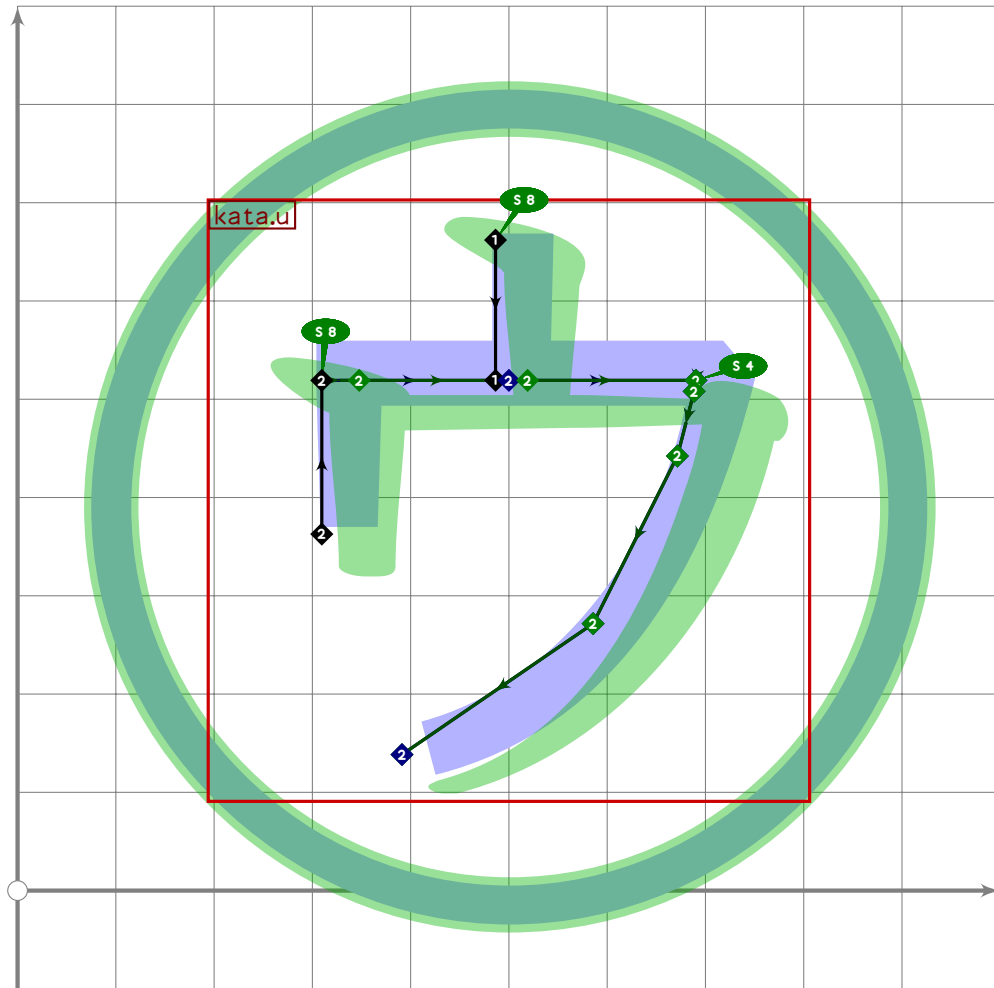
```



```

329 % circled "i"
330 begint Suglyph("uni32D1",209);
331 circle.single;
332 tsu_xform(tsu_xf.circled)(kata.i);
333 tsu_render_in_circle(tsu_xf.cbound);
334 endsuglyph;
335

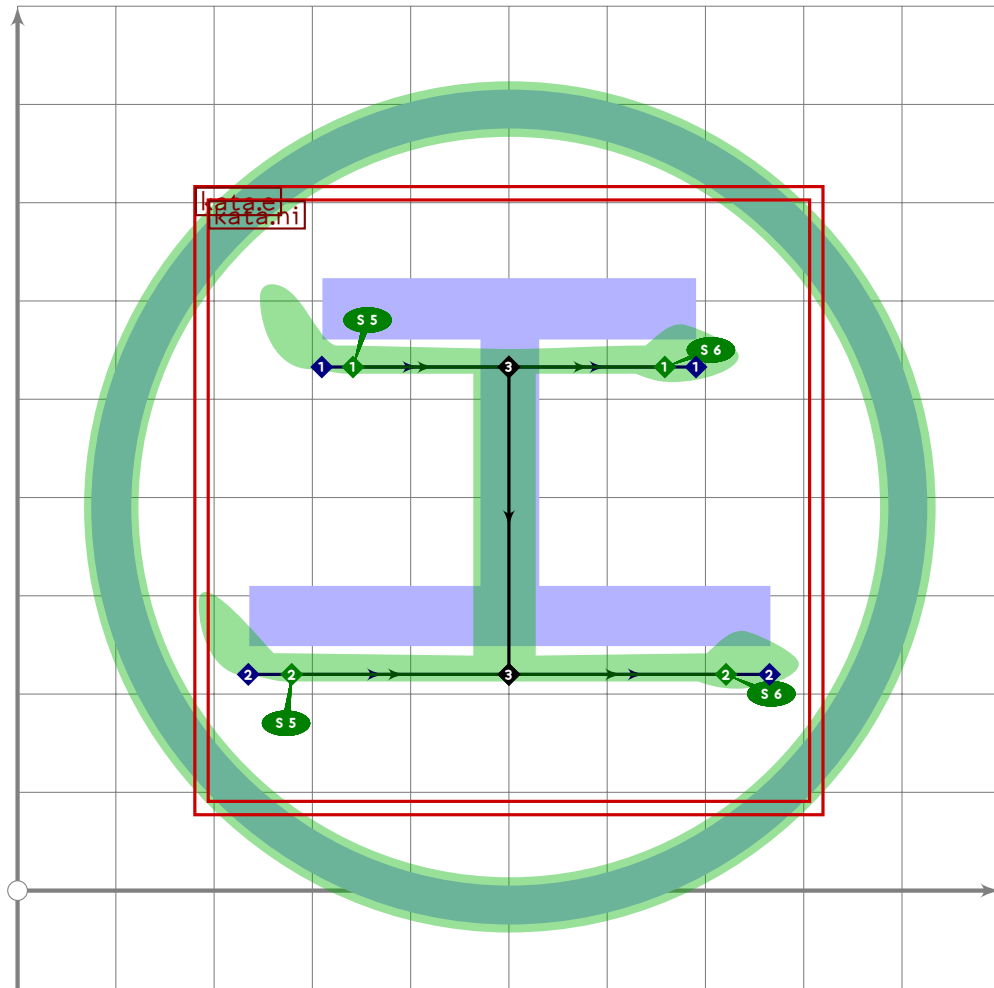
```



```

336 % circled "u"
337 begint Suglyph("uni32D2",210);
338 circle.single;
339 tsu_xform(tsu_xf.circled)(kata.u);
340 tsu_render_in_circle(tsu_xf.cbound);
341 endtsuglyph;
342

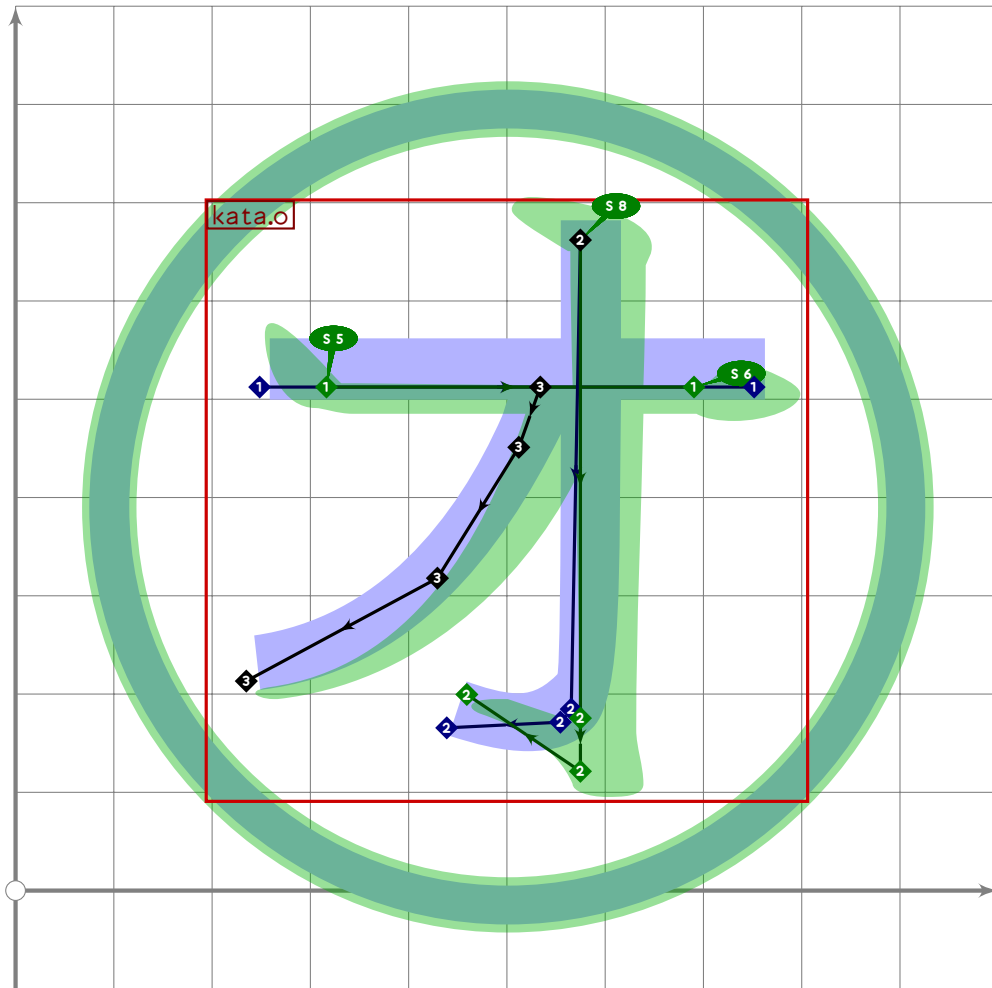
```



```

343 % circled "e"
344 begintsuglyph("uni32D3";211);
345 circle.single;
346 tsu_xform(tsu_xf.circled)(kata.e);
347 tsu_render_in_circle(tsu_xf.cbound);
348 endsuglyph;
349

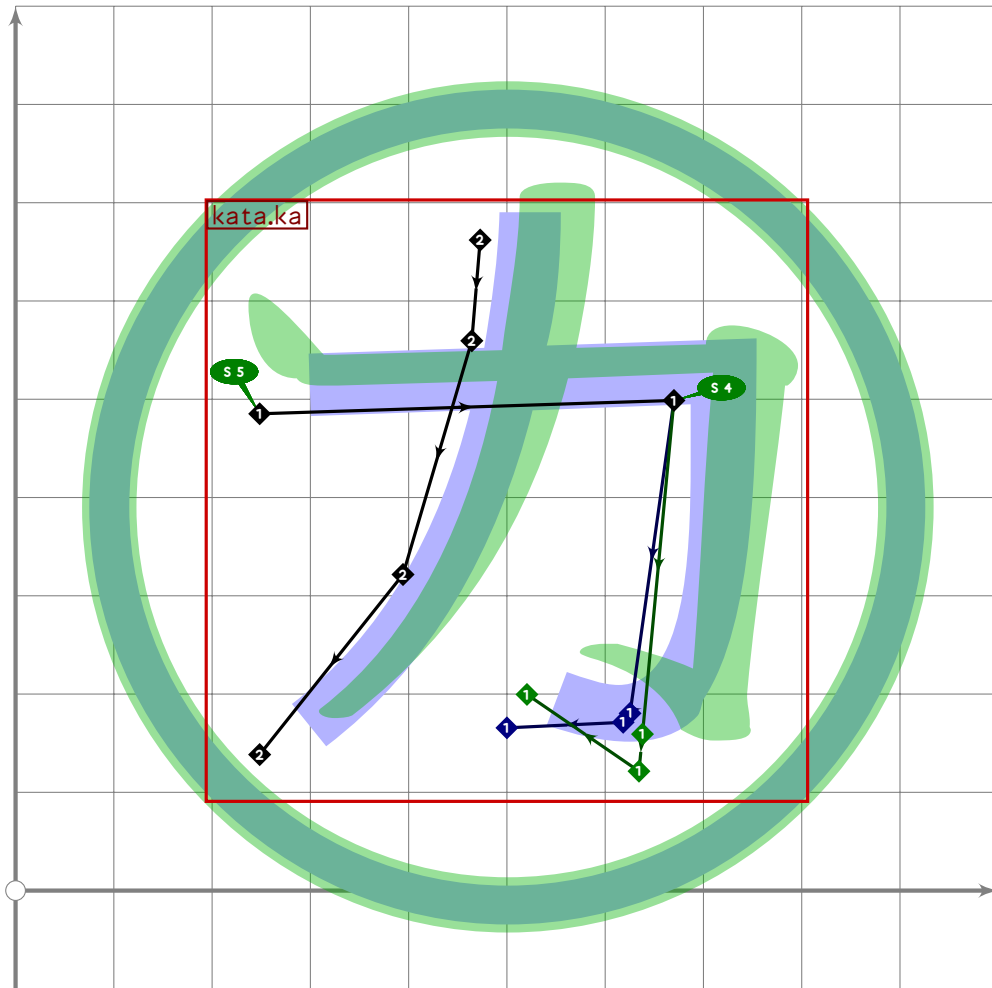
```



```

350 % circled "o"
351 beginsuglyph("uni32D4",212);
352 circle.single;
353 tsu_xform(tsu_xf.circled)(kata.o);
354 tsu_render_in_circle(tsu_xf.cbound);
355 endsuglyph;
356

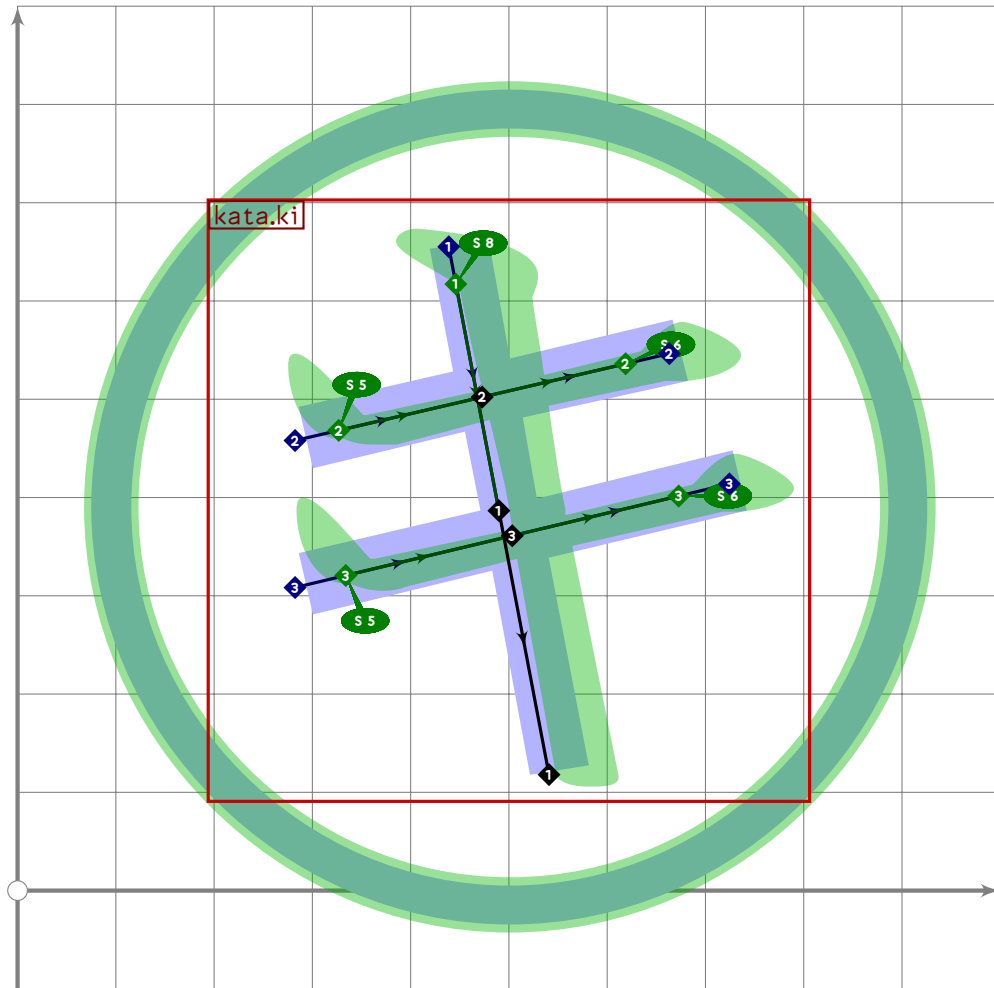
```



```

357 % circled "ka"
358 begintsuglyph("uni32D5";213);
359 circle.single;
360 tsu_xform(tsu_xf.circled)(kata.ka);
361 tsu_render_in_circle(tsu_xf.cbound);
362 endsuglyph;
363

```

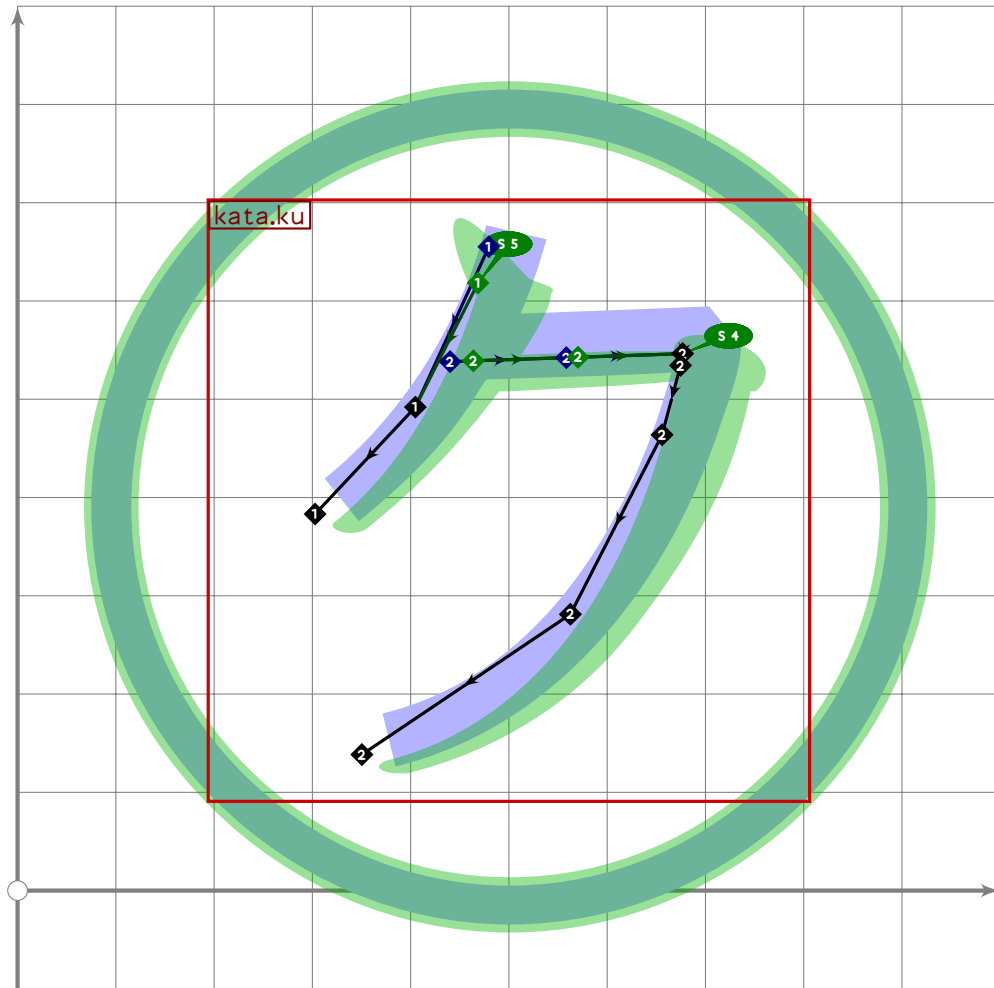


```

364 % circled "ki"
365 begintsuglyph("uni32D6",214);
366 circle.single;
367 tsu_xform(tsu_xf.circled)(kata.ki);
368 tsu_render_in_circle(tsu_xf.cbound);
369 endsuglyph;
370

```

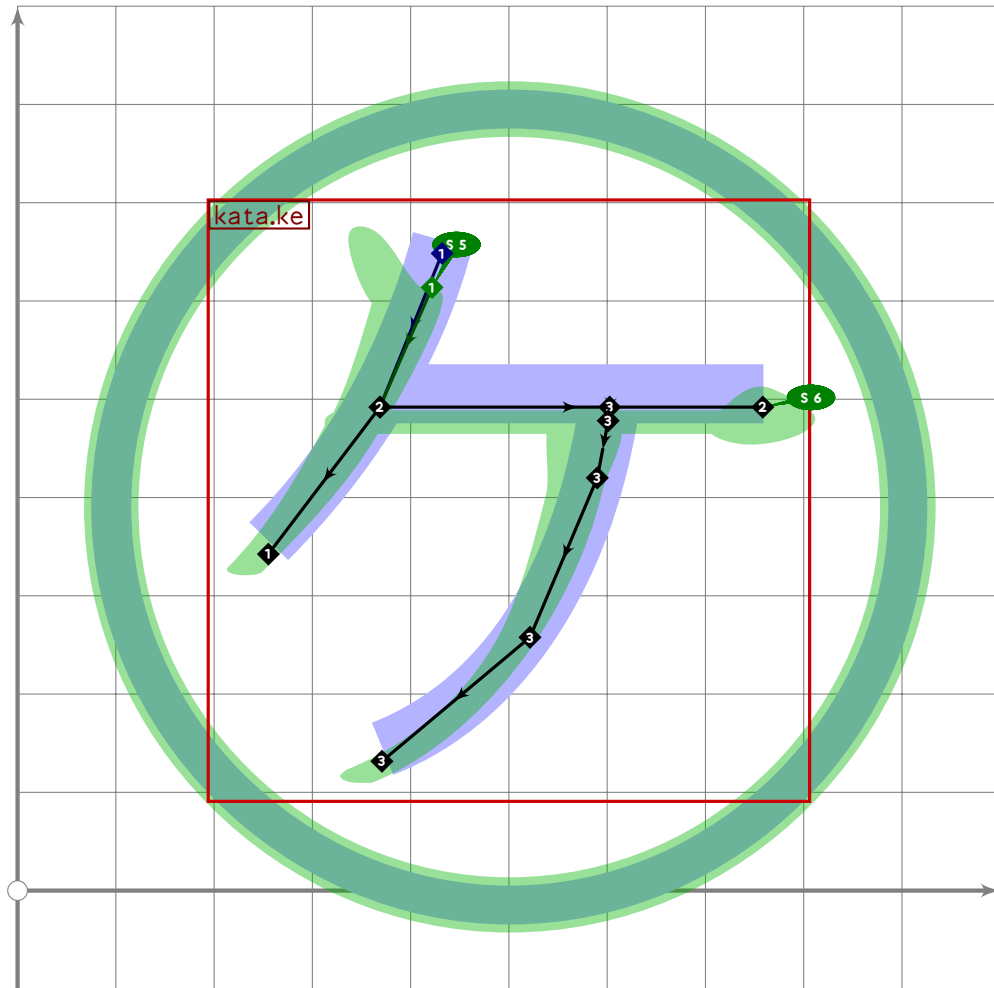




```

371 % circled "ku"
372 begint Suglyph("uni32D7";215);
373 circle.single;
374 tsu_xform(tsu_xf.circled)(kata.ku);
375 tsu_render_in_circle(tsu_xf.cbound);
376 endtsuglyph;
377

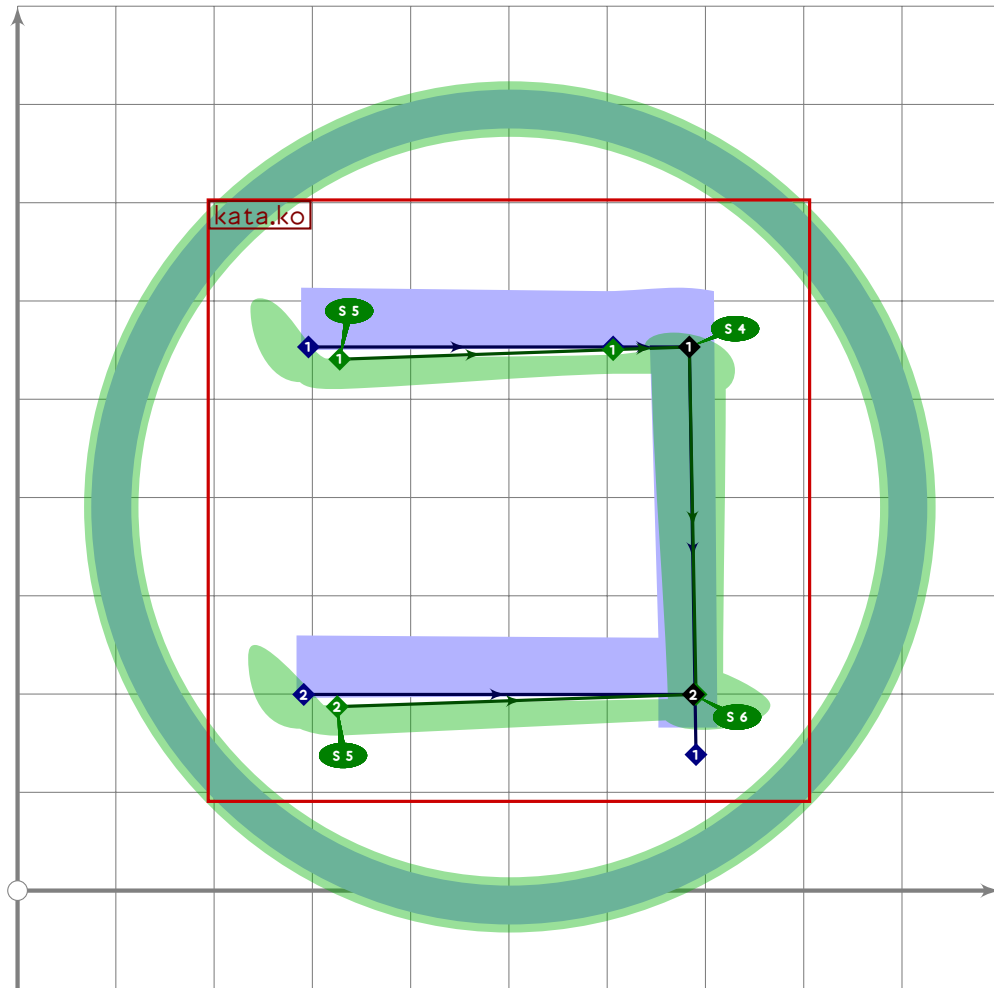
```



```

378 % circled "ke"
379 begintsuglyph("uni32D8",216);
380 circle.single;
381 tsu_xform(tsu_xf.circled)(kata.ke);
382 tsu_render_in_circle(tsu_xf.cbound);
383 endsuglyph;
384

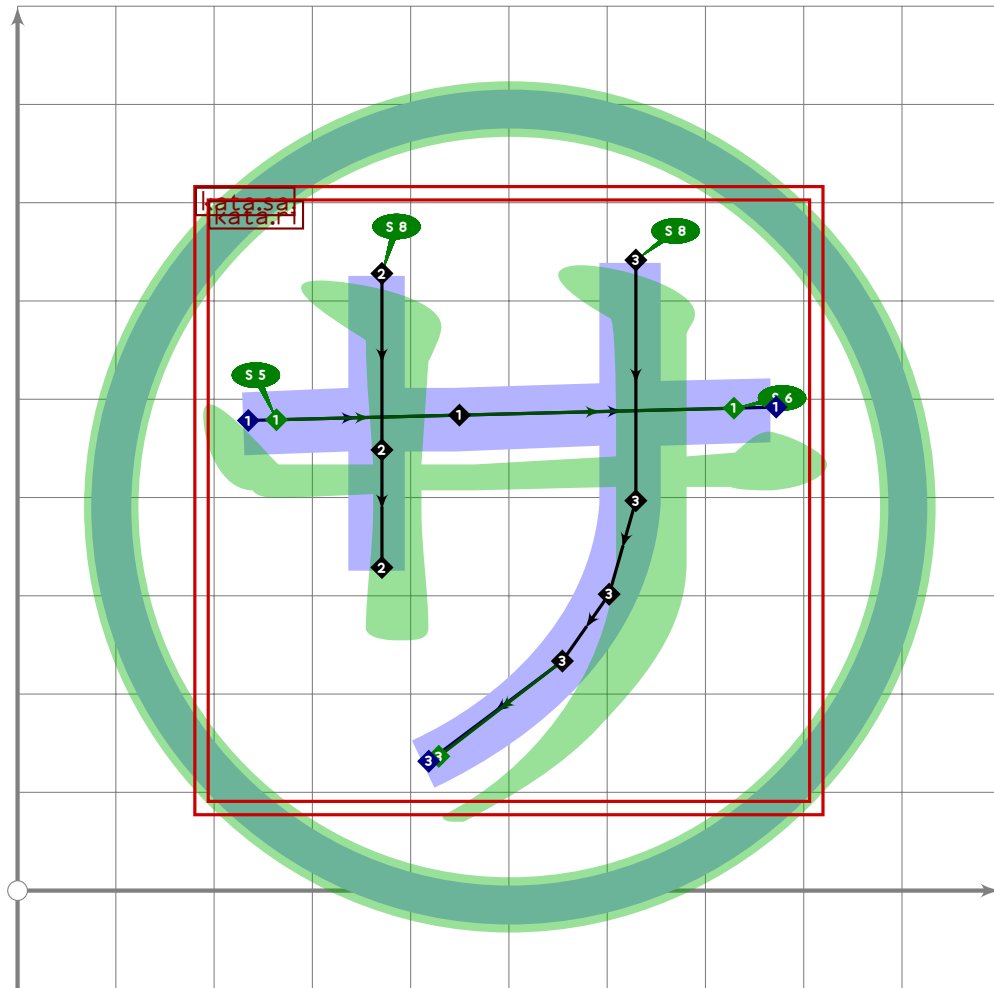
```



```

385 % circled "ko"
386 begintsuglyph("uni32D9",217);
387 circle.single;
388 tsu_xform(tsu_xf.circled)(kata.ko);
389 tsu_render_in_circle(tsu_xf.cbound);
390 endsuglyph;
391

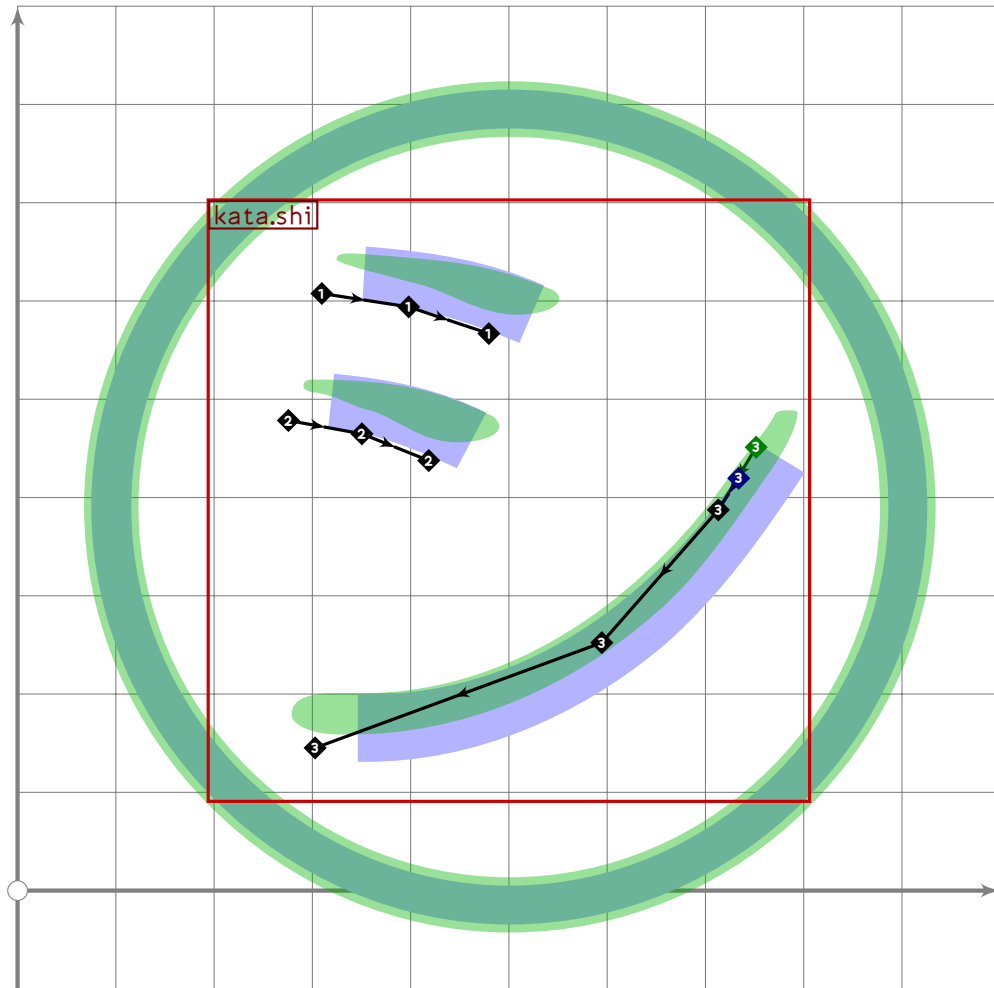
```



```

392 % circled "sa"
393 begint Suglyph("uni32DA",218);
394 circle.single;
395 tsu_xform(tsu_xf.circled)(kata.sa);
396 tsu_render_in_circle(tsu_xf.cbound);
397 endtsuglyph;
398

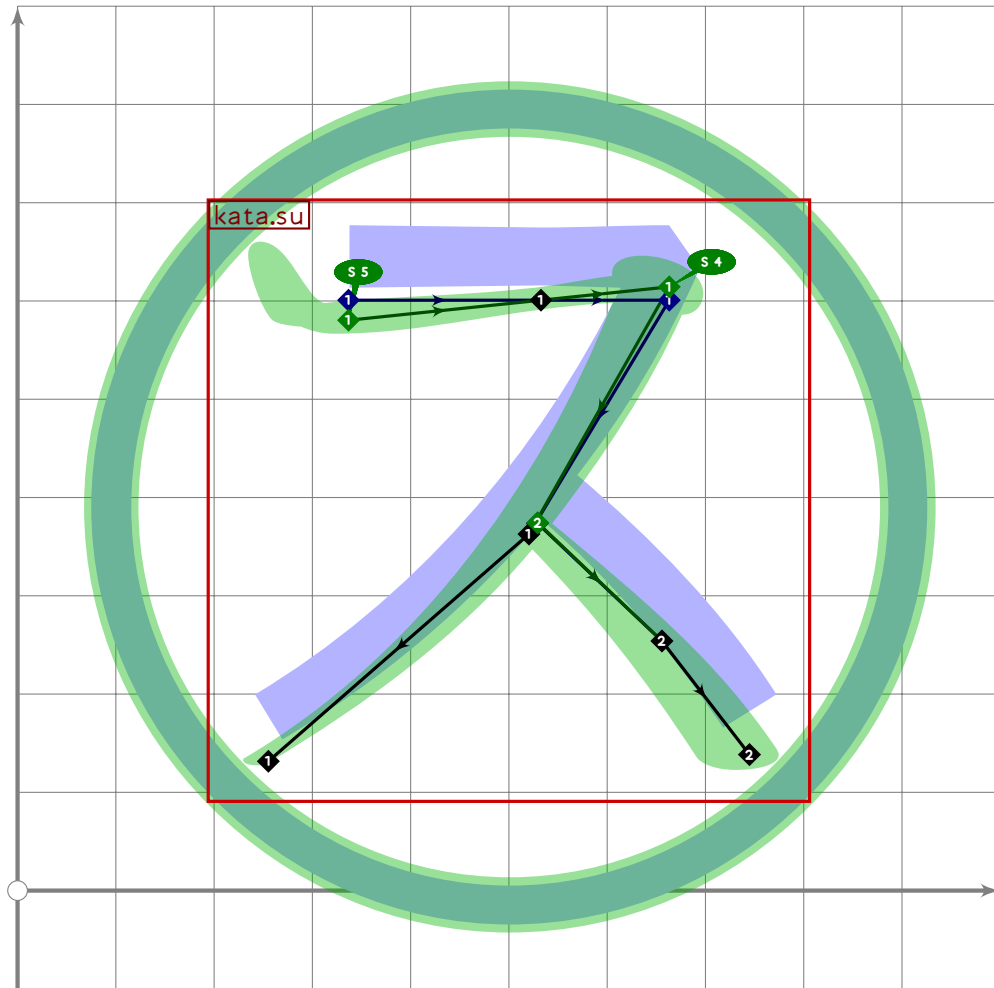
```



```

399 % circled "shi"
400 begintsuglyph("uni32DB",219);
401   circle.single;
402   tsu_xform(tsu_xf.circled)(kata.shi);
403   tsu_render_in_circle(tsu_xf.cbound);
404 endsuglyph;
405

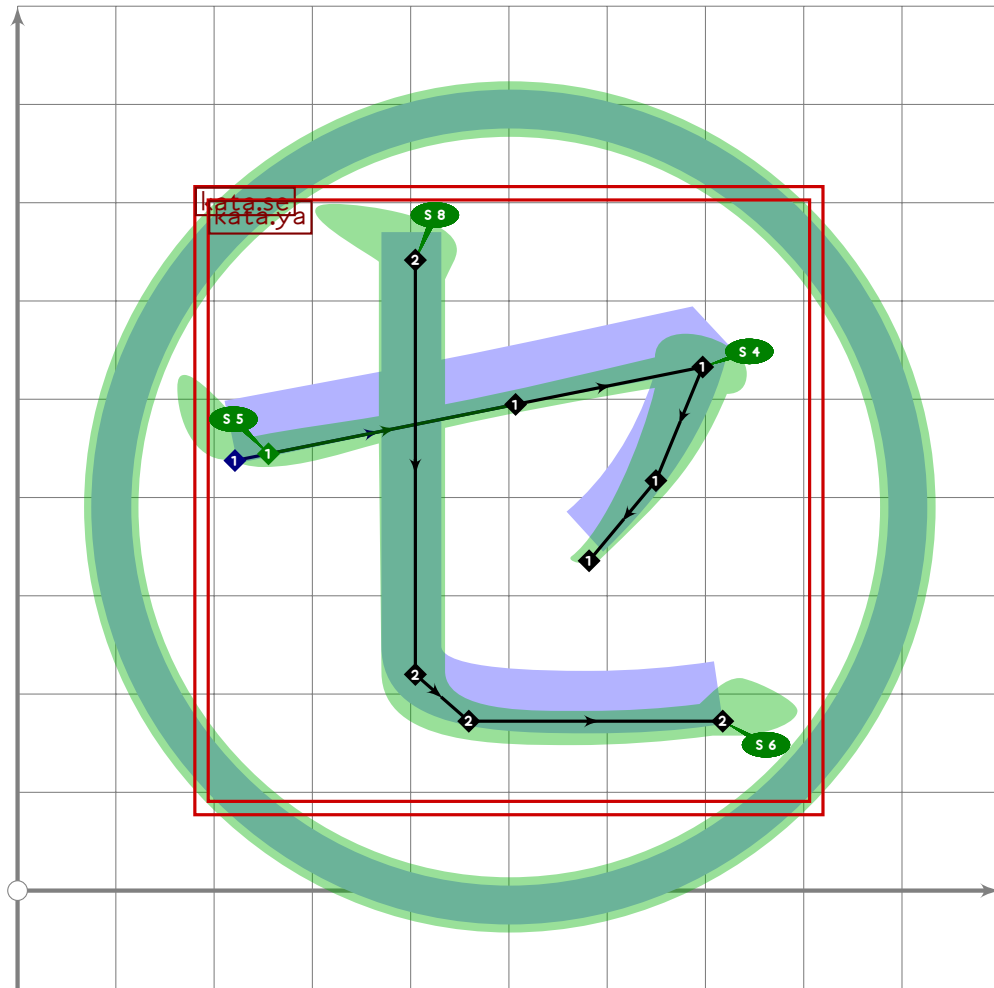
```



```

406 % circled "su"
407 begintsuglyph("uni32DC",220);
408 circle.single;
409 tsu_xform(tsu_xf.circled)(kata.su);
410 tsu_render_in_circle(tsu_xf.cbound);
411 endsuglyph;
412

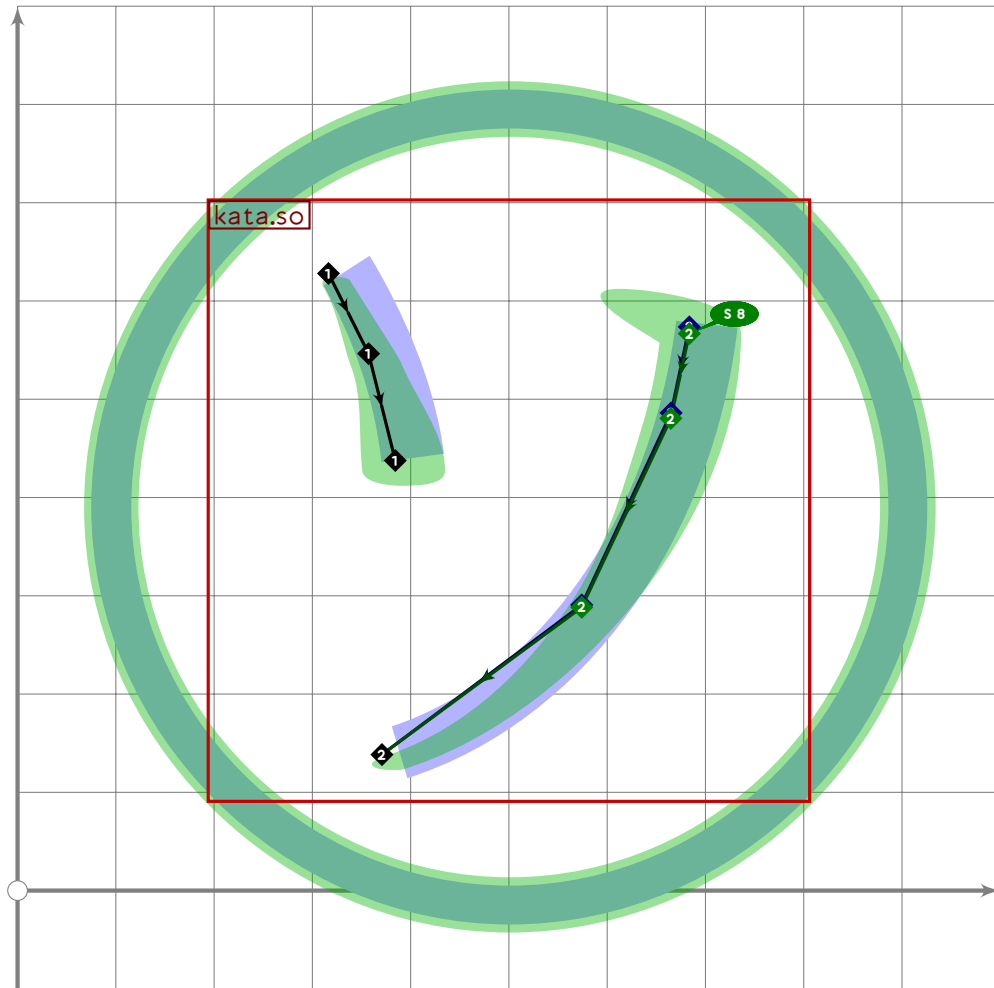
```



```

413 % circled "se"
414 begint Suglyph("uni32DD",221);
415 circle.single;
416 tsu_xform(tsu_xf.circled)(kata.se);
417 tsu_render_in_circle(tsu_xf.cbound);
418 endsuglyph;
419

```

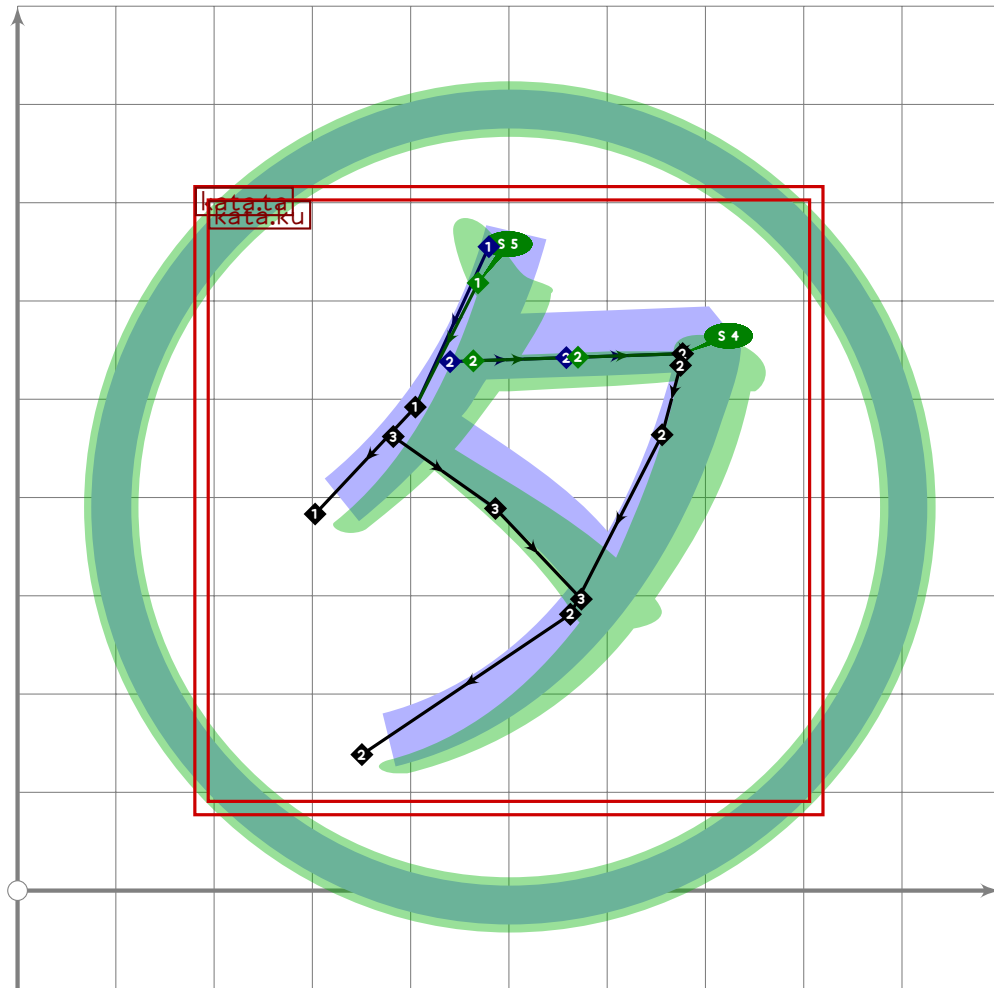


```

420 % circled "so"
421 begintsuglyph("uni32DE",222);
422 circle.single;
423 tsu_xform(tsu_xf.circled)(kata.so);
424 tsu_render_in_circle(tsu_xf.cbound);
425 endsuglyph;
426

```

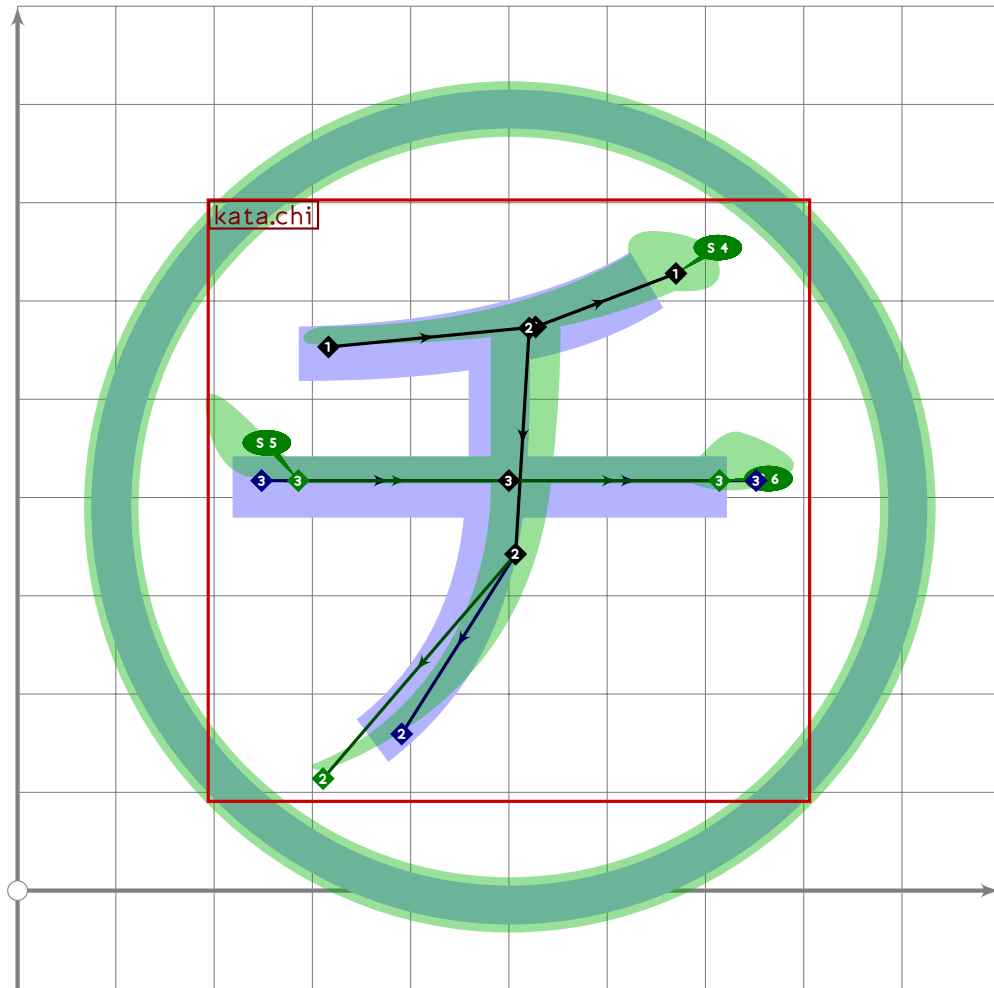




```

427 % circled "ta"
428 begintsuglyph("uni32DF",223);
429 circle.single;
430 tsu_xform(tsu_xf.circled)(kata.ta);
431 tsu_render_in_circle(tsu_xf.cbound);
432 endsuglyph;
433

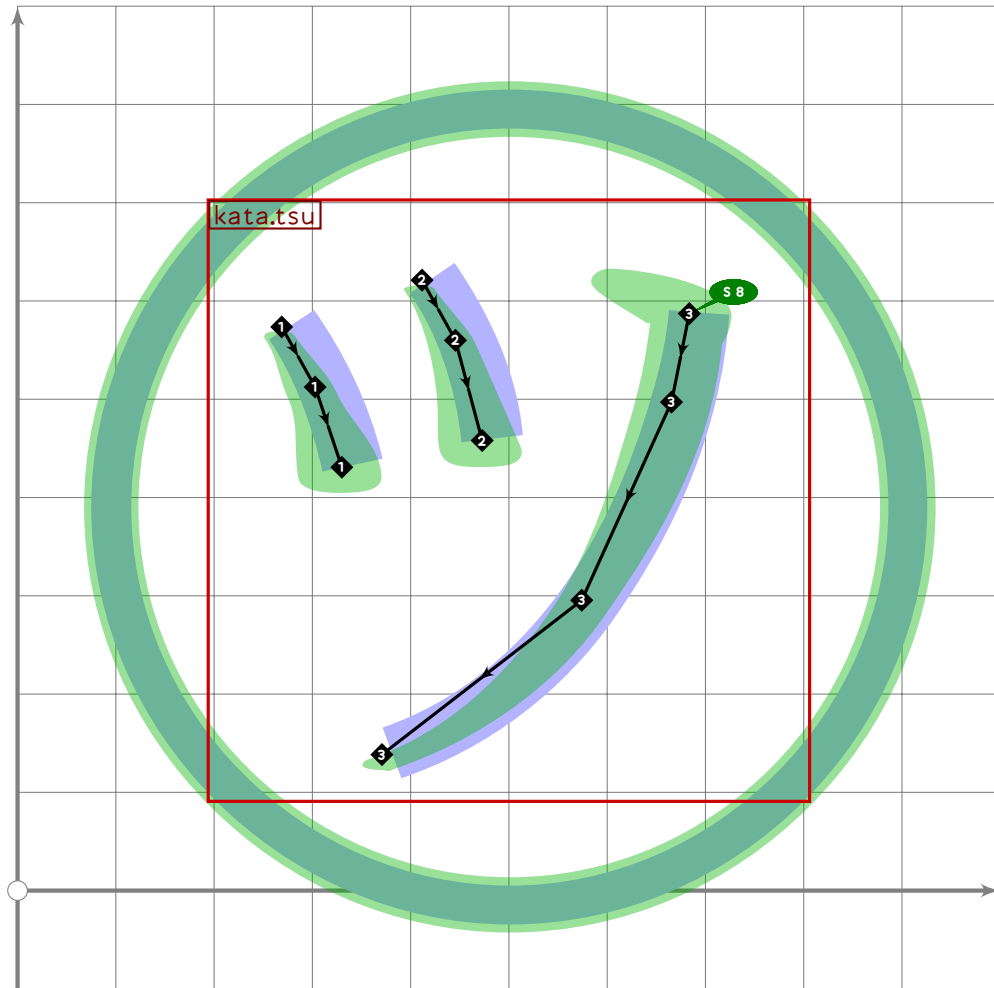
```



```

434 % circled "chi"
435 begintsuglyph("uni32E0";224);
436 circle.single;
437 tsu_xform(tsu_xf.circled)(kata.chi);
438 tsu_render_in_circle(tsu_xf.cbound);
439 endsuglyph;
440

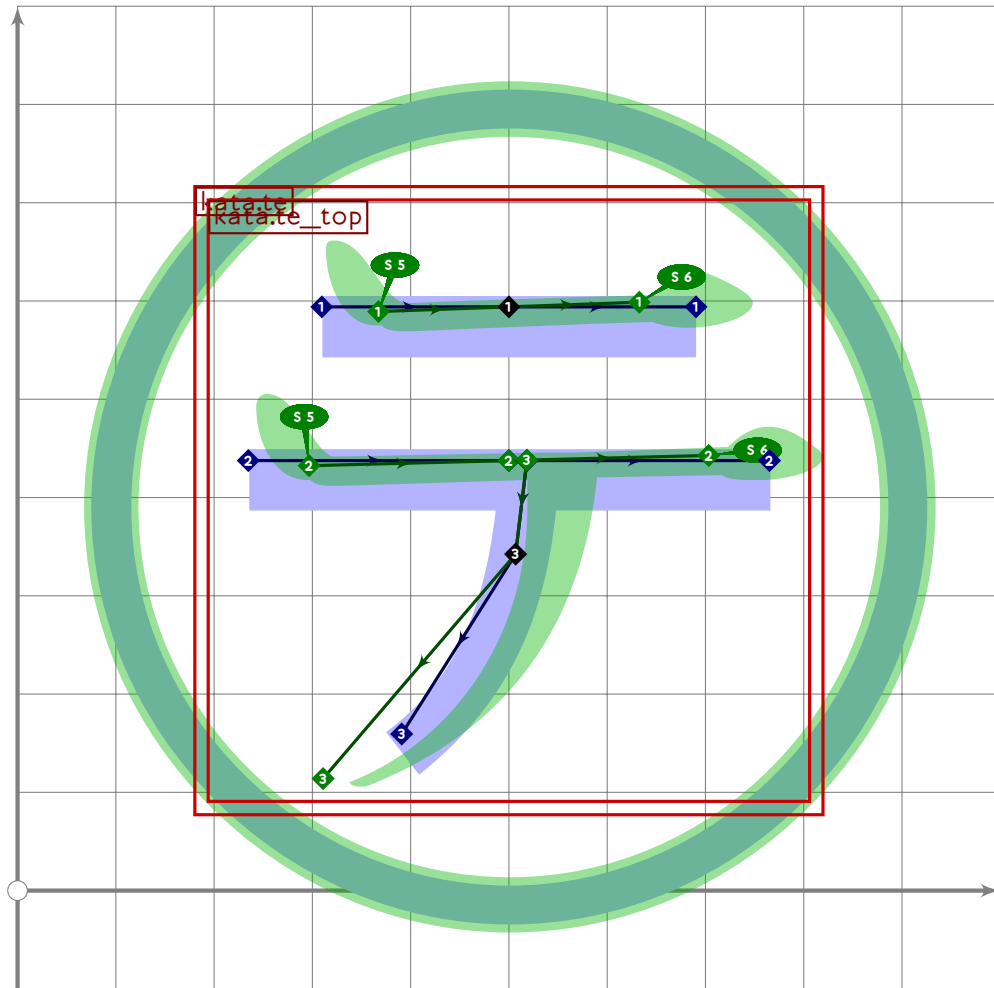
```



```

441 % circled "tsu"
442 begintsuglyph("uni32E1",225);
443 circle.single;
444 tsu_xform(tsu_xf.circled)(kata.tsu);
445 tsu_render_in_circle(tsu_xf.cbound);
446 endsuglyph;
447

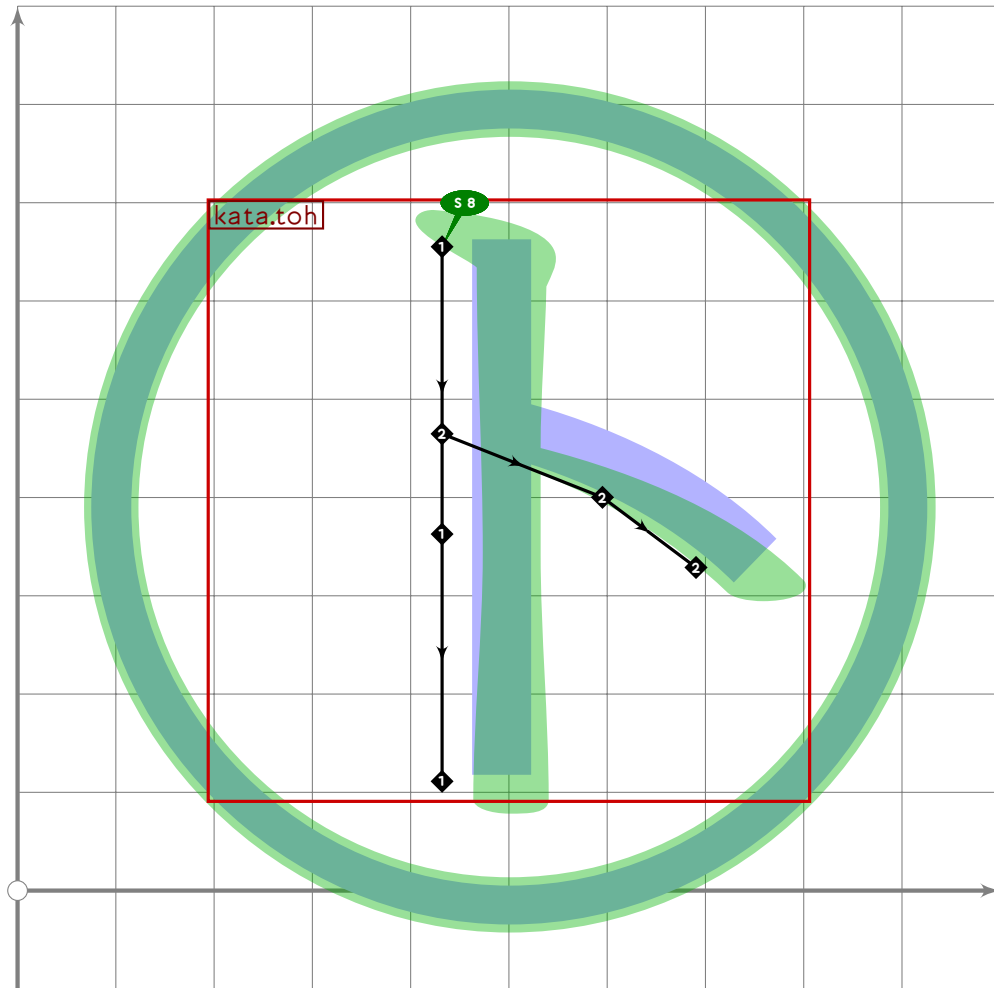
```



```

448 % circled "te"
449 begint Suglyph("uni32E2";226);
450 circle.single;
451 tsu_xform(tsu_xf.circled)(kata.te);
452 tsu_render_in_circle(tsu_xf.cbound);
453 endtsuglyph;
454

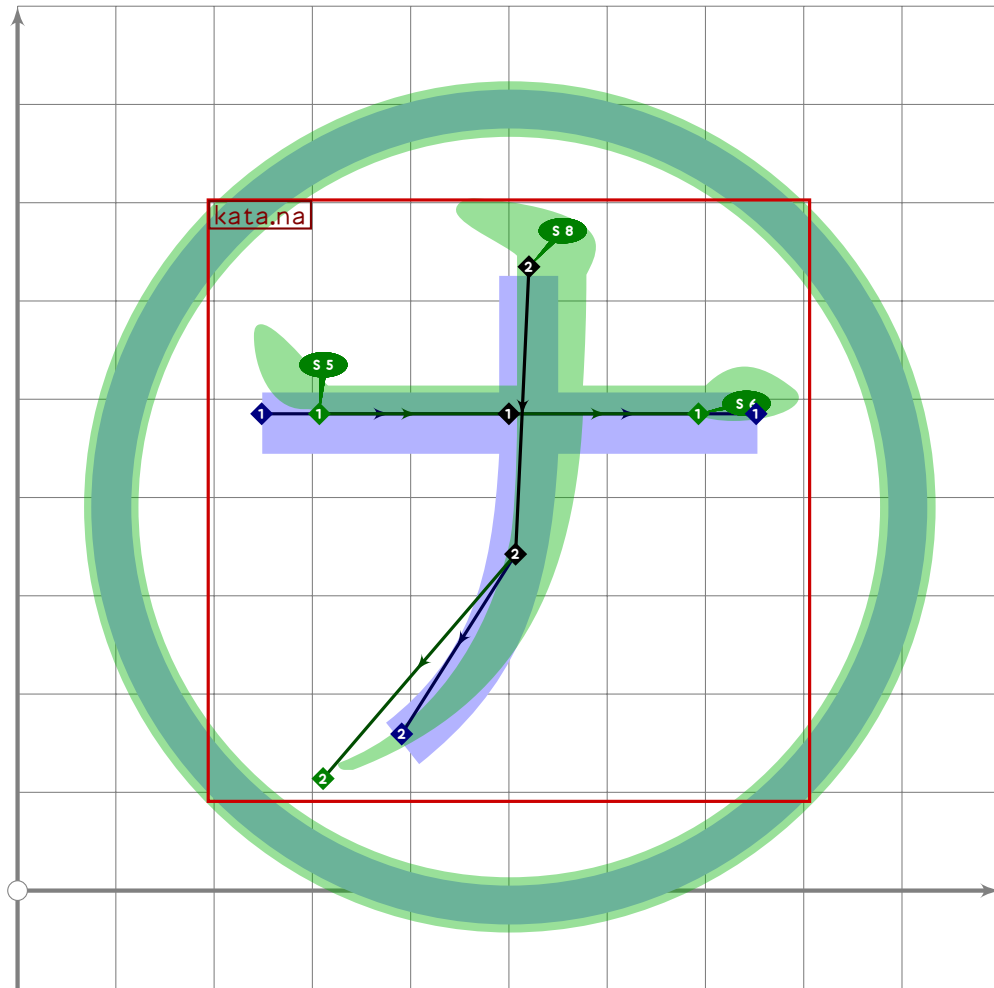
```



```

455 % circled "to"
456 begintsuglyph("uni32E3";227);
457 circle.single;
458 tsu_xform(tsu_xf.circled)(kata.toh);
459 tsu_render_in_circle(tsu_xf.cbound);
460 endsuglyph;
461

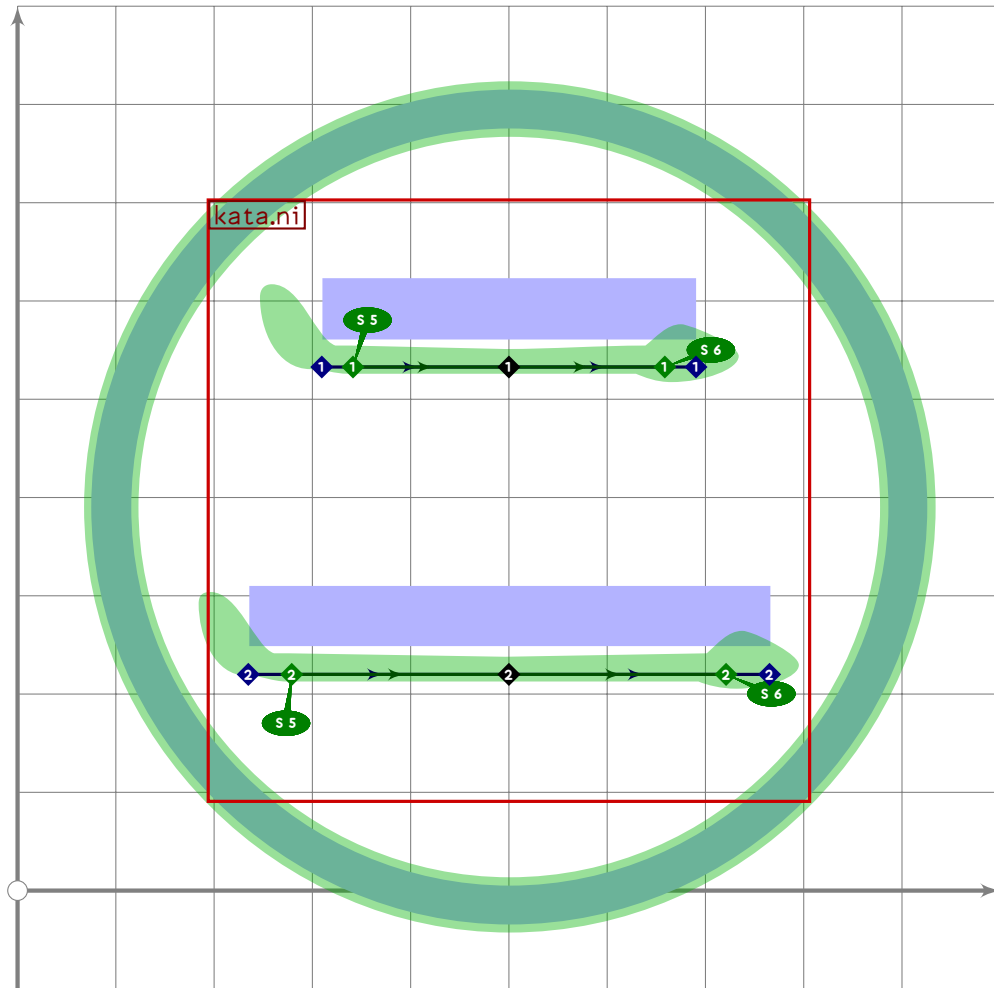
```



```

462 % circled "na"
463 begintsuglyph("uni32E4",228);
464 circle.single;
465 tsu_xform(tsu_xf.circled)(kata.na);
466 tsu_render_in_circle(tsu_xf.cbound);
467 endtsuglyph;
468

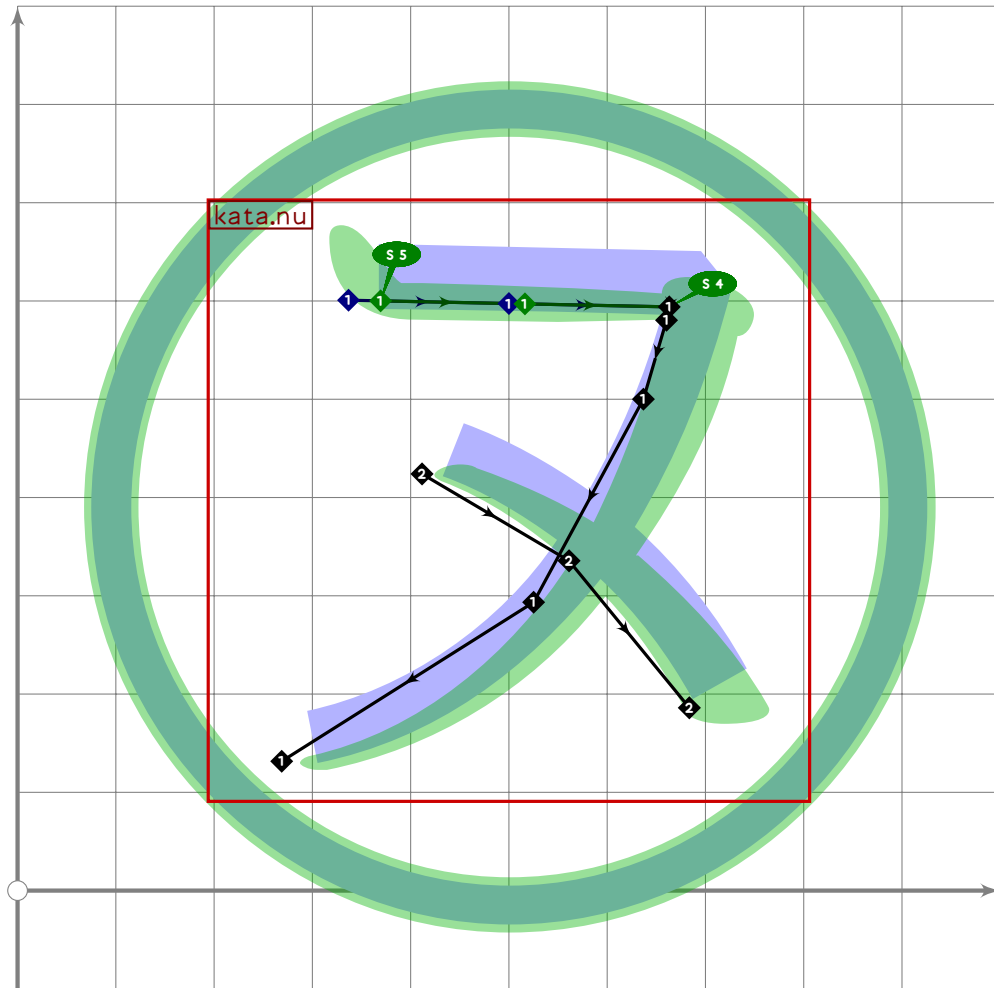
```



```

469 % circled "ni"
470 begintsuglyph("uni32E5",229);
471 circle.single;
472 tsu_xform(tsu_xf.circled)(kata.ni);
473 tsu_render_in_circle(tsu_xf.cbound);
474 endsuglyph;
475

```

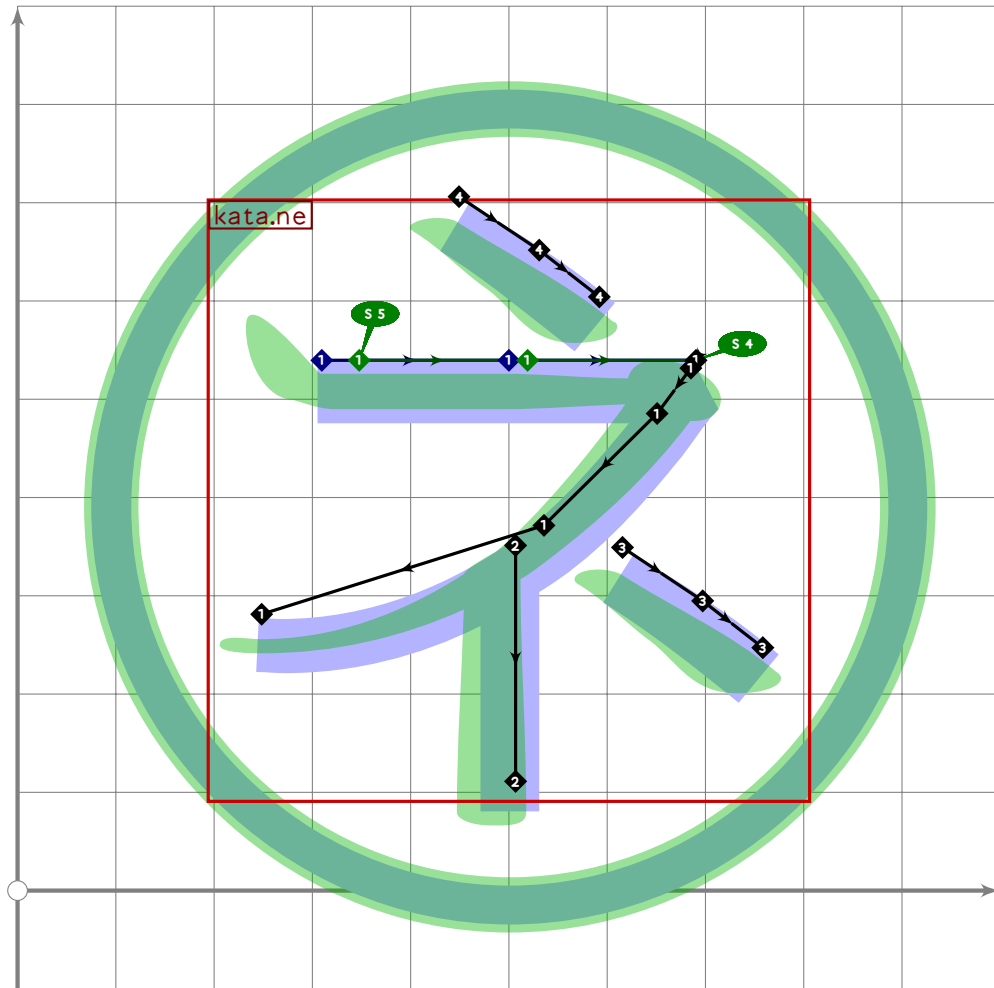


```

476 % circled "nu"
477 begintsuglyph("uni32E6",230);
478 circle.single;
479 tsu_xform(tsu_xf.circled)(kata.nu);
480 tsu_render_in_circle(tsu_xf.cbound);
481 endsuglyph;
482

```

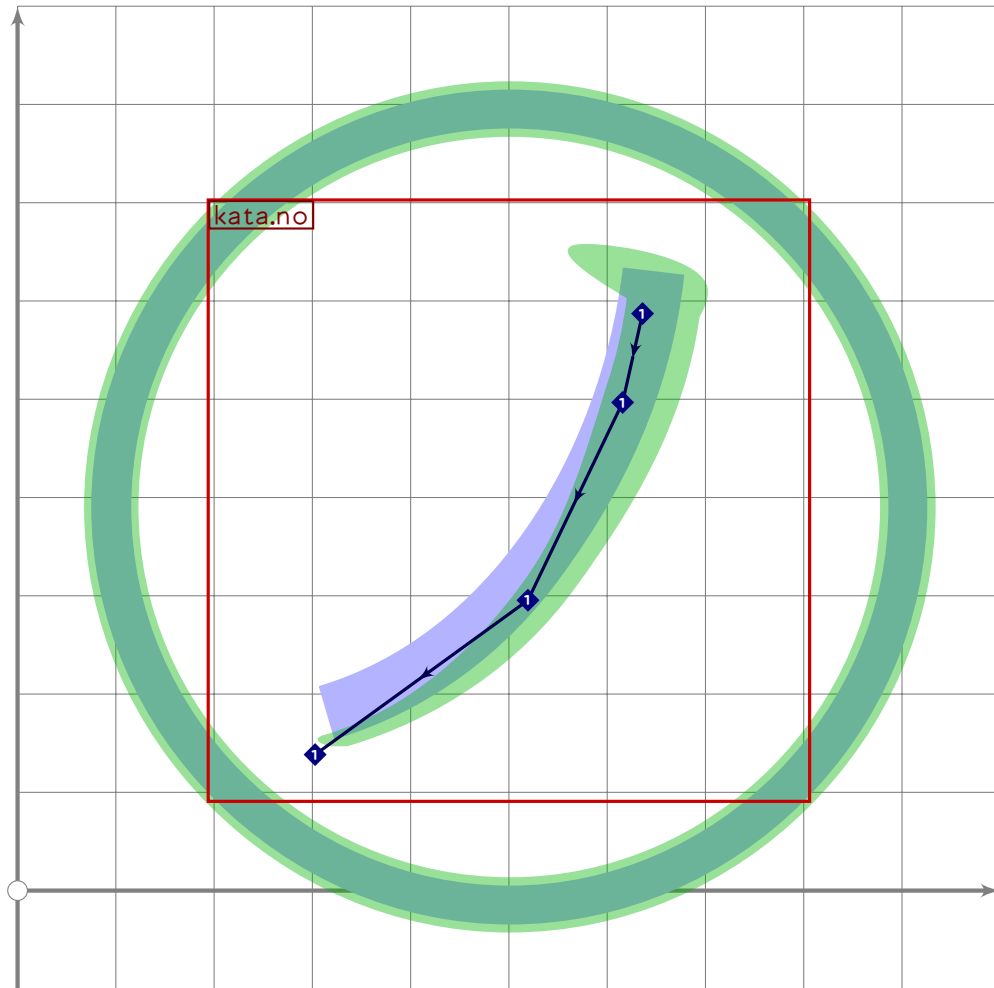




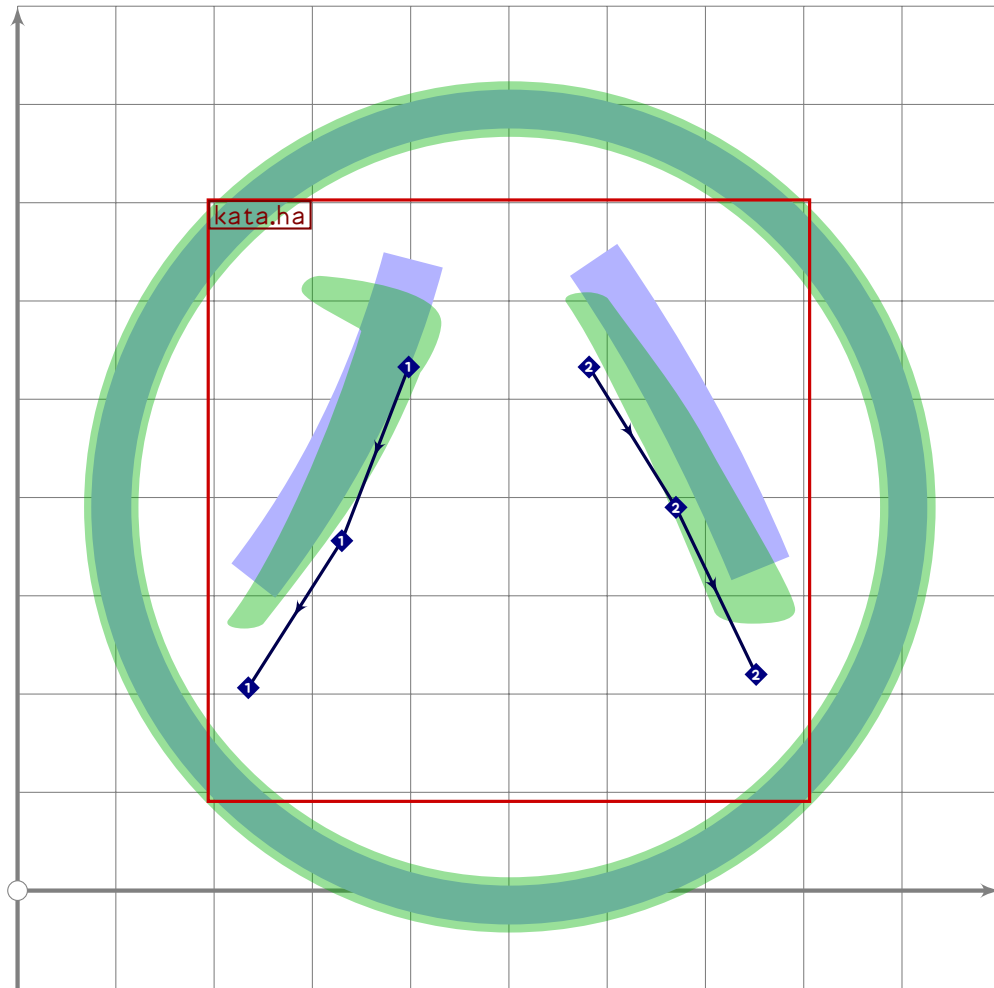
```

483 % circled "ne"
484 begintsuglyph("uni32E7";231);
485 circle.single;
486 tsu_xform(tsu_xf.circled)(kata.ne);
487 tsu_render_in_circle(tsu_xf.cbound);
488 endsuglyph;
489

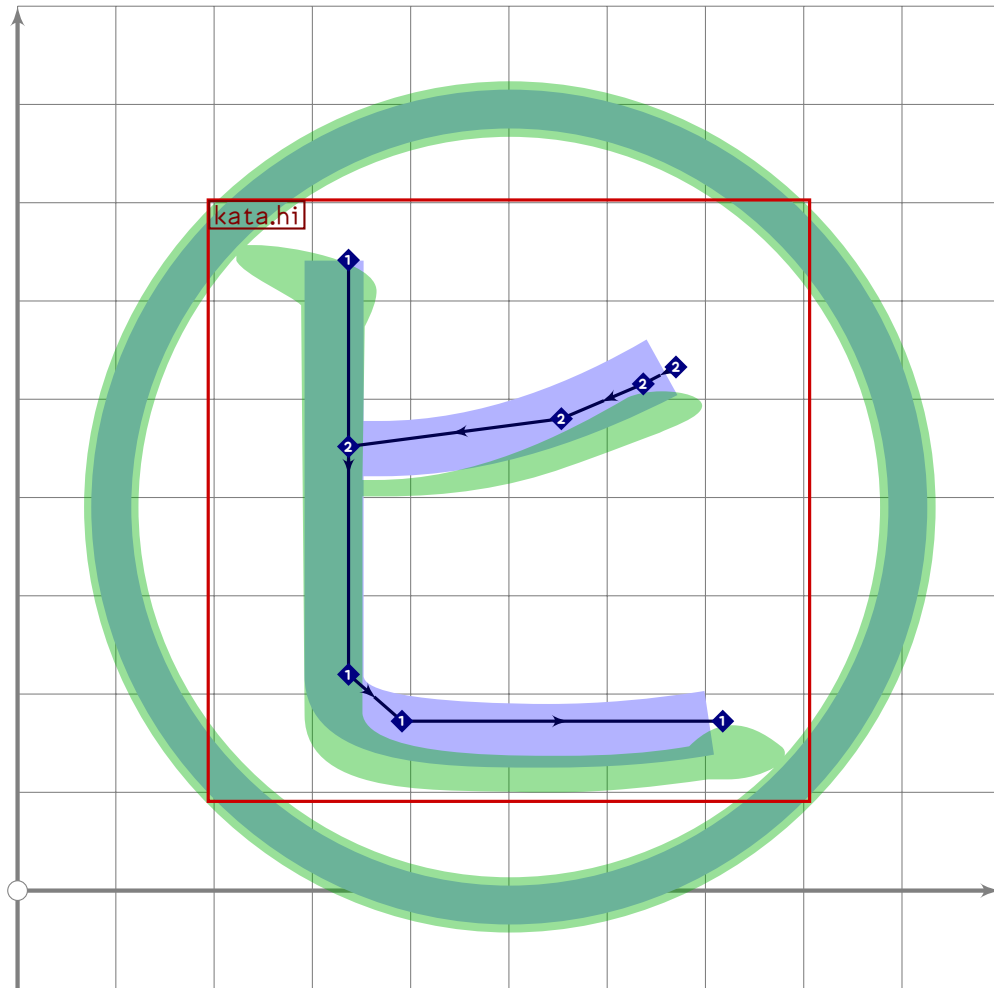
```



```
490 % circled "no"  
491 begintsuglyph("uni32E8";232);  
492 circle.single;  
493 tsu_xform(tsu_xf.circled)(kata.no);  
494 tsu_render_in_circle(tsu_xf.cbound);  
495 endsuglyph;  
496
```



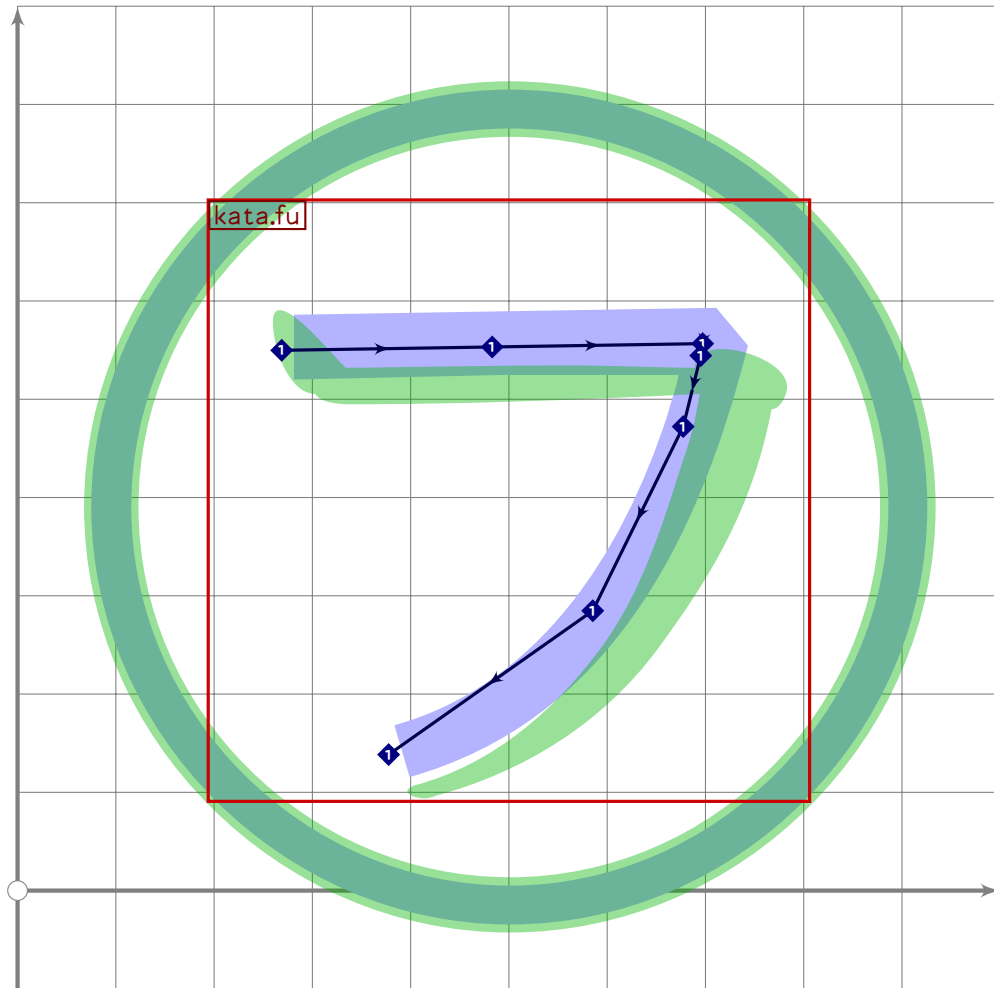
```
497 % circled "ha"  
498 begintsuglyph("uni32E9";233);  
499 circle.single;  
500 tsu_xform(tsu_xf.circled)(kata.ha);  
501 tsu_render_in_circle(tsu_xf.cbound);  
502 endtsuglyph;  
503
```



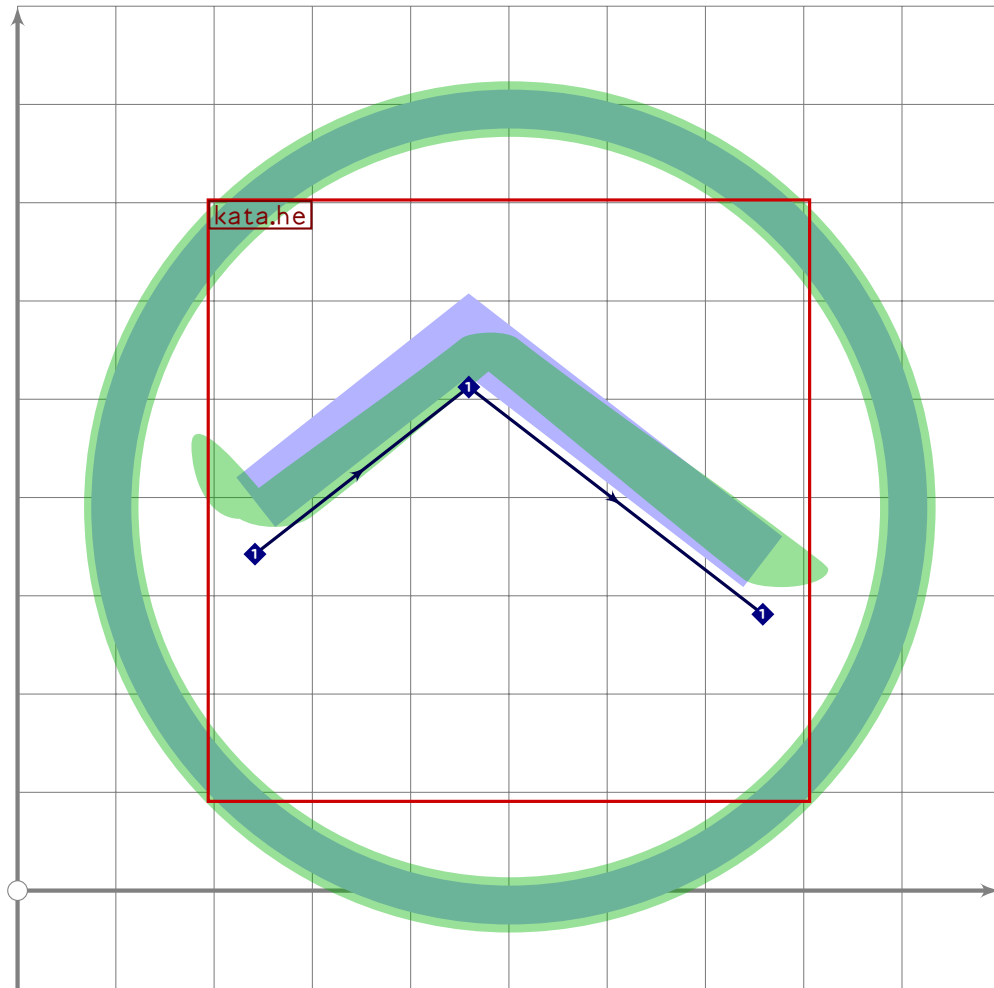
```

504 % circled "hi"
505 begintsuglyph("uni32EA";234);
506 circle.single;
507 tsu_xform(tsu_xf.circled)(kata.hi);
508 tsu_render_in_circle(tsu_xf.cbound);
509 endsuglyph;
510

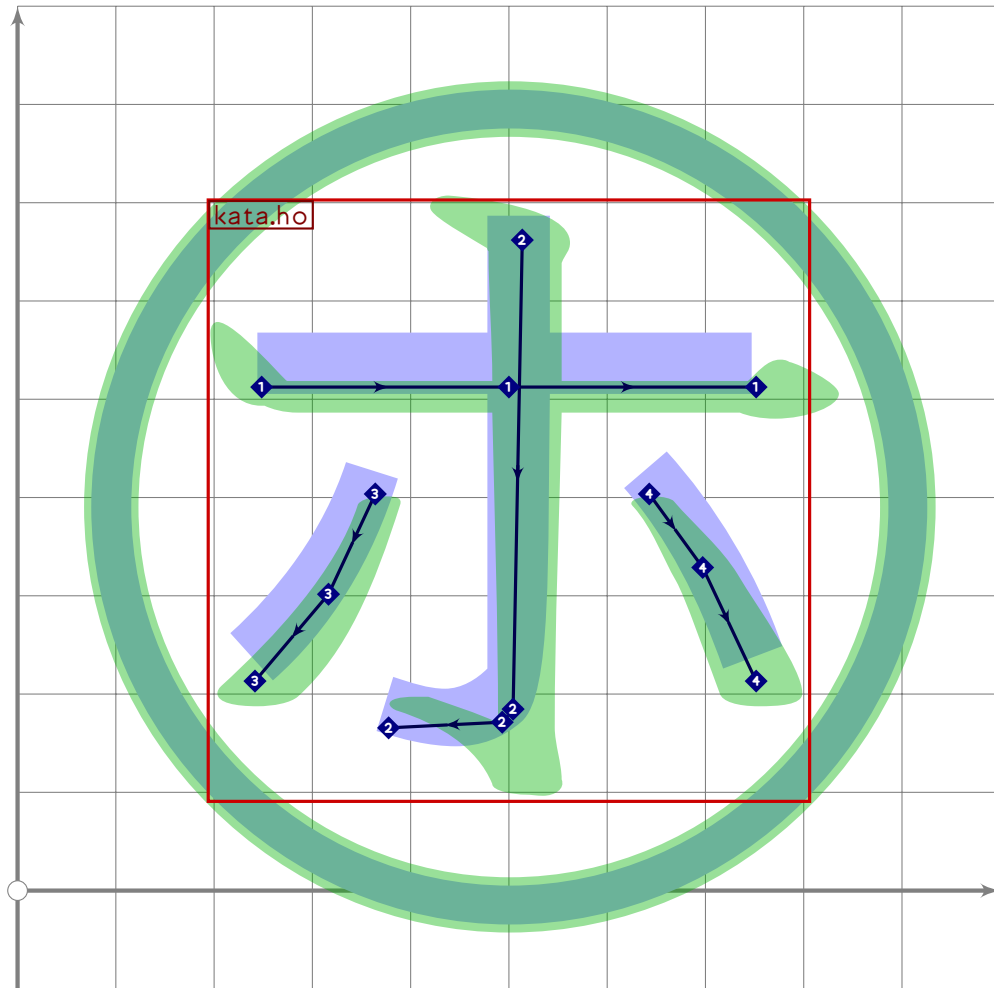
```



```
511 % circled "fu"  
512 begintsuglyph("uni32EB",235);  
513 circle.single;  
514 tsu_xform(tsu_xf.circled)(kata.fu);  
515 tsu_render_in_circle(tsu_xf.cbound);  
516 endsuglyph;  
517
```



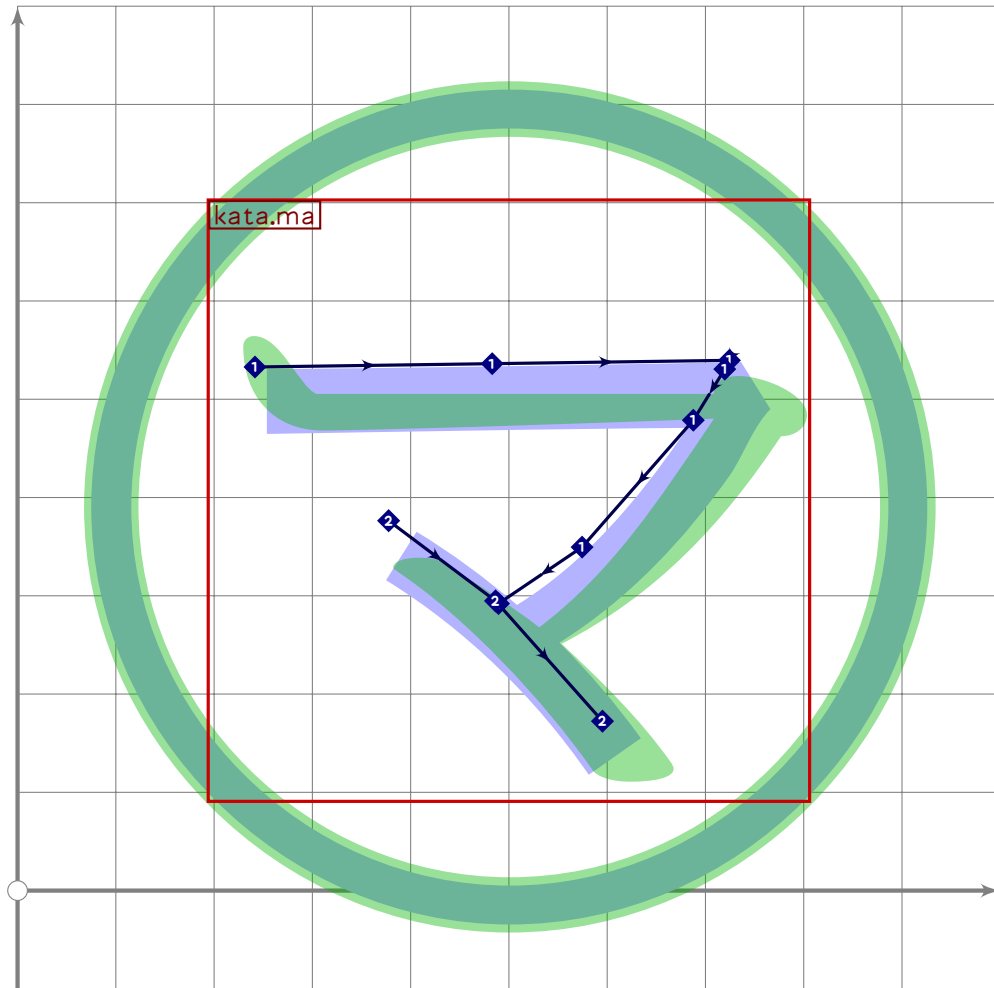
```
518 % circled "he"  
519 begintsuglyph("uni32EC",236);  
520 circle.single;  
521 tsu_xform(tsu_xf.circled)(kata.he);  
522 tsu_render_in_circle(tsu_xf.cbound);  
523 endtsuglyph;  
524
```



```

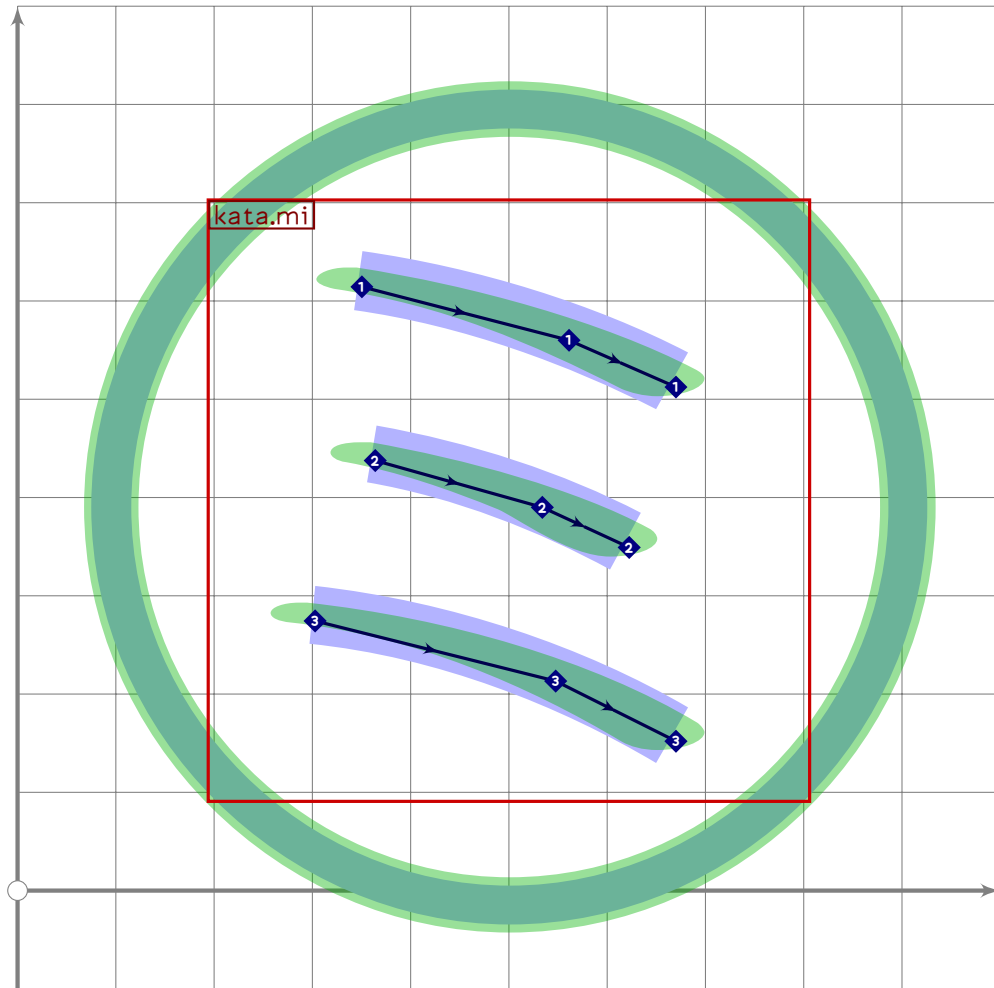
525 % circled "ho"
526 begintsuglyph("uni32ED",237);
527 circle.single;
528 tsu_xform(tsu_xf.circled)(kata.ho);
529 tsu_render_in_circle(tsu_xf.cbound);
530 endsuglyph;
531

```

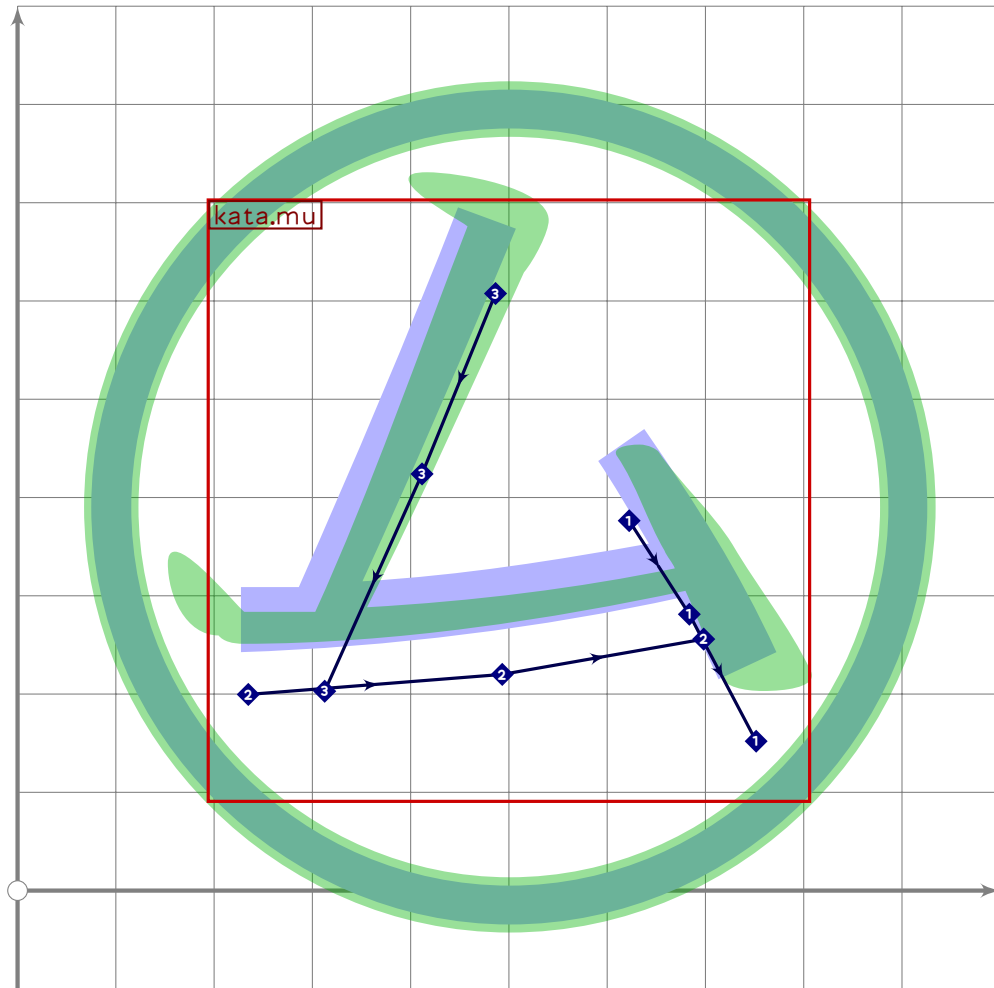


```
532 % circled "ma"  
533 begintsuglyph("uni32EE";238);  
534 circle.single;  
535 tsu_xform(tsu_xf.circled)(kata.ma);  
536 tsu_render_in_circle(tsu_xf.cbound);  
537 endsuglyph;  
538
```

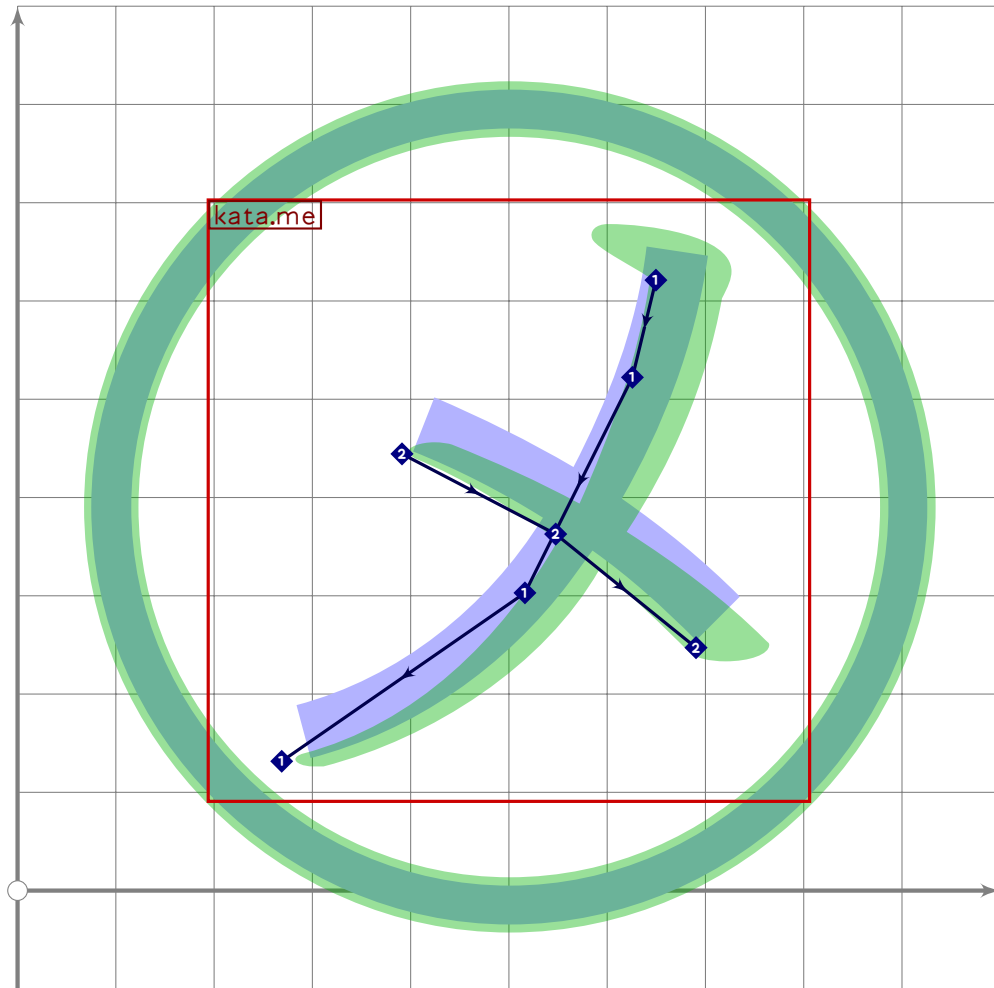




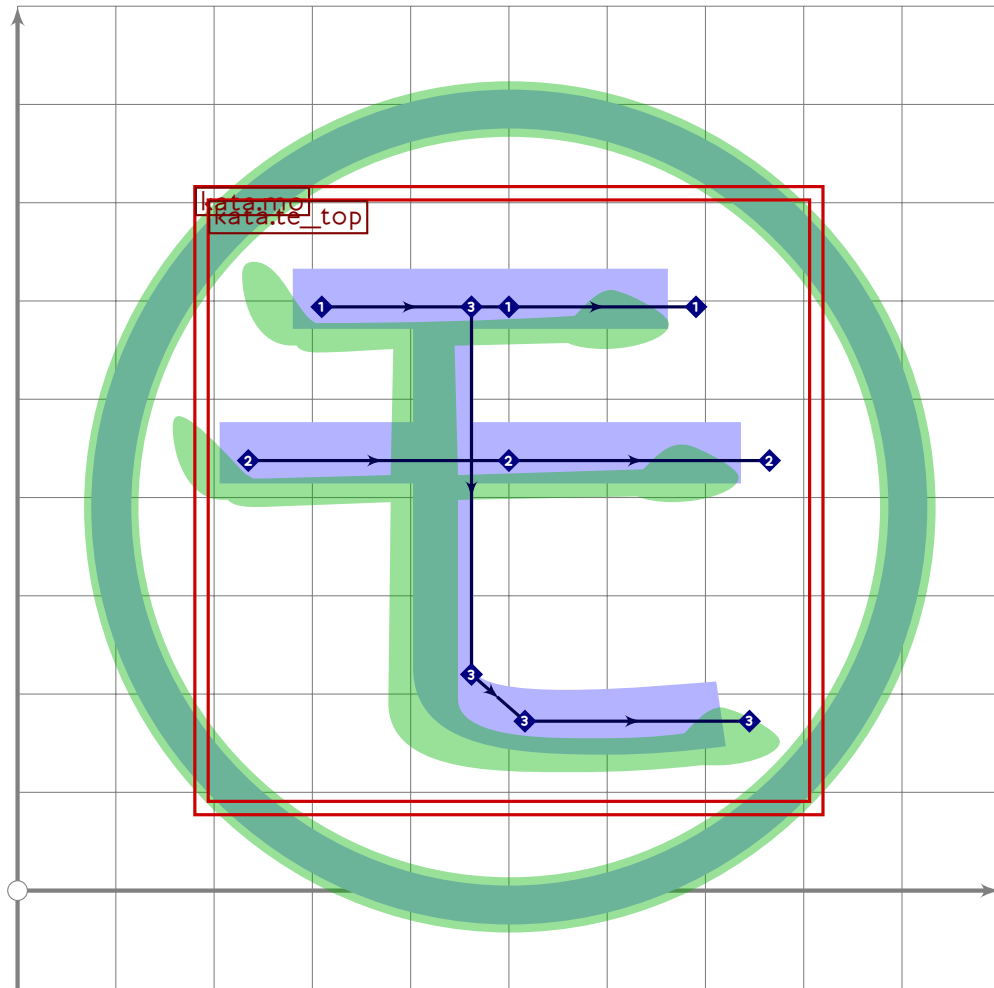
```
539 % circled "mi"  
540 begintsuglyph("uni32EF";239);  
541 circle.single;  
542 tsu_xform(tsu_xf.circled)(kata.mi);  
543 tsu_render_in_circle(tsu_xf.cbound);  
544 endsuglyph;  
545
```



```
546 % circled "mu"  
547 begintsuglyph("uni32F0";240);  
548 circle.single;  
549 tsu_xform(tsu_xf.circled)(kata.mu);  
550 tsu_render_in_circle(tsu_xf.cbound);  
551 endsuglyph;  
552
```



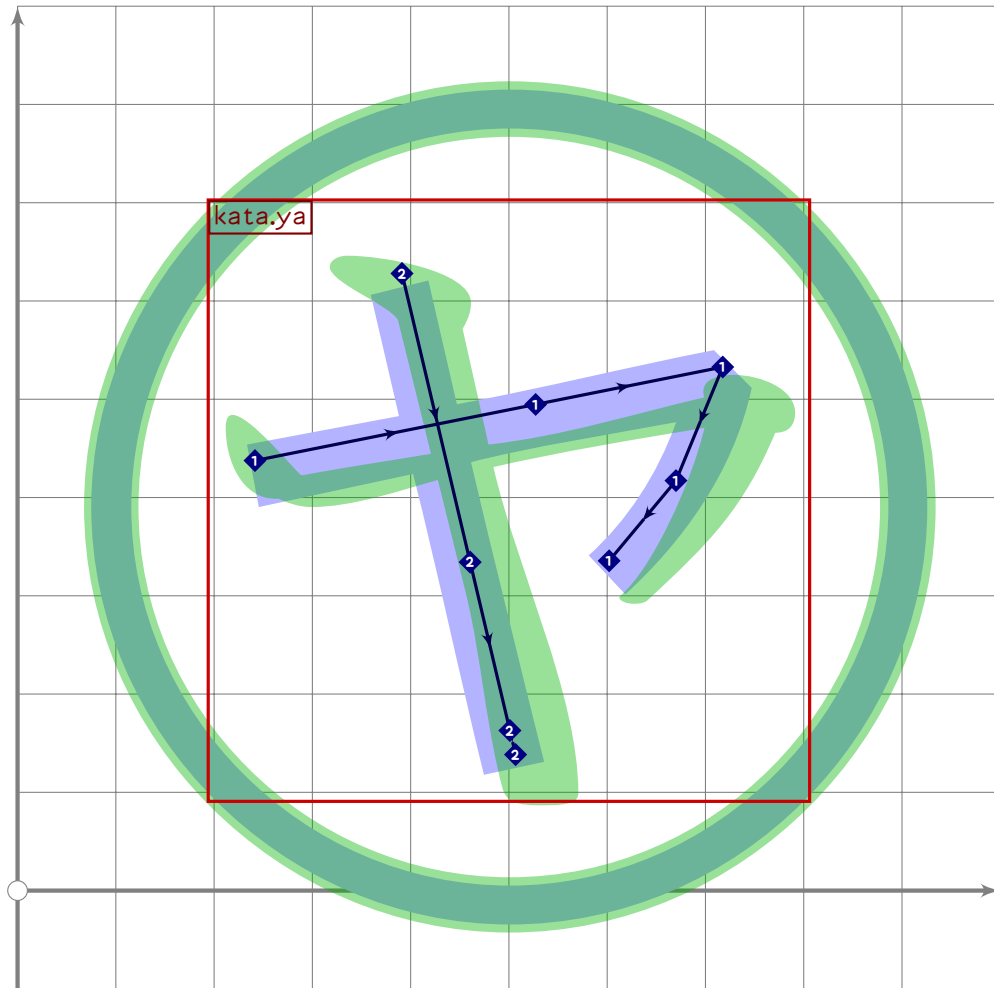
```
553 % circled "me"  
554 begintsuglyph("uni32F1",241);  
555 circle.single;  
556 tsu_xform(tsu_xf.circled)(kata.me);  
557 tsu_render_in_circle(tsu_xf.cbound);  
558 endsuglyph;  
559
```



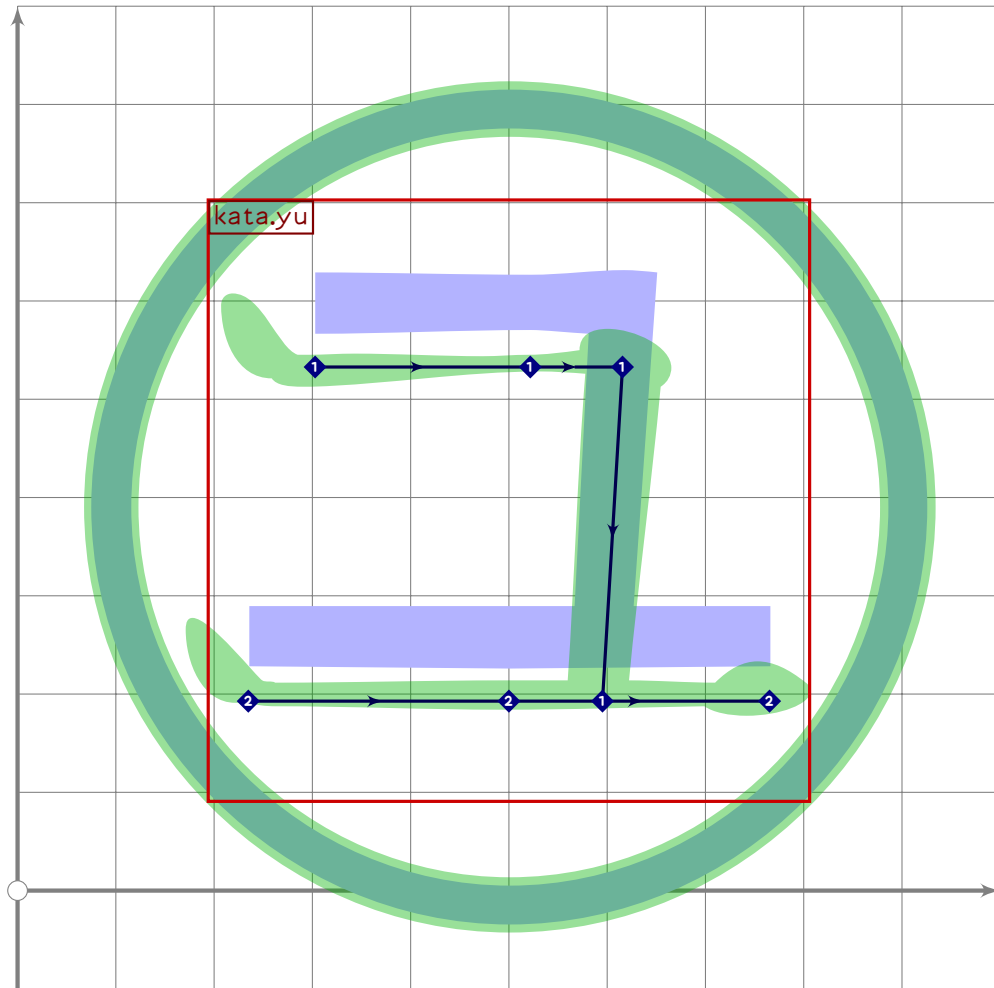
```

560 % circled "mo"
561 begint Suglyph("uni32F2";242);
562   circle.single;
563   tsu_xform(tsu_xf.circled)(kata.mo);
564   tsu_render_in_circle(tsu_xf.cbound);
565   endsuglyph;
566

```



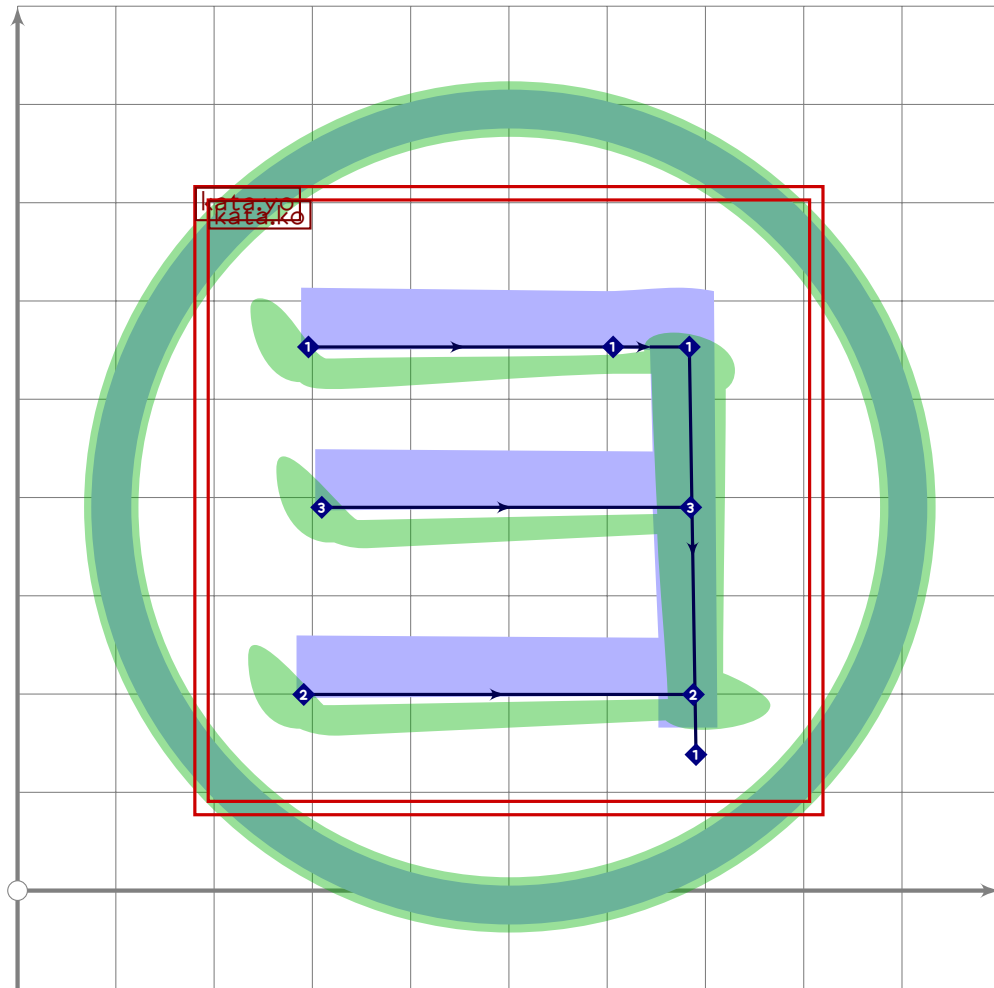
```
567 % circled "ya"  
568 begintsuglyph("uni32F3",243);  
569 circle.single;  
570 tsu_xform(tsu_xf.circled)(kata.ya);  
571 tsu_render_in_circle(tsu_xf.cbound);  
572 endsuglyph;  
573
```



```

574 % circled "yu"
575 begintsuglyph("uni32F4";244);
576 circle.single;
577 tsu_xform(tsu_xf.circled)(kata.yu);
578 tsu_render_in_circle(tsu_xf.cbound);
579 endsuglyph;
580

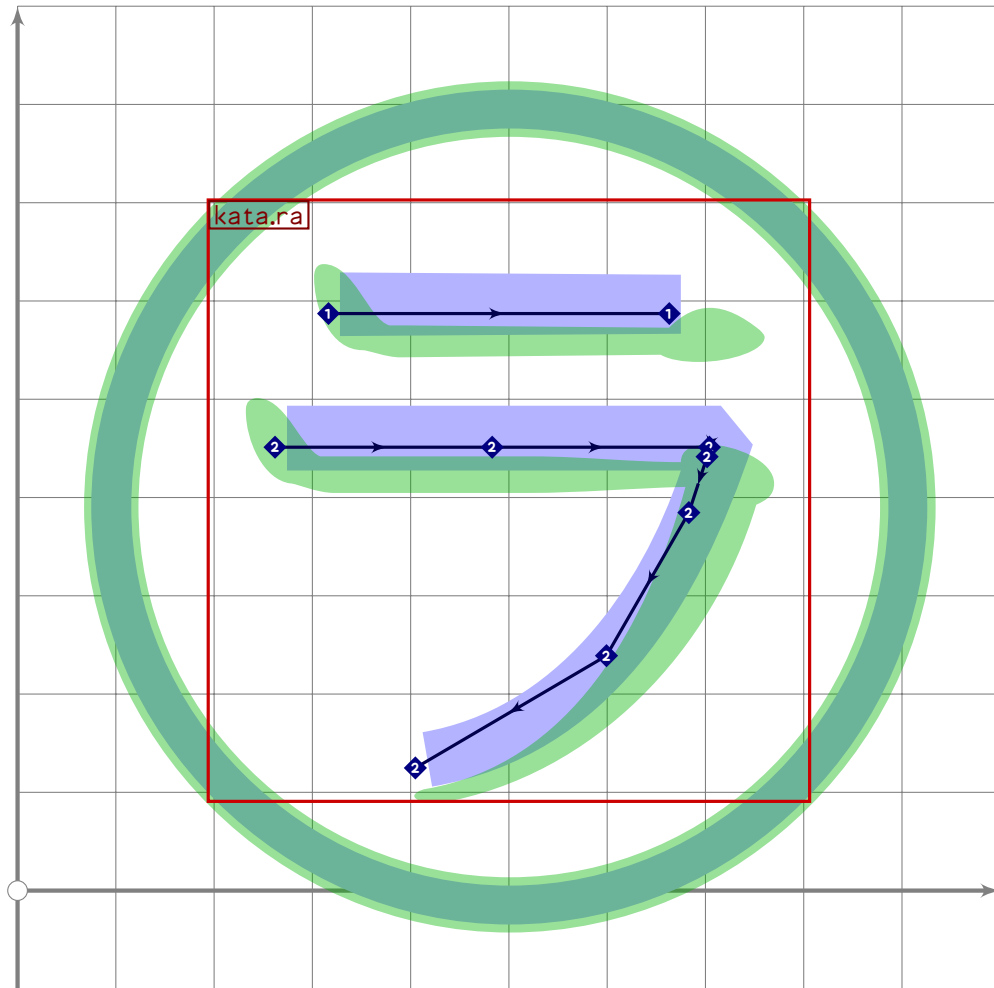
```



```

581 % circled "yo"
582 begintsuglyph("uni32F5",245);
583 circle.single;
584 tsu_xform(tsu_xf.circled)(kata.yo);
585 tsu_render_in_circle(tsu_xf.cbound);
586 endsuglyph;
587

```

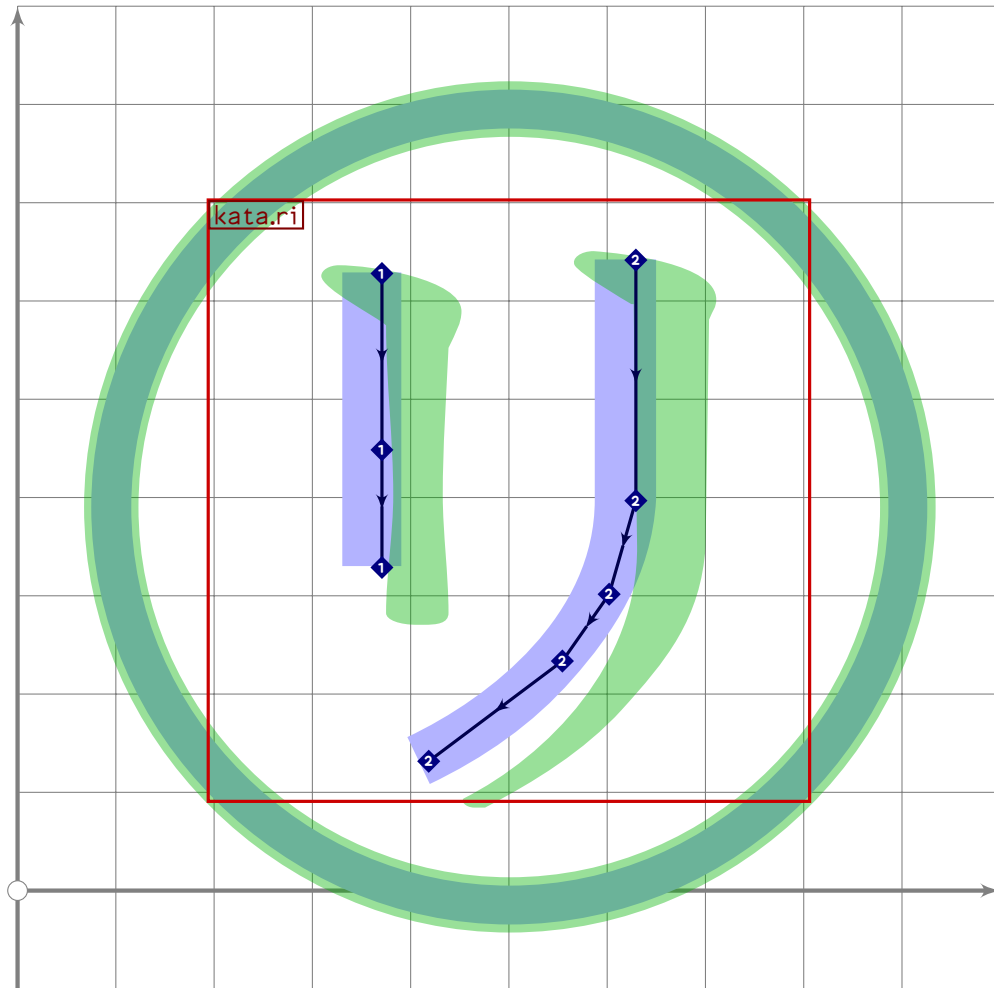


```

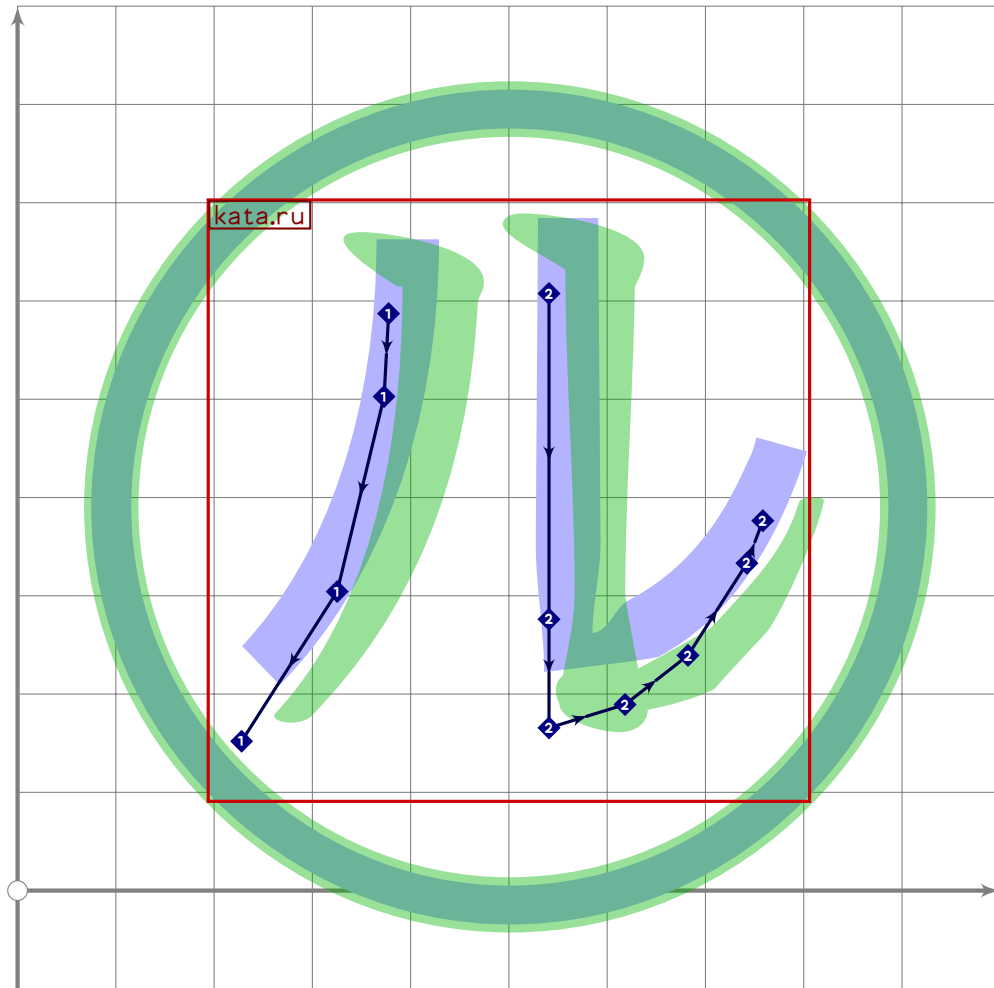
588 % circled "ra"
589 begintsuglyph("uni32F6",246);
590 circle.single;
591 tsu_xform(tsu_xf.circled)(kata.ra);
592 tsu_render_in_circle(tsu_xf.cbound);
593 endtsuglyph;
594

```

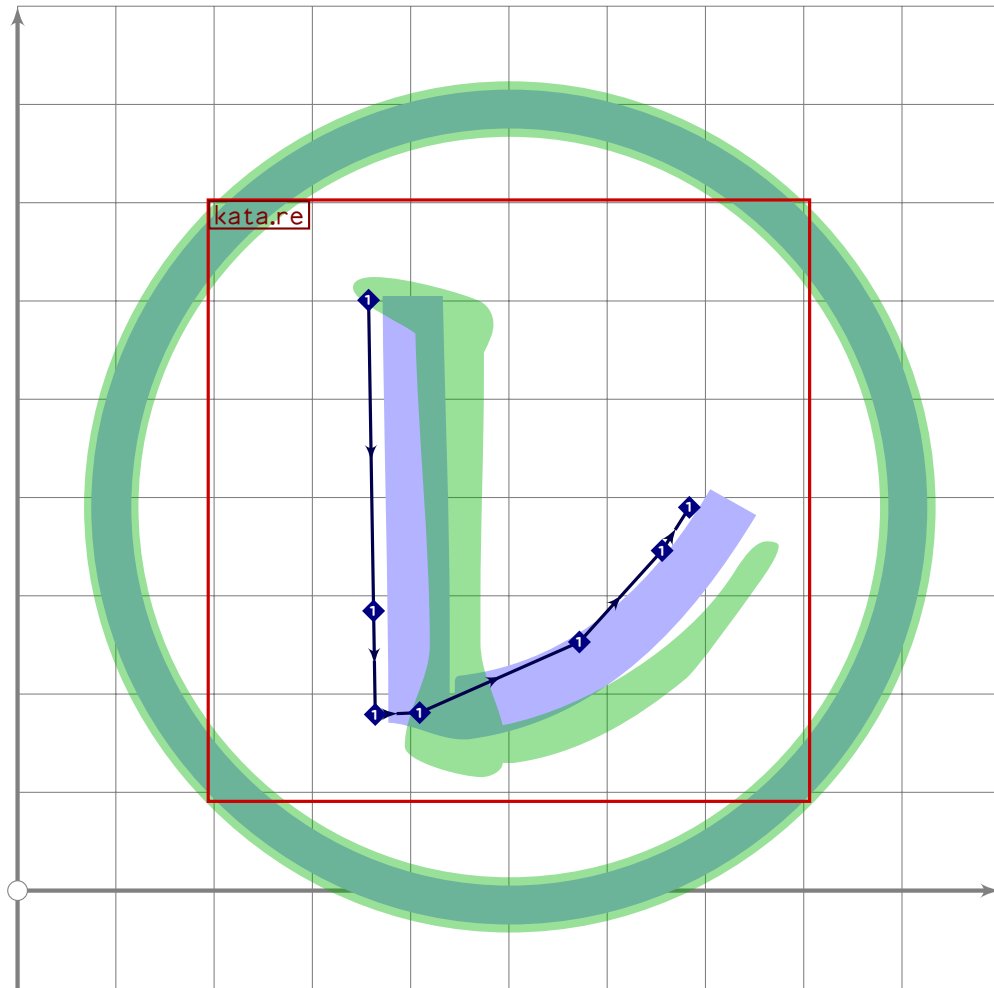




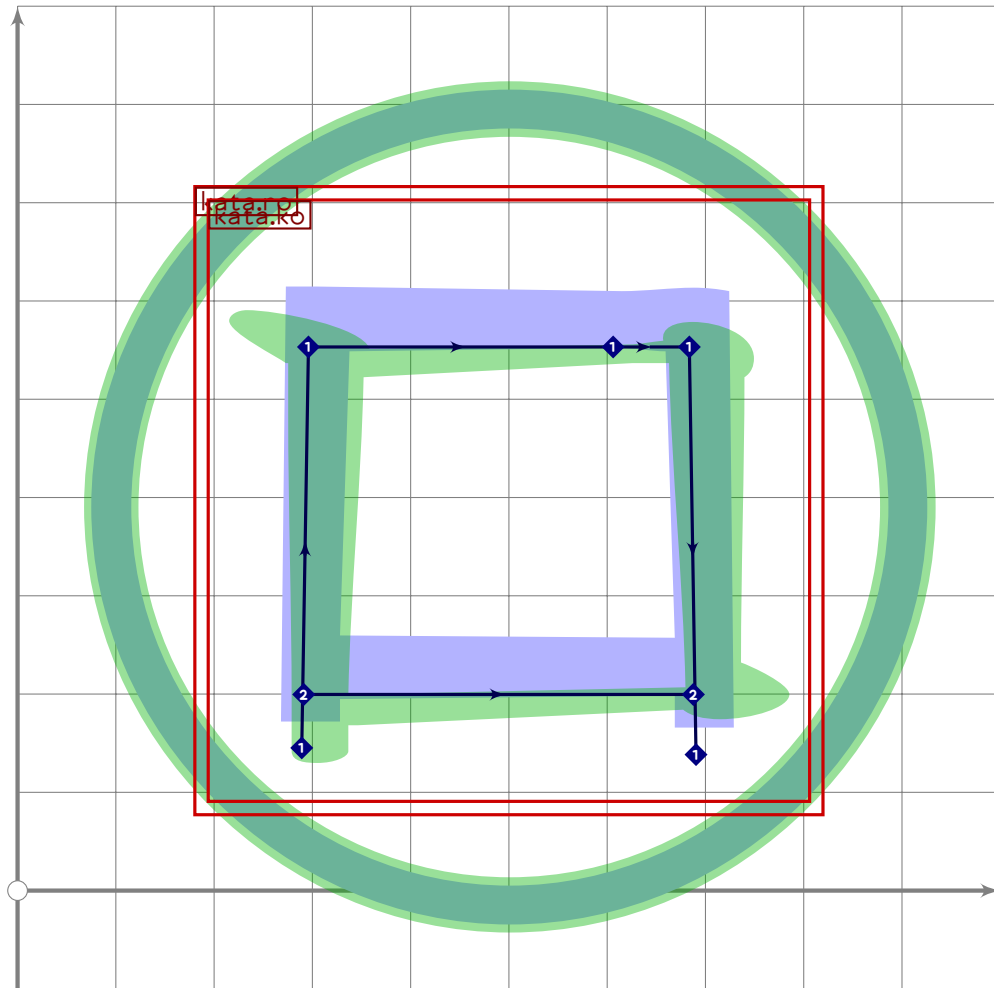
```
595 % circled "ri"  
596 begintsuglyph("uni32F7";247);  
597 circle.single;  
598 tsu_xform(tsu_xf.circled)(kata.ri);  
599 tsu_render_in_circle(tsu_xf.cbound);  
600 endsuglyph;  
601
```



```
602 % circled "ru"  
603 begintsuglyph("uni32F8";248);  
604 circle.single;  
605 tsu_xform(tsu_xf.circled)(kata.ru);  
606 tsu_render_in_circle(tsu_xf.cbound);  
607 endsuglyph;  
608
```



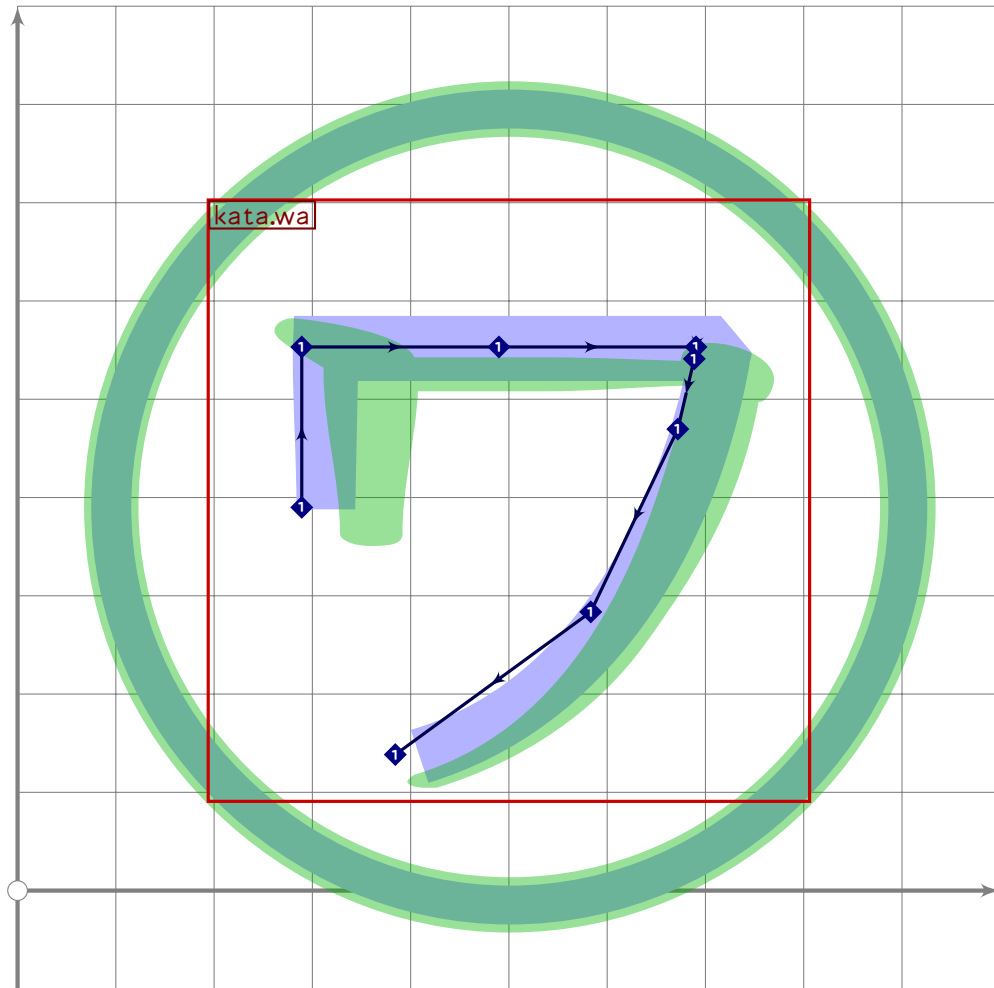
```
609 % circled "re"  
610 begintsuglyph("uni32F9";249);  
611 circle.single;  
612 tsu_xform(tsu_xf.circled)(kata.re);  
613 tsu_render_in_circle(tsu_xf.cbound);  
614 endsuglyph;  
615
```



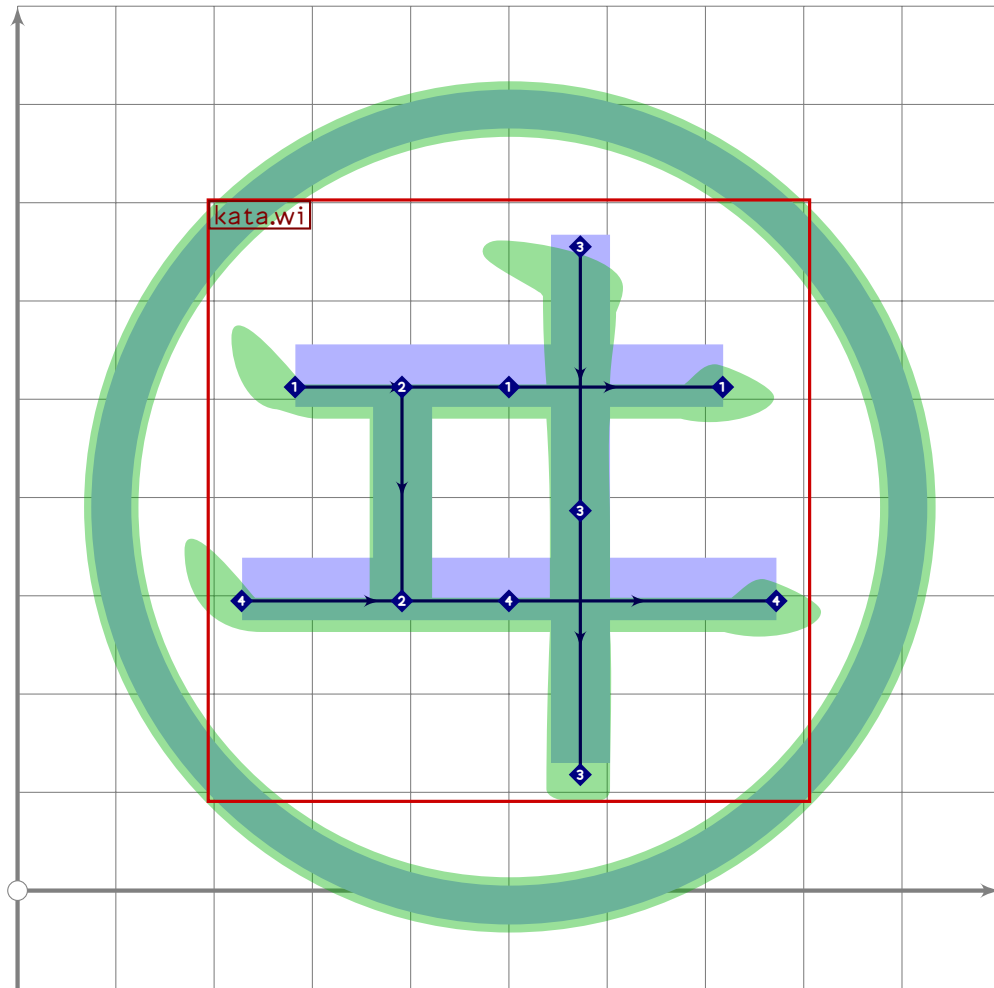
```

616 % circled "ro"
617 begintsuglyph("uni32FA",250);
618 circle.single;
619 tsu_xform(tsu_xf.circled)(kata.ro);
620 tsu_render_in_circle(tsu_xf.cbound);
621 endsuglyph;
622

```



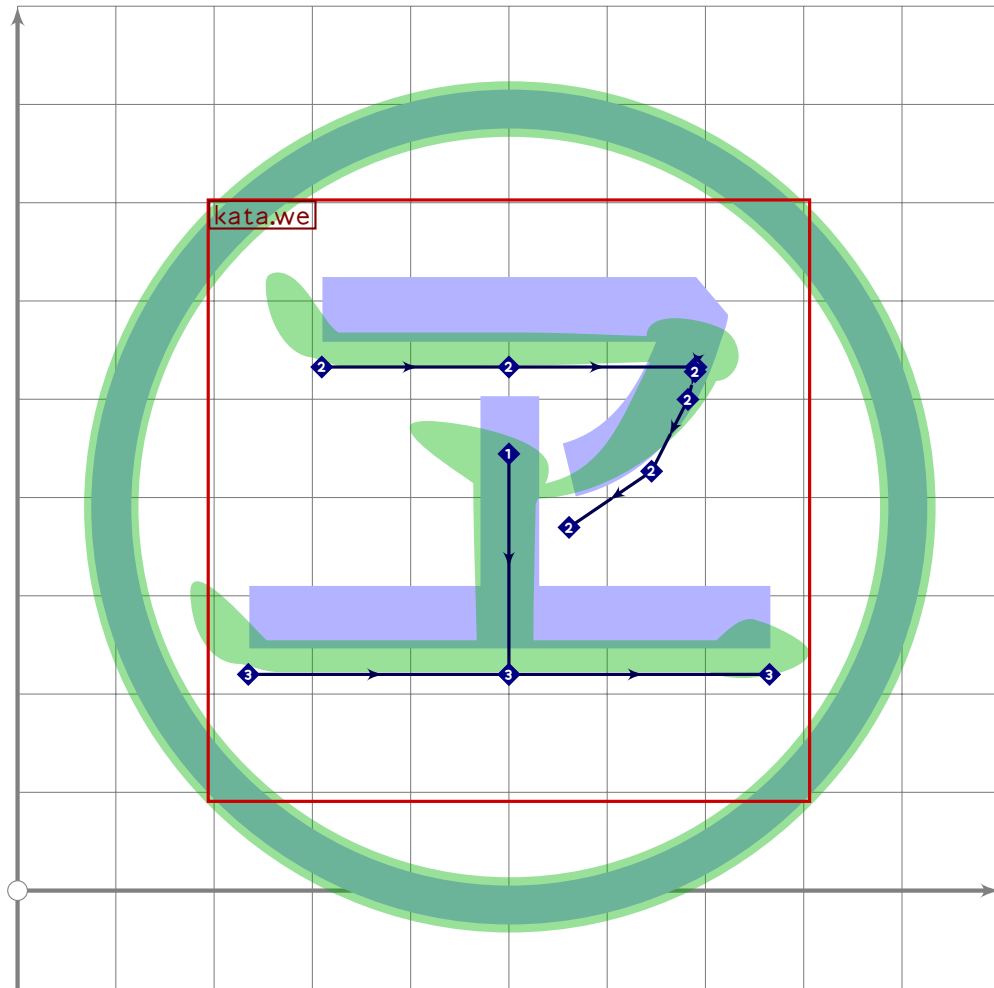
```
623 % circled "wa"  
624 begintsuglyph("uni32FB";251);  
625 circle.single;  
626 tsu_xform(tsu_xf.circled)(kata.wa);  
627 tsu_render_in_circle(tsu_xf.cbound);  
628 endsuglyph;  
629
```



```

630 % circled "wi"
631 begint Suglyph("uni32FC",252);
632 circle.single;
633 tsu_xform(tsu_xf.circled)(kata.wi);
634 tsu_render_in_circle(tsu_xf.cbound);
635 endtsuglyph;
636

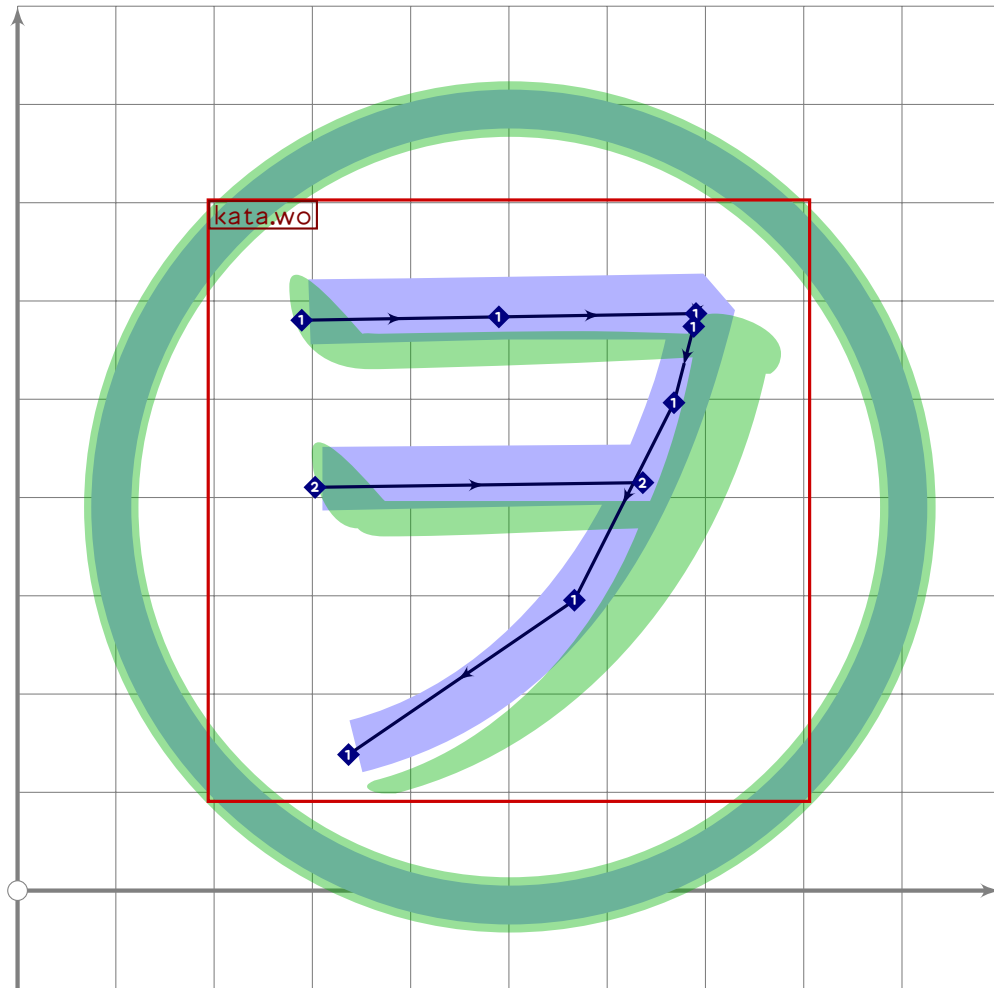
```



```

637 % circled "we"
638 begintsuglyph("uni32FD",253);
639 circle.single;
640 tsu_xform(tsu_xf.circled)(kata.we);
641 tsu_render_in_circle(tsu_xf.cbound);
642 endsuglyph;
643

```



```

644 % circled "wo"
645 begint Suglyph("uni32FE";254);
646 circle.single;
647 tsu_xform(tsu_xf.circled)(kata.wo);
648 tsu_render_in_circle(tsu_xf.cbound);
649 endsuglyph;
650
651 _____
652
653 endfont;
654
655 _____

```



# tsuku-4d.mp

```
1 %
2 % Unicode page 4D (I Ching/Yijing) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

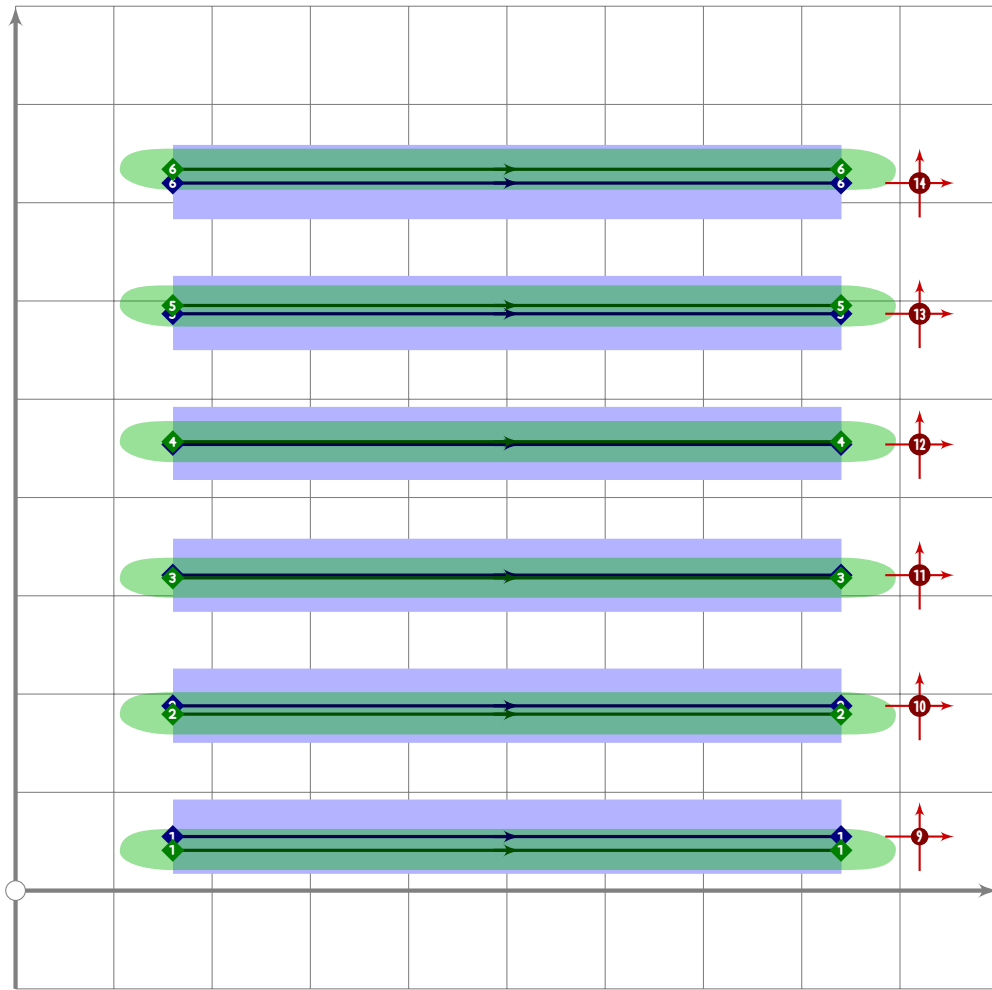

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input iching.mp;
39
40 

---


41
```

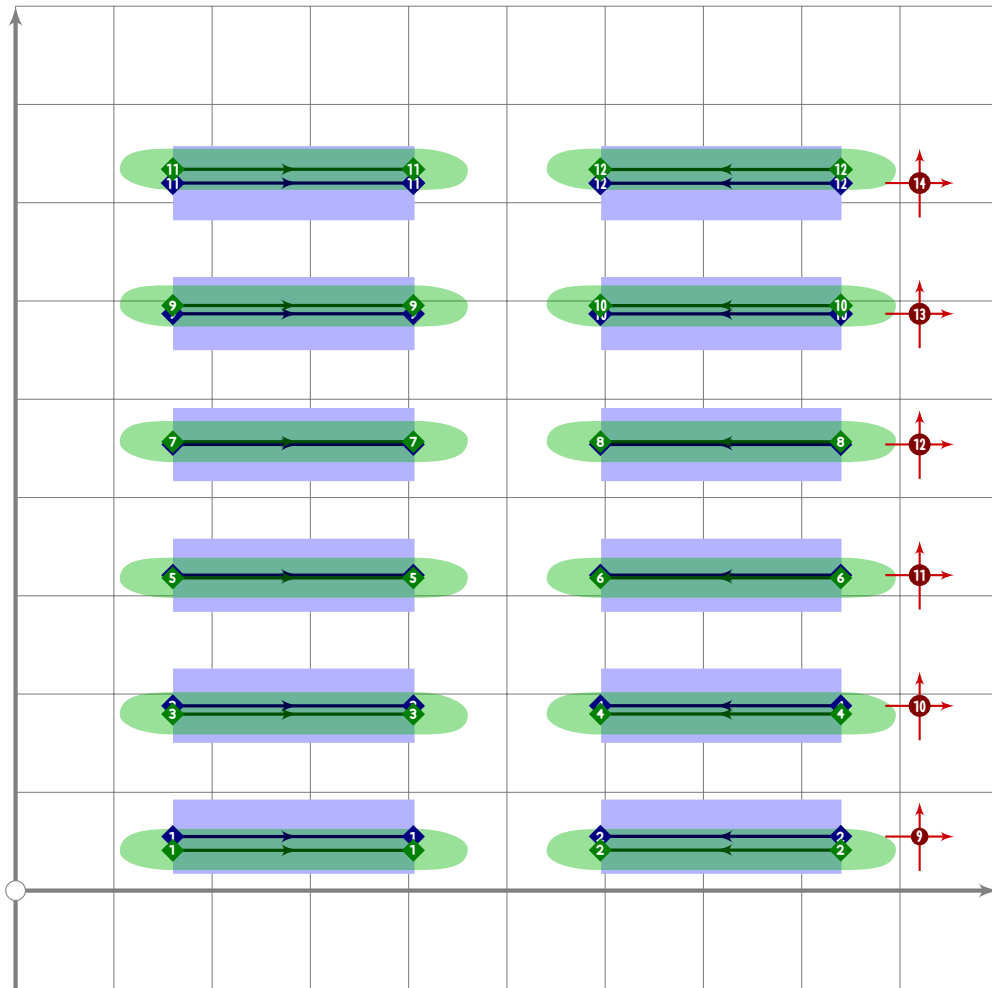
## I Ching

```
42 % I CHING
43
44 vardef make_hexagram(expr i,la,lb,lc,ld,le,lf) =
45   string hexname;
46   hexname:=if i<10: "iching0" else: "iching" fi & decimal i;
47   begint Suglyph(hexname,i+191);
48   iching.line(1,6,la);
49   iching.line(2,6,lb);
50   iching.line(3,6,lc);
51   iching.line(4,6,ld);
52   iching.line(5,6,le);
53   iching.line(6,6,lf);
54   tsu_render;
55   endtsuglyph;
56 enddef;
```

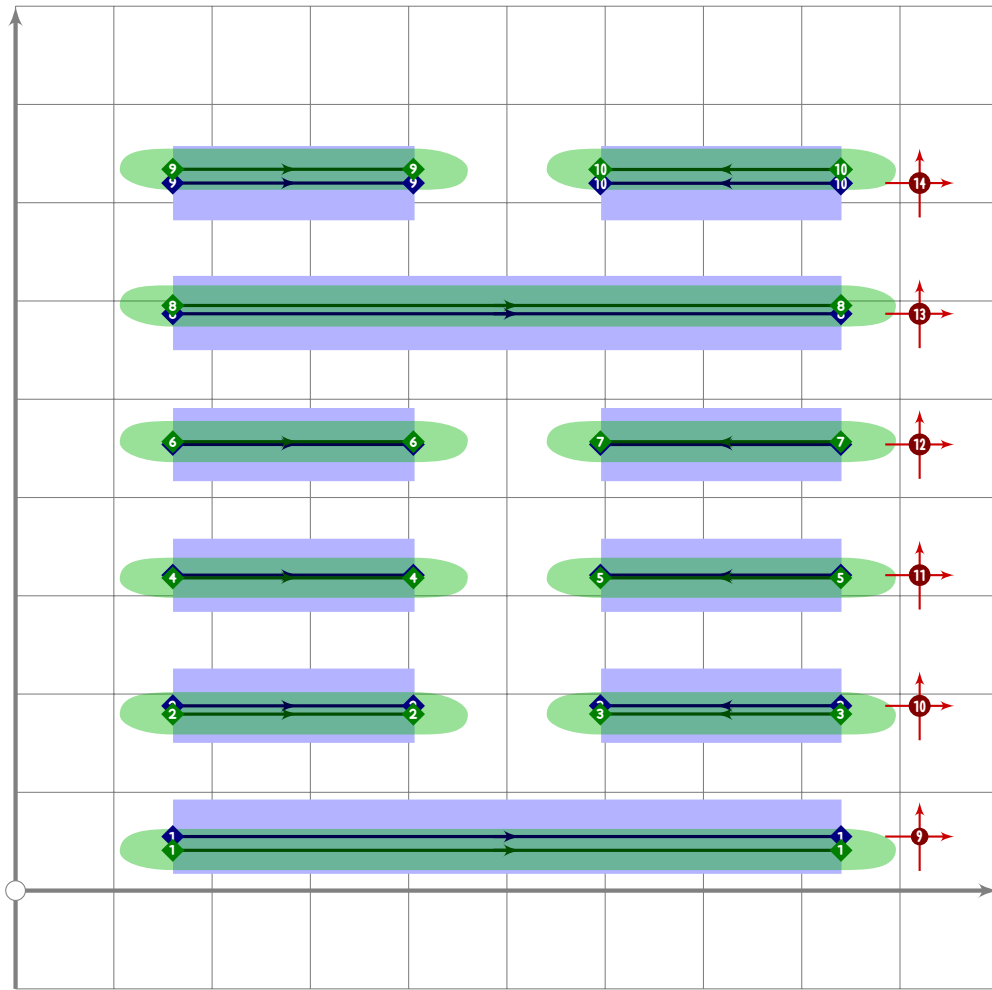


57

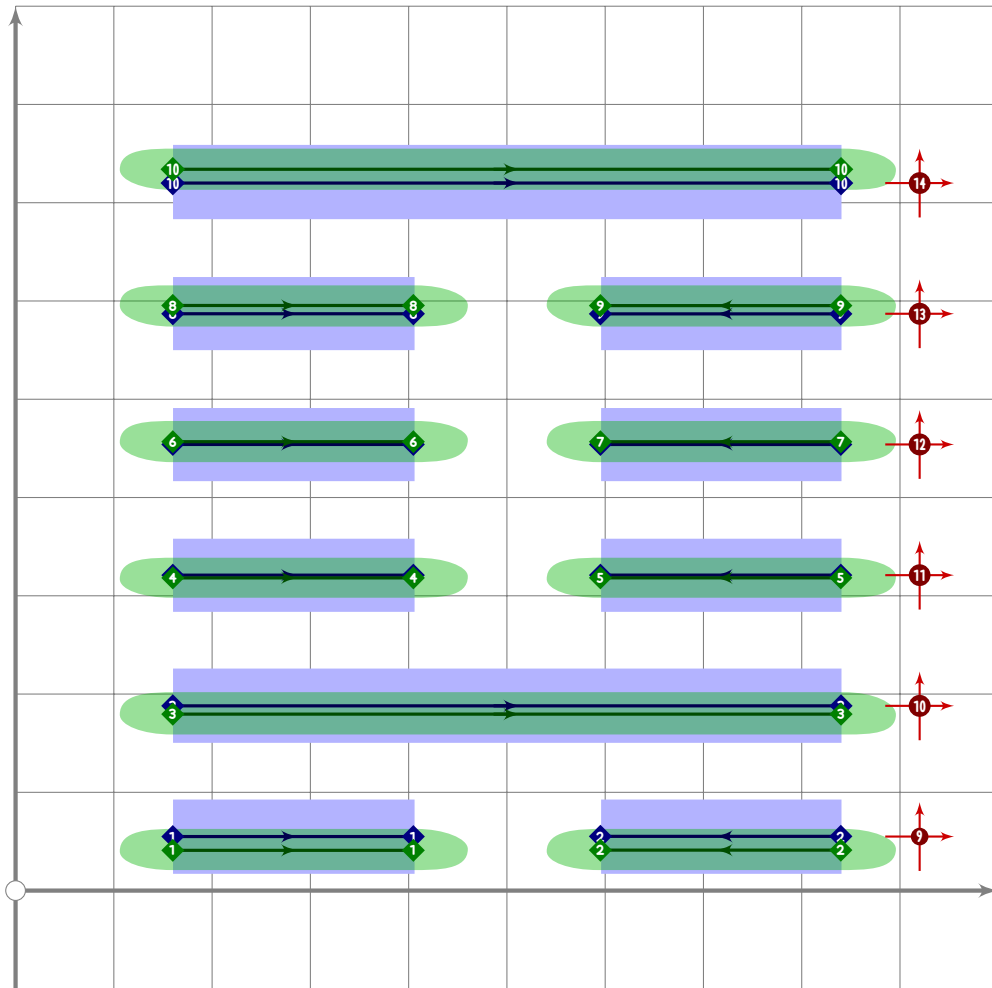
58 `make_hexagram(1, 1,1,1,1,1);`



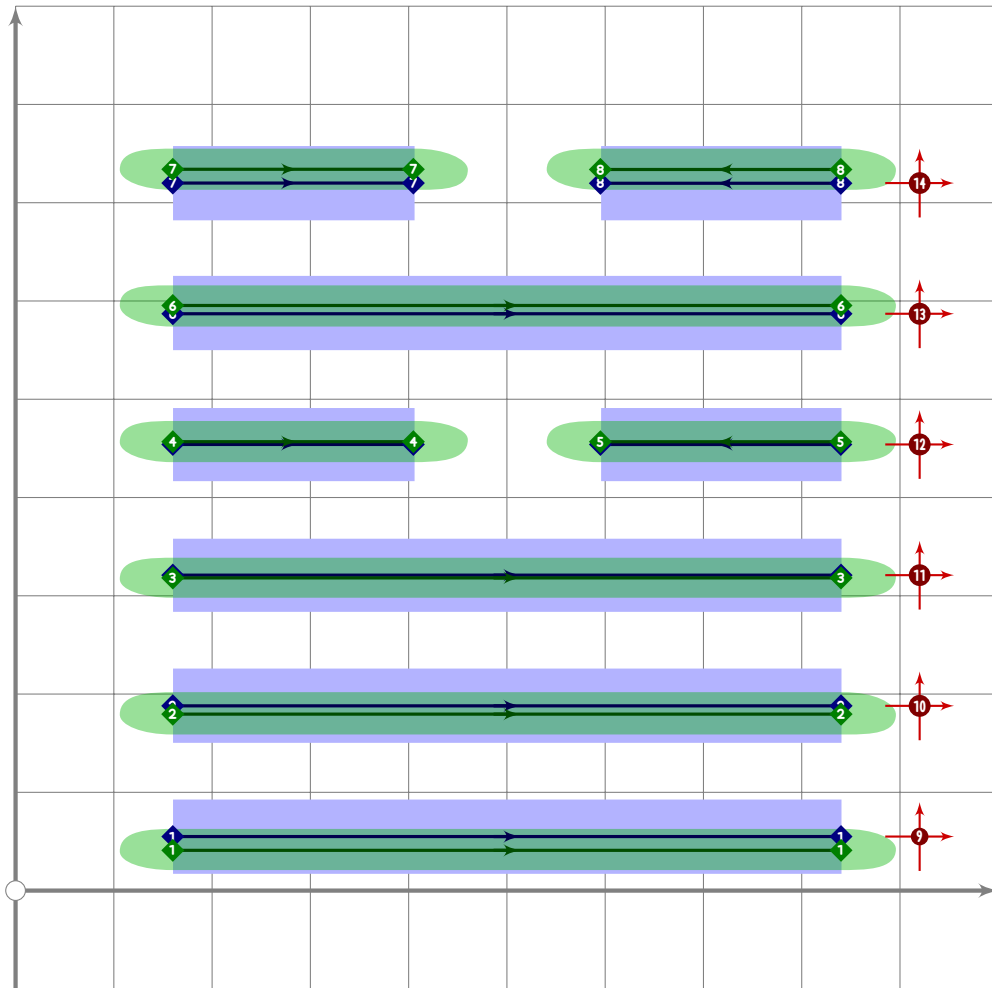
59 `make_hexagram(2, 0,0,0,0,0);`



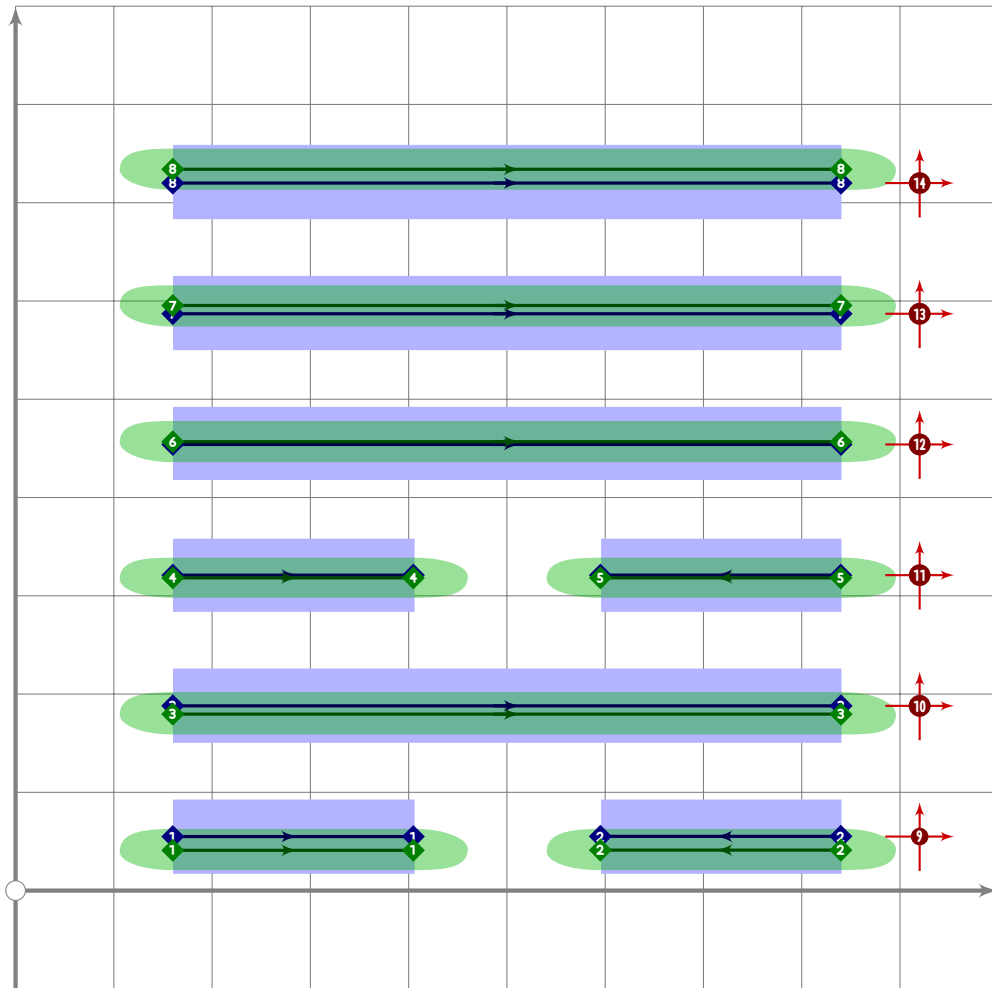
60 `make_hexagram(3, 1,0,0,0,1,0);`



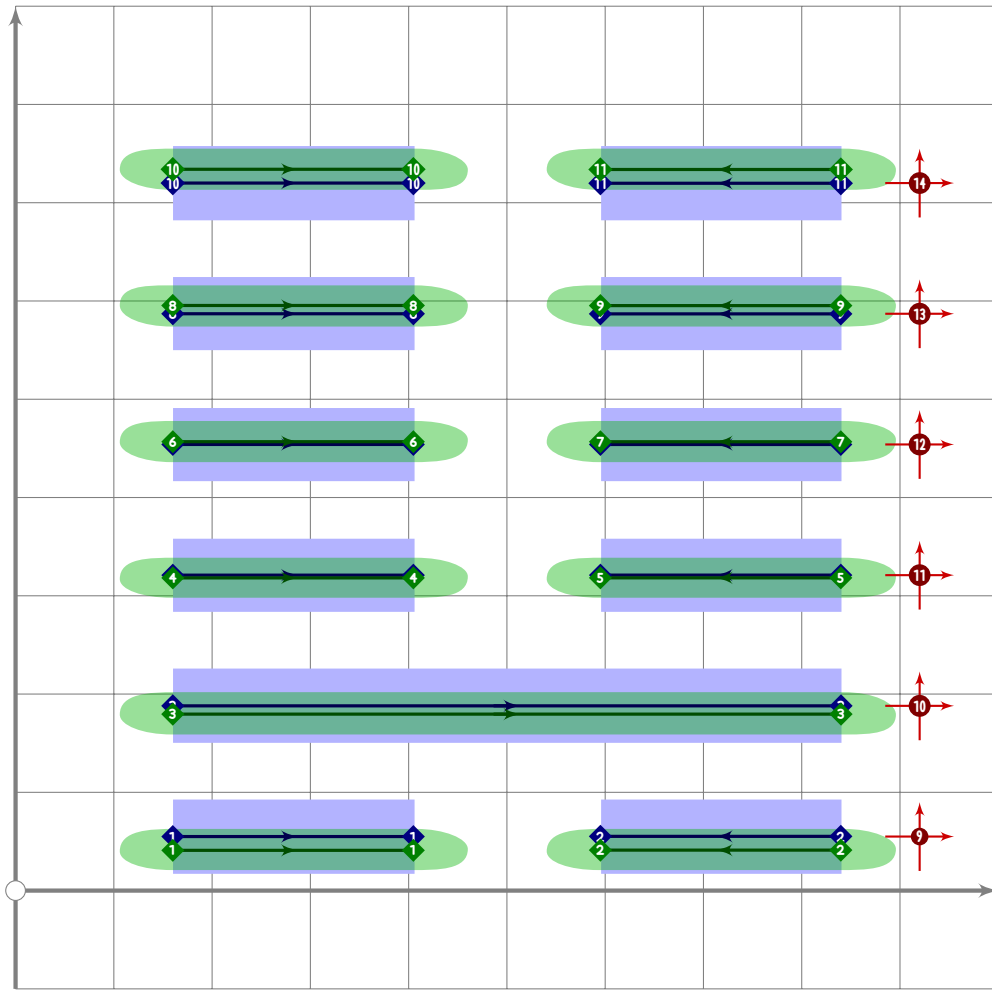
61 `make_hexagram(4, 0,1,0,0,0,1);`



62 `make_hexagram(5, 1,1,1,0,1,0);`

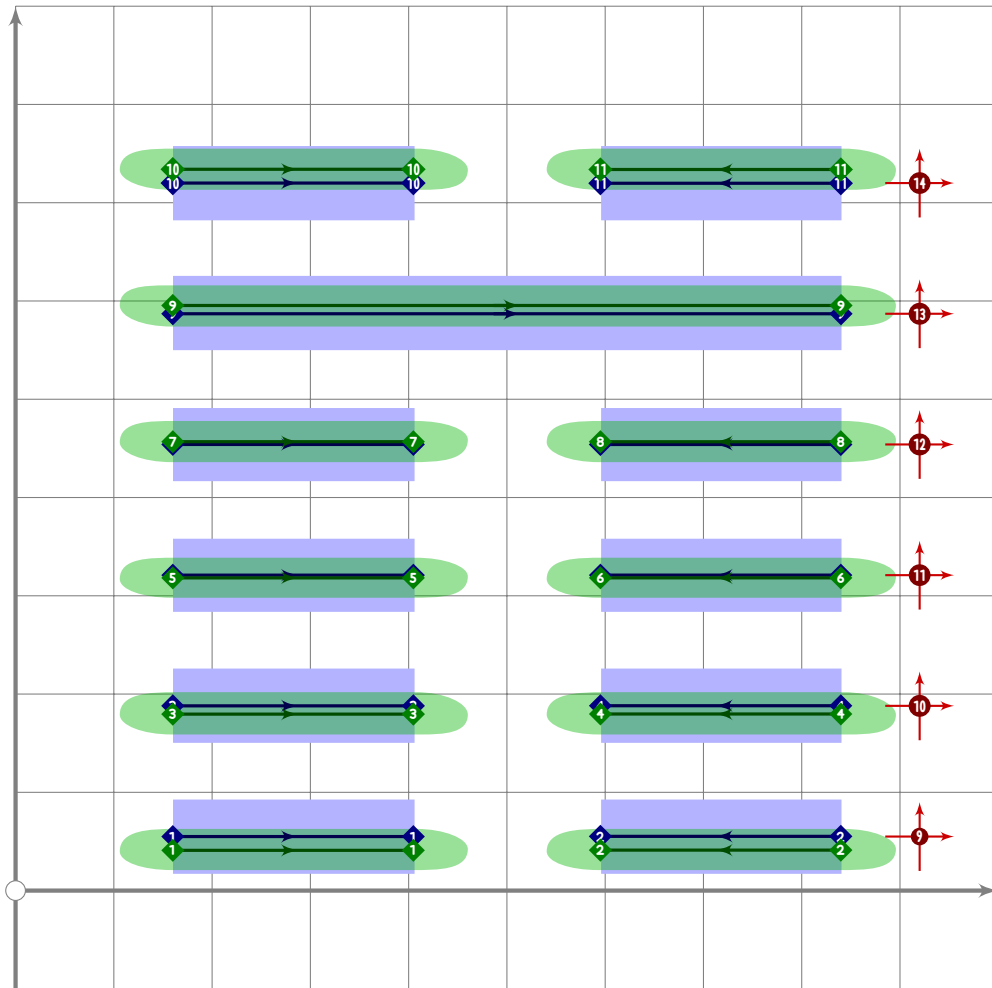


63 `make_hexagram(6, 0,1,0,1,1,1);`

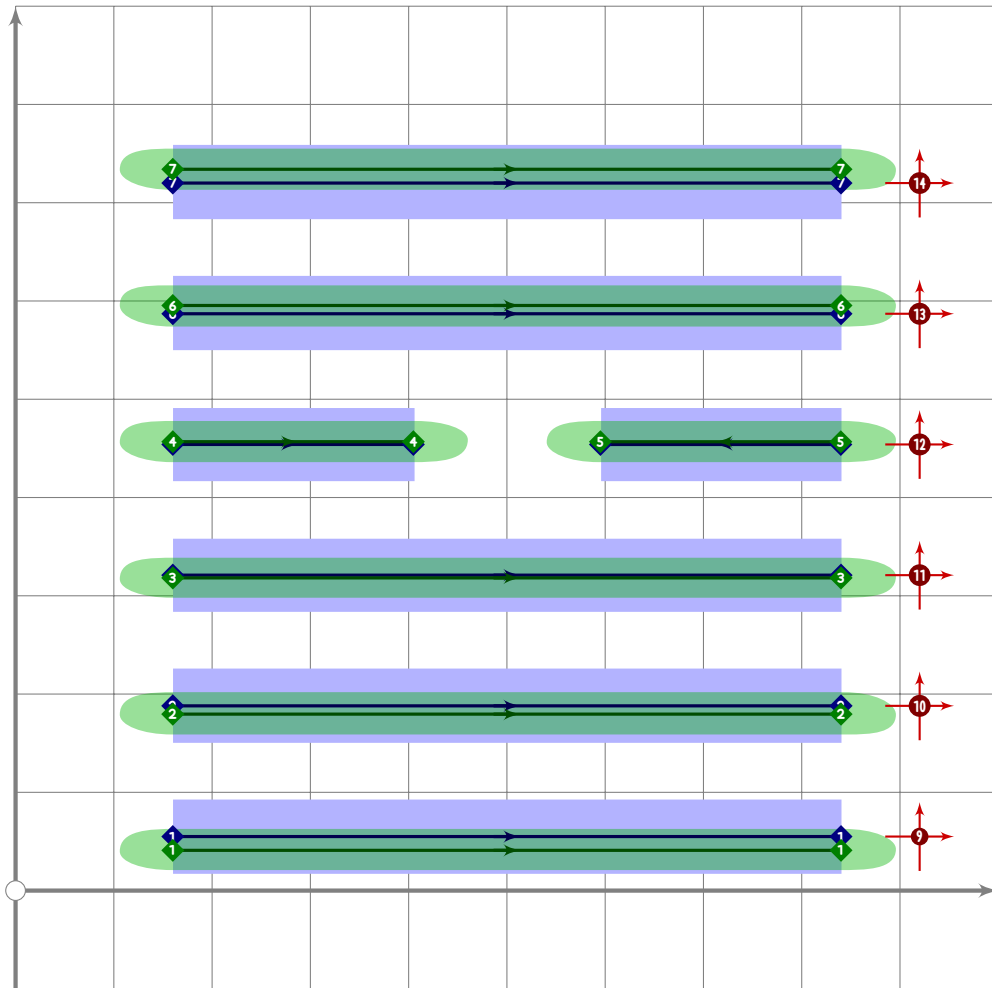


64 `make_hexagram(7, 0,1,0,0,0,0);`

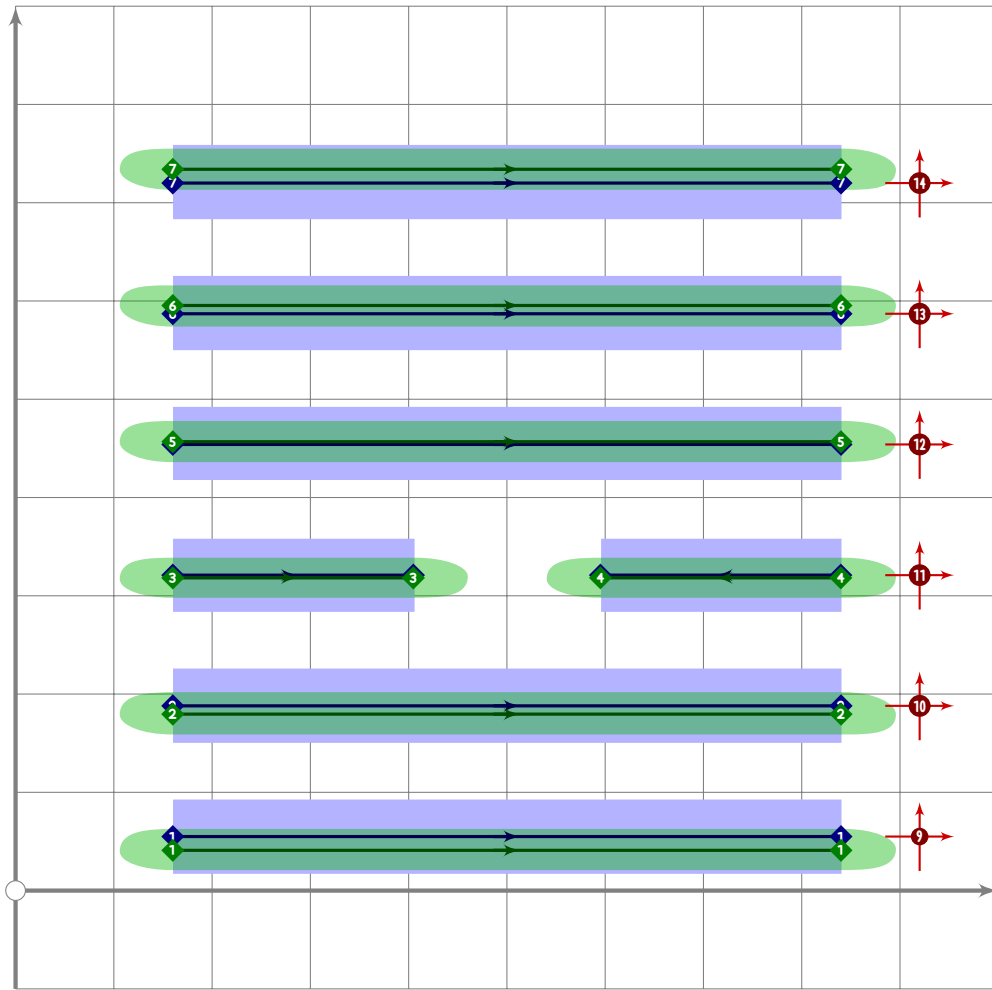




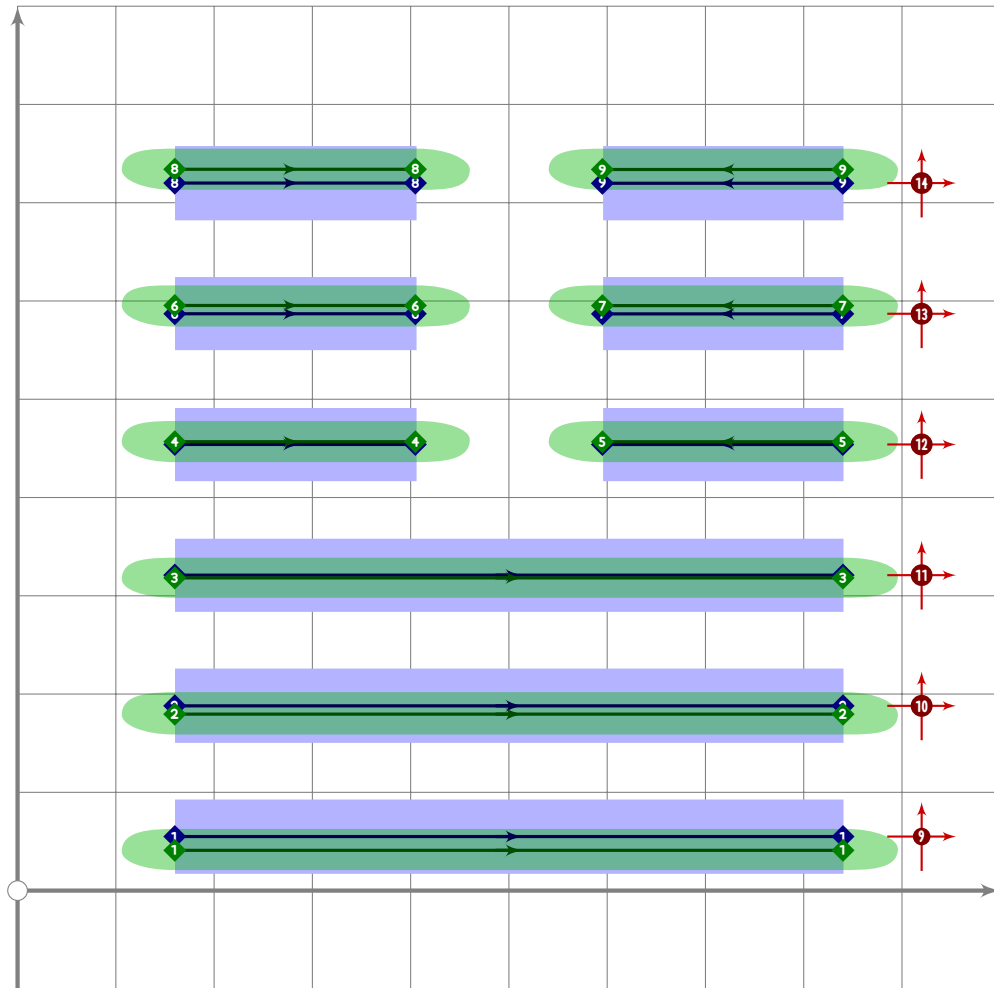
65 `make_hexagram(8, 0,0,0,1,0);`



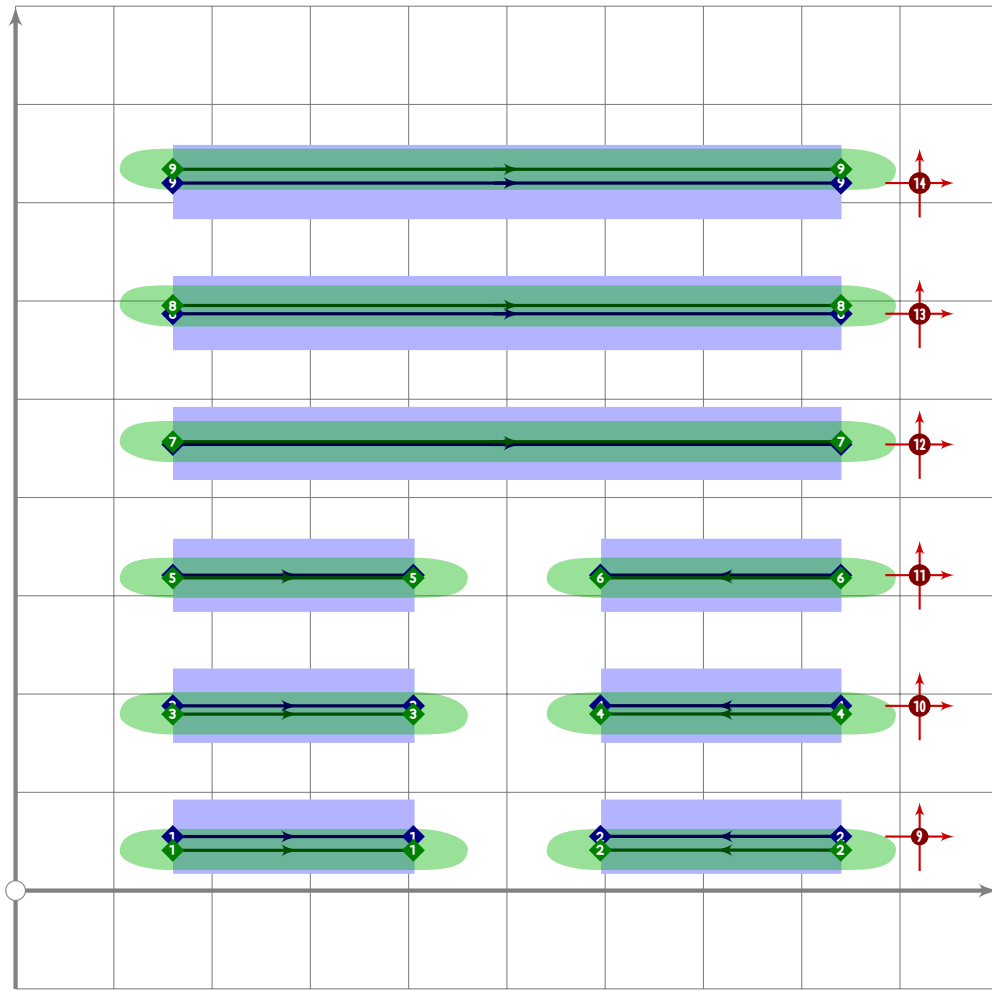
66 `make_hexagram(9, 1,1,1,0,1,1);`



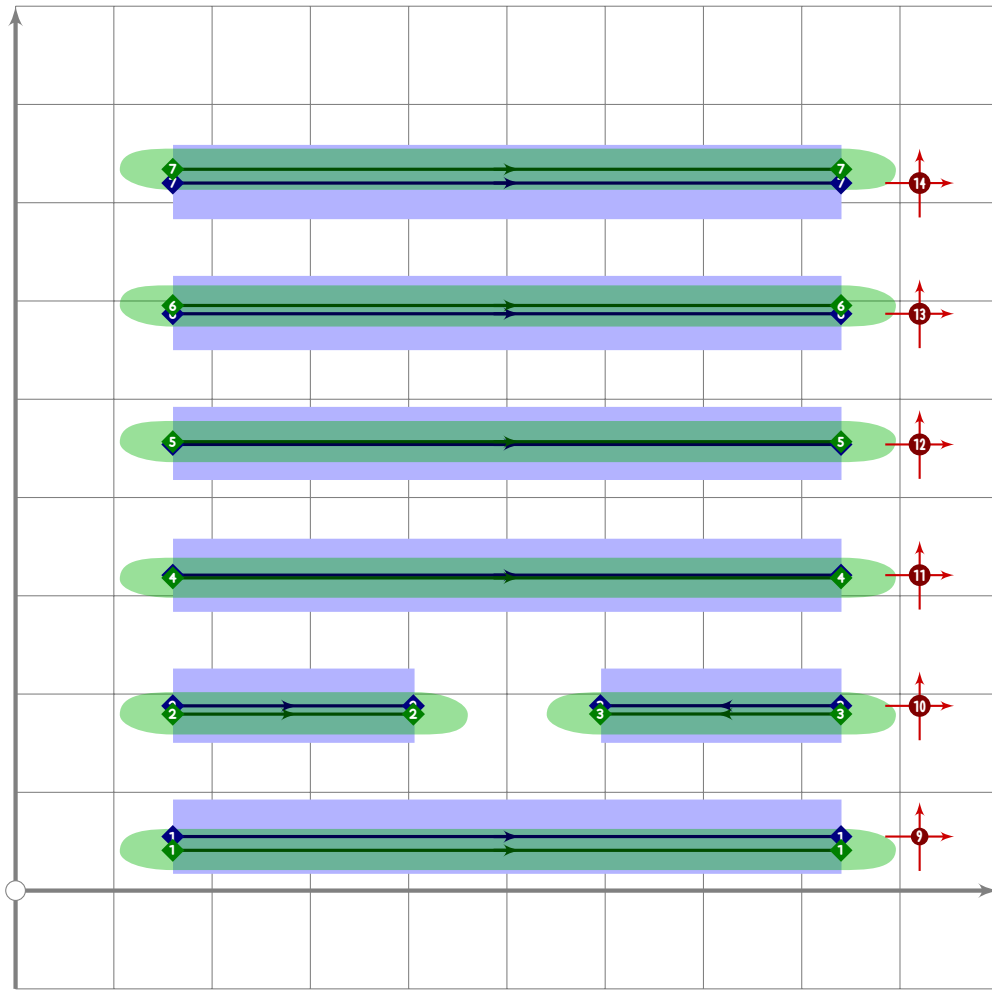
67 `make_hexagram(10,1,1,0,1,1);`



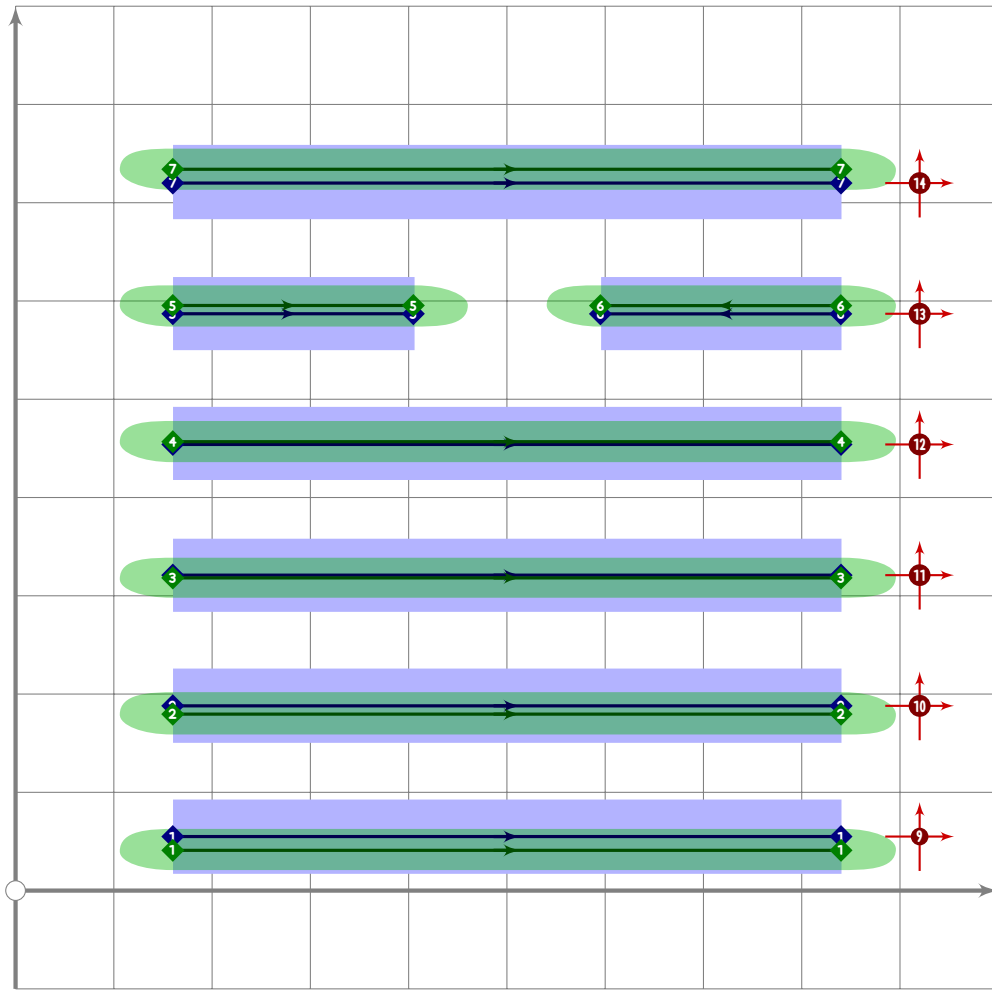
68 `make_hexagram(11,1,1,0,0,0);`



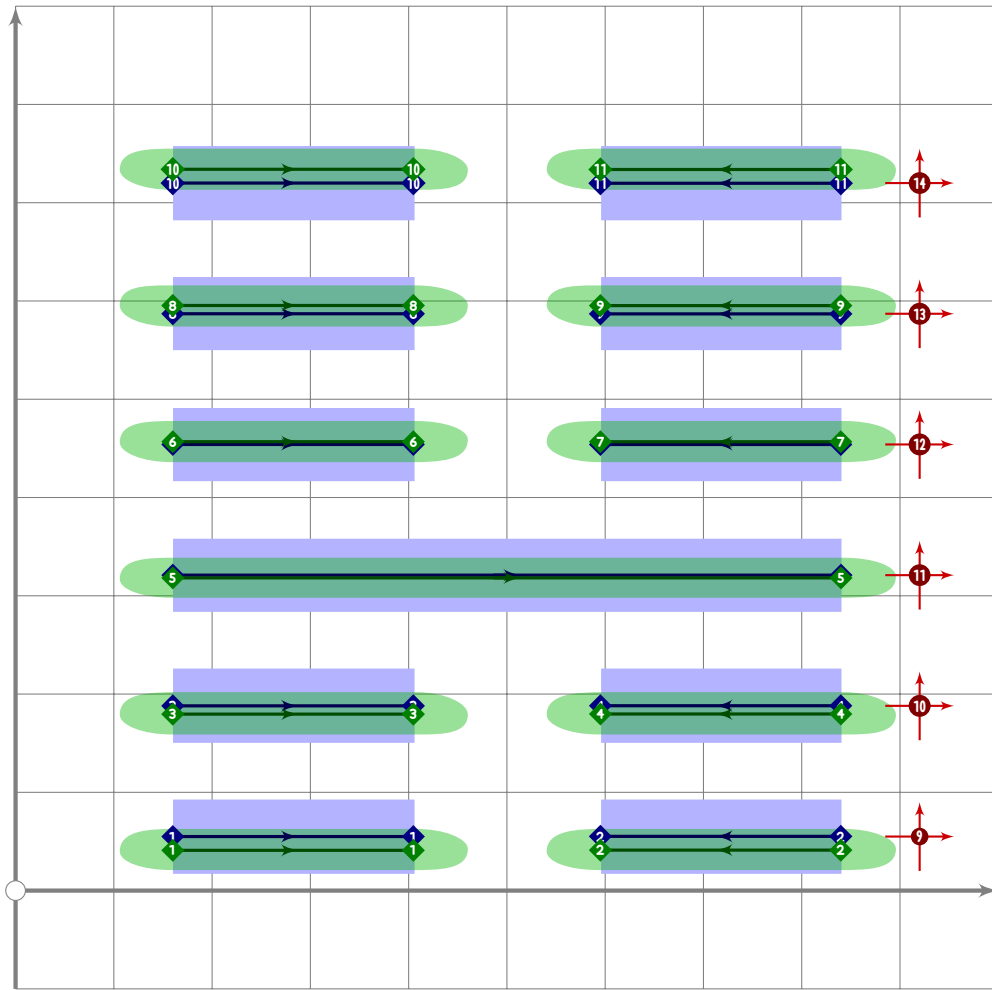
69 `make_hexagram(12,0,0,0,1,1);`



70 `make_hexagram(13,1,0,1,1,1);`

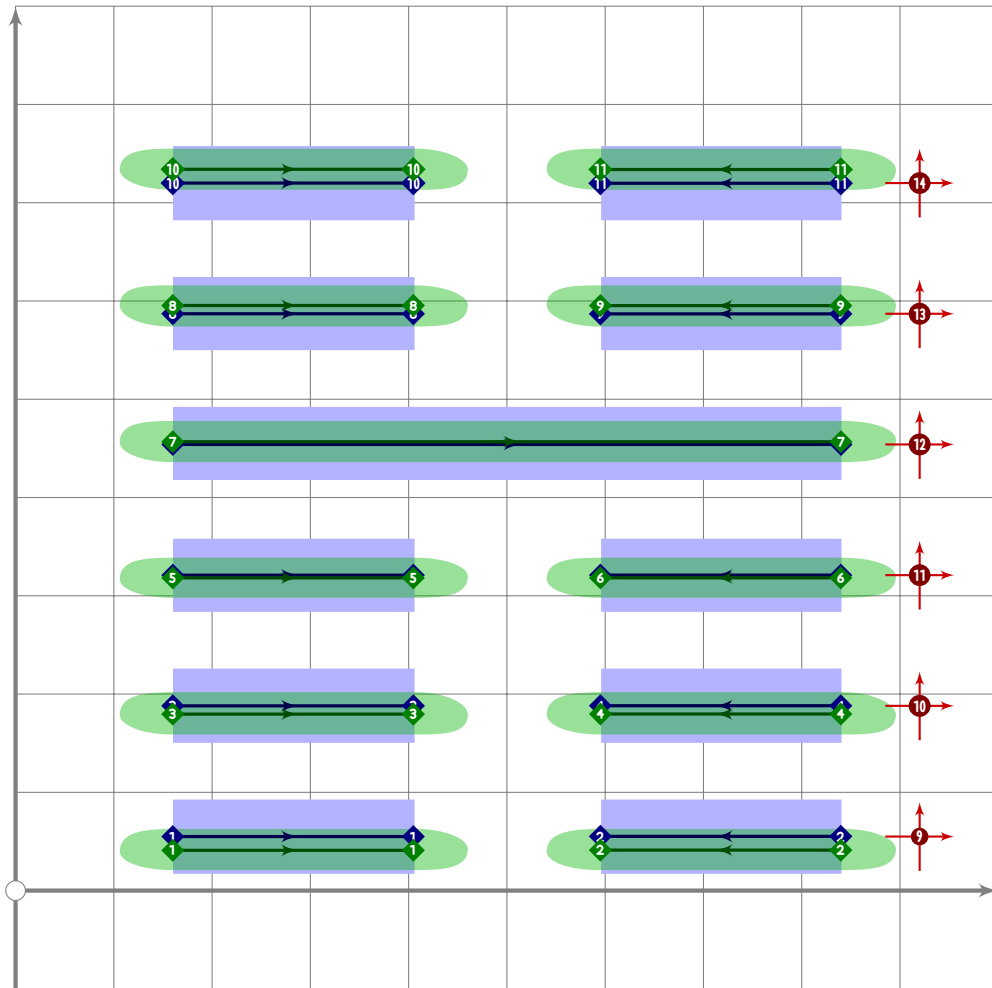


71 `make_hexagram(14,1,1,1,1,0,1);`

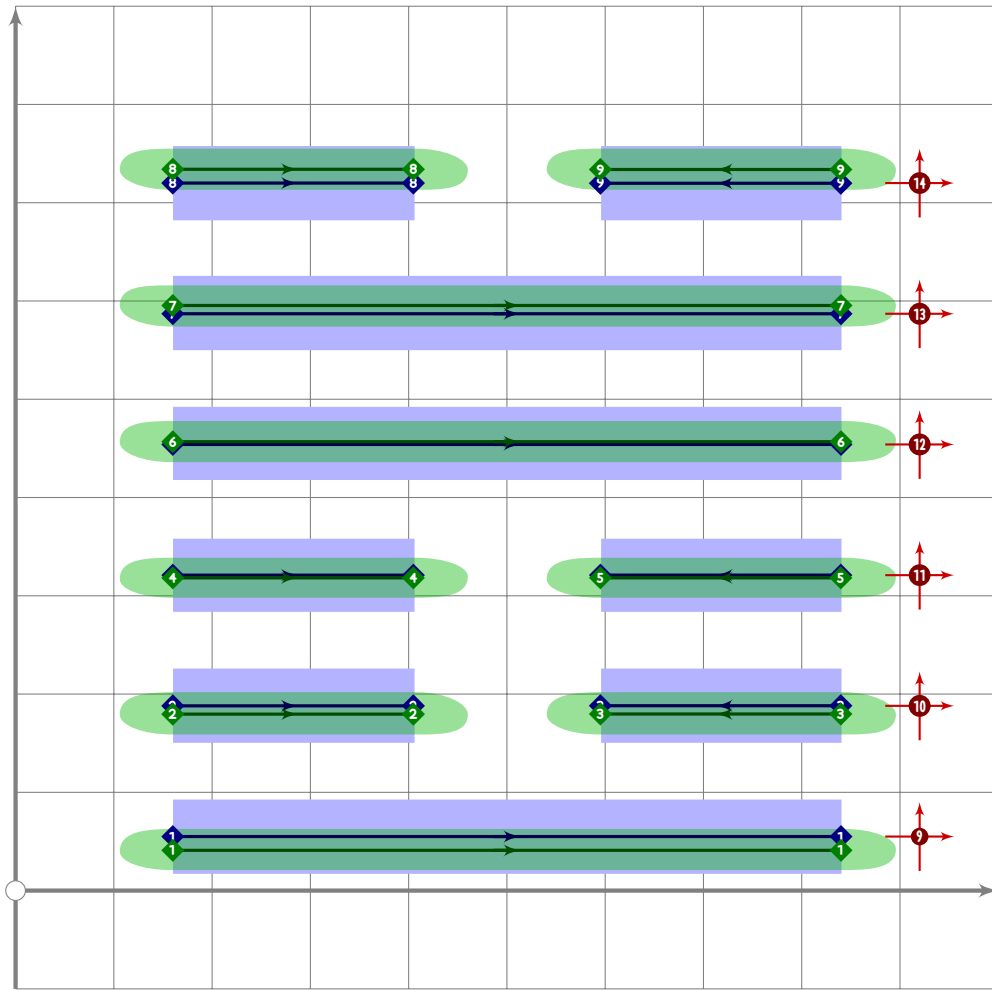


72 `make_hexagram(15,0,0,1,0,0,0);`



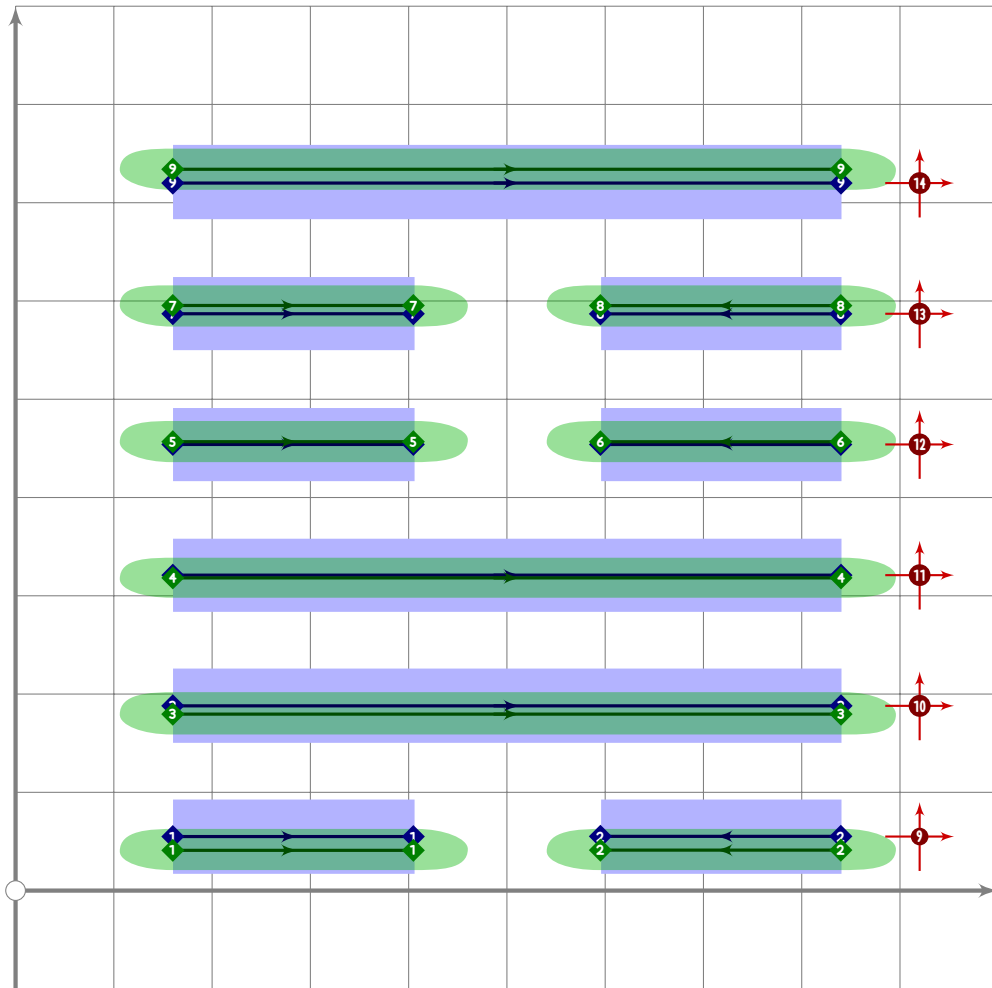


73 `make_hexagram(16,0,0,0,1,0,0);`

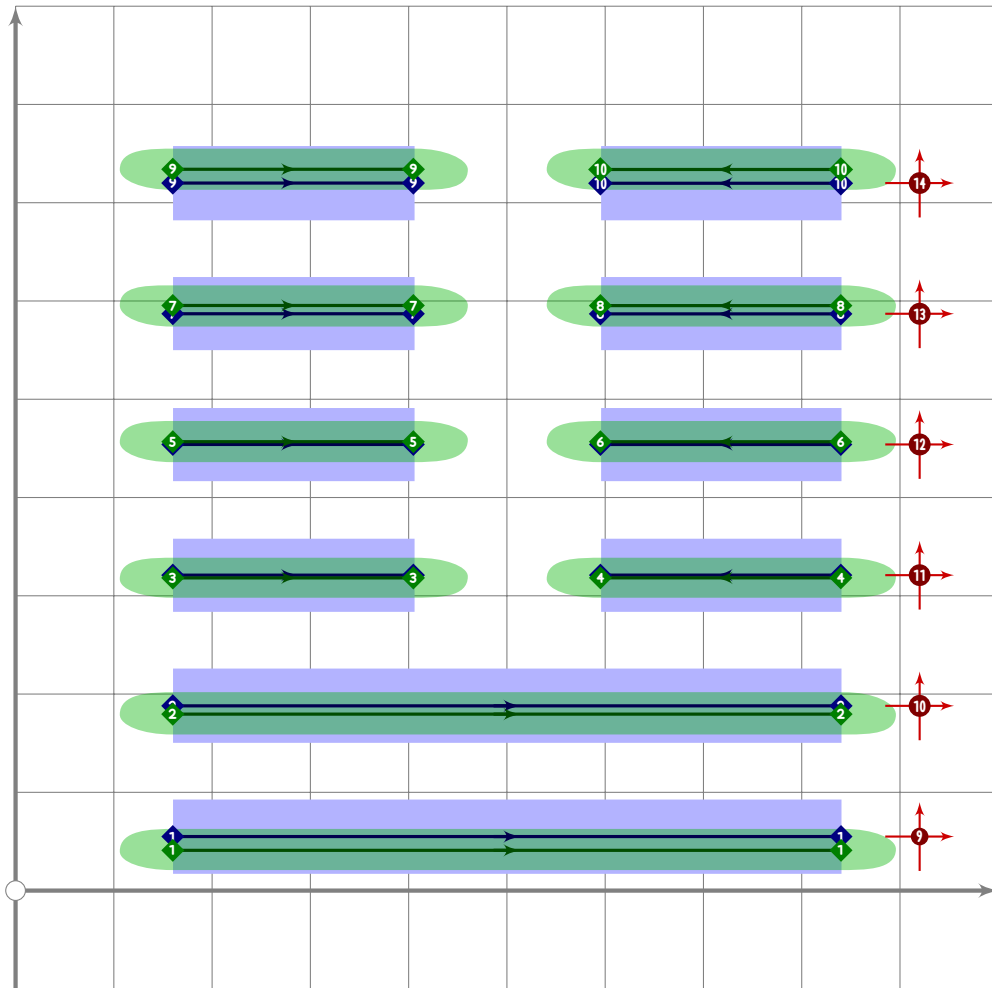


74

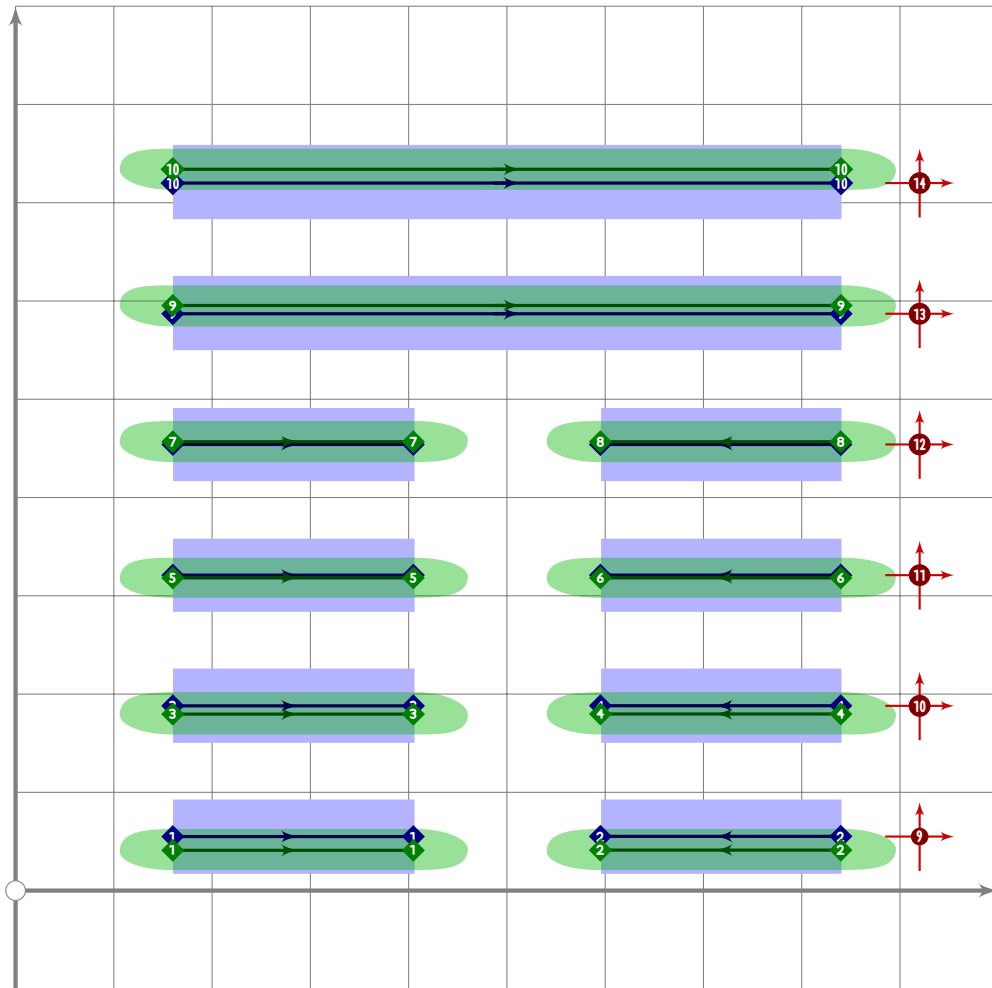
75 `make_hexagram(17,1,0,0,1,1,0);`



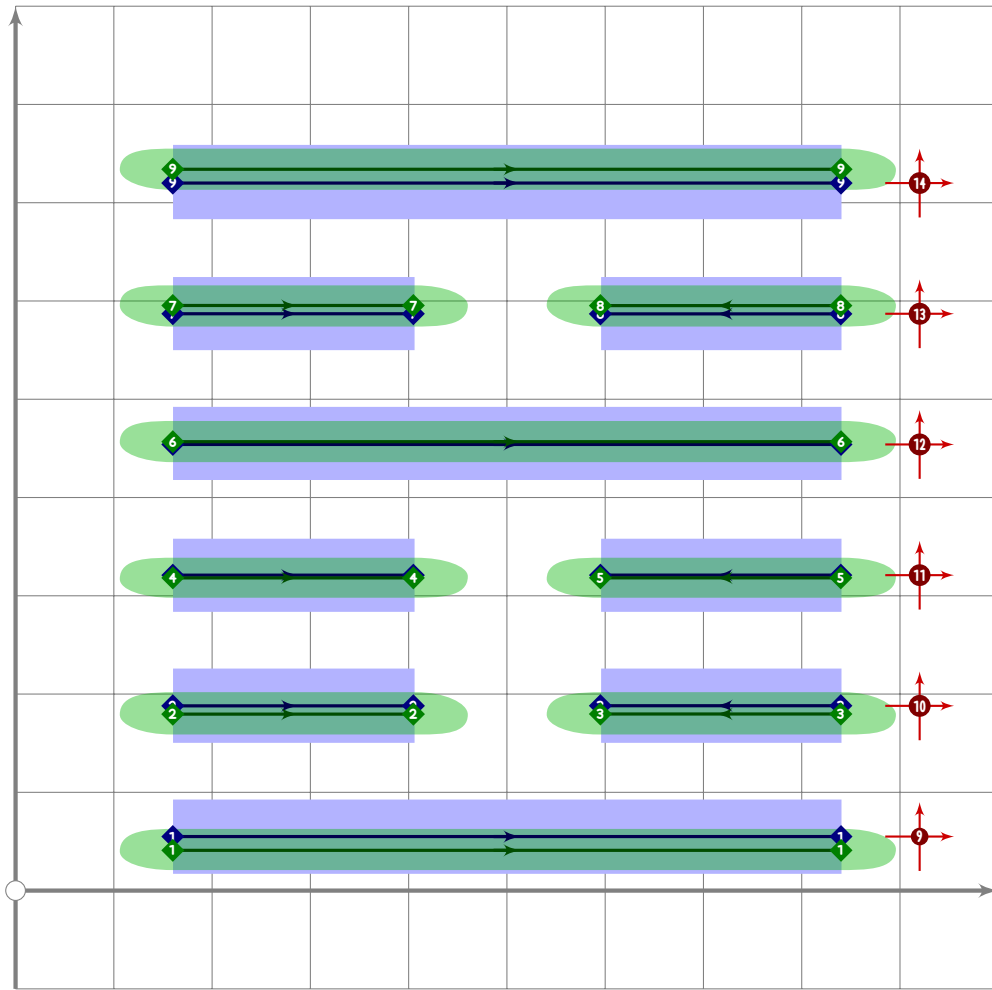
76 `make_hexagram(18,0,1,1,0,0,1);`



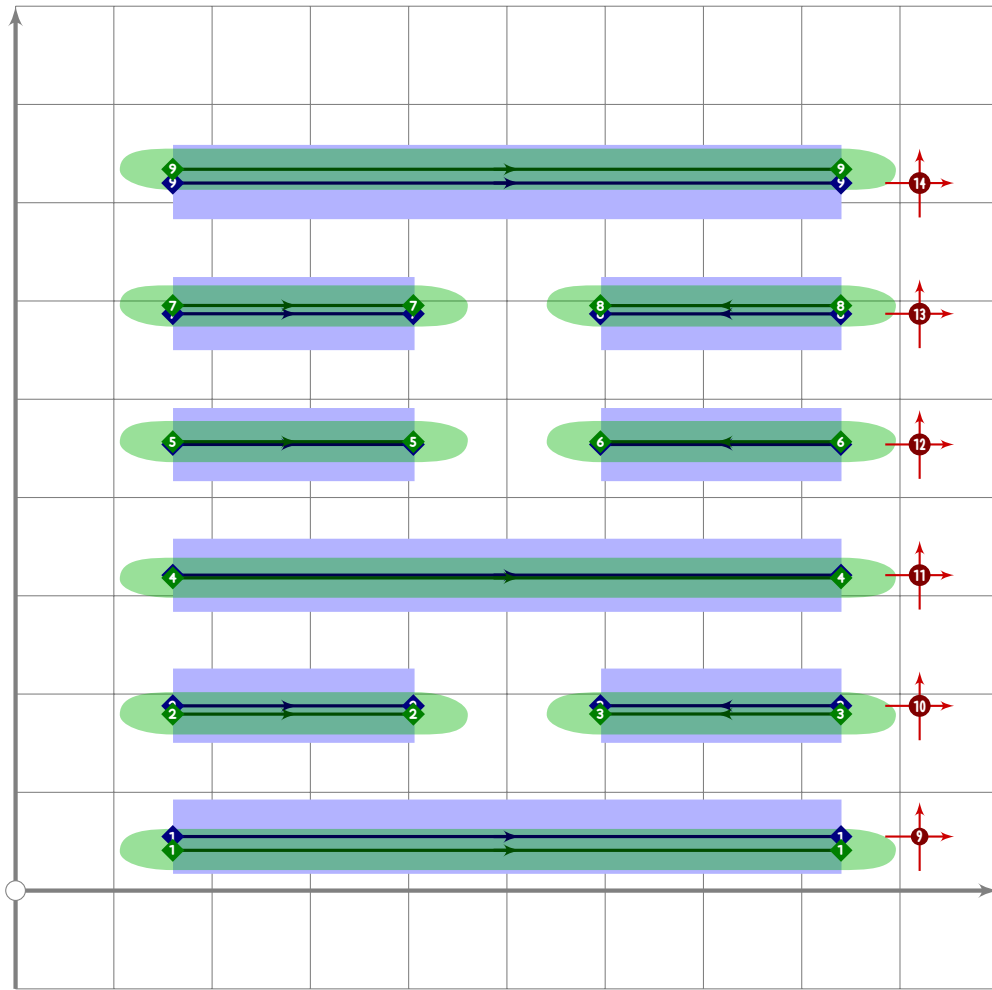
77 `make_hexagram(19,1,1,0,0,0,0);`



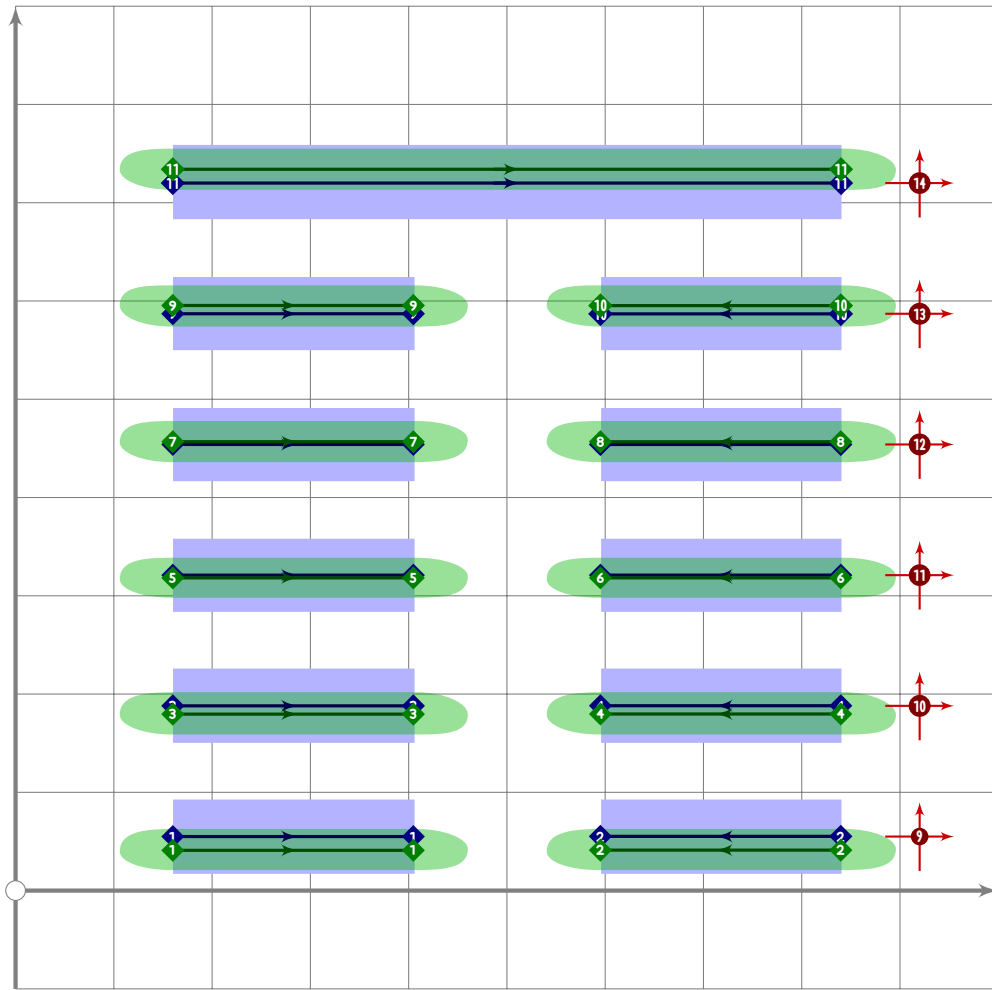
78 `make_hexagram(20,0,0,0,0,1,1);`



79 `make_hexagram(21,1,0,0,1,0,1);`

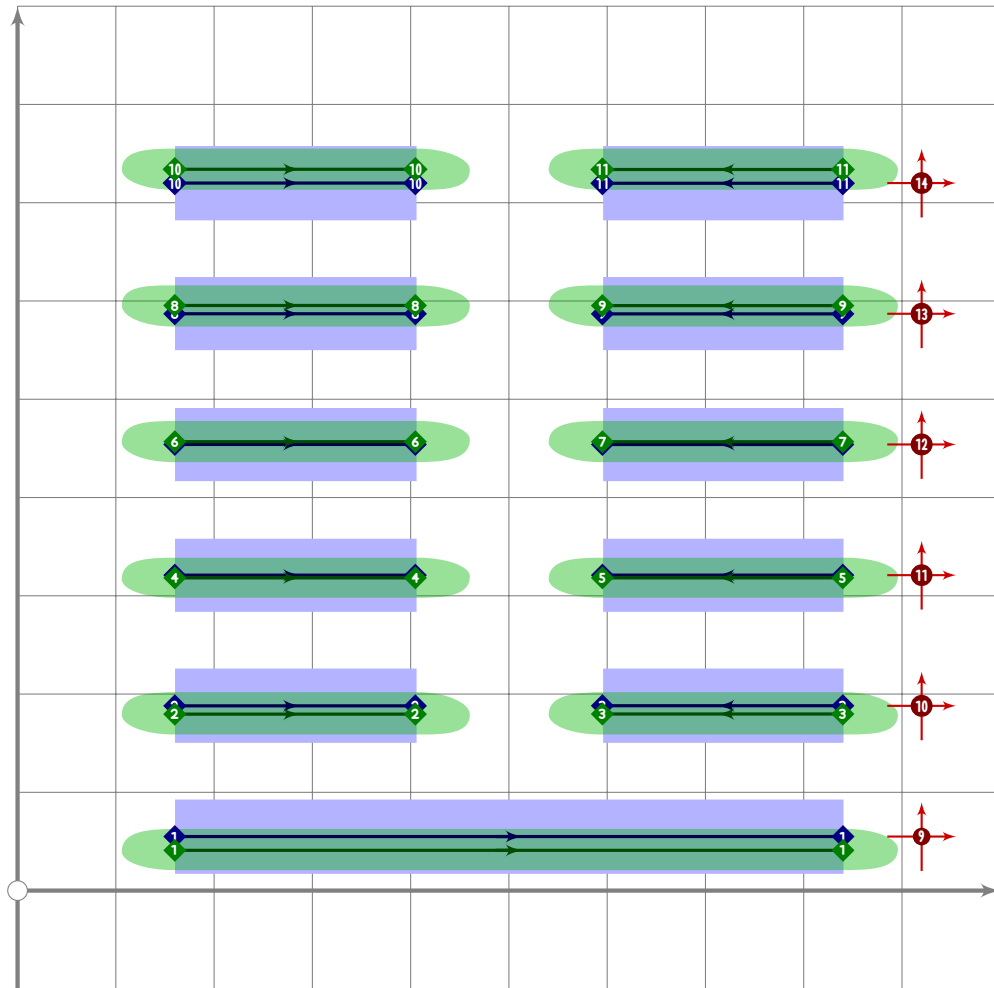


80 `make_hexagram(22,1,0,1,0,0,1);`

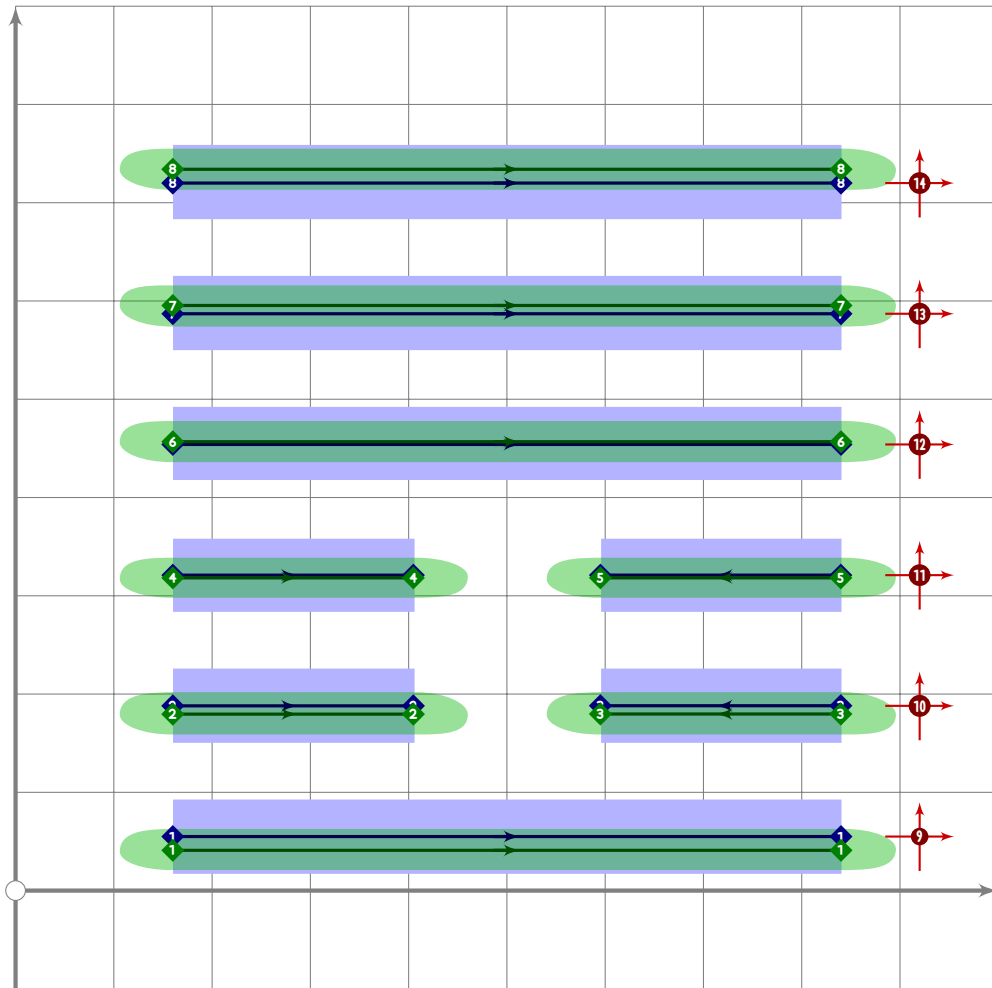


81 `make_hexagram(23,0,0,0,0,1);`

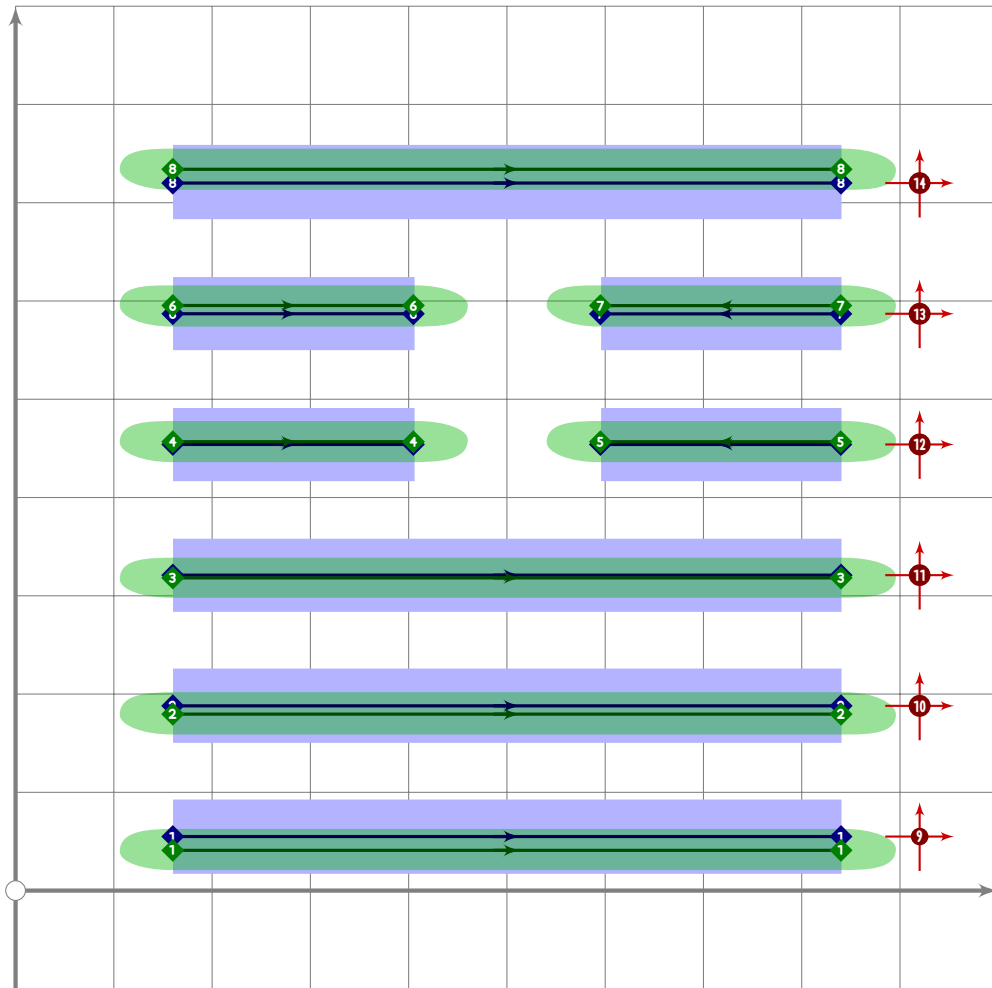




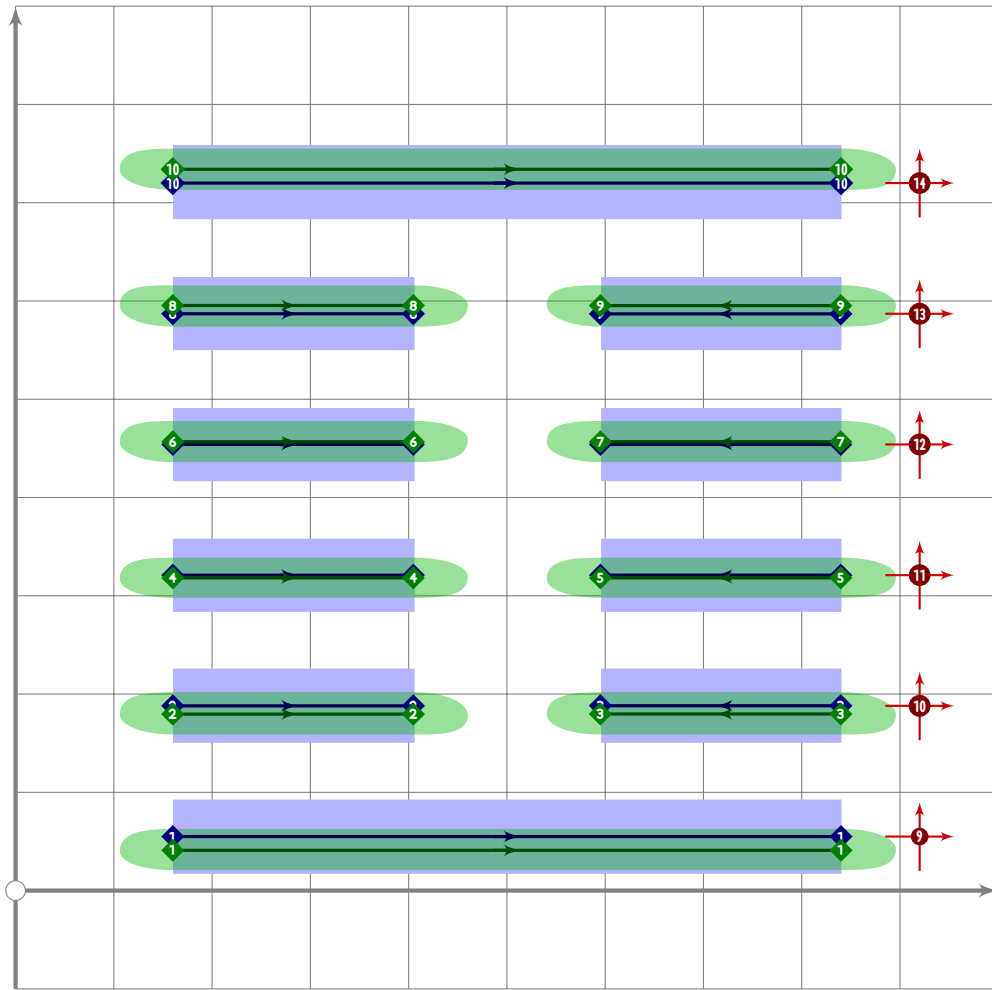
82 `make_hexagram(24,1,0,0,0,0);`



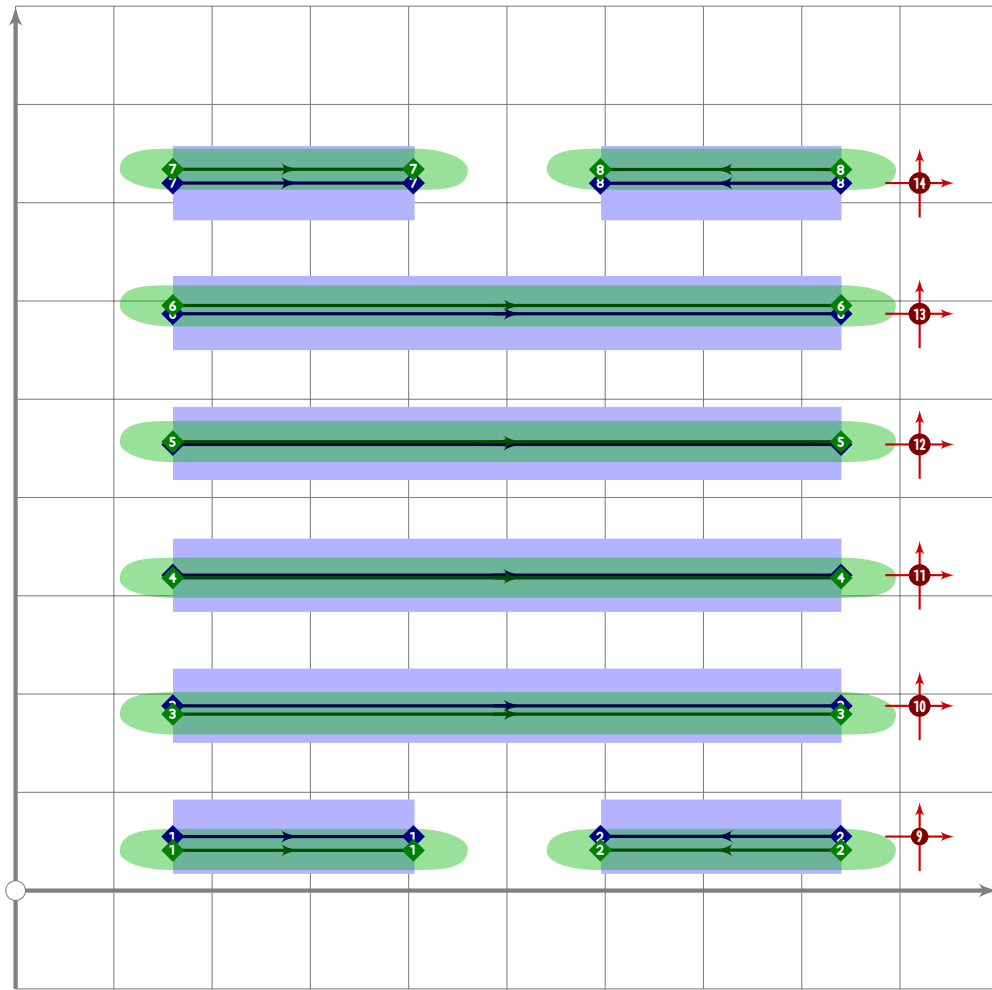
83 `make_hexagram(25,1,0,0,1,1);`



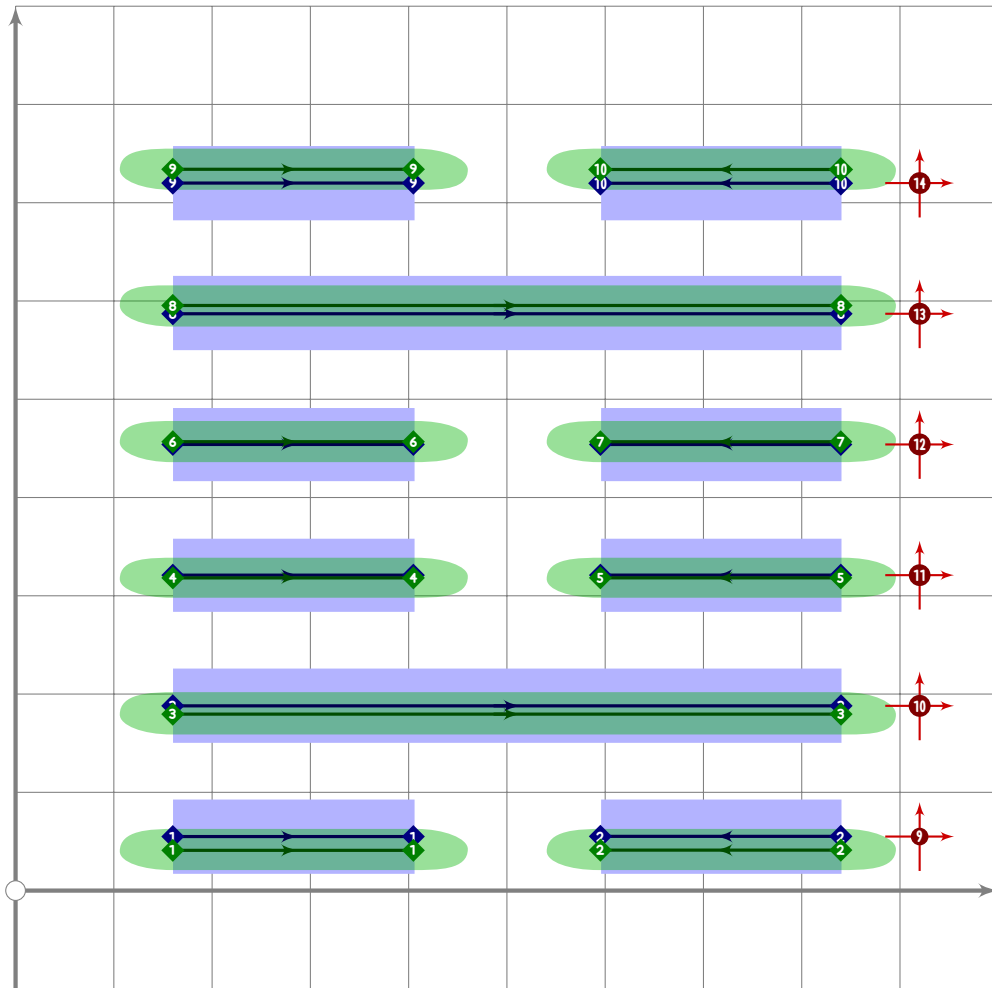
84 `make_hexagram(26,1,1,1,0,0,1);`



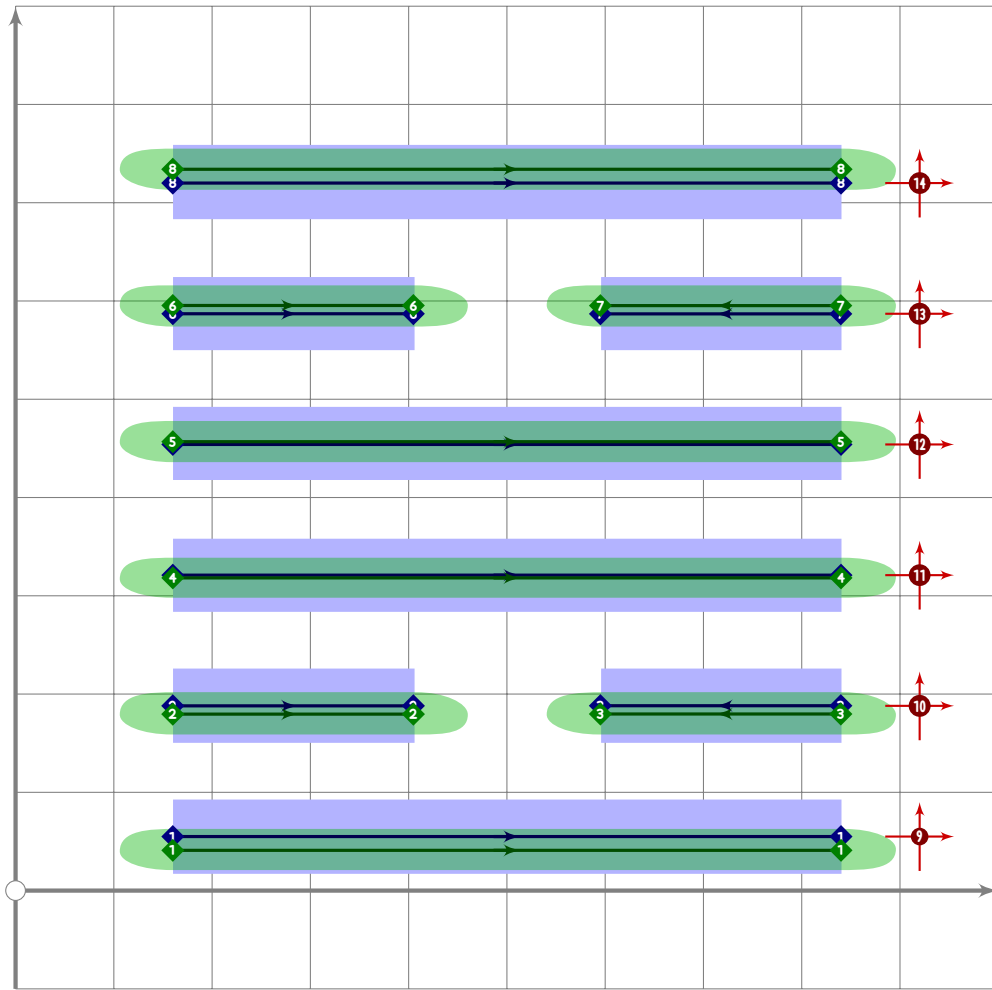
85 `make_hexagram(27,1,0,0,0,0,1);`



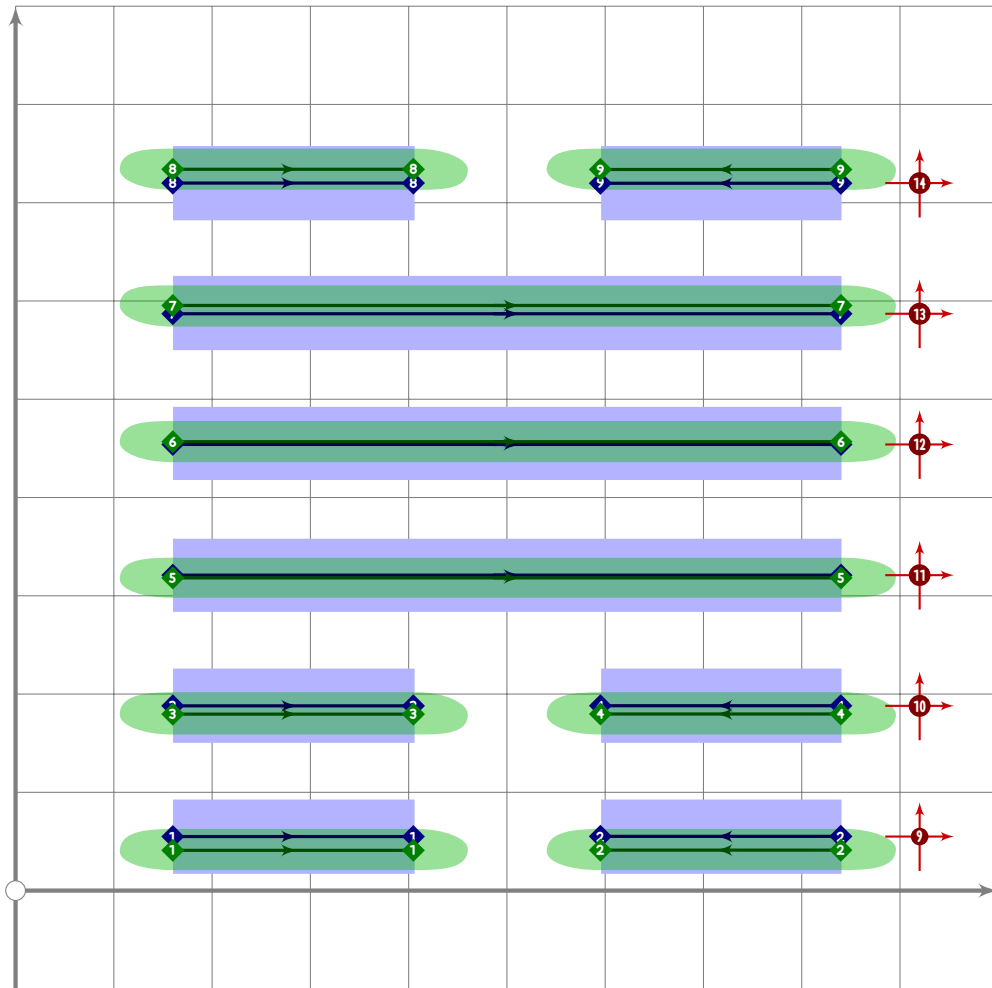
86 `make_hexagram(28,0,1,1,1,0);`



87 `make_hexagram(29,0,1,0,0,1,0);`

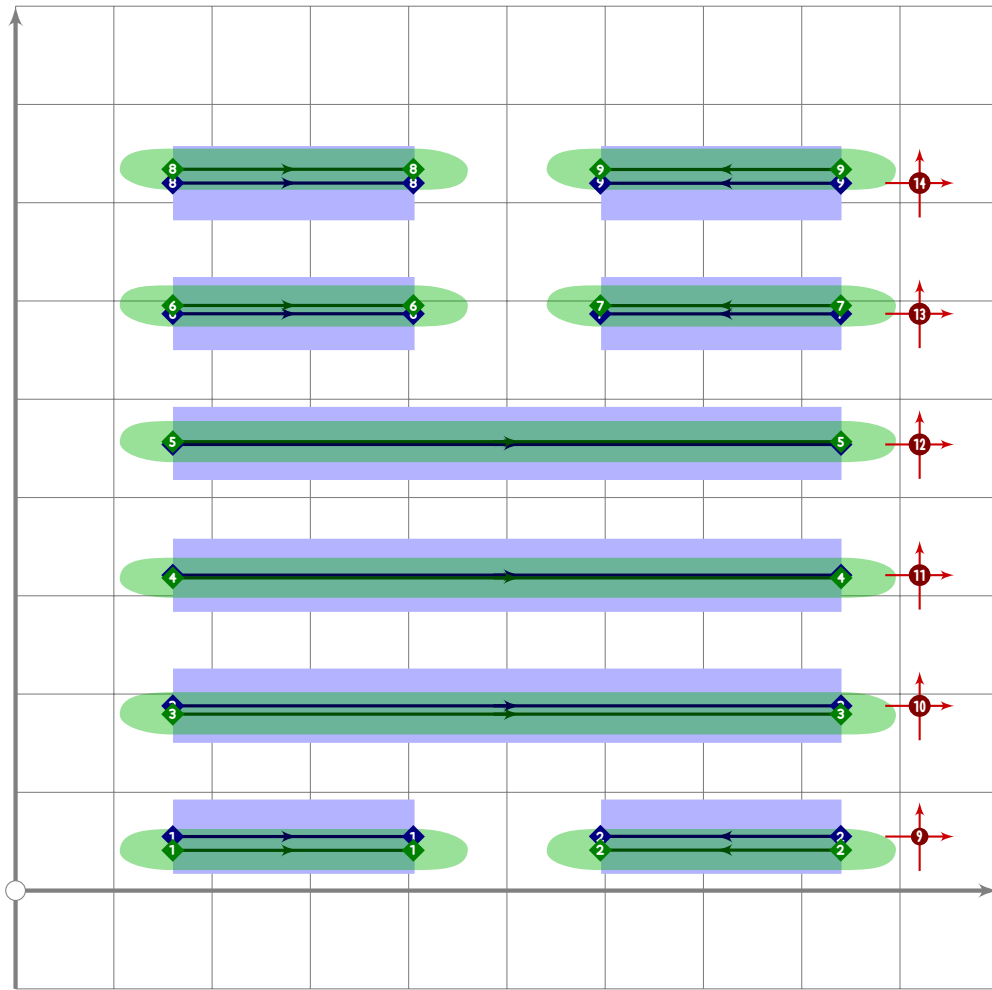


88 `make_hexagram(30,1,0,1,1,0,1);`

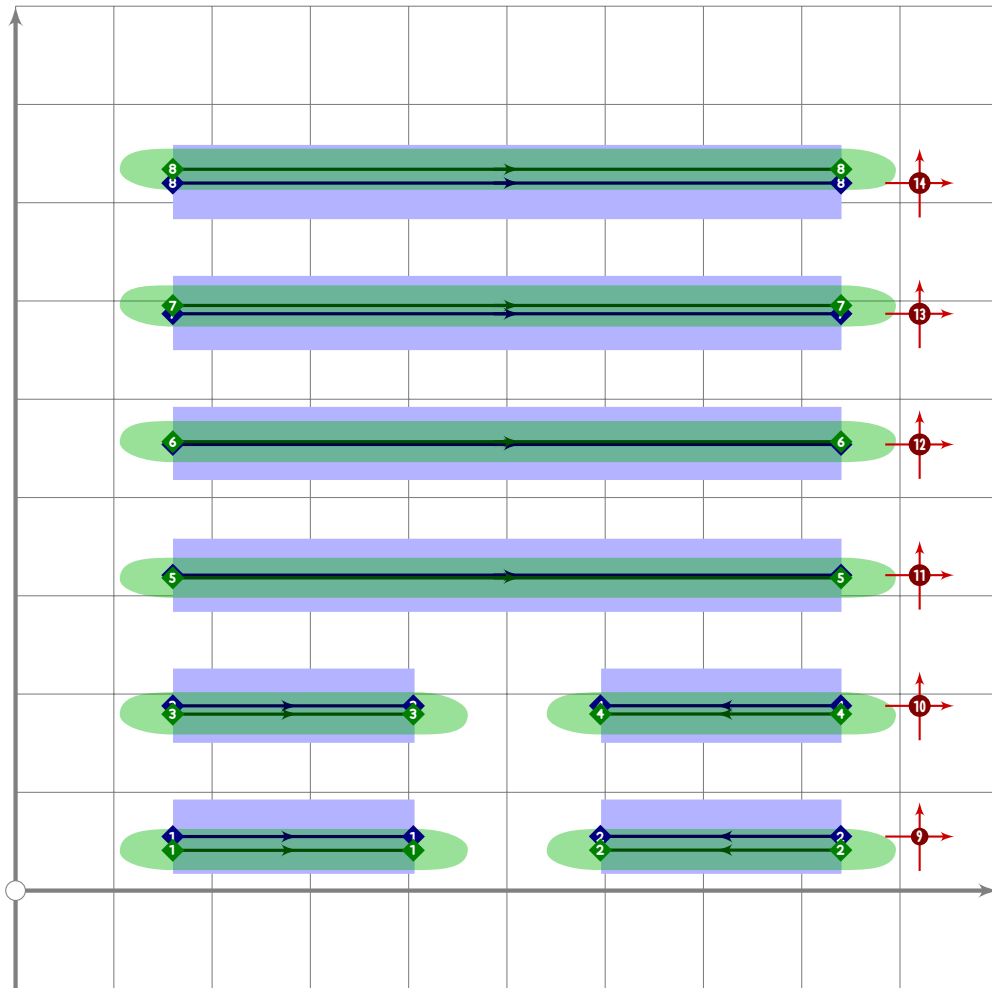


89 `make_hexagram(31,0,0,1,1,0);`



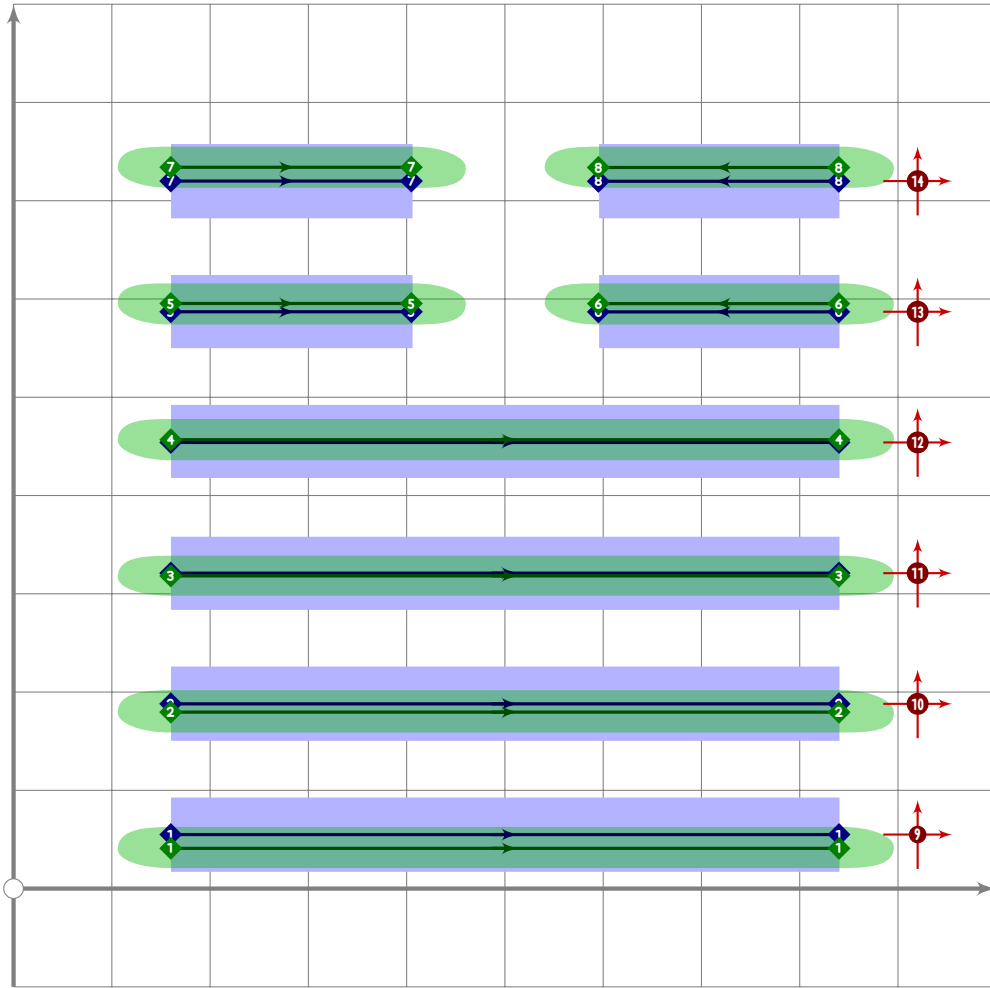


90 `make_hexagram(32,0,1,1,0,0);`

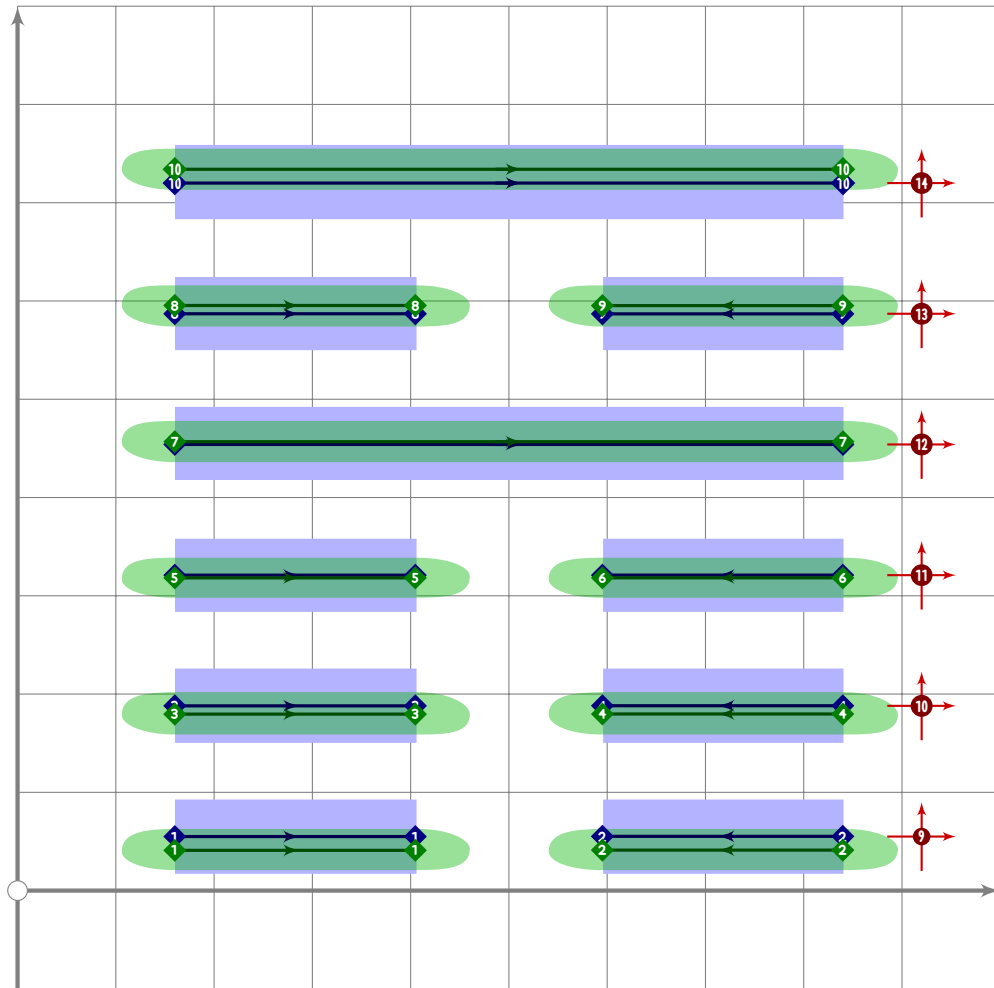


91

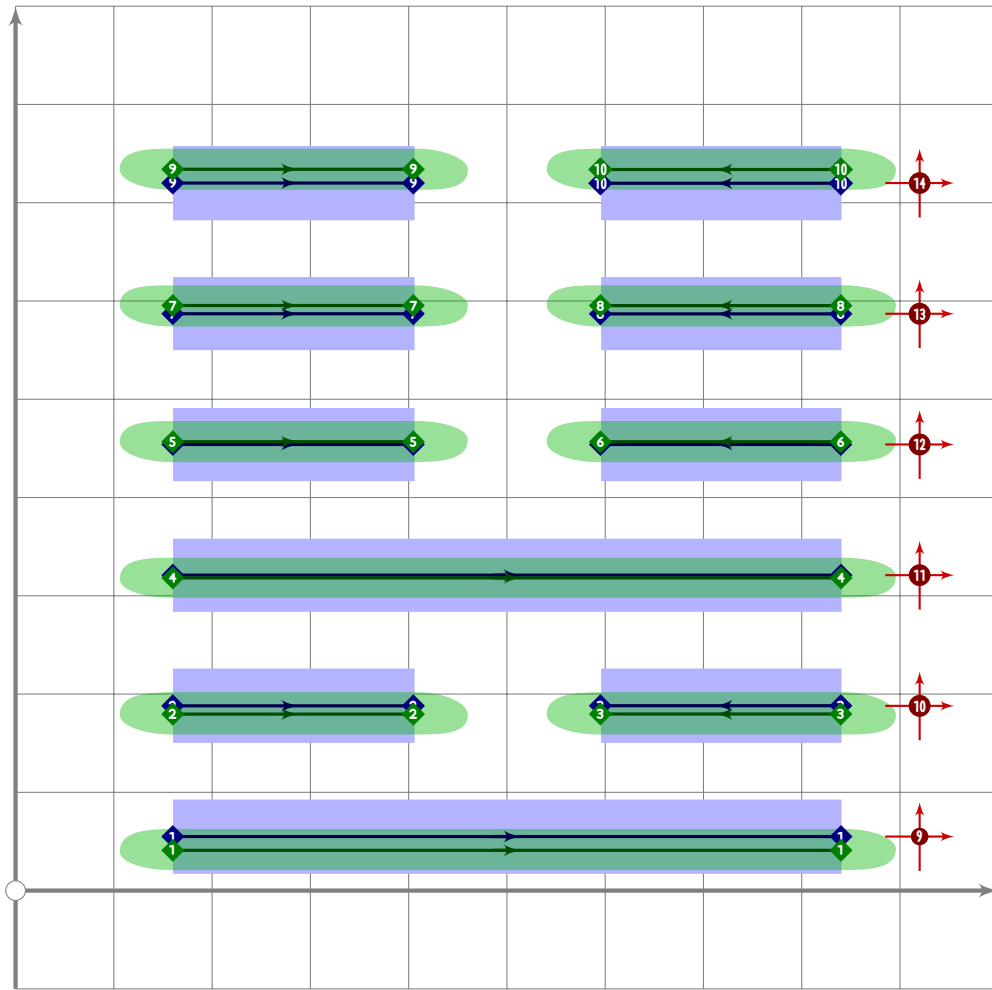
92 `make_hexagram(33,0,0,1,1,1,1);`



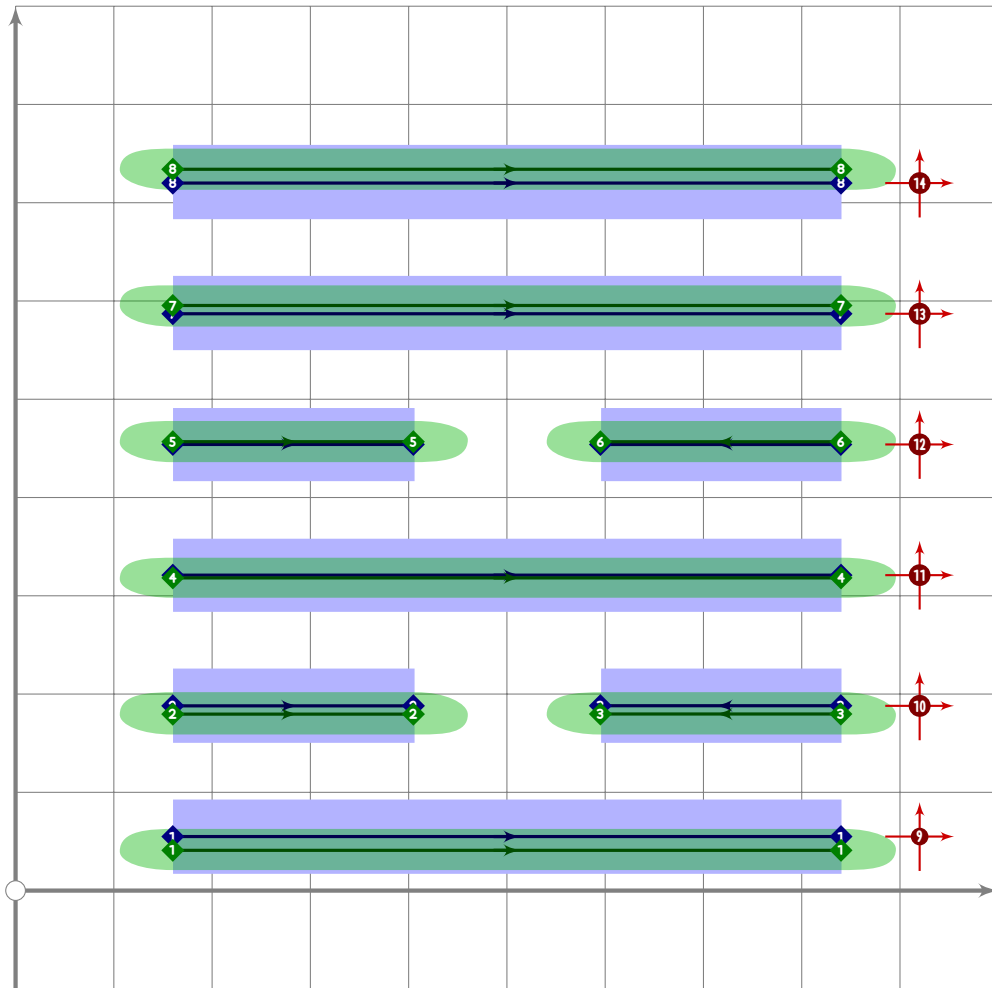
93 `make_hexagram(34,1,1,1,0,0);`



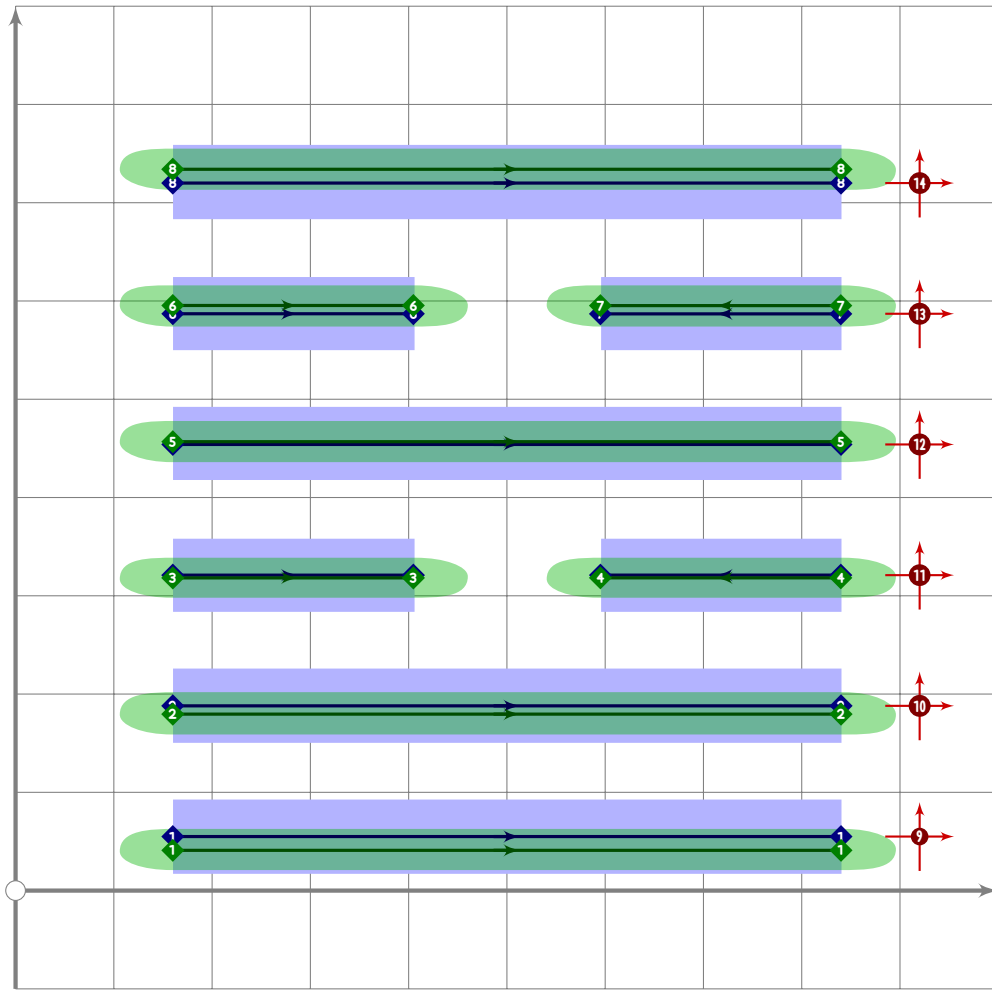
94 `make_hexagram(35,0,0,0,1,0,1);`



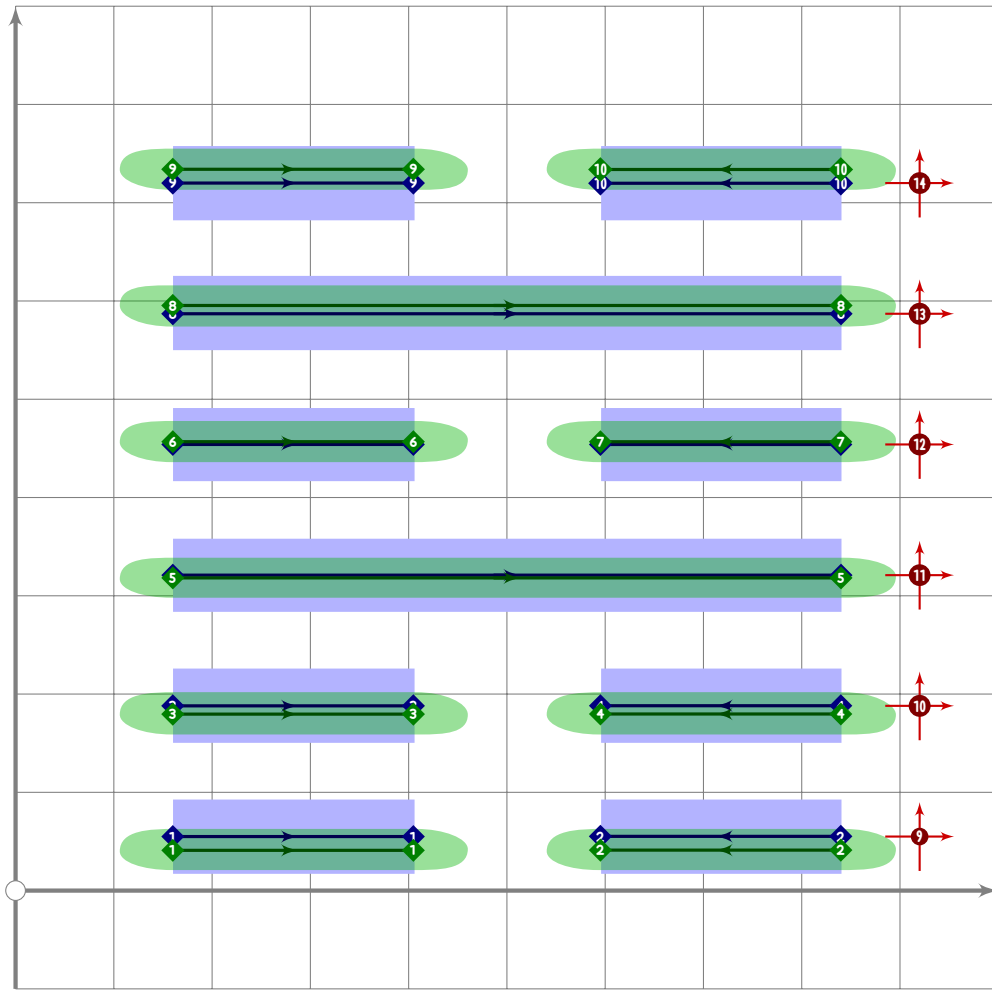
95 `make_hexagram(36,1,0,1,0,0,0);`



96 `make_hexagram(37,1,0,1,0,1,1);`

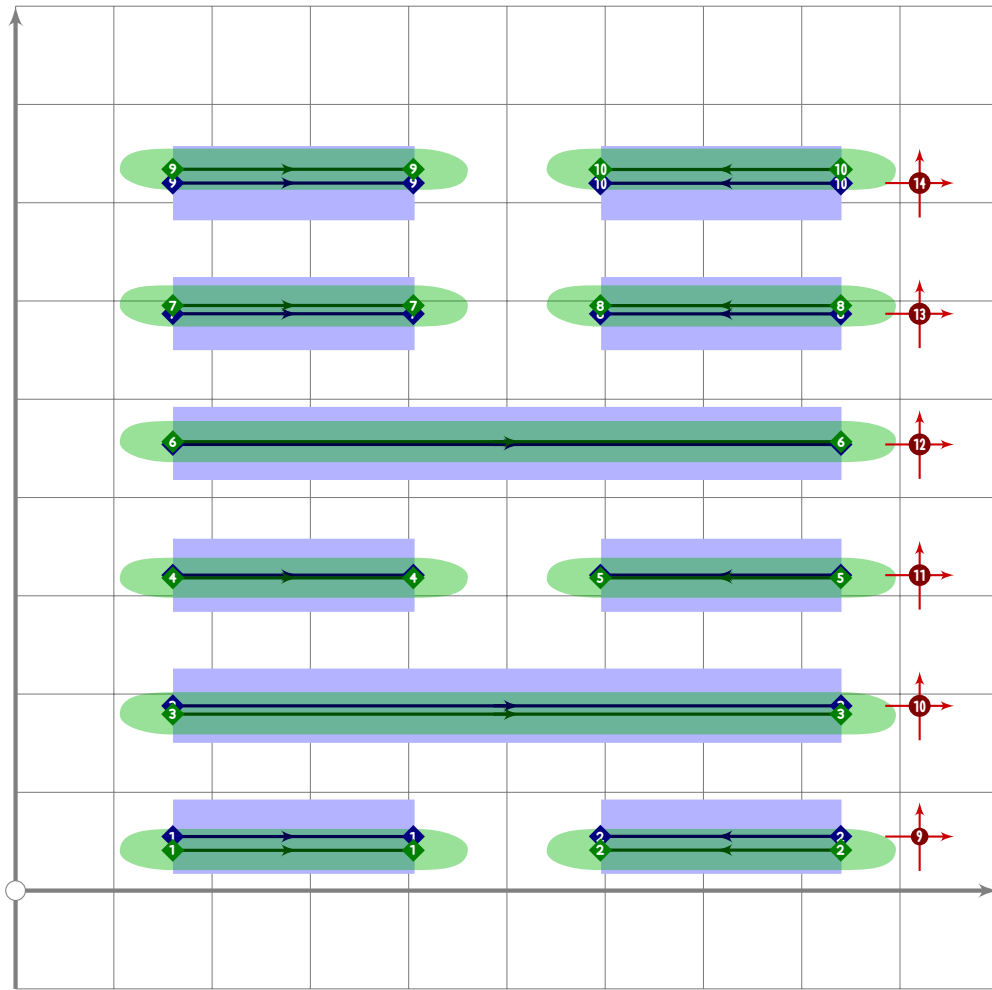


97 `make_hexagram(38,1,1,0,1,0,1);`

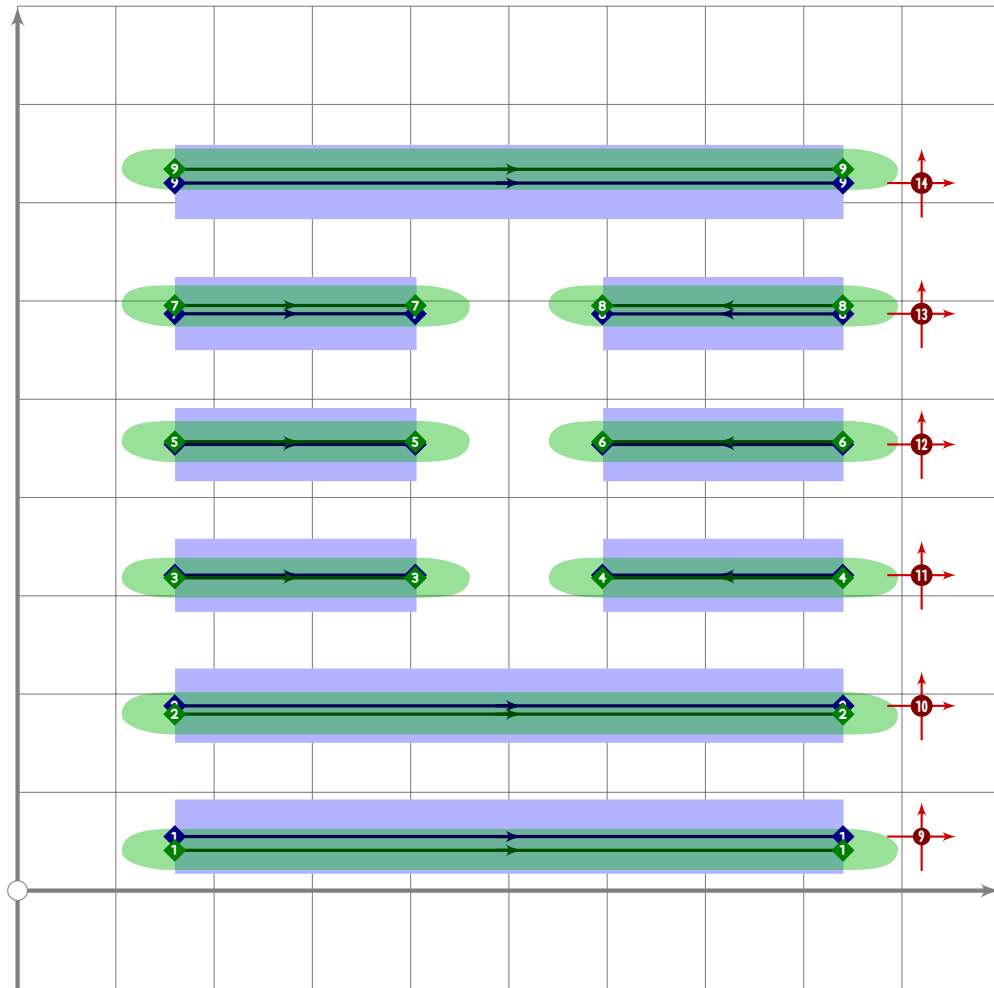


98 `make_hexagram(39,0,0,1,0,1,0);`

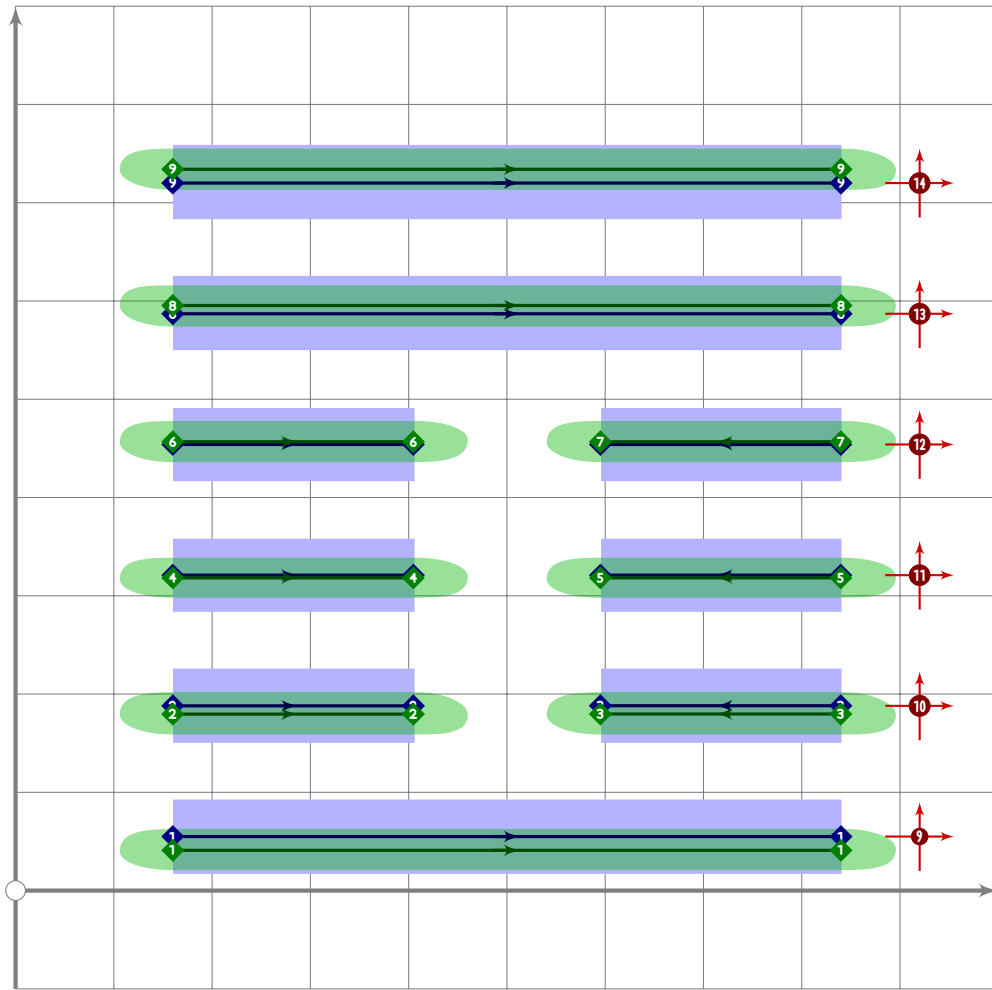




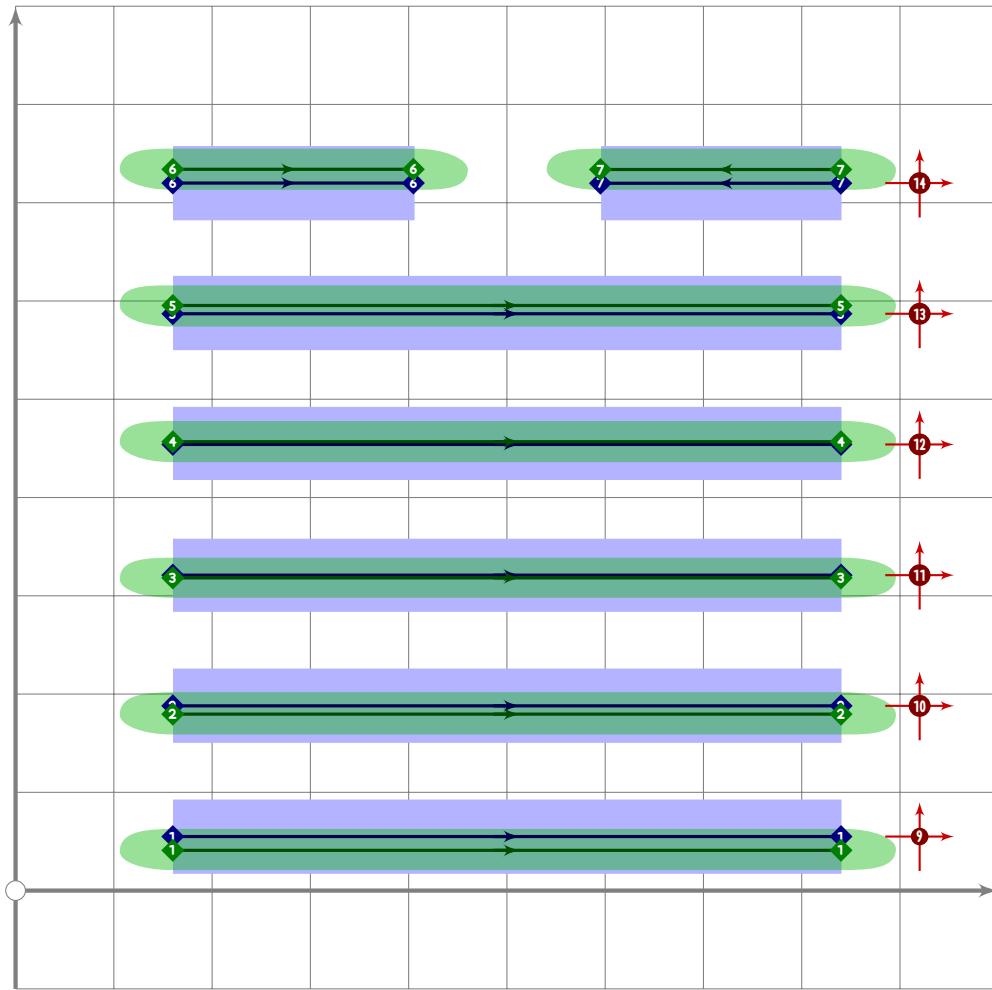
99 `make_hexagram(4,0,1,0,1,0,0);`



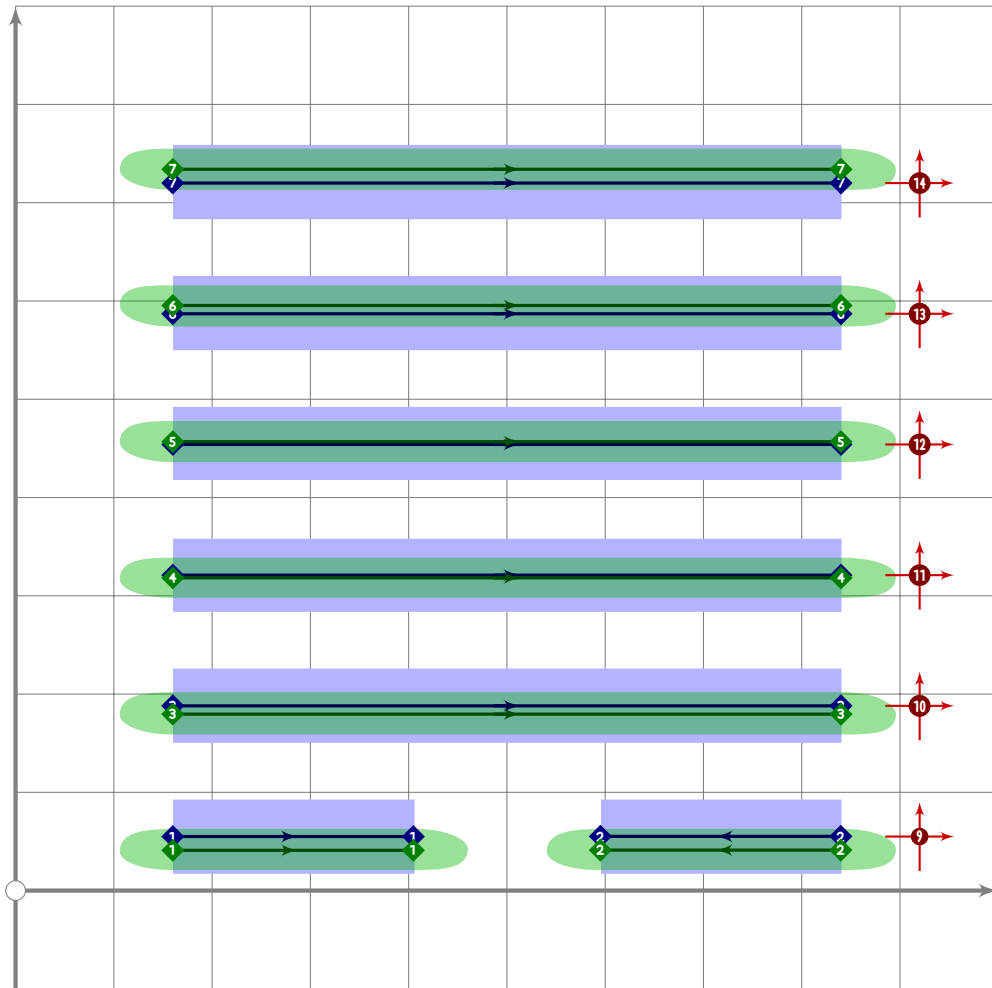
100 `make_hexagram(4,1,1,0,0,0,1);`



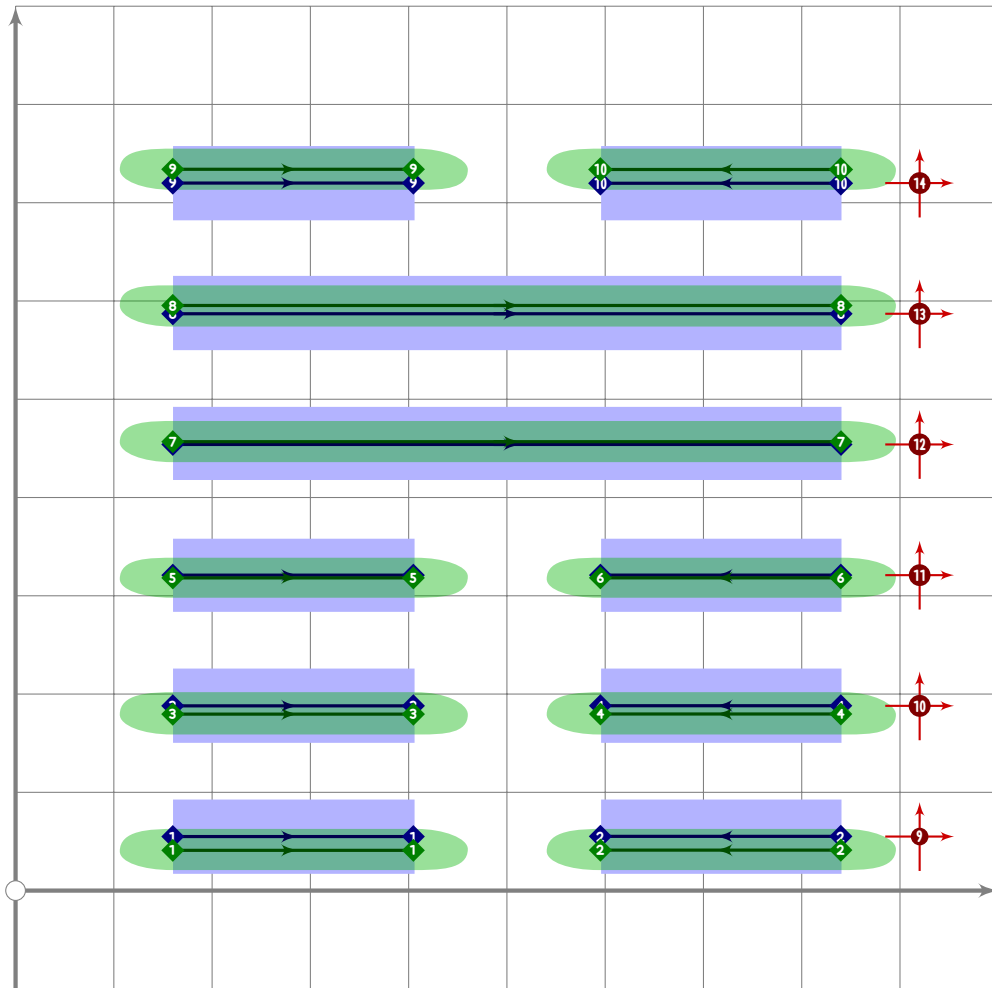
101 `make_hexagram(42,1,0,0,0,1,1);`



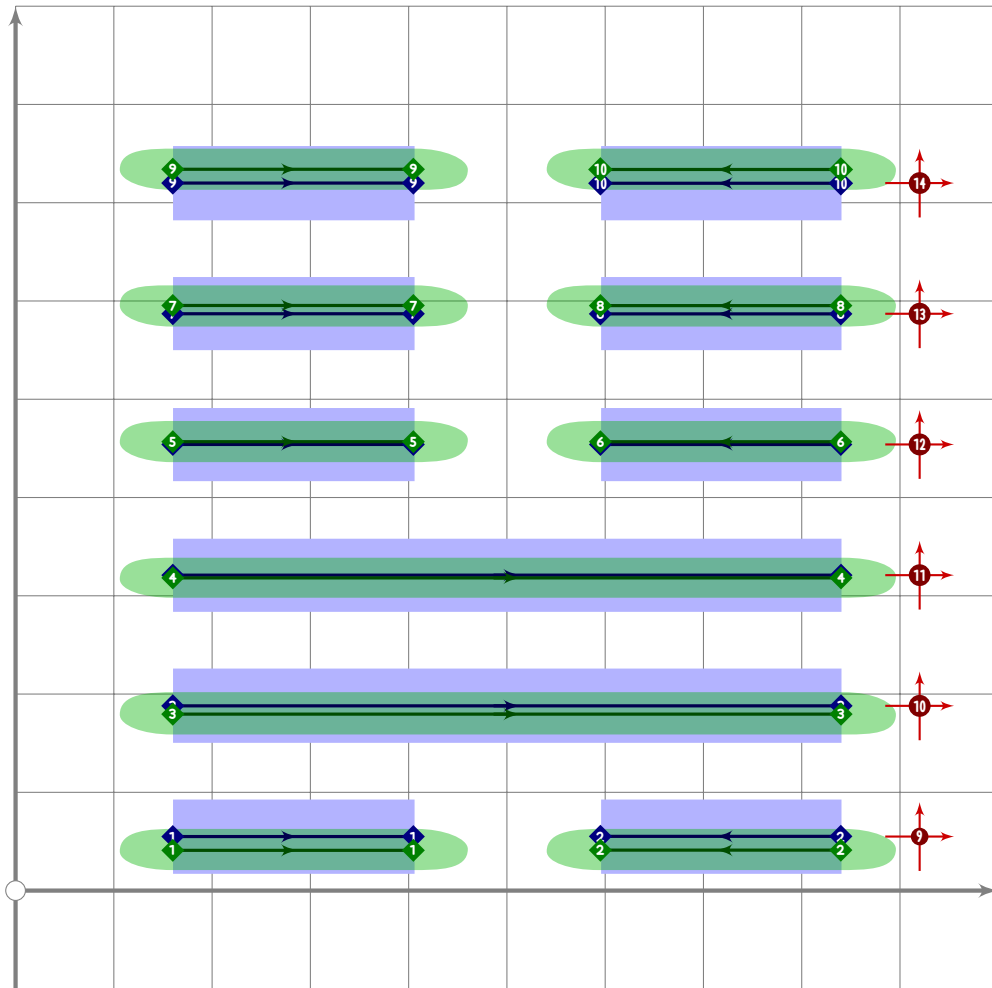
102 `make_hexagram(43,1,1,1,1,0);`



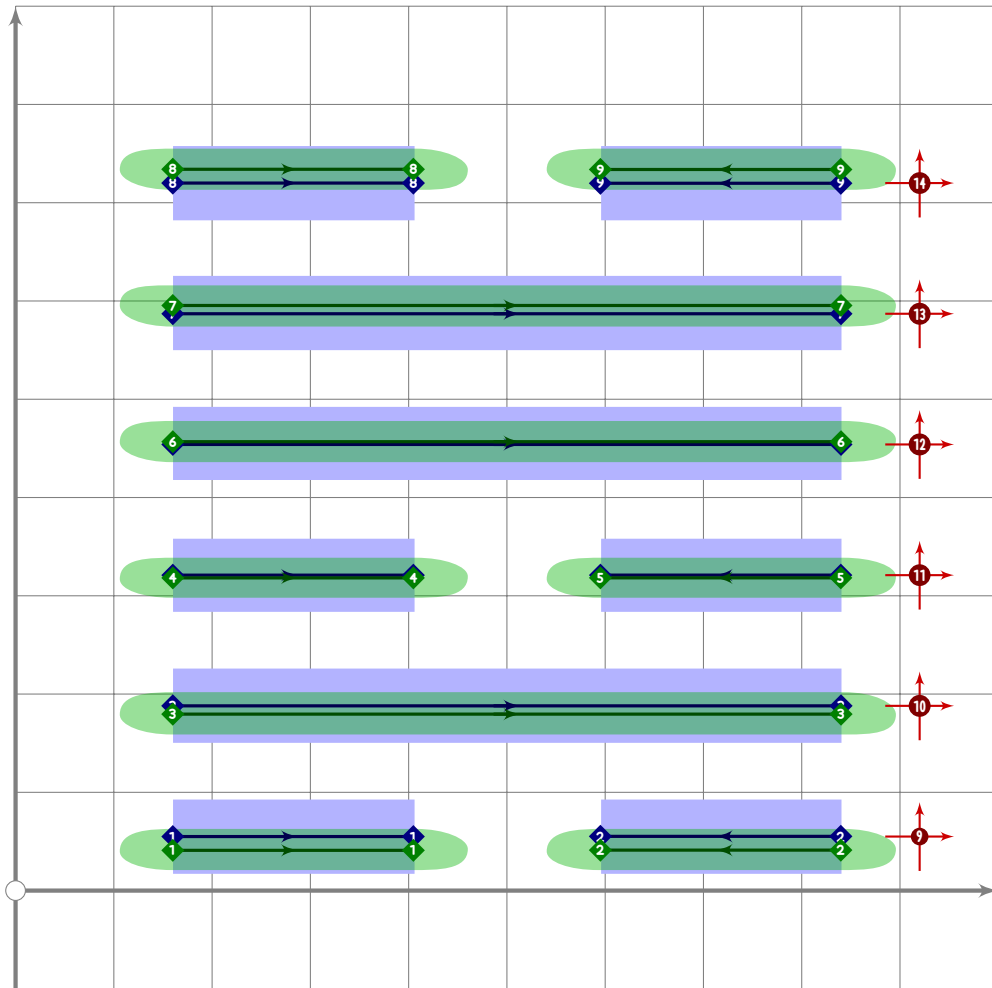
103 `make_hexagram(44,0,1,1,1,1);`



104 `make_hexagram(45,0,0,0,1,1,0);`

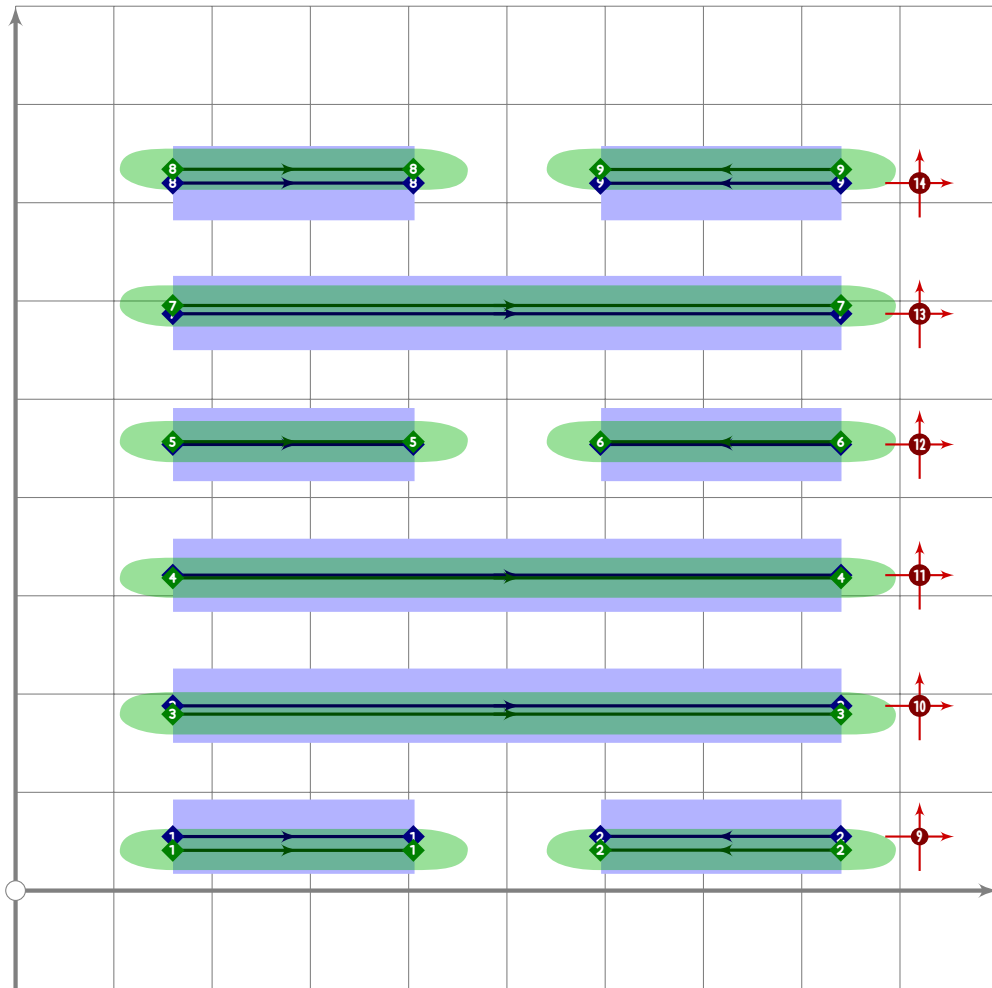


105 `make_hexagram(46,0,1,1,0,0,0);`

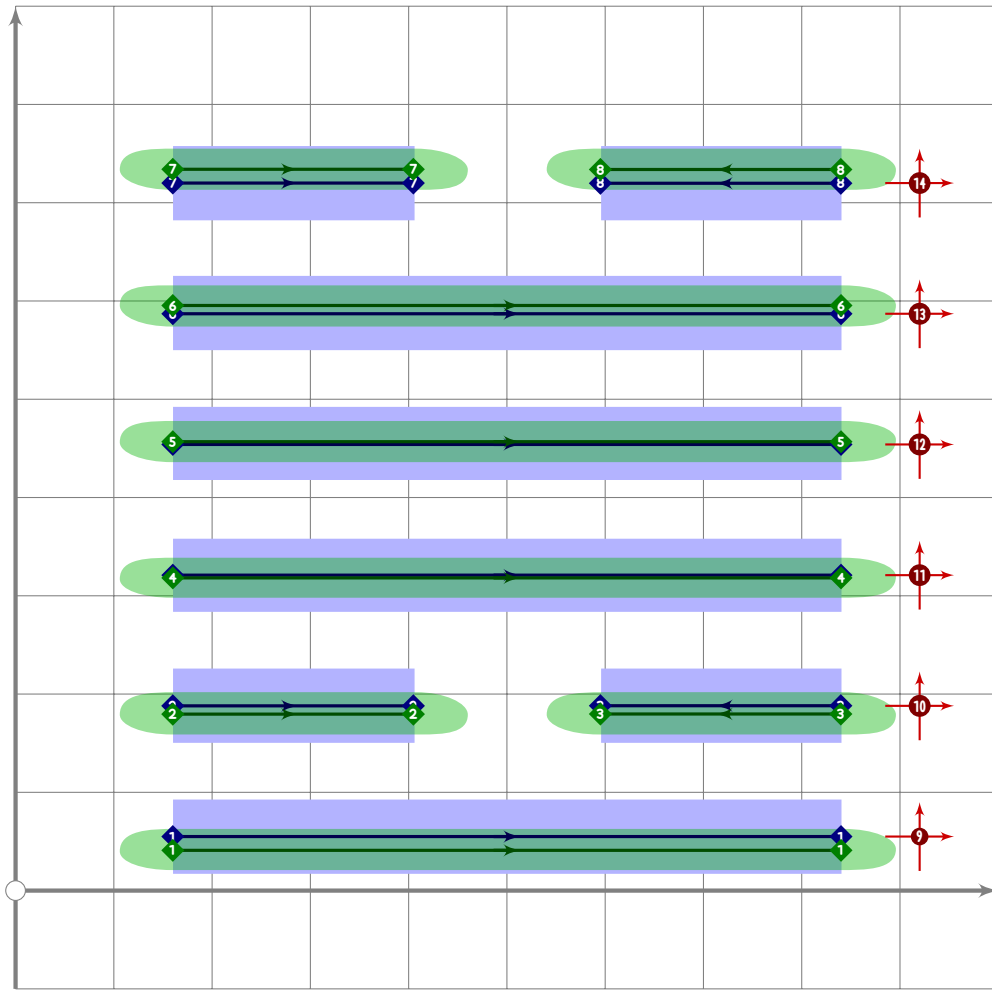


106 `make_hexagram(47,0,1,0,1,1,0);`



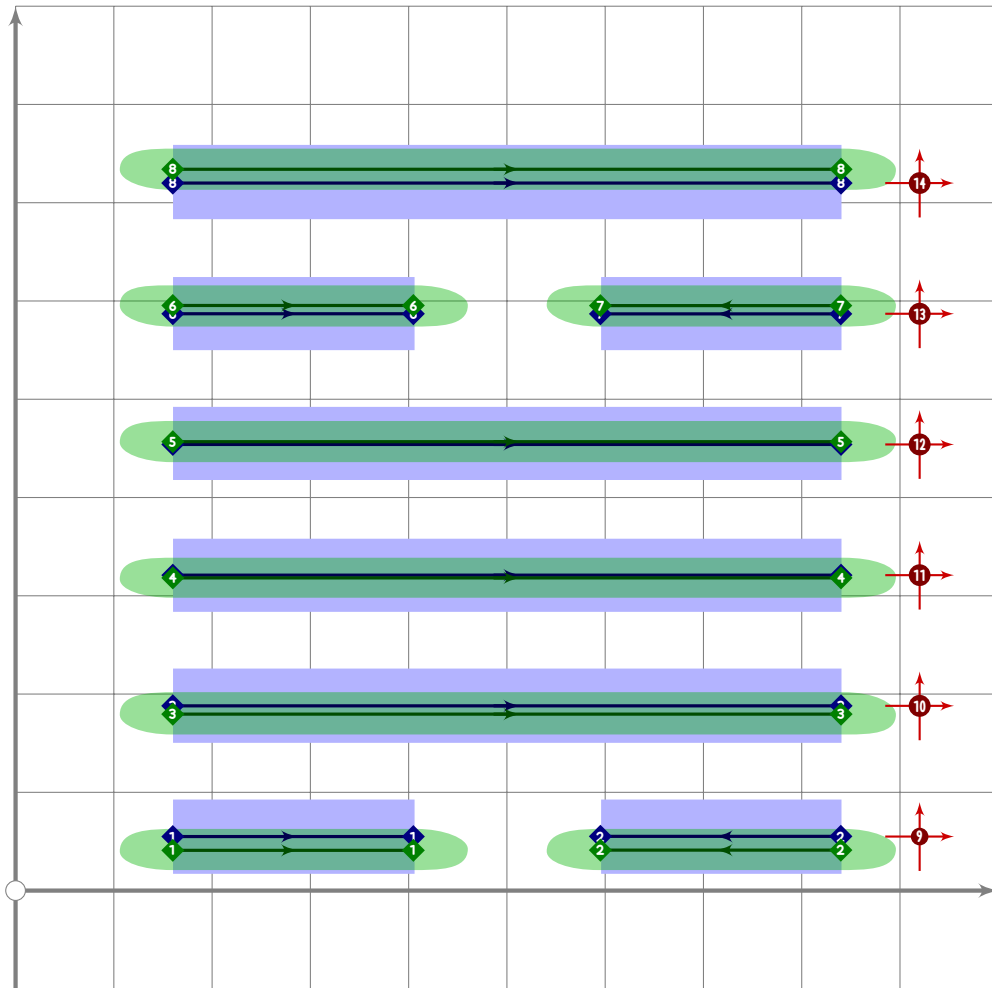


107 `make_hexagram(48,0,1,1,0,1,0);`

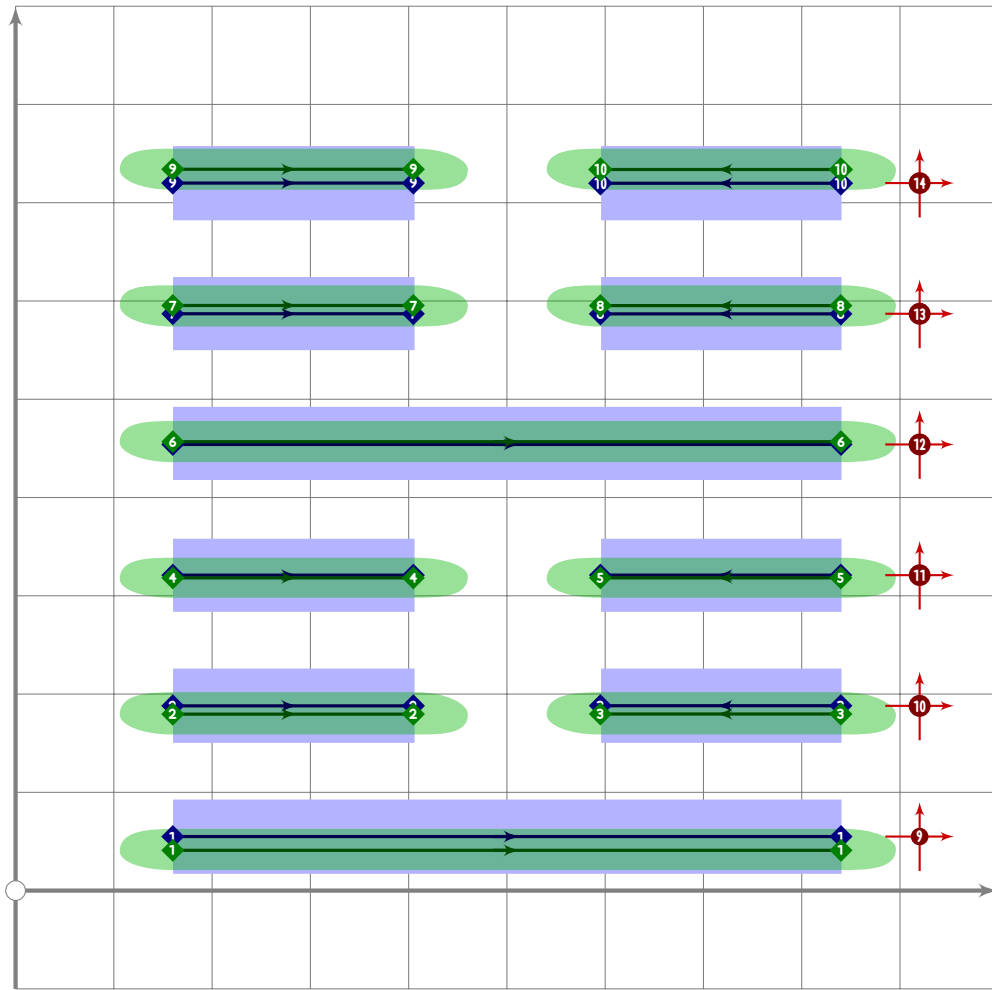


108

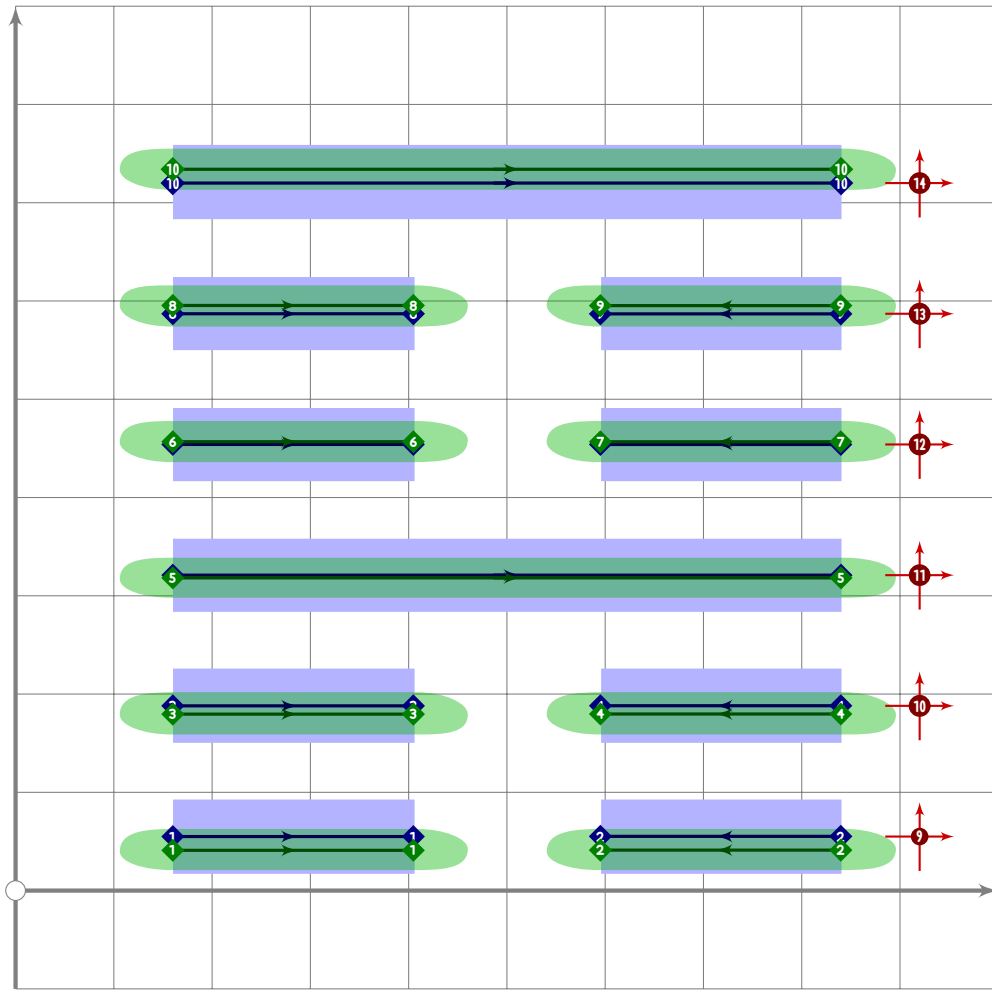
109 `make_hexagram(49,1,0,1,1,0);`



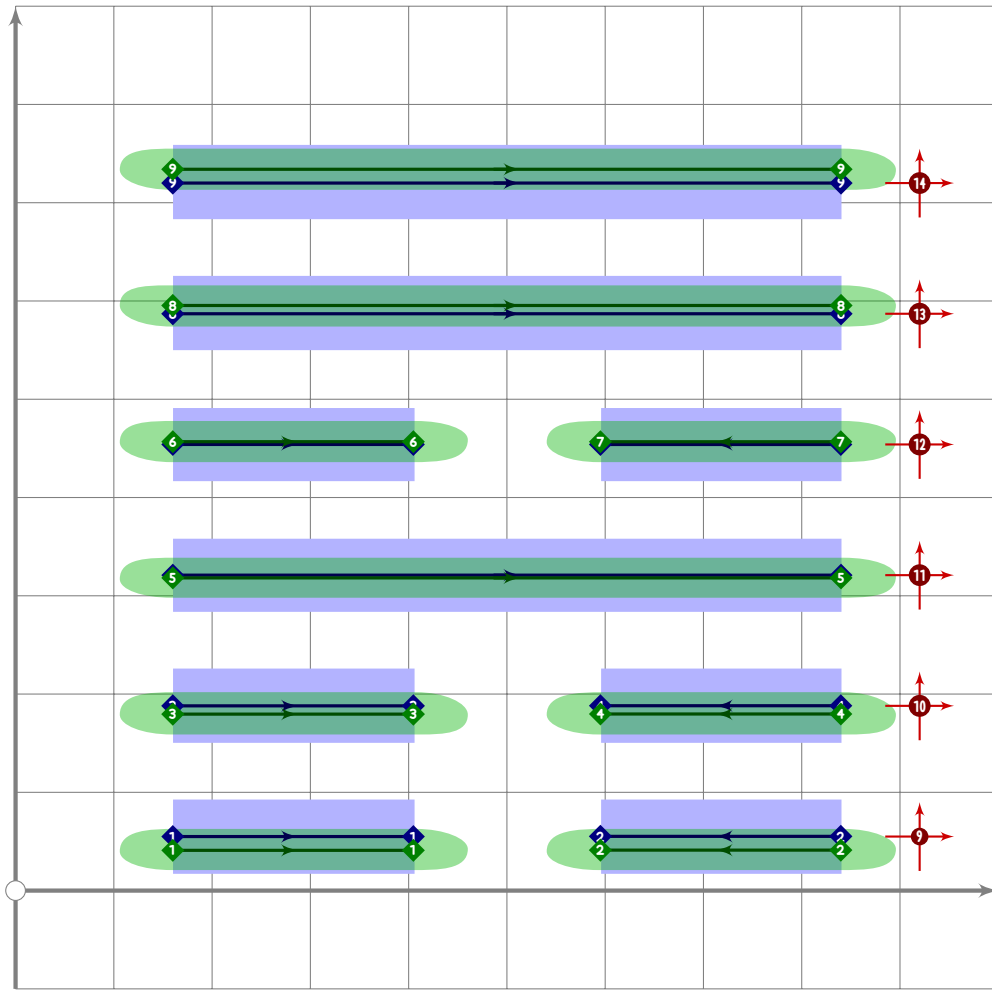
110 `make_hexagram(50,0,1,1,1,0,1);`



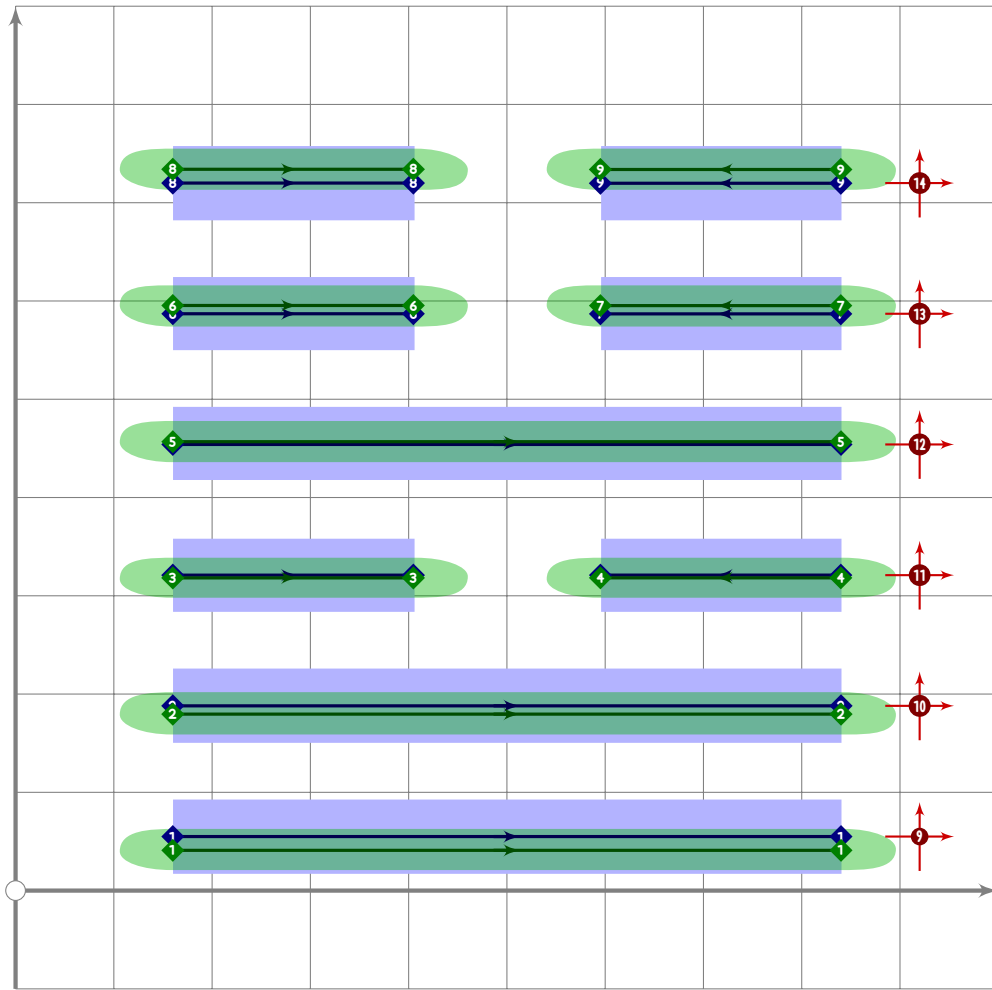
111 `make_hexagram(51,1,0,0,1,0,0);`



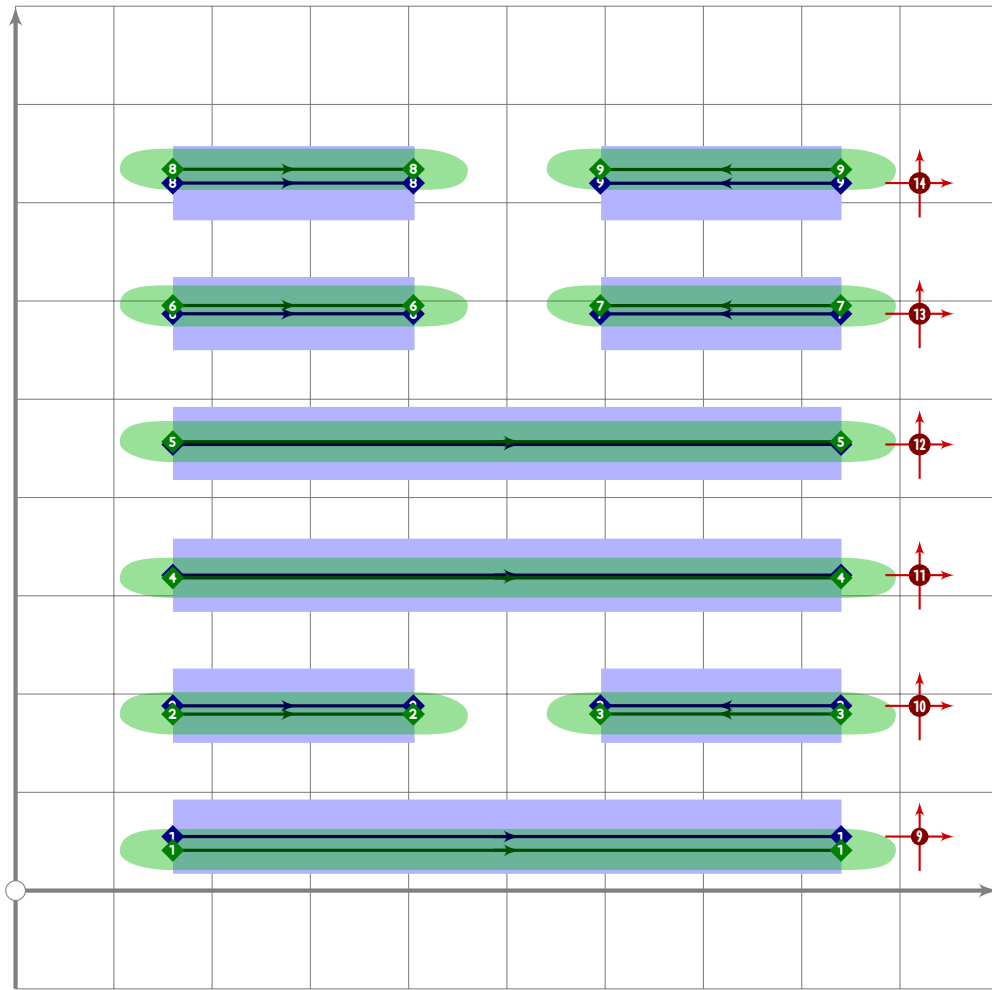
112 `make_hexagram(52,0,0,1,0,0,1);`



113 `make_hexagram(53,0,0,1,0,1,1);`

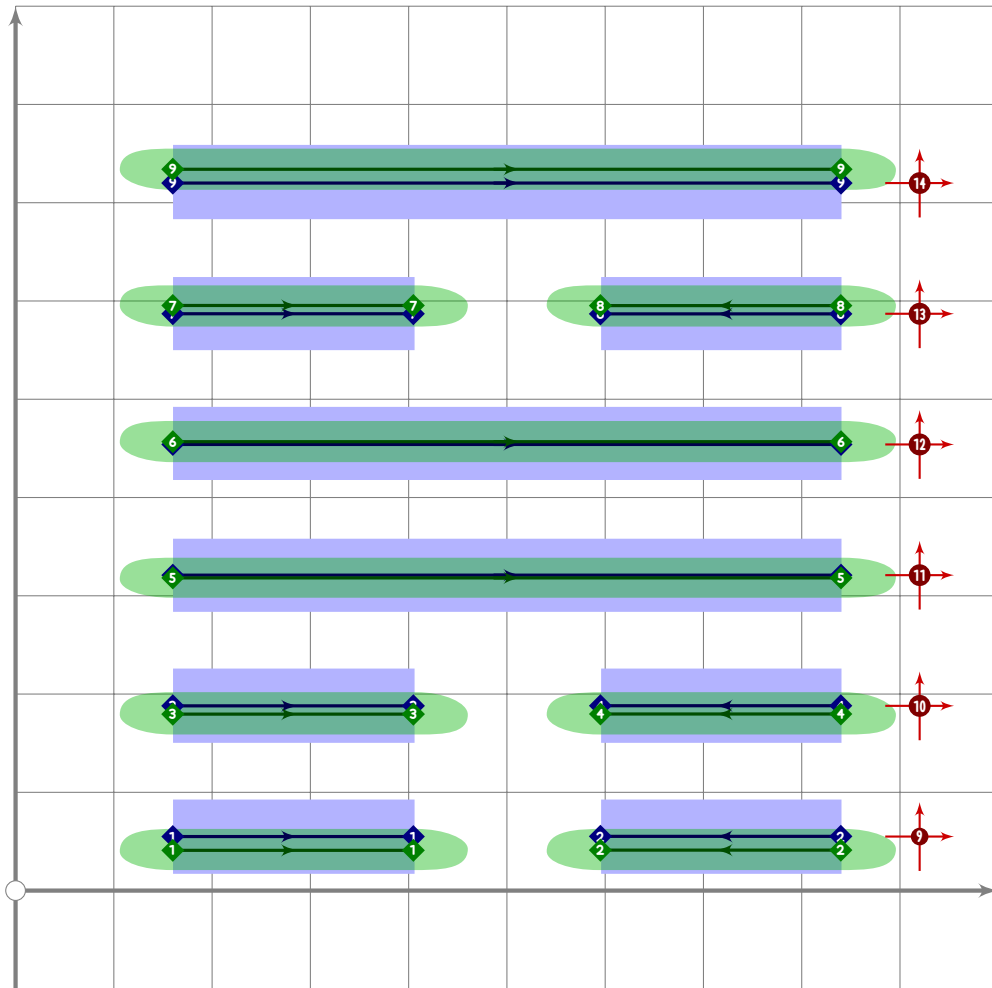


114 `make_hexagram(54,1,1,0,1,0,0);`

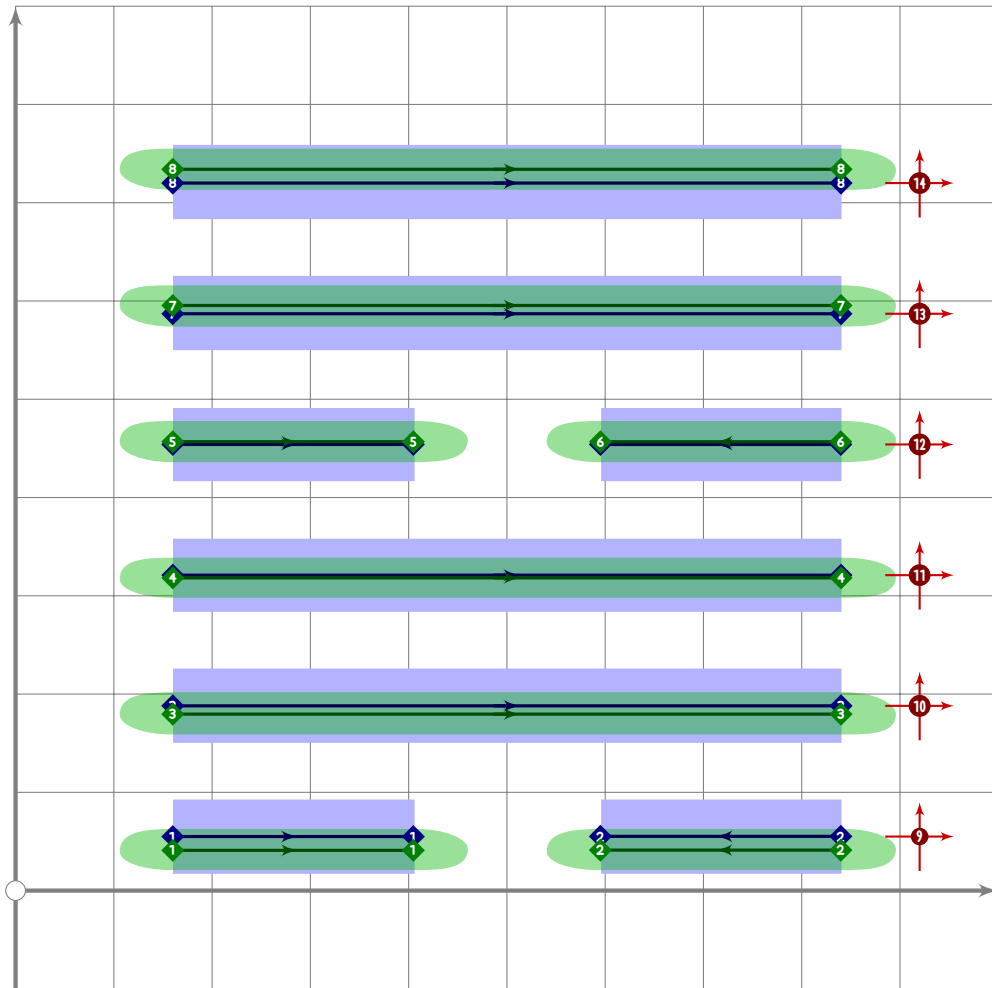


115 `make_hexagram(55,1,0,1,1,0,0);`

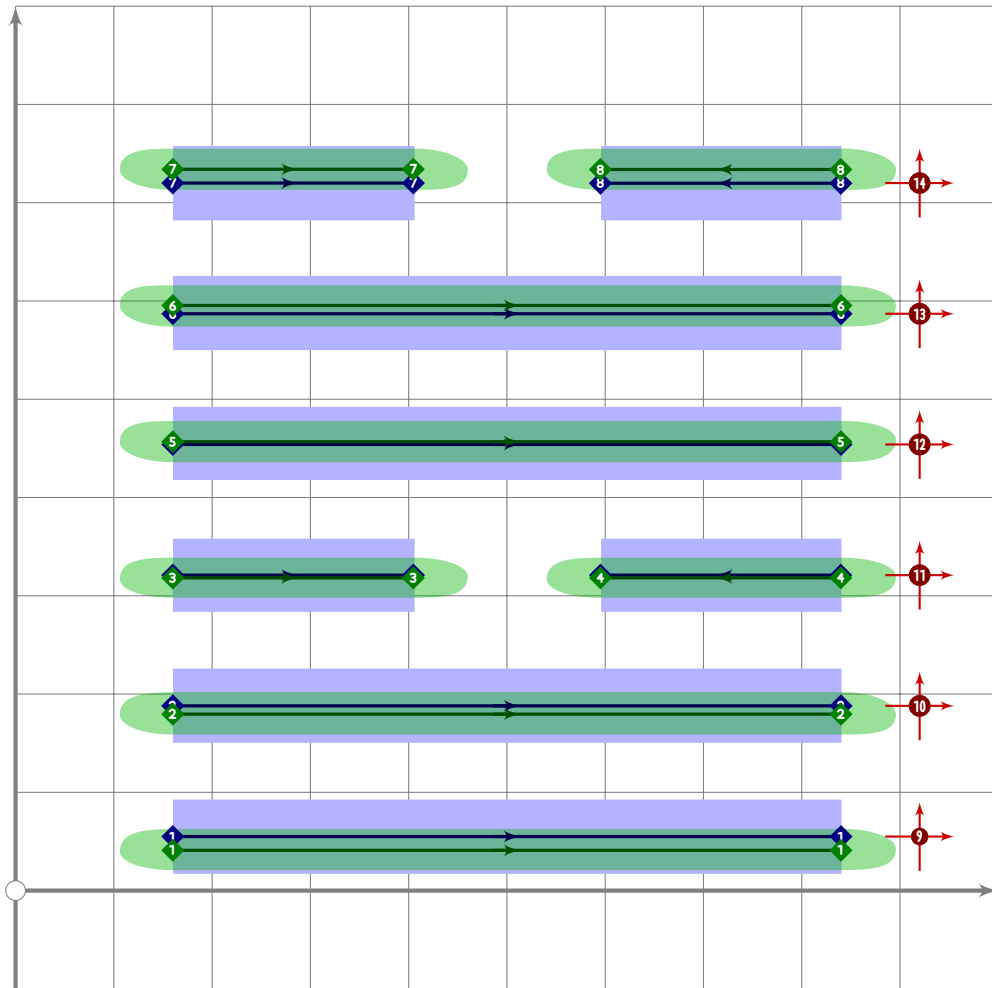




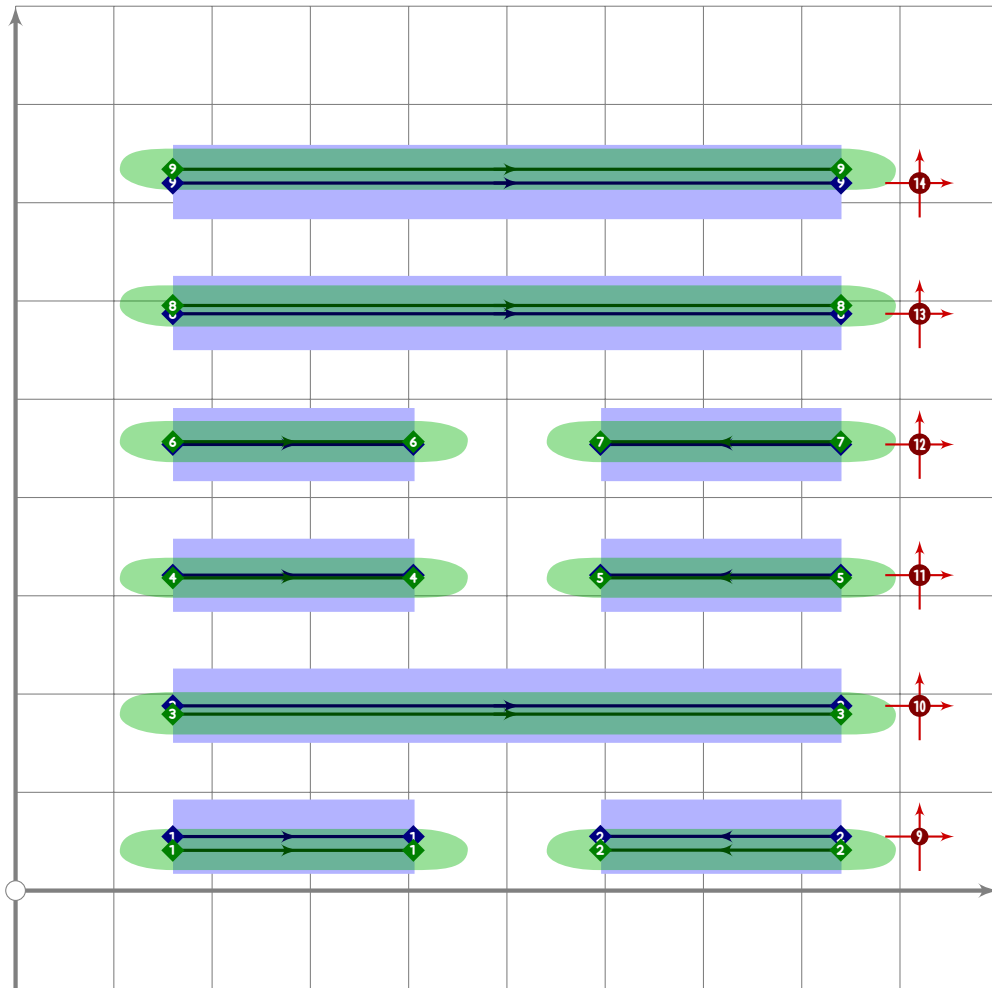
116 `make_hexagram(56,0,0,1,1,0,1);`



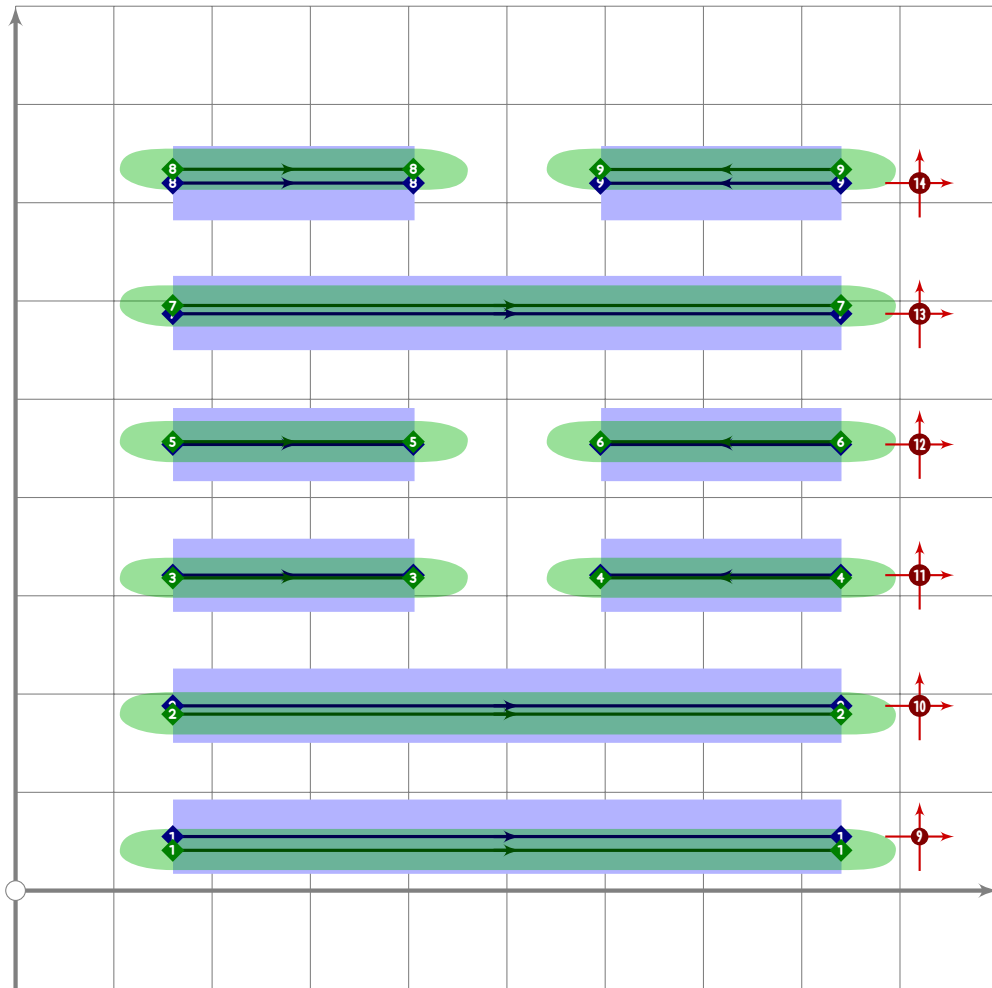
117 `make_hexagram(57,0,1,1,0,1,1);`



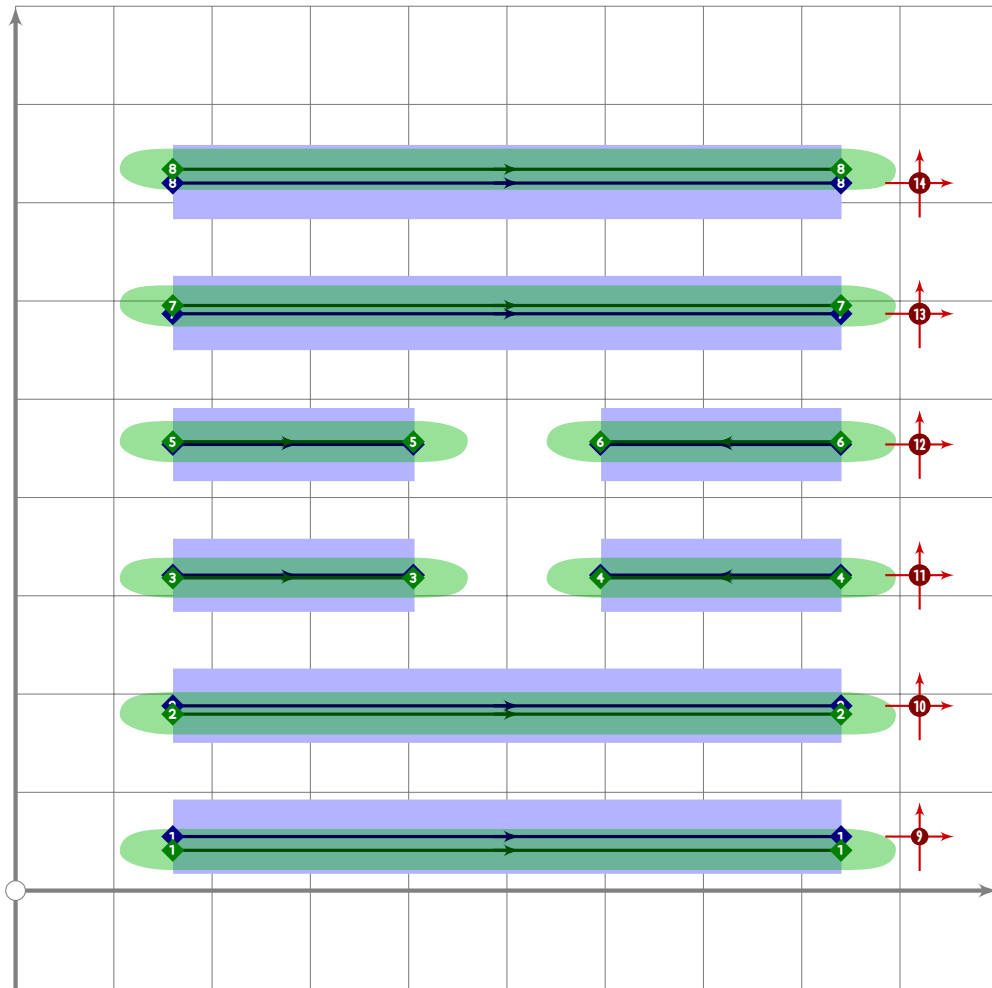
118 `make_hexagram(58,1,1,0,1,1,0);`



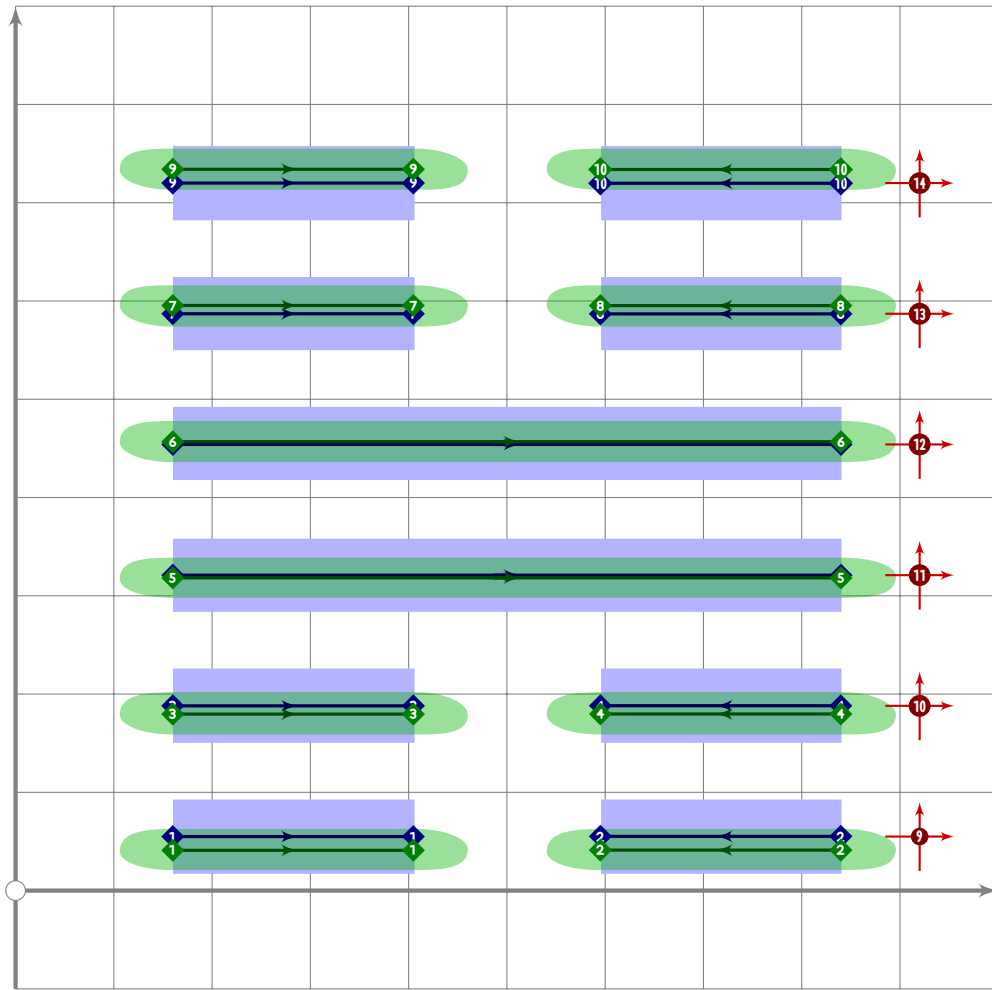
119 `make_hexagram(59,0,1,0,0,1,1);`



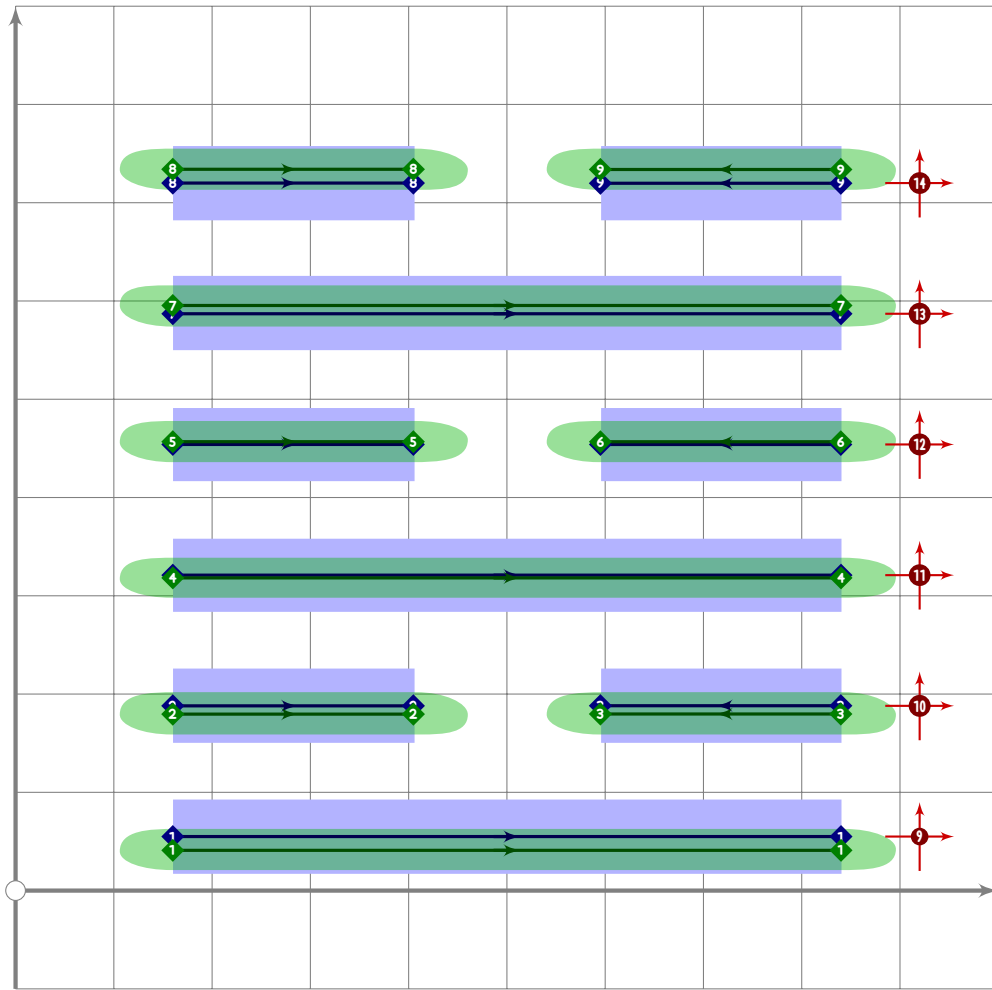
120 `make_hexagram(60,1,1,0,0,1,0);`



121 `make_hexagram(61,1,1,0,0,1,1);`

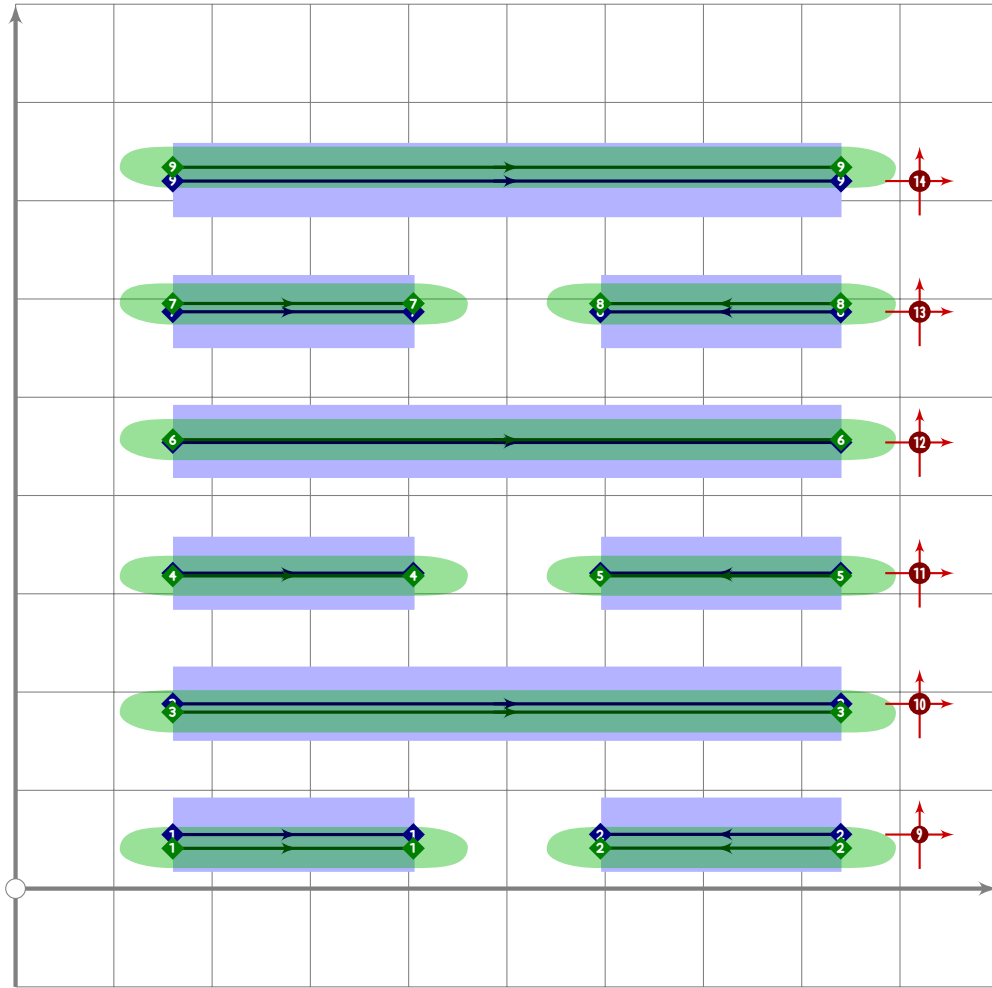


122 `make_hexagram(62,0,0,1,1,0,0);`



123 `make_hexagram(63,1,0,1,0,1,0);`





```
124 make_hexagram(64,0,1,0,1,0,1);
```

```
125
```

---

```
126
```

```
127
```

```
128 endfont;
```

```
129
```

---

```
130
```



Part IV

U+4E00 to U+61FF



# tsuku-4e.mp

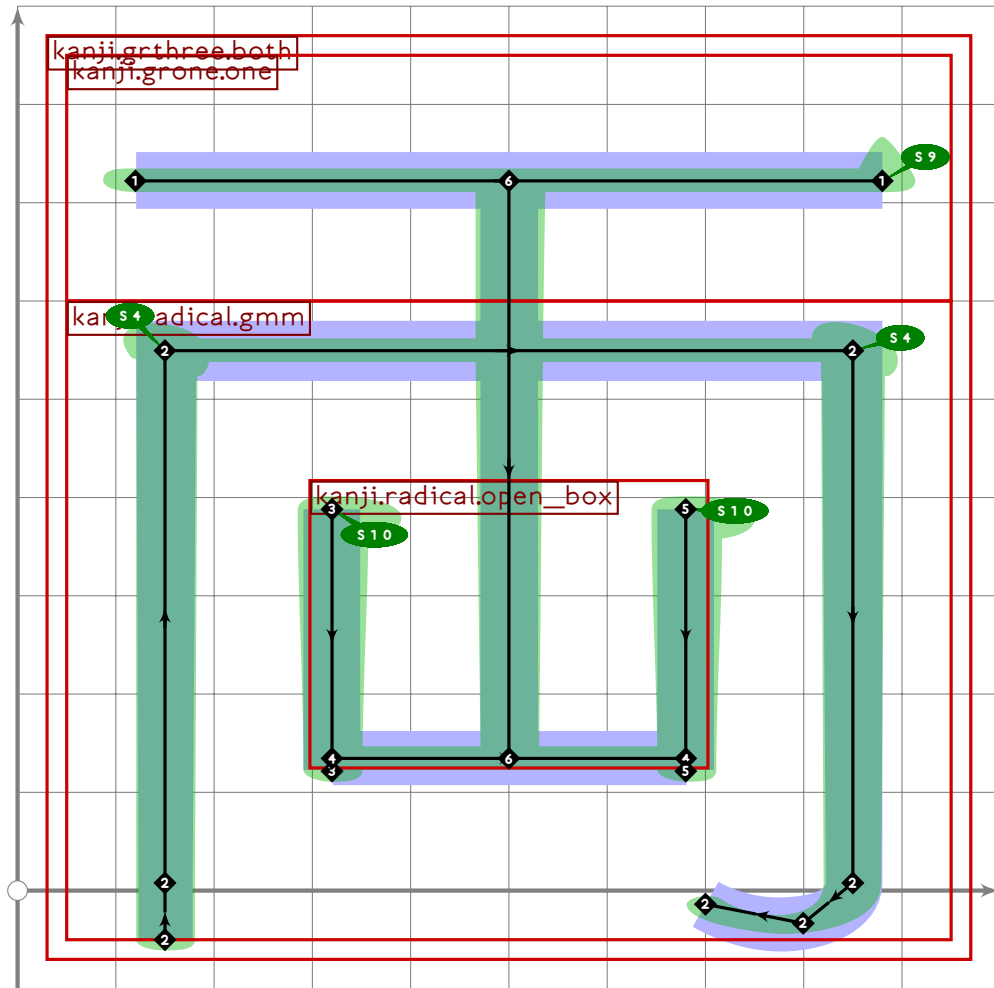
```
1 %
2 % Unicode page 4e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47
48 

---

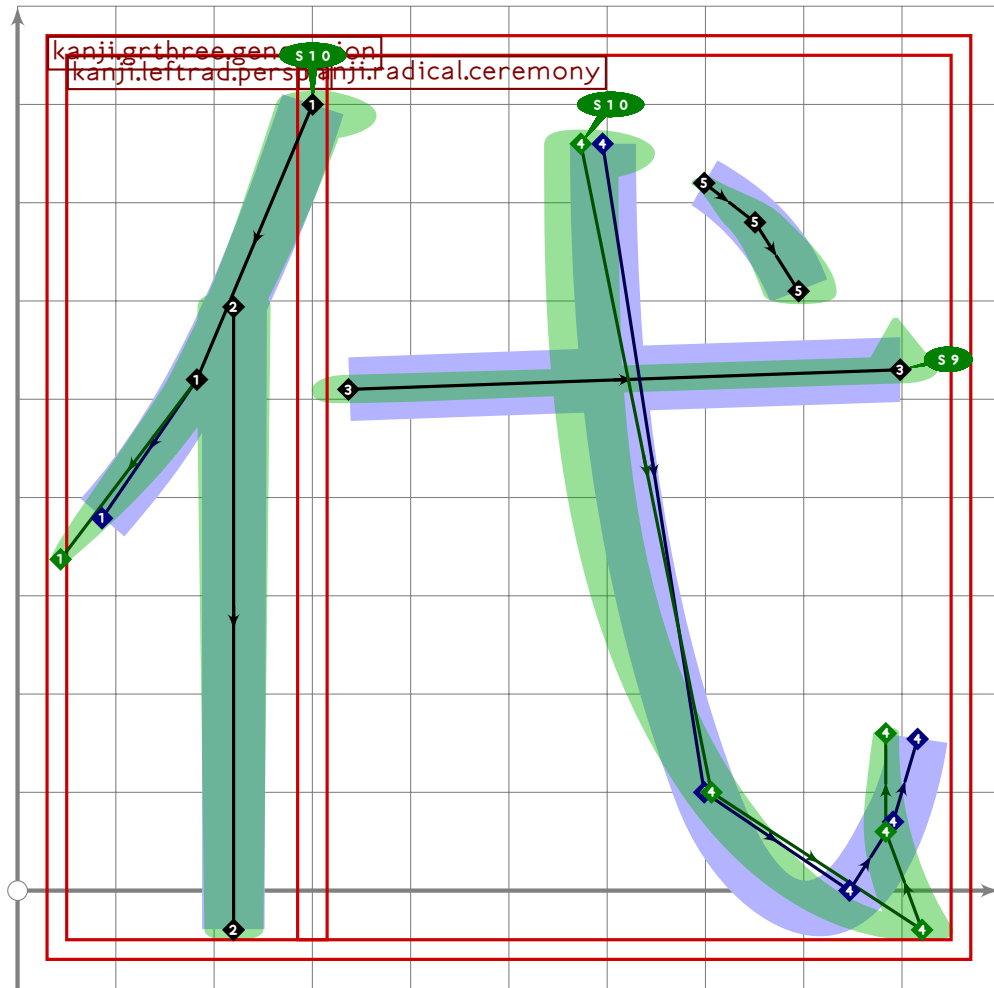

```



```

49
50 vardef kanji.grthree.both =
51   push_pbox_toexpand("kanji.grthree.both");
52   build_kanji.level(
53     build_kanji.tb(600,0)
54     (kanji.grone.one)
55     (kanji.radical.gmm;
56       build_kanji.scale(scaled 0.45)(kanji.radical.open_box));
57     push_stroke(
58       (point 0.5 of get_strokep(-4))-(point 0.5 of get_strokep(-1)),
59       (1.7,1.7)-(1.5,1.5));
60   expand_pbox;
61 enddef;

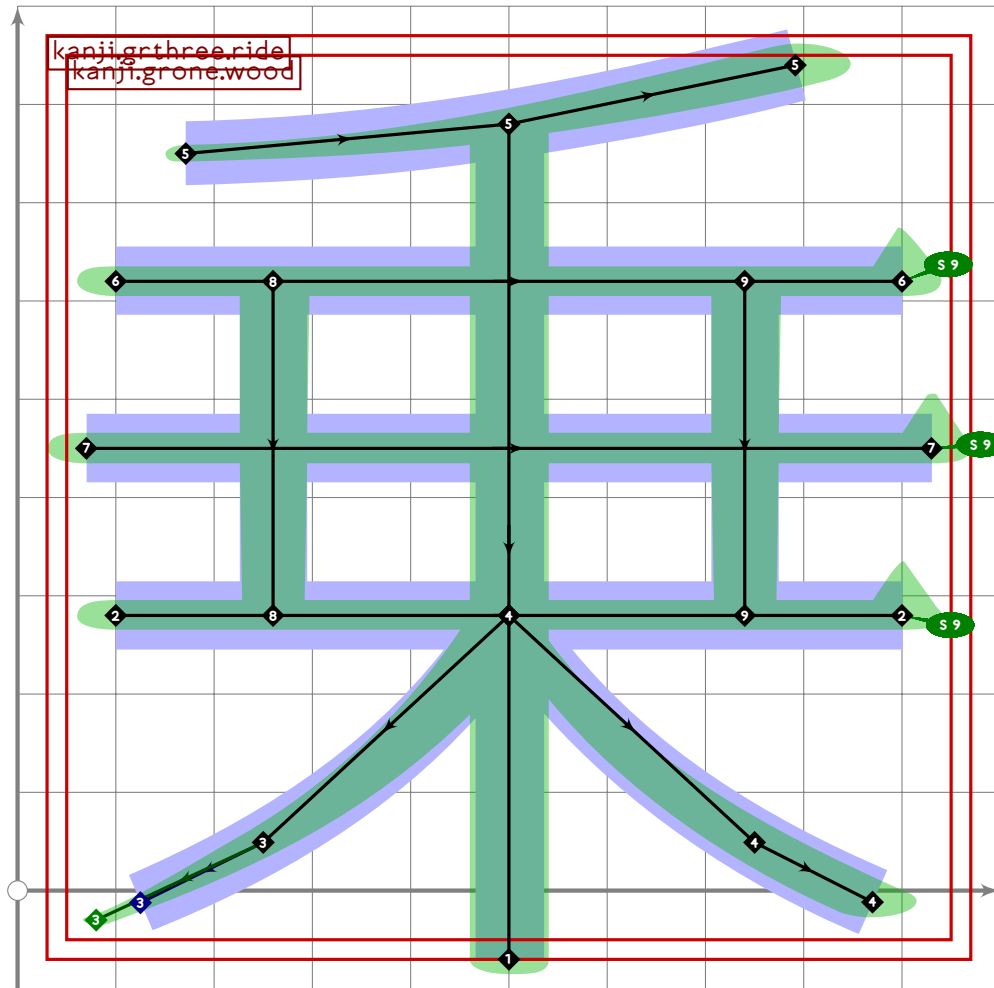
```



```

62
63 vardef kanji.grthree.generation =
64   push_pbox_toexpand("kanji.grthree.generation");
65   build_kanji.lr(300,30)
66     (kanji.leftrad.person)
67     (kanji.radical.ceremony);
68   expand_pbox;
69 enddef;

```



```

70
71 vardef kanji.grthree.ride =
72   push_pbox_toexpand("kanji.grthree.ride");
73   build_kanji.add_beret(kanji.grone.wood);
74   begingroup
75     save myxf;
76     transform myxf;
77     (80,70) transformed myxf=(80,-30);
78     (920,70) transformed myxf=(920,-30);
79     (80,580) transformed myxf=(80,280);
80     replace_strokep(-4)((point 0 of oldp)-(500,70));
81     replace_strokep(-2)(oldp transformed myxf);
82     replace_strokep(-1)(oldp transformed myxf);
83     push_stroke(get_strokep(-3) shifted (0,620-580),get_strokeq(-3));
84     set_boserif(0,1,9);
85     replace_strokep(-4)(oldp shifted (0,280-580));
86     push_stroke((70,450)-(930,450),(1.6,1.6)-(1.6,1.6));
87     set_boserif(0,1,9);
88     push_stroke((260,620)-(260,280),(1.5,1.5)-(1.4,1.4));
89     push_stroke((740,620)-(740,280),(1.5,1.5)-(1.4,1.4));
90   endgroup;

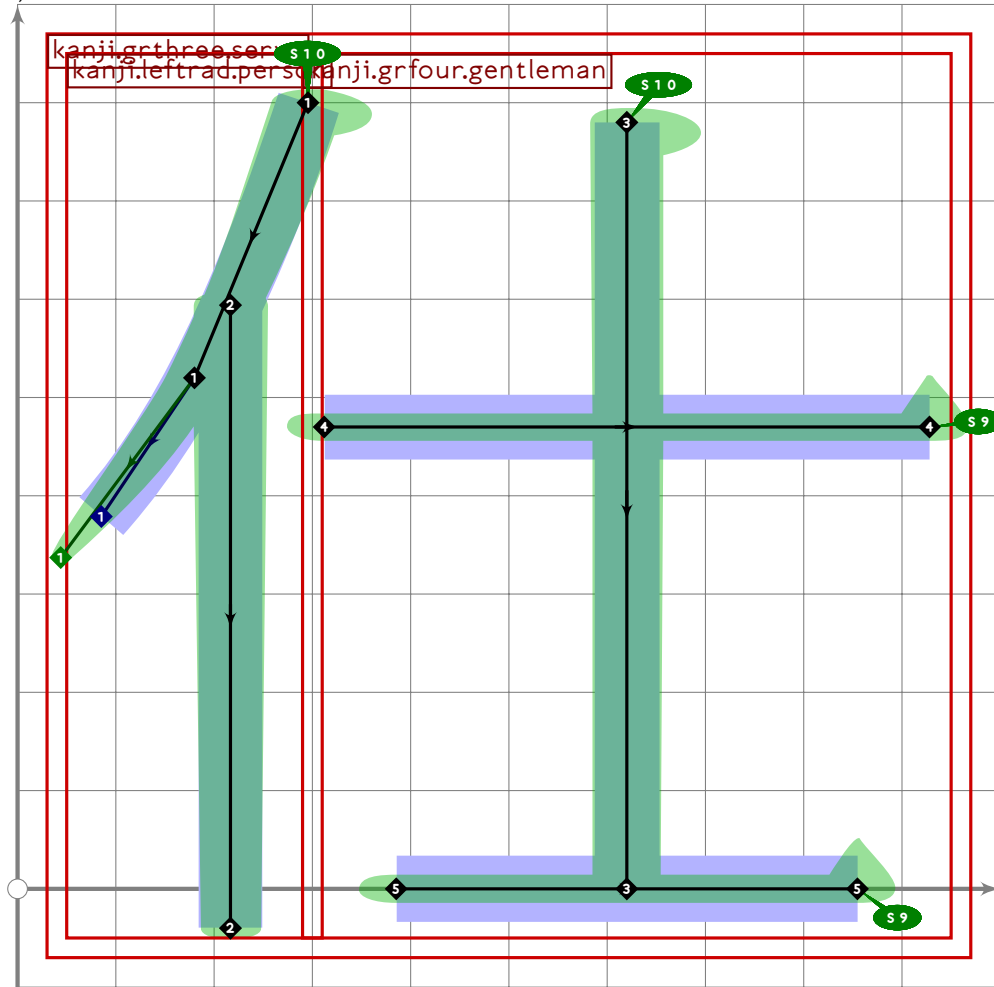
```



```

91  expand_pbox;
92  enddef;

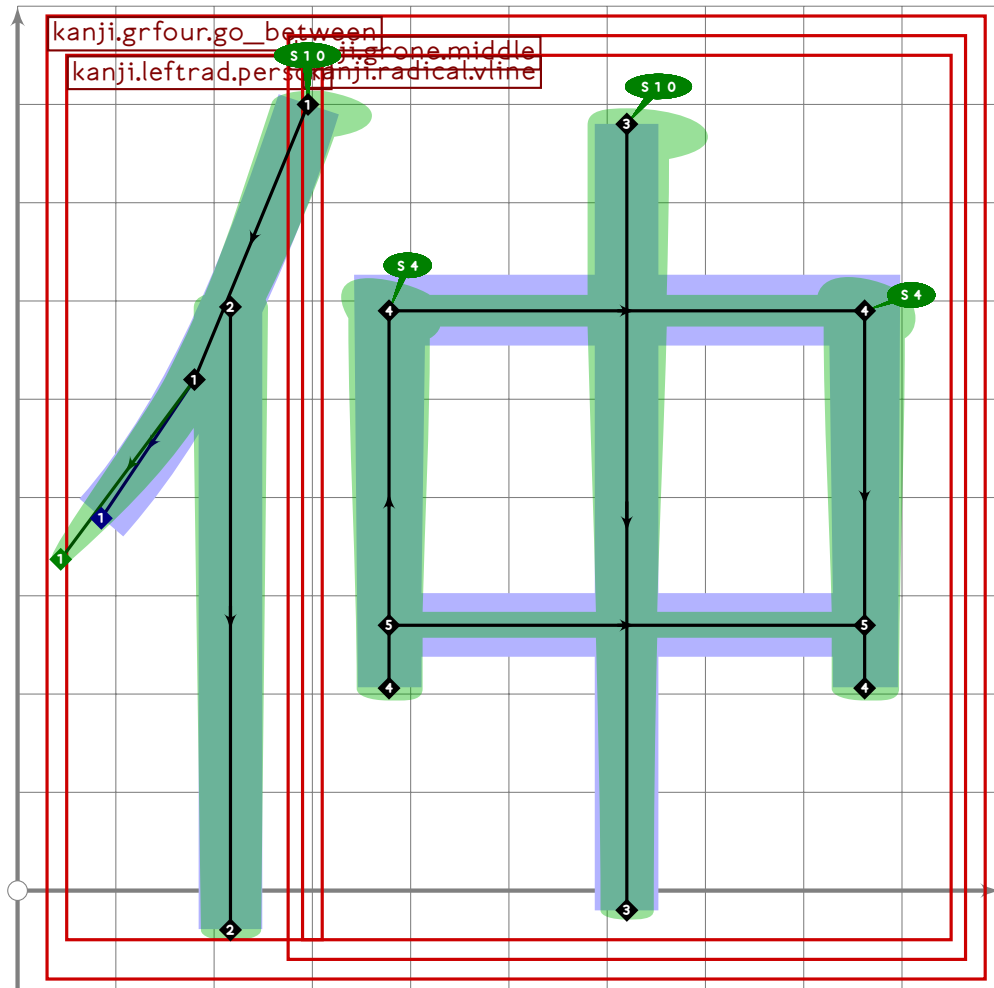
```



```

93
94  vardef kanji.grthree.serve =
95    push_pbox_toexpand("kanji.grthree.serve");
96    build_kanji.lr(300,20)
97      (kanji.leftrad.person)
98      (kanji.grfour.gentleman);
99    expand_pbox;
100  enddef;
101
102  _____

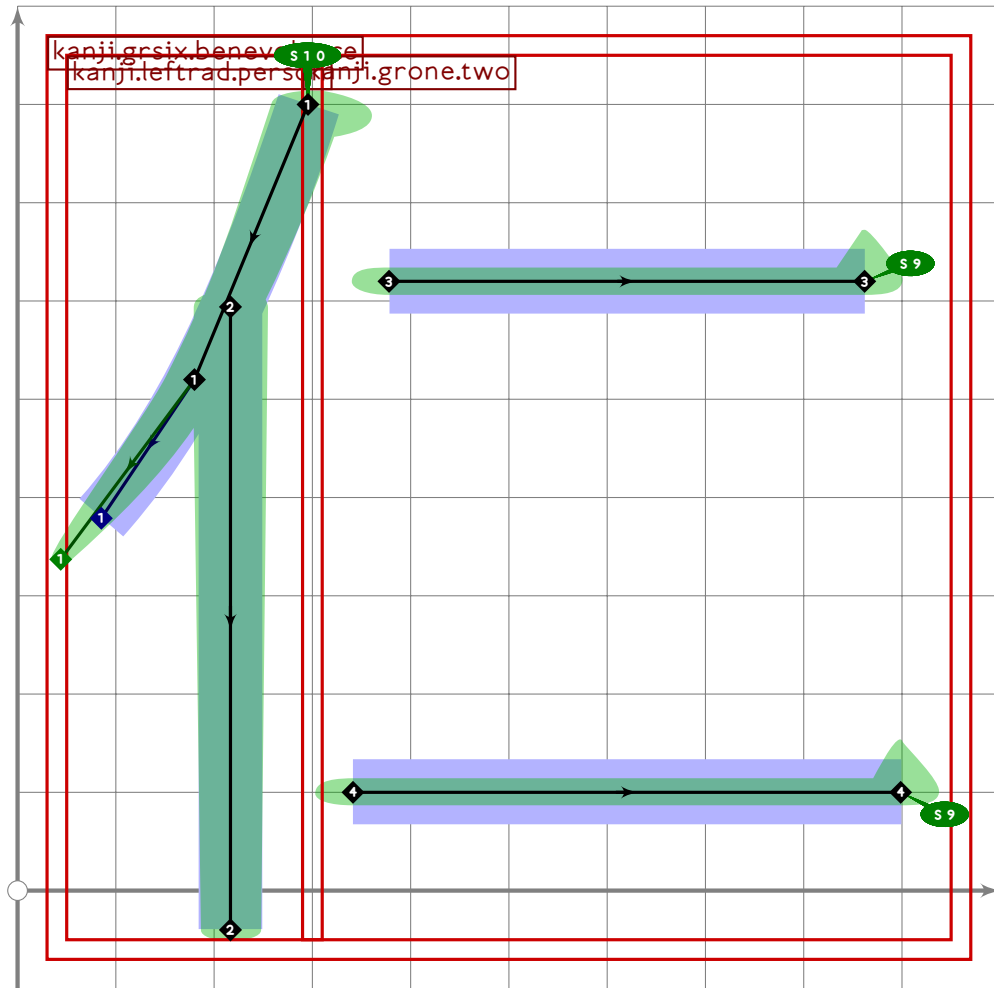
```



```

103
104 vardef kanji.grfour.go_between =
105   push_pbox_toexpand("kanji.grfour.go_between");
106   build_kanji.lr(300,20)
107     (kanji.leftrad.person)
108     (kanji.grone.middle);
109   expand_pbox;
110 enddef;
111
112

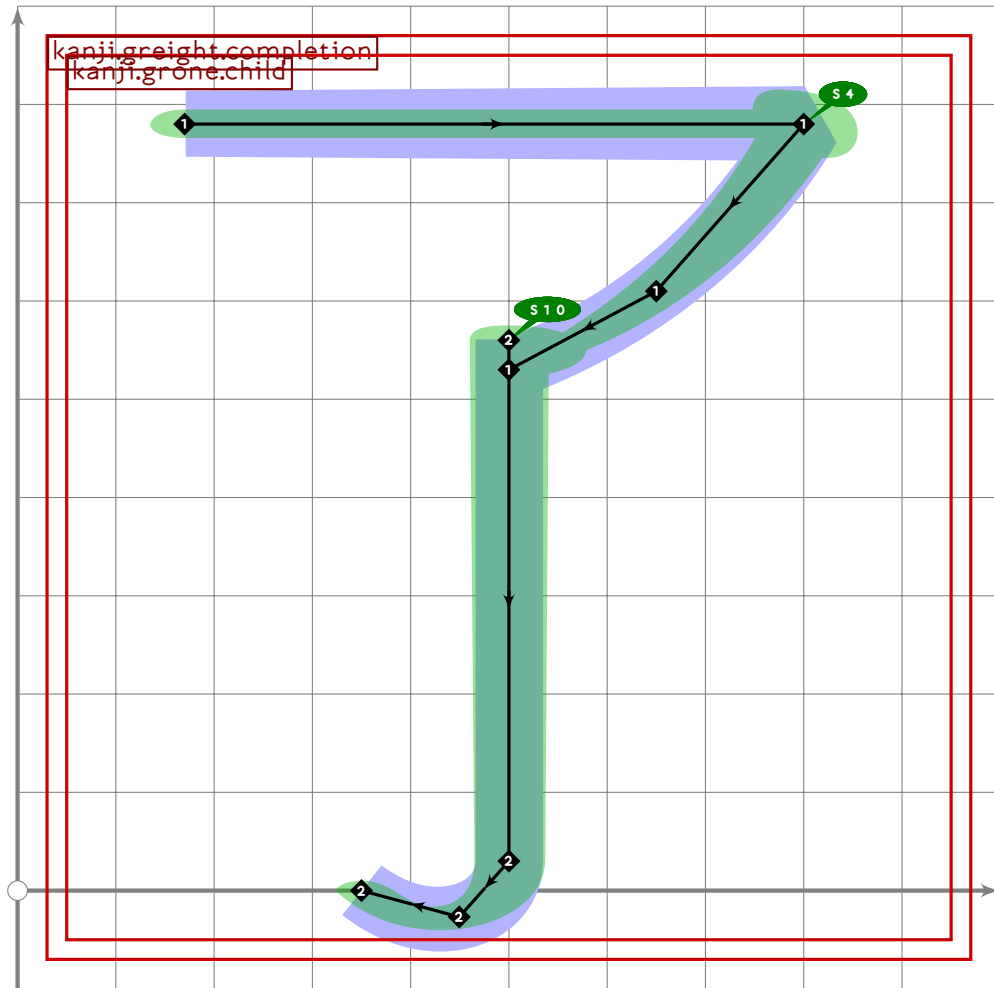
```



```

113
114 vardef kanji.grsix.benevolence =
115   push_pbox_toexpand("kanji.grsix.benevolence");
116   build_kanji.lr(300,20)
117     (kanji.leftrad.person)
118     (kanji.grone.two);
119   expand_pbox;
120 enddef;
121
122

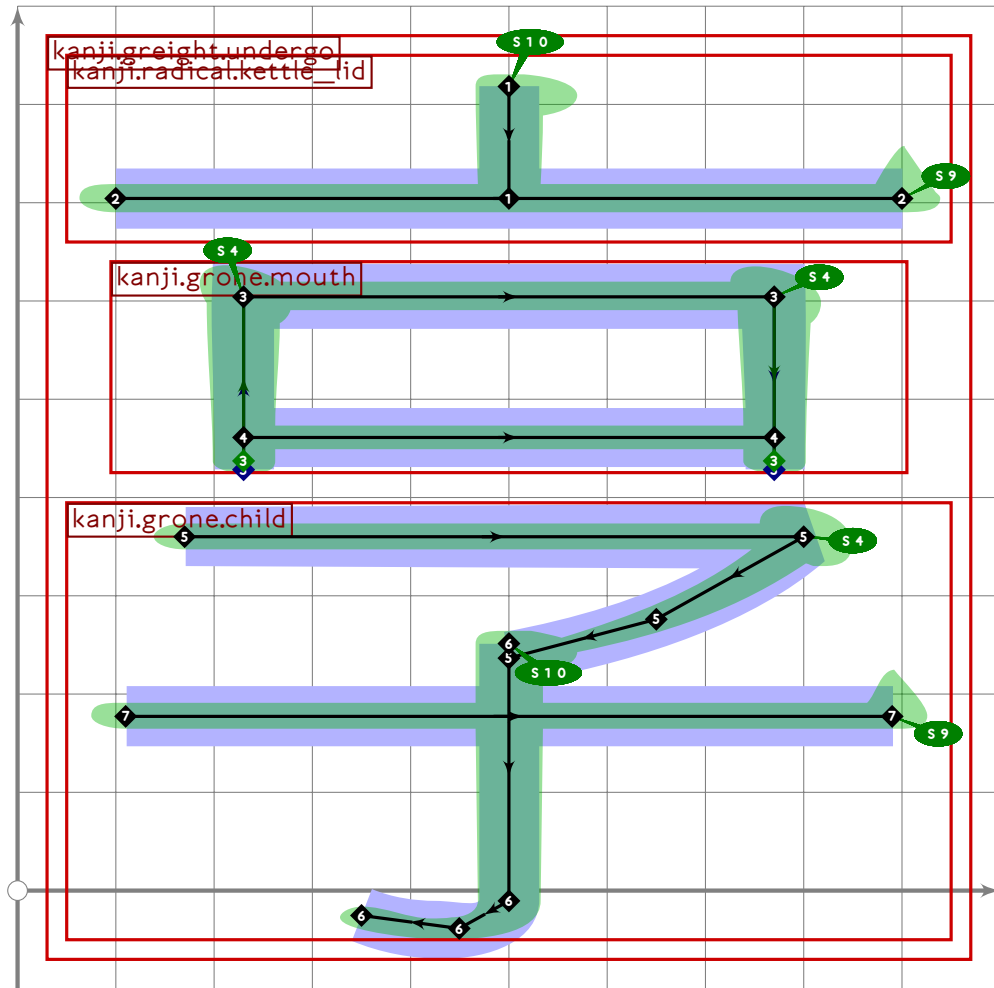
```



```

123
124 vardef kanji.greight.completion =
125   push_pbox_toexpand("kanji.greight.completion");
126   kanji.grone.child;
127   pop_stroke;
128   expand_pbox;
129 enddef;

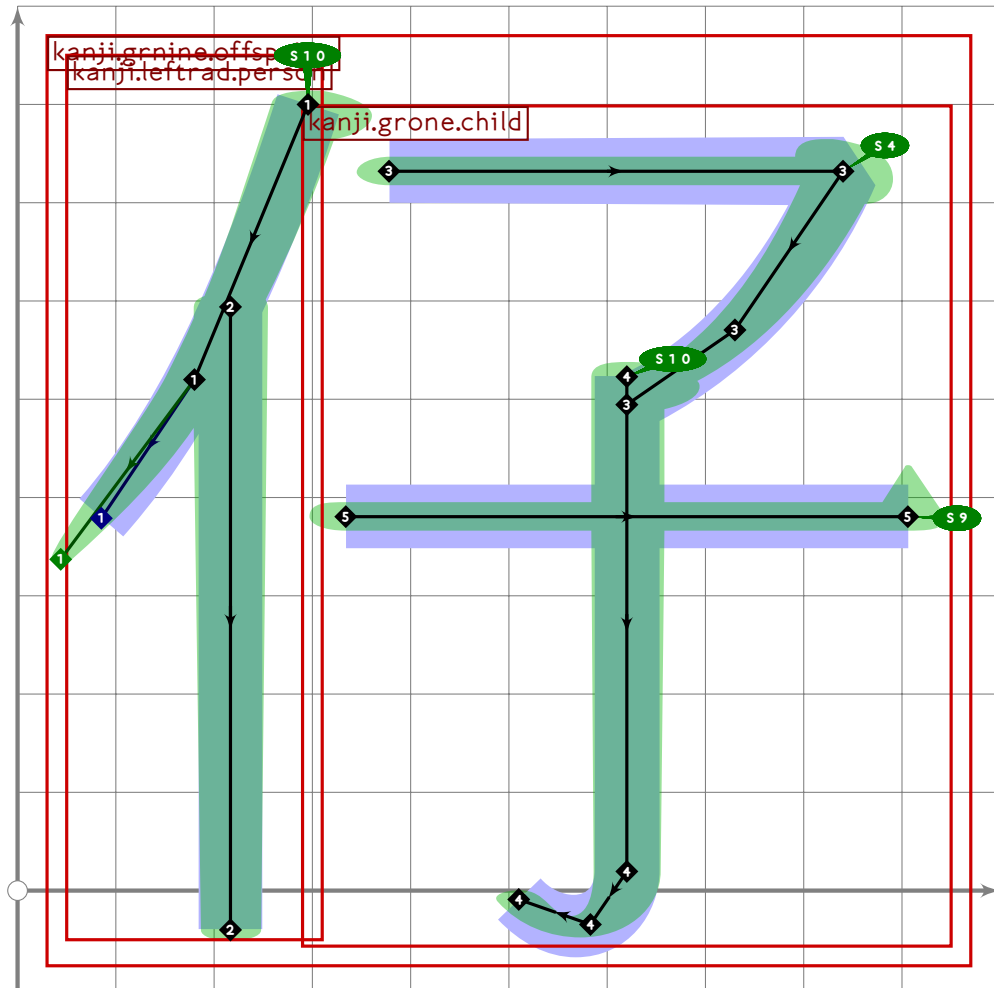
```



```

130
131 vardef kanji.greight.undergo =
132   push_pbox_toexpand("kanji.greight.undergo");
133   build_kanji.level(build_kanji.tb(650,-20)
134     (kanji.radical.kettle_lid)
135     (build_kanji.tb(550,-40)
136       (build_kanji.sscale(xscaled 0.9)(kanji.grone.mouth))
137       (kanji.grone.child)));
138   expand_pbox;
139 enddef;
140
141

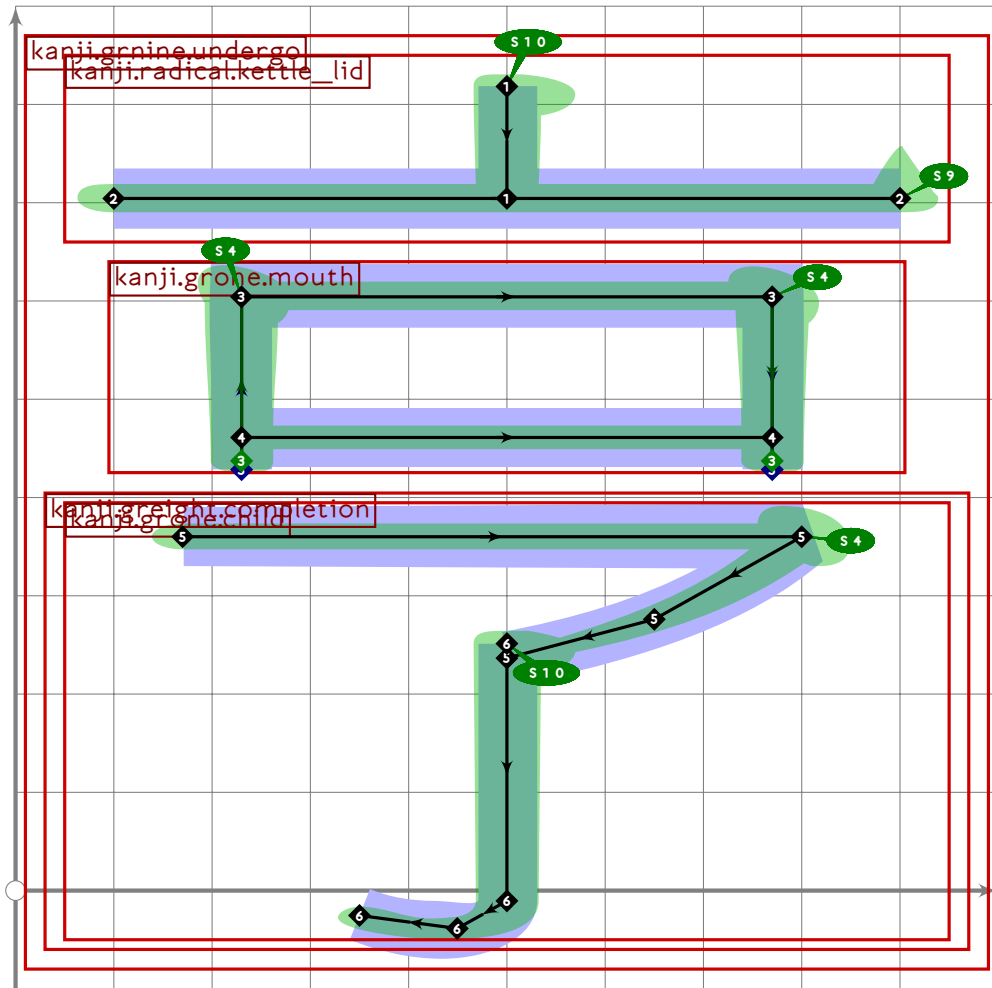
```



```

142
143 vardef kanji.grnine.offspring =
144   push_pbox_toexpand("kanji.grnine.offspring");
145   build_kanji.level(build_kanji.lr(300,20)
146     (kanji.leftrad.person)
147     (build_kanji.sscale(shifted (0,-30) yscaled 0.95)
148       (kanji.grone.child)));
149   expand_pbox;
150 enddef;

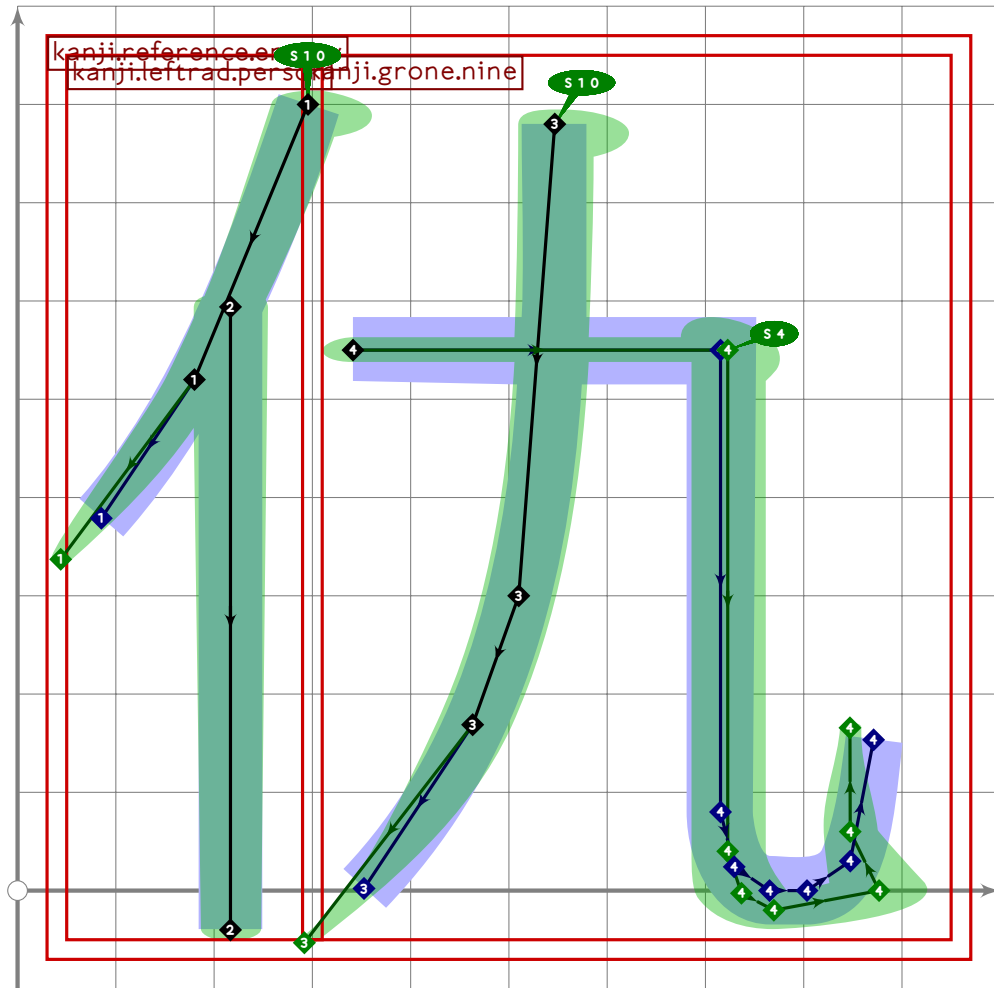
```



```

151
152 vardef kanji.gn.undergo =
153   push_pbox_toexpand("kanji.gn.undergo");
154   build_kanji.level(build_kanji.tb(650,-20)
155     (kanji.radical.kettle_lid)
156     (build_kanji.tb(550,-40)
157       (build_kanji.sscale(xscaled 0.9)(kanji.gn.mouth))
158       (kanji.greight.completion)));
159   expand_pbox;
160 enddef;
161
162

```

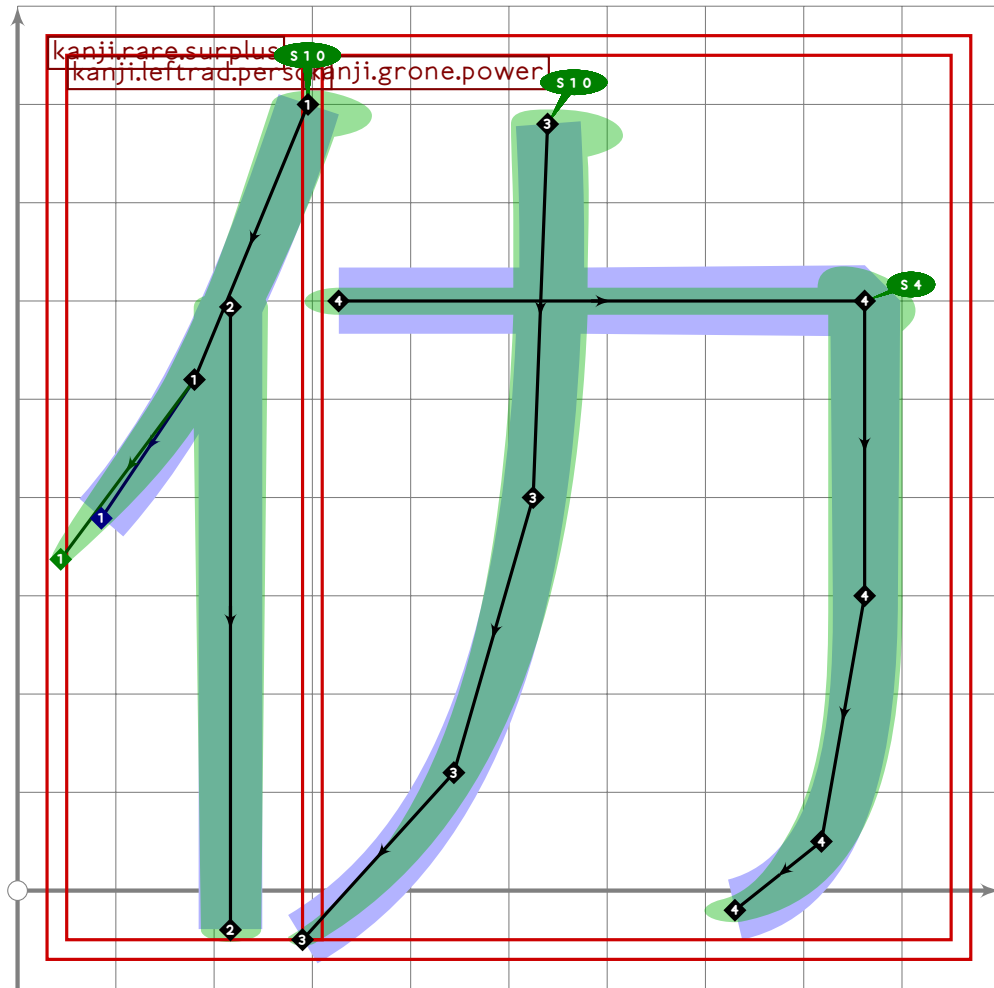


```

163
164 vardef kanji.reference.enemy =
165   push_pbox_toexpand("kanji.reference.enemy");
166   build_kanji.lr(300,20)
167     (kanji.leftrad.person)
168     (kanji.grone.nine);
169   expand_pbox;
170 enddef;
171
172

```

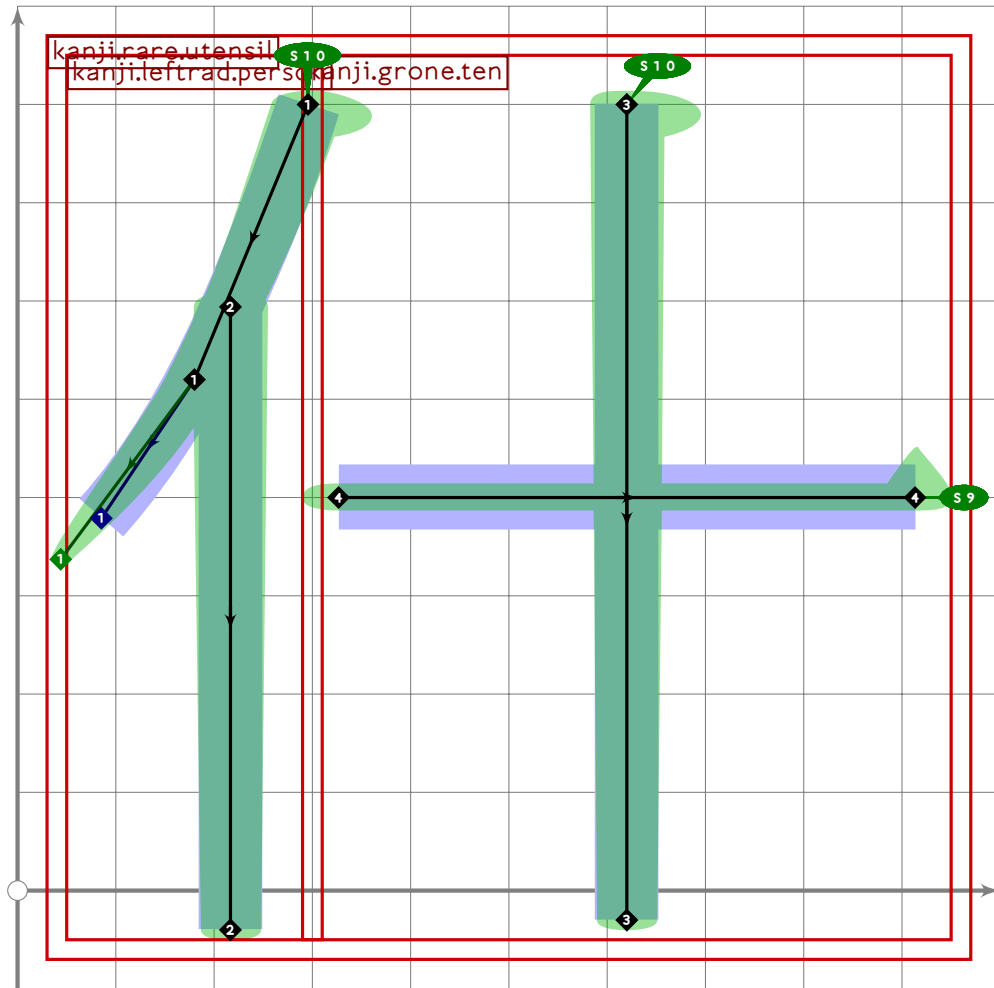




```

173
174 vardef kanji.rare.surplus =
175   push_pbox_toexpand("kanji.rare.surplus");
176   build_kanji.lr(300,20)
177     (kanji.leftrad.person)
178     (kanji.grone.power);
179   expand_pbox;
180 enddef;

```



```

181
182 vardef kanji.rare.utensil =
183   push_pbox_toexpand("kanji.rare.utensil");
184   build_kanji.lr(300,20)
185     (kanji.leftrad.person)
186     (kanji.grone.ten);
187   expand_pbox;
188 enddef;

```

189

190

191

192 % ichi/hito "one"

193 `begintsuglyph("uni4E00";0);`

[see page 415]

194 `kanji.grone.one;`

195 `tsu_render;`

196 `endtsuglyph;`

197

198 % chuu/hinoto: "street"; "counter for leaves or guns"; "fourth zodiac sign"

199 % Uwaa ! Skala-sensei, I don't \*want\* to stick a thumbtack in my wrist!

200 `begintsuglyph("uni4E01";1);`

[see page 530]

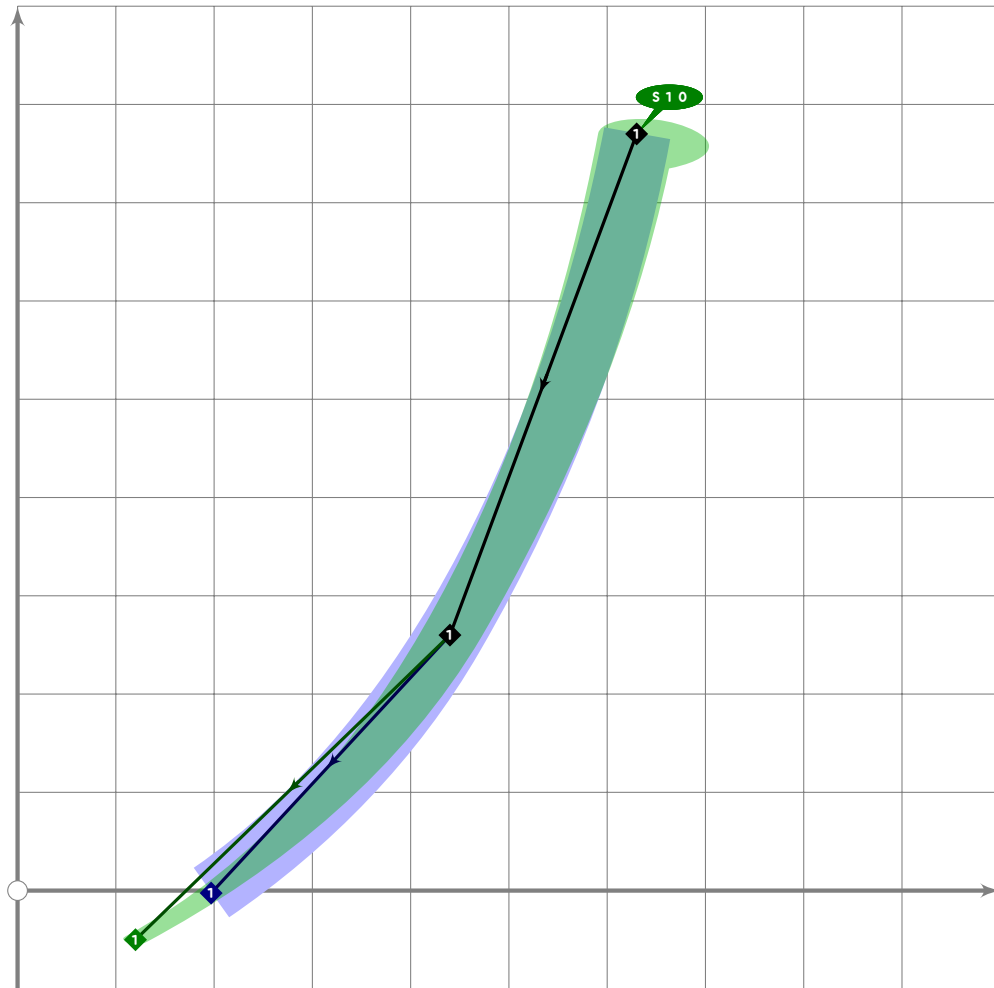
201 `kanji.grthree.thumbtack;`

202 `tsu_render;`  
203 `endtsuglyph;`  
204  
205 `% nana/shichi "seven"`  
206 `begintsuglyph("uni4E03";3);` [see page 427]  
207 `kanji.grone.seven;`  
208 `tsu_render;`  
209 `endtsuglyph;`  
210  
211 `% man/yorozu "myriad"`  
212 `begintsuglyph("uni4E07";7);` [see page 483]  
213 `kanji.grtwo.myriad;`  
214 `tsu_render;`  
215 `endtsuglyph;`  
216  
217 `% san/mi "three"`  
218 `begintsuglyph("uni4E09";9);` [see page 435]  
219 `kanji.grone.three;`  
220 `tsu_render;`  
221 `endtsuglyph;`  
222  
223 `% ue/jyou "up"`  
224 `begintsuglyph("uni4E0A";10);` [see page 437]  
225 `kanji.grone.up;`  
226 `tsu_render;`  
227 `endtsuglyph;`  
228  
229 `% shita/ka "down"`  
230 `begintsuglyph("uni4E0B";11);` [see page 389]  
231 `kanji.grone.down;`  
232 `tsu_render;`  
233 `endtsuglyph;`  
234  
235 `% sho/ka "furthermore"`  
236 `begintsuglyph("uni4E14";20);` [see page 576]  
237 `kanji.greight.furthermore;`  
238 `tsu_render;`  
239 `endtsuglyph;`  
240  
241 `% sei/sou "world"`  
242 `begintsuglyph("uni4E16";22);` [see page 532]  
243 `kanji.grthree.world;`  
244 `tsu_render;`  
245 `endtsuglyph;`  
246  
247 `% ryo/teru "both," also a couple of different units of measure`  
248 `begintsuglyph("uni4E21";33);` [see page 1522]  
249 `kanji.grthree.both;`

```

250 tsu_render;
251 endtsuglyph;
252
253 % extra "vertical line"
254 begintsuglyph("uni4E28";40); [see page 366]
255 kanji.radical.vline;
256 tsu_render;
257 endtsuglyph;
258
259 % naka/chuu "middle"
260 begintsuglyph("uni4E2D";45); [see page 408]
261 kanji.grone.middle;
262 tsu_render;
263 endtsuglyph;
264
265 % maru "circle"
266 begintsuglyph("uni4E38";56); [see page 450]
267 kanji.grtwo.circle;
268 tsu_render;
269 endtsuglyph;
270
271 % shu/nushi "master"
272 begintsuglyph("uni4E3B";59); [see page 521]
273 kanji.grthree.master;
274 tsu_render;
275 endtsuglyph;
276

```

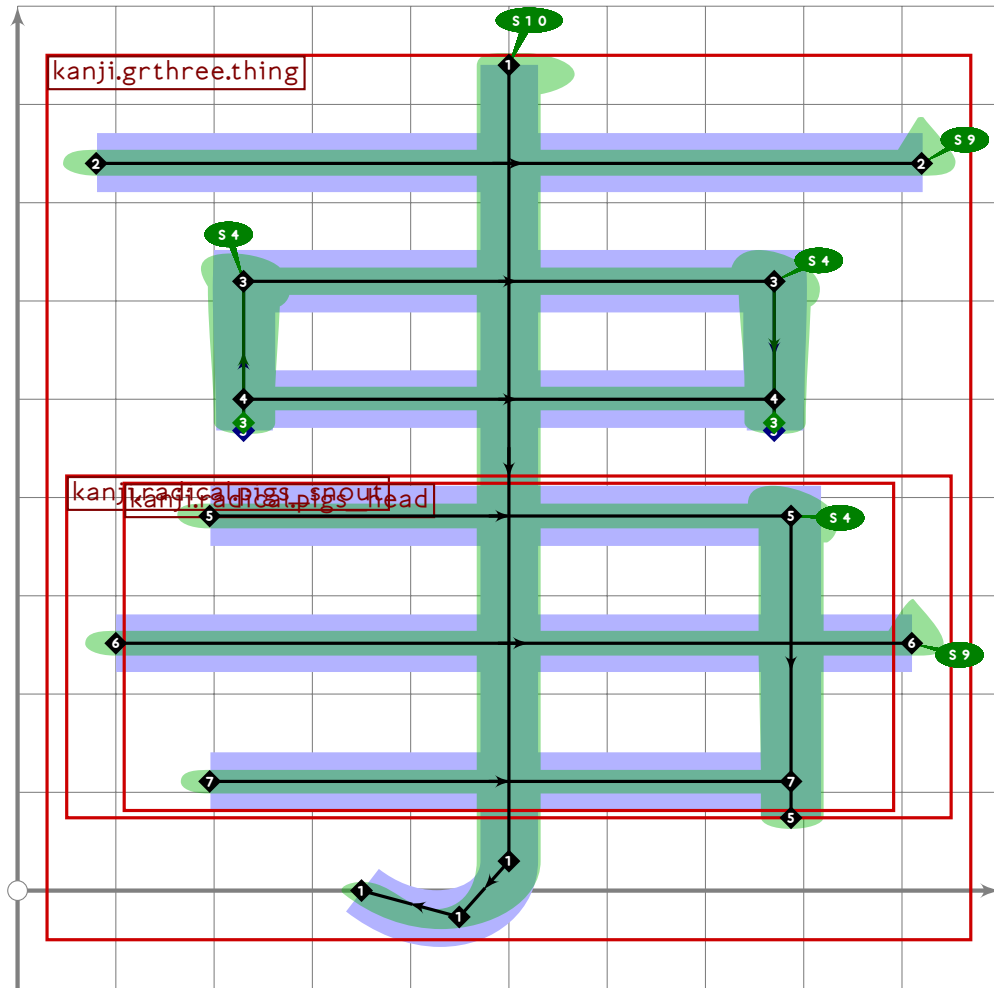


```

277 % diagonal stroke (like katakana "no") for use in decomposition dictionary
278 begintsuglyph("uni4E3F";63);
279 push_stroke((630,770)..tension 1.2..(440,260)..(120,-50),
280   (1.6,1.6)-(1.4,1.4)-(0.9,0.9));
281 set_boserif(0,0,10);
282 tsu_render;
283 endtsuglyph;
284
285 % sa/naga "notwithstanding" (needed for tsuku "make")
286 begintsuglyph("uni4E4D";77); [see page 614]
287 kanji.rare.notwithstanding;
288 tsu_render;
289 endtsuglyph;
290
291 % shou/no "ride"
292 begintsuglyph("uni4E57";87); [see page 1524]
293 kanji.grthree.ride;
294 tsu_render;
295 endtsuglyph;
296
297 % kyuu/kokono "nine"

```

298 `begintsuglyph("uni4E5D";93);` [see page 413]  
299 `kanji.grone.nine;`  
300 `tsu_render;`  
301 `endtsuglyph;`  
302  
303 `% ya/nari "to be" (archaic)`  
304 `begintsuglyph("uni4E5F";95);` [see page 602]  
305 `kanji.grnine.to_be;`  
306 `tsu_render;`  
307 `endtsuglyph;`  
308  
309 `% ryou "completion"`  
310 `begintsuglyph("uni4E86";134);` [see page 1528]  
311 `kanji.greight.completion;`  
312 `tsu_render;`  
313 `endtsuglyph;`  
314  
315 `% yo/arakaji "before"`  
316 `begintsuglyph("uni4E88";136);` [see page 510]  
317 `kanji.grthree.before;`  
318 `tsu_render;`  
319 `endtsuglyph;`  
320



```

321 % ji/koto "thing"
322 begintsuglyph("uni4E8B",139);
323 kanji.grthree.thing;
324 tsu_render;
325 endtsuglyph;
326
327 % ni/futa "two"
328 begintsuglyph("uni4E8C",140);
329 kanji.grone.two;
330 tsu_render;
331 endtsuglyph;
332
333 % un/i "say"
334 begintsuglyph("uni4E91",145);
335 kanji.grnine.declaim;
336 tsu_render;
337 endtsuglyph;
338
339 % go/itsu "five"
340 begintsuglyph("uni4E94",148);
341 kanji.grone.five;

```

[see page 436]

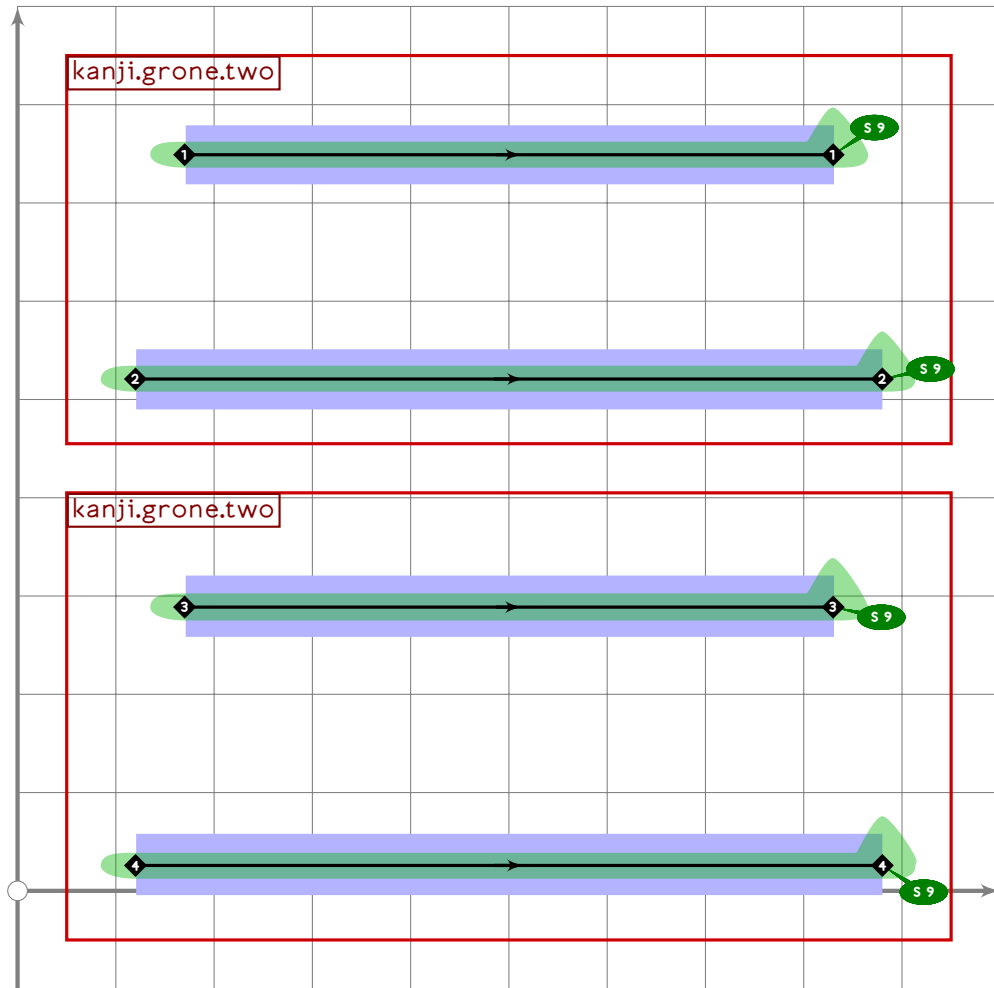
[see page 592]

[see page 397]

```

342 tsu_render;
343 endtsuglyph;
344

```

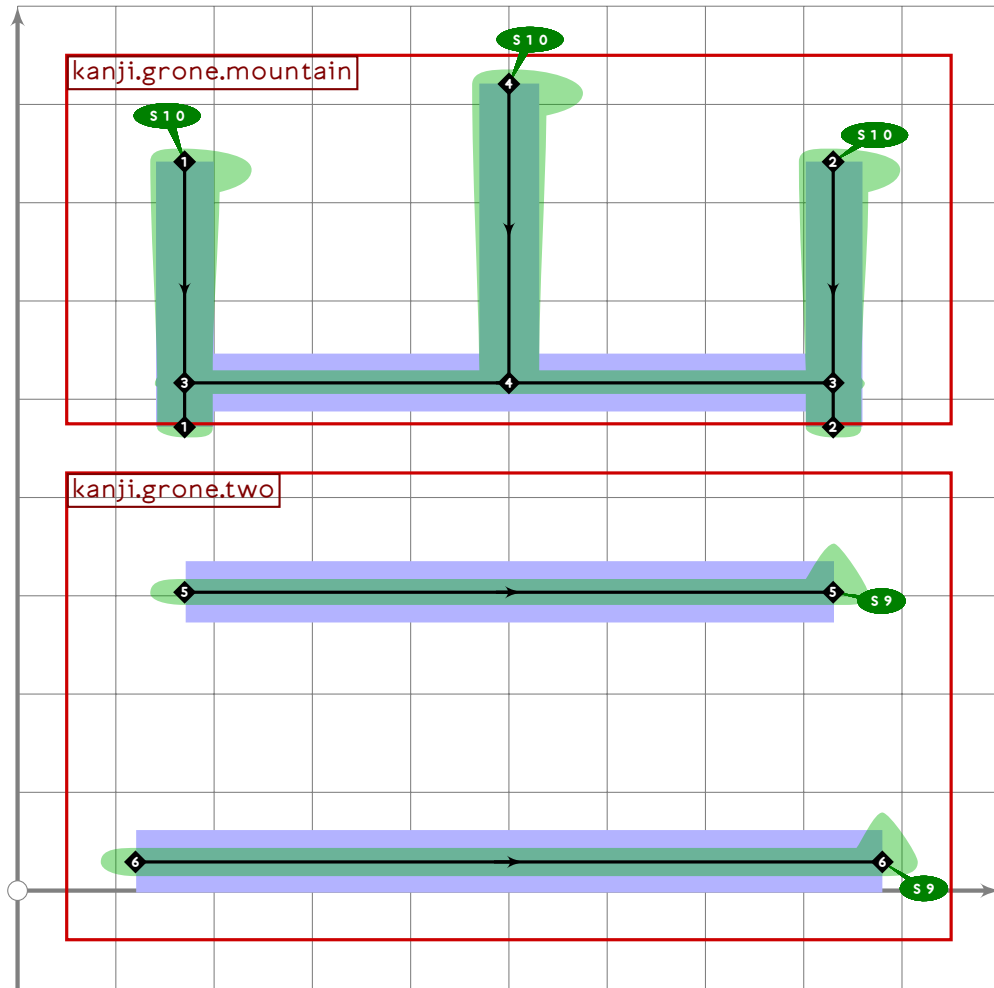


```

345 % extra
346 begintsuglyph("uni4E96";150);
347 build_kanji.tb(430,-50)
348 (kanji.grone.two)
349 (kanji.grone.two);
350 tsu_render;
351 endtsuglyph;
352

```



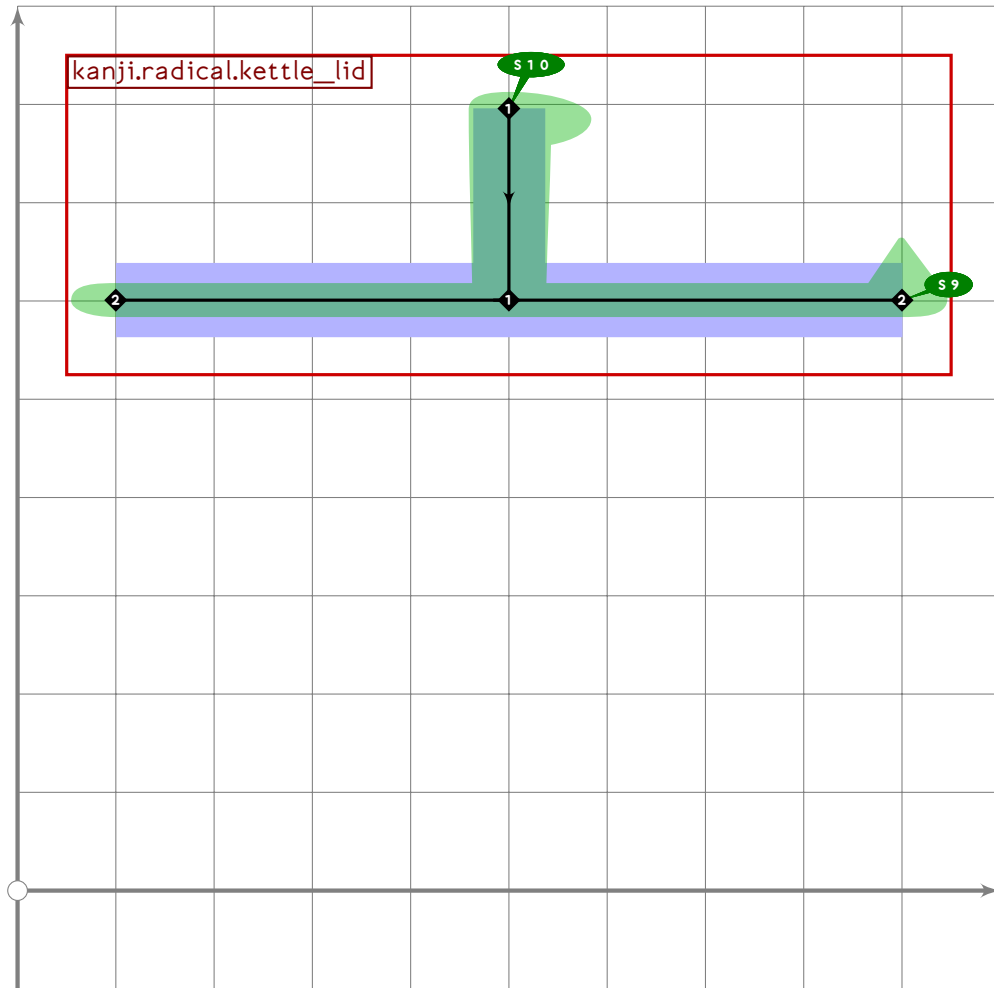


```

353 % extra
354 begint Suglyph("uni4E97";151);
355   build_kanji.tb(450,-50)
356     (kanji.grone.mountain)
357     (kanji.grone.two);
358   tsu_render;
359 endtsuglyph;
360
361 % a/tsu "sub-" (also, "-ous, lower oxidation state")
362 begint Suglyph("uni4E9C";156);
363   kanji.greight.prefix_sub;
364   tsu_render;
365 endtsuglyph;
366

```

[see page 583]



```

367 % "kettle lid radical"
368 begintsuglyph("uni4EA0",160);
369 build_kanji.tb(500,50)
370   (kanji.radical.kettle_lid)
371   ();

```

```

372 tsu_render;
373 endtsuglyph;

```

```

374
375 % kou/maji "mix"
376 begintsuglyph("uni4EA4",164);
377 kanji.grtwo.mix;
378 tsu_render;
379 endtsuglyph;

```

[see page 481]

```

380
381 % eki/mata "again"
382 begintsuglyph("uni4EA6",166);
383 kanji.grnine.again;
384 tsu_render;
385 endtsuglyph;

```

[see page 589]

```

386
387 % kou "undergo" (rarer form)

```

```

388 begintsuglyph("uni4EA8",168);
389 kanji.grnine.undergo;
390 tsu_render;
391 endtsuglyph;

```

[see page 1531]

```

392
393 % kyou "undergo" (more common form)
394 begintsuglyph("uni4EAB",171);
395 kanji.greight.undergo;
396 tsu_render;
397 endtsuglyph;

```

[see page 1529]

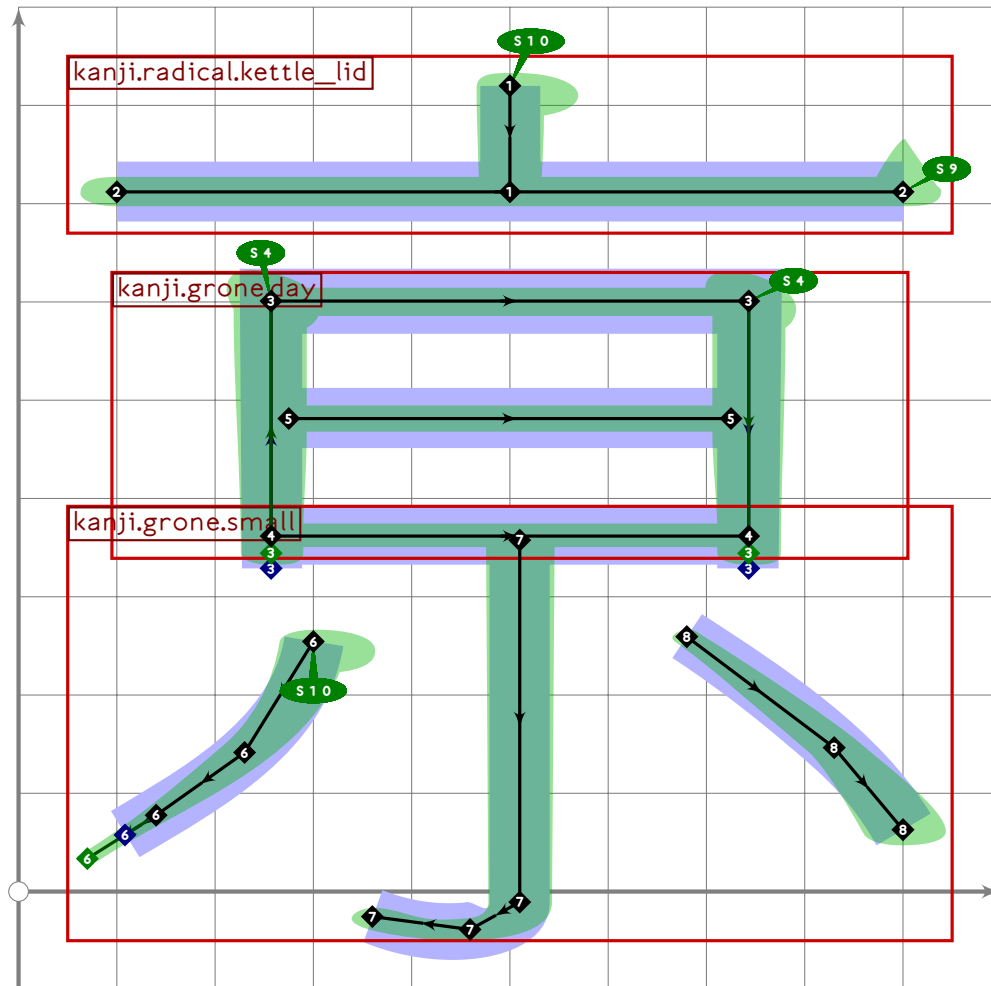
```

398
399 % kyou "capital"
400 begintsuglyph("uni4EAC",172);
401 kanji.grtwo.capital;
402 tsu_render;
403 endtsuglyph;

```

[see page 448]

404



```

405 % extra "capital"
406 begintsuglyph("uni4EB0",176);
407 build_kanji.level(build_kanji.tb(650,-40)
408   (kanji.radical.kettle_lid)

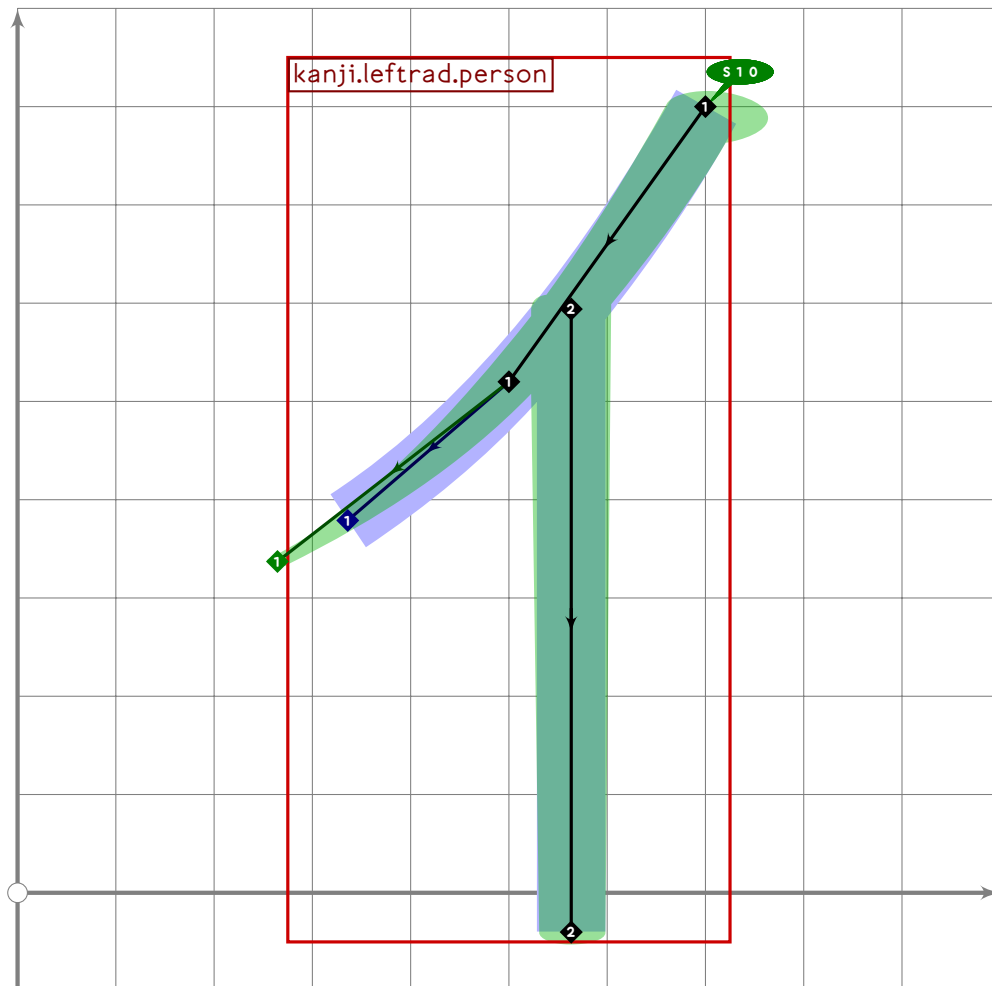
```

```

409 (build_kanji.tb(500,70)
410 (build_kanji.sscale(xscaled 0.9)(kanji.grone.day))
411 (kanji.grone.small));
412 set_boserif(-1,0,whatever);
413 tsu_render;
414 endtsuglyph;
415
416 % hito/jin "person"
417 begintsuglyph("uni4EBA";186);
418 kanji.grone.person;
419 tsu_render;
420 endtsuglyph;
421

```

[see page 418]



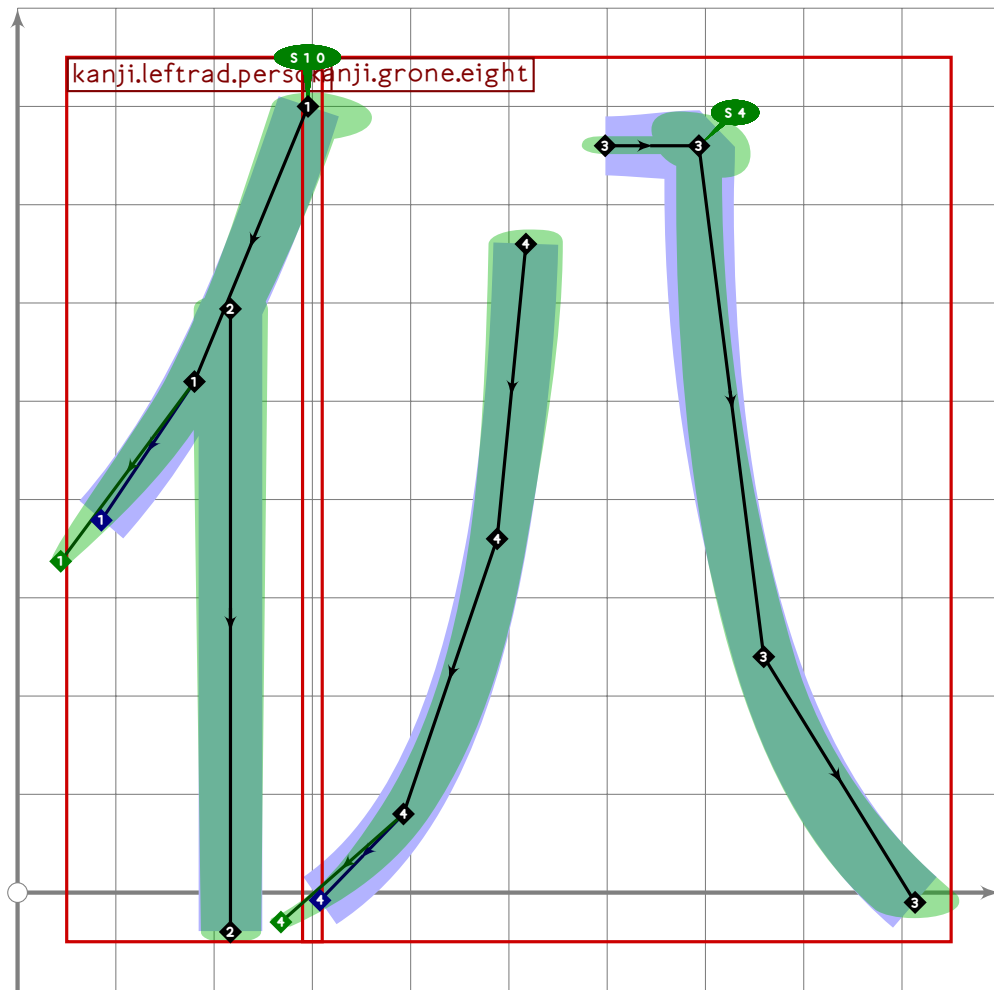
```

422 % hito/jin "person" as radical
423 begintsuglyph("uni4EBB";187);
424 build_kanji.sscale(xscaled 0.5)(kanji.leftrad.person);
425 tsu_render;
426 endtsuglyph;
427
428 % juu "utensil"
429 begintsuglyph("uni4EC0";192);

```

[see page 1534]

430 `kanji.rare.utensil;`  
431 `tsu_render;`  
432 `endtsuglyph;`  
433  
434 `% jin "benevolence"`  
435 `begintsuglyph("uni4EC1";193);` [see page 1527]  
436 `kanji.grsix.benevolence;`  
437 `tsu_render;`  
438 `endtsuglyph;`  
439  
440 `% "surplus or excess"`  
441 `begintsuglyph("uni4EC2";194);` [see page 1533]  
442 `kanji.rare.surplus;`  
443 `tsu_render;`  
444 `endtsuglyph;`  
445  
446 `% ada "enemy"`  
447 `begintsuglyph("uni4EC7";199);` [see page 1532]  
448 `kanji.reference.enemy;`  
449 `tsu_render;`  
450 `endtsuglyph;`  
451



```

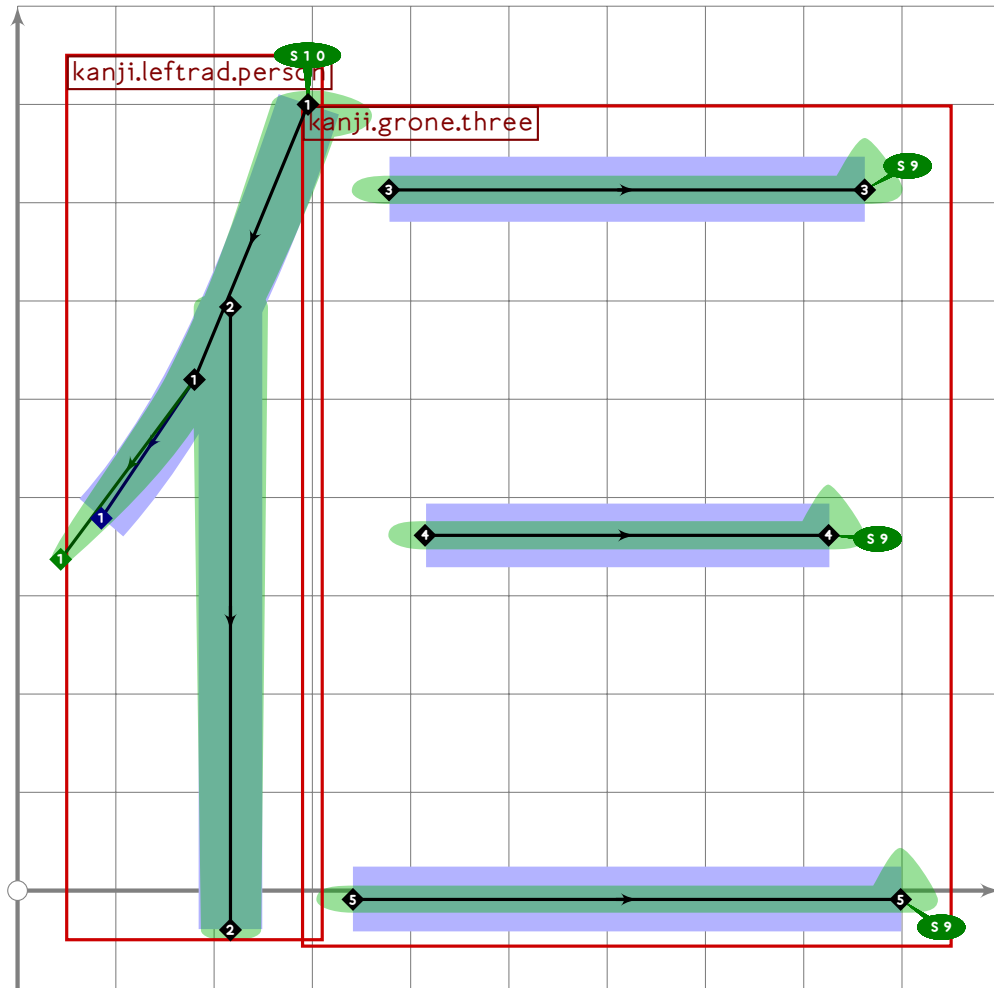
452 % extra
453 begintsuglyph("uni4EC8";200);
454   build_kanji.lr(300,20)
455     (kanji.leftrad.person)
456     (kanji.grone.eight);
457   tsu_render;
458 endtsuglyph;
459
460 % kon/ima "now"
461 begintsuglyph("uni4ECA";202);
462   kanji.grtwo.now;
463   tsu_render;
464 endtsuglyph;
465
466 % ko "offspring"
467 begintsuglyph("uni4ED4";212);
468   kanji.grnine.offspring;
469   tsu_render;
470 endtsuglyph;
471
472 % shi/tsuka "serve"

```

[see page 487]

[see page 1530]

473 `begintsuglyph("uni4ED5",213);` [see page 1525]  
474 `kanji.grthree.serve;`  
475 `tsu_render;`  
476 `endtsuglyph;`  
477  
478 `% ta/hoka "other"`  
479 `begintsuglyph("uni4ED6",214);` [see page 525]  
480 `kanji.grthree.other;`  
481 `tsu_render;`  
482 `endtsuglyph;`  
483  
484 `% fu/tsu "attach"`  
485 `begintsuglyph("uni4ED8",216);` [see page 535]  
486 `kanji.grfour.attach;`  
487 `tsu_render;`  
488 `endtsuglyph;`  
489  
490 `% sen "wizard"`  
491 `begintsuglyph("uni4ED9",217);` [see page 588]  
492 `kanji.greight.wizard;`  
493 `tsu_render;`  
494 `endtsuglyph;`  
495  
496 `% dai/kawa "generation"`  
497 `begintsuglyph("uni4EE3",227);` [see page 1523]  
498 `kanji.grthree.generation;`  
499 `tsu_render;`  
500 `endtsuglyph;`  
501

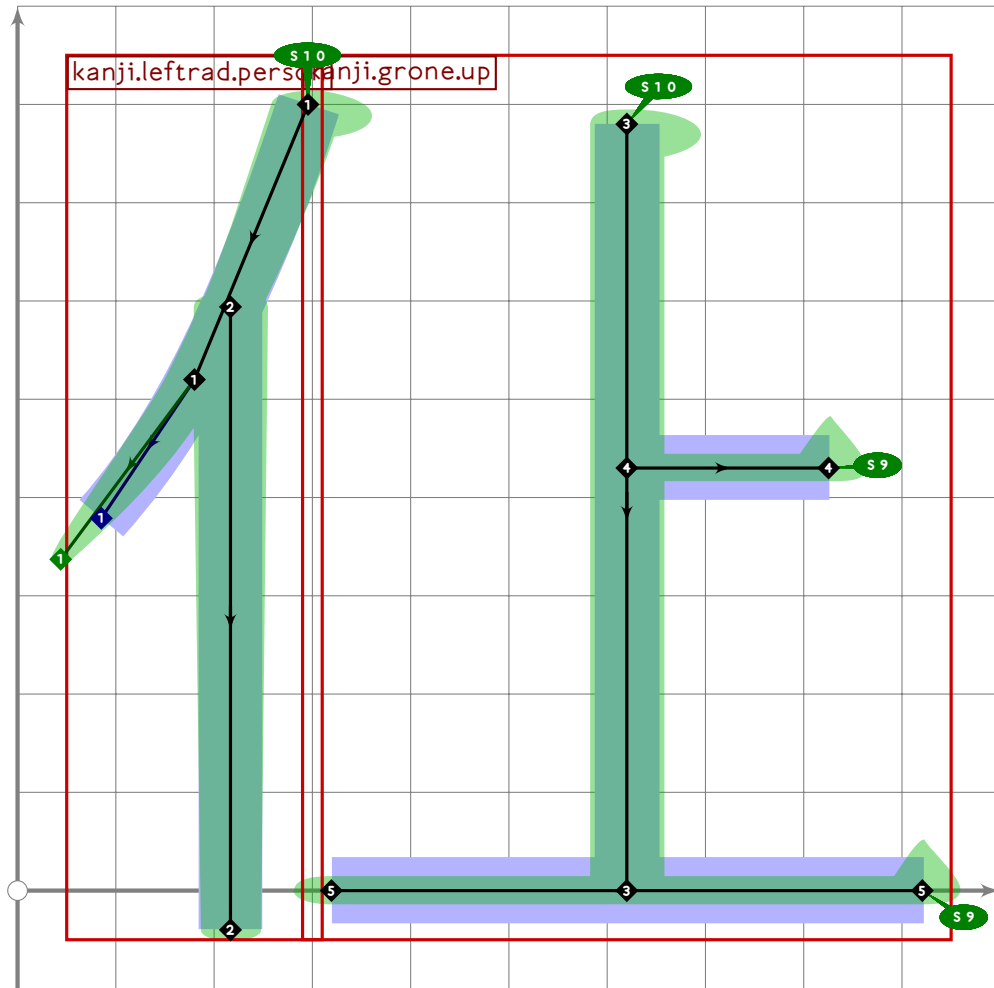


```

502 % extra
503 begintsuglyph("uni4EE8";232);
504 build_kanji.lr(300,20)
505 (kanji.leftrad.person)
506 (build_kanji.sscale(shifted (0,-30) yscaled 0.95)
507 (kanji.grone.three));
508 tsu_render;
509 endtsuglyph;
510

```

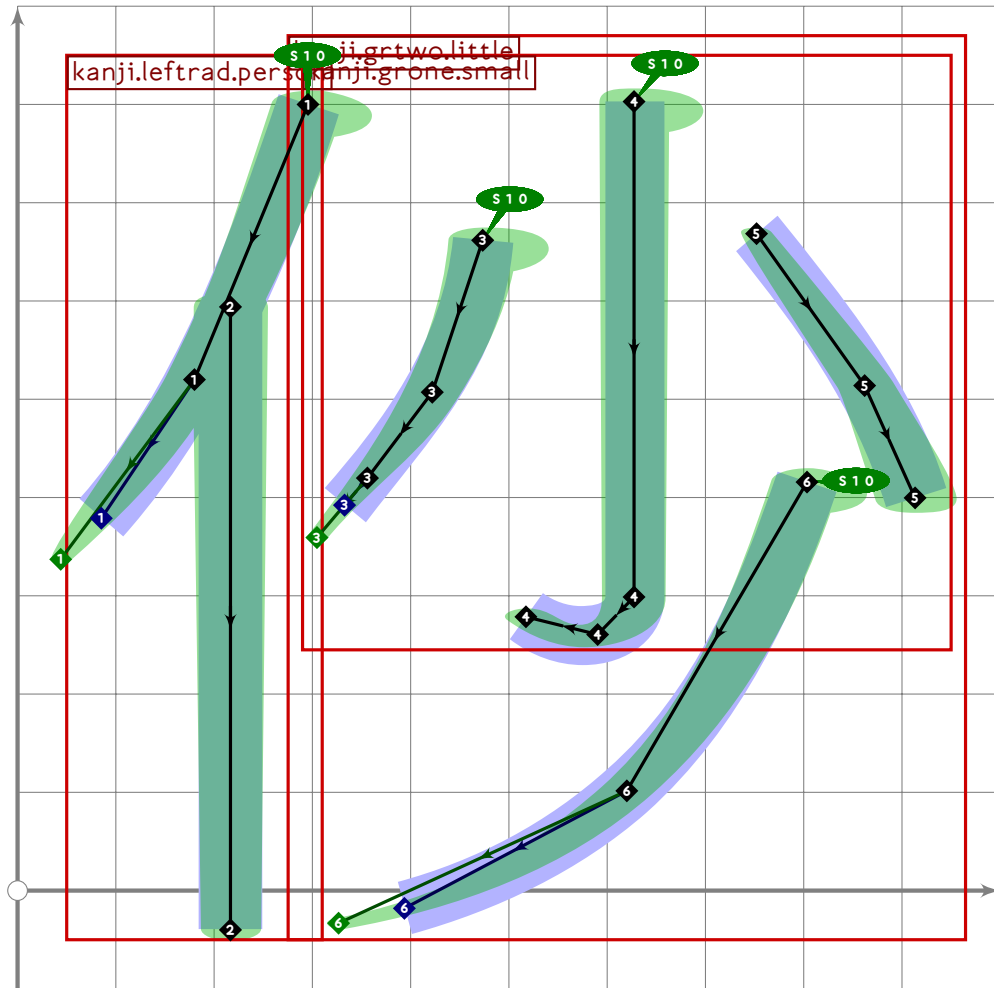




```

511 % extra
512 begintsuglyph("uni4EE9";233);
513 build_kanji.lr(300,20)
514 (kanji.leftrad.person)
515 (kanji.grone.up);
516 tsu_render;
517 endsuglyph;
518

```

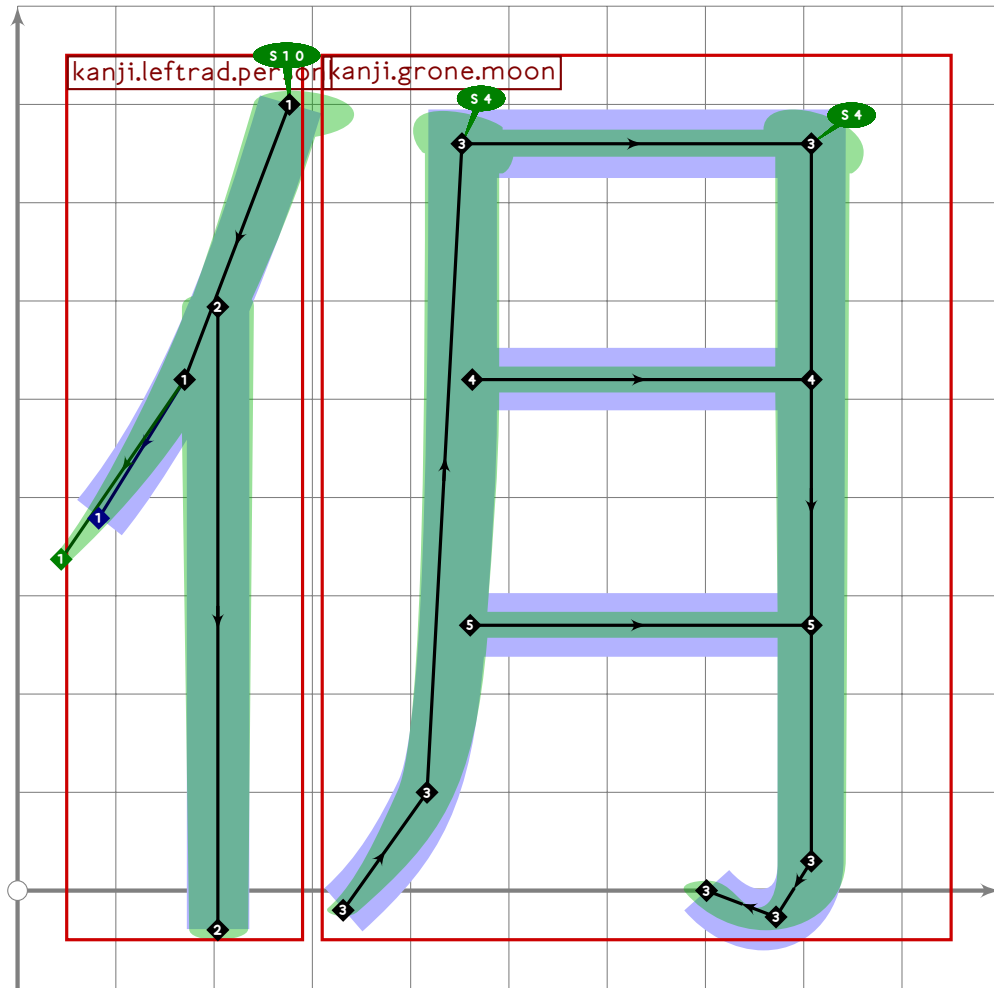


```

519 % extra
520 begintsuglyph("uni4EEF";239);
521 build_kanji.lr(300,20)
522 (kanji.leftrad.person)
523 (kanji.grtwo.little);
524 tsu_render;
525 endsuglyph;
526
527 % naka/chuu "go-between"
528 begintsuglyph("uni4EF2";242);
529 kanji.grfour.go_between;
530 tsu_render;
531 endsuglyph;
532

```

[see page 1526]



```

533 % extra
534 begintsuglyph("uni4EF4";244);
535 build_kanji.lr(300;20)
536 (kanji.leftrad.person)
537 (kanji.grone.moon);
538 tsu_render;
539 endsuglyph;
540
541 _____
542
543 endfont;
544
545 _____

```

# tsuku-4f.mp

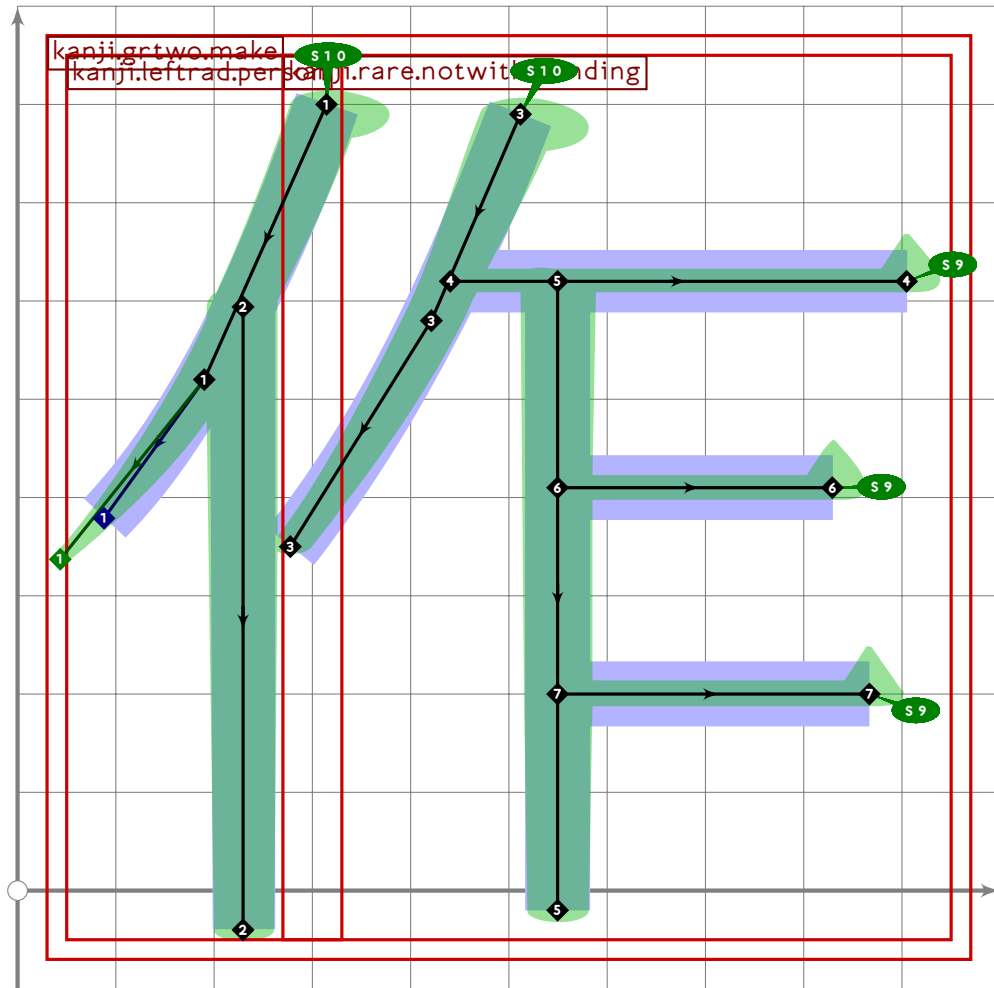
```
1 %
2 % Unicode page 4f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input topfad.mp;
48
49 

---

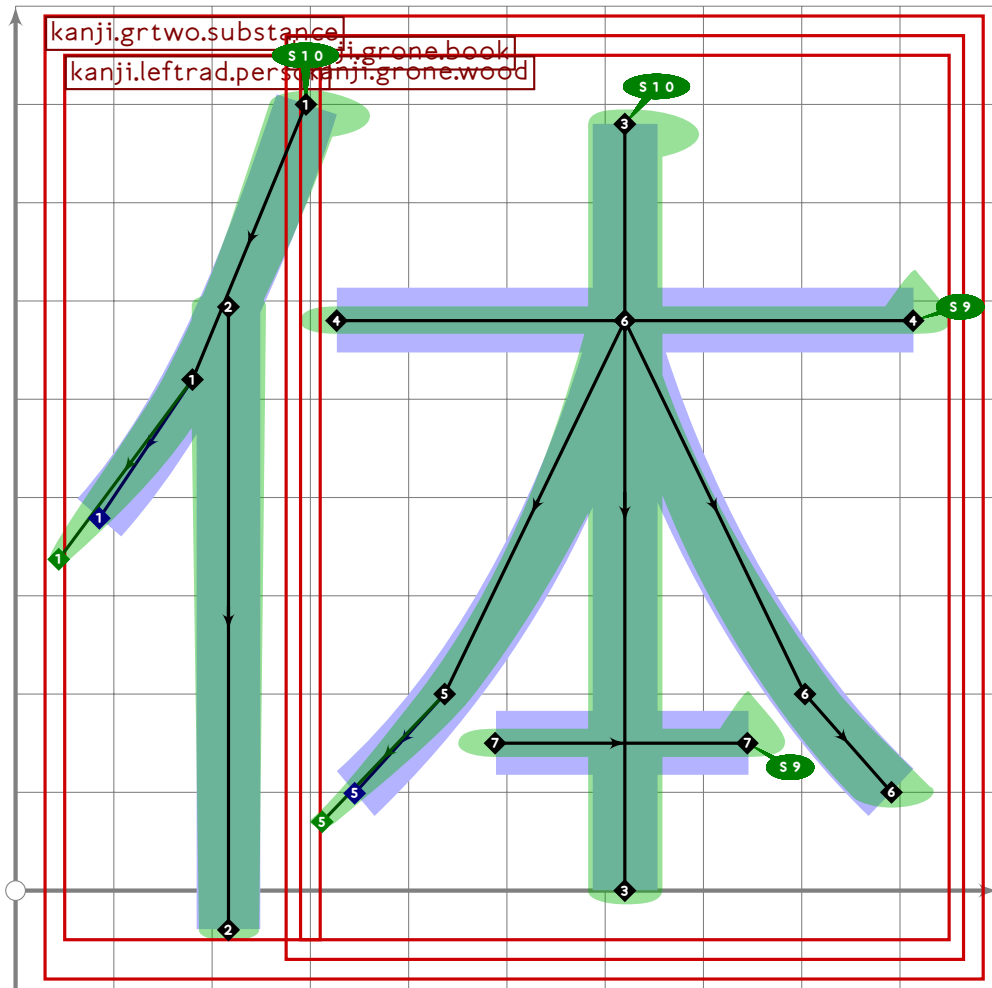

```



```

50
51 vardef kanji.grtwo.make =
52   push_pbox_toexpand("kanji.grtwo.make");
53   build_kanji.lr(300,60)
54     (kanji.leftrad.person)
55     (kanji.rare.notwithstanding);
56   expand_pbox;
57 enddef;

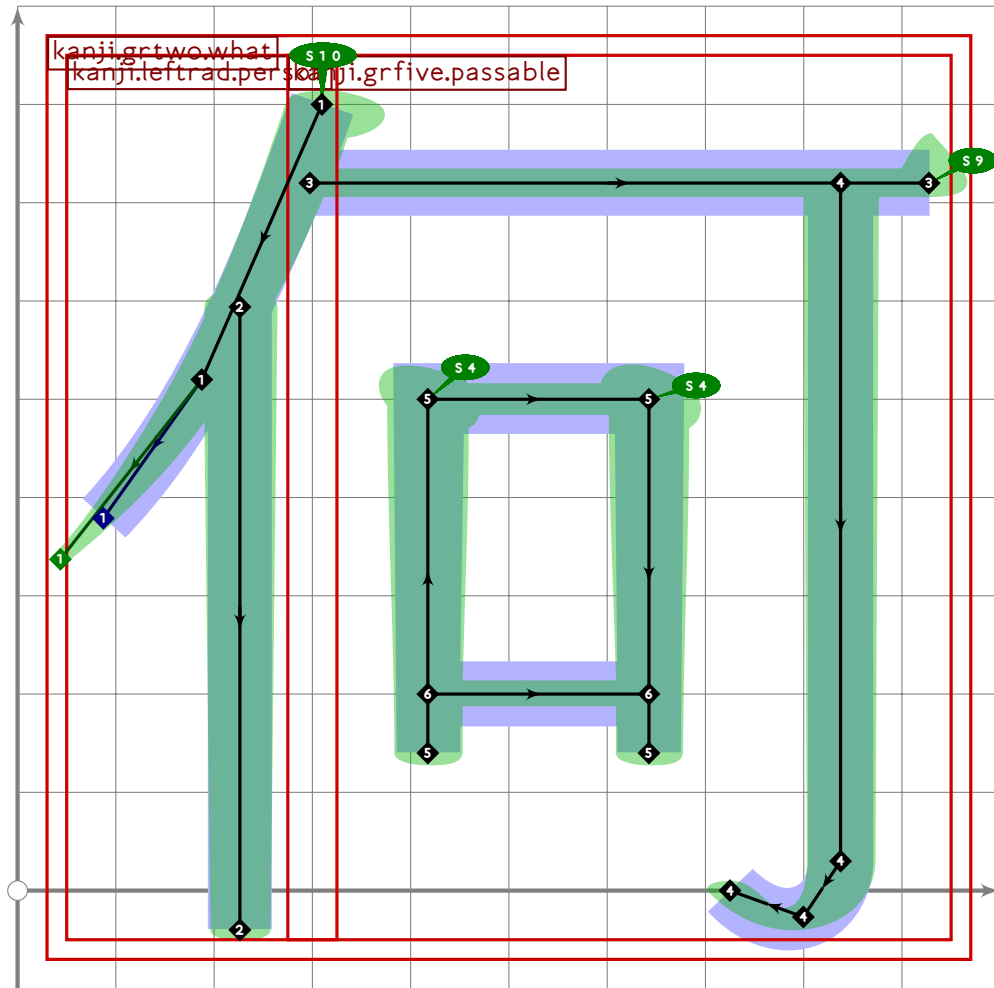
```



```

58
59 vardef kanji.grtwo.substance =
60   push_pbox_toexpand("kanji.grtwo.substance");
61   build_kanji.lr(300,20)
62     (kanji.leftrad.person)
63     (kanji.grone.book);
64   expand_pbox;
65 enddef;

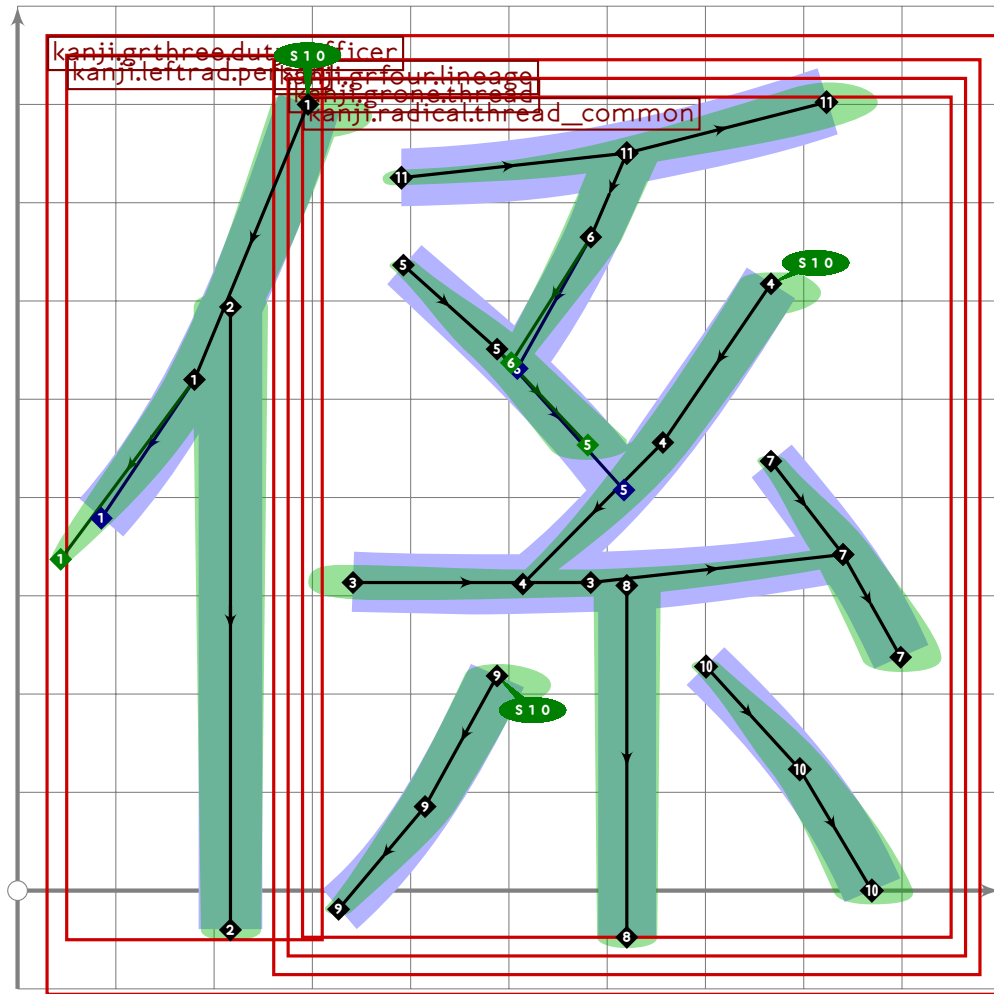
```



```

66
67 vardef kanji.grtwo.what =
68   push_pbox_toexpand("kanji.grtwo.what");
69   build_kanji.lr(300,50)
70     (kanji.leftrad.person)
71     (kanji.grfive.passable);
72   expand_pbox;
73 enddef;
74
75

```

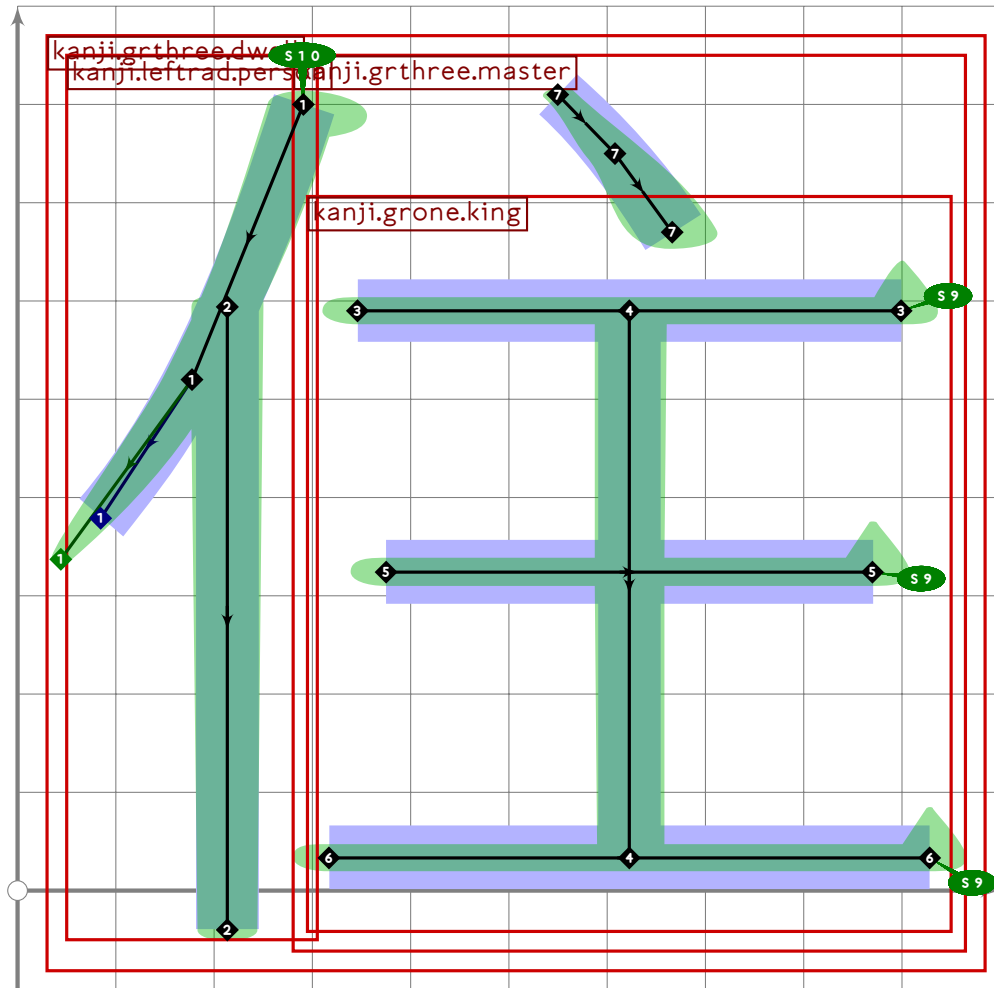


```

76
77 vardef kanji.grthree.duty_officer =
78   push_pbox_toexpand("kanji.grthree.duty_officer");
79   build_kanji.lr(300,20)
80     (kanji.leftrad.person)
81     (tsu_xform(identity yscaled 0.95)(kanji.grfour.lineage));
82   expand_pbox;
83 enddef;

```

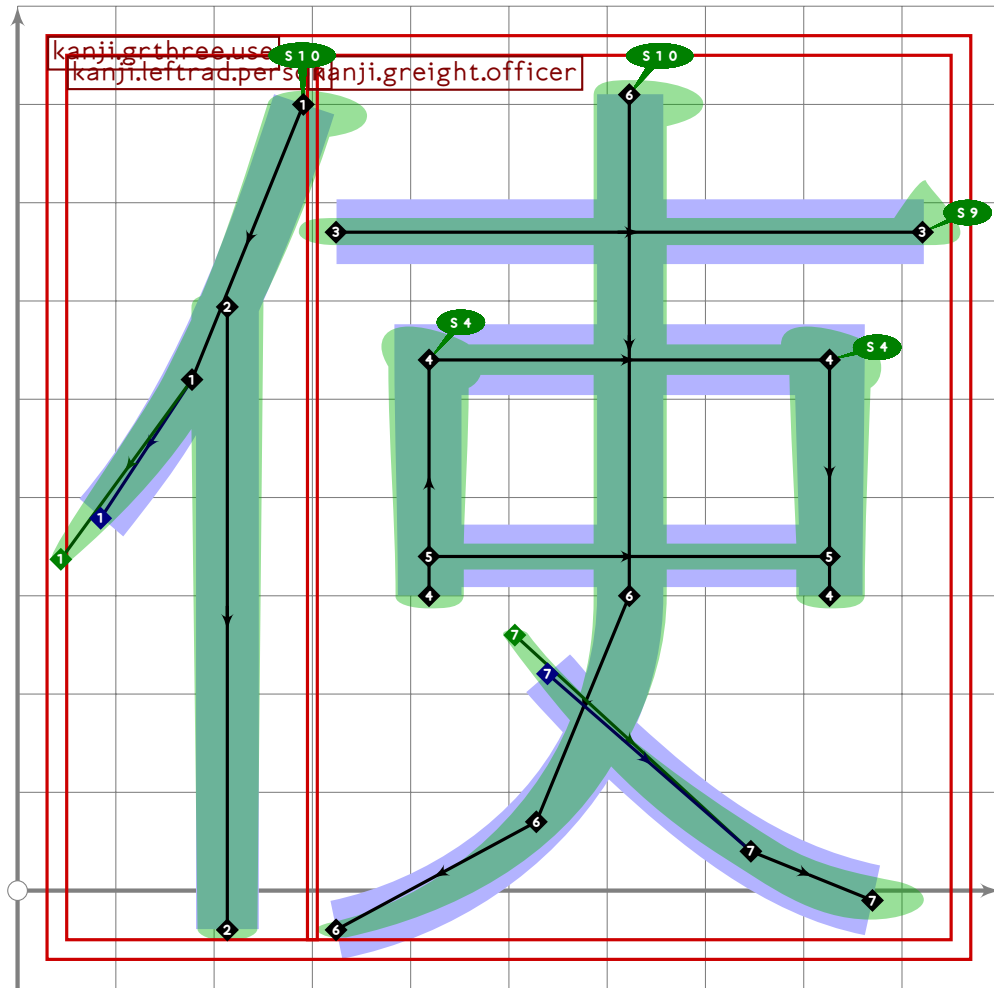




```

84
85 vardef kanji.grthree.dwell =
86   push_pbox_toexpand("kanji.grthree.dwell");
87   build_kanji.lr(300,10)
88     (kanji.leftrad.person)
89     (kanji.grthree.master);
90   expand_pbox;
91 enddef;

```

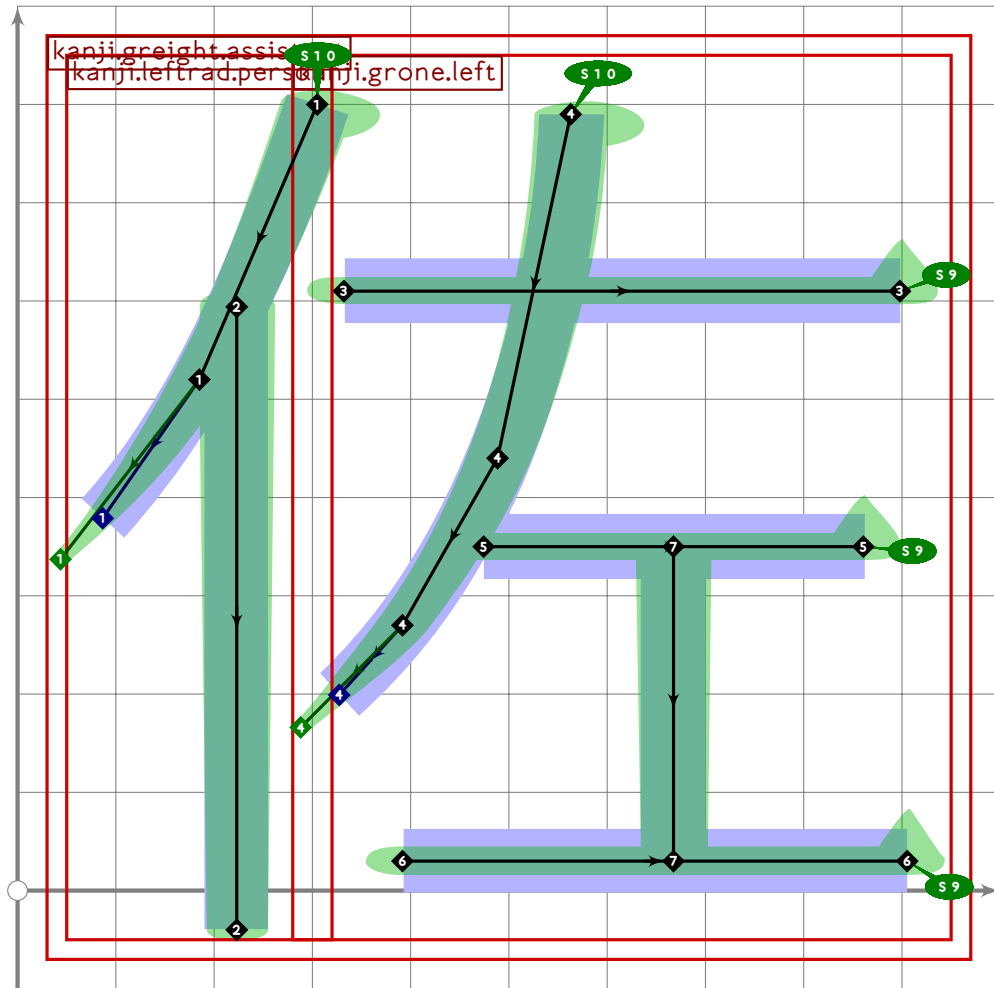


```

92
93 vardef kanji.grthree.use =
94   push_pbox_toexpand("kanji.grthree.use");
95   build_kanji.lr(300,10)
96     (kanji.leftrad.person)
97     (kanji.greight.officer);
98   expand_pbox;
99 enddef;
100
101

```

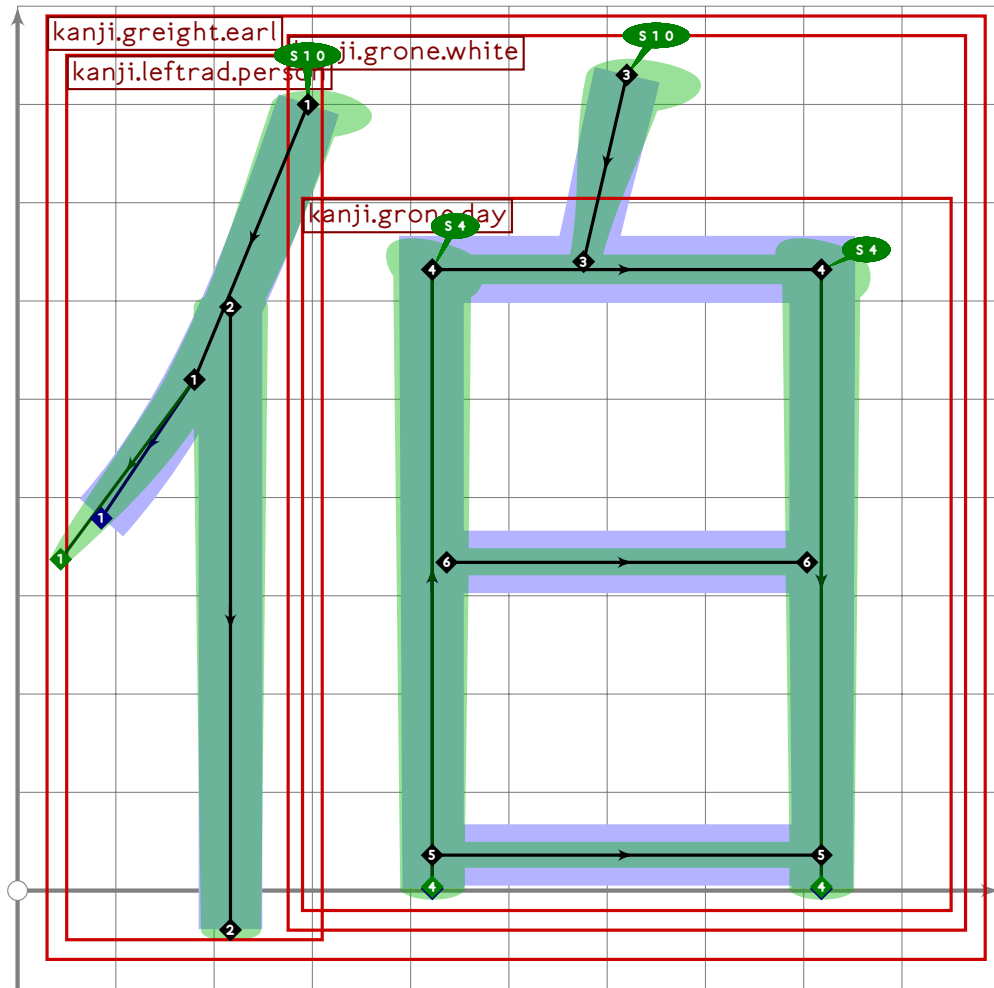
---



```

102
103 vardef kanji.greight.assistant =
104   push_pbox_toexpand("kanji.greight.assistant");
105   build_kanji.lr(300,40)
106     (kanji.leftrad.person)
107     (kanji.grone.left);
108   expand_pbox;
109 enddef;

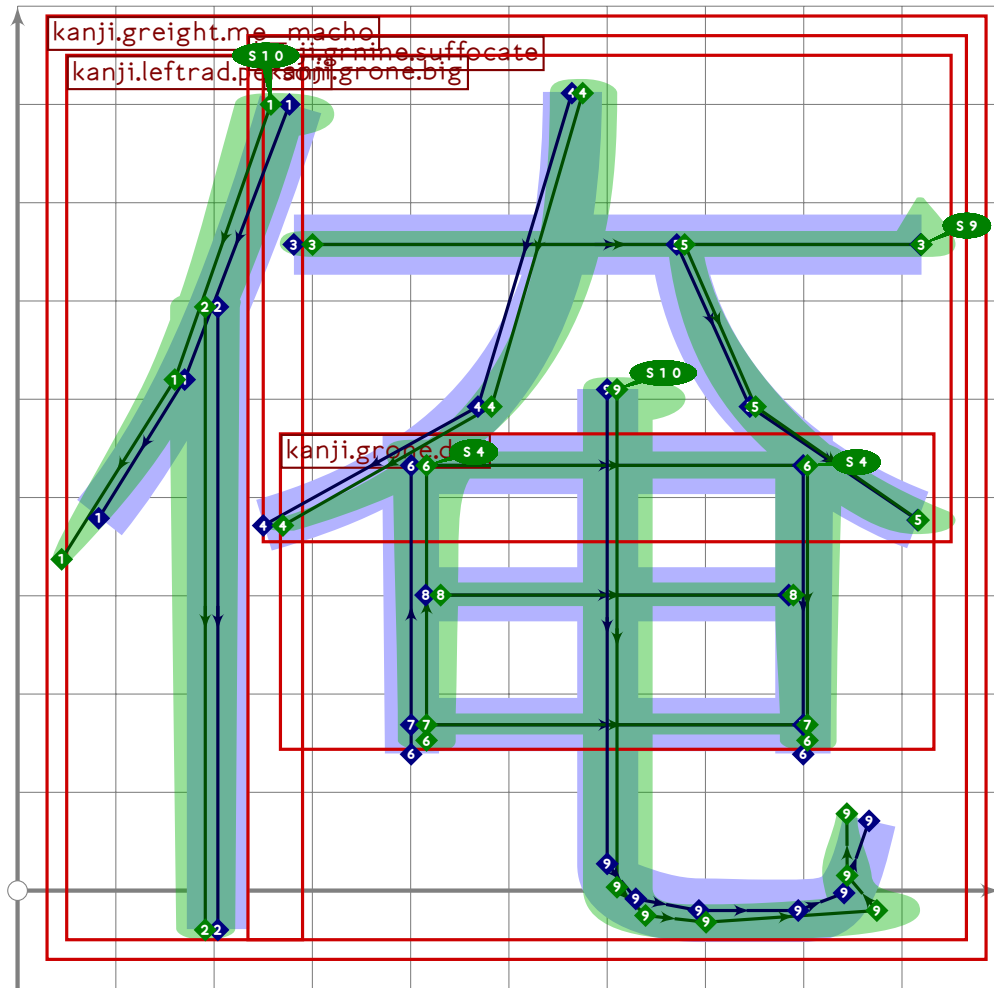
```



```

110
111 vardef kanji.greight.earl =
112   push_pbox_toexpand("kanji.greight.earl");
113   build_kanji.lr(300,20)
114     (kanji.leftrad.person)
115     (build_kanji.sscale(shifted (0,20))(kanji.grone.white));
116   expand_pbox;
117 enddef;

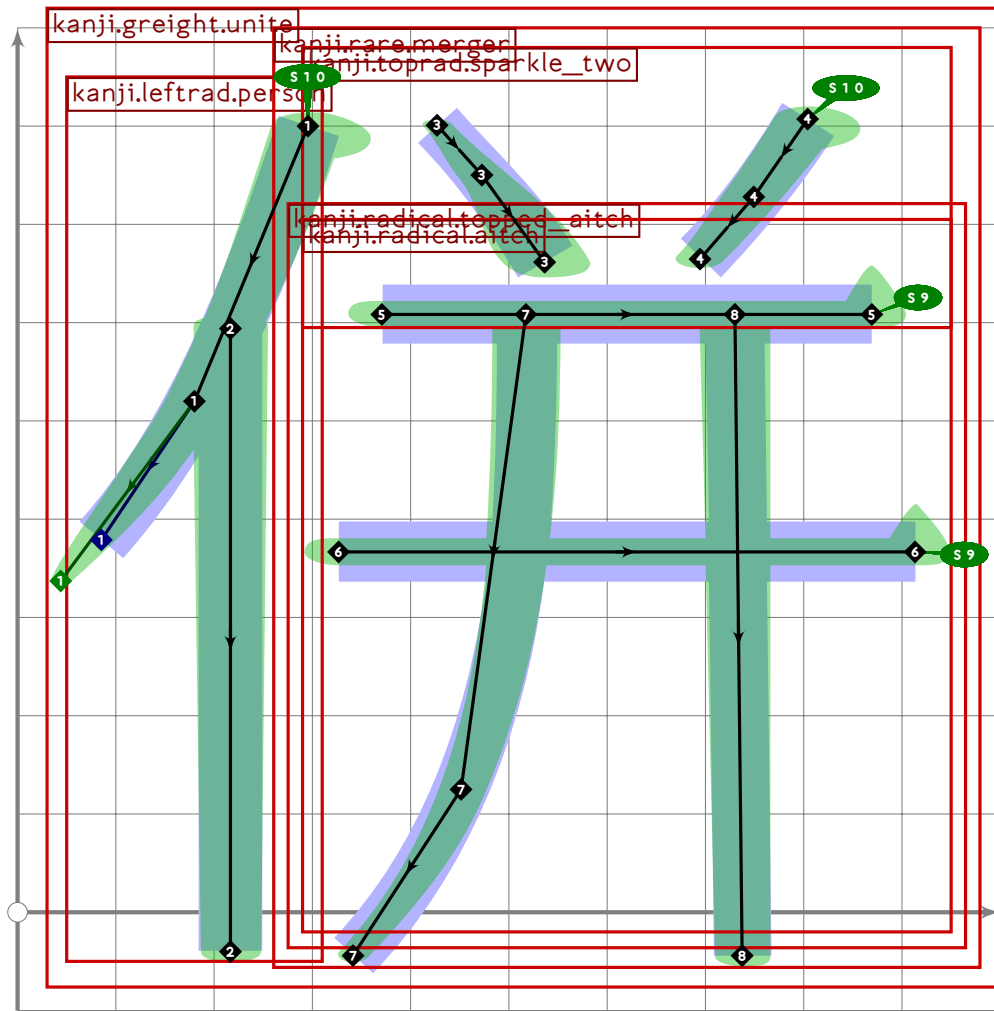
```



```

118
119 vardef kanji.greight.me_macho =
120   push_pbox_toexpand("kanji.greight.me_macho");
121   build_kanji.lr(270,40*(1-mincho))
122     (kanji.leftrad.person)
123     (kanji.grnine.suffocate);
124   expand_pbox;
125 enddef;

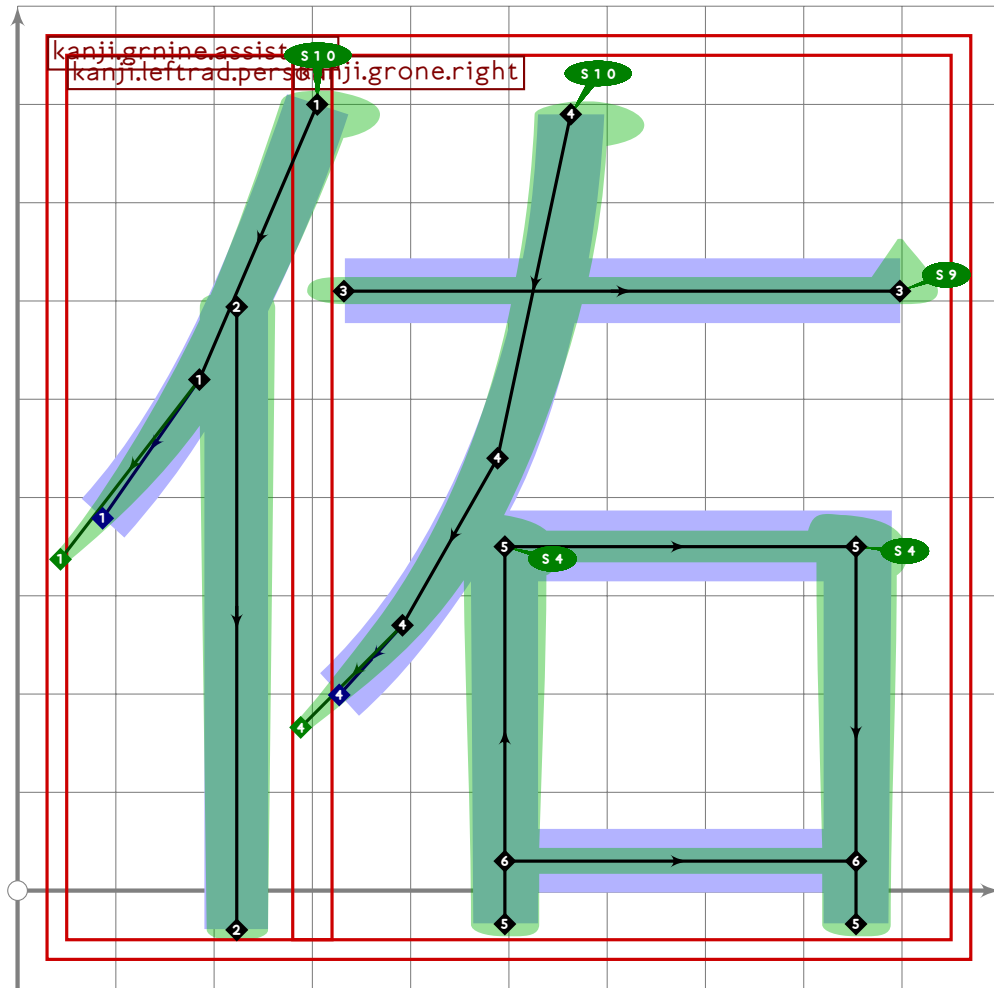
```



```

126
127 vardef kanji.greight.unite =
128   push_pbox_toexpand("kanji.greight.unite");
129   build_kanji.lr(300,20)
130     (kanji.leftrad.person)
131     (build_kanji.sscale(shifted (0,30))(kanji.rare.merger));
132   expand_pbox;
133 enddef;
134
135

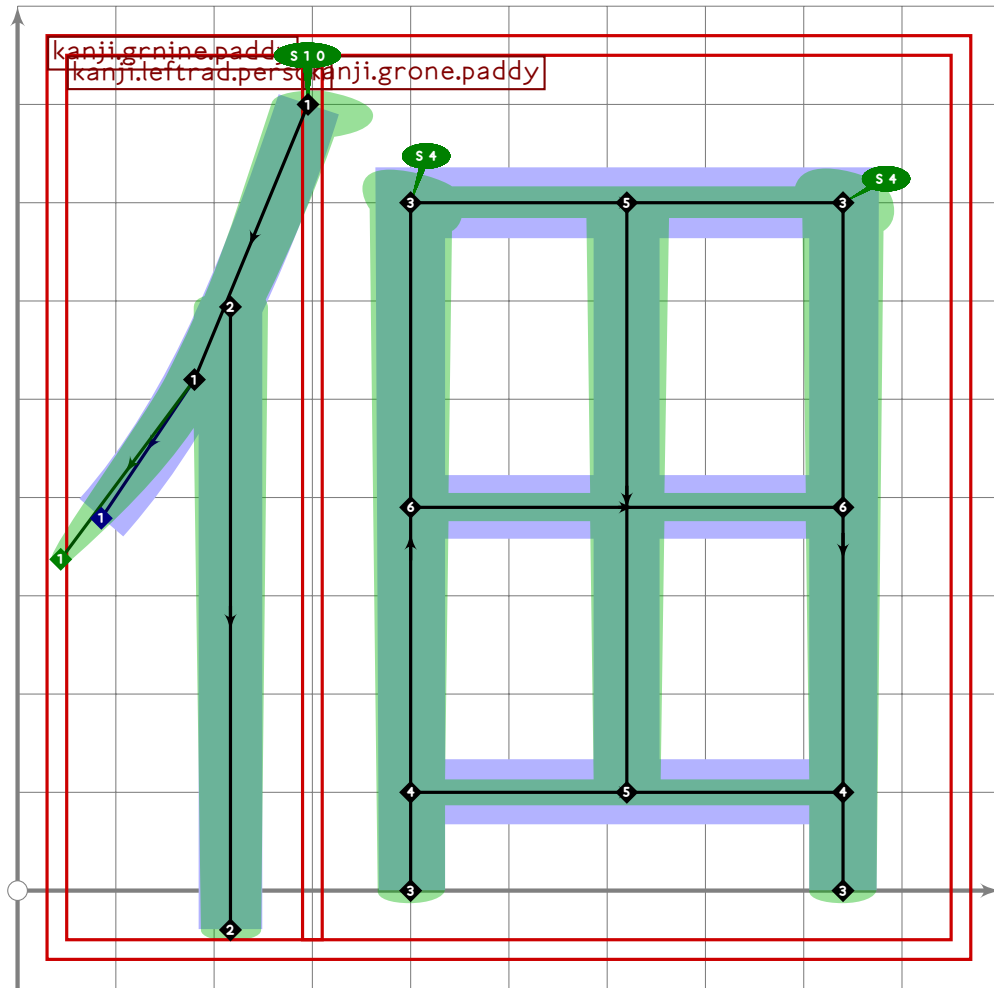
```



```

136
137 vardef kanji.grnine.assist =
138   push_pbox_toexpand("kanji.grnine.assist");
139   build_kanji.lr(300,40)
140     (kanji.leftrad.person)
141     (kanji.grnone.right);
142   expand_pbox;
143 enddef;

```



```

144
145 vardef kanji.grnine.paddy =
146   push_pbox_toexpand("kanji.grnine.paddy");
147   build_kanji.lr(300,20)
148     (kanji.leftrad.person)
149     (kanji.grone.paddy);
150   expand_pbox;
151 enddef;

```

152

153

154

```

155 % yasu "vacation"
156 begintsuglyph("uni4F11";17);
157   kanji.grone.vacation;
158   tsu_render;
159 endtsuglyph;

```

[see page 438]

160

```

161 % kai/a "meet"
162 begintsuglyph("uni4F1A";26);
163   kanji.grtwo.meet;
164   tsu_render;

```

[see page 479]

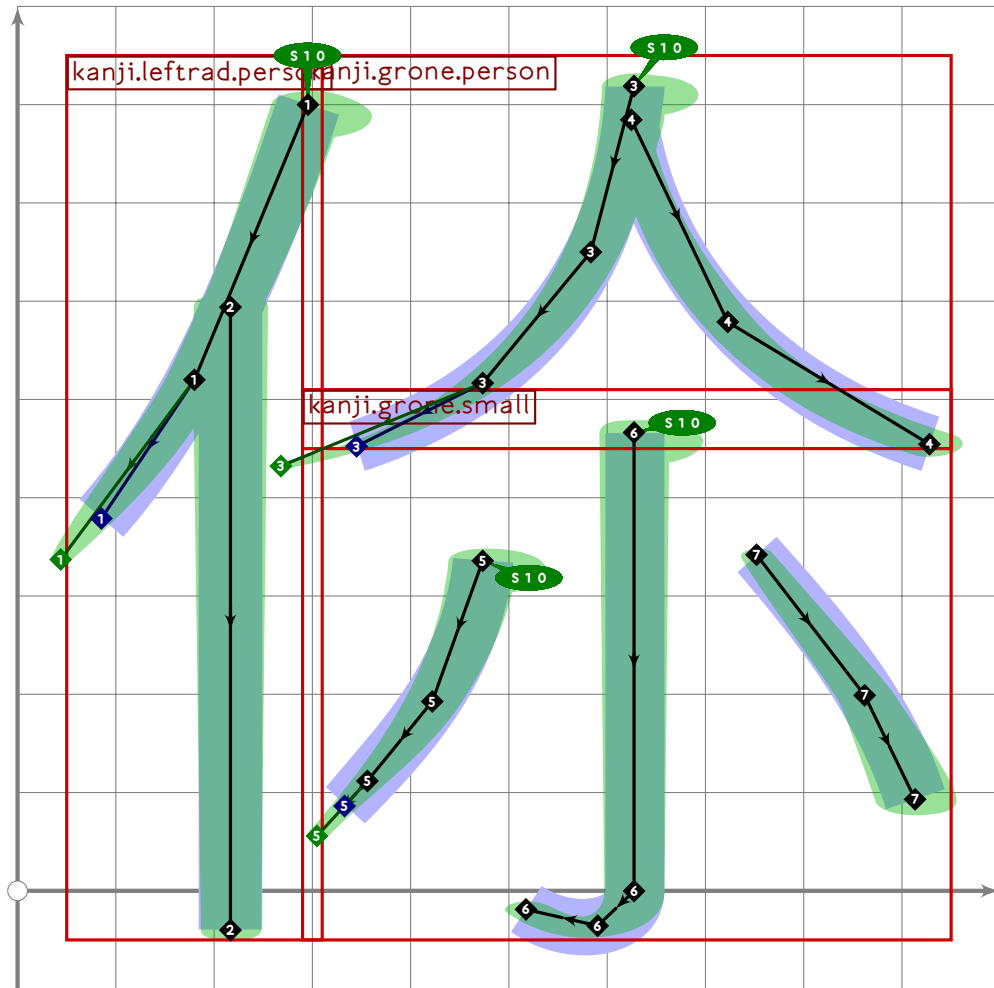


```

165 endtsuglyph;
166
167 % haku "earl"
168 begintsuglyph("uni4F2F";47);
169   kanji.greight.earl;
170   tsu_render;
171 endtsuglyph;
172

```

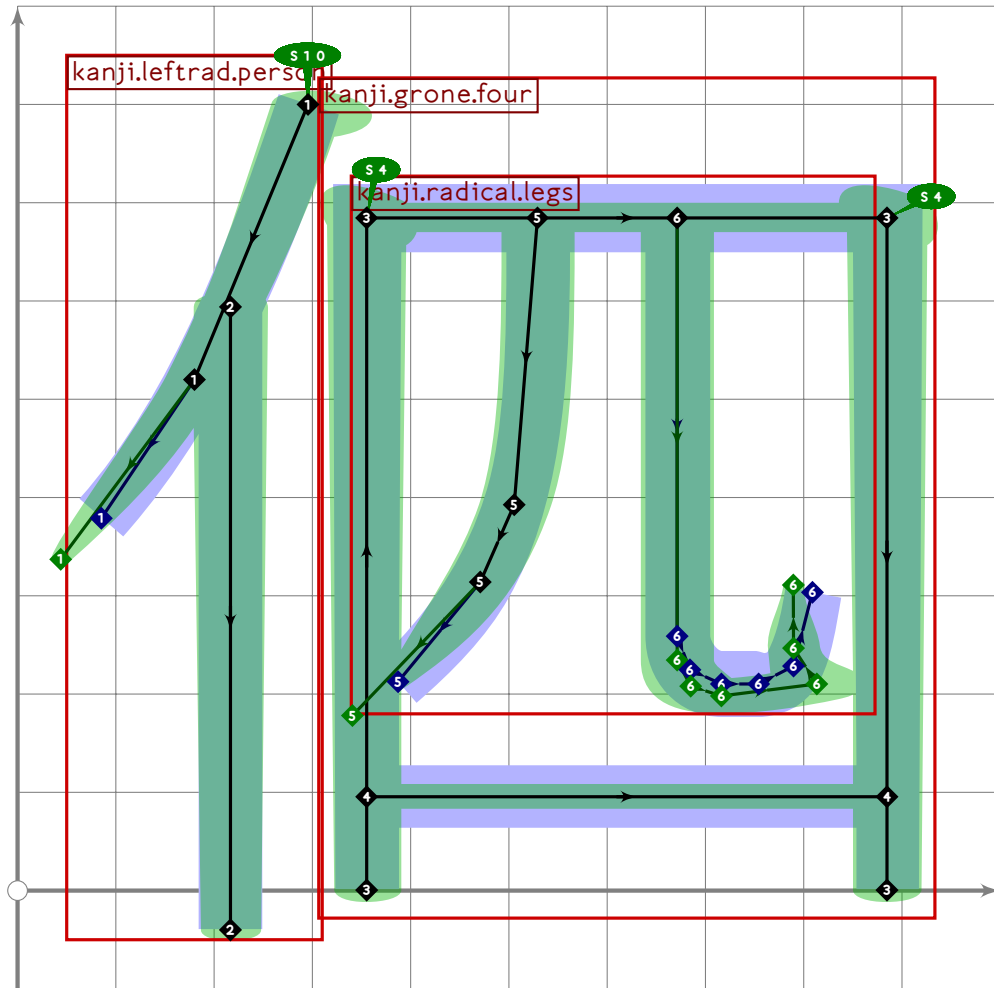
[see page 1560]



```

173 % extra
174 begintsuglyph("uni4F31";49);
175   build_kanji.lr(300,20)
176     (kanji.leftrad.person)
177     (build_kanji.tb(480,60)
178       (kanji.grone.person)
179       (kanji.grone.small));
180   tsu_render;
181 endtsuglyph;
182

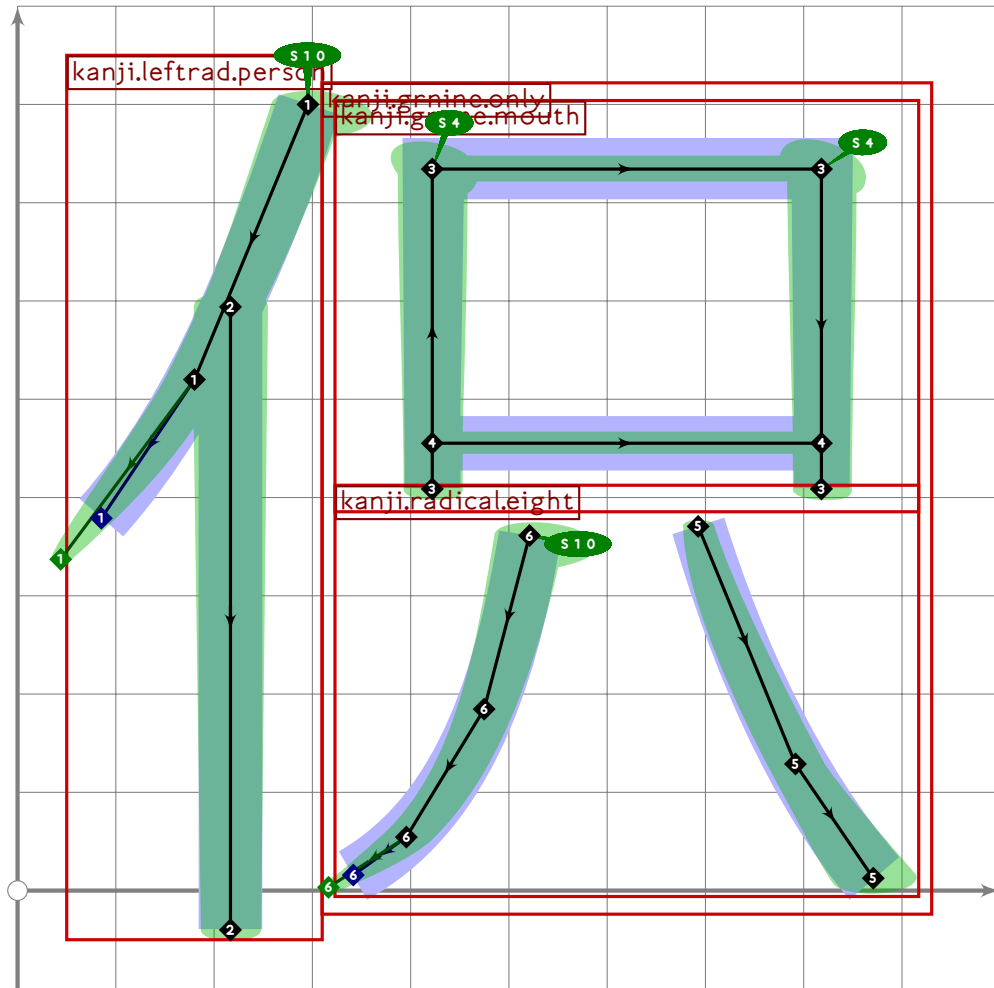
```



```

183 % extra
184 begintsuglyph("uni4F35",53);
185 build_kanji.lr(300,20)
186   (kanji.leftrad.person)
187   (build_kanji.sscale(scaled 0.95)(kanji.grone.four));
188   tsu_render;
189 endsuglyph;
190

```



```

191 % extra
192 begintsuglyph("uni4F3F";63);
193   build_kanji.lr(300,20)
194     (kanji.leftrad.person)
195     (build_kanji.sscale(scaled 0.9)(kanji.grnine.only));
196   tsu_render;
197 endtsuglyph;
198
199 % ten/tsukuda "cultivated paddy"
200 begintsuglyph("uni4F43";67);
201   kanji.grnine.paddy;
202   tsu_render;
203 endtsuglyph;
204
205 % juu/su "dwell"
206 begintsuglyph("uni4F4F";79);
207   kanji.grthree.dwell;
208   tsu_render;
209 endtsuglyph;
210
211 % suke "assistant"

```

[see page 1564]

[see page 1557]

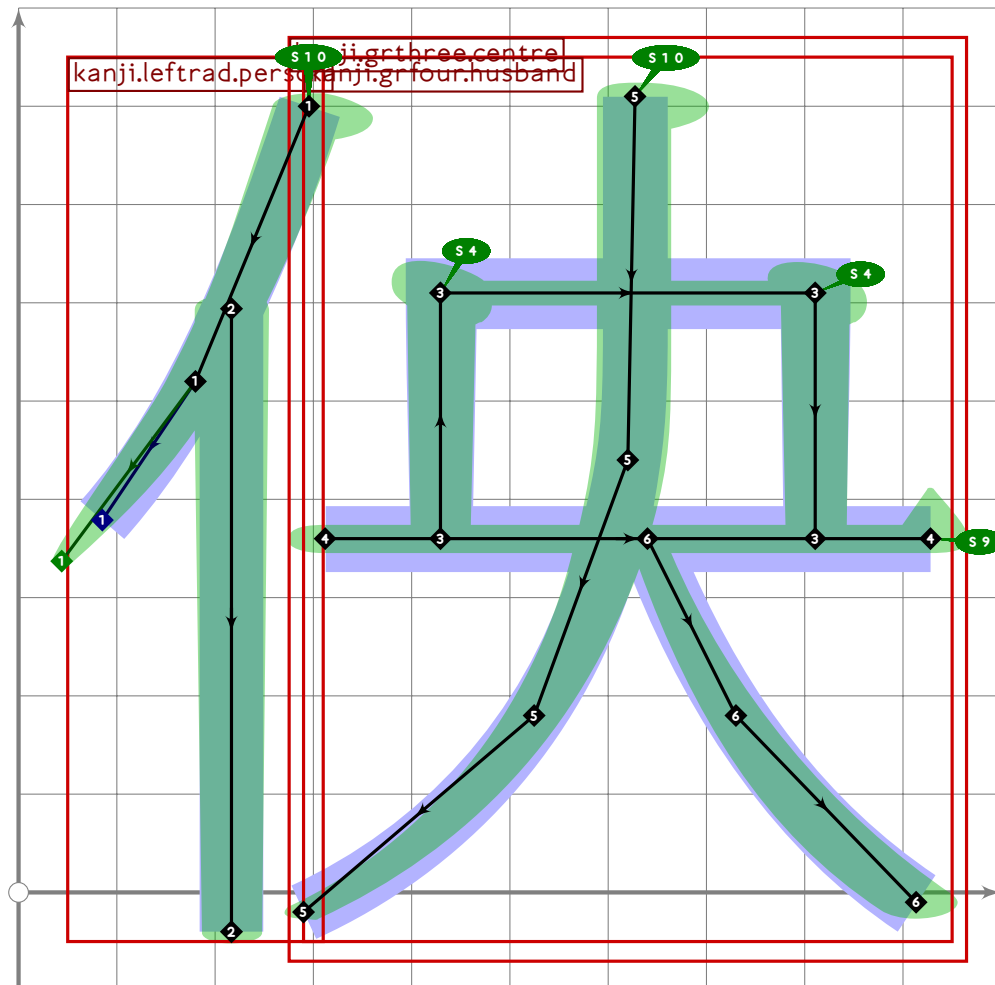
```

212 begintsuglyph("uni4F50";80);
213 kanji.greight.assistant;
214 tsu_render;
215 endtsuglyph;
216
217 % suke "assistant"
218 begintsuglyph("uni4F51";81);
219 kanji.grnine.assistant;
220 tsu_render;
221 endtsuglyph;
222

```

[see page 1559]

[see page 1563]



```

223 % extra
224 begintsuglyph("uni4F52";82);
225 build_kanji.lr(300,20)
226 (kanji.leftrad.person)
227 (kanji.grthree.centre);
228 tsu_render;
229 endtsuglyph;
230
231 % tai/karada "substance"
232 begintsuglyph("uni4F53";83);

```

[see page 1554]

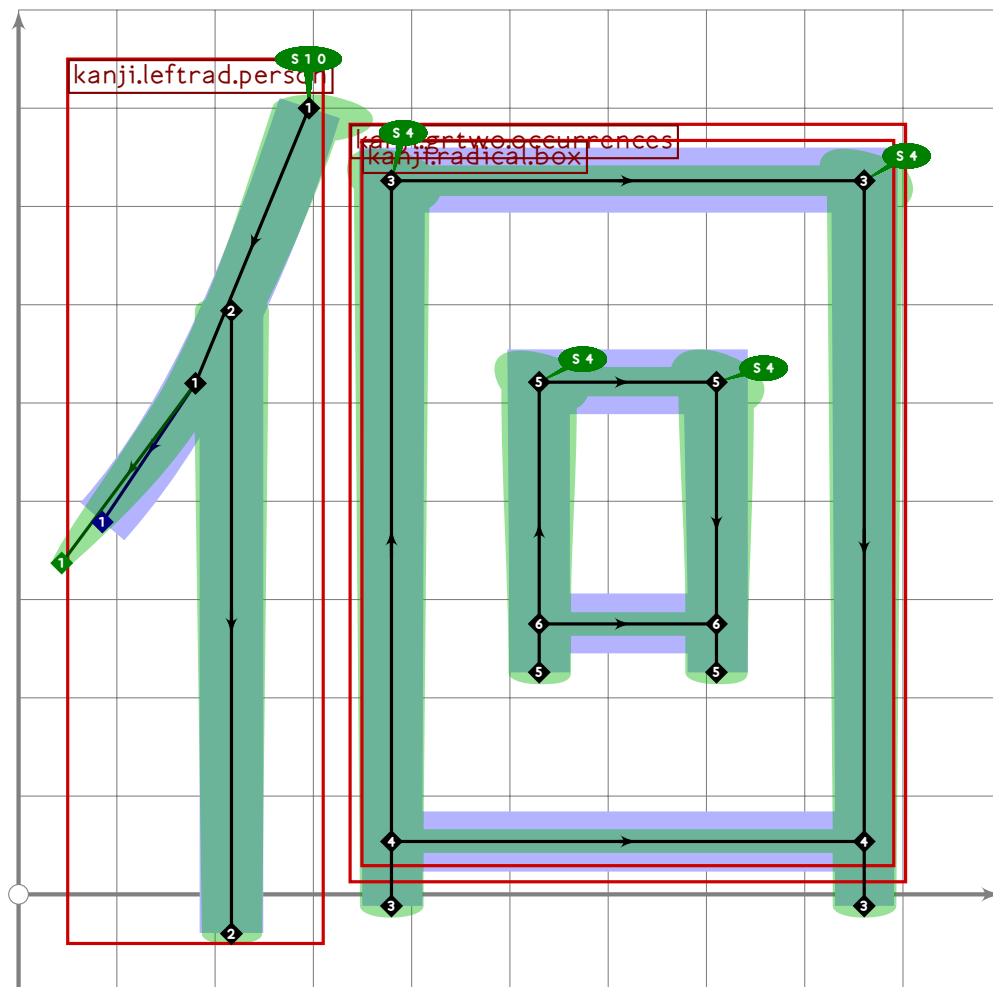
```

233 kanji.grtwo.substance;
234 tsu_render;
235 endtsuglyph;
236
237 % ka/nani "what"
238 begintsuglyph("uni4F55";85);
239 kanji.grtwo.what;
240 tsu_render;
241 endtsuglyph;
242
243 % tsuku "make"
244 begintsuglyph("uni4F5C";92);
245 kanji.grtwo.make;
246 tsu_render;
247 endtsuglyph;
248

```

[see page 1555]

[see page 1553]



```

249 % extra "hesitate"
250 begintsuglyph("uni4F6A";106);
251 build_kanji.lr(300,20)
252   (kanji.leftrad.person)
253   (build_kanji.sscale(scaled 0.82)(kanji.grtwo.occurrences));

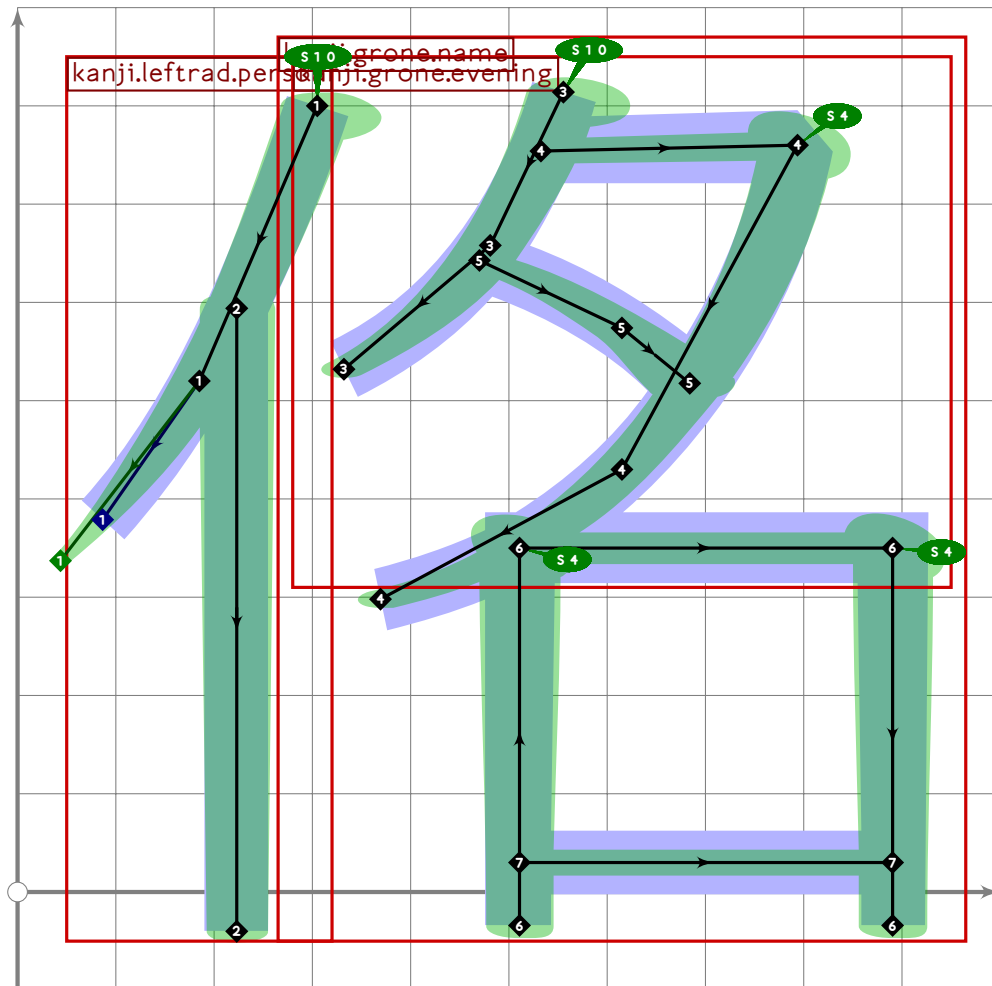
```

```

254 tsu_render;
255 endtsuglyph;
256
257 % extra "centurion"
258 begintsuglyph("uni4F70";112);
259 kanji.rare.centurion;
260 tsu_render;
261 endtsuglyph;
262

```

[see page 608]



```

263 % extra
264 begintsuglyph("uni4F72";114);
265 build_kanji.lr(300,40)
266   (kanji.leftrad.person)
267   (kanji.grone.name);
268 tsu_render;
269 endtsuglyph;
270
271 % hei/awa "unite"
272 begintsuglyph("uni4F75";117);
273 kanji.greight.unite;
274 tsu_render;

```

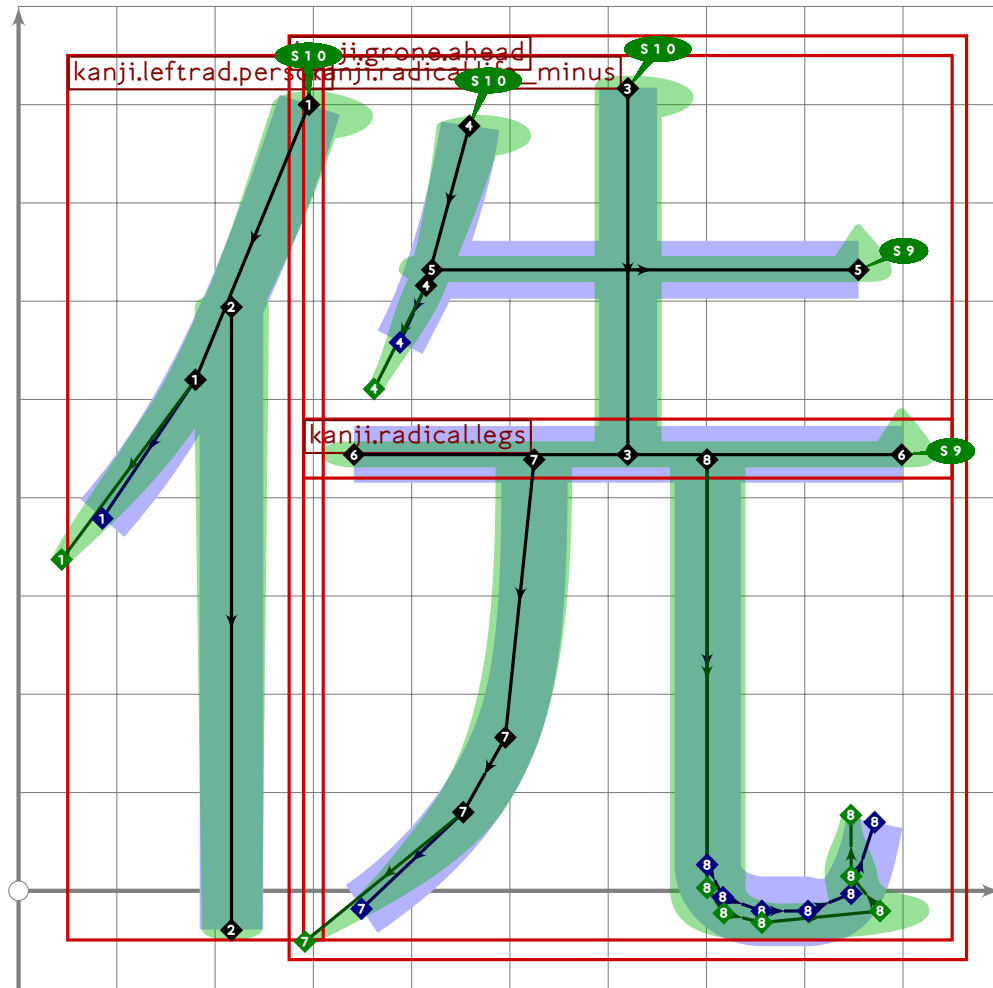
[see page 1562]

```

275 endtsuglyph;
276
277 % shi/tsuka "use"
278 begintsuglyph("uni4F7F";127);
279   kanji.grthree.use;
280   tsu_render;
281 endtsuglyph;
282

```

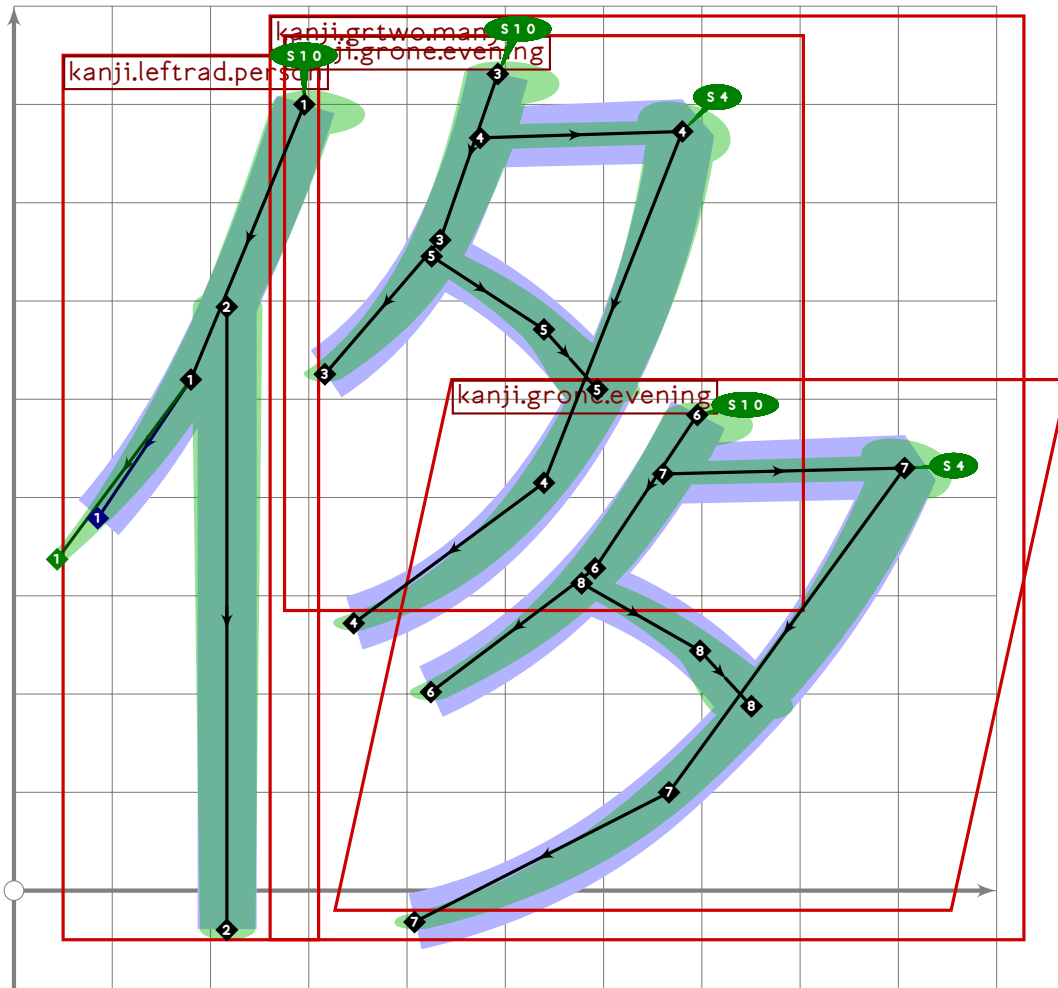
[see page 1558]



```

283 % extra
284 begintsuglyph("uni4F81";129);
285   build_kanji.lr(300,20)
286     (kanji.leftrad.person)
287     (kanji.grthree.use);
288   tsu_render;
289 endtsuglyph;
290

```

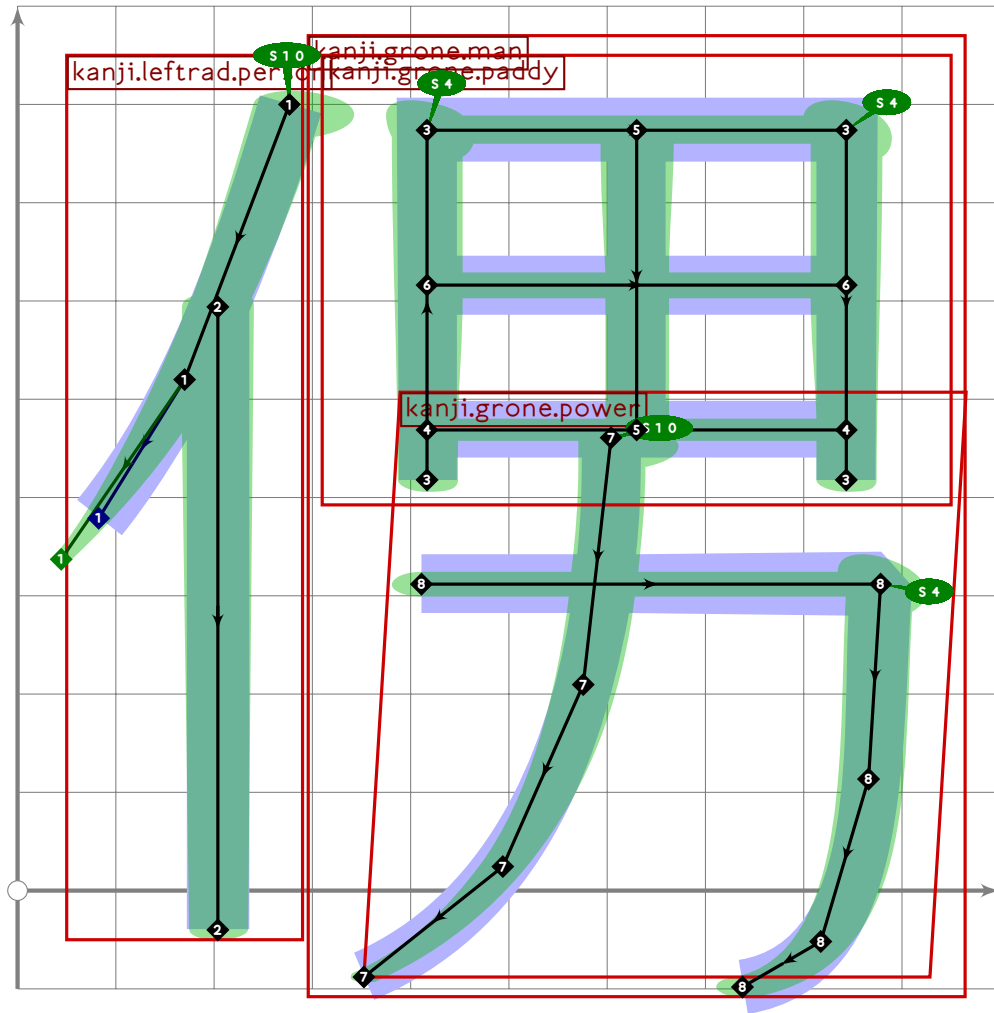


```

291 % extra "luxury"
292 begintsuglyph("uni4F88",136);
293 build_kanji.level(build_kanji.lr(300,20)
294   (kanji.leftrad.person)
295   (kanji.grtwo.many));
296 tsu_render;
297 endtsuglyph;
298

```



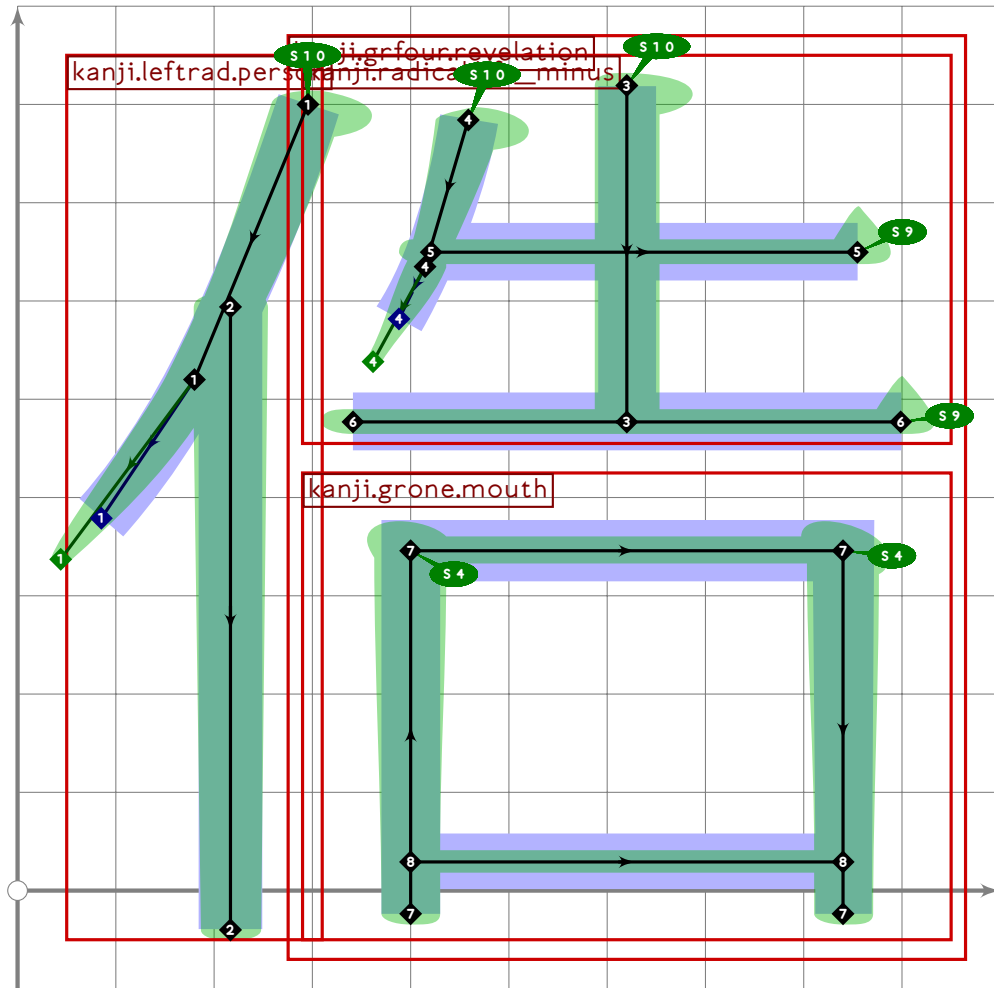


```

299 % extra
300 begintsuglyph("uni4FBD",189);
301 build_kanji.lr(300,-20)
302   (kanji.leftrad.person)
303   (kanji.grone.man);
304   tsu_render;
305 endsuglyph;
306
307 % kei/kaka "person in charge"
308 begintsuglyph("uni4FC2",194);
309   kanji.grthree.duty_officer;
310   tsu_render;
311 endsuglyph;
312

```

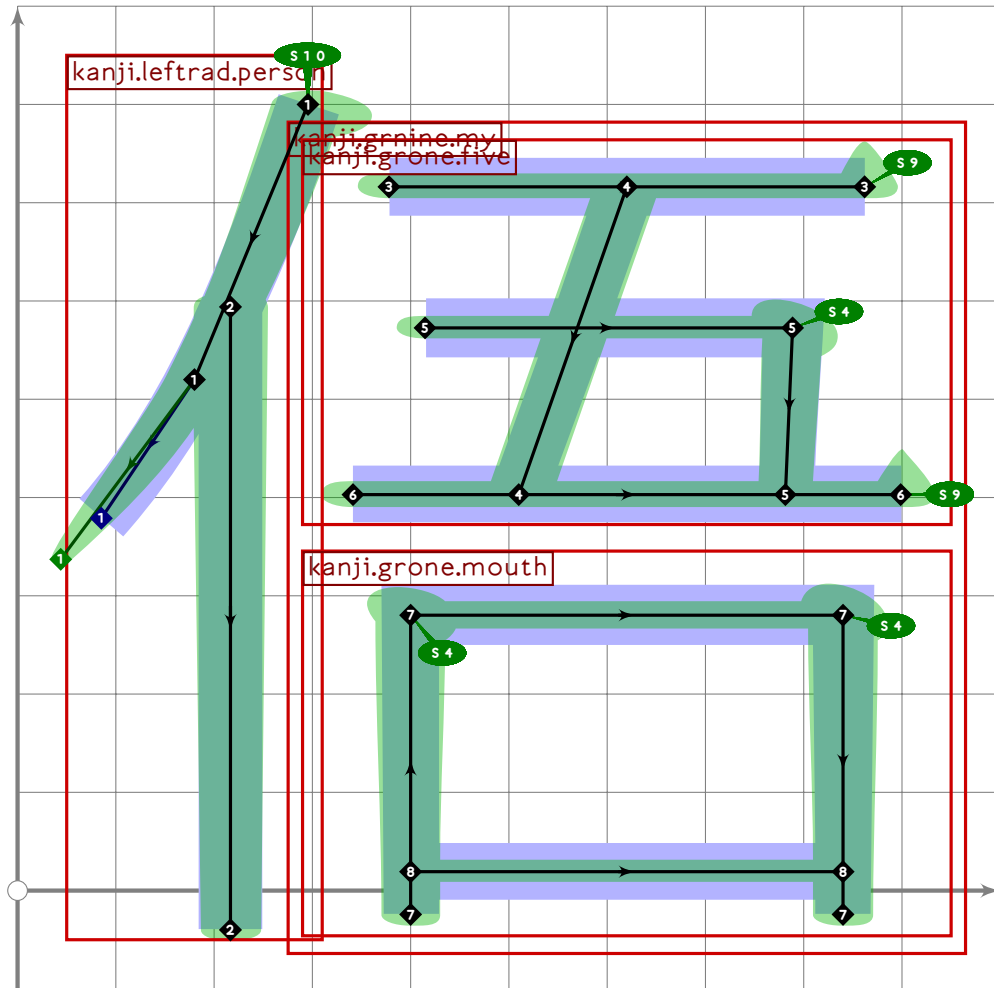
[see page 1556]



```

313 % extra
314 begintsuglyph("uni4FC8",200);
315 build_kanji.lr(300,20)
316 (kanji.leftrad.person)
317 (kanji.grfour.revelation);
318 tsu_render;
319 endsuglyph;
320

```



```

321 % extra
322 begintsuglyph("uni4FC9";201);
323 build_kanji.lr(300,20)
324 (kanji.leftrad.person)
325 (build_kanji.sscale(yscaled 0.9 shifted (0,-40))
326 (kanji.grnine.my));
327 tsu_render;
328 endtsuglyph;
329
330 % en/ore "me" (masculine, aggressive, more so than "boku")
331 begintsuglyph("uni4FFA";250);
332 kanji.greight.me_macho;
333 tsu_render;
334 endtsuglyph;
335
336
337
338 endfont;
339
340

```

[see page 1561]

# tsuku-50.mp

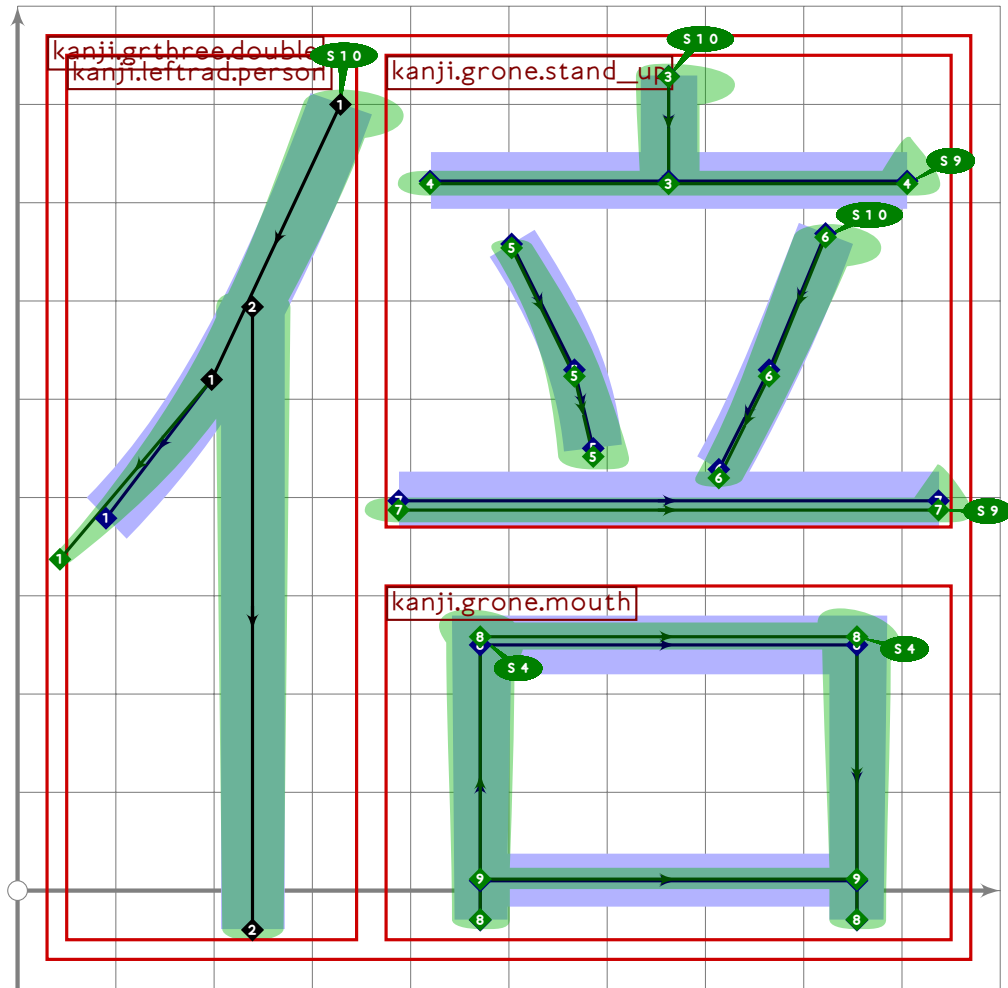
```
1 %
2 % Unicode page 50 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input leftrad.mp;
40 input radical.mp;
41 input rare.mp;
42 input topfad.mp;
43
44 

---

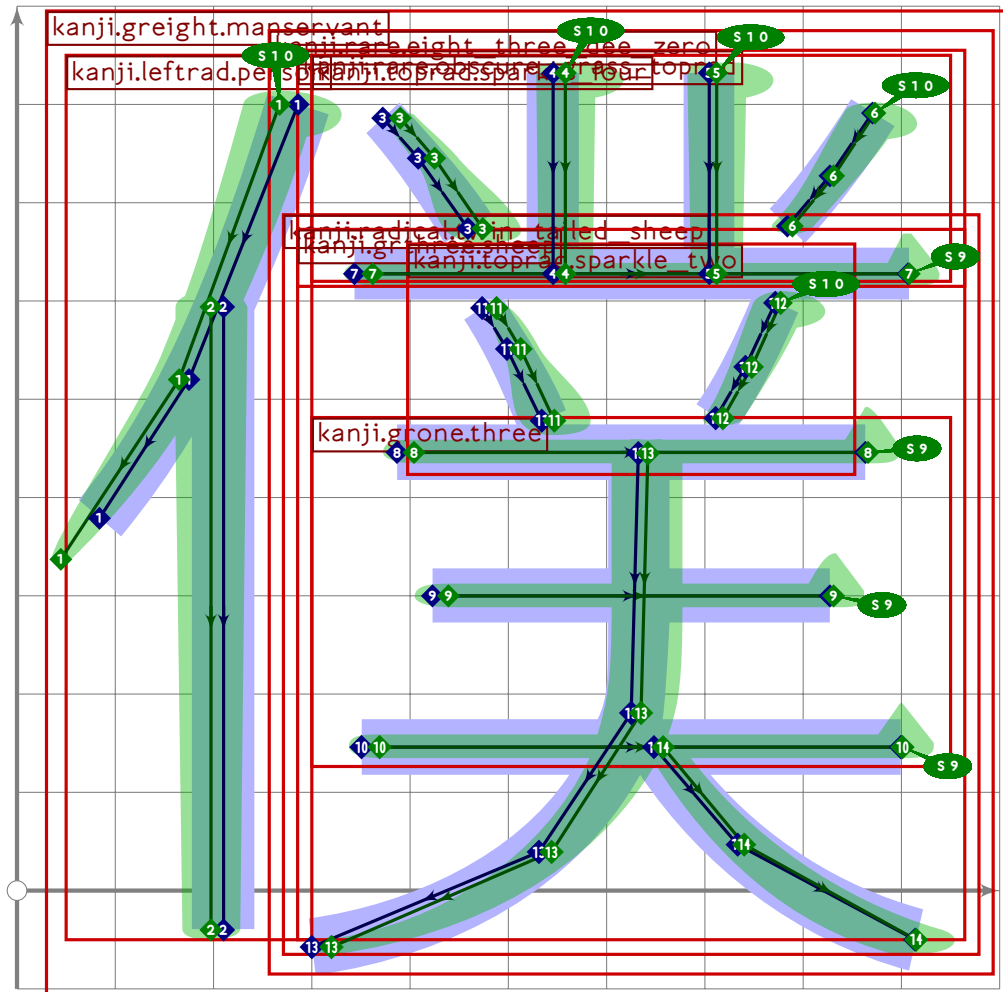

```



```

45
46 vardef kanji.grthree.double =
47   push_pbox_toexpand("kanji.grthree.double");
48   build_kanji.lr(360;-30)
49     (kanji.leftrad.person)
50     (build_kanji.tb(340;-60+20*mincho)
51       (kanji.grone.stand_up)
52       (kanji.grone.mouth));
53   expand_pbox;
54 enddef;
55
56

```

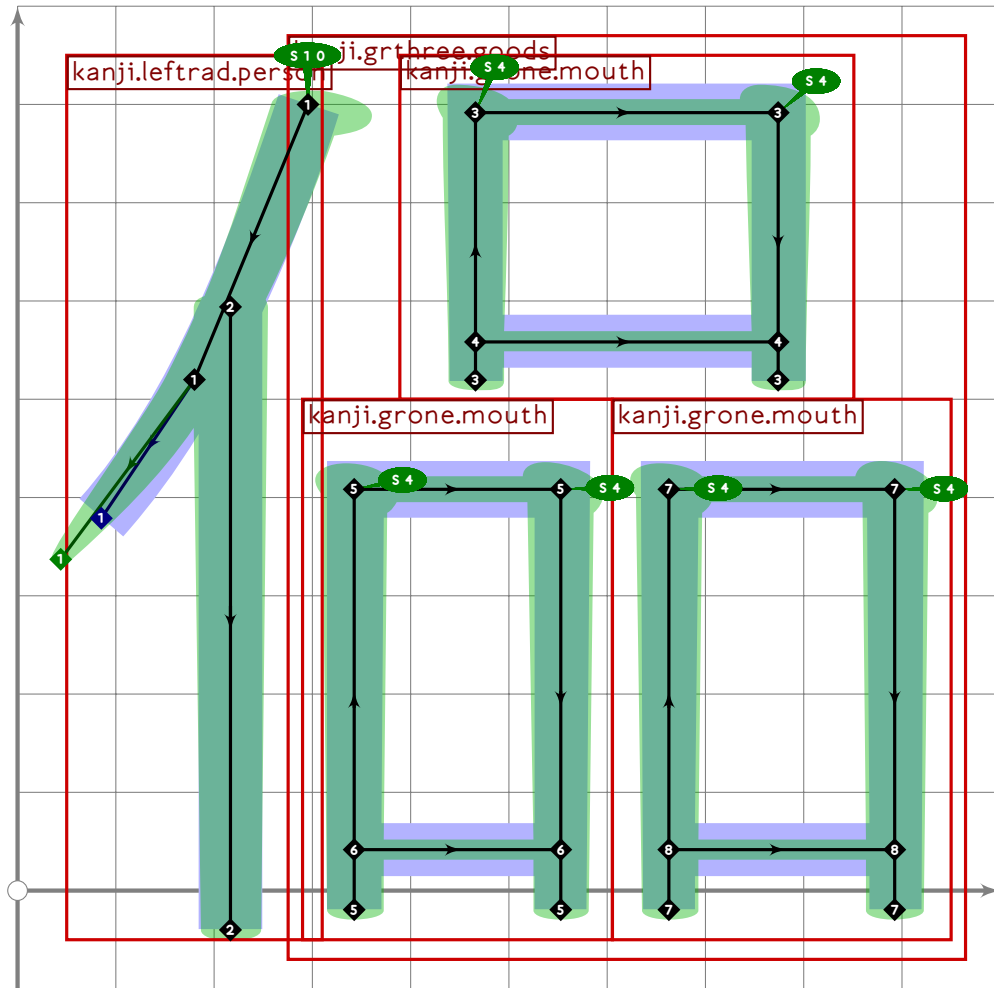


```

57
58 vardef kanji.greight.manservant =
59   push_pbox_toexpand("kanji.greight.manservant");
60   build_kanji.lr(300,40*mincho)
61     (kanji.leftrad.person)
62     (kanji.rare.eight_three_dee_zero);
63   expand_pbox;
64 enddef;
65
66
67
68 % bai/be "double"
69 beginsuglyph("uni500D",13);
70   kanji.grthree.double;
71   tsu_render;
72 endsuglyph;
73

```

[see page 1577]



```

74 % extra
75 \begintsuglyph("uni5058";88);
76 \build_kanji.lr(300,20)
77   (kanji.leftrad.person)
78   (kanji.grthree.goods);
79   tsu_render;
80 \endtsuglyph;
81
82 % boku/shimobe "masculine first-person pronoun" (or "servant")
83 \begintsuglyph("uni50D5";213); [see page 1578]
84 \kanji.greight.manservant;
85   tsu_render;
86 \endtsuglyph;
87
88 _____
89
90 \endfont;
91
92 _____

```

# tsuku-51.mp

```
1 %
2 % Unicode page 51 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

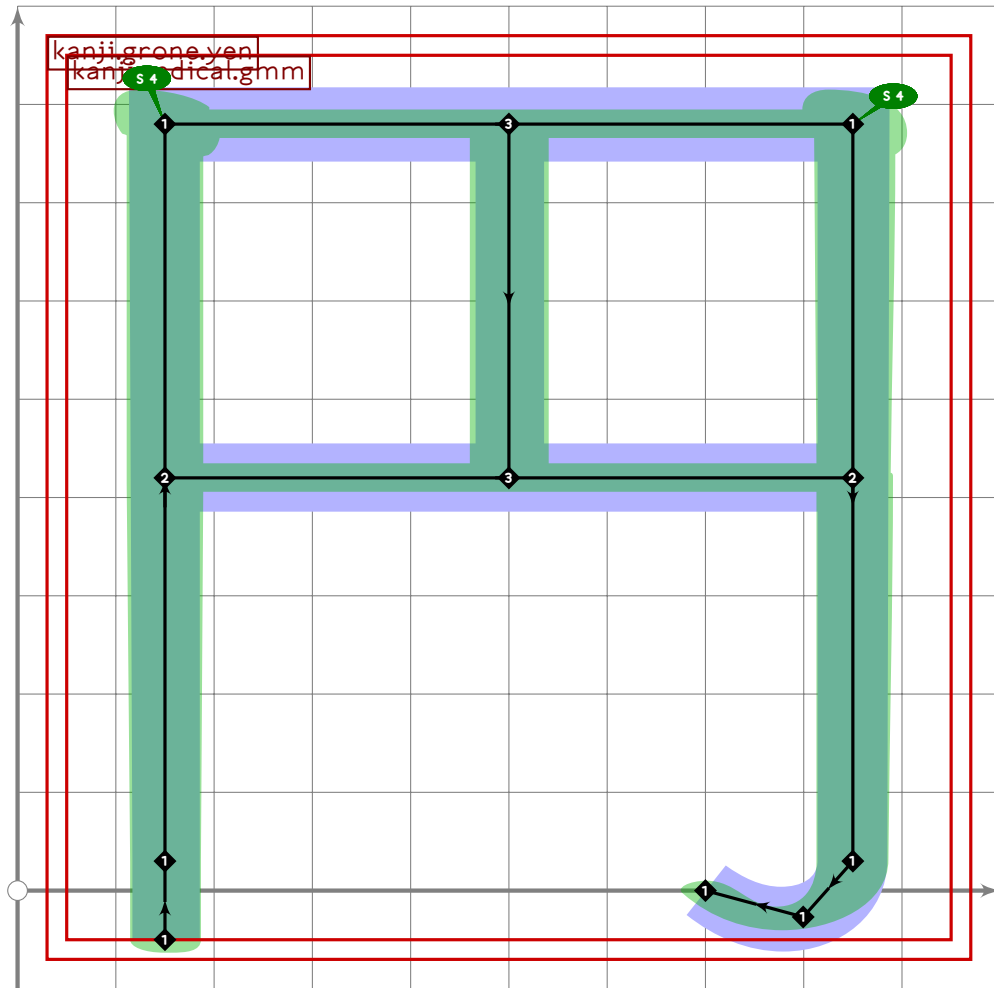
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input radical.mp;
42 input rare.mp;
43 input topfad.mp;
44
45 

---


```

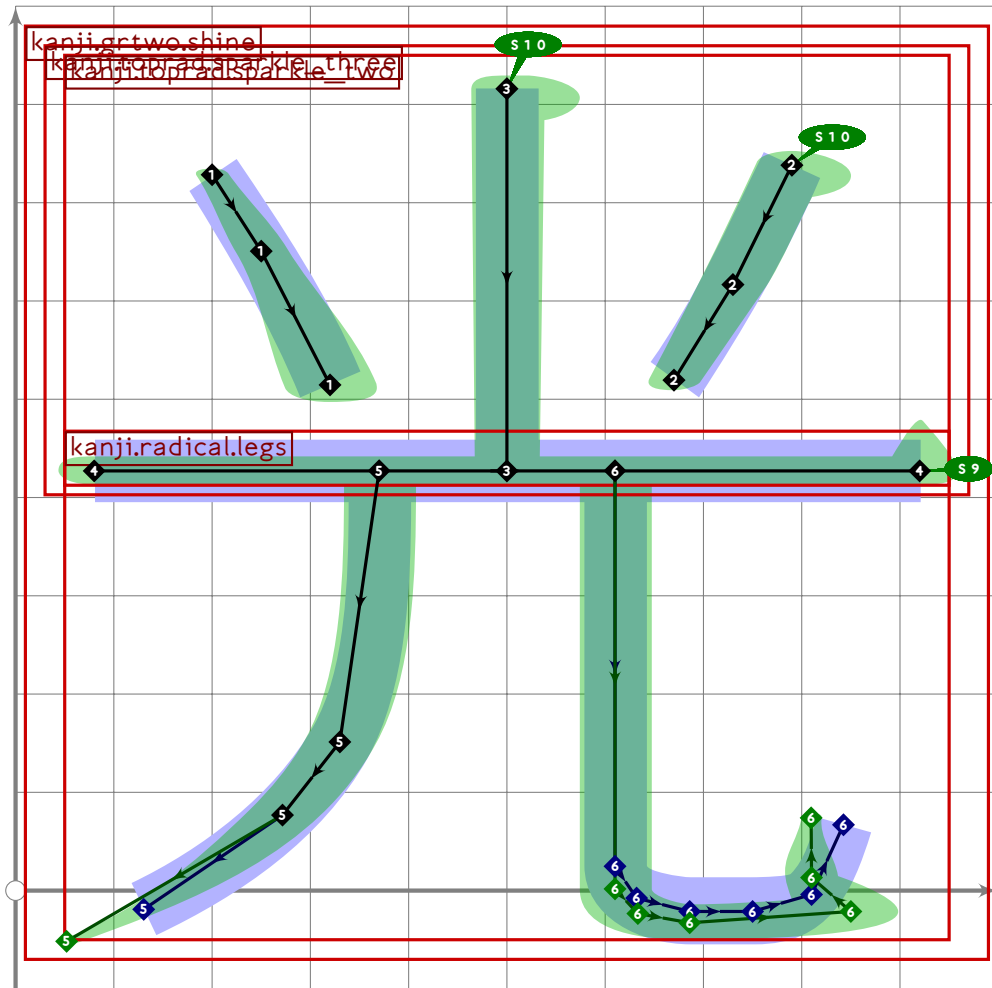




```

46
47 vardef kanji.grone.yen =
48   push_pbox_toexpand("kanji.grone.yen");
49   kanji.radical.gmm;
50   push_stroke((point 1.52 of get_strokep(0))-(point 3.48 of get_strokep(0)),
51     (1.6,1.6)-(1.6,1.6));
52   push_stroke((point 2.5 of get_strokep(-1))-(point 0.5 of get_strokep(0)),
53     (1.6,1.6)-(1.6,1.6));
54   expand_pbox;
55 enddef;
56
57

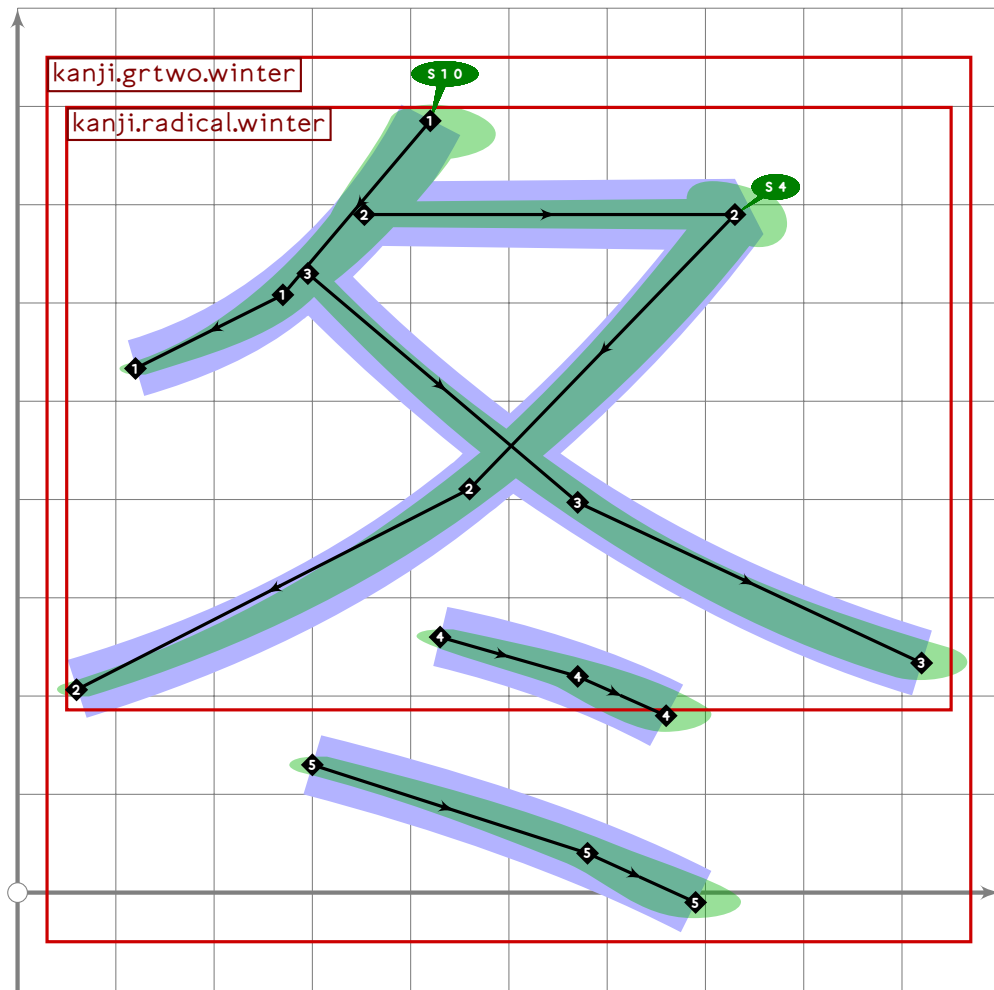
```



```

58
59 vardef kanji.grtwo.shine =
60   push_pbox_toexpand("kanji.grtwo.shine");
61   build_kanji.level(build_kanji.tb(440,55)
62     (kanji.toprad.sparkle_three;
63       push_stroke((80,-20)-(920,-20),(1.6,1.6)-(1.6,1.6));
64       set_boserif(0,1,9);
65     )
66     (kanji.radical.legs));
67   expand_pbox;
68 enddef;

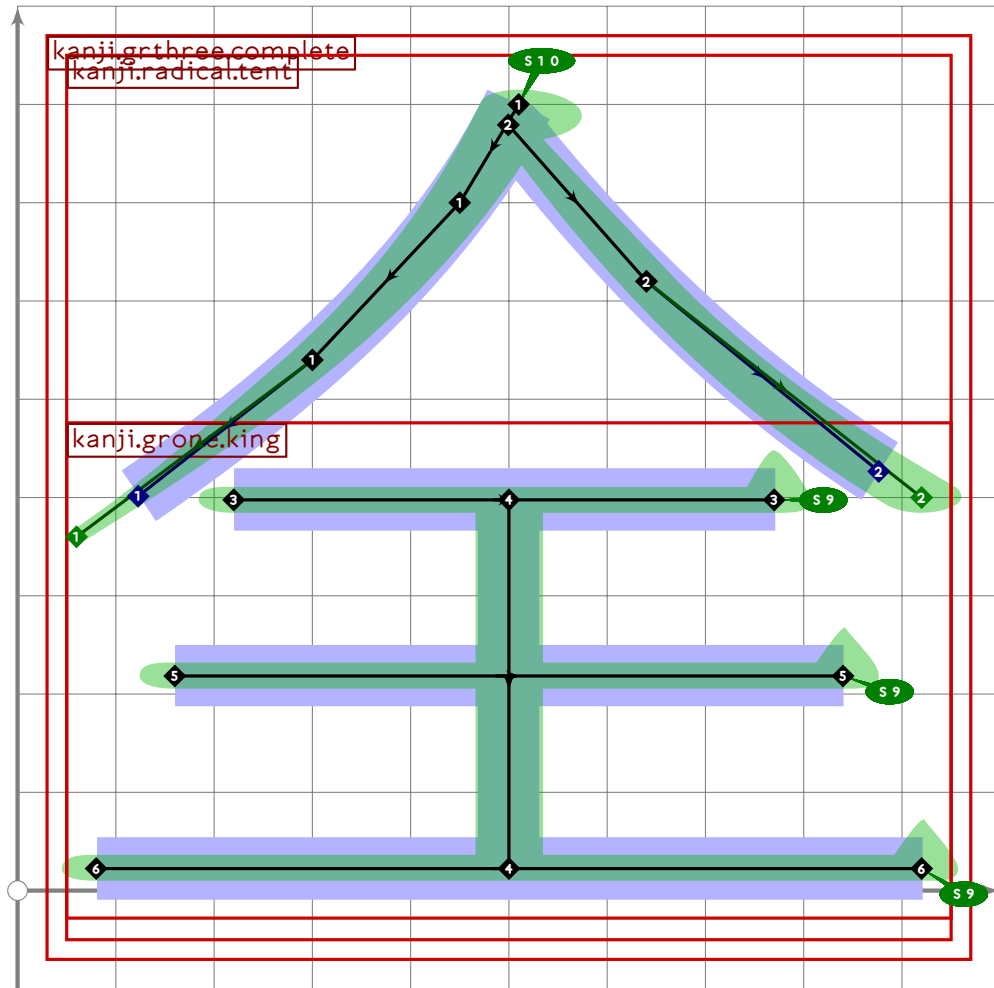
```



```

69
70 vardef kanji.grtwo.winter =
71   push_pbox_toexpand("kanji.grtwo.winter");
72   build_kanji.level(
73     tsu_xform(begingroup
74       save myxf;
75       transform myxf;
76       (0,690) transformed myxf=(0,690);
77       (1000,690) transformed myxf=(1000,690);
78       (500,0) transformed myxf=(500,220);
79       myxf
80     endgroup)(kanji.radical.winter);
81   push_stroke((430,260)..tension 1.2..(570,220)..(660,180),
82     (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
83   push_stroke((300,130)..tension 1.2..(580,40)..(690,-10),
84     (1.2,1.2)-(1.5,1.5)-(1.8,1.8));
85 );
86 expand_pbox;
87 enddef;
88
89

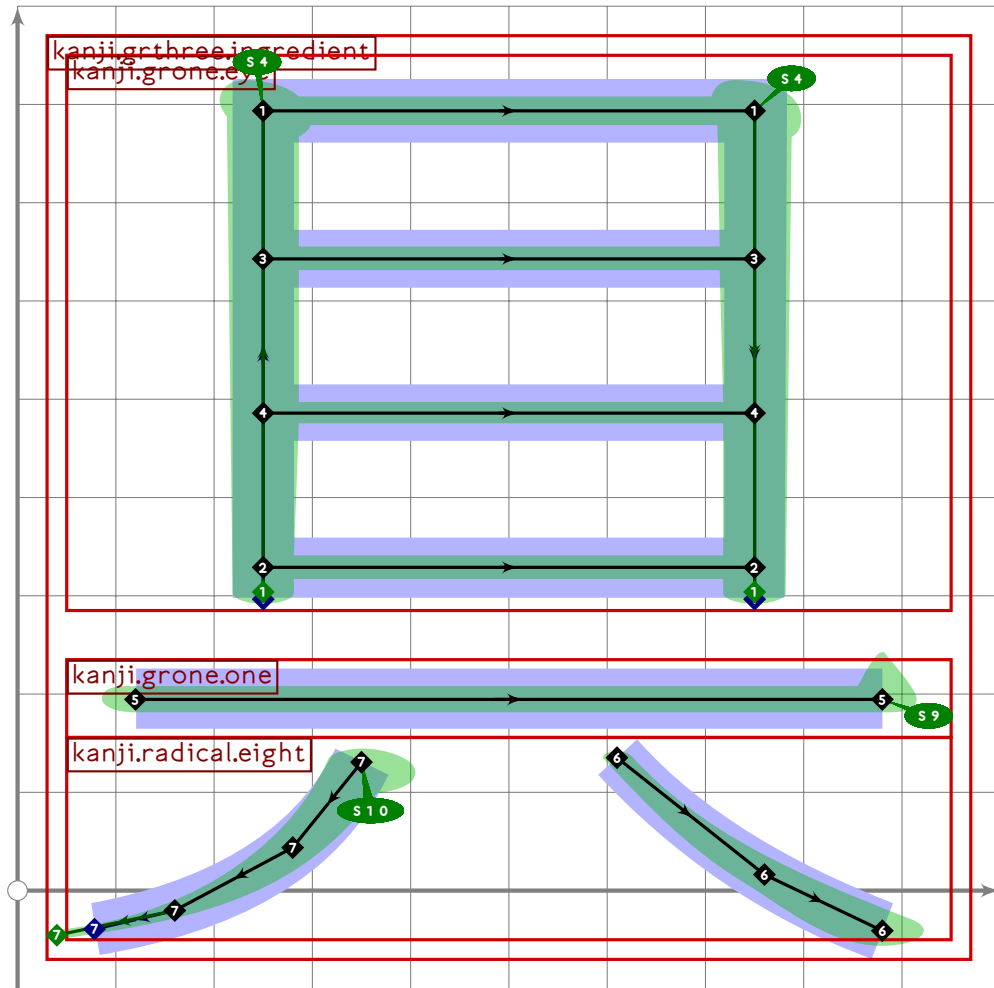
```



```

90
91 vardef kanji.grthree.complete =
92   push_pbox_toexpand("kanji.grthree.complete");
93   kanji.radical.tent;
94   pop_stroke;
95   tsu_xform(identity yscaled 0.56)(kanji.grone.king);
96   replace_stroke(-3)((220,y part point 0 of oldp)-
97     (770,y part point 1 of oldp));
98   expand_pbox;
99 enddef;

```



```

100
101 vardef kanji.grthree.ingredient =
102   push_pbox_toexpand("kanji.grthree.ingredient");
103   build_kanji.level(build_kanji.tb(260,-50)
104     (kanji.grone.ey)
105     (build_kanji.tb(600,0)
106       (kanji.grone.one)
107       (kanji.radical.eight)));
108   expand_pbox;
109 enddef;

```

```

110
111 _____
112
113 % legs radical
114 begintsuglyph("uni513F",63); [see page 350]
115   kanji.radical.legs;
116   tsu_render;
117 endtsuglyph;
118
119 % kotsu "bald"
120 begintsuglyph("uni5140",64); [see page 606]

```

121 `kanji.rare.bald;`  
122 `tsu_render;`  
123 `endtsuglyph;`  
124  
125 `% in/shou "permission"`  
126 `begintsuglyph("uni5141";65);` [see page 598]  
127 `kanji.grnine.permission;`  
128 `tsu_render;`  
129 `endtsuglyph;`  
130  
131 `% moto/gen "origin"`  
132 `begintsuglyph("uni5143";67);` [see page 490]  
133 `kanji.grtwo.origin;`  
134 `tsu_render;`  
135 `endtsuglyph;`  
136  
137 `% nii (as in oniisan) "big brother"`  
138 `begintsuglyph("uni5144";68);` [see page 445]  
139 `kanji.grtwo.big_brother;`  
140 `tsu_render;`  
141 `endtsuglyph;`  
142  
143 `% shuu/a "fulfill"`  
144 `begintsuglyph("uni5145";69);` [see page 575]  
145 `kanji.greight.fulfill;`  
146 `tsu_render;`  
147 `endtsuglyph;`  
148  
149 `% sen "ahead"`  
150 `begintsuglyph("uni5148";72);` [see page 377]  
151 `kanji.grone.ahead;`  
152 `tsu_render;`  
153 `endtsuglyph;`  
154  
155 `% kou/hikari "shine"`  
156 `begintsuglyph("uni5149";73);` [see page 1582]  
157 `kanji.grtwo.shine;`  
158 `tsu_render;`  
159 `endtsuglyph;`  
160  
161 `% men/manu "dismiss"`  
162 `begintsuglyph("uni514D";77);` [see page 572]  
163 `kanji.greight.dismiss;`  
164 `tsu_render;`  
165 `endtsuglyph;`  
166  
167 `% hai/i "put it in"`  
168 `begintsuglyph("uni5165";101);` [see page 420]

169 `kanji.grone.put_it_in;`  
170 `tsu_render;`  
171 `endtsuglyph;`  
172  
173 `% zen/matta "complete"`  
174 `begintsuglyph("uni5168";104);` [see page 1584]  
175 `kanji.grthree.complete;`  
176 `tsu_render;`  
177 `endtsuglyph;`  
178  
179 `% hachi/ya "eight"`  
180 `begintsuglyph("uni516B";107);` [see page 393]  
181 `kanji.grone.eight;`  
182 `tsu_render;`  
183 `endtsuglyph;`  
184  
185 `% kou/kimi "public" but also the pronoun kimi`  
186 `begintsuglyph("uni516C";108);` [see page 492]  
187 `kanji.grtwo.public;`  
188 `tsu_render;`  
189 `endtsuglyph;`  
190  
191 `% roku/mui "six"`  
192 `begintsuglyph("uni516D";109);` [see page 429]  
193 `kanji.grone.six;`  
194 `tsu_render;`  
195 `endtsuglyph;`  
196  
197 `% gu/sona "ingredient"`  
198 `begintsuglyph("uni5177";119);` [see page 1585]  
199 `kanji.grthree.ingredient;`  
200 `tsu_render;`  
201 `endtsuglyph;`  
202  
203 `% George Michael's Moustache`  
204 `begintsuglyph("uni5182";130);` [see page 349]  
205 `kanji.radical.gmm;`  
206 `tsu_render;`  
207 `endtsuglyph;`  
208  
209 `% nai/uchi "home, me"`  
210 `begintsuglyph("uni5185";133);` [see page 469]  
211 `kanji.grtwo.home;`  
212 `tsu_render;`  
213 `endtsuglyph;`  
214  
215 `% en "yen" (currency unit)`  
216 `begintsuglyph("uni5186";134);` [see page 1581]

```

217 kanji.grone.yen;
218 tsu_render;
219 endtsuglyph;
220
221 % like silly-hat minus the upper bobble
222 begintsuglyph("uni5196";150); [see page 346]
223 kanji.radical.conservative_hat;
224 tsu_render;
225 endtsuglyph;
226
227 % tou/fuyu "winter"
228 begintsuglyph("uni51AC";172); [see page 1583]
229 kanji.grtwo.winter;
230 tsu_render;
231 endtsuglyph;
232
233 % ki/kinyou "windy radical"
234 begintsuglyph("uni51E0";224); [see page 368]
235 kanji.radical.windy;
236 tsu_render;
237 endtsuglyph;
238
239 % kan "open box radical"
240 begintsuglyph("uni51F5";245); [see page 358]
241 kanji.radical.open_box;
242 tsu_render;
243 endtsuglyph;
244
245 % de "go away"
246 begintsuglyph("uni51FA";250); [see page 400]
247 kanji.grone.go_away;
248 tsu_render;
249 endtsuglyph;
250
251 _____
252
253 endfont;
254
255 _____

```



# tsuku-52.mp

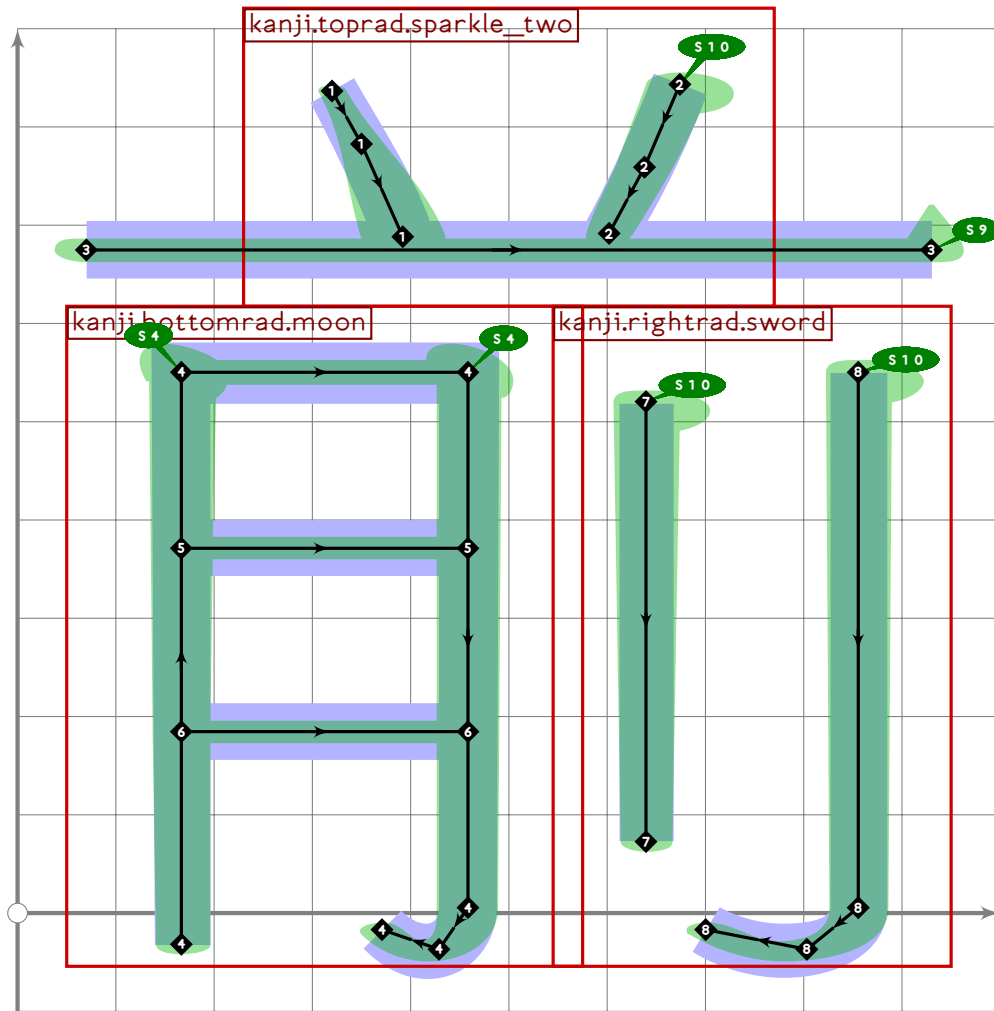
```
1 %
2 % Unicode page 52 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input toprad.mp;
47
48 

---

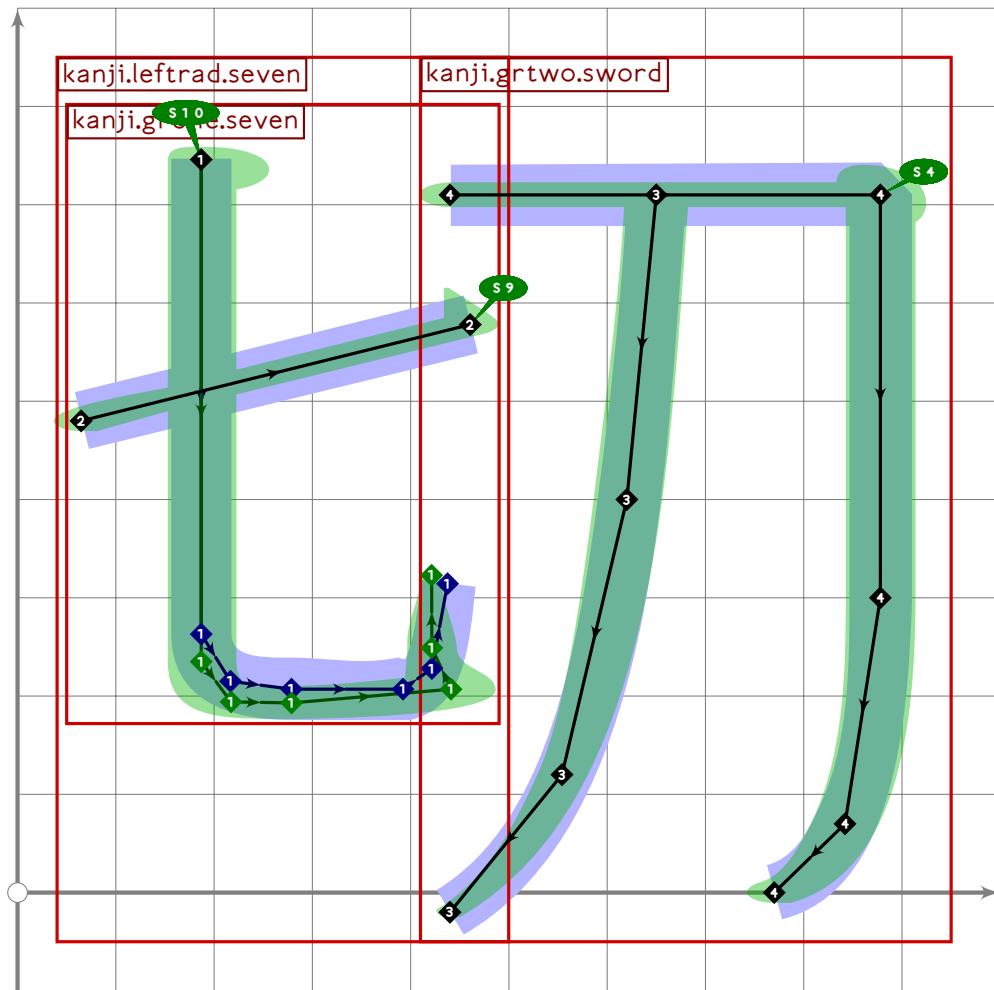

```



```

49
50 vardef kanji.grtwo.before =
51   tsu_xform(identity yscaled (780/720))
52   (build_kanji.level(build_kanji.tb(570,0)
53     (build_kanji.sscale(xscaled 0.6)(kanji.toprad.sparkle_two);
54     push_stroke((70,120)-(930,120),(1.6,1.6)-(1.6,1.6));
55     set_boserif(0,0,whatever);
56     set_boserif(0,1,9);
57     )
58   (build_kanji.lr(560,30)
59     (kanji.bottomrad.moon)
60     (kanji.rightrad.sword)))));
61 enddef;

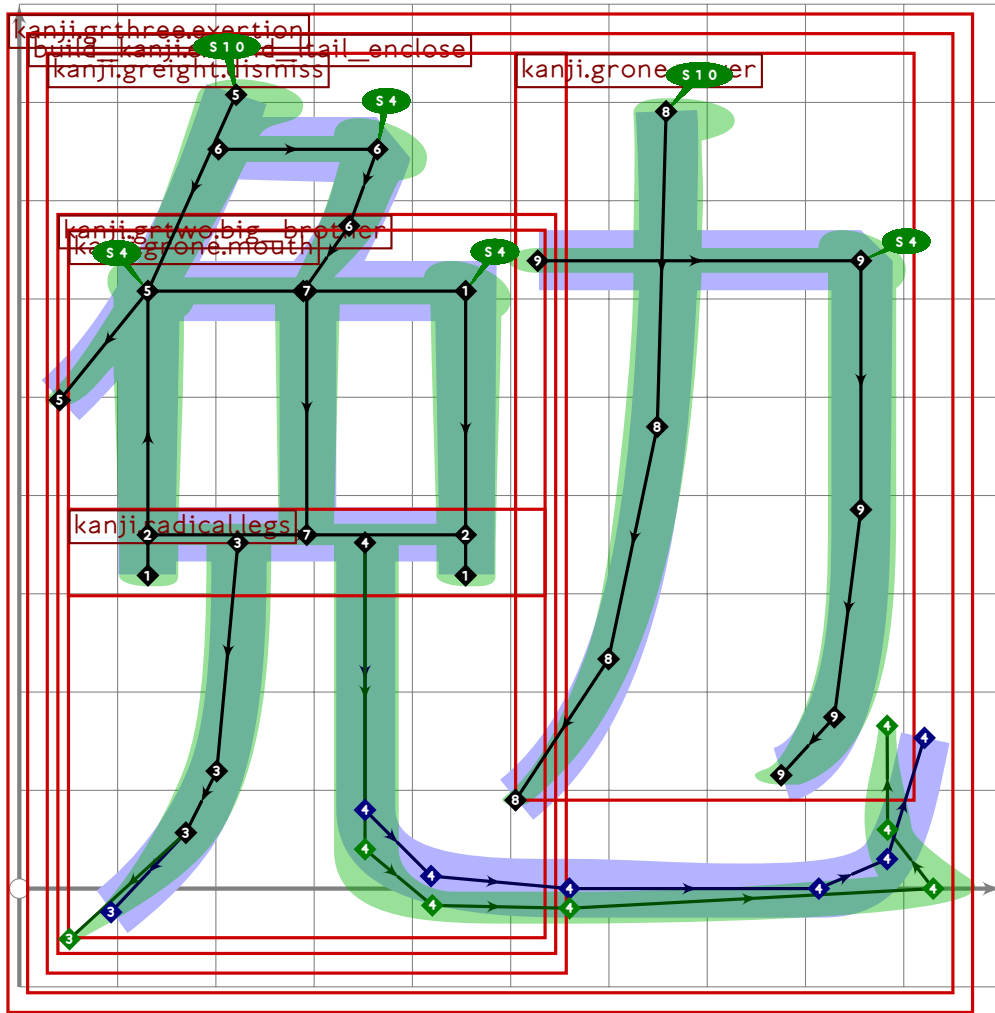
```



```

62
63 vardef kanji.grtwo.cut =
64   build_kanji.level(build_kanji.lr(450,80)
65     (kanji.leftrad.seven)
66     (kanji.grtwo.sword));
67 enddef;
68
69

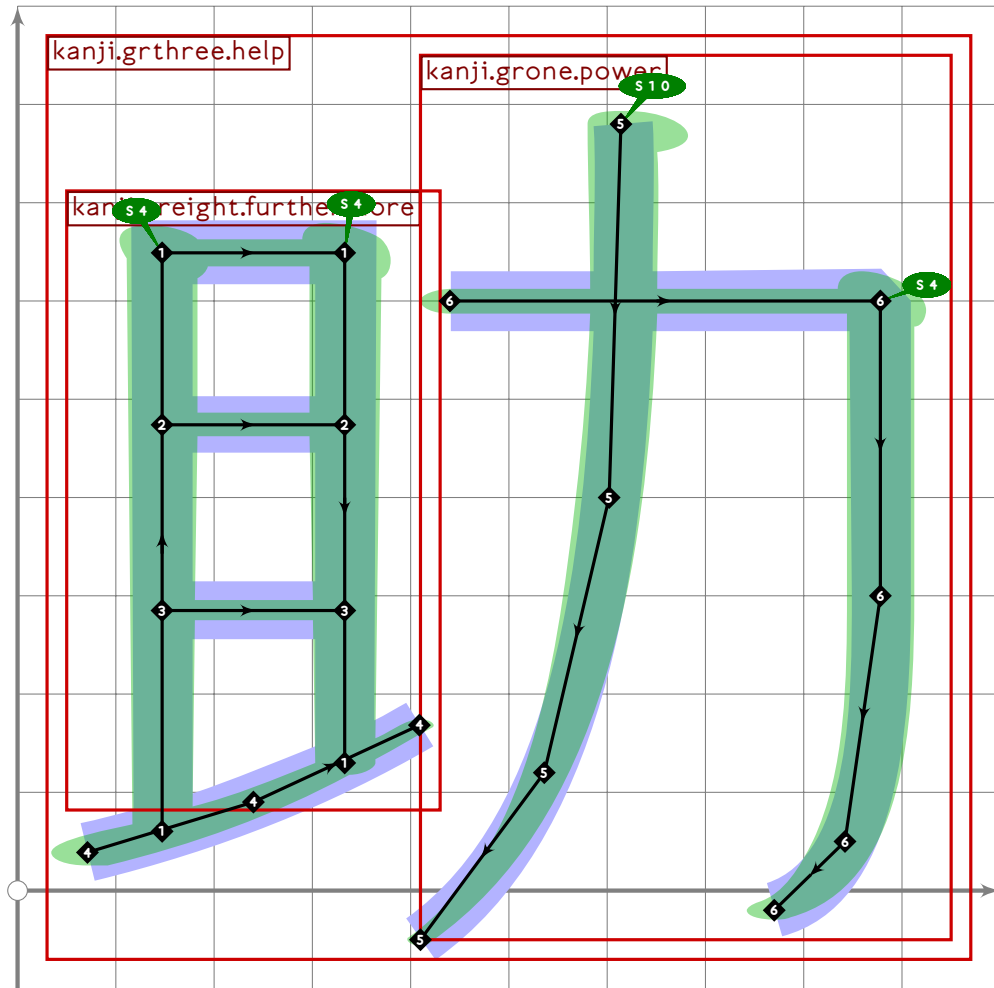
```



```

70
71 vardef kanji.grthree.exertion =
72   push_pbox_toexpand("kanji.grthree.exertion");
73   build_kanji.extend_ltail_enclose(520,30)
74   (kanji.greight.dismiss)
75   (kanji.grone.power);
76   expand_pbox;
77 enddef;

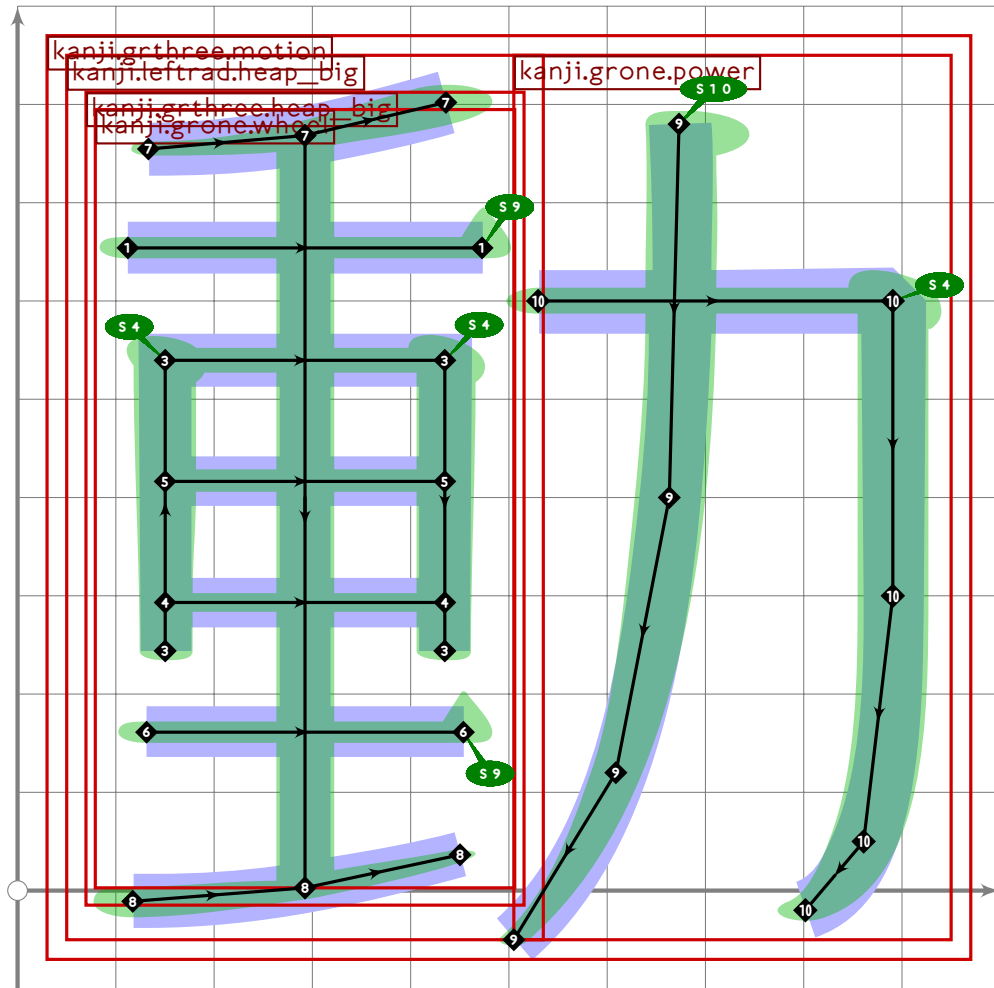
```



```

78
79 vardef kanji.grthree.help =
80   push_pbox_toexpand("kanji.grthree.help");
81   build_kanji.level(build_kanji.lr(420,20)
82     (build_kanji.lift_skirt(230,170)
83       (build_kanji.sscale(yscaled 0.7)
84         (kanji.greight.furthermore);
85         replace_stroke(0)(oldp shifted (0,-80));
86         replace_stroke(-3)((point 0 of oldp shifted (0,-80))-
87           (subpath (1,length oldp-1) of oldp)-
88           (point infinity of oldp shifted (0,-80)))));
89   (kanji.grone.power));
90   expand_pbox;
91 enddef;

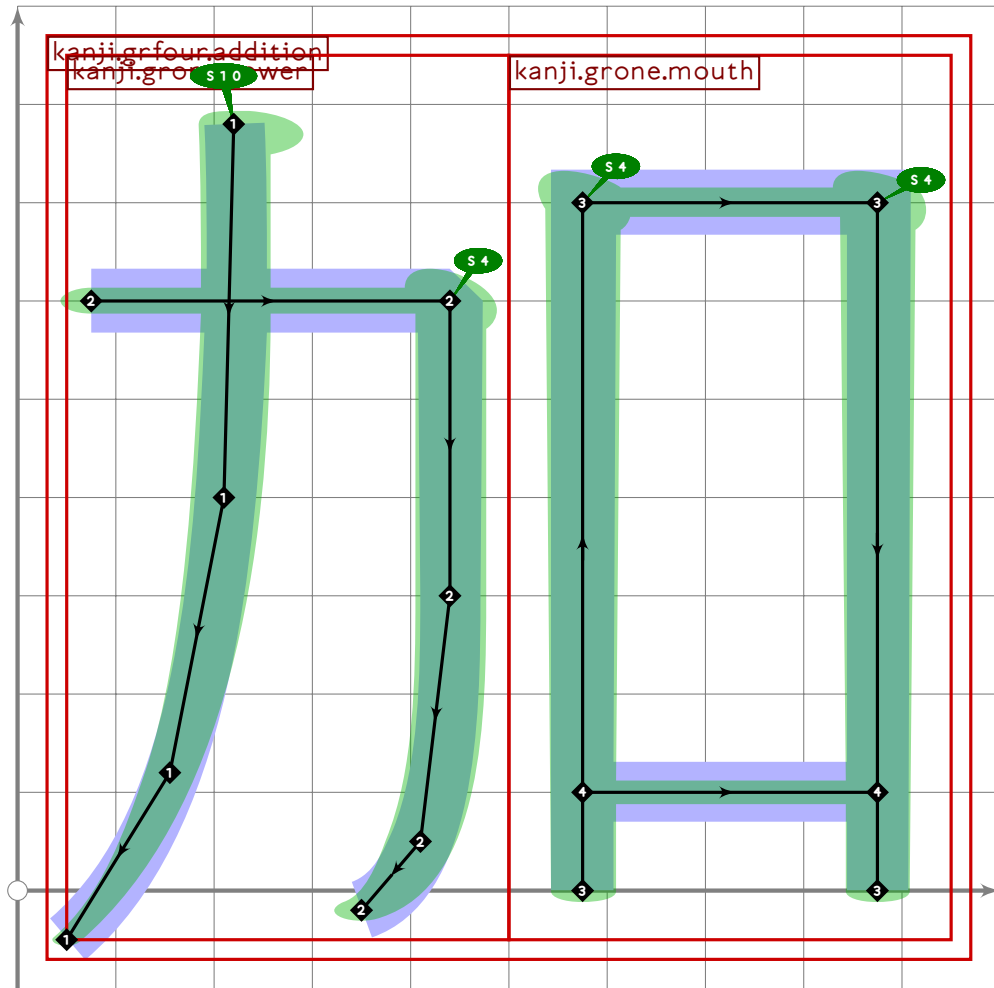
```



```

92
93 vardef kanji.grthree.motion =
94   push_pbox_toexpand("kanji.grthree.motion");
95   build_kanji.lr(520,30)
96     (kanji.leftrad.heap_big)
97     (kanji.grone.power);
98   expand_pbox;
99 enddef;
100
101

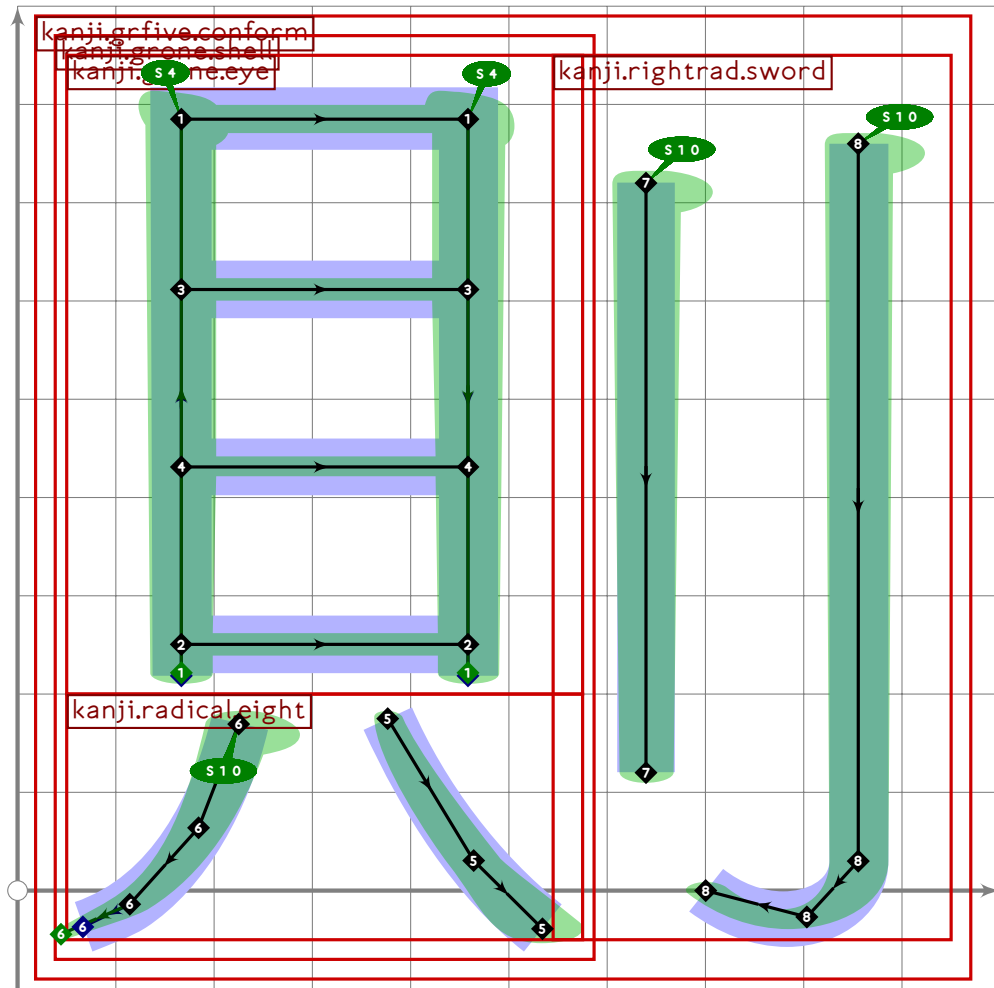
```



```

102
103 vardef kanji.grfour.addition =
104   push_pbox_toexpand("kanji.grfour.addition");
105   build_kanji.level(build_kanji.lr(500,0)
106     (kanji.grone.power)
107     (kanji.grone.mouth));
108   expand_pbox;
109 enddef;
110
111

```

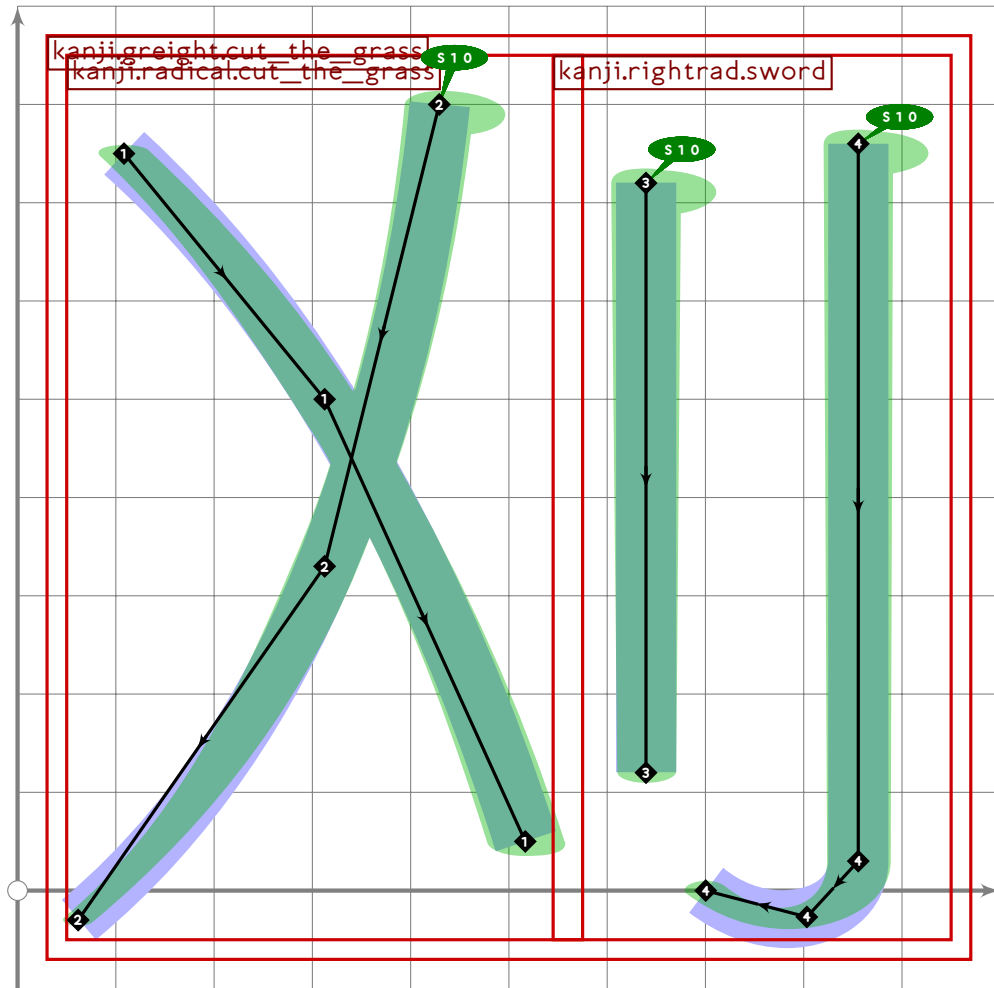


```

112
113 vardef kanji.grfive.conform =
114   push_pbox_toexpand("kanji.grfive.conform");
115   build_kanji.level(build_kanji.lr(560,30)
116     (kanji.grone.shell)
117     (kanji.rightrad.sword));
118   expand_pbox;
119 enddef;
120
121

```

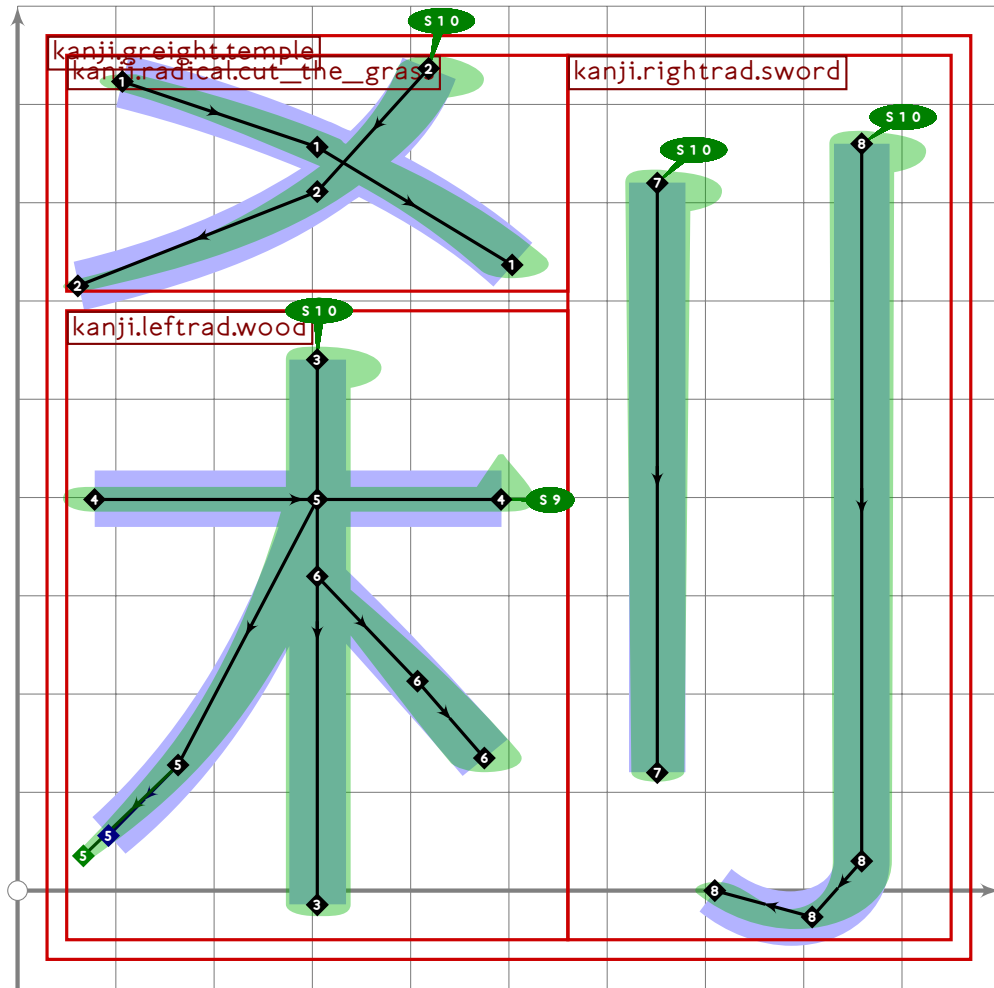




```

122
123 vardef kanji.greight.cut_the_grass =
124   push_pbox_toexpand("kanji.greight.cut_the_grass");
125   build_kanji.level(build_kanji.lr(560,30)
126     (kanji.radical.cut_the_grass)
127     (kanji.rightrad.sword));
128   expand_pbox;
129 enddef;

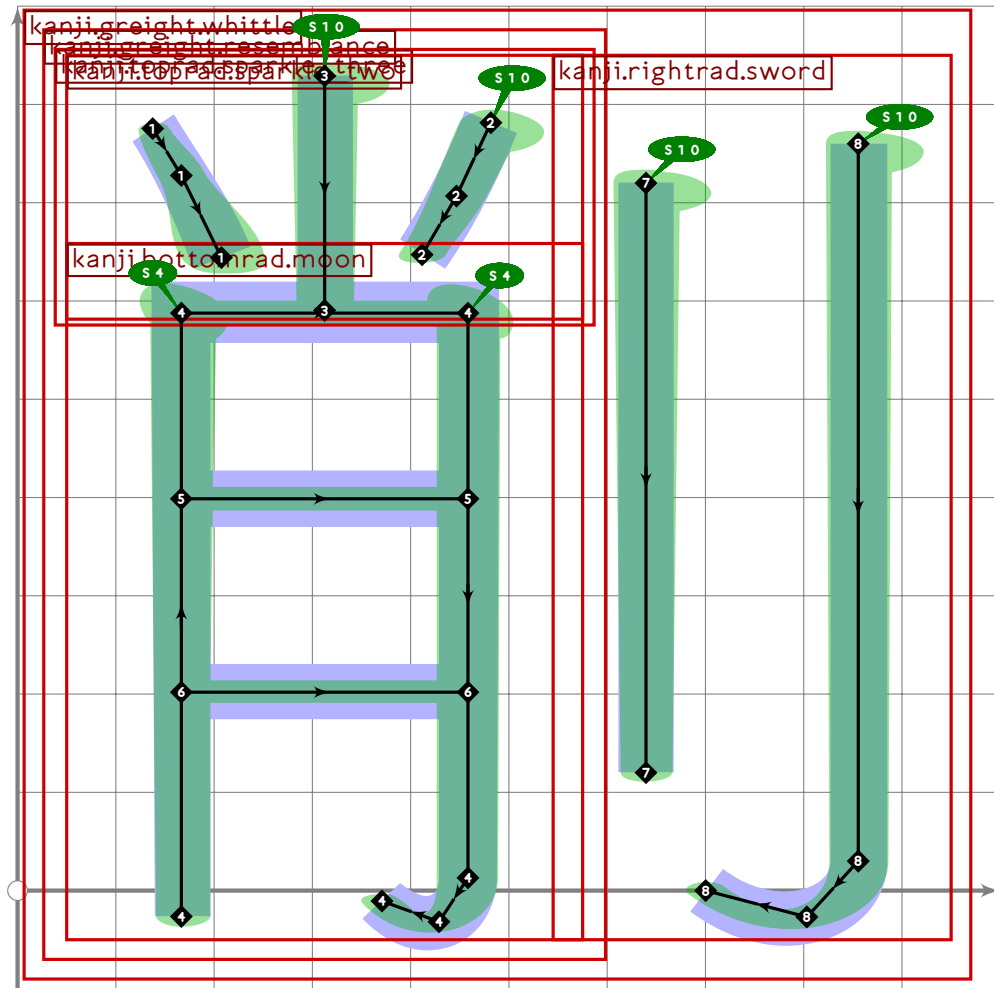
```



```

130
131 vardef kanji.greight.temple =
132   push_pbox_toexpand("kanji.greight.temple");
133   build_kanji.level(build_kanji.lr(560,0)
134     (build_kanji.tb(600,-20)
135       (kanji.radical.cut_the_grass)
136       (kanji.leftrad.wood))
137     (kanji.rightrad.sword));
138   expand_pbox;
139 enddef;

```



```

140
141 vardef kanji.greight.whittle =
142   push_pbox_toexpand("kanji.greight.whittle");
143   build_kanji.level(build_kanji.lr(560,30)
144     (kanji.greight.resemblance)
145     (kanji.rightrad.sword));
146   expand_pbox;
147 enddef;
148
149
150
151 vardef kanji.leftrad.heap_big =
152   push_pbox_toexpand("kanji.leftrad.heap_big");
153   build_kanji.sscale(scaled 0.88)
154     (kanji.grthree.heap_big;
155     replace_strokep(0)(get_strokep(-6));
156     replace_strokep(0)
157       (get_strokep(-1) shifted ((point 1 of oldp)-(point 0 of oldp))
158         shifted (-500,0) xscaled 1.1 shifted (500,0));
159     replace_strokeq(0)(reverse get_strokeq(-1));
160     set_boserif(0,1,whatever));

```

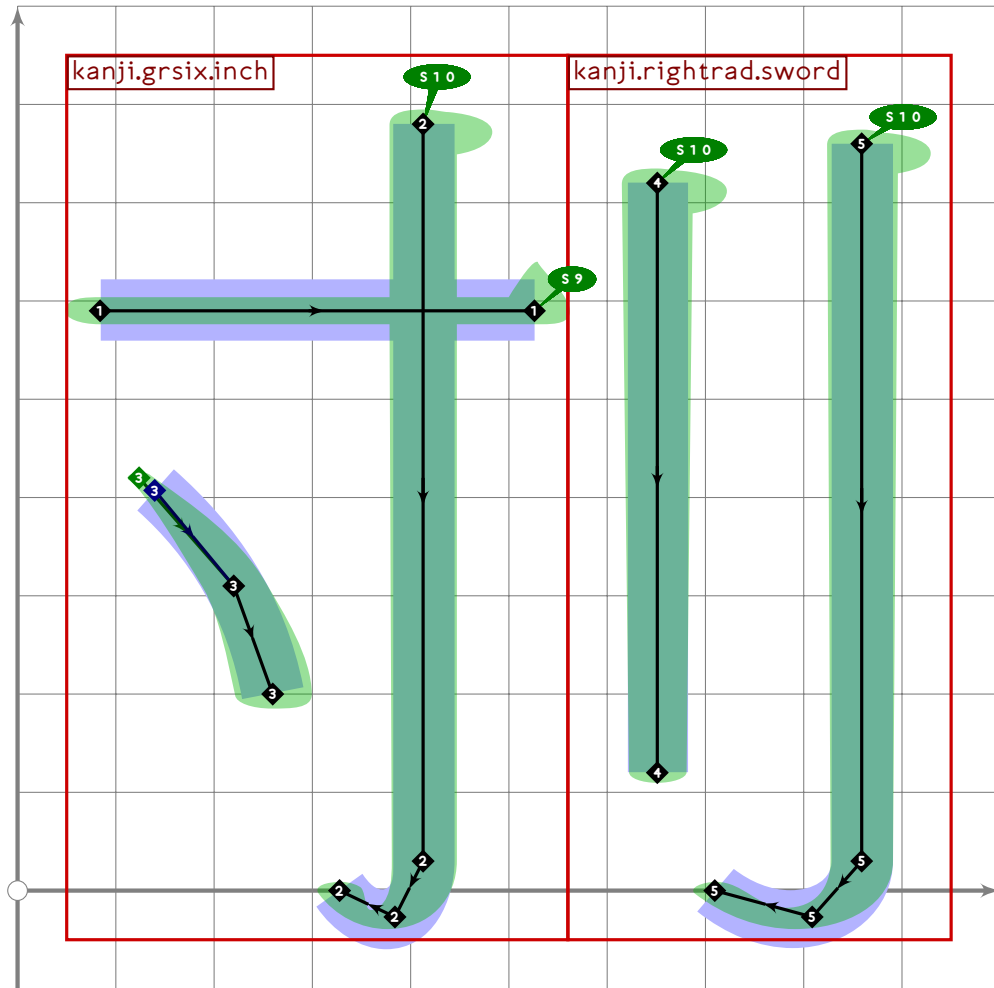
```

161  expand_pbox;
162  endif;
163
164  _____
165
166  vardef build_kanji.extend_ltail_enclose(expr splitpoint,overlap)
167    (text leftstuff)(text rightstuff) =
168    perl_structure:=perl_structure&"eids.u2FFA.1_4.2_3,['";
169    push_pbox_toexpand("build_kanji.extend_ltail_enclose");
170    perl_structure:=perl_structure&"']";
171    begingroup
172      save myxf,ele_curve,i,fsi;
173      transform myxf[];
174      numeric ele_curve,i,fsi;
175      (50,-50) transformed myxf1=(50,90);
176      (50,850) transformed myxf1=(50,850);
177      (950,850) transformed myxf1=(870,850);
178      build_kanji.lr(splitpoint,overlap)
179      (perl_structure:=perl_structure&"']";
180      leftstuff;
181      ele_curve:=last_ltail)
182      (tsu_xform(myxf1)(rightstuff);
183      perl_structure:=perl_structure&"'],['");
184      obstackp[ele_curve]:=
185      subpath (0,length obstackp[ele_curve]-6) of obstackp[ele_curve];
186      obstackq[ele_curve]:=
187      subpath (0,length obstackq[ele_curve]-6) of obstackq[ele_curve];
188      i:=0;
189      forever:
190        fsi:=find_stroke(i);
191        if fsi=last_ltail:
192          build_kanji.add_ltail(i);
193          fi;
194          exitif fsi=last_ltail;
195          i:=i-1;
196        endfor;
197        (ulcorner obstackp[ele_curve]) transformed myxf2=
198        ulcorner obstackp[ele_curve];
199        (llcorner obstackp[ele_curve]) transformed myxf2=
200        llcorner obstackp[ele_curve];
201        (xpart lrcorner obstackp[ele_curve],-50) transformed myxf2=
202        (930,-50);
203        obstackp[ele_curve]:=obstackp[ele_curve] transformed myxf2;
204      endgroup;
205      perl_structure:=perl_structure&"['";
206      expand_pbox;
207    endif;
208

```

---

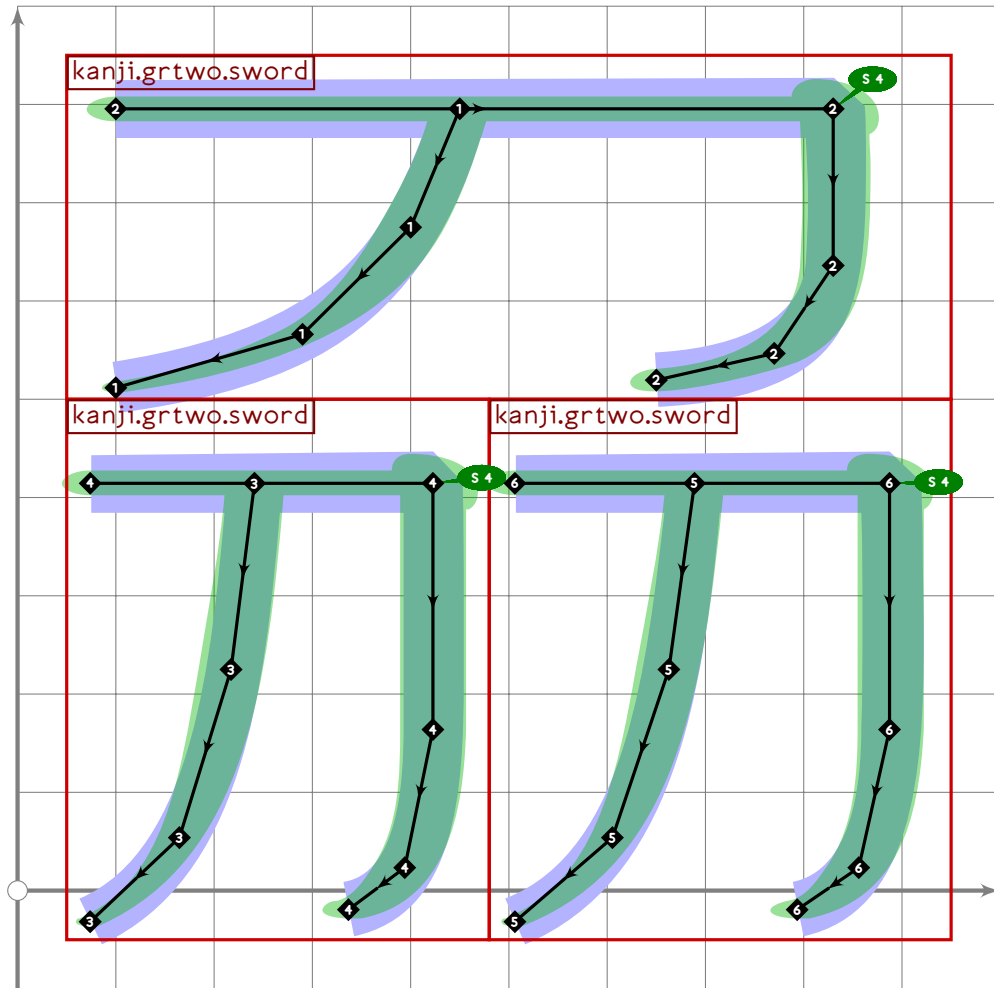
209  
210  
211 % tou/katana "sword"  
212 `begintsuglyph("uni5200";0);` [see page 499]  
213 `kanji.grtwo.sword;`  
214 `tsu_render;`  
215 `endtsuglyph;`  
216  
217 % tou "sword radical"  
218 `begintsuglyph("uni5202";2);` [see page 373]  
219 `kanji.rightrad.sword;`  
220 `tsu_render;`  
221 `endtsuglyph;`  
222  
223 % bun/wa "minute" or "understand" (wakarimasu ka?)  
224 `begintsuglyph("uni5206";6);` [see page 480]  
225 `kanji.grtwo.minute;`  
226 `tsu_render;`  
227 `endtsuglyph;`  
228  
229 % setsu/ki "cut"  
230 `begintsuglyph("uni5207";7);` [see page 1591]  
231 `kanji.grtwo.cut;`  
232 `tsu_render;`  
233 `endtsuglyph;`  
234  
235 % gai/ka "mow"  
236 `begintsuglyph("uni5208";8);` [see page 1597]  
237 `kanji.greight.cut_the_grass;`  
238 `tsu_render;`  
239 `endtsuglyph;`  
240



```

241 % extra
242 begintsuglyph("uni520C",12);
243 build_kanji.level(build_kanji.lr(560,0)
244   (kanji.grsix.inch)
245   (kanji.rightrad.sword));
246 tsu_render;
247 endtsuglyph;
248

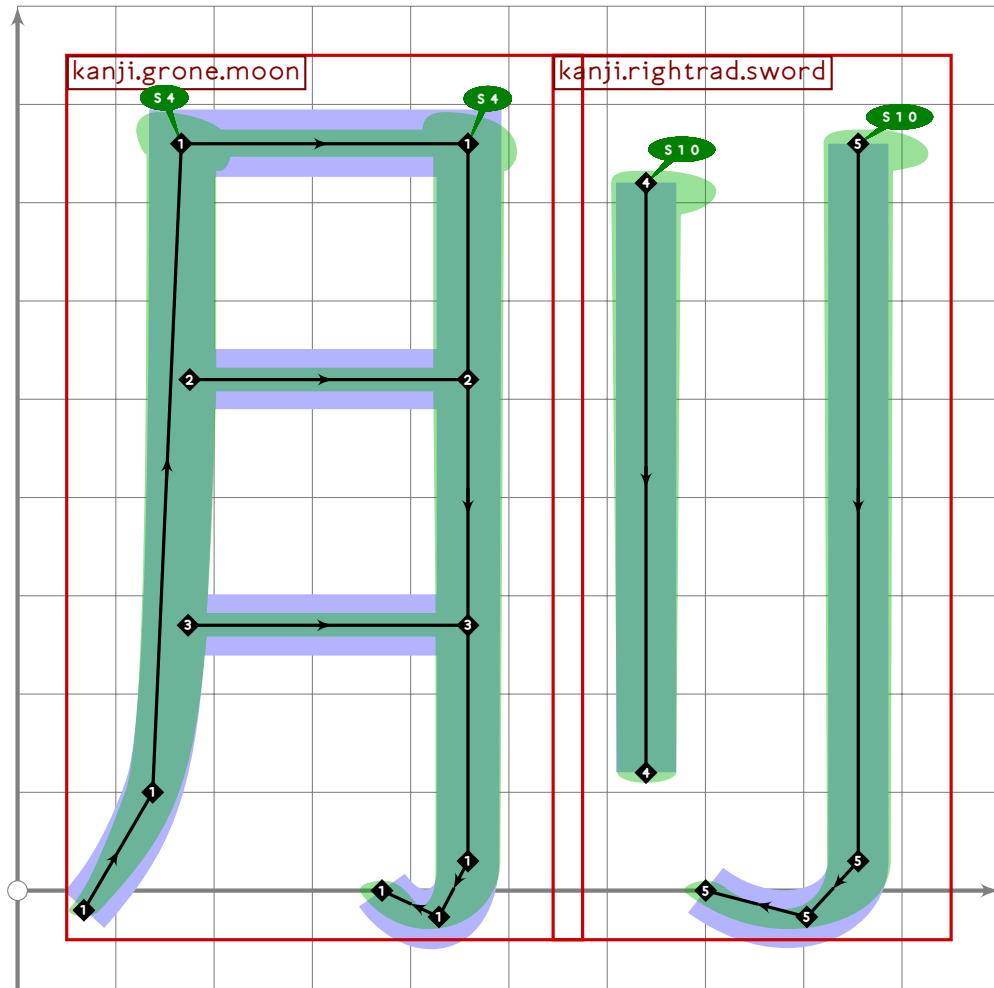
```



```

249 % extra
250 begint Suglyph("uni5215",21);
251   build_kanji.level(build_kanji.tricluster(1)
252     (kanji.grtwo.sword)
253     (kanji.grtwo.sword)
254     (kanji.grtwo.sword));
255   tsu_render;
256   endtsuglyph;
257

```

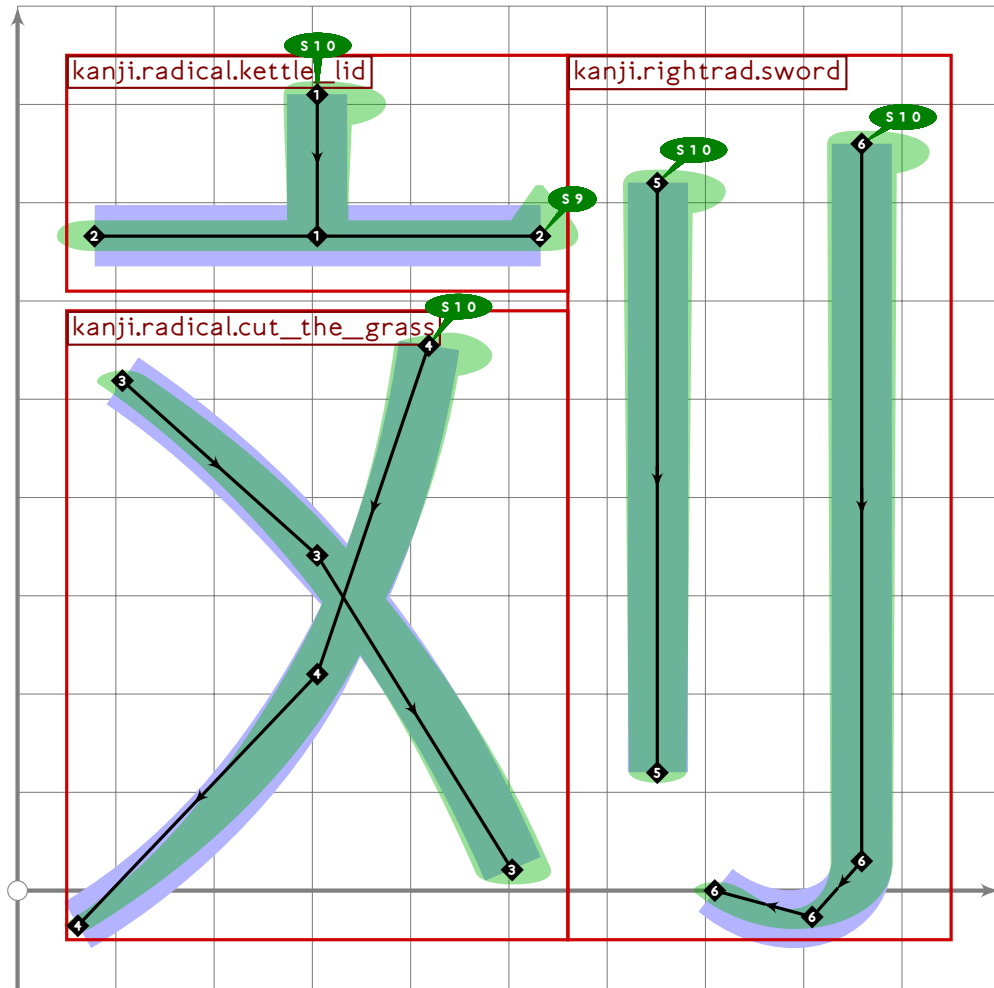


```

258 % extra: punishment by cutting off the feet (wtf?)
259 begintsuglyph("uni5216",22);
260 build_kanji.level(build_kanji.lr(560,30)
261   (kanji.grone.moon)
262   (kanji.rightrad.sword));
263 tsu_render;
264 endtsuglyph;
265

```

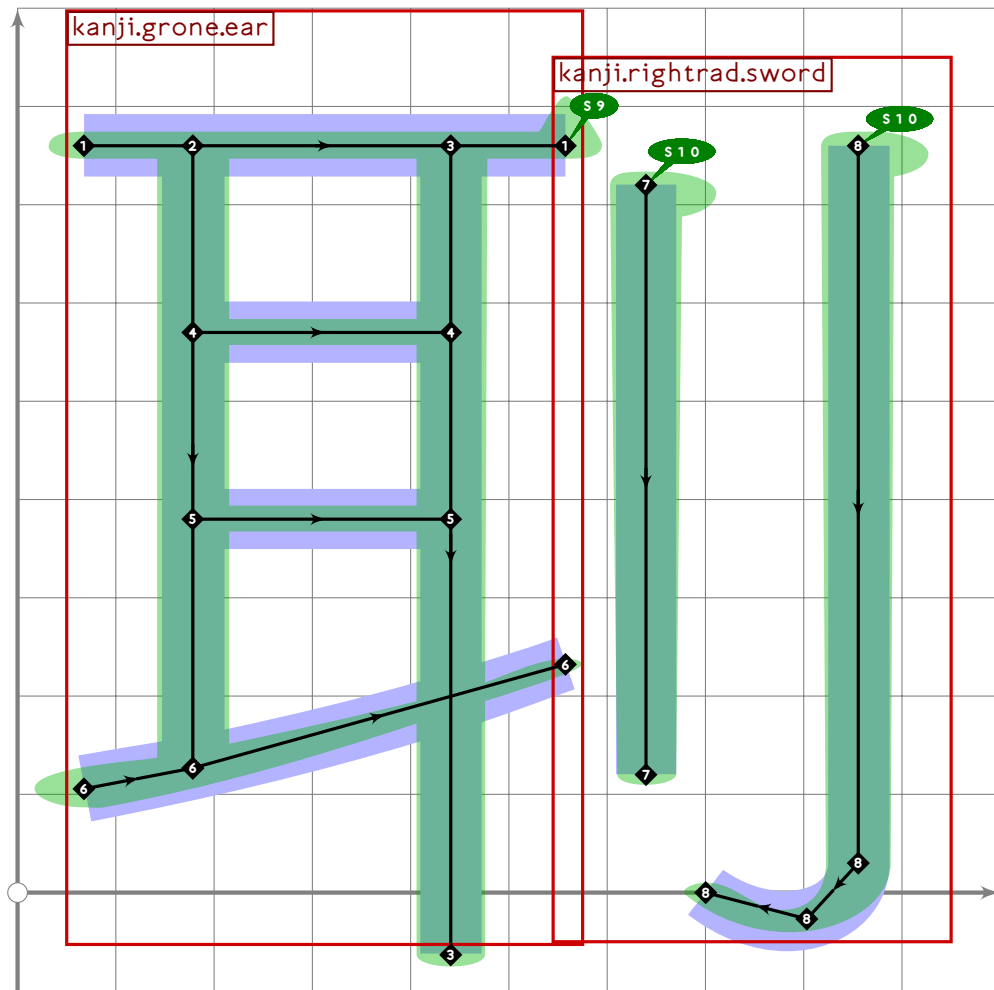




```

266 % extra: kill, destroy
267 begintsuglyph("uni5218",24);
268 build_kanji.level(build_kanji.lr(560,0)
269     (build_kanji.tb(600,-20)
270     (kanji.radical.kettle_lid)
271     (kanji.radical.cut_the_grass))
272     (kanji.rightrad.sword));
273 tsu_render;
274 endsuglyph;
275

```



```

276 % extra: punishment by cutting off the ears
277 begintsuglyph("uni5235";53);
278   build_kanji.level(build_kanji.lr(560,30)
279     (tsu_xform(identity yscaled (760/720))(kanji.grone.ear))
280     (kanji.rightrad.sword));
281   tsu_render;
282 endtsuglyph;
283
284 % satsu "temple/central pillar of pagoda"
285 begintsuglyph("uni5239";57);
286   kanji.greight.temple;
287   tsu_render;
288 endtsuglyph;
289
290 % soku/notto "conform"
291 begintsuglyph("uni5247";71);
292   kanji.grfive.conform;
293   tsu_render;
294 endtsuglyph;
295
296 % saku/kezu "whittle, sharpen, plane"

```

[see page 1598]

[see page 1596]

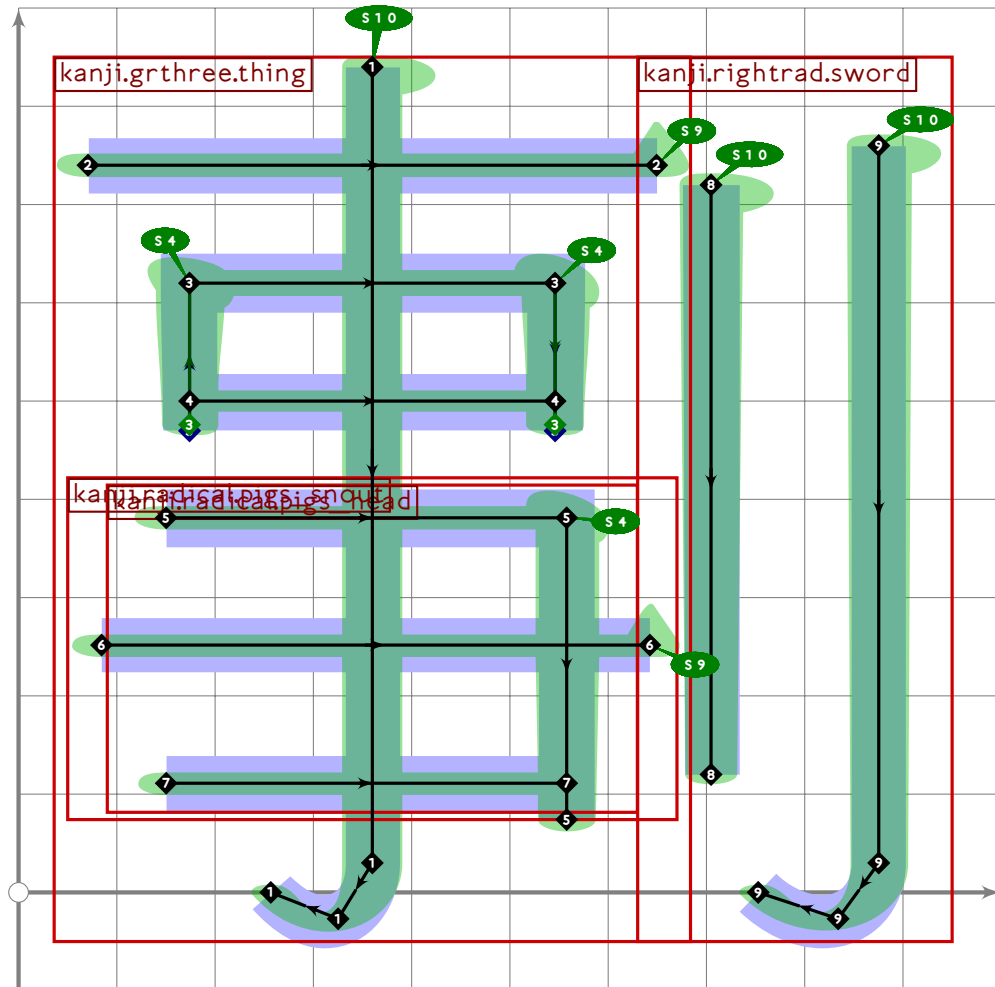
```

297 begintsuglyph("uni524A";74);
298 kanji.greight.whittle;
299 tsu_render;
300 endtsuglyph;
301
302 % zen/mae "before"
303 begintsuglyph("uni524D";77);
304 kanji.grtwo.before;
305 tsu_render;
306 endtsuglyph;
307

```

[see page 1599]

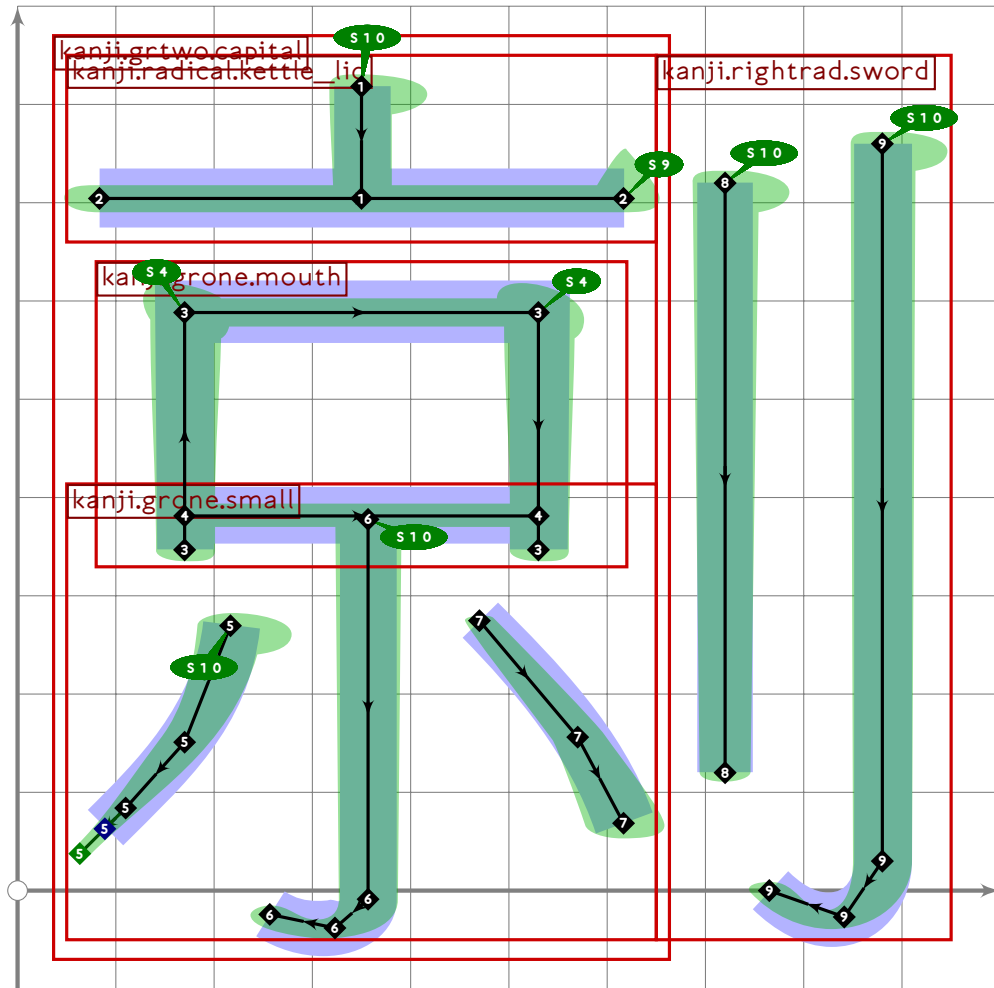
[see page 1590]



```

308 % extra: "stab"
309 begintsuglyph("uni525A";90);
310 build_kanji.level(build_kanji.lr(650,40)
311 (kanji.grthree.thing)
312 (kanji.rightrad.sword));
313 tsu_render;
314 endtsuglyph;
315

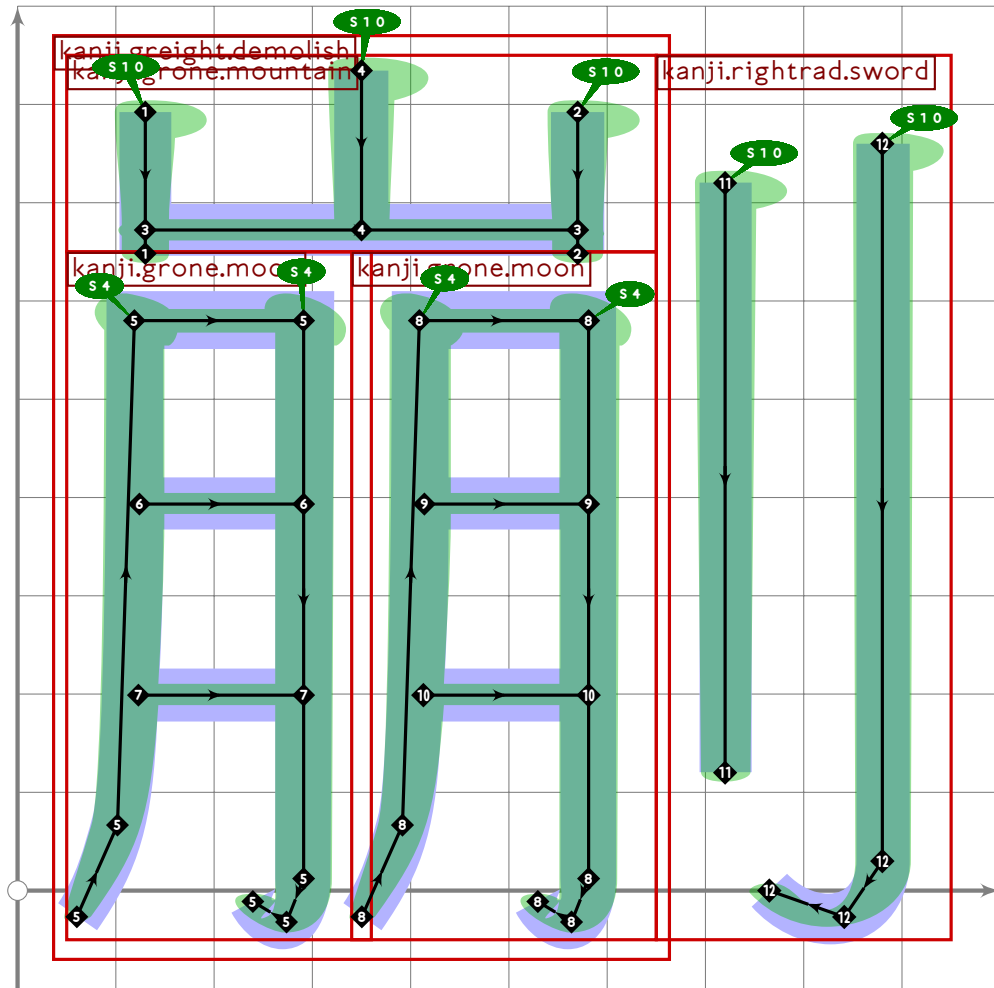
```



```

316 % extra: "brand" (probably yet another criminal punishment)
317 begintsuglyph("uni5260";96);
318 build_kanji.level(build_kanji.lr(650,0)
319   (kanji.grtwo.capital)
320   (kanji.rightrad.sword));
321 tsu_render;
322 endtsuglyph;
323

```



```

324 % extra
325 begintsuglyph("uni527B",123);
326 build_kanji.level(build_kanji.lr(650,0)
327   (kanji.greight.demolish)
328   (kanji.rightrad.sword));
329 tsu_render;
330 endtsuglyph;

```

331  
332 % ryoku "power", as in Koizumi Itsuki has teh "chounouryoku"

[see page 419]

```

333 begintsuglyph("uni529B",155);
334 kanji.grone.power;
335 tsu_render;
336 endtsuglyph;

```

337  
338 % kuwa "addition", also "Canada"

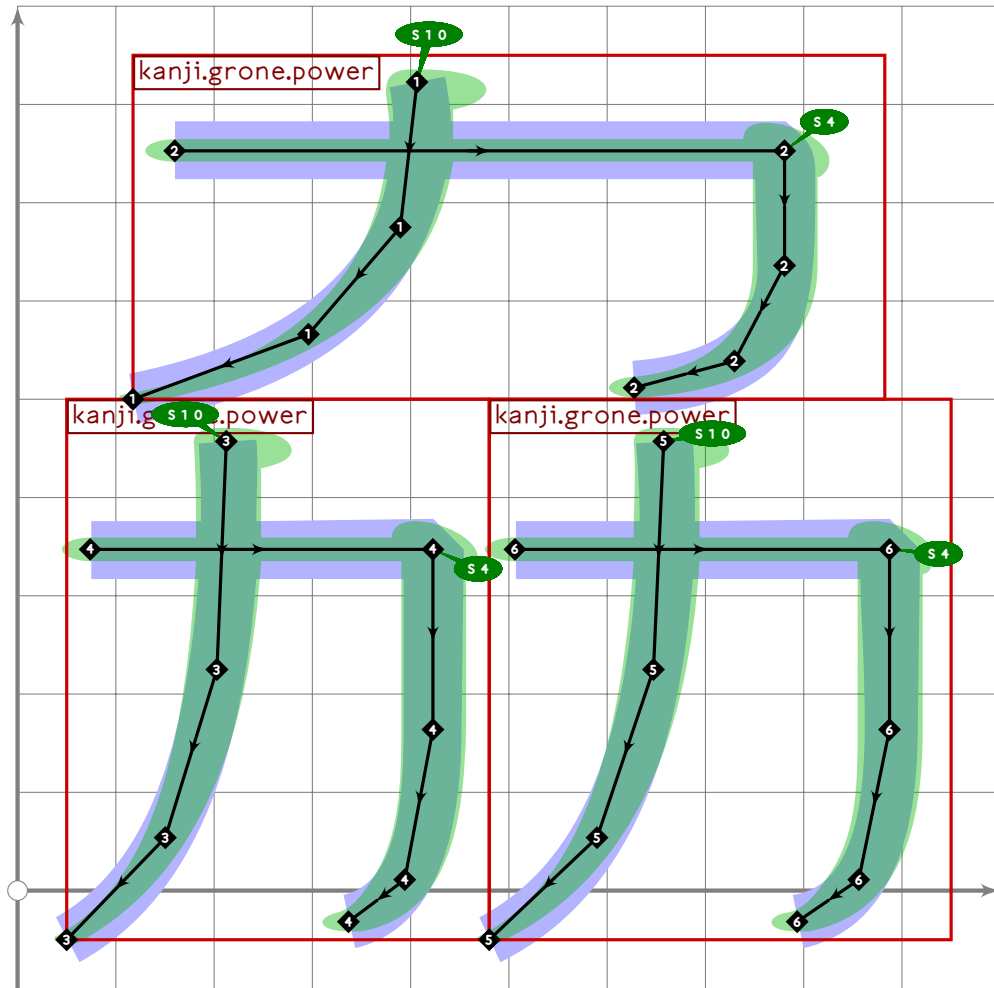
[see page 1595]

```

339 begintsuglyph("uni52A0",160);
340 kanji.grfour.addition;
341 tsu_render;
342 endtsuglyph;

```

343



```

344 % extra
345 begintsuglyph("uni52A6";166);
346 build_kanji.level(build_kanji.triclust(0.85)
347   (kanji.grone.power)
348   (kanji.grone.power)
349   (kanji.grone.power));
350 tsu_render;
351 endtsuglyph;
352
353 % jo/tasu "help"
354 begintsuglyph("uni52A9";169);
355 kanji.grthree.help;
356 tsu_render;
357 endtsuglyph;
358
359 % ben/tsuto "exertion"
360 begintsuglyph("uni52C9";201);
361 kanji.grthree.exertion;
362 tsu_render;
363 endtsuglyph;
364

```

[see page 1593]

[see page 1592]

365 % dou/ugo "motion"  
366 `begintsuglyph("uni52D5";213);` [see page 1594]  
367 `kanji.grthree.motion;`  
368 `tsu_render;`  
369 `endtsuglyph;`  
370  
371 % hou/tsutsu "wrapping radical"  
372 `begintsuglyph("uni52F9";249);` [see page 371]  
373 `kanji.radical.wrapping;`  
374 `tsu_render;`  
375 `endtsuglyph;`  
376  
377 % shaku "ladle" (also a unit of measure)  
378 `begintsuglyph("uni52FA";250);` [see page 579]  
379 `kanji.greight.ladle;`  
380 `tsu_render;`  
381 `endtsuglyph;`  
382  
383 % mochi/naka "not", esp. "must not"  
384 `begintsuglyph("uni52FF";255);` [see page 594]  
385 `kanji.grnine.must_not;`  
386 `tsu_render;`  
387 `endtsuglyph;`  
388  
389 

---

  
390  
391 `endfont;`  
392  
393 

---

# tsuku-53.mp

```
1 %
2 % Unicode page 53 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

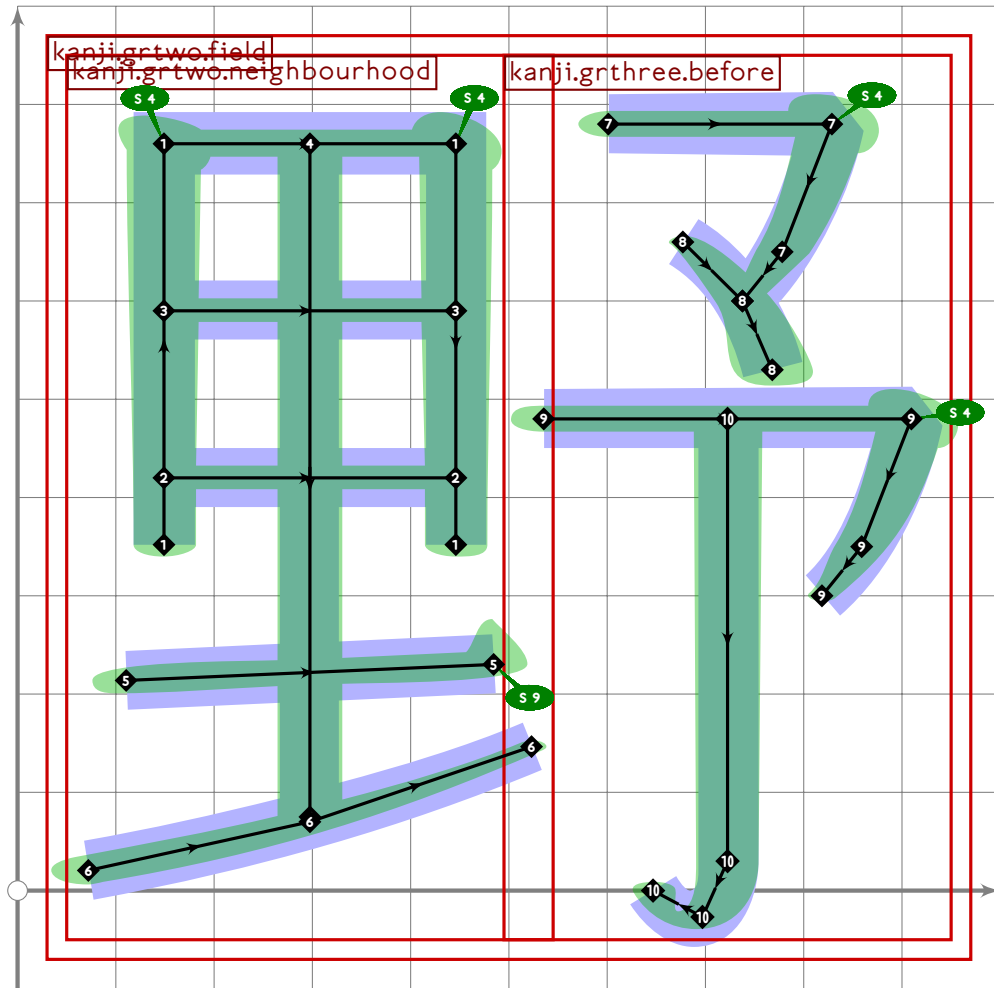
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradesix.mp;
43 input gradethree.mp;
44 input gradetwo.mp;
45 input leftrad.mp;
46 input radical.mp;
47 input rare.mp;
48 input topfad.mp;
49
50 

---


```

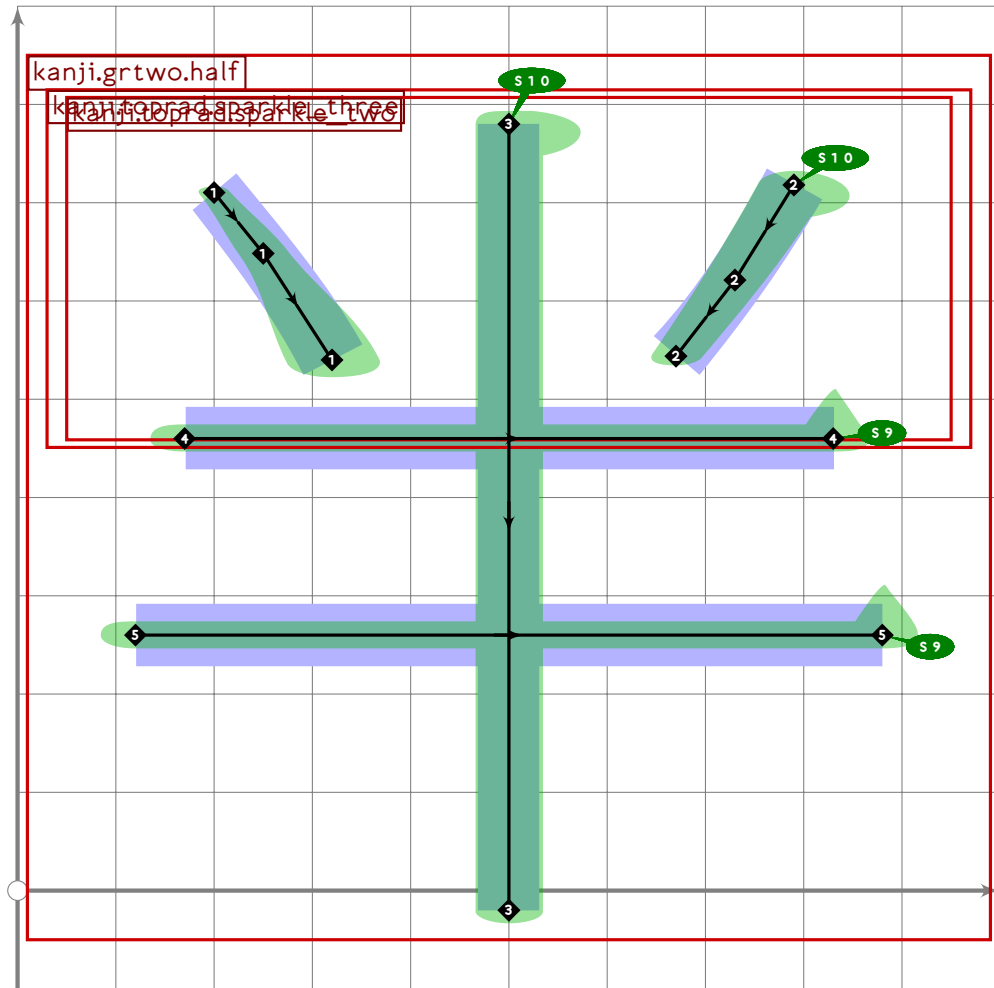




```

51
52 vardef kanji.grtwo.field =
53   push_pbox_toexpand("kanji.grtwo.field");
54   build_kanji.level(build_kanji.cliff_enclose(
55     build_kanji.tb(380,67)
56     (kanji.grone.white)
57     (kanji.grone.small)));
58   begingroup
59     save myxf;
60     transform myxf;
61     point 2 of get_stroke(-6) transformed myxf=point 2 of get_stroke(-6);
62     ypart (point 0 of get_stroke(-6) transformed myxf)=760;
63     xpart myxf=yxpart myxf=0;
64     xxpart myxf=1;
65     replace_stroke(-6)(oldp transformed myxf);
66   endgroup;
67   set_boserif(-6,0,whatever);
68   set_boserif(-1,0,whatever);
69   expand_pbox;
70 enddef;

```



```

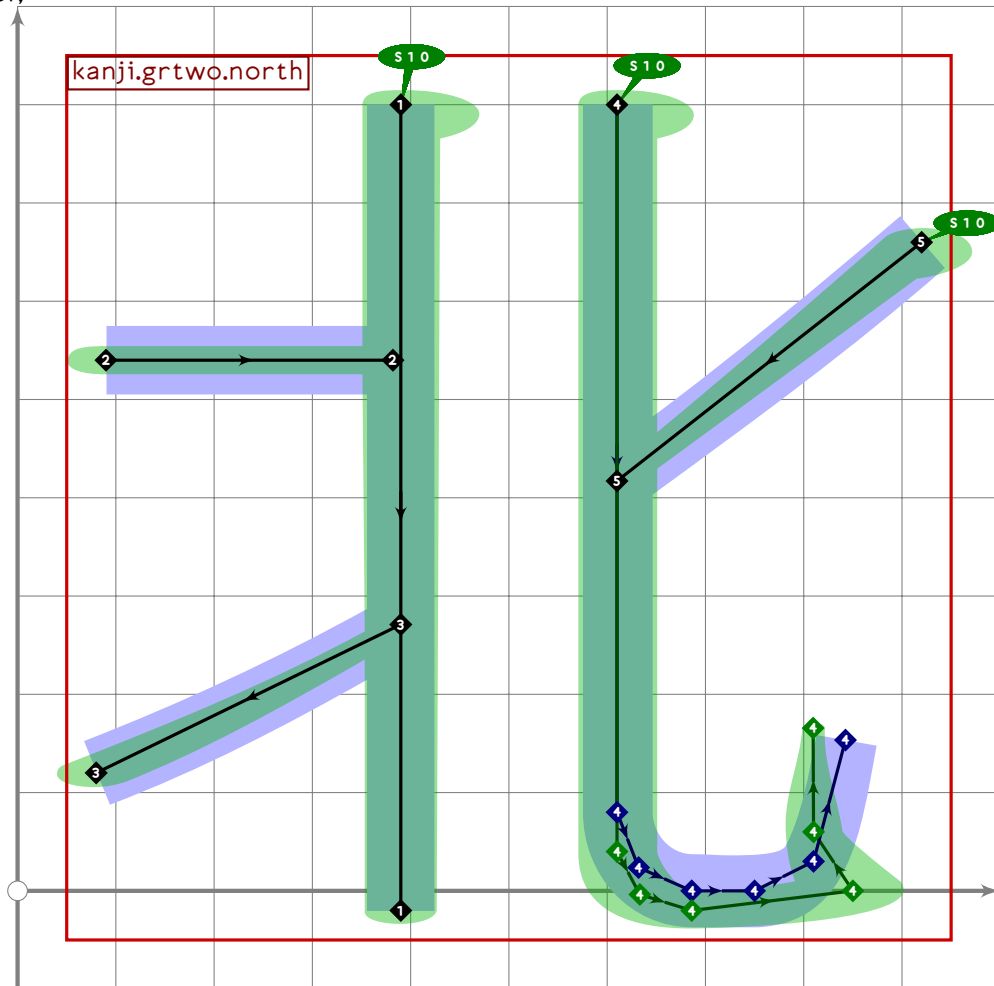
71
72 vardef kanji.grtwo.half =
73   push_pbox_toexpand("KANJI.GRTWO.HALF");
74   build_kanji.level(begingroup
75     save saved_path,mytr;
76     path saved_path;
77     transform mytr;
78     xpart mytr=xypart mytr=yxpart mytr=0;
79     xxpart mytr=1;
80     (500,160) transformed mytr=(500,540);
81     (500,780) transformed mytr=(500,780);
82     tsu_xform(mytr)
83     (KANJI.TOPRAD.SPARKLE_THREE;saved_path:=get_stroke(0));
84     replace_stroke(0)(saved_path);
85     push_stroke((170,460)-(830,460),
86       (1.6,1.6)-(1.6,1.6));
87     set_boserif(0,1,9);
88     push_stroke((120,260)-(880,260),
89       (1.6,1.6)-(1.6,1.6));
90     set_boserif(0,1,9);
91   endgroup);

```

```

92 expand_pbox;
93 enddef;

```



```

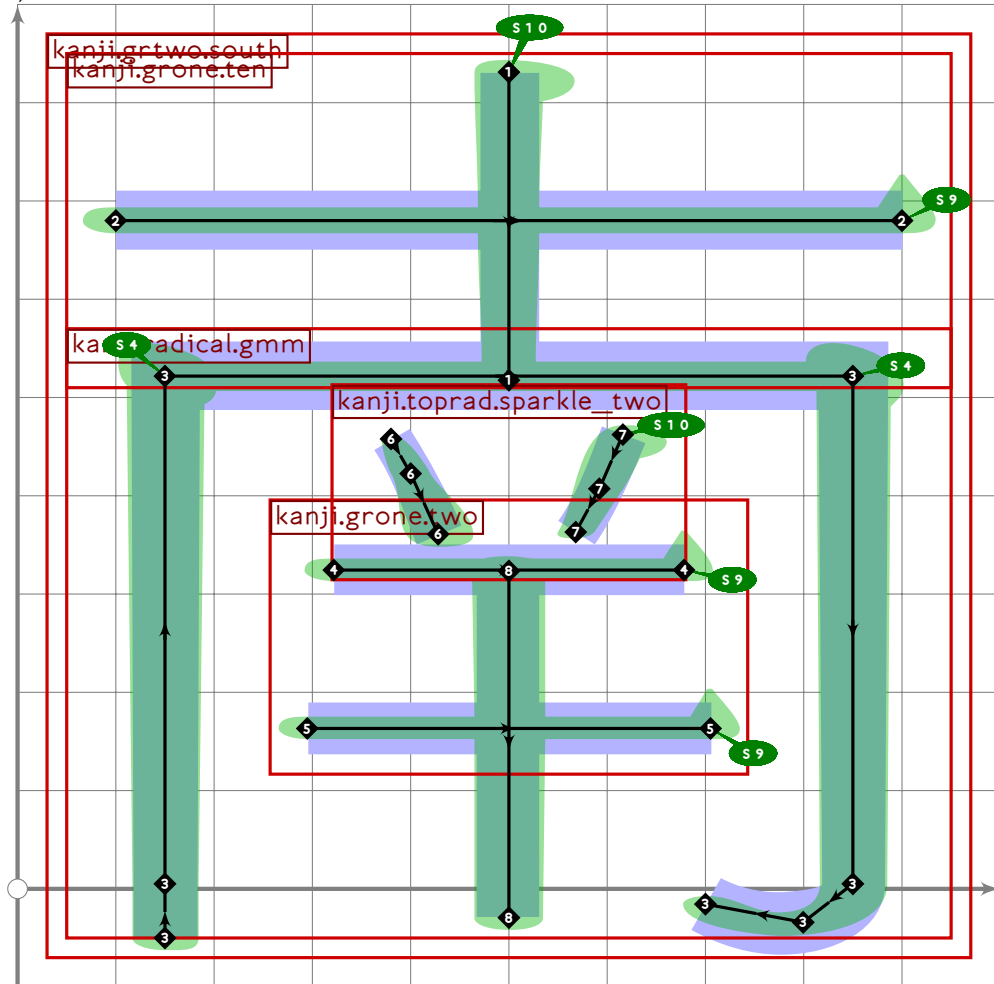
94
95 vardef kanji.grtwo.north =
96   push_pbox_toexpand("kanji.grtwo.north");
97   push_stroke((390,800)-(390,-20),(1.6,1.6)-(1.5,1.5));
98   set_boserif(0,0,10);
99   push_stroke((90,540)-(382,540),(1.6,1.6)-(1.6,1.6));
100  push_stroke((920,660)..tension 1.2..(500,340)..(80,120),
101    (1.1,1.1)-(1.6,1.6));
102  push_stroke((610,800),(1.6,1.6));
103  build_kanji.add_tail(0);
104  set_boserif(0,0,10);
105  push_stroke(subpath
106    (0,xpart (get_stroke(-1) intersectiontimes get_stroke(0)))
107    of get_stroke(-1),
108    (1.6,1.6)-(1.1,1.1));
109  set_boserif(0,0,10);
110  replace_stroke(-2)(subpath
111    (xpart (oldp intersectiontimes get_stroke(-4)),infinity)
112    of oldp);

```

```

113 expand_pbox;
114 enddef;

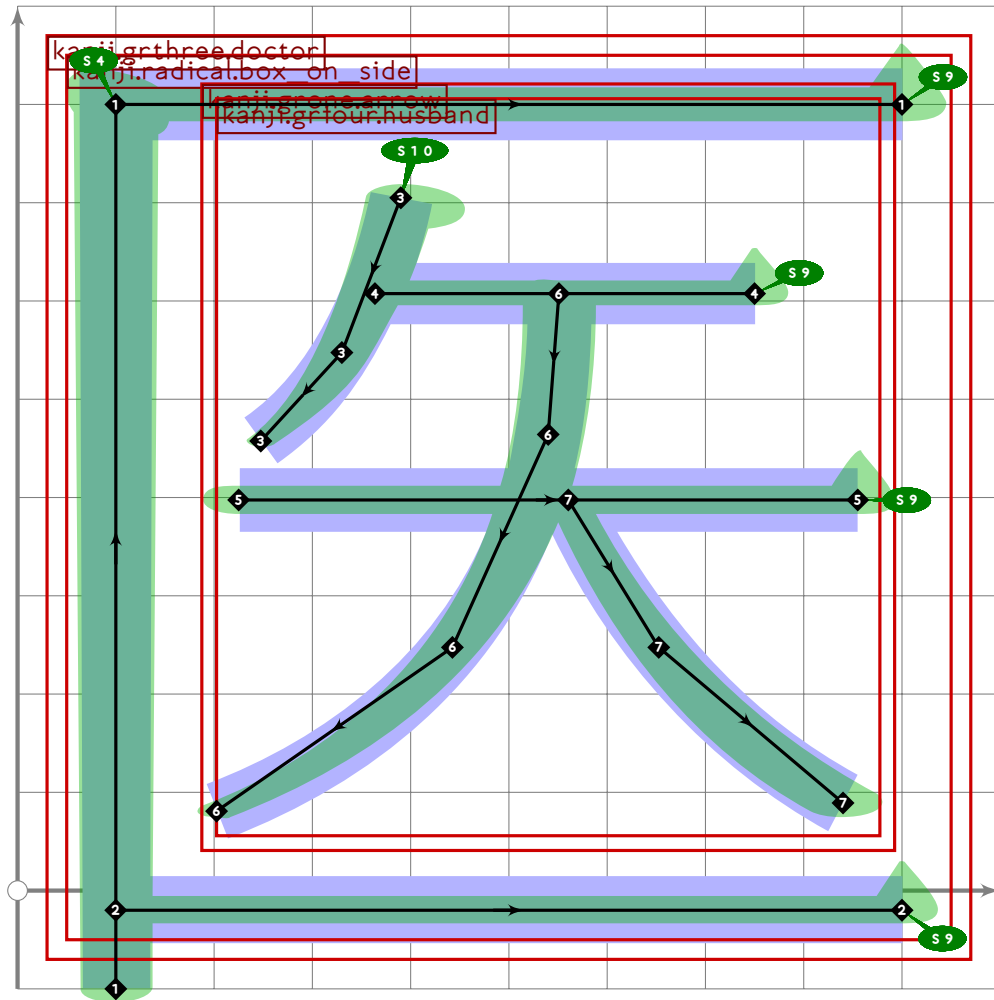
```



```

115
116 vardef kanji.grtwo.south =
117   push_pbox_toexpand("kanji.grtwo.south");
118   build_kanji.tb(540,60)
119     (kanji.grone.ten)
120     (kanji.radical.gmm;
121       build_kanji.sscale(xyscaled (0,54,0,45))(kanji.grone.two);
122       build_kanji.sscale(xyscaled (0,4,0,32) shifted (0,230))
123         (kanji.toprad.sparkle_two);
124       push_stroke((500,492)-(500,-20),(1,6,1,6)-(1,5,1,5));
125     );
126   expand_pbox;
127 enddef;
128
129

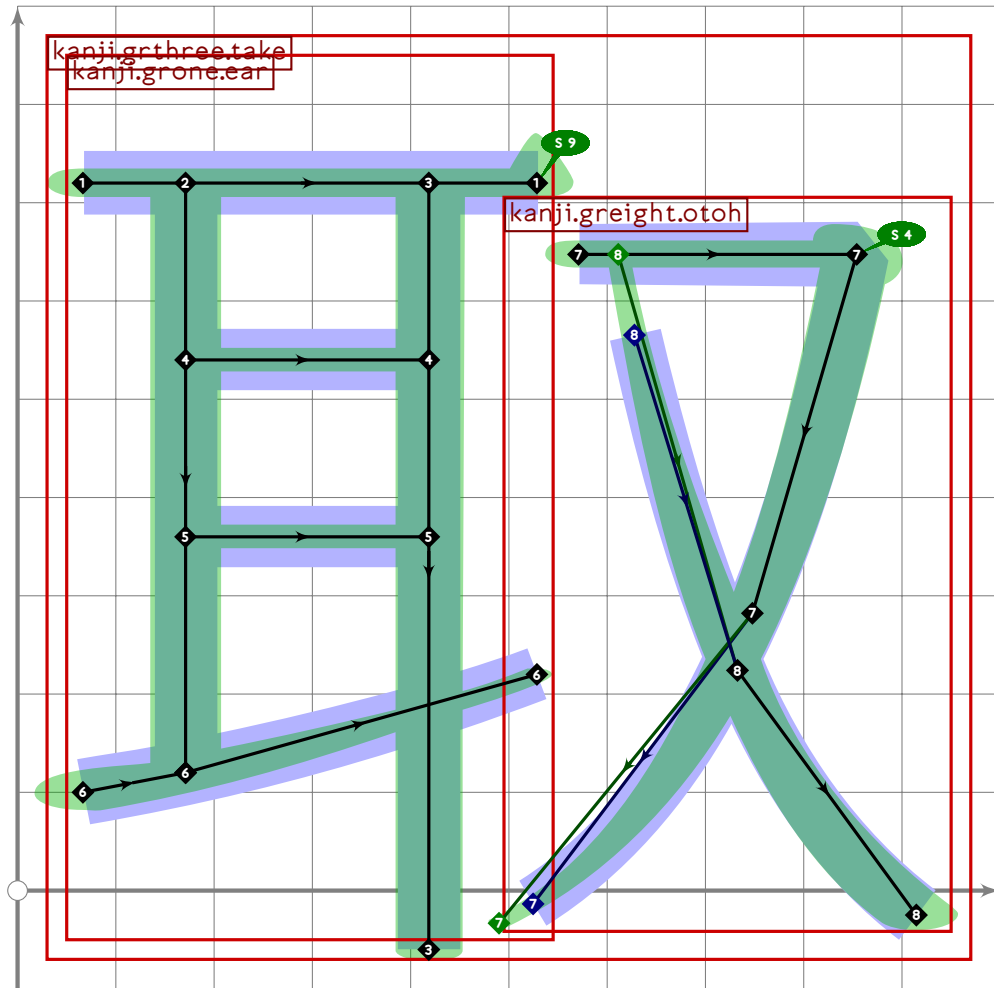
```



```

130
131 vardef kanji.grthree.doctor =
132   push_pbox_toexpand("kanji.grthree.doctor");
133   kanji.radical.box_on_side;
134   build_kanji.sscale(scaled 0.75 shifted (40,0))(kanji.grtwo.arrow);
135   expand_pbox;
136 enddef;

```



```

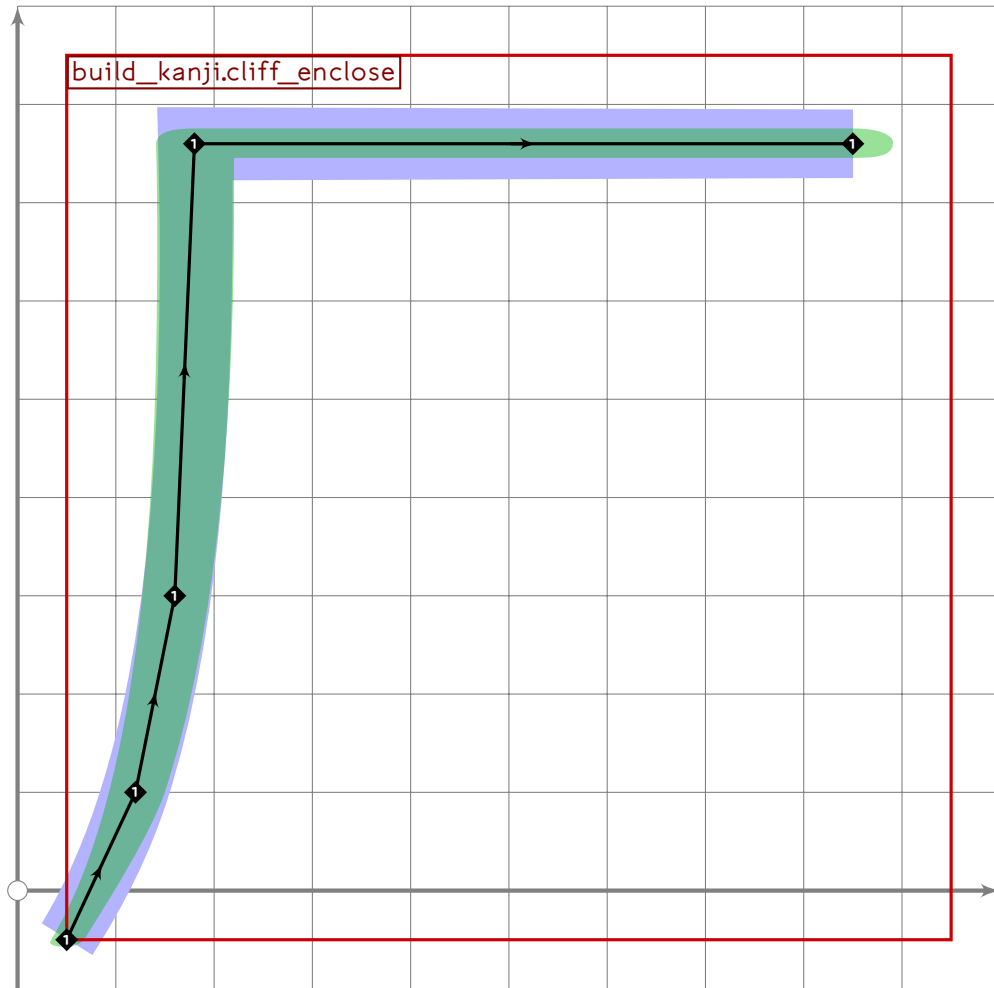
137
138 vardef kanji.grthree.take =
139   push_pbox_toexpand("kanji.grthree.take");
140   build_kanji.lr(520,50)
141     (kanji.grone.ear)
142     (tsu_xform(identity yscaled 0.83)(kanji.greight.otoh));
143   expand_pbox;
144 enddef;
145
146
147
148 % by itself means "be flustered"
149 begintsuglyph("uni5306";6); [see page 347]
150   kanji.radical.crossed_must_not;
151   tsu_render;
152 endtsuglyph;
153
154 % hi/saji "spoon"
155 begintsuglyph("uni5315";21); [see page 364]
156   kanji.radical.spoon;
157   tsu_render;

```

158 endtsuglyph;  
159  
160 % ka/ba "change"  
161 `begintsuglyph("uni5316";22);` [see page 512]  
162 `kanji.grthree.change;`  
163 `tsu_render;`  
164 endtsuglyph;  
165  
166 % hoku/kita "north"  
167 `begintsuglyph("uni5317";23);` [see page 1615]  
168 `kanji.grtwo.north;`  
169 `tsu_render;`  
170 endtsuglyph;  
171  
172 % hou/hakogamae "box on side radical"  
173 `begintsuglyph("uni531A";26);` [see page 344]  
174 `kanji.radical.box_on_side;`  
175 `tsu_render;`  
176 endtsuglyph;  
177  
178 % kyou/suku "deliverance"  
179 `begintsuglyph("uni5321";33);` [see page 593]  
180 `kanji.grnine.deliverance;`  
181 `tsu_render;`  
182 endtsuglyph;  
183  
184 % i "doctor"  
185 `begintsuglyph("uni533B";59);` [see page 1617]  
186 `kanji.grthree.doctor;`  
187 `tsu_render;`  
188 endtsuglyph;  
189  
190 % juu/too "ten"  
191 `begintsuglyph("uni5341";65);` [see page 433]  
192 `kanji.grone.ten;`  
193 `tsu_render;`  
194 endtsuglyph;  
195  
196 % sen "one thousand"  
197 `begintsuglyph("uni5343";67);` [see page 416]  
198 `kanji.grone.one_thousand;`  
199 `tsu_render;`  
200 endtsuglyph;  
201  
202 % han/naka "half"  
203 `begintsuglyph("uni534A";74);` [see page 1614]  
204 `kanji.grtwo.half;`  
205 `tsu_render;`

206 `endtsuglyph;`  
207  
208 `% go/uma "noon"`  
209 `begintsuglyph("uni5348";72);` [see page 486]  
210 `kanji.grtwo.noon;`  
211 `tsu_render;`  
212 `endtsuglyph;`  
213  
214 `% nan/minami "south"`  
215 `begintsuglyph("uni5357";87);` [see page 1616]  
216 `kanji.grtwo.south;`  
217 `tsu_render;`  
218 `endtsuglyph;`  
219  
220 `% sen/urana "divination"`  
221 `begintsuglyph("uni5360";96);` [see page 573]  
222 `kanji.greight.divination;`  
223 `tsu_render;`  
224 `endtsuglyph;`  
225  
226 `% setsu/warifu "seal radical"`  
227 `begintsuglyph("uni5369";105);` [see page 362]  
228 `kanji.radical.seal;`  
229 `tsu_render;`  
230 `endtsuglyph;`  
231

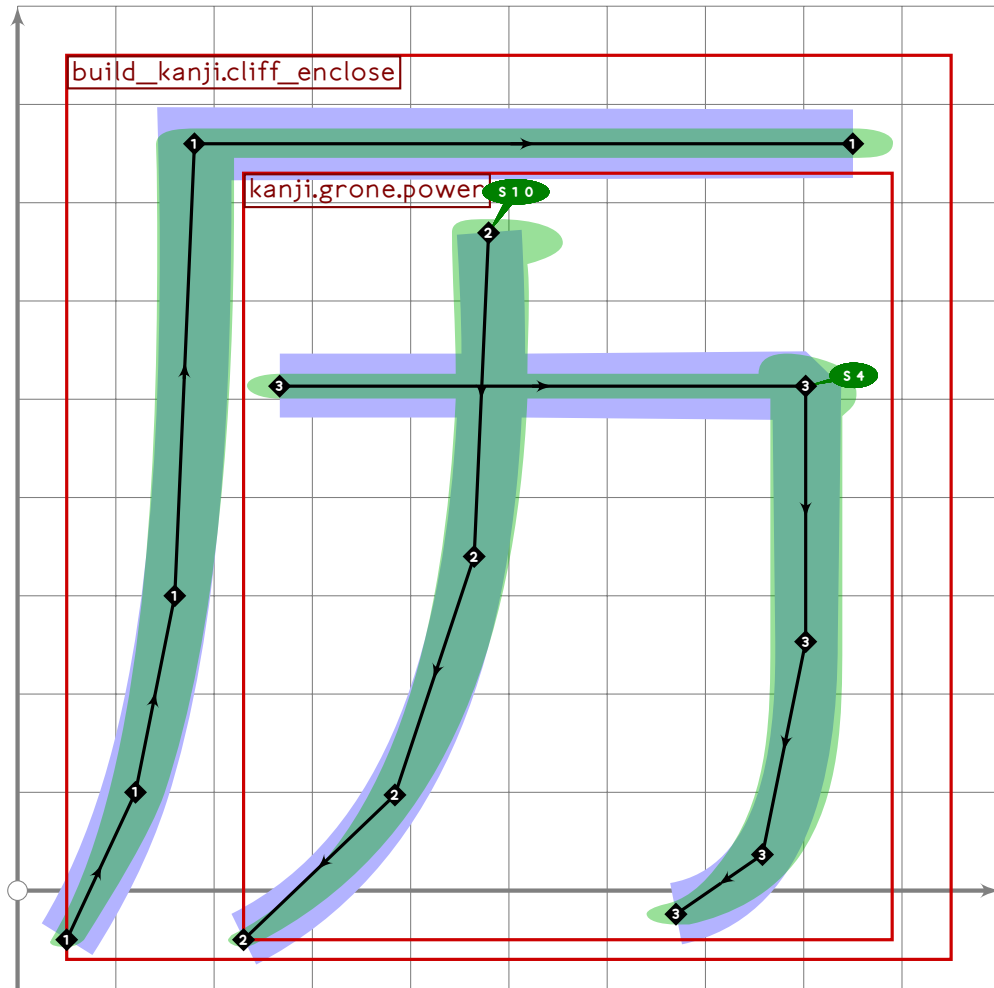




```

232 % karigane "cliff radical"
233 beginsuglyph("uni5382";130);
234 build_kanji.cliff_enclose();
235 tsu_render;
236 endsuglyph;
237

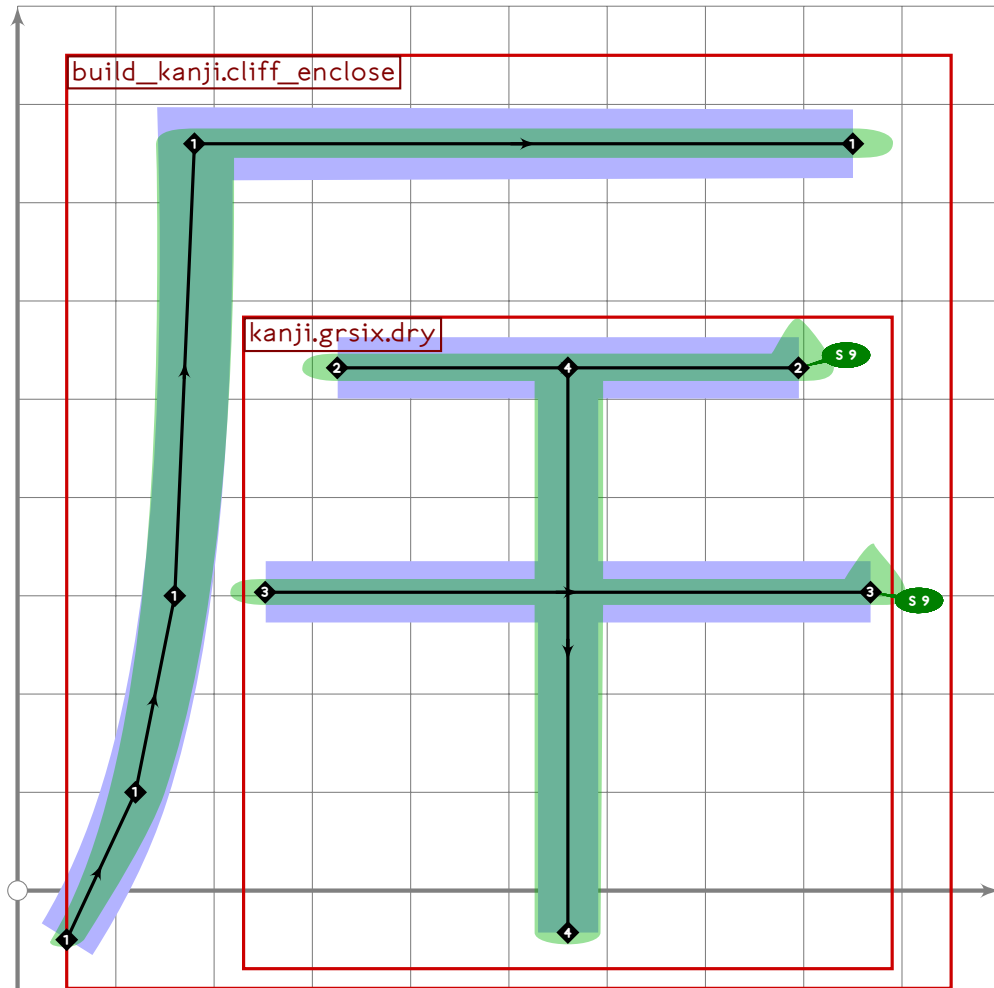
```



```

238 % extra
239 begint Suglyph("uni5386";134);
240 build_kanji.cliff_enclose(kanji.grone.power);
241 tsu_render;
242 endtsuglyph;
243

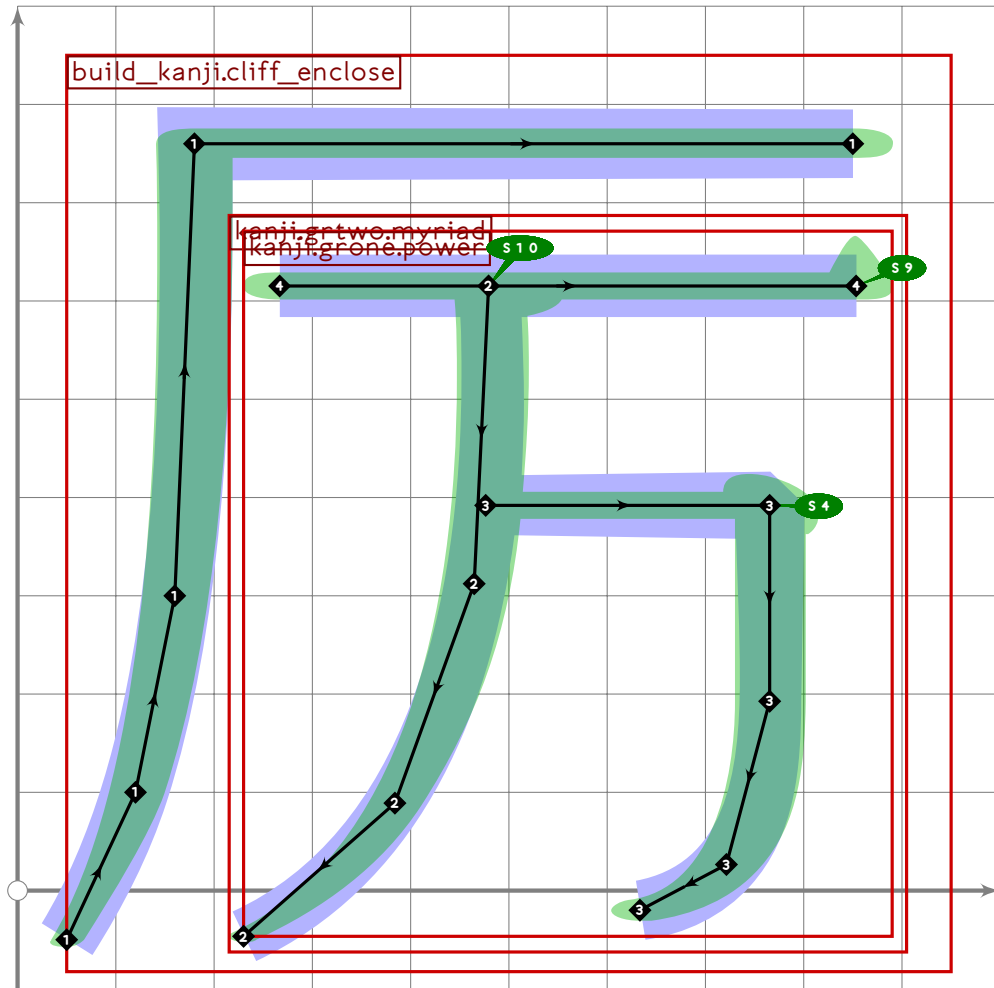
```



```

244 % extra
245 beginsuglyph("uni5388",136);
246 build_kanji.cliff_enclose(build_kanji.scale(yscaled 0.85 shifted (0,100))
247   (kanji.grsix.dry));
248 tsu_render;
249 endsuglyph;
250

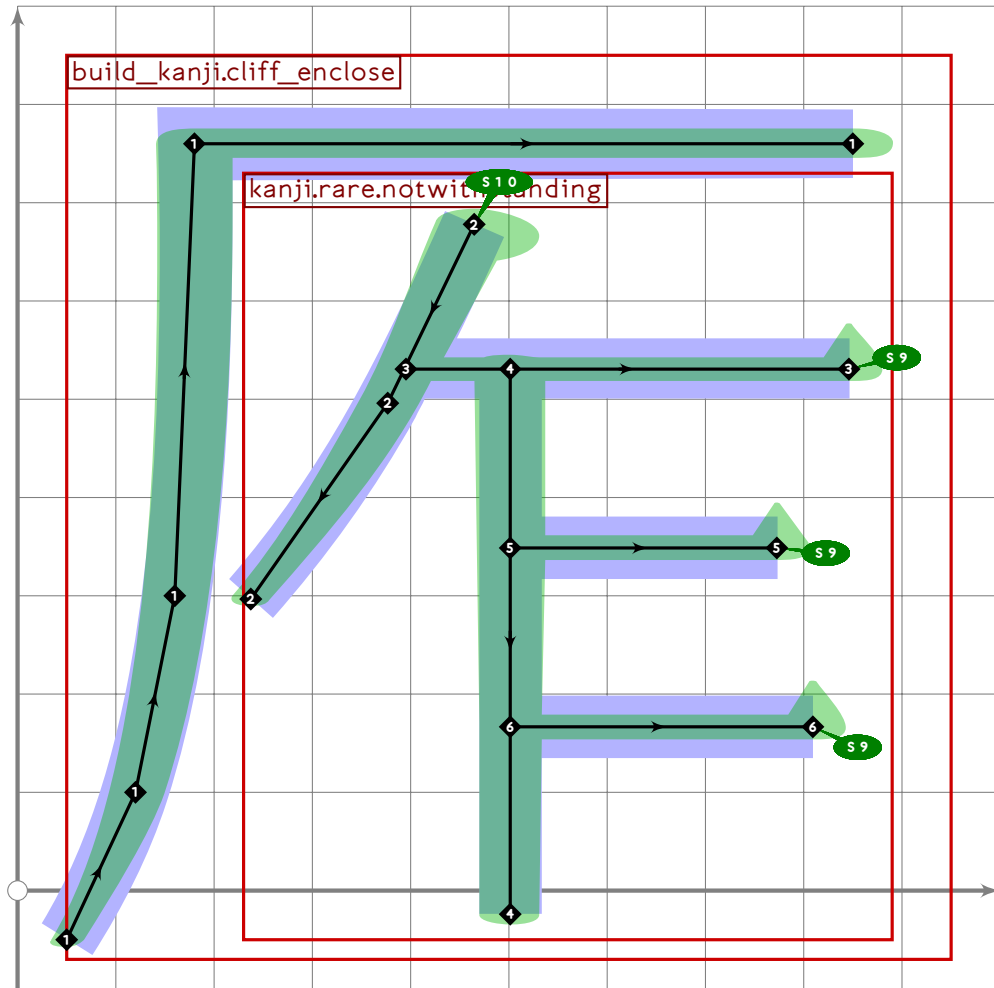
```



```

251 % extra
252 begint Suglyph("uni5389";137);
253 build_kanji.cliff_enclose(tsu_xform(identity yscaled 0.92)
254   (kanji.grtwo.myriad));
255 tsu_render;
256 endtsuglyph;
257

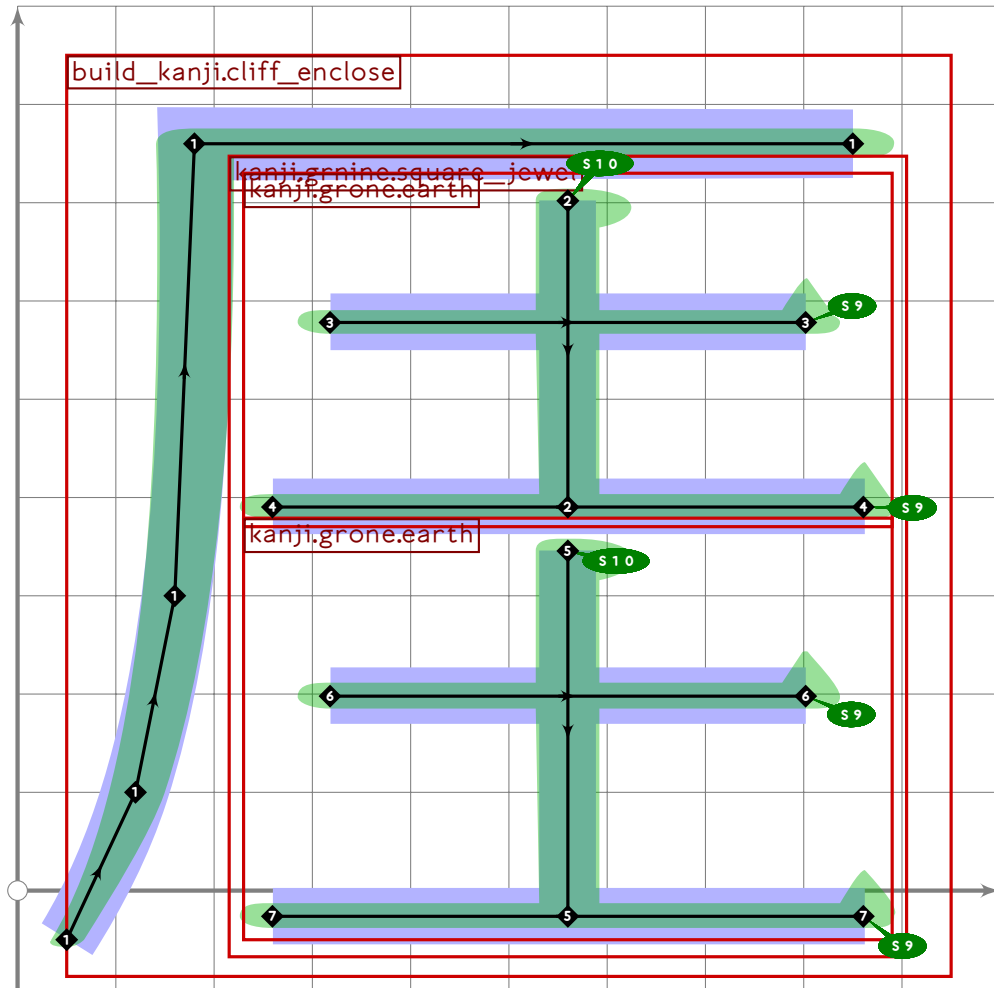
```



```

258 % extra
259 beginsuglyph("uni538F",143);
260 build_kanji.cliff_enclose(kanji.rare.notwithstanding);
261 tsu_render;
262 endsuglyph;
263

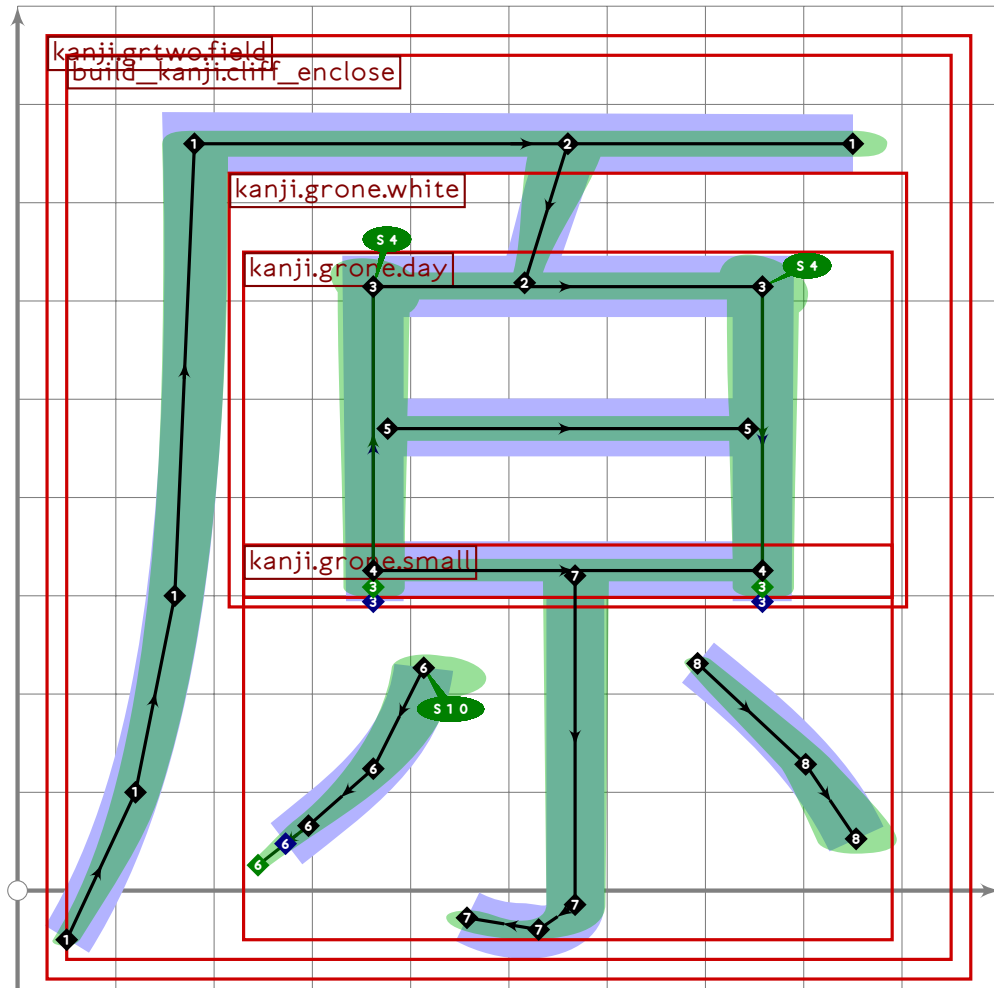
```



```

264 % extra
265 begint Suglyph("uni5393",147);
266 build_kanji.cliff_enclose(kanji.gnone.square_jewel);
267 tsu_render;
268 endtsuglyph;
269

```



```

270 % gen/hara "field"
271 begintsuglyph("uni539F";159);
272 kanji.grtwo.field;
273 tsu_render;
274 endtsuglyph;
275
276 % "mu radical"
277 begintsuglyph("uni53B6";182);
278 kanji.radical.mu;
279 tsu_render;
280 endtsuglyph;
281
282 % kyo/sa "go away"
283 begintsuglyph("uni53BB";187);
284 kanji.grthree.go_away;
285 tsu_render;
286 endtsuglyph;
287
288 % yuu/mata "on the other hand"
289 begintsuglyph("uni53C8";200);
290 kanji.greight.otoh;

```

[see page 354]

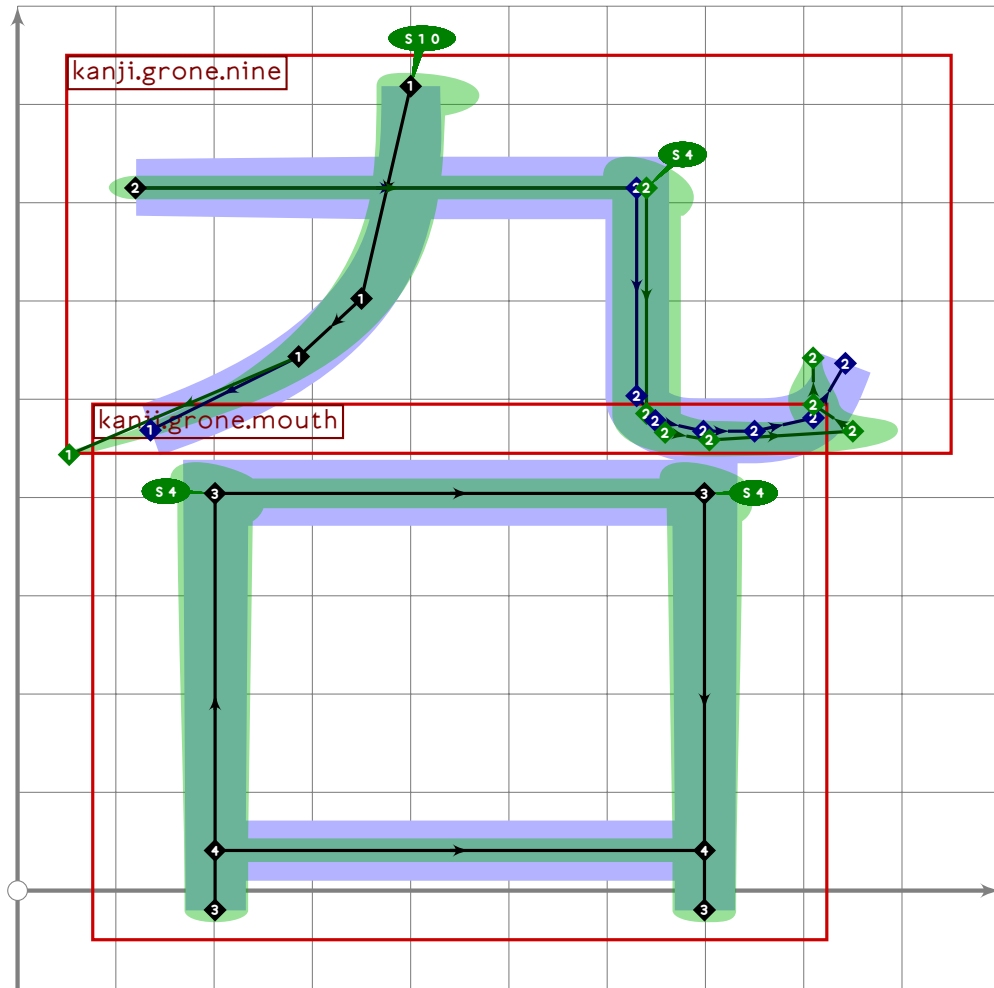
[see page 517]

[see page 582]

291 `tsu_render;`  
292 `endtsuglyph;`  
293  
294 `% yuu/tomo "friend"`  
295 `begintsuglyph("uni53CB";203);` [see page 462]  
296 `kanji.grtwo.friend;`  
297 `tsu_render;`  
298 `endtsuglyph;`  
299  
300 `% han/so "anti"`  
301 `begintsuglyph("uni53CD";205);` [see page 508]  
302 `kanji.grthree.anti;`  
303 `tsu_render;`  
304 `endtsuglyph;`  
305  
306 `% shu/tori "take"`  
307 `begintsuglyph("uni53D6";214);` [see page 1618]  
308 `kanji.grthree.take;`  
309 `tsu_render;`  
310 `endtsuglyph;`  
311  
312 `% kou/kuchi "mouth"`  
313 `begintsuglyph("uni53E3";227);` [see page 411]  
314 `kanji.grone.mouth;`  
315 `tsu_render;`  
316 `endtsuglyph;`  
317  
318 `% ko/furo "old"`  
319 `begintsuglyph("uni53E4";228);` [see page 489]  
320 `kanji.grtwo.old;`  
321 `tsu_render;`  
322 `endtsuglyph;`  
323  
324 `% ku "phrase"`  
325 `begintsuglyph("uni53E5";229);` [see page 555]  
326 `kanji.grfive.phrase;`  
327 `tsu_render;`  
328 `endtsuglyph;`  
329  
330 `% kou/tata "smash"`  
331 `begintsuglyph("uni53E9";233);` [see page 618]  
332 `kanji.rare.smash;`  
333 `tsu_render;`  
334 `endtsuglyph;`  
335  
336 `% tada "only"`  
337 `begintsuglyph("uni53EA";234);` [see page 596]  
338 `kanji.grnine.only;`



```
339  tsu_render;
340  endtsuglyph;
341
342  % shou/me "call"
343  begintsuglyph("uni53EC";236); [see page 569]
344  kanji.greight.call;
345  tsu_render;
346  endtsuglyph;
347
348  % ka/be "passable"
349  begintsuglyph("uni53EF";239); [see page 554]
350  kanji.grfive.passable;
351  tsu_render;
352  endtsuglyph;
353
354  % tai/utana "pedestal"
355  begintsuglyph("uni53F0";240); [see page 491]
356  kanji.grtwo.pedestal;
357  tsu_render;
358  endtsuglyph;
359
360  % migi "right"
361  begintsuglyph("uni53F3";243); [see page 423]
362  kanji.grone.right;
363  tsu_render;
364  endtsuglyph;
365
```



```

366 % extra
367 begint Suglyph("uni53F4",244);
368   build_kanji.tb(470,50)
369     (kanji.grone.nine)
370     (build_kanji.sscale(xscaled 0.83 shifted (-50,0))
371     (kanji.grone.mouth));
372   tsu_render;
373 endtsuglyph;
374
375 % shi/tsukasado "director" or "official (person)"
376 begint Suglyph("uni53F8",248);
377   kanji.grfour.director;
378   tsu_render;
379 endtsuglyph;
380
381 _____
382
383 endfont;
384
385 _____

```

[see page 539]

# tsuku-54.mp

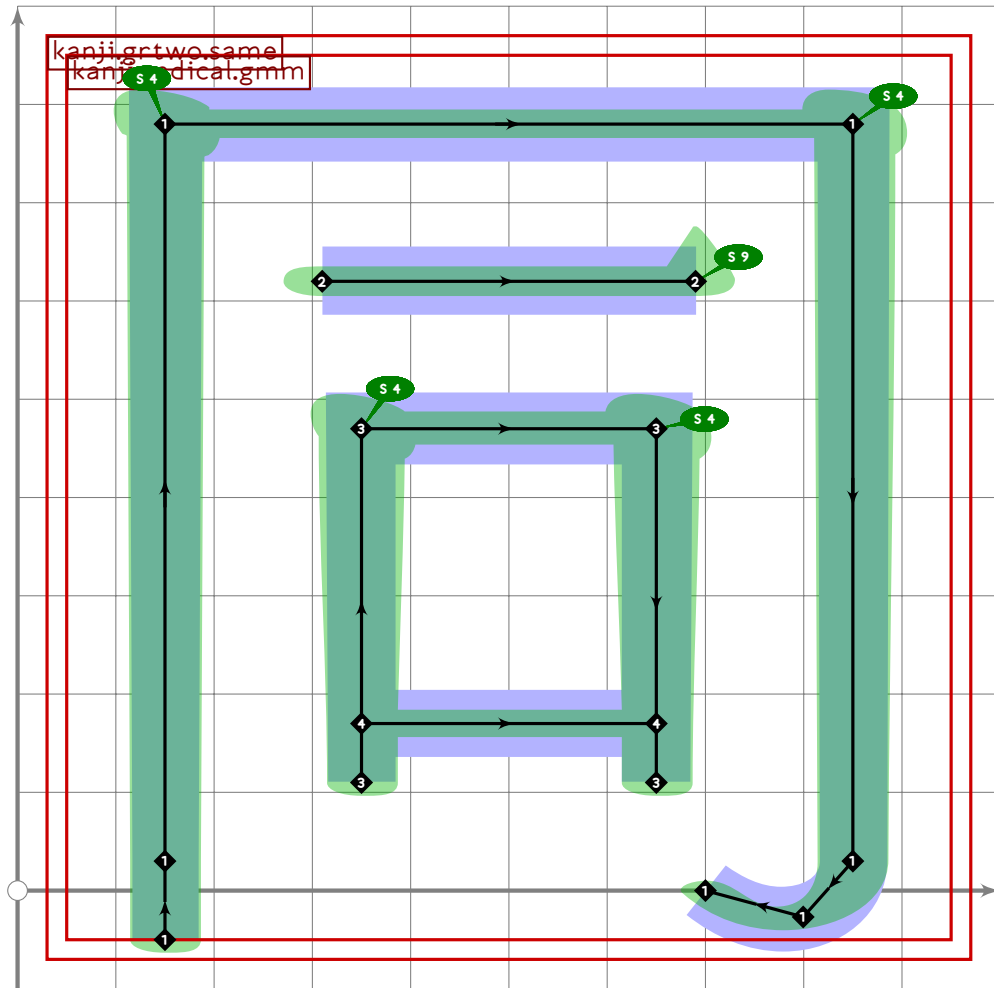
```
1 %
2 % Unicode page 54 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47
48 

---

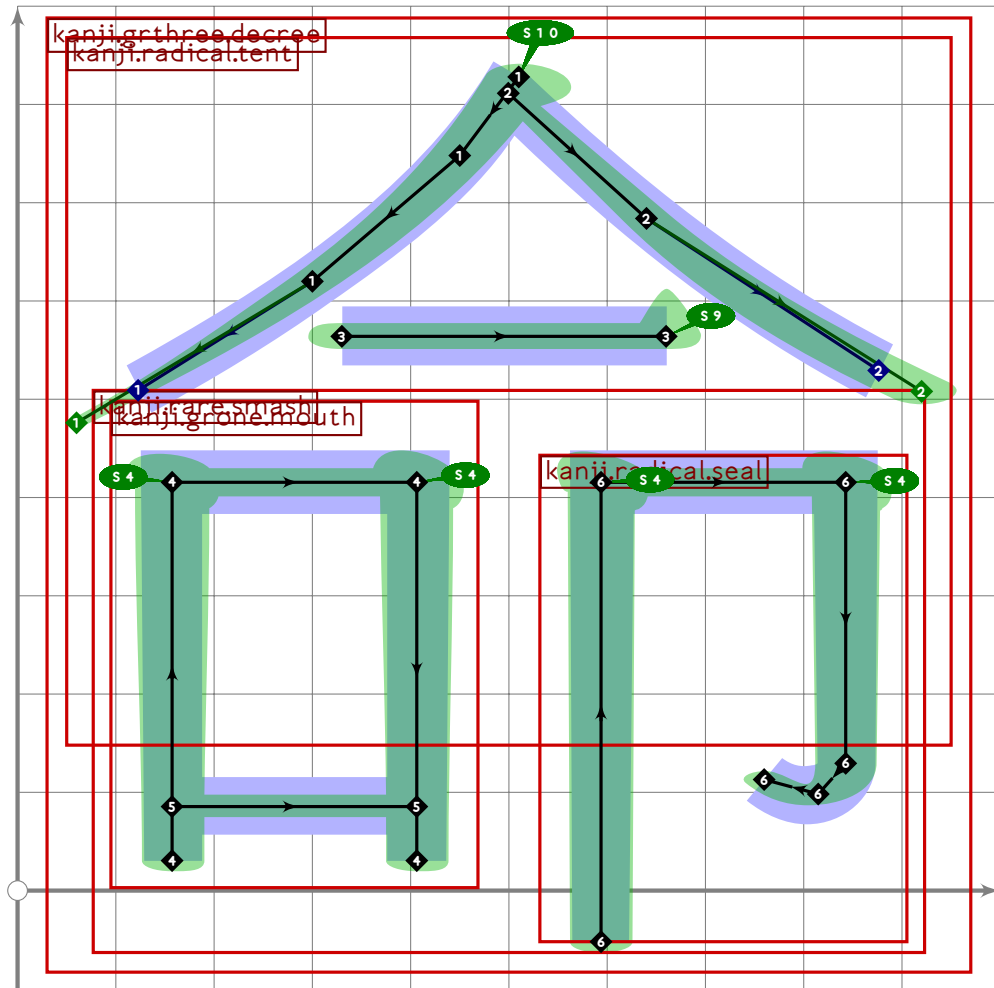

```



```

49
50 vardef kanji.grtwo.same =
51   push_pbox_toexpand("kanji.grtwo.same");
52   kanji.radical.gmm;
53   push_stroke((310,620)-(690,620),(1.6,1.6)-(1.6,1.6));
54   set_boserif(0,1,9);
55   build_kanji.box((350,470),(650,170));
56   expand_pbox;
57 enddef;
58
59

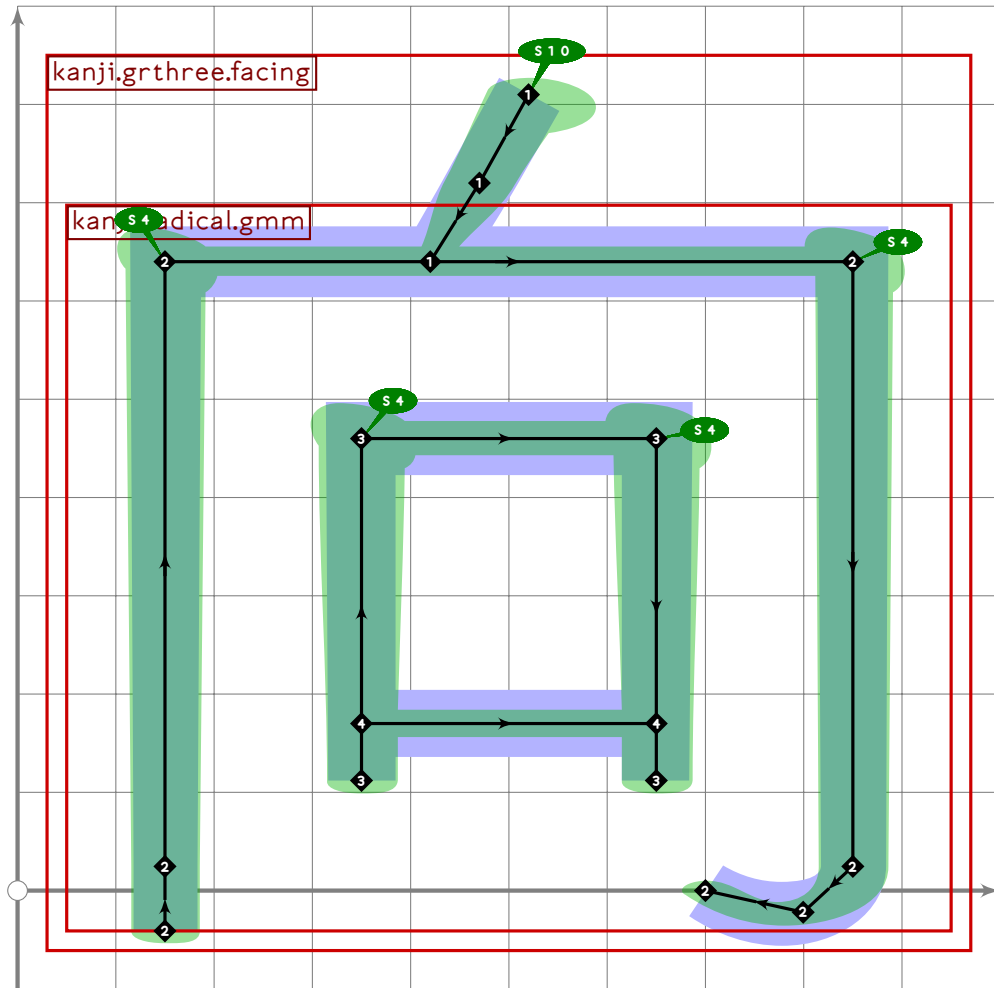
```



```

60
61 vardef kanji.grthree.deGREE =
62   push_pbox_toexpand("kanji.grthree.deGREE");
63   build_kanji.level(
64     build_kanji.sscale(xyscaled (1,0.8) shifted (0,110))
65     (kanji.radical.tent);
66     build_kanji.sscale(xyscaled (0.9,0.55) shifted (0,-200))
67     (kanji.radical.seal);
68   );
69   expand_pbox;
70 enddef;

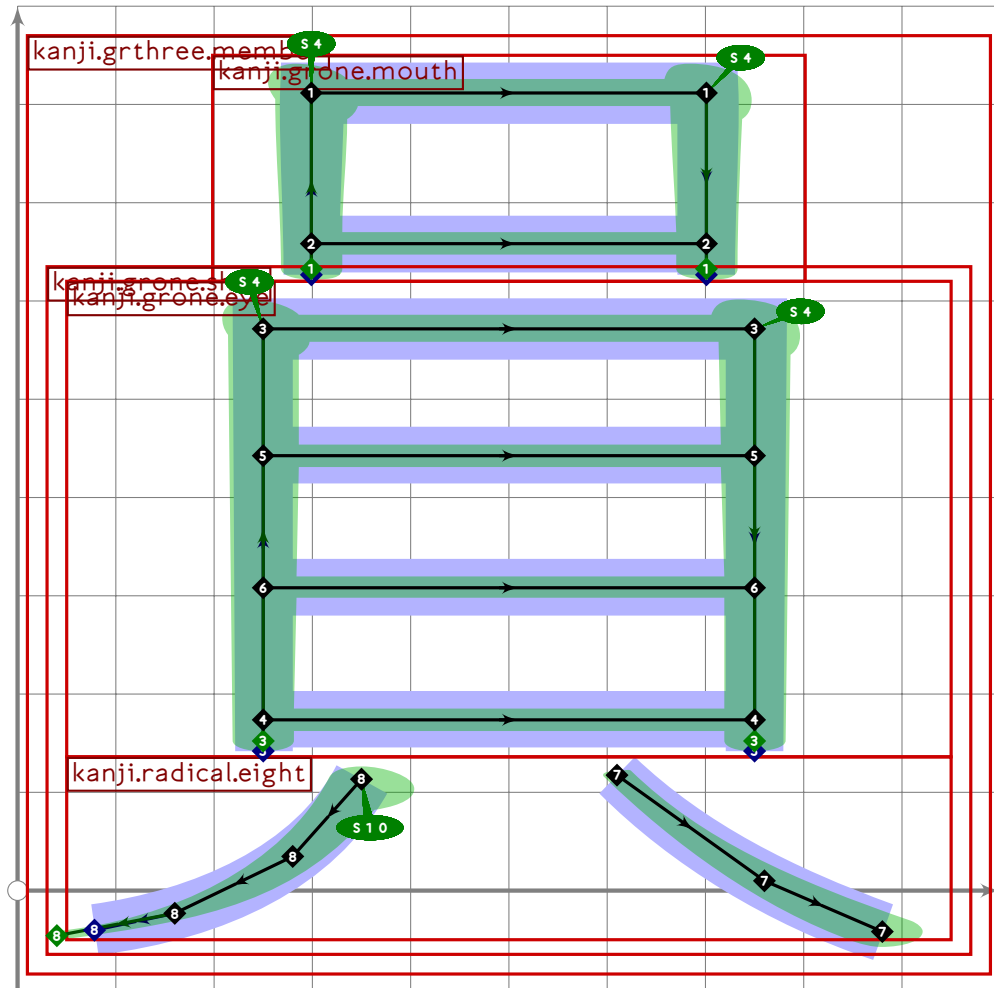
```



```

71
72 vardef kanji.grthree.facing =
73   push_pbox_toexpand("kanji.grthree.facing");
74   push_stroke((520,810)..tension 1.2..(470,720)..(420,640),
75     (1.7,1.7)-(1.5,1.5)-(1,1));
76   set_boserif(0,0,10);
77   tsu_xform(identity yscaled (640/780))(kanji.radical.gmm);
78   build_kanji.box((350,460),(650,170));
79   expand_pbox;
80 enddef;

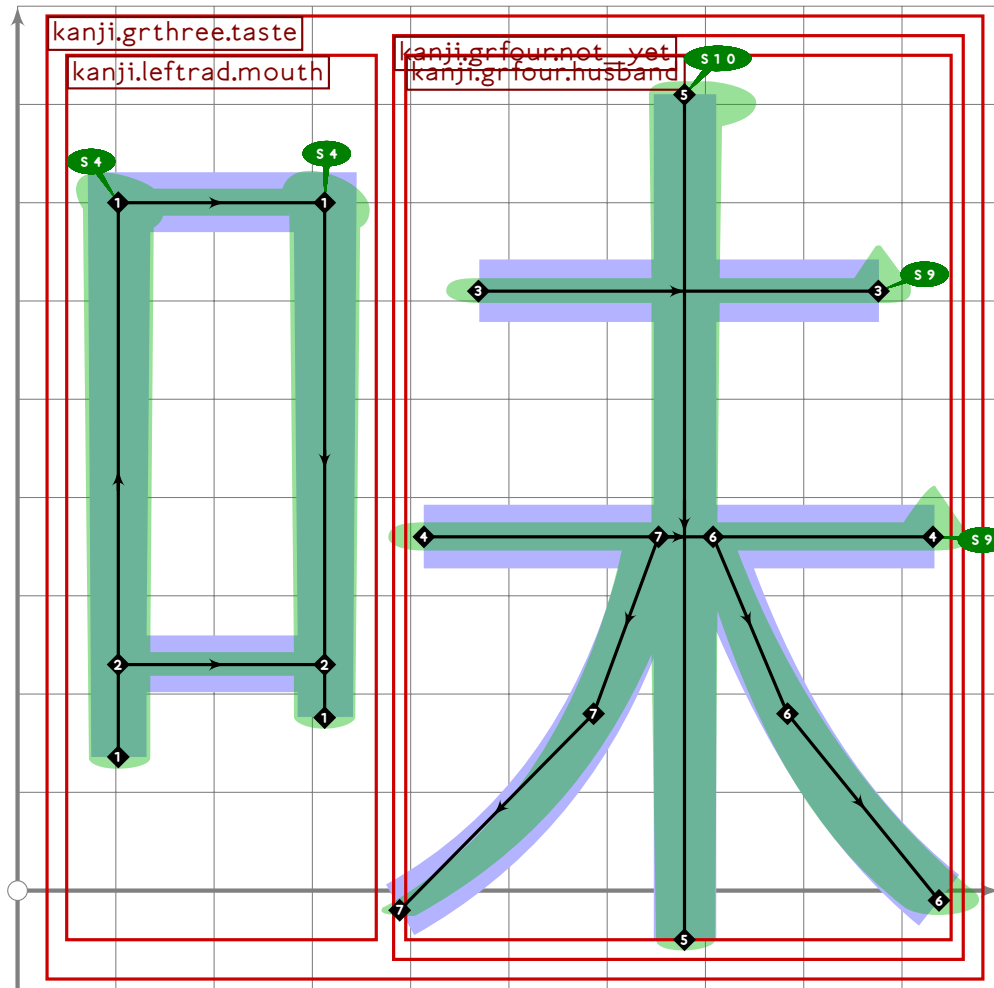
```



```

81
82 vardef kanji.grthree.member =
83   push_pbox_toexpand("kanji.grthree.member");
84   build_kanji.level(build_kanji.tb(620,0)
85     (build_kanji.sscale(xscaled 0.67)(kanji.grone.mouth))
86     (kanji.grone.shell));
87   expand_pbox;
88 enddef;

```

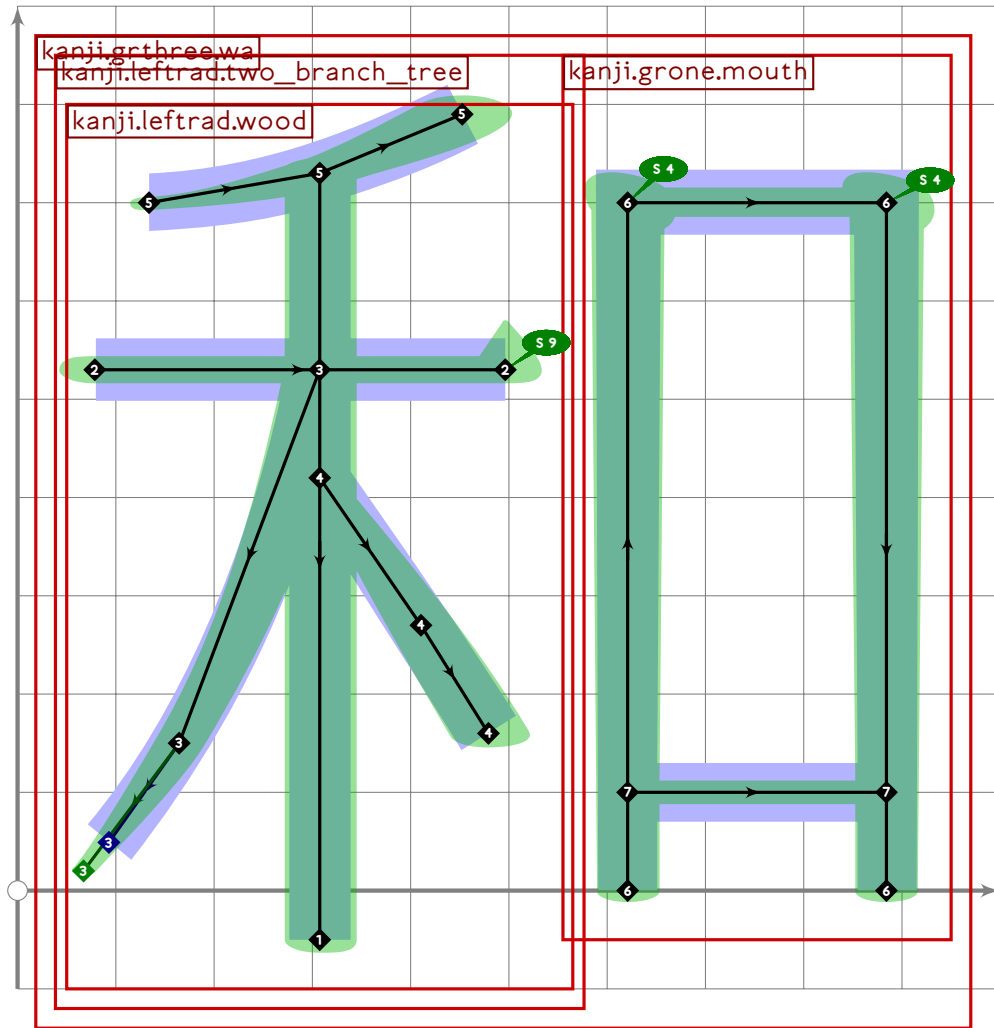


```

89
90 vardef kanji.grthree.taste =
91   push_pbox_toexpand("kanji.grthree.taste");
92   build_kanji.lr(380,-30)
93     (kanji.leftrad.mouth)
94     (kanji.grfour.not_yet);
95   expand_pbox;
96 enddef;

```





```

97
98 vardef kanji.grthree.wa =
99   push_pbox_toexpand("kanji.grthree.wa");
100   build_kanji.lr(560,10)
101     (kanji.leftrad.two_branch_tree)
102     (kanji.grone.mouth);
103   expand_pbox;
104 enddef;

```

105

106

107

108 % kaku/onoono "every"

109 `begintsuglyph("uni5404";4);`

[see page 541]

110 `kanji.grfour.every;`

111 `tsu_render;`

112 `endtsuglyph;`

113

114 % gou/a "meet"

115 `begintsuglyph("uni5408";8);`

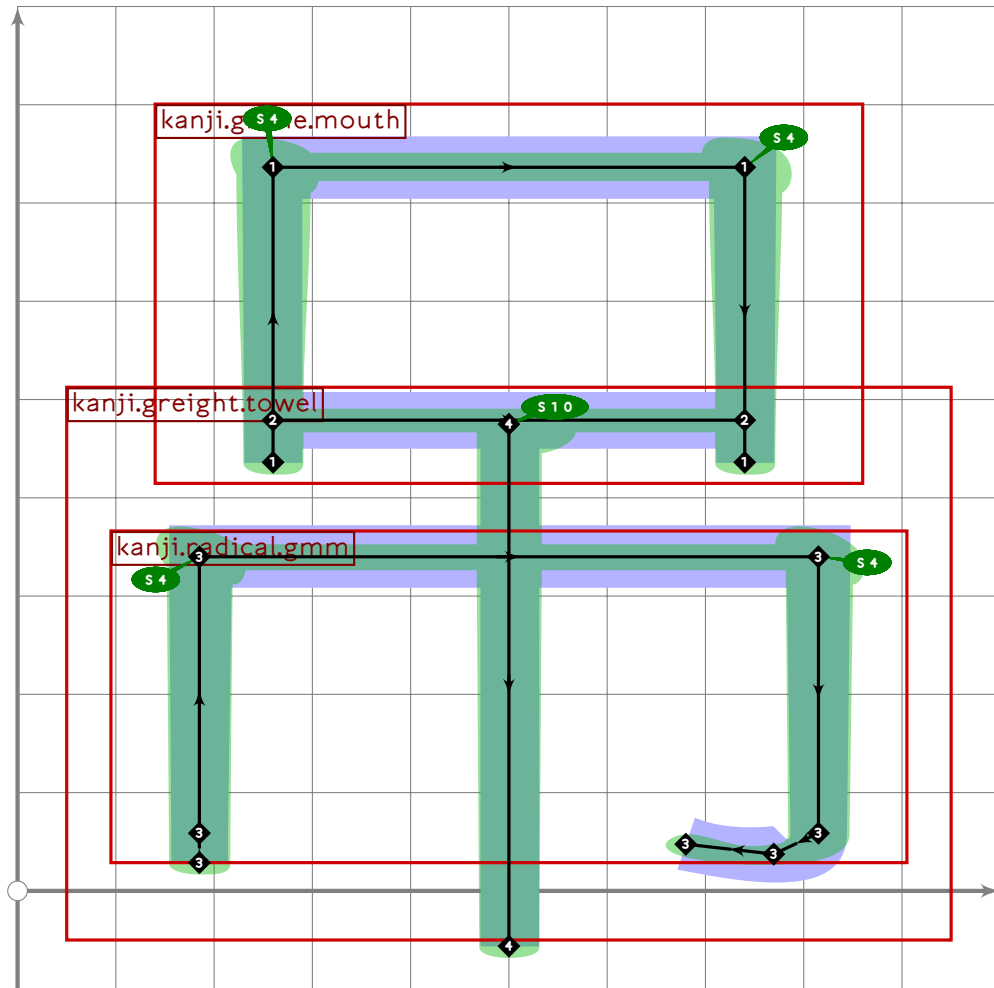
[see page 472]

116 `kanji.grtwo.join;`

```

117 tsu_render;
118 endtsuglyph;
119

```



```

120 % extra chou/tsu "hanging"
121 begintsuglyph("uni540A";10);
122 build_kanji.level(build_kanji.tb(440,145)
123   (build_kanji.sscale(scaled 0.8)(kanji.grone.mouth))
124   (kanji.greight.towel));
125 tsu_render;
126 endtsuglyph;
127
128 % dou/onaji "the same"
129 begintsuglyph("uni540C";12);
130 kanji.grtwo.same;
131 tsu_render;
132 endtsuglyph;
133
134 % na "name"
135 begintsuglyph("uni540D";13);
136 kanji.grone.name;
137 tsu_render;

```

[see page 1632]

[see page 412]

138 endtsuglyph;  
139  
140 % ri "officer"  
141 begintsuglyph("uni540F";15); [see page 581]  
142 kanji.greight.officer;  
143 tsu\_render;  
144 endtsuglyph;  
145  
146 % kou/mu "facing"  
147 begintsuglyph("uni5411";17); [see page 1634]  
148 kanji.grthree.facing;  
149 tsu\_render;  
150 endtsuglyph;  
151  
152 % go/ware "my, mine"  
153 begintsuglyph("uni543E";62); [see page 595]  
154 kanji.grnine.my;  
155 tsu\_render;  
156 endtsuglyph;  
157  
158 % ryo "spine"  
159 begintsuglyph("uni5442";66); [see page 586]  
160 kanji.greight.spine;  
161 tsu\_render;  
162 endtsuglyph;  
163  
164 % koku "revelation"  
165 begintsuglyph("uni544A";74); [see page 552]  
166 kanji.grfour.revelation;  
167 tsu\_render;  
168 endtsuglyph;  
169  
170 % shuu/mawa "circuit"  
171 begintsuglyph("uni5468";104); [see page 537]  
172 kanji.grfour.circuit;  
173 tsu\_render;  
174 endtsuglyph;  
175  
176 % mi/aji "taste"  
177 begintsuglyph("uni5473";115); [see page 1636]  
178 kanji.grthree.taste;  
179 tsu\_render;  
180 endtsuglyph;  
181  
182 % mei/inochi "decree"  
183 begintsuglyph("uni547D";125); [see page 1633]  
184 kanji.grthree.decree;  
185 tsu\_render;

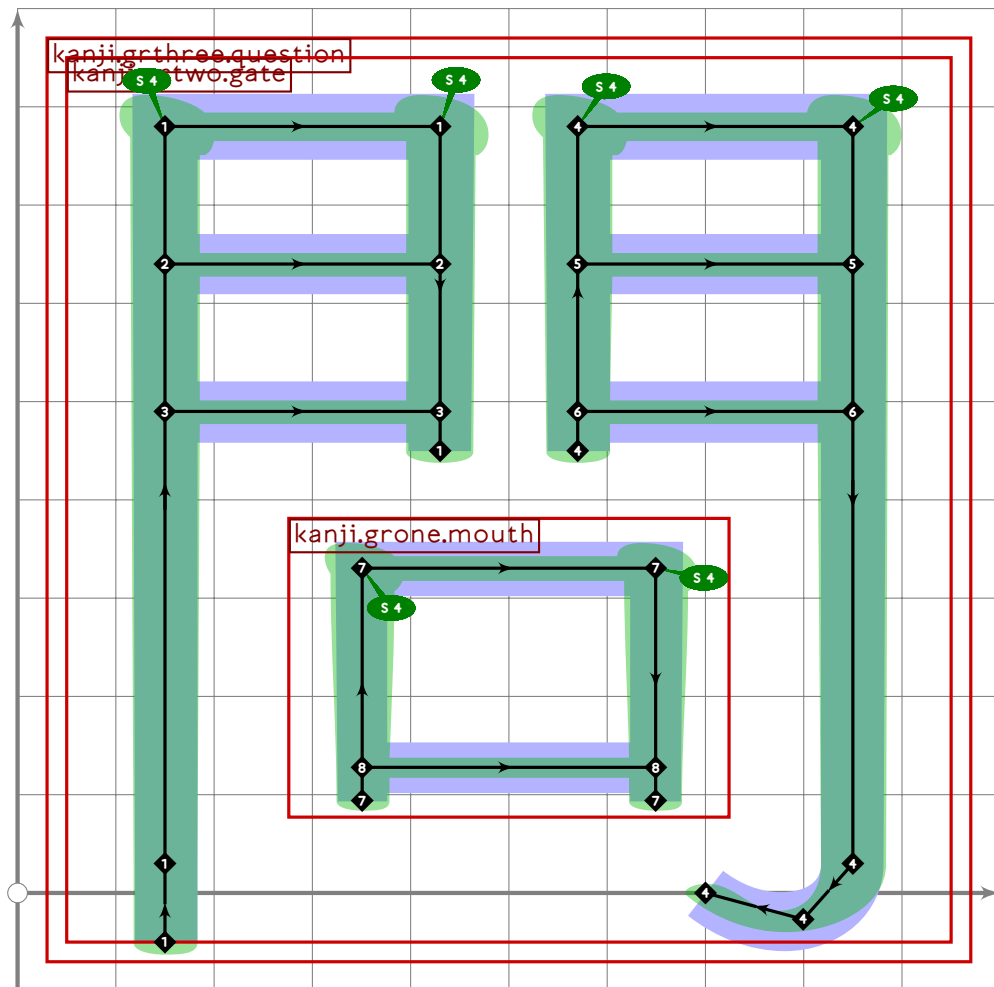
```

186 endtsuglyph;
187
188 % wa/yawa "wa" (supposedly-untranslatable term equated with Japanese spirit)
189 begintsuglyph("uni548C",140); [see page 1637]
190 kanji.grthree.wa;
191 tsu_render;
192 endtsuglyph;
193
194 % hin.shina "goods"
195 begintsuglyph("uni54C1",193); [see page 518]
196 kanji.grthree.goods;
197 tsu_render;
198 endtsuglyph;
199
200 % in "member"
201 begintsuglyph("uni54E1",225); [see page 1635]
202 kanji.grthree.member;
203 tsu_render;
204 endtsuglyph;
205
206 % ka/uta "big brother" (needed for ka/uta "song")
207 begintsuglyph("uni54E5",229); [see page 607]
208 kanji.rare.big_brother;
209 tsu_render;
210 endtsuglyph;
211
212 _____
213
214 endfont;
215
216 _____

```

# tsuku-55.mp

```
1 %  
2 % Unicode page 55 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39  
40 _____
```



```
41  
42 vardef kanji.grthree.question =  
43   push_pbox_toexpand("kanji.grthree.question");
```

```
44 build_kanji.gate_enclose(  
45   build_kanji.sscale(scaled 0.8)(kanji.grone.mouth));  
46   expand_pbox;  
47 enddef;  
48  
49 

---

  
50  
51 % mon/to "question"  
52 begintsuglyph("uni554F";79); [see page 1641]  
53   kanji.grthree.question;  
54   tsu_render;  
55 endtsuglyph;  
56  
57 

---

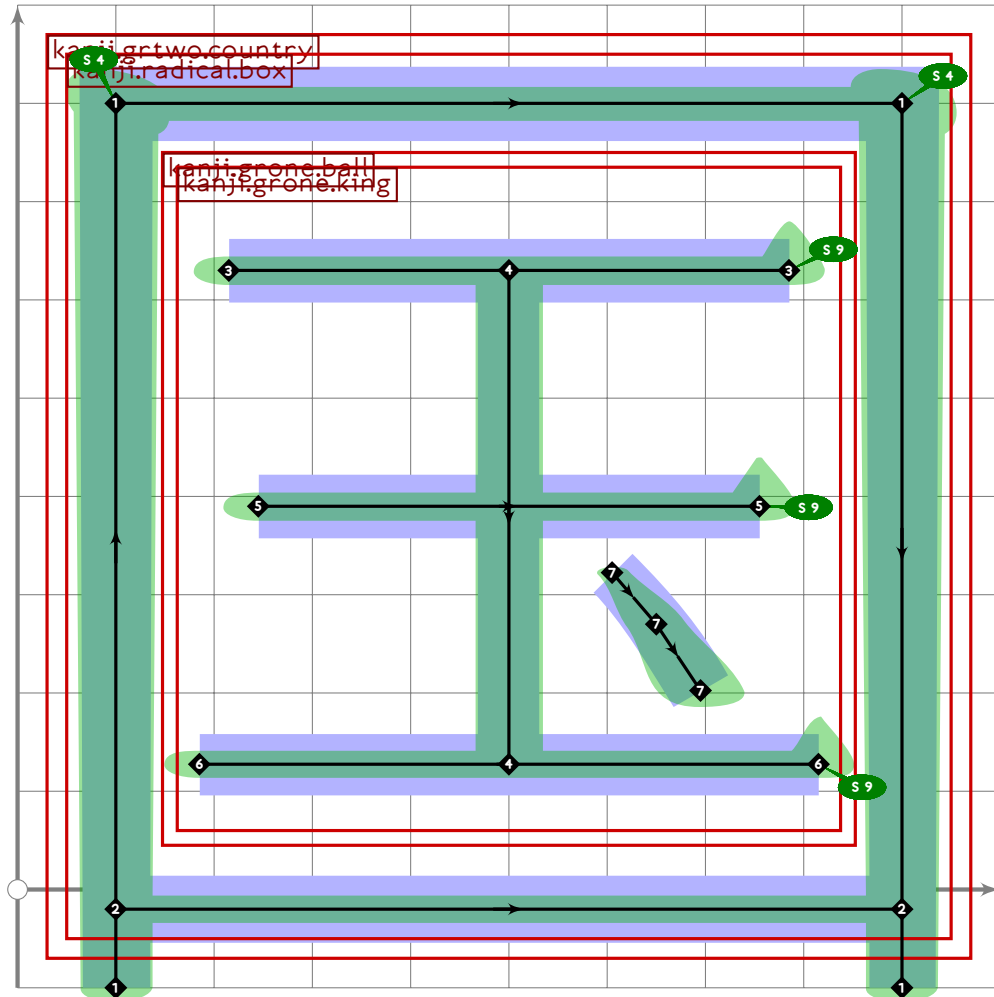
  
58  
59 endfont;  
60  
61 

---


```

# tsuku-56.mp

```
1 %  
2 % Unicode page 56 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradesix.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41  
42 _____
```

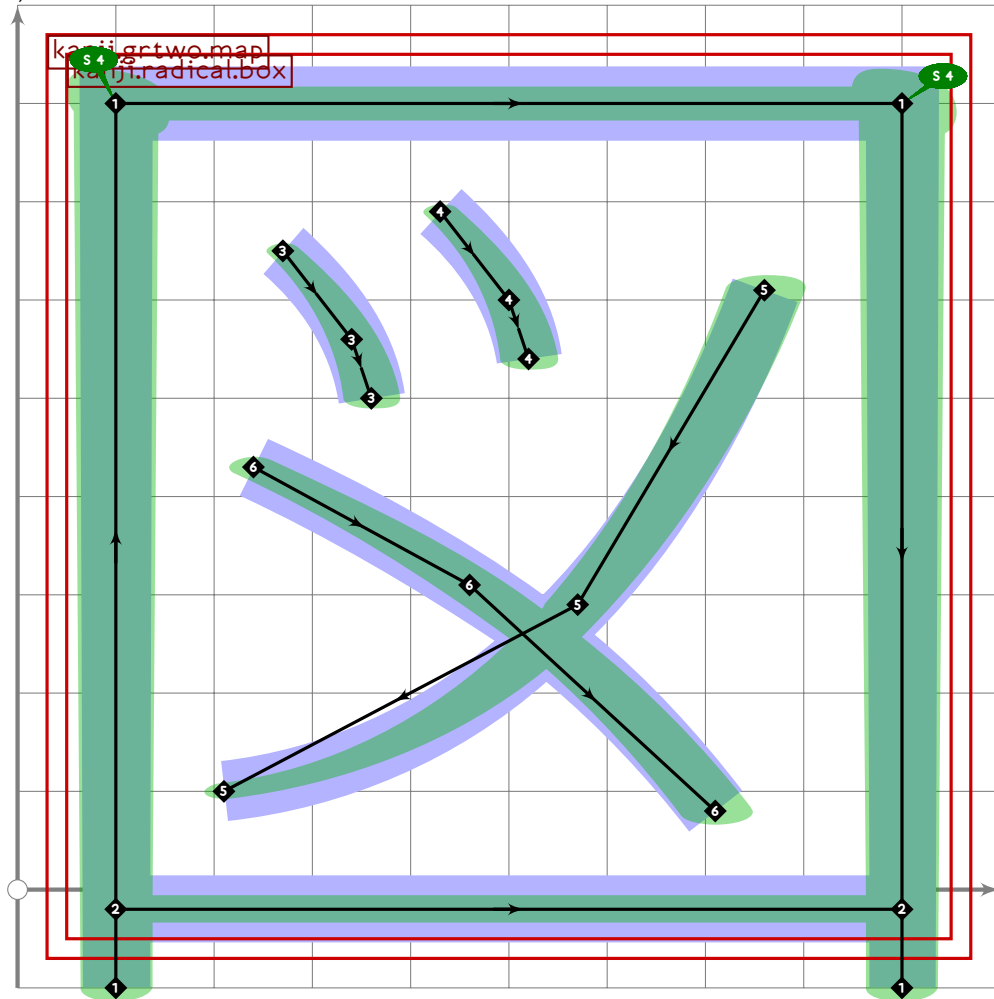


43

```

44 vardef kanji.grtwo.country =
45   push_pbox_toexpand("kanji.grtwo.country");
46   kanji.radical.box;
47   build_kanji.sscale(scaled 0.75)(kanji.grone.ball);
48   expand_pbox;
49 enddef;

```



```

50
51 vardef kanji.grtwo.map =
52   push_pbox_toexpand("kanji.grtwo.map");
53   kanji.radical.box;
54   push_stroke((270,650)..tension 1.2..(340,560)..(360,500),
55     (1,1)-(1.2,1.2)-(1.3,1.3));
56   push_stroke(get_strokep(0) shifted ((430,690)-point 0 of get_strokep(0)),
57     get_strokeq(0));
58   push_stroke((760,610)..tension 1.2..(570,290)..(210,100),
59     (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
60   push_stroke((240,430)..tension 1.2..(460,310)..(710,80),
61     (1.2,1.2)-(1.4,1.4)-(1.5,1.5));
62   expand_pbox;
63 enddef;
64

```



65

66

67 % box radical

68 `begintsuglyph("uni56D7",215);`

[see page 342]

69 `kanji.radical.box;`

70 `tsu_render;`

71 `endtsuglyph;`

72

73 % shi/yon "four"

74 `begintsuglyph("uni56DB",219);`

[see page 399]

75 `kanji.grone.four;`

76 `tsu_render;`

77 `endtsuglyph;`

78

79 % kai "counter for occurrences"

80 `begintsuglyph("uni56DE",222);`

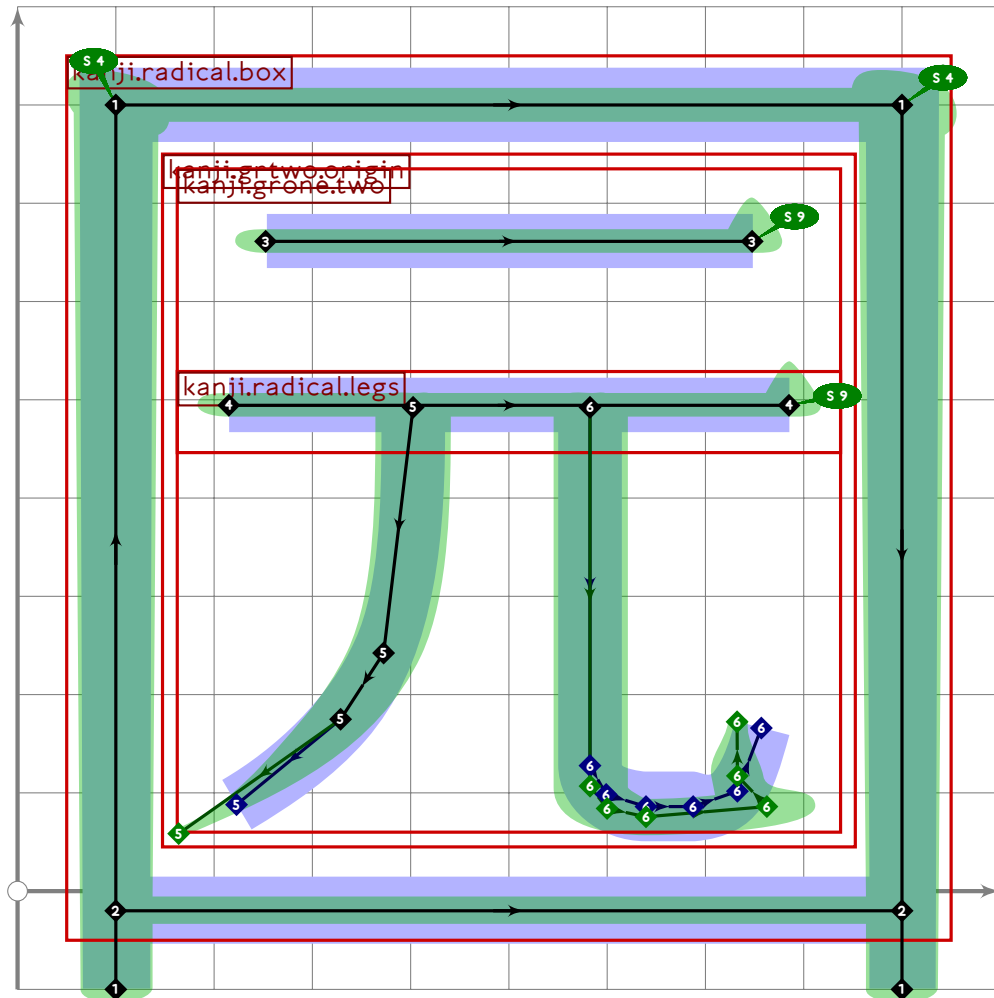
[see page 488]

81 `kanji.grtwo.occurrences;`

82 `tsu_render;`

83 `endtsuglyph;`

84



85 % extra

```
86 begintsuglyph("uni56ED";237);
87   kanji.radical.box;
88   build_kanji.sscale(scaled 0.75)(kanji.grtwo.origin);
89   tsu_render;
90 endtsuglyph;
91
92 % koma "bothered"
93 begintsuglyph("uni56F0";240); [see page 561]
94   kanji.grsix.bothered;
95   tsu_render;
96 endtsuglyph;
97
98 % zu/haka "map"
99 begintsuglyph("uni56F3";243); [see page 1644]
100   kanji.grtwo.map;
101   tsu_render;
102 endtsuglyph;
103
104 % koku/kuni "country"
105 begintsuglyph("uni56FD";253); [see page 1644]
106   kanji.grtwo.country;
107   tsu_render;
108 endtsuglyph;
109
110 _____
111
112 endfont;
113
114 _____
```

# tsuku-57.mp

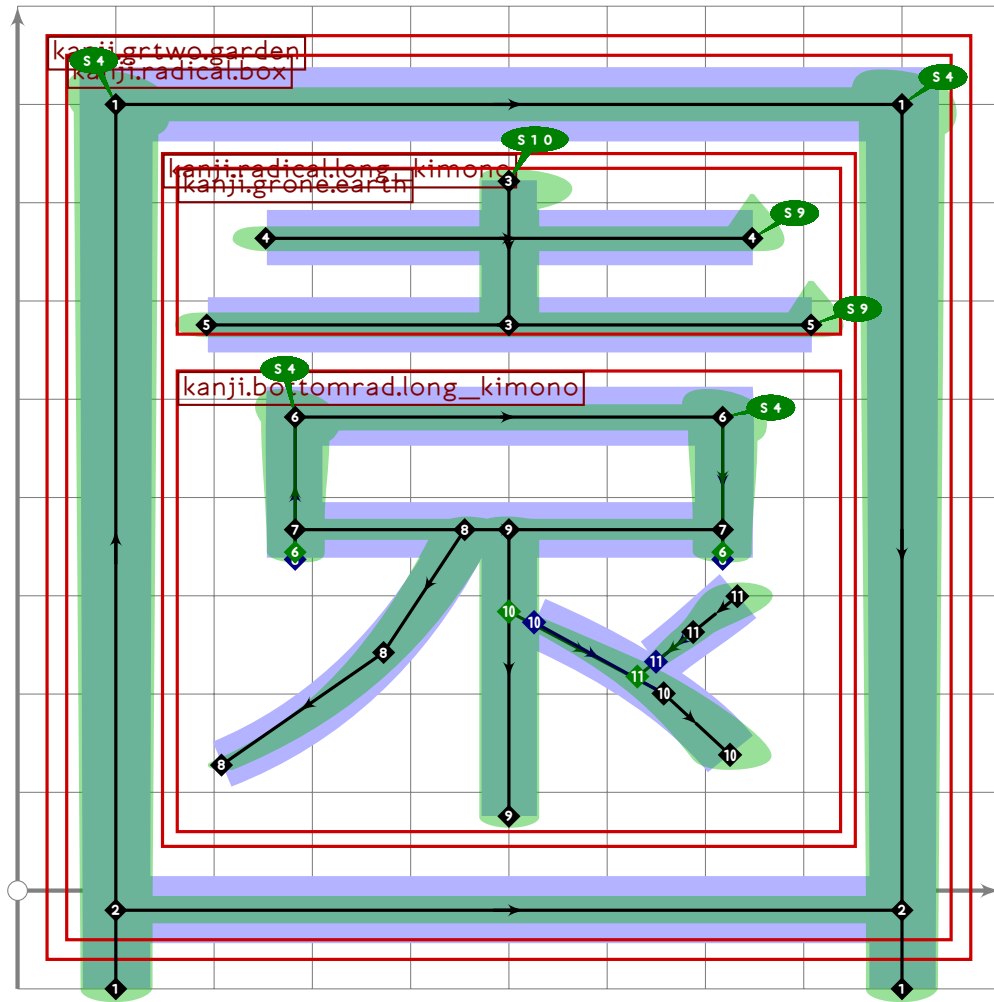
```
1 %
2 % Unicode page 57 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradethree.mp;
42 input leftrad.mp;
43 input radical.mp;
44 input rare.mp;
45
46 

---

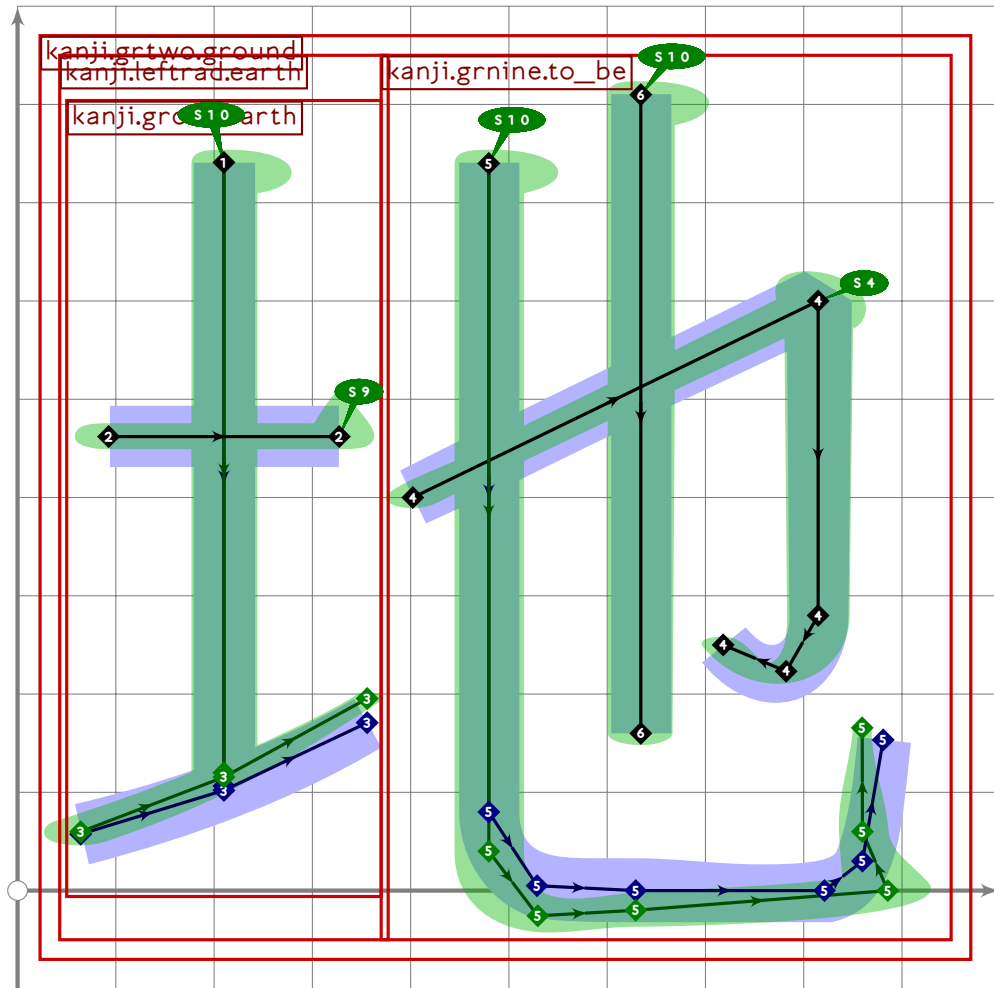

```



```

47
48 vardef kanji.grtwo.garden =
49   push_pbox_toexpand("kanji.grtwo.garden");
50   kanji.radical.box;
51   build_kanji.sscale(scaled 0.75)
52     (kanji.radical.long_kimono);
53   expand_pbox;
54 enddef;

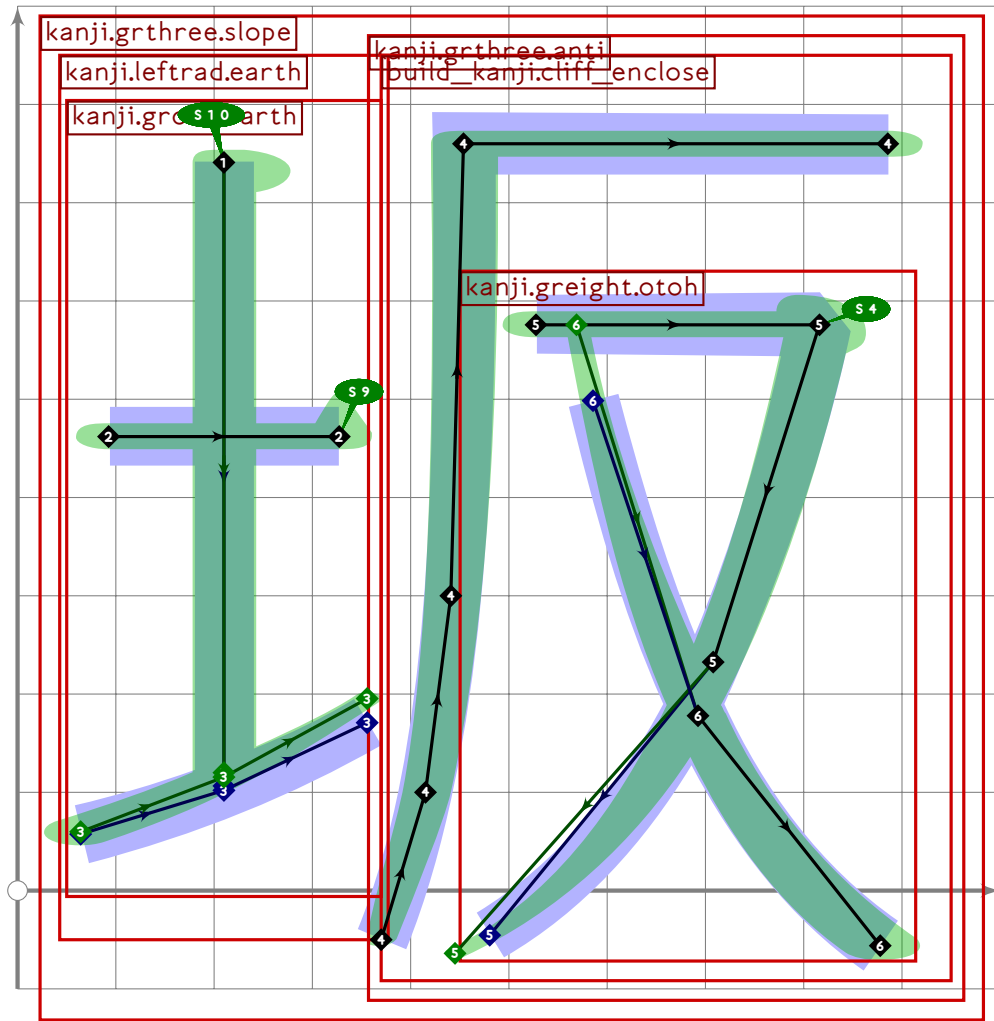
```



```

55
56 vardef kanji.grtwo.ground =
57   push_pbox_toexpand("kanji.grtwo.ground");
58   build_kanji.level(build_kanji.lr(370,0)
59     (kanji.leftrad.earth)
60     (kanji.grnine.to_be));
61   expand_pbox;
62 enddef;
63
64

```



```

65
66 vardef kanji.grthree.slope =
67   push_pbox_toexpand("kanji.grthree.slope");
68   build_kanji.level(build_kanji.lr(370,0)
69     (kanji.leftrad.earth)
70     (kanji.grthree.anti));
71   expand_pbox;
72 enddef;

```

```

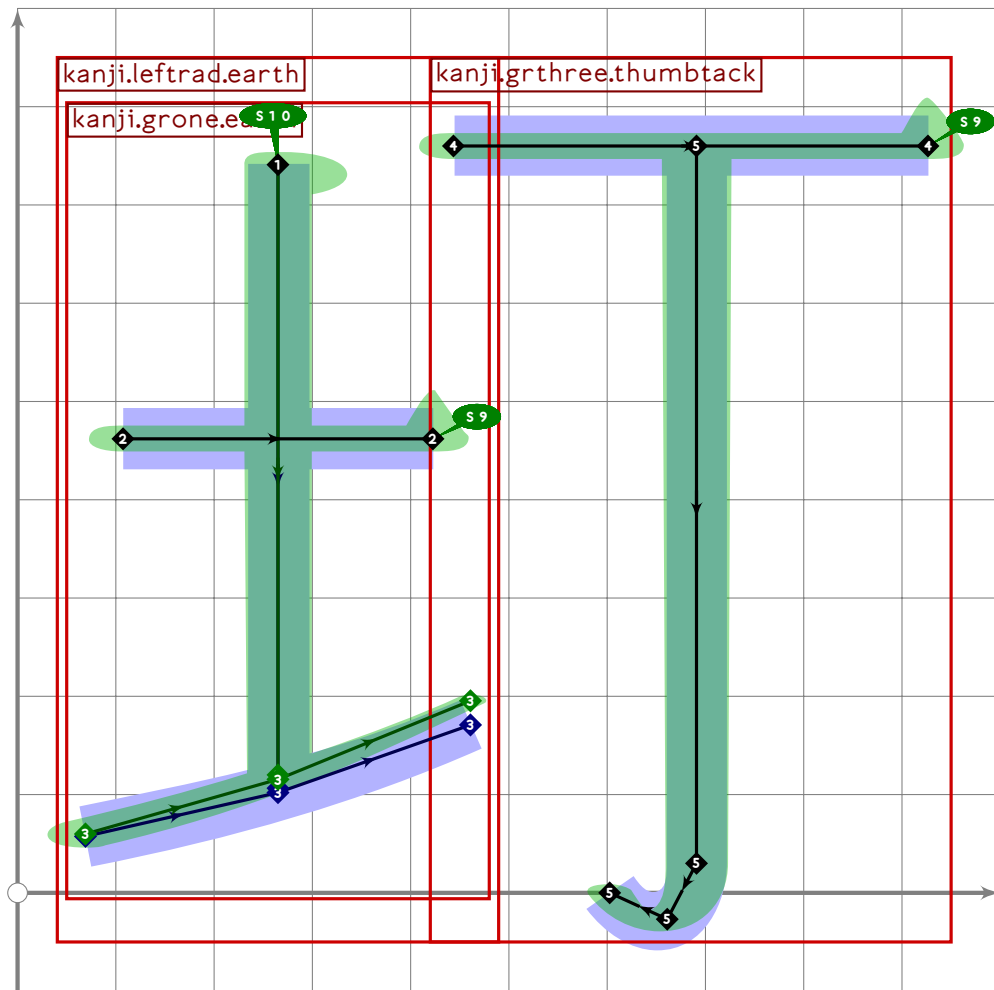
73
74
75
76 % en/zono "garden"
77 begintsuglyph("uni5712";18); [see page 1648]
78   kanji.grtwo.garden;
79   tsu_render;
80 endsuglyph;
81
82 % tsuchi/do "earth"
83 begintsuglyph("uni571F";31); [see page 392]
84   kanji.grone.earth;

```

```

85 tsu_render;
86 endtsuglyph;
87

```



```

88 % extra
89 begintsuglyph("uni5722";34);
90 build_kanji.level(build_kanji.lr(450,60)
91   (kanji.leftrad.earth)
92   (kanji.grthree.thumbtack));
93 tsu_render;
94 endtsuglyph;
95
96 % extra: "sacred"
97 begintsuglyph("uni5723";35);
98 kanji.rare.sacred;
99 tsu_render;
100 endtsuglyph;
101
102 % kei/ka "square jewel"
103 begintsuglyph("uni572D";45);
104 kanji.grnine.square_jewel;
105 tsu_render;

```

[see page 617]

[see page 600]

```
106 endtsuglyph;
107
108 % chi/ji "ground"
109 begintsuglyph("uni5730";48); [see page 1649]
110 kanji.grtwo.ground;
111 tsu_render;
112 endtsuglyph;
113
114 % han/saka "slope"
115 begintsuglyph("uni5742";66); [see page 1650]
116 kanji.grthree.slope;
117 tsu_render;
118 endtsuglyph;
119
120 

---


121
122 endfont;
123
124 

---


```



# tsuku-58.mp

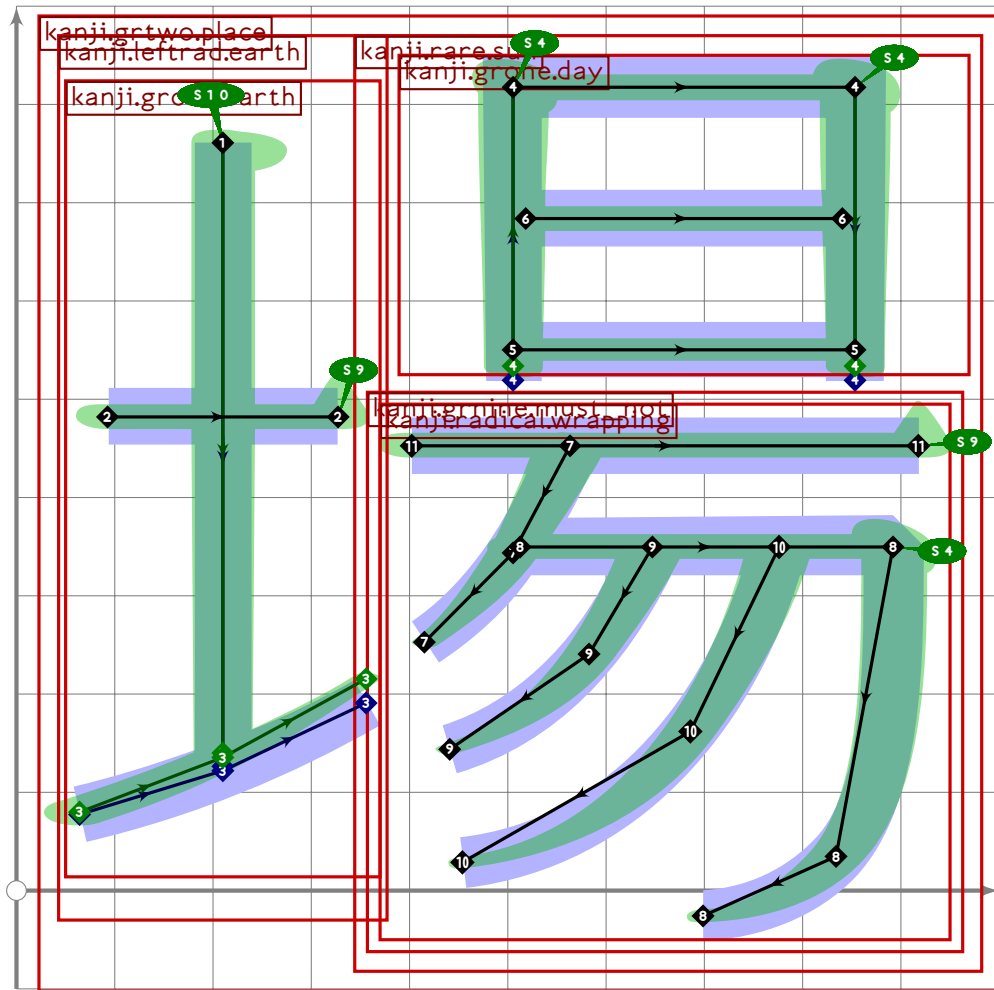
```
1 %
2 % Unicode page 58 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44
45 

---

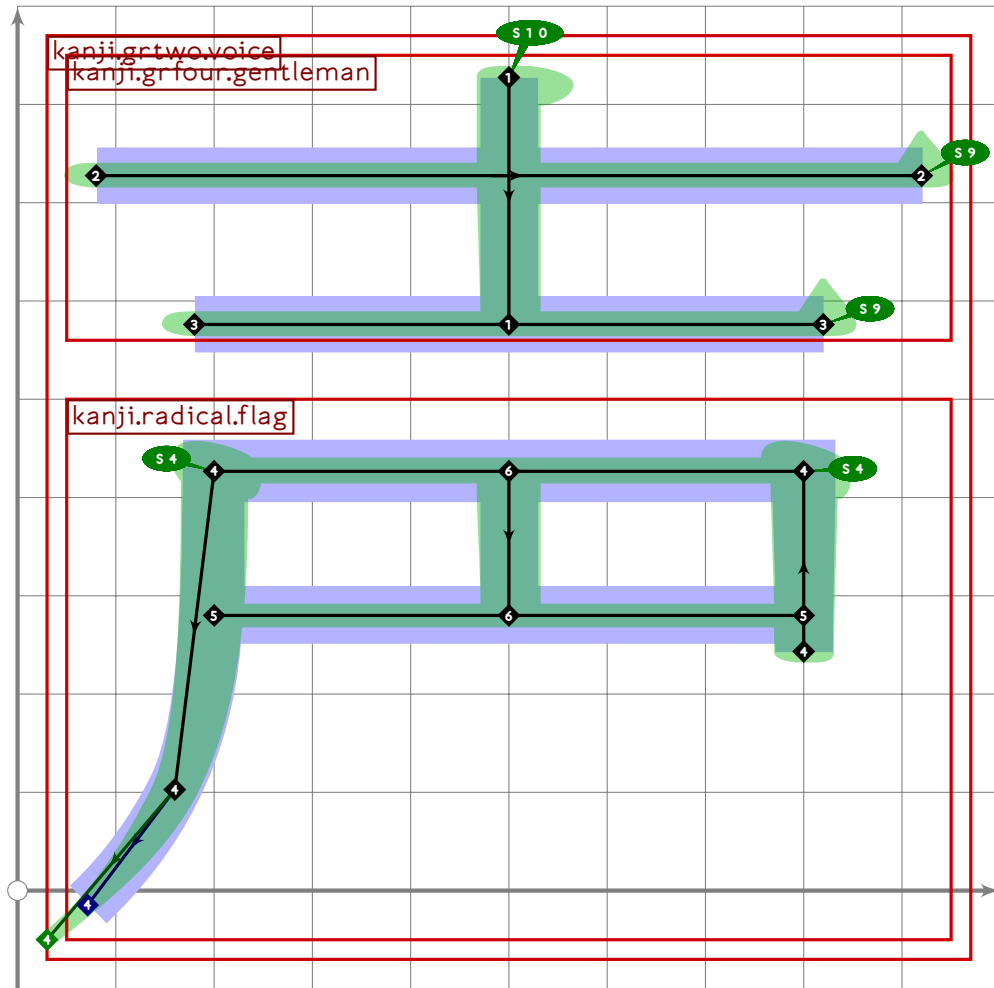

```



```

46
47 vardef kanji.grtwo.place =
48   push_pbox_toexpand("kanji.grtwo.place");
49   build_kanji.level(build_kanji.lr(370,0)
50     (tsu_xform(identity shifted (0,20))(kanji.leftrad.earth))
51     (kanji.rare.sun));
52   expand_pbox;
53 enddef;

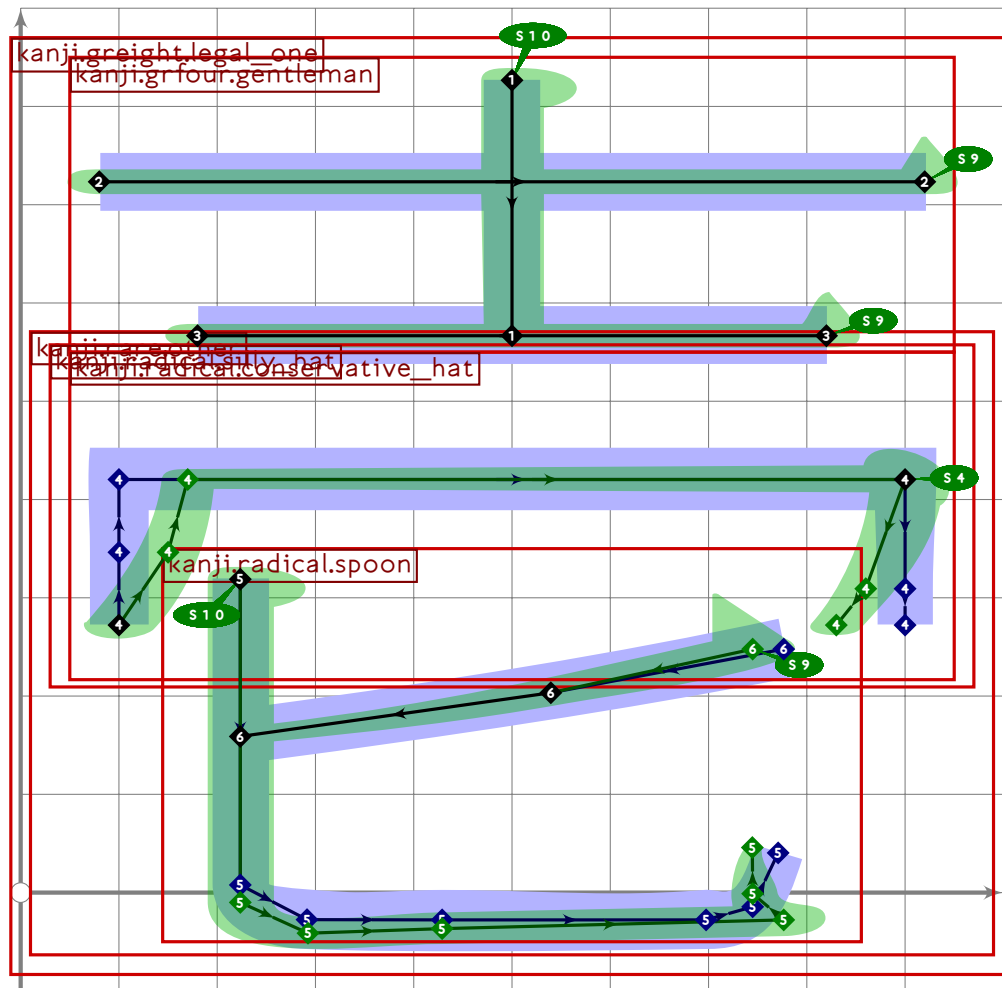
```



```

54
55 vardef kanji.grtwo.voice =
56   push_pbox_toexpand("kanji.grtwo.voice");
57   build_kanji.tb(530,-60)
58     (kanji.grfour.gentleman)
59     (kanji.radical.flag;
60       push_stroke((500,730)-(500,490),(1.5,1.5)-(1.4,1.4)));
61   expand_pbox;
62 enddef;
63
64

```



```

65
66 vardef kanji.greight.legal_one =
67   push_pbox_toexpand("kanji.greight.legal_one");
68   build_kanji.level(build_kanji.tb(550,0)
69     (kanji.grfour.gentleman)
70     (kanji.rare.other;
71       set_bosize(-3,0)));
72   expand_pbox;
73 enddef;
74
75
76
77 % shou/ba "place"
78 beginsuglyph("uni5834";52);
79   kanji.grtwo.place;
80   tsu_render;
81 endsuglyph;
82
83 % shi "gentleman" ("samurai" radical)
84 beginsuglyph("uni58EB";235);
85   kanji.grfour.gentleman;

```

[see page 1654]

[see page 544]

```
86  tsu_render;
87  endtsuglyph;
88
89  % ichi/hitotsu "one" (formal, also first musical scale degree)
90  begintsuglyph("uni58F1";241); [see page 1656]
91  kanji.greight.legal_one;
92  tsu_render;
93  endtsuglyph;
94
95  % sei/koe "voice"
96  begintsuglyph("uni58F0";240); [see page 1655]
97  kanji.grtwo.voice;
98  tsu_render;
99  endtsuglyph;
100
101  % bai/u "sell"
102  begintsuglyph("uni58F2";242); [see page 497]
103  kanji.grtwo.sell;
104  tsu_render;
105  endtsuglyph;
106
107  _____
108
109  endfont;
110
111  _____
```

# tsuku-59.mp

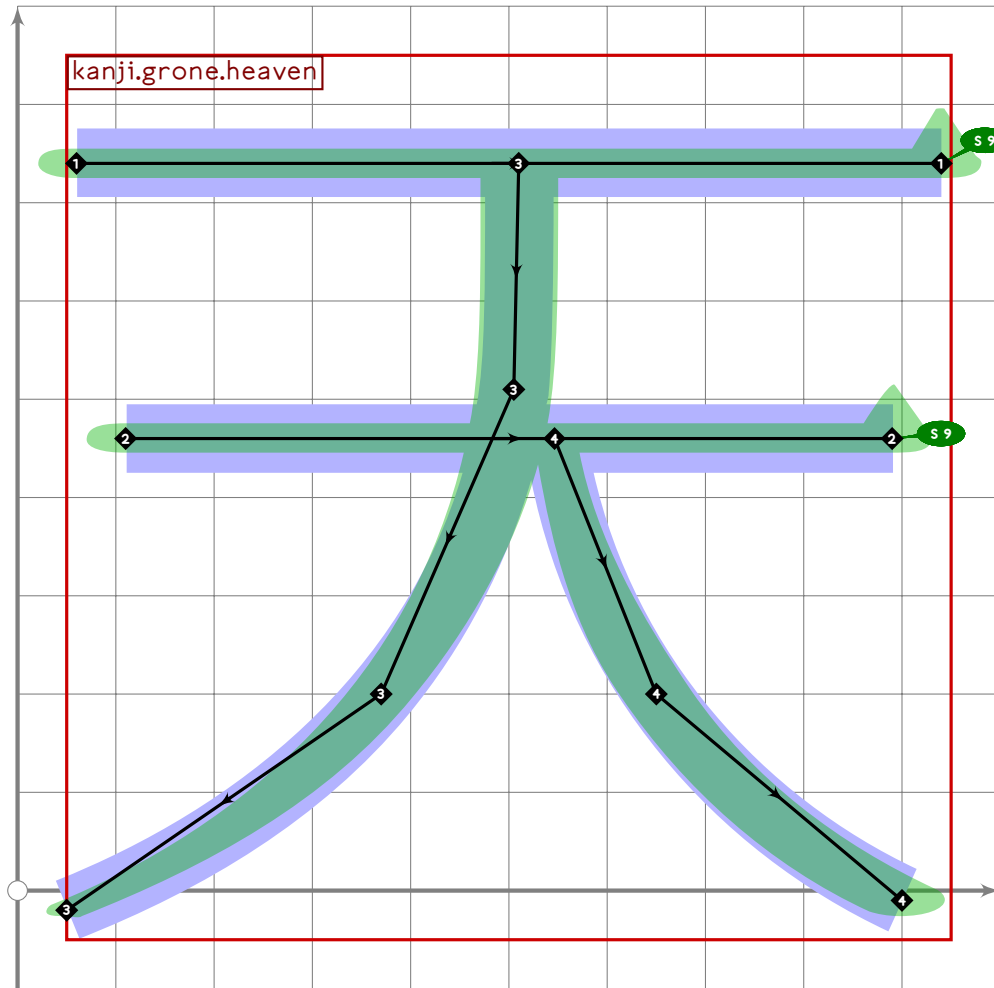
```
1 %
2 % Unicode page 59 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46
47 

---

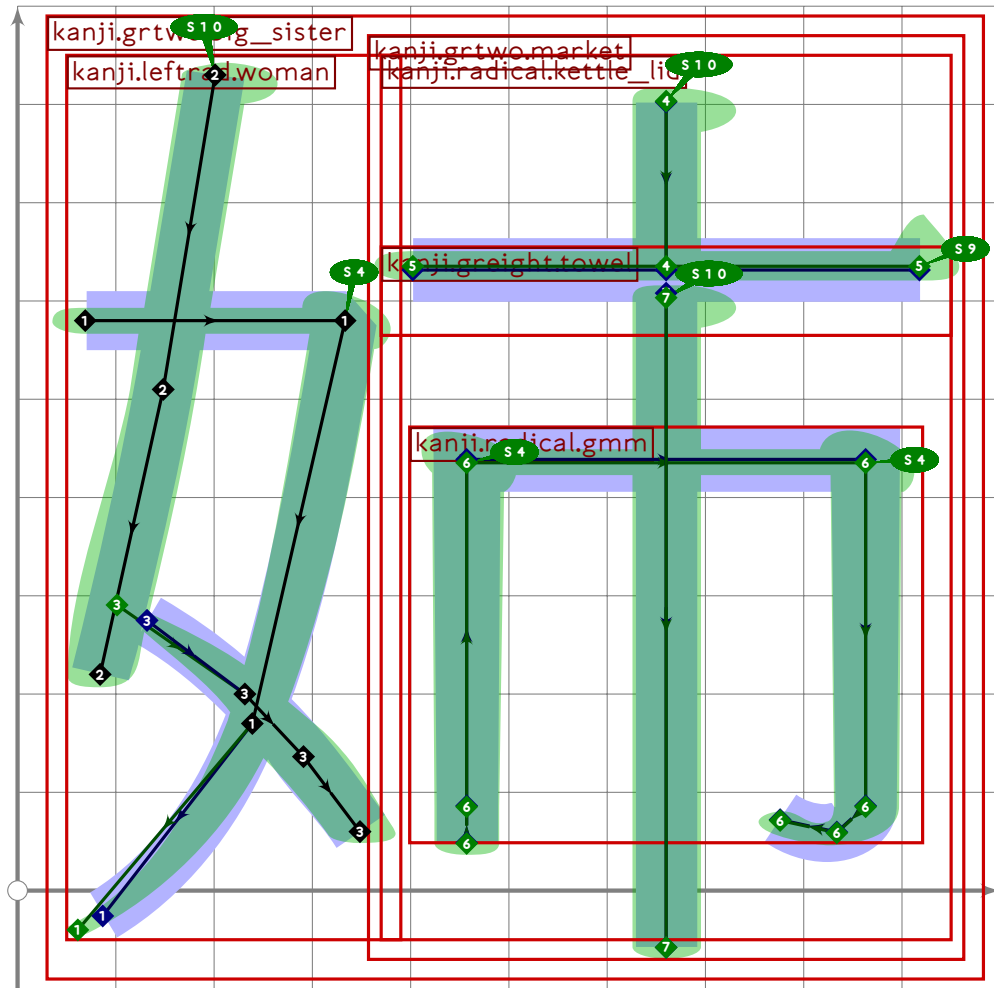

```



```

48
49 vardef kanji.grone.heaven =
50   push_pbox_toexpand("kanji.grone.heaven");
51   push_stroke((60,740)-(940,740),(1.6,1.6)-(1.6,1.6));
52   set_boserif(0,1,9);
53   push_stroke((110,460)-(890,460),(1.6,1.6)-(1.6,1.6));
54   set_boserif(0,1,9);
55   push_stroke((510,740){down}{.}(505,510)..(370,200)..{curl 0.5}{(50,-20),
56     (1.6,1.6)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
57   push_stroke(((get_strokep(-1) intersectionpoint get_strokep(0))+(50,0)..
58     (650,200)..(900,-10),
59     (1.1,1.1)-(1.5,1.5)-(1.7,1.7));
60   expand_pbox;
61 enddef;
62
63

```

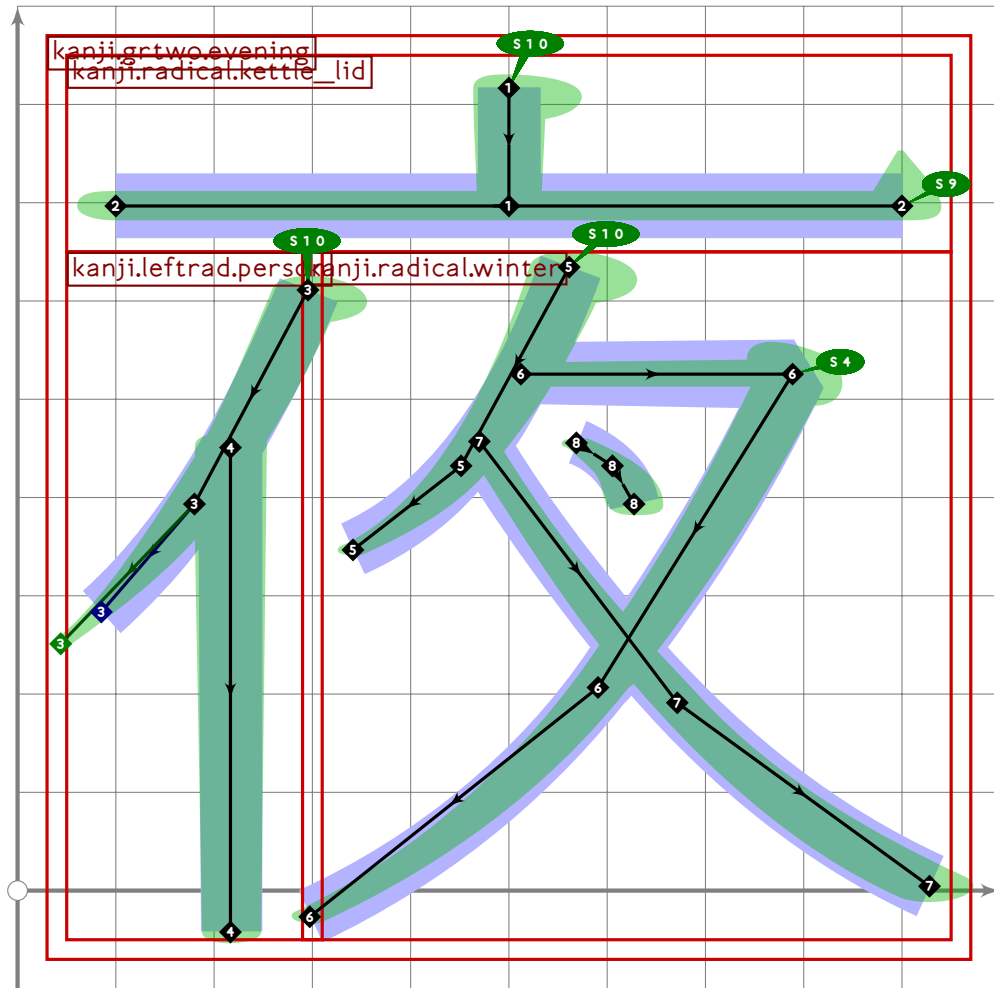


```

64
65 vardef kanji.grtwo.big_sister =
66   push_pbox_toexpand("kanji.grtwo.big_sister");
67   build_kanji.lr(380,20)
68     (kanji.leftrad.woman)
69     (kanji.grtwo.market);
70   expand_pbox;
71 enddef;

```

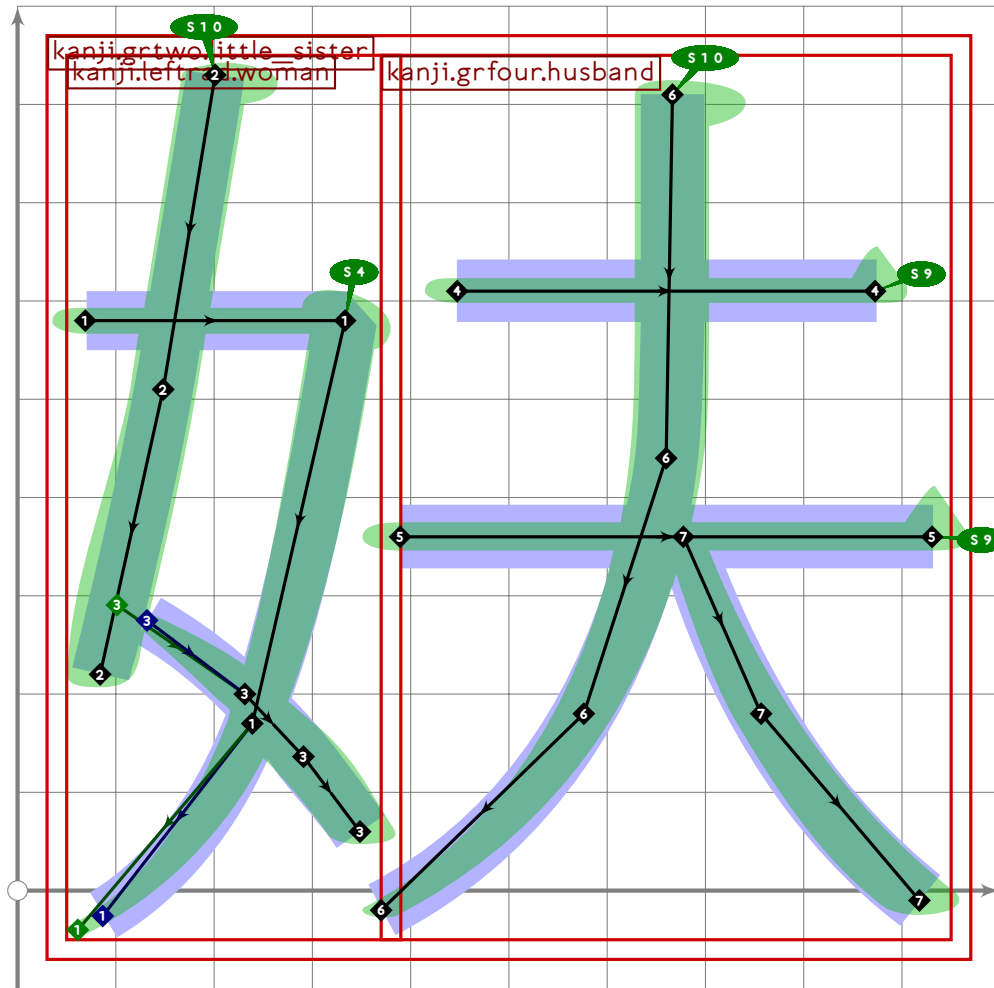




```

72
73 vardef kanji.grtwo.evening =
74   push_pbox_toexpand("kanji.grtwo.evening");
75   build_kanji.level(build_kanji.tb(650,0)
76     (kanji.radical.kettle_lid)
77     (build_kanji.lr(300,20)
78       (kanji.leftrad.person)
79       (kanji.radical.winter;
80         push_stroke(
81           (430,600)..tension 1.2..(480,570)..(510,520),
82           (1,1,1)-(1,4,1)-(1,6,1.6)))));
83   set_bosize(0,73);
84   expand_pbox;
85 enddef;

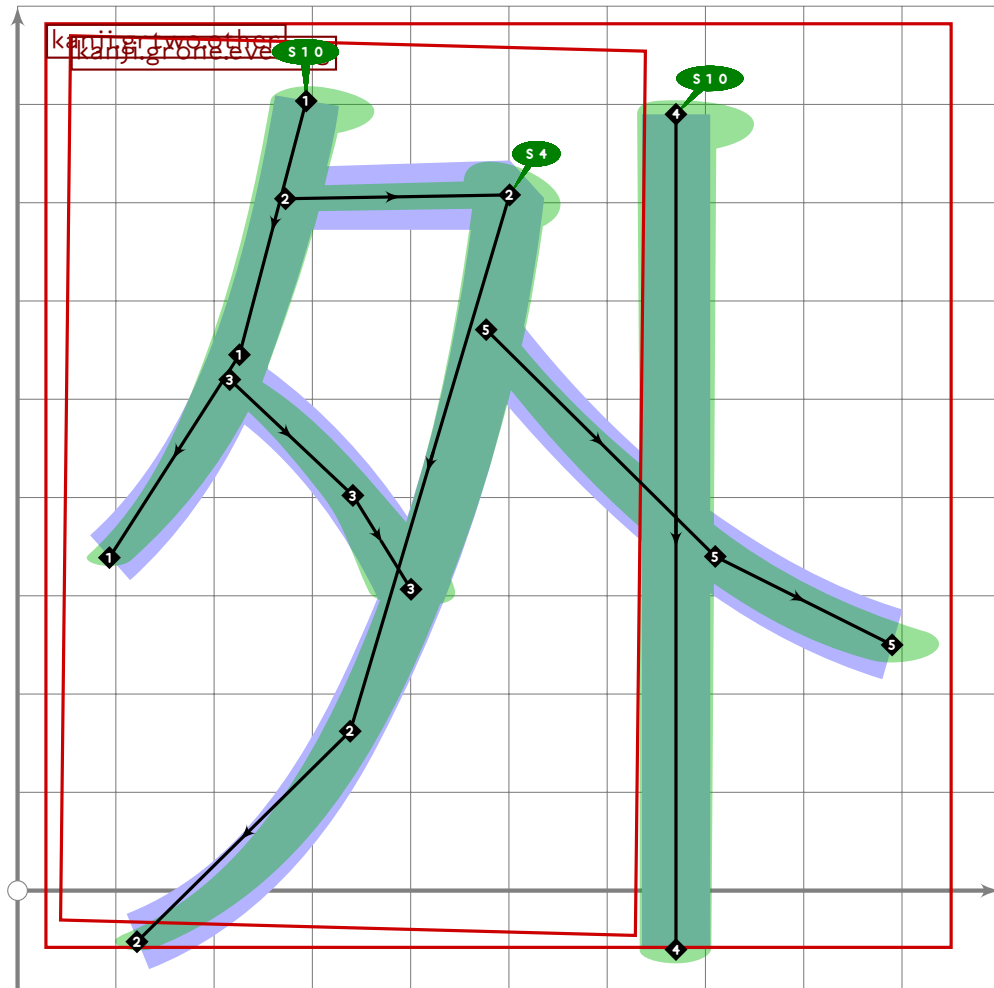
```



```

86
87 vardef kanji.grtwo.little_sister =
88   push_pbox_toexpand("kanji.grtwo.little_sister");
89   build_kanji.lr(380,20)
90     (kanji.leftrad.woman)
91     (kanji.grfour.husband);
92   expand_pbox;
93 enddef;

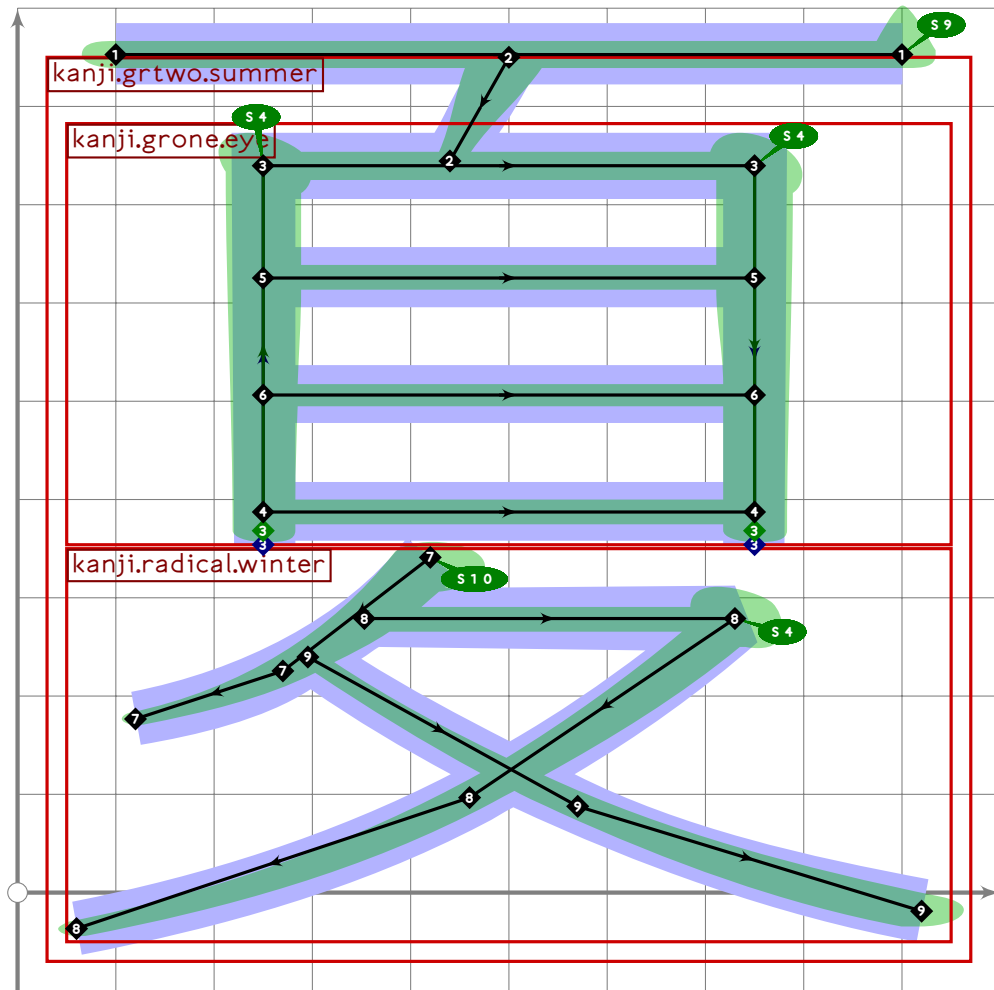
```



```

94
95 vardef kanji.grtwo.other =
96   push_pbox_toexpand("kanji.grtwo.other");
97   tsu_xform(identity shifted (-50,-500) rotated -1 xscaled 0.65
98     shifted (50,520))
99   (kanji.grone.evening);
100  push_stroke((670,790)..(670,-60),
101    (1.6,1.6)-(1.5,1.5));
102  set_boserif(0,0,10);
103  push_stroke(
104    (point 1.25 of get_strokep(-2))..tension 1.2..(710,340)..(890,250),
105    (1.1,1.1)-(1.5,1.5)-(1.8,1.8));
106  expand_pbox;
107 enddef;

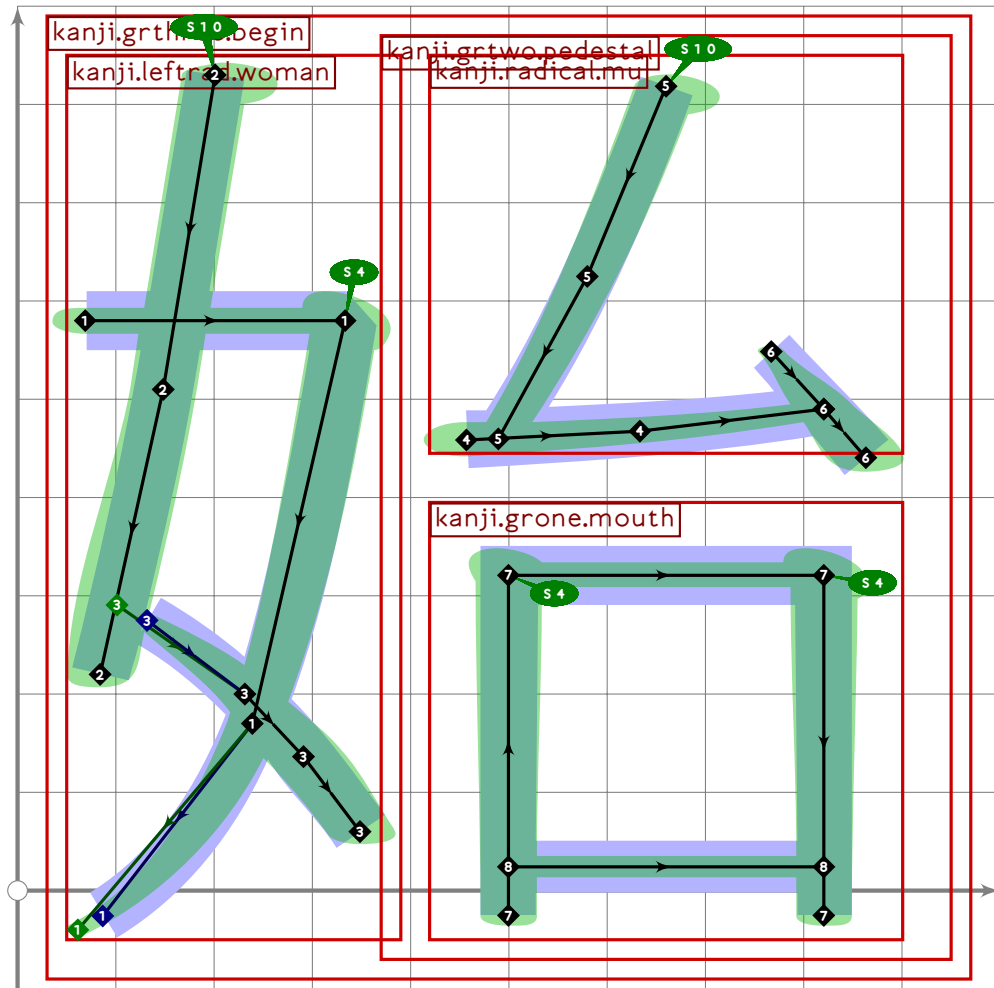
```



```

108
109 vardef kanji.grtwo.summer =
110   push_pbox_toexpand("kanji.grtwo.summer");
111   build_kanji.level(build_kanji.tb(350,0)
112     (push_stroke((100,855)-(900,855),(1.6,1.6));
113       set_boserif(0,1,9);
114       push_stroke((500,850)-(440,660),(1.7,1.7)-(1,1));
115       tsu_xform(identity yscaled (660/770))(kanji.grone.ey))
116     (kanji.radical.winter));
117   expand_pbox;
118 enddef;
119
120

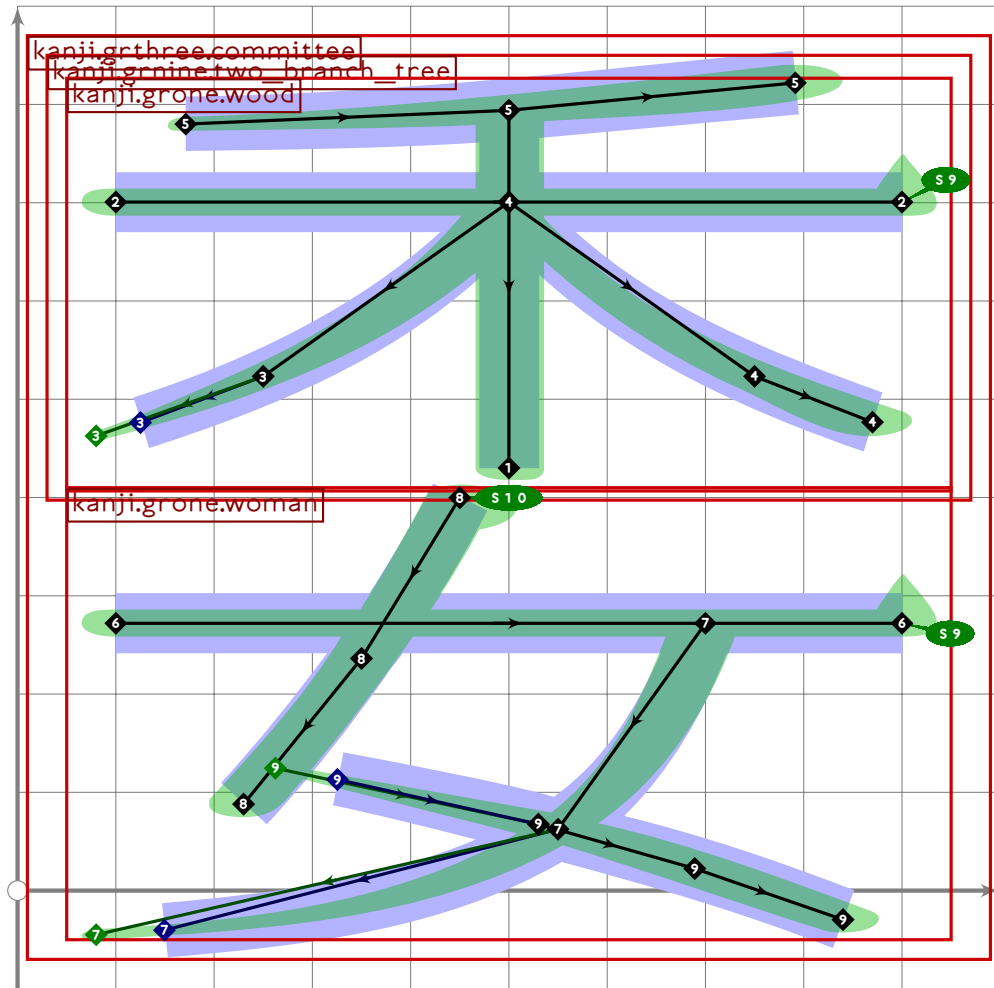
```



```

121
122 vardef kanji.grthree.begin =
123   push_pbox_toexpand("kanji.grthree.begin");
124   build_kanji.lr(380,20)
125     (kanji.leftrad.woman)
126     (kanji.grtwo.pedestal);
127   expand_pbox;
128 enddef;

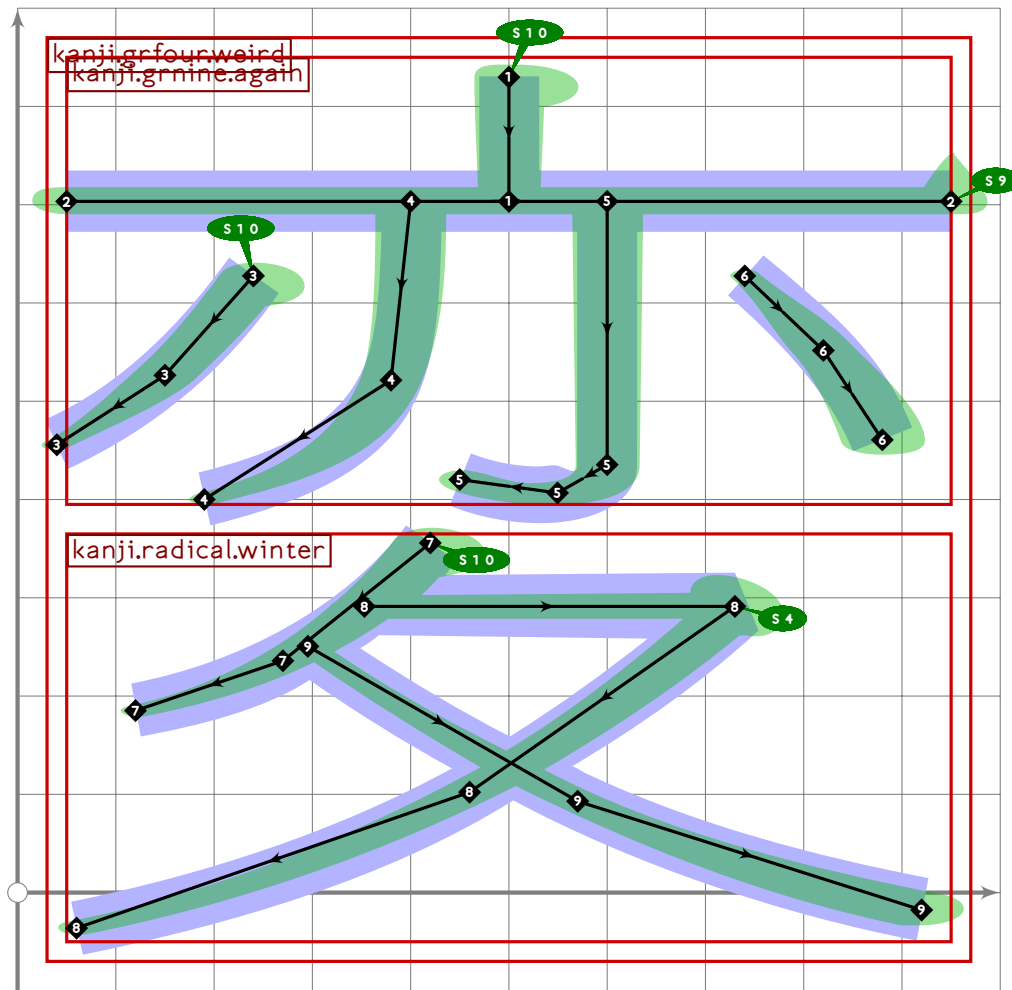
```



```

129
130 vardef kanji.grthree.committee =
131   push_pbox_toexpand("kanji.grthree.committee");
132   build_kanji.tb(420,-20)
133     (kanji.grnine.two_branch_tree)
134     (kanji.grone.woman);
135   expand_pbox;
136 enddef;
137
138

```



```

139
140 vardef kanji.grfour.weird =
141   push_pbox_toexpand("kanji.grfour.weird");
142   build_kanji.level(build_kanji.tb(380;30)
143     (kanji.grnine.again)
144     (kanji.radical.winter));
145   expand_pbox;
146 enddef;
147
148
149
150 % chi/shuu "winter radical"
151 begintsuglyph("uni5902;2);
152   kanji.radical.winter;
153   tsu_render;
154 endtsuglyph;
155
156 % hen/ka "weird"
157 begintsuglyph("uni5909;9);
158   kanji.grfour.weird;
159   tsu_render;

```

[see page 370]

[see page 1667]

```

160 endtsuglyph;
161
162 % ka/natsu "summer"
163 begintsuglyph("uni590F",15); [see page 1664]
164 kanji.grtwo.summer;
165 tsu_render;
166 endtsuglyph;
167
168 % yuu/seki "evening"
169 begintsuglyph("uni5915",21); [see page 394]
170 kanji.grone.evening;
171 tsu_render;
172 endtsuglyph;
173
174 % gai/hoka "except"
175 begintsuglyph("uni5916",22); [see page 1663]
176 kanji.grtwo.other;
177 tsu_render;
178 endtsuglyph;
179
180 % ta/oo "many"
181 begintsuglyph("uni591A",26); [see page 476]
182 kanji.grtwo.many;
183 tsu_render;
184 endtsuglyph;
185
186 % ya/yoru "evening"
187 begintsuglyph("uni591C",28); [see page 1661]
188 kanji.grtwo.evening;
189 tsu_render;
190 endtsuglyph;
191
192 % dai/oo "big"
193 begintsuglyph("uni5927",39); [see page 380]
194 kanji.grone.big;
195 tsu_render;
196 endtsuglyph;
197
198 % ten "heaven"
199 begintsuglyph("uni5929",41); [see page 1659]
200 kanji.grone.heaven;
201 tsu_render;
202 endtsuglyph;
203
204 % tai/futo "thick"
205 begintsuglyph("uni592A",42); [see page 501]
206 kanji.grtwo.thick;
207 tsu_render;

```

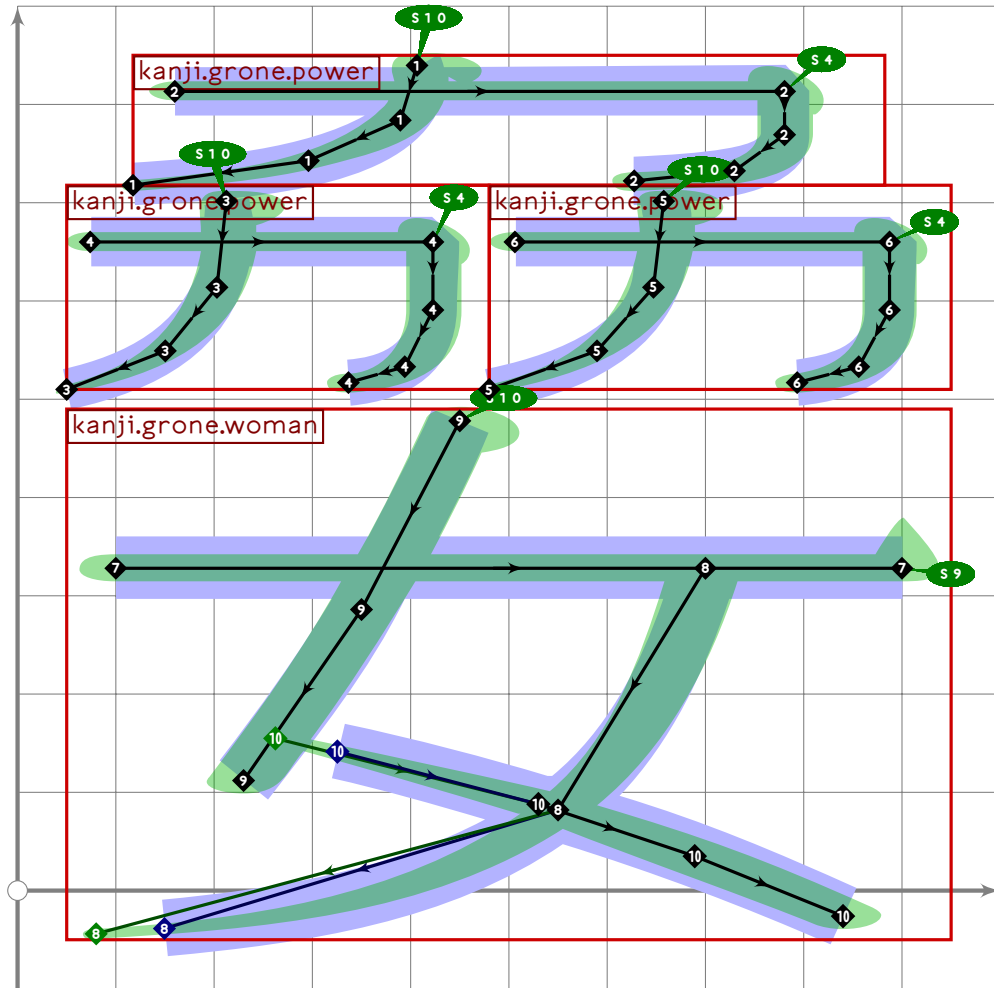


```

208 endtsuglyph;
209
210 % fu/otto "husband"
211 begintsuglyph("uni592B";43); [see page 546]
212 kanji.grfour.husband;
213 tsu_render;
214 endtsuglyph;
215
216 % rare, but needed to build more common glyphs
217 begintsuglyph("uni592C";44); [see page 609]
218 kanji.rare.decide;
219 tsu_render;
220 endtsuglyph;
221
222 % rare, but needed to build more common glyphs
223 begintsuglyph("uni592D";45); [see page 610]
224 kanji.rare.early_death;
225 tsu_render;
226 endtsuglyph;
227
228 % ou "centre"
229 begintsuglyph("uni592E";46); [see page 511]
230 kanji.grthree.centre;
231 tsu_render;
232 endtsuglyph;
233
234 % shitsu/ushina "disappear"
235 begintsuglyph("uni5931";49); [see page 540]
236 kanji.grfour.disappear;
237 tsu_render;
238 endtsuglyph;
239
240 % en/oo "suffocate"
241 begintsuglyph("uni5944";68); [see page 601]
242 kanji.grnine.suffocate;
243 tsu_render;
244 endtsuglyph;
245
246 % jo/onna "woman"
247 begintsuglyph("uni5973";115); [see page 442]
248 kanji.grone.woman;
249 tsu_render;
250 endtsuglyph;
251
252 % me/yatsu "guy"
253 begintsuglyph("uni5974";116); [see page 578]
254 kanji.greight.guy;
255 tsu_render;

```

256 `endtsuglyph;`  
257  
258 `% kou/su "fancy" (British sense)`  
259 `begintsuglyph("uni597D";125);` [see page 543]  
260 `kanji.grfour.fancy;`  
261 `tsu_render;`  
262 `endtsuglyph;`  
263  
264 `% mai/imouto "younger sister"`  
265 `begintsuglyph("uni59B9";185);` [see page 1662]  
266 `kanji.grtwo.little_sister;`  
267 `tsu_render;`  
268 `endtsuglyph;`  
269  
270 `% nee as in onesan "elder sister"`  
271 `begintsuglyph("uni59C9";201);` [see page 1660]  
272 `kanji.grtwo.big_sister;`  
273 `tsu_render;`  
274 `endtsuglyph;`  
275  
276 `% shi/haji "begin"`  
277 `begintsuglyph("uni59CB";203);` [see page 1665]  
278 `kanji.grthree.begin;`  
279 `tsu_render;`  
280 `endtsuglyph;`  
281  
282 `% i/yuda "committee"`  
283 `begintsuglyph("uni59D4";212);` [see page 1666]  
284 `kanji.grthree.committee;`  
285 `tsu_render;`  
286 `endtsuglyph;`  
287



```

288 % extra
289 begintsuglyph("uni59ED";237);
290 build_kanji.tb(500;20)
291   (build_kanji.tricluster(0.85)
292     (kanji.grone.power)
293     (kanji.grone.power)
294     (kanji.grone.power))
295   (kanji.grone.woman);
296 tsu_render;
297 endtsuglyph;
298
299 _____
300
301 endfont;
302
303 _____

```

# tsuku-5a.mp

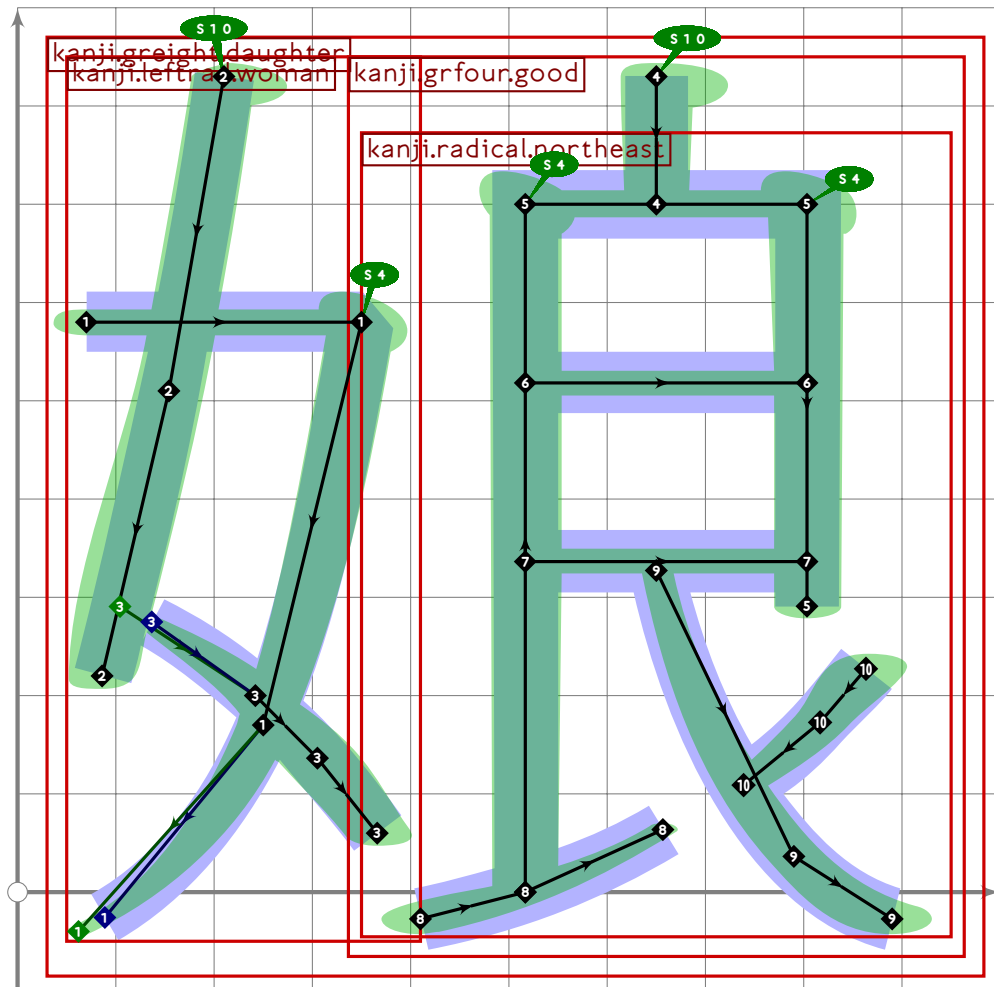
```
1 %  
2 % Unicode page 5a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input leftrad.mp;  
39 input radical.mp;  
40  
41 

---


```



```
42  
43 vardef kanji.greight.daughter =
```

```
44 push_pbox_toexpand("kanji.greight.daughter");
45 build_kanji.lr(380,60)
46   (kanji.leftrad.woman)
47   (kanji.grfour.good);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % chi/shuu "winter radical"
54 begintsuglyph("uni5A18";24); [see page 1672]
55   kanji.greight.daughter;
56   tsu_render;
57 endtsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-5b.mp

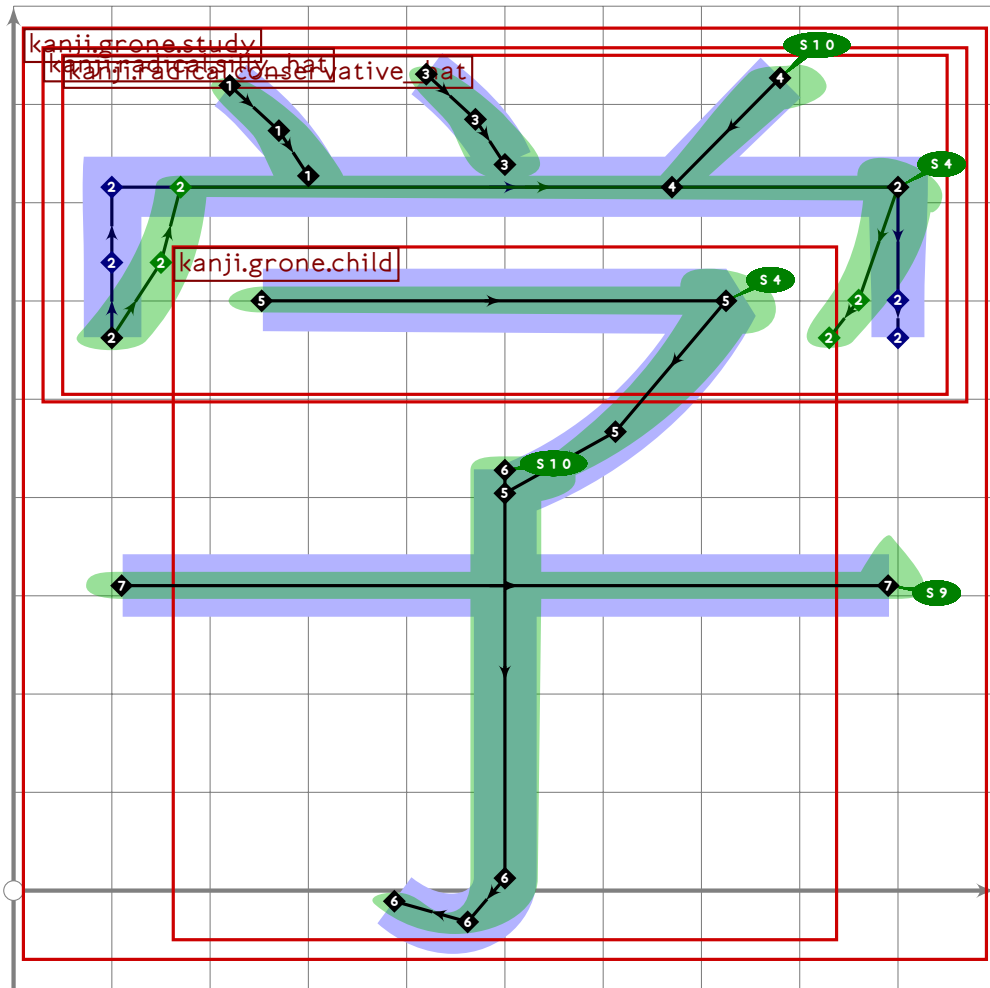
```
1 %
2 % Unicode page 5b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46
47 

---


```



```

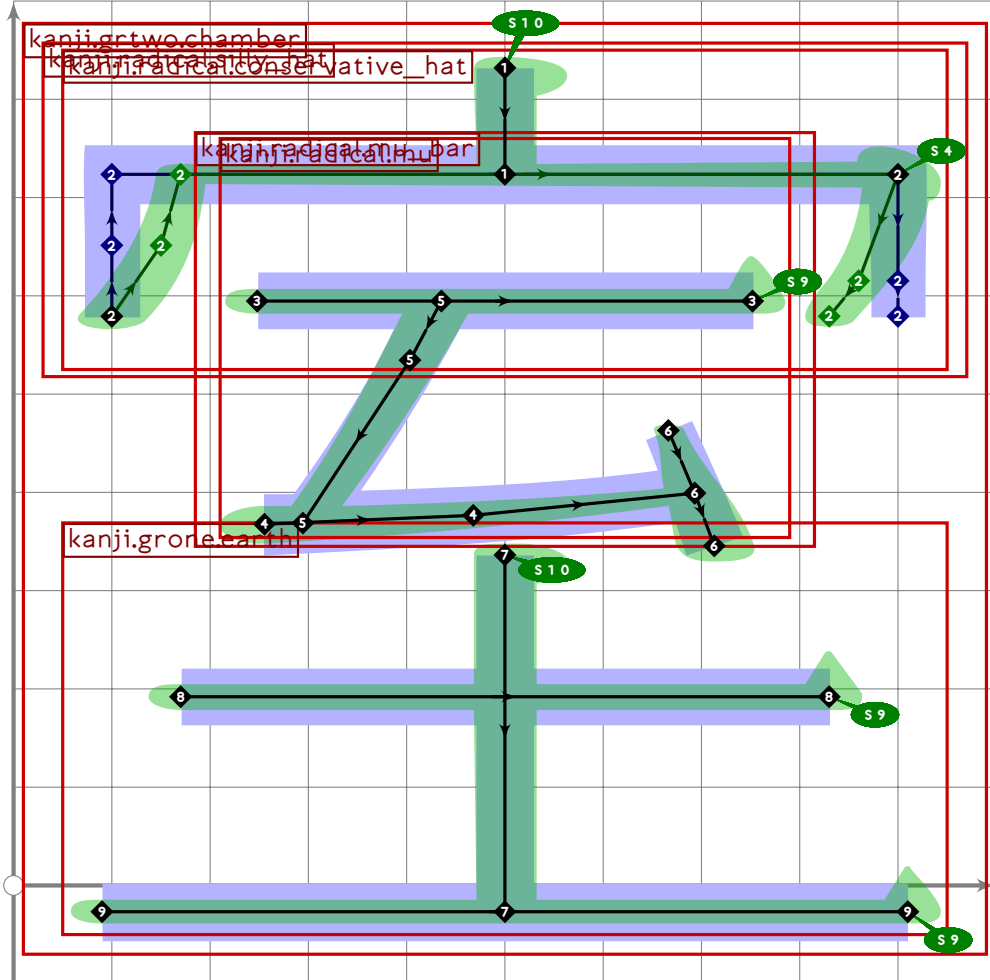
48
49 vardef kanji.grone.study =
50   push_pbox_toexpand("kanji.grone.study");
51   begingroup
52     save saved_path;
53     path saved_path;
54     build_kanji.tb(580,150)
55       (kanji.radical.silly_hat;
56         replace_stroke(-1)((220,770)..(270,650)..(300,530));
57         replace_strokeq(-1)((1.2,1.2)-(1.5,1.5)-(1.7,1.7));
58         set_bosize(-1)(95);
59         set_boserif(-1,whatever);
60         push_stroke((420,800)..(470,680)..(500,560),
61           (1.2,1.2)-(1.5,1.5)-(1.7,1.7));
62         set_bosize(0,95);
63         push_stroke((780,790)-(670,500),(1.7,1.7)-(1.3,1.3));
64         set_bosize(0,95);
65         set_boserif(0,0,10);
66       )
67     (build_kanji.sscale(xscaled 0.75)
68       (kanji.grone.child;saved_path:=get_strokep(0));

```

```

69     replace_stroke(0)(saved_path);
70 endgroup;
71 expand_pbox;
72 enddef;
73
74

```

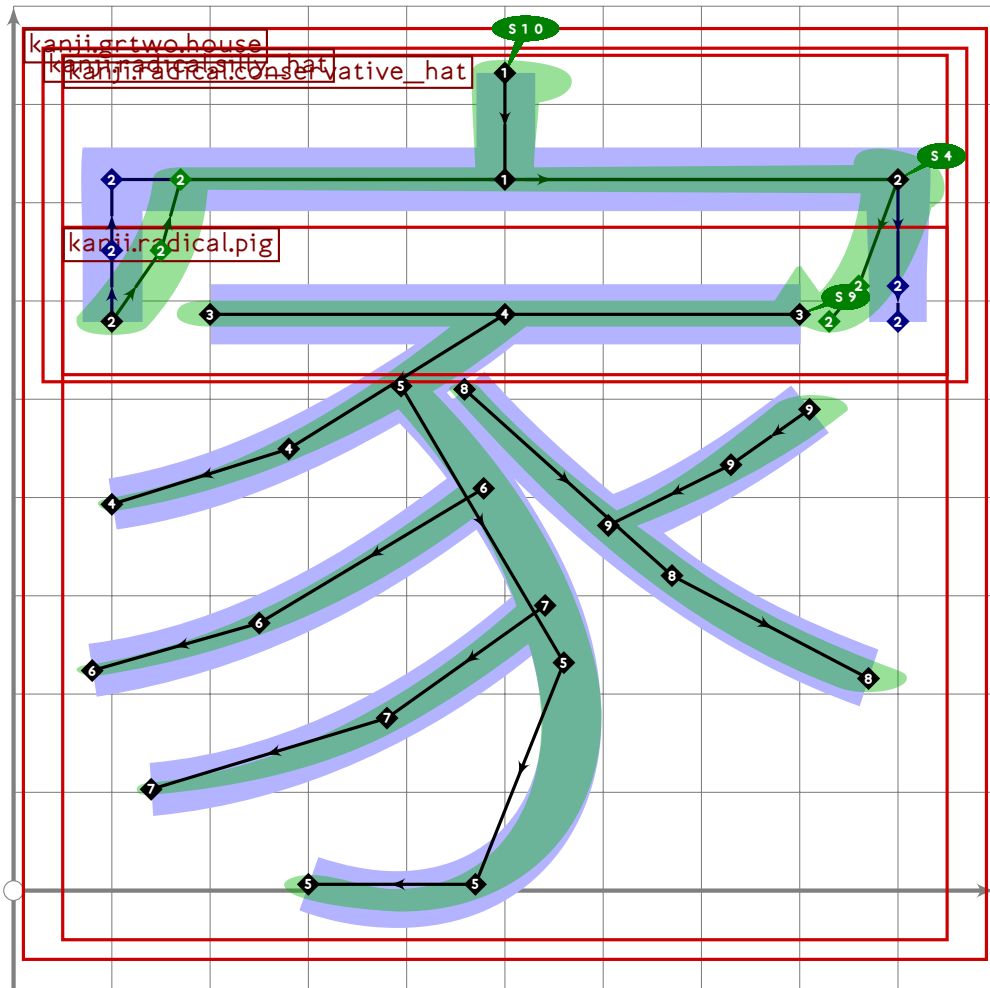


```

75
76 vardef kanji.grtwo.chamber =
77   push_pbox_toexpand("kanji.grtwo.chamber");
78   build_kanji.tb(600,150)
79     (kanji.radical.silly_hat)
80     (build_kanji.level(build_kanji.tb(420,100)
81       (build_kanji.sscale(scaled 0.7)(kanji.radical.mu_bar))
82       (kanji.grone.earth)));
83   expand_pbox;
84 enddef;

```

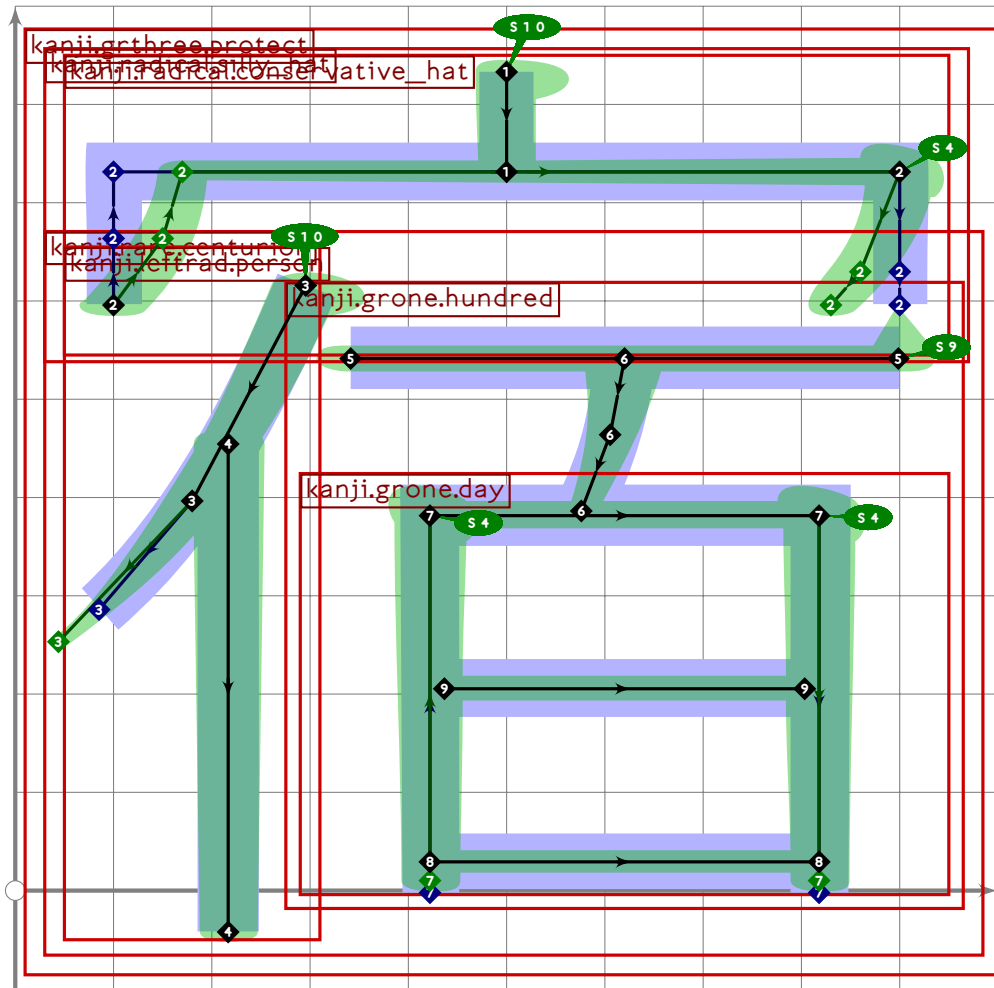




```

85
86 vardef kanji.grtwo.house =
87   push_pbox_toexpand("kanji.grtwo.house");
88   build_kanji.level(build_kanji.tb(600,150)
89     (kanji.radical.silly_hat)
90     (kanji.radical.pig));
91   expand_pbox;
92 enddef;
93
94

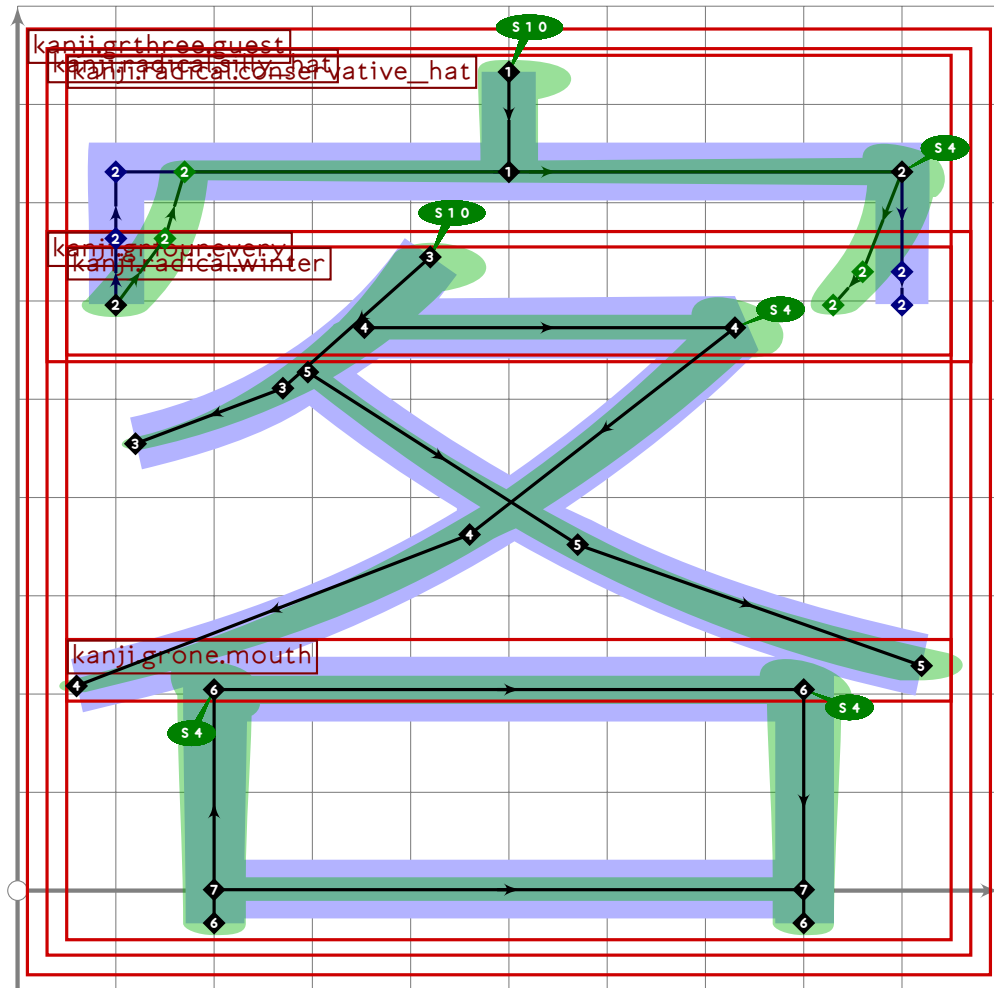
```



```

95
96 vardef kanji.grthree.inn =
97   push_pbox_toexpand("kanji.grthree.protect");
98   build_kanji.tb(600,110)
99   (kanji.radical.silly_hat)
100   (kanji.rare.centurion);
101   expand_pbox;
102 enddef;

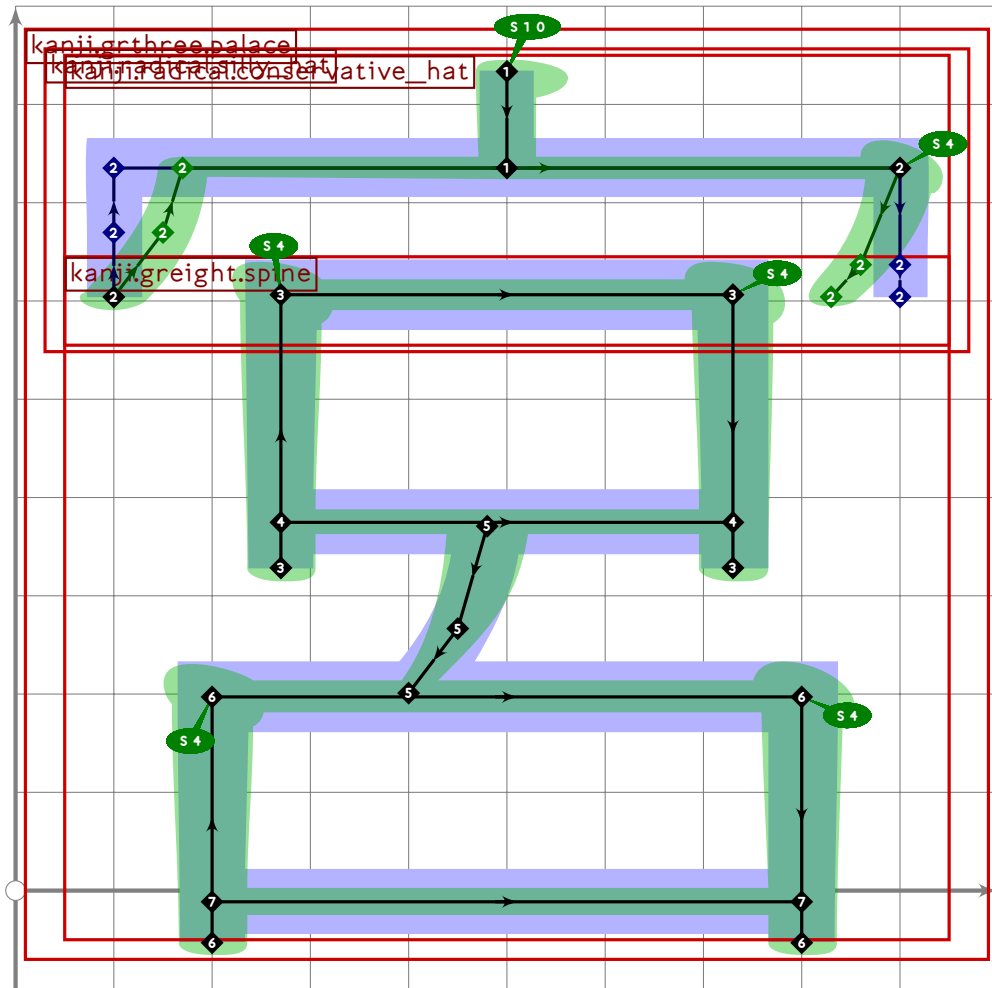
```



```

103
104 vardef kanji.grthree.guest =
105   push_pbox_toexpand("kanji.grthree.guest");
106   build_kanji.tb(600,110)
107     (kanji.radical.silly_hat)
108     (kanji.grfour.every);
109   expand_pbox;
110 enddef;

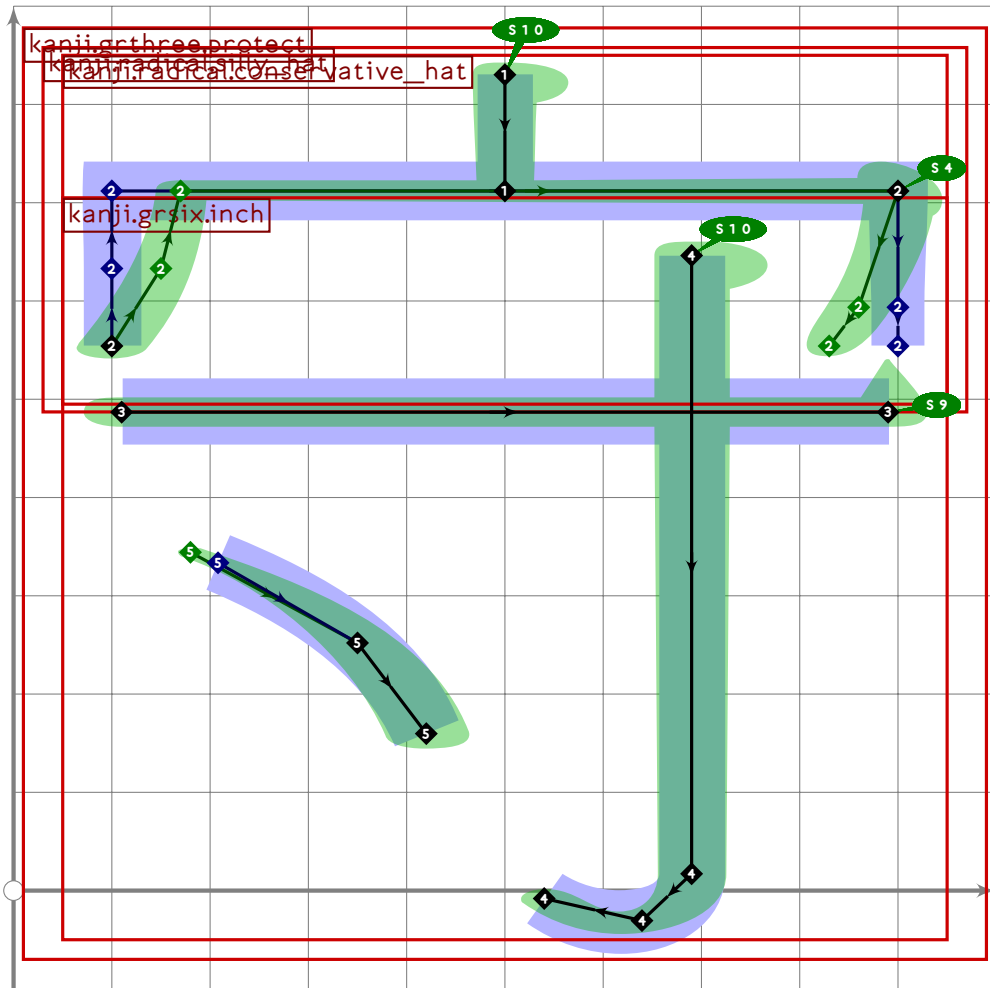
```



```

111
112 vardef kanji.grthree.palace =
113   push_pbox_toexpand("kanji.grthree.palace");
114   build_kanji.tb(600,90)
115     (kanji.radical.silly_hat)
116     (kanji.greight.spine);
117   expand_pbox;
118 enddef;

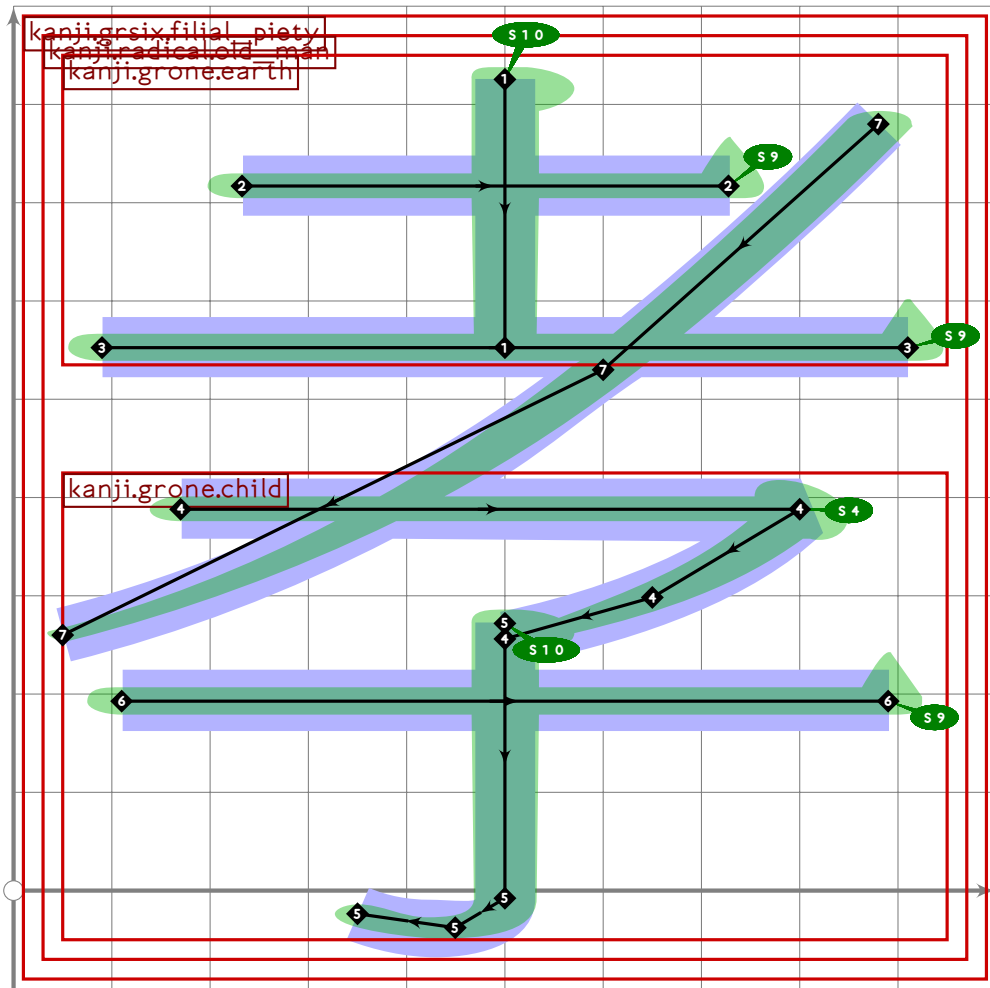
```



```

119
120 vardef kanji.grthree.protect =
121   push_pbox_toexpand("kanji.grthree.protect");
122   build_kanji.tb(600,210)
123     (kanji.radical.silly_hat)
124     (kanji.grsix.inch);
125   expand_pbox;
126 enddef;
127
128

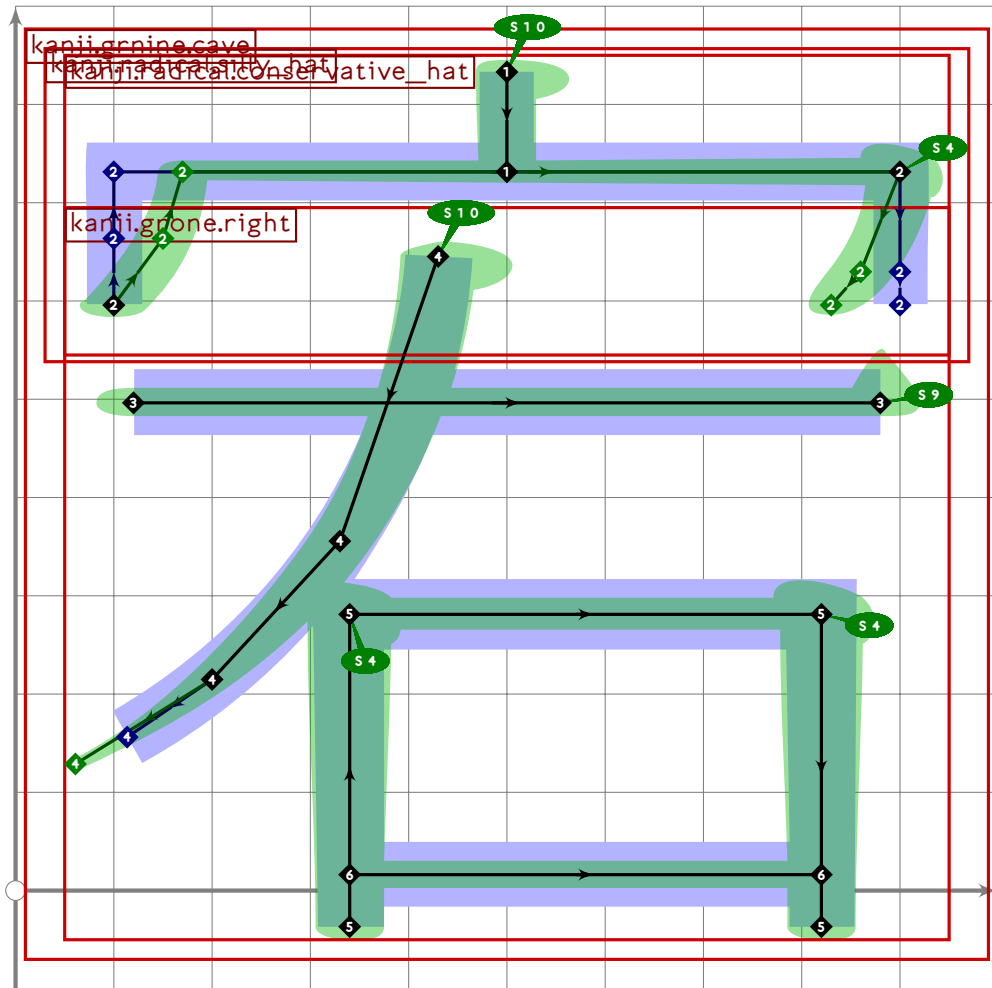
```



```

129
130 vardef kanji.grsix.filial_piety =
131   push_pbox_toexpand("kanji.grsix.filial_piety");
132   kanji.radical.old_man(kanji.grone.child);
133   expand_pbox;
134 enddef;
135
136

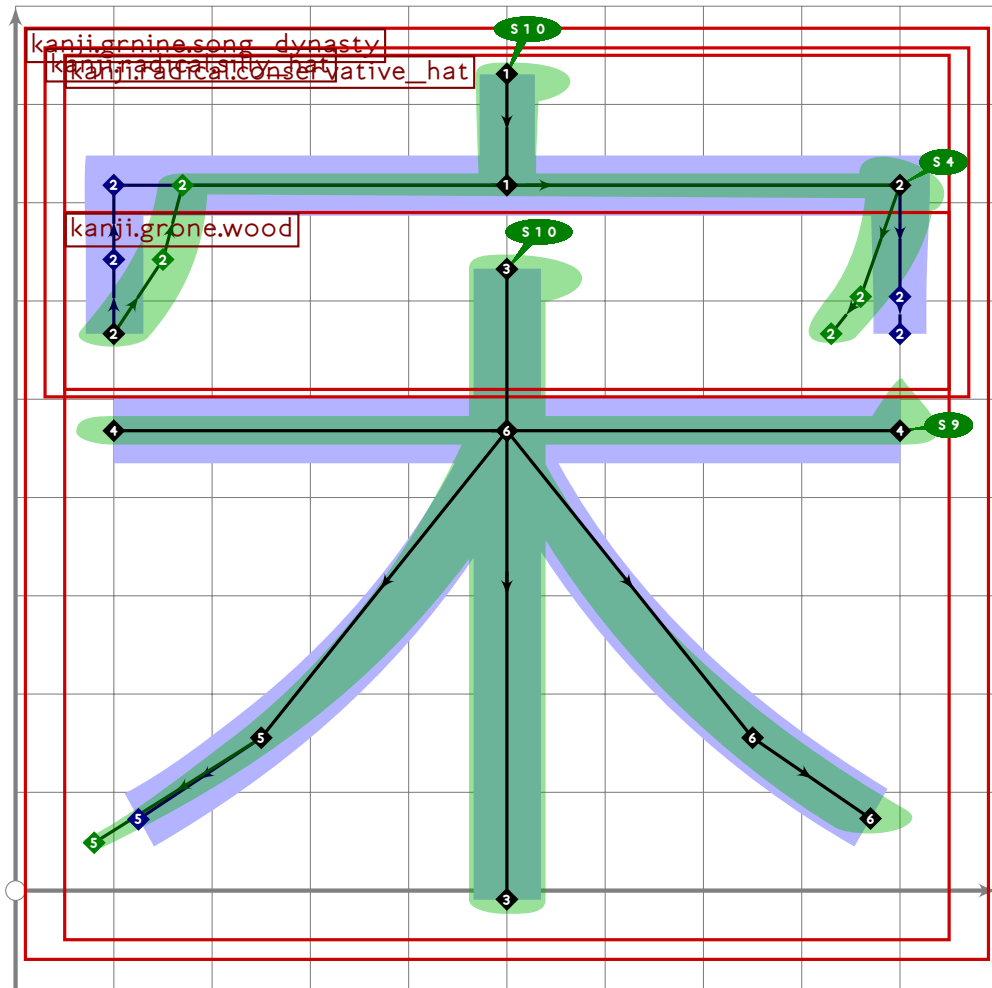
```



```

137
138 vardef kanji.grnine.cave =
139   push_pbox_toexpand("kanji.grnine.cave");
140   build_kanji.tb(620,150)
141     (kanji.radical.silly_hat)
142     (kanji.grone.right);
143   expand_pbox;
144 enddef;

```



```

145
146 vardef kanji.grnine.song_dynasty =
147   push_pbox_toexpand("kanji.grnine.song_dynasty");
148   build_kanji.tb(600,180)
149     (kanji.radical.silly_hat)
150     (kanji.grone.wood);
151   expand_pbox;
152 enddef;

```

```

153
154 _____
155
156 % ko "child"
157 begintsuglyph("uni5B50";80); [see page 385]
158   kanji.grone.child;
159   tsu_render;
160 endsuglyph;
161
162 % ketsu/hitori "mosquito larva"
163 begintsuglyph("uni5B51";81); [see page 613]
164   kanji.rare.mosquito_larva;
165   tsu_render;

```



```

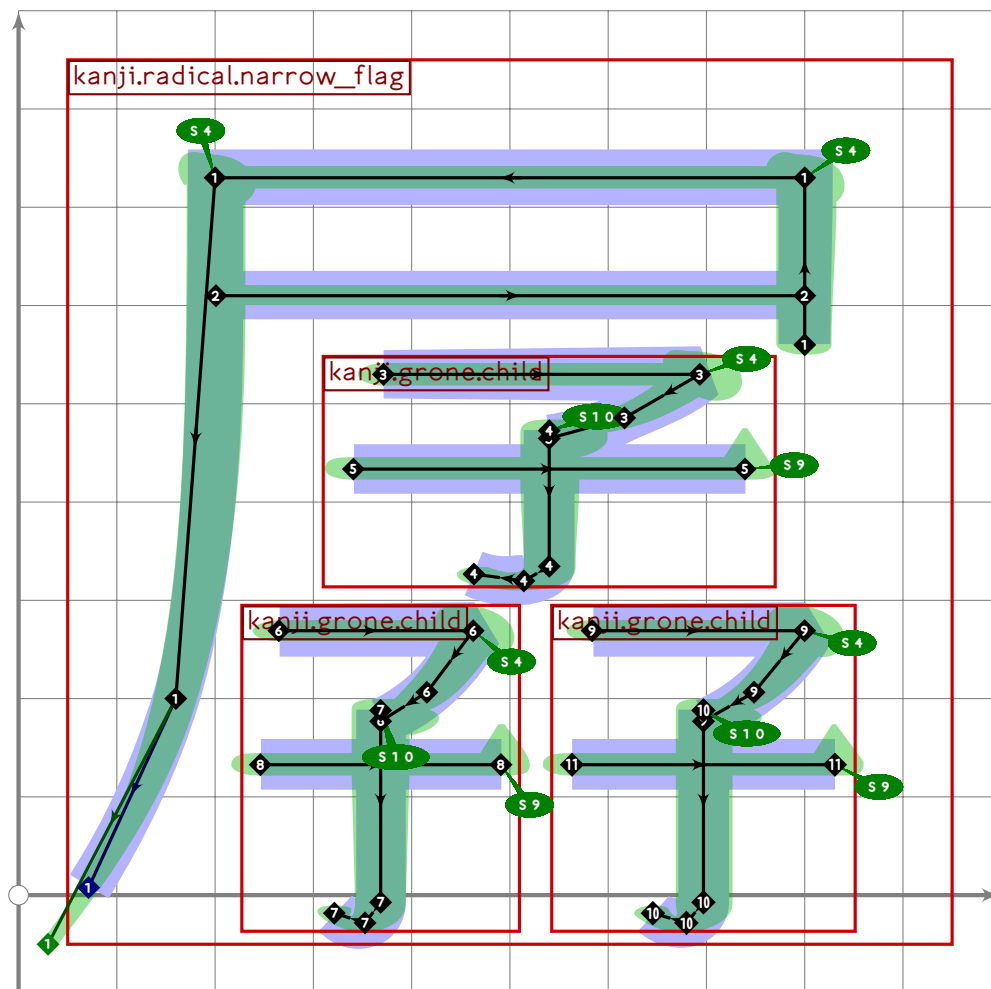
166 endtsuglyph;
167
168 % ji "character"
169 begintsuglyph("uni5B57";87);
170 kanji.grone.character;
171 tsu_render;
172 endtsuglyph;
173
174 % kou/taka "filial piety"
175 begintsuglyph("uni5B5D";93);
176 kanji.grsix.filial_piety;
177 tsu_render;
178 endtsuglyph;
179
180 % gaku "school"
181 begintsuglyph("uni5B66";102);
182 kanji.grone.study;
183 tsu_render;
184 endtsuglyph;
185

```

[see page 384]

[see page 1682]

[see page 1675]

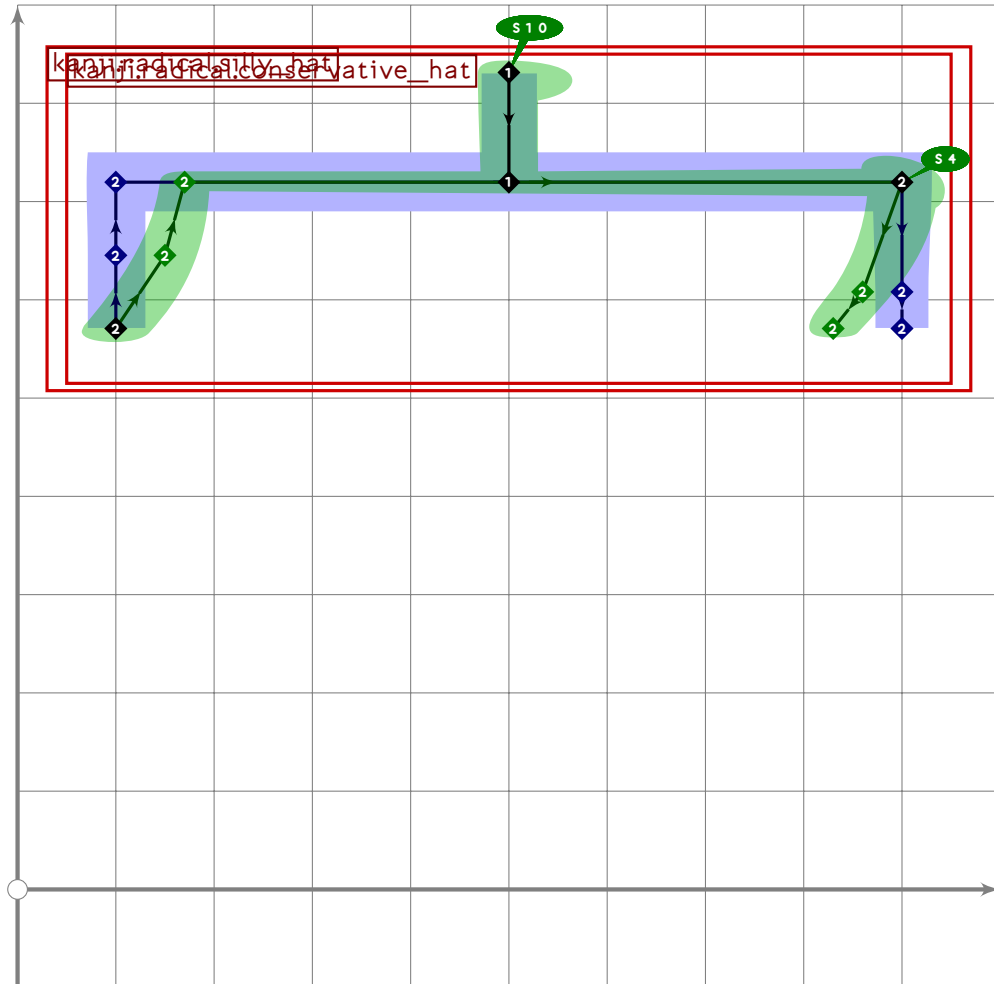


186 % extra

```

187 begint Suglyph("uni5B71";113);
188 build_kanji.level(
189   kanji.radical.narrow_flag;
190   build_kanji.sscale(xyscaled (0.73,0.67) shifted (40;-150))
191   (build_kanji.tricluster(0.7)
192    (kanji.grone.child)
193    (build_kanji.sscale(scaled 0.9)(kanji.grone.child))
194    (build_kanji.sscale(scaled 0.9)(kanji.grone.child))));
195 tsu_render;
196 endtsuglyph;
197

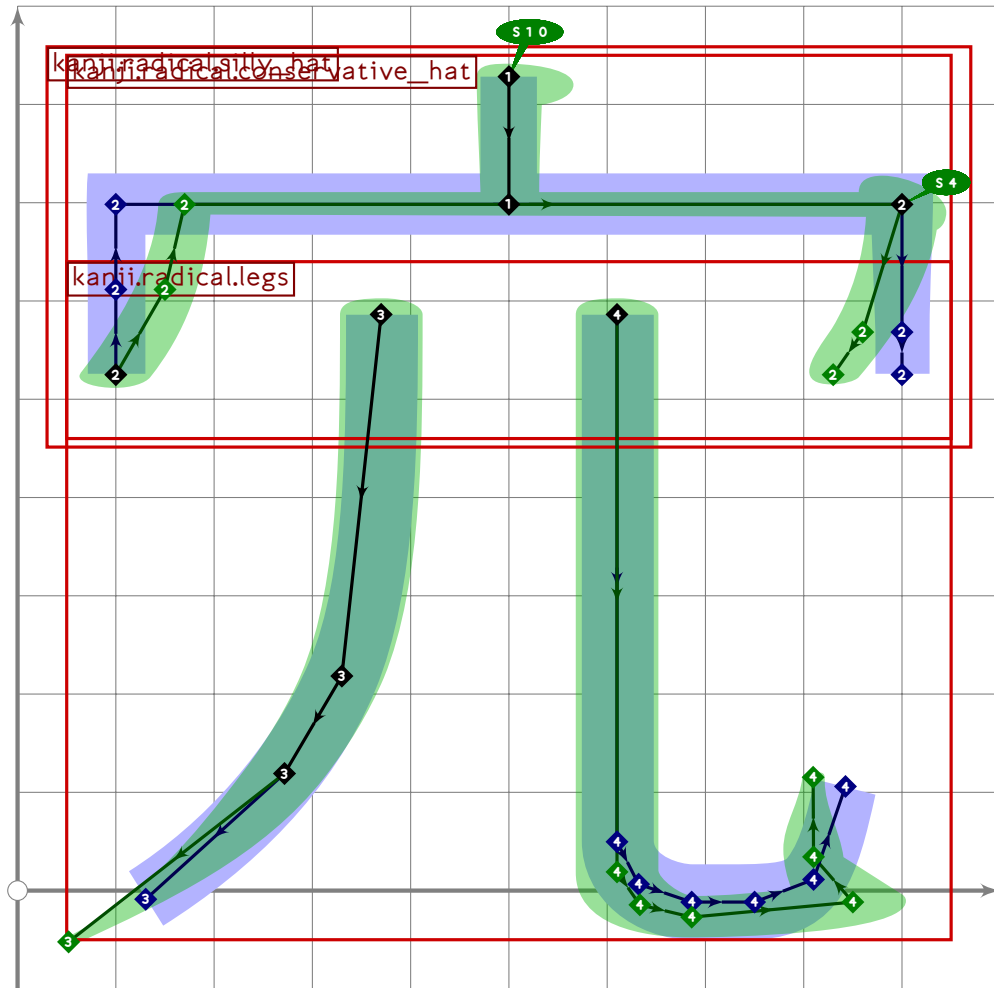
```



```

198 % silly hat radical
199 begint Suglyph("uni5B80";128);
200 build_kanji.tb(500;30)
201   (kanji.radical.silly_hat)
202   ();
203 tsu_render;
204 endtsuglyph;
205

```

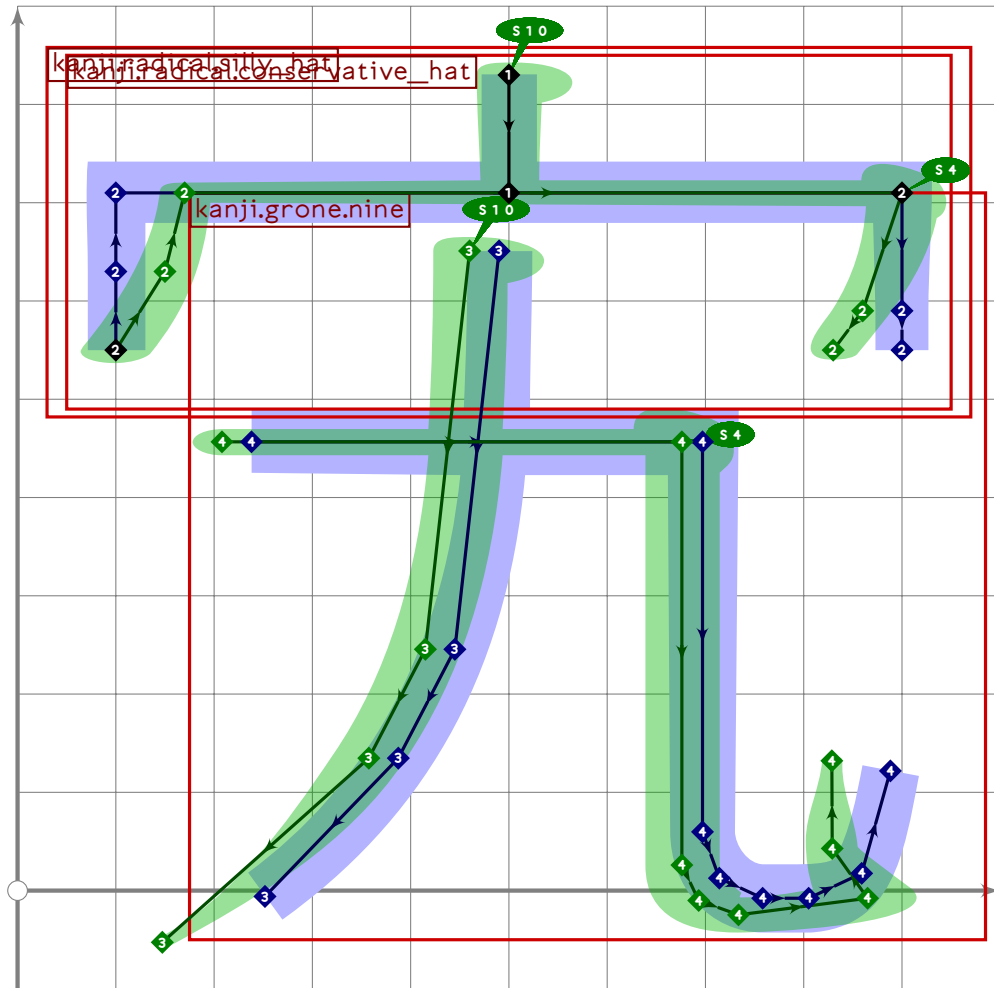


```

206 % extra
207 begintsuglyph("uni5B82",130);
208   build_kanji.tb(550,180)
209     (kanji.radical.silly_hat)
210     (kanji.radical.legs);
211   tsu_render;
212 endtsuglyph;
213
214 % ta/hebi "other"
215 begintsuglyph("uni5B83",131);
216   kanji.rare.other;
217   tsu_render;
218 endtsuglyph;
219

```

[see page 615]



```

220 % extra
221 begintsuglyph("uni5B84",132);
222   build_kanji.tb(600,220)
223     (kanji.radical.silly_hat)
224     (build_kanji.sscale(xscaled 0.9 shifted (80-30*mincho,0))
225       (kanji.grone.nine));
226   tsu_render;
227 endtsuglyph;
228
229 % shu/mamo "protect"
230 begintsuglyph("uni5B88",136);
231   kanji.grthree.protect;
232   tsu_render;
233 endtsuglyph;
234
235 % an/yasu "easy/cheap"
236 begintsuglyph("uni5B89",137);
237   kanji.grthree.easy;
238   tsu_render;
239 endtsuglyph;
240

```

[see page 1681]

[see page 515]

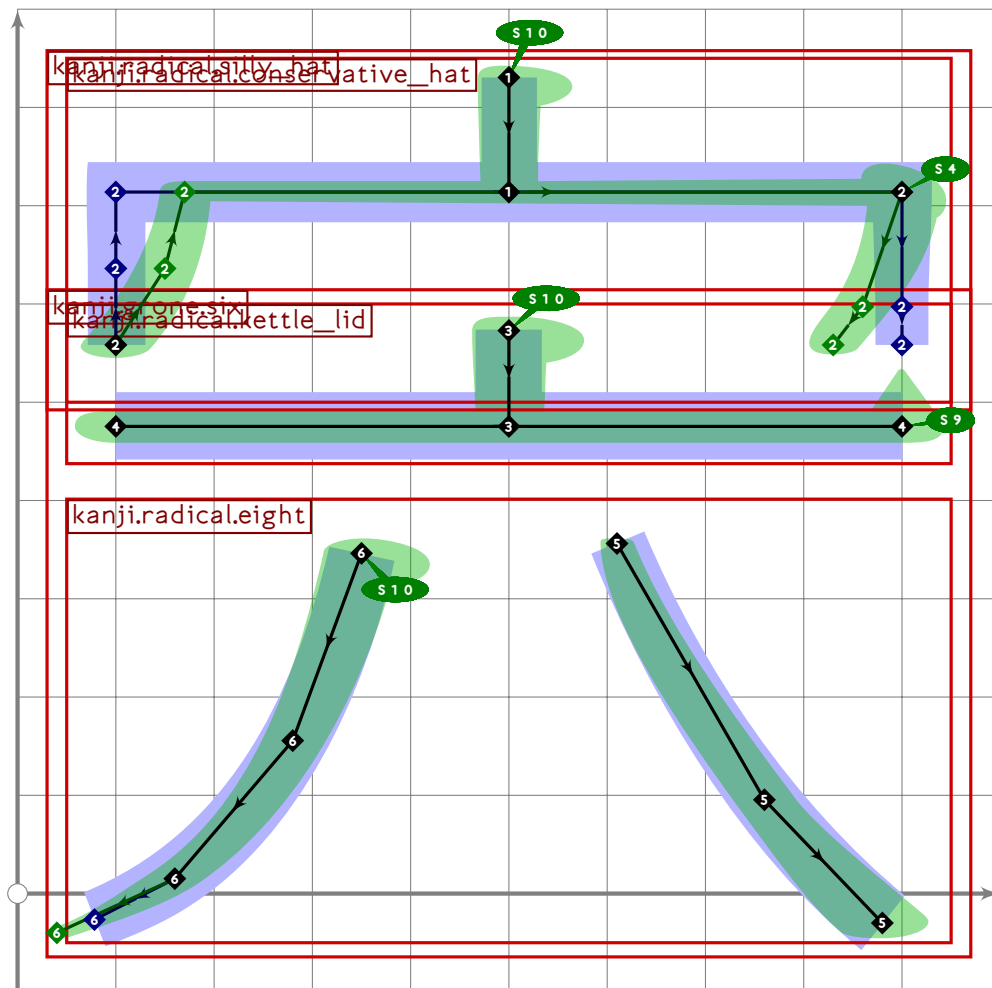
```

241 % "song dynasty"
242 begintsuglyph("uni5B8B",139);
243 kanji.grnine.song_dynasty;
244 tsu_render;
245 endsuglyph;
246
247 % kan "perfect"
248 begintsuglyph("uni5B8C",140);
249 kanji.grfour.perfect;
250 tsu_render;
251 endsuglyph;
252

```

[see page 1684]

[see page 551]



```

253 % extra "meat"
254 begintsuglyph("uni5B8D",141);
255 build_kanji.tb(550,100)
256 (kanji.radical.silly_hat)
257 (kanji.grone.six);
258 tsu_render;
259 endsuglyph;
260
261 % "cave"

```

```

262 begint Suglyph("uni5B95";149);
263 kanji.grnine.cave;
264 tsu_render;
265 endtsuglyph;

```

[see page 1683]

```

266
267 % kyaku "guest"
268 begint Suglyph("uni5BA2";162);
269 kanji.grthree.guest;
270 tsu_render;
271 endtsuglyph;

```

[see page 1679]

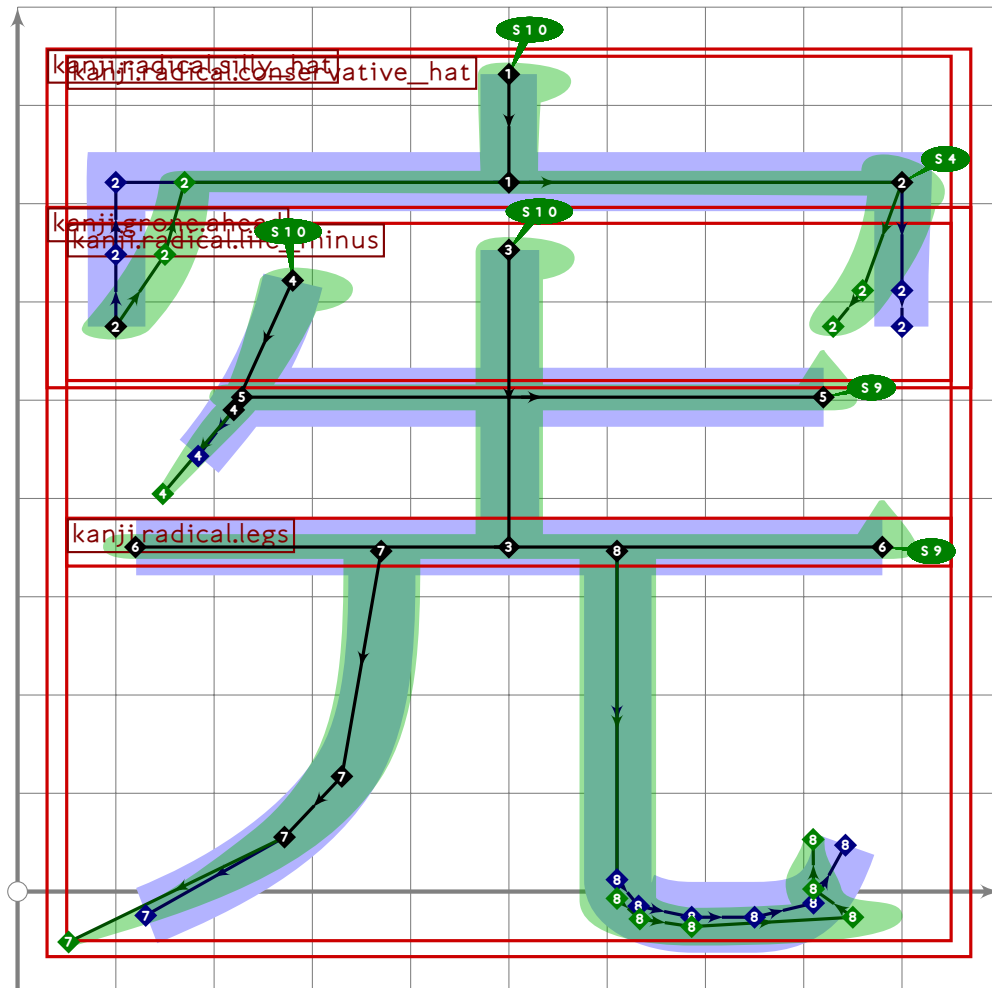
```

272
273 % shitsu/muro "chamber"
274 begint Suglyph("uni5BA4";164);
275 kanji.grtwo.chamber;
276 tsu_render;
277 endtsuglyph;

```

[see page 1676]

278



```

279 % extra
280 begint Suglyph("uni5BAA";170);
281 build_kanji.tb(600,160)
282 (kanji.radical.silly_hat)

```

```

283     (kanji.grone.ahead);
284     tsu_render;
285 endtsuglyph;
286
287 % kyuu/miya "house"
288     begintsuglyph("uni5BAE";174); [see page 1680]
289     kanji.grthree.palace;
290     tsu_render;
291 endtsuglyph;
292
293 % ka/ie "house"
294     begintsuglyph("uni5BB6";182); [see page 1677]
295     kanji.grtwo.house;
296     tsu_render;
297 endtsuglyph;
298
299 % shuku/yado "inn"
300     begintsuglyph("uni5BBF";191); [see page 1678]
301     kanji.grthree.inn;
302     tsu_render;
303 endtsuglyph;
304
305 % su/miki "inch"; also often a radical
306     begintsuglyph("uni5BF8";248); [see page 565]
307     kanji.grsix.inch;
308     tsu_render;
309 endtsuglyph;
310
311 % tera/ji "temple"
312     begintsuglyph("uni5BFA";250); [see page 500]
313     kanji.grtwo.temple;
314     tsu_render;
315 endtsuglyph;
316
317 _____
318
319 endfont;
320
321 _____

```

# tsuku-5c.mp

```
1 %
2 % Unicode page 5c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

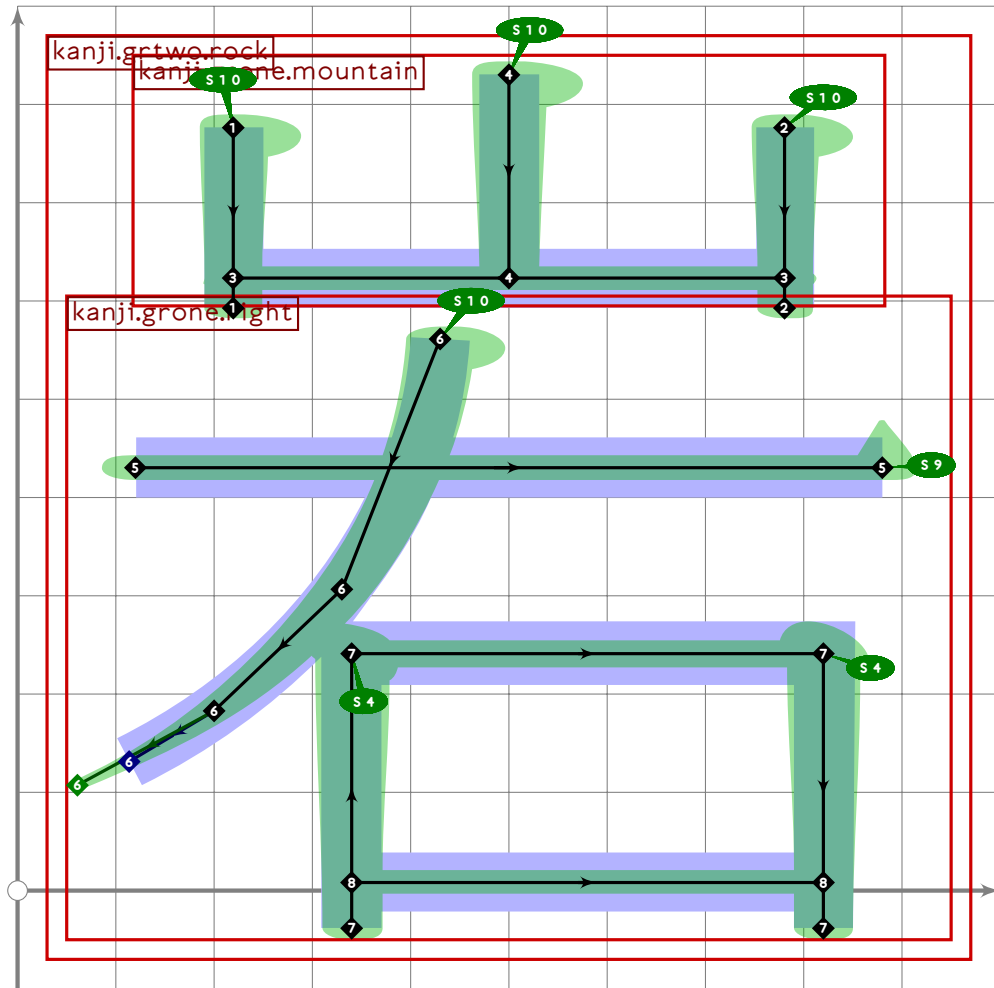
---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input radical.mp;
45 input rare.mp;
46 input toprad.mp;
47
48 

---


```

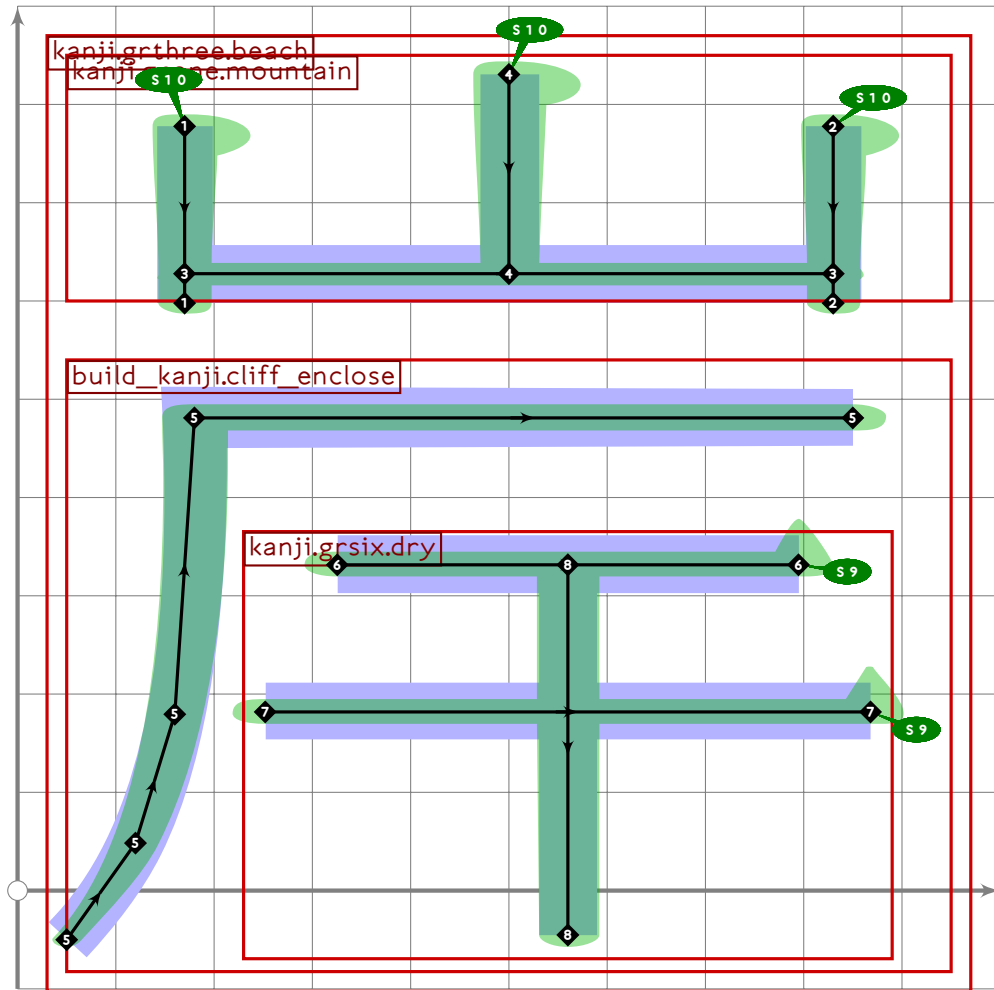




```

49
50 vardef kanji.grtwo.rock =
51   push_pbox_toexpand("kanji.grtwo.rock");
52   build_kanji.level(build_kanji.tb(600,10)
53     (build_kanji.sscale(xscaled 0.85)(kanji.grone.mountain))
54     (kanji.grone.right));
55   expand_pbox;
56 enddef;
57
58

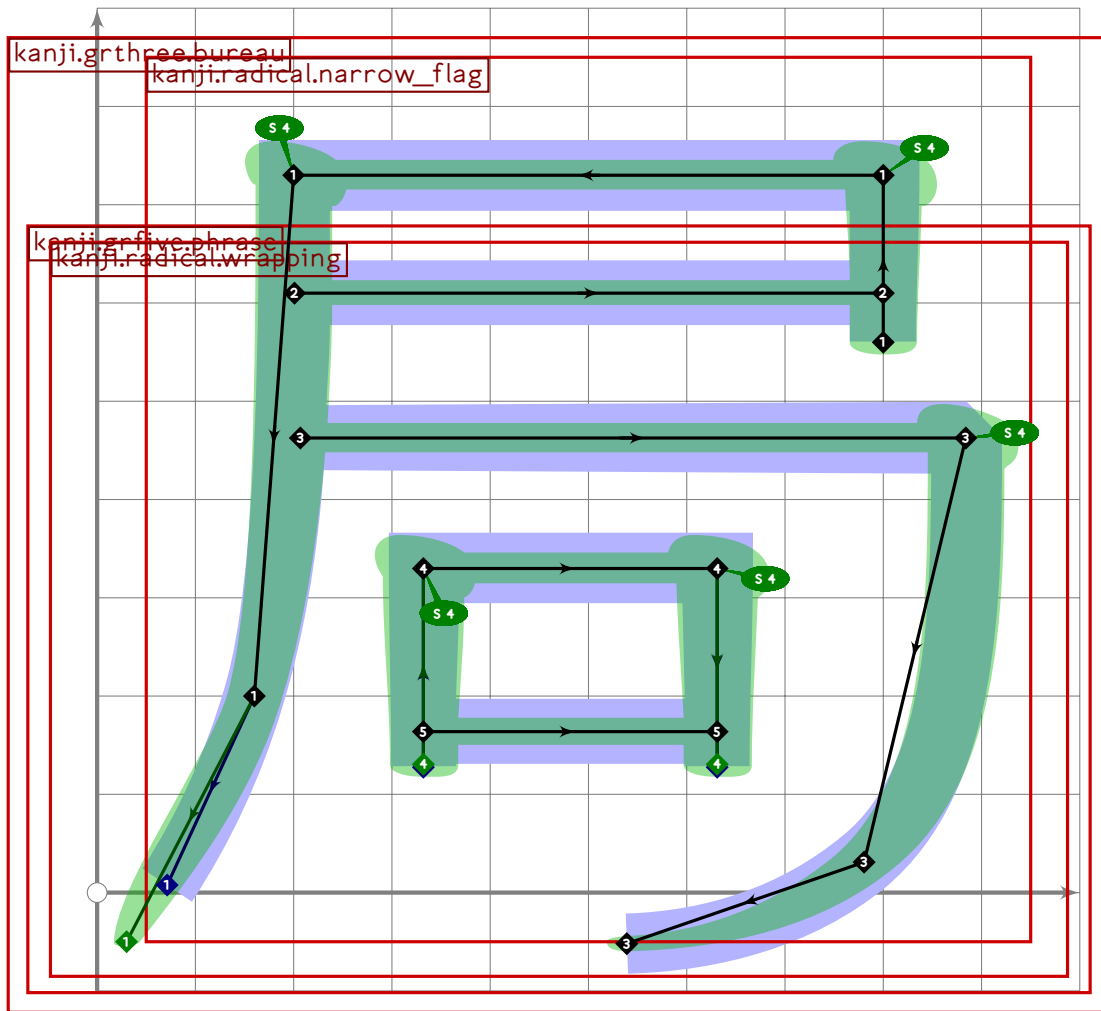
```



```

59
60 vardef kanji.grthree.beach =
61   push_pbox_toexpand("kanji.grthree.beach");
62   build_kanji.level(build_kanji.tb(570,-60)
63     (kanji.grone.mountain)
64     (build_kanji.cliff_enclose(
65       build_kanji.sscale(yscaled 0.85 shifted (0,-100))
66       (kanji.grsix.dry)));
67   expand_pbox;
68 enddef;

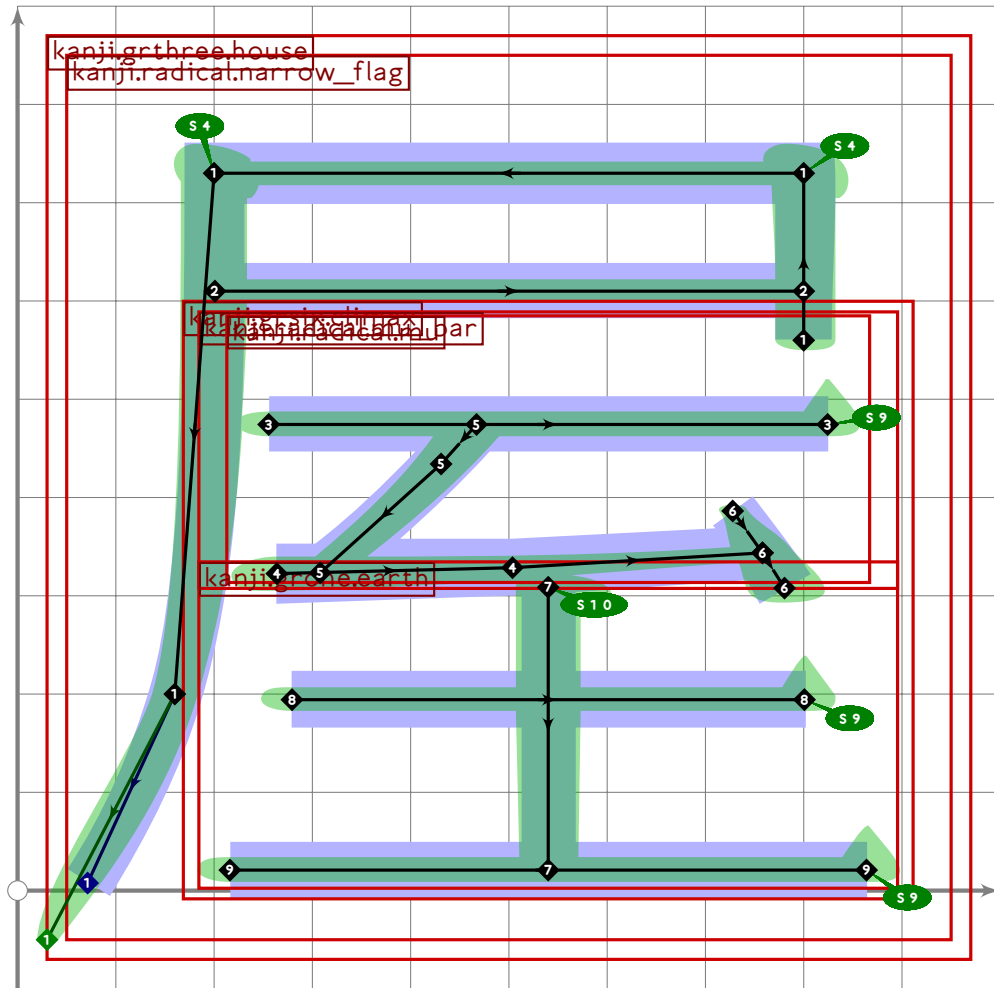
```



```

69
70 vardef kanji.grthree.bureau =
71   push_pbox_toexpand("kanji.grthree.bureau");
72   build_kanji.level(
73     kanji.radical.narrow_flag;
74     build_kanji.sscale(xyscaled (1.15,0.83) shifted (-30,-110))
75     (kanji.grfive.phrase;set_bosize(-3,0));
76   expand_pbox;
77 enddef;

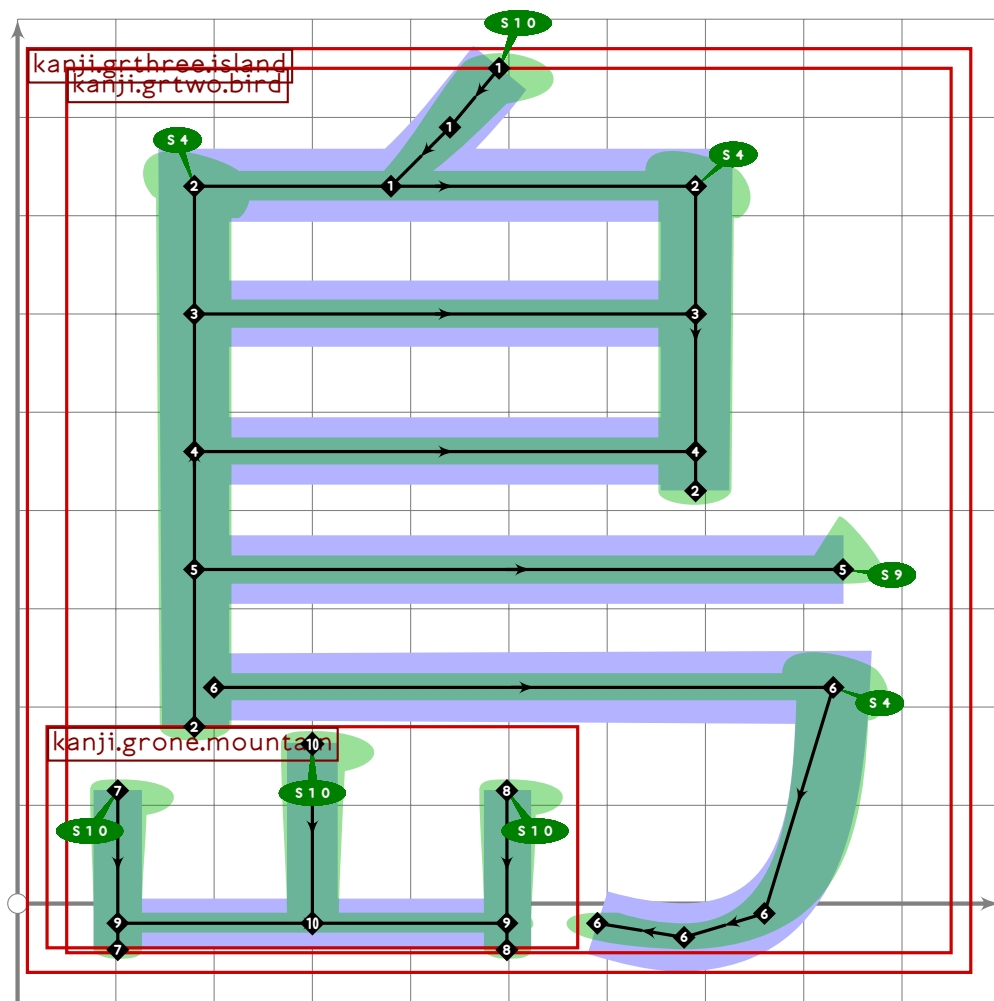
```



```

78
79 vardef kanji.grthree.house =
80   push_pbox_toexpand("kanji.grthree.house");
81   build_kanji.level(
82     kanji.radical.narrow_flag;
83     build_kanji.sscale(xyscaled (0.79,0.54) shifted (40,-150))
84     (kanji.grsix.climax));
85   expand_pbox;
86 enddef;

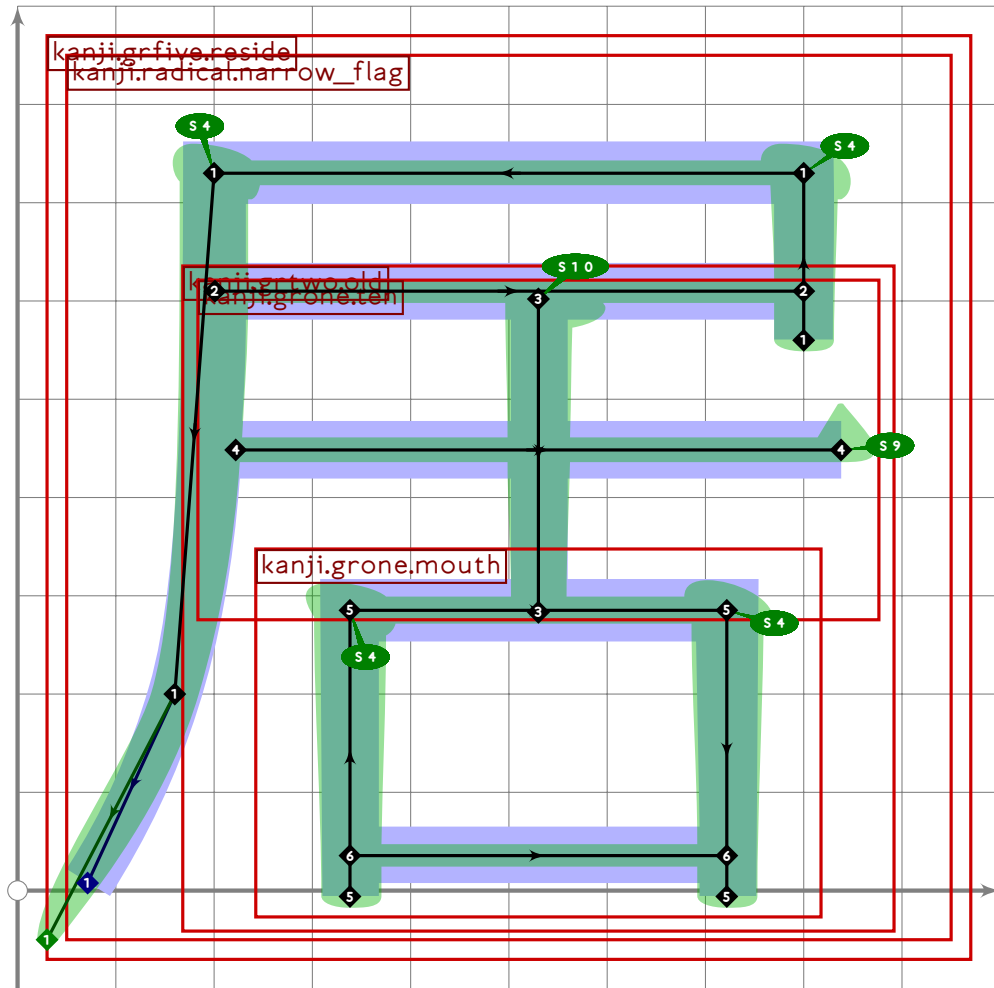
```



```

87
88 vardef kanji.grthree.island =
89   push_pbox_toexpand("kanji.grthree.island");
90   kanji.grtwo.bird;
91   pop_stroke;pop_stroke;pop_stroke;pop_stroke;
92   build_kanji.sscale(xyscaled (0.6,0.25) shifted (-200,325))
93     (kanji.grone.mountain);
94   expand_pbox;
95 enddef;
96
97

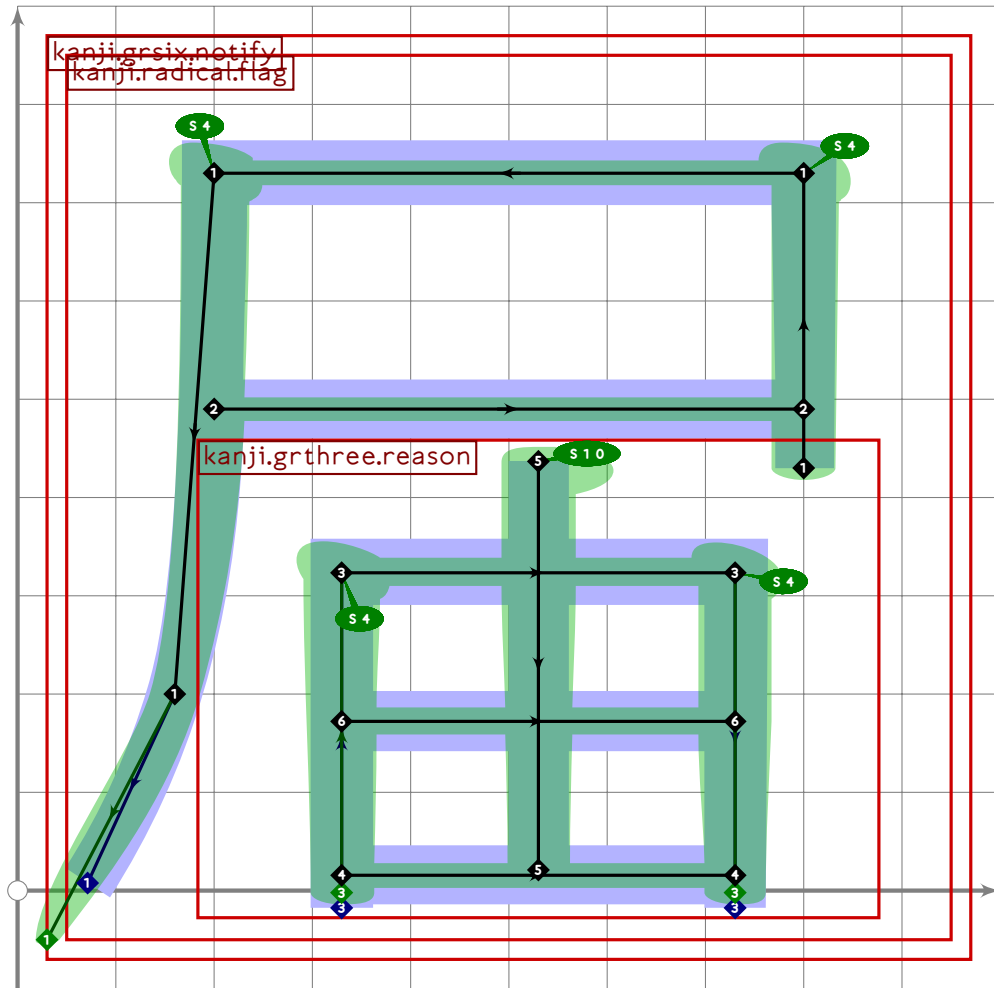
```



```

98
99 vardef kanji.grfive.reside =
100   push_pbox_toexpand("kanji.grfive.reside");
101   build_kanji.level(
102     kanji.radical.narrow_flag;
103     build_kanji.sscale(xyscaled (0.77,0.72) shifted (30,-100))
104     (kanji.grtwo.old));
105   expand_pbox;
106 enddef;
107
108

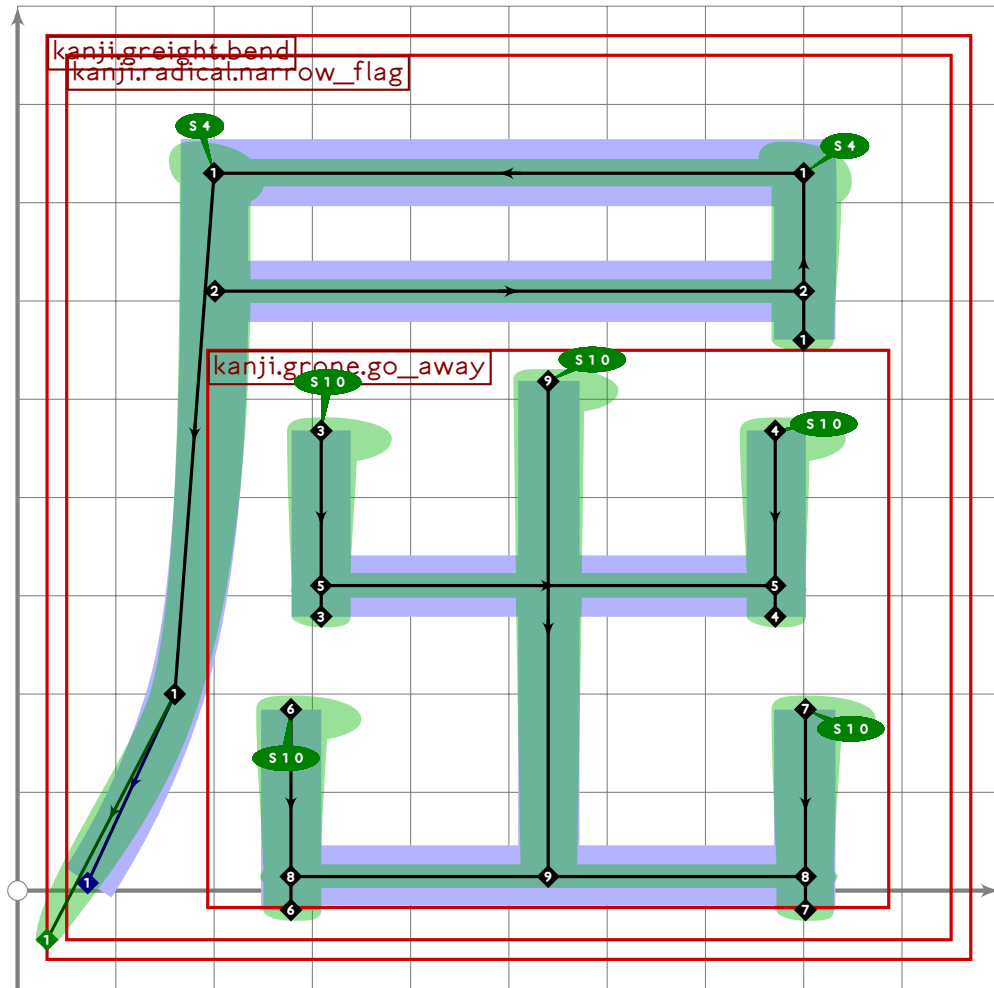
```



```

109
110 vardef kanji.grsix.notify =
111   push_pbox_toexpand("kanji.grsix.notify");
112   build_kanji.level(
113     kanji.radical.flag;
114     build_kanji.sscale(xyscaled (0.77,0.54) shifted (30,-180))
115     (kanji.grthree.reason));
116   expand_pbox;
117 enddef;
118
119

```

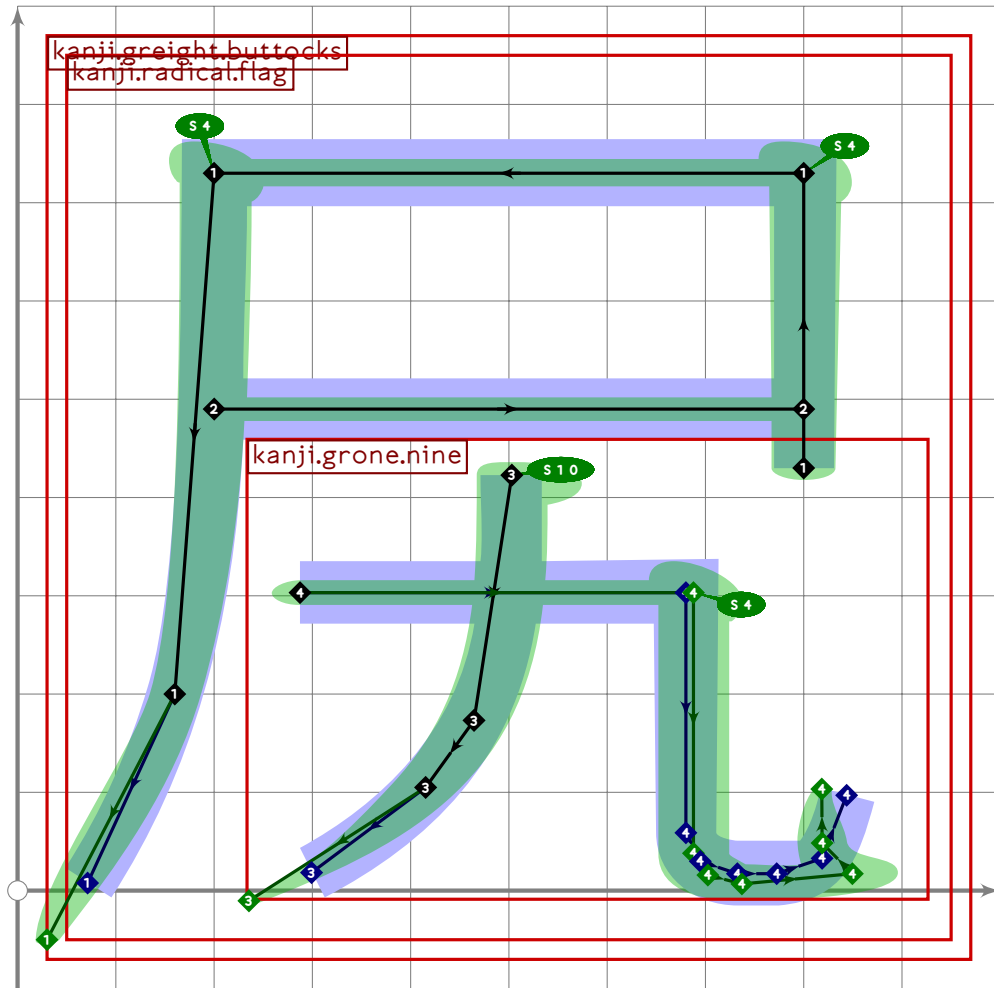


```

120
121 vardef kanji.greight.bend =
122   push_pbox_toexpand("kanji.greight.bend");
123   build_kanji.level(
124     kanji.radical.narrow_flag;
125     build_kanji.sscale(xyscaled (0.77,0.63) shifted (40,-130))
126     (kanji.grone.go_away));
127   expand_pbox;
128 enddef;

```

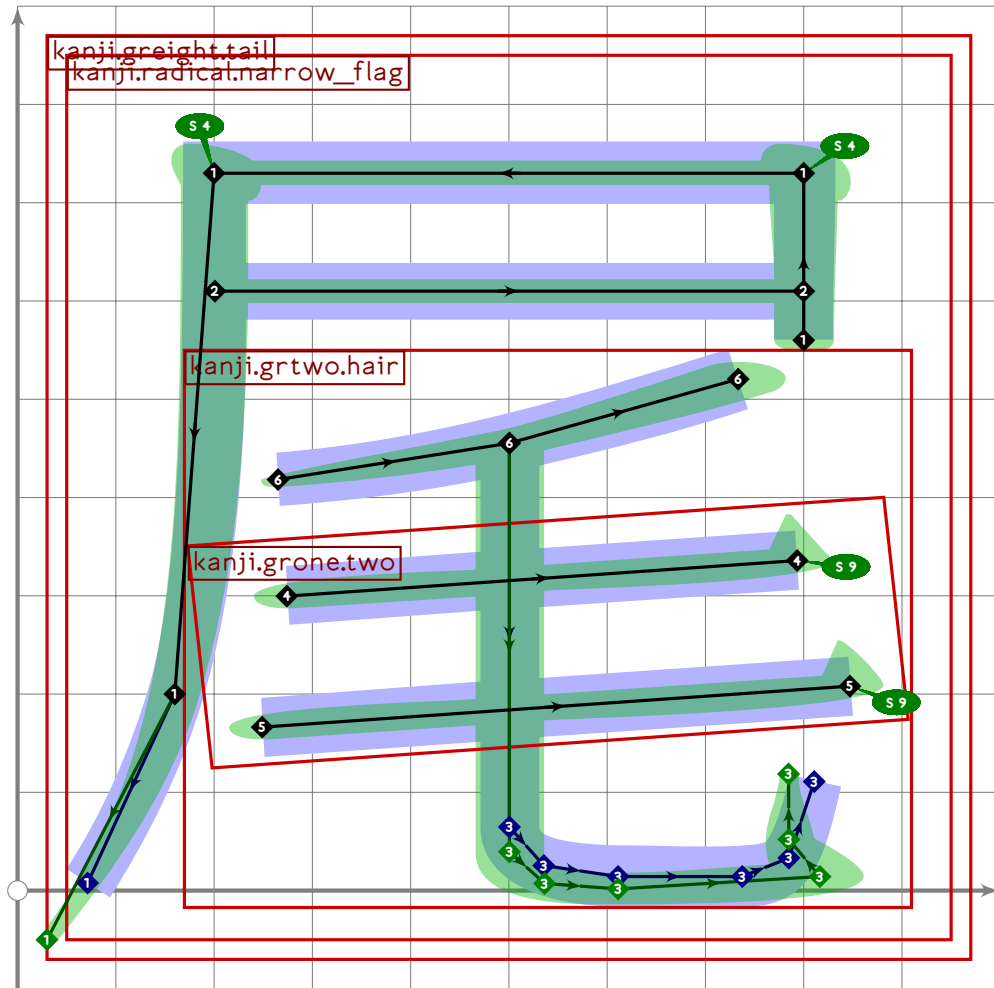




```

129
130 vardef kanji.greight.buttocks =
131   push_pbox_toexpand("kanji.greight.buttocks");
132   build_kanji.level(
133     kanji.radical.flag;
134     build_kanji.sscale(xyscaled (0.77,0.52) shifted (80,-170))
135     (kanji.grone.nine));
136   expand_pbox;
137 enddef;

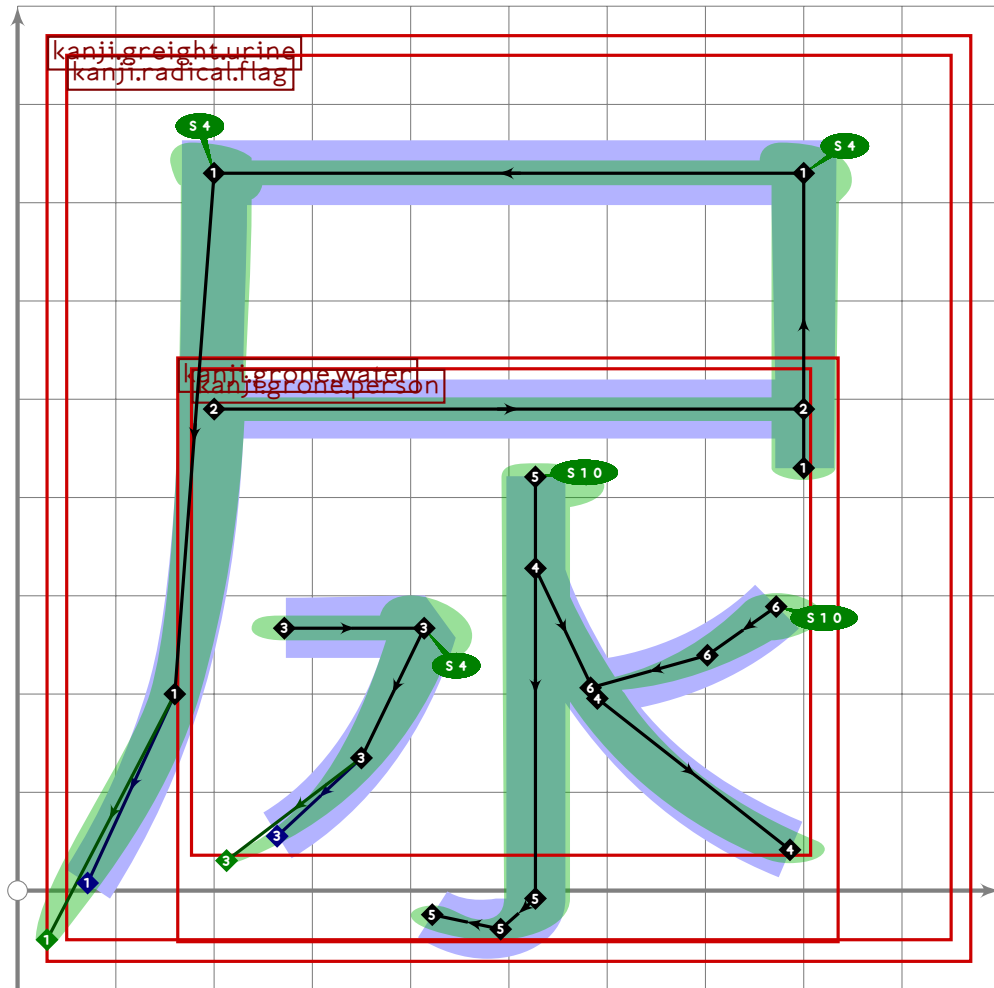
```



```

138
139 vardef kanji.greight.tail =
140   push_pbox_toexpand("kanji.greight.tail");
141   build_kanji.level(
142     kanji.radical.narrow_flag;
143     build_kanji.sscale(xyscaled (0.79,0.63) shifted (40,-130))
144     (kanji.grtwo.hair));
145   expand_pbox;
146 enddef;

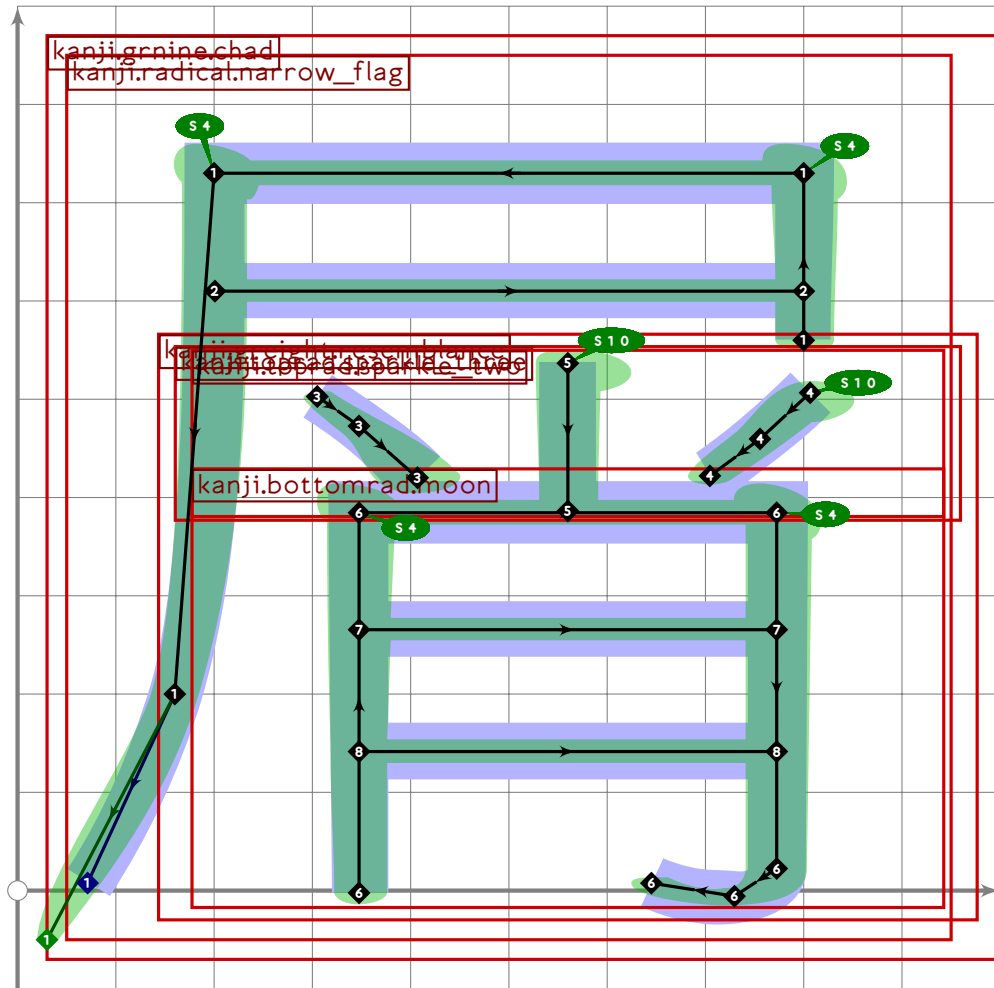
```



```

147
148 vardef kanji.greight.urine =
149   push_pbox_toexpand("kanji.greight.urine");
150   build_kanji.level(
151     kanji.radical.flag;
152     build_kanji.sscale(xyscaled (0.7,0.55) shifted (20,-200))
153     (kanji.grone.water));
154   expand_pbox;
155 enddef;
156
157

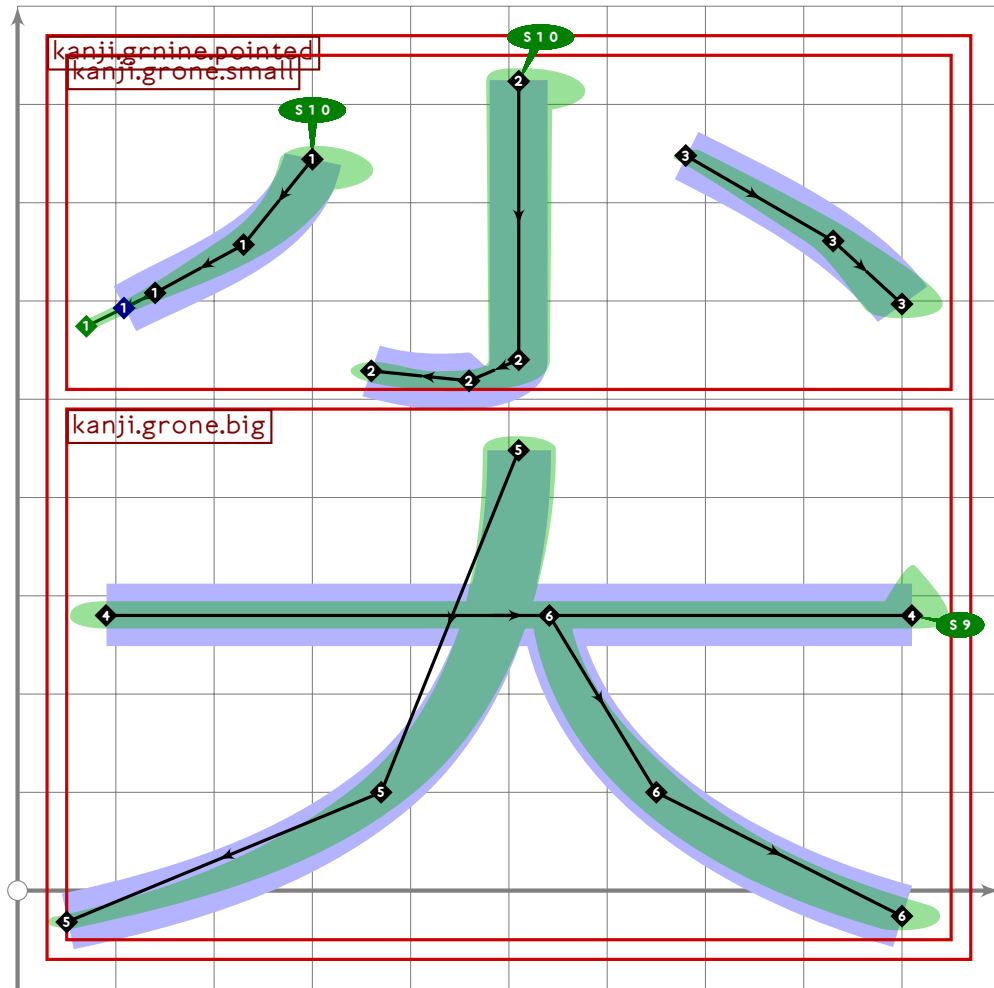
```



```

158
159 vardef kanji.gnine.chad =
160   push_pbox_toexpand("kanji.gnine.chad");
161   build_kanji.level(
162     kanji.radical.narrow_flag;
163     build_kanji.sscale(xyscaled (0.85,0.63) shifted (60,-130))
164     (kanji.greight.resemblance));
165   expand_pbox;
166 enddef;

```



```

167
168 vardef kanji.grnine.pointed =
169   push_pbox_toexpand("kanji.grnine.pointed");
170   build_kanji.tb(500,-20)
171     (kanji.grone.small)
172     (kanji.grone.big);
173   expand_pbox;
174 enddef;

```

```

175
176
177
178 % shuu/chii "small"
179 begintsuglyph("uni5C0F";15);
180   kanji.grone.small;
181   tsu_render;
182 endtsuglyph;
183
184 % sho/suko "little"
185 begintsuglyph("uni5C11";17);
186   kanji.grtwo.little;
187   tsu_render;

```

[see page 430]

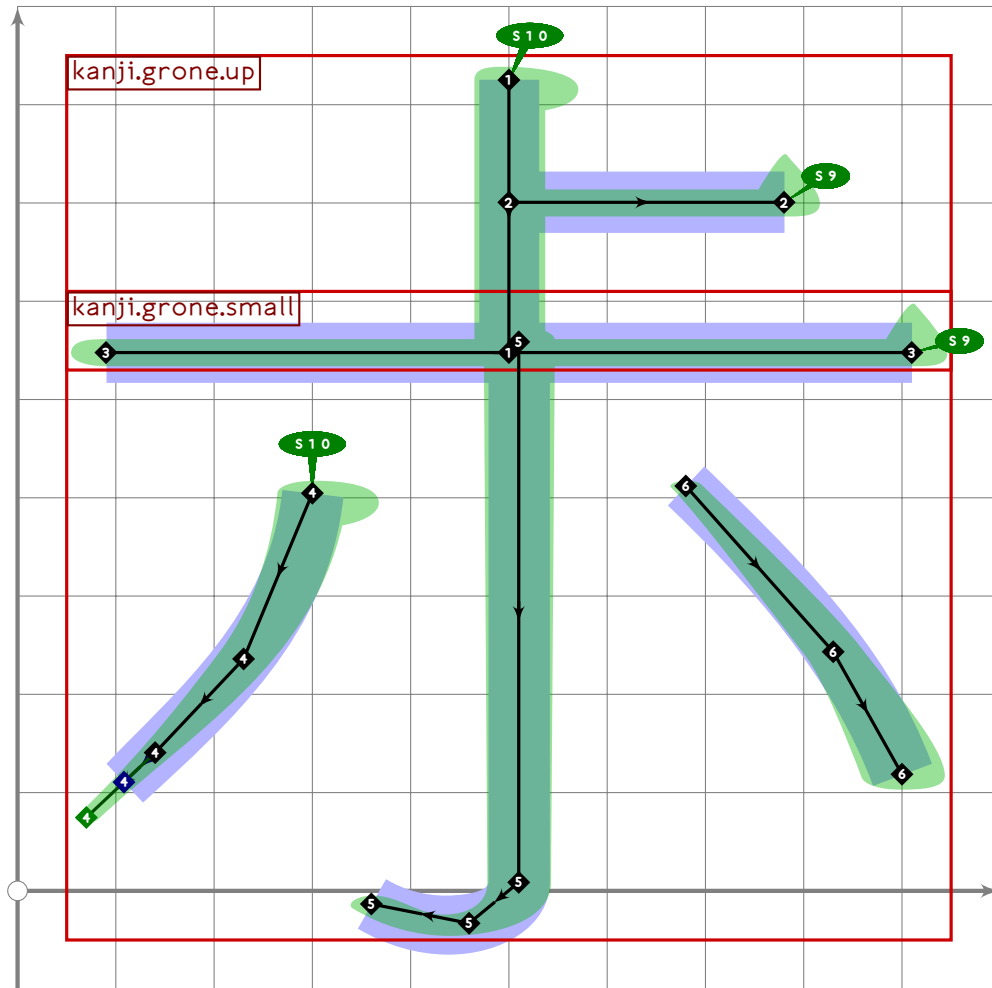
[see page 474]

```

188 endtsuglyph;
189
190 % pointed
191 begintsuglyph("uni5C16";22);
192   kanji.grnine.pointed;
193   tsu_render;
194 endtsuglyph;
195

```

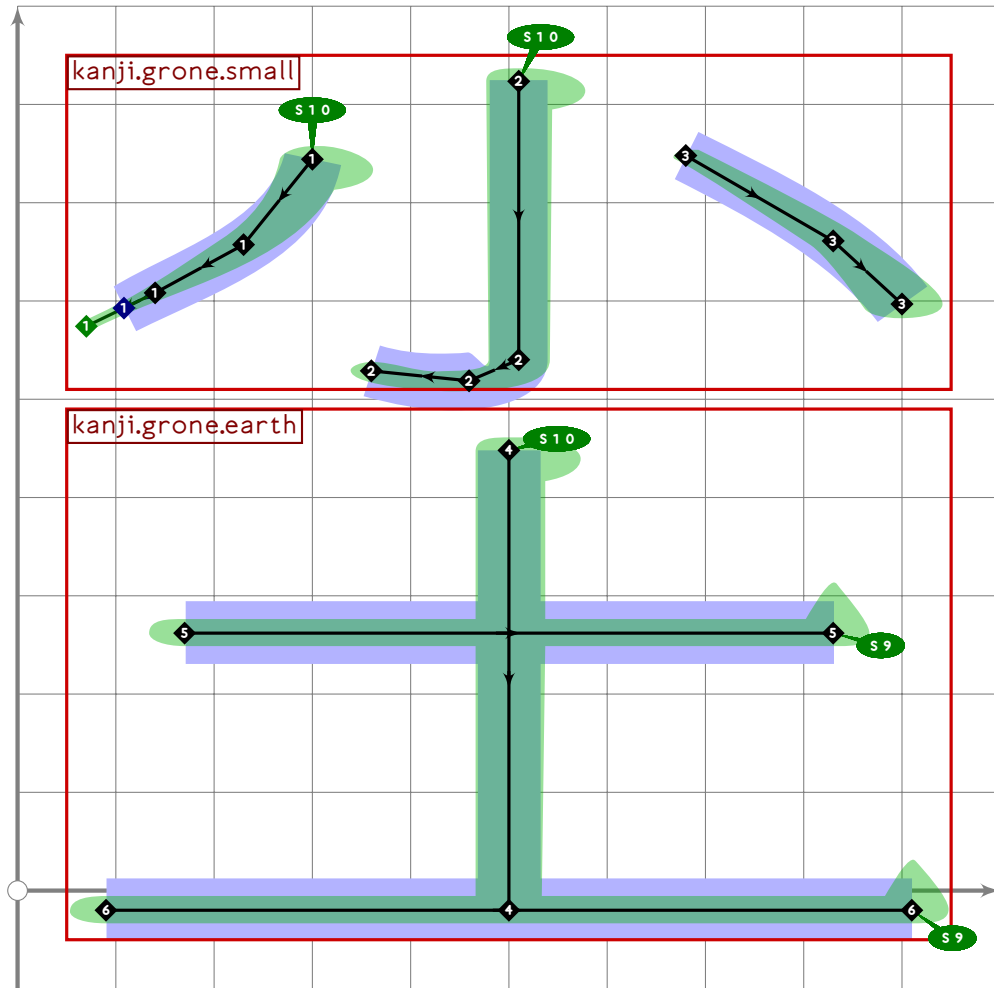
[see page 1705]



```

196 % extra "younger brother"
197 begintsuglyph("uni5C17";23);
198   build_kanji.level(build_kanji.tb(570,80)
199     (kanji.grnine.up)
200     (kanji.grnine.small;set_boserif(-1,0,whatever)));
201   tsu_render;
202 endtsuglyph;
203

```



```

204 % extra
205 begintsuglyph("uni5C18",24);
206 build_kanji.tb(500,20)
207   (kanji.grone.small)
208   (kanji.grone.earth);
209 tsu_render;
210 endtsuglyph;
211
212 % shi/katashiro "corpse" or "flag radial"
213 begintsuglyph("uni5C38",56);
214   kanji.radical.flag;
215   tsu_render;
216 endtsuglyph;
217
218 % shaku "foot (unit of measure)," "bamboo flute," or "blowjob"
219 begintsuglyph("uni5C3A",58);
220   kanji.grsix.blowjob;
221   tsu_render;
222 endtsuglyph;
223
224 % kou/shiri "buttocks"

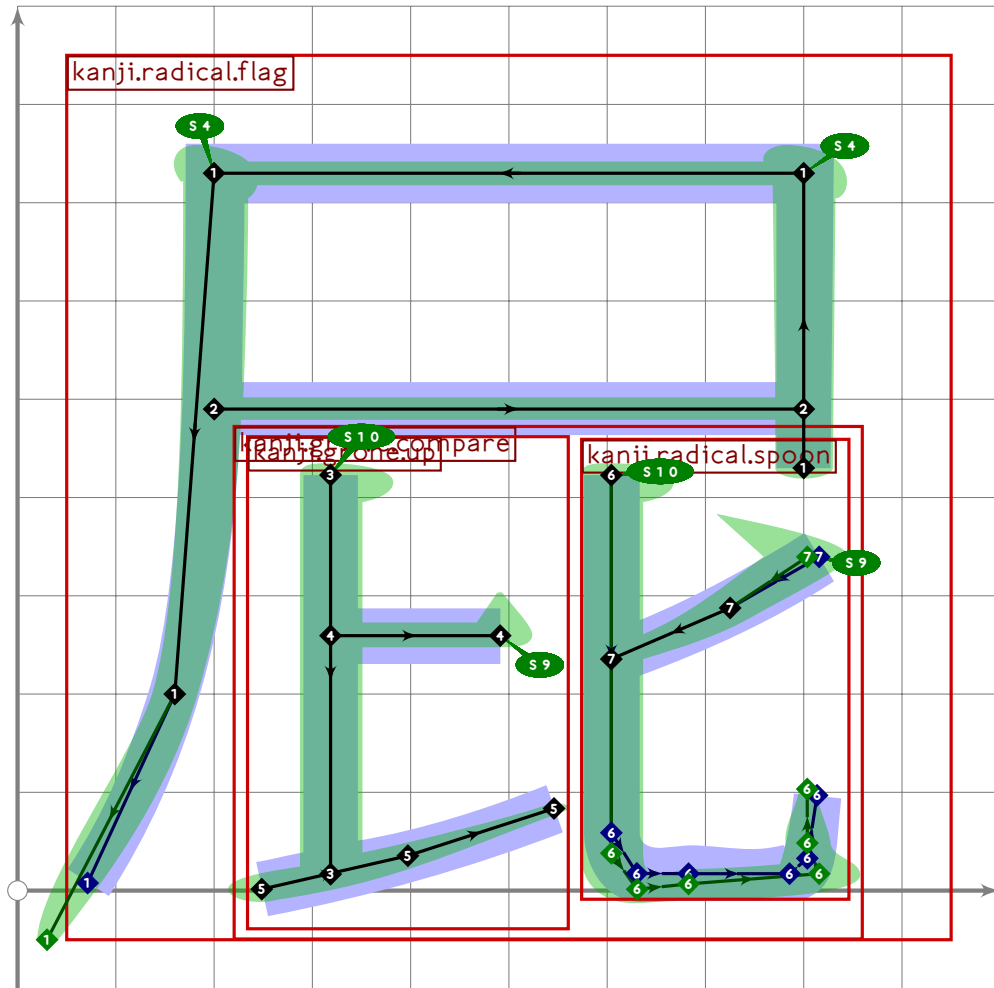
```

[see page 348]

[see page 560]

225 `begintsuglyph("uni5C3B",59);` [see page 1701]  
226 `kanji.greight.buttocks;`  
227 `tsu_render;`  
228 `endtsuglyph;`  
229  
230 `% ni/ama "nun"`  
231 `begintsuglyph("uni5C3C",60);` [see page 580]  
232 `kanji.greight.nun;`  
233 `tsu_render;`  
234 `endtsuglyph;`  
235  
236 `% bi/o "tail"`  
237 `begintsuglyph("uni5C3E",62);` [see page 1702]  
238 `kanji.greight.tail;`  
239 `tsu_render;`  
240 `endtsuglyph;`  
241  
242 `% nyou "urine"`  
243 `begintsuglyph("uni5C3F",63);` [see page 1703]  
244 `kanji.greight.urine;`  
245 `tsu_render;`  
246 `endtsuglyph;`  
247  
248 `% kyoku/tsubone "bureau"`  
249 `begintsuglyph("uni5C40",64);` [see page 1695]  
250 `kanji.grthree.bureau;`  
251 `tsu_render;`  
252 `endtsuglyph;`  
253





```

254 % extra "fart"
255 begintsuglyph("uni5C41";65);
256   build_kanji.level(
257     kanji.radical.flag;
258     build_kanji.sscale(xyscaled (0.68,0.52) shifted (40,-170))
259     (kanji.grfive.compare));
260   tsu_render;
261 endtsuglyph;
262
263 % kyo/i "reside"
264 begintsuglyph("uni5C45";69);
265   kanji.grfive.reside;
266   tsu_render;
267 endtsuglyph;
268
269 % kutsu/kaga "bend"
270 begintsuglyph("uni5C48";72);
271   kanji.greight.bend;
272   tsu_render;
273 endtsuglyph;
274

```

[see page 1698]

[see page 1700]

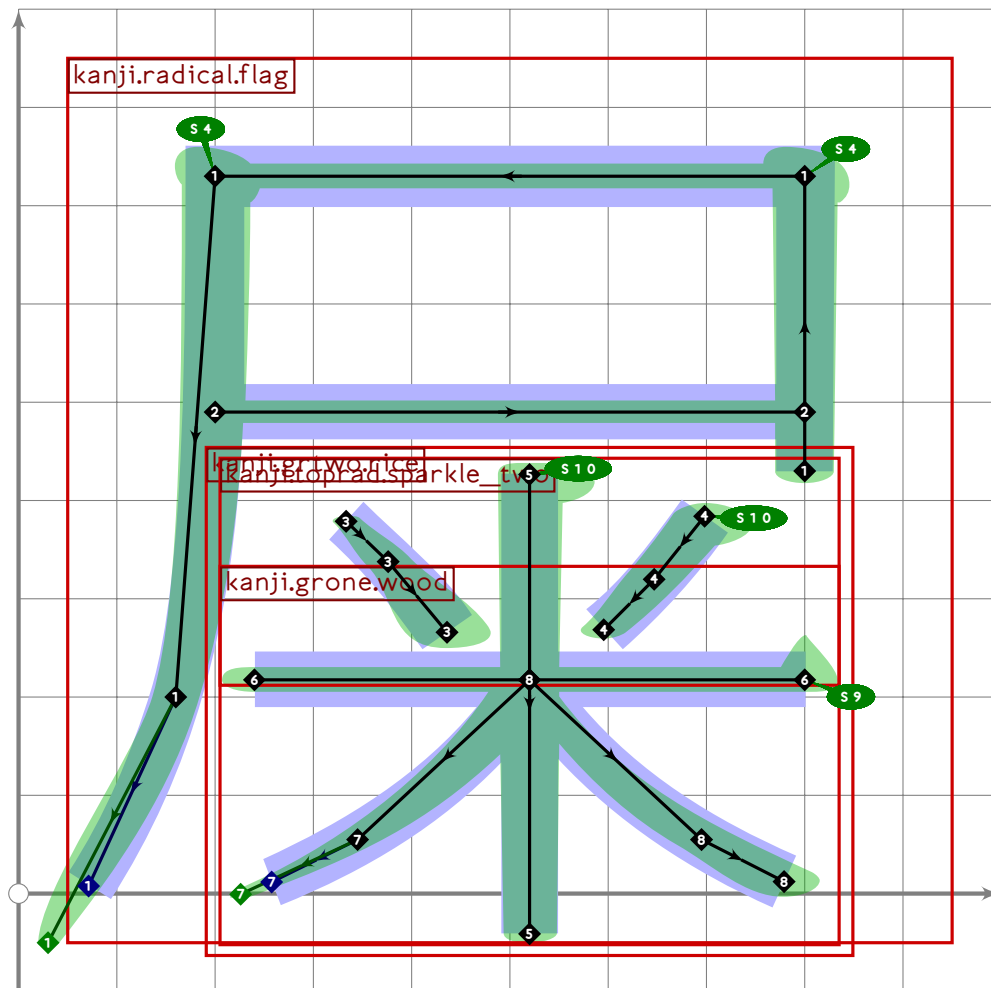
```

275 % kai/todo "notify"
276 begintsuglyph("uni5C4A";74);
277   kanji.grsix.notify;
278   tsu_render;
279 endtsuglyph;
280
281 % oku/ya "house"
282 begintsuglyph("uni5C4B";75);
283   kanji.grthree.house;
284   tsu_render;
285 endtsuglyph;
286

```

[see page 1699]

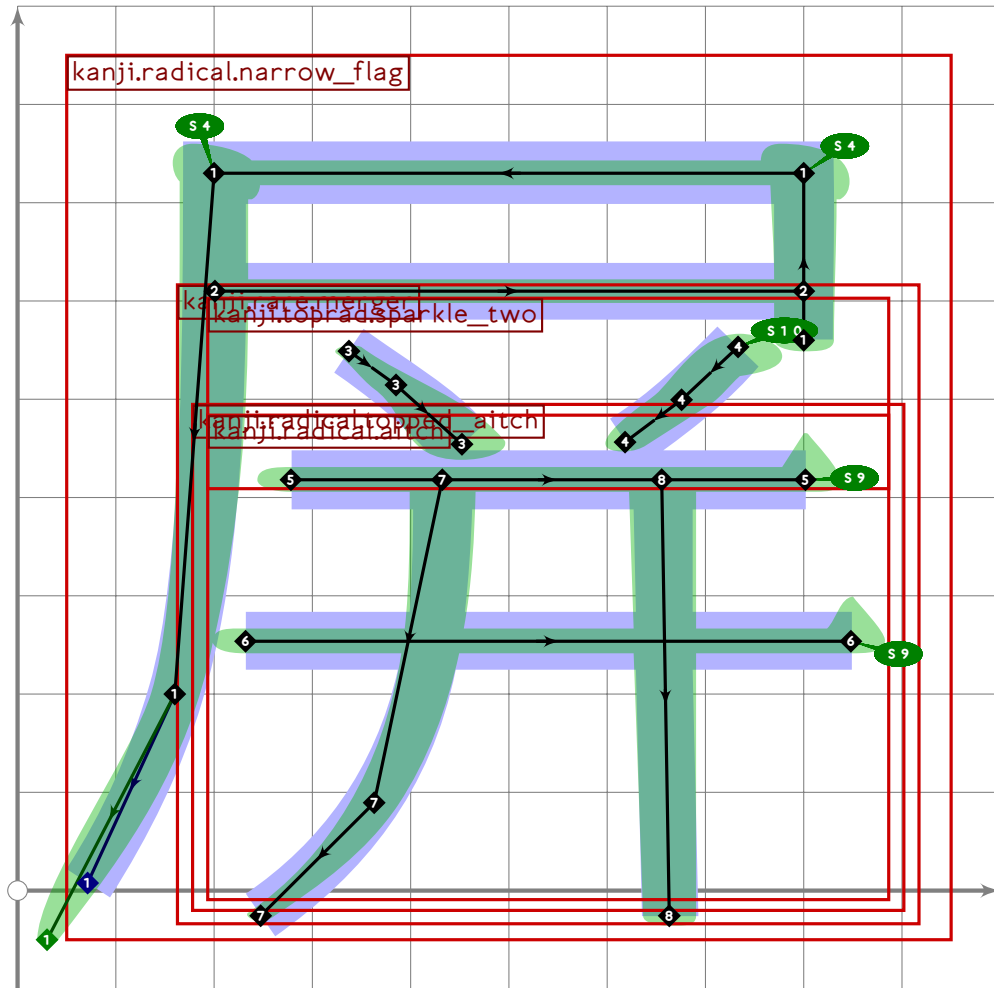
[see page 1696]



```

287 % extra "shit"
288 begintsuglyph("uni5C4E";78);
289   build_kanji.level(
290     kanji.radical.flag;
291     build_kanji.sscale(xyscaled (0.7,0.55) shifted (20;-200))
292     (kanji.grtwo.rice));
293   tsu_render;
294 endtsuglyph;
295

```

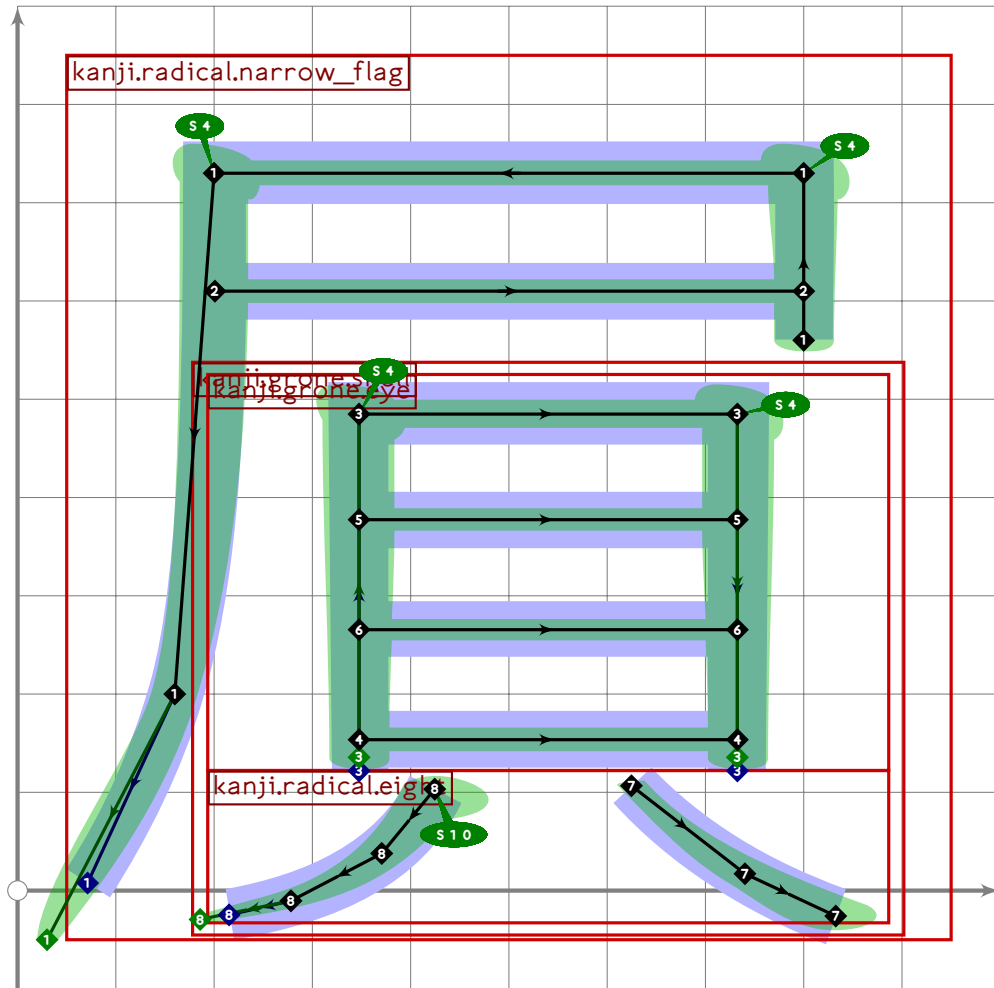


```

296 % extra "fence"
297 begintsuglyph("uni5C4F",79);
298   build_kanji.level(
299     kanji.radical.narrow_flag;
300     build_kanji.sscale(xyscaled (0.77,0.68) shifted (40,-100))
301     (kanji.rare.merger));
302   tsu_render;
303 endtsuglyph;
304
305 % setsu/kuzu "chad"
306 begintsuglyph("uni5C51",81);
307   kanji.grnine.chad;
308   tsu_render;
309 endtsuglyph;
310

```

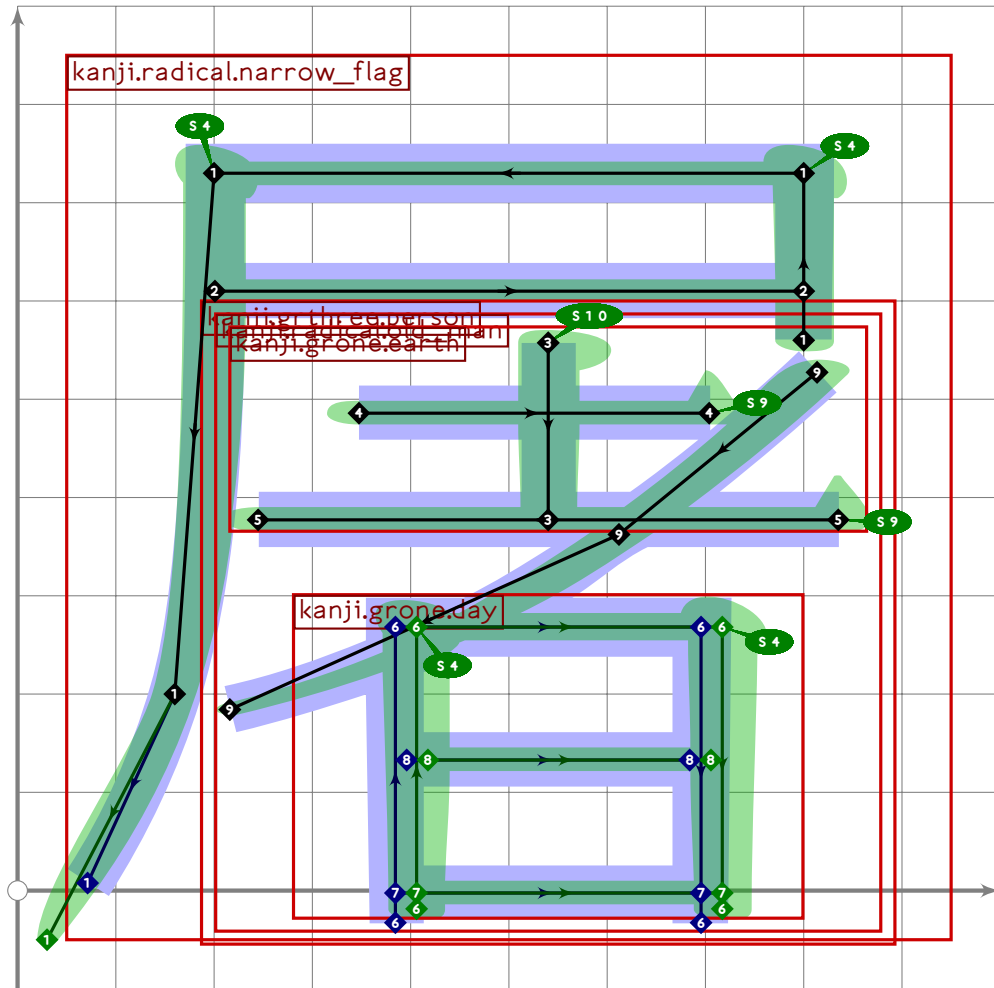
[see page 1704]



```

311 % extra "exerting strength, in aikido"
312 begintsuglyph("uni5C53";83);
313 build_kanji.level(
314     kanji.radical.narrow_flag;
315     build_kanji.scale(xyscaled (0.77,0.62) shifted (40,-150))
316     (kanji.grone.shell));
317 tsu_render;
318 endsuglyph;
319

```



```

320 % extra "slaughter"
321 begintsuglyph("uni5C60",96);
322 build_kanji.level(
323   kanji.radical.narrow_flag;
324   build_kanji.sscale(xyscaled (0.72,0.66) shifted (40,-120))
325   (kanji.grthree.person));
326 tsu_render;
327 endsuglyph;
328
329 % yama/san "mountain"
330 begintsuglyph("uni5C71",113);
331 kanji.grone.mountain;
332 tsu_render;
333 endsuglyph;
334
335 % gan/iwa "rock"
336 begintsuglyph("uni5CA9",169);
337 kanji.grtwo.rock;
338 tsu_render;
339 endsuglyph;
340

```

[see page 410]

[see page 1693]

```
341 % gan/kishi "beach"
342 begintsuglyph("uni5CB8",184); [see page 1694]
343 kanji.grthree.beach;
344 tsu_render;
345 endtsuglyph;
346
347 % tou/shima "island"
348 begintsuglyph("uni5CF6",246); [see page 1697]
349 kanji.grthree.island;
350 tsu_render;
351 endtsuglyph;
352
353 

---


354
355 endfont;
356
357 

---


```

# tsuku-5d.mp

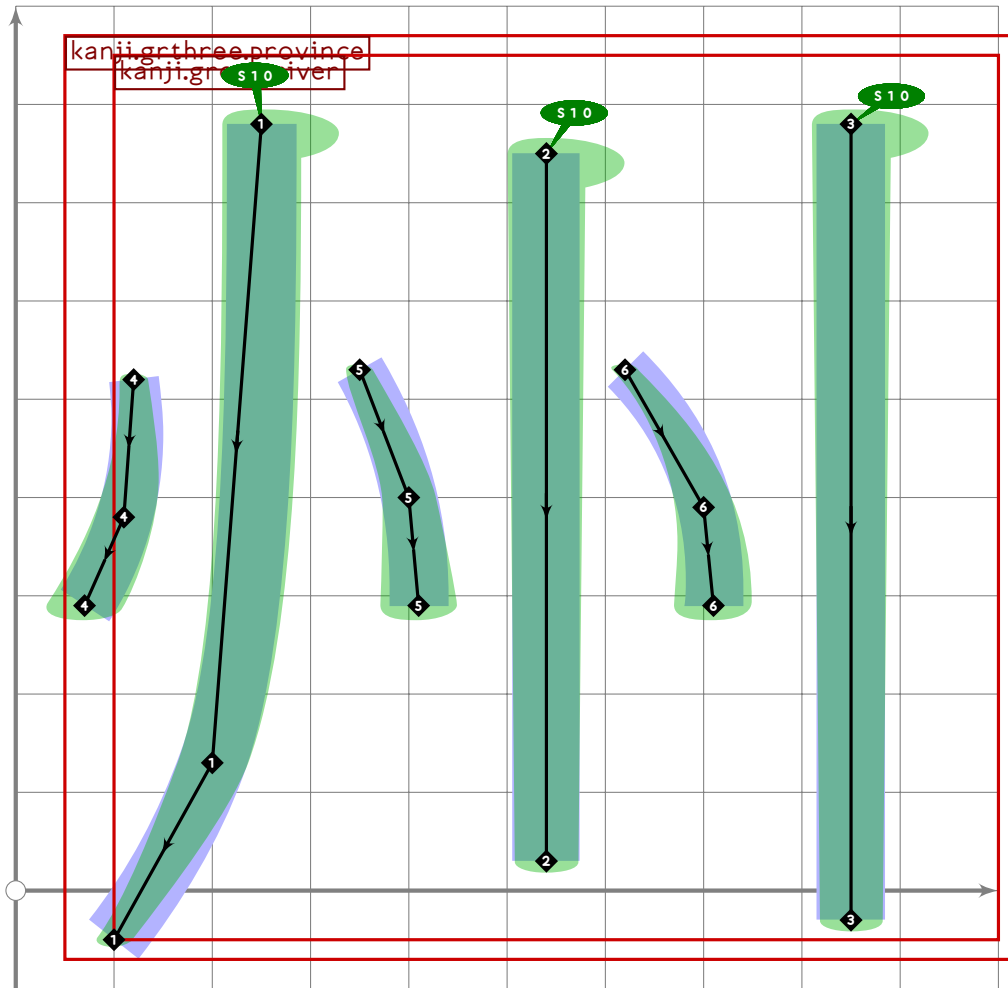
```
1 %
2 % Unicode page 5d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input radical.mp;
44
45 

---


```

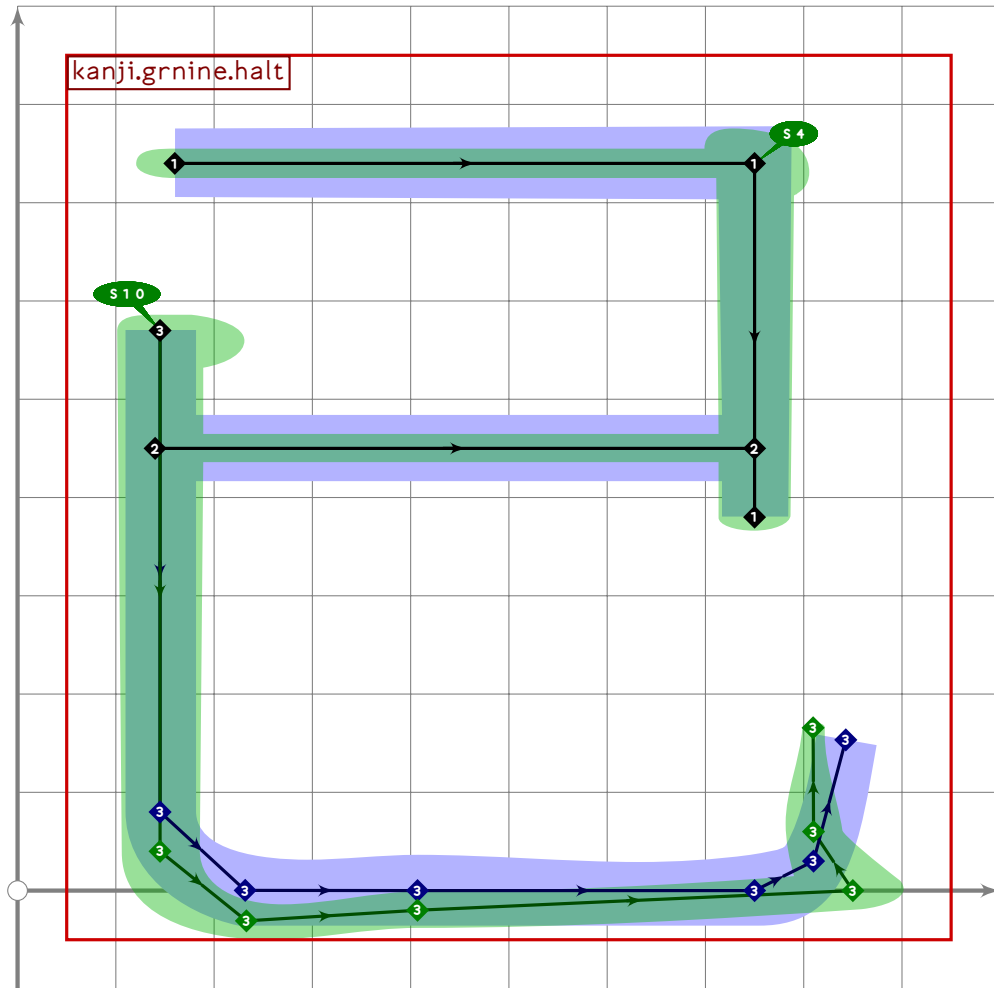


```

46
47 vardef kanji.grthree.province =
48   push_pbox_toexpand("kanji.grthree.province");
49   tsu_xform(identity shifted (50,0))(kanji.grone.river);
50   push_stroke((120,520)..(110,380)..(70,290),
51     (1,1)-(1.5,1.5)-(1.8,1.8));
52   set_bosize(0,82);
53   push_stroke((350,530)..(400,400)..(410,290),
54     (1,1)-(1.4,1.4)-(1.8,1.8));
55   set_bosize(0,82);
56   push_stroke((620,530)..(700,390)..(710,290),
57     (1,1)-(1.5,1.5)-(1.8,1.8));
58   set_bosize(0,82);
59   expand_pbox;
60 enddef;
61
62

```





```

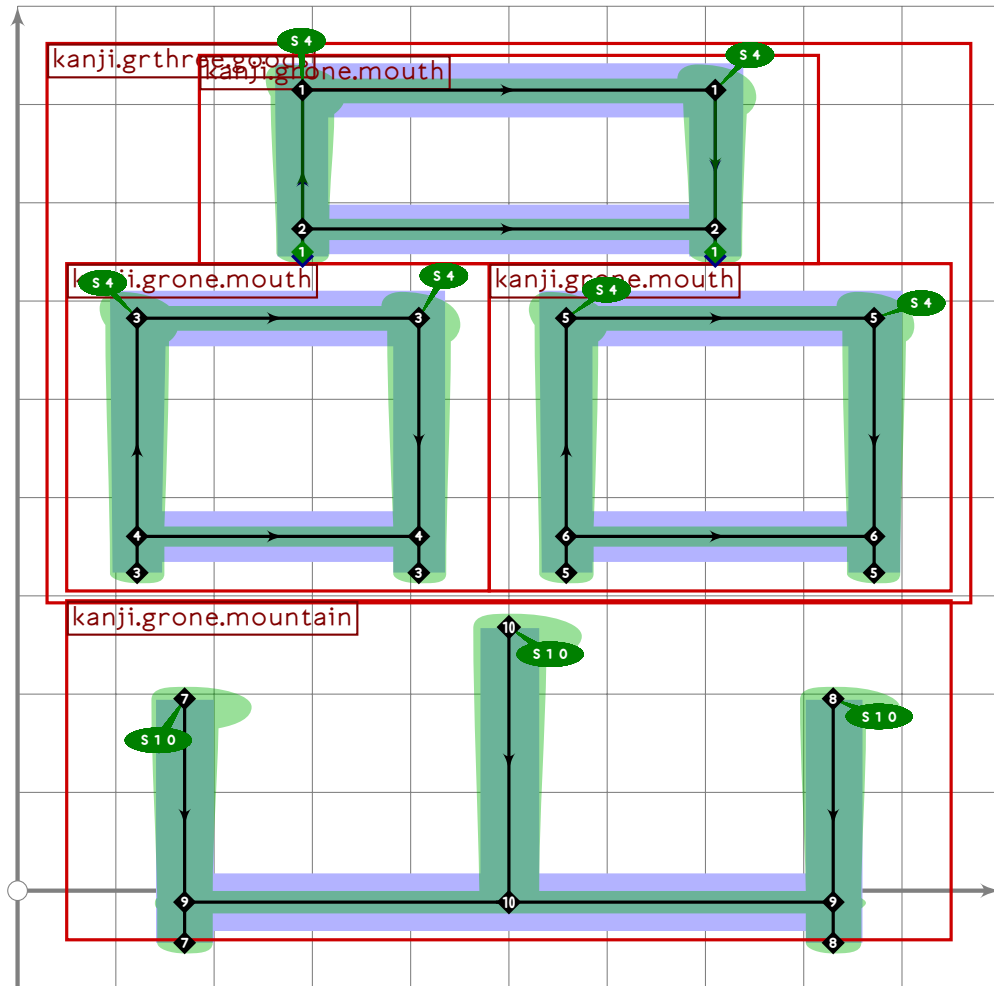
63
64 vardef kanji.grnine.halt =
65   push_pbox_toexpand("kanji.grnine.halt");
66   push_stroke((160,740)-(750,740)-(750,380),
67     (1.6,1.6)-(1.6,1.6)-(1.5,1.5));
68   set_botip(0,1,1);
69   set_boserif(0,1,4);
70   push_stroke((140,450)-(750,450),
71     (1.5,1.5)-(1.5,1.5));
72   push_stroke((145,570),(1.7,1.7));
73   set_boserif(0,0,10);
74   build_kanji.add_ltail(0);
75   expand_pbox;
76 enddef;
77
78
79
80 % hou/kuzu "demolish"
81 begintsuglyph("uni5D29"41);
82 kanji.greight.demolish;
83 tsu_render;

```

[see page 570]

84 endtsuglyph;

85



86 % extra

87 `begintsuglyph("uni5D52";82);`

88 `build_kanji.tb(300;10)`

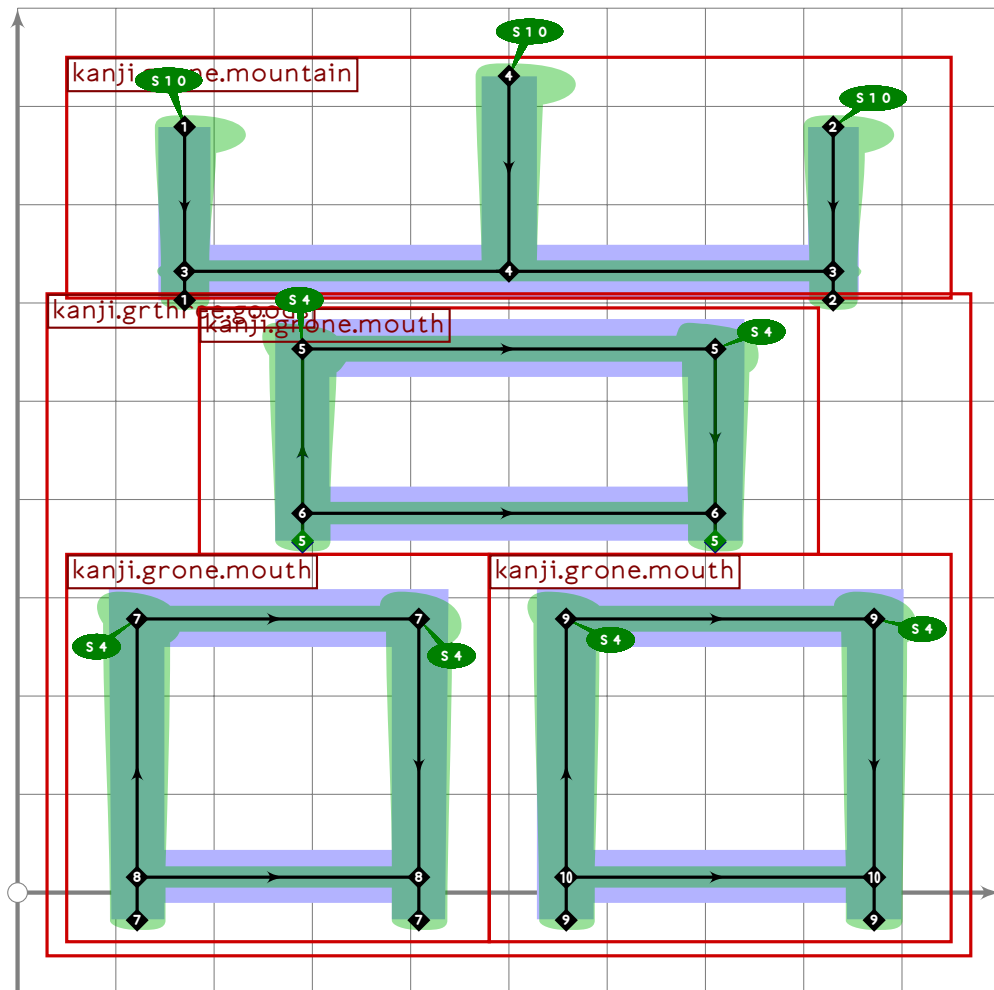
89 `(kanji.grthree.goods)`

90 `(kanji.grone.mountain);`

91 `tsu_render;`

92 `endtsuglyph;`

93



```

94 % extra
95 begintsuglyph("uni5D53";83);
96 build_kanji.level(build_kanji.tb(600,10)
97   (kanji.grone.mountain)
98   (kanji.grthree.goods));
99 tsu_render;
100 endtsuglyph;
101
102 % kawa "river"
103 begintsuglyph("uni5DDD";221);
104 kanji.grone.river;
105 tsu_render;
106 endtsuglyph;
107
108 % shuu "province"
109 begintsuglyph("uni5DDE";222);
110 kanji.grthree.province;
111 tsu_render;
112 endtsuglyph;
113
114 % takumi "craft"

```

[see page 424]

[see page 1716]

115 `begintsuglyph("uni5DE5",229);` [see page 455]  
116 `kanji.grtwo.craft;`  
117 `tsu_render;`  
118 `endtsuglyph;`  
119  
120 `% hidari "left"`  
121 `begintsuglyph("uni5DE6",230);` [see page 406]  
122 `kanji.grone.left;`  
123 `tsu_render;`  
124 `endtsuglyph;`  
125  
126 `% ko/ki "self" (dict. says also "snake" but almost no words use it that way)`  
127 `begintsuglyph("uni5DF1",241);` [see page 566]  
128 `kanji.grsix.self;`  
129 `tsu_render;`  
130 `endtsuglyph;`  
131  
132 `% i/ya "halt"`  
133 `begintsuglyph("uni5DF2",242);` [see page 1717]  
134 `kanji.grnine.halt;`  
135 `tsu_render;`  
136 `endtsuglyph;`  
137  
138 `% shi/mi "snake zodiac sign"`  
139 `begintsuglyph("uni5DF3",243);` [see page 599]  
140 `kanji.grnine.snake_sign;`  
141 `tsu_render;`  
142 `endtsuglyph;`  
143  
144 `% ha/tomoe "tomoe"`  
145 `begintsuglyph("uni5DF4",244);` [see page 603]  
146 `kanji.grnine.tomoe;`  
147 `tsu_render;`  
148 `endtsuglyph;`  
149  
150 `% kin/oo/haba "towel" or "hanging scroll"`  
151 `begintsuglyph("uni5DFE",254);` [see page 587]  
152 `kanji.greight.towel;`  
153 `tsu_render;`  
154 `endtsuglyph;`  
155  
156 

---

  
157  
158 `endfont;`  
159  
160 

---

# tsuku-5e.mp

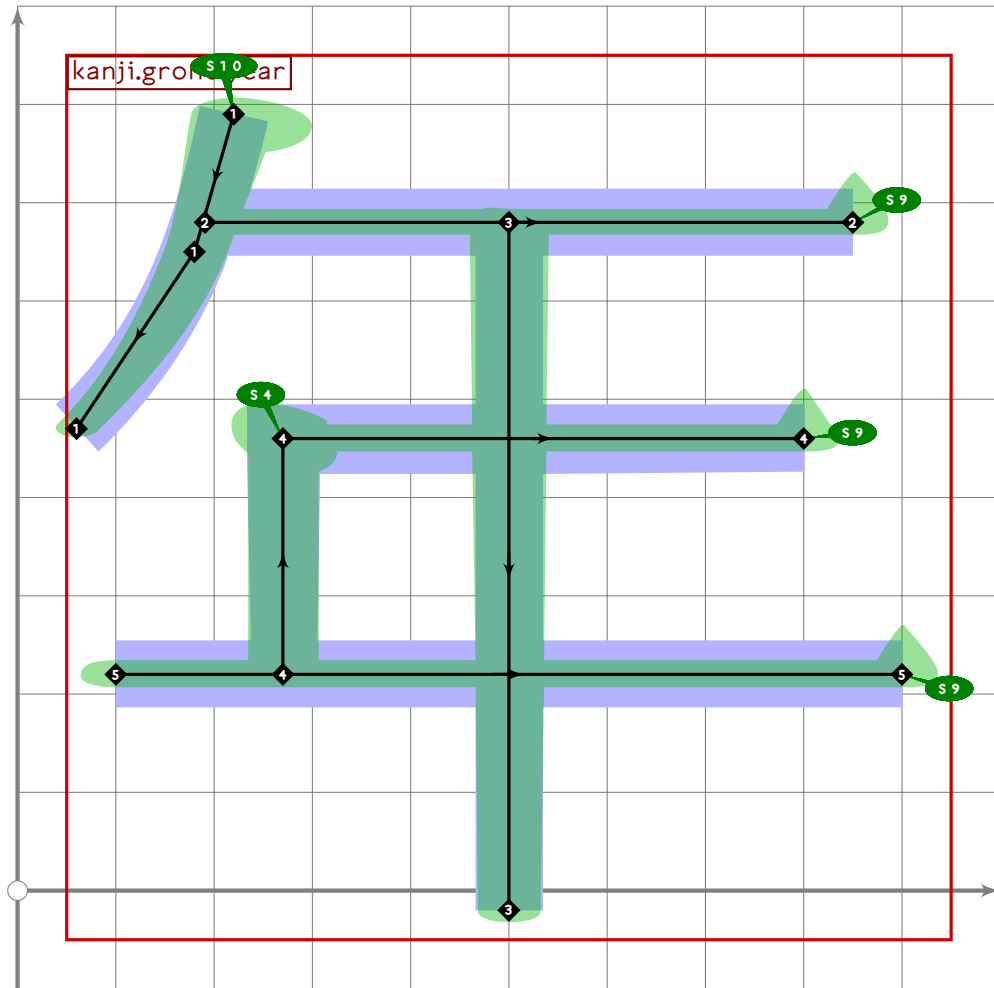
```
1 %
2 % Unicode page 5e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input topfad.mp;
48
49 

---

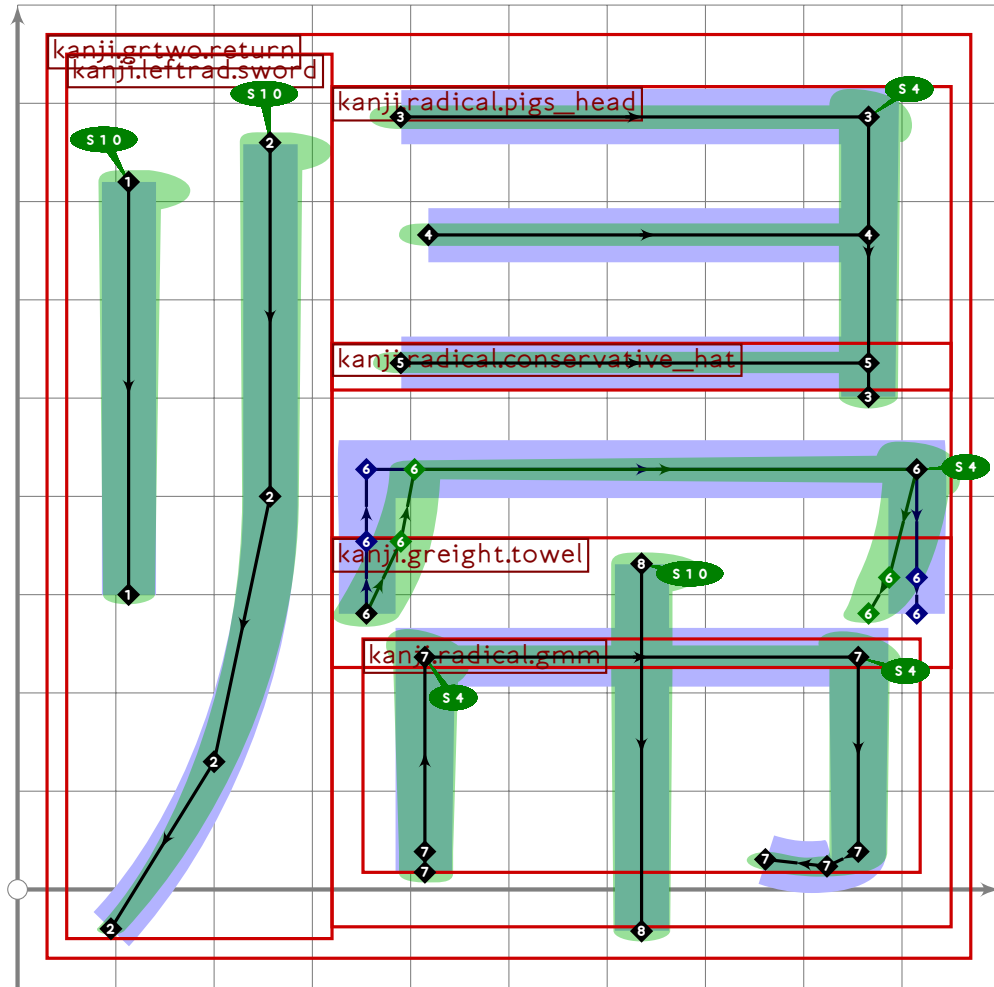

```



```

50
51 vardef kanji.grone.year =
52   push_pbox_toexpand("kanji.grone.year");
53   push_stroke((220,790){curl 0.1}..(180,650)..(60,470),
54     (17,17)-(14,14)-(11,11));
55   set_boserif(0,0,10);
56   push_stroke(
57     (((0,680)-(1000,680)) intersectionpoint get_strokep(0))-(850,680),
58     (14,14)-(15,15));
59   set_boserif(0,1,9);
60   push_stroke((500,680)-(500,-20),(1.6,1.6)-(14,14));
61   push_stroke((270,220)-(270,460)-(800,460),
62     (1.5,1.5)-(1.5,1.5)-(1.5,1.5));
63   set_botip(0,1,1);
64   set_boserif(0,1,4);
65   set_boserif(0,2,9);
66   push_stroke((100,220)-(900,220),(1.5,1.5)-(1.5,1.5));
67   set_boserif(0,1,9);
68   expand_pbox;
69 enddef;
70

```

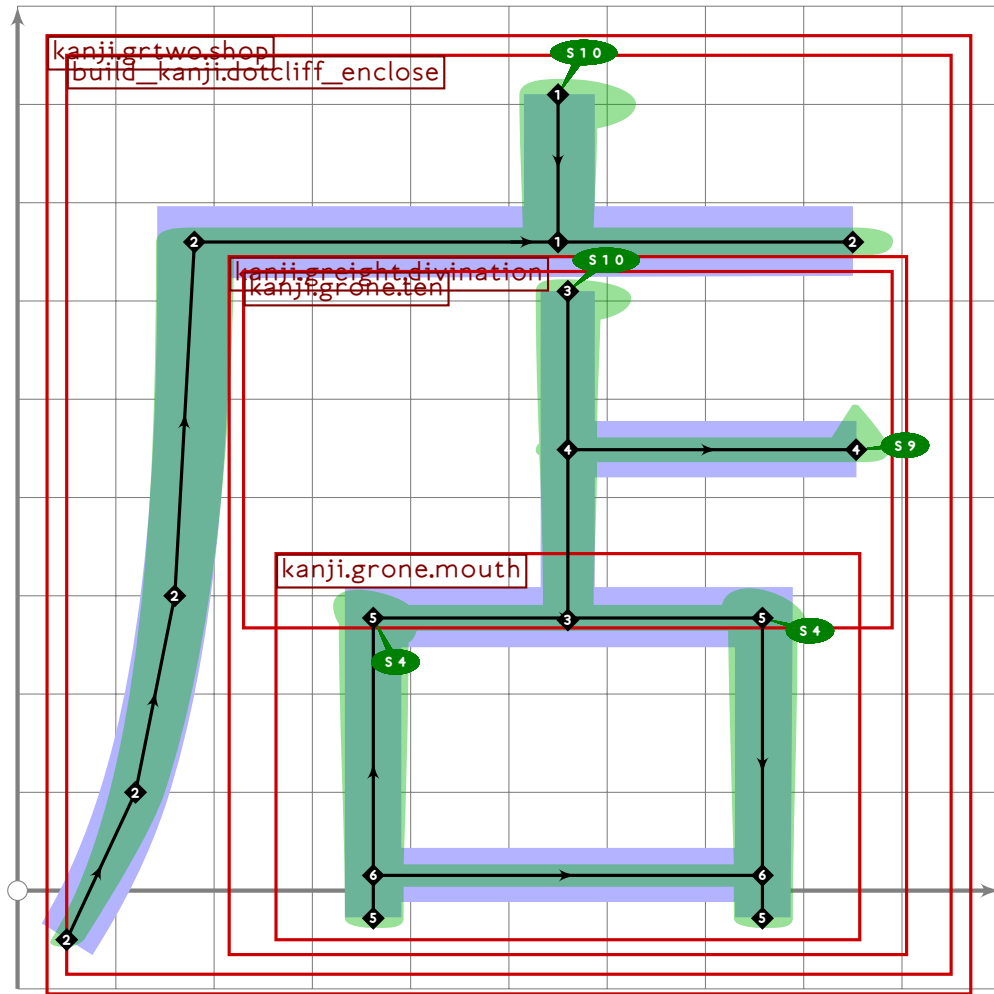


72

```

73 vardef kanji.grtwo.return =
74   push_pbox_toexpand("kanji.grtwo.return");
75   % can't just invoke "broom" because of Japanese style difference
76   % between "pig's snout" and "pig's head" radicals
77   build_kanji.level(build_kanji.lr(320,0)
78     (kanji.leftrad.sword)
79     (build_kanji.sscale(yscaled 0.95 shifted (0,-10))
80       (build_kanji.tb(550,50)
81         (kanji.radical.pigs_head)
82         (build_kanji.tb(450,200)
83           (kanji.radical.conservative_hat)
84           (kanji.greight.towel))))));
85   expand_pbox;
86 enddef;

```

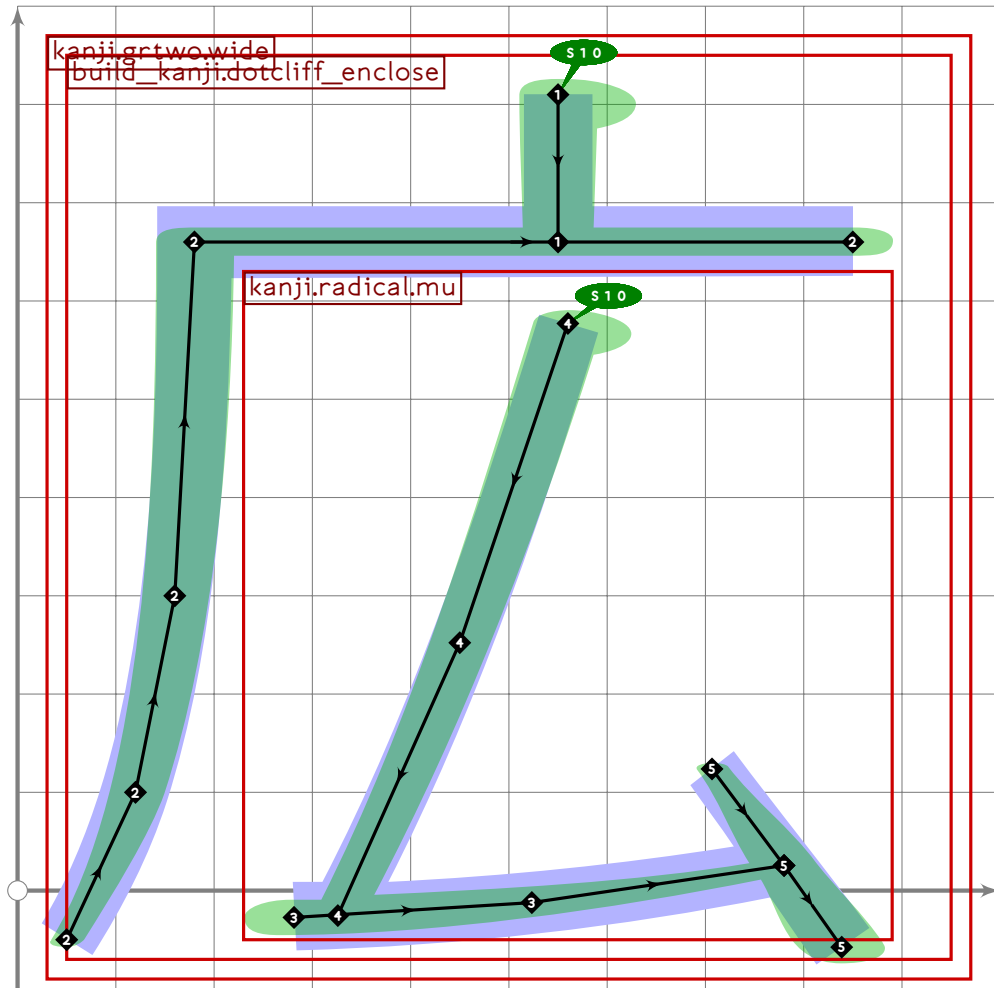


```

87
88 vardef kanji.grtwo.shop =
89   push_pbox_toexpand("kanji.grtwo.shop");
90   build_kanji.dotcliff_enclose(kanji.greight.divination);
91   expand_pbox;
92 enddef;

```

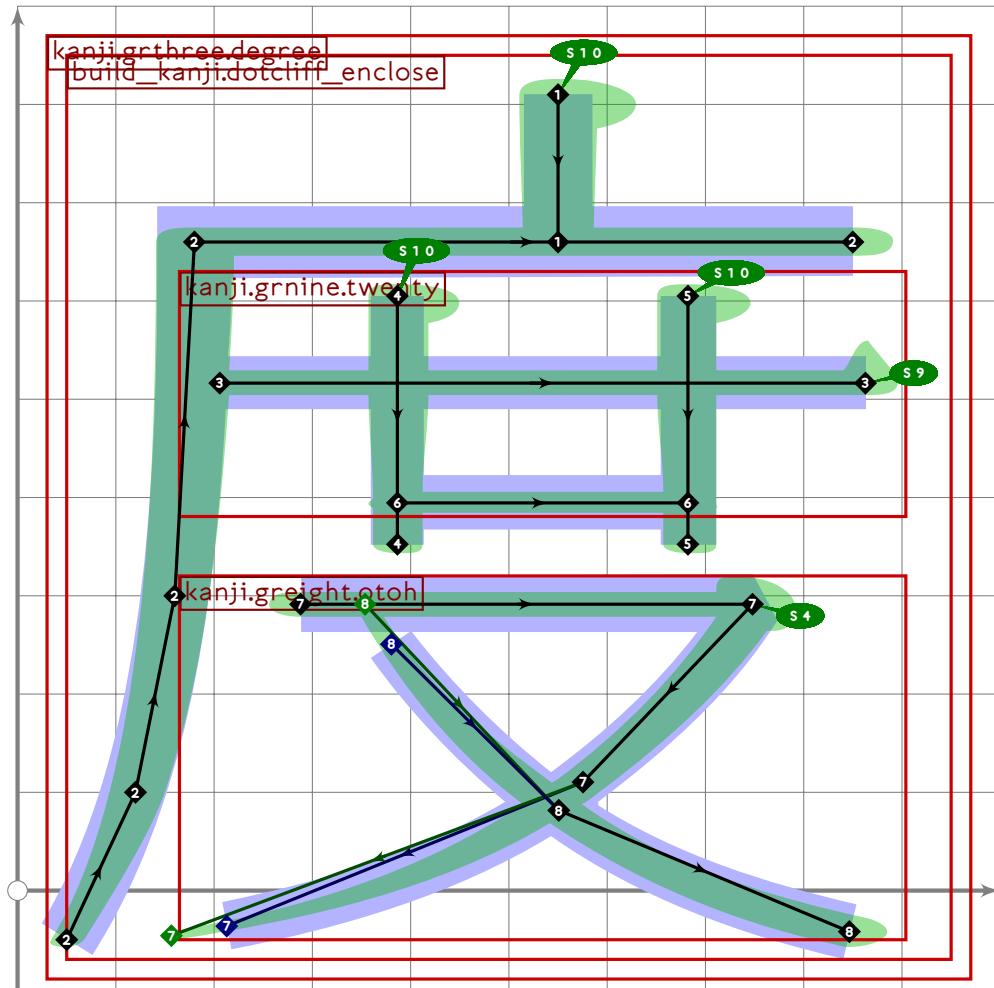




```

93
94 vardef kanji.grtwo.wide =
95   push_pbox_toexpand("kanji.grtwo.wide");
96   build_kanji.dotcliff_enclose(kanji.radical.mu);
97   expand_pbox;
98 enddef;
99
100

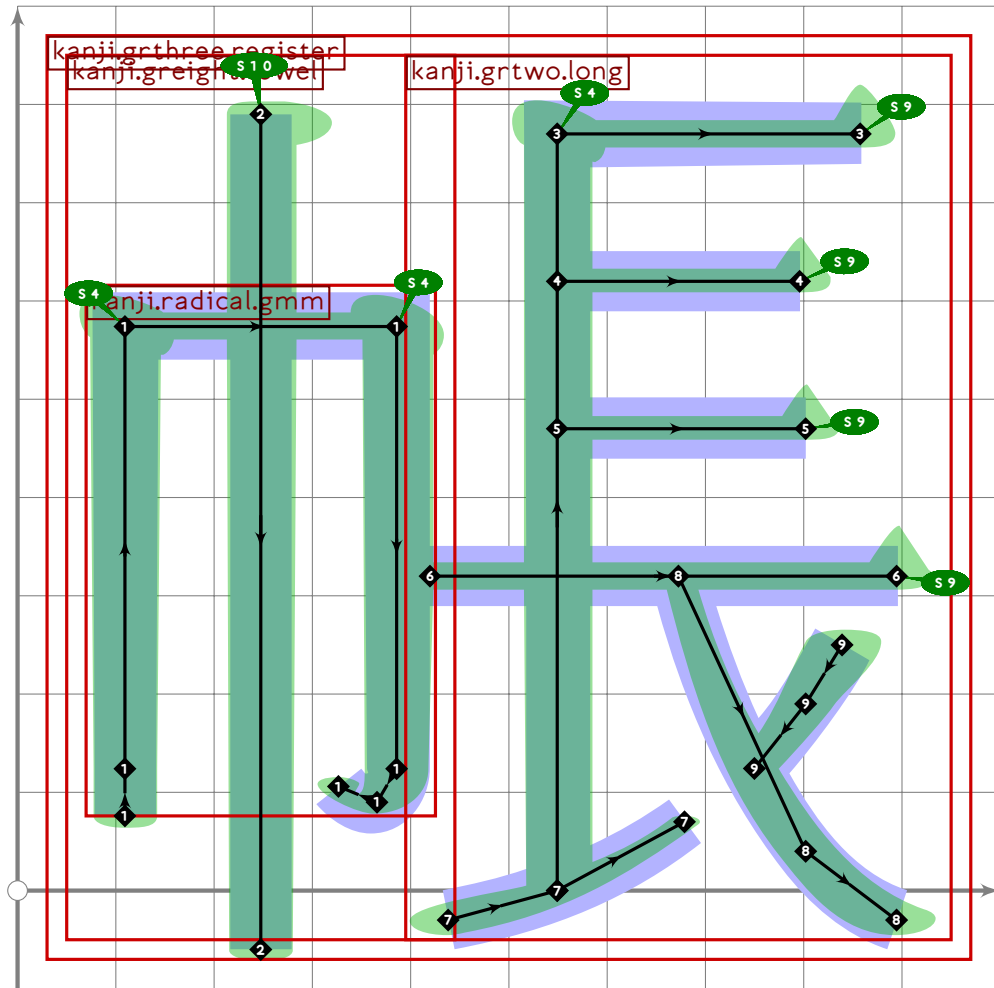
```



```

101
102 vardef kanji.grthree.degree =
103   push_pbox_toexpand("kanji.grthree.degree");
104   build_kanji.dotcliff_enclose(build_kanji.level(
105     build_kanji.sscale(xscaled 1.12 shifted (-35,0))(build_kanji.tb(480,-80)
106       (kanji.grnine.twenty)
107       (kanji.greight.otoh))));
108   expand_pbox;
109 enddef;

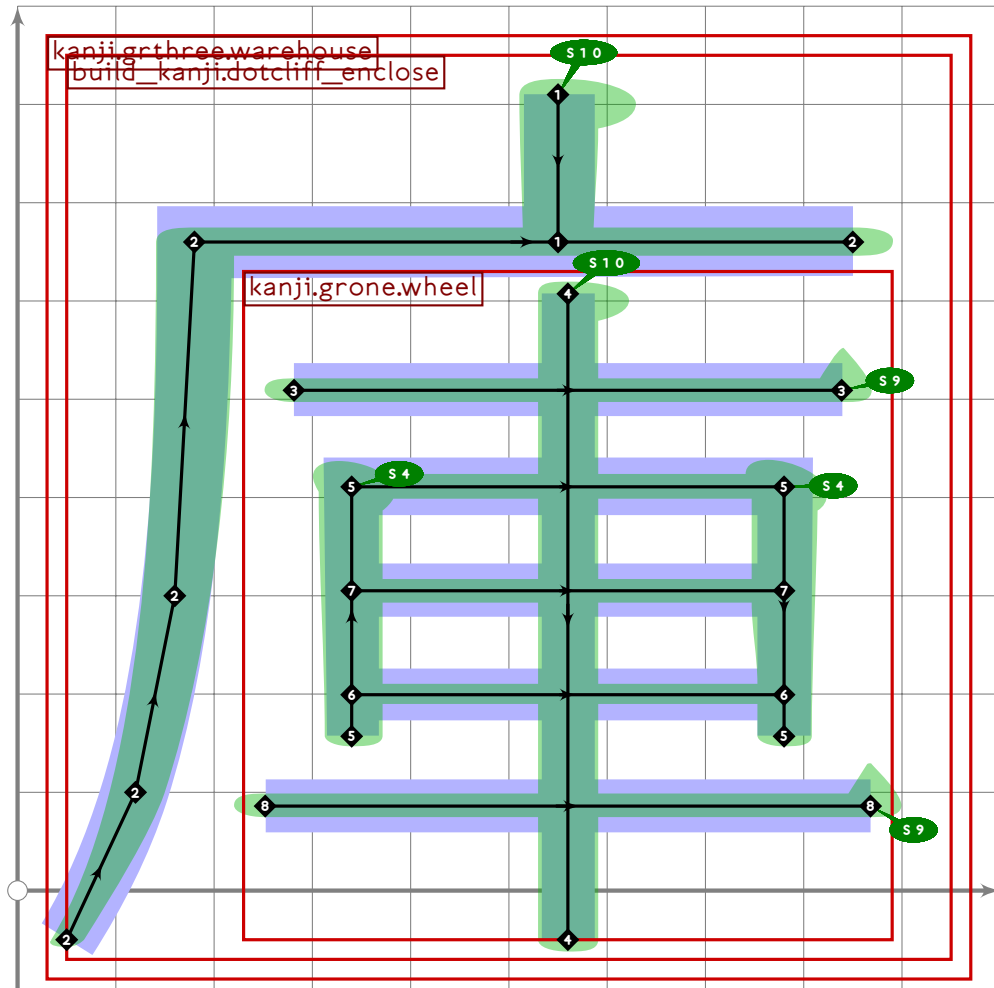
```



```

110
111 vardef kanji.grthree.register =
112   push_pbox_toexpand("kanji.grthree.register");
113   build_kanji.level(build_kanji.lr(420,50)
114     (kanji.greight.towel)
115     (kanji.grtwo.long));
116   expand_pbox;
117 enddef;

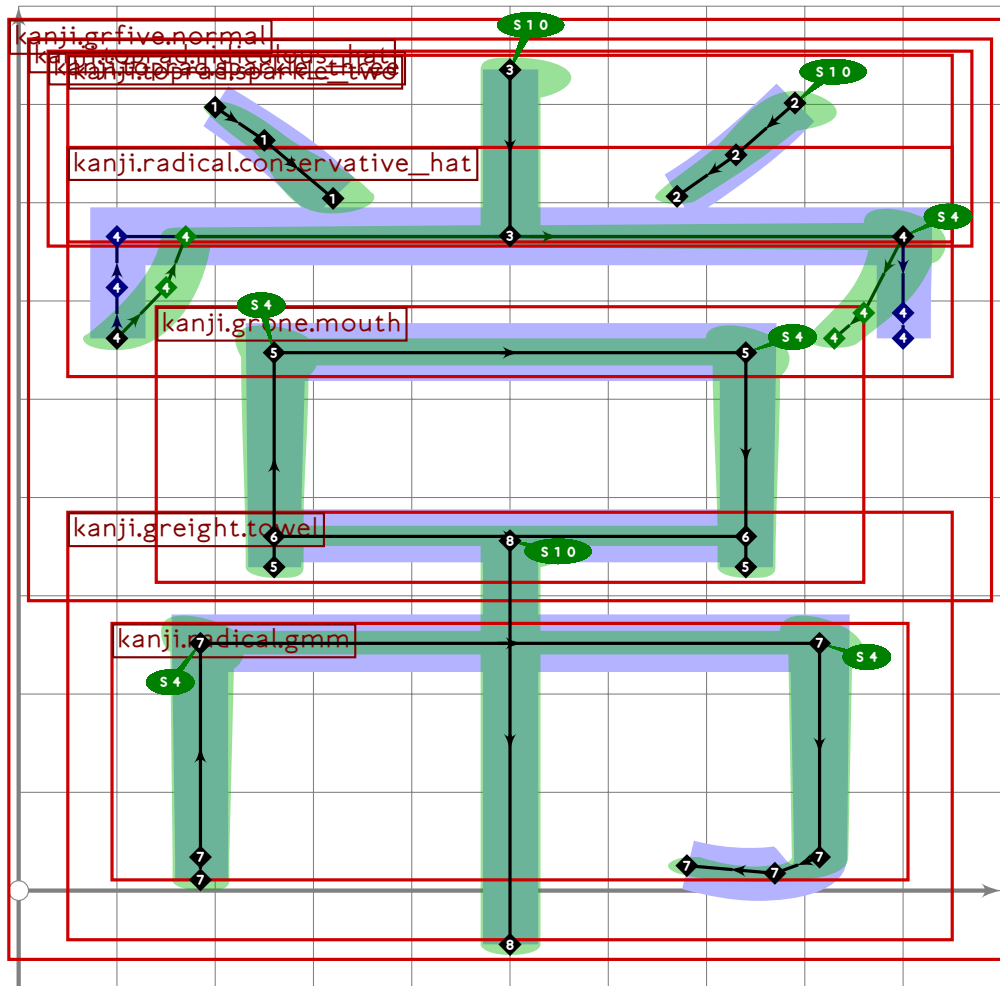
```



```

118
119 vardef kanji.grthree.warehouse =
120   push_pbox_toexpand("kanji.grthree.warehouse");
121   build_kanji.dotcliff_enclose(kanji.grone.wheel);
122   expand_pbox;
123 enddef;
124
125 _____

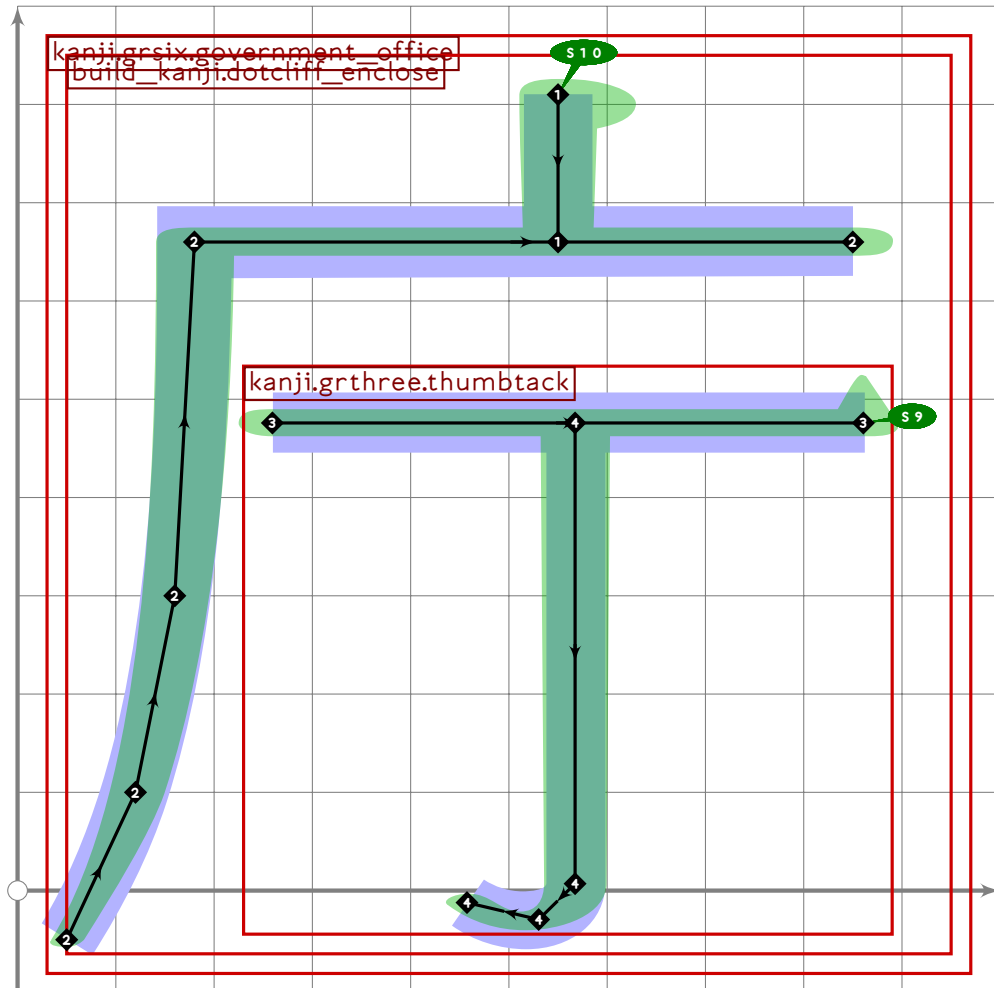
```



```

126
127 vardef kanji.grfive.normal =
128   push_pbox_toexpand("kanji.grfive.normal");
129   build_kanji.level(build_kanji.tb(340,90)
130     (kanji.toprad.ridiculous_hat)
131     (kanji.greight.towel));
132   expand_pbox;
133 enddef;
134
135

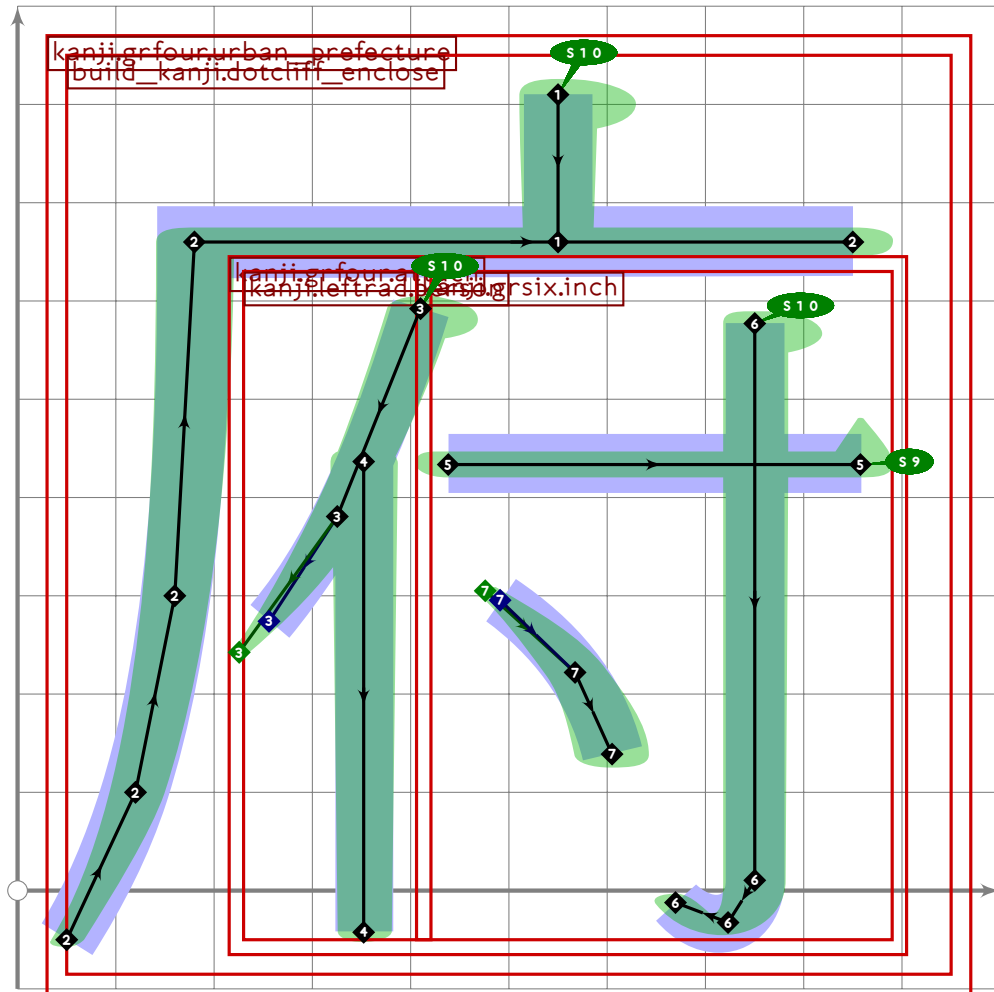
```



```

136
137 vardef kanji.grsix.government_office =
138   push_pbox_toexpand("kanji.grsix.government_office");
139   build_kanji.dotcliff_enclose(tsu_xform(identity yscaled 0.85)
140     (kanji.grthree.thumbtack));
141   expand_pbox;
142 enddef;
143
144

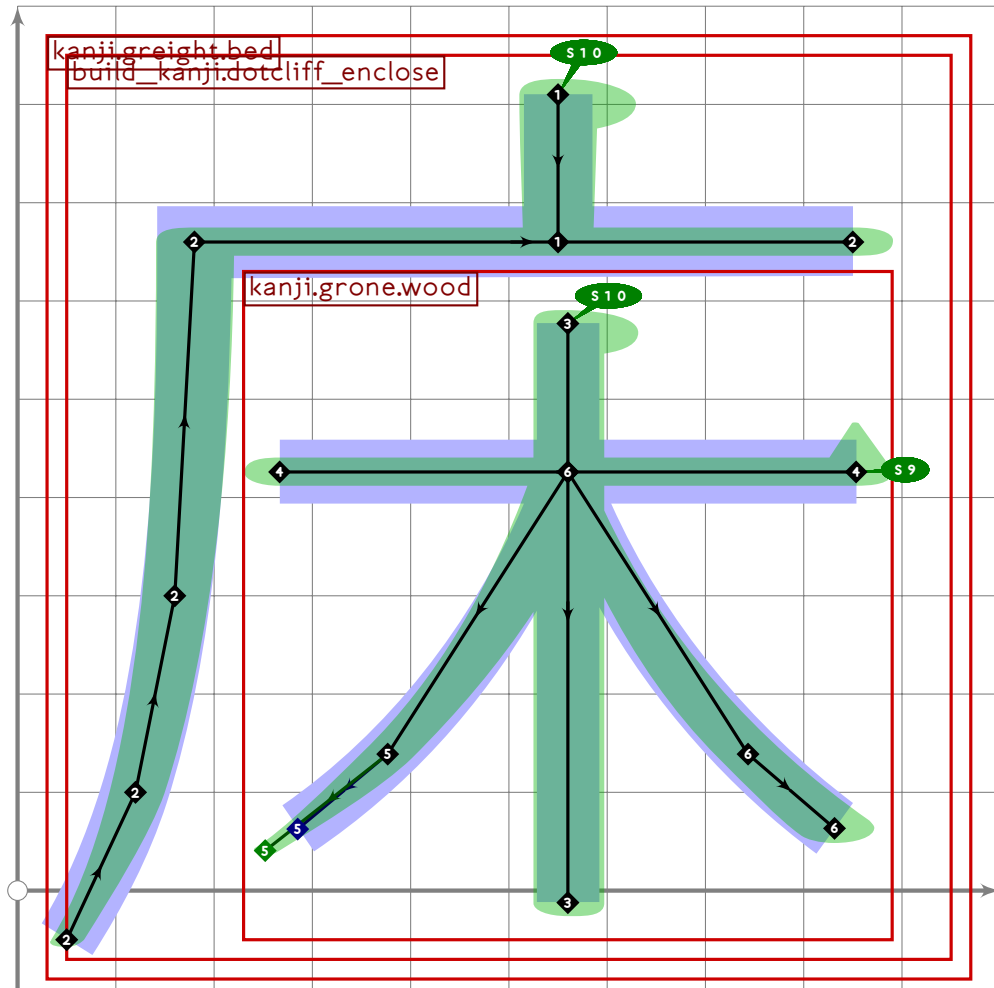
```



```

145
146 vardef kanji.grfour.urban_prefecture =
147   push_pbox_toexpand("kanji.grfour.urban_prefecture");
148   build_kanji.dotcliff_enclose(kanji.grfour.attach);
149   expand_pbox;
150 enddef;
151
152

```

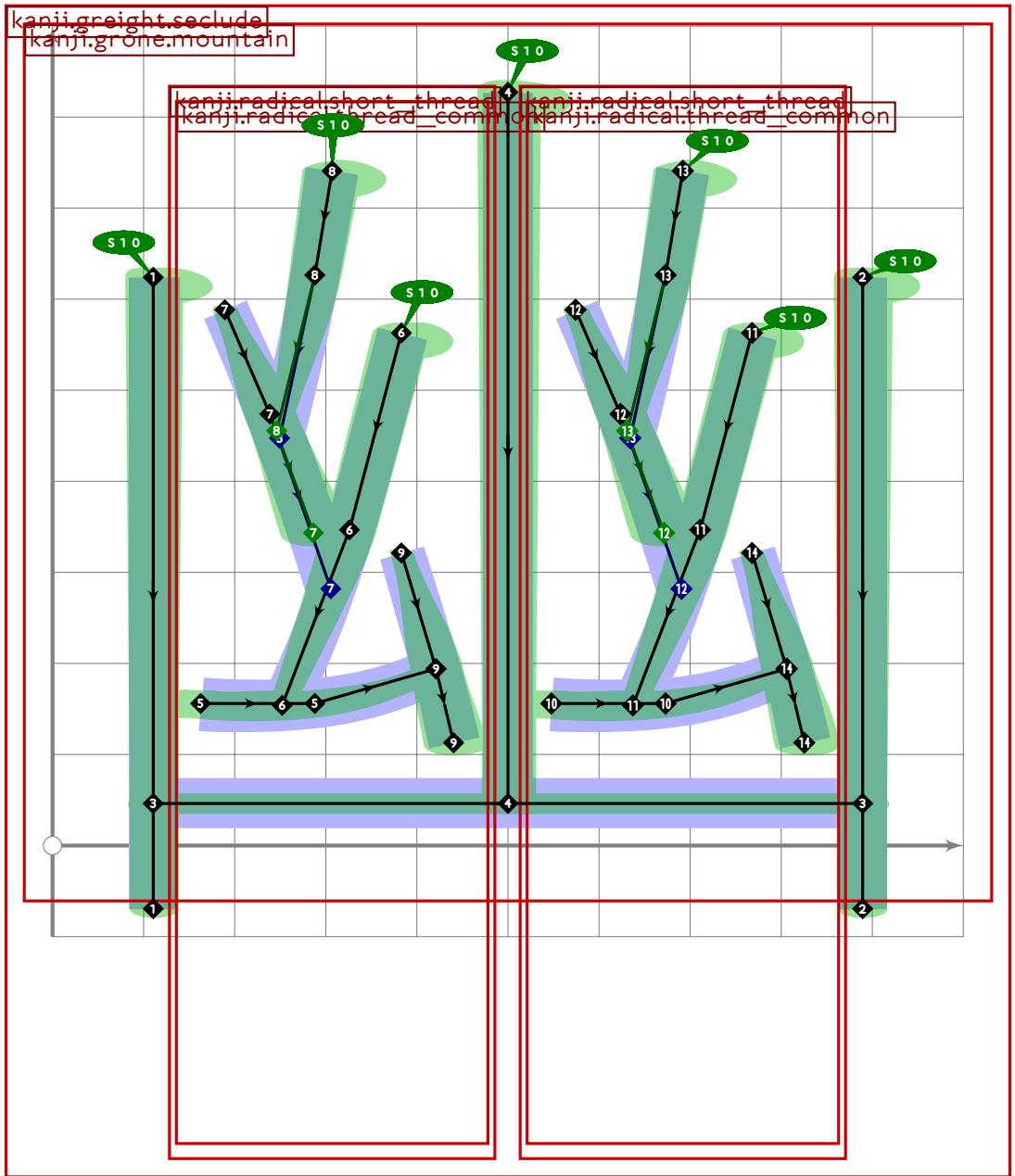


```

153
154 vardef kanji.greight.bed =
155   push_pbox_toexpand("kanji.greight.bed");
156   build_kanji.dotcliff_enclose(kanji.grone.wood);
157   expand_pbox;
158 enddef;

```

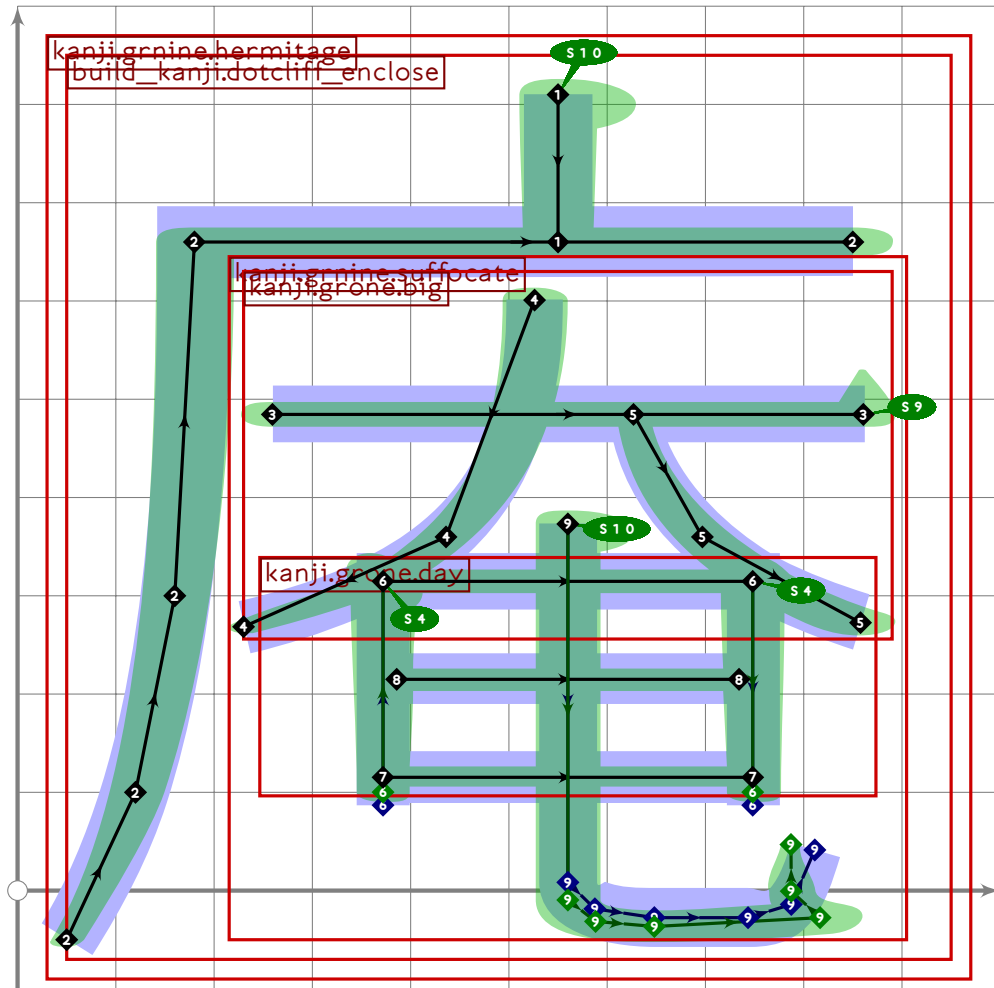




```

159
160 vardef kanji.greight.seclude =
161   push_pbox_toexpand("kanji.greight.seclude");
162   build_kanji.sscale(xyscaled (1.18,1.07) shifted (0,20))
163     (kanji.grone.mountain);
164   build_kanji.sscale(xyscaled (0.38,0.83) shifted (-193,15))
165     (kanji.radical.short_thread);
166   build_kanji.sscale(xyscaled (0.38,0.83) shifted (192,15))
167     (kanji.radical.short_thread);
168   for i=-14 upto 0: set_bosize(i,80); endfor;
169   expand_pbox;
170 enddef;
171
172

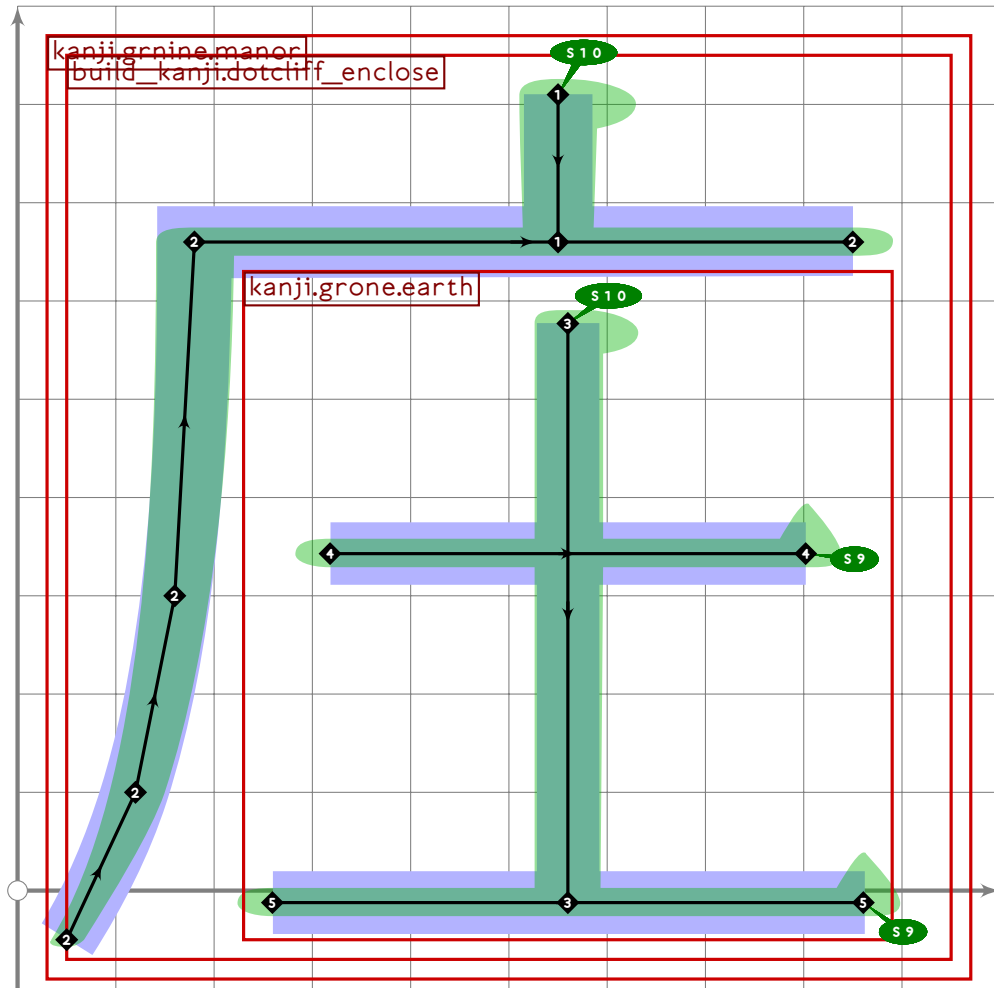
```



```

173
174 vardef kanji.grnine.hermitage =
175   push_pbox_toexpand("kanji.grnine.hermitage");
176   build_kanji.dotcliff_enclose(kanji.grnine.suffocate);
177   expand_pbox;
178 enddef;

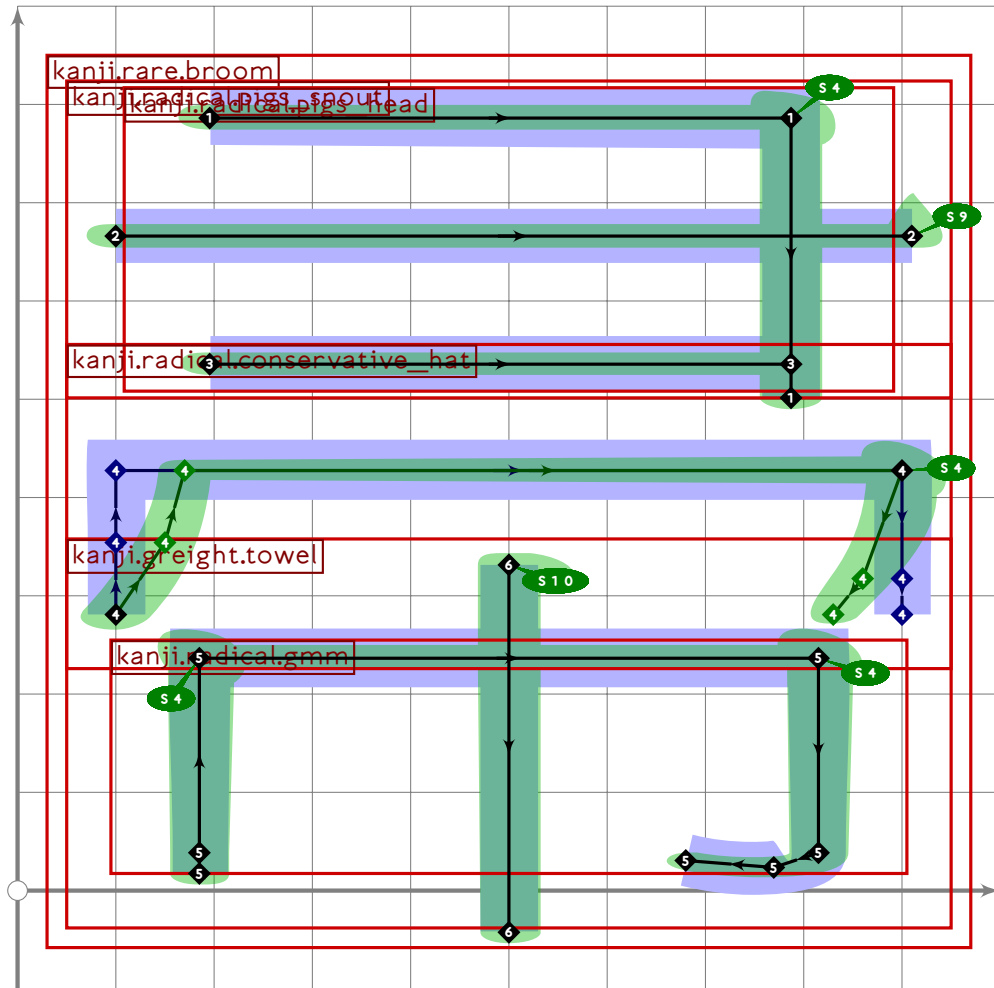
```



```

179
180 vardef kanji.grnine.manor =
181   push_pbox_toexpand("kanji.grnine.manor");
182   build_kanji.dotcliff_enclose(kanji.grone.earth);
183   expand_pbox;
184 enddef;
185
186

```



```

187
188 vardef kanji.rare.broom =
189   push_pbox_toexpand("kanji.rare.broom");
190   build_kanji.level(build_kanji.sscale(yscaled 0.95 shifted (0,-10))
191     (build_kanji.tb(550,50)
192       (kanji.radical.pigs_snout)
193       (build_kanji.tb(450,200)
194         (kanji.radical.conservative_hat)
195         (kanji.greight.towel))));
196   expand_pbox;
197 enddef;
198
199
200
201 vardef kanji.leftrad.sword =
202   push_pbox_toexpand("kanji.leftrad.sword");
203   push_stroke((260,720)-(260,300),(1.6,1.6)-(1.4,1.4));
204   set_boserif(0,0,10);
205   push_stroke((740,760)-(740,400){down}..(550,130)..(200,-40),
206     (1.6,1.6)-(1.5,1.5)-(1.3,1.3)-(1,1));
207   set_boserif(0,0,10);

```

```

208 expand_pbox;
209 enddef;
210
211 

---

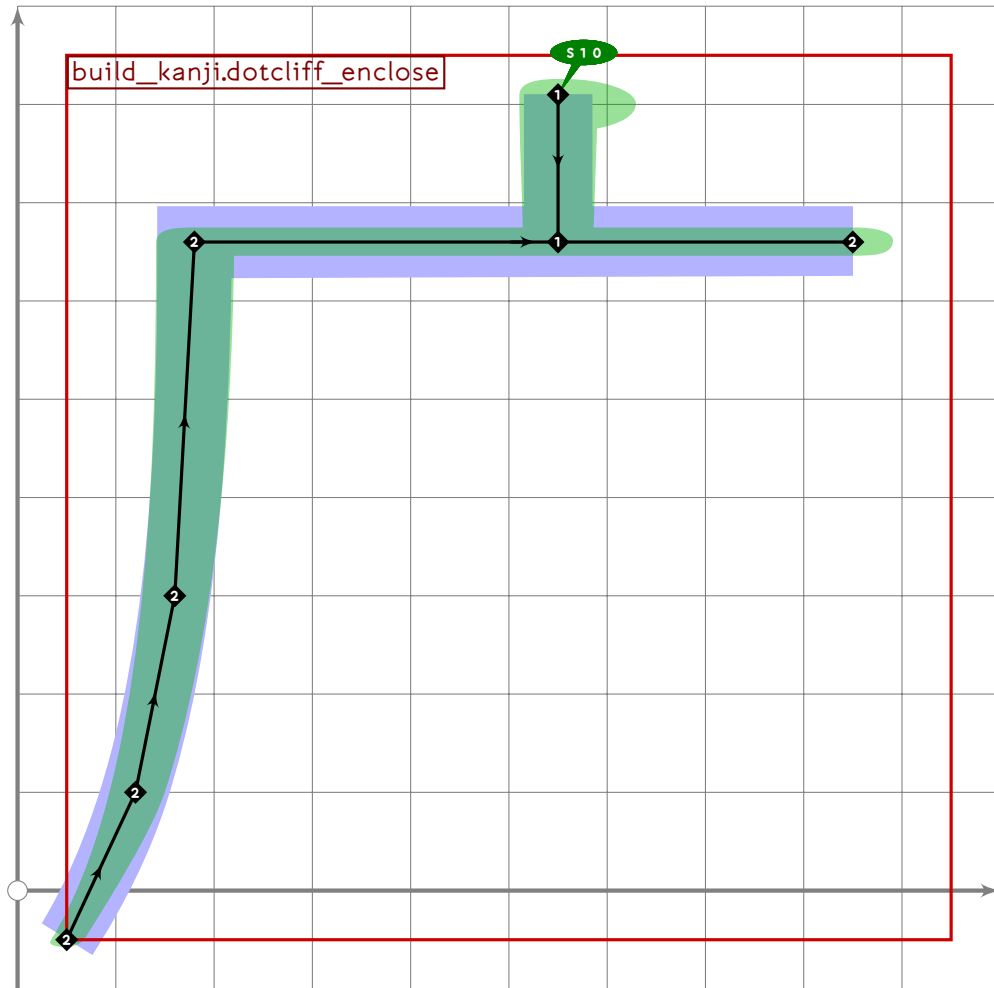

212
213 vardef kanji.toprad.ridiculous_hat =
214   push_pbox_toexpand("kanji.toprad.ridiculous_hat");
215   build_kanji.level(build_kanji.tb(620,156)
216     (kanji.toprad.sparkle_three)
217     (build_kanji.tb(600,410)
218       (kanji.radical.conservative_hat)
219       (build_kanji.sscale(xyscaled (0.8,0.64) shifted (0,-120))
220         (kanji.grone.mouth)))));
221   expand_pbox;
222 enddef;
223
224 

---


225
226 % shi/ichi "market"
227 begintsuglyph("uni5E02";2); [see page 477]
228 kanji.grtwo.market;
229 tsu_render;
230 endtsuglyph;
231
232 % sou/houki "broom" as in houkiboshi "comet"
233 begintsuglyph("uni5E1A";26); [see page 1736]
234 kanji.rare.broom;
235 tsu_render;
236 endtsuglyph;
237
238 % ki/kae "return"
239 begintsuglyph("uni5E30";48); [see page 1723]
240 kanji.grtwo.return;
241 tsu_render;
242 endtsuglyph;
243
244 % chou/tobari "register"
245 begintsuglyph("uni5E33";51); [see page 1727]
246 kanji.grthree.register;
247 tsu_render;
248 endtsuglyph;
249
250 % jou/tsune "normal"
251 begintsuglyph("uni5E38";56); [see page 1729]
252 kanji.grfive.normal;
253 tsu_render;
254 endtsuglyph;
255

```

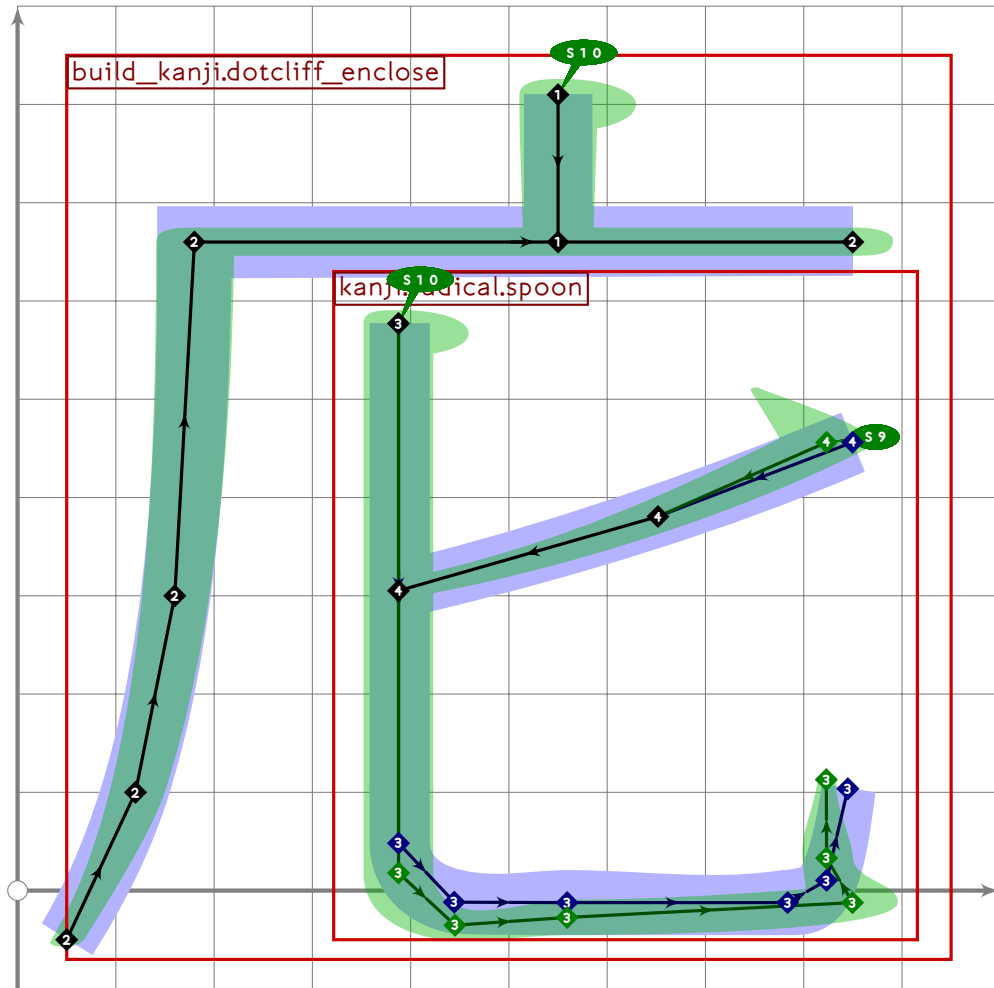
256 % kan/ho "dry"  
 257 `begintsuglyph("uni5E72";114);` [see page 563]  
 258 `kanji.grsix.dry;`  
 259 `tsu_render;`  
 260 `endtsuglyph;`  
 261  
 262 % nen/toshi "year"  
 263 `begintsuglyph("uni5E74";116);` [see page 1722]  
 264 `kanji.grone.year;`  
 265 `tsu_render;`  
 266 `endtsuglyph;`  
 267  
 268 % hei/awa "merger"  
 269 `begintsuglyph("uni5E76";118);` [see page 611]  
 270 `kanji.rare.merger;`  
 271 `tsu_render;`  
 272 `endtsuglyph;`  
 273  
 274 % you/chiisai "short thread radical"  
 275 `begintsuglyph("uni5E7A";122);` [see page 363]  
 276 `kanji.radical.short_thread;`  
 277 `tsu_render;`  
 278 `endtsuglyph;`  
 279  
 280 % yuu as in yuurei "seclude"  
 281 `begintsuglyph("uni5E7D";125);` [see page 1733]  
 282 `kanji.greight.seclude;`  
 283 `tsu_render;`  
 284 `endtsuglyph;`  
 285



```

286 % madare "dotted cliff radical"
287 beginsuglyph("uni5E7F";127);
288 build_kanji.dotcliff_enclose();
289 tsu_render;
290 endsuglyph;
291

```



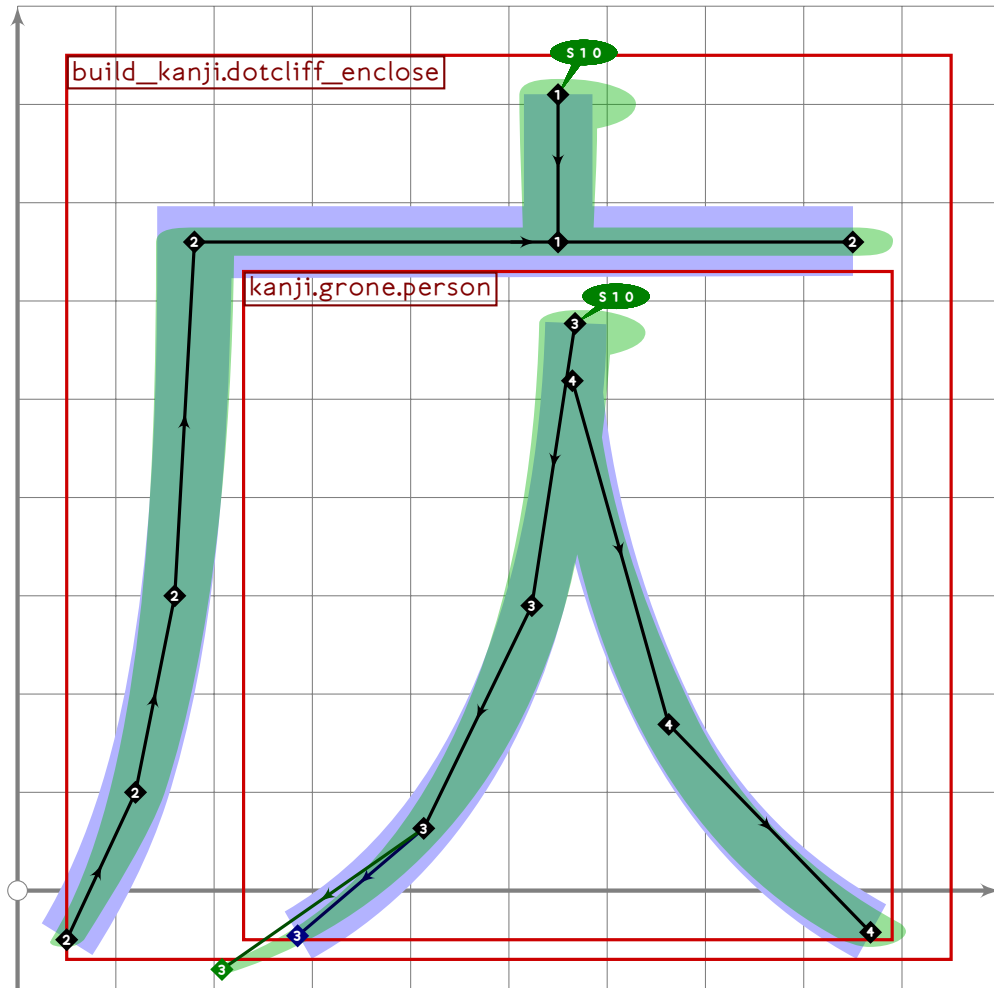
```

292 % extra
293 begintsuglyph("uni5E80",128);
294 build_kanji.dotcliff_enclose(
295     build_kanji.sscale(xscaled 0.9 shifted (80,0))
296     (kanji.radical.spoon));
297 tsu_render;
298 endtsuglyph;
299
300 % chou/yakushou "government office"
301 begintsuglyph("uni5E81",129);
302 kanji.grsix.government_office;
303 tsu_render;
304 endtsuglyph;
305

```

[see page 1730]





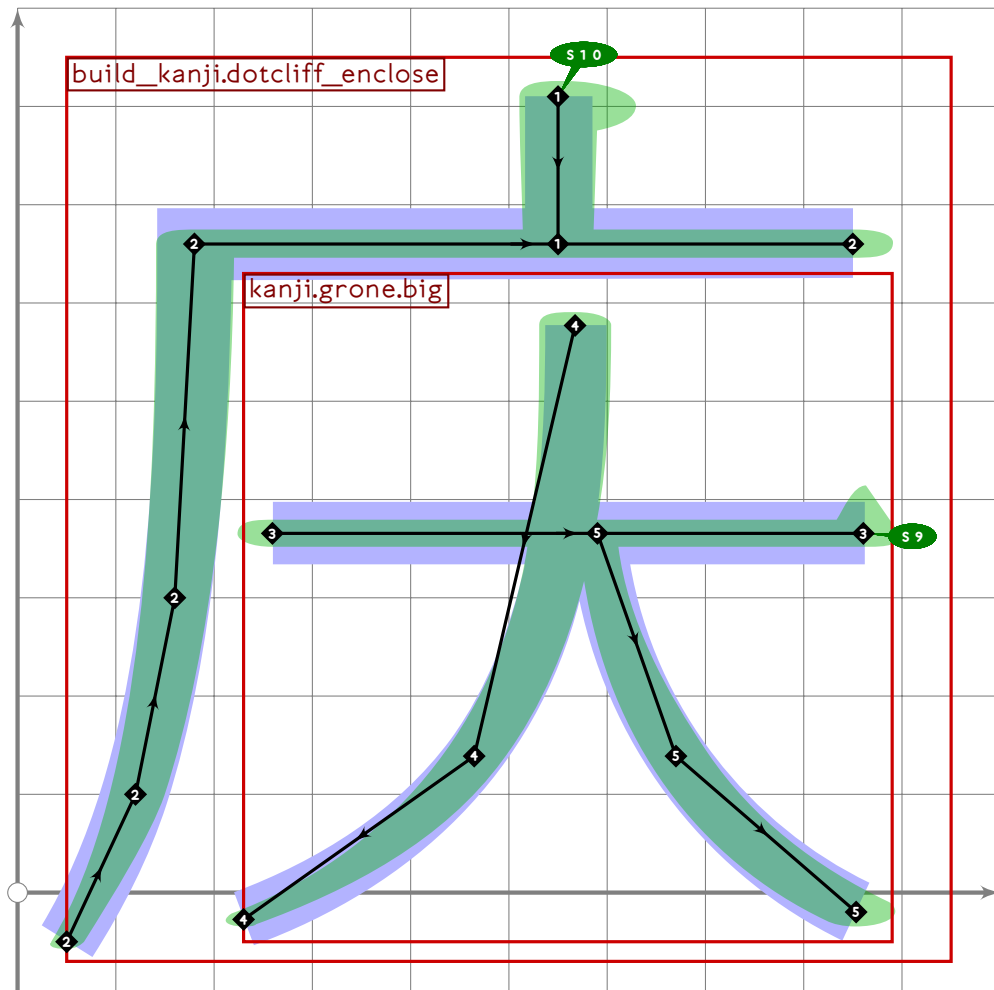
```

306 % extra
307 begintsuglyph("uni5E82",130);
308 build_kanji.dotcliff_enclose(kanji.grone.person);
309 tsu_render;
310 endtsuglyph;
311
312 % kou/hiro "wide"
313 begintsuglyph("uni5E83",131);
314 kanji.grtwo.wide;
315 tsu_render;
316 endtsuglyph;
317
318 % kou/hiro "wide"
319 begintsuglyph("uni5E84",132);
320 kanji.grnine.manor;
321 tsu_render;
322 endtsuglyph;
323

```

[see page 1725]

[see page 1735]



```

324 % extra
325 begintsuglyph("uni5E86",134);
326 build_kanji.dotcliff_enclose(kanji.grone.big);
327 tsu_render;
328 endtsuglyph;
329
330 % toko/yuka "bed"
331 begintsuglyph("uni5E8A",138);
332 kanji.greight.bed;
333 tsu_render;
334 endtsuglyph;
335
336 % ten/mise "shop"
337 begintsuglyph("uni5E97",151);
338 kanji.grtwo.shop;
339 tsu_render;
340 endtsuglyph;
341
342 % fu "urban prefecture"
343 begintsuglyph("uni5E9C",156);
344 kanji.grfour.urban_prefecture;

```

[see page 1732]

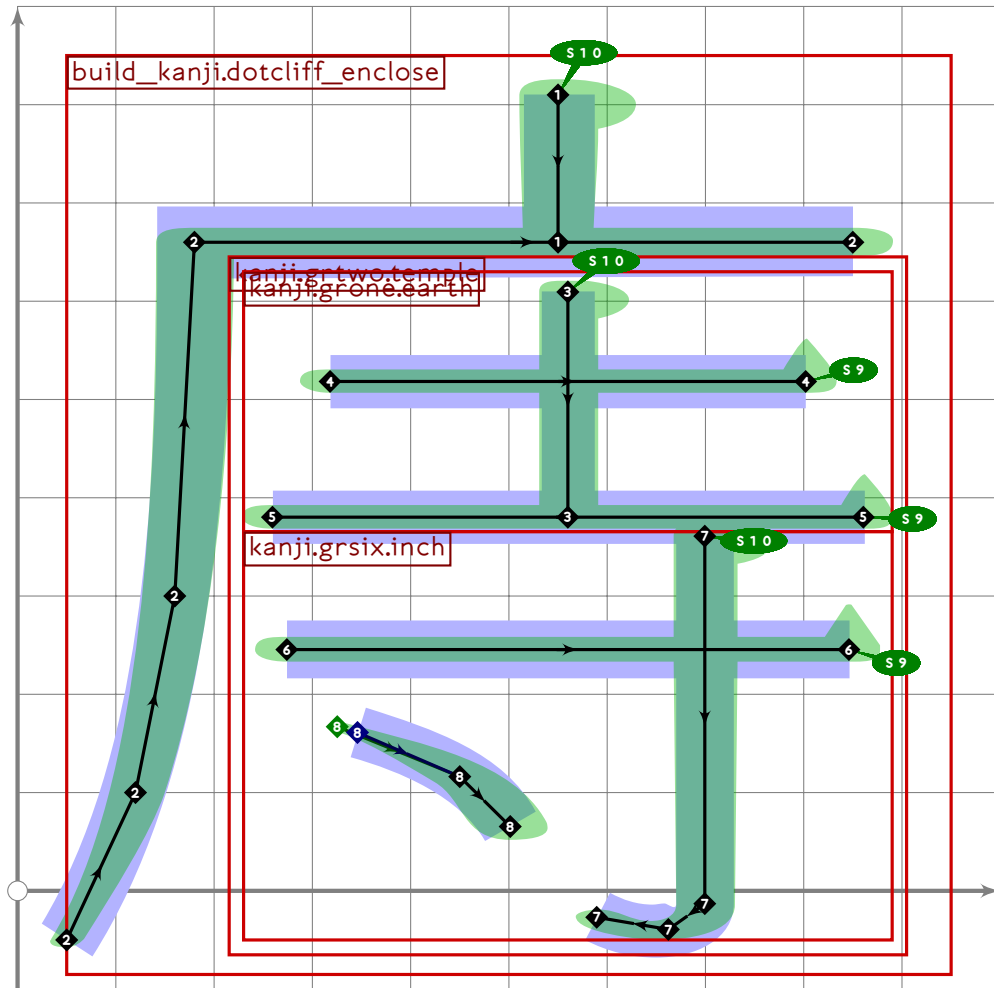
[see page 1724]

[see page 1731]

```

345 tsu_render;
346 endtsuglyph;
347

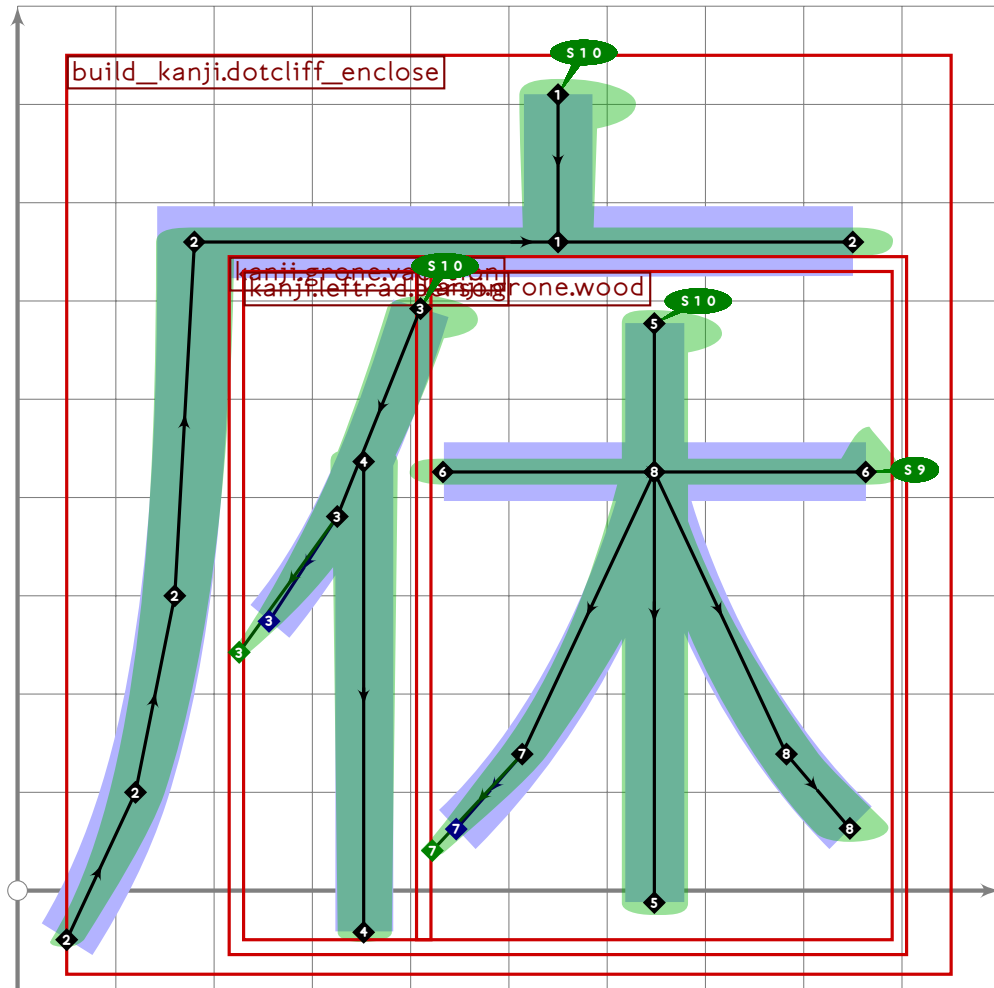
```



```

348 % extra
349 begintsuglyph("uni5EA4";164);
350 build_kanji.dotcliff_enclose(kanji.grtwo.temple);
351 tsu_render;
352 endtsuglyph;
353

```



```

354 % extra
355 begintsuglyph("uni5EA5",165);
356 build_kanji.dotcliff_enclose(kanji.grone.vacation);
357 tsu_render;
358 endtsuglyph;
359
360 % do/tabi "degree"
361 begintsuglyph("uni5EA6",166);
362 kanji.grthree.degree;
363 tsu_render;
364 endtsuglyph;
365
366 % ko/kura "warehouse"
367 begintsuglyph("uni5EAB",171);
368 kanji.grthree.warehouse;
369 tsu_render;
370 endtsuglyph;
371
372 % an/iori "hermitage"
373 begintsuglyph("uni5EB5",181);
374 kanji.grnine.hermitage;

```

[see page 1726]

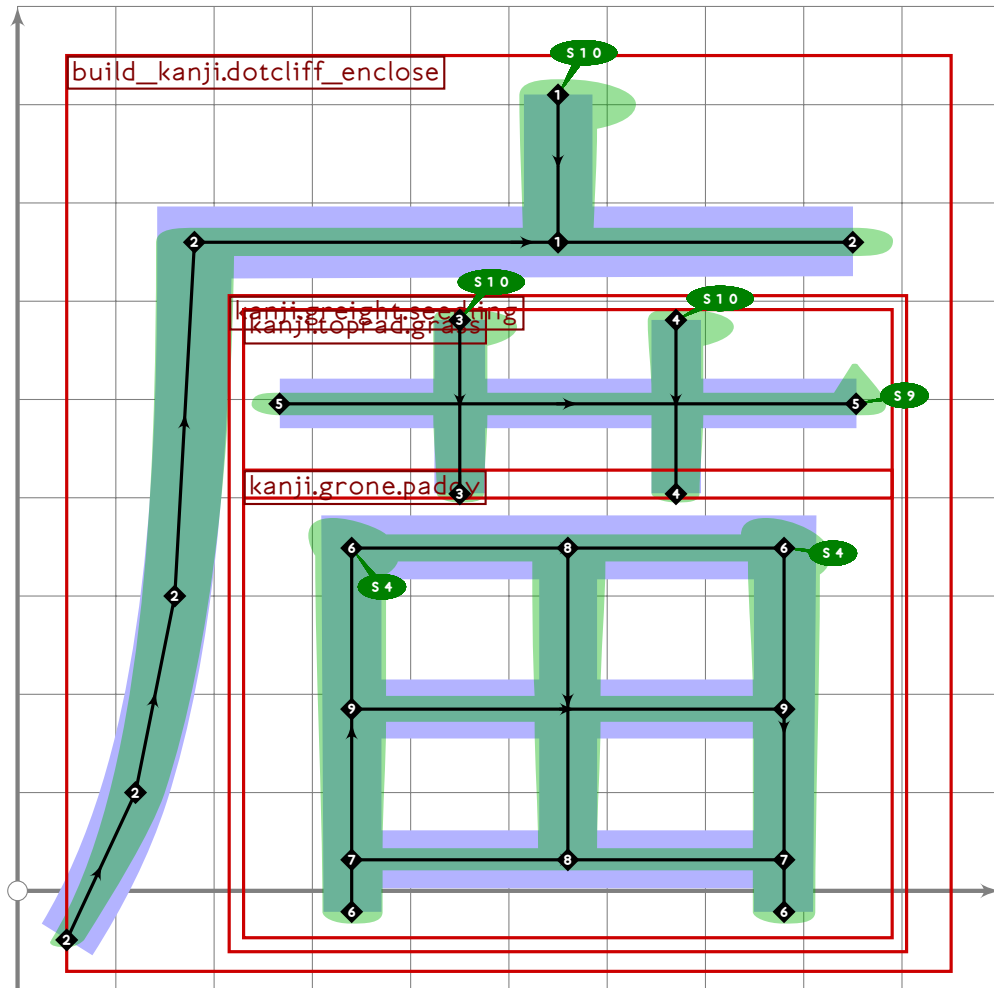
[see page 1728]

[see page 1734]

```

375 tsu_render;
376 endtsuglyph;
377

```



```

378 % extra
379 begintsuglyph("uni5EBF";191);
380 build_kanji.dotcliff_enclose(
381     tsu_xform(identity yscaled 0.94)(kanji.gr.eight.seedling));
382 tsu_render;
383 endtsuglyph;
384
385 % extra
386 begintsuglyph("uni5EFE";254);
387 kanji.radical.aitch;
388 tsu_render;
389 endtsuglyph;
390
391 % juu/nijuu "twenty"
392 begintsuglyph("uni5EFF";255);
393 kanji.gr.nine.twenty;
394 tsu_render;
395 endtsuglyph;

```

[see page 340]

[see page 604]

396

397

---

398

399 **endfont;**

400

401

---

# tsuku-5f.mp

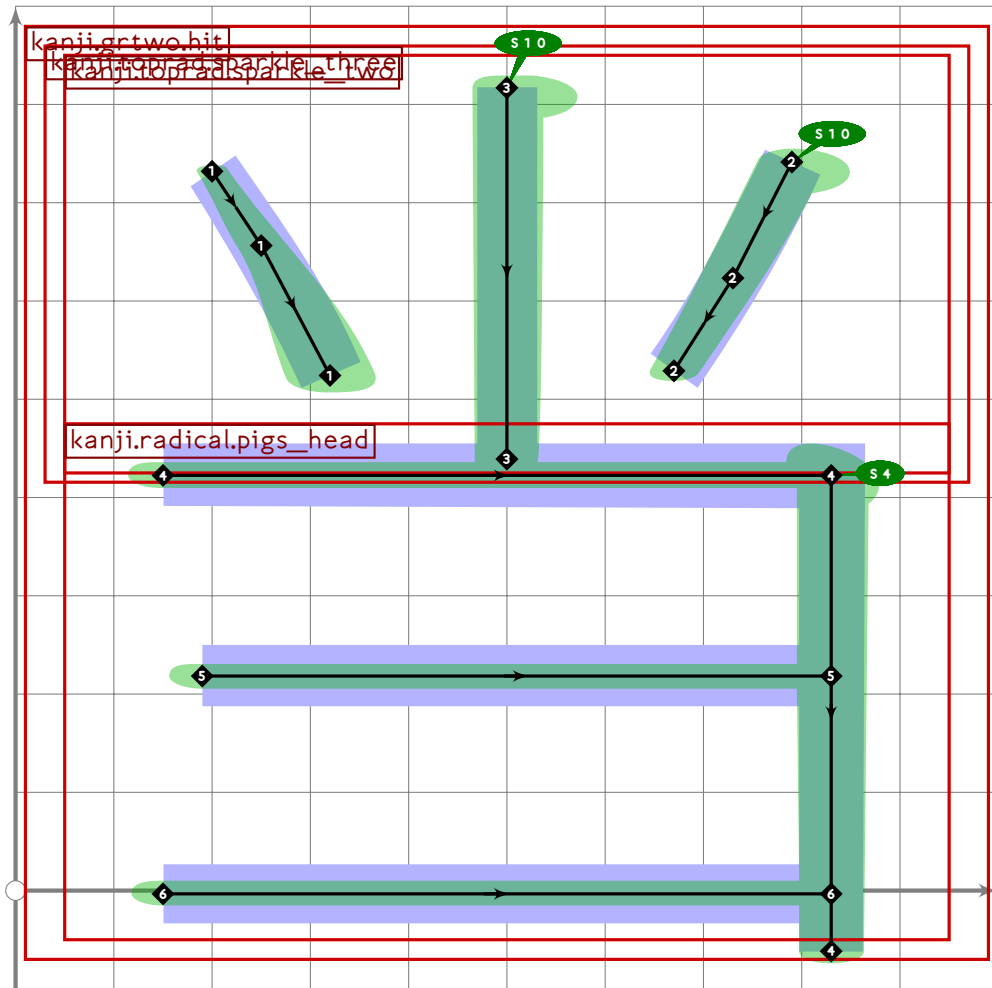
```
1 %
2 % Unicode page 5f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradesix.mp;
44 input gradethree.mp;
45 input gradetwo.mp;
46 input leftrad.mp;
47 input radical.mp;
48 input rare.mp;
49 input topfad.mp;
50
51 

---


```

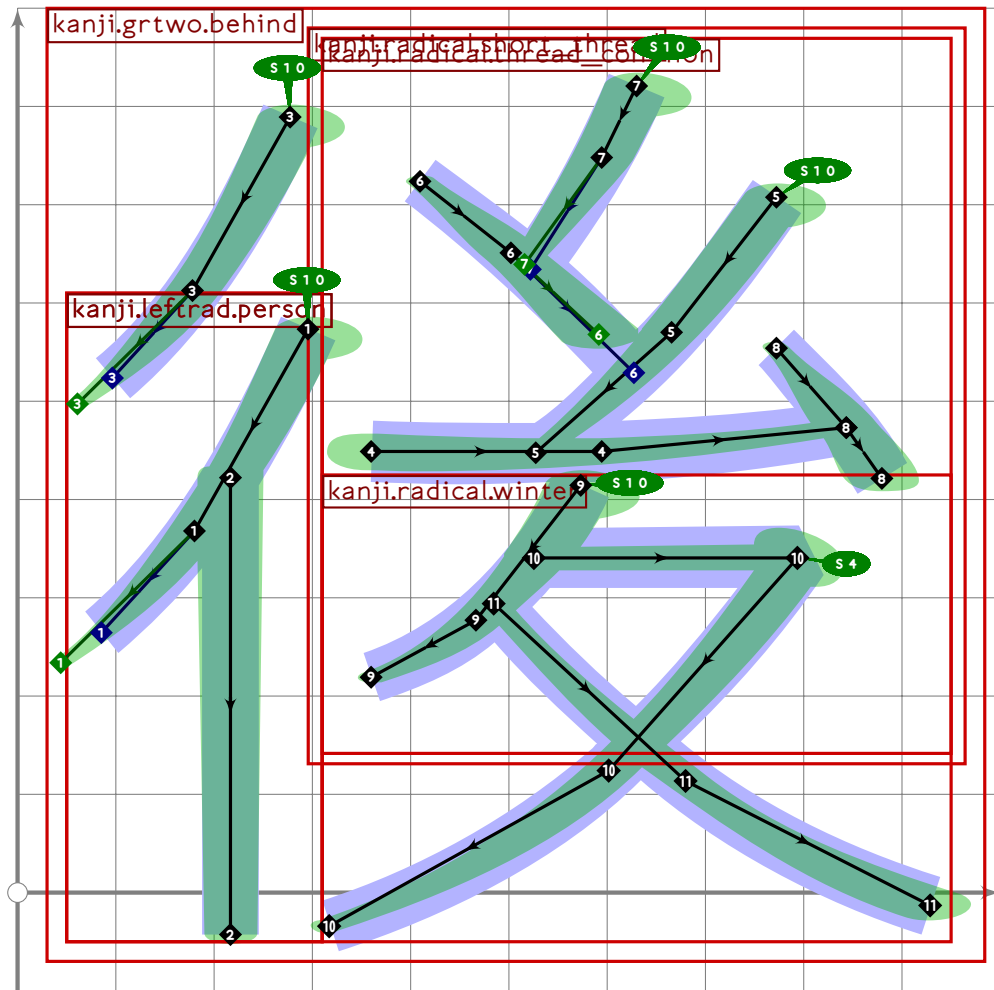


```

52
53 vardef kanji.grtwo.hit =
54   push_pbox_toexpand("kanji.grtwo.hit");
55   build_kanji.level(build_kanji.tb(450,50)
56     (kanji.toprad.sparkle_three)
57     (kanji.radical.pigs_head));
58   expand_pbox;
59 enddef;

```

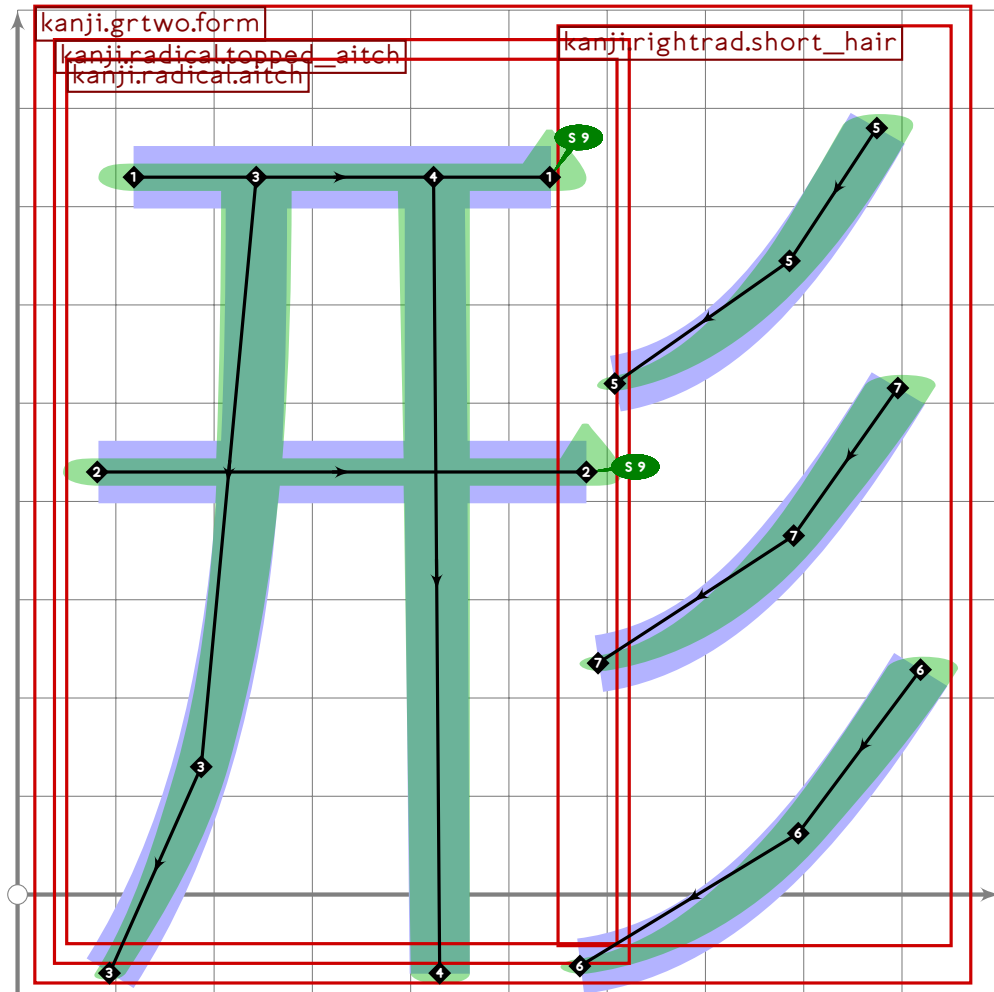




```

60
61 vardef kanji.grtwo.behind =
62   push_pbox_toexpand("kanji.grtwo.behind");
63   build_kanji.level(build_kanji.lr(310,0)
64     (build_kanji.harmonic(240,0.86,0)(kanji.leftrad.person))
65     (build_kanji.tb(400,50)
66       (kanji.radical.short_thread)
67       (kanji.radical.winter)));
68   expand_pbox;
69 enddef;

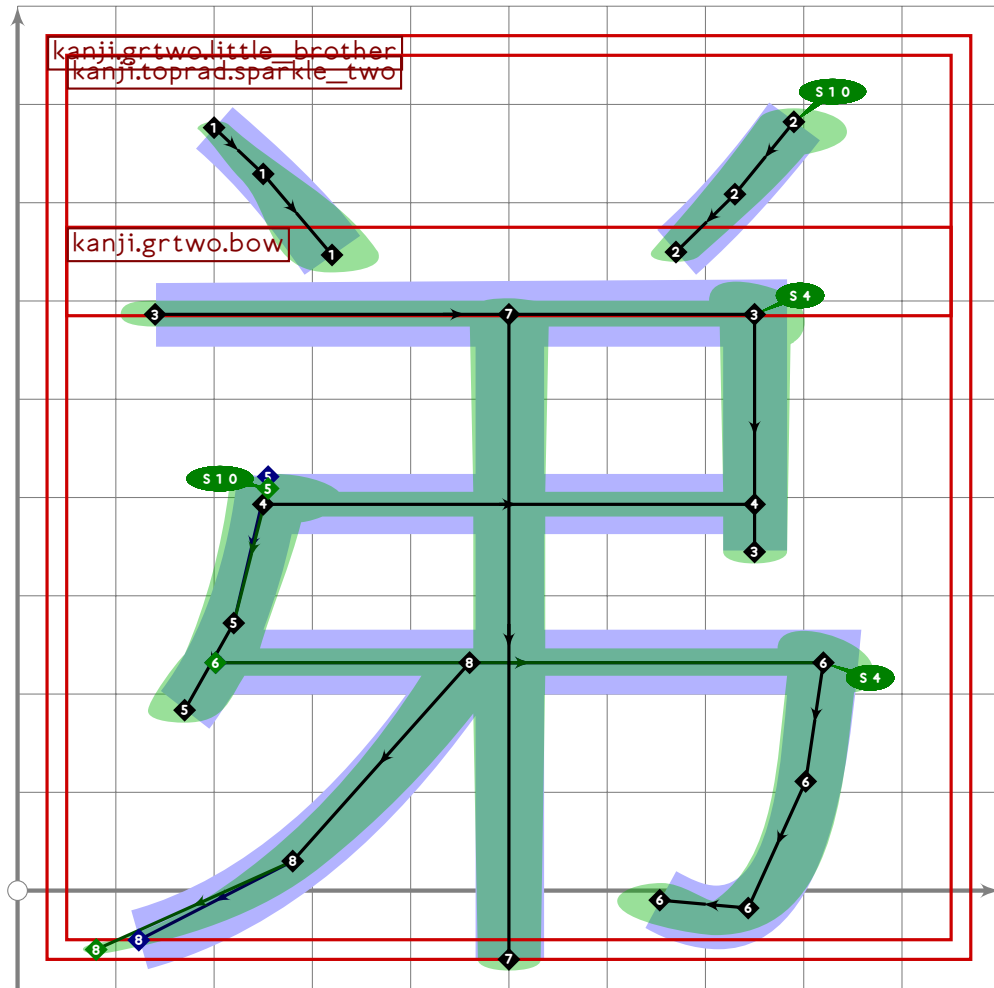
```



```

70
71 vardef kanji.grtwo.form =
72   push_pbox_toexpand("kanji.grtwo.form");
73   build_kanji.level(build_kanji.lr(580,60)
74     (kanji.radical.topped_aitch)
75     (tsu_xform(identity yscaled 1.04)(kanji.rightrad.short_hair)));
76   expand_pbox;
77 enddef;

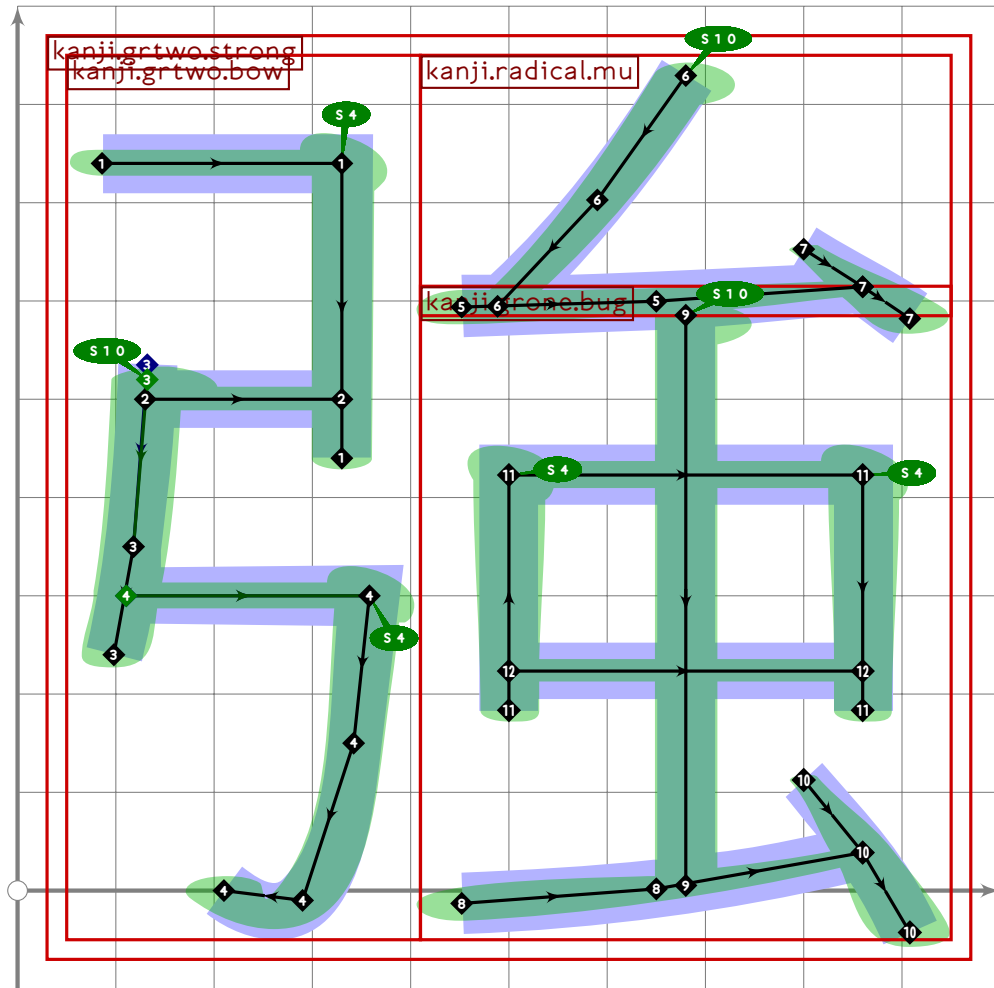
```



```

78
79 vardef kanji.grtwo.little_brother =
80   push_pbox_toexpand("kanji.grtwo.little_brother");
81   build_kanji.level(build_kanji.tb(630,90)
82     (kanji.toprad.sparkle_two)
83     (kanji.grtwo.bow));
84   replace_stroke(0)((point 0 of oldp)-
85     ((subpath (1,infinity) of oldp)
86       shifted (-820,0) xscaled 0.45 shifted (820,0)));
87   push_stroke((500,y part point 0 of get_stroke(-3))-(500,70),
88     (1.6,1.6)-(14,14));
89   push_stroke(
90     ((get_stroke(0) intersectionpoint get_stroke(-1))+(-40,0))..
91     tension 1.2..(280,30)..(80,-60),
92     (1.6,1.6)-(14,14)-(0.9,0.9));
93   expand_pbox;
94 enddef;

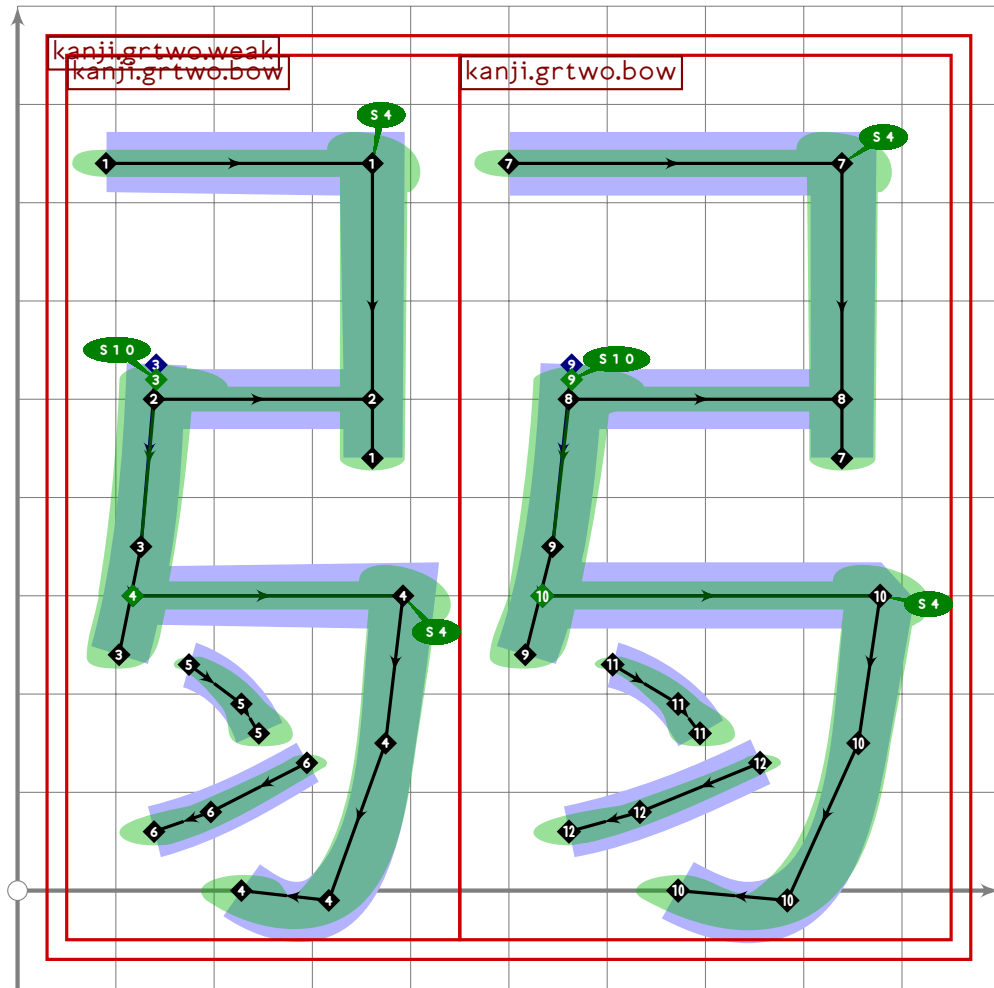
```



```

95
96 vardef kanji.grtwo.strong =
97   push_pbox_toexpand("KANJI.GRTWO.STRONG");
98   build_kanji.level(build_kanji.lr(410,0)
99     (KANJI.GRTWO.BOW)
100     (build_kanji.tb(600,30)
101       (KANJI.RADICAL.MU)
102       (KANJI.GRONE.BUG)));
103   expand_pbox;
104 enddef;

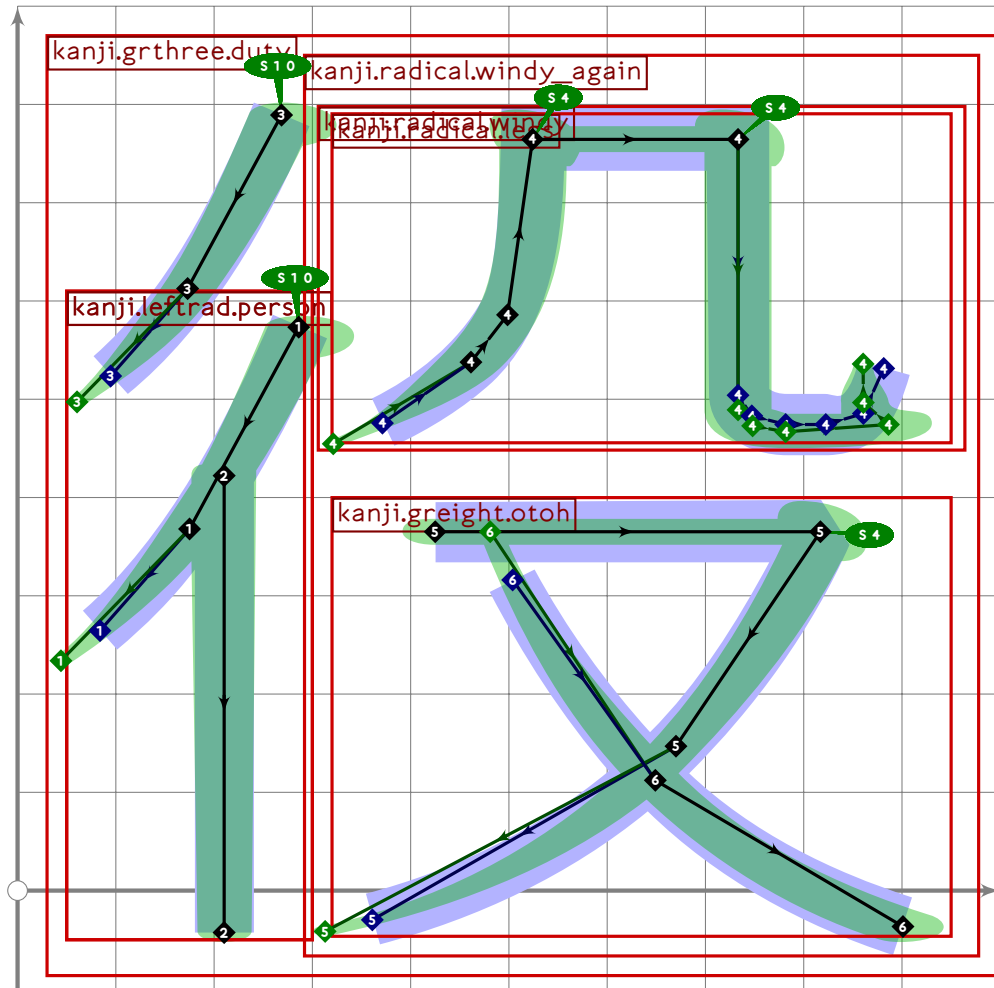
```



```

105
106 vardef kanji.grtwo.weak =
107   push_pbox_toexpand("kanji.grtwo.weak");
108   build_kanji.lr(450,0)
109   (tsu_curve_kanji.grtwo_helper.weak)
110   (tsu_curve_kanji.grtwo_helper.weak);
111   expand_pbox;
112 enddef;
113
114 vardef tsu_curve_kanji.grtwo_helper.weak =
115   kanji.grtwo.bow;
116   push_stroke((330,230)..tension 1.2..(450,190)..(490,160),
117     (1.2,1.2)-(1.4,1.4)-(1.8,1.8));
118   set_bosize(0,80);
119   push_stroke((600,130)..tension 1.2..(380,80)..(250,60),
120     (1.3,1.3)-(1.6,1.6)-(1.9,1.9));
121   set_bosize(0,80);
122 enddef;
123
124

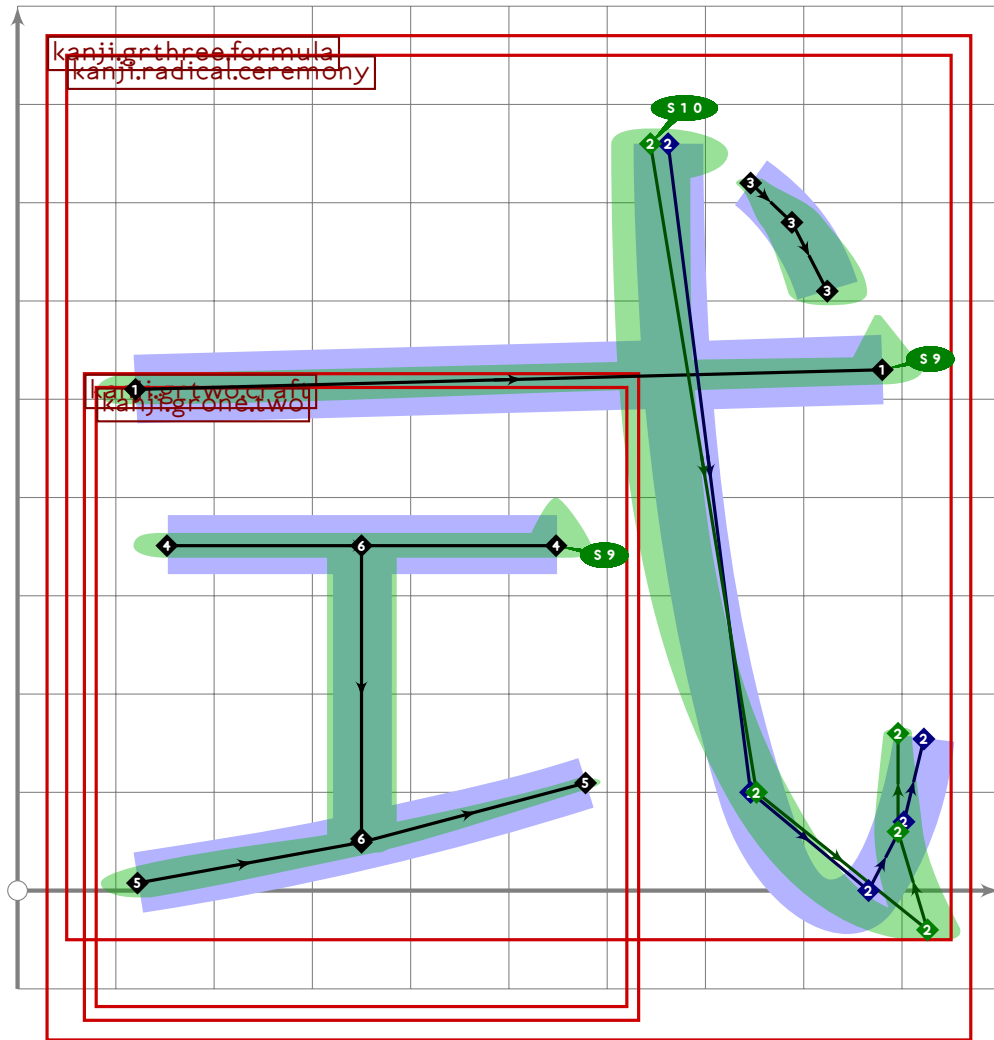
```



```

125
126 vardef kanji.grthree.duty =
127   push_pbox_toexpand("kanji.grthree.duty");
128   build_kanji.level(build_kanji.lr(310,-20)
129     (build_kanji.harmonic(240,0.86,0)(kanji.leftrad.person))
130     (kanji.radical.windy_again));
131   expand_pbox;
132 enddef;

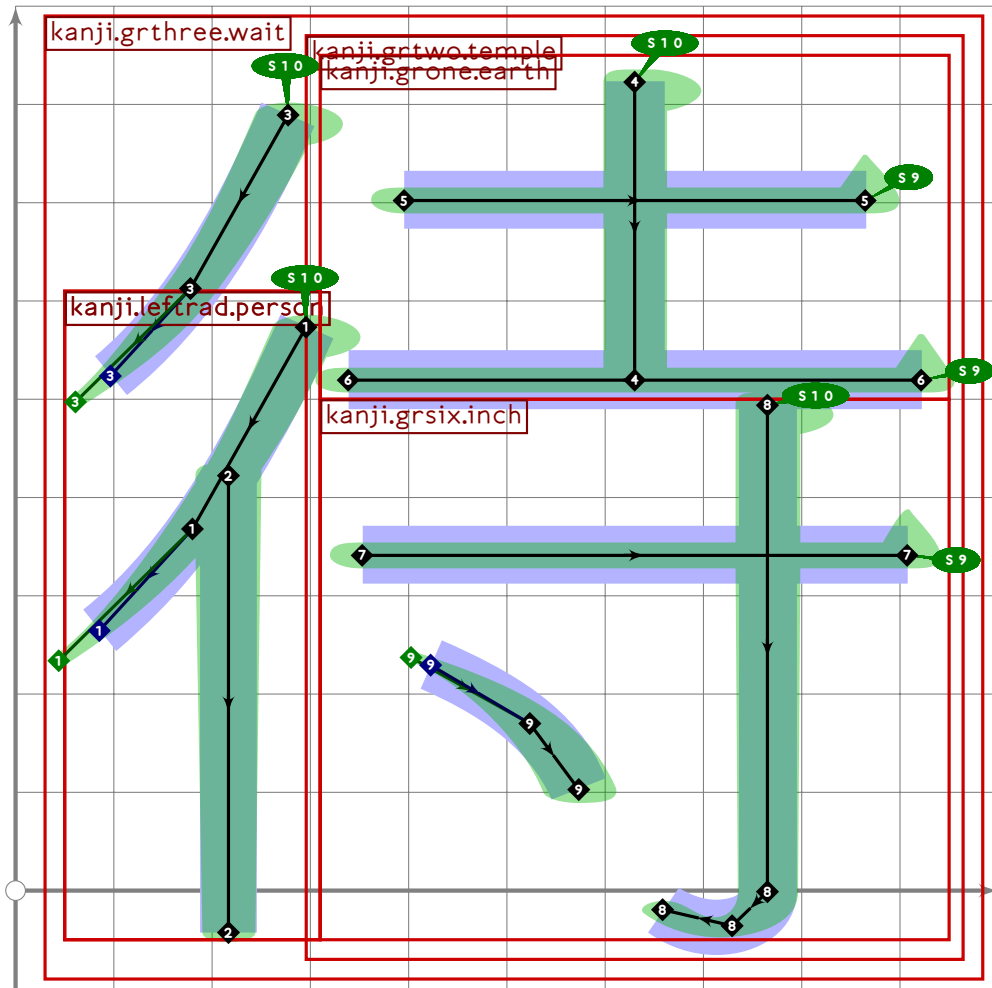
```



```

133
134 vardef kanji.grthree.formula =
135   push_pbox_toexpand("kanji.grthree.formula");
136   kanji.radical.ceremony;
137   replace_stroke(-1)(oldp shifted (-950,0) xscaled 0.6 shifted (950,0));
138   replace_stroke(0)(oldp shifted (-950,0) xscaled 0.6 shifted (950,0));
139   build_kanji.sscale(xyscaled (0.6,0.7) shifted (-150,-200))
140     (build_kanji.lift_skirt(400,250)(kanji.grtwo.craft));
141   expand_pbox;
142 enddef;

```

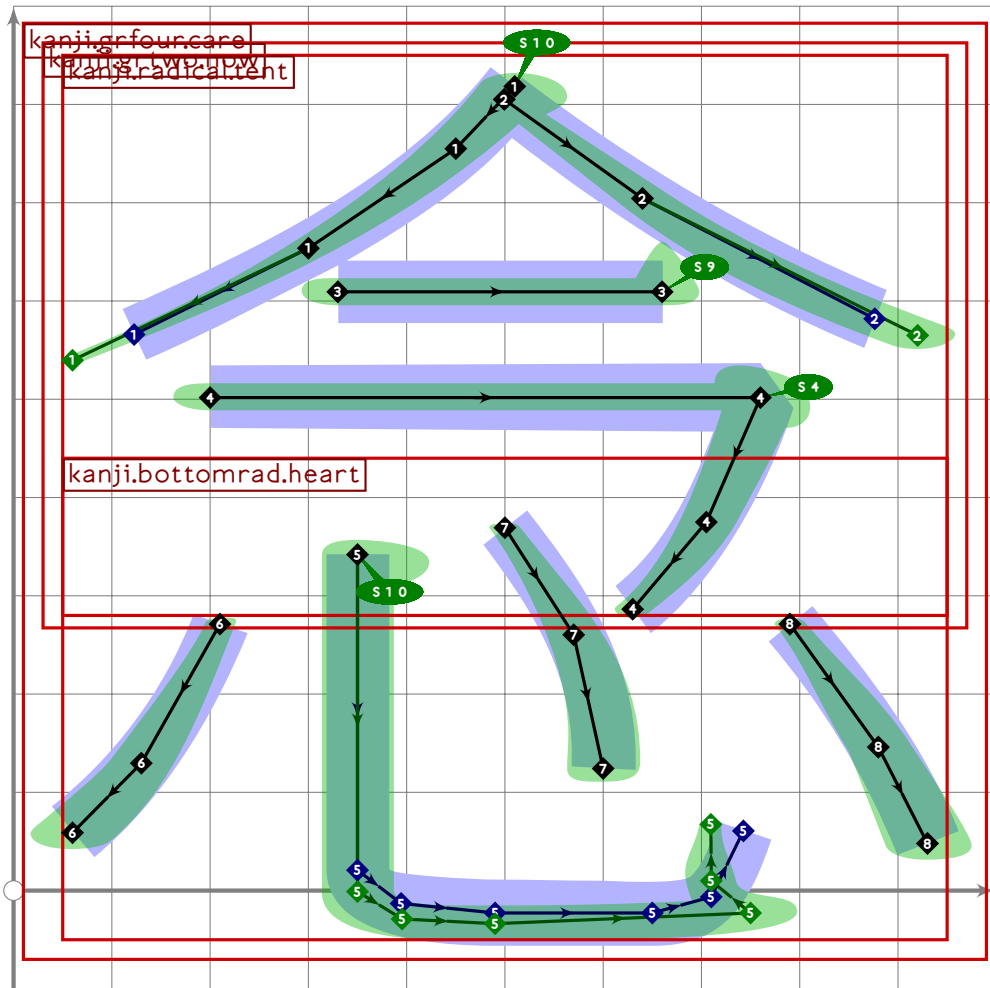


```

143
144 vardef kanji.grthree.wait =
145   push_pbox_toexpand("kanji.grthree.wait");
146   build_kanji.level(build_kanji.lr(310,0)
147     (build_kanji.harmonic(240,0.86,0)(kanji.leftrad.person))
148     (kanji.grtwo.temple));
149   expand_pbox;
150 enddef;
151
152

```

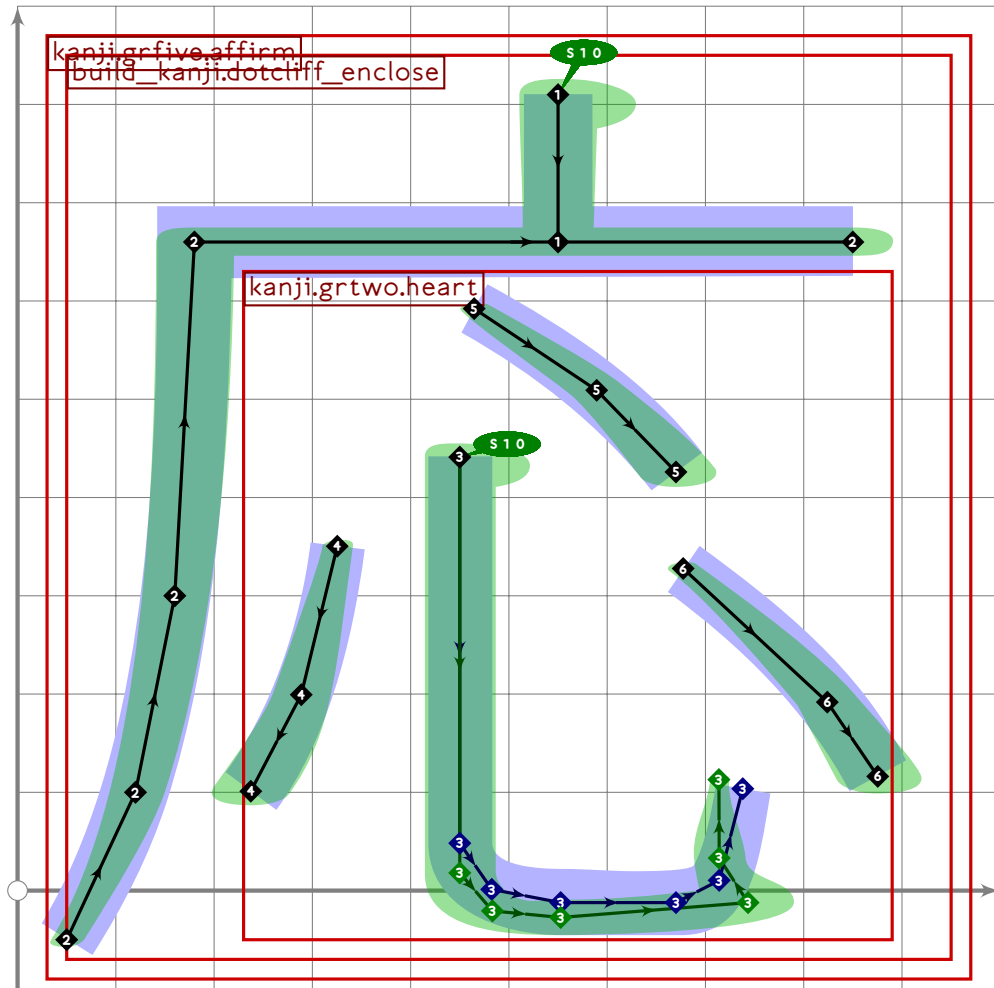




```

153
154 vardef kanji.grfour.care =
155   push_pbox_toexpand("kanji.grfour.care");
156   build_kanji.level(build_kanji.tb(360,160)
157     (kanji.grtwo.now;
158       replace_strokep(0)
159         ((point 0 of oldp)-
160           (subpath (1,infinity) of (oldp shifted (-point 1 of oldp)
161             xscaled 0.5
162               shifted (point 1 of oldp))))))
163   (kanji.bottomrad.heart));
164   expand_pbox;
165 enddef;
166
167

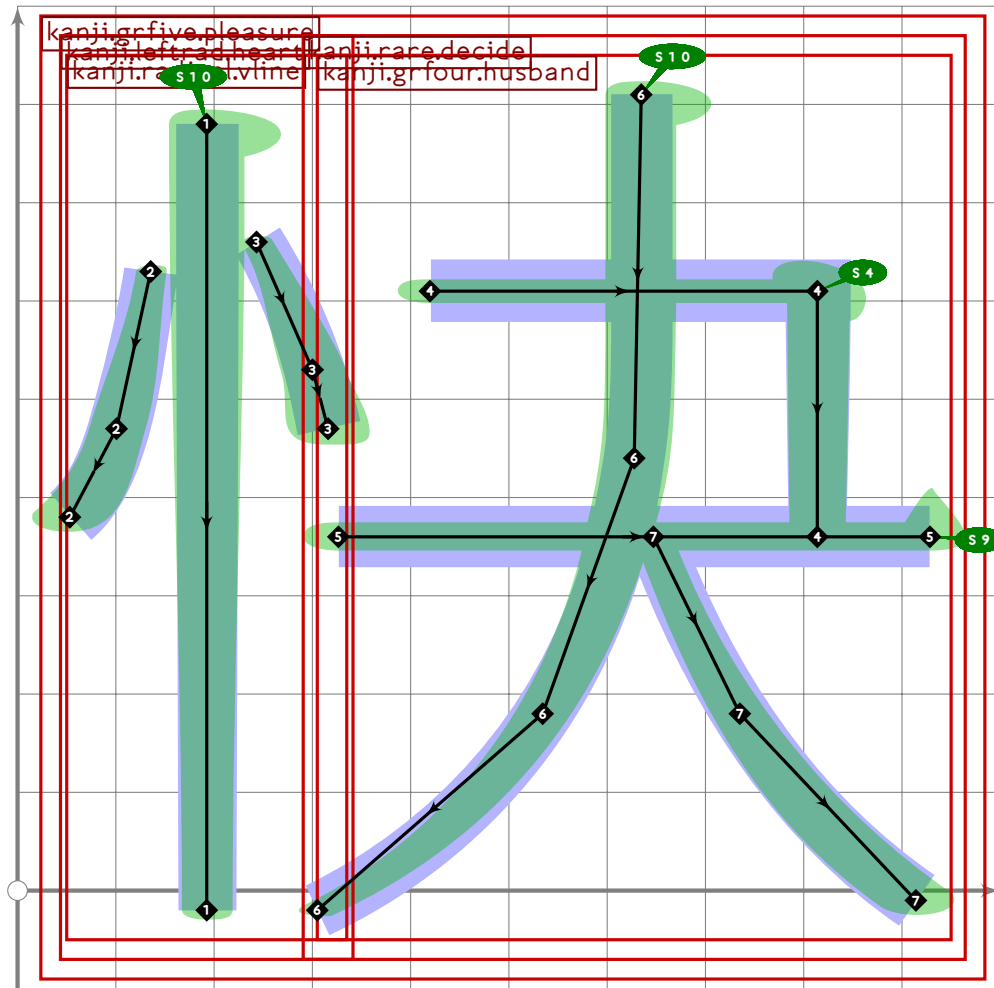
```



```

168
169 vardef kanji.grfive.affirm =
170   push_pbox_toexpand("kanji.grfive.affirm");
171   build_kanji.dotcliff_enclose(kanji.grtwo.heart);
172   expand_pbox;
173 enddef;

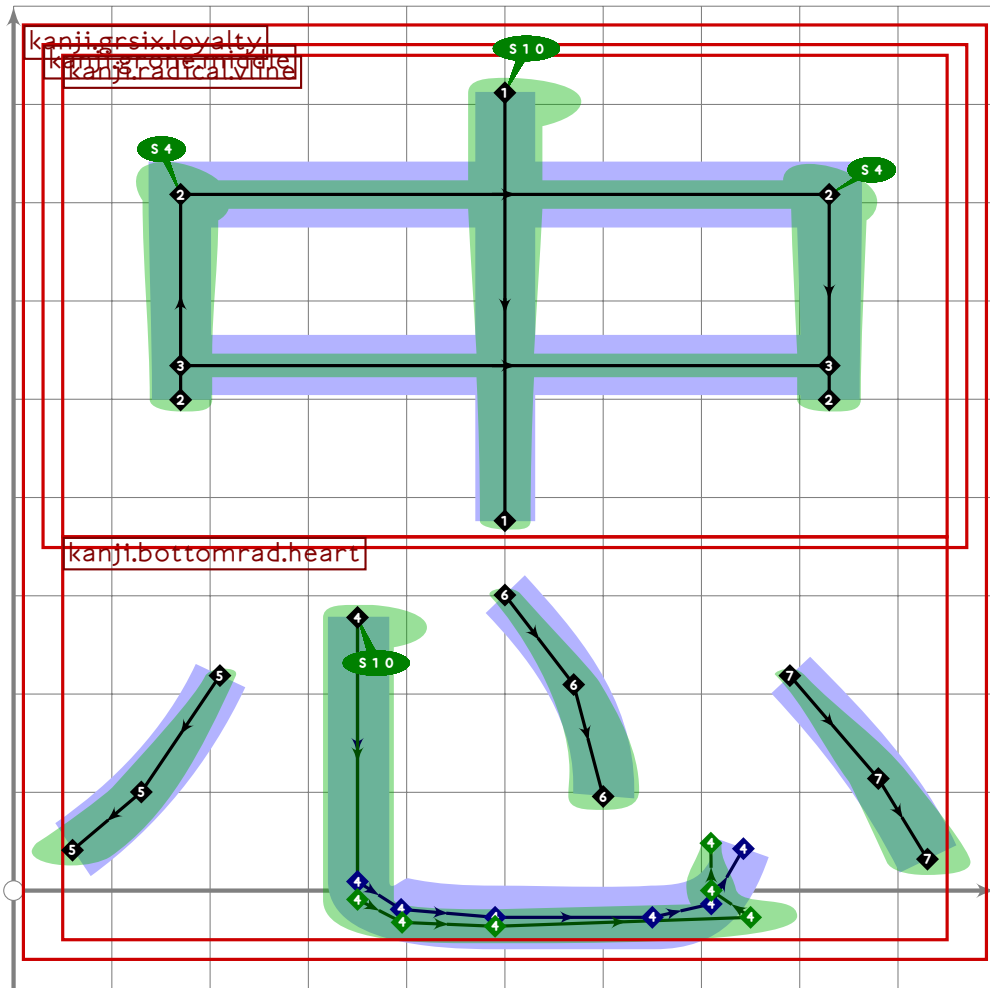
```



```

174
175 vardef kanji.grfive.pleasure =
176   push_pbox_toexpand("kanji.grfive.pleasure");
177   build_kanji.level(build_kanji.lr(320,30)
178     (kanji.leftrad.heart)
179     (kanji.rare.decide));
180   expand_pbox;
181 enddef;
182
183

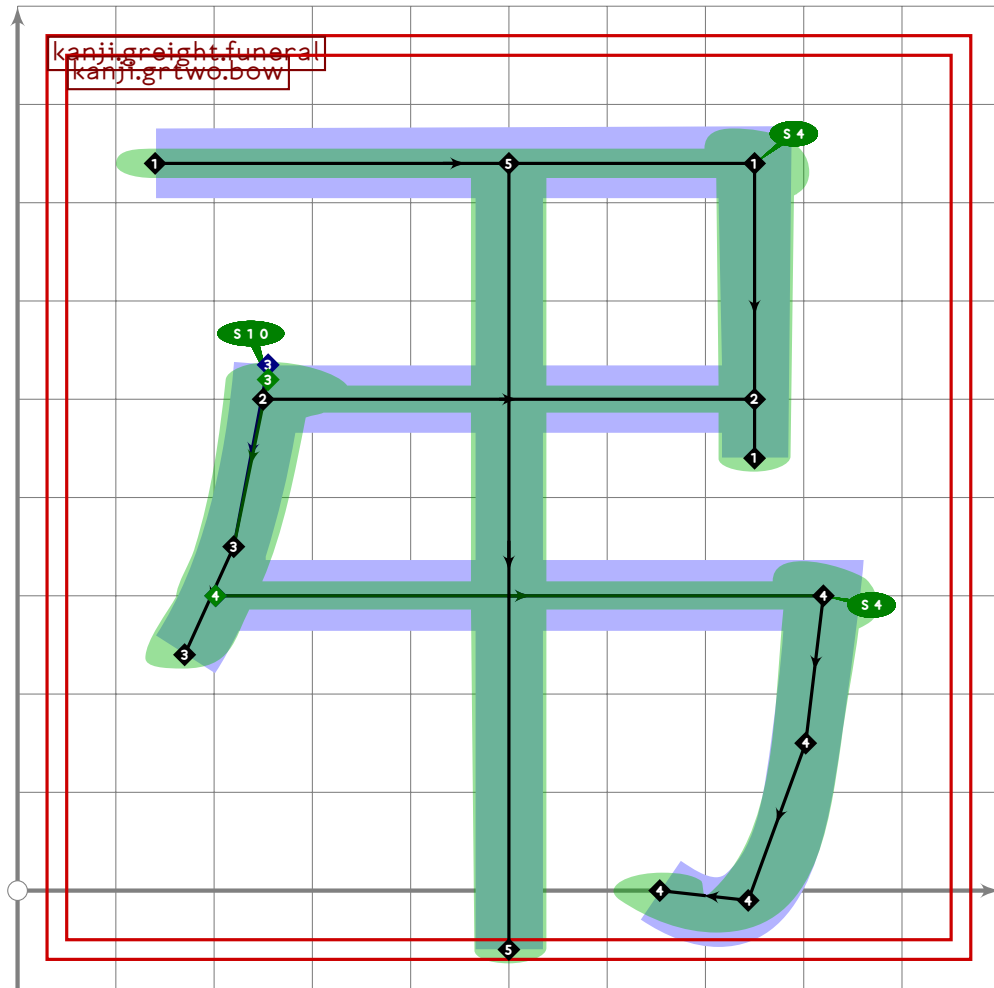
```



```

184
185 vardef kanji.grsix.loyalty =
186   push_pbox_toexpand("kanji.grsix.loyalty");
187   build_kanji.level(build_kanji.tb(360,0)
188     (kanji.grone.middle)
189     (kanji.bottomrad.heart));
190   expand_pbox;
191 enddef;
192
193

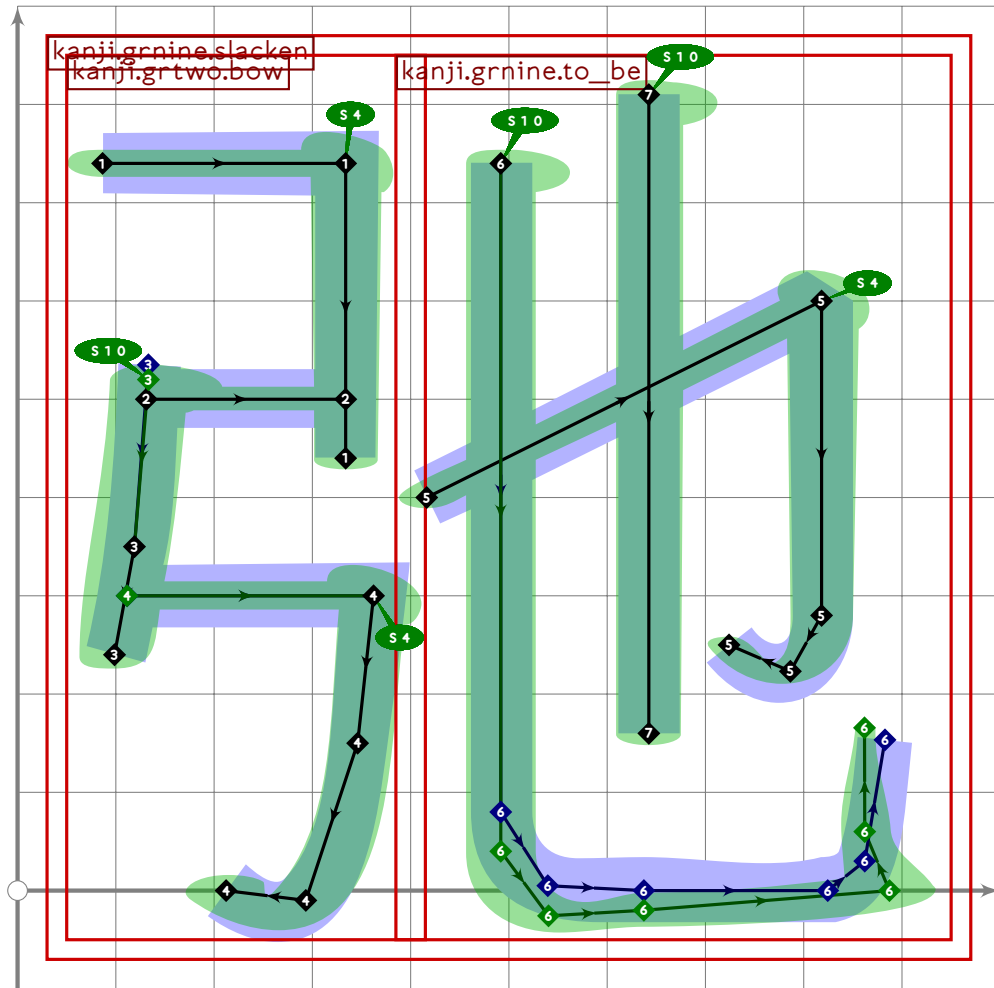
```



```

194
195 vardef kanji.greight.funeral =
196   push_pbox_toexpand("kanji.greight.funeral");
197   kanji.grtwo.bow;
198   replace_strokep(0)((point 0 of oldp)-
199     ((subpath (1,infinity) of oldp)
200     shifted (-820,0) xscaled 0.45 shifted (820,0)));
201   push_stroke((500,740)-(500,-60),(1.6,1.6)-(1.5,1.5));
202   expand_pbox;
203 enddef;
204
205

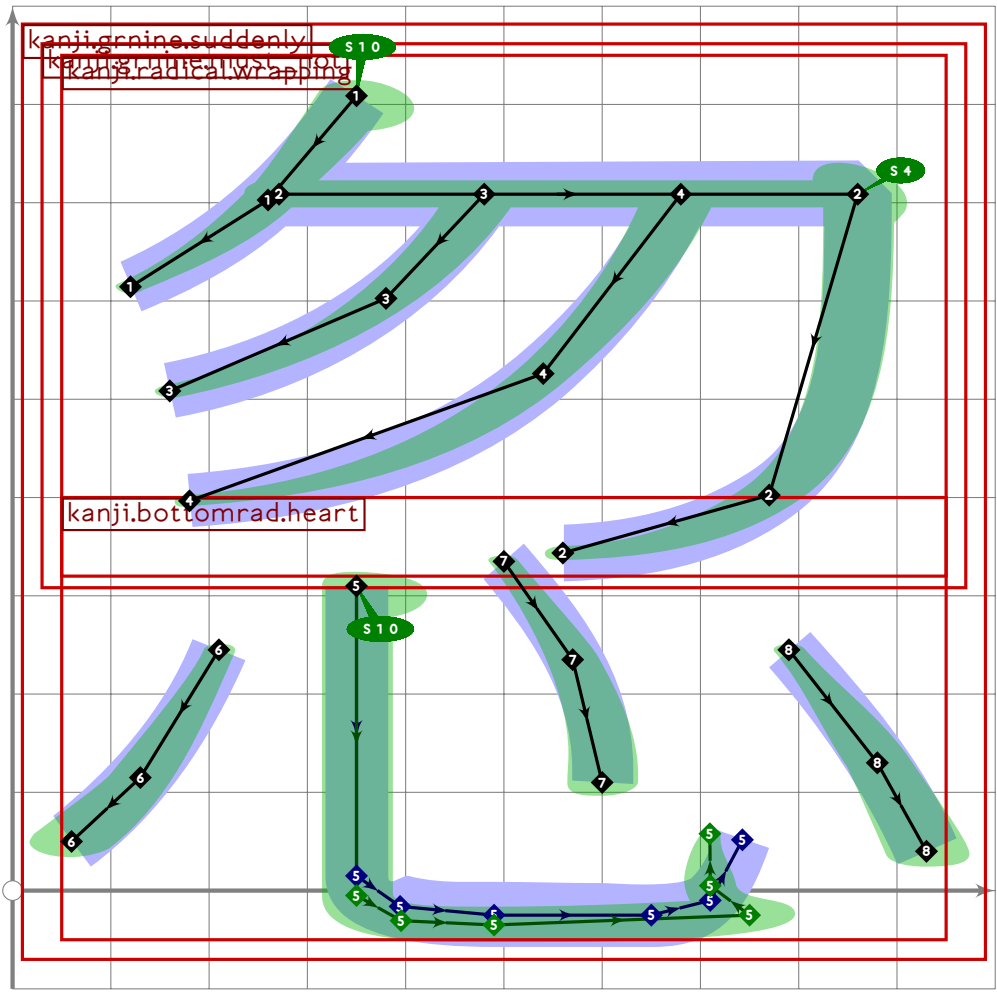
```



```

206
207 vardef kanji.grnine.slacken =
208   push_pbox_toexpand("kanji.grnine.slacken");
209   build_kanji.level(build_kanji.lr(400,30)
210     (kanji.grtwo.bow)
211     (kanji.grnine.to_be));
212   expand_pbox;
213 enddef;

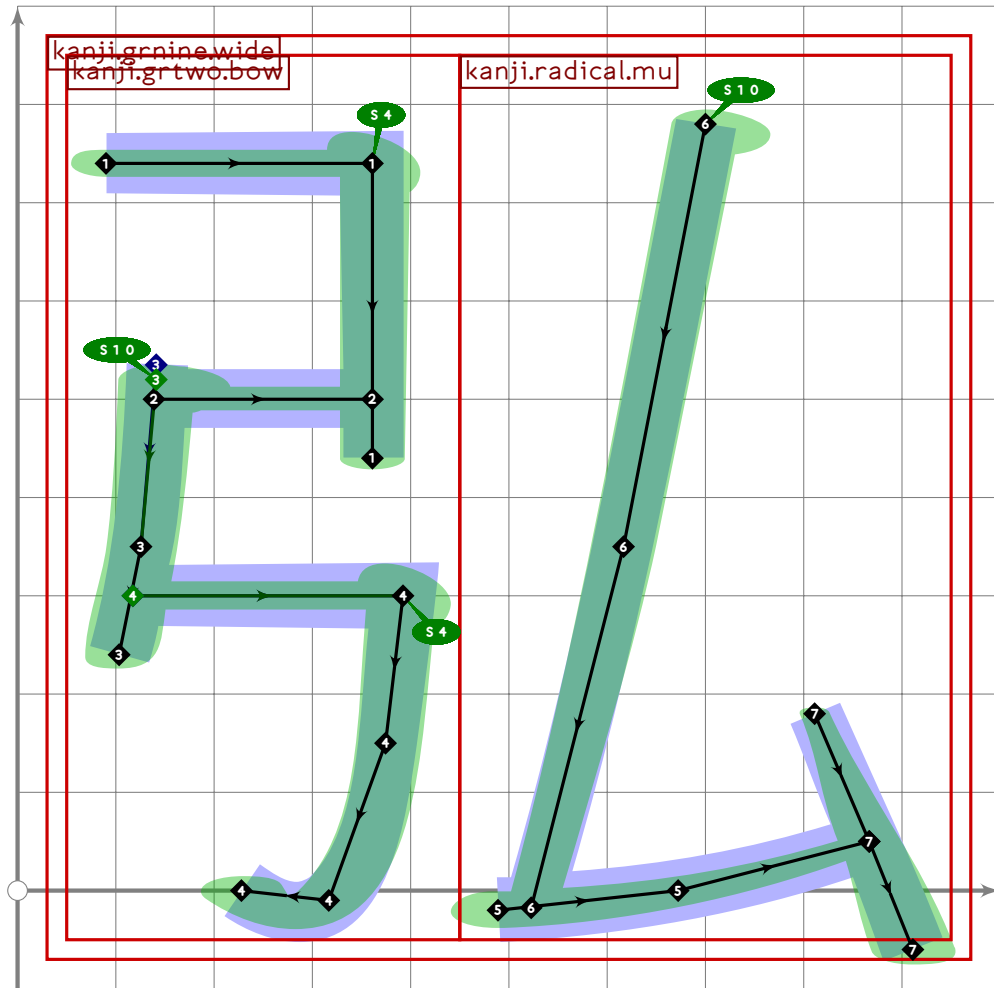
```



```

214
215 vardef kanji.grnine.suddenly =
216   push_pbox_toexpand("kanji.grnine.suddenly");
217   build_kanji.level(build_kanji.tb(360,80)
218     (kanji.grnine.must_not)
219     (kanji.bottomrad.heart));
220   expand_pbox;
221 enddef;

```



```

222
223 vardef kanji.grnine.wide =
224   push_pbox_toexpand("kanji.grnine.wide");
225   build_kanji.level(build_kanji.lr(450,0)
226     (kanji.grtwo.bow)
227     (kanji.radical.mu));
228   expand_pbox;
229 enddef;

```

230

231

232

```

233 % yoku/iguromi "ceremony radical"

```

```

234 begintsuglyph("uni5F0B";11);

```

[see page 345]

```

235   kanji.radical.ceremony;

```

```

236   tsu_render;

```

```

237 endtsuglyph;

```

238

```

239 % shiki/nori "formula"

```

```

240 begintsuglyph("uni5F0F";15);

```

[see page 1755]

```

241   kanji.grthree.formula;

```

```

242   tsu_render;

```



```

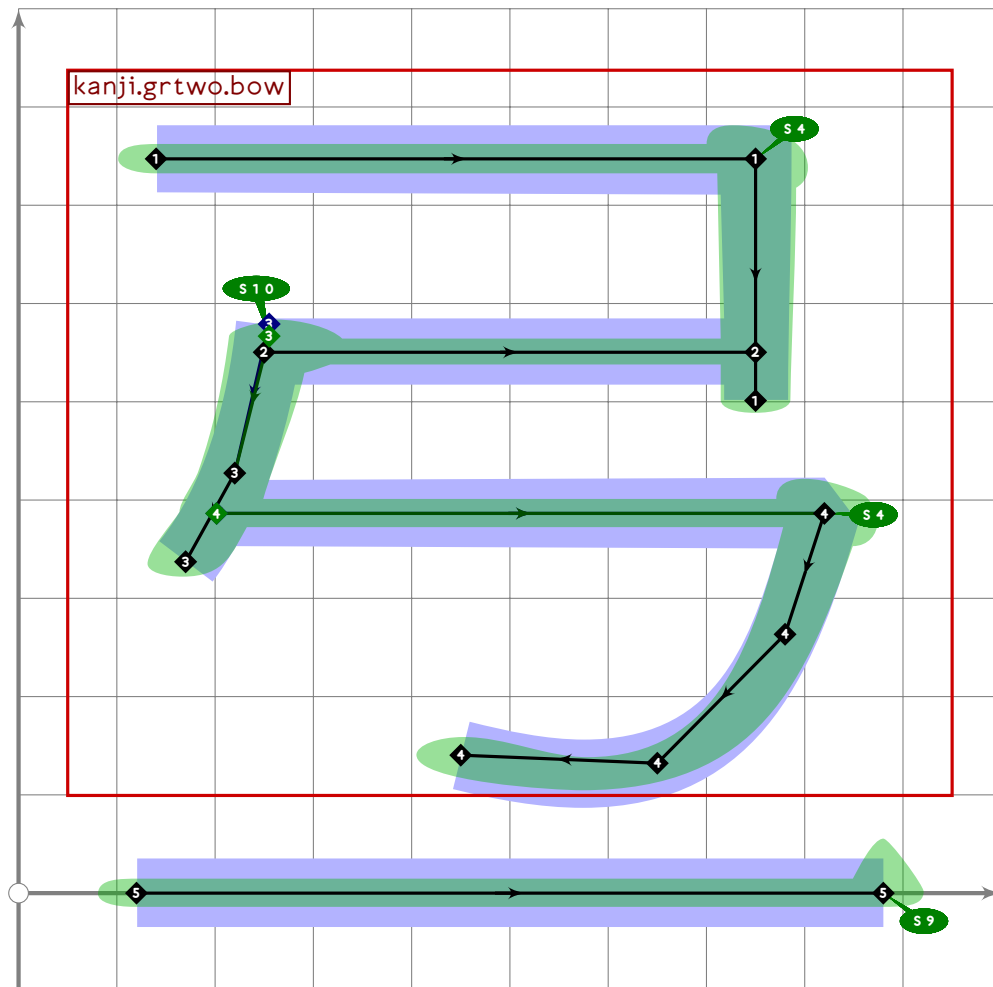
243 endtsuglyph;
244
245 % kyuuy/yumi "bow" (projectile weapon)
246 begintsuglyph("uni5F13";19);
247 kanji.grtwo.bow;
248 tsu_render;
249 endtsuglyph;
250
251 % chou/tomura "funeral"
252 begintsuglyph("uni5F14";20);
253 kanji.greight.funeral;
254 tsu_render;
255 endtsuglyph;
256
257 % in/hi "pull"
258 begintsuglyph("uni5F15";21);
259 kanji.grtwo.pull;
260 tsu_render;
261 endtsuglyph;
262

```

[see page 447]

[see page 1761]

[see page 493]



```

263 % te "phoneme only"

```

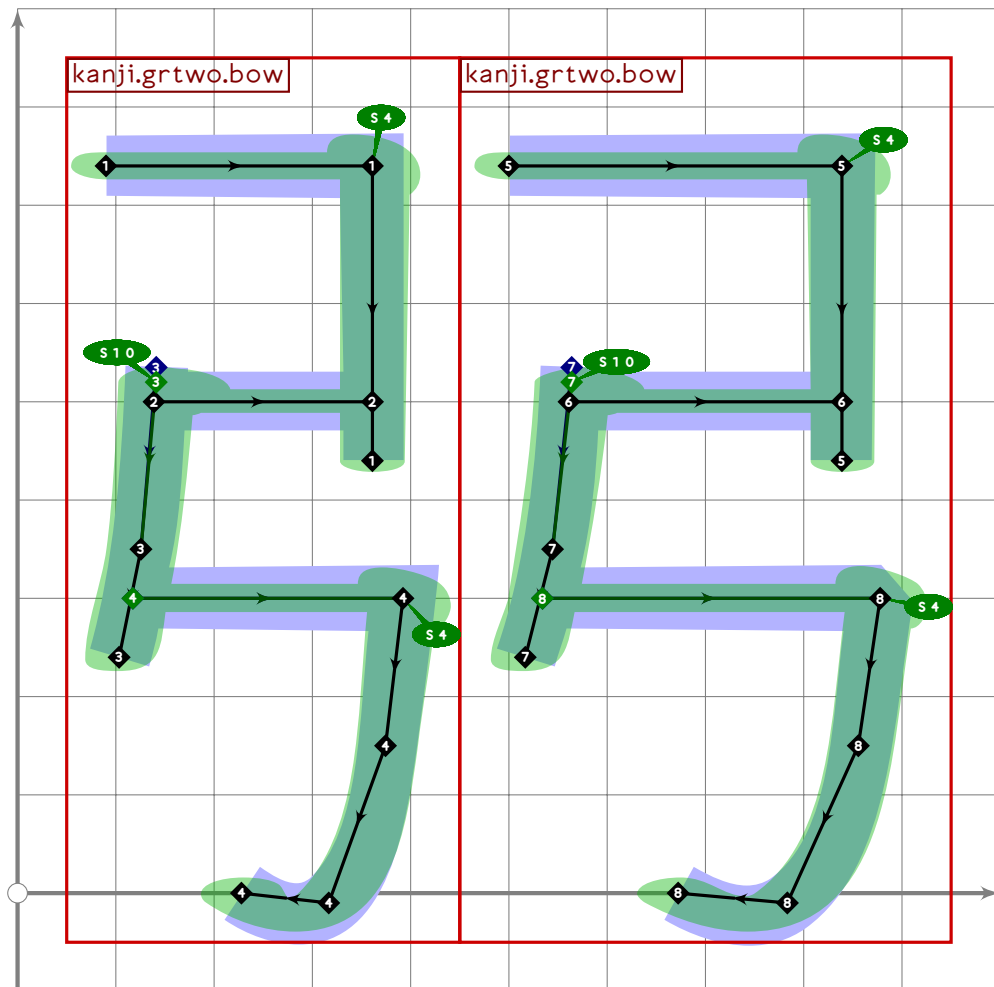
```

264 begintsuglyph("uni5F16";22);
265 tsu_xform(identity shifted (0,780) yscaled 0.82 shifted (0,780))
266   (kanji.grtwo.bow);
267 push_stroke((120,0)-(880,0),(1.6,1.6)-(1.6,1.6));
268 set_boserif(0,1,9);
269 tsu_render;
270 endtsuglyph;
271
272 % kou/hiro "wide" (used in names)
273 begintsuglyph("uni5F18";24);
274 kanji.grnine.wide;
275 tsu_render;
276 endtsuglyph;
277
278 % chi/taru "slacken"
279 begintsuglyph("uni5F1B";27);
280 kanji.grnine.slacken;
281 tsu_render;
282 endtsuglyph;
283

```

[see page 1764]

[see page 1762]



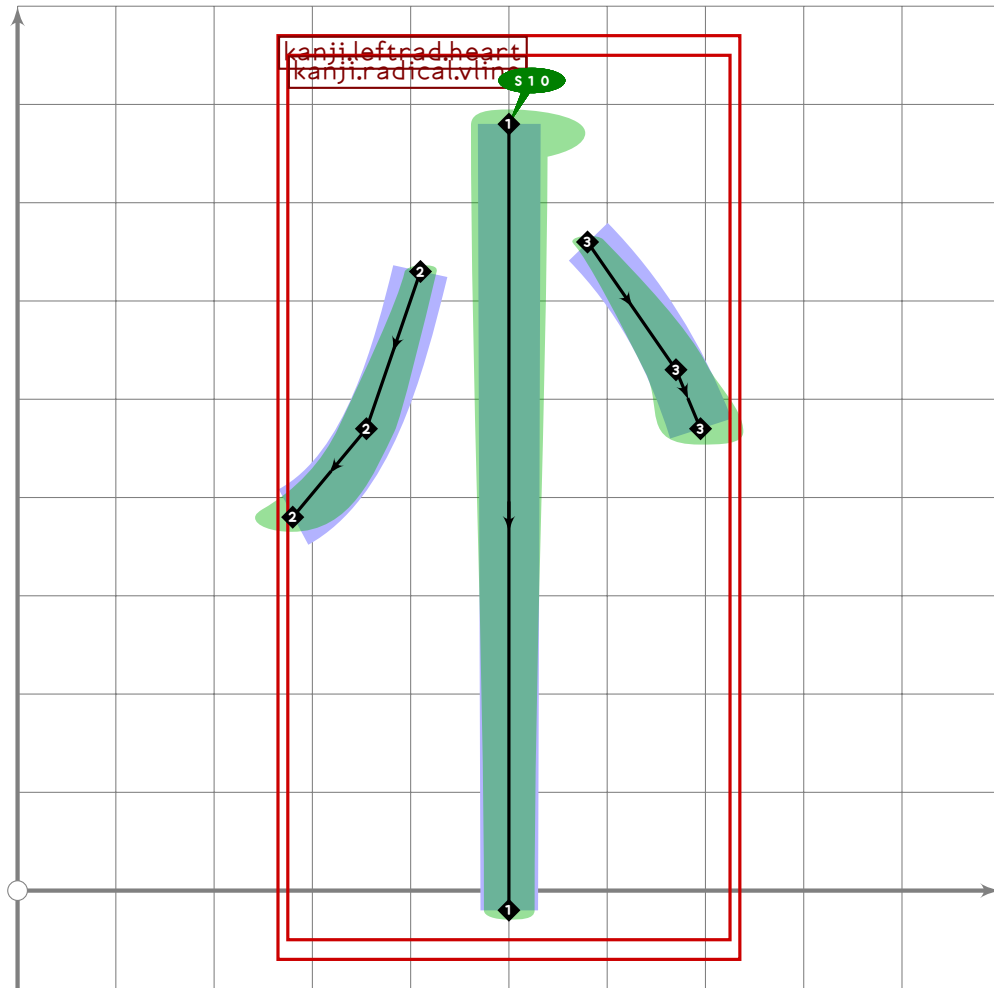
284 % extra

```

285 begintsuglyph("uni5F1C";28);
286 build_kanji.level(build_kanji.lr(450,0)
287   (kanji.grtwo.bow)
288   (kanji.grtwo.bow));
289 tsu_render;
290 endtsuglyph;
291
292 % twi/otouto "little brother"
293 begintsuglyph("uni5F1F";31); [see page 1751]
294 kanji.grtwo.little_brother;
295 tsu_render;
296 endtsuglyph;
297
298 % jyaku/yowa "weak"
299 begintsuglyph("uni5F31";49); [see page 1753]
300 kanji.grtwo.weak;
301 tsu_render;
302 endtsuglyph;
303
304 % kyou/tsuyo "strong"
305 begintsuglyph("uni5F37";55); [see page 1752]
306 kanji.grtwo.strong;
307 tsu_render;
308 endtsuglyph;
309
310 % needed for lots of other things, rare by itself
311 begintsuglyph("uni5F50";80); [see page 361]
312 kanji.radical.pigs_tail;
313 tsu_render;
314 endtsuglyph;
315
316 % tou/a(tari) "hit"
317 begintsuglyph("uni5F53";83); [see page 1748]
318 kanji.grtwo.hit;
319 tsu_render;
320 endtsuglyph;
321
322 % san "short hair radical"
323 begintsuglyph("uni5F61";97); [see page 372]
324 kanji.rightrad.short_hair;
325 tsu_render;
326 endtsuglyph;
327
328 % kei/kata "form"
329 begintsuglyph("uni5F62";98); [see page 1750]
330 kanji.grtwo.form;
331 tsu_render;
332 endtsuglyph;

```

333  
334 % gen/hiko "boy"  
335 `begintsuglyph("uni5F66";102);` [see page 591]  
336 `kanji.grnine.boy;`  
337 `tsu_render;`  
338 `endtsuglyph;`  
339  
340 % yaku "duty"  
341 `begintsuglyph("uni5F79";121);` [see page 1754]  
342 `kanji.grthree.duty;`  
343 `tsu_render;`  
344 `endtsuglyph;`  
345  
346 % tai/matsu "wait"  
347 `begintsuglyph("uni5F85";133);` [see page 1756]  
348 `kanji.grthree.wait;`  
349 `tsu_render;`  
350 `endtsuglyph;`  
351  
352 % go/shiri "behind"  
353 `begintsuglyph("uni5F8C";140);` [see page 1749]  
354 `kanji.grtwo.behind;`  
355 `tsu_render;`  
356 `endtsuglyph;`  
357  
358 % shin/kokoro "heart"  
359 `begintsuglyph("uni5FC3";195);` [see page 467]  
360 `kanji.grtwo.heart;`  
361 `tsu_render;`  
362 `endtsuglyph;`  
363

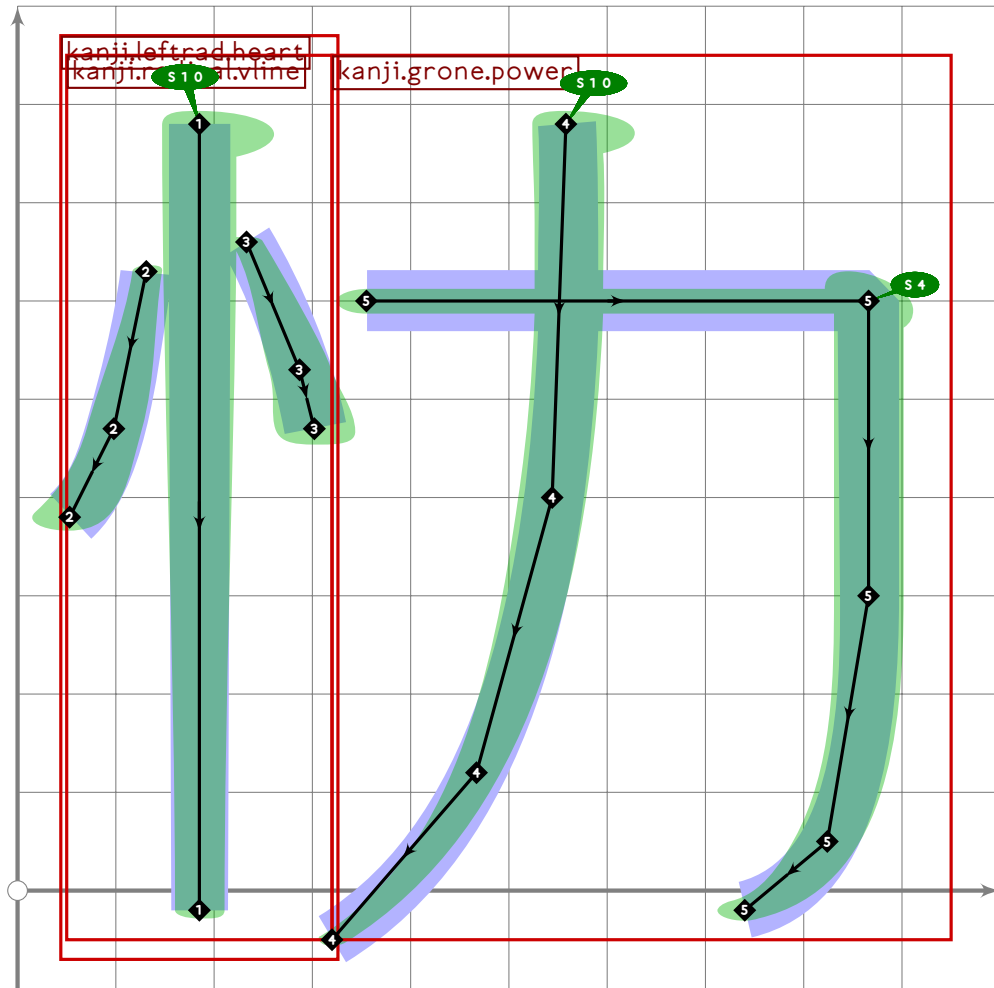


```

364 % left radical version
365 begintsuglyph("uni5FC4";196);
366 build_kanji.sscale(xscaled 0.5)(kanji.leftrad.heart);
367 tsu_render;
368 endtsuglyph;
369
370 % hitsu/nagara "inevitable"
371 begintsuglyph("uni5FC5";197);
372 kanji.grfour.inevitable;
373 tsu_render;
374 endtsuglyph;
375

```

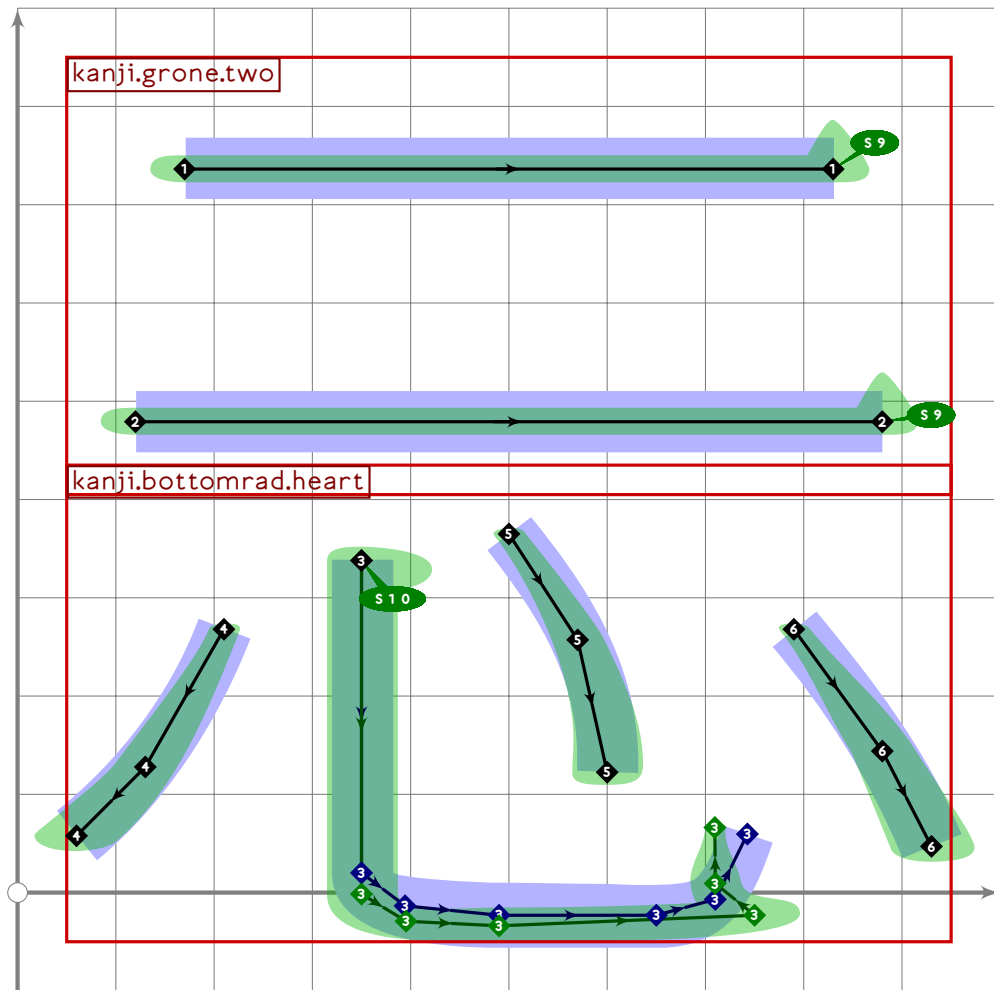
[see page 547]



```

376 % extra "great achievement"
377 begintsuglyph("uni5FC7",199);
378 build_kanji.level(build_kanji.lr(320,0)
379   (kanji.leftrad.heart)
380   (kanji.grone.power));
381 tsu_render;
382 endsuglyph;
383

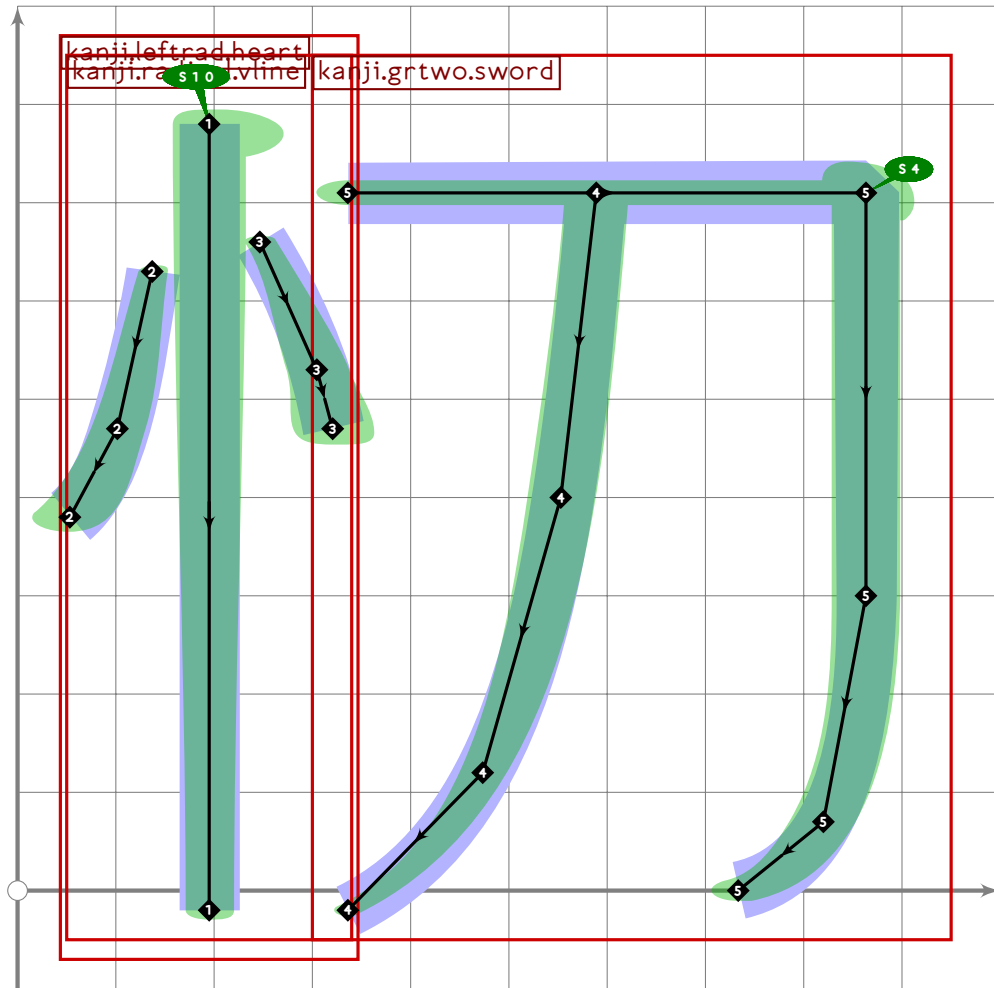
```



```

384 % extra
385 begintsuglyph("uni5FC8",200);
386 build_kanji.level(build_kanji.tb(420,30)
387   (kanji.grone.two)
388   (kanji.bottomrad.heart));
389 tsu_render;
390 endsuglyph;
391

```

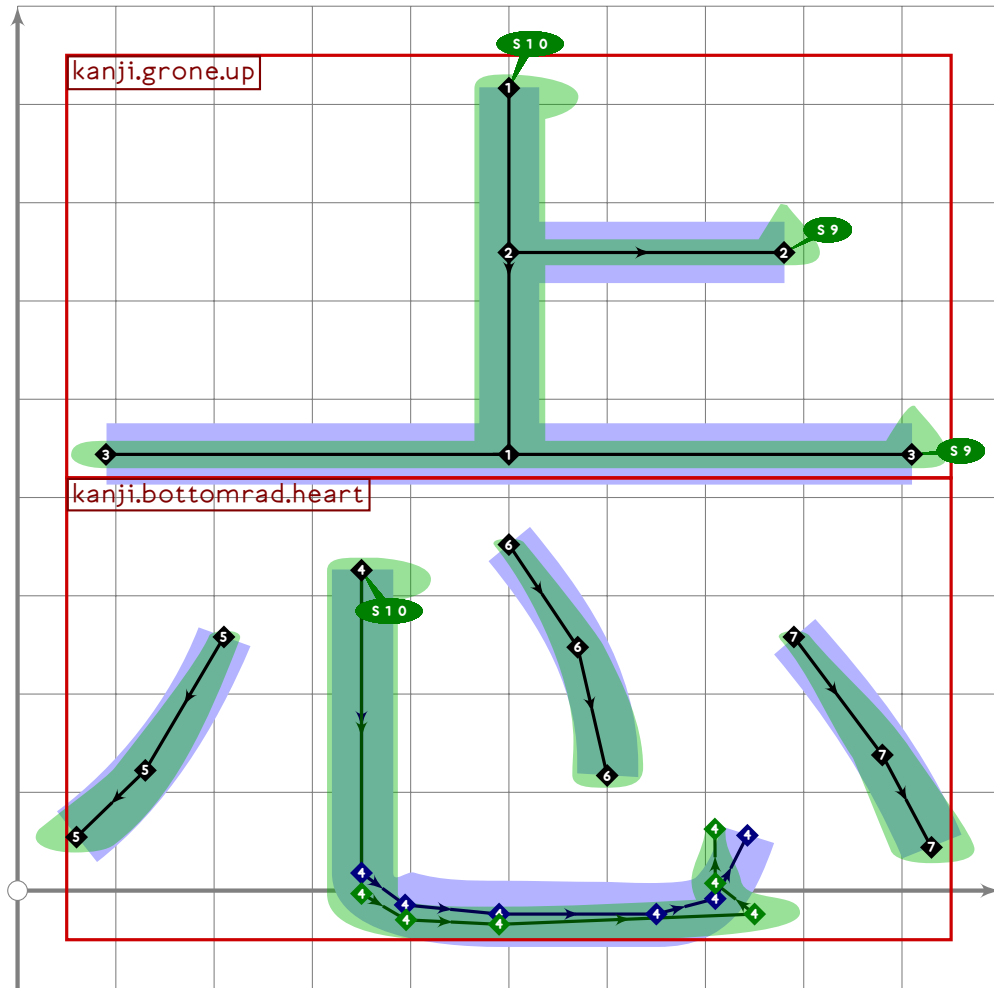


```

392 % extra
393 begintsuglyph("uni5FC9";201);
394 build_kanji.level(build_kanji.lr(320,40)
395   (kanji.leftrad.heart)
396   (kanji.grtwo.sword));
397 tsu_render;
398 endsuglyph;
399

```

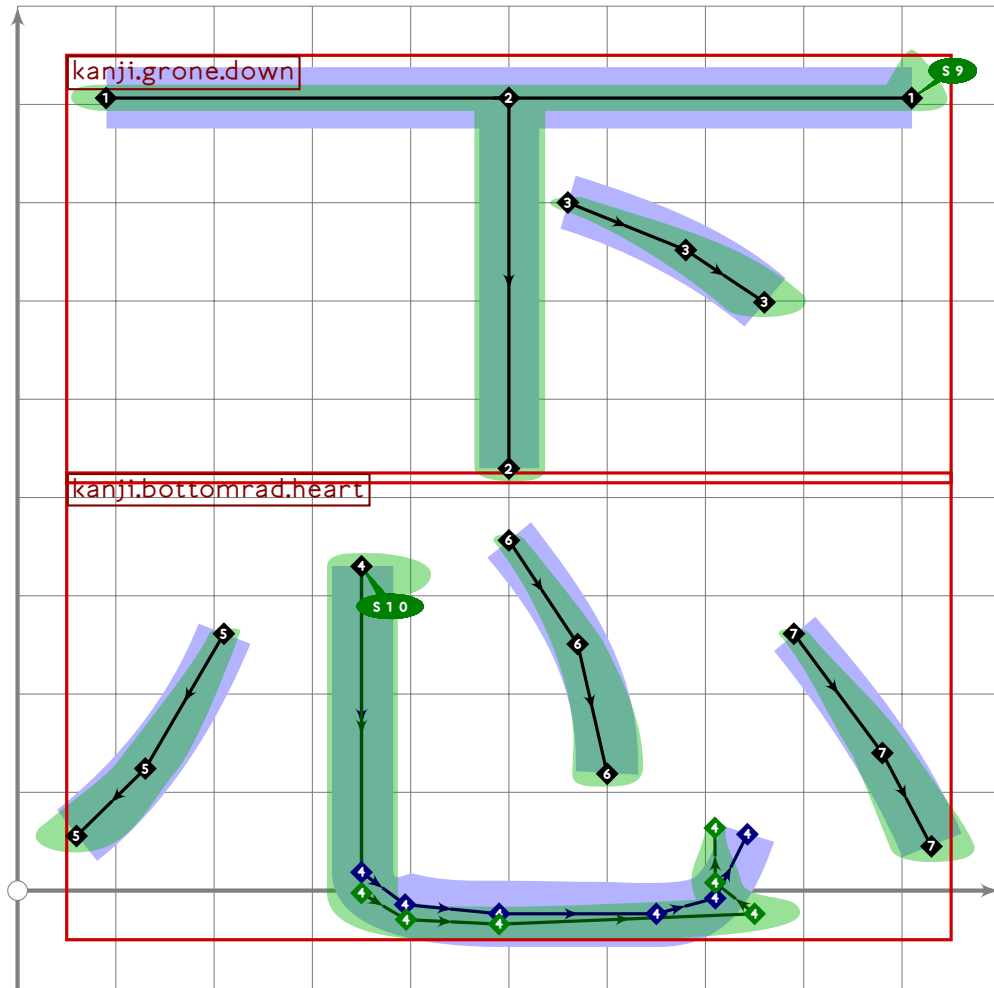




```

400 % extra
401 begint Suglyph("uni5FD0",208);
402 build_kanji.level(build_kanji.tb(420,0)
403   (kanji.grone.up)
404   (kanji.bottomrad.heart));
405 tsu_render;
406 endsuglyph;
407

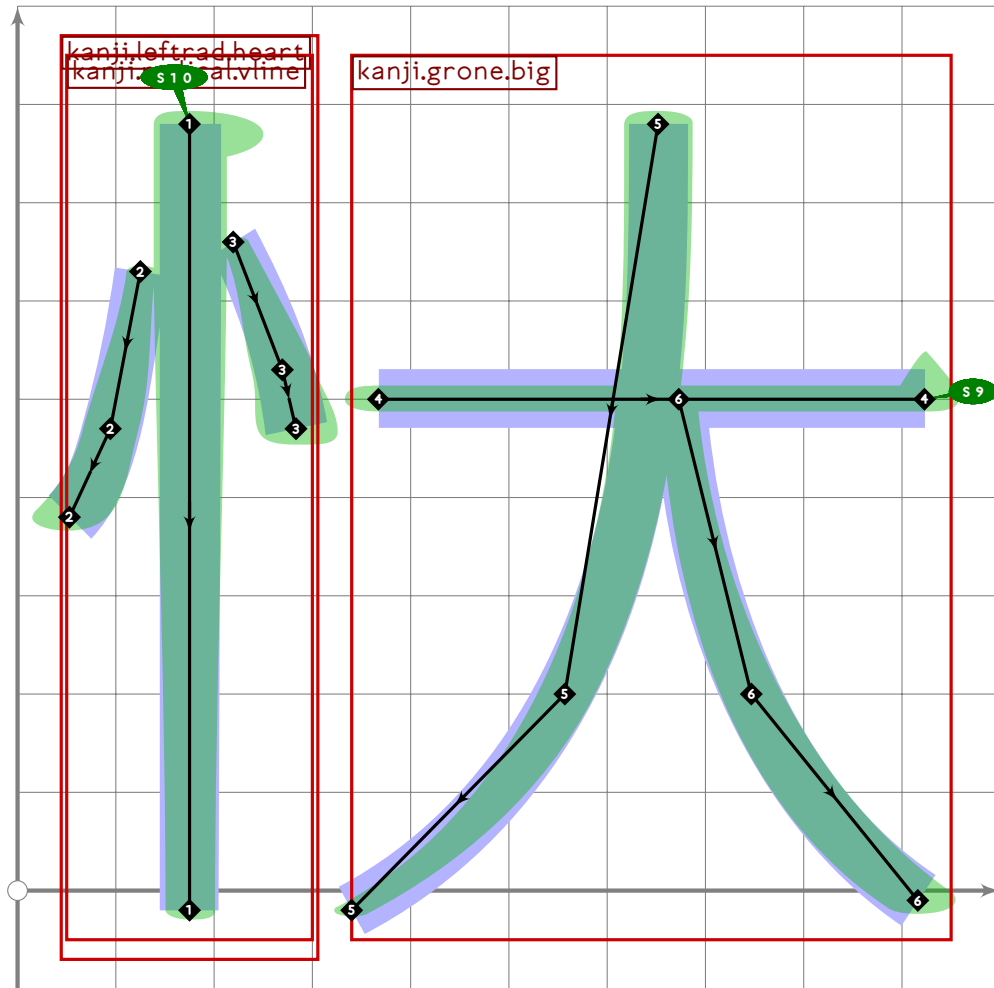
```



```

408 % extra
409 begintsuglyph("uni5FD1";209);
410 build_kanji.level(build_kanji.tb(420,10)
411   (kanji.grone.down)
412   (kanji.bottomrad.heart));
413 tsu_render;
414 endtsuglyph;
415

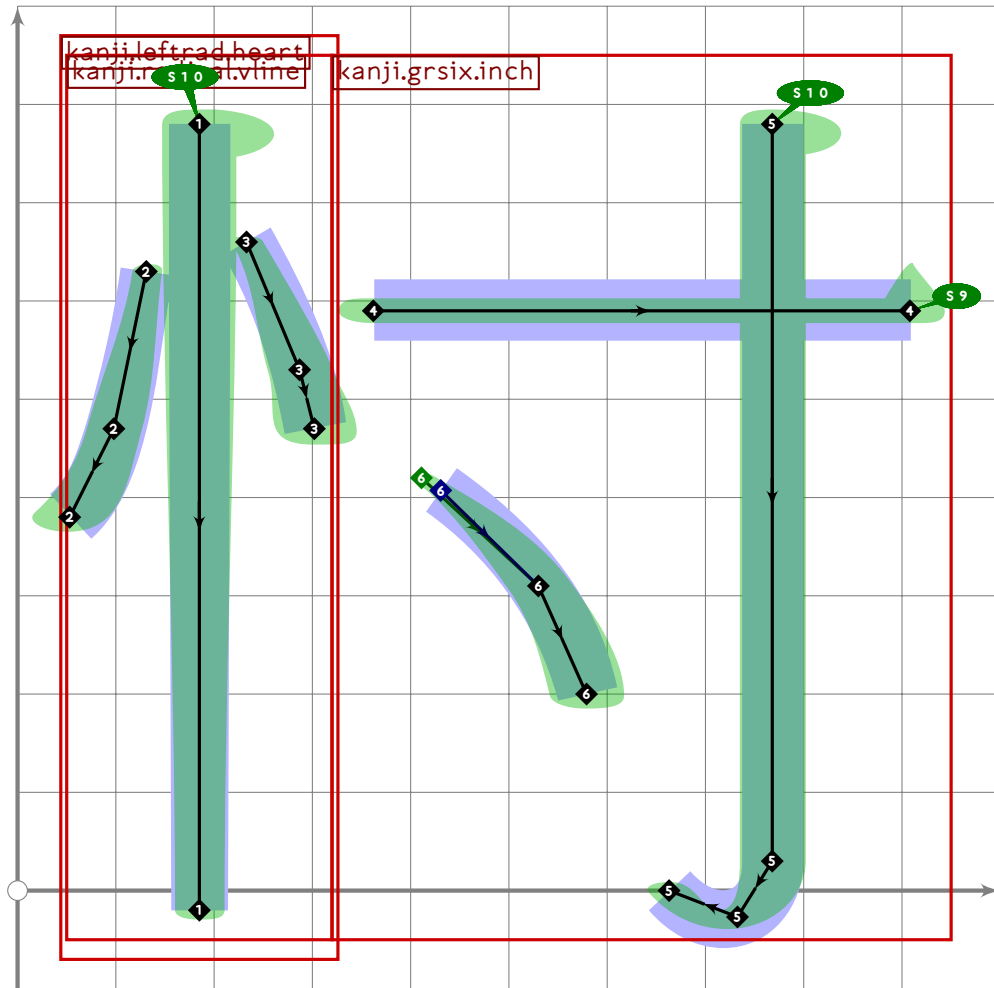
```



```

416 % extra
417 begintsuglyph("uni5FD5";213);
418 build_kanji.level(build_kanji.lr(320,-40)
419   (kanji.leftrad.heart)
420   (kanji.grone.big));
421 tsu_render;
422 endsuglyph;
423

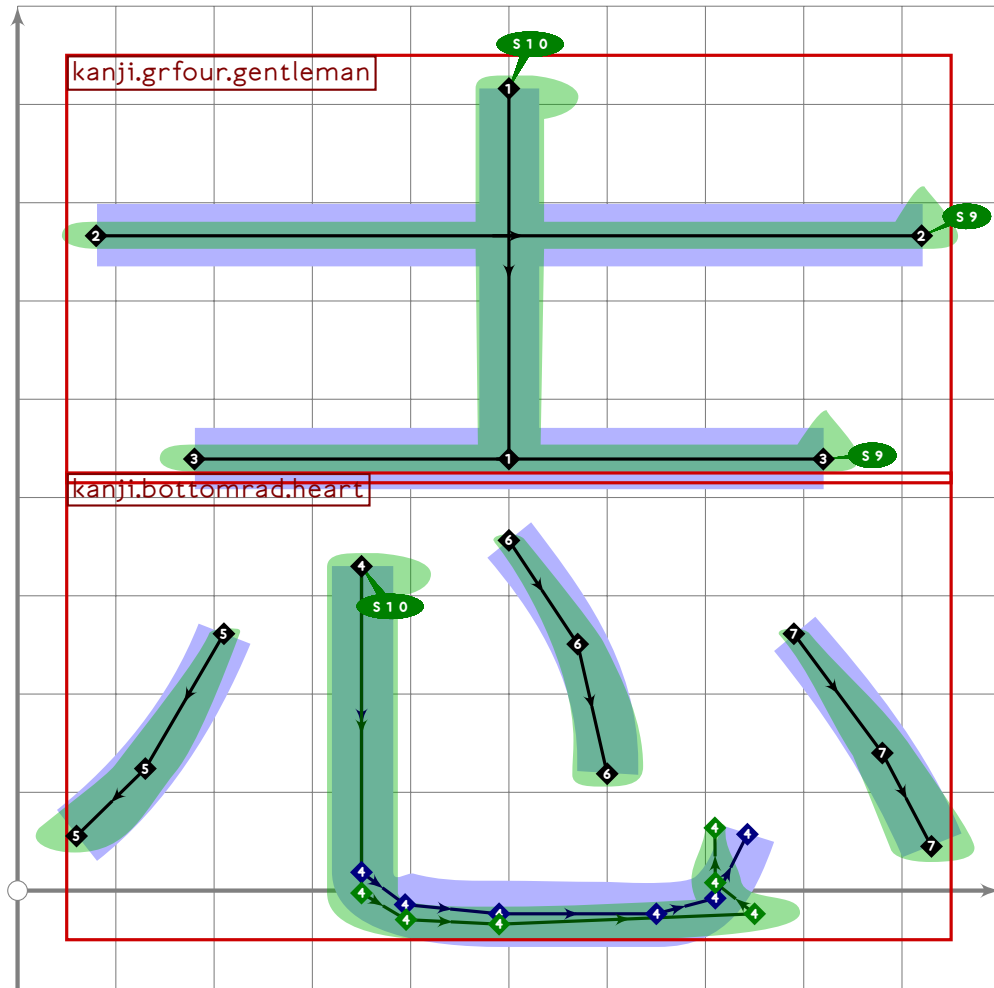
```



```

424 % extra
425 begintsuglyph("uni5FD6",214);
426 build_kanji.level(build_kanji.lr(320,0)
427   (kanji.leftrad.heart)
428   (kanji.grsix.inch));
429 tsu_render;
430 endsuglyph;
431

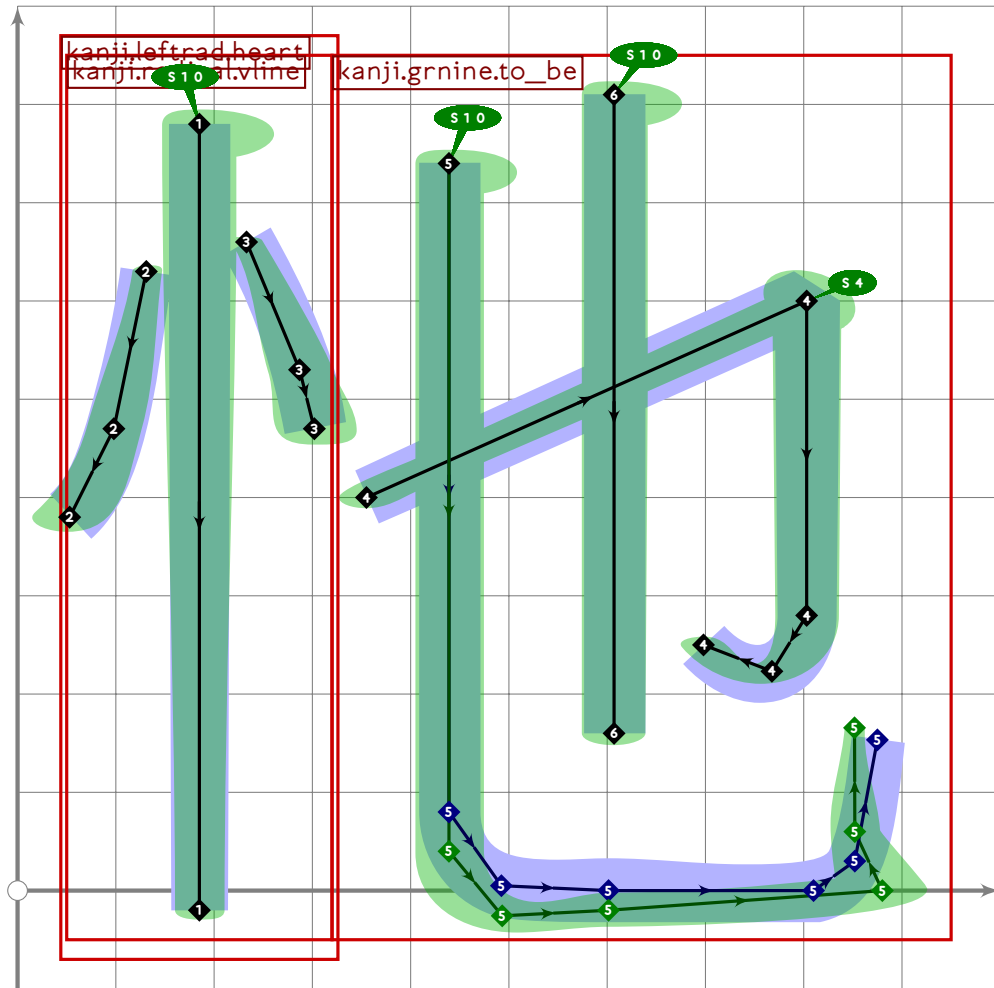
```



```

432 % extra
433 begintsuglyph("uni5FD7";215);
434 build_kanji.level(build_kanji.tb(420,10)
435   (kanji.grfour.gentleman)
436   (kanji.bottomrad.heart));
437 tsu_render;
438 endsuglyph;
439

```

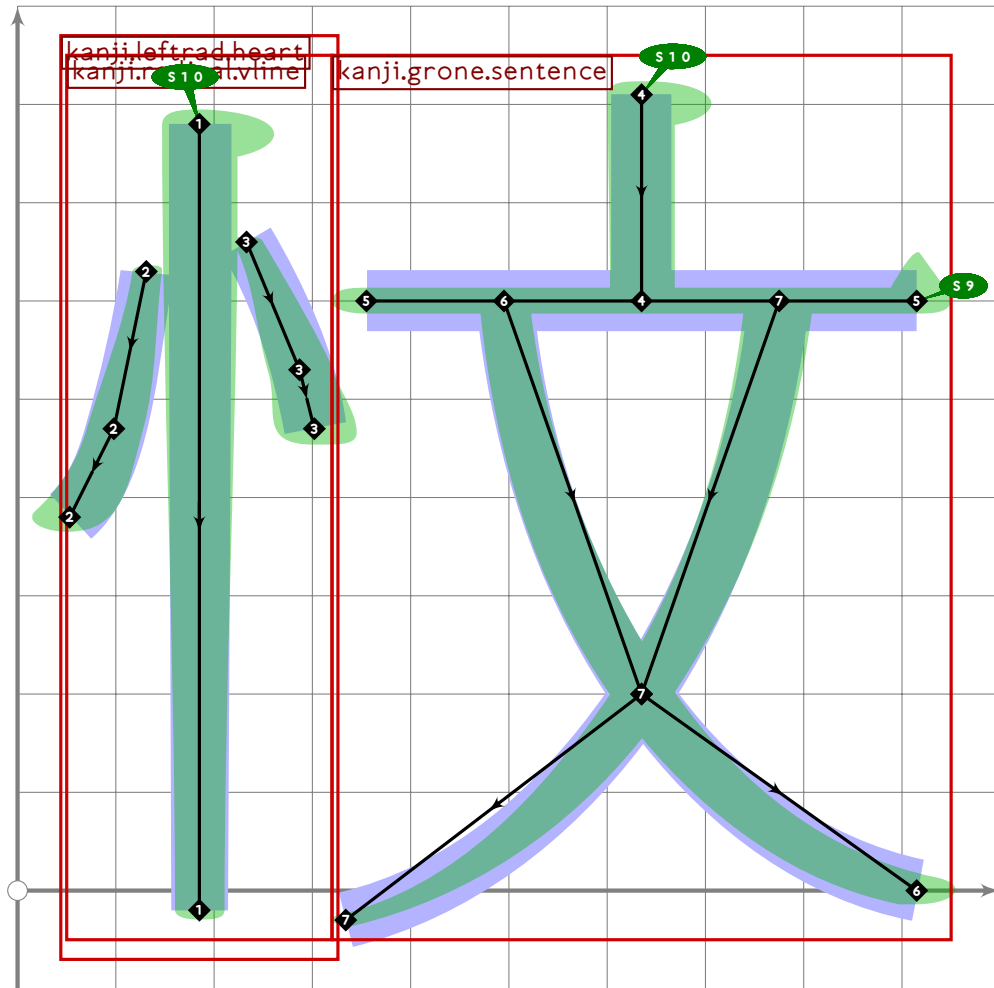


```

440 % extra
441 begintsuglyph("uni5FDA";218);
442 build_kanji.level(build_kanji.lr(320,0)
443   (kanji.leftrad.heart)
444   (kanji.grnine.to_be));
445 tsu_render;
446 endtsuglyph;
447
448 % ou/ata "affirm"
449 begintsuglyph("uni5FDC";220);
450 kanji.grfive.affirm;
451 tsu_render;
452 endtsuglyph;
453

```

[see page 1758]

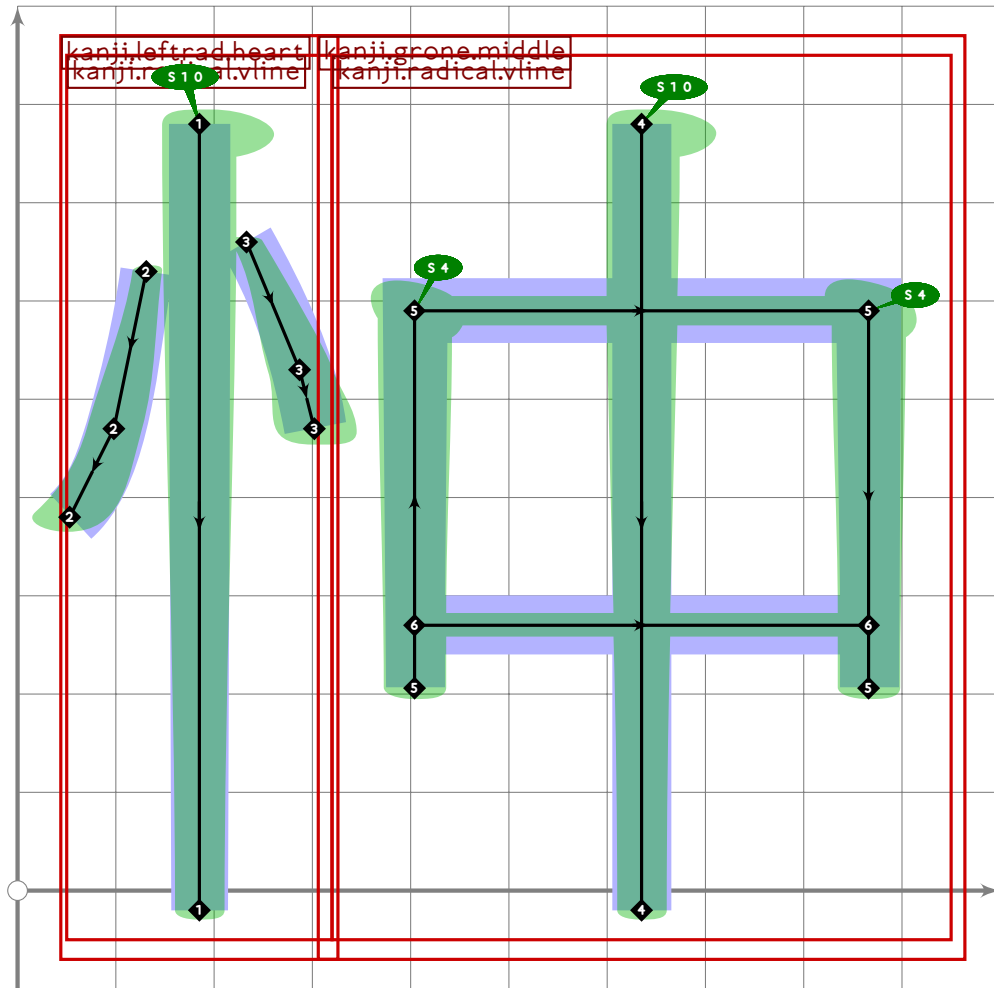


```

454 % extra
455 begintsuglyph("uni5FDF";223);
456 build_kanji.level(build_kanji.lr(320,0)
457   (kanji.leftrad.heart)
458   (kanji.grone.sentence));
459 tsu_render;
460 endtsuglyph;
461
462 % chuu/kiyoshi "loyalty"
463 begintsuglyph("uni5FE0";224);
464 kanji.grsix.loyalty;
465 tsu_render;
466 endtsuglyph;
467

```

[see page 1760]

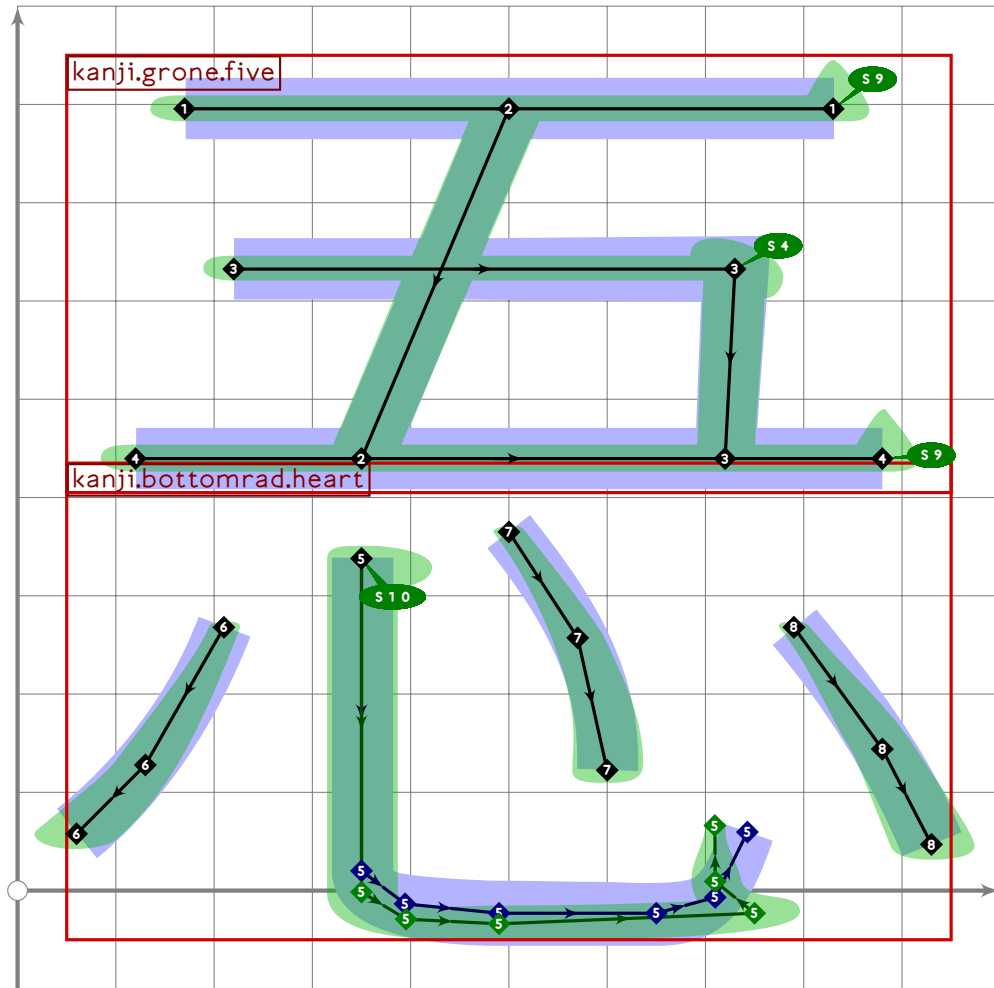


```

468 % extra
469 beginsuglyph("uni5FE1",225);
470 build_kanji.level(build_kanji.lr(320,0)
471   (kanji.leftrad.heart)
472   (kanji.grone.middle));
473 tsu_render;
474 endsuglyph;
475

```

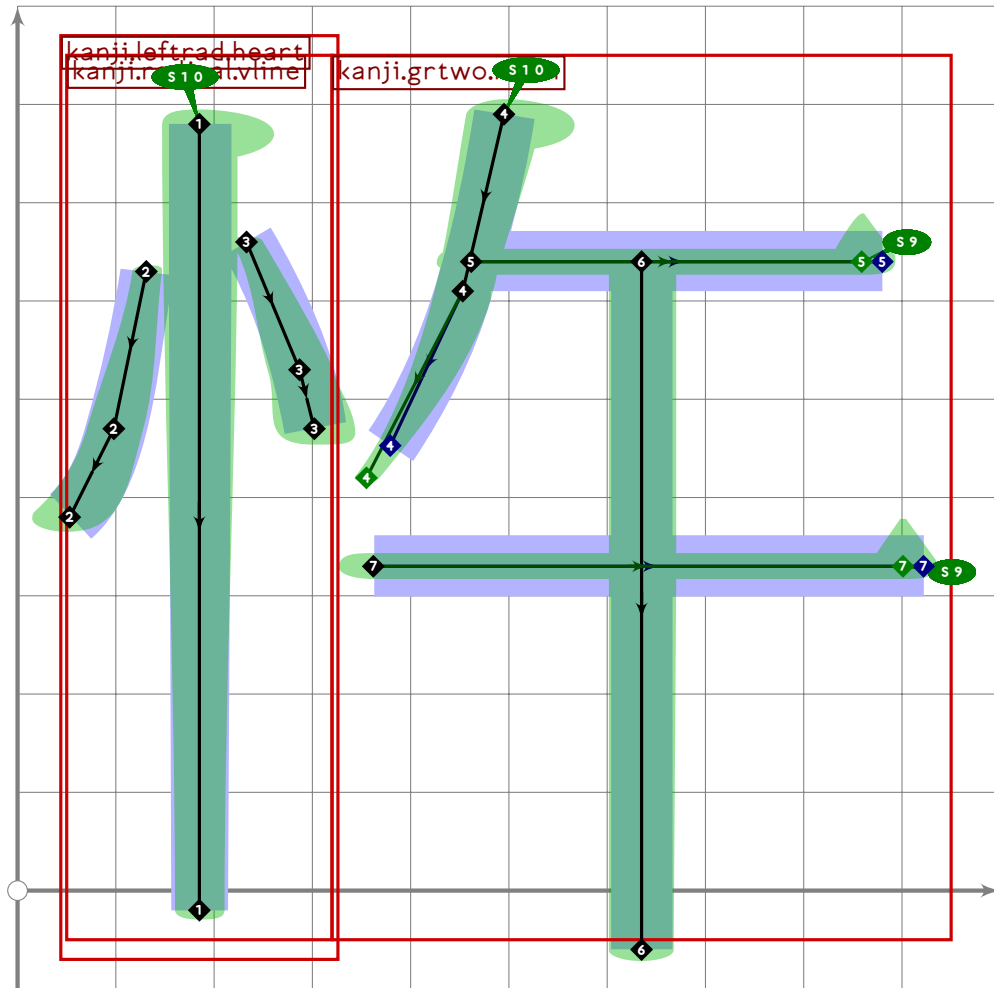




```

476 % extra
477 begintsuglyph("uni5FE2";226);
478 build_kanji.level(build_kanji.tb(420,30)
479   (kanji.grone.five)
480   (kanji.bottomrad.heart));
481 tsu_render;
482 endsuglyph;
483

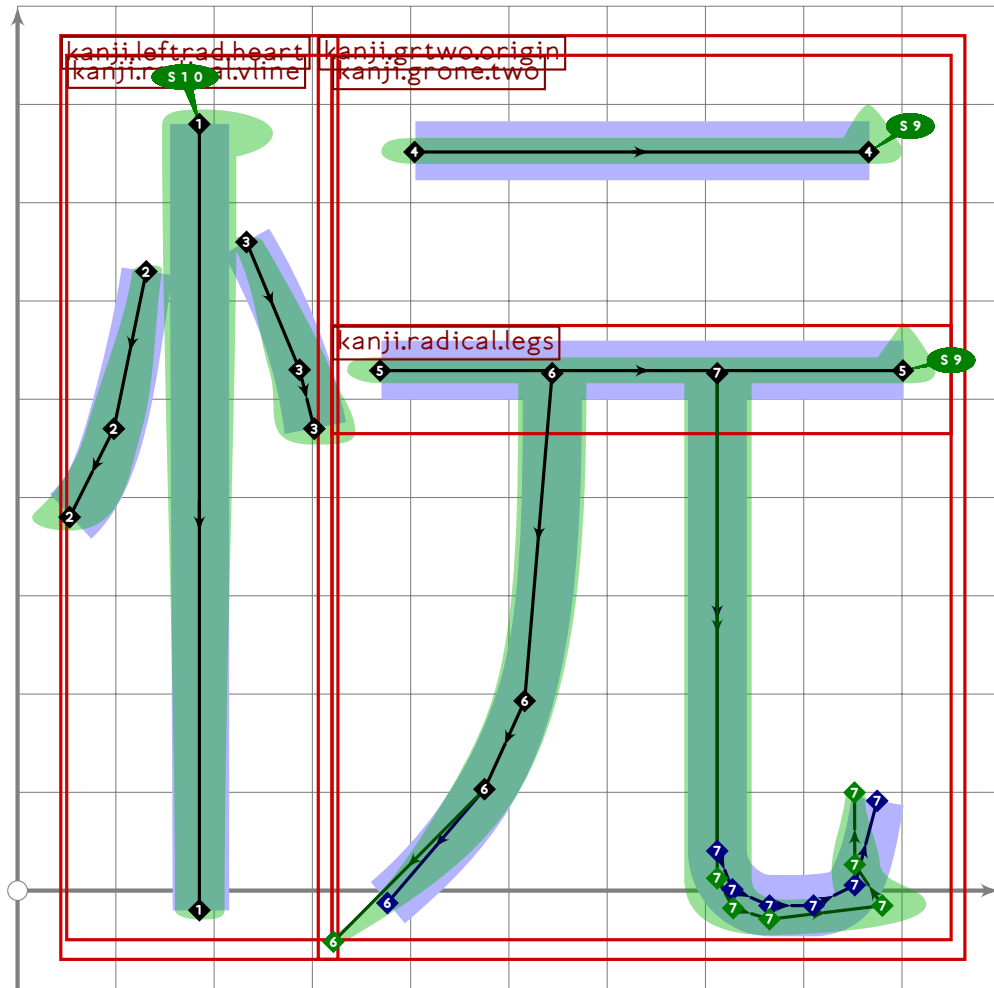
```



```

484 % extra
485 beginsuglyph("uni5FE4";228);
486 build_kanji.level(build_kanji.lr(320,0)
487   (kanji.leftrad.heart)
488   (kanji.grtwo.noon));
489 tsu_render;
490 endsuglyph;
491

```

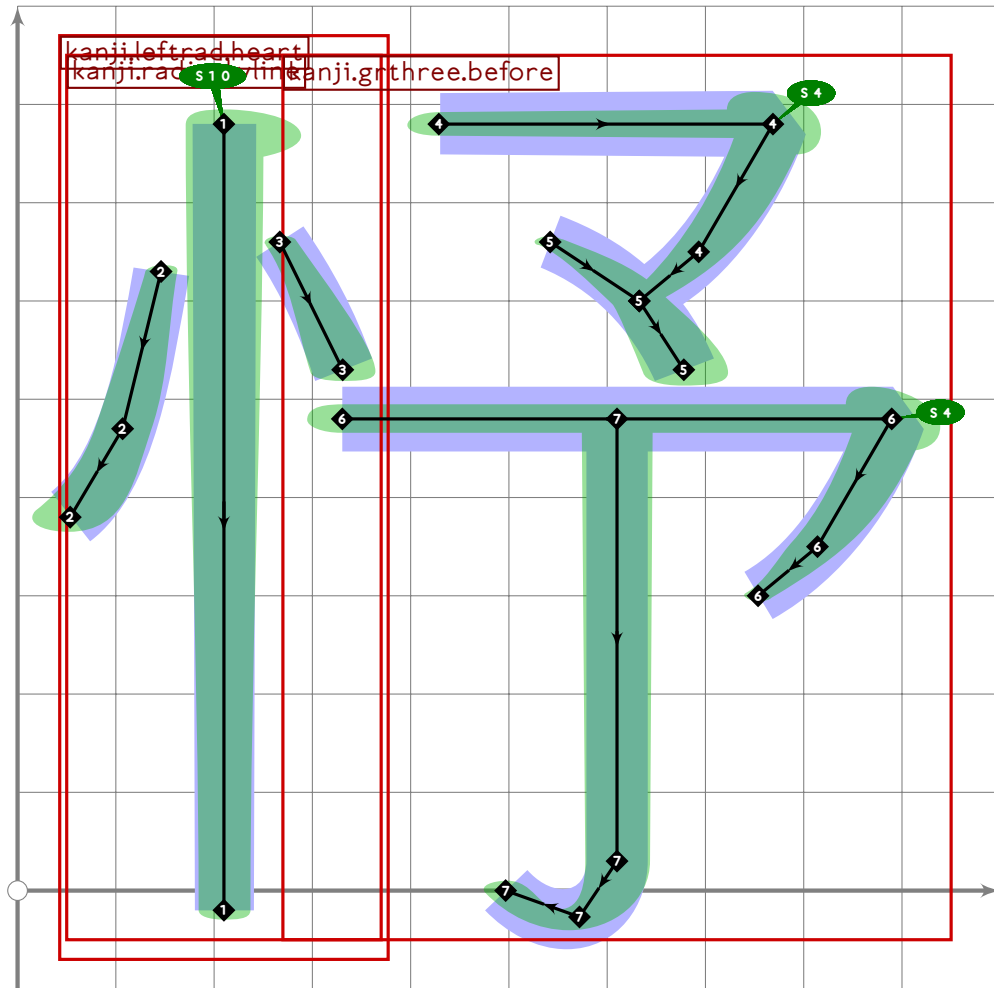


```

492 % extra
493 begintsuglyph("uni5FE8";232);
494 build_kanji.level(build_kanji.lr(320,0)
495   (kanji.leftrad.heart)
496   (kanji.grtwo.origin));
497 tsu_render;
498 endsuglyph;
499
500 % kai/kokoroyo "pleasure"
501 begintsuglyph("uni5FEB";235);
502 kanji.grfive.pleasure;
503 tsu_render;
504 endsuglyph;
505

```

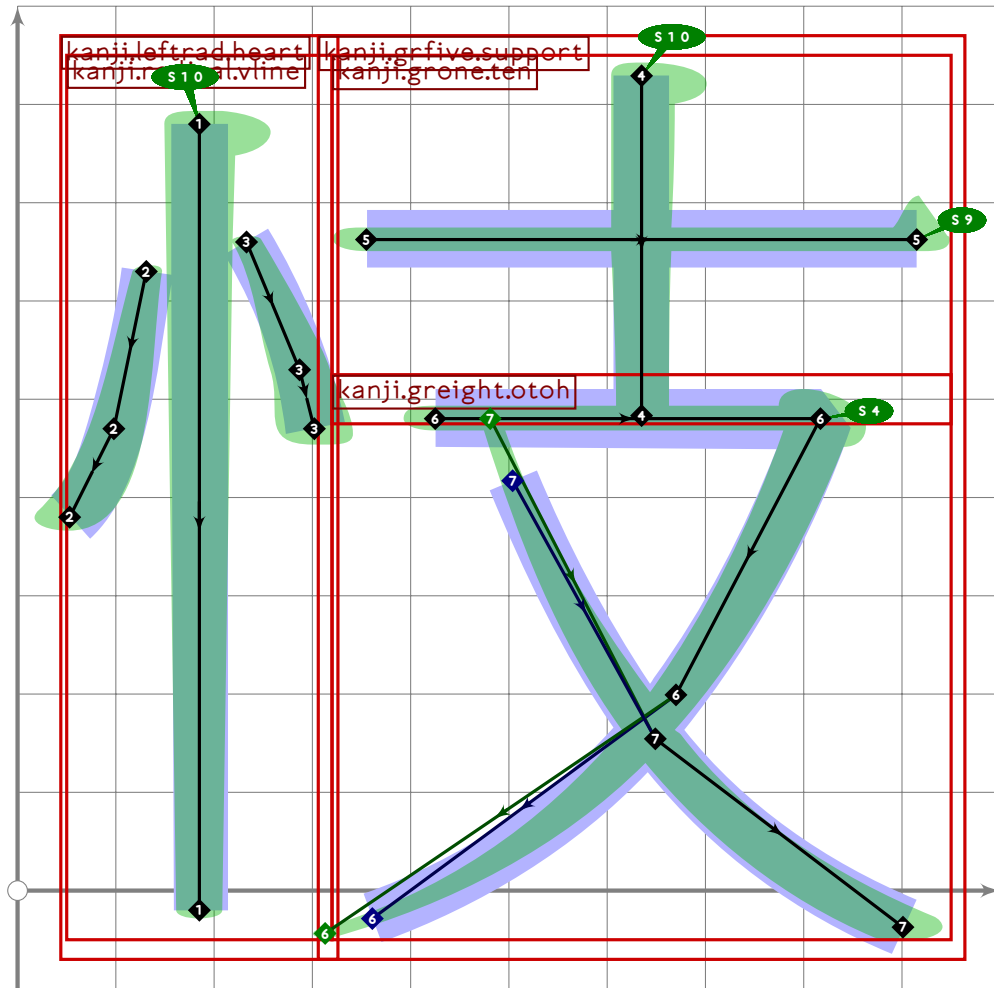
[see page 1759]



```

506 % extra
507 begintsuglyph("uni5FEC",236);
508 build_kanji.level(build_kanji.lr(320,100)
509   (kanji.leftrad.heart;
510     replace_strokep(0)(subpath (0,1) of oldp);
511     replace_strokeq(0)(subpath (0,1) of oldq))
512   (kanji.grthree.before));
513 tsu_render;
514 endtsuglyph;
515

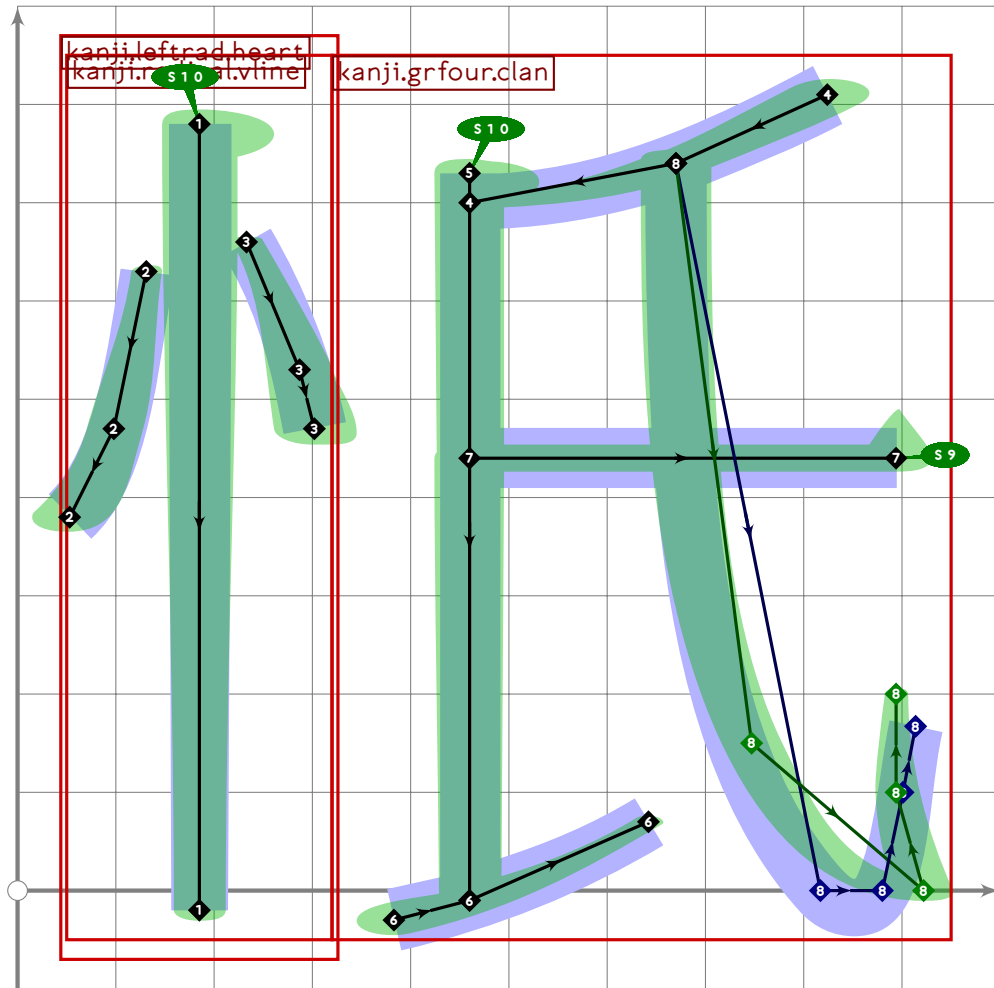
```



```

516 % extra
517 begintuglyph("uni5FEE";238);
518 build_kanji.level(build_kanji.lr(320,0)
519   (kanji.leftrad.heart)
520   (kanji.grfive.support));
521 tsu_render;
522 endsuglyph;
523

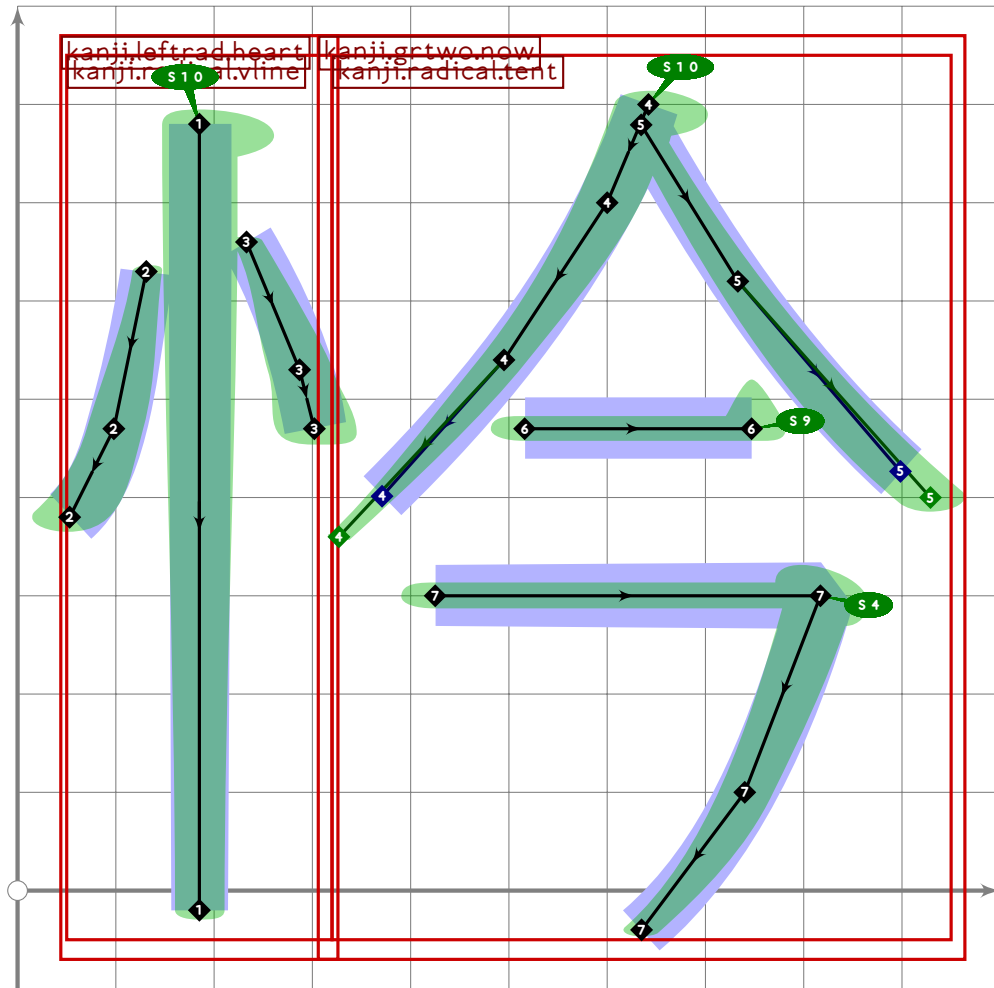
```



```

524 % extra
525 begintsuglyph("uni5FEF";239);
526 build_kanji.level(build_kanji.lr(320,0)
527   (kanji.leftrad.heart)
528   (kanji.grfour.clan));
529 tsu_render;
530 endsuglyph;
531

```

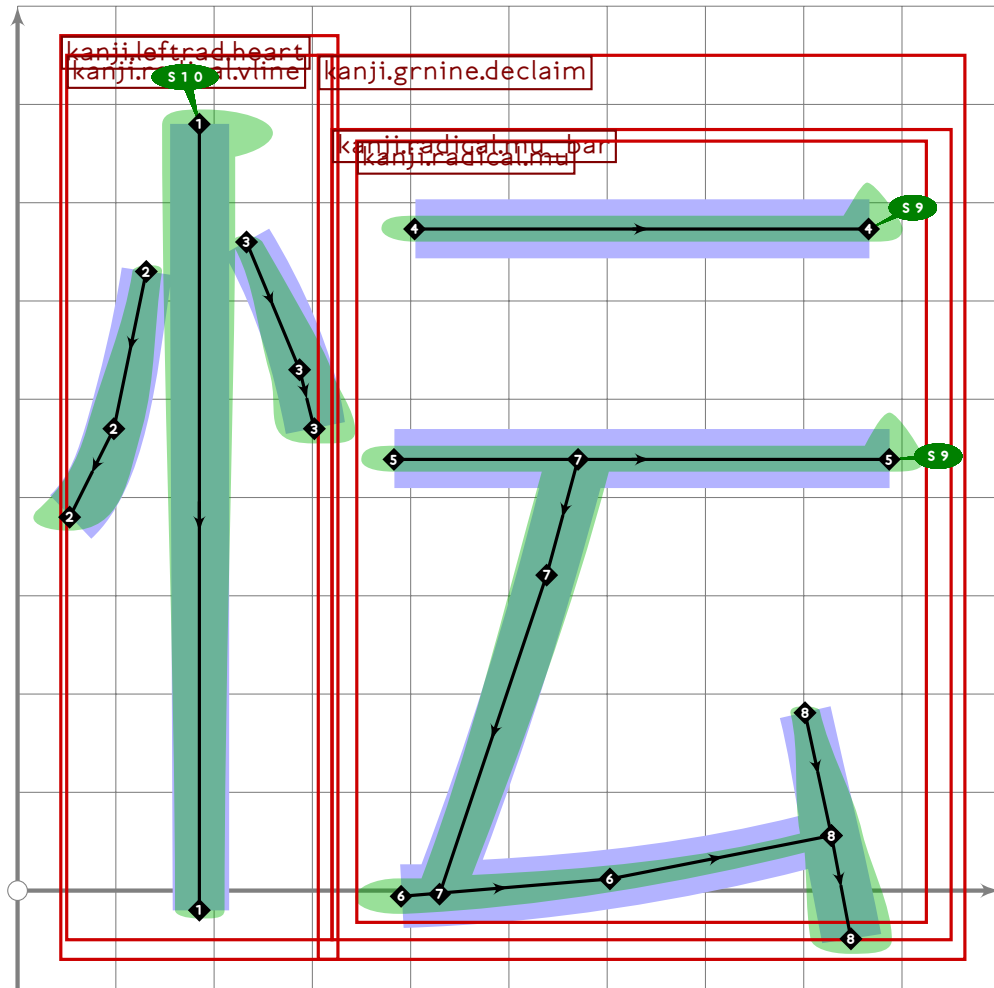


```

532 % extra
533 begintsuglyph("uni5FF4";244);
534 build_kanji.level(build_kanji.lr(320,0)
535   (kanji.leftrad.heart)
536   (kanji.grtwo.now));
537 tsu_render;
538 endsuglyph;
539
540 % nen "care"
541 begintsuglyph("uni5FF5";245);
542 kanji.grfour.care;
543 tsu_render;
544 endsuglyph;
545

```

[see page 1757]

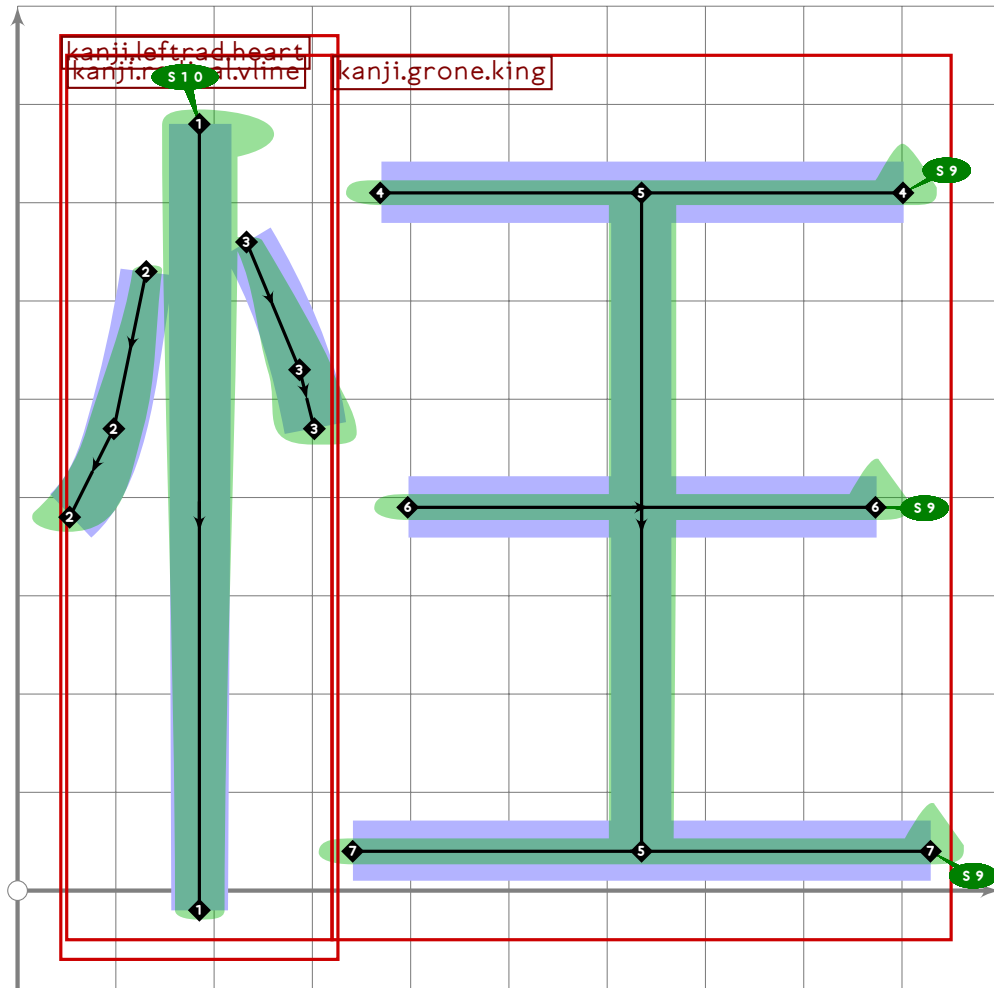


```

546 % extra
547 begintsuglyph("uni5FF6",246);
548 build_kanji.level(build_kanji.lr(320,0)
549   (kanji.leftrad.heart)
550   (kanji.grnine.declaim));
551 tsu_render;
552 endsuglyph;
553

```

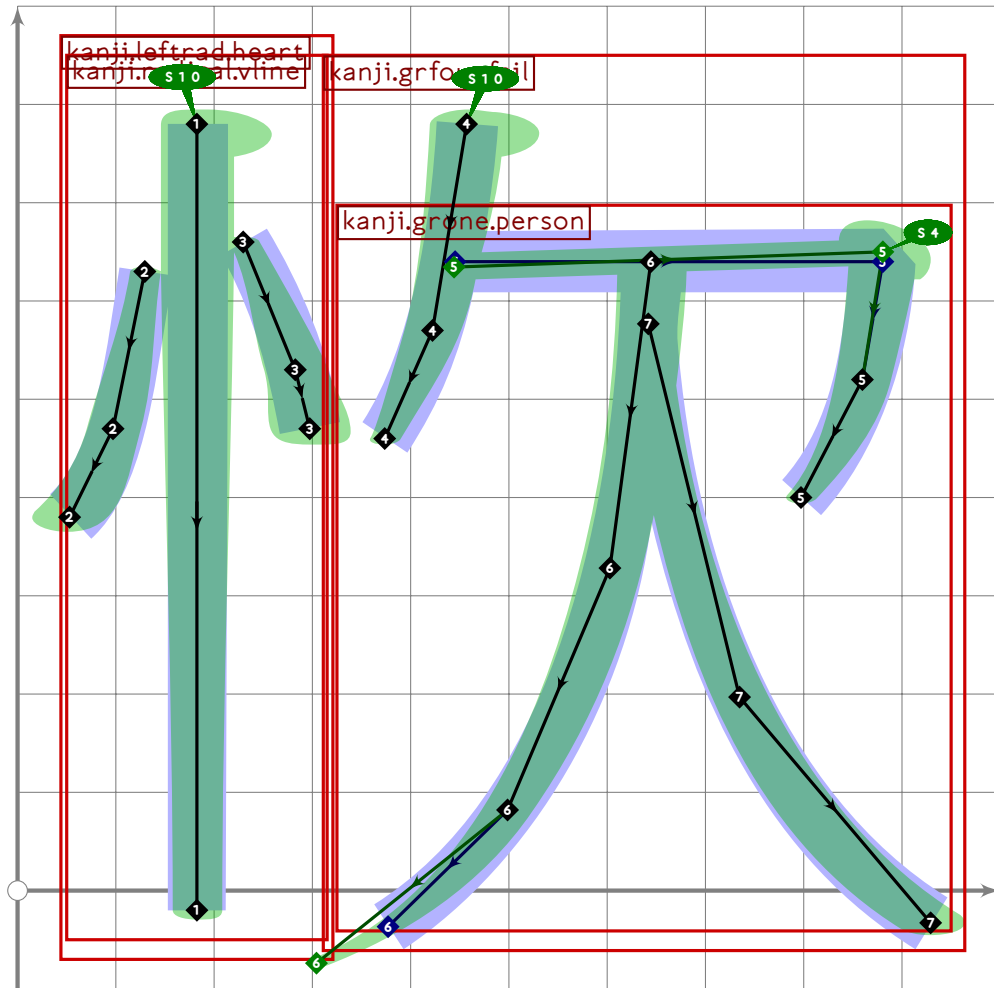




```

554 % extra
555 begintsuglyph("uni5FF9";249);
556 build_kanji.level(build_kanji.lr(320,0)
557   (kanji.leftrad.heart)
558   (kanji.grone.king));
559 tsu_render;
560 endtsuglyph;
561

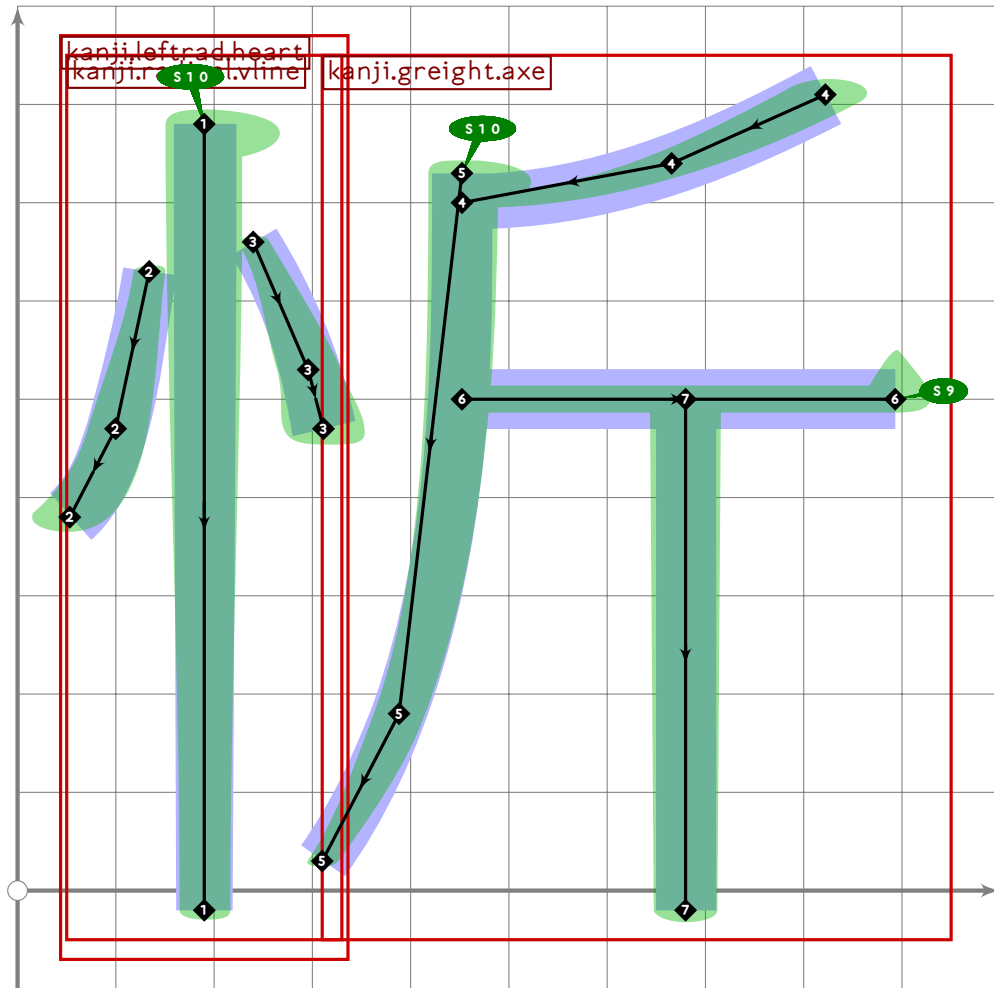
```



```

562 % extra
563 beginsuglyph("uni5FFA",250);
564 build_kanji.level(build_kanji.lr(320,-10)
565   (kanji.leftrad.heart)
566   (kanji.grfour.fail));
567 tsu_render;
568 endsuglyph;
569

```

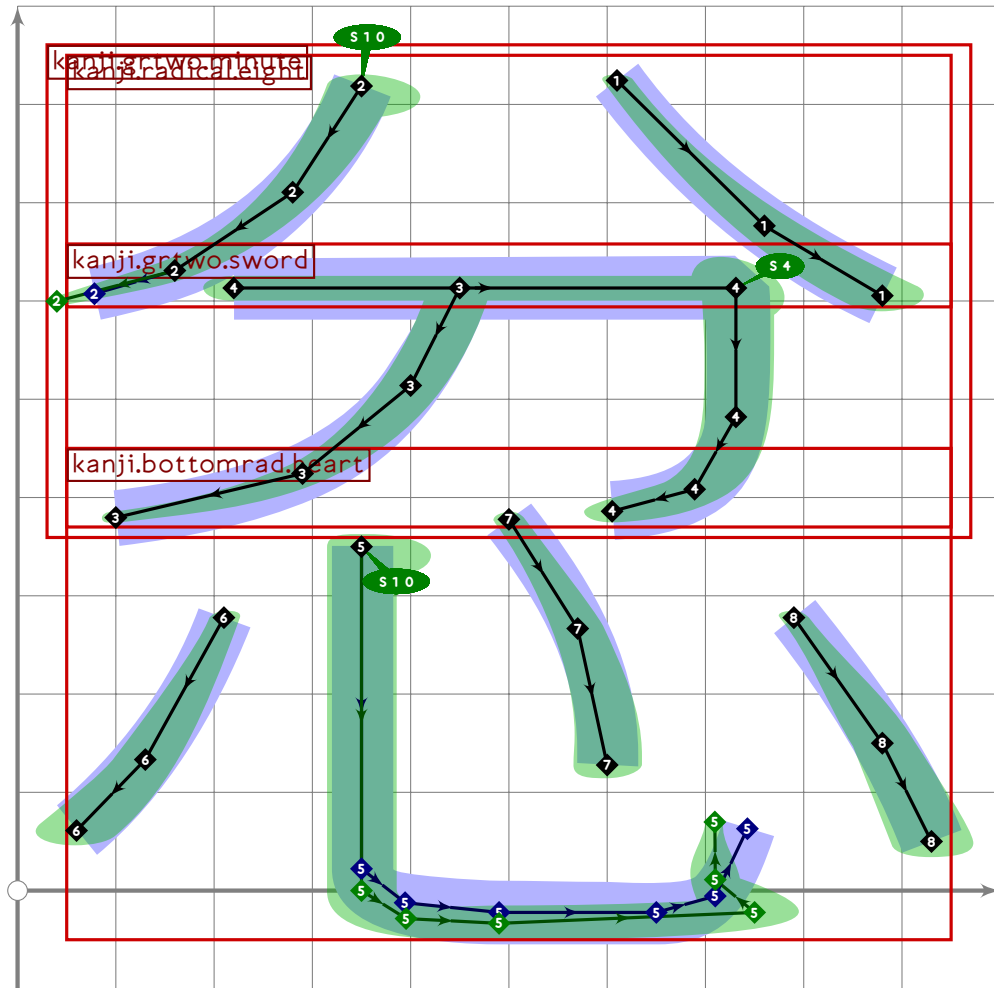


```

570 % extra
571 begintsuglyph("uni5FFB";251);
572 build_kanji.level(build_kanji.lr(320,20)
573   (kanji.leftrad.heart)
574   (kanji.greight.axe));
575 tsu_render;
576 endsuglyph;
577
578 % kotsu/tachima "suddenly"
579 begintsuglyph("uni5FFD";253);
580 kanji.grnine.suddenly;
581 tsu_render;
582 endsuglyph;
583

```

[see page 1763]



```

584 % extra "be angry"
585 begintsuglyph("uni5FFF";255);
586 build_kanji.level(build_kanji.tb(410,80)
587   (kanji.grtwo.minute)
588   (kanji.bottomrad.heart));
589 tsu_render;
590 endsuglyph;
591
592 _____
593
594 endfont;
595
596 _____

```

# tsuku-60.mp

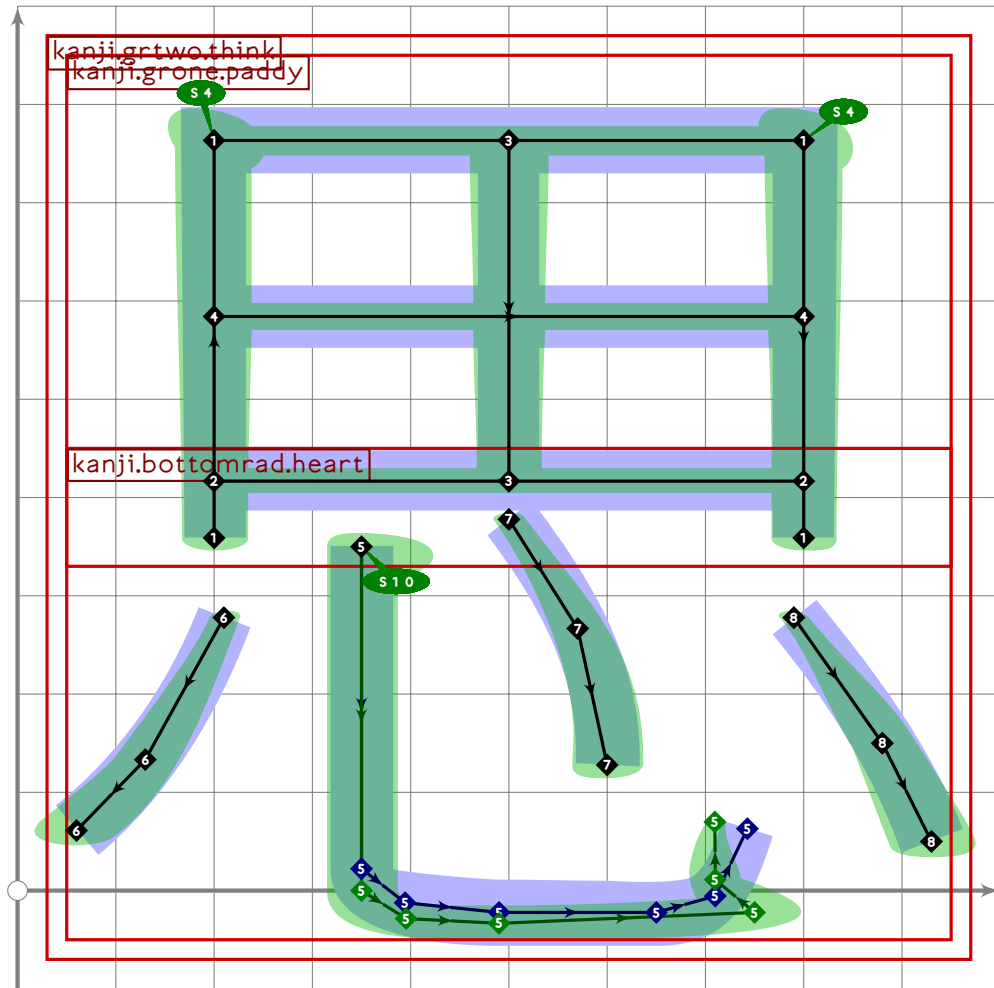
```
1 %
2 % Unicode page 60 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradesix.mp;
44 input gradethree.mp;
45 input gradetwo.mp;
46 input leftrad.mp;
47 input radical.mp;
48 input rare.mp;
49
50 

---

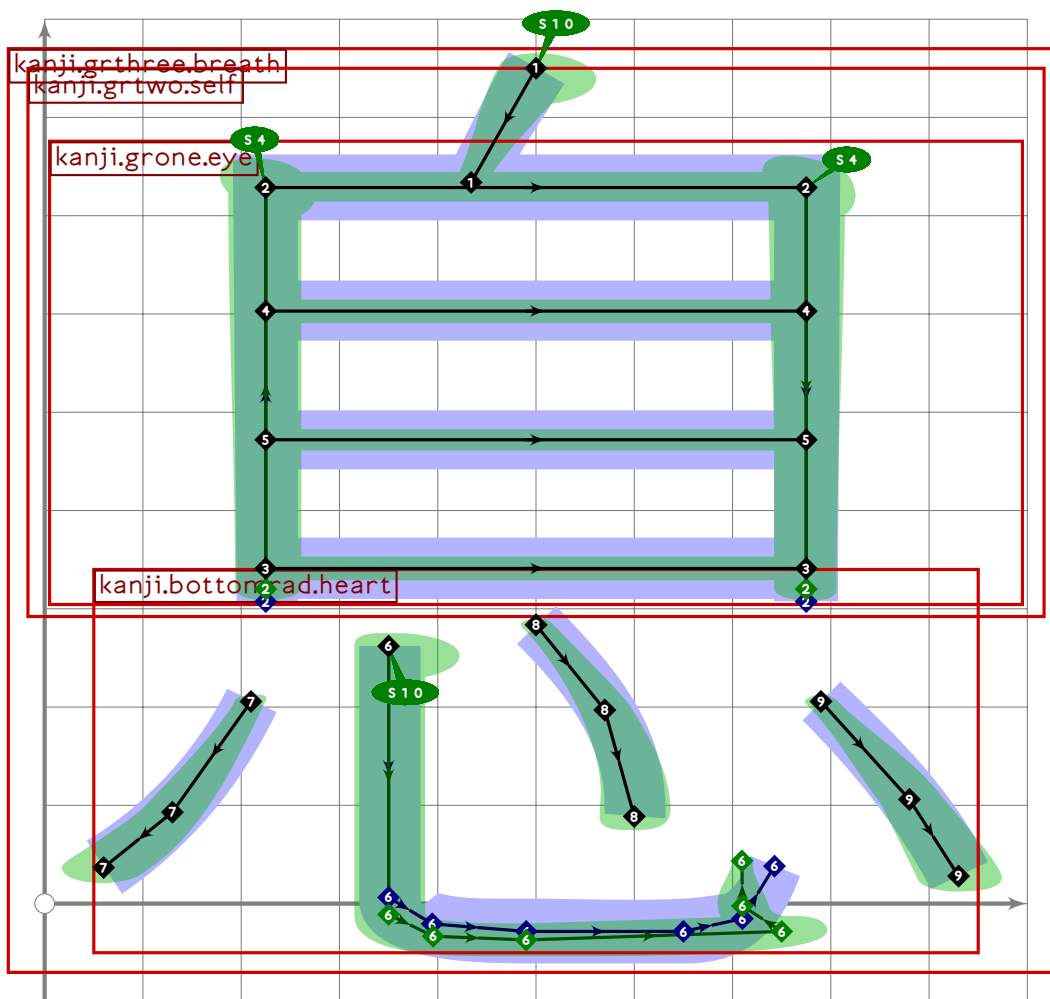

```



```

51
52 vardef kanji.grtwo.think =
53   push_pbox_toexpand("kanji.grtwo.think");
54   build_kanji.level(build_kanji.tb(390,120)
55     (kanji.grone.paddy)
56     (kanji.bottomrad.heart));
57   expand_pbox;
58 enddef;
59
60

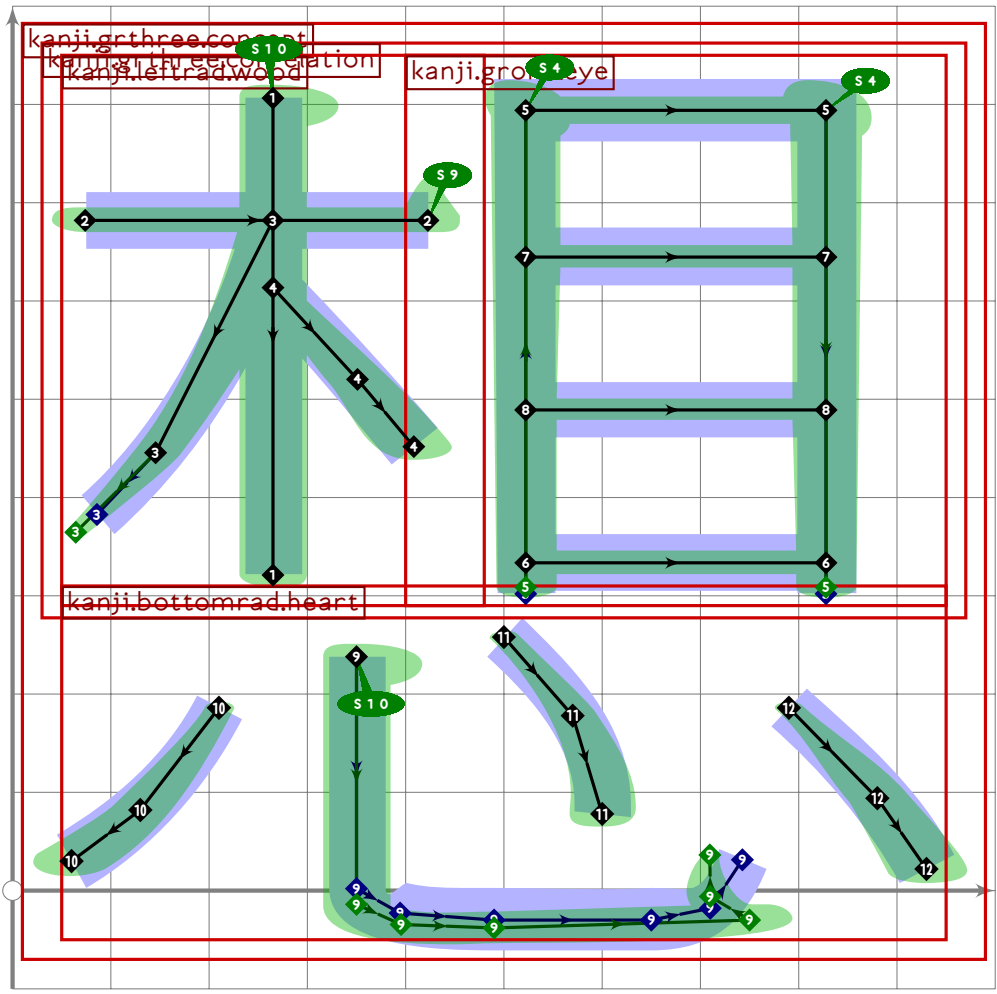
```



```

61
62 vardef kanji.grthree.breath =
63   push_pbox_toexpand("kanji.grthree.breath");
64   build_kanji.level(build_kanji.tb(320,40)
65     (build_kanji.sscale(xscaled 1.1)(kanji.grtwo.self))
66     (kanji.bottomrad.heart));
67   expand_pbox;
68 enddef;

```

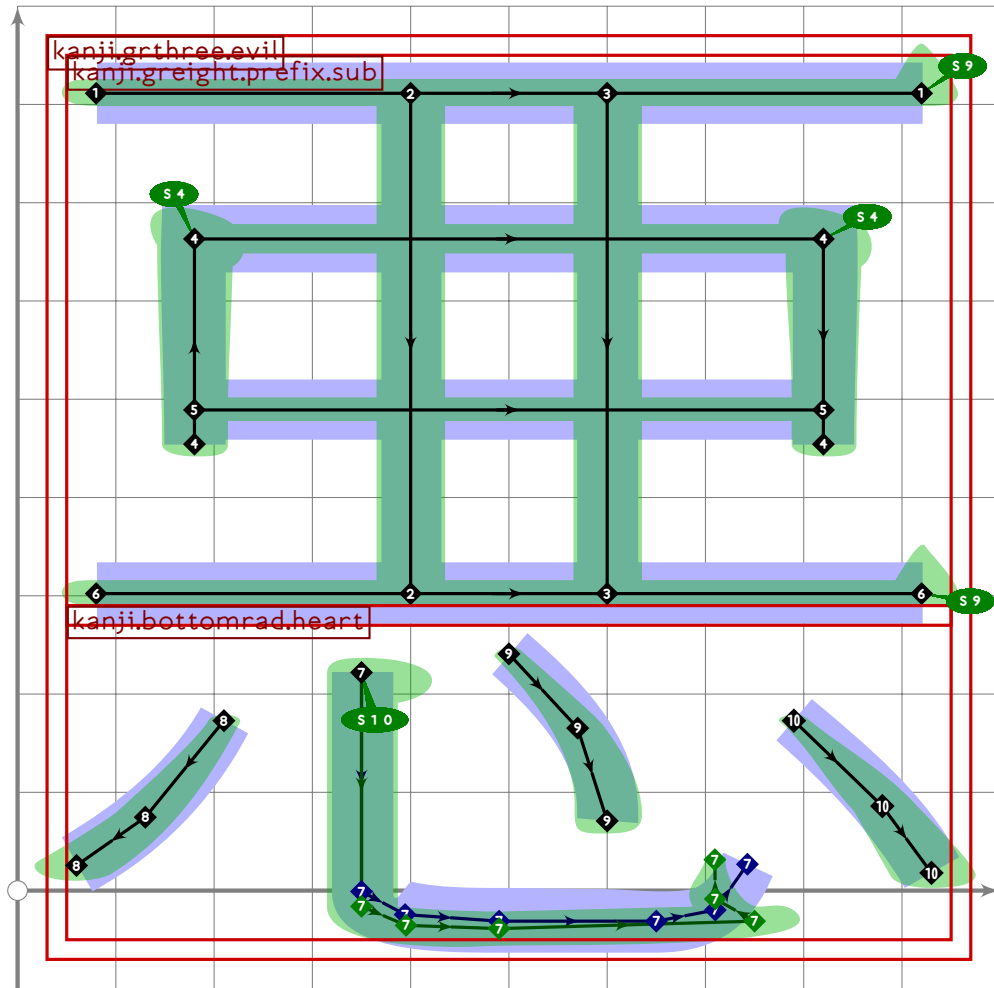


```

69
70 vardef kanji.grthree.concept =
71   push_pbox_toexpand("kanji.grthree.concept");
72   build_kanji.level(build_kanji.tb(300,20)
73     (kanji.grthree.correlation)
74     (kanji.bottomrad.heart));
75   expand_pbox;
76 enddef;

```

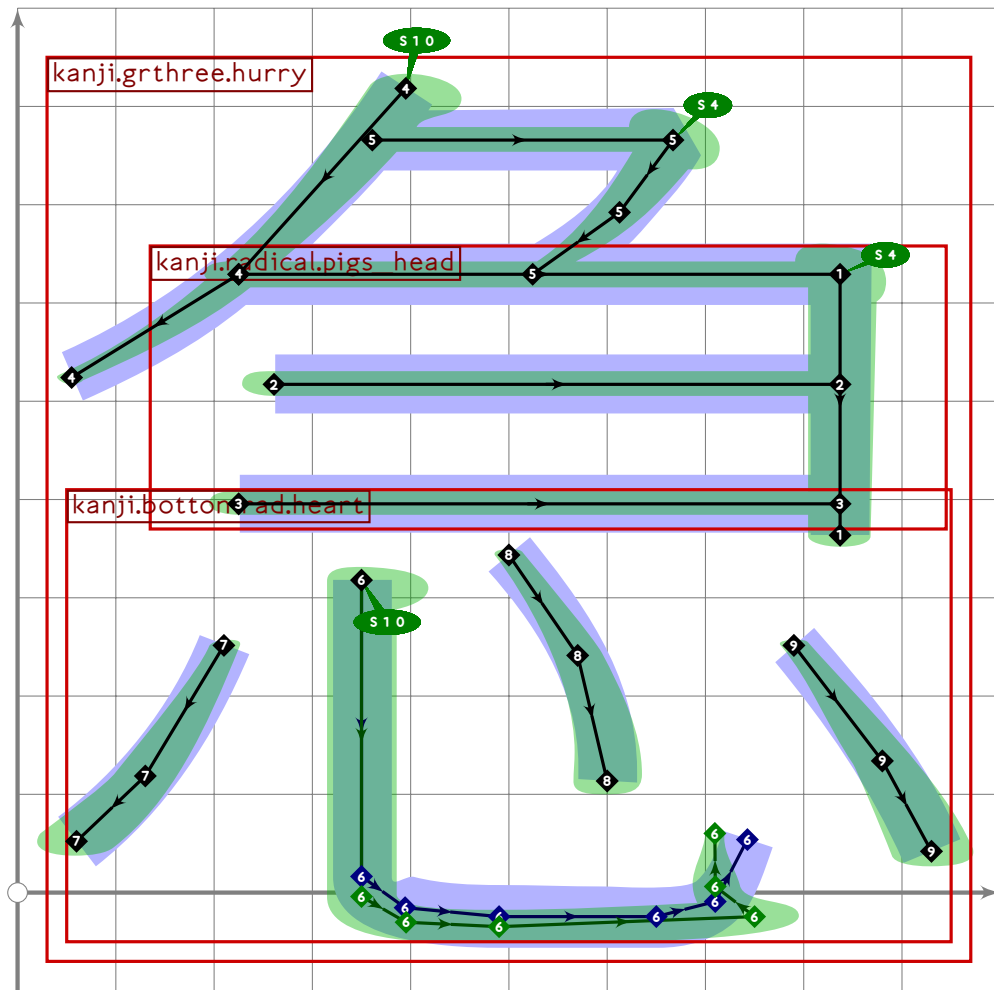




```

77
78 vardef kanji.grthree.evil =
79   push_pbox_toexpand("kanji.grthree.evil");
80   build_kanji.level(build_kanji.tb(280,20)
81     (kanji.greight.prefix_sub)
82     (kanji.bottomrad.heart));
83   expand_pbox;
84 enddef;

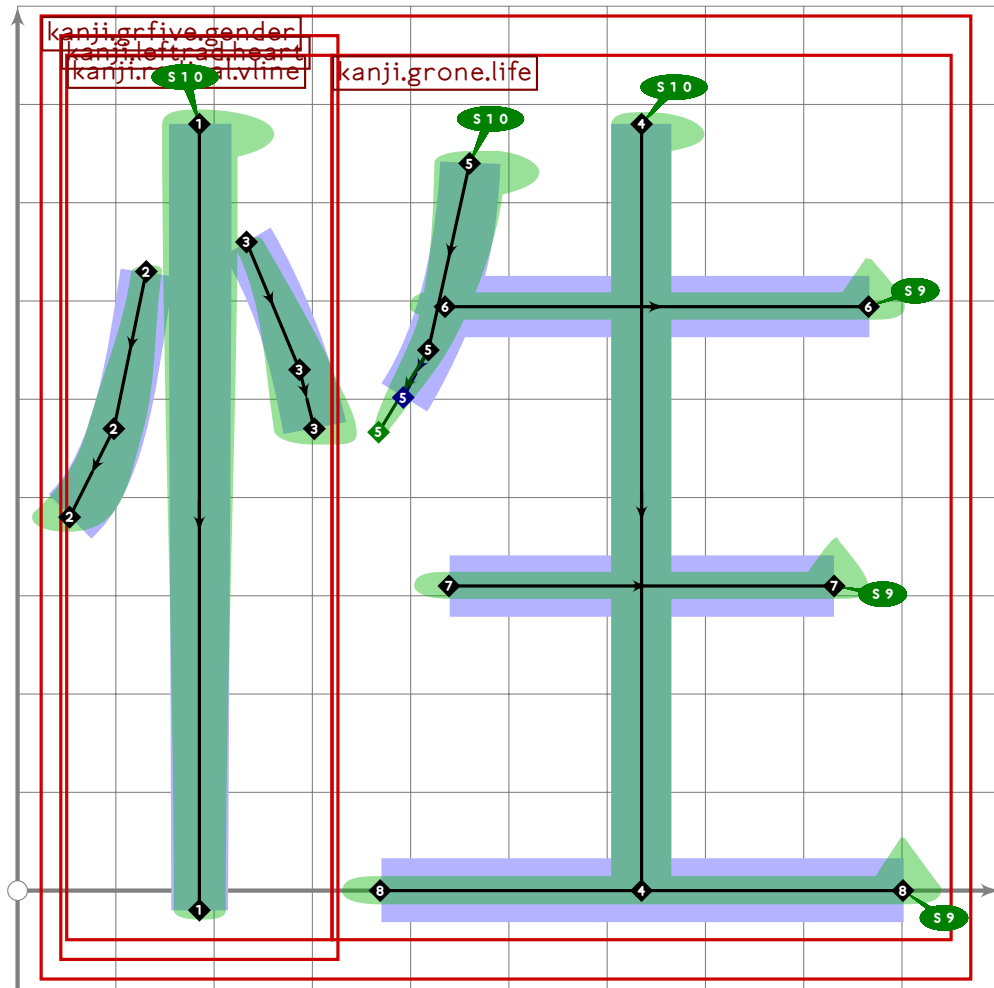
```



```

85
86 vardef kanji.grthree.hurry =
87   push_pbox_toexpand("kanji.grthree.hurry");
88   build_kanji.level(build_kanji.tb(390,40)
89     (build_kanji.sscale(xscaled 0.9 shifted (40,0))
90       (build_kanji.attach_fishhook(0.6)
91         (kanji.radical.pigs_head)))
92     (kanji.bottomrad.heart));
93   expand_pbox;
94 enddef;
95
96

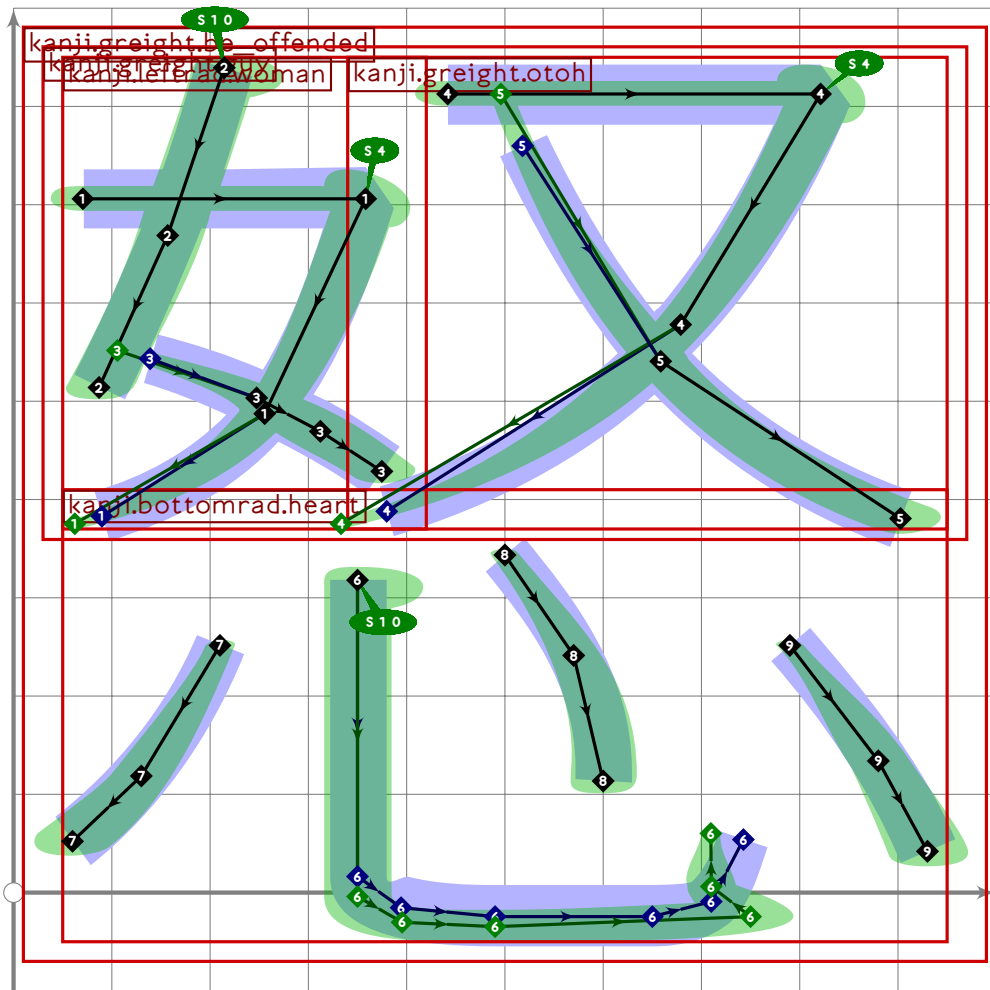
```



```

97
98 vardef kanji.grfive.gender =
99   push_pbox_toexpand("kanji.grfive.gender");
100   build_kanji.level(build_kanji.lr(320,0)
101     (kanji.leftrad.heart)
102     (kanji.grone.life));
103   expand_pbox;
104 enddef;
105
106

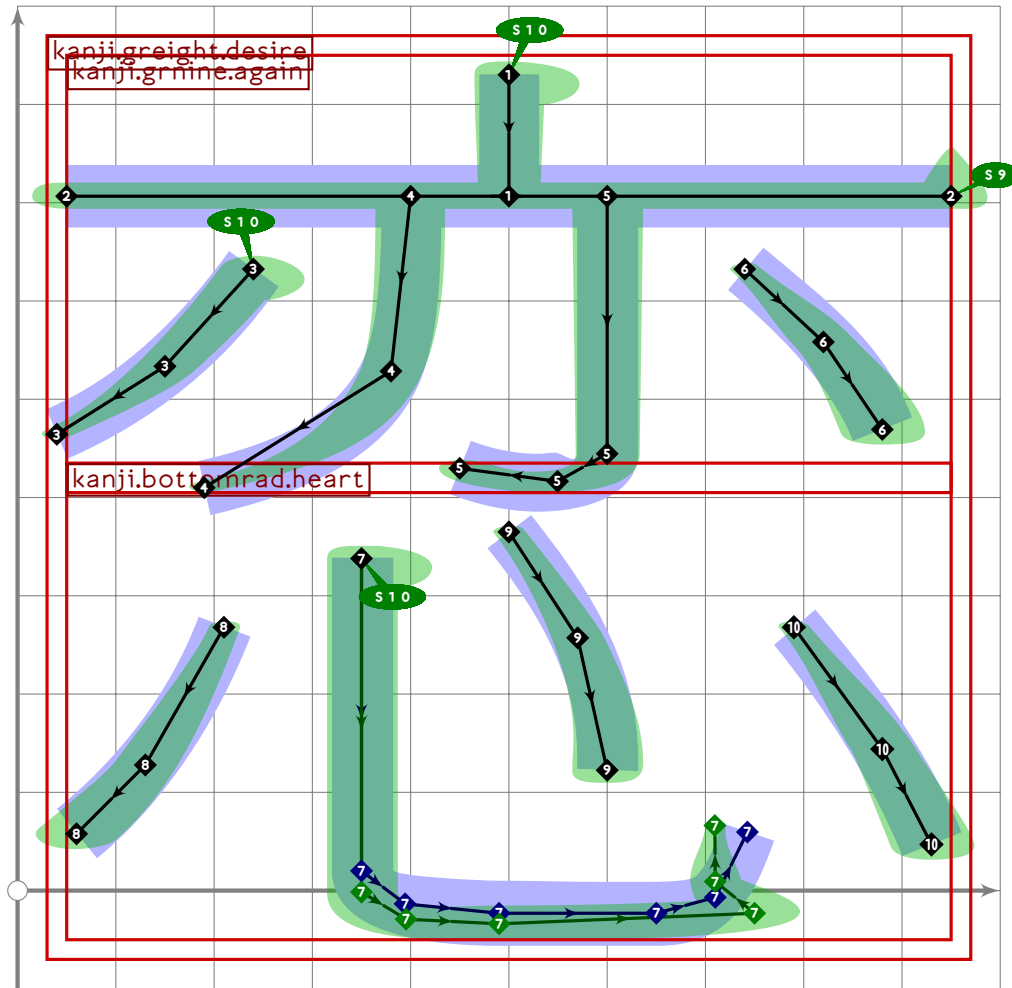
```



```

107
108 vardef kanji.greight.be_offended =
109   push_pbox_toexpand("kanji.greight.be_offended");
110   build_kanji.level(build_kanji.tb(390,40)
111     (kanji.greight.guy)
112     (kanji.bottomrad.heart));
113   expand_pbox;
114 enddef;

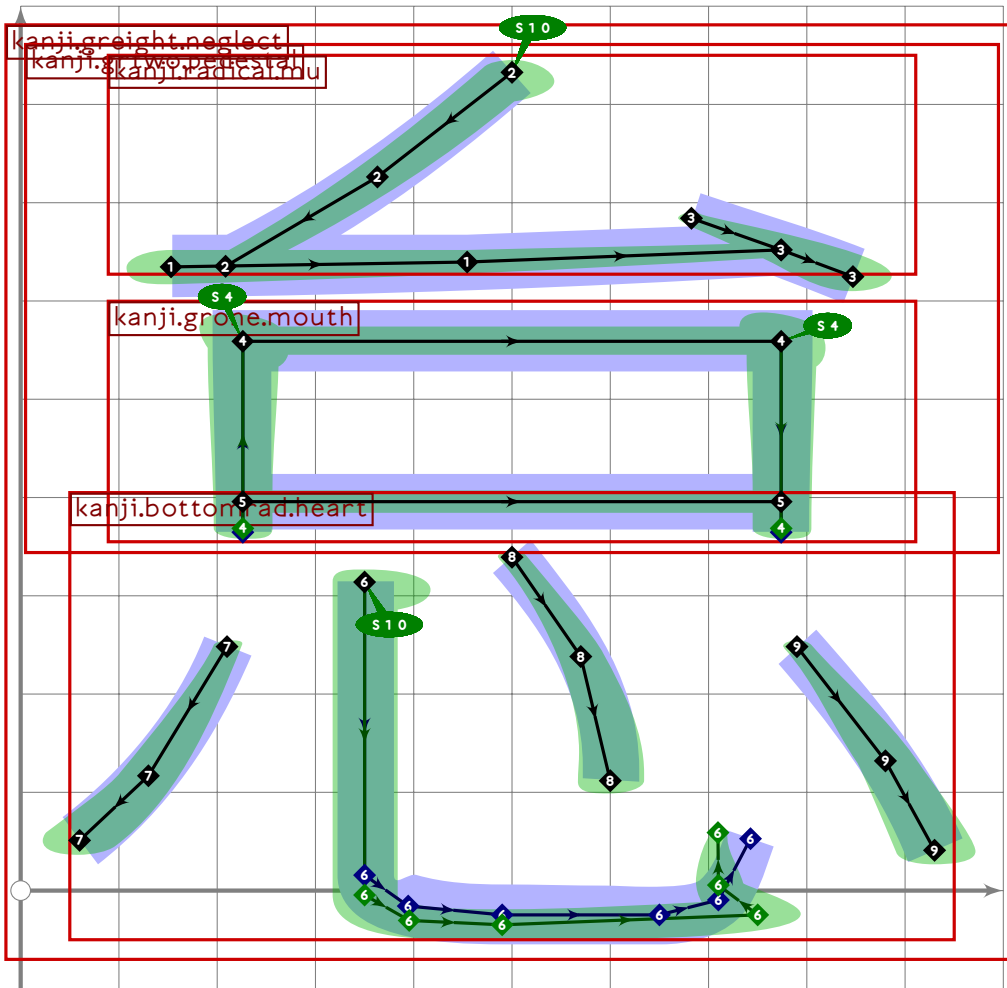
```



```

115
116 vardef kanji.greight.desire =
117   push_pbox_toexpand("kanji.greight.desire");
118   build_kanji.level(build_kanji.tb(420,30)
119     (kanji.grnine.again)
120     (kanji.bottomrad.heart));
121   expand_pbox;
122 enddef;

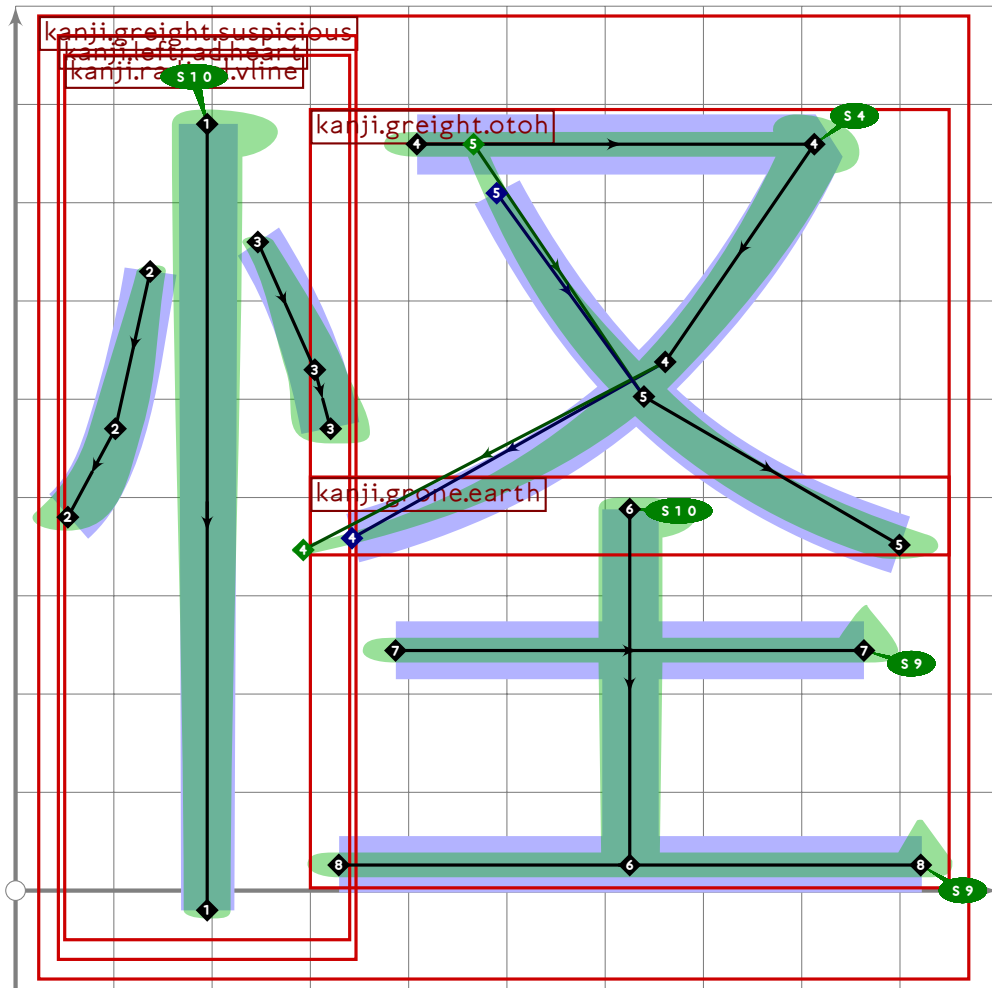
```



```

123
124 vardef kanji.greight.neglect =
125   push_pbox_toexpand("kanji.greight.neglect");
126   build_kanji.level(build_kanji.tb(380,50)
127     (build_kanji.sscale(xscaled 1.1)(kanji.grtwo.pedestal))
128     (kanji.bottomrad.heart));
129   expand_pbox;
130 enddef;

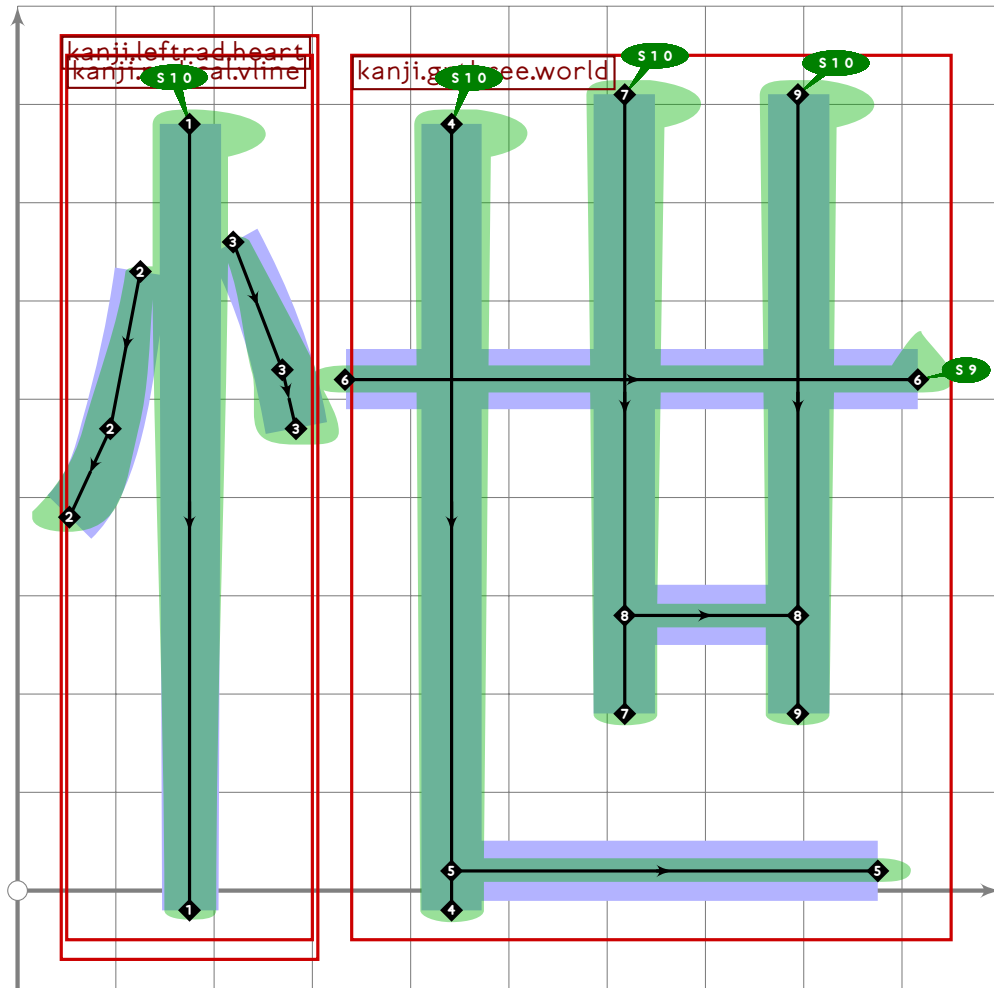
```



```

131
132 vardef kanji.greight.suspicious =
133   push_pbox_toexpand("kanji.greight.suspicious");
134   build_kanji.level(build_kanji.lr(320,40)
135     (kanji.leftrad.heart)
136     (build_kanji.scale(yscaled 0.88)(build_kanji.tb(380,90)
137       (kanji.greight.otoh)
138       (kanji.grone.earth))));
139   expand_pbox;
140 enddef;
141
142
143

```

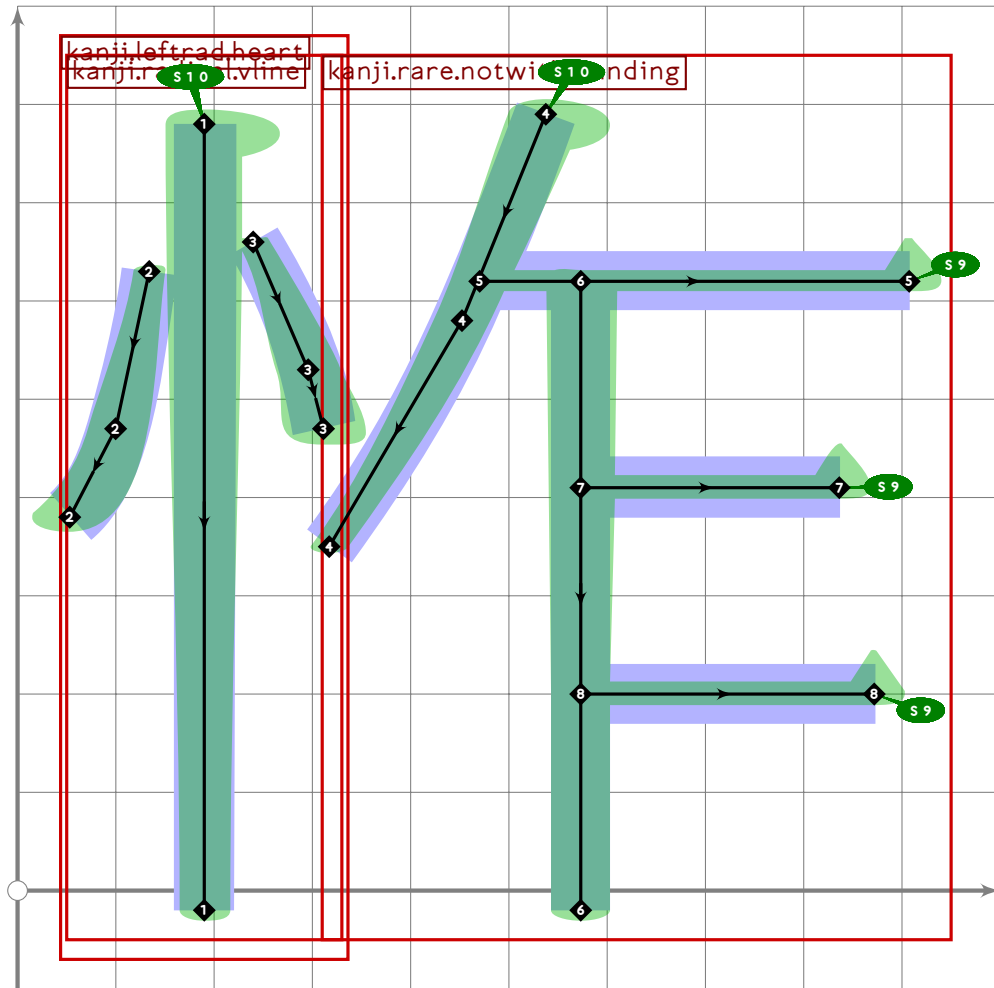


```

144 % extra
145 begintsuglyph("uni6008",8);
146 build_kanji.level(build_kanji.lr(320,-40)
147   (kanji.leftrad.heart)
148   (kanji.grthree.world));
149 tsu_render;
150 endsuglyph;
151

```

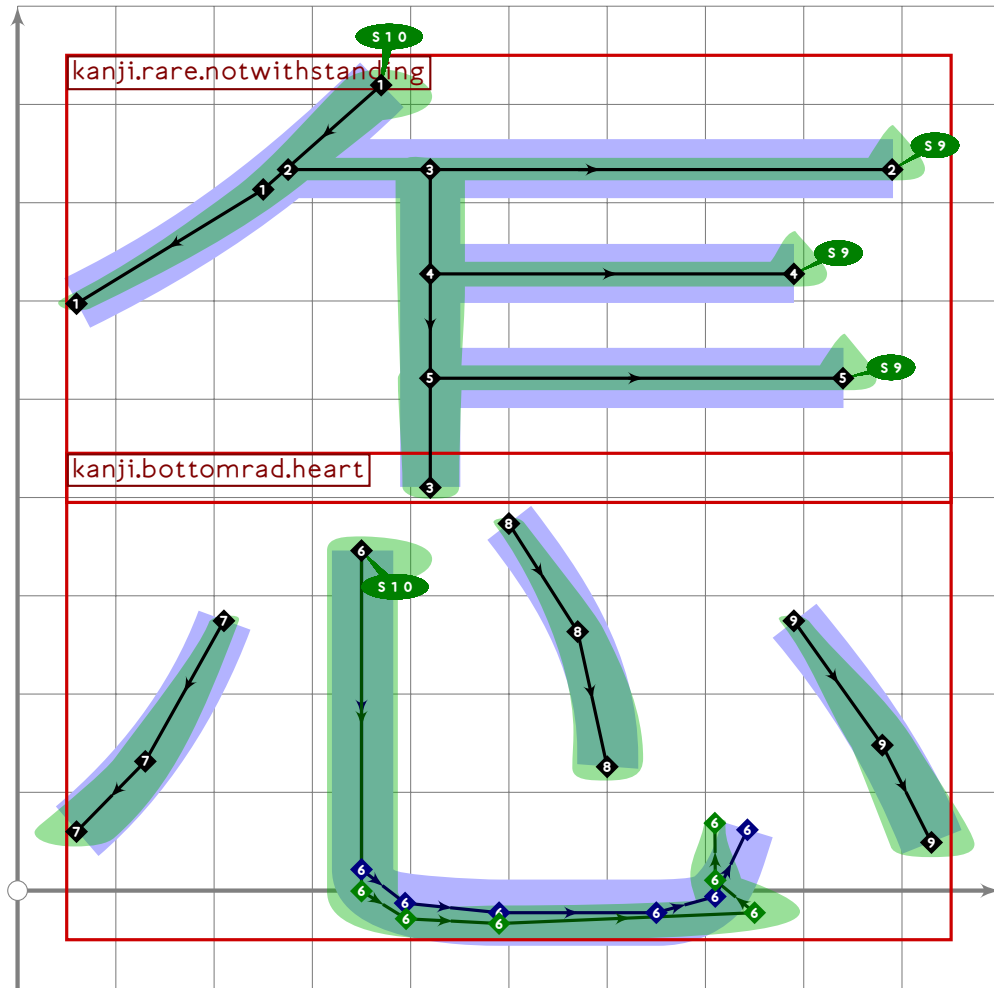




```

152 % extra
153 beginsuglyph("uni600D",13);
154 build_kanji.level(build_kanji.lr(320,20)
155   (kanji.leftrad.heart)
156   (kanji.rare.notwithstanding));
157 tsu_render;
158 endsuglyph;
159

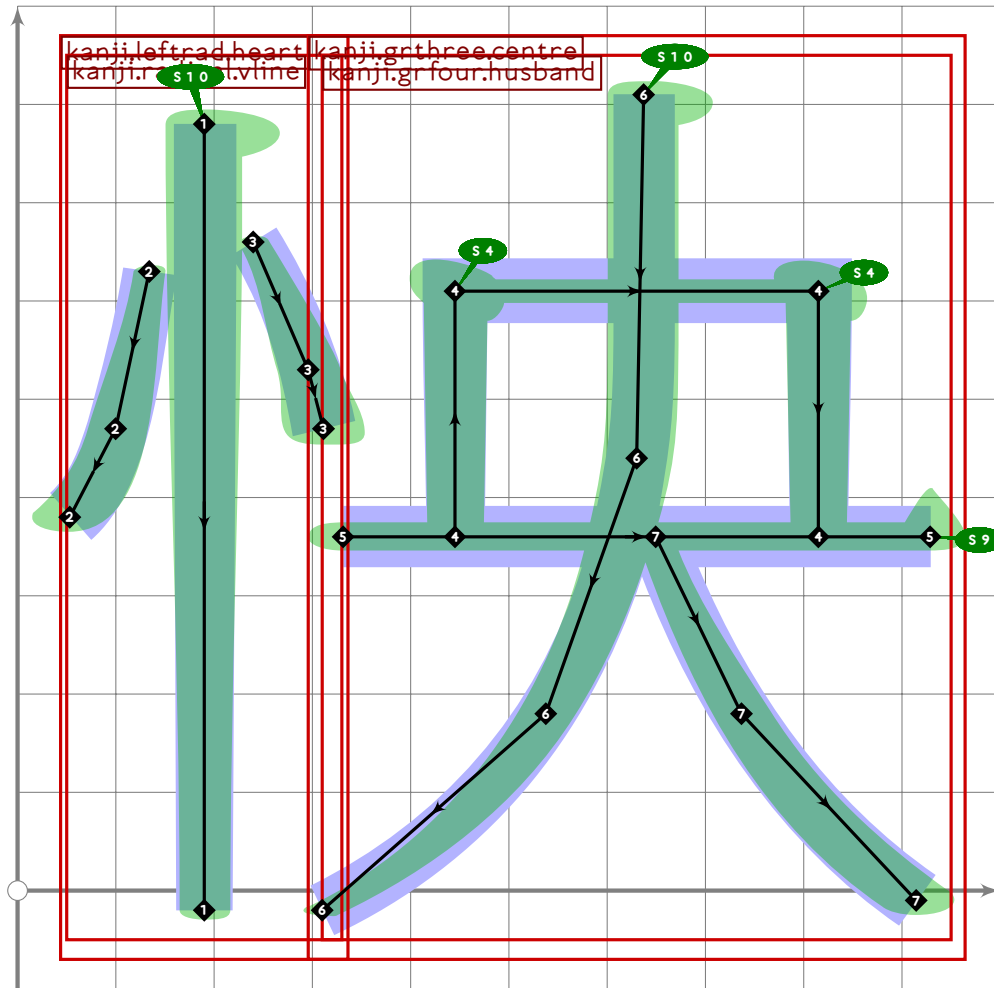
```



```

160 % extra
161 begintsuglyph("uni600E",14);
162 build_kanji.level(build_kanji.tb(420,50)
163   (kanji.rare.notwithstanding)
164   (kanji.bottomrad.heart));
165 tsu_render;
166 endtsuglyph;
167

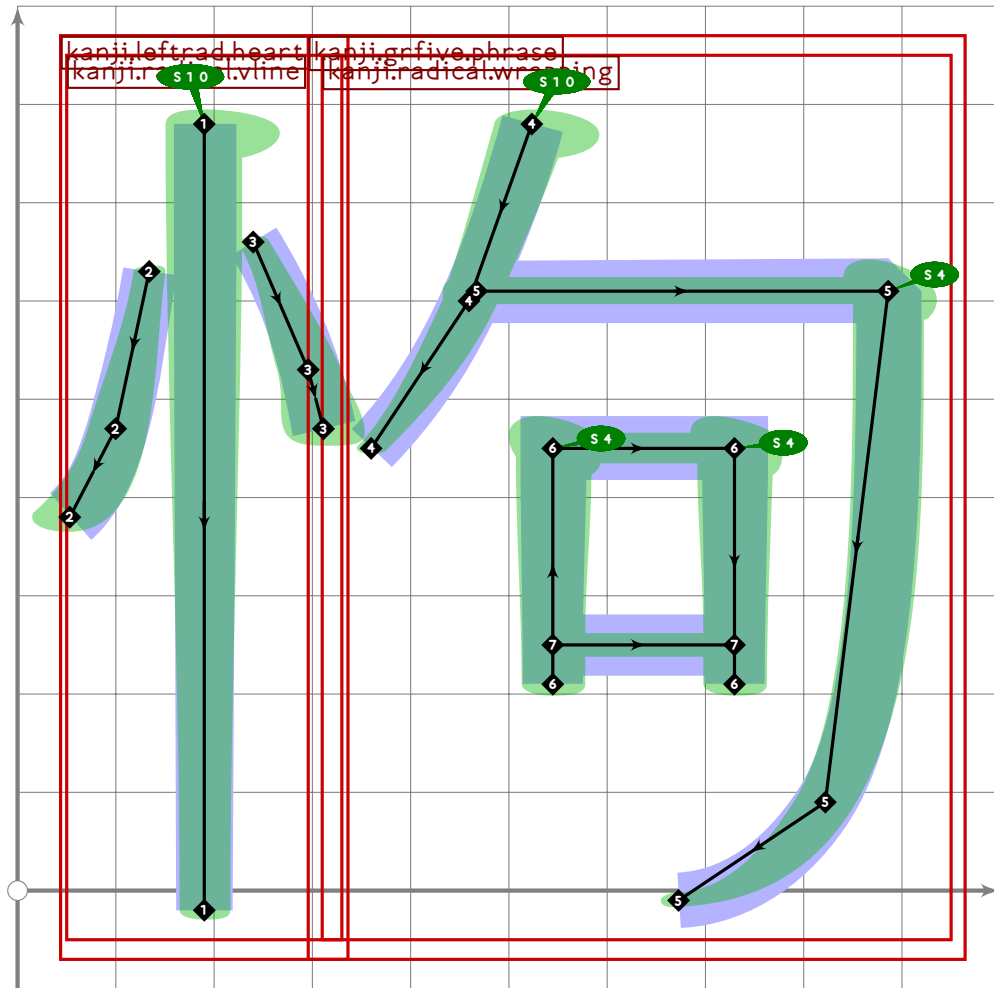
```



```

168 % extra
169 begintsuglyph("uni600F",15);
170 build_kanji.level(build_kanji.lr(320,20)
171   (kanji.leftrad.heart)
172   (kanji.grthree.centre));
173 tsu_render;
174 endsuglyph;
175

```

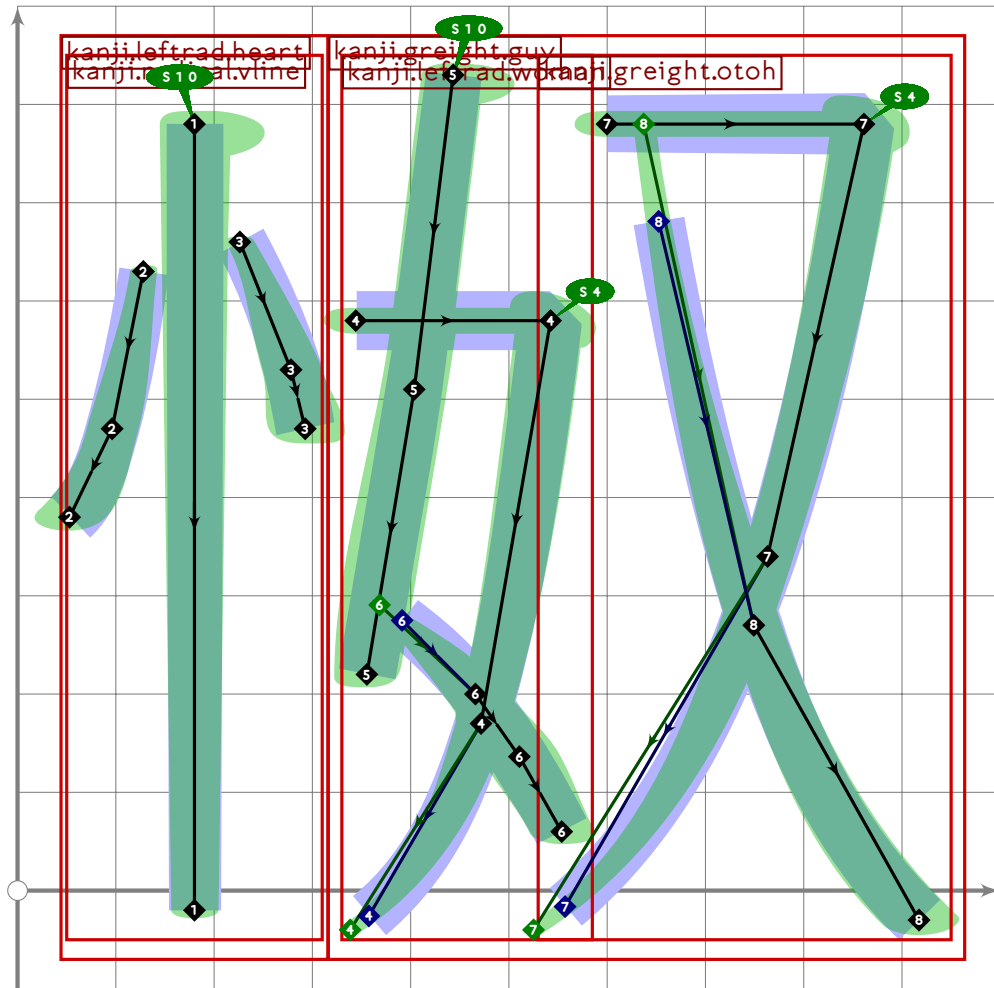


```

176 % extra
177 begintsuglyph("uni6010";16);
178 build_kanji.level(build_kanji.lr(320,20)
179   (kanji.leftrad.heart)
180   (kanji.grfive.phrase));
181 tsu_render;
182 endsuglyph;
183
184 % do/ika "be offended"
185 begintsuglyph("uni6012";18);
186 kanji.greight.be_offended;
187 tsu_render;
188 endsuglyph;
189

```

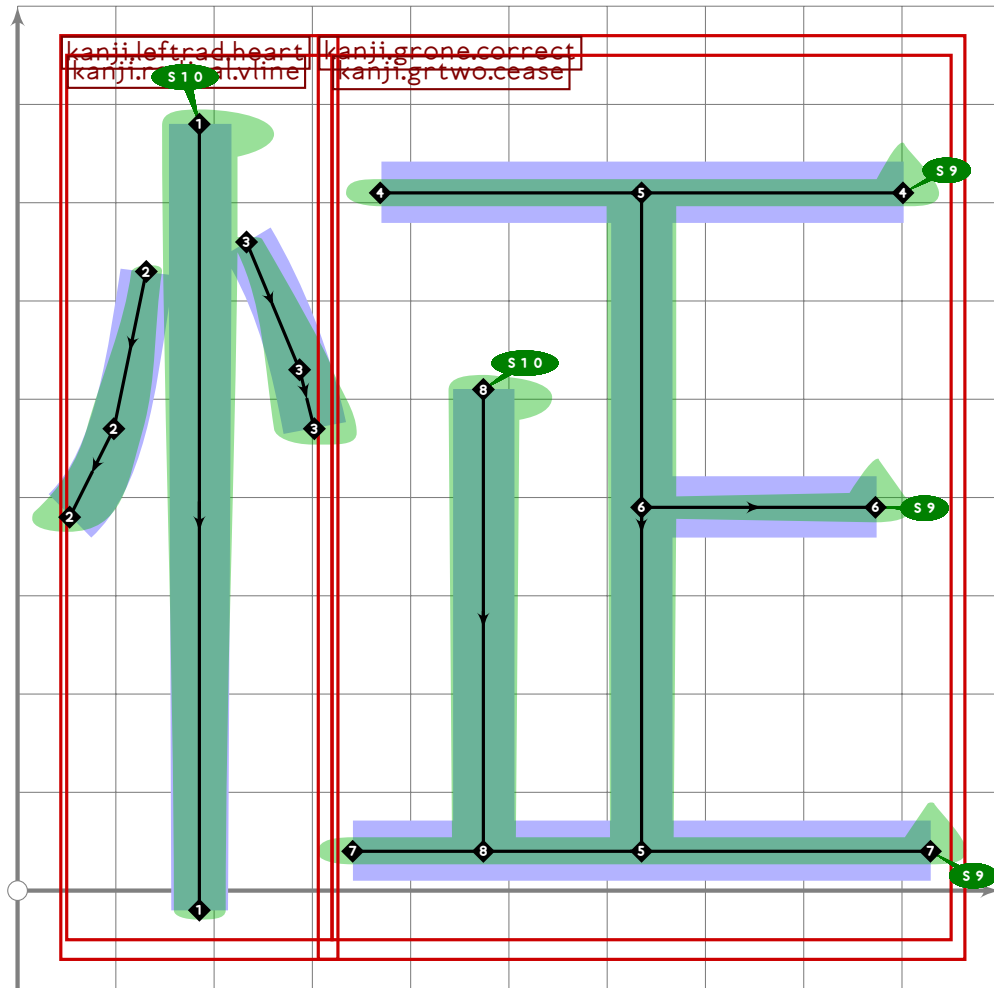
[see page 1800]



```

190 % extra
191 begintsuglyph("uni6013",19);
192 build_kanji.level(build_kanji.lr(320,-20)
193   (kanji.leftrad.heart)
194   (kanji.greight.guy));
195 tsu_render;
196 endsuglyph;
197

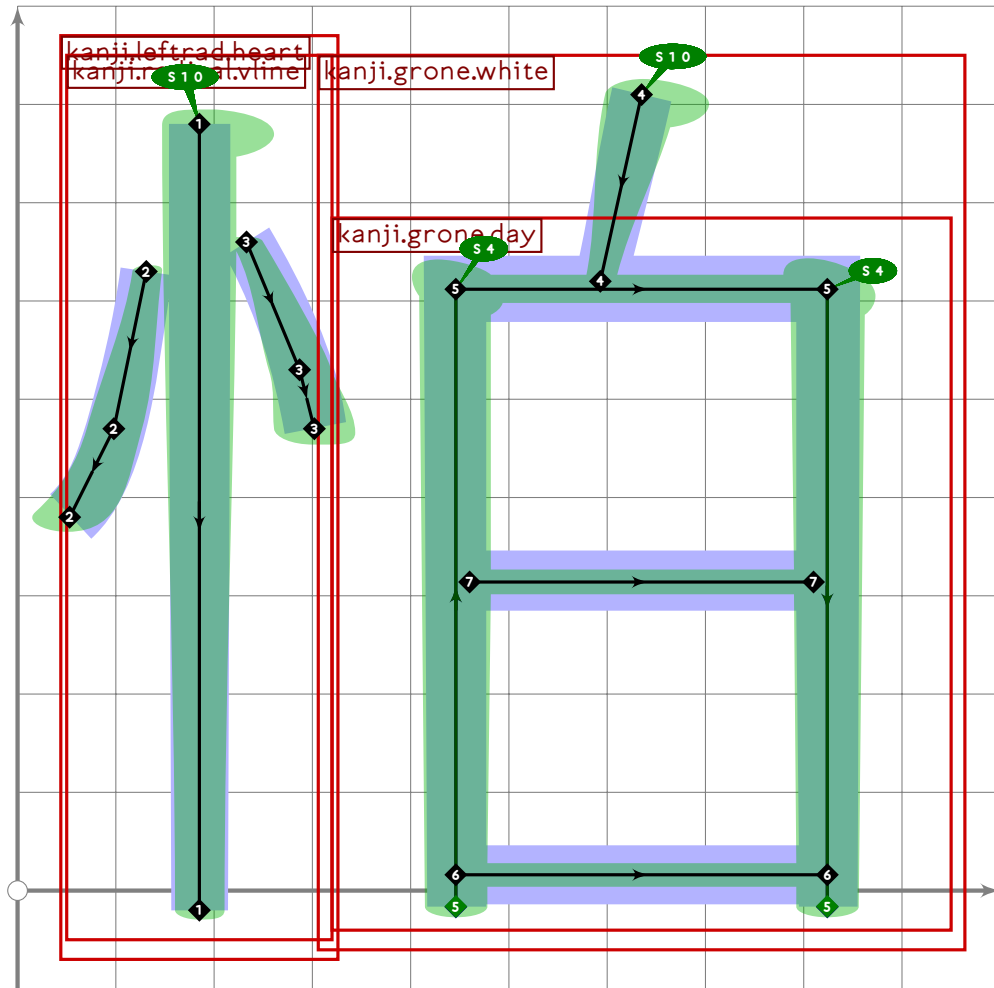
```



```

198 % extra
199 begintsuglyph("uni6014",20);
200 build_kanji.level(build_kanji.lr(320,0)
201   (kanji.leftrad.heart)
202   (kanji.grone.correct));
203 tsu_render;
204 endtsuglyph;
205

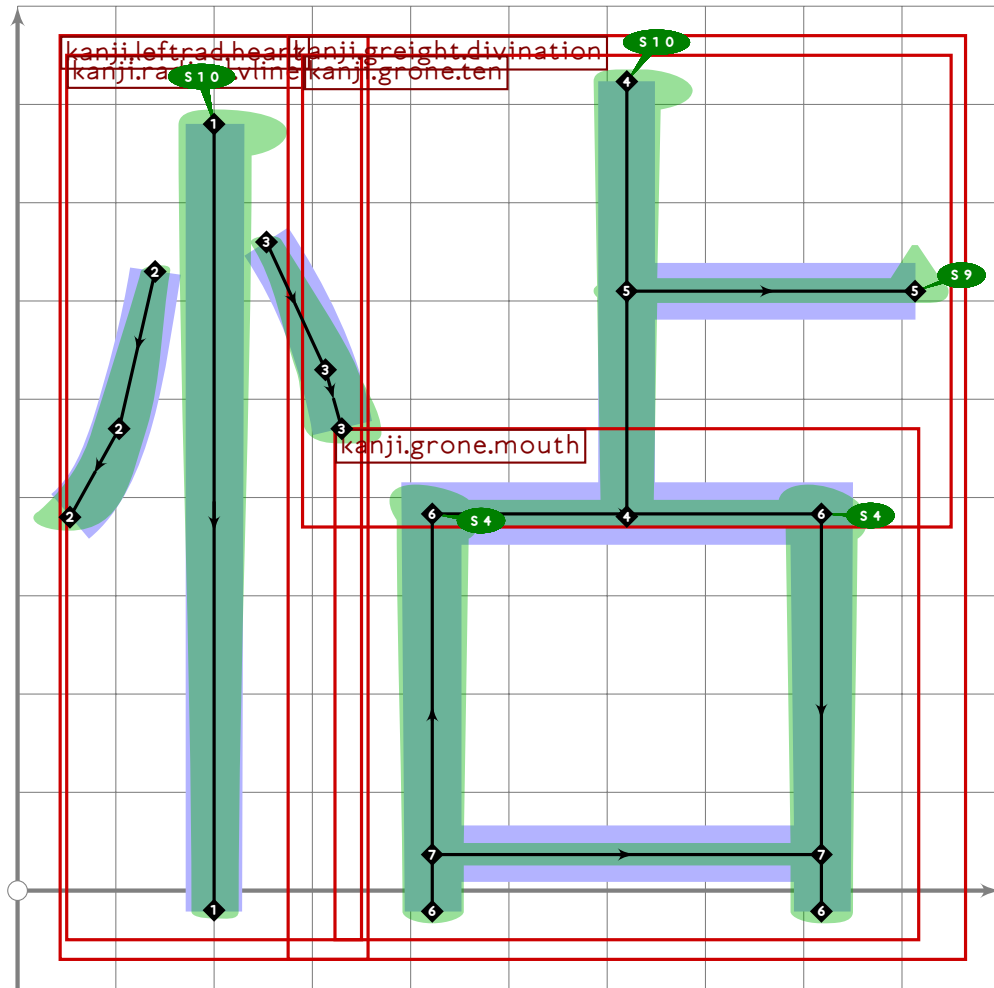
```



```

206 % extra
207 beginsuglyph("uni6015",21);
208 build_kanji.level(build_kanji.lr(320,0)
209 (kanji.leftrad.heart)
210 (kanji.grone.white));
211 tsu_render;
212 endsuglyph;
213

```

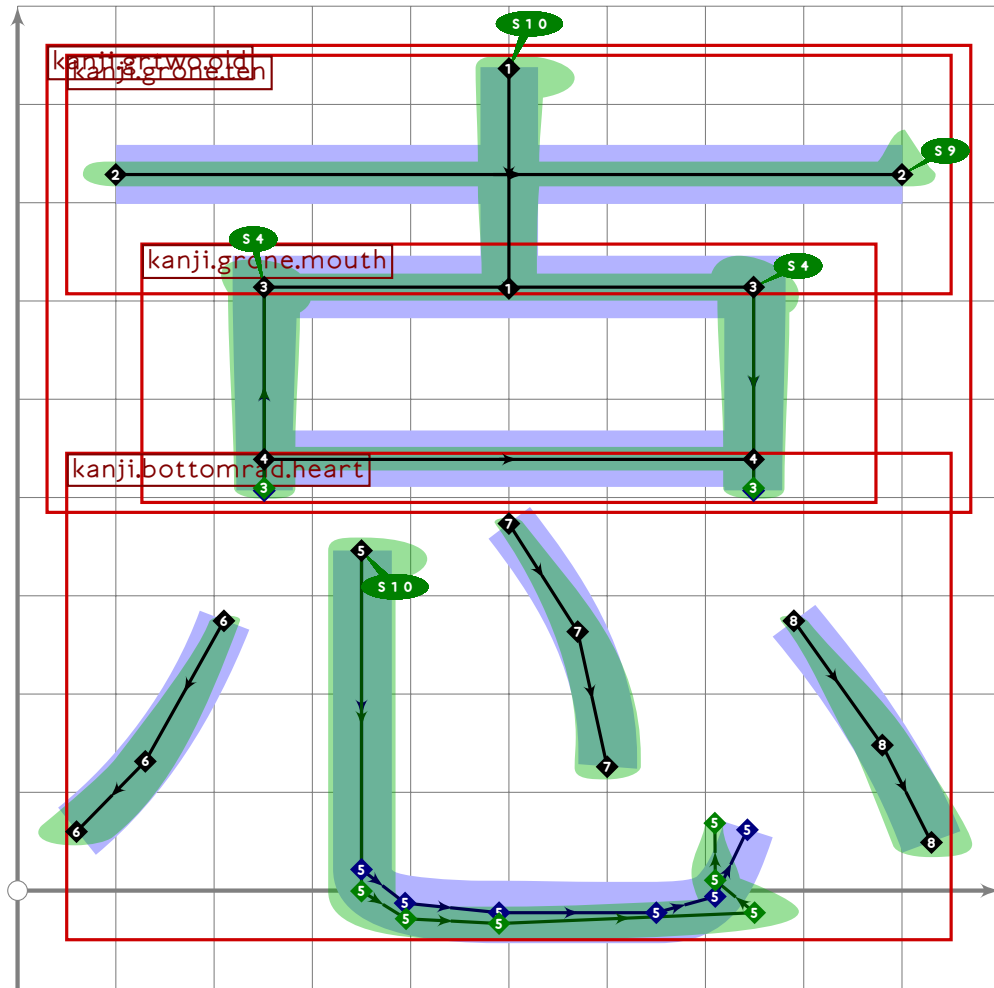


```

214 % extra
215 begintsuglyph("uni6017";23);
216 build_kanji.level(build_kanji.lr(320,60)
217 (kanji.leftrad.heart)
218 (kanji.greight.divination));
219 tsu_render;
220 endsuglyph;
221

```

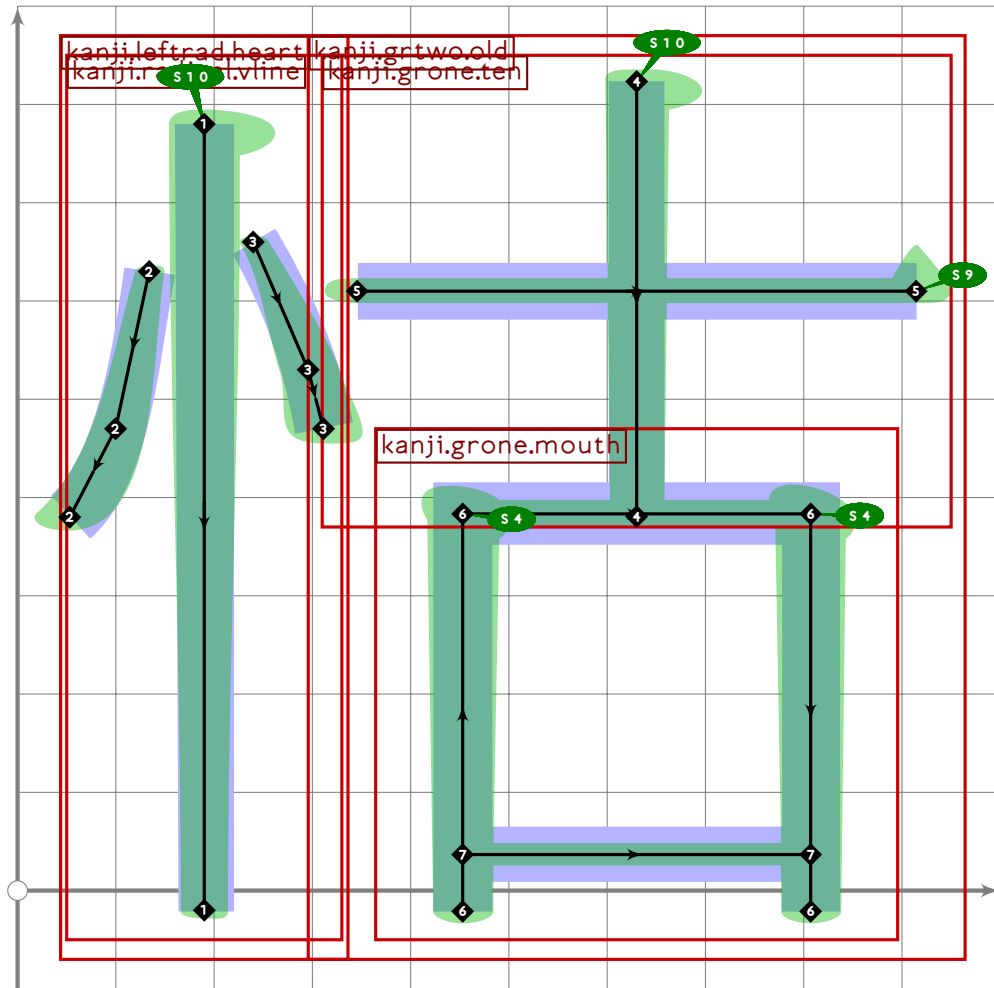




```

222 % extra
223 beginsuglyph("uni6018";24);
224 build_kanji.level(build_kanji.tb(420,50)
225   (kanji.gr.two.old)
226   (kanji.bottomrad.heart));
227 tsu_render;
228 endsuglyph;
229

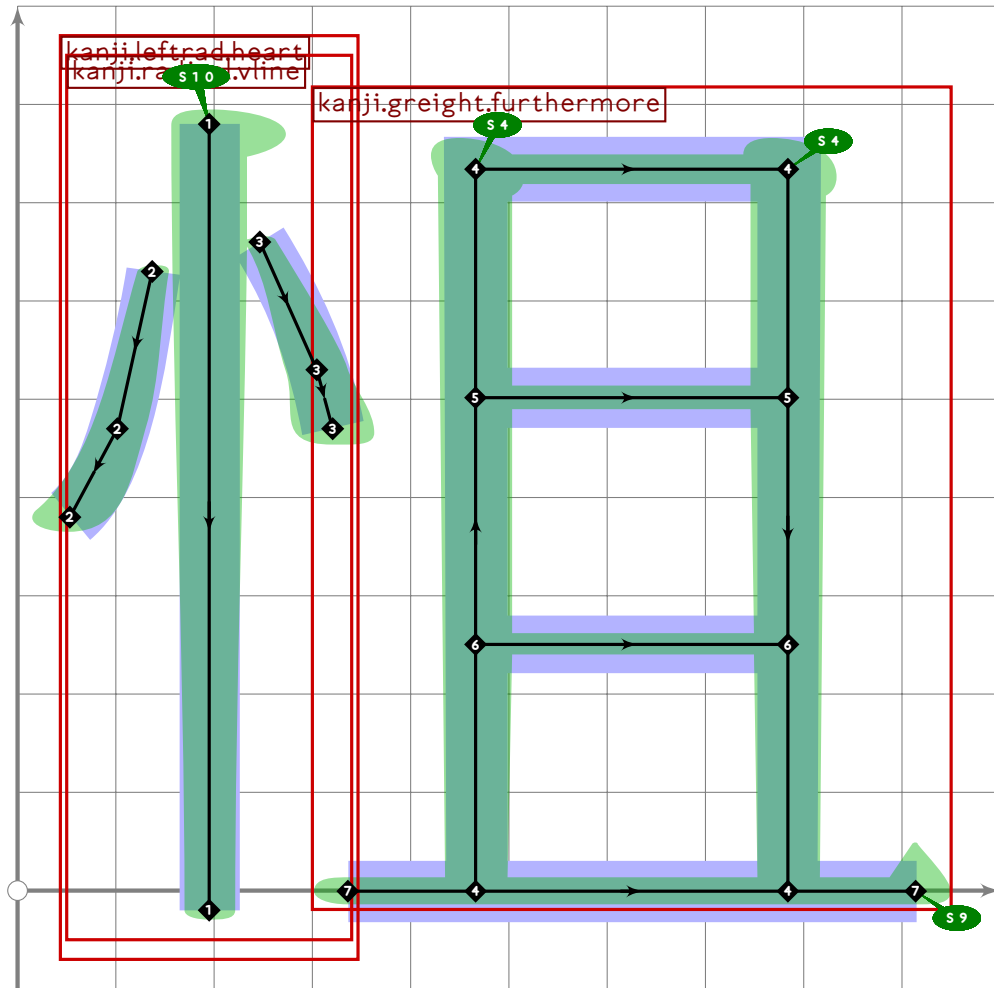
```



```

230 % extra
231 begintuglyph("uni6019";25);
232 build_kanji.level(build_kanji.lr(320,20)
233   (kanji.leftrad.heart)
234   (kanji.grtwo.old));
235 tsu_render;
236 endsuglyph;
237

```

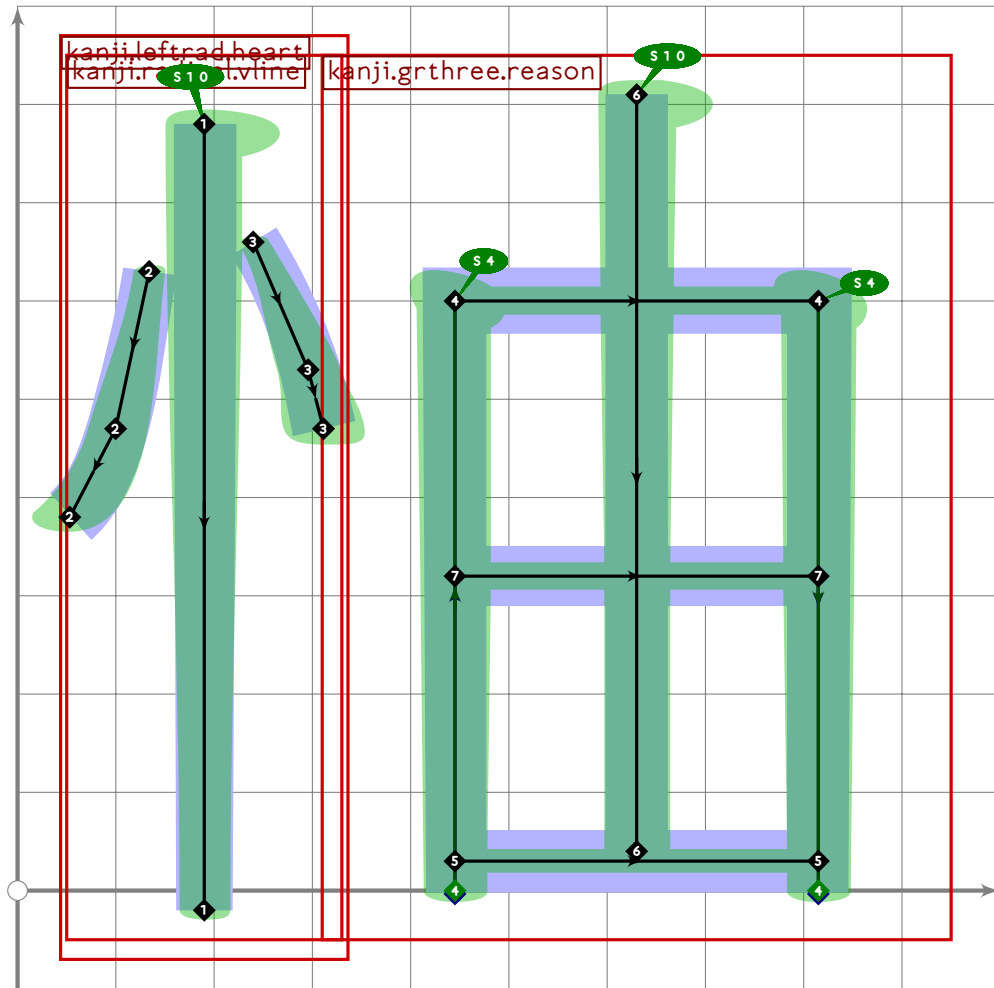


```

238 % extra
239 begintsuglyph("uni601A";26);
240 build_kanji.level(build_kanji.lr(320,40)
241   (kanji.leftrad.heart)
242   (build_kanji.sscale(yscaled 0.93)(kanji.greight.furthermore)));
243 tsu_render;
244 endsuglyph;
245
246 % shi/omo "think"
247 begintsuglyph("uni601D";29);
248 kanji.grtwo.think;
249 tsu_render;
250 endsuglyph;
251

```

[see page 1794]

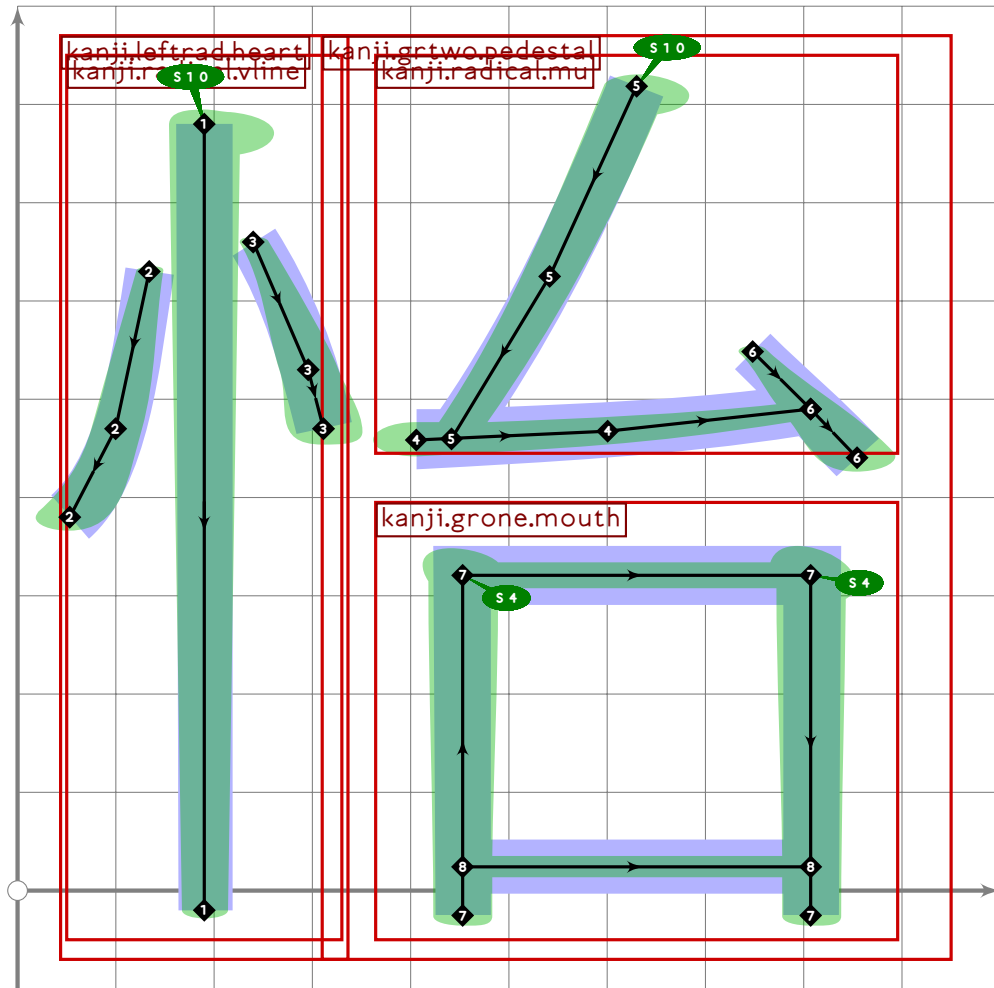


```

252 % extra
253 begintsuglyph("uni601E";30);
254 build_kanji.level(build_kanji.lr(320,20)
255   (kanji.leftrad.heart)
256   (kanji.grthree.reason));
257 tsu_render;
258 endsuglyph;
259
260 % kai/okota/nama "neglect"
261 begintsuglyph("uni6020";32);
262 kanji.greight.neglect;
263 tsu_render;
264 endsuglyph;
265

```

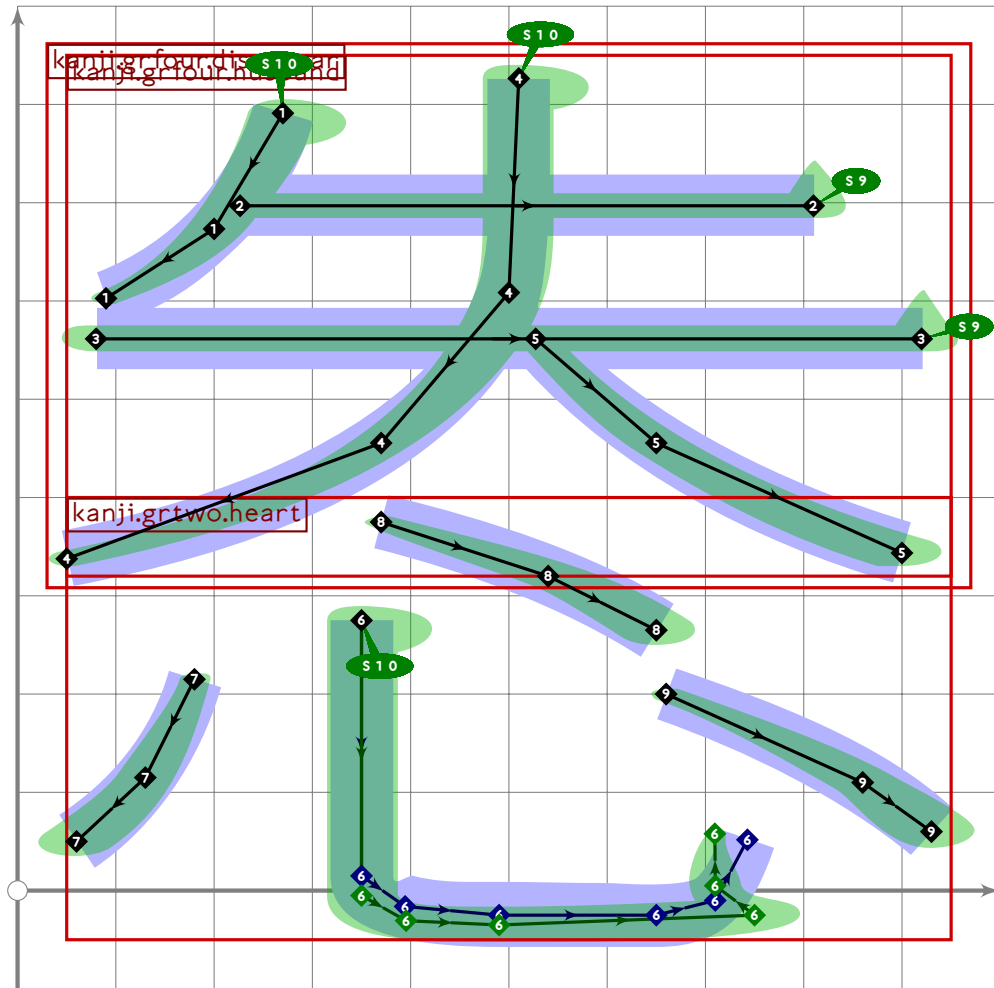
[see page 1802]



```

266 % extra
267 beginsuglyph("uni6021",33);
268 build_kanji.level(build_kanji.lr(320,20)
269   (kanji.leftrad.heart)
270   (kanji.grtwo.pedestal));
271 tsu_render;
272 endsuglyph;
273

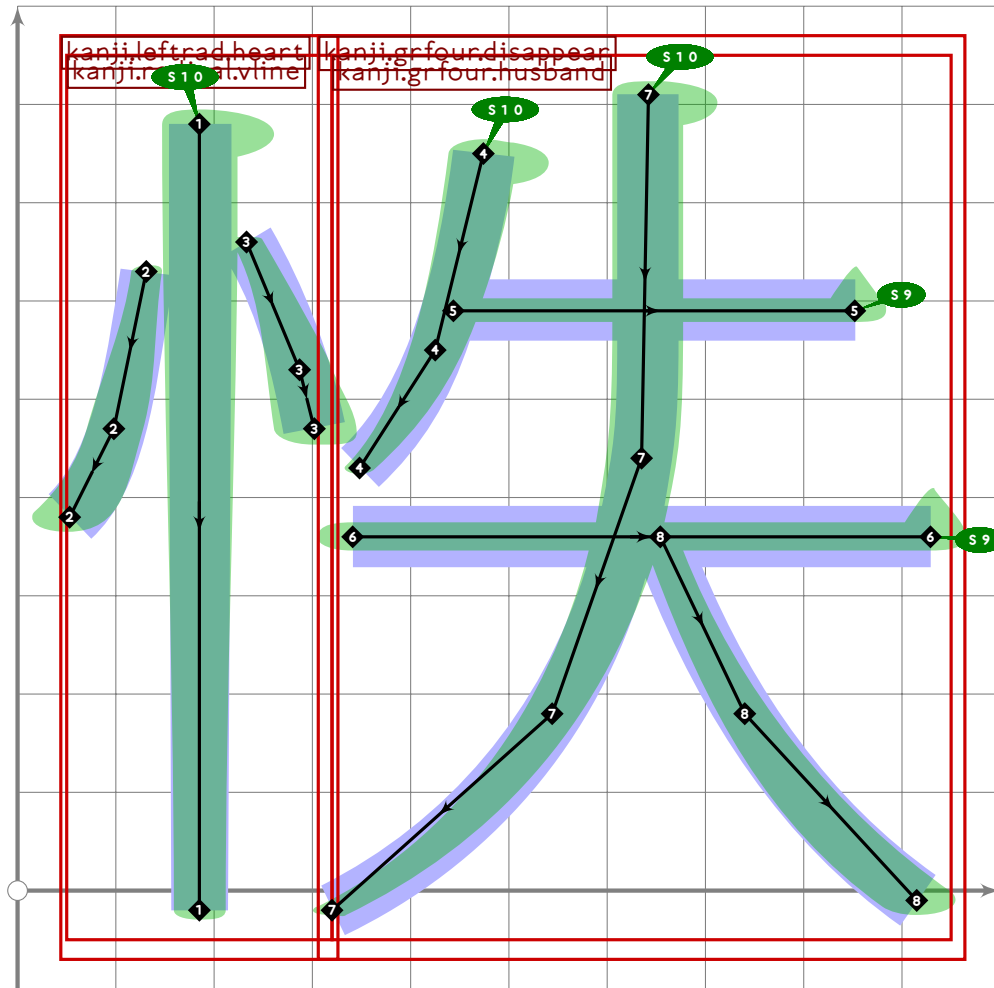
```



```

274 % extra
275 begintsuglyph("uni6022"34);
276 build_kanji.level(build_kanji.tb(360,80)
277   (kanji.grfour.disappear)
278   (kanji.grtwo.heart));
279 tsu_render;
280 endsuglyph;
281

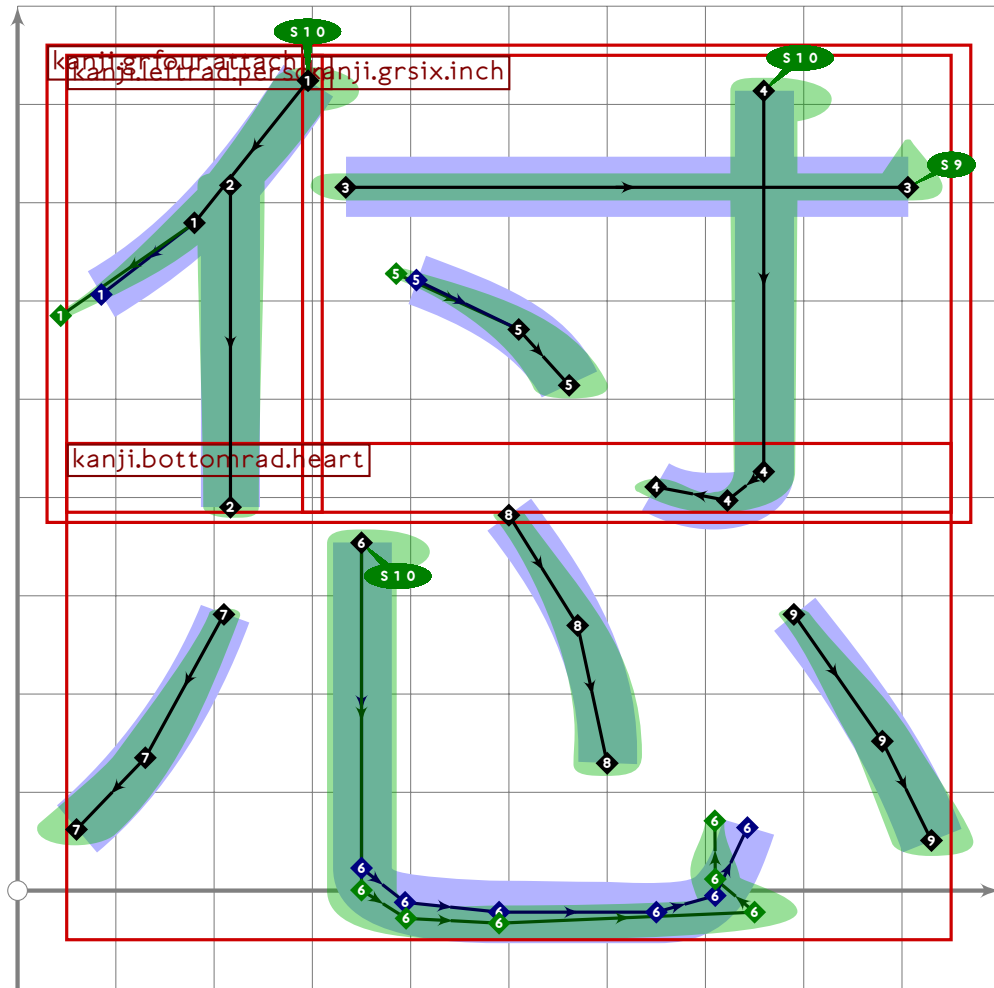
```



```

282 % extra
283 begintsuglyph("uni6023";35);
284 build_kanji.level(build_kanji.lr(320,0)
285   (kanji.leftrad.heart)
286   (kanji.grfour.disappear));
287 tsu_render;
288 endsuglyph;
289

```



```

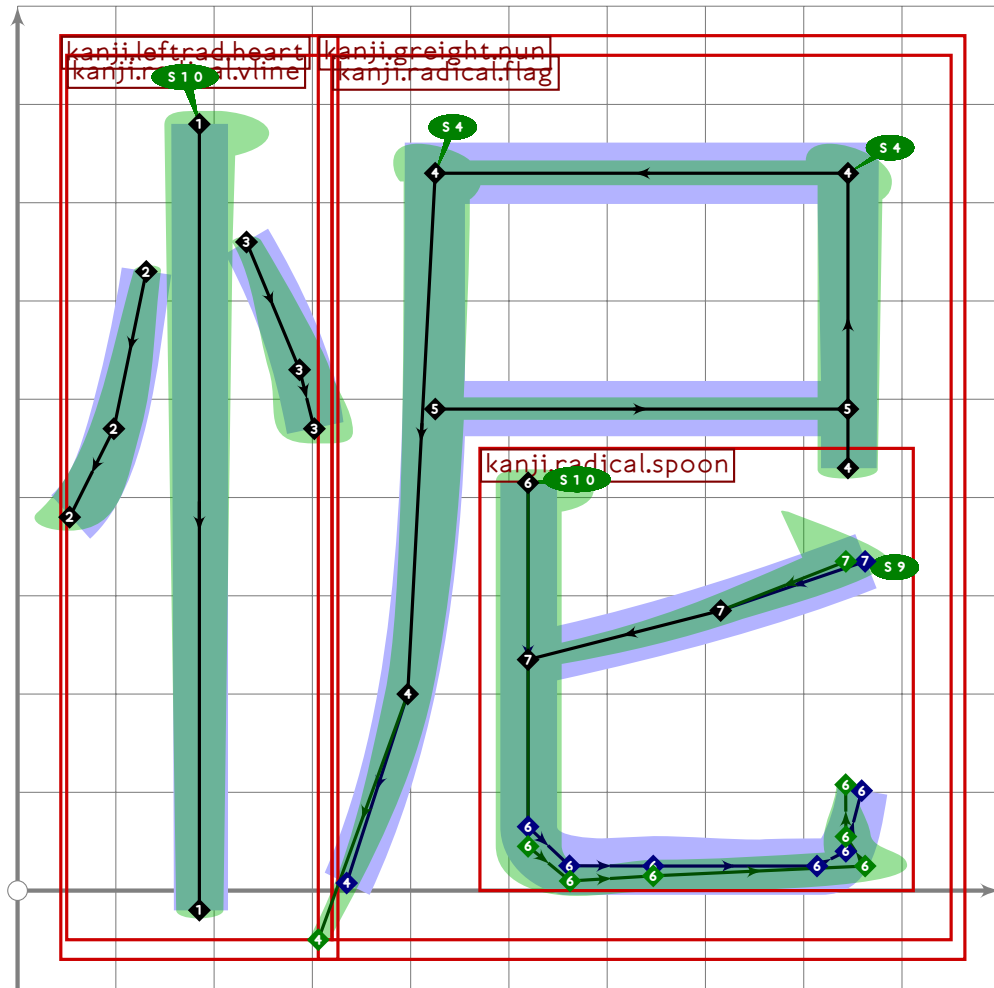
290 % extra
291 begintsuglyph("uni6024";36);
292 build_kanji.level(build_kanji.tb(420,70)
293   (kanji.grfour.attach)
294   (kanji.bottomrad.heart));
295 tsu_render;
296 endsuglyph;
297
298 % kyuu/iso "hurry"
299 begintsuglyph("uni6025";37);
300 kanji.grthree.hurry;
301 tsu_render;
302 endsuglyph;
303
304 % sei/saga "gender"
305 begintsuglyph("uni6027";39);
306 kanji.grfive.gender;
307 tsu_render;
308 endsuglyph;
309

```

[see page 1798]

[see page 1799]



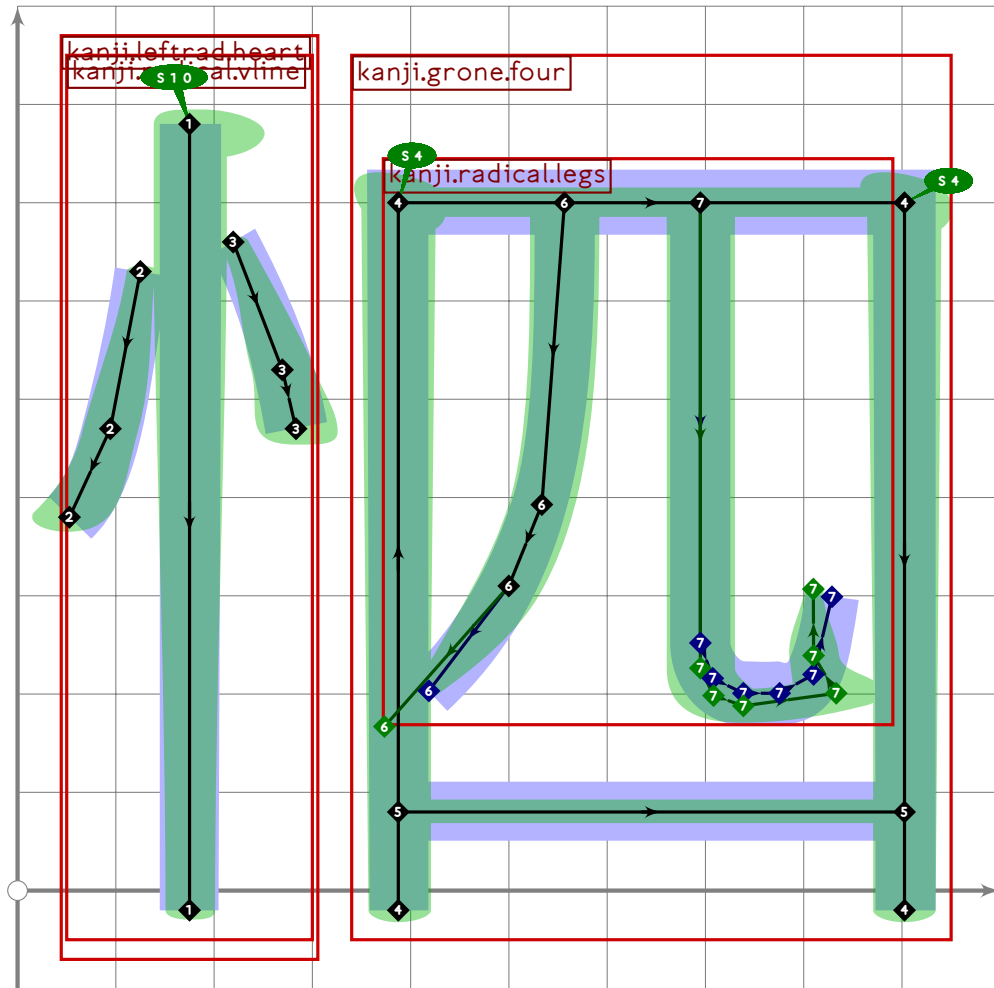


```

310 % extra
311 begintsuglyph("uni6029";41);
312 build_kanji.level(build_kanji.lr(320,0)
313   (kanji.leftrad.heart)
314   (kanji.greight.nun));
315 tsu_render;
316 endtsuglyph;
317
318 % kai/aya "suspicious"
319 begintsuglyph("uni602A";42);
320 kanji.greight.suspicious;
321 tsu_render;
322 endtsuglyph;
323

```

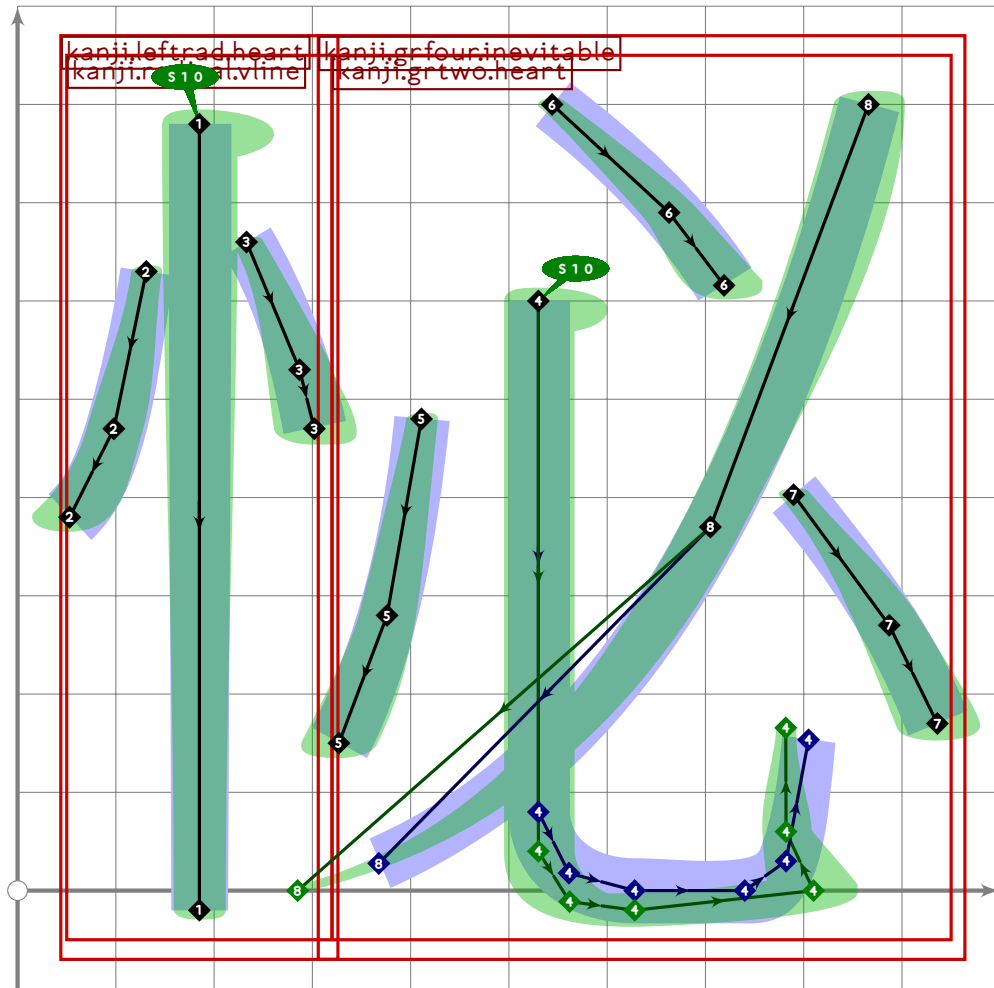
[see page 1803]



```

324 % extra
325 begintsuglyph("uni602C",44);
326 build_kanji.level(build_kanji.lr(320,-40)
327   (kanji.leftrad.heart)
328   (kanji.grone.four));
329 tsu_render;
330 endsuglyph;
331

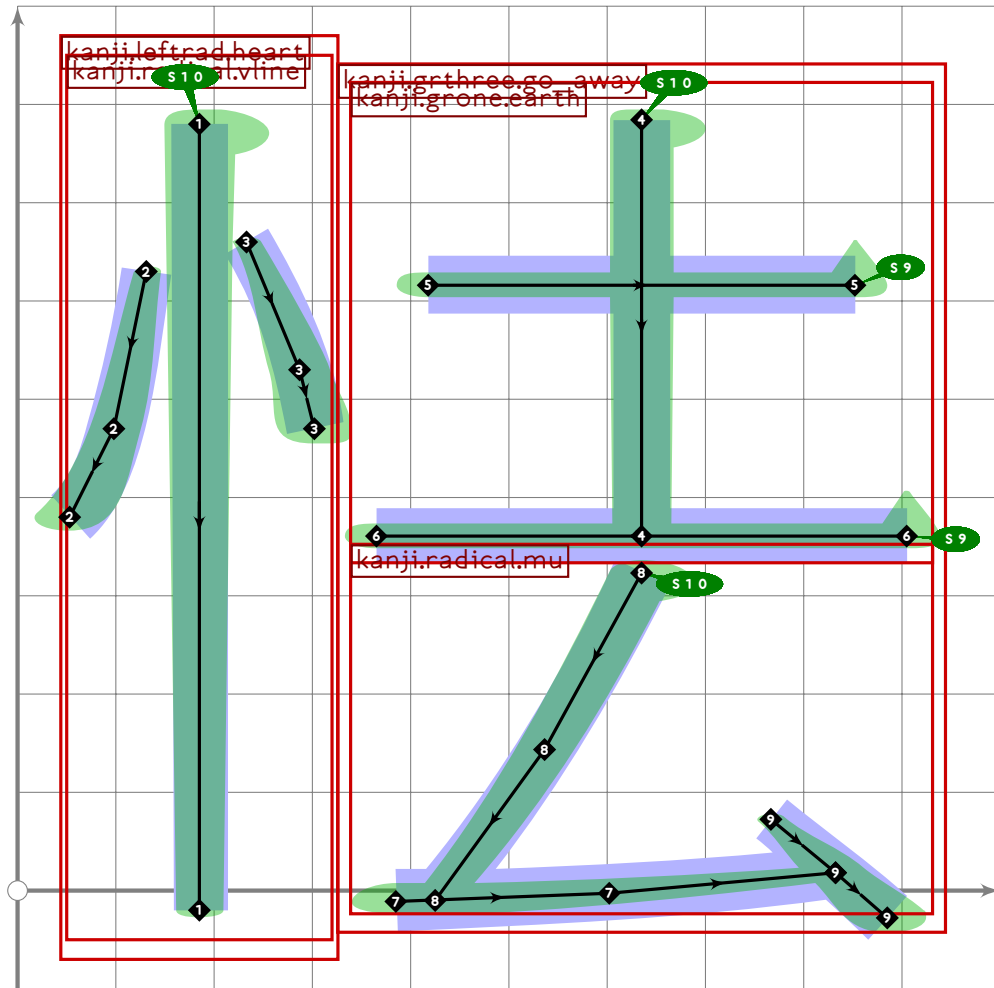
```



```

332 % extra
333 beginsuglyph("uni602D",45);
334 build_kanji.level(build_kanji.lr(320,0)
335   (kanji.leftrad.heart)
336   (kanji.grfour.inevitable));
337 tsu_render;
338 endsuglyph;
339

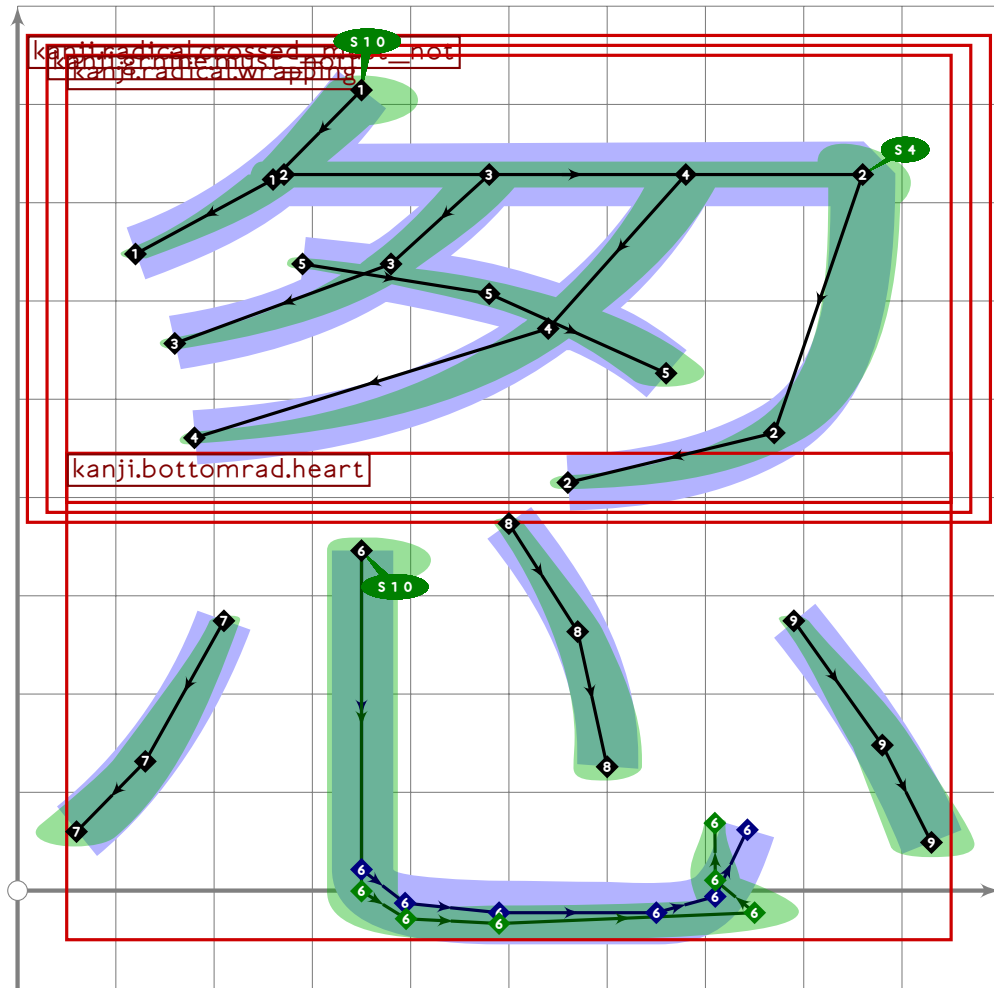
```



```

340 % extra
341 begint Suglyph("uni602F",47);
342 build_kanji.level(build_kanji.lr(320,0)
343   (kanji.leftrad.heart)
344   (build_kanji.sscale(scaled 0.94)(kanji.grthree.go_away)));
345 tsu_render;
346 endtsuglyph;
347

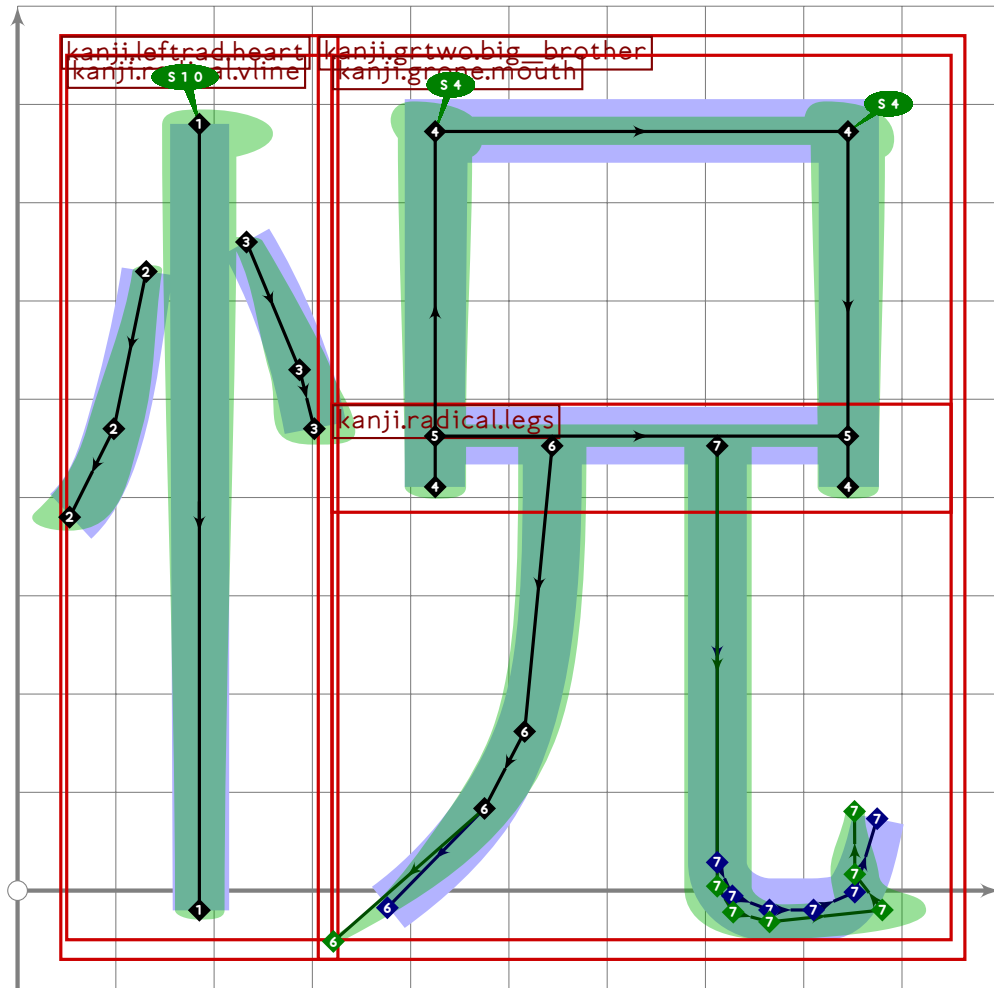
```



```

348 % extra
349 begint Suglyph("uni6031";49);
350 build_kanji.level(build_kanji.tb(420,50)
351   (kanji.radical.crossed_must_not)
352   (kanji.bottomrad.heart));
353 tsu_render;
354 endsuglyph;
355

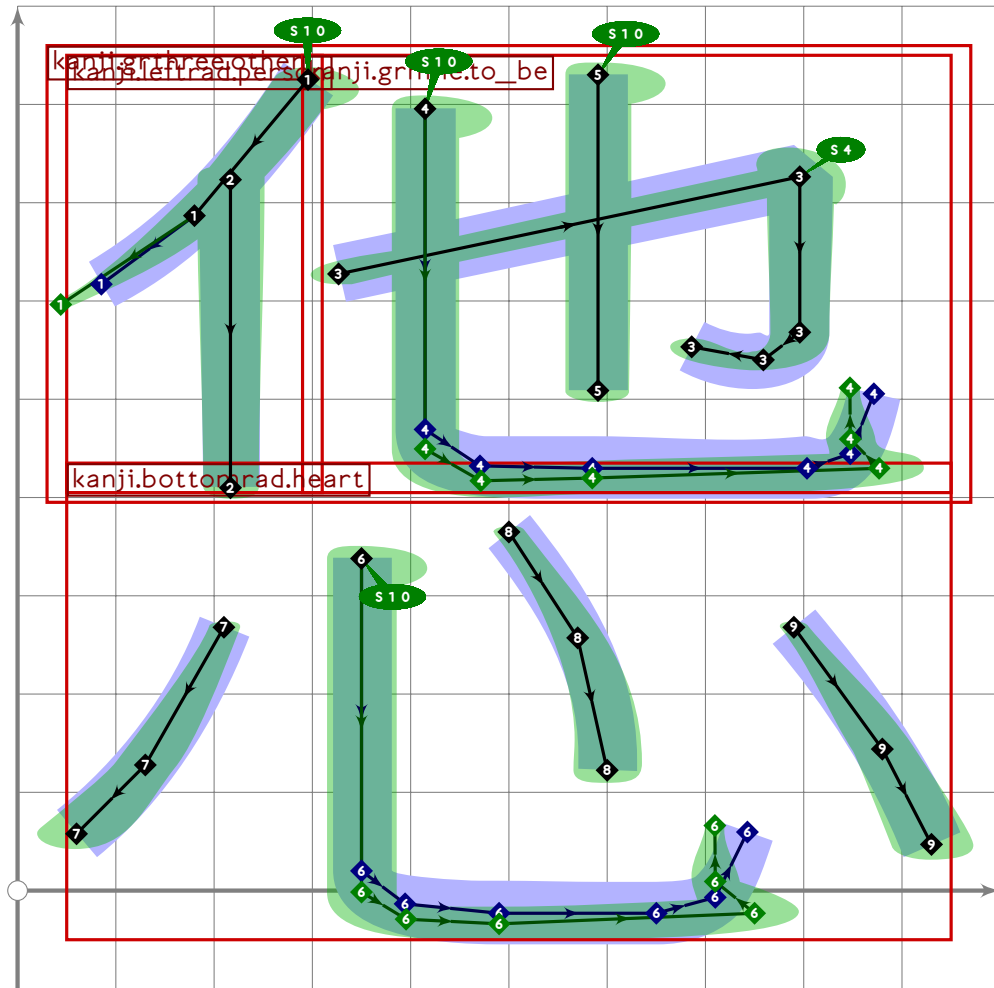
```



```

356 % extra
357 beginsuglyph("uni6033";51);
358 build_kanji.level(build_kanji.lr(320,0)
359   (kanji.leftrad.heart)
360   (kanji.grtwo.big_brother));
361 tsu_render;
362 endsuglyph;
363

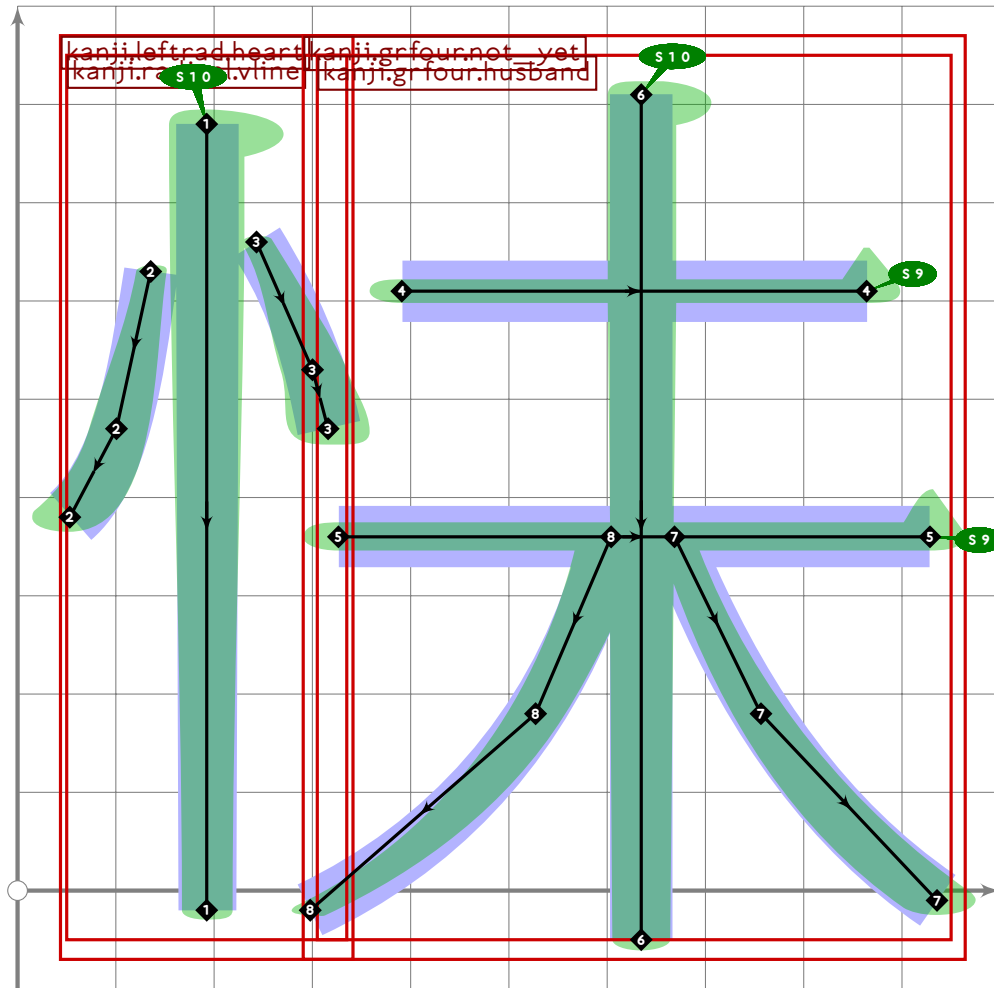
```



```

364 % extra
365 beginsuglyph("uni6039";57);
366 build_kanji.level(build_kanji.tb(420,30)
367   (kanji.grthree.other)
368   (kanji.bottomrad.heart));
369 tsu_render;
370 endsuglyph;
371

```

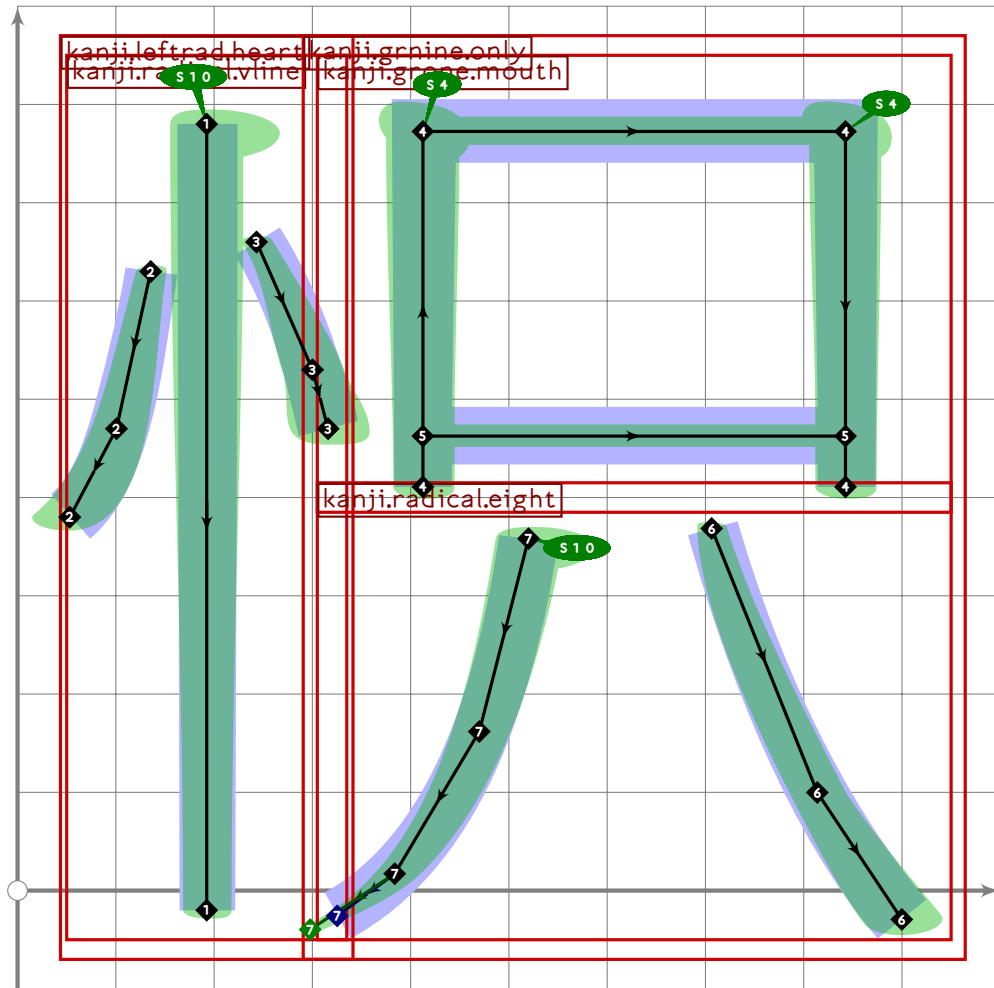


```

372 % extra
373 beginsuglyph("uni603D",61);
374 build_kanji.level(build_kanji.lr(320,30)
375   (kanji.leftrad.heart)
376   (kanji.grfour.not_yet));
377 tsu_render;
378 endsuglyph;
379

```

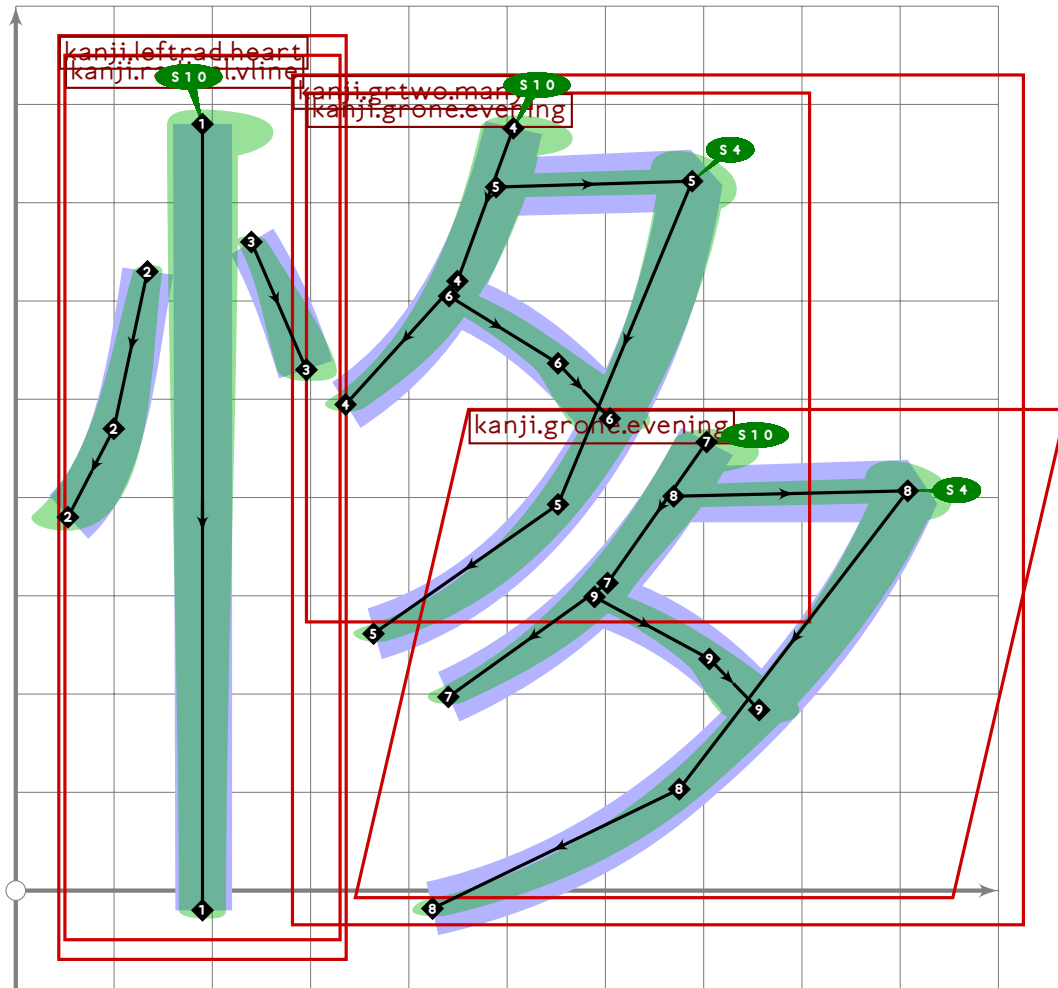




```

380 % extra
381 begintsuglyph("uni603E";62);
382 build_kanji.level(build_kanji.lr(320,30)
383   (kanji.leftrad.heart)
384   (kanji.gnine.only));
385 tsu_render;
386 endsuglyph;
387

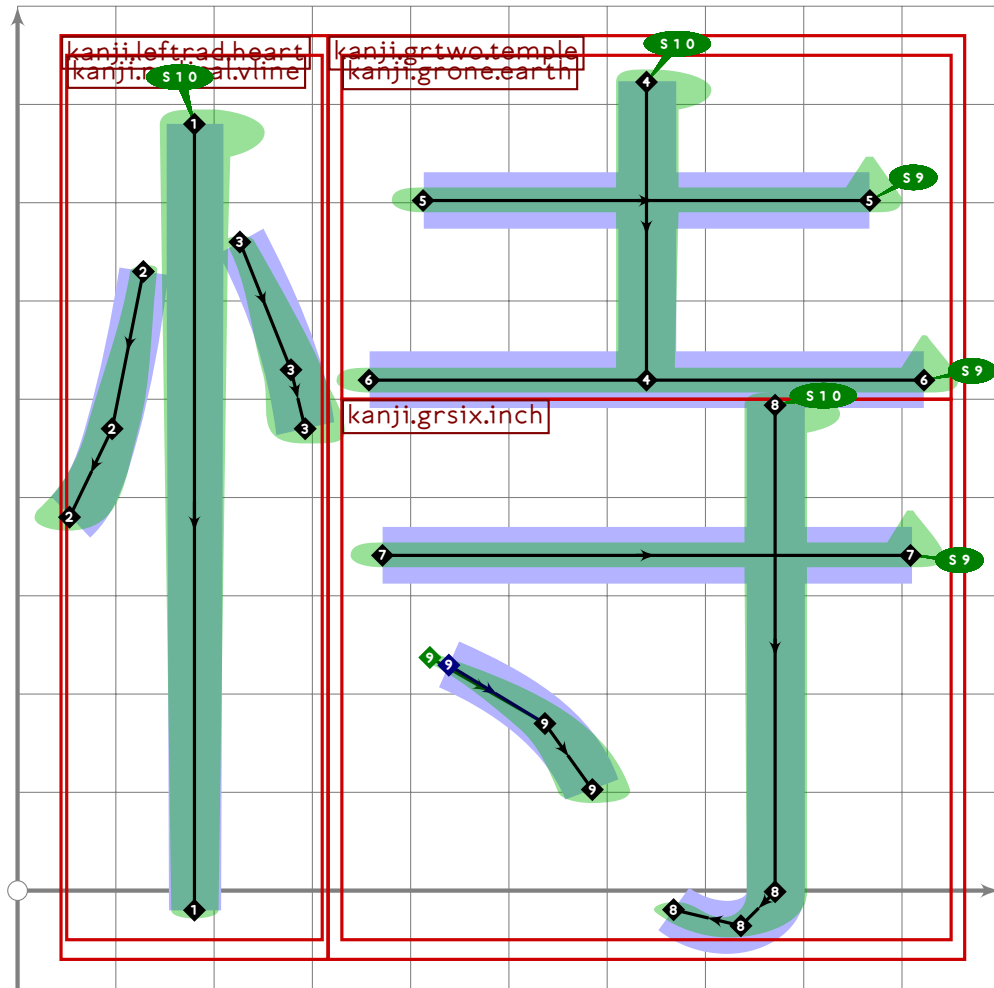
```



```

388 % extra
389 begintsuglyph("uni6040",64);
390 build_kanji.level(build_kanji.lr(320,20)
391   (kanji.leftrad.heart;
392     replace_strokep(0)(subpath (0,1) of oldp);
393     replace_strokeq(0)(subpath (0,1) of oldq))
394   (build_kanji.scale(yscaled 0.92 shifted (0,-20))(kanji.grtwo.many)));
395 tsu_render;
396 endtsuglyph;
397

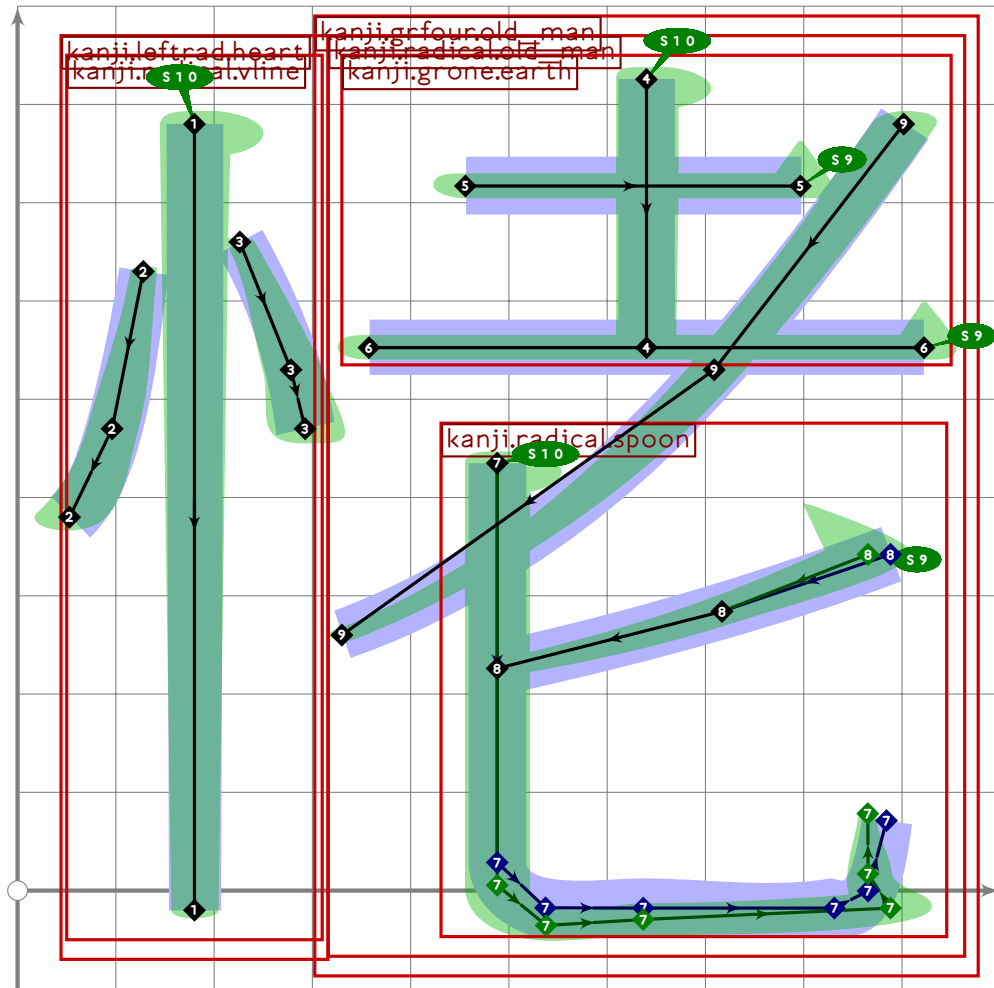
```



```

398 % extra
399 beginsuglyph("uni6043";67);
400 build_kanji.level(build_kanji.lr(320,-20)
401   (kanji.leftrad.heart)
402   (kanji.grtwo.temple));
403   tsu_render;
404 endsuglyph;
405

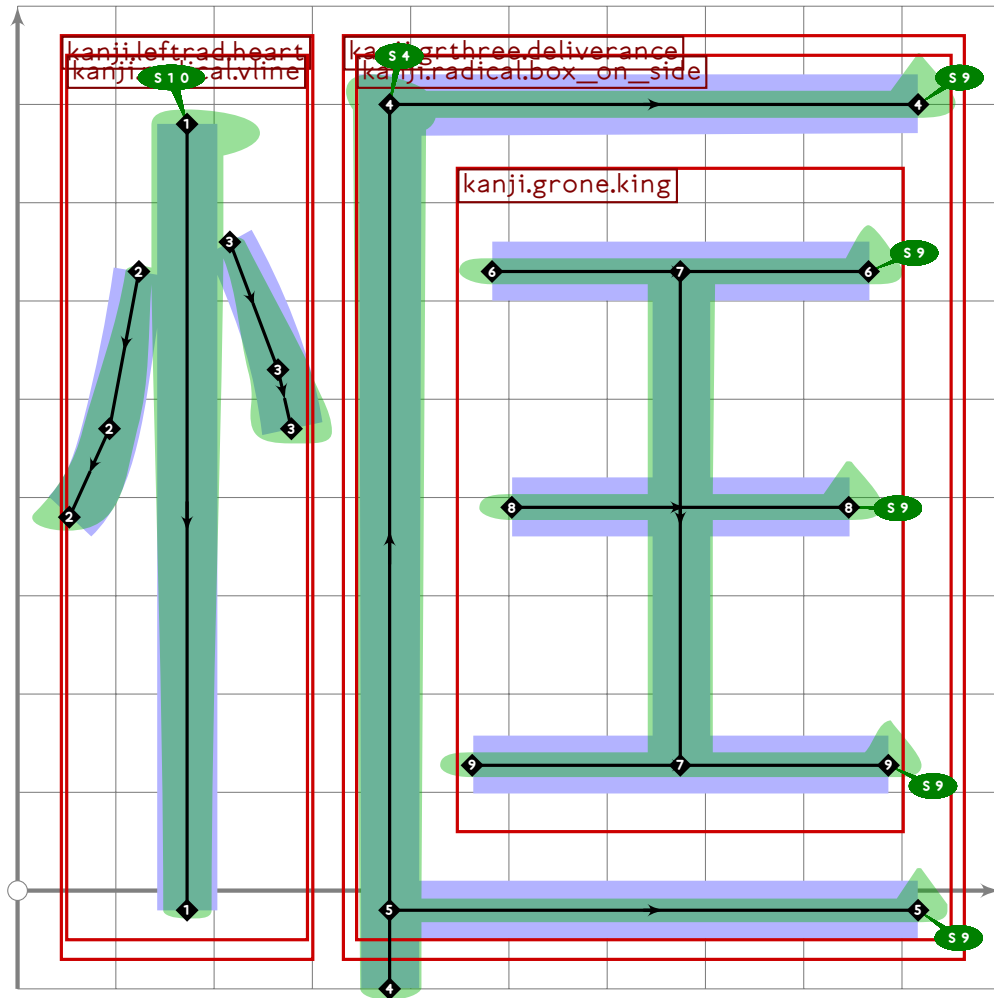
```



```

406 % extra
407 begintsuglyph("uni6045";69);
408 build_kanji.level(build_kanji.lr(320,-20)
409   (kanji.leftrad.heart)
410   (kanji.grfour.old_man));
411 tsu_render;
412 endsuglyph;
413

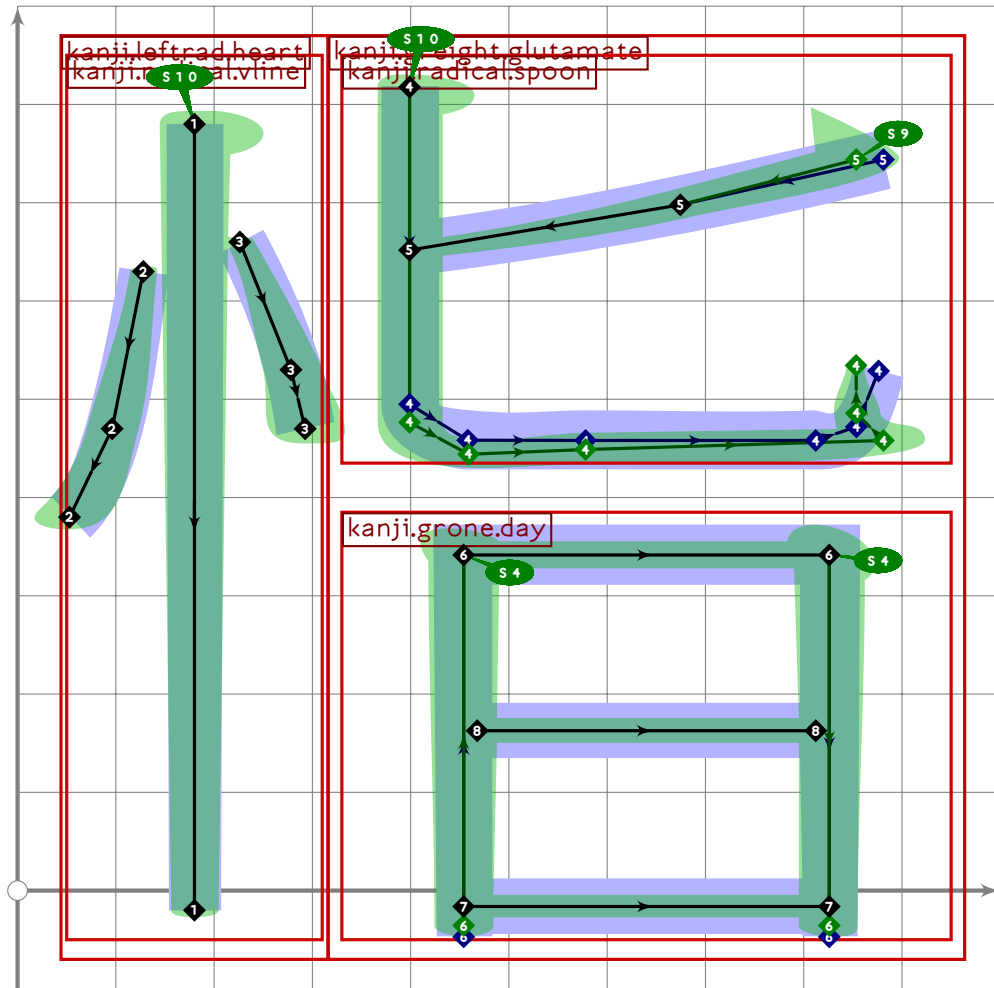
```



```

414 % extra
415 begint Suglyph("uni6047"71);
416 build_kanji.level(build_kanji.lr(320,-50)
417   (kanji.leftrad.heart)
418   (kanji.grnine.deliverance));
419 tsu_render;
420 endtsuglyph;
421

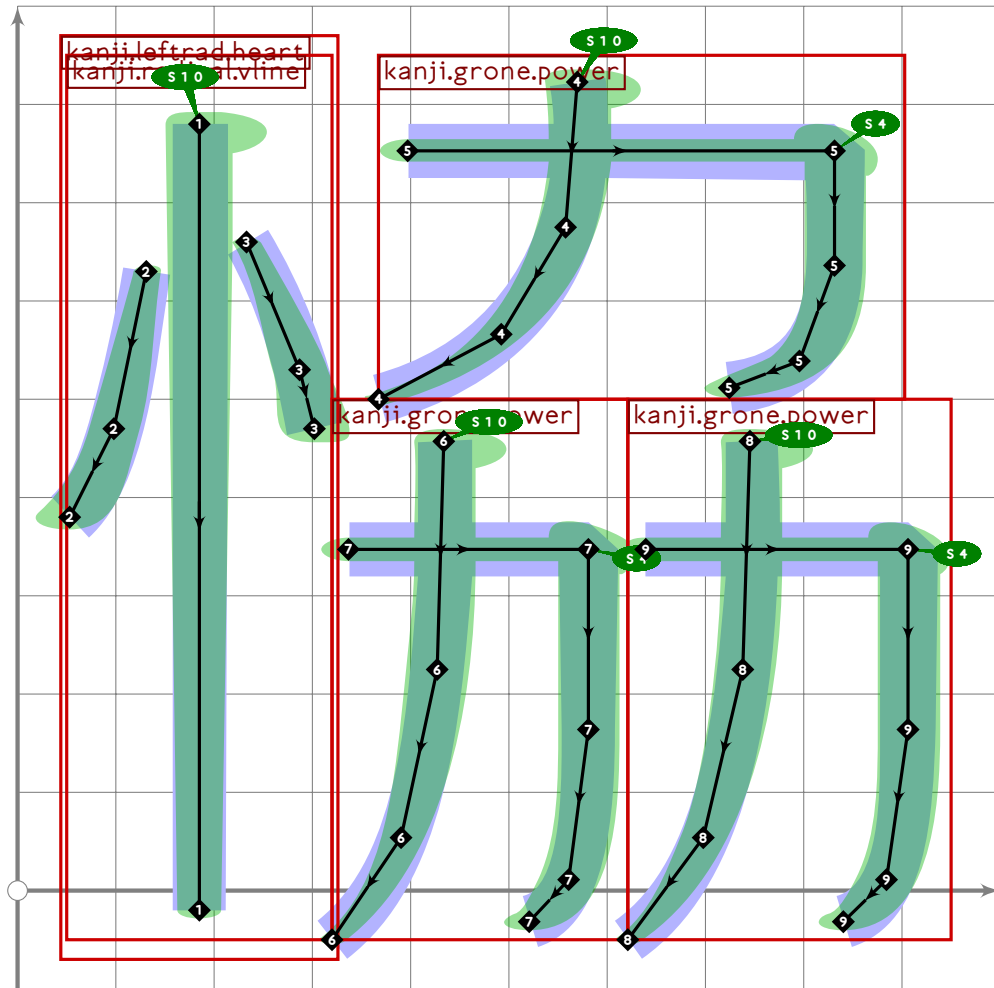
```



```

422 % extra
423 beginsuglyph("uni6049";73);
424 build_kanji.level(build_kanji.lr(320,-20)
425   (kanji.leftrad.heart)
426   (kanji.greight.glutamate));
427 tsu_render;
428 endsuglyph;
429

```

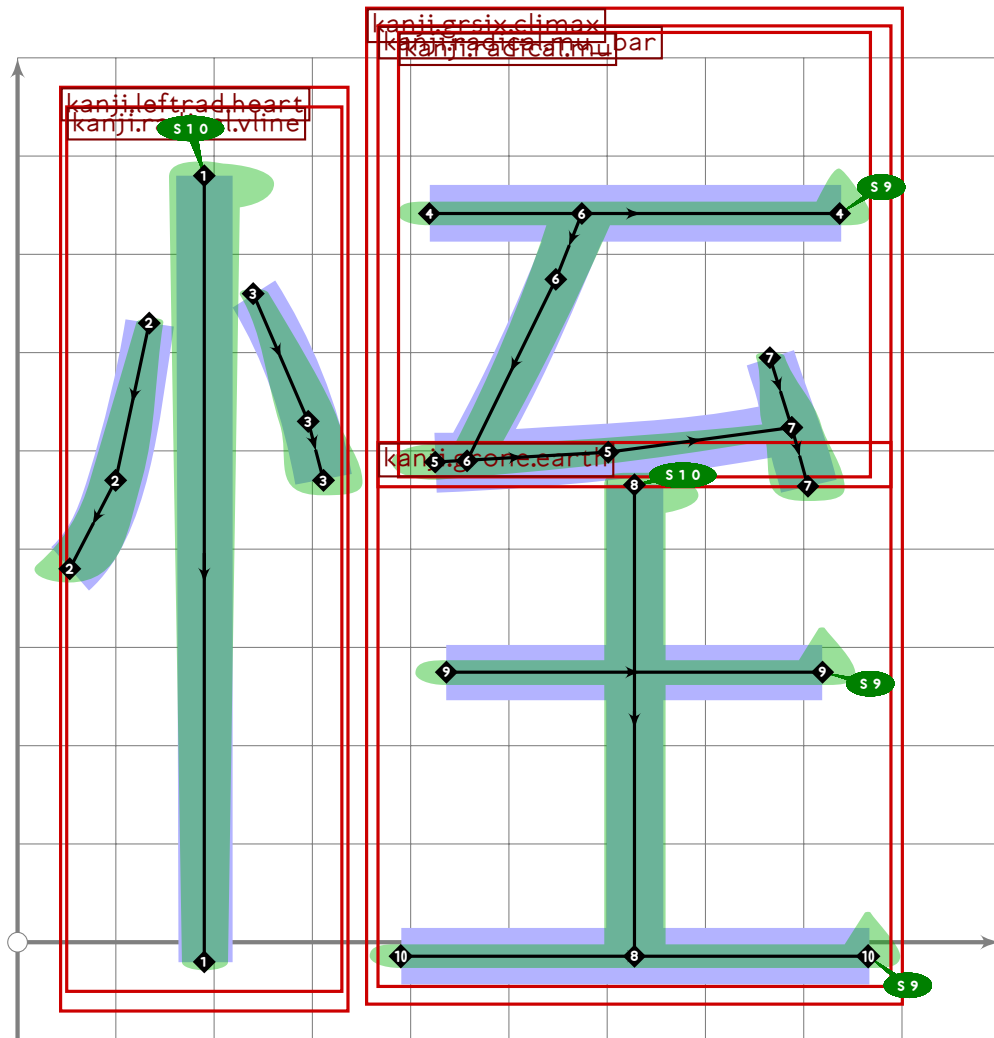


```

430 % extra
431 begintsuglyph("uni604A";74);
432 build_kanji.level(build_kanji.lr(320,0)
433   (kanji.leftrad.heart)
434   (build_kanji.tricluster(0.85)
435     (kanji.grone.power)
436     (kanji.grone.power)
437     (kanji.grone.power)));
438 tsu_render;
439 endsuglyph;
440
441 % koi/ren "love" ("take" side of "give and take")
442 begintsuglyph("uni604B";75);
443 kanji.greight.desire;
444 tsu_render;
445 endsuglyph;
446

```

[see page 1801]

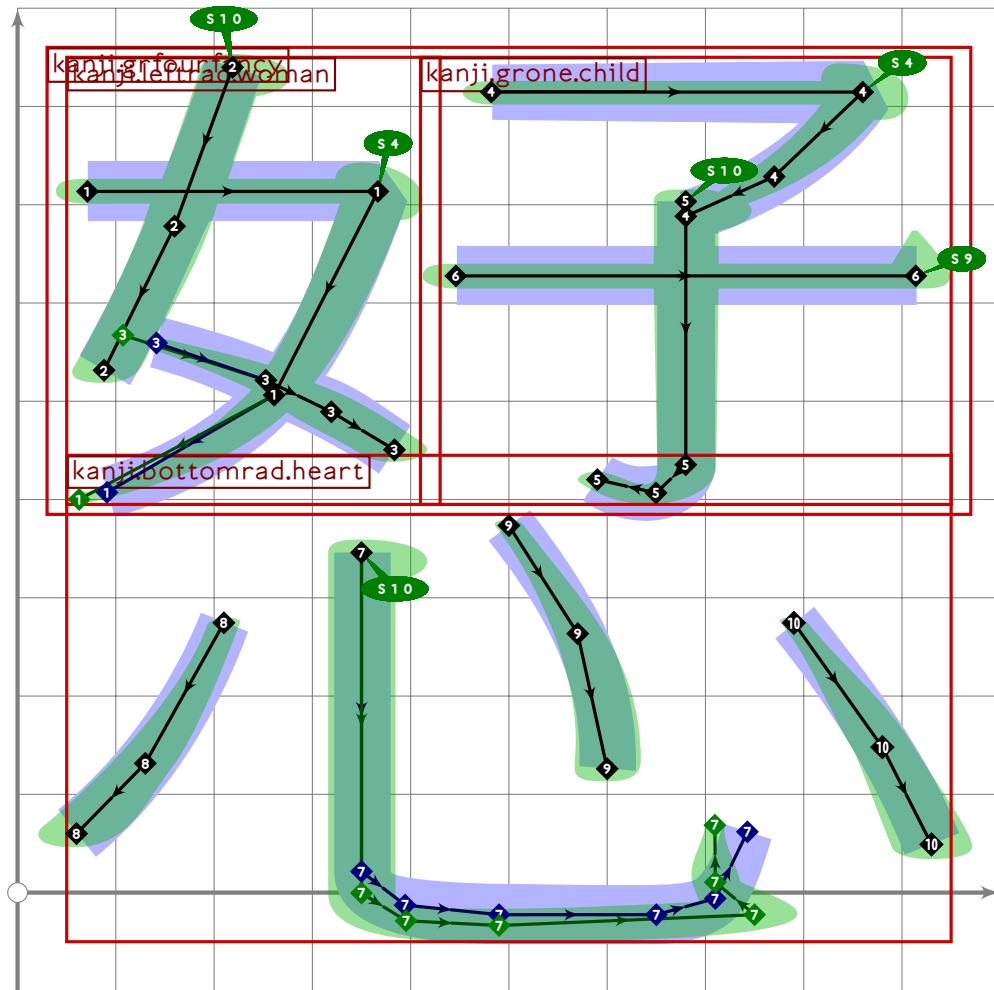


```

447 % extra
448 begintsuglyph("uni604E";78);
449 build_kanji.level(build_kanji.lr(350,-40)
450   (kanji.leftrad.heart)
451   (tsu_xform(identity scaled 0.9)(kanji.grsix.climax)));
452 tsu_render;
453 endtsuglyph;
454

```

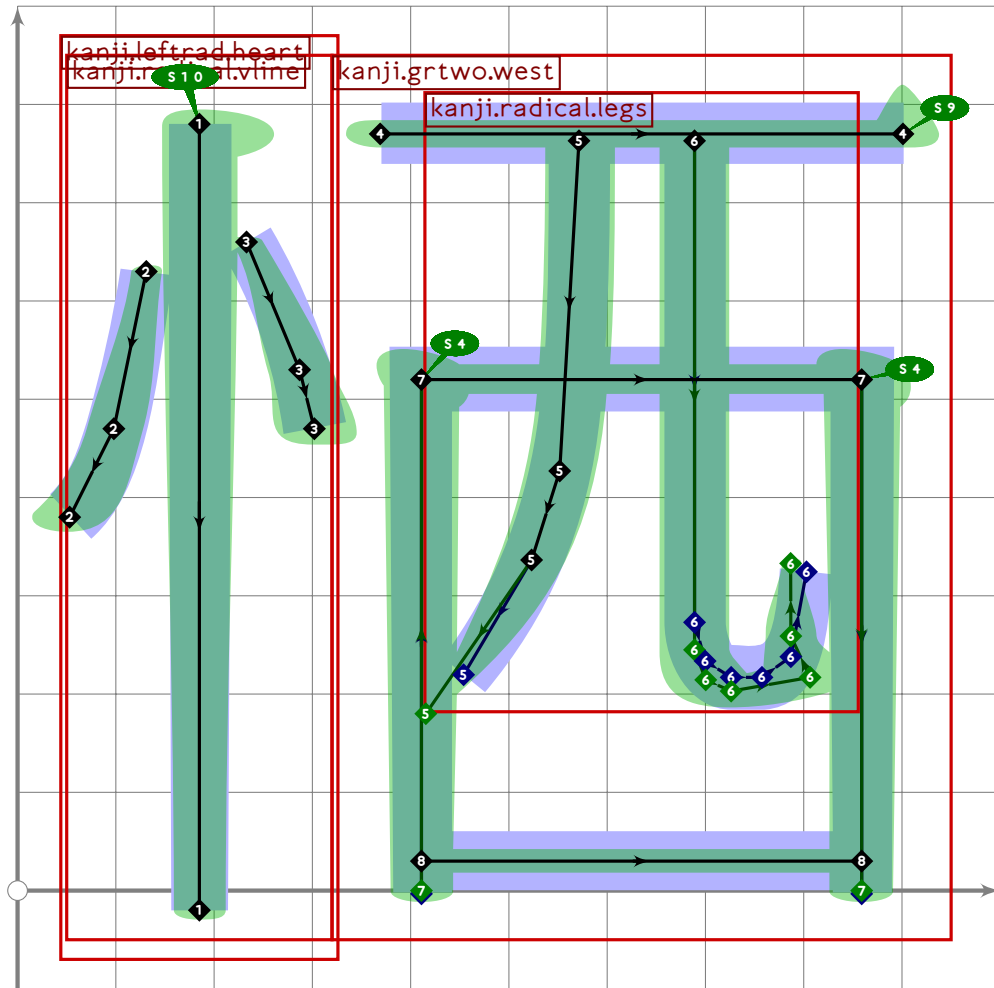




```

455 % extra
456 beginsuglyph("uni604F",79);
457 build_kanji.level(build_kanji.tb(420,50)
458   (kanji.grfour.fancy)
459   (kanji.bottomrad.heart));
460 tsu_render;
461 endsuglyph;
462

```



```

463 % extra
464 begintsuglyph("uni6053";83);
465   build_kanji.level(build_kanji.lr(320,0)
466     (kanji.leftrad.heart)
467     (kanji.grtwo.west));
468   tsu_render;
469 endtsuglyph;
470
471 % soku/iki "breath"
472 begintsuglyph("uni606F";111);
473   kanji.grthree.breath;
474   tsu_render;
475 endtsuglyph;
476
477 % aku/waru "evil"
478 begintsuglyph("uni60AA";170);
479   kanji.grthree.evil;
480   tsu_render;
481 endtsuglyph;
482
483 % sou/omo "concept"

```

[see page 1795]

[see page 1797]

```
484 begintsuglyph("uni60F3";243);
485 kanji.grthree.concept;
486 tsu_render;
487 endtsuglyph;
488
489 

---


490
491 endfont;
492
493 

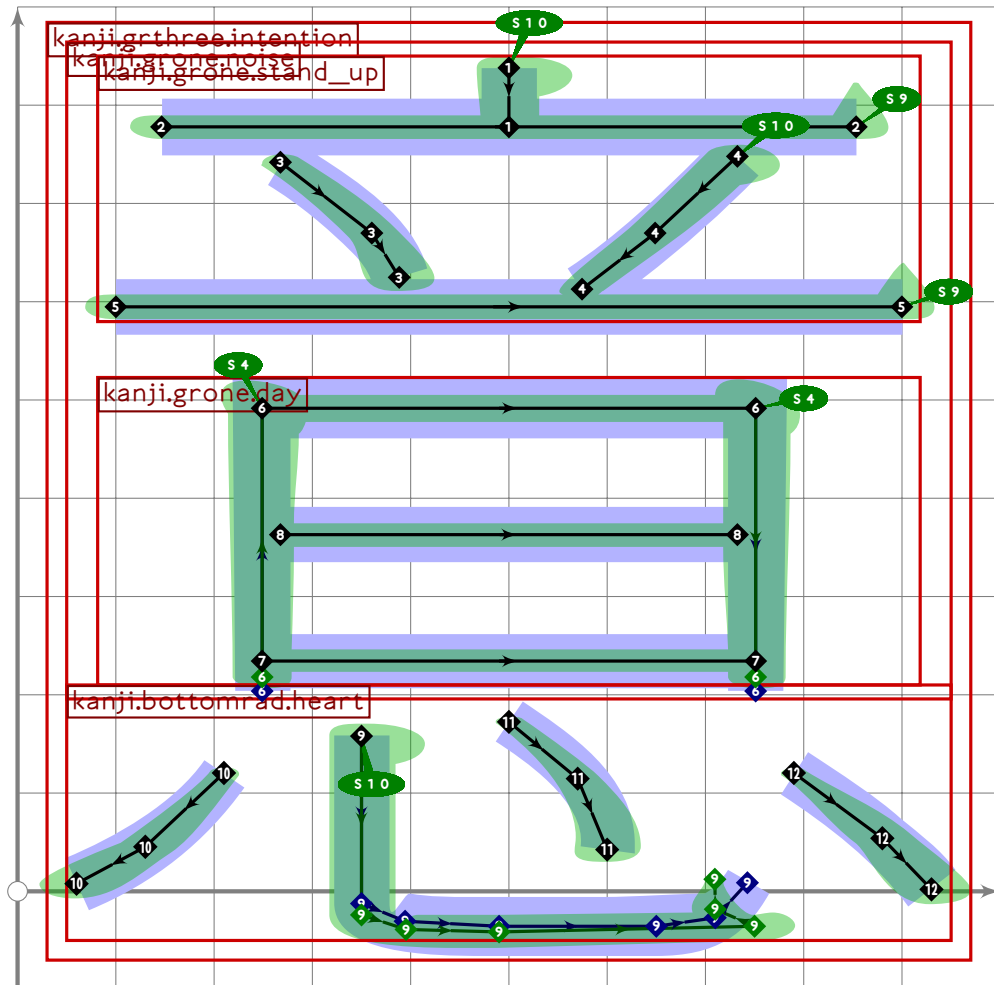
---


```

[see page [1796](#)]

# tsuku-61.mp

```
1 %  
2 % Unicode page 61 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input bottomrad.mp;  
37 input buildkanji.mp;  
38 input gradefive.mp;  
39 input gradeone.mp;  
40 input radical.mp;  
41  
42 _____
```

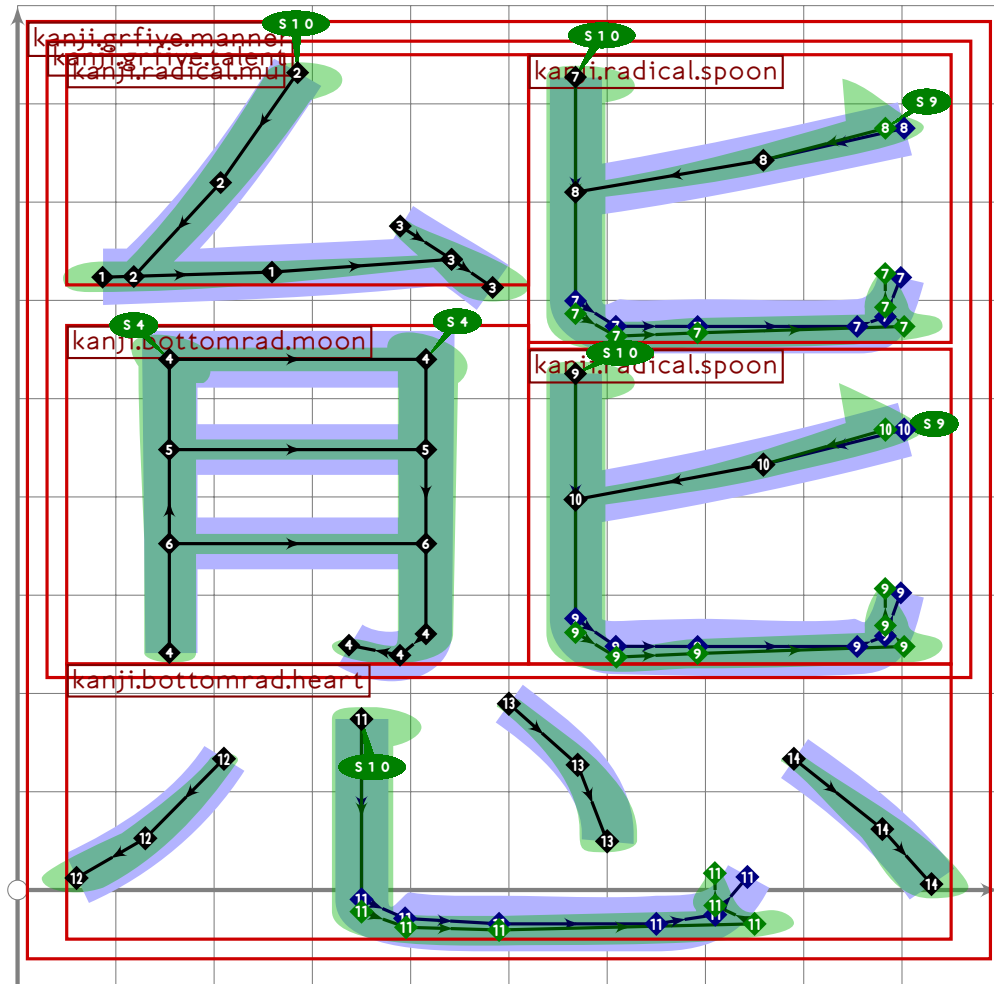


43

```

44 vardef kanji.grthree.intention =
45   push_pbox_toexpand("kanji.grthree.intention");
46   build_kanji.level(build_kanji.tb(210,0)
47     (kanji.grone.noise)
48     (kanji.bottomrad.heart));
49   expand_pbox;
50 enddef;
51
52

```



```

53
54 vardef kanji.grfive.manner =
55   push_pbox_toexpand("kanji.grfive.manner");
56   build_kanji.level(build_kanji.tb(230,0)
57     (kanji.grfive.talent)
58     (kanji.bottomrad.heart));
59   expand_pbox;
60 enddef;
61
62
63
64 % i/moto "intention"

```

```
65 begintsuglyph("uni610F";15);
66 kanji.grthree.intention;
67 tsu_render;
68 endtsuglyph;
```

[see page 1841]

```
69
70 % tai/waza "manner"
71 begintsuglyph("uni614B";75);
72 kanji.grfive.manner;
73 tsu_render;
74 endtsuglyph;
```

[see page 1841]

```
75
```

```
76
```

```
77
```

```
78 endfont;
```

```
79
```

```
80
```

Part V

U+6200 to U+75FF





# tsuku-62.mp

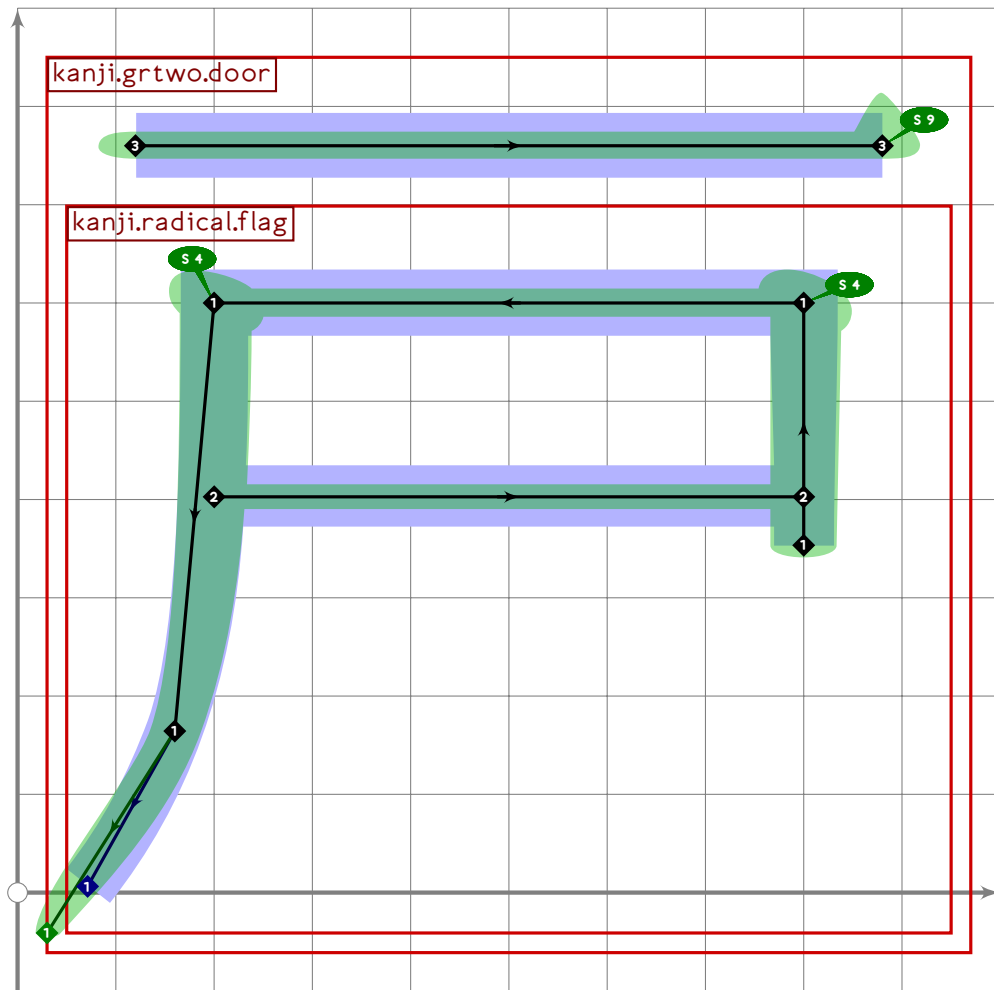
```
1 %
2 % Unicode page 62 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradeone.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43
44 

---

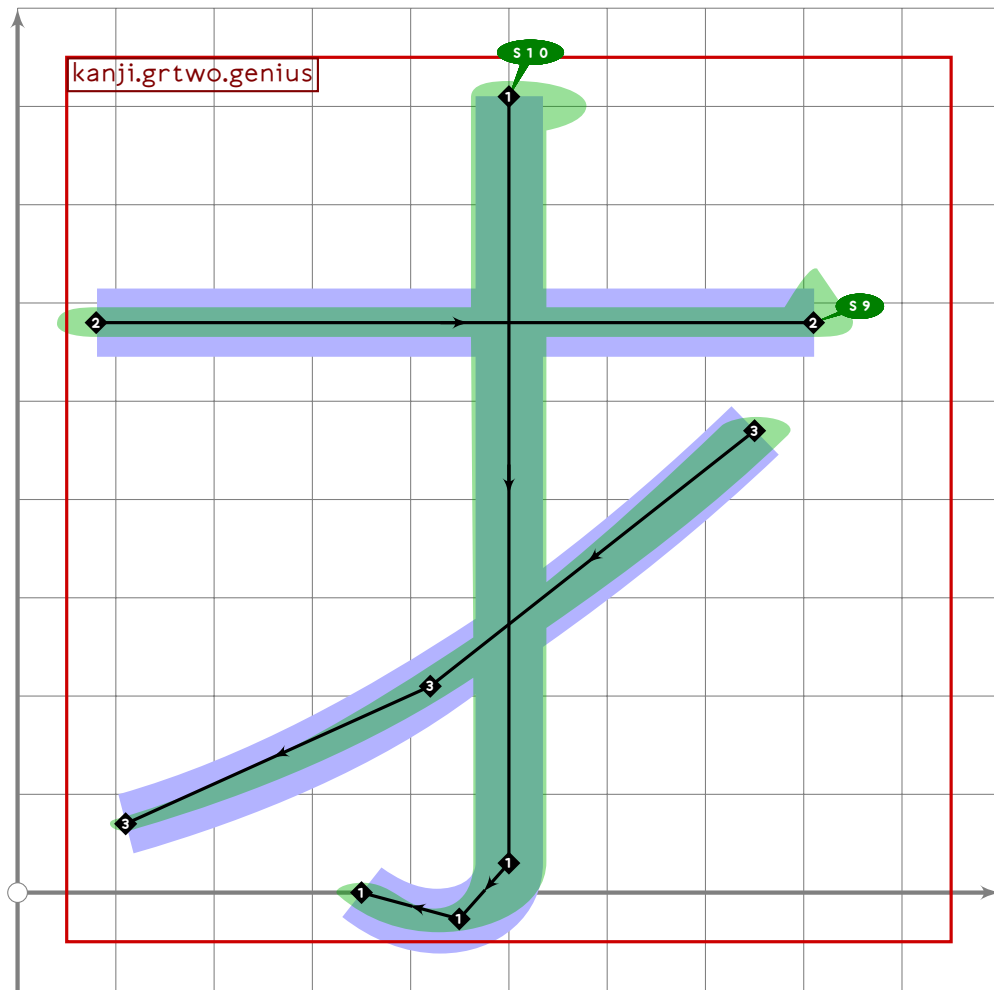

```



```

45
46 vardef kanji.grtwo.door =
47   push_pbox_toexpand("kanji.grtwo.door");
48   tsu_xform(identity yscaled (600/730))(kanji.radical.flag);
49   push_stroke((120,760)-(880,760),(1.6,1.6));
50   set_boserif(0,1,9);
51   set_bosize(0,95);
52   expand_pbox;
53 enddef;

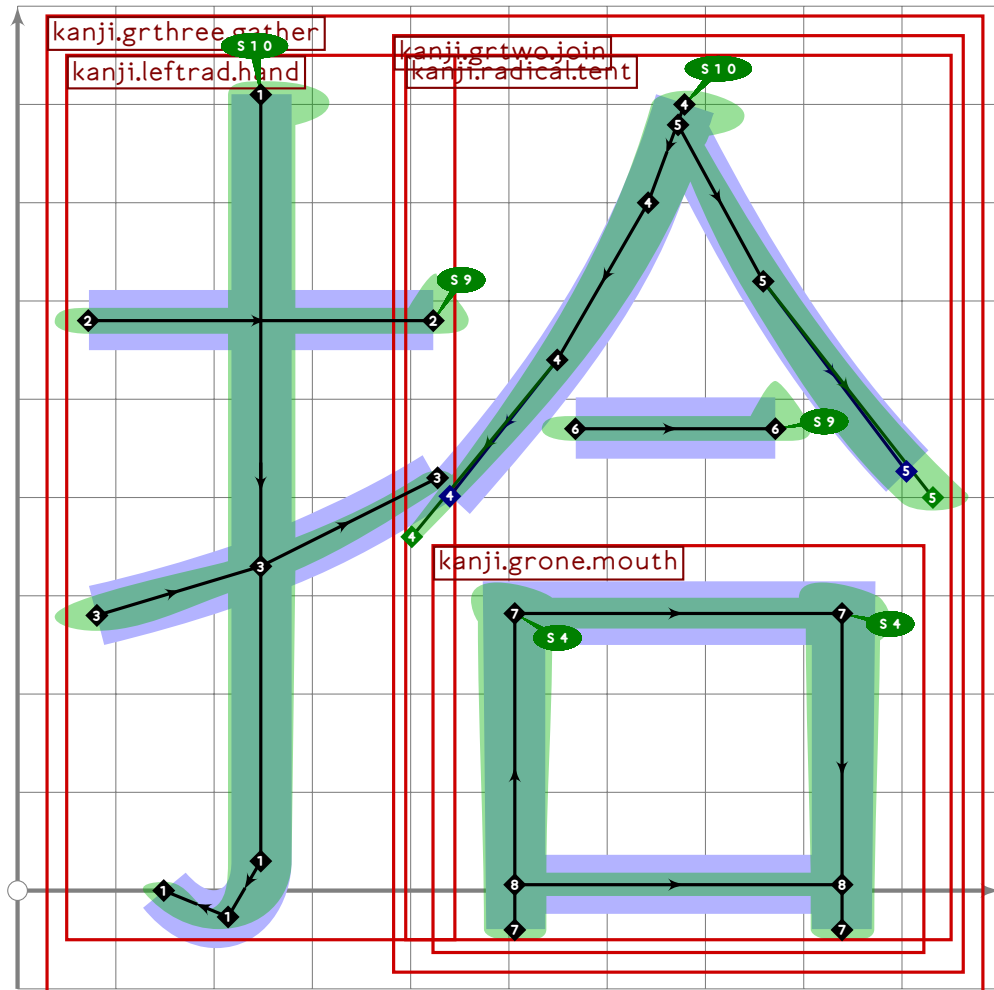
```



```

54
55 vardef kanji.grtwo.genius =
56   push_pbox_toexpand("kanji.grtwo.genius");
57   push_stroke((500,810),(1.6,1.6));
58   build_kanji.add_jtail(0);
59   set_boserif(0,0,10);
60   push_stroke((80,580)-(810,580),(1.6,1.6)-(1.6,1.6));
61   set_boserif(0,1,9);
62   push_stroke((750,470)..tension 1.2..(420,210)..(110,70),
63     (1.5,1.5)-(1.2,1.2)-(1,1));
64   expand_pbox;
65 enddef;
66
67

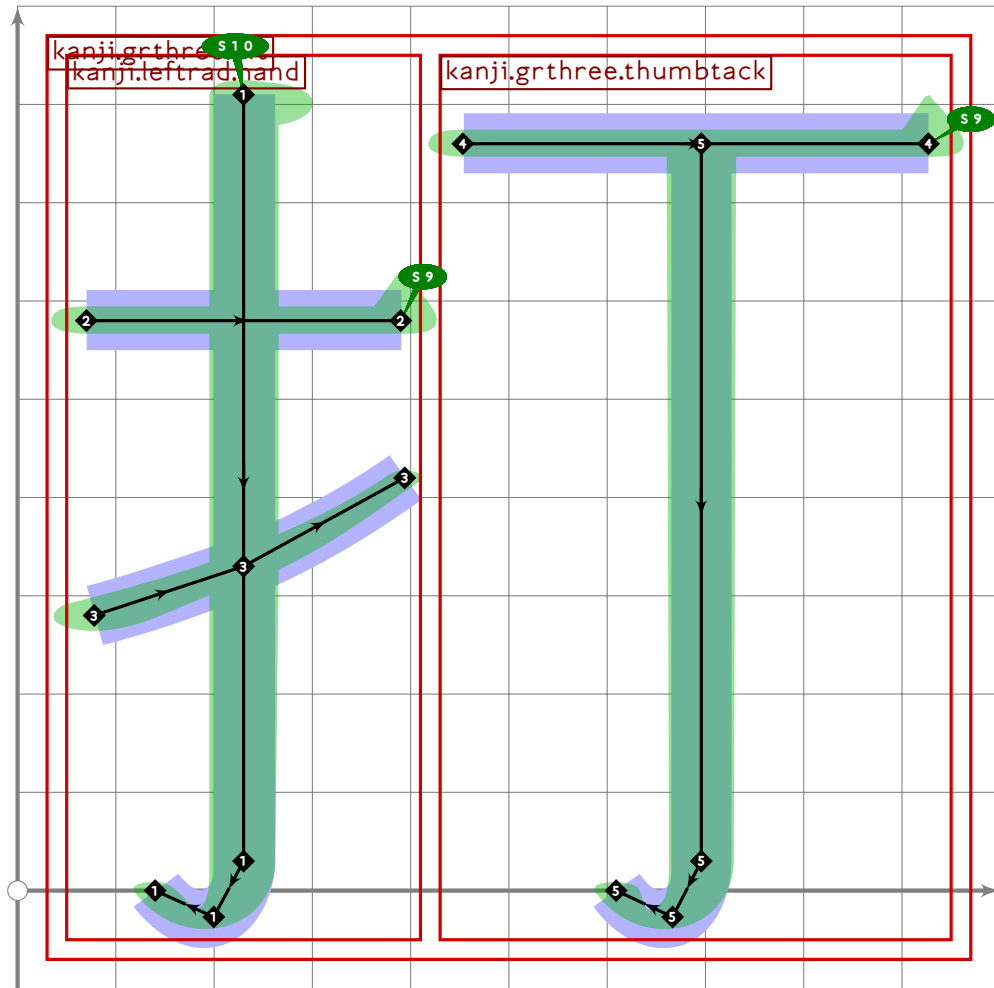
```



```

68
69 vardef kanji.grthree.gather =
70   push_pbox_toexpand("kanji.grthree.gather");
71   build_kanji.level(build_kanji.lr(420,50)
72     (kanji.leftrad.hand)
73     (kanji.grtwo.join));
74   expand_pbox;
75 enddef;

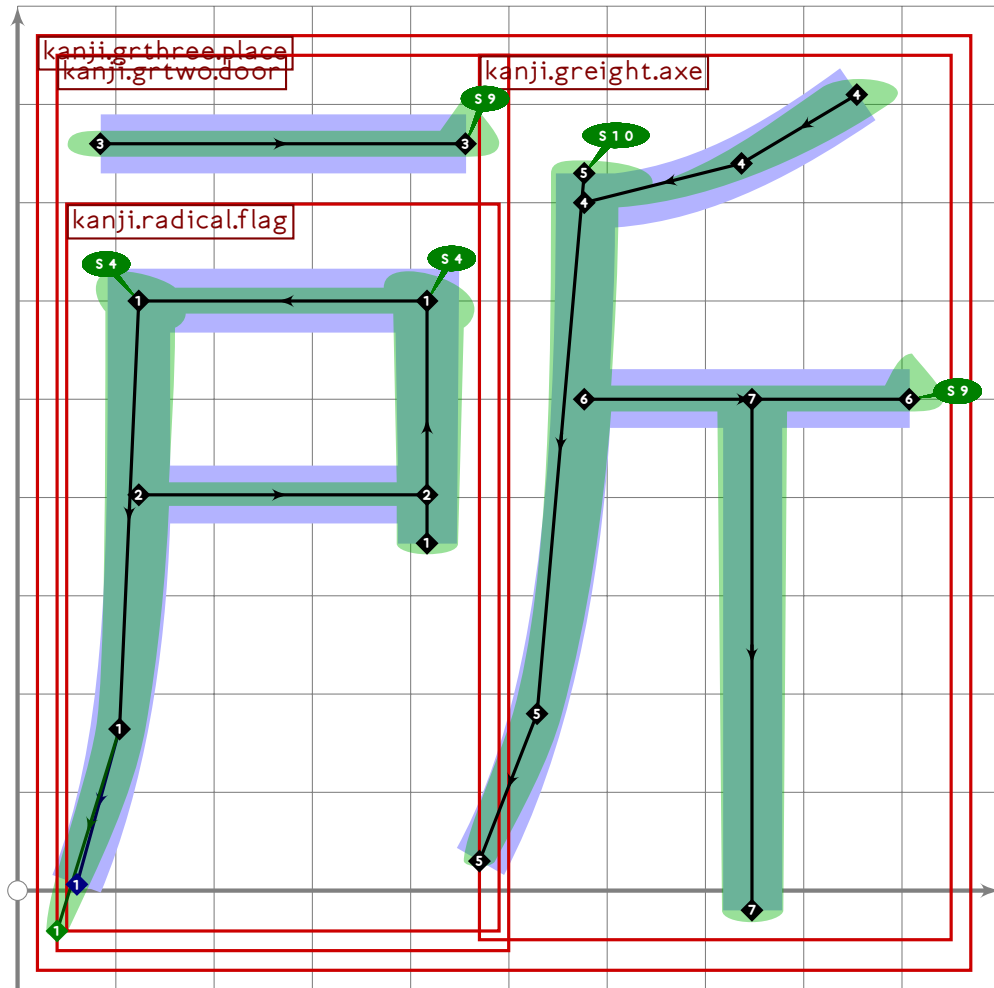
```



```

76
77 vardef kanji.grthree.hit =
78   push_pbox_toexpand("kanji.grthree.hit");
79   build_kanji.level(build_kanji.lr(420,-20)
80     (kanji.leftrad.hand)
81     (kanji.grthree.thumbtack));
82   expand_pbox;
83 enddef;

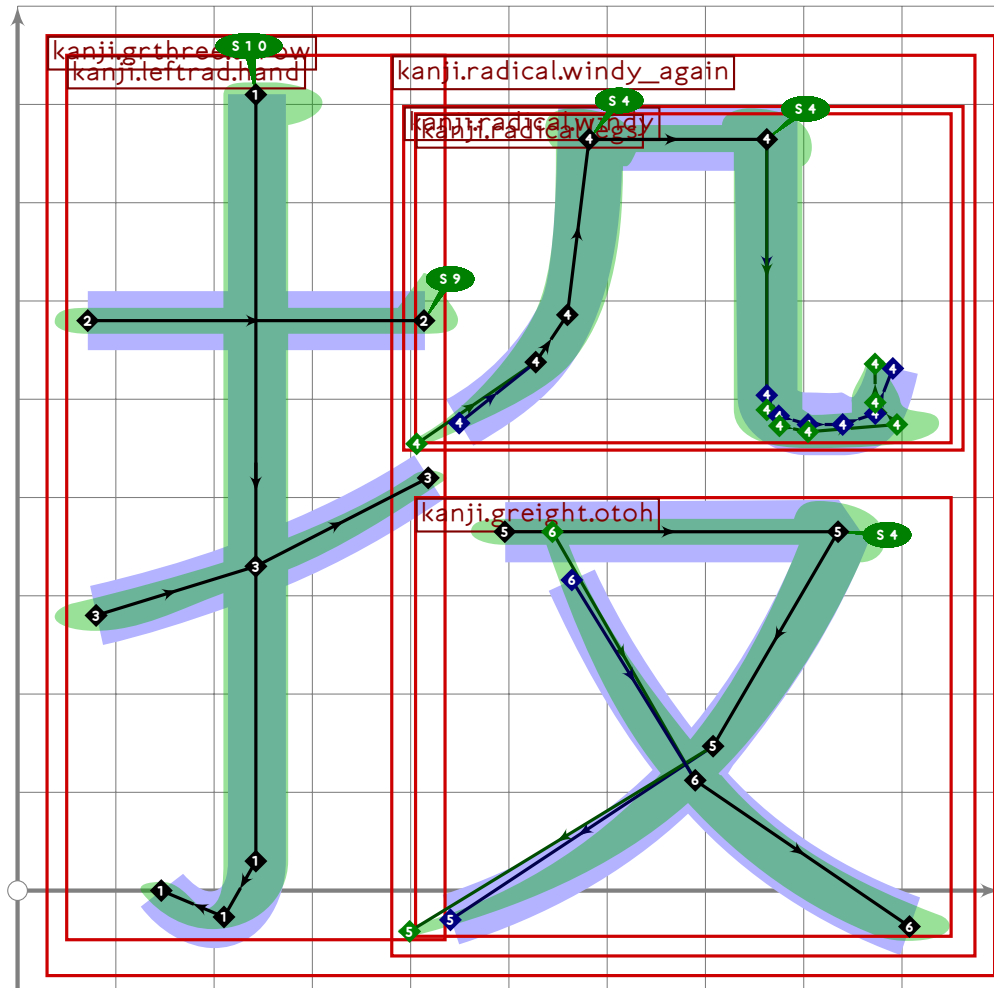
```



```

84
85 vardef kanji.grthree.place =
86   push_pbox_toexpand("kanji.grthree.place");
87   build_kanji.level(build_kanji.lr(480,20)
88     (kanji.grtwo.door)
89     (kanji.greight.axe));
90   expand_pbox;
91 enddef;

```



```

92
93 vardef kanji.grthree.throw =
94   push_pbox_toexpand("kanji.grthree.throw");
95   build_kanji.level(build_kanji.lr(420,30)
96     (kanji.leftrad.hand)
97     (kanji.radical.windy_again));
98   expand_pbox;
99 enddef;

```

100

101

102

103 % ko/to "door"

```
104 begintsuglyph("uni6238";56);
```

[see page 1846]

```
105   kanji.grtwo.door;
```

```
106   tsu_render;
```

```
107 endtsuglyph;
```

108

109 % sho/tokoro "place"

```
110 begintsuglyph("uni6240";64);
```

[see page 1850]

```
111   kanji.grthree.place;
```

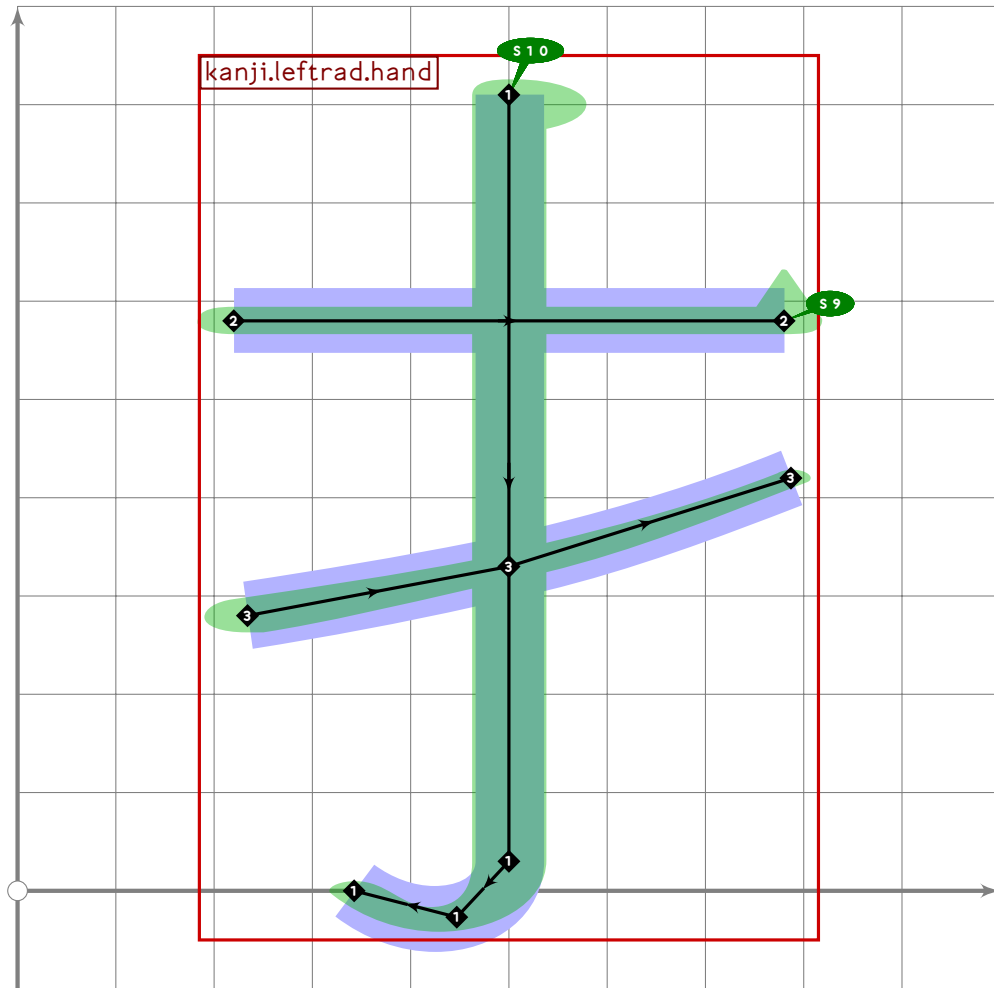
```
112   tsu_render;
```

```

113 endtsuglyph;
114
115 % te "hand"
116 begintsuglyph("uni624B";75);
117   kanji.grone.hand;
118   tsu_render;
119 endtsuglyph;
120

```

[see page 402]



```

121 % hand radical
122 begintsuglyph("uni624C";76);
123   build_kanji.sscale(xscaled 0.7)(kanji.leftrad.hand);
124   tsu_render;
125 endtsuglyph;
126
127 % sai "genius" or "years of age"
128 begintsuglyph("uni624D";77);
129   kanji.grtwo.genius;
130   tsu_render;
131 endtsuglyph;
132
133 % da/u "hit"

```

[see page 1847]



```
134 begintsuglyph("uni6253";83); [see page 1849]
135 kanji.grthree.hit;
136 tsu_render;
137 endtsuglyph;
138
139 % tou/na "throw"
140 begintsuglyph("uni6295";149); [see page 1851]
141 kanji.grthree.throw;
142 tsu_render;
143 endtsuglyph;
144
145 % shuu/hiro "gather"
146 begintsuglyph("uni62FE";254); [see page 1848]
147 kanji.grthree.gather;
148 tsu_render;
149 endtsuglyph;
150
151 

---


152
153 endfont;
154
155 

---


```

# tsuku-63.mp

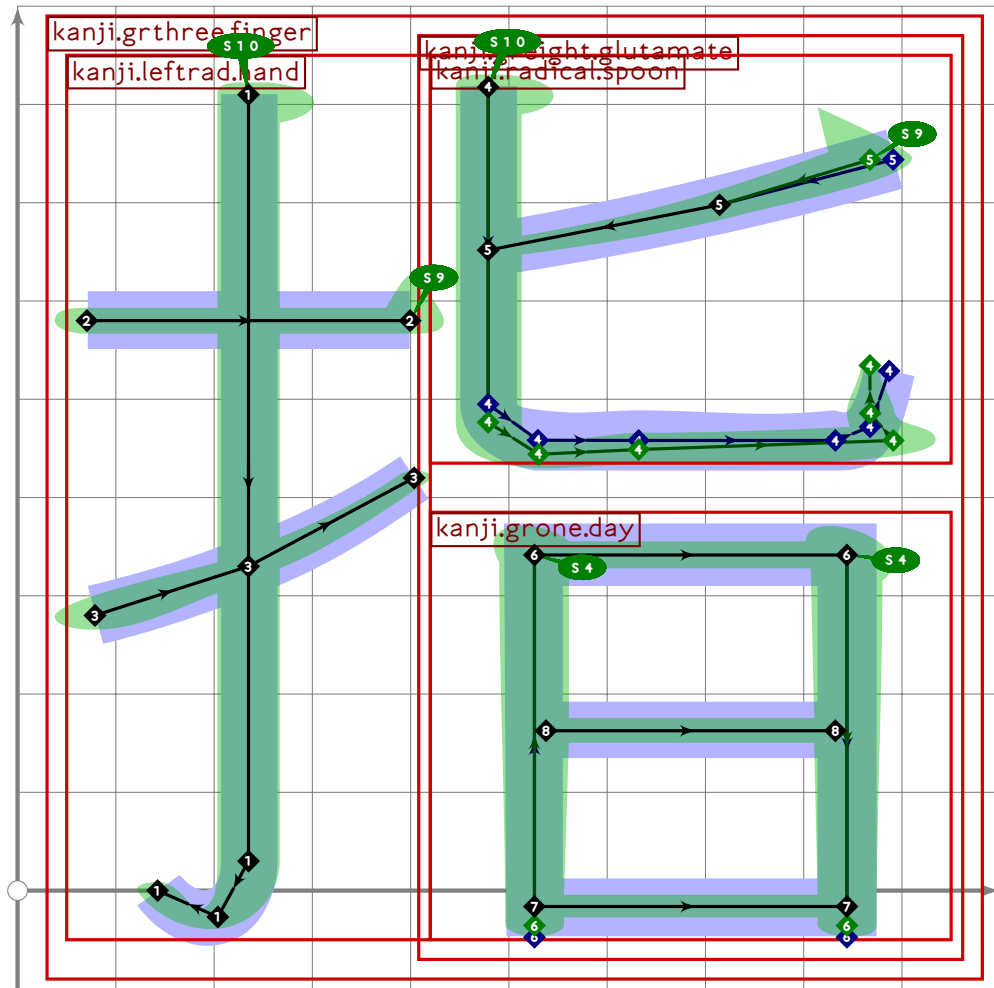
```
1 %
2 % Unicode page 63 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradeone.mp;
39 input gradesix.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input topfad.mp;
44
45 

---

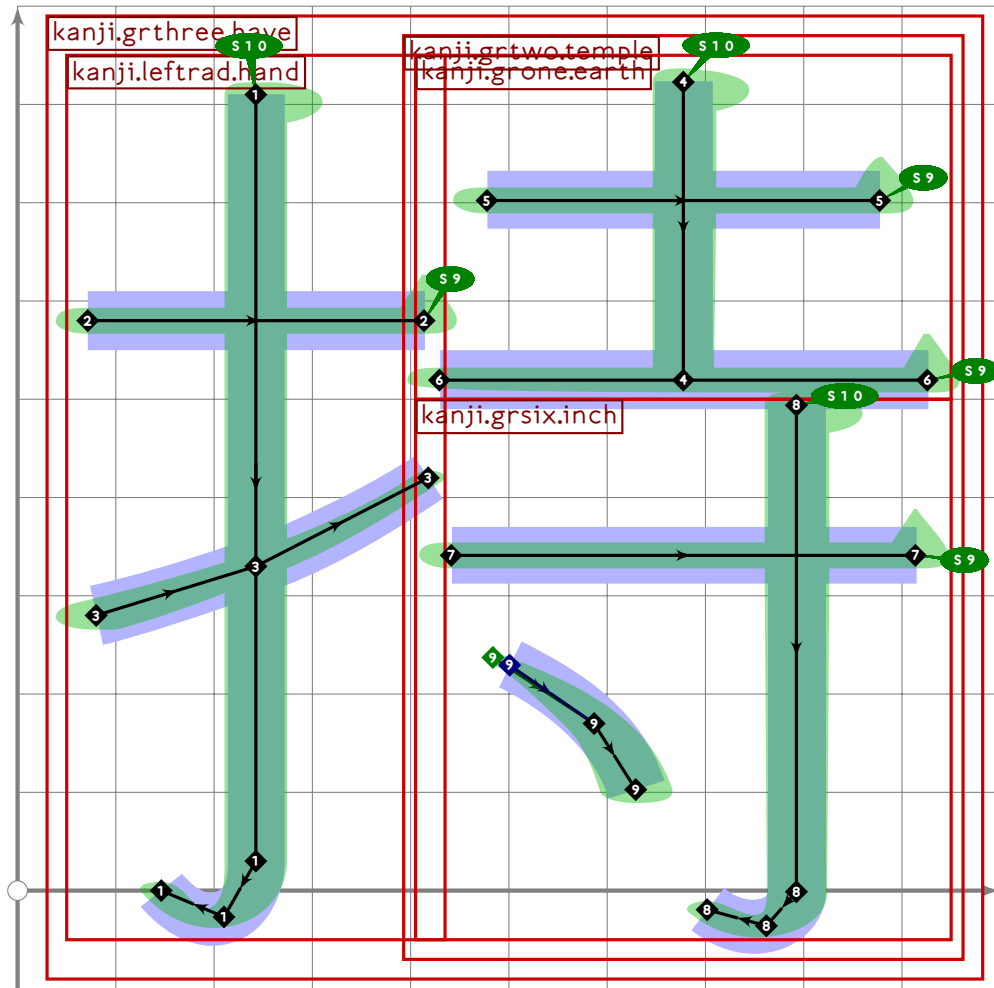

```



```

46
47 vardef kanji.grthree.finger =
48   push_pbox_toexpand("kanji.grthree.finger");
49   build_kanji.level(build_kanji.lr(420,0)
50     (kanji.leftrad.hand)
51     (kanji.greight.glutamate));
52   expand_pbox;
53 enddef;

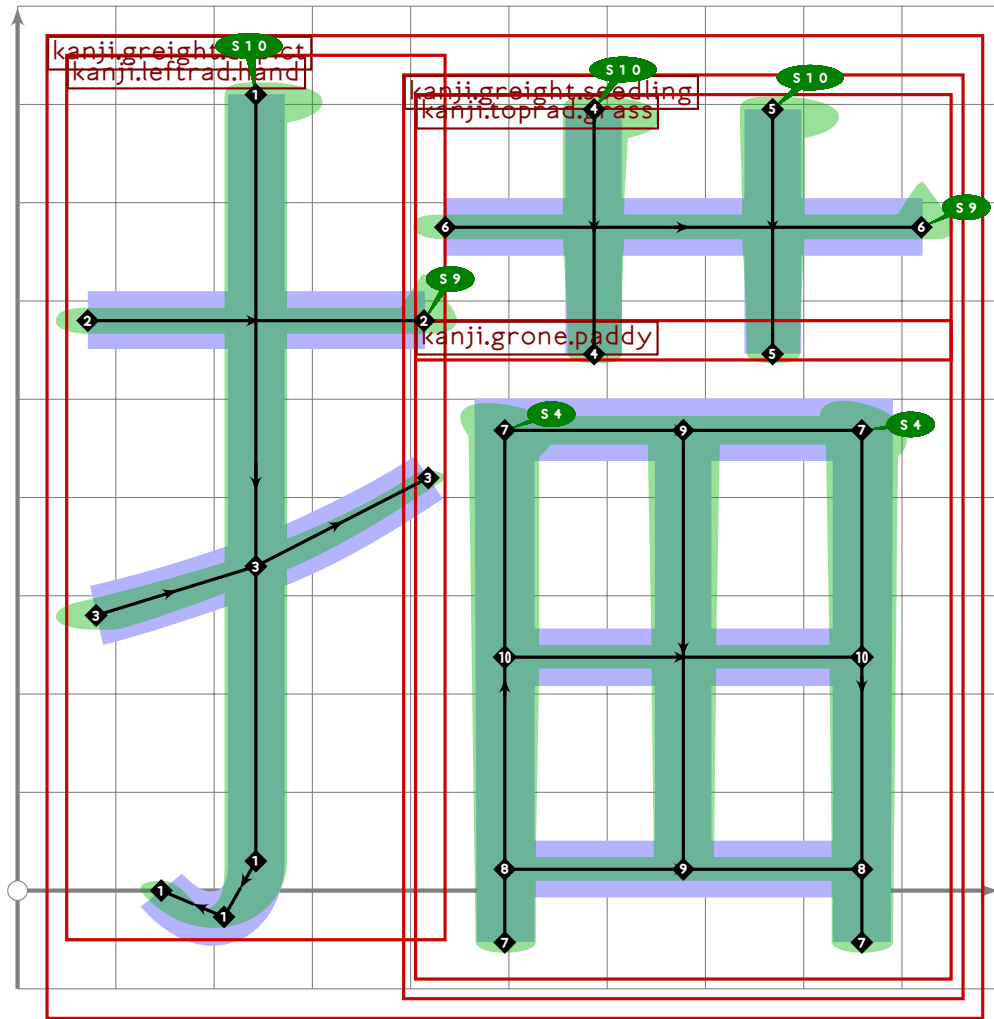
```



```

54
55 vardef kanji.grthree.have =
56   push_pbox_toexpand("kanji.grthree.have");
57   build_kanji.level(build_kanji.lr(420,30)
58     (kanji.leftrad.hand)
59     (kanji.grtwo.temple));
60   expand_pbox;
61 enddef;
62
63

```



```

64
65 vardef kanji.greight.depict =
66   push_pbox_toexpand("kanji.greight.depict");
67   build_kanji.level(build_kanji.lr(420,30)
68     (kanji.leftrad.hand)
69     (build_kanji.sscale(shifted (0,-40))(kanji.greight.seedling)));
70   expand_pbox;
71 enddef;

```

72

73

74

75 % ji/mo "have"

76 `begintsuglyph("uni6301";1);`

[see page 1856]

77 `kanji.grthree.have;`

78 `tsu_render;`

79 `endsuglyph;`

80

81 % shi/yubi "finger"

82 `begintsuglyph("uni6307";7);`

[see page 1855]

83 `kanji.grthree.finger;`

```
84 tsu_render;
85 endtsuglyph;
86
87 % byou/ega "depict"
88 begintsuglyph("uni63CF";207); [see page 1857]
89 kanji.greight.depict;
90 tsu_render;
91 endtsuglyph;
92
93 _____
94
95 endfont;
96
97 _____
```

# tsuku-65.mp

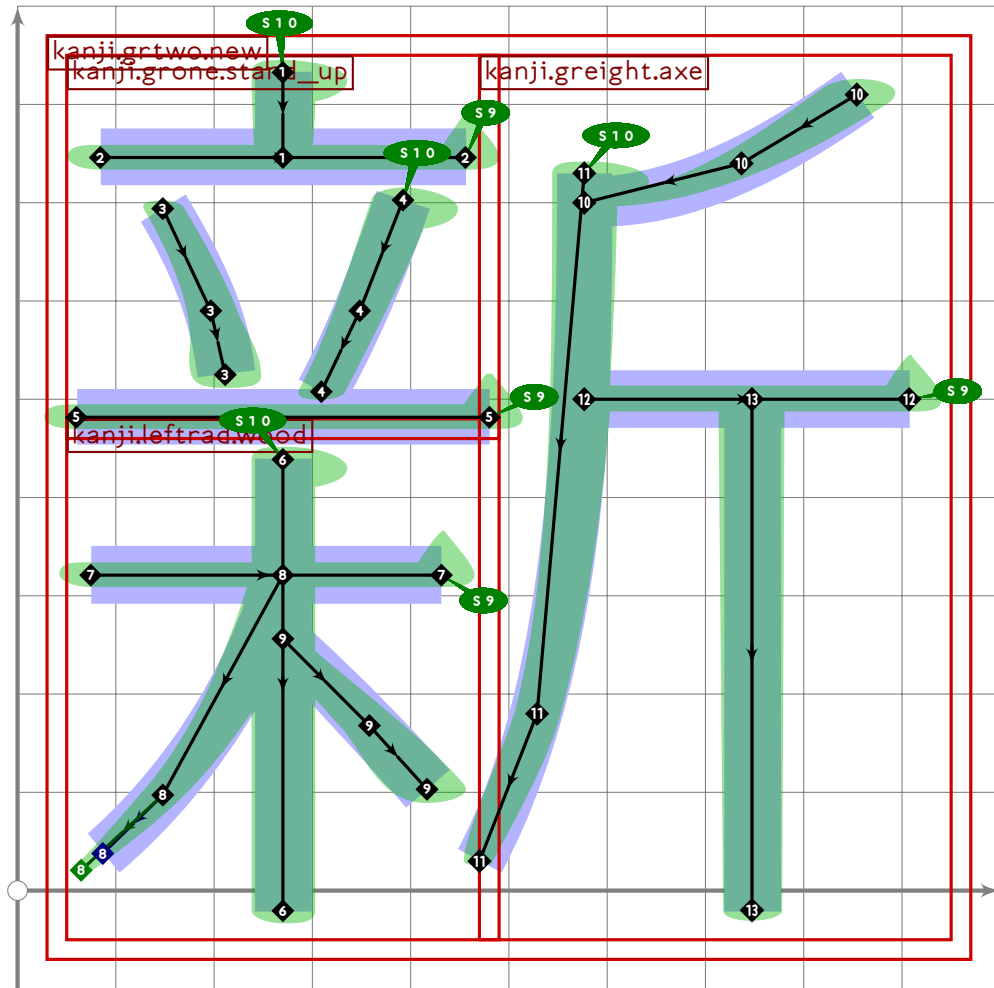
```
1 %
2 % Unicode page 65 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradeone.mp;
41 input gradetwo.mp;
42 input leftrad.mp;
43 input radical.mp;
44 input rare.mp;
45
46 

---


```

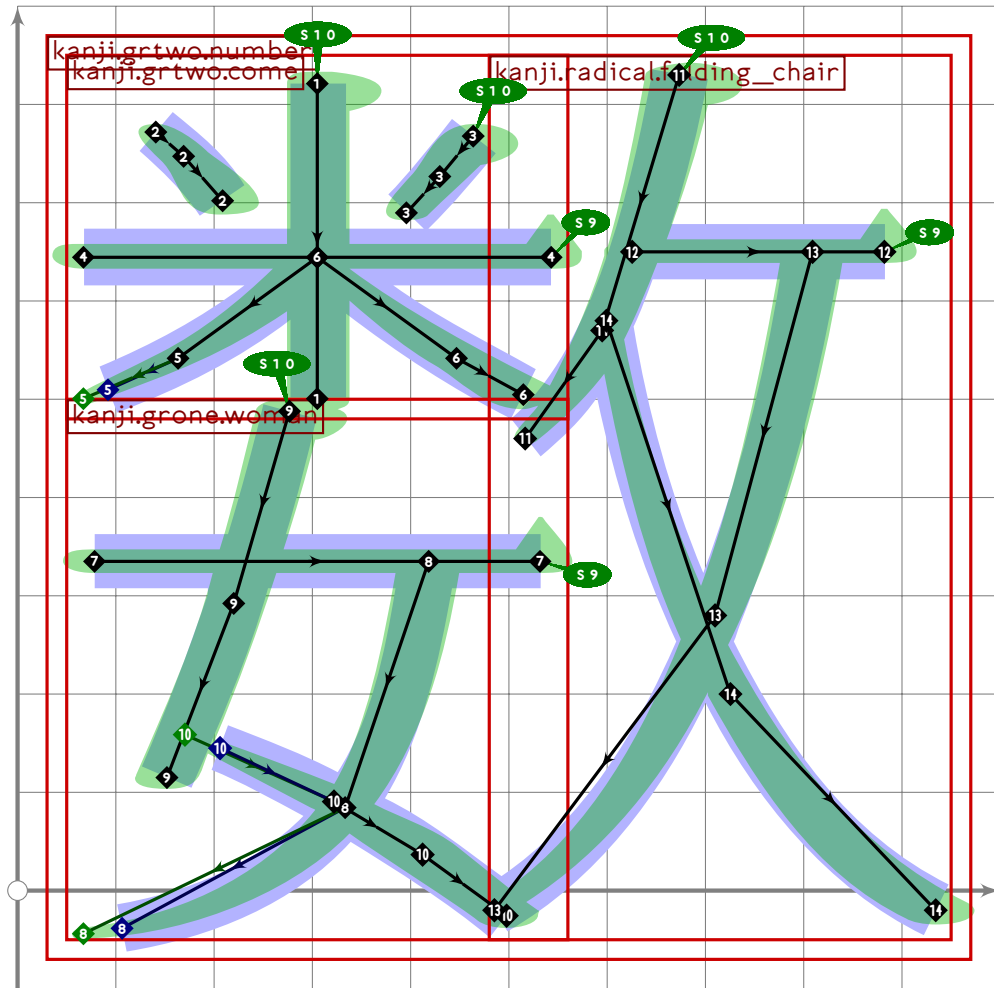


```

47
48 vardef kanji.grtwo.new =
49   push_pbox_toexpand("kanji.grtwo.new");
50   build_kanji.level(build_kanji.lr(480,20)
51     (build_kanji.tb(470,20)
52       (kanji.grone.stand_up)
53       (kanji.leftrad.wood))
54     (kanji.greight.axe));
55   expand_pbox;
56 enddef;

```

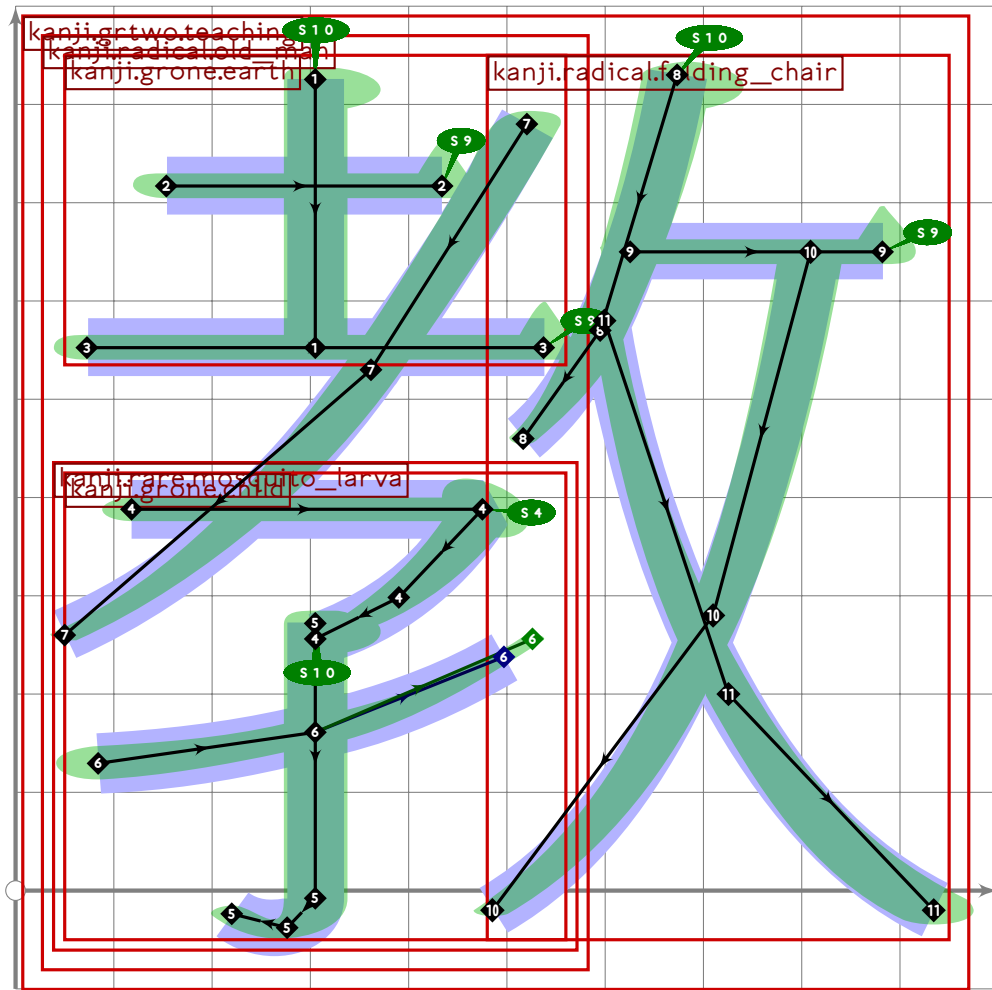




```

57
58 vardef kanji.grtwo.number =
59   push_pbox_toexpand("kanji.grtwo.number");
60   build_kanji.level(build_kanji.lr(520,80)
61     (build_kanji.tb(490,20)
62       (kanji.grtwo.come;
63         set_bosize(-5,0);
64         replace_strokep(-4)(oldp shifted (0,80));
65         replace_strokeq(-4)((1.2,1.2)-(1.4,1.4)-(1.7,1.7));
66         set_boserif(-4,0,whatever);
67         replace_strokep(-3)(oldp shifted (0,60)))
68       (kanji.grone.woman))
69     (kanji.radical.folding_chair));
70   expand_pbox;
71 enddef;

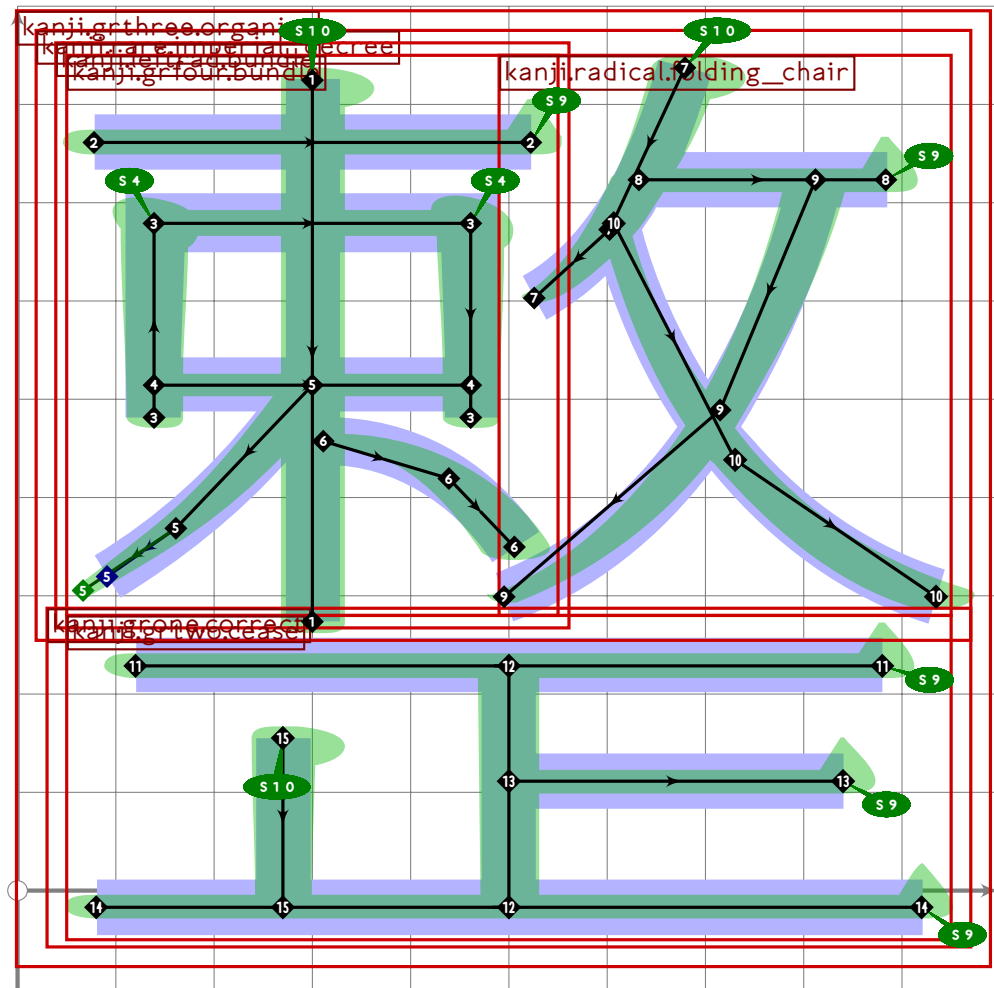
```



```

72
73 vardef kanji.grtwo.teaching =
74   push_pbox_toexpand("kanji.grtwo.teaching");
75   build_kanji.level(build_kanji.lr(520,80)
76     (kanji.radical.old_man(kanji.rare.mosquito_larva))
77     (kanji.radical.folding_chair));
78   expand_pbox;
79 enddef;
80
81

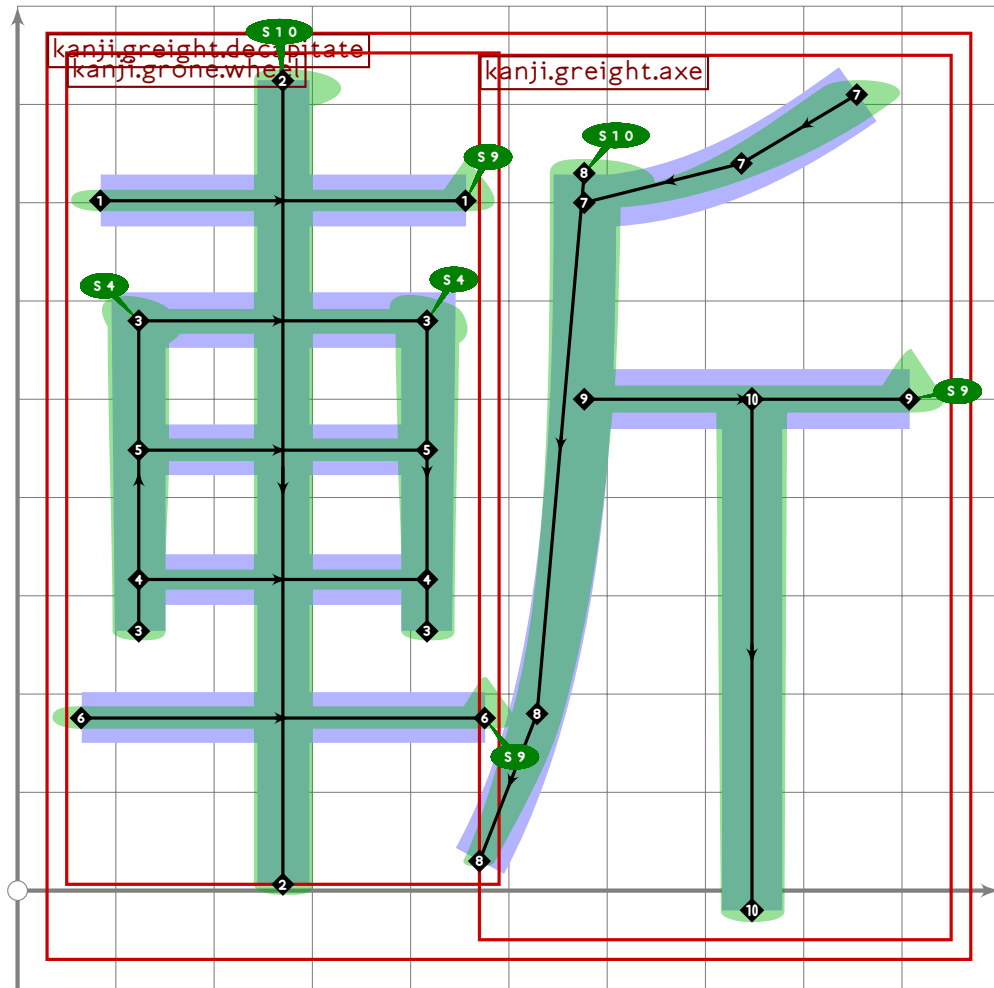
```



```

82
83 vardef kanji.grthree.organize =
84   push_pbox_toexpand("kanji.grthree.organize");
85   build_kanji.level(build_kanji.tb(280,0)
86     (kanji.rare.imperial_decree)
87     (kanji.grone.correct));
88   expand_pbox;
89 enddef;
90
91

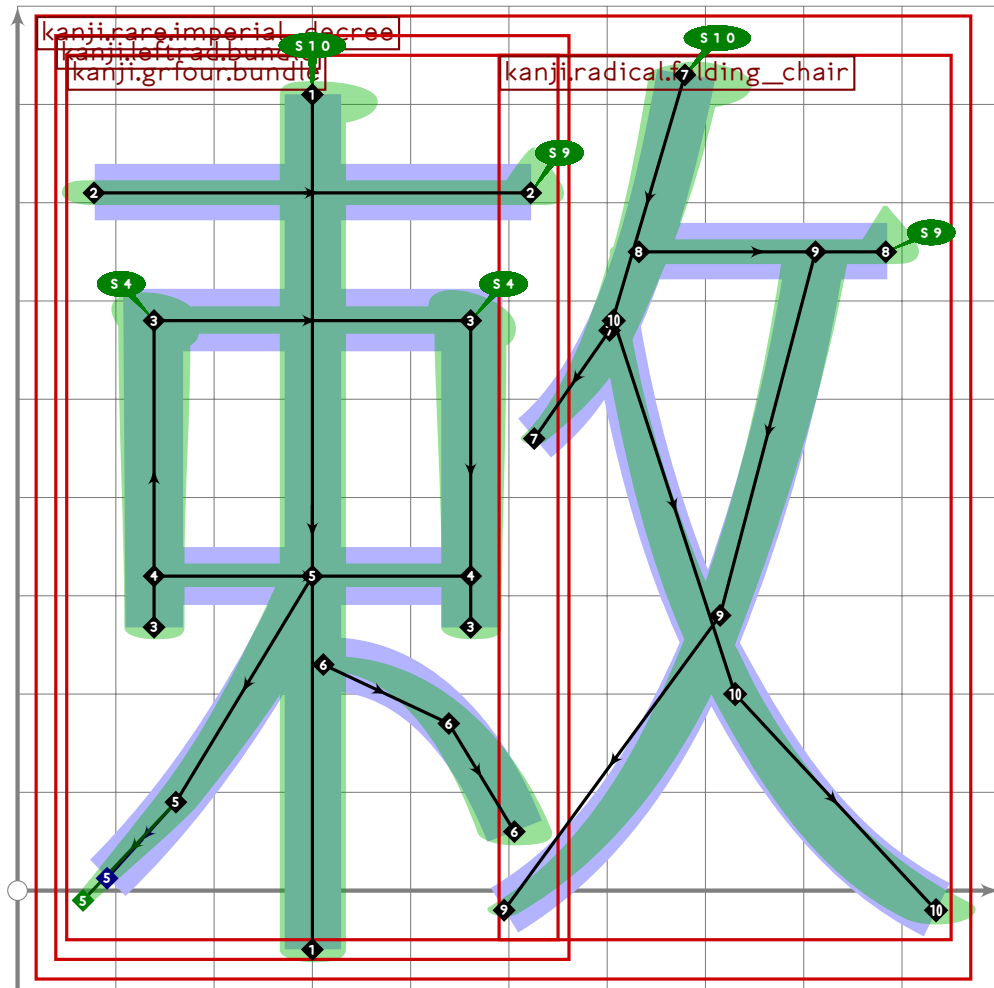
```



```

92
93 vardef kanji.greight.decapitate =
94   push_pbox_toexpand("kanji.greight.decapitate");
95   build_kanji.lr(480,20)
96     (build_kanji.sscale(yscaled 0.94 shifted (0,30))
97       (kanji.grone.wheel))
98     (kanji.greight.axe);
99   expand_pbox;
100 enddef;
101
102

```



```

103
104 vardef kanji.rare.imperial_decree =
105   push_pbox_toexpand("kanji.rare.imperial_decree");
106   build_kanji.level(build_kanji.lr(520,60)
107     (kanji.leftrad.bundle)
108     (kanji.radical.folding_chair));
109   expand_pbox;
110 enddef;
111
112 _____
113
114 vardef kanji.leftrad.bundle =
115   push_pbox_toexpand("kanji.leftrad.bundle");
116   kanji.grfour.bundle;
117   replace_strokep(0)((520,230)..(750,170)..(870,60));
118   expand_pbox;
119 enddef;
120
121 _____
122
123 vardef kanji.radical.folding_chair =

```

```

124 push_pbox_toexpand("kanji.radical.folding_chair");
125 push_stroke((420,830)..tension 1.2..(270,570)..(120,460),
126   (1.7,1.7)-(1.4,1.4)-(1,1));
127 set_boserif(0,0,10);
128 push_stroke(
129   (get_strokep(0) intersectionpoint ((0,650)-(1000,650)))-(820,650),
130   (1.5,1.5)-(1.6,1.6));
131 set_boserif(0,1,9);
132 push_stroke((680,650)..tension 1.1..(490,280)..(60,-20),
133   (1.6,1.6)-(1.4,1.4)-(1.1,1.1));
134 push_stroke((point 0.95 of get_strokep(-2))..(520,200)..(920,-20),
135   (1,1)-(1.3,1.3)-(1.8,1.8));
136 expand_pbox;
137 enddef;
138
139 

---


140
141 % shi/sasa "support"
142 begintsuglyph("uni652F";47); [see page 557]
143 kanji.grfive.support;
144 tsu_render;
145 endtsuglyph;
146
147 % choku/imashi "imperial decree"
148 begintsuglyph("uni6555";85); [see page 1865]
149 kanji.rare.imperial_decree;
150 tsu_render;
151 endtsuglyph;
152
153 % kyou/oshi "teaching"
154 begintsuglyph("uni6559";89); [see page 1862]
155 kanji.grtwo.teaching;
156 tsu_render;
157 endtsuglyph;
158
159 % suu/kazu "number"
160 begintsuglyph("uni6570";112); [see page 1861]
161 kanji.grtwo.number;
162 tsu_render;
163 endtsuglyph;
164
165 % sei/totono "organize"
166 begintsuglyph("uni6574";116); [see page 1863]
167 kanji.grthree.organize;
168 tsu_render;
169 endtsuglyph;
170
171 % bun/fumi "sentence"

```

```

172 begintsuglyph("uni6587";135);
173 kanji.grone.sentence;
174 tsu_render;
175 endtsuglyph;

```

[see page 426]

```

176
177 % to/masu "dipper"
178 begintsuglyph("uni6597";151);
179 kanji.greight.dipper;
180 tsu_render;
181 endtsuglyph;

```

[see page 571]

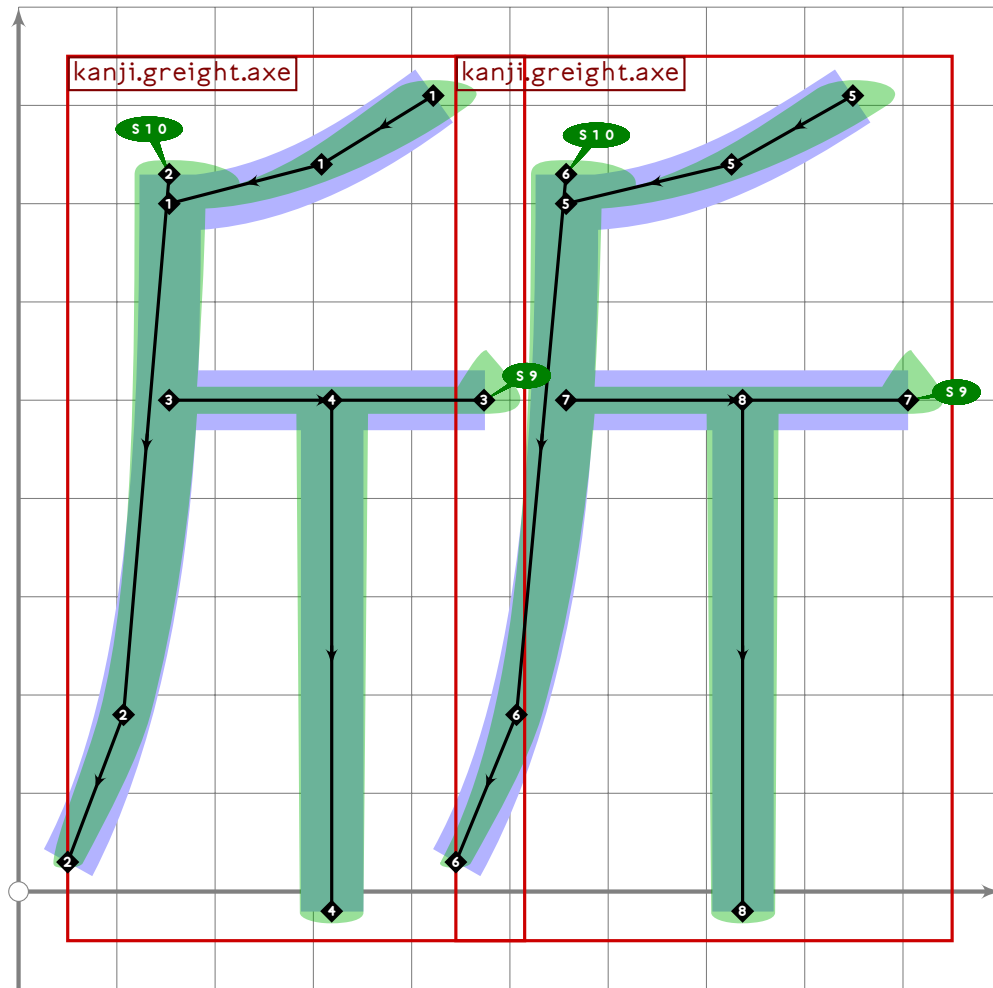
```

182
183 % kin/ono "axe"
184 begintsuglyph("uni65A4";164);
185 kanji.greight.axe;
186 tsu_render;
187 endtsuglyph;

```

[see page 567]

188



```

189 % extra
190 begintsuglyph("uni65A6";166);
191 build_kanji.level(build_kanji.lr(480,70)
192  (kanji.greight.axe)

```

```

193     (kanji.greight.axe));
194     tsu_render;
195     endtsuglyph;
196
197 % zan/ki "decapitate"
198     begintsuglyph("uni65AC";172); [see page 1864]
199     kanji.greight.decapitate;
200     tsu_render;
201     endtsuglyph;
202
203 % shin/atara "new"
204     begintsuglyph("uni65B0";176); [see page 1860]
205     kanji.grtwo.new;
206     tsu_render;
207     endtsuglyph;
208
209 % hou/kata "direction" or "how to do it"
210     begintsuglyph("uni65B9";185); [see page 456]
211     kanji.grtwo.direction;
212     tsu_render;
213     endtsuglyph;
214
215 % hi/nichi "day"
216     begintsuglyph("uni65E5";229); [see page 387]
217     kanji.grone.day;
218     tsu_render;
219     endtsuglyph;
220
221 % shi/mune/uma "vaguely good" or "uma" in "umami"
222     begintsuglyph("uni65E8";232); [see page 577]
223     kanji.greight.glutamate;
224     tsu_render;
225     endtsuglyph;
226
227 % hayaku "early"
228     begintsuglyph("uni65E9";233); [see page 391]
229     kanji.grone.early;
230     tsu_render;
231     endtsuglyph;
232
233 _____
234
235     endfont;
236
237 _____

```



# tsuku-66.mp

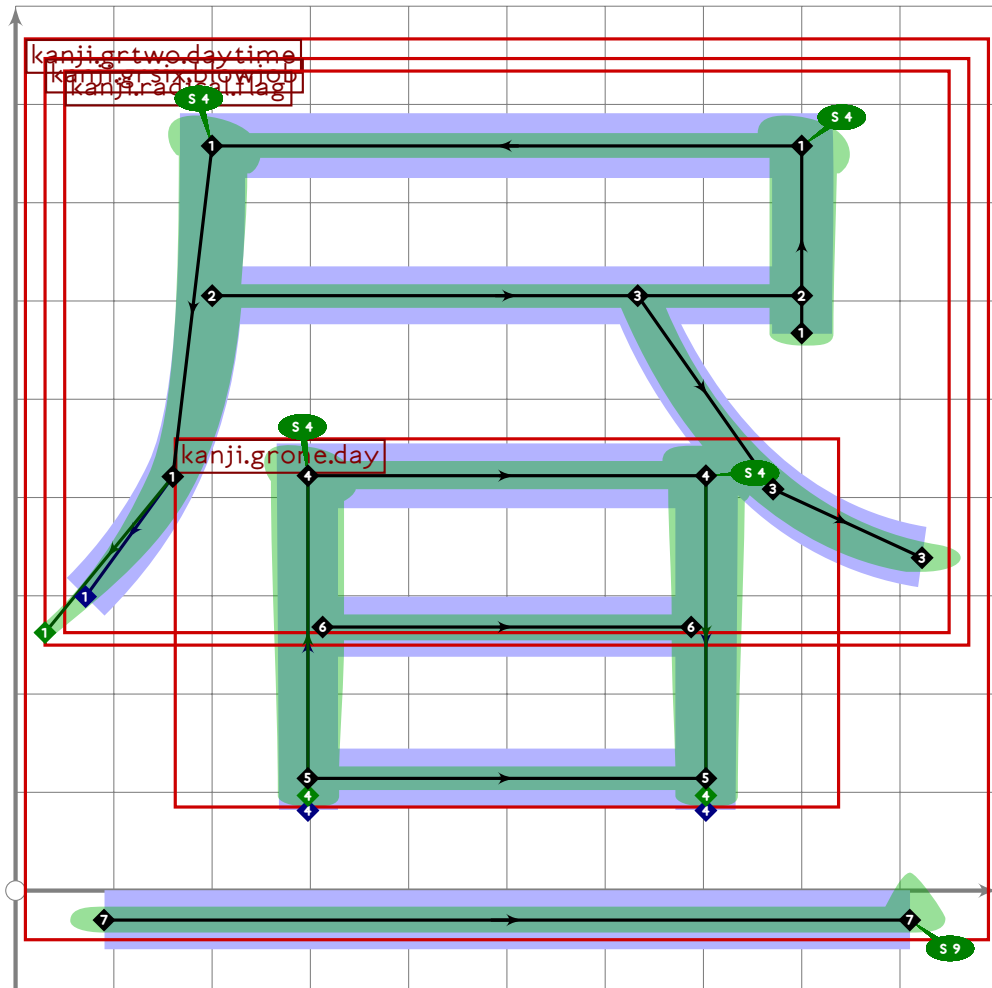
```
1 %
2 % Unicode page 66 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input toprad.mp;
48
49 

---

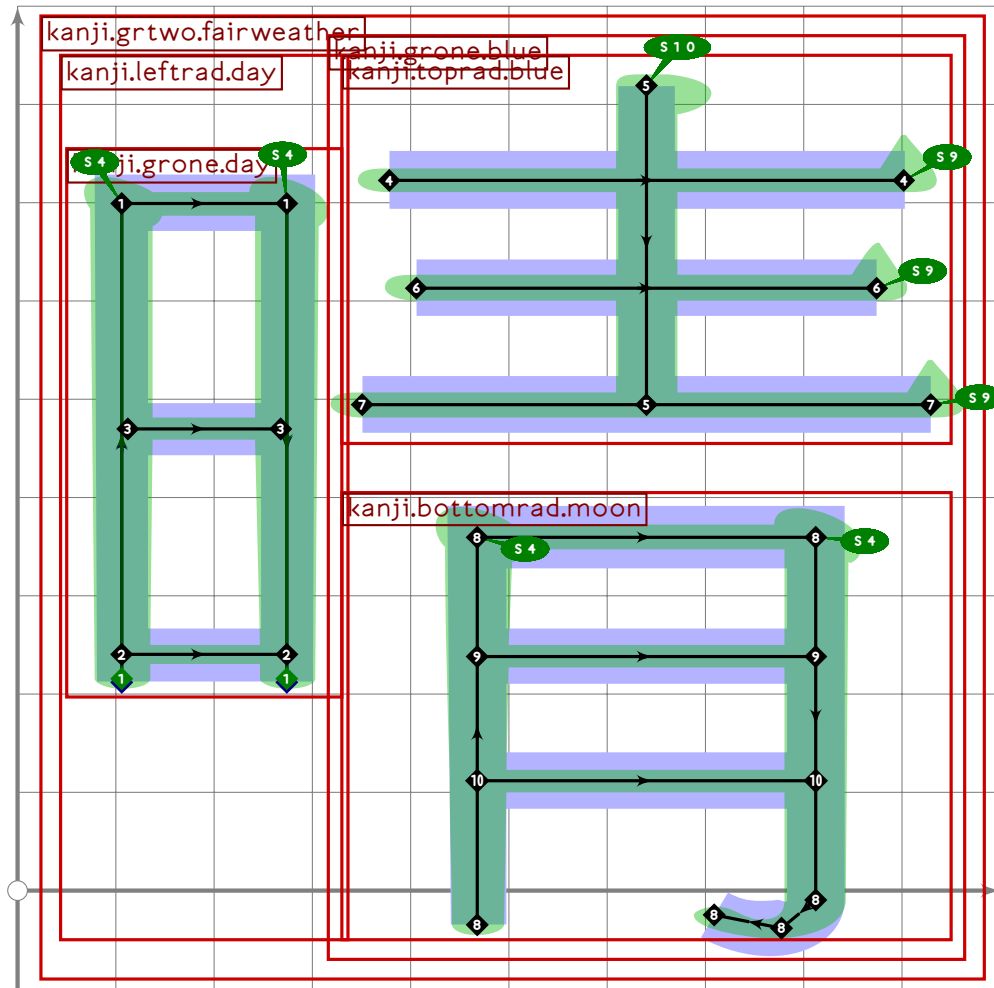

```



```

50
51 vardef kanji.grtwo.daytime =
52   push_pbox_toexpand("kanji.grtwo.daytime");
53   build_kanji.level(build_kanji.sscale(yscaled 0.9 shifted (0,30))
54     (build_kanji.tb(360,290)
55       (build_kanji.spread_legs(280)(kanji.grsix.blowjob))
56       (build_kanji.sscale(scaled 0.75)(kanji.grone.day)));
57   push_stroke((90,-30)-(910,-30),(1.6,1.6)-(1.6,1.6));
58   set_boserif(0,19));
59   expand_pbox;
60 enddef;

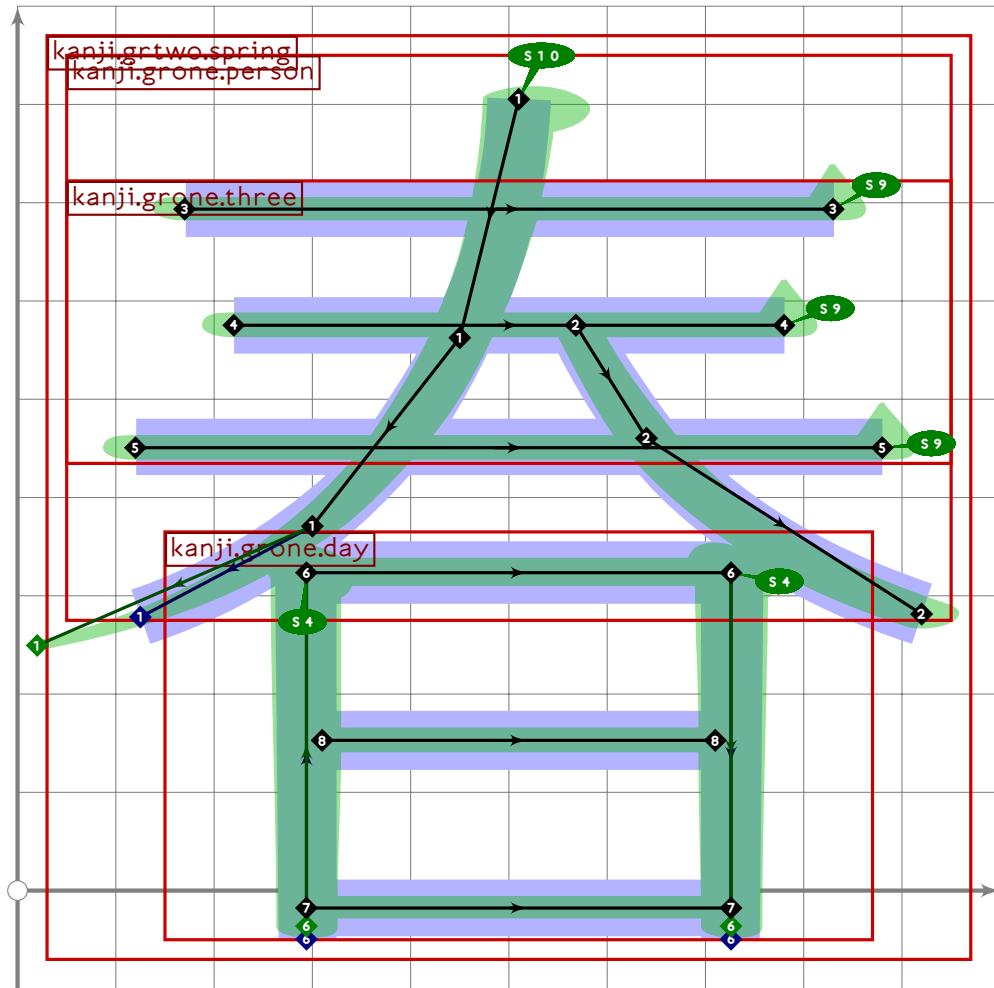
```



```

61
62 vardef kanji.grtwo.fairweather =
63   push_pbox_toexpand("kanji.grtwo.fairweather");
64   build_kanji.lr(330,0)
65     (kanji.leftrad.day)
66     (kanji.grone.blue);
67   expand_pbox;
68 enddef;

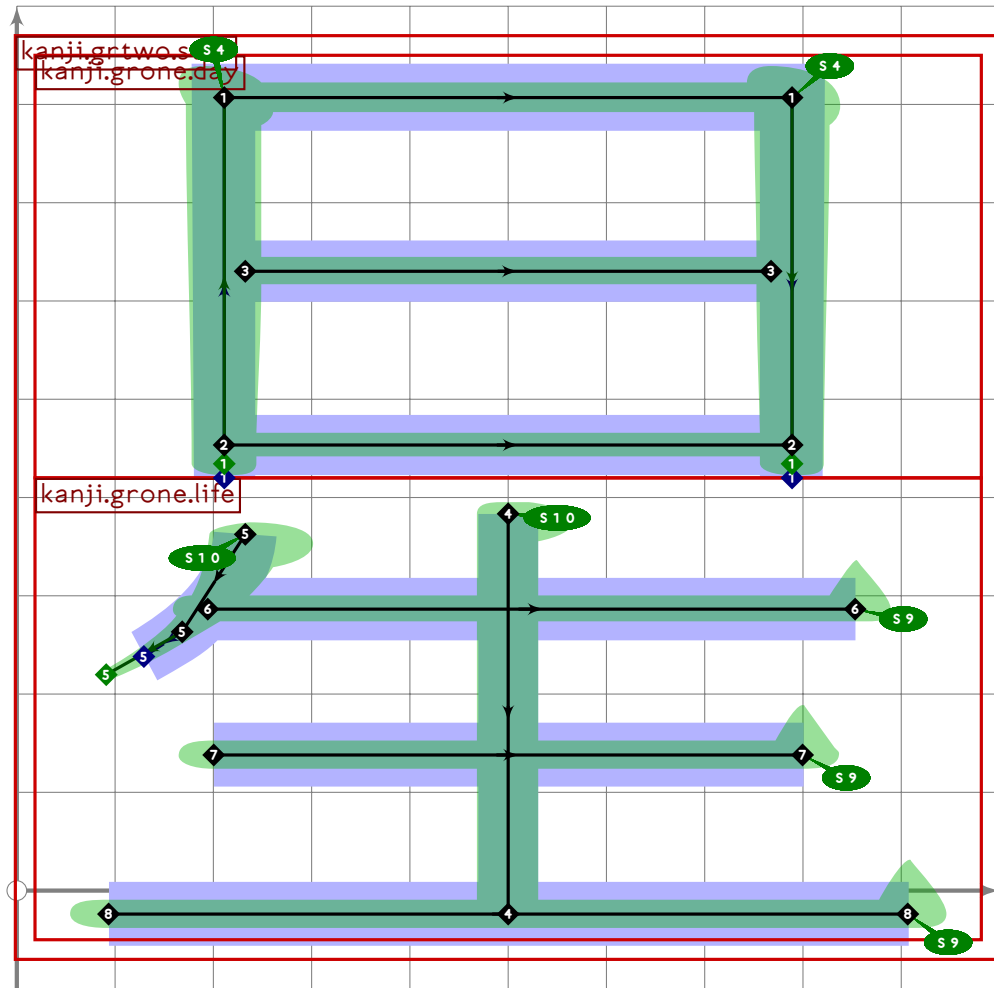
```



```

69
70 vardef kanji.grtwo.spring =
71   push_pbox_toexpand("kanji.grtwo.spring");
72   build_kanji.tb(320,90)
73   (kanji.grone.person;
74     build_kanji.sscale(xyscaled (1,0.5) shifted (0,30))
75     (kanji.grone.three);
76     replace_strokep(-3)
77     (subpath (xpart (oldp intersectiontimes get_strokep(-1)),infinity)
78       of oldp))
79   (build_kanji.sscale(xscaled 0.8 shifted (10,0))
80     (kanji.grone.day));
81   expand_pbox;
82 enddef;

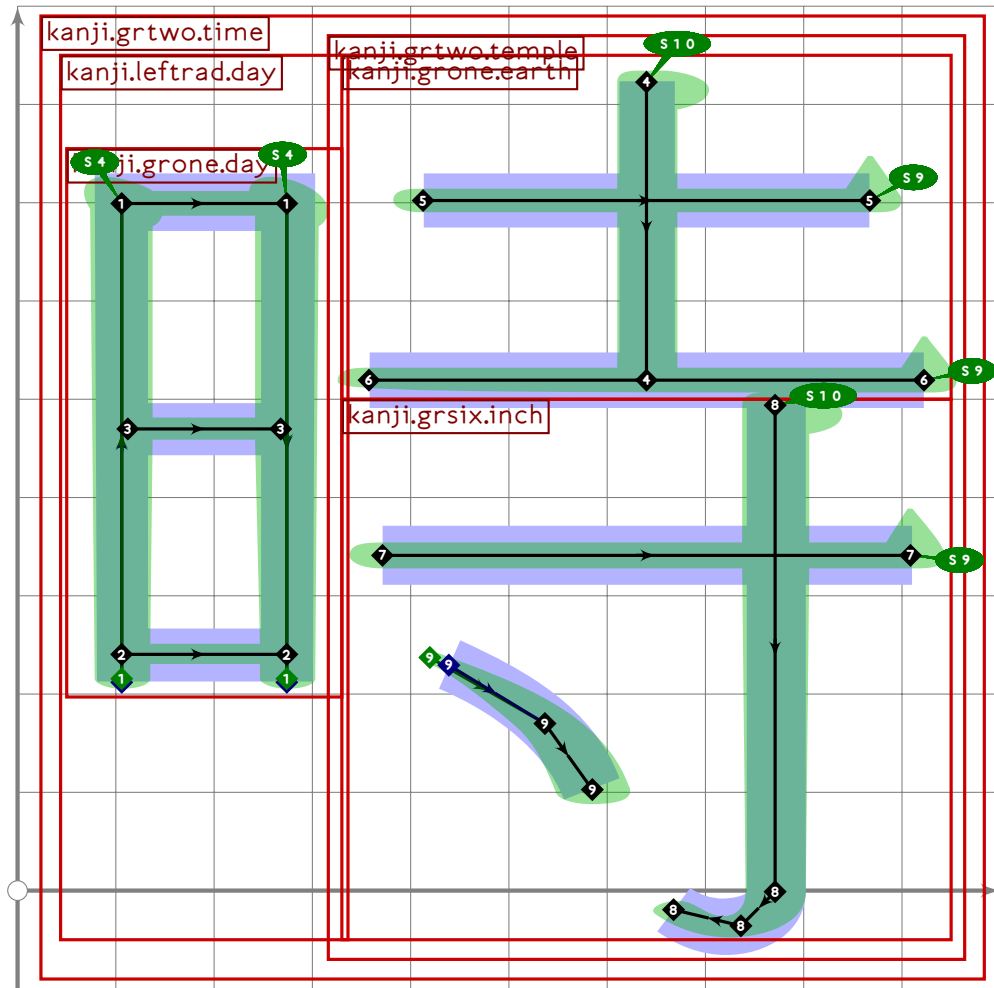
```



```

83
84 vardef kanji.grtwo.star =
85   push_pbox_toexpand("kanji.grtwo.star");
86   build_kanji.sscale(xscaled 1.07)(build_kanji.tb(420,0)
87     (kanji.grone.day)
88     (kanji.grone.life));
89   expand_pbox;
90 enddef;

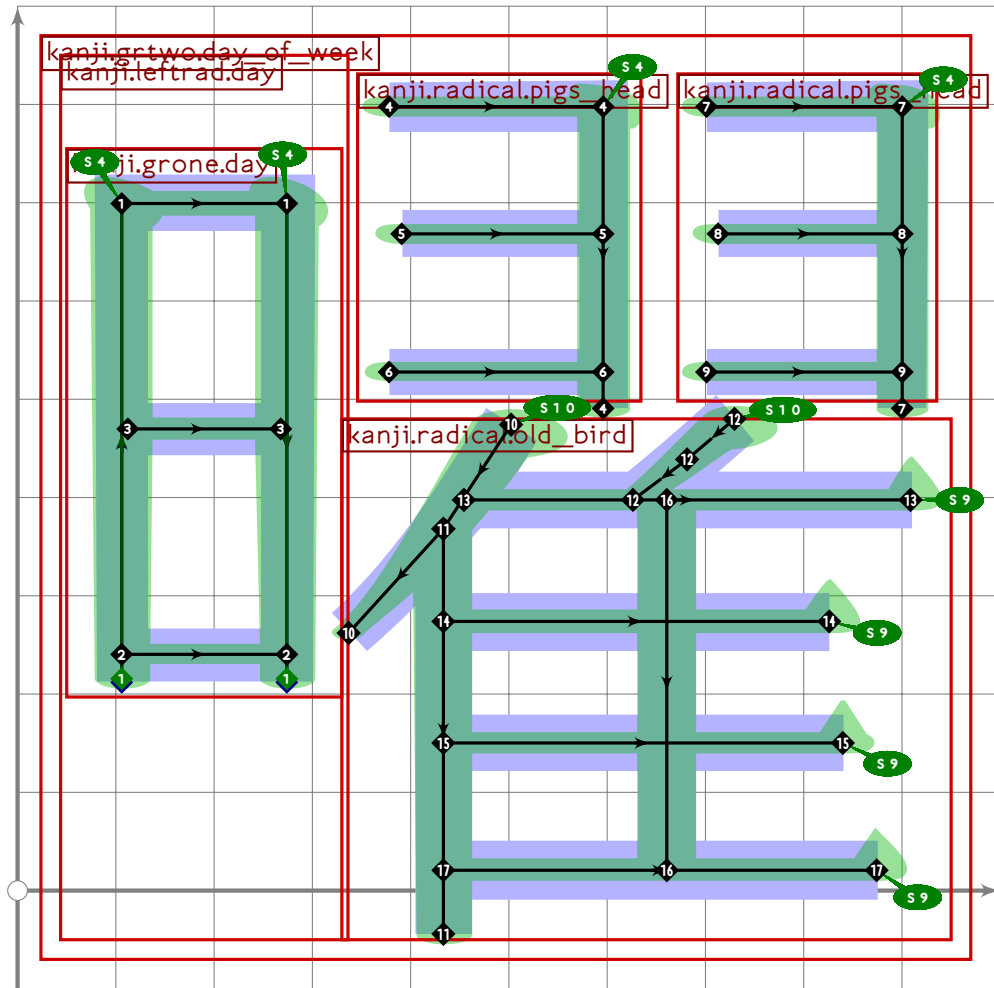
```



```

91
92 vardef kanji.grtwo.time =
93   push_pbox_toexpand("kanji.grtwo.time");
94   build_kanji.lr(330,0)
95     (kanji.leftrad.day)
96     (kanji.grtwo.temple);
97   expand_pbox;
98 enddef;

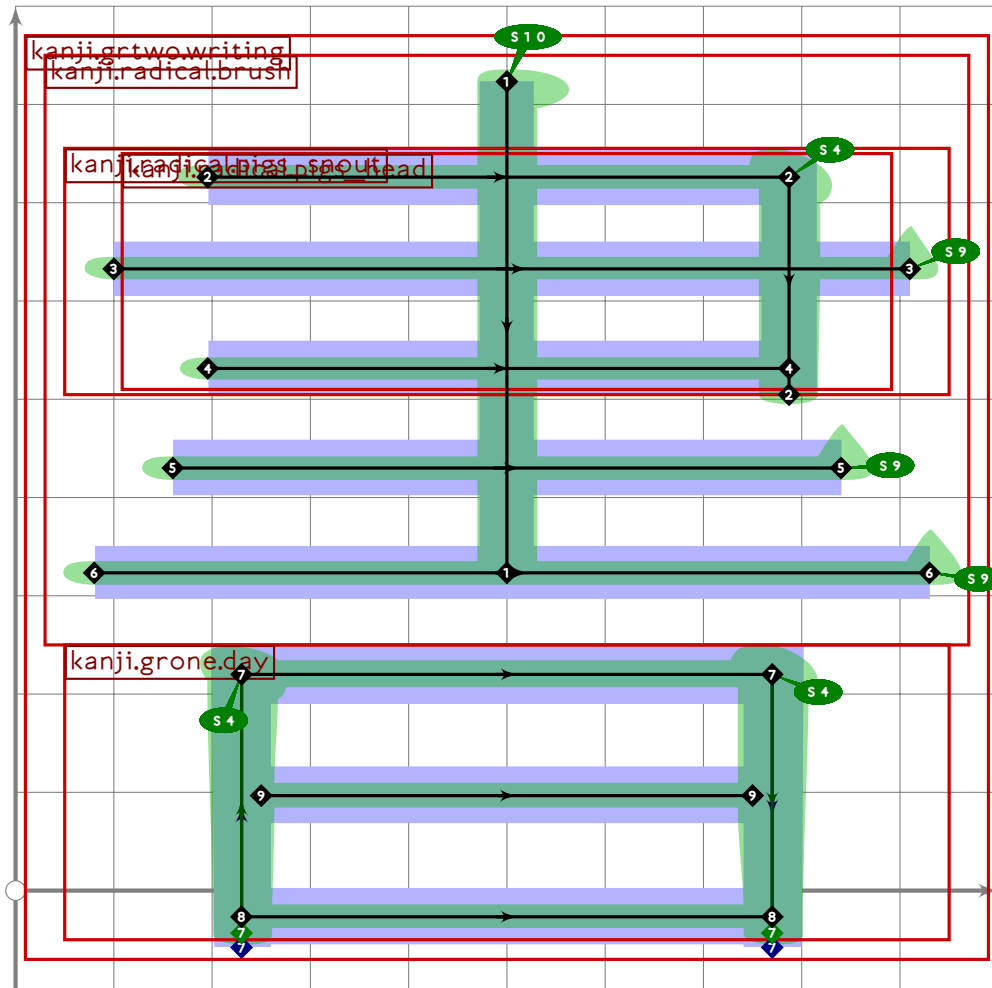
```



```

99
100 vardef kanji.grtwo.day_of_week =
101   push_pbox_toexpand("kanji.grtwo.day_of_week");
102   build_kanji.lr(330,0)
103     (kanji.leftrad.day)
104     (build_kanji.tb(480,0)
105       (build_kanji.lr(520,-10)
106         (build_kanji.scale(scaled 0.9)
107           (kanji.radical.pigs_head))
108         (build_kanji.scale(scaled 0.9)
109           (kanji.radical.pigs_head)))
110       (kanji.radical.old_bird));
111   expand_pbox;
112 enddef;
113

```

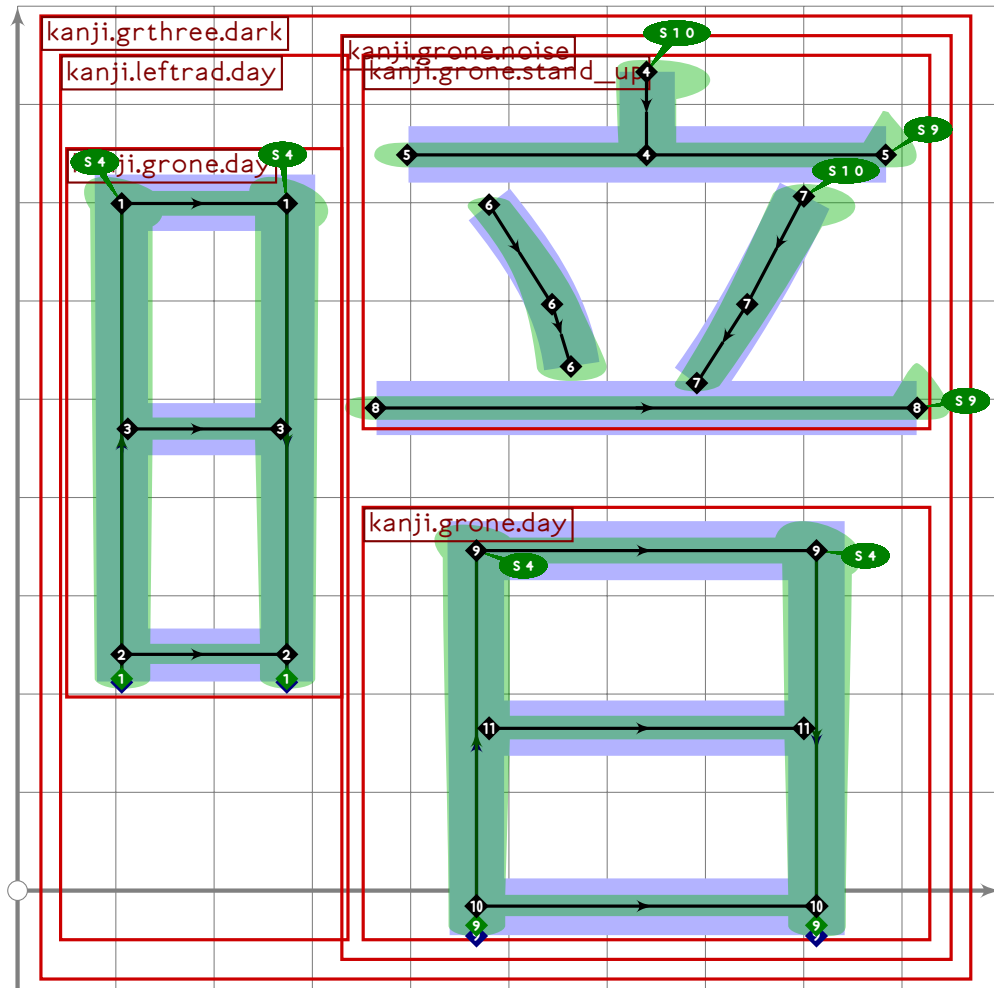


```

114 % "write" is a reserved word
115 vardef kanji.grtwo.writing =
116   push_pbox_toexpand("kanji.grtwo.writing");
117   build_kanji.tb(250,0)
118   (kanji.radical.brush;
119     replace_stroke(-5)((point 0 of oldp)-
120       (oldp intersectionpoint get_stroke(0))))
121   (kanji.grone.day);
122   expand_pbox;
123 enddef;
124
125

```

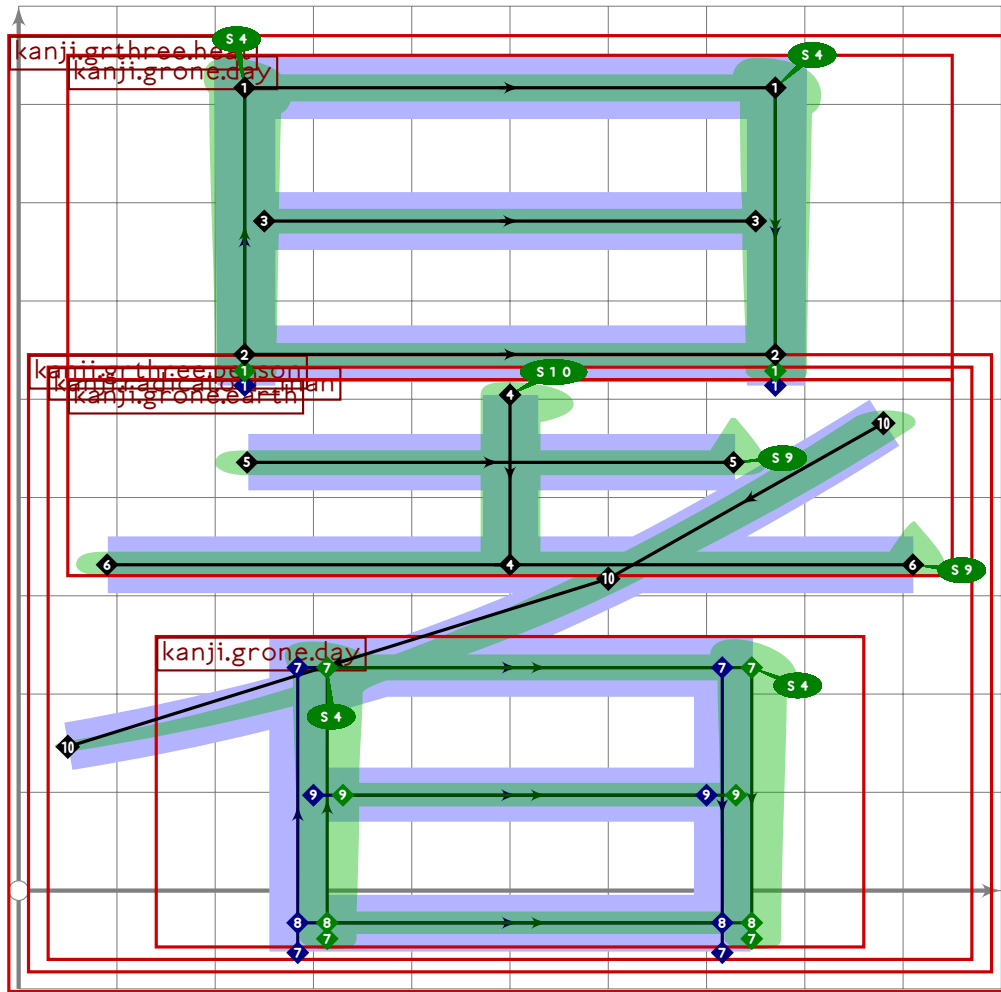




```

126
127 vardef kanji.grthree.dark =
128   push_pbox_toexpand("kanji.grthree.dark");
129   build_kanji.lr(330,0)
130     (kanji.leftrad.day)
131     (kanji.grone.noise);
132   expand_pbox;
133 enddef;

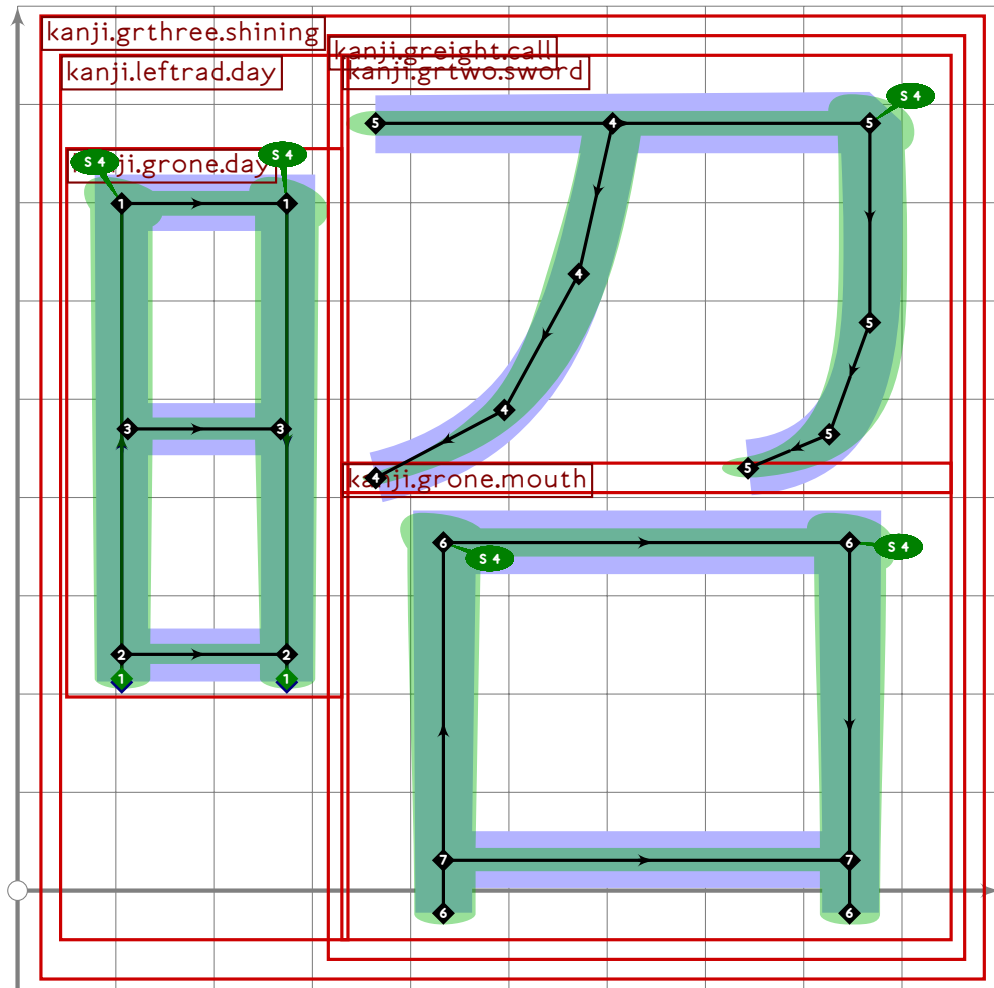
```



```

134
135 vardef kanji.grthree.heat =
136   push_pbox_toexpand("kanji.grthree.heat");
137   build_kanji.tb(520,0)
138     (kanji.grone.day)
139     (kanji.grthree.person);
140   expand_pbox;
141 enddef;

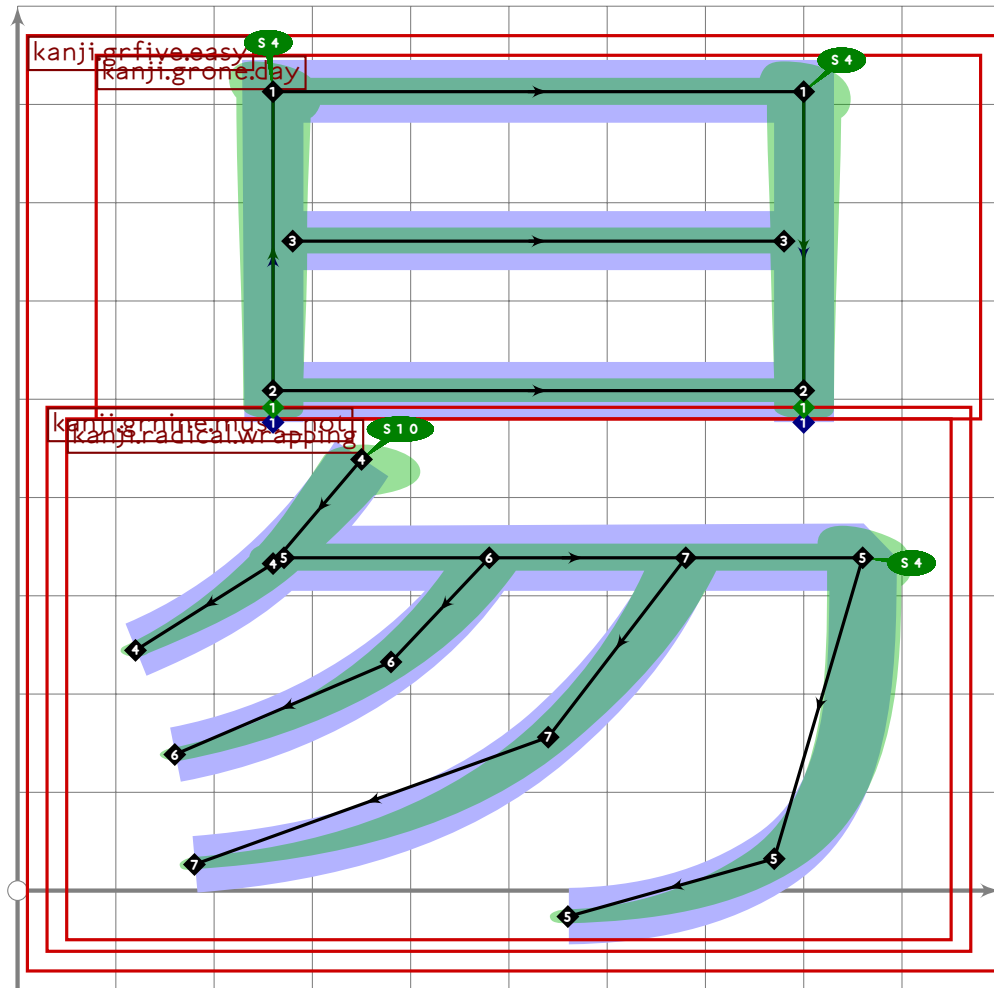
```



```

142
143 vardef kanji.grthree.shining =
144   push_pbox_toexpand("kanji.grthree.shining");
145   build_kanji.lr(330,0)
146     (kanji.leftrad.day)
147     (kanji.greight.call);
148   expand_pbox;
149 enddef;
150
151

```



```

152
153 vardef kanji.grfive.easy =
154   push_pbox_toexpand("kanji.grfive.easy");
155   build_kanji.tb(480,0)
156     (tsu_xform(identity shifted (30,0))(kanji.grone.day))
157     (kanji.grnine.must_not);
158   expand_pbox;
159 enddef;
160
161
162
163 % mei/aka "light"
164 begintsuglyph("uni660E";14); [see page 473]
165   kanji.grtwo.light;
166   tsu_render;
167 endtsuglyph;
168
169 % eki/yasi/yasu "easy"
170 begintsuglyph("uni6613";19); [see page 1880]
171   kanji.grfive.easy;
172   tsu_render;

```

```

173 endtsuglyph;
174
175 % seki/mukashi "once upon a time"
176 begintsuglyph("uni6614";20); [see page 524]
177 kanji.grthree.once_upon_a_time;
178 tsu_render;
179 endtsuglyph;
180
181 % you "sun" or "open" (rare, but part of other chars)
182 begintsuglyph("uni661C";28); [see page 619]
183 kanji.rare.sun;
184 tsu_render;
185 endtsuglyph;
186
187 % sei/hoshi "star"
188 begintsuglyph("uni661F";31); [see page 1873]
189 kanji.grtwo.star;
190 tsu_render;
191 endtsuglyph;
192
193 % shun/haru "spring (season)"
194 begintsuglyph("uni6625";37); [see page 1872]
195 kanji.grtwo.spring;
196 tsu_render;
197 endtsuglyph;
198
199 % shou "shining"
200 begintsuglyph("uni662D";45); [see page 1879]
201 kanji.grthree.shining;
202 tsu_render;
203 endtsuglyph;
204
205 % chuu/hiro "daytime"
206 begintsuglyph("uni663C";60); [see page 1870]
207 kanji.grtwo.daytime;
208 tsu_render;
209 endtsuglyph;
210
211 % jo/toki "time"
212 begintsuglyph("uni6642";66); [see page 1874]
213 kanji.grtwo.time;
214 tsu_render;
215 endtsuglyph;
216
217 % sei/ha "fair or clear weather"
218 begintsuglyph("uni6674";116); [see page 1871]
219 kanji.grtwo.fairweather;
220 tsu_render;

```

```

221 endtsuglyph;
222
223 % sho/atsu "heat"
224 begintsuglyph("uni6691";145); [see page 1878]
225 kanji.grthree.heat;
226 tsu_render;
227 endtsuglyph;
228
229 % an/kura "dark"
230 begintsuglyph("uni6697";151); [see page 1877]
231 kanji.grthree.dark;
232 tsu_render;
233 endtsuglyph;
234
235 % you "day of week"
236 begintsuglyph("uni66DC";220); [see page 1875]
237 kanji.grtwo.day_of_week;
238 tsu_render;
239 endtsuglyph;
240
241 % kyoku/ma "melody"
242 begintsuglyph("uni66F2";242); [see page 522]
243 kanji.grthree.melody;
244 tsu_render;
245 endtsuglyph;
246
247 % sho/ka "writing"
248 begintsuglyph("uni66F8";248); [see page 1876]
249 kanji.grtwo.writing;
250 tsu_render;
251 endtsuglyph;
252
253 _____
254
255 endfont;
256
257 _____

```

# tsuku-67.mp

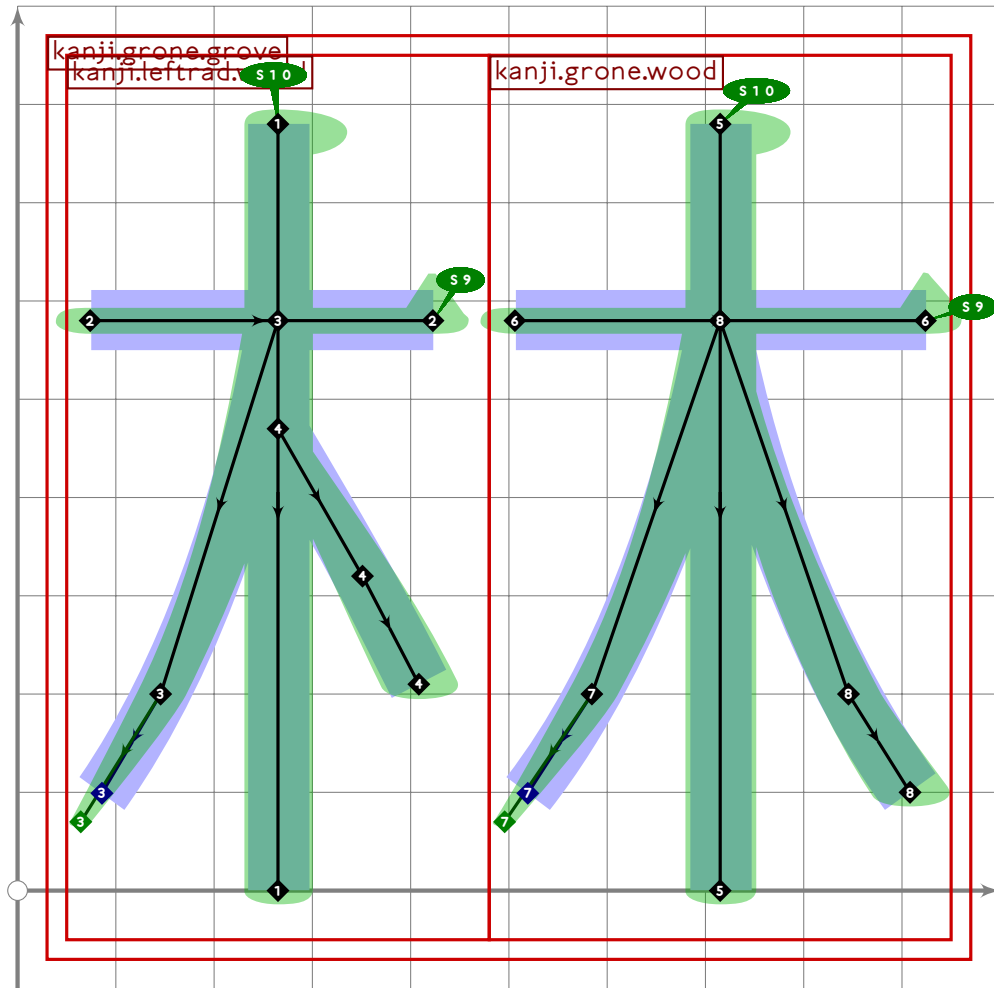
```
1 %
2 % Unicode page 67 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradesix.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45
46 

---


```

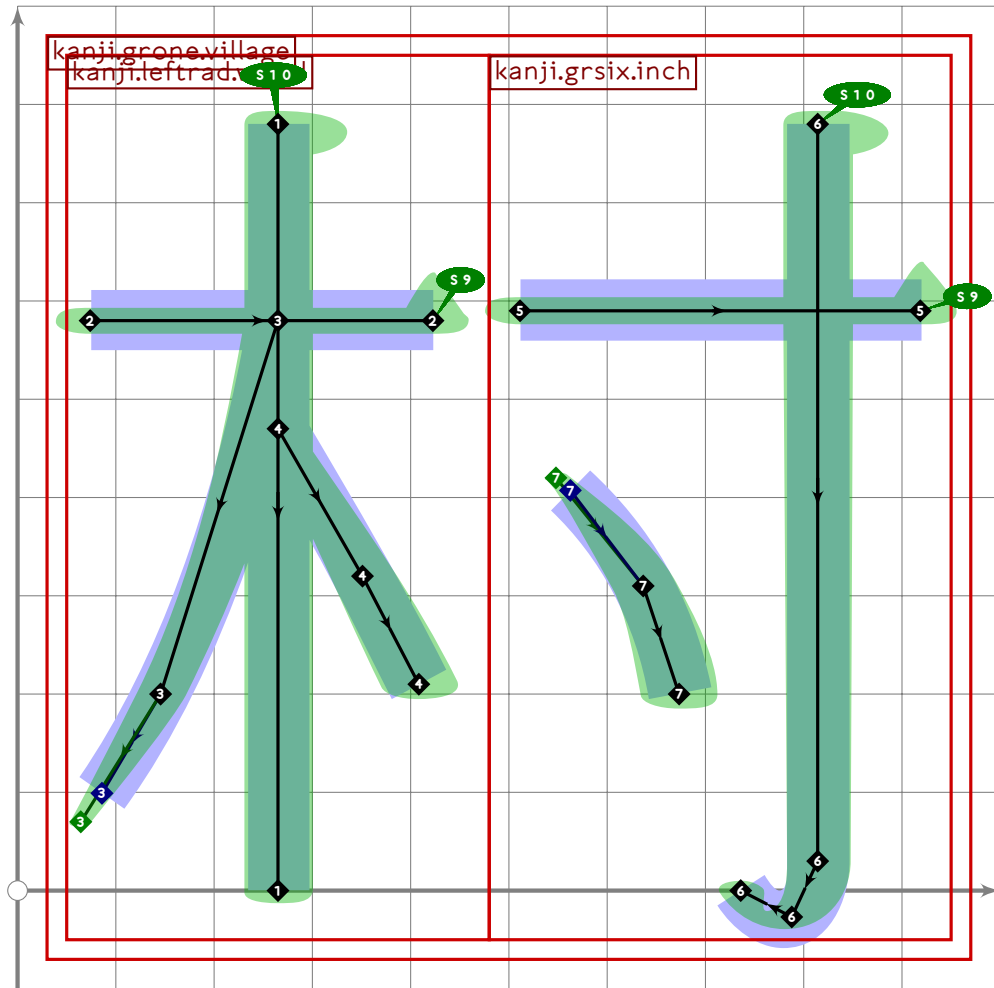


```

47
48 vardef kanji.grove.grove =
49   push_pbox_toexpand("kanji.grove.grove");
50   build_kanji.lr(480,0)
51     (kanji.leftrad.wood)
52     (kanji.grove.wood);
53   expand_pbox;
54 enddef;

```

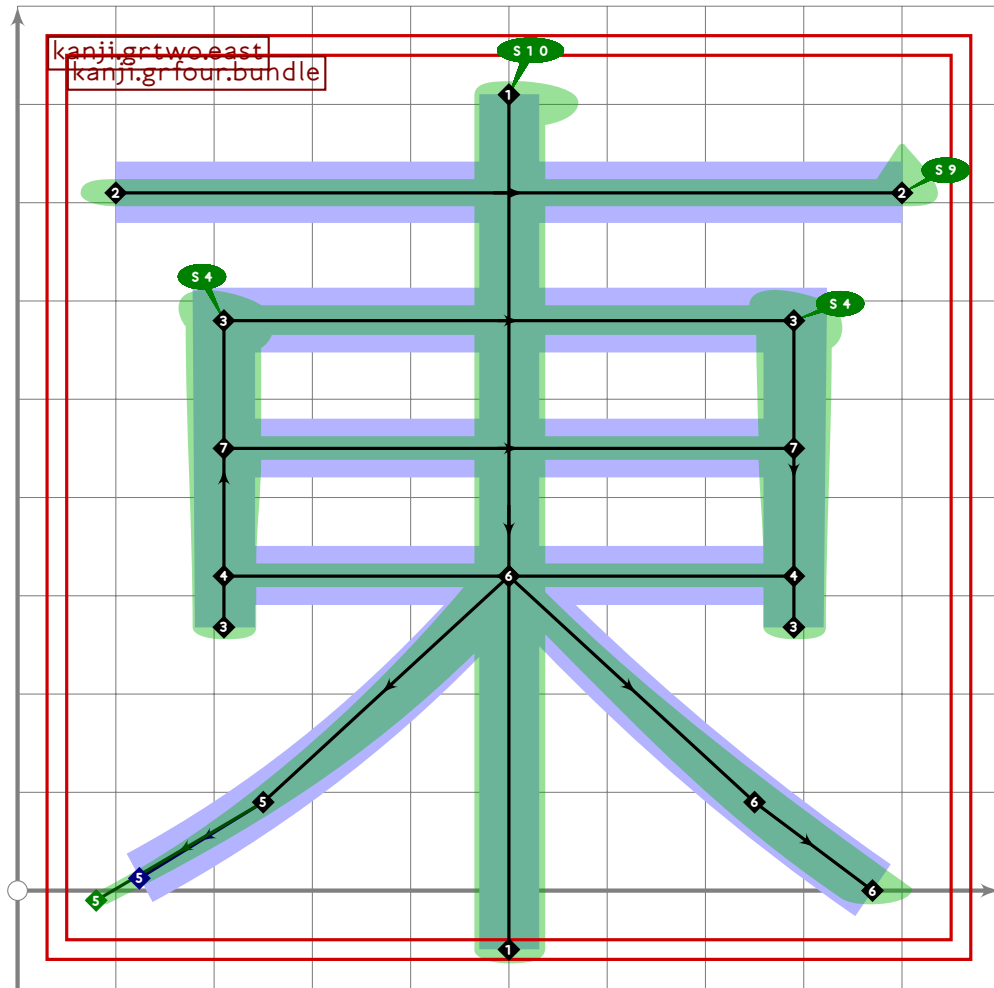




```

55
56 vardef kanji.grone.village =
57   push_pbox_toexpand("kanji.grone.village");
58   build_kanji.lr(480,0)
59     (kanji.leftrad.wood)
60     (kanji.grsix.inch);
61   expand_pbox;
62 enddef;
63
64

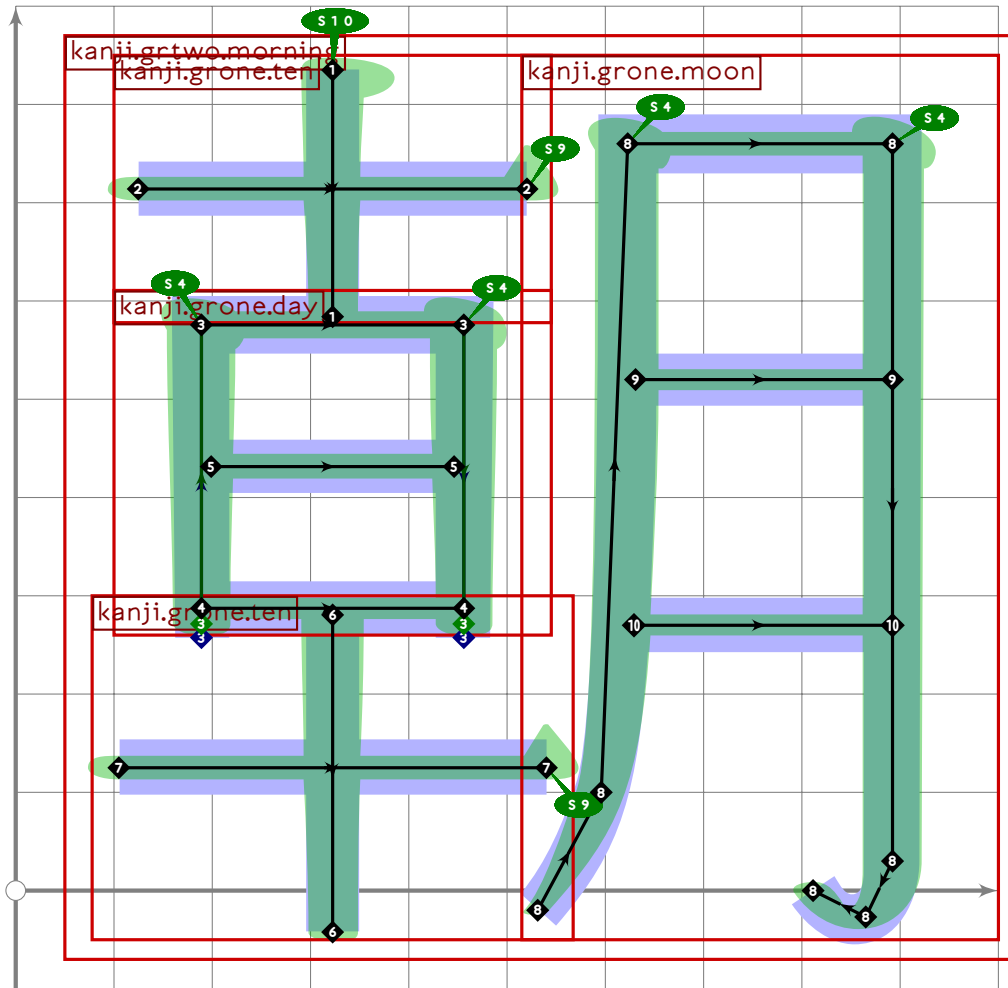
```



```

65
66 vardef kanji.grtwo.east =
67   push_pbox_toexpand("kanji.grtwo.east");
68   kanji.grfour.bundle;
69   push_stroke((210,450)-(790,450),(1.5,1.5)-(1.5,1.5));
70   set_bosize(0,get_bosize(-1));
71   expand_pbox;
72 enddef;

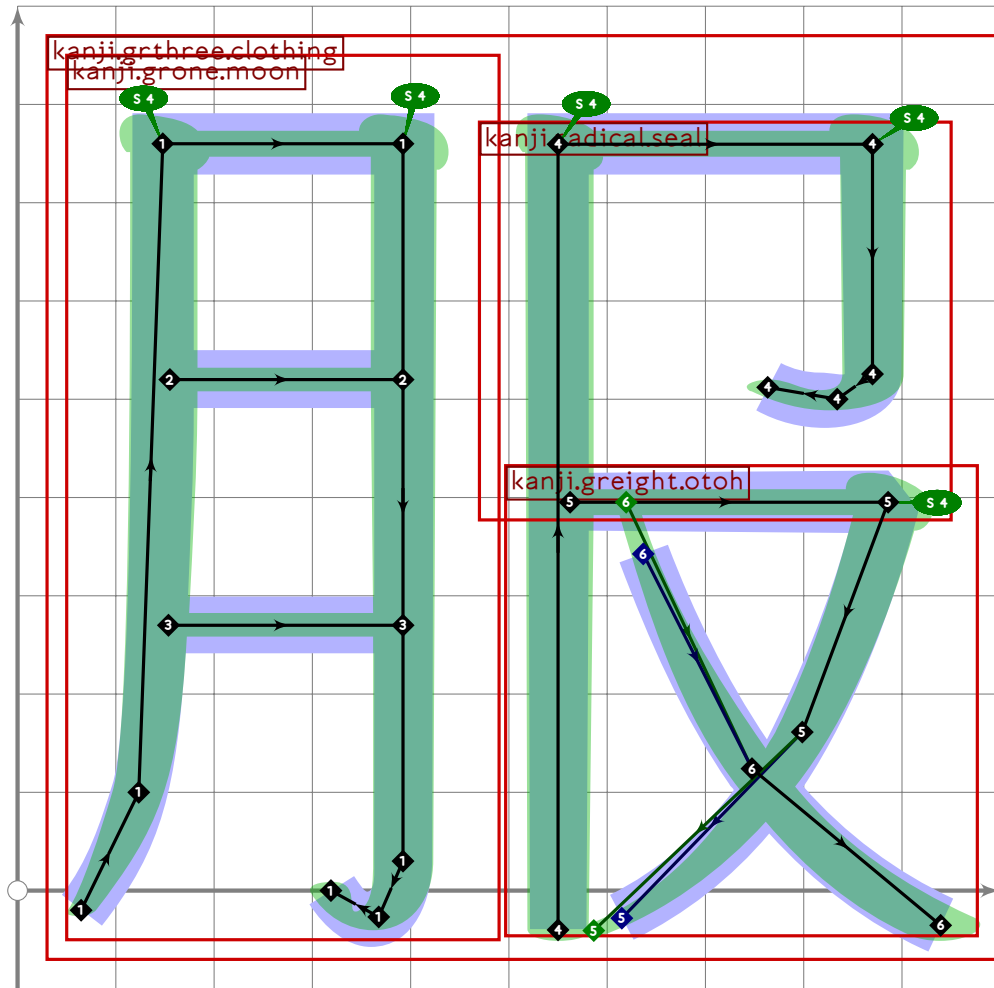
```



```

73
74 vardef kanji.grtwo.morning =
75   push_pbox_toexpand("kanji.grtwo.morning");
76   tsu_xform(identity shifted (50,0))
77   (build_kanji.level(build_kanji.lr(480,30)
78     (build_kanji.tb(280,40)
79       (build_kanji.tb(460,50)
80         (kanji.grone.ten)
81         (kanji.grone.day))
82       (build_kanji.sscale(xscaled 1.1)
83         (kanji.grone.ten;
84           set_boserif(-1,0,whatever))))
85       (kanji.grone.moon)));
86   expand_pbox;
87 enddef;
88
89

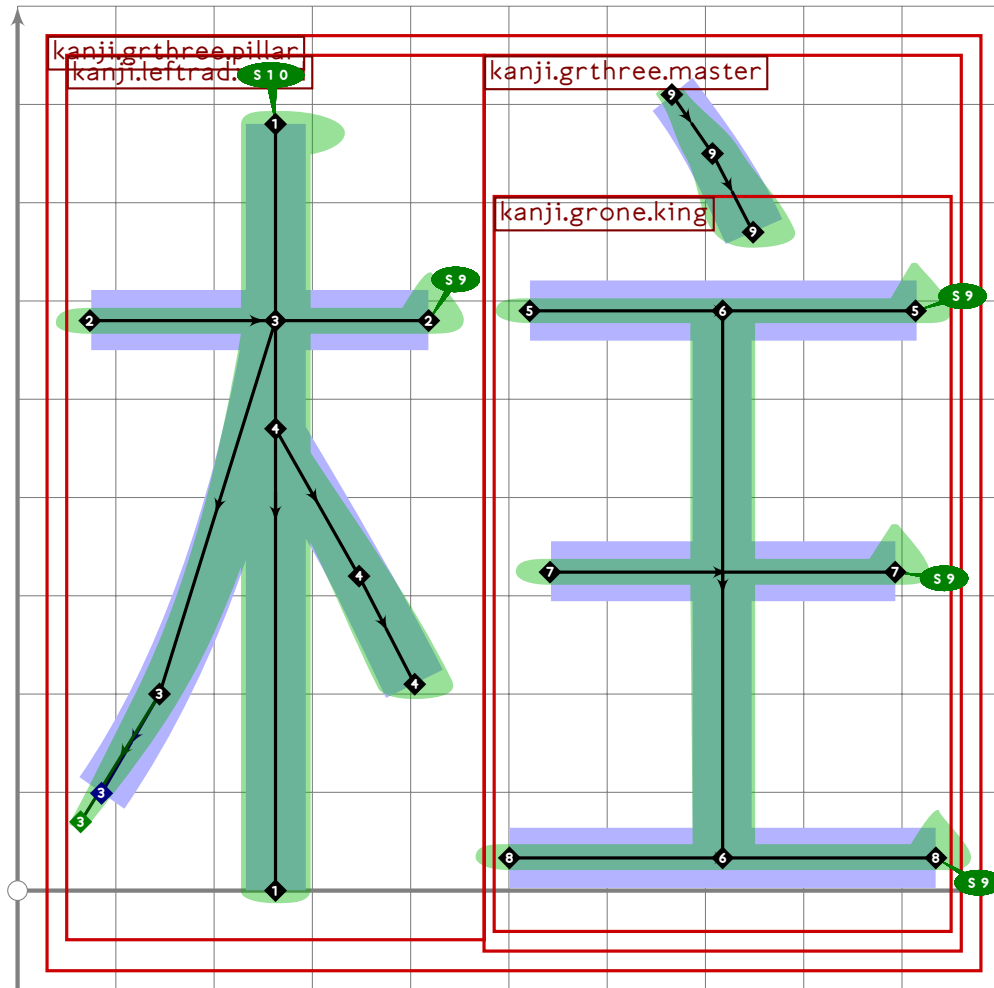
```



```

90
91 vardef kanji.grthree.clothing =
92   push_pbox_toexpand("kanji.grthree.clothing");
93   build_kanji.level(build_kanji.lr(480,20)
94     (kanji.grone.moon)
95     (tsu_xform(identity yscaled 0.92)(build_kanji.tb(440,60)
96       (kanji.radical.seal)
97       (tsu_xform(identity shifted (50,0))
98         (kanji.greight.otoh)));
99   replace_strokep(-2)
100   ((xpart point 0 of oldp,-40)-subpath (1,infinity) of oldp);
101   replace_strokep(-1)
102   (oldp shifted (-900,0) xscaled 0.78 shifted (900,0));
103   replace_strokep(-1)
104   (((-170,0)+point 0 of oldp)-subpath (1,infinity) of oldp));
105   expand_pbox;
106 enddef;

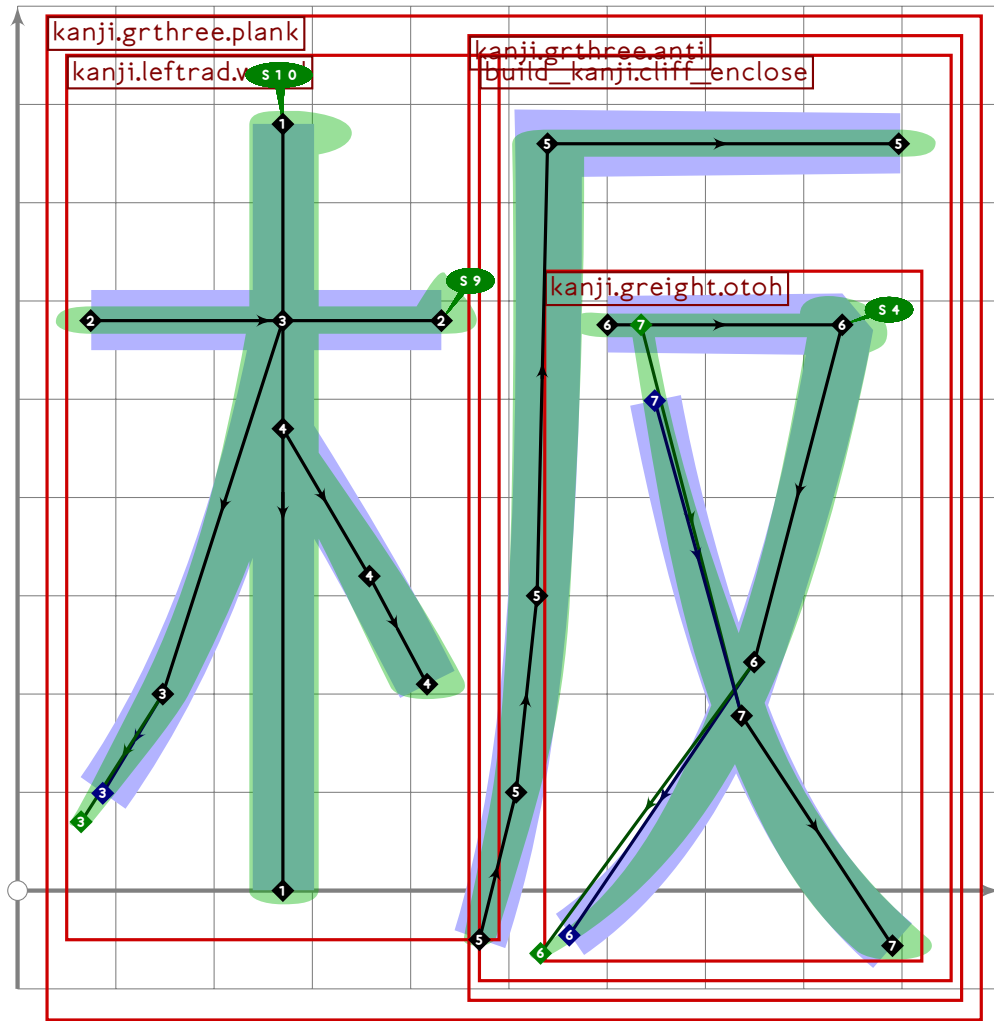
```



```

107
108 vardef kanji.grthree.pillar =
109   push_pbox_toexpand("kanji.grthree.pillar");
110   build_kanji.lr(480,-10)
111     (kanji.leftrad.wood)
112     (kanji.grthree.master);
113   expand_pbox;
114 enddef;

```



```

115
116 vardef kanji.grthree.plank =
117   push_pbox_toexpand("kanji.grthree.plank");
118   build_kanji.lr(480,20)
119     (kanji.leftrad.wood)
120     (kanji.grthree.anti);
121   expand_pbox;
122 enddef;

```

```

123
124 _____
125
126 % tsuki/getsu "moon"
127 begintsuglyph("uni6708";8);
128   kanji.grone.moon;
129   tsu_render;
130 endsuglyph;
131
132 % fuku as in "sailor fuku"
133 begintsuglyph("uni670D";13);
134   kanji.grthree.clothing;

```

[see page 409]

[see page 1888]

135 `tsu_render;`  
136 `endtsuglyph;`  
137  
138 `% chou/asa "morning"`  
139 `begintsuglyph("uni671D";29);` [see page 1887]  
140 `kanji.grtwo.morning;`  
141 `tsu_render;`  
142 `endtsuglyph;`  
143  
144 `% ki "wood"`  
145 `begintsuglyph("uni6728";40);` [see page 443]  
146 `kanji.grone.wood;`  
147 `tsu_render;`  
148 `endtsuglyph;`  
149  
150 `% mi/ima "not yet", also zodiac sign of the ram`  
151 `begintsuglyph("uni672A";42);` [see page 549]  
152 `kanji.grfour.not_yet;`  
153 `tsu_render;`  
154 `endtsuglyph;`  
155  
156 `% hon "book"`  
157 `begintsuglyph("uni672C";44);` [see page 382]  
158 `kanji.grone.book;`  
159 `tsu_render;`  
160 `endtsuglyph;`  
161  
162 `% son/mura "village"`  
163 `begintsuglyph("uni6751";81);` [see page 1885]  
164 `kanji.grone.village;`  
165 `tsu_render;`  
166 `endtsuglyph;`  
167  
168 `% soku/taaba "bundle"`  
169 `begintsuglyph("uni675F";95);` [see page 536]  
170 `kanji.grfour.bundle;`  
171 `tsu_render;`  
172 `endtsuglyph;`  
173  
174 `% ku/rai "come"`  
175 `begintsuglyph("uni6765";101);` [see page 452]  
176 `kanji.grtwo.come;`  
177 `tsu_render;`  
178 `endtsuglyph;`  
179  
180 `% tou/higashi "east"`  
181 `begintsuglyph("uni6771";113);` [see page 1886]  
182 `kanji.grtwo.east;`

```
183 tsu_render;
184 endtsuglyph;
185
186 % han/ita "plank"
187 begintsuglyph("uni677F";127); [see page 1890]
188 kanji.grthree.plank;
189 tsu_render;
190 endtsuglyph;
191
192 % rin/hayashi "grove"
193 begintsuglyph("uni6797";151); [see page 1884]
194 kanji.grone.grove;
195 tsu_render;
196 endtsuglyph;
197
198 % chuu/hashira "pillar"
199 begintsuglyph("uni67F1";241); [see page 1889]
200 kanji.grthree.pillar;
201 tsu_render;
202 endtsuglyph;
203
204 

---


205
206 endfont;
207
208 

---


```



# tsuku-68.mp

```
1 %  
2 % Unicode page 68 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

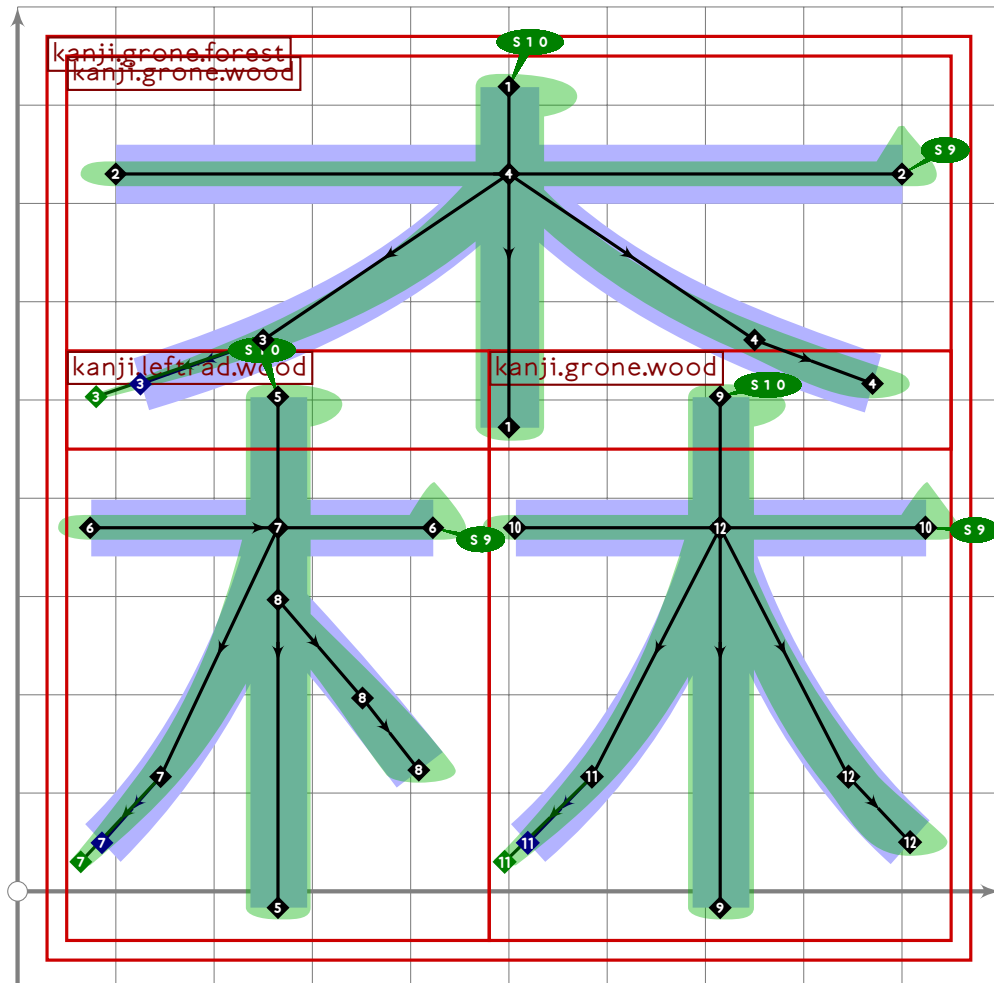
38 input gradetwo.mp;

39 input leftrad.mp;

40 input radical.mp;

41

42

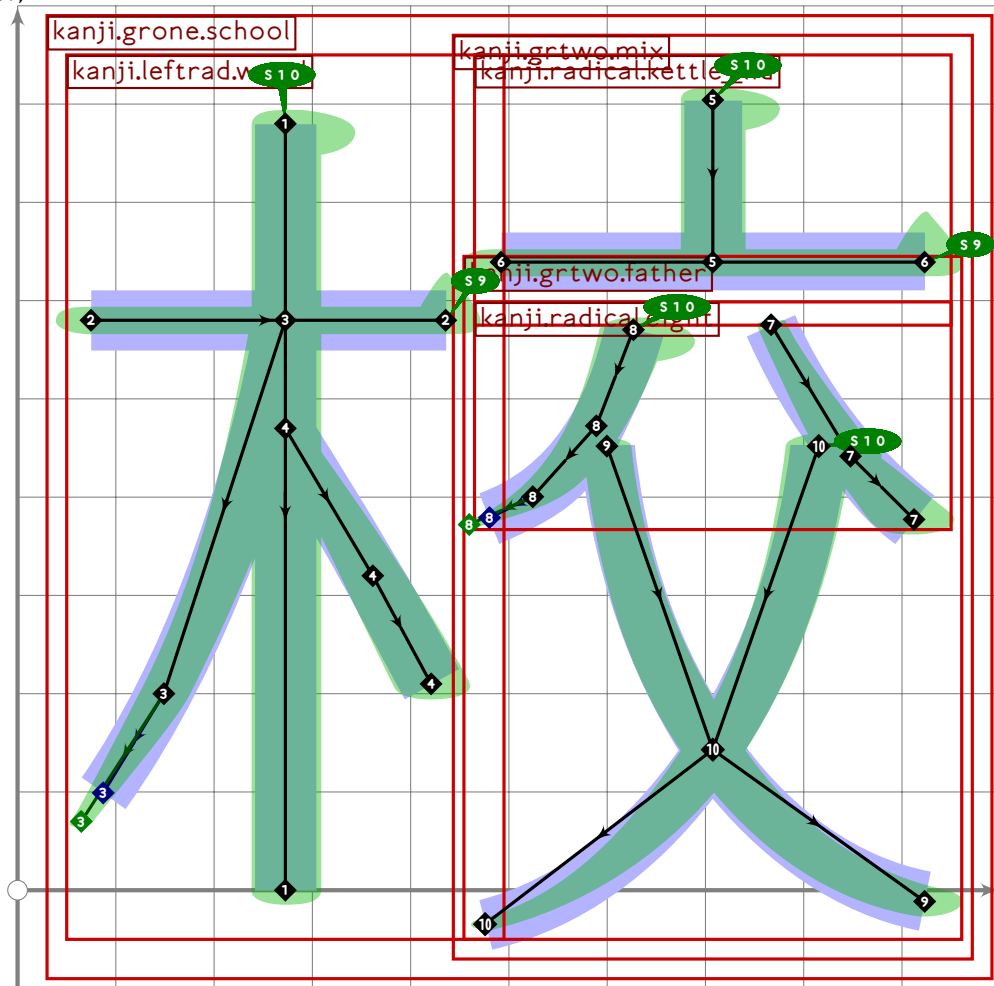


43

```

44 vardef kanji.grone.forest =
45   push_pbox_toexpand("kanji.grone.forest");
46   build_kanji.tb(500,100)
47     (kanji.grone.wood)
48     (build_kanji.lr(480,0)
49       (kanji.leftrad.wood)
50       (kanji.grone.wood));
51   expand_pbox;
52 enddef;

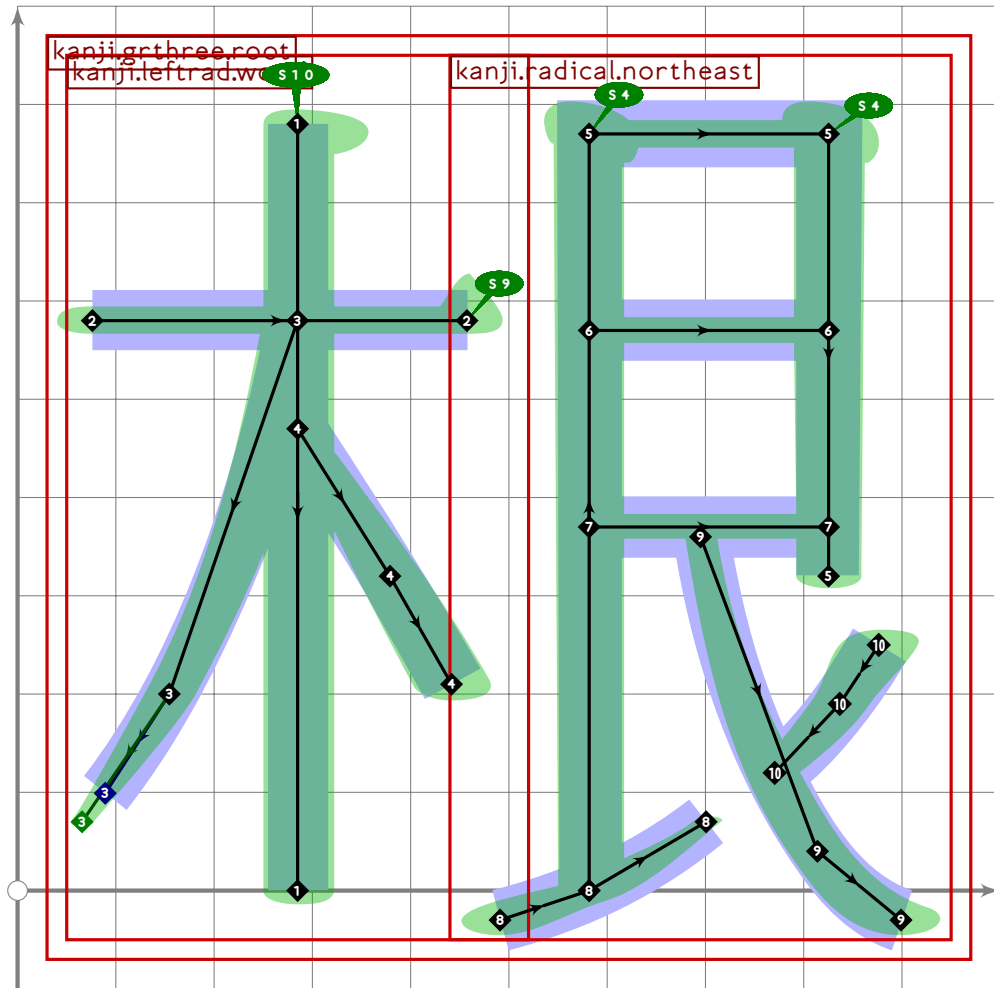
```



```

53
54 vardef kanji.grone.school =
55   push_pbox_toexpand("kanji.grone.school");
56   build_kanji.lr(480,30)
57     (kanji.leftrad.wood)
58     (kanji.grtwo.mix);
59   expand_pbox;
60 enddef;
61
62

```



```

63
64 vardef kanji.grthree.root =
65   push_pbox_toexpand("kanji.grthree.root");
66   build_kanji.lr(480,80)
67     (kanji.leftrad.w)
68     (kanji.radical.northeast);
69   expand_pbox;
70 enddef;

```

```

71
72 _____
73
74 % kou "school"
75 begintsuglyph("uni6821";33); [see page 1894]
76 kanji.grone.school;
77 tsu_render;
78 endtsuglyph;
79
80 % kon/ne "root"
81 begintsuglyph("uni6839";57); [see page 1895]
82 kanji.grthree.root;
83 tsu_render;

```

```
84 endtsuglyph;  
85  
86 % shin/mori "forest"  
87 begintsuglyph("uni68EE",238); [see page 1894]  
88 kanji.grone.forest;  
89 tsu_render;  
90 endtsuglyph;  
91  
92 

---

  
93  
94 endfont;  
95  
96 

---


```

# tsuku-69.mp

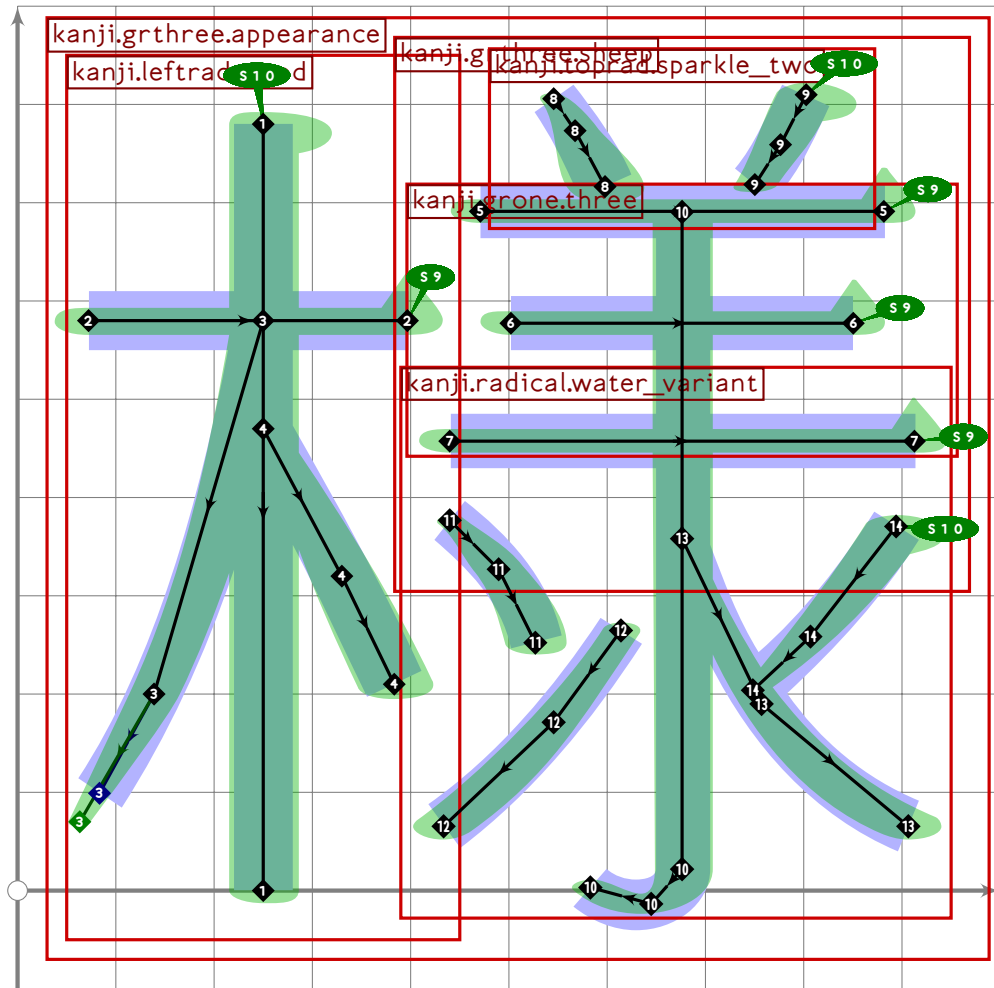
```
1 %
2 % Unicode page 69 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradesix.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44 input topfad.mp;
45
46 

---

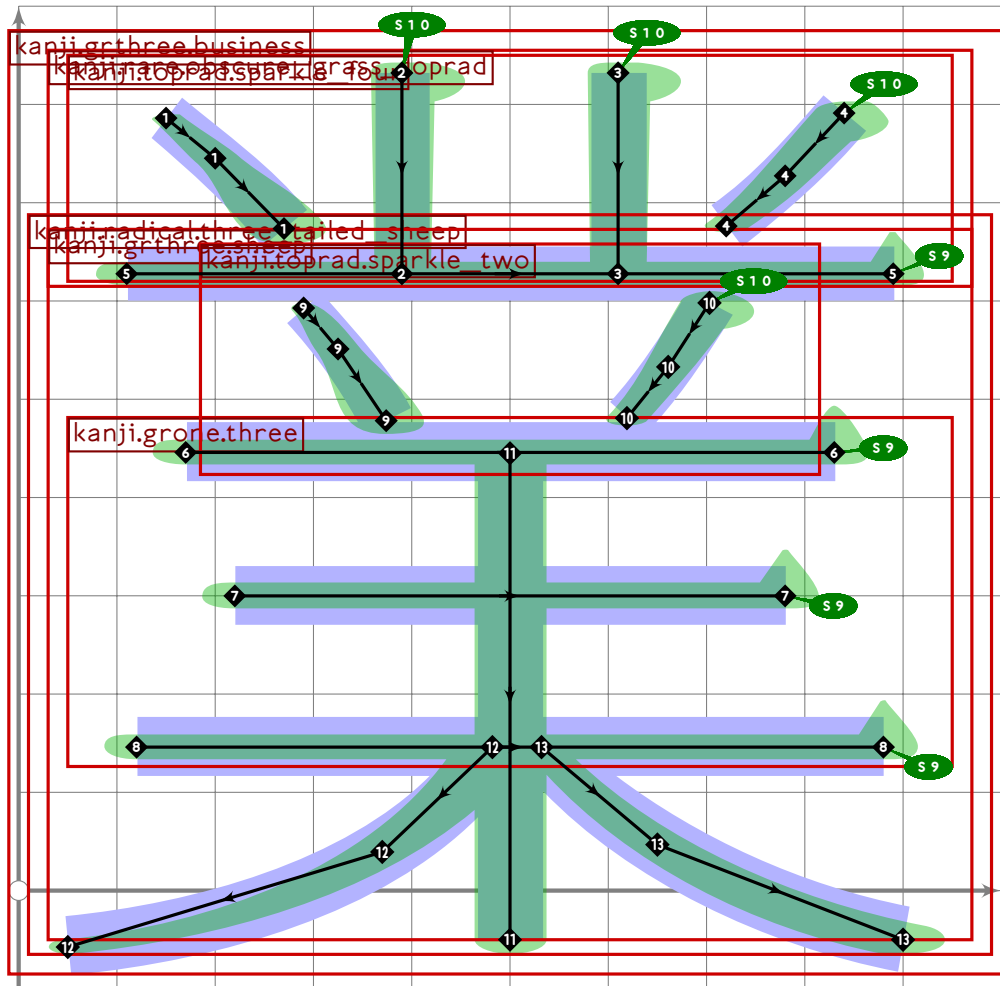

47
```



```

48 % this is "sama," the honorific, also "you" as in "you ni"
49 vardef kanji.grthree.appearance =
50   push_pbox_toexpand("kanji.grthree.appearance");
51   build_kanji.lr(420,60)
52     (kanji.leftrad.wood)
53     (build_kanji.level(build_kanji.sscale(yscaled 0.95)(
54       build_kanji.tb(420,240)
55         (build_kanji.sscale(shifted (10,0))(kanji.grthree.sheep))
56         (kanji.radical.water_variant);
57       replace_stroke(-4)
58         ((point 0 of get_stroke(-5))-subpath (1,infinity) of oldp);
59       set_boserif(-4,0,whatever);
60       set_bosize(-5,0))););
61   expand_pbox;
62 enddef;

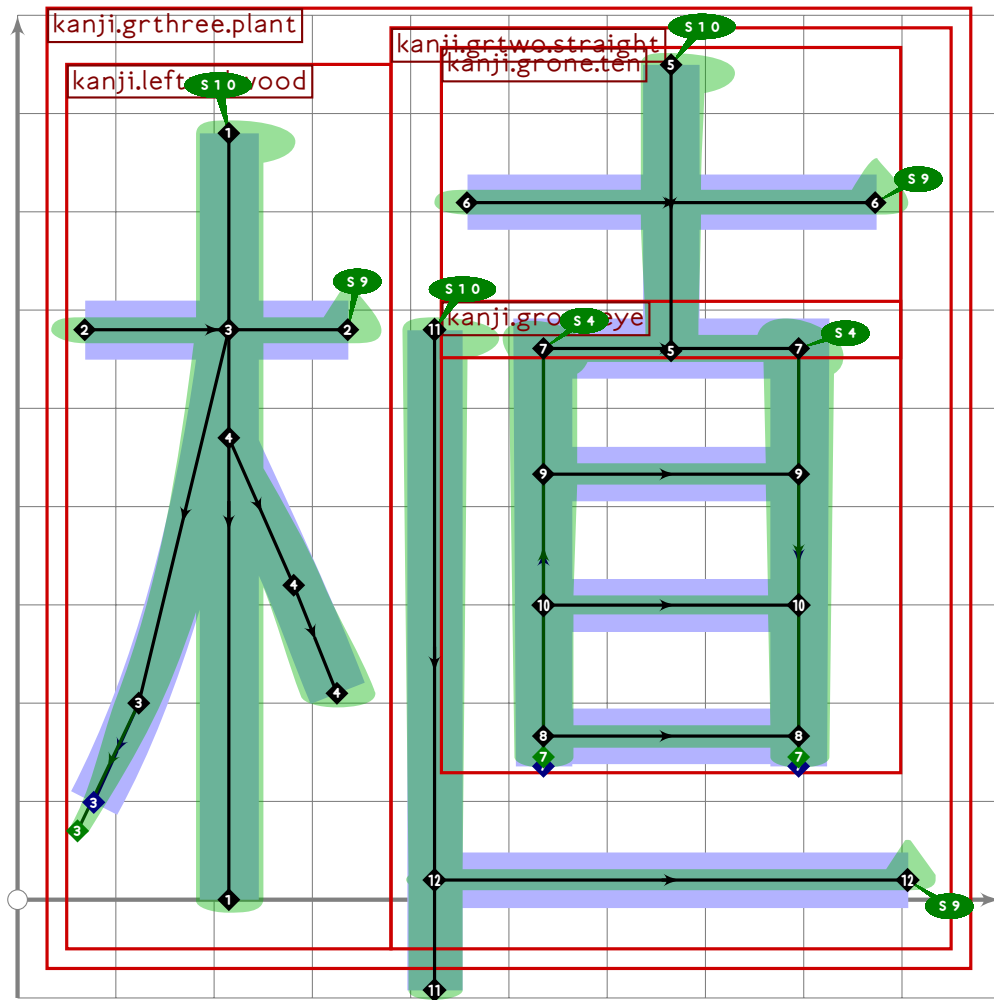
```



```

63
64 vardef kanji.grthree.business =
65   push_pbox_toexpand("kanji.grthree.business");
66   build_kanji.tb(620,0)
67     (kanji.rare.obscure_grass_toprad)
68     (kanji.radical.three_tailed_sheep);
69   expand_pbox;
70 enddef;

```



```

71
72 vardef kanji.grthree.plant =
73   push_pbox_toexpand("kanji.grthree.plant");
74   build_kanji.lr(380,0)
75     (kanji.leftrad.wood)
76     (kanji.grtwo.straight);
77   expand_pbox;
78 enddef;
79
80
81
82 vardef kanji.radical.three_tailed_sheep =
83   push_pbox_toexpand("kanji.radical.three_tailed_sheep");
84   kanji.grthree.sheep;
85   push_stroke(
86     (510,615){down}..(500,260)..(370,70)..{curl 0.5}(50,-60),
87     (1,6,1,6)-(1,4,1,4)-(1,1,1,1));
88   push_stroke(((get_strokep(0) intersectionpoint get_strokep(-4))+(50,0))..
89     (650,80)..(900,-50),
90     (1,1,1)-(1,4,1,4)-(1,7,1,7));
91   replace_strokep(-1)(subpath

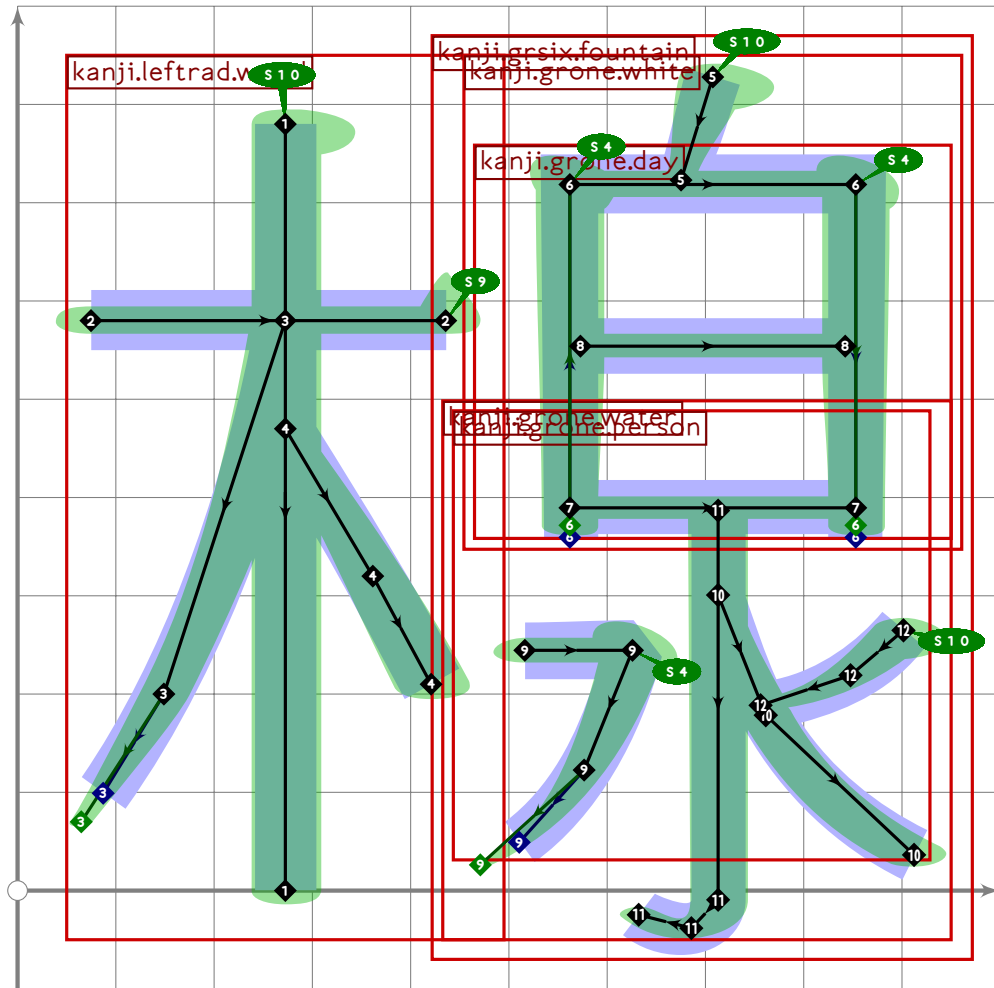
```



```

92     (xpart (oldp intersectiontimes get_strokep(-5),infinity) of oldp);
93     expand_pbox;
94 enddef;
95
96 _____
97
98 % shoku/u "plant"
99     begintsuglyph("uni690D",13); [see page 1900]
100     kanji.grthree.plant;
101     tsu_render;
102     endtsuglyph;
103
104 % kyou/waza "business"
105     begintsuglyph("uni696D",109); [see page 1899]
106     kanji.grthree.business;
107     tsu_render;
108     endtsuglyph;
109
110 % gaku/tano "music" or "fun"
111     begintsuglyph("uni697D",125); [see page 463]
112     kanji.grtwo.fun;
113     tsu_render;
114     endtsuglyph;
115

```



116 % hanzou "container for pouring water"

117 `begintsuglyph("uni697E";26);`

118 `build_kanji.lr(480,30)`

119 `(kanji.leftrad.wood)`

120 `(kanji.grsix.fountain);`

121 `tsu_render;`

122 `endtsuglyph;`

123

124 % you/sama "honorific suffix with difficult literal meaning"

125 `begintsuglyph("uni69D8";216);`

[see page 1898]

126 `kanji.grthree.appearance;`

127 `tsu_render;`

128 `endtsuglyph;`

129

130

131

132 `endfont;`

133

134

# tsuku-6a.mp

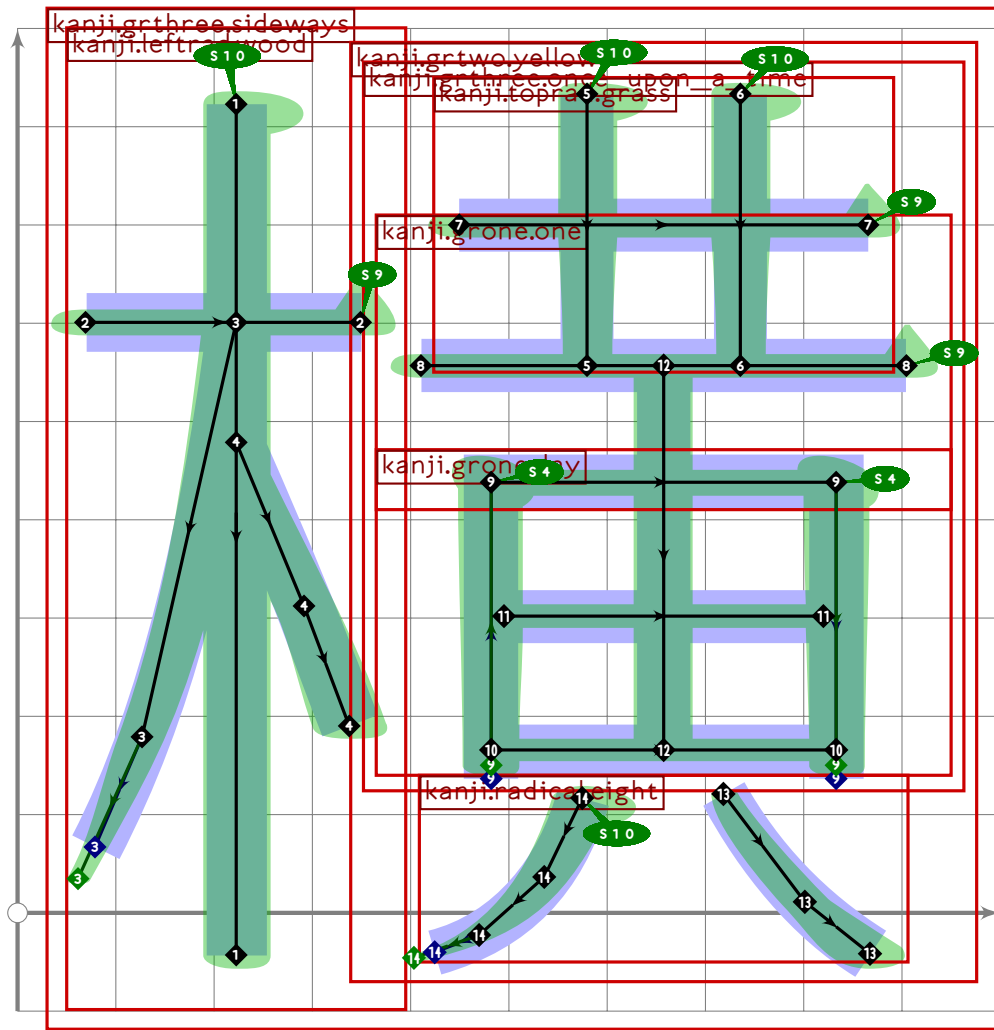
```
1 %
2 % Unicode page 6a (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input gradetwo.mp;
40 input leftrad.mp;
41 input radical.mp;
42 input topfad.mp;
43
44 

---


```



```

45
46 vardef kanji.grthree.sideways =
47   push_pbox_toexpand("kanji.grthree.sideways");
48   build_kanji.lr(380,30)
49     (build_kanji.sscale(yscaled 1.11)(kanji.leftrad.wood))
50     (kanji.grtwo.yellow);
51   expand_pbox;
52 enddef;

```

```

53
54
55
56 % ou/yoku "sideways"
57 begint Suglyph("uni6A2A";42);
58   kanji.grthree.sideways;
59   tsu_render;
60 endtsuglyph;
61
62
63
64 endfont;

```

[see page 1904]

65

66

---

# tsuku-6b.mp

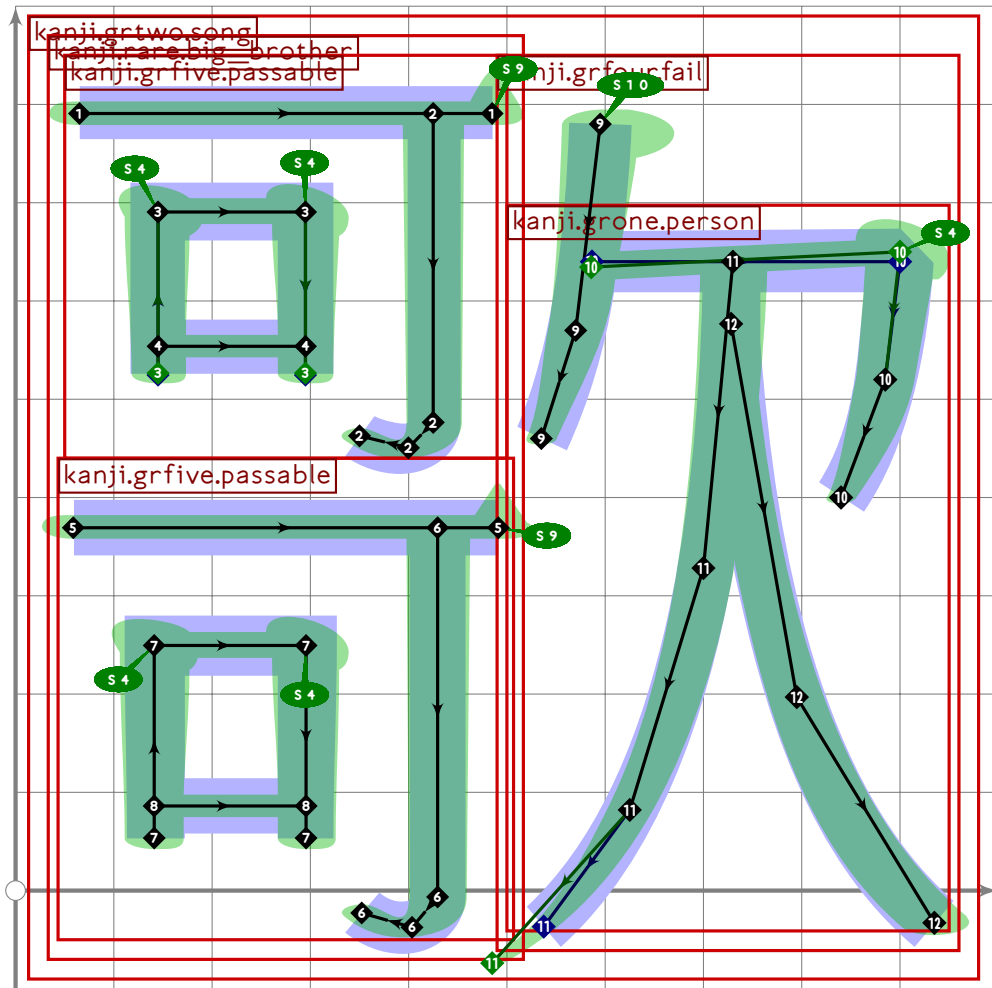
```
1 %
2 % Unicode page 6b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradeone.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46 input toprad.mp;
47
48 

---

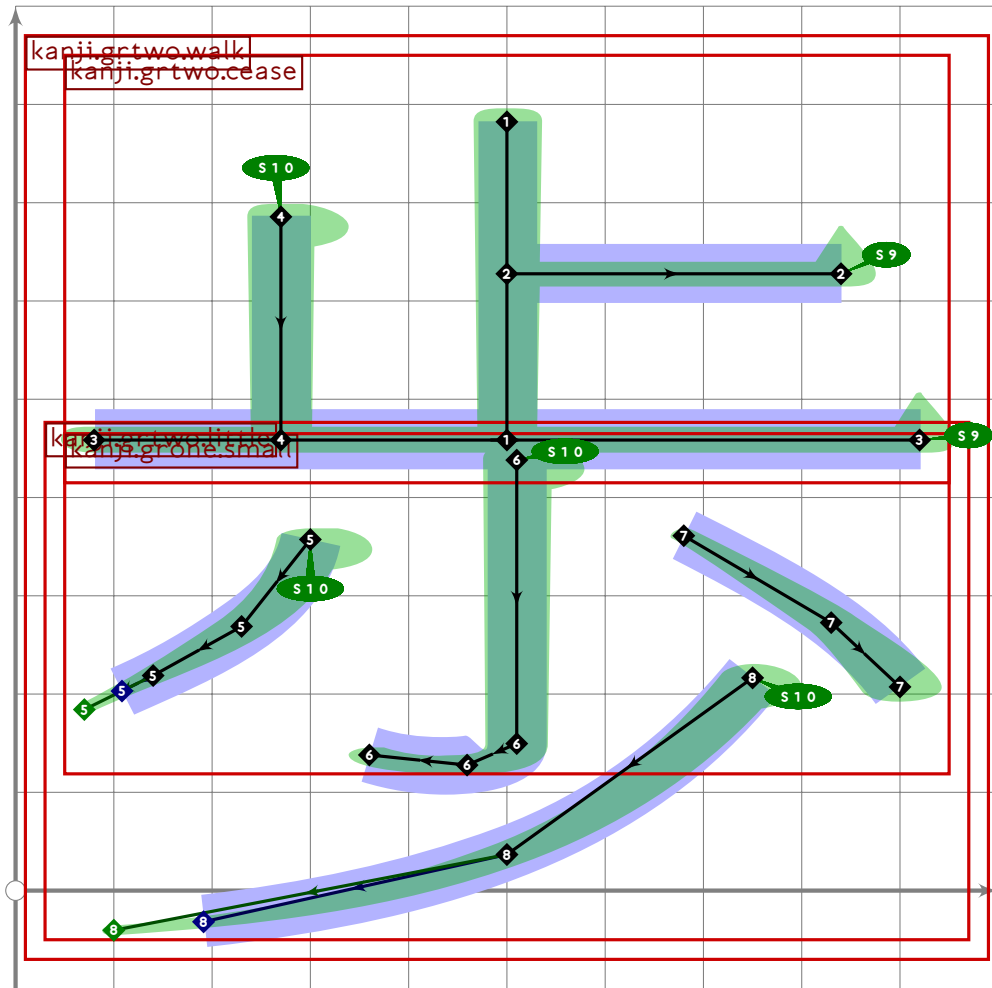

```



```

49
50 vardef kanji.grtwo.song =
51   push_pbox_toexpand("kanji.grtwo.song");
52   build_kanji.lr(500,0)
53   (kanji.rare.big_brother)
54   (kanji.grfour.fail);
55   expand_pbox;
56 enddef;

```

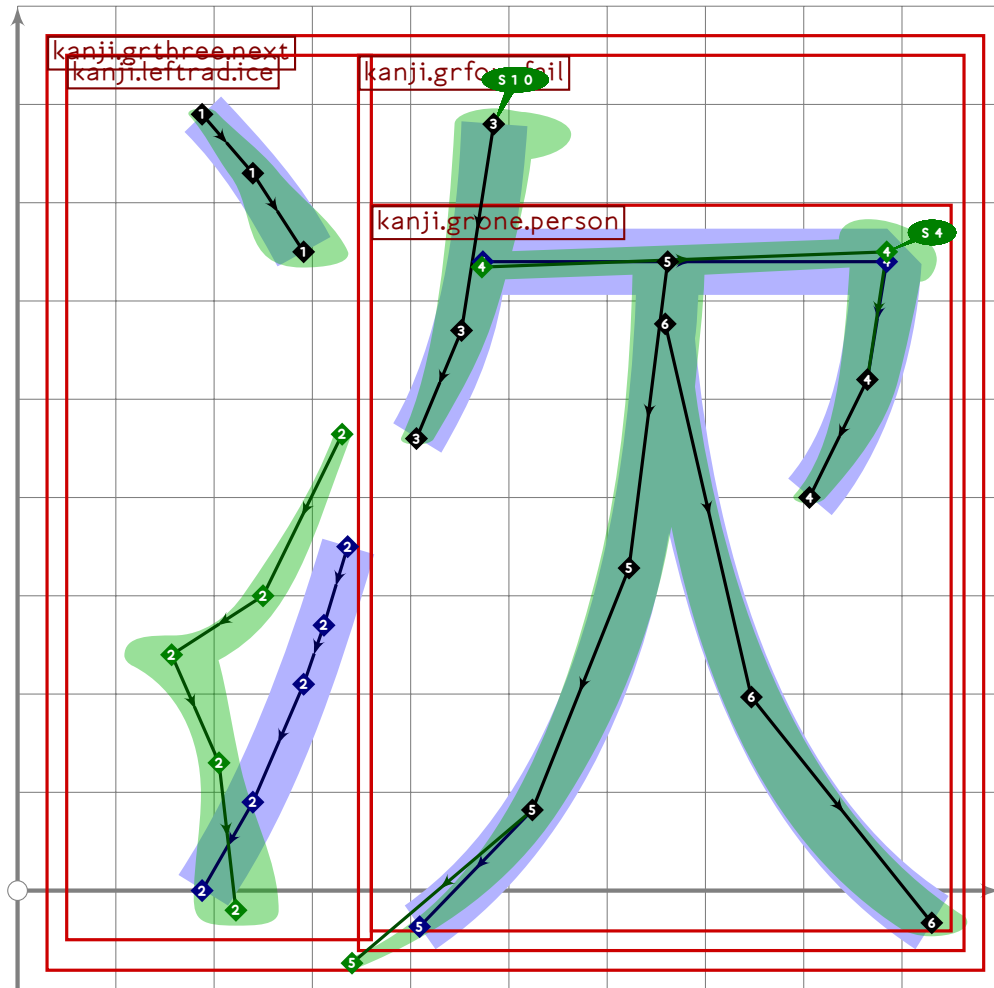


```

57
58 vardef kanji.grtwo.walk =
59   push_pbox_toexpand("kanji.grtwo.walk");
60   build_kanji.level(build_kanji.tb(440,50)
61     (kanji.grtwo.cease)
62     (kanji.grtwo.little));
63   expand_pbox;
64 enddef;
65
66

```





```

67
68 vardef kanji.grthree.next =
69   push_pbox_toexpand("kanji.grthree.next");
70   build_kanji.lr(360,0)
71     (kanji.leftrad.ice)
72     (kanji.grfour.fail);
73   expand_pbox;
74 enddef;
75

```

```

76
77
78 % ketsu/ka/akubi "fail" or "yawn"
79 begintsuglyph("uni6B20";32); [see page 542]
80   kanji.grfour.fail;
81   tsu_render;
82 endsuglyph;
83

```

```

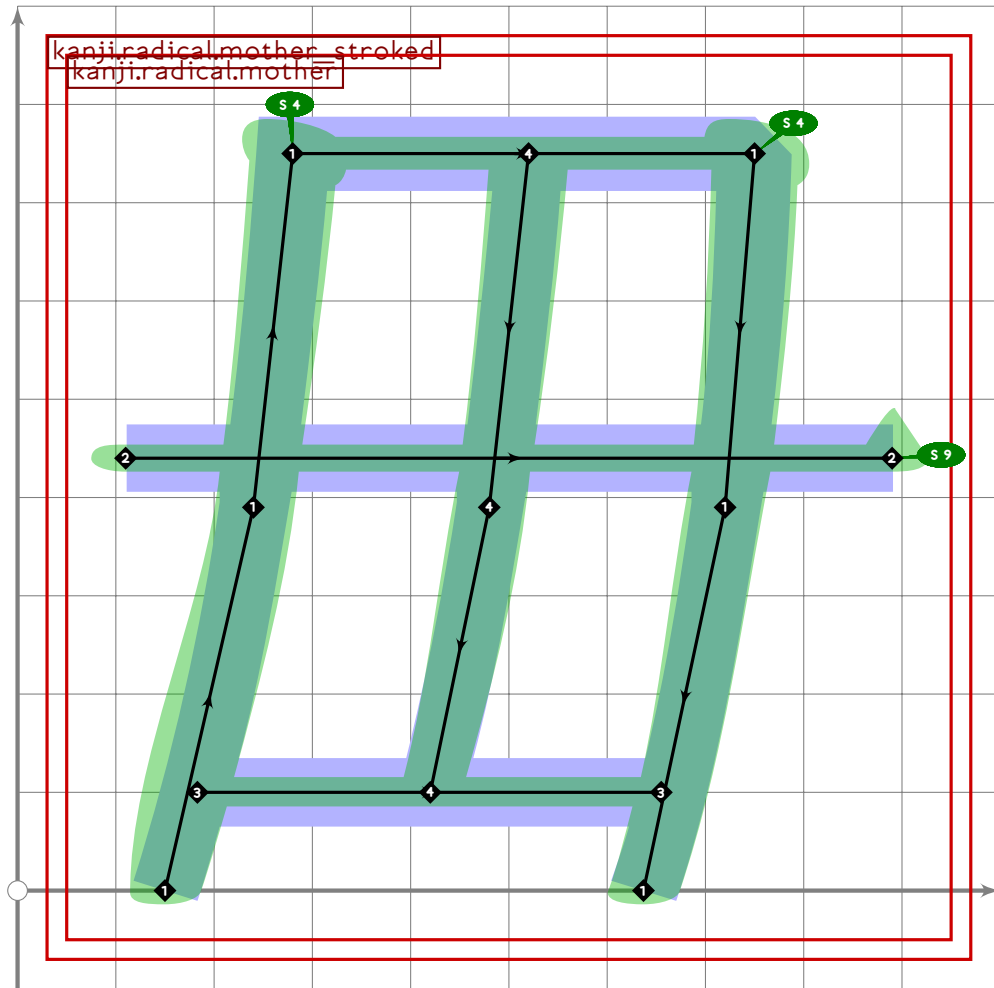
84 % ji/tsugi "next"
85 begintsuglyph("uni6B21";33); [see page 1909]
86   kanji.grthree.next;
87   tsu_render;

```

```

88 endtsuglyph;
89
90 % ka/uta "song"
91 begintsuglyph("uni6B4C";76); [see page 1907]
92 kanji.grtwo.song;
93 tsu_render;
94 endtsuglyph;
95
96 % shi/toma "stop"
97 begintsuglyph("uni6B62";98); [see page 449]
98 kanji.grtwo.cease;
99 tsu_render;
100 endtsuglyph;
101
102 % sei/tada/machi "correct"
103 begintsuglyph("uni6B63";99); [see page 386]
104 kanji.grone.correct;
105 tsu_render;
106 endtsuglyph;
107
108 % ho/aruku "walk"
109 begintsuglyph("uni6B69";105); [see page 1908]
110 kanji.grtwo.walk;
111 tsu_render;
112 endtsuglyph;
113
114 % shi/ha "tooth"
115 begintsuglyph("uni6B6F";111); [see page 531]
116 kanji.grthree.tooth;
117 tsu_render;
118 endtsuglyph;
119
120 % shu/mata "windy again radical"
121 begintsuglyph("uni6BB3";179); [see page 369]
122 kanji.radical.windy_again;
123 tsu_render;
124 endtsuglyph;
125
126 % extra: mother radical, stroked version
127 begintsuglyph("uni6BCB";203); [see page 353]
128 kanji.radical.mother_stroked;
129 tsu_render;
130 endtsuglyph;
131

```



```

132 % further variation
133 begintsuglyph("uni6BCC";204);
134 kanji.radical.mother_stroked;
135 replace_stroke(-3)(subpath (0,xpart (oldp intersectiontimes
136   ((500,0)-(1000,0)))) of oldp);
137 replace_strokeq(-3)(subpath (0,length get_strokeq(-3)) of oldq);
138 replace_stroke(-1)((183,100)-(655,100));
139 set_boserif(-1,1,whatever);
140 tsu_render;
141 endtsuglyph;
142
143 % bo/haha "mother"
144 begintsuglyph("uni6BCD";205);
145 kanji.grtwo.mother;
146 tsu_render;
147 endtsuglyph;
148
149 % mai/goto "every"
150 begintsuglyph("uni6BCE";206);
151 kanji.grtwo.every;
152 tsu_render;

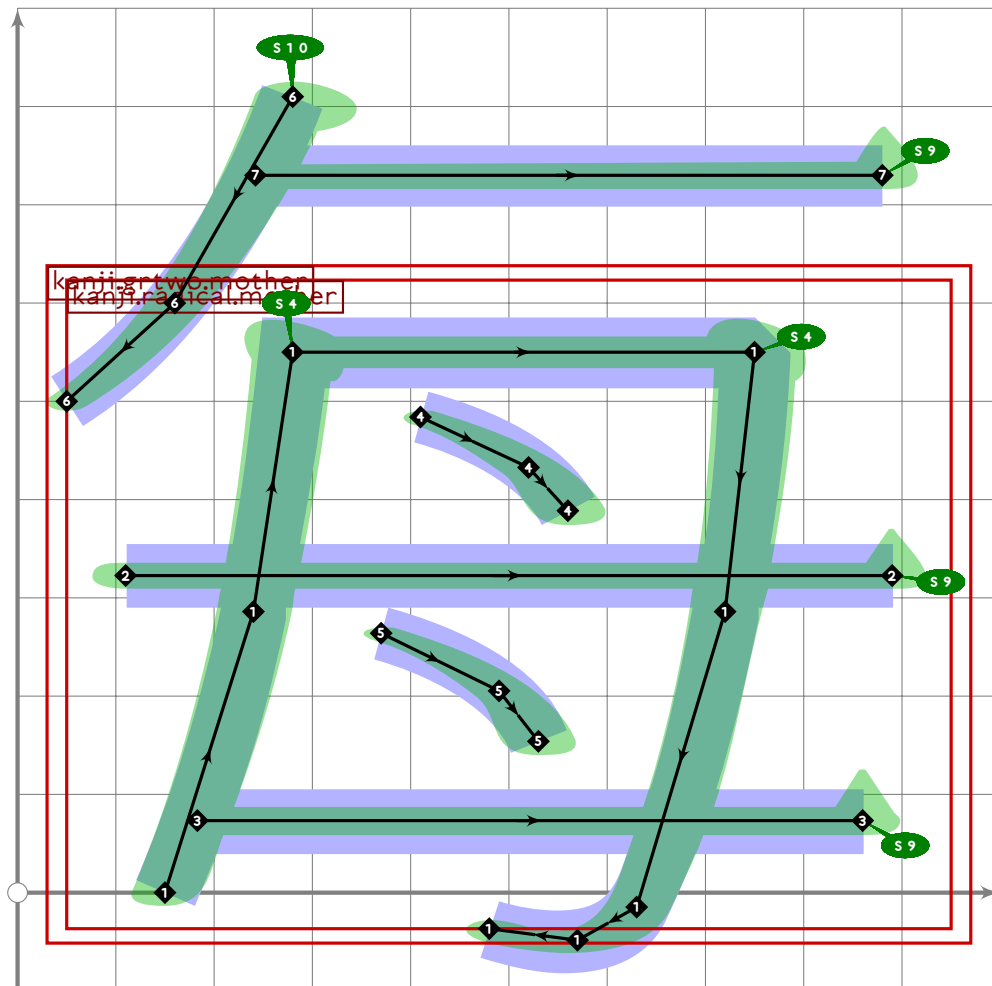
```

[see page 482]

[see page 458]

153 endtsuglyph;

154



155 % extra, closely related to previous

156 `begintsuglyph("uni6BCF";207);`

157 `tsu_xform(identity yscaled (550/750))`

158 `(kanji.grtwo.mother);`

159 `push_stroke((280,810)..tension 1.2..(160,600)..(50,500),`

160 `(1.7,1.7)-(1.5,1.5)-(1.2,1.2));`

161 `set_boserif(0,0,10);`

162 `set_bosize(0,90);`

163 `push_stroke((get_stroke(0) intersectionpoint ((0,730)-(1000,730)))-`

164 `(880,730),`

165 `(1.5,1.5)-(1.6,1.6));`

166 `set_boserif(0,1,9);`

167 `set_bosize(0,90);`

168 `tsu_render;`

169 `endtsuglyph;`

170

171 % hi/kura "compare"

172 `begintsuglyph("uni6BD4";212);`

173 `kanji.grfive.compare;`

[see page 553]

```
174 tsu_render;
175 endtsuglyph;
176
177 % mou/ke "hair"
178 begintsuglyph("uni6BDB";219); [see page 466]
179 kanji.grtwo.hair;
180 tsu_render;
181 endtsuglyph;
182
183 

---


184
185 endfont;
186
187 

---


```

# tsuku-6c.mp

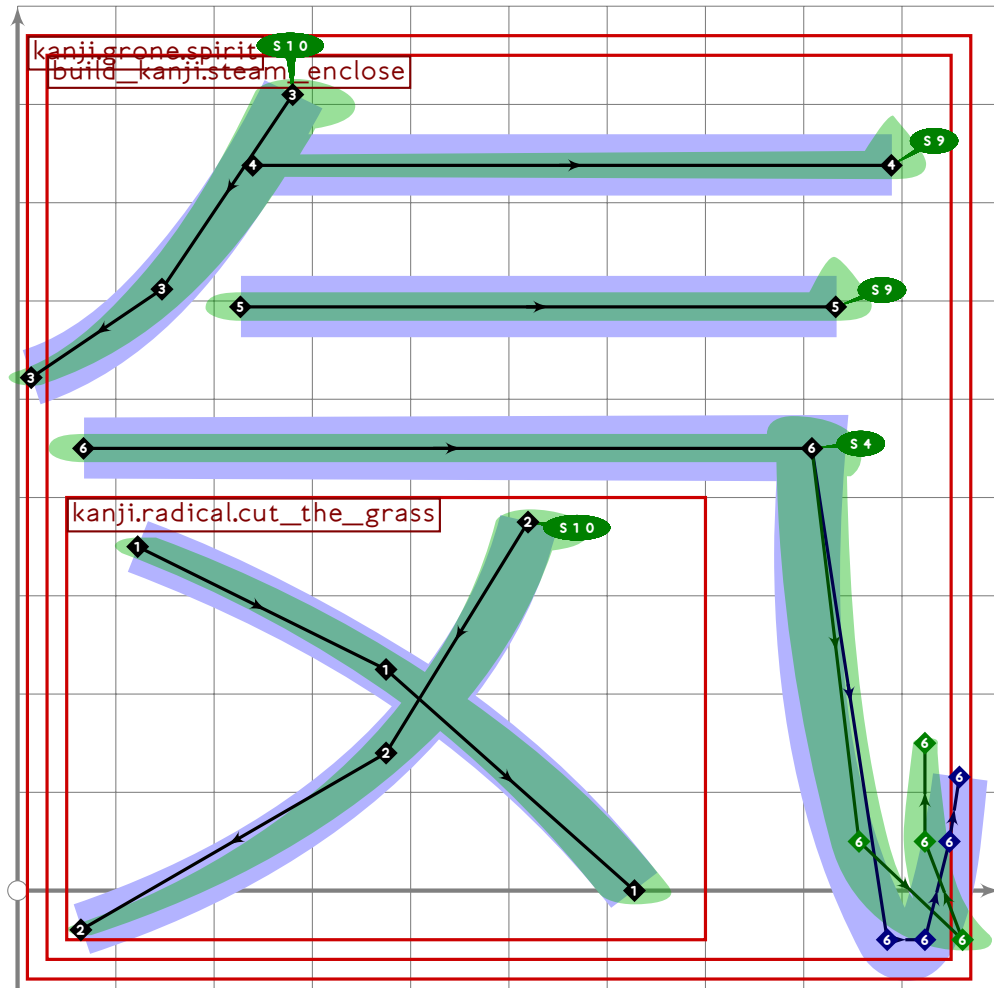
```
1 %
2 % Unicode page 6c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input toprad.mp;
48
49 

---

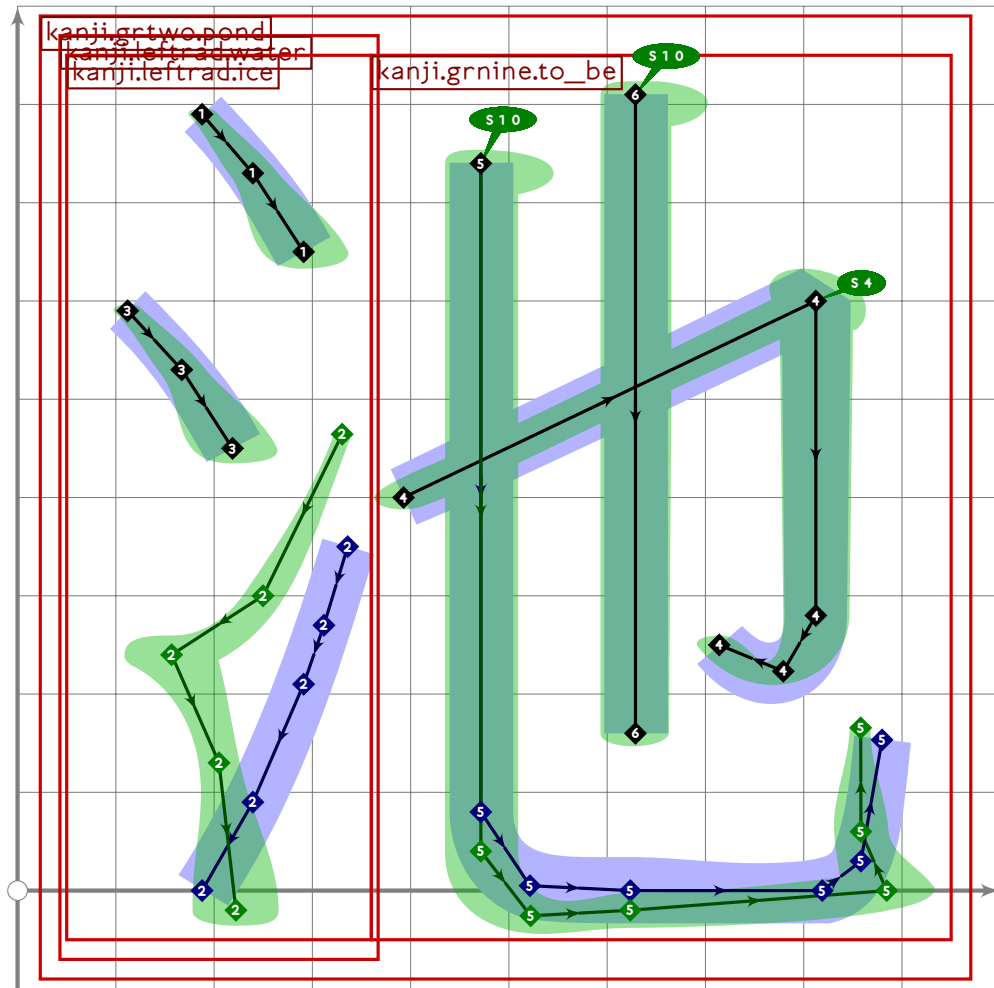

```



```

50
51 vardef kanji.grone.spirit =
52   push_pbox_toexpand("kanji.grone.spirit");
53   build_kanji.steam_enclose((700,400))
54   (kanji.radical.cut_the_grass);
55   expand_pbox;
56 enddef;
57
58

```

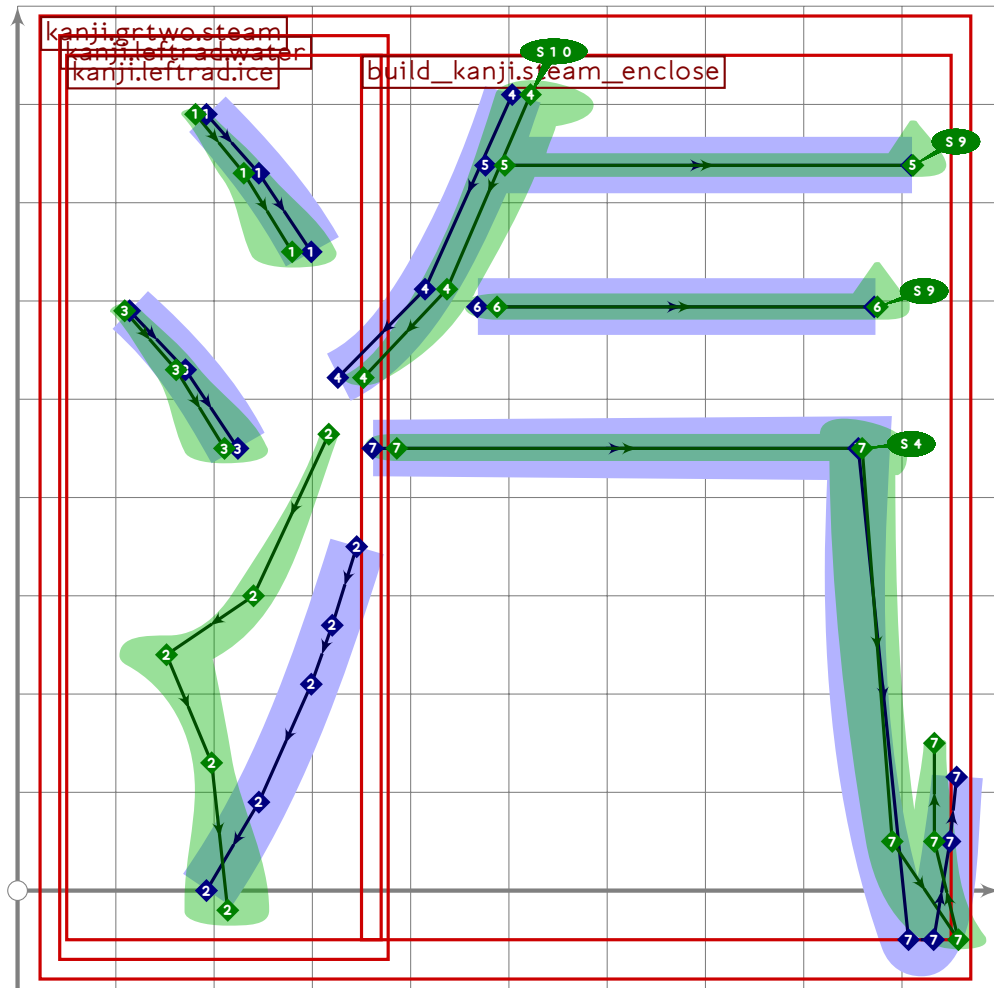


```

59
60 vardef kanji.grtwo.pond =
61   push_pbox_toexpand("kanji.grtwo.pond");
62   build_kanji.lr(360,0)
63     (kanji.leftrad.water)
64     (kanji.grnine.to_be);
65   expand_pbox;
66 enddef;

```

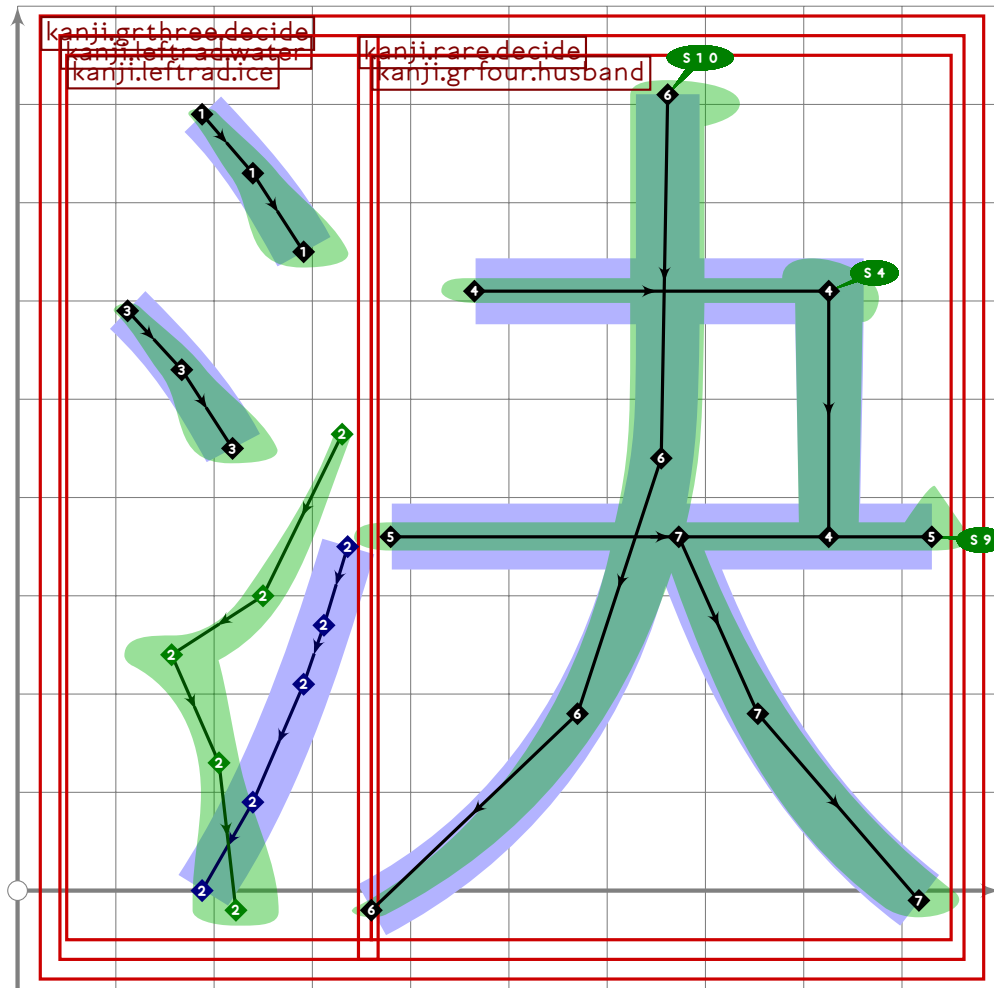




```

67
68 vardef kanji.grtwo.steam =
69   push_pbox_toexpand("kanji.grtwo.steam");
70   build_kanji.lr(360,20-50*mincho)
71     (kanji.leftrad.water)
72     (build_kanji.steam_enclose((700,400))());
73   expand_pbox;
74 enddef;
75
76

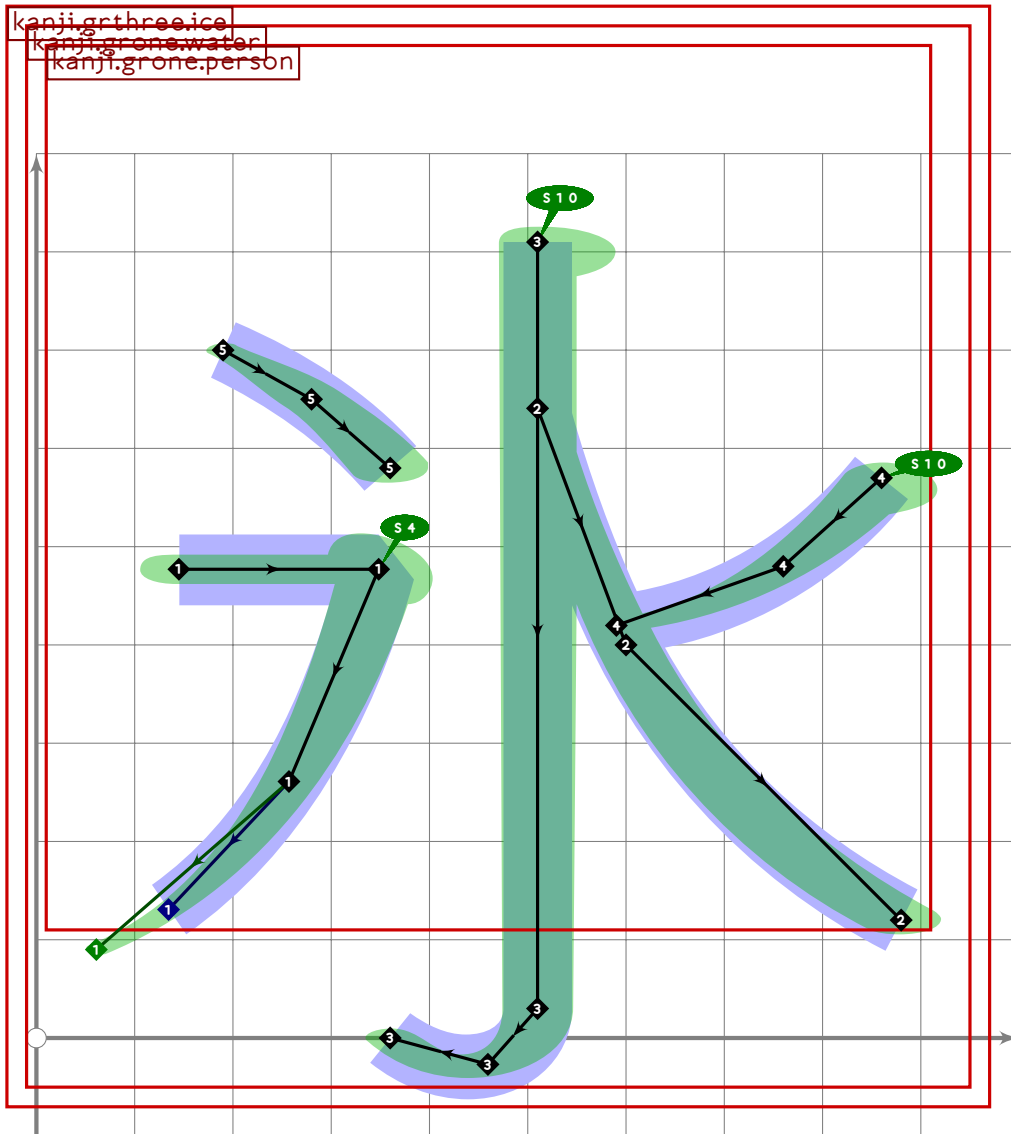
```



```

77
78 vardef kanji.grthree.decide =
79   push_pbox_toexpand("kanji.grthree.decide");
80   build_kanji.lr(360,0)
81     (kanji.leftrad.water)
82     (kanji.rare.decide);
83   expand_pbox;
84 enddef;

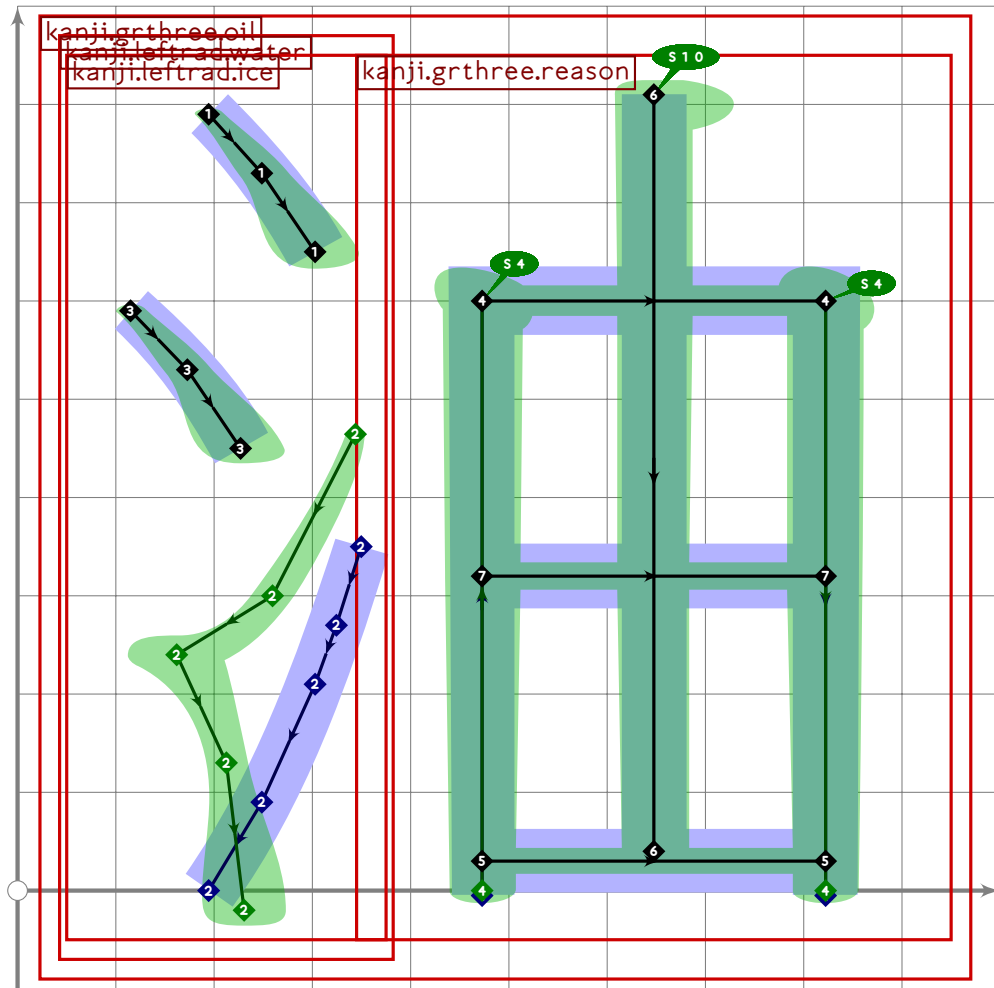
```



```

85
86 vardef kanji.grthree.ice =
87   push_pbox_toexpand("kanji.grthree.ice");
88   kanji.grone.water;
89   replace_strokep(-3)(oldp yscaled 0.9);
90   push_stroke((190,700)..tension 1.2..(280,650)..(360,580),
91     (1,1)-(1.4,1.4)-(1.6,1.6));
92   expand_pbox;
93 enddef;

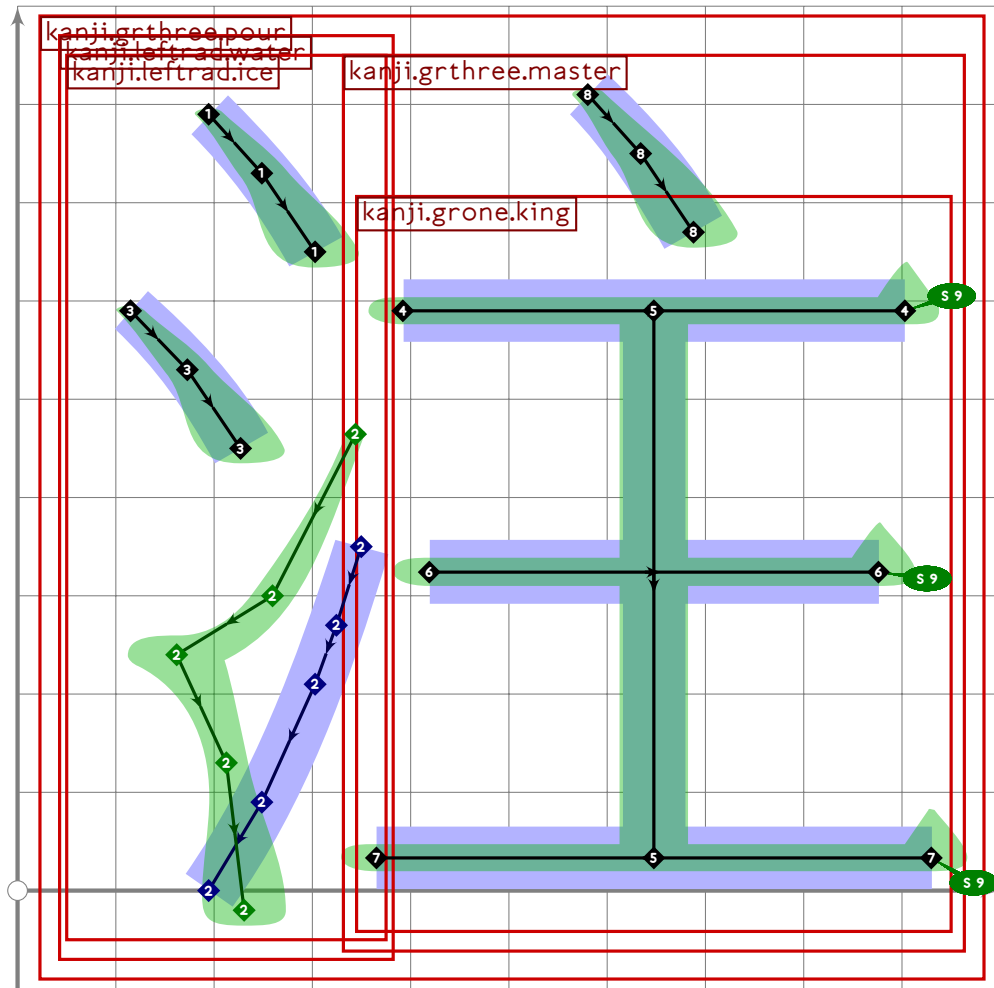
```



```

94
95 vardef kanji.grthree.oil =
96   push_pbox_toexpand("kanji.grthree.oil");
97   build_kanji.lr(360,30)
98     (kanji.leftrad.water)
99     (kanji.grthree.reason);
100   expand_pbox;
101 enddef;

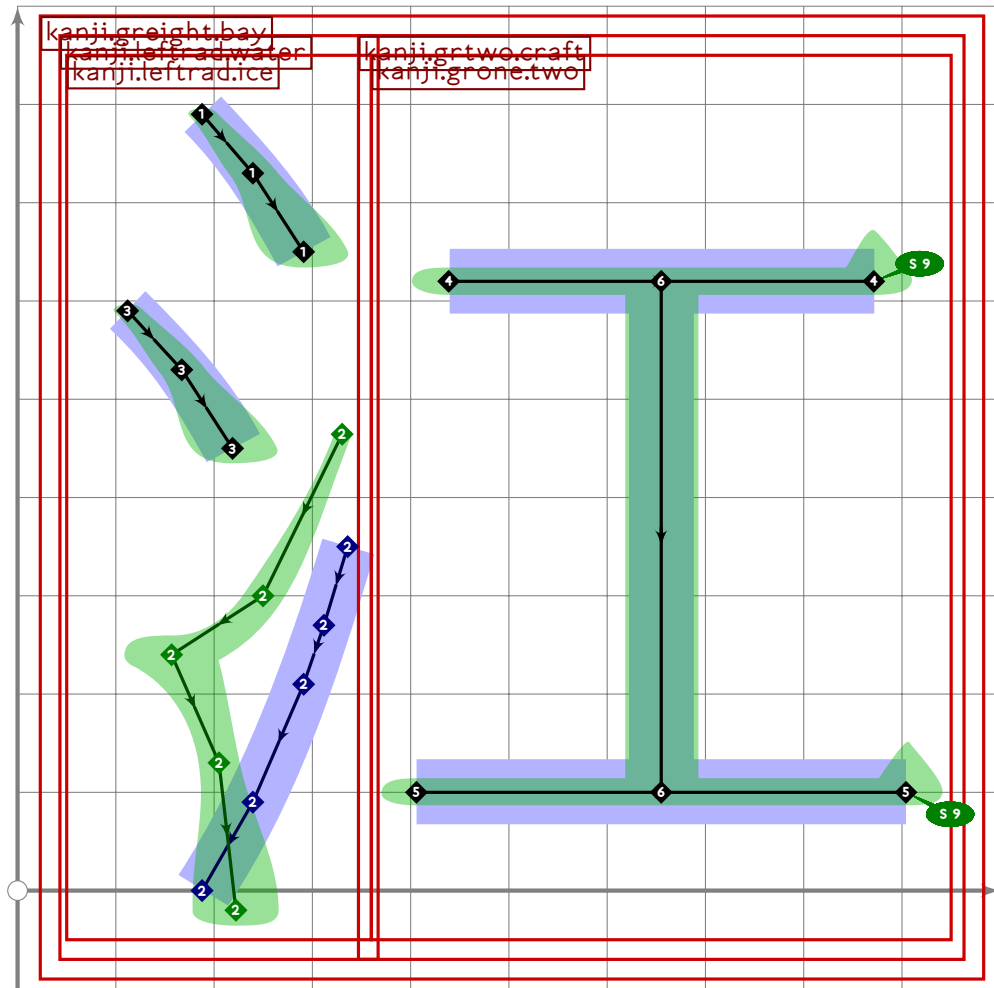
```



```

102
103 vardef kanji.grthree.pour =
104   push_pbox_toexpand("kanji.grthree.pour");
105   build_kanji.lr(360,30)
106     (kanji.leftrad.water)
107     (kanji.grthree.master);
108   expand_pbox;
109 enddef;
110
111

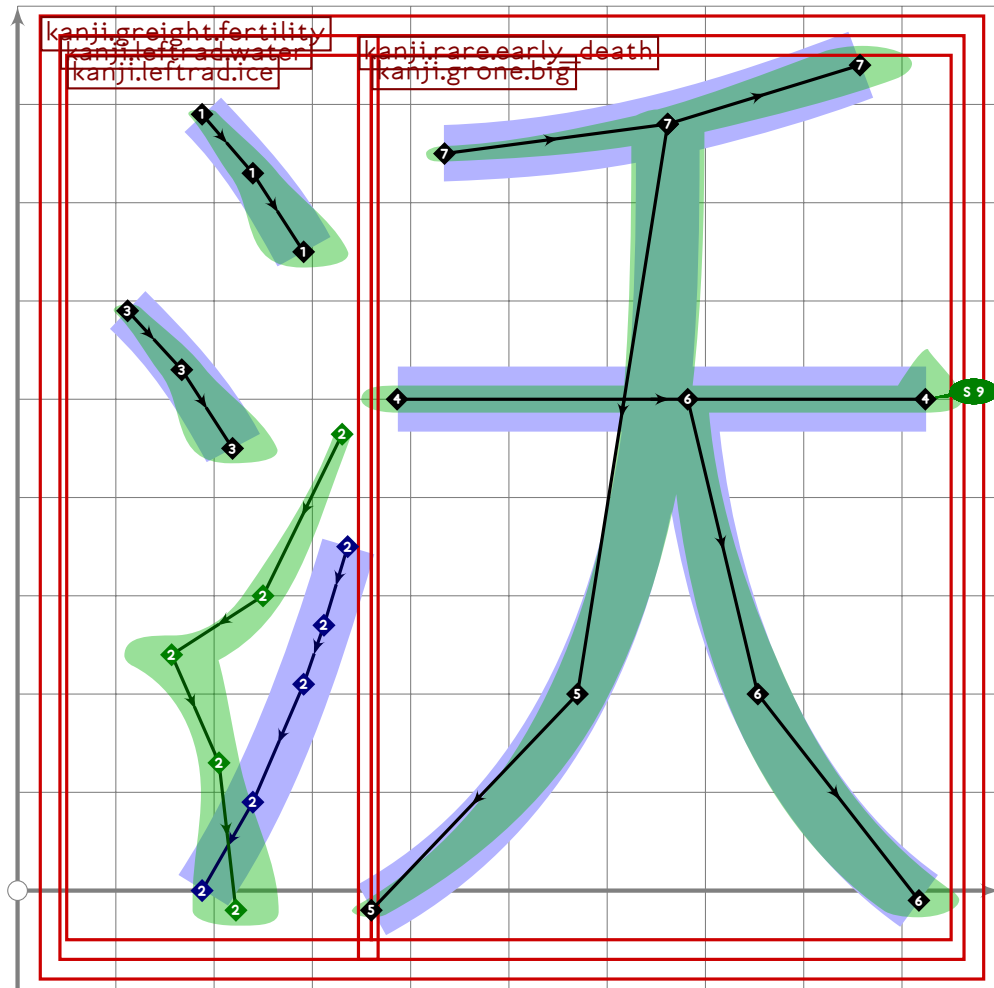
```



```

112
113 vardef kanji.greight.bay =
114   push_pbox_toexpand("kanji.greight.bay");
115   build_kanji.lr(360,0)
116     (kanji.leftrad.water)
117     (kanji.grtwo.craft);
118   expand_pbox;
119 enddef;

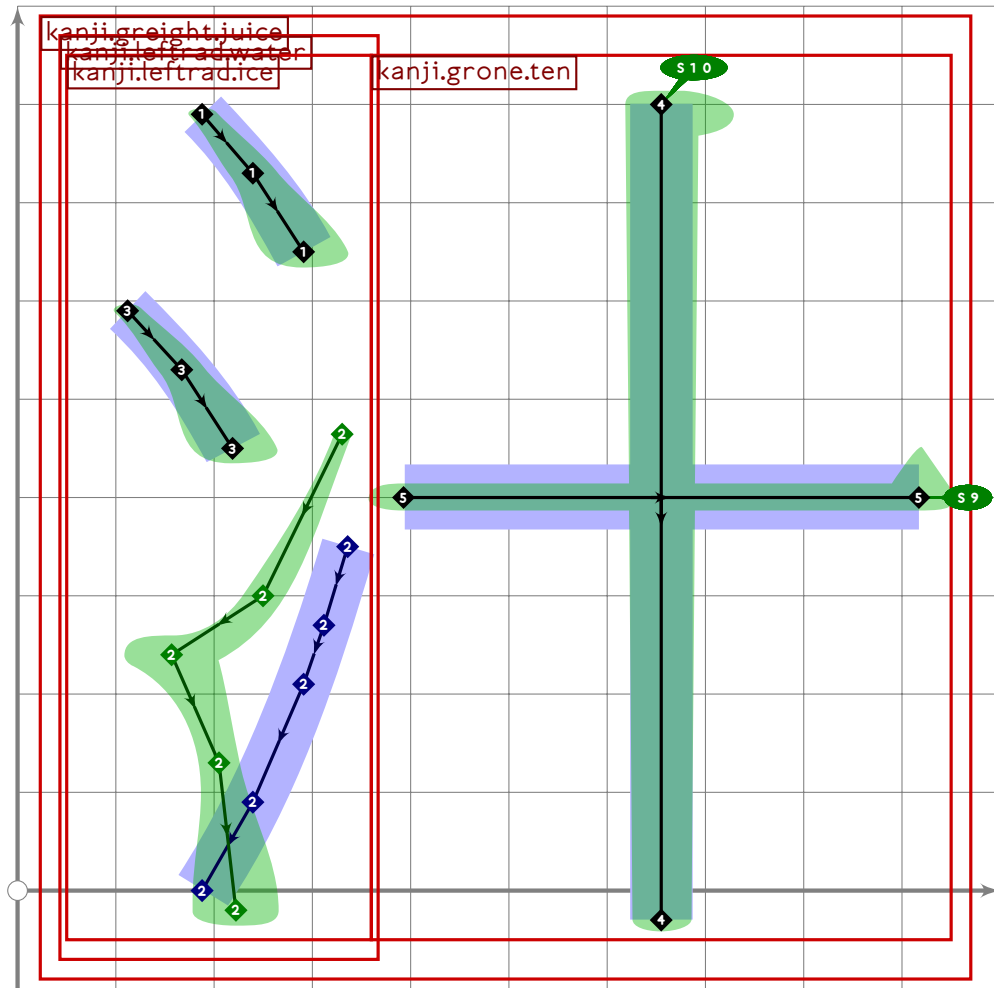
```



```

120
121 vardef kanji.greight.fertility =
122   push_pbox_toexpand("kanji.greight.fertility");
123   build_kanji.lr(360,0)
124     (kanji.leftrad.water)
125     (kanji.rare.early_death);
126   expand_pbox;
127 enddef;

```

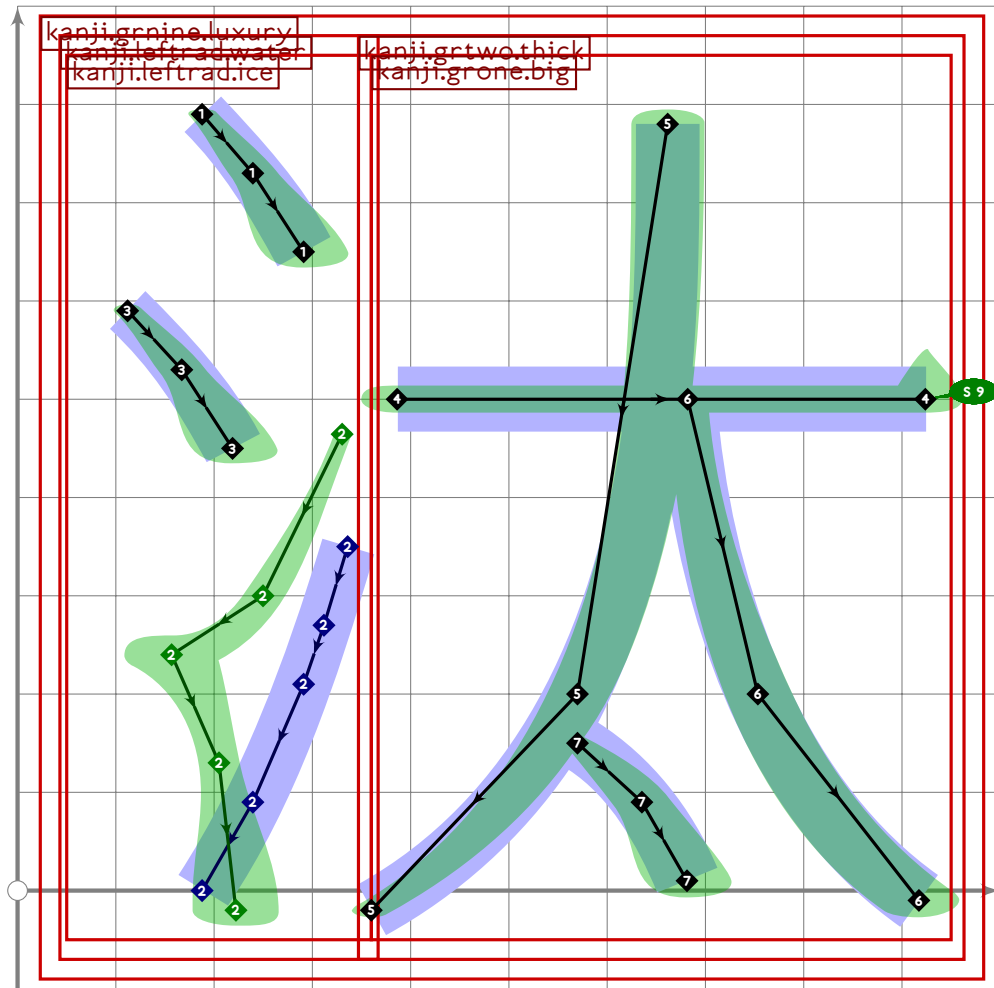


```

128
129 vardef kanji.greight.juice =
130   push_pbox_toexpand("kanji.greight.juice");
131   build_kanji.lr(360,0)
132     (kanji.leftrad.water)
133     (kanji.grone.ten);
134   expand_pbox;
135 enddef;
136
137

```

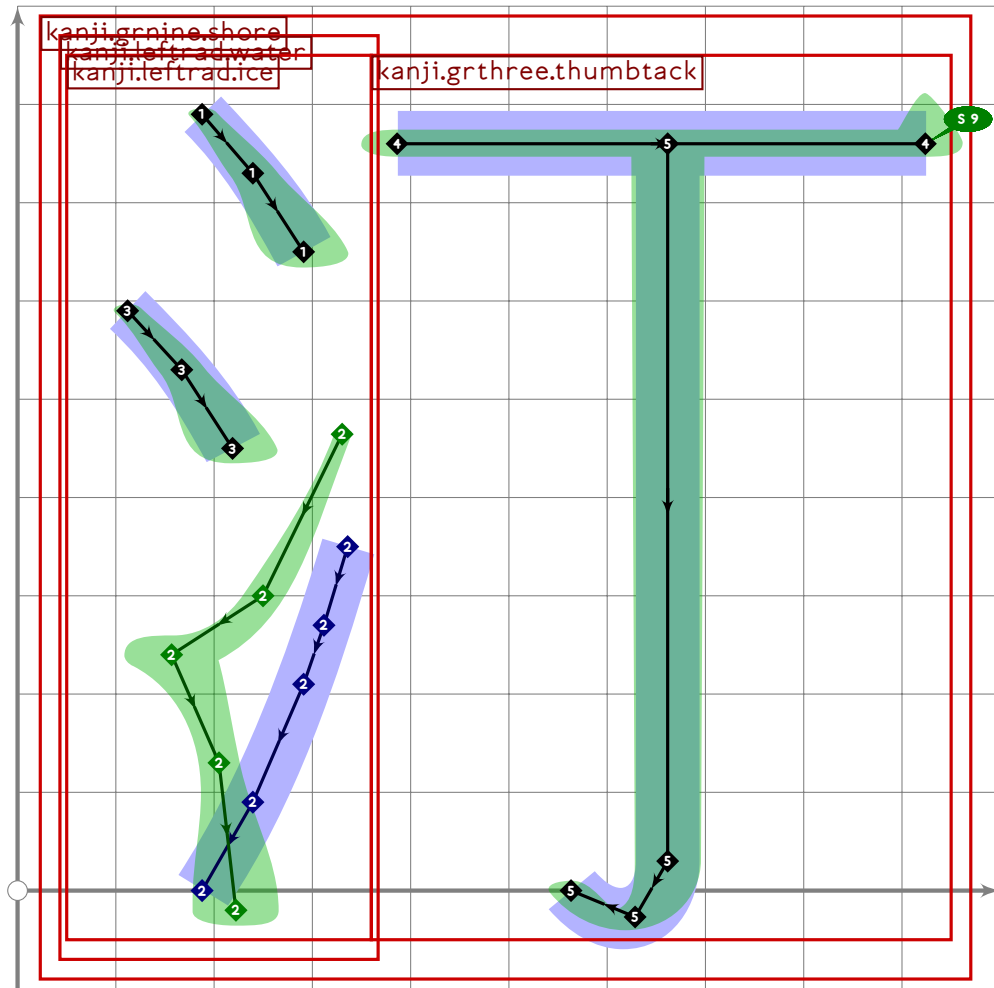




```

138
139 vardef kanji.gnine.luxury =
140   push_pbox_toexpand("kanji.gnine.luxury");
141   build_kanji.lr(360,0)
142     (kanji.leftrad.water)
143     (kanji.grtwo.thick);
144   expand_pbox;
145 enddef;

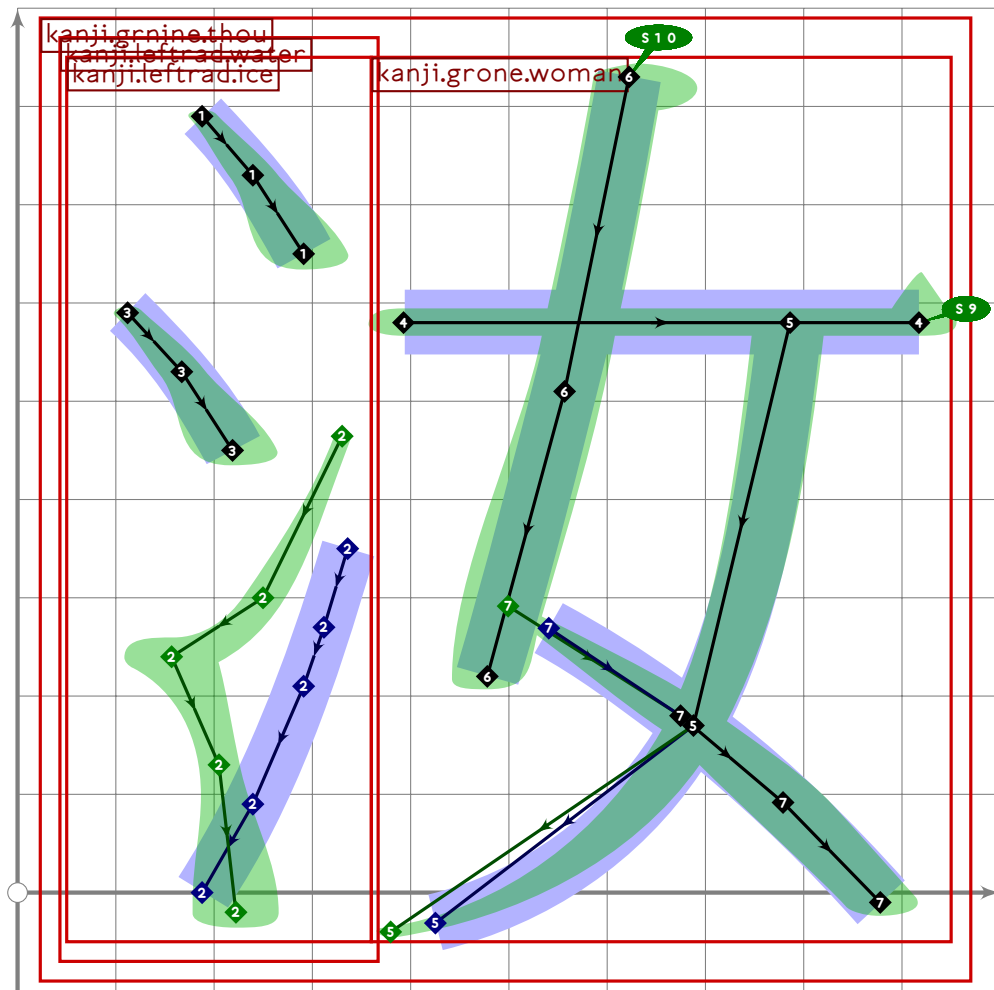
```



```

146
147 vardef kanji.gn.nine.shore =
148   push_pbox_toexpand("kanji.gn.nine.shore");
149   build_kanji.lr(360,0)
150     (kanji.leftrad.water)
151     (kanji.grthree.thumbtack);
152   expand_pbox;
153 enddef;

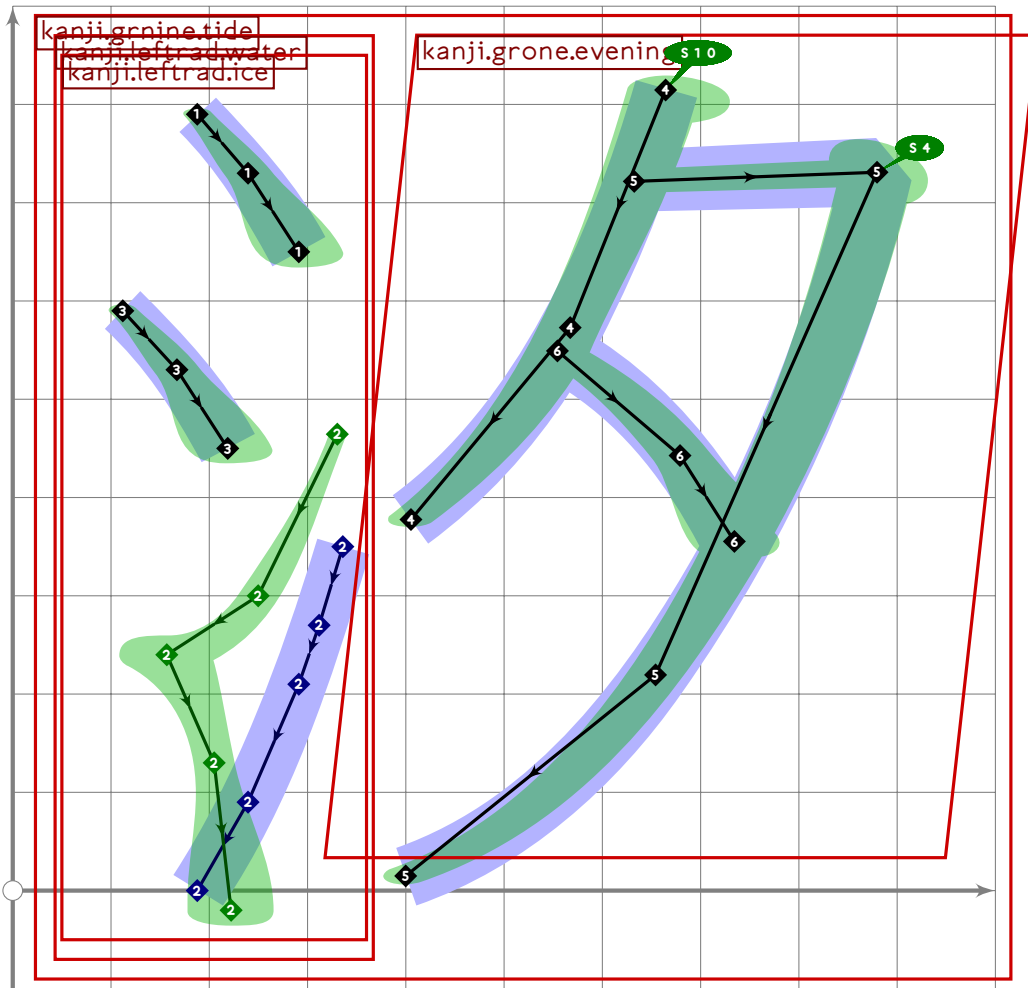
```



```

154
155 vardef kanji.gnine.thou =
156   push_pbox_toexpand("kanji.gnine.thou");
157   build_kanji.lr(360,0)
158     (kanji.leftrad.water)
159     (kanji.grone.woman);
160   expand_pbox;
161 enddef;

```



```

162
163 vardef kanji.grnine.tide =
164   push_pbox_toexpand("kanji.grnine.tide");
165   build_kanji.lr(360,0)
166     (kanji.leftrad.water)
167     (tsu_xform(identity xyscaled (1.07,0.93) slanted 0.17 shifted (-60,80))
168       (kanji.grone.evening));
169   expand_pbox;
170 enddef;

```

171

172

173

174 % shi/uji "clan"

175 `begintsuglyph("uni6C0F",15);`

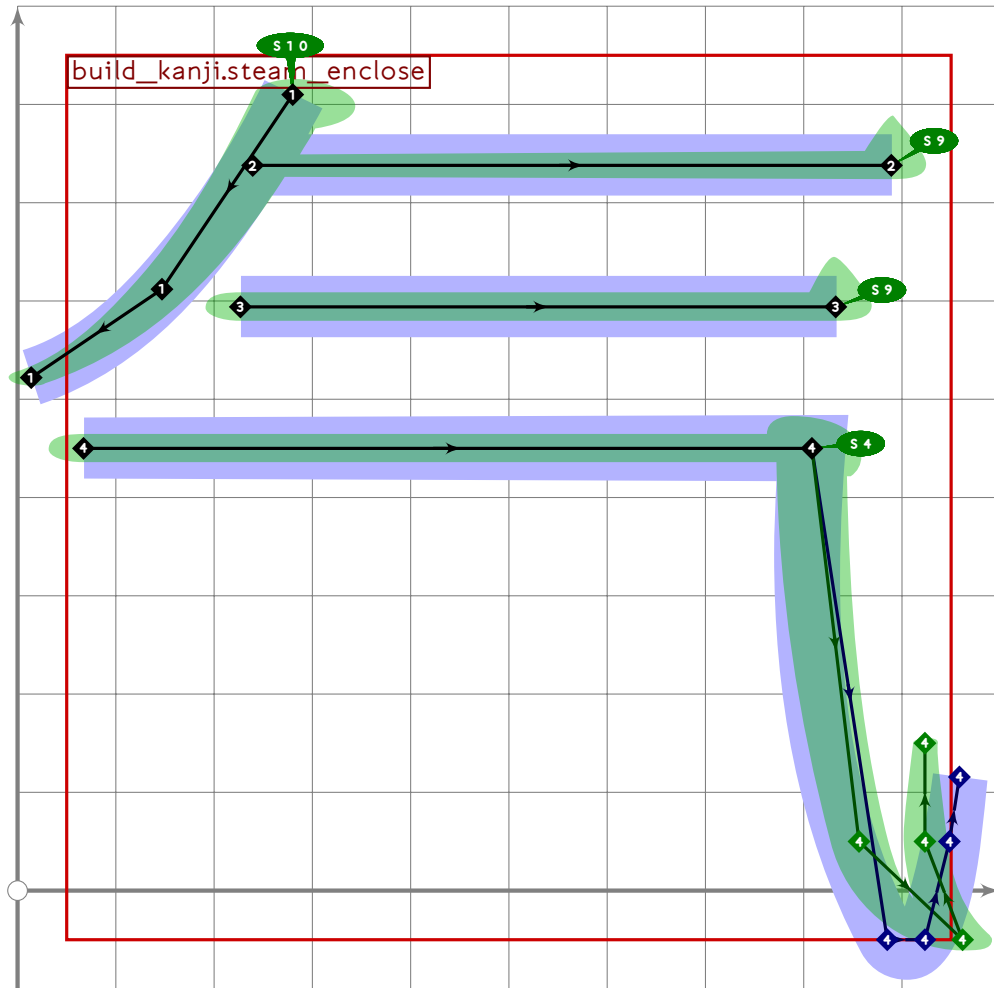
[see page 538]

176 `kanji.grfour.clan;`

177 `tsu_render;`

178 `endtsuglyph;`

179

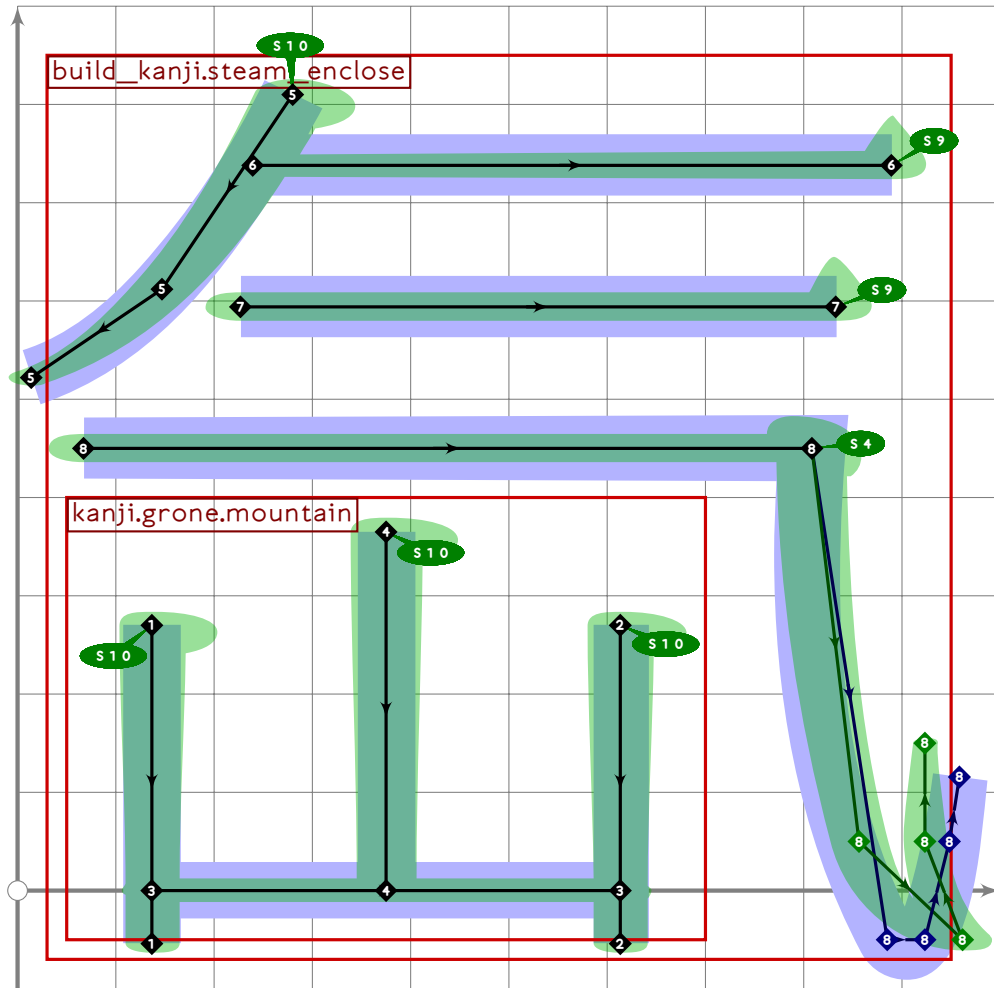


```

180 % sei/tada/machi "correct"
181 begintsuglyph("uni6C14";20);
182 build_kanji.steam_enclose((700,400))();
183 tsu_render;
184 endtsuglyph;
185
186 % ki/iki "spirit"
187 begintsuglyph("uni6C17";23);
188 kanji.grone.spirit;
189 tsu_render;
190 endtsuglyph;
191

```

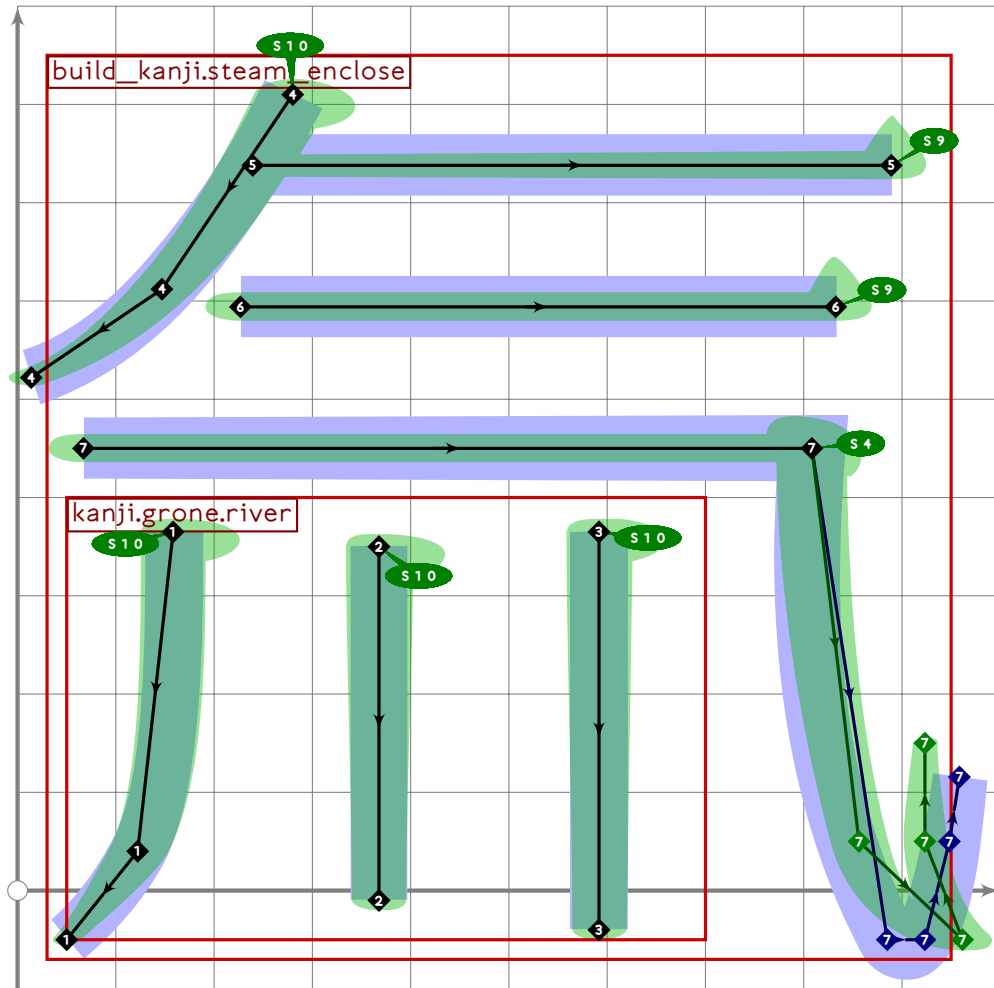
[see page 1915]



```

192 % extra
193 begintsuglyph("uni6C19";25);
194 build_kanji.steam_enclose((700,400))(kanji.grone.mountain);
195 tsu_render;
196 endtsuglyph;
197

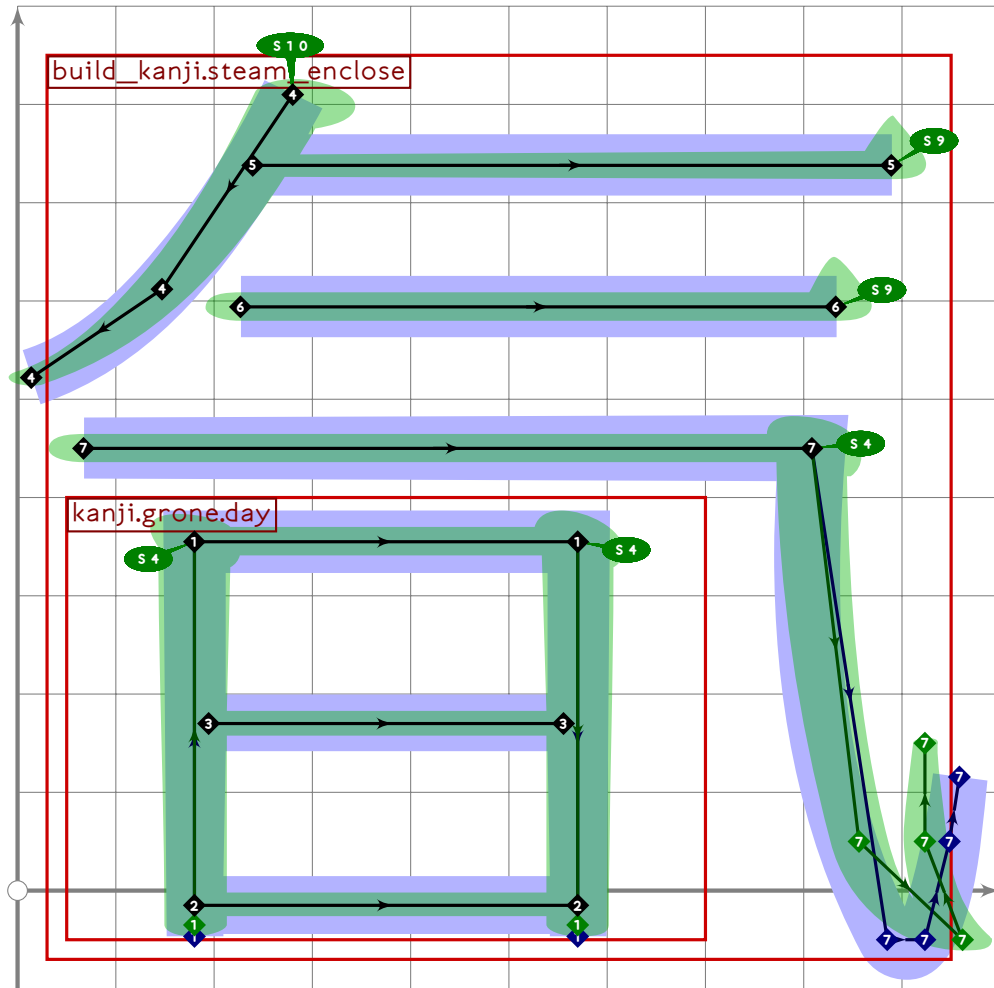
```



```

198 % extra
199 begintsuglyph("uni6C1A";26);
200 build_kanji.steam_enclose((700,400))(kanji.grone.river);
201 tsu_render;
202 endtsuglyph;
203

```

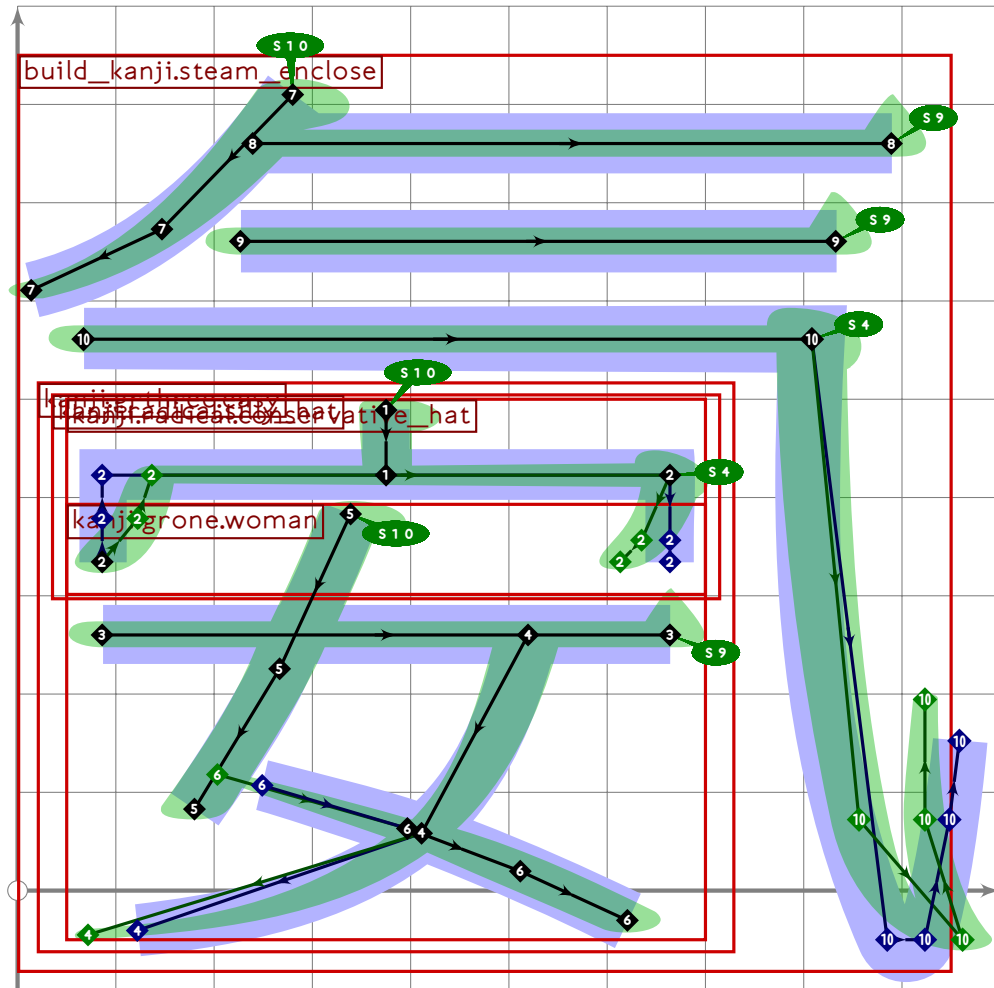


```

204 % extra
205 begint Suglyph("uni6C1C",28);
206 build_kanji.steam_enclose((700,400))(kanji.grone.day);
207 tsu_render;
208 endtsuglyph;
209

```

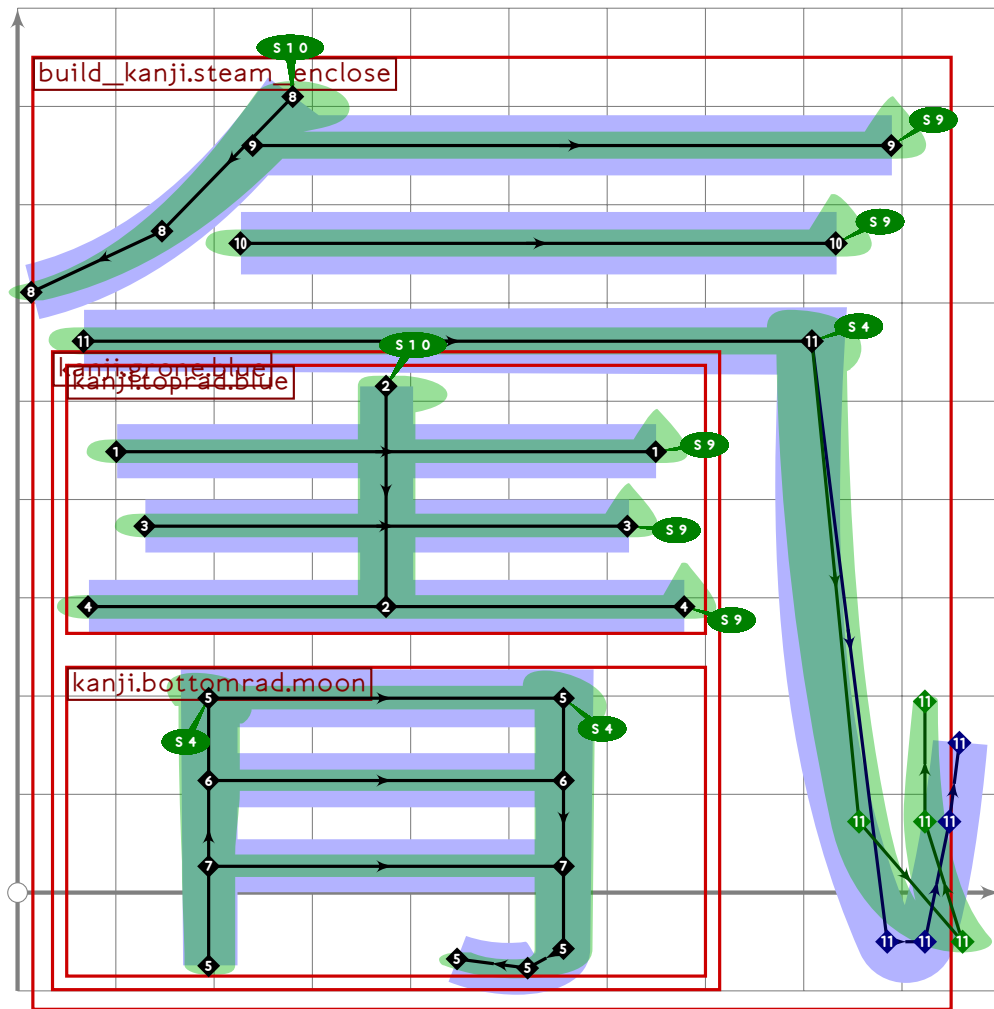




```

210 % extra
211 beginsuglyph("uni6C28"40);
212 build_kanji.steam_enclose((700,500))(kanji.grthree.easy);
213 tsu_render;
214 endsuglyph;
215

```

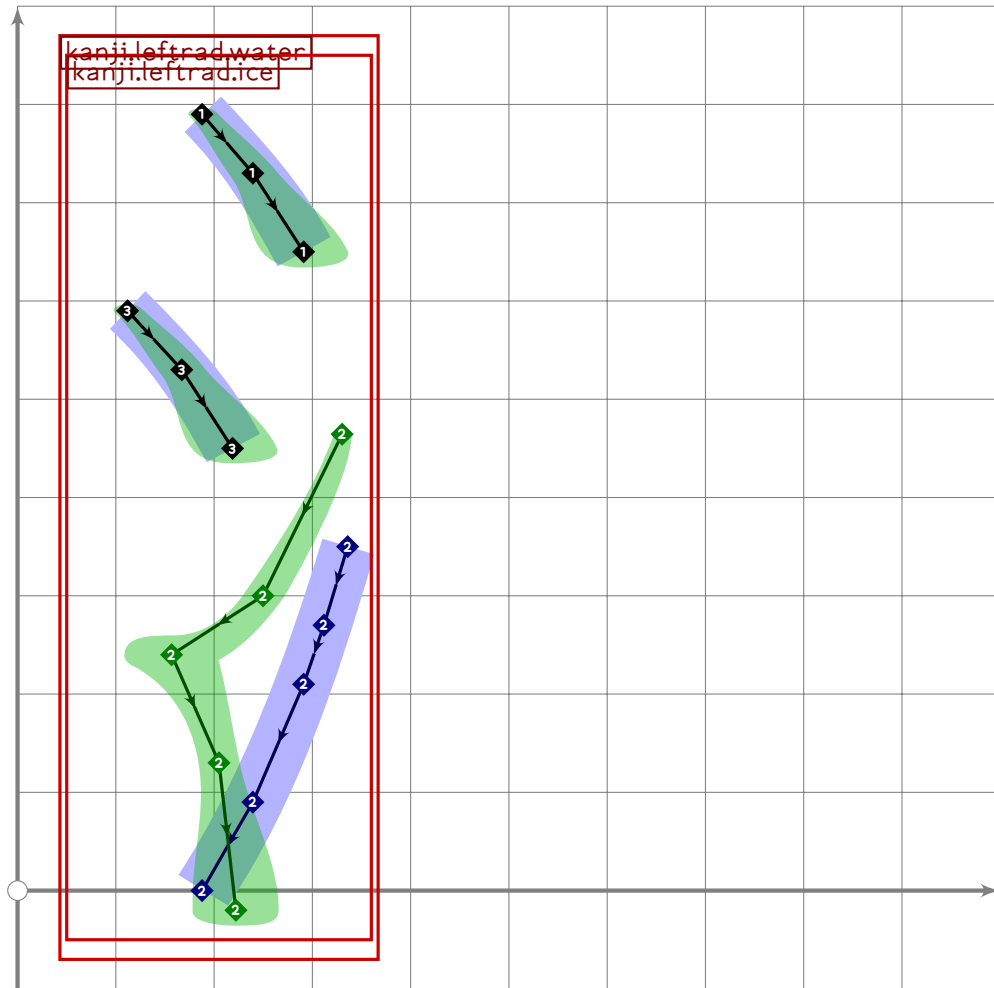


```

216 % extra
217 begintsuglyph("uni6C30";48);
218 build_kanji.steam_enclose((700,500))
219 (build_kanji.sscale(yscaled 1.13)(kanji.grone.blue));
220 tsu_render;
221 endtsuglyph;
222
223 % sui/mizu "water"
224 begintsuglyph("uni6C34";52);
225 kanji.grone.water;
226 tsu_render;
227 endtsuglyph;
228

```

[see page 439]



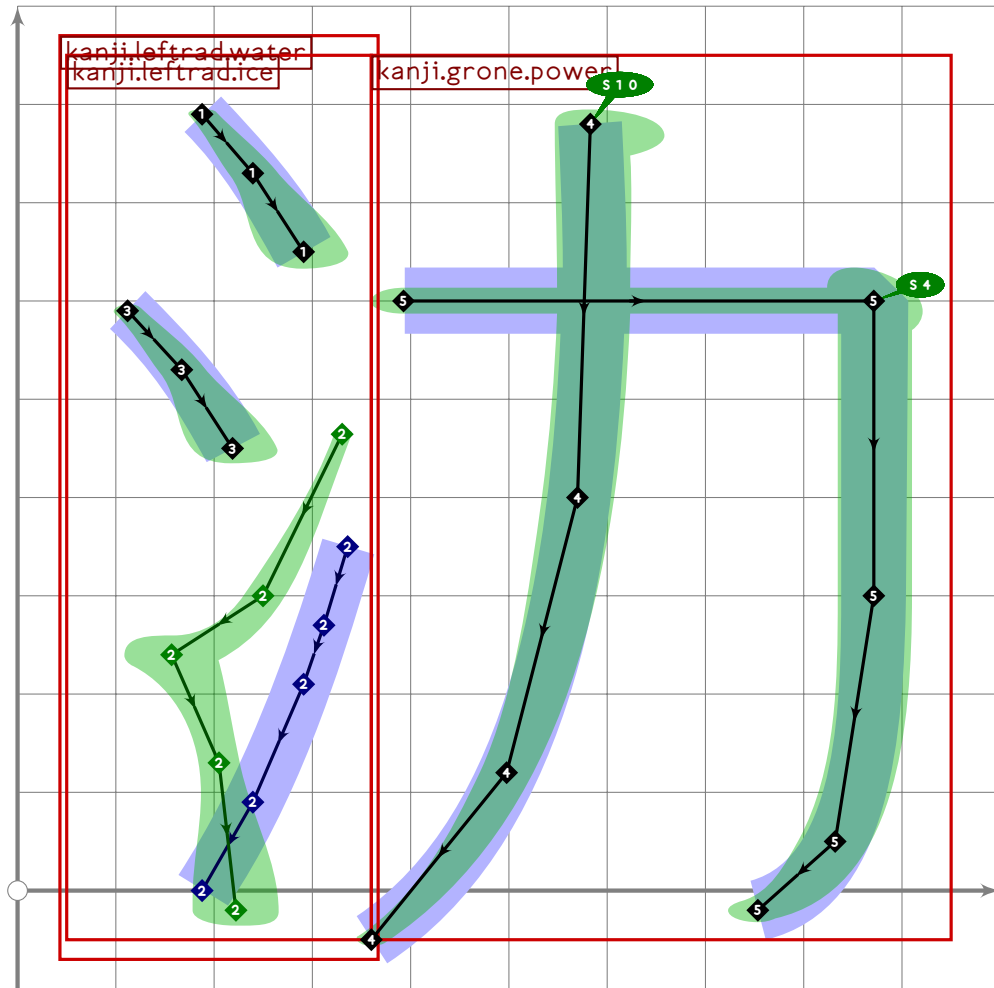
```

229 % extra "water side radical"
230 begintsuglyph("uni6C35";53);
231 build_kanji.lr(360,0)
232 (kanji.leftrad.water)
233 ();
234 tsu_render;
235 endtsuglyph;
236
237 % hyou/koori "ice"
238 begintsuglyph("uni6C37";55);
239 kanji.grthree.ice;
240 tsu_render;
241 endtsuglyph;
242
243 % water radical variant
244 begintsuglyph("uni6C3A";58);
245 kanji.radical.water_variant;
246 tsu_render;
247 endtsuglyph;
248

```

[see page 1919]

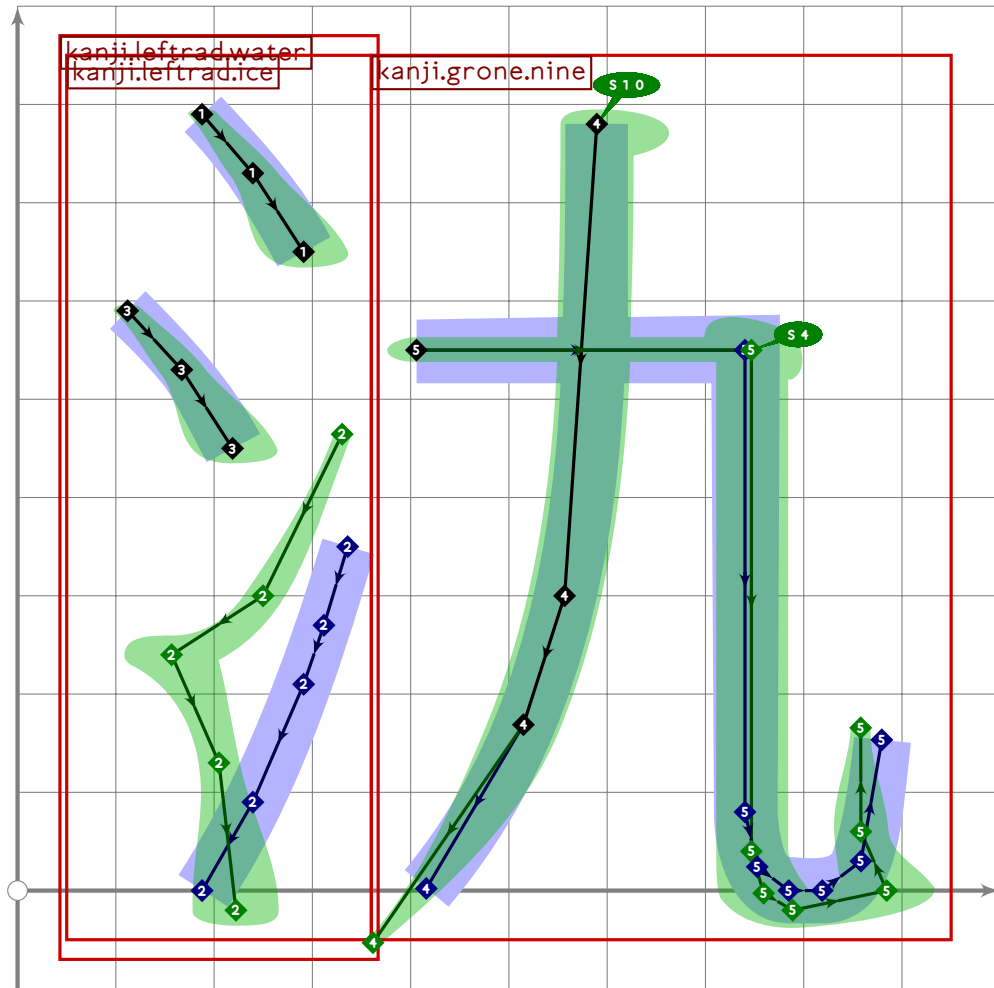
[see page 367]



```

249 % extra
250 begintsuglyph("uni6C3B",59);
251 build_kanji.lr(360,0)
252 (kanji.leftrad.water)
253 (kanji.grone.power);
254 tsu_render;
255 endsuglyph;
256

```



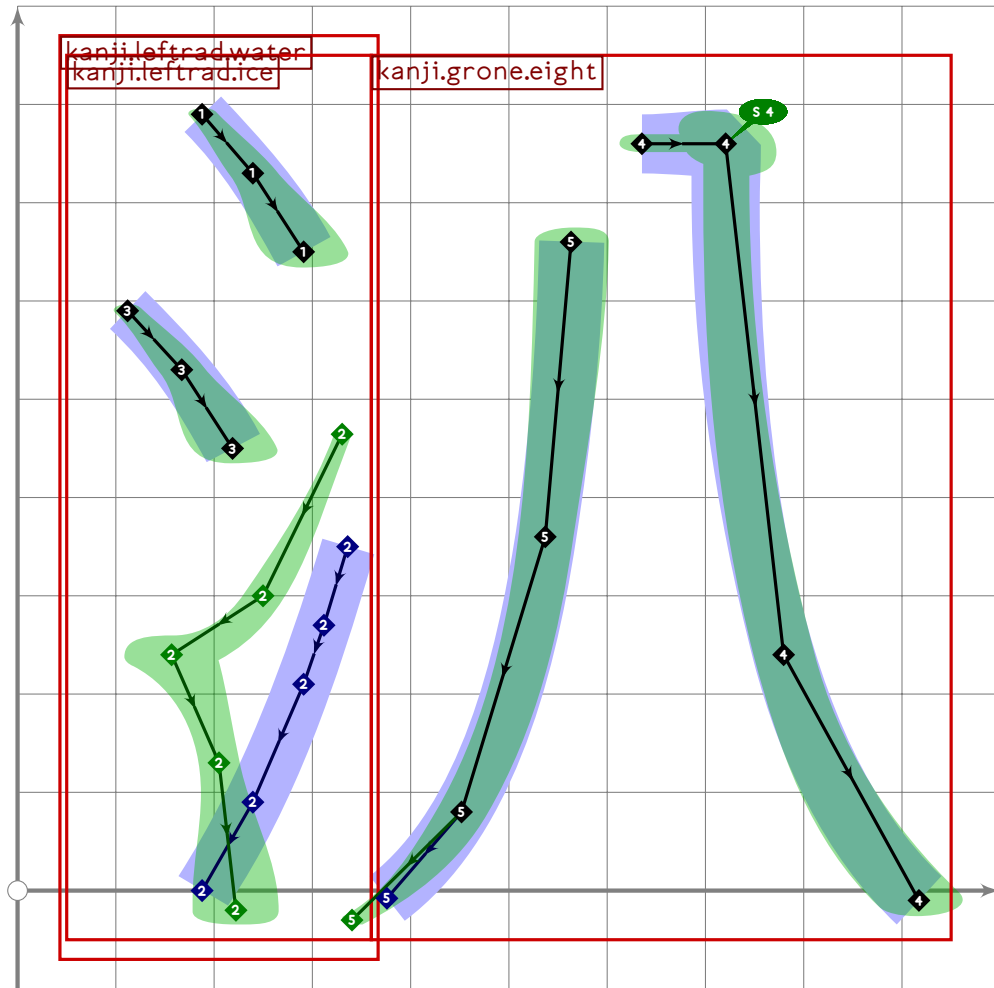
```

257 % extra
258 begintsuglyph("uni6C3F",63);
259 build_kanji.lr(360,0)
260 (kanji.leftrad.water)
261 (kanji.grone.nine);
262 tsu_render;
263 endtsuglyph;
264
265 % tei/migiwa "shore"
266 begintsuglyph("uni6C40",64);
267 kanji.grnine.shore;
268 tsu_render;
269 endtsuglyph;
270
271 % juu/shiru "juice" or "soup"
272 begintsuglyph("uni6C41",65);
273 kanji.greight.juice;
274 tsu_render;
275 endtsuglyph;
276

```

[see page 1926]

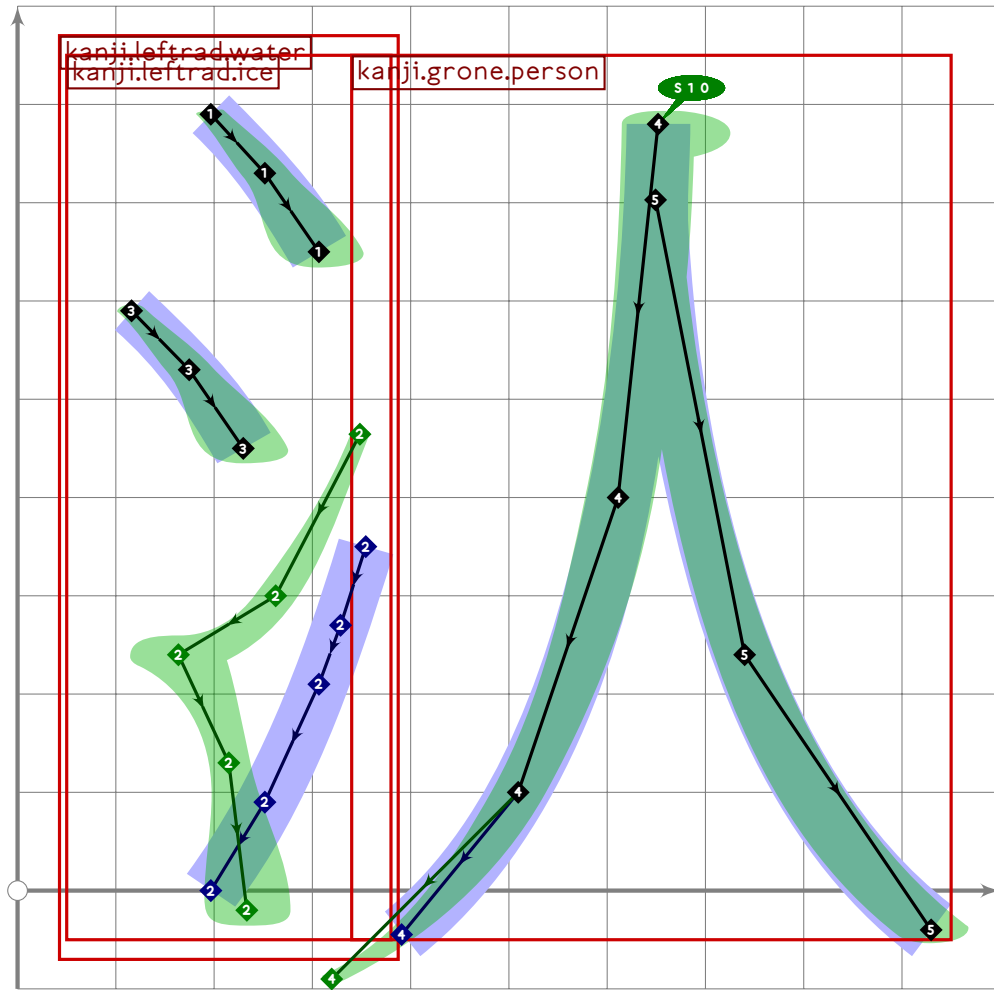
[see page 1924]



```

277 % extra
278 begintsuglyph("uni6C43";67);
279 build_kanji.lr(360,0)
280 (kanji.leftrad.water)
281 (kanji.grone.eight);
282 tsu_render;
283 endsuglyph;
284

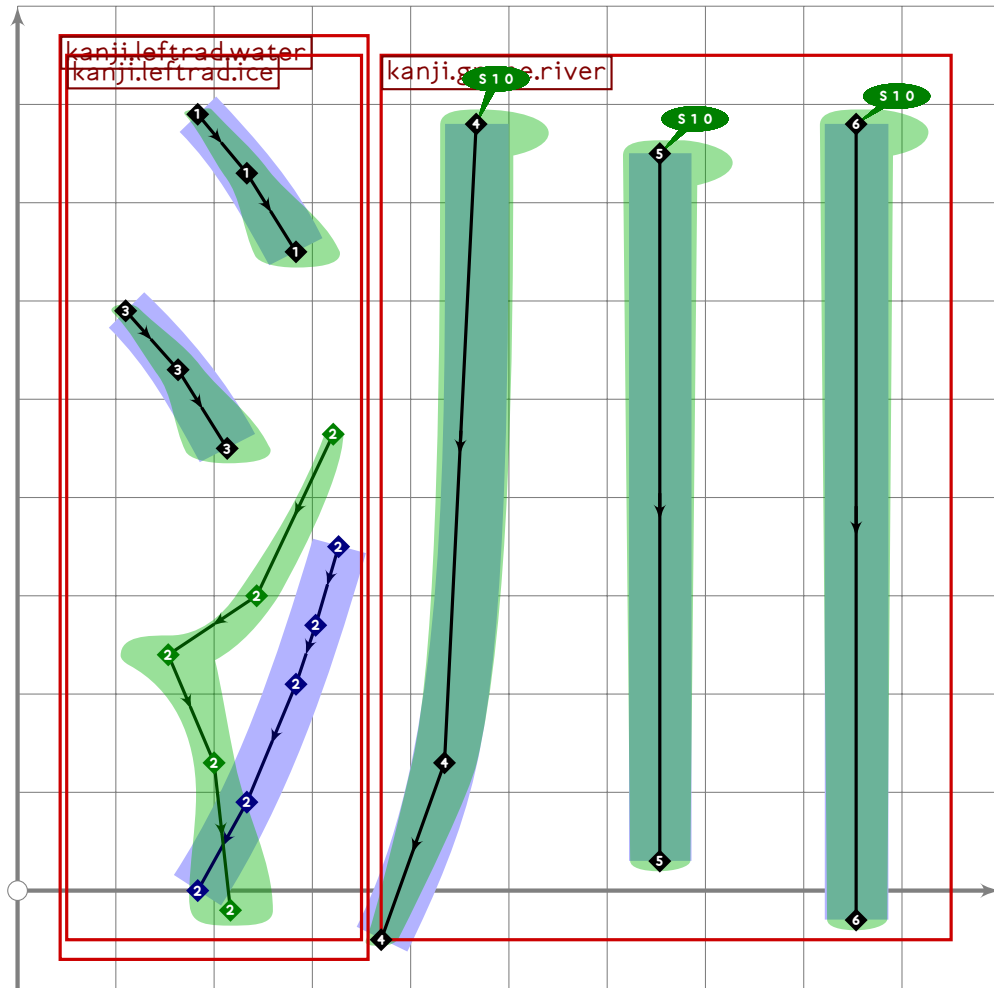
```



```

285 % extra
286 begintsuglyph("uni6C44";68);
287 build_kanji.lr(360,40)
288   (kanji.leftrad.water)
289   (kanji.grone.person);
290   tsu_render;
291 endsuglyph;
292

```

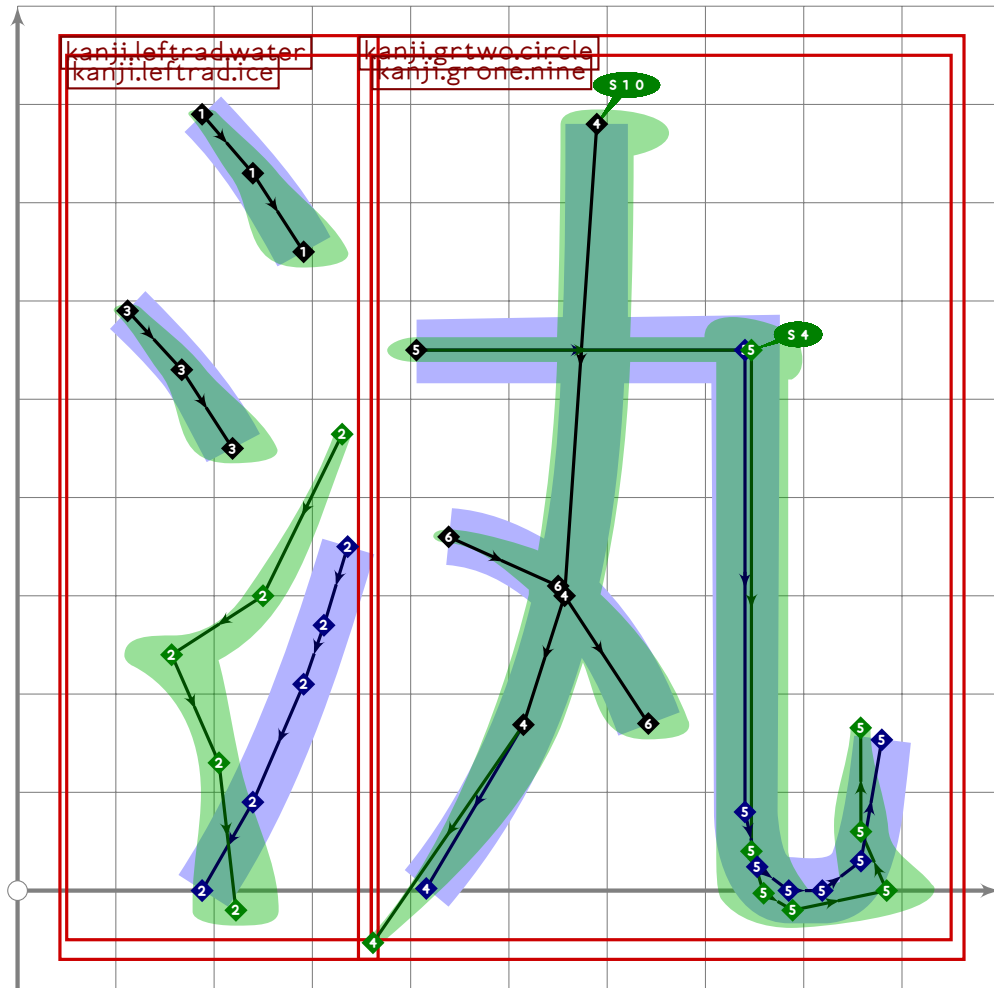


```

293 % extra
294 begintsuglyph("uni6C4C";76);
295 build_kanji.lr(360;20)
296 (kanji.leftrad.water)
297 (kanji.grone.river);
298 tsu_render;
299 endtsuglyph;
300

```

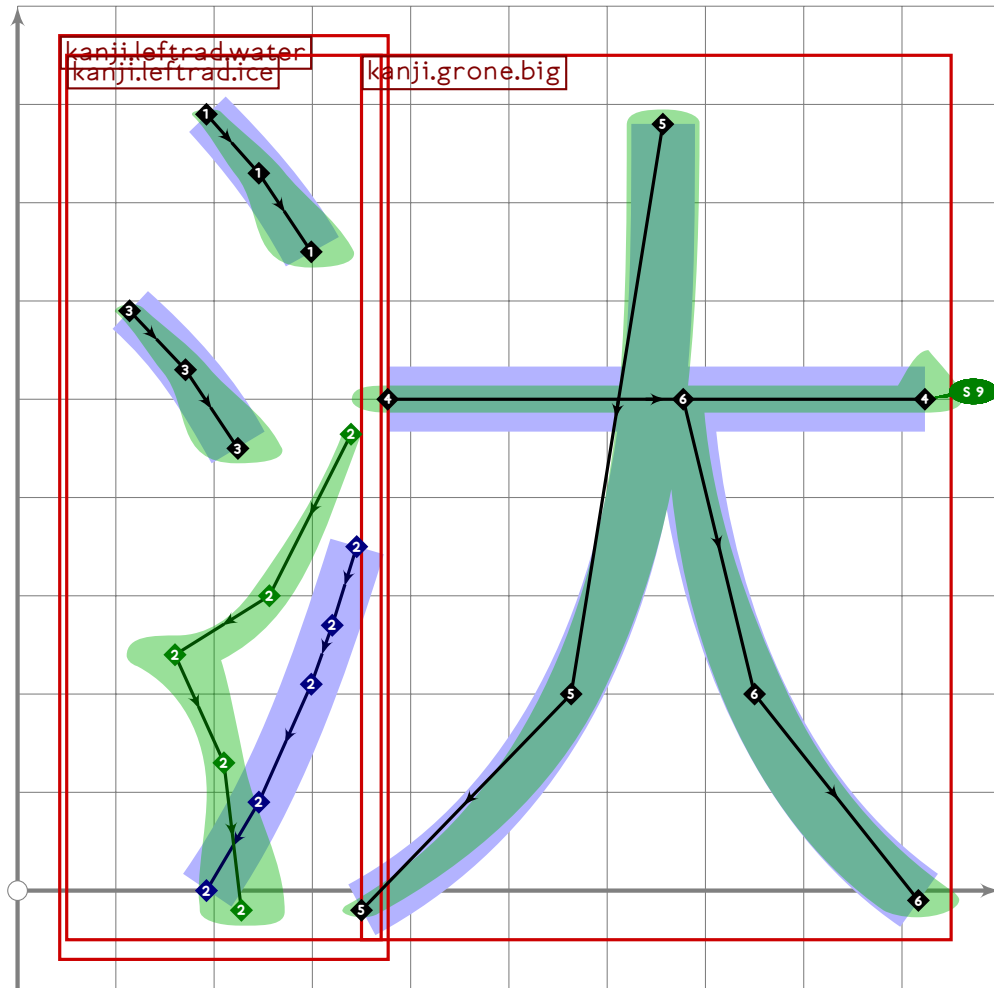




```

301 % extra
302 beginsuglyph("uni6C4D'77);
303 build_kanji.lr(360,0)
304   (kanji.leftrad.water)
305   (kanji.grtwo.circle);
306   tsu_render;
307 endsuglyph;
308

```

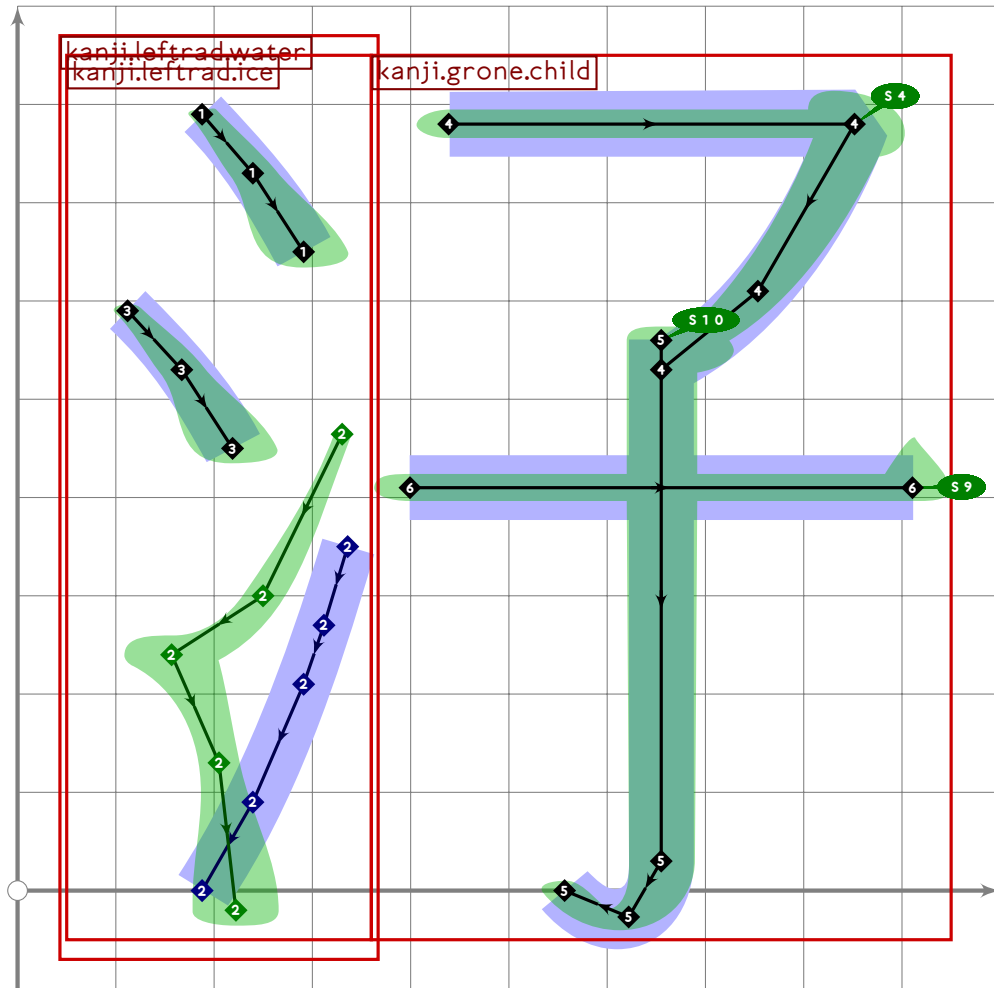


```

309 % extra
310 begintsuglyph("uni6C4F",79);
311 build_kanji.lr(360,20)
312 (kanji.leftrad.water)
313 (kanji.grone.big);
314 tsu_render;
315 endtsuglyph;
316
317 % seki/shio "tide"
318 begintsuglyph("uni6C50",80);
319 kanji.grnine.tide;
320 tsu_render;
321 endtsuglyph;
322

```

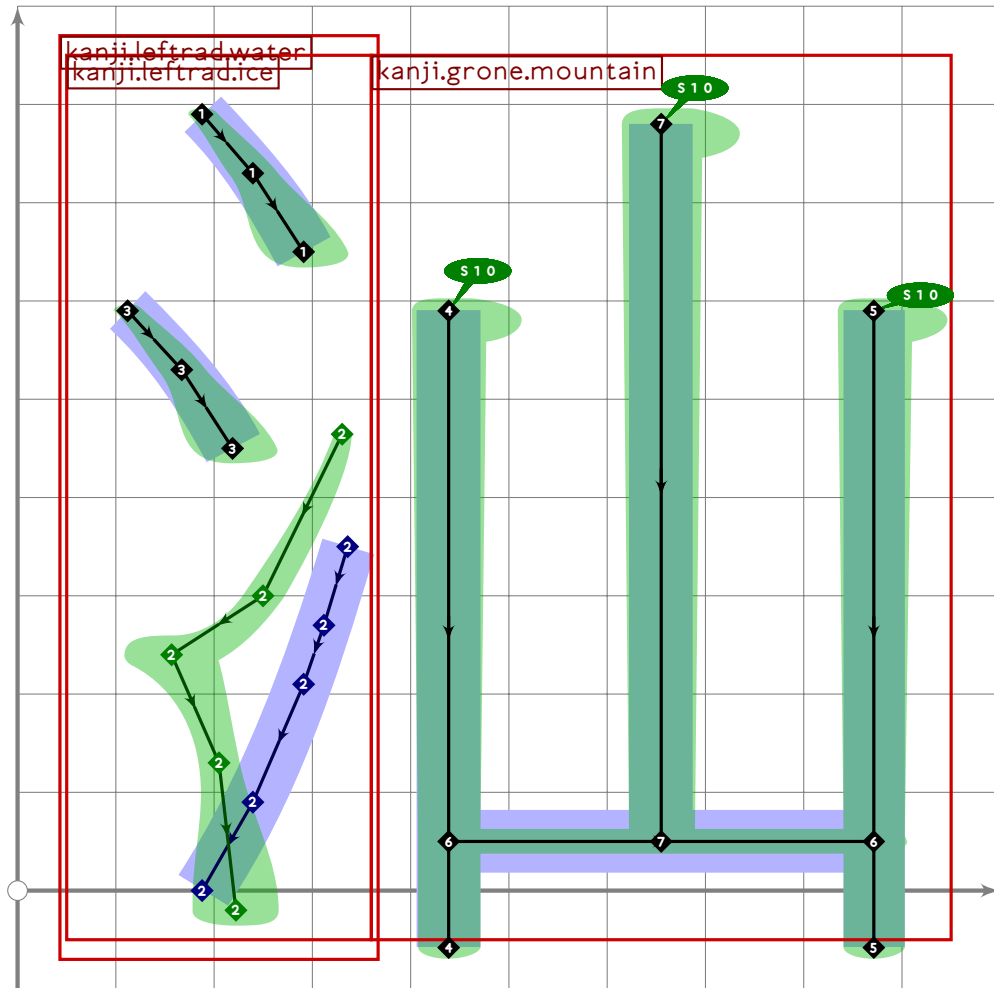
[see page 1928]



```

323 % extra
324 begintsuglyph("uni6C53";83);
325 build_kanji.lr(360,0)
326 (kanji.leftrad.water)
327 (kanji.grone.child);
328 tsu_render;
329 endtsuglyph;
330

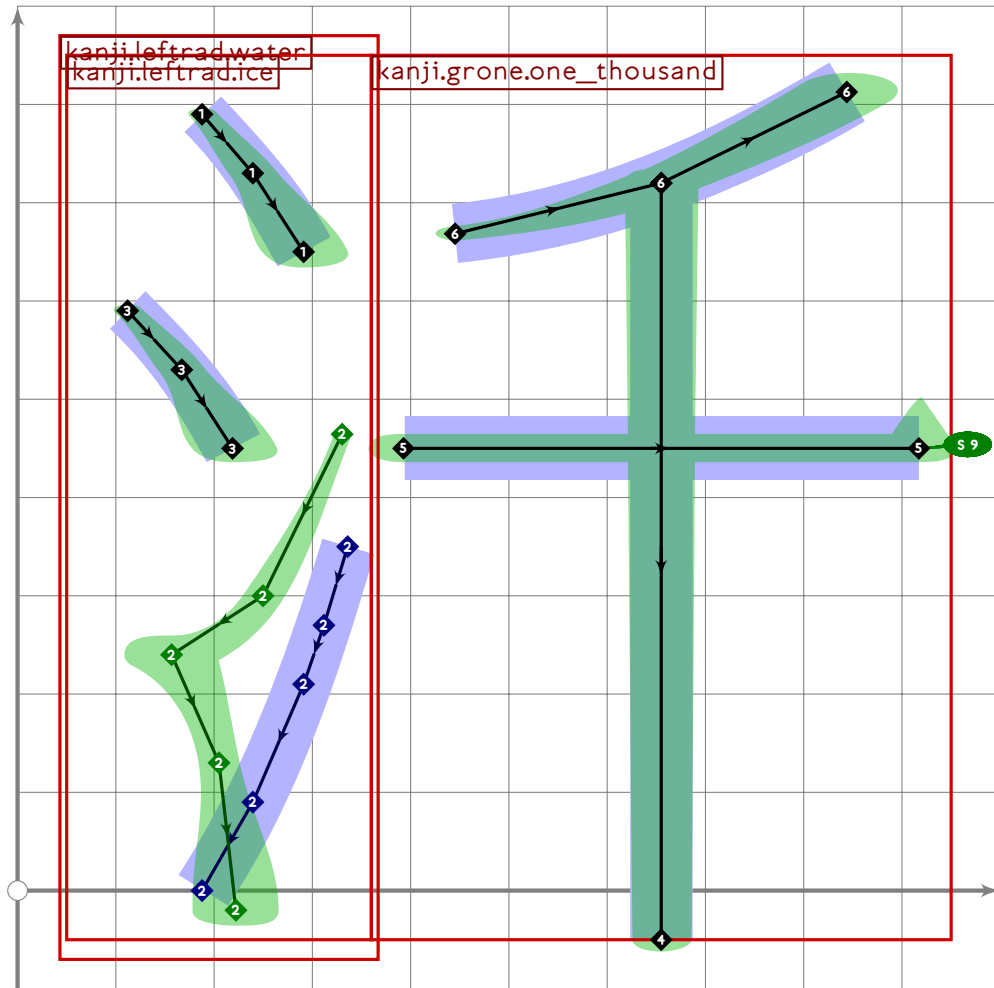
```



```

331 % extra "fish swimming"
332 begintsuglyph("uni6C55",85);
333 build_kanji.lr(360,0)
334   (kanji.leftrad.water)
335   (kanji.grone.mountain);
336   tsu_render;
337   endtsuglyph;
338

```



```

339 % extra
340 begintsuglyph("uni6C58";88);
341 build_kanji.lr(360,0)
342 (kanji.leftrad.water)
343 (kanji.grone.one_thousand);
344 tsu_render;
345 endtsuglyph;
346
347 % jo/nanji "thou"
348 begintsuglyph("uni6C5D";93);
349 kanji.grnine.thou;
350 tsu_render;
351 endtsuglyph;
352
353 % kou/e "bay" ("e" in "Edo")
354 begintsuglyph("uni6C5F";95);
355 kanji.greight.bay;
356 tsu_render;
357 endtsuglyph;
358
359 % chi/ike "pond"

```

[see page 1927]

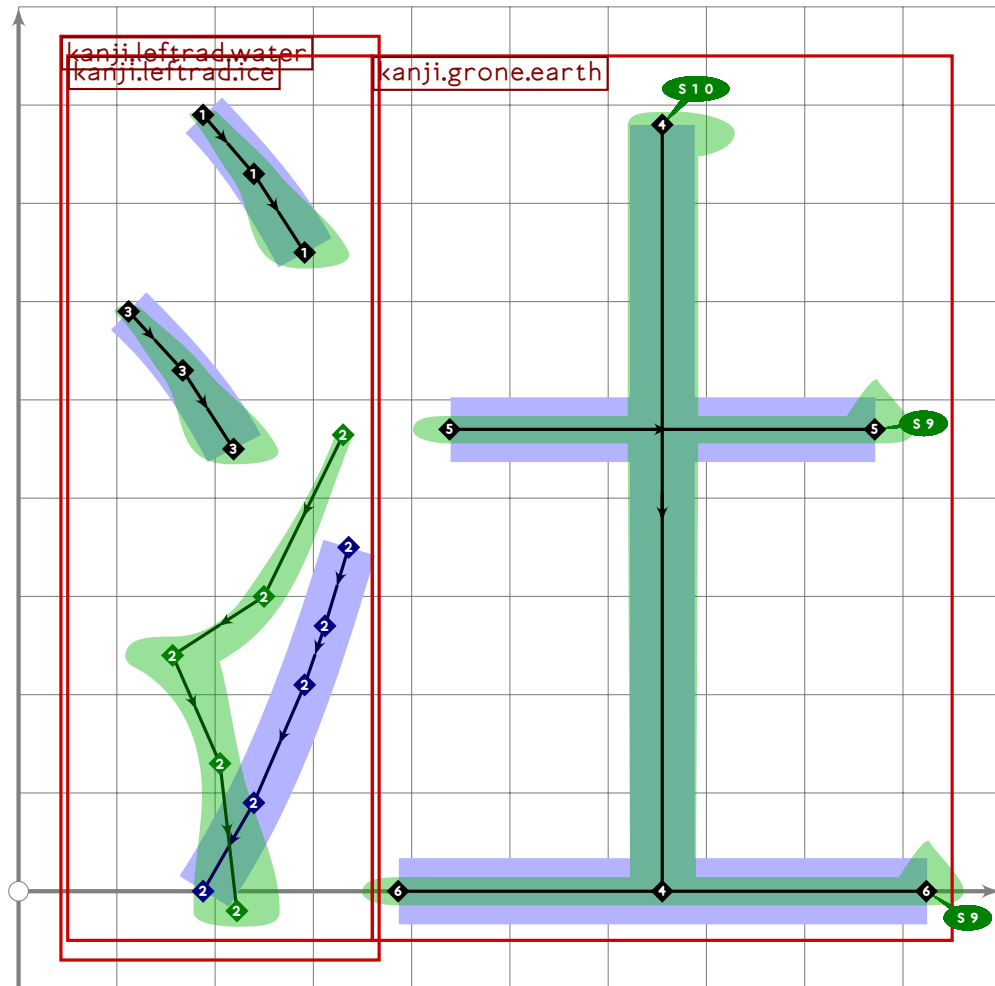
[see page 1922]

```

360 begint Suglyph("uni6C60";96);
361   kanji.grtwo.pond;
362   tsu_render;
363 endtsuglyph;
364

```

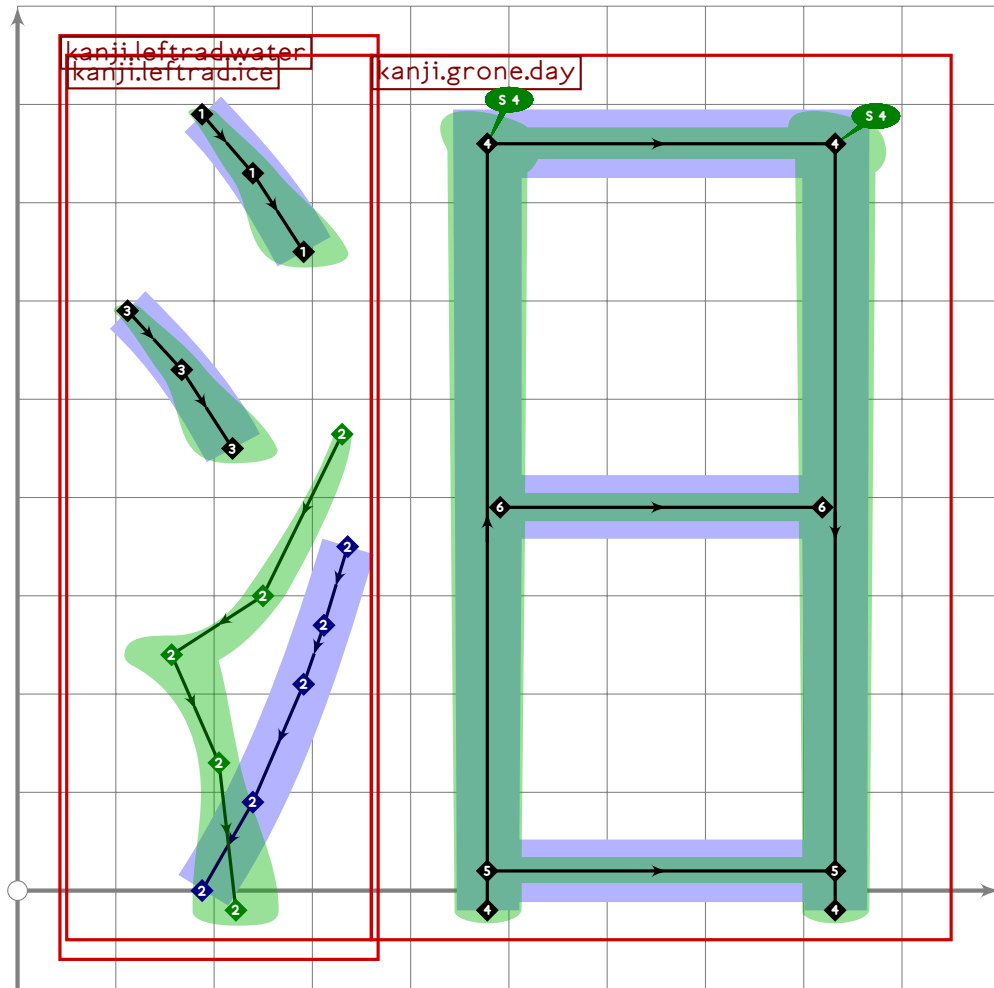
[see page 1916]



```

365 % extra
366 begint Suglyph("uni6C62";98);
367   build_kanji.lr(360,0)
368     (kanji.leftrad.water)
369     (kanji.grone.earth);
370   tsu_render;
371 endtsuglyph;
372

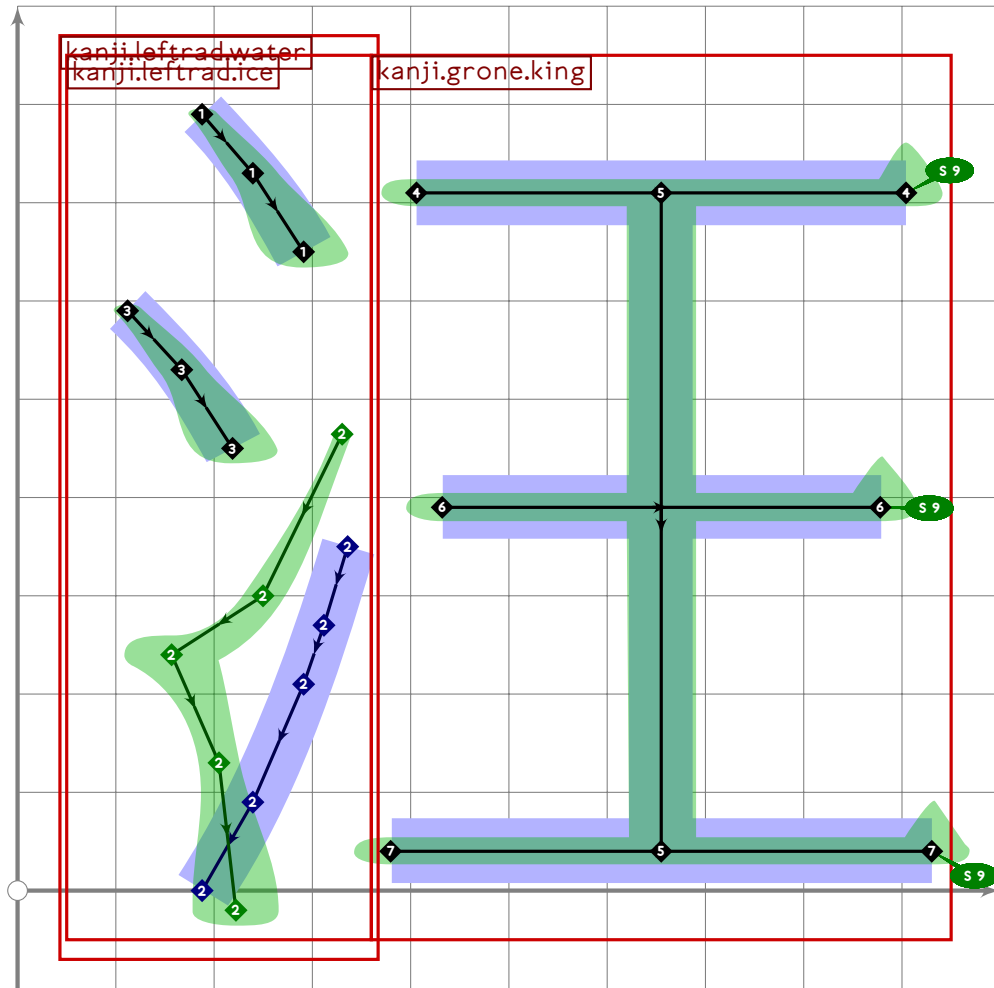
```



```

373 % extra
374 begintsuglyph("uni6C68",104);
375 build_kanji.lr(360,0)
376 (kanji.leftrad.water)
377 (kanji.grone.day);
378 tsu_render;
379 endtsuglyph;
380

```

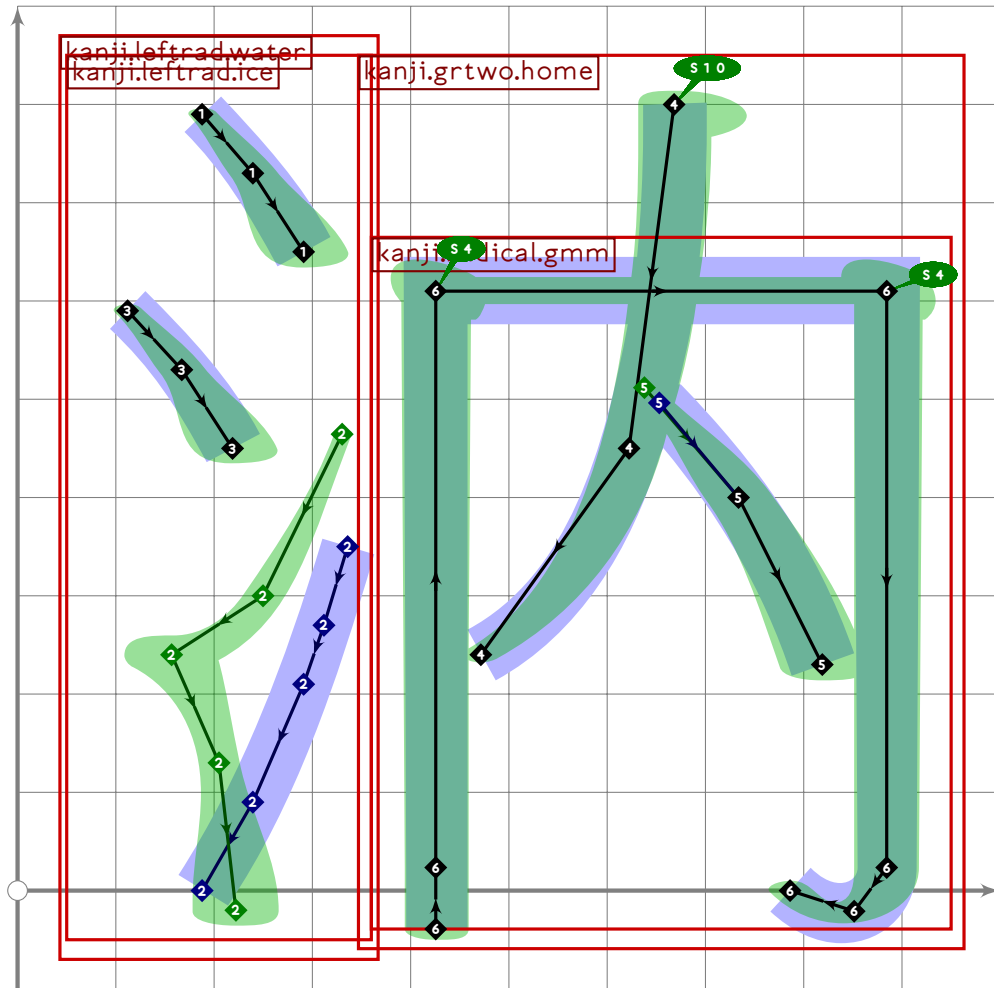


```

381 % extra
382 begintsuglyph("uni6C6A",106);
383 build_kanji.lr(360,0)
384   (kanji.leftrad.water)
385   (kanji.grone.king);
386 tsu_render;
387 endtsuglyph;
388

```



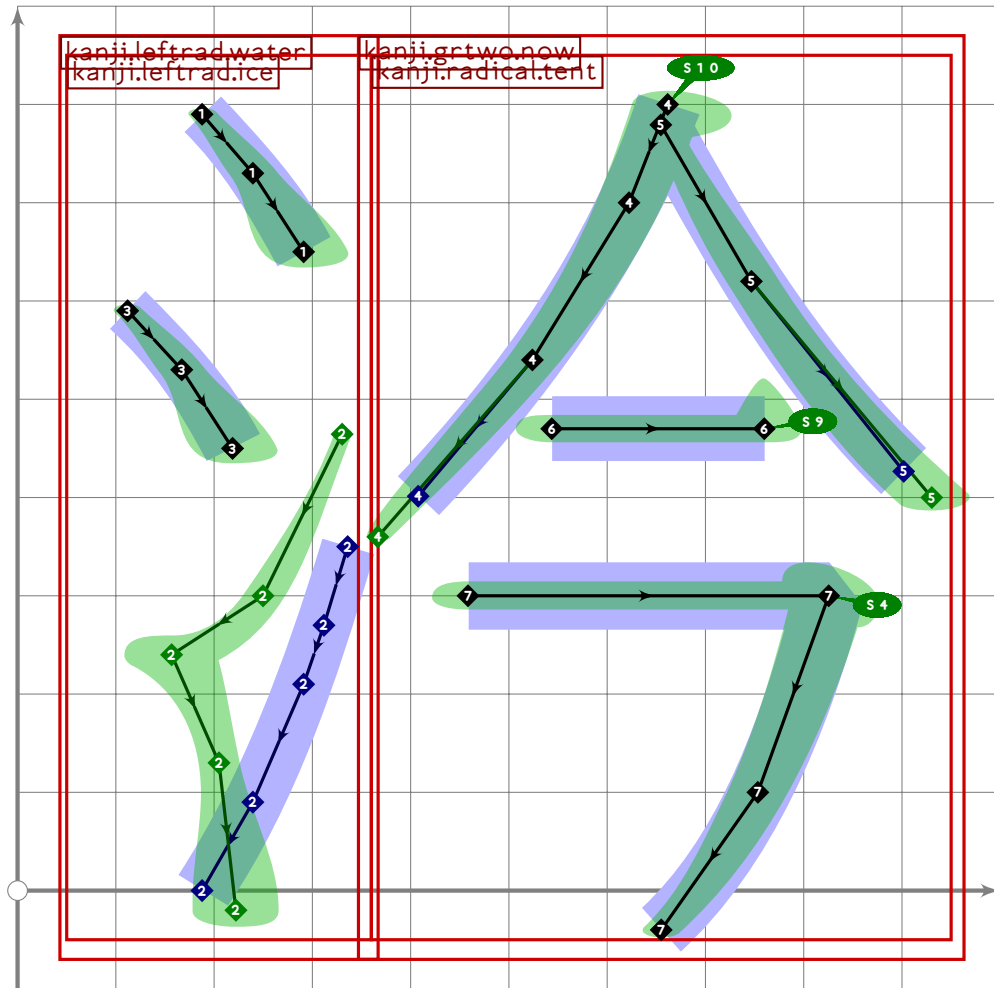


```

389 % extra
390 begintsuglyph("uni6C6D",109);
391 build_kanji.lr(360,0)
392 (kanji.leftrad.water)
393 (kanji.grtwo.home);
394 tsu_render;
395 endtsuglyph;
396
397 % ta/ogo "luxury"
398 begintsuglyph("uni6C70",112);
399 kanji.grnine.luxury;
400 tsu_render;
401 endtsuglyph;
402

```

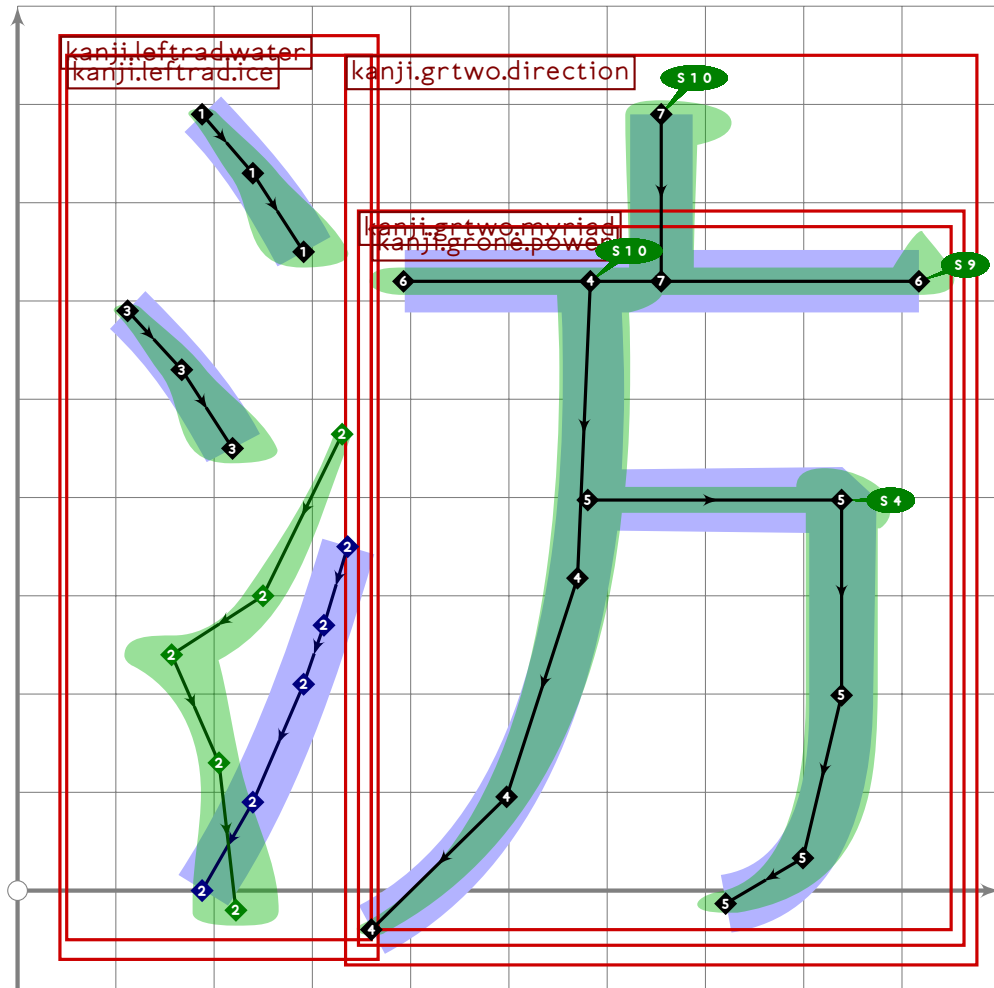
[see page 1925]



```

403 % extra
404 begintsuglyph("uni6C75";117);
405 build_kanji.lr(360,0)
406 (kanji.leftrad.water)
407 (kanji.grtwo.now);
408 tsu_render;
409 endsuglyph;
410

```

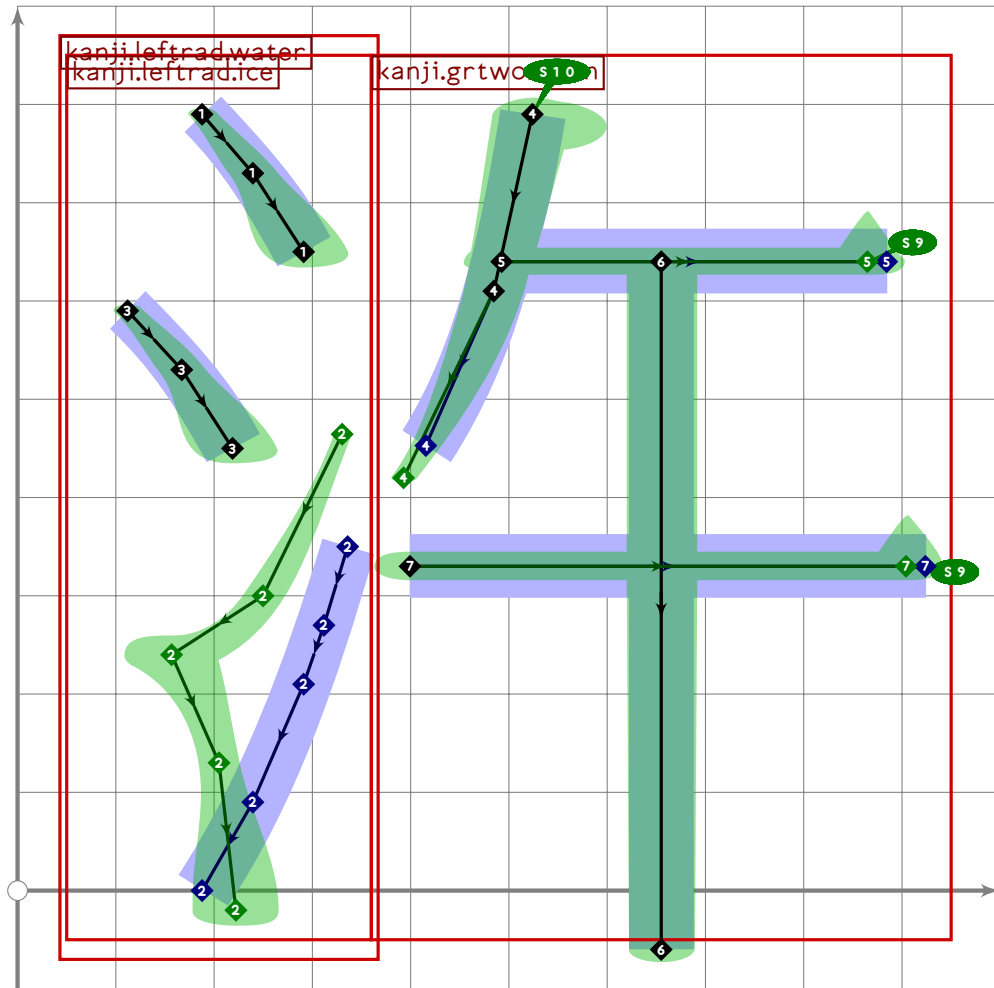


```

411 % extra
412 begintsuglyph("uni6C78",120);
413 build_kanji.lr(360,0)
414 (kanji.leftrad.water)
415 (kanji.grtwo.direction);
416 tsu_render;
417 endtsuglyph;
418
419 % ketsu/ki "decide"
420 begintsuglyph("uni6C7A",122);
421 kanji.grthree.decide;
422 tsu_render;
423 endtsuglyph;
424

```

[see page 1918]

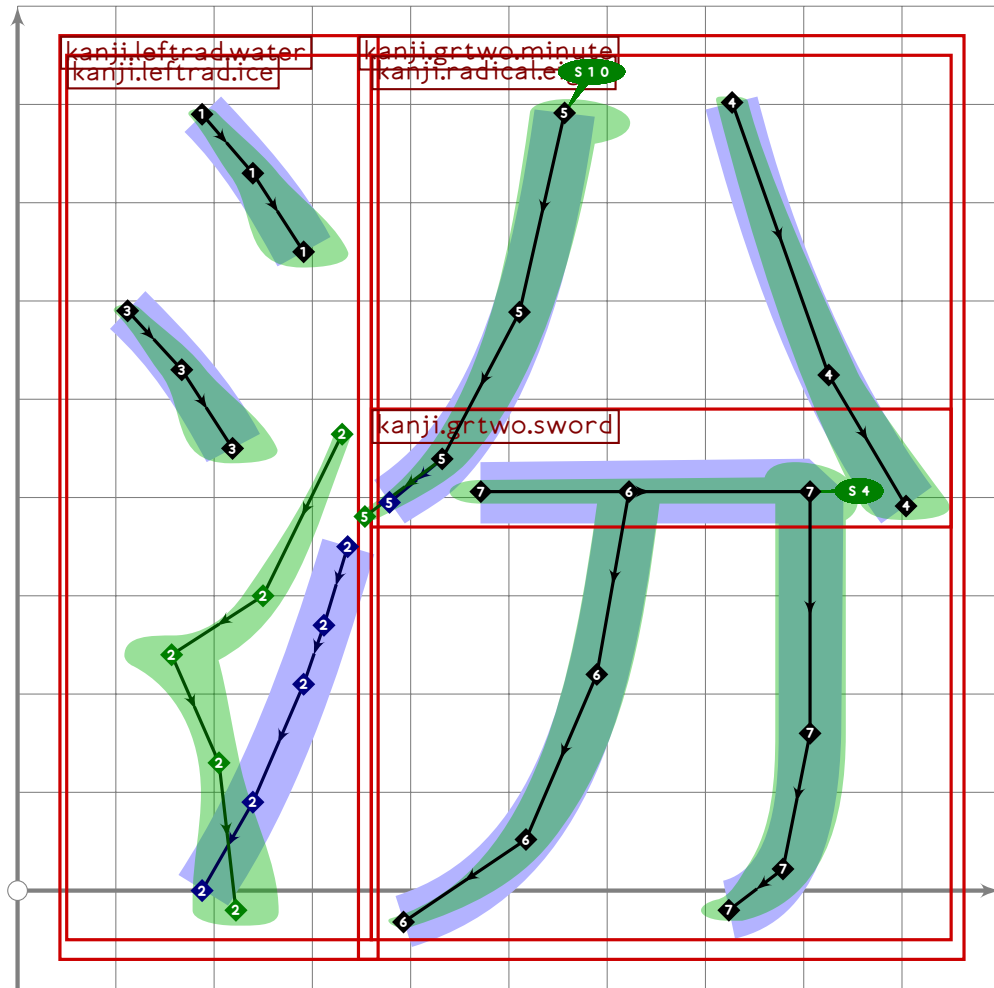


```

425 % extra
426 begintsuglyph("uni6C7B",123);
427   build_kanji.lr(360,0)
428     (kanji.leftrad.water)
429     (kanji.grtwo.noon);
430   tsu_render;
431 endtsuglyph;
432
433 % ki "steam"
434 begintsuglyph("uni6C7D",125);
435   kanji.grtwo.steam;
436   tsu_render;
437 endtsuglyph;
438

```

[see page 1917]



439 % extra "name of a Chinese river"

```
440 begintsuglyph("uni6C7E",126);
441 build_kanji.lr(360,0)
442   (kanji.leftrad.water)
443   (kanji.grtwo.minute);
444 tsu_render;
445 endtsuglyph;
```

```
446
447 % you/soso "fertility"
448 begintsuglyph("uni6C83",131);
449 kanji.greight.fertility;
450 tsu_render;
451 endtsuglyph;
```

[see page 1923]

```
452
453 % yu/abura "oil"
454 begintsuglyph("uni6CB9",185);
455 kanji.grthree.oil;
456 tsu_render;
457 endtsuglyph;
```

[see page 1920]

```
458
459 % sen/izumi "spring" or "fountain" (not the season)
```

```
460 begintsuglyph("uni6CC9";201); [see page 564]
461 kanji.grsix.fountain;
462 tsu_render;
463 endtsuglyph;
464
465 % chuu/soso "pour"
466 begintsuglyph("uni6CE8";232); [see page 1921]
467 kanji.grthree.pour;
468 tsu_render;
469 endtsuglyph;
470
471 

---


472
473 endfont;
474
475 

---


```

# tsuku-6d.mp

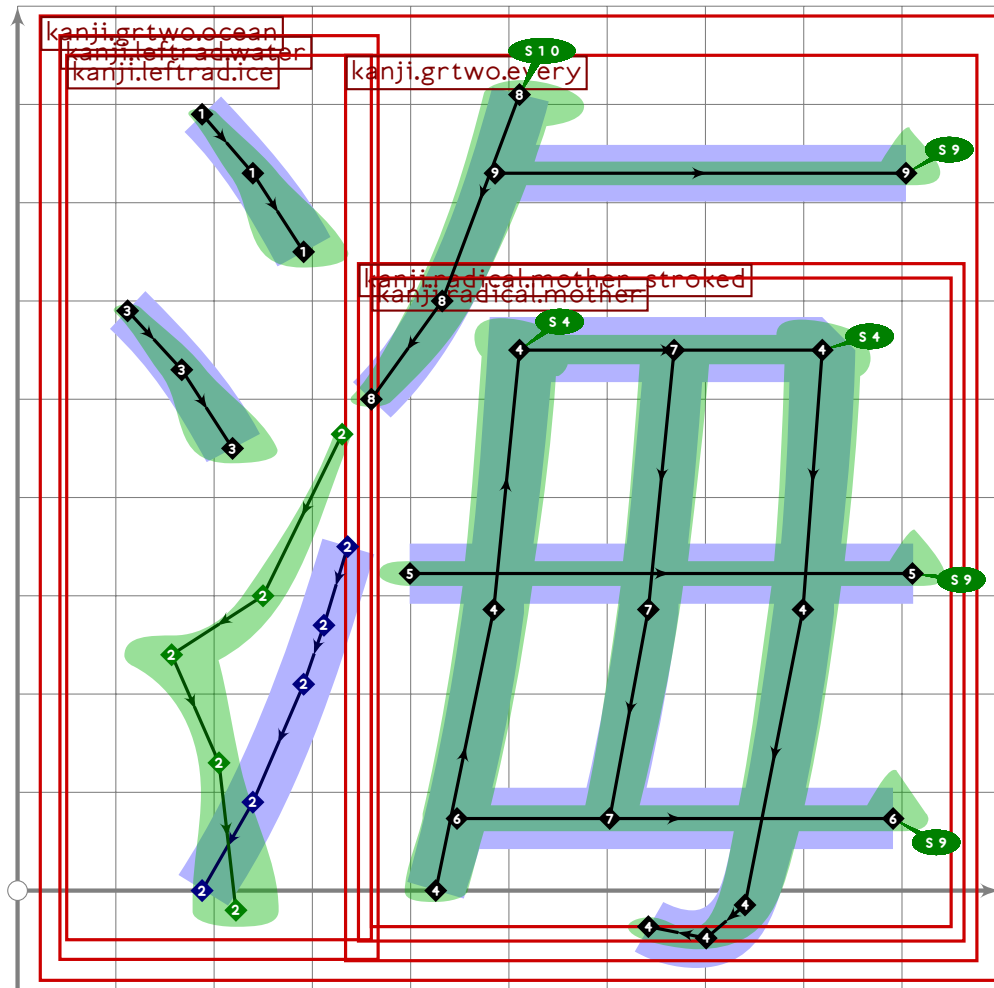
```
1 %
2 % Unicode page 6d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input toprad.mp;
47
48 

---


```

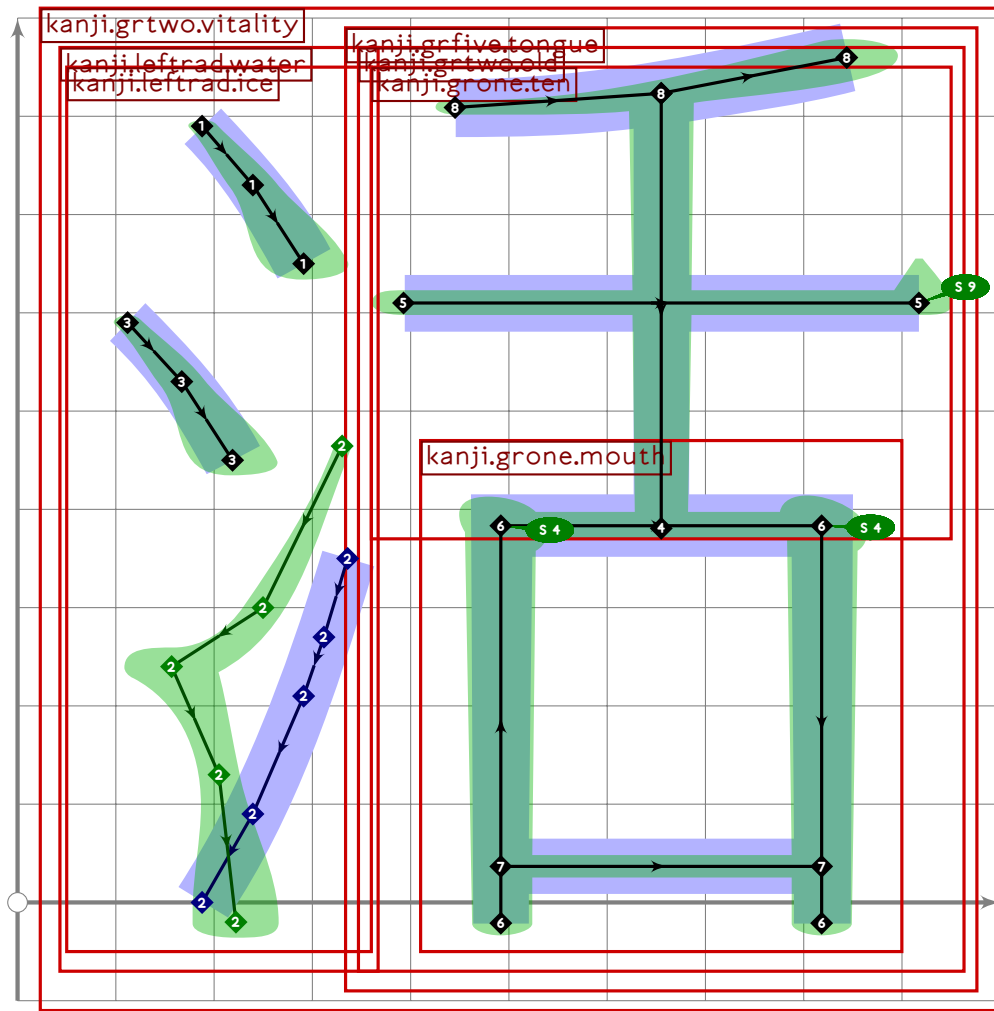


```

49
50 vardef kanji.grtwo.ocean =
51   push_pbox_toexpand("kanji.grtwo.ocean");
52   build_kanji.lr(360,0)
53     (kanji.leftrad.water)
54     (kanji.grtwo.every);
55   expand_pbox;
56 enddef;

```

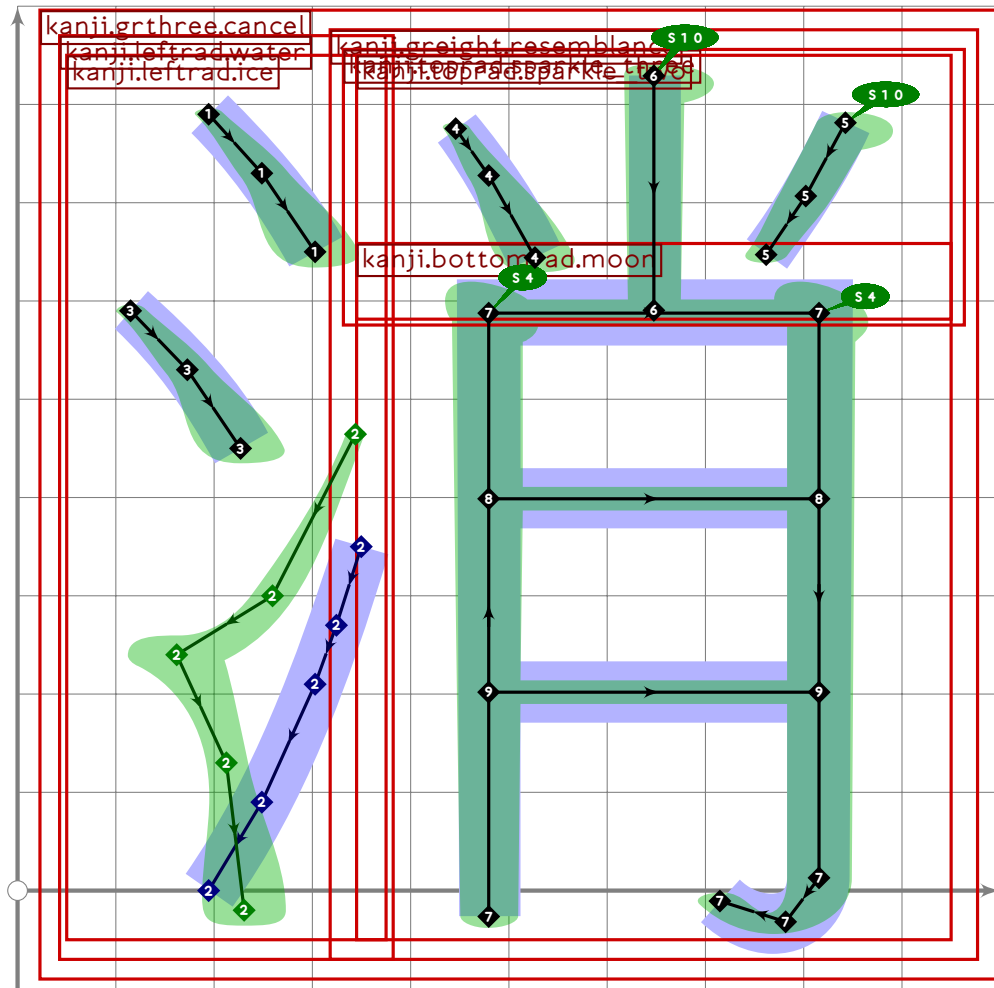




```

57
58 vardef kanji.grtwo.vitality =
59   push_pbox_toexpand("kanji.grtwo.vitality");
60   build_kanji.lr(360,0)
61     (kanji.leftrad.water)
62     (kanji.grfive.tongue);
63   expand_pbox;
64 enddef;
65
66

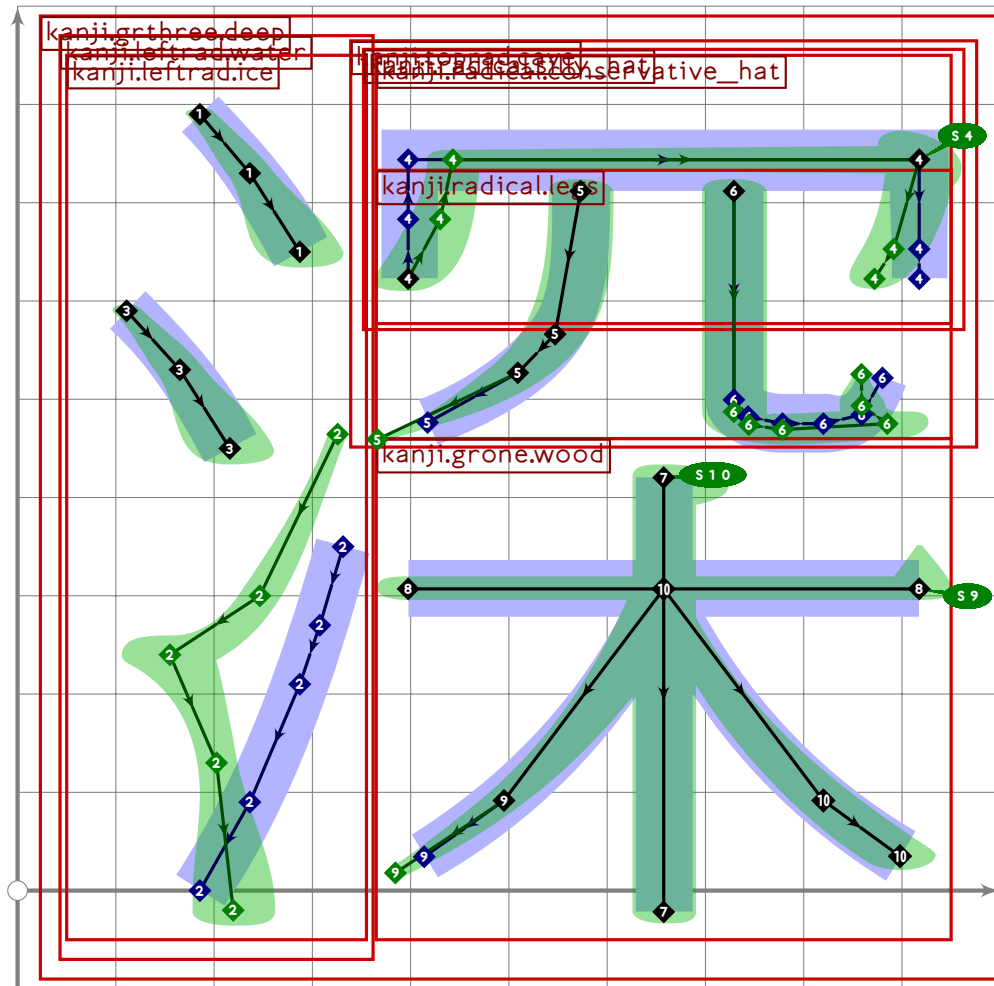
```



```

67
68 vardef kanji.grthree.cancel =
69   push_pbox_toexpand("kanji.grthree.cancel");
70   build_kanji.lr(360,30)
71     (kanji.leftrad.water)
72     (kanji.greight.resemblance);
73   expand_pbox;
74 enddef;

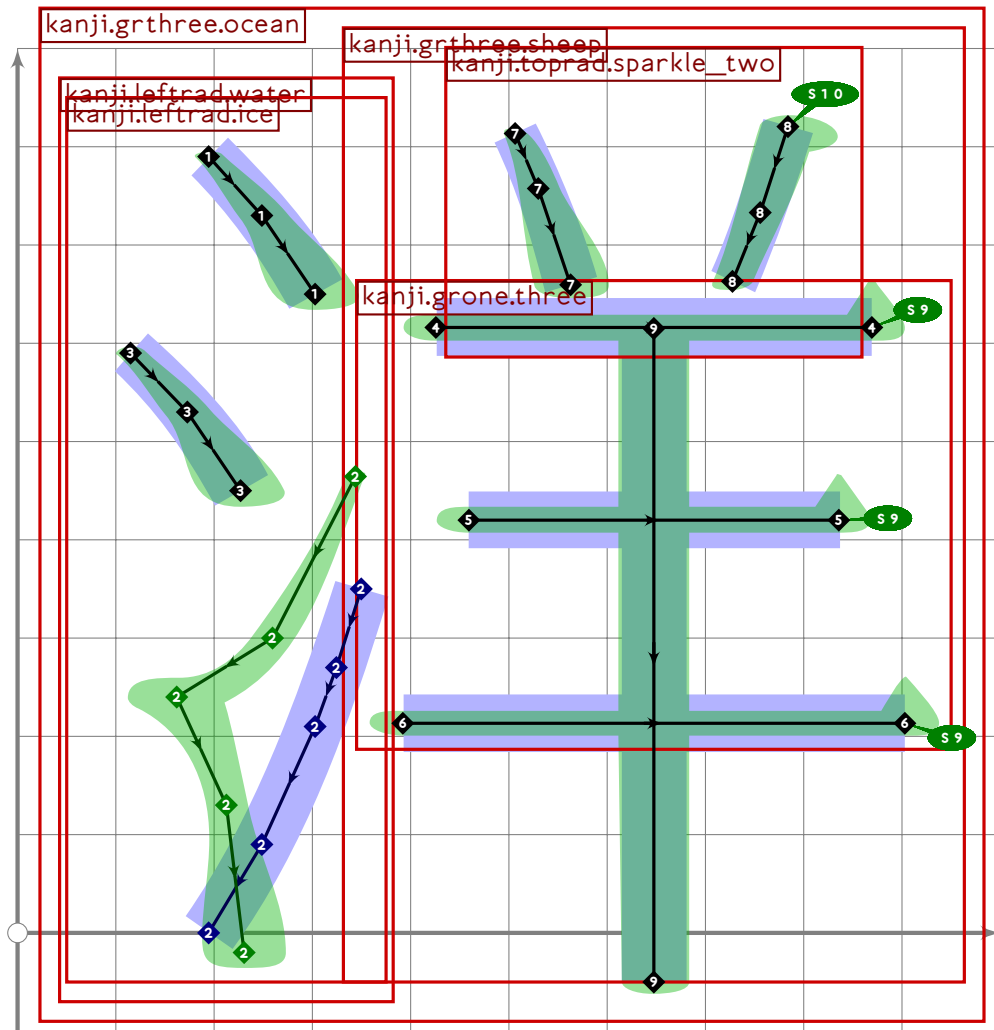
```



```

75
76 vardef kanji.grthree.deep =
77   push_pbox_toexpand("kanji.grthree.deep");
78   build_kanji.lr(360,-10)
79   (kanji.leftrad.water)
80   (build_kanji.level(build_kanji.tb(460,0)
81     (kanji.toprad.cave;
82     set_bosize(-3,0)
83     (kanji.grone.wood)));
84   expand_pbox;
85 enddef;

```



```

86
87 vardef kanji.grthree.ocean =
88   push_pbox_toexpand("kanji.grthree.ocean");
89   build_kanji.lr(360,30)
90     (kanji.leftrad.water)
91     (kanji.grthree.sheep);
92   expand_pbox;
93 enddef;

```

94  
95  
96

```

97 % you "ocean"
98 begintsuglyph("uni6D0B",11);
99   kanji.grthree.ocean;
100   tsu_render;
101 endtsuglyph;
102
103 % katsu/i "correct"
104 begintsuglyph("uni6D3B",59);
105   kanji.grtwo.vitality;

```

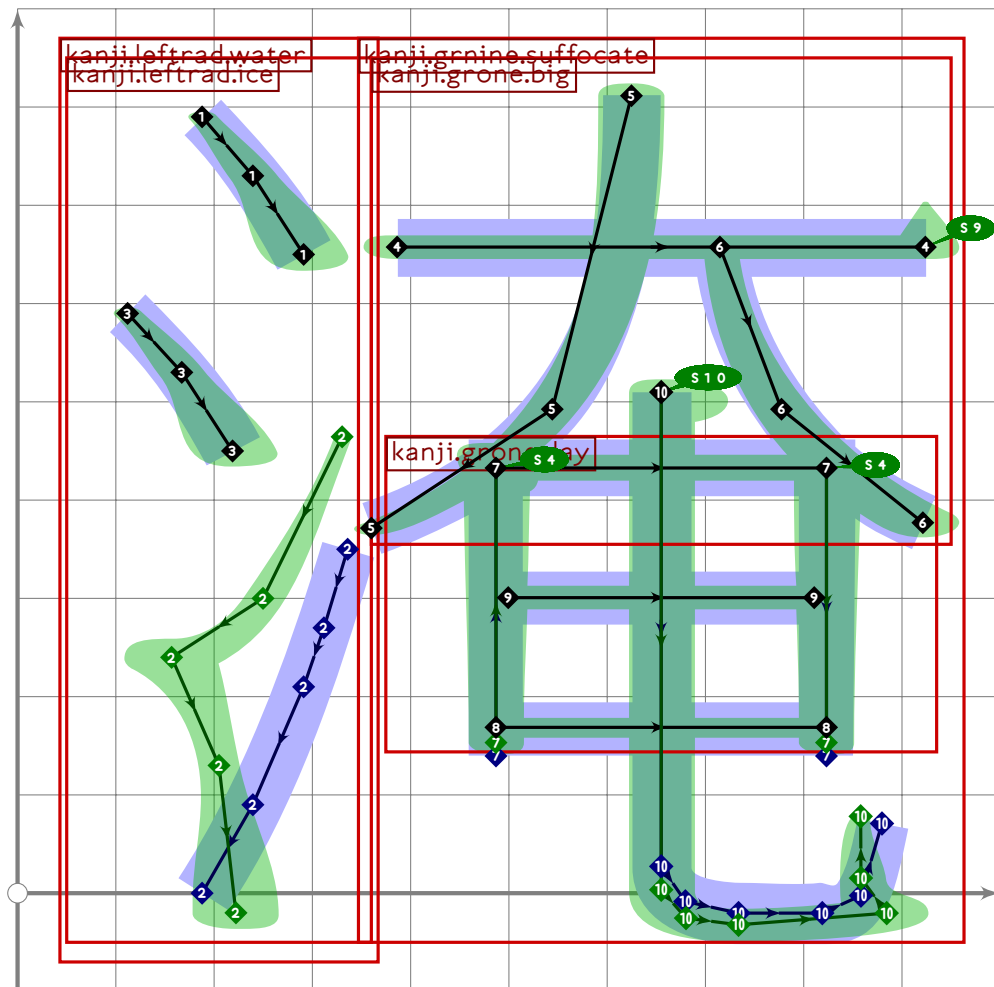
[see page 1960]

[see page 1957]

```

106 tsu_render;
107 endtsuglyph;
108
109 % kai/umi "ocean"
110 begintsuglyph("uni6D77";119); [see page 1956]
111 kanji.grtwo.ocean;
112 tsu_render;
113 endtsuglyph;
114
115 % shou/ki "cancel"
116 begintsuglyph("uni6D88";136); [see page 1958]
117 kanji.grthree.cancel;
118 tsu_render;
119 endtsuglyph;
120

```



```

121 % extra en/i "soak" (in particular, making tea or coffee)
122 begintsuglyph("uni6DF9";249);
123 build_kanji.lr(360,0)
124   (kanji.leftrad.water)
125   (kanji.grnine.suffocate);
126 tsu_render;

```

```
127 endtsuglyph;
128
129 % shin/fuka "deep"
130 begintsuglyph("uni6DF1";241); [see page 1959]
131 kanji.grthree.deep;
132 tsu_render;
133 endtsuglyph;
134
135 

---


136
137 endfont;
138
139 

---


```

# tsuku-6e.mp

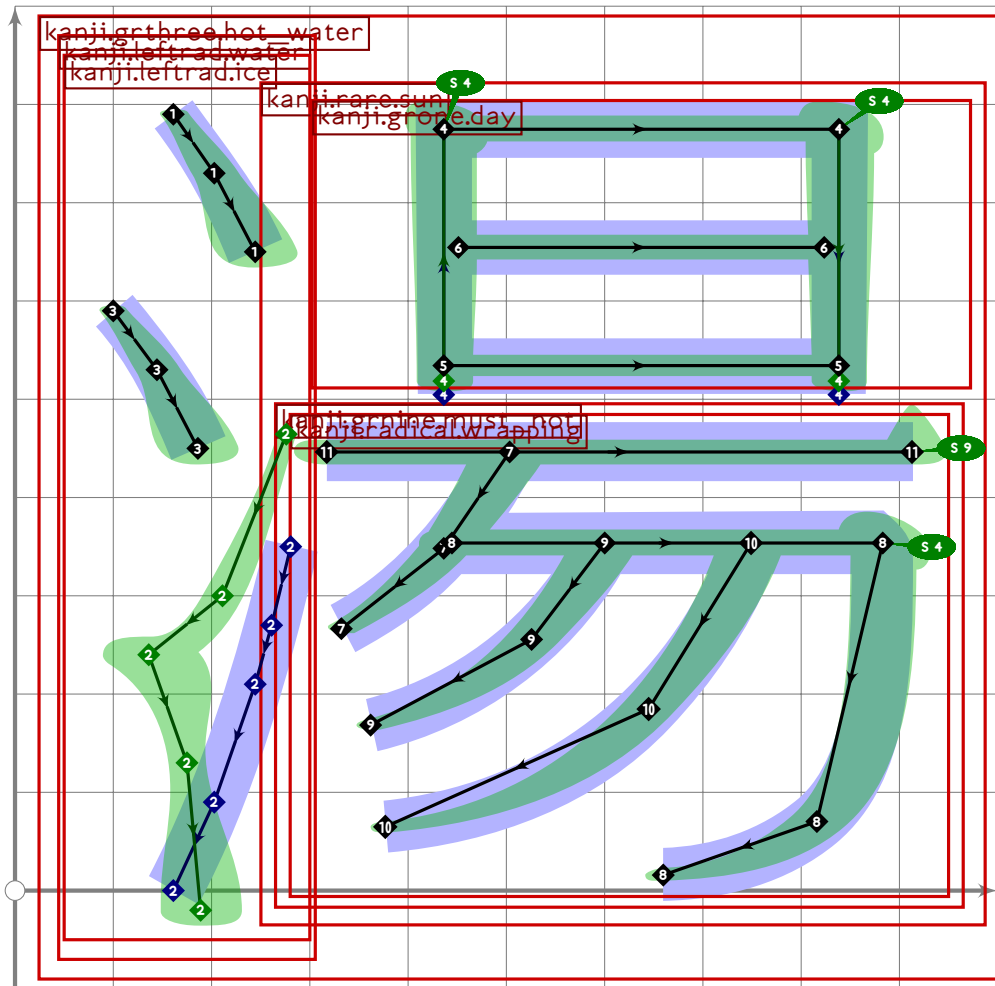
```
1 %  
2 % Unicode page 6e (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradenine.mp;  
38 input gradeone.mp;  
39 input gradesix.mp;  
40 input gradethree.mp;  
41 input gradetwo.mp;  
42 input leftrad.mp;  
43 input radical.mp;  
44 input rare.mp;  
45  
46 

---


```

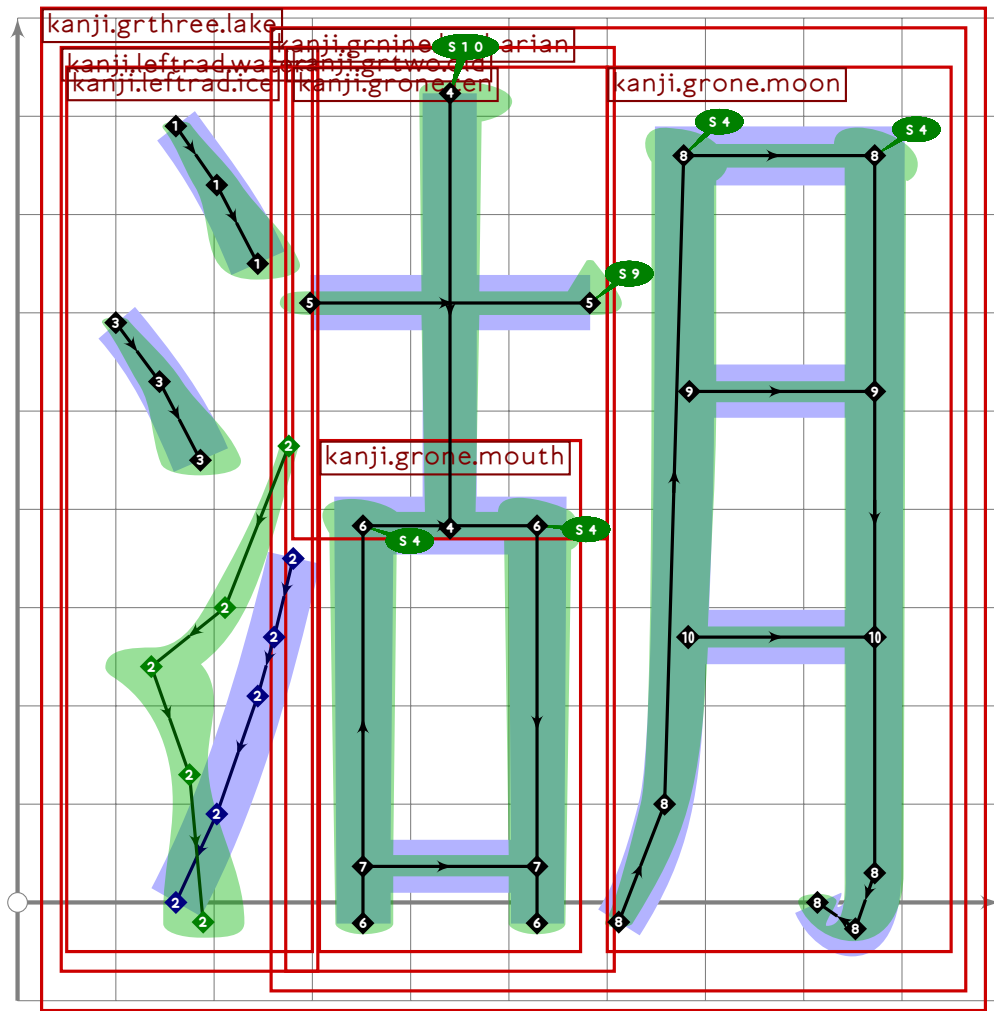


```

47
48 vardef kanji.grthree.hot_water =
49   push_pbox_toexpand("kanji.grthree.hot_water");
50   build_kanji.lr(290,20)
51   (kanji.leftrad.water)
52   (build_kanji.sscale(yscaled 0.9)(kanji.rare.sun));
53   expand_pbox;
54 enddef;

```

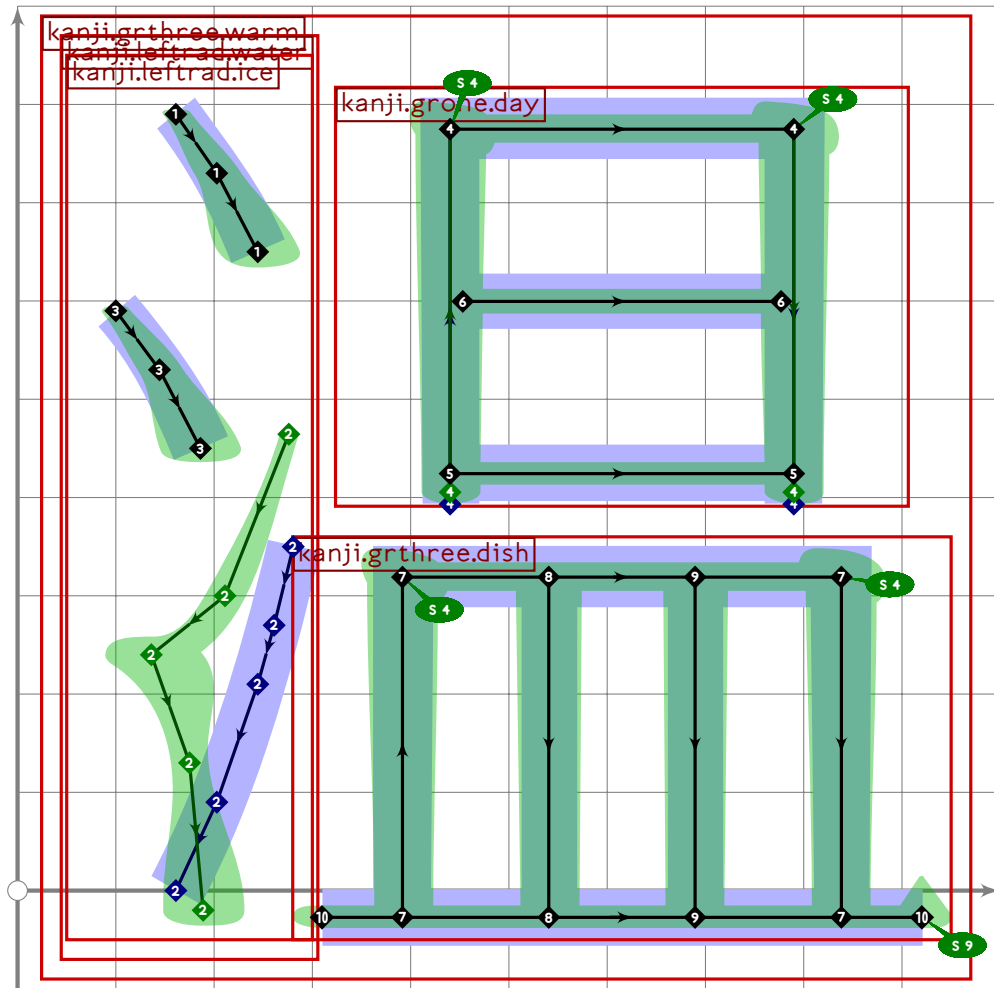




```

55
56 vardef kanji.grthree.lake =
57   push_pbox_toexpand("kanji.grthree.lake");
58   build_kanji.lr(290,20)
59     (kanji.leftrad.water)
60     (kanji.grnine.barbarian);
61   expand_pbox;
62 enddef;

```



```

63
64 vardef kanji.grthree.warm =
65   push_pbox_toexpand("kanji.grthree.warm");
66   build_kanji.lr(290,20)
67     (kanji.leftrad.water)
68     (build_kanji.level(build_kanji.tb(360,0)
69       (build_kanji.sscale(scaled 0.87)(kanji.grone.day))
70       (kanji.grthree.dish)));
71   expand_pbox;
72 enddef;

```

```

73
74

```

```

75
76 % on/atata "warm"
77 begintsuglyph("uni6E29";41);
78   kanji.grthree.warm;
79   tsu_render;
80 endtsuglyph;
81
82 % tou/you "hot water"
83 begintsuglyph("uni6E6F";111);

```

[see page 1966]

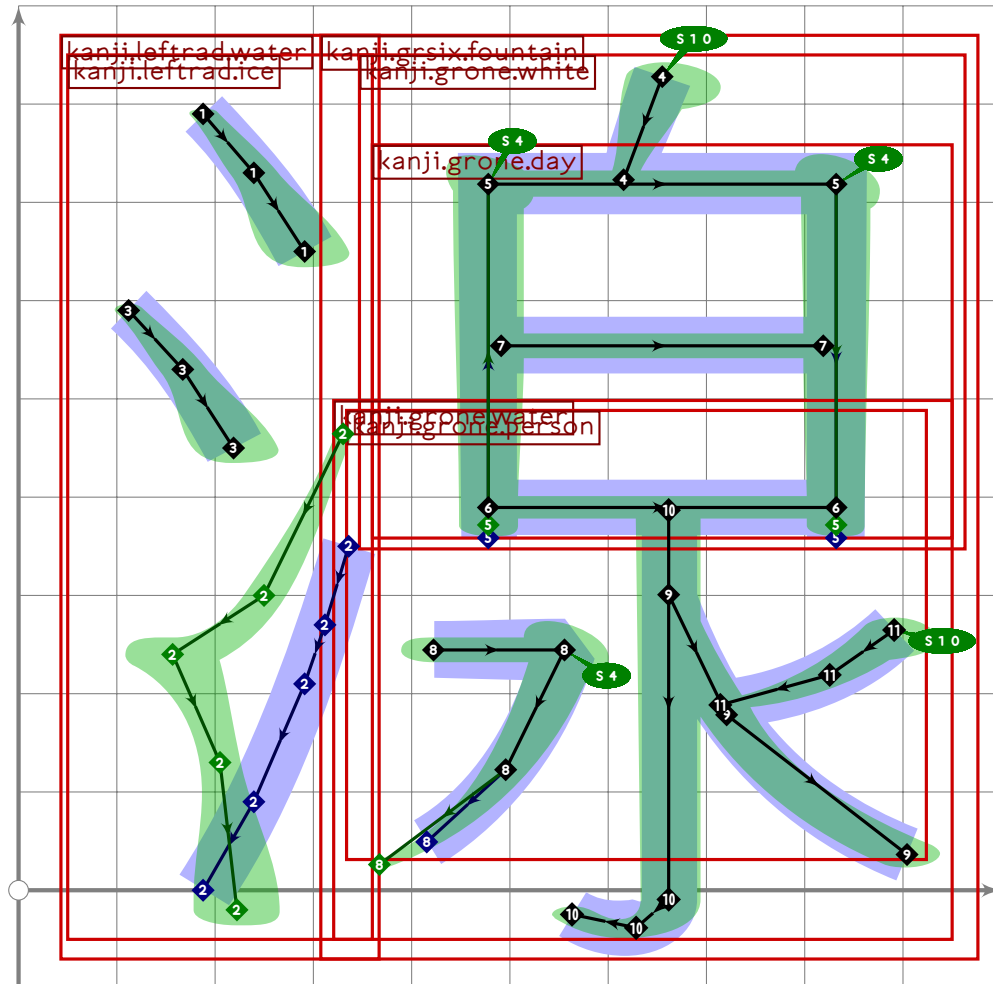
[see page 1964]

```

84 kanji.grthree.hot_water;
85 tsu_render;
86 endtsuglyph;
87
88 % ko/mizuumi "lake"
89 begintsuglyph("uni6E56";86);
90 kanji.grthree.lake;
91 tsu_render;
92 endtsuglyph;
93

```

[see page 1965]



```

94 % extra
95 begintsuglyph("uni6E76";118);
96 build_kanji.lr(360,0)
97   (kanji.leftrad.water)
98   (kanji.grsix.fountain);
99   tsu_render;
100 endtsuglyph;
101
102
103
104 endfont;

```

105

106

---

# tsuku-6f.mp

```
1 %  
2 % Unicode page 6f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradefour.mp;

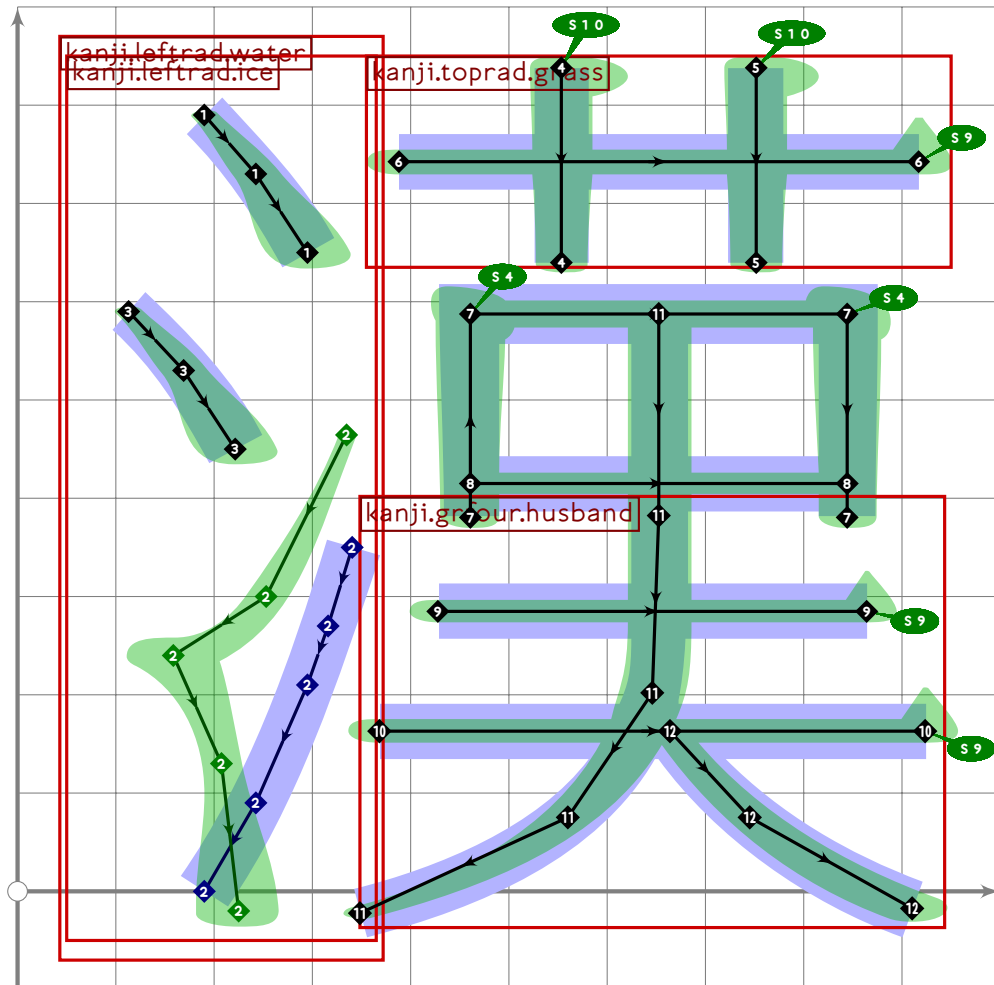
38 input leftrad.mp;

39 input toprad.mp;

40

41

42



43 % kan "Chinese"

```
44 begintsuglyph("uni6F22";34);
45 build_kanji.level(build_kanji.lr(360,10)
46   (kanji.leftrad.water)
47   (build_kanji.tb(630,-10)
48     (kanji.toprad.grass)
49     (build_kanji.box((210,800),(790,570));
50       tsu_xform(identity yscaled 0.65 shifted (-10,0))
51       (kanji.grfour.husband);
52       replace_strokep(-1)((500,800)-oldp);
53       replace_strokeq(-1)((1.6,1.6)-oldq);
54       set_bosserif(-1,0,whatever)))));
55 tsu_render;
56 endtsuglyph;
57
58 

---


59
60 endfont;
61
62 

---


```

# tsuku-70.mp

```
1 %  
2 % Unicode page 70 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input bottomrad.mp;

37 input buildkanji.mp;

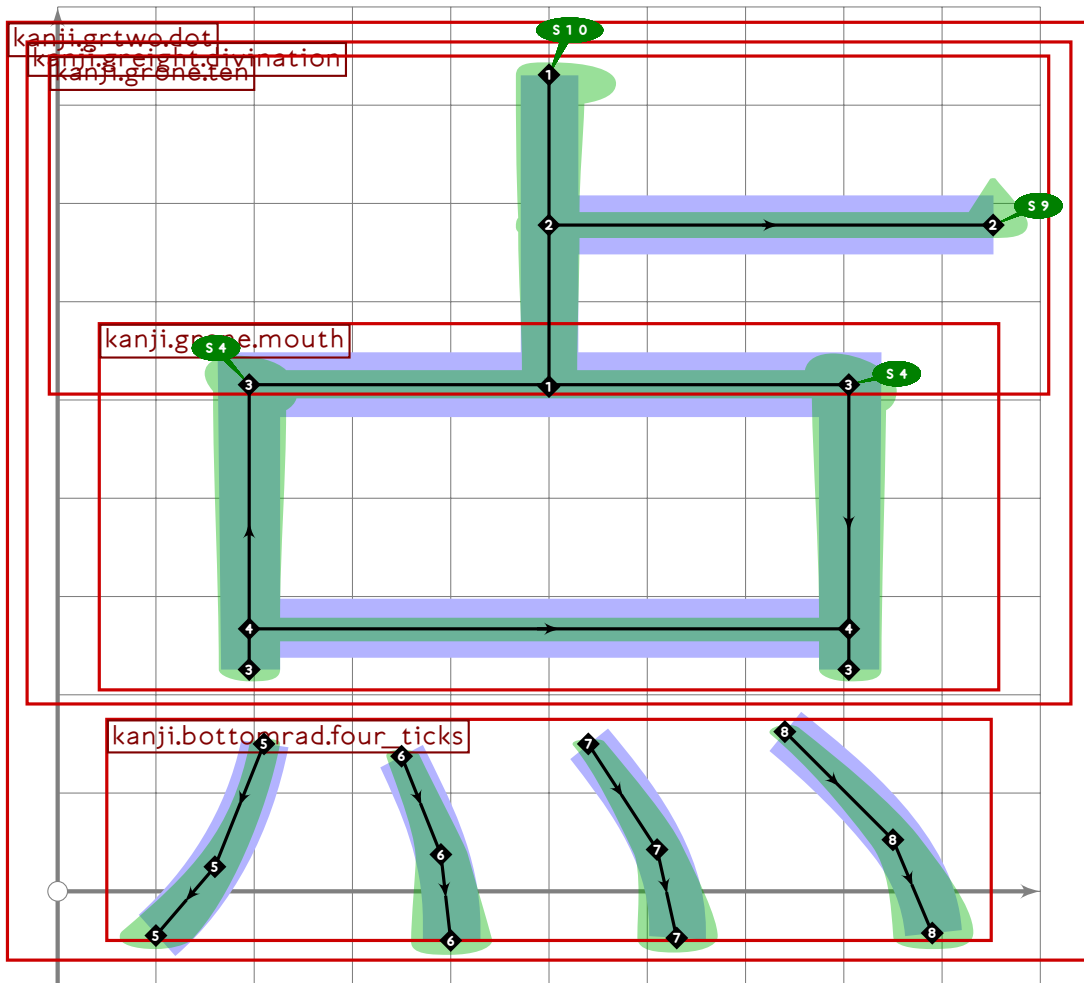
38 input gradeeight.mp;

39 input gradeone.mp;

40

41

42

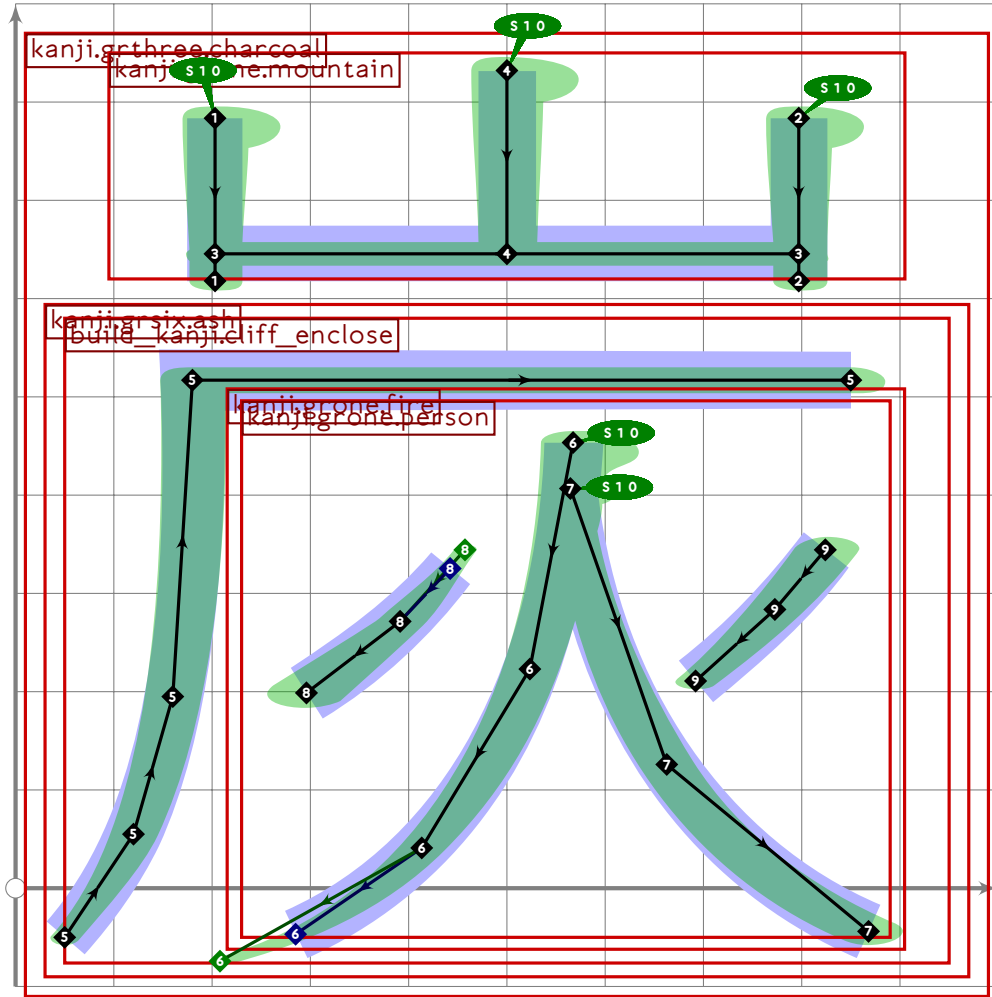


43 % "point" is a reserved word

```

44 vardef kanji.grtwo.dot =
45   push_pbox_toexpand("kanji.grtwo.dot");
46   build_kanji.tb(190,-30)
47     (build_kanji.sscale(xscaled 1.13)
48       (kanji.greight.divination))
49     (kanji.bottomrad.four_ticks);
50   expand_pbox;
51 enddef;
52
53

```

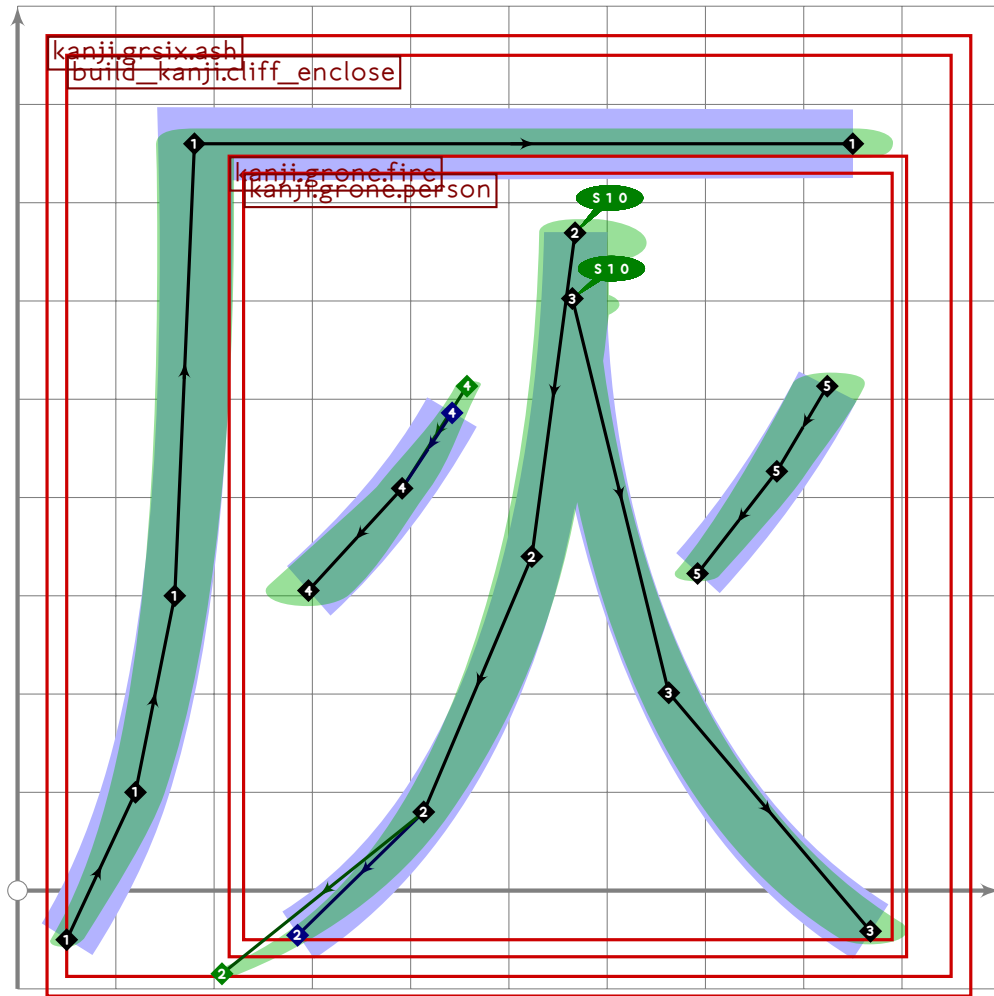


```

54
55 vardef kanji.grthree.charcoal =
56   push_pbox_toexpand("kanji.grthree.charcoal");
57   build_kanji.level(build_kanji.tb(600,-40)
58     (build_kanji.sscale(xscaled 0.9)(kanji.grone.mountain))
59     (kanji.grsix.ash));
60   expand_pbox;
61 enddef;
62
63

```





```

64
65 vardef kanji.grsix.ash =
66   push_pbox_toexpand("kanji.grsix.ash");
67   build_kanji.cliff_enclose(kanji.grone.fire);
68   expand_pbox;
69 enddef;

```

70

71

72

73 % hi/ka "fire"

```
74 begintsuglyph("uni706B";107);
```

[see page 396]

```
75   kanji.grone.fire;
```

```
76   tsu_render;
```

```
77 endtsuglyph;
```

78

79 % kai/hai "ash"

```
80 begintsuglyph("uni7070";112);
```

[see page 1973]

```
81   kanji.grsix.ash;
```

```
82   tsu_render;
```

```
83 endtsuglyph;
```

84

```
85 % tan/sumi "charcoal"
86 begintsuglyph("uni70AD";173); [see page 1972]
87 kanji.grthree.charcoal;
88 tsu_render;
89 endtsuglyph;
90
91 % ten/tsu "point"
92 begintsuglyph("uni70B9";185); [see page 1972]
93 kanji.grtwo.dot;
94 tsu_render;
95 endtsuglyph;
96
97 

---


98
99 endfont;
100
101 

---


```

# tsuku-72.mp

```
1 %  
2 % Unicode page 72 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradenine.mp;

38 input gradeone.mp;

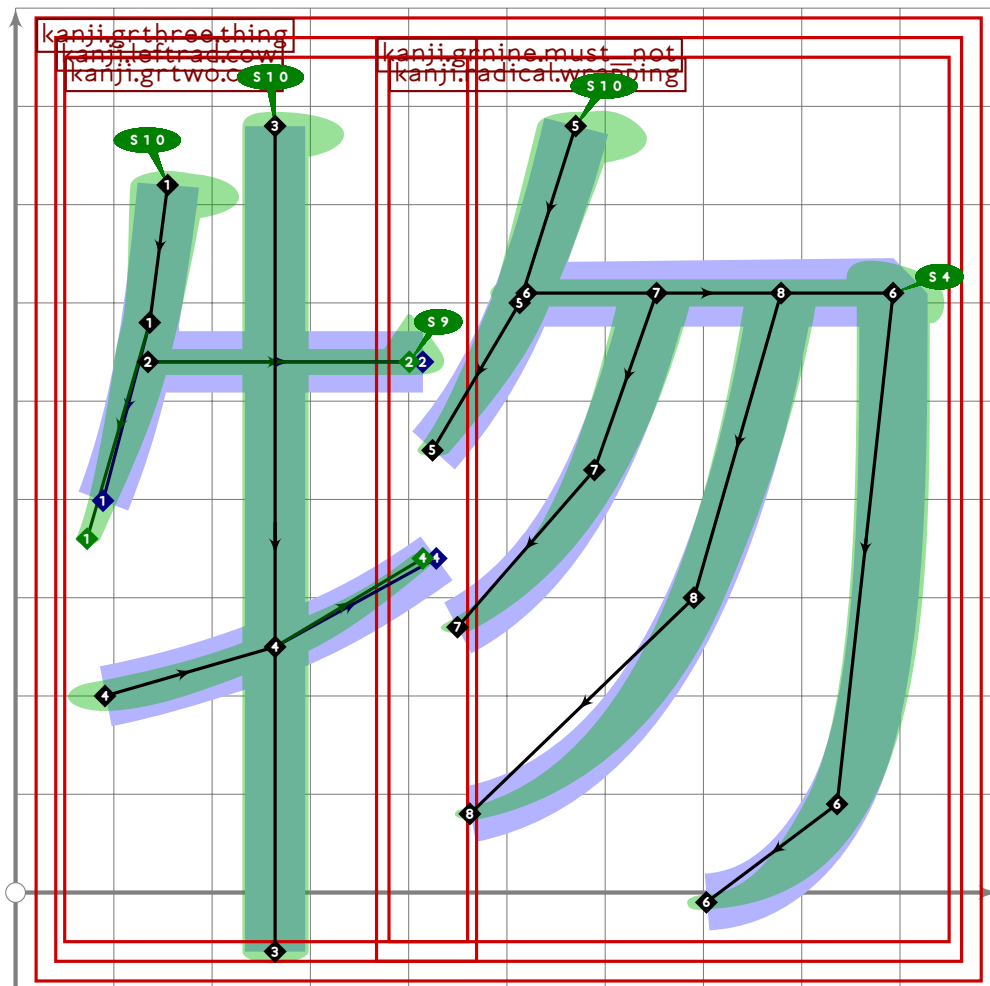
39 input gradethree.mp;

40 input gradetwo.mp;

41 input radical.mp;

42

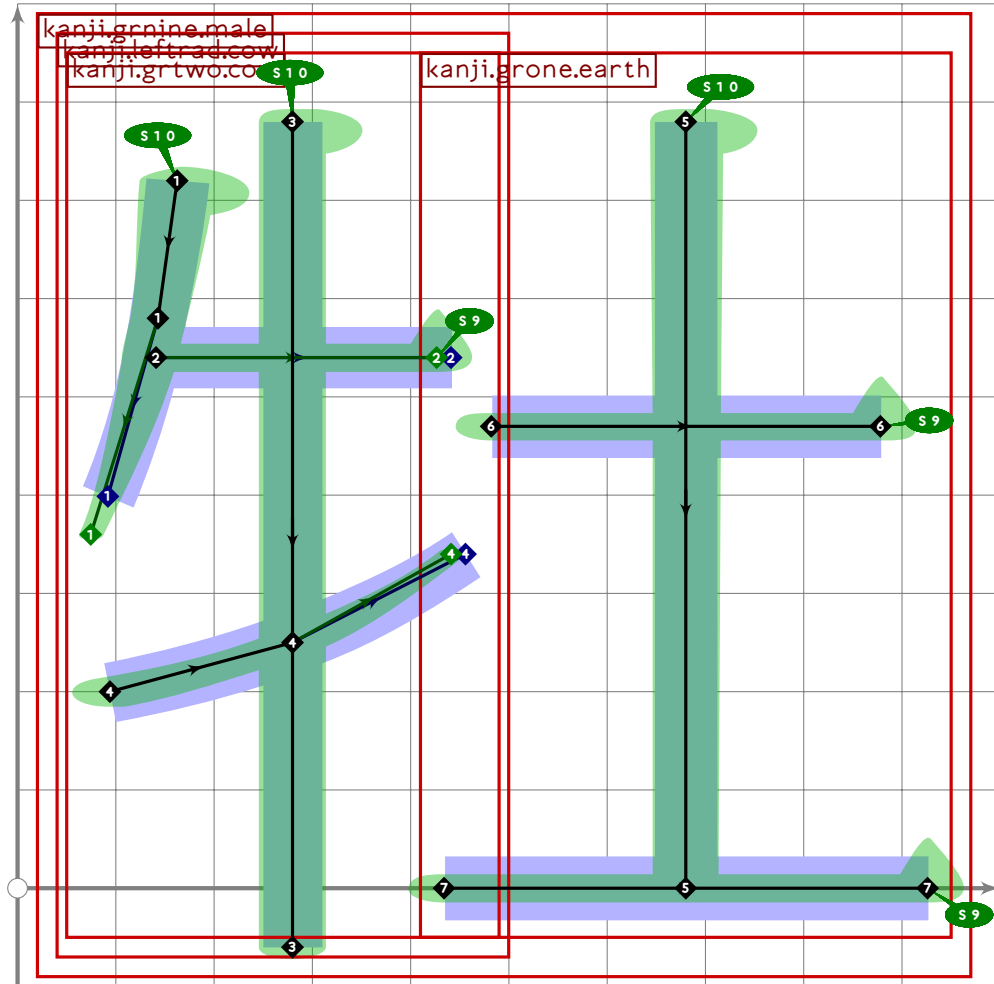
43



```

44
45 vardef kanji.grthree.thing =
46   push_pbox_toexpand("kanji.grthree.thing");
47   build_kanji.lr(420,80)
48     (kanji.leftrad.cow)
49     (kanji.grnine.must_not);
50   expand_pbox;
51 enddef;
52
53

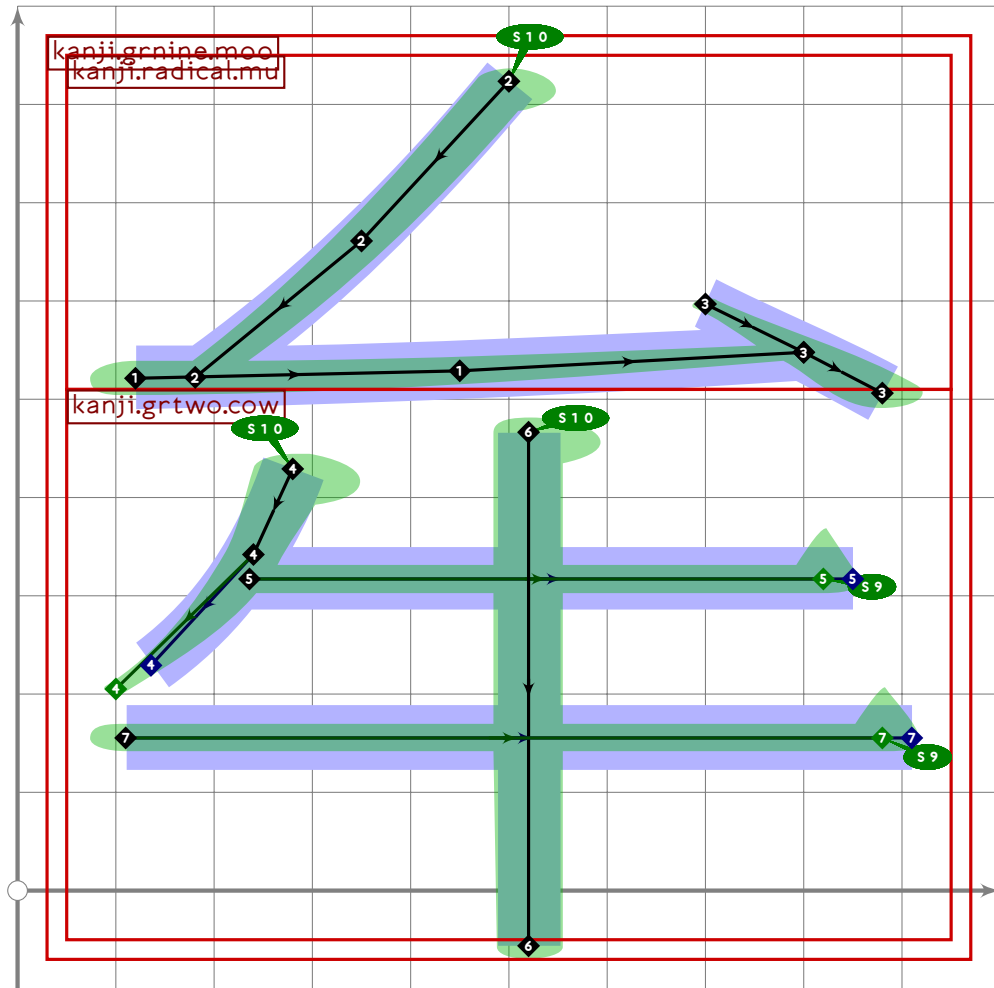
```



```

54
55 vardef kanji.grnine.male =
56   push_pbox_toexpand("kanji.grnine.male");
57   build_kanji.lr(450,80)
58     (kanji.leftrad.cow)
59     (kanji.grone.earth);
60   expand_pbox;
61 enddef;

```



```

62
63 vardef kanji.grnine.moo =
64   push_pbox_toexpand("kanji.grnine.moo");
65   build_kanji.tb(510,0)
66   (kanji.radical.mu)
67   (kanji.grtwo.cow);
68   expand_pbox;
69 enddef;
70
71
72
73 vardef kanji.leftrad.cow =
74   push_pbox_toexpand("kanji.leftrad.cow");
75   kanji.grtwo.cow;
76   replace_stroke(0)((140,200)..tension 1.2..(520,250)..(880-30*mincho,340));
77   replace_strokeq(0)((1,1,7)-(1.5,1.5)-(1,1));
78   set_boserif(0,1,whatever);
79   expand_pbox;
80 enddef;
81
82

```

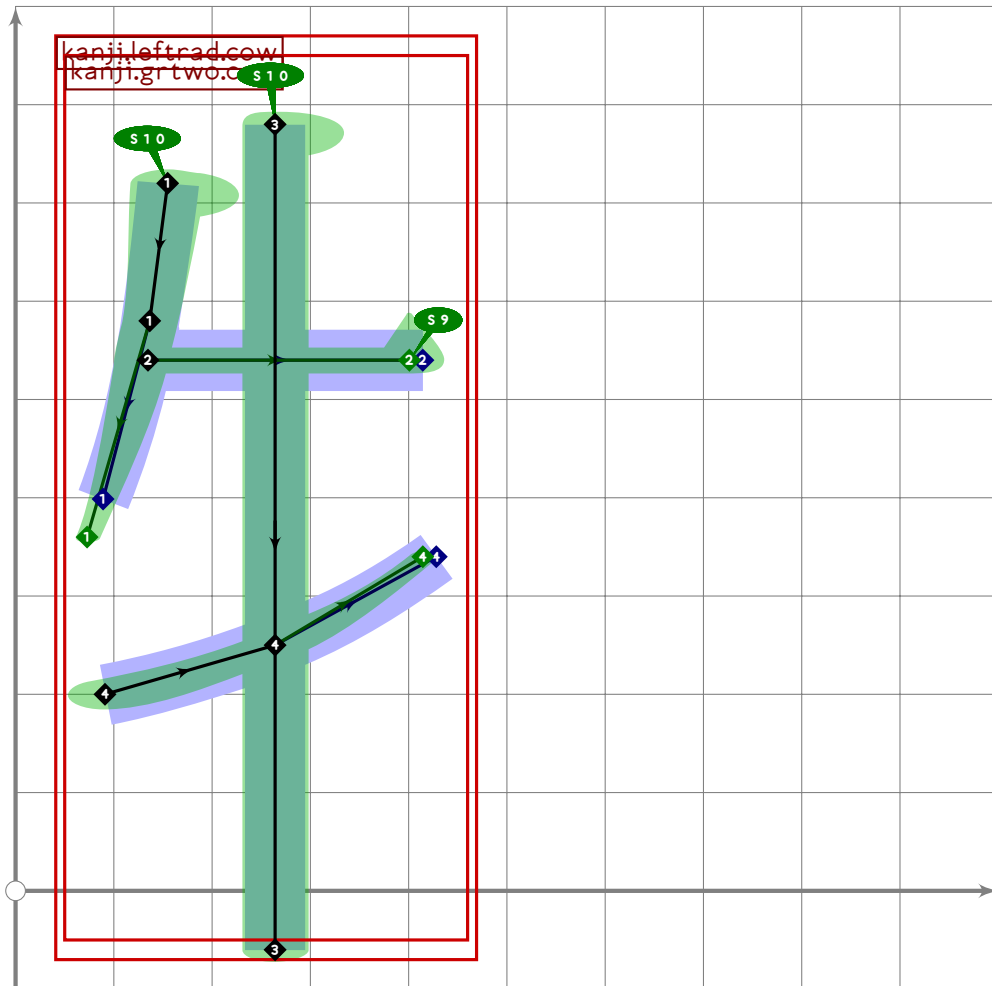
```

83
84 % chichi "father"
85 begintsuglyph("uni7236",54);
86 kanji.grtwo.father;
87 tsu_render;
88 endtsuglyph;
89
90 % kyuu/ushi "cow"
91 begintsuglyph("uni725B",91);
92 kanji.grtwo.cow;
93 tsu_render;
94 endtsuglyph;
95

```

[see page 459]

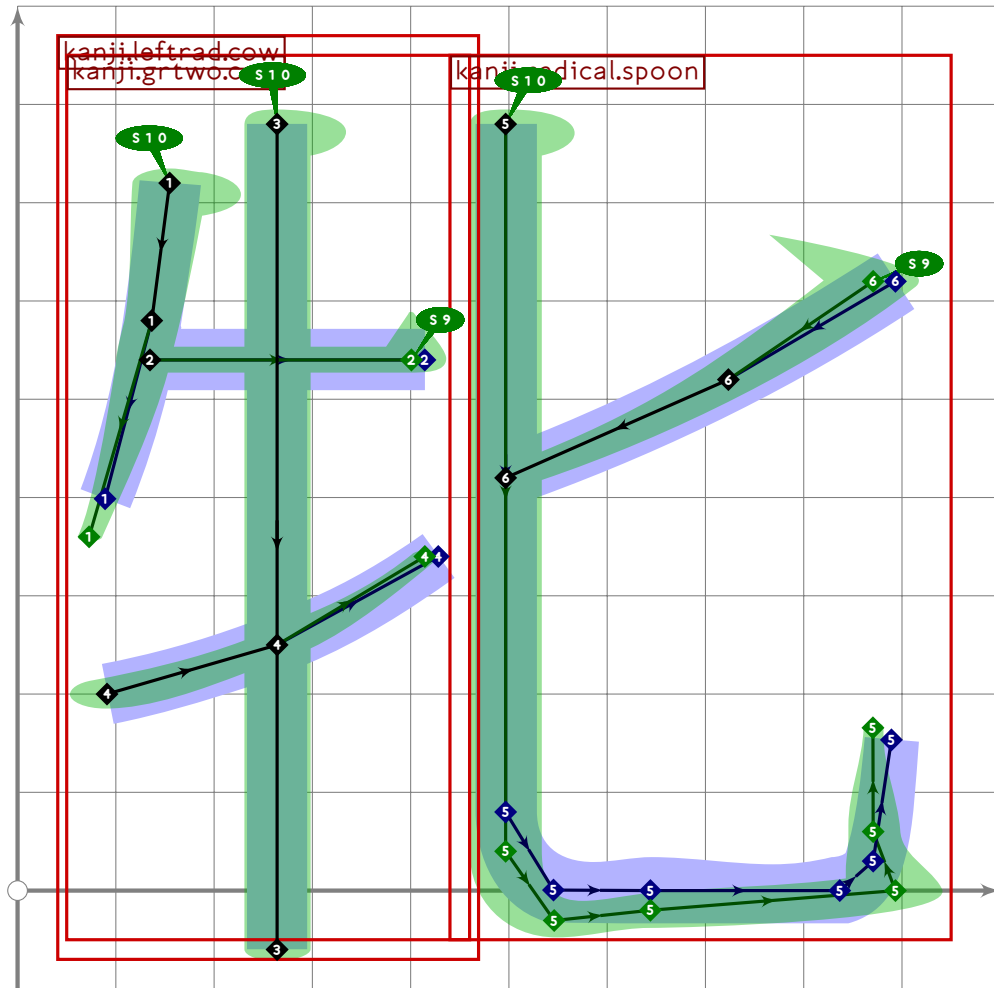
[see page 454]



```

96 % naked cow radical
97 begintsuglyph("uni725C",92);
98 build_kanji.lr(450,20)(kanji.leftrad.cow)();
99 tsu_render;
100 endtsuglyph;
101

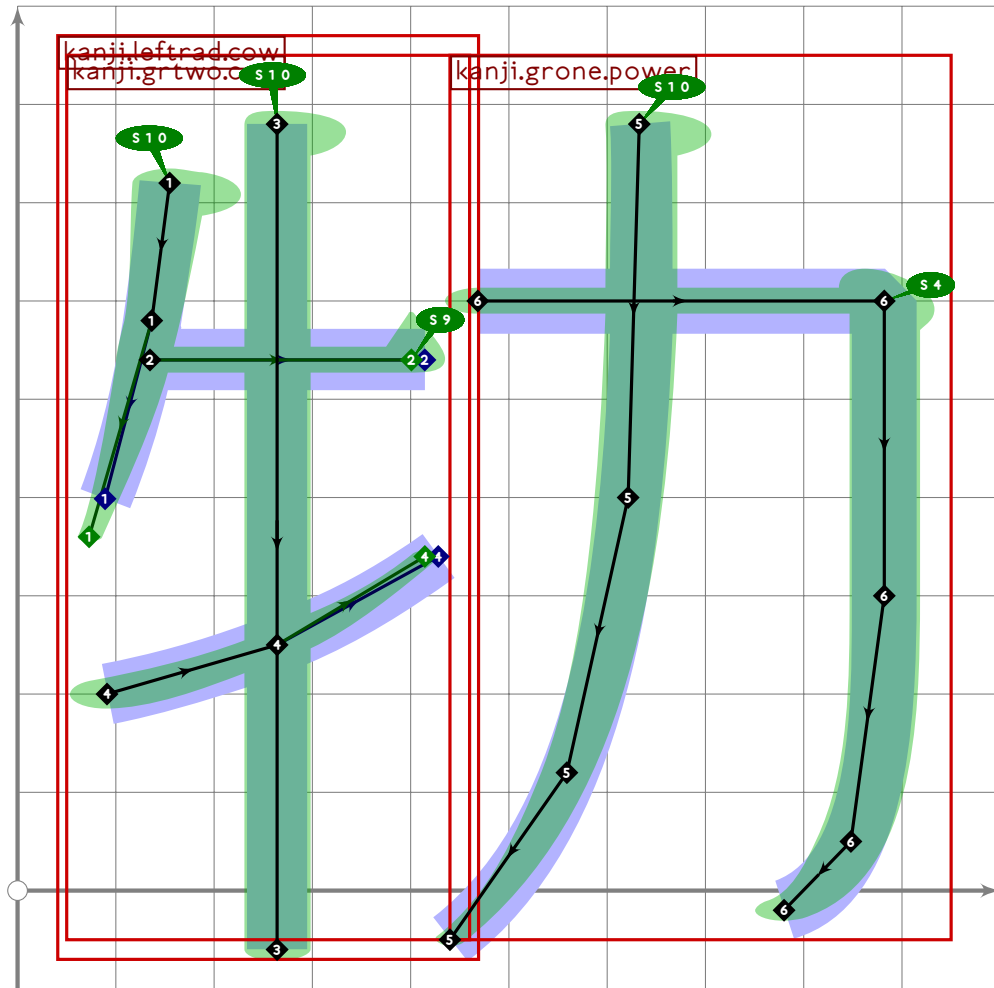
```



```

102 % extra "female"
103 begintsuglyph("uni725D";93);
104 build_kanji.lr(450,20)
105   (kanji.leftrad.cow)
106   (kanji.radical.spoon);
107   tsu_render;
108   endtsuglyph;
109

```



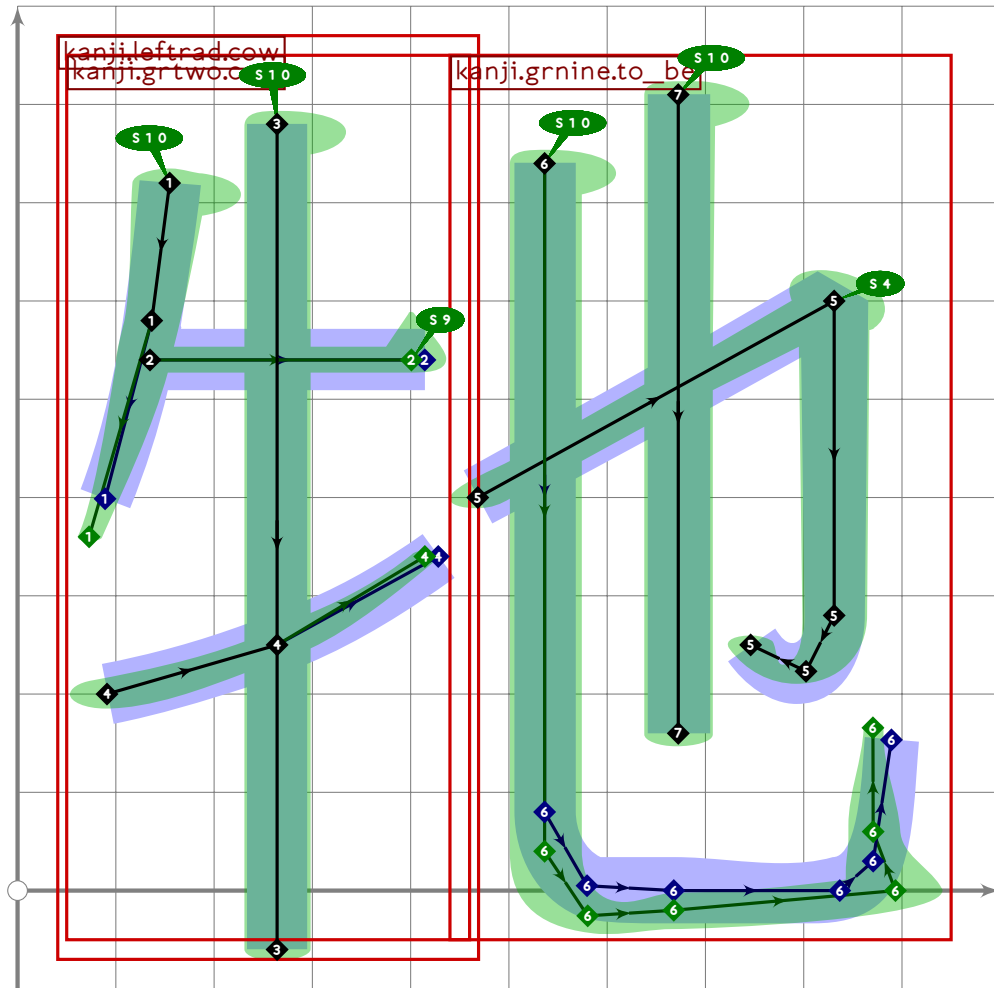
```

110 % extra
111 begintsuglyph("uni725E";94);
112 build_kanji.lr(450,20)
113   (kanji.leftrad.cow)
114   (kanji.grtwo.c);
115   tsu_render;
116 endtsuglyph;
117
118 % bou/mu "moo (cow sound)"
119 begintsuglyph("uni725F";95);
120   kanji.grnine.moo;
121   tsu_render;
122 endtsuglyph;
123

```

[see page 1977]





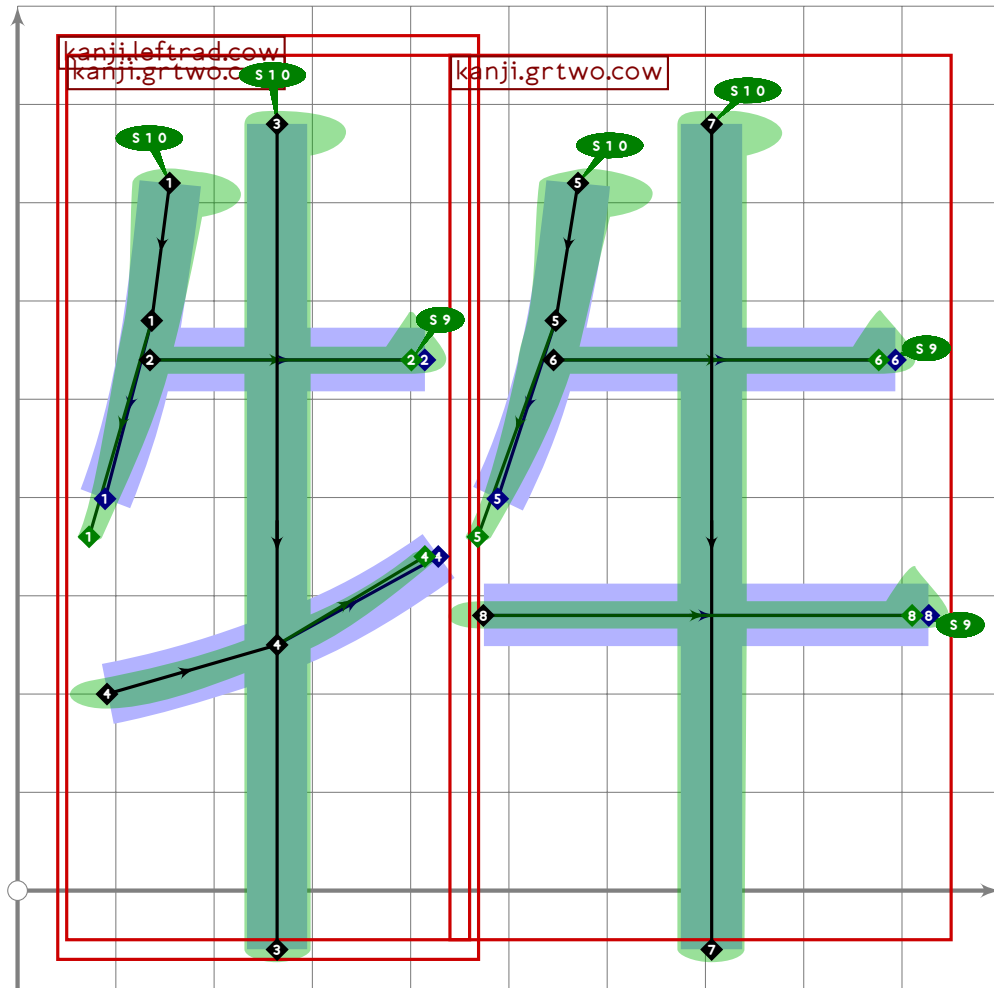
```

124 % extra
125 begintsuglyph("uni7260";96);
126 build_kanji.lr(450,20)
127   (kanji.leftrad.cow)
128   (kanji.grnine.to_be);
129   tsu_render;
130 endtsuglyph;
131
132 % bo/osu "male (animal)"
133 begintsuglyph("uni7261";97);
134   kanji.grnine.male;
135   tsu_render;
136 endtsuglyph;
137
138 % butsu/mono "thing"
139 begintsuglyph("uni7269";105);
140   kanji.grthree.thing;
141   tsu_render;
142 endtsuglyph;
143

```

[see page 1976]

[see page 529]



```

144 % extra
145 begintsuglyph("uni726A";106);
146 build_kanji.lr(450,20)
147 (kanji.leftrad.cow)
148 (kanji.grtwo.cow);
149 tsu_render;
150 endsuglyph;
151
152 % inu "dog"
153 begintsuglyph("uni72AC";172);
154 kanji.grone.dog;
155 tsu_render;
156 endsuglyph;
157
158 _____
159
160 endfont;
161
162 _____

```

[see page 388]

# tsuku-73.mp

```
1 %
2 % Unicode page 73 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input gradeone.mp;
37
38 

---


39
40 % gyoku/tama "ball" or "precious"
41 begintsuglyph("uni7389";137); [see page 378]
42   kanji.grone.ball;
43   tsu_render;
44 endtsuglyph;
45
46 % ou "king"
47 begintsuglyph("uni738B";139); [see page 404]
48   kanji.grone.king;
49   tsu_render;
50 endtsuglyph;
51
52 

---


53
54 endfont;
55
56 

---


```

# tsuku-74.mp

```
1 %  
2 % Unicode page 74 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

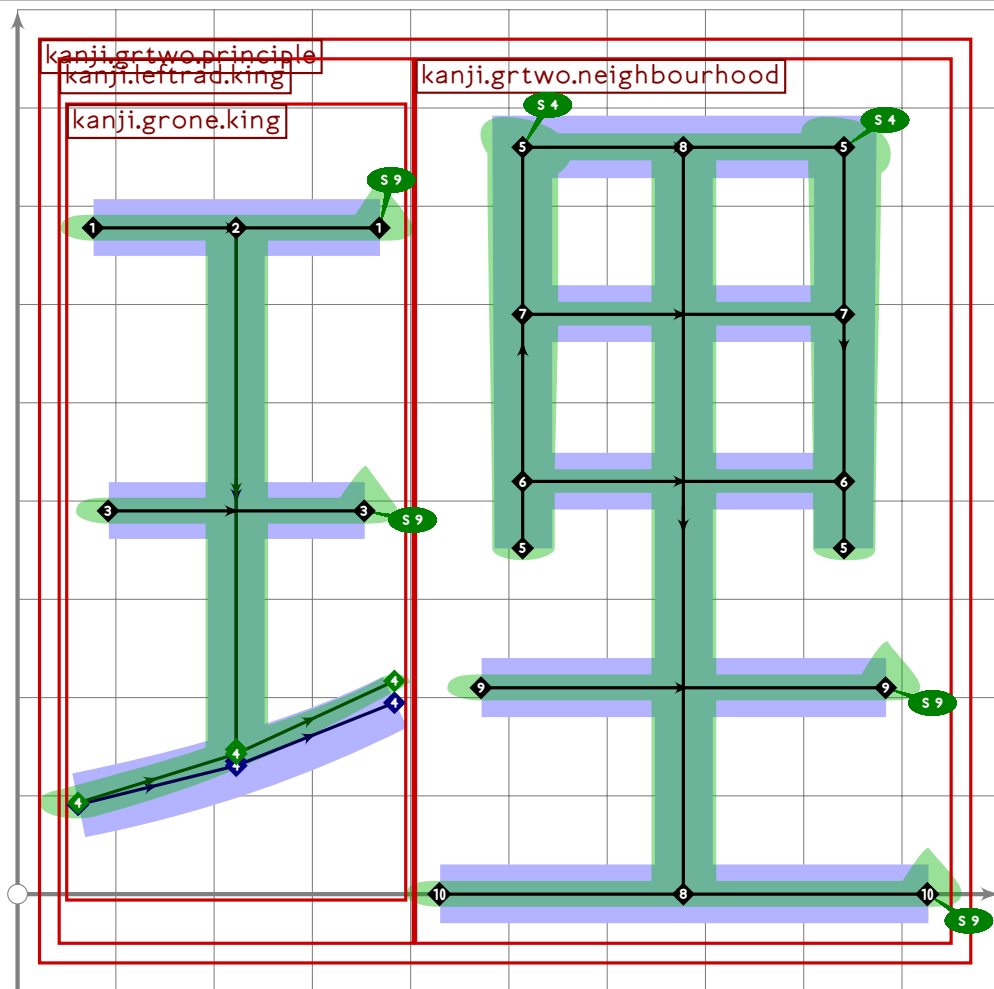
37 input gradeone.mp;

38 input gradetwo.mp;

39 input leftrad.mp;

40

41



42

43 vardef kanji.grtwo.principle =

```
44 push_pbox_toexpand("kanji.grtwo.principle");
45 build_kanji.lr(400,10)
46   (kanji.leftrad.king)
47   (kanji.grtwo.neighbourhood);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % ri/kotowari "principle"
54 begintsuglyph("uni7406"6); [see page 1984]
55   kanji.grtwo.principle;
56   tsu_render;
57 endtsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-75.mp

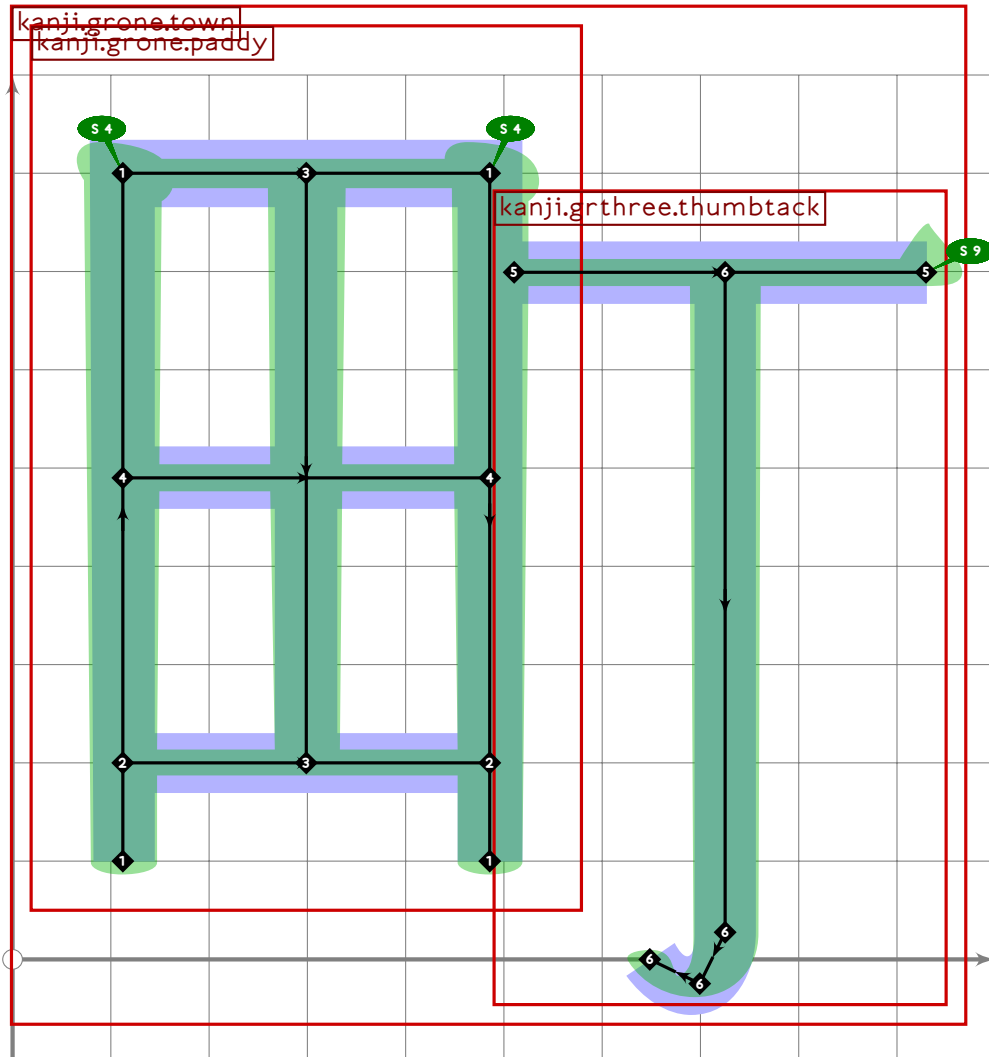
```
1 %
2 % Unicode page 75 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input rare.mp;
42 input topfad.mp;
43
44 

---

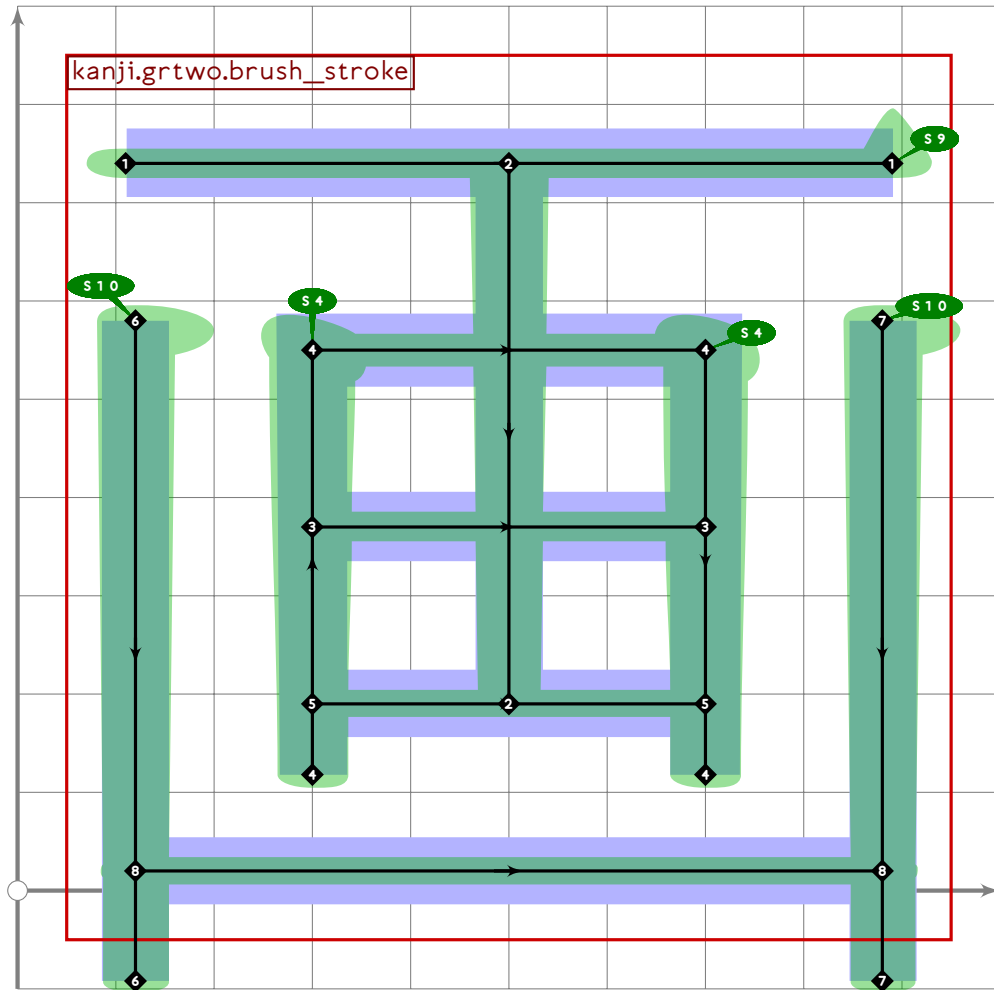

```



```

45
46 vardef kanji.grone.town =
47   push_pbox_toexpand("kanji.grone.town");
48   build_kanji.level(build_kanji.lr(550,120)
49     (tsu_xform(identity shifted (-50,100))(kanji.grone.paddy))
50     (tsu_xform(identity yscaled 0.92)
51       (kanji.grthree.thumbtack)));
52   expand_pbox;
53 enddef;
54
55

```

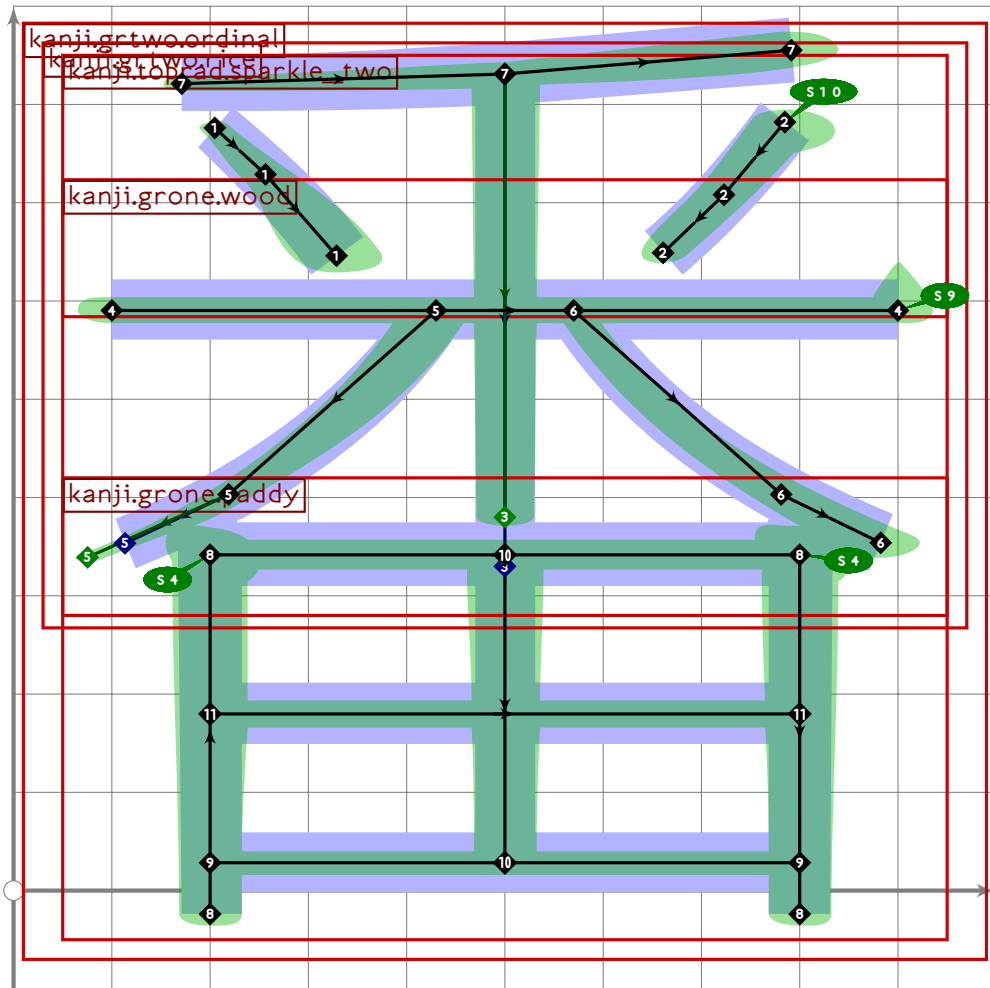


```

56
57 vardef kanji.grtwo.brush_stroke =
58   push_pbox_toexpand("kanji.grtwo.brush_stroke");
59   push_stroke((110,740)-(890,740),(1.6,1.6)-(1.6,1.6));
60   set_boserif(0,1,9);
61   push_stroke((500,740)-(500,190),
62     (1.6,1.6)-(1.4,1.4));
63   push_stroke((300,370)-(700,370),
64     (1.6,1.6)-(1.6,1.6));
65   build_kanji.box((300,550),(700,190));
66   build_kanji.cup((120,580),(880,20));
67   expand_pbox;
68 enddef;

```





```

69
70 vardef kanji.grtwo.ordinal =
71   push_pbox_toexpand("kanji.grtwo.ordinal");
72   build_kanji.level(build_kanji.tb(350,140)
73     (build_kanji.spread_legs(140)(build_kanji.add_beret(
74       kanji.grtwo.rice)))
75     (kanji.grone.paddy));
76   replace_stroke(-8)((point 0 of oldp)-(500,330+50*mincho));
77   expand_pbox;
78 enddef;

```

79

80

81

```

82 % sei/ki "life"
83 begintsuglyph("uni751F";31);
84 kanji.grone.life;
85 tsu_render;
86 endtsuglyph;

```

[see page 405]

87

```

88 % you/mochi "job"
89 begintsuglyph("uni7528";40);

```

[see page 471]

90 `kanji.grtwo.job;`  
 91 `tsu_render;`  
 92 `endtsuglyph;`  
 93  
 94 % you "walled road" [see page 620]  
 95 `begintsuglyph("uni752C";44);`  
 96 `kanji.rare.walled_road;`  
 97 `tsu_render;`  
 98 `endtsuglyph;`  
 99  
 100 % ta "rice paddy" [see page 417]  
 101 `begintsuglyph("uni7530";48);`  
 102 `kanji.grone.paddy;`  
 103 `tsu_render;`  
 104 `endtsuglyph;`  
 105  
 106 % yu/yoshi "reason" or "cause" [see page 527]  
 107 `begintsuglyph("uni7531";49);`  
 108 `kanji.grthree.reason;`  
 109 `tsu_render;`  
 110 `endtsuglyph;`  
 111  
 112 % shin/mou "have the honour to," "monkey zodiac sign," etc. [see page 519]  
 113 `begintsuglyph("uni7533";51);`  
 114 `kanji.grthree.have_honour;`  
 115 `tsu_render;`  
 116 `endtsuglyph;`  
 117  
 118 % otoko "man" [see page 407]  
 119 `begintsuglyph("uni7537";55);`  
 120 `kanji.grone.man;`  
 121 `tsu_render;`  
 122 `endtsuglyph;`  
 123  
 124 % chuu/machi "town" [see page 1987]  
 125 `begintsuglyph("uni753A";58);`  
 126 `kanji.grone.town;`  
 127 `tsu_render;`  
 128 `endtsuglyph;`  
 129  
 130 % ga/ega "brush stroke" (or "picture" but that is reserved) [see page 1988]  
 131 `begintsuglyph("uni753B";59);`  
 132 `kanji.grtwo.brush_stroke;`  
 133 `tsu_render;`  
 134 `endtsuglyph;`  
 135  
 136 % fuku "roll of cloth" [see page 616]  
 137 `begintsuglyph("uni7550";80);`

```
138 kanji.rare.roll_of_cloth;
139 tsu_render;
140 endtsuglyph;
141
142 % ban/tsuga "ordinal number"
143 begintsuglyph("uni756A",106); [see page 1989]
144 kanji.grtwo.ordinal;
145 tsu_render;
146 endtsuglyph;
147
148 

---


149
150 endfont;
151
152 

---


```



Part VI

U+7600 to U+89FF



# tsuku-76.mp

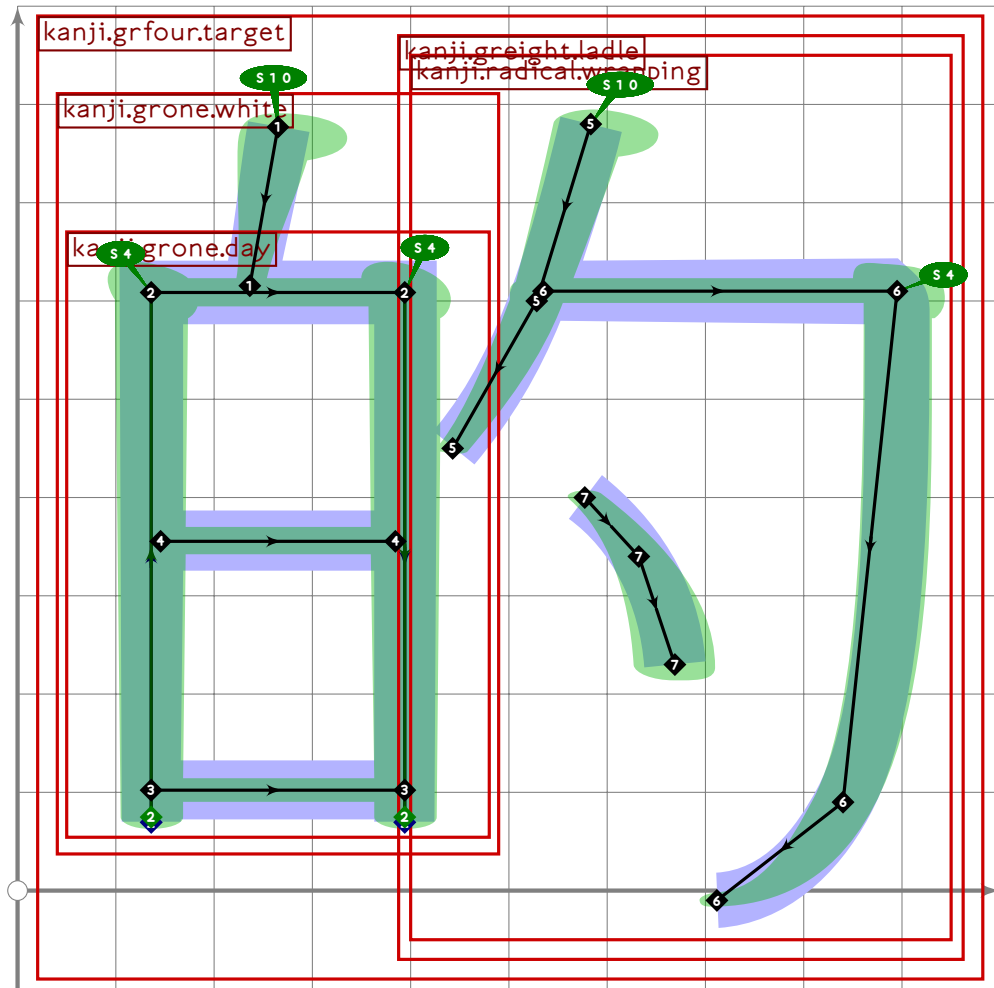
```
1 %
2 % Unicode page 76 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input gradetwo.mp;
42 input leftrad.mp;
43 input radical.mp;
44
45 

---


```



```

46
47 vardef kanji.grfour.target =
48   push_pbox_toexpand("kanji.grfour.target");
49   build_kanji.level(build_kanji.lr(440,80)
50     (build_kanji.sscale(yscaled 0.85 shifted (0,30))
51       (kanji.grone.white))
52     (kanji.greight.ladle));
53   expand_pbox;
54 enddef;

```

```

55
56
57
58 % shiro "white"
59 begintsuglyph("uni767D";125);
60   kanji.grone.white;
61   tsu_render;
62 endtsuglyph;
63
64 % hyako/momo "hundred"
65 begintsuglyph("uni767E";126);
66   kanji.grone.hundred;

```

[see page 441]

[see page 403]



67 `tsu_render;`  
68 `endtsuglyph;`  
69  
70 % teki/mato "target" and adjective ending  
71 `begintsuglyph("uni7684";132);` [see page 1996]  
72 `kanji.grfour.target;`  
73 `tsu_render;`  
74 `endtsuglyph;`  
75  
76 % kai/minna "everybody"  
77 `begintsuglyph("uni7686";134);` [see page 574]  
78 `kanji.greight.everybody;`  
79 `tsu_render;`  
80 `endtsuglyph;`  
81  
82 % bei/sara "dish"  
83 `begintsuglyph("uni76BF";191);` [see page 514]  
84 `kanji.grthree.dish;`  
85 `tsu_render;`  
86 `endtsuglyph;`  
87  
88 % moku/me "eye"  
89 `begintsuglyph("uni76EE";238);` [see page 395]  
90 `kanji.grone.eye;`  
91 `tsu_render;`  
92 `endtsuglyph;`  
93  
94 % choku/nao multiple meanings including "straight" and "honesty"  
95 % "The 'nao' in Naota is for honesty"  
96 `begintsuglyph("uni76F4";244);` [see page 498]  
97 `kanji.grtwo.straight;`  
98 `tsu_render;`  
99 `endtsuglyph;`  
100  
101 % sou/ai "mutual" but also "indication seen by fortune teller"  
102 `begintsuglyph("uni76F8";248);` [see page 513]  
103 `kanji.grthree.correlation;`  
104 `tsu_render;`  
105 `endtsuglyph;`  
106  
107 

---

  
108  
109 `endfont;`  
110  
111 

---

# tsuku-77.mp

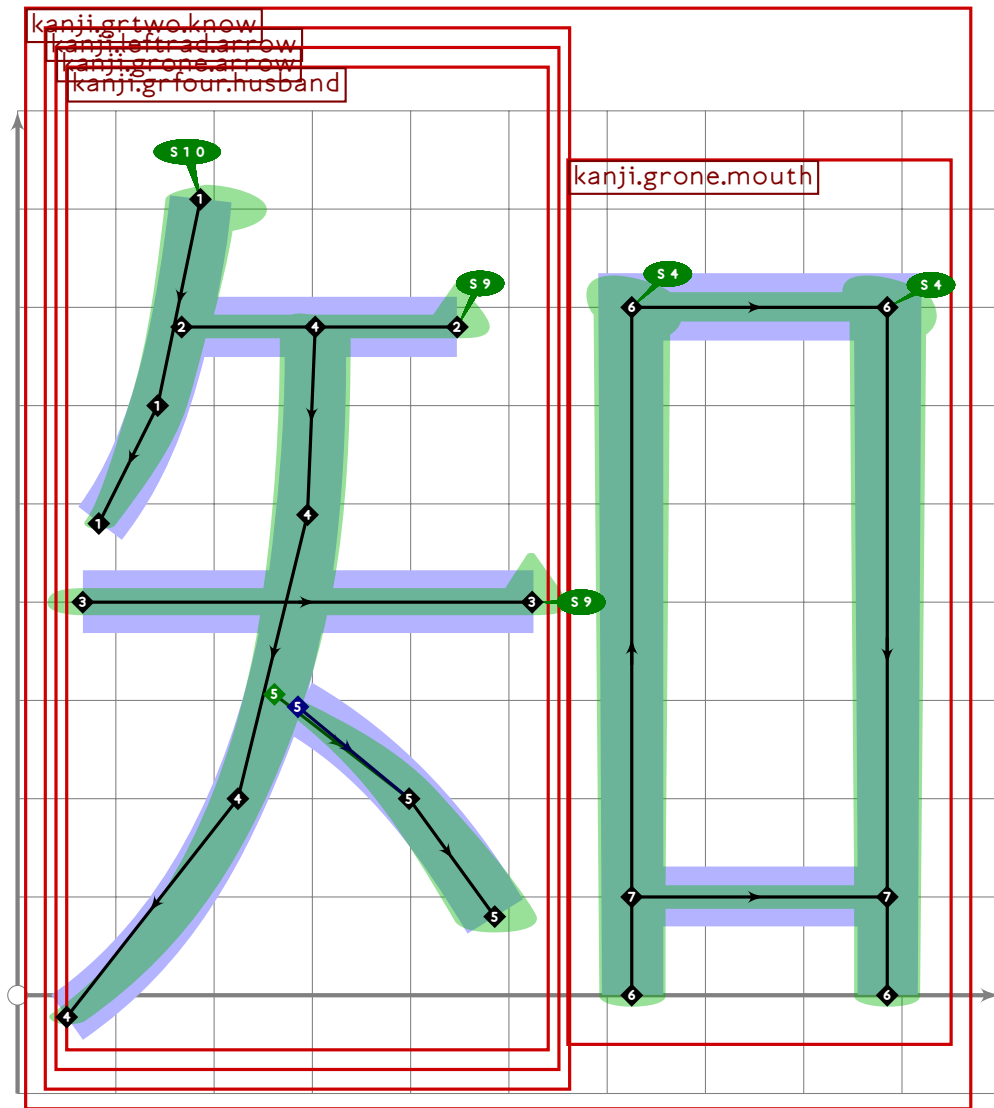
```
1 %
2 % Unicode page 77 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradeone.mp;
39 input gradetwo.mp;
40
41 

---

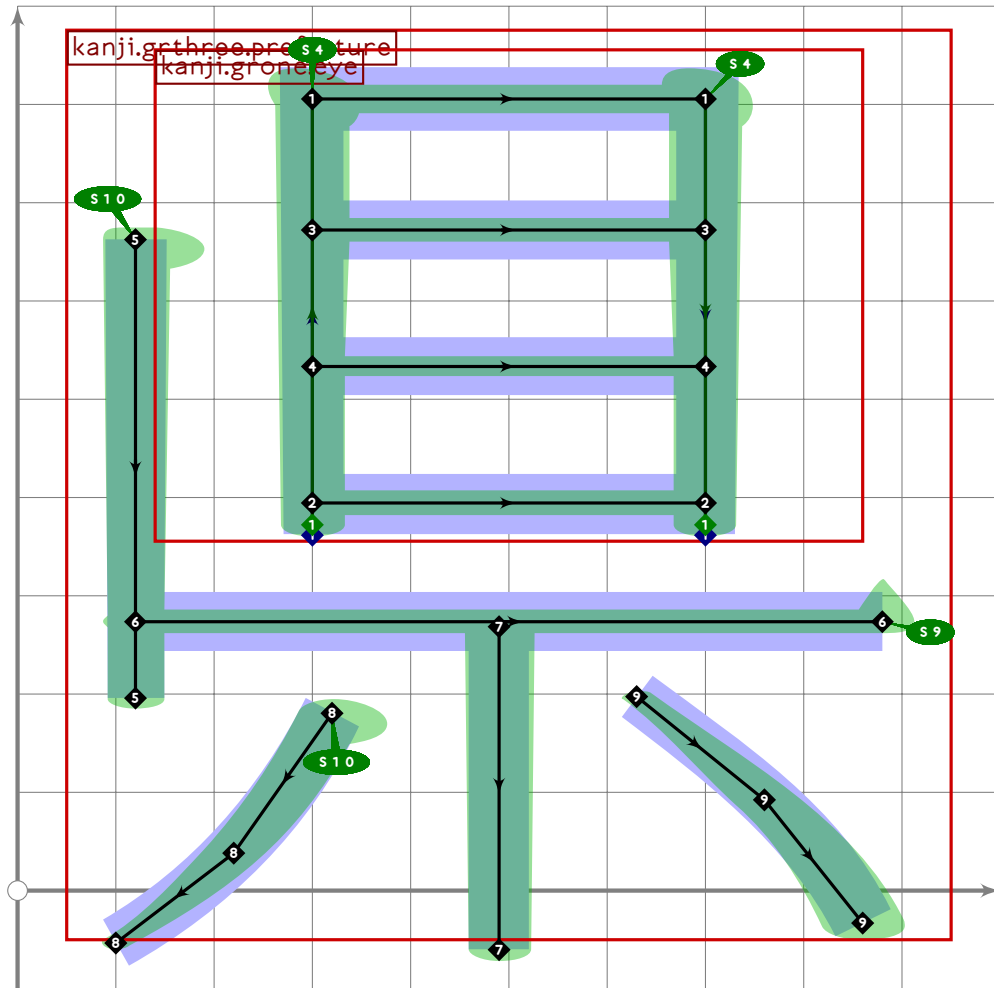

```



```

42
43 vardef kanji.grtwo.know =
44   push_pbox_toexpand("kanji.grtwo.know");
45   build_kanji.level(build_kanji.lr(550;20)
46     (kanji.leftrad.arrow)
47     (kanji.grone.mouth));
48   expand_pbox;
49 enddef;
50
51

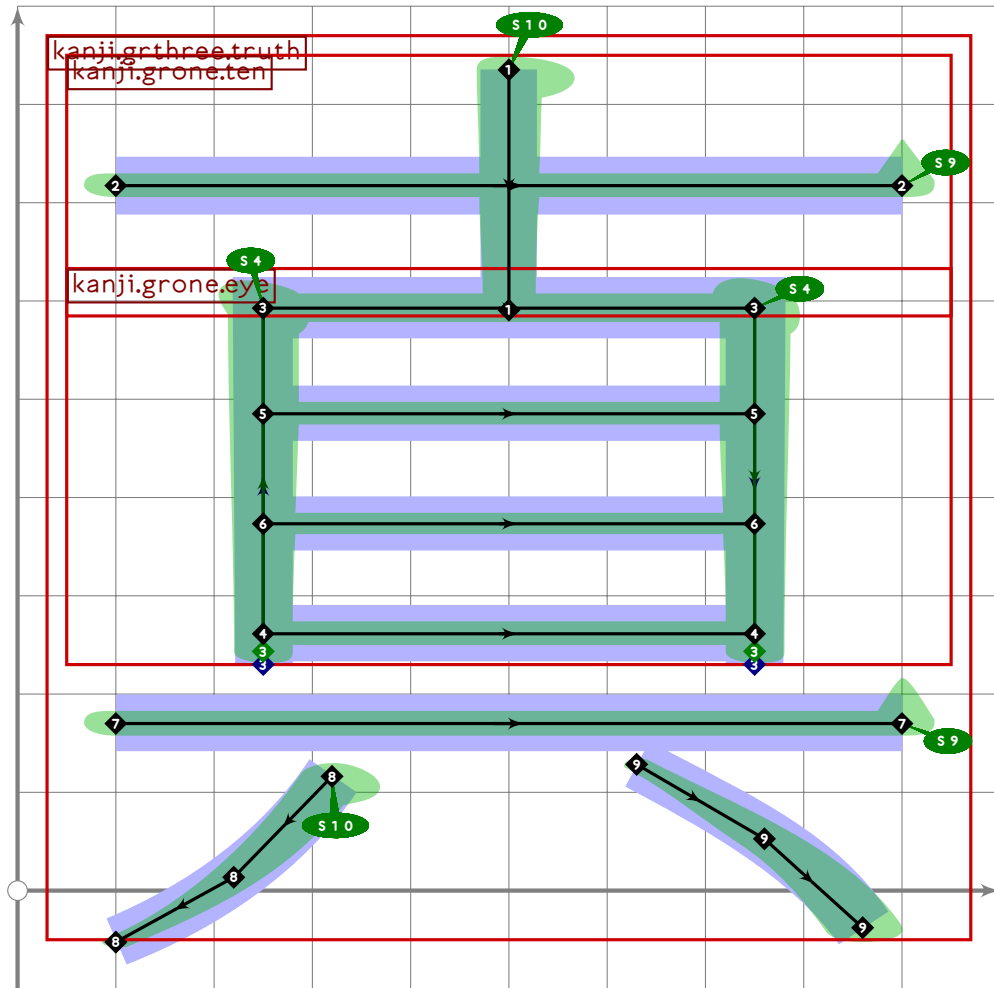
```



```

52
53 vardef kanji.grthree.prefecture =
54   push_pbox_toexpand("kanji.grthree.prefecture");
55   build_kanji.level(build_kanji.tb(240,30)
56     (build_kanji.sscale(scaled 0.80 shifted (0,100))(kanji.grone.eyeye);
57     build_kanji.cup((120,580),(880,20));
58     set_bosize(-1,0);
59     set_boserif(0,1,9))
60   (push_stroke((490,890)-(490,-80),(1.6,1.6)-(1.5,1.5));
61   push_stroke((320,630)..tension 1.3..(220,210)..(100,-60),
62     (1.6,1.6)-(1.5,1.5)-(1,1));
63   set_boserif(0,0,10);
64   push_stroke((630,680)..tension 1.3..(760,370)..(860,0),
65     (1,1)-(1.5,1.5)-(1.8,1.8))););
66   expand_pbox;
67 enddef;

```



```

68
69 vardef kanji.grthree.truth =
70   push_pbox_toexpand("kanji.grthree.truth");
71   build_kanji.level(build_kanji.tb(200;-60)
72     (build_kanji.tb(500,70)
73       (kanji.grone.ten)
74       (kanji.grone.eyeye))
75   (push_stroke((100,850)-(900,850),(1.6,1.6)-(1.6,1.6));
76     set_boserif(0,1,9);
77     push_stroke((320,630)..tension 1.3..(220,210)..(100,-60),
78       (1.6,1.6)-(1.5,1.5)-(1,1));
79     set_boserif(0,0,10);
80     push_stroke((630,680)..tension 1.3..(760,370)..(860,0),
81       (1,1)-(1.5,1.5)-(1.8,1.8))););
82   expand_pbox;
83 enddef;
84
85
86
87 vardef kanji.leftrad.arrow =
88   push_pbox_toexpand("kanji.leftrad.arrow");

```

```

89 kanji.grtwo.arrow;
90 replace_stroke(0)((point 1.6 of get_stroke(-1)..(690,200)..(850,80));
91 replace_stroke(0)((0.9,0.9)-(1.5,1.5)-(1.8,1.8));
92 expand_pbox;
93 endif;
94

```

```

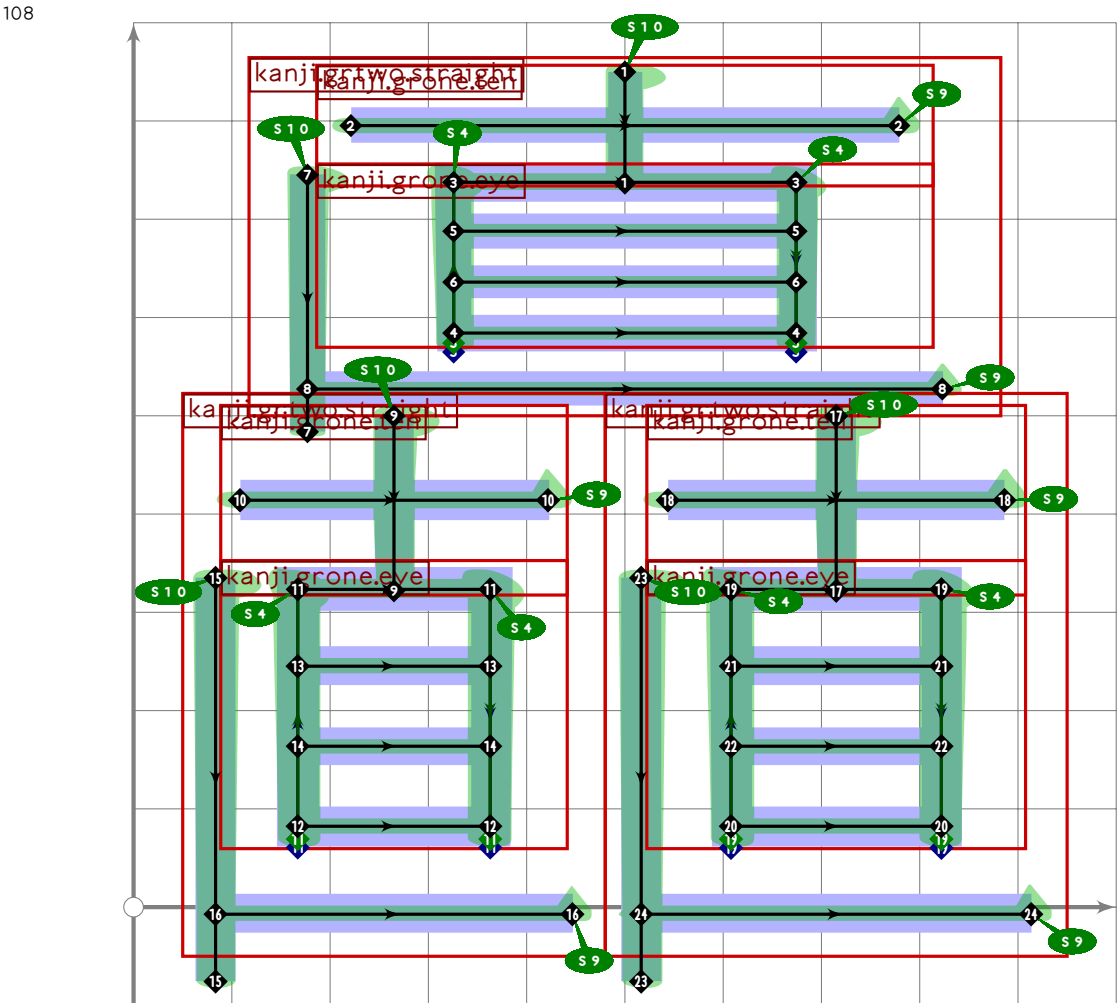
96
97 % ken/ka "prefecture"
98 begintsuglyph("uni770C",12); [see page 2000]
99 kanji.grthree.prefecture;
100 tsu_render;
101 endsuglyph;

```

```

102
103 % shin/ma "truth"
104 begintsuglyph("uni771F",31); [see page 2001]
105 kanji.grthree.truth;
106 tsu_render;
107 endsuglyph;

```



```

108
109 % extra: "luxuriance"

```

```
110 begintsuglyph("uni77D7";215);
111 build_kanji.tricluster(0.85)
112   (build_kanji.thickness(0.7)(kanji.grtwo.straight))
113   (build_kanji.thickness(0.8)(kanji.grtwo.straight))
114   (build_kanji.thickness(0.8)(kanji.grtwo.straight));
115 tsu_render;
116 endtsuglyph;
117
118 % shi/ya "arrow"
119 begintsuglyph("uni77E2";226); [see page 444]
120 kanji.grtwo.arrow;
121 tsu_render;
122 endtsuglyph;
123
124 % chi/shi "to know"
125 begintsuglyph("uni77E5";229); [see page 1999]
126 kanji.grtwo.know;
127 tsu_render;
128 endtsuglyph;
129
130 % seki/ishi "stone"
131 begintsuglyph("uni77F3";243); [see page 432]
132 kanji.grone.stone;
133 tsu_render;
134 endtsuglyph;
135
136 _____
137
138 endfont;
139
140 _____
```

# tsuku-78.mp

```
1 %  
2 % Unicode page 78 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2012 Matthew Skala  
4 %
```

5-29 [Standard copyright notice]

30

31

32

33 `beginfont`

34

35 % AUTODEPS

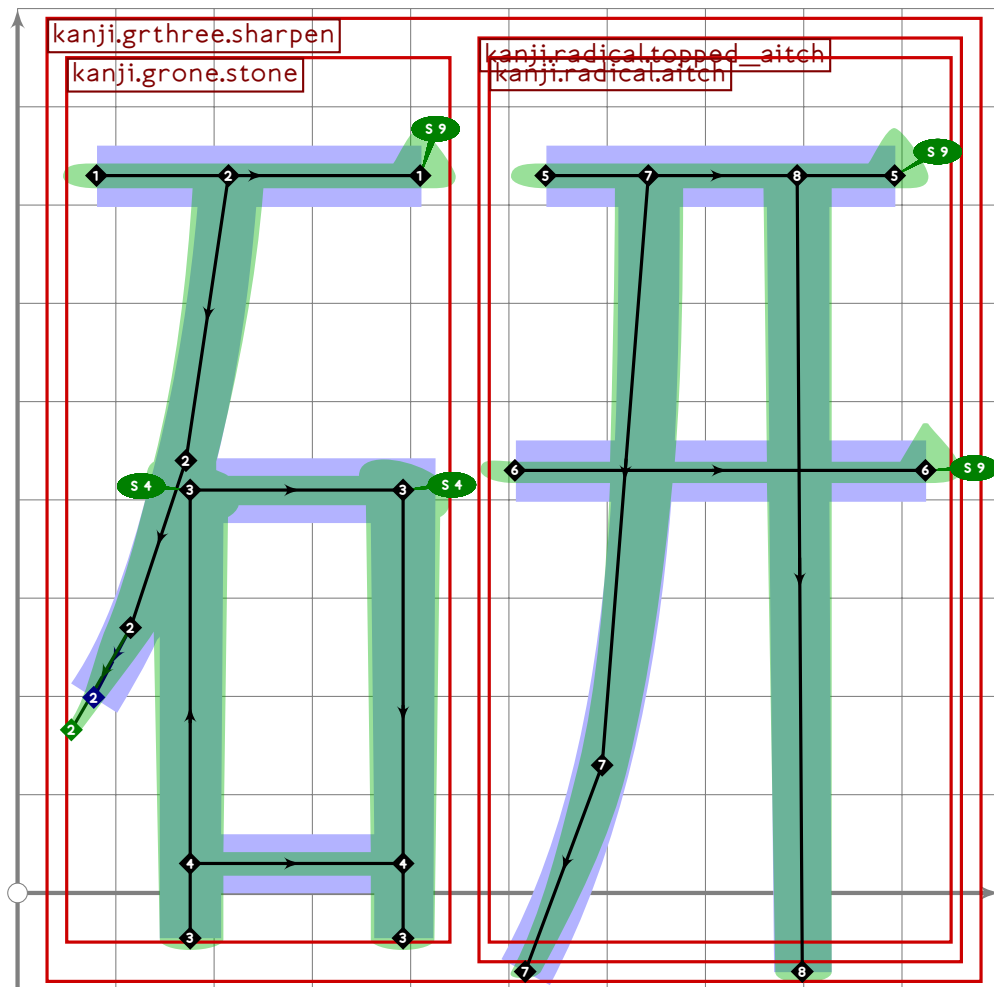
36 `input buildkanji.mp;`

37 `input gradeone.mp;`

38 `input radical.mp;`

39

40



41

42 `vardef kanji.grthree.sharpen =`

43 `push_pbox_toexpand("kanji.grthree.sharpen");`



```
44 build_kanji.level(build_kanji.lr(460,-40)
45   (kanji.grone.stone)
46   (kanji.radical.topped_aitch));
47 expand_pbox;
48 enddef;
49
50 

---


51
52 % ken/to "sharpen"
53 begintsuglyph("uni7814";20); [see page 2004]
54 kanji.grthree.sharpen;
55 tsu_render;
56 endtsuglyph;
57
58 

---


59
60 endfont;
61
62 

---


```

# tsuku-79.mp

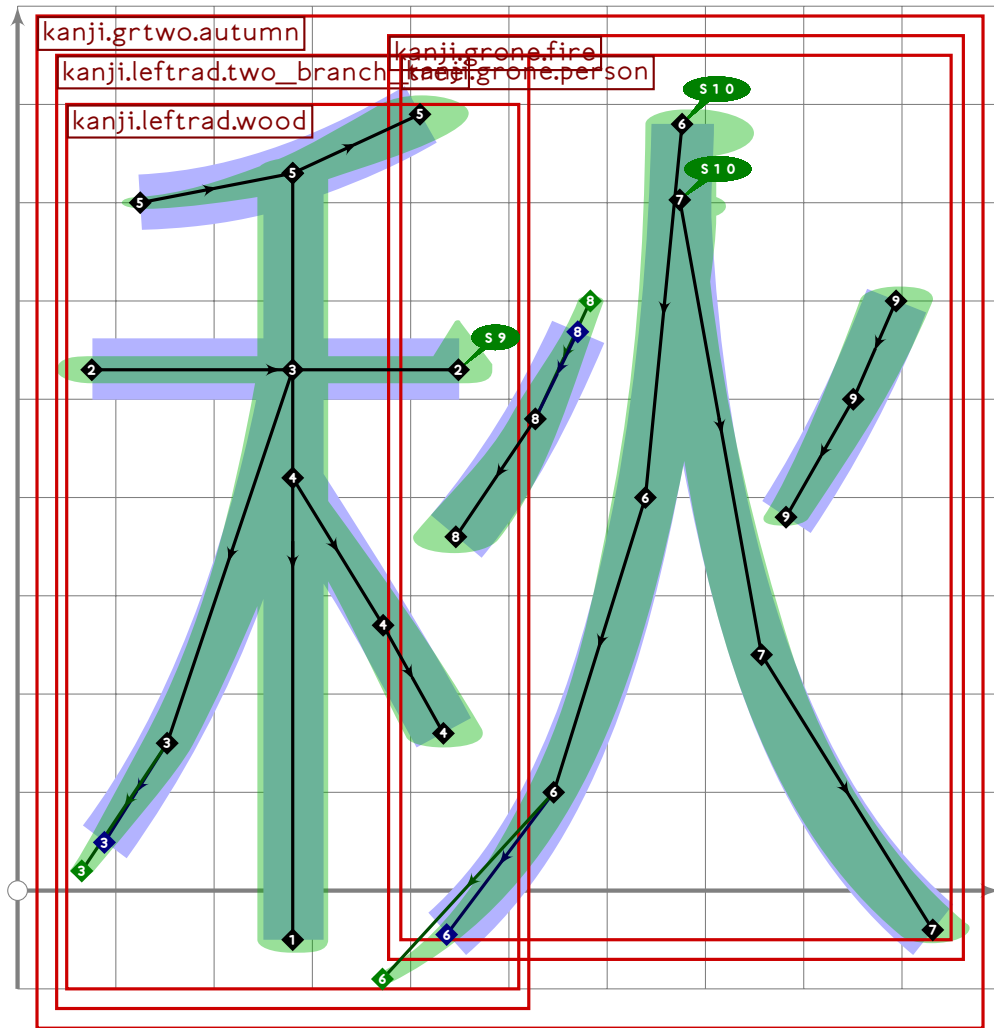
```
1 %
2 % Unicode page 79 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradethree.mp;
42 input gradetwo.mp;
43 input leftrad.mp;
44 input radical.mp;
45 input rare.mp;
46
47 

---

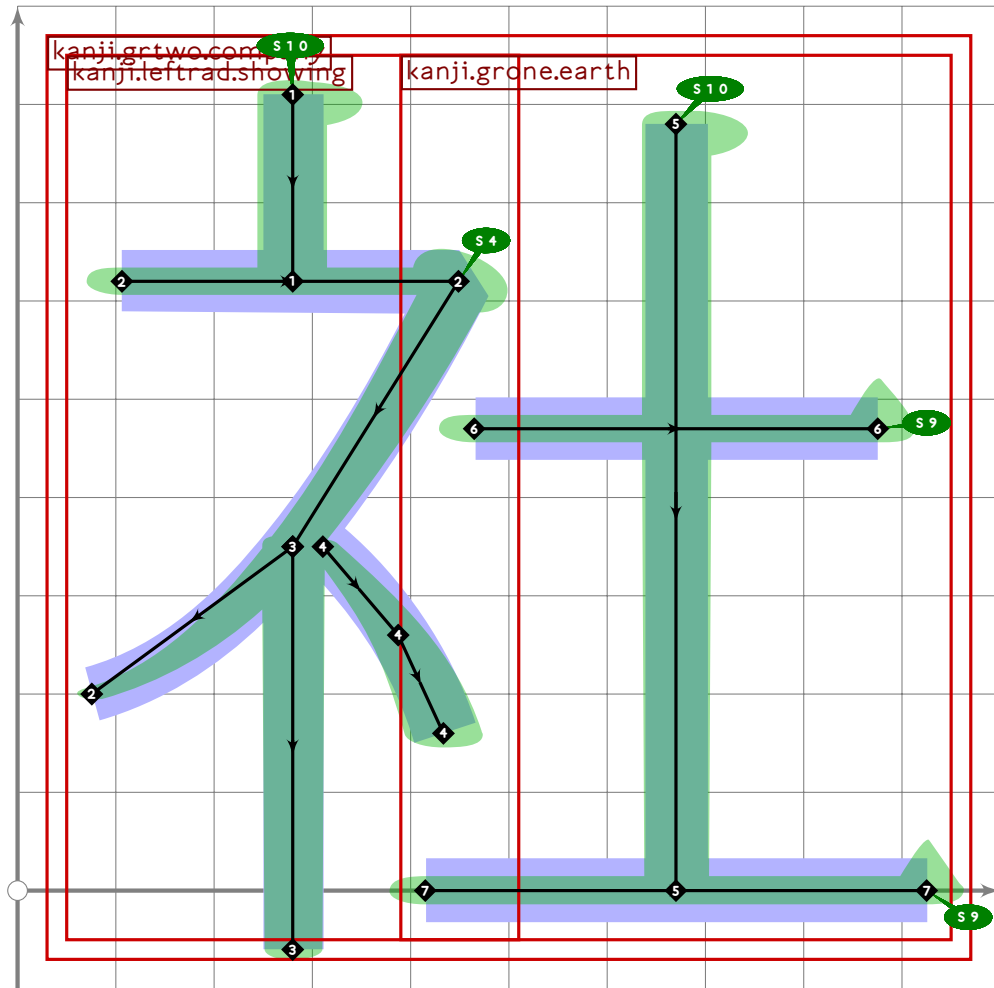

```



```

48
49 vardef kanji.grtwo.autumn =
50   push_pbox_toexpand("kanji.grtwo.autumn");
51   build_kanji.lr(450,120)
52     (kanji.leftrad.two_branch_tree)
53     (kanji.grone.fire);
54   expand_pbox;
55 enddef;

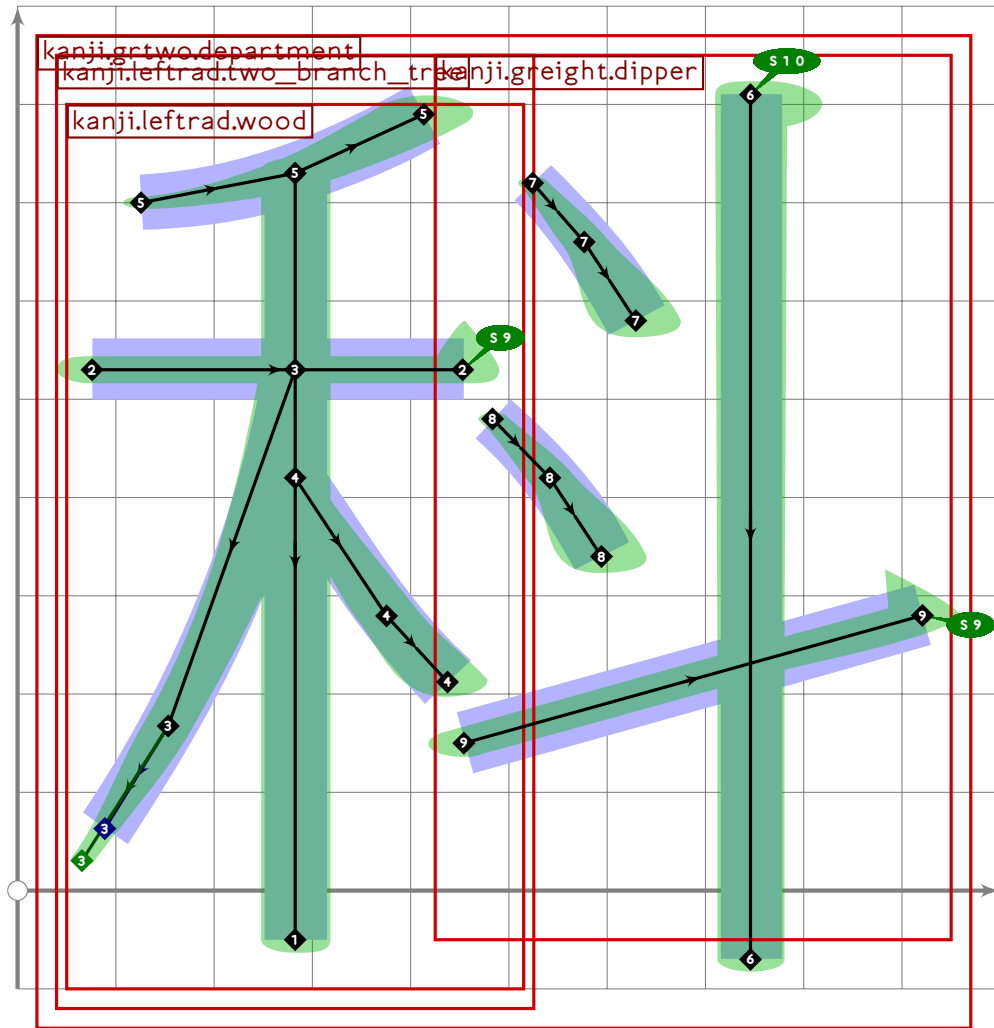
```



```

56
57 vardef kanji.grtwo.company =
58   push_pbox_toexpand("kanji.grtwo.company");
59   build_kanji.lr(450,120)
60     (kanji.leftrad.showing)
61     (kanji.grone.earth);
62   expand_pbox;
63 enddef;

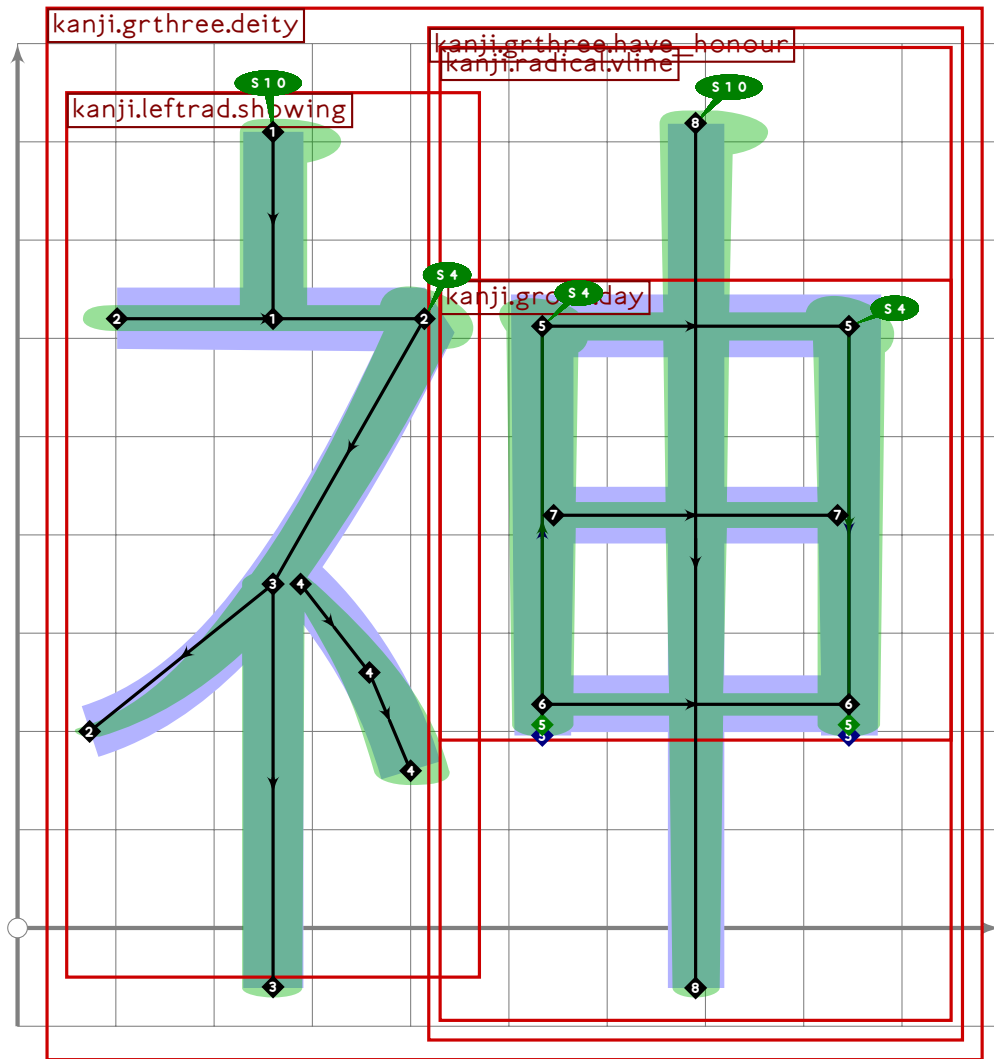
```



```

64
65 vardef kanji.grtwo.department =
66   push_pbox_toexpand("kanji.grtwo.department");
67   build_kanji.lr(470,90)
68     (build_kanji.lift_skirt(300,140)
69       (kanji.leftrad.two_branch_tree);
70     replace_strokep(-4)((point 0 of oldp)..(xpart point 1 of oldp,-50)))
71     (kanji.greight.dipper);
72   expand_pbox;
73 enddef;
74
75

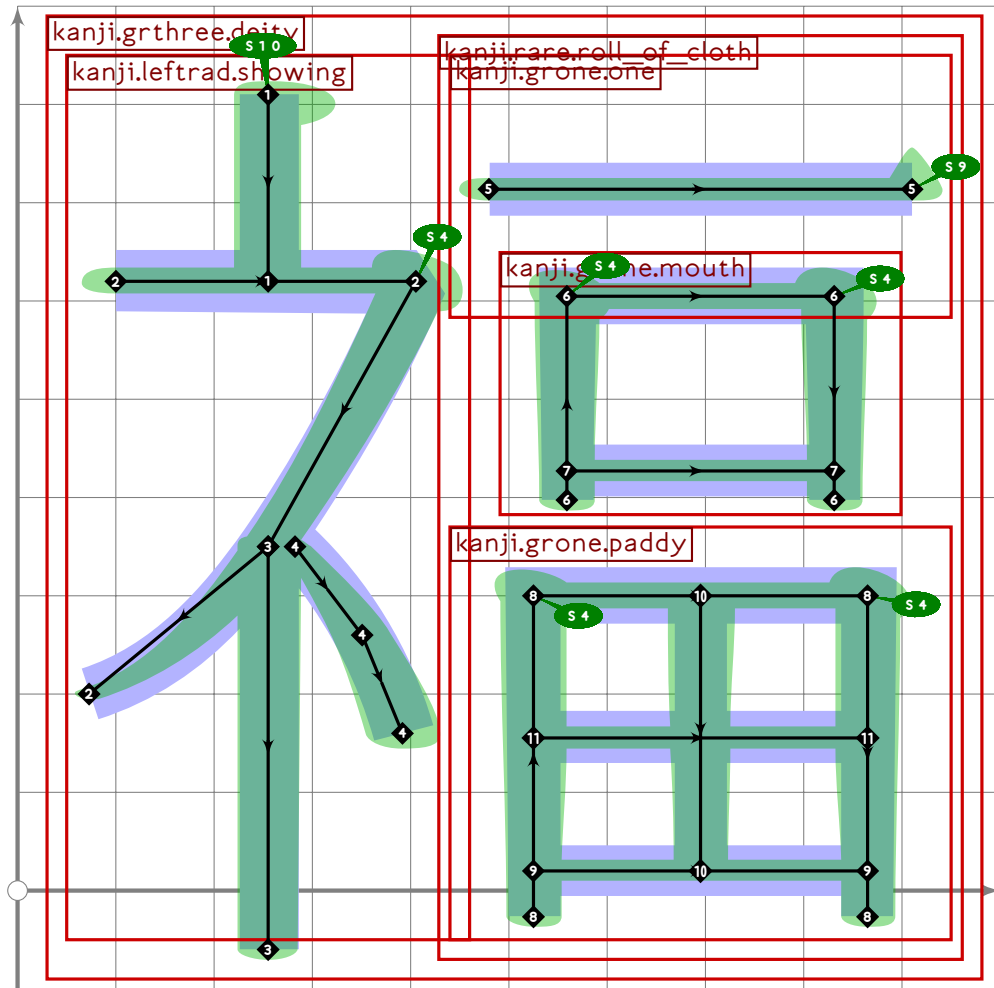
```



```

76
77 vardef kanji.grthree.deity =
78   push_pbox_toexpand("kanji.grthree.deity");
79   build_kanji.lr(450,40)
80     (kanji.leftrad.showing)
81     (kanji.grthree.have_honour);
82   expand_pbox;
83 enddef;

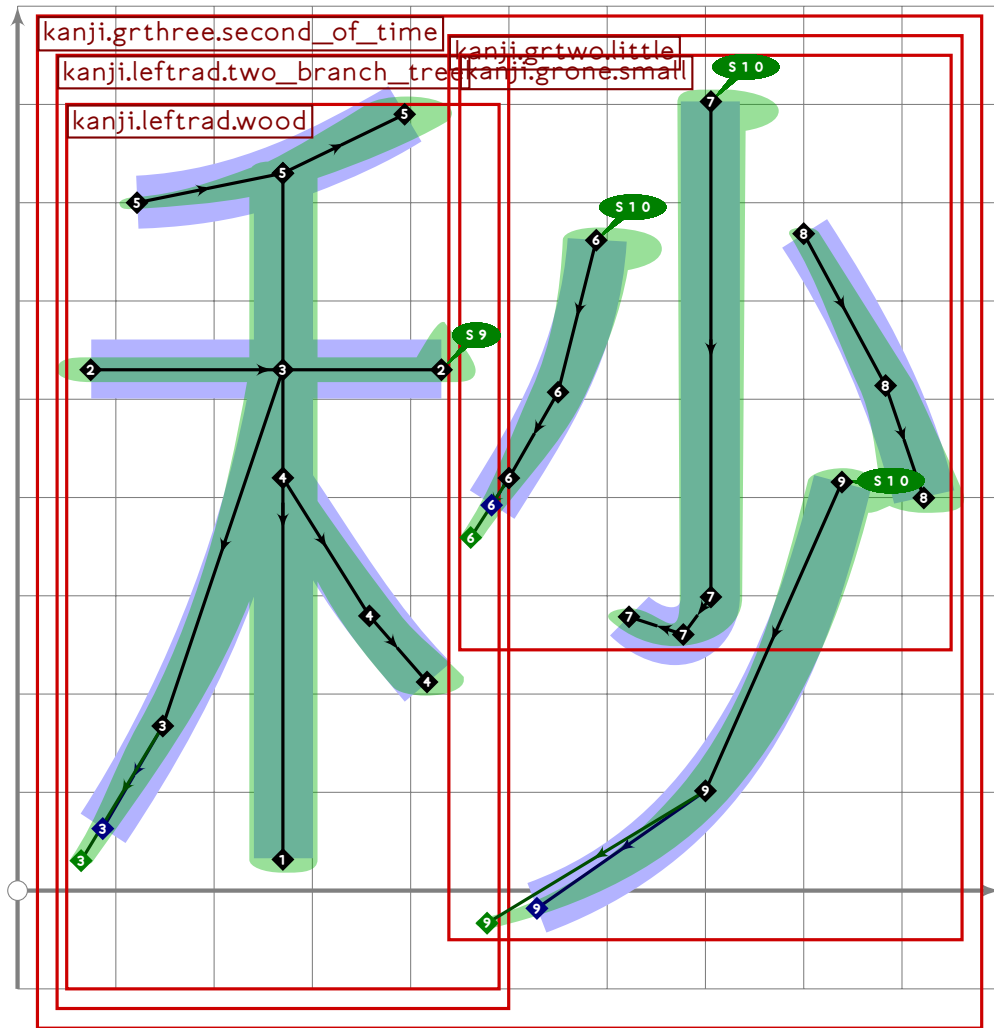
```



```

84
85 vardef kanji.grthree.good_luck =
86   push_pbox_toexpand("kanji.grthree.deity");
87   build_kanji.lr(450,20)
88     (kanji.leftrad.showing)
89     (kanji.rare.roll_of_cloth);
90   expand_pbox;
91 enddef;

```



```

92
93 vardef kanji.grthree.second_of_time =
94   push_pbox_toexpand("kanji.grthree.second_of_time");
95   build_kanji.level(build_kanji.lr(470,40)
96     (build_kanji.lift_skirt(300,140)
97       (kanji.leftrad.two_branch_tree))
98     (kanji.grtwo.little));
99   expand_pbox;
100 enddef;

```

101

102

103

104 % ji/shime "show" (also older radical form)

```
105 begintsuglyph("uni793A";58);
```

[see page 556]

```
106 kanji.grfive.showing;
```

```
107 tsu_render;
```

```
108 endtsuglyph;
```

109

110 % "showing" radical (simple, more popular form)

```
111 begintsuglyph("uni793B";59);
```

[see page 338]



112 `kanji.leftrad.showing;`  
113 `tsu_render;`  
114 `endtsuglyph;`  
115  
116 `% sha/yashiro "company"`  
117 `begintsuglyph("uni793E";62);` [see page 2008]  
118 `kanji.grtwo.company;`  
119 `tsu_render;`  
120 `endtsuglyph;`  
121  
122 `% shin/kami "deity"`  
123 `begintsuglyph("uni795E";94);` [see page 2010]  
124 `kanji.grthree.deity;`  
125 `tsu_render;`  
126 `endtsuglyph;`  
127  
128 `% fuku/toshi "good luck"`  
129 `begintsuglyph("uni798F";143);` [see page 2011]  
130 `kanji.grthree.good_luck;`  
131 `tsu_render;`  
132 `endtsuglyph;`  
133  
134 `% ka/ine little meaning by itself, called "two-branch tree" as a radical`  
135 `begintsuglyph("uni79BE";190);` [see page 605]  
136 `kanji.grnine.two_branch_tree;`  
137 `tsu_render;`  
138 `endtsuglyph;`  
139  
140 `% shuu/aki "autumn"`  
141 `begintsuglyph("uni79CB";203);` [see page 2007]  
142 `kanji.grtwo.autumn;`  
143 `tsu_render;`  
144 `endtsuglyph;`  
145  
146 `% ka "department"`  
147 `begintsuglyph("uni79D1";209);` [see page 2009]  
148 `kanji.grtwo.department;`  
149 `tsu_render;`  
150 `endtsuglyph;`  
151  
152 `% byou "second of time"`  
153 `begintsuglyph("uni79D2";210);` [see page 2012]  
154 `kanji.grthree.second_of_time;`  
155 `tsu_render;`  
156 `endtsuglyph;`  
157  
158 

---

160 endfont;

161

162

---

# tsuku-7a.mp

```
1 %  
2 % Unicode page 7a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

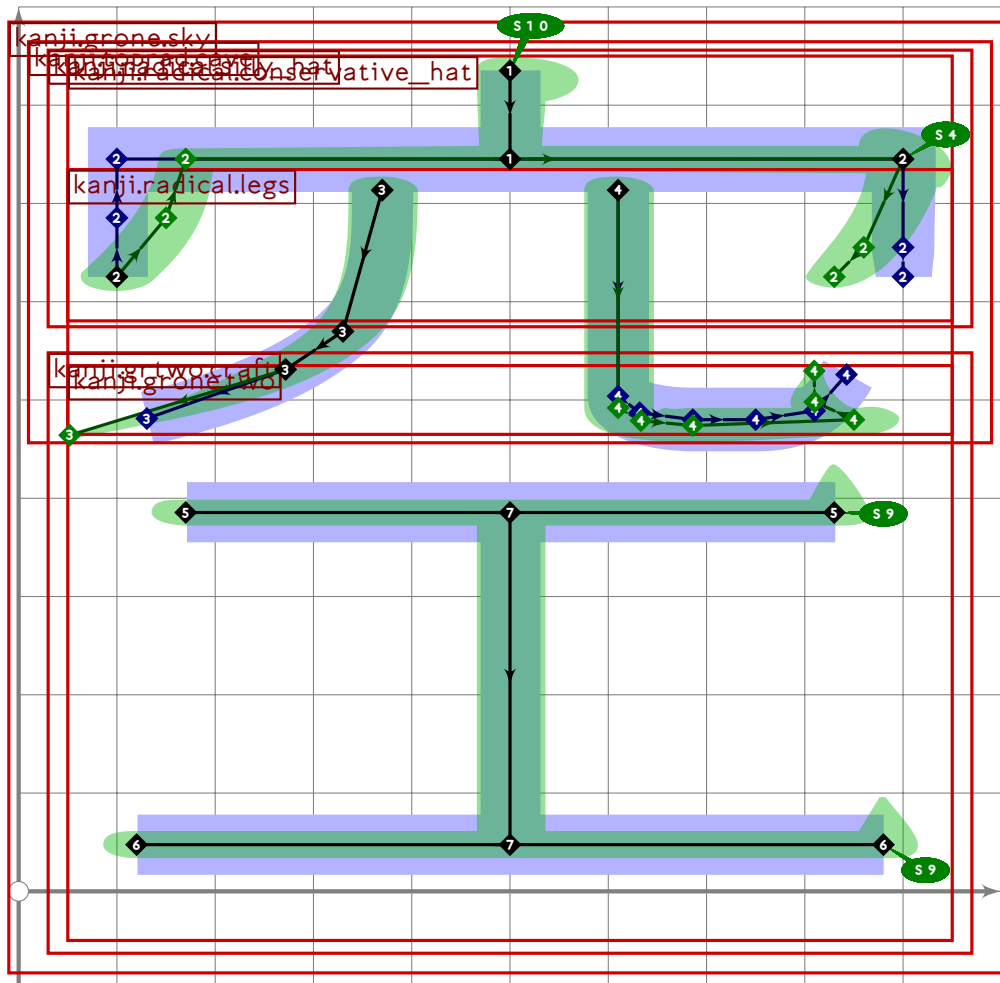
38 input gradetwo.mp;

39 input radical.mp;

40 input toprad.mp;

41

42

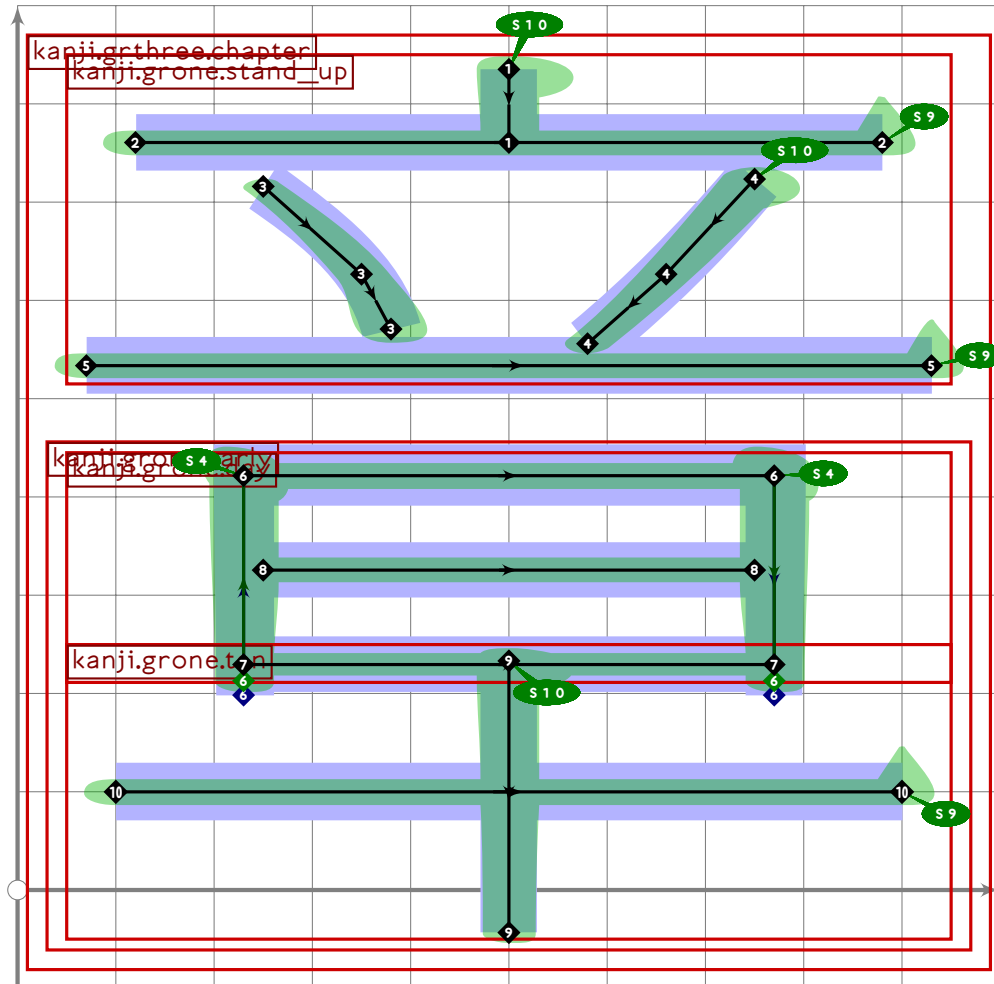


43

```

44 vardef kanji.grone.sky =
45   push_pbox_toexpand("kanji.grone.sky");
46   build_kanji.level(build_kanji.tb(500,70)
47     (kanji.toprad.cave)
48     (kanji.grtwo.craft));
49   expand_pbox;
50 enddef;
51
52

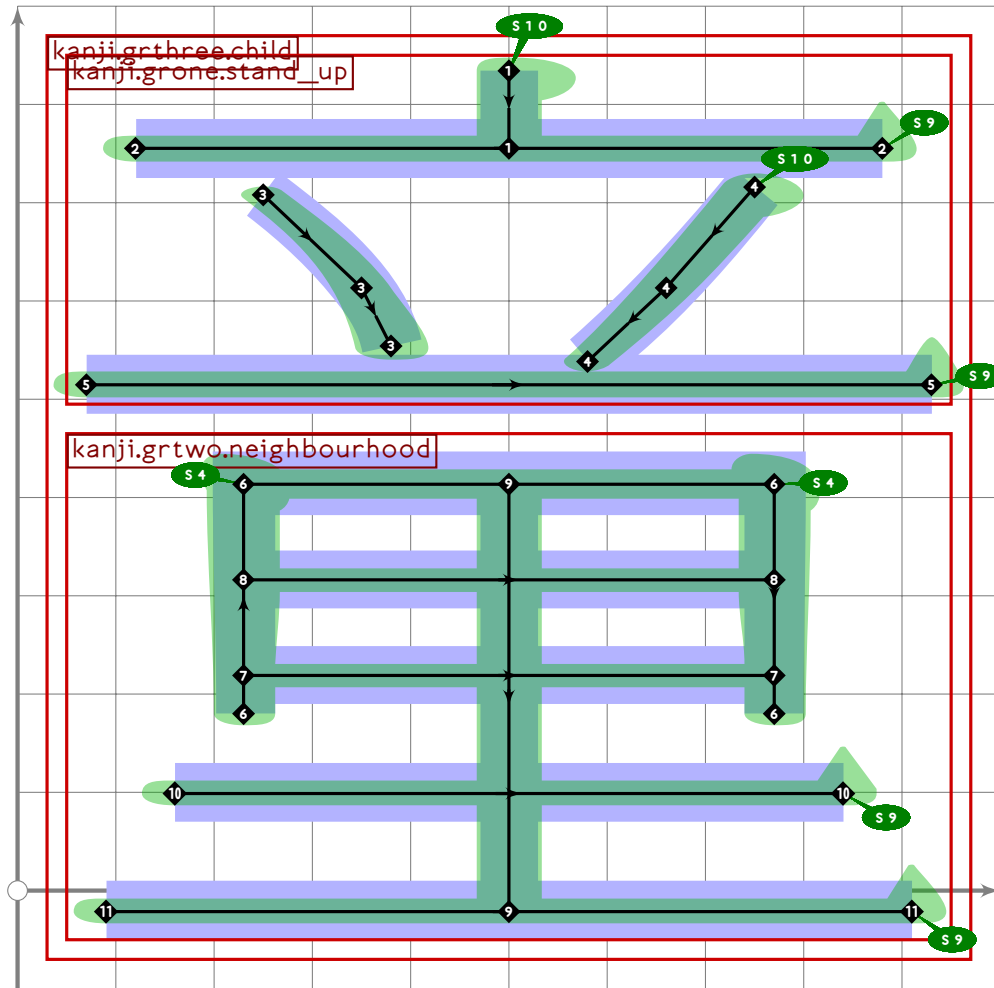
```



```

53
54 vardef kanji.grthree.chapter =
55   push_pbox_toexpand("kanji.grthree.chapter");
56   build_kanji.level(build_kanji.tb(480,70)
57     (kanji.grone.early)
58     (kanji.grone.early));
59   expand_pbox;
60 enddef;

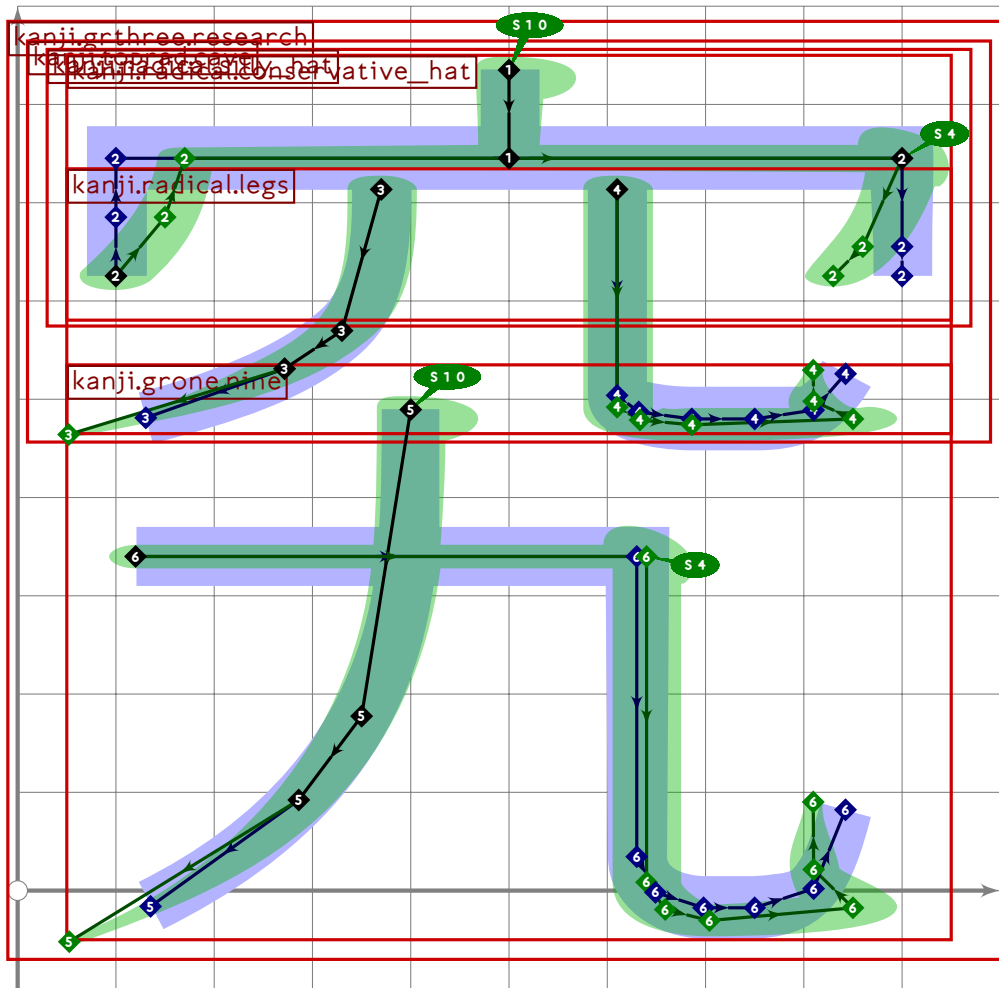
```



```

61
62 vardef kanji.grthree.child =
63   push_pbox_toexpand("kanji.grthree.child");
64   build_kanji.level(build_kanji.tb(480,-30)
65     (kanji.grone.stand_up)
66     (kanji.grtwo.neighbourhood ));
67   expand_pbox;
68 enddef;

```



```

69
70 vardef kanji.grthree.research =
71   push_pbox_toexpand("kanji.grthree.research");
72   build_kanji.level(build_kanji.tb(500,70)
73     (kanji.toprad.cave)
74     (kanji.grone.nine));
75   expand_pbox;
76 enddef;
77
78
79
80 % kyuu/kiwa "research"
81 begintsuglyph("uni7A76";118); [see page 2018]
82   kanji.grthree.research;
83   tsu_render;
84 endtsuglyph;
85
86 % kara/sora "sky"
87 begintsuglyph("uni7A7A";122); [see page 2016]
88   kanji.grone.sky;
89   tsu_render;

```

```
90 endtsuglyph;
91
92 % ta "stand up"
93 begintsuglyph("uni7ACB";203); [see page 431]
94 kanji.grone.stand_up;
95 tsu_render;
96 endtsuglyph;
97
98 % shou/aki "chapter"
99 begintsuglyph("uni7AE0";224); [see page 2016]
100 kanji.grthree.chapter;
101 tsu_render;
102 endtsuglyph;
103
104 % dou/warabe "child"
105 begintsuglyph("uni7AE5";229); [see page 2017]
106 kanji.grthree.child;
107 tsu_render;
108 endtsuglyph;
109
110 % chiku/take "bamboo"
111 begintsuglyph("uni7AF9";249); [see page 379]
112 kanji.grone.bamboo;
113 tsu_render;
114 endtsuglyph;
115
116 _____
117
118 endfont;
119
120 _____
```

# tsuku-7b.mp

1 %

2 % Unicode page 7b (Kanji) for Tsukurimashou

3 % Copyright (C) 2011, 2012 Matthew Skala

4 %

5-29 [Standard copyright notice]

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

38 input gradethree.mp;

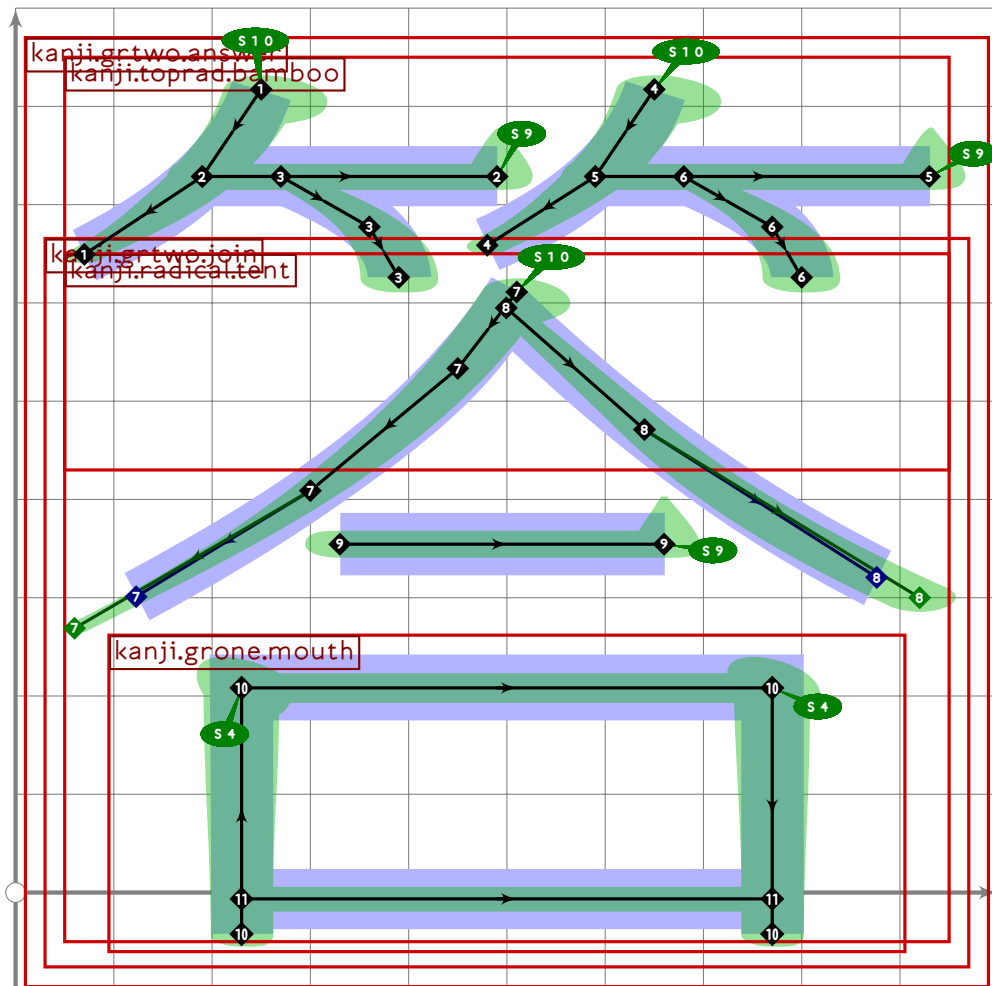
39 input gradetwo.mp;

40 input radical.mp;

41 input topnad.mp;

42

43

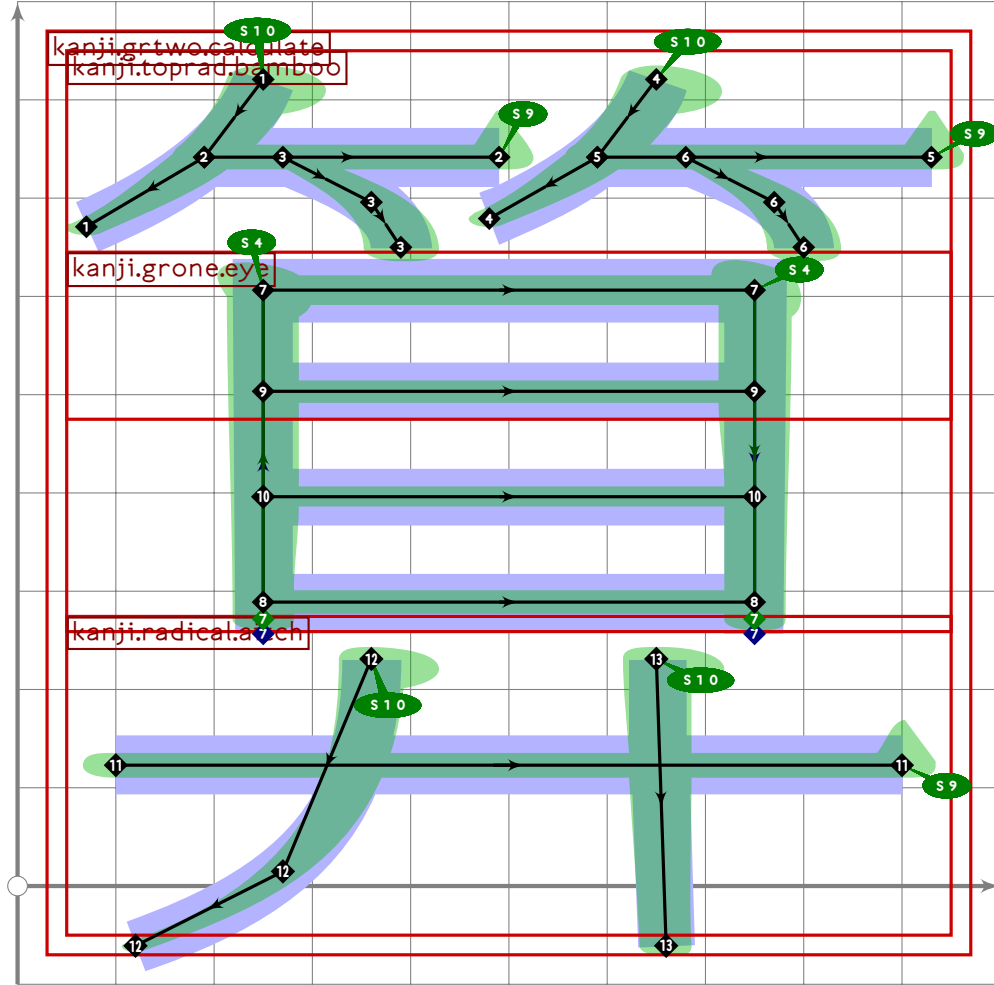




```

44
45 vardef kanji.grtwo.answer =
46   push_pbox_toexpand("kanji.grtwo.answer");
47   build_kanji.level(build_kanji.tb(540,220)
48     (kanji.toprad.bamboo)
49     (kanji.grtwo.join));
50   expand_pbox;
51 enddef;

```



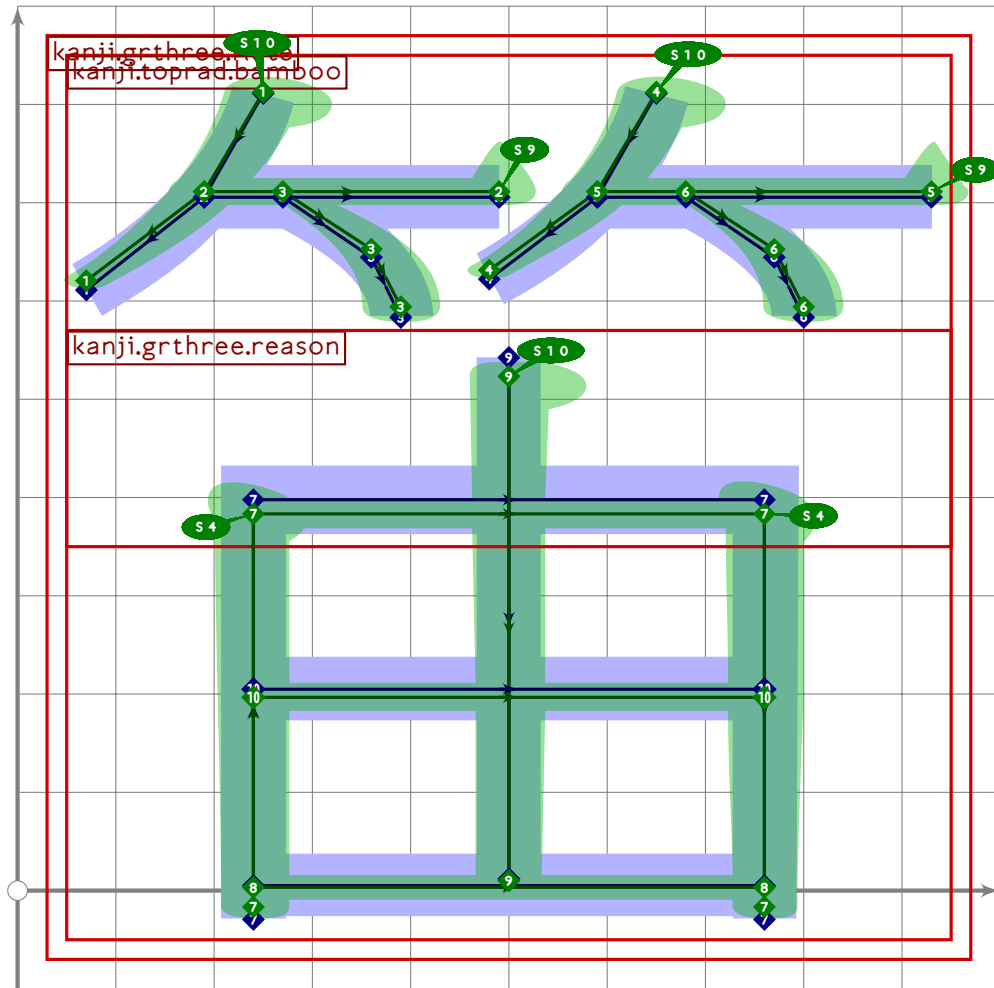
```

52
53 vardef kanji.grtwo.calculate =
54   push_pbox_toexpand("kanji.grtwo.calculate");
55   build_kanji.level(build_kanji.tb(560,170)
56     (kanji.toprad.bamboo)
57     (build_kanji.tb(360,20)
58       (kanji.grone.ey)
59       (kanji.radical.aitch)));
60   expand_pbox;
61 enddef;

```

62

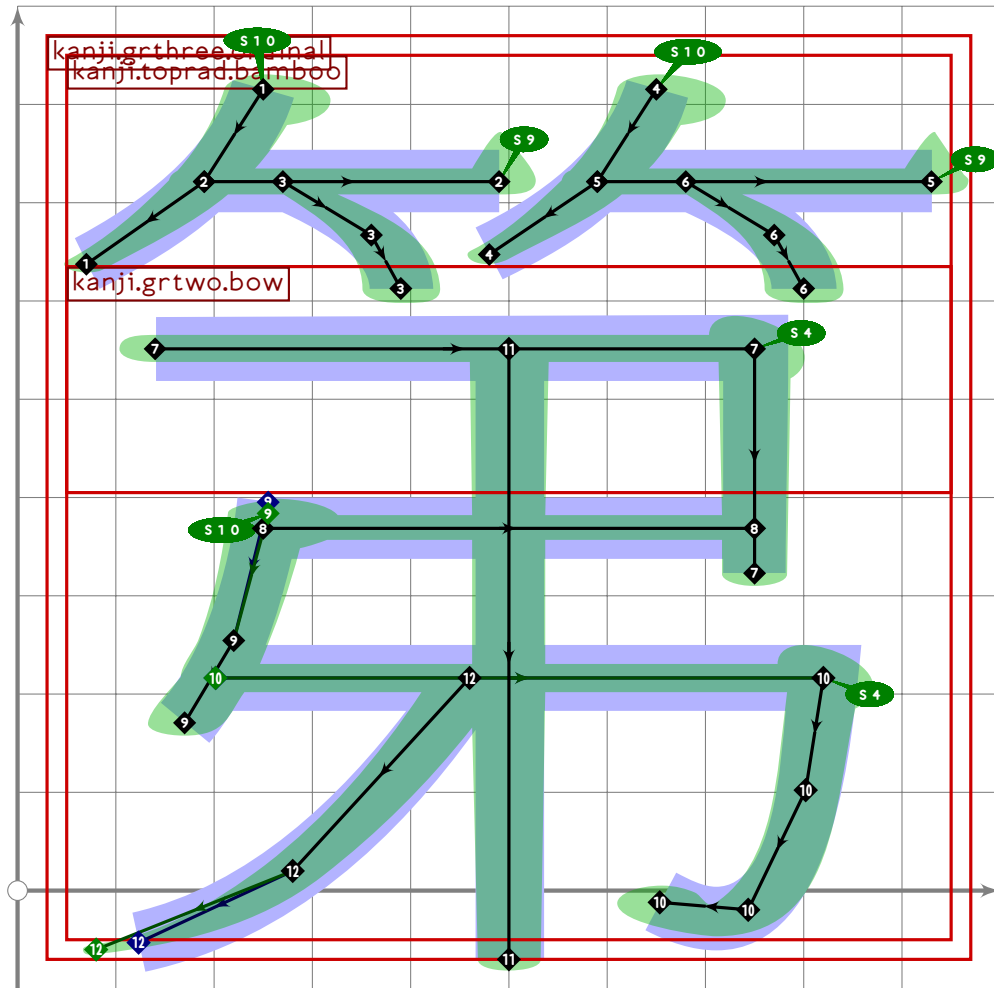
63



```

64
65 vardef kanji.grthree.flute =
66   push_pbox_toexpand("kanji.grthree.flute");
67   build_kanji.level(build_kanji.tb(460,220-40*mincho)
68     (kanji.toprad.bamboo)
69     (kanji.grthree.reason));
70   expand_pbox;
71 enddef;

```



```

72
73 vardef kanji.grthree.ordinal =
74   push_pbox_toexpand("kanji.grthree.ordinal");
75   build_kanji.level(build_kanji.tb(520,230)
76     (kanji.toprad.bamboo)
77     (kanji.grtwo.bow));
78   push_stroke((500,y part point 0 of get_stroke(-3))-(500,70),
79     (1.6,1.6)-(14,1.4));
80   replace_stroke(-1)((point 0 of oldp)-
81     ((subpath (1,infinity) of oldp)
82     shifted (-820,0) xscaled 0.45 shifted (820,0)));
83   push_stroke(((get_stroke(0) intersectionpoint get_stroke(-1))+(-40,0)..
84     tension 1.2..(280,20)..(80,-60),
85     (1.6,1.6)-(14,1.4)-(0.9,0.9));
86   expand_pbox;
87 enddef;
88
89
90
91 % teki/fue "flute"
92 begint Suglyph("uni7B1B",27);

```

[see page 2022]

```
93  kanji.grthree.flute;
94  tsu_render;
95  endtsuglyph;
96
97  % dai "ordinal number"
98  begintsuglyph("uni7B2C";44); [see page 2023]
99  kanji.grthree.ordinal;
100 tsu_render;
101 endtsuglyph;
102
103 % tou/kota "answer"
104 begintsuglyph("uni7B54";84); [see page 2021]
105 kanji.grtwo.answer;
106 tsu_render;
107 endtsuglyph;
108
109 % sen/soru "calculate"
110 begintsuglyph("uni7B97";151); [see page 2021]
111 kanji.grtwo.calculate;
112 tsu_render;
113 endtsuglyph;
114
115 _____
116
117 endfont;
118
119 _____
```

# tsuku-7c.mp

```
1 %
2 % Unicode page 7c (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradeone.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input topfad.mp;
42
43 

---


44
45 % bei/kome "rice", also "USA" and "metre"
46 begintsuglyph("uni7C73",115); [see page 494]
47   kanji.grtwo.rice;
48   tsu_render;
49 endtsuglyph;
50
51 % shi/ito "thread"
52 begintsuglyph("uni7CF8",248); [see page 434]
53   kanji.grone.thread;
54   tsu_render;
55 endtsuglyph;
56
57 % kei "lineage"
58 begintsuglyph("uni7CFB",251); [see page 548]
59   kanji.grfour.lineage;
60   tsu_render;
61 endtsuglyph;
62
63 

---


64
65 endfont;
66
67 

---


```

# tsuku-7d.mp

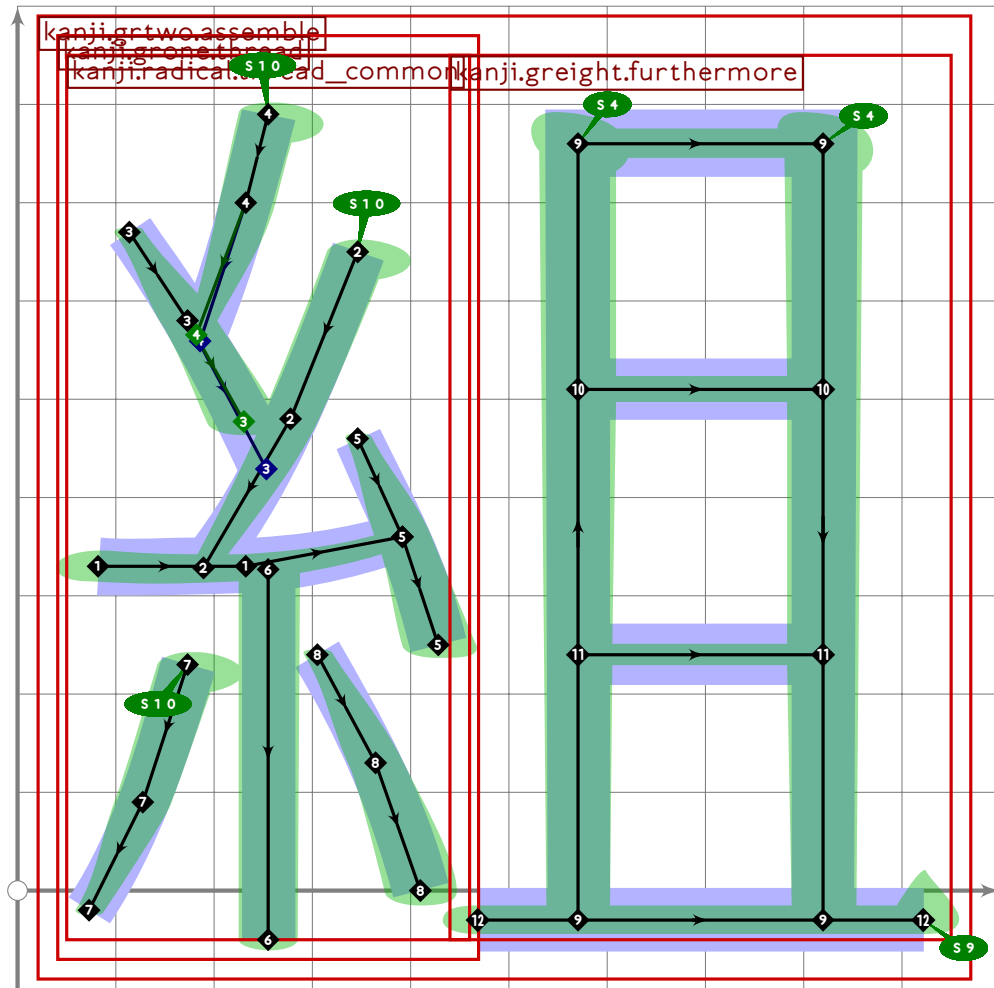
```
1 %
2 % Unicode page 7d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input gradesix.mp;
42 input gradetwo.mp;
43 input radical.mp;
44
45 

---

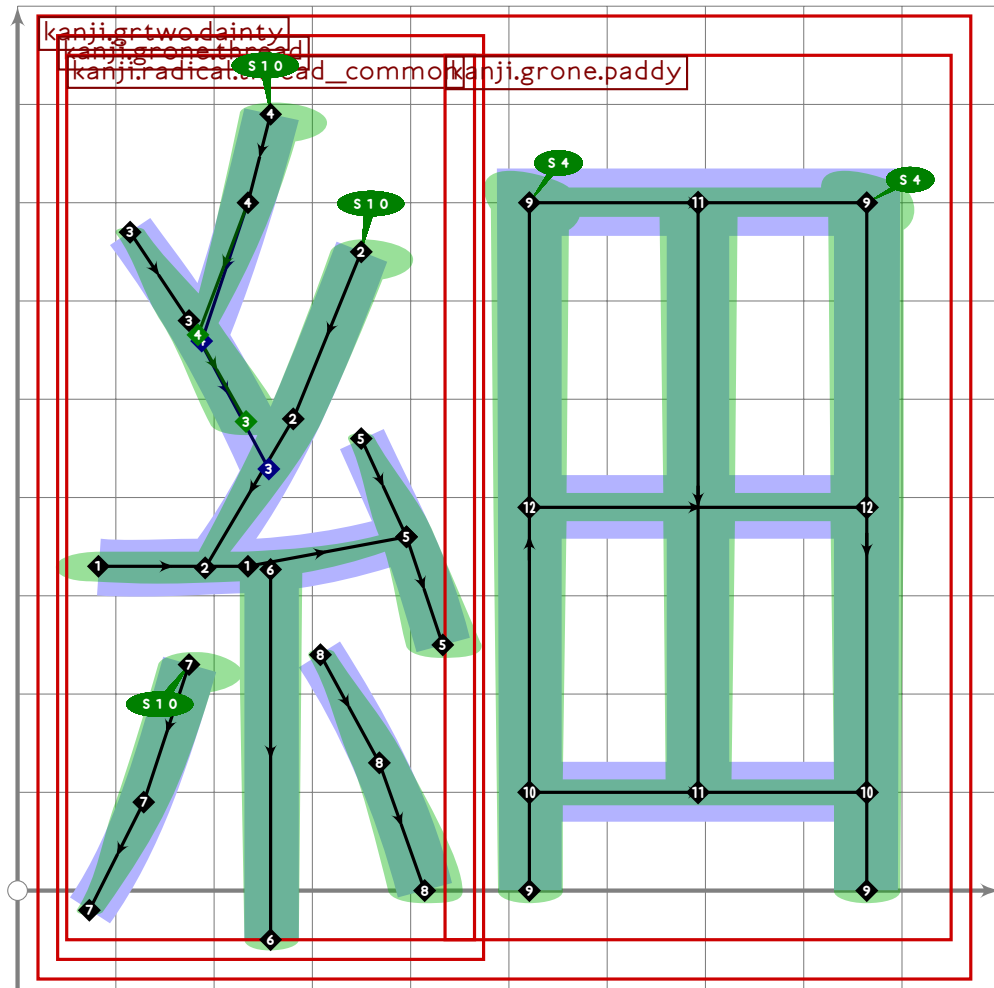

```



```

46
47 vardef kanji.grtwo.assemble =
48   push_pbox_toexpand("kanji.grtwo.assemble");
49   build_kanji.lr(450,20)
50   (kanji.grone.thread)
51   (kanji.greight.furthermore);
52   expand_pbox;
53 enddef;

```

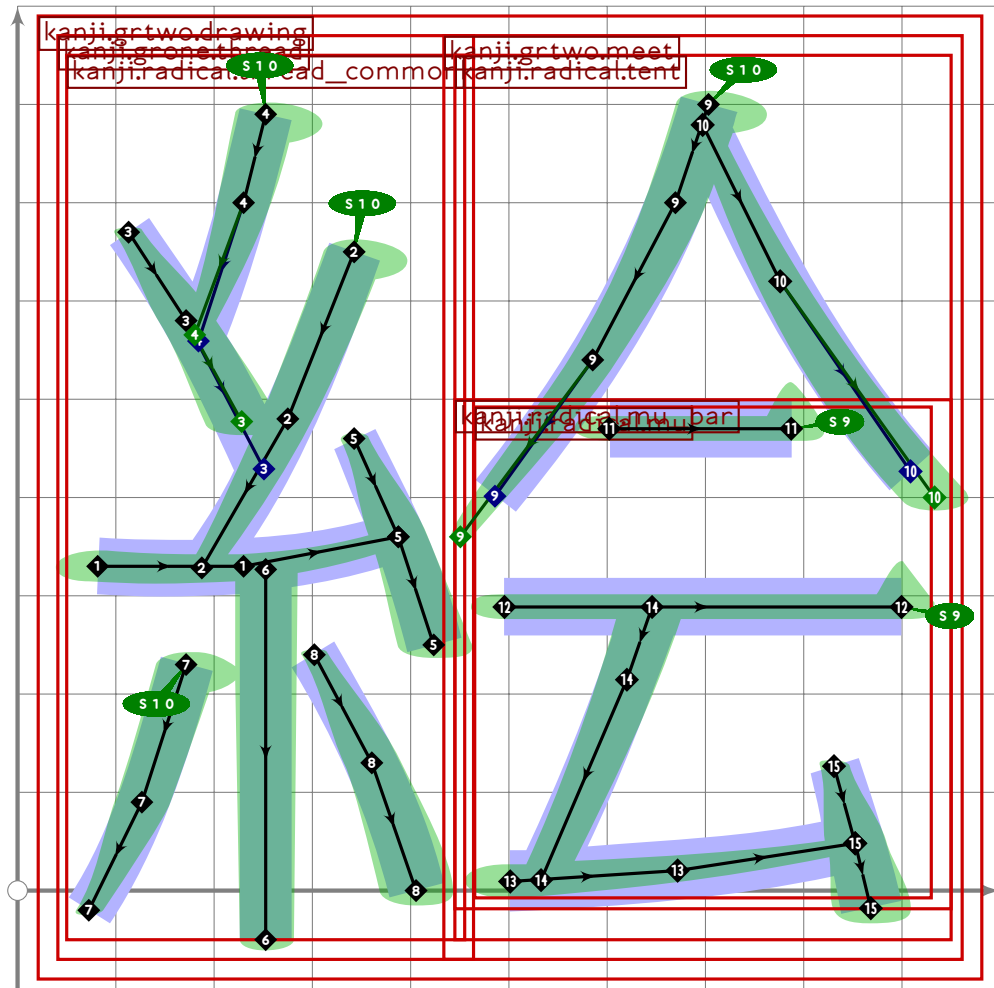


```

54
55 vardef kanji.grtwo.dainty =
56   push_pbox_toexpand("kanji.grtwo.dainty");
57   build_kanji.lr(450,30)
58     (kanji.grone.thread)
59     (kanji.grone.paddy);
60   expand_pbox;
61 enddef;
62

```

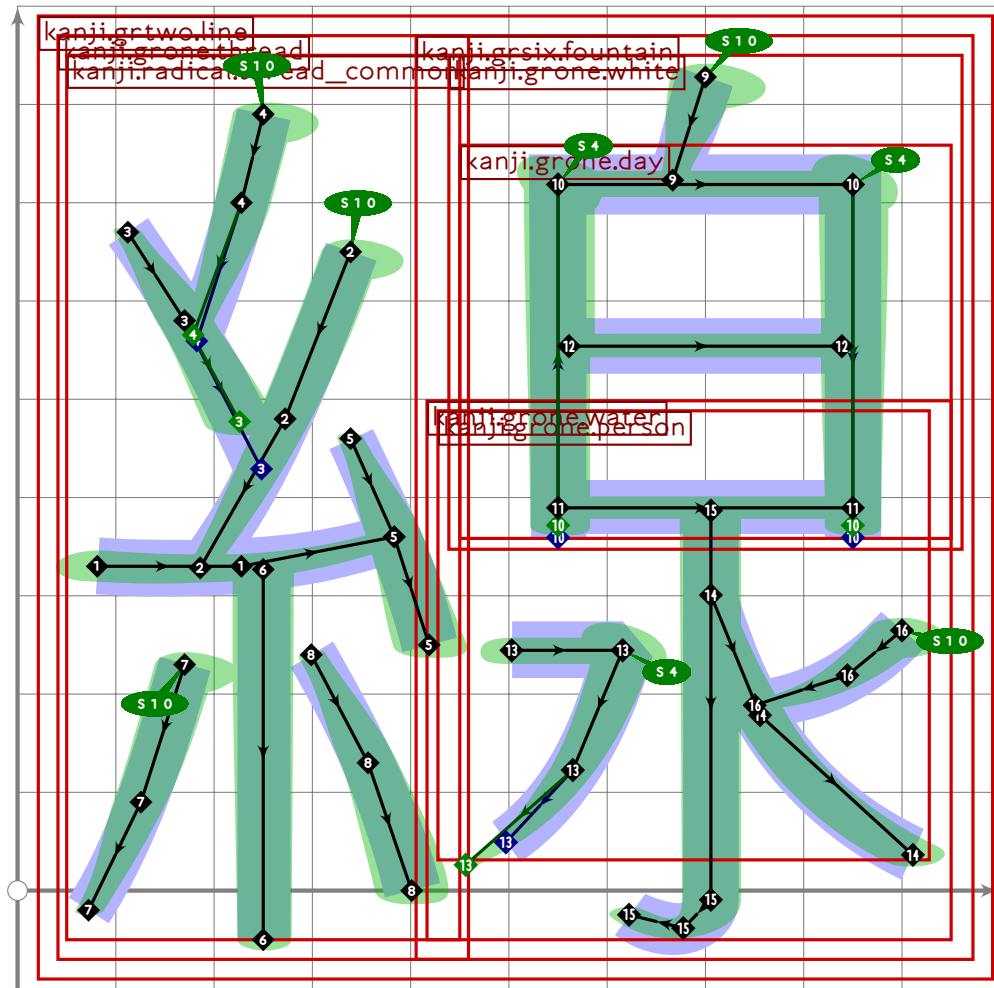




```

63 % "picture" is a reserved word
64 vardef kanji.grtwo.drawing =
65   push_pbox_toexpand("kanji.grtwo.drawing");
66   build_kanji.lr(450,10)
67   (kanji.grone.thread)
68   (kanji.grtwo.meet);
69   expand_pbox;
70 enddef;

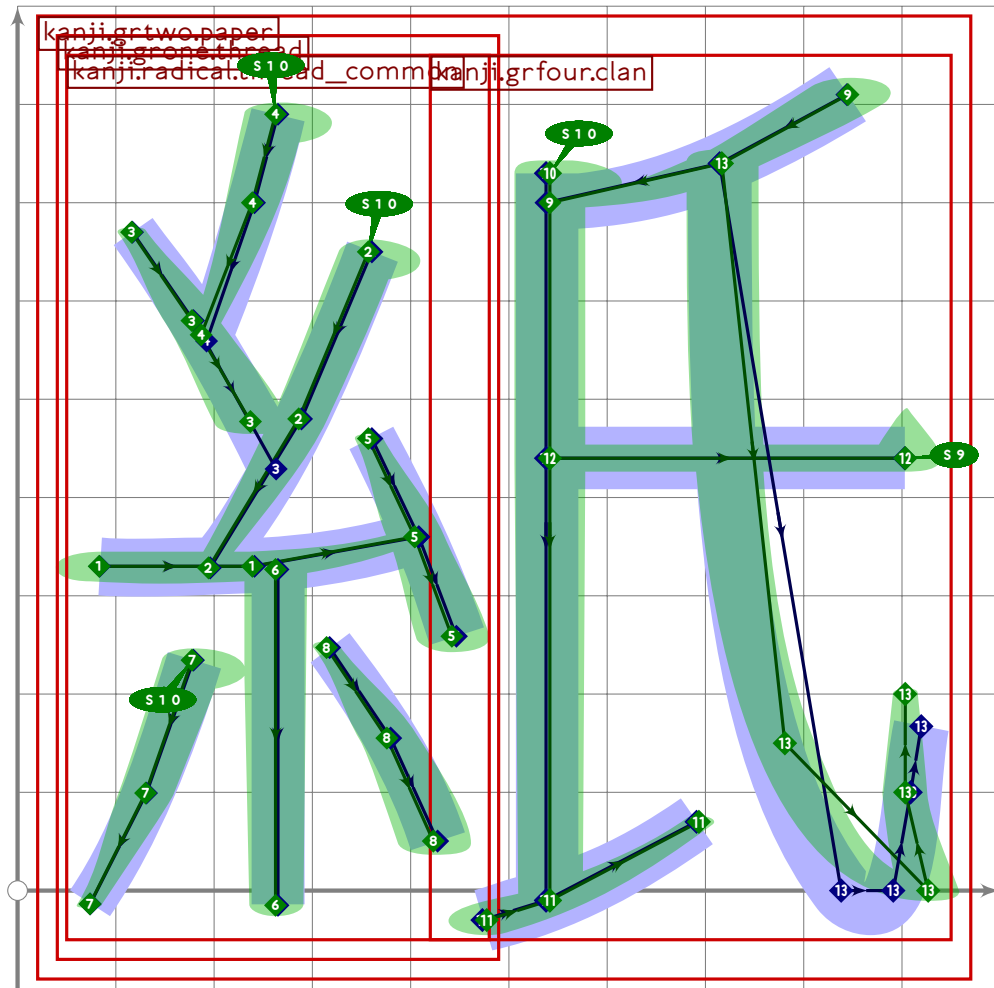
```



```

71
72 vardef kanji.grtwo.line =
73   push_pbox_toexpand("kanji.grtwo.line");
74   build_kanji.lr(450,0)
75   (kanji.grone.thread)
76   (kanji.grsix.fountain);
77   expand_pbox;
78 enddef;

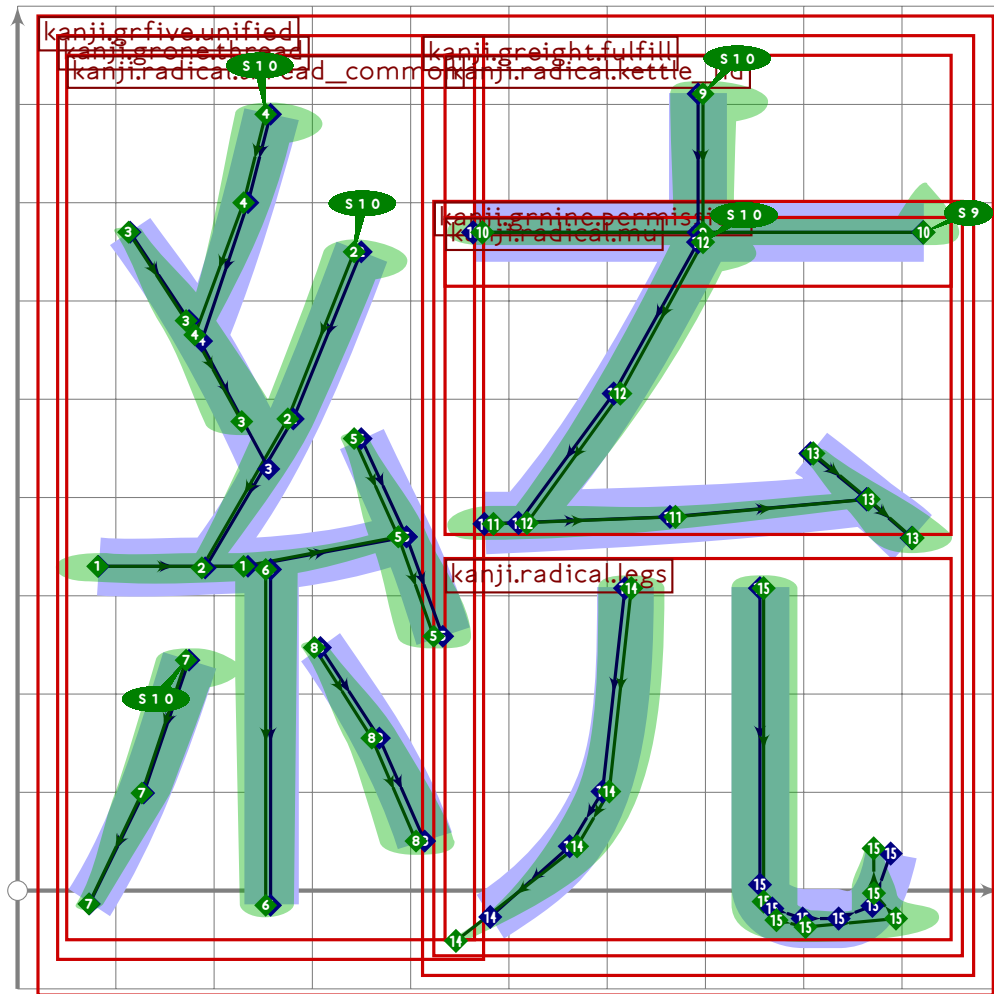
```



```

79
80 vardef kanji.grtwo.paper =
81   push_pbox_toexpand("kanji.grtwo.paper");
82   build_kanji.lr(450,60-10*mincho)
83     (build_kanji.lift_skirt(300,60)(kanji.grone.thread))
84     (kanji.grfour.clan);
85   expand_pbox;
86 enddef;
87
88

```



```

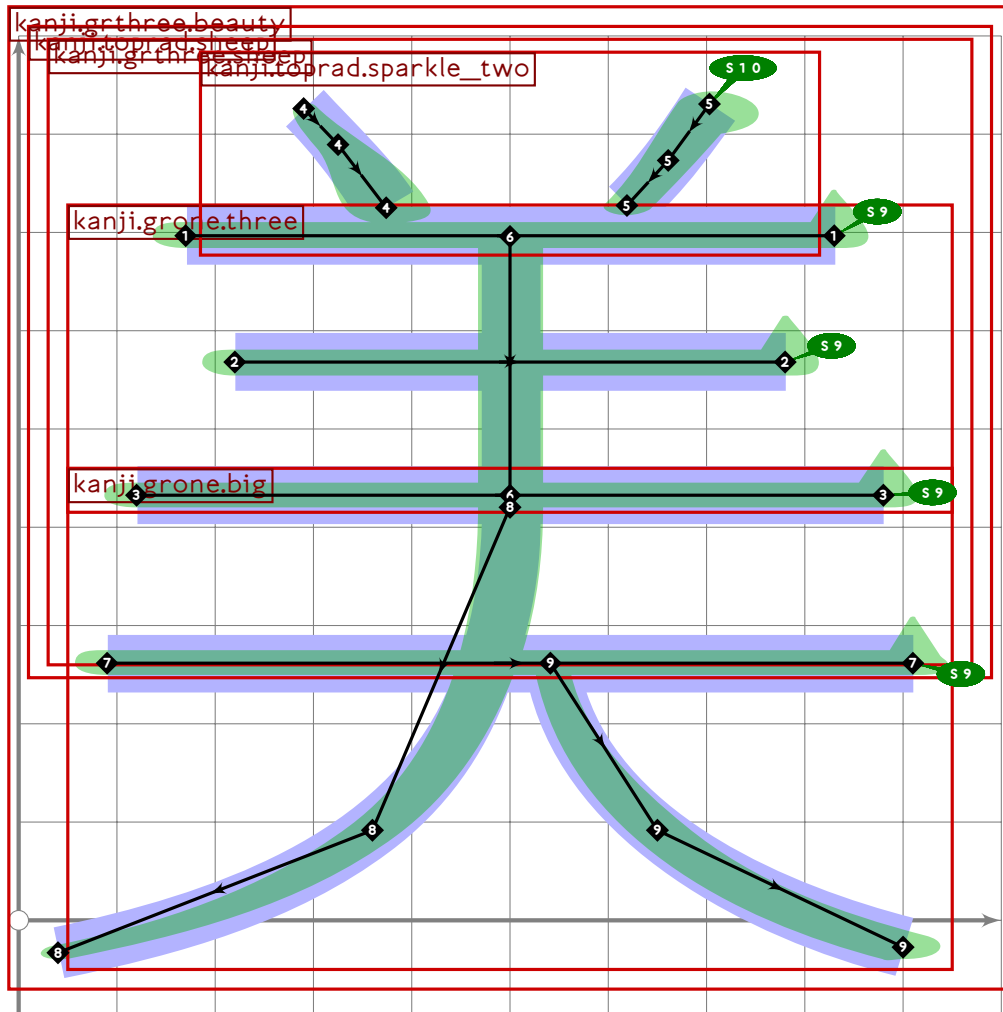
89
90 vardef kanji.grfive.unified =
91   push_pbox_toexpand("kanji.grfive.unified");
92   build_kanji.lr(450,30-20*mincho)
93     (build_kanji.lift_skirt(300,60)(kanji.grone.thread))
94     (kanji.greight. fulfill);
95   expand_pbox;
96 enddef;
97
98
99
100 % shi/kami "paper"
101 begintsuglyph("uni7D19";25); [see page 2031]
102   kanji.grtwo.paper;
103   tsu_render;
104 endtsuglyph;
105
106 % dai/hoso "dainty"
107 begintsuglyph("uni7D30";48); [see page 2028]
108   kanji.grtwo.dainty;
109   tsu_render;

```

```
110 endtsuglyph;
111
112 % so/ku "assemble"
113 begintsuglyph("uni7D44";68); [see page 2027]
114 kanji.grtwo.assemble;
115 tsu_render;
116 endtsuglyph;
117
118 % tou/su "unified"
119 begintsuglyph("uni7D71";113); [see page 2032]
120 kanji.grfive.unified;
121 tsu_render;
122 endtsuglyph;
123
124 % kai/e "picture"
125 begintsuglyph("uni7D75";117); [see page 2029]
126 kanji.grtwo.drawing;
127 tsu_render;
128 endtsuglyph;
129
130 % sen/suji "line" (geometric, rail, telephone)
131 begintsuglyph("uni7DDA";218); [see page 2030]
132 kanji.grtwo.line;
133 tsu_render;
134 endtsuglyph;
135
136 _____
137
138 endfont;
139
140 _____
```

# tsuku-7f.mp

```
1 %  
2 % Unicode page 7f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input gradetwo.mp;  
40 input toprad.mp;  
41  
42 _____
```



43

```

44 vardef kanji.grthree.beauty =
45   push_pbox_toexpand("kanji.grthree.beauty");
46   build_kanji.level(build_kanji.tb(360,200)
47     (kanji.toprad.sheep)
48     (kanji.grone.big;
49       replace_strokep(-1)(oldp shifted (-10,0))));
50   expand_pbox;
51 enddef;
52
53 

---


54
55 % you/hitsuji "sheep"
56 begintsuglyph("uni7F8A",138); [see page 528]
57   kanji.grthree.sheep;
58   tsu_render;
59 endtsuglyph;
60
61 % u/hane "feather"
62 begintsuglyph("uni7F8E",142); [see page 2035]
63   kanji.grthree.beauty;
64   tsu_render;
65 endtsuglyph;
66
67 % u/hane "feather"
68 begintsuglyph("uni7FBD",189); [see page 460]
69   kanji.grtwo.feather;
70   tsu_render;
71 endtsuglyph;
72
73 

---


74
75 endfont;
76
77 

---



```

# tsuku-80.mp

```
1 %
2 % Unicode page 80 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

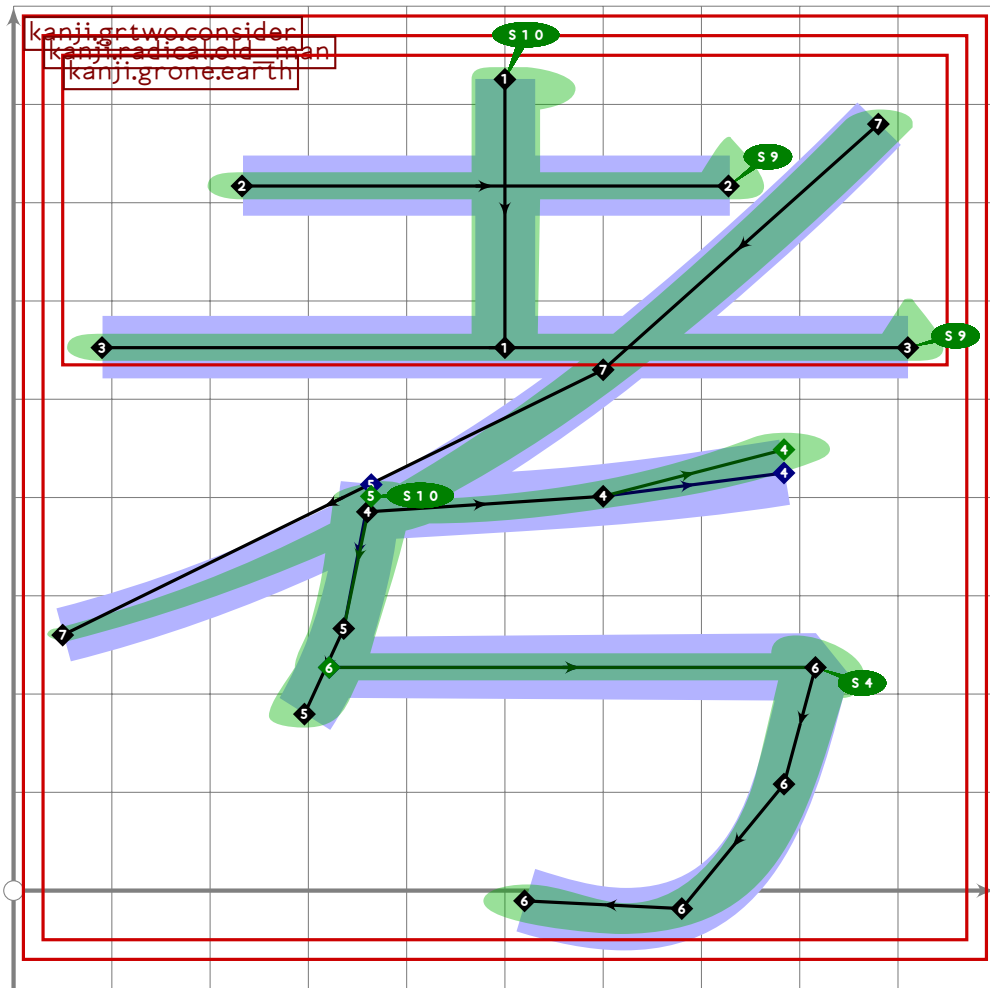
---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeeight.mp;
39 input gradefive.mp;
40 input gradefour.mp;
41 input gradenine.mp;
42 input gradeone.mp;
43 input gradethree.mp;
44 input gradetwo.mp;
45 input radical.mp;
46 input toprad.mp;
47
48 

---


```

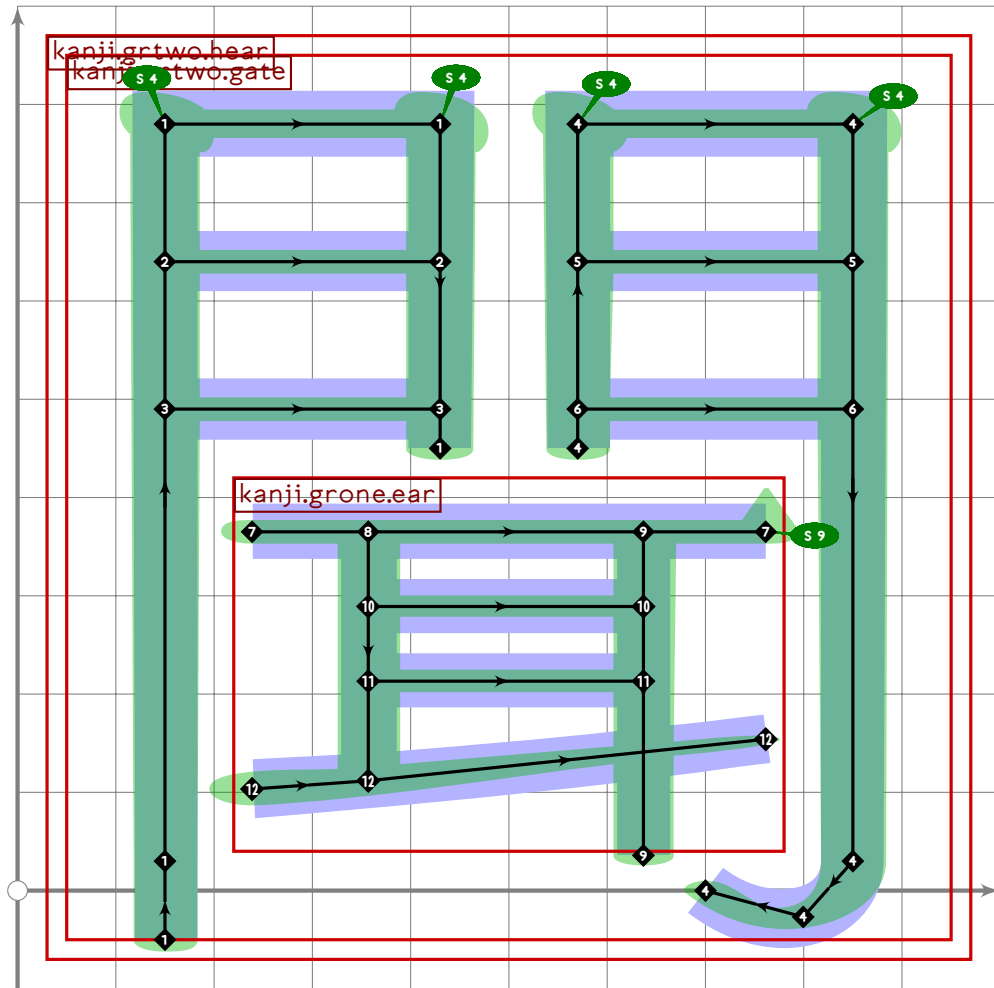




```

49
50 vardef kanji.grtwo.consider =
51   push_pbox_toexpand("kanji.grtwo.consider");
52   kanji.radical.old_man(
53     build_kanji.sscale(xyscaled (0.8,1.5) shifted (60,220))
54     (push_stroke((250,500)..tension 1.2..(550,520)..(780,550+30*mincho),
55       (1.5,1.5)-(1.5,1.5)-(1.9,1.9));
56     push_stroke((255,535-15*mincho)..tension 1.2..(220,350)..(170,240),
57       (1.7,1.7)-(1.6,1.6)-(1.6,1.6));
58     set_boserif(0,0,10);
59     push_stroke((get_strokep(0) intersectionpoint ((0,300)-(1000,300)))-
60       (820,300)..tension 1.7..(780,150)..(650,-10)..{curl 0.1}(450,0),
61       (1.6,1.6)-(1.6,1.6)-(1.5,1.5)-(1.7,1.7)-(1.8,1.8));
62     set_botip(0,1,1);
63     set_boserif(0,1,4));
64   expand_pbox;
65 enddef;

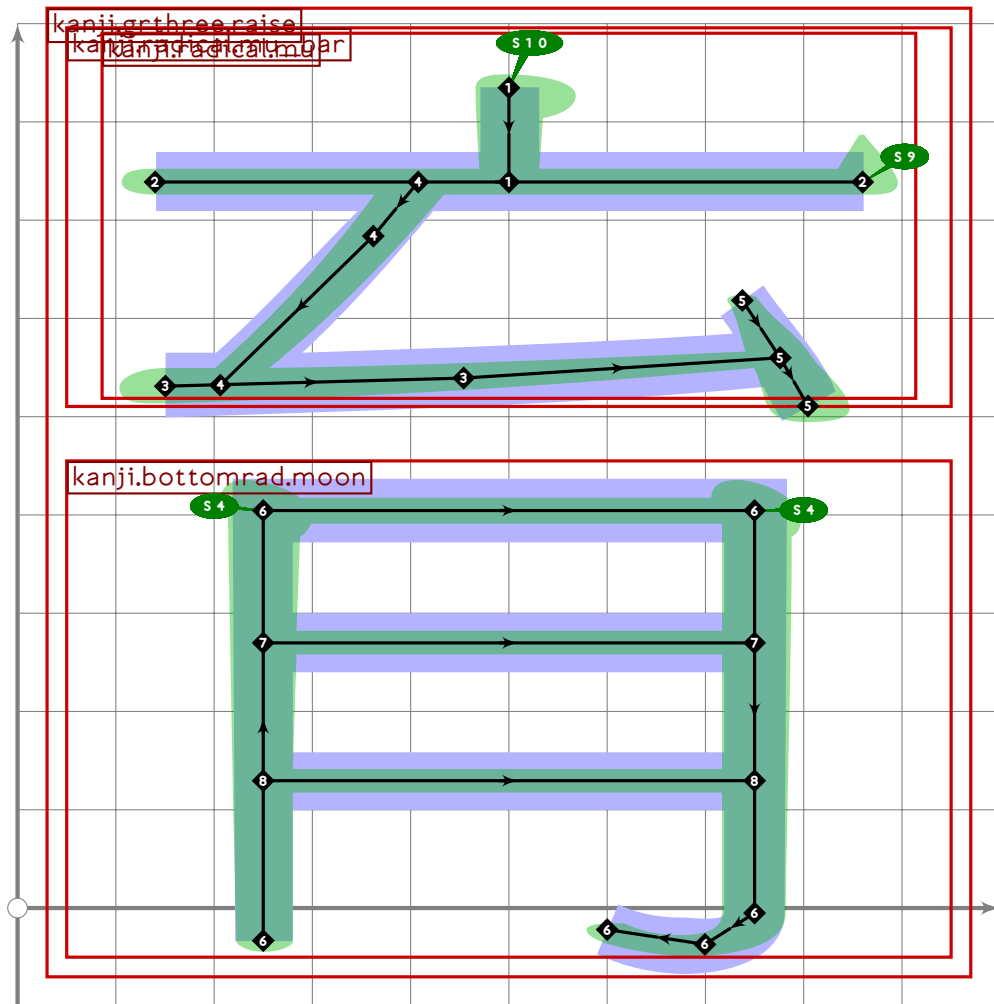
```



```

66
67 vardef kanji.grtwo.hear =
68   push_pbox_toexpand("kanji.grtwo.hear");
69   build_kanji_gate_enclose(kanji.grone.ear);
70   expand_pbox;
71 enddef;
72
73

```



```

74
75 vardef kanji.grthree.raise =
76   push_pbox_toexpand("kanji.grthree.raise");
77   build_kanji.level(build_kanji.tb(480,-50)
78     (push_stroke((500,810)-(500,560),(1.6,1.6)-(1.5,1.5));
79     set_boserif(0,0,10);
80     tsu_xform(identity yscaled (560/780))(kanji.radical.mu_bar))
81     (kanji.bottomrad.moon));
82   expand_pbox;
83 enddef;

```

84

85

86

87 % rou/o "old man"

88 `begintsuglyph("uni8001");`

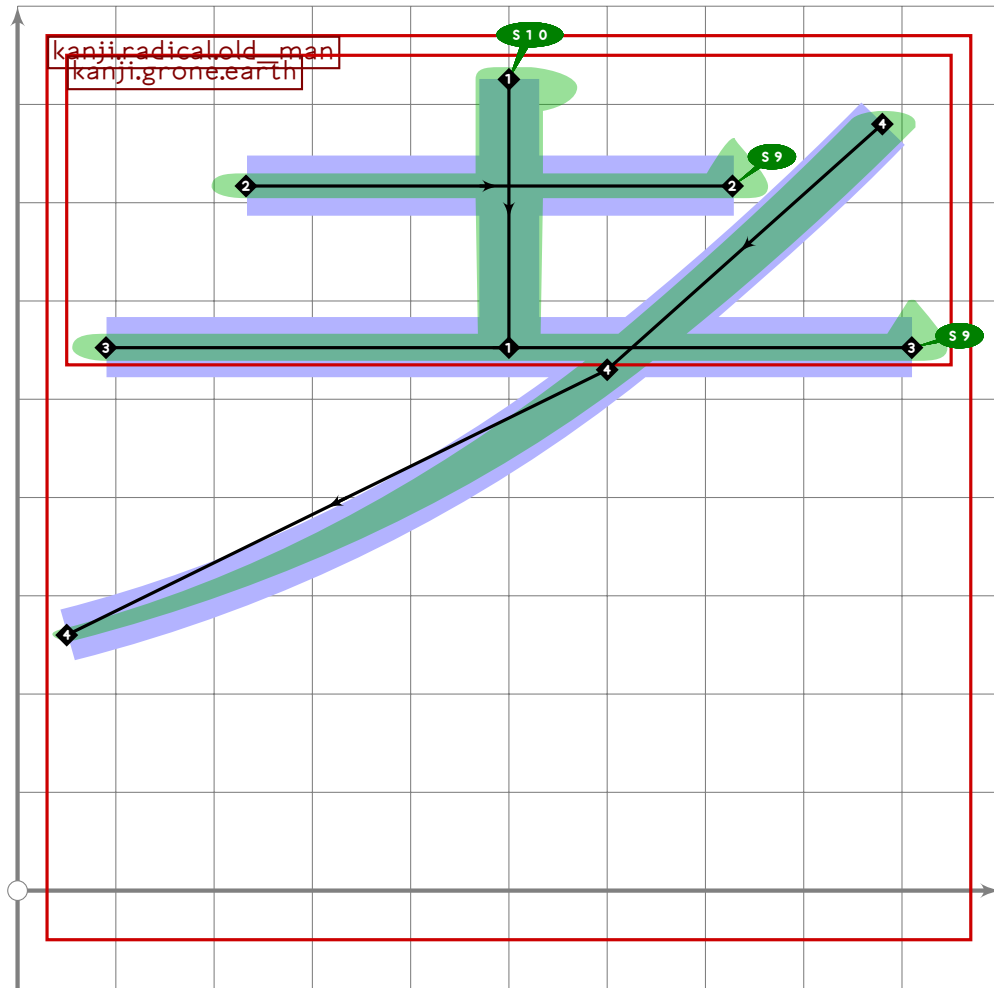
[see page 550]

89 `kanji.grfour.old_man;`

90 `tsu_render;`

91 `endtsuglyph;`

92



93 % "old man without a spoon" radical

94 `begintsuglyph("uni8002";2);`

95 `kanji.radical.old_man();`

96 `tsu_render;`

97 `endtsuglyph;`

98

99 % kou/kanga "consider"

100 `begintsuglyph("uni8003";3);`

[see page 2037]

101 `kanji.grtwo.consider;`

102 `tsu_render;`

103 `endtsuglyph;`

104

105 % sha/mono "person" or "thing"

106 `begintsuglyph("uni8005";5);`

[see page 526]

107 `kanji.grthree.person;`

108 `tsu_render;`

109 `endtsuglyph;`

110

111 % ken/mi "ear"

112 `begintsuglyph("uni8033";51);`

[see page 390]

113 `kanji.grone.ear;`

```

114   tsu_render;
115   endtsuglyph;
116
117   % bun/ki "hear"
118   begintsuglyph("uni805E";94); [see page 2038]
119   kanji.grtwo.hear;
120   tsu_render;
121   endtsuglyph;
122
123   % brush radical
124   begintsuglyph("uni807F";127); [see page 343]
125   kanji.radical.brush;
126   tsu_render;
127   endtsuglyph;
128
129   % niku "meat"
130   begintsuglyph("uni8089";137); [see page 478]
131   kanji.grtwo.meat;
132   tsu_render;
133   endtsuglyph;
134
135   % shou/ayaka "resemblance"
136   begintsuglyph("uni8096";150); [see page 584]
137   kanji.greight.resemblance;
138   tsu_render;
139   endtsuglyph;
140
141   % iku/soda "raise"
142   begintsuglyph("uni80B2";178); [see page 2039]
143   kanji.grthree.raise;
144   tsu_render;
145   endtsuglyph;
146
147   % ko/nanzo "barbarian"
148   begintsuglyph("uni80E1";225); [see page 590]
149   kanji.grnine.barbarian;
150   tsu_render;
151   endtsuglyph;
152
153   % nou/yo "talent"
154   begintsuglyph("uni80FD";253); [see page 558]
155   kanji.grfive.talent;
156   tsu_render;
157   endtsuglyph;
158
159   _____
160
161   endfont;

```

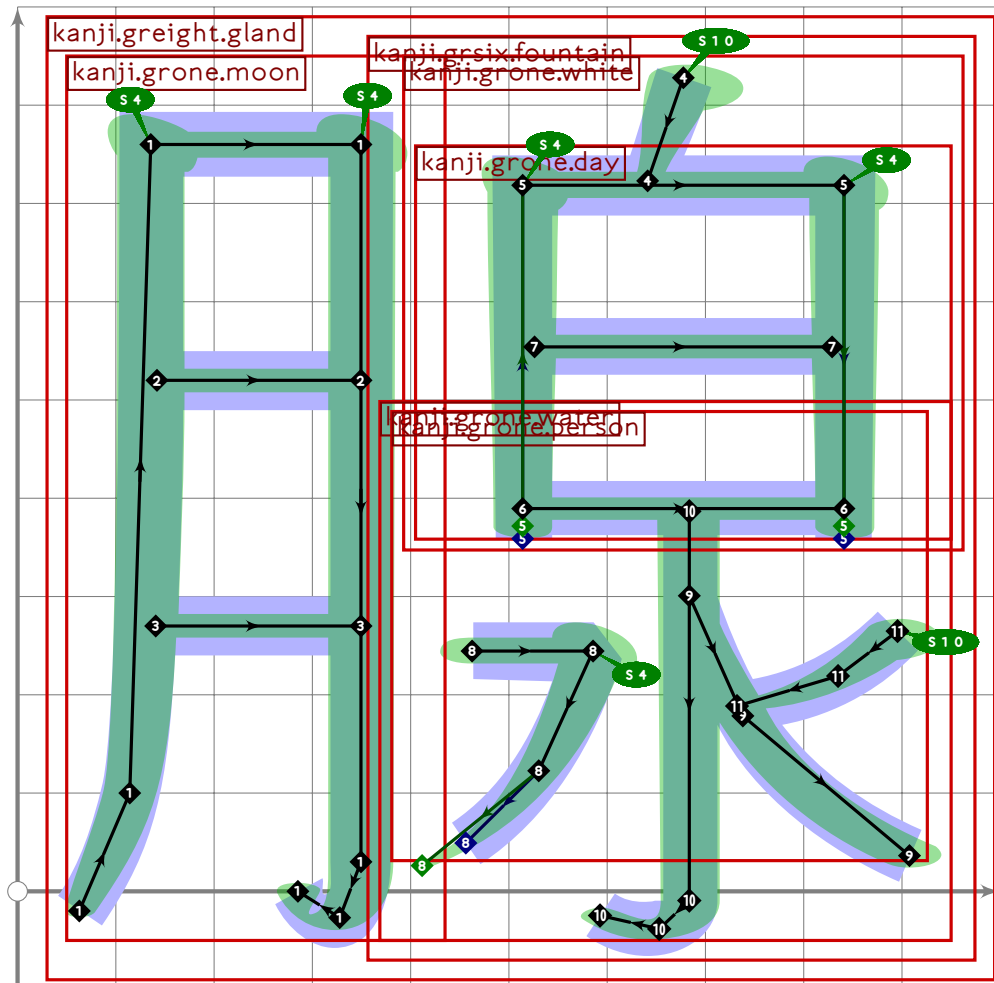
162

163

---

# tsuku-81.mp

```
1 %
2 % Unicode page 81 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 -----
32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradesix.mp;
39 input gradetwo.mp;
40 input radical.mp;
41
42 -----
```



43

```

44 vardef kanji.greight.gland =
45   push_pbox_toexpand("kanji.greight.gland");
46   build_kanji.lr(420,30)
47     (kanji.grone.moon)
48     (kanji.grsix.fountain);
49   expand_pbox;
50 enddef;
51
52 

---


53
54 % sen "gland"
55   begintsuglyph("uni817A",122); [see page 2044]
56   kanji.greight.gland;
57   tsu_render;
58   endtsuglyph;
59
60 % ji as in jibun "self"
61   begintsuglyph("uni81EA",234); [see page 496]
62   kanji.grtwo.self;
63   tsu_render;
64   endtsuglyph;
65
66 % shi/ita "climax"
67   begintsuglyph("uni81F3",243); [see page 562]
68   kanji.grsix.climax;
69   tsu_render;
70   endtsuglyph;
71
72 

---


73
74 endfont;
75
76 

---



```



# tsuku-82.mp

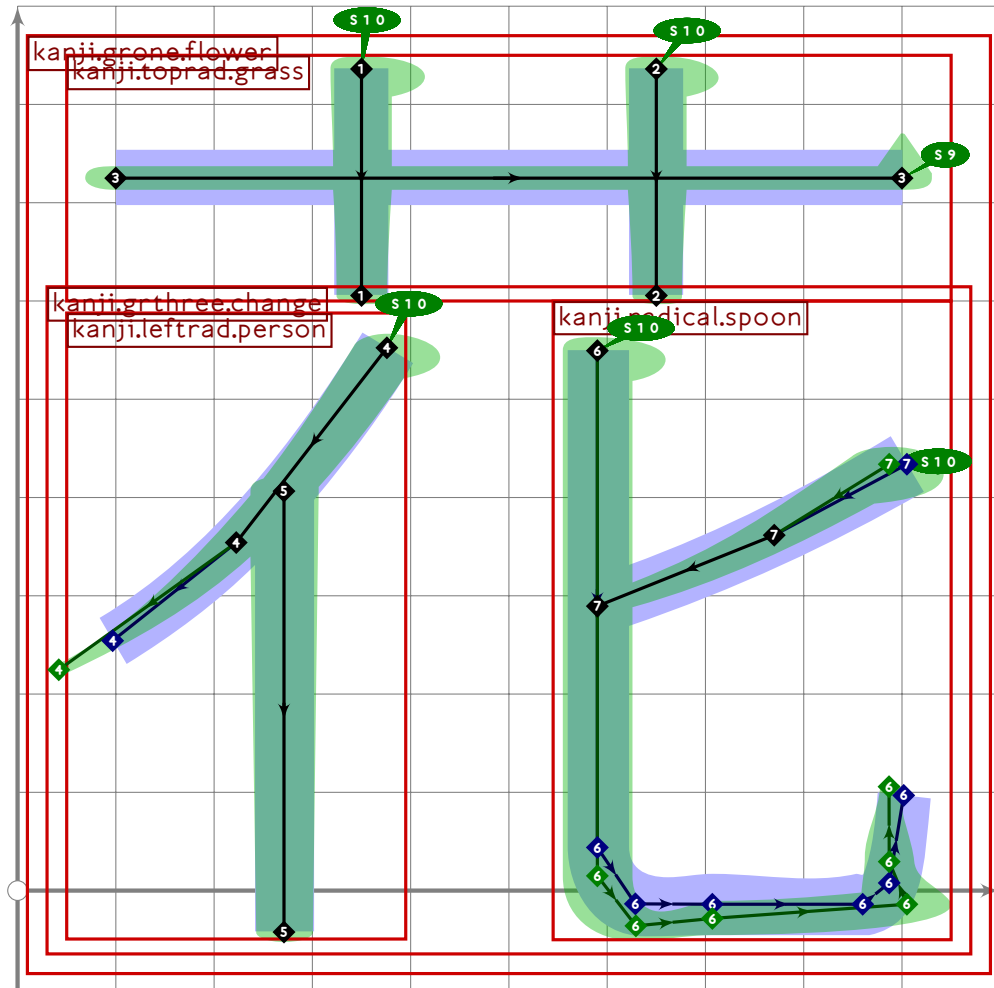
```
1 %
2 % Unicode page 82 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input leftrad.mp;
45 input radical.mp;
46 input rare.mp;
47 input topfad.mp;
48
49 

---

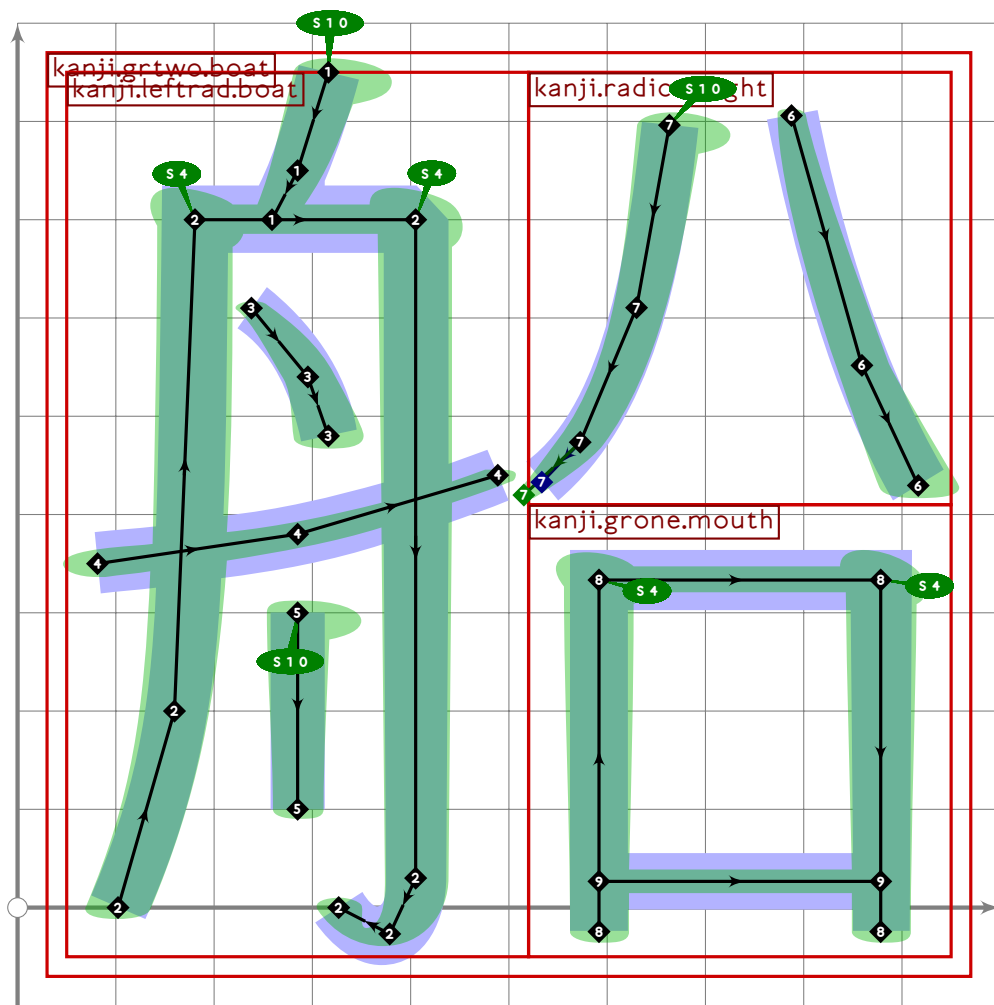

```



```

50
51 vardef kanji.grone.flower =
52   push_pbox_toexpand("kanji.grone.flower");
53   build_kanji.tb(600,0)
54     (kanji.toprad.grass)
55     (kanji.grthree.change);
56   expand_pbox;
57 enddef;
58
59

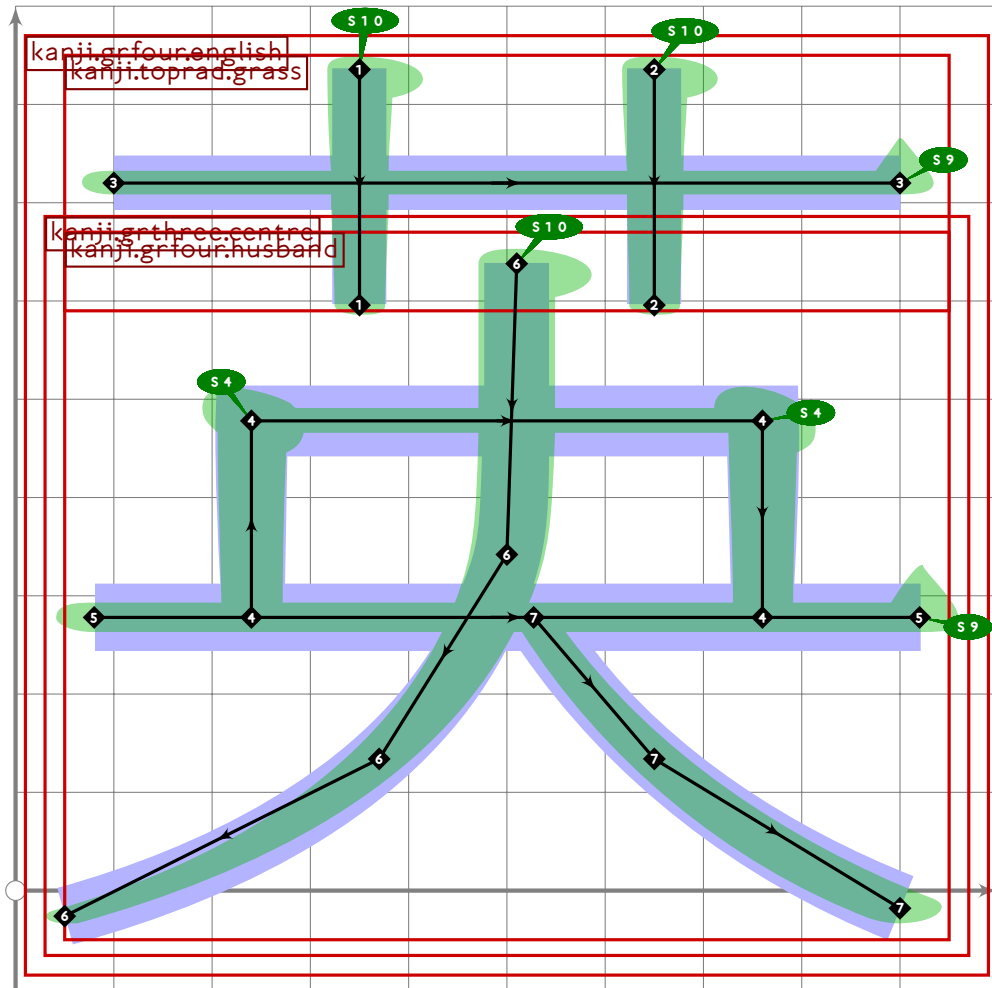
```



```

60
61 vardef kanji.grtwo.boat =
62   push_pbox_toexpand("kanji.grtwo.boat");
63   build_kanji.lr(520,0)
64     (kanji.leftrad.boat)
65     (build_kanji.level(build_kanji.tb(410,0)
66       (kanji.radical.eight)
67       (kanji.grone.mouth)));
68   expand_pbox;
69 enddef;
70
71

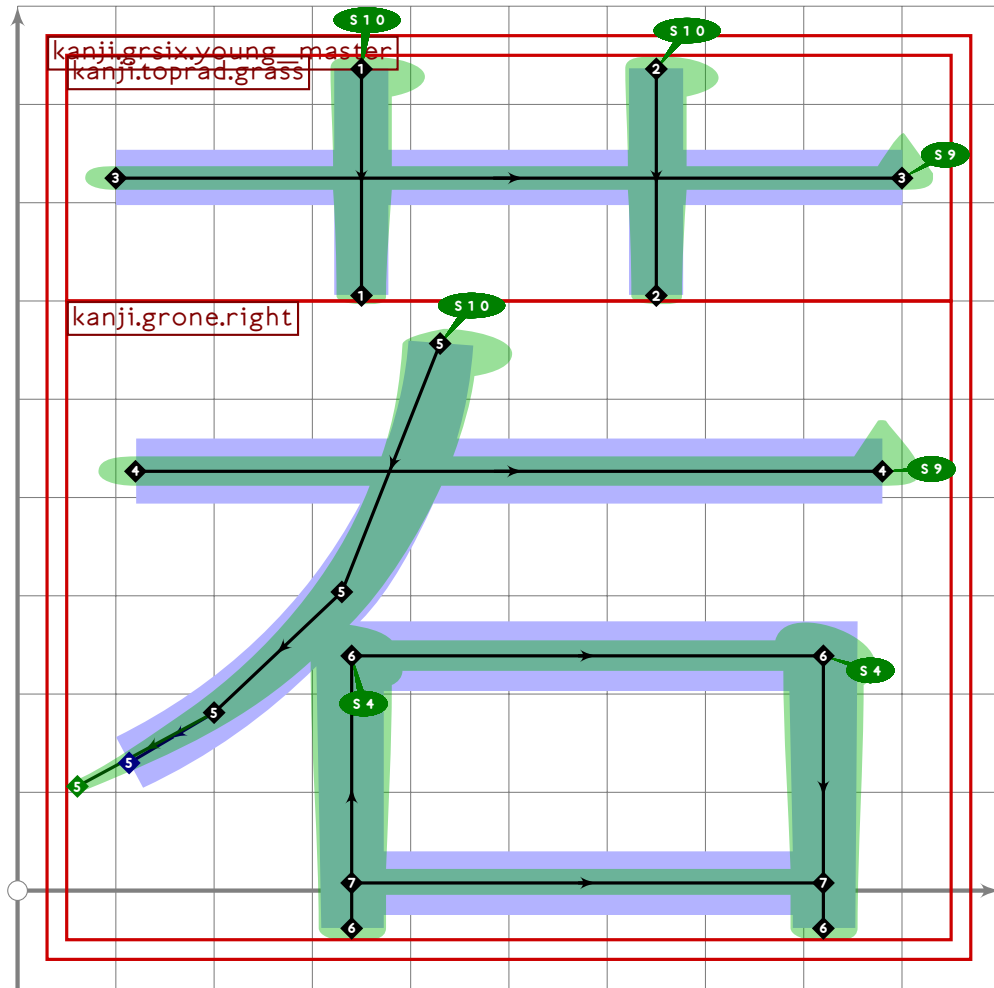
```



```

72
73 vardef kanji.grfour.english =
74   push_pbox_toexpand("kanji.grfour.english");
75   build_kanji.tb(630,80)
76     (kanji.toprad.grass)
77     (kanji.grthree.centre);
78   expand_pbox;
79 enddef;
80
81

```



```

82
83 vardef kanji.grsix.young_master =
84   push_pbox_toexpand("kanji.grsix.young_master");
85   build_kanji.tb(600,0)
86     (kanji.toprad.grass)
87     (kanji.grone.right);
88   expand_pbox;
89 enddef;

```

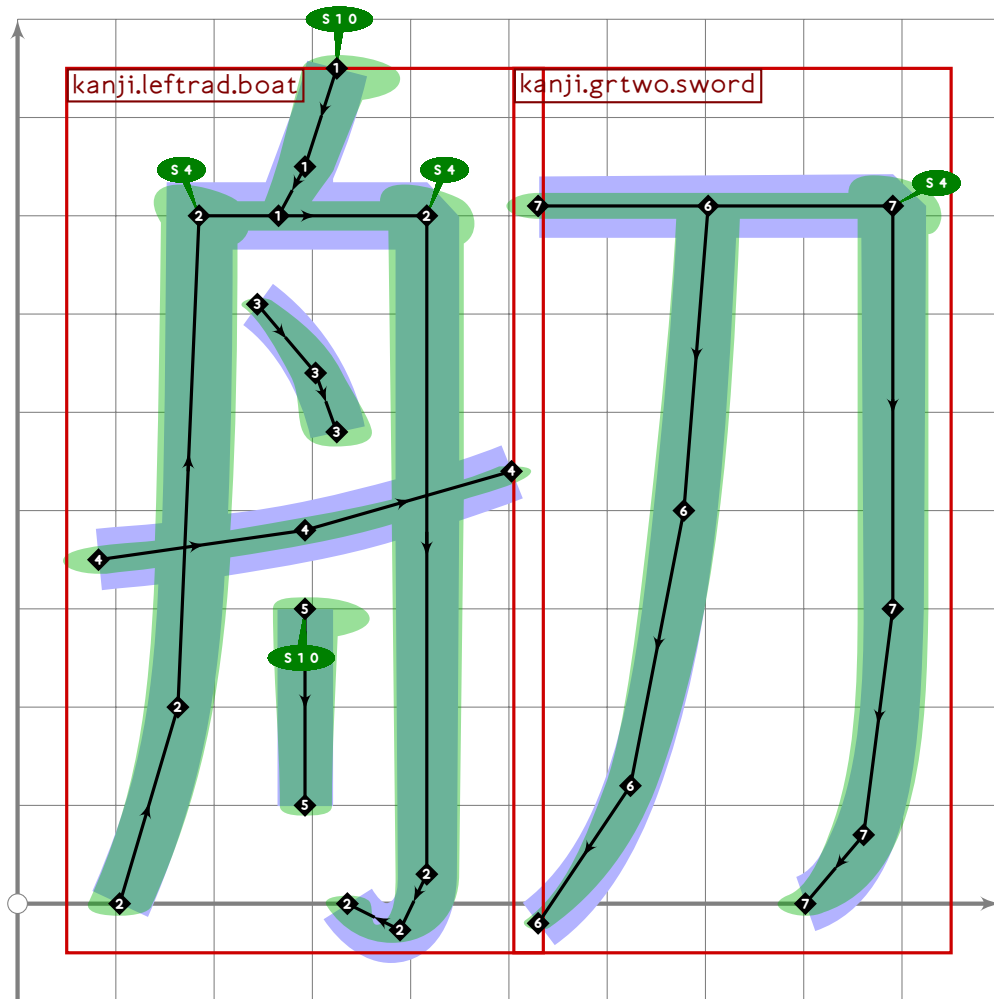
```

92
93 % zetsu/shita "tongue"
94 begintsuglyph("uni820C";12); [see page 559]
95   kanji.grfive.tongue;
96   tsu_render;
97 endtsuglyph;
98
99 % shuu/fune "boat"
100 begintsuglyph("uni821F";31); [see page 568]
101   kanji.greight.boat;
102   tsu_render;

```

103 endtsuglyph;

104



105 % extra

106 begint Suglyph("uni8220";32);

107 build\_kanji.lr(520,30)

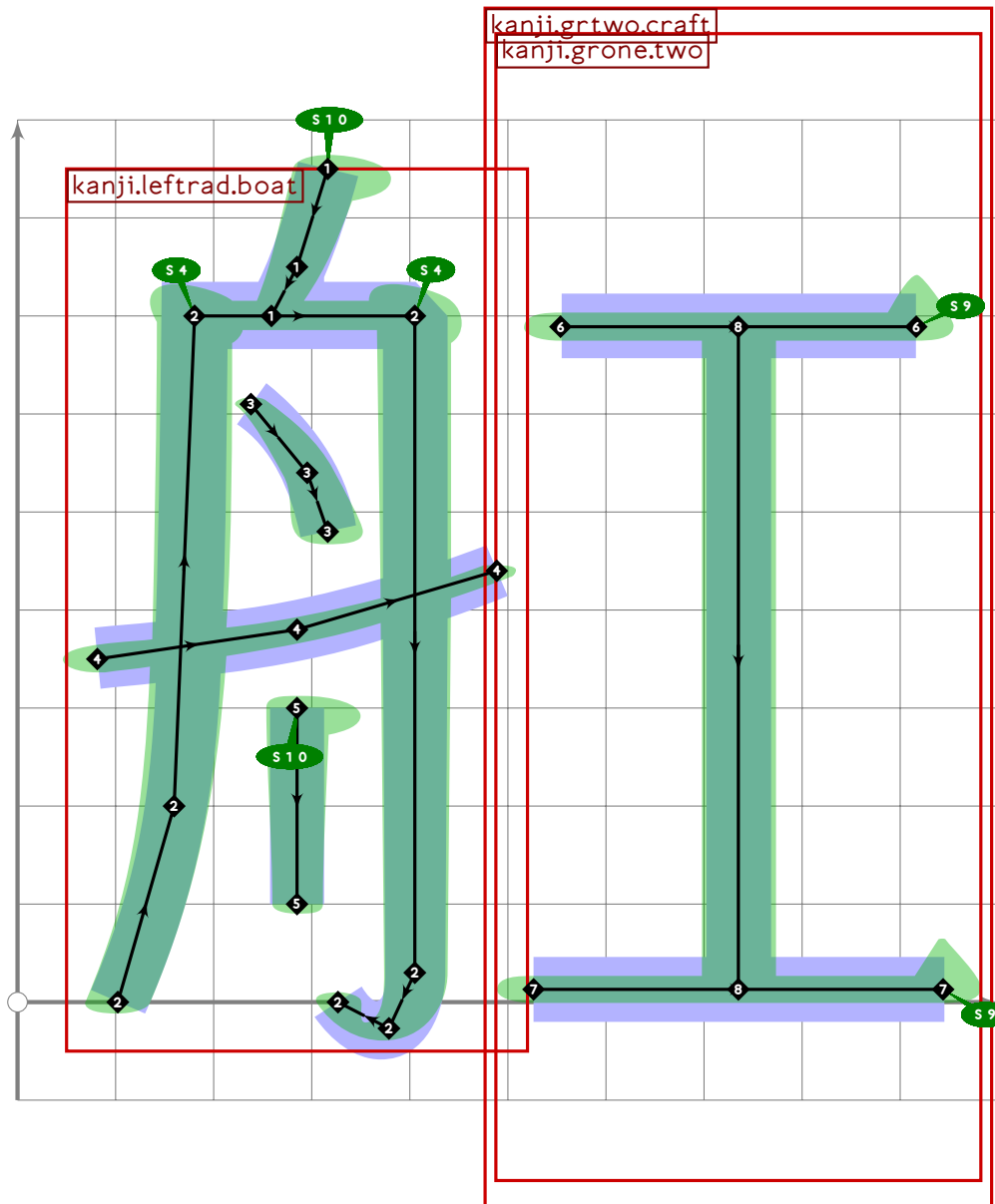
108 (kanji.leftrad.boat)

109 (kanji.grtwo.sword);

110 tsu\_render;

111 endtsuglyph;

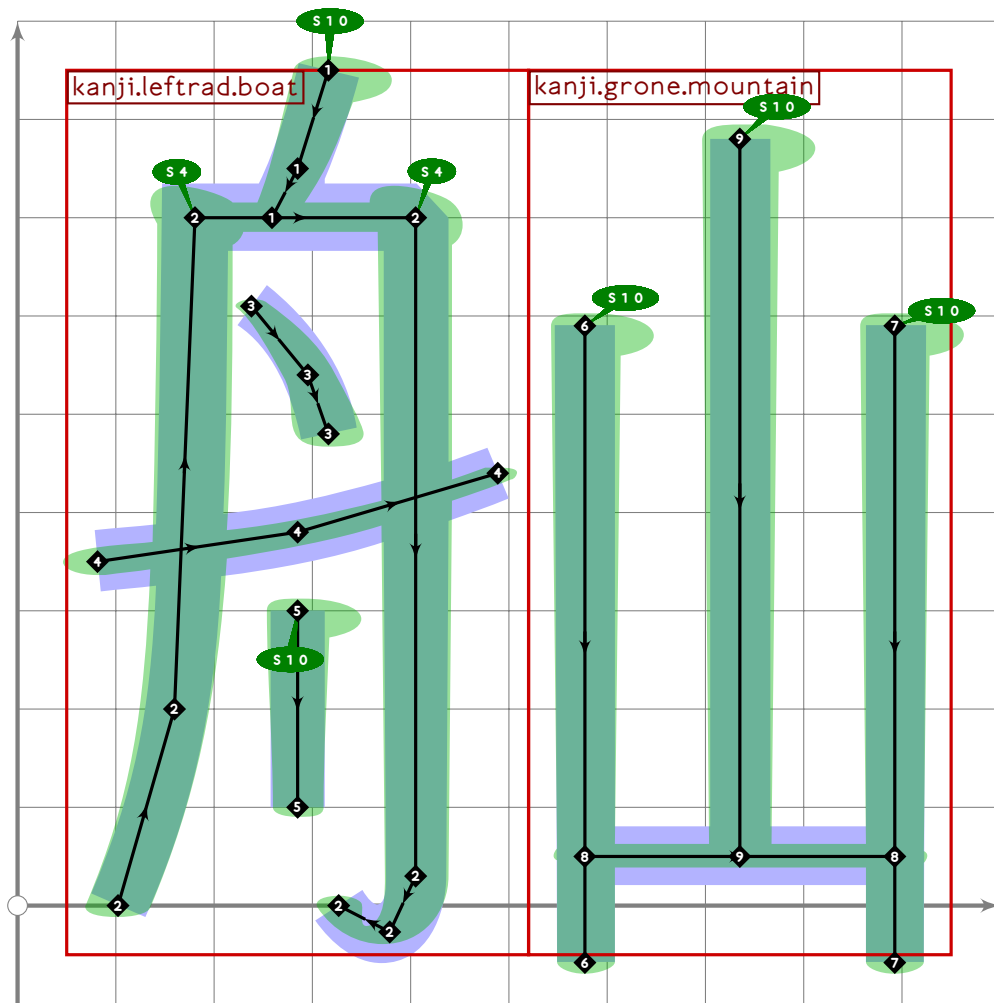
112



```

113 % extra: boat
114 begint Suglyph("uni8221";33);
115 build_kanji.lr(520,0)
116 (kanji.leftrad.boat)
117 (build_kanji.sscale(xyscaled (1.15,1.3))(kanji.grtwo.craft));
118 tsu_render;
119 endtsuglyph;
120

```

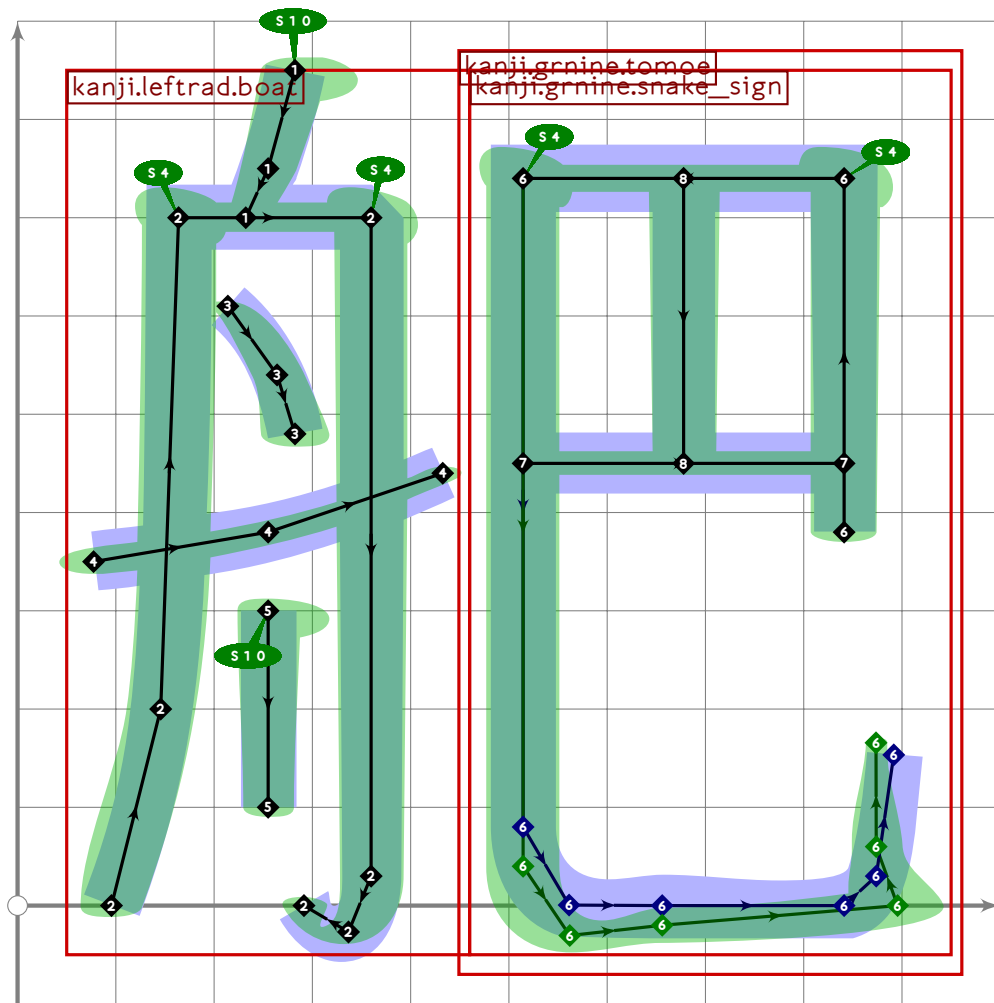


```

121 % extra: "English" meaning is "sampan"
122 begintsuglyph("uni8222",34);
123 build_kanji.lr(520,0)
124   (kanji.leftrad.boat)
125   (kanji.grone.mountain);
126 tsu_render;
127 endtsuglyph;
128

```

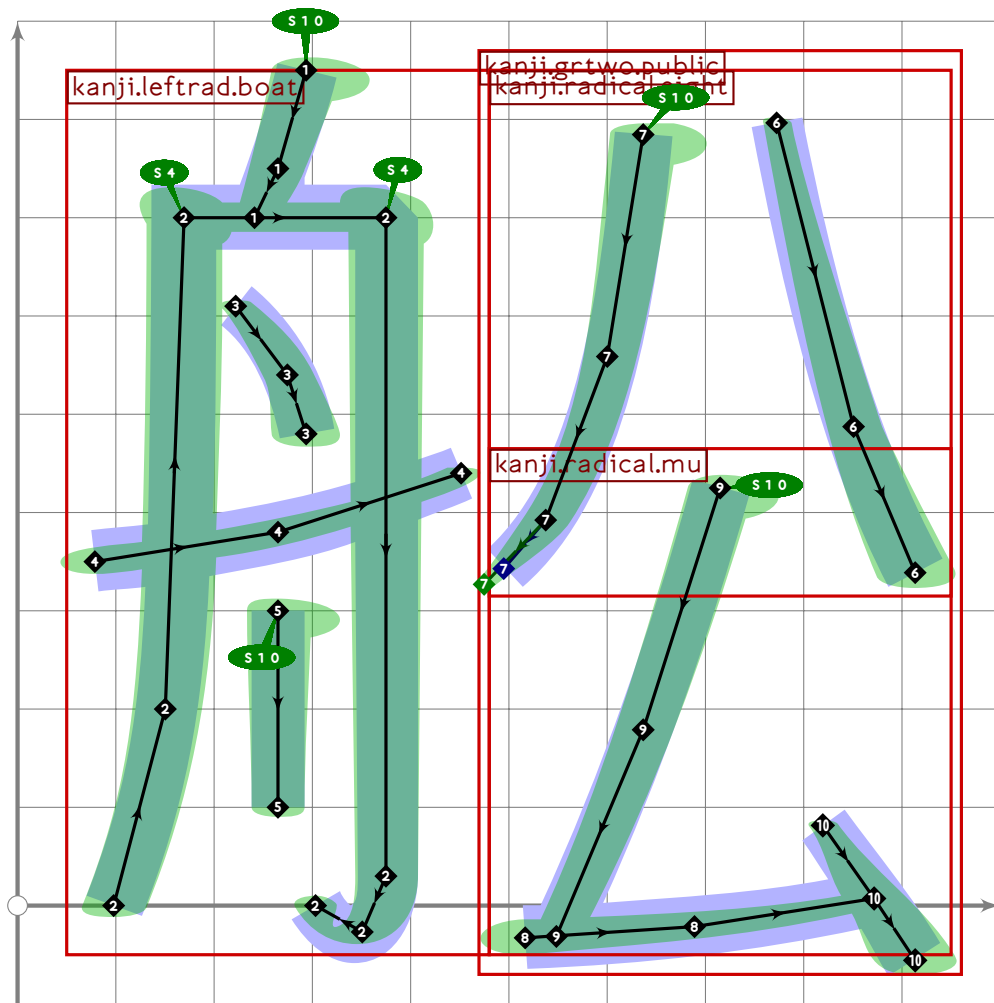




```

129 % extra
130 begint Suglyph("uni8225";37);
131 build_kanji.lr(460,0)
132 (kanji.leftrad.boat)
133 (kanji.grnine.tomoe);
134 tsu_render;
135 endtsuglyph;
136

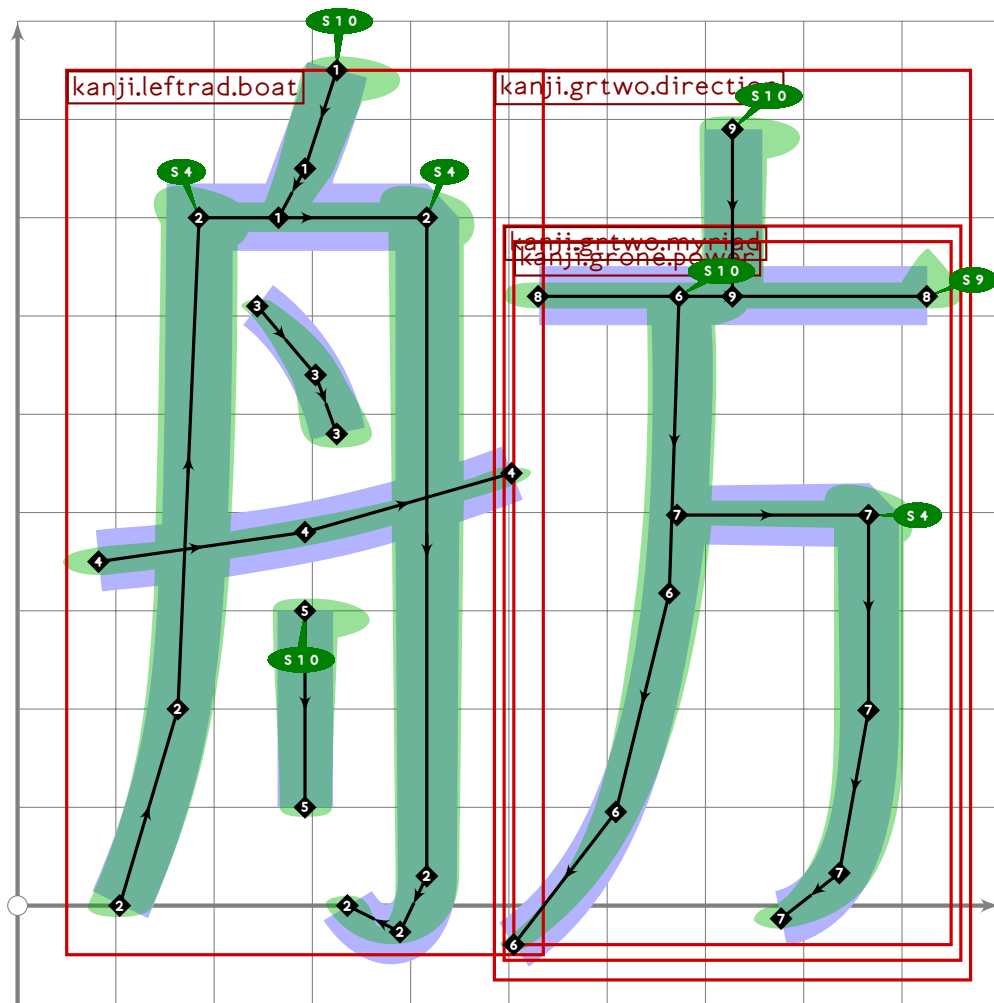
```



```

137 % extra: boat
138 begintsuglyph("uni8229";41);
139 build_kanji.lr(480,0)
140 (kanji.leftrad.boat)
141 (kanji.grtwo.public);
142 tsu_render;
143 endsuglyph;
144

```



```

145 % extra: moor/berth
146 begintsuglyph("uni822B";43);
147 build_kanji.lr(520,30)
148   (kanji.leftrad.boat)
149   (kanji.grtwo.direction);
150   tsu_render;
151 endtsuglyph;
152
153 % sen/fune "boat"
154 begintsuglyph("uni8239";57);
155   kanji.grtwo.boat;
156   tsu_render;
157 endtsuglyph;
158
159 % kon/ushitora "northeast"
160 begintsuglyph("uni826E";110);
161   kanji.radical.northeast;
162   tsu_render;
163 endtsuglyph;
164
165 % ryou/yo "good"

```

[see page 2047]

[see page 356]

```

166 begintsuglyph("uni826F";11);
167 kanji.grfour.good;
168 tsu_render;
169 endtsuglyph;

```

[see page 545]

```

170
171 % shoku/iro "colour"
172 begintsuglyph("uni8272";14);
173 kanji.grtwo.colour;
174 tsu_render;
175 endtsuglyph;

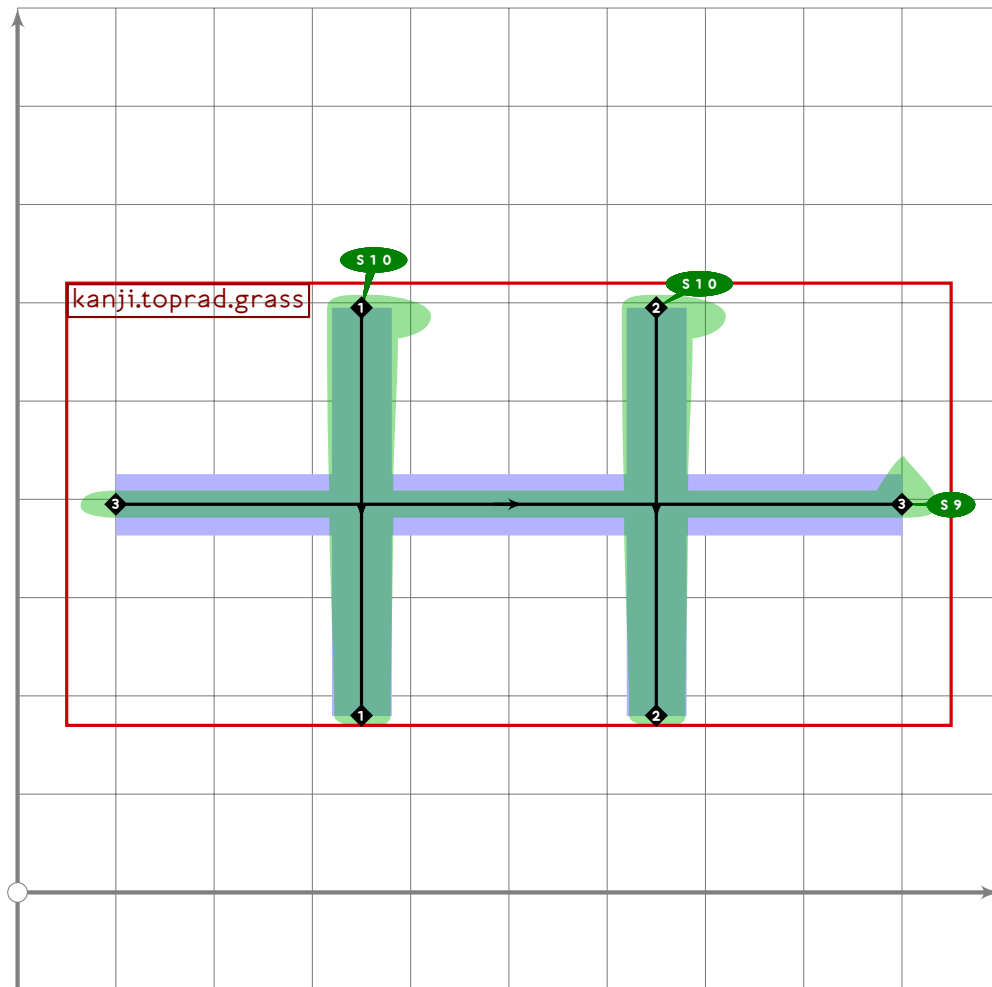
```

[see page 451]

```

176

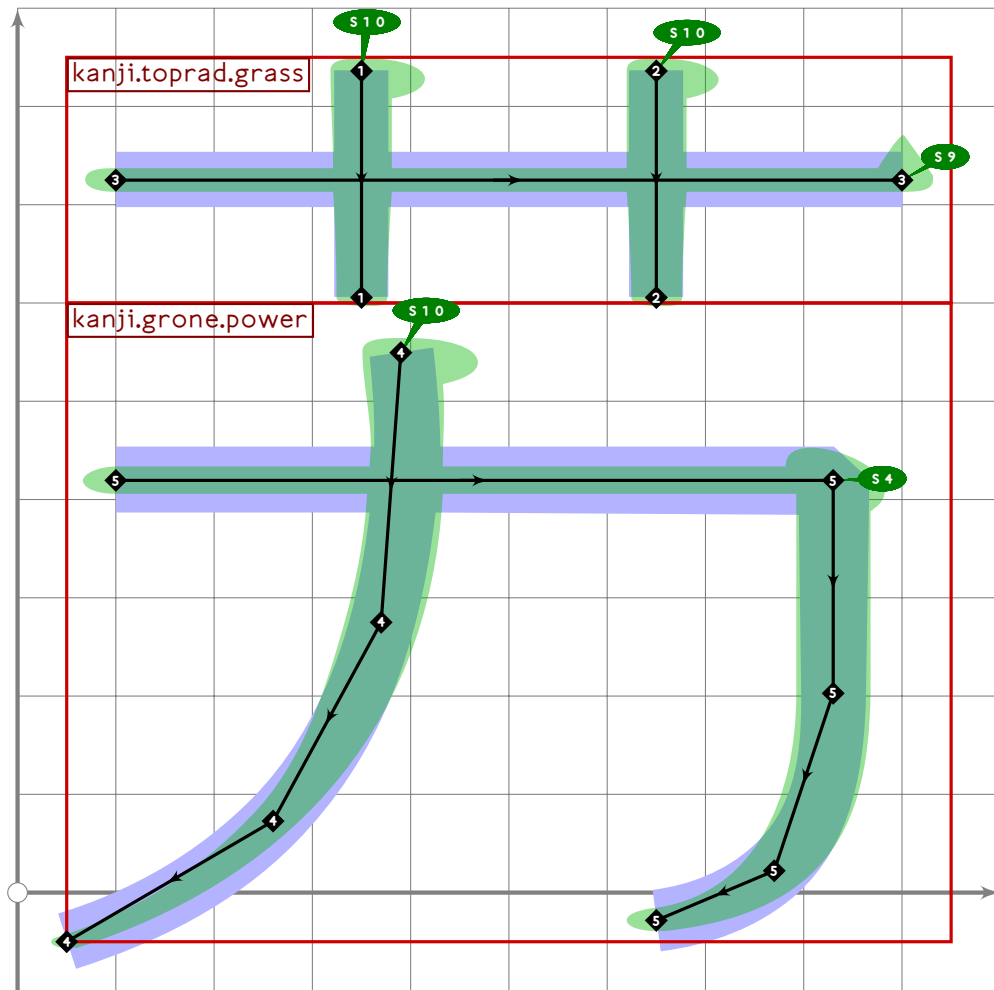
```



```

177 % extra "naked grass radical"
178 begintsuglyph("uni8279";121);
179 build_kanji.sscale(yscaled 0.5)(kanji.toprad.grass);
180 tsu_render;
181 endtsuglyph;
182

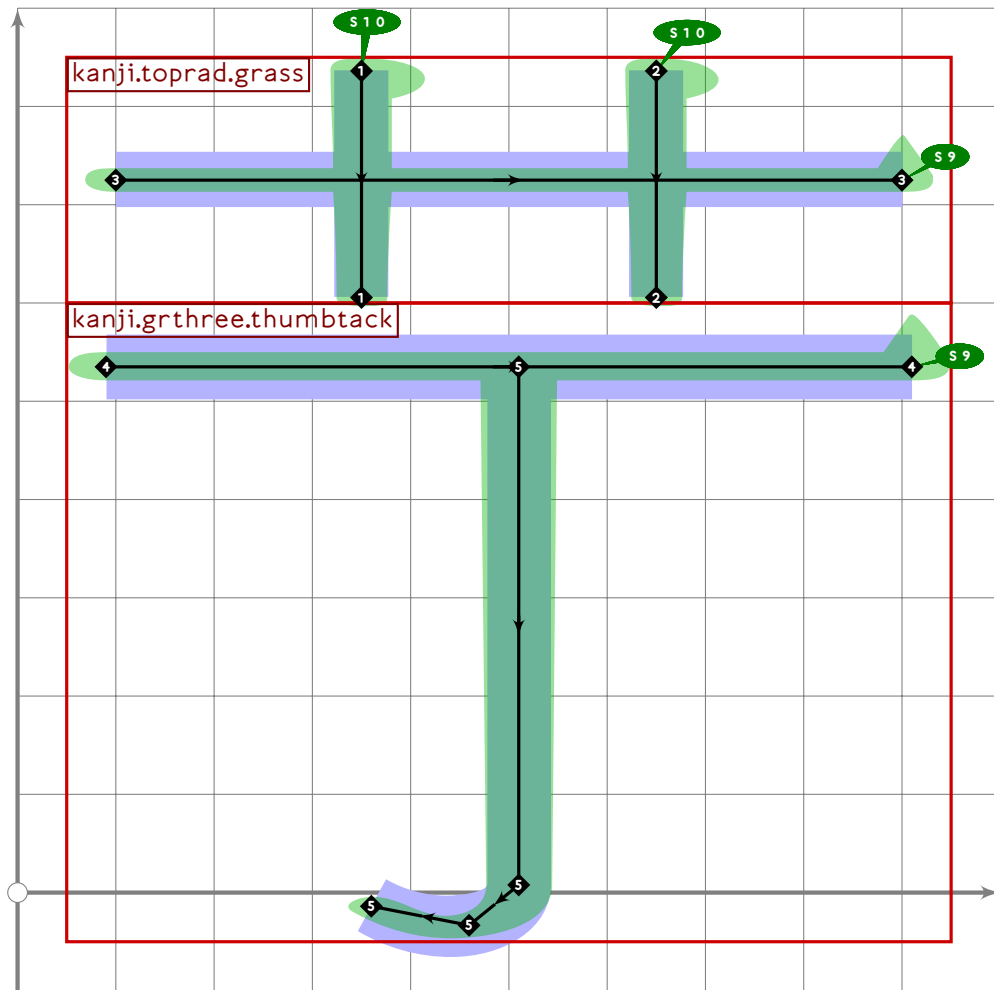
```



```

183 % extra
184 begintsuglyph("uni827B";123);
185 build_kanji.tb(600,0)
186   (kanji.toprad.grass)
187   (kanji.grone.power);
188   tsu_render;
189   endtsuglyph;
190

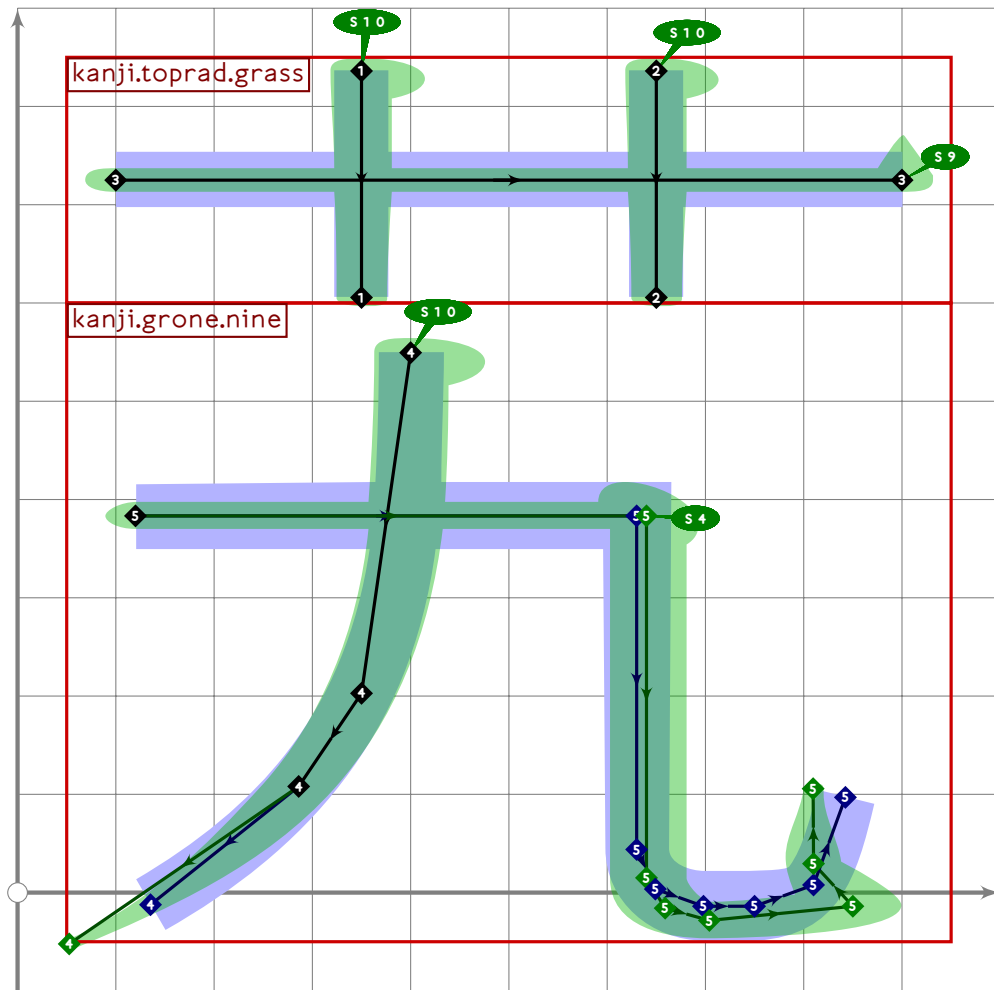
```



```

191 % extra
192 begintsuglyph("uni827C",124);
193 build_kanji.tb(600,0)
194   (kanji.toprad.grass)
195   (kanji.grthree.thumbtack);
196 tsu_render;
197 endtsuglyph;
198

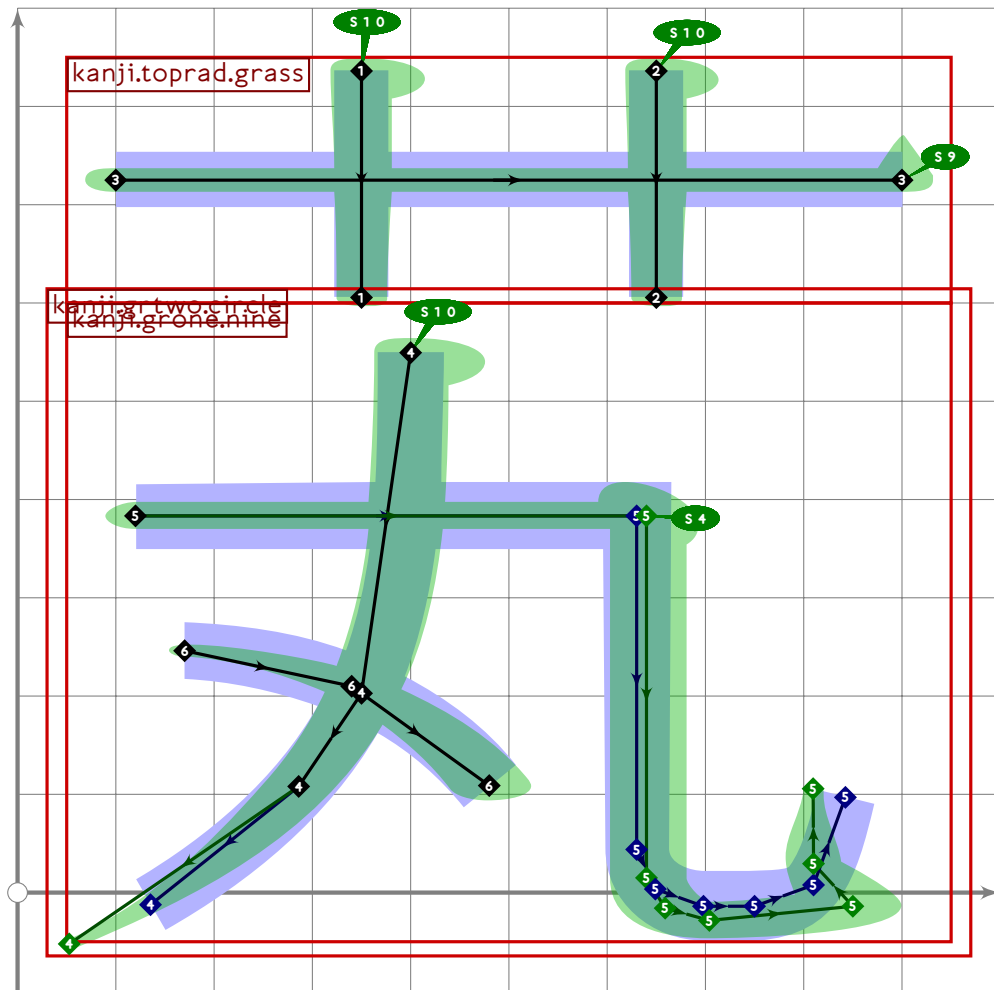
```



```

199 % extra
200 begint Suglyph("uni827D",125);
201 build_kanji.tb(600,0)
202   (kanji.toprad.grass)
203   (kanji.grone.nine);
204   tsu_render;
205   endtsuglyph;
206

```

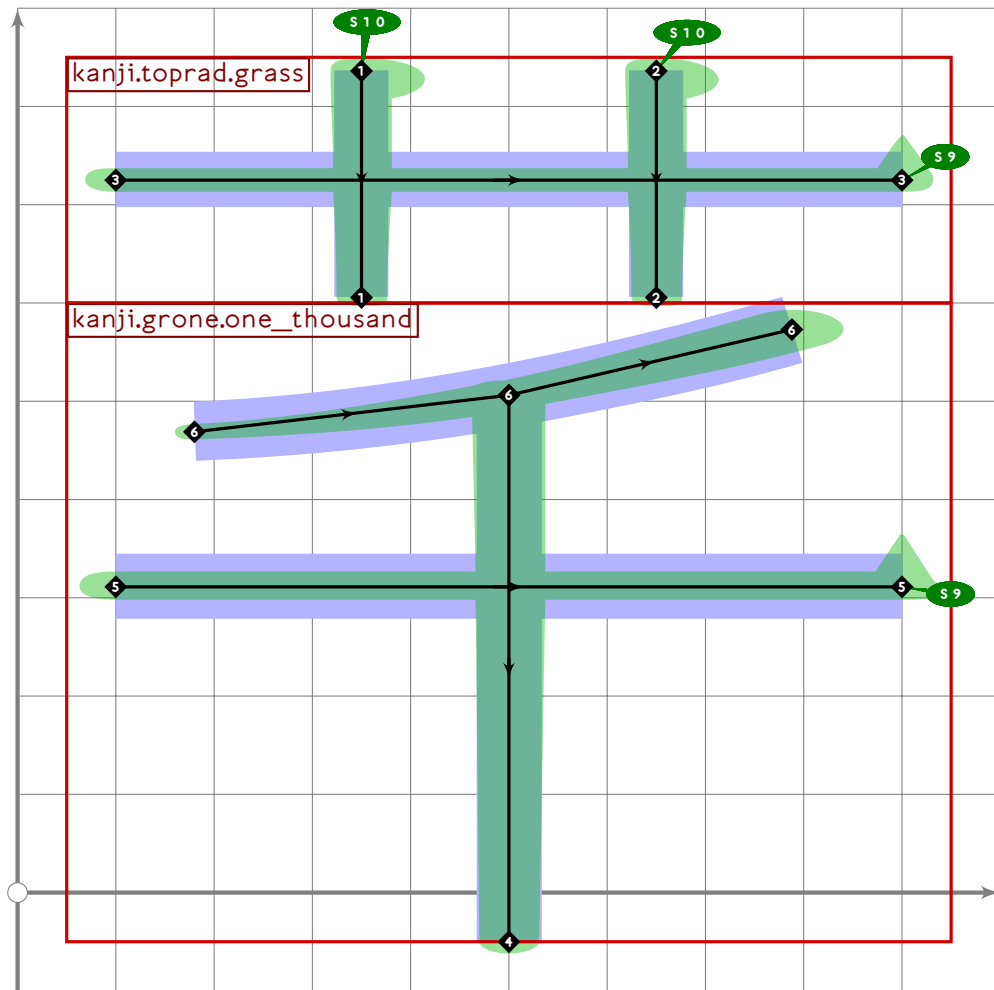


```

207 % extra
208 begint Suglyph("uni8284",132);
209 build_kanji.tb(600,0)
210 (kanji.toprad.grass)
211 (kanji.grtwo.circle);
212 tsu_render;
213 endtsuglyph;
214

```

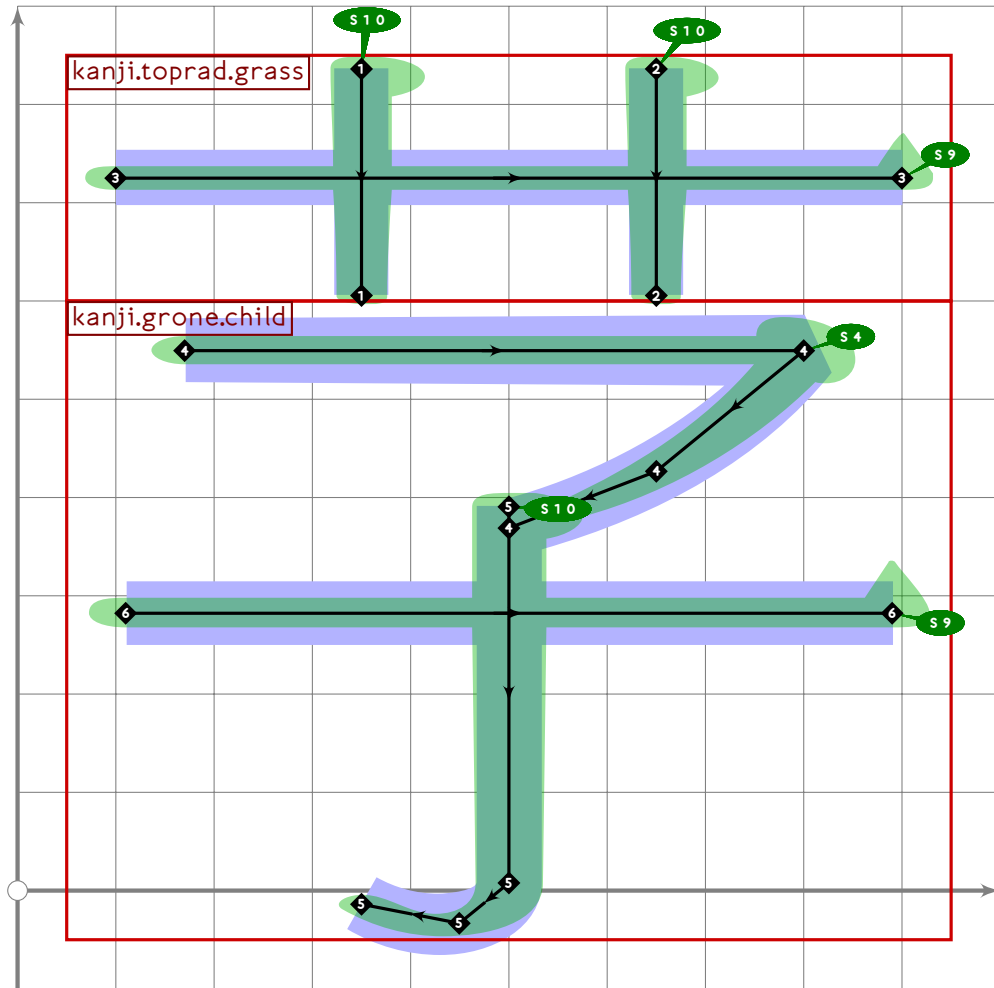




```

215 % extra
216 begintsuglyph("uni828A",138);
217 build_kanji.tb(600,0)
218   (kanji.toprad.grass)
219   (kanji.grone.one_thousand);
220 tsu_render;
221 endtsuglyph;
222

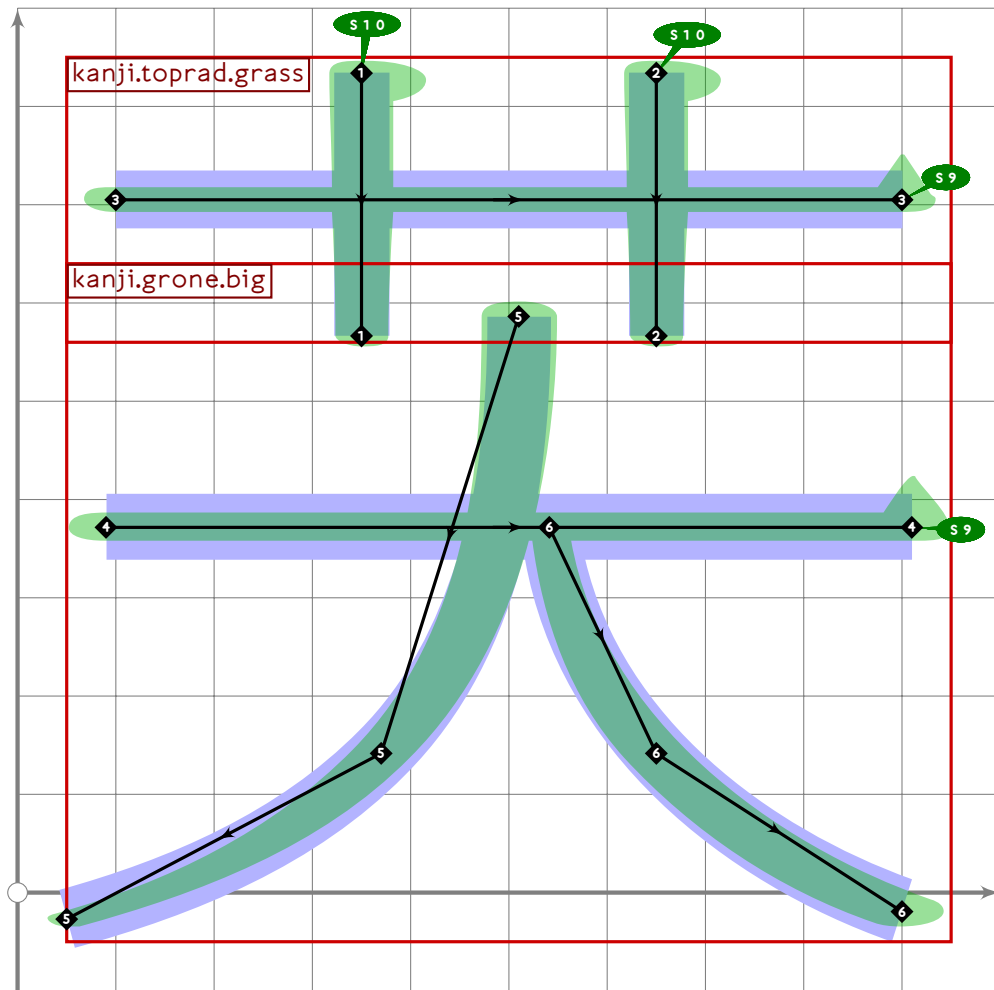
```



```

223 % extra
224 begintsuglyph("uni8293",147);
225 build_kanji.tb(600,0)
226   (kanji.toprad.grass)
227   (kanji.grone.child);
228   tsu_render;
229   endtsuglyph;
230

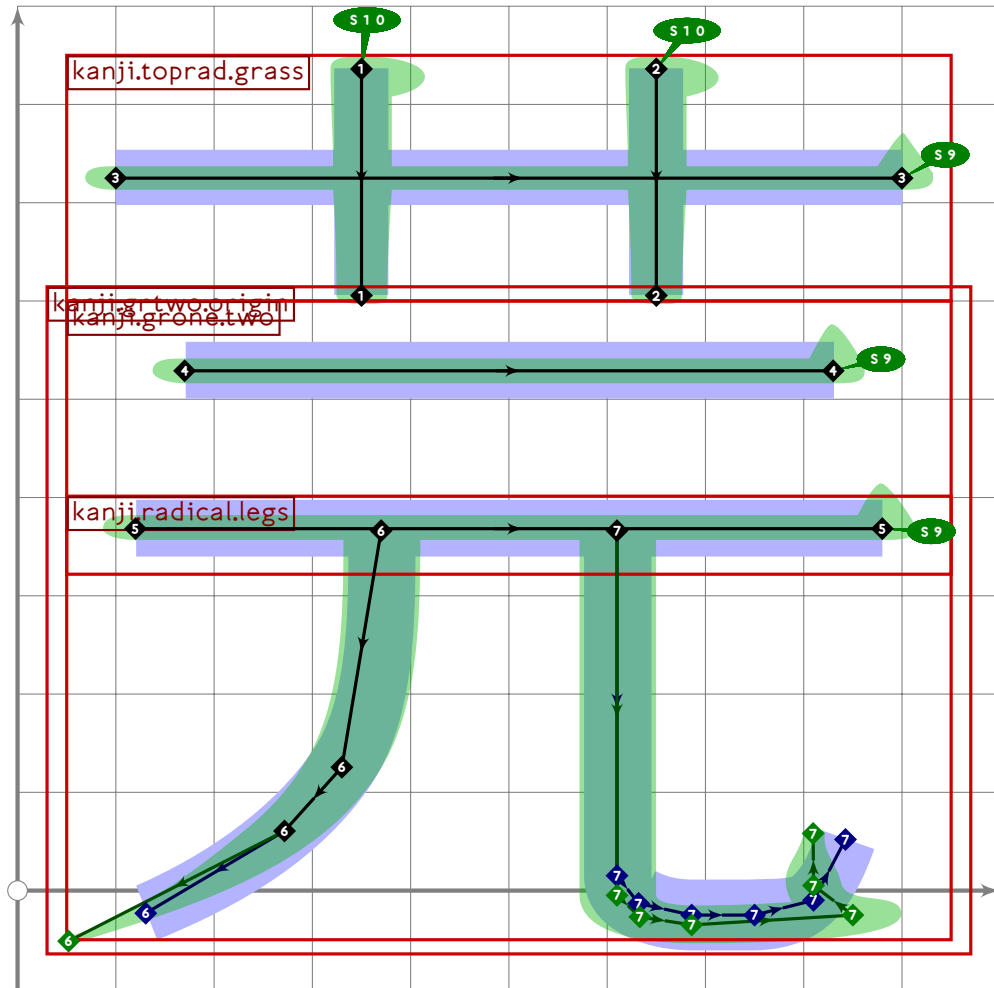
```



```

231 % extra
232 begintsuglyph("uni8296",150);
233 build_kanji.tb(600,80)
234   (kanji.toprad.grass)
235   (kanji.grone.big);
236   tsu_render;
237 endsuglyph;
238

```

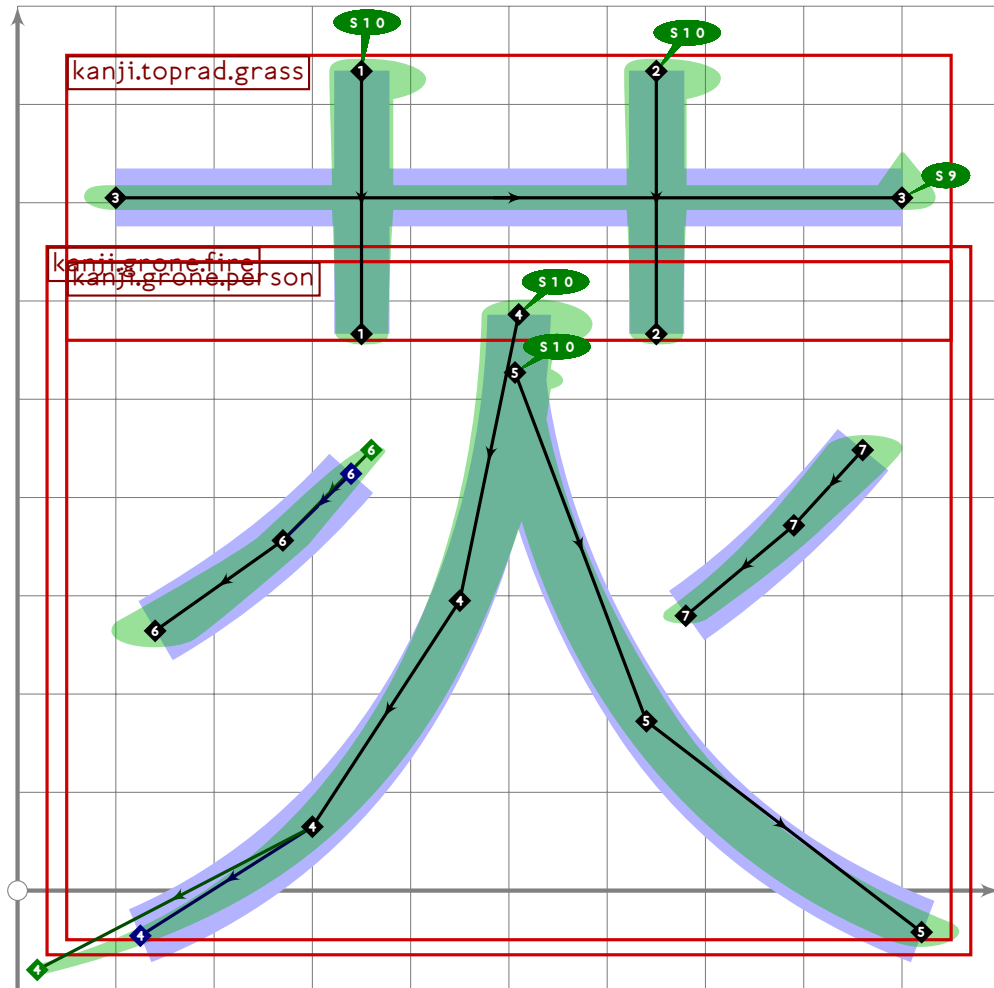


```

239 % extra
240 begint Suglyph("uni82AB";171);
241   build_kanji.tb(600,0)
242     (kanji.toprad.grass)
243     (kanji.grtwo.origin);
244   tsu_render;
245 endtsuglyph;
246
247 % hana "flower"
248 begint Suglyph("uni82B1";177);
249   kanji.grone.flower;
250   tsu_render;
251 endtsuglyph;
252

```

[see page 2046]

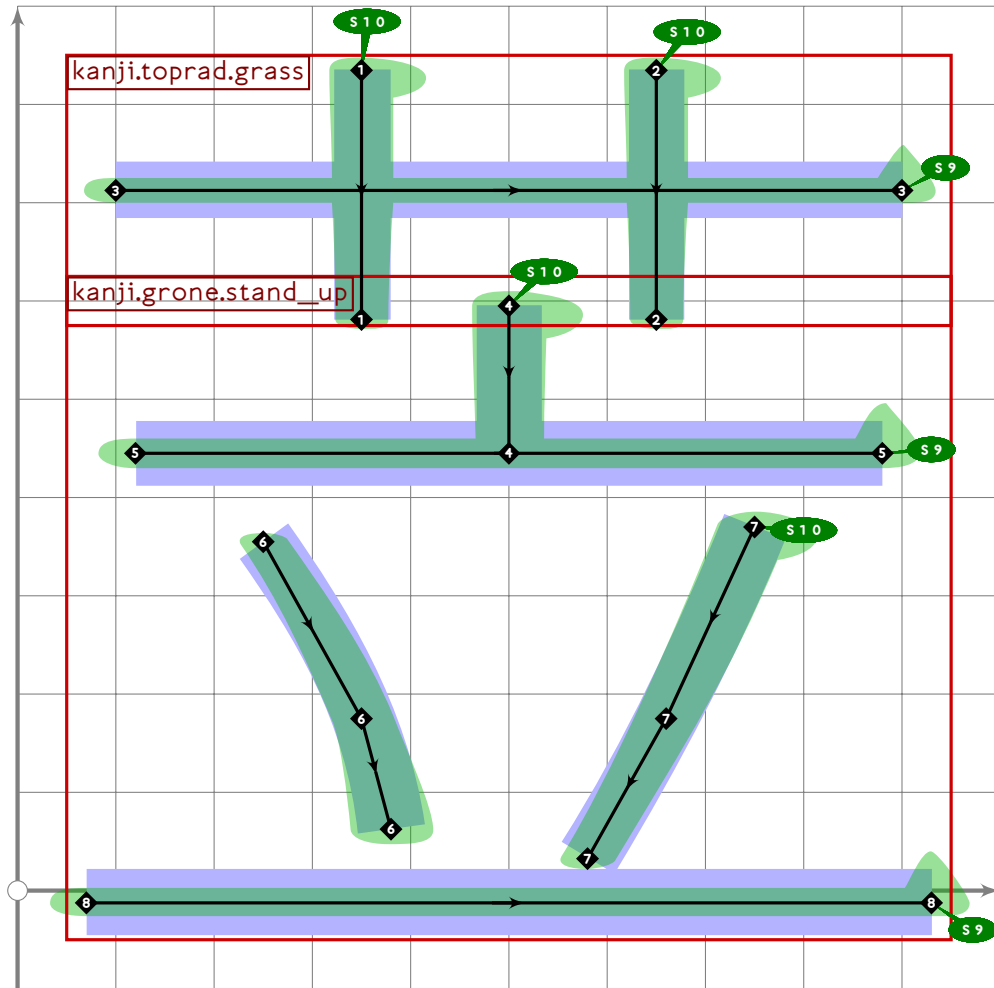


```

253 % extra
254 begint Suglyph("uni82C2";194);
255 build_kanji.tb(600,80)
256   (kanji.toprad.grass)
257   (kanji.grone.fire);
258   tsu_render;
259 endtsuglyph;
260
261 % byo/nae "rice seedling"
262 begint Suglyph("uni82D7";215);
263   kanji.greight.seedling;
264   tsu_render;
265 endtsuglyph;
266

```

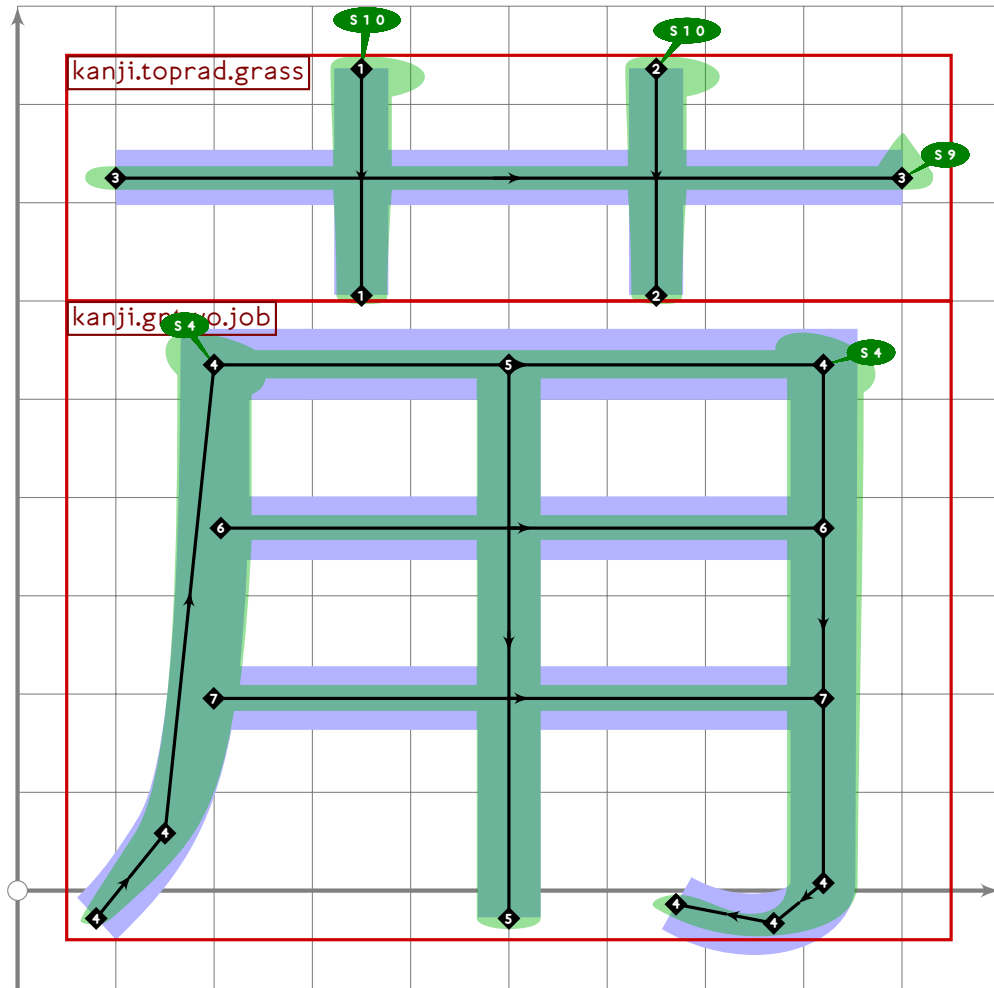
[see page 585]



```

267 % extra
268 begintsuglyph("uni82D9",217);
269 build_kanji.tb(600,50)
270 (kanji.toprad.grass)
271 (kanji.grone.stand_up);
272 tsu_render;
273 endsuglyph;
274

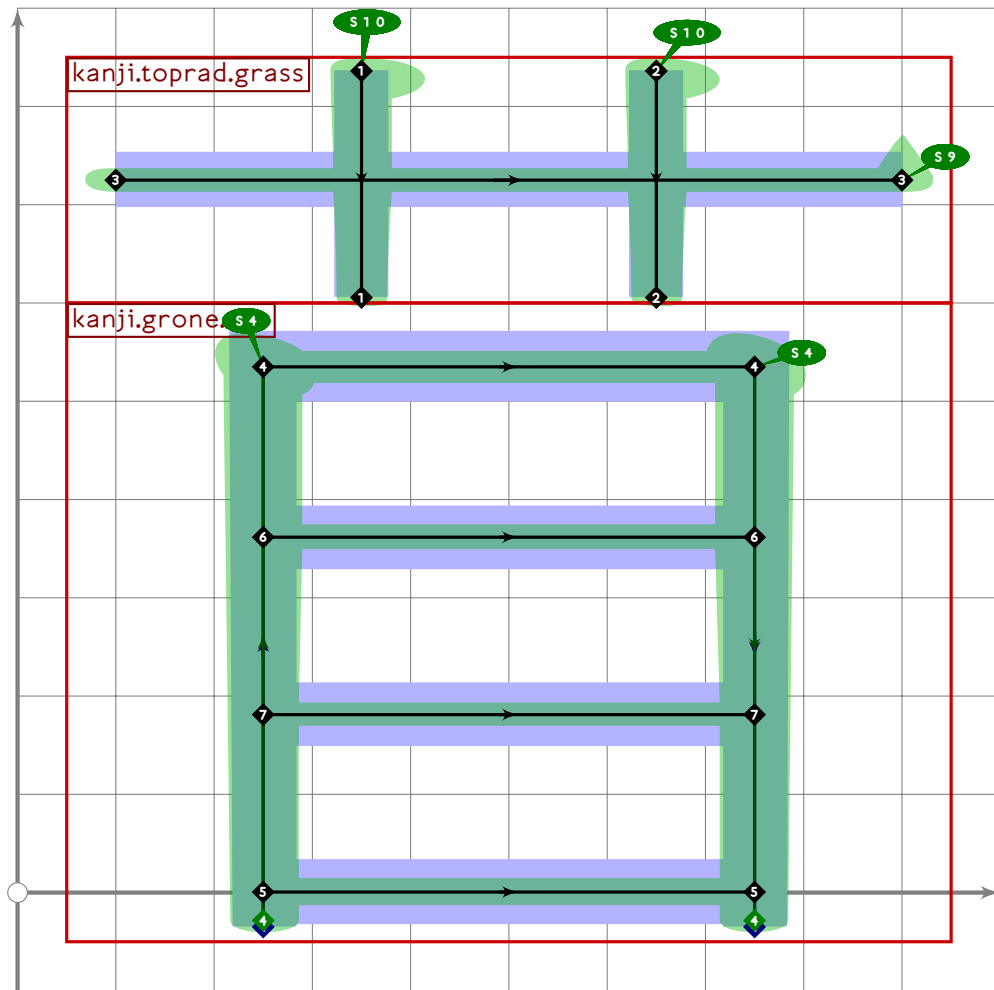
```



```

275 % extra
276 begintsuglyph("uni82DA",218);
277 build_kanji.tb(600,0)
278   (kanji.toprad.grass)
279   (kanji.grtwo.job);
280 tsu_render;
281 endtsuglyph;
282

```



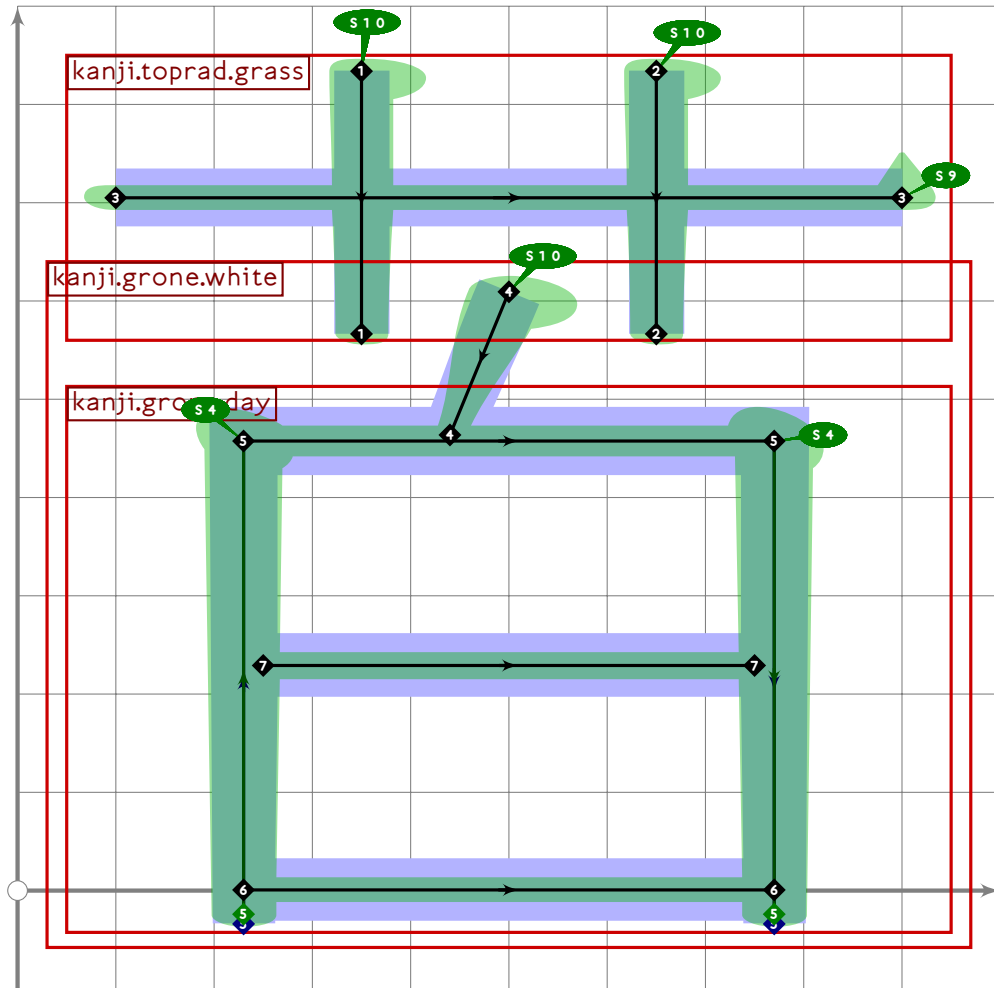
```

283 % extra
284 begint Suglyph("uni82DC";220);
285   build_kanji.tb(600,0)
286     (kanji.toprad.grass)
287     (kanji.grone.ey);
288   tsu_render;
289 endtsuglyph;
290
291 % waka "young master"
292 begint Suglyph("uni82E5";229);
293   kanji.grsix.young_master;
294   tsu_render;
295 endtsuglyph;
296

```

[see page 2049]

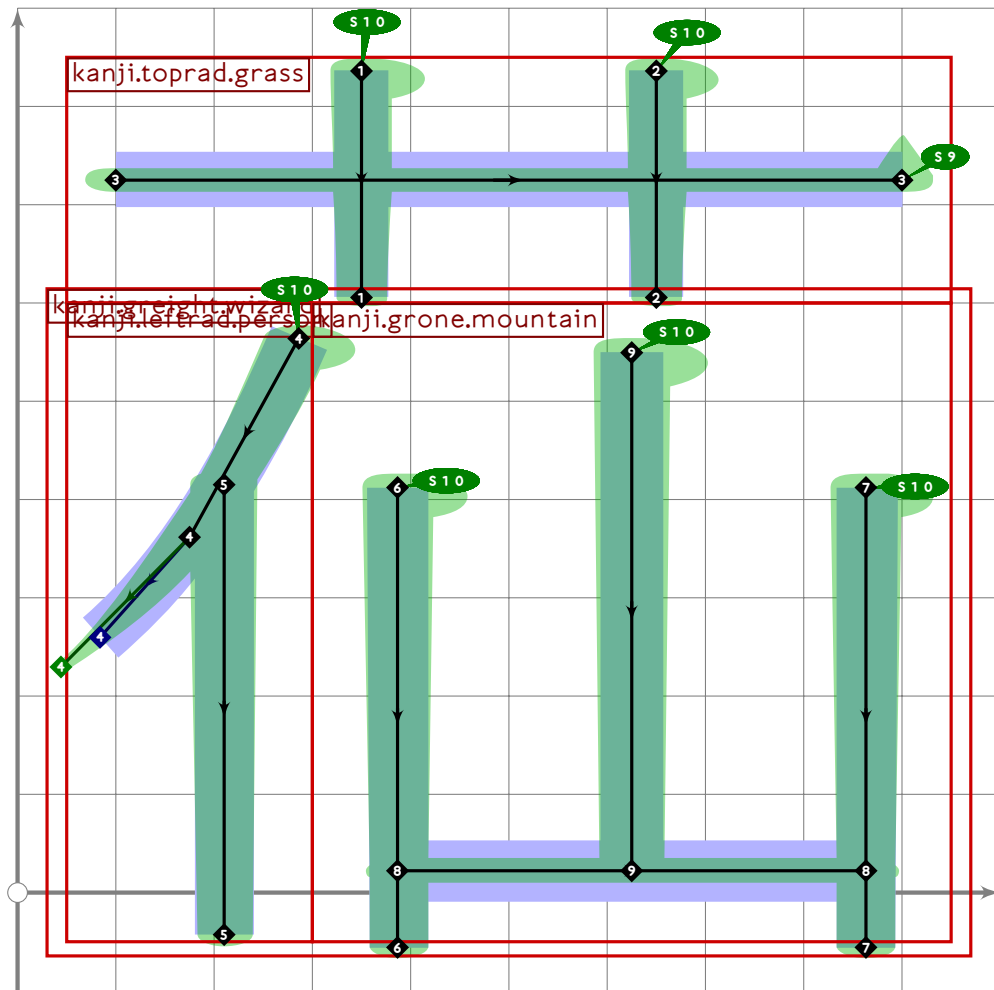




```

297 % extra
298 begintsuglyph("uni82E9";233);
299 build_kanji.tb(600,80)
300 (kanji.toprad.grass)
301 (kanji.grone.white);
302 tsu_render;
303 endtsuglyph;
304

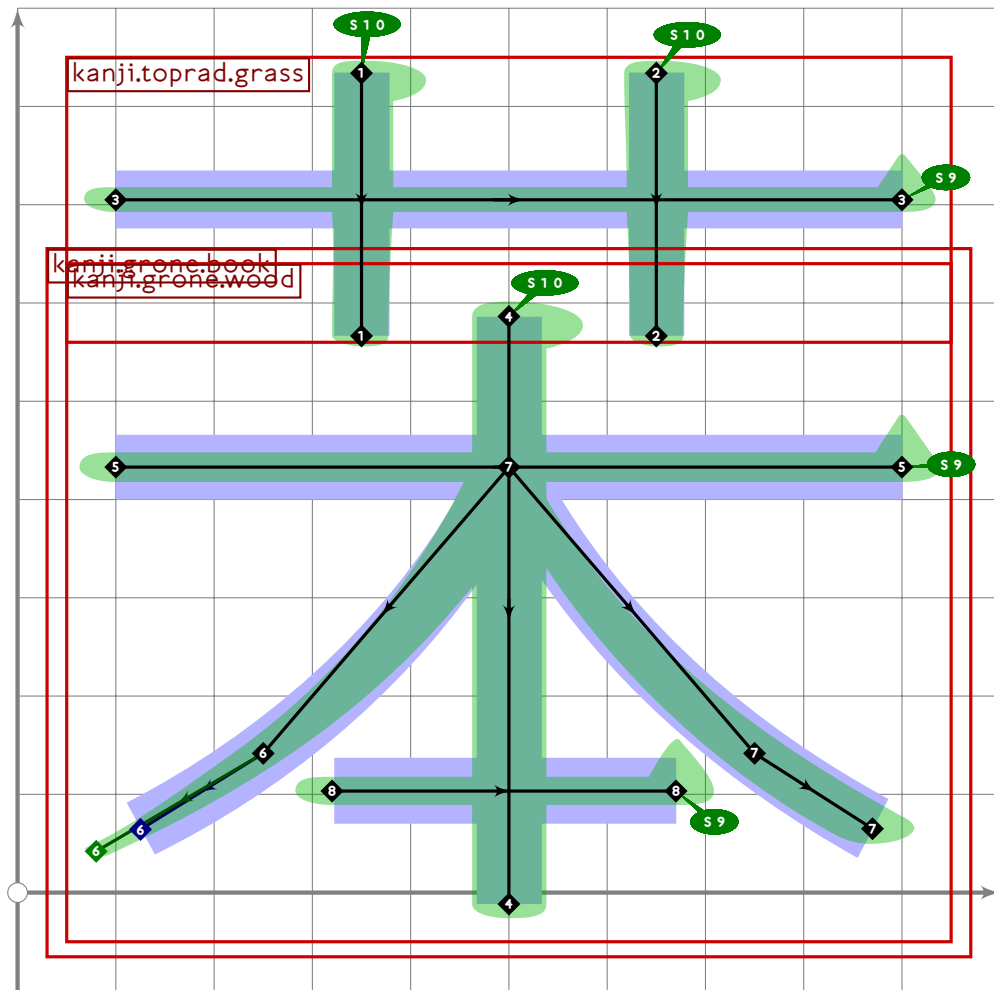
```



```

305 % extra
306 begintsuglyph("uni82EE",238);
307 build_kanji.tb(600,0)
308 (kanji.toprad.grass)
309 (kanji.greight.wizard);
310 tsu_render;
311 endtsuglyph;
312

```

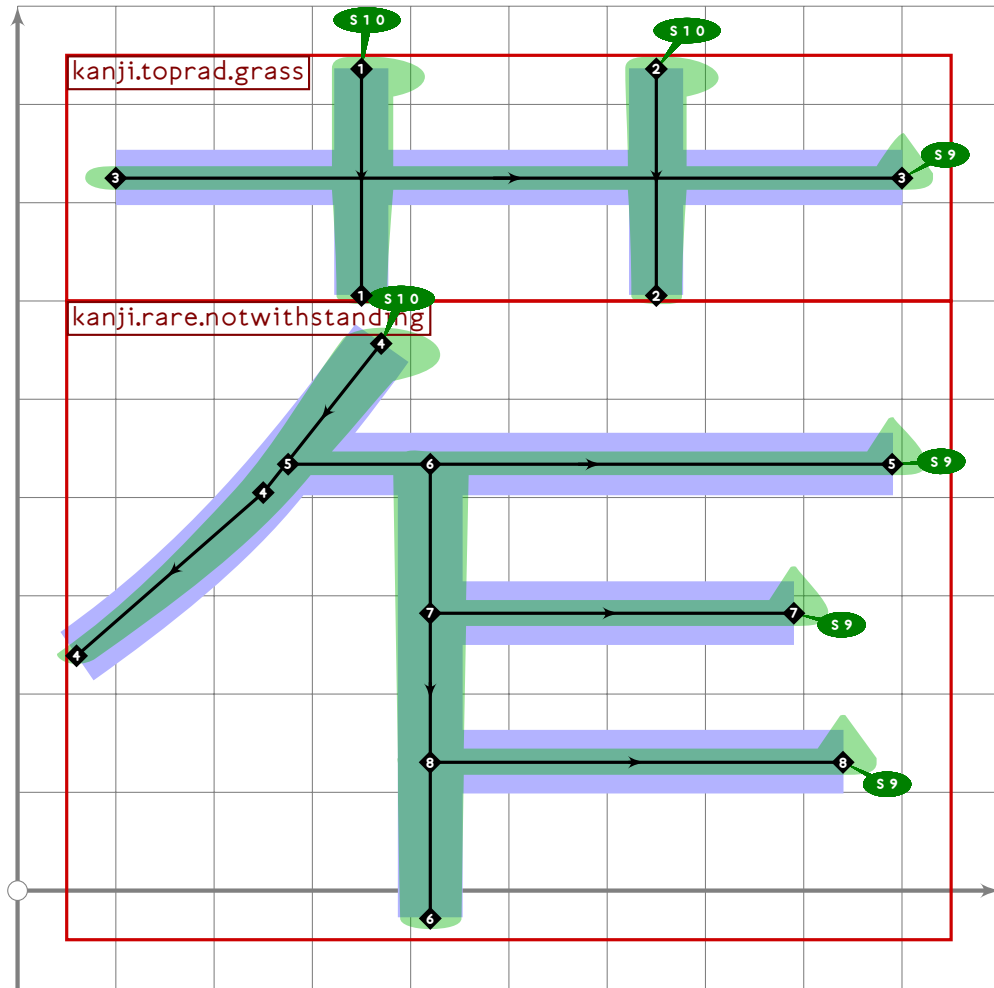


```

313 % extra
314 begintsuglyph("uni82EF";239);
315 build_kanji.tb(600,80)
316 (kanji.toprad.grass)
317 (kanji.grone.book);
318 tsu_render;
319 endtsuglyph;
320
321 % ei "English"
322 begintsuglyph("uni82F1";241);
323 kanji.grfour.english;
324 tsu_render;
325 endtsuglyph;
326

```

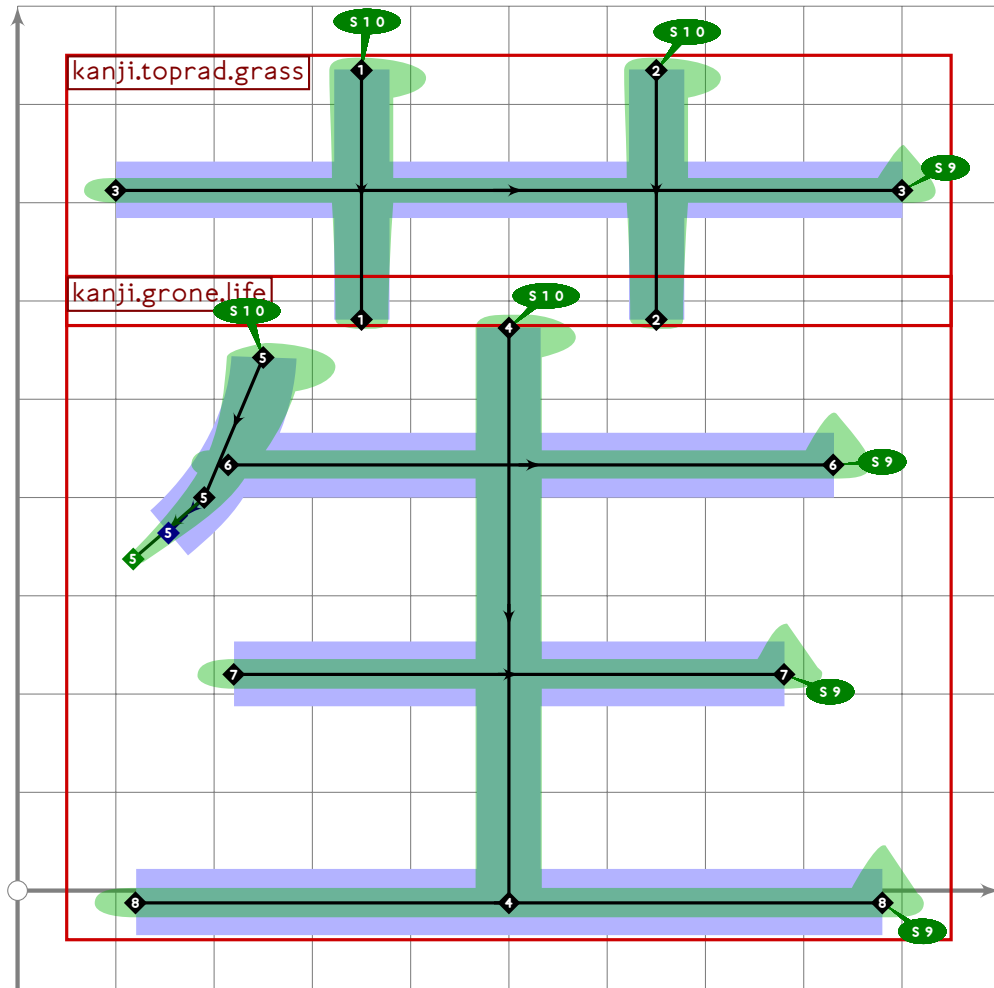
[see page 2048]



```

327 % extra
328 begintsuglyph("uni82F2";242);
329 build_kanji.tb(600,0)
330   (kanji.toprad.grass)
331   (kanji.rare.notwithstanding);
332 tsu_render;
333 endsuglyph;
334

```



```

335 % extra
336 begint Suglyph("uni82FC";252);
337 build_kanji.tb(600,50)
338   (kanji.toprad.grass)
339   (kanji.grone.life);
340   tsu_render;
341   endtsuglyph;
342
343 _____
344
345 endfont;
346
347 _____

```

# tsuku-83.mp

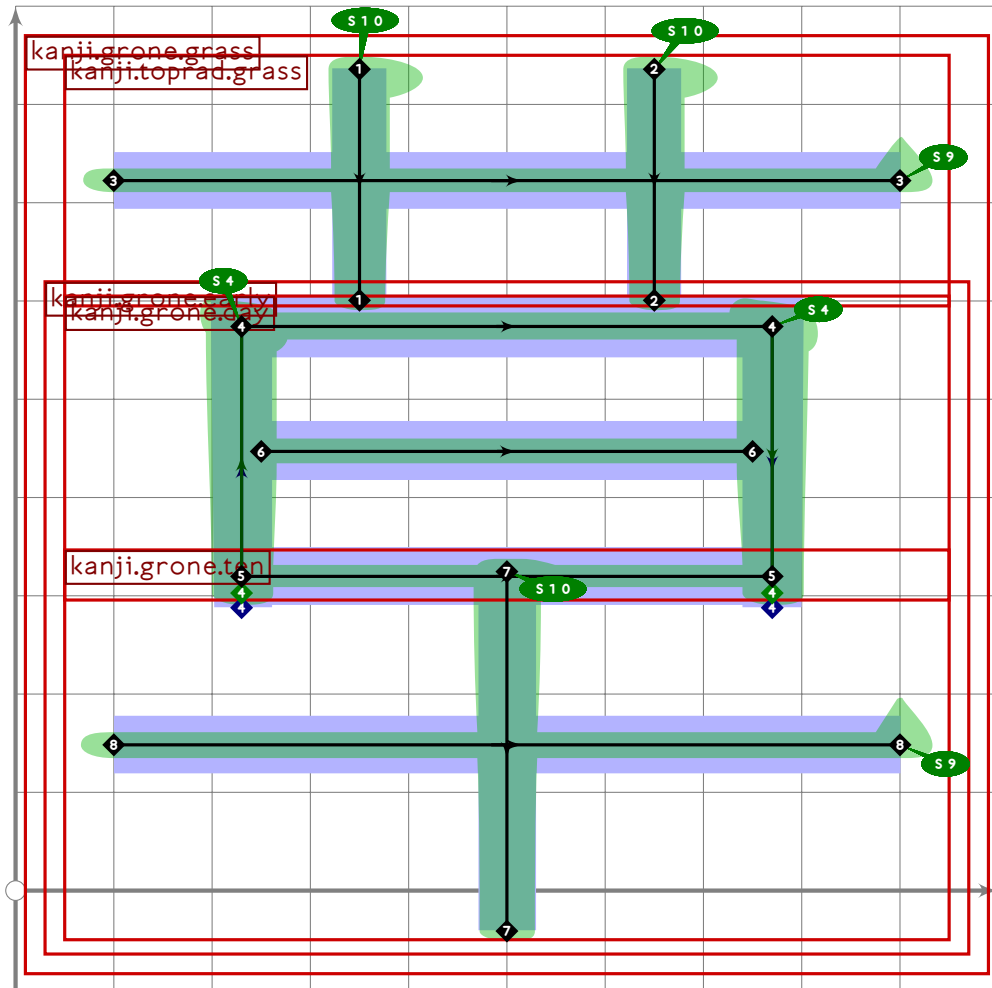
```
1 %
2 % Unicode page 83 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradenine.mp;
38 input gradeone.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input leftrad.mp;
42 input radical.mp;
43 input rare.mp;
44 input topfad.mp;
45
46 

---

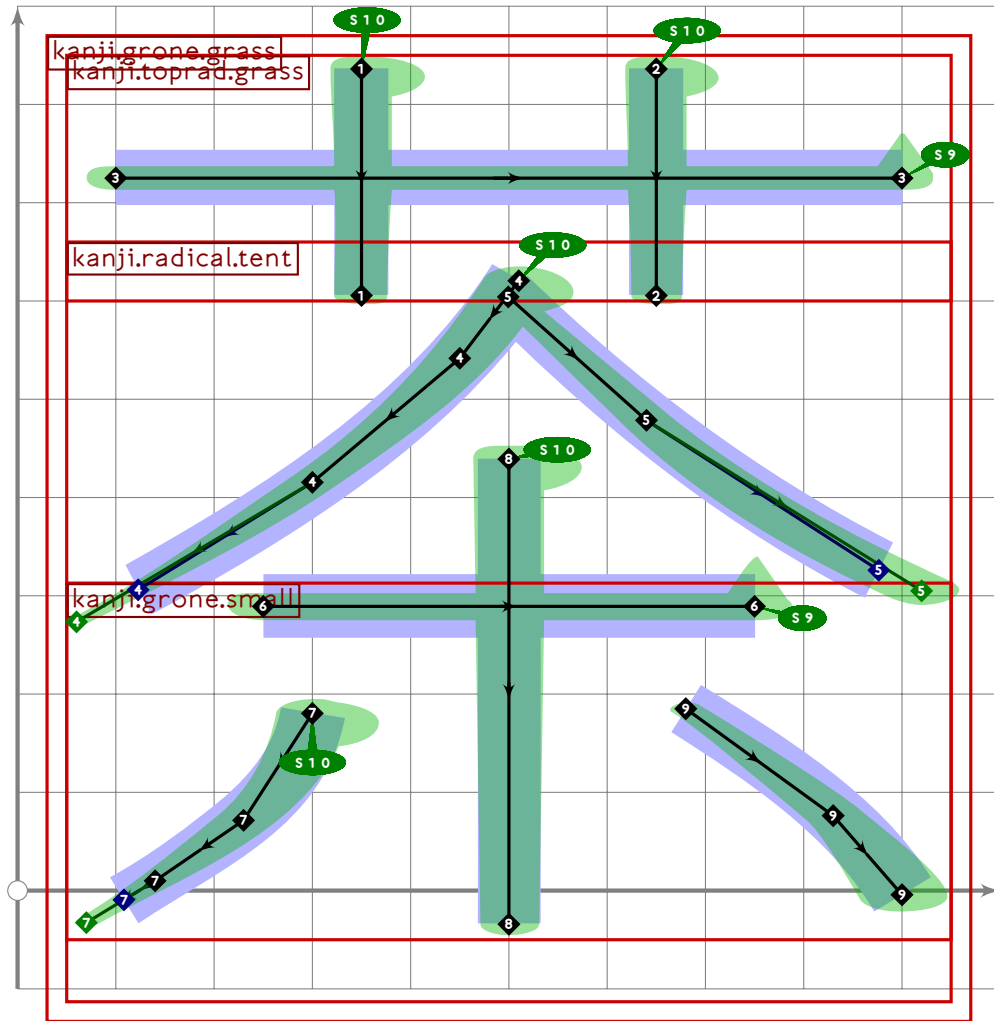

```



```

47
48 vardef kanji.grone.grass =
49   push_pbox_toexpand("kanji.grone.grass");
50   build_kanji.tb(600,10)
51     (kanji.toprad.grass)
52     (kanji.grone.early);
53   expand_pbox;
54 enddef;
55
56

```

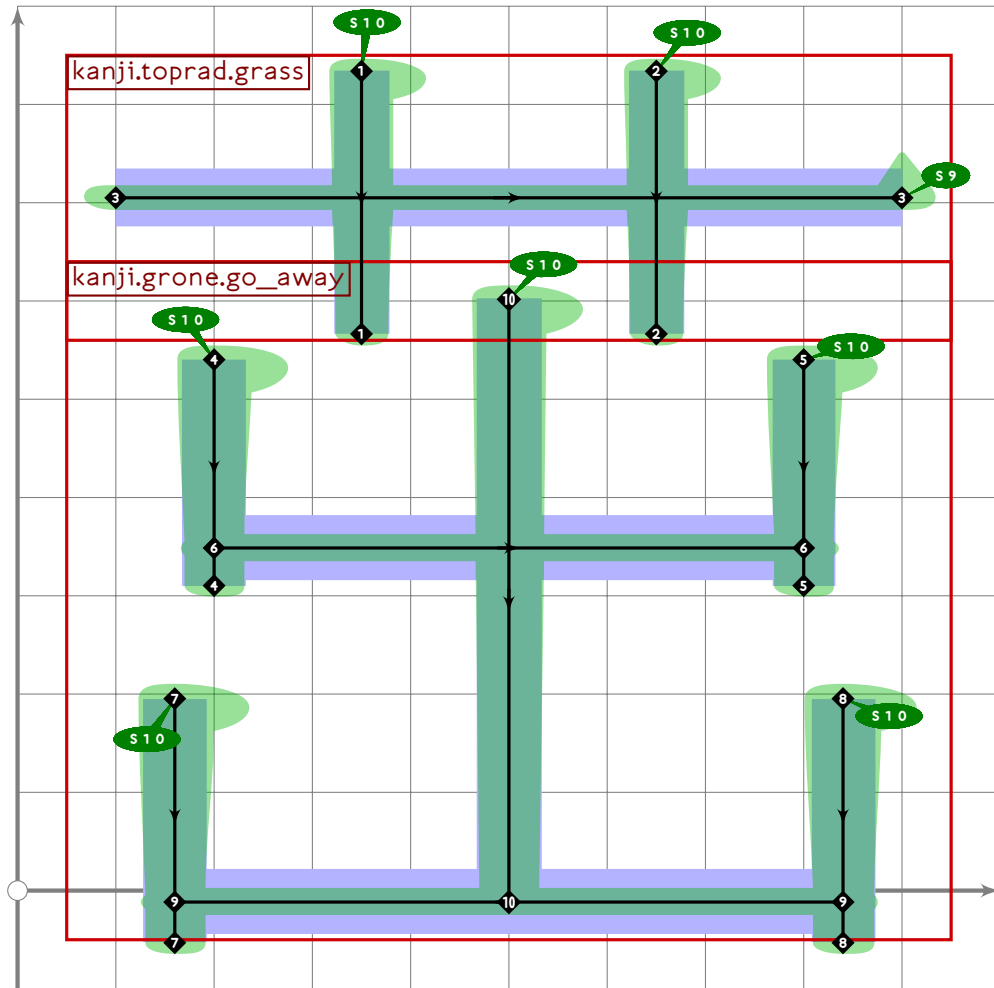


```

57
58 vardef kanji.grtwo.tea =
59   push_pbox_toexpand("kanji.grone.grass");
60   build_kanji.tb(630,60)
61   (kanji.toprad.grass)
62   (build_kanji.level(
63     kanji.radical.tent;
64     replace_stroke(0)((250,380)-(750,380));
65     tsu_xform(identity yscaled 0.6 shifted (0,-100))
66     (kanji.grone.small);
67     replace_stroke(-1)((500,570)-(500,-30));
68     replace_strokeq(-1)((1.6,1.6)-(1.4,1.4));
69   ));
70   expand_pbox;
71 enddef;
72
73
74

```

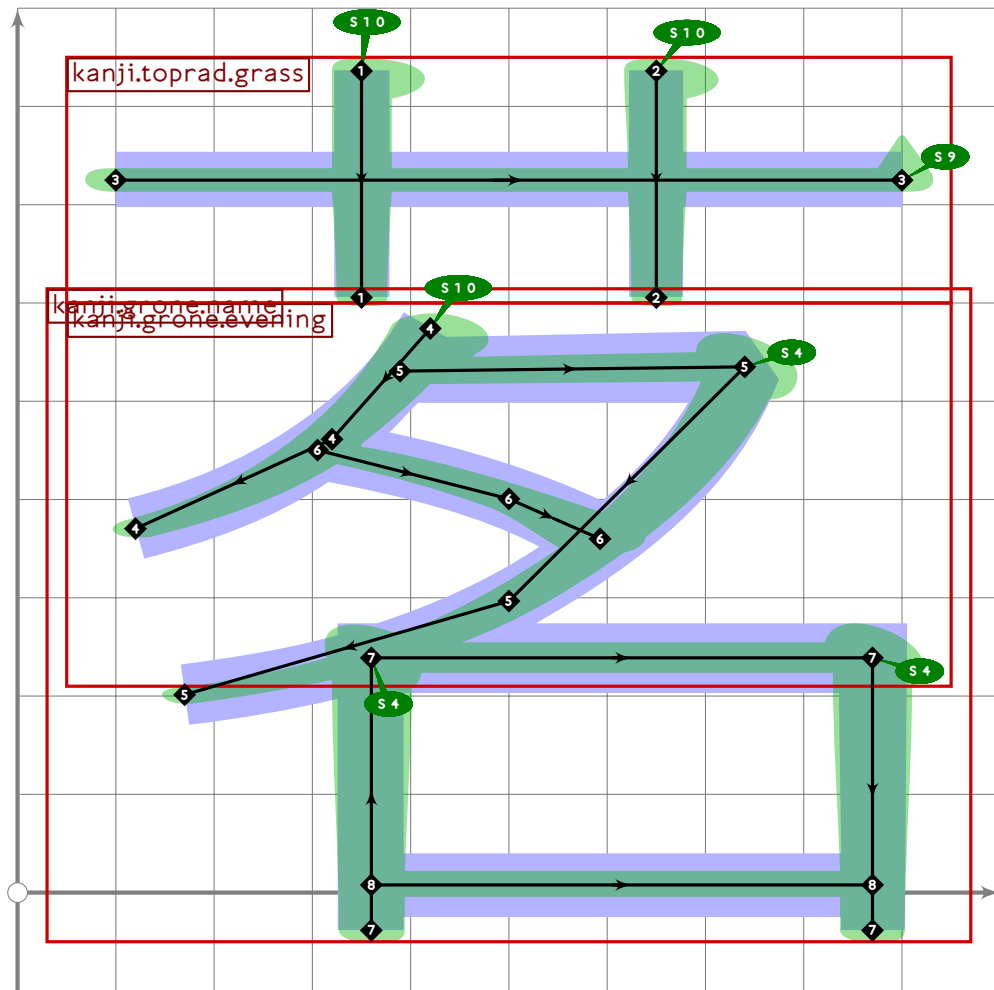




```

75 % extra
76 beginsuglyph("uni8301",1);
77 build_kanji.tb(600,80)
78   (kanji.toprad.grass)
79   (kanji.grone.go_away);
80   tsu_render;
81   endsuglyph;
82

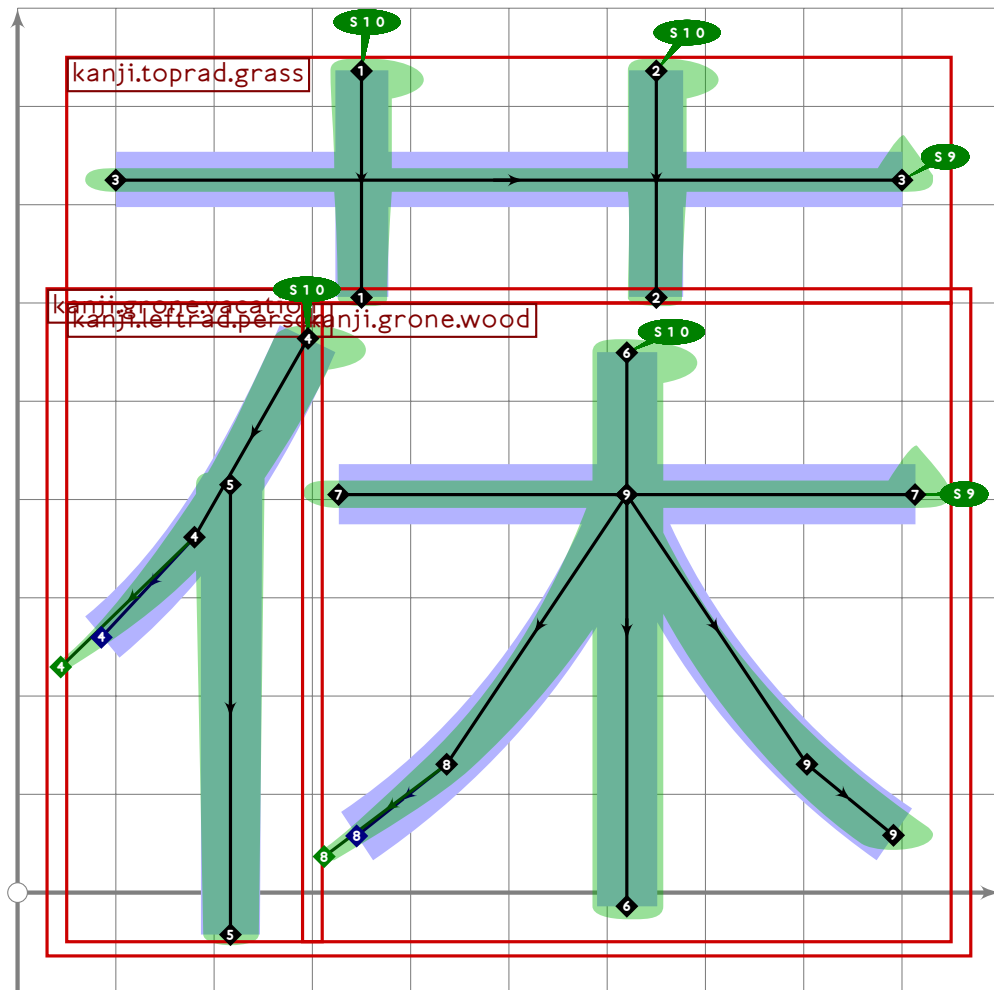
```



```

83 % myou/cha "tea"
84 begintsuglyph("uni8317",23);
85 build_kanji.tb(600,0)
86   (kanji.toprad.grass)
87   (kanji.grone.name);
88   tsu_render;
89   endtsuglyph;
90

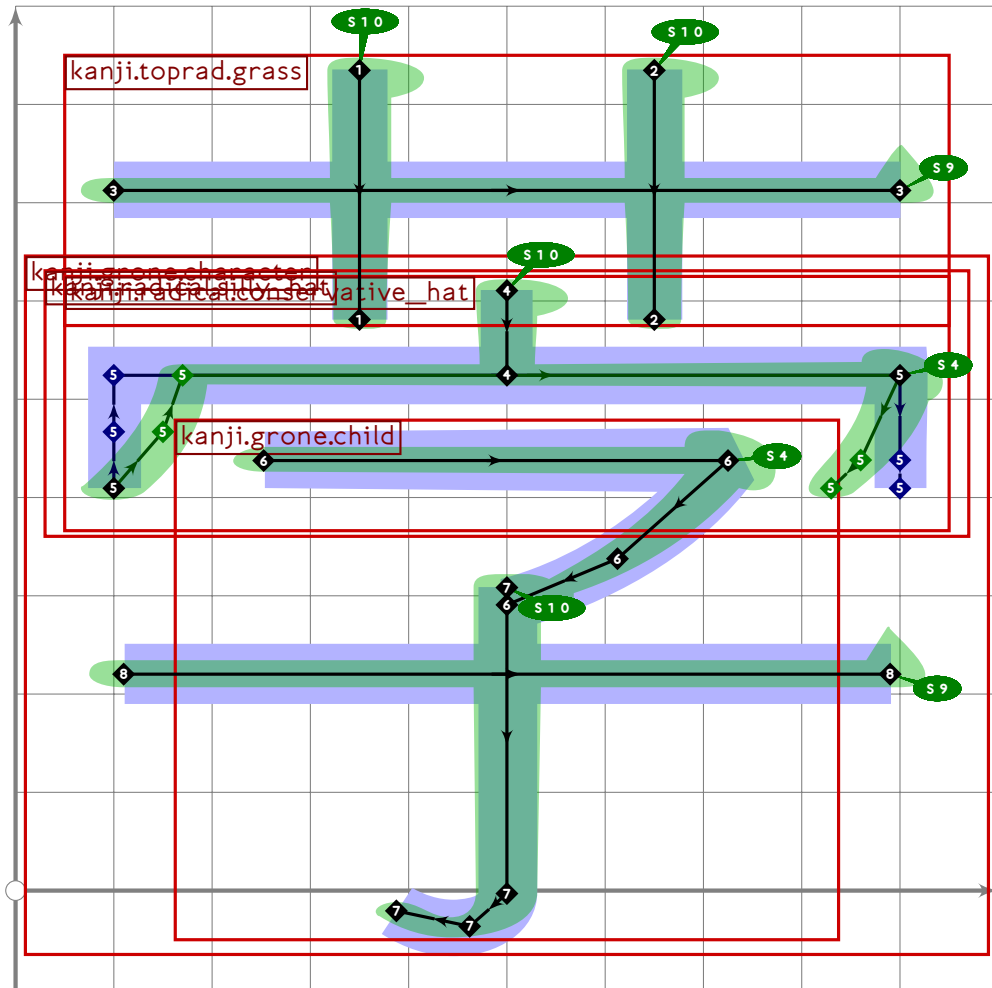
```



```

91 % extra
92 begintsuglyph("uni8320";32);
93 build_kanji.tb(600,0)
94   (kanji.toprad.grass)
95   (kanji.grone.vacatio);
96   tsu_render;
97   endtsuglyph;
98

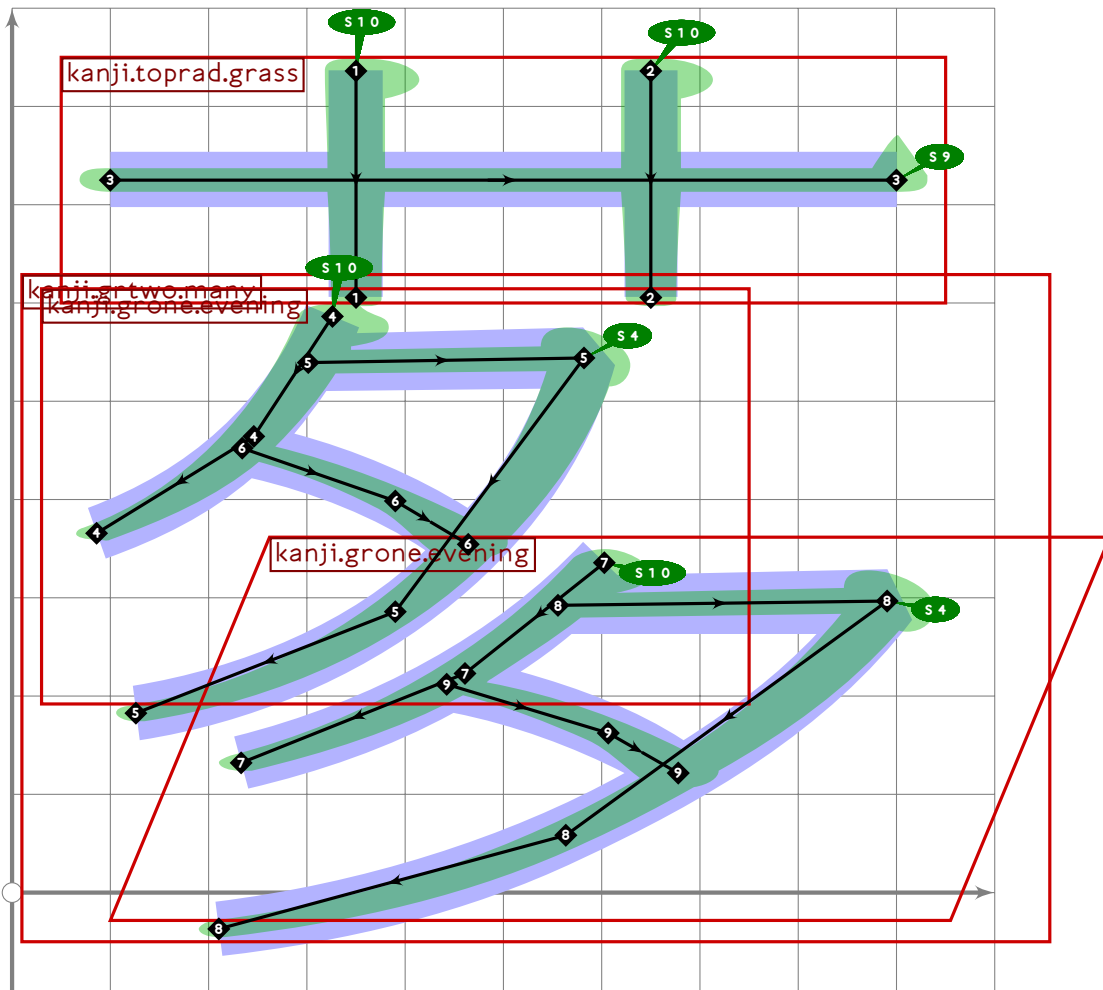
```



```

99 % extra
100 begintsuglyph("uni8321",33);
101 build_kanji.tb(600,50)
102   (kanji.toprad.grass)
103   (kanji.grone.character);
104   tsu_render;
105   endsuglyph;
106

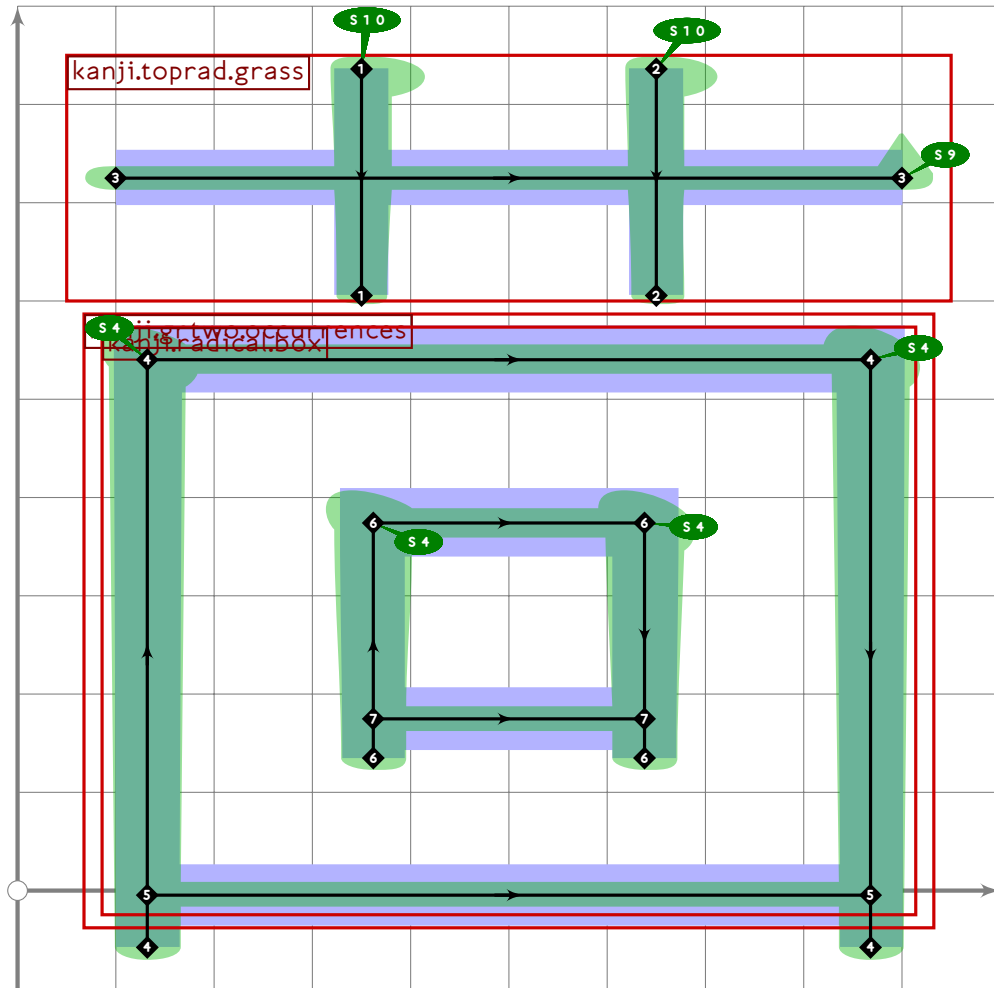
```



```

107 % extra
108 begintsuglyph("uni8324";36);
109 build_kanji.tb(600,0)
110 (kanji.toprad.grass)
111 (kanji.grtwo.many);
112 tsu_render;
113 endtsuglyph;
114

```

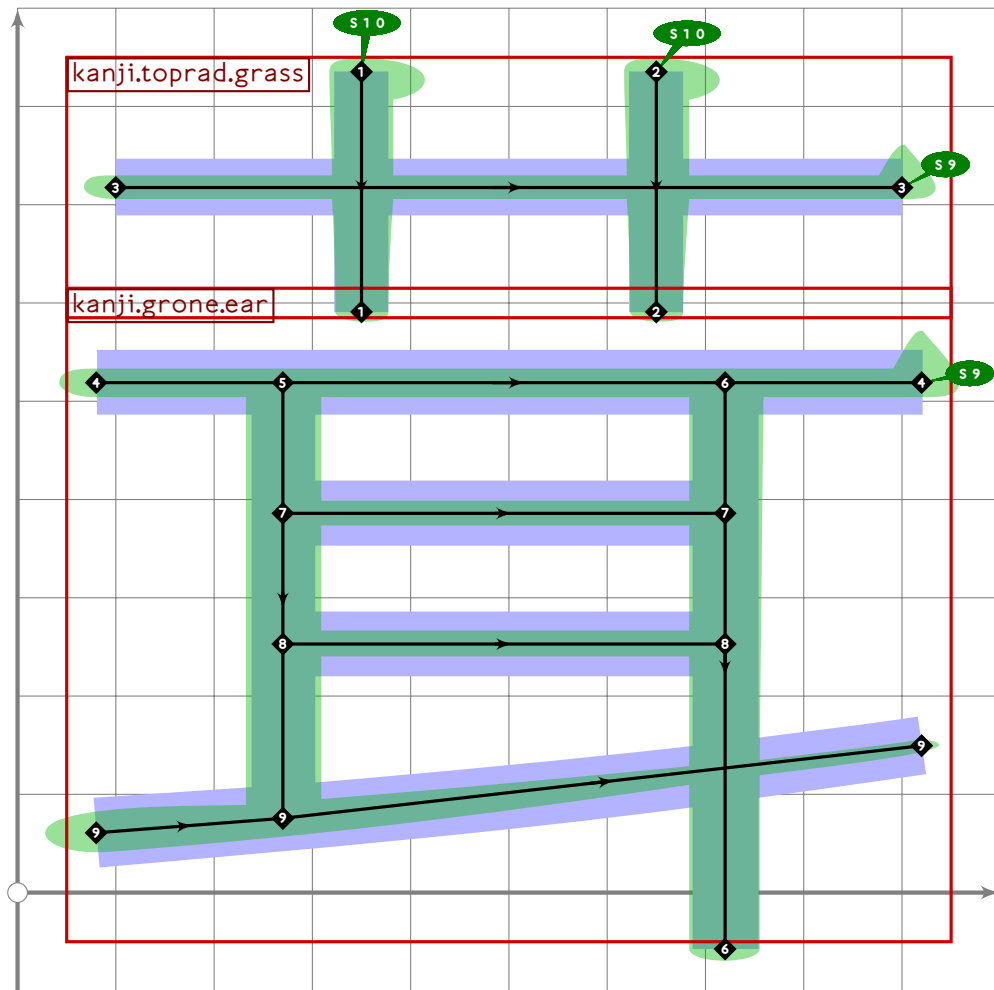


```

115 % extra
116 begint Suglyph("uni8334";52);
117   build_kanji.tb(600,0)
118     (kanji.toprad.grass)
119     (build_kanji.sscale(scaled 0.92)(kanji.gtwo.occurrences));
120   tsu_render;
121   endtsuglyph;
122
123 % cha/sa "tea"
124 begint Suglyph("uni8336";54);
125   kanji.gtwo.tea;
126   tsu_render;
127   endtsuglyph;
128

```

[see page 2076]



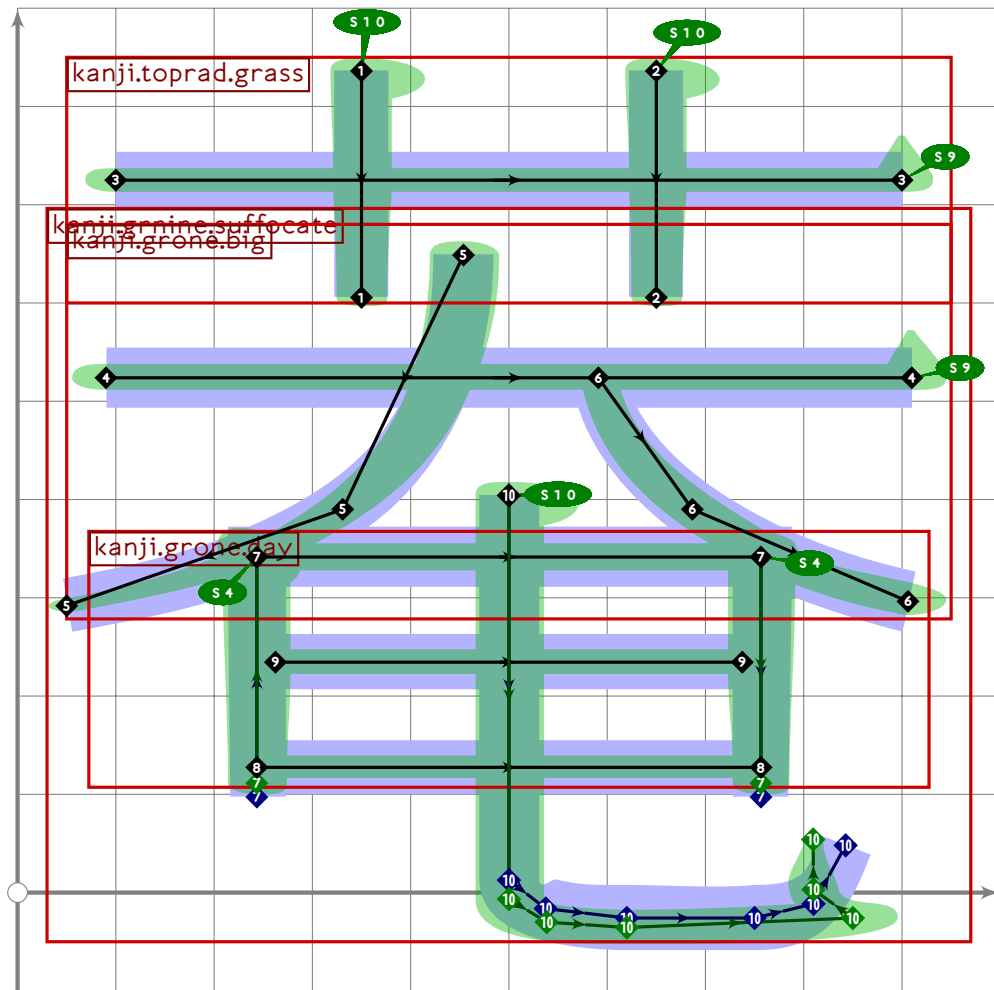
```

129 % extra
130 begintsuglyph("uni8338";56);
131 build_kanji.tb(600,30)
132   (kanji.toprad.grass)
133   (kanji.grone.ear);
134 tsu_render;
135 endtsuglyph;
136
137 % sou/kusa "grass"
138 begintsuglyph("uni8349";73);
139 kanji.grone.grass;
140 tsu_render;
141 endtsuglyph;
142
143 % hoku/wazurawashii "no meaning given, but needed to build 'boku'"
144 begintsuglyph("uni83D0";208);
145 kanji.rare.eight_three_dee_zero;
146 tsu_render;
147 endtsuglyph;
148

```

[see page 2075]

[see page 612]



```

149 % extra an/iori "hermitage"
150 begintsuglyph("uni83F4",244);
151 build_kanji.tb(640,80)
152 (kanji.toprad.grass)
153 (kanji.grnine.suffocate);
154 tsu_render;
155 endsuglyph;
156
157 _____
158
159 endfont;
160
161 _____

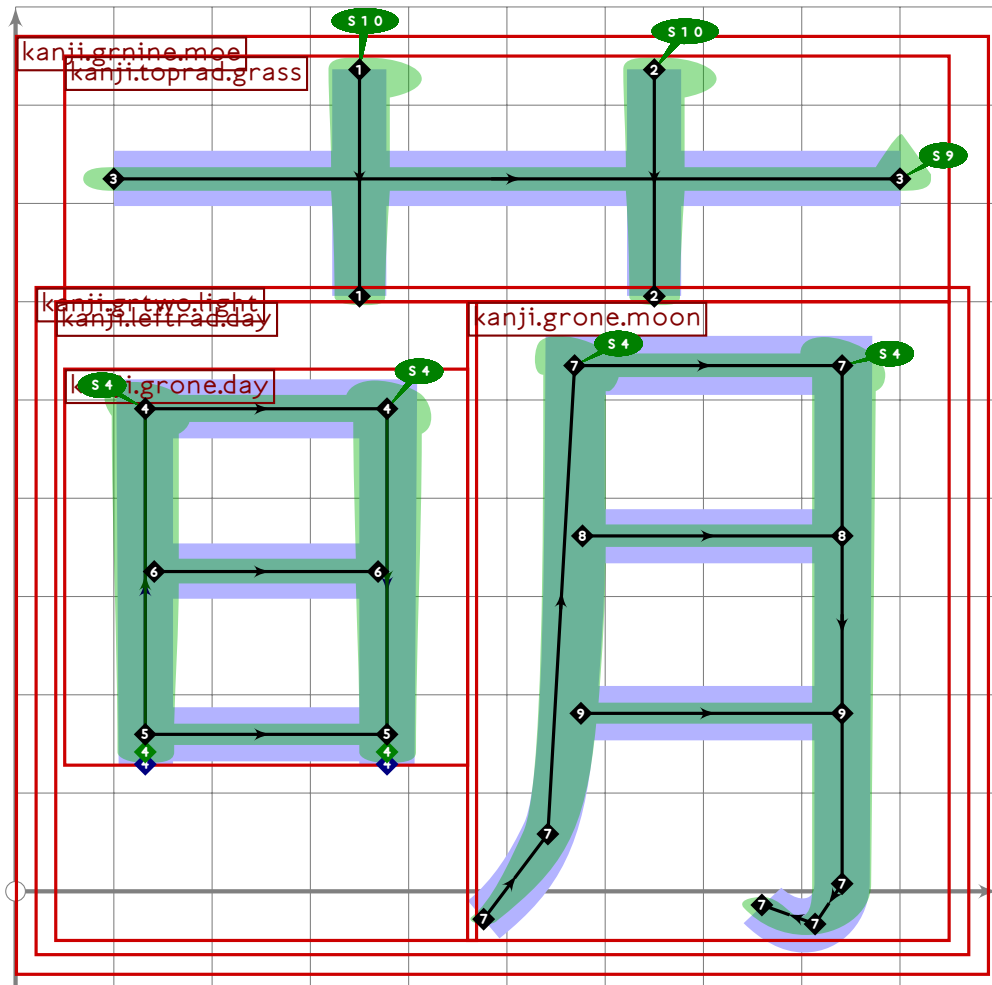
```



# tsuku-84.mp

```
1 %  
2 % Unicode page 84 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

```
30  
31  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40 input toprad.mp;  
41  
42
```



43

```
44 vardef kanji.grnine.moe =
45   push_pbox_toexpand("kanji.grnine.moe");
46   build_kanji.tb(600,0)
47     (kanji.toprad.grass)
48     (kanji.grtwo.light);
49   expand_pbox;
50 enddef;
51
52 

---


53
54 % moe (untranslatable)
55 begintsuglyph("uni840C",12); [see page 2086]
56   kanji.grnine.moe;
57   tsu_render;
58 endtsuglyph;
59
60 

---


61
62 endfont;
63
64 

---


```

# tsuku-85.mp

```
1 %  
2 % Unicode page 85 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

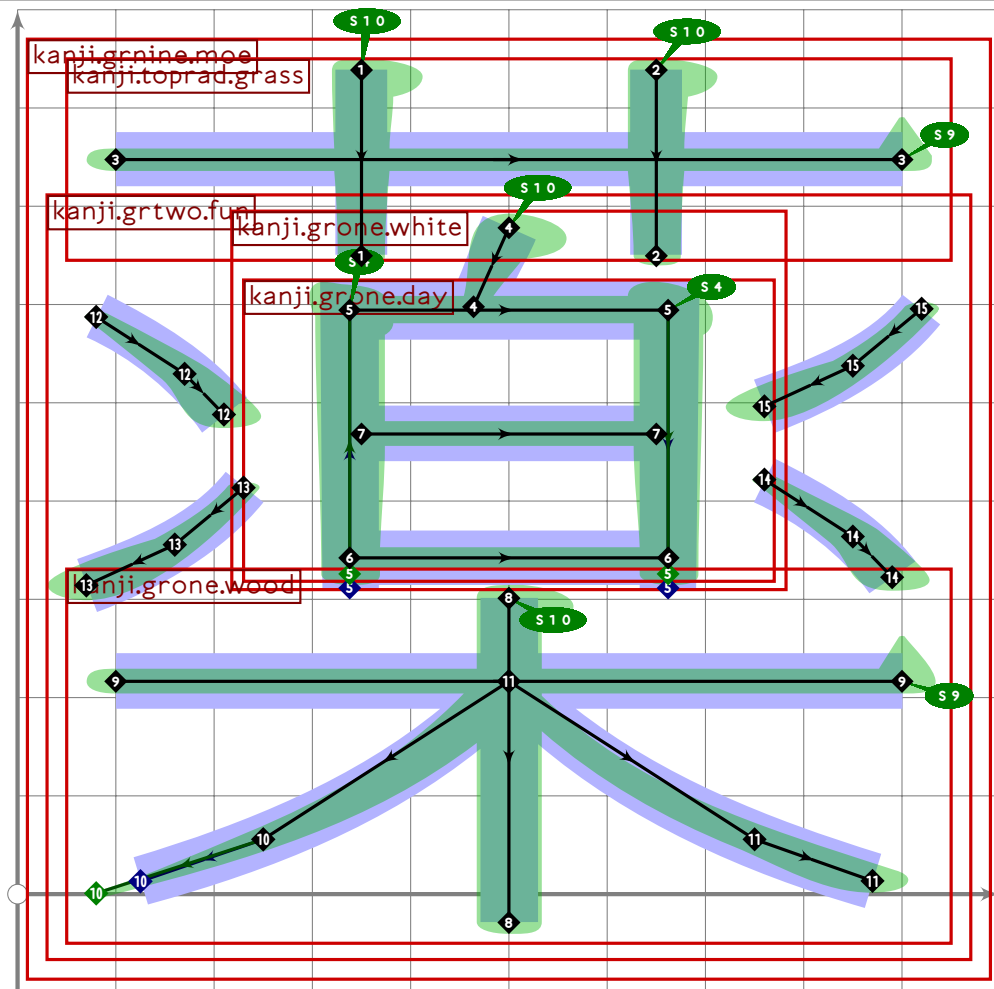
37 input gradeone.mp;

38 input gradetwo.mp;

39 input toprad.mp;

40

41



42

43 vardef kanji.grthree.medicine =

```
44 push_pbox_toexpand("kanji.grnine.moe");
45 build_kanji.tb(670,50)
46   (kanji.toprad.grass)
47   (kanji.grtwo.fun);
48 expand_pbox;
49 enddef;
50
51 

---


52
53 % yaku/kusuri "medicine"
54 begintsuglyph("uni85AC";172); [see page 2087]
55   kanji.grthree.medicine;
56   tsu_render;
57 endtsuglyph;
58
59 

---


60
61 endfont;
62
63 

---


```

# tsuku-86.mp

```
1 %
2 % Unicode page 86 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38
39 

---


40
41 % mushi "bug"
42 begint Suglyph("uni866B";107); [see page 383]
43   kanji.grone.bug;
44   tsu_render;
45 endtsuglyph;
46
47 

---


48
49 endfont;
50
51 

---


```

# tsuku-88.mp

```
1 %
2 % Unicode page 88 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradethree.mp;
38 input gradetwo.mp;
39 input leftrad.mp;
40
41 

---


42
43 % kou/i(ku) "go"
44 begintsuglyph\("uni884C",76\); [see page 465]
45 kanji.grtwo.go;
46 tsu\_render;
47 endtsuglyph;
48
49 

---


50
51 endfont;
52
53 

---


```

# tsuku-89.mp

```
1 %  
2 % Unicode page 89 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

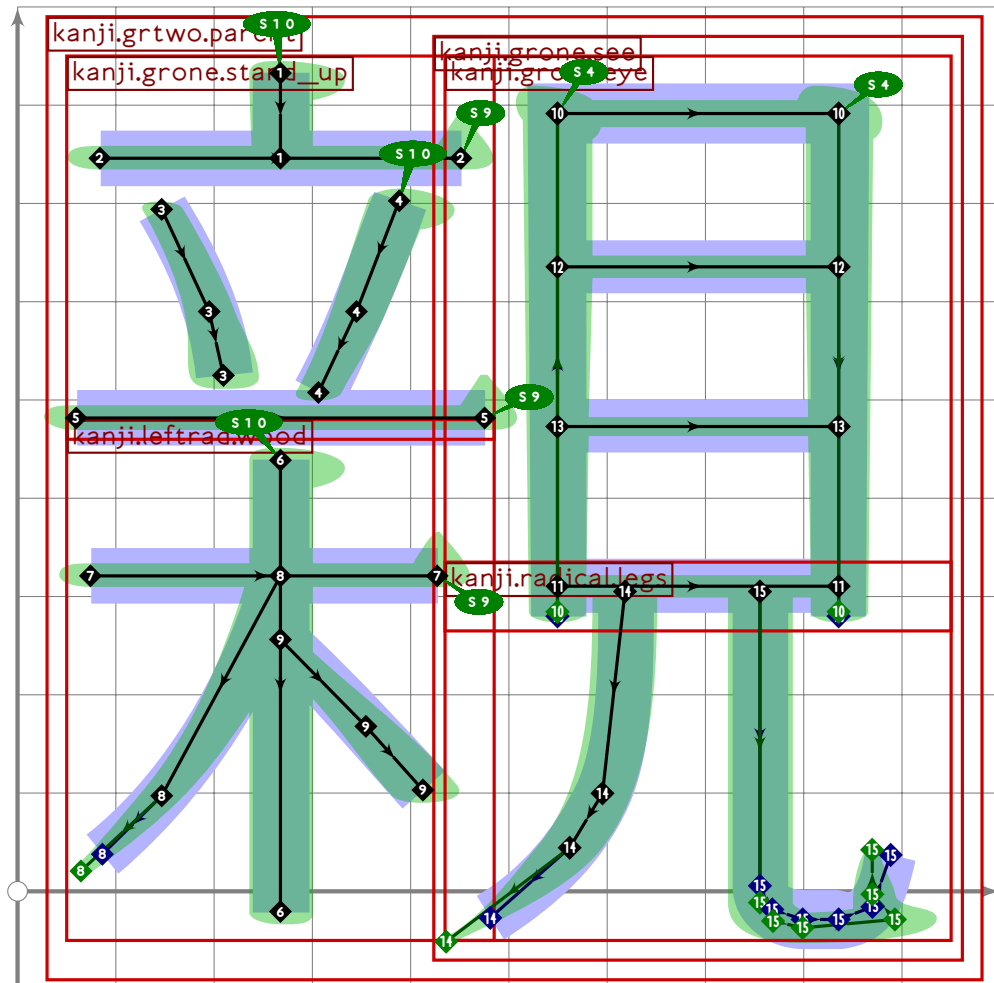
38 input gradetwo.mp;

39 input leftrad.mp;

40 input radical.mp;

41

42

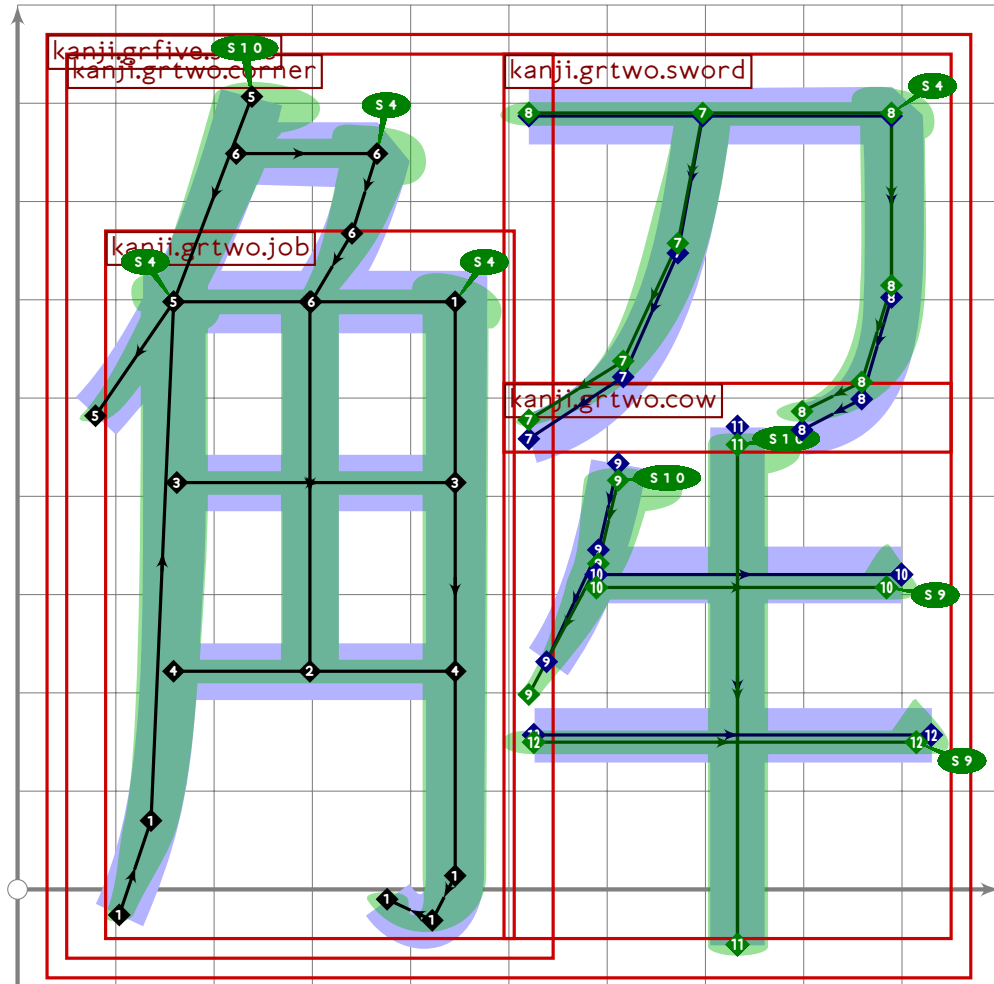


43

```

44 vardef kanji.grtwo.parent =
45   push_pbox_toexpand("kanji.grtwo.parent");
46   build_kanji.level(build_kanji.lr(460,50)
47     (build_kanji.tb(470,20)
48       (kanji.grone.stand_up)
49       (kanji.leftrad.wood))
50     (kanji.grone.see));
51   expand_pbox;
52 enddef;
53
54

```



```

55
56 vardef kanji.grfive.solve =
57   push_pbox_toexpand("kanji.grfive.solve");
58   build_kanji.lr(520,50)
59     (kanji.grtwo.corner)
60     (build_kanji.level(build_kanji.tb(480,70-40*mincho)
61       (kanji.grtwo.sword)
62       (kanji.grtwo.cow)));
63   expand_pbox;
64 enddef;

```



65

66

---

67

68 % sai/nishi "West" or "Spain"

69 `begintsuglyph("uni897F";127);`

[see page 503]

70 `kanji.grtwo.west;`

71 `tsu_render;`

72 `endtsuglyph;`

73

74 % ken/mi "see"

75 `begintsuglyph("uni898B";139);`

[see page 425]

76 `kanji.grone.see;`

77 `tsu_render;`

78 `endtsuglyph;`

79

80 % shin/oya/shita "parent"

81 `begintsuglyph("uni89AA";170);`

[see page 2092]

82 `kanji.grtwo.parent;`

83 `tsu_render;`

84 `endtsuglyph;`

85

86 % kaku/kado "corner"

87 `begintsuglyph("uni89D2";210);`

[see page 453]

88 `kanji.grtwo.corner;`

89 `tsu_render;`

90 `endtsuglyph;`

91

92 % kai/to "solve"

93 `begintsuglyph("uni89E3";227);`

[see page 2092]

94 `kanji.grfive.solve;`

95 `tsu_render;`

96 `endtsuglyph;`

97

98

---

99

100 `endfont;`

101

102

---



Part VII

U+8A00 to U+9FFF



# tsuku-8a.mp

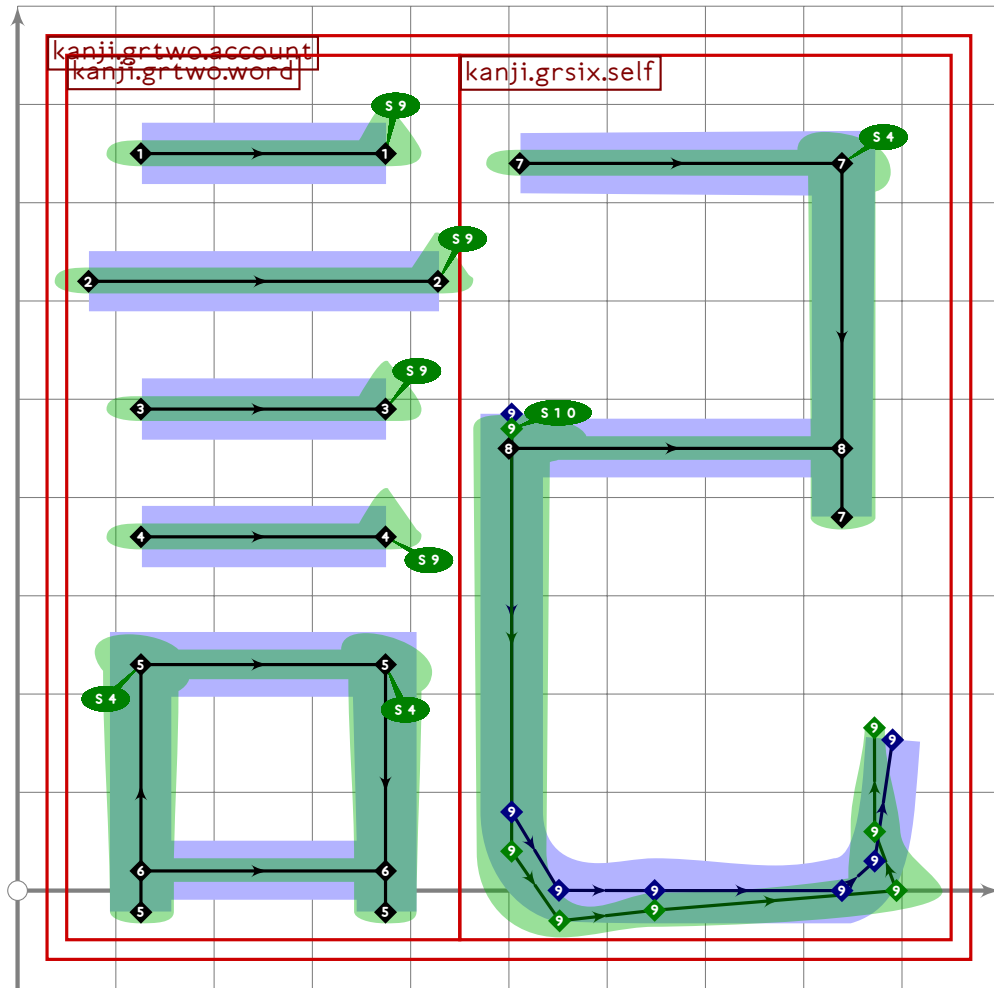
```
1 %
2 % Unicode page 8a (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradesix.mp;
43 input gradethree.mp;
44 input gradetwo.mp;
45 input leftrad.mp;
46 input radical.mp;
47 input rare.mp;
48
49 

---

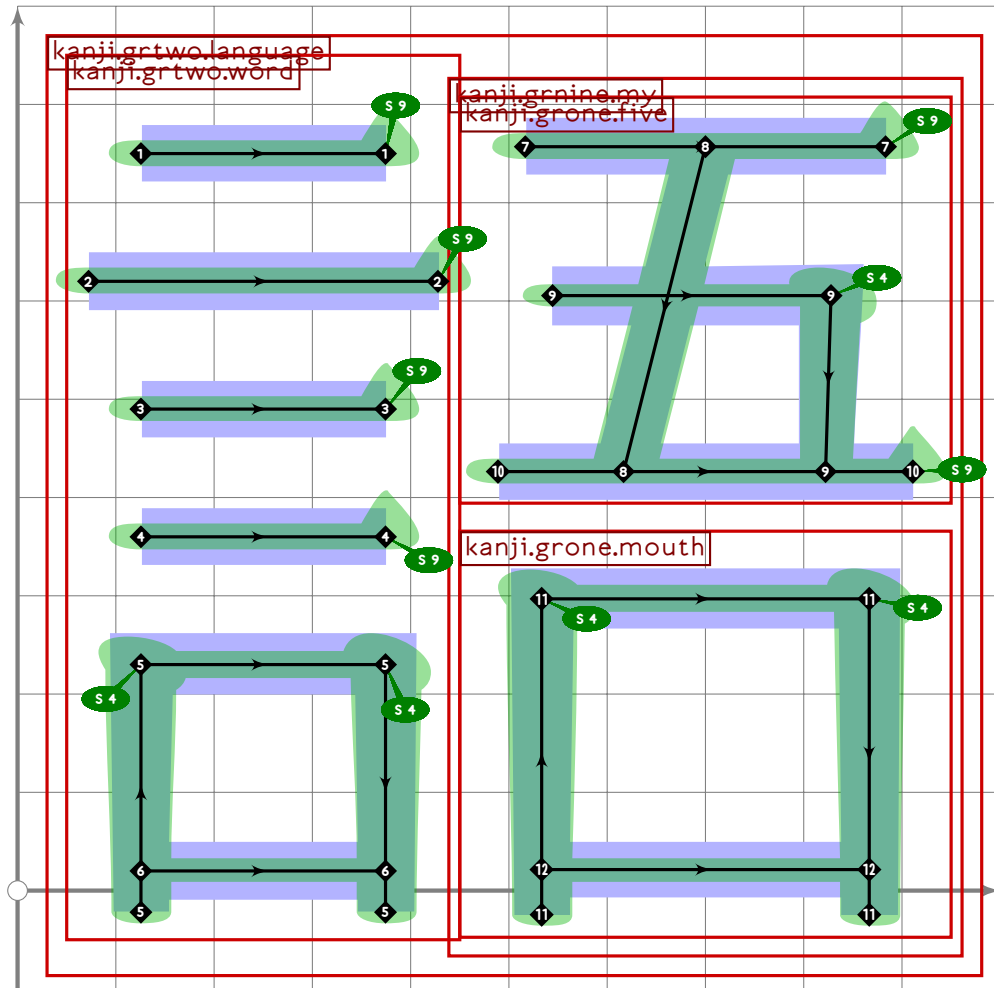

```



```

50
51 vardef kanji.grtwo.account =
52   push_pbox_toexpand("kanji.grtwo.account");
53   build_kanji.level(build_kanji.lr(450,0)
54     (kanji.grtwo.word)
55     (kanji.grsix.self));
56   expand_pbox;
57 enddef;

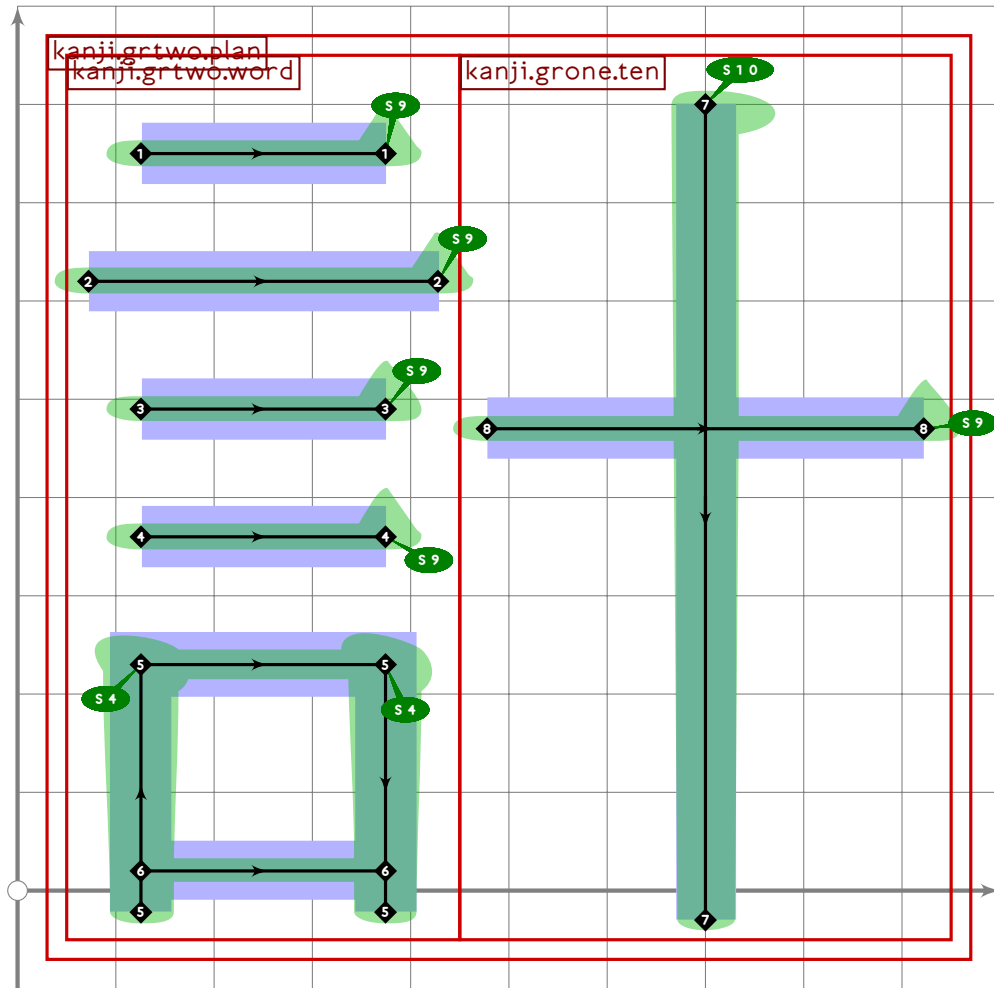
```



```

58
59 vardef kanji.grtwo.language =
60   push_pbox_toexpand("kanji.grtwo.language");
61   build_kanji.level(build_kanji.lr(450,0)
62     (kanji.grtwo.word)
63     (tsu_xform(identity yscaled 0.95)
64       (kanji.grnine.my)));
65   expand_pbox;
66 enddef;

```

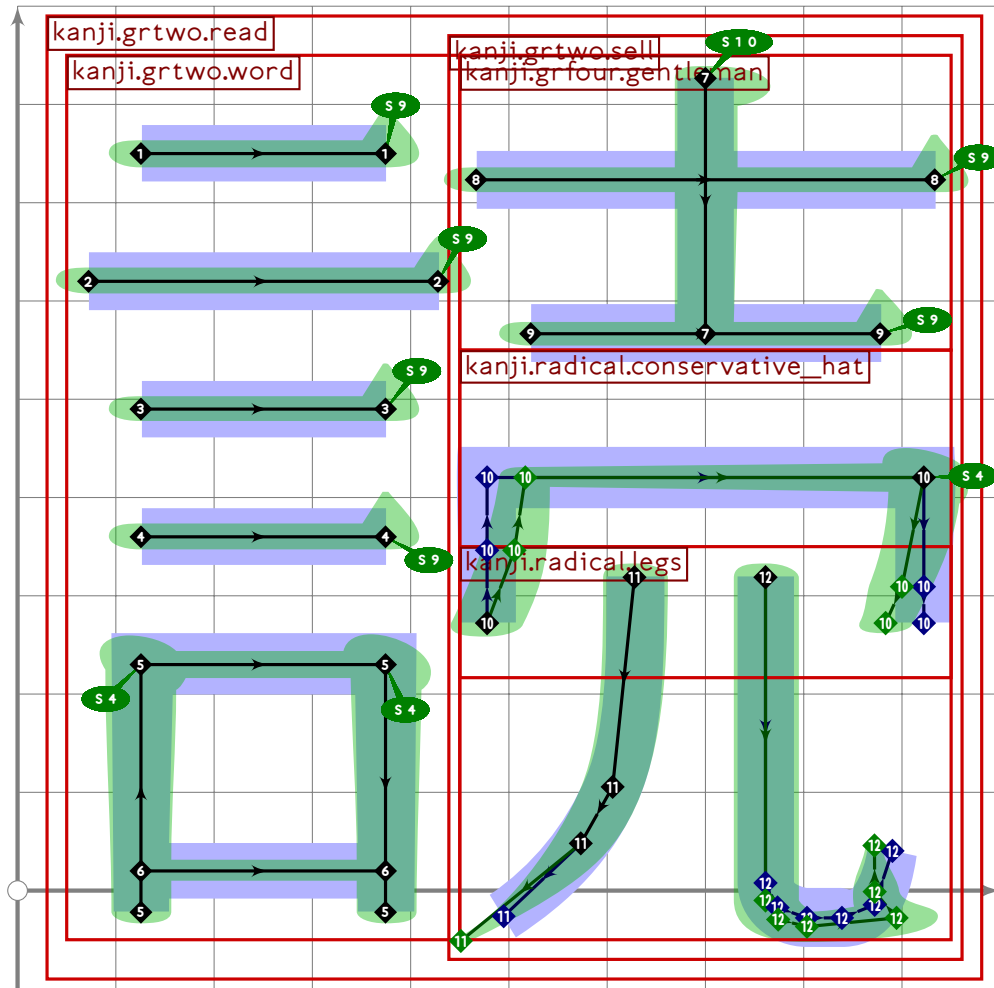


```

67
68 vardef kanji.grtwo.plan =
69   push_pbox_toexpand("kanji.grtwo.plan");
70   build_kanji.level(build_kanji.lr(450,0)
71     (kanji.grtwo.word)
72     (kanji.grone.ten;
73       replace_strokep(0)(oldp shifted (0,70)))));
74   expand_pbox;
75 enddef;

```

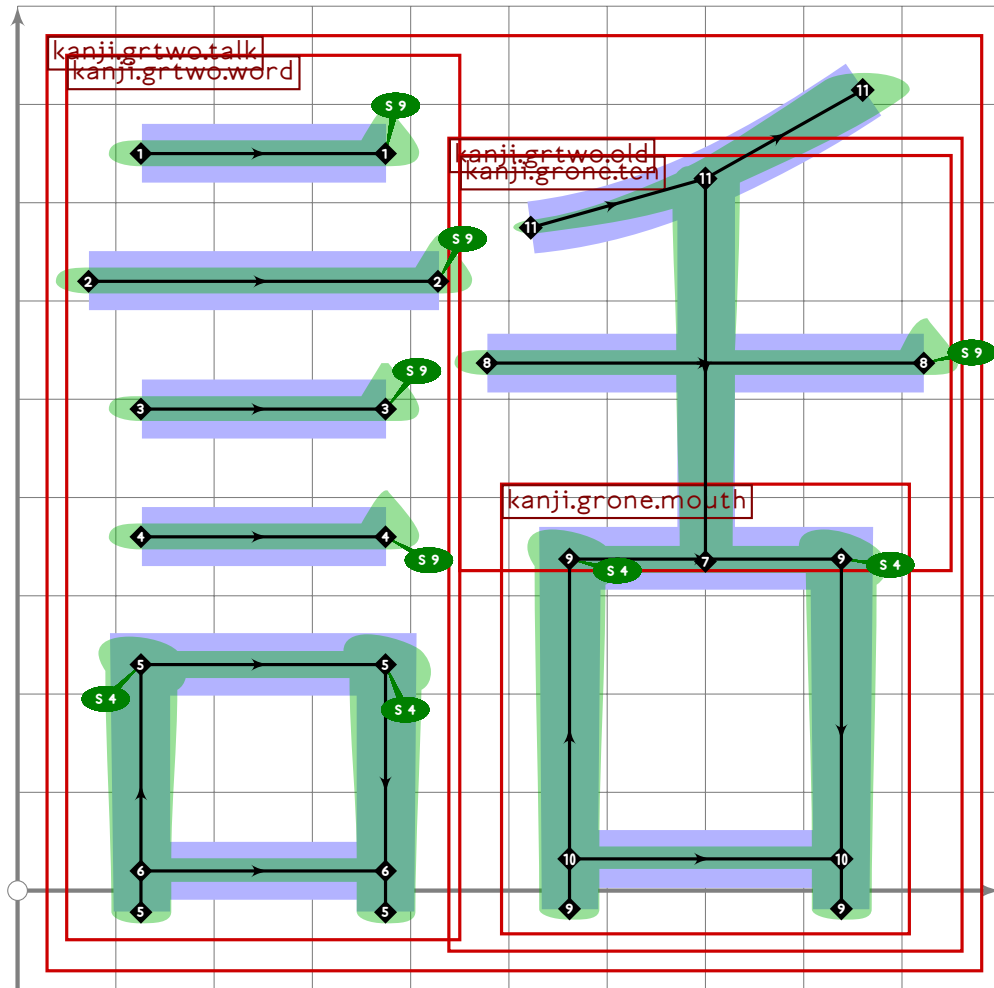




```

76
77 vardef kanji.grtwo.read =
78   push_pbox_toexpand("kanji.grtwo.read");
79   build_kanji.level(build_kanji.lr(450,0)
80     (kanji.grtwo.word)
81     (kanji.grtwo.sell));
82   expand_pbox;
83 enddef;

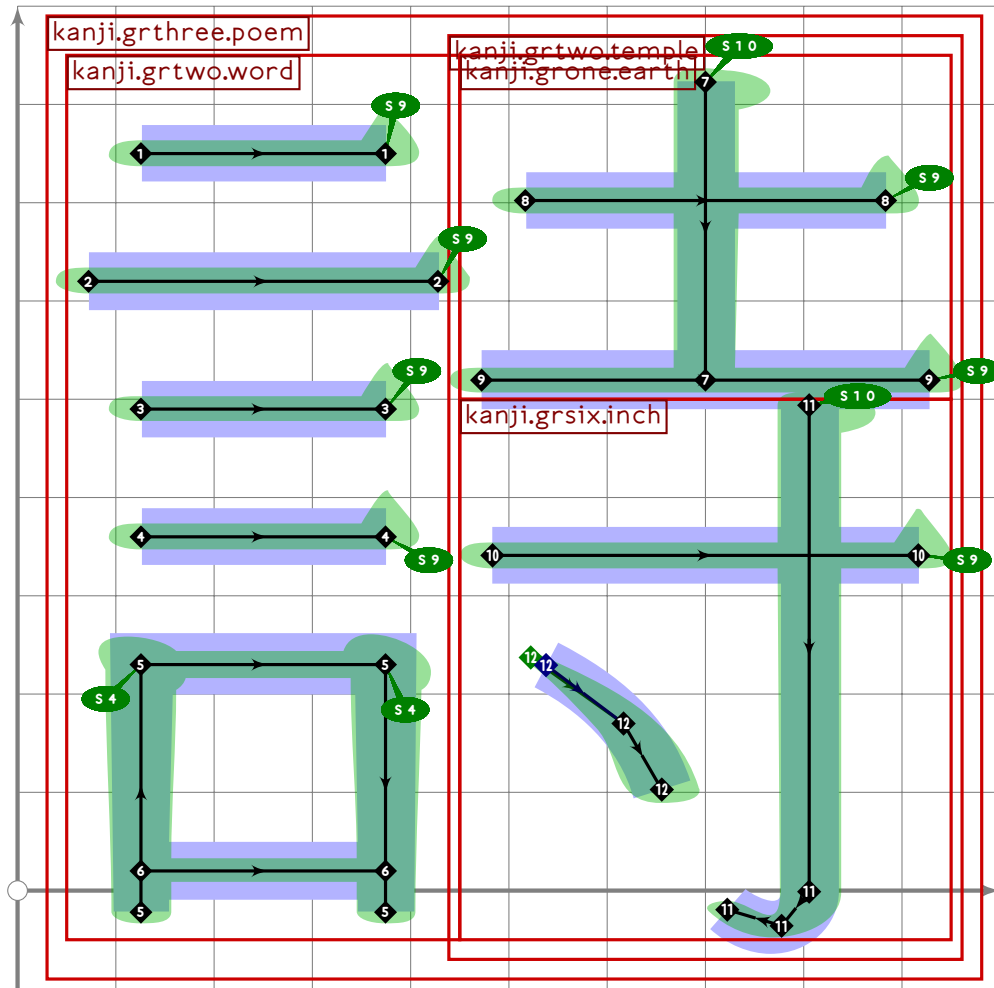
```



```

84
85 vardef kanji.grtwo.talk =
86   push_pbox_toexpand("kanji.grtwo.talk");
87   build_kanji.level(build_kanji.lr(450,0)
88     (kanji.grtwo.word)
89     (build_kanji.add_beret(tsu_xform(identity yscaled 0.88)
90       (kanji.grtwo.old))));
91   expand_pbox;
92 enddef;
93
94

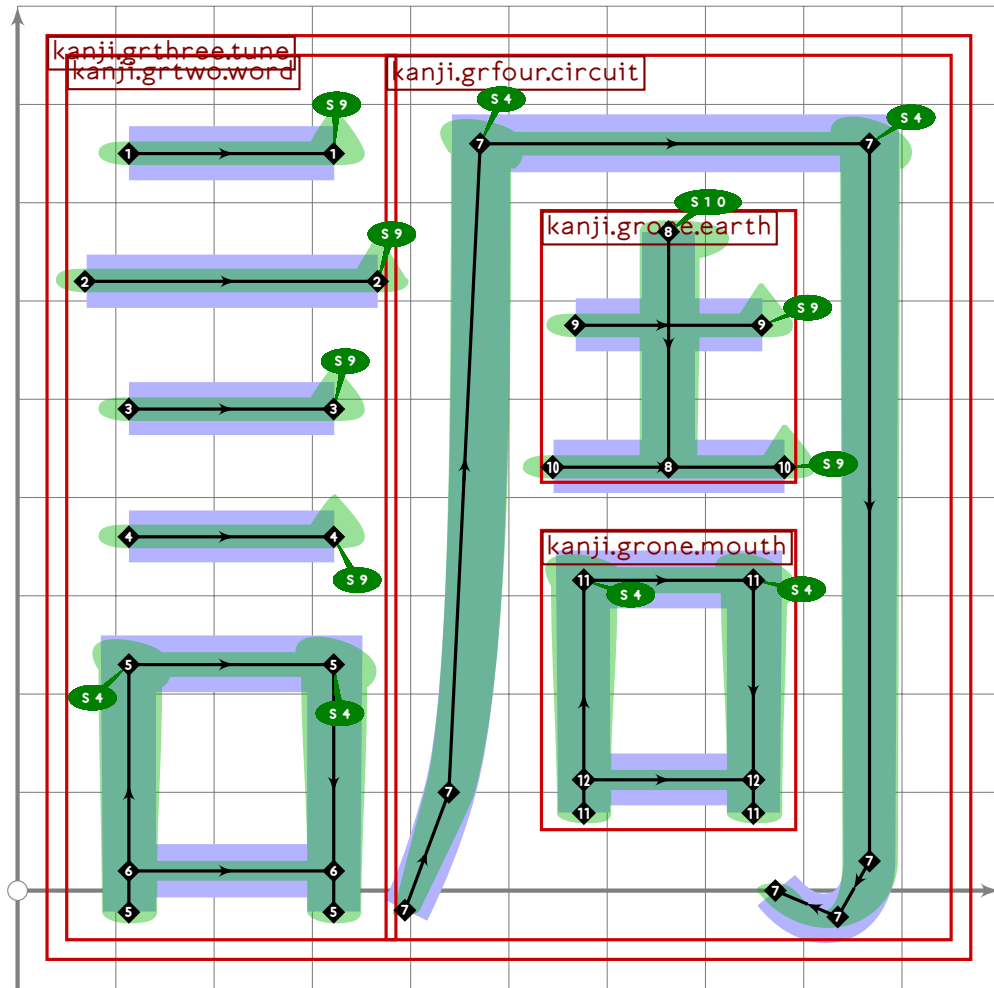
```



```

95
96 vardef kanji.grthree.poem =
97   push_pbox_toexpand("kanji.grthree.poem");
98   build_kanji.level(build_kanji.lr(450,0)
99     (kanji.grtwo.word)
100     (kanji.grtwo.temple));
101   expand_pbox;
102 enddef;

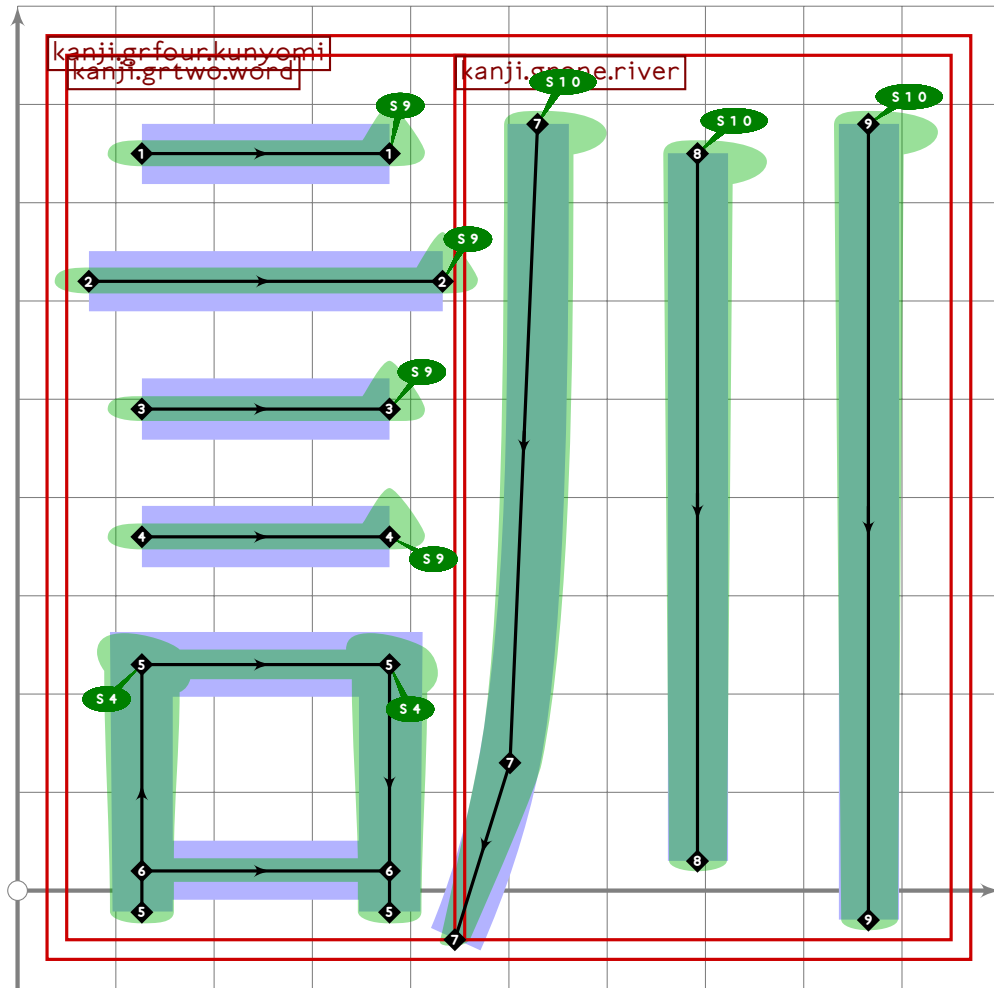
```



```

103
104 vardef kanji.grthree.tune =
105   push_pbox_toexpand("kanji.grthree.tune");
106   build_kanji.level(build_kanji.lr(380,10)
107     (kanji.grtwo.word)
108     (kanji.grfour.circuit));
109   expand_pbox;
110 enddef;
111
112

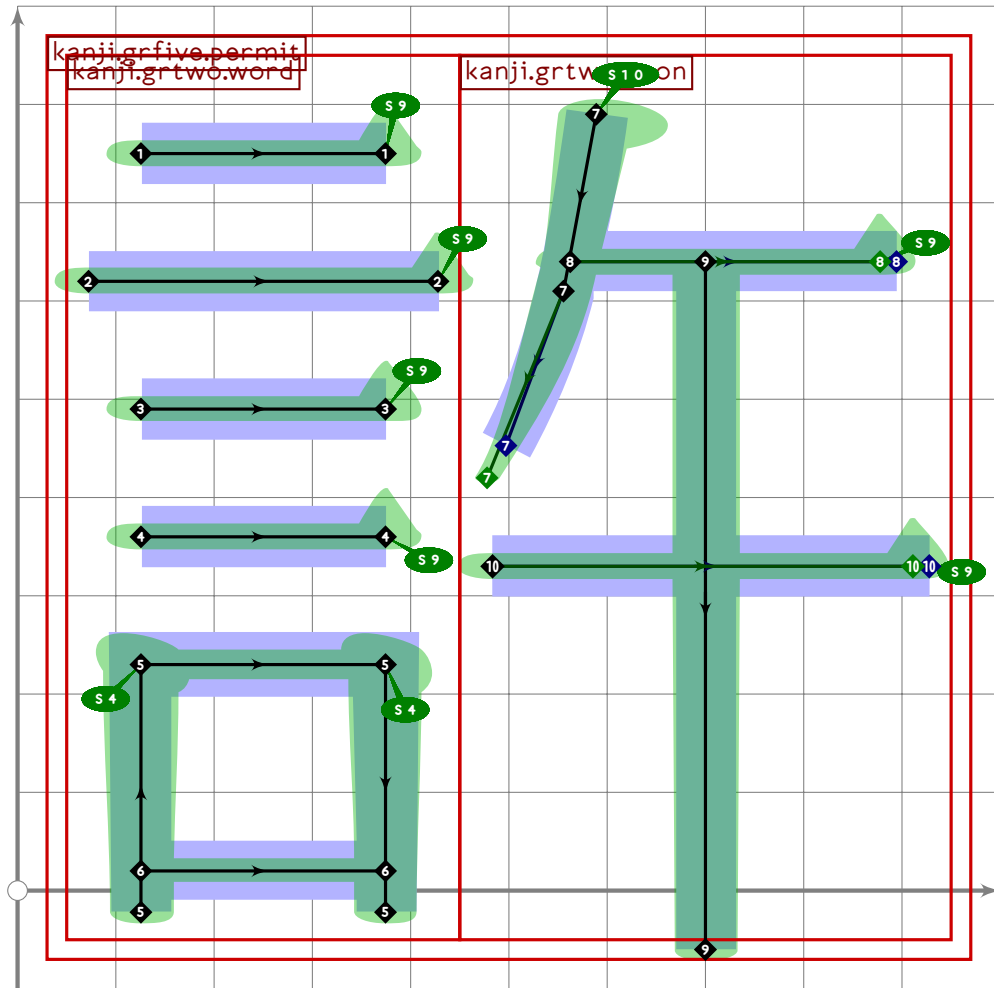
```



```

113
114 vardef kanji.grfour.kunyomi =
115   push_pbox_toexpand("kanji.grfour.kunyomi");
116   build_kanji.level(build_kanji.lr(450,10)
117     (kanji.grtwo.word)
118     (kanji.grone.river));
119   expand_pbox;
120 enddef;
121
122

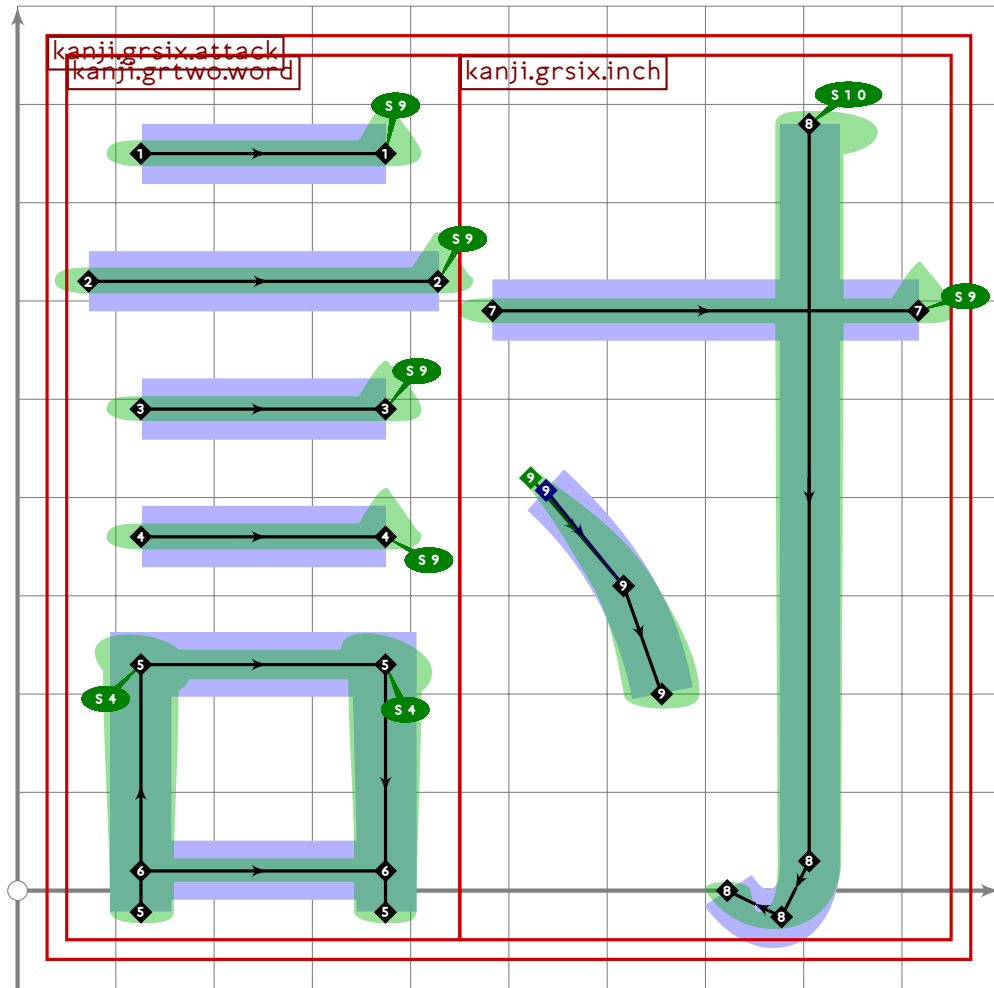
```



```

123
124 vardef kanji.grfive.permit =
125   push_pbox_toexpand("kanji.grfive.permit");
126   build_kanji.level(build_kanji.lr(450,0)
127     (kanji.grtwo.word)
128     (kanji.grtwo.noon));
129   expand_pbox;
130 enddef;
131
132

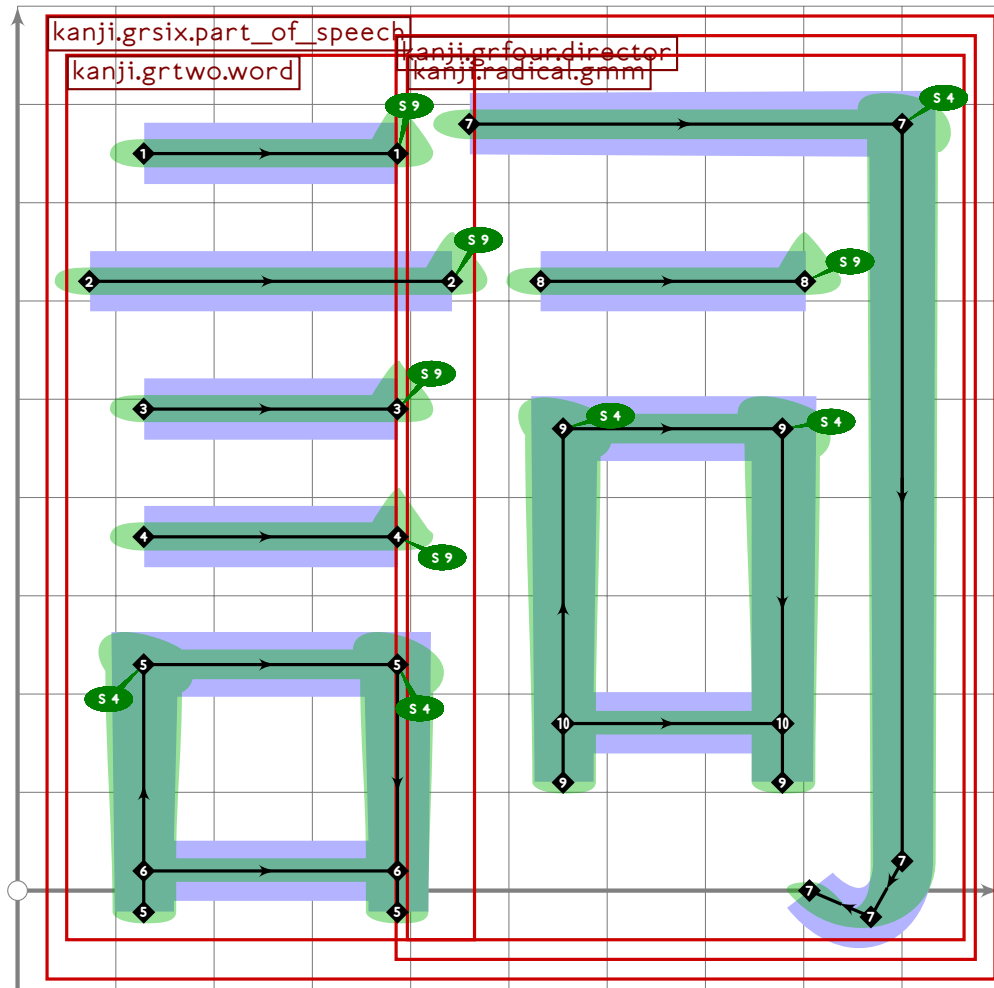
```



```

133
134 vardef kanji.grsix.attack =
135   push_pbox_toexpand("kanji.grsix.attack");
136   build_kanji.level(build_kanji.lr(450,0)
137     (kanji.grtwo.word)
138     (kanji.grsix.inch));
139   expand_pbox;
140 enddef;

```

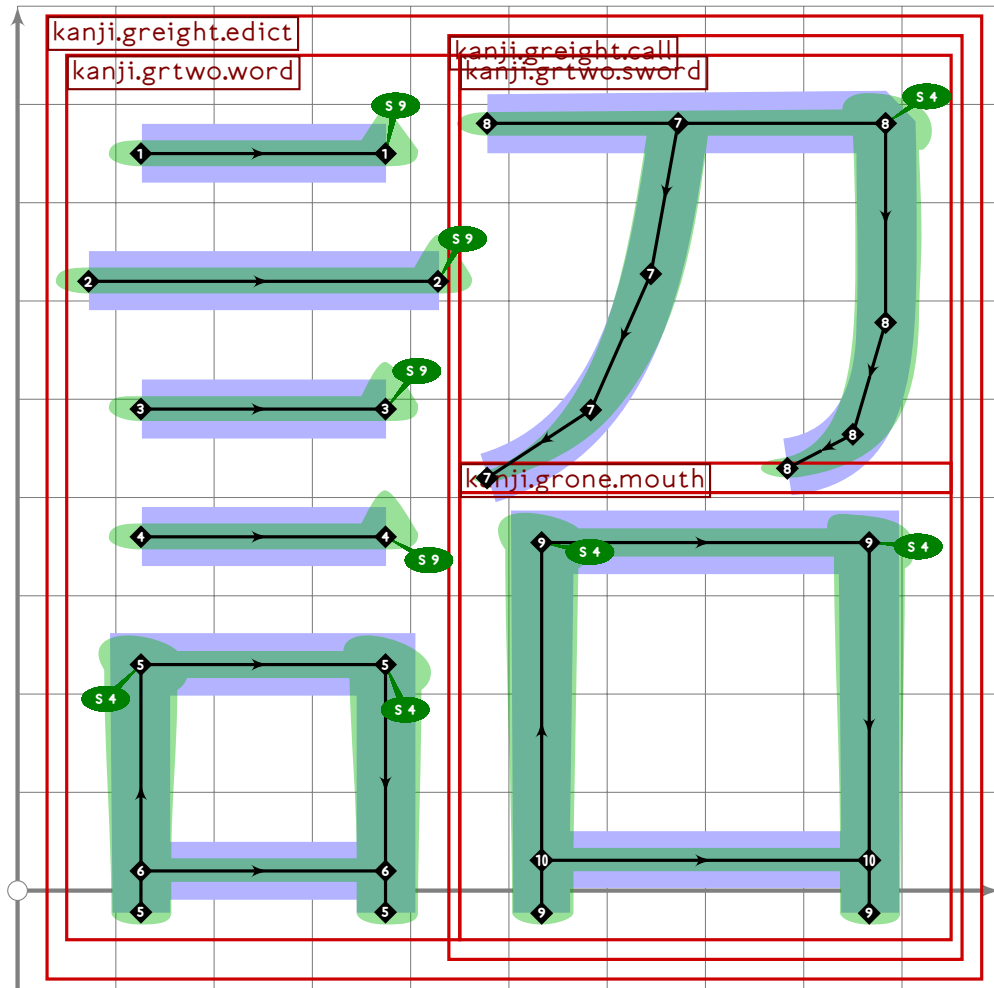


```

141
142 vardef kanji.grsix.part_of_speech =
143   push_pbox_toexpand("kanji.grsix.part_of_speech");
144   build_kanji.level(build_kanji.lr(450,30)
145     (kanji.grtwo.word)
146     (kanji.grfour.director));
147   expand_pbox;
148 enddef;
149
150

```

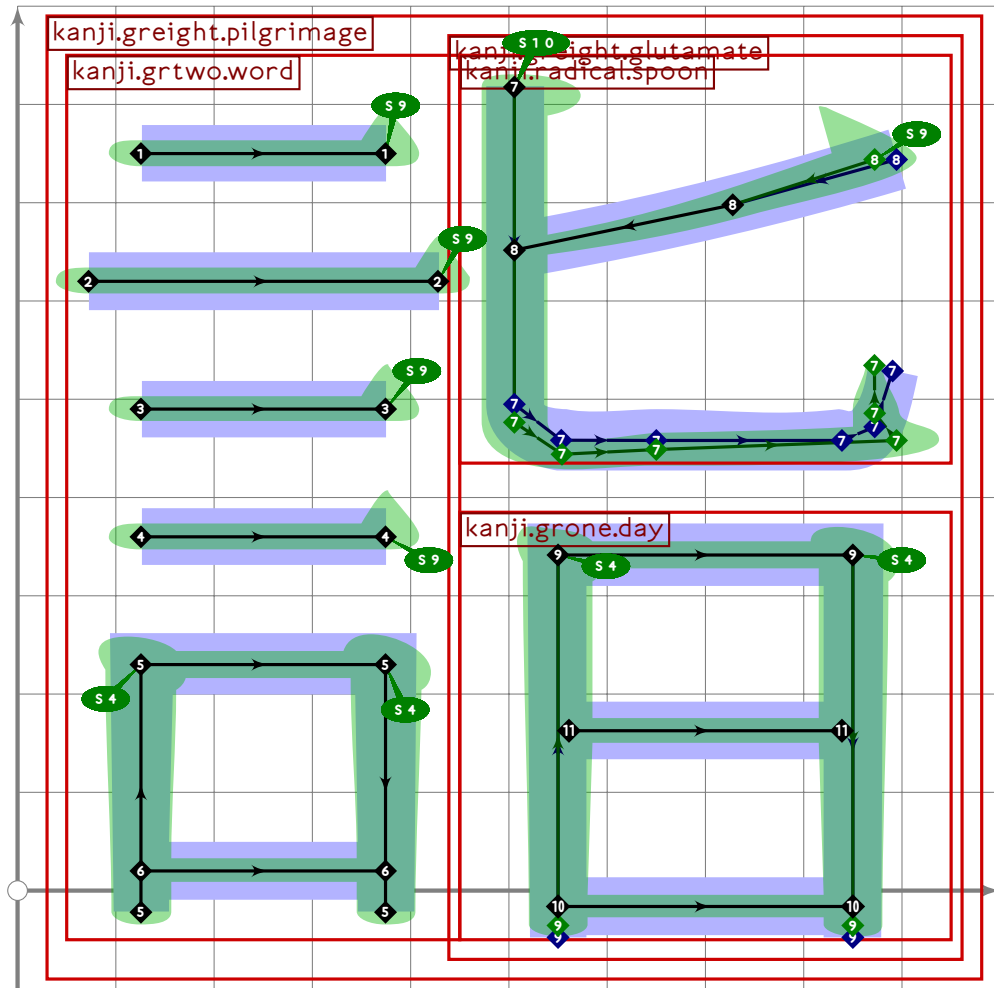




```

151
152 vardef kanji.greight.edict =
153   push_pbox_toexpand("kanji.greight.edict");
154   build_kanji.level(build_kanji.lr(450,0)
155     (kanji.grtwo.word)
156     (kanji.greight.call));
157   expand_pbox;
158 enddef;

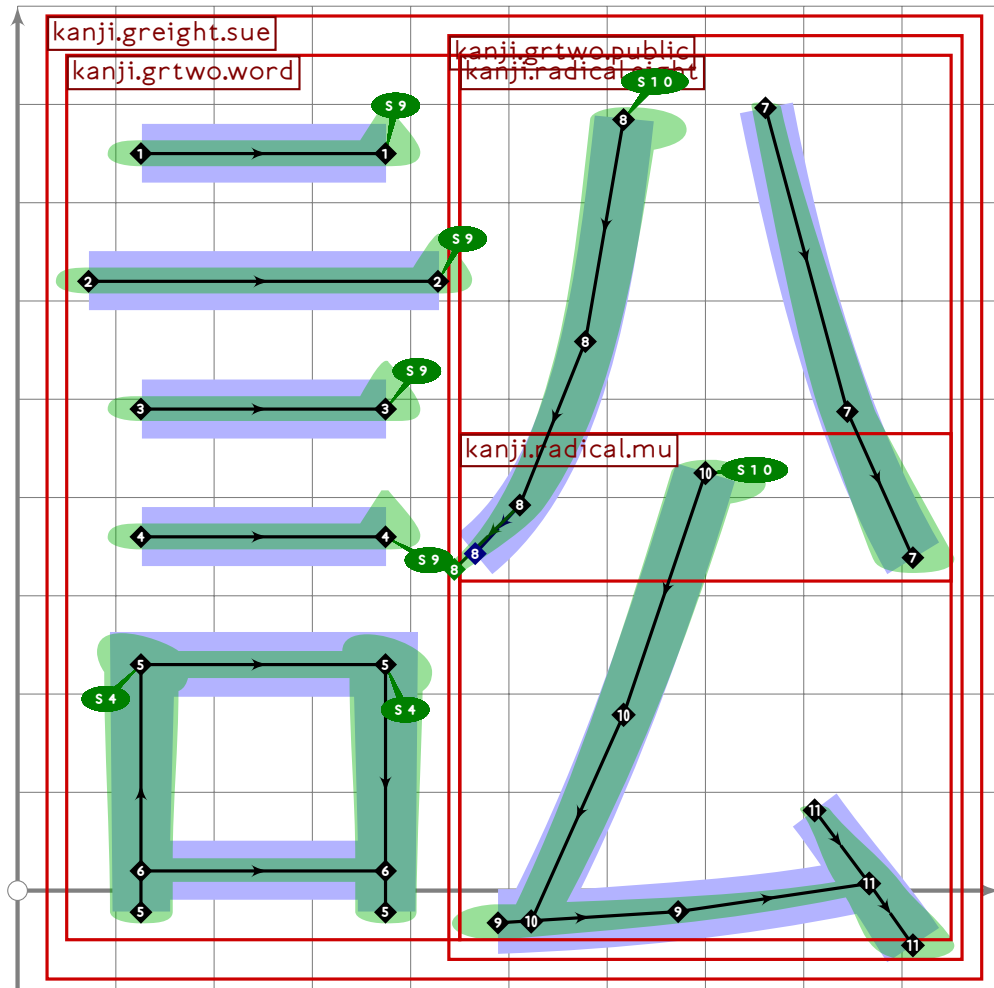
```



```

159
160 vardef kanji.greight.pilgrimage =
161   push_pbox_toexpand("kanji.greight.pilgrimage");
162   build_kanji.level(build_kanji.lr(450,0)
163     (kanji.grtwo.word)
164     (kanji.greight.glutamate));
165   expand_pbox;
166 enddef;
167
168 vardef kanji.greight.revise =
169   push_pbox_toexpand("kanji.greight.revise");
170   build_kanji.level(build_kanji.lr(450,0)
171     (kanji.grtwo.word)
172     (kanji.grthree.thumbtack));
173   expand_pbox;
174 enddef;

```

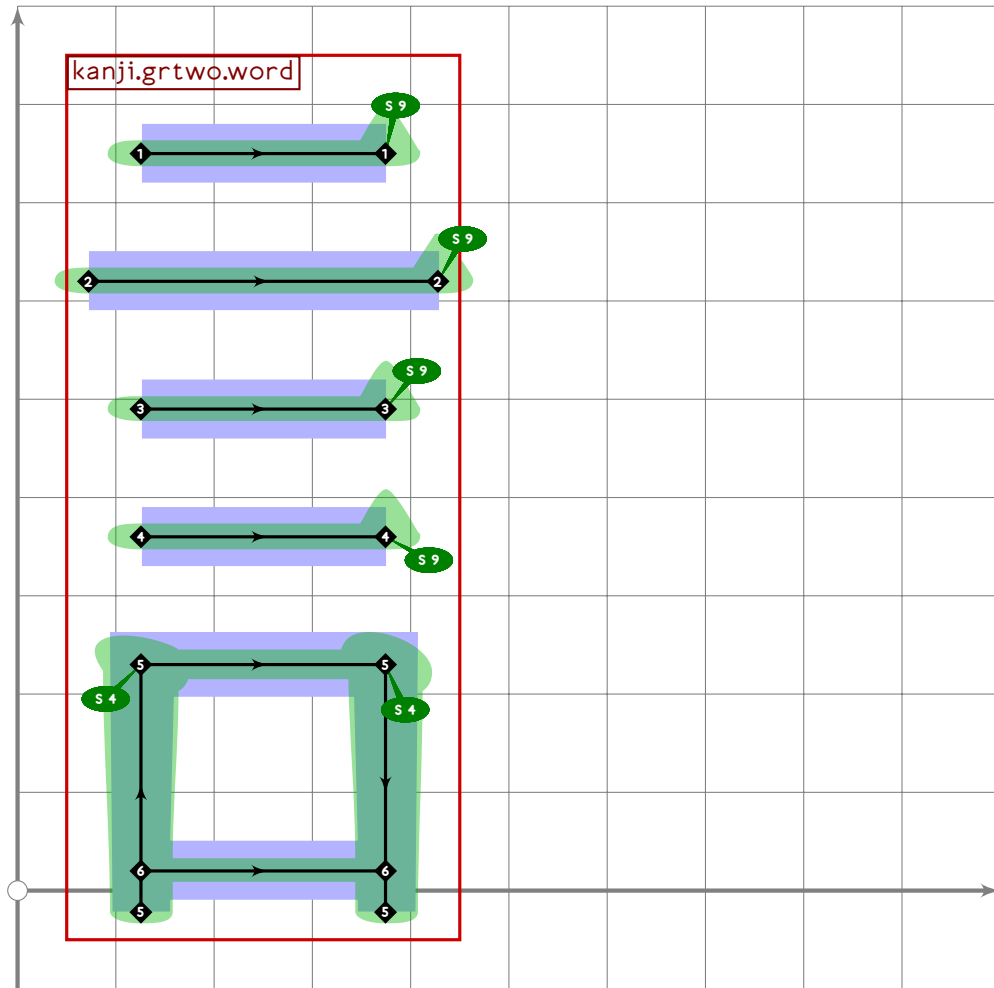


```

175
176 vardef kanji.greight.sue =
177   push_pbox_toexpand("kanji.greight.sue");
178   build_kanji.level(build_kanji.lr(450,0)
179     (kanji.grtwo.word)
180     (kanji.grtwo.public));
181   expand_pbox;
182 enddef;
183
184
185
186 % gen/i "word"
187 begint Suglyph("uni8A00";0);
188   kanji.grtwo.word;
189   tsu_render;
190 endtsuglyph;
191

```

[see page 506]

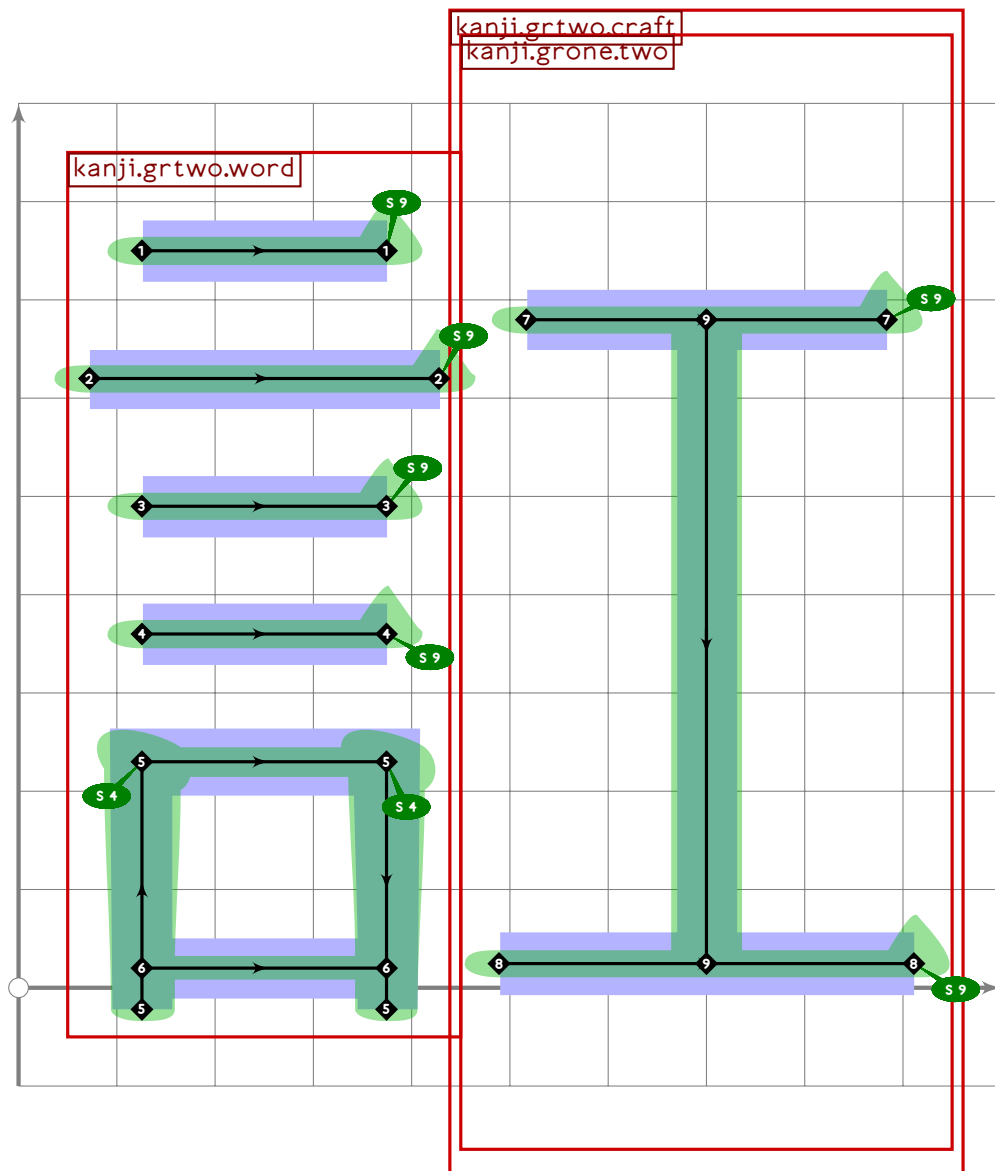


```

192 % extra (word left radical)
193 begintsuglyph("uni8A01";1);
194 build_kanji.lr(450,0)
195   (kanji.grtwo.word)
196   ();
197   tsu_render;
198 endsuglyph;
199
200 % kei/haka "plan"
201 begintsuglyph("uni8A08";8);
202   kanji.grtwo.plan;
203   tsu_render;
204 endsuglyph;
205

```

[see page 2100]



```

206 % extra: kou "become confused"
207 begintsuglyph("uni8A0C";12);
208 build_kanji.level(build_kanji.lr(450,0)
209 (kanji.grtwo.word)
210 (build_kanji.sscale(yscaled 1.26)(kanji.grtwo.craft)));
211 tsu_render;
212 endtsuglyph;
213
214 % tou/u "attack"
215 begintsuglyph("uni8A0E";14);
216 kanji.grsix.attack;
217 tsu_render;
218 endtsuglyph;
219
220 % kun "native Japanese kanji pronunciation"
221 % of course "kun" is the "on" reading of this kanji, don't be silly

```

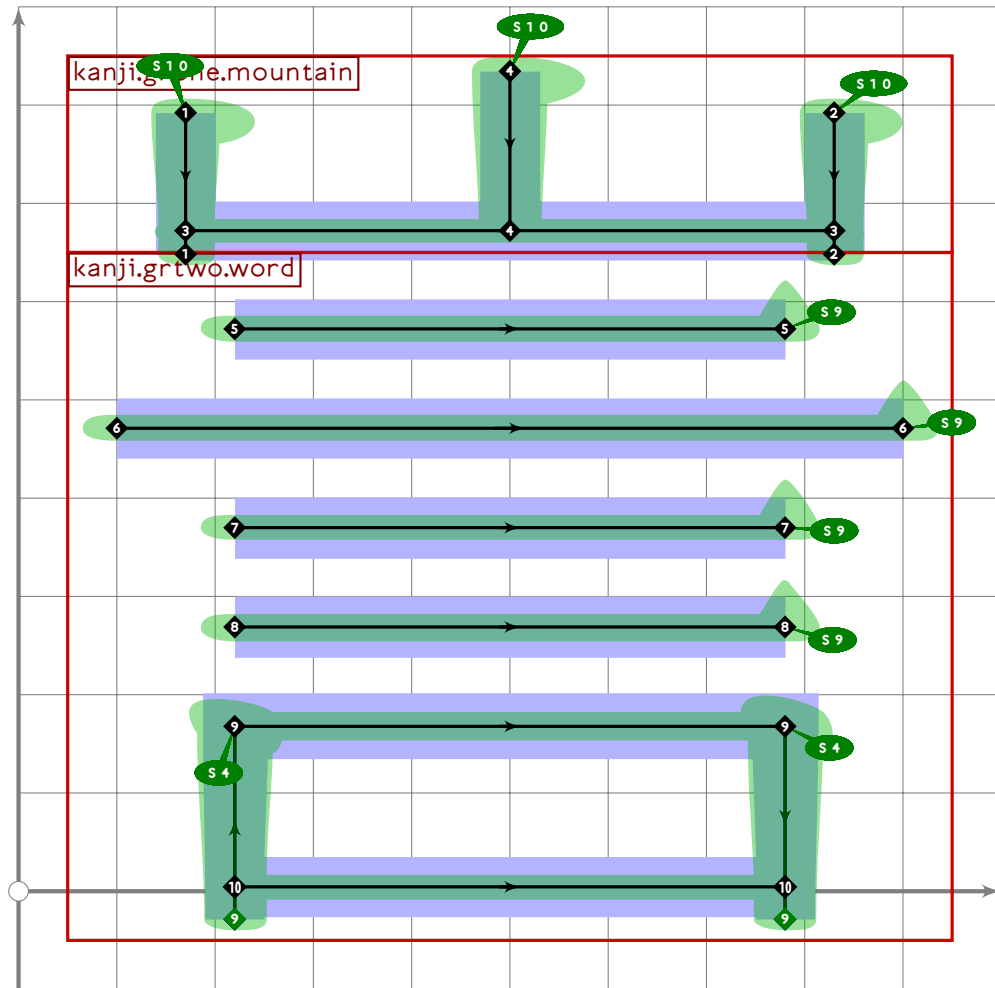
[see page 2107]

```

222 begint Suglyph("uni8A13";19);
223 kanji.grfour.kunyomi;
224 tsu_render;
225 endtsuglyph;
226

```

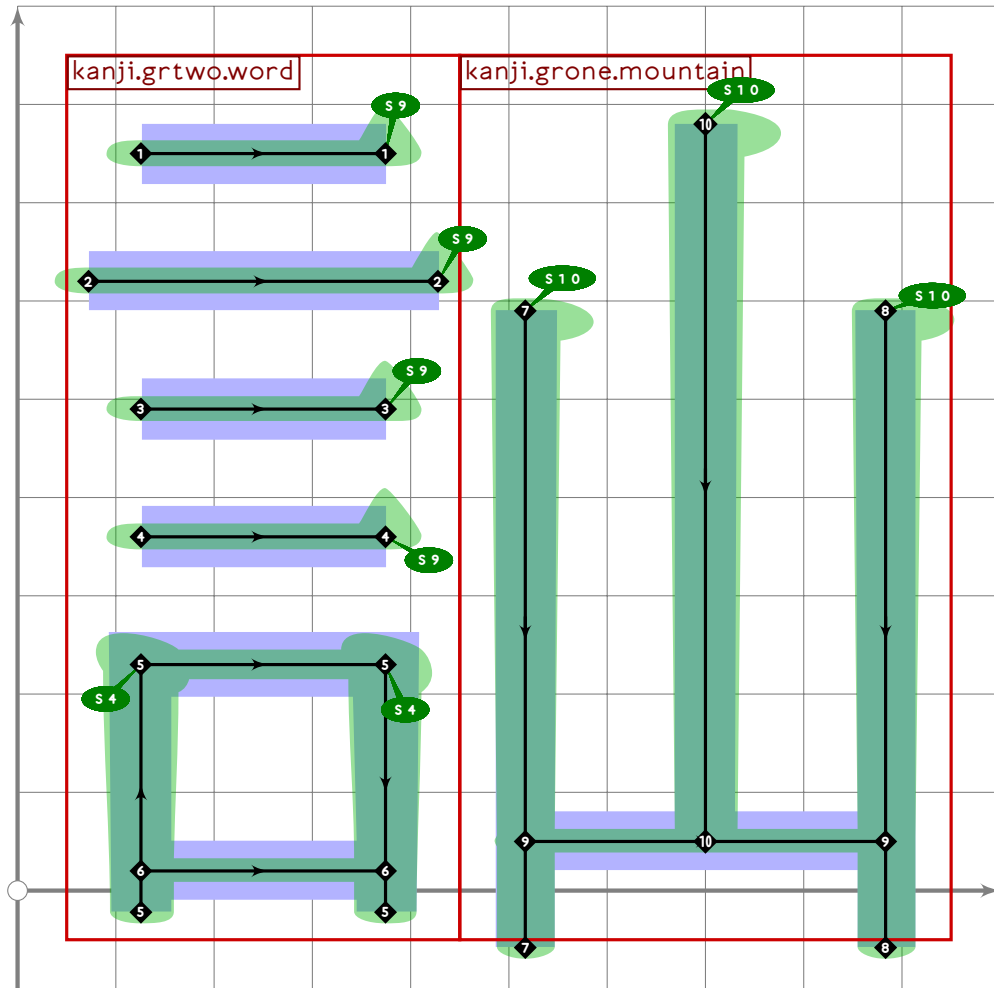
[see page 2105]



```

227 % extra
228 begint Suglyph("uni8A14";20);
229 build_kanji.level(build_kanji.tb(650,0)
230   (kanji.grone.mountain)
231   (kanji.grtwo.word));
232 tsu_render;
233 endtsuglyph;
234

```

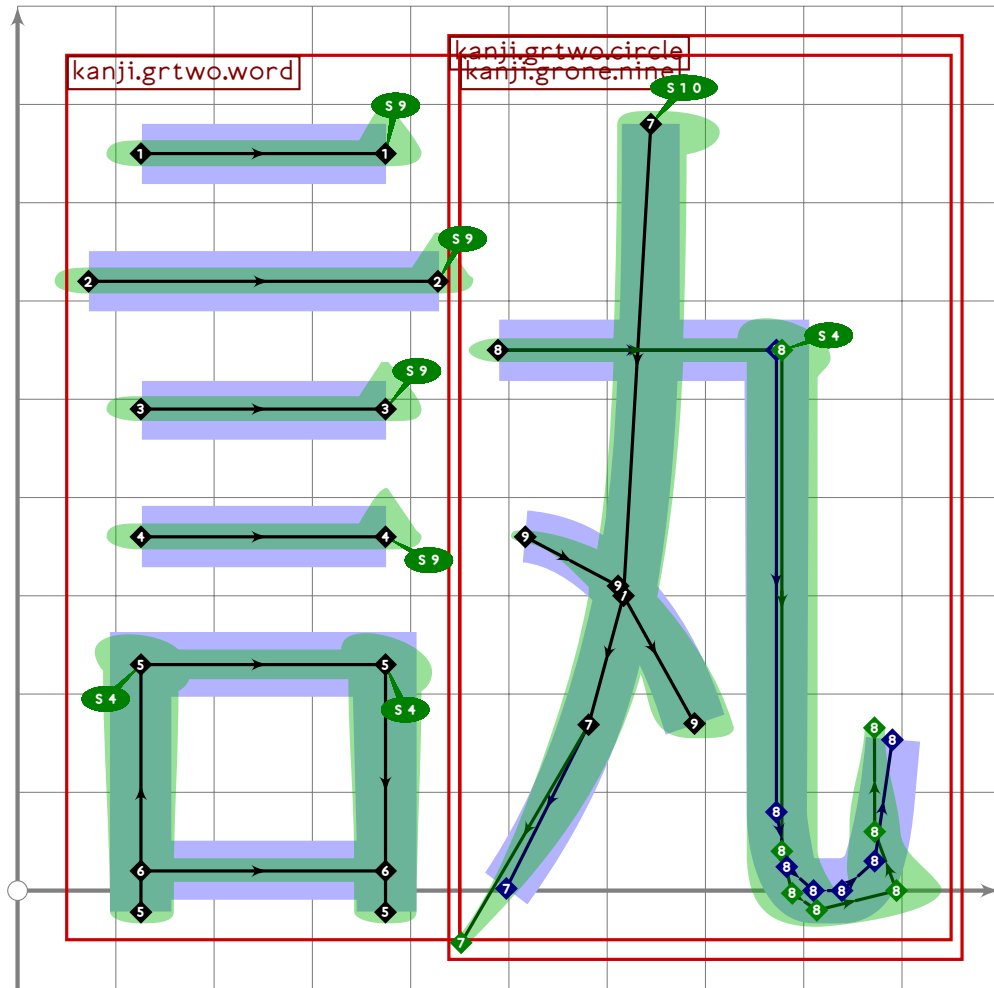


```

235 % extra
236 begintsuglyph("uni8A15";21);
237 build_kanji.level(build_kanji.lr(450,0)
238   (kanji.grtwo.word)
239   (kanji.grone.mountain));
240 tsu_render;
241 endsuglyph;
242
243 % ki/shiru "account"
244 begintsuglyph("uni8A18";24);
245 kanji.grtwo.account;
246 tsu_render;
247 endsuglyph;
248

```

[see page 2098]

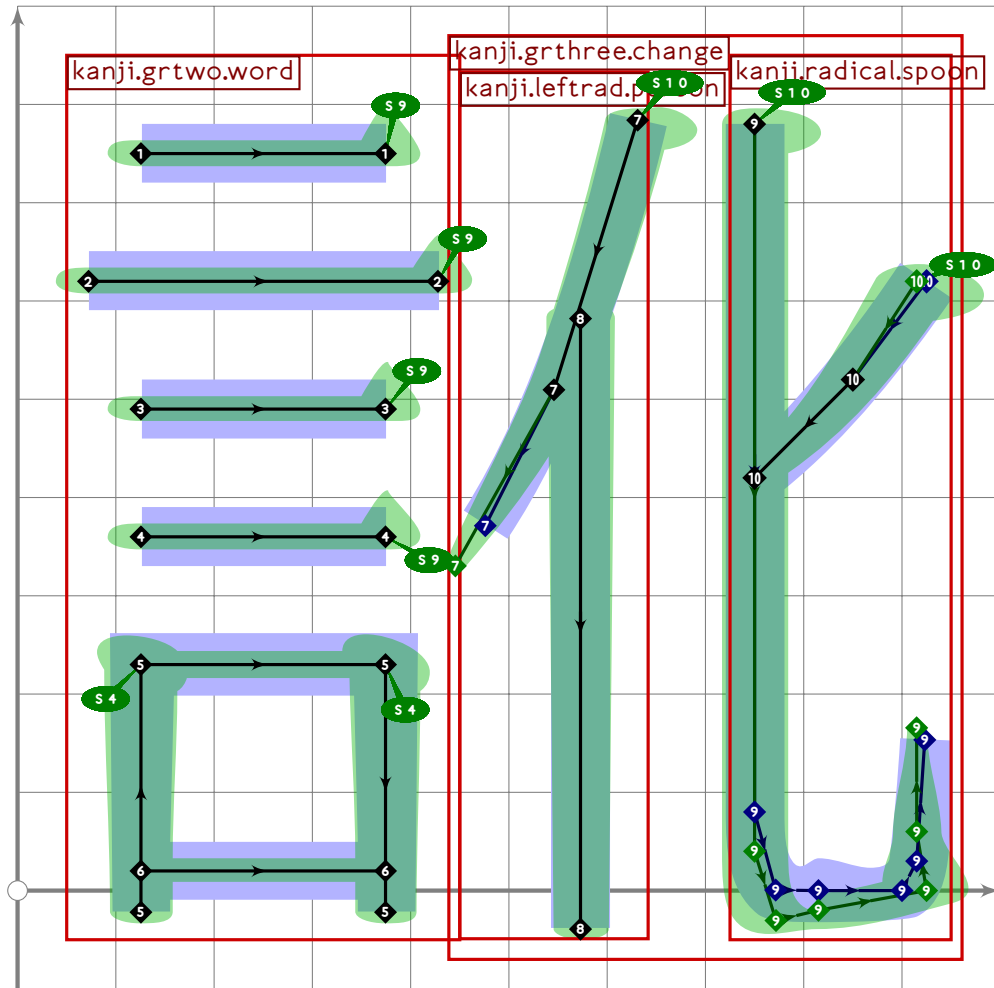


```

249 % extra
250 begintsuglyph("uni8A19",25);
251 build_kanji.level(build_kanji.lr(450,0)
252   (kanji.grtwo.word)
253   (kanji.grtwo.circle));
254 tsu_render;
255 endtsuglyph;
256

```

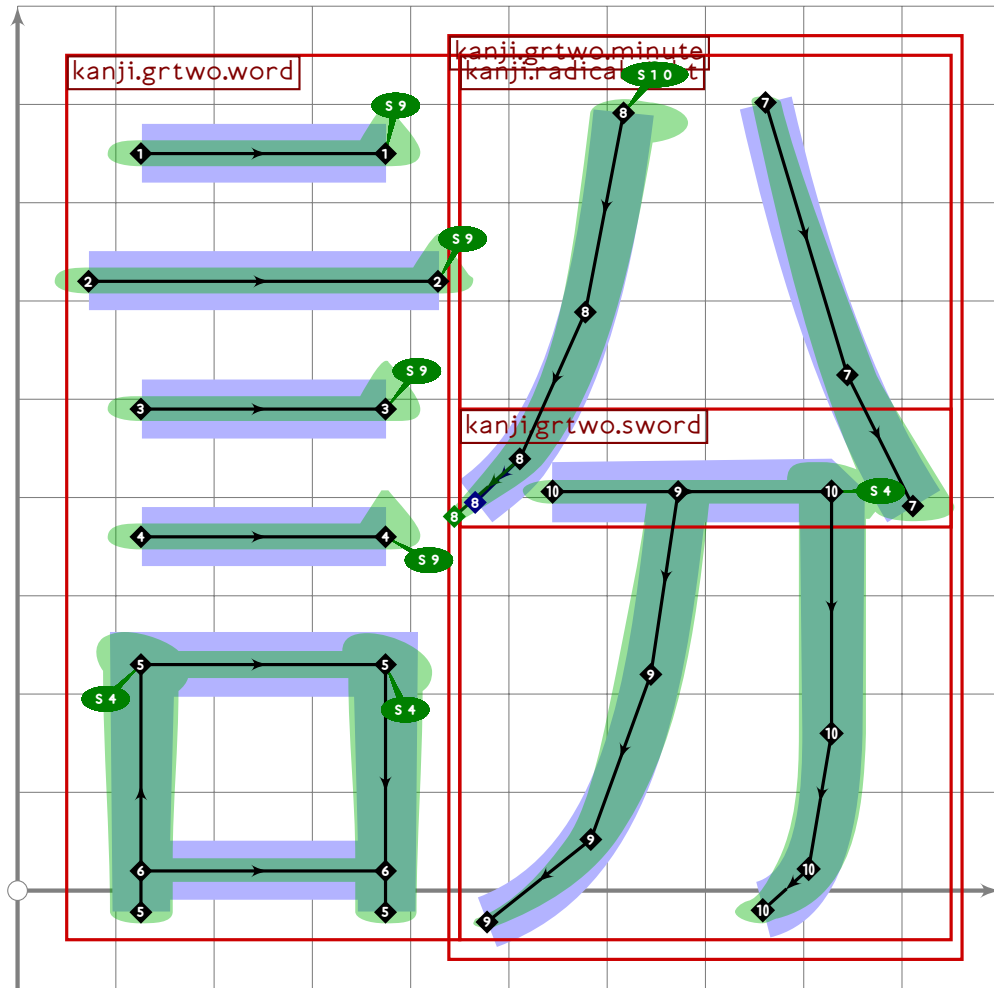




```

257 % ka/nama "accent (speech)"
258 begintsuglyph("uni8A1B",27);
259 build_kanji.level(build_kanji.lr(450,0)
260   (kanji.grtwo.word)
261   (kanji.grthree.change));
262 tsu_render;
263 endsuglyph;
264

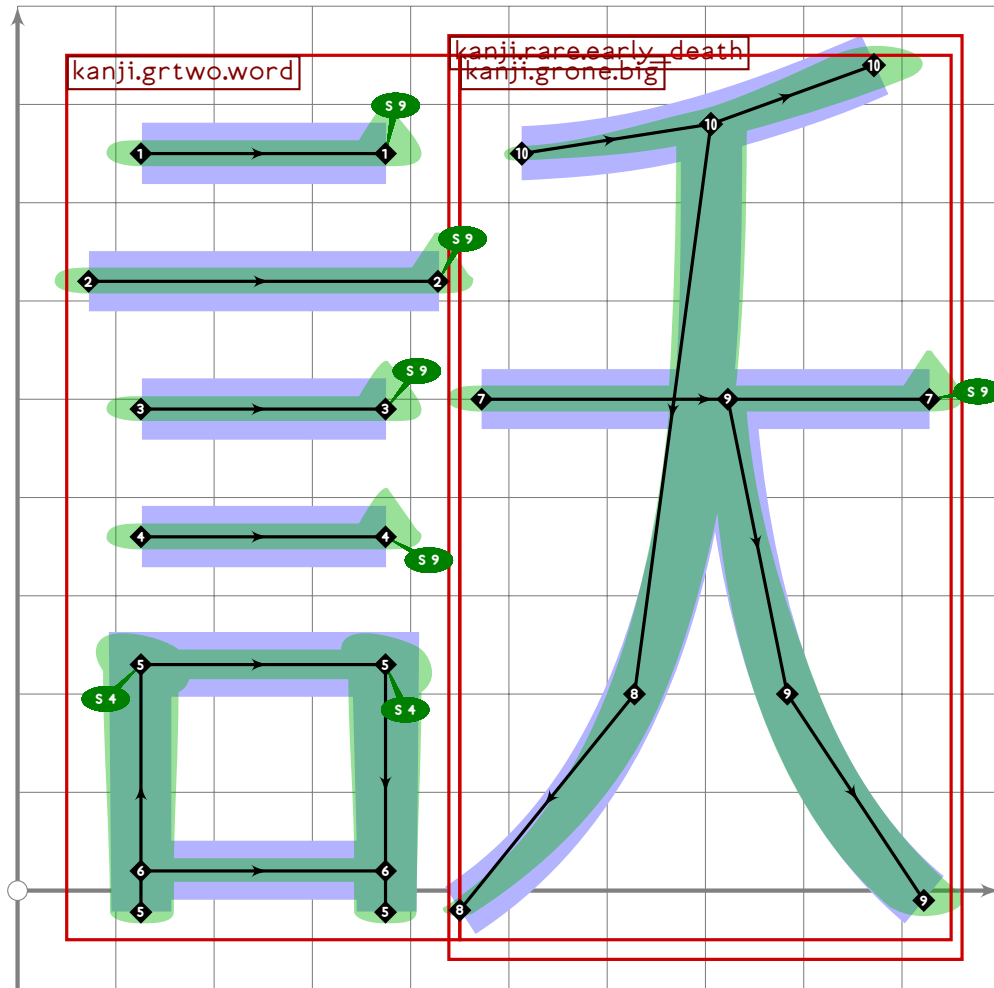
```



```

265 % extra
266 begint Suglyph("uni8A1C";28);
267 build_kanji.level(build_kanji.lr(450,0)
268 (kanji.grtwo.word)
269 (kanji.grtwo.minute));
270 tsu_render;
271 endsuglyph;
272

```

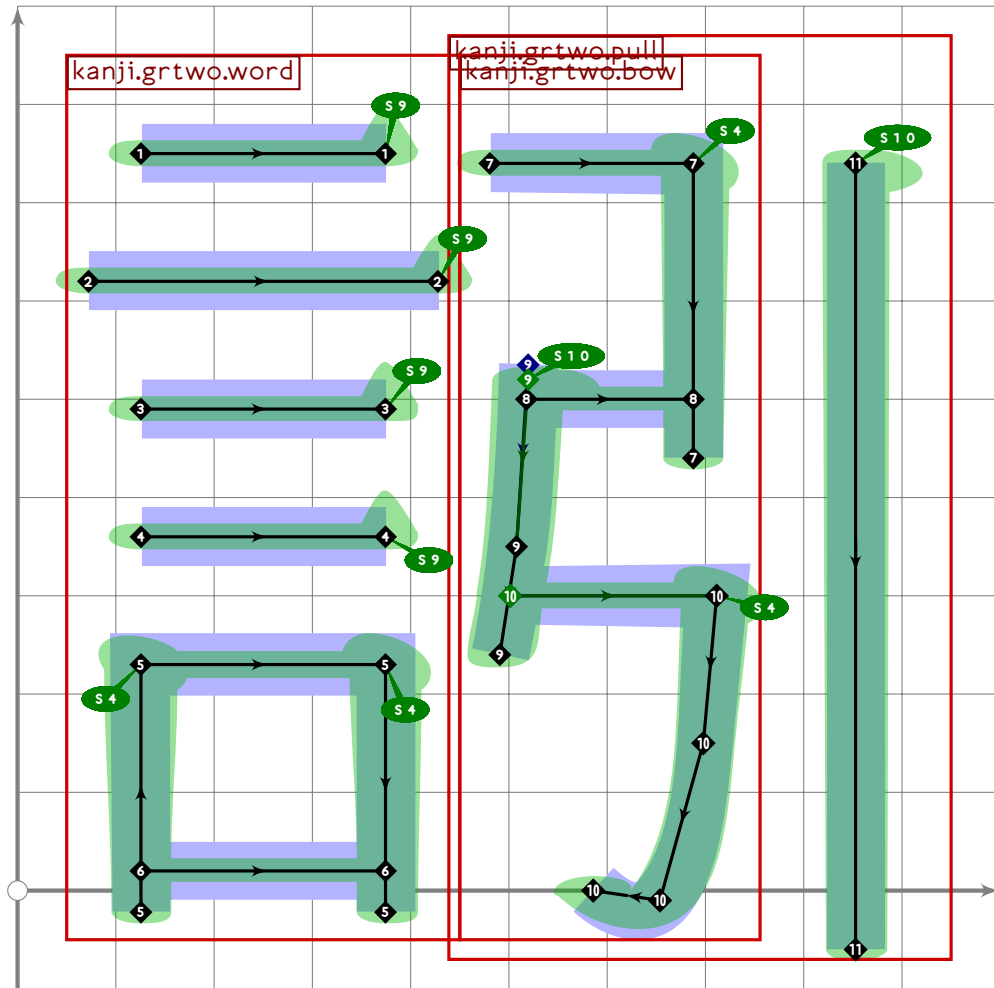


```

273 % extra
274 begintsuglyph("uni8A1E";30);
275 build_kanji.level(build_kanji.lr(450,0)
276   (kanji.grtwo.word)
277   (kanji.rare.early_death));
278 tsu_render;
279 endsuglyph;
280
281 % shou "sue"
282 begintsuglyph("uni8A1F";31);
283 kanji.greight.sue;
284 tsu_render;
285 endsuglyph;
286

```

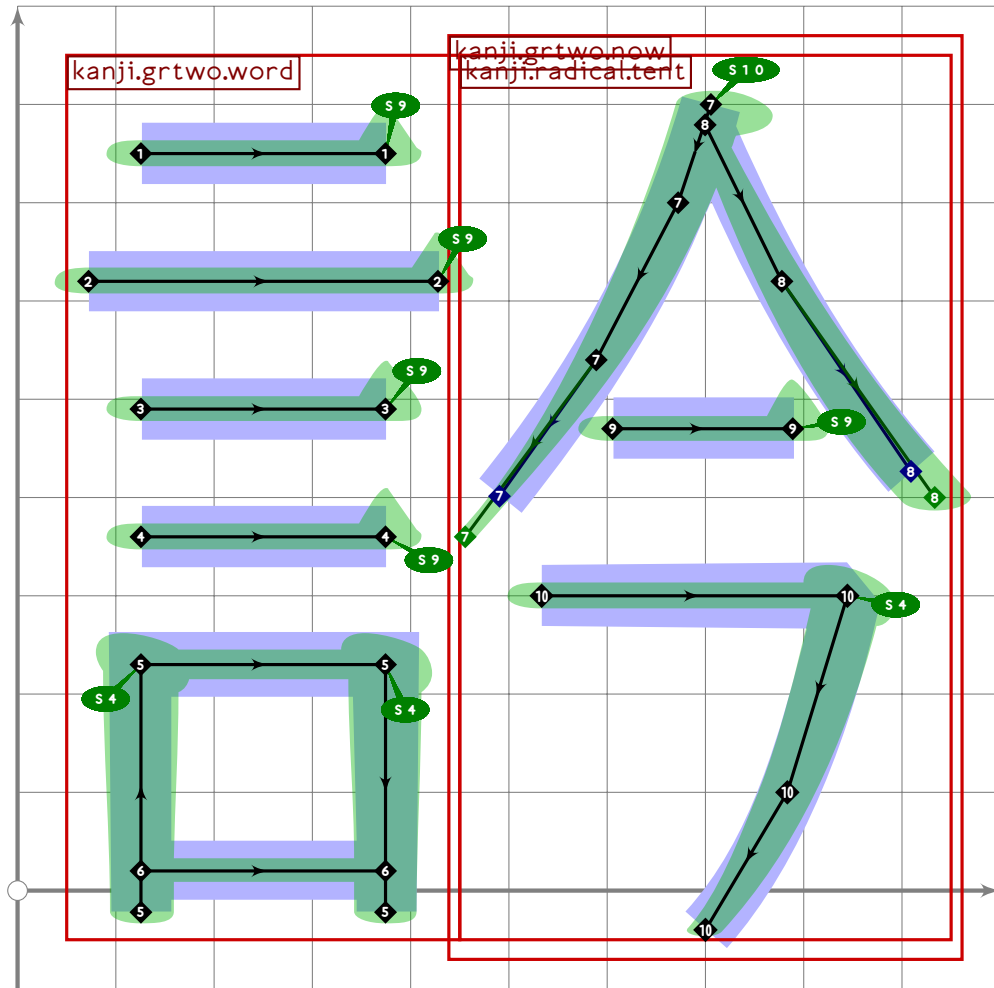
[see page 2111]



```

287 % extra
288 begint Suglyph("uni8A20",32);
289   build_kanji.level(build_kanji.lr(450,0)
290     (kanji.grtwo.word)
291     (kanji.grtwo.pull));
292   tsu_render;
293   endtsuglyph;
294

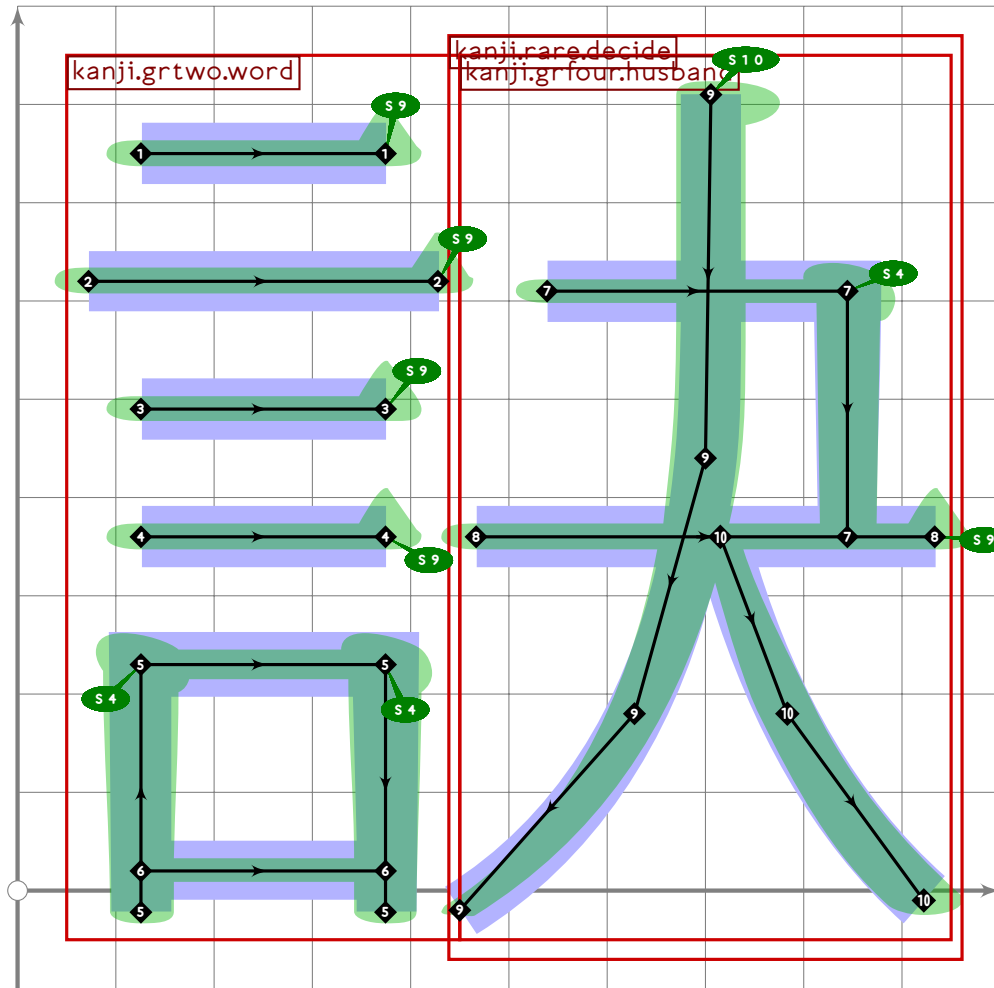
```



```

295 % extra
296 begint Suglyph("uni8A21";33);
297 build_kanji.level(build_kanji.lr(450,0)
298   (kanji.grtwo.word)
299   (kanji.grtwo.now));
300 tsu_render;
301 endtsuglyph;
302

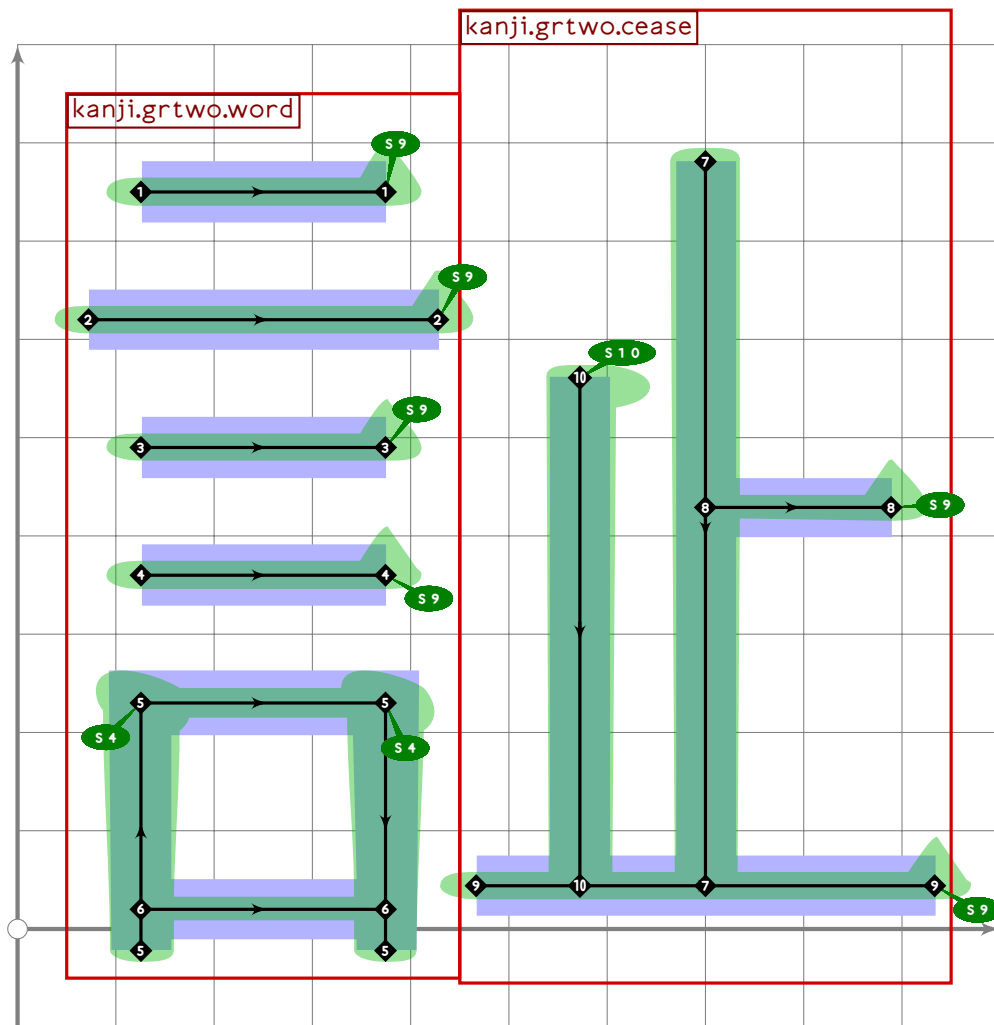
```



```

303 % extra: separation
304 begint Suglyph("uni8A23",35);
305 build_kanji.level(build_kanji.lr(450,0)
306   (kanji.grtwo.word)
307   (kanji.rare.decide));
308 tsu_render;
309 endtsuglyph;
310

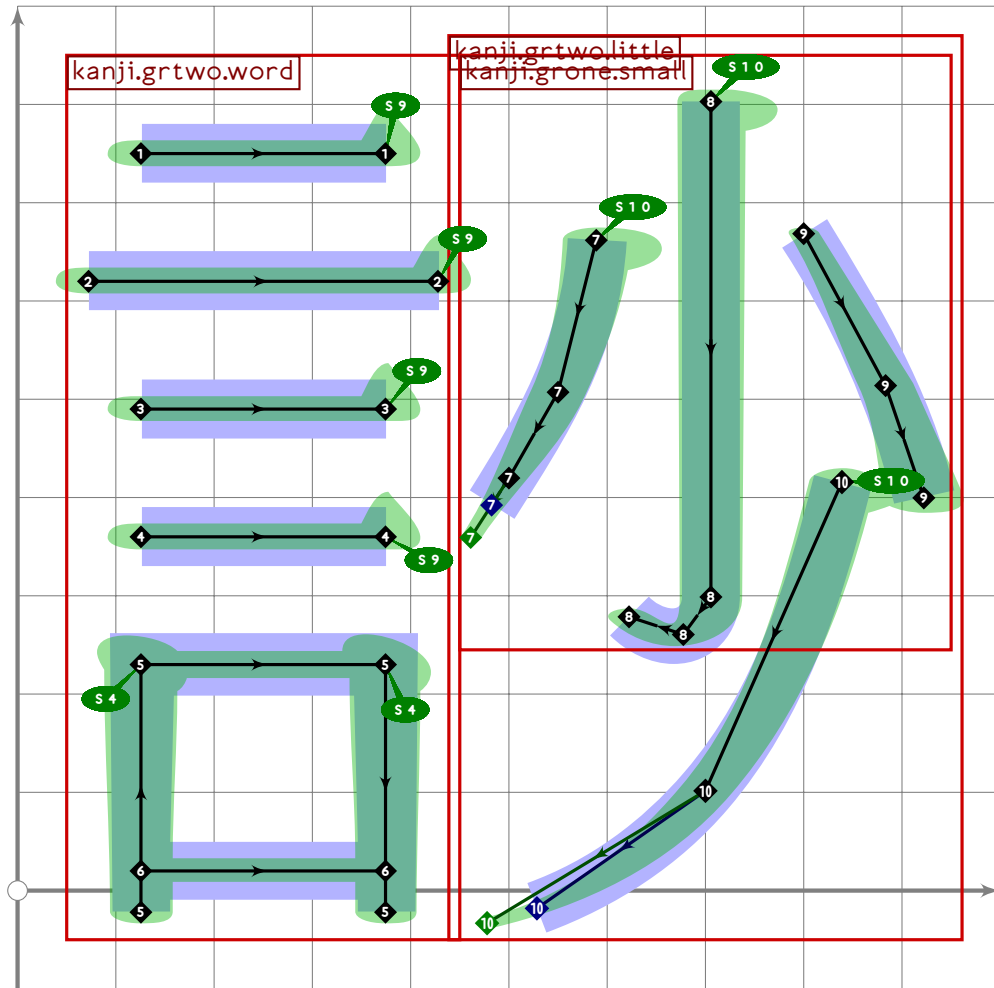
```



```

311 % extra
312 begintsuglyph("uni8A28"40);
313 build_kanji.level(build_kanji.lr(450,0)
314   (kanji.grtwo.word)
315   (tsu_xform(identity yscaled 1.1)(kanji.grtwo.cease)));
316 tsu_render;
317 endsuglyph;
318

```



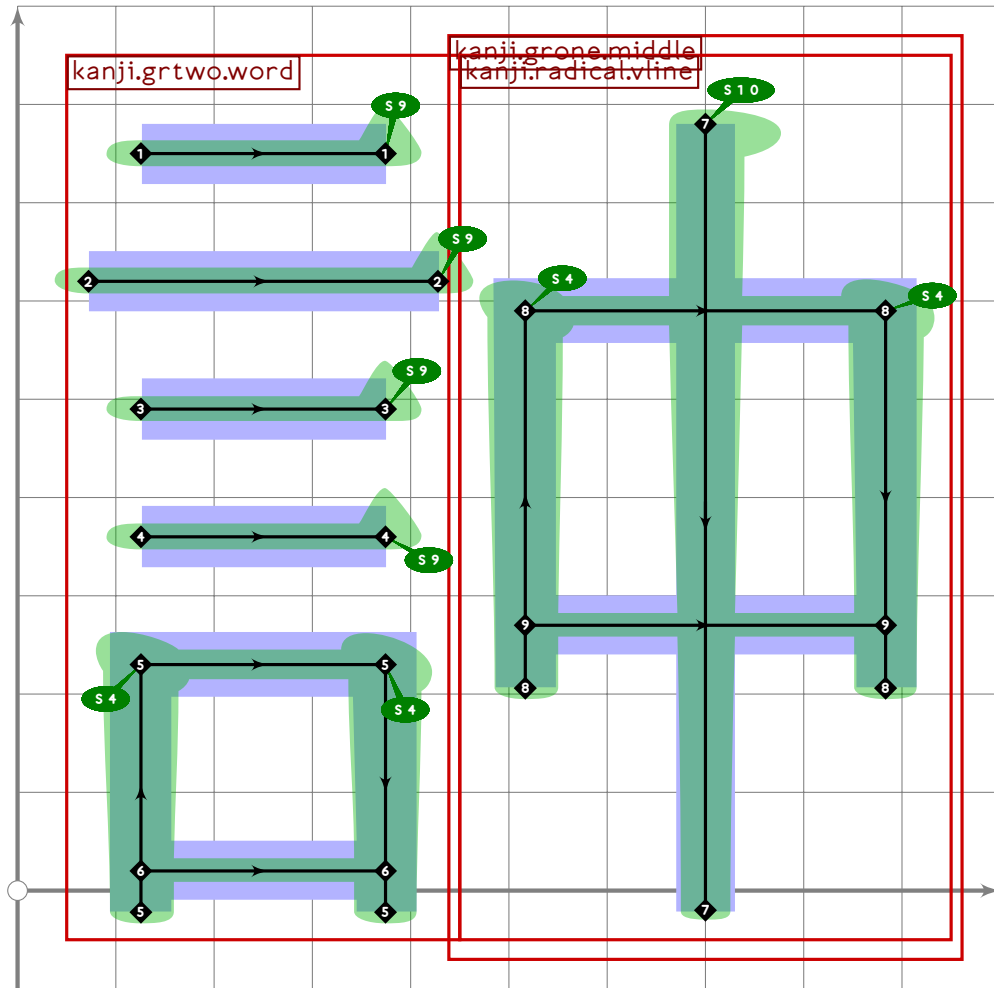
```

319 % extra
320 begint Suglyph("uni8A2C";44);
321 build_kanji.level(build_kanji.lr(450,0)
322   (kanji.grtwo.word)
323   (kanji.grtwo.little));
324 tsu_render;
325 endsuglyph;
326
327 % kyo/yuru "permit" (forgive)
328 begint Suglyph("uni8A31";49);
329 kanji.grfive.permit;
330 tsu_render;
331 endsuglyph;
332

```

[see page 2106]

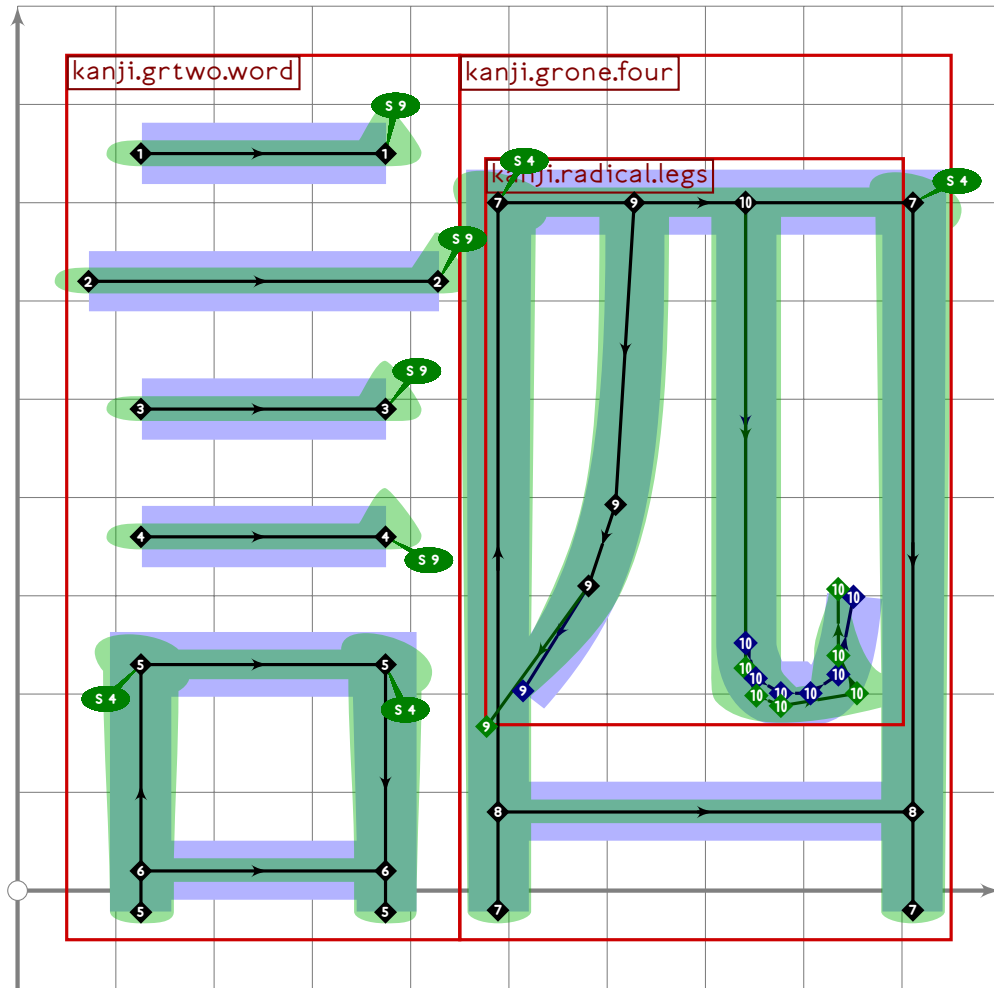




```

333 % extra
334 begint Suglyph("uni8A32",50);
335 build_kanji.level(build_kanji.lr(450,0)
336   (kanji.grtwo.word)
337   (kanji.grone.middle));
338 tsu_render;
339 endsuglyph;
340

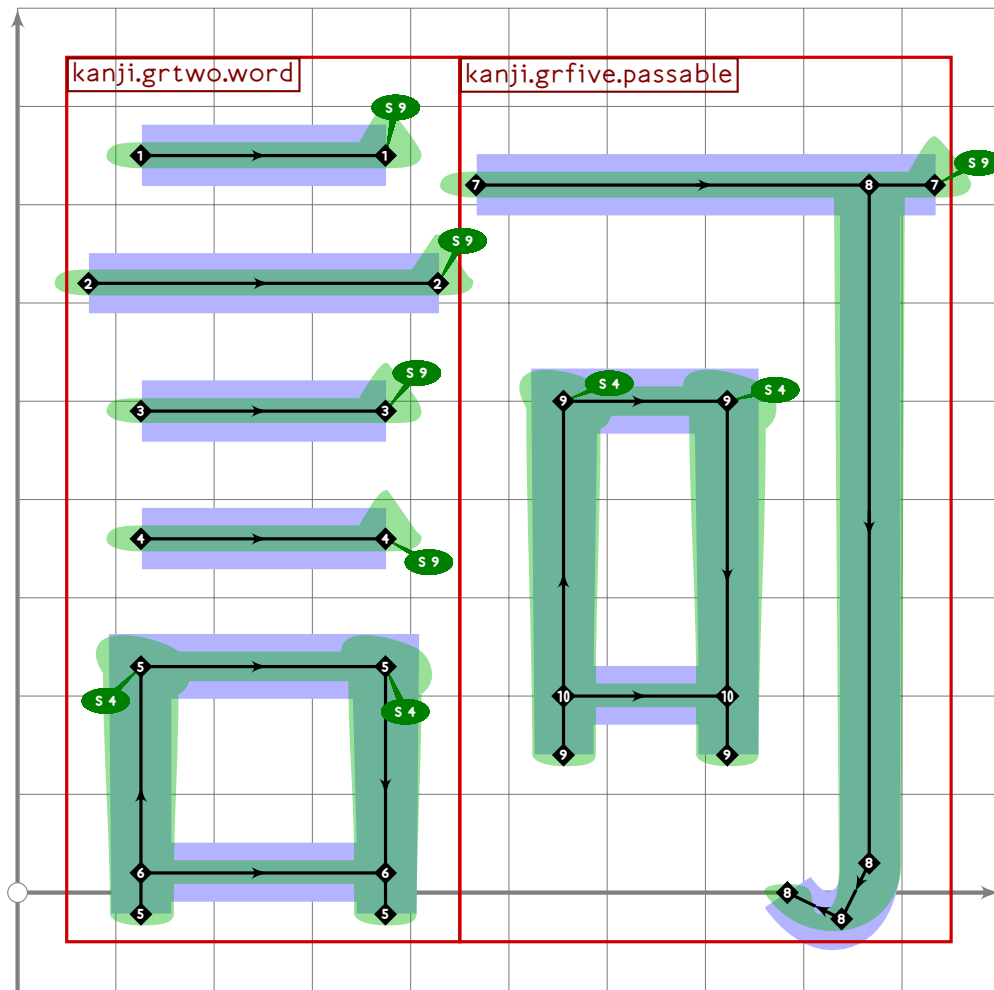
```



```

341 % extra
342 begintsuglyph("uni8A35",53);
343 build_kanji.level(build_kanji.lr(450,0)
344   (kanji.grtwo.word)
345   (kanji.grone.four));
346 tsu_render;
347 endsuglyph;
348

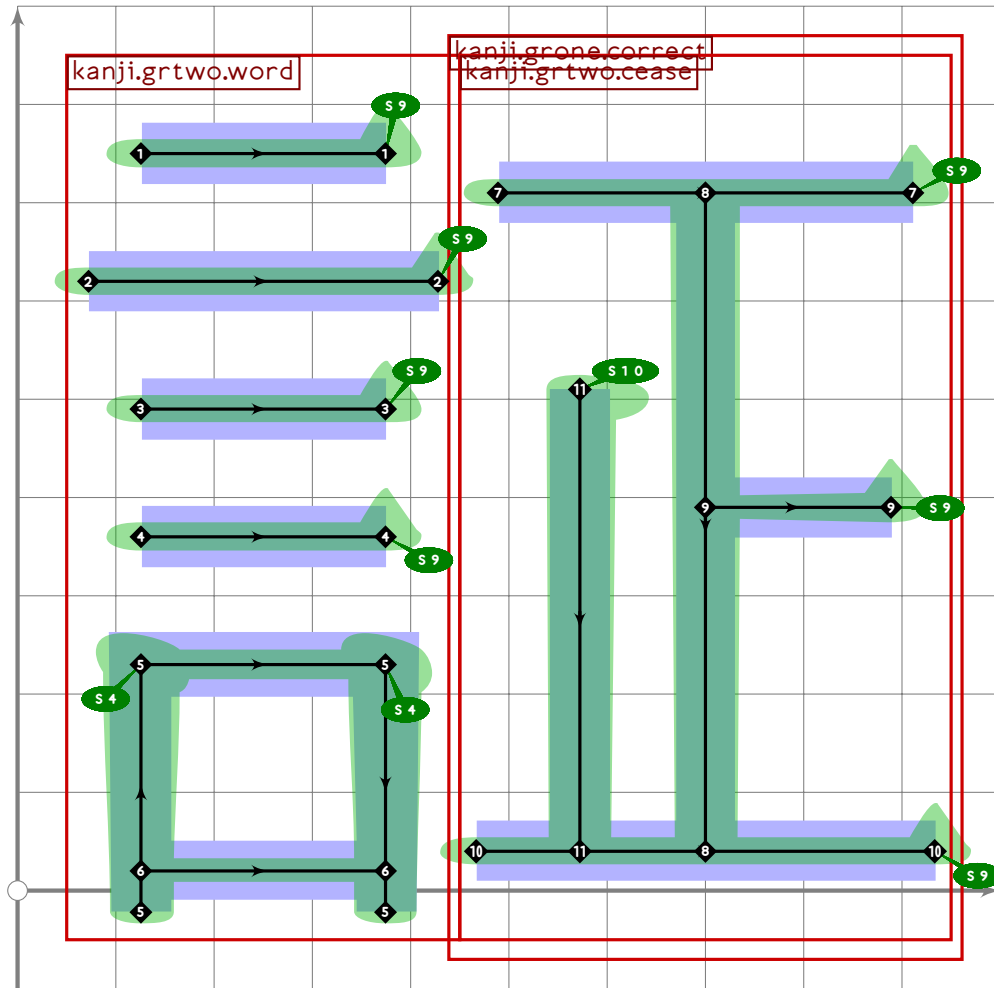
```



```

349 % extra
350 begintsuglyph("uni8A36",54);
351 build_kanji.level(build_kanji.lr(450,0)
352   (kanji.grtwo.word)
353   (kanji.grfive.passable));
354 tsu_render;
355 endsuglyph;
356

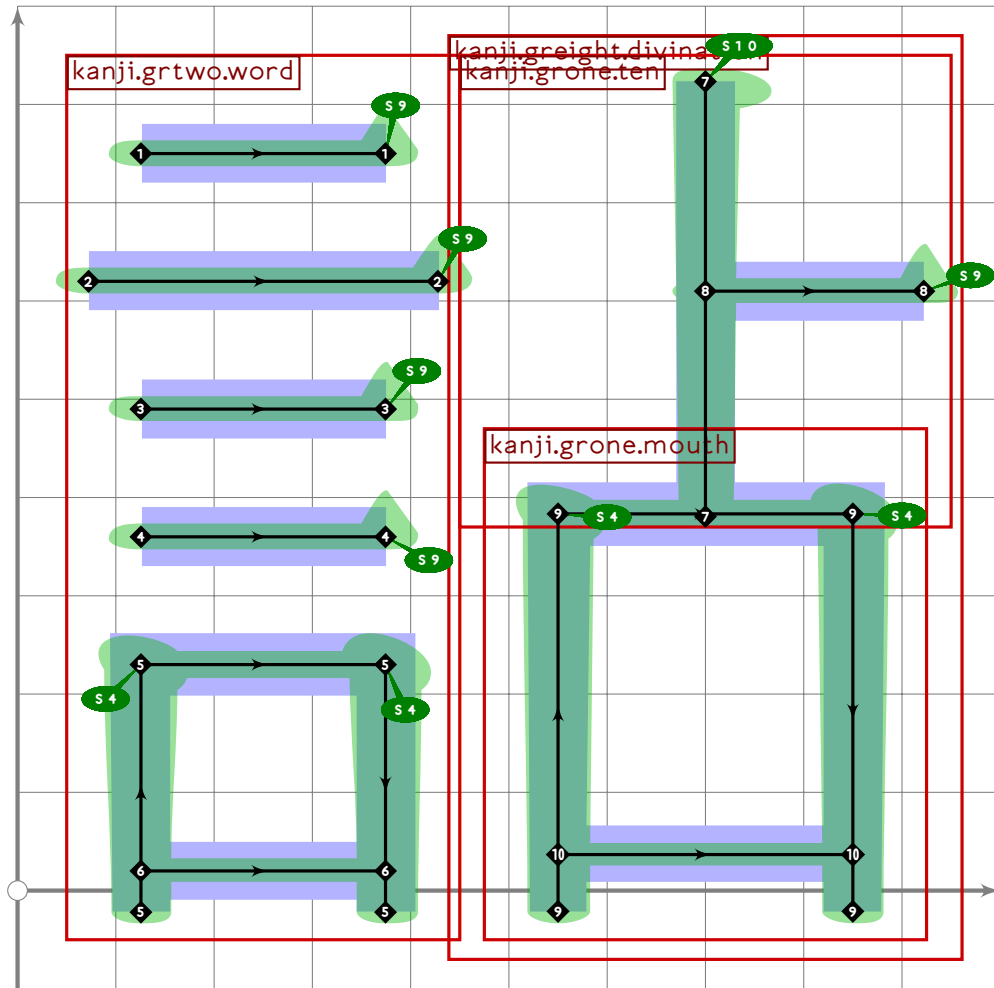
```



```

357 % extra
358 begint Suglyph("uni8A3C",60);
359 build_kanji.level(build_kanji.lr(450,0)
360   (kanji.grtwo.word)
361   (kanji.grone.correct));
362 tsu_render;
363 endsuglyph;
364

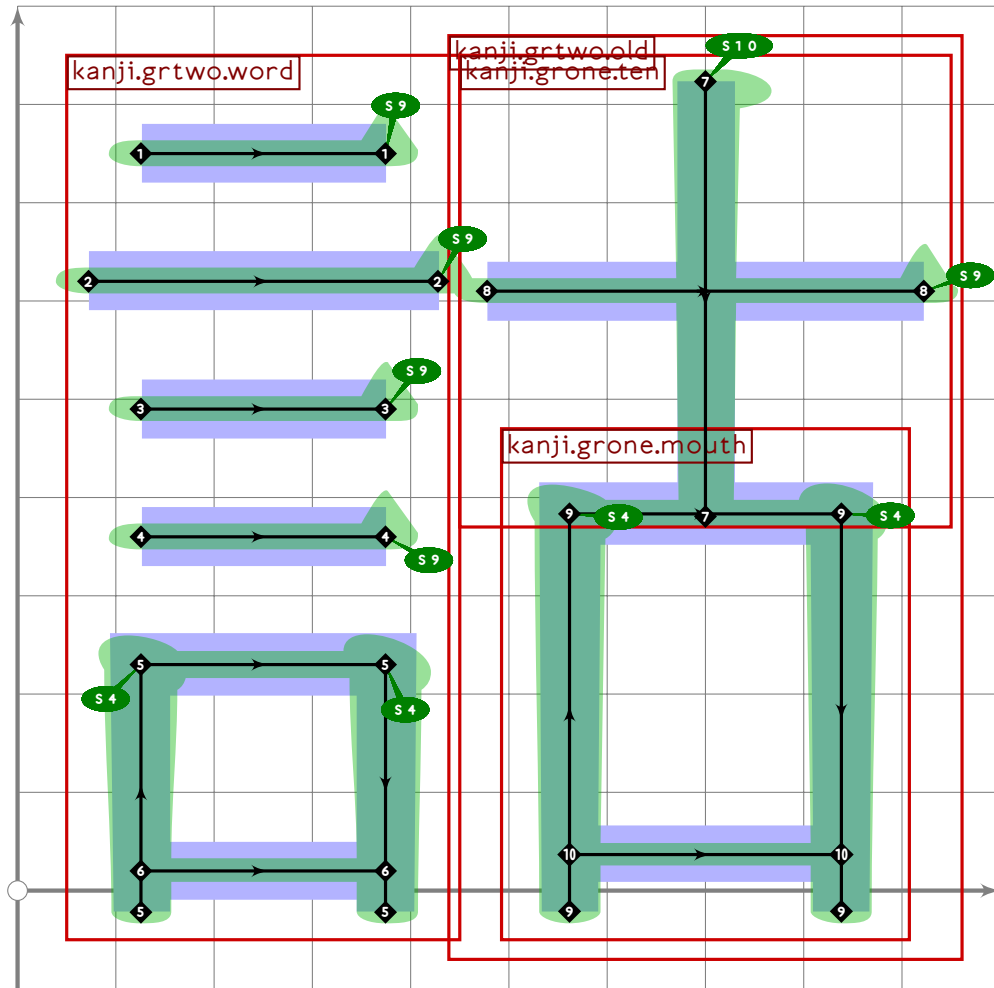
```



```

365 % extra
366 begintsuglyph("uni8A40",64);
367 build_kanji.level(build_kanji.lr(450,0)
368   (kanji.grtwo.word)
369   (kanji.greight.divination));
370 tsu_render;
371 endsuglyph;
372

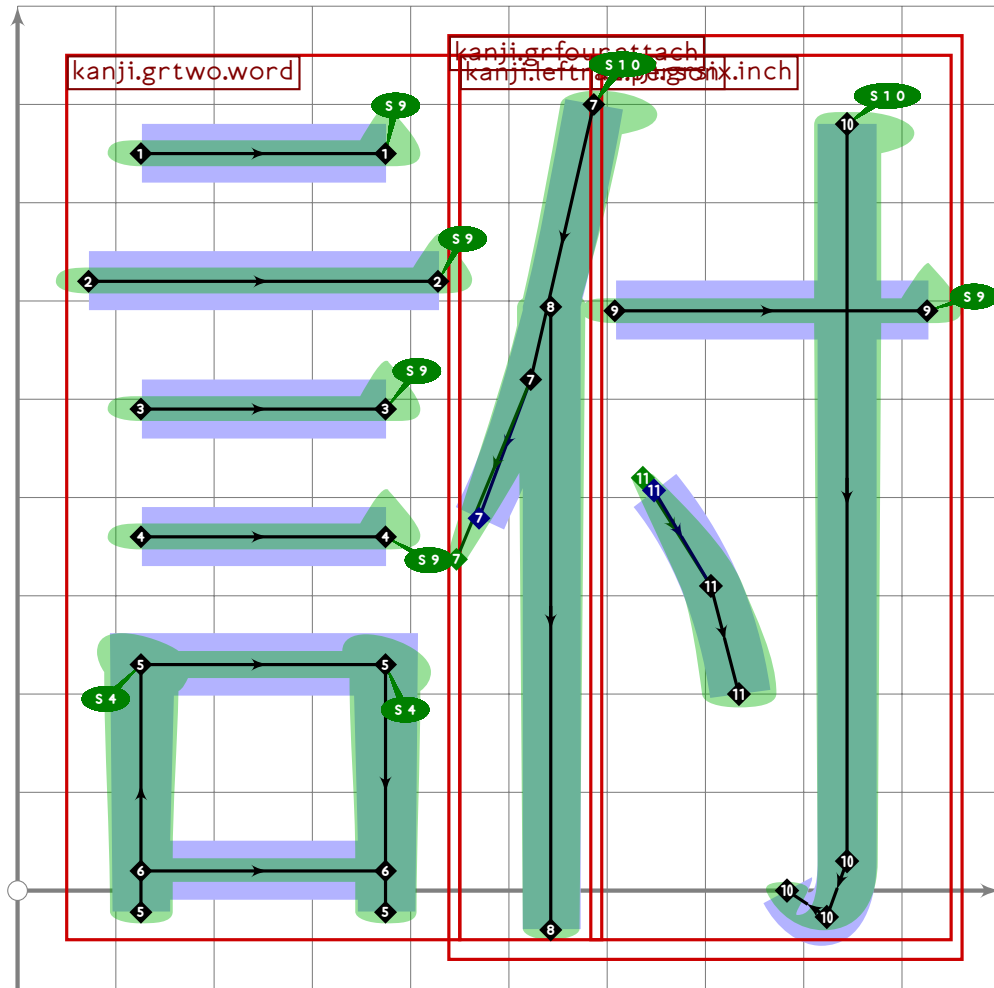
```



```

373 % extra
374 begint Suglyph("uni8A41",65);
375 build_kanji.level(build_kanji.lr(450,0)
376   (kanji.grtwo.word)
377   (kanji.grtwo.old));
378 tsu_render;
379 endtsuglyph;
380

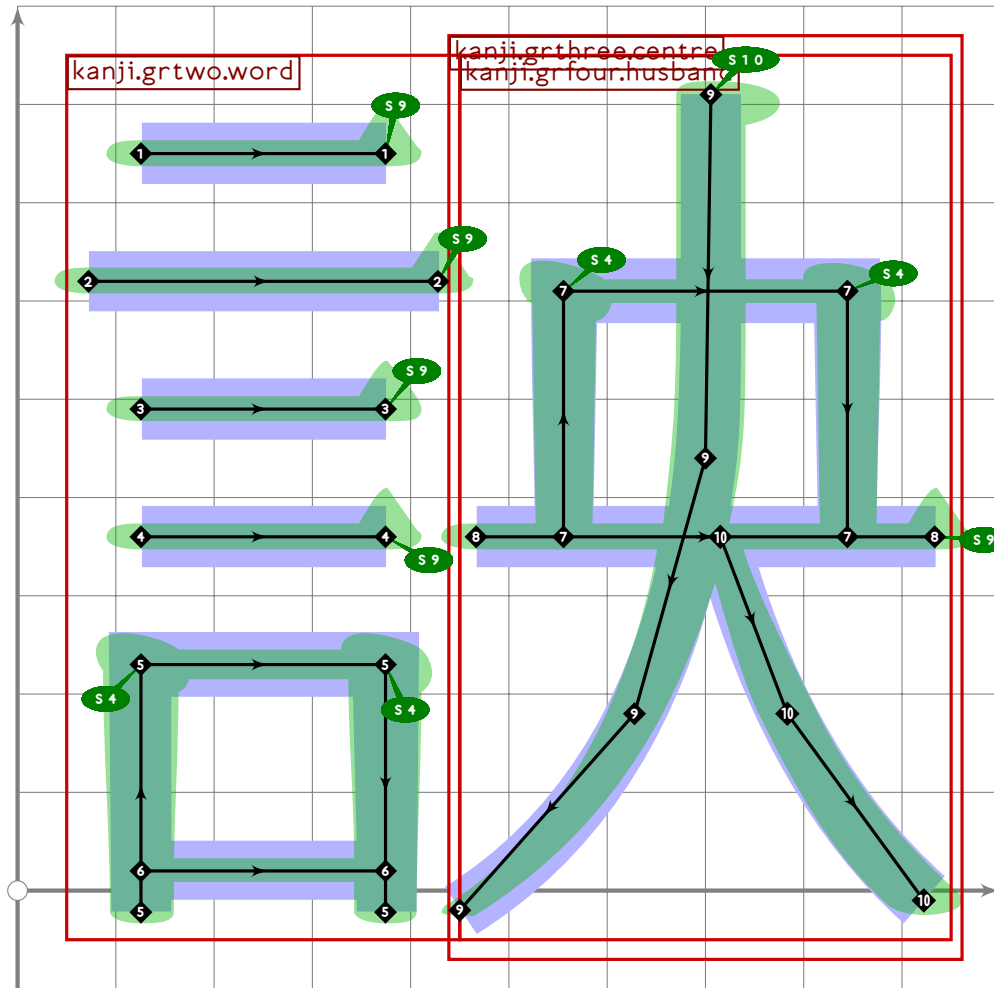
```



```

381 % extra
382 begint Suglyph("uni8A42";66);
383 build_kanji.level(build_kanji.lr(450,0)
384   (kanji.grtwo.word)
385   (kanji.grfour.attach));
386 tsu_render;
387 endtsuglyph;
388

```

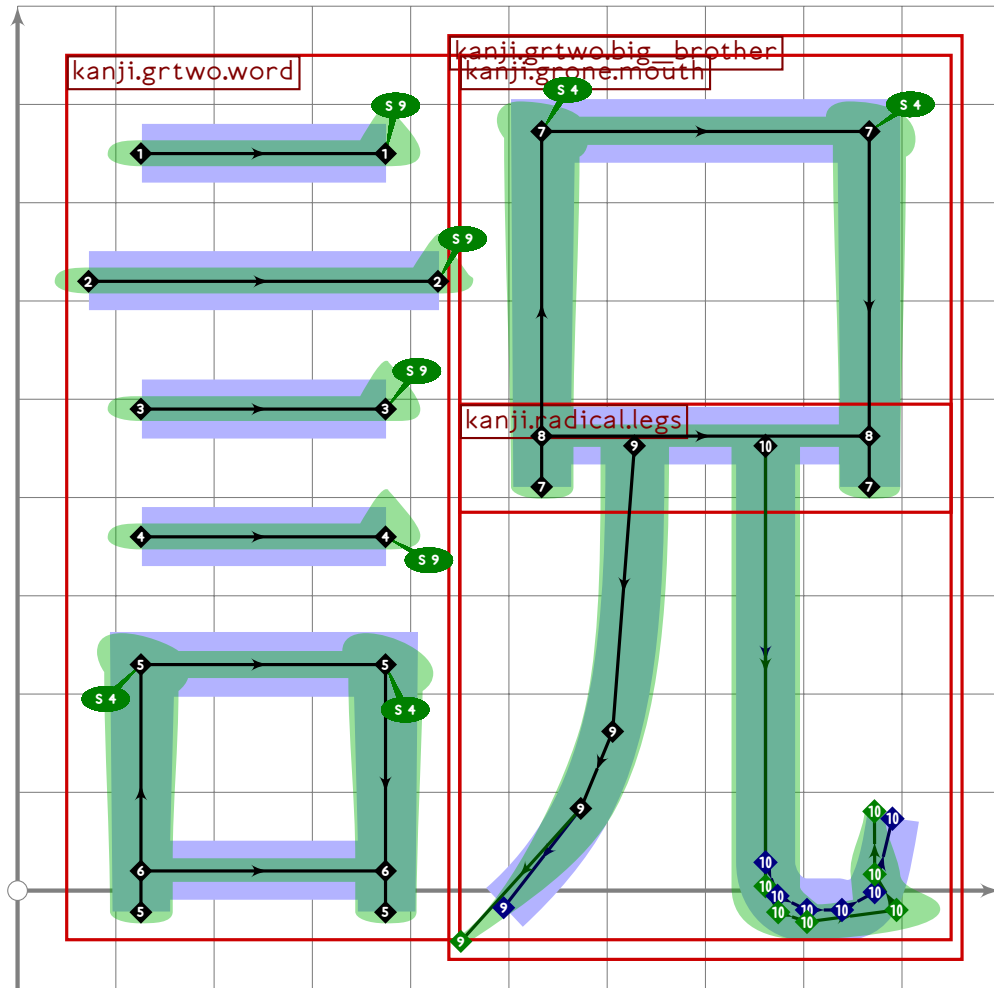


```

389 % extra
390 beginsuglyph("uni8A47";71);
391 build_kanji.level(build_kanji.lr(450,0)
392   (kanji.grtwo.word)
393   (kanji.grthree centre));
394 tsu_render;
395 endsuglyph;
396

```

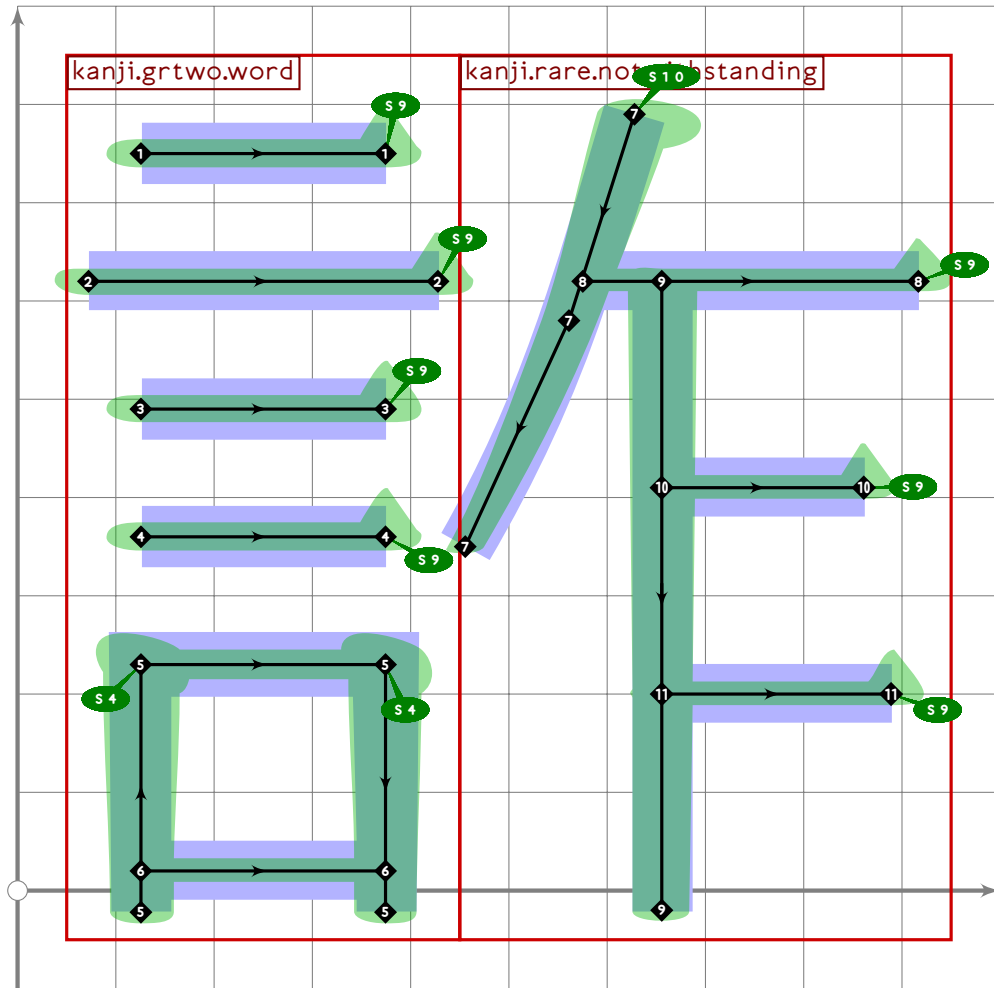




```

397 % extra
398 begint Suglyph("uni8A4B",75);
399 build_kanji.level(build_kanji.lr(450,0)
400   (kanji.grtwo.word)
401   (kanji.grtwo.big_brother));
402 tsu_render;
403 endtsuglyph;
404

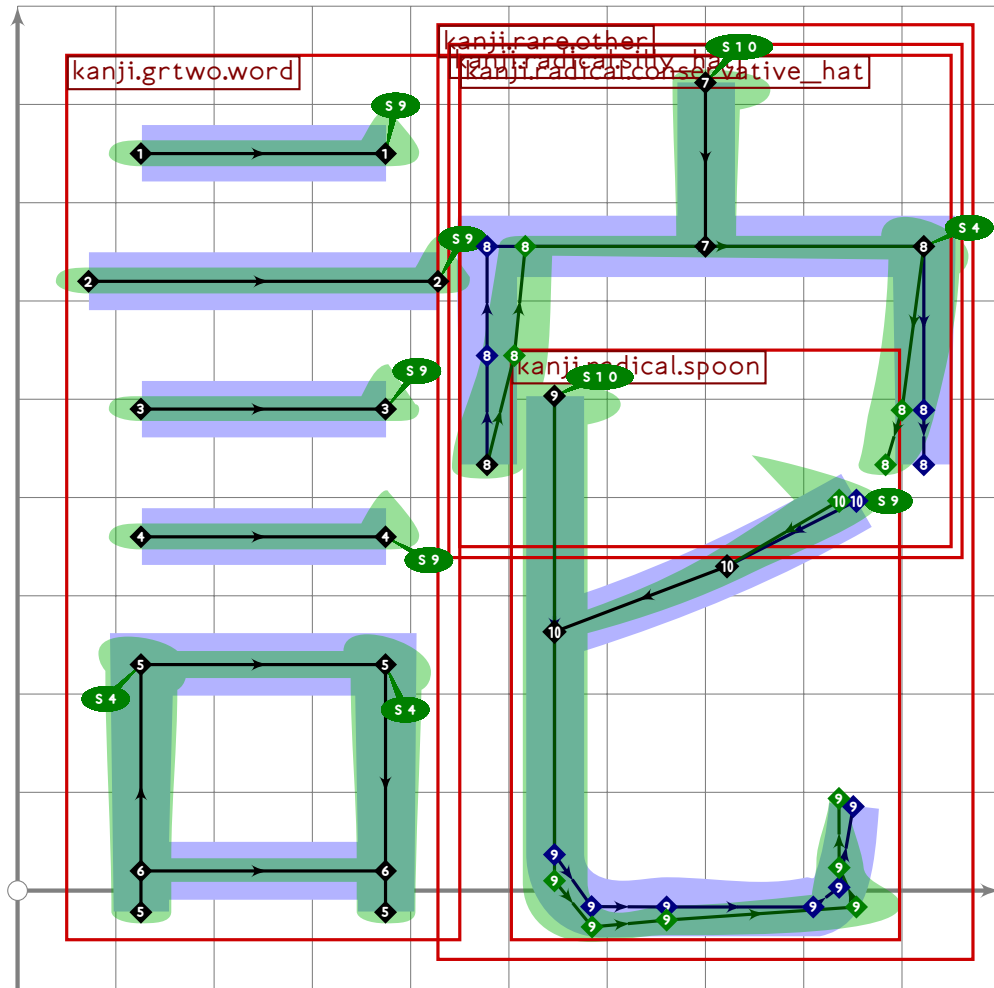
```



```

405 % extra
406 begintsuglyph("uni8A50";80);
407 build_kanji.level(build_kanji.lr(450,0)
408   (kanji.grtwo.word)
409   (kanji.rare.notwithstanding));
410 tsu_render;
411 endsuglyph;
412

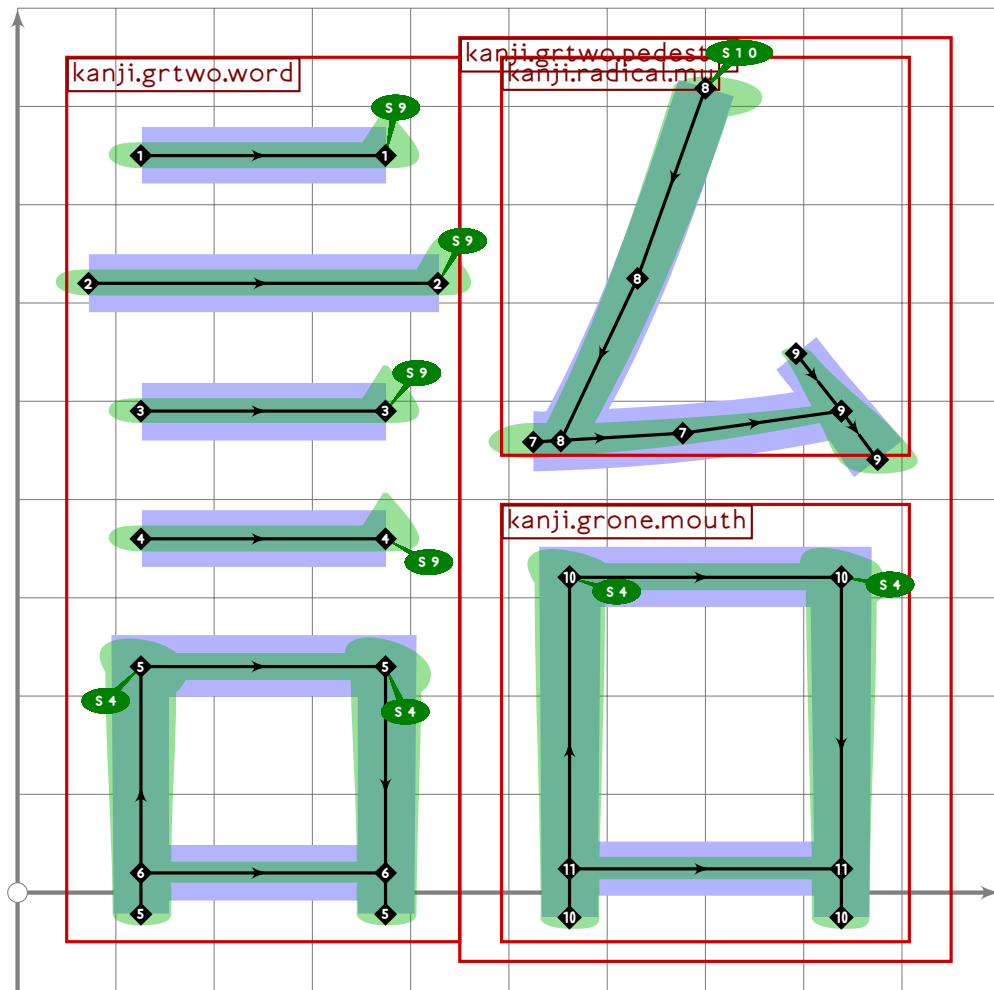
```



```

413 % extra
414 begint Suglyph("uni8A51",81);
415 build_kanji.level(build_kanji.lr(450,0)
416   (kanji.grtwo.word)
417   (kanji.rare.other));
418 tsu_render;
419 endtsuglyph;
420

```

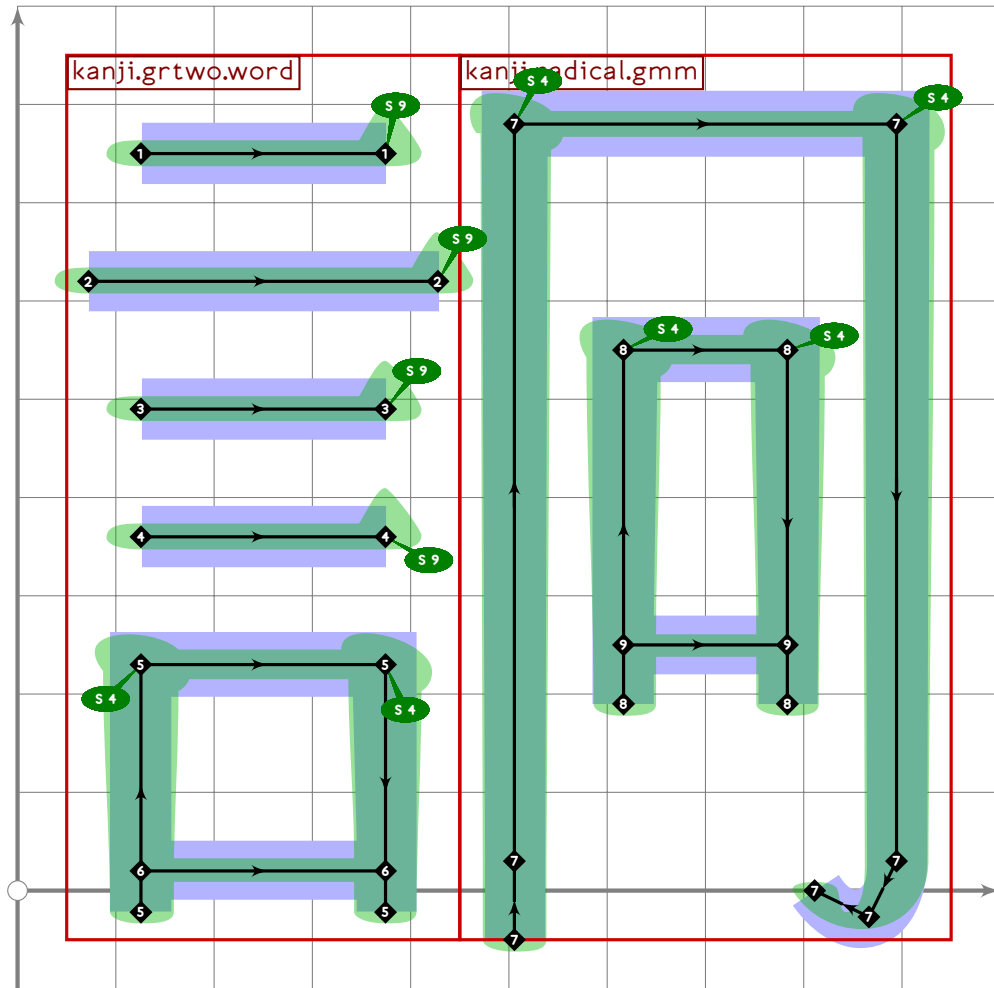


```

421 % extra
422 begintsuglyph("uni8A52";82);
423 build_kanji.level(build_kanji.lr(450,0)
424   (kanji.grtwo.word)
425   (kanji.grtwo.pedestal));
426 tsu_render;
427 endtsuglyph;
428
429 % shou/mikotonori "imperial edict"
430 begintsuglyph("uni8A54";84);
431 kanji.greight.edict;
432 tsu_render;
433 endtsuglyph;
434

```

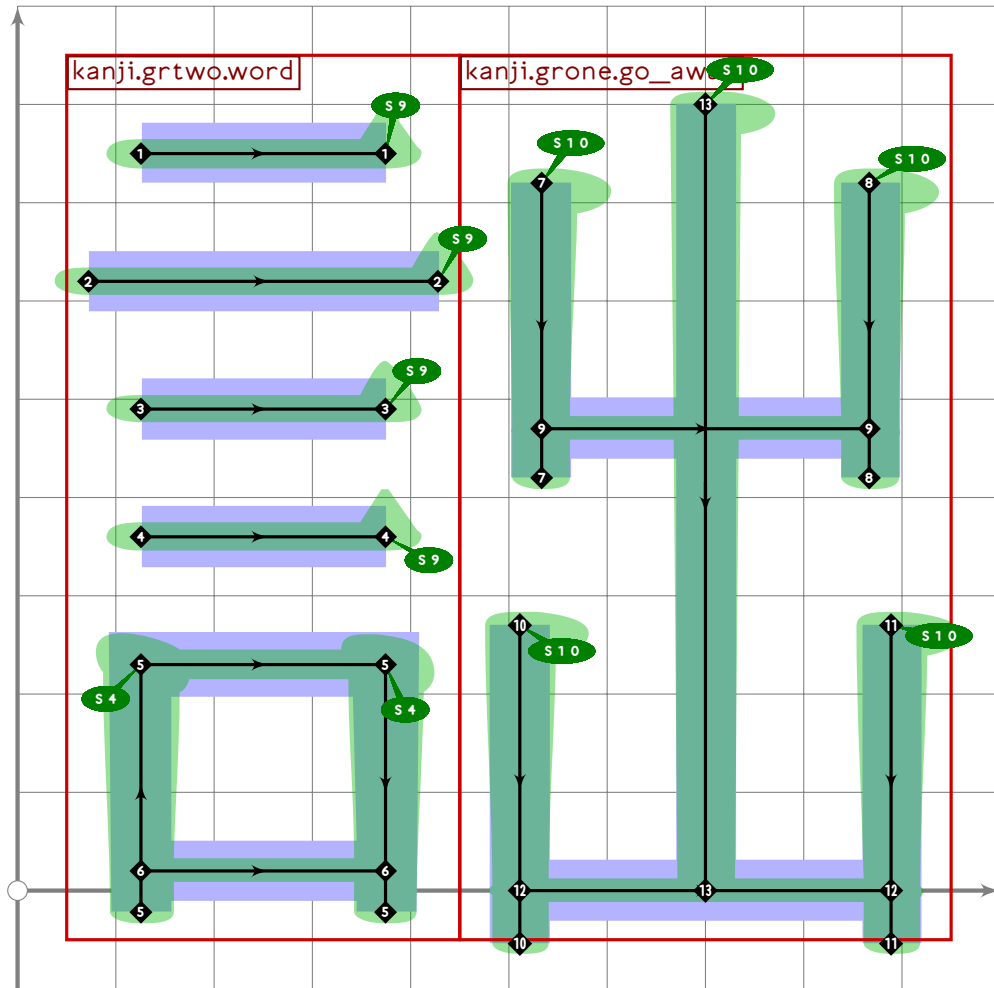
[see page 2109]



```

435 % extra
436 begintsuglyph("uni8A57";87);
437 build_kanji.level(build_kanji.lr(450,0)
438 (kanji.grtwo.word)
439 (kanji.radical.gmm;
440 build_kanji.box((350,550),(650,250));));
441 tsu_render;
442 endtsuglyph;
443

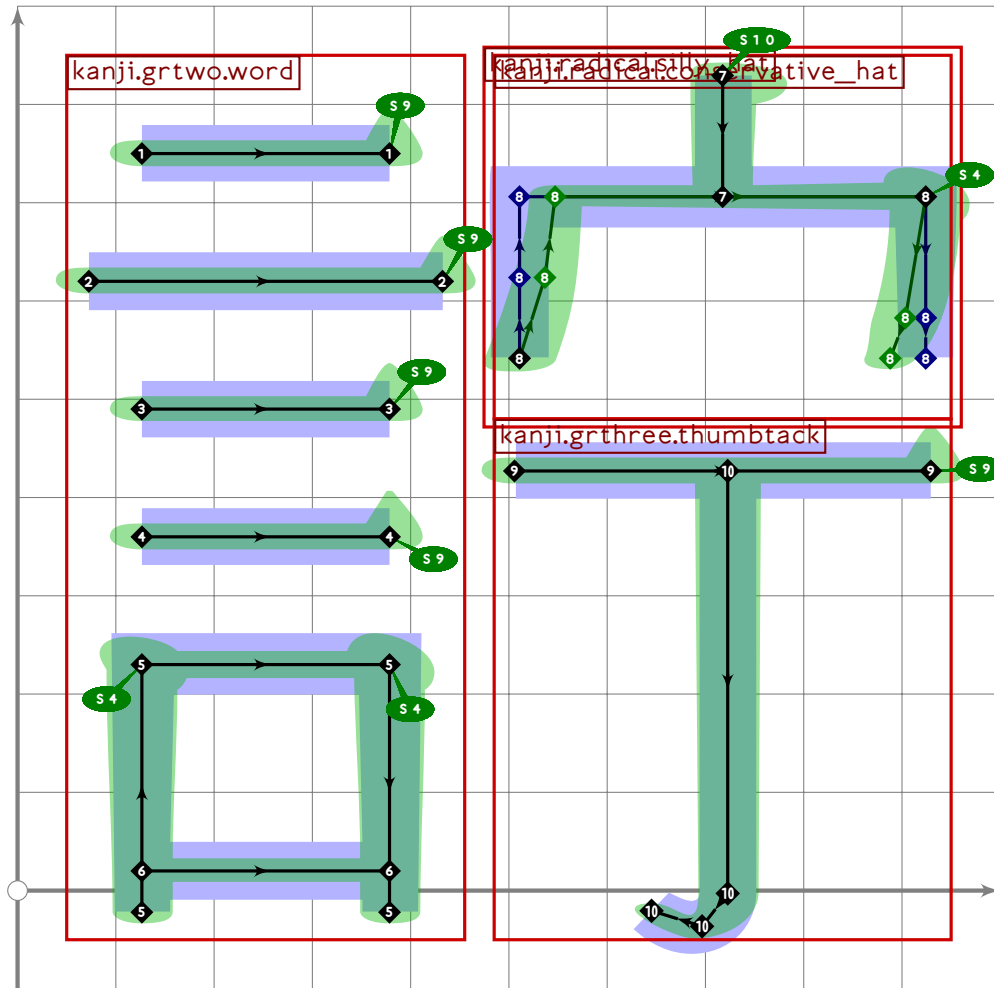
```



```

444 % extra
445 begint Suglyph("uni8A58";88);
446 build_kanji.level(build_kanji.lr(450,0)
447   (kanji.grtwo.word)
448   (kanji.grone.go_away));
449 tsu_render;
450 endtsuglyph;
451

```



```

452 % extra
453 begintsuglyph("uni8A5D";93);
454 build_kanji.level(build_kanji.lr(470;-30)
455   (kanji.grtwo.word)
456   (build_kanji.tb(480,0)
457     (kanji.radical.silly_hat)
458     (kanji.grthree.thumbtack)));
459 tsu_render;
460 endsuglyph;
461
462 % shi "part of speech"
463 begintsuglyph("uni8A5E";94);
464 kanji.grsix.part_of_speech;
465 tsu_render;
466 endsuglyph;
467
468 % kei/mou "pilgrimage"
469 begintsuglyph("uni8A63";99);
470 kanji.greight.pilgrimage;
471 tsu_render;
472 endsuglyph;

```

[see page 2108]

[see page 2110]

```
473
474 % shi/uta "poem"
475 begintsuglyph("uni8A69";105); [see page 2103]
476 kanji.grthree.poem;
477 tsu_render;
478 endtsuglyph;
479
480 % wa/hana "talk"
481 begintsuglyph("uni8A71";113); [see page 2102]
482 kanji.grtwo.talk;
483 tsu_render;
484 endtsuglyph;
485
486 % go/kata "language"
487 begintsuglyph("uni8A9E";158); [see page 2099]
488 kanji.grtwo.language;
489 tsu_render;
490 endtsuglyph;
491
492 % goku/yo "read"
493 begintsuglyph("uni8AAD";173); [see page 2101]
494 kanji.grtwo.read;
495 tsu_render;
496 endtsuglyph;
497
498 % chou/shira "tune"
499 begintsuglyph("uni8ABF";191); [see page 2104]
500 kanji.grthree.tune;
501 tsu_render;
502 endtsuglyph;
503
504 

---


505
506 endfont;
507
508 

---


```



# tsuku-8b.mp

```
1 %  
2 % Unicode page 8b (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeone.mp;

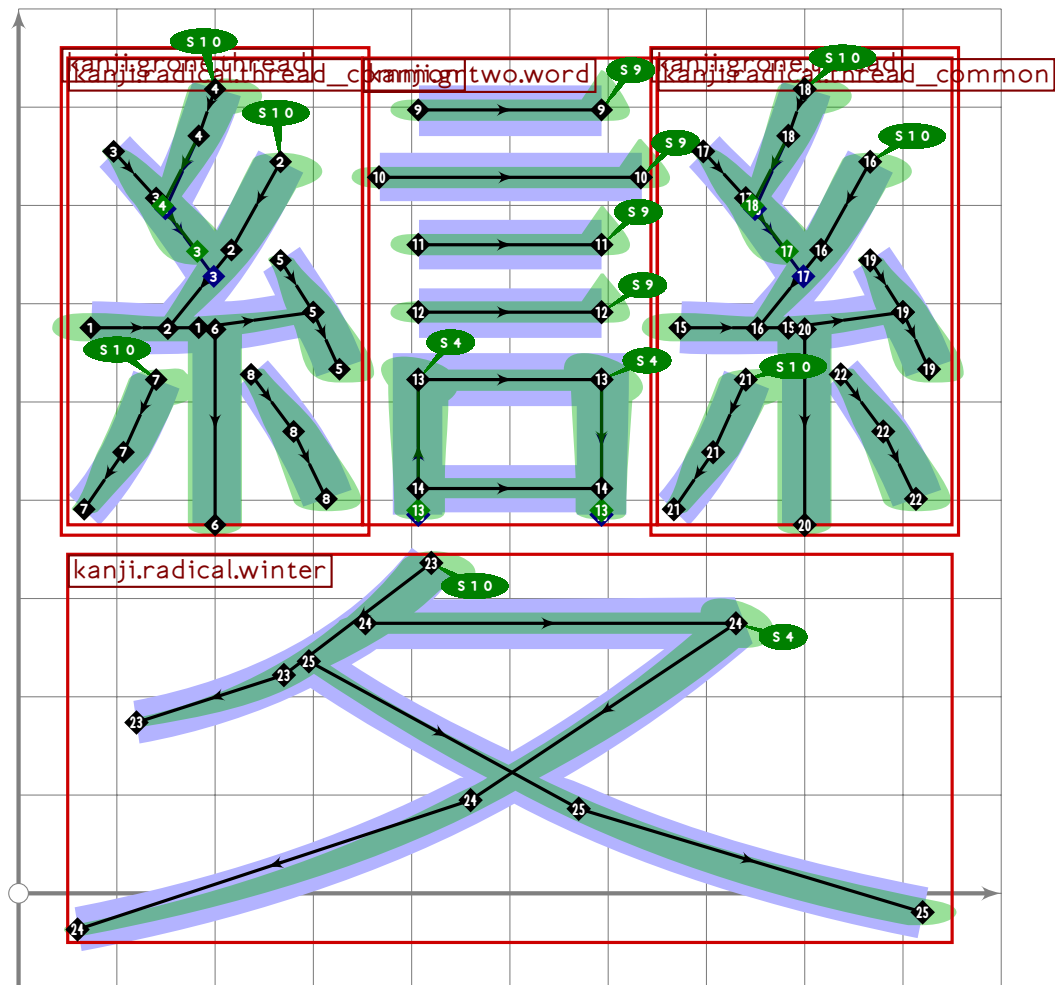
38 input gradetwo.mp;

39 input radical.mp;

40

41

42



43 % extra: alternate "hen"

```
44 begintsuglyph("uni8B8A",138);
45 build_kanji.level(build_kanji.tb(360,-30)
46   (build_kanji.sscale(xscaled 0.333 shifted (-300,0))(kanji.grone.thread);
47   build_kanji.sscale(xscaled 0.333)(kanji.grtwo.word);
48   build_kanji.sscale(xscaled 0.333 shifted (300,0))(kanji.grone.thread))
49   (kanji.radical.winter));
50 tsu_render;
51 endtsuglyph;
52
53 

---

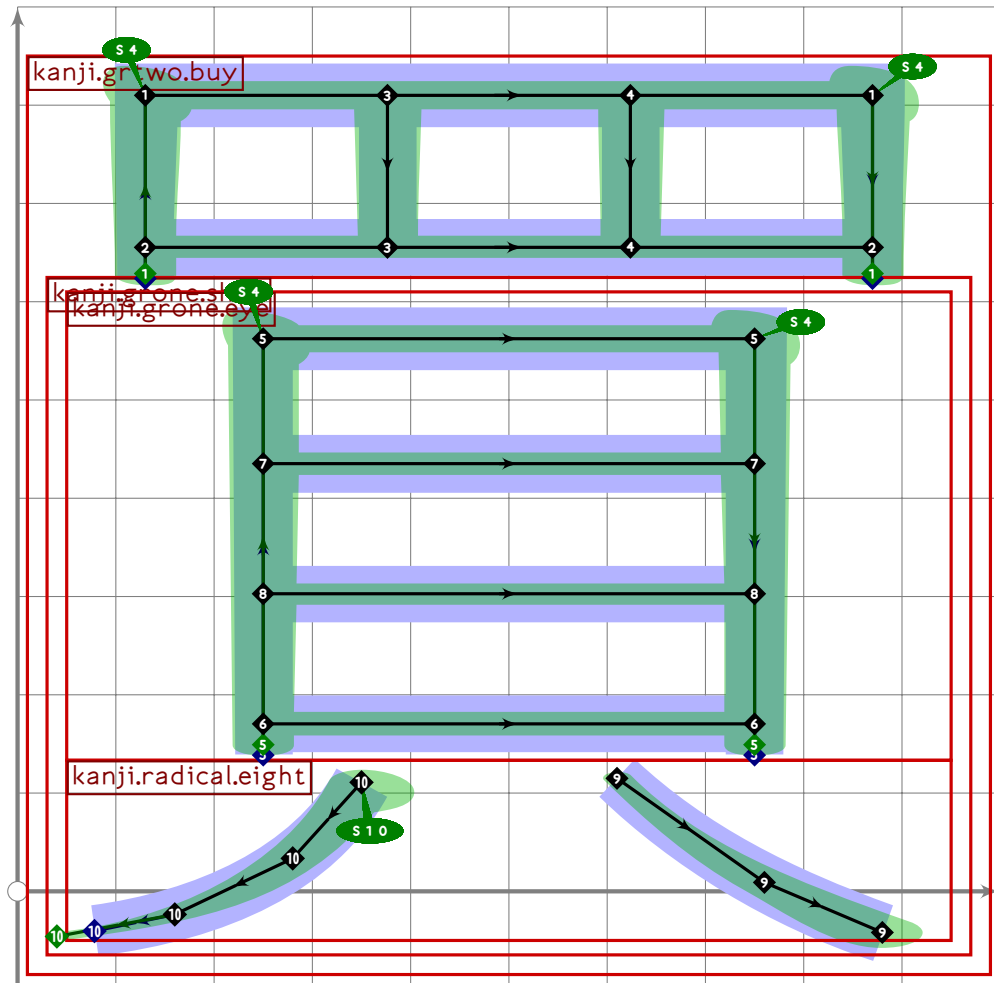

54
55 endfont;
56
57 

---


```

# tsuku-8c.mp

```
1 %  
2 % Unicode page 8c (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41  
42 _____
```

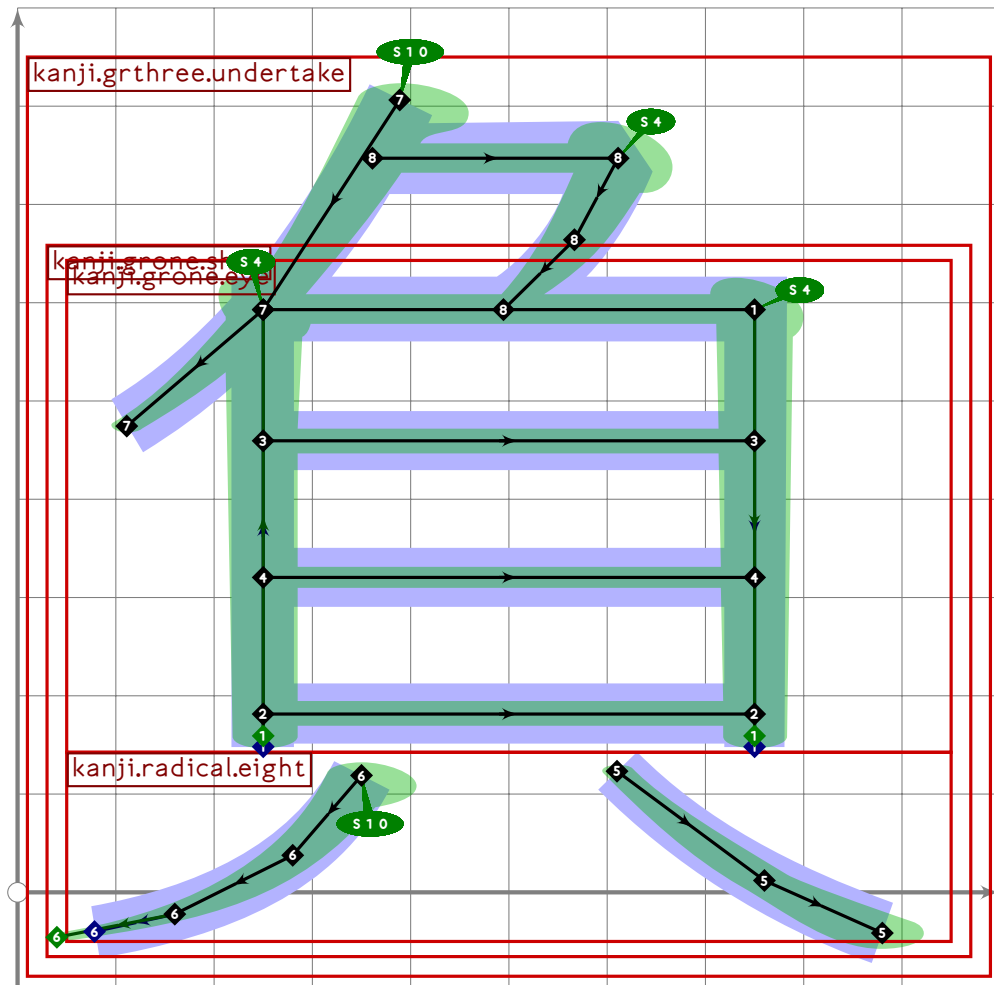


43

```

44 vardef kanji.grtwo.buy =
45   push_pbox_toexpand("kanji.grtwo.buy");
46   build_kanji.level(build_kanji.tb(610,0)
47     (begingroup
48       save x,y;
49       numeric x[],y[];
50       x1=x5=130;
51       x2=x6=0.333[x1,x4];
52       x3=x7=0.667[x1,x4];
53       x4=x8=1000-x1;
54       y1=y2=y3=y4=700;
55       y5=y6=y7=y8=120;
56       build_kanji.box(z1,z8);
57       push_stroke(z2-z6,(1.6,1.6)-(1.5,1.5));
58       push_stroke(z3-z7,(1.6,1.6)-(1.5,1.5));
59     endgroup)
60     (kanji.grone.shell));
61   expand_pbox;
62 enddef;
63
64

```



```

65
66 vardef kanji.grthree.undertake =
67   push_pbox_toexpand("kanji.grthree.undertake");
68   build_kanji.attach_fishhook(0.77)(kanji.grone.shell);
69   expand_pbox;
70 enddef;
71
72 

---


73
74 % koku/tani "valley"
75 begintsuglyph("uni8C37",55); [see page 502]
76   kanji.grtwo.valley;
77   tsu_render;
78 endtsuglyph;
79
80 % tou/mame "bean"
81 begintsuglyph("uni8C46",70); [see page 509]
82   kanji.grthree.bean;
83   tsu_render;
84 endtsuglyph;
85
86 % inoko "pig" radical
87 begintsuglyph("uni8C55",85); [see page 359]
88   kanji.radical.pig;
89   tsu_render;
90 endtsuglyph;
91
92 % bai/kai "shellfish"
93 begintsuglyph("uni8C9D",157); [see page 428]
94   kanji.grone.shell;
95   tsu_render;
96 endtsuglyph;
97
98 % fu/ma "undertake"
99 begintsuglyph("uni8CA0",160); [see page 2145]
100   kanji.grthree.undertake;
101   tsu_render;
102 endtsuglyph;
103
104 % gai/ka "buy"
105 begintsuglyph("uni8CB7",183); [see page 2144]
106   kanji.grtwo.buy;
107   tsu_render;
108 endtsuglyph;
109
110 

---


111
112 endfont;

```

113

114

---

# tsuku-8d.mp

```
1 %
2 % Unicode page 8d (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradetwo.mp;
39
40 

---


41
42 % aka/seki "red"
43 begintsuglyph\("uni8D64",100\); [see page 422]
44 kanji.grone.red;
45 tsu\_render;
46 endtsuglyph;
47
48 % sou/hasi "run"
49 begintsuglyph\("uni8D70",112\); [see page 495]
50 kanji.grtwo.run;
51 tsu\_render;
52 endtsuglyph;
53
54 % ashi/soku "foot"
55 begintsuglyph\("uni8DB3",179\); [see page 398]
56 kanji.grone.foot;
57 tsu\_render;
58 endtsuglyph;
59
60 

---


61
62 endfont;
63
64 

---


```

# tsuku-8e.mp

```
1 %
2 % Unicode page 8e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

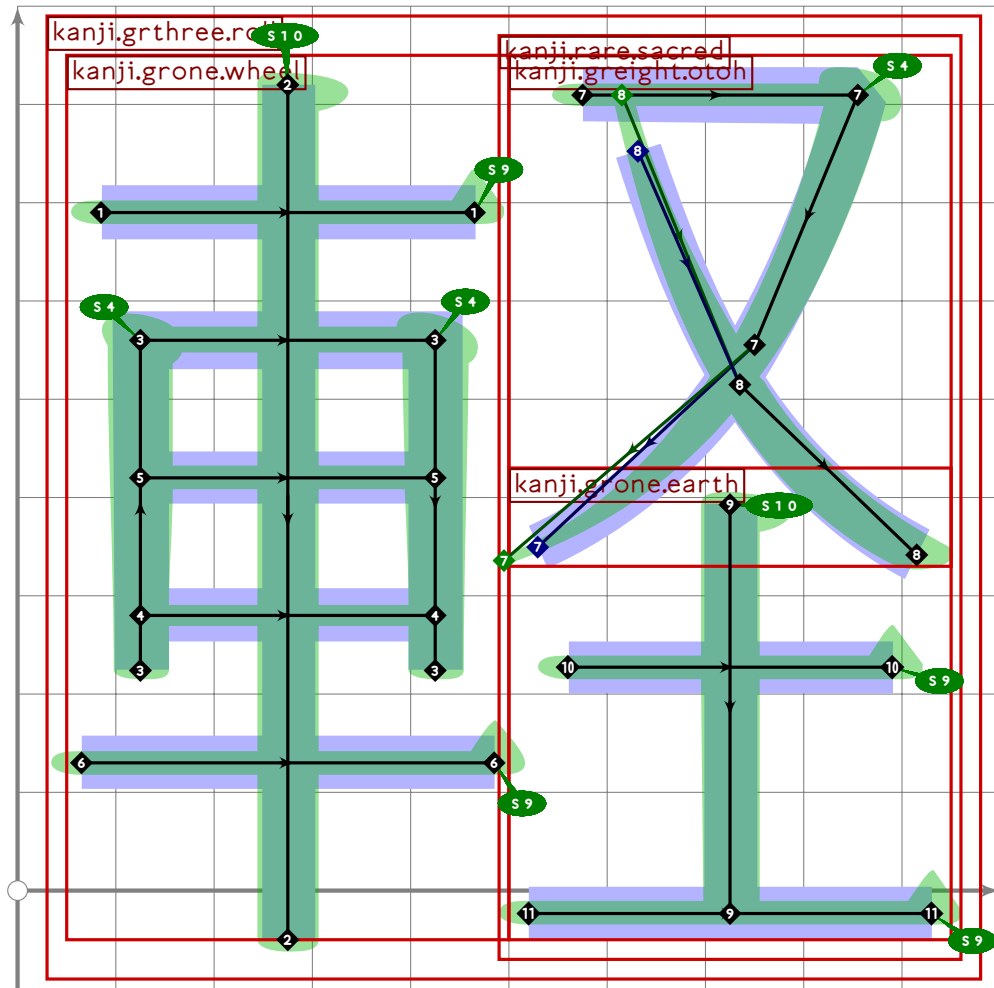
---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefour.mp;
39 input gradenine.mp;
40 input gradeone.mp;
41 input radical.mp;
42 input rare.mp;
43
44 

---


```

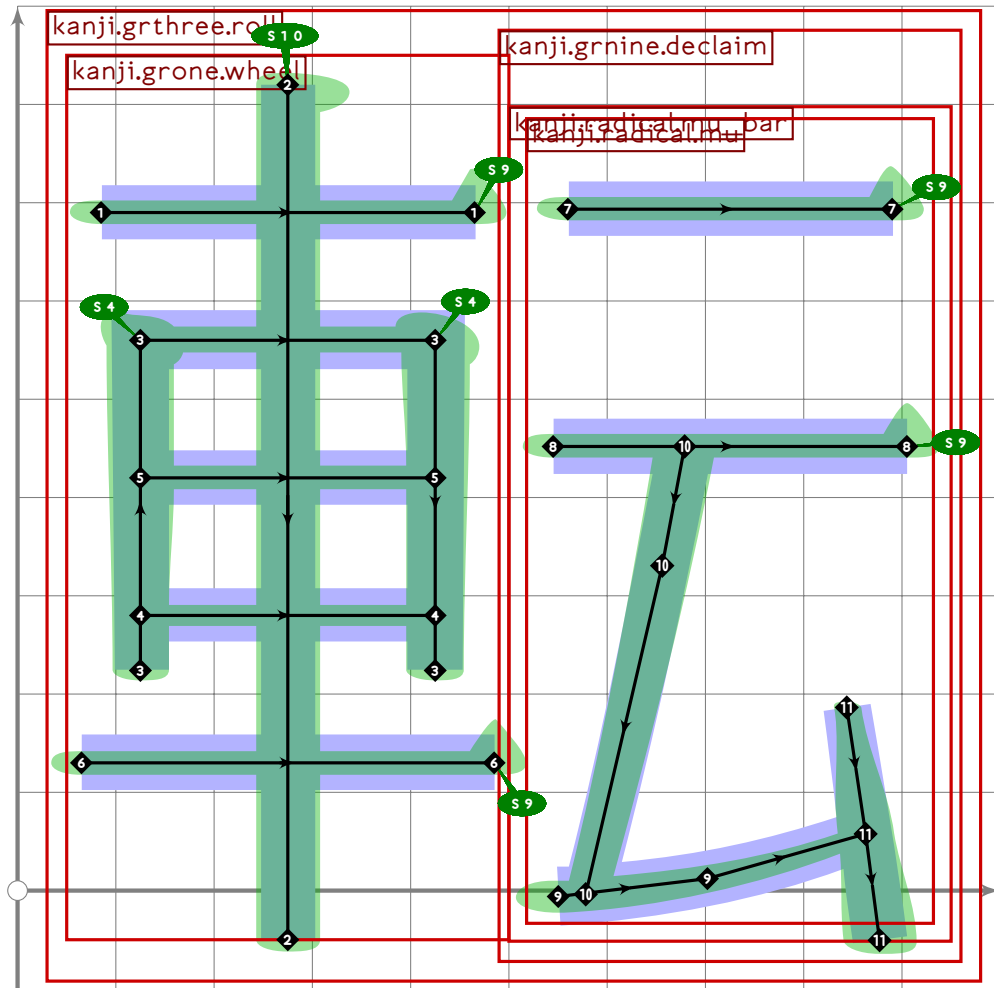




```

45
46 vardef kanji.grthree.lightweight =
47   push_pbox_toexpand("kanji.grthree.roll");
48   build_kanji.level(build_kanji.lr(500,00)
49     (kanji.grone.wheel)
50     (kanji.rare.sacred));
51   expand_pbox;
52 enddef;

```



```

53
54 vardef kanji.grthree.roll =
55   push_pbox_toexpand("kanji.grthree.roll");
56   build_kanji.level(build_kanji.lr(500,00)
57     (kanji.gnone.wheel)
58     (tsu_xform(identity yscaled 1.03)(kanji.gnine.declaim)));
59   expand_pbox;
60 enddef;

```

```

61
62 _____
63
64 % kuruma "car/wheel"
65 beginsuglyph("uni8ECA";202); [see page 440]
66   kanji.gnone.wheel;
67   tsu_render;
68 endsuglyph;
69
70 % gun/ikusa "army"
71 beginsuglyph("uni8ECD";205); [see page 534]
72   kanji.grfour.army;
73   tsu_render;

```

```
74 endtsuglyph;
75
76 % ten/koro "roll"
77 begintsuglyph("uni8EE2",226); [see page 2150]
78   kanji.grthree.roll;
79   tsu_render;
80 endtsuglyph;
81
82 % kei/karu "lightweight"
83 begintsuglyph("uni8EFD",253); [see page 2149]
84   kanji.grthree.lightweight;
85   tsu_render;
86 endtsuglyph;
87
88 _____
89
90 endfont;
91
92 _____
```

# tsuku-8f.mp

```
1 %  
2 % Unicode page 8f (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

30

31

32

33 beginfont

34

35 % AUTODEPS

36 input buildkanji.mp;

37 input gradeeight.mp;

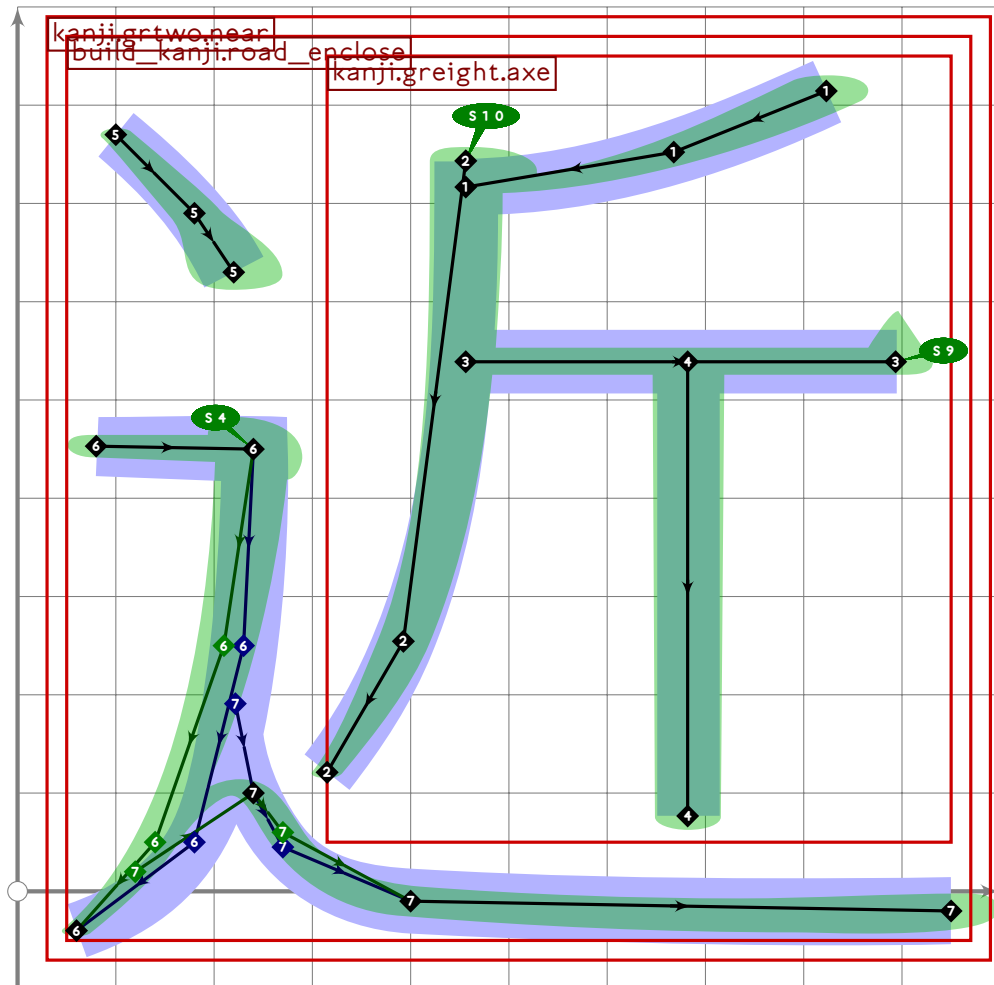
38 input gradeone.mp;

39 input gradethree.mp;

40 input gradetwo.mp;

41

42



43

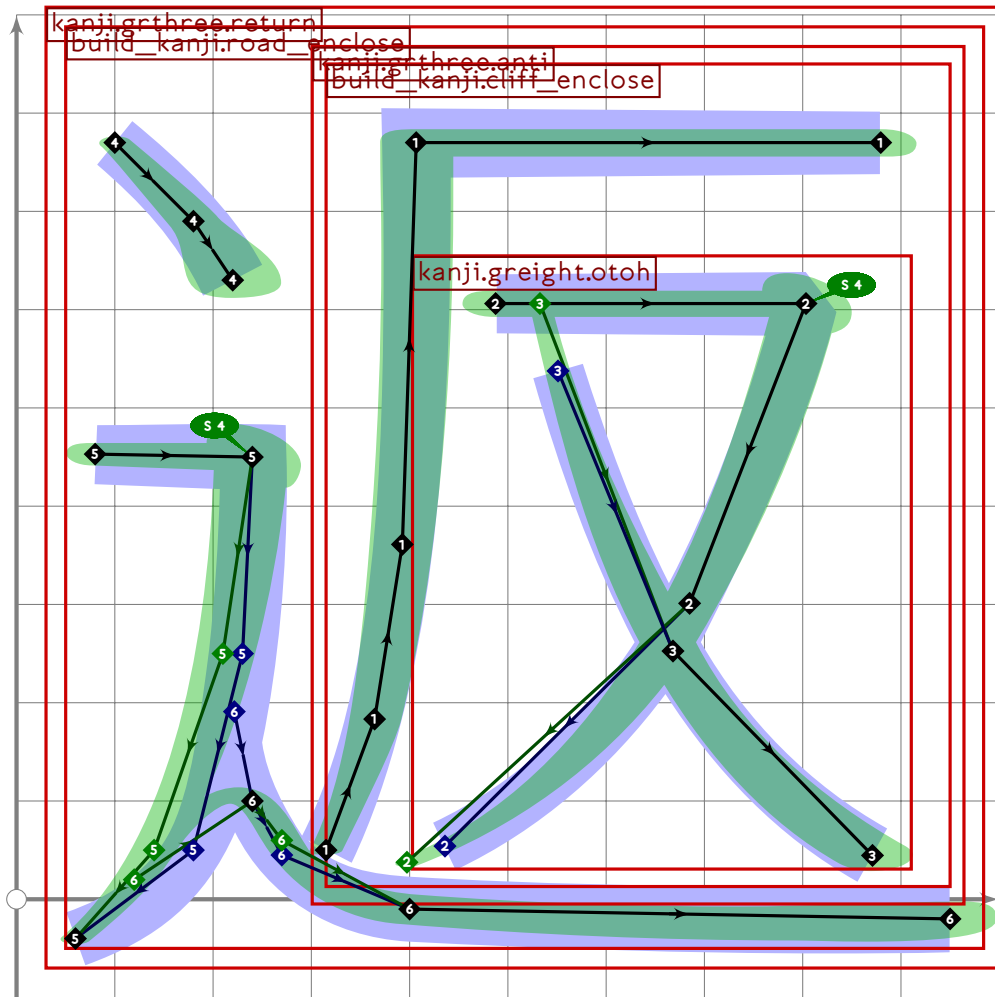
```

44 vardef kanji.grtwo.near =
45   push_pbox_toexpand("kanji.grtwo.near");
46   build_kanji.road_enclose(kanji.greight.axe);
47   expand_pbox;
48 enddef;

```

49

50



51

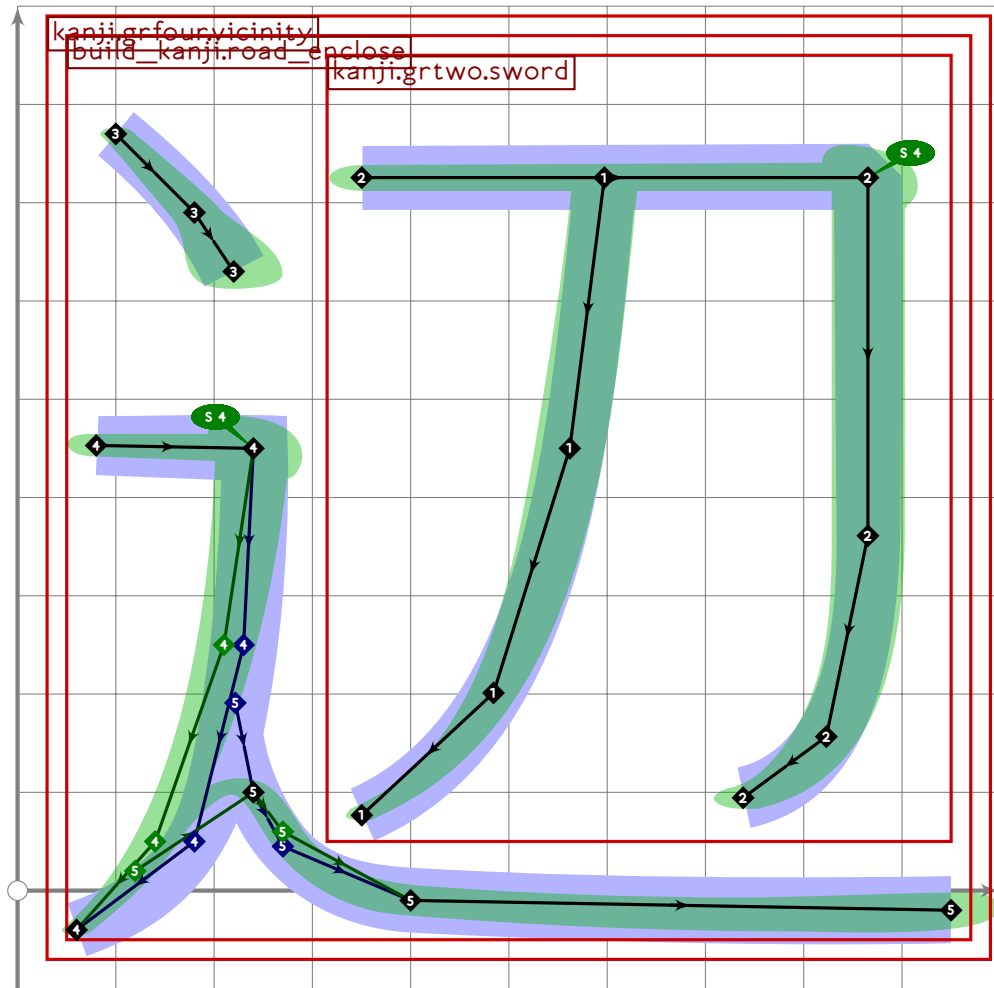
```

52 vardef kanji.grthree.return =
53   push_pbox_toexpand("kanji.grthree.return");
54   build_kanji.road_enclose(kanji.grthree.anti);
55   expand_pbox;
56 enddef;

```

57

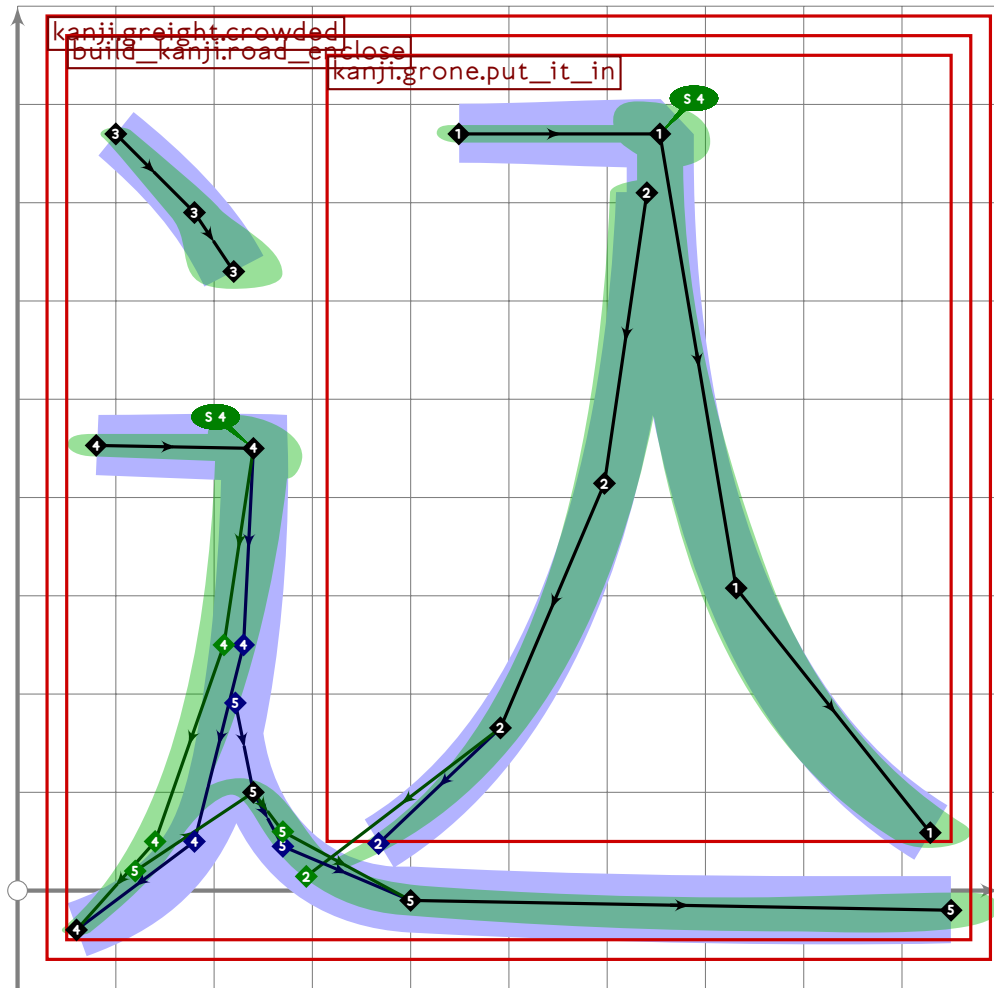
58



```

59
60 vardef kanji.grfour.vicinity =
61   push_pbox_toexpand("kanji.grfour.vicinity");
62   build_kanji.road_enclose(kanji.grtwo.sword);
63   expand_pbox;
64 enddef;
65
66

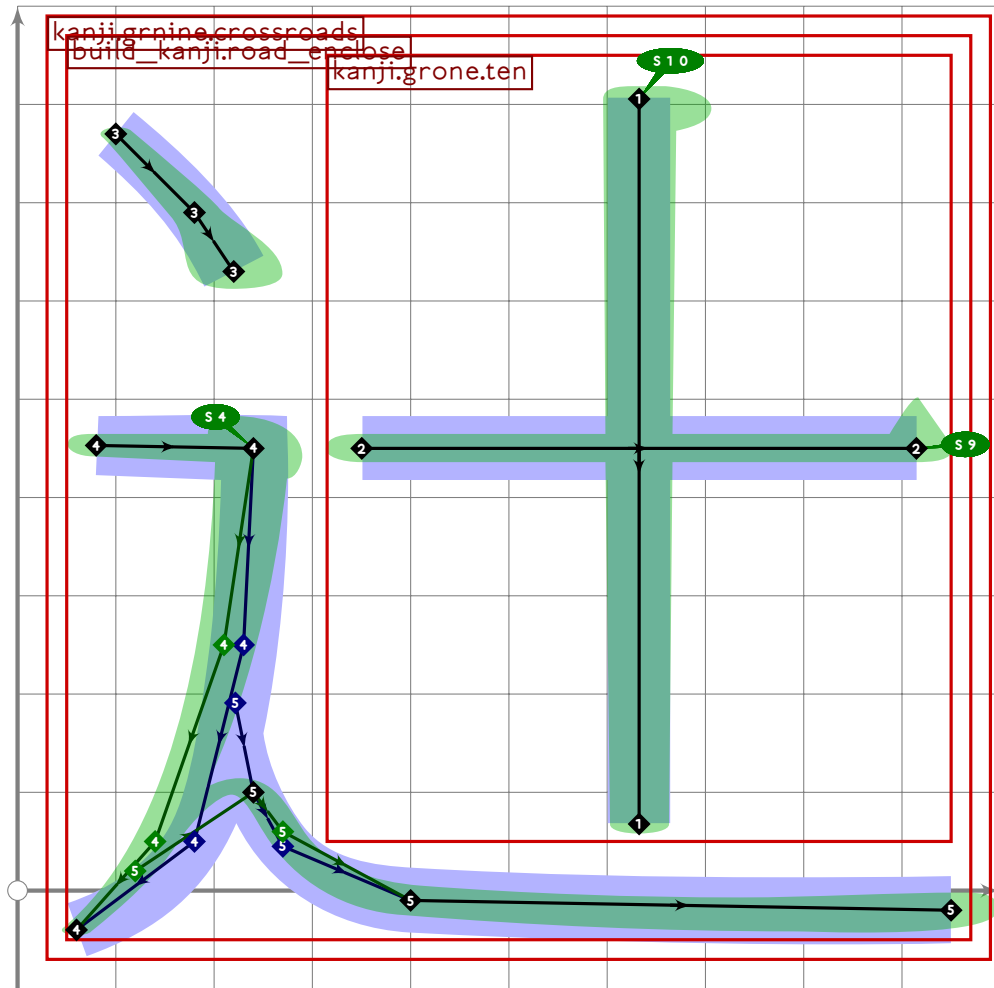
```



```

67
68 vardef kanji.greight.crowded =
69   push_pbox_toexpand("kanji.greight.crowded");
70   build_kanji.road_enclose(kanji.grone.put_it_in);
71   expand_pbox;
72 enddef;
73
74

```

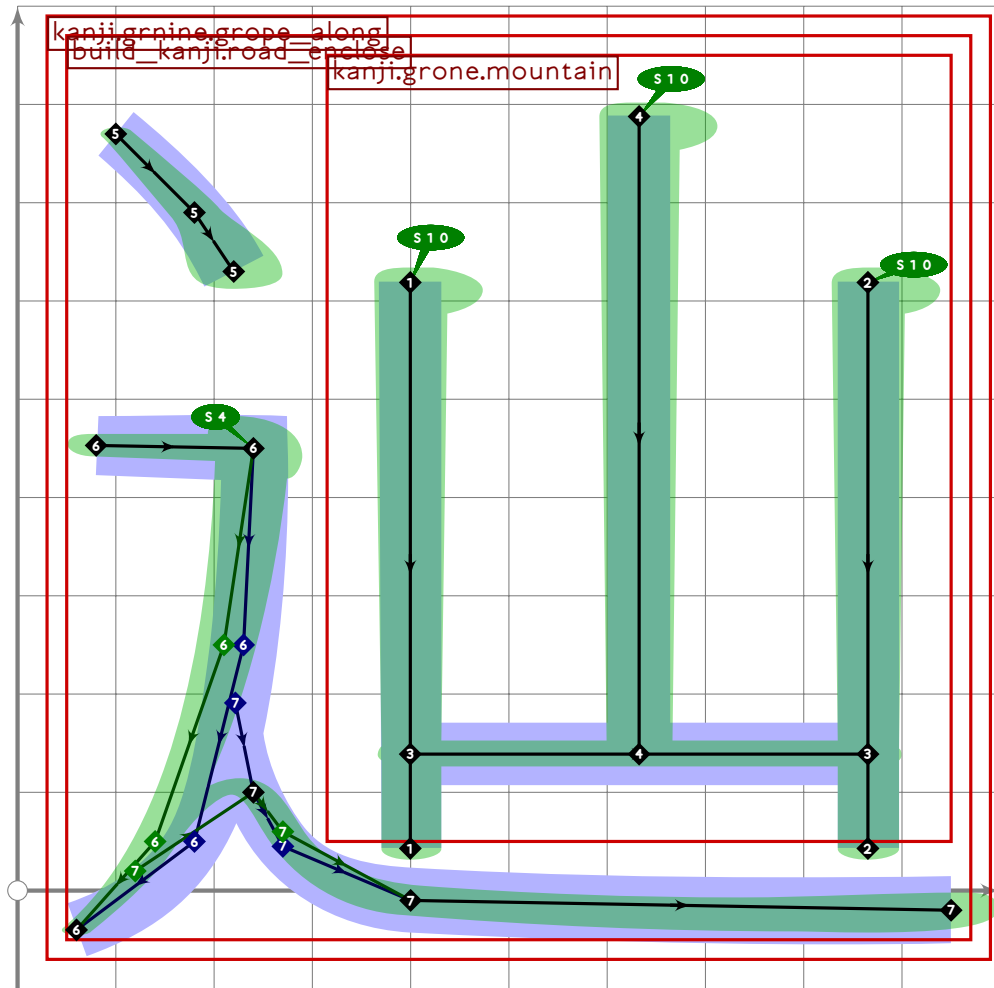


```

75
76 vardef kanji.grnine.crossroads =
77   push_pbox_toexpand("kanji.grnine.crossroads");
78   build_kanji.road_enclose(kanji.grone.ten);
79   expand_pbox;
80 enddef;

```





```

81
82 vardef kanji.grnine.grope_along =
83   push_pbox_toexpand("kanji.grnine.grope_along");
84   build_kanji.road_enclose(kanji.grone.mountain);
85   expand_pbox;
86 enddef;

```

87  
88

```

89
90 % hen/ata "vicinity"
91 begintsuglyph("uni8FBA";186); [see page 2154]
92   kanji.grfour.vicinity;
93   tsu_render;
94 endtsuglyph;

```

```

95
96 % tsuji "crossroads"
97 begintsuglyph("uni8FBB";187); [see page 2156]
98   kanji.grnine.crossroads;
99   tsu_render;
100 endtsuglyph;
101

```

```
102 % ko "crowded"
103 begintsuglyph("uni8FBC";188); [see page 2155]
104 kanji.greight.crowded;
105 tsu_render;
106 endtsuglyph;
107
108 % ten/tado "grope along"
109 begintsuglyph("uni8FBF";191); [see page 2157]
110 kanji.grnine.grope_along;
111 tsu_render;
112 endtsuglyph;
113
114 % kin/chika "near"
115 begintsuglyph("uni8FD1";209); [see page 2153]
116 kanji.grtwo.near;
117 tsu_render;
118 endtsuglyph;
119
120 % hen/kae "return"
121 begintsuglyph("uni8FD4";212); [see page 2153]
122 kanji.grthree.return;
123 tsu_render;
124 endtsuglyph;
125
126 _____
127
128 endfont;
129
130 _____
```

# tsuku-90.mp

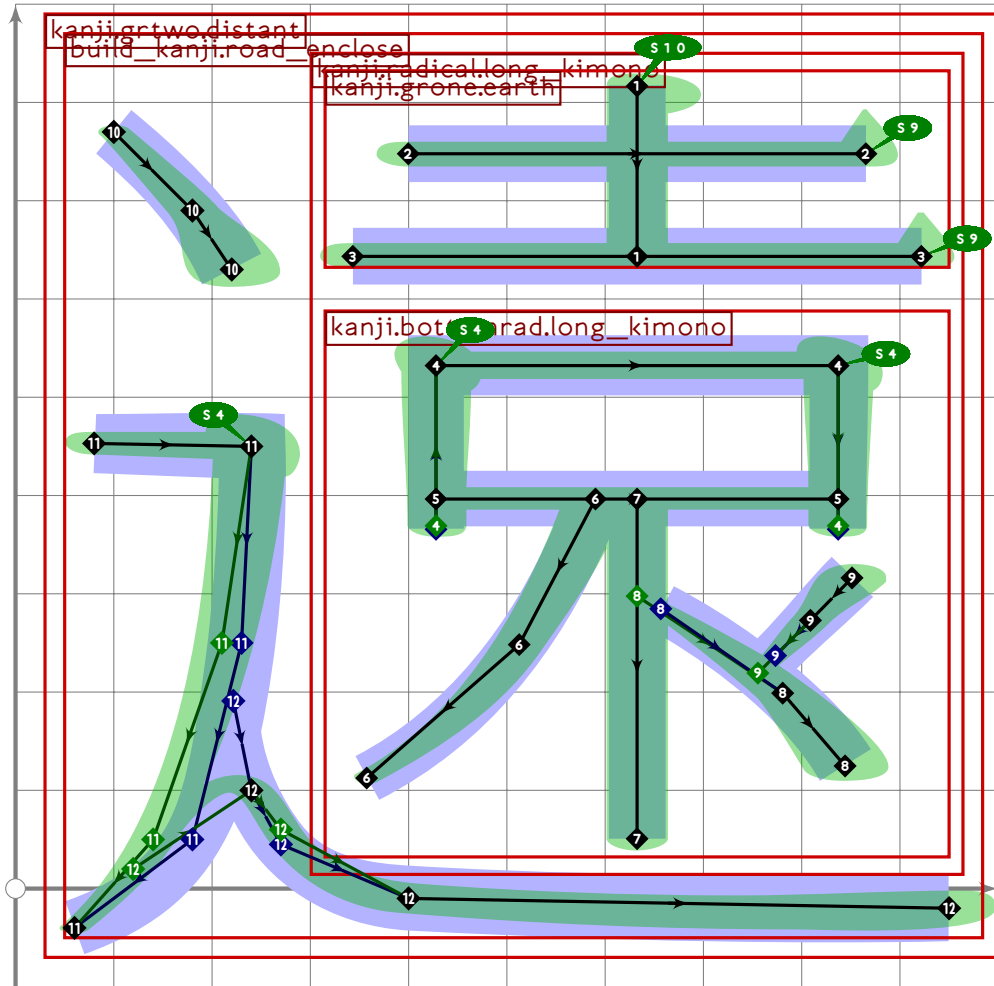
```
1 %
2 % Unicode page 90 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradefour.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input gradetwo.mp;
42 input radical.mp;
43 input rare.mp;
44 input toprad.mp;
45
46 

---

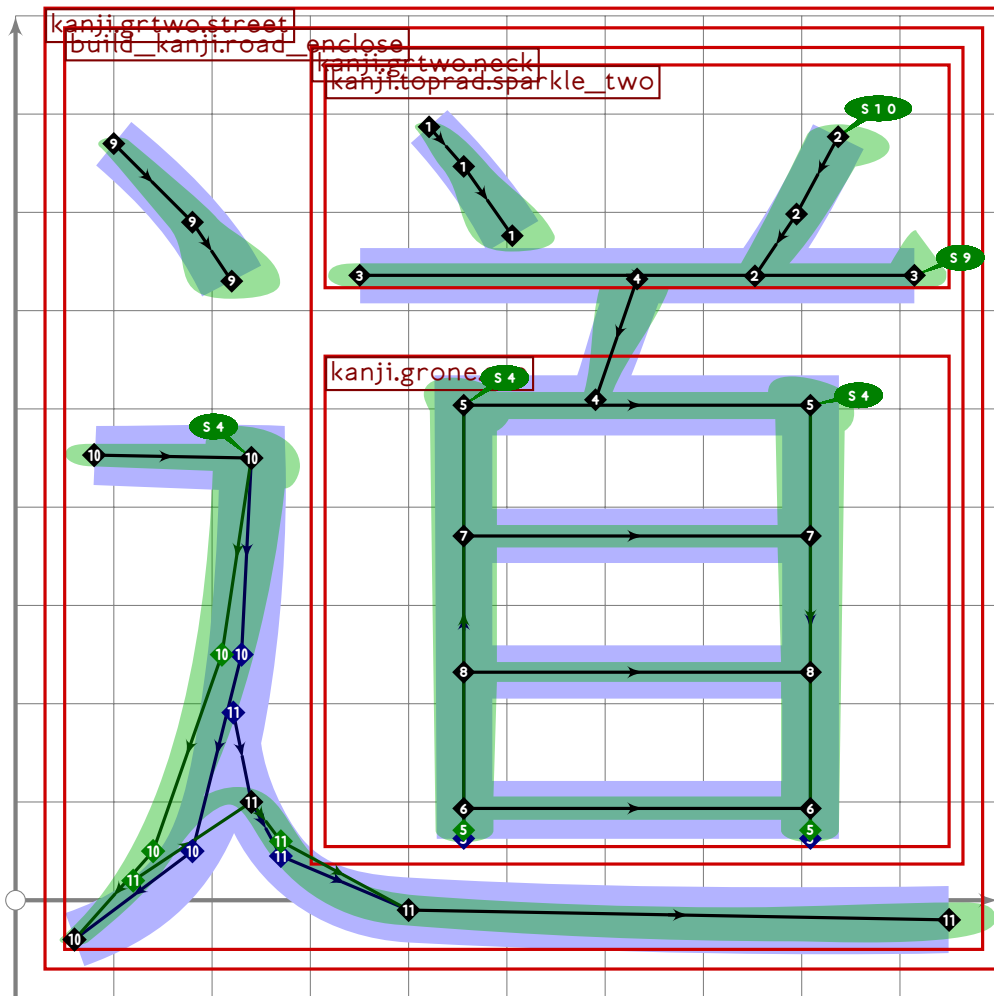

```



```

47
48 vardef kanji.grtwo.distant =
49   push_pbox_toexpand("kanji.grtwo.distant");
50   build_kanji.road_enclose(tsu_xform(identity shifted (0,-20))
51     (kanji.radical.long_kimono));
52   expand_pbox;
53 enddef;

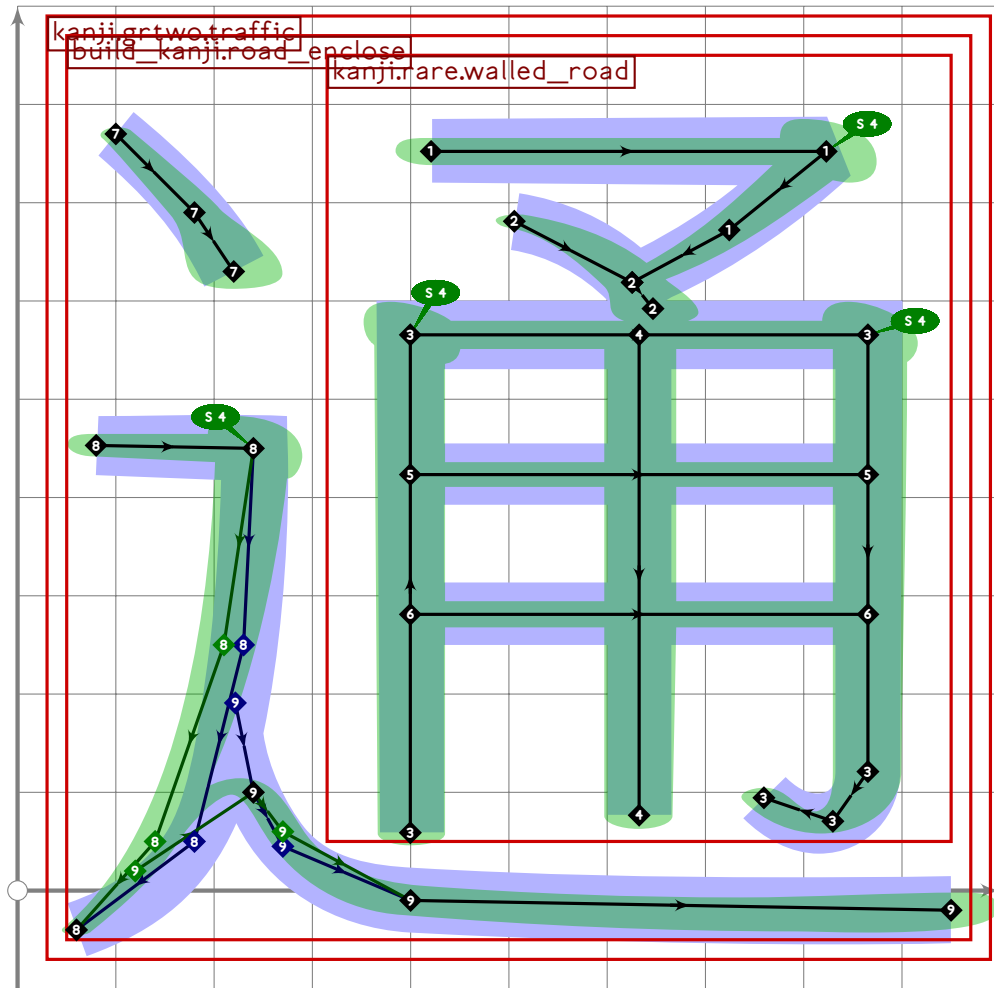
```



```

54
55 vardef kanji.grtwo.street =
56   push_pbox_toexpand("kanji.grtwo.street");
57   build_kanji.road_enclose(kanji.grtwo.neck);
58   expand_pbox;
59 enddef;

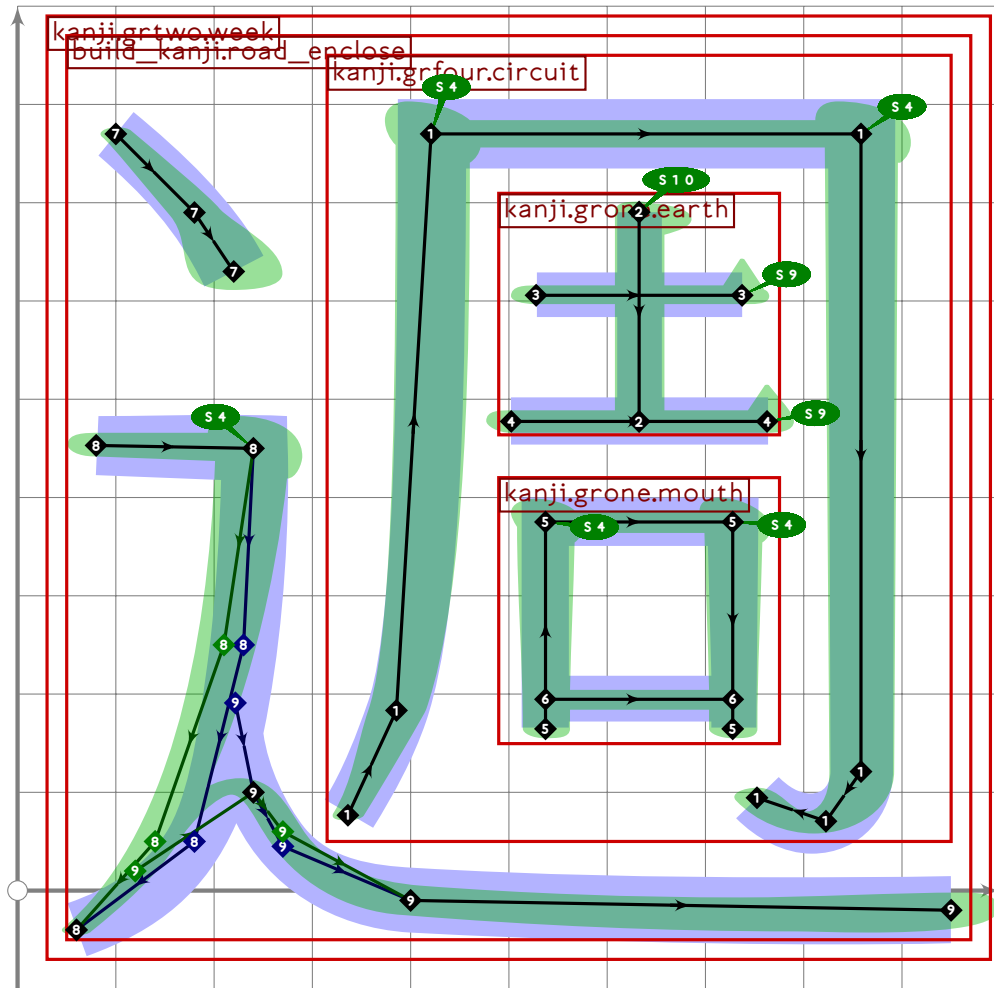
```



```

60
61 vardef kanji.grtwo.traffic =
62   push_pbox_toexpand("kanji.grtwo.traffic");
63   build_kanji.road_enclose(kanji.rare.walled_road);
64   expand_pbox;
65 enddef;

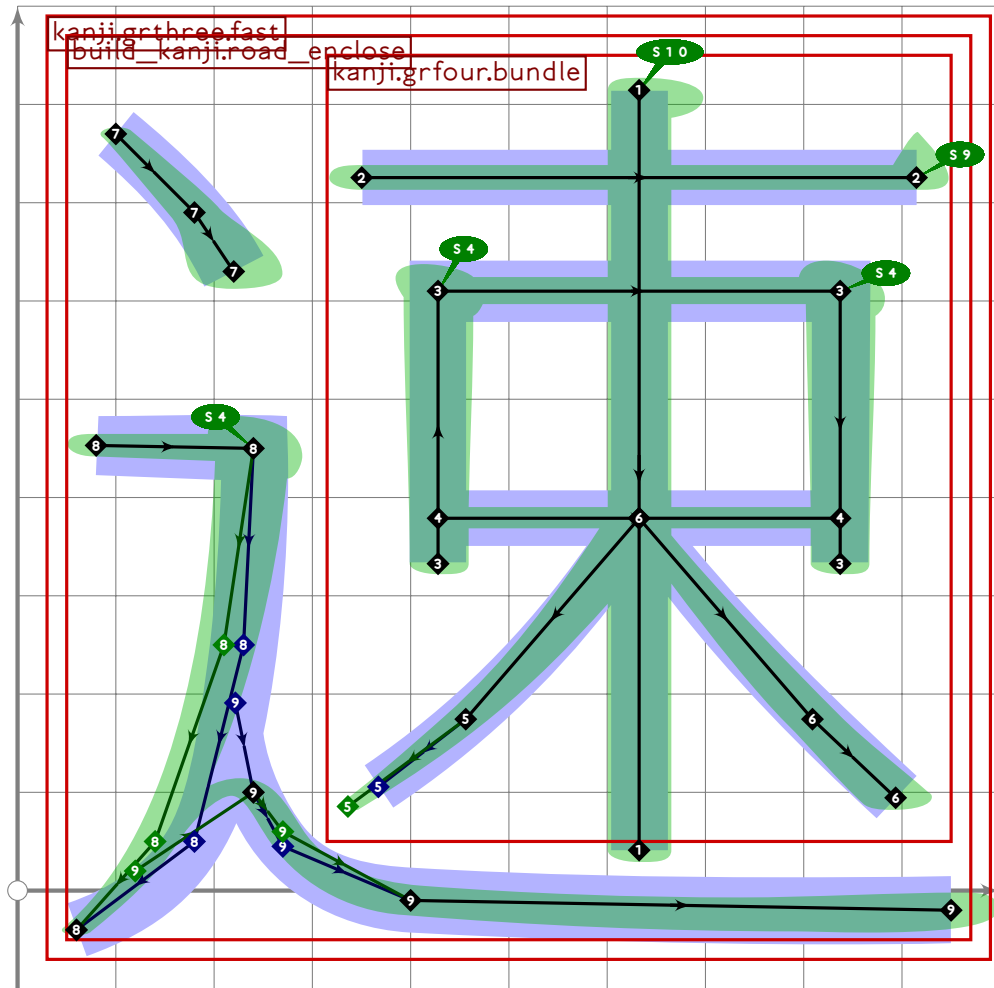
```



```

66
67 vardef kanji.grtwo.week =
68   push_pbox_toexpand("kanji.grtwo.week");
69   build_kanji.road_enclose(kanji.grfour.circuit);
70   expand_pbox;
71 enddef;
72
73

```

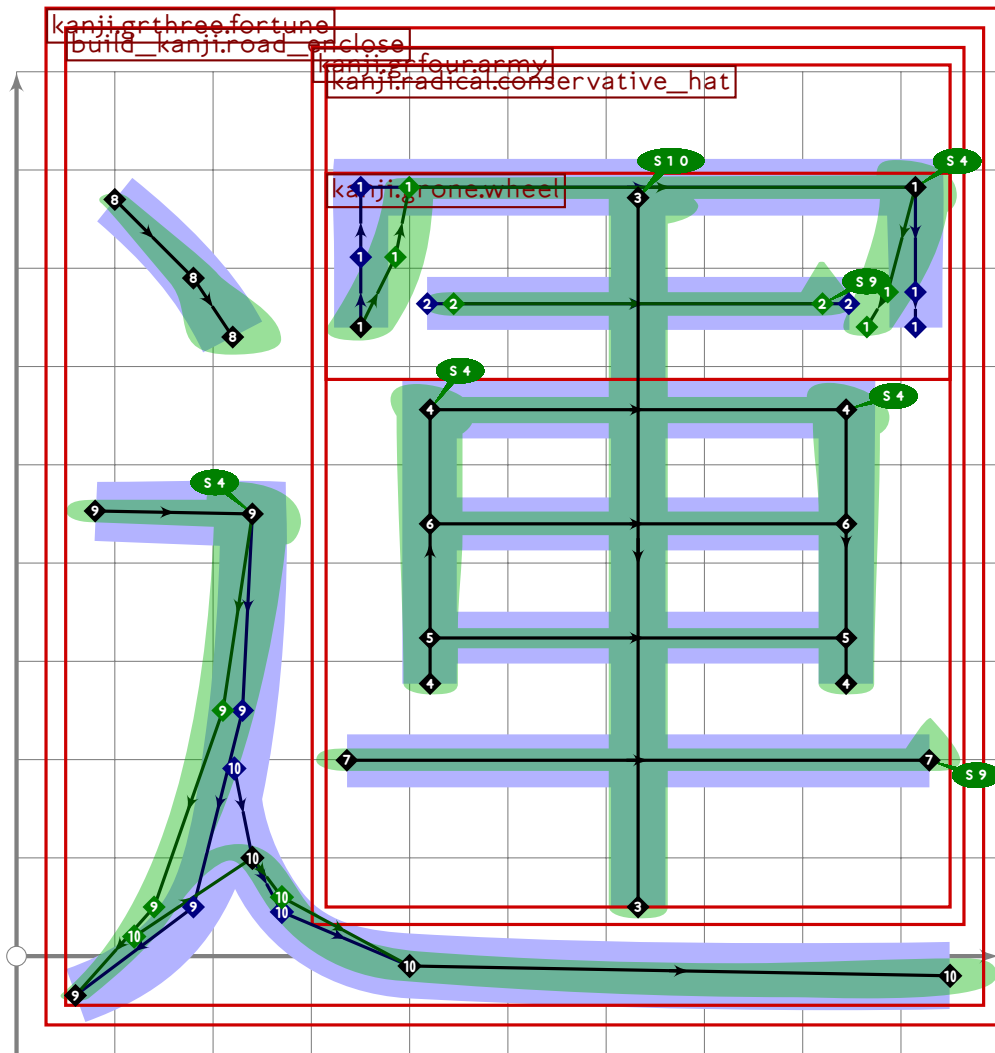


```

74
75 vardef kanji.grthree.fast =
76   push_pbox_toexpand("kanji.grthree.fast");
77   build_kanji.road_enclose(kanji.grfour.bundle);
78   expand_pbox;
79 enddef;

```

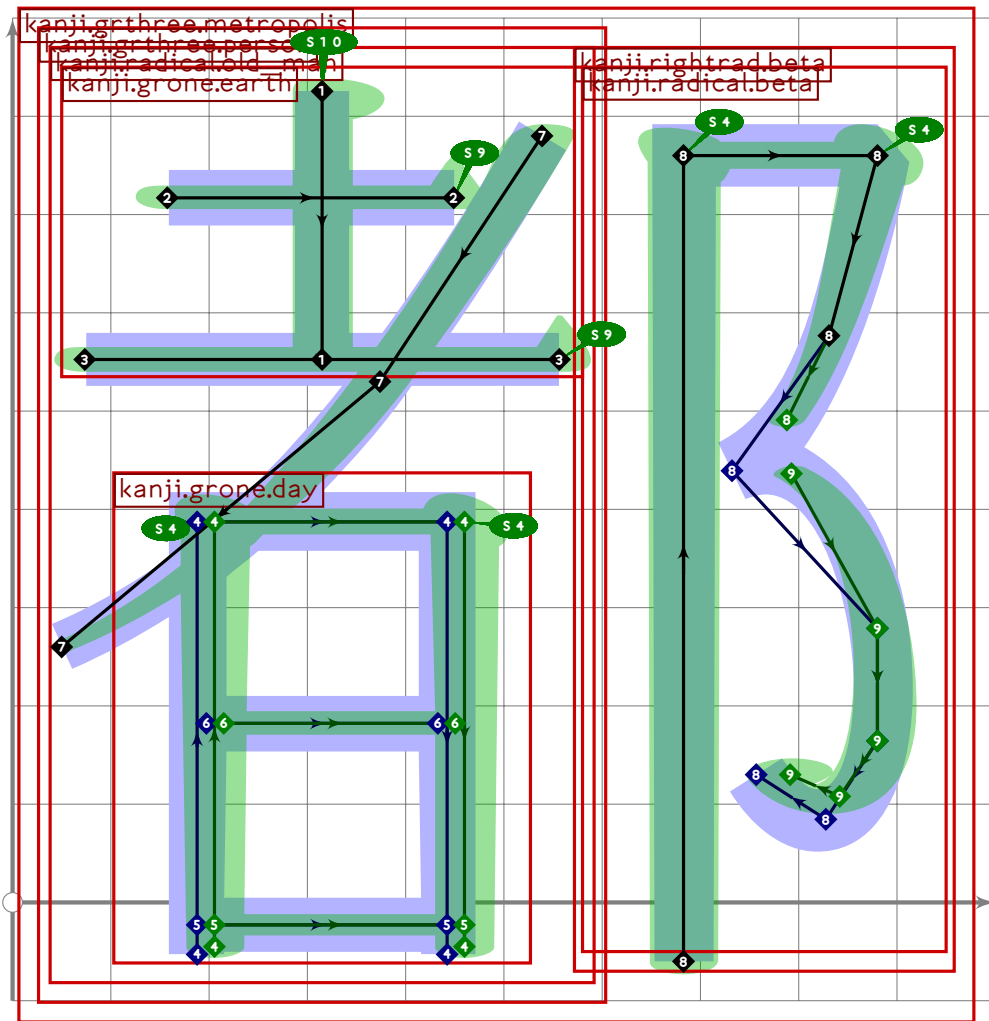




```

80
81 vardef kanji.grthree.fortune =
82   push_pbox_toexpand("kanji.grthree.fortune");
83   build_kanji.road_enclose(kanji.grfour.army);
84   expand_pbox;
85 enddef;

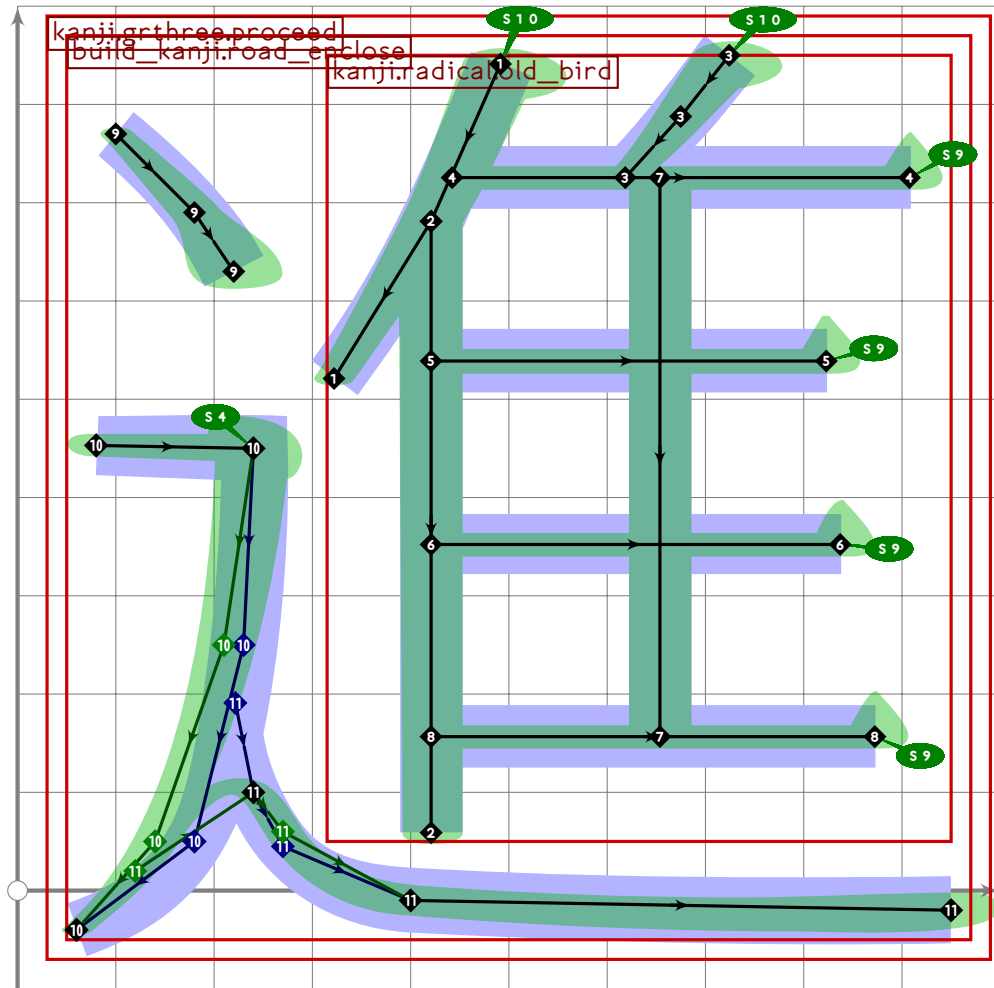
```



```

86
87 vardef kanji.grthree.metropolis =
88   push_pbox_toexpand("kanji.grthree.metropolis");
89   build_kanji.lr(580,0)
90     (kanji.grthree.person)
91     (kanji.rightrad.beta);
92   expand_pbox;
93 enddef;

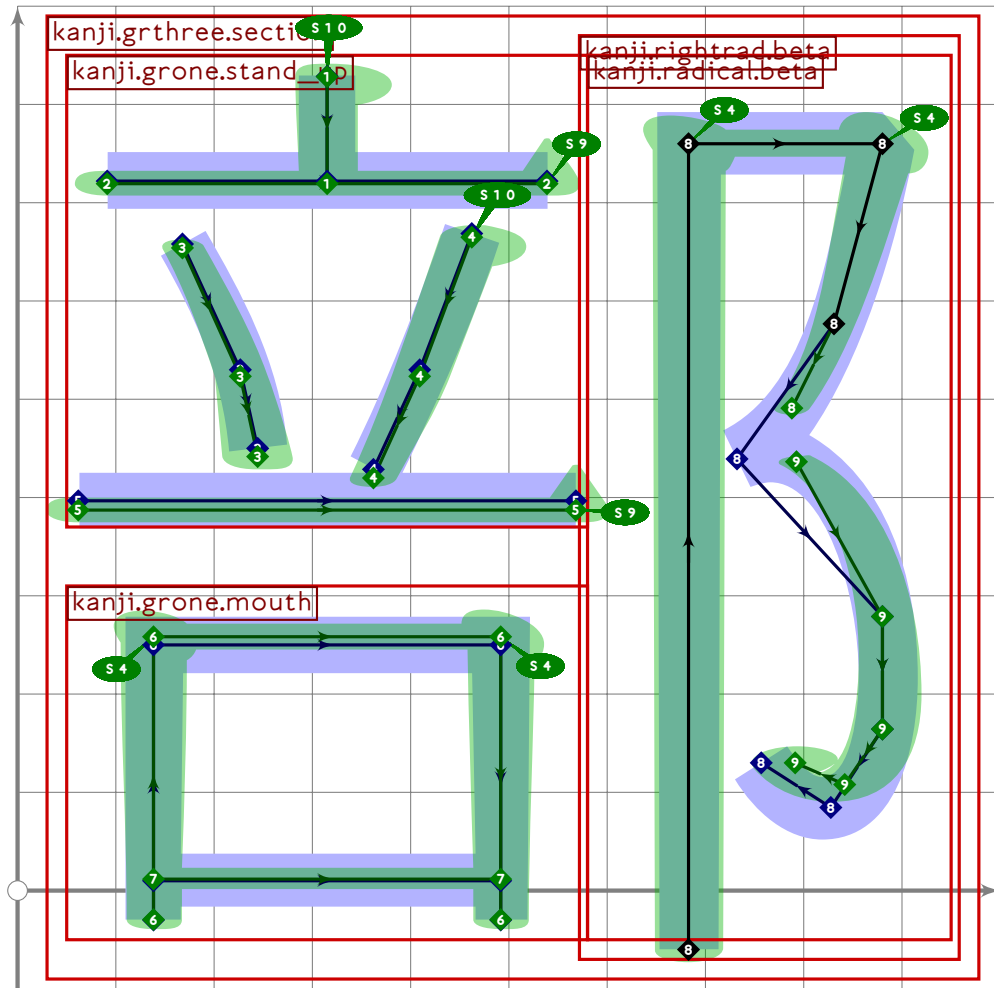
```



```

94
95 vardef kanji.grthree.proceed =
96   push_pbox_toexpand("kanji.grthree.proceed");
97   build_kanji.road_enclose(kanji.radical.old_bird);
98   expand_pbox;
99 enddef;

```



```

100
101 vardef kanji.grthree.section =
102   push_pbox_toexpand("kanji.grthree.section");
103   build_kanji.lr(580,0)
104     (build_kanji.tb(340,-60+20*mincho)
105       (kanji.grone.stand_up)
106       (kanji.grone.mouth))
107     (kanji.rightrad.beta);
108   expand_pbox;
109 enddef;

```

```

110
111 _____
112
113 % tsuu/too "distant"
114 begint Suglyph("uni901A";26); [see page 2162]
115   kanji.grtwo.traffic;
116   tsu_render;
117 endtsuglyph;
118
119 % soku/haya "fast"
120 begint Suglyph("uni901F";31); [see page 2164]

```

121 `kanji.grthree.fast;`  
122 `tsu_render;`  
123 `endtsuglyph;`  
124  
125 `% shuu "week"`  
126 `begintsuglyph("uni9031";49);` [see page 2163]  
127 `kanji.grtwo.week;`  
128 `tsu_render;`  
129 `endtsuglyph;`  
130  
131 `% sin/susu "proceed"`  
132 `begintsuglyph("uni9032";50);` [see page 2167]  
133 `kanji.grthree.proceed;`  
134 `tsu_render;`  
135 `endtsuglyph;`  
136  
137 `% sin/susu "proceed"`  
138 `begintsuglyph("uni904B";75);` [see page 2165]  
139 `kanji.grthree.fortune;`  
140 `tsu_render;`  
141 `endtsuglyph;`  
142  
143 `% dou/michi "street"`  
144 `begintsuglyph("uni9053";83);` [see page 2161]  
145 `kanji.grtwo.street;`  
146 `tsu_render;`  
147 `endtsuglyph;`  
148  
149 `% en/too "distant"`  
150 `begintsuglyph("uni9060";96);` [see page 2160]  
151 `kanji.grtwo.distant;`  
152 `tsu_render;`  
153 `endtsuglyph;`  
154  
155 `% bu/be "section"`  
156 `begintsuglyph("uni90E8";232);` [see page 2168]  
157 `kanji.grthree.section;`  
158 `tsu_render;`  
159 `endtsuglyph;`  
160  
161 `% to/miyako "metropolis"`  
162 `begintsuglyph("uni90FD";253);` [see page 2166]  
163 `kanji.grthree.metropolis;`  
164 `tsu_render;`  
165 `endtsuglyph;`  
166  
167 

---

169 **endfont;**

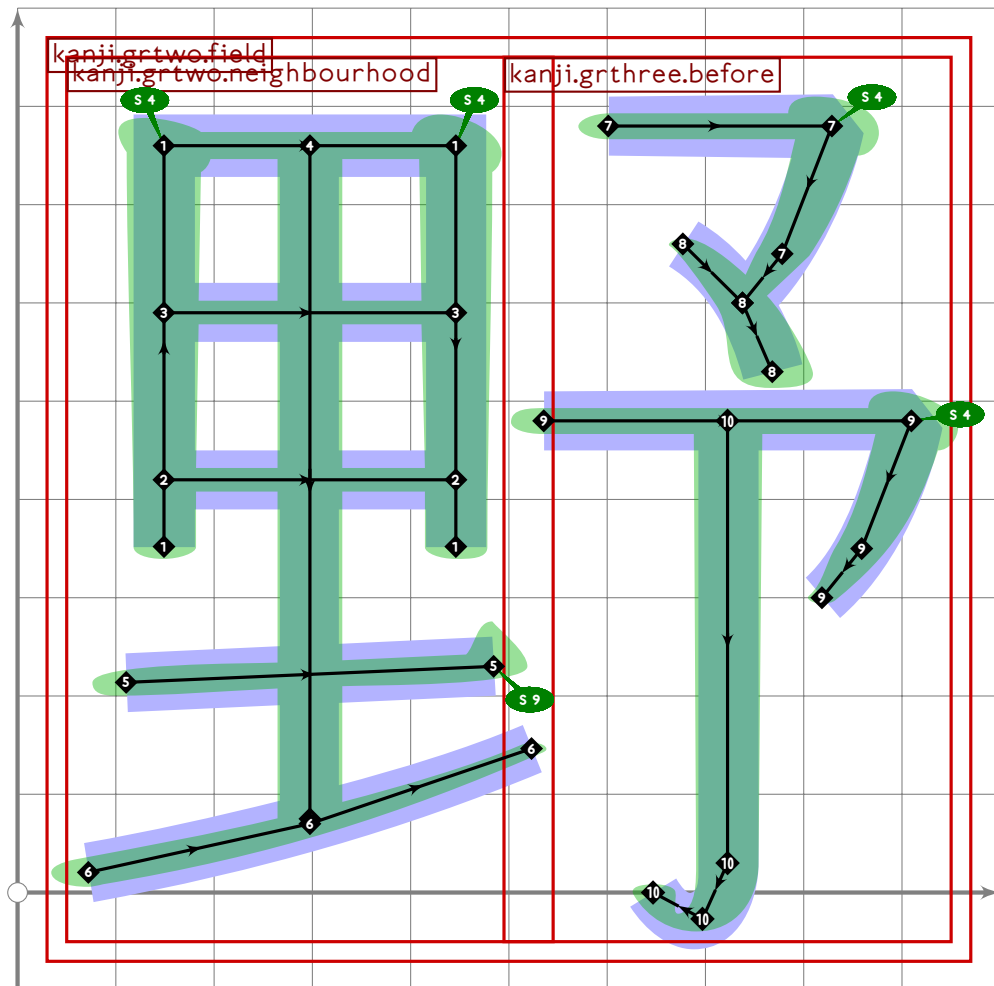
170

171

---

# tsuku-91.mp

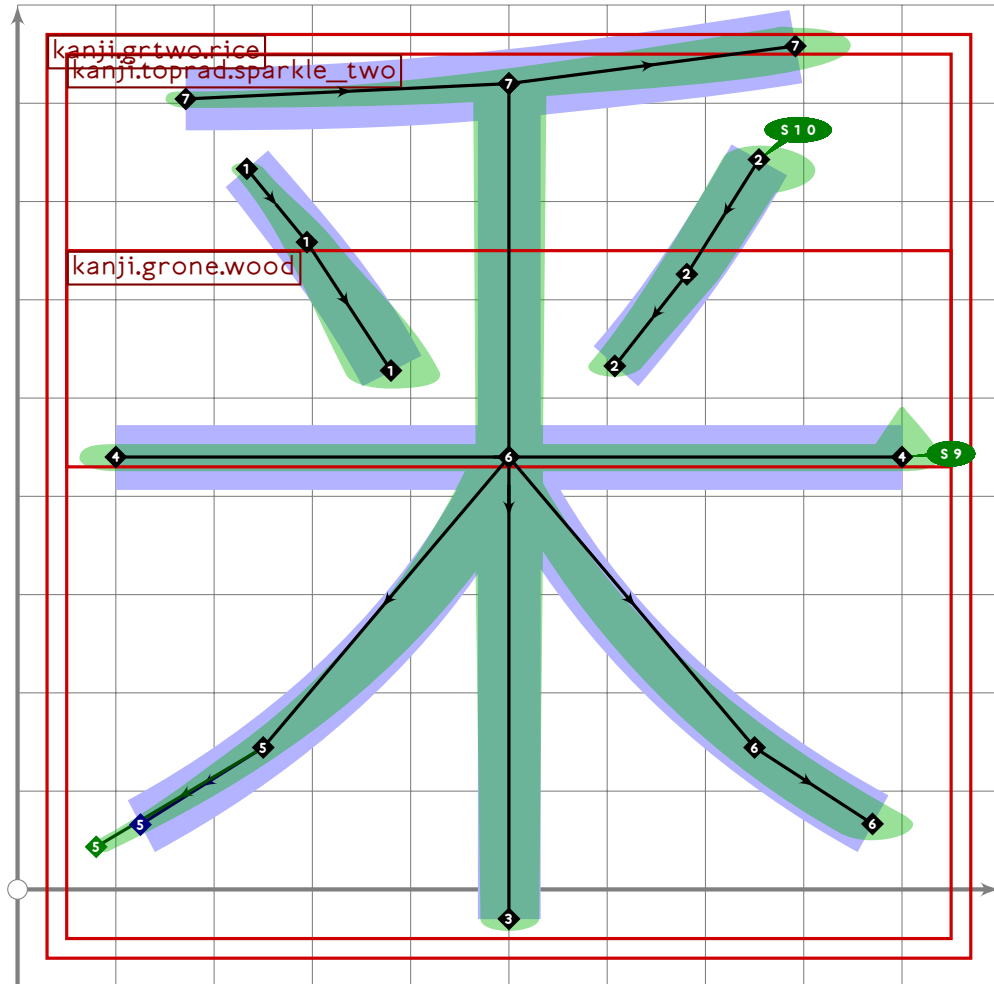
```
1 %  
2 % Unicode page 91 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradethree.mp;  
39 input gradetwo.mp;  
40 input radical.mp;  
41 input toprad.mp;  
42  
43 _____
```



```

44
45 vardef kanji.grtwo.field =
46   push_pbox_toexpand("kanji.grtwo.field");
47   build_kanji.level(build_kanji.lr(520,50)
48     (build_kanji.lift_skirt(250,150)(kanji.grtwo.neighbourhood))
49     (kanji.grthree.before));
50   expand_pbox;
51 enddef;
52
53
54

```



```

55 % han/irodori "separate" or "divide" but mostly "topped rice radical"
56 begintsuglyph("uni91C6";198);
57   build_kanji.add_beret(kanji.grtwo.rice);
58   tsu_render;
59 endtsuglyph;
60
61 % ri/sato, multiple meanings including 3.929km and "neighbourhood"
62 begintsuglyph("uni91CC";204);
63   kanji.grtwo.neighbourhood;
64   tsu_render;

```

[see page 485]



```
65 endtsuglyph;
66
67 % shuu/e "heap big"
68 begintsuglyph("uni91CD";205); [see page 520]
69 kanji.grthree.heap_big;
70 tsu_render;
71 endtsuglyph;
72
73 % ya/no "field"
74 begintsuglyph("uni91CE";206); [see page 1613]
75 kanji.grtwo.field;
76 tsu_render;
77 endtsuglyph;
78
79 % kane/kin "gold"
80 begintsuglyph("uni91D1";209); [see page 401]
81 kanji.grone.gold;
82 tsu_render;
83 endtsuglyph;
84
85 

---

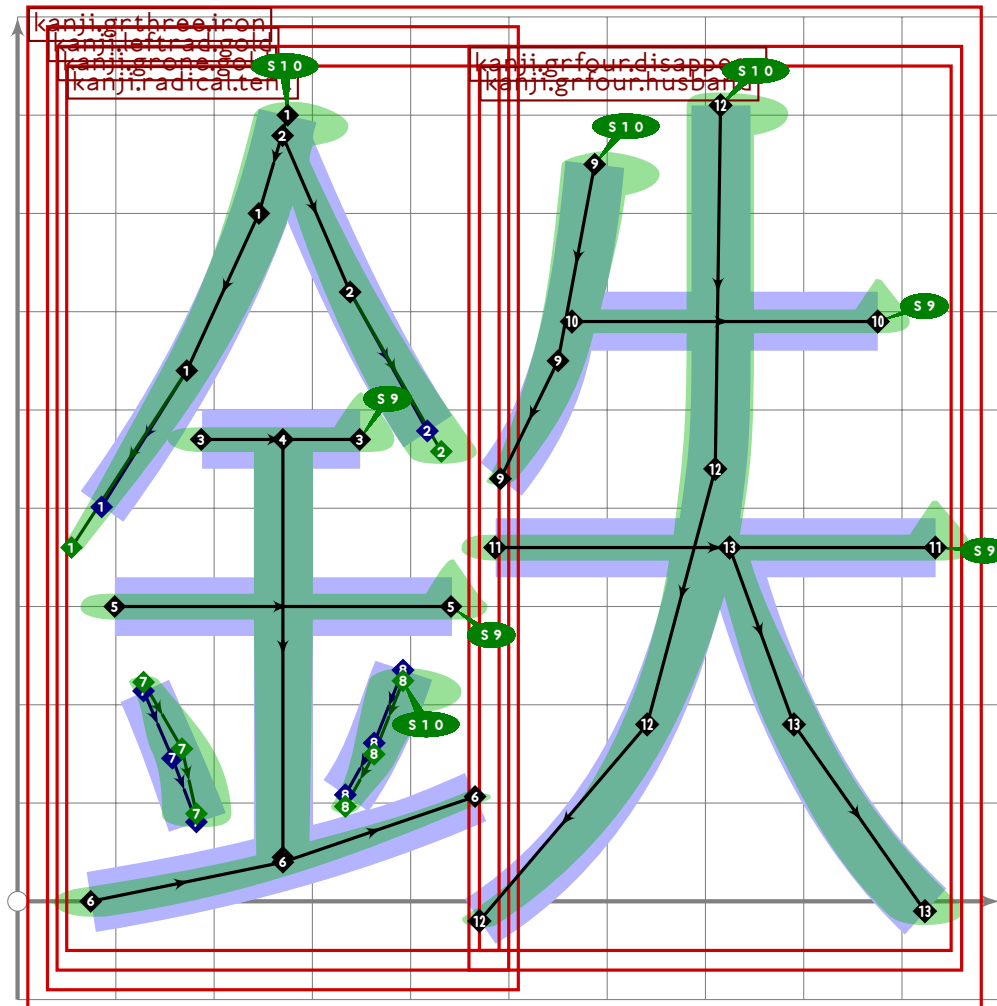

86
87 endfont;
88
89 

---


```

# tsuku-92.mp

```
1 %  
2 % Unicode page 92 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradefour.mp;  
38 input gradeone.mp;  
39 input radical.mp;  
40  
41
```

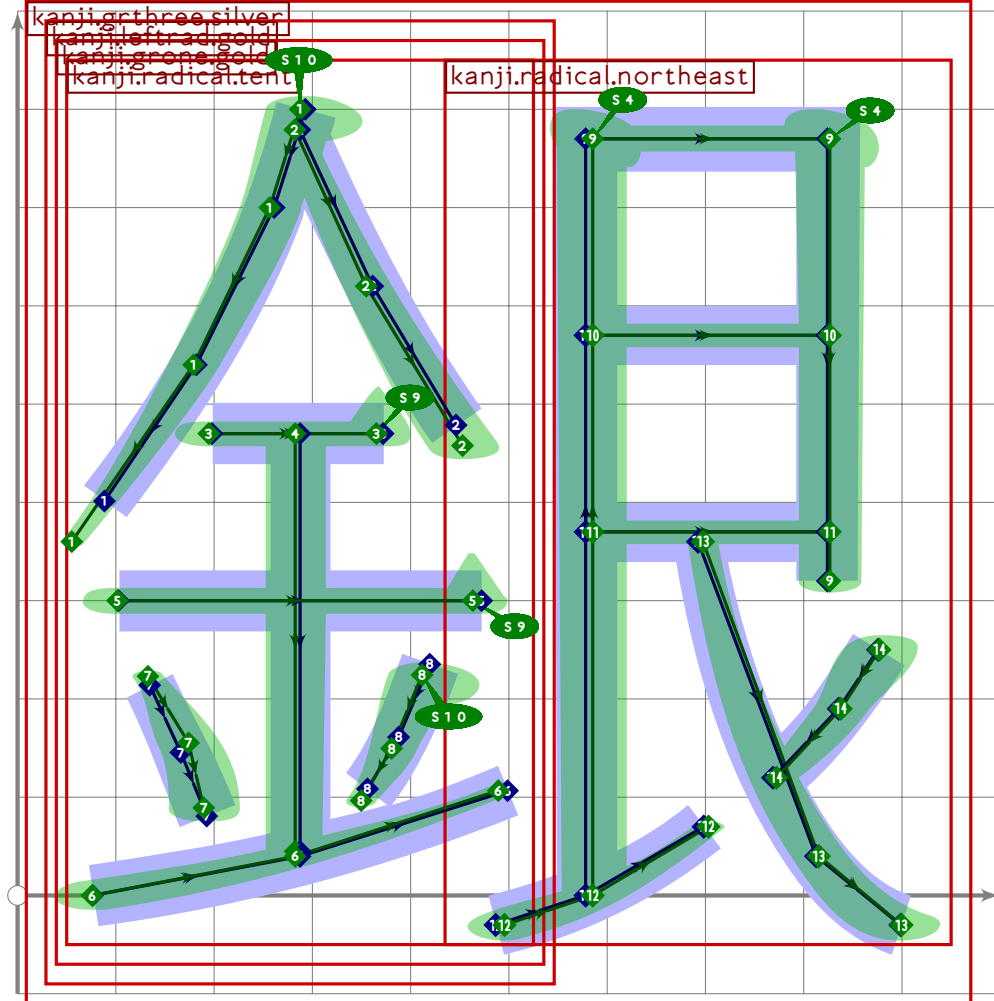


```
42  
43 vardef kanji.grthree.iron =
```

```

44 push_pbox_toexpand("kanji.grthree.iron");
45 build_kanji.level(build_kanji.lr(480,20)
46   (kanji.leftrad.gold)
47   (kanji.grfour.disappear));
48 expand_pbox;
49 endif;

```



```

50
51 vardef kanji.grthree.silver =
52   push_pbox_toexpand("kanji.grthree.silver");
53   build_kanji.level(build_kanji.lr(480,90-20*mincho)
54     (kanji.leftrad.gold)
55     (kanji.radical.northeast));
56   expand_pbox;
57 endif;
58
59
60
61 vardef kanji.leftrad.gold =
62   push_pbox_toexpand("kanji.leftrad.gold");
63   build_kanji.lift_skirt(250,120)(kanji.grone.gold);

```

```
64 replace_stroke(-6)(subpath (0,1,7) of oldp);
65 expand_pbox;
66 enddef;
67
68 

---


69
70 % tetsu/kurogane "iron"
71 begintsuglyph("uni9244";68); [see page 2174]
72 kanji.grthree.iron;
73 tsu_render;
74 endtsuglyph;
75
76 % gin/shirogane "silver"
77 begintsuglyph("uni9280";128); [see page 2175]
78 kanji.grthree.silver;
79 tsu_render;
80 endtsuglyph;
81
82 

---


83
84 endfont;
85
86 

---


```

# tsuku-95.mp

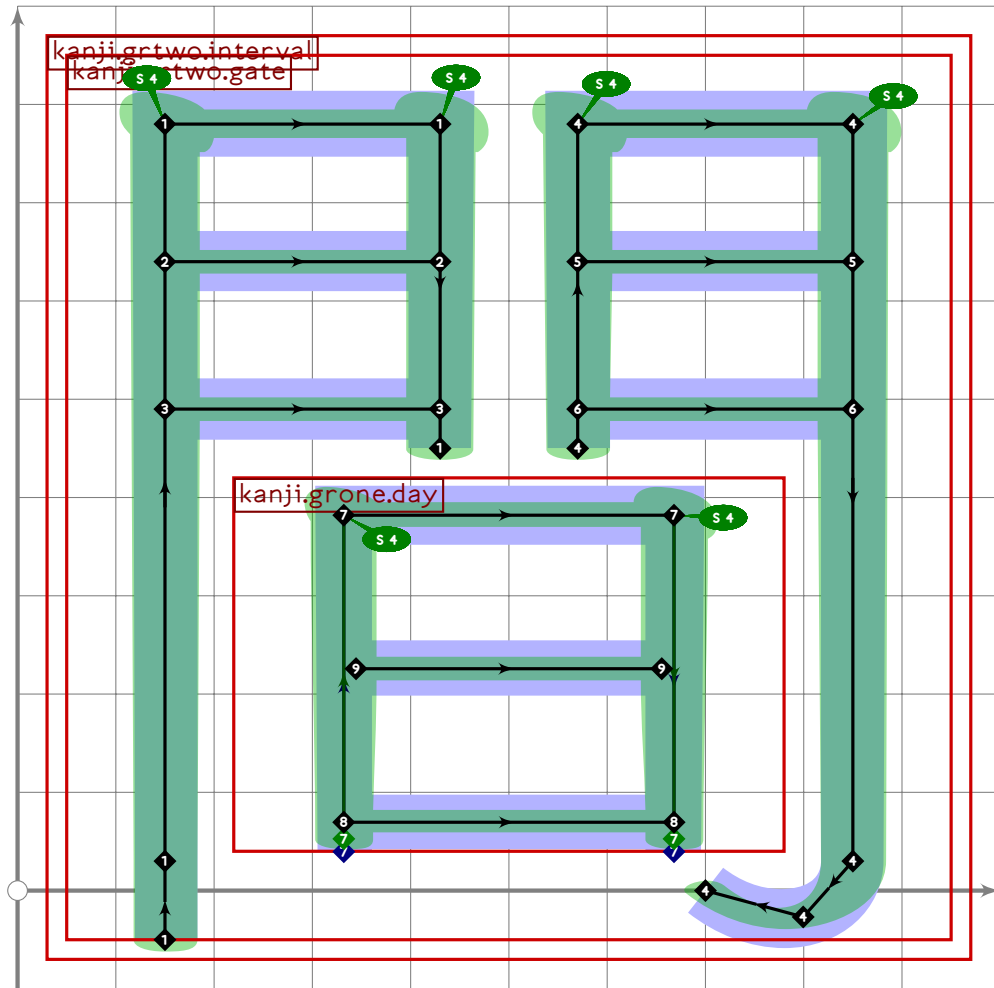
```
1 %
2 % Unicode page 95 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradenine.mp;
38 input gradeone.mp;
39 input gradesix.mp;
40 input gradethree.mp;
41 input gradetwo.mp;
42 input radical.mp;
43
44 

---

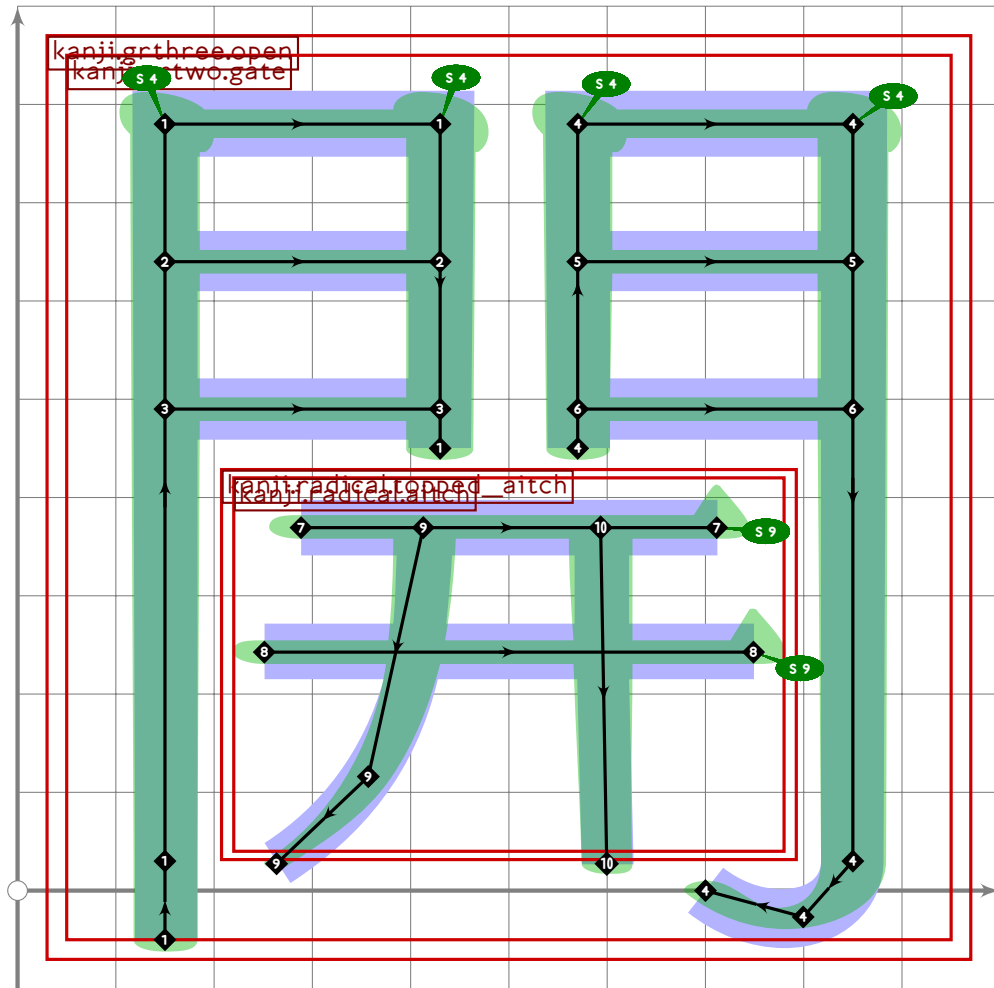

```



```

45
46 vardef kanji.grtwo.interval =
47   push_pbox_toexpand("kanji.grtwo.interval");
48   build_kanji.gate_enclose(kanji.grone.day);
49   expand_pbox;
50 enddef;
51
52

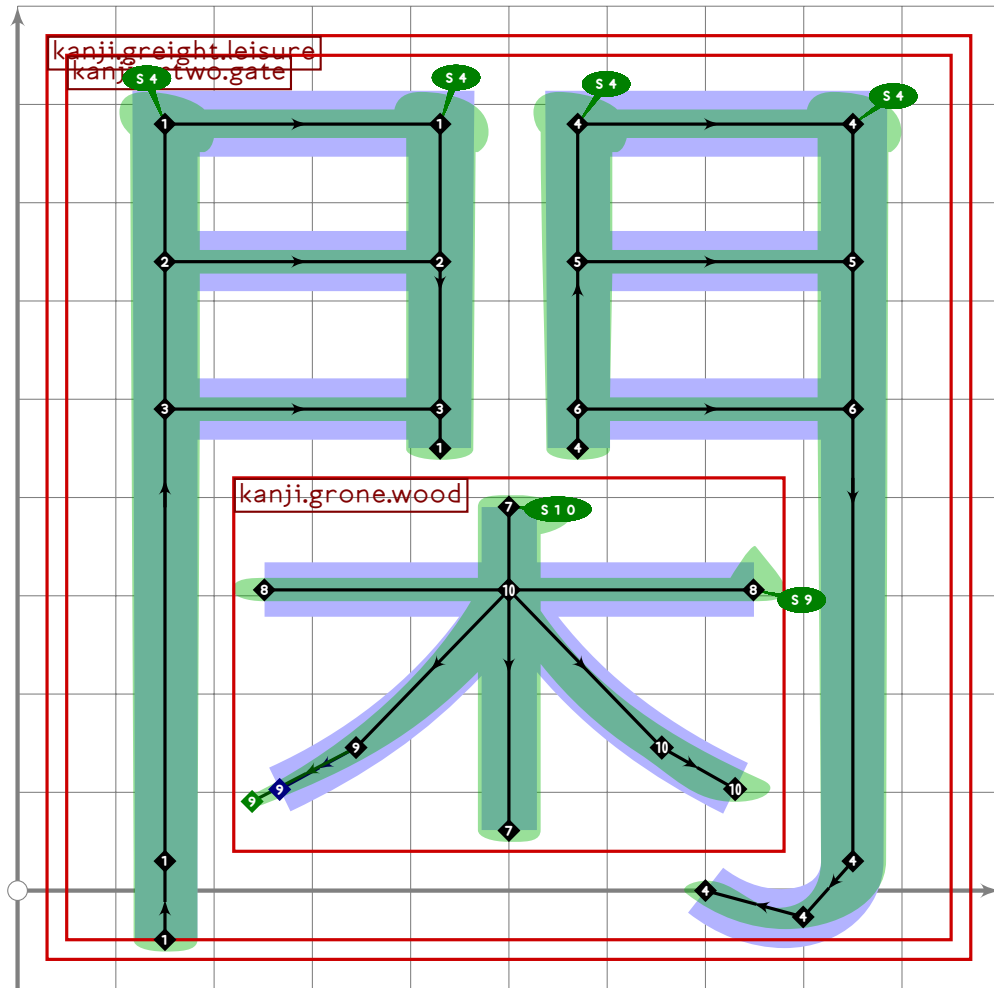
```



```

53
54 vardef kanji.grthree.open =
55   push_pbox_toexpand("kanji.grthree.open");
56   build_kanji.gate_enclose(kanji.radical.topped_aitch);
57   expand_pbox;
58 enddef;
59
60

```

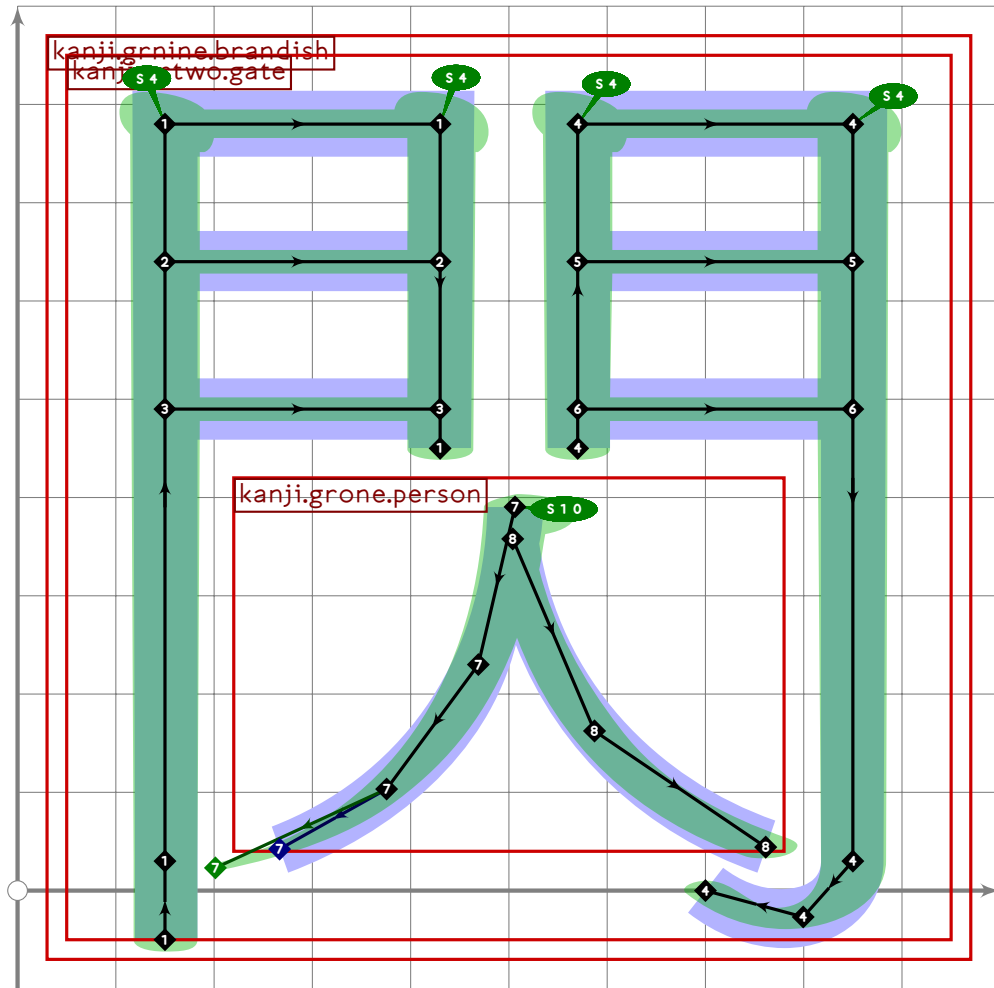


```

61
62 vardef kanji.greight.leisure =
63   push_pbox_toexpand("kanji.greight.leisure");
64   build_kanji.gate_enclose(kanji.grone.wood);
65   expand_pbox;
66 enddef;
67
68

```

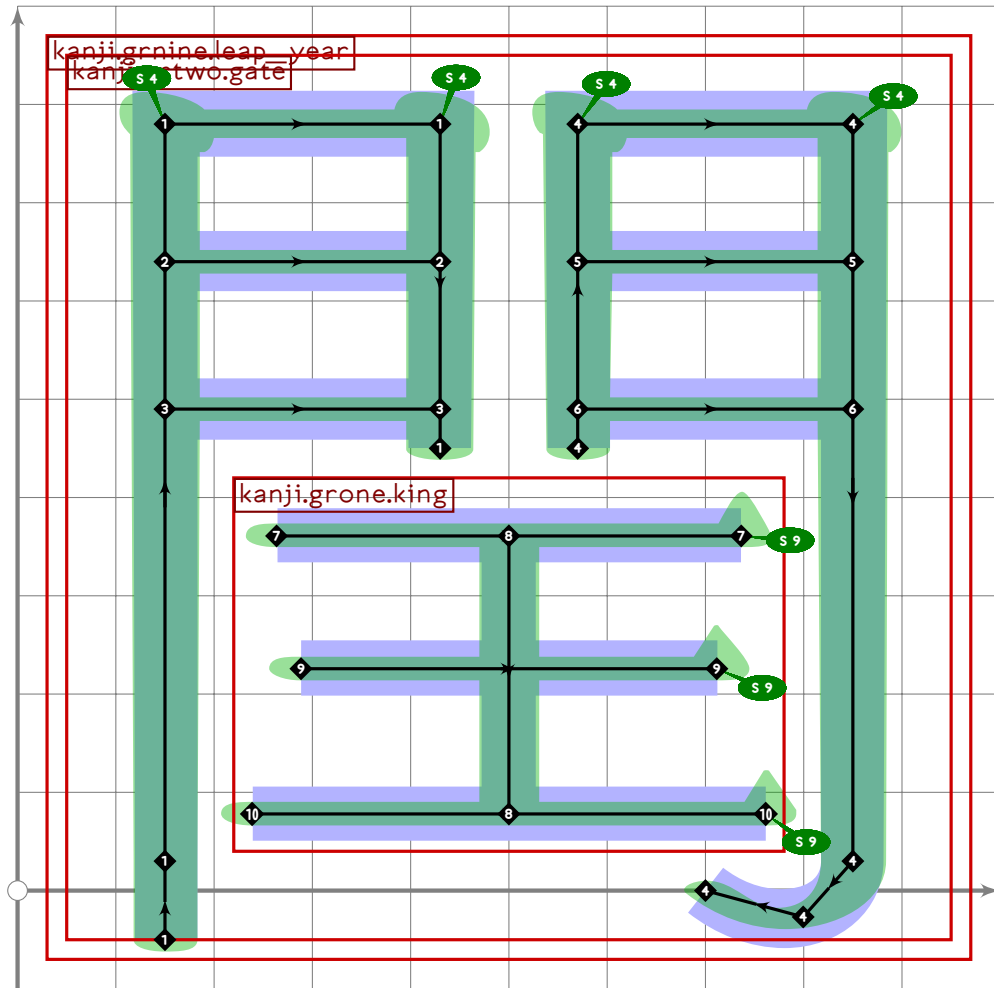




```

69
70 vardef kanji.grnine.brandish =
71   push_pbox_toexpand("kanji.grnine.brandish");
72   build_kanji.gate_enclose(kanji.grone.person);
73   expand_pbox;
74 enddef;

```



```

75
76 vardef kanji.grnine.leap_year =
77   push_pbox_toexpand("kanji.grnine.leap_year");
78   build_kanji.gate_enclose(kanji.grone.king);
79   expand_pbox;
80 enddef;

```

81  
82

```

83
84 % chou/naga "long"
85 begintsuglyph("uni9577";119);
86   kanji.grtwo.long;
87   tsu_render;
88 endtsuglyph;

```

[see page 475]

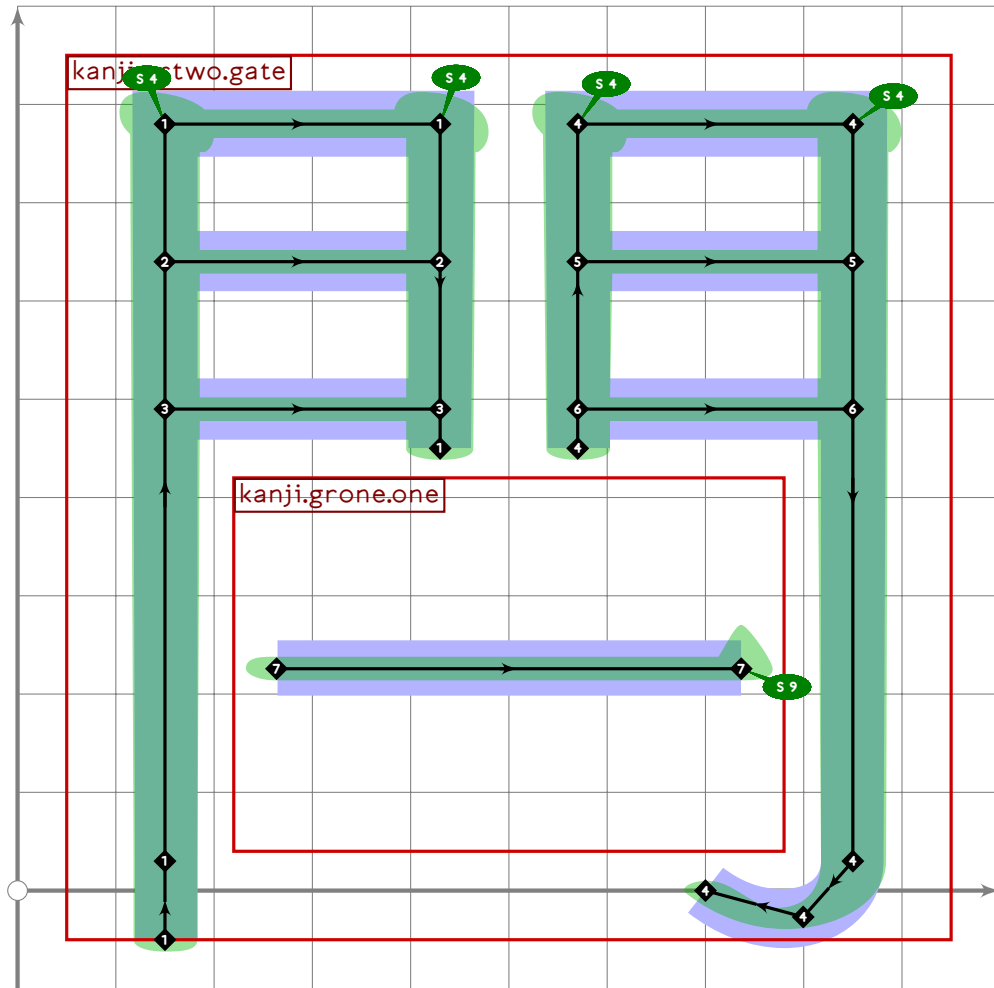
```

89
90 % mon/kado "gate"
91 begintsuglyph("uni9580";128);
92   kanji.grtwo.gate;
93   tsu_render;
94 endtsuglyph;

```

[see page 464]

95

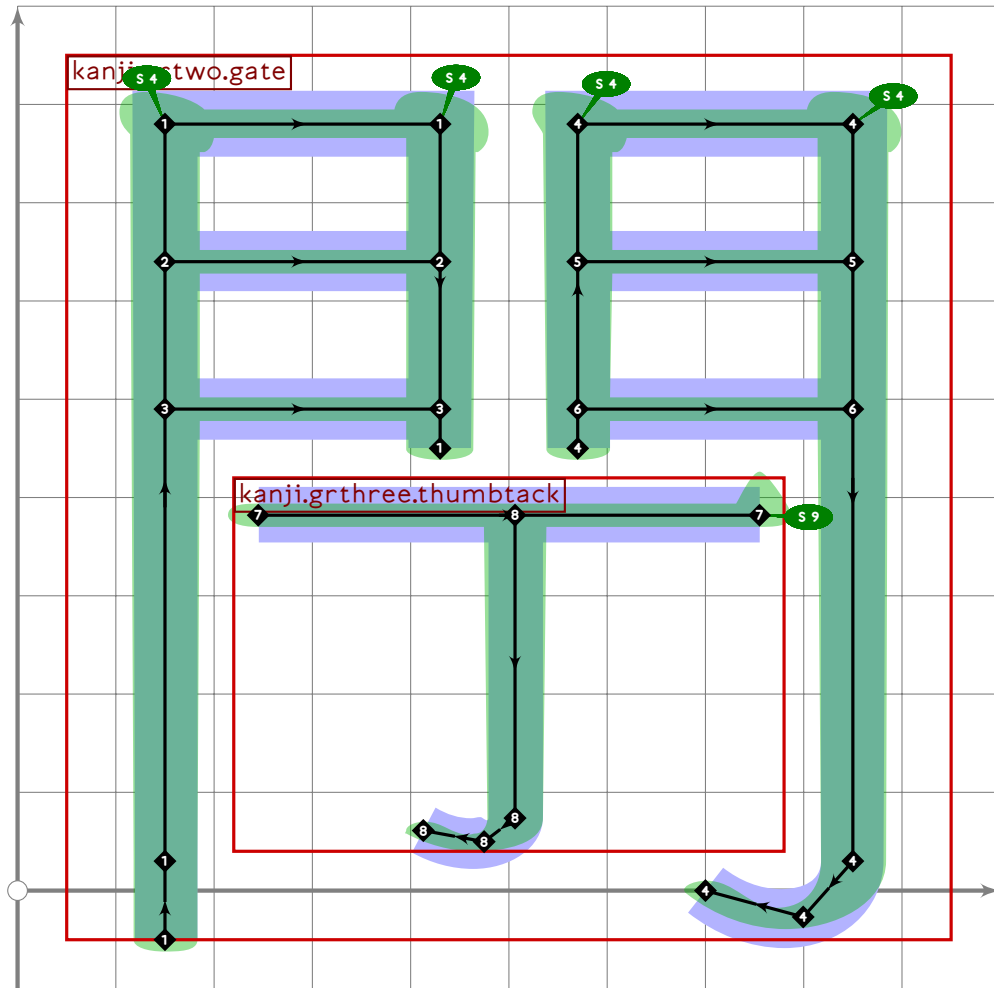


```

96 % extra
97 begintsuglyph("uni9582",130);
98 build_kanji.gate_enclose(kanji.grone.one);
99 tsu_render;
100 endtsuglyph;
101
102 % sen/hirame "brandish"
103 begintsuglyph("uni9583",131);
104 kanji.grnine.brandish;
105 tsu_render;
106 endtsuglyph;
107

```

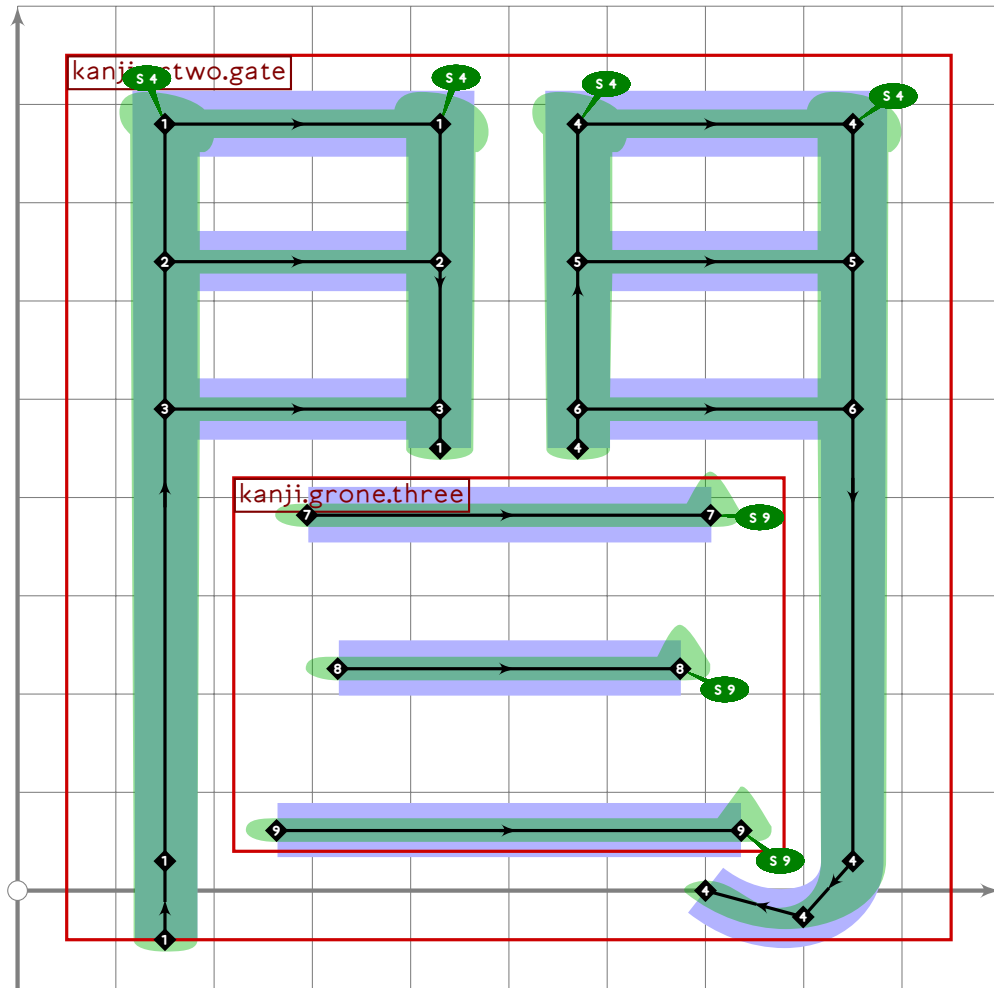
[see page 2181]



```

108 % extra
109 begintsuglyph("uni9585";133);
110 build_kanji.gate_enclose(kanji.grthree.thumbtack);
111 tsu_render;
112 endtsuglyph;
113

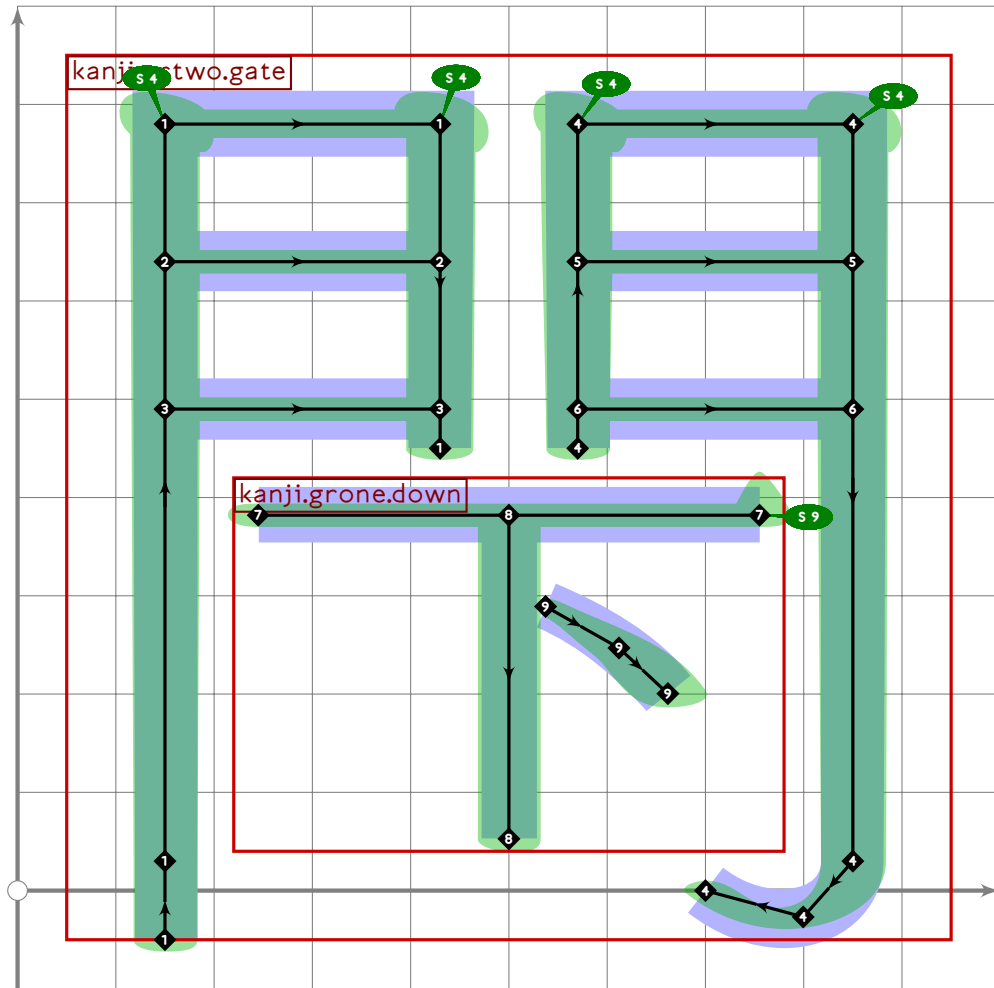
```



```

114 % extra
115 begintsuglyph("uni9586",134);
116 build_kanji.gate_enclose(kanji.gro.ne.three);
117 tsu_render;
118 endtsuglyph;
119

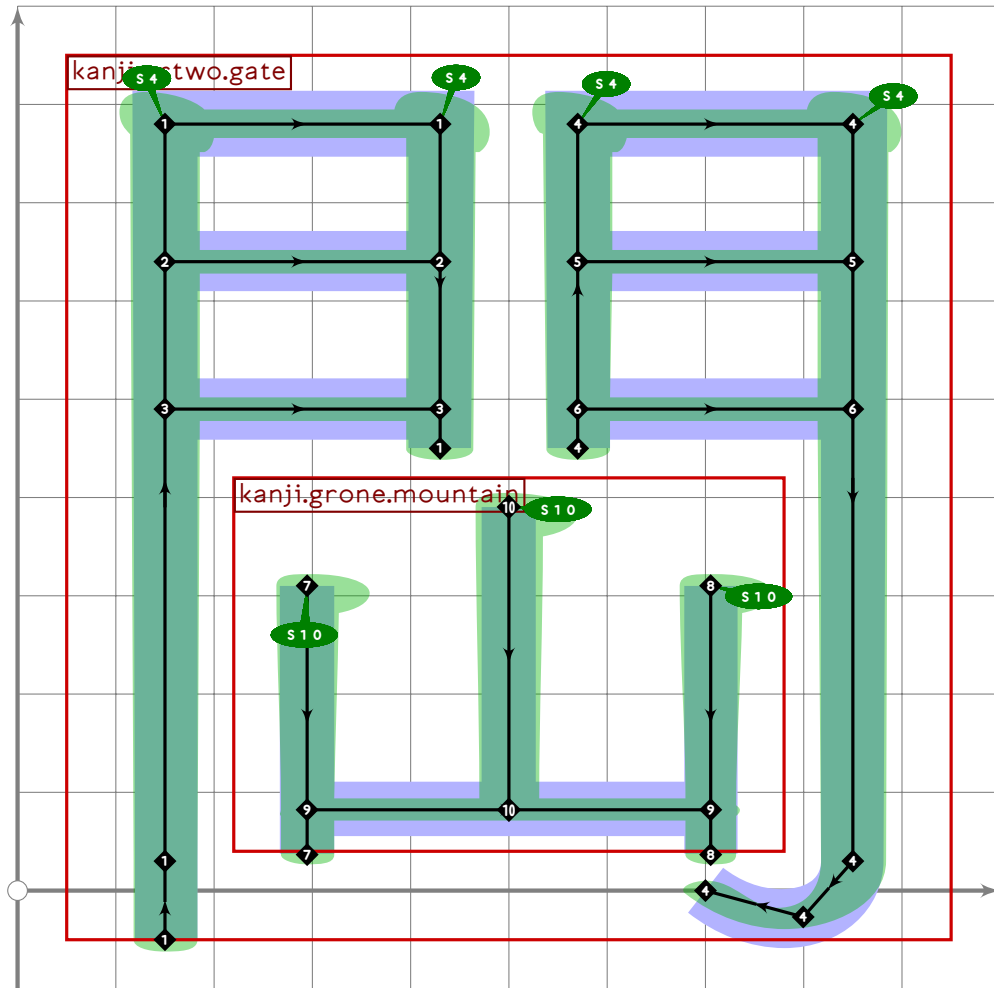
```



```

120 % hei/to "block up"
121 begintsuglyph("uni9587";135);
122 build_kanji.gate_enclose(kanji.grone.down);
123 tsu_render;
124 endtsuglyph;
125

```



```

126 % tsuka "choke"
127 begintsuglyph("uni958A",138);
128 build_kanji.gate_enclose(kanji.grone.mountain);
129 tsu_render;
130 endtsuglyph;
131
132 % kai/hira "open"
133 begintsuglyph("uni958B",139);
134 kanji.grthree.open;
135 tsu_render;
136 endtsuglyph;
137
138 % jun/uruu "leap year"
139 begintsuglyph("uni958F",143);
140 kanji.grnine.leap_year;
141 tsu_render;
142 endtsuglyph;
143
144 % kan/hima "leisure"
145 begintsuglyph("uni9591",145);
146 kanji.greight.leisure;

```

[see page 2179]

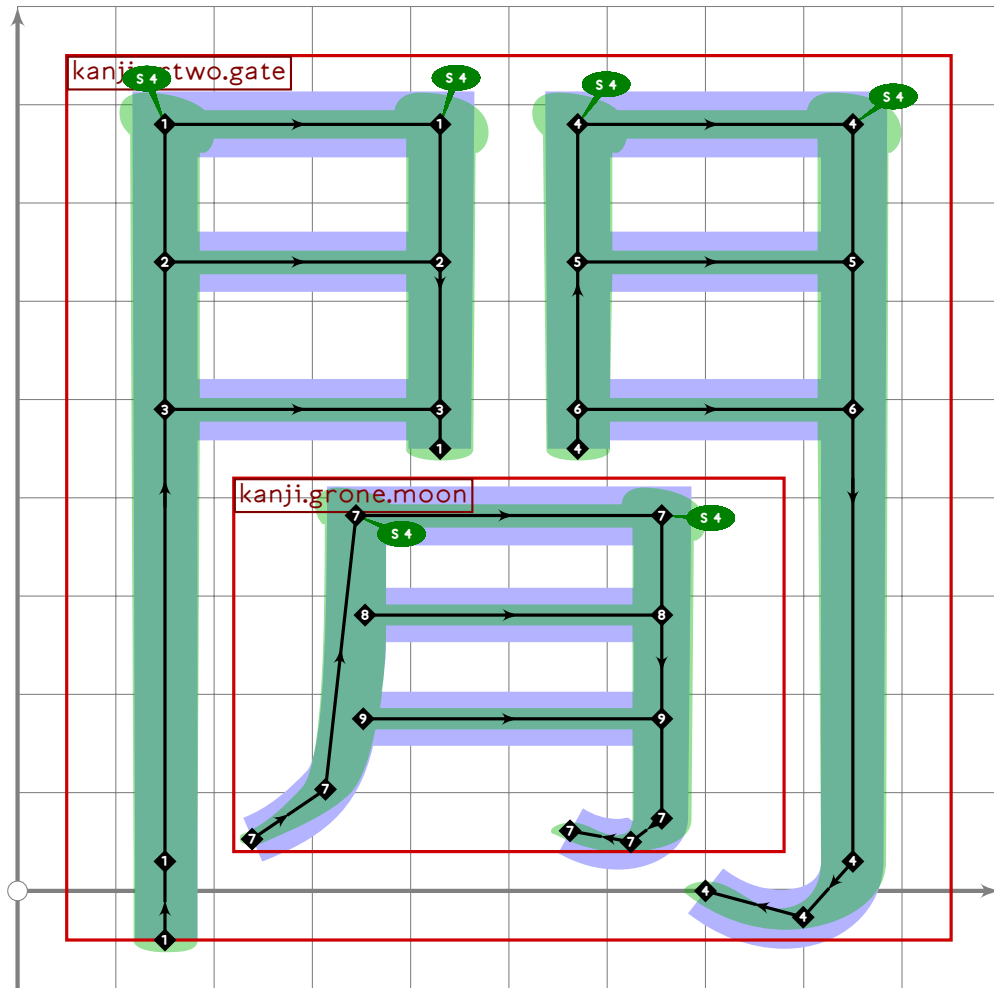
[see page 2182]

[see page 2180]

```

147 tsu_render;
148 endtsuglyph;
149

```



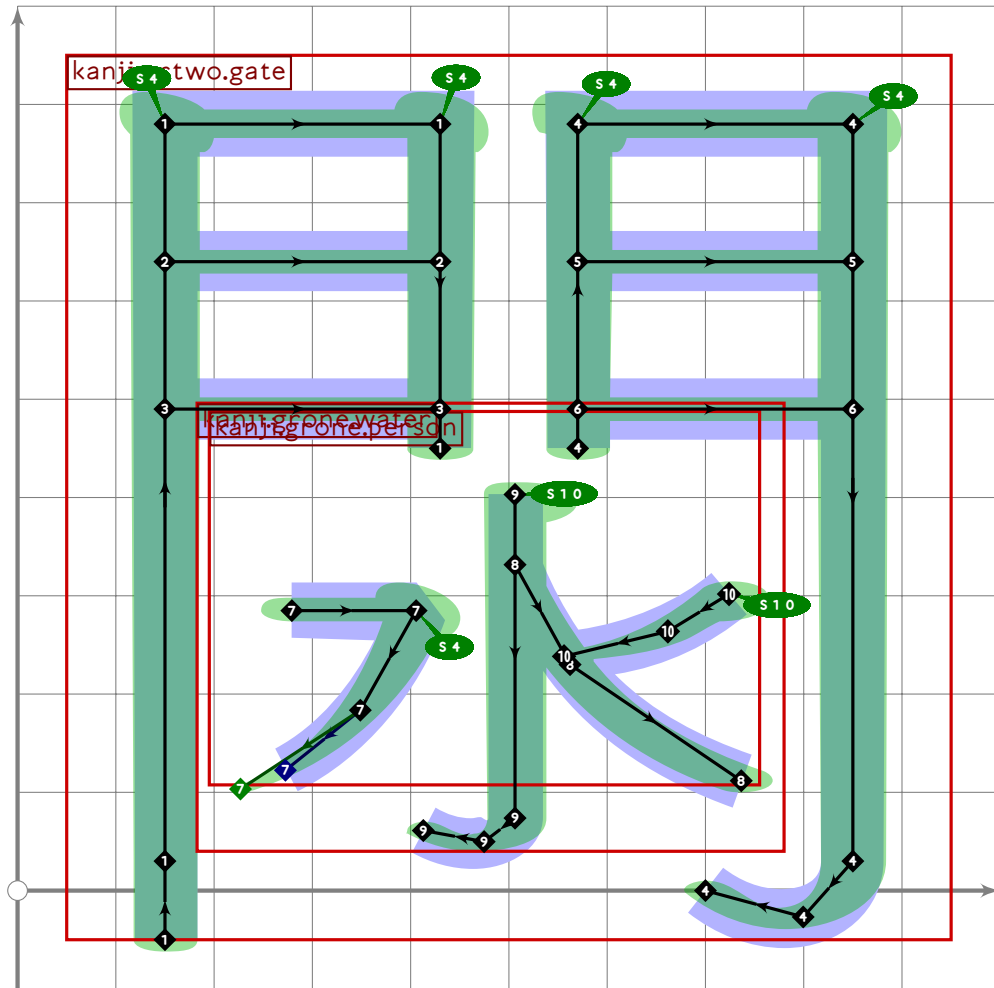
```

150 % extra
151 begintsuglyph("uni9592";146);
152 build_kanji.gate_enclose(kanji.grone.moon);
153 tsu_render;
154 endtsuglyph;
155
156 % kan/aida "interval"
157 begintsuglyph("uni9593";147);
158 kanji.grtwo.interval;
159 tsu_render;
160 endtsuglyph;
161

```

[see page 2178]

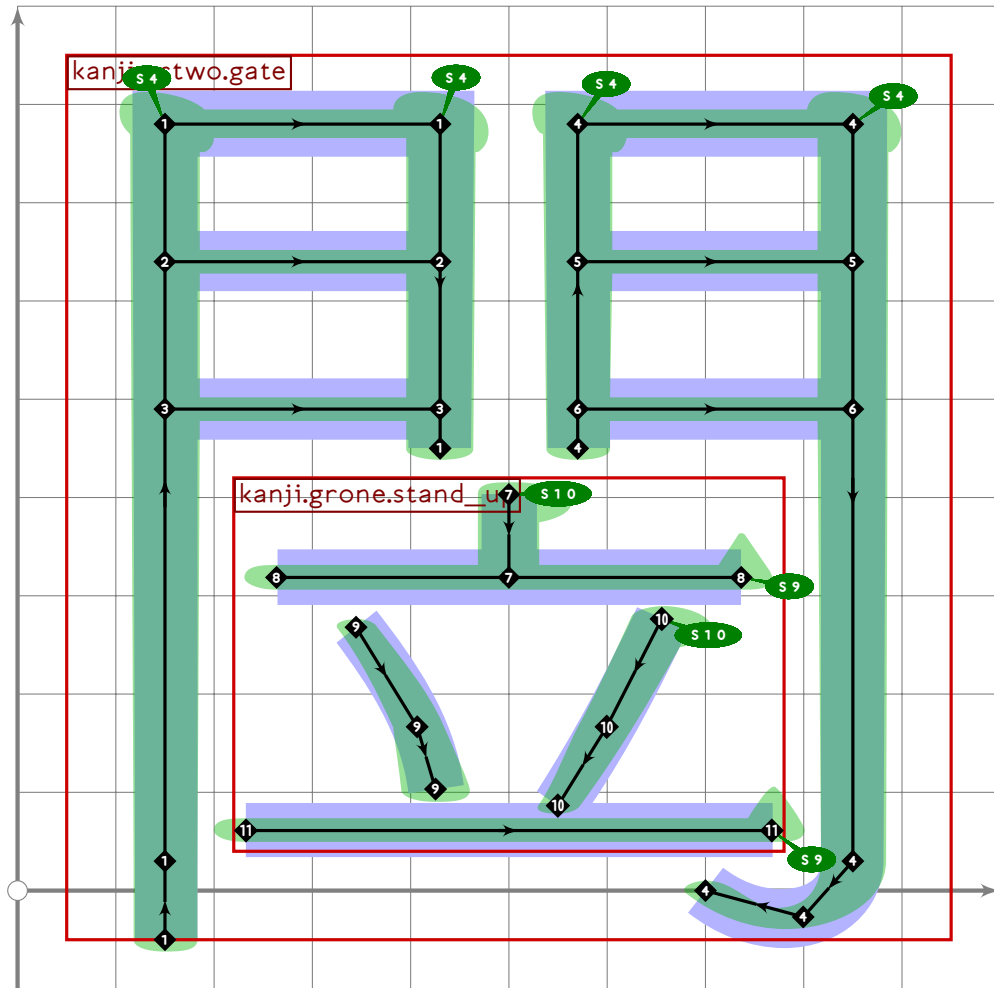




```

162 % extra
163 beginsuglyph("uni9596",150);
164 build_kanji.gate_enclose(kanji.gro.ne.water);
165 tsu_render;
166 endsuglyph;
167

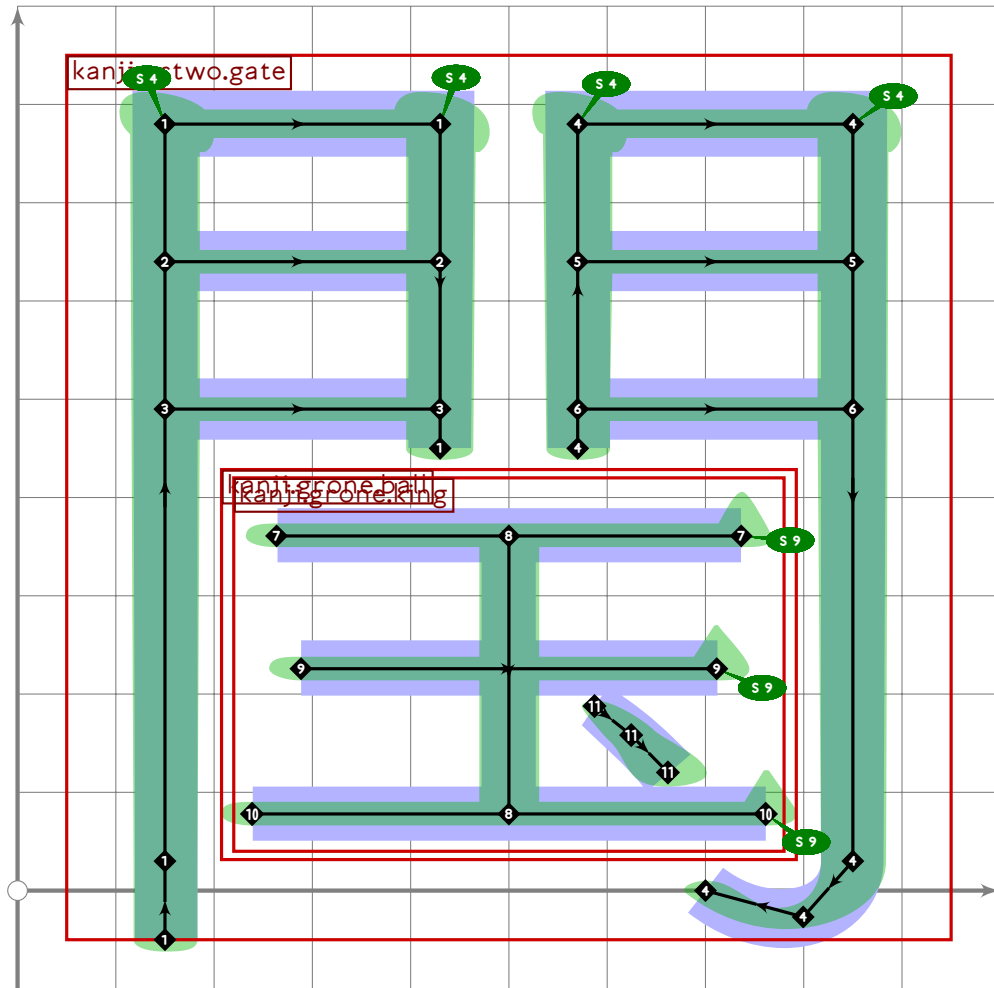
```



```

168 % extra
169 begintsuglyph("uni959A",154);
170 build_kanji.gate_enclose(kanji.gro.ne.stand_up);
171 tsu_render;
172 endtsuglyph;
173

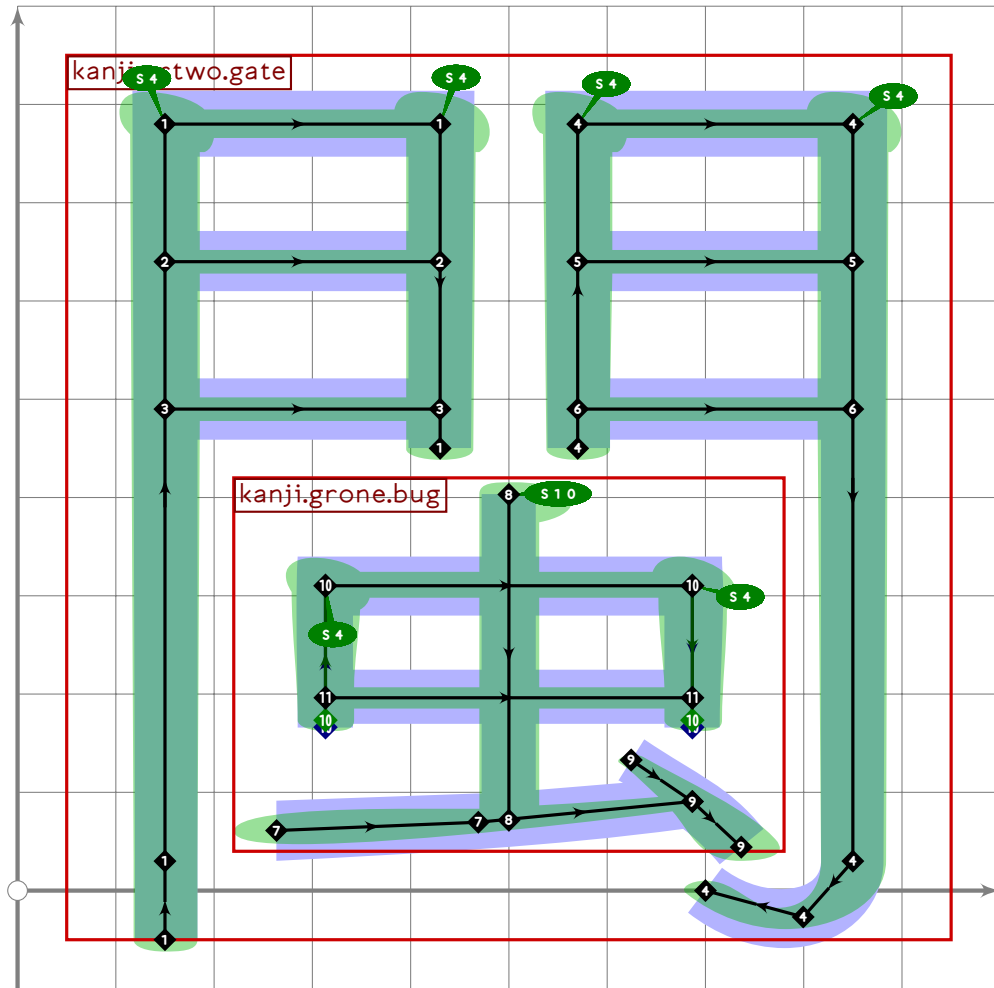
```



```

174 % extra
175 beginsuglyph("uni95A0",160);
176 build_kanji.gate_enclose(kanji.grone.ball);
177 tsu_render;
178 endsuglyph;
179

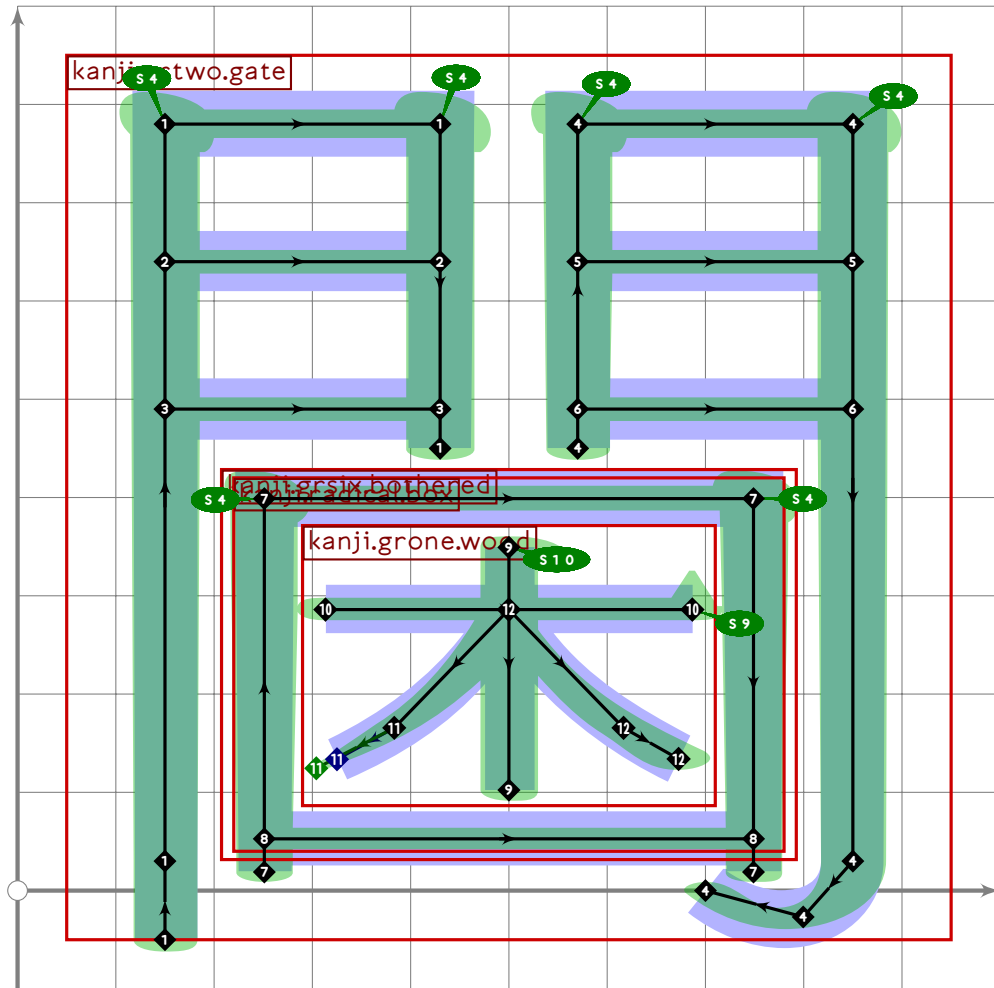
```



```

180 % extra
181 begintsuglyph("uni95A9",169);
182 build_kanji.gate_enclose(kanji.grone.bug);
183 tsu_render;
184 endtsuglyph;
185

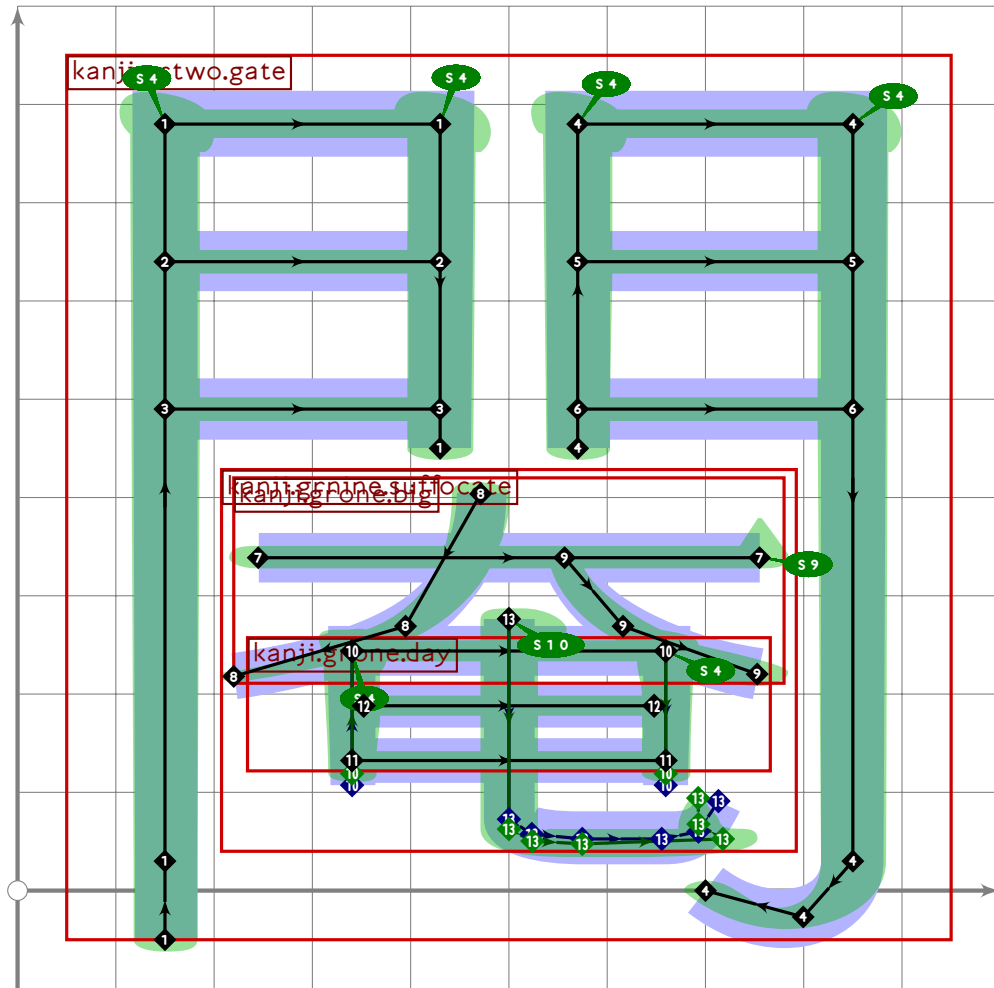
```



```

186 % extra
187 begintsuglyph("uni95AB",171);
188   build_kanji.gate_enclose(kanji.grsix.bothered);
189   tsu_render;
190   endtsuglyph;
191

```



```

192 % extra en/an/oo "eunuch"
193 begint Suglyph("uni95B9",185);
194 build_kanji.gate_enclose(kanji.g.nine.suffocate);
195 tsu_render;
196 endtsuglyph;
197
198 -----
199
200 endfont;
201
202 -----

```

# tsuku-96.mp

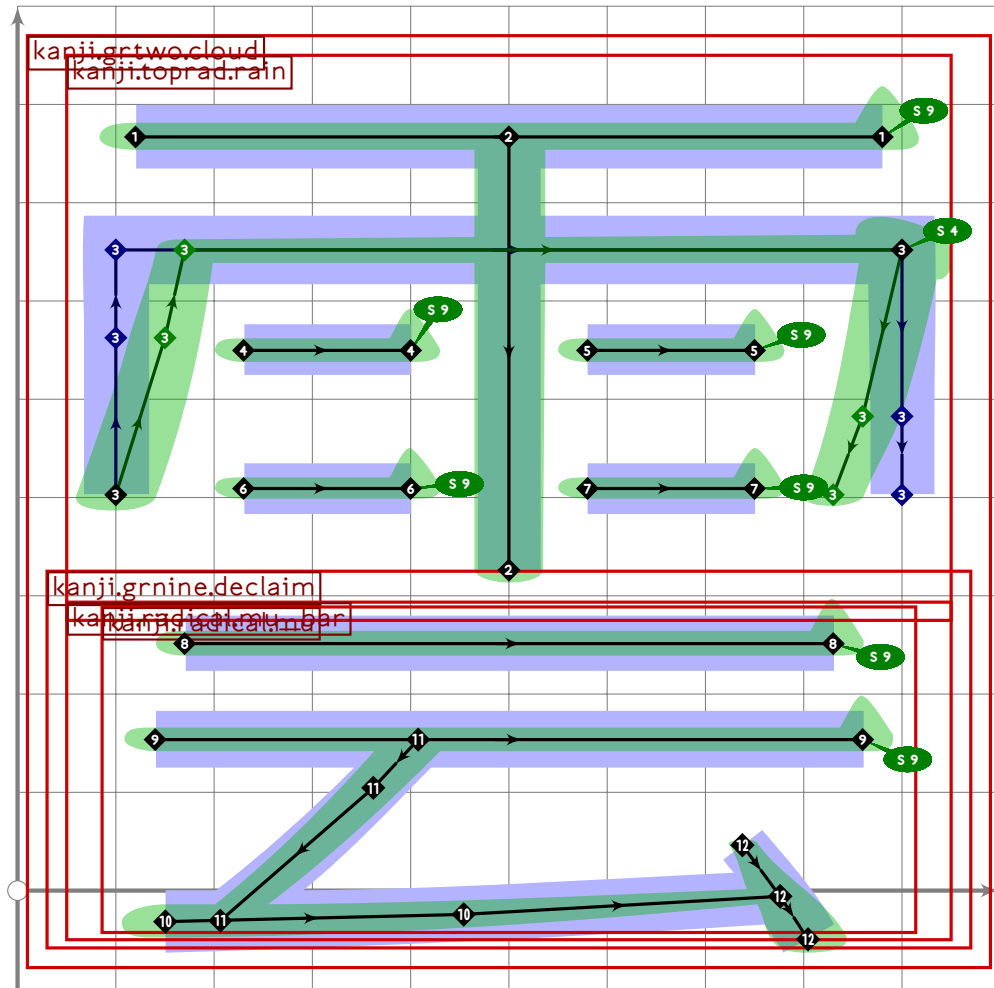
```
1 %
2 % Unicode page 96 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeeight.mp;
38 input gradefive.mp;
39 input gradefour.mp;
40 input gradenine.mp;
41 input gradeone.mp;
42 input gradethree.mp;
43 input gradetwo.mp;
44 input radical.mp;
45 input rare.mp;
46 input topfad.mp;
47
48 

---


```

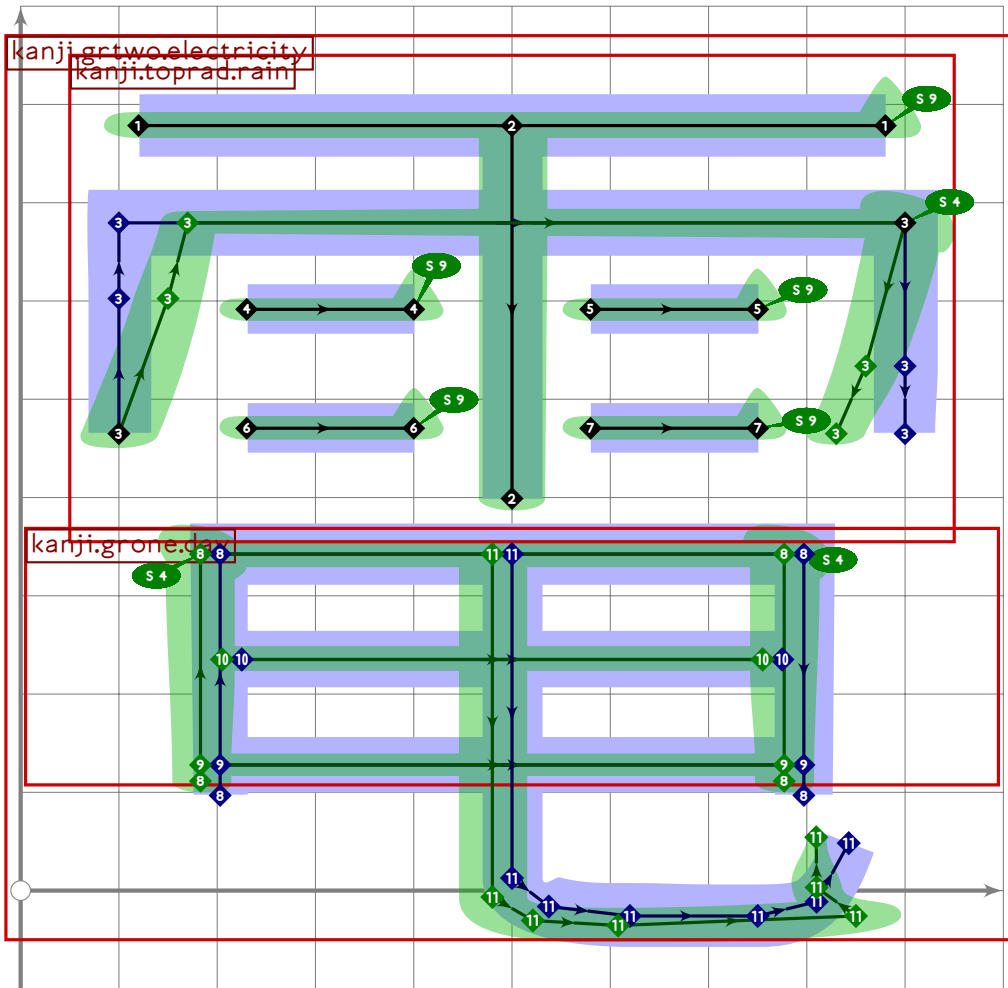


```

49
50 vardef kanji.grtwo.cloud =
51   push_pbox_toexpand("kanji.grtwo.cloud");
52   build_kanji.tb(300,50)
53     (kanji.toprad.rain)
54     (kanji.grnine.declaim);
55   expand_pbox;
56 enddef;

```

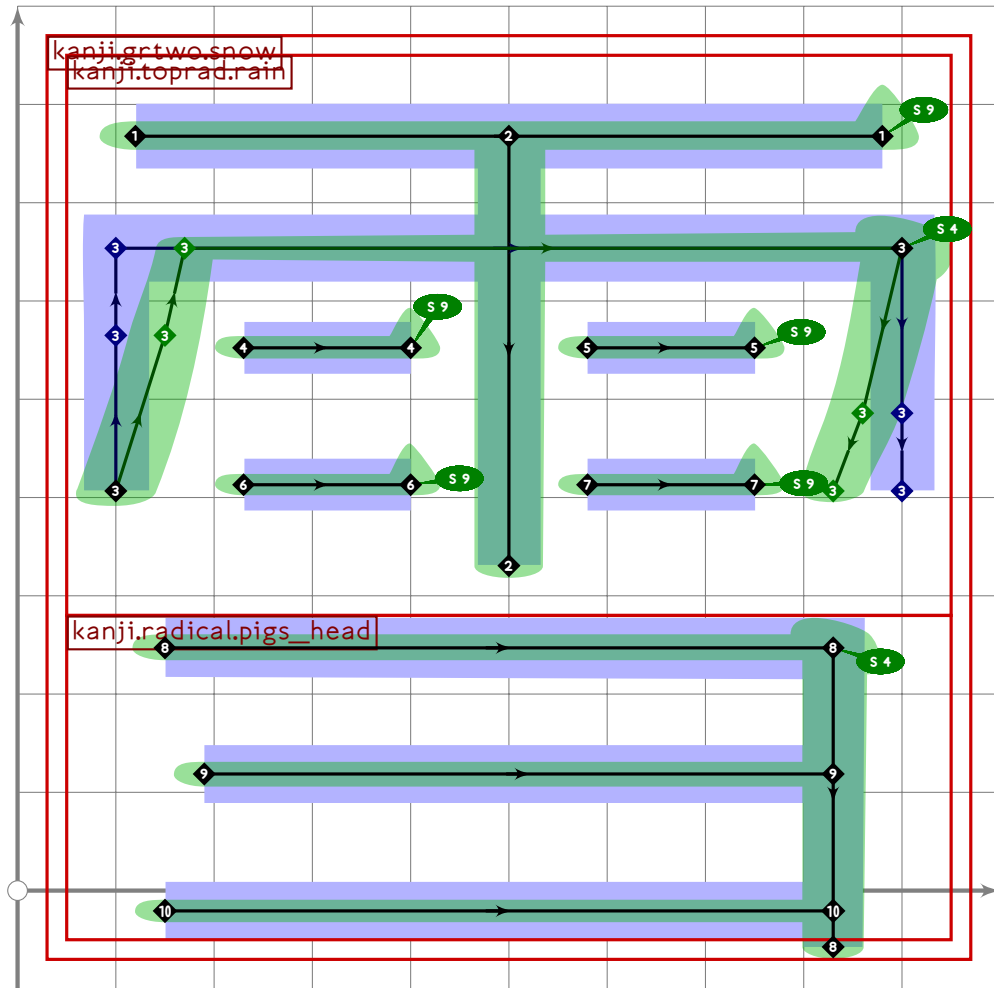




```

57
58 vardef kanji.grtwo.electricity =
59   push_pbox_toexpand("kanji.grtwo.electricity");
60   build_kanji.tb(370,30)
61     (kanji.toprad.rain)
62     (build_kanji.scale(xyscaled (1,1,0.6) shifted (-20*mincho,150))
63       (kanji.grone.day);
64     push_stroke((point 1.5 of get_stroke(-2)),(1.6,1.6));
65     build_kanji.add_ltail(0);
66   expand_pbox;
67 enddef;

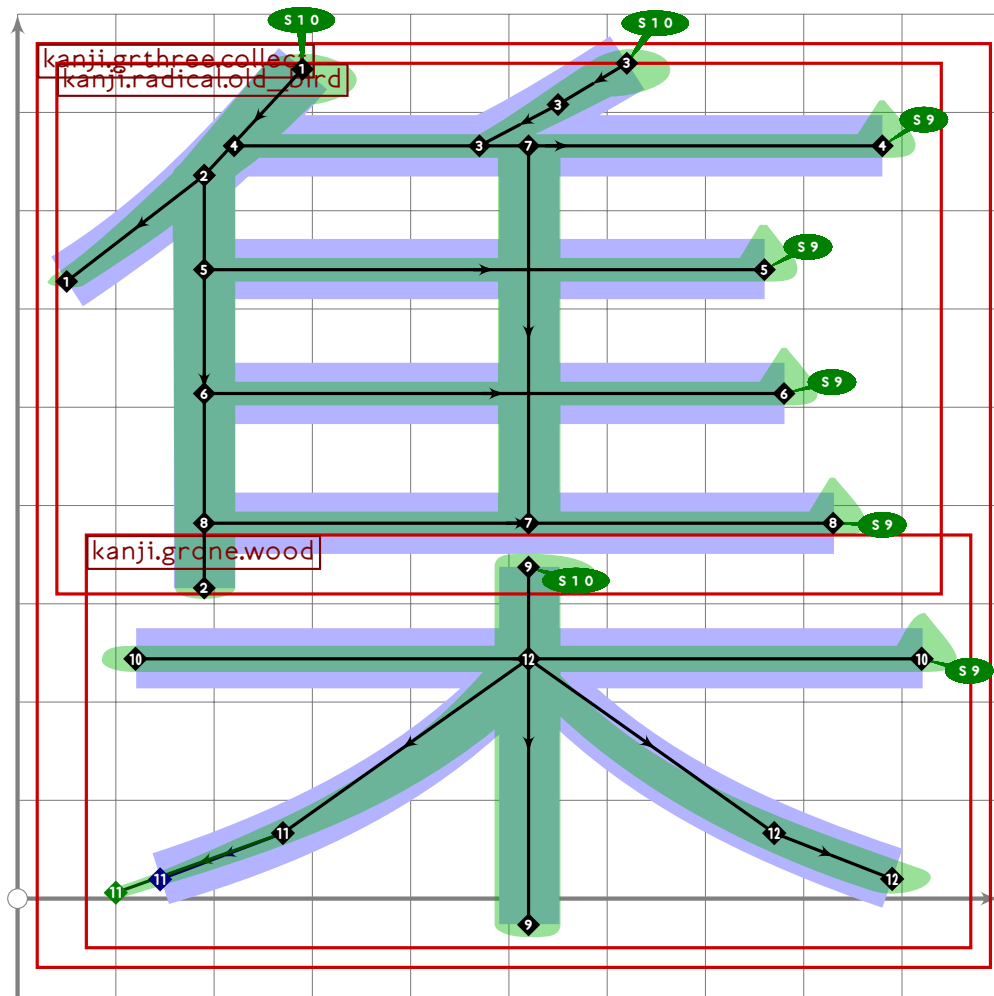
```



```

68
69 vardef kanji.grtwo.snow =
70   push_pbox_toexpand("kanji.grtwo.snow");
71   build_kanji.tb(280,0)
72     (kanji.toprad.rain)
73     (kanji.radical.pigs_head);
74   expand_pbox;
75 enddef;
76
77

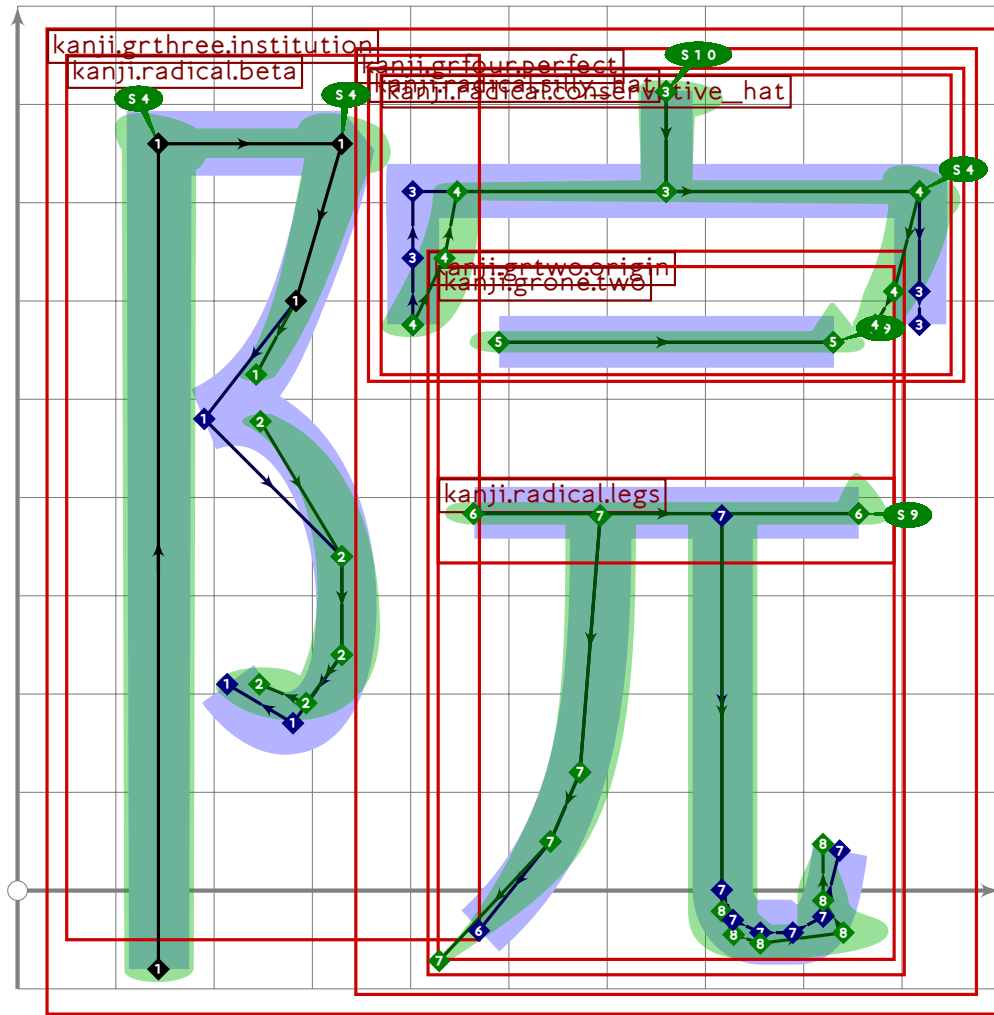
```



```

78
79 vardef kanji.grthree.collect =
80   push_pbox_toexpand("kanji.grthree.collect");
81   build_kanji.tb(340,60)
82     (build_kanji.sscale(shifted (-10,0))(kanji.radical.old_bird))
83     (build_kanji.sscale(shifted (20,0))(kanji.grone.wood));
84   expand_pbox;
85 enddef;

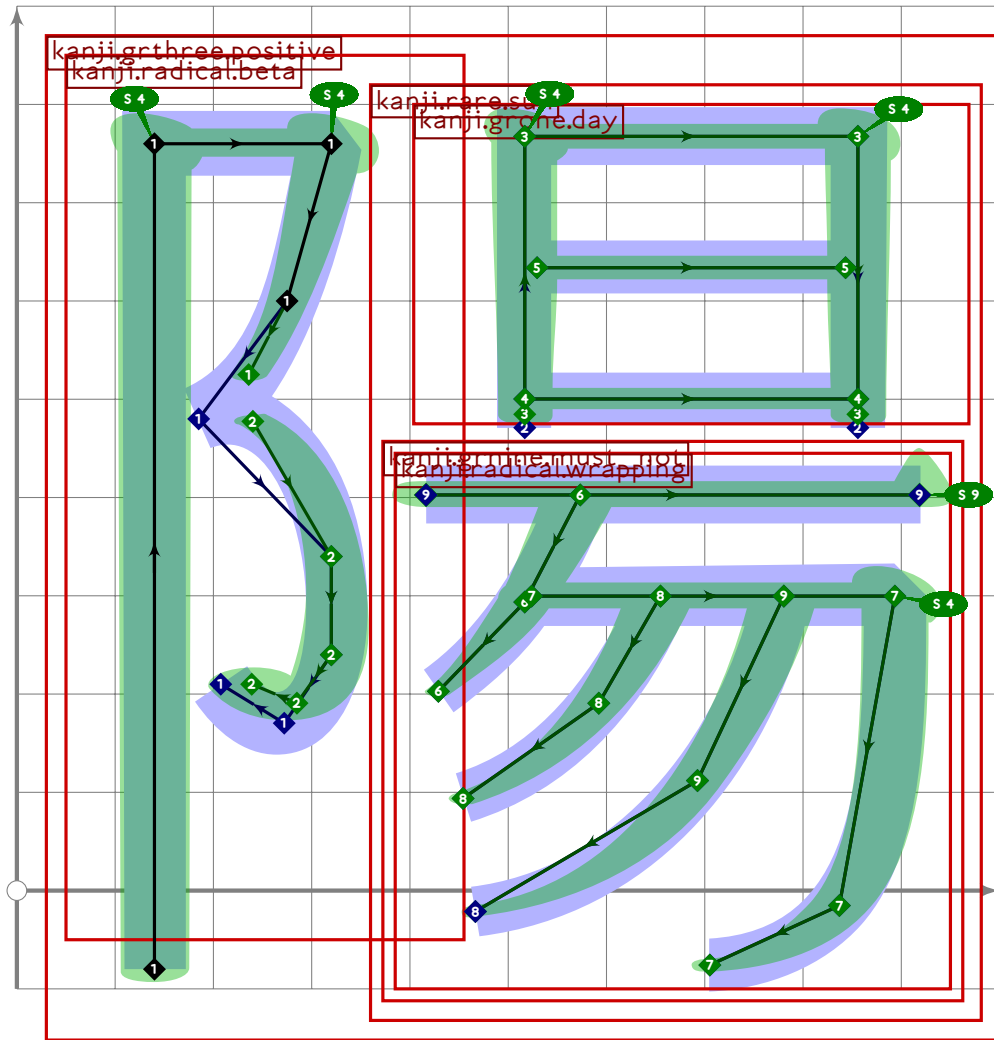
```



```

86
87 vardef kanji.grthree.institution =
88   push_pbox_toexpand("kanji.grthree.institution");
89   build_kanji.lr(420,100)
90     (kanji.radical.beta)
91     (build_kanji.scale(shifted (0,-20))(kanji.grfour.perfect));
92   expand_pbox;
93 enddef;

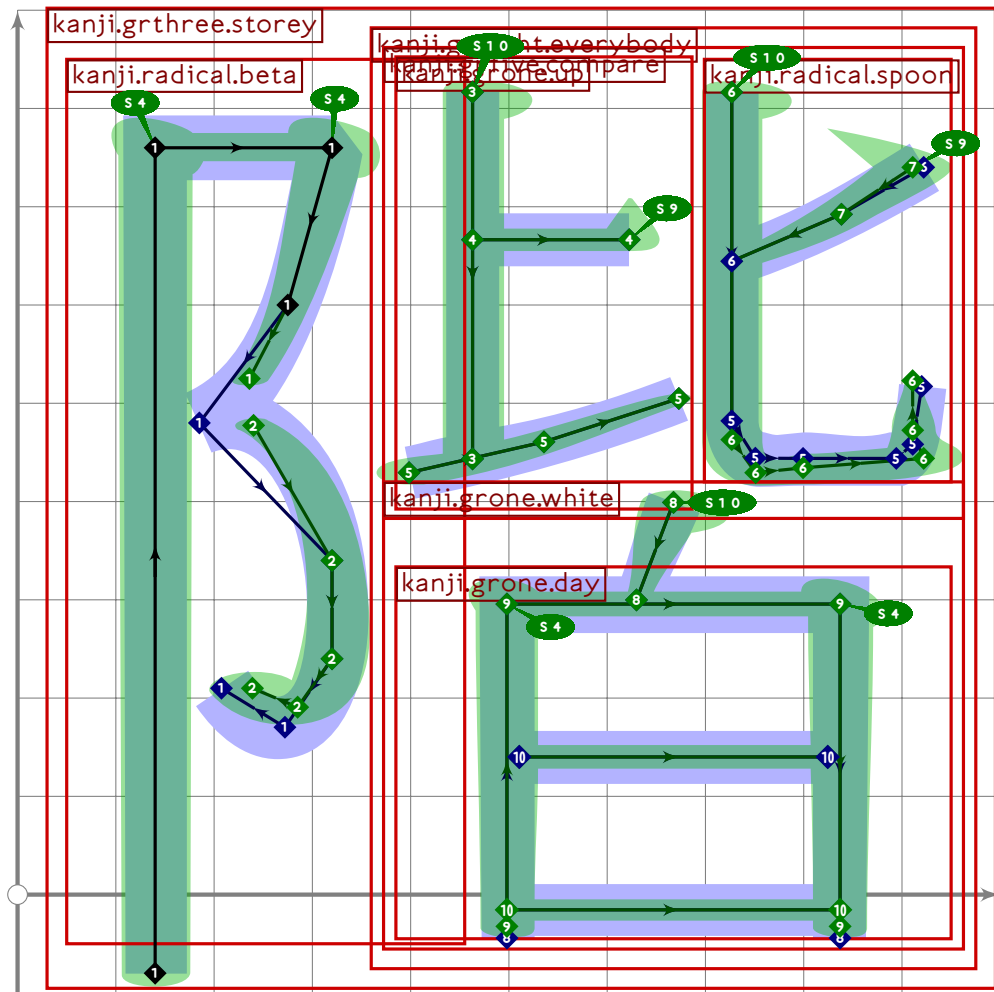
```



```

94
95 vardef kanji.grthree.positive =
96   push_pbox_toexpand("kanji.grthree.positive");
97   build_kanji.lr(420,70)
98   (kanji.radical.beta)
99   (build_kanji.sscale(shifted (0,-50))(kanji.rare.sun));
100  expand_pbox;
101 enddef;

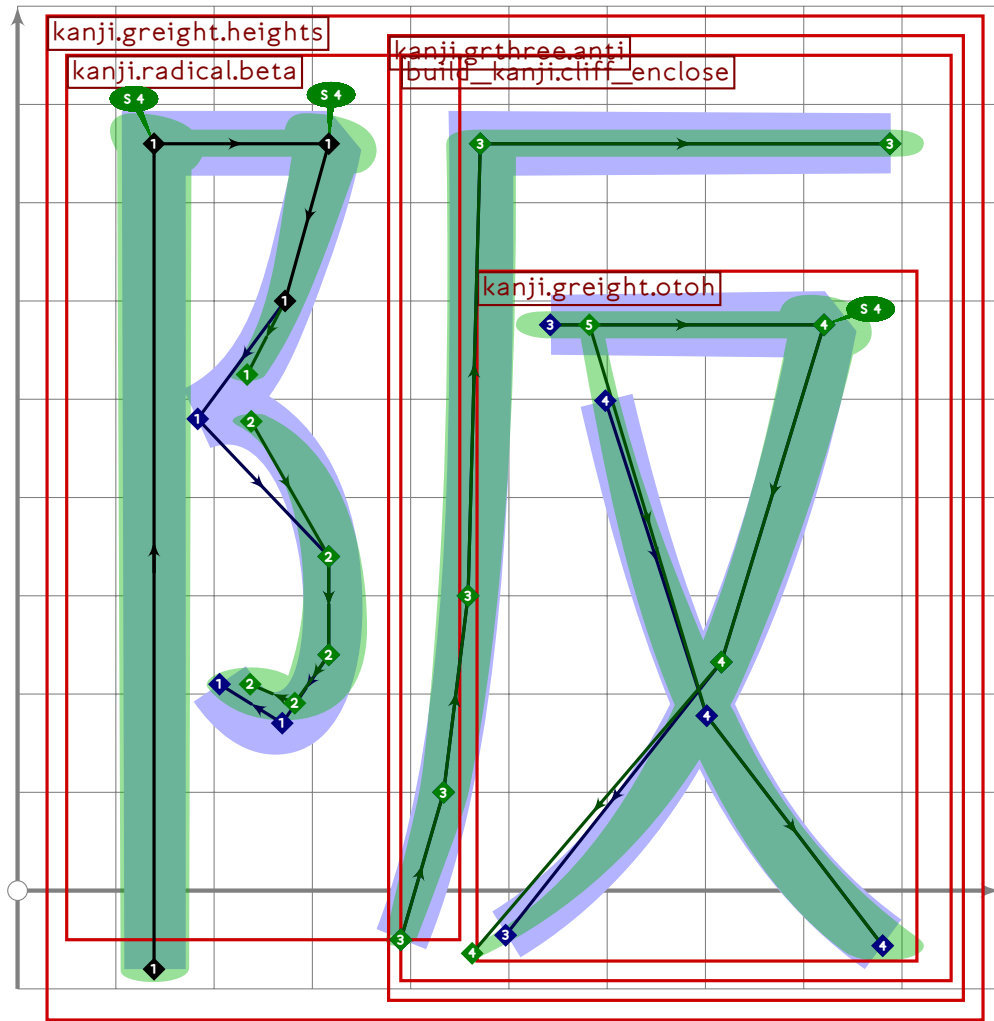
```



```

102
103 vardef kanji.grthree.storey =
104   push_pbox_toexpand("kanji.grthree.storey");
105   build_kanji.lr(420,70)
106     (kanji.radical.beta)
107     (kanji.greight.everybody);
108   expand_pbox;
109 enddef;
110
111

```



```

112
113 vardef kanji.greight.heights =
114   push_pbox_toexpand("kanji.greight.heights");
115   build_kanji.level(build_kanji.lr(420,60)
116     (kanji.radical.beta)
117     (kanji.grthree.anti));
118   expand_pbox;
119 enddef;

```

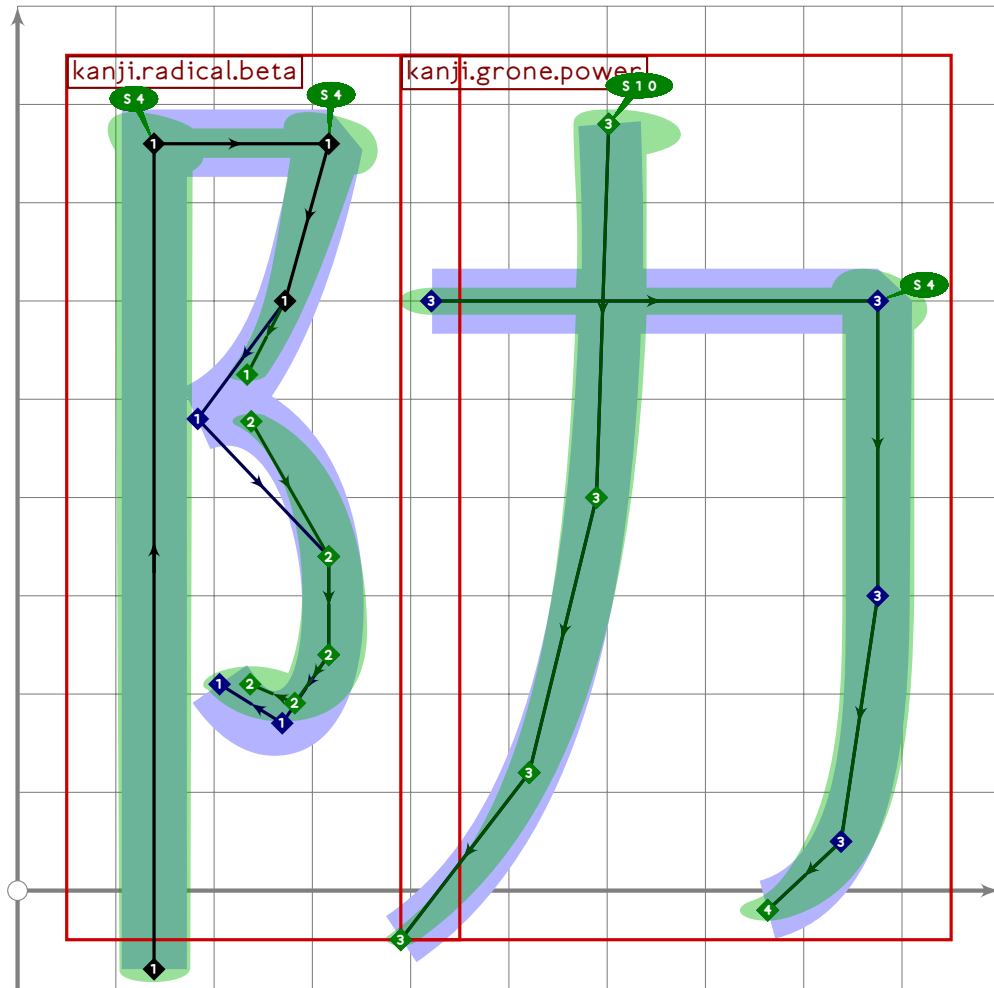
120  
121

```

122
123 % kozato "left village" (beta-looking) radical
124 beginsuglyph("uni961D";29);
125   kanji.radical.beta;
126   tsu_render;
127 endsuglyph;
128

```

[see page 341]

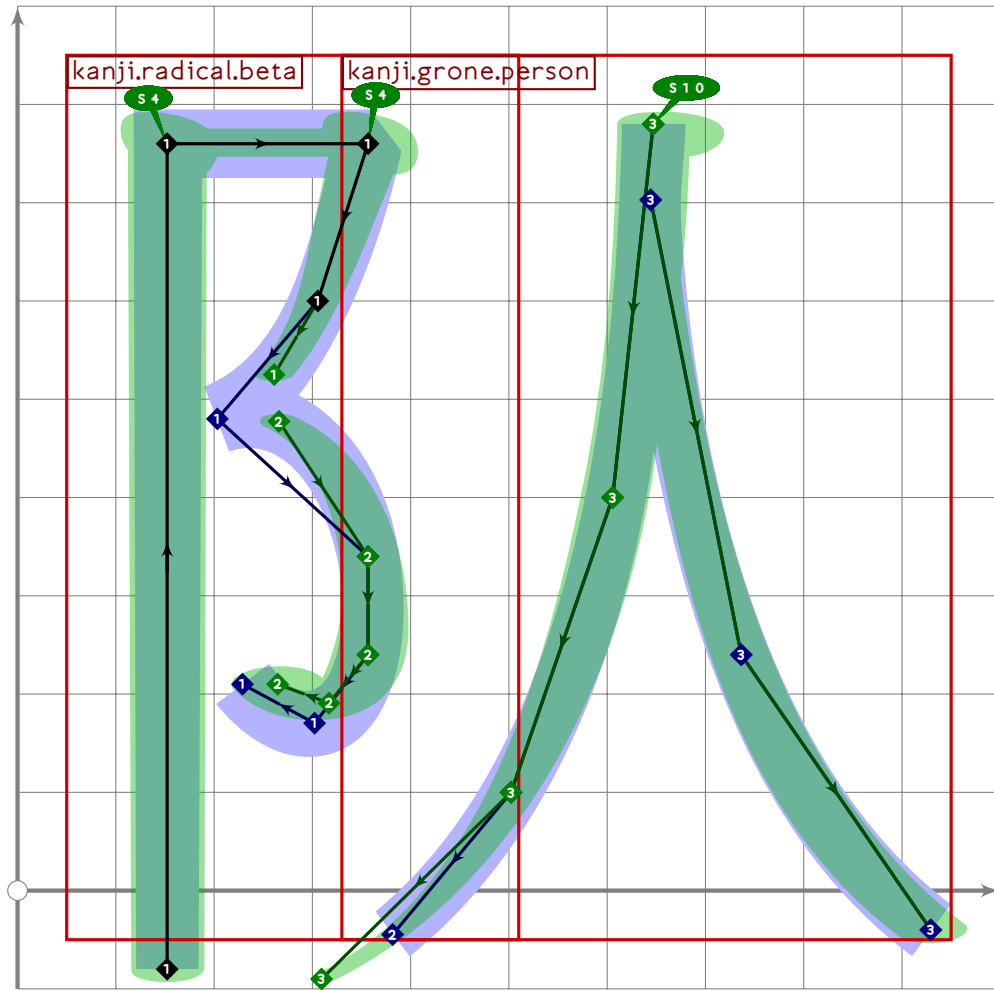


```

129 % extra "vein"
130 begint Suglyph("uni961E",30);
131 build_kanji.level(build_kanji.lr(420,60)
132   (kanji.radical.beta)
133   (kanji.grone.power));
134 tsu_render;
135 endtsuglyph;
136

```

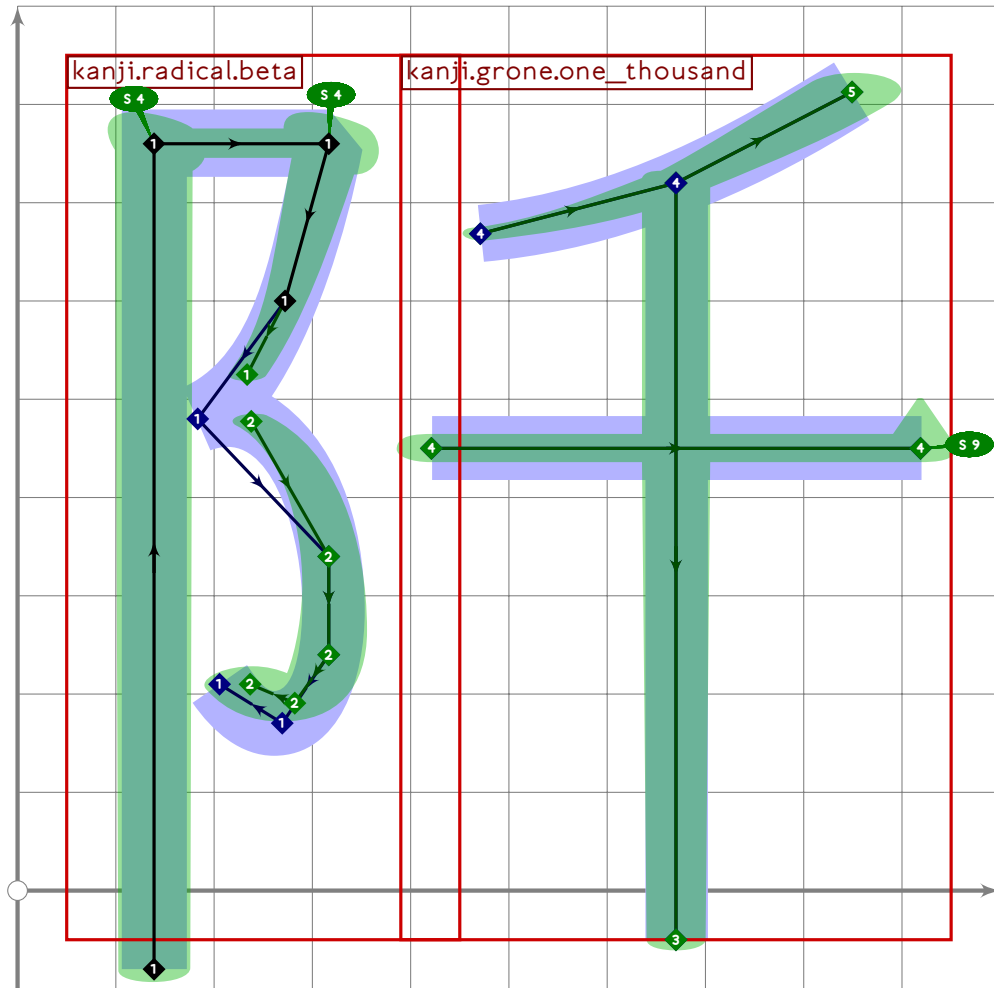




```

137 % extra
138 begintsuglyph("uni961F",31);
139 build_kanji.level(build_kanji.lr(420,180)
140   (kanji.radical.beta)
141   (kanji.grone.person));
142 tsu_render;
143 endsuglyph;
144

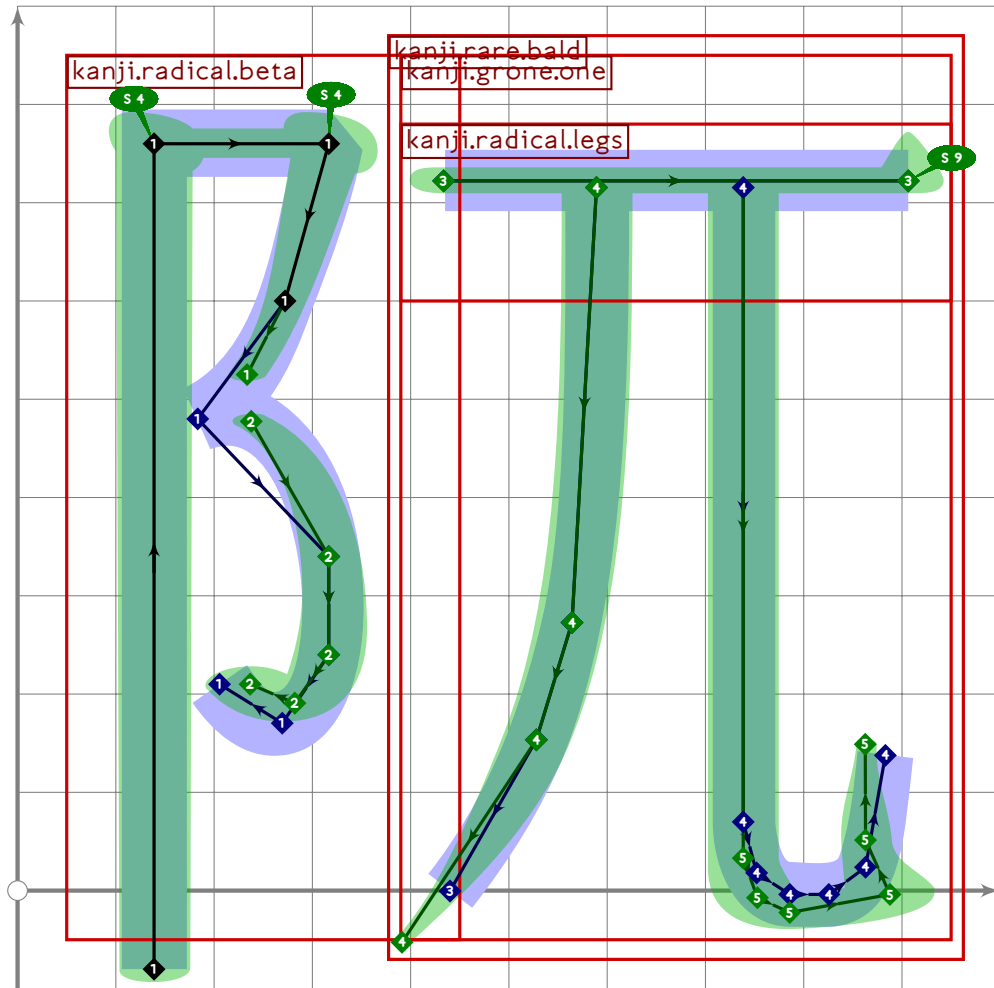
```



```

145 % extra "thousand"
146 begintsuglyph("uni9621",33);
147 build_kanji.level(build_kanji.lr(420,60)
148   (kanji.radical.beta)
149   (kanji.grone.one_thousand));
150 tsu_render;
151 endsuglyph;
152

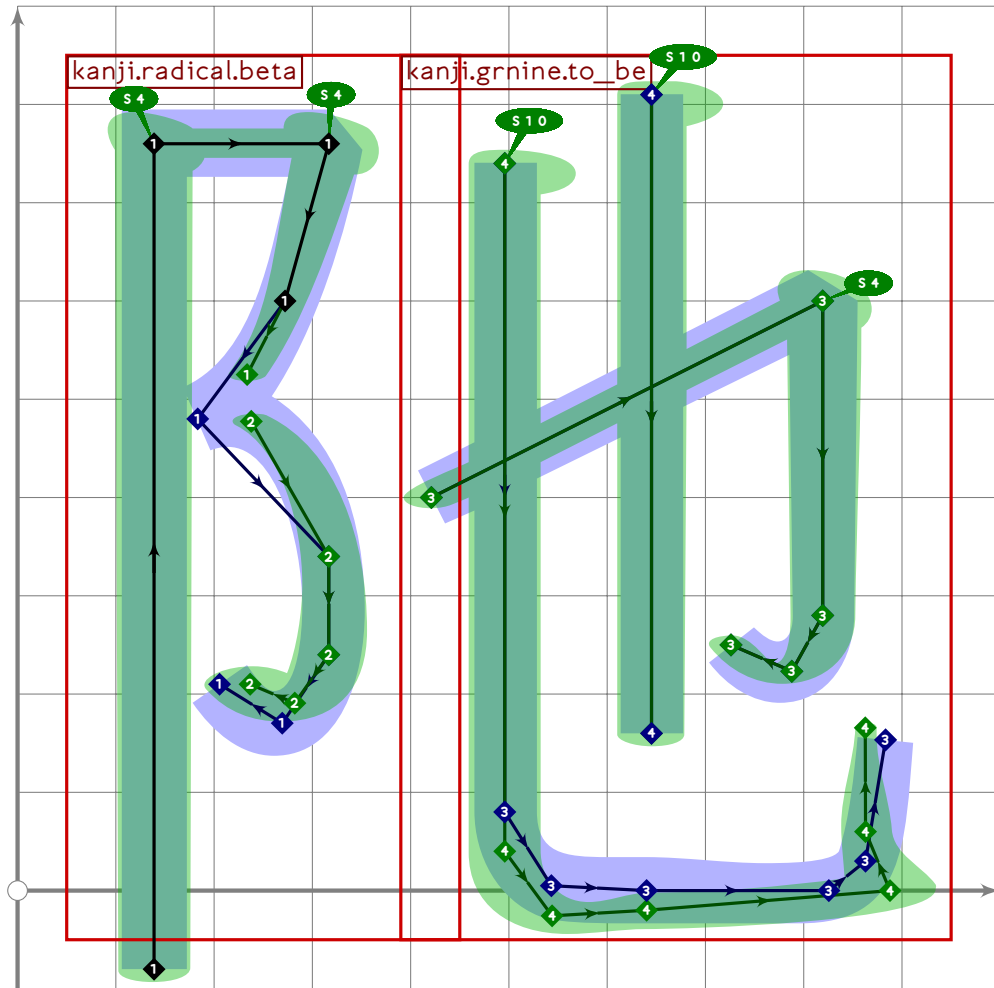
```



```

153 % extra
154 begintsuglyph("uni9622";34);
155 build_kanji.level(build_kanji.lr(420,60)
156   (kanji.radical.beta)
157   (kanji.rare.bald));
158 tsu_render;
159 endsuglyph;
160

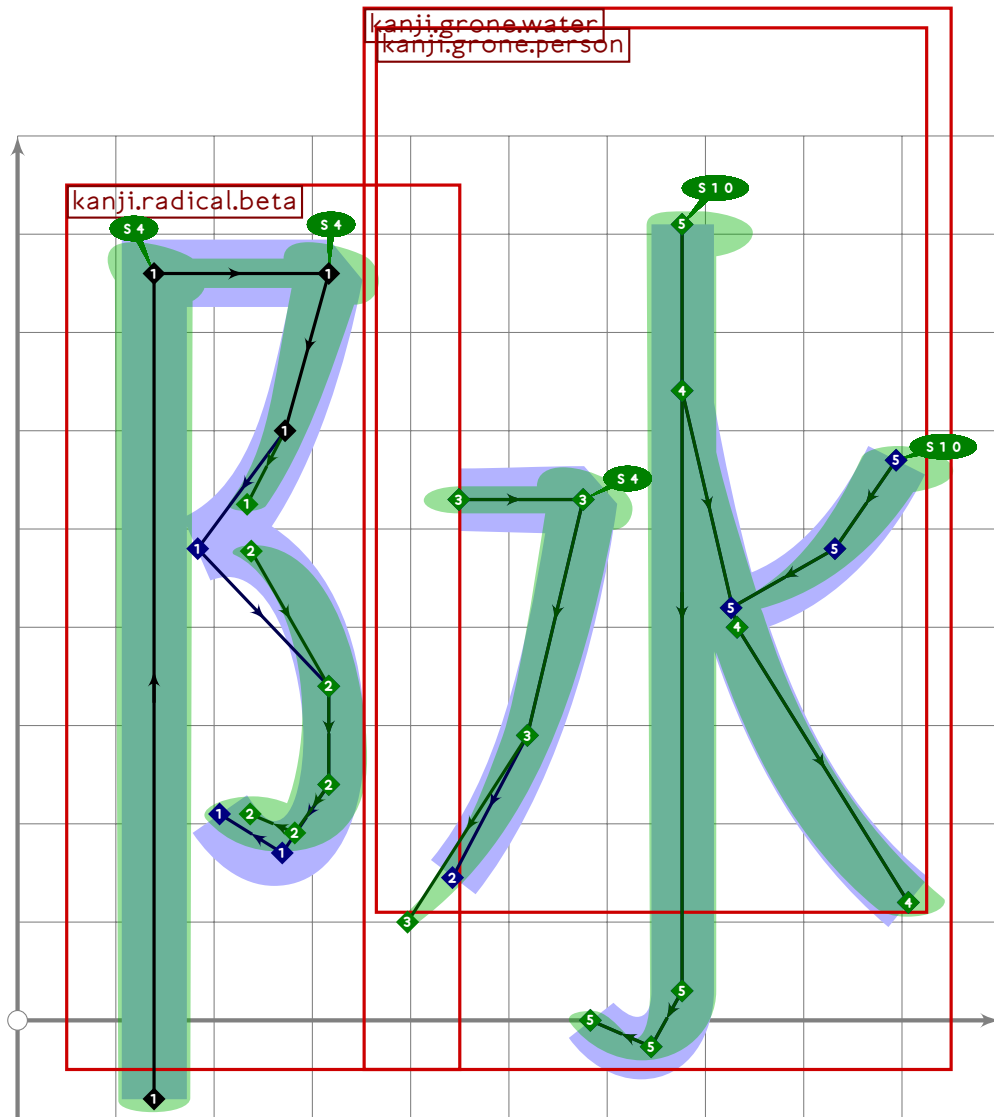
```



```

161 % extra
162 begintsuglyph("uni9624";36);
163 build_kanji.level(build_kanji.lr(420,60)
164   (kanji.radical.beta)
165   (kanji.gnine.to_be));
166 tsu_render;
167 endtsuglyph;
168

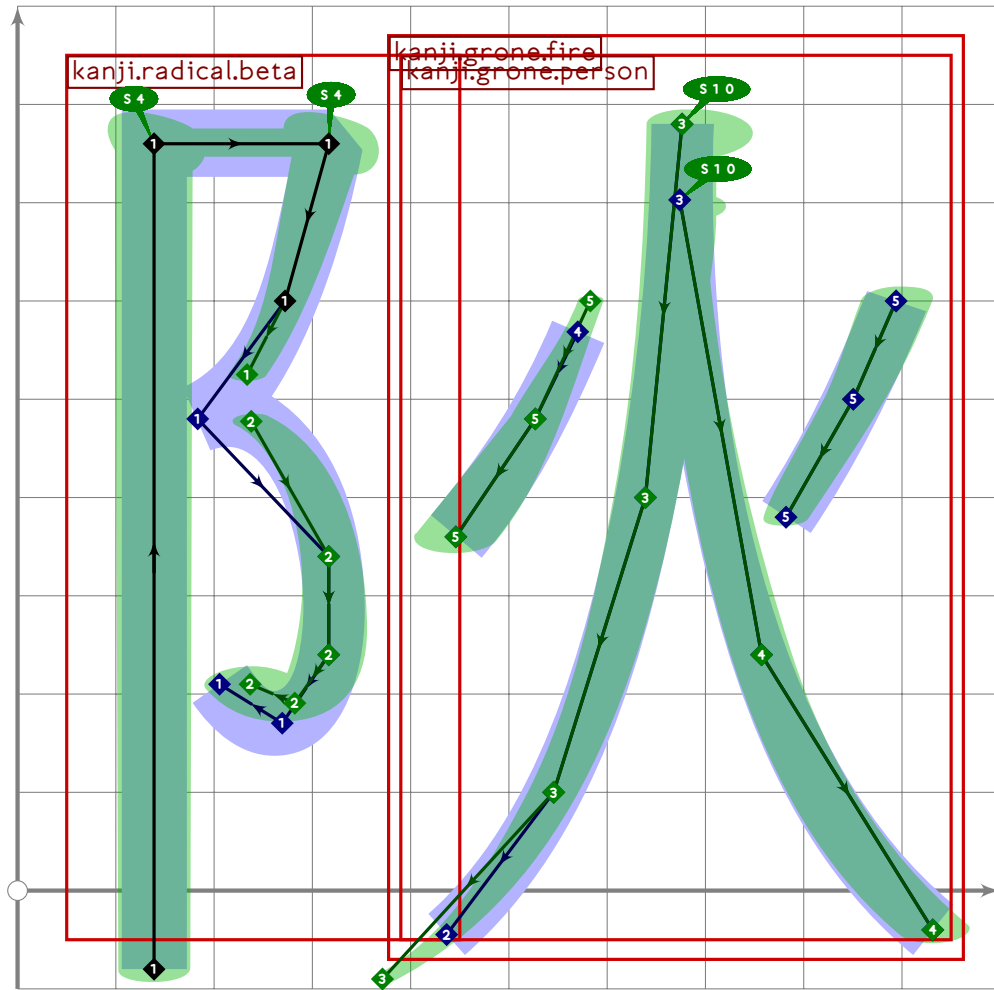
```



```

169 % extra
170 begintsuglyph("uni9625";37);
171 build_kanji.level(build_kanji.lr(420,60)
172   (kanji.radical.beta)
173   (kanji.grone.water));
174 tsu_render;
175 endsuglyph;
176

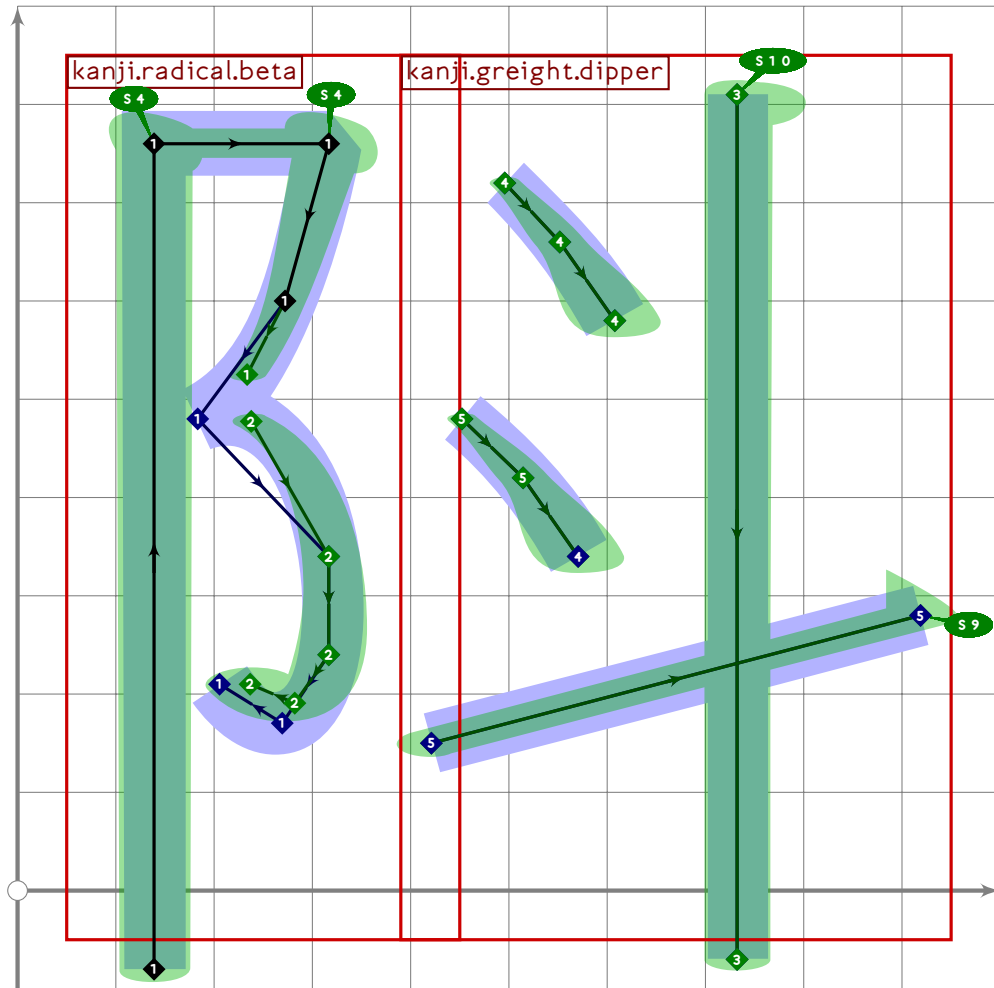
```



```

177 % extra
178 begintsuglyph("uni9626",38);
179 build_kanji.level(build_kanji.lr(420,60)
180   (kanji.radical.beta)
181   (kanji.grone.fire));
182 tsu_render;
183 endsuglyph;
184

```



```

185 % extra
186 begintsuglyph("uni9627";39);
187 build_kanji.level(build_kanji.lr(420,60)
188   (kanji.radical.beta)
189   (kanji.greight.dipper));
190 tsu_render;
191 endsuglyph;
192
193 % han/saka "heights"
194 begintsuglyph("uni962A";42);
195 kanji.greight.heights;
196 tsu_render;
197 endsuglyph;
198
199 % in "institution" (often "house")
200 begintsuglyph("uni9662";98);
201 kanji.grthree.institution;
202 tsu_render;
203 endsuglyph;
204
205 % you/hi "positive"

```

[see page 2203]

[see page 2200]

206 `begintsuglyph("uni967D";125);` [see page 2201]  
207 `kanji.grthree.positive;`  
208 `tsu_render;`  
209 `endtsuglyph;`  
210  
211 `% kai/kizahashi "storey"`  
212 `begintsuglyph("uni968E";142);` [see page 2202]  
213 `kanji.grthree.storey;`  
214 `tsu_render;`  
215 `endtsuglyph;`  
216  
217 `% sai/tori "old bird" radical`  
218 `begintsuglyph("uni96B9";185);` [see page 357]  
219 `kanji.radical.old_bird;`  
220 `tsu_render;`  
221 `endtsuglyph;`  
222  
223 `% shuu/atsu "collect"`  
224 `begintsuglyph("uni96C6";198);` [see page 2199]  
225 `kanji.grthree.collect;`  
226 `tsu_render;`  
227 `endtsuglyph;`  
228  
229 `% u/ame "rain"`  
230 `begintsuglyph("uni96E8";232);` [see page 421]  
231 `kanji.grone.rain;`  
232 `tsu_render;`  
233 `endtsuglyph;`  
234  
235 `% satsu/yuki "snow"`  
236 `begintsuglyph("uni96EA";234);` [see page 2198]  
237 `kanji.grtwo.snow;`  
238 `tsu_render;`  
239 `endtsuglyph;`  
240  
241 `% un/kumo "cloud"`  
242 `begintsuglyph("uni96F2";242);` [see page 2196]  
243 `kanji.grtwo.cloud;`  
244 `tsu_render;`  
245 `endtsuglyph;`  
246  
247 `% den "electricity"`  
248 `begintsuglyph("uni96FB";251);` [see page 2197]  
249 `kanji.grtwo.electricity;`  
250 `tsu_render;`  
251 `endtsuglyph;`  
252  
253

---



254

255 **endfont;**

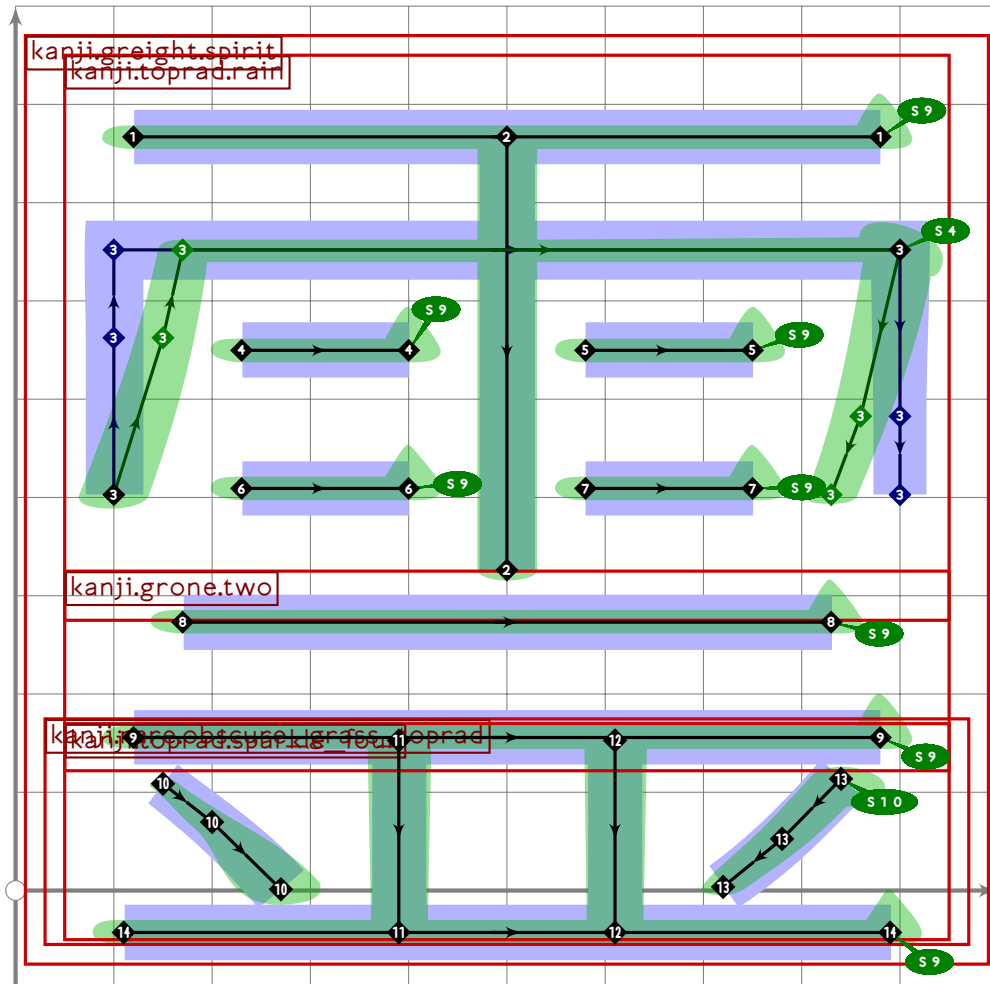
256

257

---

# tsuku-97.mp

```
1 %  
2 % Unicode page 97 (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 _____  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input bottomrad.mp;  
37 input buildkanji.mp;  
38 input gradeone.mp;  
39 input gradethree.mp;  
40 input rare.mp;  
41 input toprad.mp;  
42  
43 _____
```



```

44
45 vardef kanji.greight.spirit =
46   push_pbox_toexpand("kanji.greight.spirit");
47   build_kanji.level(build_kanji.tb(300,50)
48     (kanji.toprad.rain)
49     (build_kanji.tb(420,115)
50       (kanji.grone.two)
51       (kanji.rare.obscure_grass_toprad;
52         set_boserif(-3,0,whatever);
53         set_boserif(-2,0,whatever))));
54   expand_pbox;
55 enddef;
56
57 

---


58
59 % rei/tama "spirit"
60 begintsuglyph("uni970A";10); [see page 2215]
61   kanji.greight.spirit;
62   tsu_render;
63 endtsuglyph;
64
65 % ao "blue"
66 begintsuglyph("uni9752";82); [see page 381]
67   kanji.grone.blue;
68   tsu_render;
69 endtsuglyph;
70
71 % men/omo "face"
72 begintsuglyph("uni9762";98); [see page 516]
73   kanji.grthree.face;
74   tsu_render;
75 endtsuglyph;
76
77 % oto/on "noise"
78 begintsuglyph("uni97F3";243); [see page 414]
79   kanji.grone.noise;
80   tsu_render;
81 endtsuglyph;
82
83 

---


84
85 endfont;
86
87 

---



```

# tsuku-98.mp

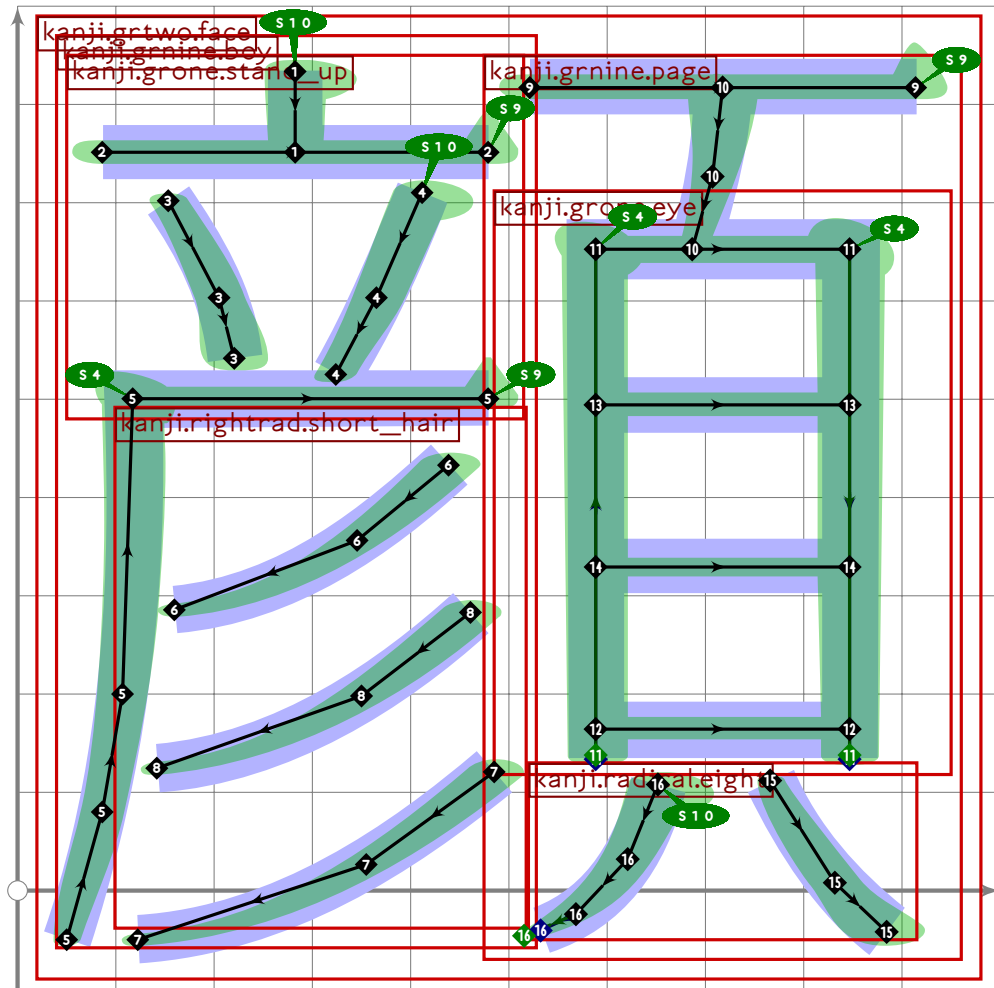
```
1 %
2 % Unicode page 98 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradefour.mp;
38 input gradenine.mp;
39 input gradeone.mp;
40 input gradethree.mp;
41 input gradetwo.mp;
42 input leftrad.mp;
43 input radical.mp;
44
45 

---

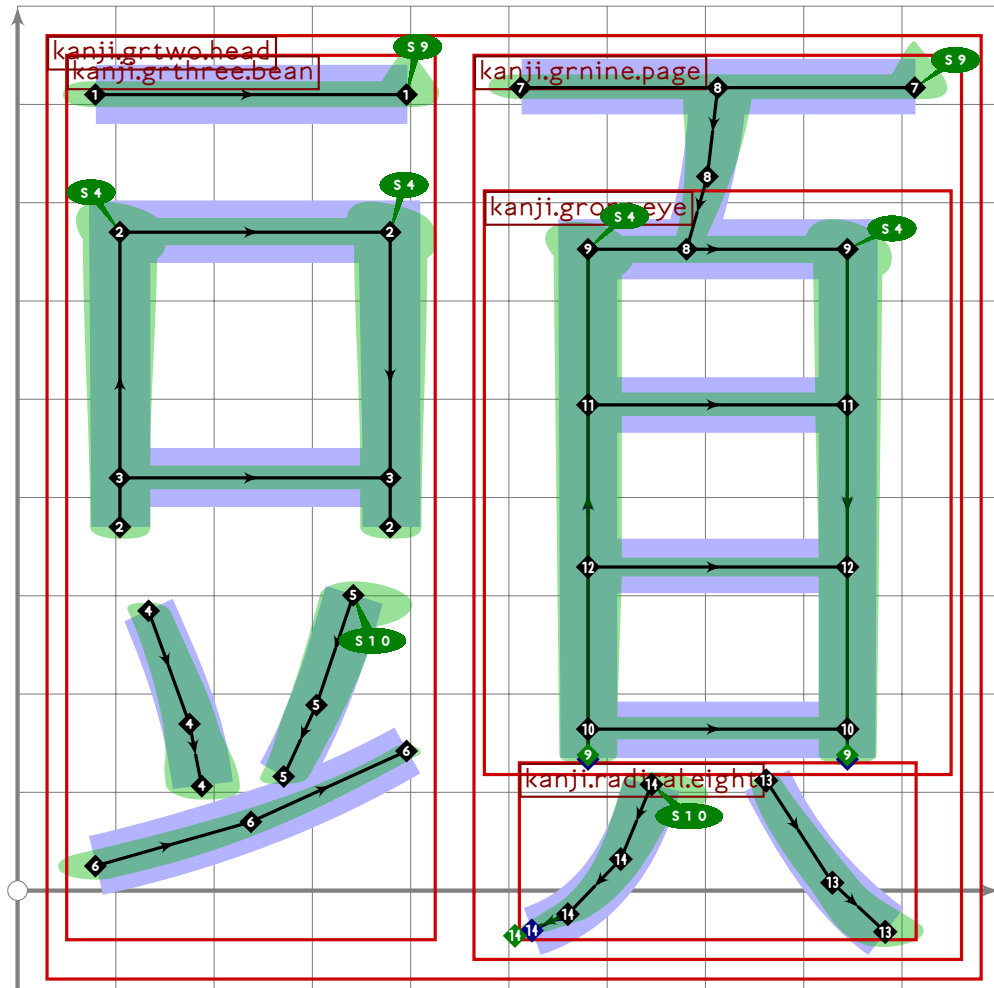

```



```

46
47 vardef kanji.grtwo.face =
48   push_pbox_toexpand("kanji.grtwo.face");
49   build_kanji.lr(500,30)
50     (kanji.grnine.boy)
51     (kanji.grnine.page);
52   expand_pbox;
53 enddef;

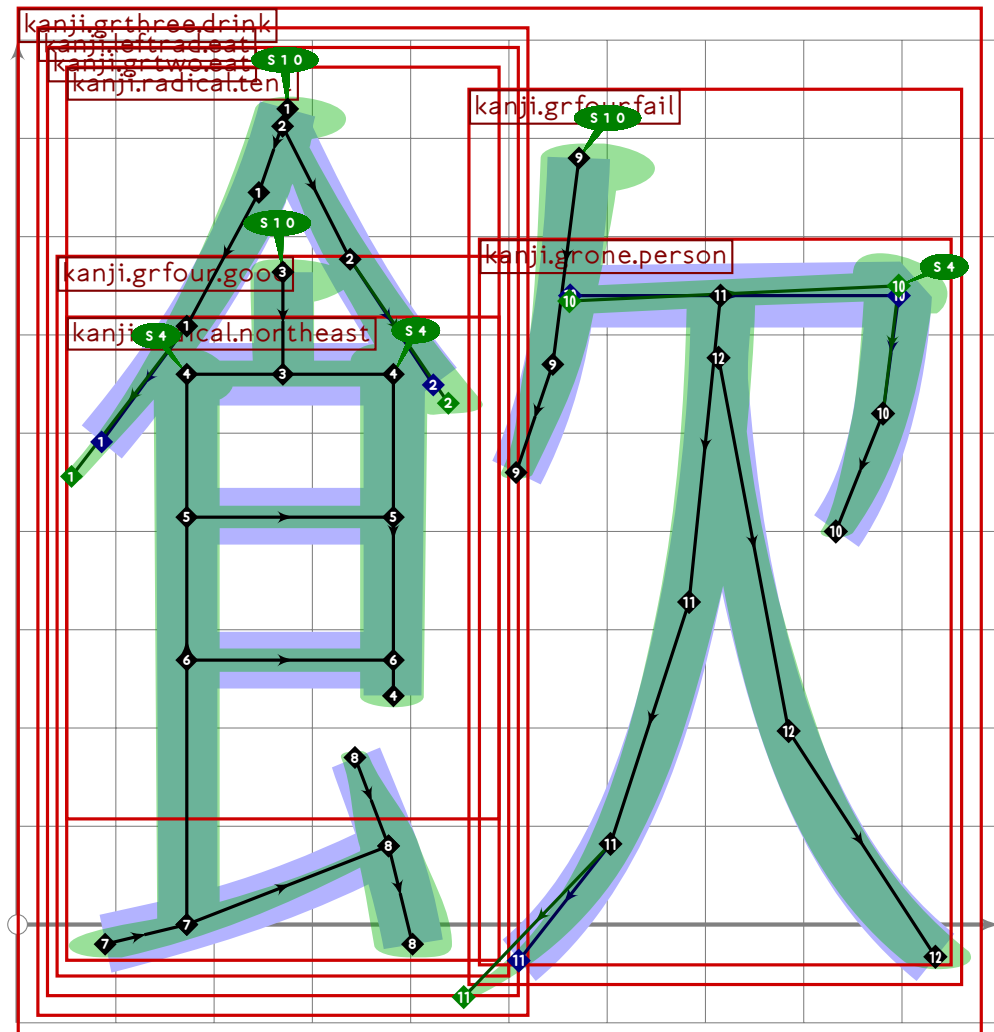
```



```

54
55 vardef kanji.grtwo.head =
56   push_pbox_toexpand("kanji.grtwo.head");
57   build_kanji.lr(450,-50)
58   (build_kanji.lift_skirt(320,150)(kanji.grthree.bean))
59   (kanji.grnine.page);
60   expand_pbox;
61 enddef;
62
63

```



```

64
65 vardef kanji.grthree.drink =
66   push_pbox_toexpand("kanji.grthree.drink");
67   build_kanji.lr(480,20)
68     (kanji.leftrad.eat)
69     (kanji.grfour.fail);
70   expand_pbox;
71 enddef;

```

72

73

74

```

75 % ketsu/peeji "page"
76   begintsuglyph("uni9801"1);
77   kanji.grnine.page;
78   tsu_render;
79   endtsuglyph;

```

[see page 597]

80

```

81 % tou/atama "head"
82   begintsuglyph("uni982D"45);
83   kanji.grtwo.head;

```

[see page 2218]

```

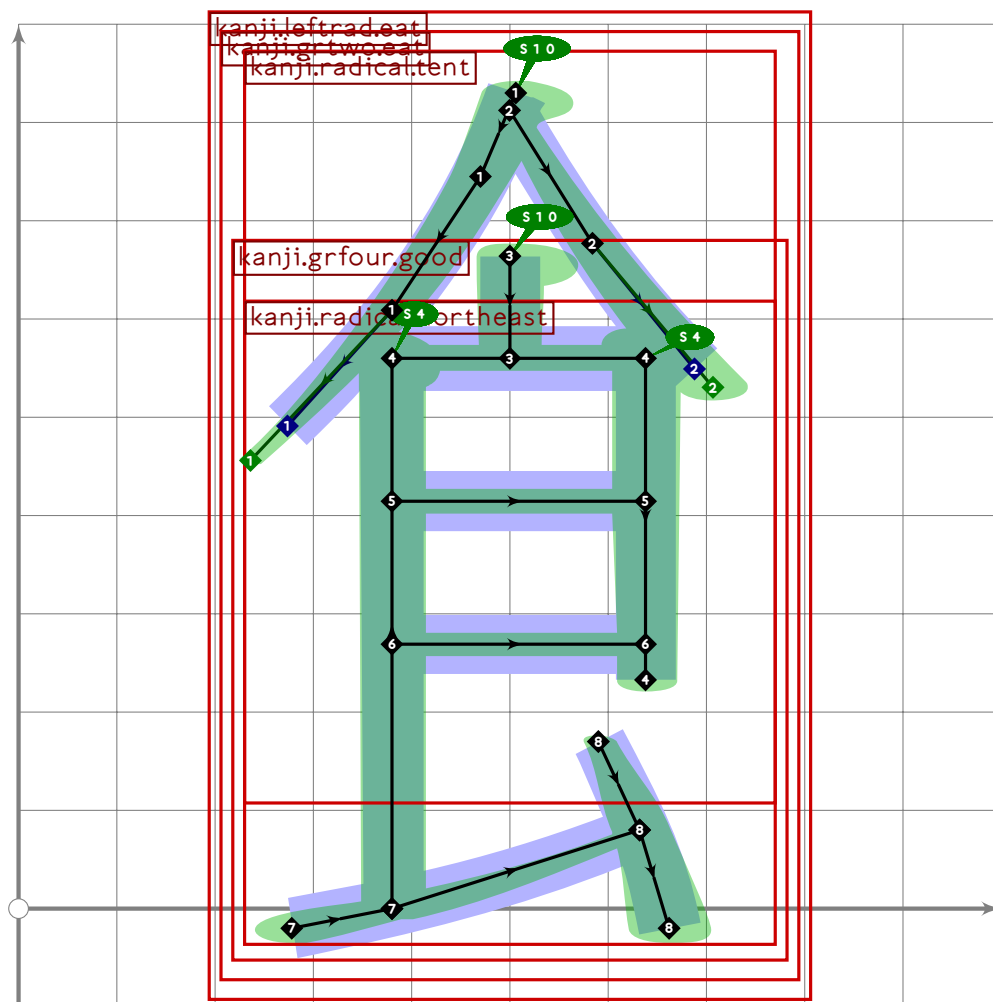
84 tsu_render;
85 endtsuglyph;
86
87 % gen/kao "face"
88 begintsuglyph("uni9854";84);
89 kanji.grtwo.face;
90 tsu_render;
91 endtsuglyph;
92
93 % fuu/kaze "wind"
94 begintsuglyph("uni98A8";168);
95 kanji.grtwo.wind;
96 tsu_render;
97 endtsuglyph;
98
99 % shoku/ta "eat"
100 begintsuglyph("uni98DF";223);
101 kanji.grtwo.eat;
102 tsu_render;
103 endtsuglyph;
104

```

[see page 2217]

[see page 505]

[see page 457]





```
105 % simplified "eat" for use as radical
106 begintsuglyph("uni98E0";224);
107 build_kanji.sscale(xscaled 0.6)(kanji.leftrad.eat);
108 tsu_render;
109 endtsuglyph;
110
111 % in/no "drink"
112 begintsuglyph("uni98F2";242); [see page 2219]
113 kanji.grthree.drink;
114 tsu_render;
115 endtsuglyph;
116
117 

---


118
119 endfont;
120
121 

---


```

# tsuku-99.mp

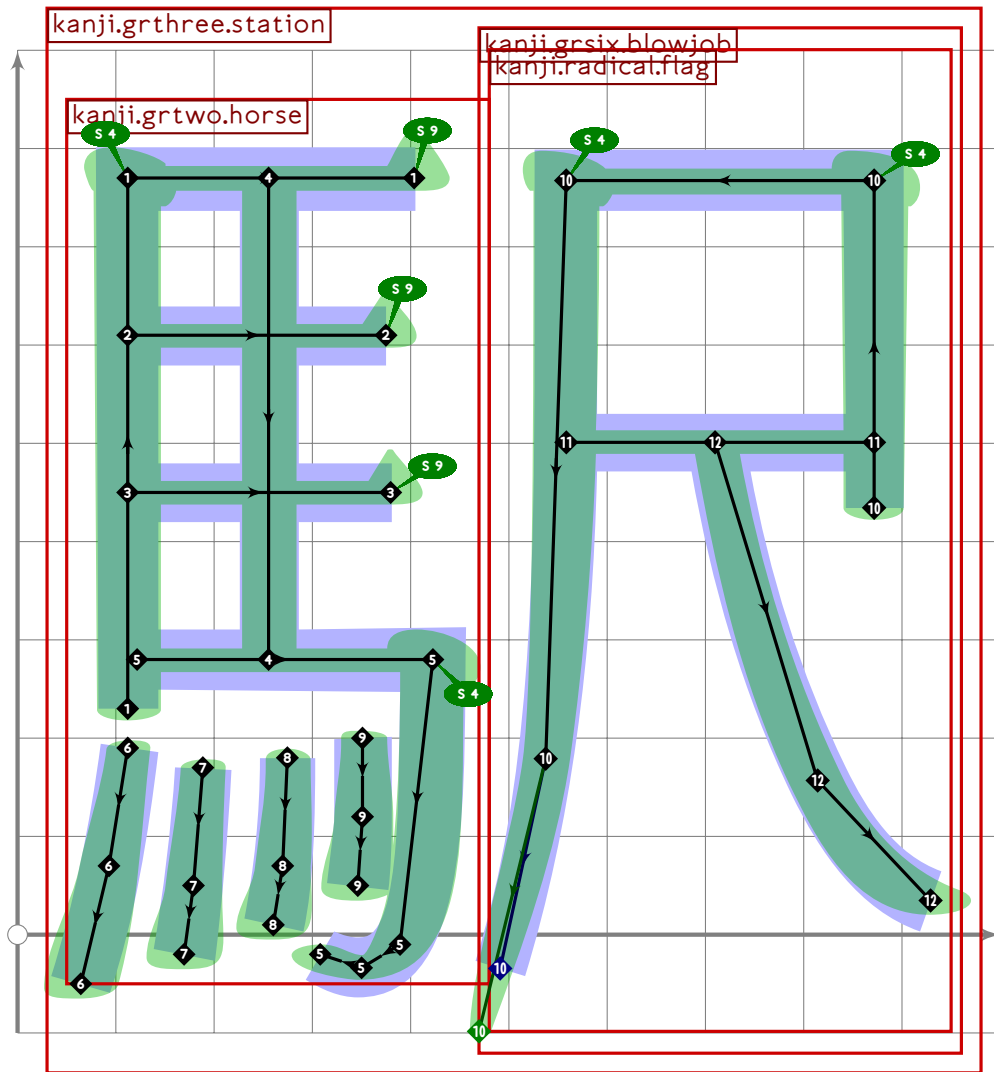
```
1 %
2 % Unicode page 99 (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradesix.mp;
39 input gradetwo.mp;
40 input radical.mp;
41 input toprad.mp;
42
43 

---


```



```

44
45 vardef kanji.grthree.station =
46   push_pbox_toexpand("kanji.grthree.station");
47   build_kanji.lr(480,0)
48     (kanji.grtwo.horse)
49     (build_kanji.sscale(yscaled 1.11)
50       (kanji.grsix.blowjob));
51   expand_pbox;
52 enddef;
53

```

```

54
55
56 % shu/kubi "neck"
57 begintsuglyph("uni9996";150);
58   kanji.grtwo.neck;
59   tsu_render;
60 endtsuglyph;
61
62 % ba/uma "horse"

```

[see page 484]

```
63 begintsuglyph("uni99AC",172); [see page 470]
64 kanji.grtwo.horse;
65 tsu_render;
66 endtsuglyph;
67
68 % eki "station"
69 begintsuglyph("uni99C5",197); [see page 2223]
70 kanji.grthree.station;
71 tsu_render;
72 endtsuglyph;
73
74 

---


75
76 endfont;
77
78 

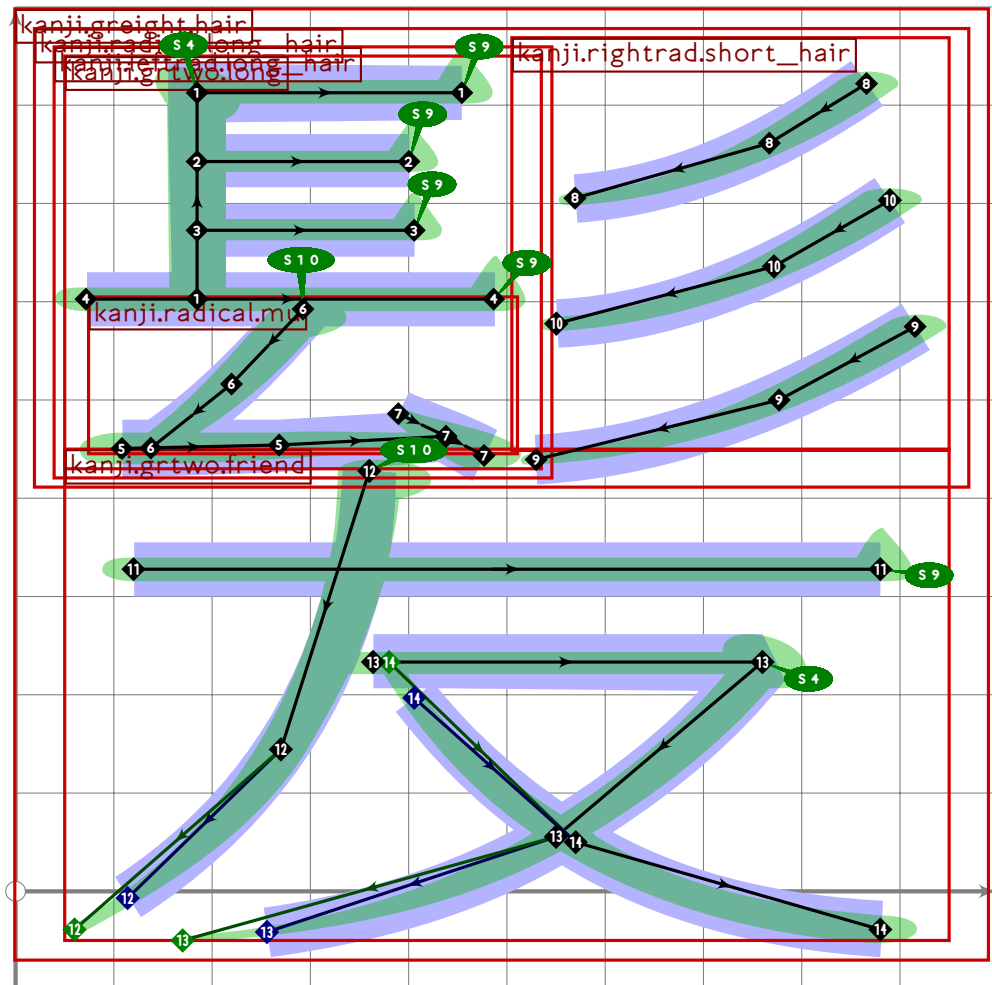
---


```

# tsuku-9a.mp

```
1 %  
2 % Unicode page 9a (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011, 2012 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

```
30  
31  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradeone.mp;  
38 input gradetwo.mp;  
39 input leftrad.mp;  
40 input radical.mp;  
41  
42
```



43

```

44 vardef kanji.greight.hair =
45   push_pbox_toexpand("kanji.greight.hair");
46   build_kanji.level(build_kanji.tb(440,20)
47     (kanji.radical.long_hair)
48     (kanji.grtwo.friend));
49   expand_pbox;
50 enddef;
51
52 

---


53
54 % kou/taka "high"
55 begintsuglyph("uni9AD8";216); [see page 468]
56   kanji.grtwo.high;
57   tsu_render;
58 endtsuglyph;
59
60 % hyuu/kamigashira "long hair radical"
61 begintsuglyph("uni9ADF";223); [see page 351]
62   kanji.radical.long_hair;
63   tsu_render;
64 endtsuglyph;
65
66 % hatsu/kami "hair of the head"
67 begintsuglyph("uni9AEA";234); [see page 2226]
68   kanji.greight.hair;
69   tsu_render;
70 endtsuglyph;
71
72 

---


73
74 endfont;
75
76 

---



```

# tsuku-9b.mp

```
1 %
2 % Unicode page 9b (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeone.mp;
39 input gradetwo.mp;
40
41 

---


42
43 % gyo/sakana "fish"
44 begintsuglyph("uni9B5A";90); [see page 461]
45 kanji.grtwo.fish;
46 tsu\_render;
47 endtsuglyph;
48
49 

---


50
51 endfont;
52
53 

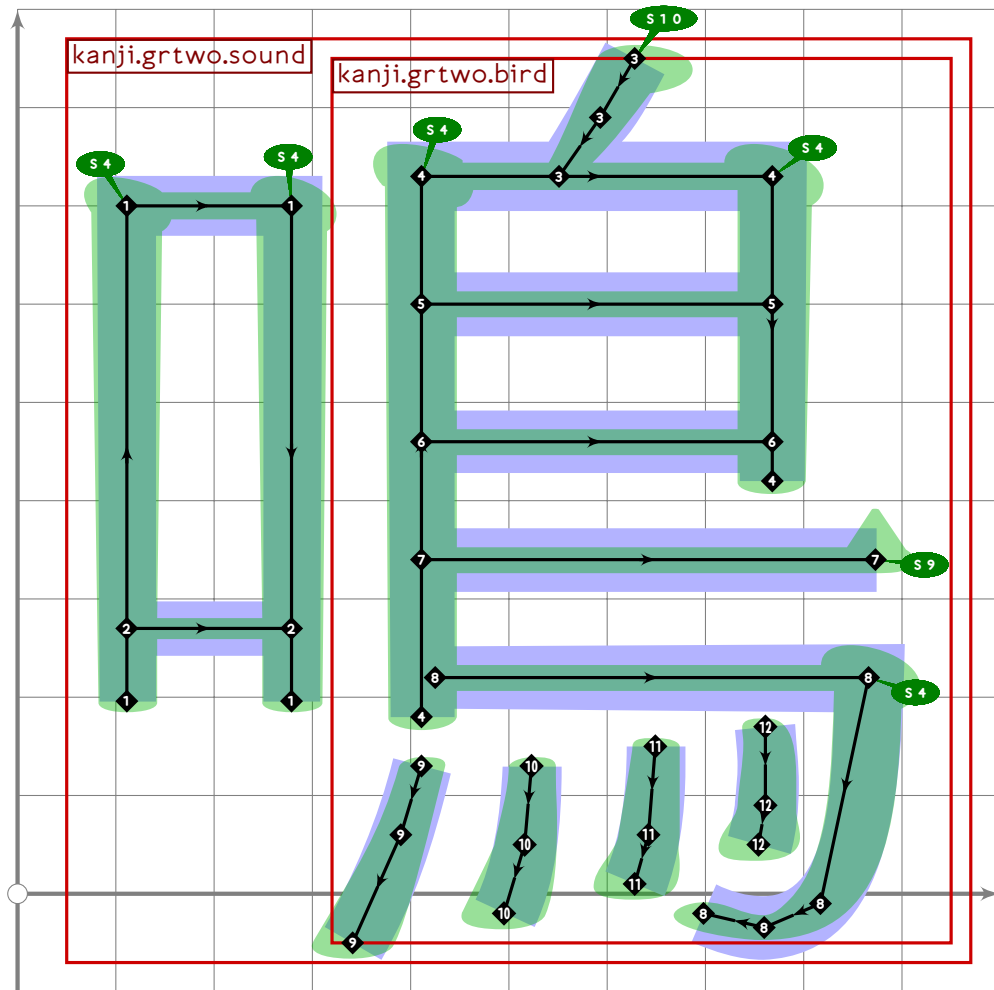
---


```

# tsuku-9c.mp

```
1 %  
2 % Unicode page 9c (Kanji) for Tsukurimashou  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]
```

```
30  
31  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input buildkanji.mp;  
37 input gradetwo.mp;  
38  
39
```



```
40  
41 vardef kanji.grtwo.sound =  
42   push_pbox_toexpand("kanji.grtwo.sound");  
43   build_kanji.lr(330,20)
```



```
44 (build_kanji.box((240,700),(760,280));
45   replace_strokep(0)(oldp shifted (0,-10)))
46 (kanji.grtwo.bird);
47   expand_pbox;
48 enddef;
49
50 

---


51
52 % chou/tori "bird"
53   begintsuglyph("uni9CE5",229); [see page 446]
54   kanji.grtwo.bird;
55   tsu_render;
56   endtsuglyph;
57
58 % mei/na "sound"
59   begintsuglyph("uni9CF4",244); [see page 2228]
60   kanji.grtwo.sound;
61   tsu_render;
62   endtsuglyph;
63
64 

---


65
66 endfont;
67
68 

---


```

# tsuku-9e.mp

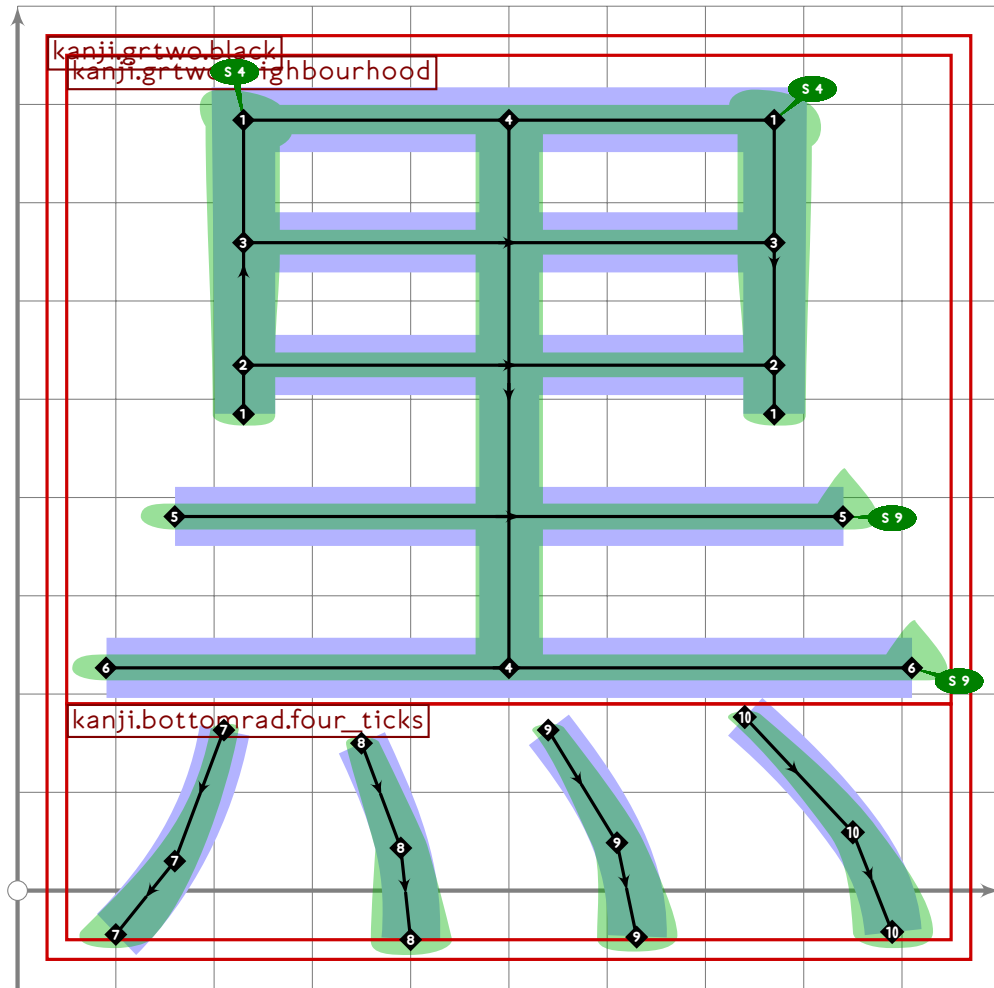
```
1 %
2 % Unicode page 9e (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input bottomrad.mp;
37 input buildkanji.mp;
38 input gradeone.mp;
39 input gradethree.mp;
40 input gradetwo.mp;
41 input radical.mp;
42 input topfad.mp;
43
44 

---


```



```

45
46 vardef kanji.grtwo.black =
47   push_pbox_toexpand("kanji.grtwo.black");
48   build_kanji.tb(190,0)
49   (kanji.grtwo.neighbourhood)
50   (kanji.bottomrad.four_ticks);
51   expand_pbox;
52 enddef;
53
54
55
56 % baku/mugi "wheat"
57 begintsuglyph("uni9EA6";166);
58   kanji.grtwo.wheat;
59   tsu_render;
60 endsuglyph;
61
62 % kou/ki "yellow"
63 begintsuglyph("uni9EC4";196);
64   kanji.grtwo.yellow;
65   tsu_render;

```

[see page 504]

[see page 507]

```
66 endtsuglyph;
67
68 % koku/kuro "black"
69 begintsuglyph("uni9ED2",210); [see page 2231]
70 kanji.grtwo.black;
71 tsu_render;
72 endtsuglyph;
73
74 

---


75
76 endfont;
77
78 

---


```

# tsuku-9f.mp

```
1 %
2 % Unicode page 9f (Kanji) for Tsukurimashou
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input buildkanji.mp;
37 input gradeone.mp;
38 input gradethree.mp;
39 input gradetwo.mp;
40 input radical.mp;
41
42 

---


43
44 % bi/hana "nose"
45 begint Suglyph("uni9F3B";59); [see page 523]
46   kanji.grthree.nose;
47   tsu_render;
48 endtsuglyph;
49
50 

---


51
52 endfont;
53
54 

---


```



Part VIII

U+A000 to U+10FFFF





# tsuku-f7.mp

```
1 %
2 % Unicode page F7 (Adobe PUA) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

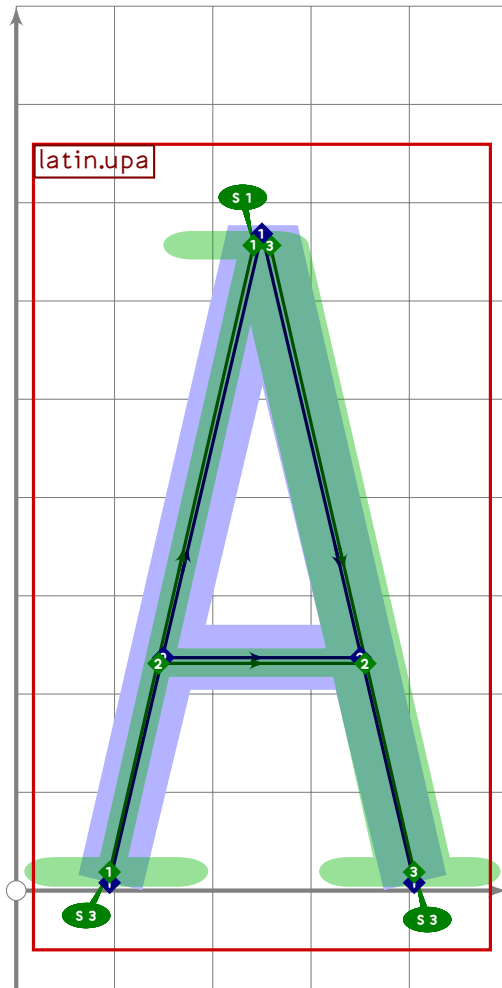

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input latin.mp;
39
40 latin_wide_sc_top:=0.4[latin_wide_xheight,latin_wide_top];
41
42 transform tsu_xf.sc;
43
44 (0,latin_wide_low_h) transformed tsu_xf.sc = (20,latin_wide_low_h);
45 (1000,latin_wide_low_h) transformed tsu_xf.sc = (980,latin_wide_low_h);
46 (0,latin_wide_top) transformed tsu_xf.sc = (20,latin_wide_sc_top);
47
48 

---

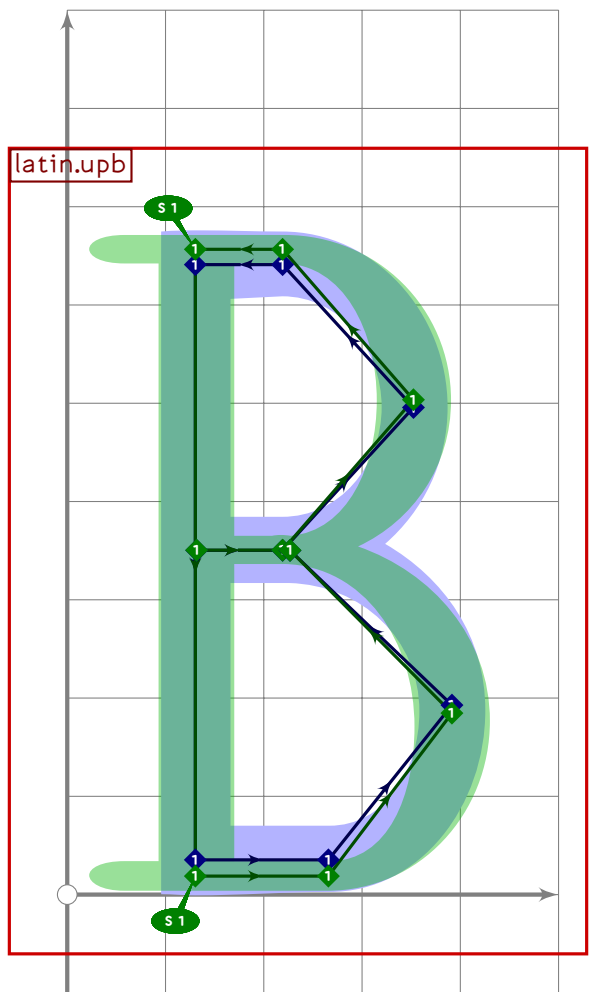

49
```

## Latin Small Caps

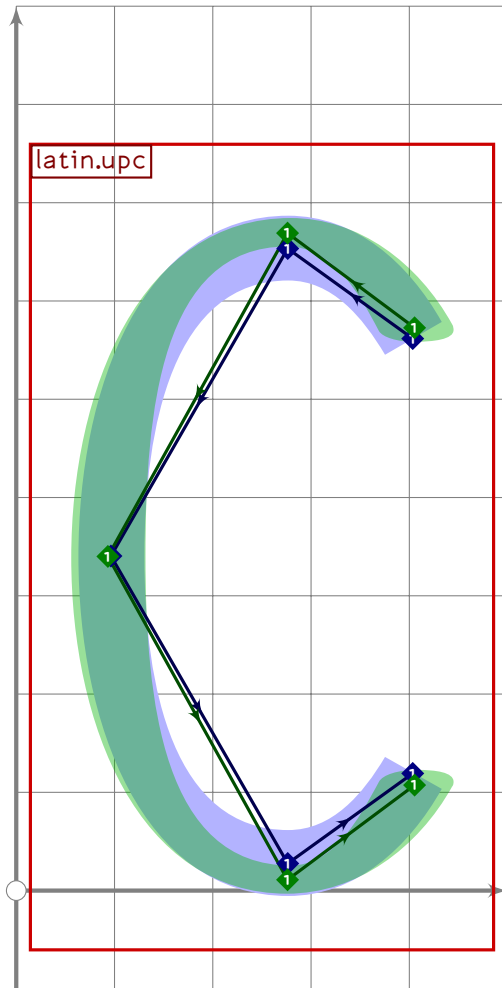
```
50 % LATIN SMALL CAPS
51
52 % WARNING changing rescale setting
53 tsu_rescale_half;
54
```



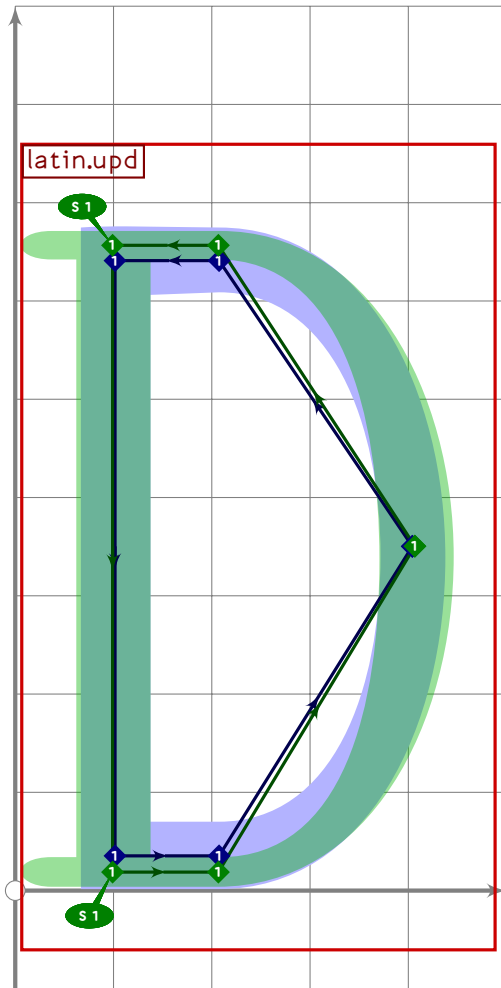
```
55 % A
56 begintuglyph("uniF761";97);
57 tsu_xform(tsu_xf.sc)(latin.upa);
58 tsu_render;
59 endtuglyph;
60
```



```
61 % B
62 beginsuglyph("uniF762"98);
63 tsu_xform(tsu_xf.sc)(latin.upb);
64 tsu_render;
65 endtsuglyph;
66
```



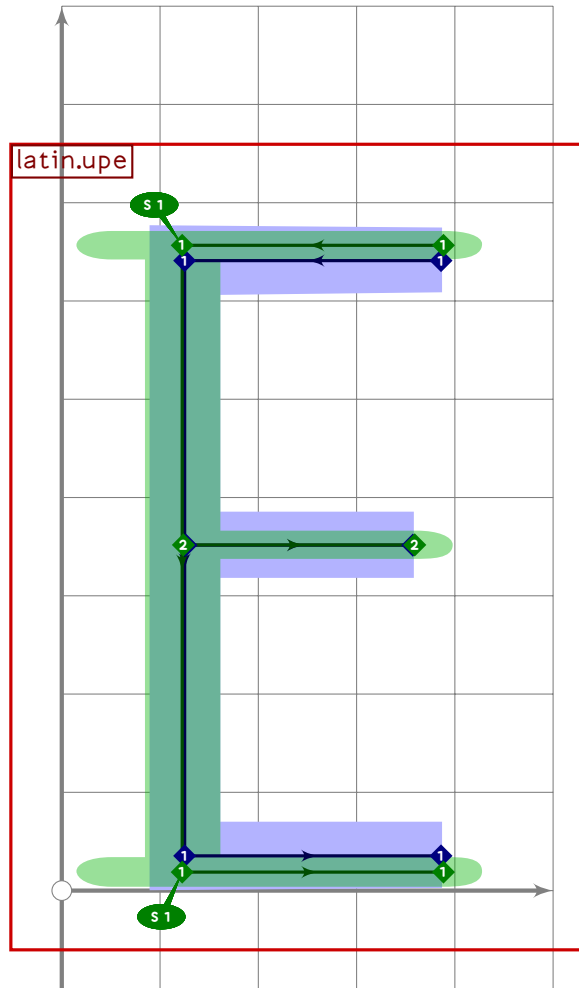
```
67 % C
68 begintsuglyph("uniF763";99);
69 tsu_xform(tsu_xf.sc)(latin.upc);
70 tsu_render;
71 endtsuglyph;
72
```



```

73 % D
74 begint Suglyph("uniF764";100);
75 tsu_xform(tsu_xf.sc)(latin.upd);
76 tsu_render;
77 endtsuglyph;
78

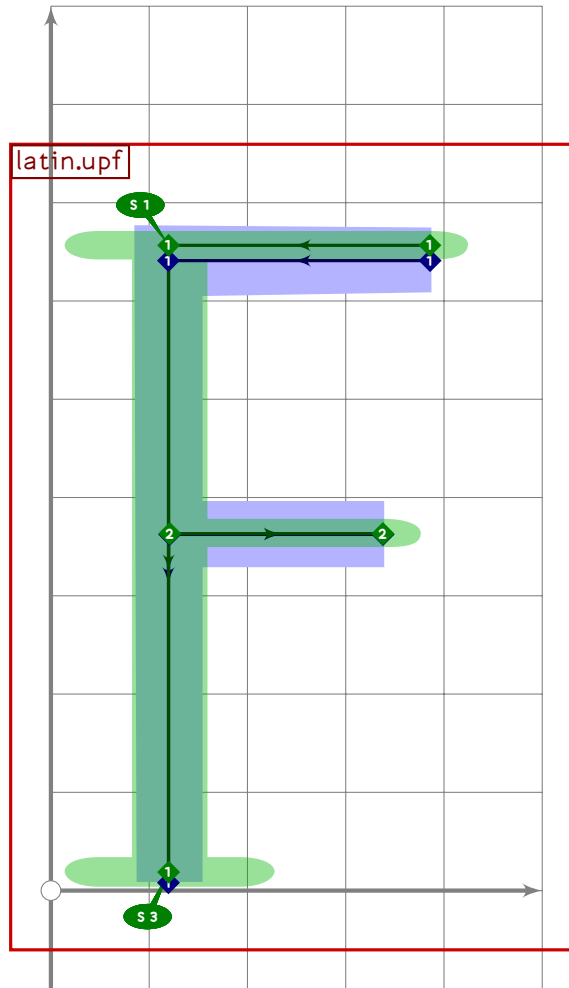
```



```

79 % E
80 begint Suglyph("uniF765";101);
81   tsu_xform(tsu_xf.sc)(latin.ufe);
82   tsu_render;
83   endtsuglyph;
84

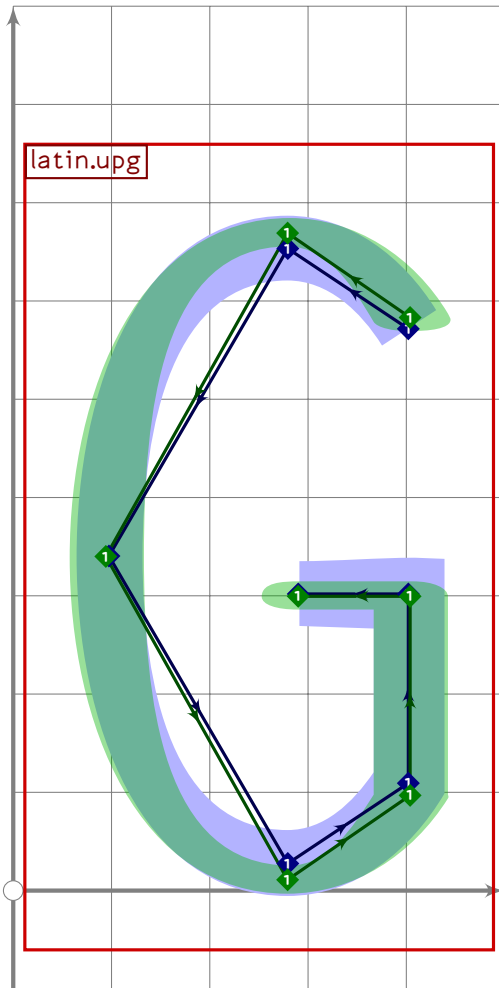
```



```

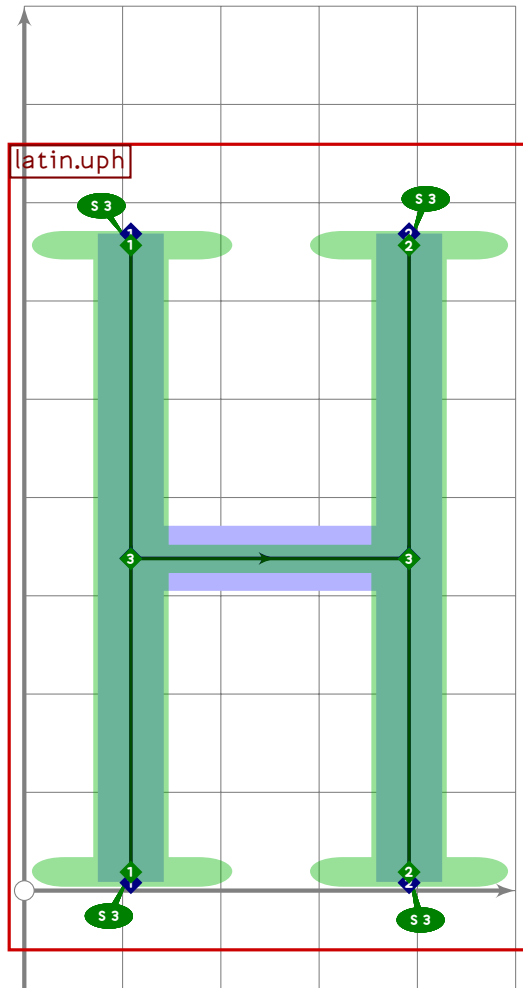
85 % F
86 begint Suglyph("uniF766",102);
87   tsu_xform(tsu_xf.sc)(latin.upf);
88   tsu_render;
89   endtsuglyph;
90

```



```
91 % G
92 beginsuglyph("uniF767";103);
93 tsu_xform(tsu_xf.sc)(latin.upg);
94 tsu_render;
95 endsuglyph;
96
```

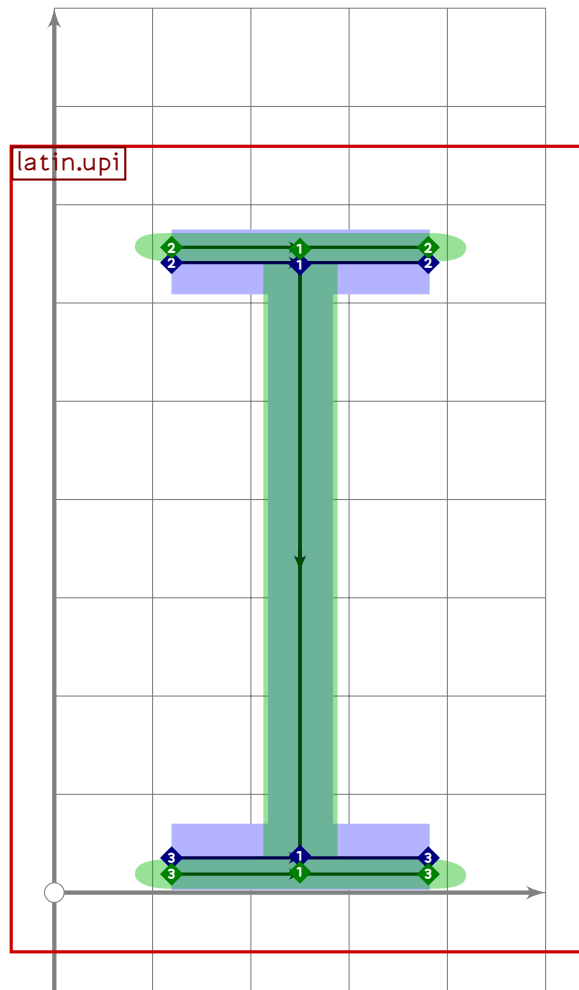




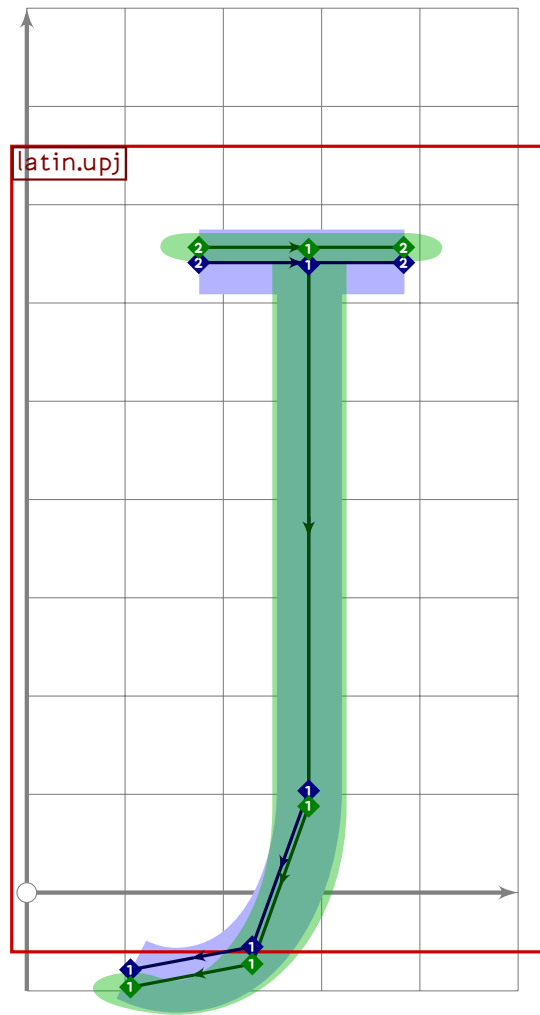
```

97 % H
98 beginsuglyph("uniF768",104);
99 tsu_xform(tsu_xf.sc)(latin.uph);
100 tsu_render;
101 endsuglyph;
102

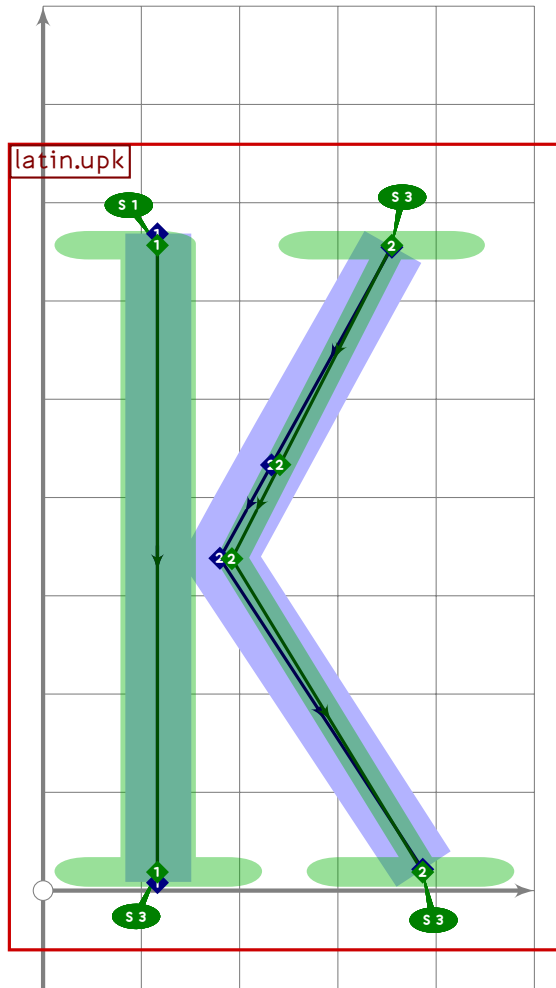
```



```
103 % I
104 beginsuglyph("uniF769";105);
105 tsu_xform(tsu_xf.sc)(latin.upi);
106 tsu_render;
107 endsuglyph;
108
```



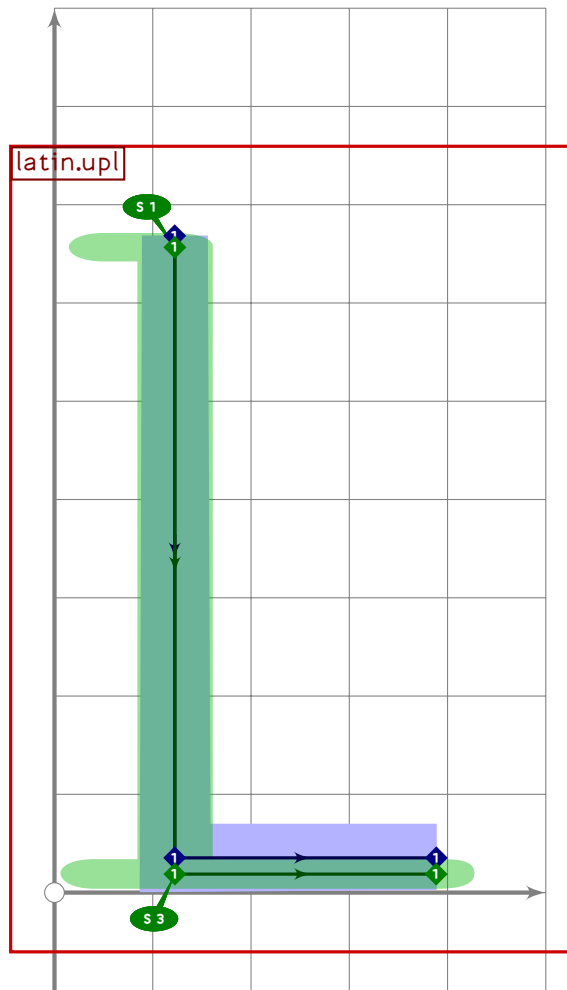
```
109 % J
110 begint Suglyph("uniF76A";106);
111 tsu_xform(tsu_xf.sc)(latin.upj);
112 tsu_render;
113 endtsuglyph;
114
```



```

115 % K
116 begint Suglyph("uniF76B",107);
117 tsu_xform(tsu_xf.sc)(latin.upk);
118 tsu_render;
119 endtsuglyph;
120

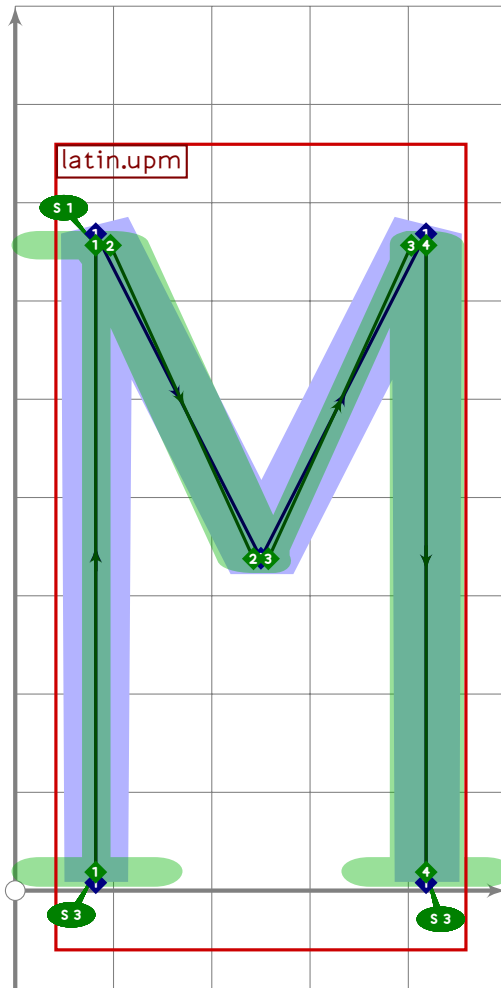
```



```

121 % L
122 begintsuglyph("uniF76C",108);
123 tsu_xform(tsu_xf.sc)(latin.upl);
124 tsu_render;
125 endtsuglyph;
126

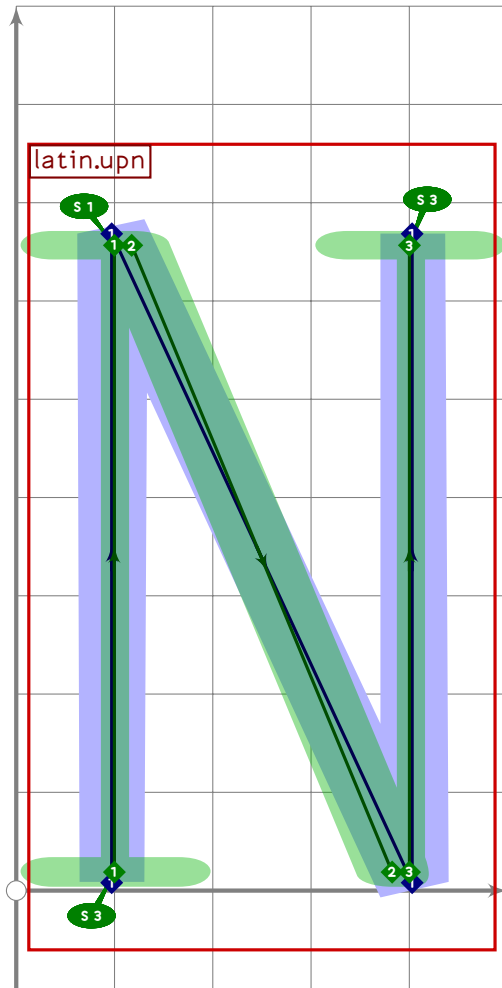
```



```

127 % M
128 beginsuglyph("uniF76D",109);
129 tsu_xform(tsu_xf.sc)(latin.upm);
130 tsu_render;
131 endsuglyph;
132

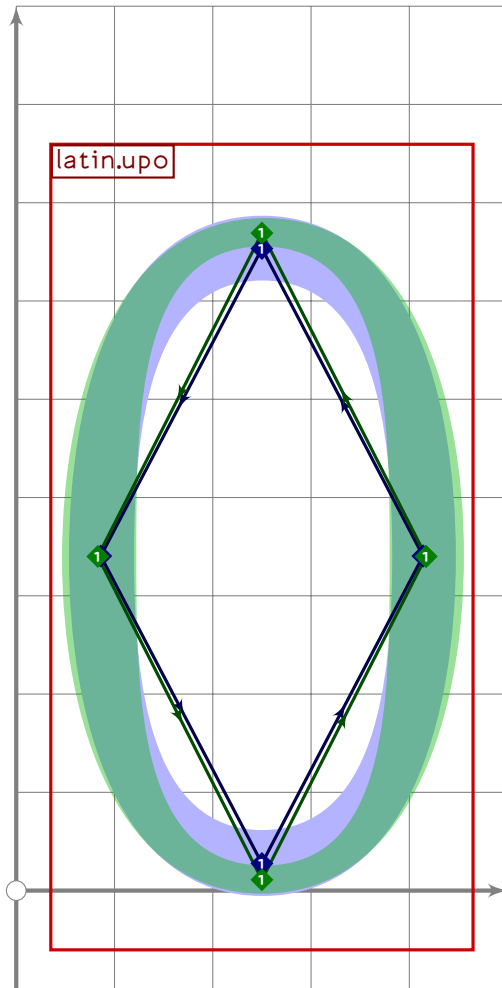
```



```

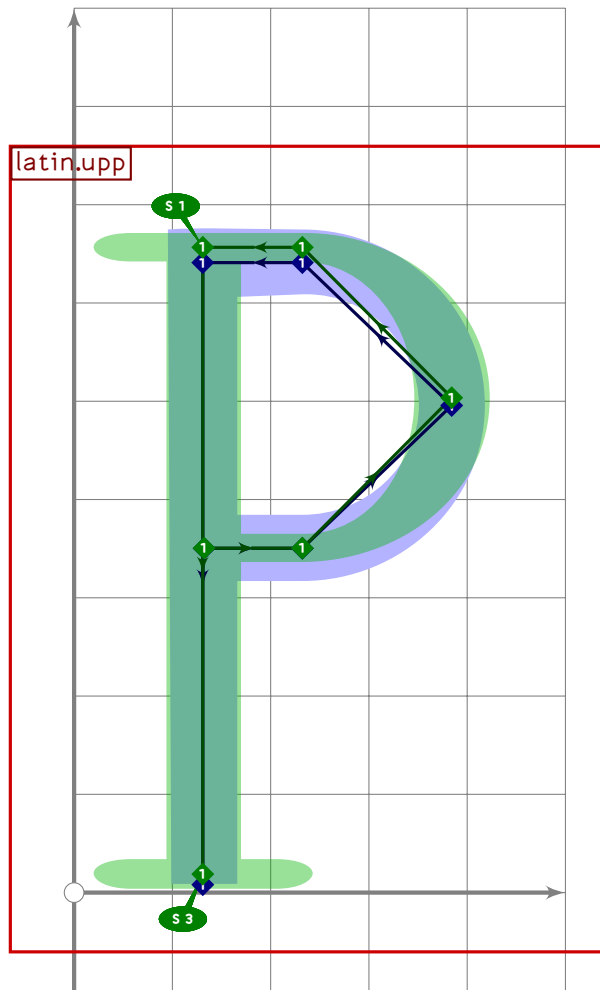
133 % N
134 begint Suglyph("uniF76E";110);
135   tsu_xform(tsu_xf.sc)(latin.upn);
136   tsu_render;
137   endtsuglyph;
138

```



```
139 % O
140 beginsuglyph("uniF76F",11);
141 tsu_xform(tsu_xf.sc)(latin.upo);
142 tsu_render;
143 endsuglyph;
144
```

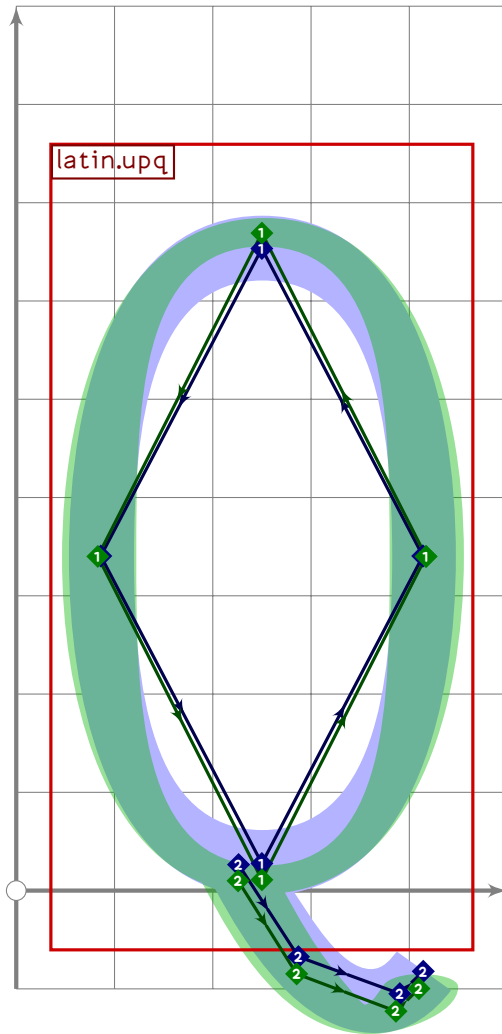




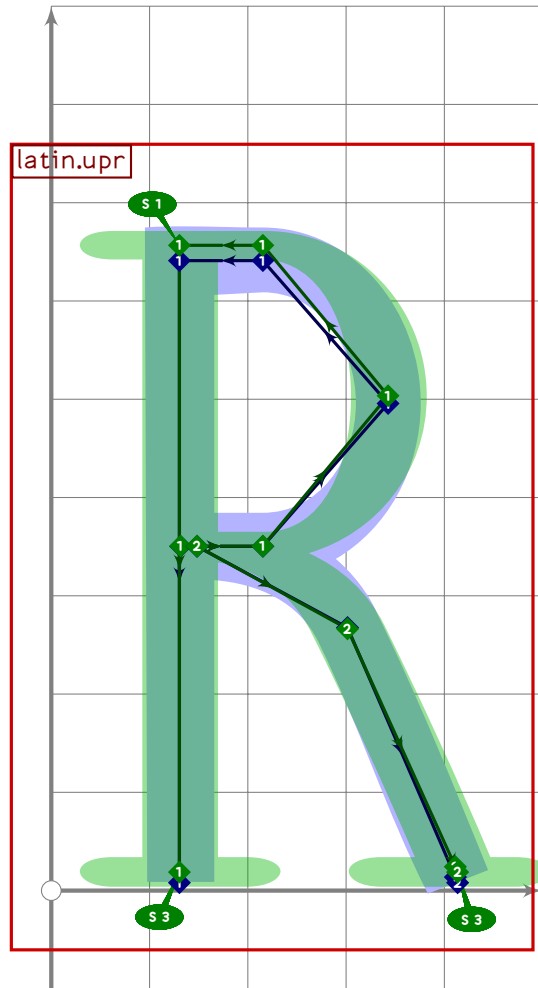
```

145 % P
146 begintuglyph("uniF770",112);
147   tsu_xform(tsu_xf.sc)(latin.upp);
148   tsu_render;
149   endtuglyph;
150

```



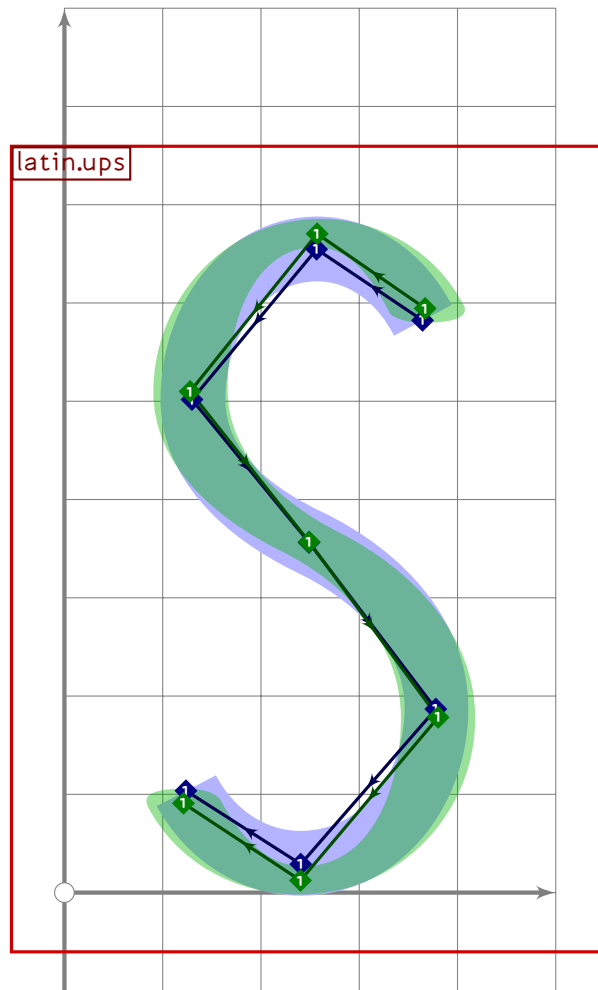
```
151 % Q
152 begintsuglyph("uniF771",113);
153 tsu_xform(tsu_xf.sc)(latin.upq);
154 tsu_render;
155 endtsuglyph;
156
```



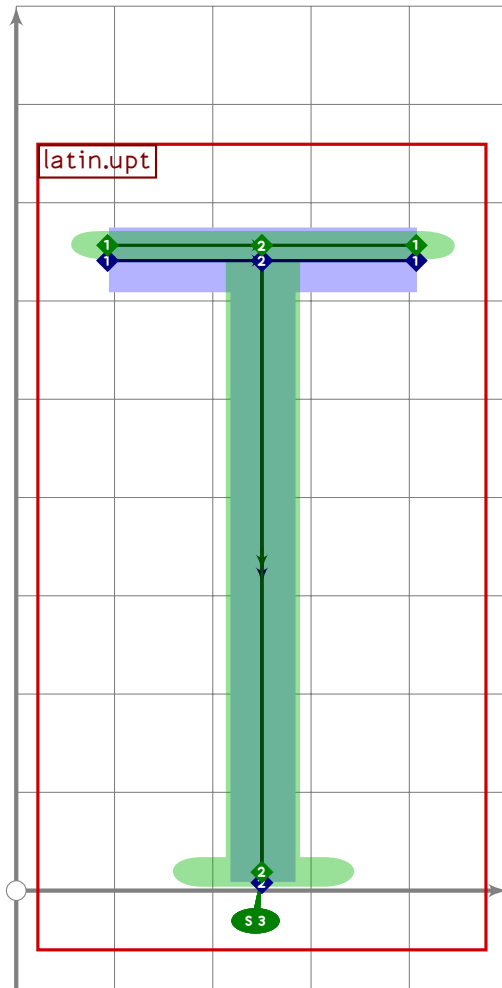
```

157 % R
158 begint Suglyph("uniF772";114);
159   tsu_xform(tsu_xf.sc)(latin.upr);
160   tsu_render;
161   endtsuglyph;
162

```



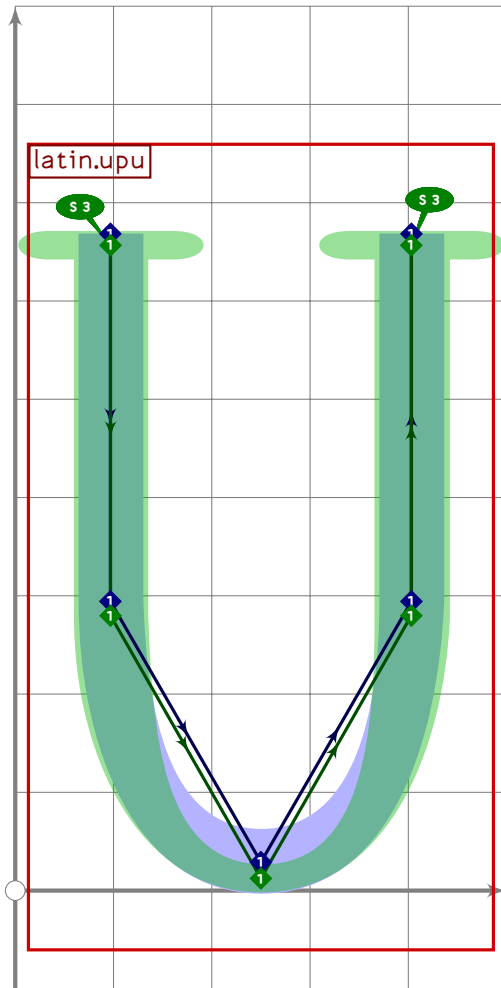
```
163 % S
164 begintsuglyph("uniF773";115);
165 tsu_xform(tsu_xf.sc)(latin.ups);
166 tsu_render;
167 endtsuglyph;
168
```



```

169 % T
170 begint Suglyph("uniF774";116);
171 tsu_xform(tsu_xf.sc)(latin.upt);
172 tsu_render;
173 endtsuglyph;
174

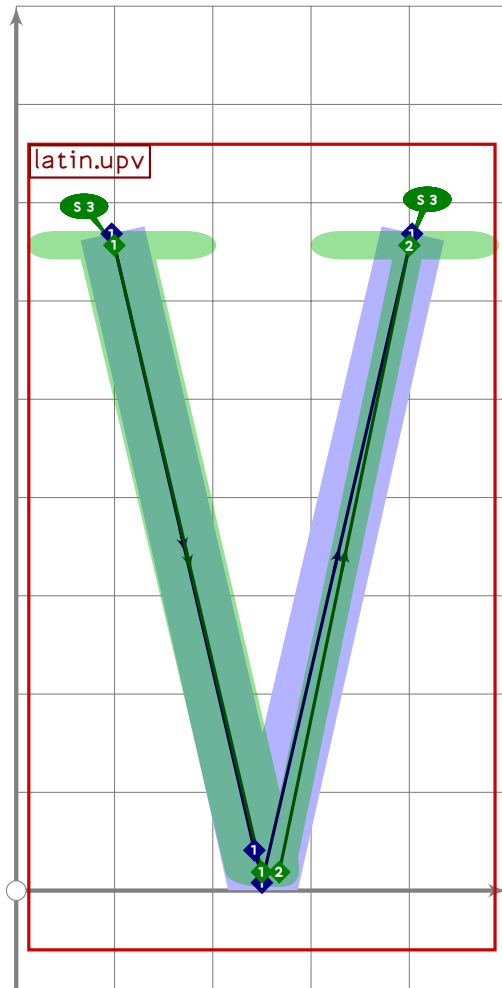
```



```

175 % U
176 begint Suglyph("uniF775";117);
177   tsu_xform(tsu_xf.sc)(latin.upu);
178   tsu_render;
179   endtsuglyph;
180

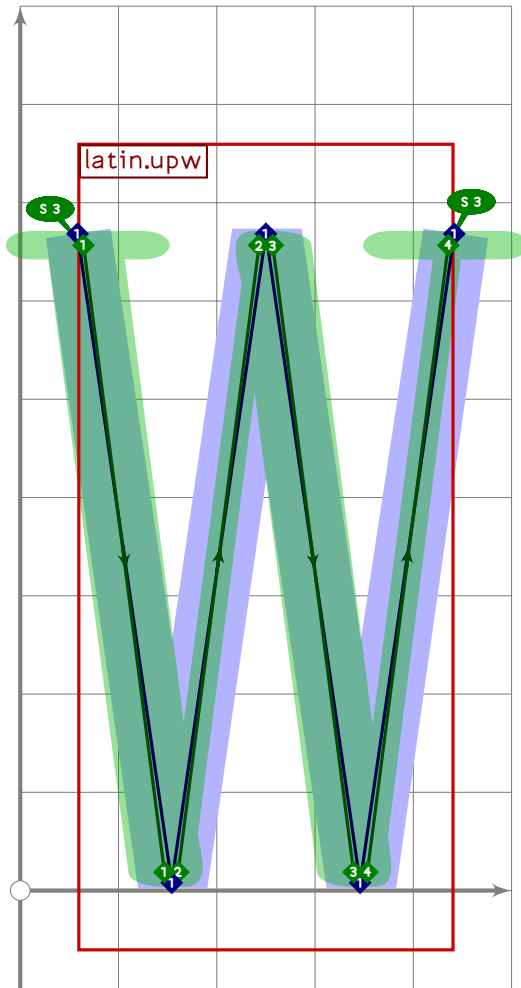
```



```

181 % V
182 begint Suglyph("uniF776",118);
183   tsu_xform(tsu_xf.sc)(latin.upv);
184   tsu_render;
185 endtsuglyph;
186

```

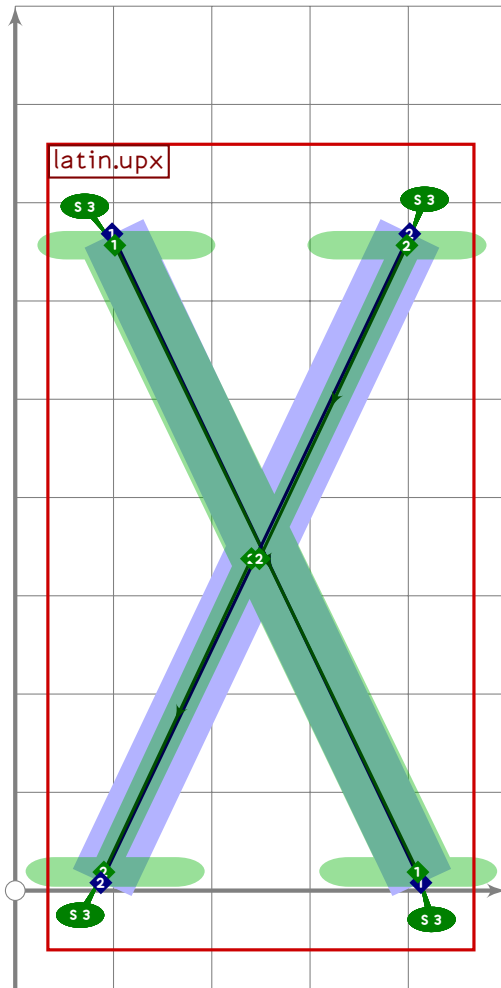


```

187 % W
188 begintsuglyph("uniF777";119);
189 tsu_xform(tsu_xf.sc)(latin.upw);
190 tsu_render;
191 endtsuglyph;
192

```

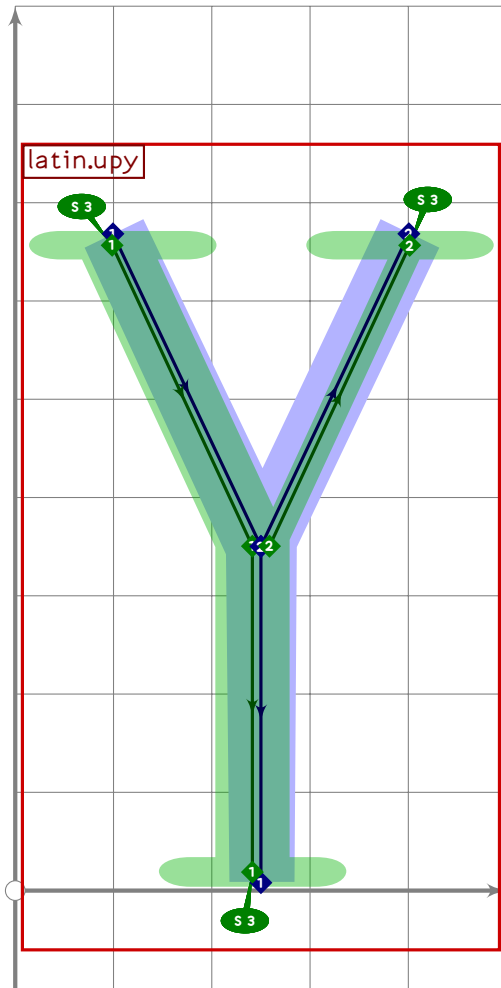




```

193 % X
194 beginsuglyph("uniF778",120);
195   tsu_xform(tsu_xf.sc)(latin.upx);
196   tsu_render;
197   endtsuglyph;
198

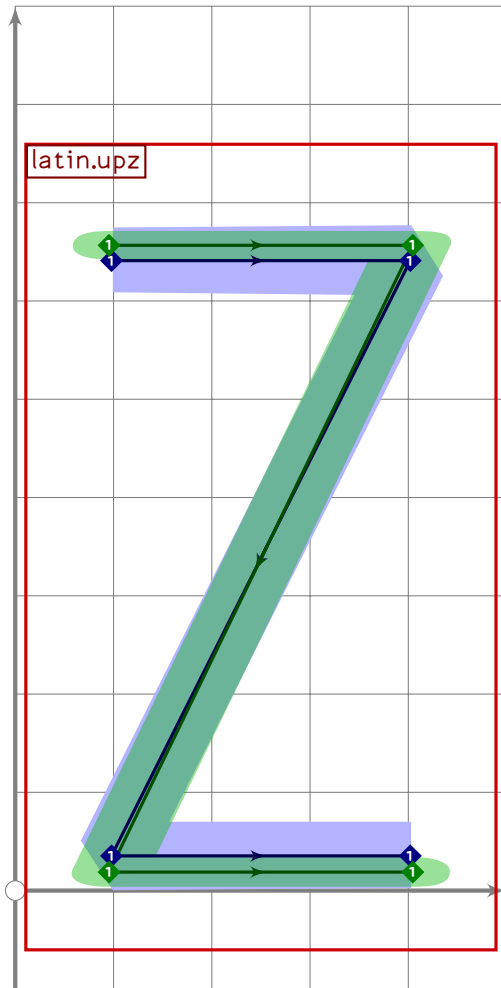
```



```

199 % Y
200 begintsuglyph("uniF779";121);
201 tsu_xform(tsu_xf.sc)(latin.upy);
202 tsu_render;
203 endtsuglyph;
204

```



```
205 % Z
206 beginsuglyph("uniF77A",122);
207 tsu_xform(tsu_xf.sc)(latin.upz);
208 tsu_render;
209 endtsuglyph;
210
211 _____
212
213 endfont;
214
215 _____
```

# tsuku-ff.mp

```
1 %
2 % Unicode page FF (Full-width and Half-width Forms) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

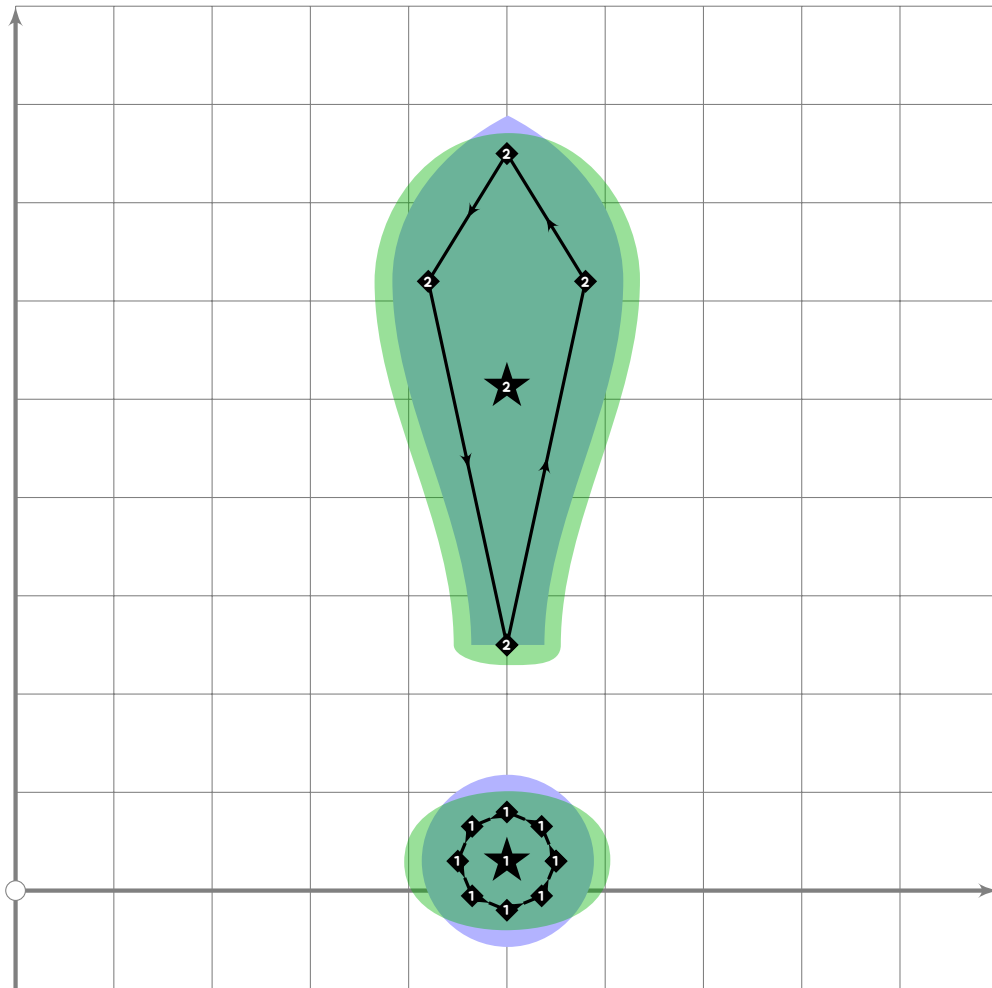

32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input dakuten.mp;
40 input katakana.mp;
41 input latin.mp;
42 input numerals.mp;
43 input punct.mp;
44
45 

---


46
```

## Full-Width Forms

```
47 % FULL-WIDTH FORMS
48
49 % WARNING this code is substantially duplicated in tsuku-00; just
50 % enough differences to make sharing impractical
51
```



```

52 % exclamation point
53 begintsuglyph("uniFF01",1);
54   if tsu_pbrush_size>=tsu_punct_size:
55     push_lcblob(fullcircle
56       xscaled (tsu_punct_size+tsu_pbrush_size)
57       yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
58       rotated tsu_pbrush_angle
59       shifted (500,30));
60   else:
61     push_stroke(fullcircle scaled tsu_punct_size shifted (500,30),
62       (2,2)-(2,2)-(2,2)-(2,2)-cycle);
63     if tsu_pbrush_size>=3:
64       push_lcblob(get_strokep(0));
65     fi;
66   fi;
67
68   push_stroke((500,250){up}..(580,620){up}..{curl 1}(500,750){curl 1}..
69     (420,620){down}..{down}(500,250),
70     (2,2)-(2,2)-(2,2)-(2,2)-(2,2));
71
72   if tsu_pbrush_size>=30:

```

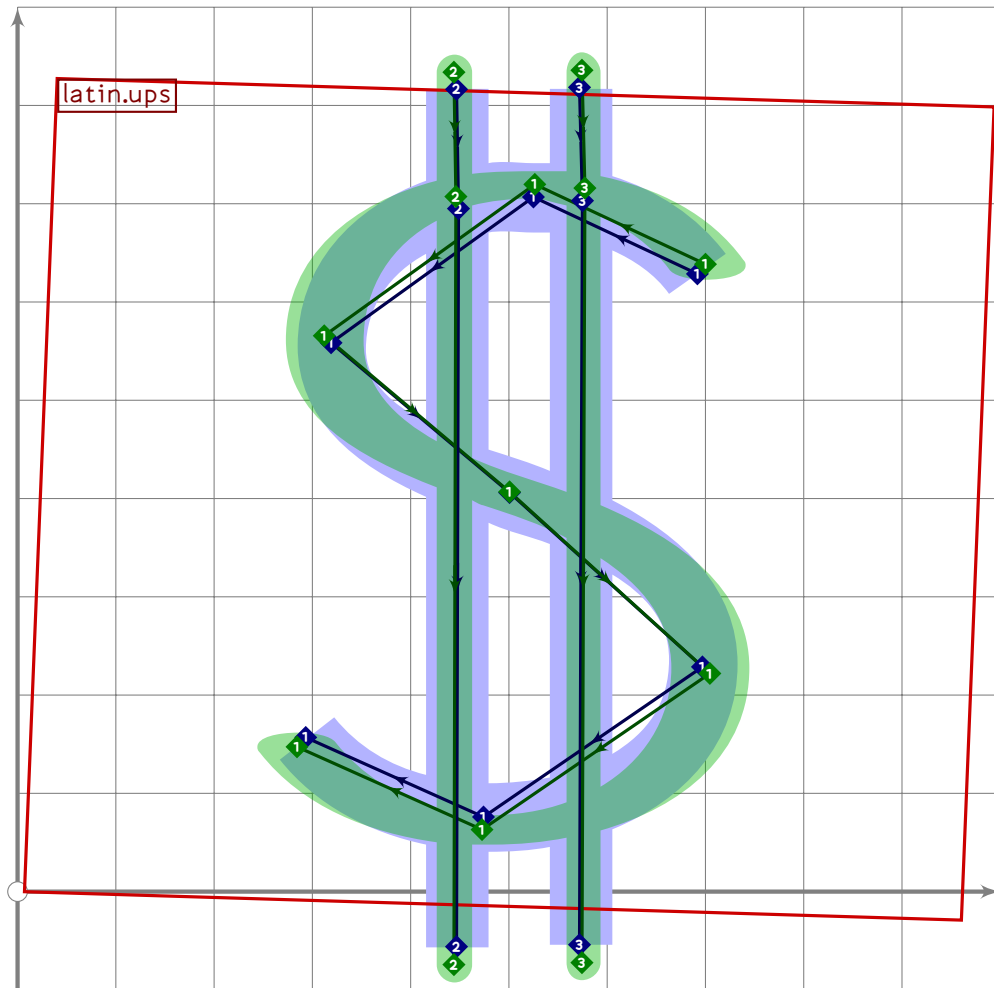
```

73     push_lcblob((subpath (0,1,3,9) of get_strokep(0))-cycle);
74     fi;
75     tsu_render;
76 endtsuglyph;
77
78 % ASCII (neither left nor right) quotation mark
79 begintsuglyph("uniFF02";2);
80 punct.asciiquote;
81 tsu_render;
82 endtsuglyph;
83
84 % number sign
85 begintsuglyph("uniFF03";3);
86 punct.numbersign;
87 tsu_render;
88 endtsuglyph;
89

```

[see page 275]

[see page 298]



```

90 % dollar sign
91 begintsuglyph("uniFF04";4);
92 tsu_xform(identity shifted -centre_pt
93     rotated -2 xyscaled (1.06,0.92) shifted centre_pt)(latin.ups);

```

```

94
95 numeric x[],y[];
96 x1=x2=0.38[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
97 x3=x4=0.69[xpart llcorner get_strokep(0),xpart lrcorner get_strokep(0)];
98 y1=y3=1.12[latin_wide_low_r,latin_wide_high_r];
99 y2=y4=(-0.15)[latin_wide_low_r,latin_wide_high_r];
100
101 z5=(get_strokep(0) intersectionpoint (z1-z2))+(2,-1);
102 push_stroke((z1-z5-z2) shifted (0,-1),
103   (2,2)-(2,2)-(2,2));
104 set_bosize(0,85);
105 set_boalternate(0);
106
107 z6=(get_strokep(-1) intersectionpoint (z3-z4))+(3,1);
108 push_stroke((z3-z6-z4) shifted (0,1),
109   (2,2)-(2,2)-(2,2));
110 set_bosize(0,85);
111 set_boalternate(0);
112
113 tsu_render;
114 endtsuglyph;
115
116 % percent
117 begintsuglyph("uniFF05";5); [see page 302]
118 punct.percent;
119 tsu_render;
120 endtsuglyph;
121
122 % ampersand
123 begintsuglyph("uniFF06";6); [see page 274]
124 punct.ampersand;
125 tsu_render;
126 endtsuglyph;
127

```



```

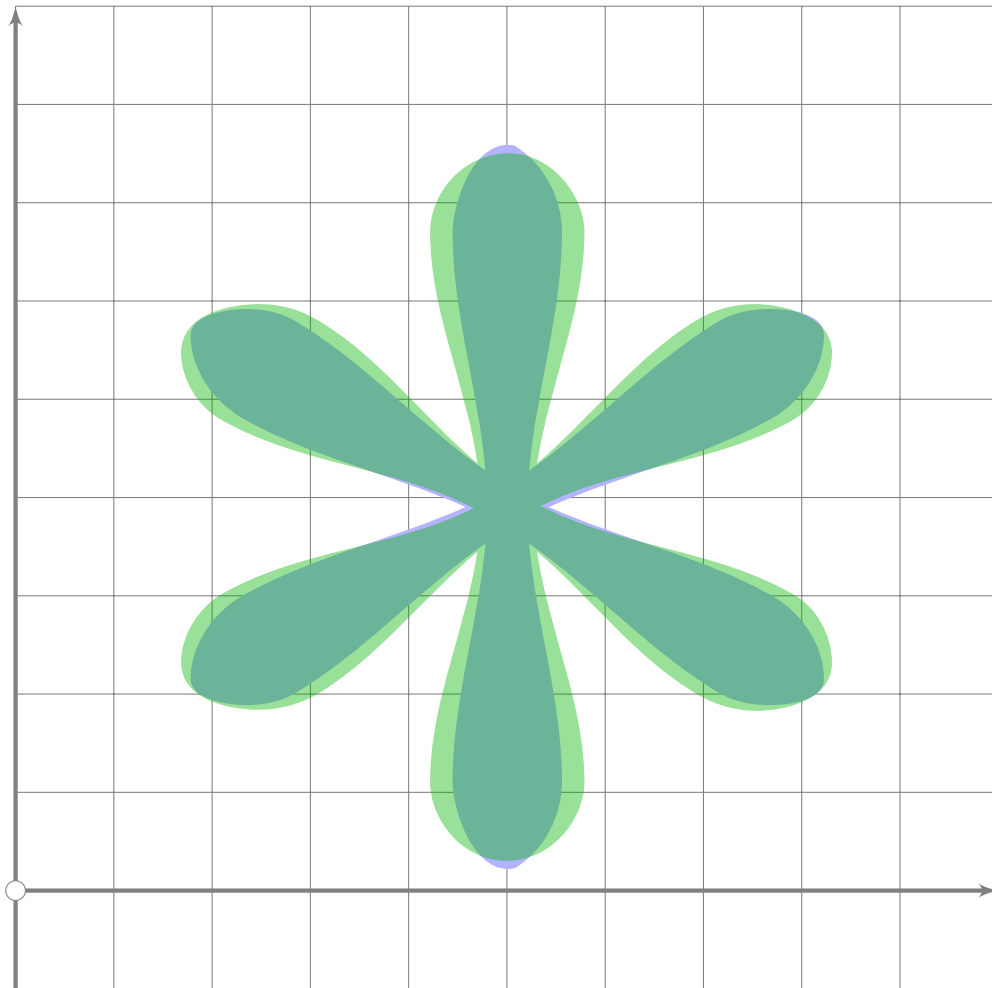
128 % apostrophe
129 begintsuglyph("uniFF07";7);
130 punct.make_comma((480,vmetric(0.94)),0);
131 tsu_render;
132 endsuglyph;
133
134 % left and right parentheses
135 begintsuglyph("uniFF08";8);
136 punct.paren_left;
137 tsu_render;
138 endsuglyph;
139 begintsuglyph("uniFF09";9);
140 punct.paren_right;
141 tsu_render;
142 endsuglyph;
143

```

[see page 300]

[see page 301]



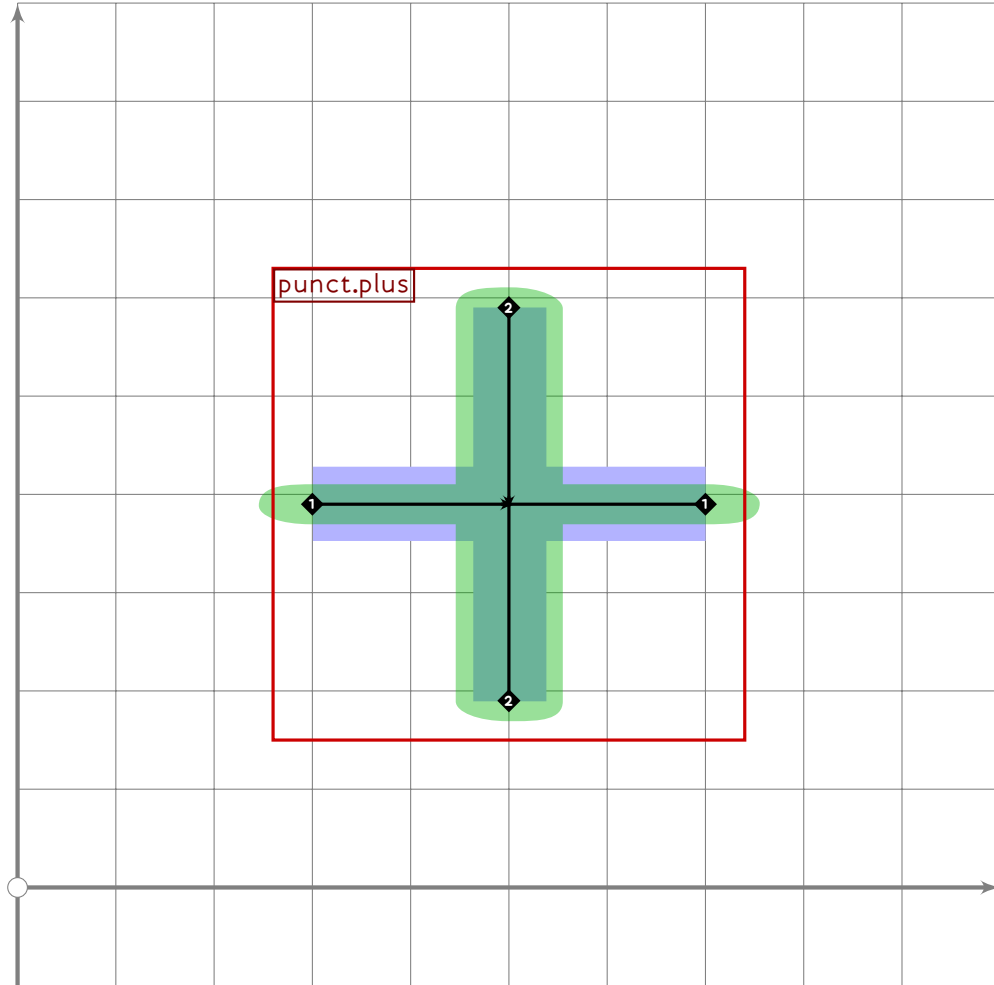


```

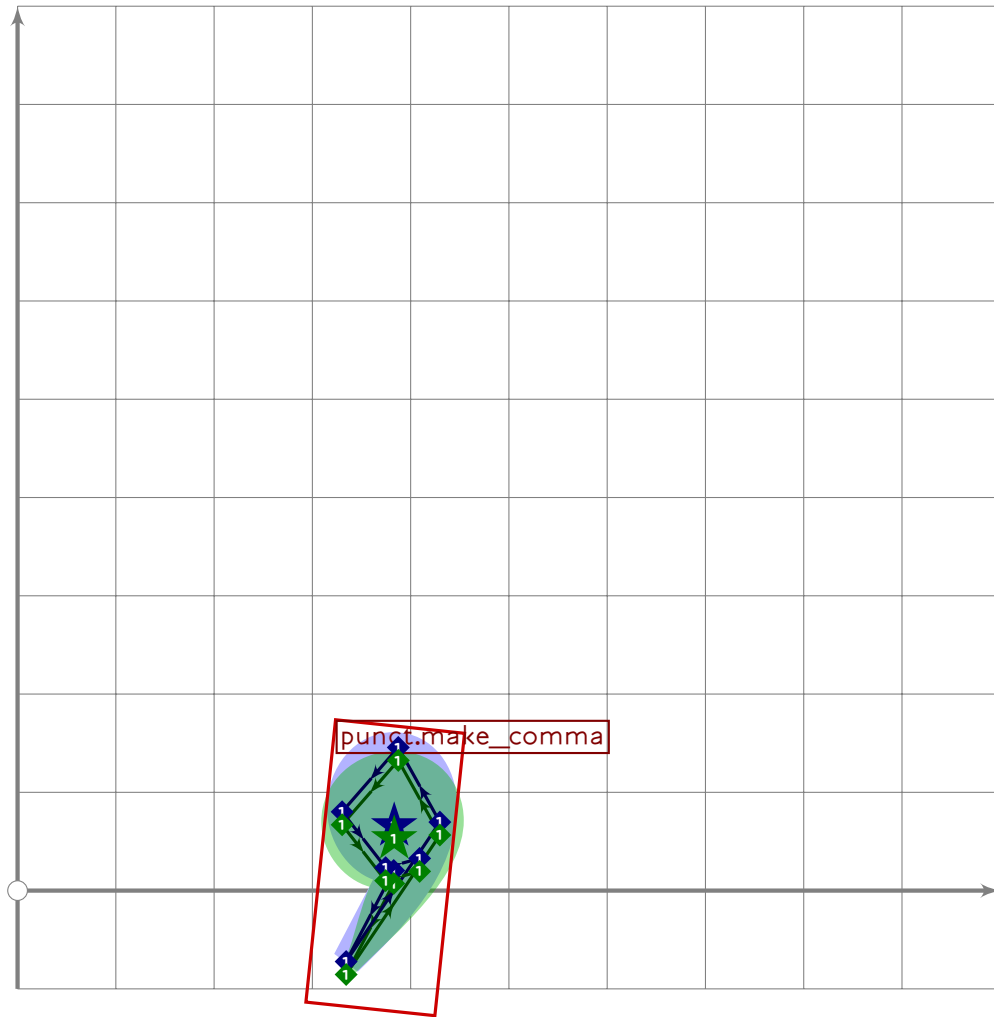
144 % asterisk
145 begintsuglyph("uniFF0A";10);
146   begingroup
147     path lobe,glyph[];
148
149     lobe:=(1,0){up}..(tsu_brush_max*tsu_punct_size/2,280){up}
150       ..{curl 1}(0,350){curl 1}..(-tsu_brush_max*tsu_punct_size/2,280){down};
151     lobe:=(lobe..(lobe rotated 180)..cycle) scaled (tsu_punct_size/100);
152
153     default_nib:=fix_nib(50*tsu_brush_max,
154       50*tsu_brush_max*tsu_brush_shape,
155       tsu_brush_angle);
156     pen_stroke()(lobe shifted centre_pt)(glyph1);
157     pen_stroke()(lobe rotated 60 shifted centre_pt)(glyph2);
158     pen_stroke()(lobe rotated 120 shifted centre_pt)(glyph3);
159
160     dangerousFill glyph1.r;
161     dangerousFill glyph2.r;
162     dangerousFill glyph3.r;
163   endgroup;
164 endtsuglyph;

```

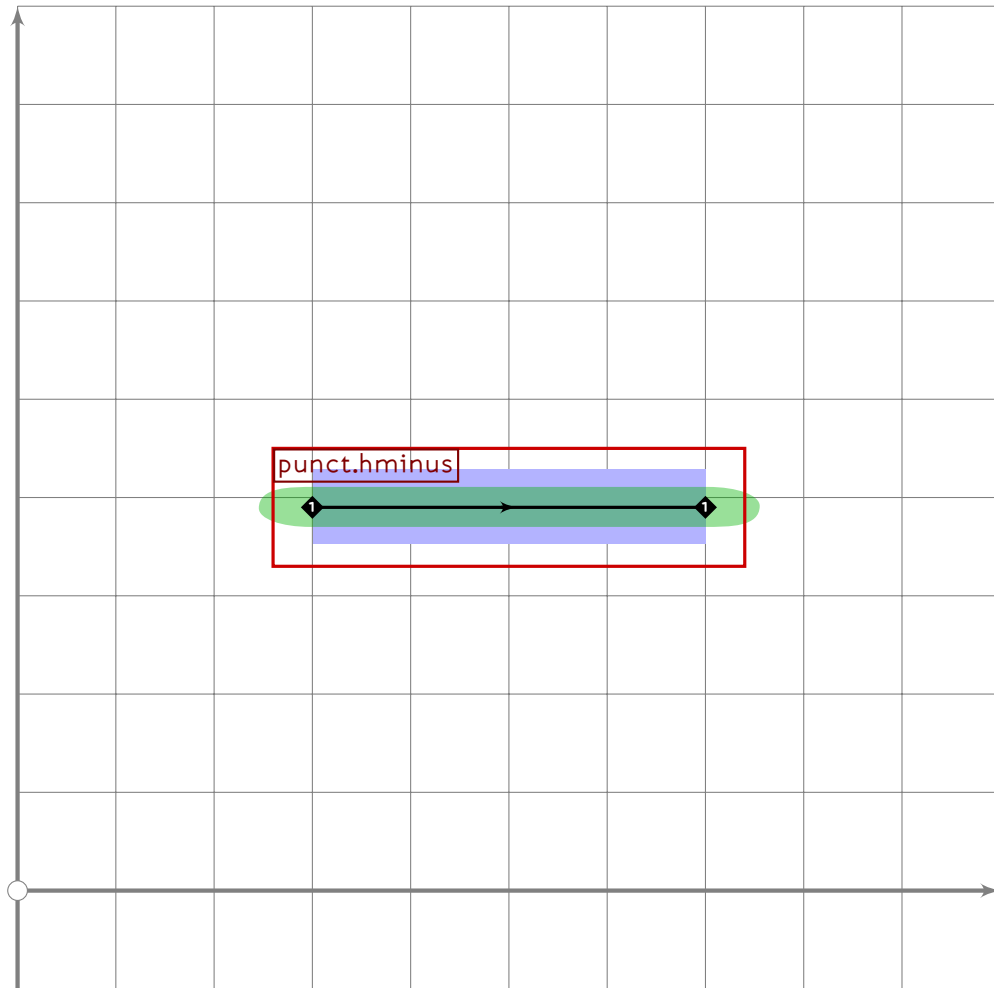
165



```
166 % plus
167 begint Suglyph("uniFF0B";1);
168 punct.plus
169 (identity scaled (2*tsu_punct_size) shifted centre_pt);
170 tsu_render;
171 endsuglyph;
172
```



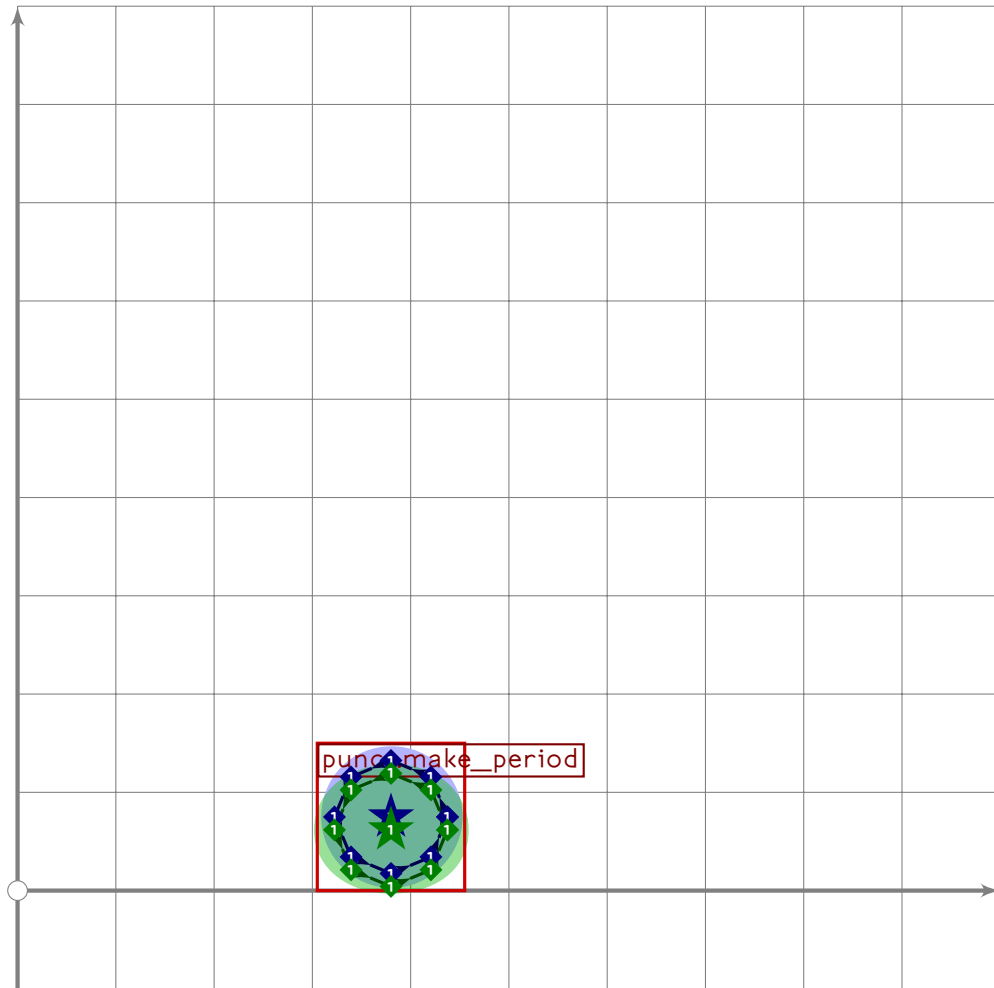
```
173 % comma
174 begint Suglyph("uniFF0C";12);
175 punct.make_comma((380,vmetric(0.03)),0);
176 tsu_render;
177 endtsuglyph;
178
```



```

179 % hyphen-minus
180 begintsuglyph("uniFF0D",13);
181 punct.hminus
182     (identity scaled (2*tsu_punct_size) shifted centre_pt);
183 tsu_render;
184 endtsuglyph;
185

```



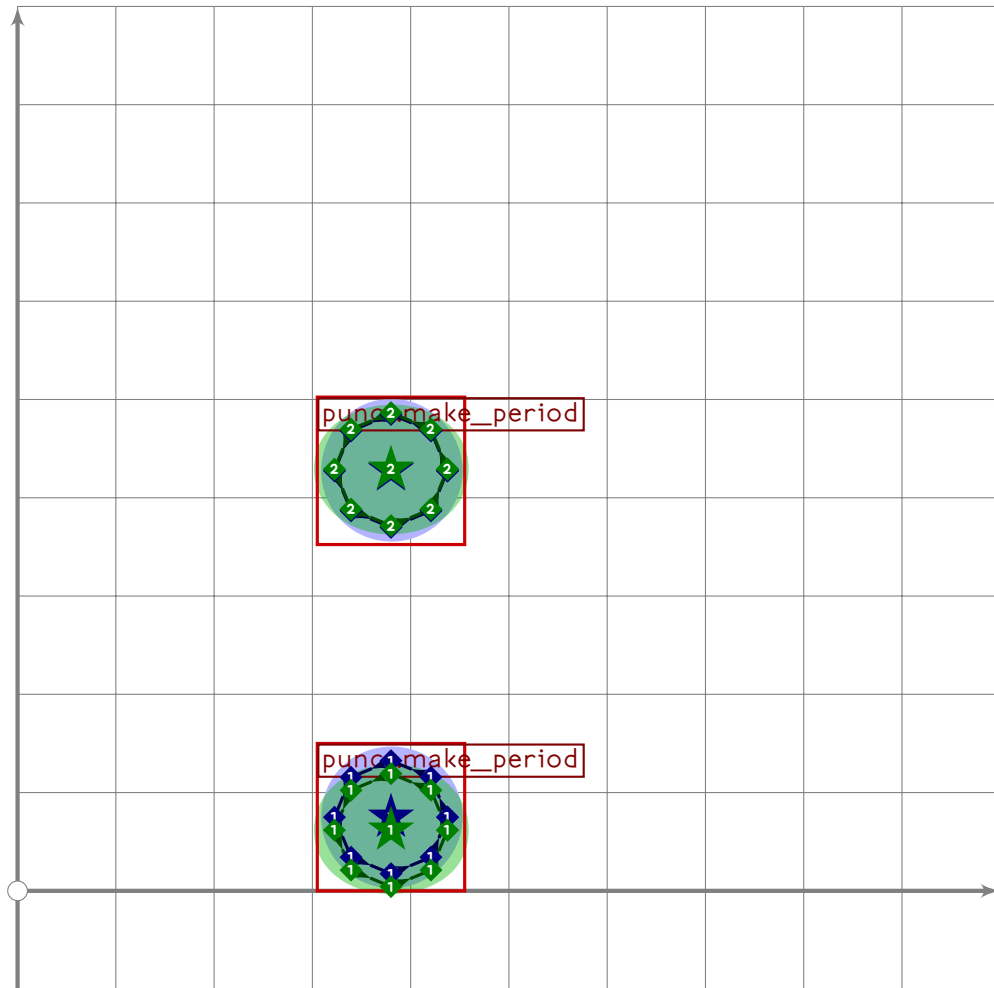
```

186 % period
187 begintsuglyph("uniFF0E",14);
188 punct.make_period((380,vmetric(0.03)));
189 tsu_render;
190 endtsuglyph;
191
192 % slash
193 begintsuglyph("uniFF0F",15); [see page 308]
194 punct.slash;
195 tsu_render;
196 endtsuglyph;
197
198 % 0
199 begintsuglyph("uniFF10",16); [see page 245]
200 numeral.zero;
201 tsu_render;
202 endtsuglyph;
203
204 % 1
205 begintsuglyph("uniFF11",17); [see page 246]
206 numeral.one;

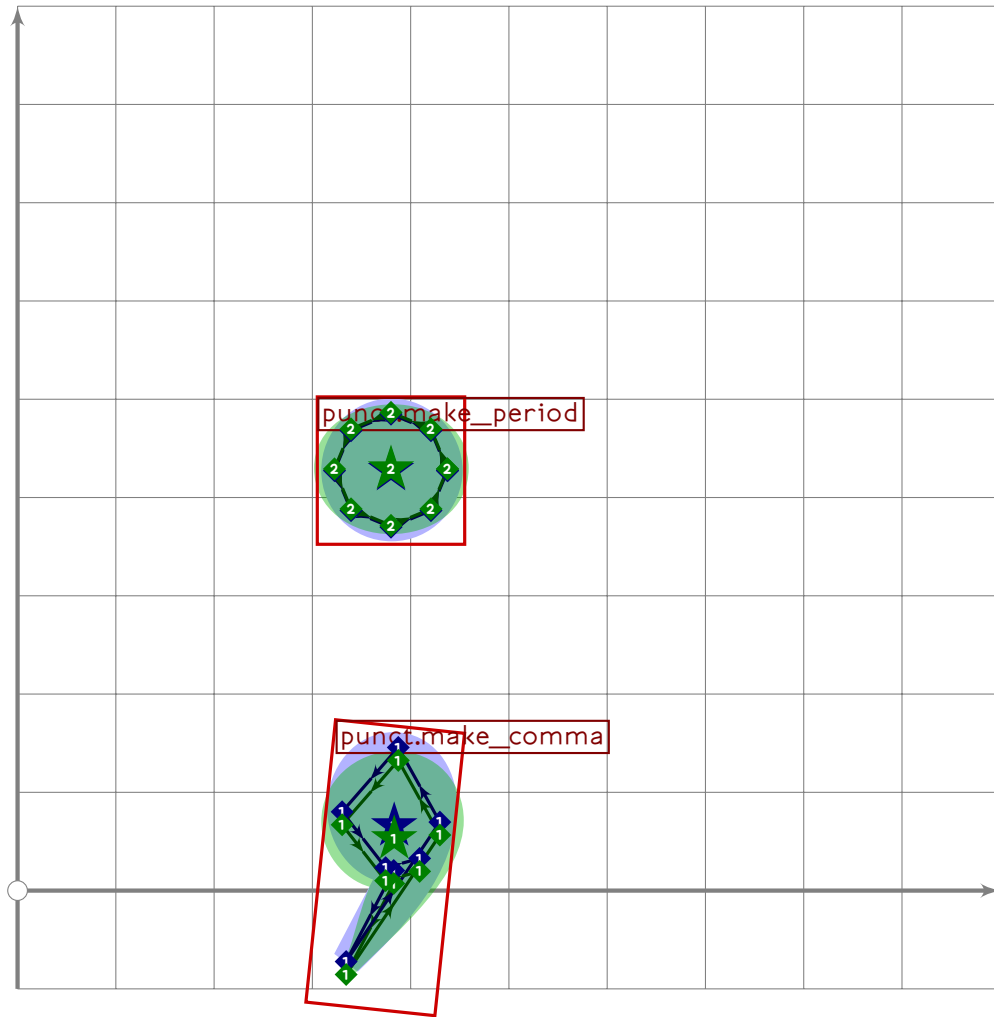
```

```
207 tsu_render;
208 endtsuglyph;
209
210 % 2
211 begintsuglyph("uniFF12";18); [see page 247]
212 numeral.two;
213 tsu_render;
214 endtsuglyph;
215
216 % 3
217 begintsuglyph("uniFF13";19); [see page 248]
218 numeral.three;
219 tsu_render;
220 endtsuglyph;
221
222 % 4
223 begintsuglyph("uniFF14";20); [see page 249]
224 numeral.four;
225 tsu_render;
226 endtsuglyph;
227
228 % 5
229 begintsuglyph("uniFF15";21); [see page 250]
230 numeral.five;
231 tsu_render;
232 endtsuglyph;
233
234 % 6
235 begintsuglyph("uniFF16";22); [see page 251]
236 numeral.six;
237 tsu_render;
238 endtsuglyph;
239
240 % 7
241 begintsuglyph("uniFF17";23); [see page 252]
242 numeral.seven;
243 tsu_render;
244 endtsuglyph;
245
246 % 8
247 begintsuglyph("uniFF18";24); [see page 253]
248 numera.eight;
249 tsu_render;
250 endtsuglyph;
251
252 % 9
253 begintsuglyph("uniFF19";25); [see page 254]
254 numeral.nine;
```

```
255 tsu_render;  
256 endtsuglyph;  
257
```



```
258 % colon  
259 beginsuglyph("uniFF1A",26);  
260 punct.make_period((380,vmetric(0.03)));  
261 punct.make_period((380,vmetric(0.56)));  
262 tsu_render;  
263 endtsuglyph;  
264
```

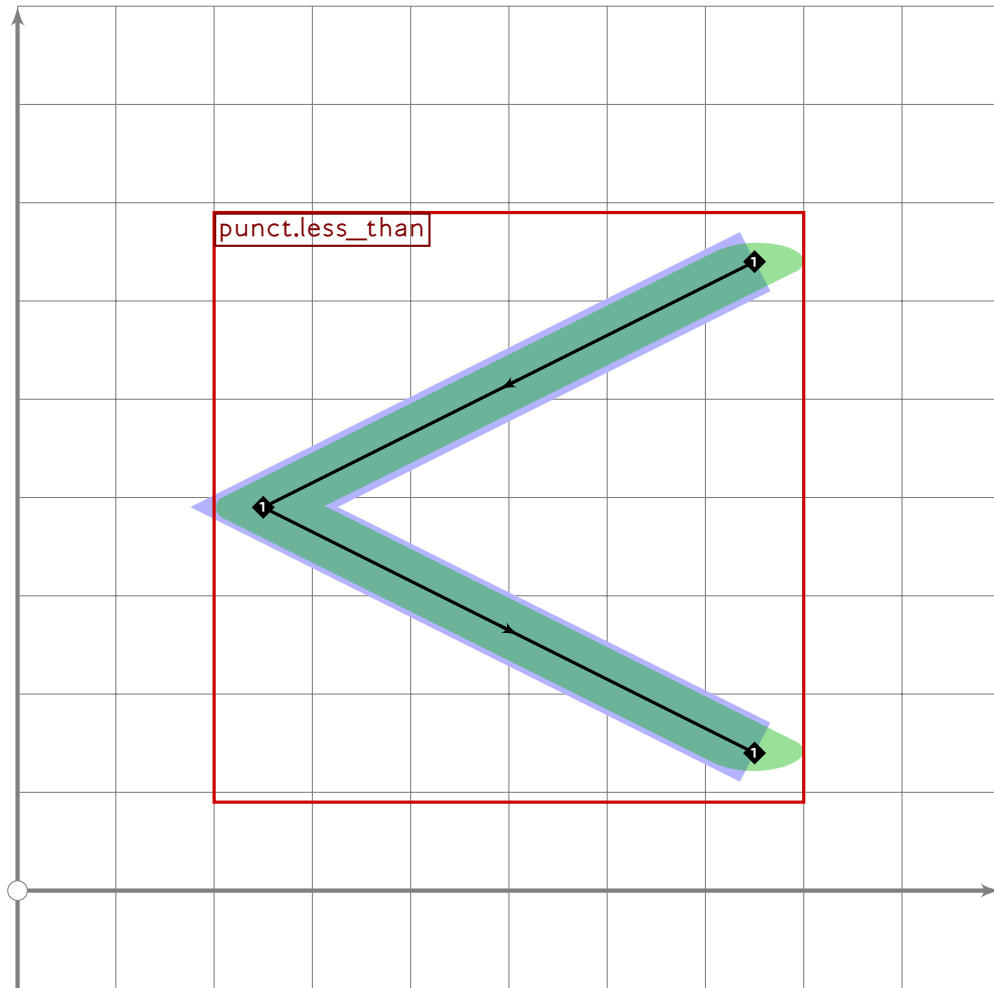


```

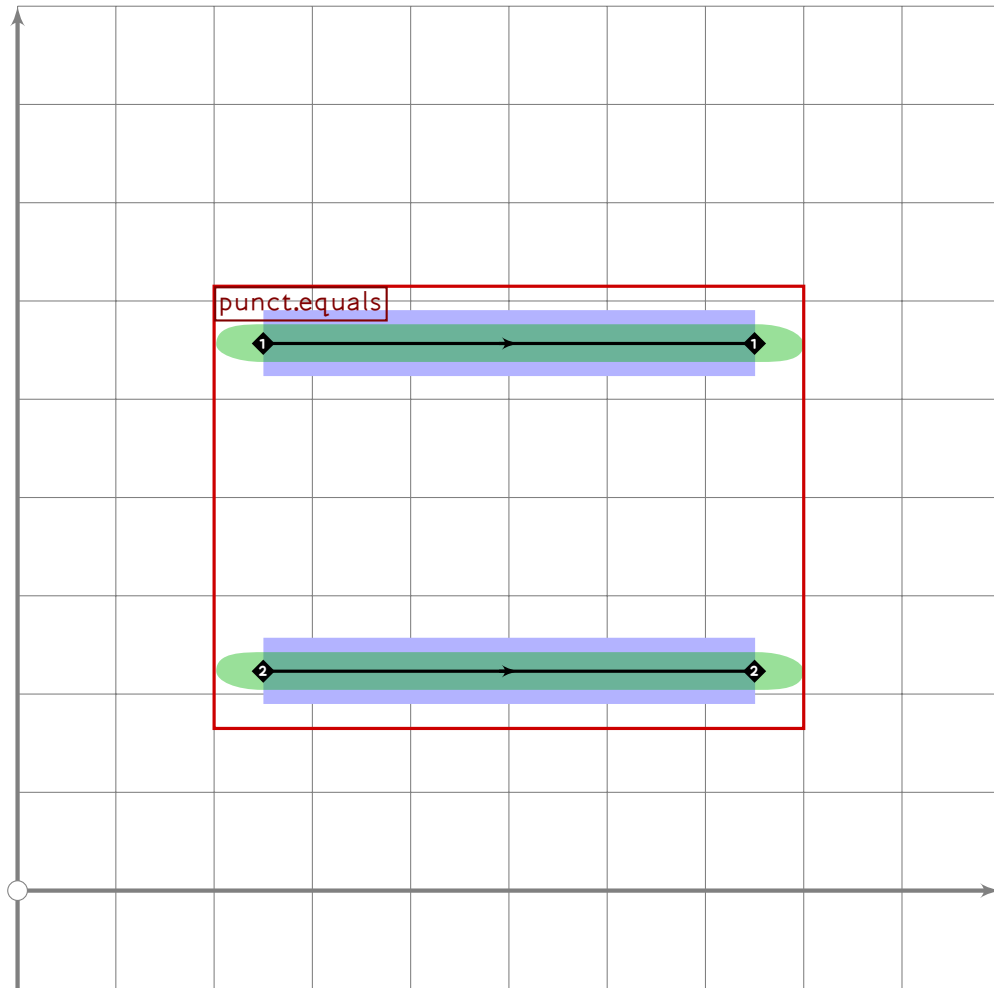
265 % semicolon
266 begint Suglyph("uniFF1B";27);
267 punct.make_comma((380,vmetric(0.03)),0);
268 punct.make_period((380,vmetric(0.56)));
269 tsu_render;
270 endsuglyph;
271

```





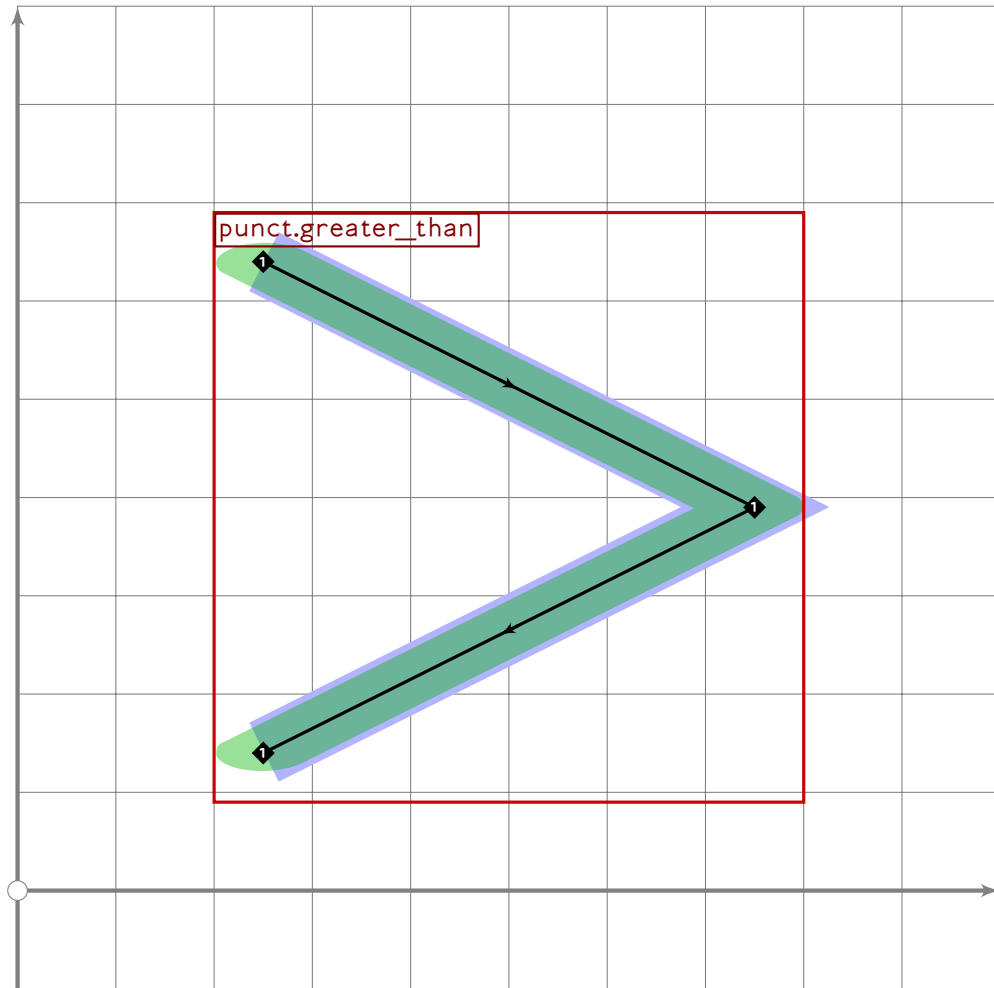
```
272 % less than
273 begintsuglyph("uniFF1C";28);
274 punct.less_than
275     (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
276 tsu_render;
277 endtsuglyph;
278
```



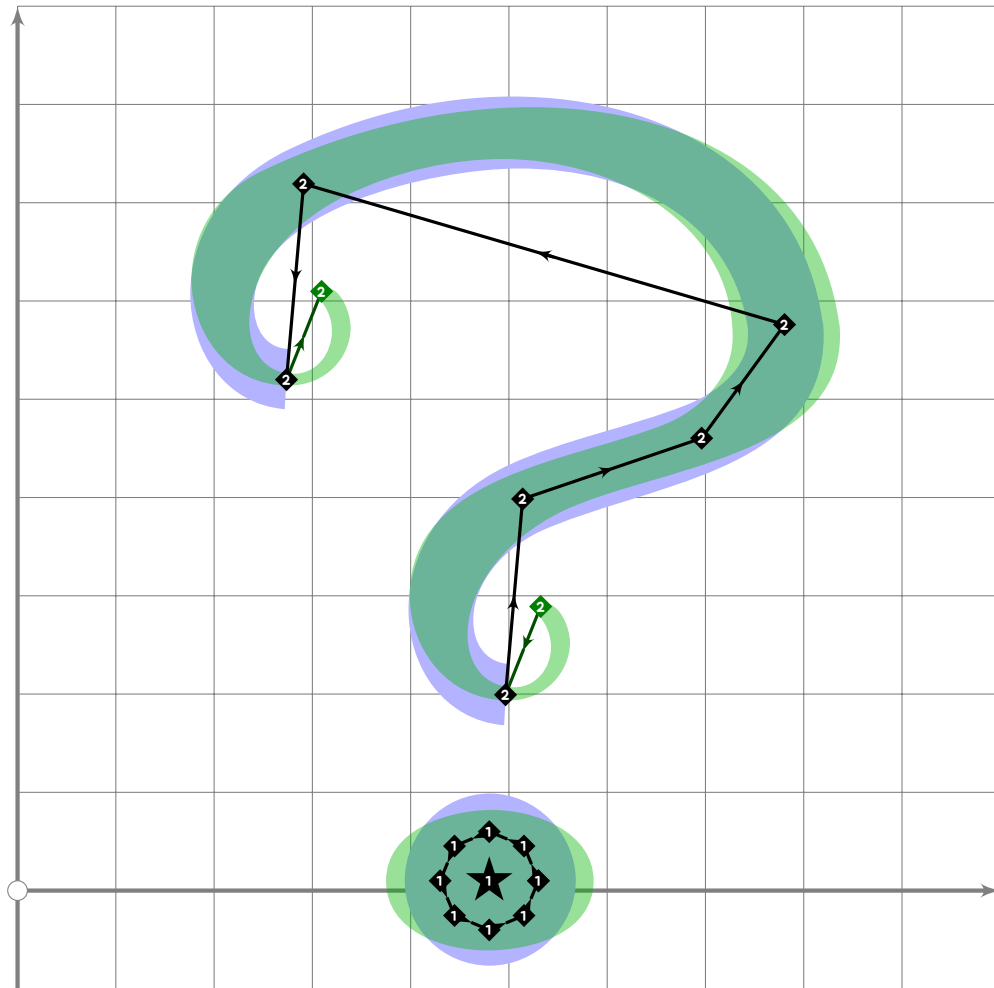
```

279 % equals
280 begintsuglyph("uniFF1D";29);
281 punct.equals
282     (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
283 tsu_render;
284 endtsuglyph;
285

```



```
286 % greater than
287 begint Suglyph("uniFF1E",30);
288 punct.greater_than
289   (identity scaled (2.5*tsu_punct_size) shifted centre_pt);
290 tsu_render;
291 endtsuglyph;
292
```



```

293 % question mark
294 begintsuglyph("uniFF1F",31);
295     numeric r;
296     if tsu_pbrush_size>=tsu_punct_size:
297         push_lcblob(fullcircle
298             xscaled (tsu_punct_size+tsu_pbrush_size)
299             yscaled (tsu_punct_size+tsu_pbrush_size*tsu_pbrush_shape)
300             rotated tsu_pbrush_angle
301             shifted (480,10));
302         r:=tsu_pbrush_size;
303     else:
304         push_stroke(fullcircle scaled tsu_punct_size shifted (480,10),
305             (2,2)-(2,2)-(2,2)-(2,2)-cycle);
306         if tsu_pbrush_size>=30:
307             push_lcblob(get_strokep(0));
308         fi;
309         r:=tsu_punct_size;
310     fi;
311
312     push_stroke((480,300){right}..(480,300-r){left}..
313         (480,300+r)..(480+2.5*r,600)..

```

```

314     tension 1.3..(480-2.5*r,600+r)..
315     (480-2.5*r,600-r){right}..
316     (480-2.5*r,600){left},
317     (0.8,0.8)-(1,1)-(2,2)-(2,2)-(2,2)-(2,2)-(1,1)-(0.8,0.8));
318     replace_strokep(0)(insert_nodes(oldp)(2.5) rotatedaround ((480,10),-5));
319
320     tsu_render;
321 endtsuglyph;
322
323 % commercial at
324     begintsuglyph("uniFF20";32); [see page 277]
325     punct.atsign;
326     tsu_render;
327 endtsuglyph;
328
329 % A
330     begintsuglyph("uniFF21";33); [see page 168]
331     latin.upa;
332     tsu_render;
333 endtsuglyph;
334
335 % B
336     begintsuglyph("uniFF22";34); [see page 171]
337     latin.upb;
338     tsu_render;
339 endtsuglyph;
340
341 % C
342     begintsuglyph("uniFF23";35); [see page 173]
343     latin.upc;
344     tsu_render;
345 endtsuglyph;
346
347 % D
348     begintsuglyph("uniFF24";36); [see page 173]
349     latin.upd;
350     tsu_render;
351 endtsuglyph;
352
353 % E
354     begintsuglyph("uniFF25";37); [see page 175]
355     latin.upe;
356     tsu_render;
357 endtsuglyph;
358
359 % F
360     begintsuglyph("uniFF26";38); [see page 176]
361     latin.upf;

```

```
362 tsu_render;
363 endtsuglyph;
364
365 % G
366 begintsuglyph("uniFF27";39); [see page 177]
367 latin.upg;
368 tsu_render;
369 endtsuglyph;
370
371 % H
372 begintsuglyph("uniFF28";40); [see page 178]
373 latin.uph;
374 tsu_render;
375 endtsuglyph;
376
377 % I
378 begintsuglyph("uniFF29";41); [see page 179]
379 latin.upi;
380 tsu_render;
381 endtsuglyph;
382
383 % J
384 begintsuglyph("uniFF2A";42); [see page 180]
385 latin.upj;
386 tsu_render;
387 endtsuglyph;
388
389 % K
390 begintsuglyph("uniFF2B";43); [see page 182]
391 latin.upk;
392 tsu_render;
393 endtsuglyph;
394
395 % L
396 begintsuglyph("uniFF2C";44); [see page 183]
397 latin.upl;
398 tsu_render;
399 endtsuglyph;
400
401 % M
402 begintsuglyph("uniFF2D";45); [see page 184]
403 latin.upm;
404 tsu_render;
405 endtsuglyph;
406
407 % N
408 begintsuglyph("uniFF2E";46); [see page 186]
409 latin.upn;
```

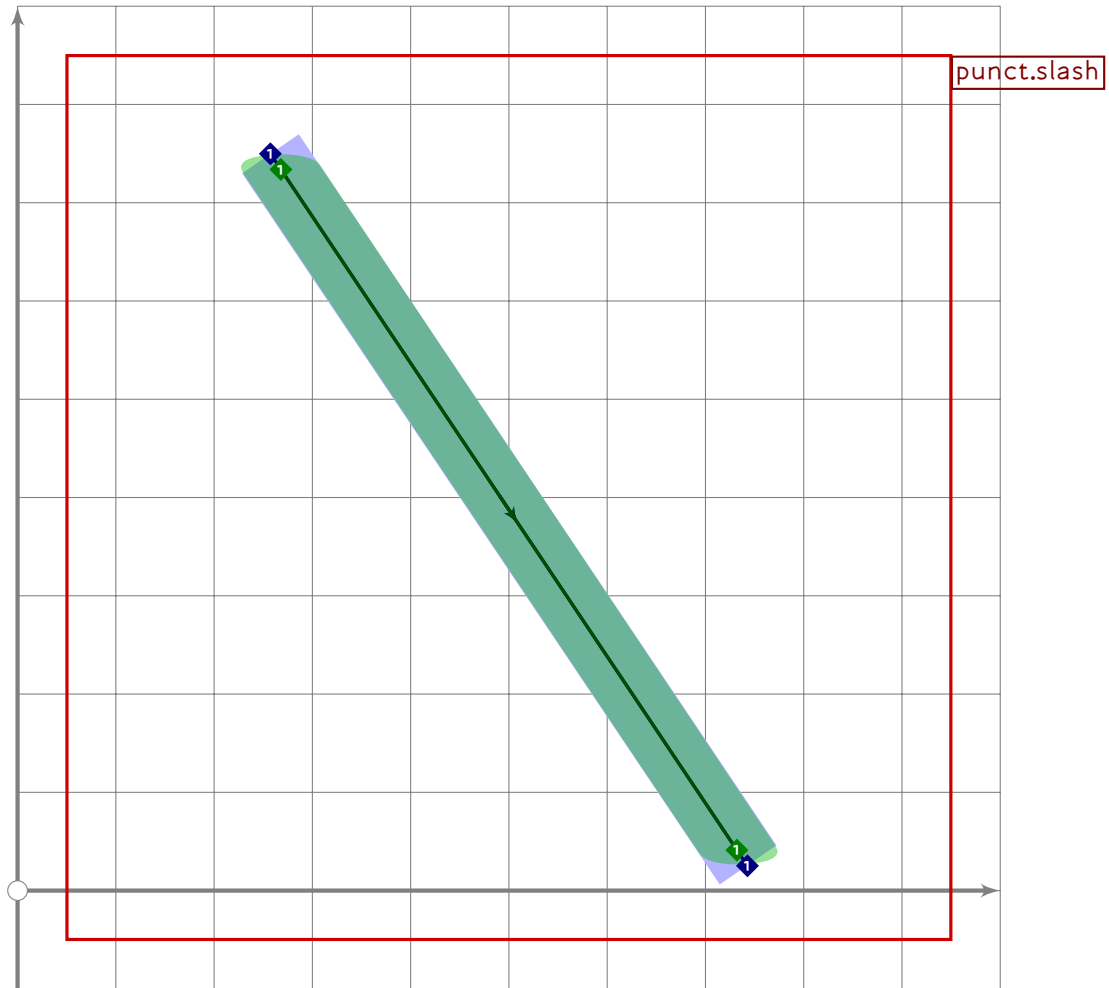
410 `tsu_render;`  
411 `endtsuglyph;`  
412  
413 `% O`  
414 `begintsuglyph("uniFF2F";47);` [see page 188]  
415 `latin.upo;`  
416 `tsu_render;`  
417 `endtsuglyph;`  
418  
419 `% P`  
420 `begintsuglyph("uniFF30";48);` [see page 190]  
421 `latin.upp;`  
422 `tsu_render;`  
423 `endtsuglyph;`  
424  
425 `% Q`  
426 `begintsuglyph("uniFF31";49);` [see page 191]  
427 `latin.upq;`  
428 `tsu_render;`  
429 `endtsuglyph;`  
430  
431 `% R`  
432 `begintsuglyph("uniFF32";50);` [see page 192]  
433 `latin.upr;`  
434 `tsu_render;`  
435 `endtsuglyph;`  
436  
437 `% S`  
438 `begintsuglyph("uniFF33";51);` [see page 193]  
439 `latin.ups;`  
440 `tsu_render;`  
441 `endtsuglyph;`  
442  
443 `% T`  
444 `begintsuglyph("uniFF34";52);` [see page 194]  
445 `latin.upt;`  
446 `tsu_render;`  
447 `endtsuglyph;`  
448  
449 `% U`  
450 `begintsuglyph("uniFF35";53);` [see page 196]  
451 `latin.upu;`  
452 `tsu_render;`  
453 `endtsuglyph;`  
454  
455 `% V`  
456 `begintsuglyph("uniFF36";54);` [see page 197]  
457 `latin.upv;`

```

458   tsu_render;
459   endtsuglyph;
460
461   % W
462   begintsuglyph("uniFF37";55); [see page 198]
463   latin.upw;
464   tsu_render;
465   endtsuglyph;
466
467   % X
468   begintsuglyph("uniFF38";56); [see page 200]
469   latin.upx;
470   tsu_render;
471   endtsuglyph;
472
473   % Y
474   begintsuglyph("uniFF39";57); [see page 201]
475   latin.upy;
476   tsu_render;
477   endtsuglyph;
478
479   % Z
480   begintsuglyph("uniFF3A";58); [see page 202]
481   latin.upz;
482   tsu_render;
483   endtsuglyph;
484
485   % left and right square brackets
486   begintsuglyph("uniFF3B";59); [see page 309]
487   punct.sqb_left;
488   tsu_render;
489   endtsuglyph;

```





```

490 % backslash
491 begintsuglyph("uniFF3C";60);
492 tsu_xform(identity reflectedabout (centre_pt,(centre_pt+down)))
493   (punct.slash);
494 tsu_render;
495 endtsuglyph;
496 begintsuglyph("uniFF3D";61); [see page 310]
497 punct.sqb_right;
498 tsu_render;
499 endtsuglyph;
500
501 % circumflex/caret
502 begintsuglyph("uniFF3E";62); [see page 46]
503 tsu_accent.circumflex;
504 tsu_render;
505 endtsuglyph;
506
507 % underscore
508 begintsuglyph("uniFF3F";63); [see page 311]
509 punct.underscore;
510 tsu_render;

```

```

511 endtsuglyph;
512
513 % grave accent
514 begintsuglyph("uniFF40",64); [see page 48]
515     tsu_accent.grave;
516     tsu_render;
517 endtsuglyph;
518
519 % a
520 begintsuglyph("uniFF41",65); [see page 203]
521     latin.lowa;
522     tsu_render;
523 endtsuglyph;
524
525 % b
526 begintsuglyph("uniFF42",66); [see page 206]
527     latin.lowb;
528     tsu_render;
529 endtsuglyph;
530
531 % c
532 begintsuglyph("uniFF43",67); [see page 207]
533     latin.lowc;
534     tsu_render;
535 endtsuglyph;
536
537 % d
538 begintsuglyph("uniFF44",68); [see page 208]
539     latin.lowd;
540     tsu_render;
541 endtsuglyph;
542
543 % e
544 begintsuglyph("uniFF45",69); [see page 209]
545     latin.love;
546     tsu_render;
547 endtsuglyph;
548
549 % f
550 begintsuglyph("uniFF46",70); [see page 213]
551     latin.lowf;
552     tsu_render;
553 endtsuglyph;
554
555 % g
556 begintsuglyph("uniFF47",71); [see page 214]
557     latin.lowg;
558     tsu_render;

```

559 endtsuglyph;  
560  
561 % h  
562 begintsuglyph("uniFF48";72); [see page 215]  
563 latin.lowh;  
564 tsu\_render;  
565 endtsuglyph;  
566  
567 % i  
568 begintsuglyph("uniFF49";73); [see page 217]  
569 latin.lowi;  
570 tsu\_render;  
571 endtsuglyph;  
572  
573 % j  
574 begintsuglyph("uniFF4A";74); [see page 218]  
575 latin.lowj;  
576 tsu\_render;  
577 endtsuglyph;  
578  
579 % k  
580 begintsuglyph("uniFF4B";75); [see page 220]  
581 latin.lowk;  
582 tsu\_render;  
583 endtsuglyph;  
584  
585 % l  
586 begintsuglyph("uniFF4C";76); [see page 221]  
587 latin.lowl;  
588 tsu\_render;  
589 endtsuglyph;  
590  
591 % m  
592 begintsuglyph("uniFF4D";77); [see page 222]  
593 latin.lowm;  
594 tsu\_render;  
595 endtsuglyph;  
596  
597 % n  
598 begintsuglyph("uniFF4E";78); [see page 223]  
599 latin.lown;  
600 tsu\_render;  
601 endtsuglyph;  
602  
603 % o  
604 begintsuglyph("uniFF4F";79); [see page 226]  
605 latin.lowo;  
606 tsu\_render;

```

607 endtsuglyph;
608
609 % p
610 begintsuglyph("uniFF50";80); [see page 228]
611 latin.lowp;
612 tsu_render;
613 endtsuglyph;
614
615 % q
616 begintsuglyph("uniFF51";81); [see page 229]
617 latin.lowq;
618 tsu_render;
619 endtsuglyph;
620
621 % r
622 begintsuglyph("uniFF52";82); [see page 230]
623 latin.lowr;
624 tsu_render;
625 endtsuglyph;
626
627 % s
628 begintsuglyph("uniFF53";83); [see page 231]
629 latin.lows;
630 tsu_render;
631 endtsuglyph;
632
633 % t
634 begintsuglyph("uniFF54";84); [see page 234]
635 latin.lowt;
636 tsu_render;
637 endtsuglyph;
638
639 % u
640 begintsuglyph("uniFF55";85); [see page 237]
641 latin.lowu;
642 tsu_render;
643 endtsuglyph;
644
645 % v
646 begintsuglyph("uniFF56";86); [see page 238]
647 latin.lowv;
648 tsu_render;
649 endtsuglyph;
650
651 % w
652 begintsuglyph("uniFF57";87); [see page 239]
653 latin.loww;
654 tsu_render;

```

```

655 endtsuglyph;
656
657 % x
658 begintsuglyph("uniFF58";88); [see page 241]
659 latin.lowx;
660 tsu_render;
661 endtsuglyph;
662
663 % y
664 begintsuglyph("uniFF59";89); [see page 242]
665 latin.lowy;
666 tsu_render;
667 endtsuglyph;
668
669 % z
670 begintsuglyph("uniFF5A";90); [see page 244]
671 latin.lowz;
672 tsu_render;
673 endtsuglyph;
674
675 % left and right square brackets, around vertical line
676 begintsuglyph("uniFF5B";91); [see page 278]
677 punct.brace_left;
678 tsu_render;
679 endtsuglyph;
680 begintsuglyph("uniFF5C";92); [see page 312]
681 punct.vline;
682 tsu_render;
683 endtsuglyph;
684 begintsuglyph("uniFF5D";93); [see page 279]
685 punct.brace_right;
686 tsu_render;
687 endtsuglyph;
688
689 % "fullwidth tilde" - identical to "wave dash"
690 begintsuglyph("uniFF5E";94); [see page 313]
691 punct.wavedash;
692 tsu_render;
693 endtsuglyph;
694
695 % left and right white parentheses
696 begintsuglyph("uniFF5F";95); [see page 314]
697 punct.wparen_left;
698 tsu_render;
699 endtsuglyph;
700 begintsuglyph("uniFF60";96); [see page 315]
701 punct.wparen_right;
702 tsu_render;

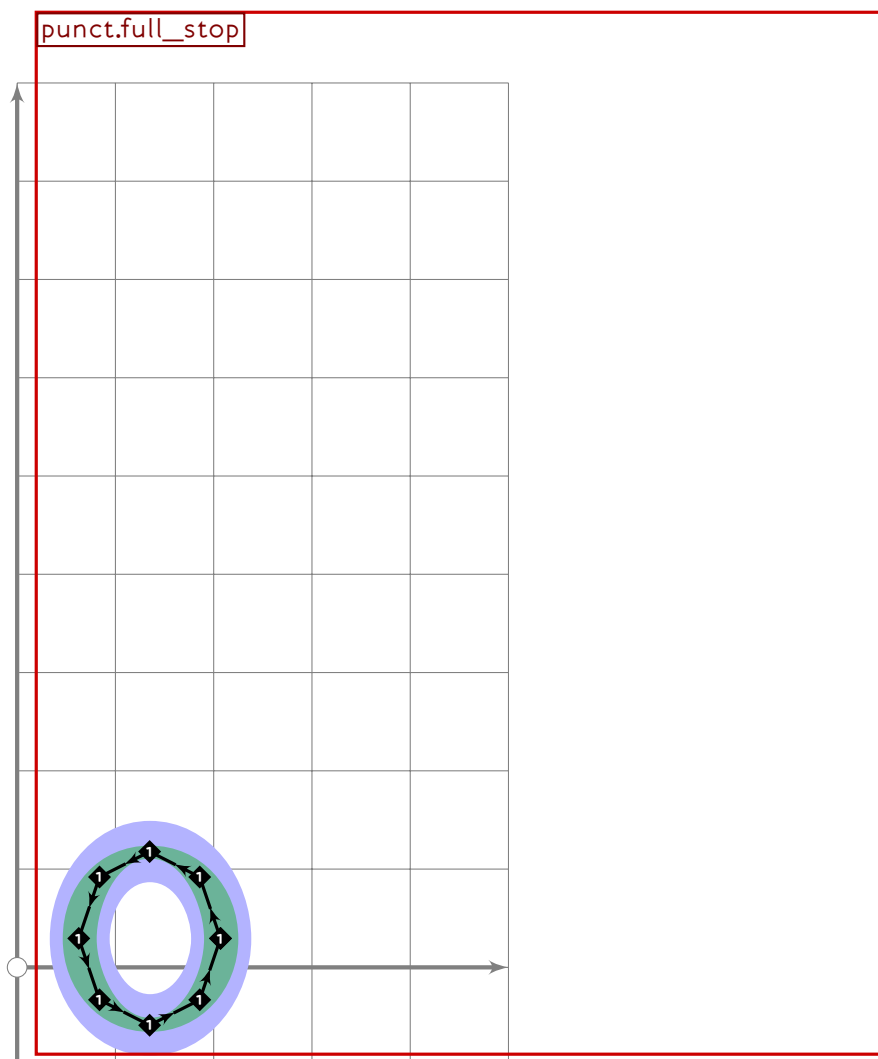
```

```
703 endtsuglyph;  
704  
705  
706
```

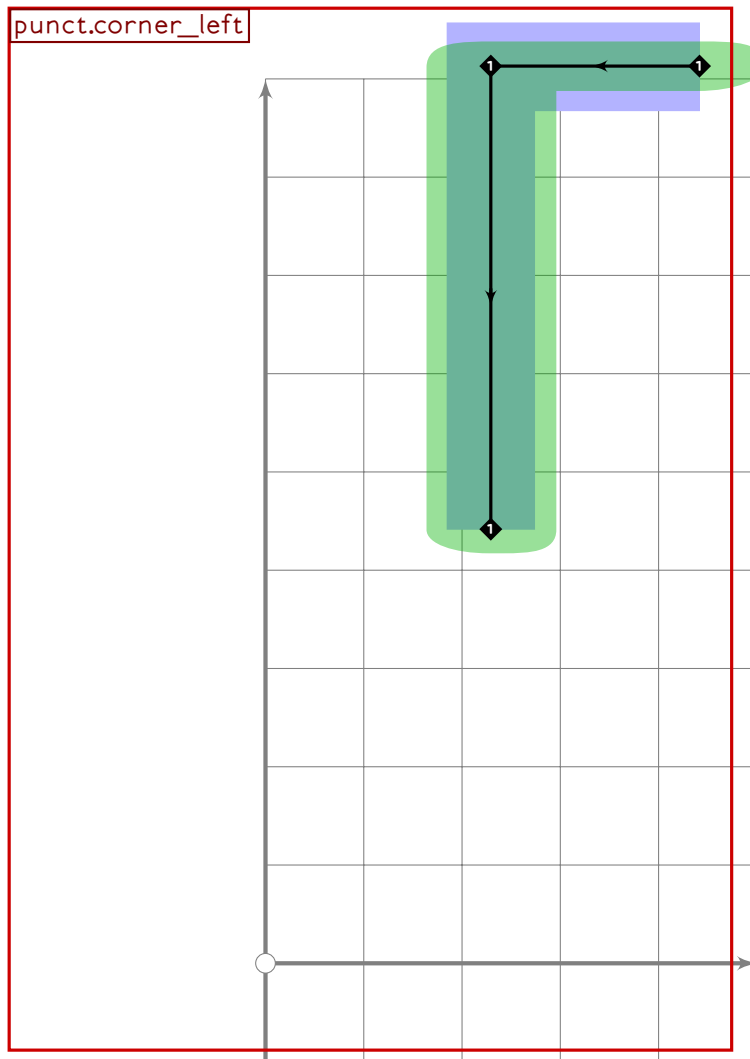
---

## Half-Width Punctuation

```
707 % HALF-WIDTH PUNCTUATION  
708  
709 % WARNING changing rescale setting  
710 tsu_rescale_half;  
711
```



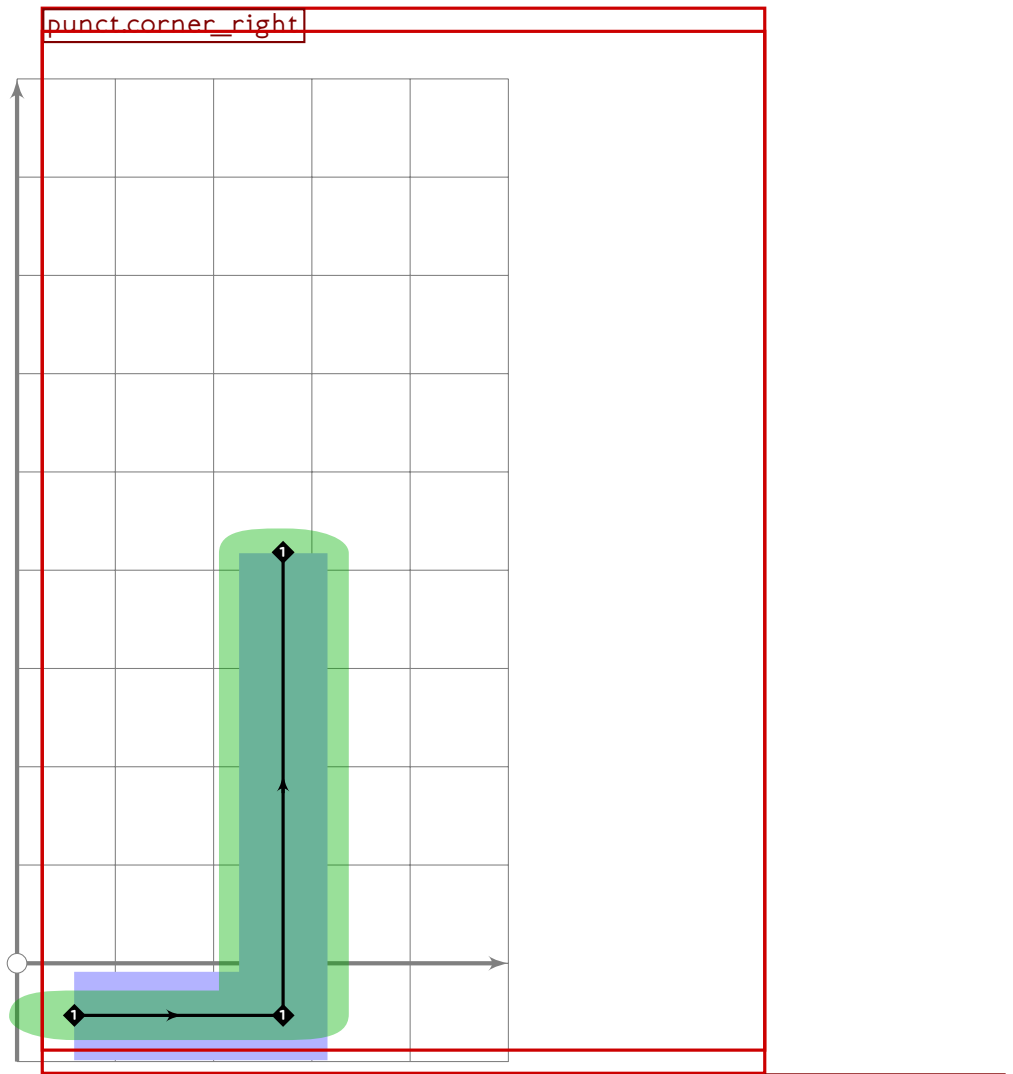
```
712 % ideographic full stop  
713 begintsuglyph("uniFF61";97);  
714 punct.full_stop;  
715 tsu_render;  
716 endtsuglyph;  
717
```



```

718 % left and right corner brackets
719 begintsuglyph("uniFF62;98);
720 punct.corner_left;
721 tsu_render;
722 endsuglyph;

```



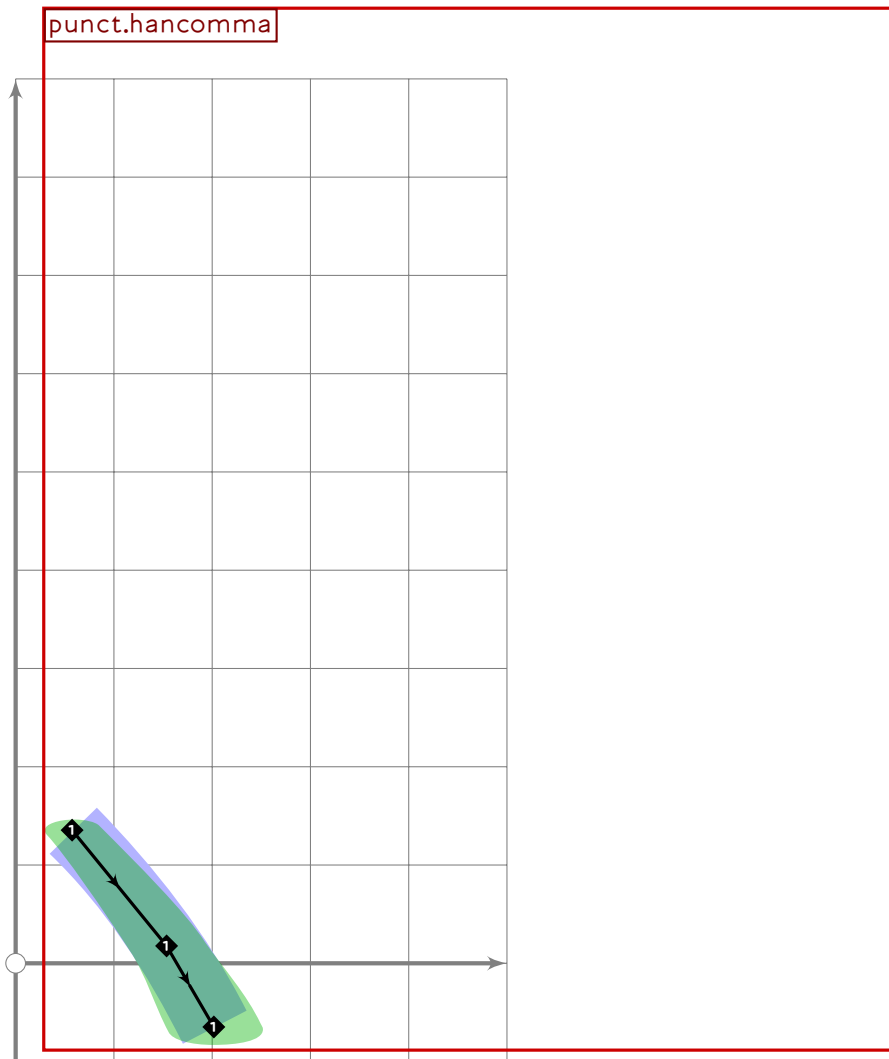
```

723 begint Suglyph("uniFF63";99);
724   punct.corner_right;
725   tsu_render;
726 endsuglyph;
727

```

punct.corner\_left





```

728 % ideographic comma
729 begintsuglyph("uniFF64";100);
730 punct.hancomma;
731 tsu_render;
732 endtsuglyph;
733
734
735

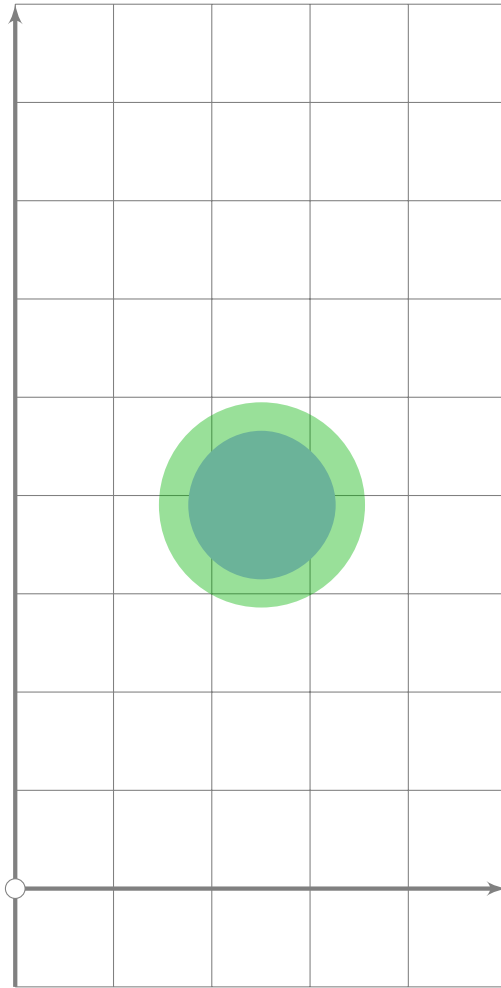
```

## Half-Width Katakana

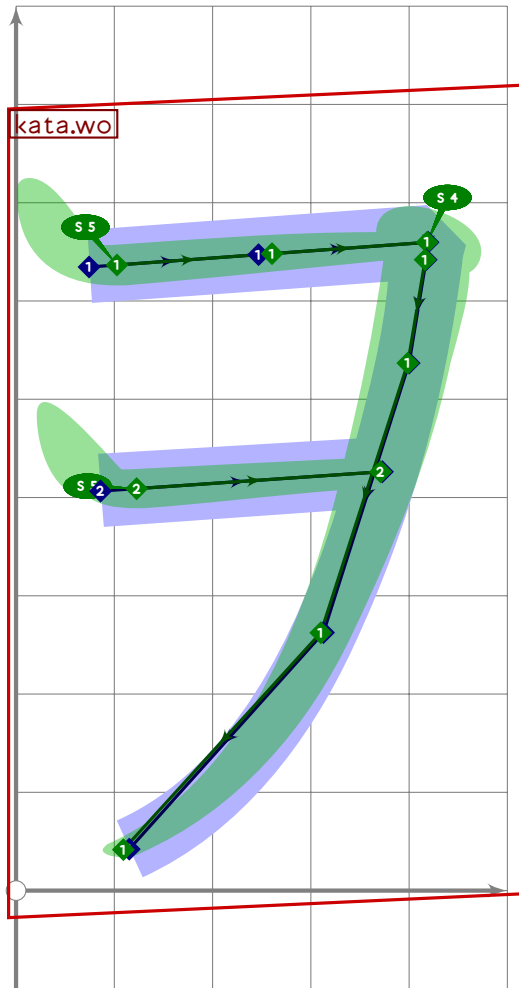
```

736 % HALF-WIDTH KATAKANA
737
738 % WARNING changing rescale setting
739 tsu_rescale_half_katakana;
740

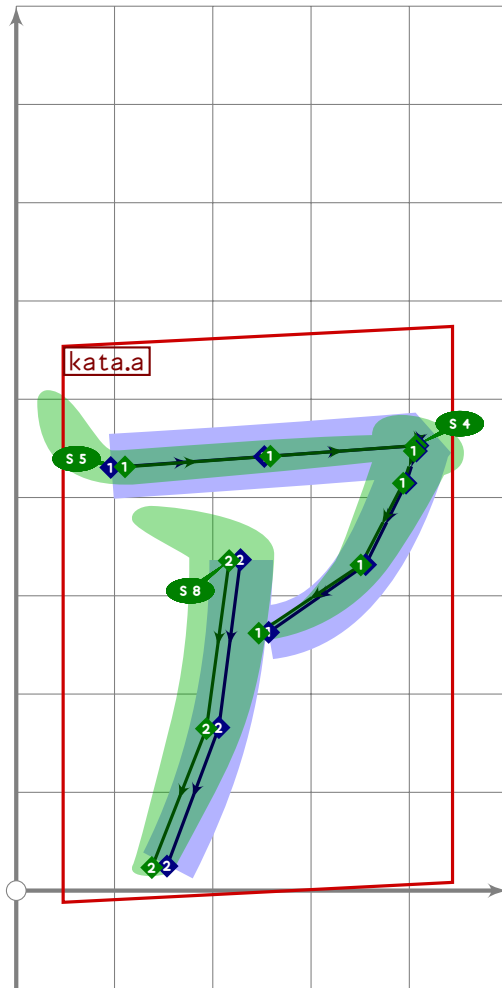
```



```
741 % katakana middle dot
742 begintsuglyph("uniFF65";101);
743   Fill fullcircle scaled (200*tsu_brush_max) shifted (250,ypart centre_pt);
744 endsuglyph;
745
```



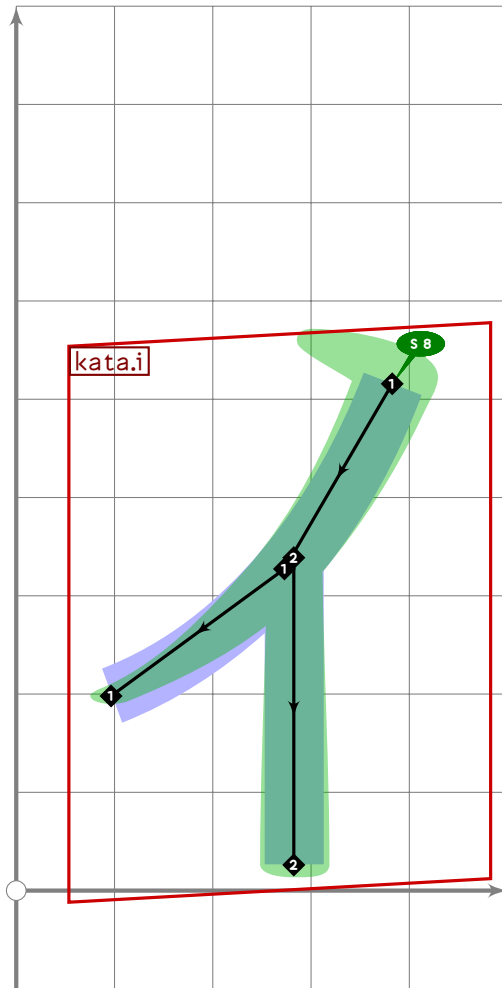
```
746 % katakana "wo"  
747 begintsuglyph("uniFF66",102);  
748 kata.wo;  
749 tsu_render;  
750 endtsuglyph;  
751
```



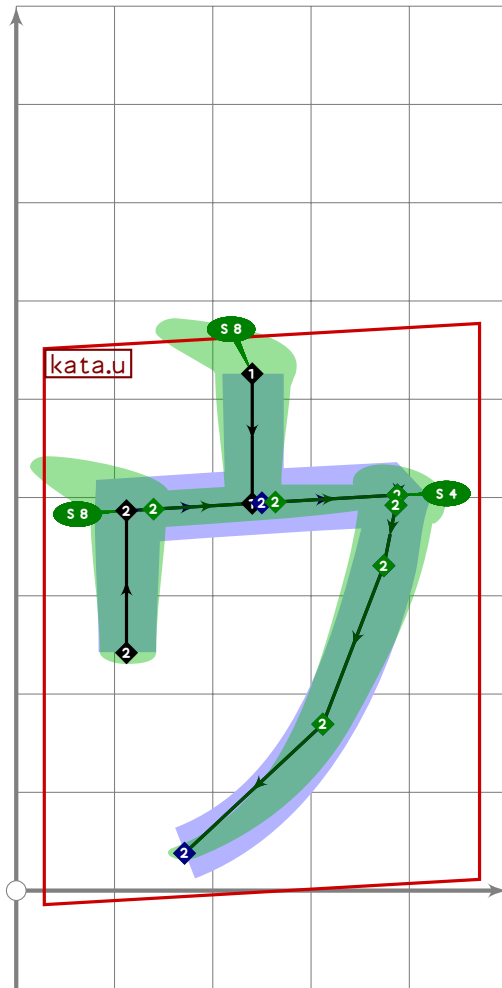
```

752 % katakana "small a"
753 begintsuglyph("uniFF67";103);
754 tsu_xform(tsu_xf.smallkana)(kata.a);
755 tsu_render;
756 endtsuglyph;
757

```



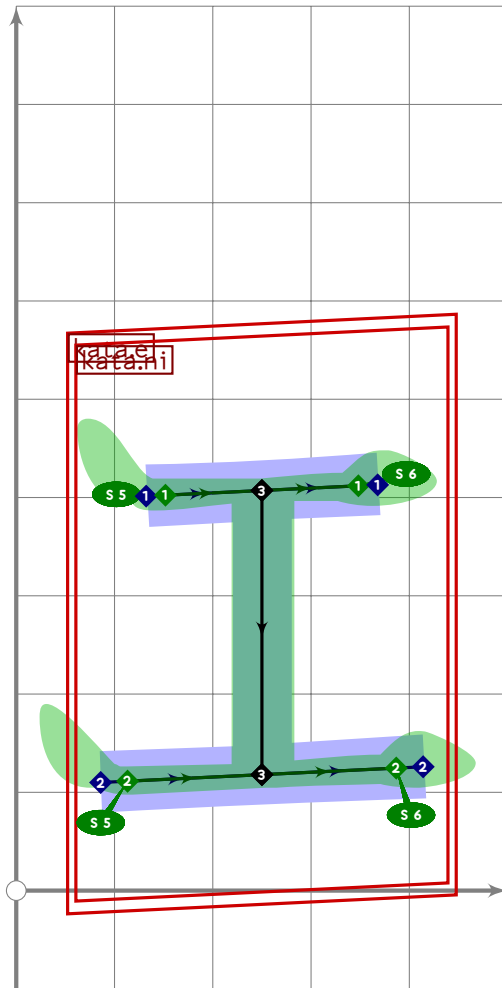
```
758 % katakana "small i"  
759 begintsuglyph("uniFF68",104);  
760 tsu_xform(tsu_xf.smallkana)(kata.i);  
761 tsu_render;  
762 endtsuglyph;  
763
```



```

764 % katakana "small u"
765 begintsuglyph("uniFF69";105);
766 tsu_xform(tsu_xf.smallkana)(kata.u);
767 tsu_render;
768 endtsuglyph;
769

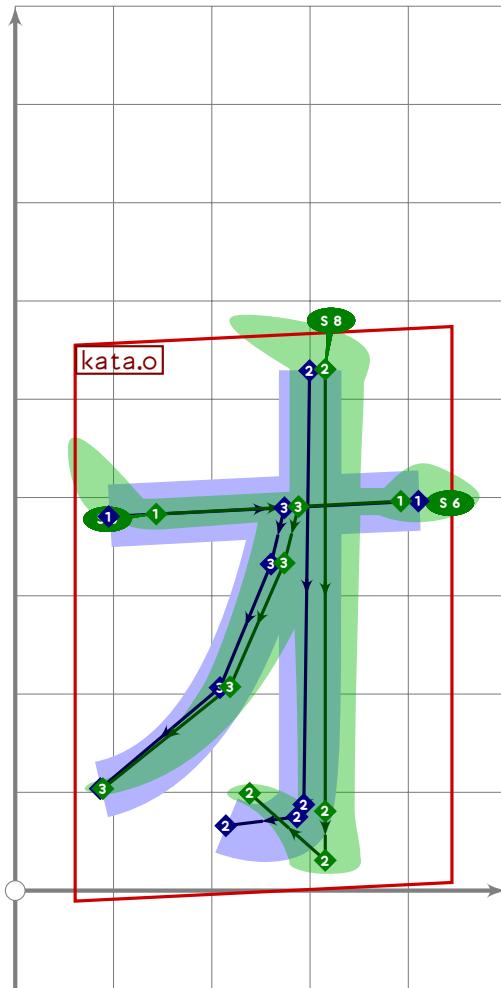
```



```

770 % katakana "small e"
771 begintsuglyph("uniFF6A",106);
772 tsu_xform(tsu_xf.smallkana)(kata.e);
773 tsu_render;
774 endtsuglyph;
775

```

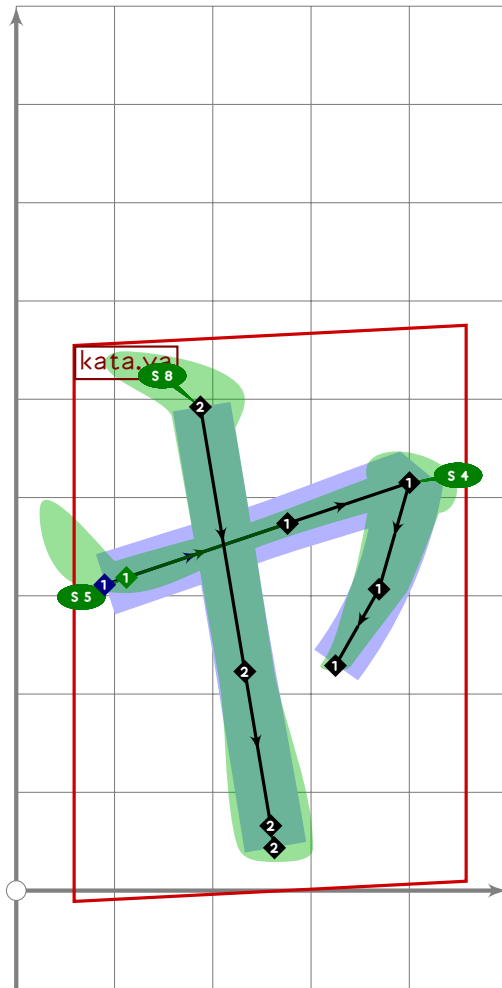


```

776 % katakana "small o"
777 begintsuglyph("uniFF6B",107);
778 tsu_xform(tsu_xf.smallkana)(kata.o);
779 tsu_render;
780 endtsuglyph;
781

```

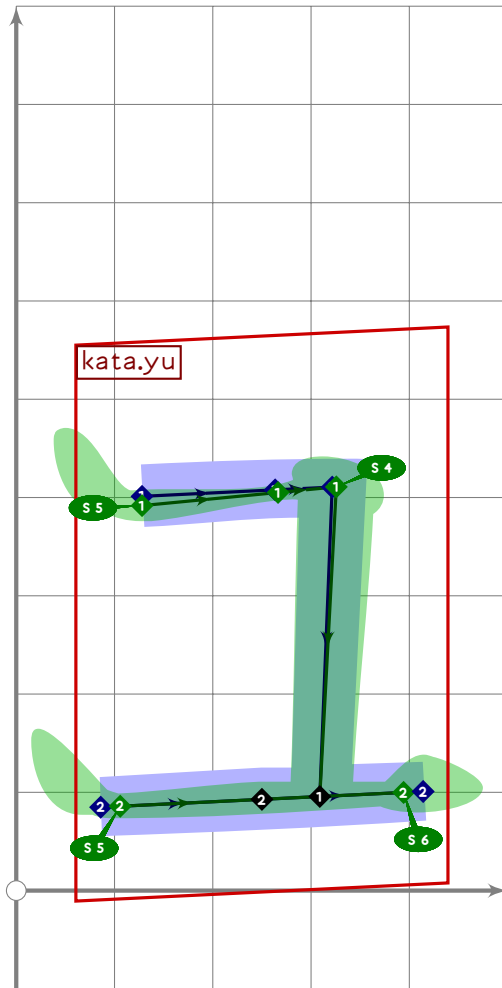




```

782 % katakana "small ya"
783 begintsuglyph("uniFF6C",108);
784 tsu_xform(tsu_xf.smallkana)(kata.ya);
785 tsu_render;
786 endtsuglyph;
787

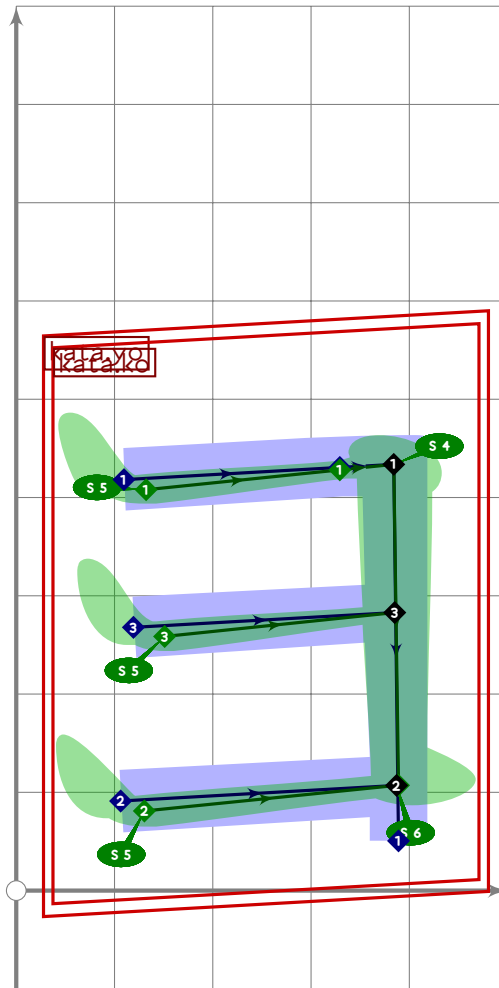
```



```

788 % katakana "small yu"
789 begintsuglyph("uniFF6D",109);
790 tsu_xform(tsu_xf.smallkana)(kata.yu);
791 tsu_render;
792 endtsuglyph;
793

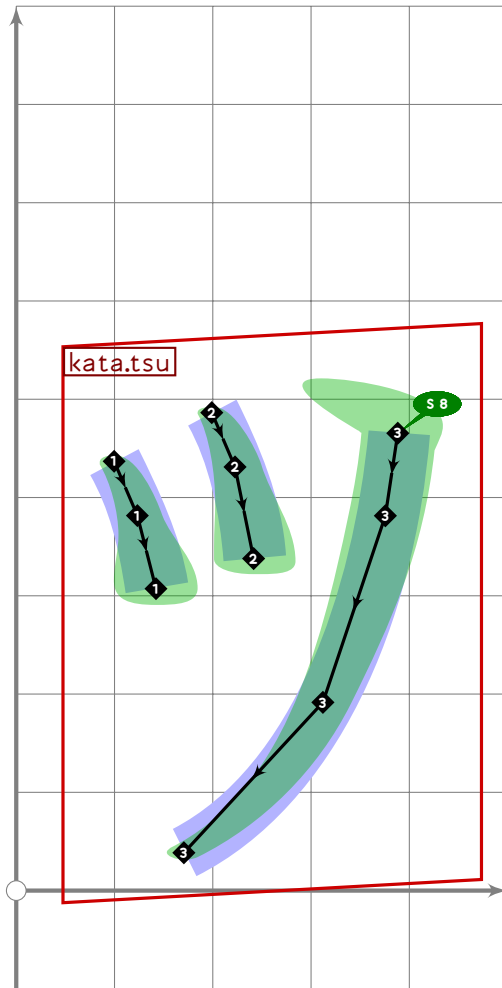
```



```

794 % katakana "small yo"
795 begintsuglyph("uniFF6E",110);
796 tsu_xform(tsu_xf.smallkana)(kata.yo);
797 tsu_render;
798 endtsuglyph;
799

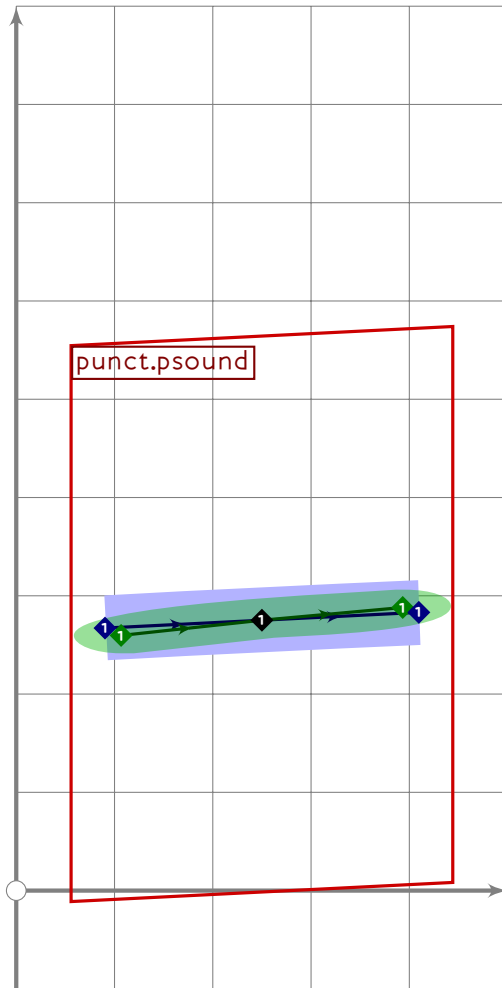
```



```

800 % katakana "small tsu"
801 begintsuglyph("uniFF6F";111);
802 tsu_xform(tsu_xf.smallkana)(kata.tsu);
803 tsu_render;
804 endtsuglyph;
805

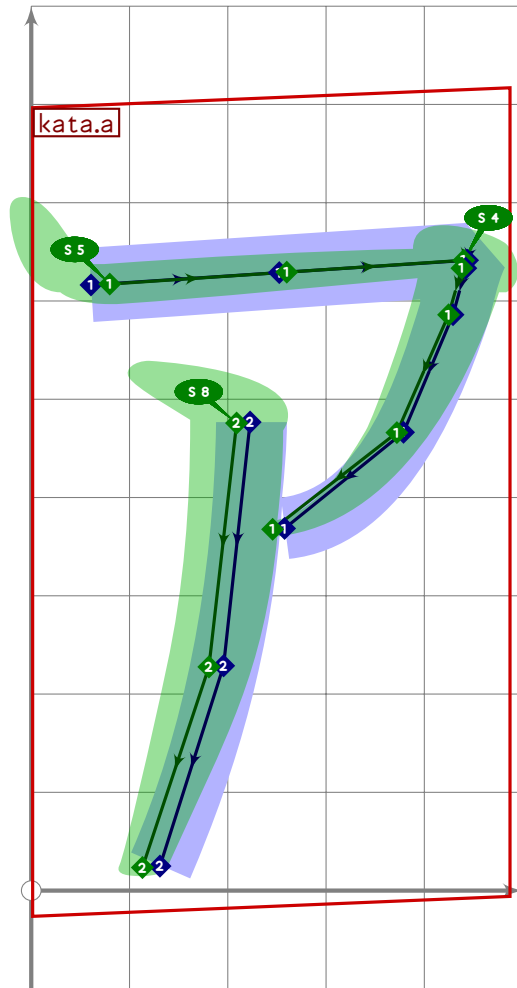
```



```

806 % hira/kata "prolonged sound mark"
807 begintsuglyph("uniFF70";12);
808 tsu_xform(tsu_xf.smallkana)(punct.psound);
809 tsu_render;
810 endtsuglyph;
811

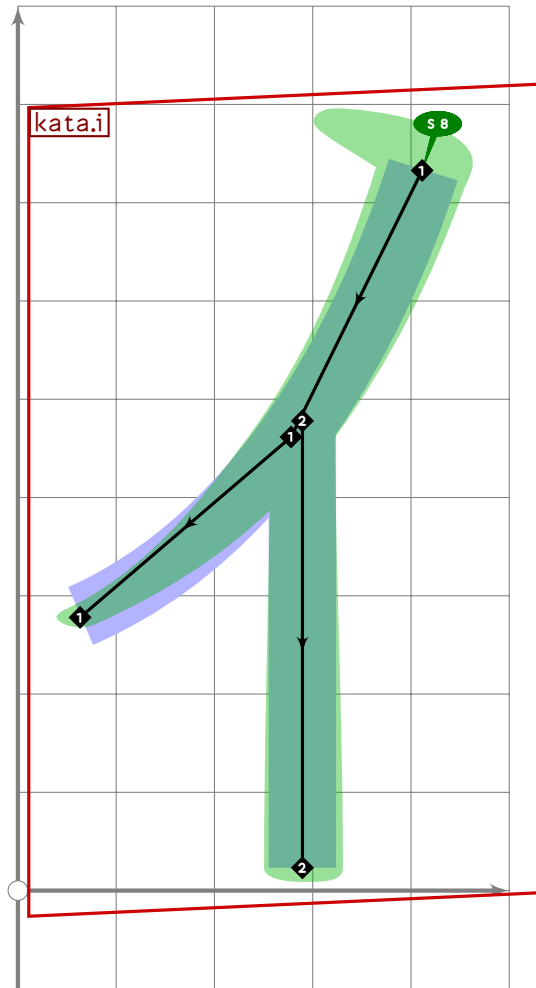
```



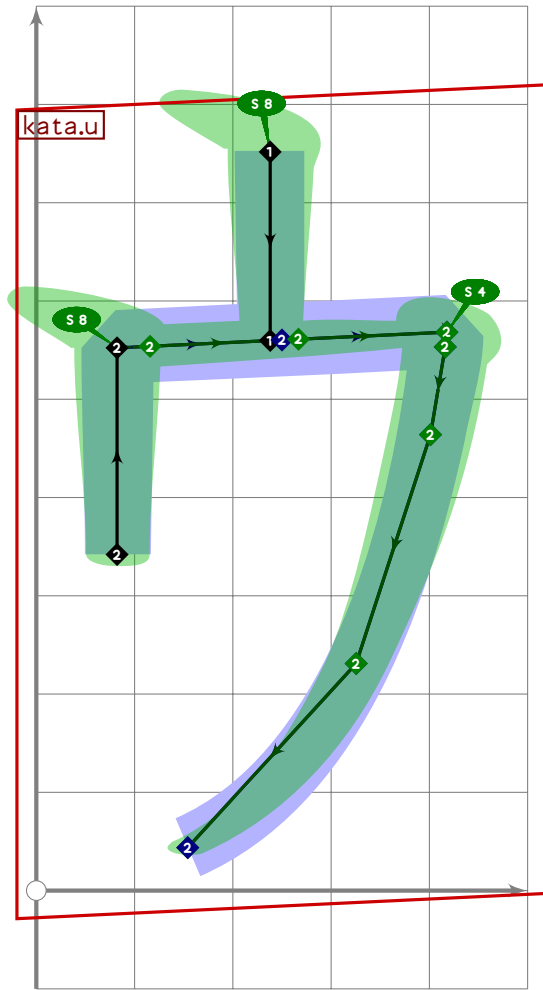
```

812 % katakana "a"
813 begintsuglyph("uniFF71",113);
814 kata.a;
815 tsu_render;
816 endtsuglyph;
817

```



```
818 % katakana "i"  
819 begintsuglyph("uniFF72";14);  
820 kata.i;  
821 tsu_render;  
822 endtsuglyph;  
823
```

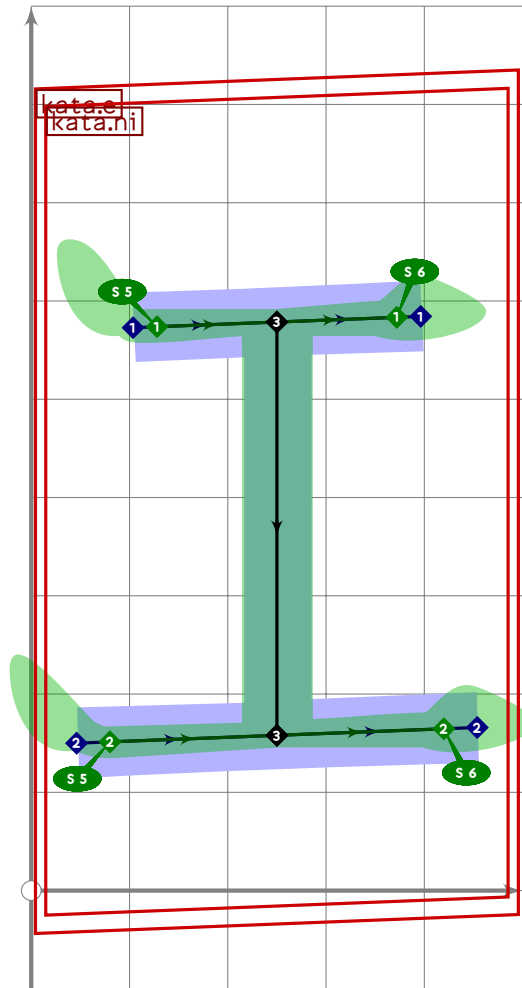


```

824 % katakana "u"
825 begintsuglyph("uniFF73";115);
826 kata.u;
827 tsu_render;
828 endtsuglyph;
829

```

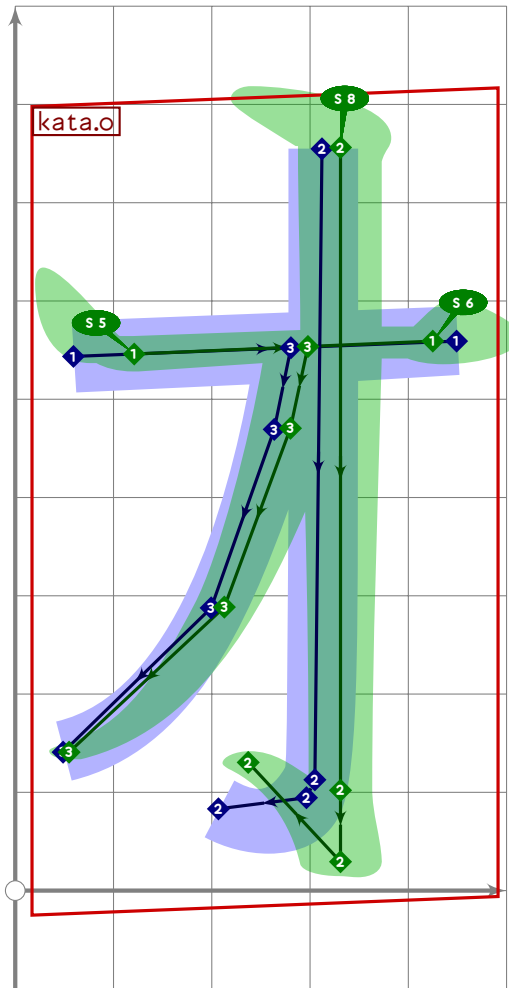




```

830 % katakana "e"
831 begintsuglyph("uniFF74";116);
832 kata.e;
833 tsu_render;
834 endtsuglyph;
835

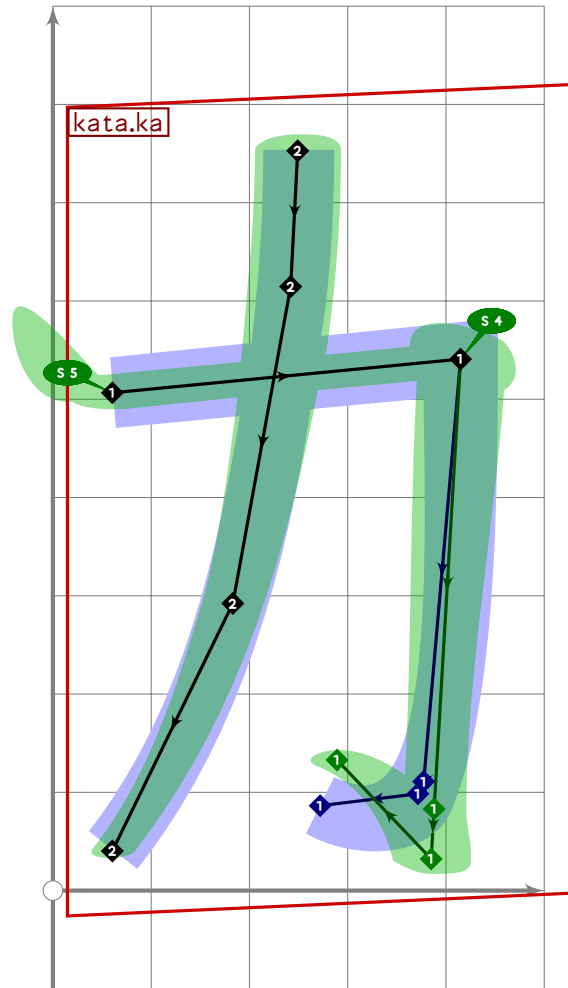
```



```

836 % katakana "o"
837 begintsuglyph("uniFF75;117);
838 kata.o;
839 tsu_render;
840 endtsuglyph;
841

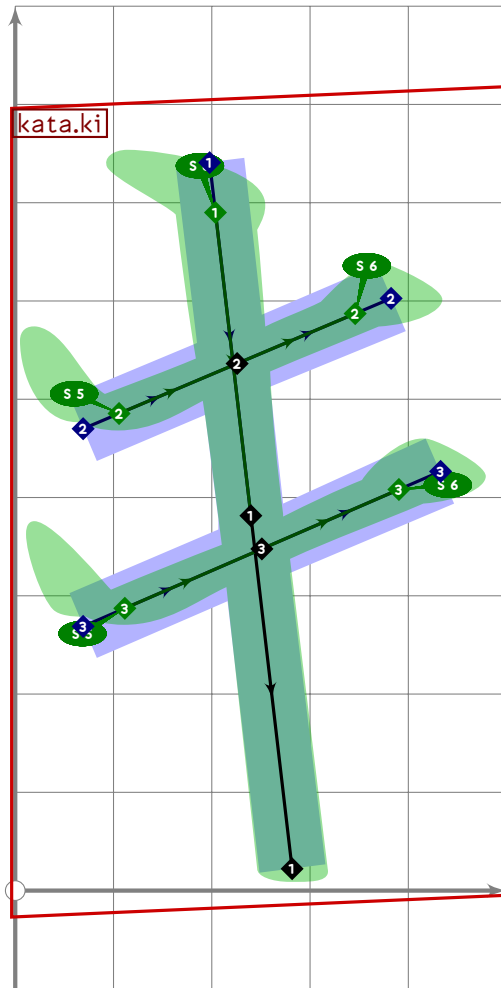
```



```

842 % katakana "ka"
843 begintsuglyph("uniFF76";118);
844 kata.ka;
845 tsu_render;
846 endtsuglyph;
847

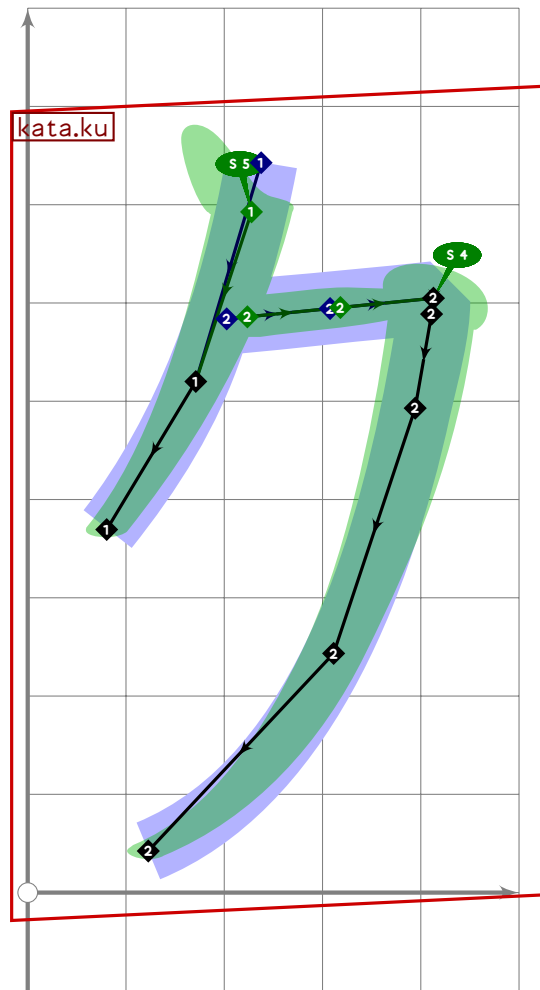
```



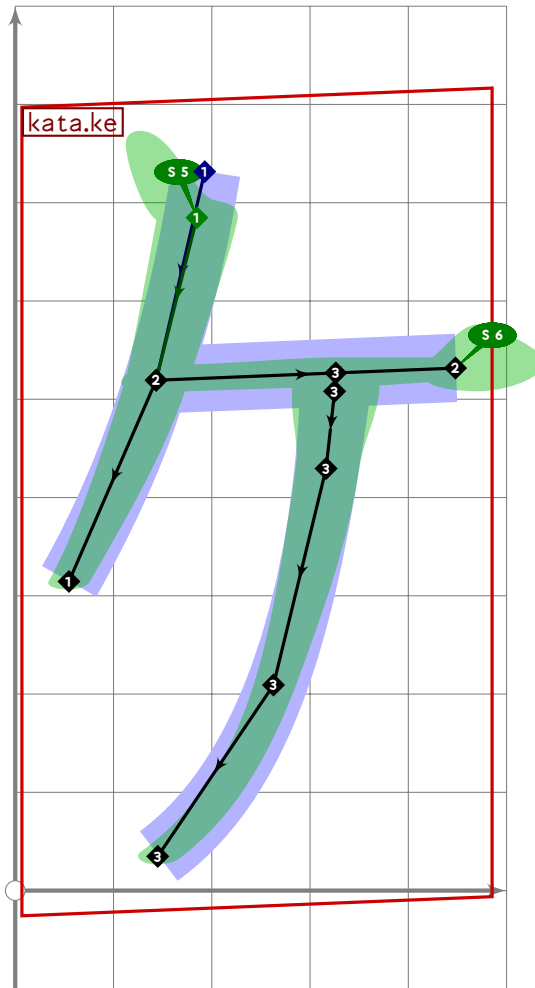
```

848 % katakana "ki"
849 begintsuglyph("uniFF77";119);
850 kata.ki;
851 tsu_render;
852 endtsuglyph;
853

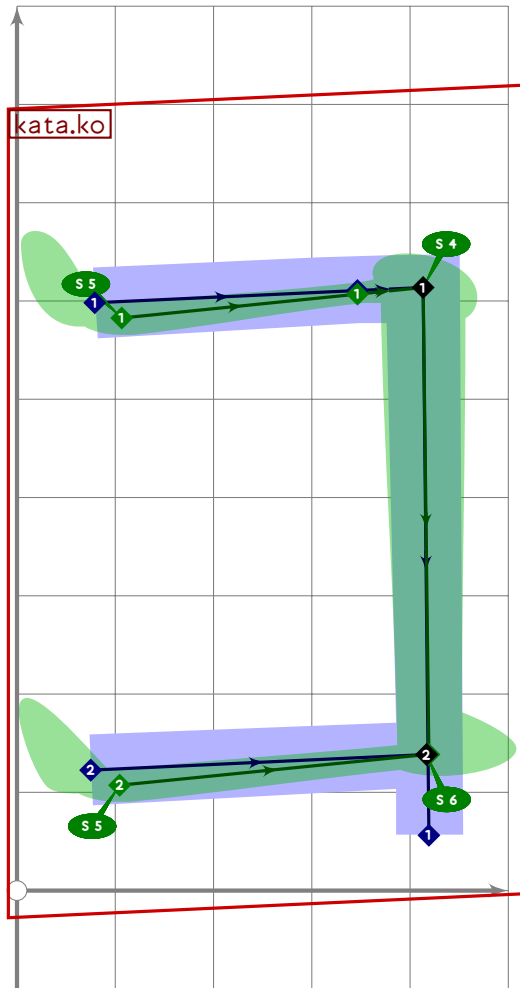
```



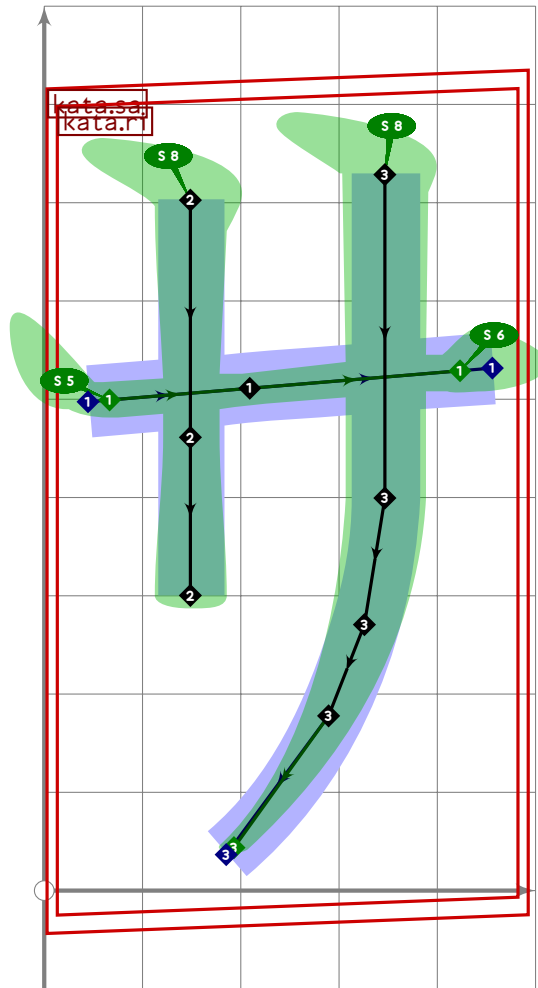
```
854 % katakana "ku"  
855 begintsuglyph("uniFF78",120);  
856 kata.ku;  
857 tsu_render;  
858 endtsuglyph;  
859
```



```
860 % katakana "ke"  
861 begintsuglyph("uniFF79";121);  
862 kata.ke;  
863 tsu_render;  
864 endtsuglyph;  
865
```



```
866 % katakana "ko"  
867 beginsuglyph("uniFF7A";122);  
868 kata.ko;  
869 tsu_render;  
870 endsuglyph;  
871
```

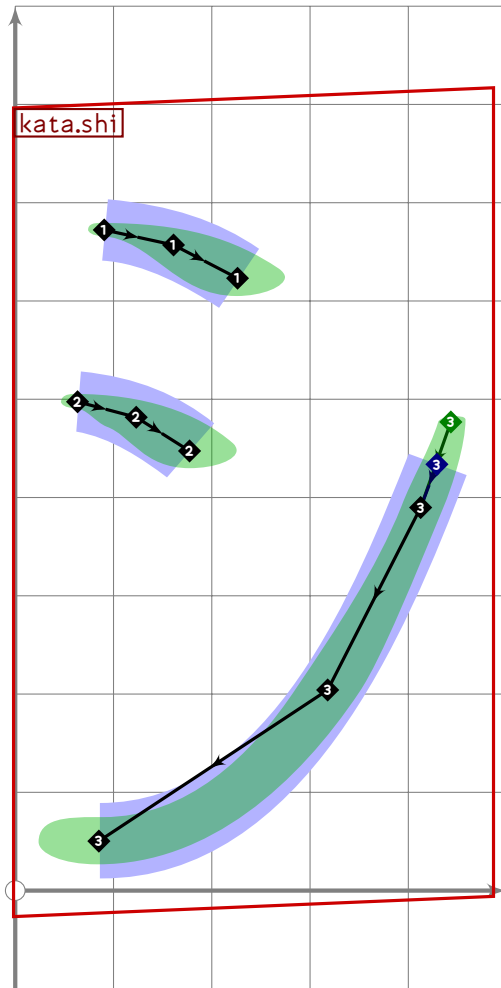


```

872 % katakana "sa"
873 begintsuglyph("uniFF7B",123);
874 kata.sa;
875 tsu_render;
876 endsuglyph;
877

```

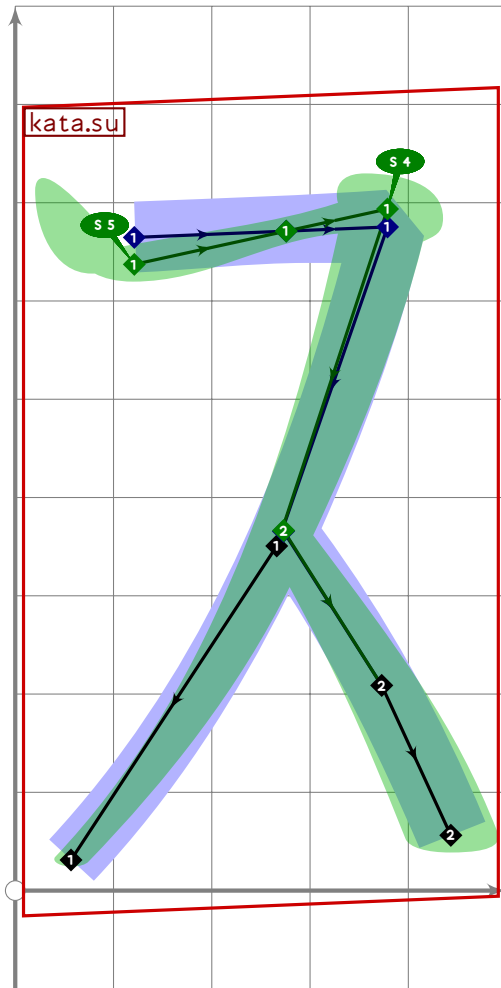




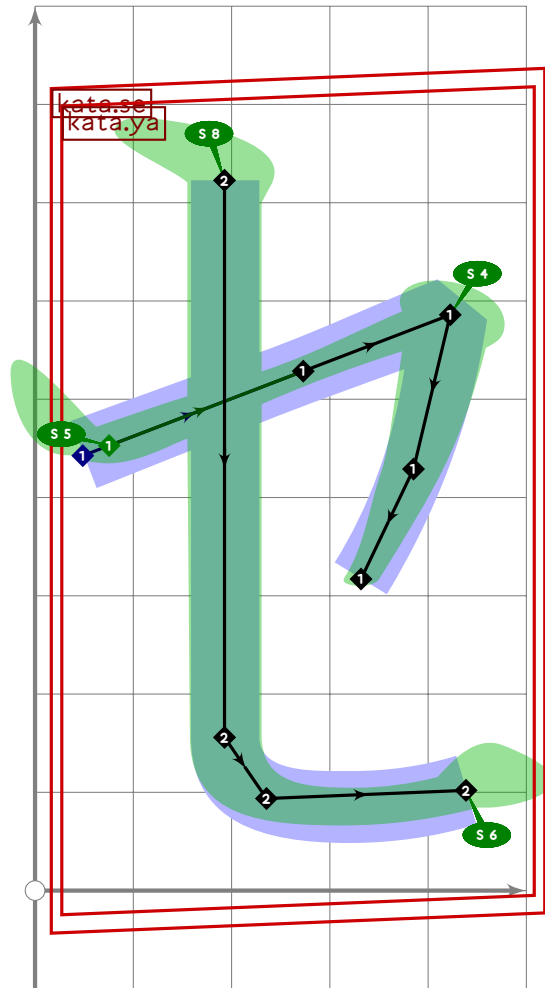
```

878 % katakana "shi"
879 begint Suglyph("uniFF7C",124);
880 kata.shi;
881 tsu_render;
882 endtsuglyph;
883

```



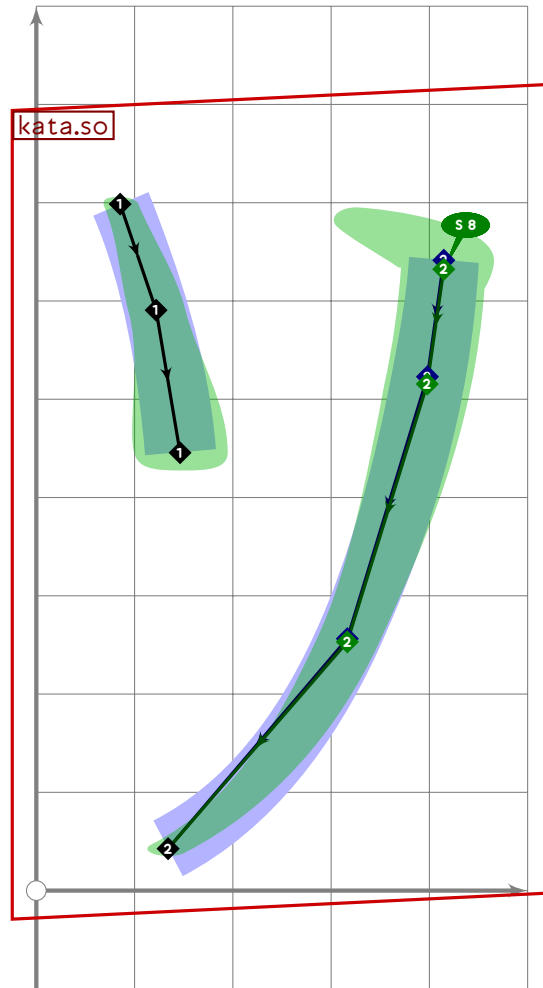
```
884 % katakana "su"  
885 begintsuglyph("uniFF7D",125);  
886 kata.su;  
887 tsu_render;  
888 endtsuglyph;  
889
```



```

890 % katakana "se"
891 begintsuglyph("uniFF7E";126);
892 kata.se;
893 tsu_render;
894 endtsuglyph;
895

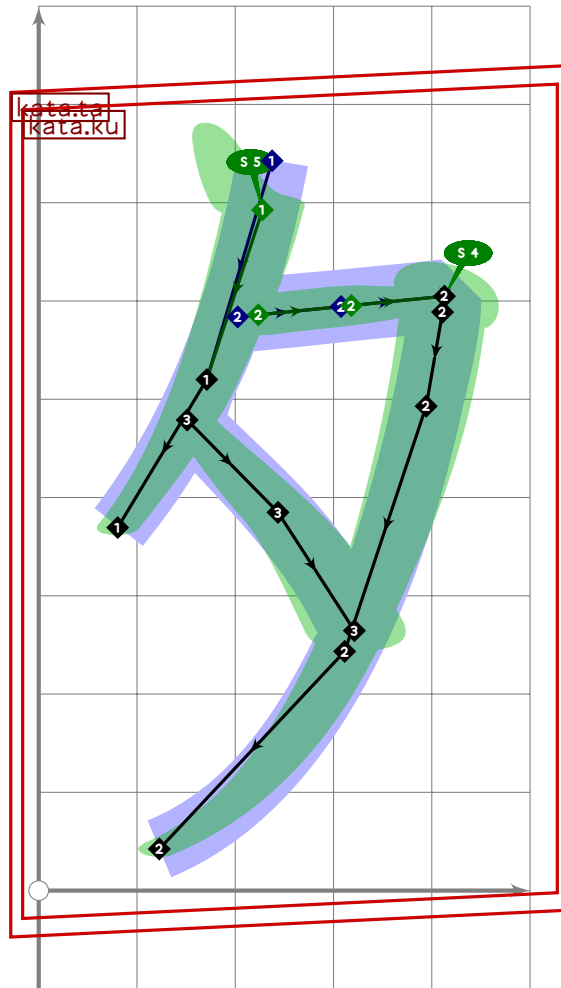
```



```

896 % katakana "so"
897 begint Suglyph("uniFF7F",127);
898 kata.so;
899 tsu_render;
900 endtsuglyph;
901

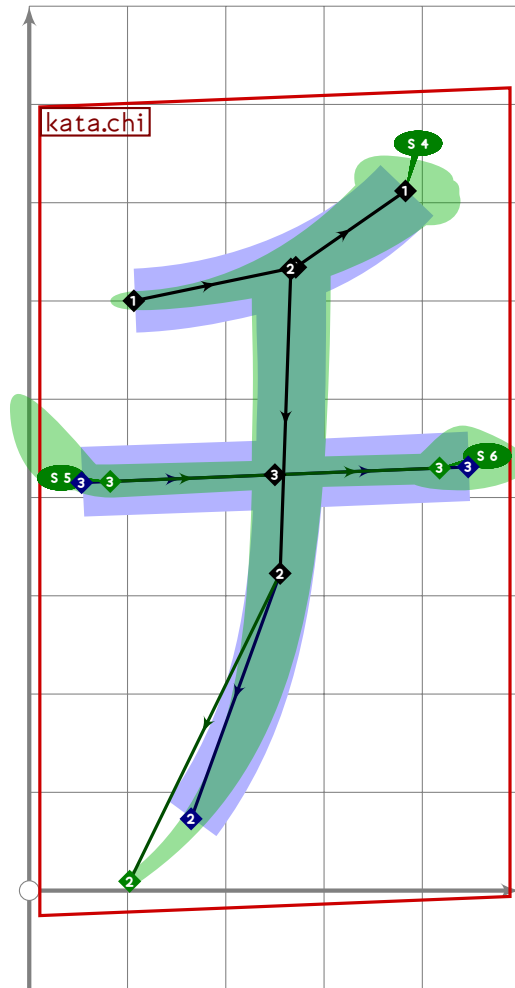
```



```

902 % katakana "ta"
903 begintsuglyph("uniFF80",128);
904 kata.ta;
905 tsu_render;
906 endtsuglyph;
907

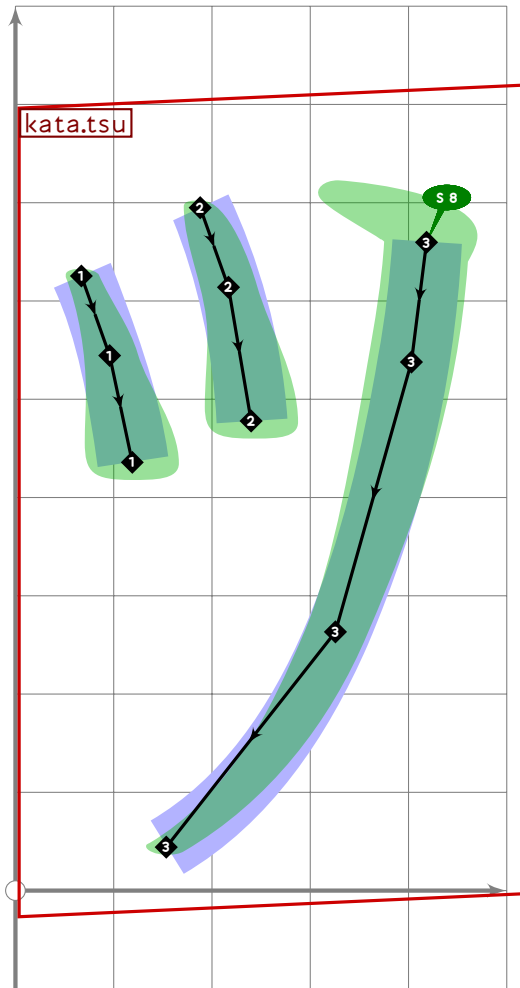
```



```

908 % katakana "chi"
909 begintsuglyph("uniFF81",129);
910 kata.chi;
911 tsu_render;
912 endtsuglyph;
913

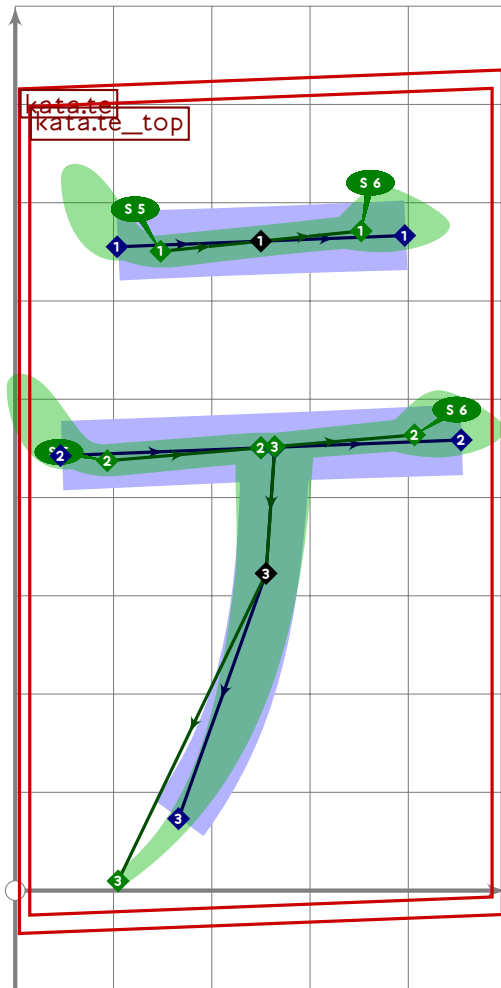
```



```

914 % katakana "tsu"
915 begintsuglyph("uniFF82",130);
916 kata.tsu;
917 tsu_render;
918 endtsuglyph;
919

```

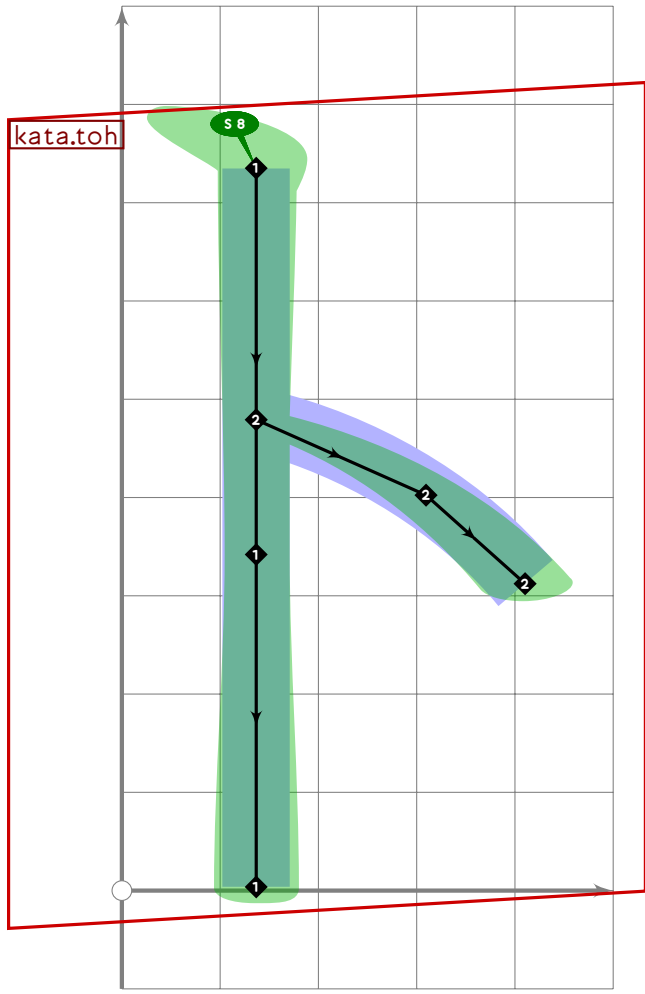


```

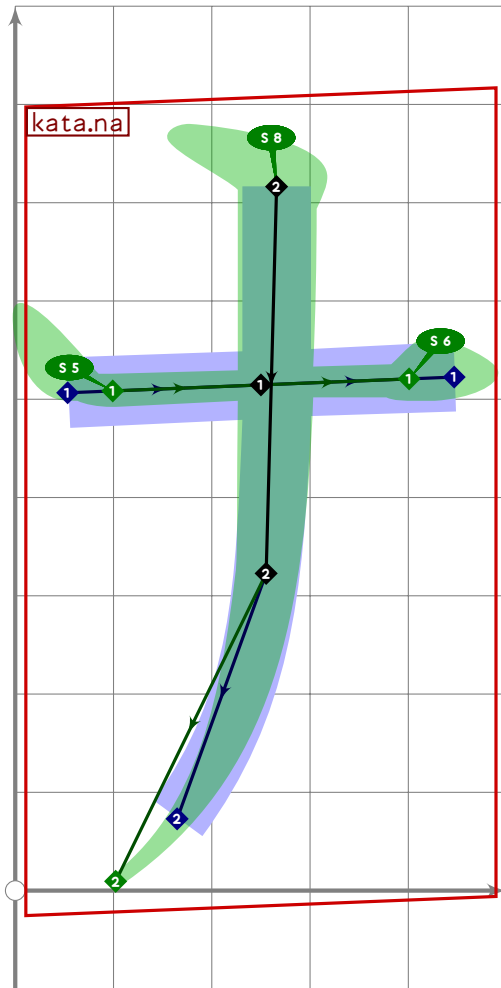
920 % katakana "te"
921 beginsuglyph("uniFF83",131);
922 kata.te;
923 tsu_render;
924 endsuglyph;
925

```





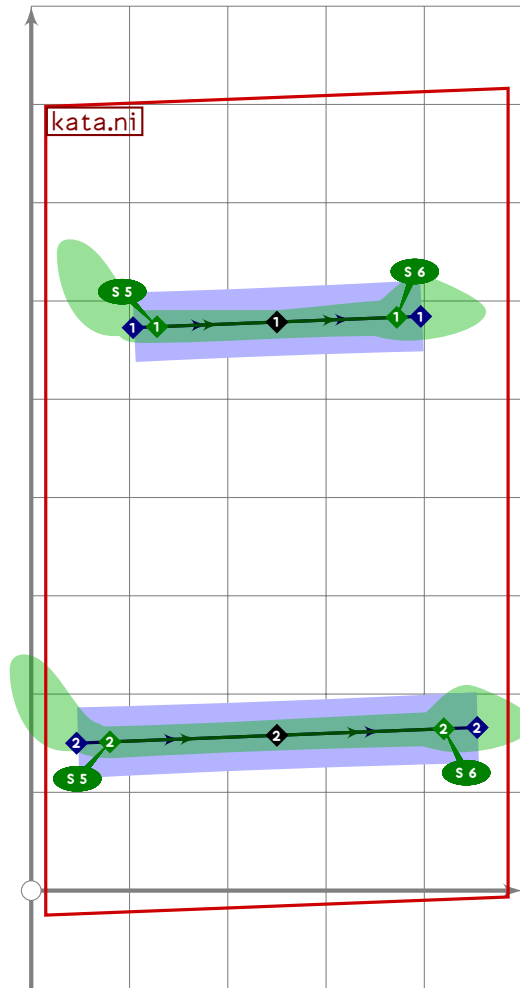
```
926 % katakana "to"  
927 begintsuglyph("uniFF84",132);  
928 kata.toh;  
929 tsu_render;  
930 endtsuglyph;  
931
```



```

932 % katakana "na"
933 begintuglyph("uniFF85";133);
934 kata.na;
935 tsu_render;
936 endtuglyph;
937

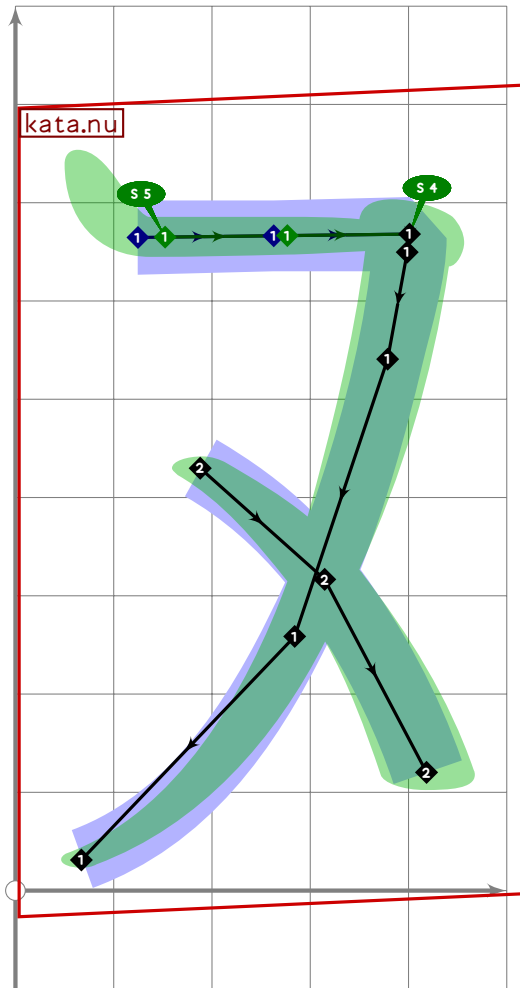
```



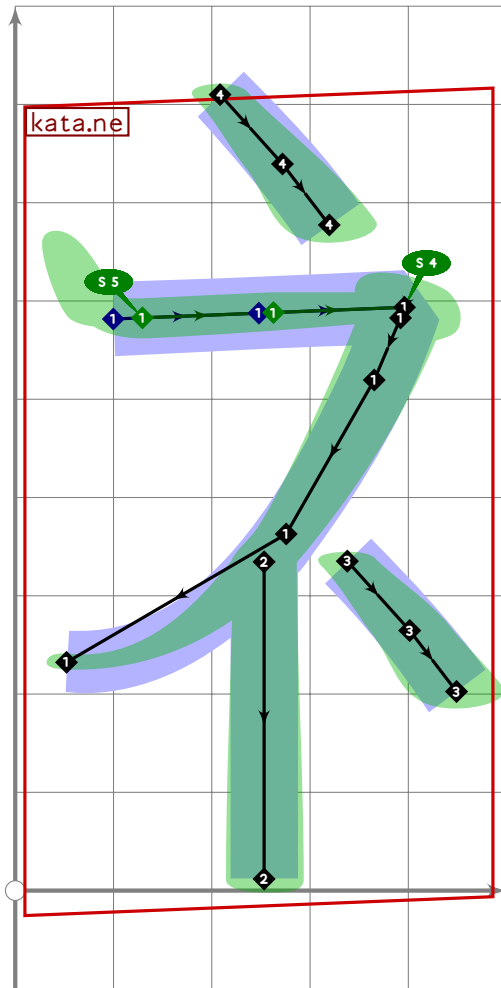
```

938 % katakana "ni"
939 begintsuglyph("uniFF86",134);
940 kata.ni;
941 tsu_render;
942 endtsuglyph;
943

```



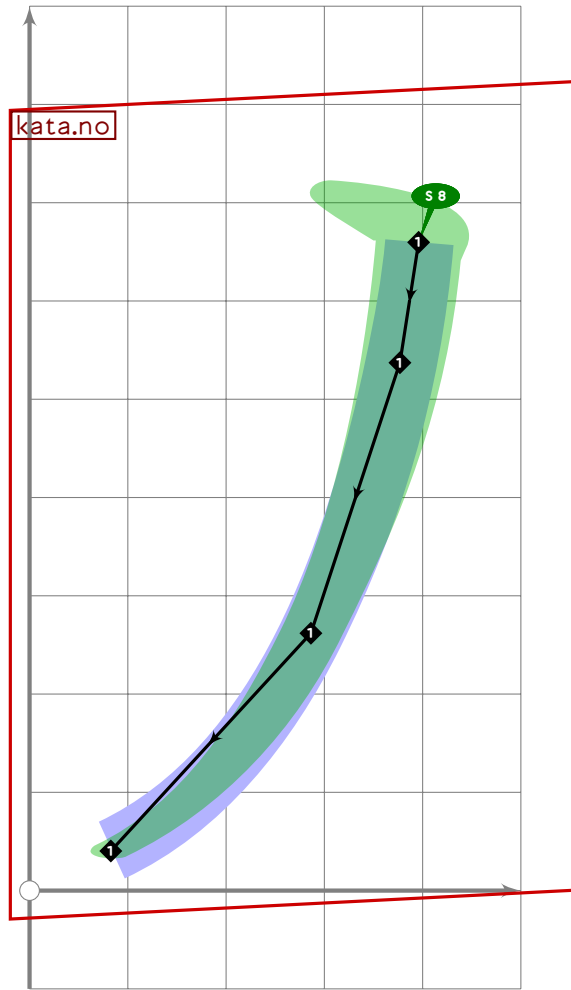
```
944 % katakana "nu"  
945 begintsuglyph("uniFF87";135);  
946 kata.nu;  
947 tsu_render;  
948 endtsuglyph;  
949
```



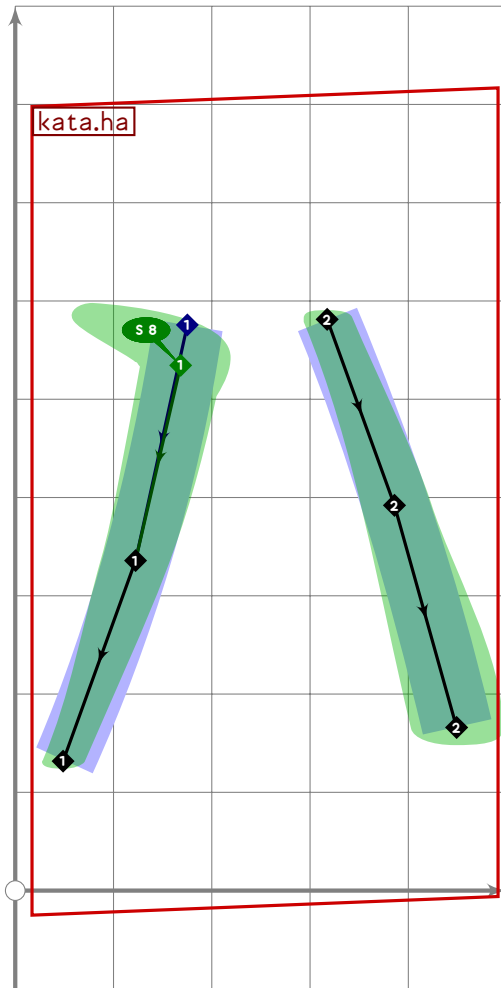
```

950 % katakana "ne"
951 begintsuglyph("uniFF88",136);
952 kata.ne;
953 tsu_render;
954 endtsuglyph;
955

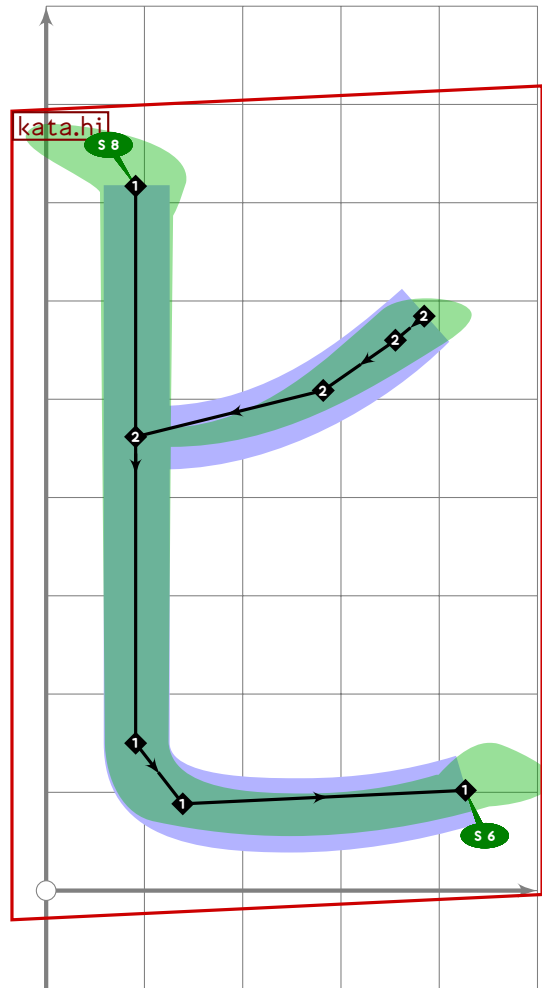
```



```
956 % katakana "no"  
957 begintsuglyph("uniFF89";137);  
958 kata.no;  
959 tsu_render;  
960 endsuglyph;  
961
```

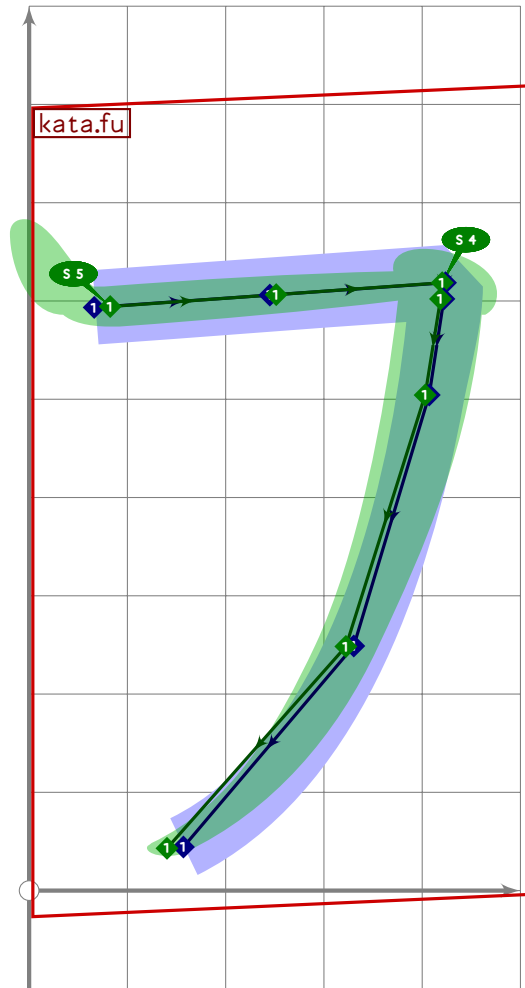


```
962 % katakana "ha"  
963 begintsuglyph("uniFF8A",138);  
964 kata.ha;  
965 tsu_render;  
966 endtsuglyph;  
967
```



```
968 % katakana "hi"  
969 begintsuglyph("uniFF8B",139);  
970 kata.hi;  
971 tsu_render;  
972 endtsuglyph;  
973
```

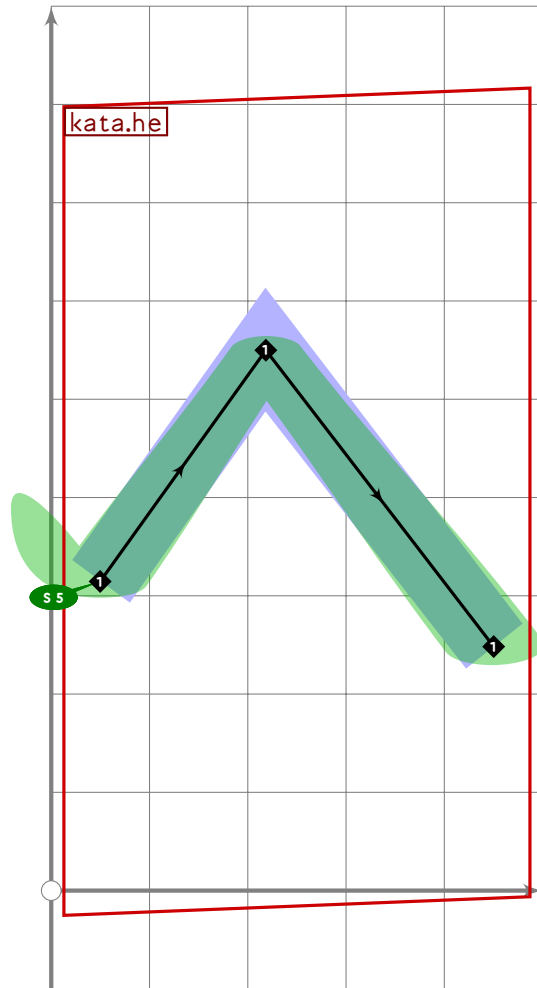




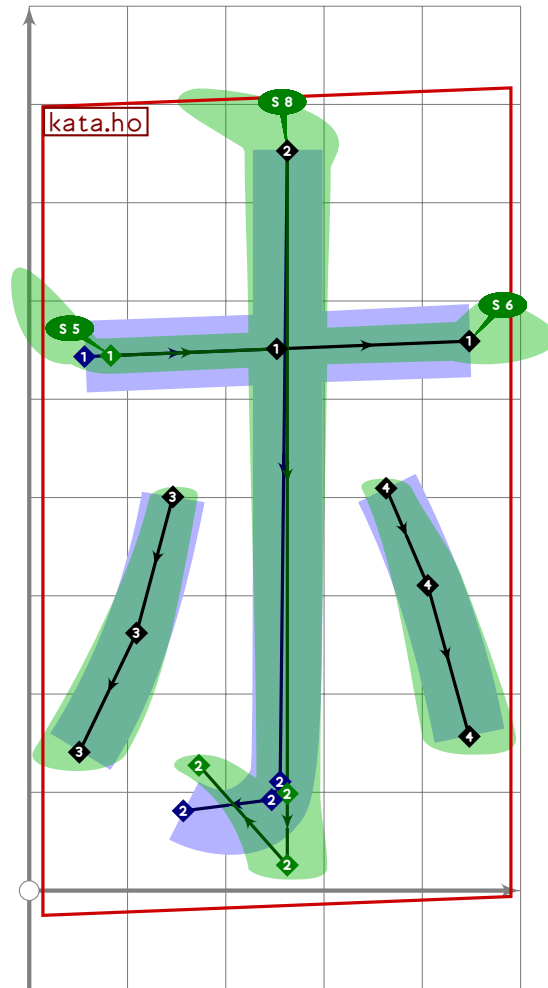
```

974 % katakana "fu"
975 begintsuglyph("uniFF8C",140);
976 kata.fu;
977 tsu_render;
978 endtsuglyph;
979

```



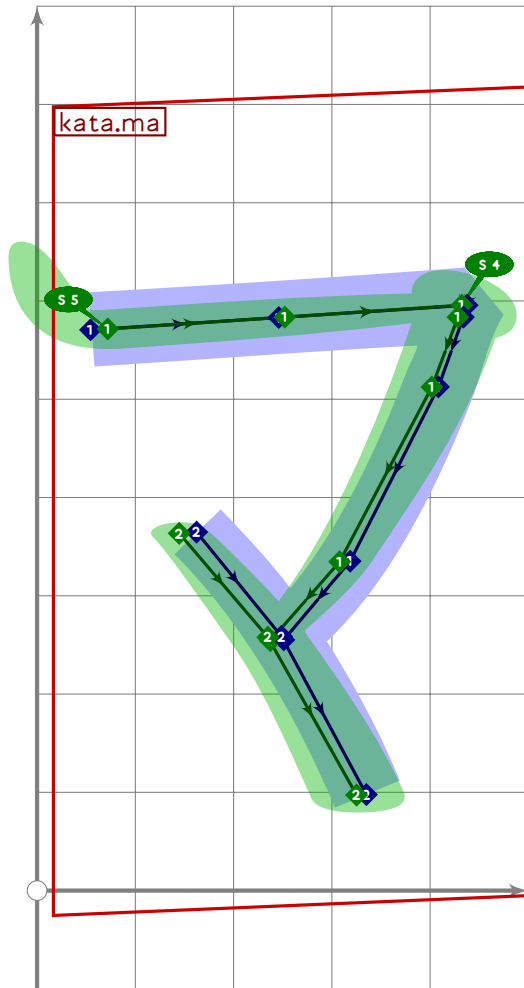
```
980 % katakana "he"  
981 begintsuglyph("uniFF8D",141);  
982 kata.he;  
983 tsu_render;  
984 endtsuglyph;  
985
```



```

986 % katakana "ho"
987 begintsuglyph("uniFF8E",142);
988 kata.ho;
989 tsu_render;
990 endtsuglyph;
991

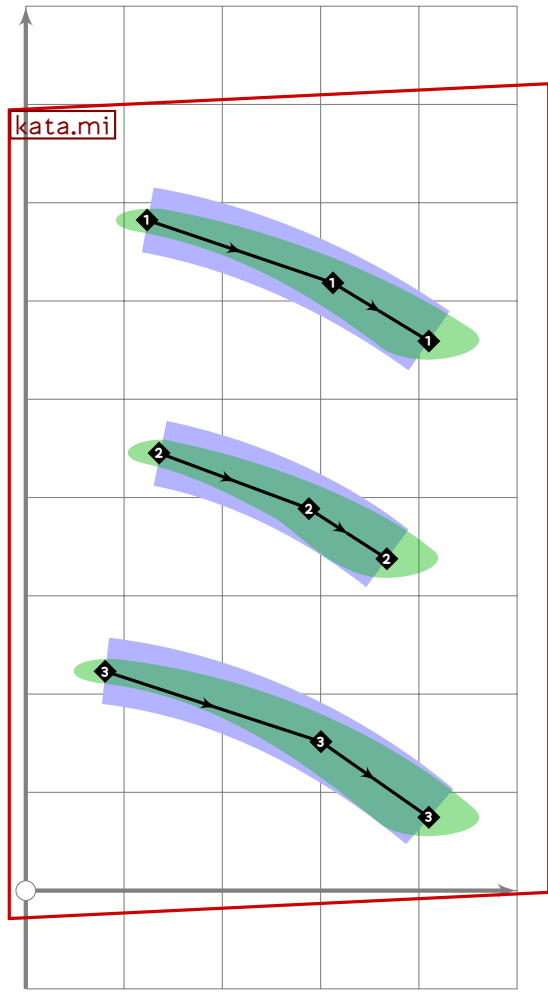
```



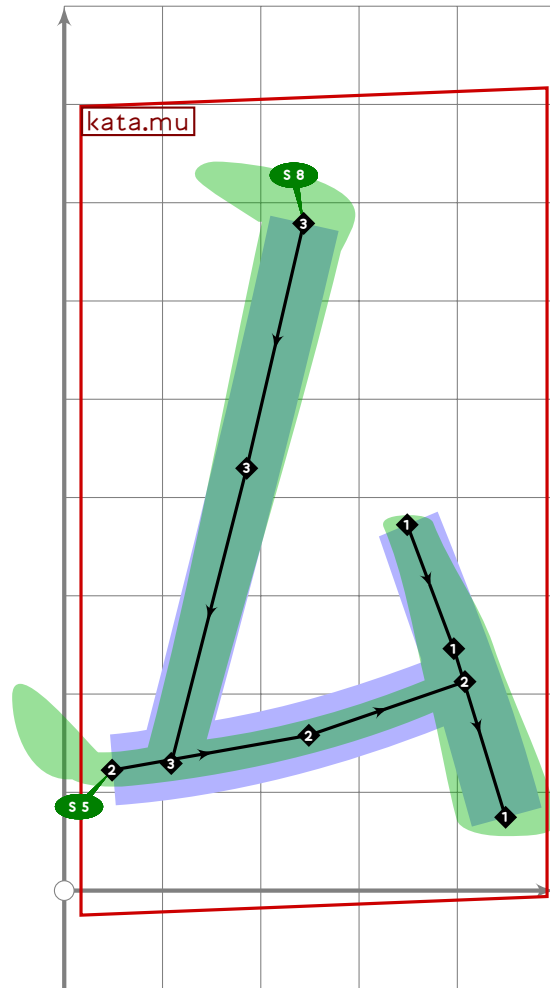
```

992 % katakana "ma"
993 begint Suglyph("uniFF8F",143);
994 kata.ma;
995 tsu_render;
996 endtsuglyph;
997

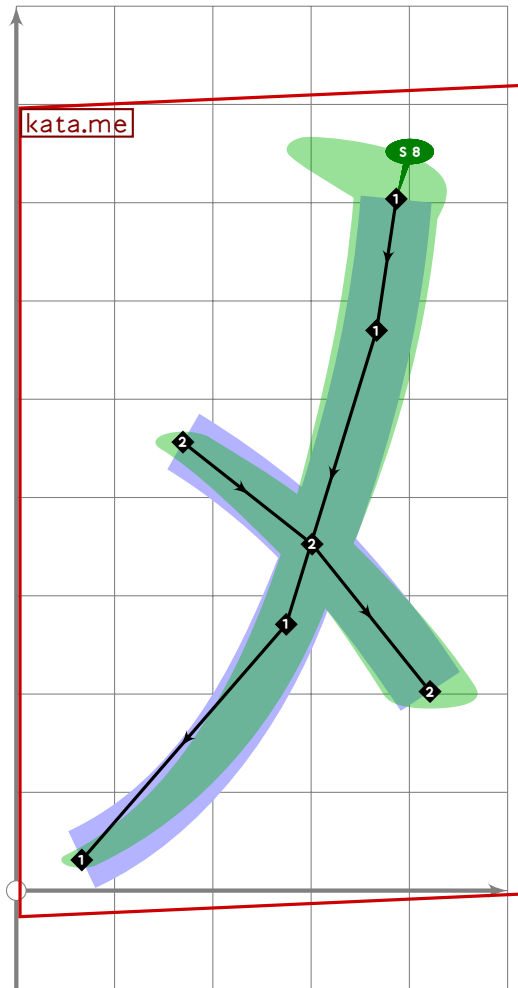
```



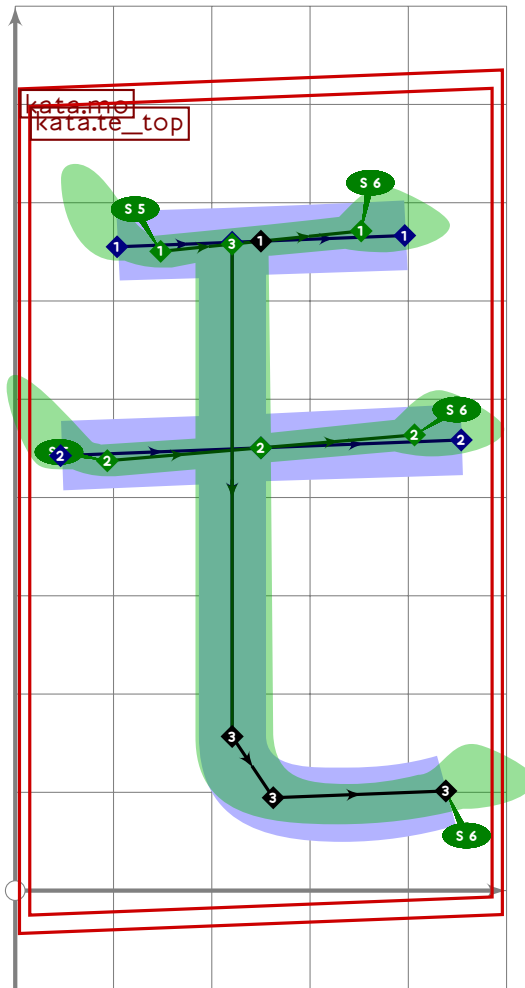
```
998 % katakana "mi"  
999 begintsuglyph("uniFF90",144);  
1000 kata.mi;  
1001 tsu_render;  
1002 endtsuglyph;  
1003
```



```
1004 % katakana "mu"  
1005 begintsuglyph("uniFF91",145);  
1006 kata.mu;  
1007 tsu_render;  
1008 endtsuglyph;  
1009
```



```
1010 % katakana "me"  
1011 begintsuglyph("uniFF92",146);  
1012 kata.me;  
1013 tsu_render;  
1014 endtsuglyph;  
1015
```

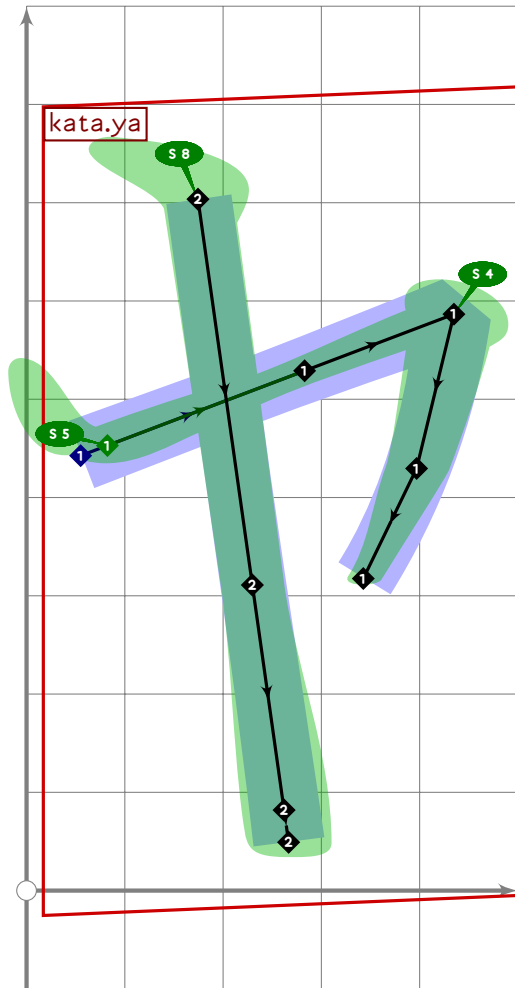


```

1016 % katakana "mo"
1017 begintsuglyph("uniFF93";147);
1018 kata.mo;
1019 tsu_render;
1020 endtsuglyph;
1021

```

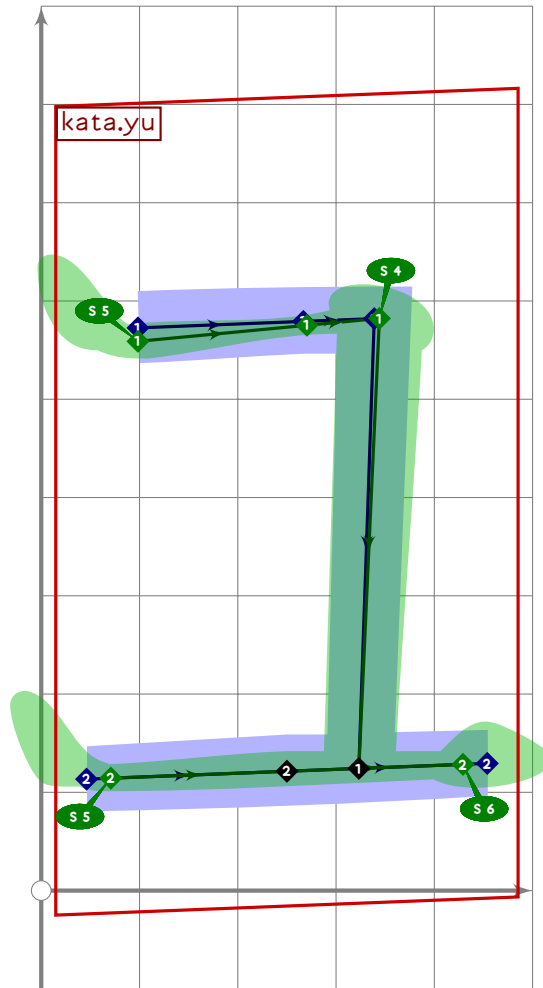




```

1022 % katakana "ya"
1023 begintsuglyph("uniFF94",148);
1024 kata.ya;
1025 tsu_render;
1026 endtsuglyph;
1027

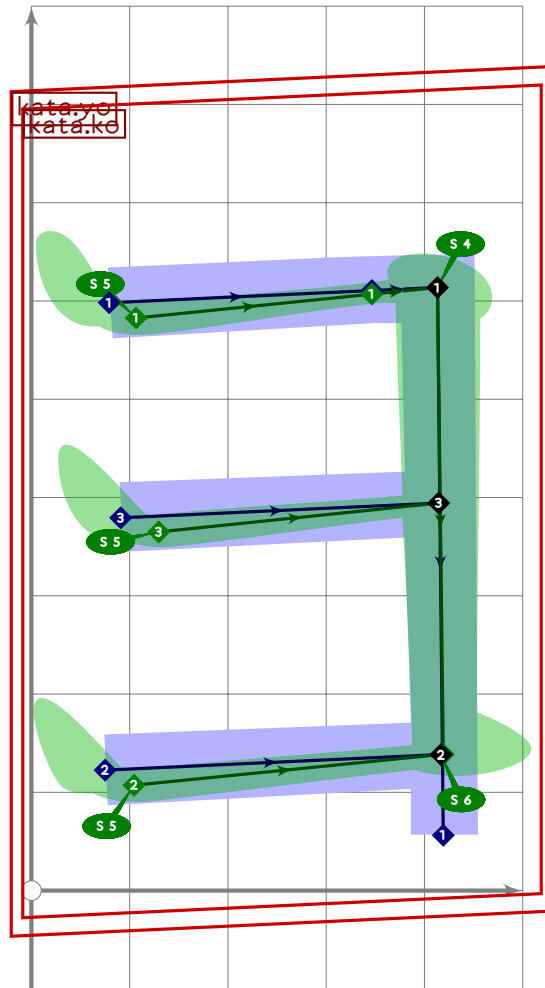
```



```

1028 % katakana "yu"
1029 begintsuglyph("uniFF95";149);
1030 kata.yu;
1031 tsu_render;
1032 endtsuglyph;
1033

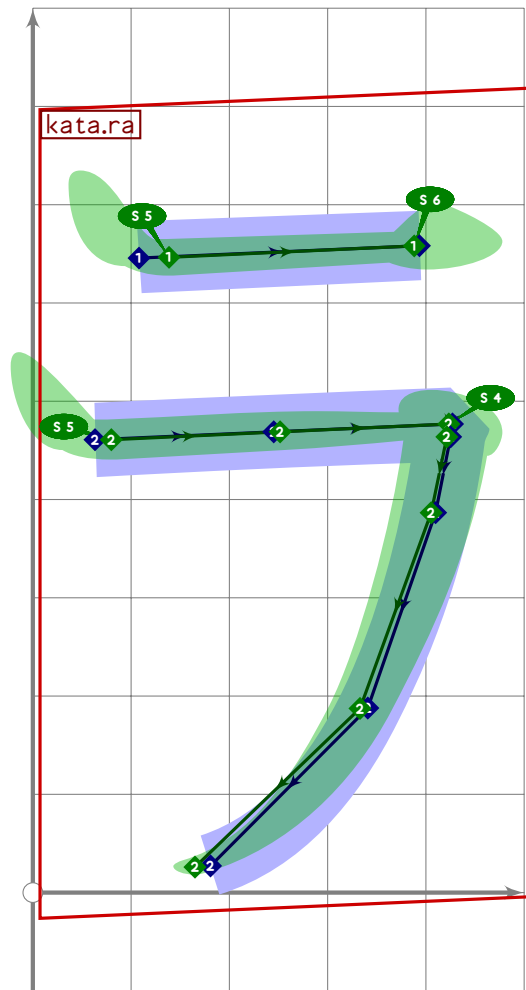
```



```

1034 % katakana "yo"
1035 begintsuglyph("uniFF96",150);
1036 kata.yo;
1037 tsu_render;
1038 endtsuglyph;
1039

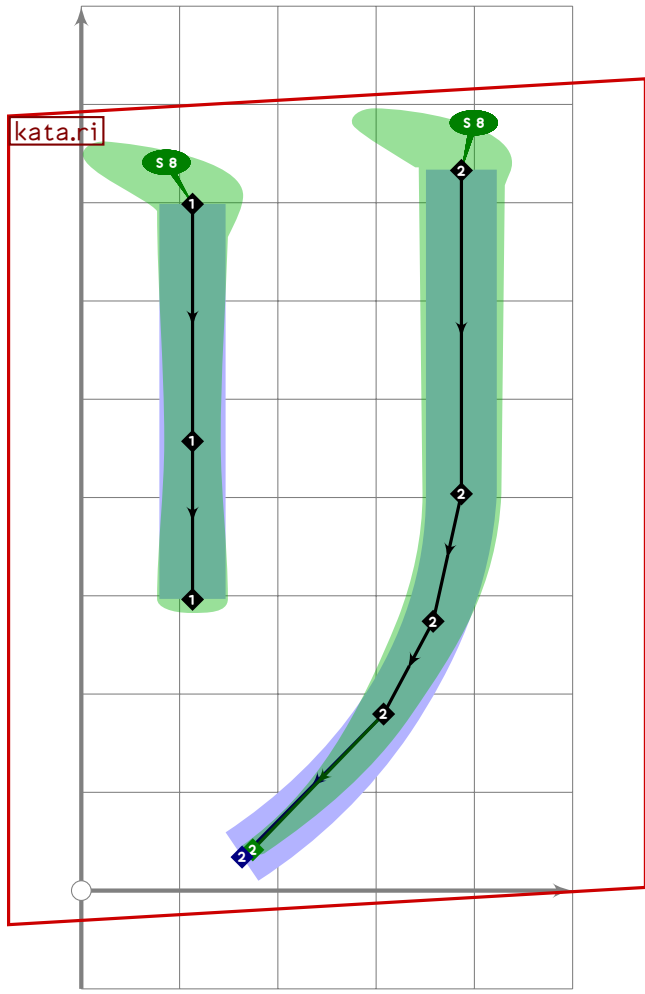
```



```

1040 % katakana "ra"
1041 begintsuglyph("uniFF97";151);
1042 kata.ra;
1043 tsu_render;
1044 endtsuglyph;
1045

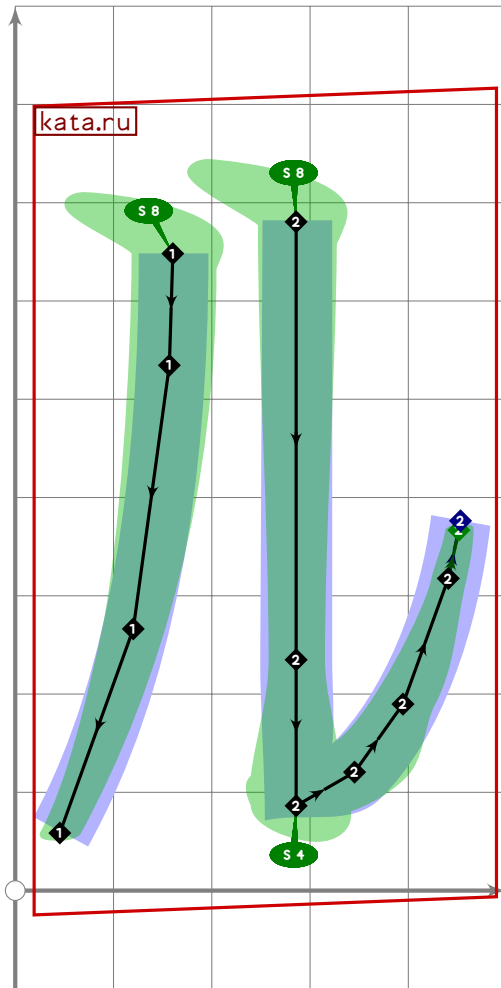
```



```

1046 % katakana "ri"
1047 begintsuglyph("uniFF98",152);
1048 kata.ri;
1049 tsu_render;
1050 endtsuglyph;
1051

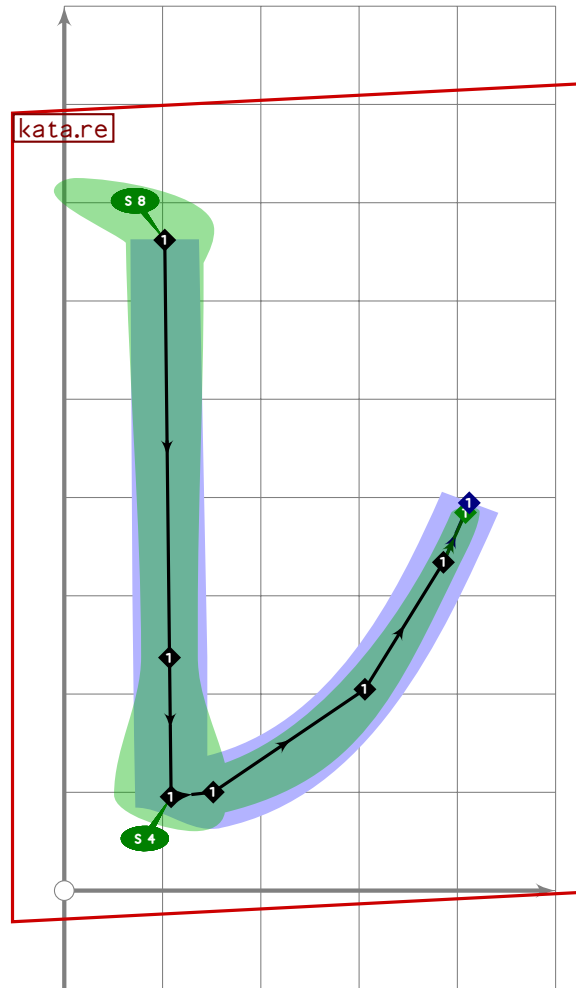
```



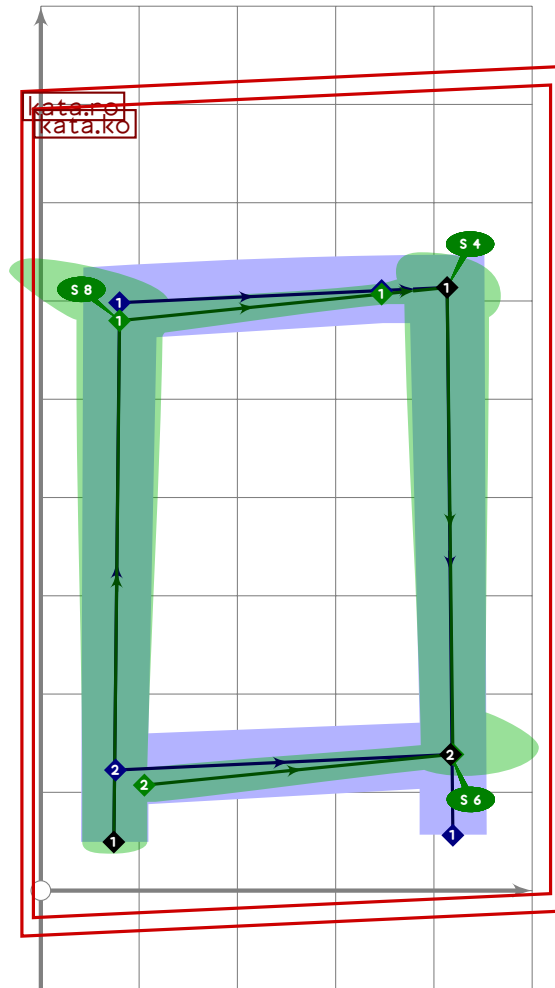
```

1052 % katakana "ru"
1053 begintsuglyph("uniFF99";153);
1054 kata.ru;
1055 tsu_render;
1056 endsuglyph;
1057

```

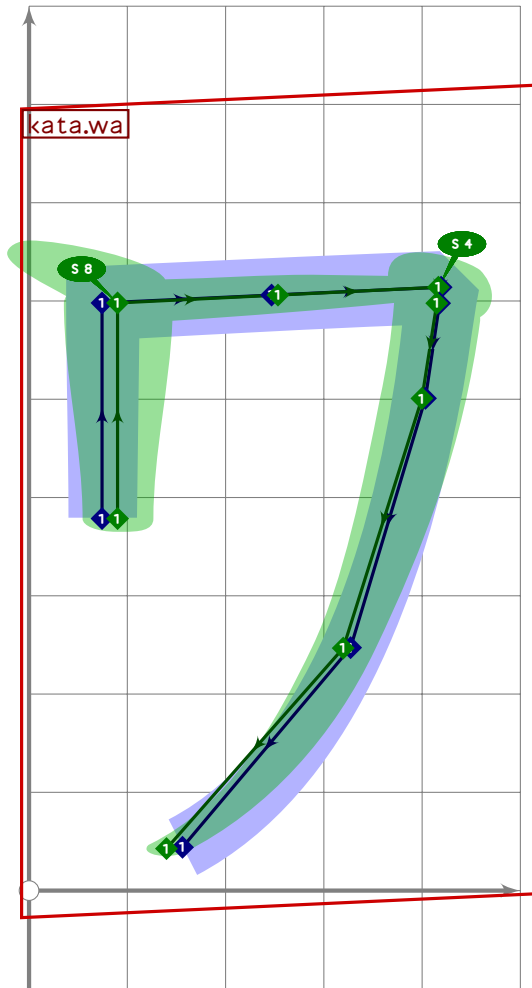


```
1058 % katakana "re"  
1059 begintsuglyph("uniFF9A";154);  
1060 kata.re;  
1061 tsu_render;  
1062 endtsuglyph;  
1063
```

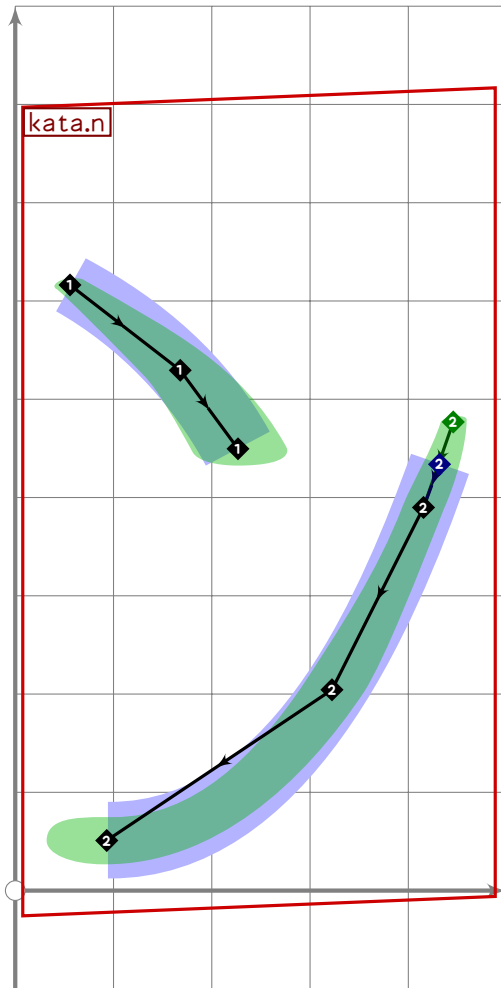


```
1064 % katakana "ro"  
1065 begintsuglyph("uniFF9B",155);  
1066 kata.ro;  
1067 tsu_render;  
1068 endsuglyph;  
1069
```





```
1070 % katakana "wa"  
1071 begintsuglyph("uniFF9C",156);  
1072 kata.wa;  
1073 tsu_render;  
1074 endtsuglyph;  
1075
```



```

1076 % katakana "n"
1077 beginsuglyph("uniFF9D",157);
1078 kata.n;
1079 tsu_render;
1080 endsuglyph;
1081
1082 % WARNING changing rescale setting
1083 tsu_rescale_native_zero;
1084

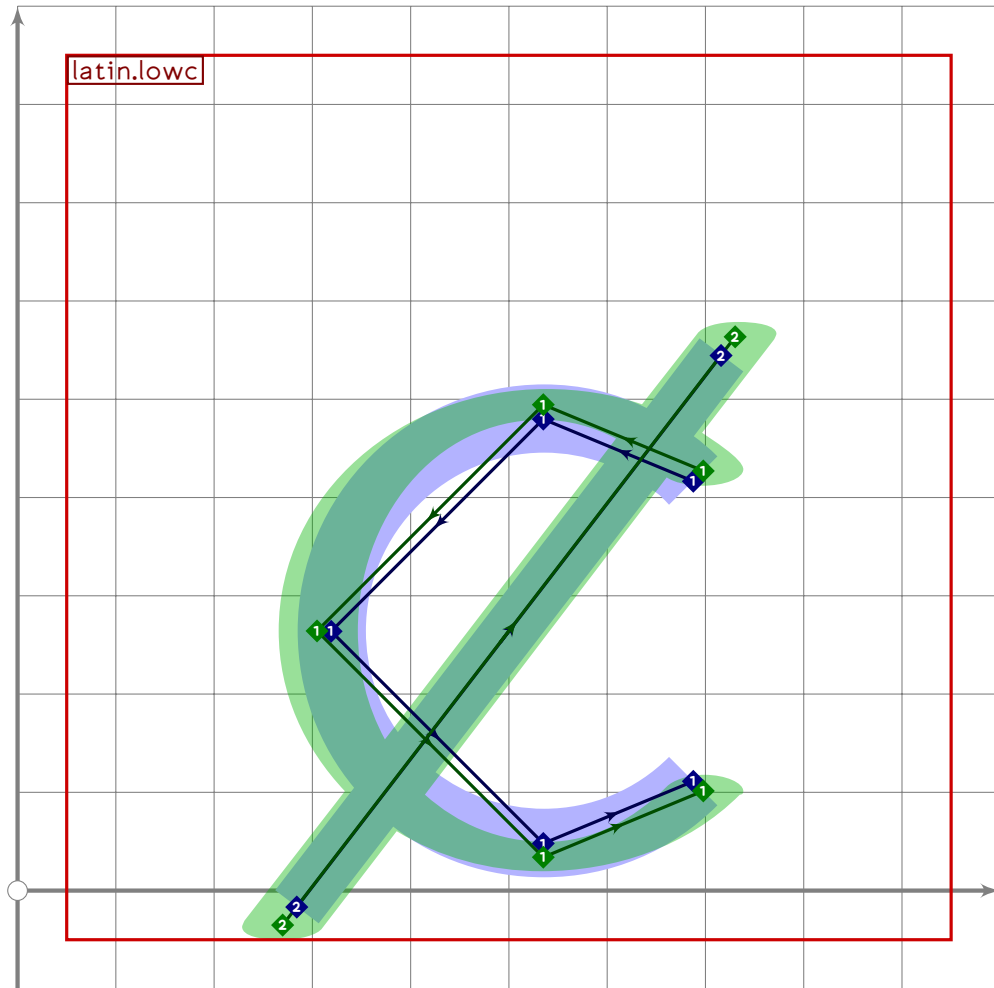
```



```
1085 % combining dakuten
1086 begintsuglyph("uniFF9E",158);
1087 dakuten(identity
1088     scaled 0.8 rotated 25 shifted (-130,780) xscaled 0.7);
1089 tsu_render;
1090 endtsuglyph;
1091
```



```
1092 % combining handakuten
1093 begintsuglyph("uniFF9F",159);
1094   Fill fullcircle scaled (handakuten_outer*0.75) shifted (-90,780);
1095   unFill reverse fullcircle scaled (handakuten_inner*0.75) shifted (-90,780);
1096 endsuglyph;
1097
1098 % WARNING changing rescale setting
1099 tsu_rescale_full;
```

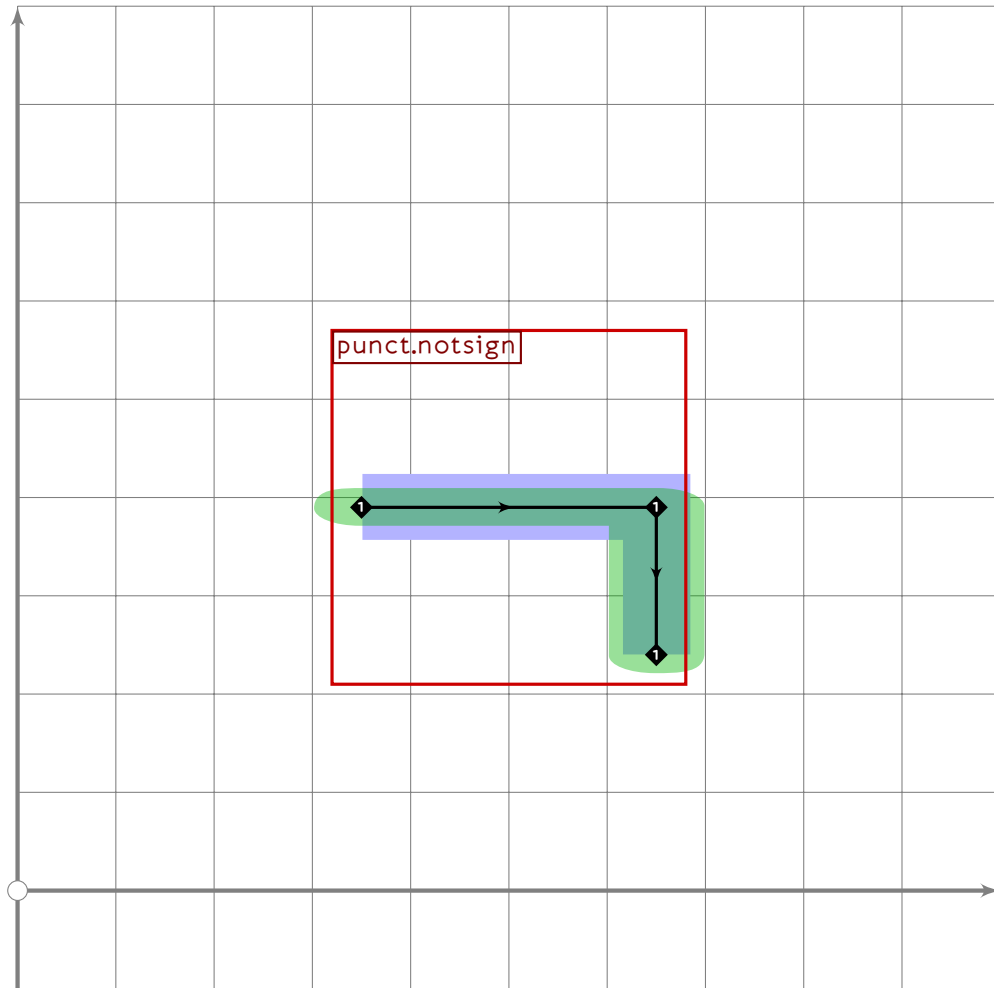


```

1100
1101 begintsuglyph("uniFFE0";224);
1102 tsu_accent.apply(latin.lowc)(tsu_accent.slash);
1103 tsu_render;
1104 endtsuglyph;
1105
1106 begintsuglyph("uniFFE1";225);
1107 punct.pound;
1108 tsu_render;
1109 endtsuglyph;

```

[see page 305]



```

1110
1111 begintsuglyph("uniFFE2";226);
1112 punct.notsign
1113   (identity scaled (1.5*tsu_punct_size) shifted centre_pt);
1114 tsu_render;
1115 endtsuglyph;

```

1116

```

1117 begintsuglyph("uniFFE3";227);
1118 tsu_accent.macron;
1119 tsu_render;
1120 endtsuglyph;

```

[see page 51]

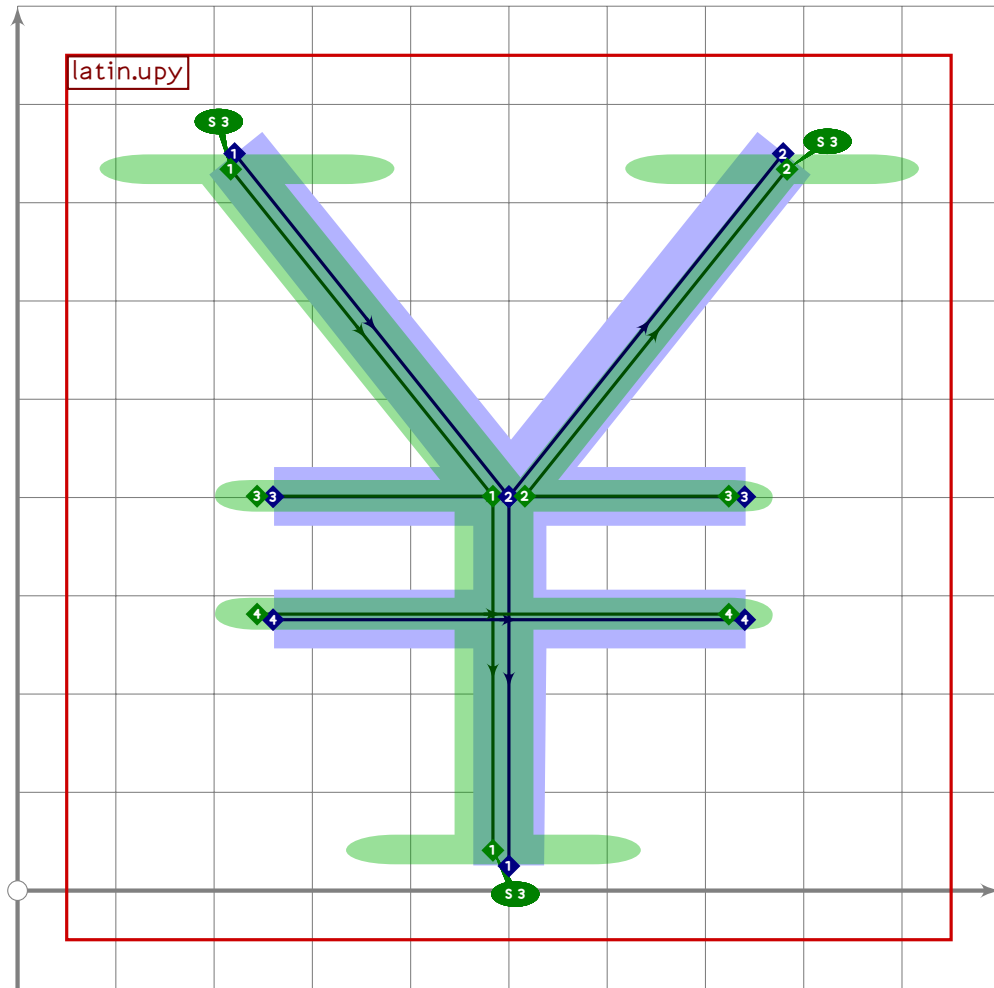
1121

```

1122 begintsuglyph("uniFFE4";228);
1123 punct.bvline;
1124 tsu_render;
1125 endtsuglyph;

```

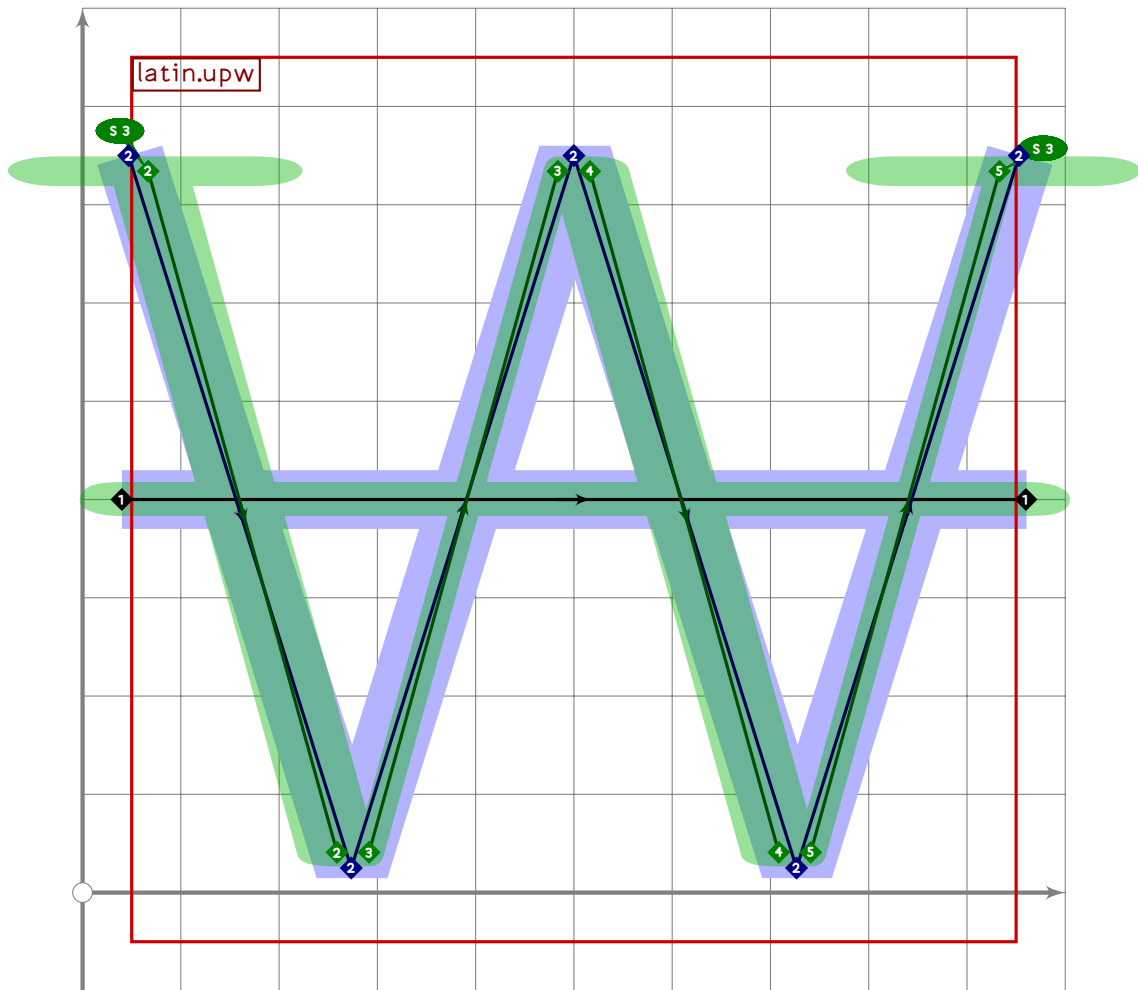
[see page 280]



```

1126
1127 begintsuglyph("uniFFE5",229);
1128 latin.upy;
1129 push_stroke((( -240,0) - (240,0)) shifted point 1 of get_strokep(-1),
1130 (2,2) - (2,2));
1131 set_bosize(0,80);
1132 push_stroke((( -240,0) - (240,0)) shifted point 1.333 of get_strokep(-2),
1133 (2,2) - (2,2));
1134 set_bosize(0,80);
1135 tsu_render;
1136 endtsuglyph;

```



```

1137
1138 begintsuglyph("uniFFE6",230);
1139 push_stroke((40,400)-(960,400),(2,2)-(2,2));
1140 set_bosize(0,80);
1141 latin.upw;
1142 tsu_render;
1143 endtsuglyph;
1144
1145 _____
1146
1147 endfont;
1148
1149 _____

```



# tsuku-1f1.mp

```
1 % Unicode page 1F1 (Enclosed Supplement) for Tsukurimashou
2 % Copyright (C) 2011 Matthew Skala
3 %
4-28 [Standard copyright notice]
29
30 

---

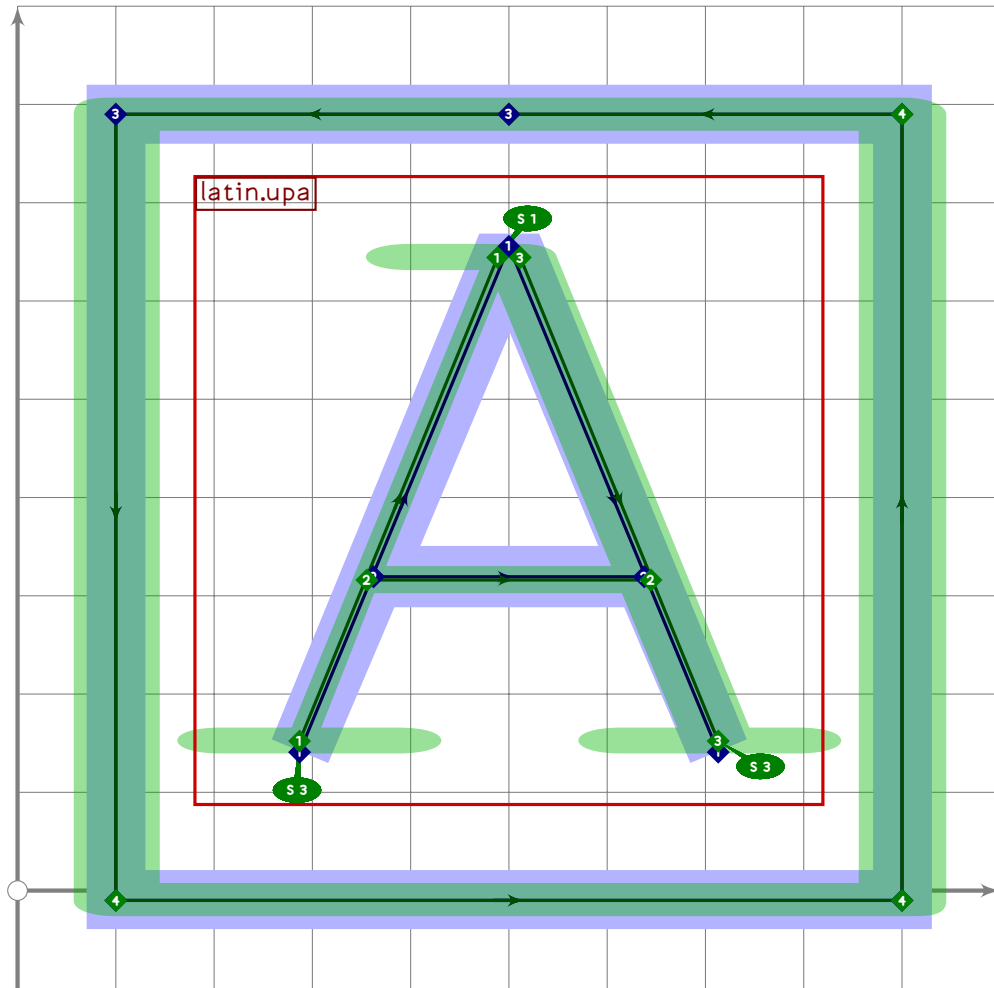

31
32 beginfont
33
34 input latin-intro.mp;
35
36 % AUTODEPS
37 input enclosed.mp;
38 input latin.mp;
39
40 

---


41
```

## Squared Latin

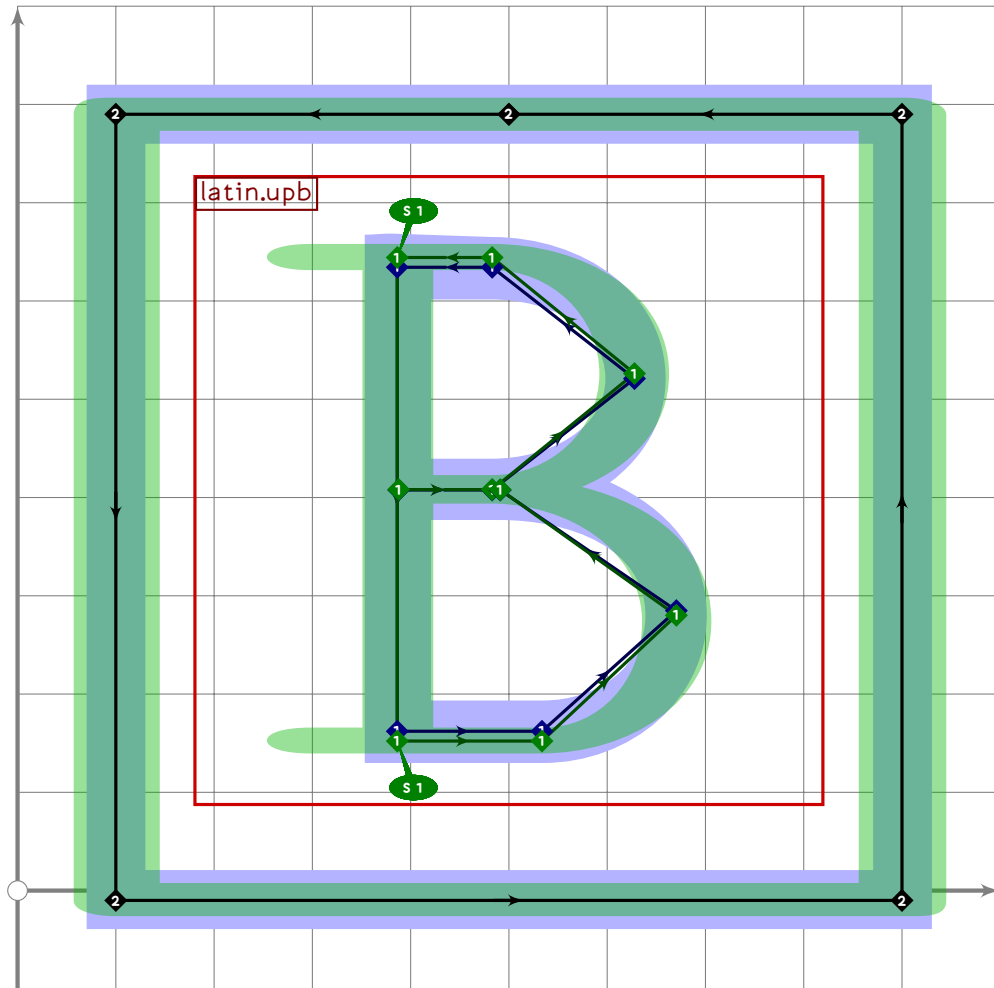
```
42 % SQUARED LATIN
43
```



```

44 % A
45 begint Suglyph("u1F130";48);
46   square.single(latin.upa);
47   tsu_render;
48   endtsuglyph;
49

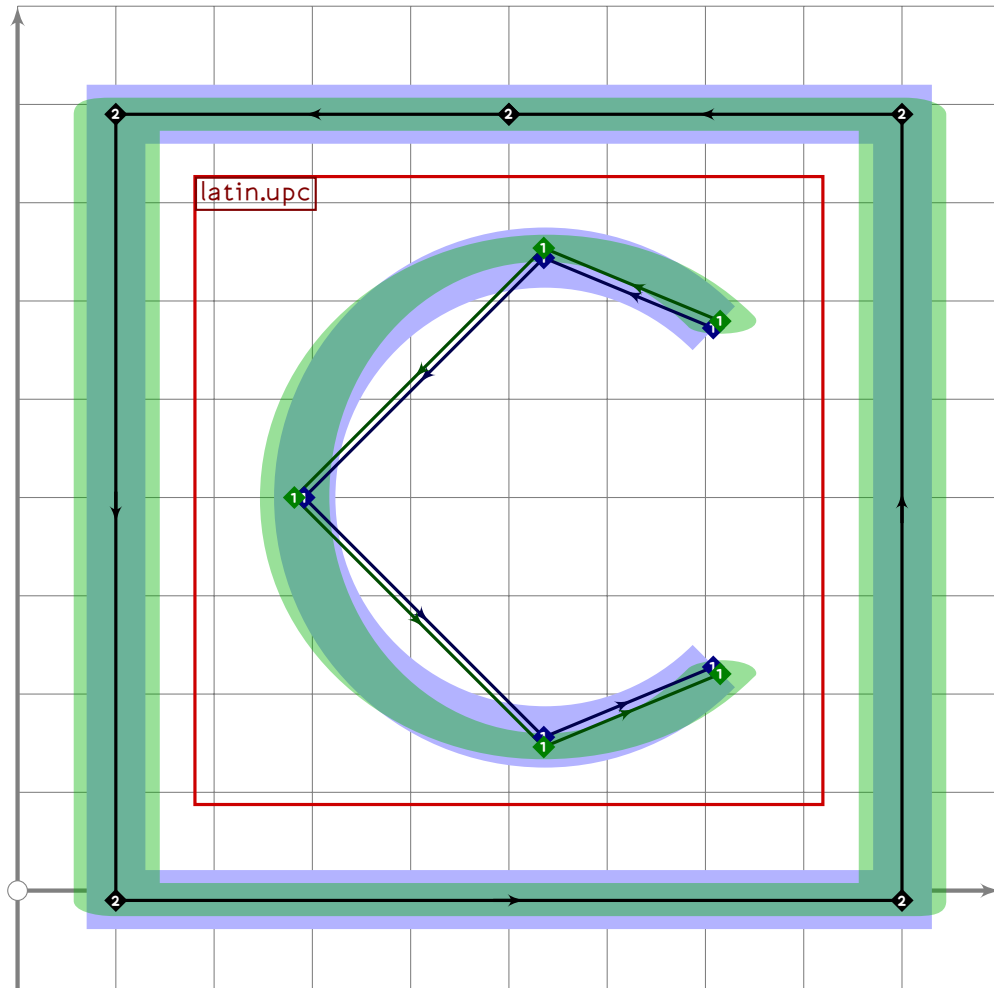
```



```

50 % B
51 begint Suglyph("u1F131";49);
52 square.single(latin.upb);
53 tsu_render;
54 endtsuglyph;
55

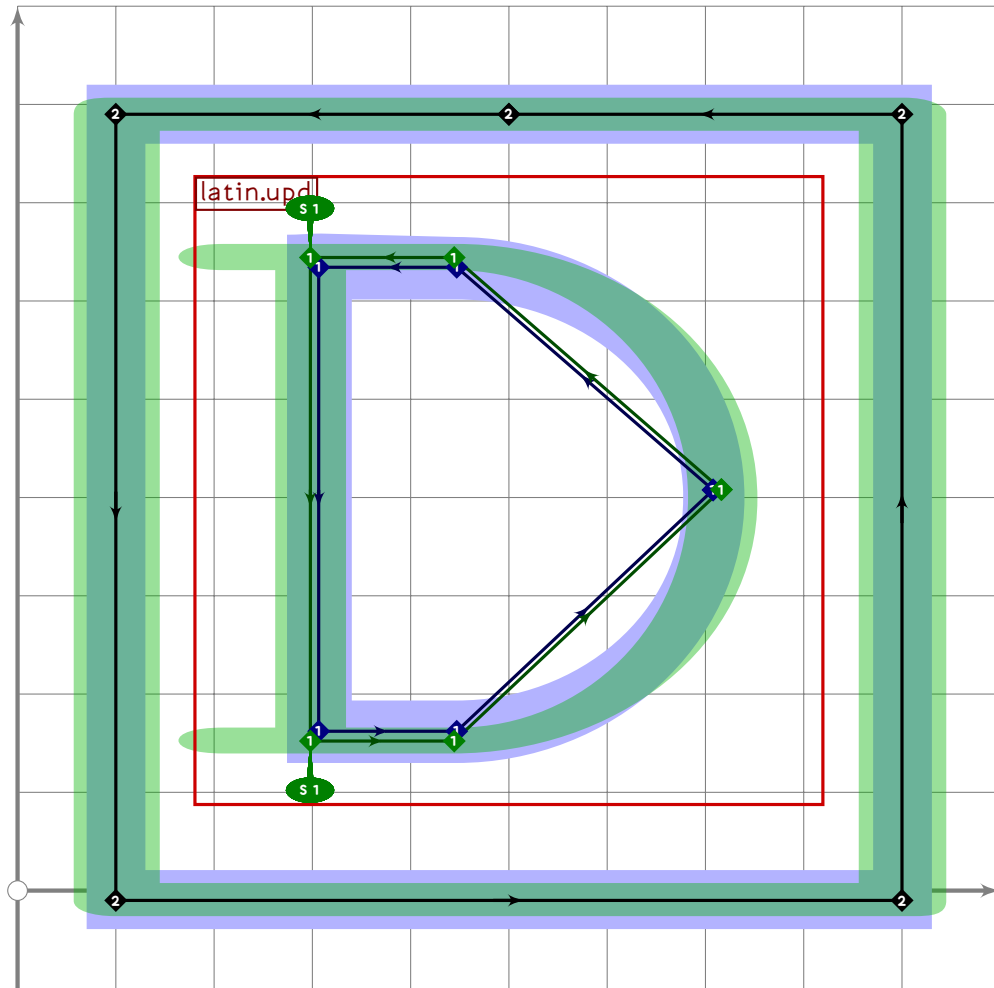
```



```

56 % C
57 beginsuglyph("u1F132",50);
58 square.single(latin.upc);
59 tsu_render;
60 endsuglyph;
61

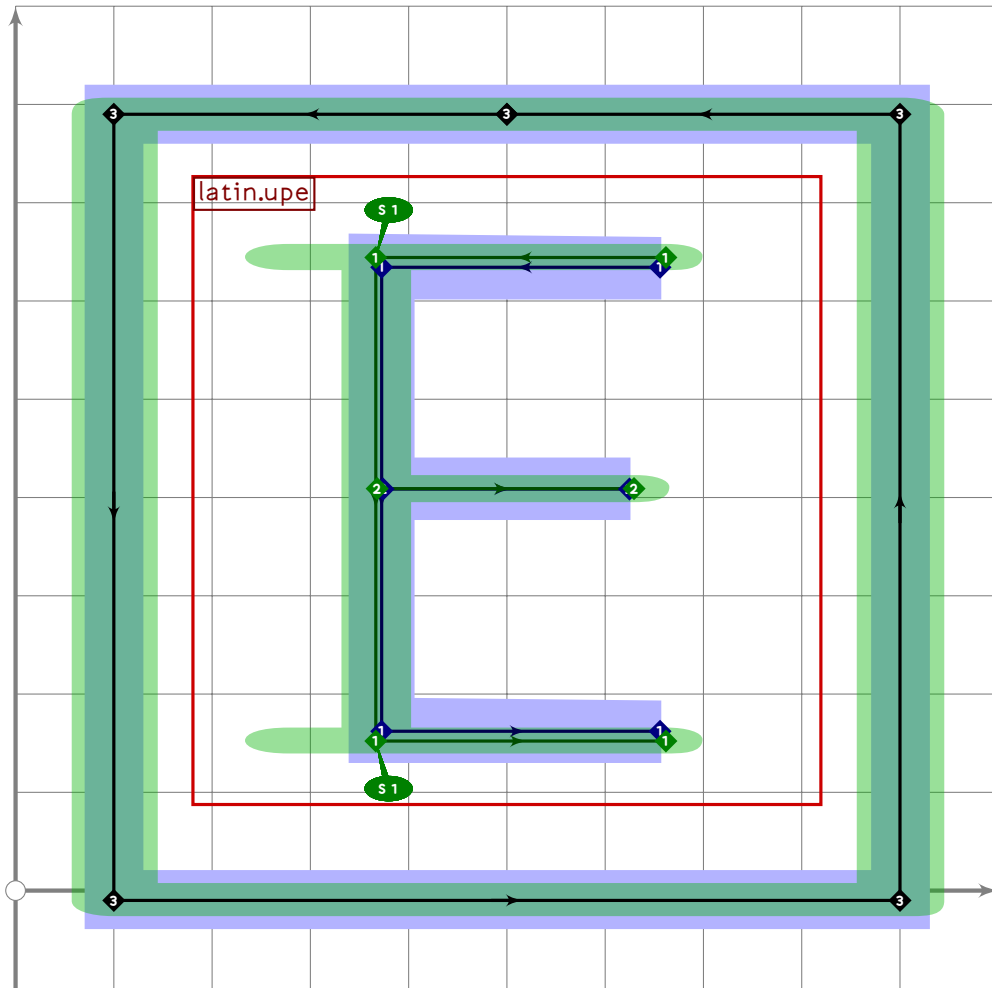
```



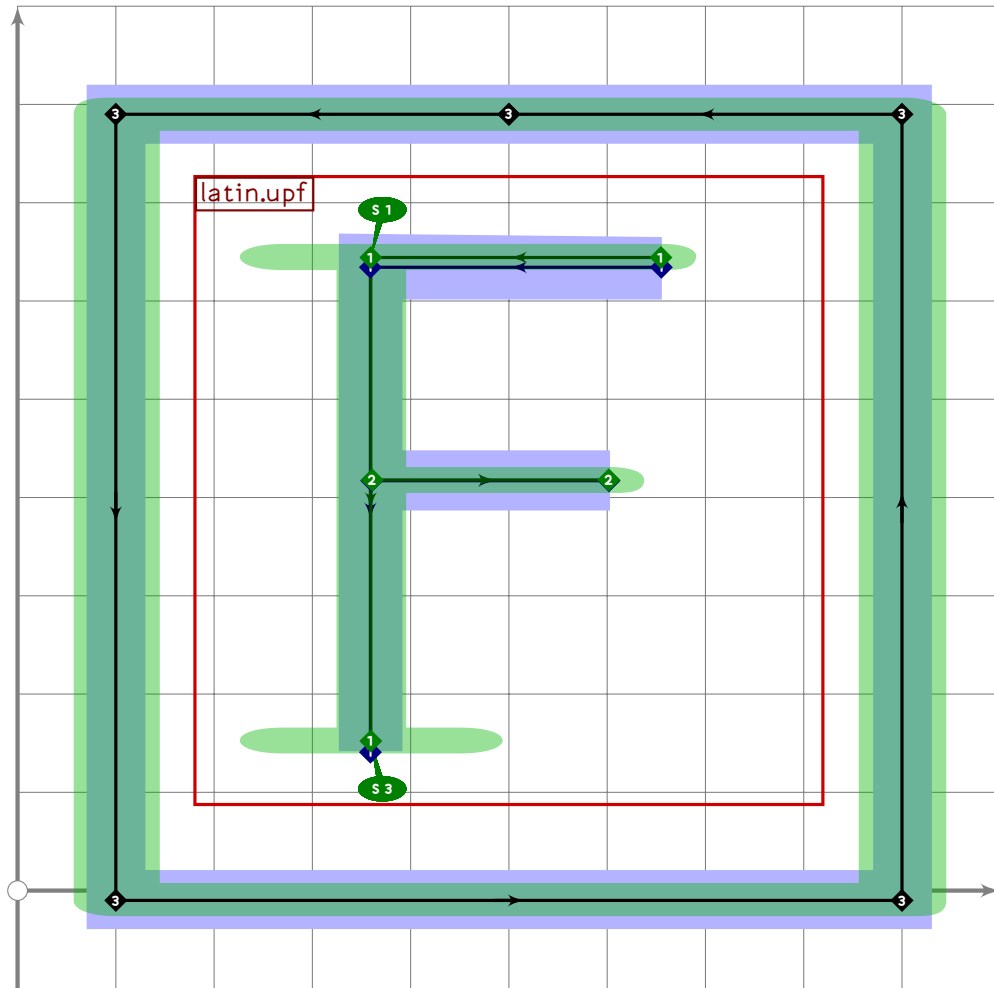
```

62 % D
63 beginsuglyph("u1F133",51);
64 square.single(latin.updl);
65 tsu_render;
66 endsuglyph;
67

```



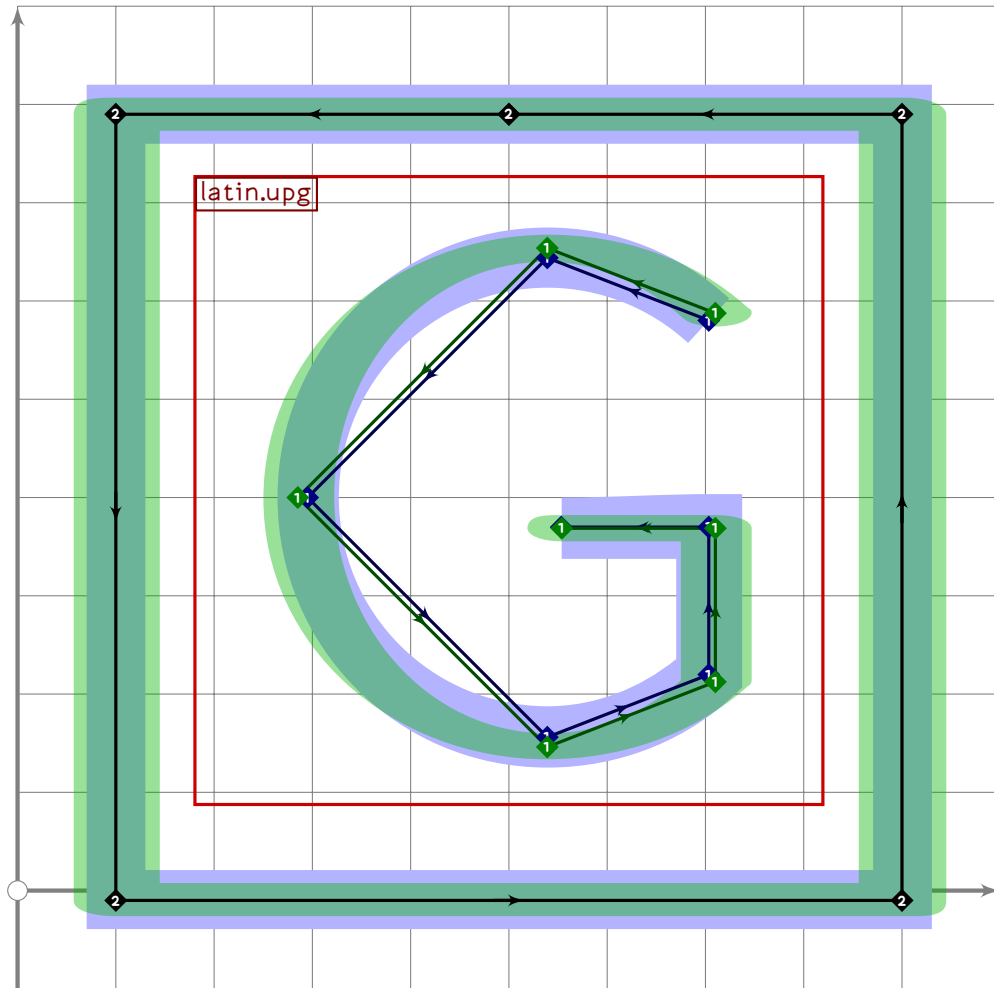
```
68 % E  
69 beginsuglyph("u1F134",52);  
70 square.single(latin.upe);  
71 tsu_render;  
72 endsuglyph;  
73
```



```

74 % F
75 beginsuglyph("u1F135",53);
76 square.single(latin.upf);
77 tsu_render;
78 endsuglyph;
79

```

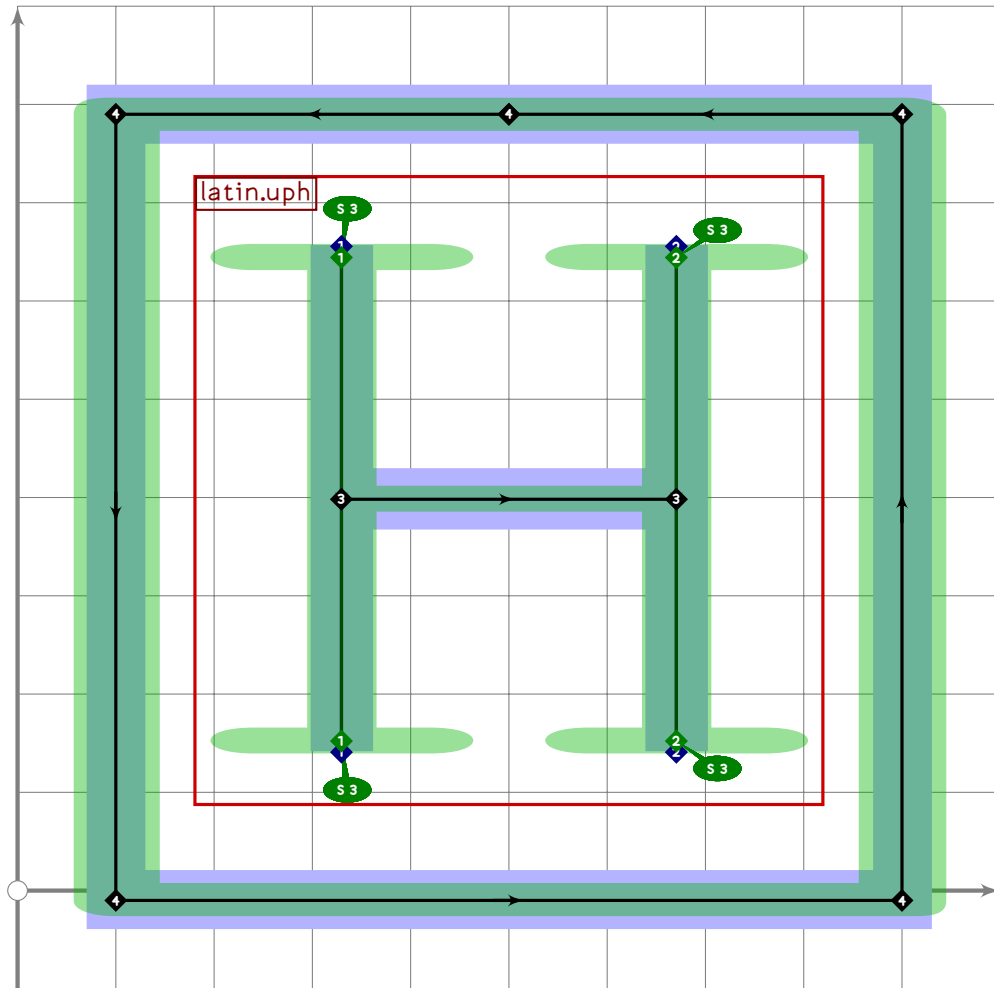


```

80 % G
81 beginsuglyph("u1F136",54);
82 square.single(latin.upg);
83 tsu_render;
84 endsuglyph;
85

```

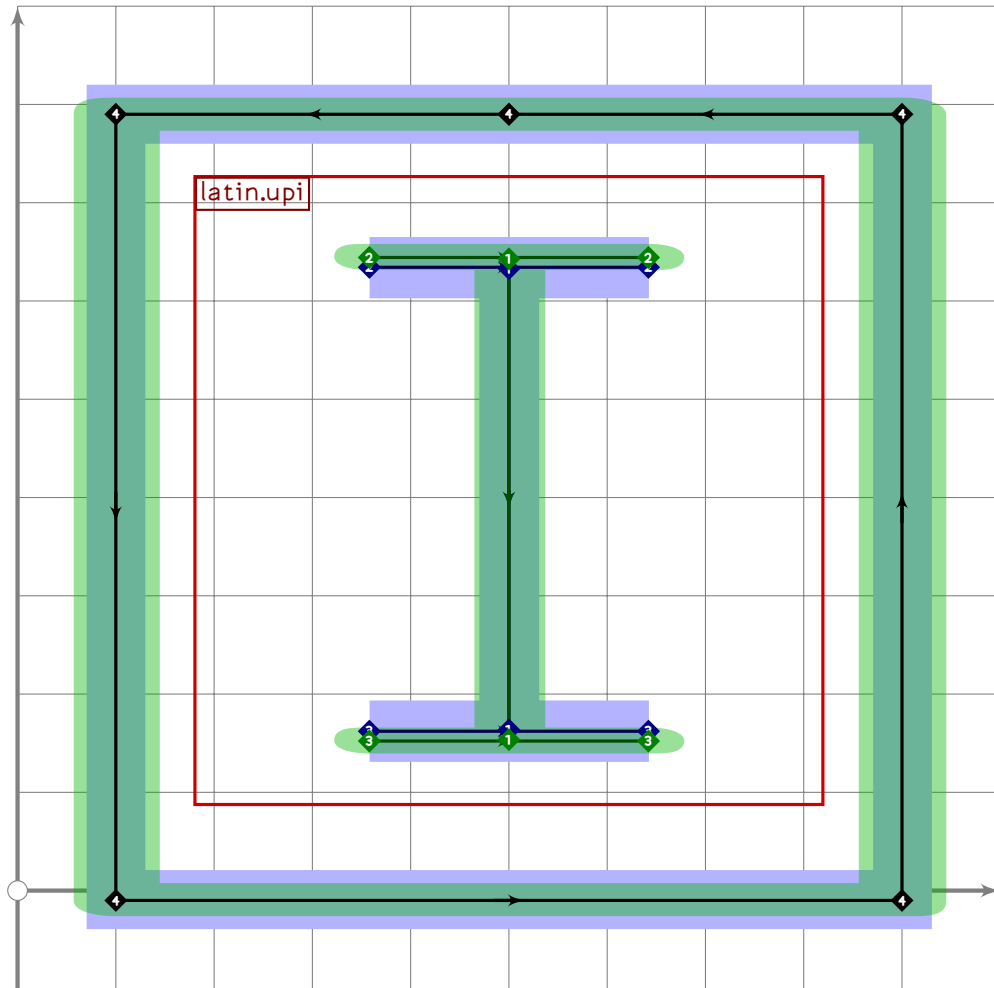




```

86 % H
87 beginsuglyph("u1F137",55);
88 square.single(latin.uph);
89 tsu_render;
90 endsuglyph;
91

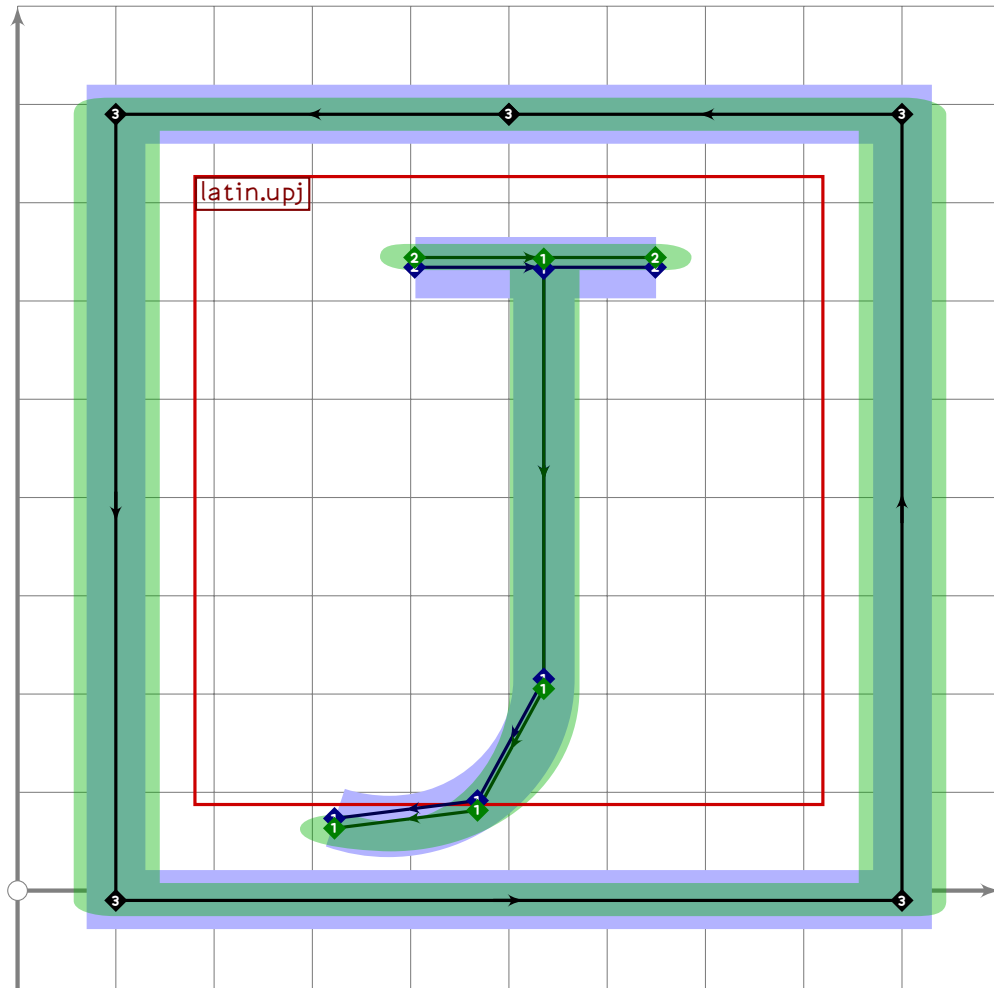
```



```

92 % I
93 beginsuglyph("u1F138",56);
94 square.single(latin.upi);
95 tsu_render;
96 endsuglyph;
97

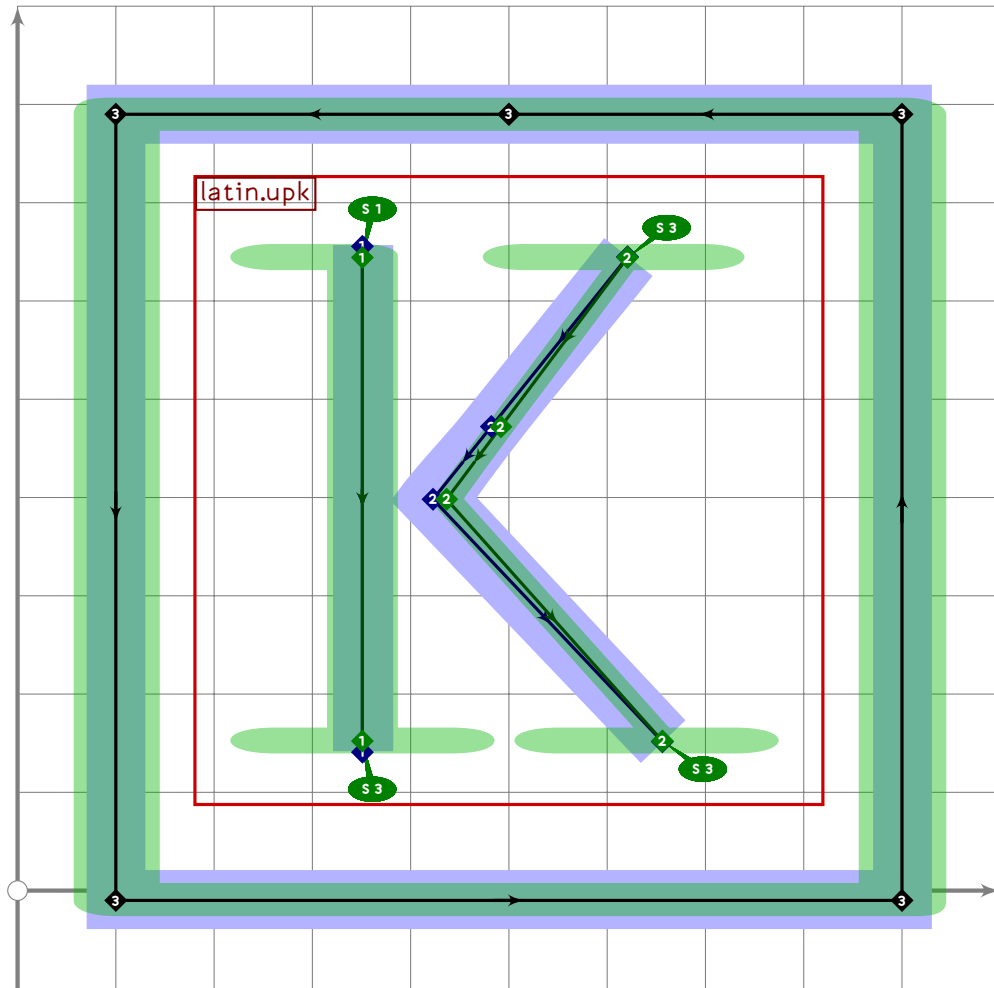
```



```

98 % J
99 beginsuglyph("u1F139",57);
100 square.single(latin.upj);
101 tsu_render;
102 endsuglyph;
103

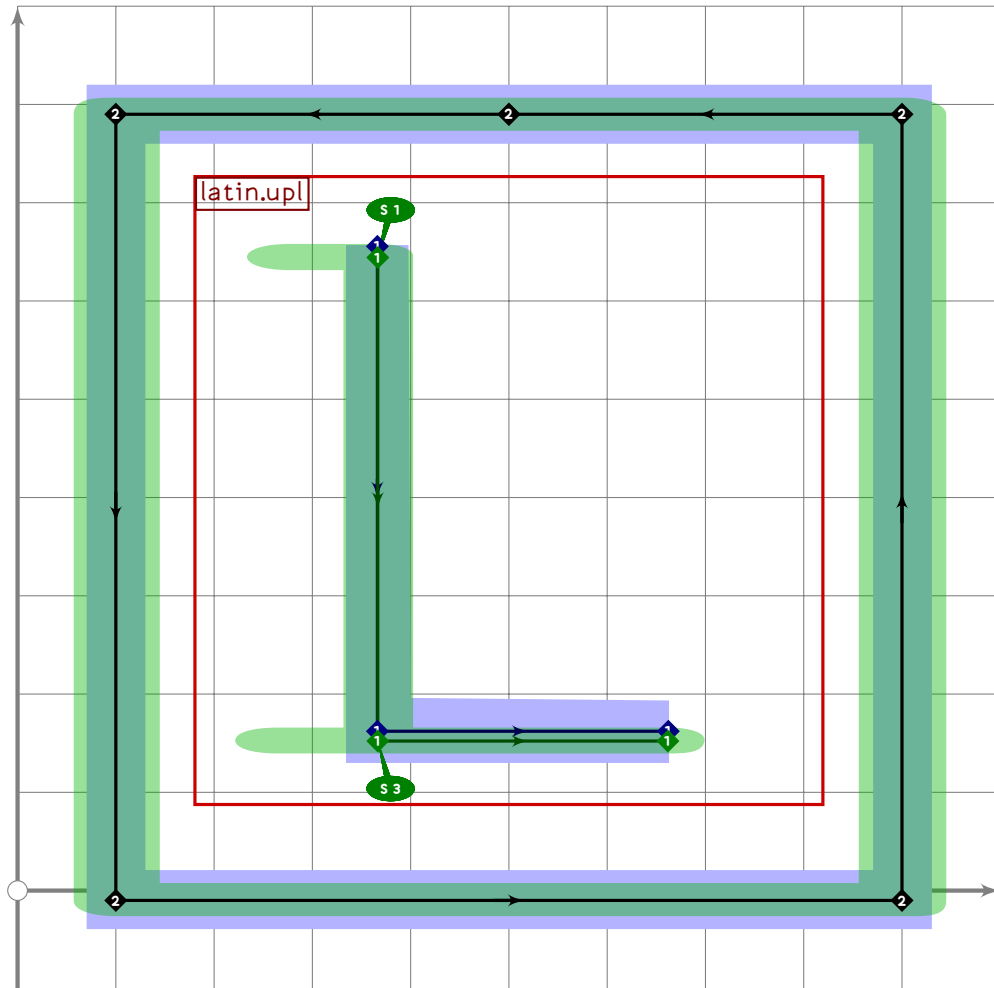
```



```

104 % K
105 begint Suglyph("u1F13A",58);
106 square.single(latin.upk);
107 tsu_render;
108 endtsuglyph;
109

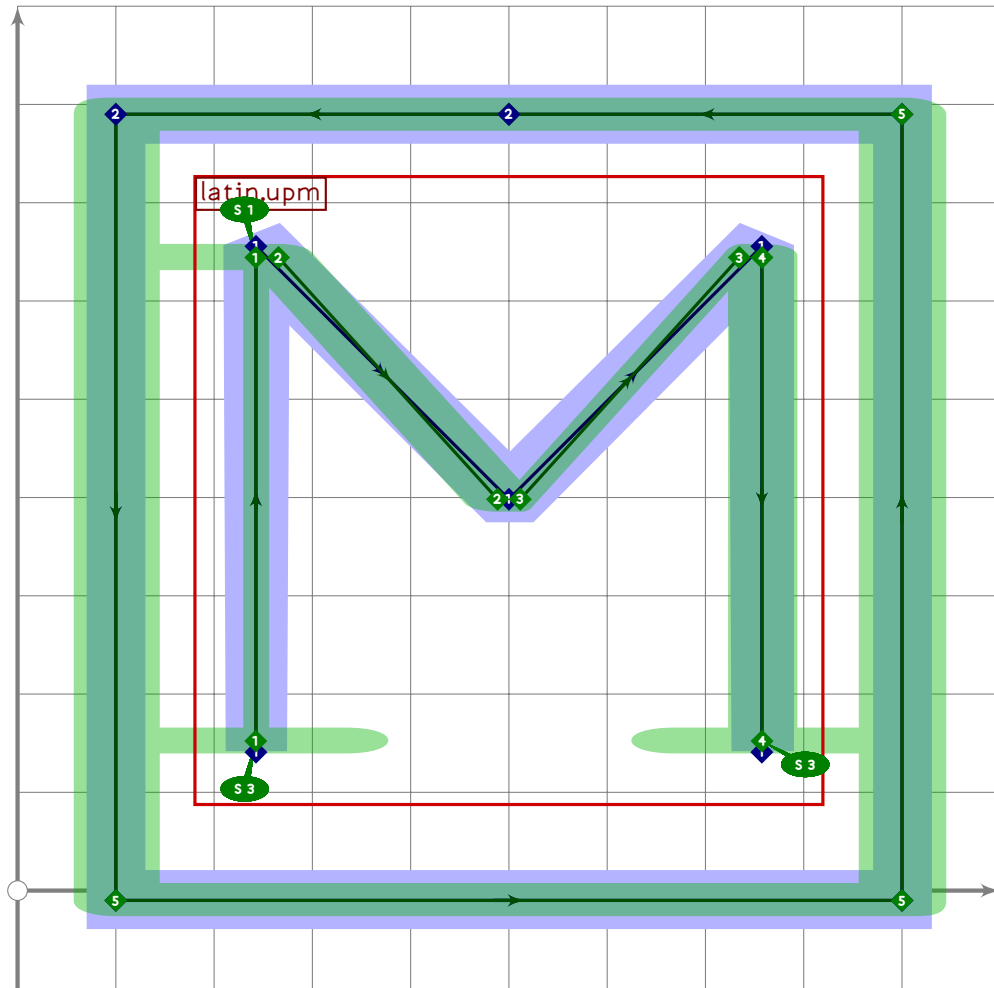
```



```

110 % L
111 beginsuglyph("u1F13B",59);
112 square.single(latin.upl);
113 tsu_render;
114 endsuglyph;
115

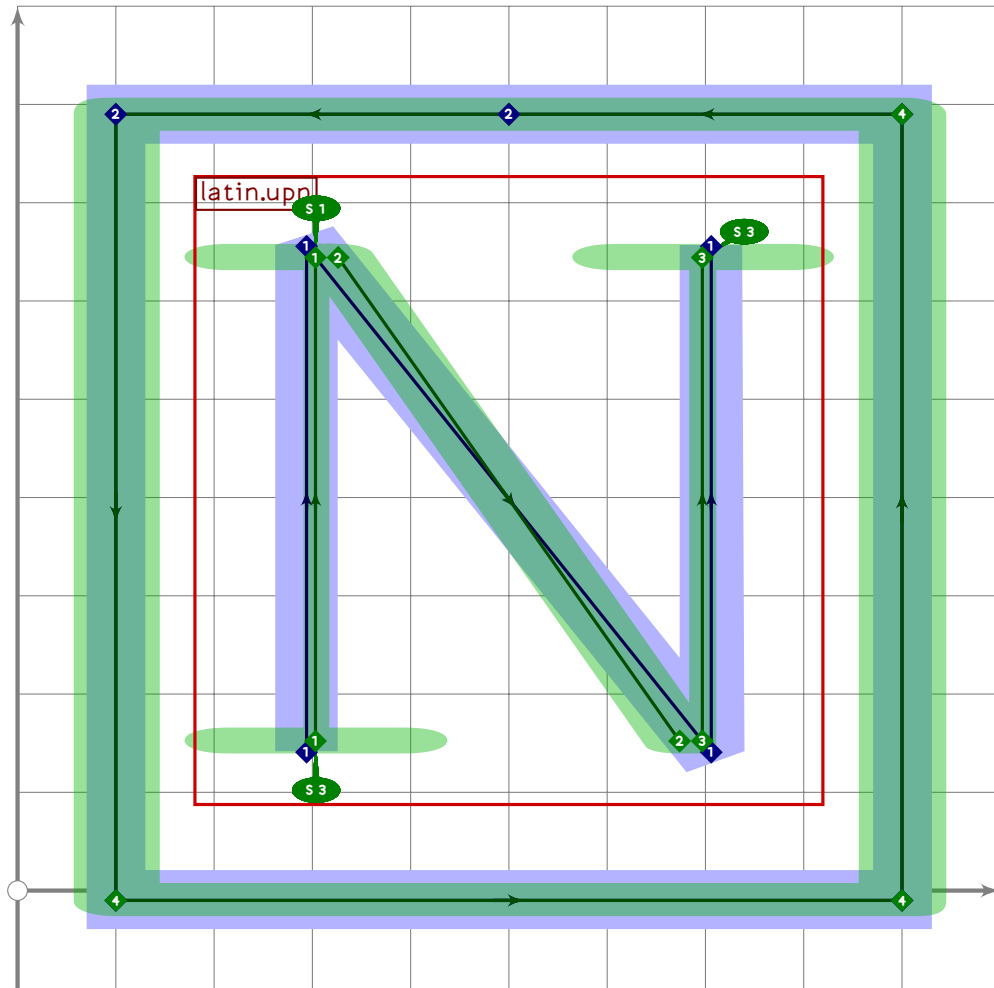
```



```

116 % M
117 beginsuglyph("u1F13C";60);
118 square.single(latin.upm);
119 tsu_render;
120 endsuglyph;
121

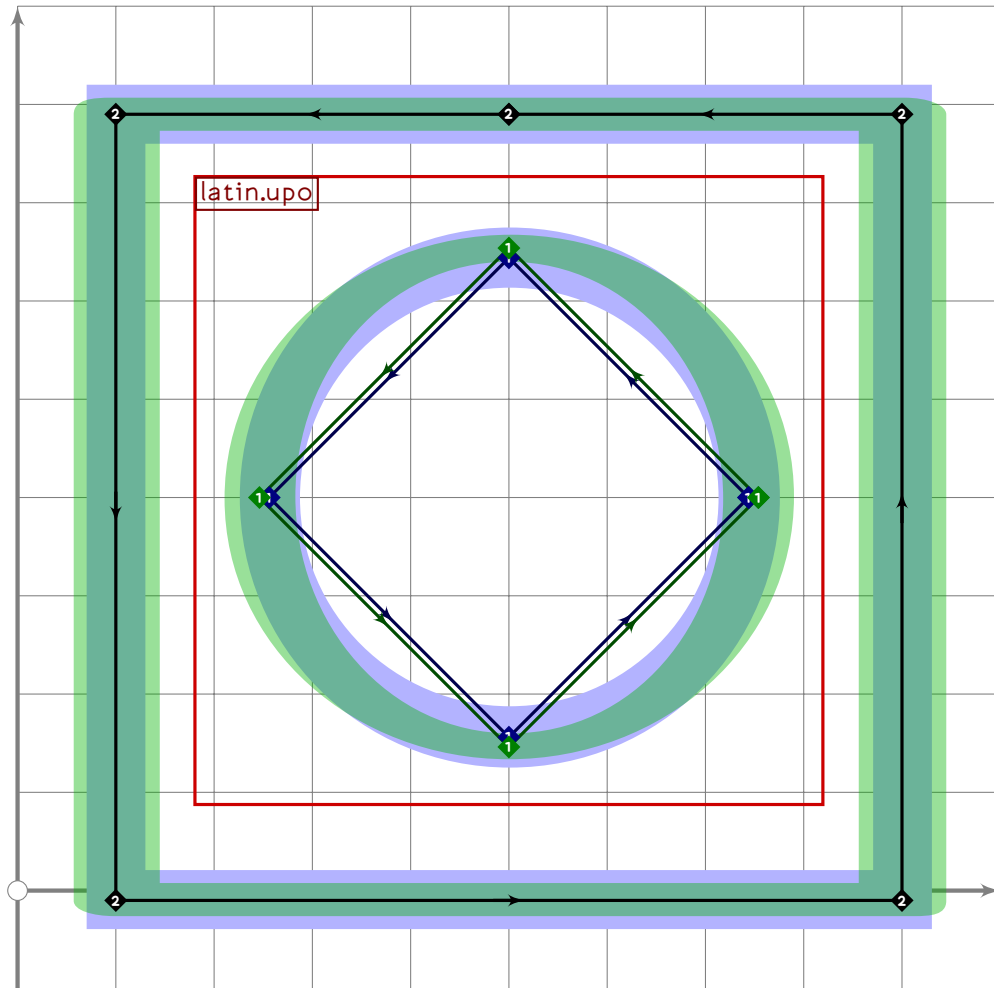
```



```

122 % N
123 beginsuglyph("u1F13D",61);
124 square.single(latin.upn);
125 tsu_render;
126 endsuglyph;
127

```

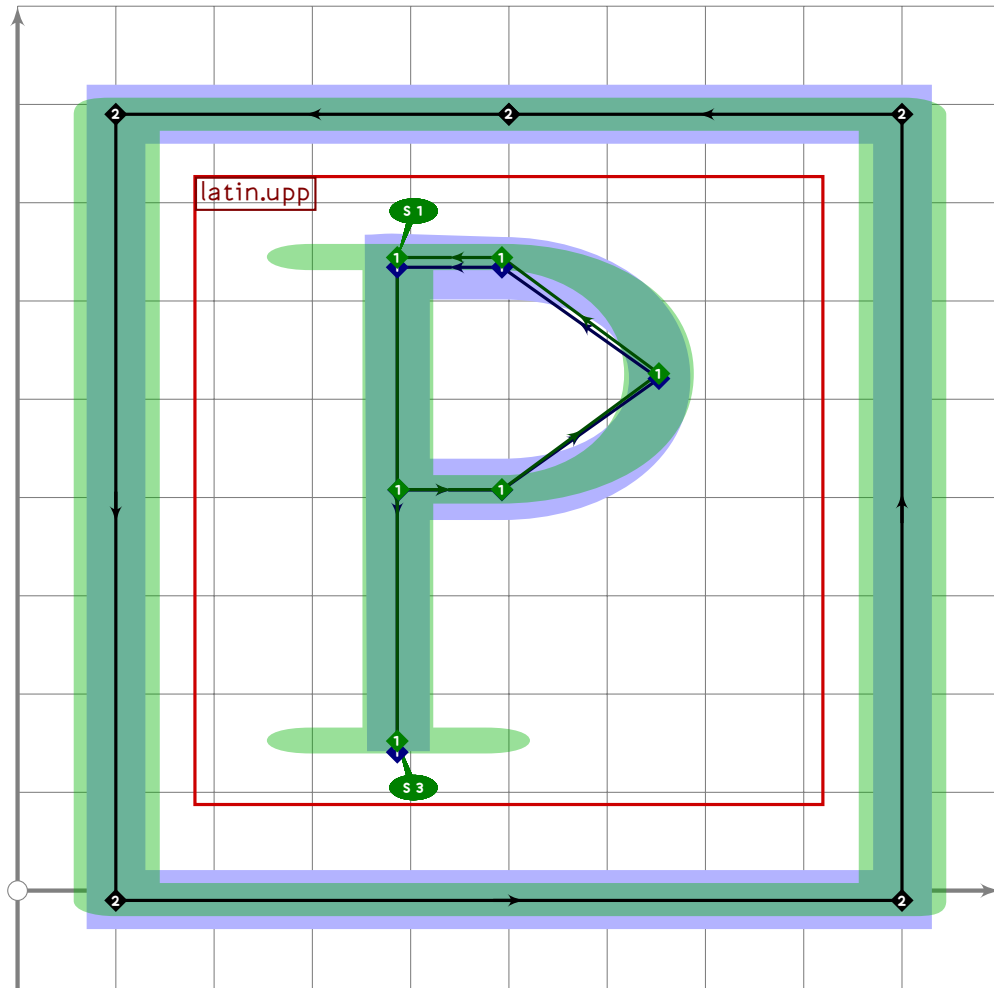


```

128 % O
129 beginsuglyph("u1F13E",62);
130 square.single(latin.upo);
131 tsu_render;
132 endsuglyph;
133

```

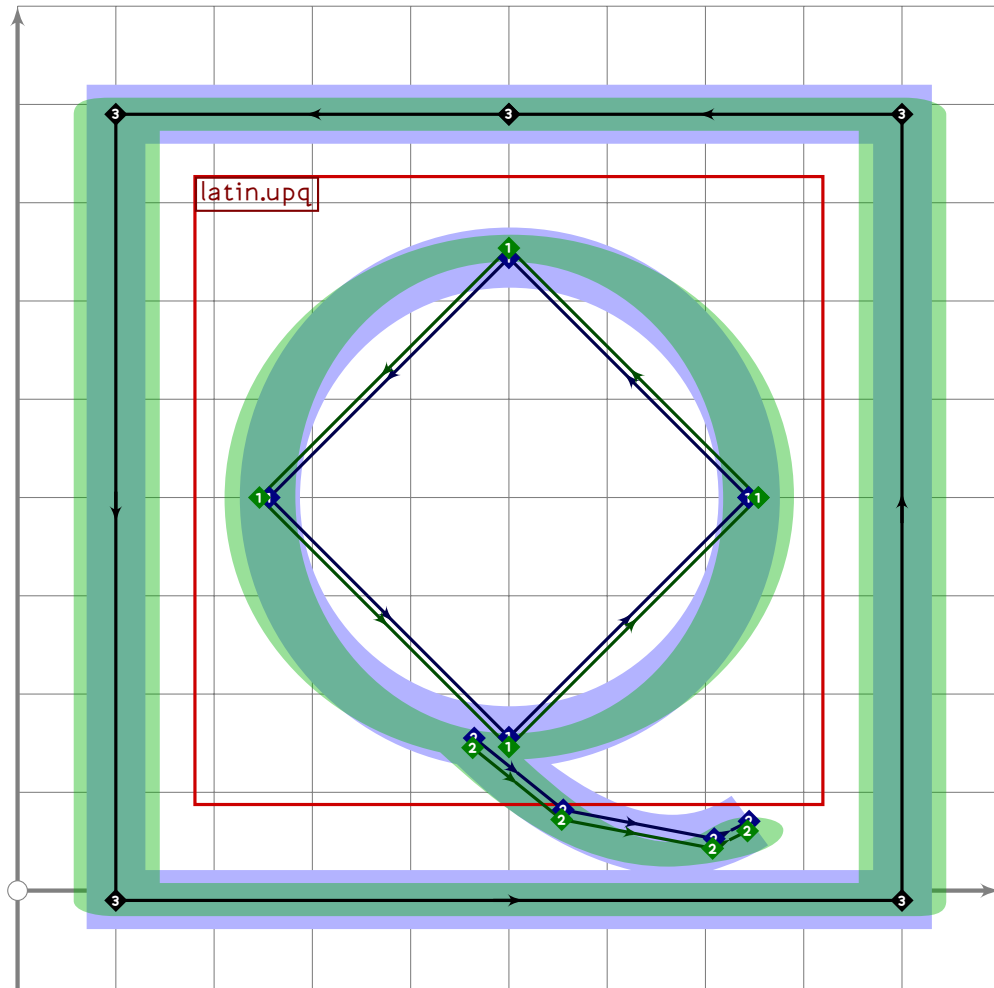




```

134 % P
135 begint Suglyph("u1F13F",63);
136 square.single(latin.upp);
137 tsu_render;
138 endtsuglyph;
139

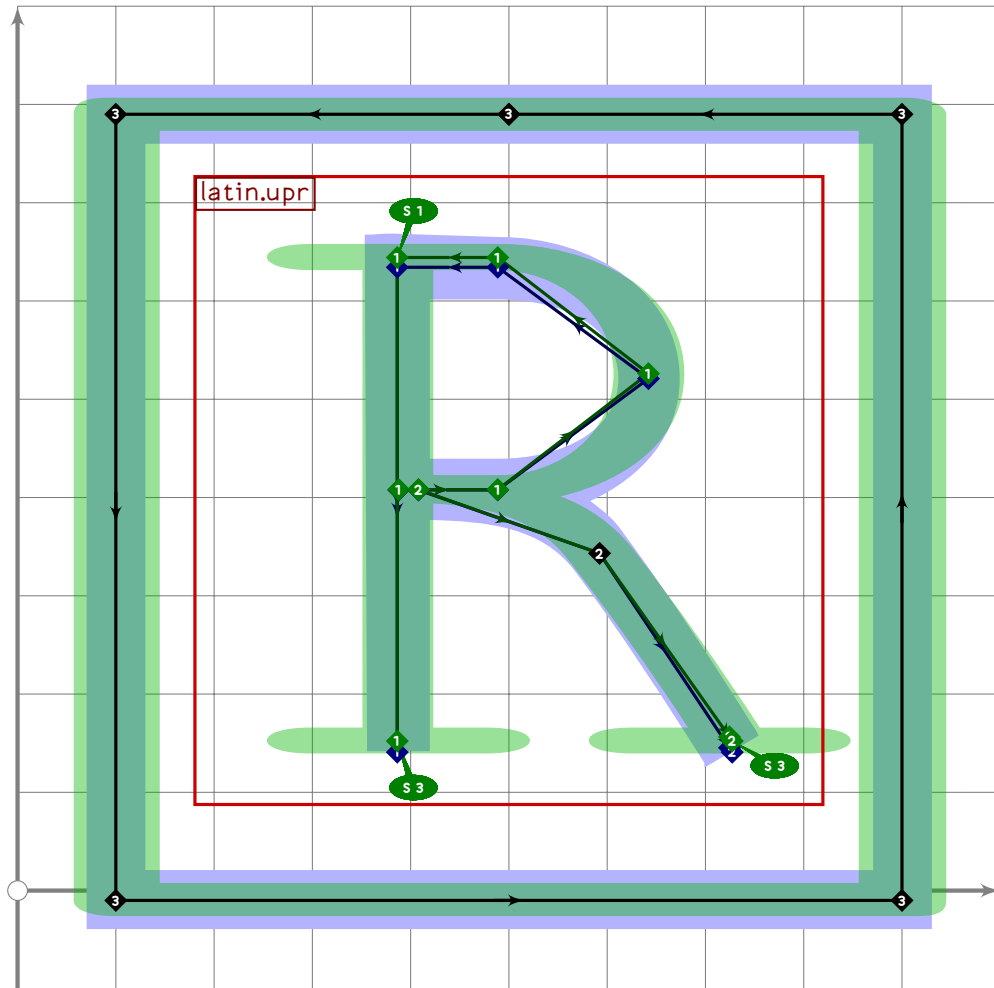
```



```

140 % Q
141 begint Suglyph("u1F140",64);
142 square.single(latin.upq);
143 tsu_render;
144 endtsuglyph;
145

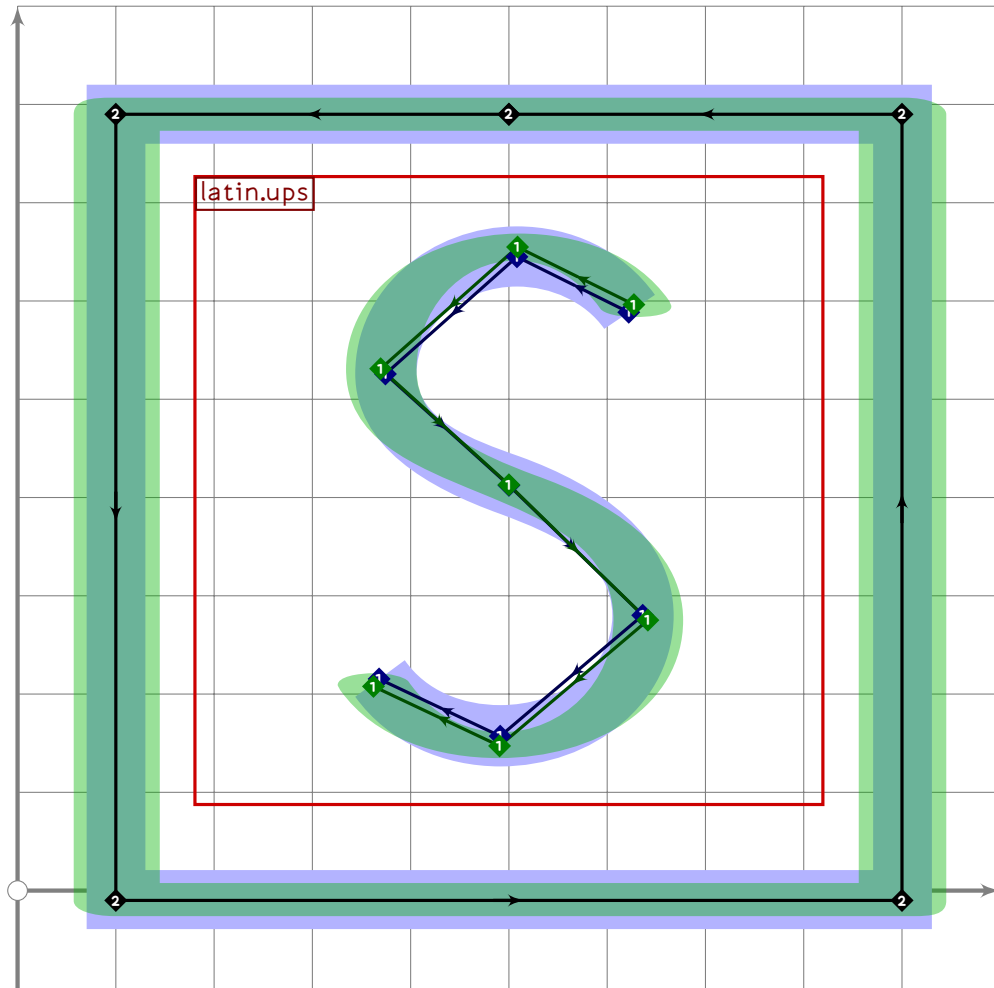
```



```

146 % R
147 begint Suglyph("u1F141";65);
148 square.single(latin.upr);
149 tsu_render;
150 endtsuglyph;
151

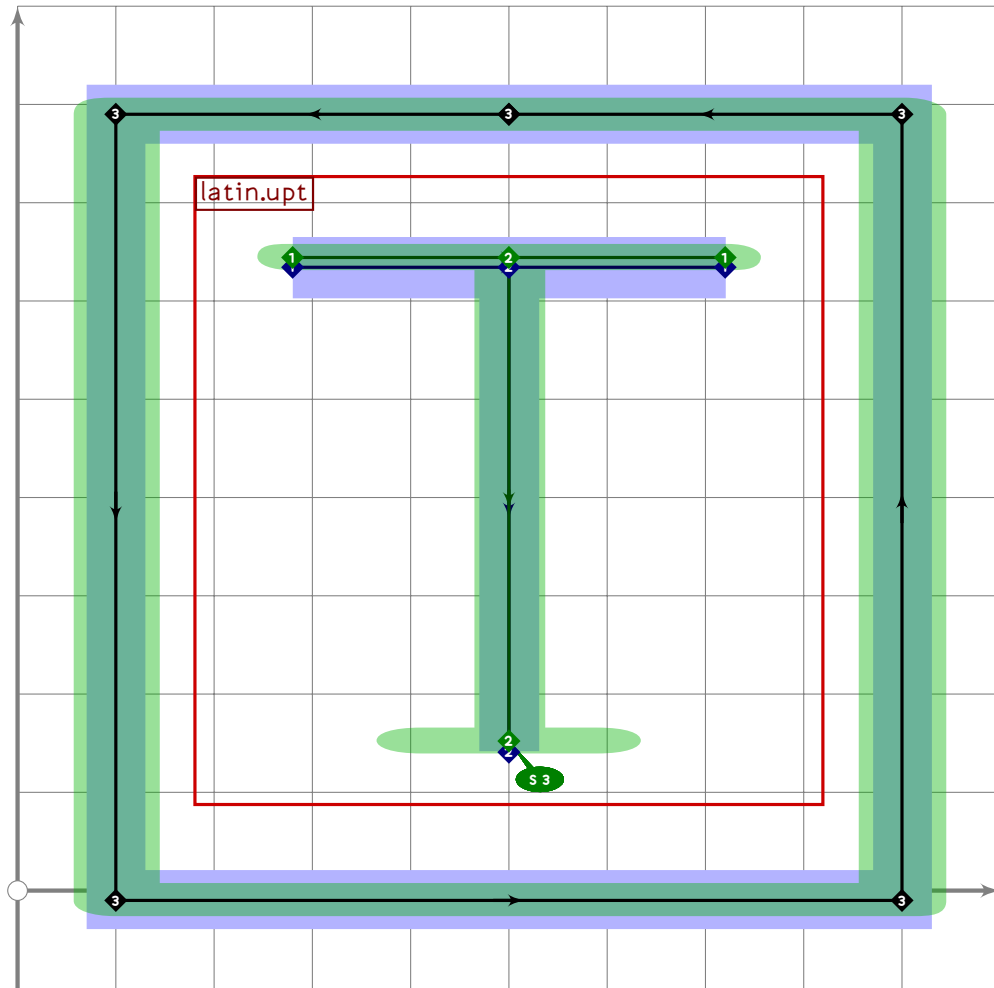
```



```

152 % S
153 begint Suglyph("u1F142",66);
154 square.single(latin.ups);
155 tsu_render;
156 endtsuglyph;
157

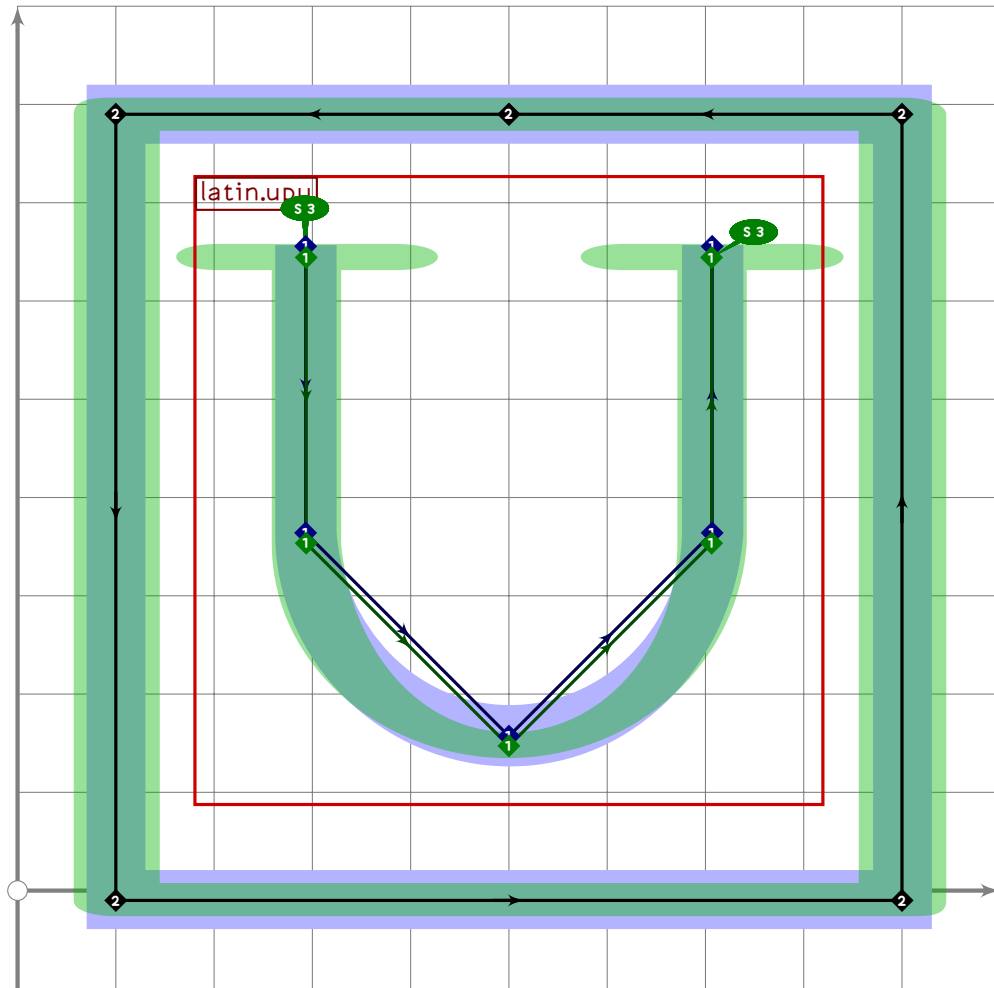
```



```

158 % T
159 beginsuglyph("u1F143",67);
160 square.single(latin.upt);
161 tsu_render;
162 endsuglyph;
163

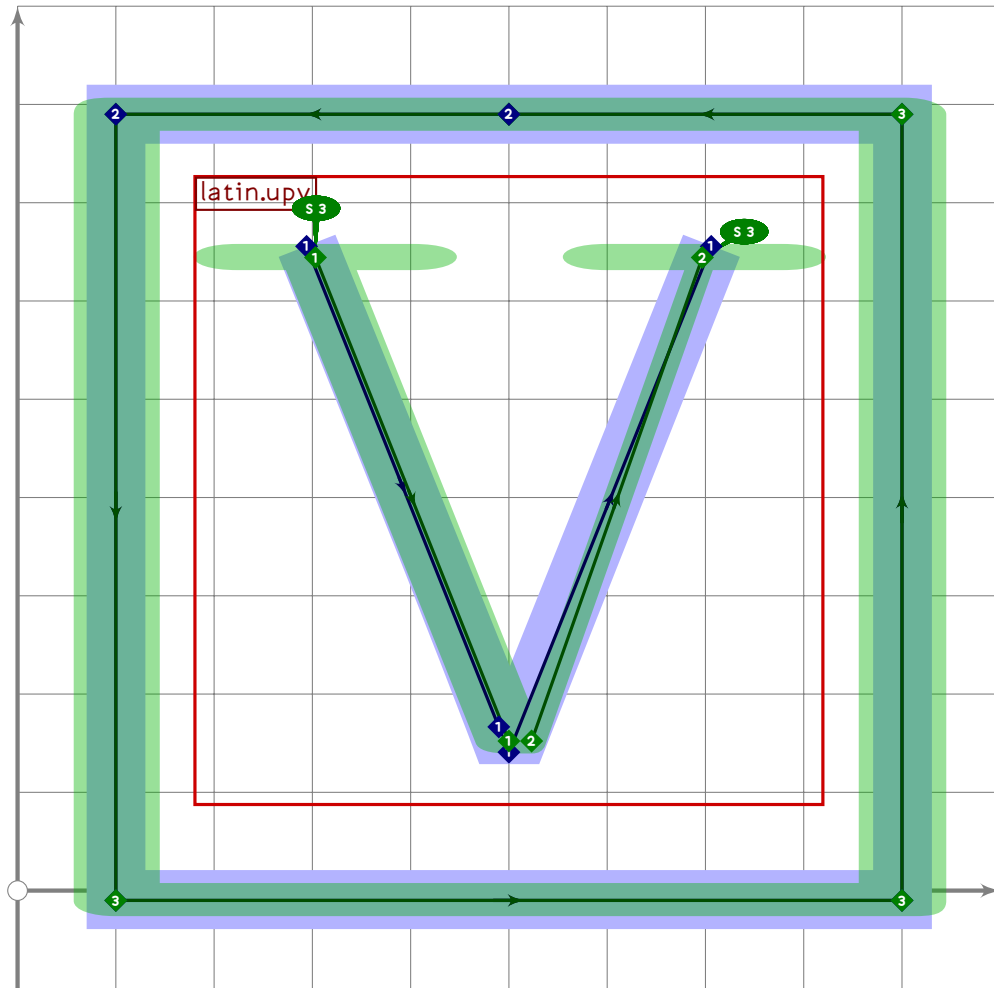
```



```

164 % U
165 begint Suglyph("u1F144",68);
166 square.single(latin.upu);
167 tsu_render;
168 endtsuglyph;
169

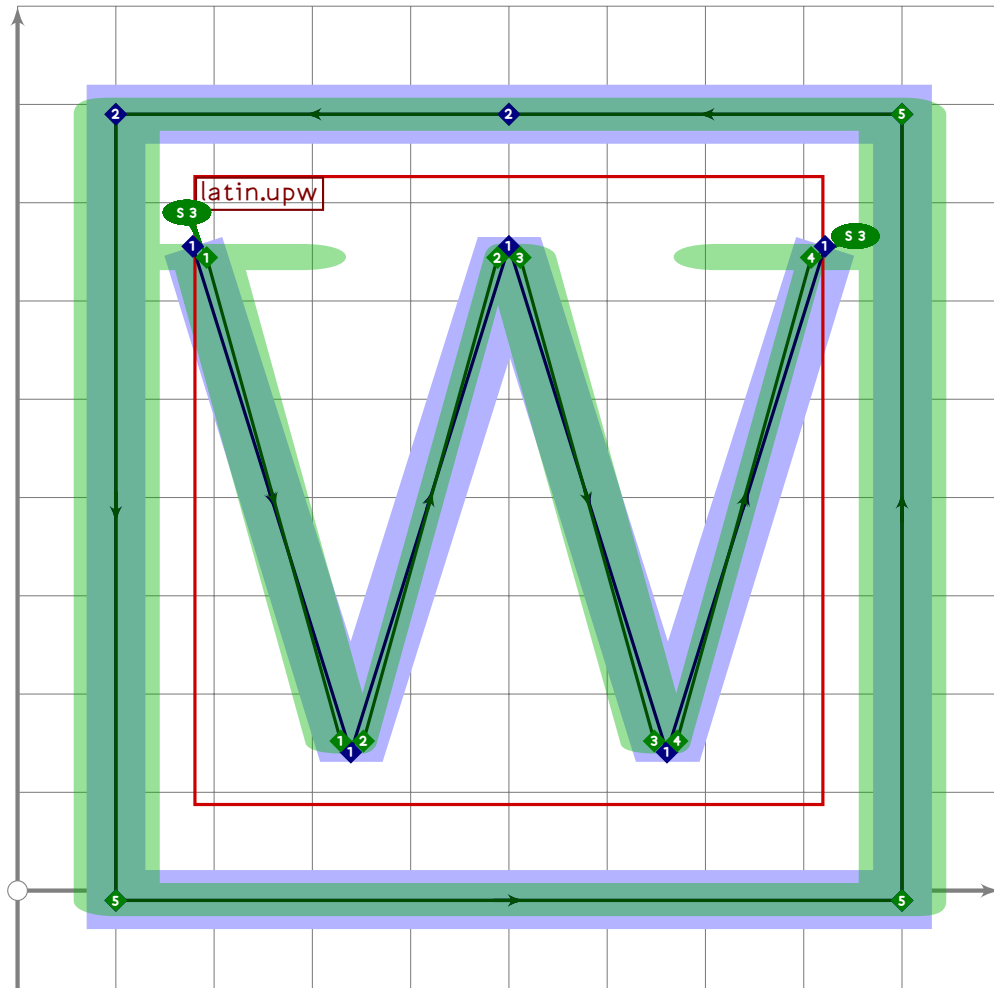
```



```

170 % V
171 begintuglyph("u1F145",69);
172 square.single(latin.upv);
173 tsu_render;
174 endtuglyph;
175

```

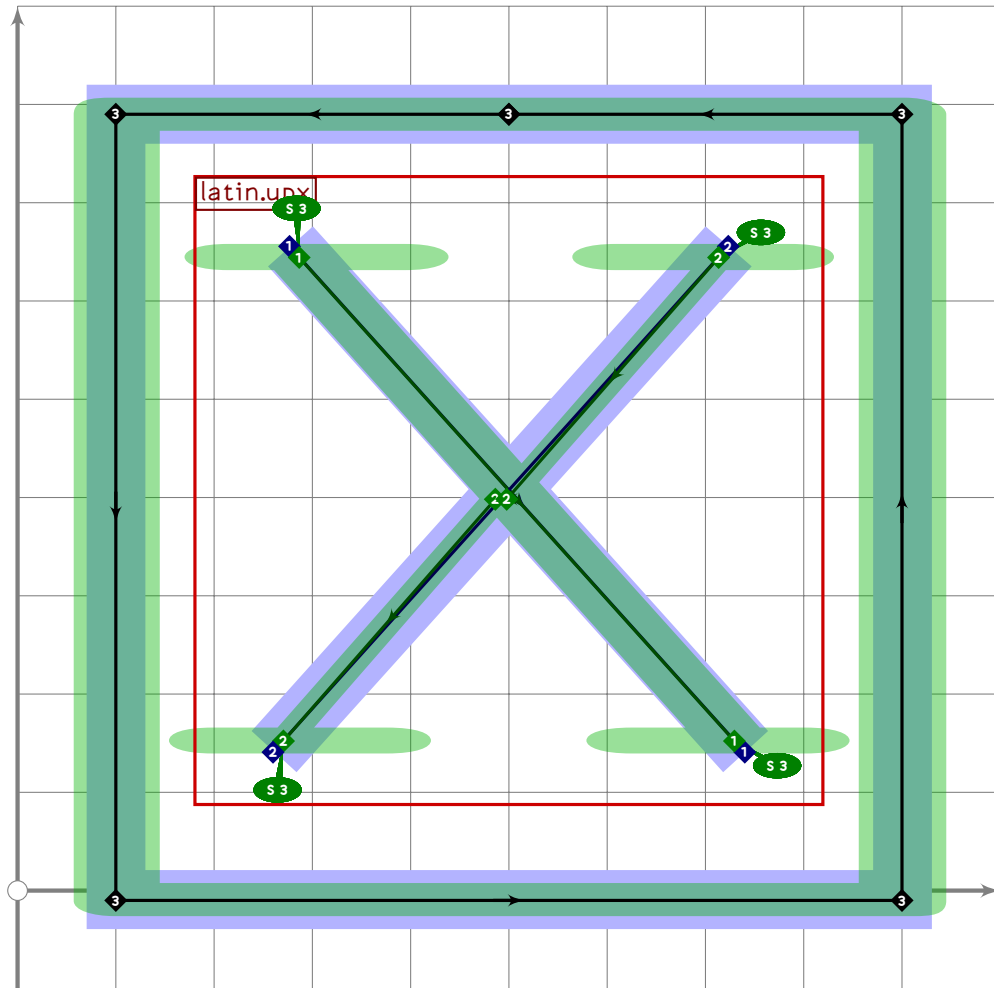


```

176 % W
177 beginsuglyph("u1F146",70);
178 square.single(latin.upw);
179 tsu_render;
180 endsuglyph;
181

```

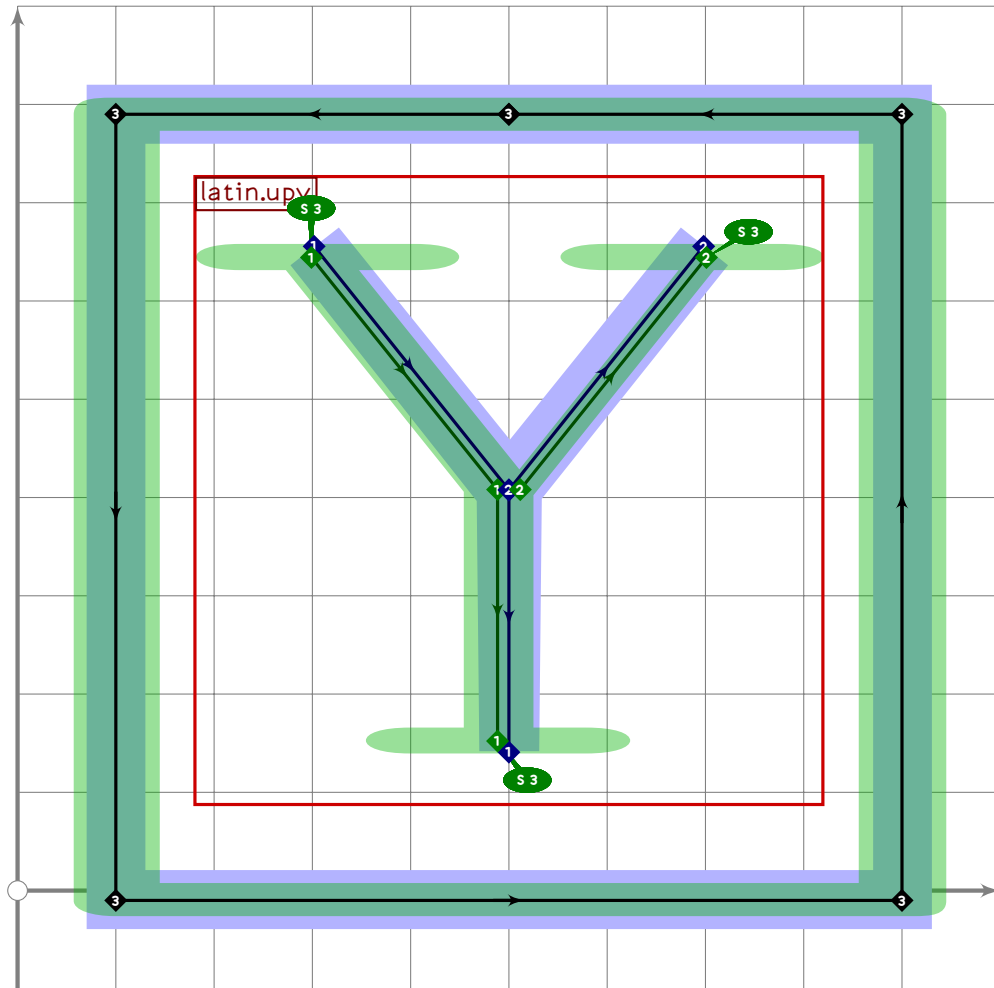




```

182 % X
183 begintsuglyph("u1F147",71);
184 square.single(latin.upx);
185 tsu_render;
186 endtsuglyph;
187

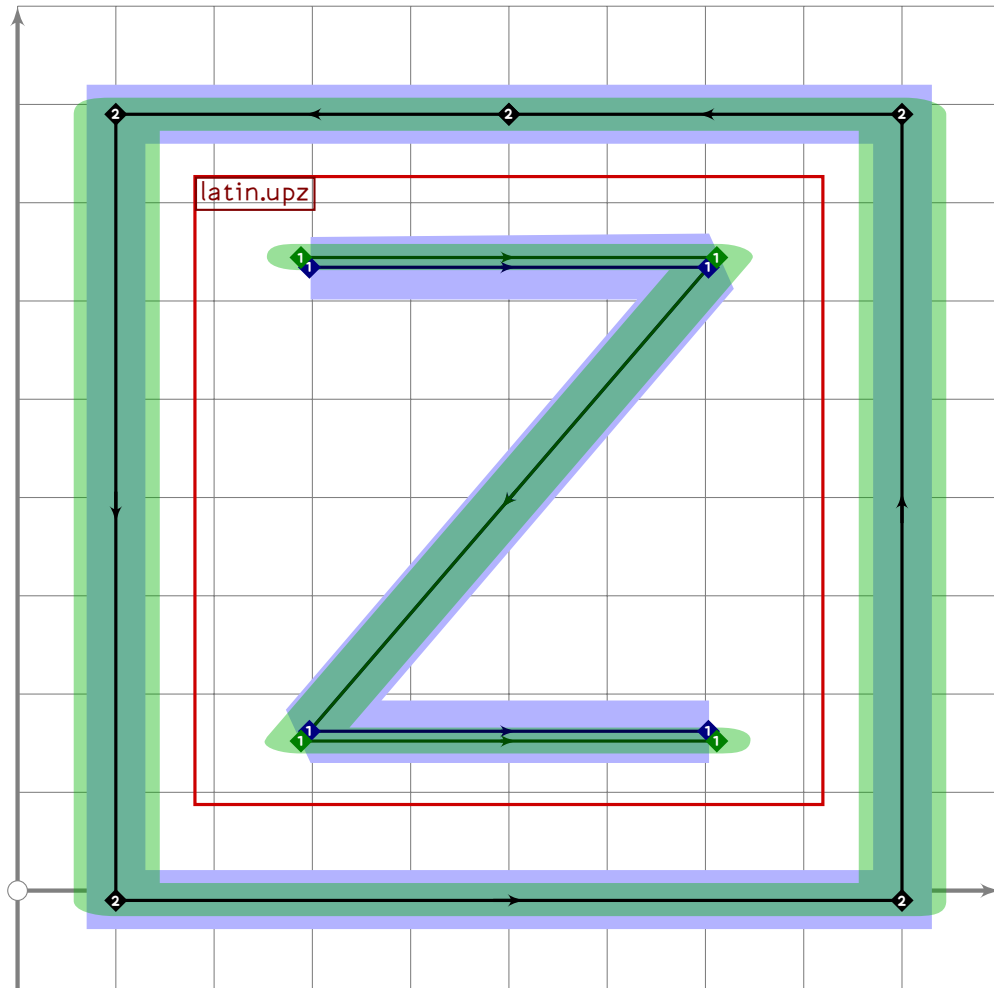
```



```

188 % Y
189 beginsuglyph("u1F148",72);
190 square.single(latin.upyl);
191 tsu_render;
192 endsuglyph;
193

```



```

194 % Z
195 beginsuglyph("u1F149",73);
196 square.single(latin.upz);
197 tsu_render;
198 endsuglyph;
199
200
201

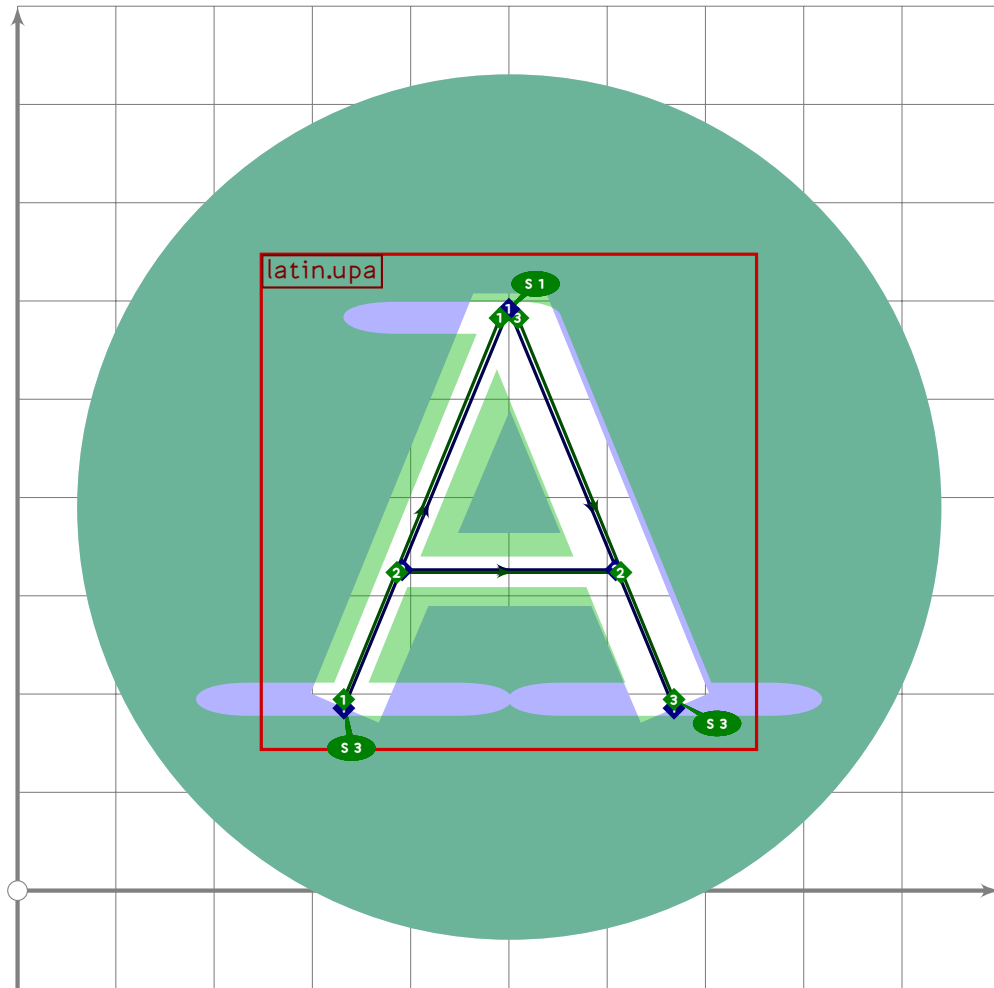
```

## Inverse Circled Latin

```

202 % INVERSE CIRCLED LATIN
203

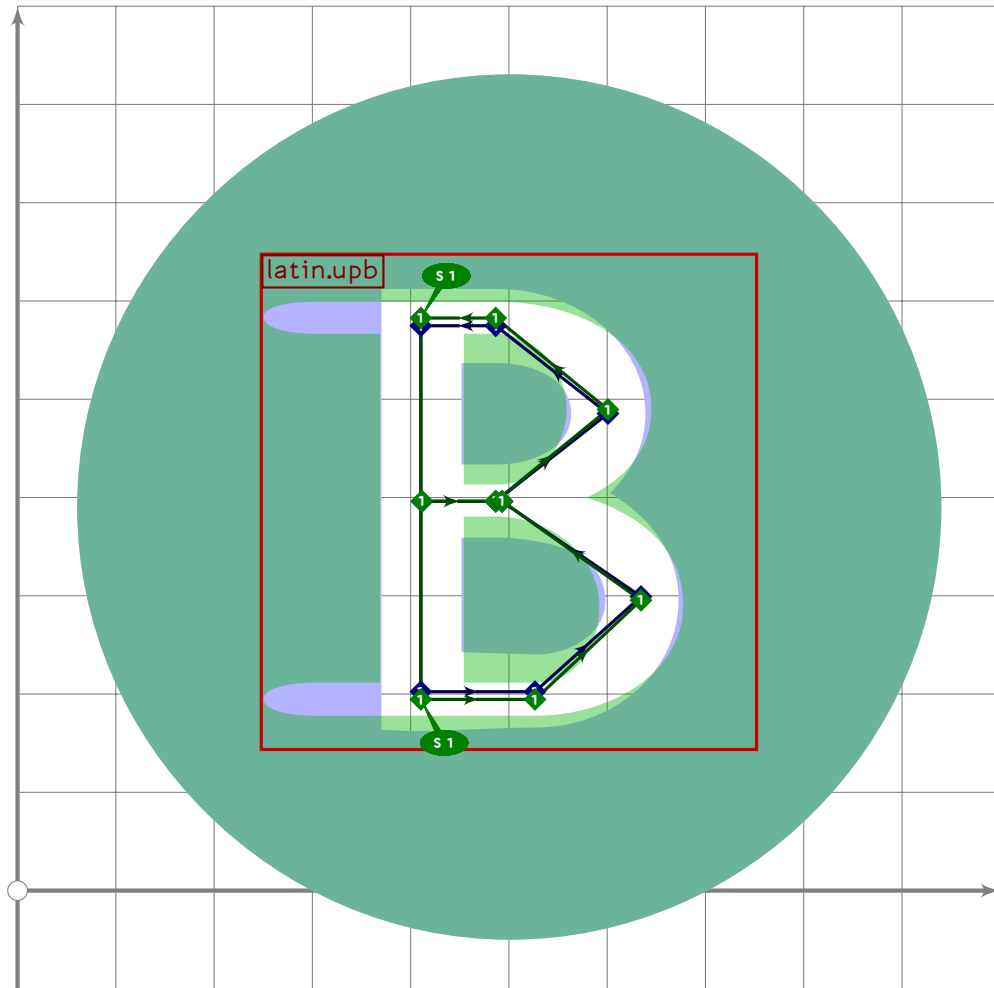
```



```

204 % A
205 % BACKGROUND 25CF
206 beginsuglyph("u1F150";80);
207 tsu_xform(tsu_xf.cletter)(latin.upa);
208 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
209 tsu_render;
210 endsuglyph;
211

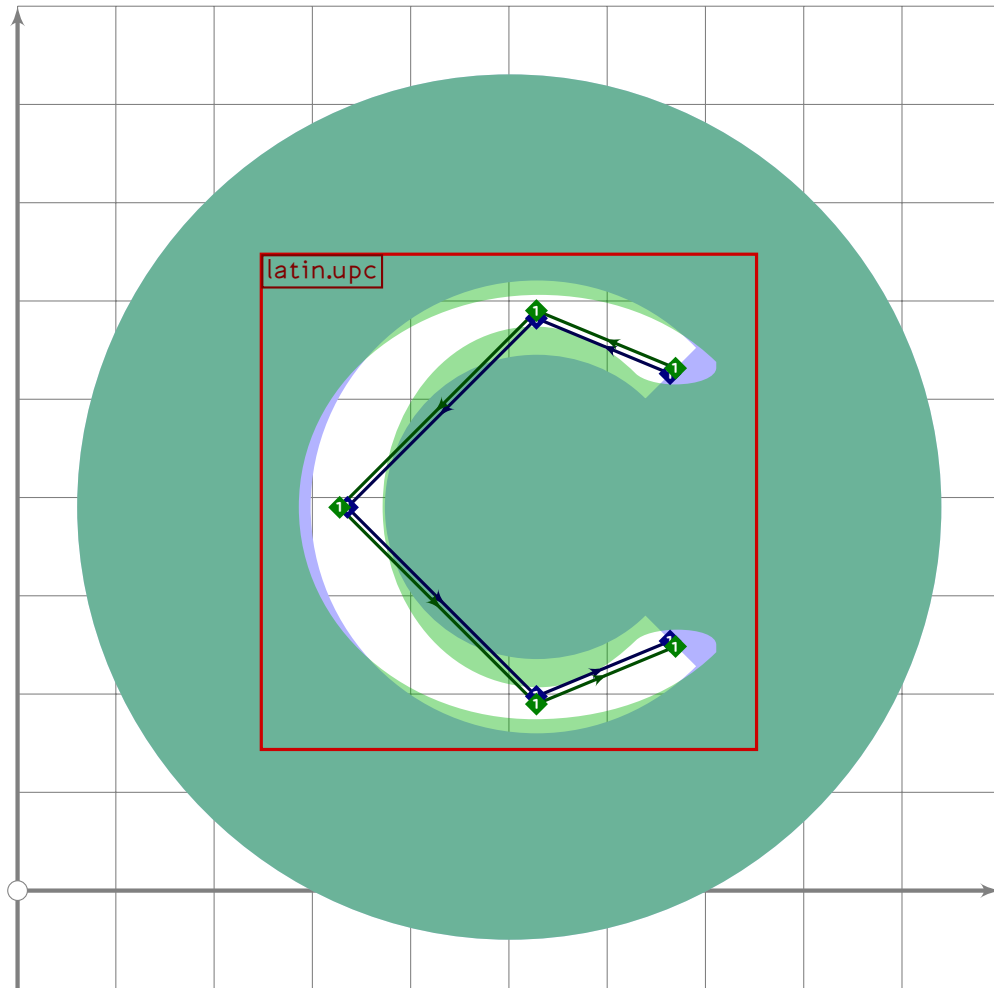
```



```

212 % B
213 % BACKGROUND 25CF
214 beginsuglyph("u1F151";81);
215 tsu_xform(tsu_xf.cletter)(latin.upb);
216 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
217 tsu_render;
218 endsuglyph;
219

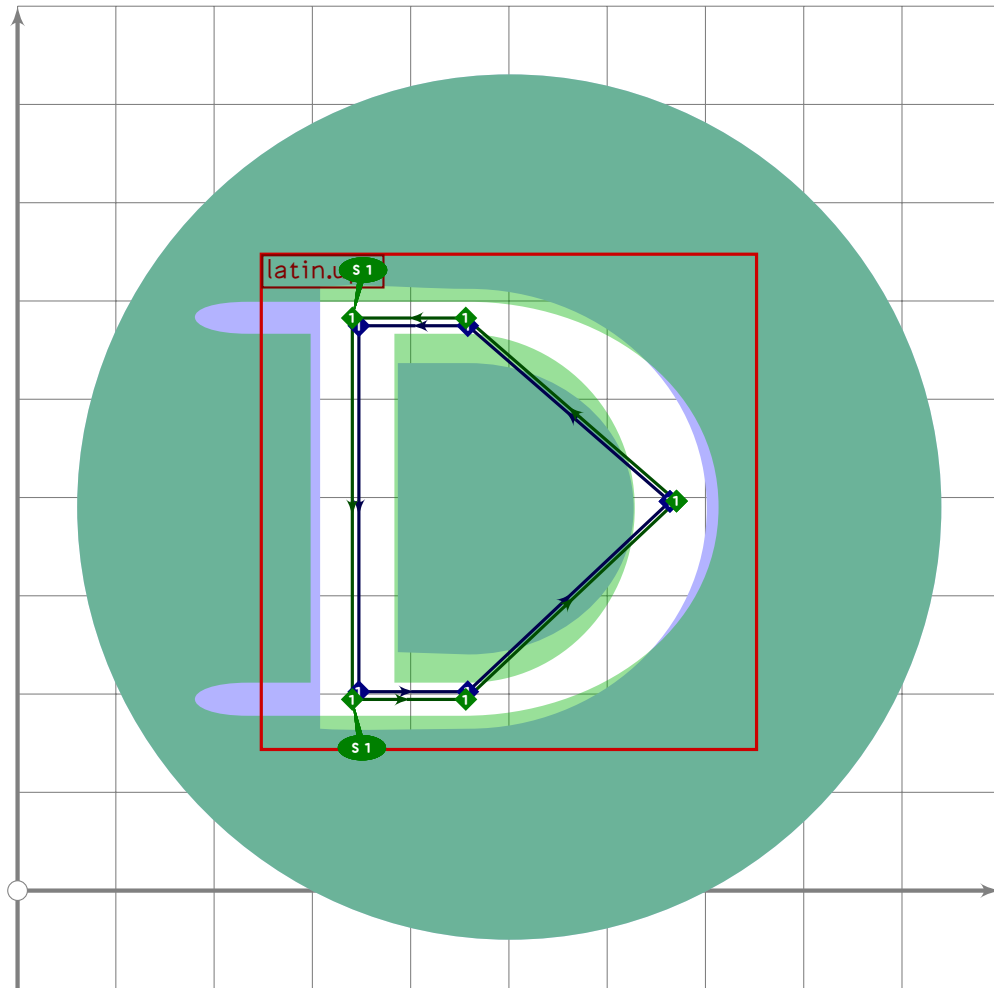
```



```

220 % C
221 % BACKGROUND 25CF
222 beginsuglyph("u1F152";82);
223 tsu_xform(tsu_xf.cletter)(latin.upc);
224 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
225 tsu_render;
226 endsuglyph;
227

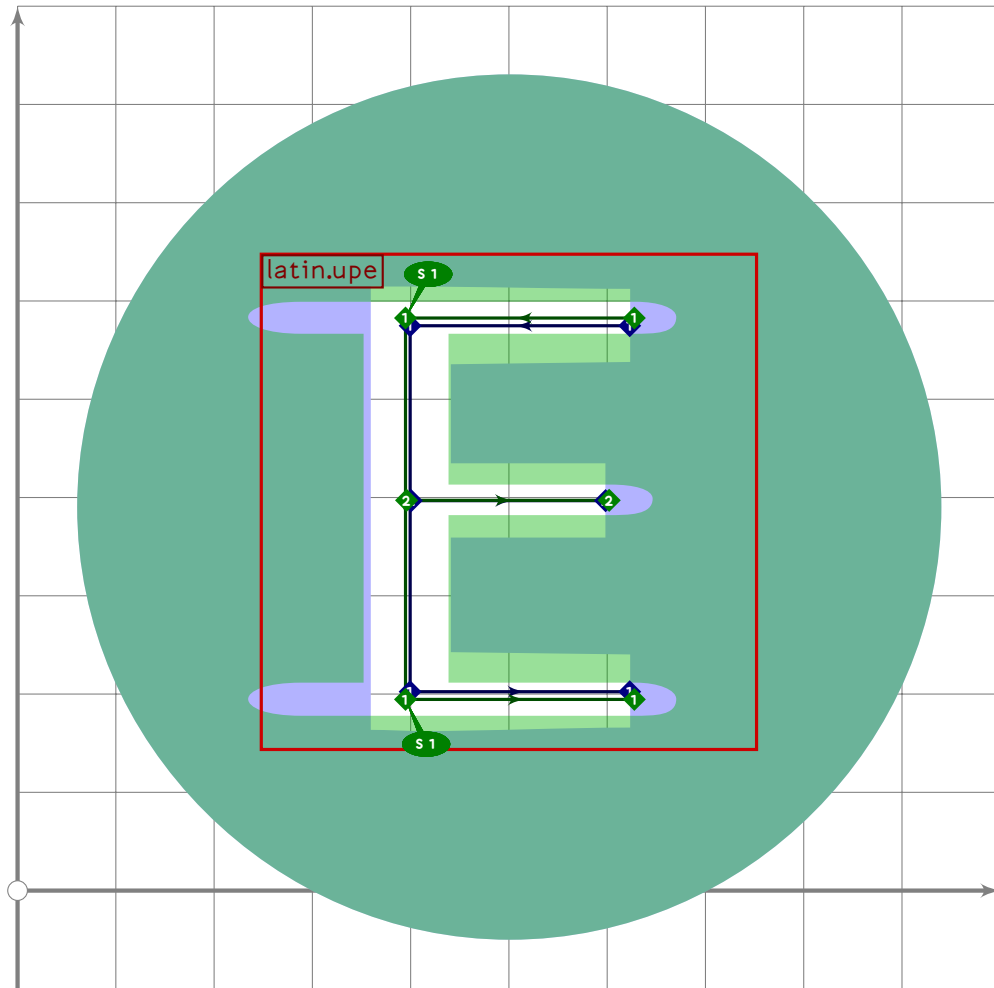
```



```

228 % D
229 % BACKGROUND 25CF
230 beginsuglyph("u1F153";83);
231 tsu_xform(tsu_xf.cletter)(latin.upd);
232 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
233 tsu_render;
234 endsuglyph;
235

```

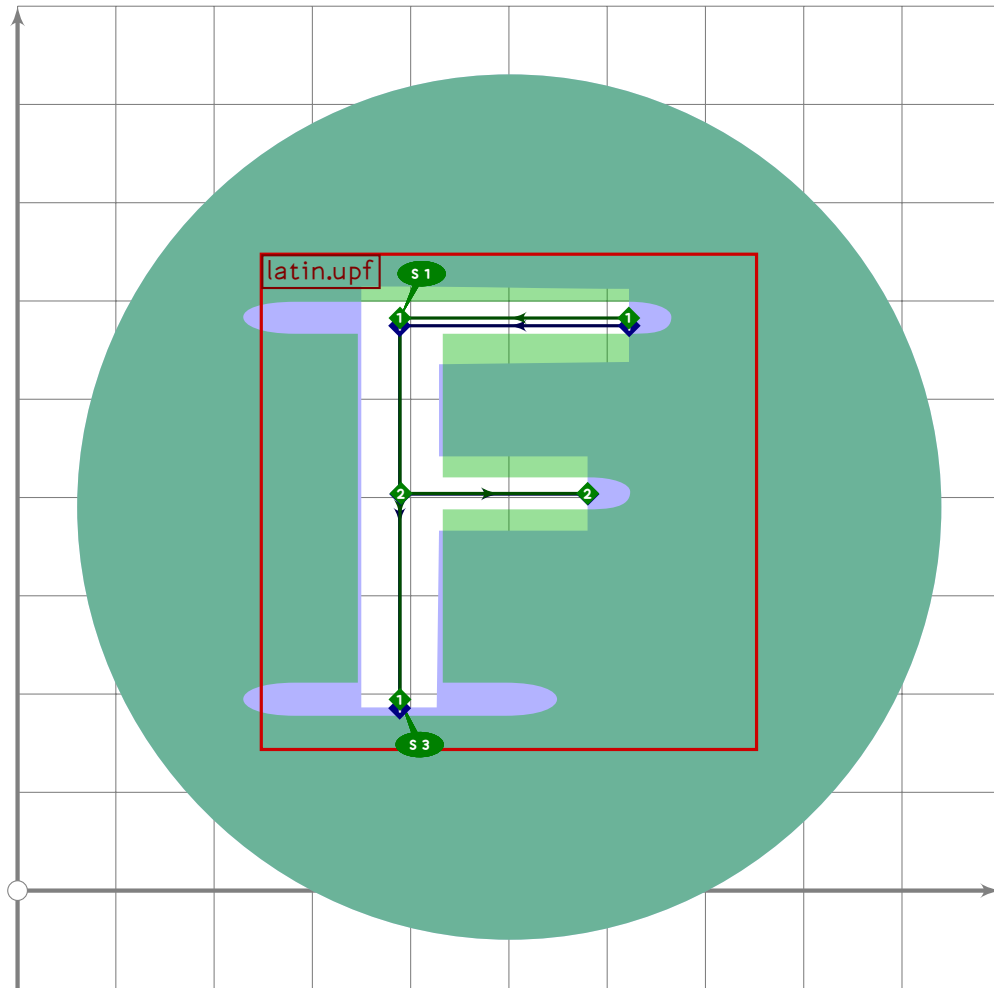


```

236 % E
237 % BACKGROUND 25CF
238 beginsuglyph("u1F154";84);
239 tsu_xform(tsu_xf.cletter)(latin.upe);
240 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
241 tsu_render;
242 endsuglyph;
243

```

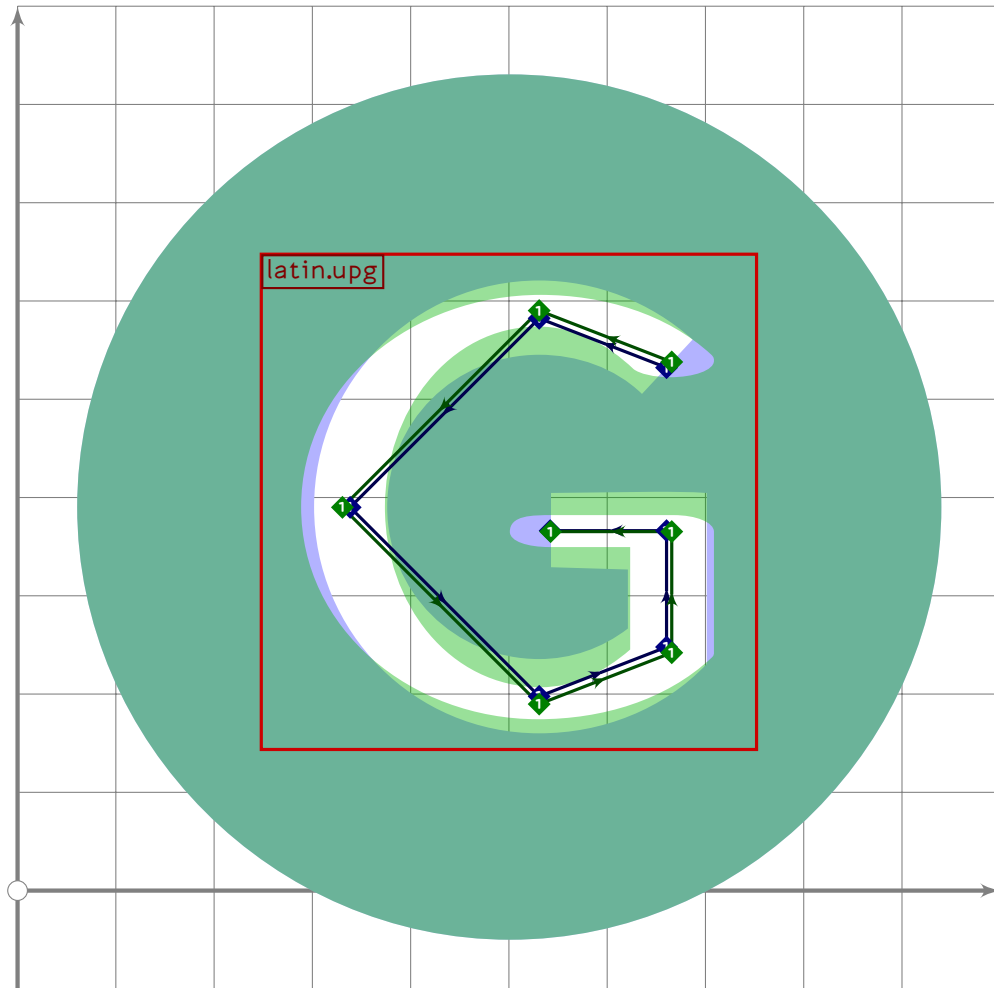




```

244 % F
245 % BACKGROUND 25CF
246 beginsuglyph("u1F155";85);
247 tsu_xform(tsu_xf.cletter)(latin.upf);
248 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
249 tsu_render;
250 endsuglyph;
251

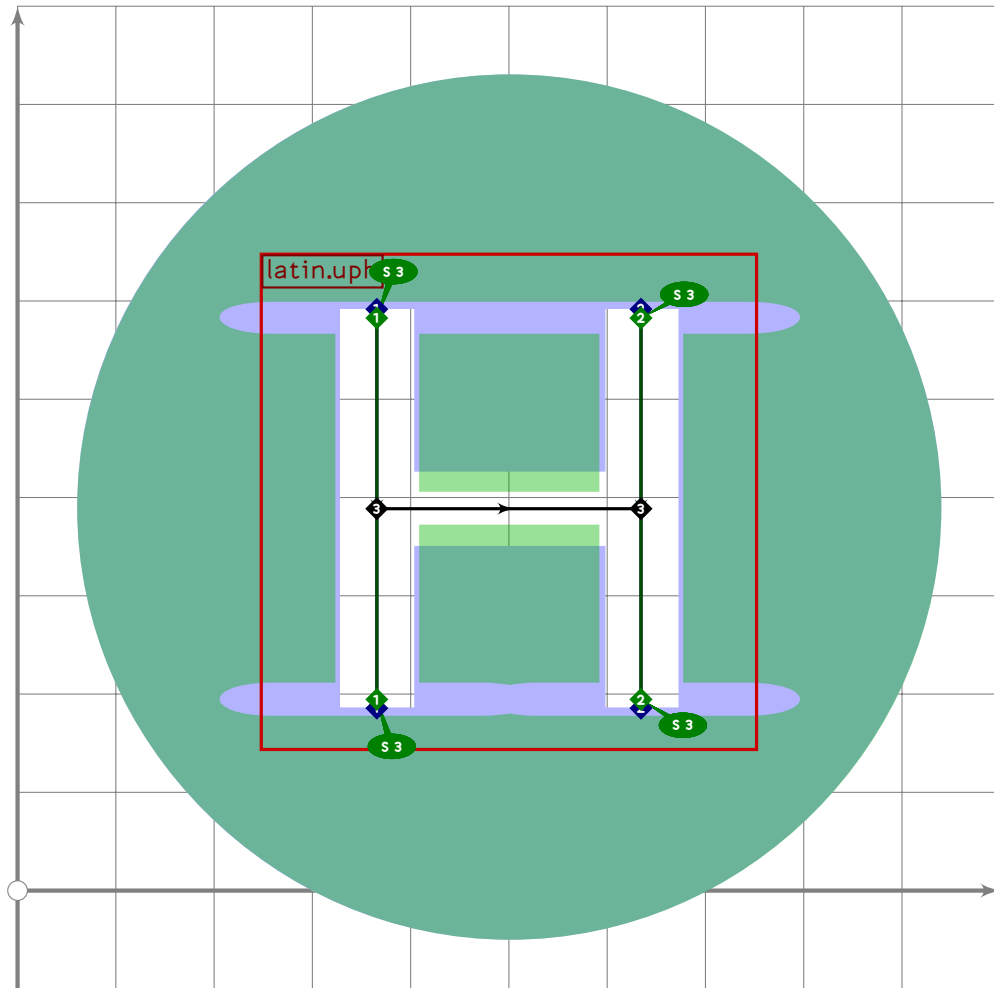
```



```

252 % G
253 % BACKGROUND 25CF
254 begintsuglyph("u1F156",86);
255 tsu_xform(tsu_xf.cletter)(latin.upg);
256 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
257 tsu_render;
258 endsuglyph;
259

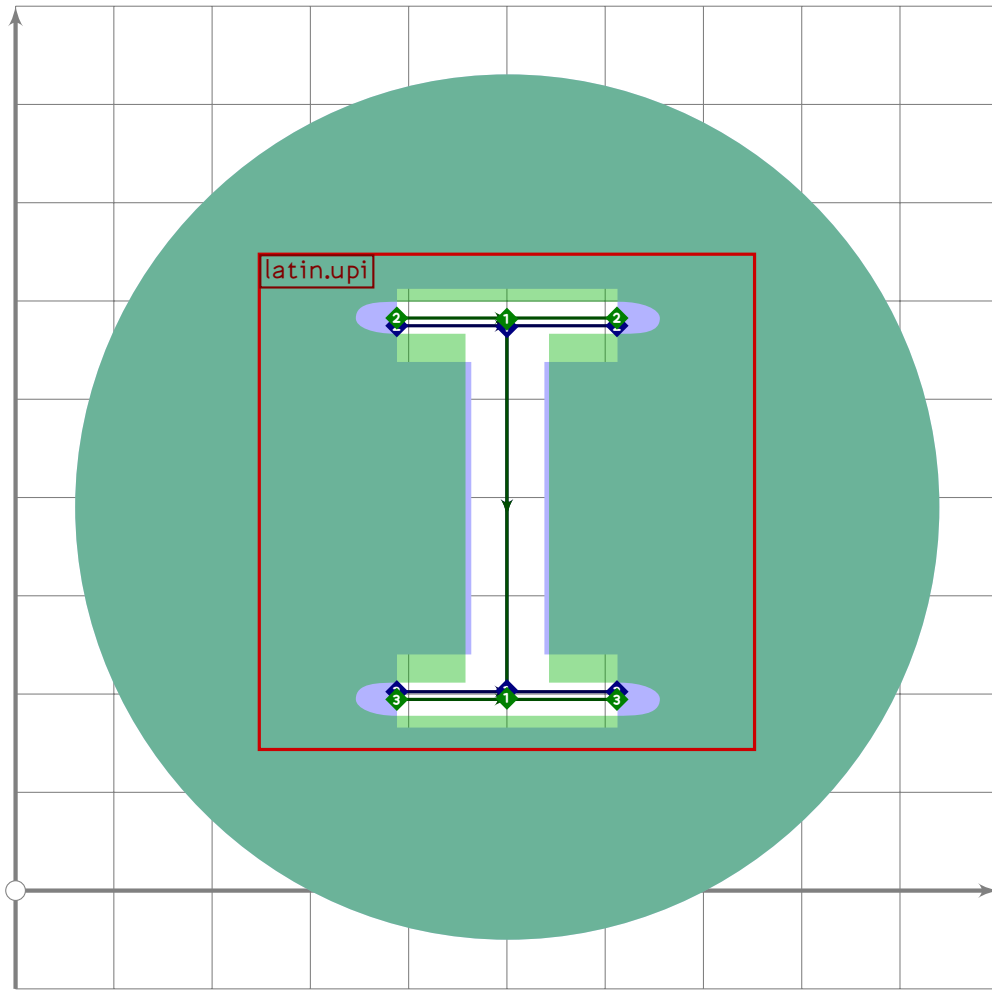
```



```

260 % H
261 % BACKGROUND 25CF
262 beginsuglyph("u1F157";87);
263 tsu_xform(tsu_xf.cletter)(latin.uph);
264 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
265 tsu_render;
266 endsuglyph;
267

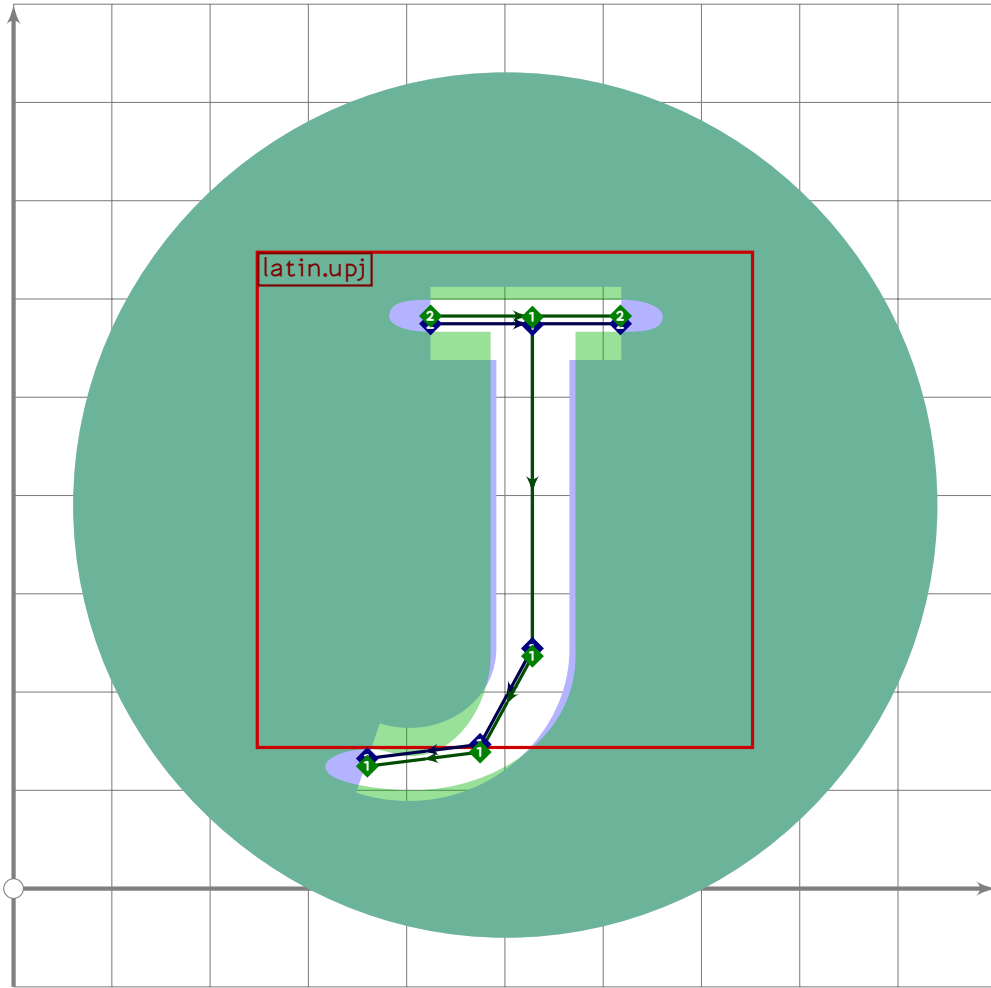
```



```

268 % I
269 % BACKGROUND 25CF
270 beginsuglyph("u1F158";88);
271 tsu_xform(tsu_xf.cletter)(latin.upi);
272 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
273 tsu_render;
274 endsuglyph;
275

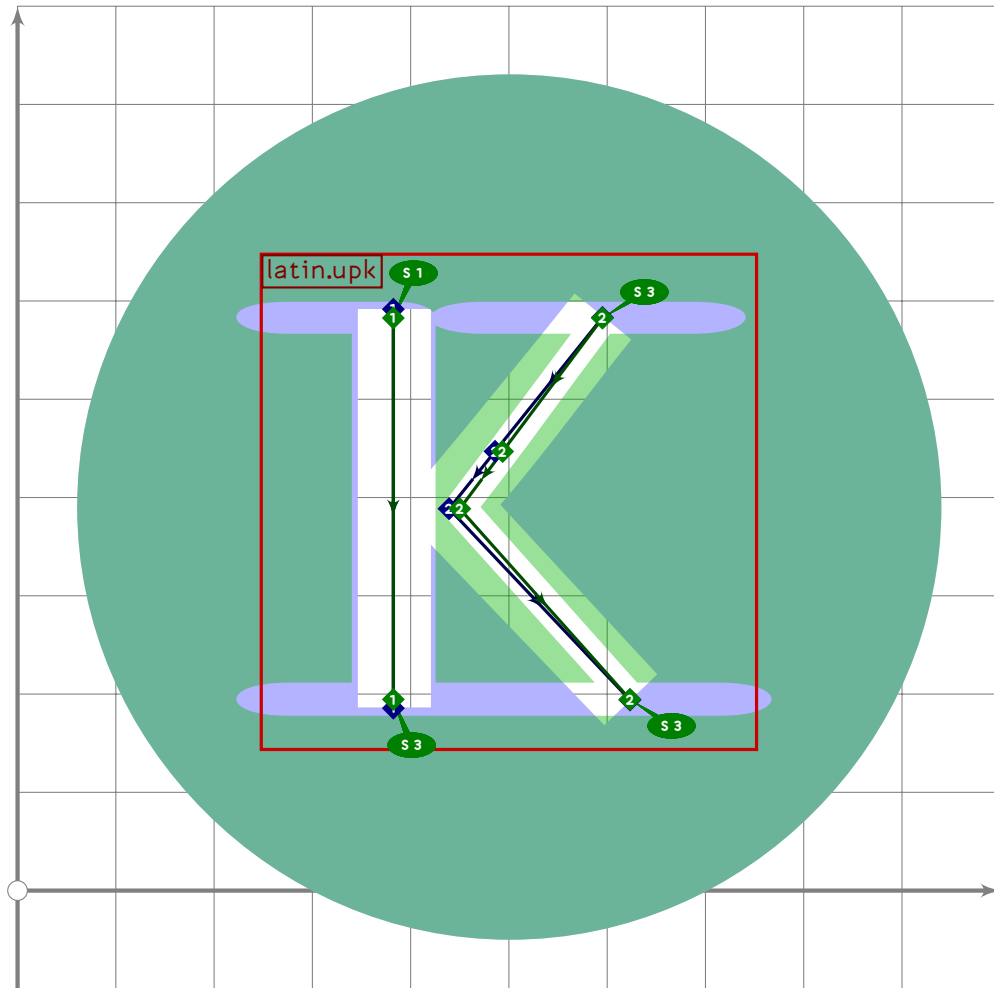
```



```

276 % J
277 % BACKGROUND 25CF
278 beginsuglyph("u1F159";89);
279 tsu_xform(tsu_xf.cletter)(latin.upj);
280 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
281 tsu_render;
282 endsuglyph;
283

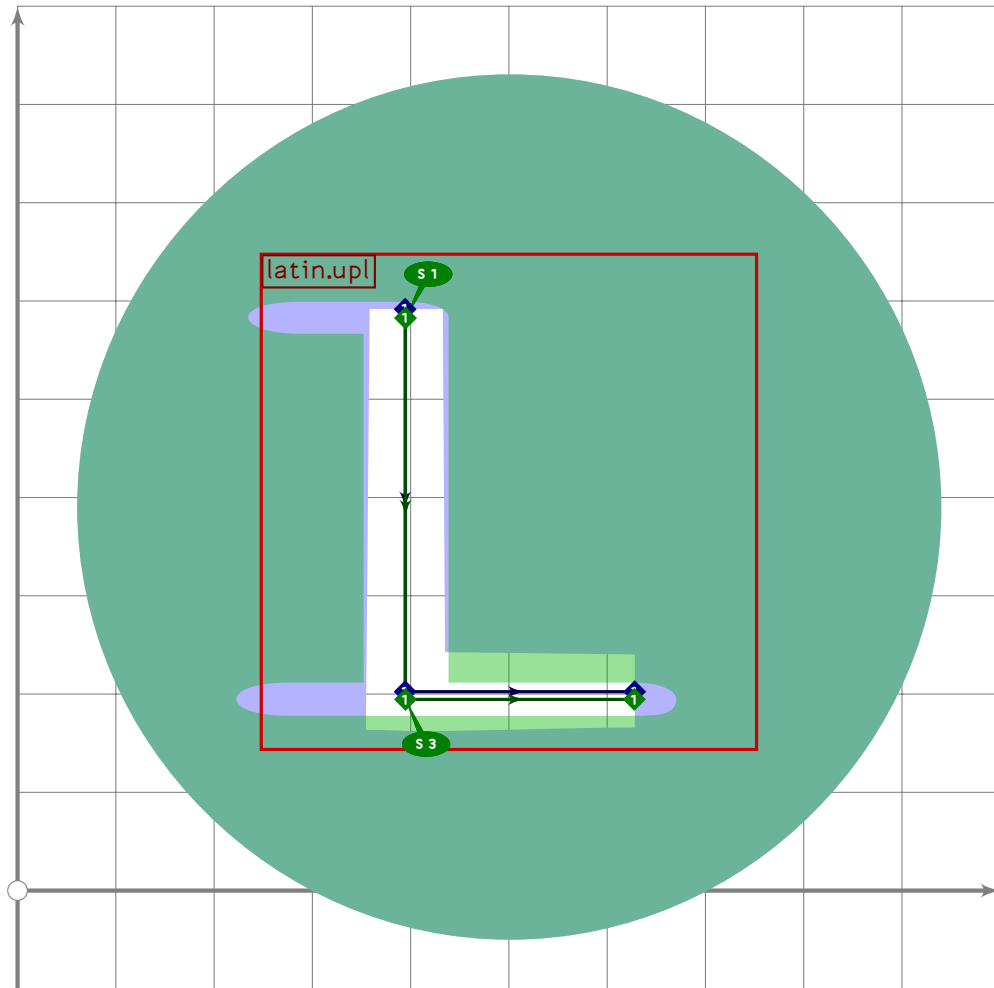
```



```

284 % K
285 % BACKGROUND 25CF
286 beginsuglyph("u1F15A";90);
287 tsu_xform(tsu_xf.cletter)(latin.upk);
288 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
289 tsu_render;
290 endsuglyph;
291

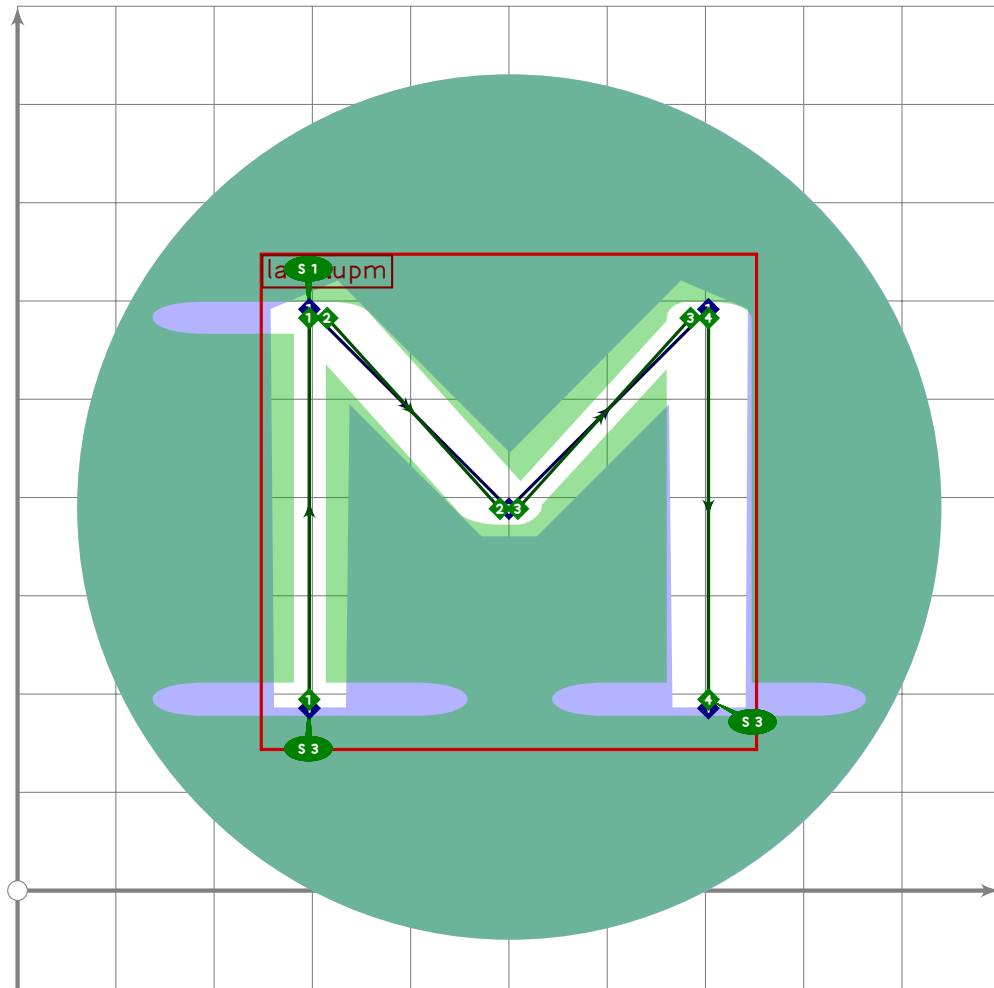
```



```

292 % L
293 % BACKGROUND 25CF
294 beginsuglyph("u1F15B";91);
295 tsu_xform(tsu_xf.cletter)(latin.upl);
296 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
297 tsu_render;
298 endsuglyph;
299

```

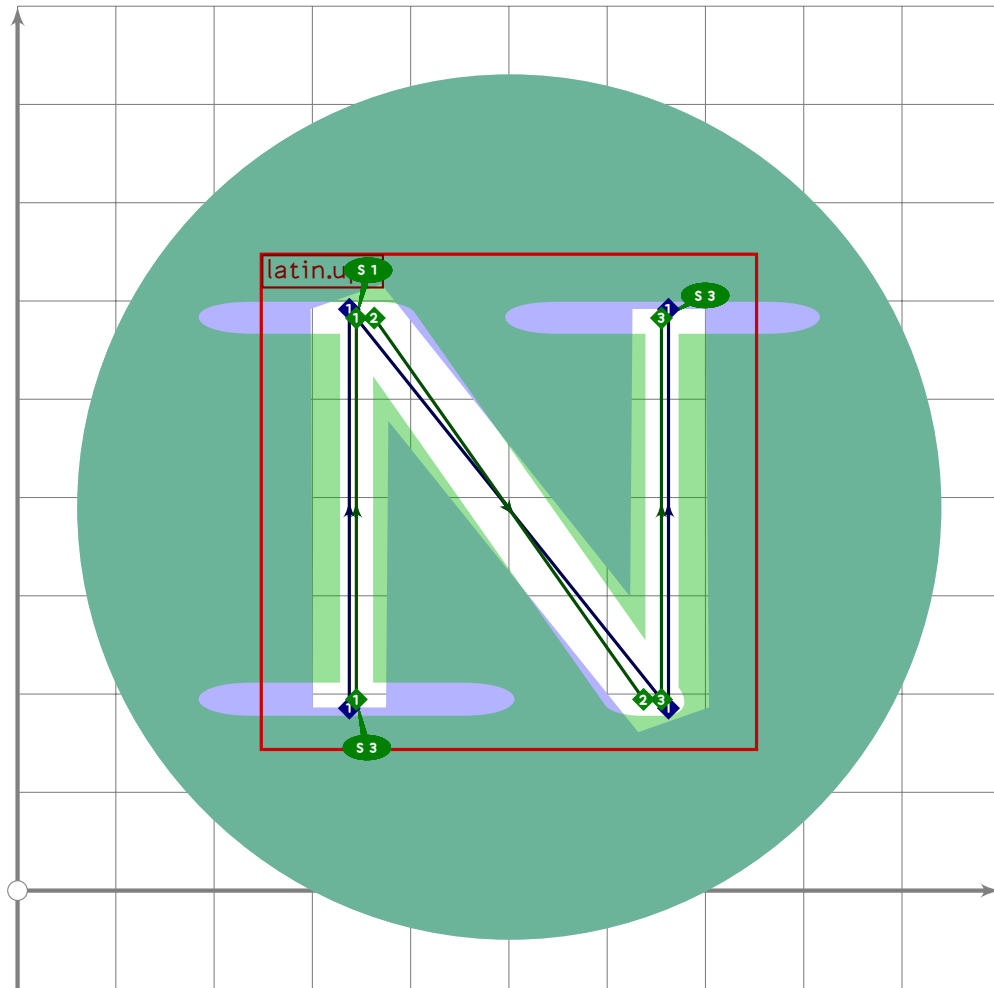


```

300 % M
301 % BACKGROUND 25CF
302 beginsuglyph("u1F15C";92);
303 tsu_xform(tsu_xf.cletter)(latin.upm);
304 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
305 tsu_render;
306 endsuglyph;
307

```

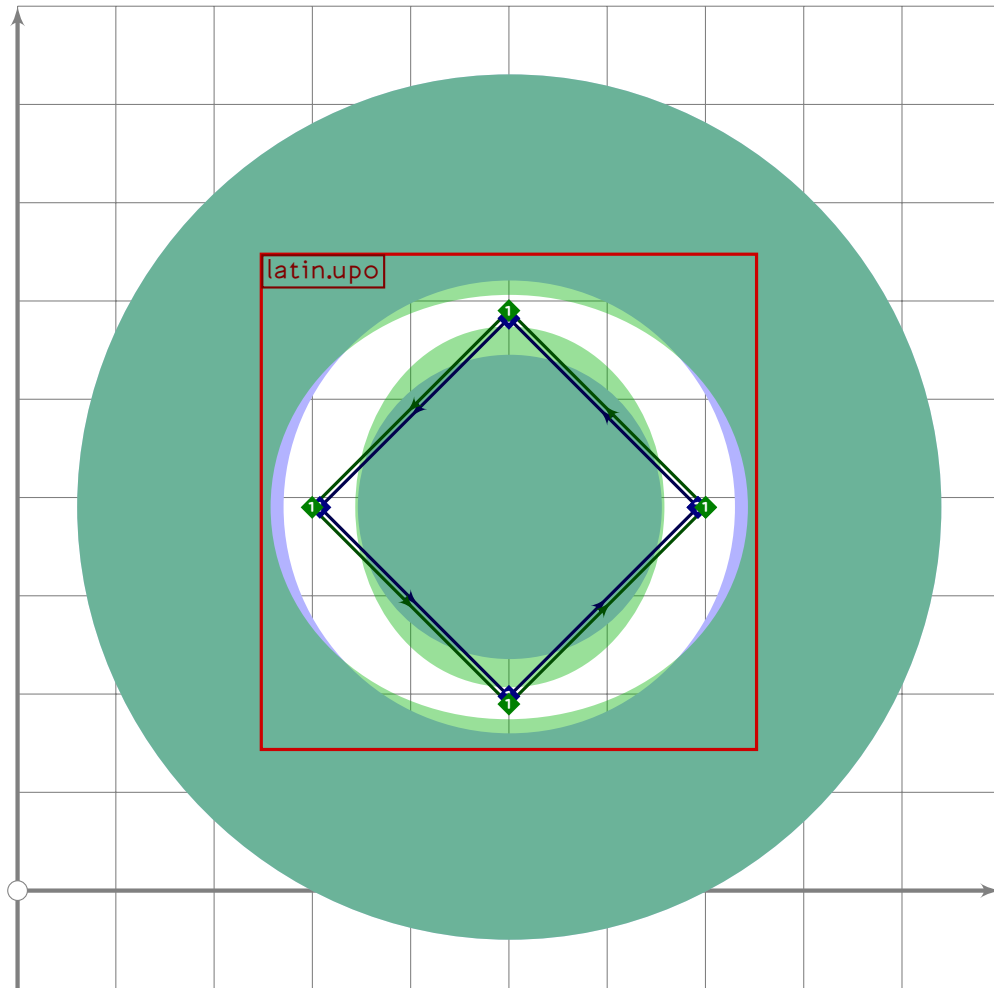




```

308 % N
309 % BACKGROUND 25CF
310 begintsuglyph("u1F15D";93);
311 tsu_xform(tsu_xf.cletter)(latin.upn);
312 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
313 tsu_render;
314 endtsuglyph;
315

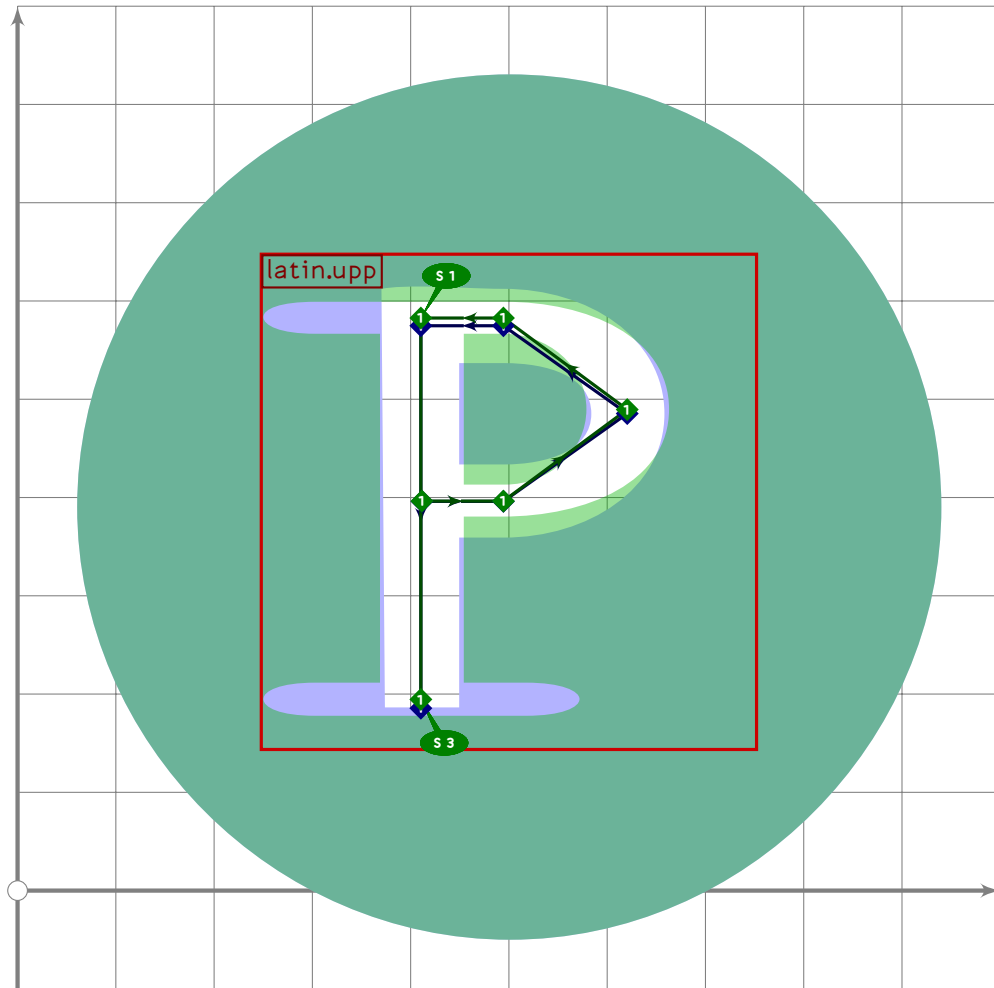
```



```

316 % O
317 % BACKGROUND 25CF
318 begintsuglyph("u1F15E";94);
319 tsu_xform(tsu_xf.cletter)(latin.upo);
320 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
321 tsu_render;
322 endsuglyph;
323

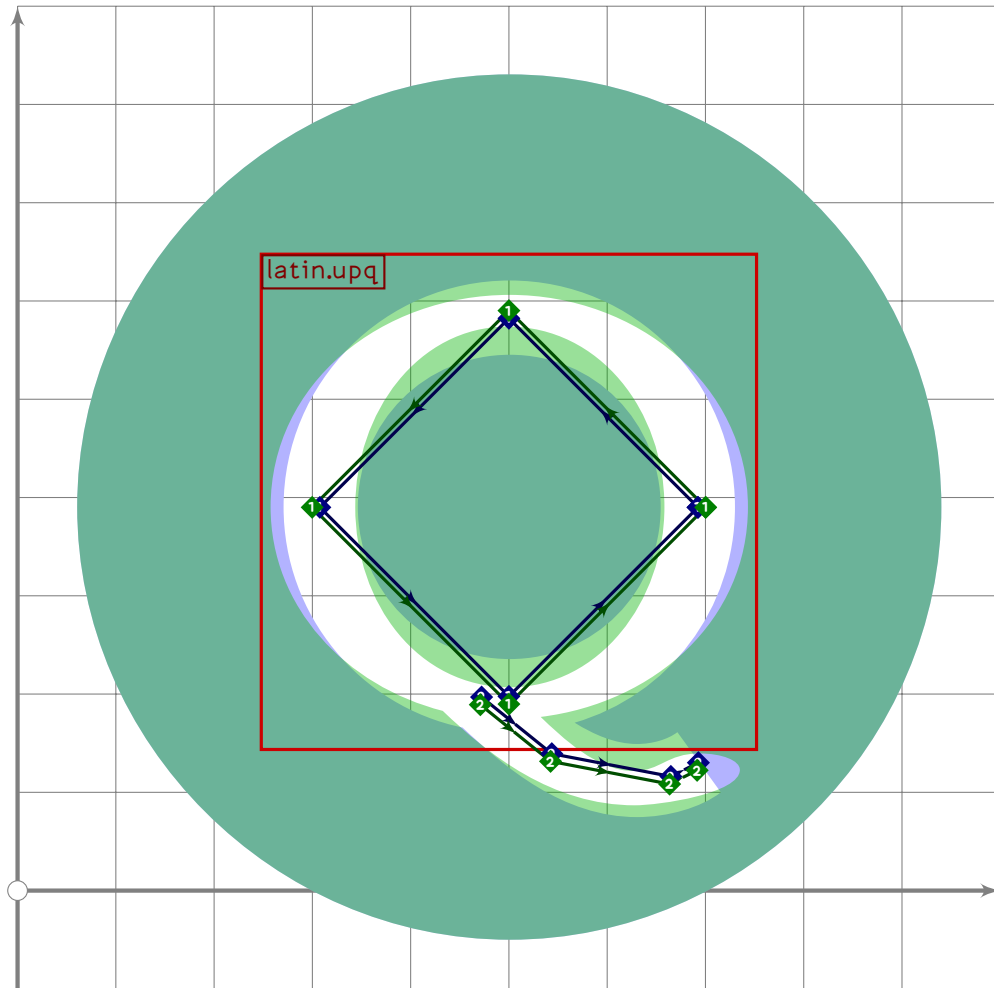
```



```

324 % P
325 % BACKGROUND 25CF
326 begintsuglyph("u1F15F";95);
327 tsu_xform(tsu_xf.cletter)(latin.upp);
328 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
329 tsu_render;
330 endsuglyph;
331

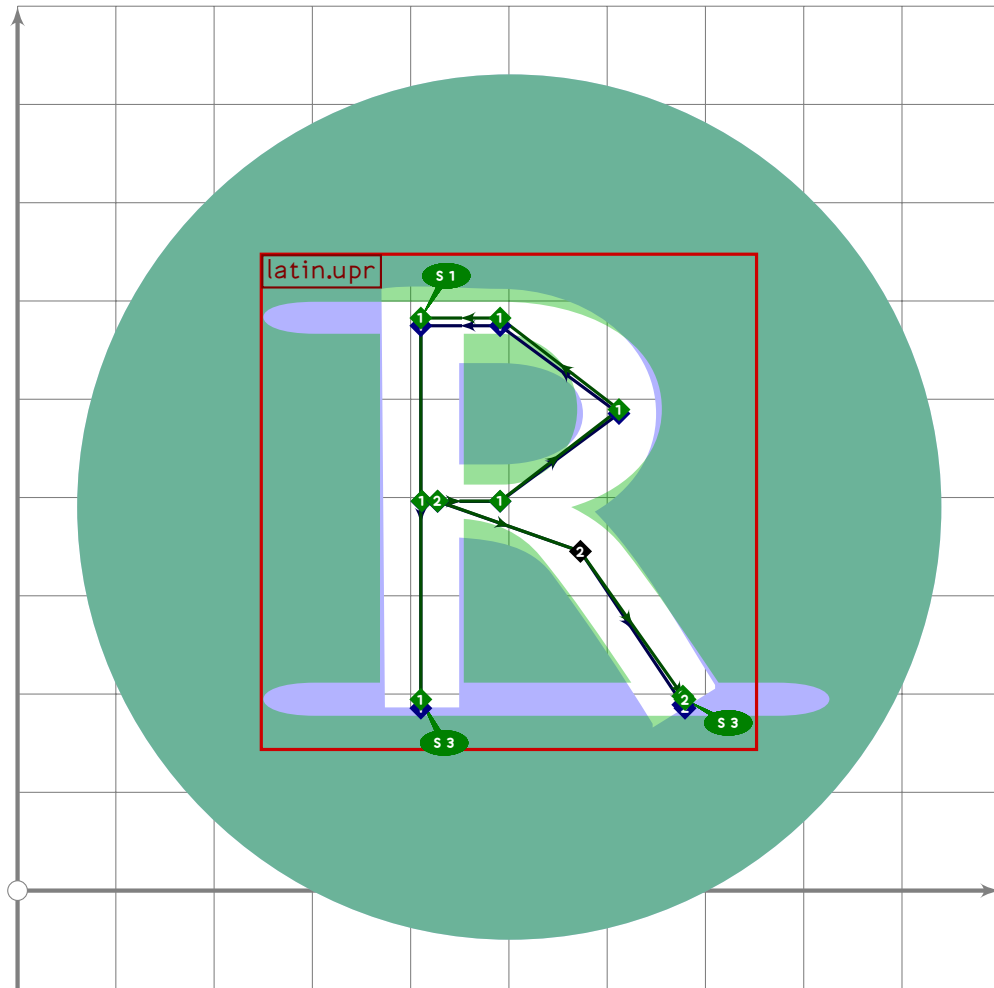
```



```

332 % Q
333 % BACKGROUND 25CF
334 beginsuglyph("u1F160";96);
335 tsu_xform(tsu_xf.cletter)(latin.upq);
336 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
337 tsu_render;
338 endsuglyph;
339

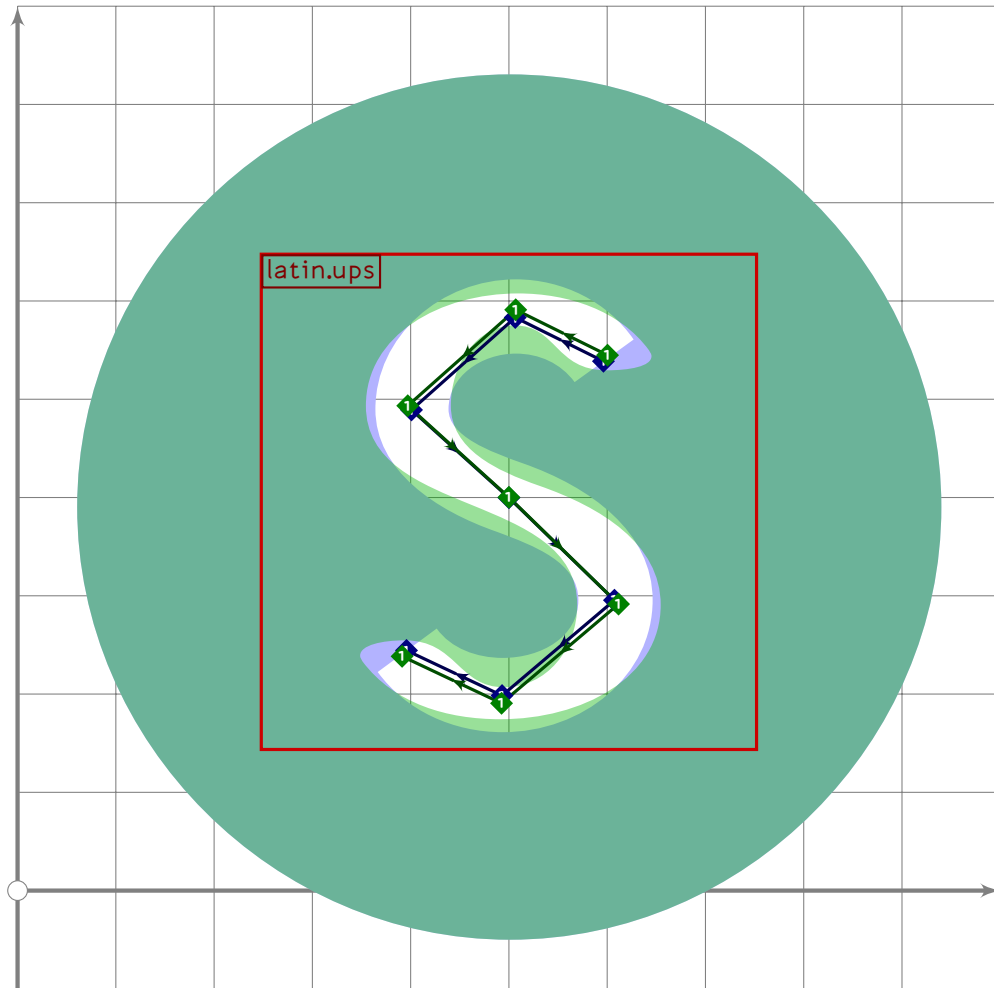
```



```

340 % R
341 % BACKGROUND 25CF
342 beginsuglyph("u1F161";97);
343 tsu_xform(tsu_xf.cletter)(latin.upr);
344 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
345 tsu_render;
346 endsuglyph;
347

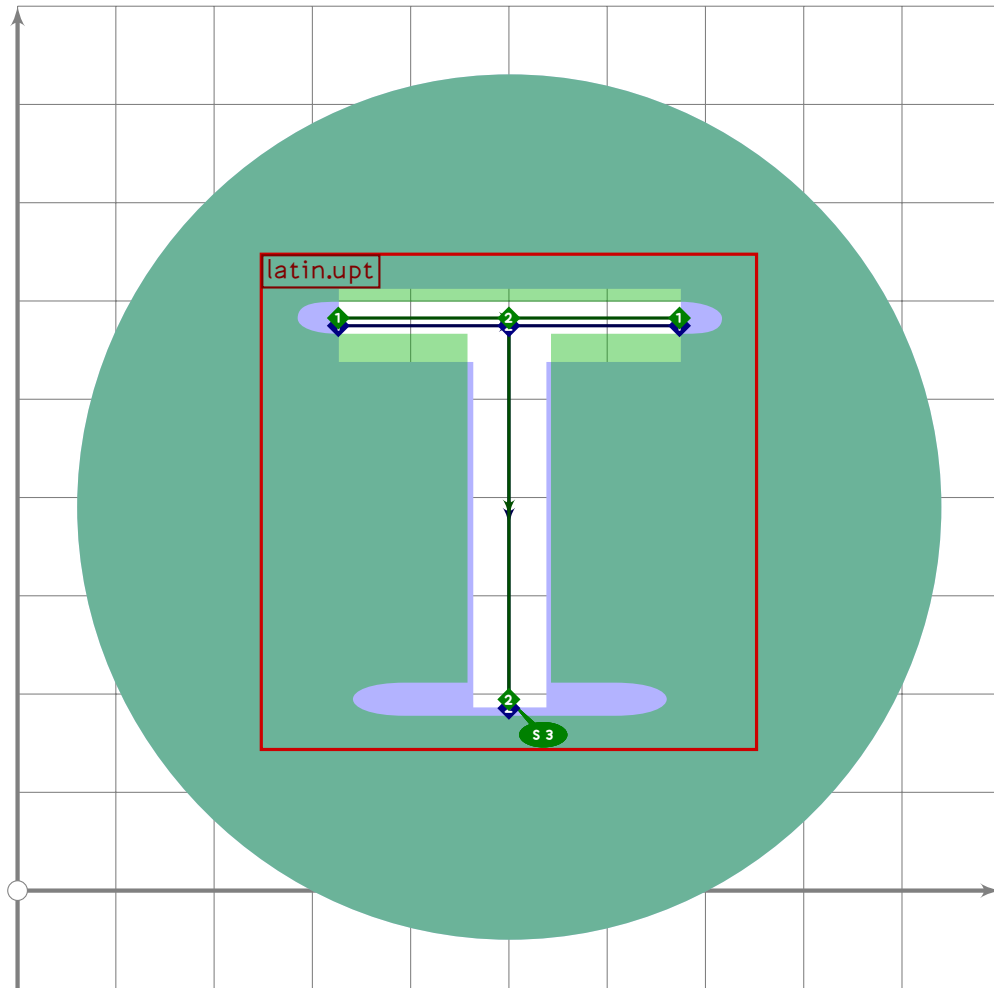
```



```

348 % S
349 % BACKGROUND 25CF
350 beginsuglyph("u1F162";98);
351   tsu_xform(tsu_xf.cletter)(latin.ups);
352   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
353   tsu_render;
354 endsuglyph;
355

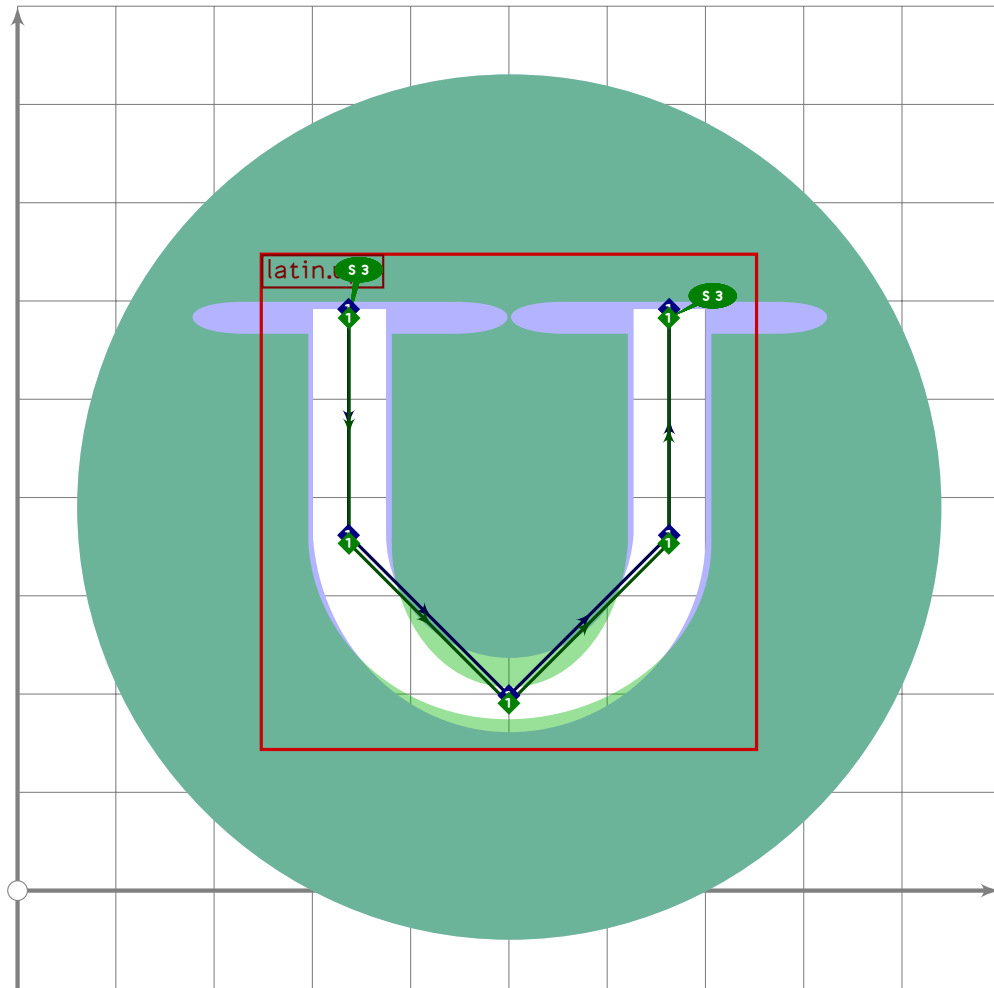
```



```

356 % T
357 % BACKGROUND 25CF
358 beginsuglyph("u1F163";99);
359 tsu_xform(tsu_xf.cletter)(latin.upt);
360 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
361 tsu_render;
362 endsuglyph;
363

```

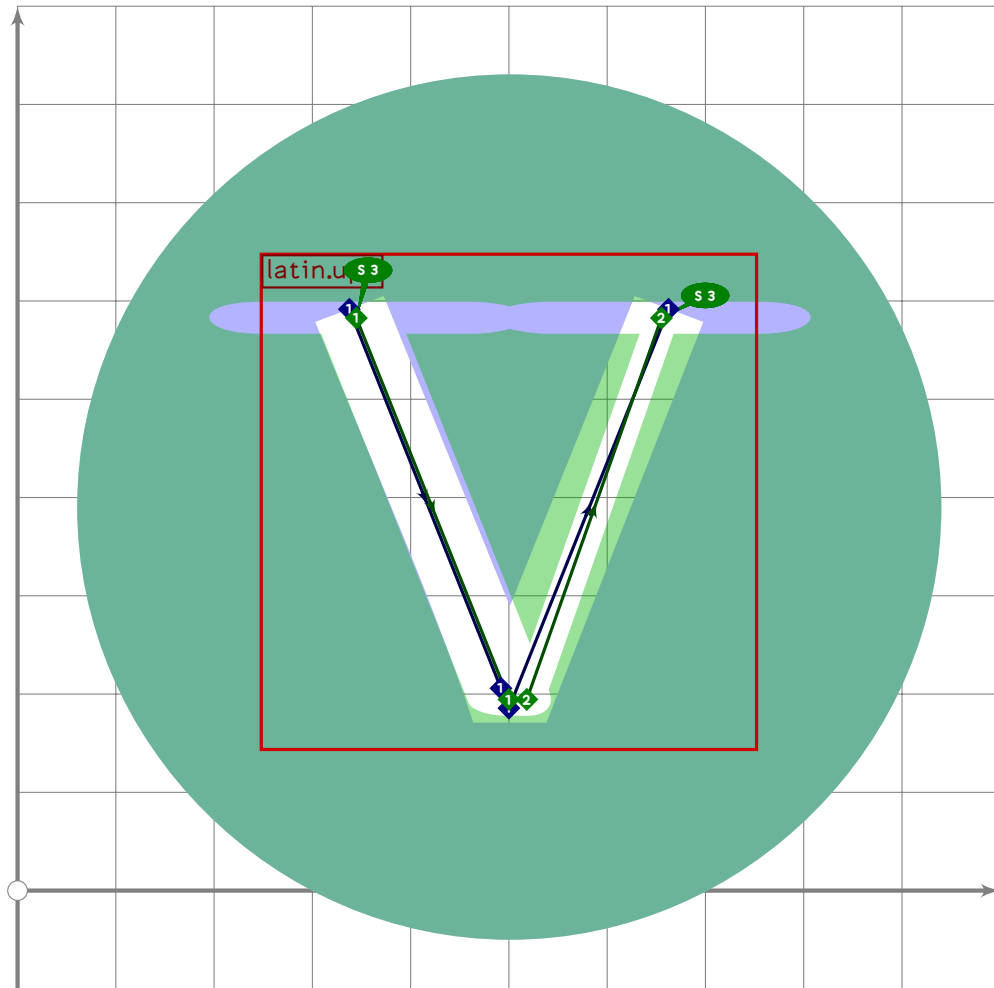


```

364 % U
365 % BACKGROUND 25CF
366 begintsuglyph("u1F164",100);
367 tsu_xform(tsu_xf.cletter)(latin.upu);
368 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
369 tsu_render;
370 endtsuglyph;
371

```

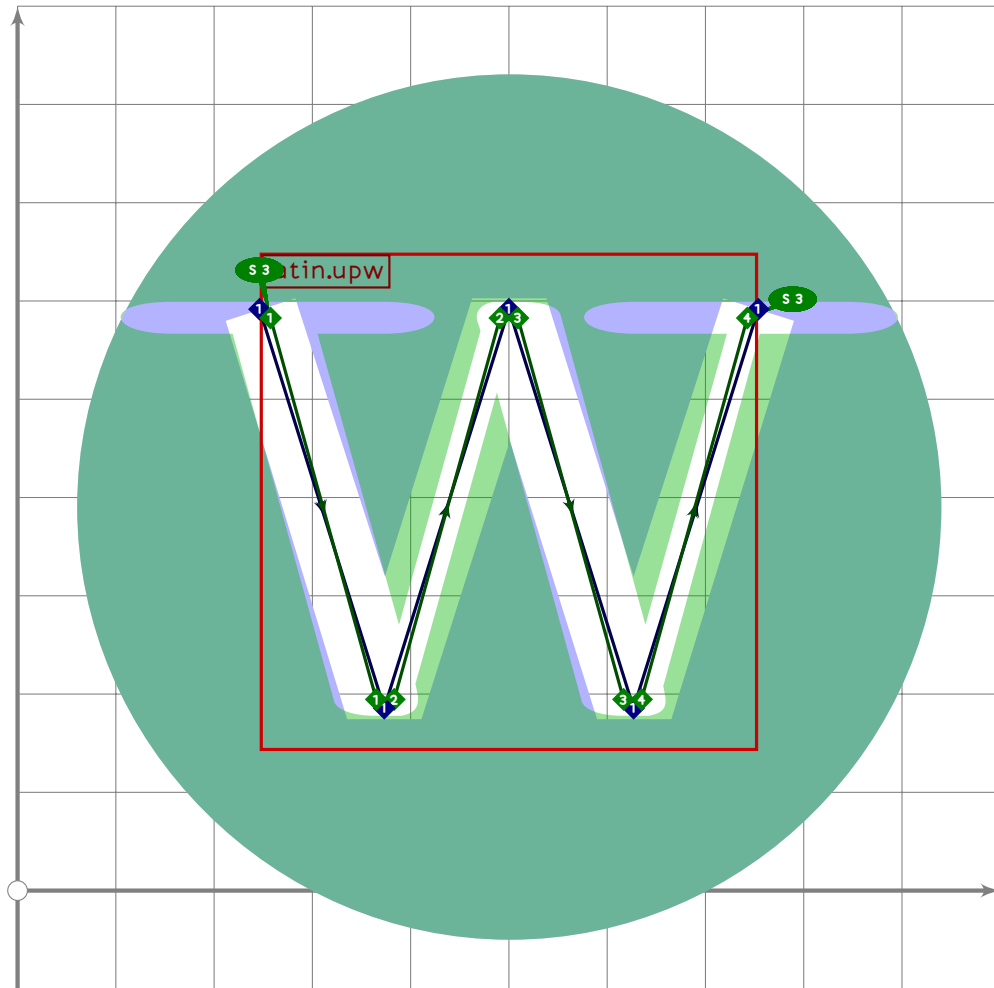




```

372 % V
373 % BACKGROUND 25CF
374 begintsuglyph("u1F165";101);
375 tsu_xform(tsu_xf.cletter)(latin.upv);
376 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
377 tsu_render;
378 endsuglyph;
379

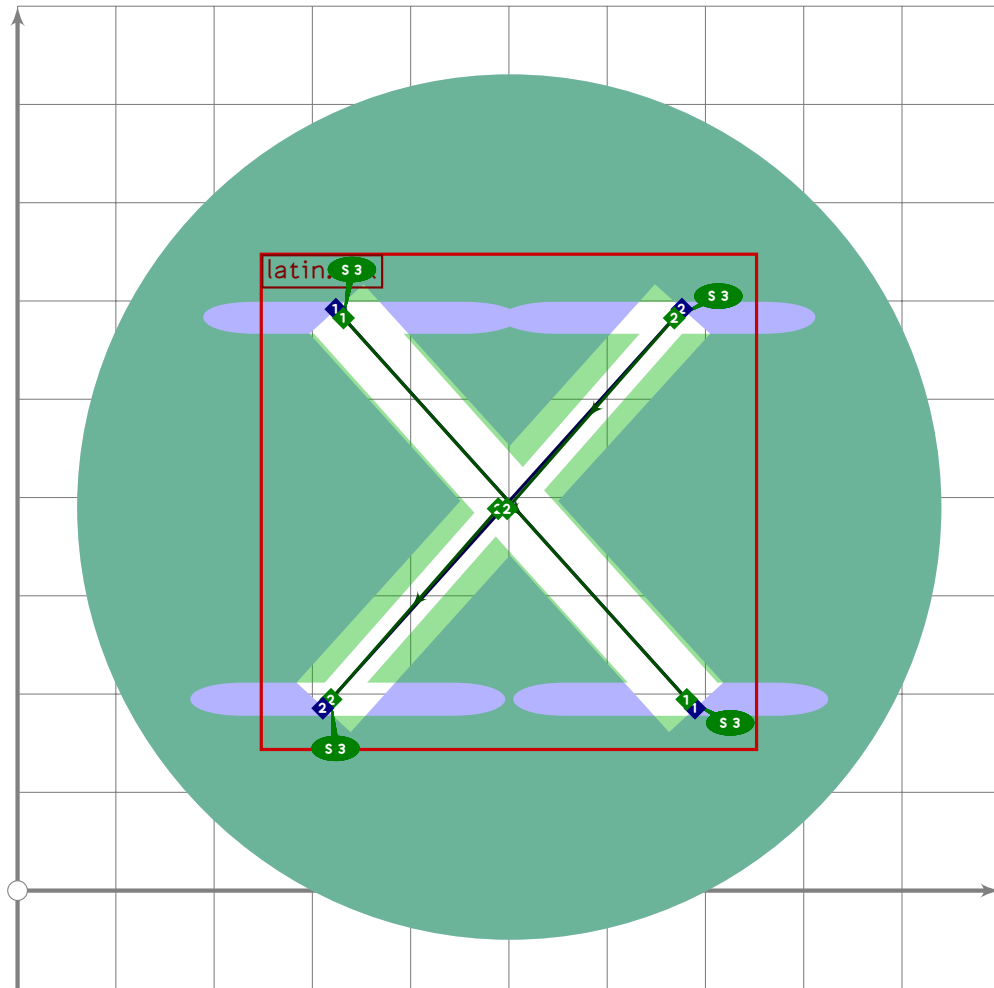
```



```

380 % W
381 % BACKGROUND 25CF
382 beginsuglyph("u1F166",102);
383 tsu_xform(tsu_xf.cletter)(latin.upw);
384 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
385 tsu_render;
386 endsuglyph;
387

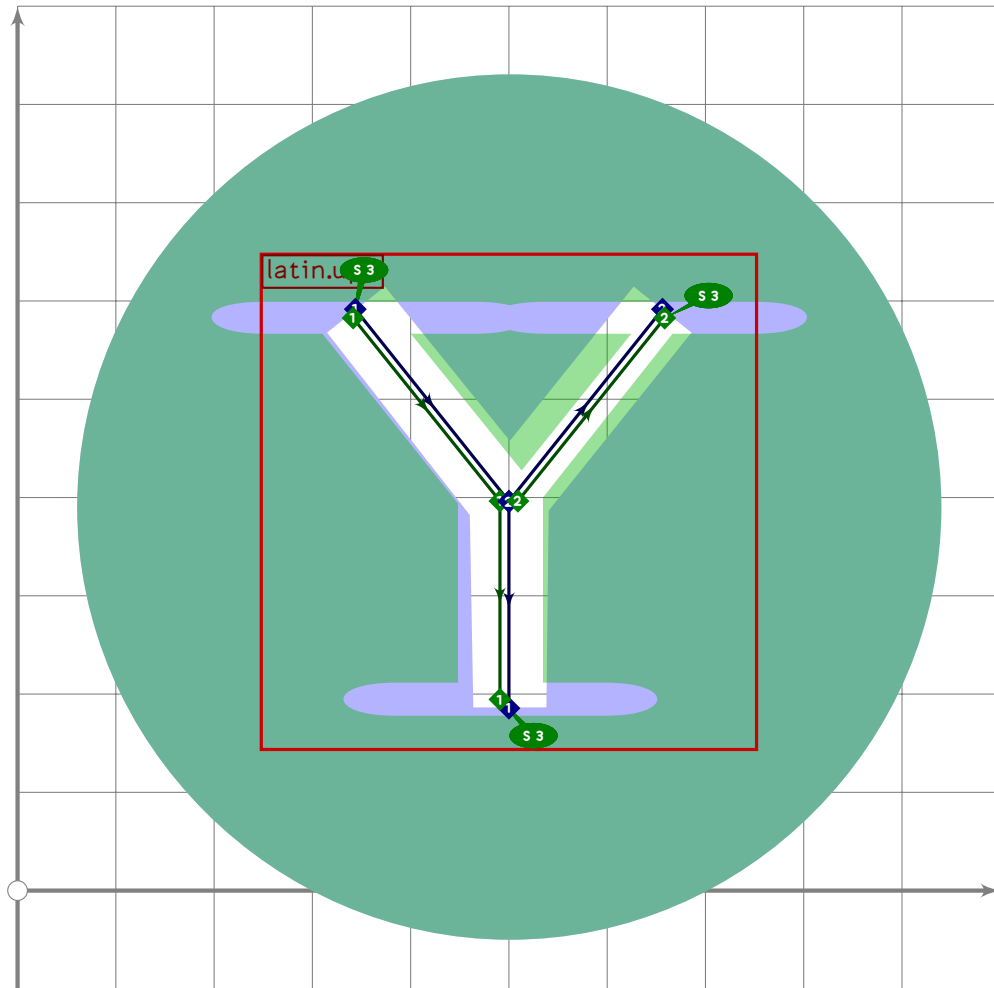
```



```

388 % X
389 % BACKGROUND 25CF
390 beginsuglyph("u1F167",103);
391 tsu_xform(tsu_xf.cletter)(latin.upx);
392 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
393 tsu_render;
394 endsuglyph;
395

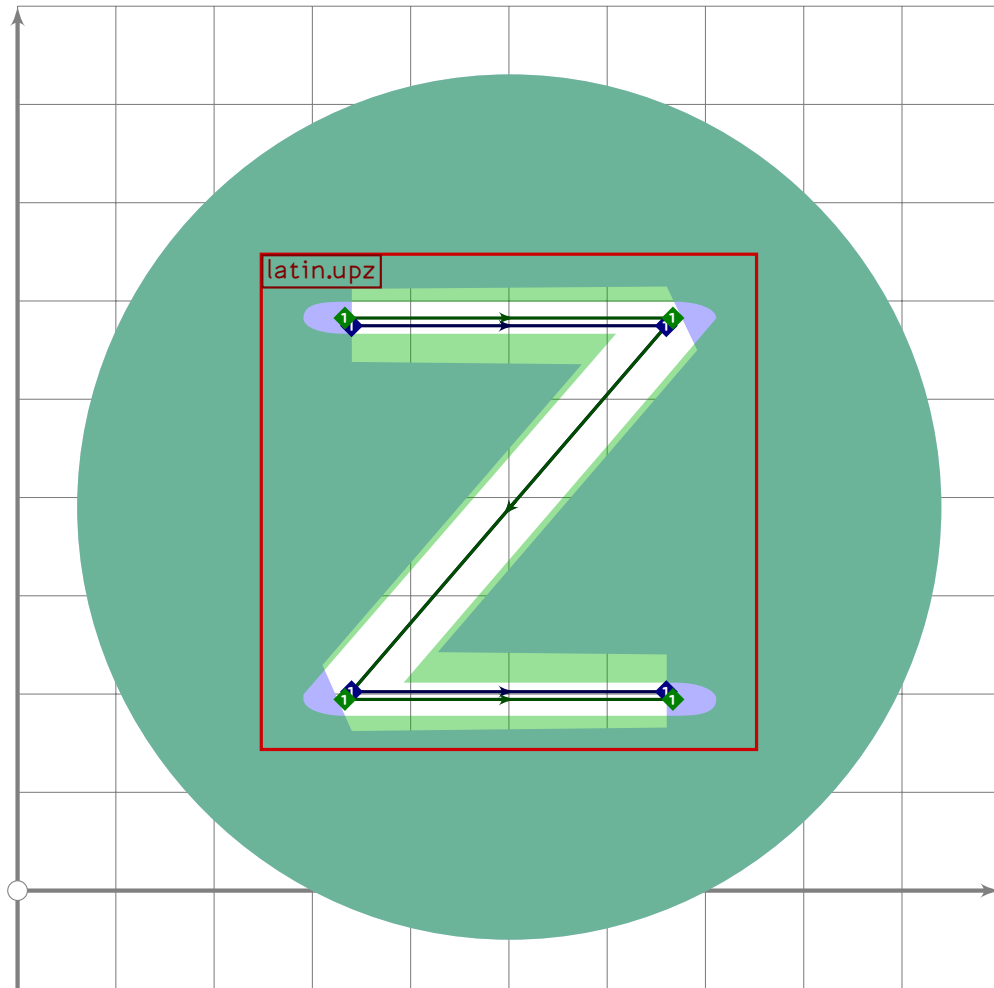
```



```

396 % Y
397 % BACKGROUND 25CF
398 begintsuglyph("u1F168";104);
399 tsu_xform(tsu_xf.cletter)(latin.upy);
400 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
401 tsu_render;
402 endtsuglyph;
403

```



```

404 % Z
405 % BACKGROUND 25CF
406 begint Suglyph("u1F169",105);
407 tsu_xform(tsu_xf.cletter)(latin.upz);
408 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
409 tsu_render;
410 endtsuglyph;
411
412
413

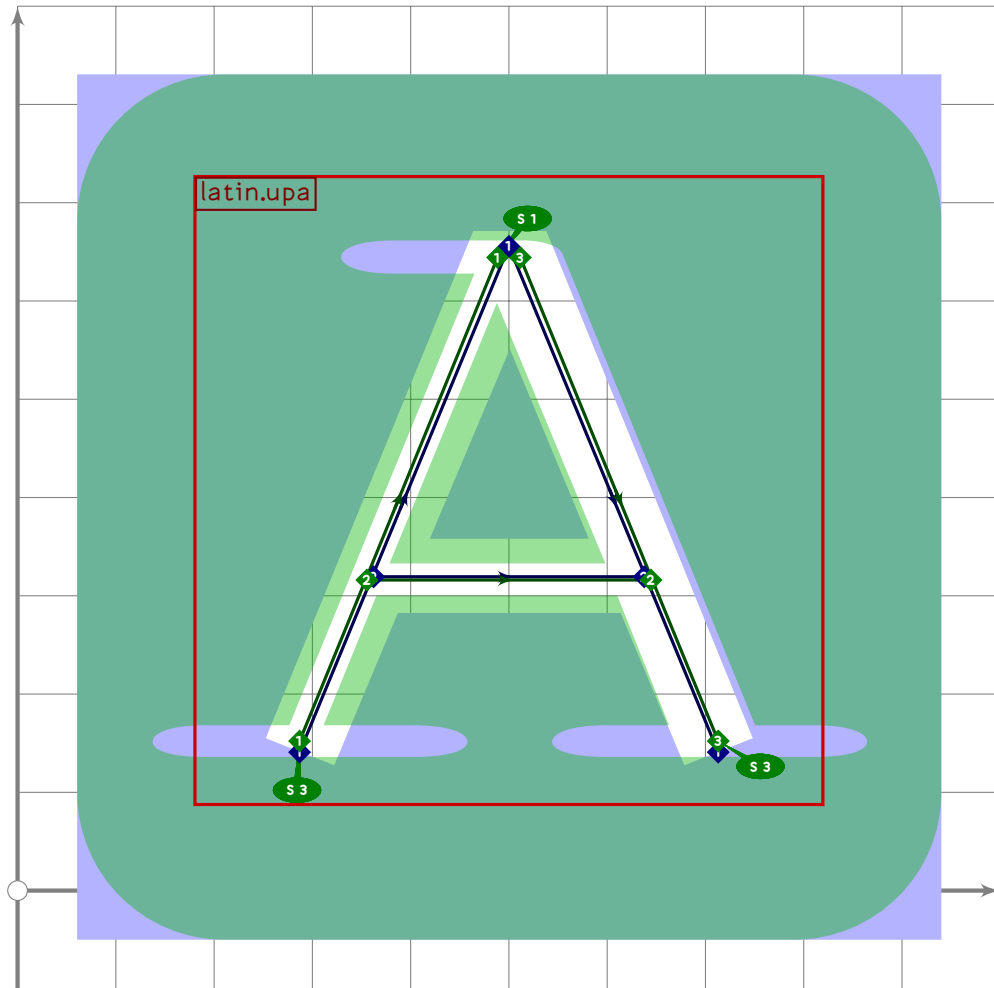
```

## Inverse Squared Latin

```

414 % INVERSE SQUARED LATIN
415

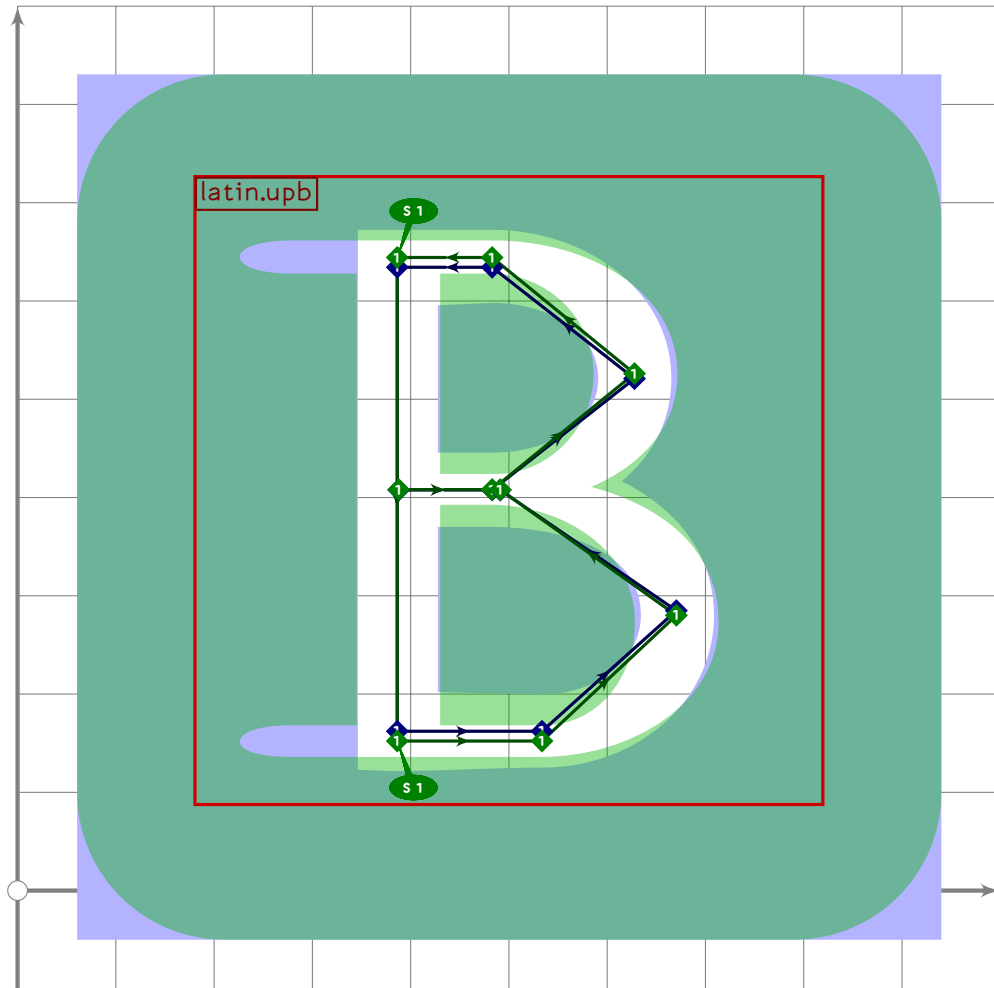
```



```

416 % A
417 % BACKGROUND F1712
418 beginsuglyph("u1F170";112);
419 tsu_xform(tsu_xf.sletter)(latin.upa);
420 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
421 tsu_render;
422 endsuglyph;
423

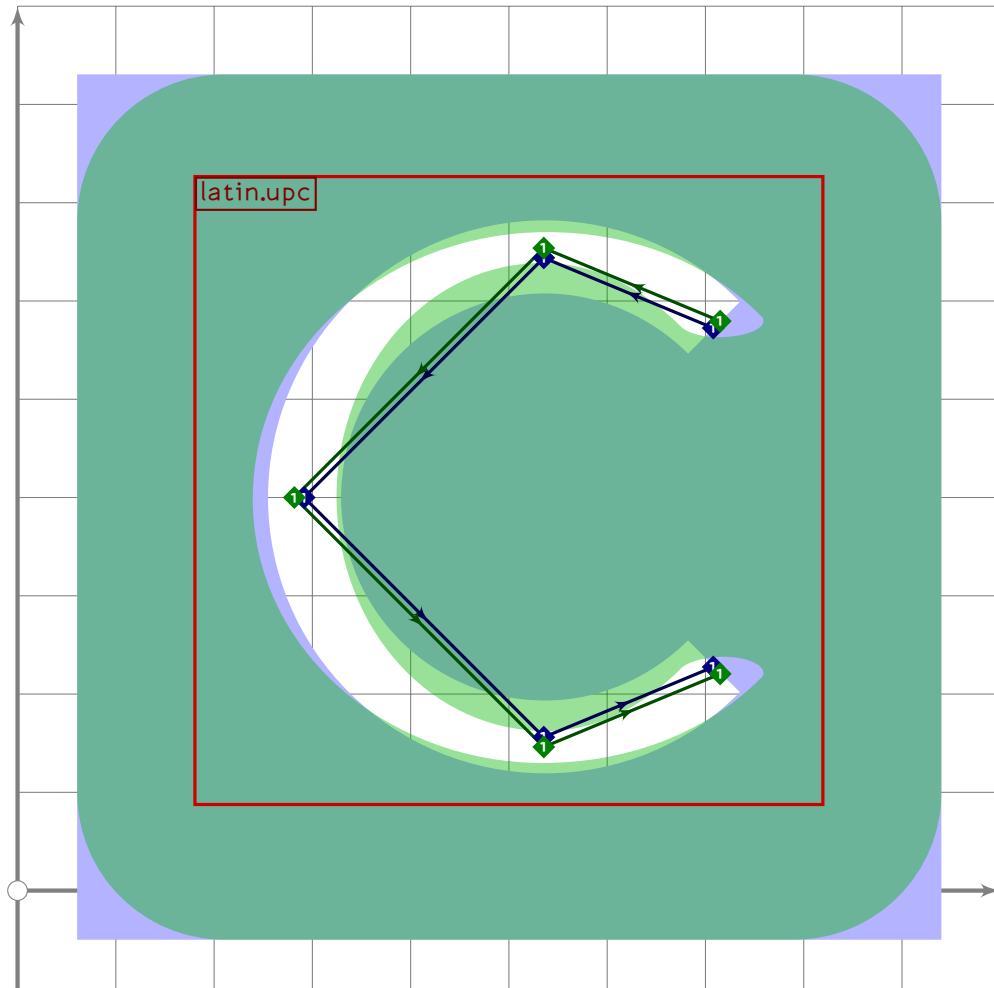
```



```

424 % B
425 % BACKGROUND F1712
426 beginsuglyph("u1F171";113);
427 tsu_xform(tsu_xf.sletter)(latin.upb);
428 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
429 tsu_render;
430 endsuglyph;
431

```

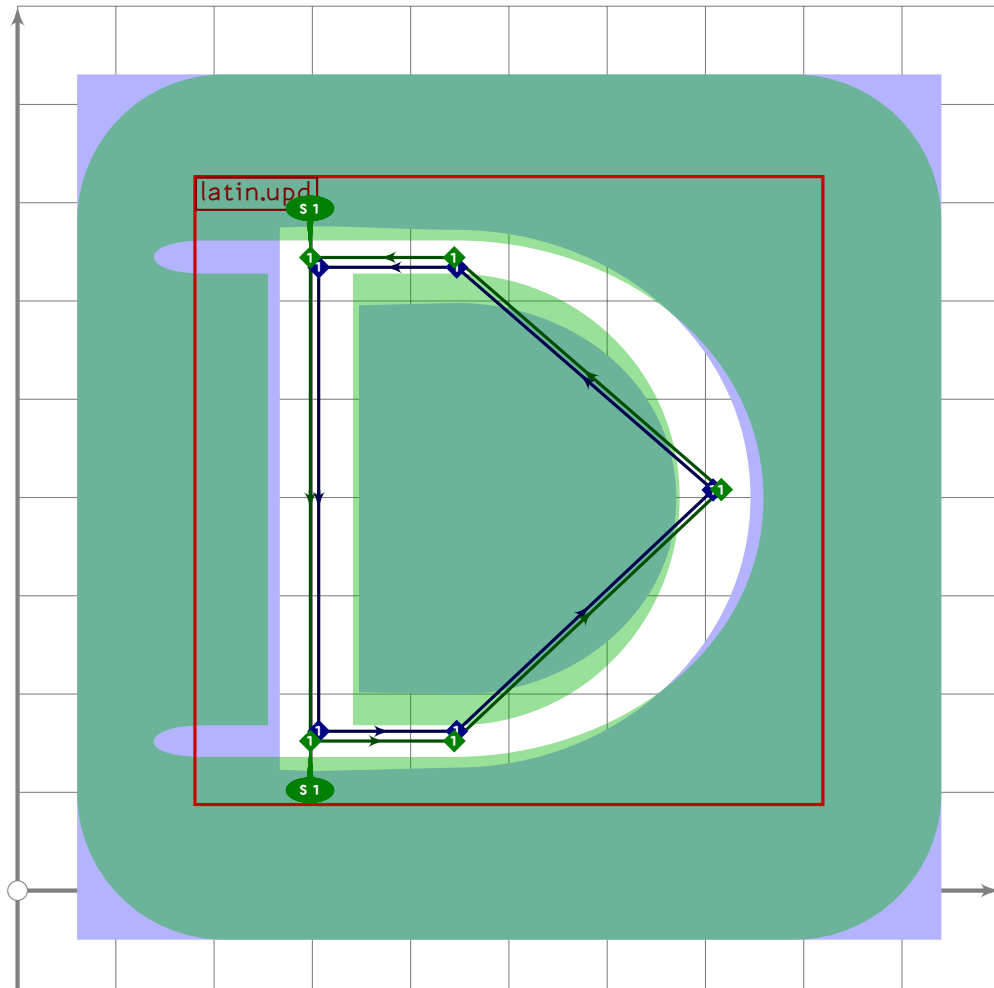


```

432 % C
433 % BACKGROUND F1712
434 beginsuglyph("u1F172",114);
435 tsu_xform(tsu_xf.sletter)(latin.upc);
436 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
437 tsu_render;
438 endsuglyph;
439

```

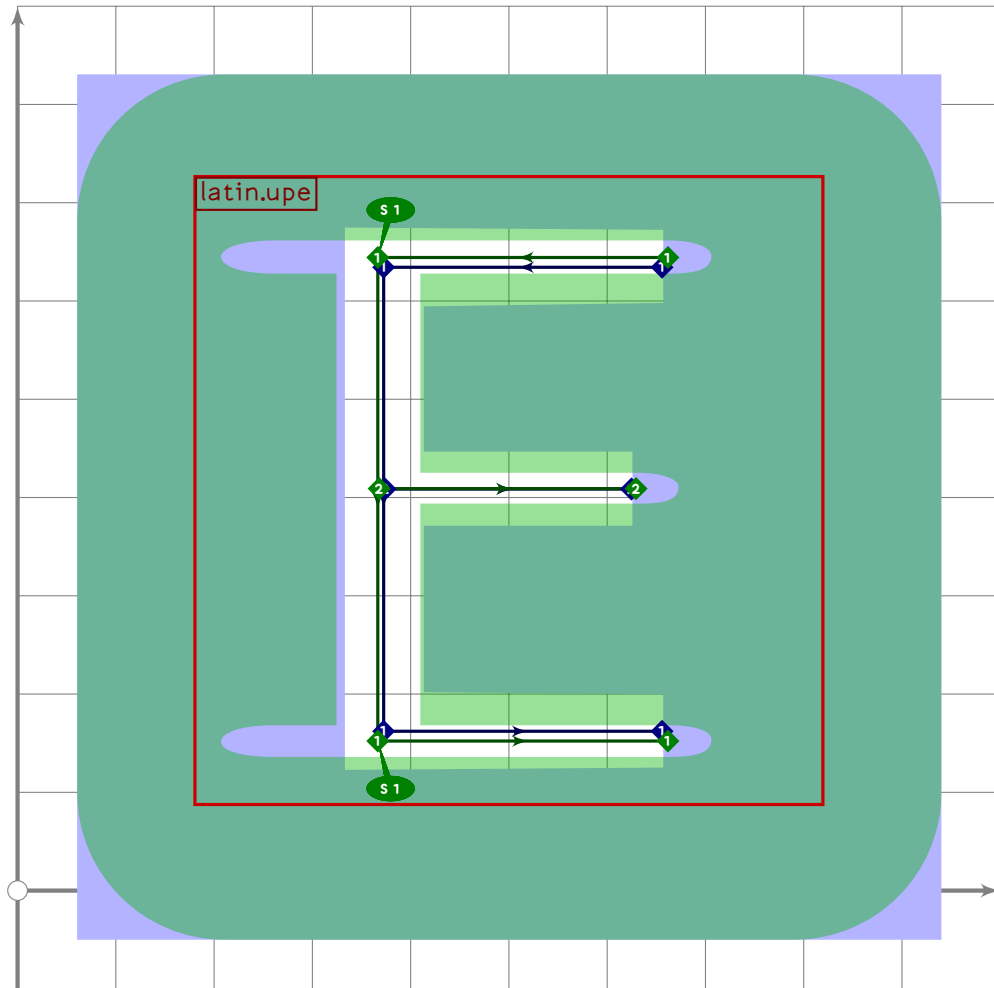




```

440 % D
441 % BACKGROUND F1712
442 beginsuglyph("u1F173";115);
443 tsu_xform(tsu_xf.sletter)(latin.upd);
444 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
445 tsu_render;
446 endsuglyph;
447

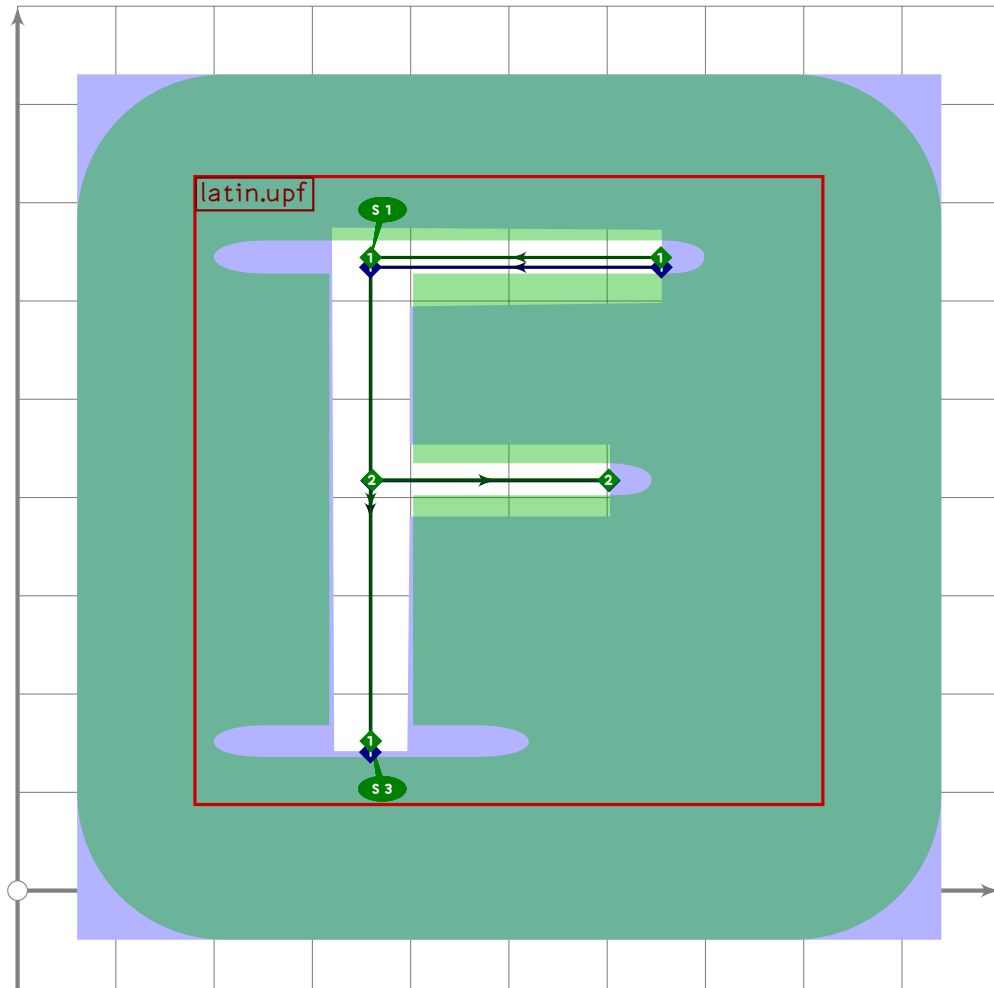
```



```

448 % E
449 % BACKGROUND F1712
450 beginsuglyph("u1F174",116);
451   tsu_xform(tsu_xf.sletter)(latin.upe);
452   i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
453   tsu_render;
454 endsuglyph;
455

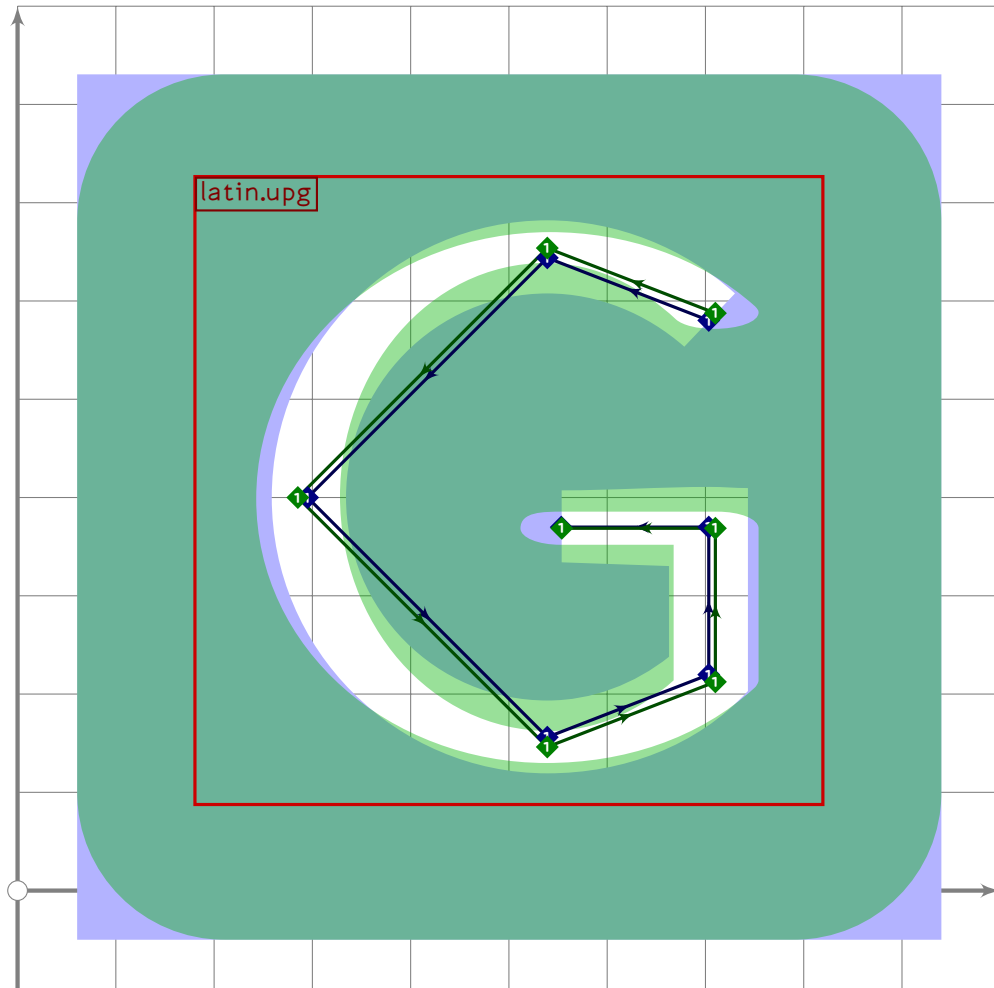
```



```

456 % F
457 % BACKGROUND F1712
458 begint Suglyph("u1F175",117);
459 tsu_xform(tsu_xf.sletter)(latin.upf);
460 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
461 tsu_render;
462 endtsuglyph;
463

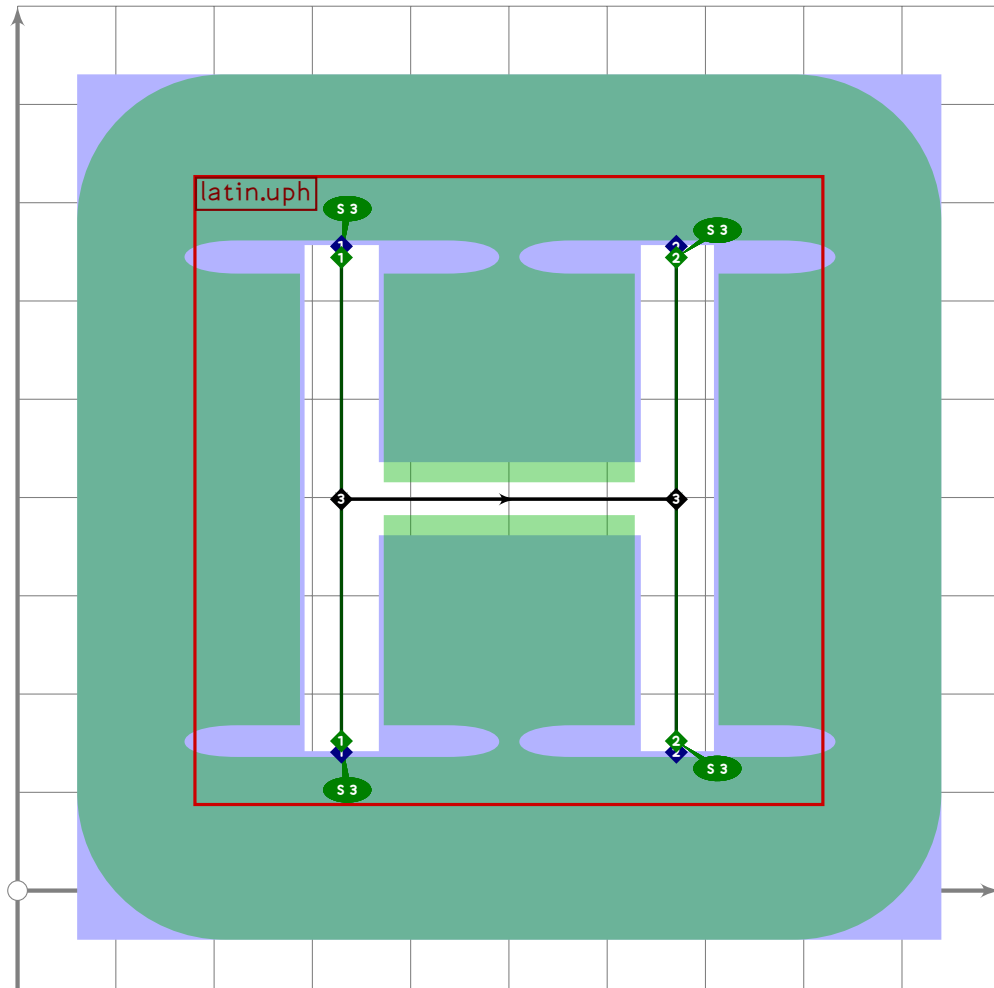
```



```

464 % G
465 % BACKGROUND F1712
466 begintsuglyph("u1F176";118);
467 tsu_xform(tsu_xf.sletter)(latin.upg);
468 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
469 tsu_render;
470 endsuglyph;
471

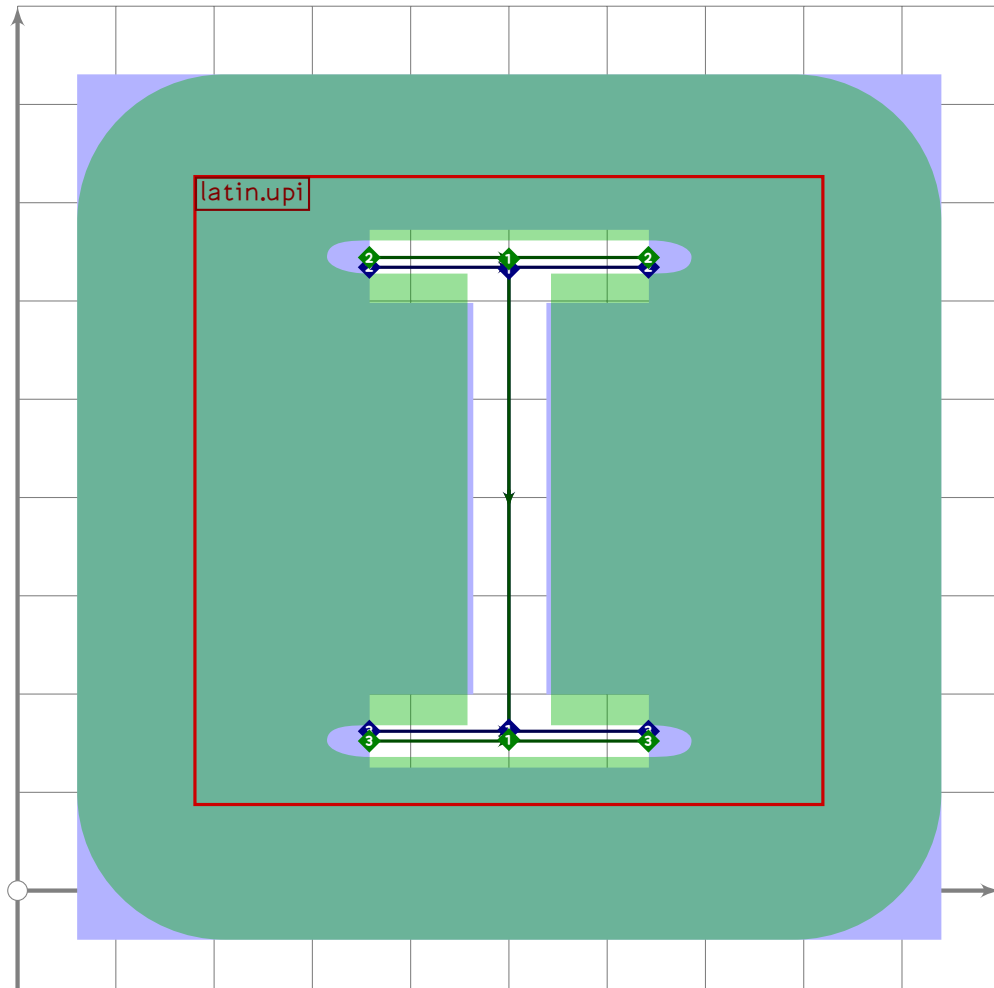
```



```

472 % H
473 % BACKGROUND F1712
474 beginsuglyph("u1F177",119);
475 tsu_xform(tsu_xf.sletter)(latin.uph);
476 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
477 tsu_render;
478 endtsuglyph;
479

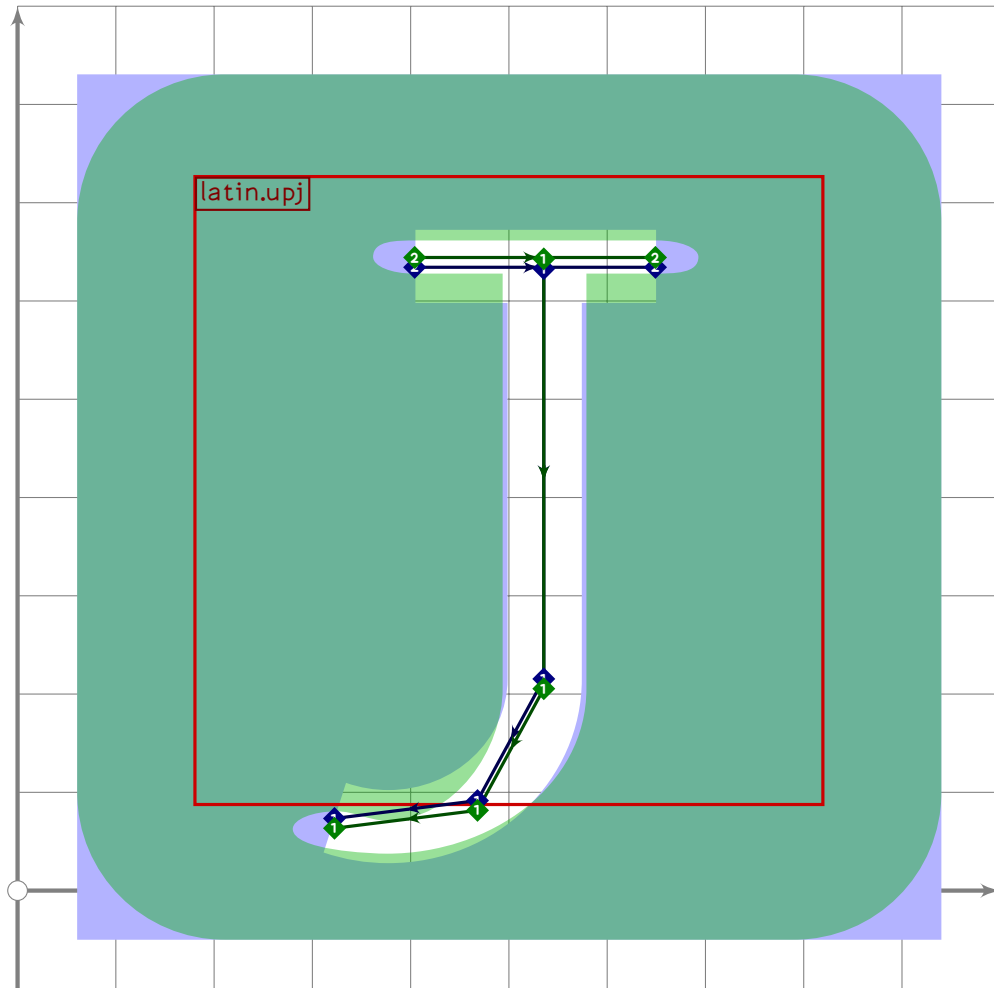
```



```

480 % I
481 % BACKGROUND F1712
482 beginsuglyph("u1F178",120);
483 tsu_xform(tsu_xf.sletter)(latin.upi);
484 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
485 tsu_render;
486 endsuglyph;
487

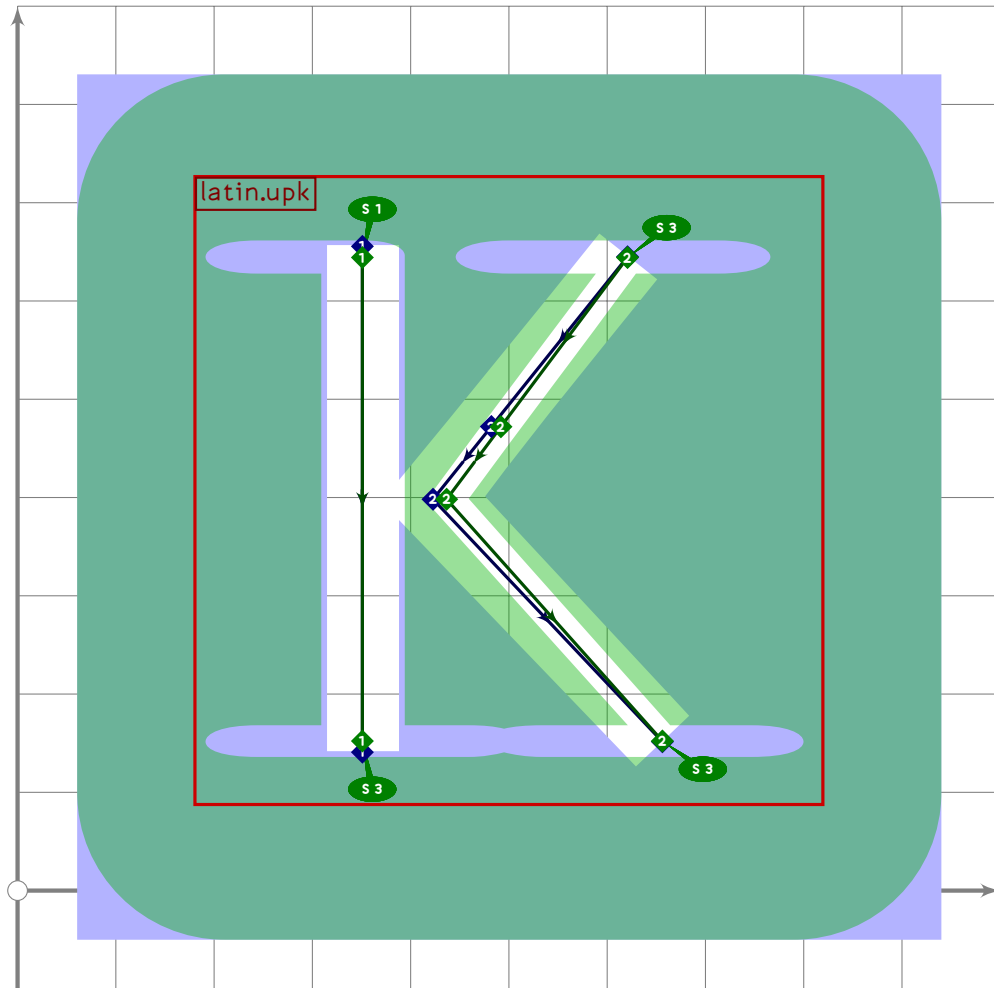
```



```

488 % J
489 % BACKGROUND F1712
490 beginsuglyph("u1F179";121);
491 tsu_xform(tsu_xf.sletter)(latin.upj);
492 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
493 tsu_render;
494 endsuglyph;
495

```

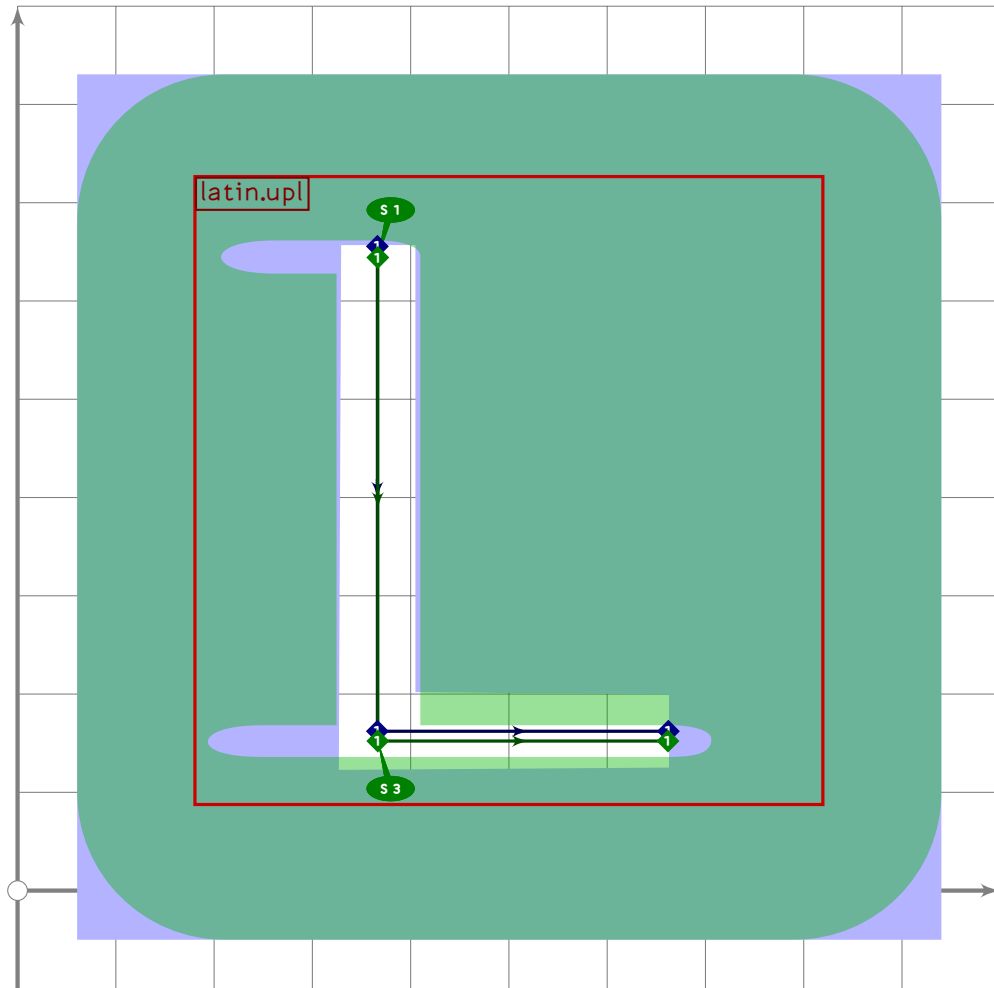


```

496 % K
497 % BACKGROUND F1712
498 begint Suglyph("u1F17A",122);
499 tsu_xform(tsu_xf.sletter)(latin.upk);
500 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
501 tsu_render;
502 endtsuglyph;
503

```

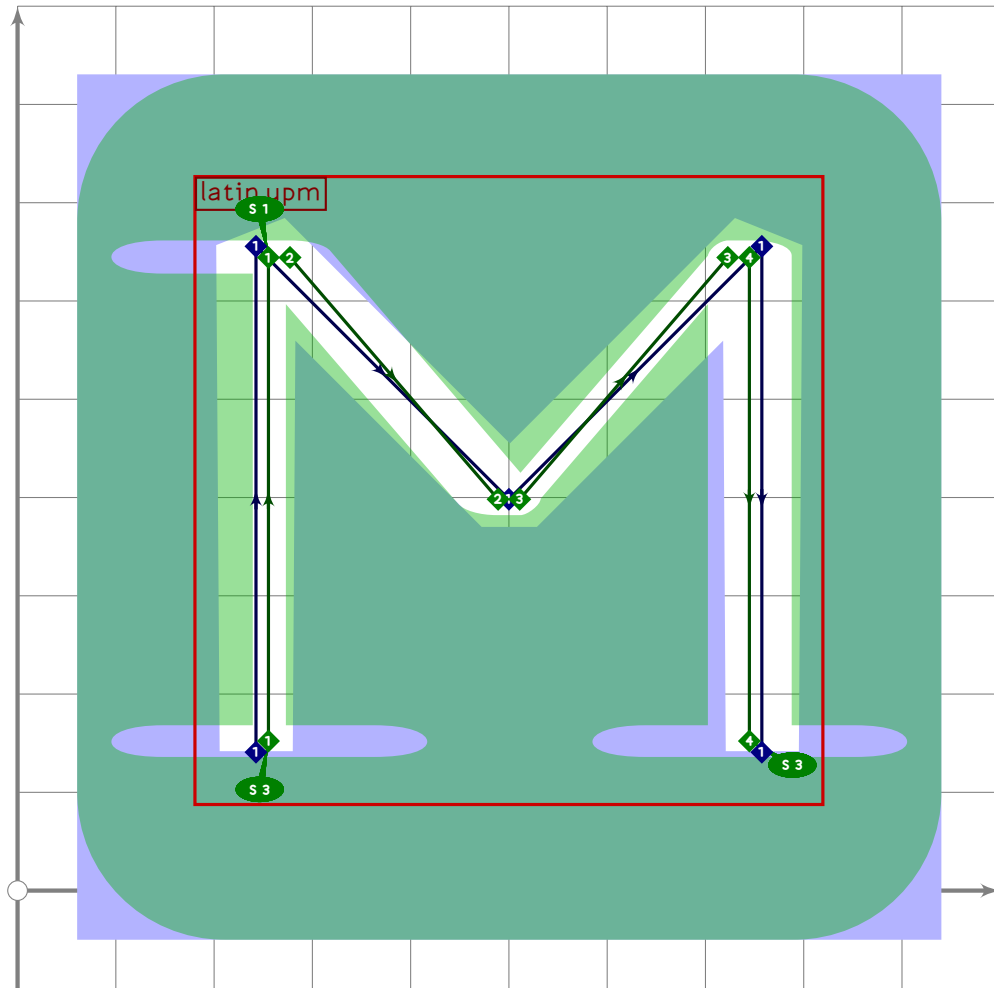




```

504 % L
505 % BACKGROUND F1712
506 beginsuglyph("u1F17B",123);
507 tsu_xform(tsu_xf.sletter)(latin.upl);
508 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
509 tsu_render;
510 endsuglyph;
511

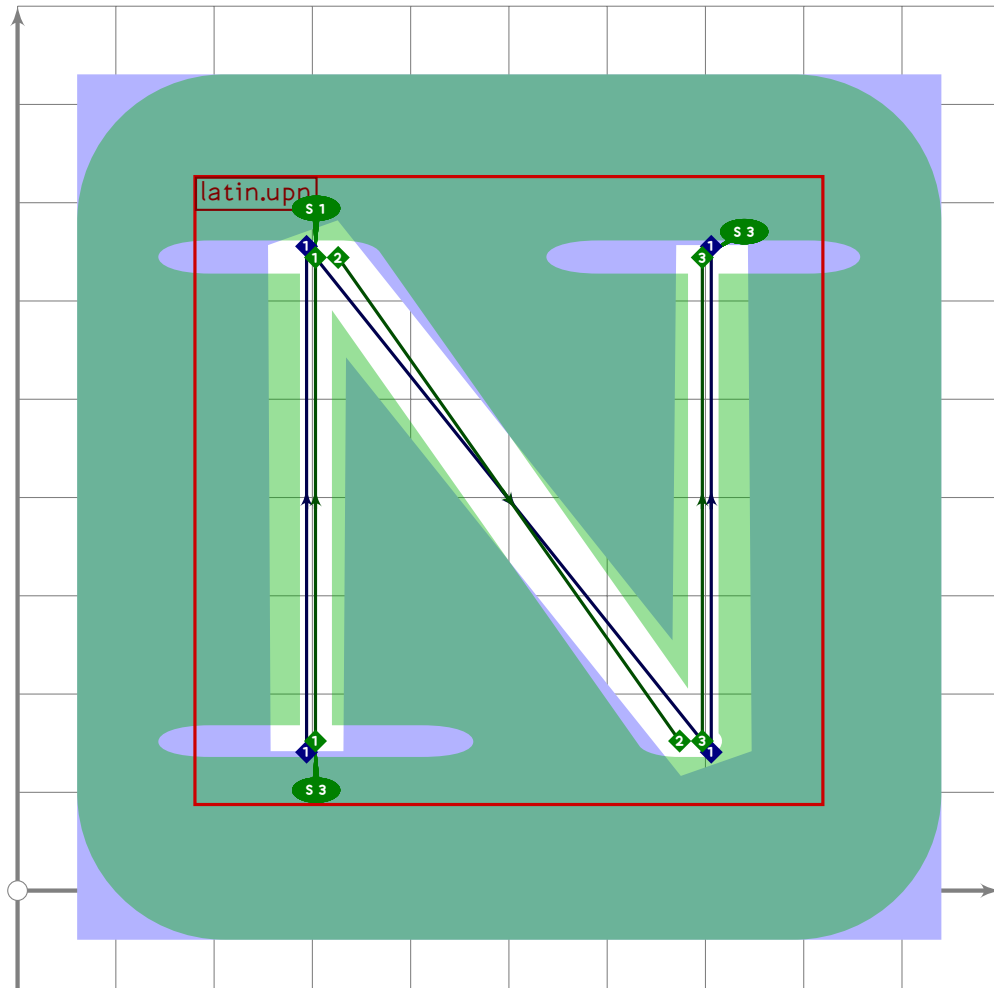
```



```

512 % M
513 % BACKGROUND F1712
514 begintsuglyph("u1F17C";124);
515 if do_alteration:
516     tsu_xform(tsu_xf.sletter
517         shifted -centre_pt xscaled 0.95 shifted centre_pt)(latin.upm);
518 else:
519     tsu_xform(tsu_xf.sletter)(latin.upm);
520 fi;
521 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
522 tsu_render;
523 endtsuglyph;
524

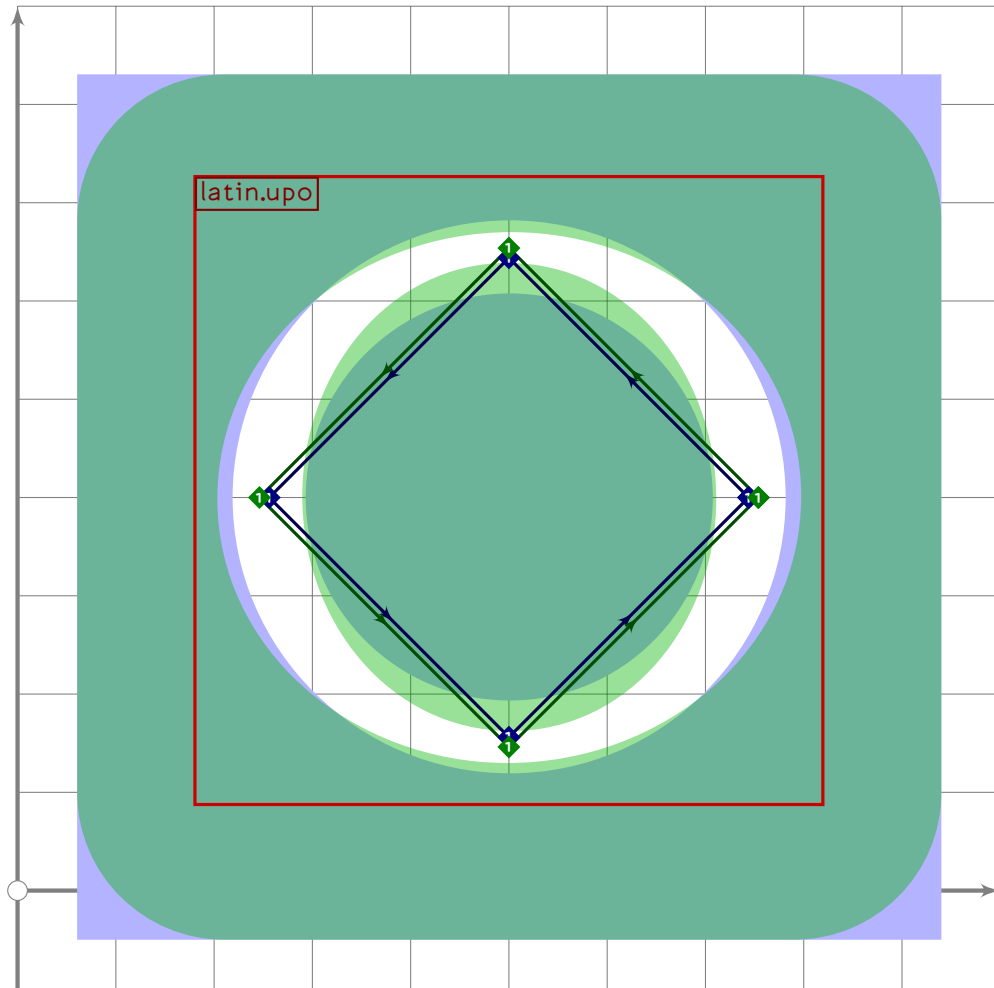
```



```

525 % N
526 % BACKGROUND F1712
527 begintsuglyph("u1F17D";125);
528 tsu_xform(tsu_xf.sletter)(latin.upn);
529 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
530 tsu_render;
531 endtsuglyph;
532

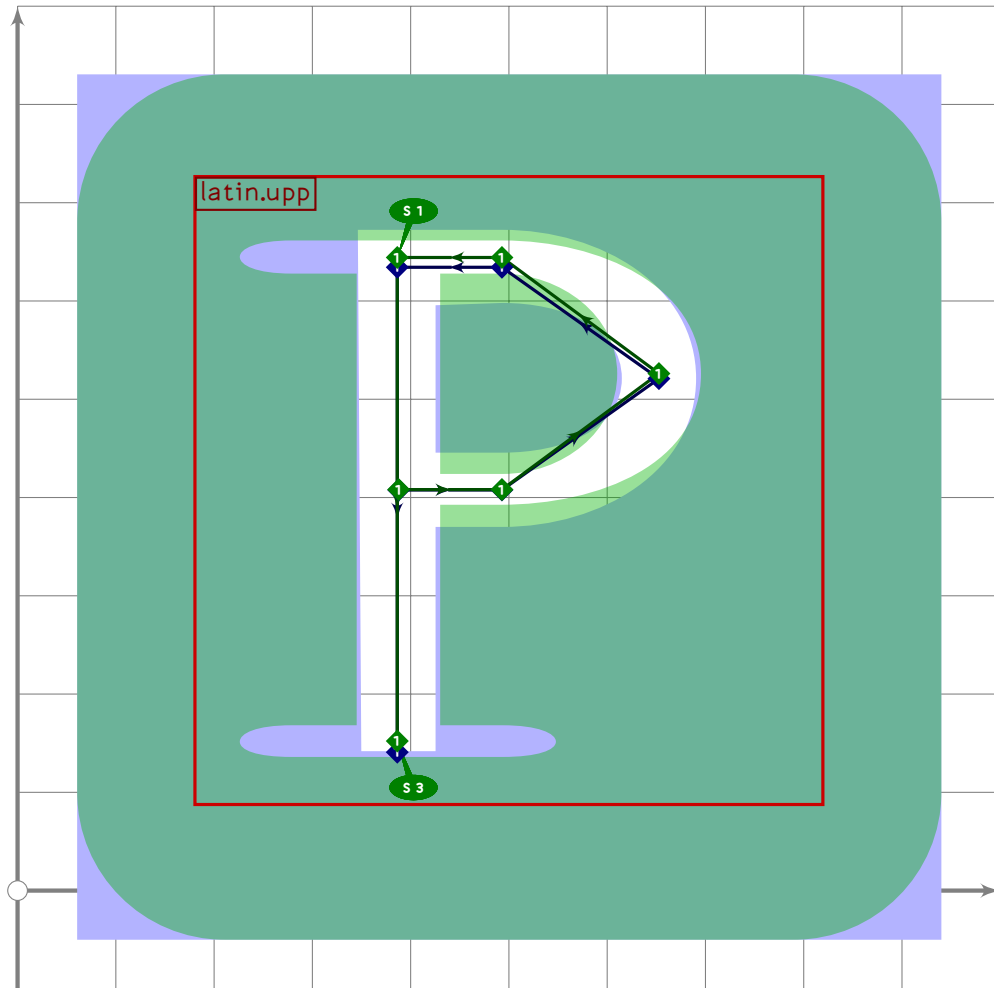
```



```

533 % O
534 % BACKGROUND F1712
535 beginsuglyph("u1F17E",126);
536 tsu_xform(tsu_xf.sletter)(latin.upo);
537 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
538 tsu_render;
539 endsuglyph;
540

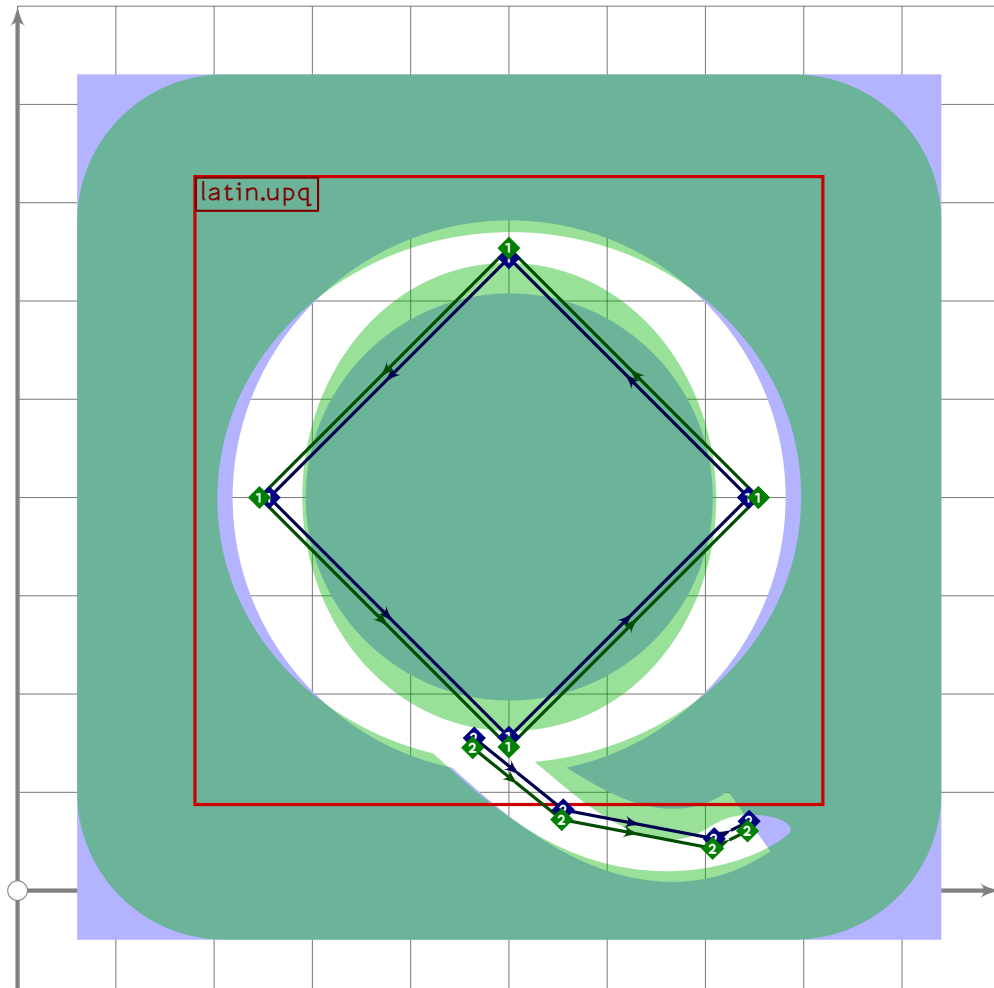
```



```

541 % P
542 % BACKGROUND F1712
543 beginsuglyph("u1F17F",127);
544 tsu_xform(tsu_xf.sletter)(latin.upp);
545 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
546 tsu_render;
547 endsuglyph;
548

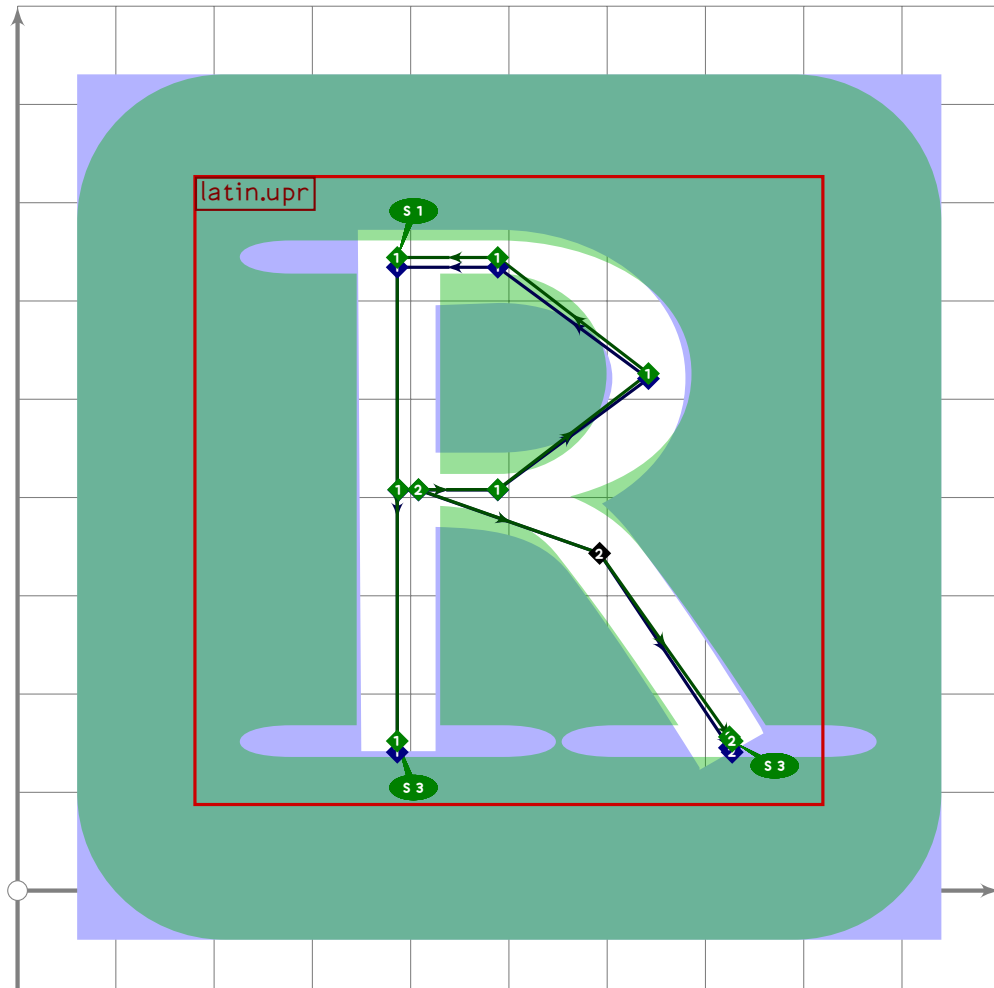
```



```

549 % Q
550 % BACKGROUND F1712
551 beginsuglyph("u1F180";128);
552 tsu_xform(tsu_xf.sletter)(latin.upq);
553 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
554 tsu_render;
555 endsuglyph;
556

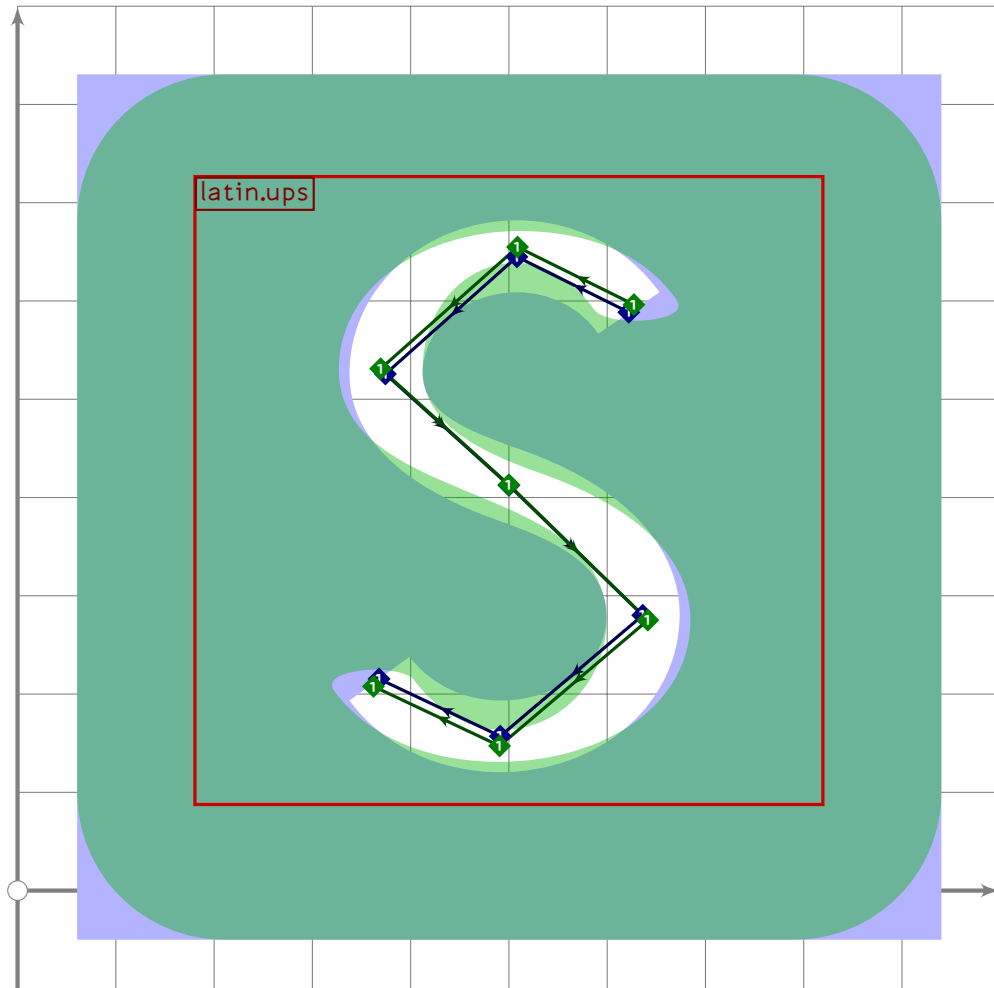
```



```

557 % R
558 % BACKGROUND F1712
559 beginsuglyph("u1F181",129);
560 tsu_xform(tsu_xf.sletter)(latin.upr);
561 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
562 tsu_render;
563 endsuglyph;
564

```

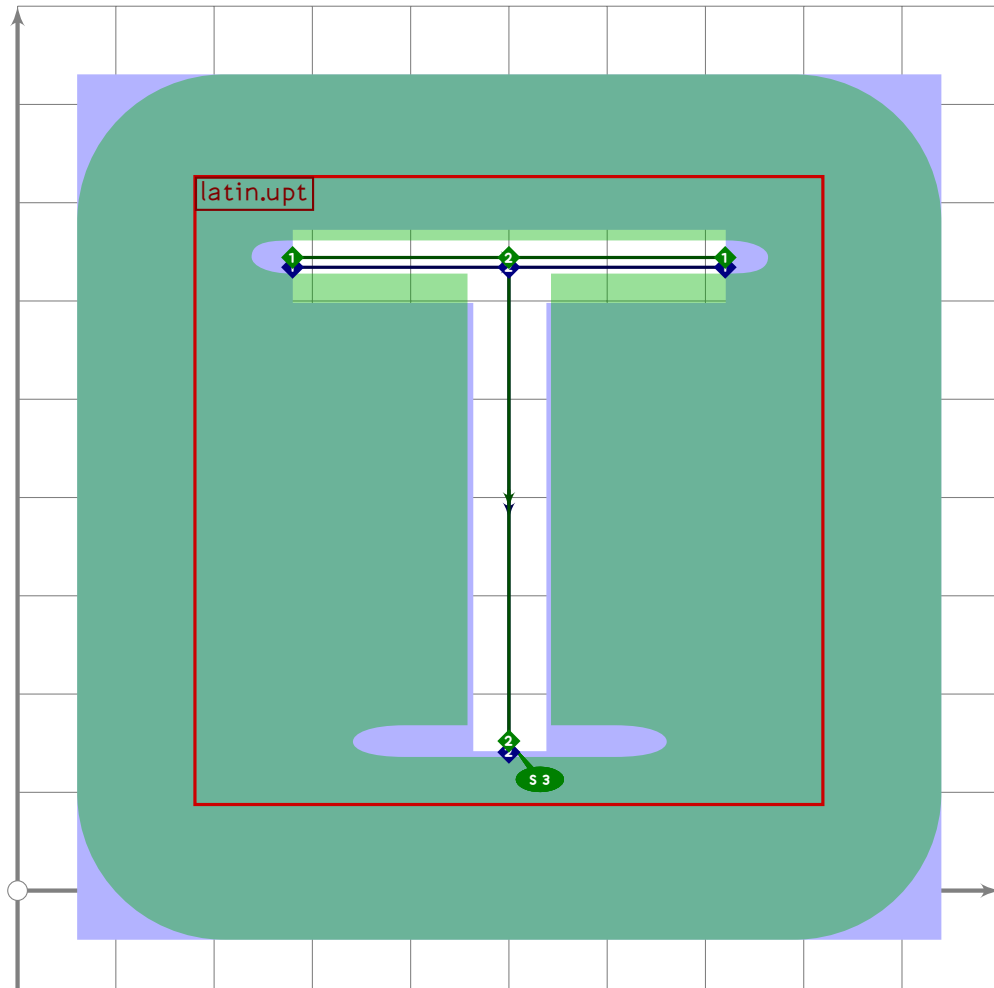


```

565 % S
566 % BACKGROUND F1712
567 begintsuglyph("u1F182",130);
568 tsu_xform(tsu_xf.sletter)(latin.ups);
569 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
570 tsu_render;
571 endtsuglyph;
572

```

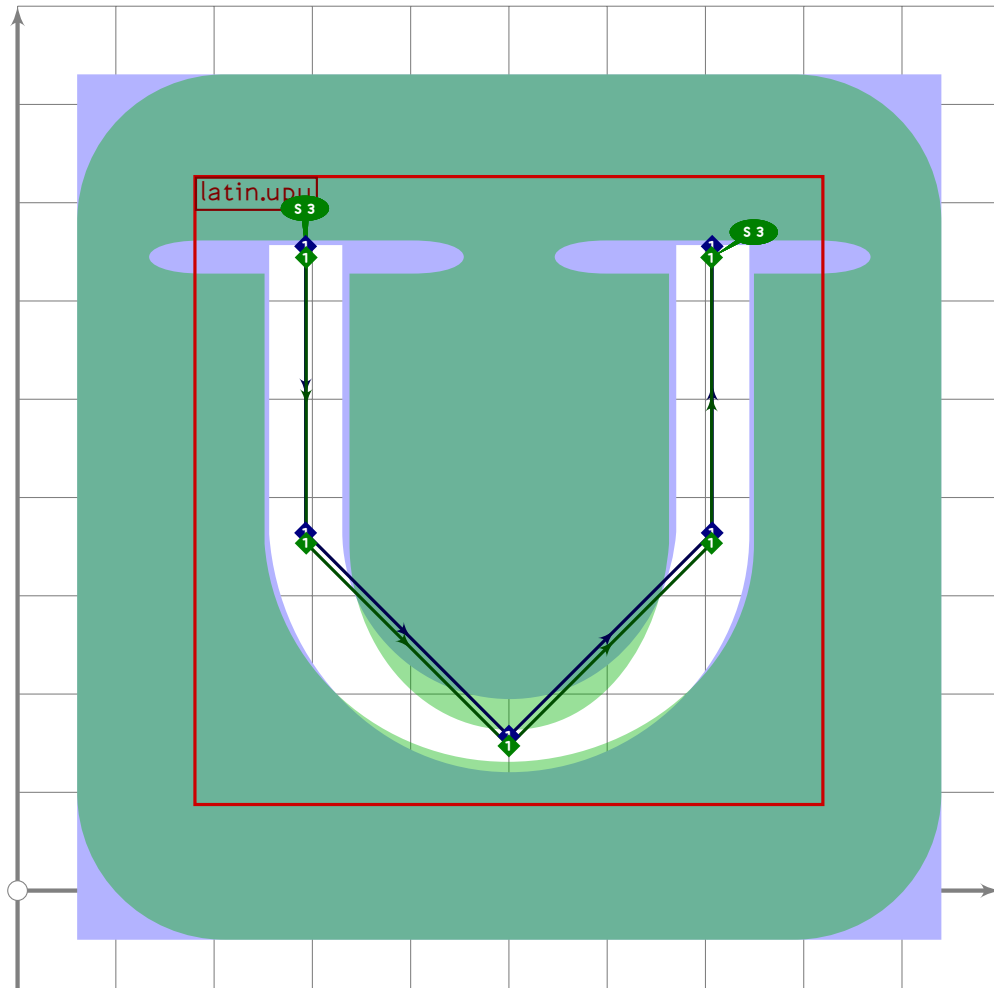




```

573 % T
574 % BACKGROUND F1712
575 beginsuglyph("u1F183",131);
576 tsu_xform(tsu_xf.sletter)(latin.upt);
577 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
578 tsu_render;
579 endsuglyph;
580

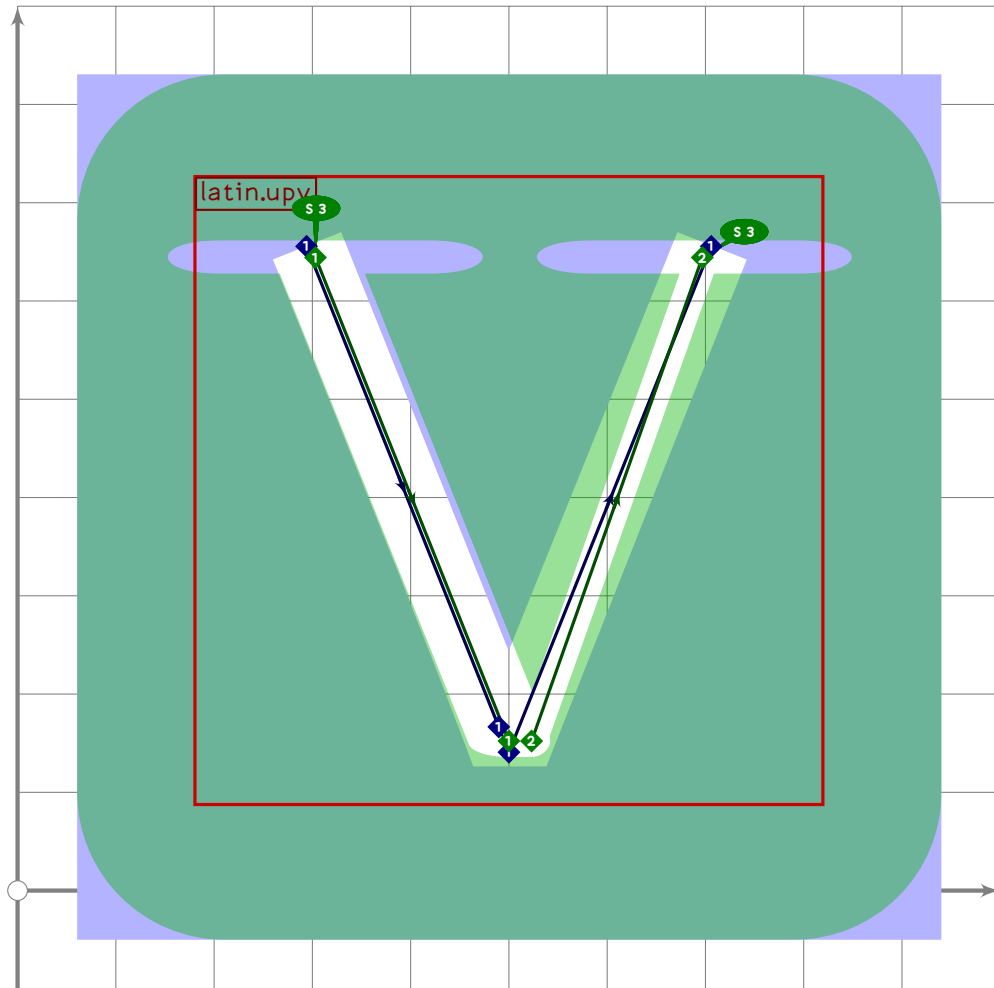
```



```

581 % U
582 % BACKGROUND F1712
583 begint Suglyph("u1F184",132);
584 tsu_xform(tsu_xf.sletter)(latin.upu);
585 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
586 tsu_render;
587 endtsuglyph;
588

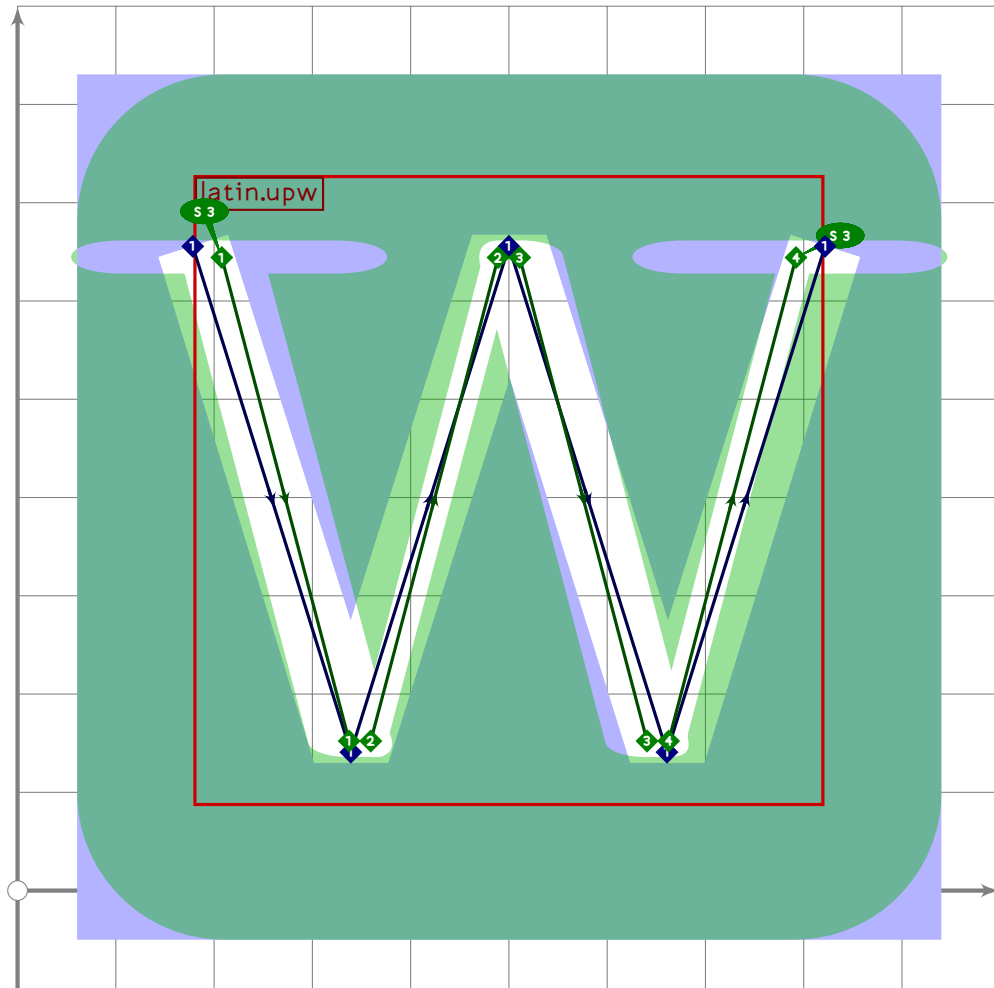
```



```

589 % V
590 % BACKGROUND F1712
591 beginsuglyph("u1F185",133);
592 tsu_xform(tsu_xf.sletter)(latin.upv);
593 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
594 tsu_render;
595 endsuglyph;
596

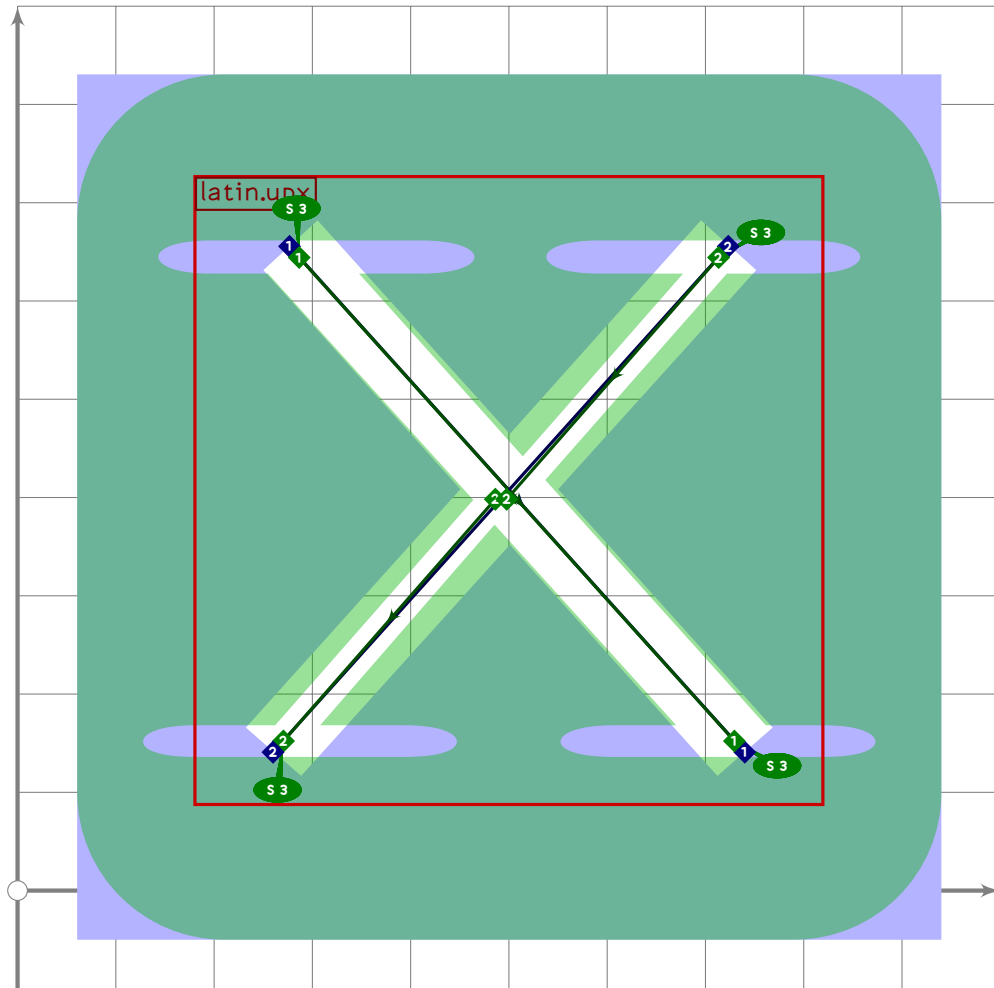
```



```

597 % W
598 % BACKGROUND F1712
599 begintsuglyph("u1F186",134);
600 if do_alteration:
601     tsu_xform(tsu_xf.sletter
602         shifted -centre_pt xscaled 0.95 shifted centre_pt)(latin.upw);
603 else:
604     tsu_xform(tsu_xf.sletter)(latin.upw);
605 fi;
606 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
607 tsu_render;
608 endtsuglyph;
609

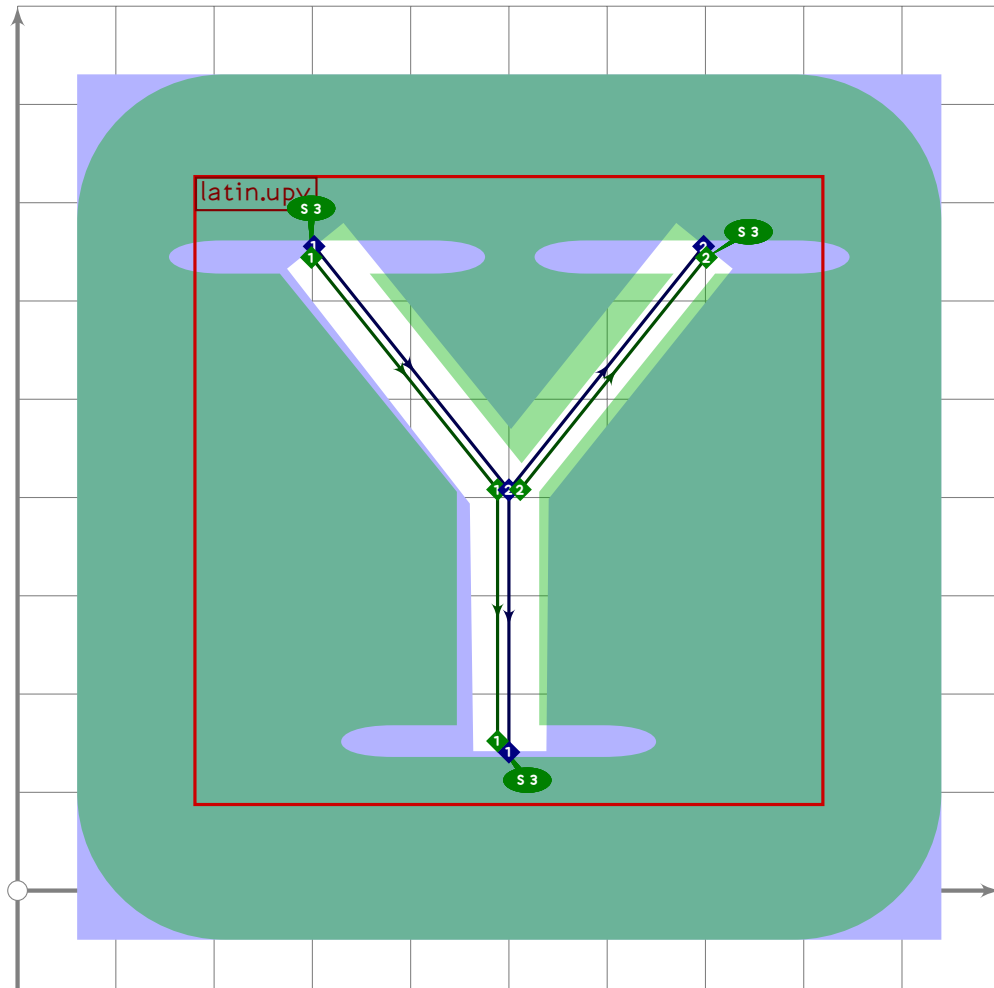
```



```

610 % X
611 % BACKGROUND F1712
612 beginsuglyph("u1F187",135);
613 tsu_xform(tsu_xf.sletter)(latin.upx);
614 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
615 tsu_render;
616 endsuglyph;
617

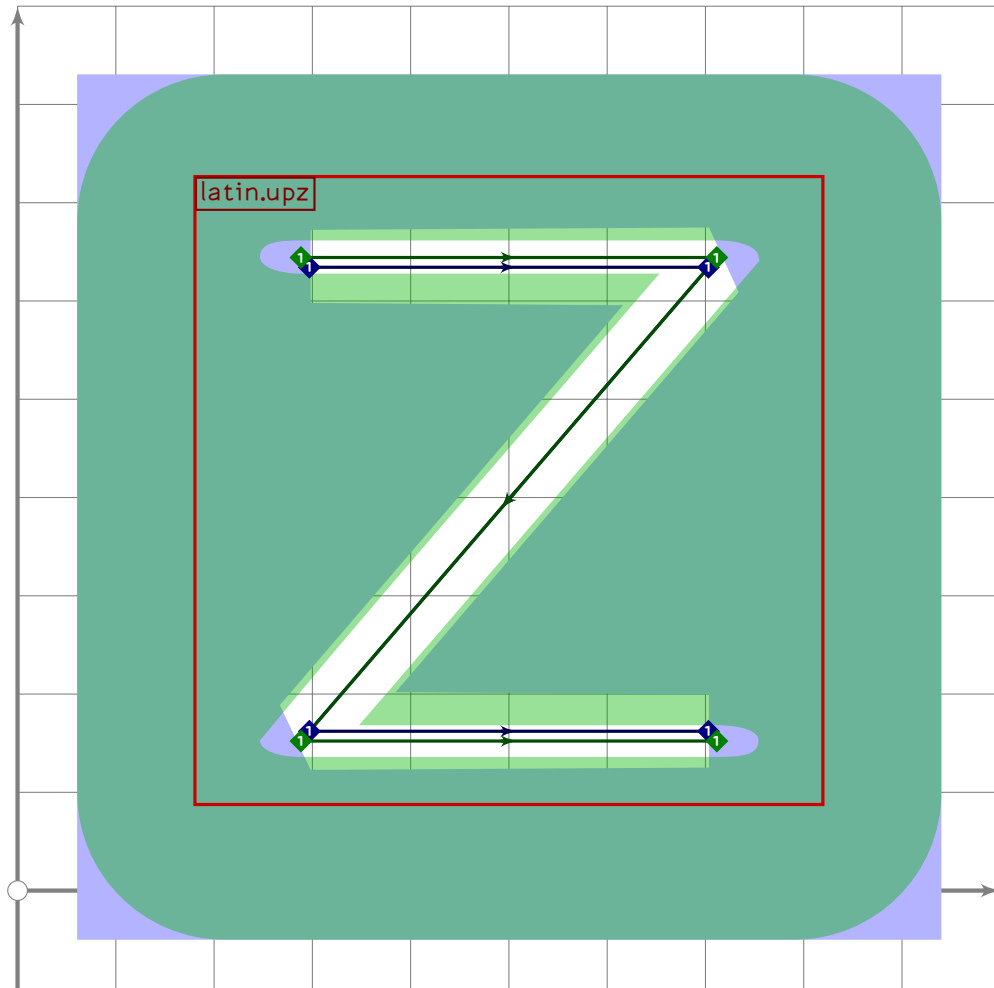
```



```

618 % Y
619 % BACKGROUND F1712
620 begintsuglyph("u1F188";136);
621 tsu_xform(tsu_xf.sletter)(latin.upy);
622 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
623 tsu_render;
624 endtsuglyph;
625

```



```

626 % Z
627 % BACKGROUND F1712
628 beginsuglyph("u1F189";137);
629 tsu_xform(tsu_xf.sletter)(latin.upz);
630 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,107); i:=i-1; endfor;
631 tsu_render;
632 endsuglyph;
633
634 _____
635
636 endfont;
637
638 _____

```

# tsuku-f17.mp

```
1 %
2 % Unicode page F17 (Tsukurimashou-specific extensions) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36
37 % AUTODEPS
38 input accent.mp;
39 input buildkanji.mp;
40 input enclosed.mp;
41 input gradeone.mp;
42 input iching.mp;
43 input katakana.mp;
44 input latin.mp;
45 input leftrad.mp;
46
47 

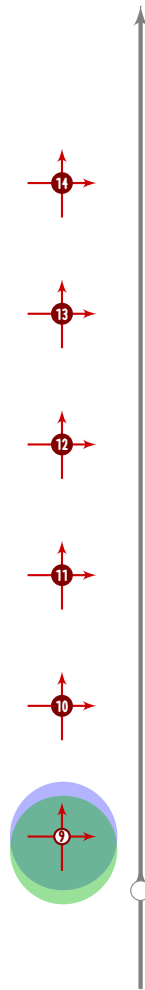
---


48
```

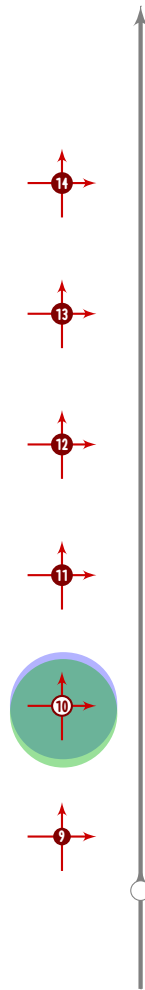
## Combining Dots For I Ching

```
49 % COMBINING DOTS FOR I CHING
50
51 % WARNING changing rescale setting
52 tsu_rescale_native_zero;
53
54 vardef make_iching_anchors(expr lnum,lmax) =
55   for i:=1 upto lmax:
56     push_anchor(if i=lnum: -1 else: 1 fi*anc_iching_line(i),
57     identity shifted (((1,i) transformed iching_xform)
58     +(1000-iching.size)*0.25*right+1000*left));
59   endfor;
60 enddef;
```

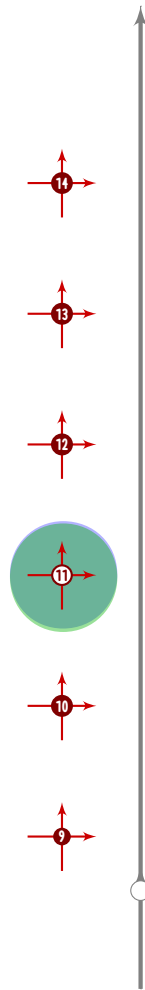




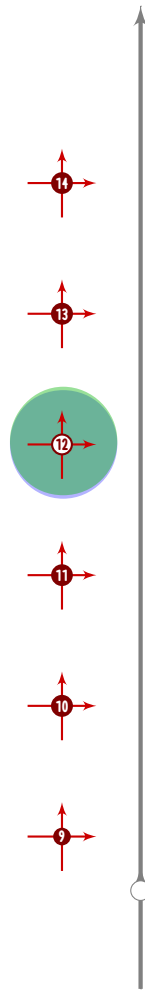
```
61  
62 begintsuglyph("ichingdot1.6",1);  
63 Fill iching.dot(1,6) shifted (-1000,0);  
64 make_iching_anchors(1,6);  
65 tsu_render;  
66 endtsuglyph;
```



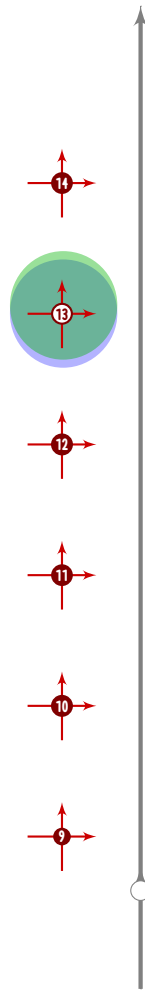
```
67  
68 begintsuglyph("ichingdot2.6",2);  
69 Fill iching.dot(2,6) shifted (-1000,0);  
70 make_iching_anchors(2,6);  
71 tsu_render;  
72 endtsuglyph;
```



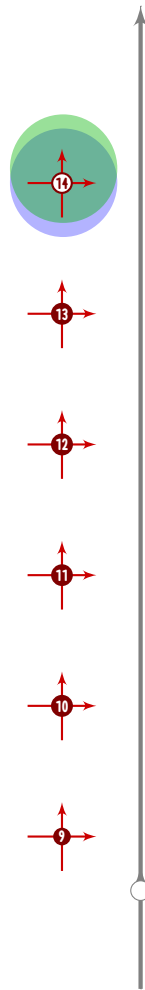
```
73  
74 begintsuglyph("ichingdot3.6",3);  
75 Fill iching.dot(3,6) shifted (-1000,0);  
76 make_iching_anchors(3,6);  
77 tsu_render;  
78 endtsuglyph;
```



```
79  
80 begintsuglyph("ichingdot4.6";4);  
81 Fill iching.dot(4,6) shifted (-1000,0);  
82 make_iching_anchors(4,6);  
83 tsu_render;  
84 endtsuglyph;
```



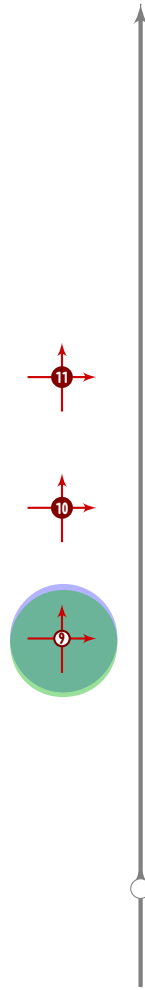
```
85  
86 begintsuglyph("ichingdot5.6",5);  
87 Fill iching.dot(5,6) shifted (-1000,0);  
88 make_iching_anchors(5,6);  
89 tsu_render;  
90 endtsuglyph;
```



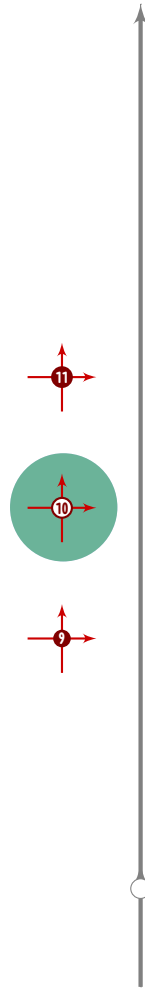
```

91
92 begintsuglyph("ichingdot6.6",6);
93 Fill iching.dot(6,6) shifted (-1000,0);
94 make_iching_anchors(6,6);
95 tsu_render;
96 endtsuglyph;

```

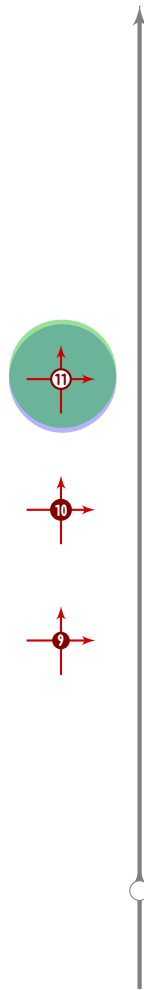


```
97  
98 begintsuglyph("ichingdot1.3",7);  
99 Fill iching.dot(1,3) shifted (-1000,0);  
100 make_iching_anchors(1,3);  
101 tsu_render;  
102 endtsuglyph;
```



```
103  
104 begintsuglyph("ichingdot2.3",8);  
105 Fill iching.dot(2,3) shifted (-1000,0);  
106 make_iching_anchors(2,3);  
107 tsu_render;  
108 endtsuglyph;
```





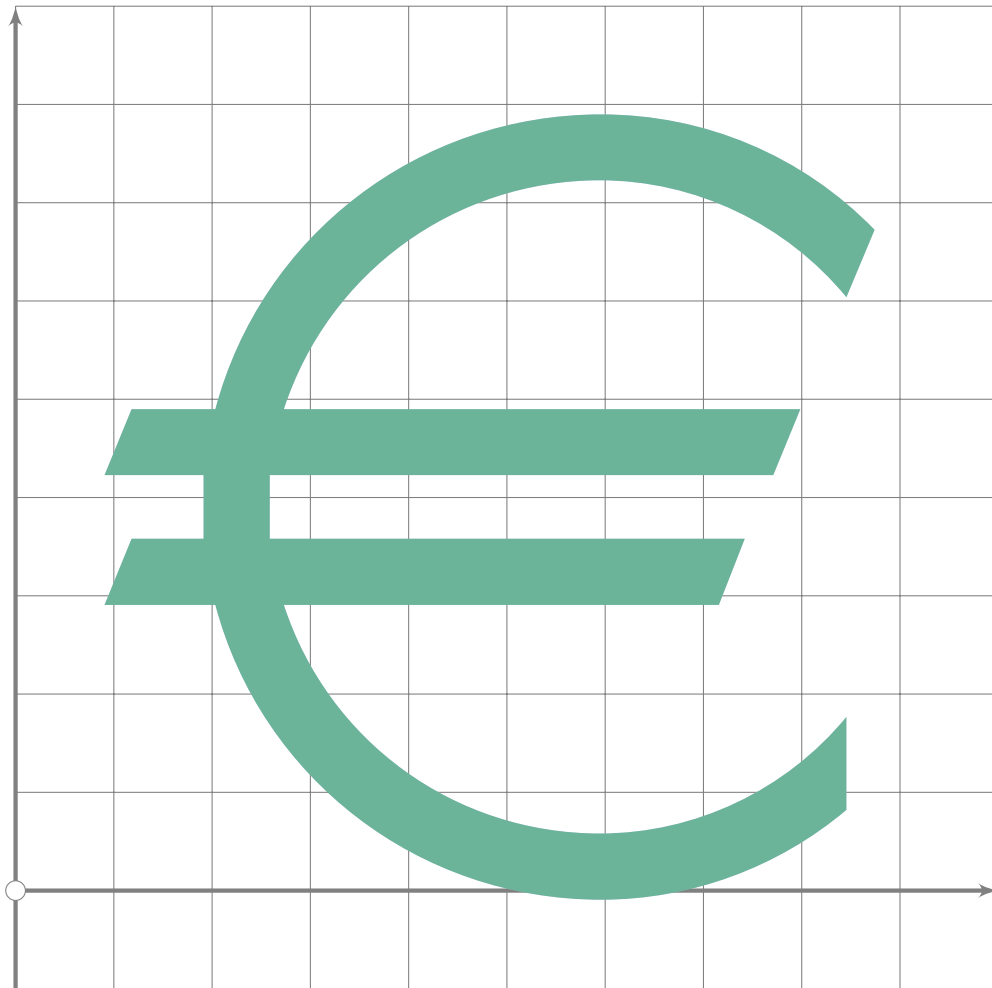
```
109
110 begintsuglyph("ichingdot3.3";9);
111 Fill iching.dot(3,3) shifted (-1000,0);
112 make_iching_anchors(3,3);
113 tsu_render;
114 endtsuglyph;
115
116 % WARNING changing rescale setting
117 tsu_rescale_full;
118
119 

---


120
```

## Miscellaneous

121 % MISCELLANEOUS



```

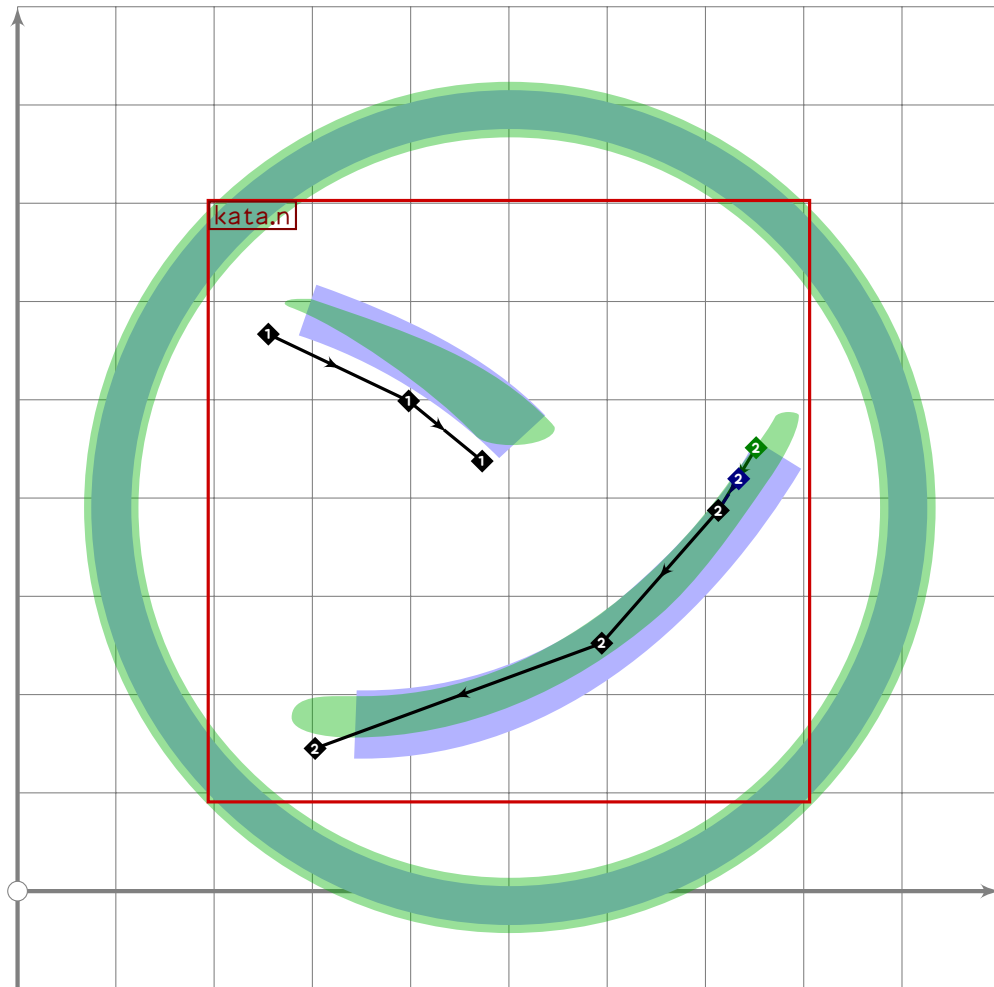
122
123 begintsuglyph("Euro.official",16);
124 z25=(fullcircle scaled 10) intersectionpoint ((0,0)-(10*dir 40));
125 z11=(0,-6);
126
127 z1=(0,6);
128 z2=(fullcircle scaled 12) intersectionpoint ((-10,1.5)-(0,1.5));
129 y3=y2;
130 z3-z4=whatever*(z25-z11);
131 z4=(-7.5,0.5);
132 z5=(fullcircle scaled 12) intersectionpoint ((-10,0.5)-(0,0.5));
133 z6=(-6,0);
134 z7=(fullcircle scaled 12) intersectionpoint ((-10,-0.5)-(0,-0.5));
135 y8=y7;
136 z8-z9=whatever*(z25-z11);
137 z9=(-7.5,-1.5);
138 z10=(fullcircle scaled 12) intersectionpoint ((-10,-1.5)-(0,-1.5));
139 z13=(fullcircle scaled 10) intersectionpoint ((0,0)-(10*dir 320));
140 z12=(fullcircle scaled 12) intersectionpoint (z13-(z13+(0,-3)));
141 z14=(0,-5);
142 z15=(fullcircle scaled 10) intersectionpoint ((-10,-1.5)-(0,-1.5));

```

```

143 y16=-1.5;
144 z16=whatever[z11,z25];
145 y17=-0.5;
146 z17=whatever[z11,z25];
147 z18=(fullcircle scaled 10) intersectionpoint ((-10,-0.5)-(0,-0.5));
148 z19=(-5,0);
149 z20=(fullcircle scaled 10) intersectionpoint ((-10,0.5)-(0,0.5));
150 y21=0.5;
151 z21=whatever[z11,z25];
152 y22=1.5;
153 z22=whatever[z11,z25];
154 z23=(fullcircle scaled 10) intersectionpoint ((-10,1.5)-(0,1.5));
155 z24=(0,5);
156 z26=(fullcircle scaled 12) intersectionpoint (z11-1.5[z11,z25]);
157 path euro;
158 euro:=z1..z2-z3-z4-z5..z6..z7-z8-z9-z10..z11..z12-z13..
159   z14..z15-z16-z17-z18..z19..z20-z21-z22-z23..z24..z25-z26..cycle;
160 dangerousFill euro scaled (400/6) shifted (centre_pt+90*right);
161 endtsuglyph;
162

```

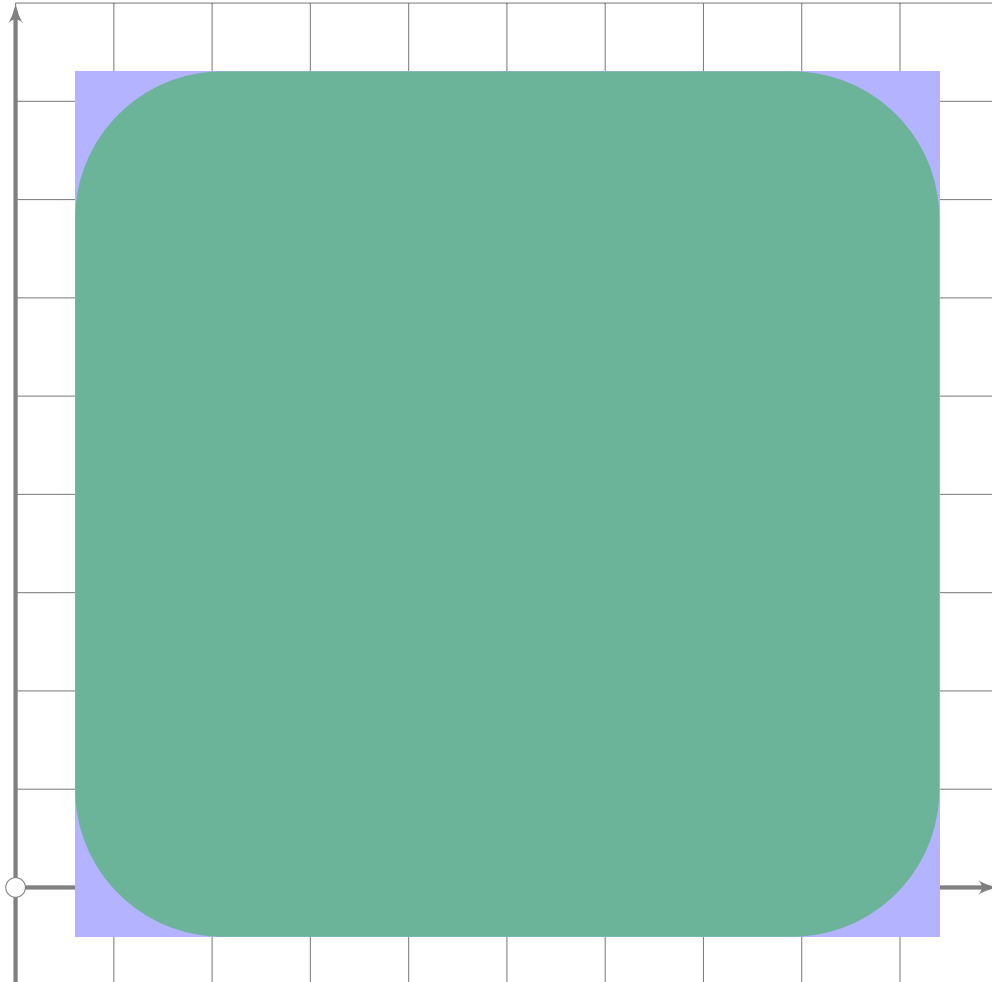


163 % circled "katakana n"

```

164 begint Suglyph("uF1711",17);
165 circle.single;
166 tsu_xform(tsu_xf.circled)(kata.n);
167 tsu_render_in_circle(tsu_xf.cbound);
168 endtsuglyph;
169

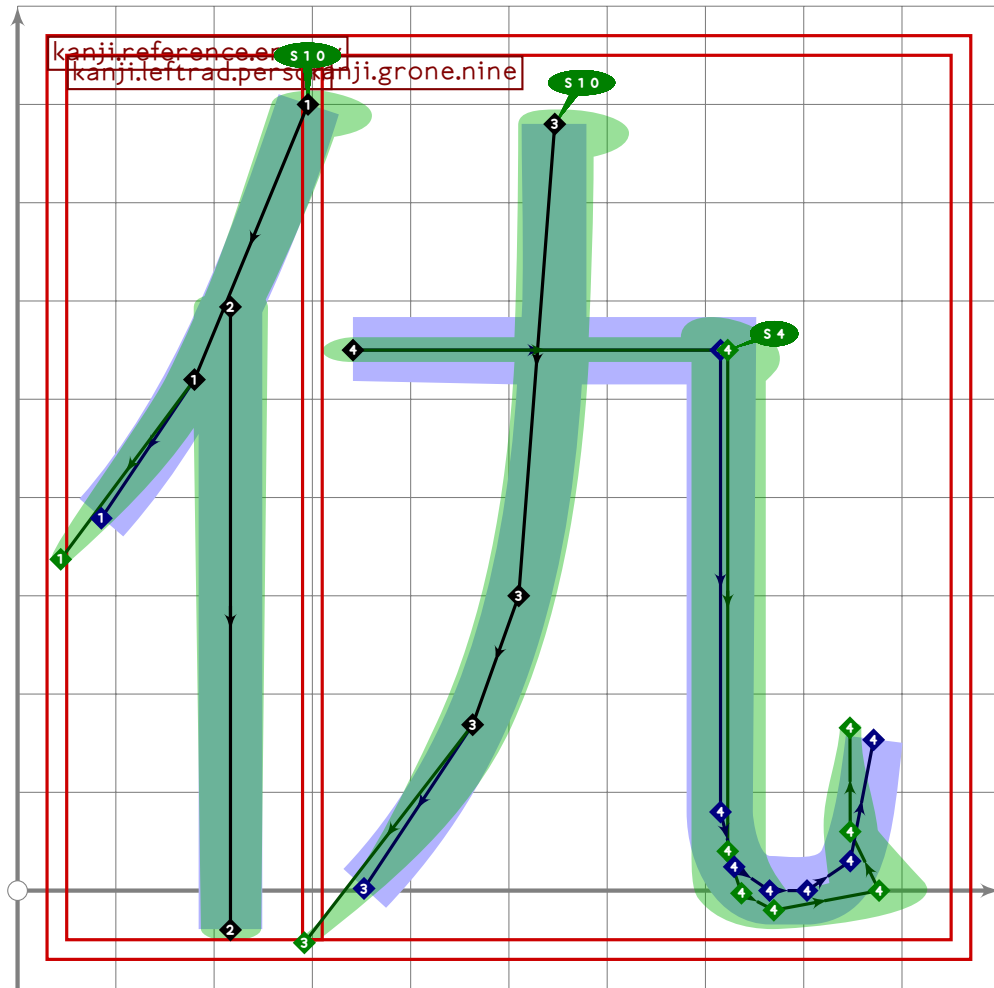
```



```

170 % background for use with enclosed alpha
171 begint Suglyph("squarebackground",18);
172 if sharp_corners:
173     dangerousFill (60,830)-(60,-50)-(940,-50)-(940,830)-cycle;
174 else:
175     path crnp;
176     crnp:=(60+1.5*tsu_punct_size,830){left}..
177     {down}(60,830-1.5*tsu_punct_size);
178     dangerousFill crnp-
179     (crnp rotatedaround (centre_pt,90))-
180     (crnp rotatedaround (centre_pt,180))-
181     (crnp rotatedaround (centre_pt,270))-cycle;
182 fi;
183 endtsuglyph;
184

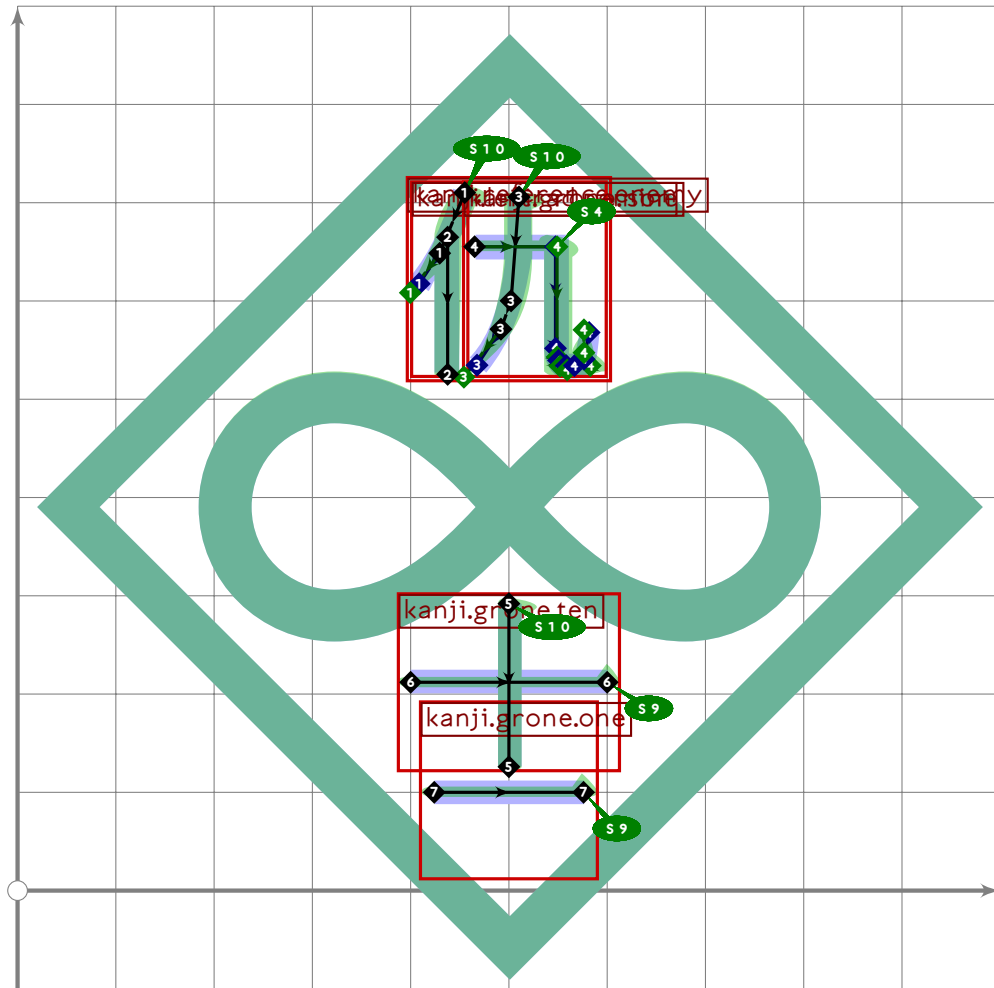
```



```

185 % Individual Eleven
186 vardef kanji.reference.enemy =
187   push_pbox_toexpand("kanji.reference.enemy");
188   build_kanji.lr(300,20)
189   (kanji.leftrad.person)
190   (kanji.grone.nine);
191   expand_pbox;
192 enddef;

```



```

193 begintsuglyph("individualeleven";19);
194 numeric x[],y[];
195 z3=z7=centre_pt;
196 z3-z1=z5-z3;
197 z3-z2=z4-z3;
198 z3-z8=z6-z3;
199 y1=y3;
200 y2=y6;
201 x2=x8;
202 y2-y1=x2-x1;
203 x3-x1=290;
204 x2-x1=111;
205 save default_nib;
206 path default_nib;
207 path iepa,iepb;
208 default_nib:=fix_nib(53,53,0);
209 pen_stroke()(z1{up}..z2{right}..z3..z4{right}..:fup}z5)(iepa);
210 dangerousFill iepa;
211 % do this in between the halves of the infinity, to work around a bug
212 dangerousFill unitsquare shifted (-0.5;0.5) scaled 680
213   rotated 45 shifted centre_pt;

```

```

214 dangerousFill reverse unitsquare shifted (-0.5,-0.5) scaled 590
215   rotated 45 shifted centre_pt;
216 pen_stroke()(z5{up}..z6{left}..z7..z8{left}..{up}z1)(iepb);
217 dangerousFill iepb;
218 build_kanji.sscale(scaled 0.22 shifted (0,230))
219   (kanji.reference.enemy);
220 build_kanji.sscale(xyscaled (0.25,0.20) shifted (0,-180))
221   (kanji.grone.ten);
222 build_kanji.sscale(scaled 0.20 shifted (0,-290))
223   (kanji.grone.one);
224 i:=0; forever: exitif find_stroke(i)<1; set_bosize(i,35); i:=i-1; endfor;
225 tsu_render;
226 endtsuglyph;
227
228
229

```

---

## Tomoe Ornaments

```

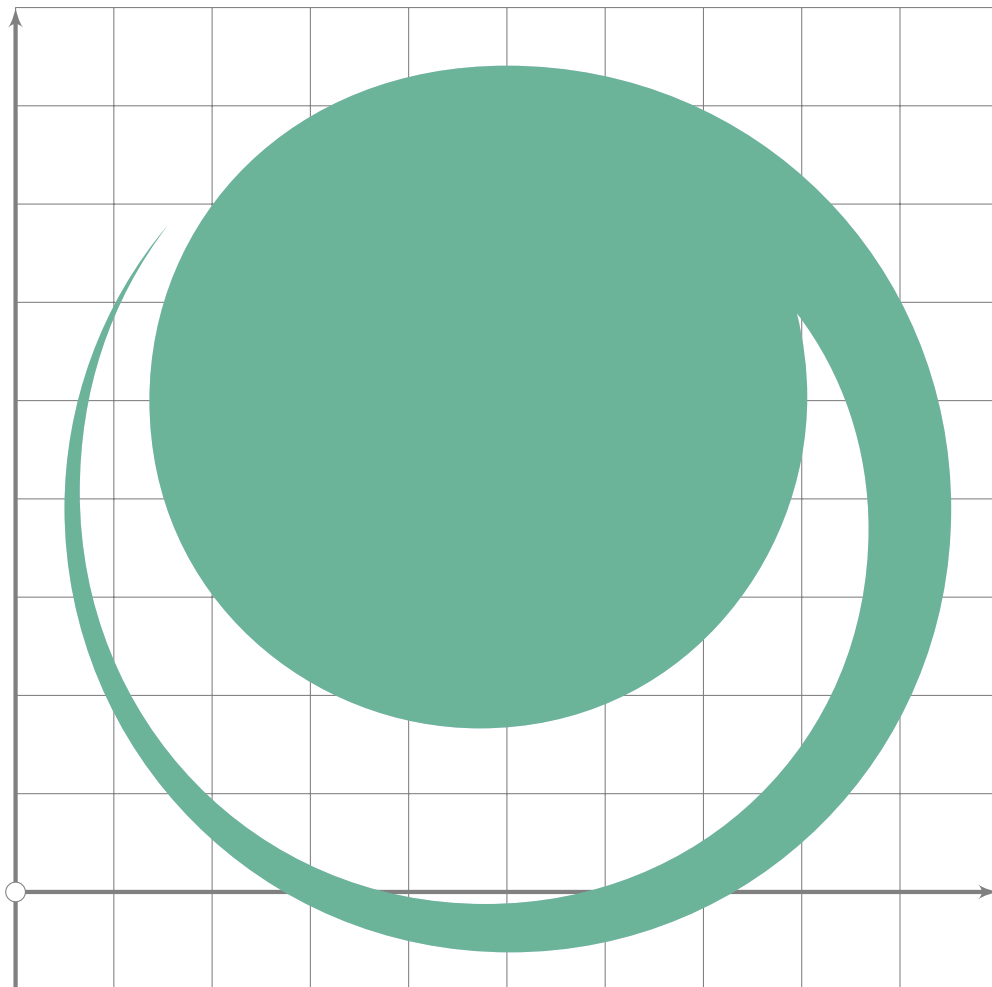
230 % TOMOE ORNAMENTS
231
232 vardef spiral_interpolate(expr start_cart,end_cart,ckpts,loops) =
233   begingroup
234     pair start_pol,end_pol,inter_pol;
235
236     start_pol:=(abs(start_cart),angle(start_cart));
237     end_pol:=(abs(end_cart),angle(end_cart));
238     if (ypart start_pol)-(ypart end_pol)>180:
239       start_pol:=start_pol+(0,-360);
240     fi;
241     if (ypart end_pol)-(ypart start_pol)>180:
242       end_pol:=end_pol+(0,-360);
243     fi;
244     end_pol:=end_pol+(0,360*loops);
245     for i=1 upto ckpts:
246       begingroup
247         inter_pol:=(i/(ckpts+1))[start_pol,end_pol];
248         ((dir ypart inter_pol)*xpart inter_pol)
249       endgroup
250       if i<ckpts: .. fi
251     endfor
252   endgroup
253 enddef;
254
255 vardef make_tomoe(expr k,ir,or,hr,phase,
256   tail_start,tail_advance,ckpts,do_flip) =
257   begingroup
258     path tomoe;

```

```

259 pair tail_tip;
260
261 loops:=if k=1: 1 else: 0 fi;
262 tail_tip:=(dir (tail_advance-360/k))*or;
263 tomoe:=(subpath (tail_start/90,3) of (right..up..left..down..cycle))
264   scaled hr shifted (ir+hr,0);
265 tomoe:=tomoe{curl 1}..
266   spiral_interpolate(point infinity of tomoe,tail_tip,ckpts,-loops)..
267   {curl 1}tail_tip{curl 1}..
268   spiral_interpolate(tail_tip,point 0 of tomoe,ckpts,loops)..cycle;
269
270 if do_flip: tomoe:=tomoe xscaled -1; fi;
271
272 for i=1 upto k:
273   dangerousFill tomoe rotated (phase+i*360/k) shifted centre_pt;
274 endfor;
275 endgroup;
276 enddef;
277

```



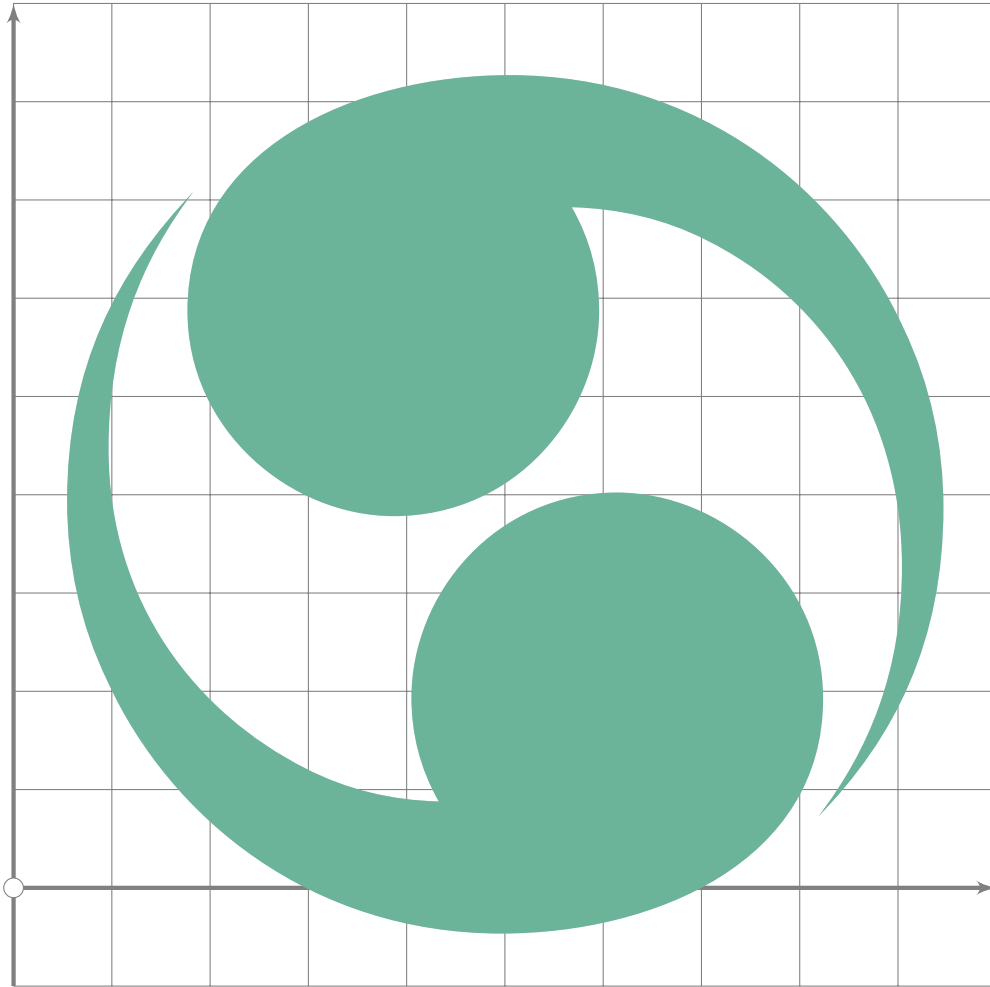
```

278 % hitotsudomoe ornament
279 begintsuglyph("tomoel"49);

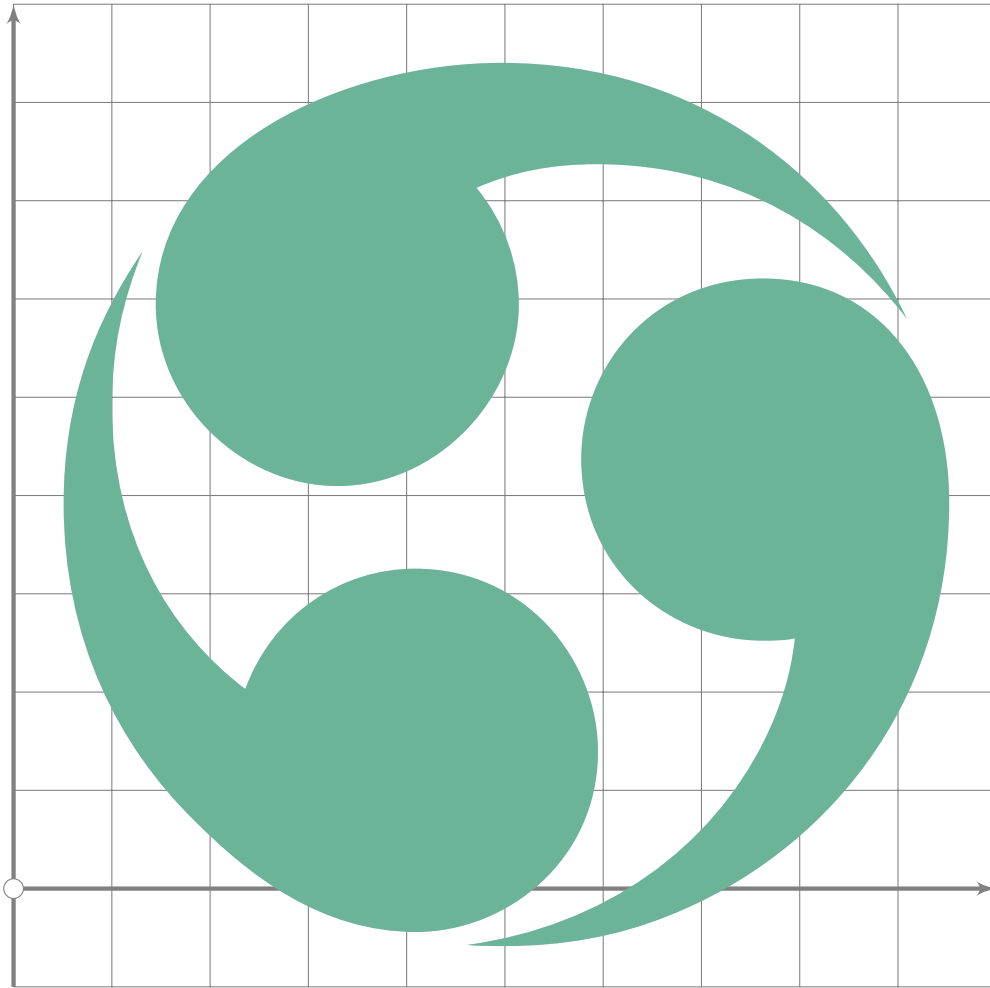
```



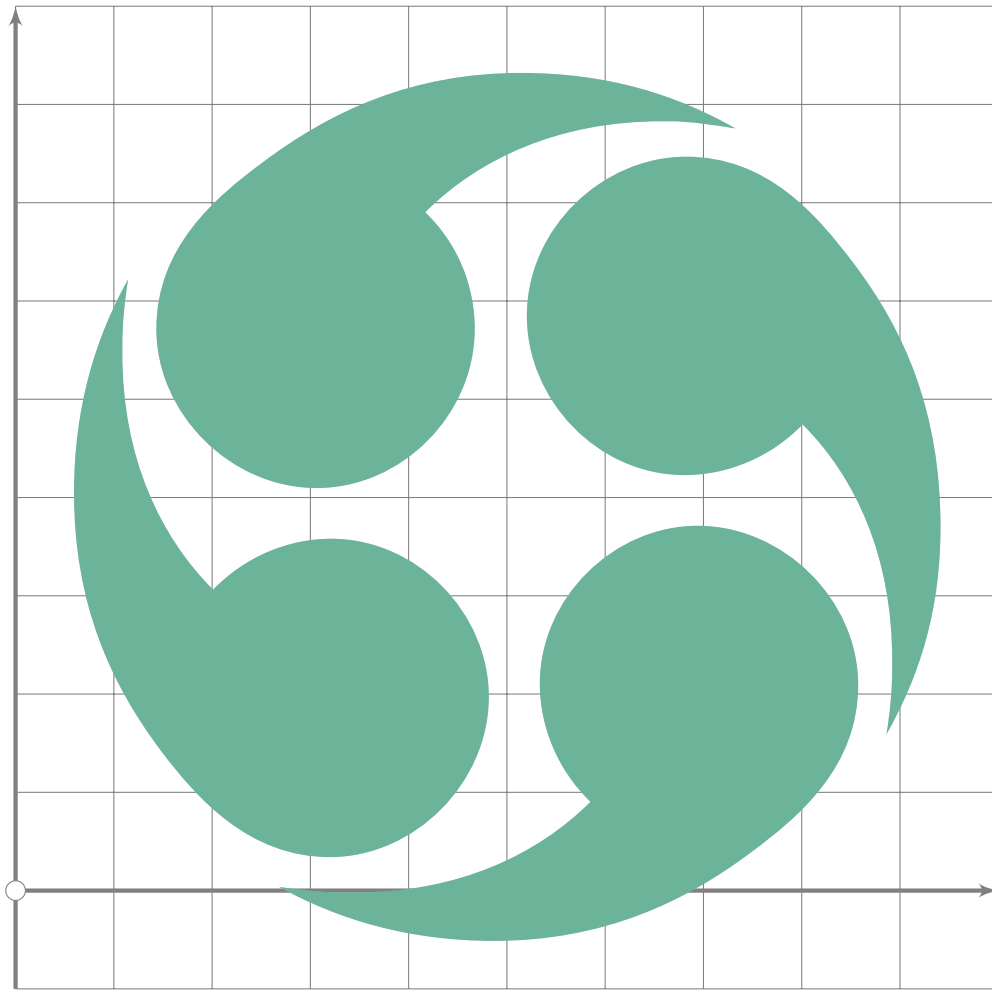
```
280 make_tomoe(1,-219,450,335,105,0,35,6,false);  
281 endsuglyph;  
282
```



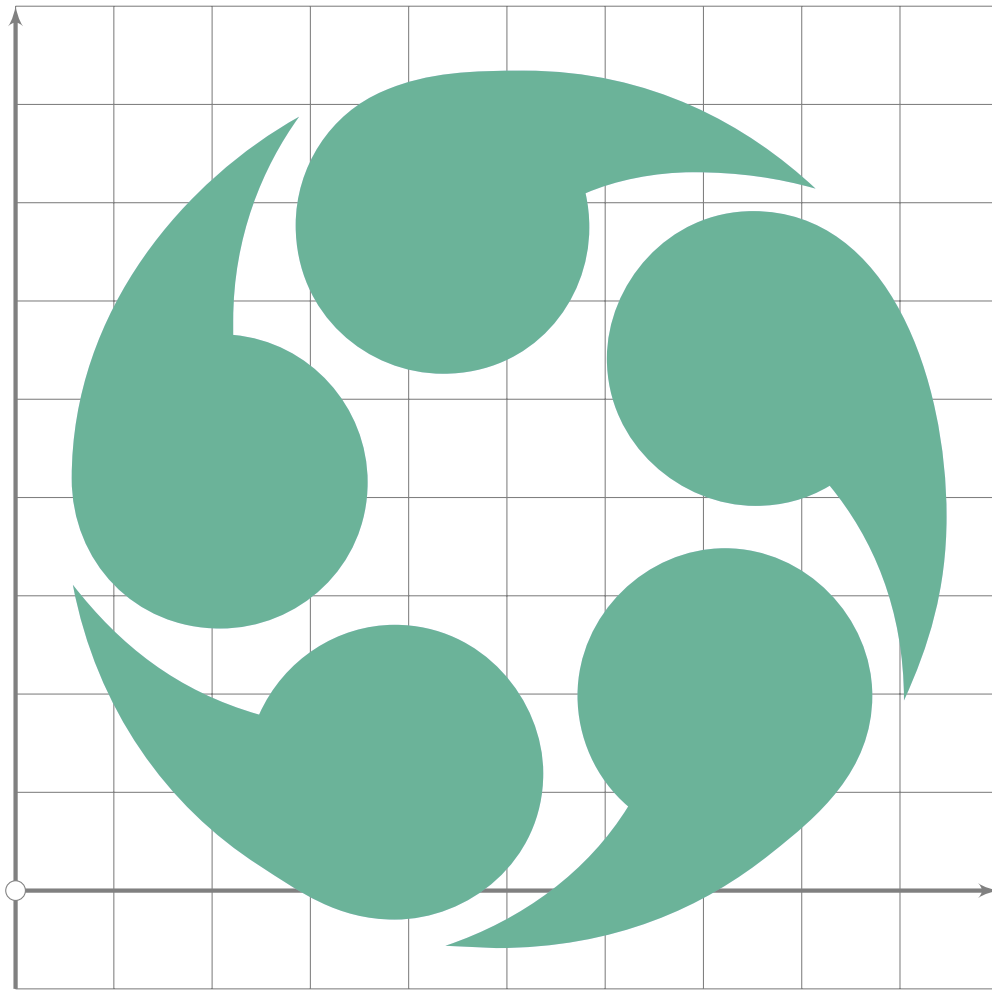
```
283 % futatsudomoe ornament  
284 beginsuglyph("tomoe2";50);  
285 make_tomoe(2,17,450,210,120,15,15,4,false);  
286 endsuglyph;  
287
```



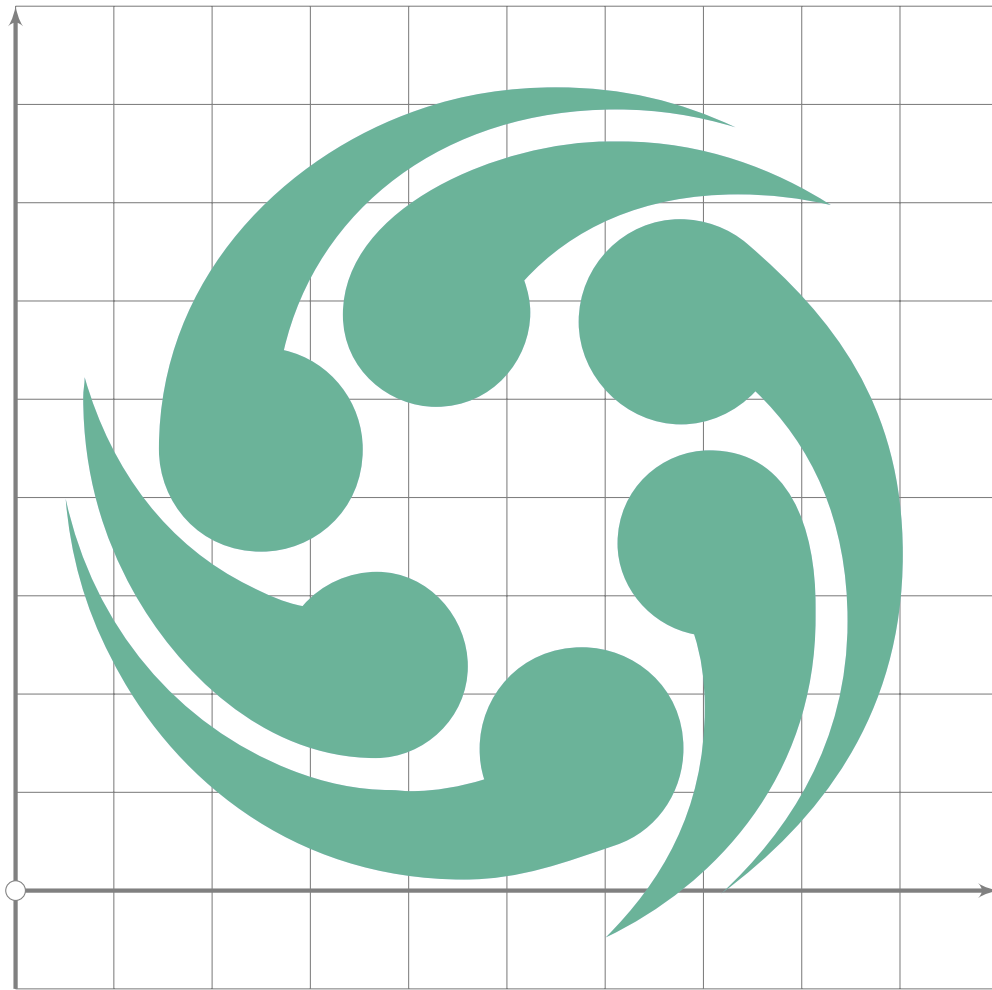
```
288 % mitsudomoe ornament
289 begintsuglyph("tomoe3",51);
290 make_tomoe(3,81,450,185,130,5,15,3,false);
291 endsuglyph;
292
```



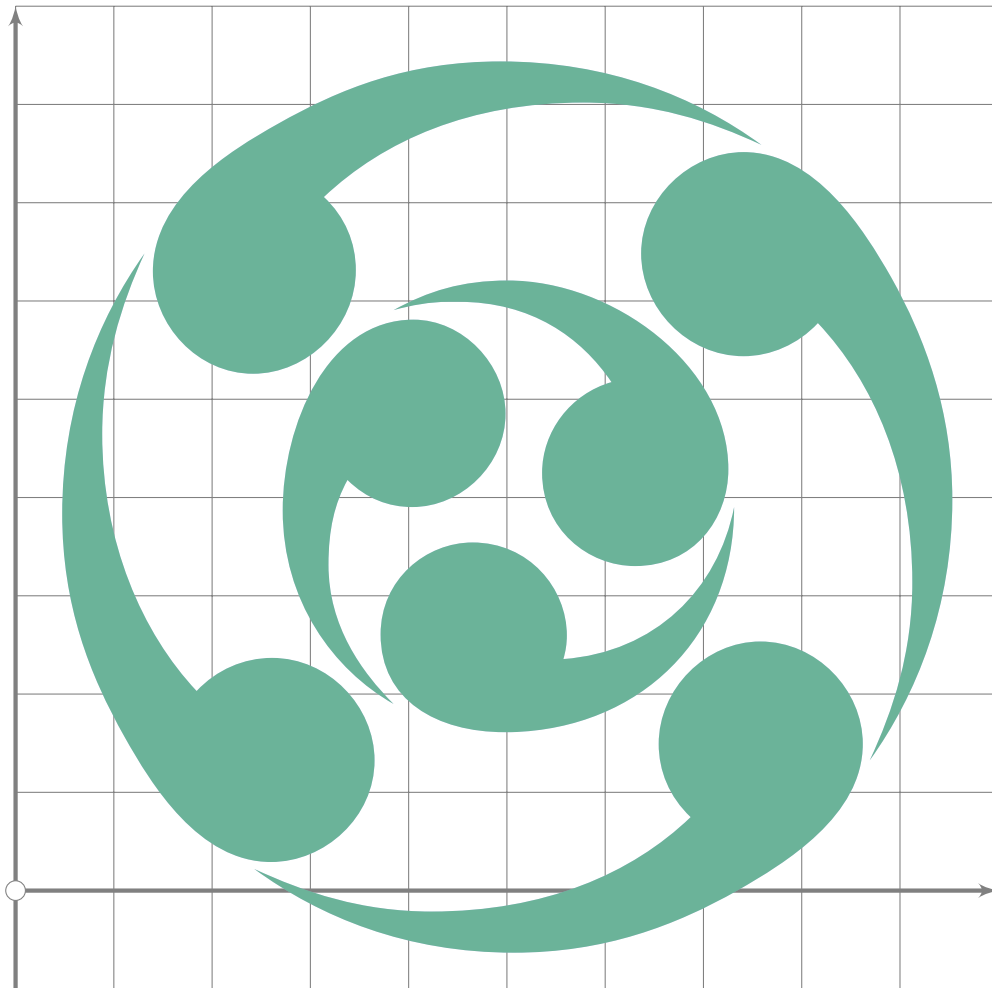
```
293 % yotsudomoe ornament
294 begintsuglyph("tomoe4",52);
295 make_tomoe(4,104,450,162,47,12,12,4,false);
296 endtsuglyph;
297
```



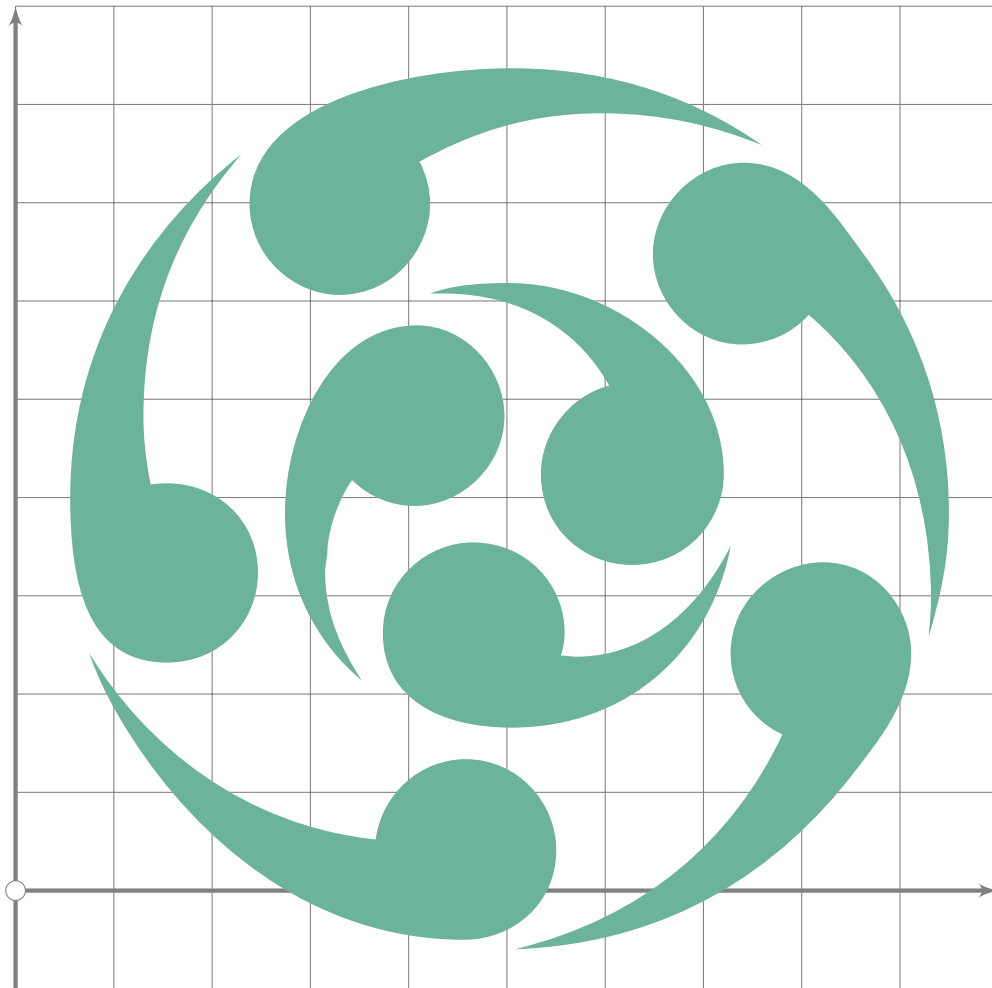
```
298 % 5-tsudomoe ornament
299 begintsuglyph("tomoe5",53);
300 make_tomoe(5,143,450,150,31,10,15,3,false);
301 endsuglyph;
302
```



```
303 % 6-tsudomoe ornament
304 begintsuglyph("tomoe6",54);
305 make_tomoe(3,154,450,104,47,2,12,4,false);
306 make_tomoe(3,115,450,95,110,22,53,4,false);
307 endtsuglyph;
308
```



```
309 % 7-tsudomoe ornament
310 begintsuglyph("tomoe7",55);
311 make_tomoe(4,248,450,104,47,2,8,4,false);
312 make_tomoe(3,40,231,95,75,15,15,4,true);
313 endsuglyph;
314
```



```

315 % 8-tsudomoe ornament
316 begintsuglyph("tomoe8",56);
317 make_tomoe(5,260,450,92,47,2,8,4,false);
318 make_tomoe(3,40,231,92,75,15,25,4,true);
319 endtsuglyph;
320
321
322

```

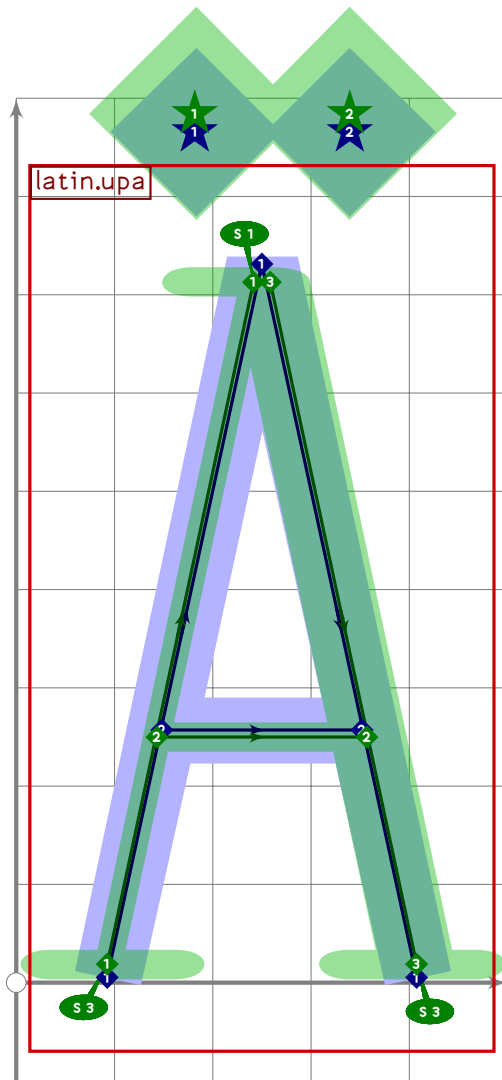
## Heavy Metal Umlaut

```

323 % HEAVY METAL UMLAUT
324
325 % WARNING, setting rescale
326 tsu_rescale_half;
327
328 % naked heavy metal umlaut
329 begintsuglyph("dieresis.hmu",64);
330 tsu_accent.heavy_metal_umlaut;
331 tsu_render;
332 endtsuglyph;
333

```

[see page 49]

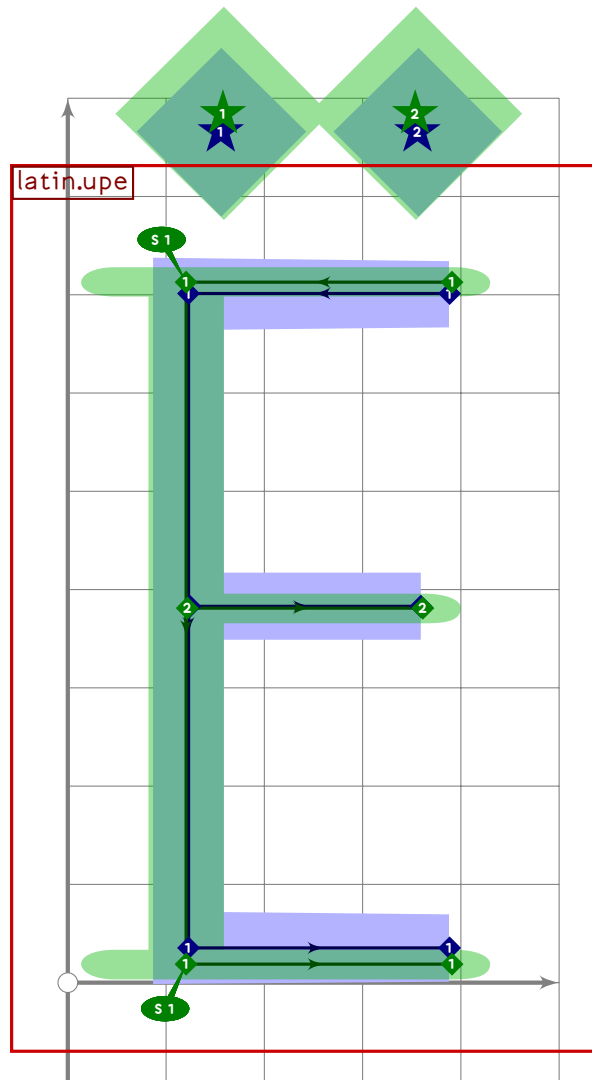


```

334 % A with heavy metal umlaut
335 begint Suglyph("Adieresis.hmu",65);
336   tsu_accent.apply(tsu_accent.capital(latin.upa))
337     (tsu_accent.heavy_metal_umlaut);
338   tsu_render;
339 endtsuglyph;
340

```

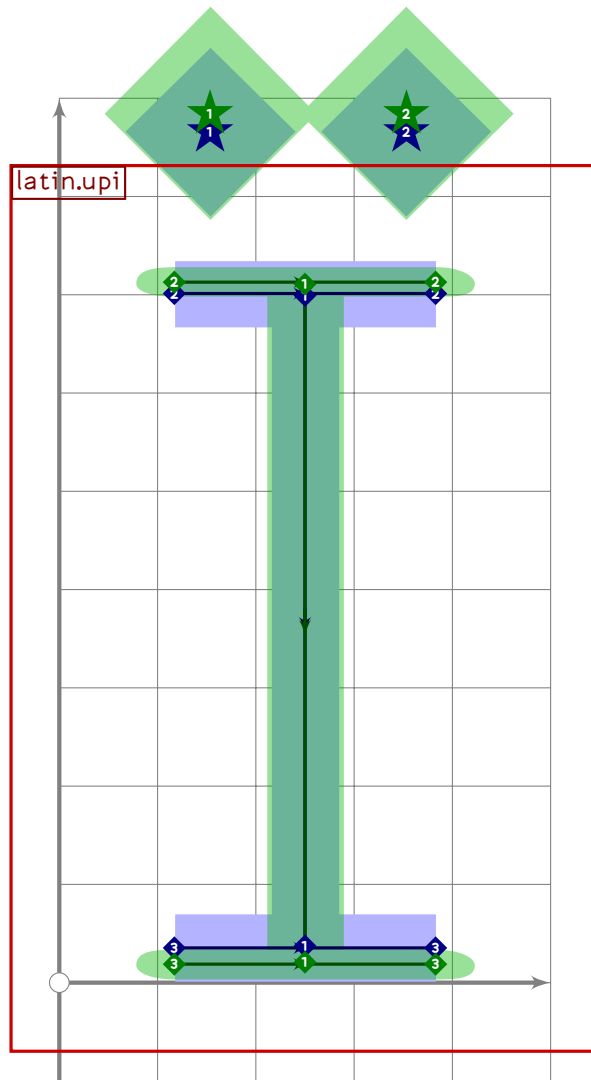




```

341 % E with heavy metal umlaut
342 beginsuglyph("Edieresis.hmu",66);
343   tsu_accent.apply(tsu_accent.capital(latin.upe))
344     (tsu_accent.heavy_metal_umlaut);
345   tsu_render;
346 endsuglyph;
347

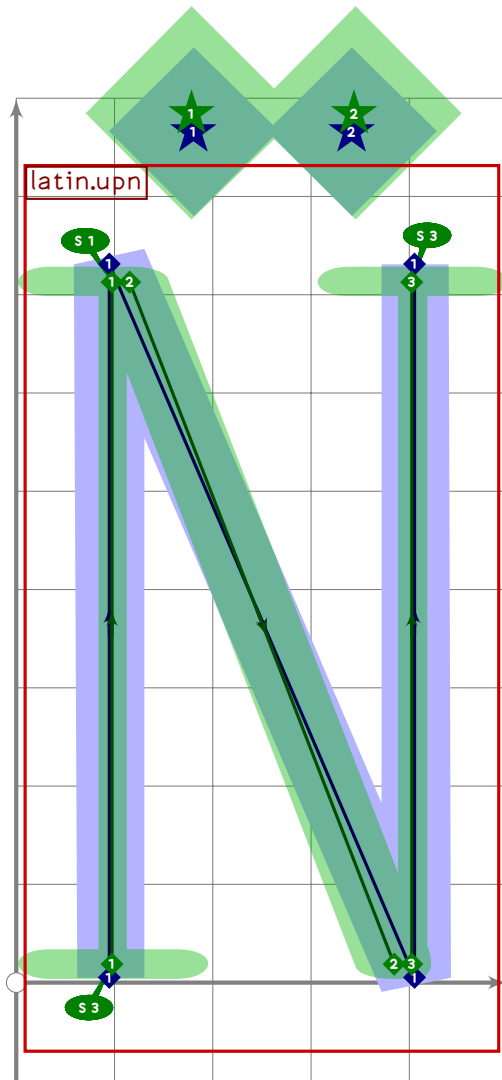
```



```

348 % I with heavy metal umlaut
349 beginsuglyph("Idieresis.hmu",67);
350 tsu_accent.apply(tsu_accent.capital(latin.upi))
351   (tsu_accent.heavy_metal_umlaut);
352 replace_lcblob(-1)(oldblob shifted (-15,0));
353 replace_lcblob(0)(oldblob shifted (-15,0));
354 tsu_render;
355 endsuglyph;
356

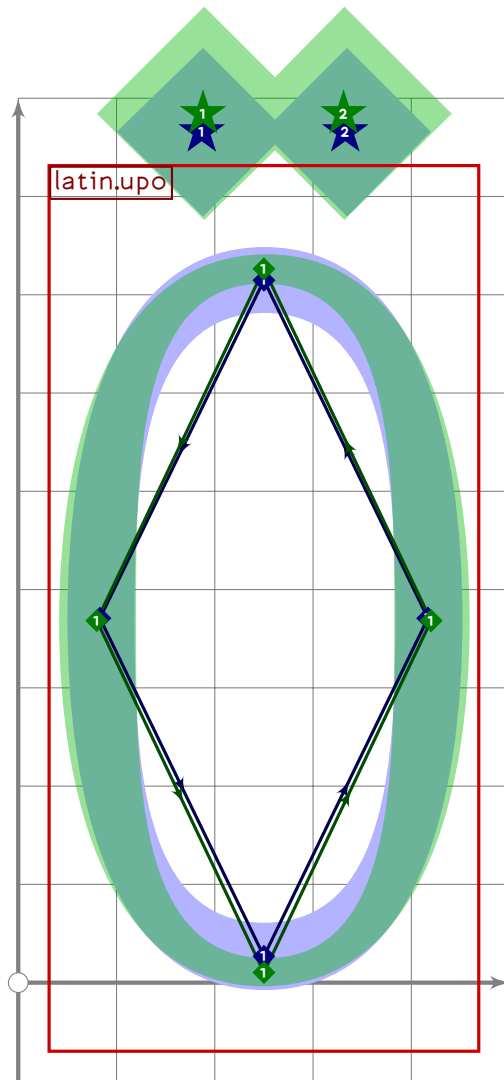
```



```

357 % N with heavy metal umlaut
358 begint Suglyph("Ndieresis.hmu",68);
359   tsu_accent.apply(tsu_accent.capital(latin.upn))
360     (tsu_accent.heavy_metal_umlaut);
361   tsu_render;
362 endtsuglyph;
363

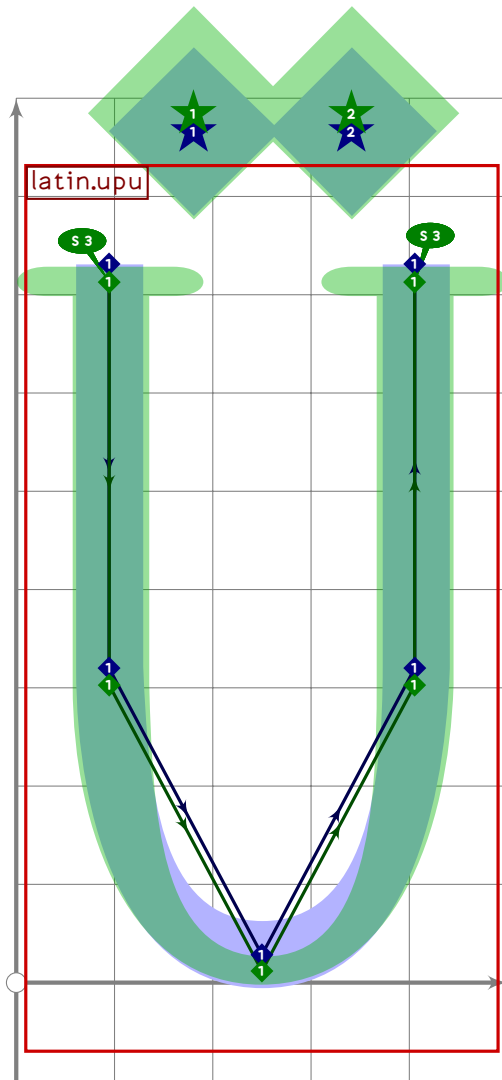
```



```

364 % O with heavy metal umlaut
365 begint Suglyph("Odieresis.hmu",69);
366   tsu_accent.apply(tsu_accent.capital(latin.upo))
367     (tsu_accent.heavy_metal_umlaut);
368   tsu_render;
369 endtsuglyph;
370

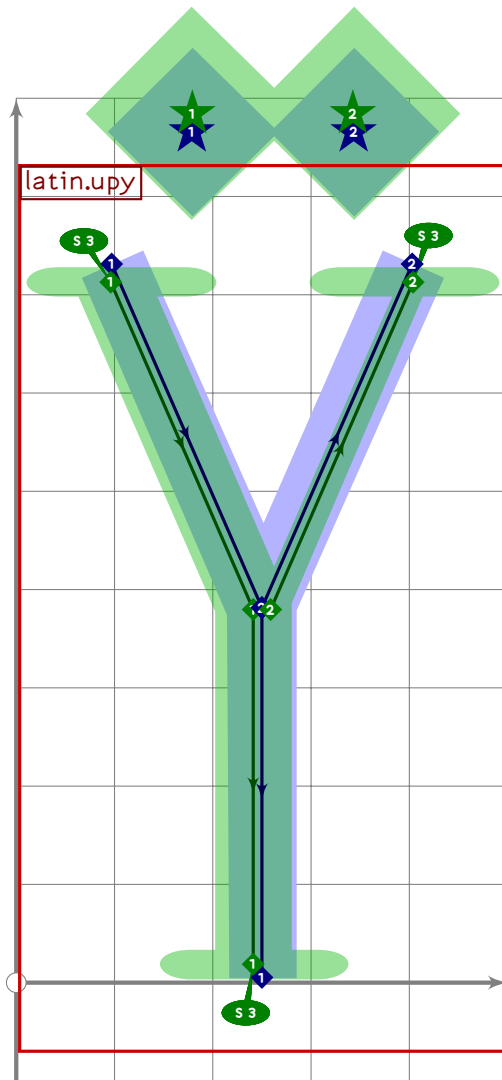
```



```

371 % U with heavy metal umlaut
372 beginsuglyph("Udieresis.hmu;70);
373   tsu_accent.apply(tsu_accent.capital(latin.upu))
374     (tsu_accent.heavy_metal_umlaut);
375   tsu_render;
376 endsuglyph;
377

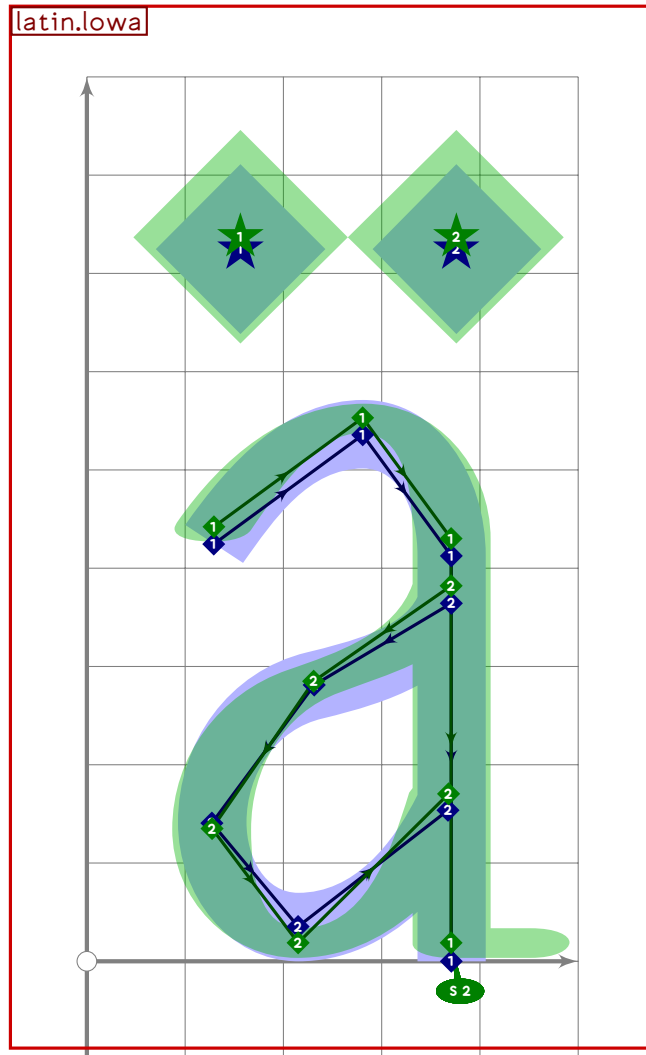
```



```

378 % Y with heavy metal umlaut
379 begint Suglyph("Ydieresis.hmu",71);
380   tsu_accent.apply(tsu_accent.capital(latin.upy))
381     (tsu_accent.heavy_metal_umlaut);
382   tsu_render;
383 endtsuglyph;
384

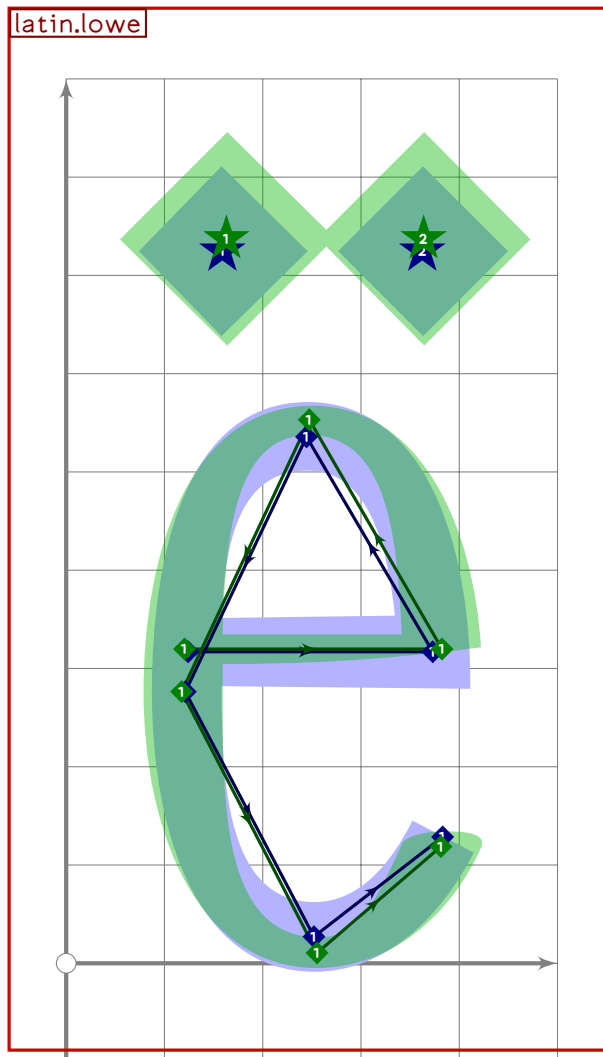
```



```

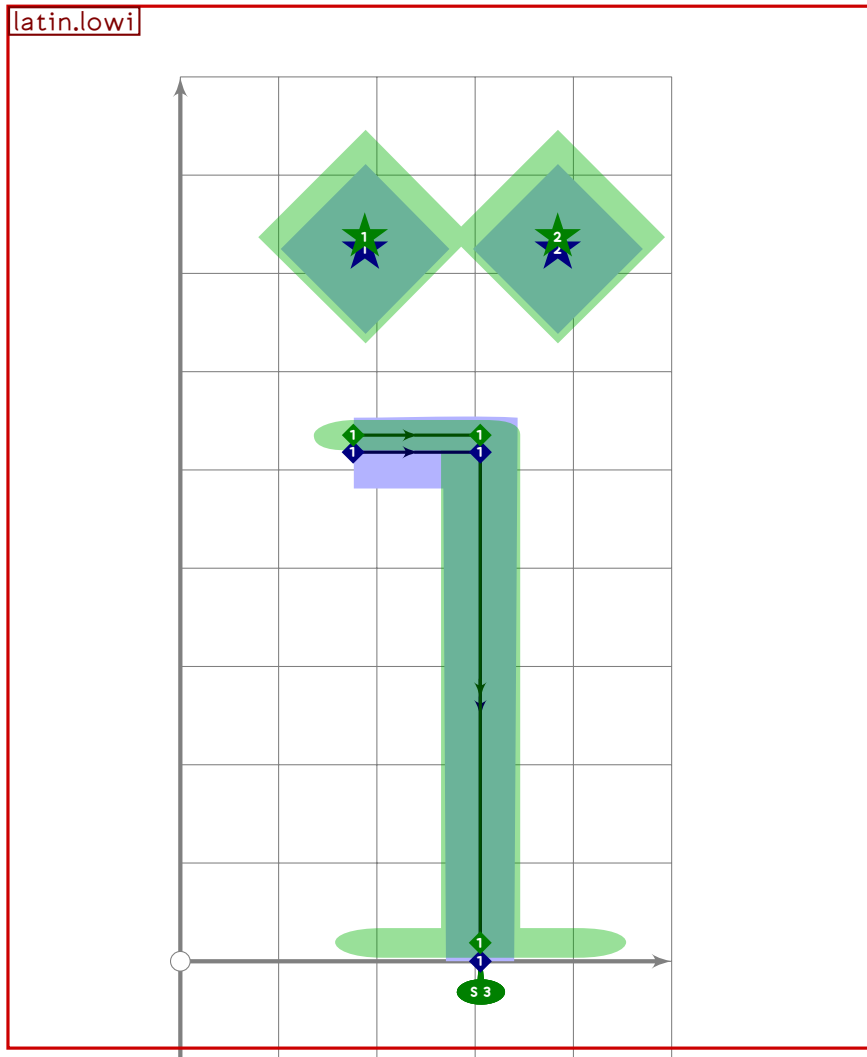
385 % a with heavy metal umlaut
386 begint Suglyph("adieresis.hmu",72);
387 tsu_accent.apply(latin.lowa)(tsu_accent.heavy_metal_umlaut);
388 tsu_render;
389 endtsuglyph;
390

```



```
391 % e with heavy metal umlaut
392 begint Suglyph("edieresis.hmu",73);
393 tsu_accent.apply(latin.love)(tsu_accent.heavy_metal_umlaut);
394 tsu_render;
395 endtsuglyph;
396
```

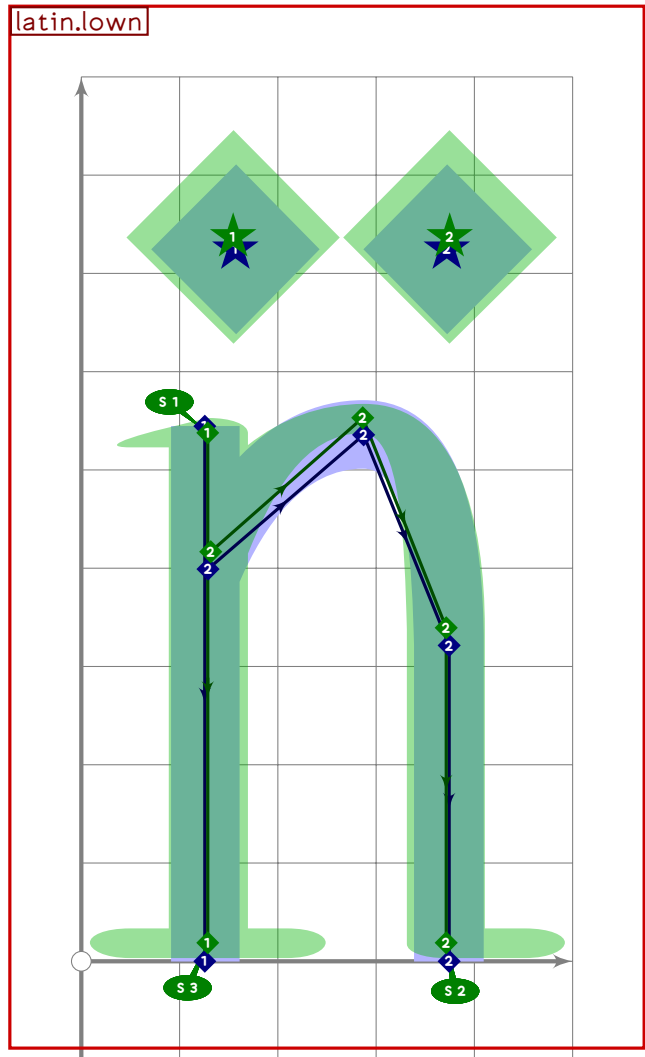




```

397 % i with heavy metal umlaut
398 begint Suglyph("idieresis.hmu";74);
399 tsu_accent.apply(
400   latin.lowi;
401   replace_stroke(0)(oldp shifted (70*right));
402   pop_lcblob;
403 )(tsu_accent.heavy_metal_umlaut);
404 replace_lcblob(-1)(oldblob shifted (50*right));
405 replace_lcblob(0)(oldblob shifted (50*left));
406 tsu_render;
407 endtsuglyph;
408

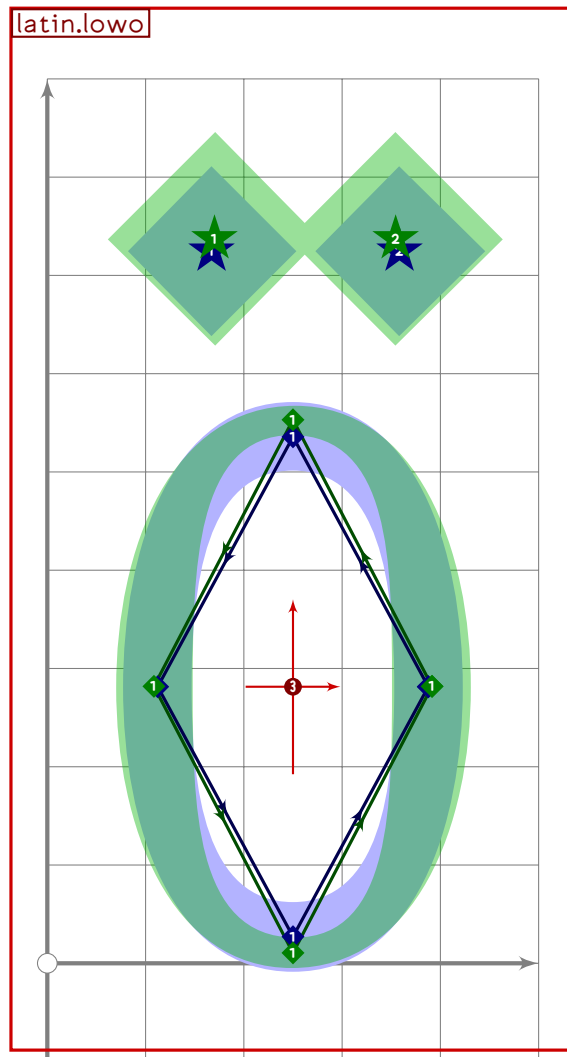
```



```

409 % n with heavy metal umlaut
410 begintsuglyph("ndieresis.hmu",75);
411 tsu_accent.apply(latin.lown)(tsu_accent.heavy_metal_umlaut);
412 tsu_render;
413 endtsuglyph;
414

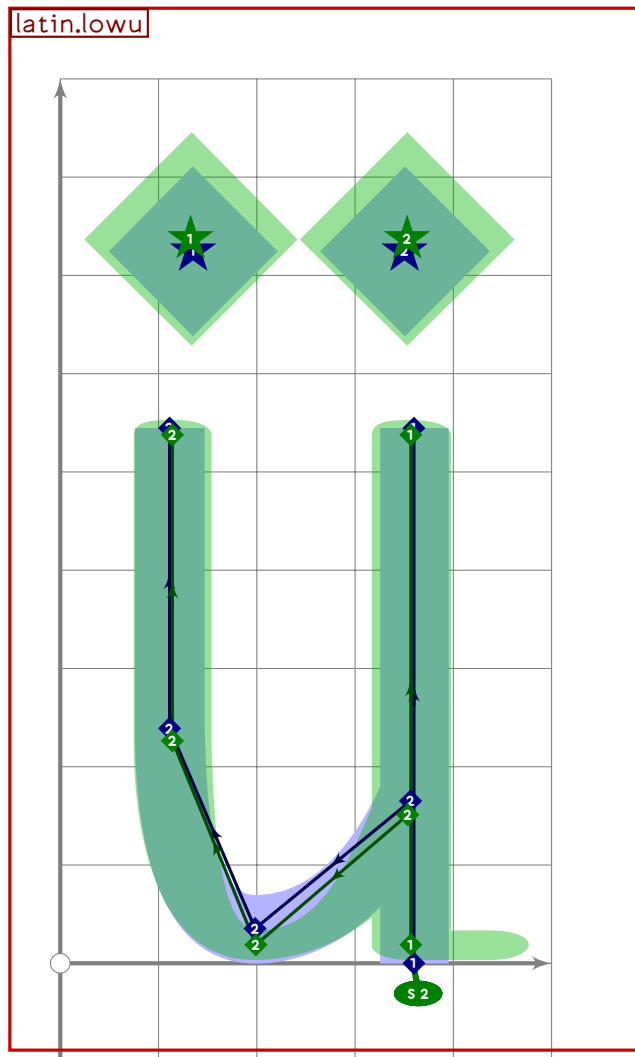
```



```

415 % o with heavy metal umlaut
416 begint Suglyph("bdieresis.hmu",76);
417 tsu_accent.apply(latin.lowo)(tsu_accent.heavy_metal_umlaut);
418 tsu_render;
419 endtsuglyph;
420

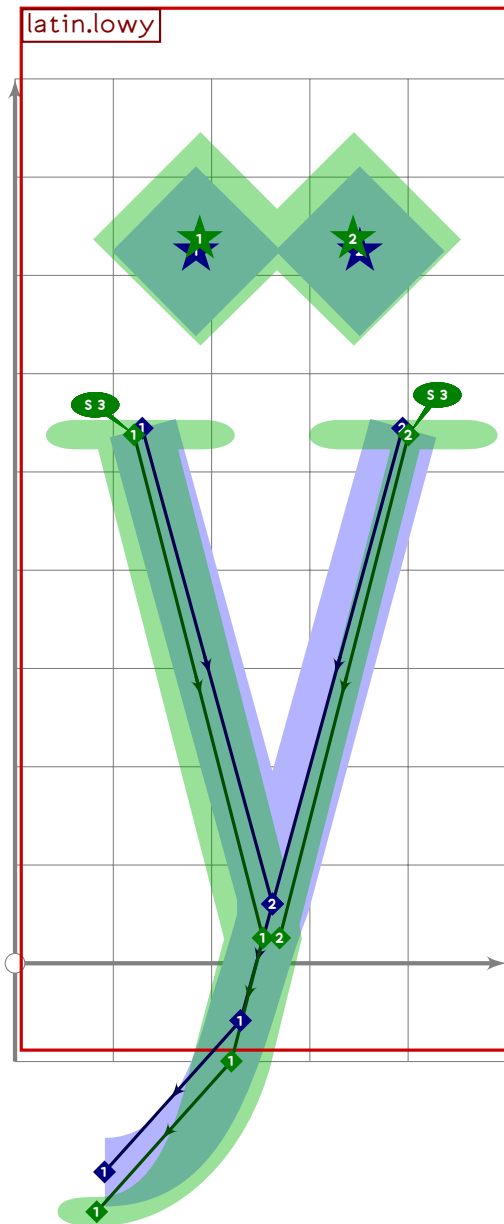
```



```

421 % u with heavy metal umlaut
422 beginsuglyph("udieresis.hmu;77);
423 tsu_accent.apply(latin.lowu)(tsu_accent.heavy_metal_umlaut);
424 replace_lcblob(-1)(oldblob shifted (-60,0));
425 replace_lcblob(0)(oldblob shifted (-60,0));
426 tsu_render;
427 endsuglyph;
428

```



```

429 % y with heavy metal umlaut
430 begint Suglyph("ydieresis.hmu",78);
431 tsu_accent.apply(latin.lowy)(tsu_accent.heavy_metal_umlaut);
432 tsu_render;
433 endtsuglyph;
434
435
436

```

## Genji-Mon

```

437 % GENJI-MON
438
439 % WARNING, setting rescale
440 tsu_rescale_full;
441

```

```

442 genji_grid:=150;
443 if unknown genji_hw:
444   genji_hw:=tsu_brush_max/1.5;
445   if genji_hw>0.85: genji_hw:=0.85; fi;
446 fi;
447 if genji_outline: genji_hw:=1-genji_hw; fi;
448
449 vardef dflt_genji_coords =
450   transform genji_coords;
451   genji_coords=identity scaled genji_grid shifted (whatever,whatever);
452   (3,3) transformed genji_coords=centre_pt;
453 enddef;
454
455 % gb(x) - start a line at the bottom in file x
456 % gf(y) - go forward, to or from rank y
457 % gs(k) - go sideways k steps
458 % ge - end a line (at top or bottom)
459 % gt - end a line (T junction)
460 % gx - end a line and start a new one (X junction)
461 % gr - turn to right
462 % gl - turn to left (only used for Yume no Ukihashi)
463 % gbk(l,r) - draw background with l/r squares removed at upper left, right
464 % gp(i,r) - build a simple "spike" in index 1, to rank r
465 % gj(s,e) - build a simple "jumper" from s to e
466
467 vardef gb(expr a) =
468   dflt_genji_coords;
469   genji_coords:=identity scaled 0.5 shifted (a,1) transformed genji_coords;
470   path genji_path;
471   genji_path:=((-genji_hw,1)-(-genji_hw,genji_hw)-
472     (genji_hw,genji_hw)-(genji_hw,1)) transformed genji_coords;
473   path genji_spine;
474   genji_spine:=(0,0) transformed genji_coords;
475   genji_coords:=identity shifted (0,2) transformed genji_coords;
476 enddef;
477
478 vardef gf(expr a) =
479   gs(4-a);
480 enddef;
481
482 vardef gs(expr a) =
483   genji_path:=((-genji_hw,2*a-1) transformed genji_coords)-
484   genji_path-
485   ((genji_hw,2*a-1) transformed genji_coords);
486   genji_coords:=identity shifted (0,2*a) transformed genji_coords;
487 enddef;
488
489 vardef ge =

```

```

490 genji_path:=((-genji_hw,genji_hw) transformed genji_coords)-
491   genji_path-
492   ((genji_hw,genji_hw) transformed genji_coords)-
493   cycle;
494 if genji_outline:
495   unFill reverse genji_path;
496 else:
497   Fill genji_path;
498 fi;
499 genji_spine:=genji_spine-((0,0) transformed genji_coords);
500 if unknown gsp: gsp:=1; fi;
501 write ("SEGMENT "&(decimal gsp)&" 0 "&(decimal length genji_spine))
502   to "proof.prf";
503 for i=0 upto length genji_spine:
504   write ("POINT "&(decimal gsp)&" "&(decimal i)&" "&
505         (decimal xpart point i of genji_spine)&" "&
506         (decimal ypart point i of genji_spine)) to "proof.prf";
507 endfor;
508 gsp:=gsp+1;
509 enddef;
510
511 vardef gt =
512   genji_path:=((-genji_hw,genji_hw) transformed genji_coords)-
513     genji_path-
514     ((genji_hw,genji_hw) transformed genji_coords)-
515     cycle;
516   if genji_outline:
517     unFill reverse genji_path;
518   else:
519     Fill genji_path;
520   fi;
521   genji_spine:=genji_spine-((0,1) transformed genji_coords);
522   if unknown gsp: gsp:=1; fi;
523   write ("SEGMENT "&(decimal gsp)&" 0 "&(decimal length genji_spine))
524     to "proof.prf";
525   for i=0 upto length genji_spine:
526     write ("POINT "&(decimal gsp)&" "&(decimal i)&" "&
527           (decimal xpart point i of genji_spine)&" "&
528           (decimal ypart point i of genji_spine)) to "proof.prf";
529   endfor;
530   gsp:=gsp+1;
531 enddef;
532
533 vardef gx =
534   gt;
535   genji_path:=((-genji_hw,1)-(-genji_hw,genji_hw)-
536     (genji_hw,genji_hw)-(-genji_hw,1)) transformed genji_coords;
537   genji_spine:=(0,1) transformed genji_coords;

```

```

538 genji_coords:=identity shifted (0,2) transformed genji_coords;
539 enddef;
540
541 vardef gr =
542   genji_path:=((1,genji_hw) transformed genji_coords)-
543   ((-genji_hw,genji_hw) transformed genji_coords)-
544   genji_path-
545   ((genji_hw,-genji_hw) transformed genji_coords)-
546   ((1,genji_hw) transformed genji_coords);
547   genji_spine:=genji_spine-((0,0) transformed genji_coords);
548   genji_coords:=identity shifted (0,2) rotated -90 transformed genji_coords;
549 enddef;
550
551 vardef gl =
552   genji_path:=((-1,genji_hw) transformed genji_coords)-
553   ((-genji_hw,genji_hw) transformed genji_coords)-
554   genji_path-
555   ((genji_hw,genji_hw) transformed genji_coords)-
556   ((-1,genji_hw) transformed genji_coords);
557   genji_spine:=genji_spine-((0,0) transformed genji_coords);
558   genji_coords:=identity shifted (0,2) rotated 90 transformed genji_coords;
559 enddef;
560
561 vardef gbk(expr lcut,rcut) =
562   gsp:=whatever;
563   if genji_outline:
564     path genji_path;
565     genji_path:=(genji_hw/2,genji_hw/2)-(6-genji_hw/2,genji_hw/2)-
566     if rcut>0:
567       (6-genji_hw/2,5-genji_hw/2)-
568       (6-genji_hw/2-rcut,5-genji_hw/2)-
569       (6-genji_hw/2-rcut,6-genji_hw/2)-
570     else:
571       (6-genji_hw/2,6-genji_hw/2)-
572     fi
573     if lcut>0:
574       (genji_hw/2+lcut,6-genji_hw/2)-
575       (genji_hw/2+lcut,5-genji_hw/2)-
576       (genji_hw/2,5-genji_hw/2)-
577     else:
578       (genji_hw/2,6-genji_hw/2)-
579     fi
580     cycle;
581     dflt_genji_coords;
582     Fill genji_path transformed genji_coords;
583   fi;
584 enddef;
585

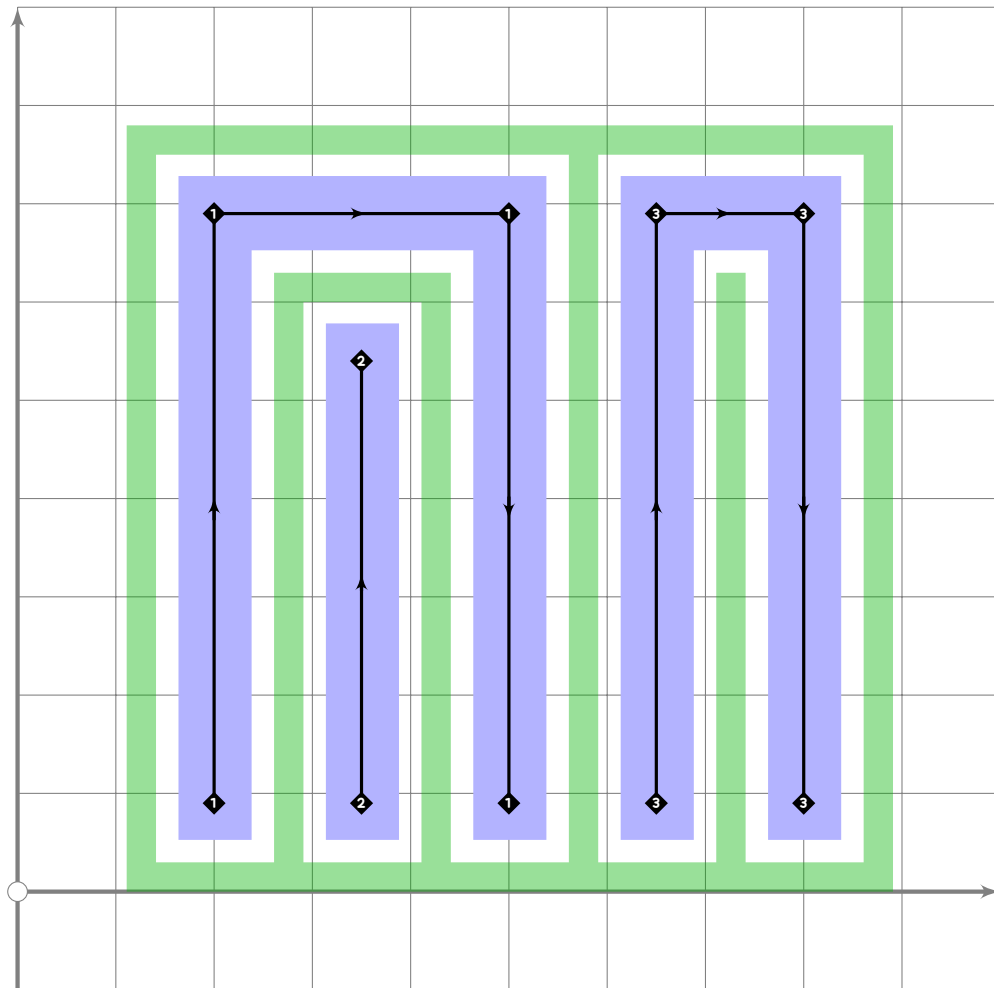
```



```

586 vardef gp(expr i,r) =
587   gb(i);gf(r);ge;
588 enddef;
589
590 vardef gj(expr si,ei) =
591   gb(si);gf(1);gr;if ei>si+1:gs(ei-si-1);fi;gr;gf(1);ge;
592 enddef;
593
594 vardef gtt(expr a,b) =
595   gb(a);gf(b);gt;
596 enddef;
597

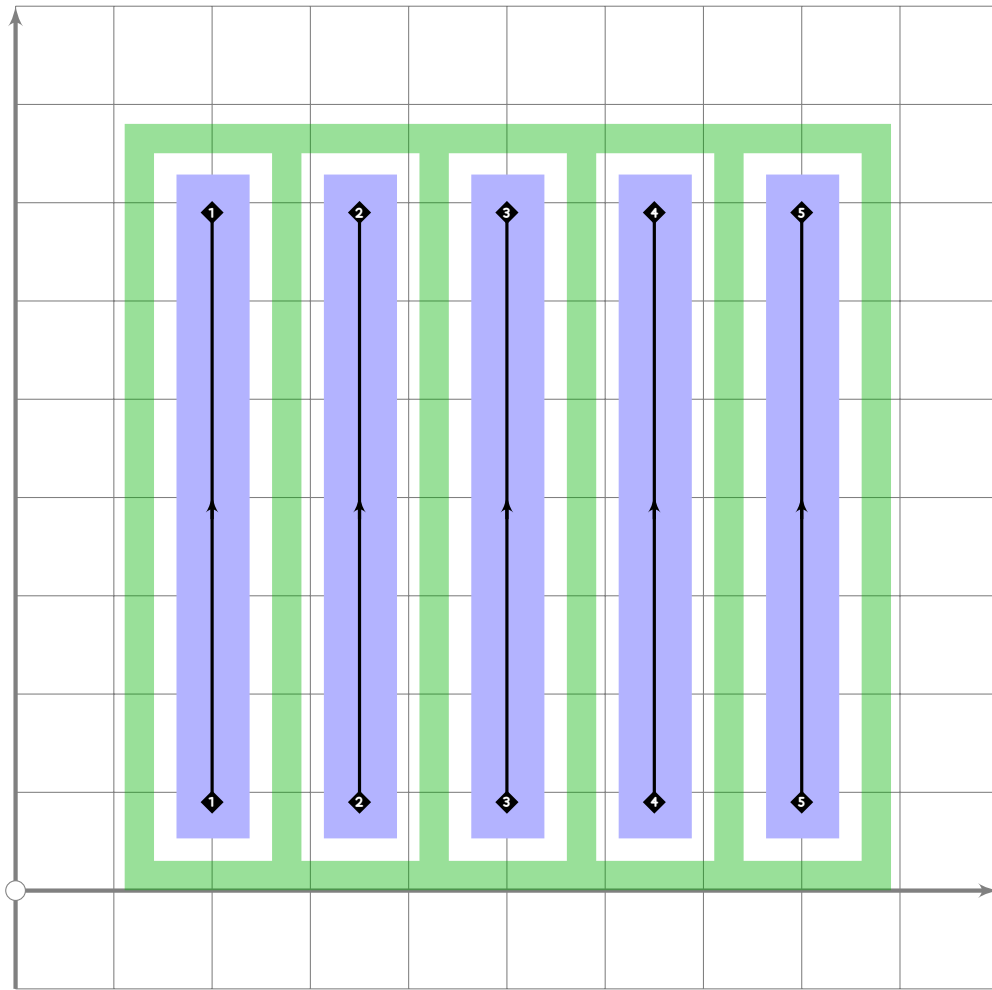
```



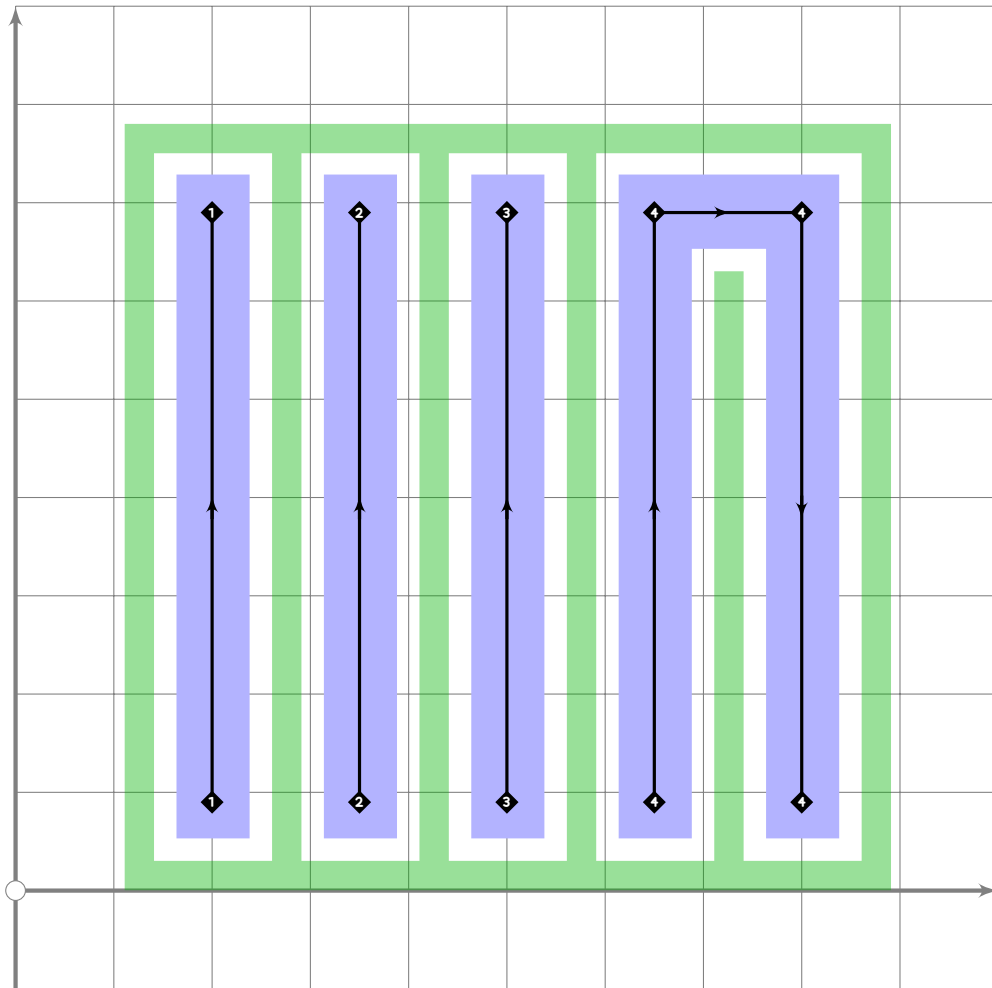
```

598 % #1 Kiritsubo
599 begintsuglyph("genjimon01",193);
600 gbk(0,0);
601 gj(1,3);
602 gp(2,2);
603 gj(4,5);
604 endtsuglyph;
605

```



```
606 % #2 Hahakigi
607 beginsuglyph("genjimon02",194);
608   gbk(0,0);
609   gp(1,1);
610   gp(2,1);
611   gp(3,1);
612   gp(4,1);
613   gp(5,1);
614 endsuglyph;
615
```

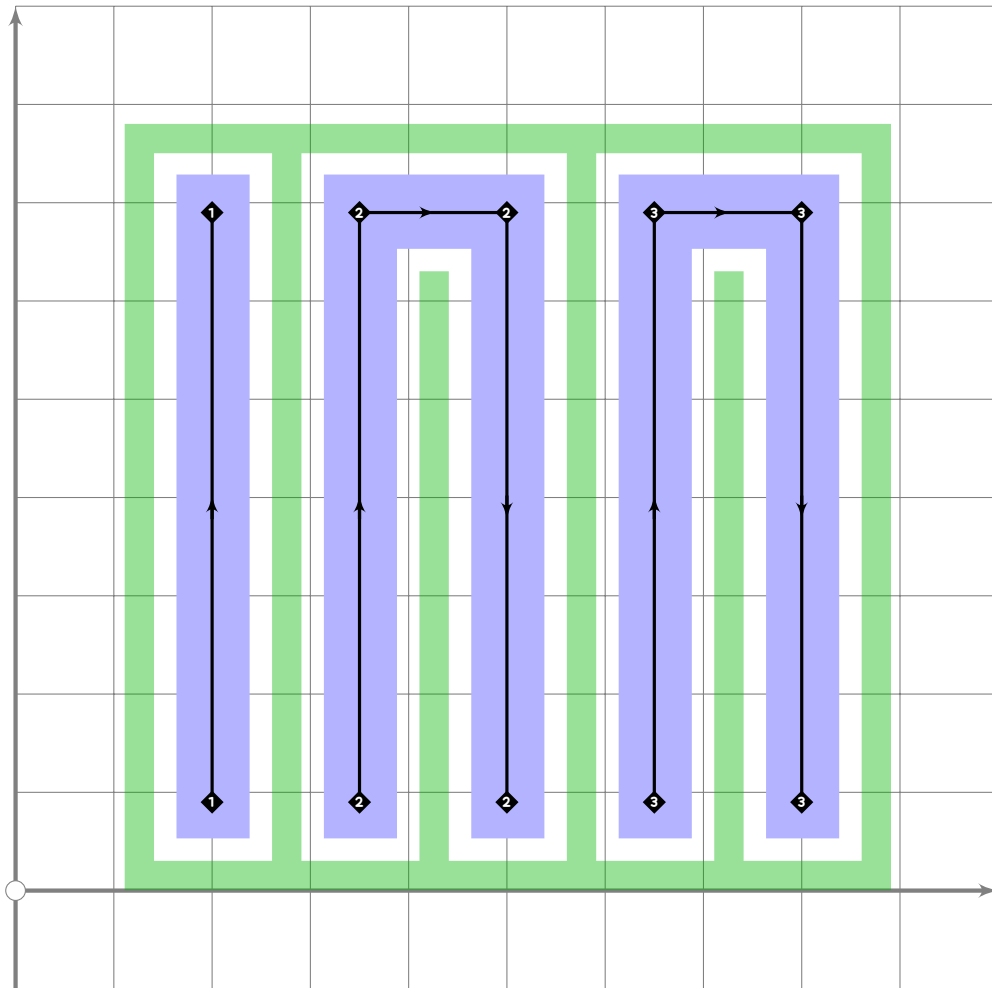


```

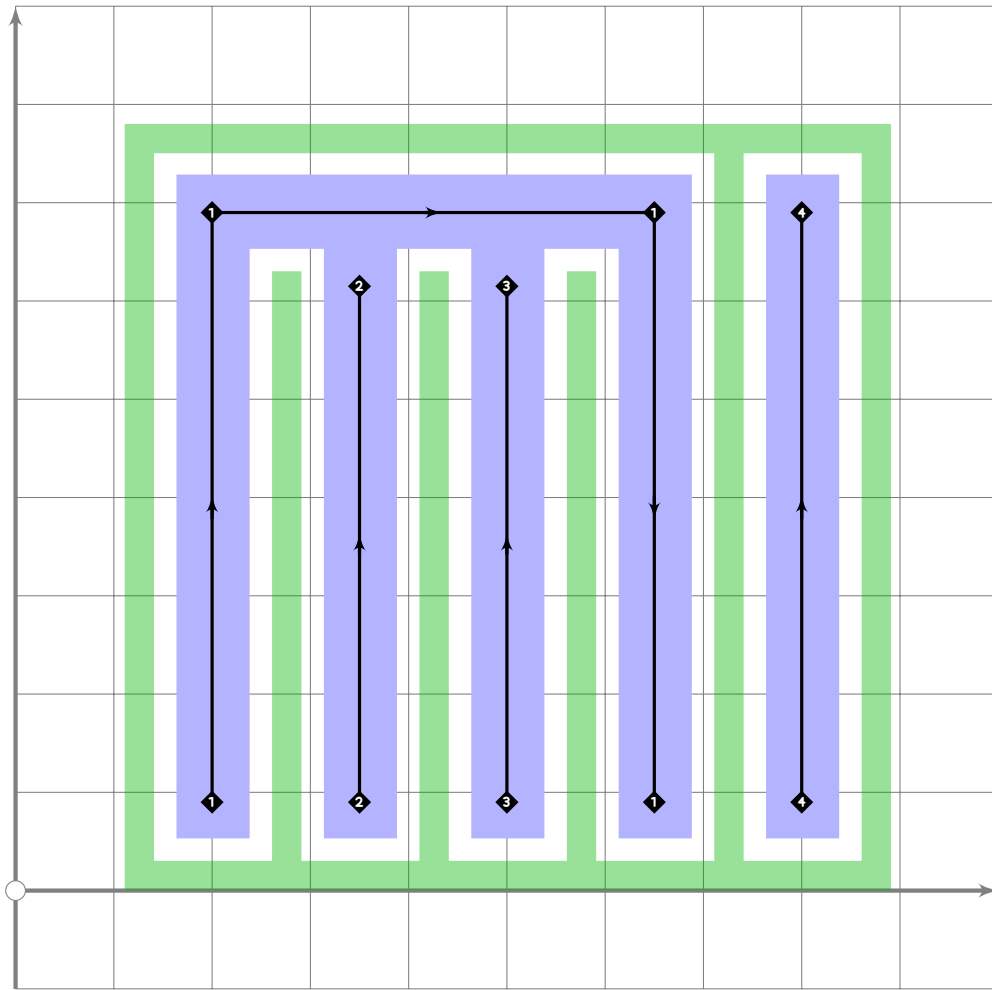
616 % #3 Utsusemi
617 begint Suglyph("genjimon03",195);
618 gbk(0,0);
619 gp(1,1);
620 gp(2,1);
621 gp(3,1);
622 gj(4,5);
623 endsuglyph;
624

```





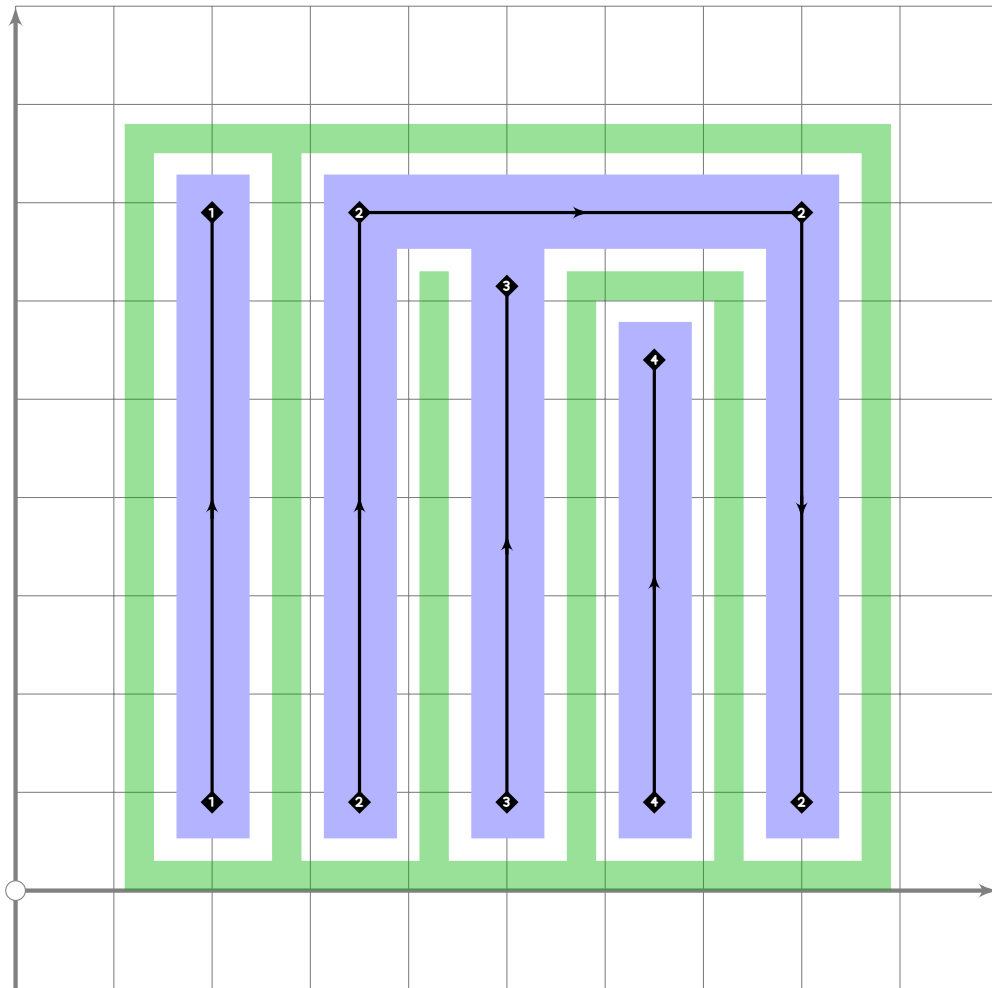
```
634 % #5 Wakamurasaki
635 begintsuglyph("genjimon05",197);
636 gbk(0,0);
637 gp(1,1);
638 gj(2,3);
639 gj(4,5);
640 endsuglyph;
641
```



```

642 % #6 Suetsumuhana
643 begint Suglyph("genjimon06",198);
644 gbk(0,0);
645 gj(1,4);
646 gtt(2,1);
647 gtt(3,1);
648 gp(5,1);
649 endtsuglyph;
650

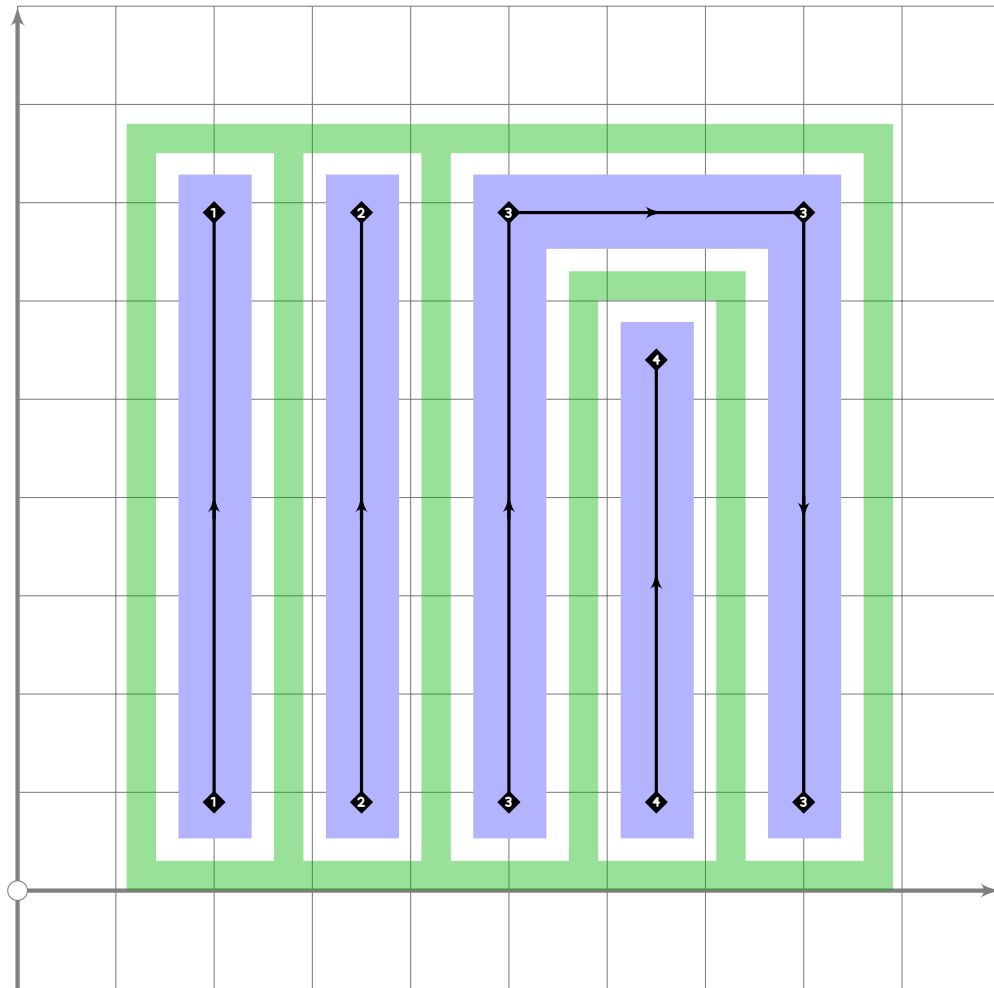
```



```

651 % #7 Momiji no Ga
652 begintsuglyph("genjimon07",199);
653 gbk(0,0);
654 gp(1,1);
655 gj(2,5);
656 gtt(3,1);
657 gp(4,2);
658 endsuglyph;
659

```

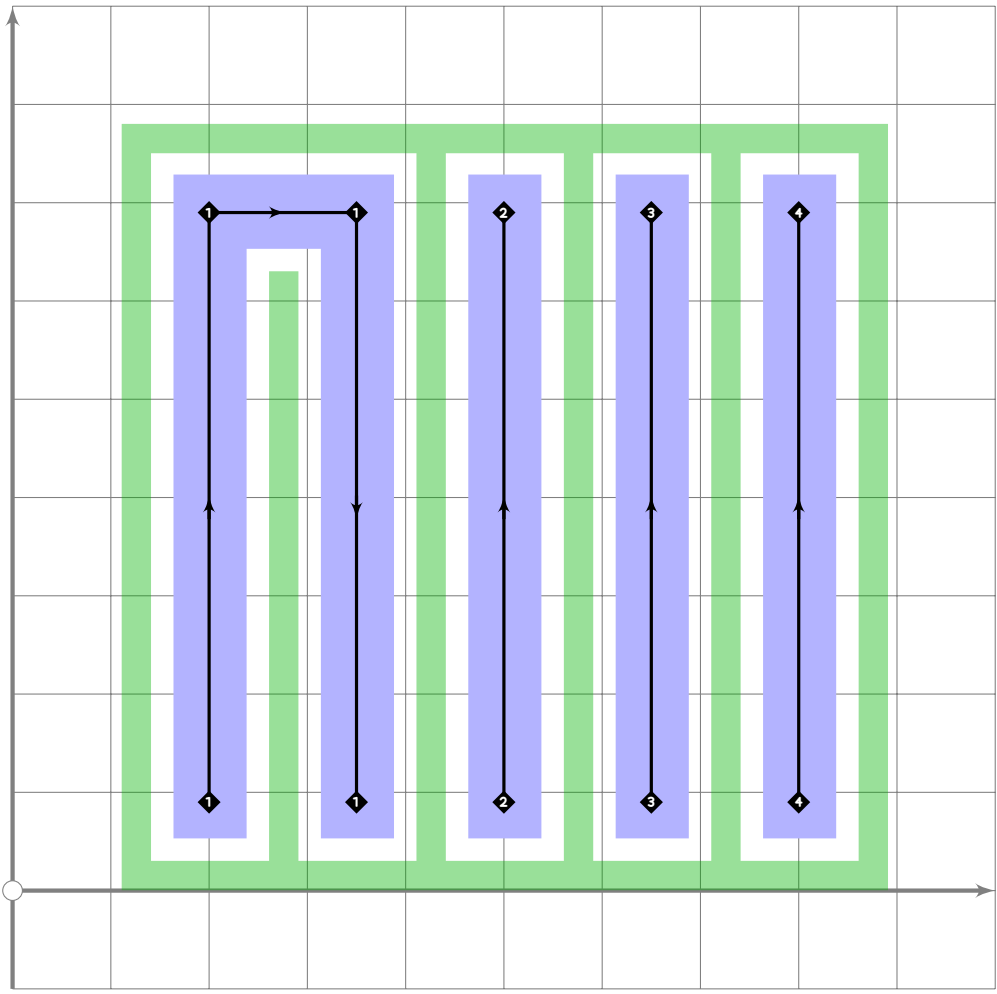


```

660 % #8 Hana no En
661 begint Suglyph("genjimon08",200);
662 gbk(0,0);
663 gp(1,1);
664 gp(2,1);
665 gj(3,5);
666 gp(4,2);
667 endtsuglyph;
668

```

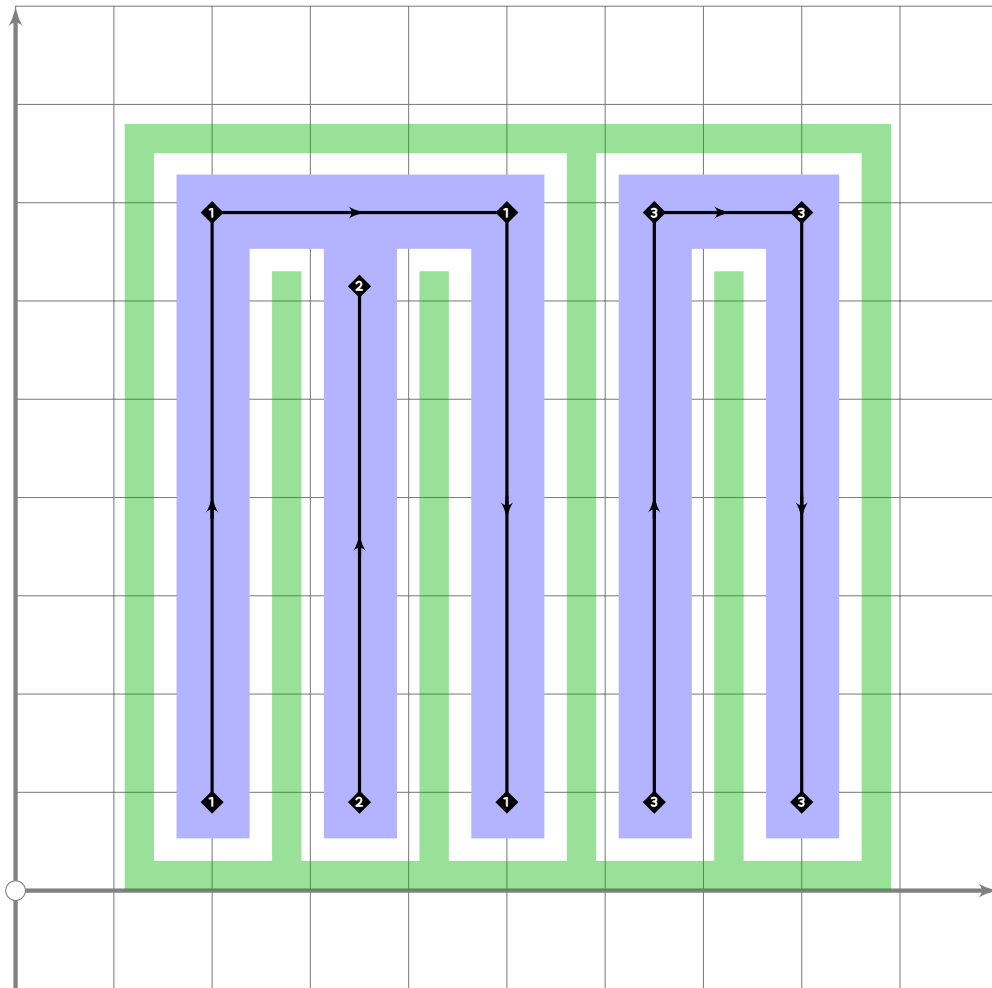




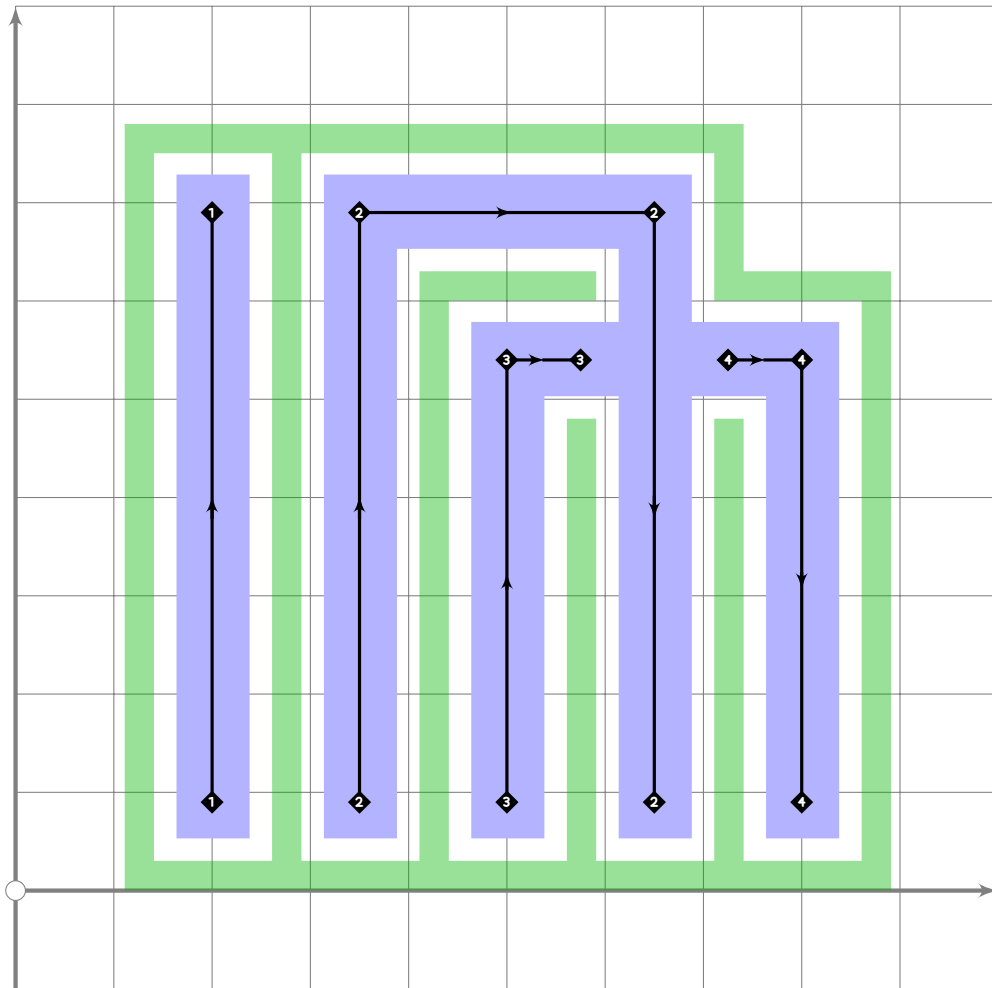
```

669 % #9 Aoi
670 begint Suglyph("genjimon09",201);
671 gbk(0,0);
672 gj(1,2);
673 gp(3,1);
674 gp(4,1);
675 gp(5,1);
676 ends Suglyph;
677

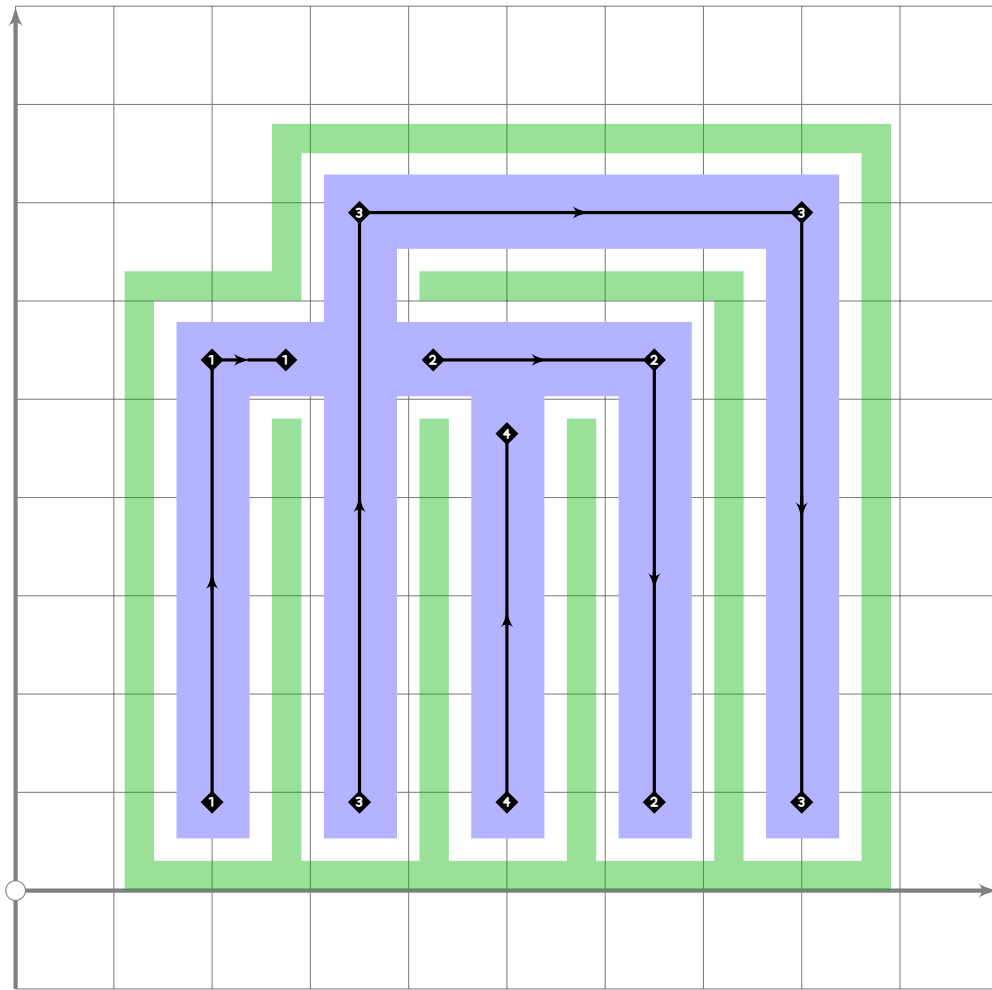
```



```
678 % #10 Sakaki
679 begintsuglyph("genjimon10",202);
680 gbk(0,0);
681 gj(1,3);
682 gtt(2,1);
683 gj(4,5);
684 endsuglyph;
685
```



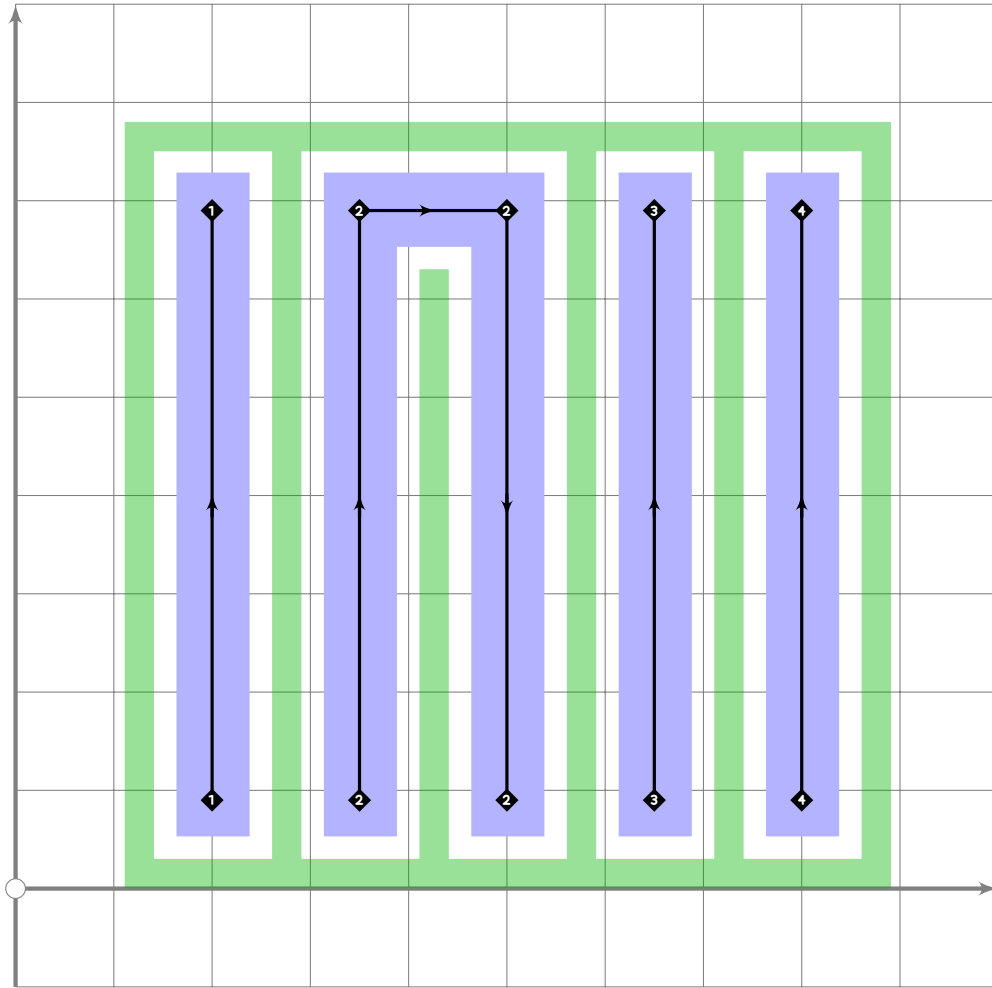
```
686 % #11 Hana Chiru Sato  
687 begintsuglyph("genjimon11";203);  
688 gbk(0,1);  
689 gp(1,1);  
690 gj(2,4);  
691 gb(3);gf(2);gr;gx;gr;gf(2);ge;  
692 endsuglyph;  
693
```



```

694 % #12 Suma
695 begint Suglyph("genjimon12",204);
696 gbk(1,0);
697 gb(1);gf(2);gr;gx;gs(1);gr;gf(2);ge;
698 gj(2,5);
699 gtt(3,2);
700 endsuglyph;
701

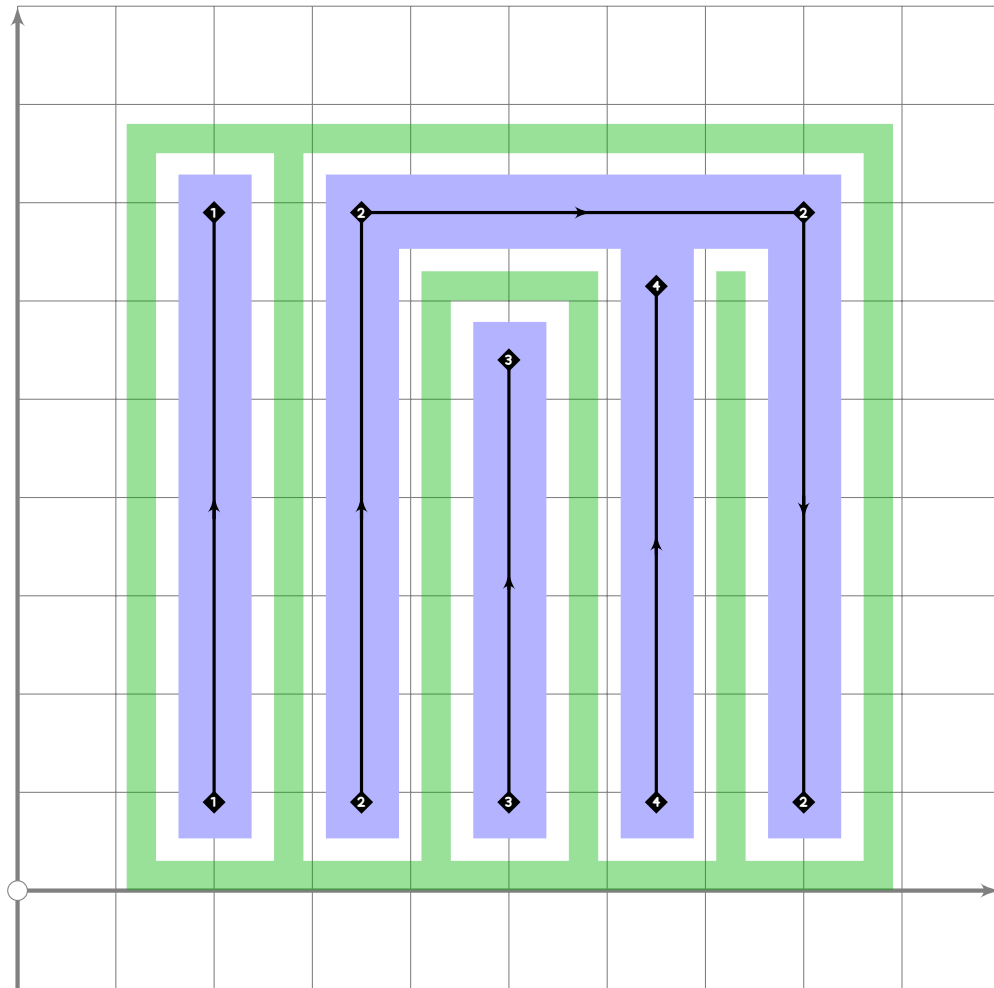
```



```

702 % #13 Akashi
703 begint Suglyph("genjimon13",205);
704 gbk(0,0);
705 gp(1,1);
706 gj(2,3);
707 gp(4,1);
708 gp(5,1);
709 endtsuglyph;
710

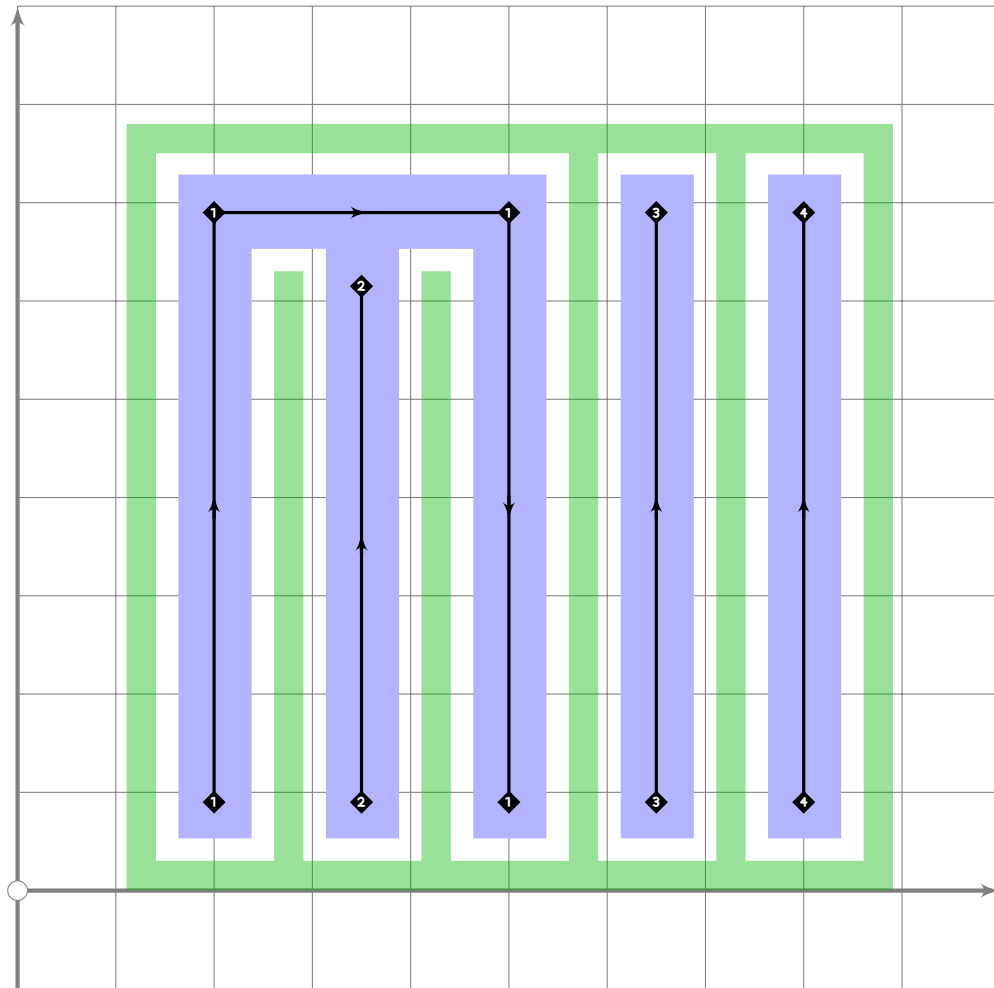
```



```

711 % #14 Miotsukushi
712 begintsuglyph("genjimon14",206);
713 gbk(0,0);
714 gp(1,1);
715 gj(2,5);
716 gp(3,2);
717 gtt(4,1);
718 endsuglyph;
719

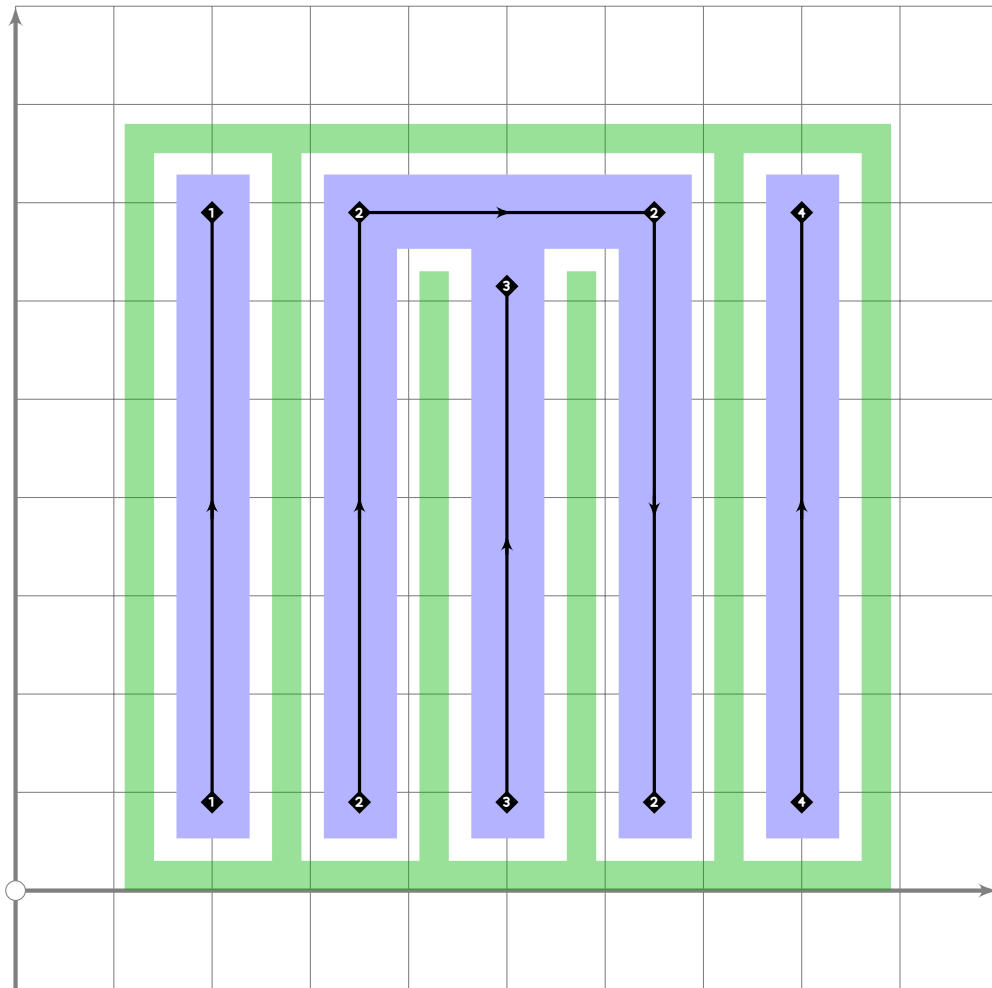
```



```

720 % #15 Yomogyuu
721 begint Suglyph("genjimon15",207);
722 gbk(0,0);
723 gj(1,3);
724 gtt(2,1);
725 gp(4,1);
726 gp(5,1);
727 endtsuglyph;
728

```

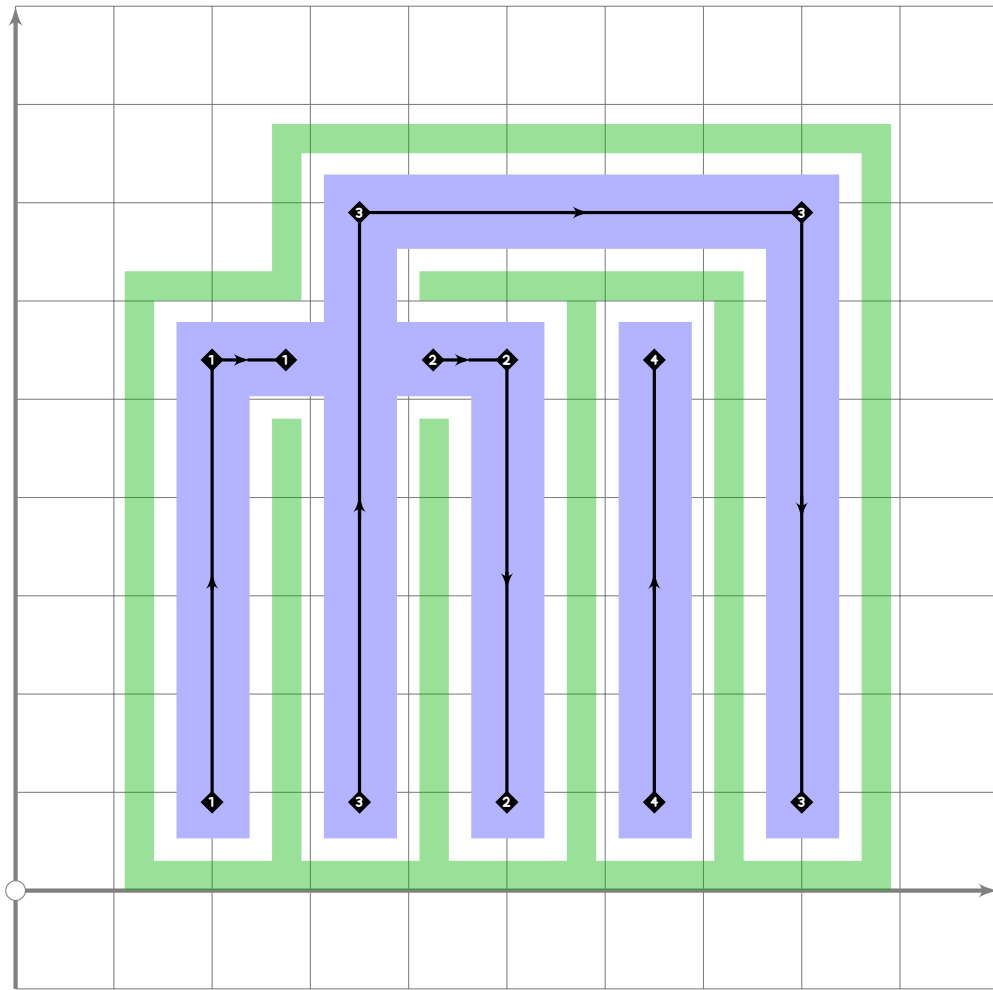


```

729 % #16 Sekiya
730 begint Suglyph("genjimon16",208);
731 gbk(0,0);
732 gp(1,1);
733 gj(2,4);
734 gtt(3,1);
735 gp(5,1);
736 endtsuglyph;
737

```

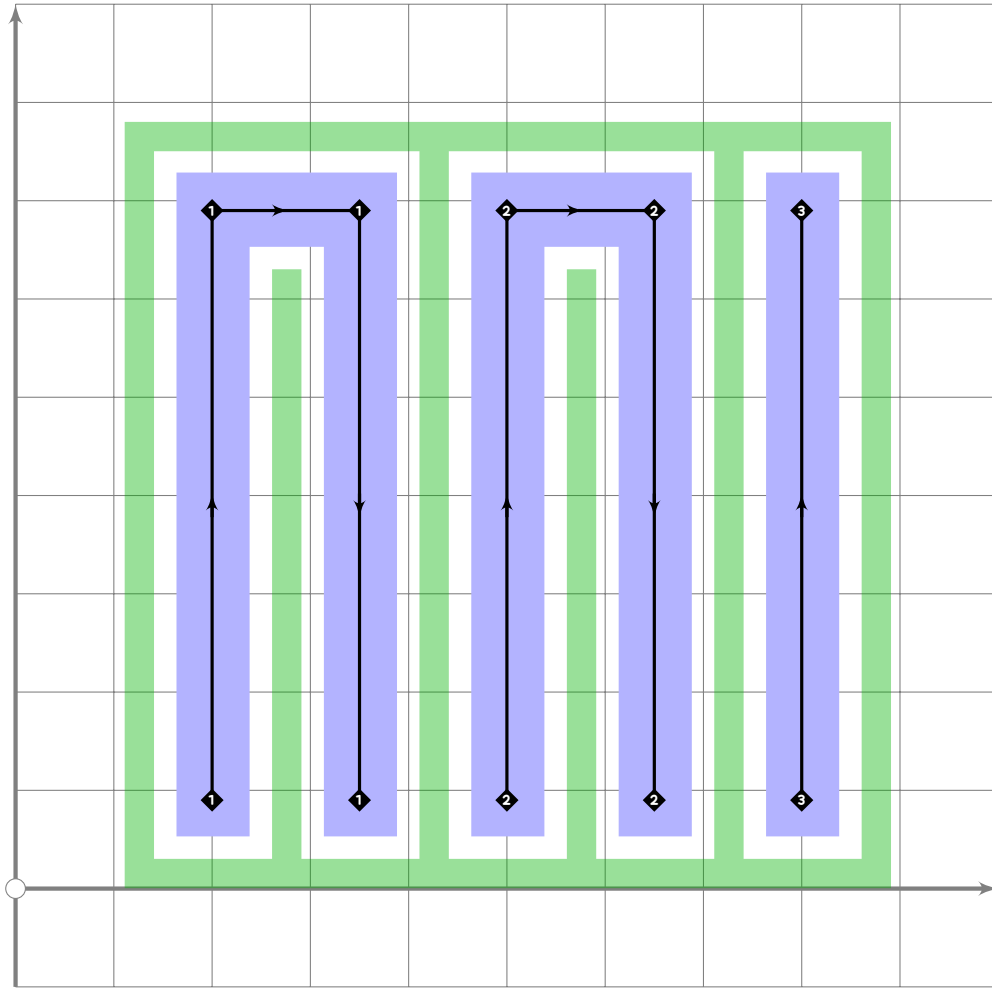




```

738 % #17 Eawase
739 beginsuglyph("genjimon17",209);
740  gbk(1,0);
741  gb(1);gf(2);gr;gx;gr;gf(2);ge;
742  gj(2,5);
743  gp(4,2);
744 endsuglyph;
745

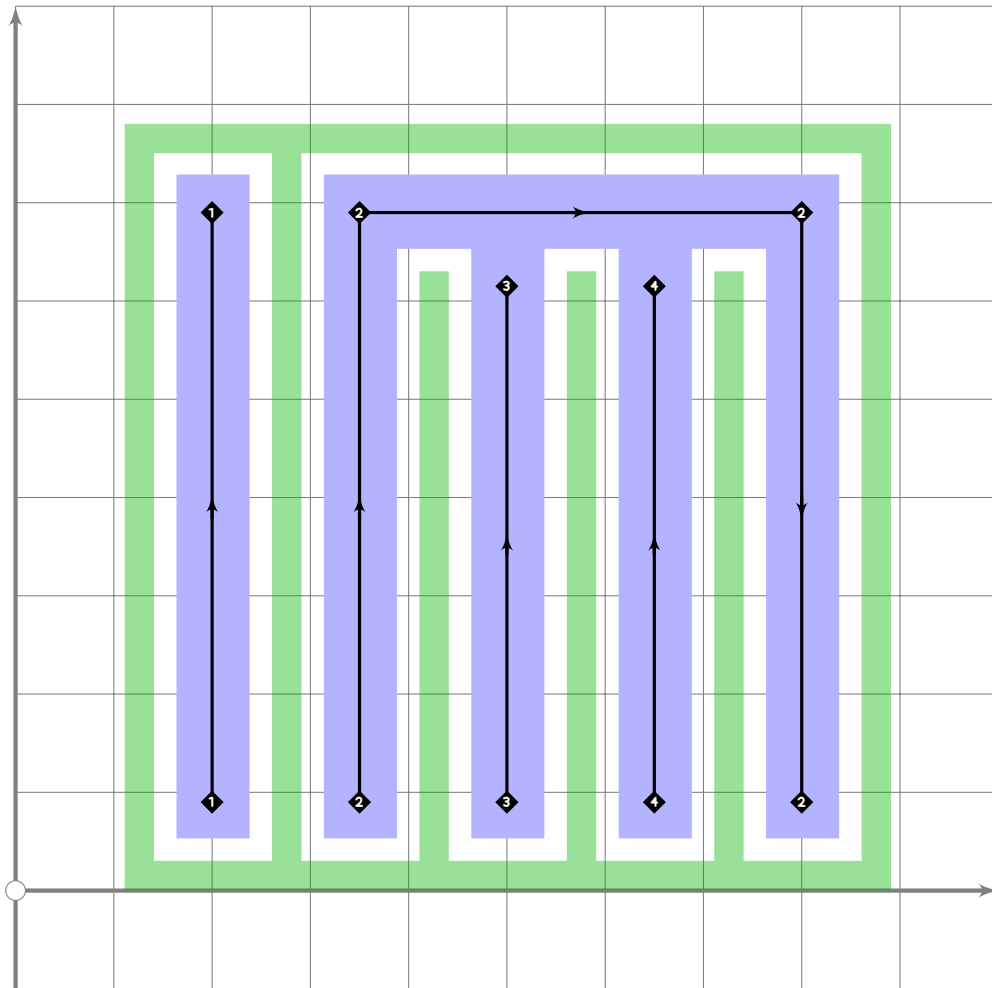
```



```

746 % #18 Matsukaze
747 begintsuglyph("genjimon18",210);
748 gbk(0,0);
749 gj(1,2);
750 gj(3,4);
751 gp(5,1);
752 endsuglyph;
753

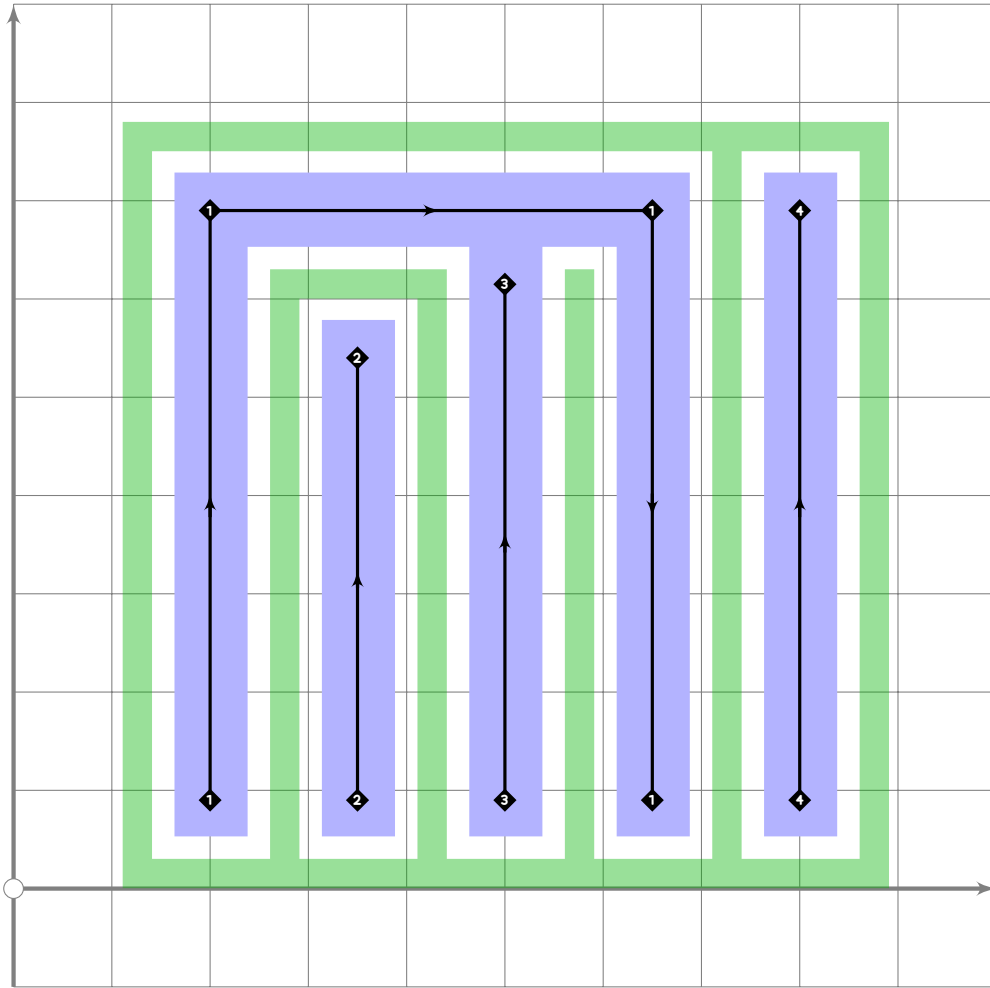
```



```

754 % #19 Usugumo
755 begintsuglyph("genjimon19",211);
756 gbk(0,0);
757 gp(1,1);
758 gj(2,5);
759 gtt(3,1);
760 gtt(4,1);
761 endsuglyph;
762

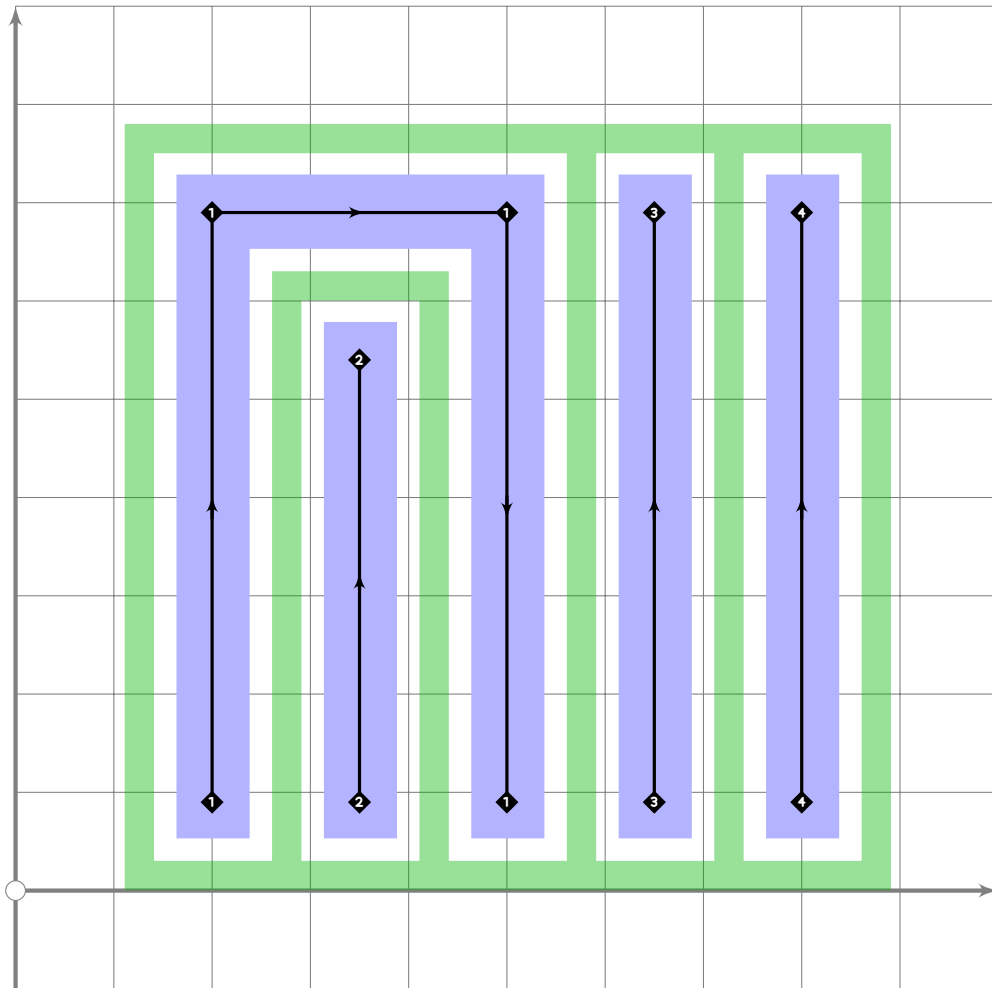
```



```

763 % #20 Asagao
764 begintsuglyph("genjimon20";212);
765 gbk(0,0);
766 gj(1,4);
767 gp(2,2);
768 gtt(3,1);
769 gp(5,1);
770 endsuglyph;
771

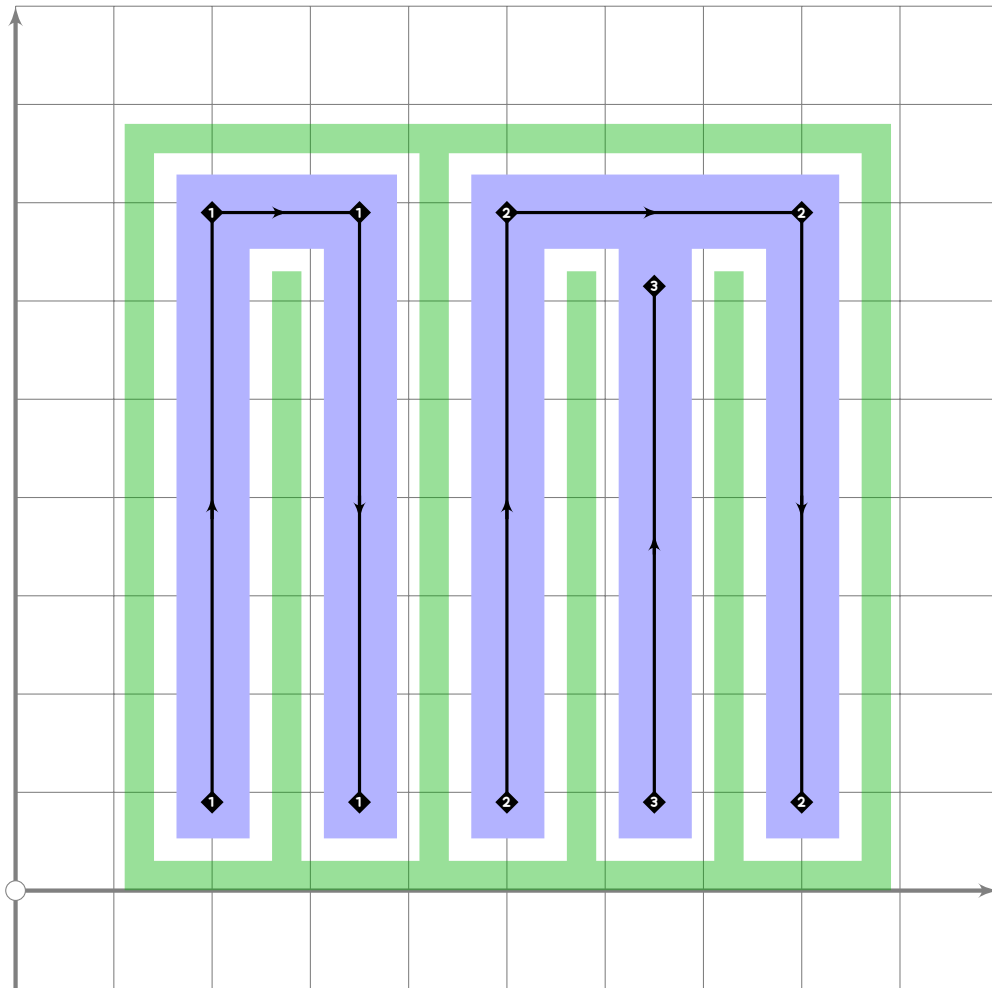
```



```

772 % #21 Otome
773 begint Suglyph("genjimon21",213);
774 gbk(0,0);
775 gj(1,3);
776 gp(2,2);
777 gp(4,1);
778 gp(5,1);
779 endtsuglyph;
780

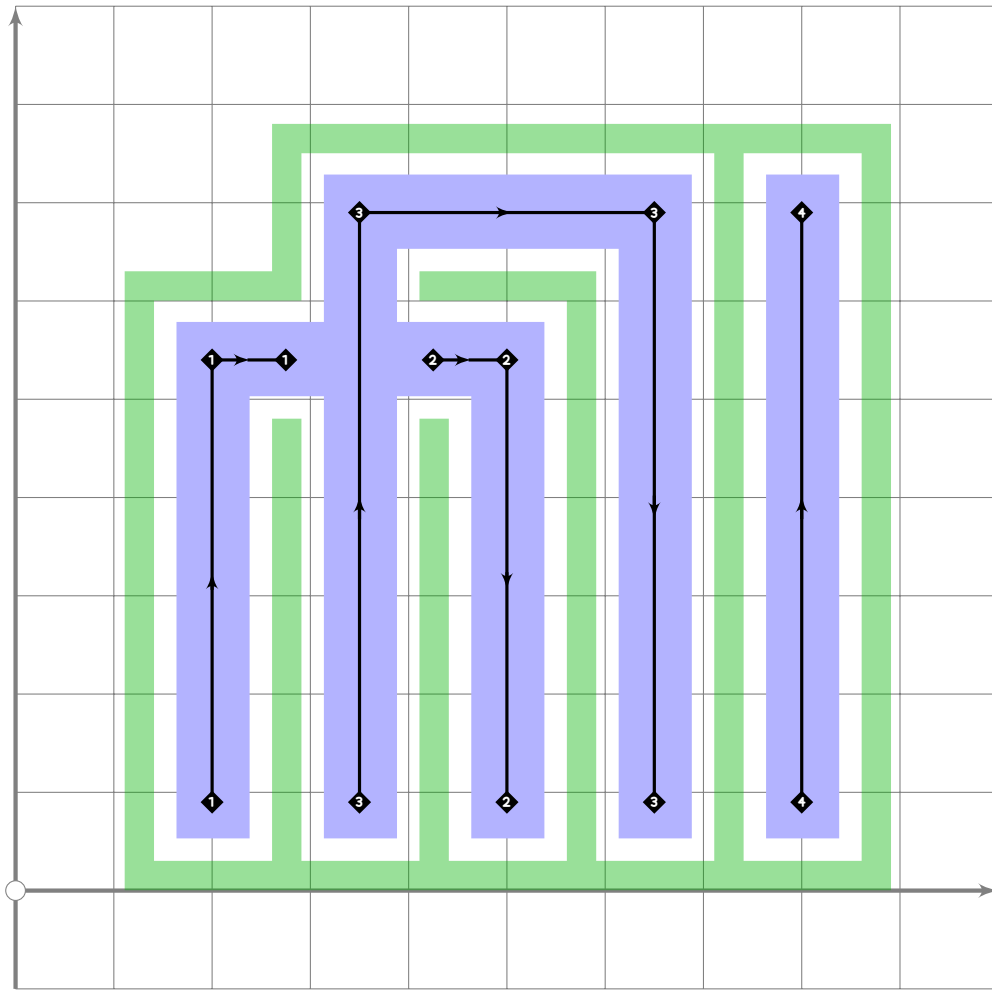
```



```

781 % #22 Tamakazura
782 begintsuglyph("genjimon22";214);
783 gbk(0,0);
784 gj(1,2);
785 gj(3,5);
786 gtt(4,1);
787 endsuglyph;
788

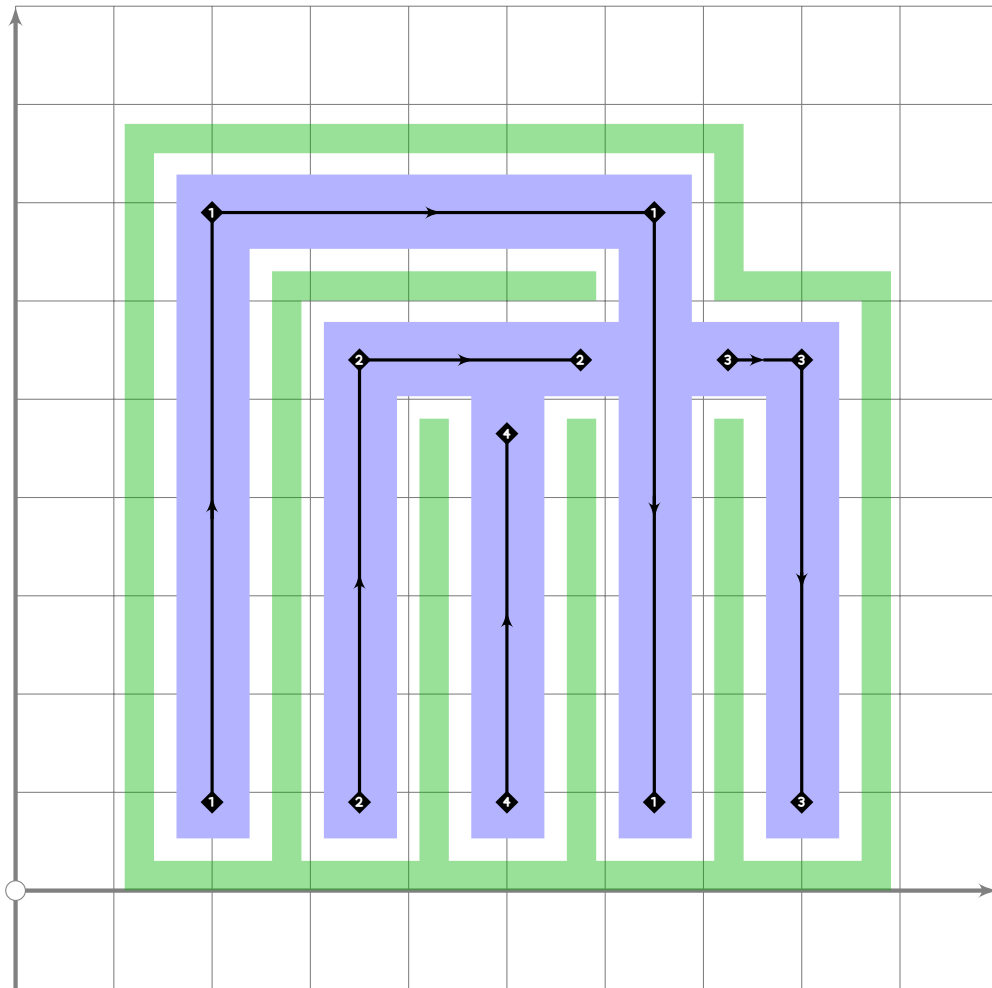
```



```

789 % #23 Hatsune
790 beginsuglyph("genjimon23";215);
791   gbk(1,0);
792   gb(1);gf(2);gr;gx;gr;gf(2);ge;
793   gj(2,4);
794   gp(5,1);
795 endsuglyph;
796

```

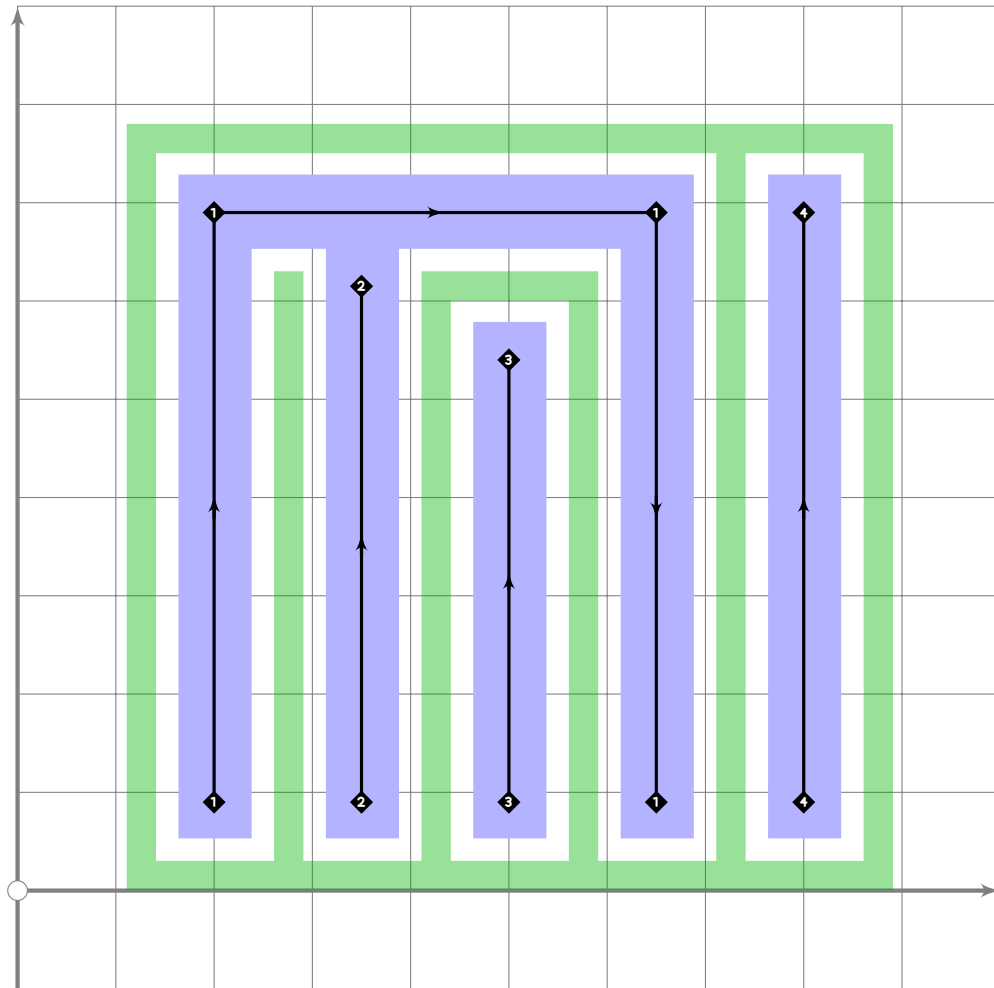


```

797 % #24 Kochou
798 begintsuglyph("genjimon24";216);
799 gbk(0,1);
800 gj(1,4);
801 gb(2);gf(2);gr;gs(1);gx;gr;gf(2);ge;
802 gtt(3,2);
803 endsuglyph;
804

```

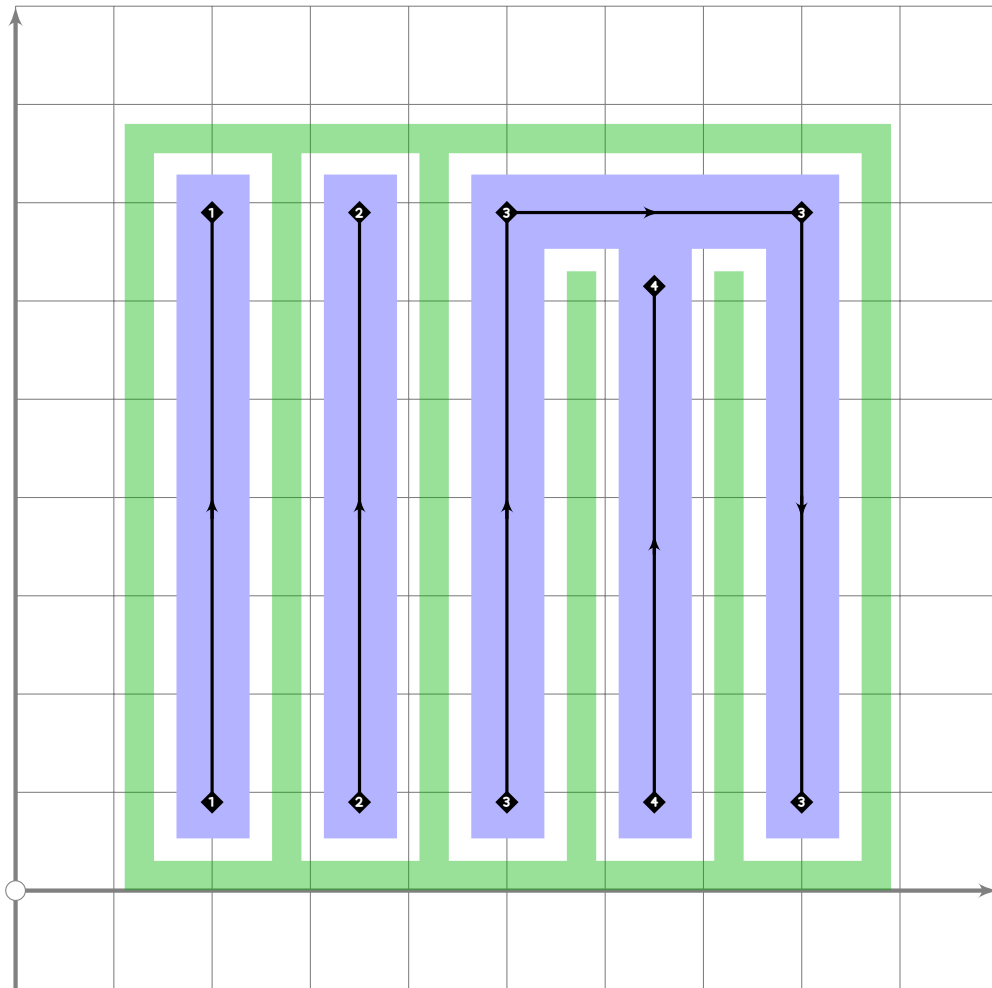




```

805 % #25 Hotaru
806 begint Suglyph("genjimon25";217);
807   gbk(0,0);
808   gj(1,4);
809   gtt(2,1);
810   gp(3,2);
811   gp(5,1);
812   endtsuglyph;
813

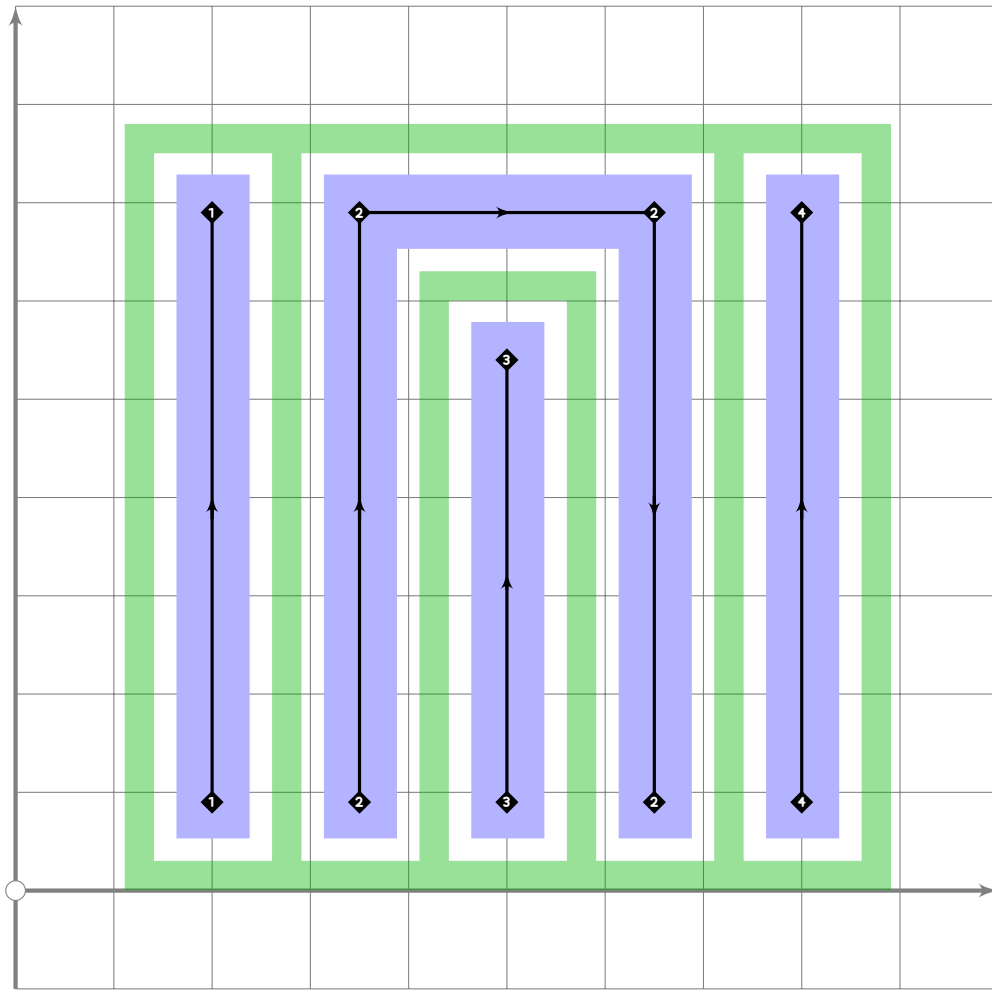
```



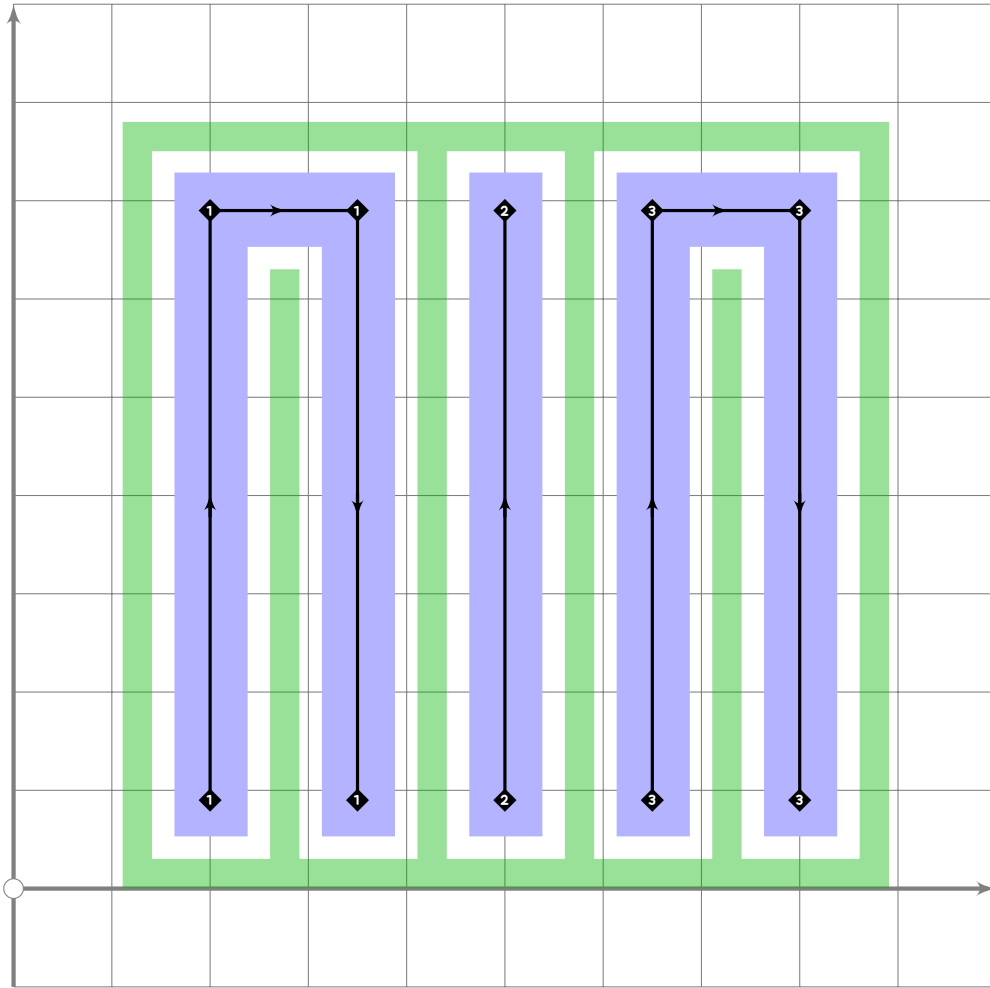
```

814 % #26 Tokonatsu
815 begintsuglyph("genjimon26";218);
816 gbk(0,0);
817 gp(1,1);
818 gp(2,1);
819 gj(3,5);
820 gtt(4,1);
821 endsuglyph;
822

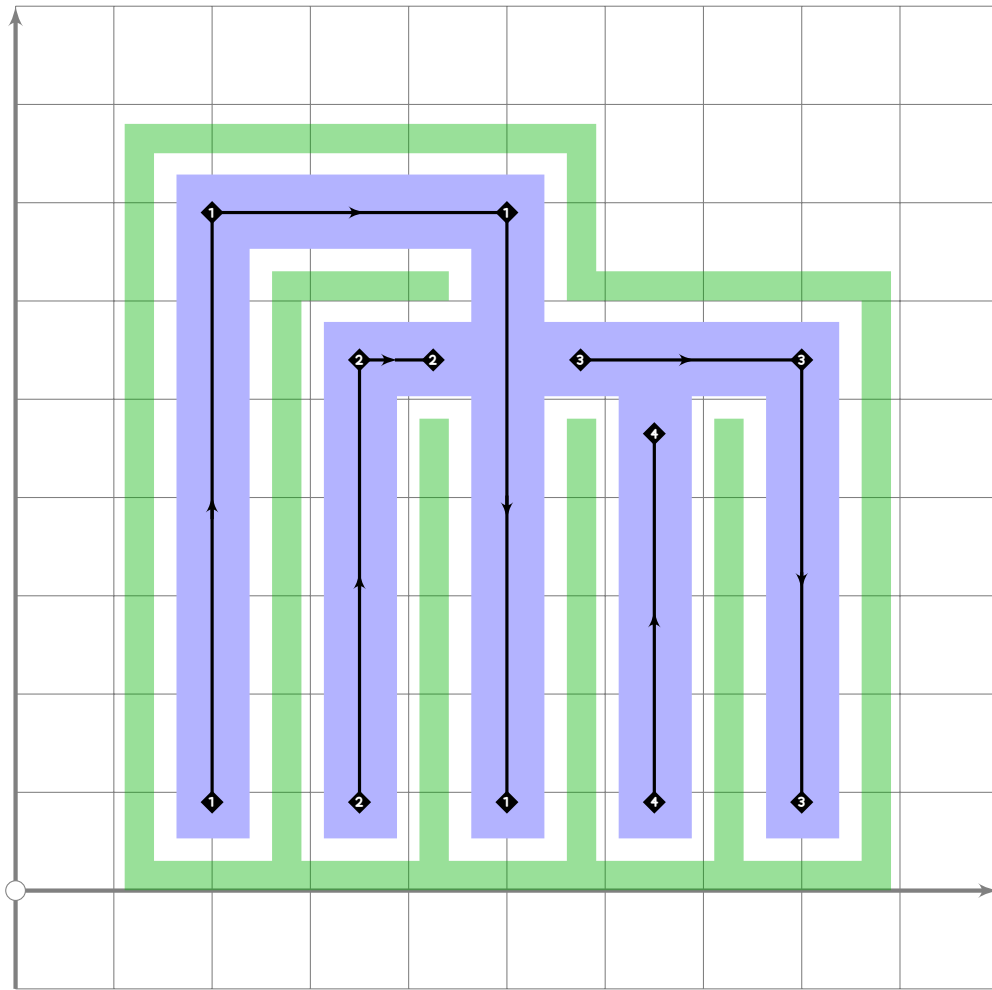
```



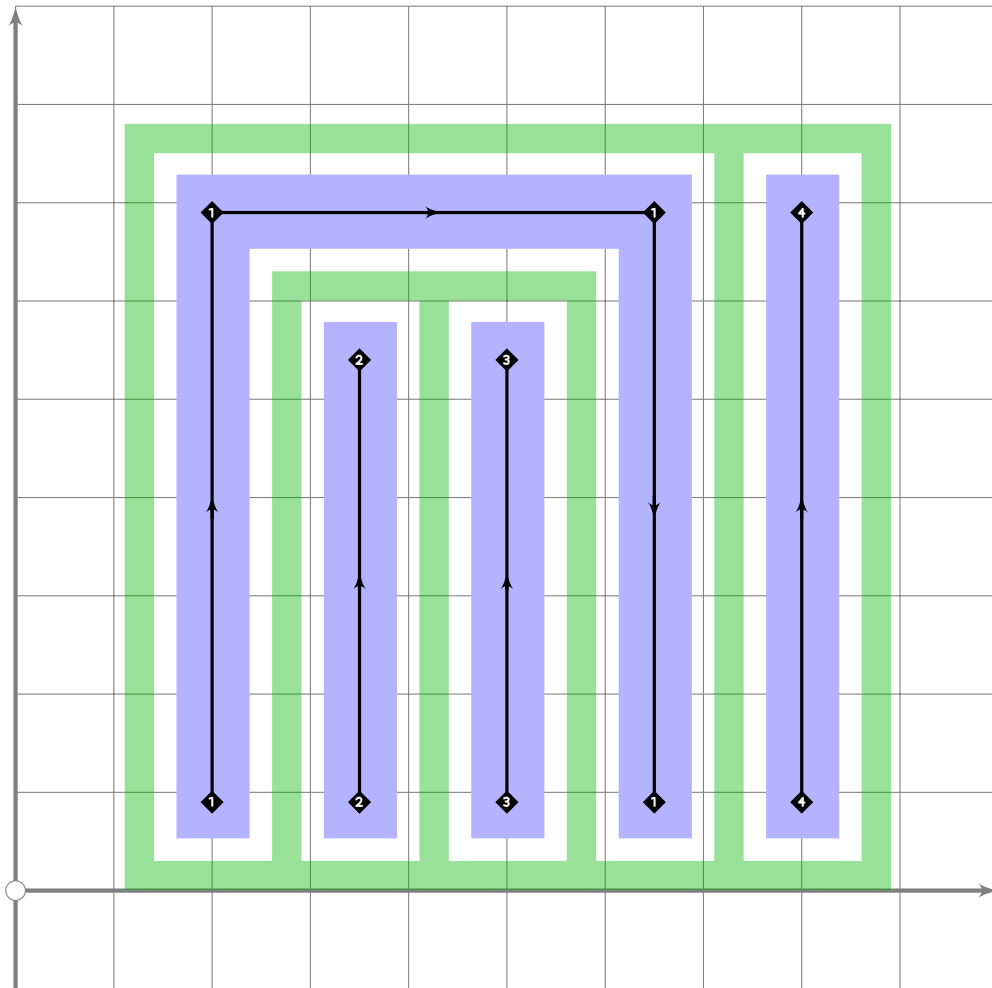
```
823 % #27 Kagaribi
824 begintsuglyph("genjimon27";219);
825 gbk(0,0);
826 gp(1,1);
827 gj(2,4);
828 gp(3,2);
829 gp(5,1);
830 endsuglyph;
831
```



```
832 % #28 Nowaki  
833 begintsuglyph("genjimon28",220);  
834 gbk(0,0);  
835 gj(1,2);  
836 gp(3,1);  
837 gj(4,5);  
838 endsuglyph;  
839
```



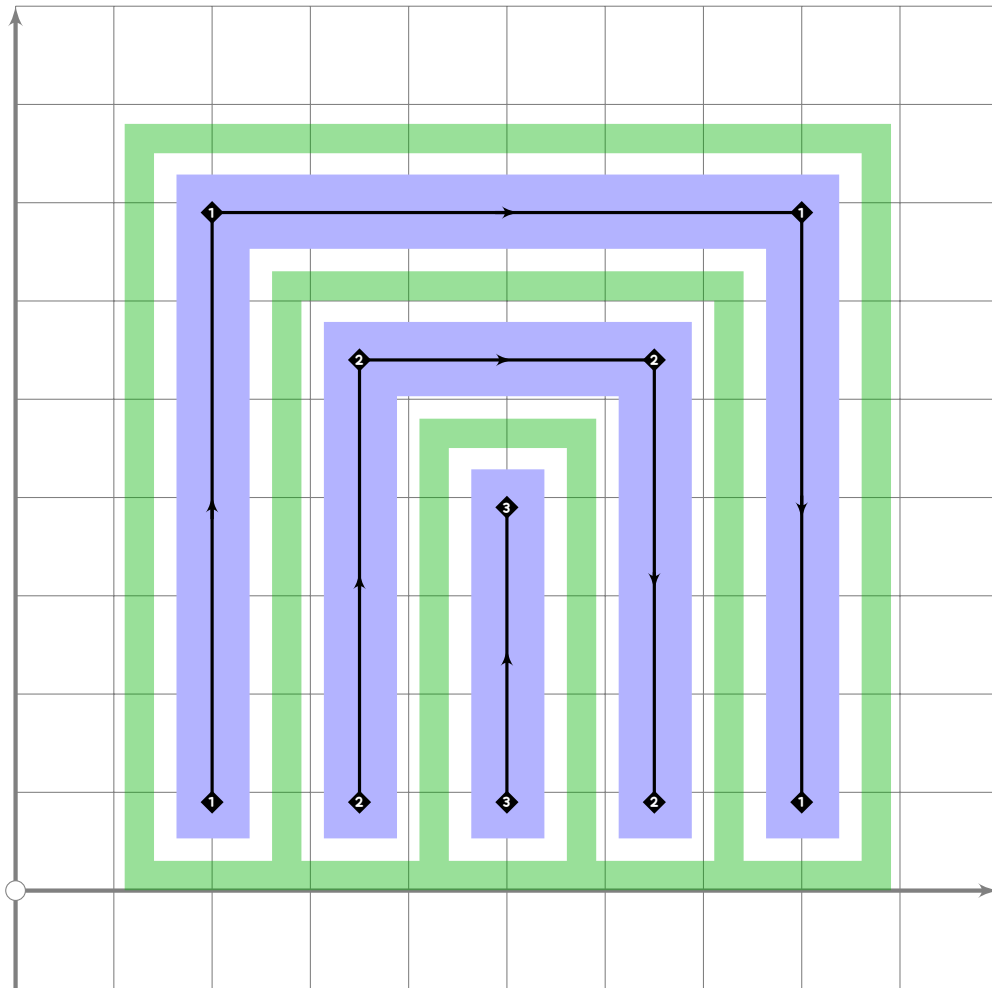
```
840 % #29 Miyuki  
841 begintsuglyph("genjimon29";221);  
842 gbk(0,2);  
843 gj(1,3);  
844 gb(2);gf(2);gr;gx;gs(1);gr;gf(2);ge;  
845 gtt(4,2);  
846 endsuglyph;  
847
```



```

848 % #30 Fujibakama
849 begintsuglyph("genjimon30";222);
850 gbk(0,0);
851 gj(1,4);
852 gp(2,2);
853 gp(3,2);
854 gp(5,1);
855 endtsuglyph;
856

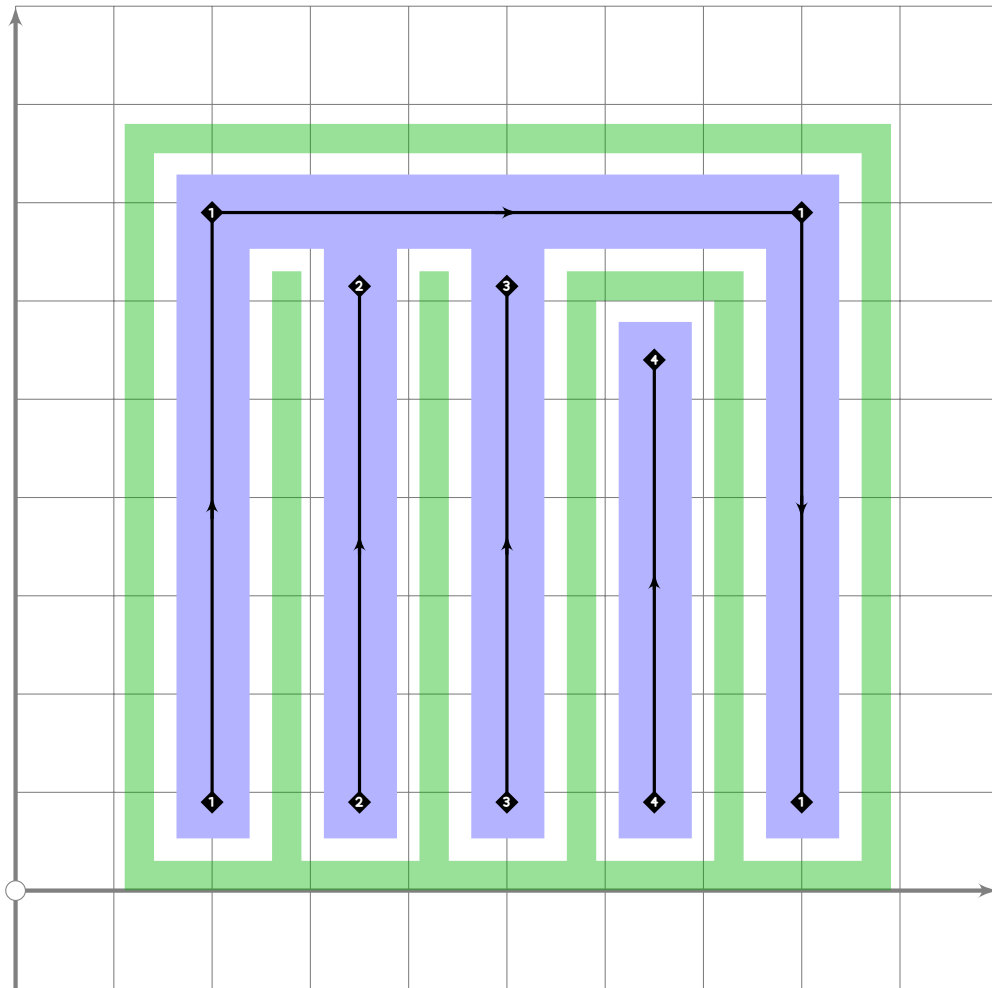
```



```

857 % #31 Makibashira
858 begintsuglyph("genjimon31",223);
859 gbk(0,0);
860 gj(1,5);
861 gb(2);gf(2);gr;gs(1);gr;gf(2);ge;
862 gp(3,3);
863 endsuglyph;
864

```

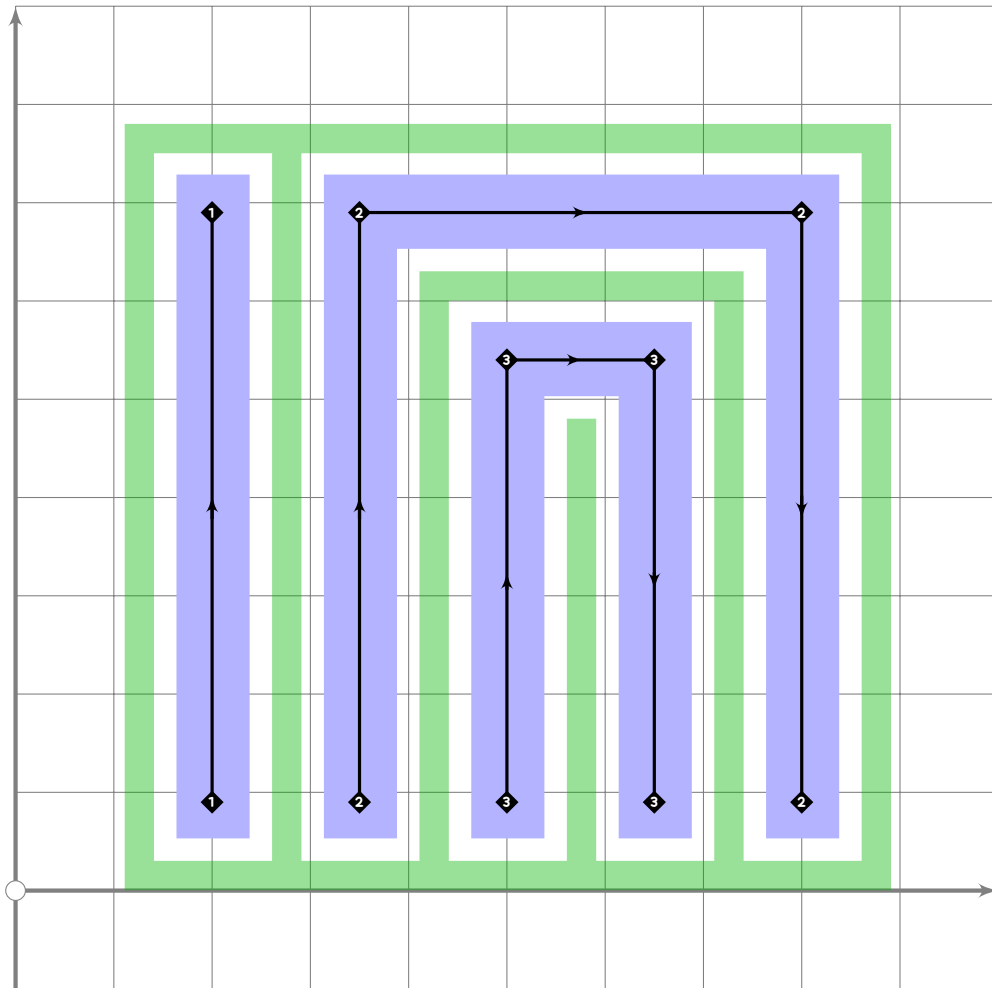


```

865 % #32 Umegae
866 begintsuglyph("genjimon32";224);
867 gbk(0,0);
868 gj(1,5);
869 gtt(2,1);
870 gtt(3,1);
871 gp(4,2);
872 endsuglyph;
873

```

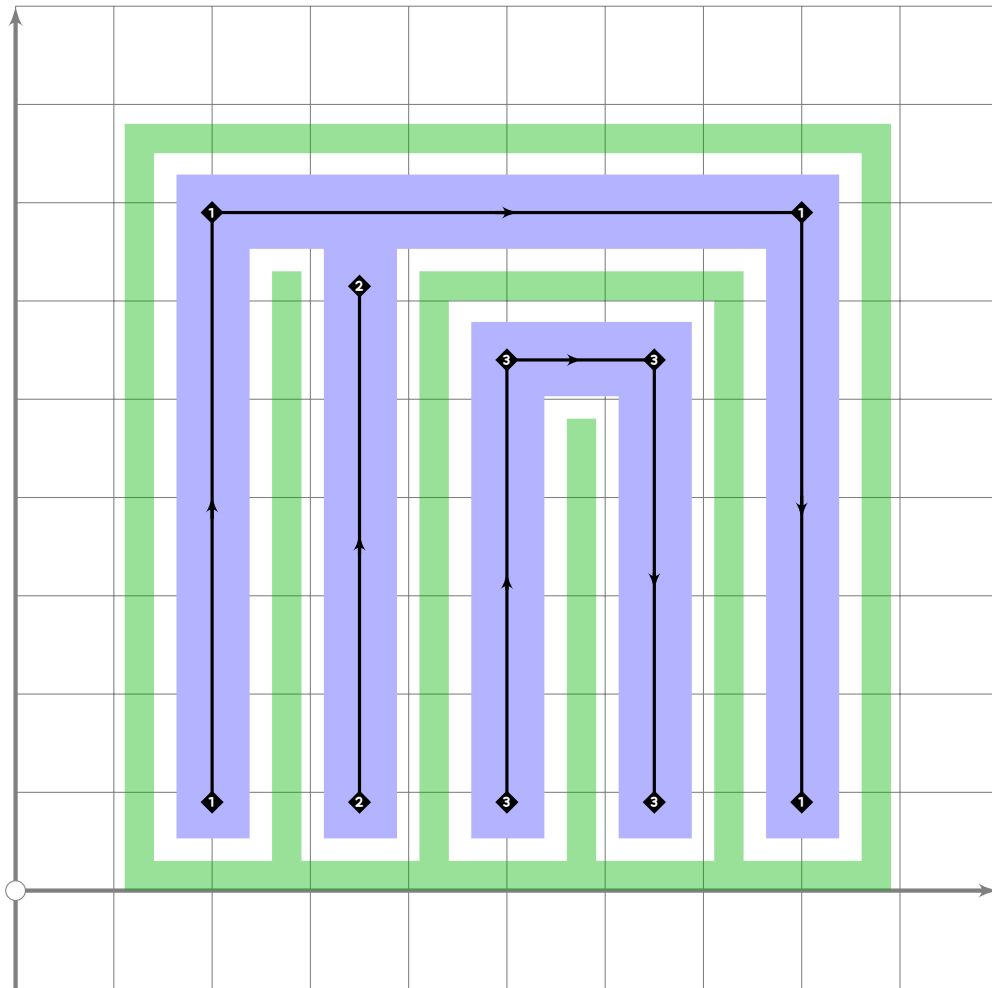




```

874 % #33 Fuji no Uraba
875 begintsuglyph("genjimon33",225);
876 gbk(0,0);
877 gp(1,1);
878 gj(2,5);
879 gb(3);gf(2);gr;gr;gf(2);ge;
880 endsuglyph;
881

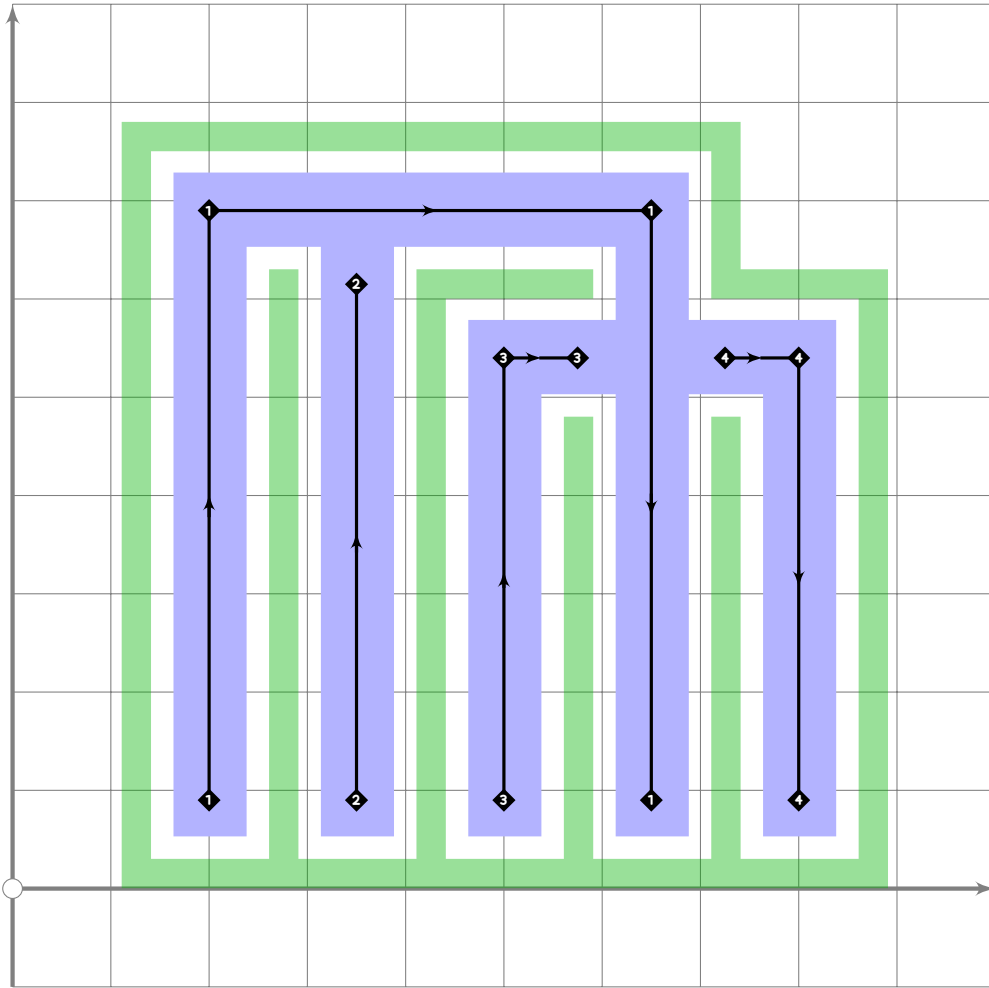
```



```

882 % #34 Wakana no Jou
883 begintsuglyph("genjimon34";226);
884 gbk(0,0);
885 gj(1,5);
886 gtt(2,1);
887 gb(3);gf(2);gr;gr;gf(2);ge;
888 endsuglyph;
889

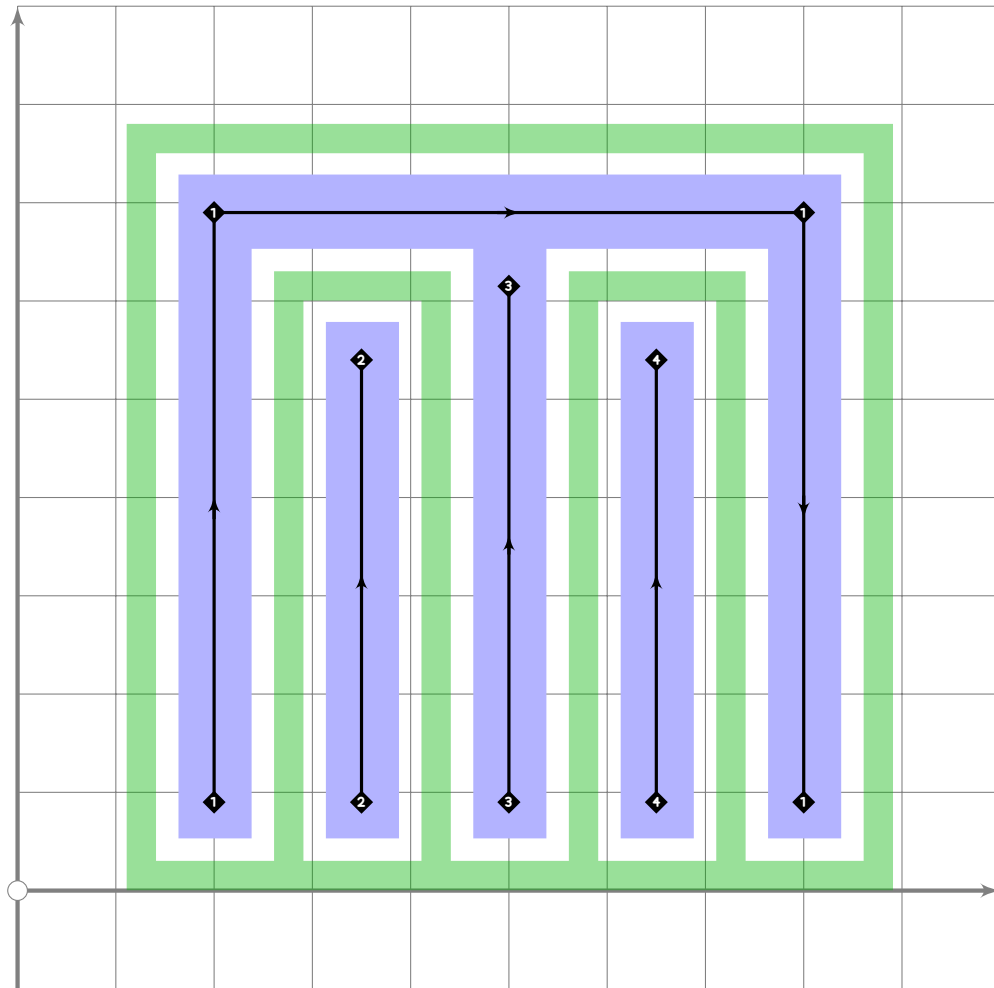
```



```

890 % #35 Wakana no Ge
891 begintsuglyph("genjimon35",227);
892 gbk(0,1);
893 gj(1,4);
894 gtt(2,1);
895 gb(3);gf(2);gr;gx;gr;gf(2);ge;
896 endsuglyph;
897

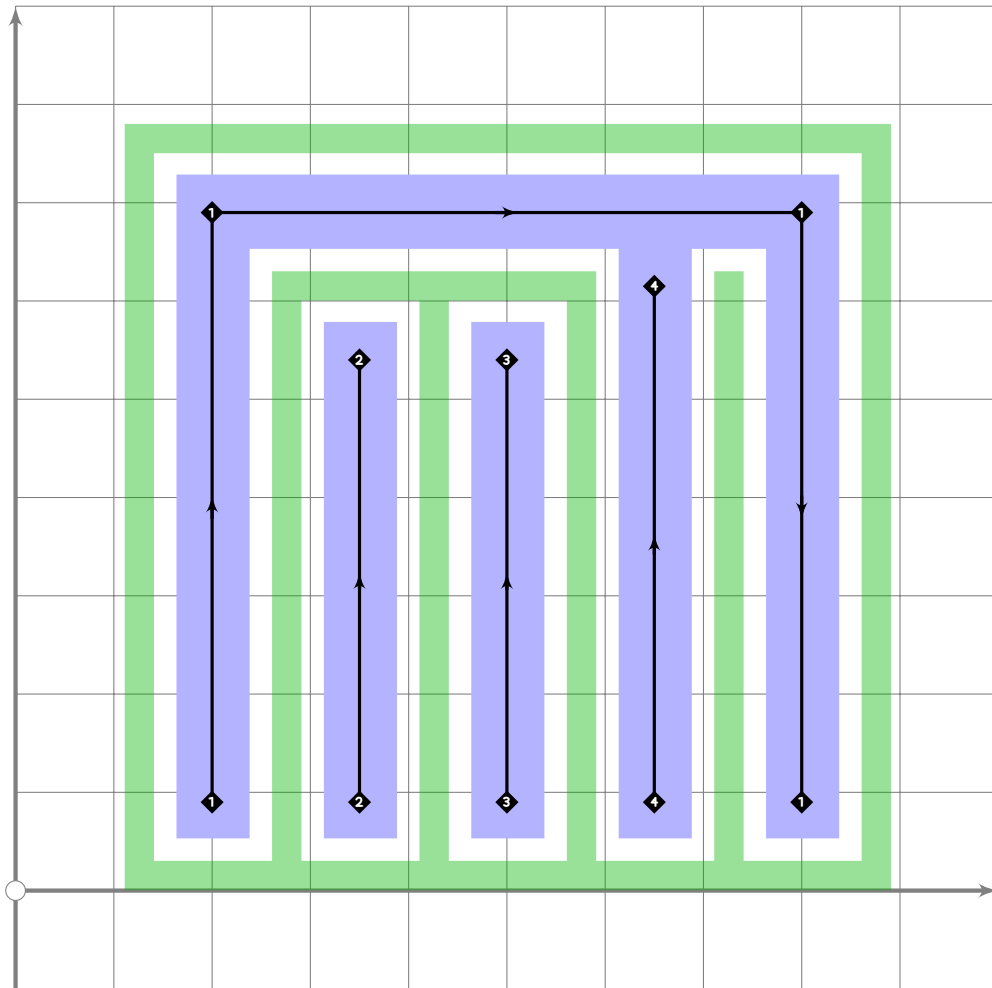
```



```

898 % #36 Kashiwagi
899 begintsuglyph("genjimon36",228);
900 gbk(0,0);
901 gj(1,5);
902 gp(2,2);
903 gtt(3,1);
904 gp(4,2);
905 endsuglyph;
906

```

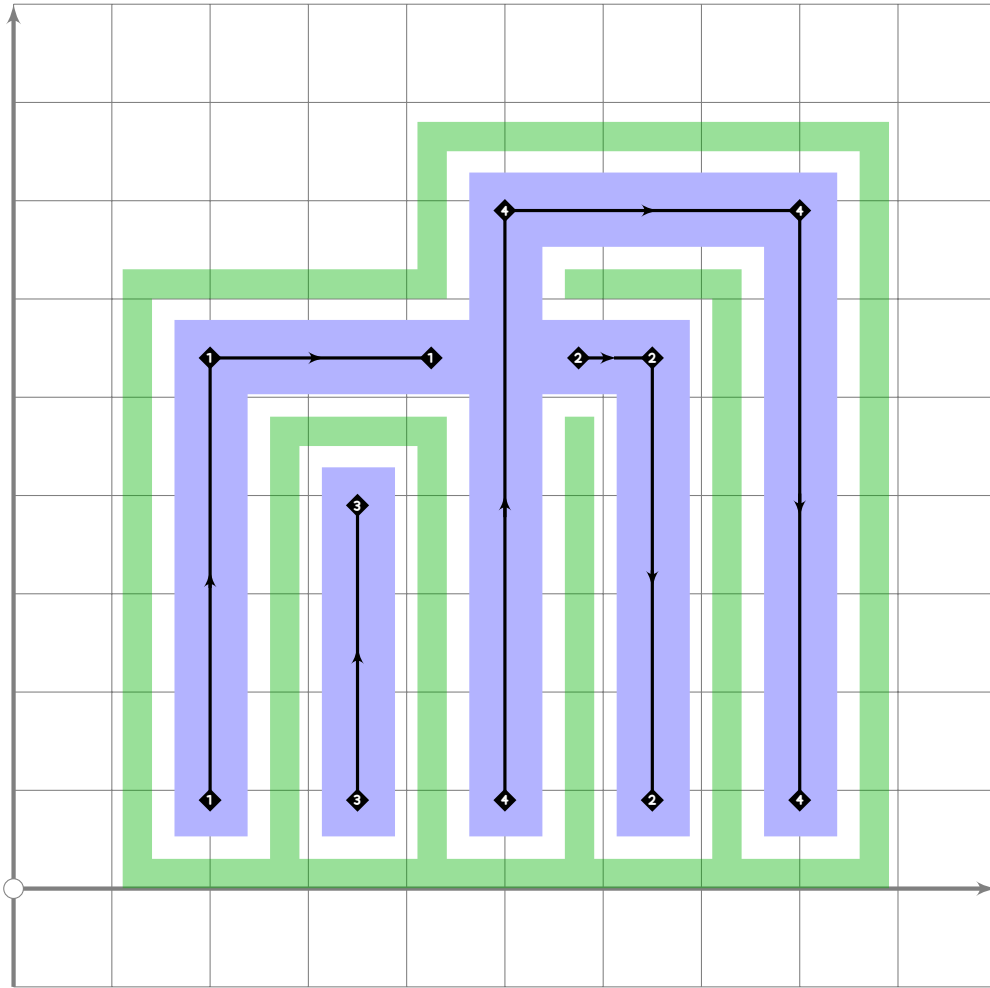


```

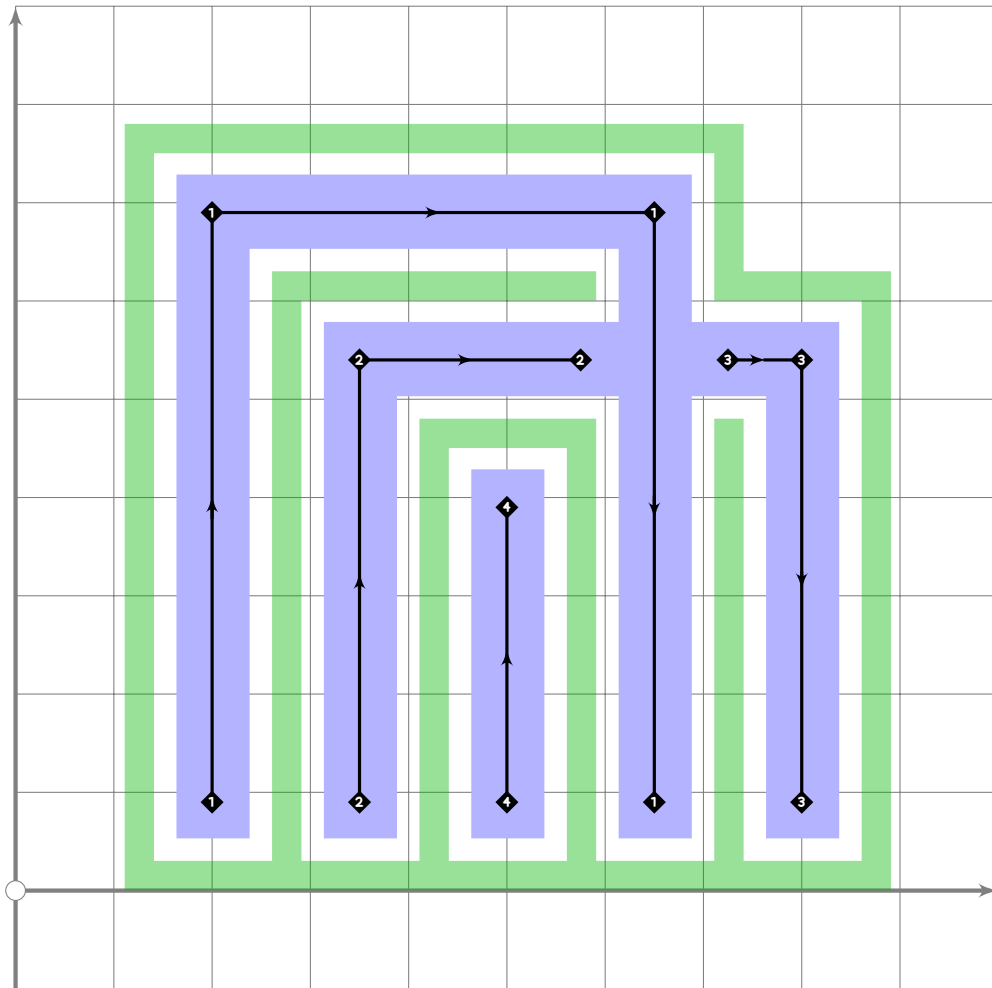
907 % #37 Yokobue
908 begintsuglyph("genjimon37";229);
909 gbk(0,0);
910 gj(1,5);
911 gp(2,2);
912 gp(3,2);
913 gtt(4,1);
914 endsuglyph;
915

```





```
924 % #39 Yuugiri
925 begintsuglyph("genjimon39";231);
926 gbk(2,0);
927 gb(1);gf(2);gr;gs(1);gx;gr;gf(2);ge;
928 gp(2,3);
929 gj(3,5);
930 endsuglyph;
931
```

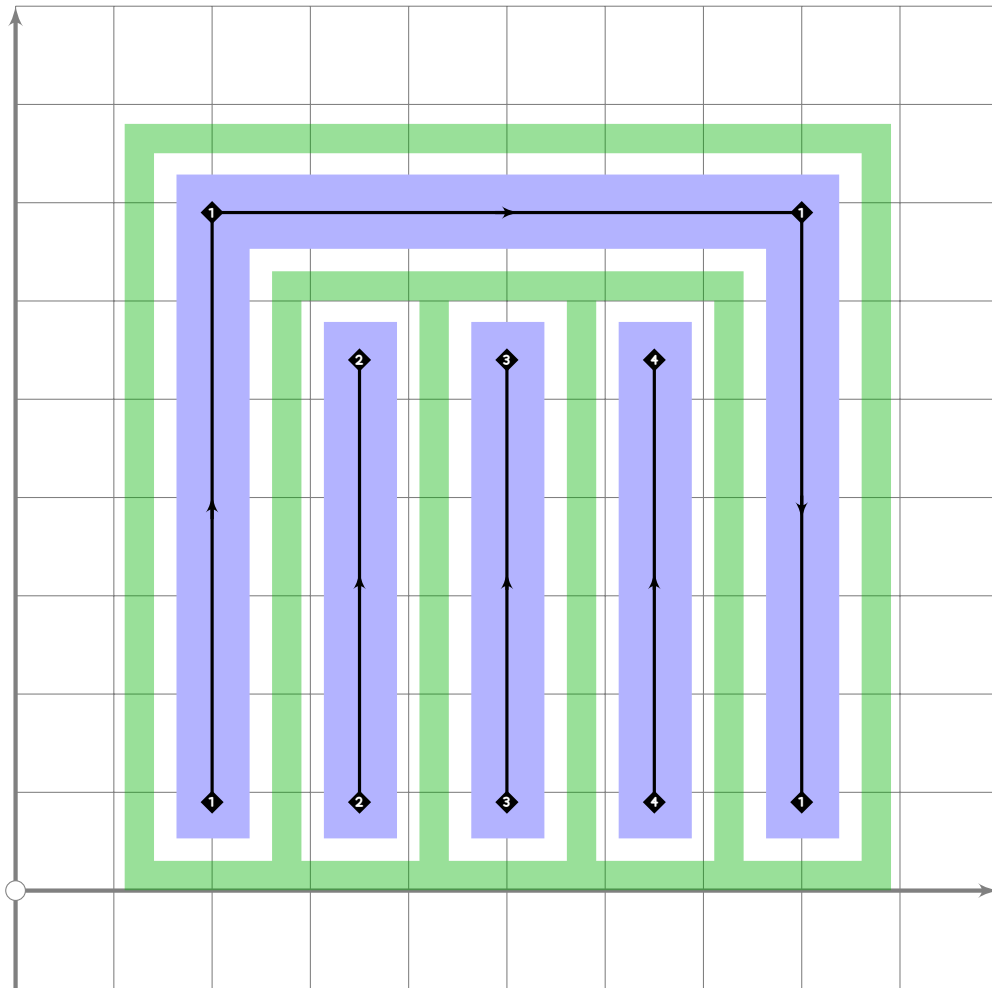


```

932 % #40 Minori
933 begintsuglyph("genjimon40",232);
934 gbk(0,1);
935 gj(1,4);
936 gb(2);gf(2);gr;gs(1);gx;gr;gf(2);ge;
937 gp(3,3);
938 endsuglyph;
939

```

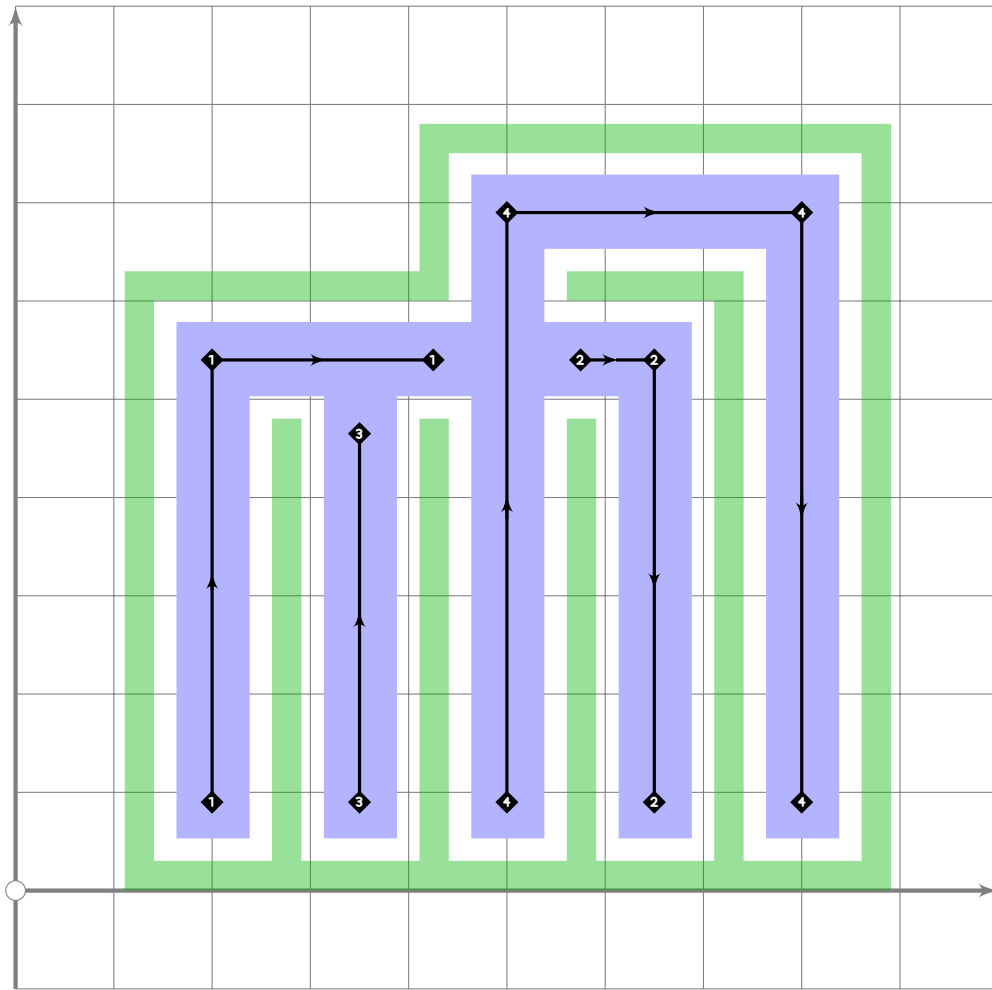




```

940 % #41 Maboroshi
941 begint Suglyph("genjimon41",233);
942 gbk(0,0);
943 gj(1,5);
944 gp(2,2);
945 gp(3,2);
946 gp(4,2);
947 endsuglyph;
948

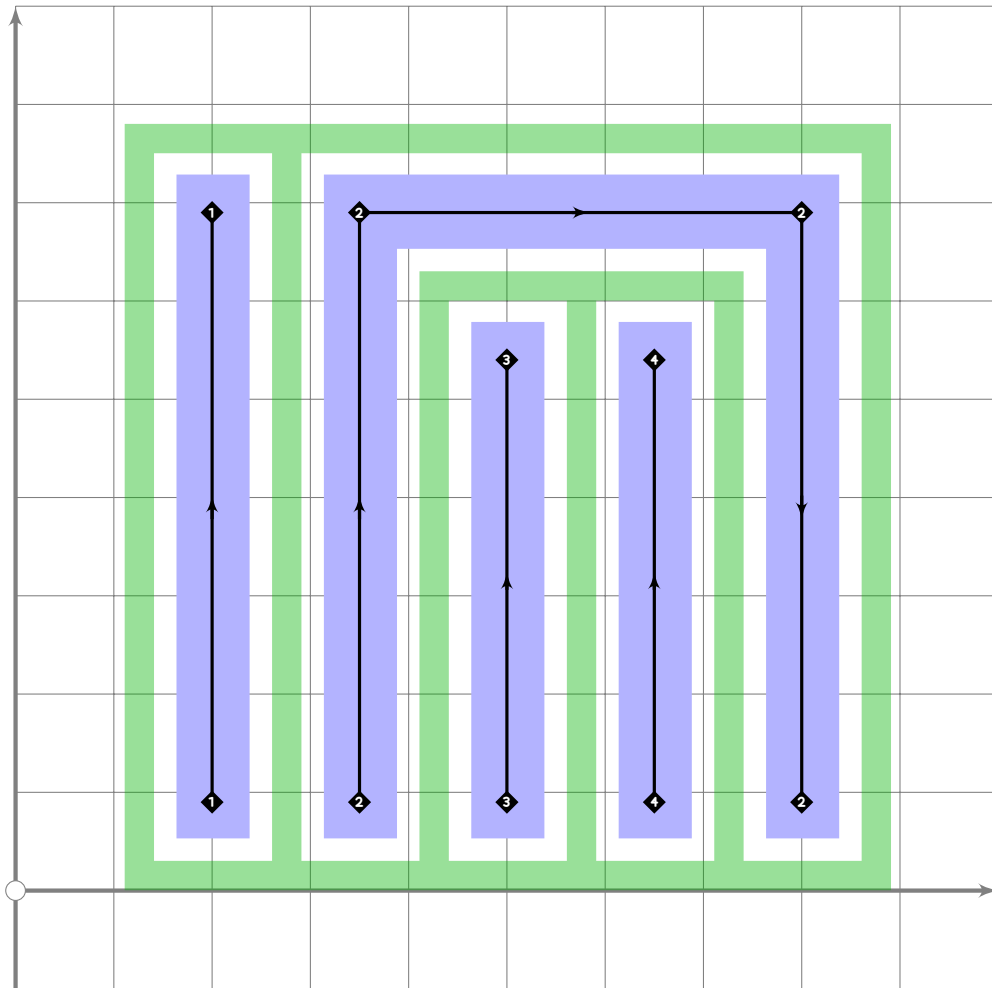
```



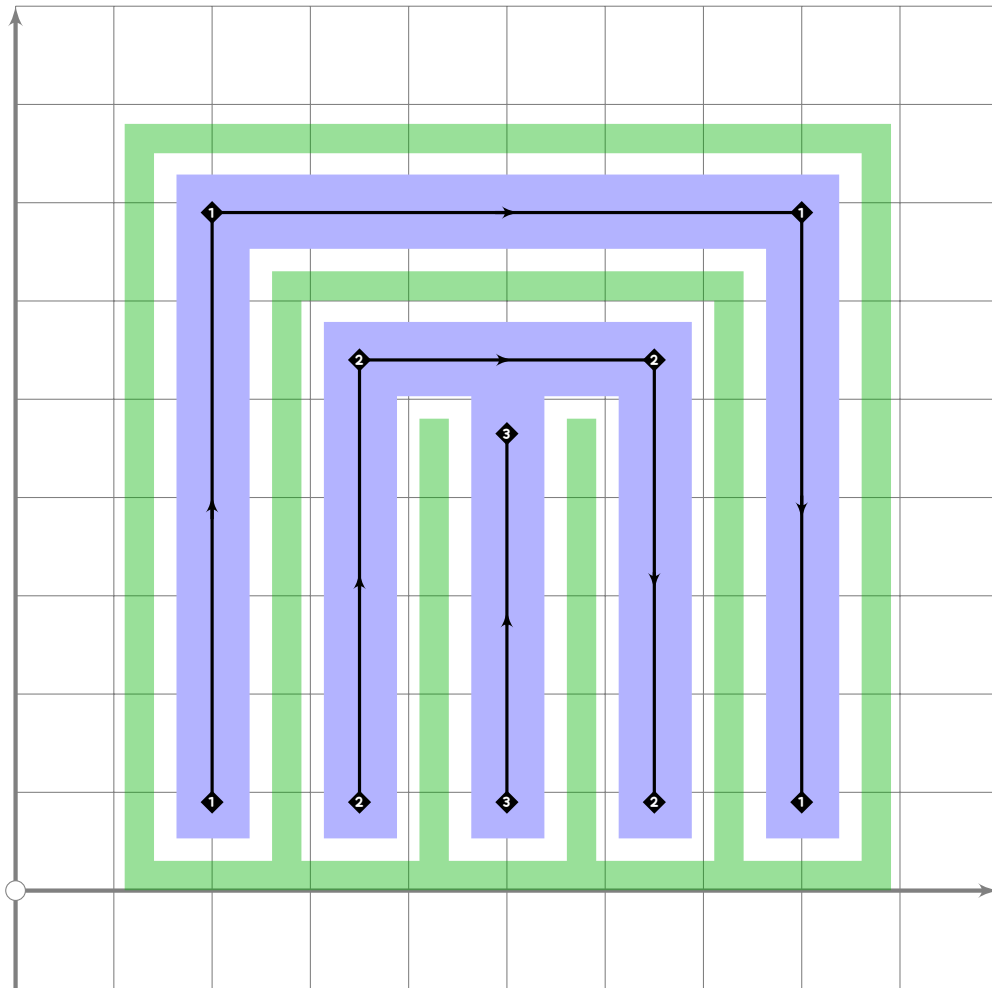
```

949 % #42 Ninounomiya
950 begintsuglyph("genjimon42";234);
951 gbk(2,0);
952 gb(1);gf(2);gr;gs(1);gx;gr;gf(2);ge;
953 gtt(2,2);
954 gj(3,5);
955 endsuglyph;
956

```



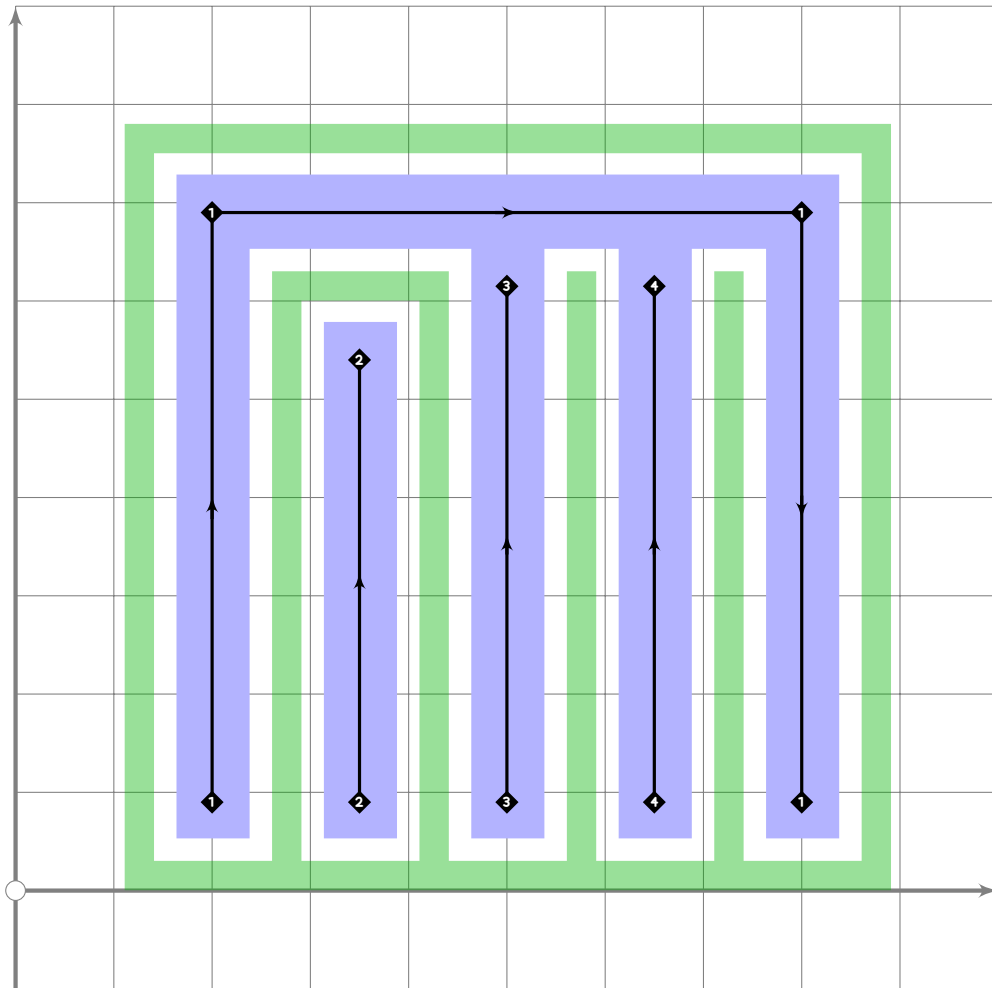
```
957 % #43 Koubai
958 begintsuglyph("genjimon43",235);
959 gbk(0,0);
960 gp(1,1);
961 gj(2,5);
962 gp(3,2);
963 gp(4,2);
964 endsuglyph;
965
```



```

966 % #44 Takegawa
967 begint Suglyph("genjimon44";236);
968   gbk(0,0);
969   gj(1,5);
970   gb(2);gf(2);gr;gs(1);gr;gf(2);ge;
971   gtt(3,2);
972 endsuglyph;
973

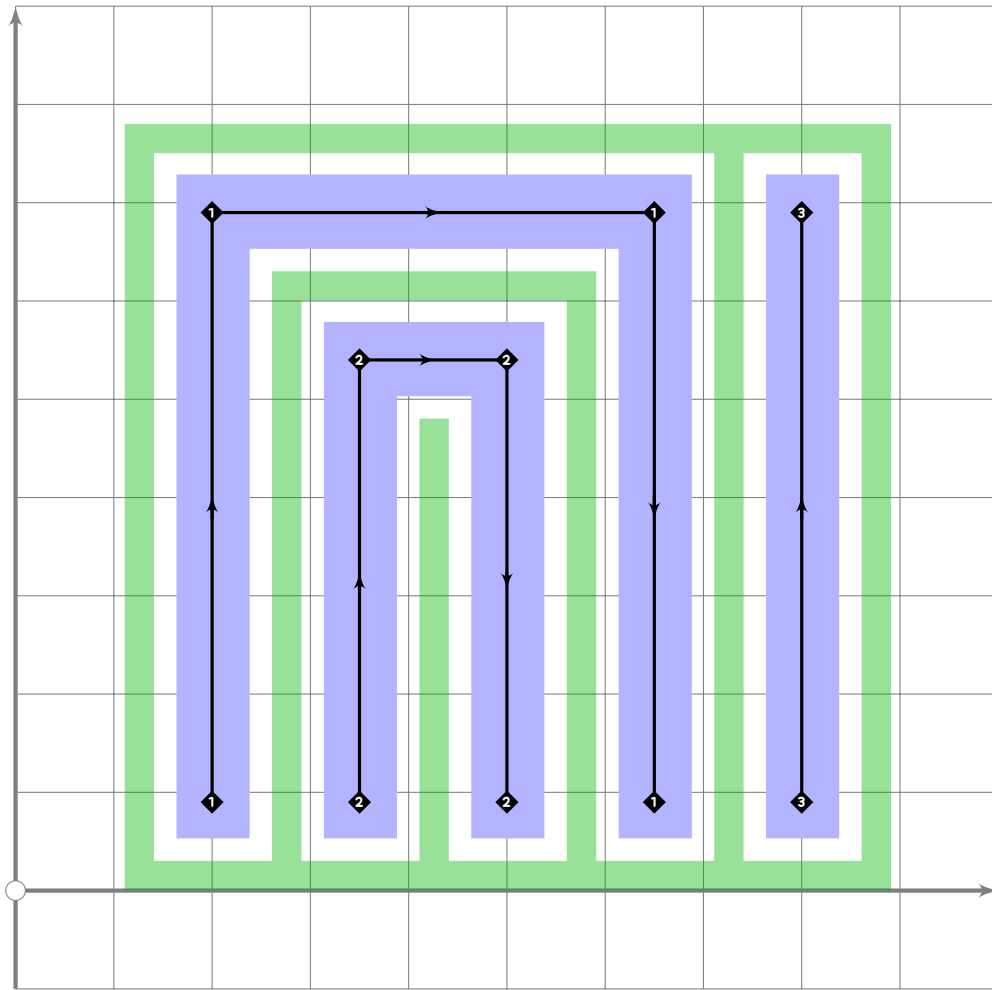
```



```

974 % #45 Hashihime
975 begintsuglyph("genjimon45",237);
976 gbk(0,0);
977 gj(1,5);
978 gp(2,2);
979 gtt(3,1);
980 gtt(4,1);
981 endsuglyph;
982

```

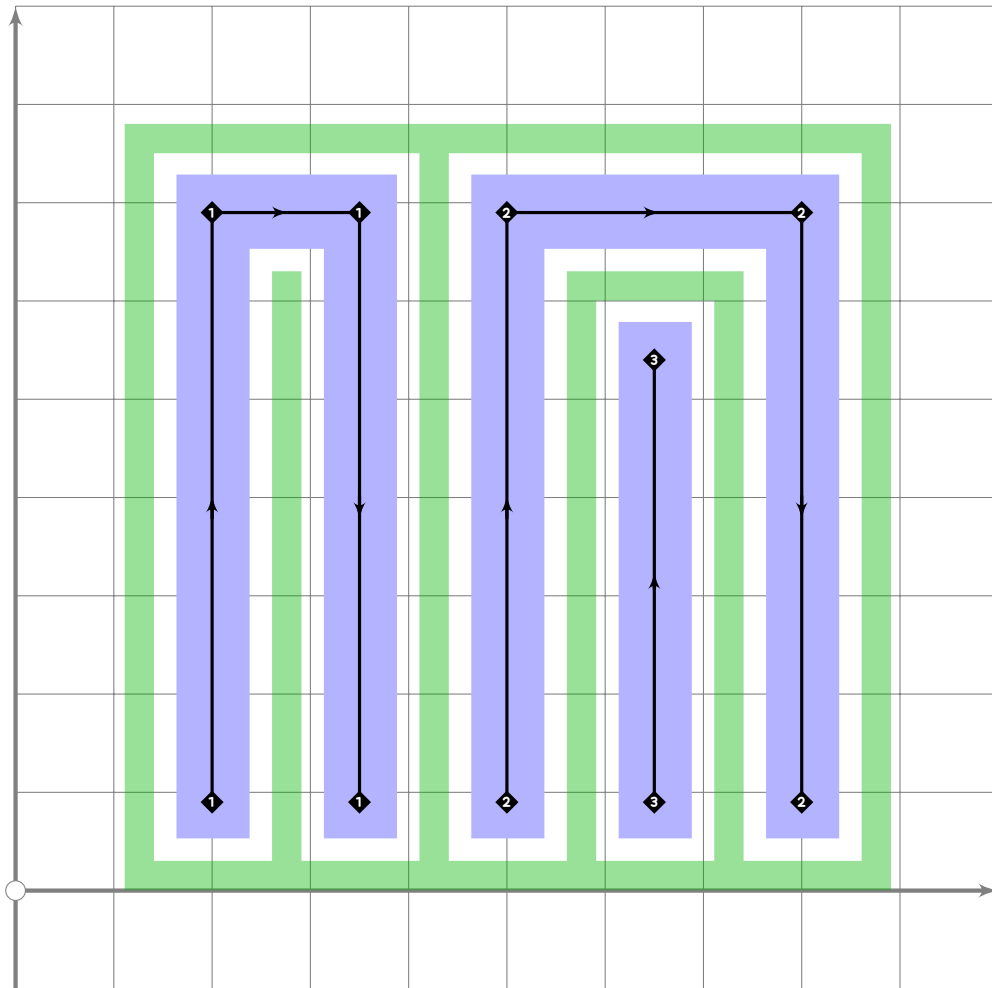


```

983 % #46 Shii ga Moto
984 begintsuglyph("genjimon46",238);
985 gbk(0,0);
986 gj(1,4);
987 gb(2);gf(2);gr;gr;gf(2);ge;
988 gp(5,1);
989 endsuglyph;
990

```



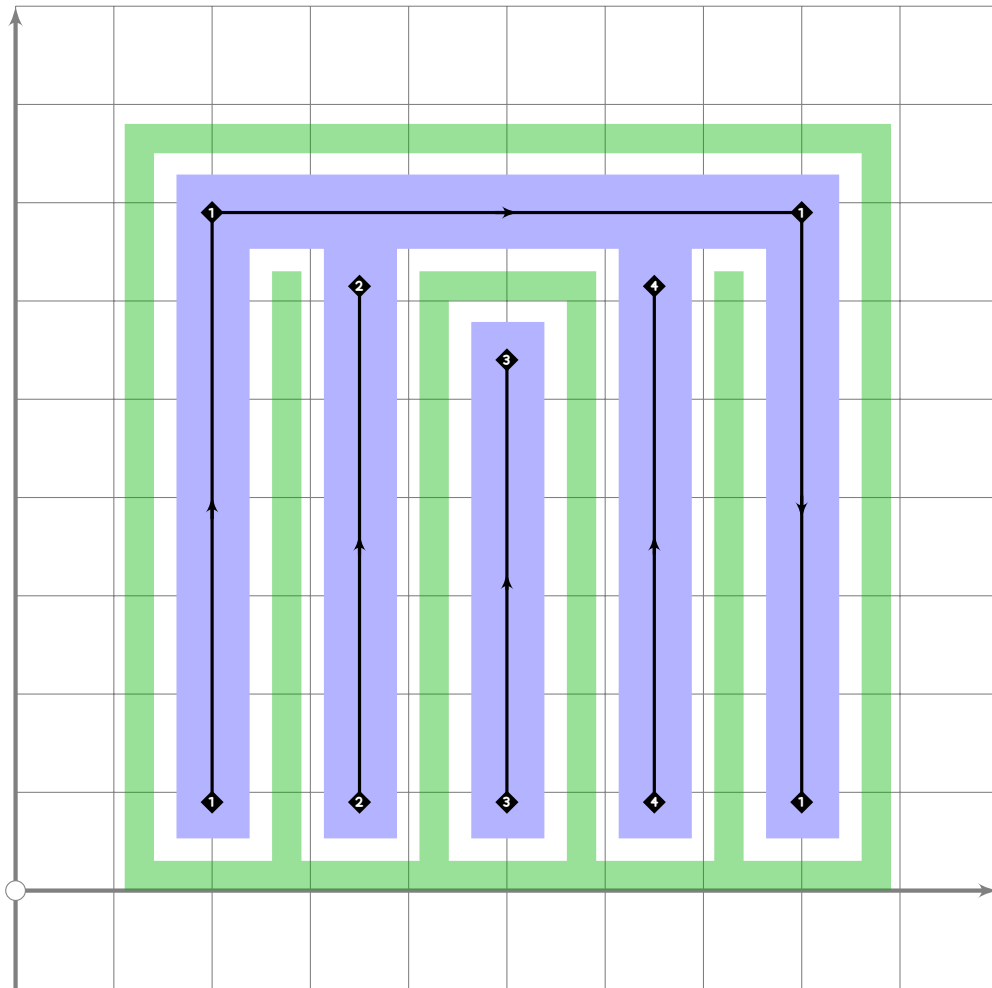


```

999 % #48 Sawarabi
1000 begint Suglyph("genjimon48",240);
1001 gbk(0,0);
1002 gj(1,2);
1003 gj(3,5);
1004 gp(4,2);
1005 endtsuglyph;
1006

```

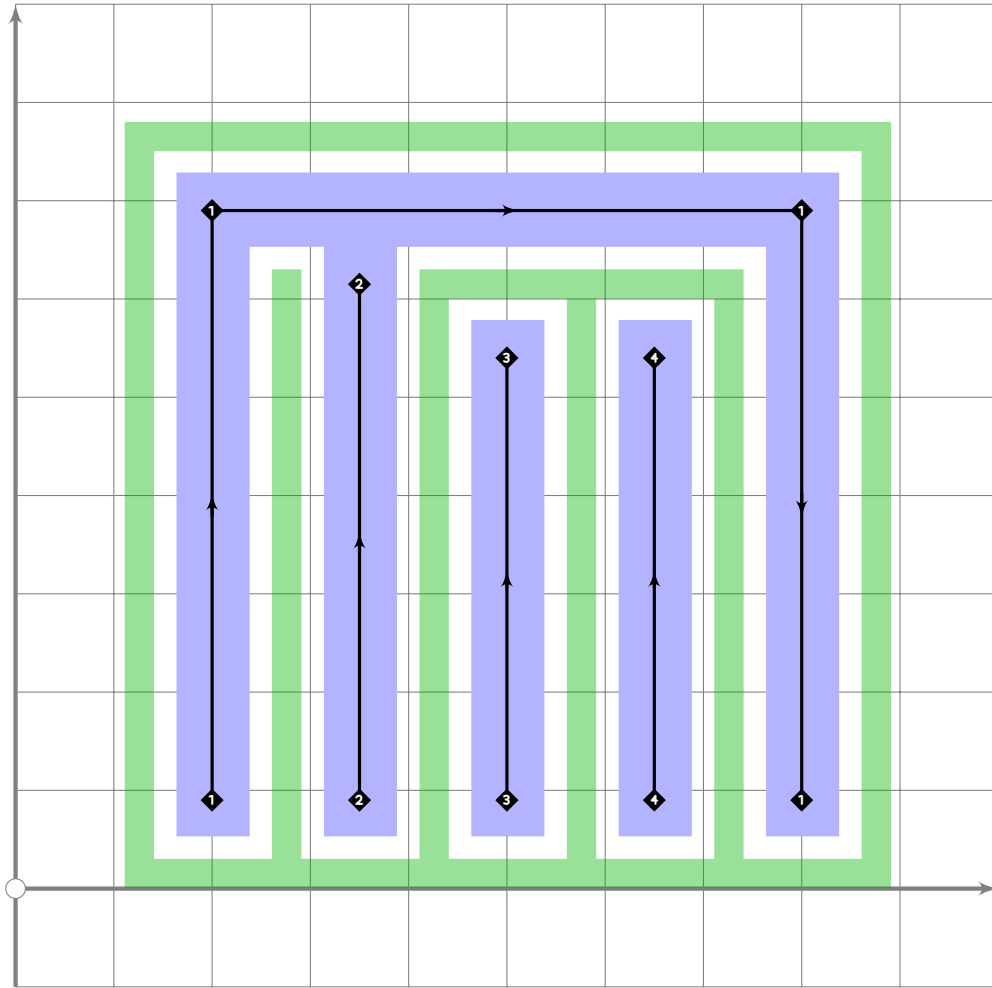




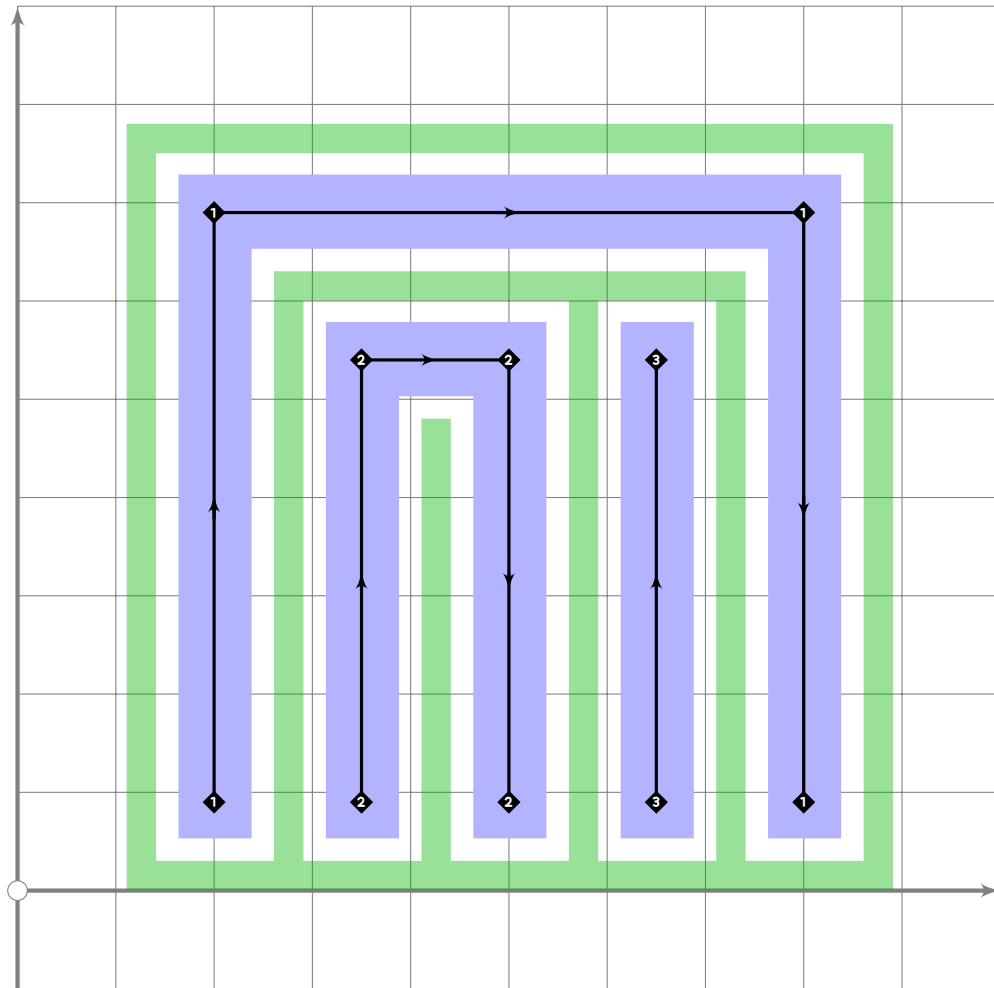
```

1007 % #49 Yadorigi
1008 begintsuglyph("genjimon49";241);
1009 gbk(0,0);
1010 gj(1,5);
1011 gtt(2,1);
1012 gp(3,2);
1013 gtt(4,1);
1014 endsuglyph;
1015

```



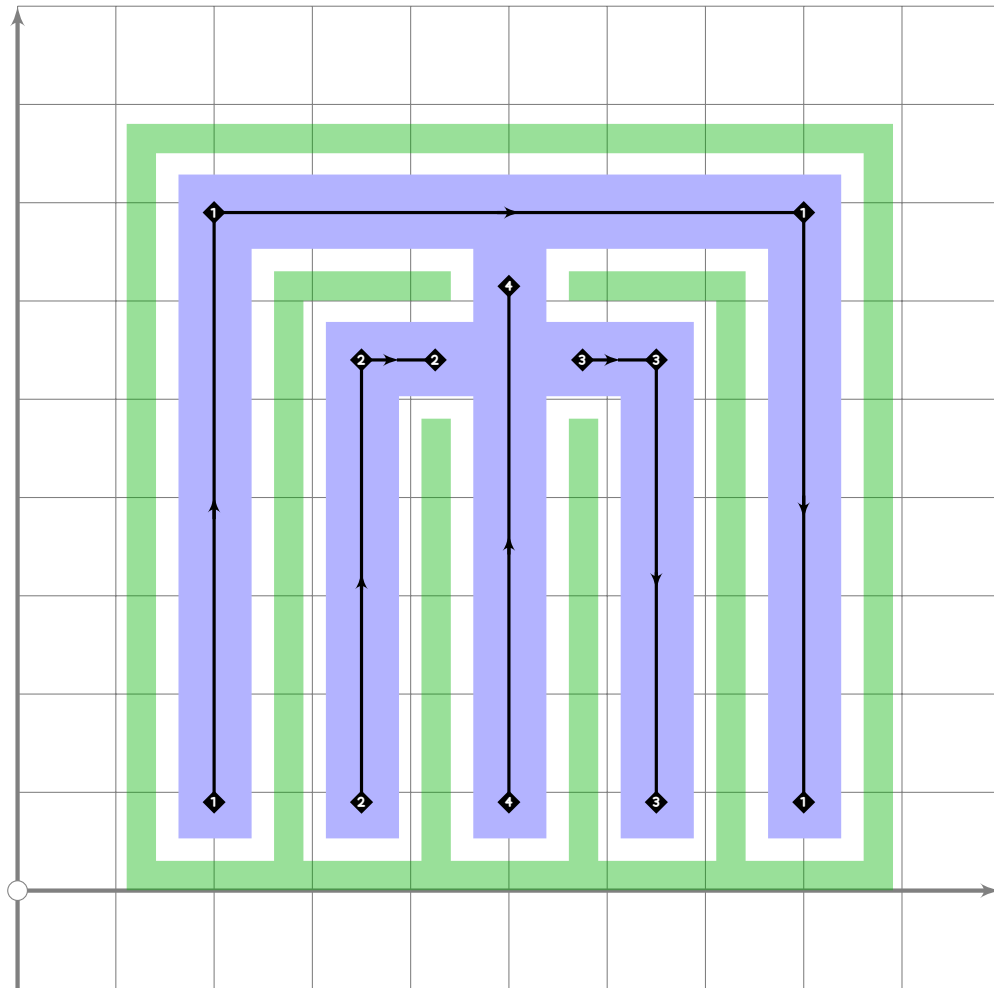
```
1016 % #50 Azumaya
1017 begintsuglyph("genjimon50";242);
1018 gbk(0,0);
1019 gj(1,5);
1020 gtt(2,1);
1021 gp(3,2);
1022 gp(4,2);
1023 endsuglyph;
1024
```



```

1025 % #51 Ukifune
1026 begintsuglyph("genjimon51",243);
1027 gbk(0,0);
1028 gj(1,5);
1029 gb(2);gf(2);gr;gr;gf(2);ge;
1030 gp(4,2);
1031 endsuglyph;
1032

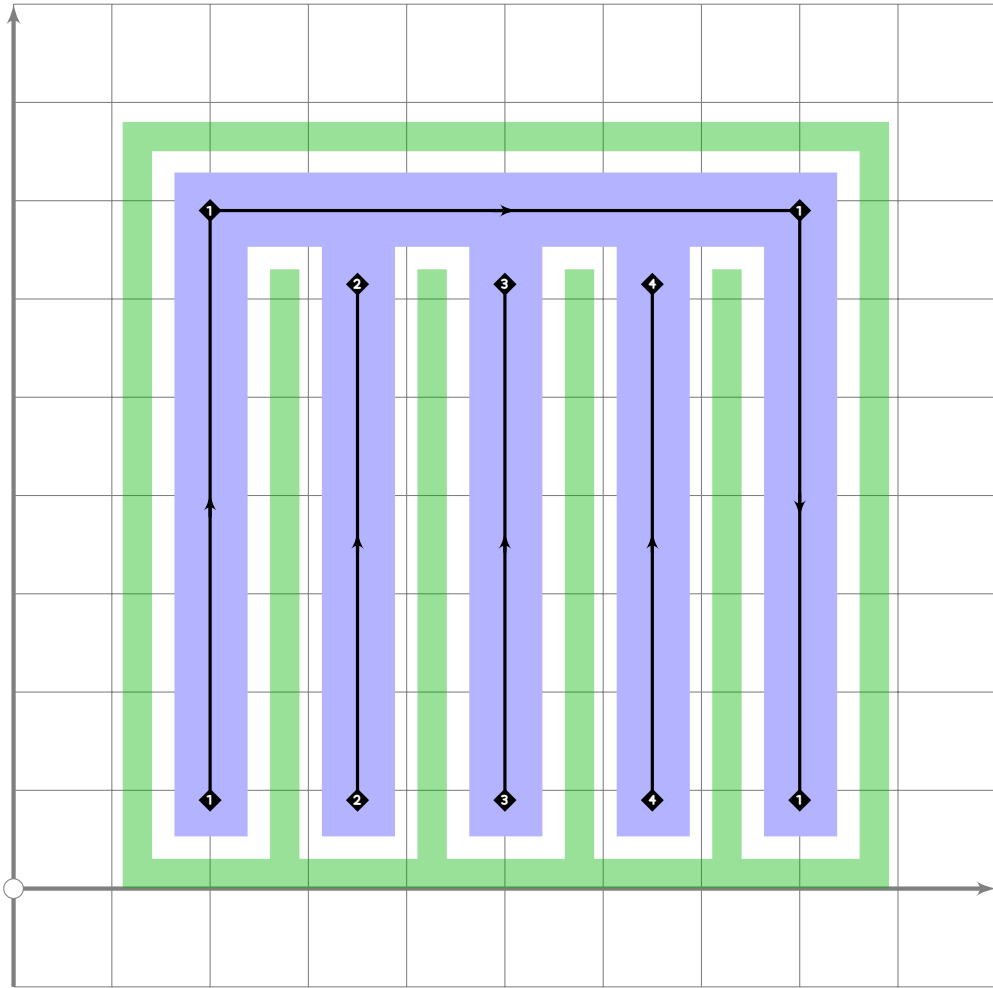
```



```

1033 % #52 Kagerou
1034 begintsuglyph("genjimon52";244);
1035 gbk(0,0);
1036 gj(1,5);
1037 gb(2);gf(2);gr;gx;gr;gf(2);ge;
1038 gtt(3,1);
1039 endsuglyph;
1040

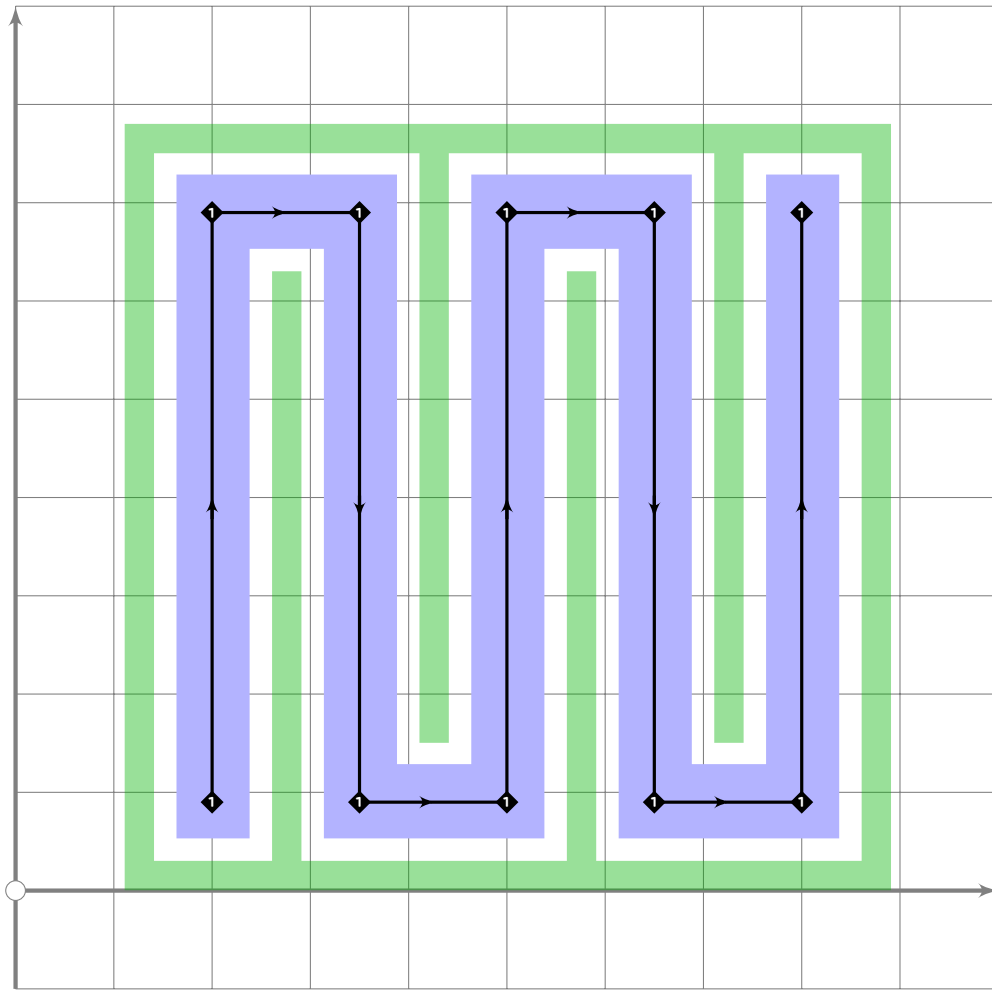
```



```

1041 % #53 Tenarai
1042 begintsuglyph("genjimon53";245);
1043 gbk(0,0);
1044 gj(1,5);
1045 gtt(2,1);
1046 gtt(3,1);
1047 gtt(4,1);
1048 endsuglyph;
1049

```



```

1050 % #54 Yume no Ukihashi
1051 begintsuglyph("genjimon54";246);
1052 gbk(0,0);
1053 gb(1);gf(1);gr;gr;gf(1);gl;gl;gf(1);gr;gr;gf(1);gl;gl;gf(1);ge;
1054 endsuglyph;
1055
1056 _____
1057
1058 endfont;
1059
1060 _____

```

# tsuku-ff0.mp

```
1 %
2 % Unicode page FFO (Fraction Numerators) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36 input numerals.mp;
37 input frac-intro.mp;
38
39 

---


40
```

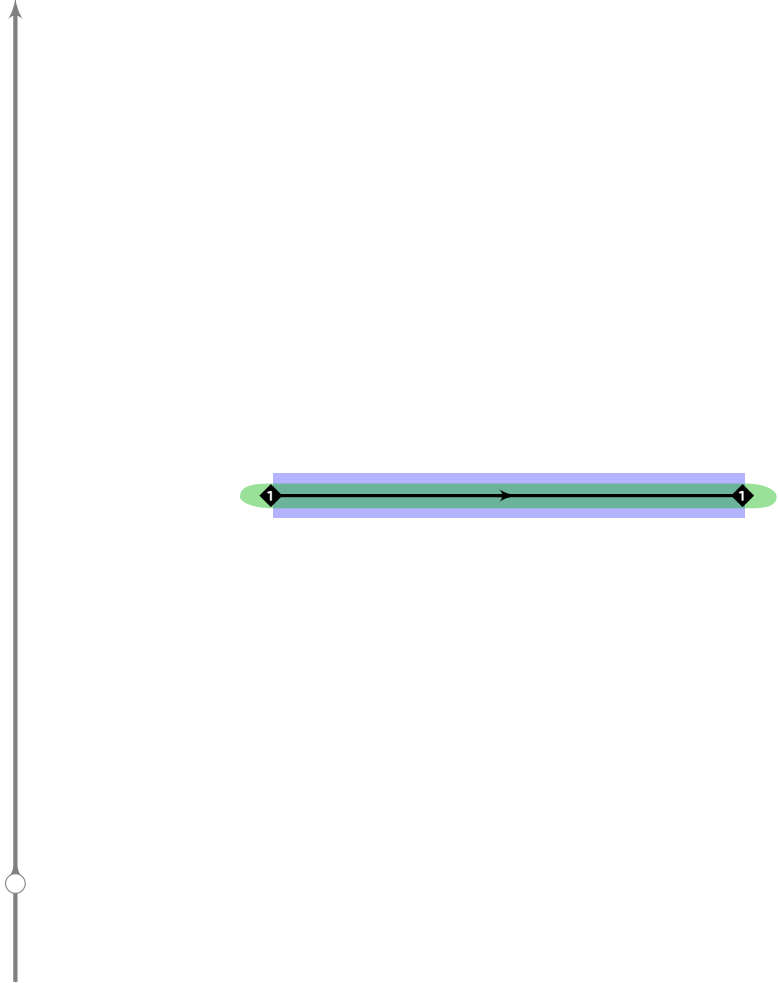
## Fraction Numerators

```
41 % FRACTION NUMERATORS
42
43 transform nxf[];
44
45 (frac.in.x1,frac.in.y1) transformed nxf1=(frac.one.x1,frac.one.y4);
46 (frac.in.x2,frac.in.y1) transformed nxf1=(frac.one.x2,frac.one.y4);
47 (frac.in.x1,frac.in.y2) transformed nxf1=(frac.one.x1,frac.one.y5);
48
49 (frac.in.x1,frac.in.y1) transformed nxf2=(frac.two.x1,frac.two.y4);
50 (frac.in.x2,frac.in.y1) transformed nxf2=(frac.two.x2,frac.two.y4);
51 (frac.in.x1,frac.in.y2) transformed nxf2=(frac.two.x1,frac.two.y5);
52 (frac.in.x1,frac.in.y1) transformed nxf3=(frac.two.x2,frac.two.y4);
53 (frac.in.x2,frac.in.y1) transformed nxf3=(frac.two.x3,frac.two.y4);
54 (frac.in.x1,frac.in.y2) transformed nxf3=(frac.two.x2,frac.two.y5);
55
56 (frac.in.x1,frac.in.y1) transformed nxf4=(frac.three.x1,frac.three.y4);
57 (frac.in.x2,frac.in.y1) transformed nxf4=(frac.three.x2,frac.three.y4);
58 (frac.in.x1,frac.in.y2) transformed nxf4=(frac.three.x1,frac.three.y5);
59 (frac.in.x1,frac.in.y1) transformed nxf5=(frac.three.x2,frac.three.y4);
60 (frac.in.x2,frac.in.y1) transformed nxf5=(frac.three.x3,frac.three.y4);
61 (frac.in.x1,frac.in.y2) transformed nxf5=(frac.three.x2,frac.three.y5);
62 (frac.in.x1,frac.in.y1) transformed nxf6=(frac.three.x3,frac.three.y4);
63 (frac.in.x2,frac.in.y1) transformed nxf6=(frac.three.x4,frac.three.y4);
64 (frac.in.x1,frac.in.y2) transformed nxf6=(frac.three.x3,frac.three.y5);
65
66 (frac.in.x1,frac.in.y1) transformed nxf7=(frac.four.x1,frac.four.y4);
67 (frac.in.x2,frac.in.y1) transformed nxf7=(frac.four.x2,frac.four.y4);
68 (frac.in.x1,frac.in.y2) transformed nxf7=(frac.four.x1,frac.four.y5);
```

```

69 (frac.in.x1,frac.in.y1) transformed nxf8=(frac.four.x2,frac.four.y4);
70 (frac.in.x2,frac.in.y1) transformed nxf8=(frac.four.x3,frac.four.y4);
71 (frac.in.x1,frac.in.y2) transformed nxf8=(frac.four.x2,frac.four.y5);
72 (frac.in.x1,frac.in.y1) transformed nxf9=(frac.four.x3,frac.four.y4);
73 (frac.in.x2,frac.in.y1) transformed nxf9=(frac.four.x4,frac.four.y4);
74 (frac.in.x1,frac.in.y2) transformed nxf9=(frac.four.x3,frac.four.y5);
75 (frac.in.x1,frac.in.y1) transformed nxf10=(frac.four.x4,frac.four.y4);
76 (frac.in.x2,frac.in.y1) transformed nxf10=(frac.four.x5,frac.four.y4);
77 (frac.in.x1,frac.in.y2) transformed nxf10=(frac.four.x4,frac.four.y5);
78
79 (frac.in.x1,frac.in.y1) transformed nxf11=(frac.half.x1,frac.half.y4);
80 (frac.in.x2,frac.in.y1) transformed nxf11=(frac.half.x2,frac.half.y4);
81 (frac.in.x1,frac.in.y2) transformed nxf11=(frac.half.x1,frac.half.y5);
82
83 tsu_rescale_native_zero;

```



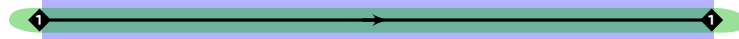
```

84
85 begint Suglyph("fraction.1";1);
86 push_stroke(((−0.25)[(frac.one.x1,frac.one.y3),(frac.one.x2,frac.one.y3)])
87   −(1.25[(frac.one.x1,frac.one.y3),(frac.one.x2,frac.one.y3)]),
88   (2,2)−(2,2));
89 set_bosize(0,60);

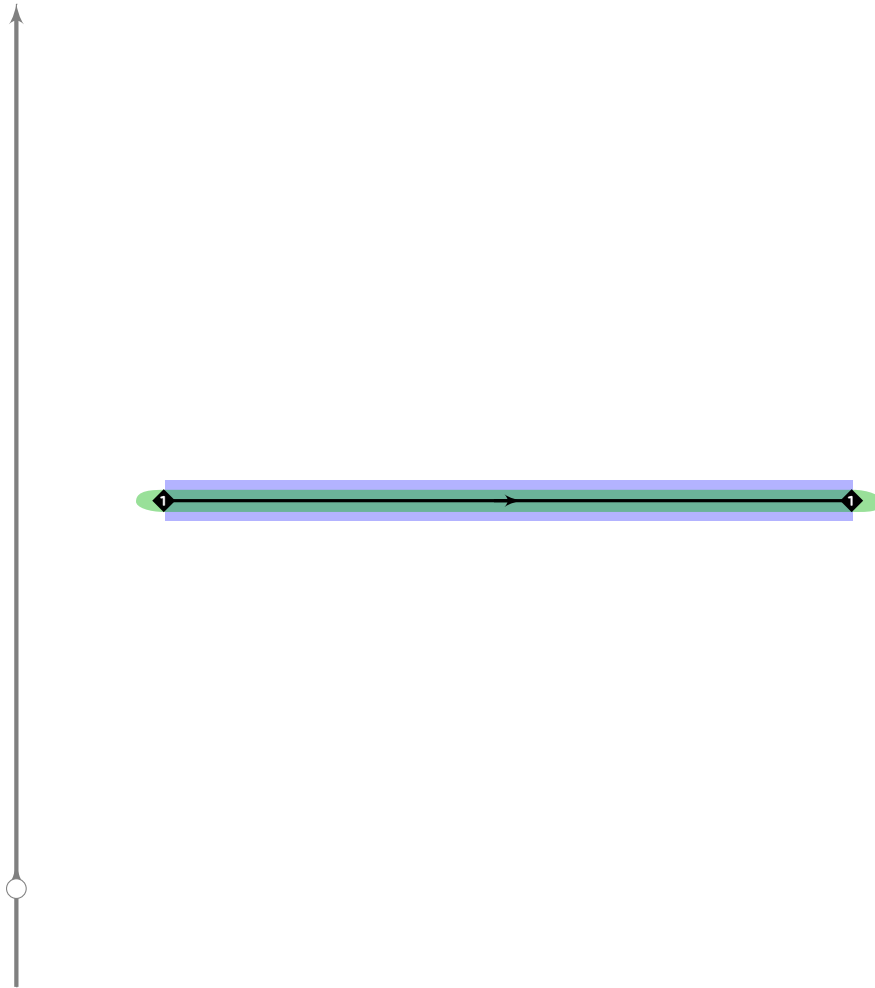
```



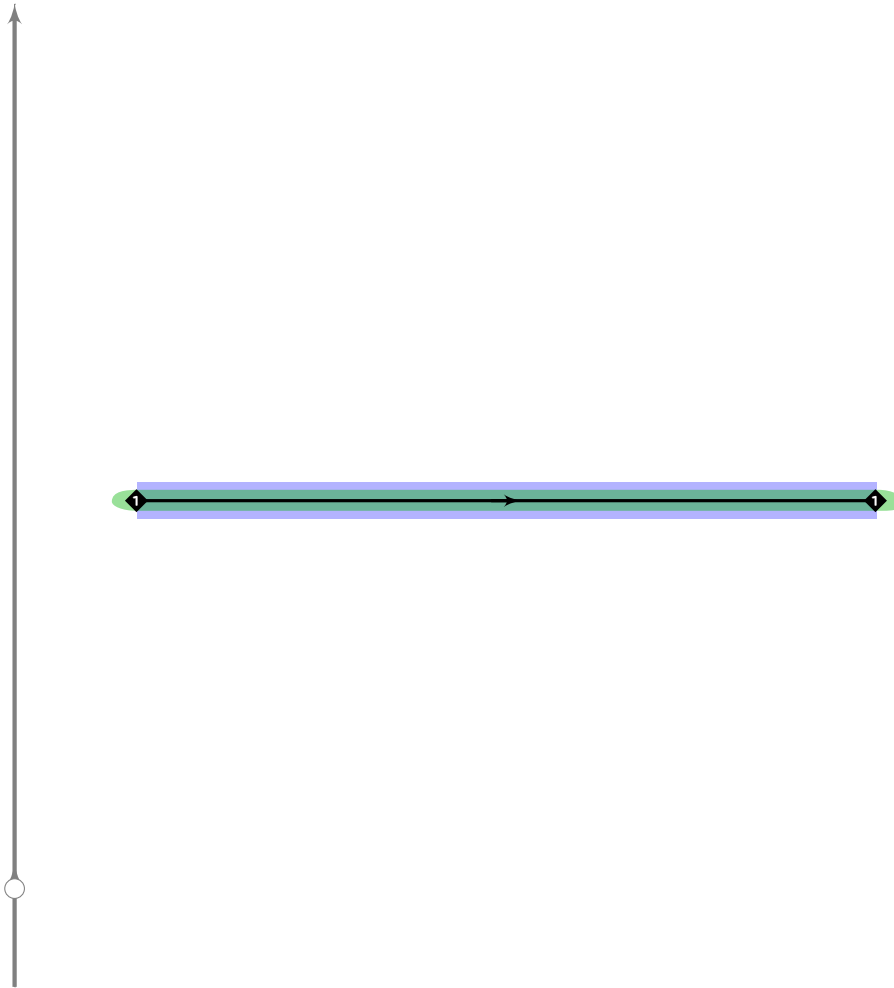
```
90 tsu_render;  
91 endtsuglyph;
```



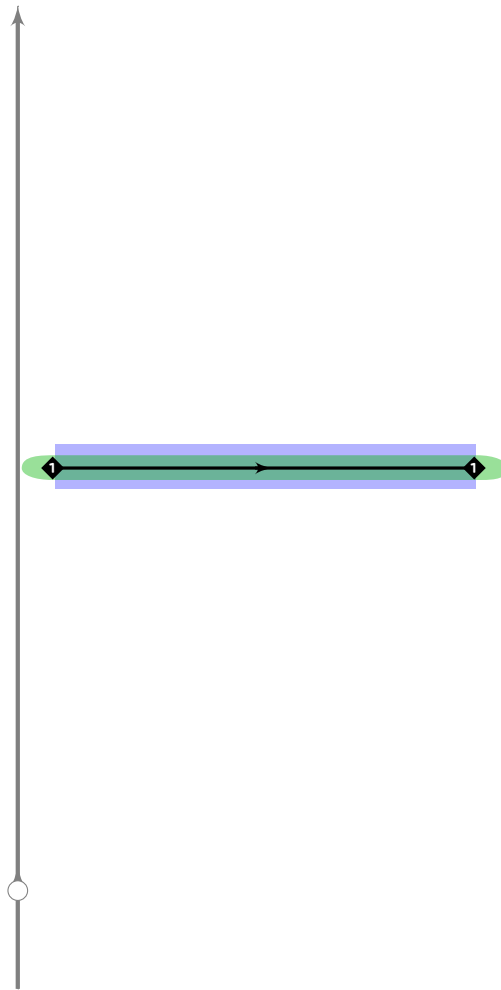
```
92  
93 begintsuglyph("fraction.2",2);  
94 push_stroke(((-0.07)[(frac.two.x1,frac.two.y3),(frac.two.x3,frac.two.y3)])  
95   -(1.07[(frac.two.x1,frac.two.y3),(frac.two.x3,frac.two.y3)]),  
96   (2,2)-(2,2));  
97 set_bosize(0,60);  
98 tsu_render;  
99 endtsuglyph;
```



```
100
101 begintsuglyph("fraction.3",3);
102 push_stroke((frac.three.x1,frac.three.y3)-(frac.three.x4,frac.three.y3),
103   (2,2)-(2,2));
104 set_bosize(0,55);
105 tsu_render;
106 endtsuglyph;
```



```
107
108 begintsuglyph("fraction4"4);
109 push_stroke((0.03[(frac.four.x1,frac.four.y3),(frac.four.x5,frac.four.y3)])
110             -(0.97[(frac.four.x1,frac.four.y3),(frac.four.x5,frac.four.y3)]),
111             (2,2)-(2,2));
112 set_bosize(0,50);
113 tsu_render;
114 endtsuglyph;
```



```

115
116 begintsuglyph("fraction.latn",5);
117 push_stroke(
118     ((-0.15)[(frac.half.x1,frac.half.y3),(frac.half.x2,frac.half.y3]])
119     -(1.15[(frac.half.x1,frac.half.y3),(frac.half.x2,frac.half.y3]]),
120     (2,2)-(2,2));
121 set_bsize(0,60);
122 tsu_render;
123 endtsuglyph;
124
125 make_digit_set(nxf1,"0","1");
126
127 make_digit_set(nxf2,"0","2");
128 make_digit_set(nxf3,"0","3");
129
130 make_digit_set(nxf4,"0","4");
131 make_digit_set(nxf5,"0","5");
132 make_digit_set(nxf6,"0","6");
133
134 make_digit_set(nxf7,"0","7");
135 make_digit_set(nxf8,"0","8");

```

```
136 make_digit_set(nxf9,"0","9");
137 make_digit_set(nxf10,"0","a");
138
139 make_digit_set(nxf11,"0","b");
140
141 

---


142
143 endfont;
144
145 

---


```

# tsuku-ff1.mp

```
1 %
2 % Unicode page FF1 (Fraction Denominators) for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 input latin-intro.mp;
36 input numerals.mp;
37 input frac-intro.mp;
38
39 

---


40
```

## Fraction Denominators

```
41 % FRACTION DENOMINATORS
42
43 transform nxf[];
44
45 (frac.in.x1,frac.in.y1) transformed nxf1=(frac.one.x1,frac.one.y1);
46 (frac.in.x2,frac.in.y1) transformed nxf1=(frac.one.x2,frac.one.y1);
47 (frac.in.x1,frac.in.y2) transformed nxf1=(frac.one.x1,frac.one.y2);
48
49 (frac.in.x1,frac.in.y1) transformed nxf2=(frac.two.x1,frac.two.y1);
50 (frac.in.x2,frac.in.y1) transformed nxf2=(frac.two.x2,frac.two.y1);
51 (frac.in.x1,frac.in.y2) transformed nxf2=(frac.two.x1,frac.two.y2);
52 (frac.in.x1,frac.in.y1) transformed nxf3=(frac.two.x2,frac.two.y1);
53 (frac.in.x2,frac.in.y1) transformed nxf3=(frac.two.x3,frac.two.y1);
54 (frac.in.x1,frac.in.y2) transformed nxf3=(frac.two.x2,frac.two.y2);
55
56 (frac.in.x1,frac.in.y1) transformed nxf4=(frac.three.x1,frac.three.y1);
57 (frac.in.x2,frac.in.y1) transformed nxf4=(frac.three.x2,frac.three.y1);
58 (frac.in.x1,frac.in.y2) transformed nxf4=(frac.three.x1,frac.three.y2);
59 (frac.in.x1,frac.in.y1) transformed nxf5=(frac.three.x2,frac.three.y1);
60 (frac.in.x2,frac.in.y1) transformed nxf5=(frac.three.x3,frac.three.y1);
61 (frac.in.x1,frac.in.y2) transformed nxf5=(frac.three.x2,frac.three.y2);
62 (frac.in.x1,frac.in.y1) transformed nxf6=(frac.three.x3,frac.three.y1);
63 (frac.in.x2,frac.in.y1) transformed nxf6=(frac.three.x4,frac.three.y1);
64 (frac.in.x1,frac.in.y2) transformed nxf6=(frac.three.x3,frac.three.y2);
65
66 (frac.in.x1,frac.in.y1) transformed nxf7=(frac.four.x1,frac.four.y1);
67 (frac.in.x2,frac.in.y1) transformed nxf7=(frac.four.x2,frac.four.y1);
68 (frac.in.x1,frac.in.y2) transformed nxf7=(frac.four.x1,frac.four.y2);
```

```

69 (frac.in.x1,frac.in.y1) transformed nxf8=(frac.four.x2,frac.four.y1);
70 (frac.in.x2,frac.in.y1) transformed nxf8=(frac.four.x3,frac.four.y1);
71 (frac.in.x1,frac.in.y2) transformed nxf8=(frac.four.x2,frac.four.y2);
72 (frac.in.x1,frac.in.y1) transformed nxf9=(frac.four.x3,frac.four.y1);
73 (frac.in.x2,frac.in.y1) transformed nxf9=(frac.four.x4,frac.four.y1);
74 (frac.in.x1,frac.in.y2) transformed nxf9=(frac.four.x3,frac.four.y2);
75 (frac.in.x1,frac.in.y1) transformed nxf10=(frac.four.x4,frac.four.y1);
76 (frac.in.x2,frac.in.y1) transformed nxf10=(frac.four.x5,frac.four.y1);
77 (frac.in.x1,frac.in.y2) transformed nxf10=(frac.four.x4,frac.four.y2);
78
79 (frac.in.x1,frac.in.y1) transformed nxf11=(frac.half.x1,frac.half.y1);
80 (frac.in.x2,frac.in.y1) transformed nxf11=(frac.half.x2,frac.half.y1);
81 (frac.in.x1,frac.in.y2) transformed nxf11=(frac.half.x1,frac.half.y2);
82
83 tsu_rescale_full;
84 make_digit_set(nxf1,"1","1");
85
86 tsu_rescale_native_zero;
87 make_digit_set(nxf2,"1","2");
88 tsu_rescale_full;
89 make_digit_set(nxf3,"1","3");
90
91 tsu_rescale_native_zero;
92 make_digit_set(nxf4,"1","4");
93 make_digit_set(nxf5,"1","5");
94 tsu_rescale_full;
95 make_digit_set(nxf6,"1","6");
96
97 tsu_rescale_native_zero;
98 make_digit_set(nxf7,"1","7");
99 make_digit_set(nxf8,"1","8");
100 make_digit_set(nxf9,"1","9");
101 tsu_rescale_full;
102 make_digit_set(nxf10,"1","a");
103
104 tsu_rescale_native_narrow;
105 make_digit_set(nxf11,"1","b");
106
107 _____
108
109 endfont;
110
111 _____

```





Part IX

Jieubsida core



# hangul.mp

```
1 %
2 % Hangul infrastructure for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(hangul);
32
33 

---


34
35 input buildkanji.mp;
36
37 pair hgbox_ll,hgbox_ul,hgbox_lr,hgbox_ur;
38
39 hgbox_ll=(50,-50);
40 hgbox_ul=(50,850);
41 hgbox_lr=(950,-50);
42 hgbox_ur=(950,850);
43
44 pair hgbox_lb,hgbox_rb,hgbox_ub,hgbox_db;
45
46 hgbox_lb=0.5[hgbox_ll,hgbox_ul];
47 hgbox_rb=0.5[hgbox_lr,hgbox_ur];
48 hgbox_ub=0.5[hgbox_ul,hgbox_ur];
49 hgbox_db=0.5[hgbox_ll,hgbox_lr];
50
51 % return a translate-and-scale (no rotation or skew) transform that takes
52 % the (50,850)-(950,-50) square to the specified upper left and lower
53 % right coordinates
54 vardef hxf(expr ul,lr) =
55   begingroup
56     save rval;
57     transform rval;
58     hgbox_ul transformed rval=ul;
59     hgbox_lr transformed rval=lr;
60     hgbox_ll transformed rval=(xpart ul,ypart lr);
61     rval
62   endgroup
63 enddef;
64
65 vardef hxf_inout(expr iotype,ixf,oxf) =
66   begingroup
67     save rval,vv,hv;
68     transform rval;
69     pair vv,hv;
70     vv=(hgbox_ul transformed oxf)-(hgbox_ll transformed oxf);
```

```

71   hv=(hgbox_lr transformed oxf)-(hgbox_ll transformed oxf);
72   (hgbox_ul transformed rval)-(hgbox_ll transformed rval)=
73     whatever*vv;
74   (hgbox_lr transformed rval)-(hgbox_ll transformed rval)=
75     whatever*hv;
76   hgbox_rb transformed rval=whatever*vv+(hgbox_rb transformed
77     if (iotype mod 2)=1: oxf else: ixf fi);
78   hgbox_ub transformed rval=whatever*hv+(hgbox_ub transformed
79     if (iotype mod 4)>=2: oxf else: ixf fi);
80   hgbox_lb transformed rval=whatever*vv+(hgbox_lb transformed
81     if (iotype mod 8)>=4: oxf else: ixf fi);
82   hgbox_db transformed rval=whatever*hv+(hgbox_db transformed
83     if iotype>=8: oxf else: ixf fi);
84   rval
85   endgroup
86 endif;
87
88 

---


89
90 % Much useful information about how Unicode encodes hangul syllables is
91 % at http://www.uni-graz.at/~katzer/korean\_hangul\_unicode.html , and
92 % I'm following that source's nomenclature of "lead, vowel, tail"
93
94 % jamo IDs used in the table:
95 % 100+ lead
96 % 300+ vowel
97 % 500+ tail
98 % add 100 for alternate form, which is usually the one used on the left in
99 % multi-consonant clusters (like "leftrad" or "lift_skirt" in kanji)
100
101 string hangul.jamo[]code;
102 boolean hangul.jamo[]invokes_alternate;
103
104 % fill in default values for jamo - saves typing
105 vardef hangul.fill_in_jamo(expr jid) =
106   if unknown hangul.jamo[jid]code: hangul.jamo[jid]code="jamo.bigx"; fi;
107   if unknown hangul.jamo[jid]w: hangul.jamo[jid]w=4; fi;
108   if unknown hangul.jamo[jid]h: hangul.jamo[jid]h=4; fi;
109   if unknown hangul.jamo[jid]lb: hangul.jamo[jid]lb=50; fi;
110   if unknown hangul.jamo[jid]rb: hangul.jamo[jid]rb=950; fi;
111   if unknown hangul.jamo[jid]ub: hangul.jamo[jid]ub=850; fi;
112   if unknown hangul.jamo[jid]db: hangul.jamo[jid]db=-50; fi;
113   if unknown hangul.jamo[jid]invokes_alternate:
114     hangul.jamo[jid]invokes_alternate=true;
115   fi;
116 endif;
117
118 

---



```

## Jamo Combining Operations

```

120 % JAMO COMBINING OPERATIONS
121
122 % calling convention: hangul macros generally take a final set of
123 % parentheses containing a vowel ID and two transforms, ixf and oxf.
124 % The ixf transform will transform the (50;50) to (950,850) square into
125 % where the jamo (or combination thereof) should be placed. The oxf
126 % transform transforms that same square into a possibly-larger space
127 % representing limits created by adjacent jamo; this allows for parts
128 % of jamo that may extend into the adjacent jamo's space conditionally
129 % on the shape of the adjacent jamo.
130 %
131 % The "id" family of arguments are jamo IDs pointing into the hangul.jamo
132 % tables.
133
134 vardef hangul.combine.lr(expr lid,rid)(expr vow,ixf,oxf) =
135 % put in default values if necessary
136 hangul.fill_in_jamo(lid);
137 hangul.fill_in_jamo(rid);
138
139 % set up transform variables
140 begingroup
141 save lixf,loxf,rixf,roxf;
142 transform lixf,loxf,rixf,roxf;
143
144 % left inner transform
145 hgbox_ul transformed lixf=hgbox_ul transformed ixf;
146 hgbox_ll transformed lixf=hgbox_ll transformed ixf;
147 if hangul.jamo[lid]w+hangul.jamo[rid]w=0:
148 hgbox_lr transformed lixf=(0.5[hgbox_ll,hgbox_lr]) transformed ixf;
149 else:
150 hgbox_lr transformed lixf=
151 ((hangul.jamo[lid]w/(hangul.jamo[lid]w+hangul.jamo[rid]w))
152 [hgbox_ll,hgbox_lr]) transformed ixf;
153 fi;
154
155 % right inner transform
156 hgbox_ur transformed rixf=hgbox_ur transformed ixf;
157 hgbox_lr transformed rixf=hgbox_lr transformed ixf;
158 hgbox_ll transformed rixf=hgbox_lr transformed lixf;
159
160 % left outer transform
161 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
162 whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
163 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=

```

```

164     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
165     (hgbox_lb transformed loxf)=
166     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
167     (hgbox_rb transformed loxf)=
168     (hangul.jamo[rid]lb,400) transformed rixf
169     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
170     (hgbox_ub transformed loxf)=
171     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
172     (hgbox_db transformed loxf)=
173     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
174
175     % right outer transform
176     (hgbox_ul transformed roxf)-(hgbox_ll transformed roxf)=
177     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
178     (hgbox_lr transformed roxf)-(hgbox_ll transformed roxf)=
179     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
180     (hgbox_lb transformed roxf)=
181     (hangul.jamo[lid]rb,400) transformed lixf
182     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
183     (hgbox_rb transformed roxf)=
184     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
185     (hgbox_ub transformed roxf)=
186     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
187     (hgbox_db transformed roxf)=
188     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
189
190     % draw the contents
191     hangul.scantokens hangul.jamo[lid]code (vow,lixf,loxf);
192     hangul.scantokens hangul.jamo[rid]code (vow,rixf,roxf);
193 endgroup;
194 enddef;
195
196 vardef hangul.combine.lcr(expr lid,cid,rid)(expr vow,ixf,oxf) =
197 % put in default values if necessary
198 hangul.fill_in_jamo(lid);
199 hangul.fill_in_jamo(cid);
200 hangul.fill_in_jamo(rid);
201
202 % set up transform variables
203 begingroup
204 save lixf,loxf,cixf,coxf,rixf,roxf;
205 transform lixf,loxf,cixf,coxf,rixf,roxf;
206
207 % left inner transform
208 hgbox_ul transformed lixf=hgbox_ul transformed ixf;
209 hgbox_ll transformed lixf=hgbox_ll transformed ixf;
210 if hangul.jamo[lid]w+hangul.jamo[cid]w+hangul.jamo[rid]w=0:
211     hgbox_lr transformed lixf=(0.333[hgbox_ll,hgbox_lr]) transformed ixf;

```

```

212 else:
213     hgbox_lr transformed lixf=
214     ((hangul.jamo[lid]w/
215     (hangul.jamo[lid]w+hangul.jamo[cid]w+hangul.jamo[rid]w))
216     [hgbox_ll,hgbox_lr]) transformed ixf;
217 fi;
218
219 % centre inner transform
220 hgbox_ul transformed cixf=hgbox_ur transformed lixf;
221 hgbox_ll transformed cixf=hgbox_lr transformed lixf;
222 if hangul.jamo[lid]w+hangul.jamo[cid]w+hangul.jamo[rid]w=0:
223     hgbox_lr transformed cixf=(0.667[hgbox_ll,hgbox_lr]) transformed ixf;
224 else:
225     hgbox_lr transformed cixf=
226     (((hangul.jamo[lid]w+hangul.jamo[cid]w)/
227     (hangul.jamo[lid]w+hangul.jamo[cid]w+hangul.jamo[rid]w))
228     [hgbox_ll,hgbox_lr]) transformed ixf;
229 fi;
230
231 % right inner transform
232 hgbox_ur transformed rixf=hgbox_ur transformed ixf;
233 hgbox_lr transformed rixf=hgbox_lr transformed ixf;
234 hgbox_ll transformed rixf=hgbox_lr transformed cixf;
235
236 % left outer transform
237 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
238     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
239 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=
240     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
241 (hgbox_lb transformed loxf)=
242     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
243 (hgbox_rb transformed loxf)=
244     (hangul.jamo[cid]lb,400) transformed cixf
245     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
246 (hgbox_ub transformed loxf)=
247     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
248 (hgbox_db transformed loxf)=
249     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
250
251 % centre outer transform
252 (hgbox_ul transformed coxf)-(hgbox_ll transformed coxf)=
253     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
254 (hgbox_lr transformed coxf)-(hgbox_ll transformed coxf)=
255     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
256 (hgbox_lb transformed coxf)=
257     (hangul.jamo[lid]rb,400) transformed lixf
258     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
259 (hgbox_rb transformed coxf)=

```

```

260     (hangul.jamo[rid]lb,400) transformed rixf
261     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
262     (hgbox_ub transformed coxf)=
263     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
264     (hgbox_db transformed coxf)=
265     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
266
267     % right outer transform
268     (hgbox_ul transformed roxf)-(hgbox_ll transformed roxf)=
269     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
270     (hgbox_lr transformed roxf)-(hgbox_ll transformed roxf)=
271     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
272     (hgbox_lb transformed roxf)=
273     (hangul.jamo[cid]rb,400) transformed cixf
274     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
275     (hgbox_rb transformed roxf)=
276     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
277     (hgbox_ub transformed roxf)=
278     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
279     (hgbox_db transformed roxf)=
280     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
281
282     % draw the contents
283     hangul.scantokens hangul.jamo[lid]code (vow,lixf,loxf);
284     hangul.scantokens hangul.jamo[cid]code (vow,cixf,coxf);
285     hangul.scantokens hangul.jamo[rid]code (vow,rixf,roxf);
286     endgroup;
287     endif;
288
289     vardef hangul.combine.syllable(expr lid,vid,tid)(expr vow,ixf,oxf) =
290     % put in default values if necessary
291     hangul.fill_in_jamo(lid);
292     hangul.fill_in_jamo(vid);
293     hangul.fill_in_jamo(tid);
294
295     % set up transform variables
296     begingroup
297     save lixf,loxf,vixf,voxft,ixf,toxf;
298     transform lixf,loxf,vixf,voxft,ixf,toxf;
299
300     % lead inner transform
301     hgbox_ul transformed lixf=hgbox_ul transformed ixf;
302     if hangul.jamo[lid]w+hangul.jamo[vid]w=0:
303     hgbox_ur transformed lixf=(0.5[hgbox_ul,hgbox_ur]) transformed ixf;
304     else:
305     hgbox_ur transformed lixf=
306     ((hangul.jamo[lid]w/(hangul.jamo[lid]w+hangul.jamo[vid]w))
307     [hgbox_ul,hgbox_ur]) transformed ixf;

```



```

308 fi;
309 if hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h=0:
310     hgbox_ll transformed lixf=(0.333[hgbox_ul,hgbox_ll]) transformed ixf;
311 else:
312     hgbox_ll transformed lixf=
313         ((hangul.jamo[lid]h/
314             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
315             [hgbox_ul,hgbox_ll]) transformed ixf;
316 fi;
317
318 % vowel inner transform
319 hgbox_ul transformed vixf=hgbox_lr transformed lixf;
320 if hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h=0:
321     hgbox_ur transformed vixf=(0.333[hgbox_ur,hgbox_lr]) transformed ixf;
322     hgbox_lr transformed vixf=(0.333[hgbox_lr,hgbox_ur]) transformed ixf;
323 else:
324     hgbox_ur transformed vixf=
325         ((hangul.jamo[lid]h/
326             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
327             [hgbox_ur,hgbox_lr]) transformed ixf;
328     hgbox_lr transformed vixf=
329         ((hangul.jamo[tid]h/
330             (hangul.jamo[lid]h+hangul.jamo[vid]h+hangul.jamo[tid]h))
331             [hgbox_lr,hgbox_ur]) transformed ixf;
332 fi;
333
334 % tail inner transform
335 hgbox_ll transformed tixf=hgbox_ll transformed ixf;
336 hgbox_lr transformed tixf=hgbox_lr transformed ixf;
337 hgbox_ur transformed tixf=hgbox_lr transformed vixf;
338
339 % lead outer transform
340 (hgbox_ul transformed loxf)-(hgbox_ll transformed loxf)=
341     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
342 (hgbox_lr transformed loxf)-(hgbox_ll transformed loxf)=
343     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
344 (hgbox_lb transformed loxf)=
345     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
346 (hgbox_rb transformed loxf)=
347     (hangul.jamo[vid]lb,400) transformed vixf
348     +whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
349 (hgbox_ub transformed loxf)=
350     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
351 (hgbox_db transformed loxf)=
352     (500,hangul.jamo[vid]ub) transformed vixf
353     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
354
355 % vowel outer transform

```

```

356 (hgbox_ul transformed vox f)-(hgbox_ll transformed vox f)=
357   whatever*((hgbox_ul transformed ox f)-(hgbox_ll transformed ox f));
358 (hgbox_lr transformed vox f)-(hgbox_ll transformed vox f)=
359   whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
360 (hgbox_lb transformed vox f)=
361   (whatever[hgbox_ll,hgbox_ul]) transformed ox f;
362 (hgbox_rb transformed vox f)=
363   (whatever[hgbox_lr,hgbox_ur]) transformed ox f;
364 (hgbox_ub transformed vox f)=
365   (whatever[hgbox_ul,hgbox_ur]) transformed ox f;
366 (hgbox_db transformed vox f)=
367   (500,hangul.jamo[tid]ub) transformed tix f
368   +whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
369
370 % tail outer transform
371 (hgbox_ul transformed tox f)-(hgbox_ll transformed tox f)=
372   whatever*((hgbox_ul transformed ox f)-(hgbox_ll transformed ox f));
373 (hgbox_lr transformed tox f)-(hgbox_ll transformed tox f)=
374   whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
375 (hgbox_lb transformed tox f)=
376   (whatever[hgbox_ll,hgbox_ul]) transformed ox f;
377 (hgbox_rb transformed tox f)=
378   (whatever[hgbox_lr,hgbox_ur]) transformed ox f;
379 (hgbox_ub transformed tox f)=
380   (500,hangul.jamo[vid]db) transformed vix f
381   +whatever*((hgbox_lr transformed ox f)-(hgbox_ll transformed ox f));
382 (hgbox_db transformed tox f)=
383   (whatever[hgbox_ll,hgbox_lr]) transformed ox f;
384
385 % draw the contents
386 build_kanji.level(hangul.scantokens hangul.jamo[vid]code (vid,vix f,vox f));
387 hangul.scantokens hangul.jamo[lid]code (vid,lix f,loxf);
388 hangul.scantokens hangul.jamo[tid]code
389   (vid,hxf((100+20*mincho,850+30*mincho),(900-20*mincho,-50))
390   transformed tix f,tox f);
391 endgroup;
392 enddef;
393
394 vardef hangul.combine.tb(expr tid,bid)(expr vow,ix f,ox f) =
395 % put in default values if necessary
396 hangul.fill_in_jamo(tid);
397 hangul.fill_in_jamo(bid);
398
399 % set up transform variables
400 begingroup
401 save tix f,tox f,bix f,box f;
402 transform tix f,tox f,bix f,box f;
403

```

```

404 % top inner transform
405 hgbox_ul transformed tixf=hgbox_ul transformed ixf;
406 hgbox_ur transformed tixf=hgbox_ur transformed ixf;
407 if hangul.jamo[tid]h+hangul.jamo[bid]h=0:
408     hgbox_lr transformed tixf=(0.5[hgbox_ur,hgbox_lr]) transformed ixf;
409 else:
410     hgbox_lr transformed tixf=
411         ((hangul.jamo[tid]h/(hangul.jamo[tid]h+hangul.jamo[bid]h))
412         [hgbox_ur,hgbox_lr]) transformed ixf;
413 fi;
414
415 % bottom inner transform
416 hgbox_lr transformed bixf=hgbox_lr transformed ixf;
417 hgbox_ll transformed bixf=hgbox_ll transformed ixf;
418 hgbox_ur transformed bixf=hgbox_lr transformed tixf;
419
420 % left outer transform
421 (hgbox_ul transformed toxf)-(hgbox_ll transformed toxf)=
422     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
423 (hgbox_lr transformed toxf)-(hgbox_ll transformed toxf)=
424     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
425 (hgbox_lb transformed toxf)=
426     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
427 (hgbox_rb transformed toxf)=
428     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
429 (hgbox_ub transformed toxf)=
430     (whatever[hgbox_ul,hgbox_ur]) transformed oxf;
431 (hgbox_db transformed toxf)=
432     (500,hangul.jamo[bid]ub) transformed bixf
433     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
434
435 % right outer transform
436 (hgbox_ul transformed boxf)-(hgbox_ll transformed boxf)=
437     whatever*((hgbox_ul transformed oxf)-(hgbox_ll transformed oxf));
438 (hgbox_lr transformed boxf)-(hgbox_ll transformed boxf)=
439     whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
440 (hgbox_lb transformed boxf)=
441     (whatever[hgbox_ll,hgbox_ul]) transformed oxf;
442 (hgbox_rb transformed boxf)=
443     (whatever[hgbox_lr,hgbox_ur]) transformed oxf;
444 (hgbox_ub transformed boxf)=
445     (500,hangul.jamo[tid]db) transformed tixf
446     +whatever*((hgbox_lr transformed oxf)-(hgbox_ll transformed oxf));
447 (hgbox_db transformed boxf)=
448     (whatever[hgbox_ll,hgbox_lr]) transformed oxf;
449
450 % draw the contents
451 hangul.scantokens hangul.jamo[tid]code (vow,tixf,toxf);

```

```
452     hangul.scantokens hangul.jamo[bid]code (vow,bixf,boxf);  
453   endgroup;  
454 enddef;
```

## jamo-basic.mp

```
1 %
2 % Hangul basic jamo for Jieubsida
3 % Copyright (C) 2011, 2012 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(jamobasic);
32
33
34
```

---

### Filler Jamo

```
35 % FILLER JAMO
36
37 % filler for jamo not yet defined
38 vardef hangul.jamo.bigx(expr vow,ixf,oxf) =
39   tsu_xform(ixf)(
40     push_pbox_toexpand("jamo.bigx");
41     push_stroke((100,800)-(900,0),(1.5,1.5)-(1.5,1.5));
42     push_stroke((900,800)-(100,0),(1.5,1.5)-(1.5,1.5));
43     expand_pbox);
44 enddef;
45
46 % 230 head empty
47 hangul.jamo[230]code="jamo.empty";
48 hangul.jamo[230]w=0;
49 hangul.jamo[230]h=0;
50
51 % 500 tail empty
52 hangul.jamo[500]code="jamo.empty";
53 hangul.jamo[500]w=0;
54 hangul.jamo[500]h=0;
55
56 vardef hangul.jamo.empty(expr vow,ixf,oxf) =
57   % do nothing
58 enddef;
59
60
61
```

---

### Sios/Cieuc/Chieuch Family

```
62 % SIOS/CIEUC/CHIEUCH FAMILY
63
64 % this defines eighteen jamo that are closely related
65 % "bars" = 0, 1, or 2, number of horizontal strokes to add to sios
```

```

66 % 0 = sios, 1 = cieuc, 2 = chieuch
67 % "shove" = -1, 0, or 1, direction to shift top junction
68 % -1 = ceongchieum (left), 0 = (centre), 1 = chiteum (right)
69 % "isalt" = boolean, use "alternate" form
70
71 vardef hangul.jamo.sjc(expr bars,shove,isalt)(expr vow,ixf,oxf) =
72   tsu_xform(hxf_inout(if bars=2: 7 else: 5 fi,ixf,oxf))(
73     beingroup
74       push_pbox_toexpand("jamo.sjc");
75       save x,y;
76       numeric x[],y[];
77
78       if bars=2:
79         push_stroke((320,790)..(510,790)..(680,790+10*mincho),
80           (1.5,1.5)-(1.5,1.5)-(1.5,1.5));
81         set_boserif(0,0,5);
82         set_boserif(0,2,6);
83
84         z7=(180,600);
85         z8=(530,y7);
86         z9=(820,y7+20*mincho);
87       else:
88         z7=(270,740);
89         z8=(530,y7);
90         z9=(730,y7+20*mincho);
91       fi;
92
93       if bars>0:
94         push_stroke(z7..z8..z9,(1.6,1.6)-(1.6,1.6)-(1.6,1.6));
95         set_boserif(0,0,5);
96         if (not isalt) and not (shove=-1):
97           set_boserif(0,2,6);
98         fi;
99       fi;
100
101       if shove=0:
102         z1=(530,if bars>0: y7-30+10*bars else: 720 fi);
103         if isalt:
104           z3=mincho[(170,140),(120,140)];
105           z2=(390-20*mincho,((390-y3)/(720-y3))*(y1-y3)+y3);
106         else:
107           z3=mincho[(200,50),(120,20)];
108           z2=(400-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
109         fi;
110       elseif shove=1:
111         z1=(780,if bars>0: y7-30+30*bars else: 720 fi);
112         if isalt:
113           z3=mincho[(130,140),(80,140)];

```

```

114     z2=(540-20*mincho,((390-y3)/(720-y3))*(y1-y3)+y3);
115     else:
116         z3=mincho[(160,50),(80,20)];
117         z2=(550-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
118     fi;
119 elseif shove=-1:
120     z1=(320,if bars>0: y7-30+10*bars else: 720 fi);
121     if isalt:
122         z3=mincho[(140,210),(90,210)];
123         z2=(260-20*mincho,((430-y3)/(720-y3))*(y1-y3)+y3);
124     else:
125         z3=mincho[(200,50),(120,20)];
126         z2=(280-20*mincho,((340-y3)/(720-y3))*(y1-y3)+y3);
127     fi;
128 fi;
129
130 push_stroke(z1..tension 1.2..z2..z3,(1,6,1,6)-(1,5,1,5)-(1,1));
131 if bars=0:
132     set_boserif(0,0,8);
133 fi;
134
135 z4=point 0.25 of get_strokep(0);
136 if shove=0:
137     if isalt:
138         z6=mincho[(740,180),(710,220)];
139     else:
140         z6=(810,70);
141     fi;
142     z5=(620+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
143 elseif shove=1:
144     if isalt:
145         z6=mincho[(940,180),(910,220)];
146         z5=(770+20*mincho,((390-y6)/(720-y6))*(y1-y6)+y6);
147     else:
148         z6=(810,70);
149         z5=(750+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
150     fi;
151 elseif shove=-1:
152     if isalt:
153         z6=mincho[(870,80),(840,130)];
154         z5=(520+20*mincho,((360-y6)/(720-y6))*(y1-y6)+y6);
155     else:
156         z6=(850,70);
157         z5=(520+20*mincho,((330-y6)/(720-y6))*(y1-y6)+y6);
158     fi;
159 fi;
160
161 push_stroke(z4..tension 1.2..z5..z6,

```

```

162     (1,1)-(1.3,1.3)-(1.7,1.7));
163
164     if bars=2:
165         set_bosize(-2,89);
166         set_bosize(-1,89);
167         set_bosize(0,89);
168     fi;
169     expand_pbox;
170 endgroup);
171 enddef;
172
173 _____
174

```

## Kiyeok

```

175 % KIYEOK
176
177 % 100 lead G
178 hangul.jamo[100]code="jamo.maybealt_kiyeok";
179 hangul.jamo[100]h=5;
180 hangul.jamo[100]w=3;
181 hangul.jamo[100]lb=450;
182 hangul.jamo[100]rb=800;
183 hangul.jamo[100]ub=820;
184 hangul.jamo[100]db=300;
185
186 % 101 lead GG
187 hangul.jamo[101]code="combine.lr(100,100)";
188 hangul.jamo[101]w=5;
189
190 % 501 tail G
191 hangul.jamo[501]code="jamo.kiyeok";
192 hangul.jamo[501]lb=450;
193 hangul.jamo[501]rb=800;
194 hangul.jamo[501]ub=820;
195 hangul.jamo[501]db=400;
196
197 % 502 tail GG
198 hangul.jamo[502]code="combine.lr(501,501)";
199 hangul.jamo[502]w=5;
200
201 vardef hangul.jamo.kiyeok(expr vow,ixf,oxf) =
202     tsu_xform(ixf)(
203         push_pbox_toexpand("jamo.kiyeok");
204         push_stroke((190+70*mincho,680)-(800,680+20*mincho)..tension 1.2..
205             (800-20*mincho,420)..(800-100*mincho,70),
206             (1.5,1.5)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));

```



```

207     set_boserif(0,0,5);
208     set_boserif(0,1,4);
209     set_botip(0,1,1);
210     expand_pbox);
211 enddef;
212
213 % 200 lead alt-G
214 hangul.jamo[200]code="jamo.alt_kiyeok";
215 hangul.jamo[200]h=5;
216 hangul.jamo[200]w=3;
217 hangul.jamo[200]lb=450;
218 hangul.jamo[200]rb=800;
219 hangul.jamo[200]ub=710;
220 hangul.jamo[200]db=300;
221
222 vardef hangul.jamo.alt_kiyeok(expr vow,ixf,oxf) =
223     tsu_xform(ixf)(
224         push_pbox_toexpand("jamo.alt_kiyeok");
225         push_stroke((190+80*mincho,680)-(840-20*mincho,680+20*mincho)..
226             tension 1.2..(560,360)..(40,50),
227             (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
228         set_boserif(0,0,5);
229         set_boserif(0,1,4);
230         set_botip(0,1,0);
231         expand_pbox);
232 enddef;
233
234 vardef hangul.jamo.maybealt_kiyeok(expr vow,ixf,oxf) =
235     if unknown vow:
236         hangul.jamo.kiyeok(vow,ixf,oxf);
237     elseif hangul.jamo[vow]invokes_alternate:
238         hangul.jamo.alt_kiyeok(vow,ixf,oxf);
239     else:
240         hangul.jamo.kiyeok(vow,ixf,oxf);
241     fi;
242 enddef;
243
244 _____
245

```

## Nieun

```

246 % NIEUN
247
248 % 102 lead N
249 hangul.jamo[102]code="jamo.maybealt_nieun";
250 hangul.jamo[102]w=2.5;
251 hangul.jamo[102]lb=190;

```

```

252 hangul.jamo[102]rb=700;
253 hangul.jamo[102]ub=400;
254 hangul.jamo[102]db=140;
255
256 % 202 lead alt-N
257 hangul.jamo[202]code="jamo.alt_nieun";
258 hangul.jamo[202]w=2.5;
259 hangul.jamo[202]lb=190;
260 hangul.jamo[202]rb=700;
261 hangul.jamo[202]ub=400;
262 hangul.jamo[202]db=140;
263
264 % 504 tail N
265 hangul.jamo[504]code="jamo.nieun";
266 hangul.jamo[504]lb=190;
267 hangul.jamo[504]rb=700;
268 hangul.jamo[504]ub=400;
269 hangul.jamo[504]db=140;
270
271 % 604 tail alt-N
272 hangul.jamo[604]code="jamo.alt_nieun";
273 hangul.jamo[604]lb=190;
274 hangul.jamo[604]rb=700;
275 hangul.jamo[604]ub=400;
276 hangul.jamo[604]db=140;
277
278 vardef hangul.jamo.nieun_inside =
279   push_stroke(interpath(mincho,
280     (190,680)-(190,240)-(190,140)-(310,140)-(770,140),
281     (190,680)-(190,240){down}..(220,160)..{right}(310,140)-(770,140)),
282     (1.6,1.6)-(1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.5,1.5));
283   set_boserif(0,0,8);
284   set_boserif(0,4,6);
285   set_botip(0,2,1);
286 enddef;
287
288 vardef hangul.jamo.nieun(expr vow,ixf,oxf) =
289   tsu_xform(ixf)(
290     push_pbox_toexpand("jamo.nieun");
291     hangul.jamo.nieun_inside;
292     expand_pbox);
293 enddef;
294
295 vardef hangul.jamo.alt_nieun_inside =
296   push_stroke(interpath(mincho,
297     (190,680)-(190,340)-(190,140)-(310,140)-(800,140),
298     (190,680)-(190,340){down}..(220,160)..{right}(310,140)..
299     (520,160)..(810,260)),

```

```

300     (1.6,1.6)-(1.5,1.5)-(1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1.1,1.1));
301     set_boserif(0,0,8);
302     set_botip(0,2,1);
303 enddef;
304
305 vardef hangul.jamo.alt_nieun(expr vow,ixf,oxf) =
306     tsu_xform(hxf_inout(1,ixf,oxf))(
307         push_pbox_toexpand("jamo.alt_nieun");
308         hangul.jamo.alt_nieun_inside;
309         expand_pbox);
310 enddef;
311
312 vardef hangul.jamo.maybealt_nieun(expr vow,ixf,oxf) =
313     if unknown vow:
314         hangul.jamo.nieun(vow,ixf,oxf);
315     elseif hangul.jamo[vow]invokes_alternate:
316         hangul.jamo.alt_nieun(vow,ixf,oxf);
317     else:
318         hangul.jamo.nieun(vow,ixf,oxf);
319     fi;
320 enddef;
321
322 _____
323

```

## Tikeut

```

324 % TIKEUT
325
326 % 103 lead D
327 hangul.jamo[103]code="jamo.maybealt_tikeut";
328 hangul.jamo[103]lb=190;
329 hangul.jamo[103]rb=500;
330 hangul.jamo[103]ub=850;
331 hangul.jamo[103]db=140;
332
333 % 104 lead DD
334 hangul.jamo[104]code="combine.lr(203,103)";
335
336 % 203 lead alt-D
337 hangul.jamo[203]code="jamo.alt_tikeut";
338 hangul.jamo[203]lb=190;
339 hangul.jamo[203]rb=500;
340 hangul.jamo[203]ub=850;
341 hangul.jamo[203]db=140;
342
343 % 507 tail D
344 hangul.jamo[507]code="jamo.tikeut";

```

```

345 hangul.jamo[507]lb=190;
346 hangul.jamo[507]rb=500;
347 hangul.jamo[507]ub=850;
348 hangul.jamo[507]db=140;
349
350 % 607 tail alt-D
351 hangul.jamo[607]code="jamo.alt_tikeut";
352 hangul.jamo[607]lb=190;
353 hangul.jamo[607]rb=500;
354 hangul.jamo[607]ub=850;
355 hangul.jamo[607]db=140;
356
357 vardef hangul.jamo.tikeut_inside(expr ixf) =
358   push_stroke((120+40*mincho,700+(15/yypart ixf)*mincho)..
359     (500,700)..(760,700+10*mincho),
360     (1.5,1.5)-(14,14)-(14,14));
361   set_boserif(0,2,6);
362 enddef;
363
364 vardef hangul.jamo.tikeut(expr vow,ixf,oxf) =
365   tsu_xform(ixf)(
366     push_pbox_toexpand("jamo.tikeut");
367     hangul.jamo.tikeut_inside(ixf);
368     hangul.jamo.nieun_inside;
369     expand_pbox);
370 enddef;
371
372 vardef hangul.jamo.alt_tikeut_inside(expr ixf) =
373   push_stroke((120+40*mincho,700+(15/yypart ixf)*mincho)..
374     (520,700)..(810,700+10*mincho),
375     (1.5,1.5)-(14,14)-(14,14));
376 enddef;
377
378 vardef hangul.jamo.alt_tikeut(expr vow,ixf,oxf) =
379   tsu_xform(hxf_inout(1,ixf,oxf))(
380     push_pbox_toexpand("jamo.alt_tikeut");
381     hangul.jamo.alt_tikeut_inside(ixf);
382     hangul.jamo.alt_nieun_inside;
383     expand_pbox);
384 enddef;
385
386 vardef hangul.jamo.maybealt_tikeut(expr vow,ixf,oxf) =
387   if unknown vow:
388     hangul.jamo.tikeut(vow,ixf,oxf);
389   elseif hangul.jamo[vow]invokes_alternate:
390     hangul.jamo.alt_tikeut(vow,ixf,oxf);
391   else:
392     hangul.jamo.tikeut(vow,ixf,oxf);

```

```
393 fi;
394 enddef;
395
396
397
```

---

## Rieul

```
398 % RIEUL
399
400 % 105 lead R
401 hangul.jamo[105]code="jamo.maybealt_rieul";
402 hangul.jamo[105]lb=160;
403 hangul.jamo[105]rb=780;
404 hangul.jamo[105]ub=830;
405 hangul.jamo[105]db=50;
406
407 % 508 tail L
408 hangul.jamo[508]code="jamo.rieul";
409 hangul.jamo[508]lb=160;
410 hangul.jamo[508]rb=780;
411 hangul.jamo[508]ub=830;
412 hangul.jamo[508]db=50;
413
414 % 608 tail alt-L
415 hangul.jamo[608]code="jamo.alt_rieul";
416 hangul.jamo[608]lb=160;
417 hangul.jamo[608]rb=780;
418 hangul.jamo[608]ub=830;
419 hangul.jamo[608]db=50;
420
421 vardef hangul.jamo.rieul(expr vow,ixf,oxf) =
422   hangul.jamo.kiyeok(whatever,hxf((50,780),(850,340)) transformed ixf,oxf);
423   hangul.jamo.tikeut(vow,hxf((80,500),(930,0)) transformed ixf,oxf);
424   replace_stroke(-1)(subpath (0,0.14-0.22*mincho+
425     xpart (oldp intersectiontimes
426       ((xpart point infinity of get_stroke(-2),-50)-
427         (xpart point infinity of get_stroke(-2),850)))) of oldp);
428 enddef;
429
430 % 205 lead alt-R
431 hangul.jamo[205]code="jamo.alt_rieul";
432 hangul.jamo[205]lb=160;
433 hangul.jamo[205]rb=780;
434 hangul.jamo[205]ub=830;
435 hangul.jamo[205]db=50;
436
437 vardef hangul.jamo.alt_rieul(expr vow,ixf,oxf) =
```

```

438 hangul.jamo.kiyeok(whatever,hxf((50,780),(850,340)) transformed ixf,oxf);
439 hangul.jamo.alt_tikeut(vow,hxf((80,500),(930,0)) transformed ixf,oxf);
440 replace_stroke(-1)(subpath (0,0,14-0.22*mincho+
441   xpart (oldp intersectiontimes
442   ((xpart point infinity of get_stroke(-2),-50)-
443   (xpart point infinity of get_stroke(-2),850)))) of oldp);
444 enddef;
445
446 vardef hangul.jamo.maybealt_rieul(expr vow,ixf,oxf) =
447   if unknown vow:
448     hangul.jamo.rieul(vow,ixf,oxf);
449   elseif hangul.jamo[vow]invokes_alternate:
450     hangul.jamo.alt_rieul(vow,ixf,oxf);
451   else:
452     hangul.jamo.rieul(vow,ixf,oxf);
453   fi;
454 enddef;
455
456 -----
457

```

## Mieum

```

458 % MIEUM
459
460 % 106 lead M
461 hangul.jamo[106]code="jamo.mieum";
462 hangul.jamo[106]lb=170;
463 hangul.jamo[106]rb=790;
464 hangul.jamo[106]ub=760;
465 hangul.jamo[106]db=150;
466
467 % 516 tail M
468 hangul.jamo[516]code="jamo.mieum";
469 hangul.jamo[516]lb=170;
470 hangul.jamo[516]rb=790;
471 hangul.jamo[516]ub=760;
472 hangul.jamo[516]db=150;
473
474 vardef hangul.jamo.mieum(expr vow,ixf,oxf) =
475   tsu_xform(ixf)(
476     push_pbox_toexpand("jamo.mieum");
477     push_stroke((120+40*mincho,700+(15/yypart ixf)*mincho)..
478       (500,700)..{curl 1}(780,700+10*mincho){curl 1}..tension 1.2..
479       (780-10*mincho,420)..(780-30*mincho,150),
480       (1.5,1.5)-(1.4,1.4)-(1.5,1.5)-(1.4,1.4)-(1.1,1.1));
481     set_boserif(0,2,4);
482     set_botip(0,2,1);

```

```

483     push_stroke((190,680)-(190,110),(1,6,1,6)-(1,5,1,5));
484     set_boserif(0,0,8);
485     push_stroke((190,170)..(0.5[(190,170),(820,160)]+(0,-15)*mincho)..
486         (820,160),
487         (1,5,1,5)-(1,5,1,5));
488     expand_pbox);
489 enddef;
490
491 _____
492

```

## Pieup

```

493 % PIEUP
494
495 % 107 lead B
496 hangul.jamo[107]code="jamo.pieup";
497 hangul.jamo[107]lb=200;
498 hangul.jamo[107]rb=800;
499 hangul.jamo[107]h=5;
500
501 % 108 lead BB
502 hangul.jamo[108]code="combine.lr(207,107)";
503 hangul.jamo[108]h=5;
504 hangul.jamo[108]w=5;
505
506 % 517 tail B
507 hangul.jamo[517]code="jamo.pieup";
508 hangul.jamo[517]lb=200;
509 hangul.jamo[517]rb=800;
510 hangul.jamo[517]h=5;
511
512 vardef hangul.jamo.pieup(expr vow,ixf,oxf) =
513     tsu_xform(ixf)(
514         push_pbox_toexpand("jamo.pieup");
515         push_stroke((260,700-40*mincho)-(260,110),(1,6,1,6)-(1,5,1,5));
516         set_boserif(0,0,8);
517         push_stroke((260,450-10*mincho)-(740,450),(1,5,1,5)-(1,5,1,5));
518         push_stroke((740,700)-(740,120),(1,6,1,6)-(1,5,1,5));
519         set_boserif(0,0,8);
520         push_stroke((260,170-10*mincho)-(740,170),(1,5,1,5)-(1,5,1,5));
521         expand_pbox);
522 enddef;
523
524 % 207 lead alt-B
525 hangul.jamo[207]code="jamo.alt_pieup";
526
527 vardef hangul.jamo.alt_pieup(expr vow,ixf,oxf) =

```

```
528 hangul.jamo.pieup(vow,
529 hxf((50,850-100*mincho),(950,-50+30*mincho)) transformed ixf,oxf);
530 enddef;
531
532 

---


533
```

## Sios

```
534 % SIOS
535
536 % 109 lead S
537 hangul.jamo[109]code="jamo.sjc(0,0,false)";
538 hangul.jamo[109]lb=250;
539 hangul.jamo[109]rb=700;
540
541 % 110 lead SS
542 hangul.jamo[110]code="combine.lr(209,109)";
543
544 % 519 tail S
545 hangul.jamo[519]code="jamo.sjc(0,0,false)";
546 hangul.jamo[519]lb=250;
547 hangul.jamo[519]rb=700;
548
549 % 520 tail SS
550 hangul.jamo[520]code="combine.lr(619,519)";
551
552 % 209 lead alt-S
553 hangul.jamo[209]code="jamo.sjc(0,0,true)";
554 hangul.jamo[209]lb=250;
555 hangul.jamo[209]rb=700;
556
557 % 619 tail alt-S
558 hangul.jamo[619]code="jamo.sjc(0,0,true)";
559 hangul.jamo[619]lb=250;
560 hangul.jamo[619]rb=700;
561
562 

---


563
```

## Ieung

```
564 % IEUNG
565
566 % 111 lead empty (=NG)
567 hangul.jamo[111]code="jamo.ieung";
568 hangul.jamo[111]h=5;
569
570 % 521 tail NG
```



```

571 hangul.jamo[521]code="jamo.ieung";
572 hangul.jamo[521]h=3;
573
574 vardef hangul.jamo.ieung(expr vow,ixf,oxf) =
575   tsu_xform(ixf)(
576     push_pbox_toexpand("jamo.ieung");
577     if unknown vow:
578       push_stroke((530,750)..(200,375)..(500,0)..(800,375)..cycle,
579         (1,6,1,6)-(1,5,1,5)-(1,4,1,4)-(1,5,1,5)-cycle);
580     elseif (vow>=313) and (vow<=319):
581       push_stroke((530,750)..(200,425)..(500,100)..(800,425)..cycle,
582         (1,6,1,6)-(1,5,1,5)-(1,4,1,4)-(1,5,1,5)-cycle);
583     else:
584       push_stroke((530,750)..(200,375)..(500,0)..(800,375)..cycle,
585         (1,6,1,6)-(1,5,1,5)-(1,4,1,4)-(1,5,1,5)-cycle);
586     fi;
587     set_boserif(0,0,6);
588     expand_pbox);
589 replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
590 replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
591 begingroup
592   save i,j,t;
593   numeric i,j,t;
594   i:=-1;
595   forever:
596     j:=find_whatever(otstroke,i);
597     exitif j=0;
598     j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
599     if (j>0) and (j<1):
600       replace_strokep(i)(subpath (j,infinity) of oldp);
601     fi;
602     if known tsu_do_serif[8]:
603       if 0<ypart (get_strokep(0) intersectiontimes
604         ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
605         set_boserif(i,0,whatever);
606       fi;
607     fi;
608     i:=i-1;
609   endfor;
610 endgroup;
611 enddef;
612
613 

---


614

```

Cieuc

615 % CIEUC

616  
617 % 112 lead J  
618 hangul.jamo[112]code="jamo.sjc(1,0,false)";  
619 hangul.jamo[112]lb=250;  
620 hangul.jamo[112]rb=700;  
621  
622 % 113 lead JJ  
623 hangul.jamo[113]code="combine.lr(212,112)";  
624  
625 % 522 tail J  
626 hangul.jamo[522]code="jamo.sjc(1,0,false)";  
627 hangul.jamo[522]lb=250;  
628 hangul.jamo[522]rb=700;  
629  
630 % 212 lead alt-J  
631 hangul.jamo[212]code="jamo.sjc(1,0,true)";  
632 hangul.jamo[212]lb=250;  
633 hangul.jamo[212]rb=700;  
634  
635 

---

  
636

## Chieuch

637 % CHIEUCH  
638  
639 % 114 lead C  
640 hangul.jamo[114]code="jamo.sjc(2,0,false)";  
641 hangul.jamo[114]lb=250;  
642 hangul.jamo[114]rb=700;  
643  
644 % 214 lead alt-C  
645 hangul.jamo[214]code="jamo.sjc(2,0,true)";  
646 hangul.jamo[214]lb=250;  
647 hangul.jamo[214]rb=700;  
648  
649 % 523 tail C  
650 hangul.jamo[523]code="jamo.sjc(2,0,false)";  
651 hangul.jamo[523]lb=250;  
652 hangul.jamo[523]rb=700;  
653  
654 

---

  
655

## Khieukh

656 % KHIEUKH  
657  
658 % 115 lead K

```

659 hangul.jamo[115]code="jamo.maybealt_khieukh";
660 hangul.jamo[115]h=5;
661 hangul.jamo[115]w=3;
662 hangul.jamo[115]lb=450;
663 hangul.jamo[115]rb=800;
664 hangul.jamo[115]ub=820;
665 hangul.jamo[115]db=300;
666
667 % 524 tail K
668 hangul.jamo[524]code="jamo.khieukh";
669 hangul.jamo[524]h=5;
670 hangul.jamo[524]w=3;
671 hangul.jamo[524]lb=450;
672 hangul.jamo[524]rb=800;
673 hangul.jamo[524]ub=820;
674 hangul.jamo[524]db=300;
675
676 vardef hangul.jamo.khieukh(expr vow,ixf,oxf) =
677   tsu_xform(ixf)(
678     push_pbox_toexpand("jamo.khieukh");
679     push_stroke((190+70*mincho,680)-(800,680+20*mincho)..tension 1.2..
680       (800-20*mincho,420)..(800-100*mincho,70),
681       (1.5,1.5)-(1.6,1.6)-(1.5,1.5)-(1.1,1.1));
682     set_boserif(0,0,5);
683     set_boserif(0,14);
684     set_botip(0,1);
685     push_stroke((210+70*mincho,380)-(point 1.9 of get_strokep(0)),
686       (1.6,1.6)-(1.5,1.5));
687     set_boserif(0,0,5);
688     expand_pbox);
689 enddef;
690
691 % 215 lead alt-K
692 hangul.jamo[215]code="jamo.alt_khieukh";
693 hangul.jamo[215]h=5;
694 hangul.jamo[215]w=3;
695 hangul.jamo[215]lb=450;
696 hangul.jamo[215]rb=800;
697 hangul.jamo[215]ub=710;
698 hangul.jamo[215]db=300;
699
700 vardef hangul.jamo.alt_khieukh(expr vow,ixf,oxf) =
701   tsu_xform(ixf)(
702     push_pbox_toexpand("jamo.alt_khieukh");
703     push_stroke((190+80*mincho,680)-(840-20*mincho,680+20*mincho)..
704       tension 1.2..(560,360)..(40,50),
705       (1.5,1.5)-(1.6,1.6)-(1.4,1.4)-(1,1));
706     set_boserif(0,0,5);

```

```

707     set_boserif(0,14);
708     set_botip(0,1,0);
709     push_stroke((210+80*mincho,400)-(point 1.6 of get_strokep(0)),
710         (1.5,1.5)-(1.4,1.4));
711     set_boserif(0,0,5);
712     expand_pbox);
713 enddef;
714
715 vardef hangul.jamo.maybealt_khieukh(expr vow,ixf,oxf) =
716     if unknown vow:
717         hangul.jamo.khieukh(vow,ixf,oxf);
718     elseif hangul.jamo[vow]invokes_alterate:
719         hangul.jamo.alt_khieukh(vow,ixf,oxf);
720     else:
721         hangul.jamo.khieukh(vow,ixf,oxf);
722     fi;
723 enddef;
724
725 

---


726

```

## Thieuth

```

727 % THIEUTH
728
729 % 116 lead T
730 hangul.jamo[116]code="jamo.maybealt_thieuth";
731 hangul.jamo[116]lb=190;
732 hangul.jamo[116]rb=500;
733 hangul.jamo[116]ub=850;
734 hangul.jamo[116]db=140;
735
736 % 525 tail T
737 hangul.jamo[525]code="jamo.thieuth";
738 hangul.jamo[525]lb=190;
739 hangul.jamo[525]rb=500;
740 hangul.jamo[525]ub=850;
741 hangul.jamo[525]db=140;
742
743 vardef hangul.jamo.thieuth(expr vow,ixf,oxf) =
744     tsu_xform(ixf)(
745         push_pbox_toexpand("jamo.thieuth");
746         hangul.jamo.tikeut_inside(ixf);
747         push_stroke((190,420)..(500,430-20*mincho)..(770,440),
748             (1.6,1.6)-(1.5,1.5)-(1.6,1.6));
749         set_boserif(0,2,6);
750         hangul.jamo.nieun_inside;
751         expand_pbox);

```

```

752 enddef;
753
754 % 216 lead alt-T
755 hangul.jamo[216]code="jamo.alt_thieuth";
756 hangul.jamo[216]lb=190;
757 hangul.jamo[216]rb=500;
758 hangul.jamo[216]ub=850;
759 hangul.jamo[216]db=140;
760
761 vardef hangul.jamo.alt_thieuth(expr vow,ixf,oxf) =
762   tsu_xform(hxf_inout(1,ixf,oxf))(
763     push_pbox_toexpand("jamo.alt_thieuth");
764     hangul.jamo.alt_tikeut_inside(ixf);
765     push_stroke((190,420)..(500,430-20*mincho)..(790,450),
766       (1.6,1.6)-(1.5,1.5)-(1.6,1.6));
767     hangul.jamo.alt_nieun_inside;
768     expand_pbox);
769 enddef;
770
771 vardef hangul.jamo.maybealt_thieuth(expr vow,ixf,oxf) =
772   if unknown vow:
773     hangul.jamo.thieuth(vow,ixf,oxf);
774   elseif hangul.jamo[vow]invokes_alternate:
775     hangul.jamo.alt_thieuth(vow,ixf,oxf);
776   else:
777     hangul.jamo.thieuth(vow,ixf,oxf);
778   fi;
779 enddef;
780
781
782

```

---

## Phieuph

```

783 % PHIEUPH
784
785 % 117 lead P
786 hangul.jamo[117]code="jamo.phieuph";
787 hangul.jamo[117]w=5;
788 hangul.jamo[117]h=5;
789 hangul.jamo[117]lb=320;
790 hangul.jamo[117]rb=690;
791 hangul.jamo[117]ub=800;
792 hangul.jamo[117]db=160;
793
794 % 526 tail P
795 hangul.jamo[526]code="jamo.phieuph";
796 hangul.jamo[526]w=5;

```

```

797 hangul.jamo[526]h=5;
798 hangul.jamo[526]lb=320;
799 hangul.jamo[526]rb=690;
800 hangul.jamo[526]ub=800;
801 hangul.jamo[526]db=160;
802
803 vardef hangul.jamo.phieuph(expr vow,ixf,oxf) =
804   tsu_xform(ixf)(
805     push_pbox_toexpand("jamo.phieuph");
806     push_stroke((180,660)-(820,660),
807       (1.6,1.6)-(1.6,1.6));
808     set_boserif(0,0,5);
809     set_boserif(0,1,6);
810     push_stroke((250,530)..tension 1.2..(350,350)..(380,280),
811       (1.1,1.1)-(1.3,1.3)-(1.6,1.6));
812     push_stroke((730,550)..tension 1.2..(660,350)..(600,240),
813       (1.5,1.5)-(1.4,1.4)-(1.2,1.2));
814     push_stroke((120,160)-(880,160),
815       (1.6,1.6)-(1.6,1.6));
816     set_boserif(0,0,5);
817     set_boserif(0,1,6);
818     expand_pbox);
819 begingroup
820   save i,j,t;
821   numeric i,j,t;
822   i:=-4;
823   forever:
824     j:=find_whatever(otstroke,i);
825     exitif j=0;
826     j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
827     if (j>0) and (j<1):
828       replace_strokep(i)(subpath (j,infinity) of oldp);
829     fi;
830     if known tsu_do_serif[8]:
831       if 0<ypart (get_strokep(0) intersectiontimes
832         ((-50,50)+point 0 of get_strokep(i))-get_strokep(i)):
833         set_boserif(i,0,whatever);
834       fi;
835     fi;
836     i:=i-1;
837   endfor;
838 endgroup;
839 enddef;
840
841
842

```

---

## Hieuh

```
843 % HIEUH
844
845 % 118 lead H
846 hangul.jamo[118]code="jamo.hieuh";
847 hangul.jamo[118]h=5;
848 hangul.jamo[118]lb=200;
849 hangul.jamo[118]rb=800;
850
851 % 527 tail H
852 hangul.jamo[527]code="jamo.hieuh";
853 hangul.jamo[527]lb=200;
854 hangul.jamo[527]rb=800;
855
856 % 627 tail right-scooped H
857 hangul.jamo[627]code="combine.lr(500,527)";
858 hangul.jamo[627]lb=200;
859 hangul.jamo[627]rb=800;
860
861 vardef hangul.jamo.hieuh(expr vow,ixf,oxf) =
862   tsu_xform(hxf_inout(7,ixf,oxf))(
863     push_pbox_toexpand("jamo.hieuh");
864     push_stroke((320,790)..(510,790)..(680,790+10*mincho),
865       (1.5,1.5)-(1.5,1.5)-(1.5,1.5));
866     set_boserif(0,0,5);
867     set_boserif(0,2,6);
868     push_stroke((180,600)..(530,600)..(820,600+20*mincho),
869       (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
870     set_boserif(0,0,5);
871     set_boserif(0,2,6);
872     push_stroke((520,500)..(300,250)..(500,0)..(700,250)..cycle,
873       (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
874     set_boserif(0,0,6);
875     set_bosize(-2,89);
876     set_bosize(-1,89);
877     set_bosize(0,89);
878     expand_pbox);
879   replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
880   replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
881   begingroup
882     save i,j,t;
883     numeric i,j,t;
884     i:=-3;
885     forever:
886       j:=find_whatever(otstroke,i);
887       exitif j=0;
888       j:=xpart (get_strokep(i) intersectiontimes get_strokeq(0));
```

```

889     if (j>0) and (j<1):
890         replace_strokep(i)(subpath (j,infinity) of oldp);
891     fi;
892     if known tsu_do_serif[8]:
893         if 0<ypart (get_strokep(0) intersectiontimes
894             ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
895             set_boserif(i,0,whatever);
896         fi;
897     fi;
898     i:=i-1;
899 endfor;
900 endgroup;
901 enddef;
902
903 

---


904

```

## Mixed Tails

```

905 % MIXED TAILS
906
907 % 503 tail GS
908 hangul.jamo[503]code="combine.lr(501,519)";
909
910 % 505 tail NJ
911 hangul.jamo[505]code="combine.lr(504,522)";
912
913 % 506 tail NH
914 hangul.jamo[506]code="combine.lr(504,527)";
915
916 % 509 tail LG
917 hangul.jamo[509]code="combine.lr(508,501)";
918
919 % 510 tail LM
920 hangul.jamo[510]code="combine.lr(508,516)";
921
922 % 511 tail LB
923 hangul.jamo[511]code="combine.lr(508,517)";
924
925 % 512 tail LS
926 hangul.jamo[512]code="combine.lr(508,519)";
927
928 % 513 tail LT
929 hangul.jamo[513]code="combine.lr(508,525)";
930
931 % 514 tail LP
932 hangul.jamo[514]code="combine.lr(508,526)";
933

```



```

934 % 515 tail LH
935 hangul.jamo[515]code="combine.lr(508,527)";
936 hangul.jamo[515]h=5;
937
938 % 518 tail BS
939 hangul.jamo[518]code="combine.lr(517,519)";
940 hangul.jamo[518]h=5;
941
942 _____
943

```

## Vowels

```

944 % VOWELS
945
946 % 300 vowel A
947 hangul.jamo[300]code="jamo.a";
948 hangul.jamo[300]w=2.5;
949 hangul.jamo[300]h=0;
950 hangul.jamo[300]lb=400;
951 hangul.jamo[300]rb=700;
952 hangul.jamo[300]ub=850;
953 hangul.jamo[300]db=100;
954
955 % 301 vowel AE
956 hangul.jamo[301]code="combine.lr(300,320)";
957 hangul.jamo[301]w=3;
958 hangul.jamo[301]h=0;
959 hangul.jamo[301]lb=340;
960 hangul.jamo[301]db=100;
961
962 vardef hangul.jamo.a(expr vow,ixf,oxf) =
963   tsu_xform(hxf_inout(11,ixf,oxf))(
964     push_pbox_toexpand("jamo.a");
965     push_stroke((440,820)-(440-10*mincho,0),(1.6,1.6)-(1.4,1.4));
966     set_boserif(0,0,8);
967     push_stroke((450,310)-(930-120*mincho,310+10*mincho),
968       (1.5,1.5)-(1.7,1.7));
969     set_boserif(0,1,6);
970     expand_pbox);
971 enddef;
972
973 % 302 vowel YA
974 hangul.jamo[302]code="jamo.ya";
975 hangul.jamo[302]w=3;
976 hangul.jamo[302]h=0;
977 hangul.jamo[302]lb=400;
978 hangul.jamo[302]rb=700;

```

```

979 hangul.jamo[302]ub=850;
980 hangul.jamo[302]db=100;
981
982 % 303 vowel YAE
983 hangul.jamo[303]code="combine.lr(302,320)";
984 hangul.jamo[303]w=3.5;
985 hangul.jamo[303]h=0;
986 hangul.jamo[303]lb=340;
987 hangul.jamo[303]db=100;
988
989 vardef hangul.jamo.ya(expr vow,ixf,oxf) =
990     tsu_xform(hxf_inout(11,ixf,oxf))(
991         push_pbox_toexpand("jamo.ya");
992         push_stroke((440,820)-(440-10*mincho,0),(1.6,1.6)-(1.4,1.4));
993         set_bos serif(0,0,8);
994         push_stroke((450,520)-(930-120*mincho,520+10*mincho),
995             (1.5,1.5)-(1.7,1.7));
996         set_bos serif(0,1,6);
997         push_stroke((450,270)-(930-120*mincho,270+10*mincho),
998             (1.5,1.5)-(1.7,1.7));
999         set_bos serif(0,1,6);
1000     expand_pbox);
1001 enddef;
1002
1003 % 304 vowel EO
1004 hangul.jamo[304]code="jamo.eo";
1005 hangul.jamo[304]w=2.5;
1006 hangul.jamo[304]h=0;
1007 hangul.jamo[304]lb=300;
1008 hangul.jamo[304]rb=640;
1009 hangul.jamo[304]ub=850;
1010 hangul.jamo[304]db=100;
1011
1012 % 305 vowel E
1013 hangul.jamo[305]code="combine.lr(304,320)";
1014 hangul.jamo[305]w=3;
1015 hangul.jamo[305]h=0;
1016 hangul.jamo[305]lb=300;
1017 hangul.jamo[305]db=100;
1018
1019 vardef hangul.jamo.eo(expr vow,ixf,oxf) =
1020     tsu_xform(hxf_inout(11,ixf,oxf))(
1021         push_pbox_toexpand("jamo.eo");
1022         push_stroke((560,820)-(560-10*mincho,0),(1.6,1.6)-(1.4,1.4));
1023         set_bos serif(0,0,8);
1024         if unknown vow: vow=304; fi;
1025         if vow=435:
1026             push_stroke((70+100*mincho,110)-(550,110+10*mincho),

```

```

1027     (1,7,1.7)-(1.5,1.5));
1028 elseif vow>=308:
1029     push_stroke((70+100*mincho,210)-(550,210+10*mincho),
1030     (1,7,1.7)-(1.5,1.5));
1031 else:
1032     push_stroke((70+100*mincho,310)-(550,310+10*mincho),
1033     (1,7,1.7)-(1.5,1.5));
1034 fi;
1035 set_boserif(0,0,5);
1036 expand_pbox);
1037 endif;
1038
1039 % 306 vowel YEO
1040 hangul.jamo[306]code="jamo.yeo";
1041 hangul.jamo[306]w=2.5;
1042 hangul.jamo[306]h=0;
1043 hangul.jamo[306]lb=300;
1044 hangul.jamo[306]rb=640;
1045 hangul.jamo[306]ub=850;
1046 hangul.jamo[306]db=100;
1047
1048 % 307 vowel YE
1049 hangul.jamo[307]code="combine.lr(306,320)";
1050 hangul.jamo[307]w=3;
1051 hangul.jamo[307]h=0;
1052 hangul.jamo[307]lb=300;
1053 hangul.jamo[307]db=100;
1054
1055 vardef hangul.jamo.yeo(expr vow,ixf,oxf) =
1056     tsu_xform(hxf_inout(11,ixf,oxf))(
1057     push_pbox_toexpand("jamo.yeo");
1058     push_stroke((560,820)-(560-10*mincho,0),(1,6,1.6)-(1,4,1,4));
1059     set_boserif(0,0,8);
1060     push_stroke((70+100*mincho,520)-(550,520+10*mincho),
1061     (1,7,1.7)-(1.5,1.5));
1062     set_boserif(0,0,5);
1063     if unknown vow: vow=304; fi;
1064     if vow>=308:
1065         push_stroke((70+100*mincho,190)-(550,190+10*mincho),
1066         (1,7,1.7)-(1.5,1.5));
1067         if vow<=420:
1068             set_boserif(0,0,5);
1069         fi;
1070     else:
1071         push_stroke((70+100*mincho,270)-(550,270+10*mincho),
1072         (1,7,1.7)-(1.5,1.5));
1073         set_boserif(0,0,5);
1074     fi;

```

```

1075     expand_pbox);
1076 enddef;
1077
1078 % 308 vowel O
1079 hangul.jamo[308]code="jamo.o";
1080 hangul.jamo[308]w=0;
1081 hangul.jamo[308]h=3;
1082 hangul.jamo[308]invokes_alternate=false;
1083
1084 % 309 vowel WA
1085 hangul.jamo[309]code="combine.lr(308,300)";
1086 hangul.jamo[309]w=2;
1087 hangul.jamo[309]invokes_alternate=false;
1088
1089 % 310 vowel WAE
1090 hangul.jamo[310]code="combine.lr(308,301)";
1091 hangul.jamo[310]w=3;
1092 hangul.jamo[310]invokes_alternate=false;
1093
1094 % 311 vowel OE
1095 hangul.jamo[311]code="combine.lr(308,320)";
1096 hangul.jamo[311]w=1;
1097 hangul.jamo[311]invokes_alternate=false;
1098
1099 vardef hangul.jamo.o(expr vow,ixf,oxf) =
1100     begingroup
1101         save myxf;
1102         transform myxf[];
1103         myxf1=hxf_inout(13,ixf,oxf);
1104         hgbox_ll transformed myxf3=
1105             0.1[hgbox_ll transformed myxf1,
1106                 hgbox_ll transformed oxf];
1107         hgbox_ur transformed myxf3=
1108             (0.4*mincho)[hgbox_ur transformed myxf1,
1109                 hgbox_ur transformed oxf];
1110         if unknown vow: vow=308; fi;
1111         if vow=308:
1112             hgbox_lr transformed myxf3=
1113                 0.3[hgbox_lr transformed myxf1,
1114                     hgbox_lr transformed oxf];
1115             myxf2=hxf((50,750),(950,-500)) transformed myxf3;
1116         else:
1117             (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1118                 (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1119             myxf2=myxf3;
1120         fi;
1121         tsu_xform(myxf2)(
1122             push_pbox_toexpand("jamo.o");

```

```

1123     push_stroke((540,900-100*mincho)-(540,350-10*mincho),
1124         (1.6,1.6)-(1.5,1.5));
1125     set_boserif(0,0,8);
1126     push_stroke((120,350)..(500,350-10*mincho)..(920,350),
1127         (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
1128     set_boserif(0,0,5);
1129     expand_pbox);
1130 endgroup;
1131 endif;
1132
1133 % 312 vowel YO
1134 hangul.jamo[312]code="jamo.yo";
1135 hangul.jamo[312]w=0;
1136 hangul.jamo[312]h=3;
1137 hangul.jamo[312]invokes_alterate=false;
1138
1139 % "yo" isn't normally used in compounds, but let's keep the code for that
1140 vardef hangul.jamo.yo(expr vow,ixf,oxf) =
1141     begingroup
1142     save myxf;
1143     transform myxf[];
1144     myxf1=hex_inout(13,ixf,oxf);
1145     hgbox_ll transformed myxf3=
1146         0.1[hgbox_ll transformed myxf1,
1147             hgbox_ll transformed oxf];
1148     hgbox_ur transformed myxf3=
1149         (0.3*mincho)[hgbox_ur transformed myxf1,
1150             hgbox_ur transformed oxf];
1151     if unknown vow: vow=312; fi;
1152     if vow=312:
1153         hgbox_lr transformed myxf3=
1154             0.2[hgbox_lr transformed myxf1,
1155                 hgbox_lr transformed oxf];
1156         myxf2=hex((50,750),(950,50)) transformed myxf3;
1157     else:
1158         (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1159             (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1160         myxf2=myxf3;
1161     fi;
1162     tsu_xform(myxf2)(
1163         push_pbox_toexpand("jamo.yo");
1164         push_stroke((420,900-110*mincho)-(420,350-10*mincho),
1165             (1.6,1.6)-(1.5,1.5));
1166         set_boserif(0,0,8);
1167         push_stroke((660,900-90*mincho)-(660,350-10*mincho),
1168             (1.6,1.6)-(1.5,1.5));
1169         set_boserif(0,0,8);
1170         push_stroke((120,350)..(390,350-10*mincho)..

```

```

1171         (690,350-10*mincho)..(920,350),
1172         (1,6,1,6)-(1,6,1,6)-(1,6,1,6)-(1,6,1,6));
1173     set_boserif(0,0,5);
1174     expand_pbox);
1175 endgroup;
1176 enddef;
1177
1178 % 313 vowel U
1179 hangul.jamo[313]code="jamo.u";
1180 hangul.jamo[313]w=0;
1181 hangul.jamo[313]h=3;
1182 hangul.jamo[313]db=150;
1183 hangul.jamo[313]invokes_alternate=false;
1184
1185 % 314 vowel WEO
1186 hangul.jamo[314]code="combine.lr(313,304)";
1187 hangul.jamo[314]w=2;
1188 hangul.jamo[314]db=150;
1189 hangul.jamo[314]invokes_alternate=false;
1190
1191 % 315 vowel WE
1192 hangul.jamo[315]code="combine.lr(313,305)";
1193 hangul.jamo[315]w=3;
1194 hangul.jamo[315]db=150;
1195 hangul.jamo[315]invokes_alternate=false;
1196
1197 % 316 vowel WI
1198 hangul.jamo[316]code="combine.lr(313,320)";
1199 hangul.jamo[316]w=1;
1200 hangul.jamo[316]db=150;
1201 hangul.jamo[316]invokes_alternate=false;
1202
1203 vardef hangul.jamo.u(expr vow,ixf,oxf) =
1204     begingroup
1205         save myxf;
1206         transform myxf[];
1207         myxf1=hex_inout(13,ixf,oxf);
1208         hgbox_ll transformed myxf3=
1209             0.2[hgbox_ll transformed myxf1,
1210                 hgbox_ll transformed oxf];
1211         hgbox_ur transformed myxf3=
1212             0.2[hgbox_ur transformed myxf1,
1213                 hgbox_ur transformed oxf];
1214         if unknown vow: vow=313; fi;
1215         if vow=313:
1216             hgbox_lr transformed myxf3=
1217                 0.1[hgbox_lr transformed myxf1,
1218                     hgbox_lr transformed oxf];

```

```

1219     myxf2=hxf((50,600),(950,-50)) transformed myxf3;
1220 else:
1221     (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1222     (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1223     myxf2=myxf3;
1224 fi;
1225 tsu_xform(myxf2)(
1226     push_pbox_toexpand("jamo.o");
1227     push_stroke((540,700)-(540,50+100*mincho),
1228     (1.6,1.6)-(1.5,1.5));
1229     set_boserif(0,1,7);
1230     push_stroke((120,700)-(920,700),(1.6,1.6)-(1.6,1.6));
1231     set_boserif(0,0,5);
1232     expand_pbox);
1233 endgroup;
1234 endif;
1235
1236 % 317 vowel YU
1237 hangul.jamo[317]code="jamo.yu";
1238 hangul.jamo[317]w=0;
1239 hangul.jamo[317]h=3;
1240 hangul.jamo[317]db=150;
1241 hangul.jamo[317]invokes_alternate=false;
1242
1243 vardef hangul.jamo.yu(expr vow,ixf,oxf) =
1244     begingroup
1245     save myxf;
1246     transform myxf[];
1247     myxf1=hxf_inout(13,ixf,oxf);
1248     hgbox_ll transformed myxf3=
1249     0.2[hgbox_ll transformed myxf1,
1250     hgbox_ll transformed oxf];
1251     hgbox_ur transformed myxf3=
1252     0.2[hgbox_ur transformed myxf1,
1253     hgbox_ur transformed oxf];
1254     if unknown vow: vow=317; fi;
1255     if vow=317:
1256     hgbox_lr transformed myxf3=
1257     0.1[hgbox_lr transformed myxf1,
1258     hgbox_lr transformed oxf];
1259     myxf2=hxf((50,600),(950,-50)) transformed myxf3;
1260 else:
1261     (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1262     (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1263     myxf2=myxf3;
1264 fi;
1265 tsu_xform(myxf2)(
1266     push_pbox_toexpand("jamo.yu");

```

```

1267     push_stroke((120,700)-(930,700),(1.6,1.6)-(1.6,1.6));
1268     set_boserif(0,0,5);
1269     push_stroke((400,700)-(400,50+100*mincho),
1270         (1.6,1.6)-(1.5,1.5));
1271     set_boserif(0,1,7);
1272     push_stroke((640,700)-(640,50+100*mincho),
1273         (1.6,1.6)-(1.5,1.5));
1274     set_boserif(0,1,7);
1275     expand_pbox);
1276 endgroup;
1277 endif;
1278
1279 % 318 vowel EU
1280 hangul.jamo[318]code="jamo.eu";
1281 hangul.jamo[318]w=0;
1282 hangul.jamo[318]h=3;
1283 hangul.jamo[318]invokes_alternate=false;
1284
1285 % 319 vowel YI
1286 hangul.jamo[319]code="combine.lr(318,320)";
1287 hangul.jamo[319]w=2;
1288 hangul.jamo[319]h=3;
1289 hangul.jamo[319]invokes_alternate=false;
1290
1291 vardef hangul.jamo.eu(expr vow,ixf,oxf) =
1292     begingroup
1293     save myxf;
1294     transform myxf[];
1295     myxf1=hex_inout(13,ixf,oxf);
1296     hgbox_ll transformed myxf3=
1297         0.1[hgbox_ll transformed myxf1,
1298             hgbox_ll transformed oxf];
1299     hgbox_ur transformed myxf3=
1300         0.1[hgbox_ur transformed myxf1,
1301             hgbox_ur transformed oxf];
1302     if unknown vow: vow=318; fi;
1303     if vow=318:
1304         hgbox_lr transformed myxf3=
1305             0.1[hgbox_lr transformed myxf1,
1306                 hgbox_lr transformed oxf];
1307         myxf2=hex((50,600),(950,-50)) transformed myxf3;
1308     else:
1309         (hgbox_ur transformed myxf3)-(hgbox_lr transformed myxf3)=
1310             (hgbox_ur transformed myxf1)-(hgbox_lr transformed myxf1);
1311         myxf2=myxf3;
1312     fi;
1313     tsu_xform(myxf2)(
1314         push_pbox_toexpand("jamo.eu");

```



```

1315     push_stroke((120,520)-(925,520),(1.6,1.6)-(1.6,1.6));
1316     set_boserif(0,0,5);
1317     expand_pbox);
1318 endgroup;
1319 enddef;
1320
1321 % 320 vowel I
1322 hangul.jamo[320]code="jamo.i";
1323 hangul.jamo[320]w=1.5;
1324 hangul.jamo[320]h=0;
1325 hangul.jamo[320]lb=490;
1326 hangul.jamo[320]rb=540;
1327 hangul.jamo[320]ub=850;
1328 hangul.jamo[320]db=-50;
1329 hangul.jamo[320]invokes_alternate=false;
1330
1331 vardef hangul.jamo.i(expr vow,ixf,oxf) =
1332     tsu_xform(hxf_inout(10,ixf,oxf))(
1333     push_pbox_toexpand("jamo.i");
1334     push_stroke((500,820)-(500,400)-(500-10*mincho,0),
1335     (1.6,1.6)-(1.5,1.5)-(1.4,1.4));
1336     set_boserif(0,0,8);
1337     expand_pbox);
1338 enddef;

```

# jamo-extra.mp

```
1 %
2 % Extra (not in Unicode syllable block) hangul jamo for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(jamoextra);
32
33 _____
34
35 % special alternate vowel codes (used for non-syllable vowel jamo)
36 % 421 yo-ya
37 % 422 yo-yae
38 % 423 yo-i
39 % 424 yu-yeo
40 % 425 yu-ye
41 % 426 yu-i
42 % 427 araea-i
43 % 428 araea
44 % 429 o-eo
45 % 430 o-e
46 % 431 o-ye
47 % 432 yo-yeo
48 % 433 u-a
49 % 434 u-ae
50 % 435 u-eo-eu
51 % 436 u-ye
52 % 437 yu-a
53 % 438 yu-eo
54 % 439 yu-e
55 % 440 yi-u
56 % 441 i-araea
57 % 442 o-ya
58 % 443 o-yae
59
60 % 428 vowel ARAEA
61 hangul.jamo[428]code="jamo.araea";
62 hangul.jamo[428]w=0;
63 hangul.jamo[428]h=2;
64 hangul.jamo[428]invokes_alternate=false;
65
66 vardef hangul.jamo.araea(expr vow,ixf,oxf) =
67   begingroup
68     save tmpxf;
69     transform tmpxf;
70     if unknown vow: vow=428; fi;
```

```

71   tmpxf=hxf_inout(if vow=441: 1 else: 5 fi,ixf,oxf);
72   tsu_xform(tmpxf)(
73     push_pbox_toexpand("jamo.araea");
74     expand_pbox);
75   push_lcblob(fullcircle
76     scaled ((140+40*mincho)*sqrt(sqrt(xxpart tmpxf*yy part tmpxf)))
77     shifted ((if vow=441: 500 else: 540 fi,390) transformed tmpxf));
78   endgroup;
79 enddef;
80
81 _____
82

```

## Pansios

```

83 % PANSIOS
84
85 % 219 lead "letter that died out in the 16th century and nobody is sure
86 % how it was pronounced"
87 hangul.jamo[219]code="jamo.pansios";
88 hangul.jamo[219]lb=250;
89 hangul.jamo[219]rb=700;
90
91 % 628 tail LTDOIT16CANISHIWP
92 hangul.jamo[628]code="jamo.pansios";
93 hangul.jamo[628]lb=250;
94 hangul.jamo[628]rb=700;
95
96 vardef hangul.jamo.pansios(expr vow,ixf,oxf) =
97   tsu_xform(ixf)(
98     push_pbox_toexpand("jamo.pansios");
99     push_stroke((675,375+20*mincho)-(500,660+40*mincho)-
100       (150,90+10*mincho)-(850,90)-cycle,
101       (14,14)-(1.2,1.2)-(1.6,1.6)-(1.6,1.6)-cycle);
102     set_boserif(0,1,8);
103     set_botip(0,1,1);
104     set_botip(0,2,1);
105     set_botip(0,3,1);
106     expand_pbox);
107 enddef;
108
109 _____
110

```

## Yesieung

```

111 % YESIEUNG
112
113 % 220 lead NG (mnemonic: "yes, REALLY ieung, as opposed to 'ieung' which

```

```

114 % actually is 'empty' when in the lead")
115 hangul.jamo[220]code="jamo.yesieung";
116 hangul.jamo[220]h=5;
117
118 % 629 tail NG
119 hangul.jamo[629]code="jamo.yesieung";
120 hangul.jamo[629]h=5;
121
122 vardef hangul.jamo.yesieung(expr vow,ixf,oxf) =
123   tsu_xform(ixf)(
124     push_pbox_toexpand("jamo.yesieung");
125     push_stroke((500,750)-(500,660),(1.6,1.6)-(1.5,1.5));
126     set_boserif(0,0,8);
127     if unknown vow:
128       push_stroke((500,660)..(200,335)..(500,0)..(800,335)..cycle,
129         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
130     elseif (vow>=313) and (vow<=319):
131       push_stroke((500,660)..(200,385)..(500,100)..(800,385)..cycle,
132         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
133     else:
134       push_stroke((500,660)..(200,335)..(500,0)..(800,335)..cycle,
135         (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
136     fi;
137     expand_pbox);
138   replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
139   replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
140   begingroup
141     save i,j,t;
142     numeric i,j,t;
143     i:=-2;
144     forever:
145       j:=find_whatever(otstroke,i);
146       exitif j=0;
147       j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
148       if (j>0) and (j<1):
149         replace_strokep(i)(subpath (j,infinity) of oldp);
150       fi;
151       if known tsu_do_serif[8]:
152         if 0<ypart (get_strokep(0) intersectiontimes
153           ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
154           set_boserif(i,0,whatever);
155         fi;
156       fi;
157       i:=i-1;
158     endfor;
159   endgroup;
160 enddef;
161

```

162

163

## Yeorinhieuh

```
164 % YEORINHIEUH
165
166 % 221 lead ‘ (W’dia says medium-strength glottal stop)
167 hangul.jamo[221]code="jamo.yeorinhieuh";
168 hangul.jamo[221]h=5;
169 hangul.jamo[221]lb=200;
170 hangul.jamo[221]rb=800;
171
172 % 631 tail ‘
173 hangul.jamo[631]code="jamo.yeorinhieuh";
174 hangul.jamo[631]h=5;
175 hangul.jamo[631]lb=200;
176 hangul.jamo[631]rb=800;
177
178 vardef hangul.jamo.yeorinhieuh(expr vow,ixf,oxf) =
179   tsu_xform(hxf_inout(7,ixf,oxf))(
180     push_pbox_toexpand("jamo.yieorinhieuh");
181     push_stroke((180,780)..(530,780)..(820,780+20*mincho),
182       (1.6,1.6)-(1.6,1.6)-(1.6,1.6));
183     set_boserif(0,0,5);
184     set_boserif(0,2,6);
185     push_stroke((520,650)..(300,325)..(500,0)..(700,325)..cycle,
186       (1.6,1.6)-(1.5,1.5)-(1.4,1.4)-(1.5,1.5)-cycle);
187     set_boserif(0,0,6);
188     expand_pbox);
189 replace_strokep(0)(insert_nodes(oldp)(0.5,1.5,2.5,3.5));
190 replace_strokeq(0)(insert_nodes(oldq)(0.5,1.5,2.5,3.5));
191 begingroup
192   save i,j,t;
193   numeric i,j,t;
194   i:=-2;
195   forever:
196     j:=find_whatever(otstroke,i);
197     exitif j=0;
198     j:=xpart (get_strokep(i) intersectiontimes get_strokep(0));
199     if (j>0) and (j<1):
200       replace_strokep(i)(subpath (j,infinity) of oldp);
201     fi;
202     if known tsu_do_serif[8]:
203       if 0<ypart (get_strokep(0) intersectiontimes
204         ((-80,80)+point 0 of get_strokep(i))-get_strokep(i)):
205         set_boserif(i,0,whatever);
206     fi;
```

```

207     fi;
208     i:=i-1;
209     endfor;
210 endgroup;
211 enddef;
212
213
214

```

---

## Chitueum And Ceongchieum Variants

```

215 % CHITUEUM AND CEONGCHIEUM VARIANTS
216
217 % 222 lead right-shoved S
218 hangul.jamo[222]code="jamo.sjc(0,1,false)";
219 hangul.jamo[222]lb=250;
220 hangul.jamo[222]rb=700;
221
222 % 223 lead alt-right-shoved S
223 hangul.jamo[223]code="jamo.sjc(0,1,true)";
224 hangul.jamo[223]lb=250;
225 hangul.jamo[223]rb=700;
226
227 % 224 lead left-shoved S
228 hangul.jamo[224]code="jamo.sjc(0,-1,false)";
229 hangul.jamo[224]lb=250;
230 hangul.jamo[224]rb=700;
231
232 % 225 lead alt-left-shoved S
233 hangul.jamo[225]code="jamo.sjc(0,-1,true)";
234 hangul.jamo[225]lb=250;
235 hangul.jamo[225]rb=700;
236
237 % 226 lead right-shoved J
238 hangul.jamo[226]code="jamo.sjc(1,1,false)";
239 hangul.jamo[226]lb=250;
240 hangul.jamo[226]rb=700;
241
242 % 227 lead alt-right-shoved J
243 hangul.jamo[227]code="jamo.sjc(1,1,true)";
244 hangul.jamo[227]lb=250;
245 hangul.jamo[227]rb=700;
246
247 % 228 lead left-shoved J
248 hangul.jamo[228]code="jamo.sjc(1,-1,false)";
249 hangul.jamo[228]lb=250;
250 hangul.jamo[228]rb=700;
251

```

```
252 % 229 lead alt-left-shoved J
253 hangul.jamo[229]code="jamo.sjc(1,-1,true)";
254 hangul.jamo[229]lb=250;
255 hangul.jamo[229]rb=700;
256
257 

---


258
```

## Kapyeoun Variants

```
259 % KAPYEOUN VARIANTS
260
261 % 630 tail kapyeounpieup
262 hangul.jamo[630]code="combine.tb(517,521)";
263 hangul.jamo[630]h=6;
```

# jieub-bt.mp

```
1 %  
2 % Jieubsida Batang  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Jieubsida Batang

```
31 % JIEUBSIDA BATANG  
32  
33 input tsuku-mi.mp;  
34  
35 stylename:="Batang";
```



# jieub-do.mp

```
1 %  
2 % Jieubsida Dodum  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30
```

## Jieubsida Dodum

```
31 % JIEUBSIDA DODUM  
32  
33 input tsuku-kg.mp;  
34  
35 stylename:="Dodum";
```

# jieub-sm.mp

```
1 %  
2 % Jieubsida Sun-Moon  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 % JIEUBSIDA Sun-Moon  
32  
33 input tsuku-bk.mp;  
34  
35 stylename:="Sun-Moon";
```

# hglpage.mp

```
1 %
2 % Generic Unicode page (precomposed hangul syllables) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 inclusion_lock(hglpage);
32
33 _____
34
35 beginfont
36
37 % AUTODEPS
38 input buildkanji.mp;
39 input hangul.mp;
40
41 % non-auto dep (accessed through code table)
42 input jamo-basic.mp;
43
44 string hexdigit[];
45
46 hexdigit[0]="0";hexdigit[1]="1";hexdigit[2]="2";hexdigit[3]="3";
47 hexdigit[4]="4";hexdigit[5]="5";hexdigit[6]="6";hexdigit[7]="7";
48 hexdigit[8]="8";hexdigit[9]="9";hexdigit[10]="A";hexdigit[11]="B";
49 hexdigit[12]="C";hexdigit[13]="D";hexdigit[14]="E";hexdigit[15]="F";
50
51 for i:=0 upto 255:
52   begint Suglyph("uni" & hgls_page
53     & hexdigit[floor(i/16)] & hexdigit[i mod 16],i);
54   message "uni" & hgls_page
55     & hexdigit[floor(i/16)] & hexdigit[i mod 16];
56     hangul.combine.syllable(100+hgls_lead,300+hgls_vowel,500+hgls_tail)
57     (300+hgls_vowel,identity,identity);
58   tsu_render;
59   endtsuglyph;
60   hgls_tail:=hgls_tail+1;
61   if hgls_tail>=28:
62     hgls_tail:=0;
63     hgls_vowel:=hgls_vowel+1;
64     if hgls_vowel>=21:
65       hgls_vowel:=0;
66       hgls_lead:=hgls_lead+1;
67       exitif hgls_lead>=19;
68   fi;
69 fi;
70 endfor;
```

71

72

---

73

74 **endfont;**

75

76

---

# jieub-11.mp

```
1 %
2 % Unicode page 11 (Hangul Jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

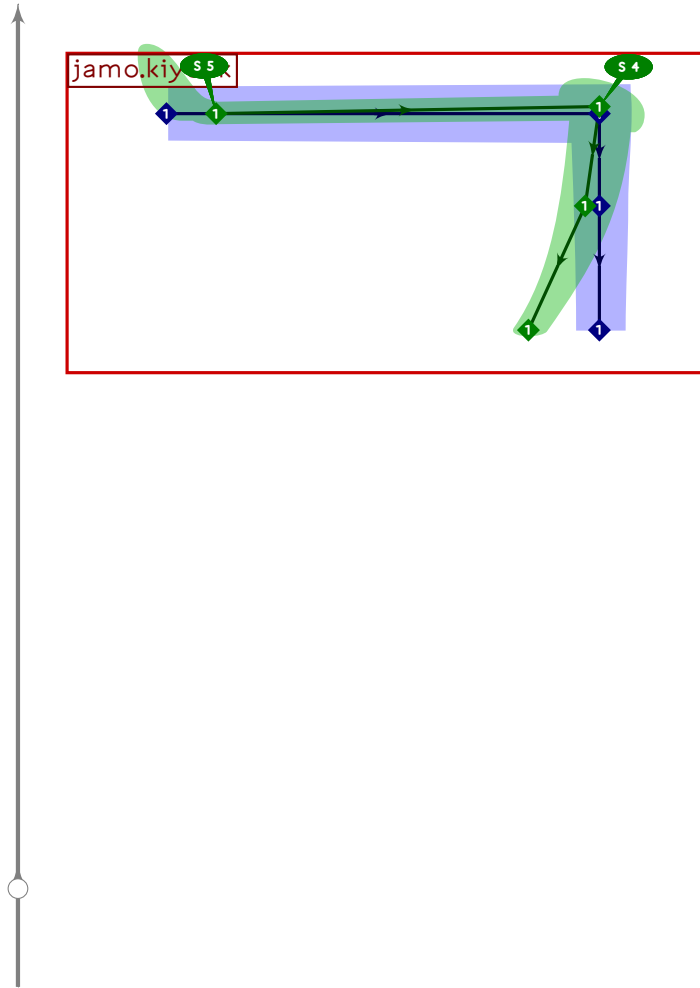

41
42 % This file covers the basic layout (layout 0): a lead, a vowel that may
43 % go both vertically and horizontally, and a non-empty tail. All jamo are
44 % defined for this layout. Other files (in private-use plane 15) define
45 % versions of some jamo for other layouts; the idea is that the jamo here
46 % are defaults, and an OpenType feature can substitute the others (or entire
47 % precomposed syllables) to improve the layout where applicable.
48
49 transform lixf,loxf,vixf,tvixf,voxf,tixf,toxf;
50
51 lixf=loxf=hxf((50,850),(700,525));
52 vixf=hxf((700,475),(950,250));
53 tvixf=hxf((700,535),(950,240));
54 voxf=hxf((50,850),(950,250));
55 tixf=hxf((100+20*mincho,275),(900-20*mincho,-50)) shifted (-1000,0);
56 toxf=hxf((50,275),(950,-50)) shifted (-1000,0);
57
58 

---


59
```

## Hangul Choseong (Lead) Jamo

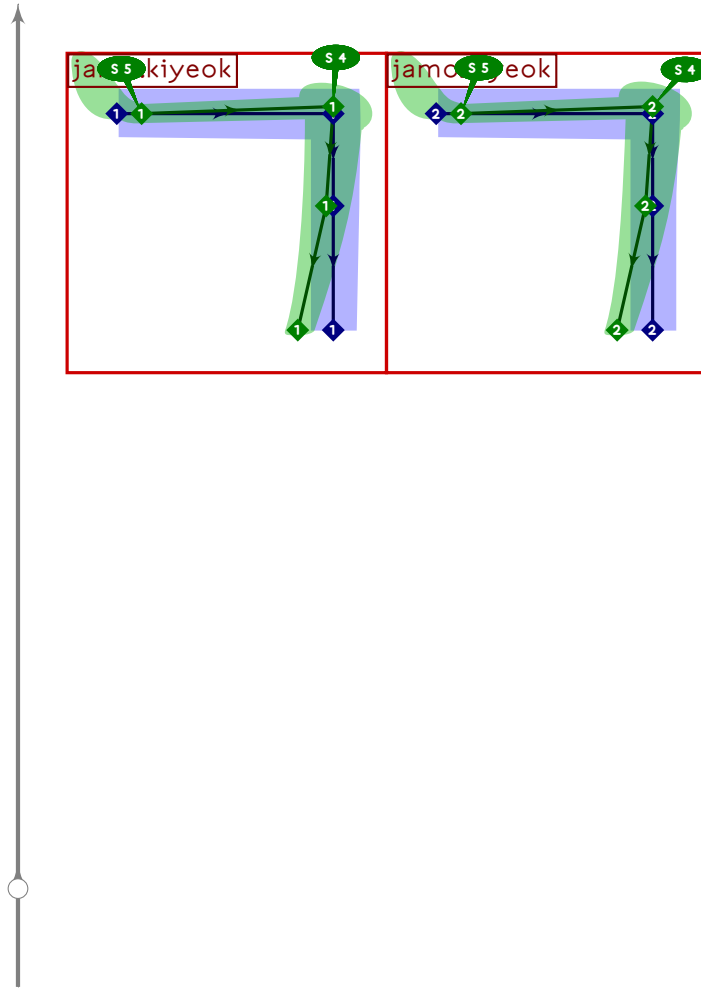
```
60 % HANGUL CHOSEONG (LEAD) JAMO
61
62 tsu_rescale_native_zero;
63
```



```

64 % hangul lead kiyeok
65 begint Suglyph("uni1100",0);
66 hangul,jamo.kiyeok(whatever,lixf,loxf);
67 tsu_render;
68 endtsuglyph;
69

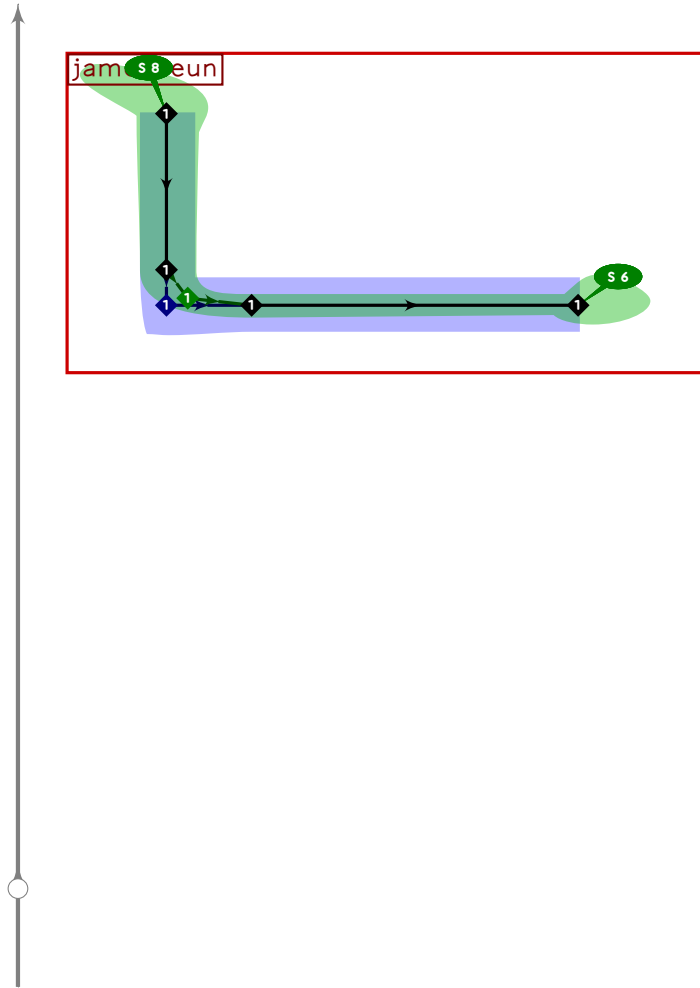
```



```

70 % hangul lead ssangkiyeok
71 begint Suglyph("uni1101";1);
72 hangul.combine.lr(100,100)(whatever,lixf,loxf);
73 tsu_render;
74 endtsuglyph;
75

```

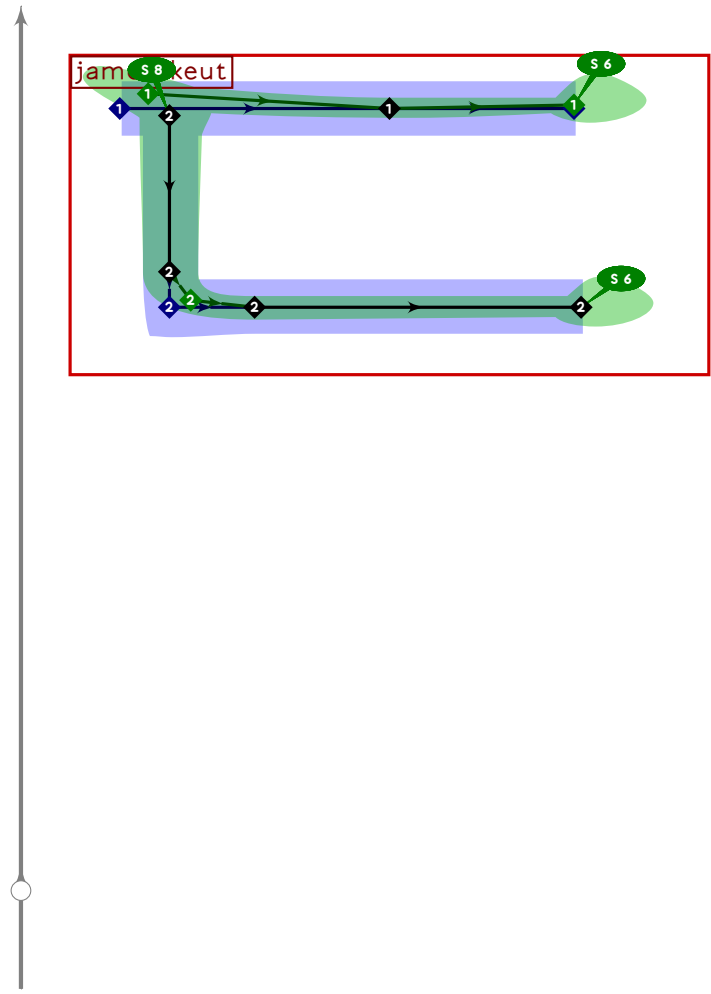


```

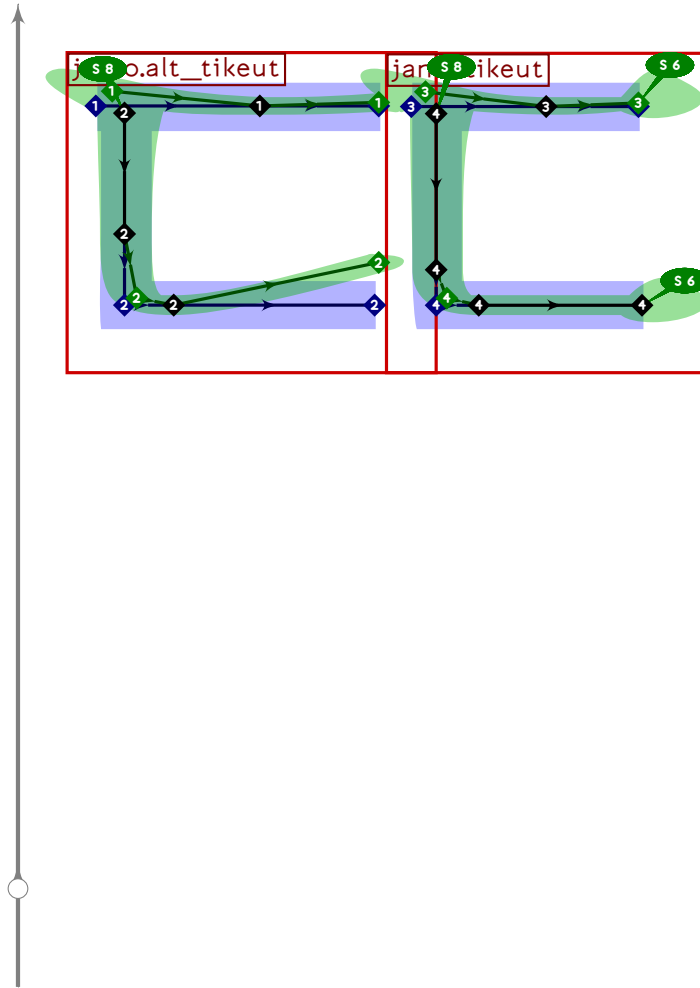
76 % hangul lead nieun
77 begint Suglyph("uni1102",2);
78 hangul,jamo.nieun(whatever,lixf,loxf);
79 tsu_render;
80 endtsuglyph;
81

```





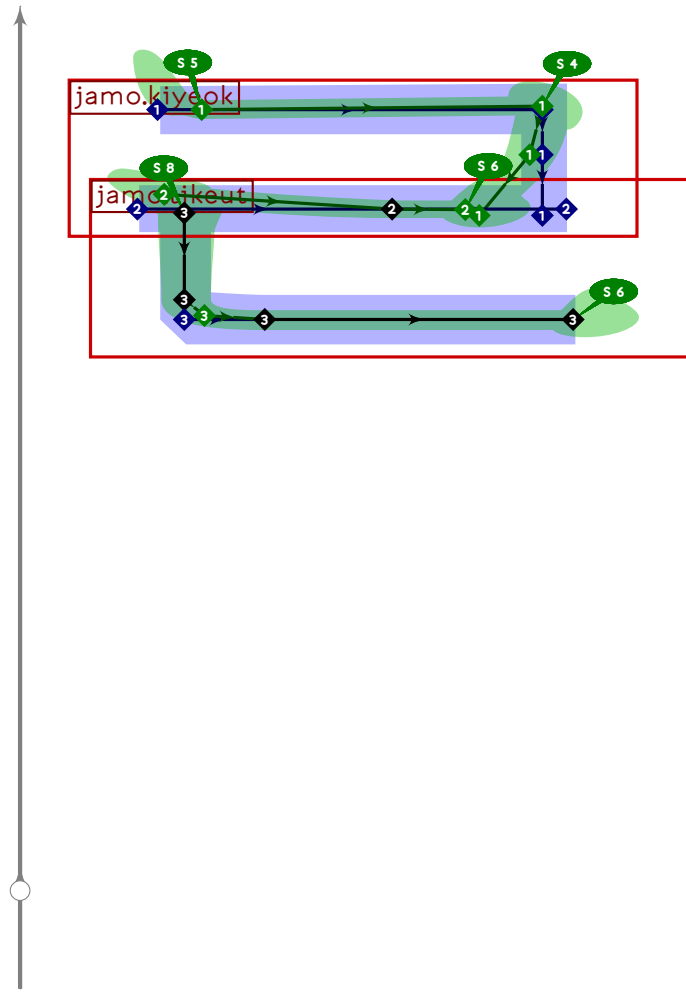
```
82 % hangul lead tikeut
83 begint Suglyph("uni1103";3);
84 hangul.jamo.tikeut(whatever,lixf,loxf);
85 tsu_render;
86 endtsuglyph;
87
```



```

88 % hangul lead ssangtikeut
89 begintuglyph("uni1104";4);
90 hangul.combine.lr(203,103)(whatever,lixf,loxf);
91 tsu_render;
92 endtsuglyph;
93

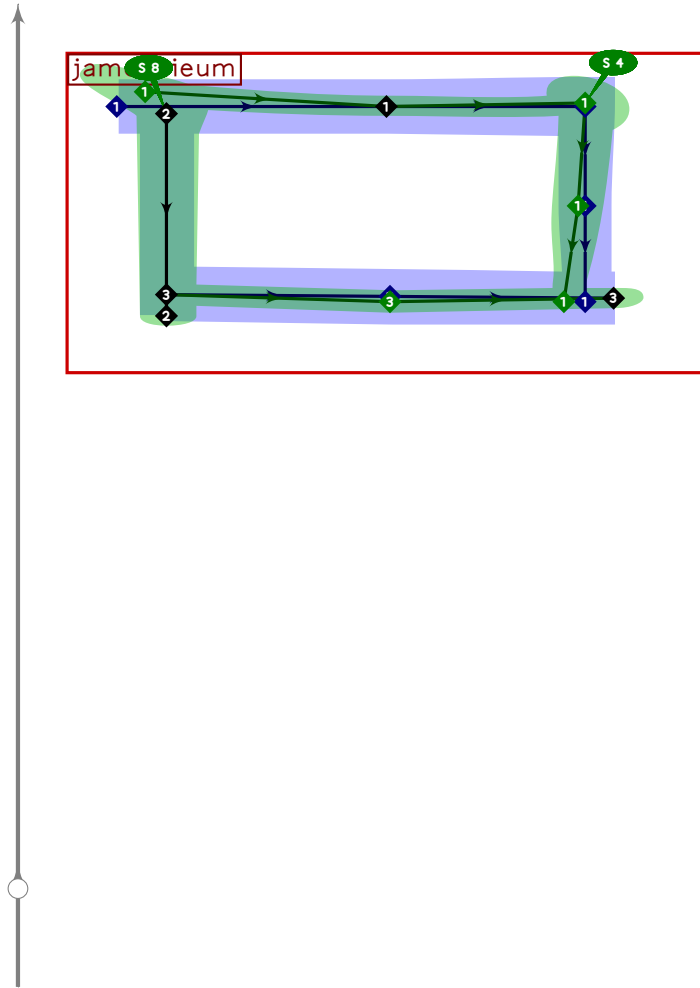
```



```

94 % hangul lead rieul
95 begint Suglyph("uni1105",5);
96 hangul.jamo.rieul(whatever,lixf,loxf);
97 tsu_render;
98 endtsuglyph;
99

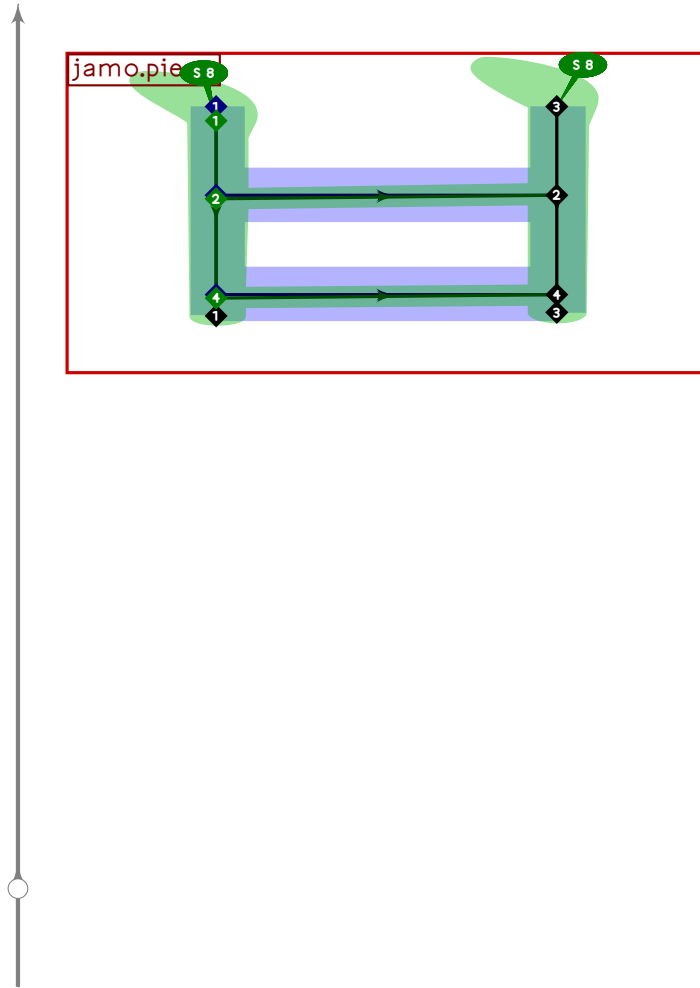
```



```

100 % hangul lead mieum
101 begintsuglyph("uni1106",6);
102 hangul,jamo.mieum(whatever,lixf,loxf);
103 tsu_render;
104 endtsuglyph;
105

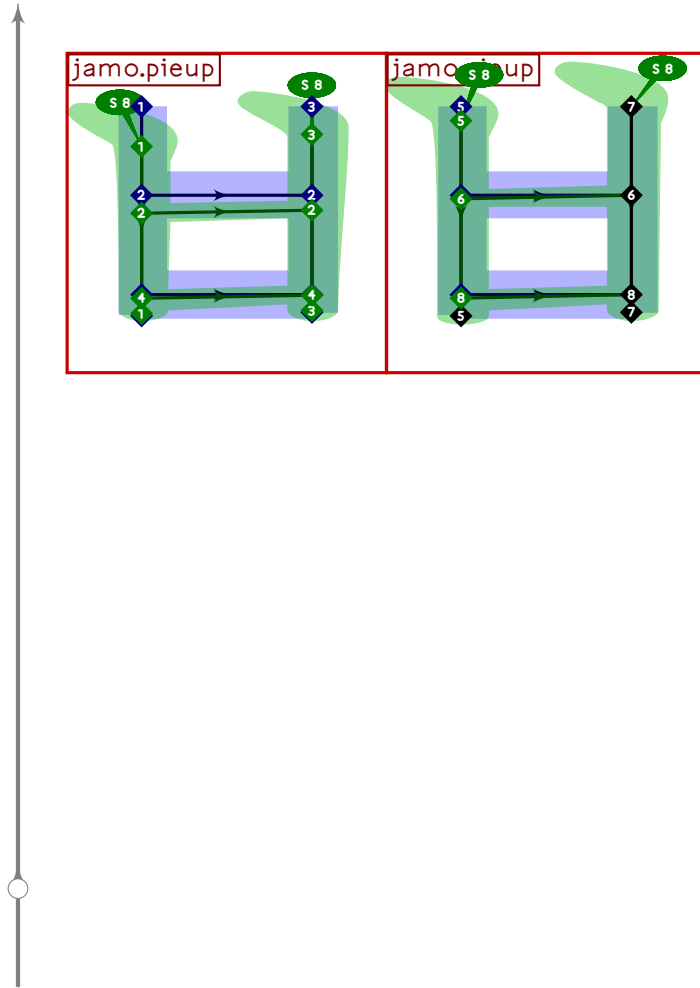
```



```

106 % hangul lead pieup
107 begint Suglyph("uni1107",7);
108 hangul.jamo.pieup(whatever,lixf,loxf);
109 tsu_render;
110 endtsuglyph;
111

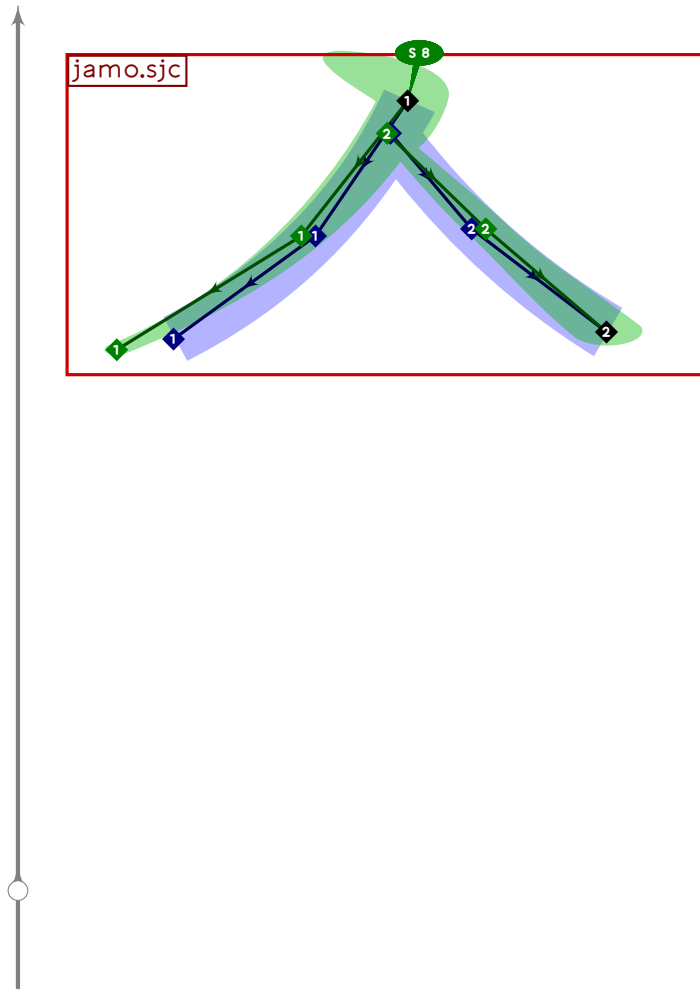
```



```

112 % hangul lead ssangpieup
113 begint Suglyph("uni1108",8);
114 hangul.combine.lr(207,107)(whatever,lixf,loxf);
115 tsu_render;
116 endtsuglyph;
117

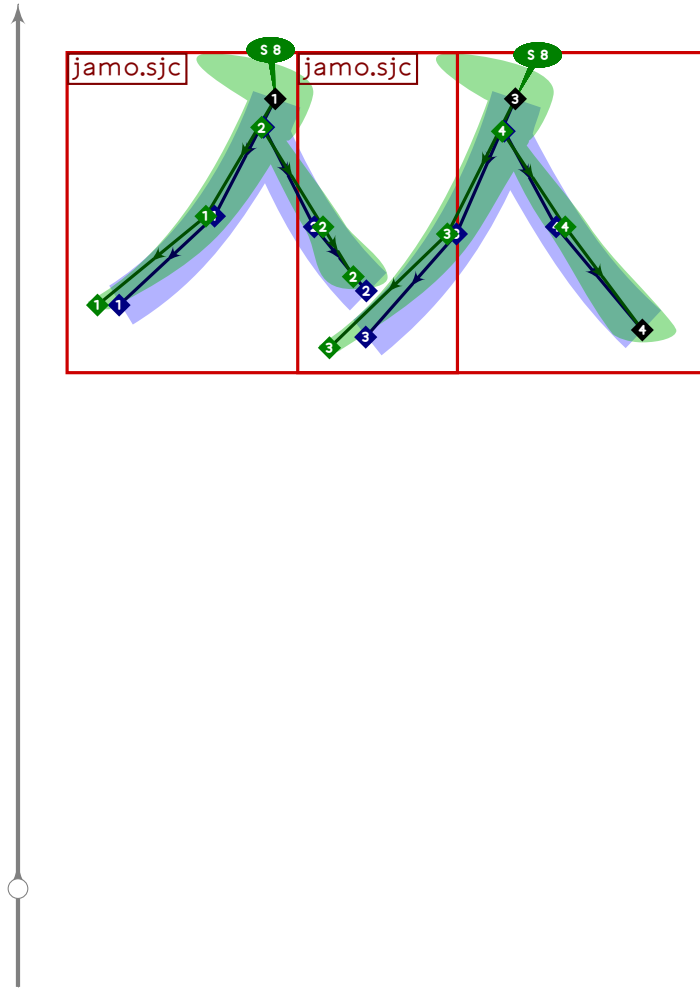
```



```

118 % hangul lead sios
119 begintsuglyph("uni1109";9);
120 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
121 tsu_render;
122 endtsuglyph;
123

```

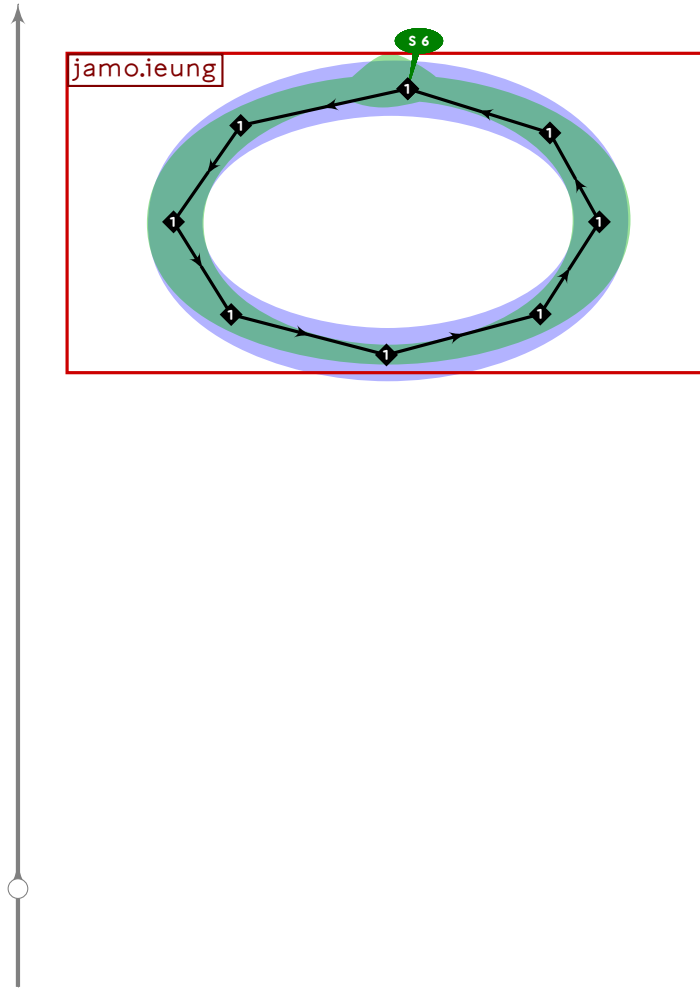


```

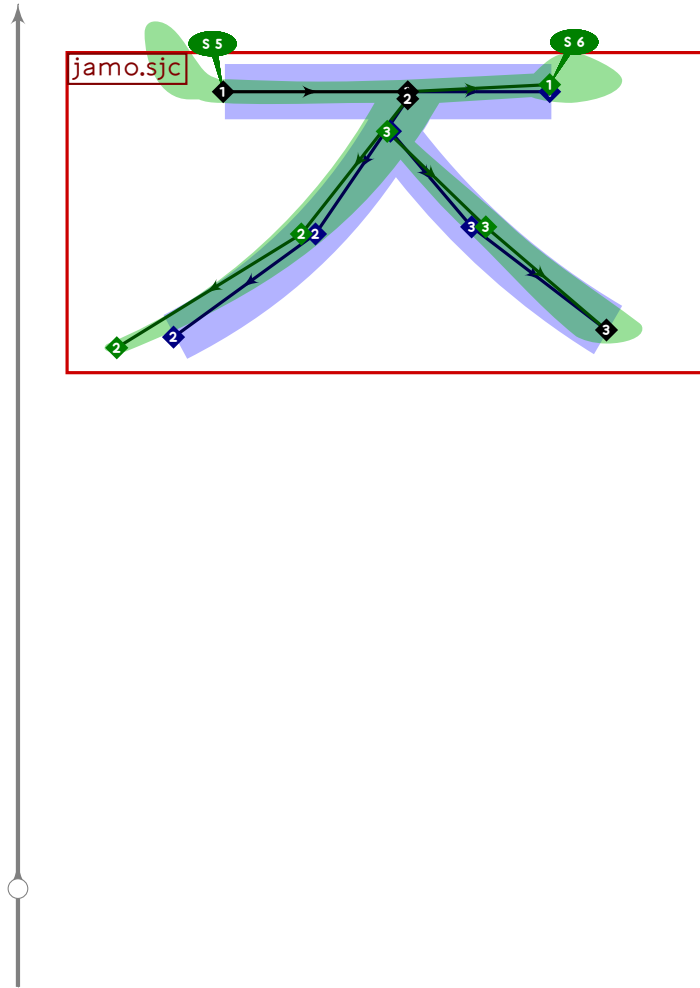
124 % hangul lead ssangsios
125 begint Suglyph("uni110A",10);
126 hangul.combine.lr(209,109)(whatever,lixf,loxf);
127 tsu_render;
128 endtsuglyph;
129

```





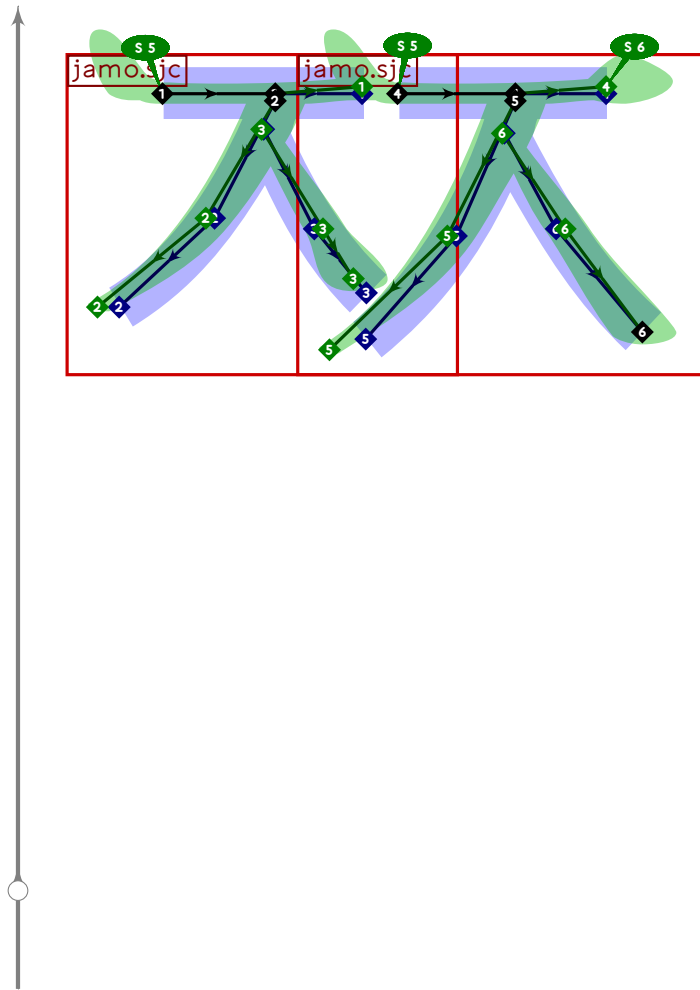
```
130 % hangul lead ieung
131 begintsuglyph("uni110B",11);
132 hangul,jamo.ieung(whatever,lixf,loxf);
133 tsu_render;
134 endtsuglyph;
135
```



```

136 % hangul lead cieuc
137 begint Suglyph("uni110C",12);
138 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
139 tsu_render;
140 endtsuglyph;
141

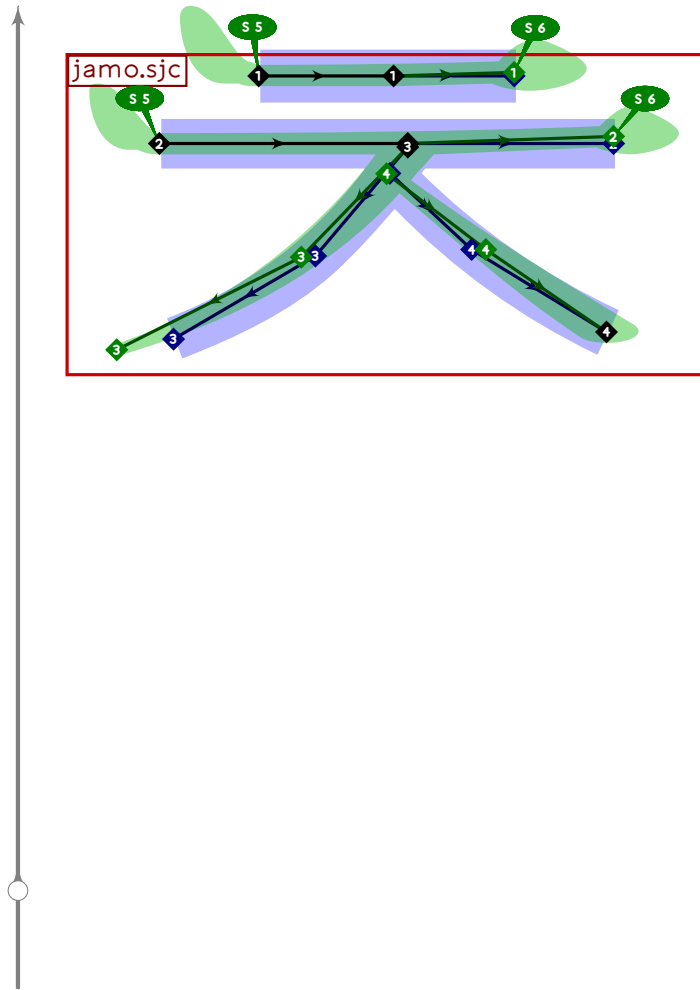
```



```

142 % hangul lead ssangcieuc
143 begint Suglyph("uni110D",13);
144 hangul.combine.lr(212,112)(whatever,lixf,loxf);
145 tsu_render;
146 endtsuglyph;
147

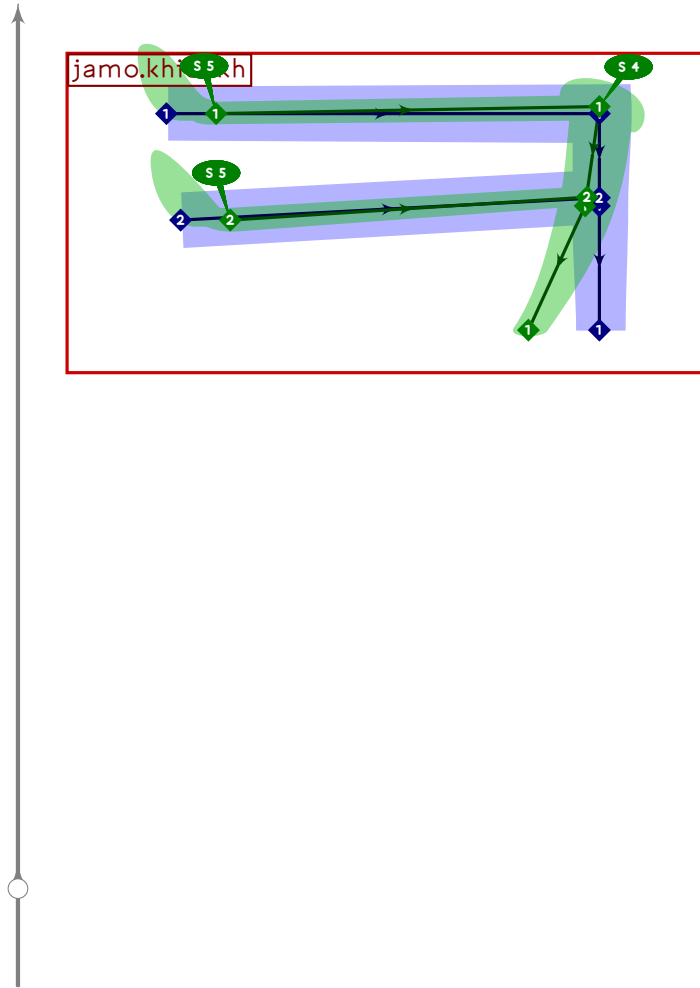
```



```

148 % hangul lead chieuch
149 begintsuglyph("uni110E",14);
150 hangul,jamo.sjc(2,0,false)(whatever,lixf,loxf);
151 tsu_render;
152 endtsuglyph;
153

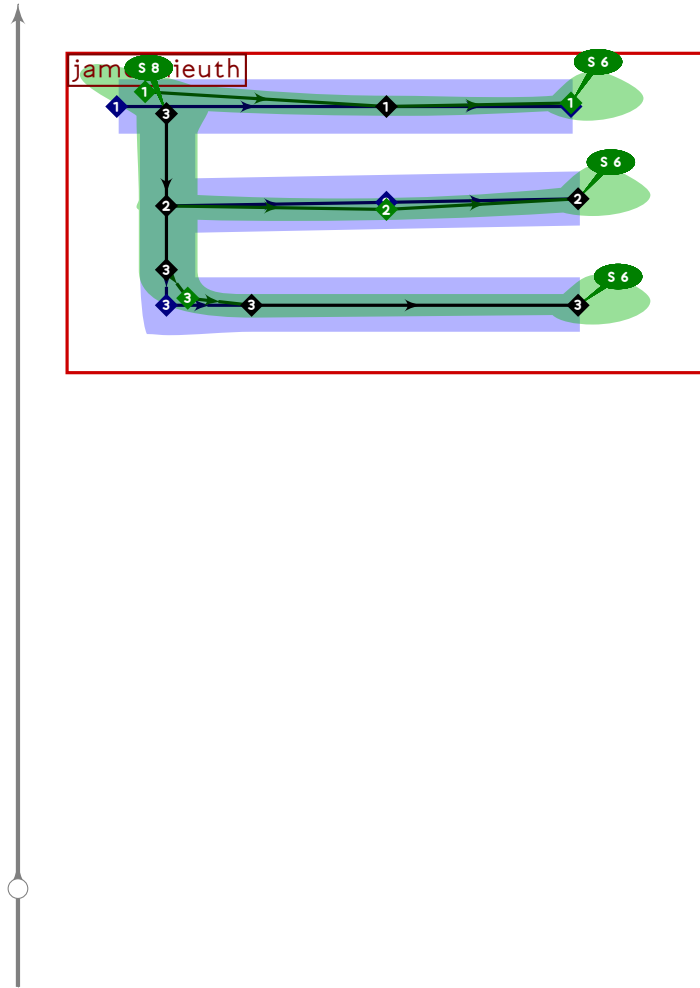
```



```

154 % hangul lead khieukh
155 begint Suglyph("uni110F",15);
156 hangul,jamo.khieukh(whatever,lixf,loxf);
157 tsu_render;
158 endtsuglyph;
159

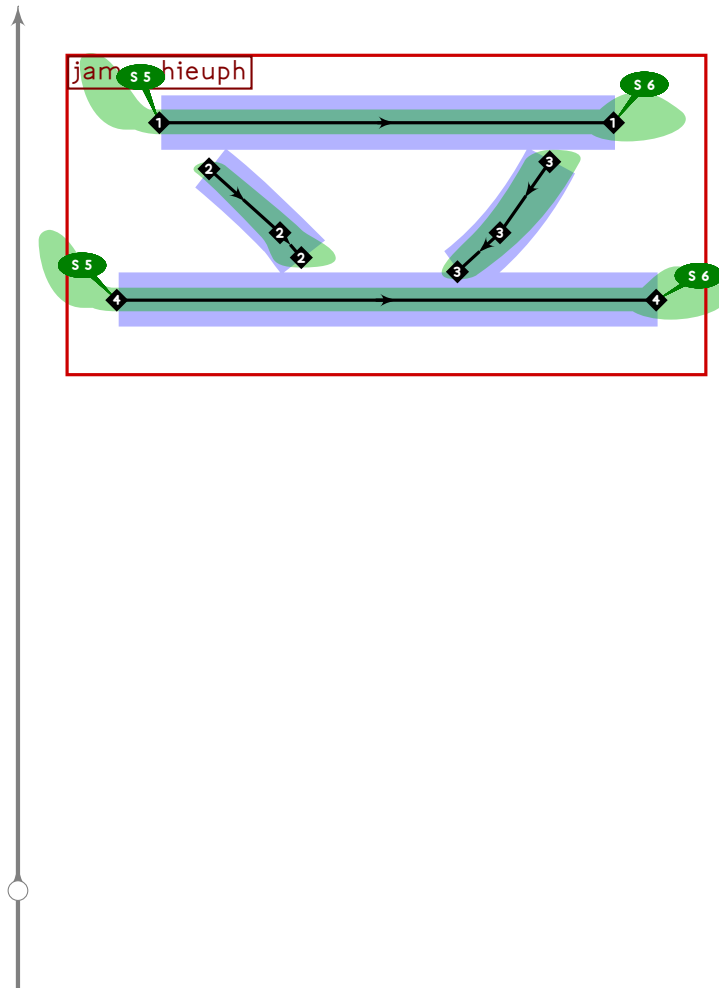
```



```

160 % hangul lead thieuth
161 begintuglyph("uni1110",16);
162 hangul.jamo.thieuth(whatever,lixf,loxf);
163 tsu_render;
164 endtuglyph;
165

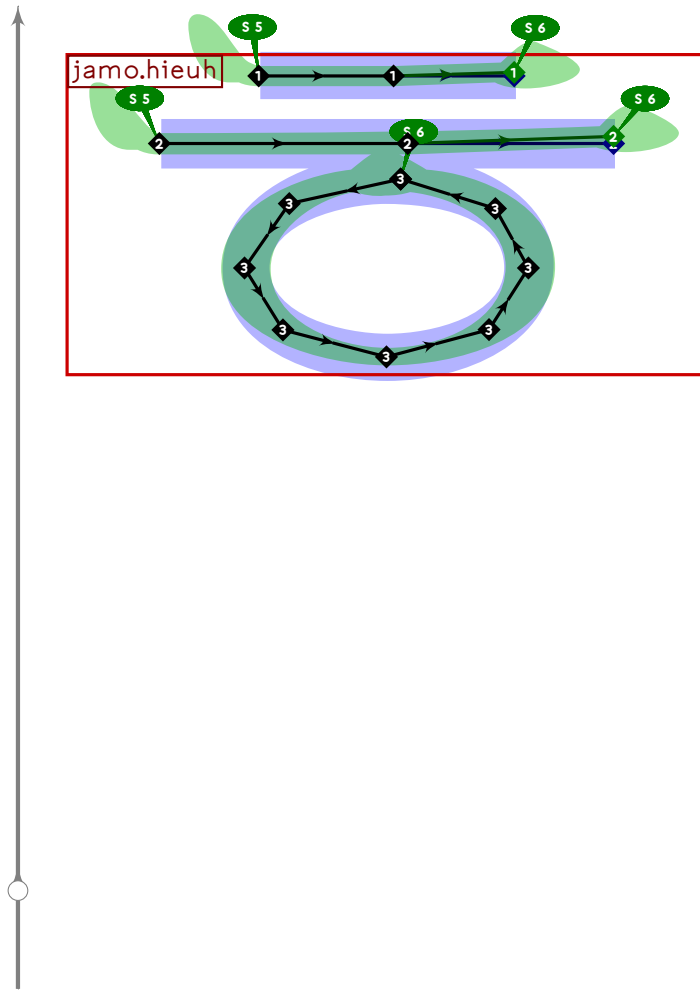
```



```

166 % hangul lead phieuph
167 begintsuglyph("uni1111",17);
168 hangul,jamo.phieuph(whatever,lixf,loxf);
169 tsu_render;
170 endtsuglyph;
171

```

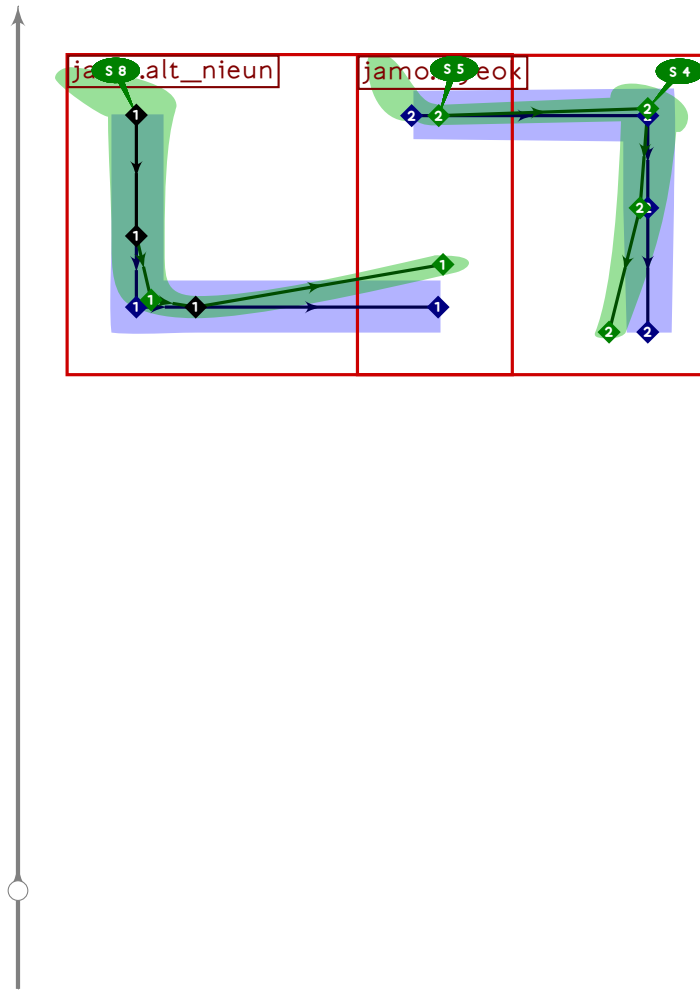


```

172 % hangul lead hieuh
173 begintsuglyph("uni1112";18);
174 hangul,jamo.hieuh(whatever,lixf,loxf);
175 tsu_render;
176 endtsuglyph;
177

```

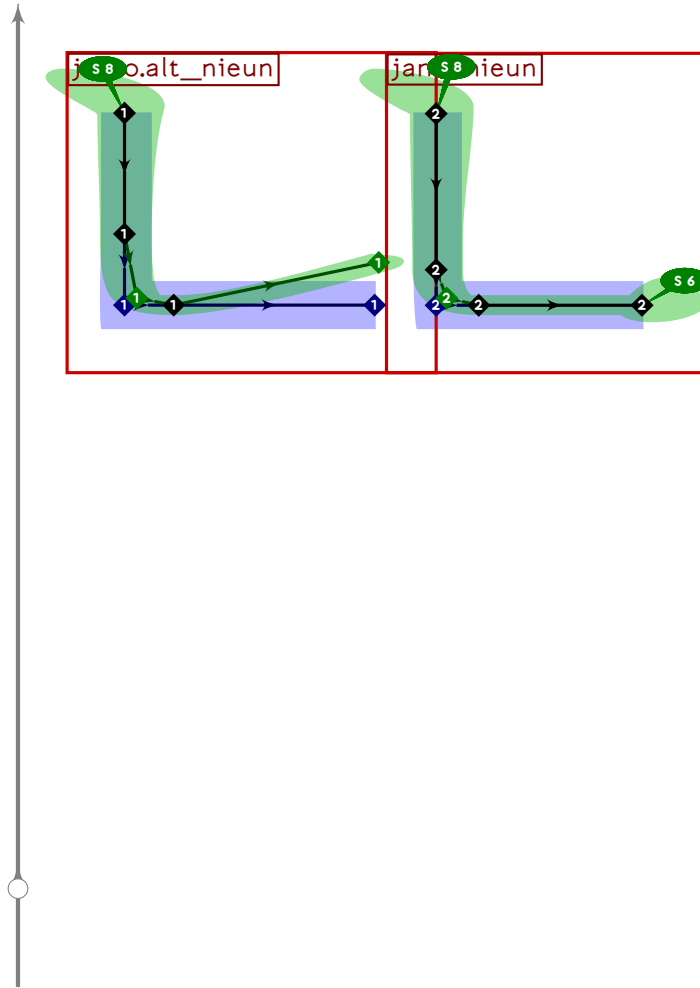




```

178 % hangul lead nieun-kiyeok
179 begintsuglyph("uni1113";19);
180 hangul.combine.lr(202,100)(whatever,lixf,loxf);
181 tsu_render;
182 endtsuglyph;
183

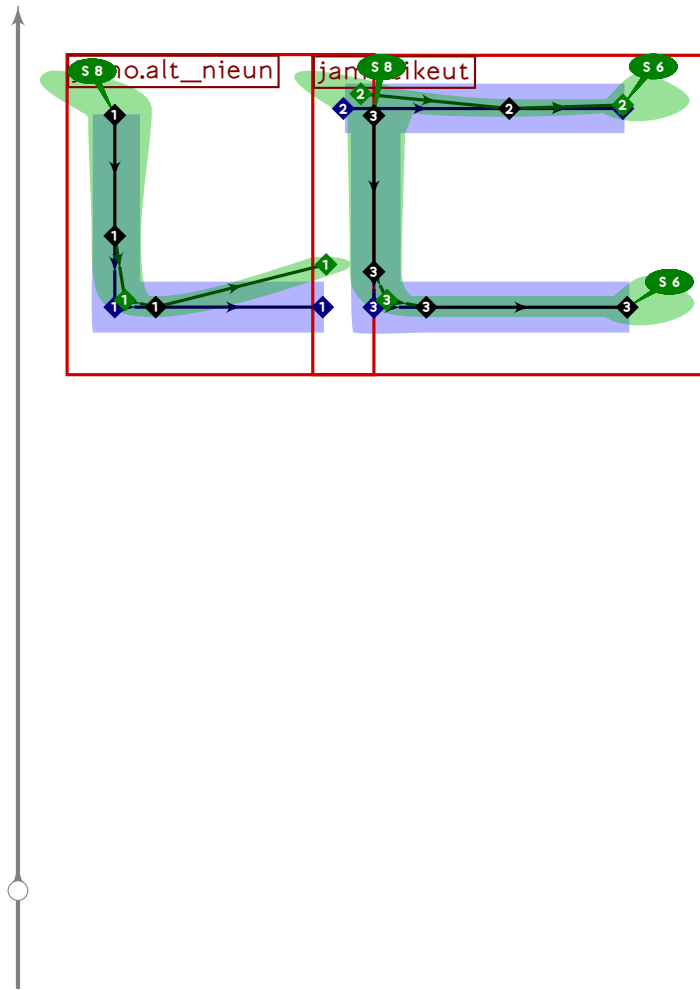
```



```

184 % hangul lead ssangnieun
185 begintsuglyph("uni1114";20);
186 hangul.combine.lr(202,102)(whatever,lixf,loxf);
187 tsu_render;
188 endtsuglyph;
189

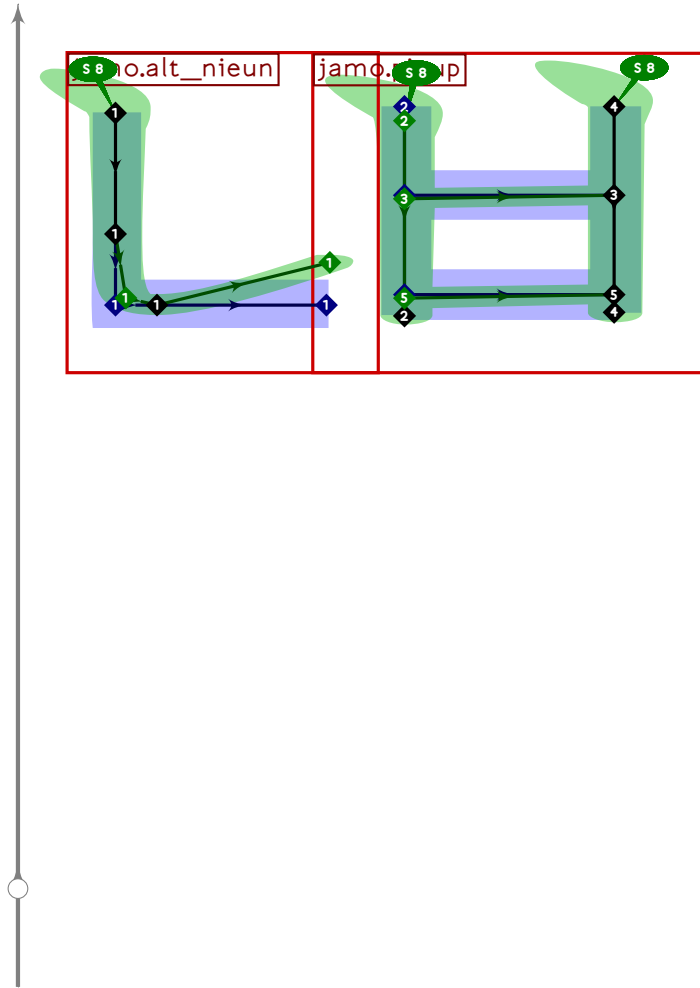
```



```

190 % hangul lead nieun-tikeut
191 begintsuglyph("uni1115",21);
192 hangul.combine.lr(202,103)(whatever,lixf,loxf);
193 tsu_render;
194 endtsuglyph;
195

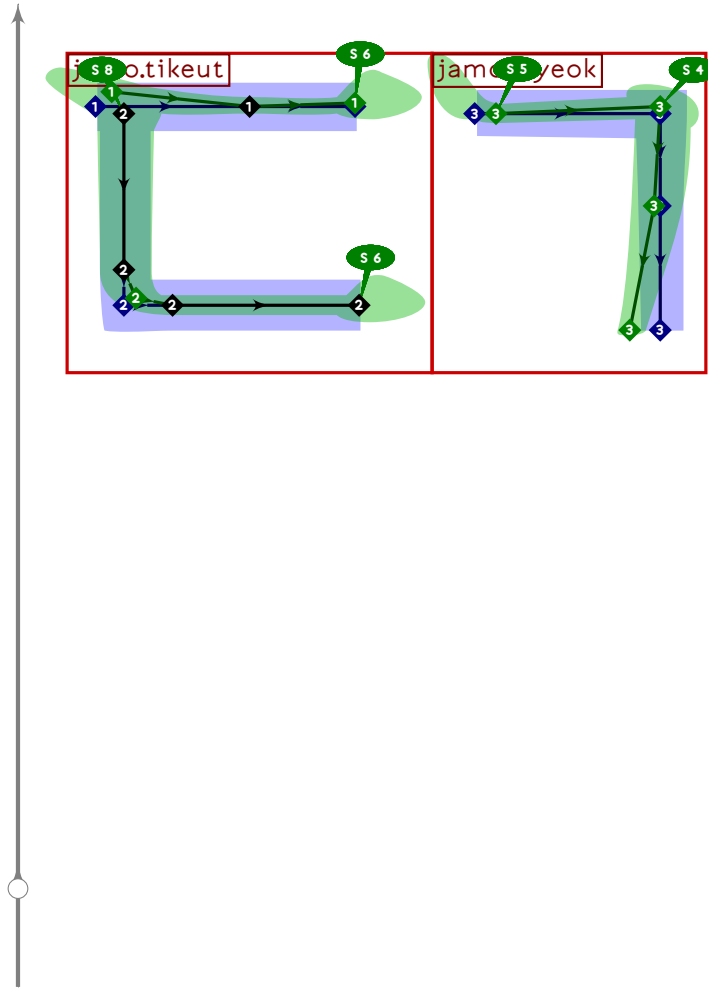
```



```

196 % hangul lead nieun-pieup
197 begintsuglyph("uni1116",22);
198 hangul.combine.lr(202,107)(whatever,lixf,loxf);
199 tsu_render;
200 endtsuglyph;
201

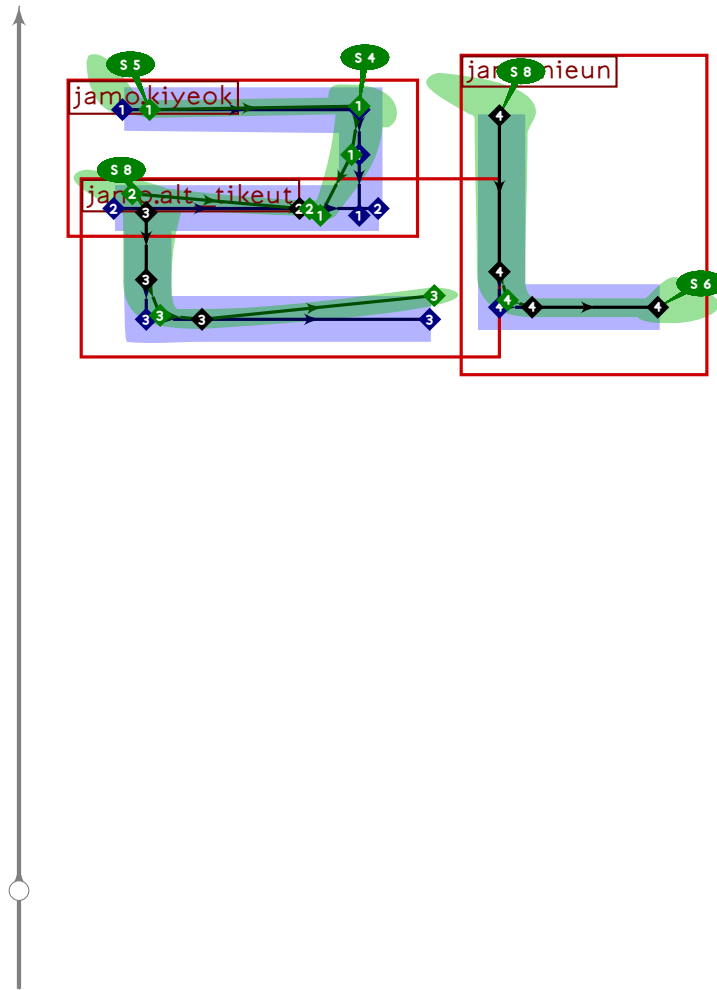
```



```

202 % hangul lead tikeut-kiyeok
203 begintsuglyph("uni1117";23);
204 hangul.combine.lr(103,100)(whatever,lixf,loxf);
205 tsu_render;
206 endtsuglyph;
207

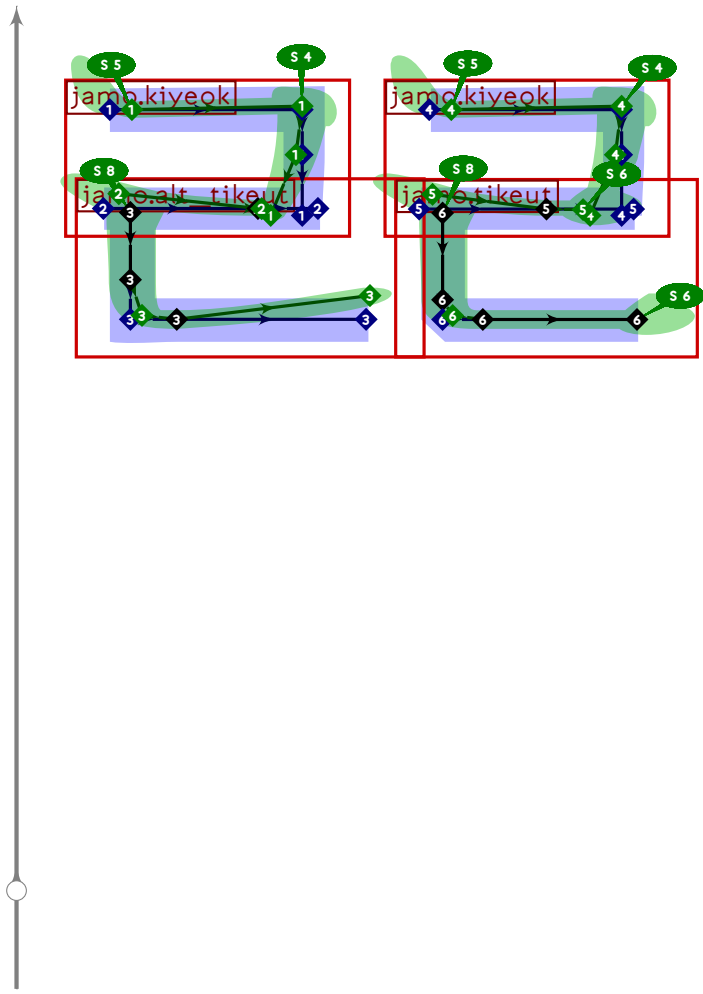
```



```

208 % hangul lead rioul-nieun
209 begintsuglyph("uni1118";24);
210 hangul.combine.lr(205,102)(whatever,lixf,loxf);
211 tsu_render;
212 endtsuglyph;
213

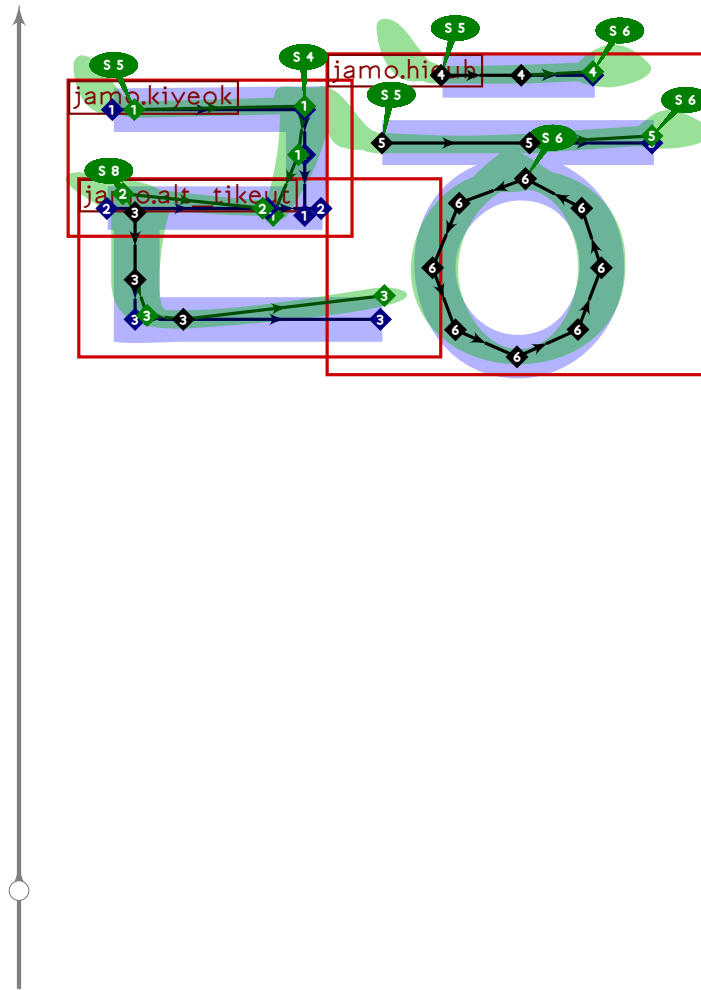
```



```

214 % hangul lead ssangrieul
215 begintsuglyph("uni1119",25);
216 hangul.combine.lr(205,105)(whatever,lixf,loxf);
217 tsu_render;
218 endtsuglyph;
219

```

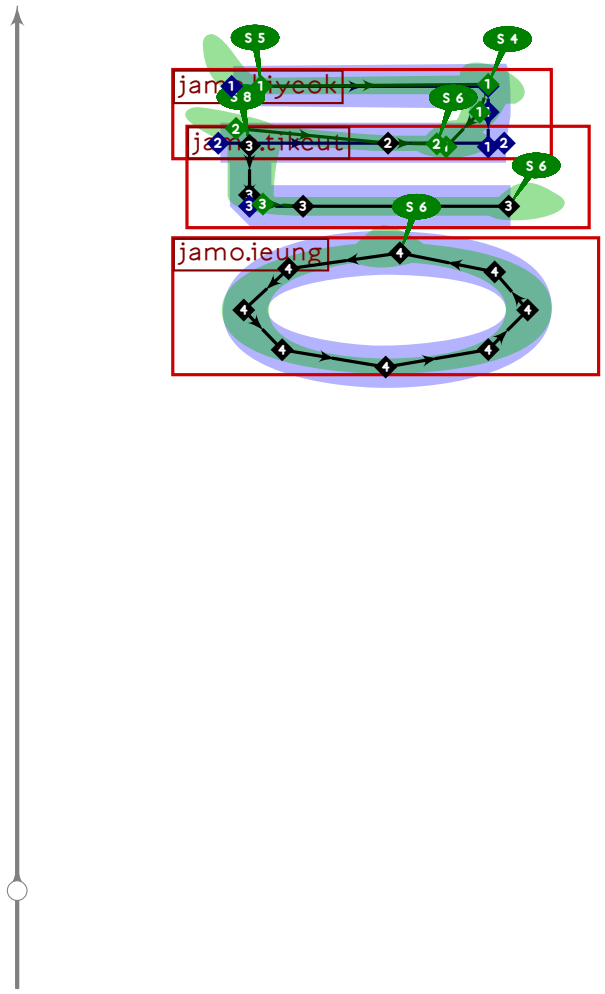


```

220 % hangul lead rieul-hieuh
221 begintsuglyph("uni111A",26);
222 hangul.combine.lr(205,118)(whatever,lixf,loxf);
223 tsu_render;
224 endtsuglyph;
225

```

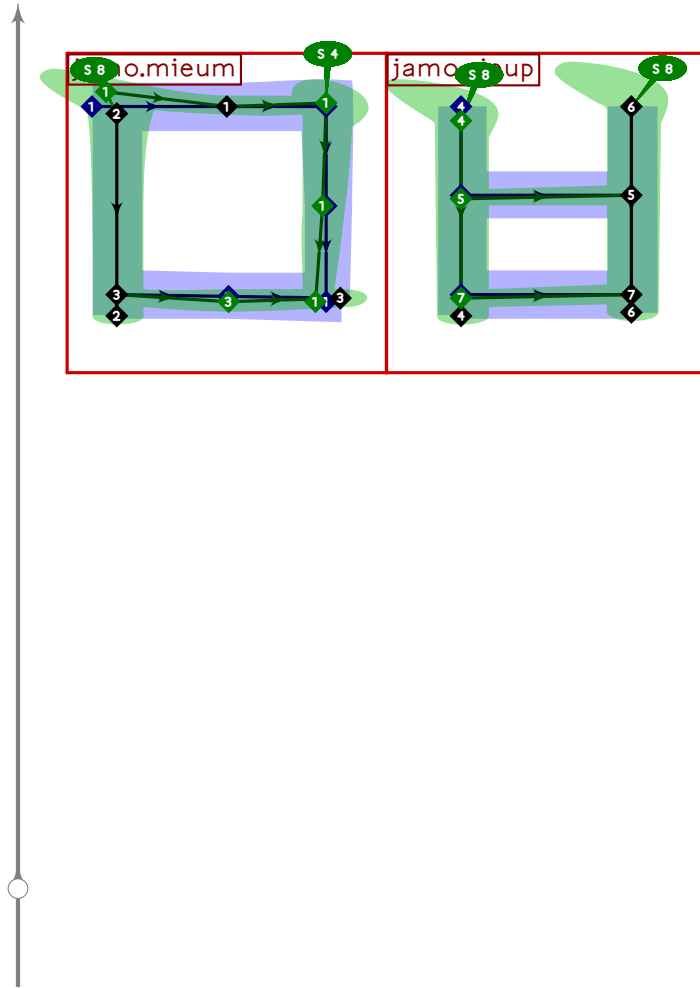




```

226 % hangul lead kapyounrieul
227 begintsuglyph("uni111B",27);
228 hangul.combine.tb(105,521)(whatever,
229   hxf((200,850),(800,-50)) transformed lixf,loxf);
230 tsu_render;
231 endtsuglyph;
232

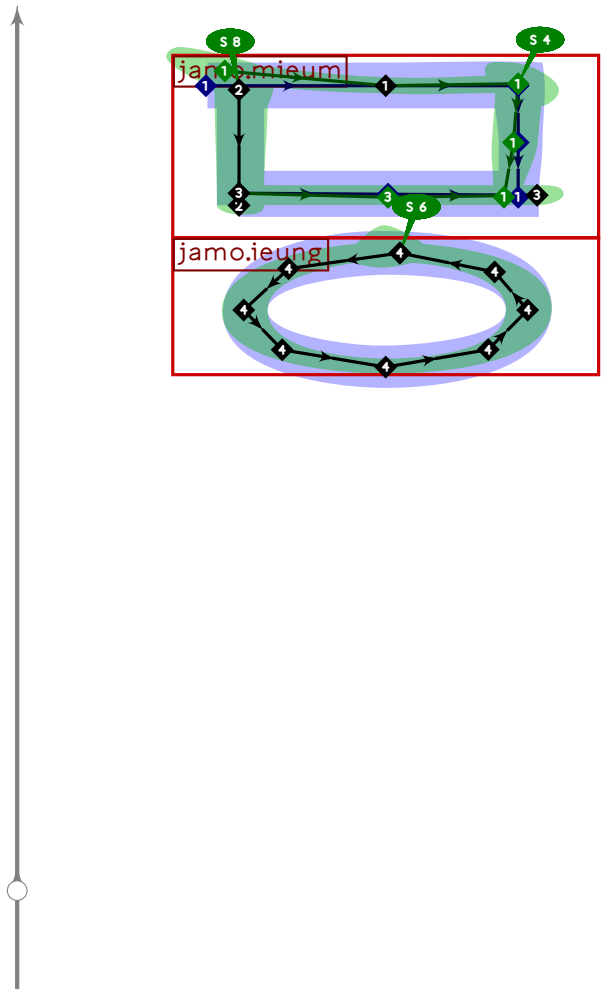
```



```

233 % hangul lead mieum-pieup
234 begintsuglyph("uni111C";28);
235 hangul.combine.lr(106,107)(whatever,lixf,loxf);
236 tsu_render;
237 endtsuglyph;
238

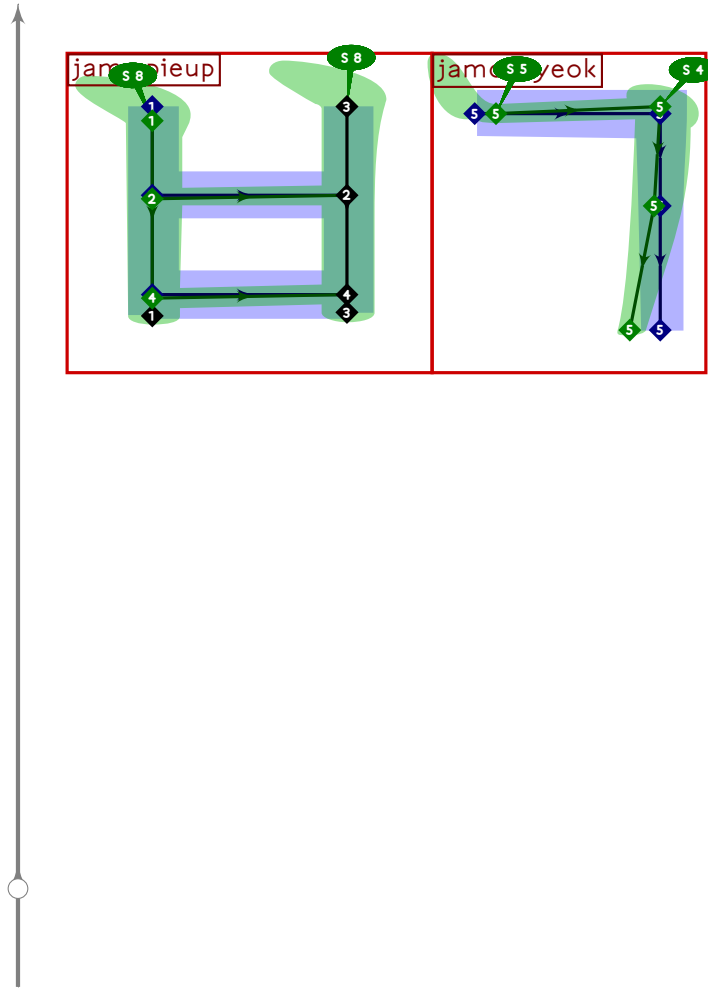
```



```

239 % hangul lead kapyeounmieum
240 begintsuglyph("uni111D";29);
241 hangul.combine.tb(106,521)(whatever,
242   hxf((200,850),(800,-50)) transformed lixf,loxf);
243 tsu_render;
244 endtsuglyph;
245

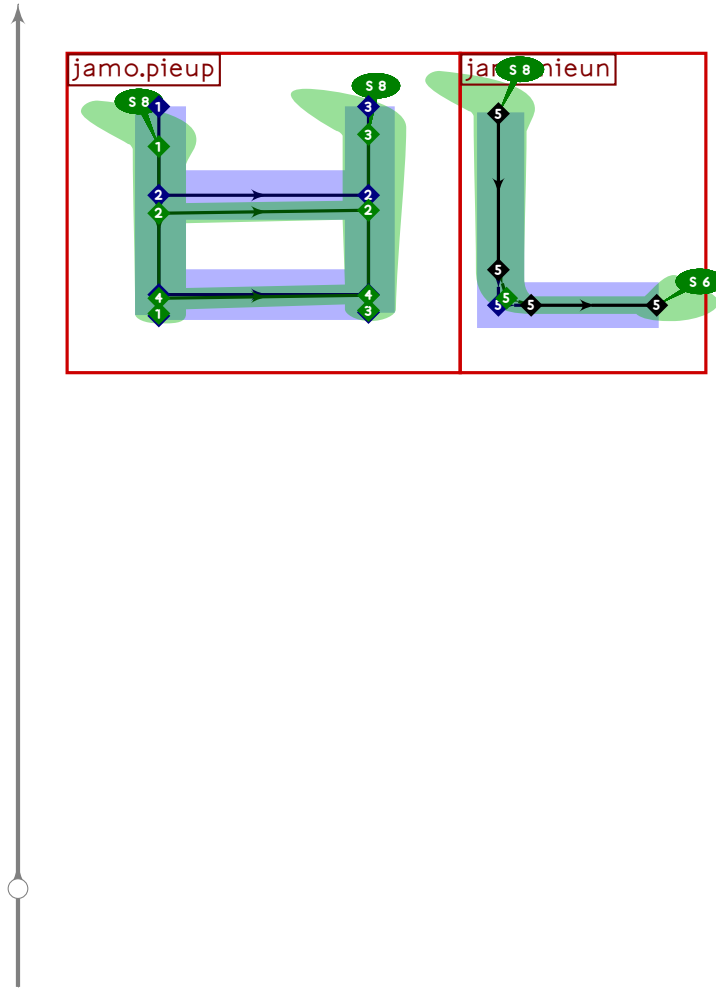
```



```

246 % hangul lead pieup-kiyeok
247 begintsuglyph("uni111E";30);
248 hangul.combine.lr(107,100)(whatever,lixf,loxf);
249 tsu_render;
250 endtsuglyph;
251

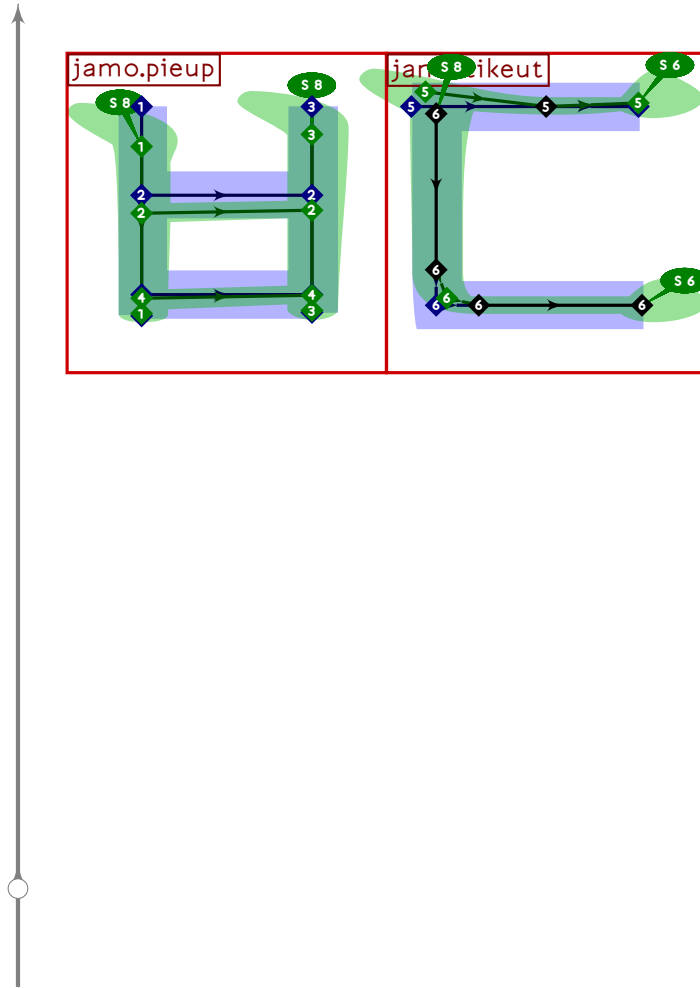
```



```

252 % hangul lead pieup-nieun
253 begintsuglyph("uni111F";31);
254 hangul.combine.lr(207,102)(whatever,lixf,loxf);
255 tsu_render;
256 endtsuglyph;
257

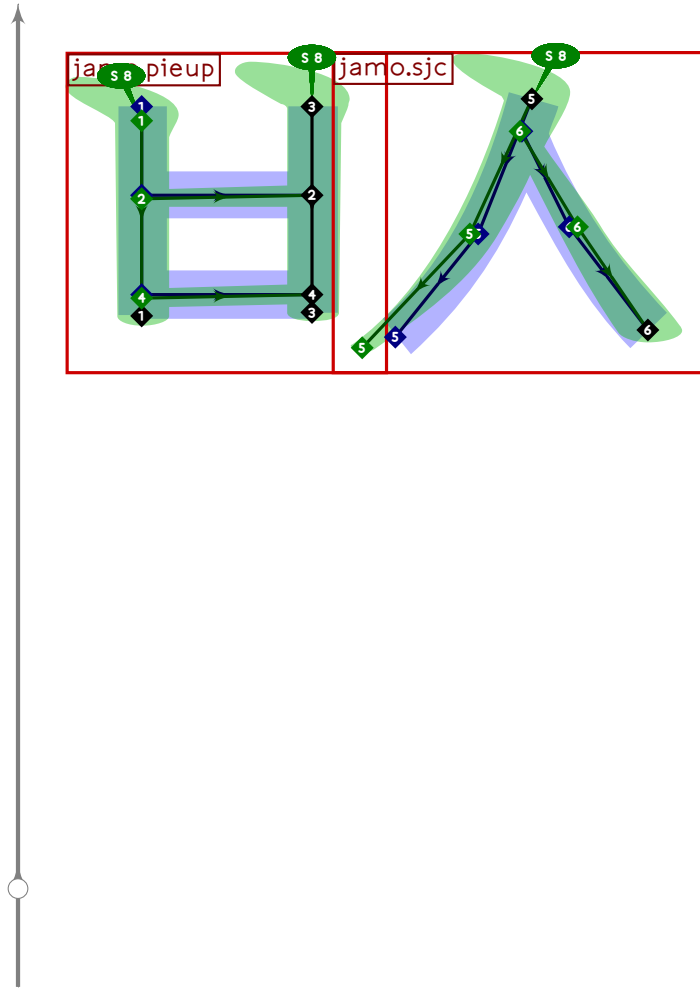
```



```

258 % hangul lead pieup-tikeut
259 begintsuglyph("uni1120",32);
260 hangul.combine.lr(207,103)(whatever,lixf,loxf);
261 tsu_render;
262 endtsuglyph;
263

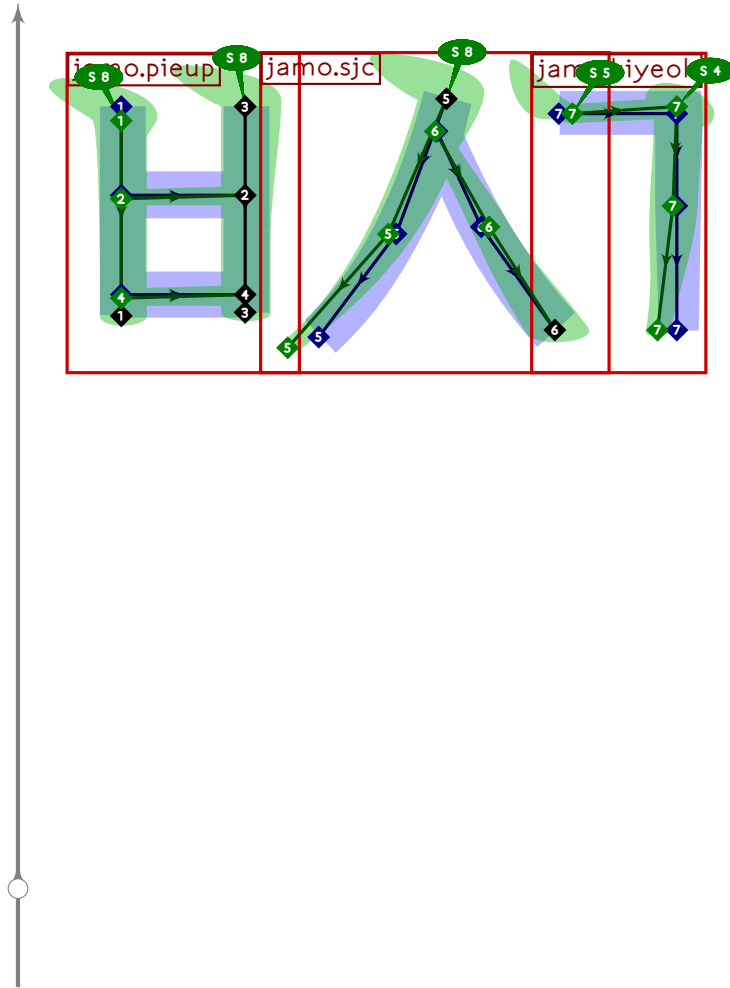
```



```

264 % hangul lead pieup-sios
265 begintsuglyph("uni1121",33);
266 hangul.combine.lr(107,109)(whatever,lixf,loxf);
267 tsu_render;
268 endtsuglyph;
269

```

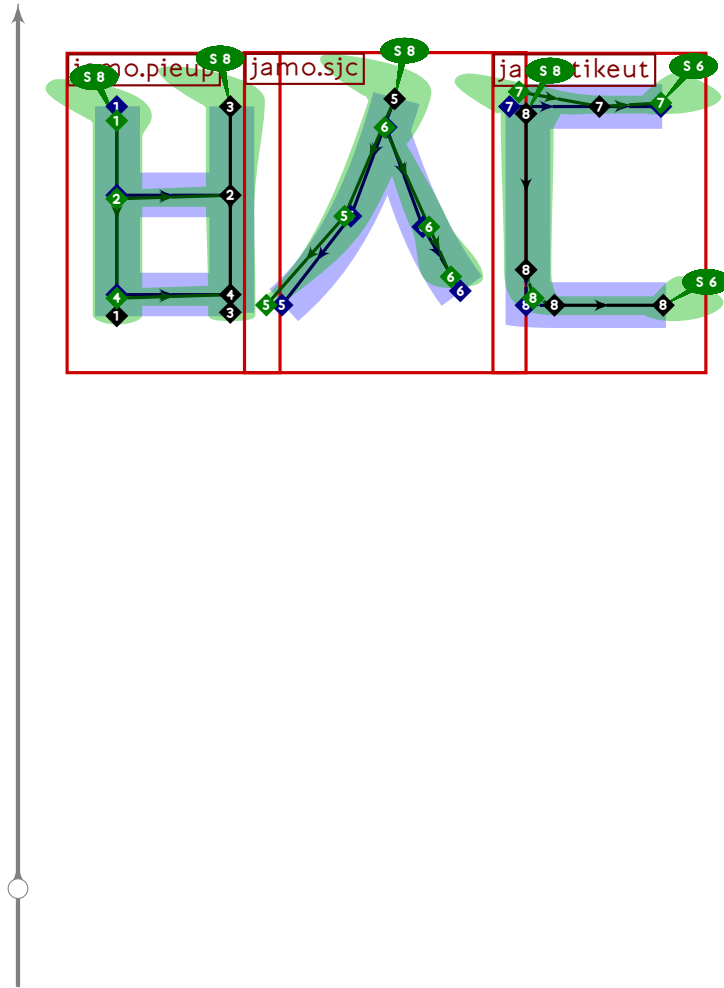


```

270 % hangul lead pieup-sios-kiyeok
271 begintsuglyph("uni1122",34);
272 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
273 tsu_render;
274 endtsuglyph;
275

```

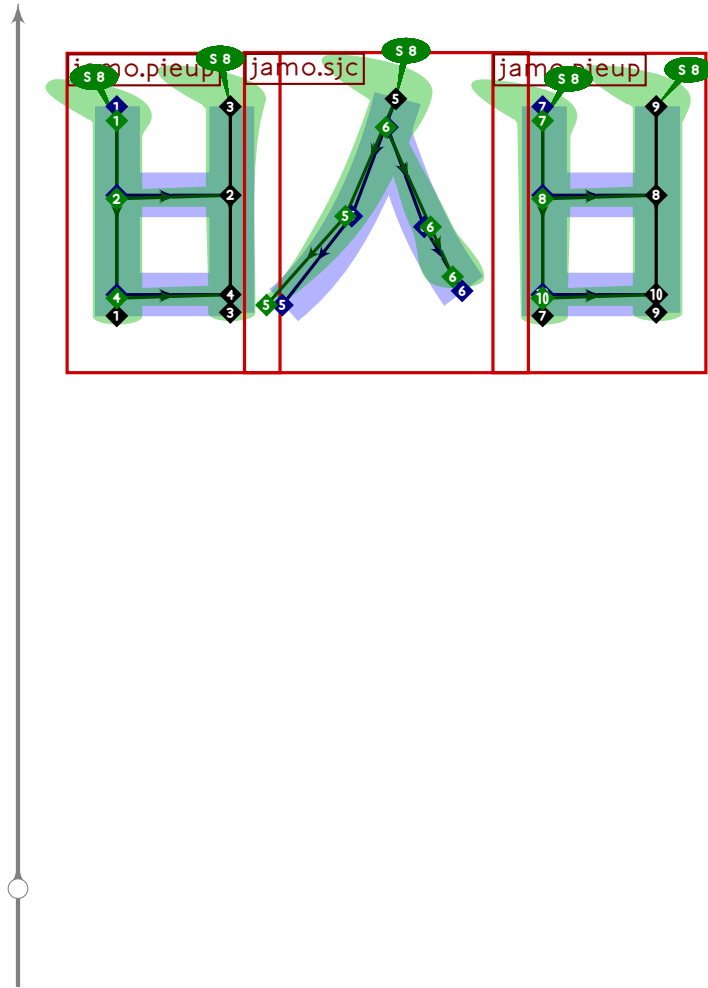




```

276 % hangul lead pieup-sios-tikeut
277 begintsuglyph("uni1123",35);
278 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
279 tsu_render;
280 endtsuglyph;
281

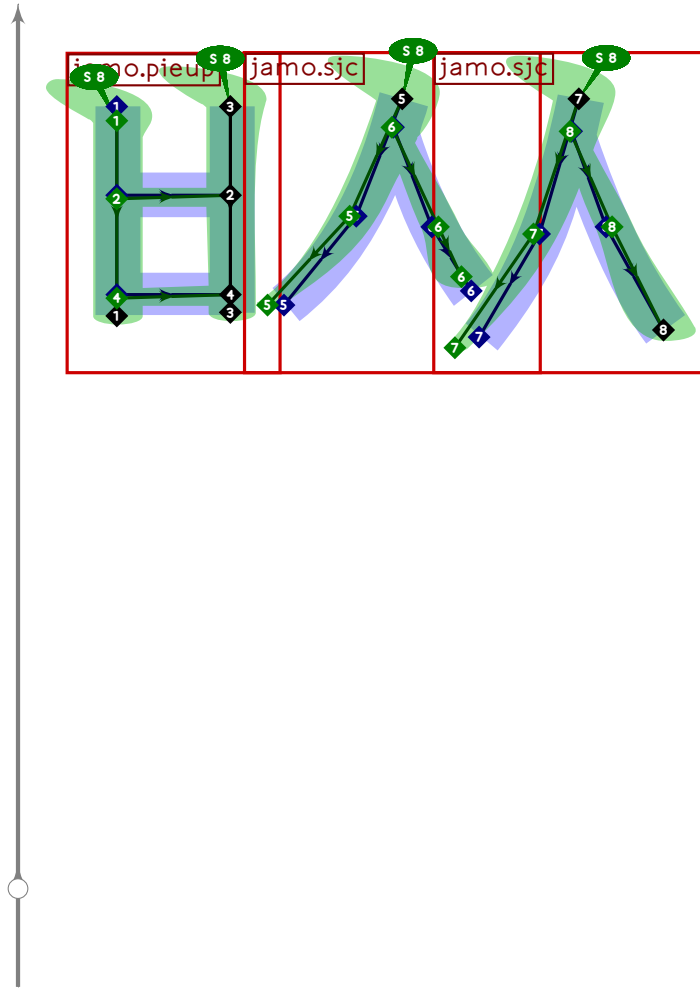
```



```

282 % hangul lead pieup-sios-pieup
283 begintsuglyph("uni1124";36);
284 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
285 tsu_render;
286 endtsuglyph;
287

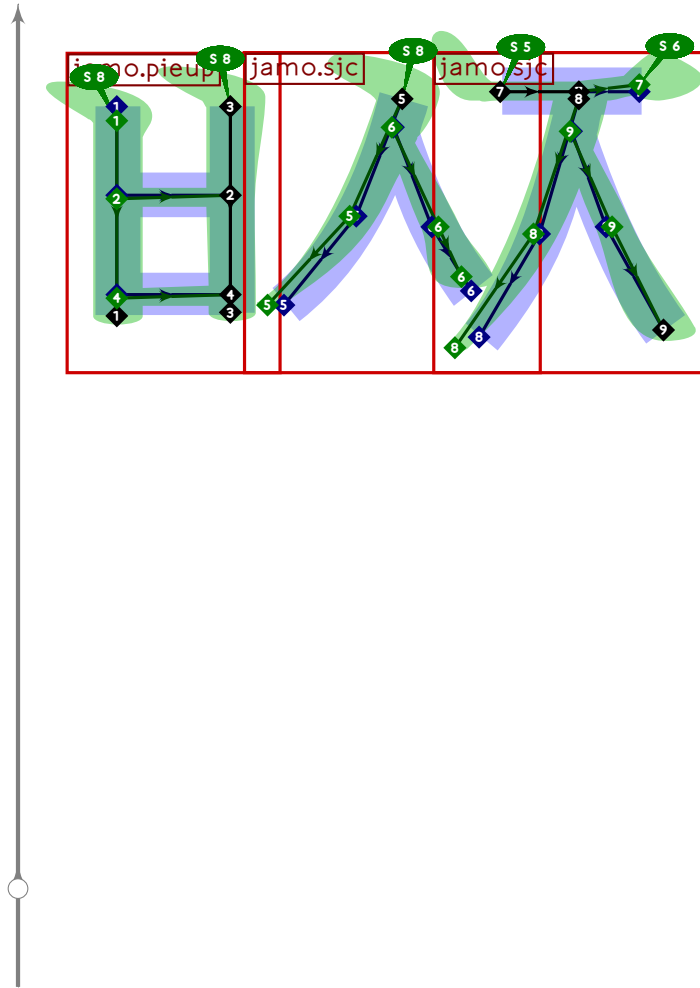
```



```

288 % hangul lead pieup-ssangsios
289 begintsuglyph("uni1125",37);
290 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
291 tsu_render;
292 endtsuglyph;
293

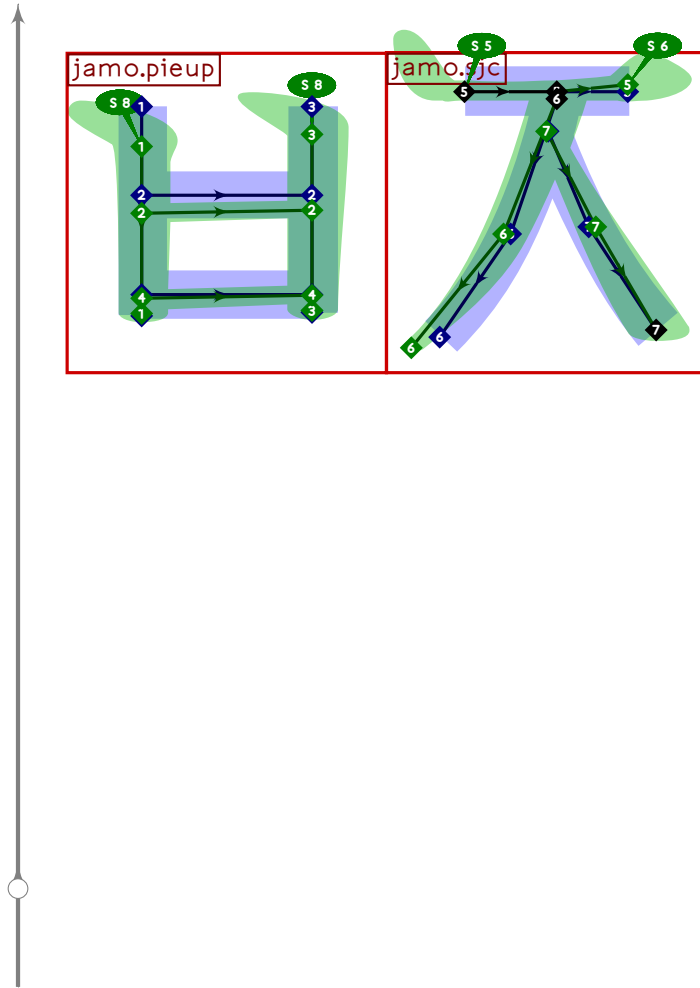
```



```

294 % hangul lead pieup-sios-cieuc
295 begintsuglyph("uni1126",38);
296 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
297 tsu_render;
298 endtsuglyph;
299

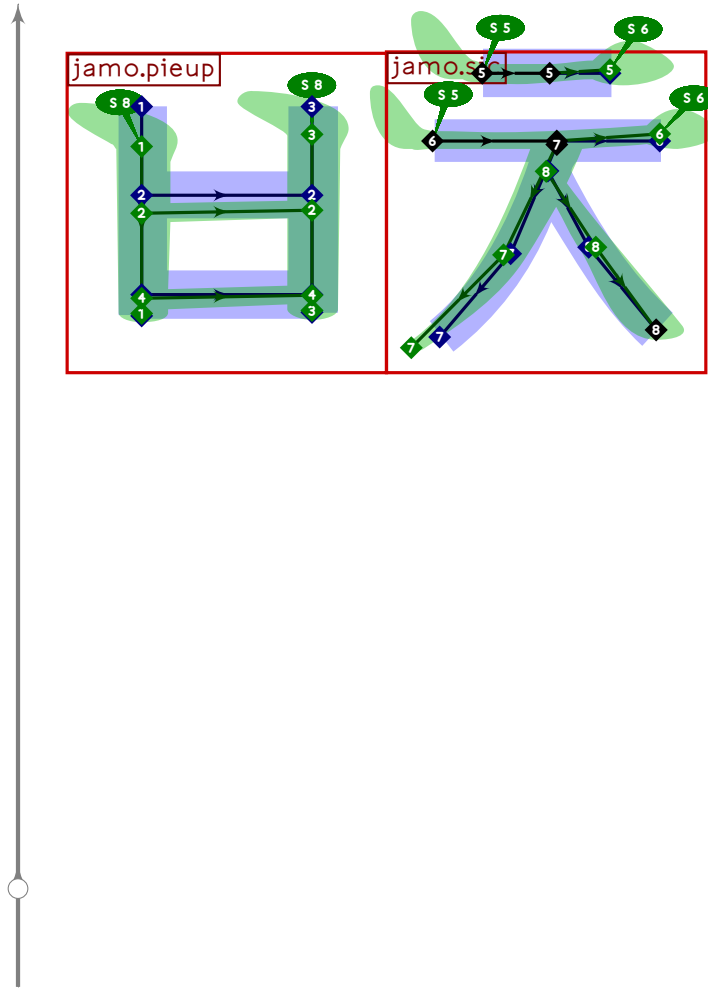
```



```

300 % hangul lead pieup-cieuc
301 begint Suglyph("uni1127",39);
302 hangul.combine.lr(207,112)(whatever,lixf,loxf);
303 tsu_render;
304 endtsuglyph;
305

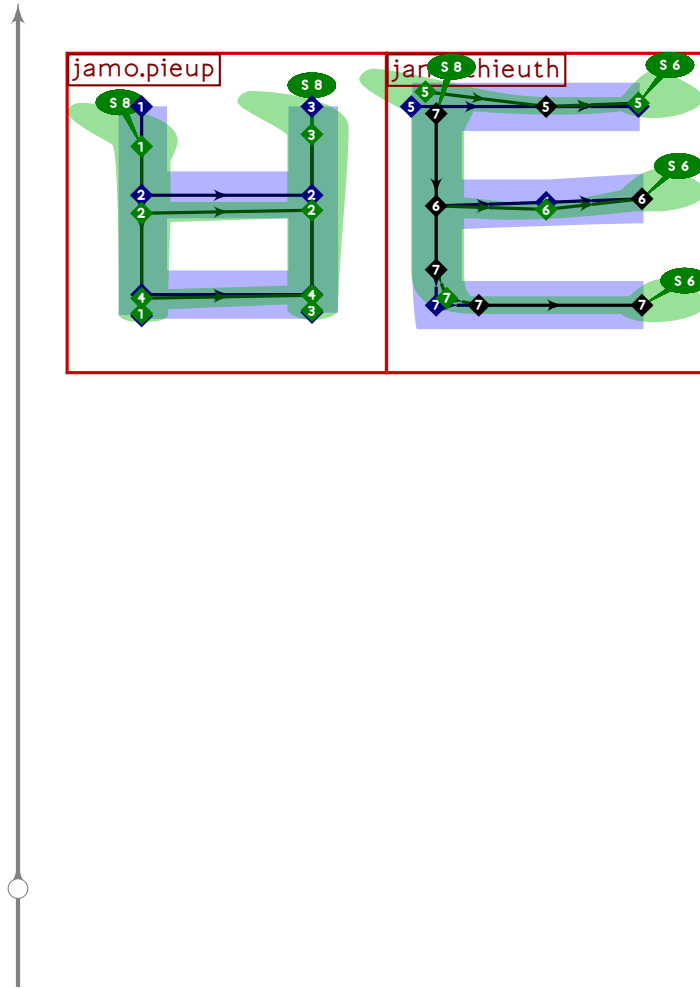
```



```

306 % hangul lead pieup-chieuch
307 begintsuglyph("uni1128",40);
308 hangul.combine.lr(207,114)(whatever,lixf,loxf);
309 tsu_render;
310 endtsuglyph;
311

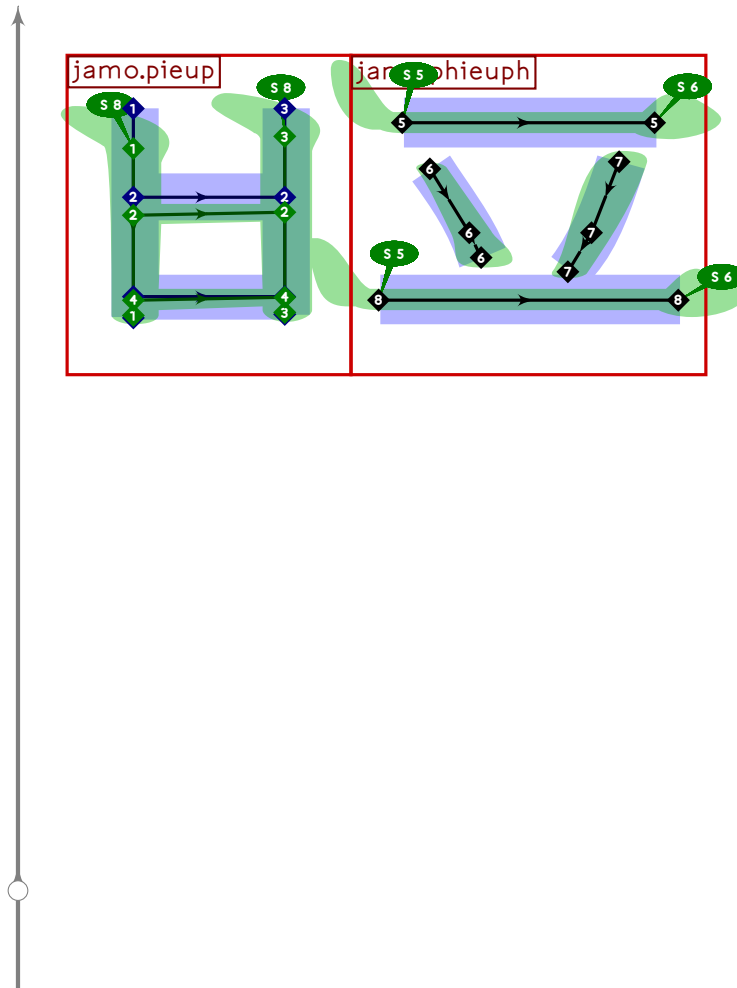
```



```

312 % hangul lead pieup-thieuth
313 begintsuglyph("uni1129";41);
314 hangul.combine.lr(207,116)(whatever,lixf,loxf);
315 tsu_render;
316 endtsuglyph;
317

```

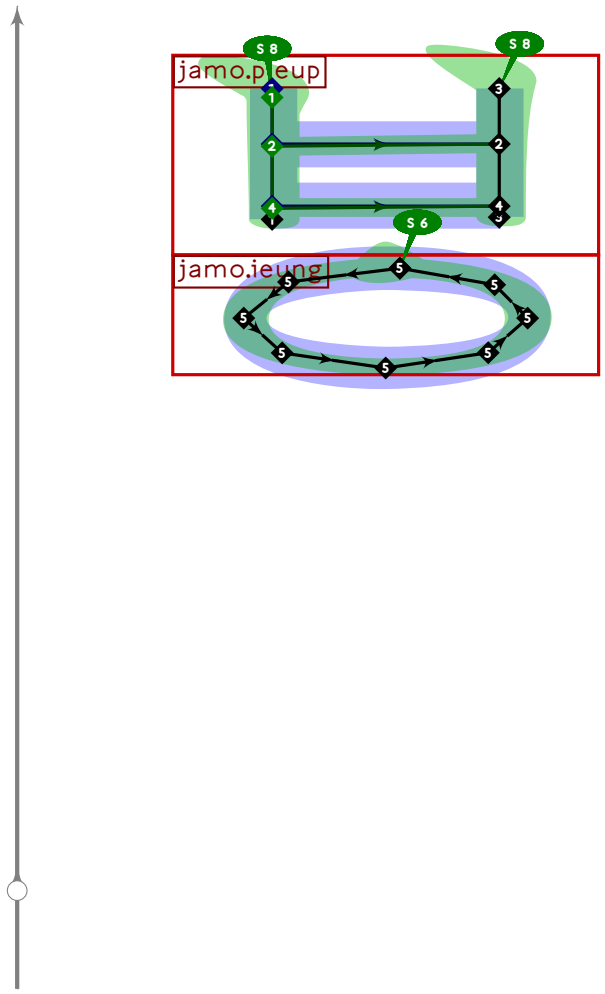


```

318 % hangul lead pieup-phieup
319 begintsuglyph("uni112A",42);
320 hangul.combine.lr(207,117)(whatever,lixf,loxf);
321 tsu_render;
322 endtsuglyph;
323

```

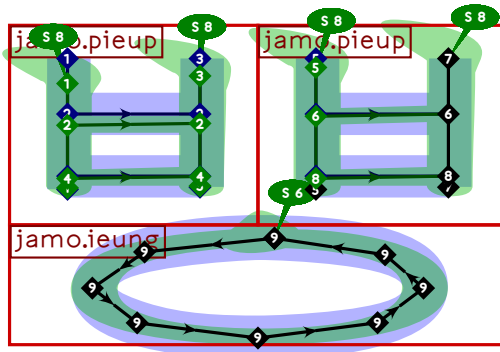




```

324 % hangul lead kapyeounpieup
325 begint Suglyph("uni112B",43);
326 hangul.combine.tb(107,521)(whatever,
327   hxf((200,850),(800,-50)) transformed lixf,loxf);
328 tsu_render;
329 endtsuglyph;
330

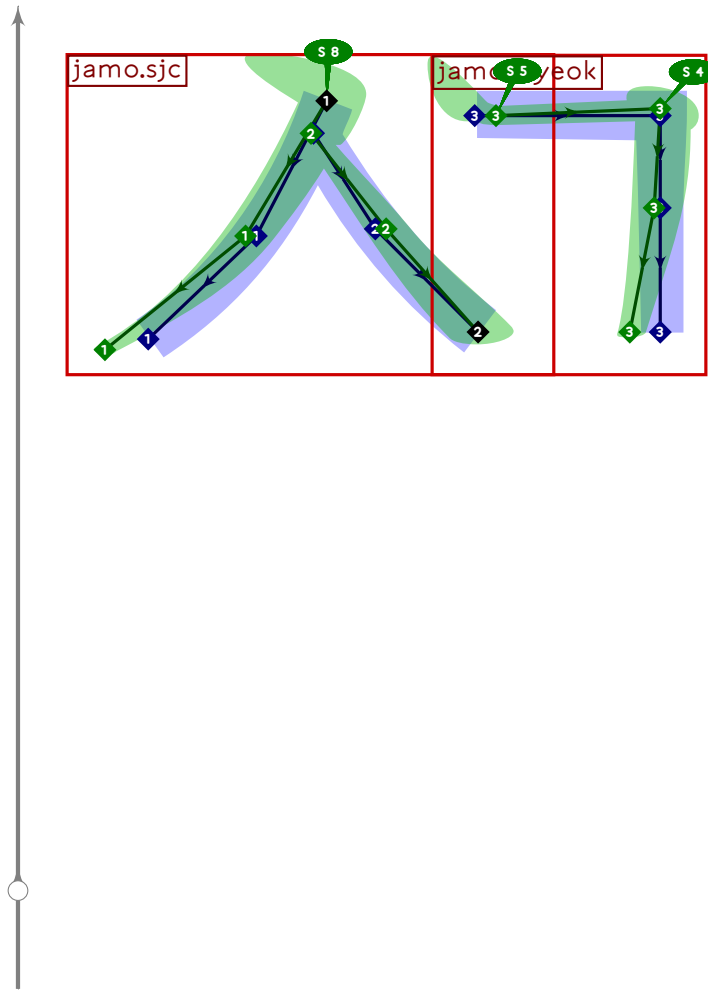
```



```

331 % hangul lead kapyeounssangpieup
332 begintsuglyph("uni112C";44);
333 hangul.combine.tb(108,521)(whatever,
334   hxf((150,850),(850,-50)) transformed lixf,loxf);
335 tsu_render;
336 endtsuglyph;
337

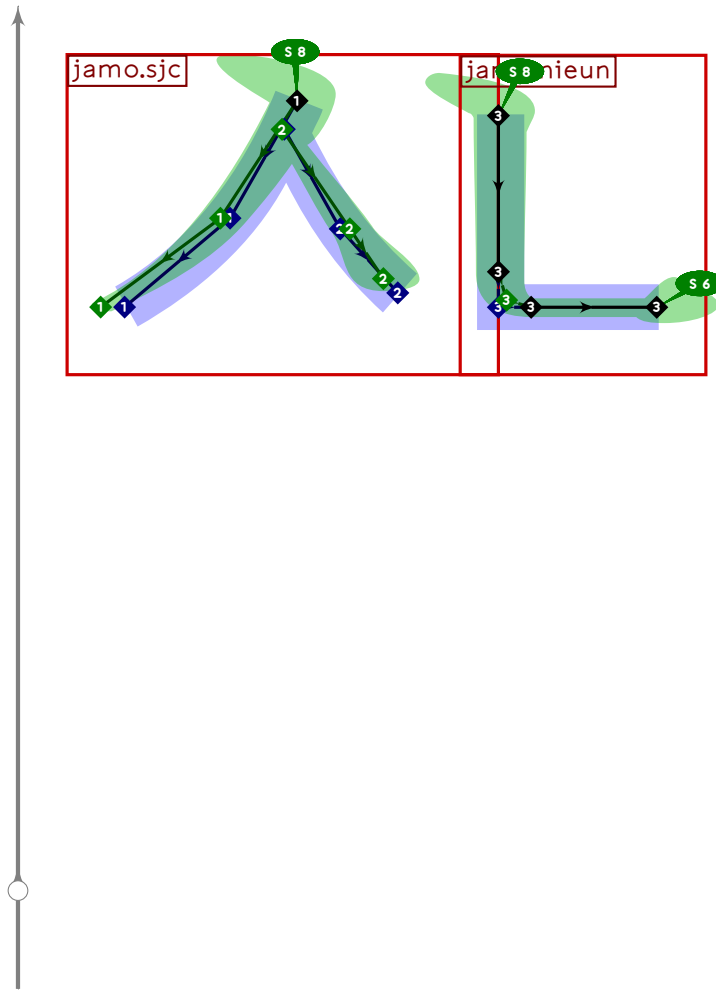
```



```

338 % hangul lead sios-kiyeok
339 begint Suglyph("uni112D",45);
340 hangul.combine.lr(109,100)(whatever,lixf,loxf);
341 tsu_render;
342 endtsuglyph;
343

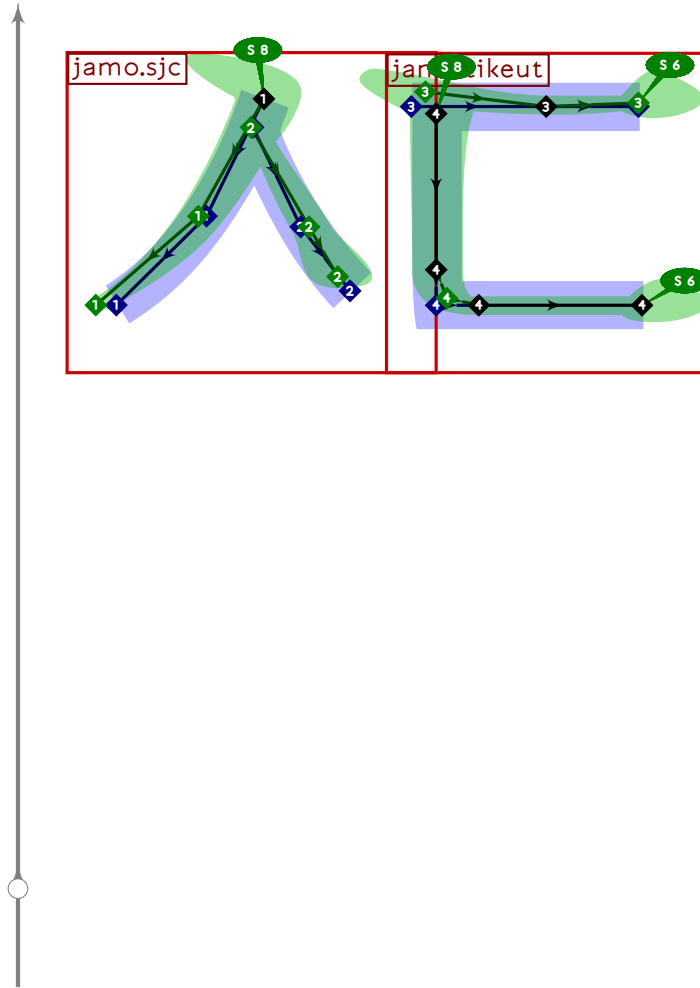
```



```

344 % hangul lead sios-nieun
345 begint Suglyph("uni112E",46);
346 hangul.combine.lr(209,102)(whatever,lixf,loxf);
347 tsu_render;
348 endtsuglyph;
349

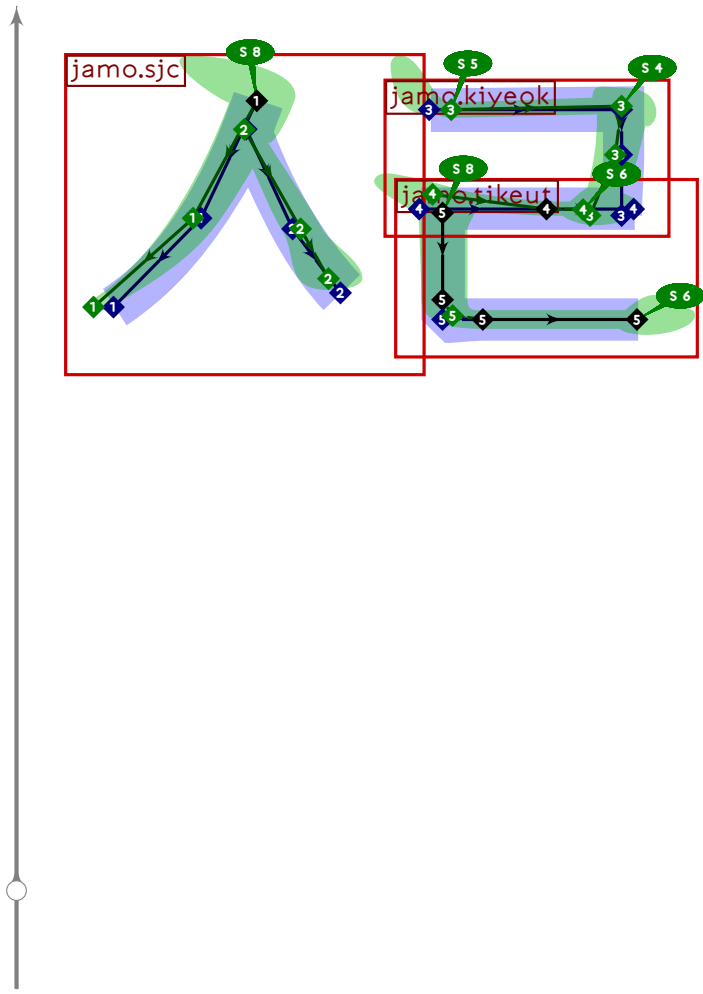
```



```

350 % hangul lead sios-tikeut
351 begint Suglyph("uni112F",47);
352 hangul.combine.lr(209,103)(whatever,lixf,loxf);
353 tsu_render;
354 endtsuglyph;
355

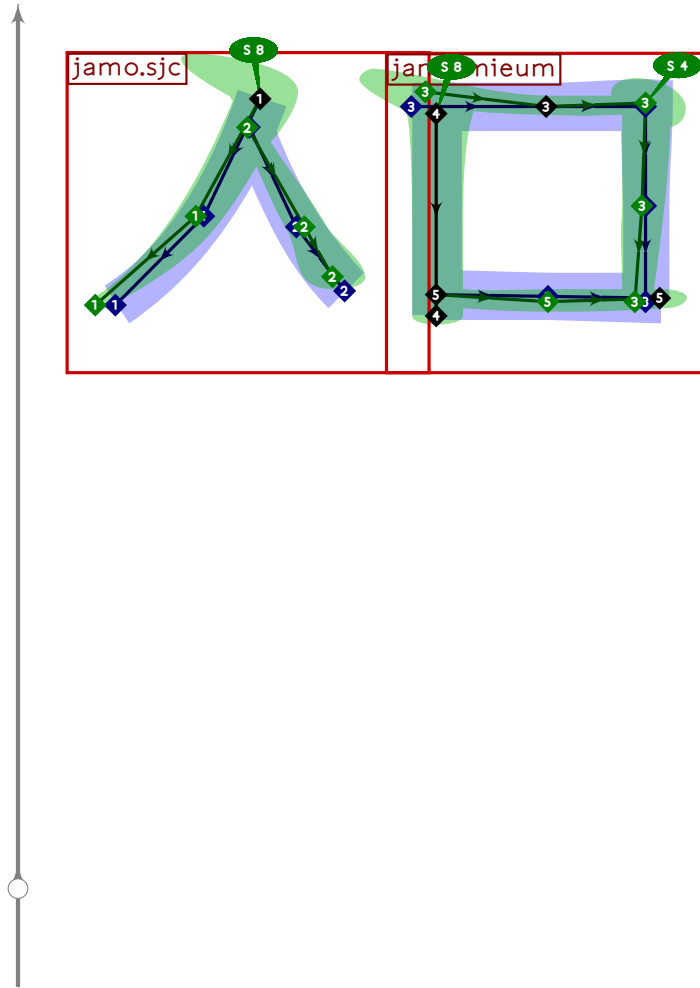
```



```

356 % hangul lead sios-rieul
357 begintsuglyph("uni1130",48);
358 hangul.combine.lr(209,105)(whatever,lixf,loxf);
359 tsu_render;
360 endtsuglyph;
361

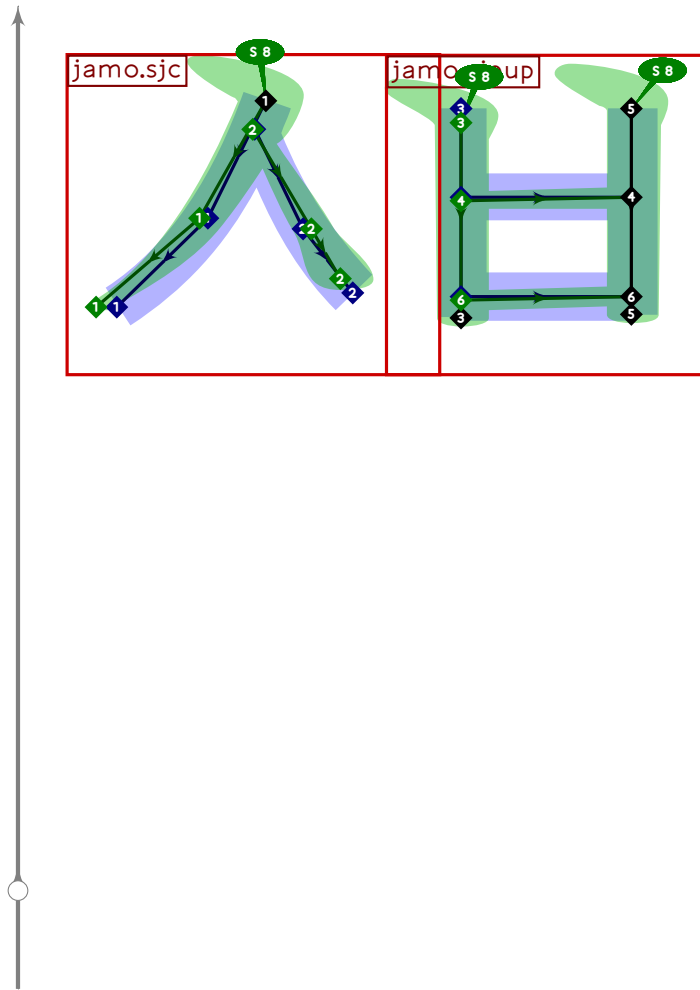
```



```

362 % hangul lead sios-mieum
363 begint Suglyph("uni1131";49);
364 hangul.combine.lr(209,106)(whatever,lixf,loxf);
365 tsu_render;
366 endtsuglyph;
367

```

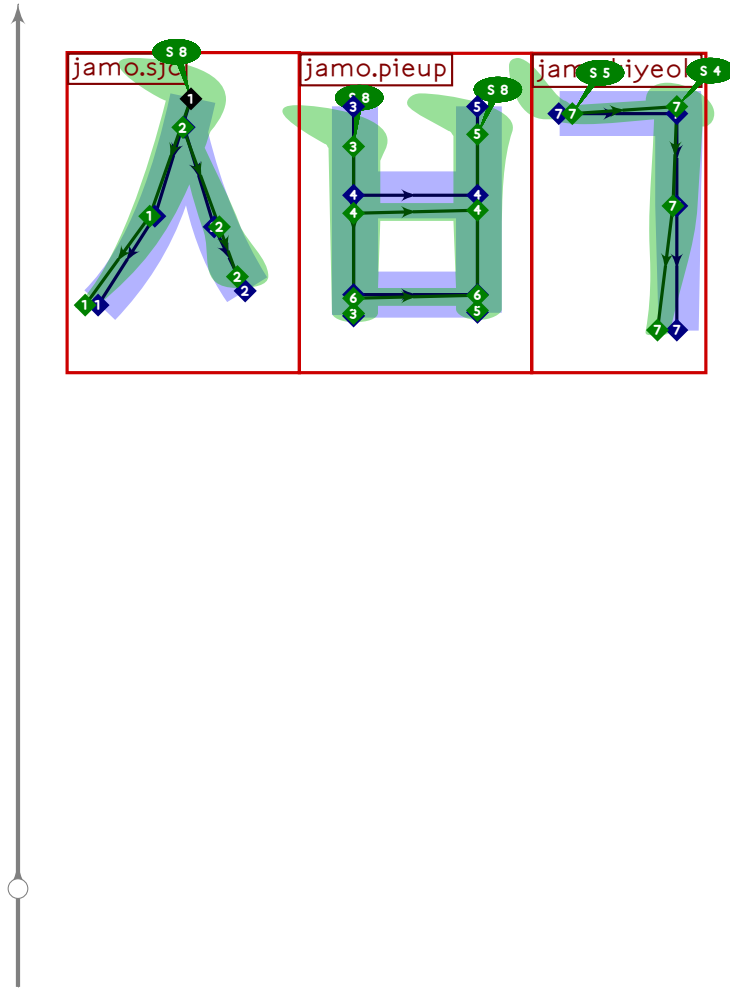


```

368 % hangul lead sios-pieup
369 begintsuglyph("uni1132",50);
370 hangul.combine.lr(209,107)(whatever,lixf,loxf);
371 tsu_render;
372 endtsuglyph;
373

```

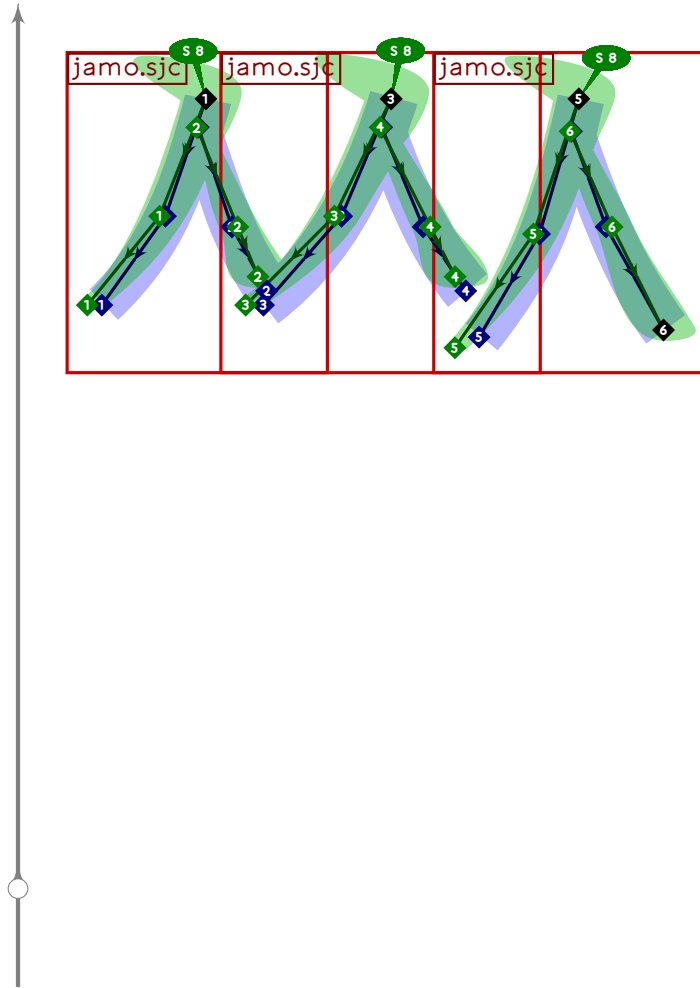




```

374 % hangul lead sios-pieup-kiyeok
375 begintsuglyph("uni1133";51);
376 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
377 tsu_render;
378 endtsuglyph;
379

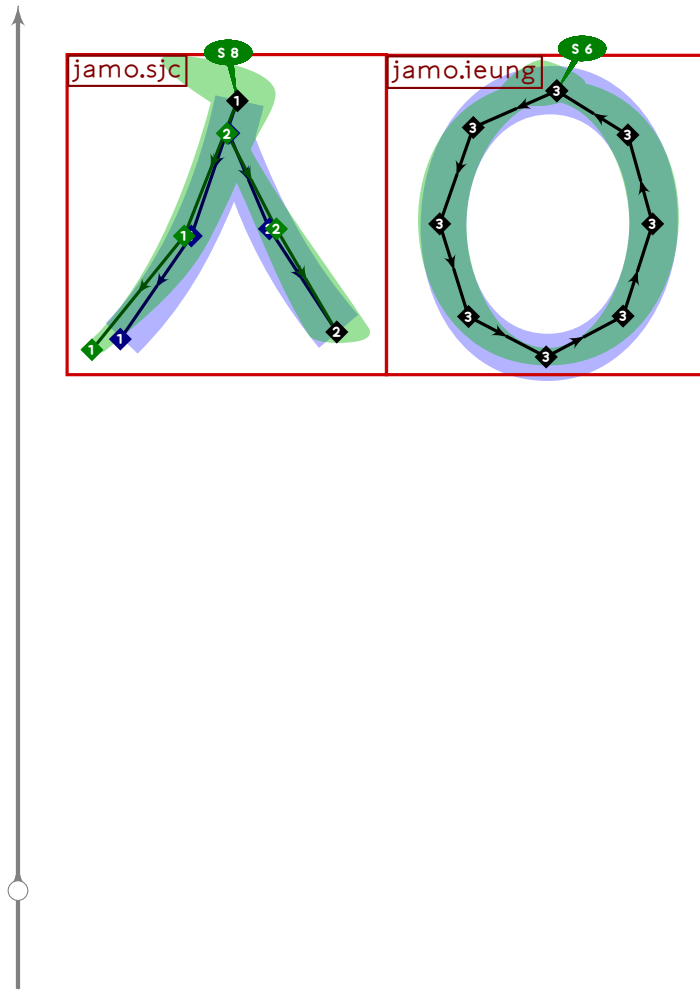
```



```

380 % hangul lead sios-sios-sios
381 begintsuglyph("uni1134";52);
382 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
383 tsu_render;
384 endtsuglyph;
385

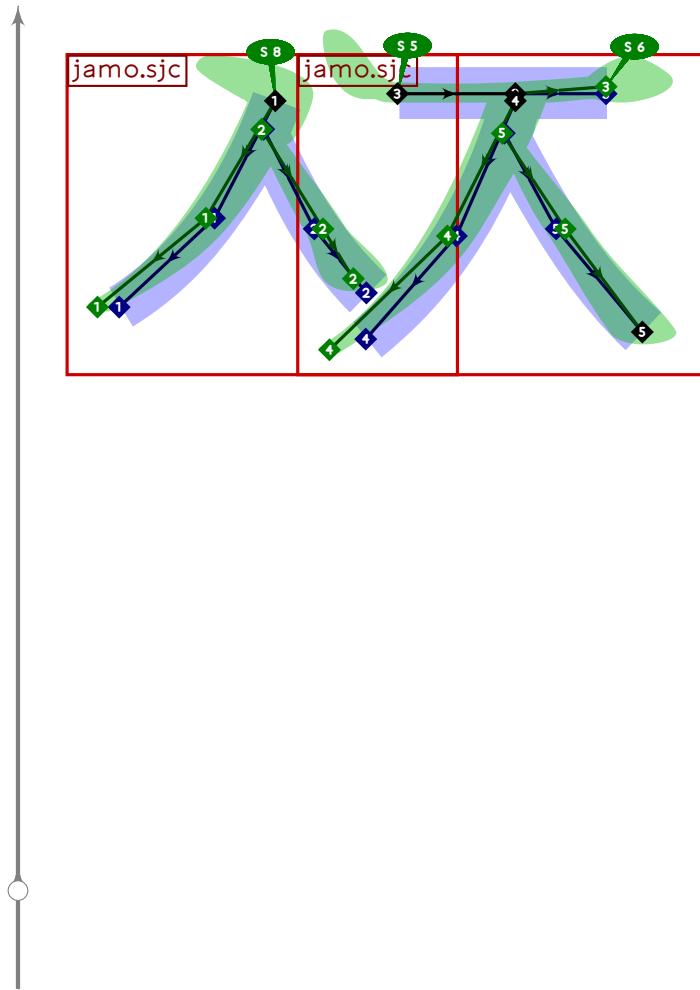
```



```

386 % hangul lead sio-ieung
387 begint Suglyph("uni1135",53);
388 hangul.combine.lr(109,111)(whatever,lixf,loxf);
389 tsu_render;
390 endtsuglyph;
391

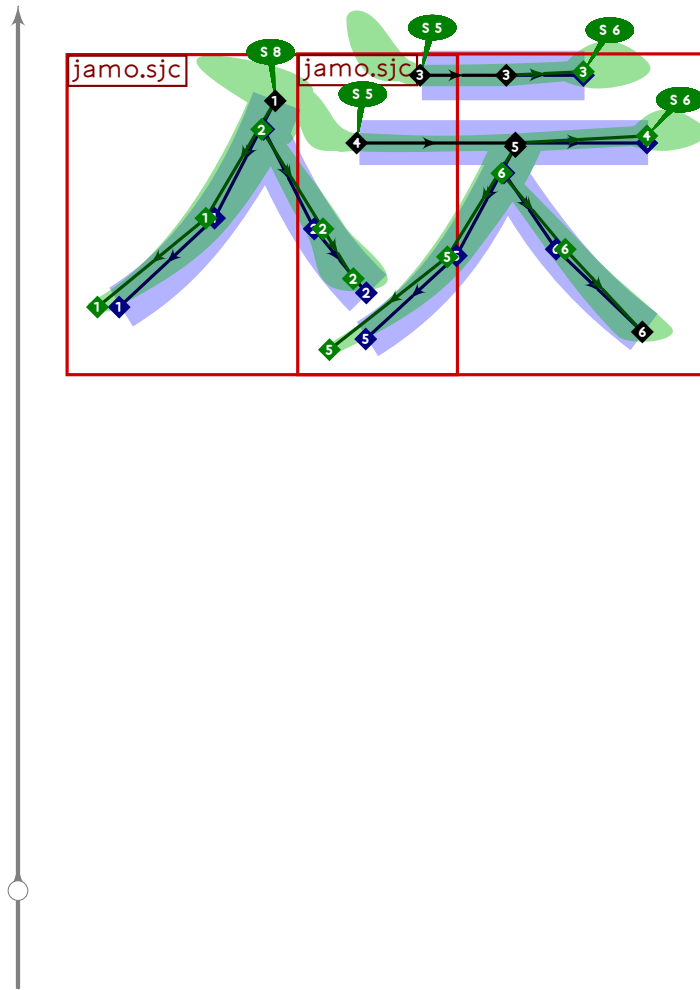
```



```

392 % hangul lead sios-cieuc
393 begint Suglyph("uni1136",54);
394 hangul.combine.lr(209,112)(whatever,lixf,loxf);
395 tsu_render;
396 endtsuglyph;
397

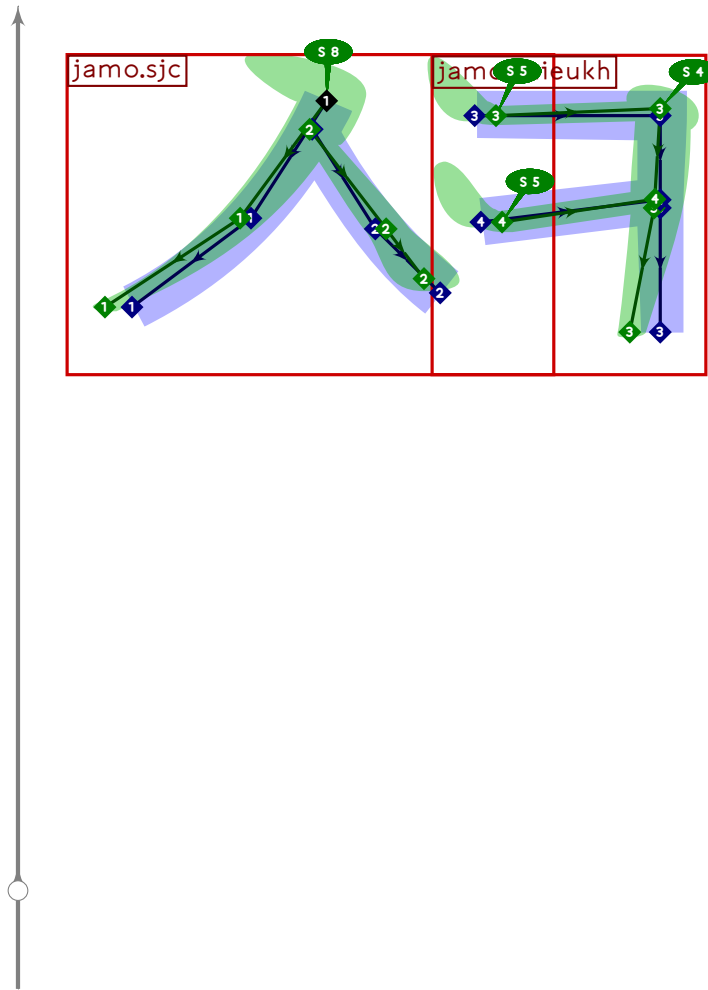
```



```

398 % hangul lead sios-chieuch
399 begintsuglyph("uni1137",55);
400 hangul.combine.lr(209,114)(whatever,lixf,loxf);
401 tsu_render;
402 endtsuglyph;
403

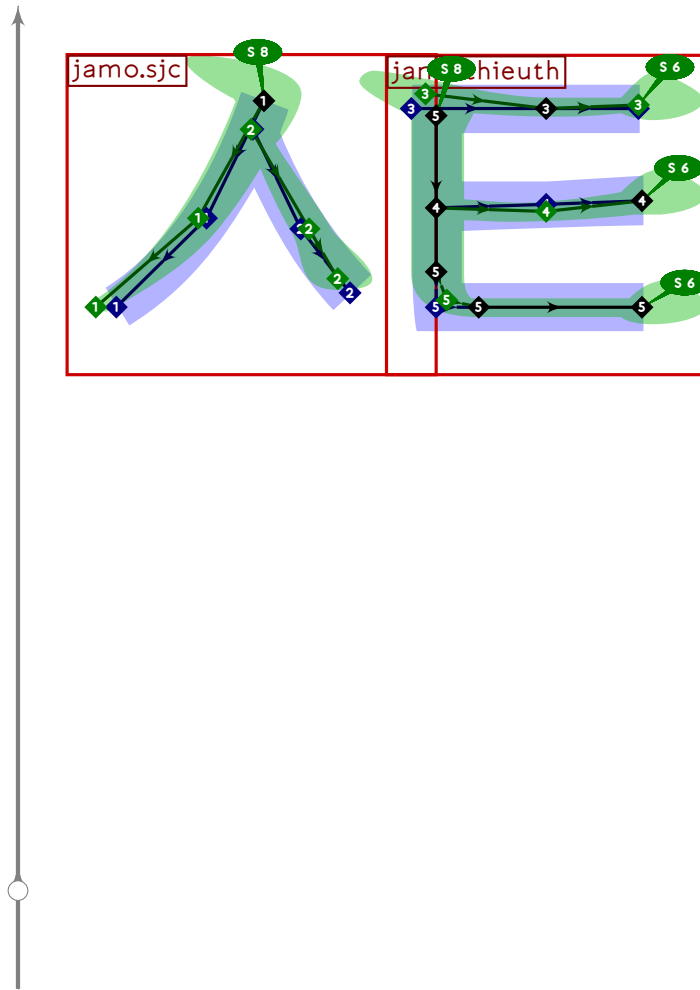
```



```

404 % hangul lead sios-khieukh
405 begintsuglyph("uni1138",56);
406 hangul.combine.lr(209,115)(whatever,lixf,loxf);
407 tsu_render;
408 endtsuglyph;
409

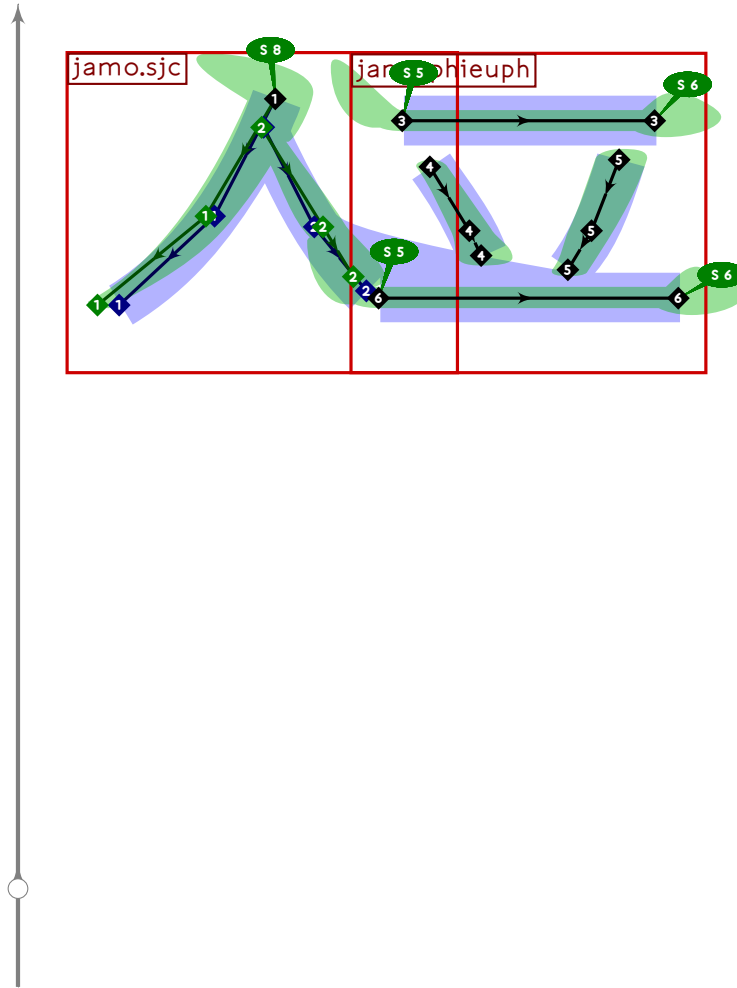
```



```

410 % hangul lead sios-thieuth
411 begint Suglyph("uni1139",57);
412 hangul.combine.lr(209,116)(whatever,lif,loxf);
413 tsu_render;
414 endtsuglyph;
415

```

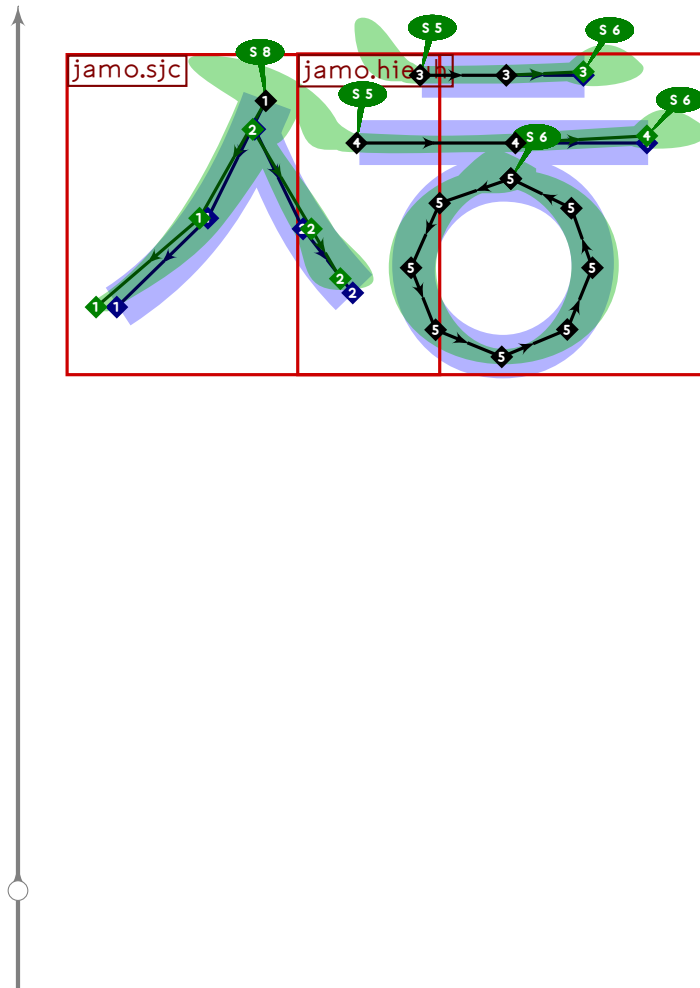


```

416 % hangul lead sios-phieuph
417 begint Suglyph("uni113A",58);
418 hangul.combine.lr(209,117)(whatever,lixf,loxf);
419 tsu_render;
420 endtsuglyph;
421

```

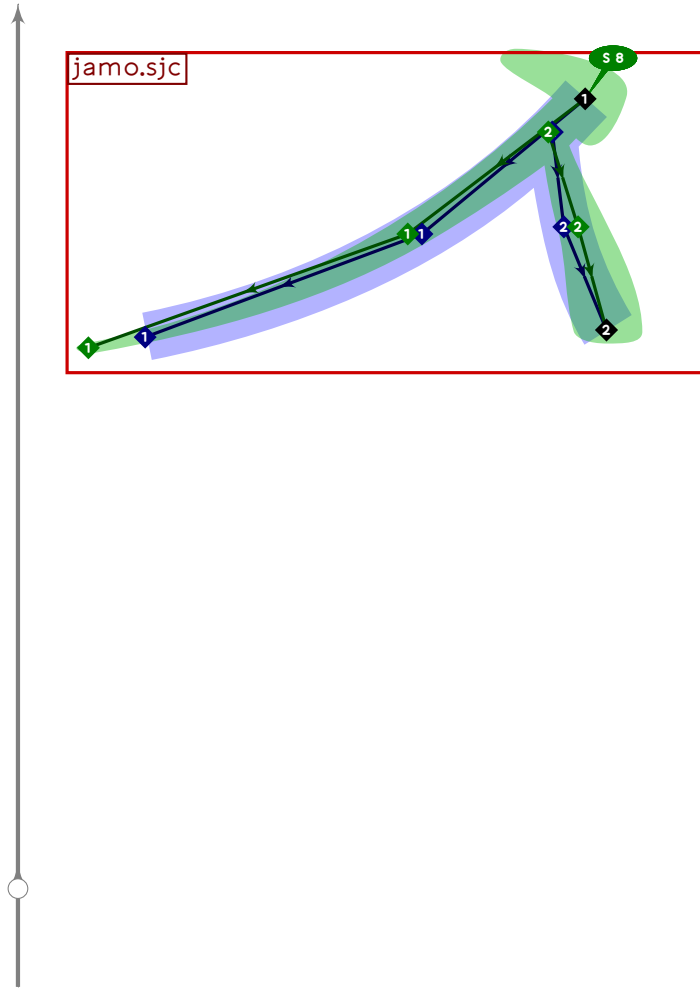




```

422 % hangul lead sios-hieuh
423 begintsuglyph("uni113B",59);
424 hangul.combine.lr(209,118)(whatever,lixf,loxf);
425 tsu_render;
426 endtsuglyph;
427

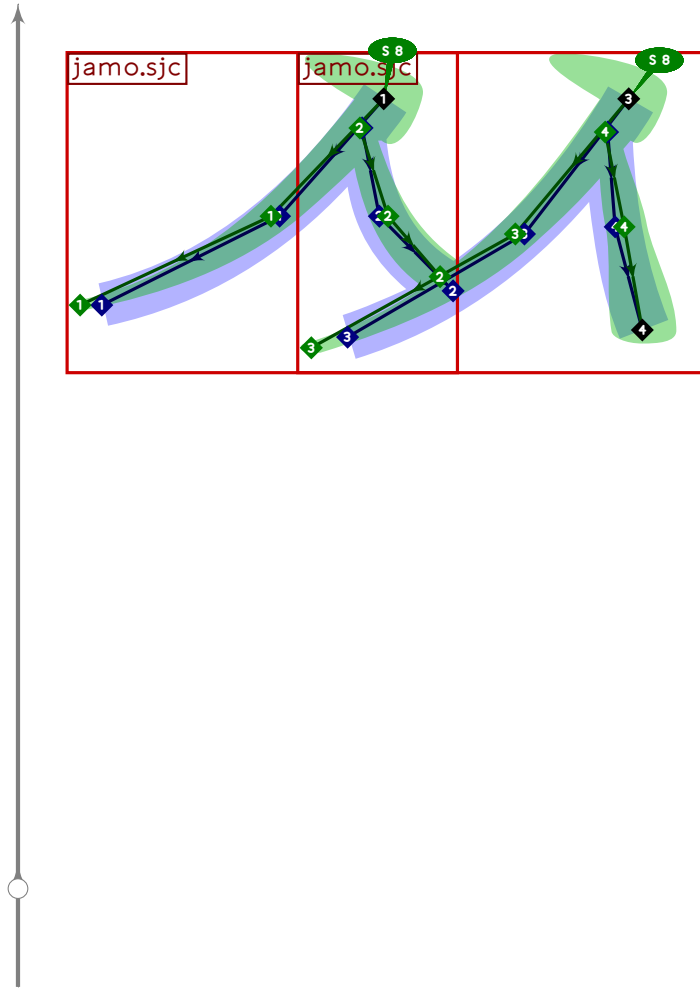
```



```

428 % hangul lead chitueumsios
429 begintsuglyph("uni113C",60);
430 hangul,jam.o.sjc(0,1,false)(whatever,lixf,loxf);
431 tsu_render;
432 endtsuglyph;
433

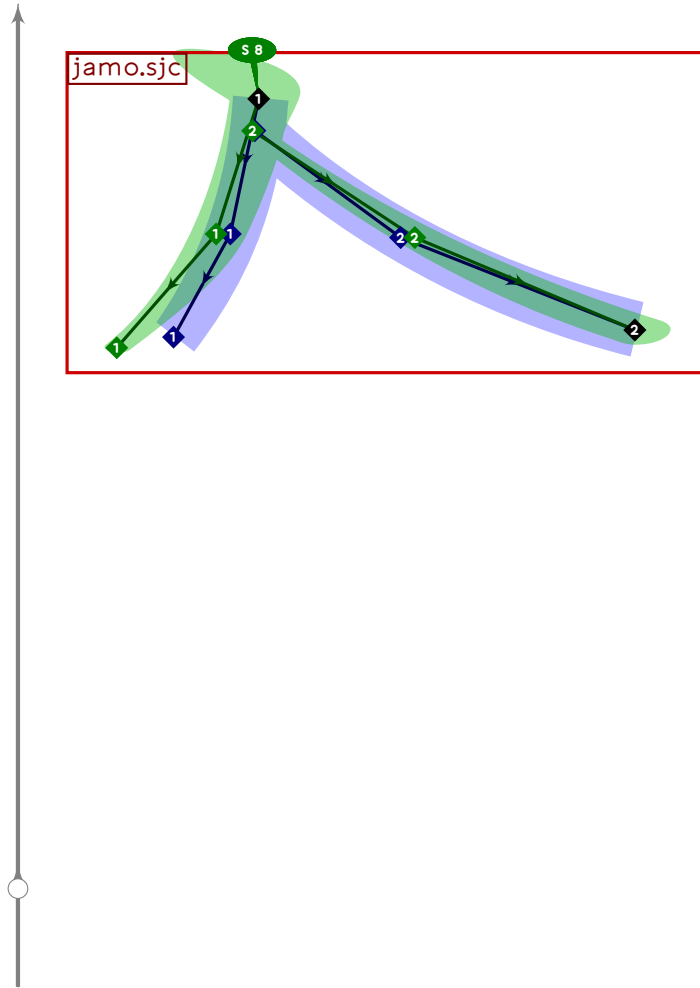
```



```

434 % hangul lead chitueumssangsios
435 begint Suglyph("uni113D",61);
436 hangul.combine.lr(223,222)(whatever,lixf,loxf);
437 tsu_render;
438 endtsuglyph;
439

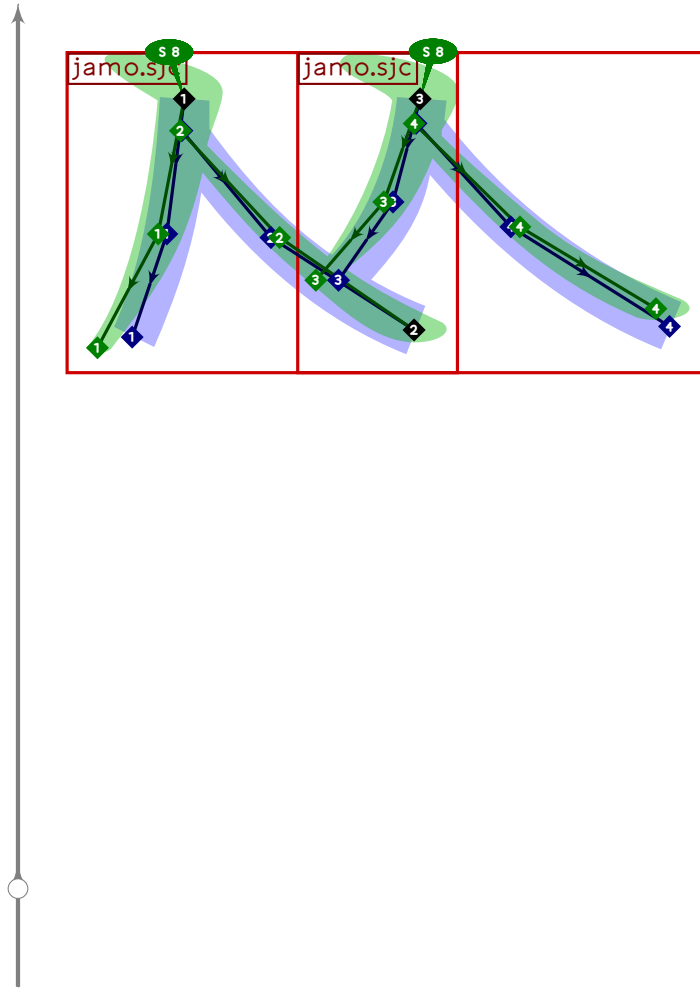
```



```

440 % hangul lead ceongchieumsios
441 begint Suglyph("uni113E",62);
442 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
443 tsu_render;
444 endtsuglyph;
445

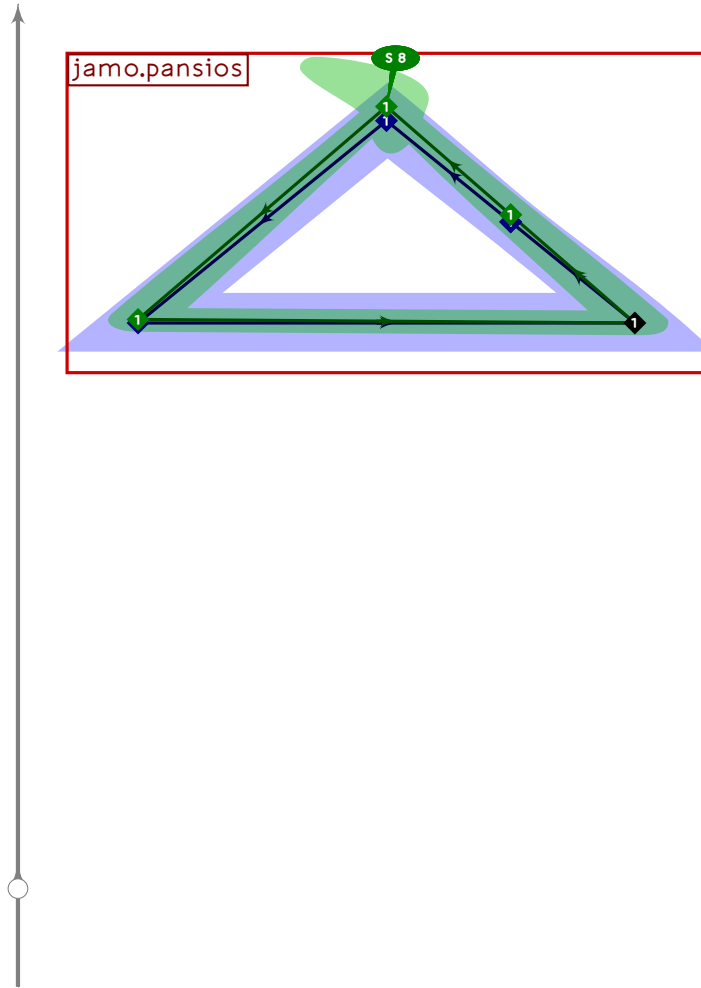
```



```

446 % hangul lead ceongchieumssangsios
447 begintuglyph("uni113F",63);
448 hangul.combine.lr(224,225)(whatever,lixf,loxf);
449 tsu_render;
450 endtsuglyph;
451

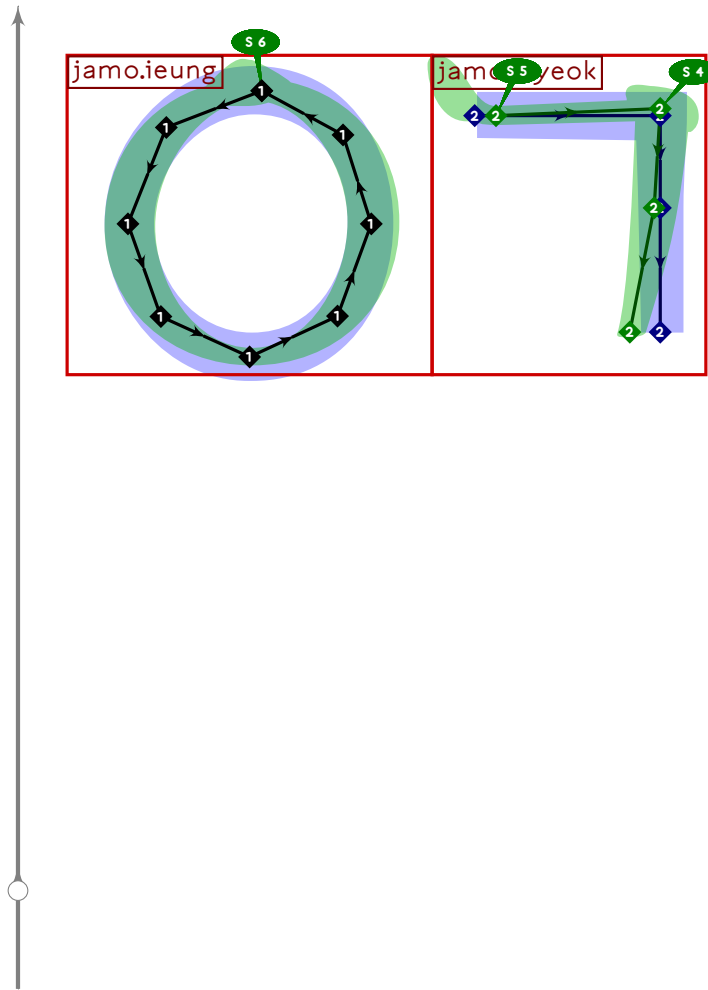
```



```

452 % hangul lead pansios
453 begintsuglyph("uni1140",64);
454 hangul,jamo.pansios(whatever,lixf,loxf);
455 tsu_render;
456 endtsuglyph;
457

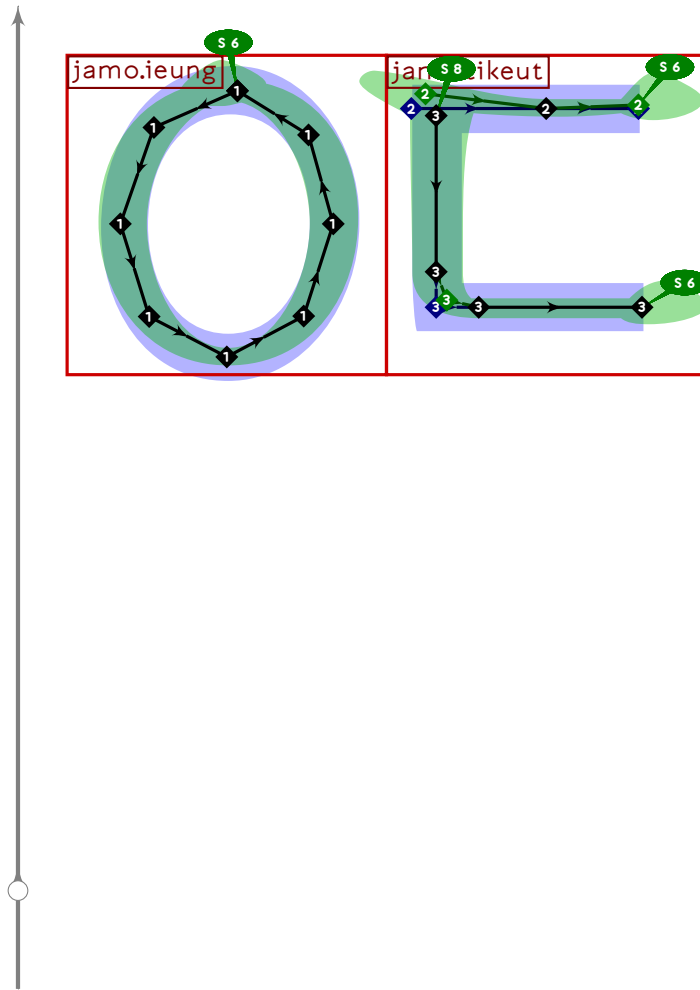
```



```

458 % hangul lead ieung-kiyeok
459 begintsuglyph("uni1141",65);
460 hangul.combine.lr(111,100)(whatever,lixf,loxf);
461 tsu_render;
462 endtsuglyph;
463

```

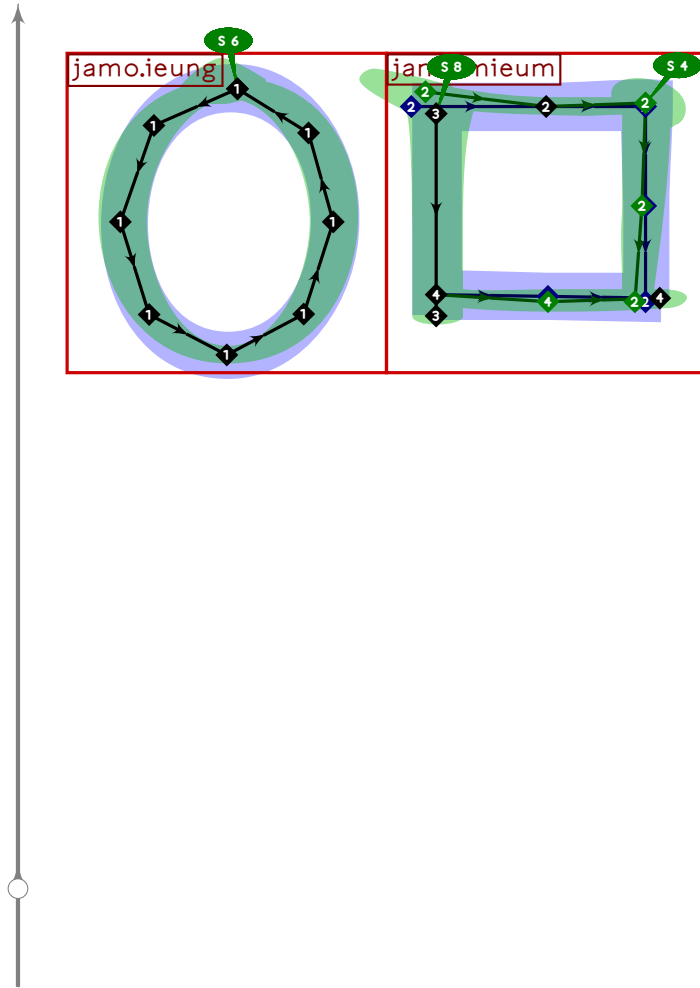


```

464 % hangul lead ieung-tikeut
465 begintsuglyph("uni1142";66);
466 hangul.combine.lr(111,103)(whatever,lixf,loxf);
467 tsu_render;
468 endtsuglyph;
469

```

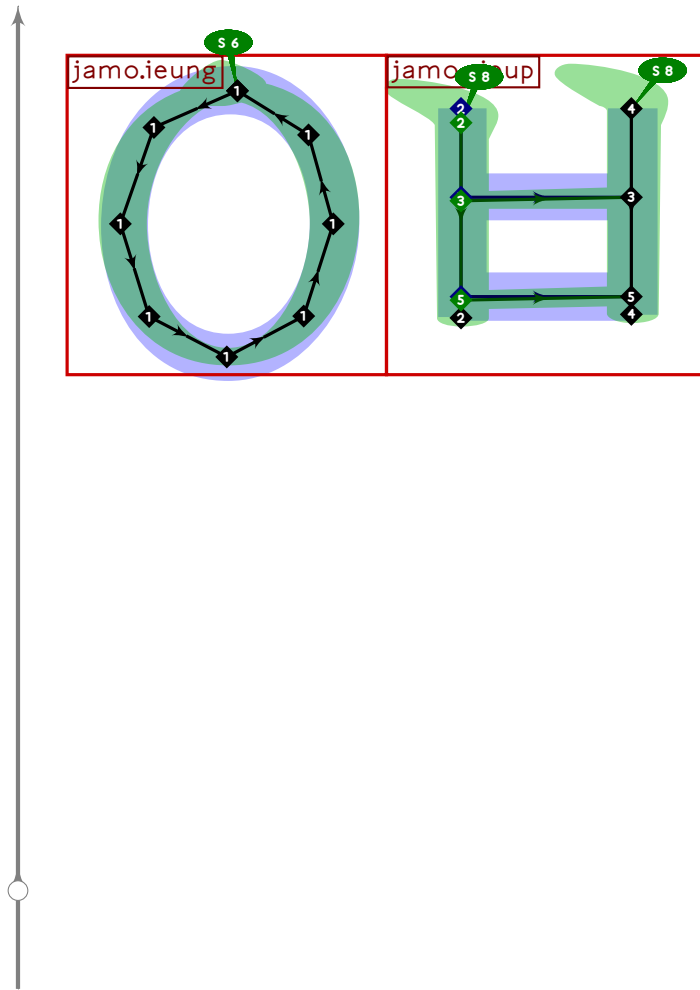




```

470 % hangul lead ieung-mieum
471 begintsuglyph("uni1143",67);
472 hangul.combine.lr(111,106)(whatever,lixf,loxf);
473 tsu_render;
474 endtsuglyph;
475

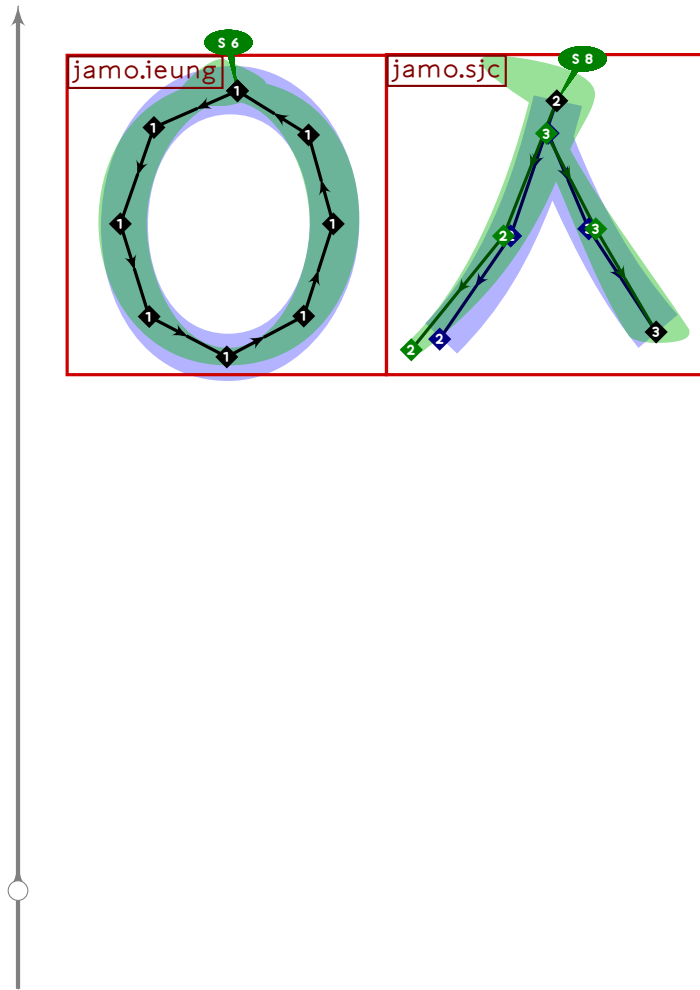
```



```

476 % hangul lead ieung-pieup
477 begint Suglyph("uni1144",68);
478 hangul.combine.lr(111,107)(whatever,lixf,loxf);
479 tsu_render;
480 endtsuglyph;
481

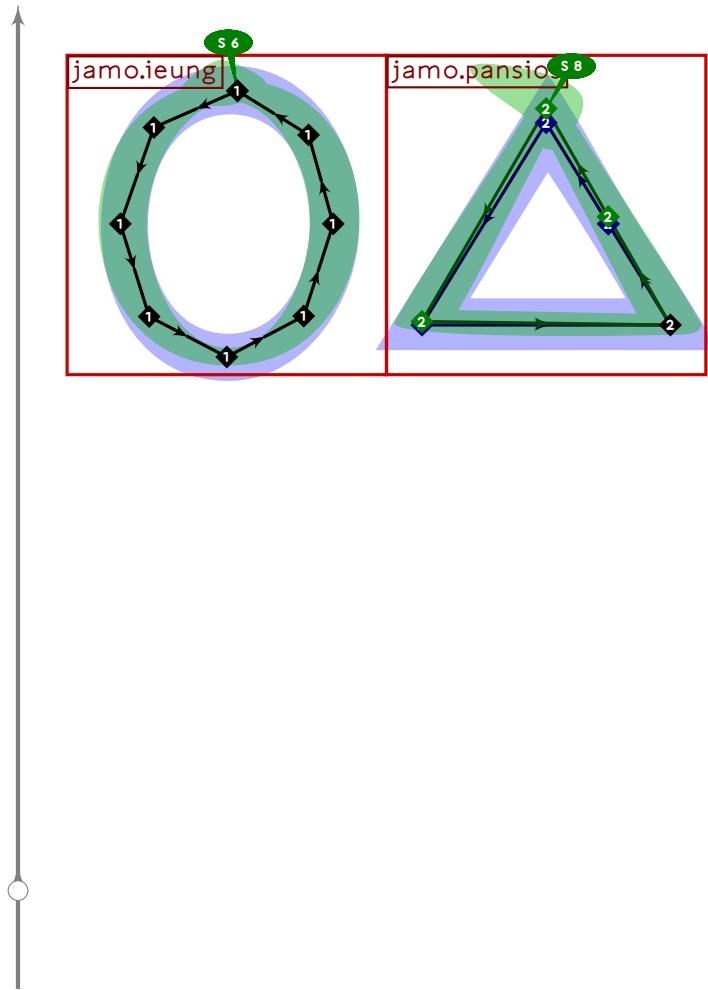
```



```

482 % hangul lead ieung-sios
483 begintsuglyph("uni1145",69);
484 hangul.combine.lr(111,109)(whatever,lixf,loxf);
485 tsu_render;
486 endtsuglyph;
487

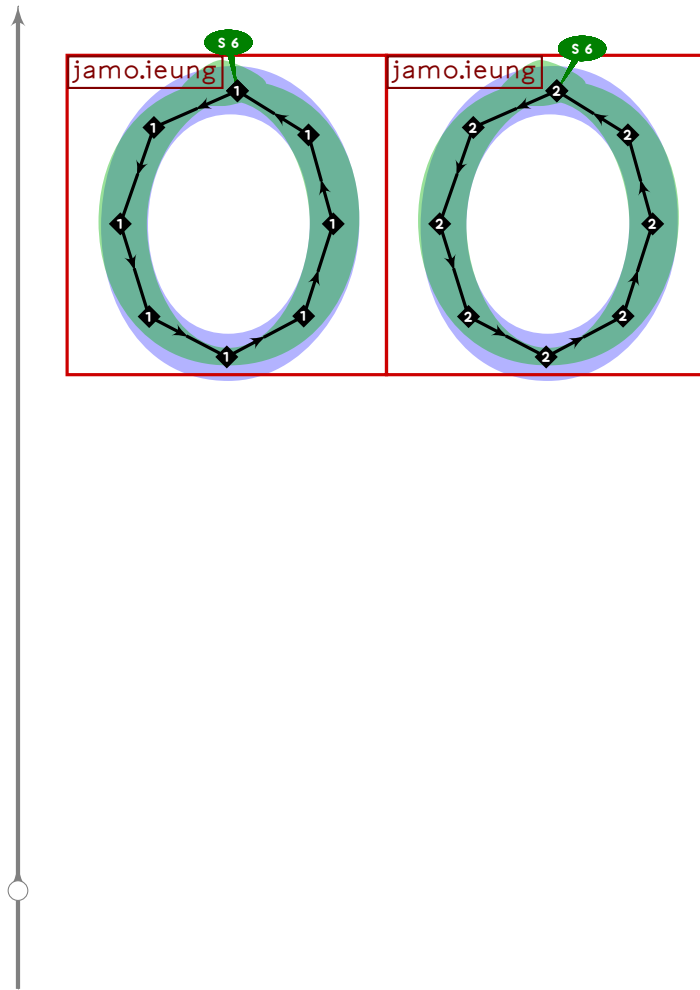
```



```

488 % hangul lead ieung-pansios
489 begintsuglyph("uni1146",70);
490 hangul.combine.lr(111,219)(whatever,lixf,loxf);
491 tsu_render;
492 endtsuglyph;
493

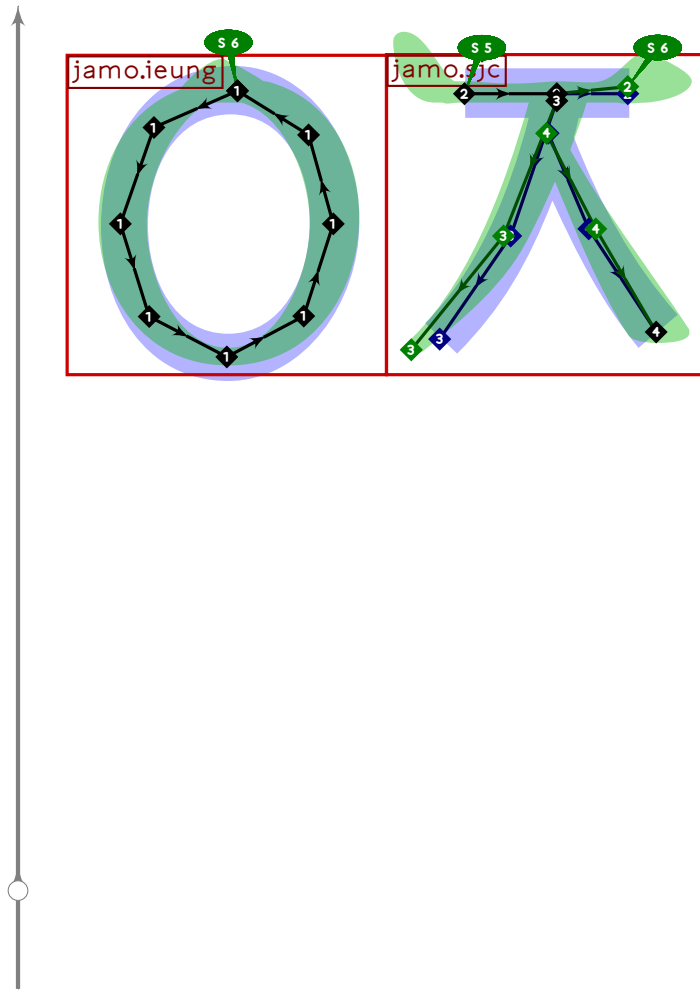
```



```

494 % hangul lead ssangieung
495 begintsuglyph("uni1147";71);
496 hangul.combine.lr(111,111)(whatever,lixf,loxf);
497 tsu_render;
498 endtsuglyph;
499

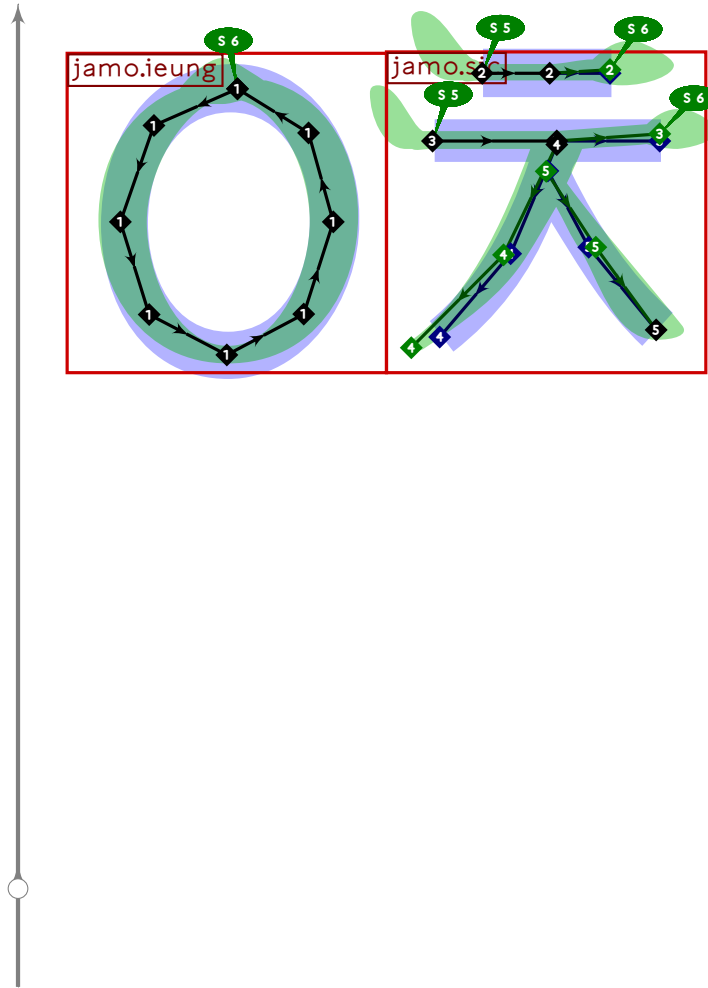
```



```

500 % hangul lead ieung-cieuc
501 begintsuglyph("uni1148",72);
502 hangul.combine.lr(111,112)(whatever,lixf,loxf);
503 tsu_render;
504 endtsuglyph;
505

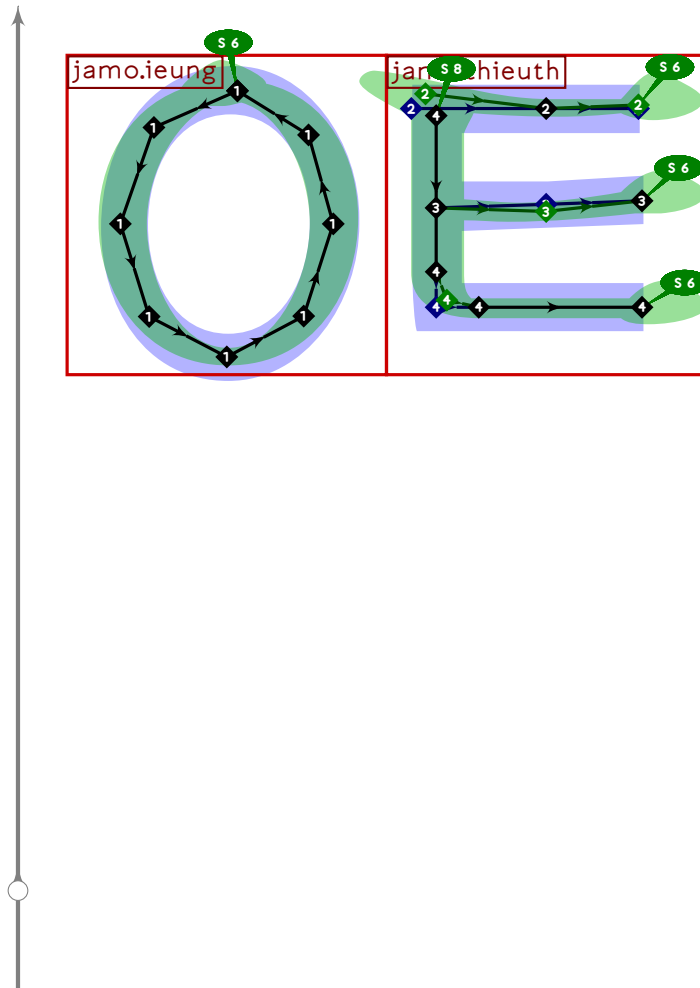
```



```

506 % hangul lead ieung-chieuch
507 begintsuglyph("uni1149";73);
508 hangul.combine.lr(111,114)(whatever,lixf,loxf);
509 tsu_render;
510 endsuglyph;
511

```

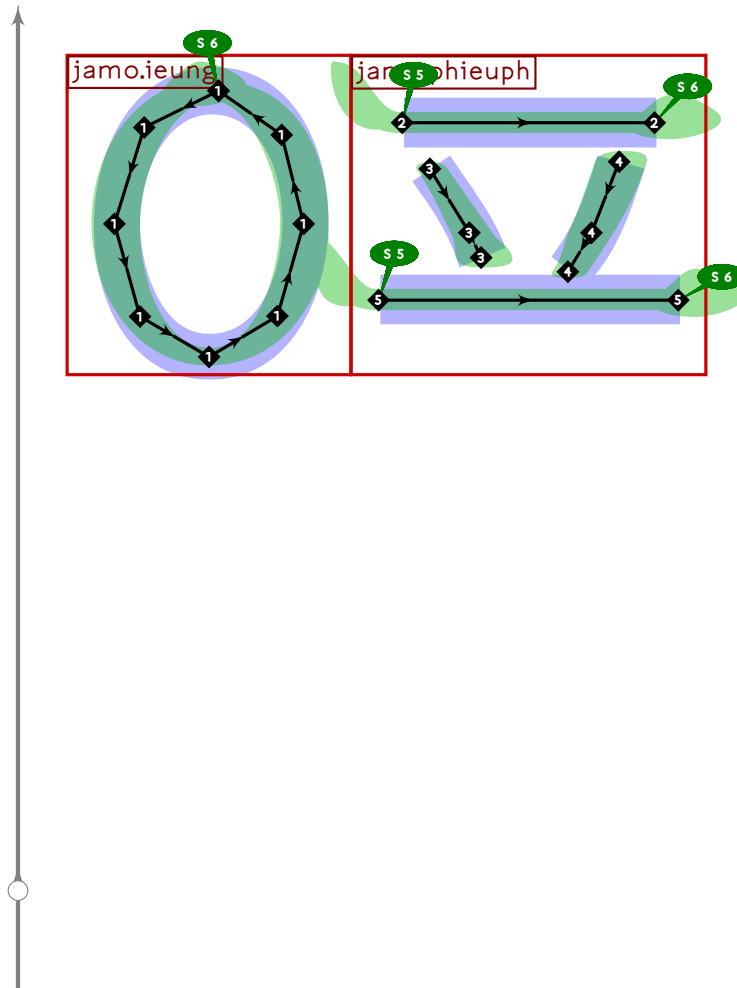


```

512 % hangul lead ieung-theiuth
513 begintsuglyph("uni114A";74);
514 hangul.combine.lr(111,116)(whatever,lixf,loxf);
515 tsu_render;
516 endtsuglyph;
517

```

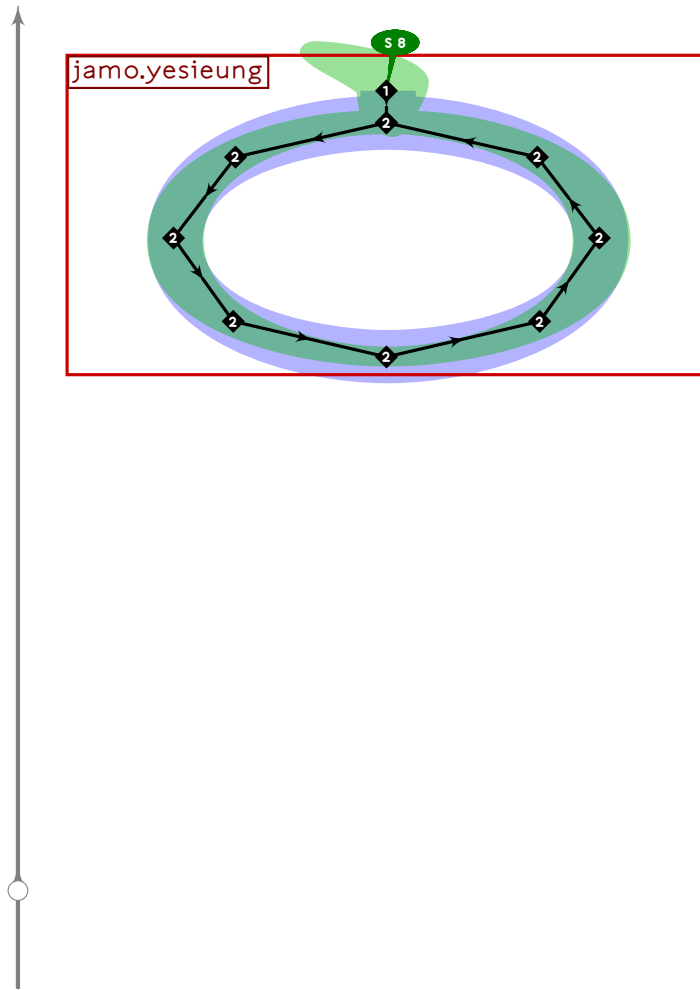




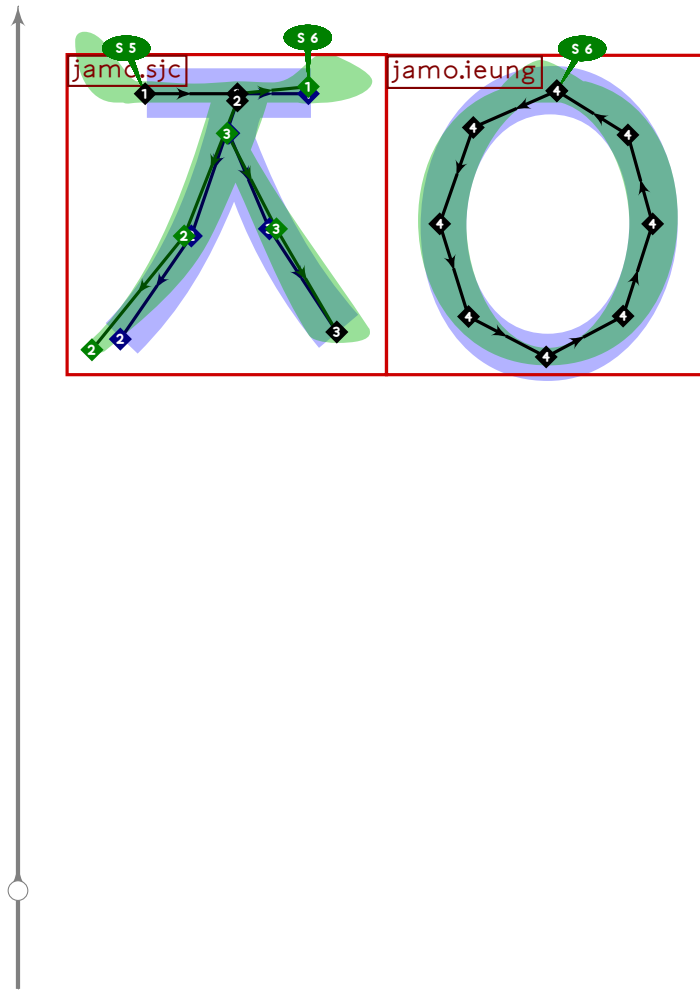
```

518 % hangul lead ieung-phieuph
519 begintsuglyph("uni114B",75);
520 hangul.combine.lr(111,117)(whatever,lixf,loxf);
521 tsu_render;
522 endtsuglyph;
523

```



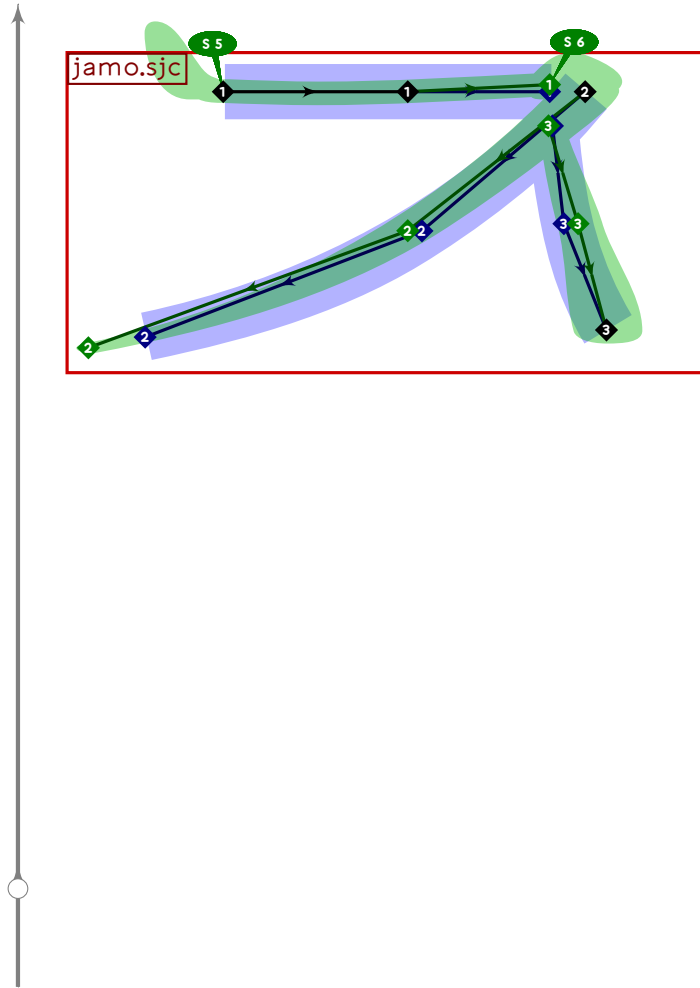
```
524 % hangul lead yesieung
525 begintsuglyph("uni114C",76);
526 hangul,jamo.yesieung(whatever,lixf,loxf);
527 tsu_render;
528 endtsuglyph;
529
```



```

530 % hangul lead cieuc-ieung
531 begint Suglyph("uni114D",77);
532 hangul.combine.lr(112,111)(whatever,lixf,loxf);
533 tsu_render;
534 endtsuglyph;
535

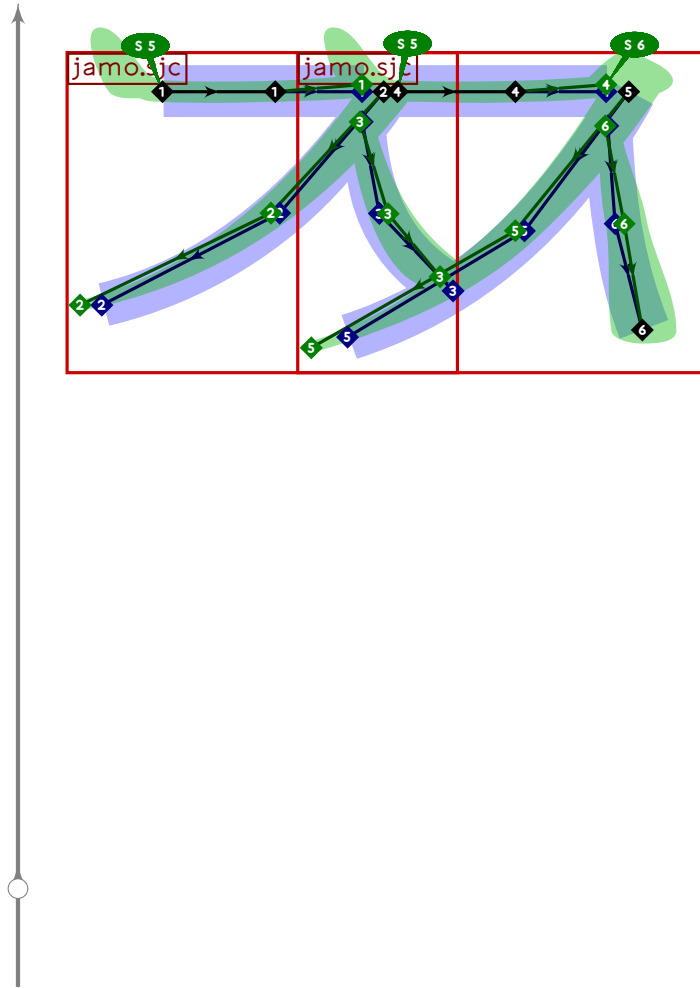
```



```

536 % hangul lead chitueumcieuc
537 begintsuglyph("uni114E",78);
538 hangul,jamo.sjc(1,1,false)(whatever,lixf,loxf);
539 tsu_render;
540 endtsuglyph;
541

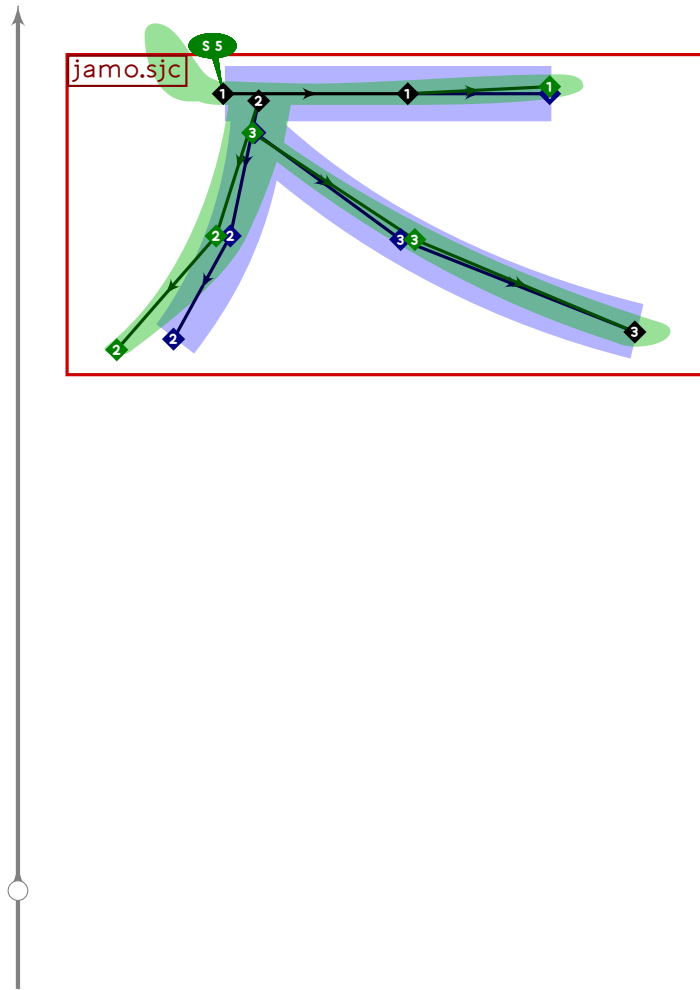
```



```

542 % hangul lead chitueumssangcieuc
543 begintsuglyph("uni114F",79);
544 hangul.combine.lr(227,226)(whatever,lixf,loxf);
545 tsu_render;
546 endtsuglyph;
547

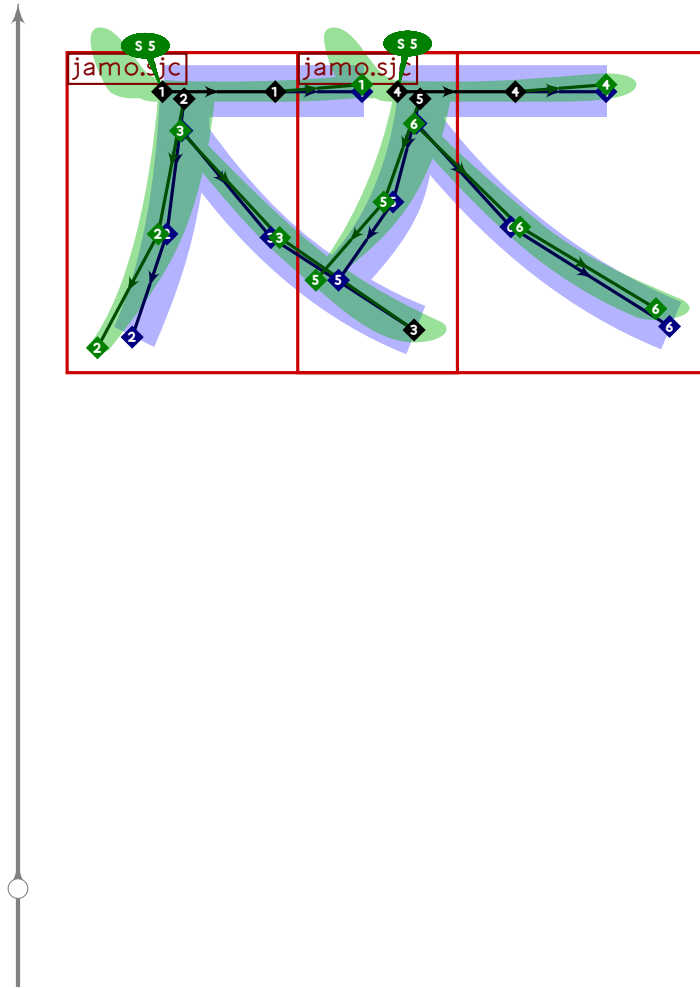
```



```

548 % hangul lead ceongchieumcieuc
549 begint Suglyph("uni1150";80);
550 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
551 tsu_render;
552 endtsuglyph;
553

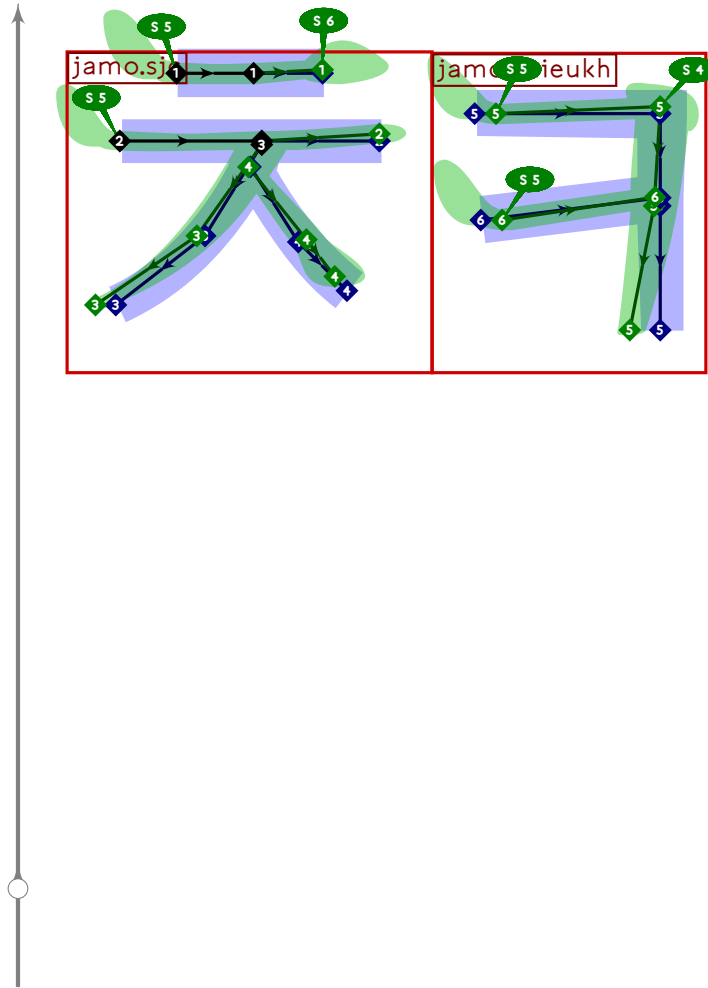
```



```

554 % hangul lead ceongchieumssangcieuc
555 begintsuglyph("uni1151",81);
556 hangul.combine.lr(228,229)(whatever,lxf,loxf);
557 tsu_render;
558 endtsuglyph;
559

```

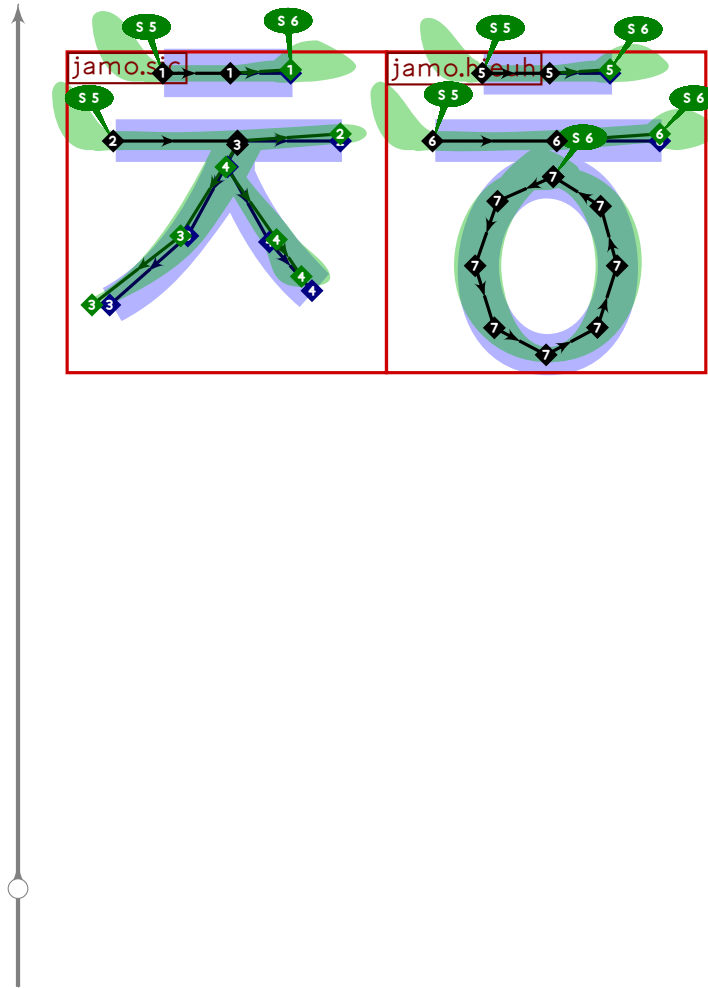


```

560 % hangul lead chieuch-khieukh
561 begint Suglyph("uni1152";82);
562 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
563 tsu_render;
564 endtsuglyph;
565

```

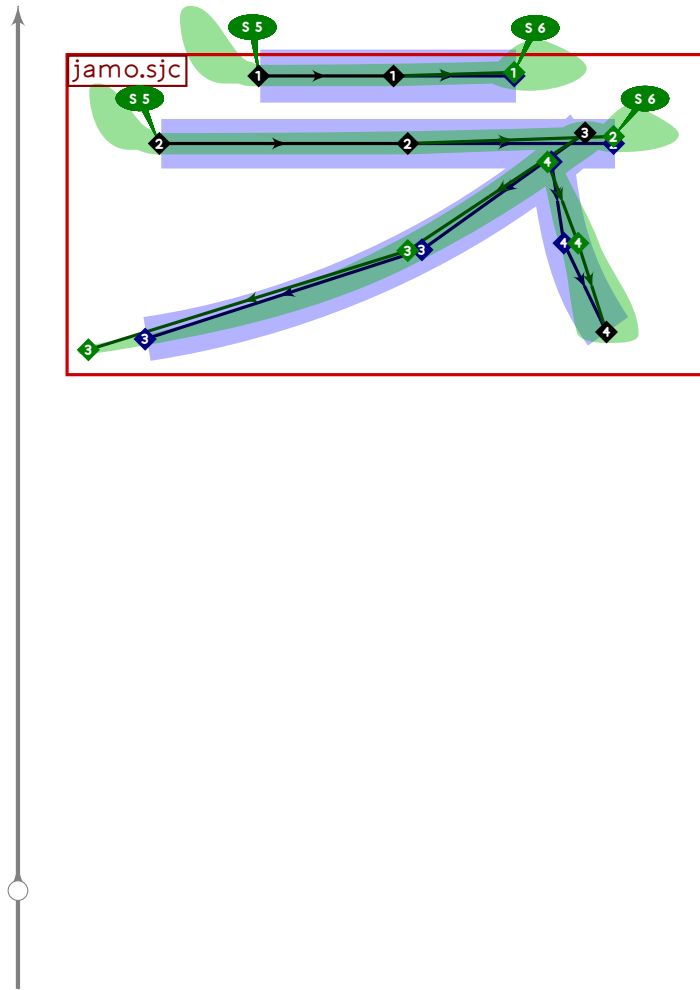




```

566 % hangul lead chieuch-hieuh
567 begint Suglyph("uni1153";83);
568 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
569 tsu_render;
570 endtsuglyph;
571

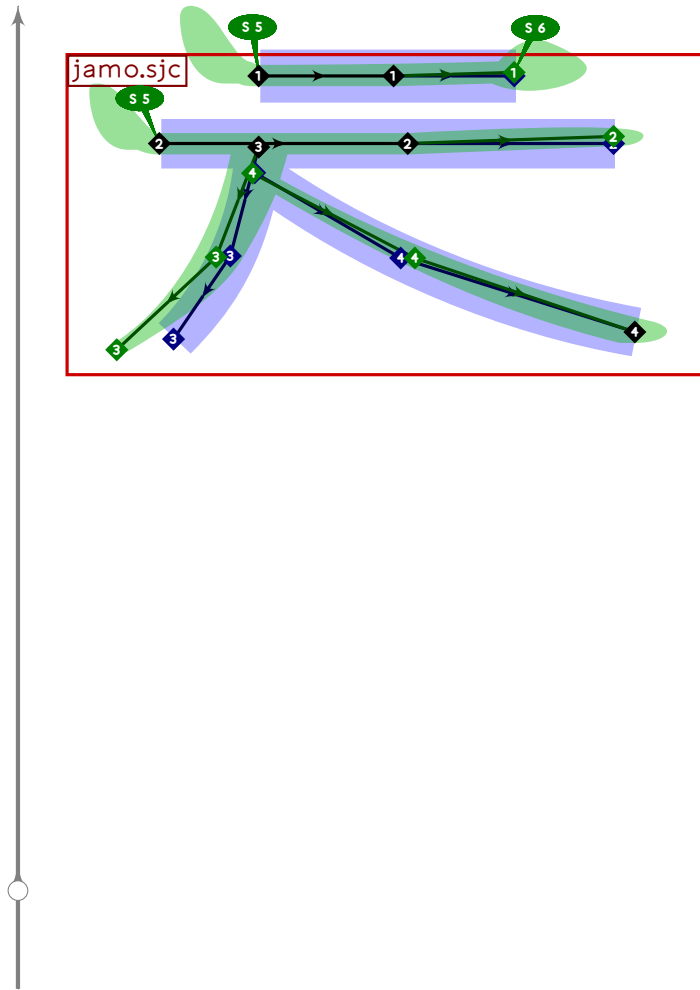
```



```

572 % hangul lead chitueumcieuc
573 begintsuglyph("uni1154";84);
574 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
575 tsu_render;
576 endtsuglyph;
577

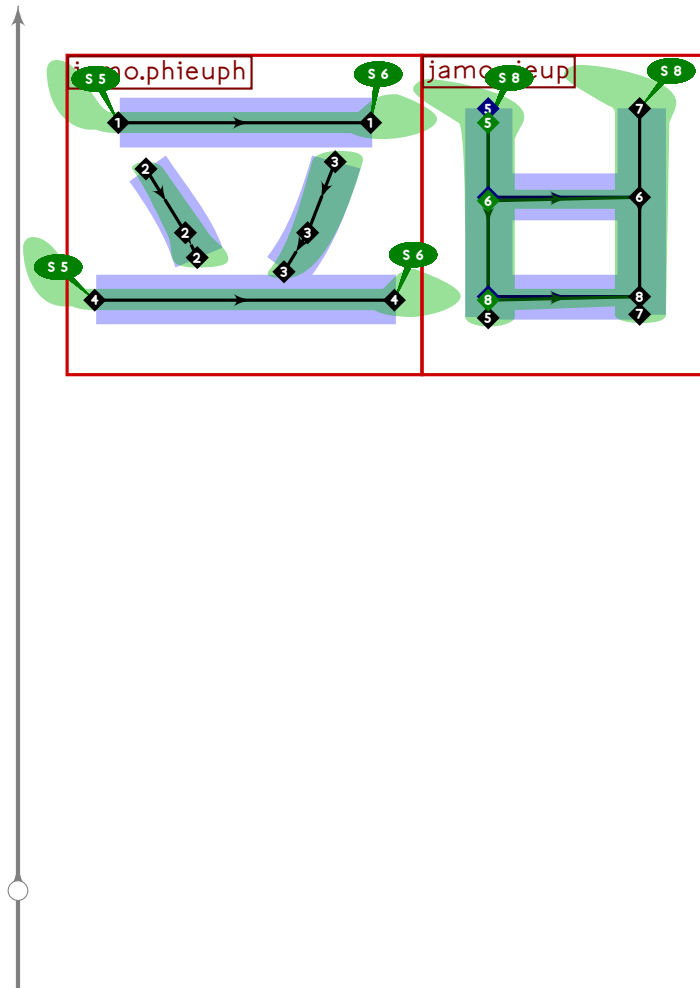
```



```

578 % hangul lead ceongchieumcieuc
579 begintsuglyph("uni1155";85);
580 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
581 tsu_render;
582 endtsuglyph;
583

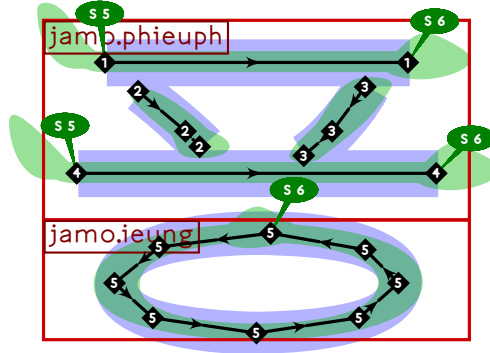
```



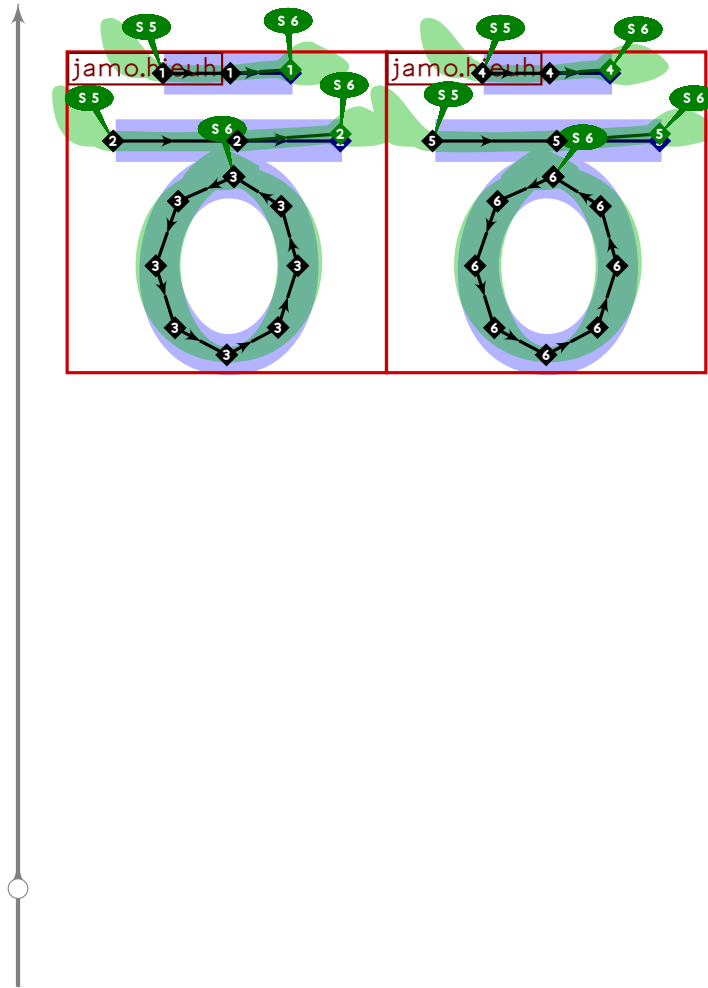
```

584 % hangul lead phieuph-pieup
585 begintsuglyph("uni1156",86);
586 hangul.combine.lr(117,107)(whatever,lixf,loxf);
587 tsu_render;
588 endtsuglyph;
589

```



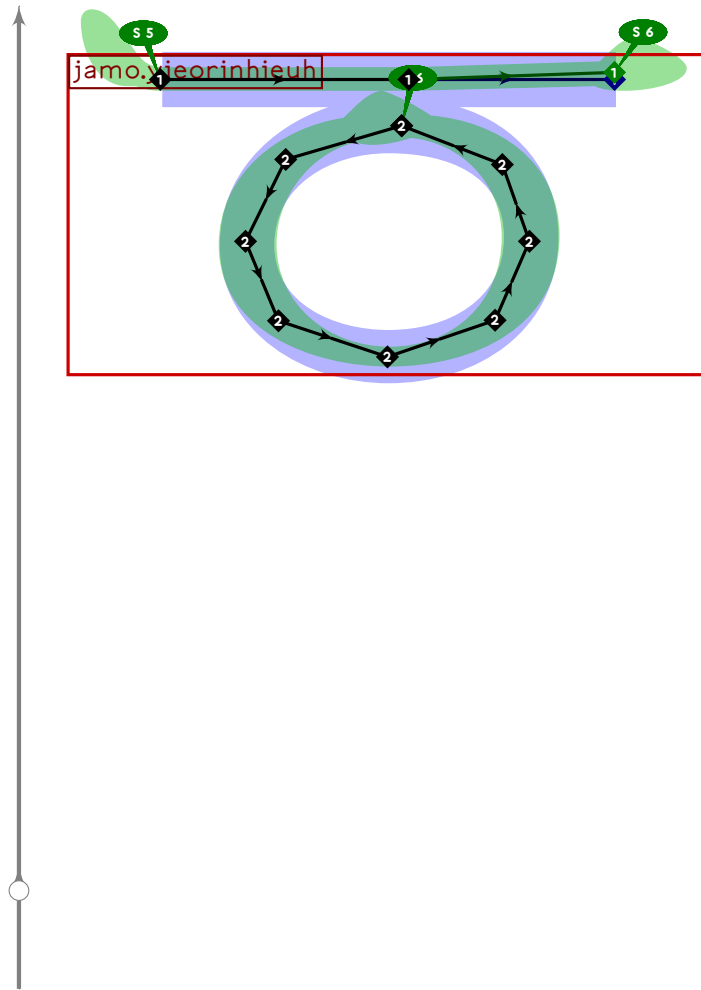
```
590 % hangul lead kapyeounphieuph
591 begintsuglyph("uni1157";87);
592 hangul.combine.tb(117,521)(whatever,
593   hxf((250,850),(850;-50)) transformed lixf,loxf);
594 tsu_render;
595 endtsuglyph;
596
```



```

597 % hangul lead ssanghieuh
598 begintsuglyph("uni1158",88);
599 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
600 tsu_render;
601 endtsuglyph;
602

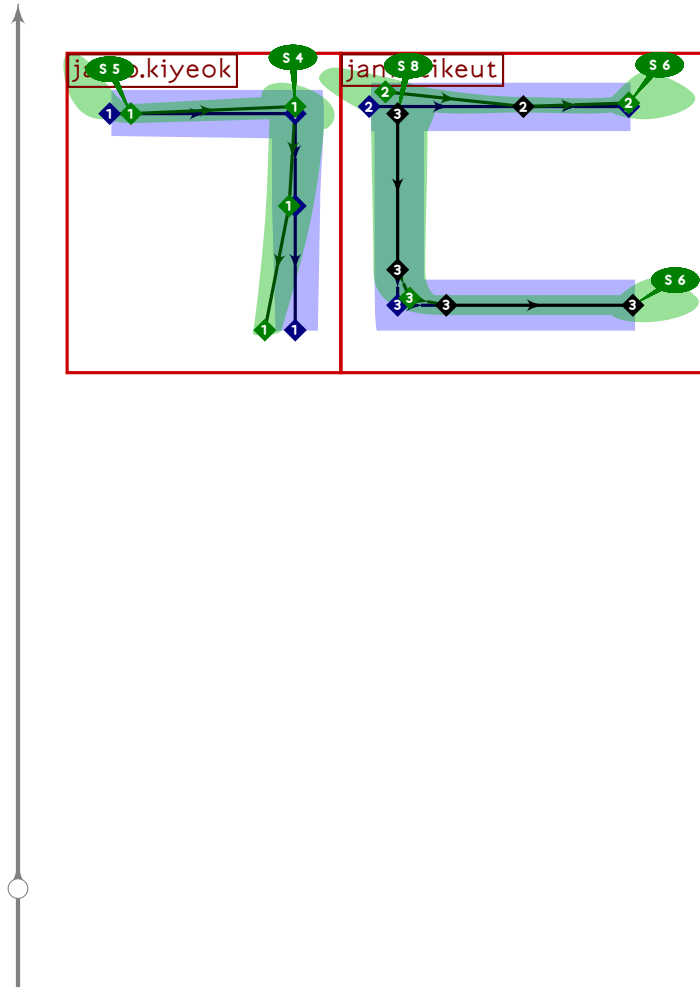
```



```

603 % hangul lead yeorinhieuh
604 begint Suglyph("uni1159";89);
605 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
606 tsu_render;
607 endtsuglyph;
608

```

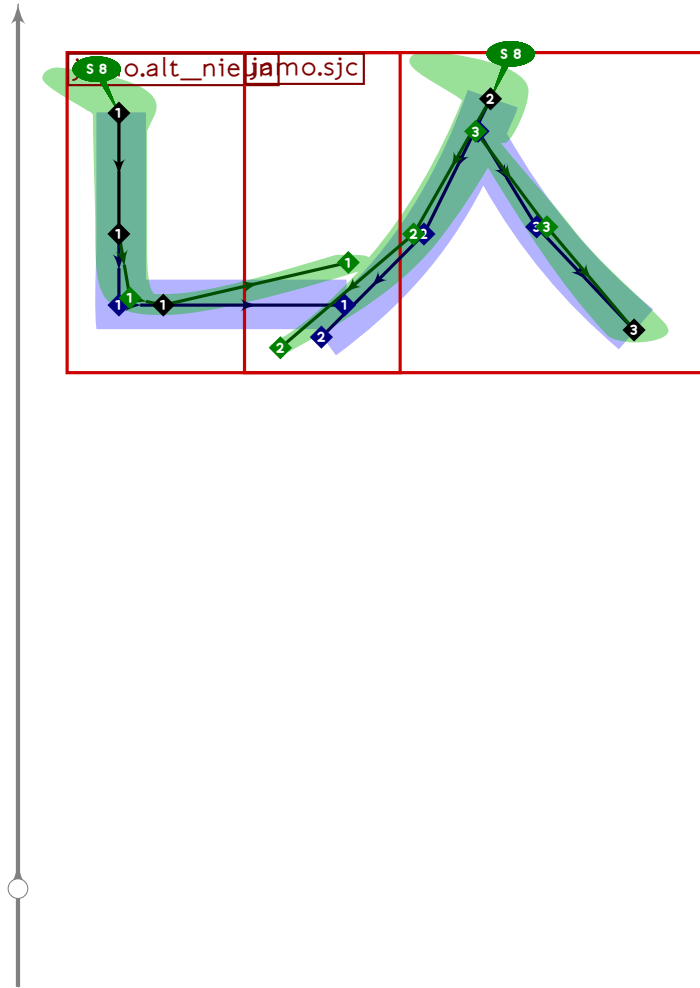


```

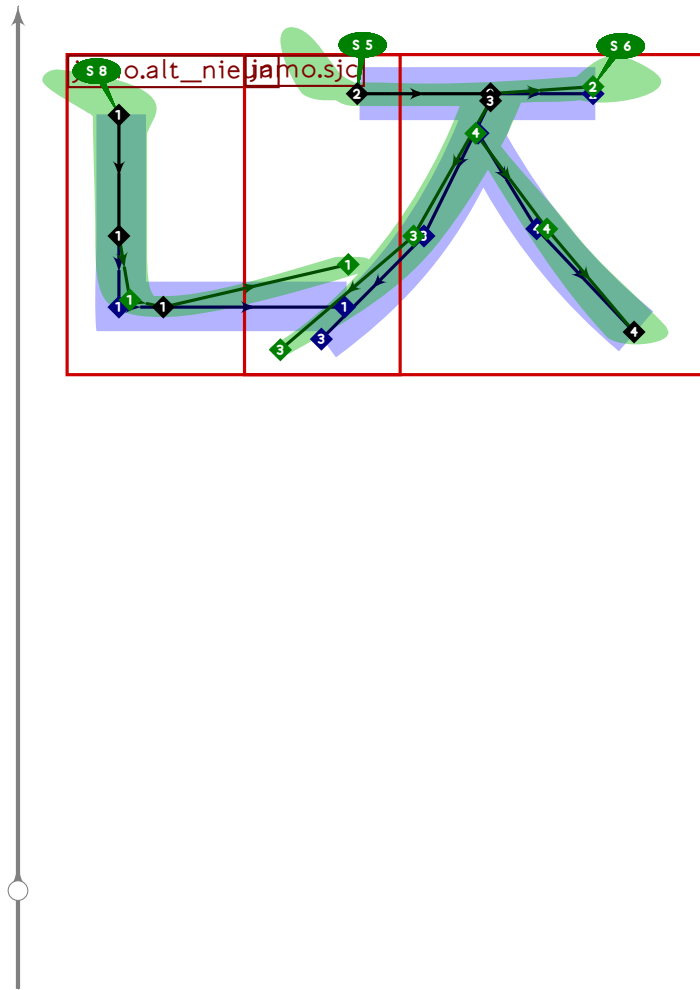
609 % hangul lead kiyeok-tikeut
610 begintsuglyph("uni115A";90);
611 hangul.combine.lr(100,103)(whatever,lixf,loxf);
612 tsu_render;
613 endtsuglyph;
614

```





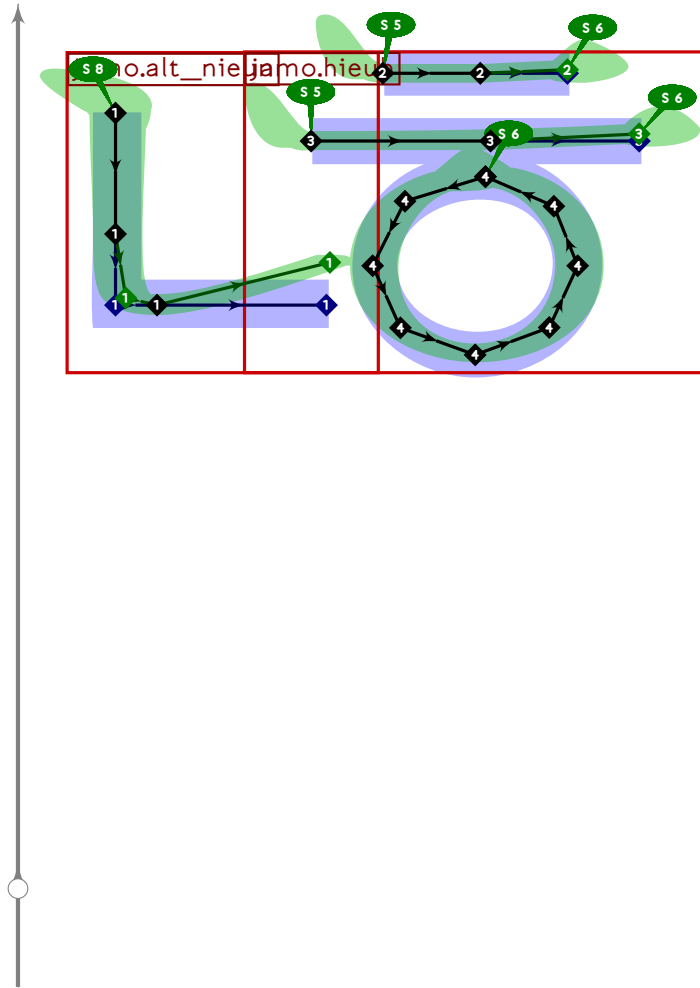
```
615 % hangul lead nieun-sios
616 begintsuglyph("uni115B";91);
617 hangul.combine.lr(202,109)(whatever,lixf,loxf);
618 tsu_render;
619 endtsuglyph;
620
```



```

621 % hangul lead nieun-cieuc
622 begintsuglyph("uni115C";92);
623 hangul.combine.lr(202,112)(whatever,lixf,loxf);
624 tsu_render;
625 endtsuglyph;
626

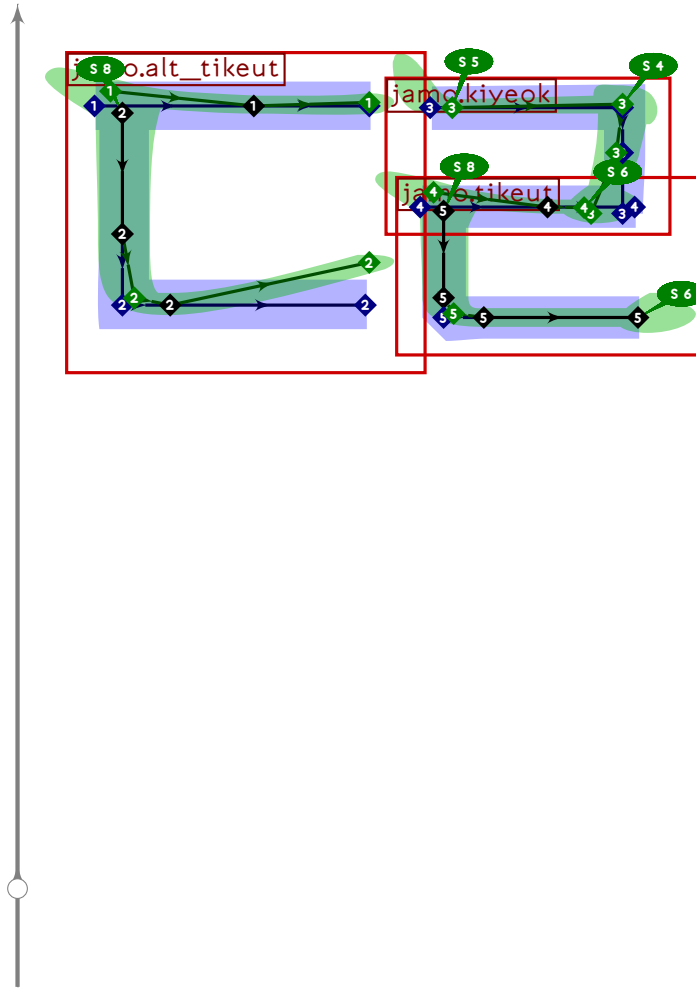
```



```

627 % hangul lead nieun-hieuh
628 begintsuglyph("uni115D";93);
629 hangul.combine.lr(202,118)(whatever,lixf,loxf);
630 tsu_render;
631 endtsuglyph;
632

```



```

633 % hangul lead tikeut-rieul
634 begintsuglyph("uni115E";94);
635 hangul.combine.lr(203,105)(whatever,lixf,loxf);
636 tsu_render;
637 endtsuglyph;
638
639 % uni115F "lead filler" is a space created by assemble-font script
640
641 _____
642

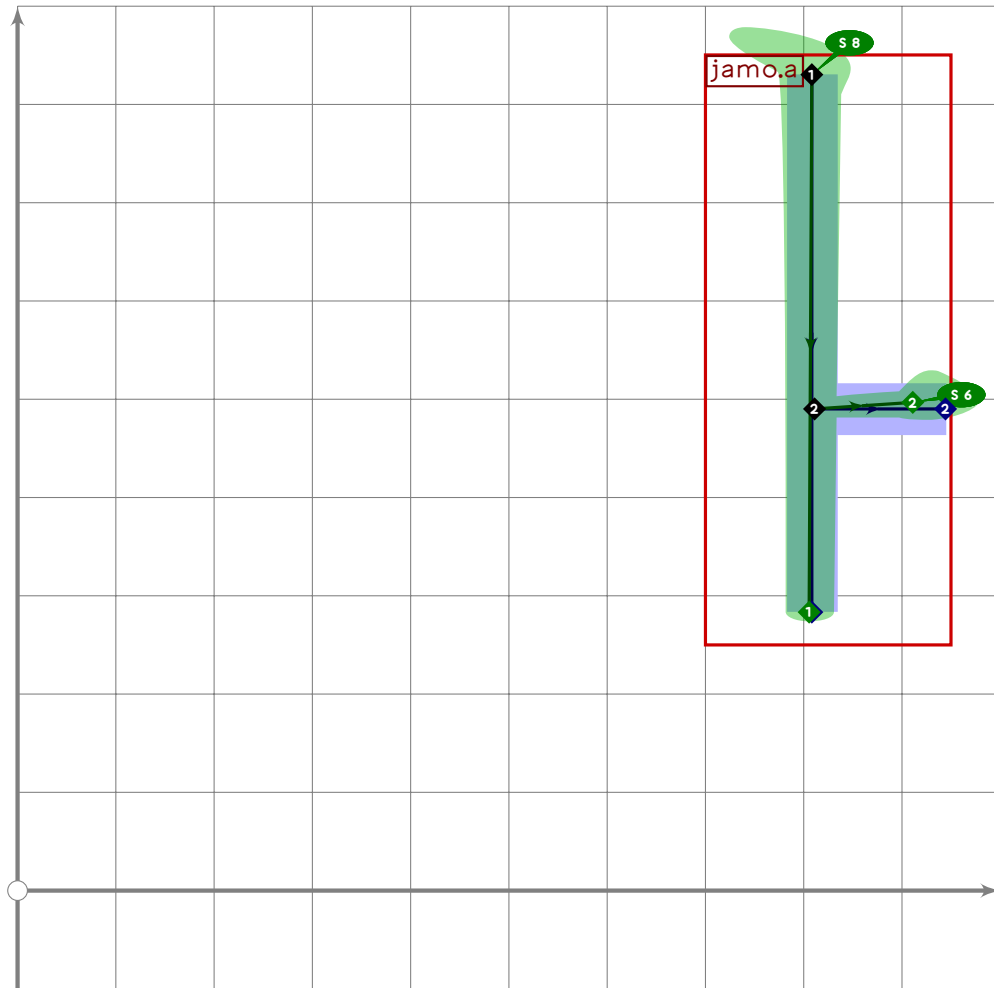
```

## Hangul Jungseong (Vowel) Jamo

```

643 % HANGUL JUNGSEONG (VOWEL) JAMO
644
645 tsu_rescale_full;
646
647 % uni1160 "vowel filler" is a space created by assemble-font script
648

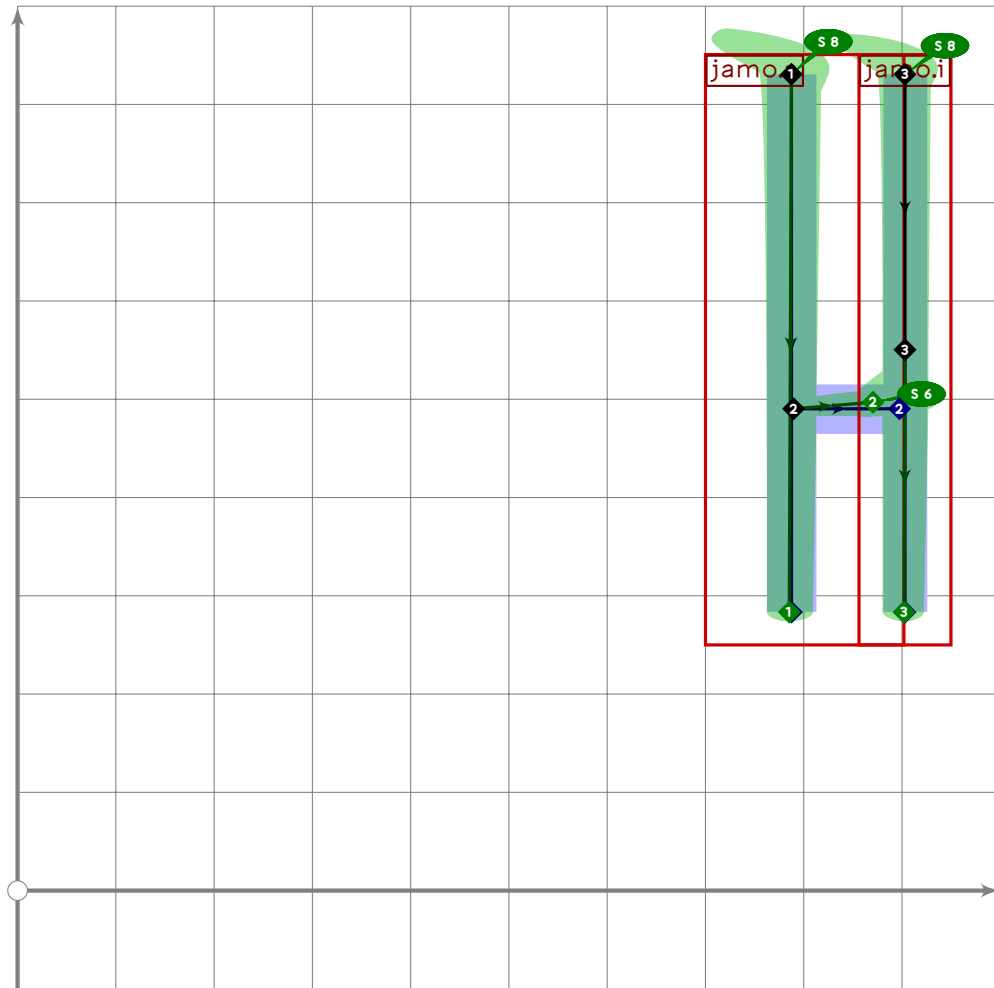
```



```

649 % hangul vowel a
650 begint Suglyph("uni1161";97);
651 hangul.jamo.a(300,vixf,voxf);
652 tsu_render;
653 endtsuglyph;
654

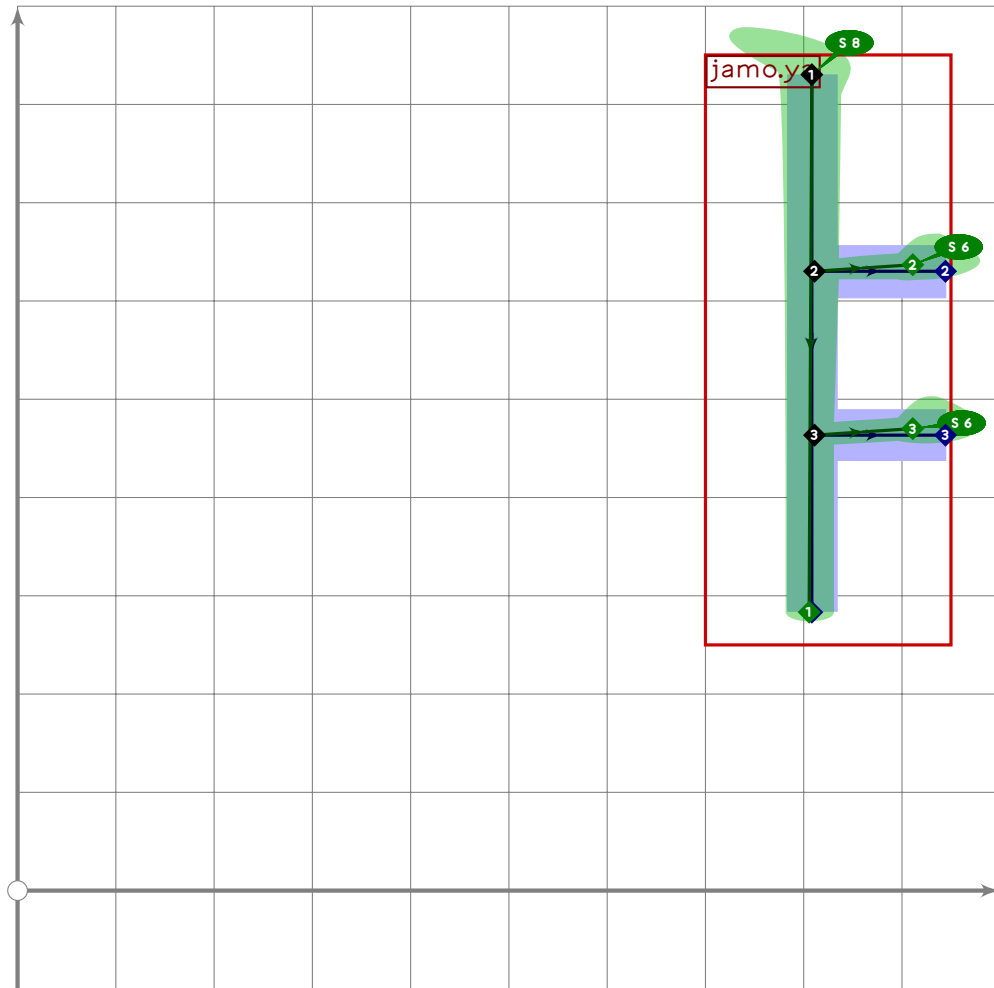
```



```

655 % hangul vowel ae
656 begint Suglyph("uni1162"98);
657 hangul.combine.lr(300,320)(301,vixf,voxf);
658 tsu_render;
659 endtsuglyph;
660

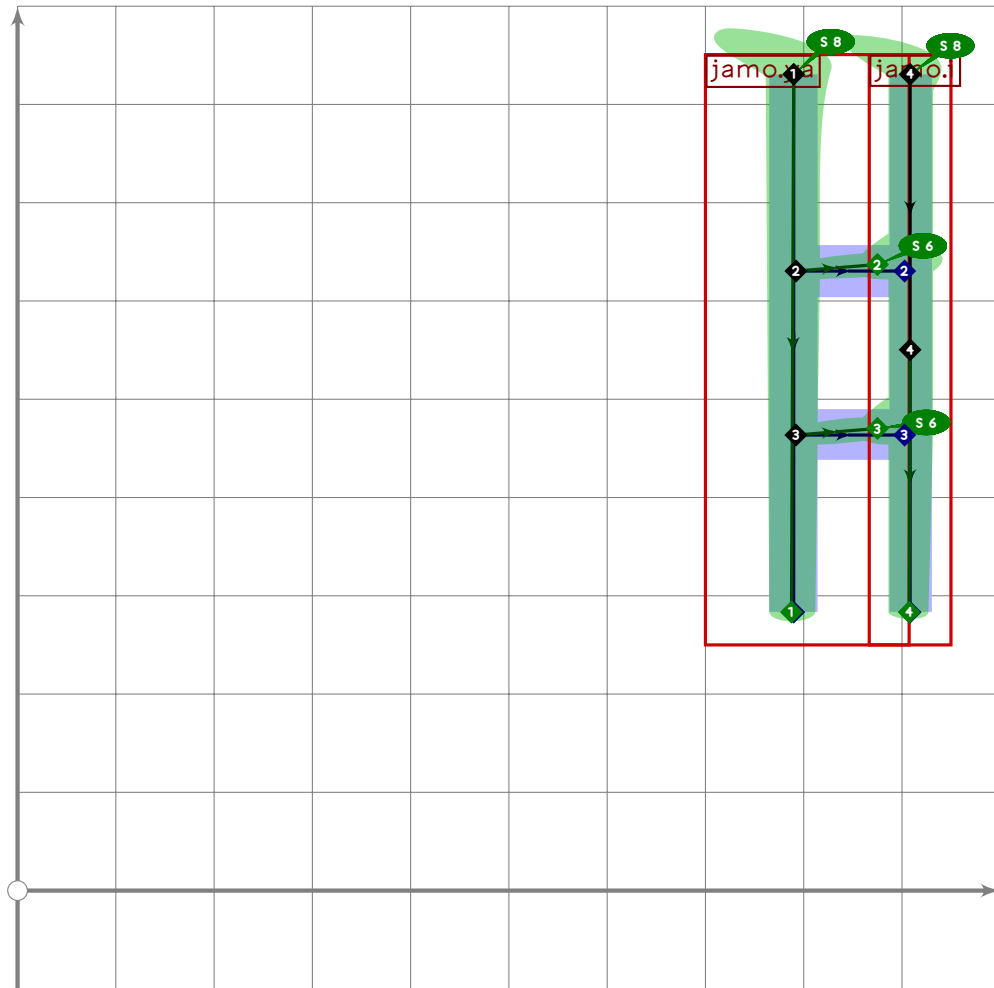
```



```

661 % hangul vowel ya
662 begint Suglyph("uni1163",99);
663 hangul.jamo.ya(302,vixf,vox);
664 tsu_render;
665 endtsuglyph;
666

```

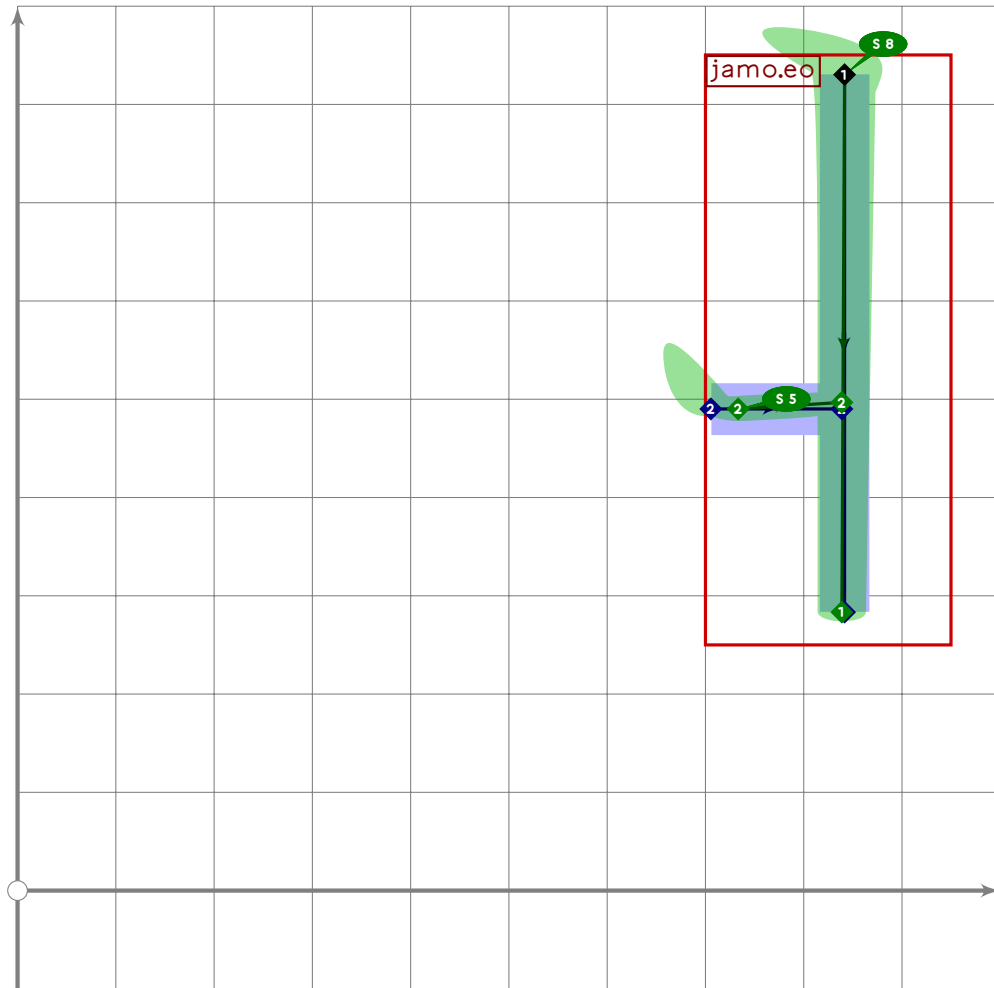


```

667 % hangul vowel yae
668 begintsuglyph("uni1164",100);
669 hangul.combine.lr(302,320)(303,vixf,voxf);
670 tsu_render;
671 endtsuglyph;
672

```

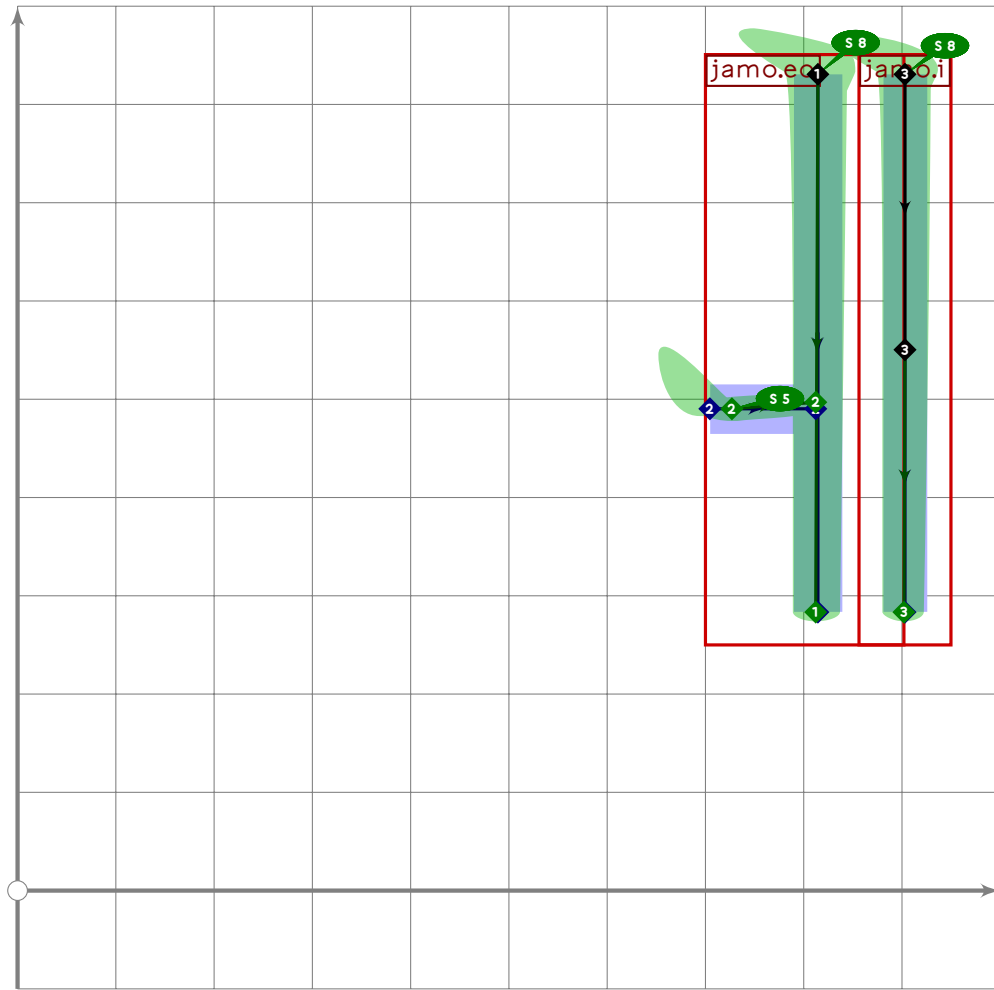




```

673 % hangul vowel eo
674 begint Suglyph("uni1165",101);
675 hangul.jamo.eo(304,vixf,vox f);
676 tsu_render;
677 endtsuglyph;
678

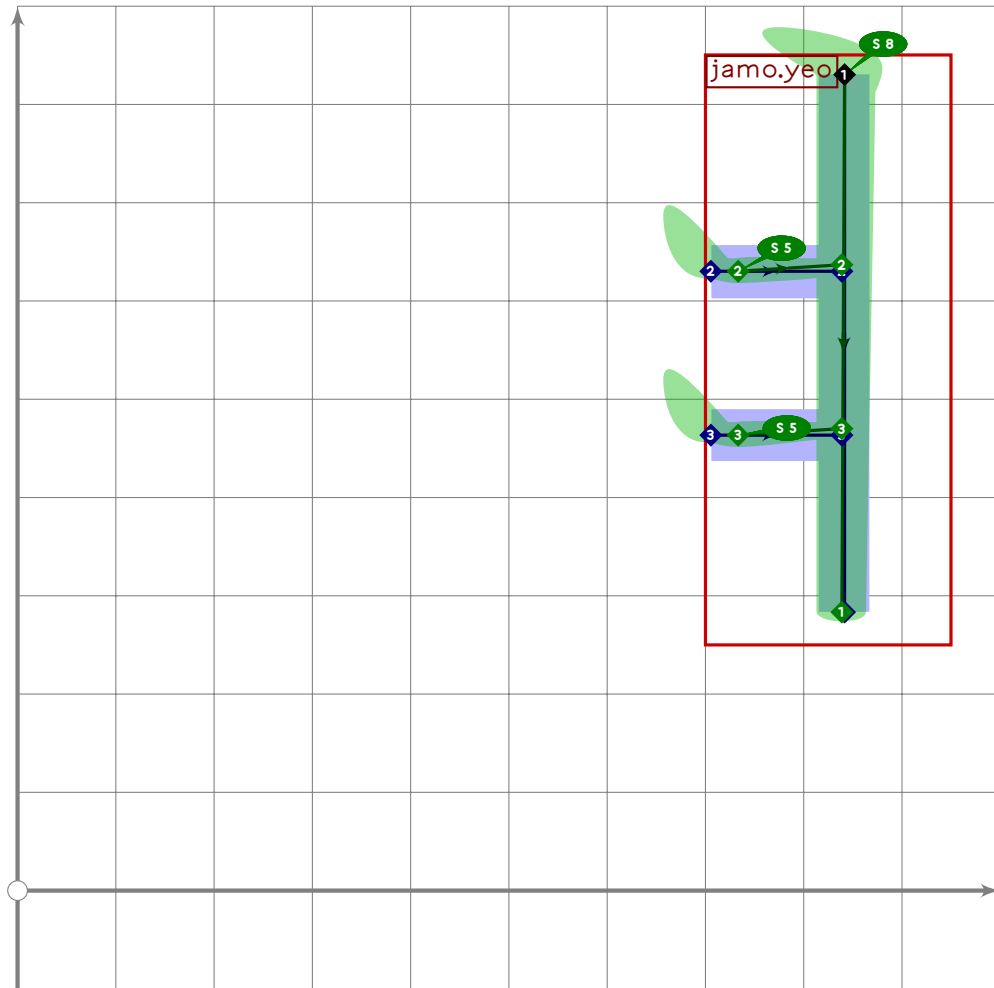
```



```

679 % hangul vowel e
680 begint Suglyph("uni1166",102);
681 hangul.combine.lr(304,320)(305,vixf,voxf);
682 tsu_render;
683 endtsuglyph;
684

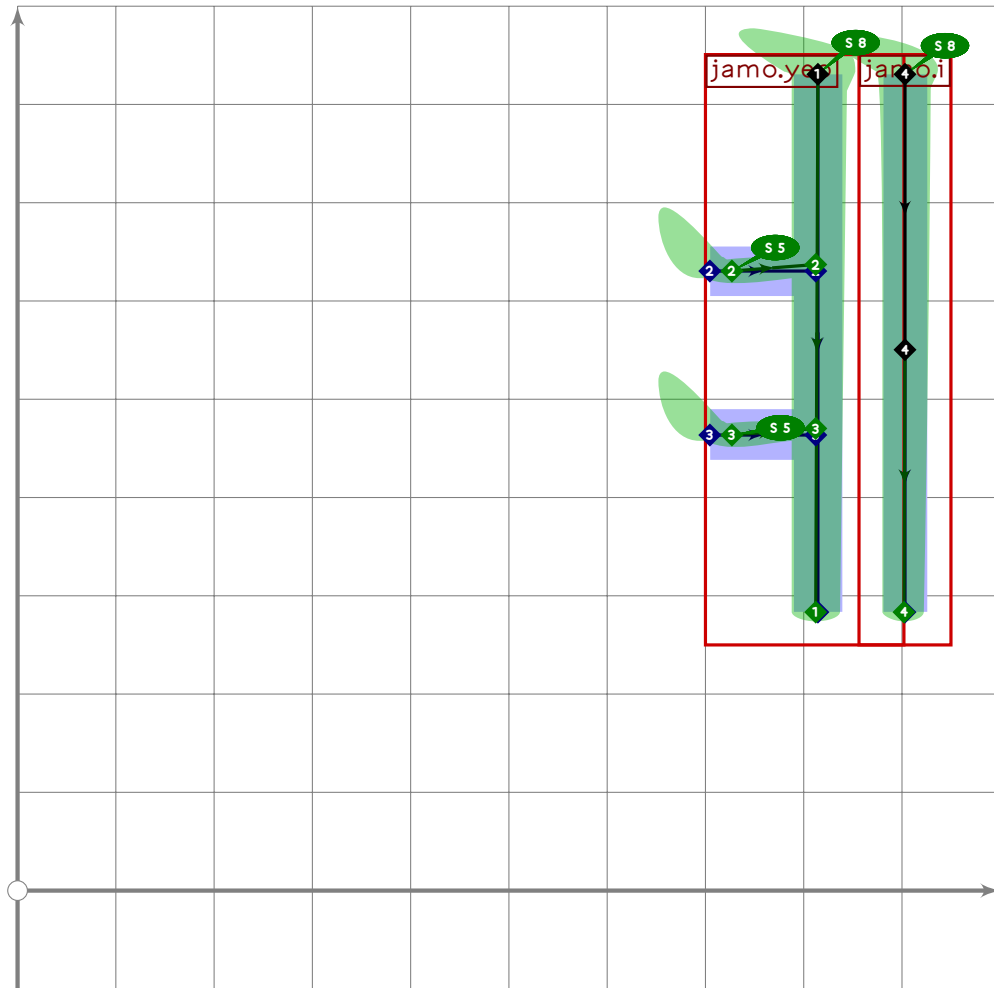
```



```

685 % hangul vowel yeo
686 begint Suglyph("uni1167",103);
687 hangul.jamo.yeo(306,vixf,voxf);
688 tsu_render;
689 endtsuglyph;
690

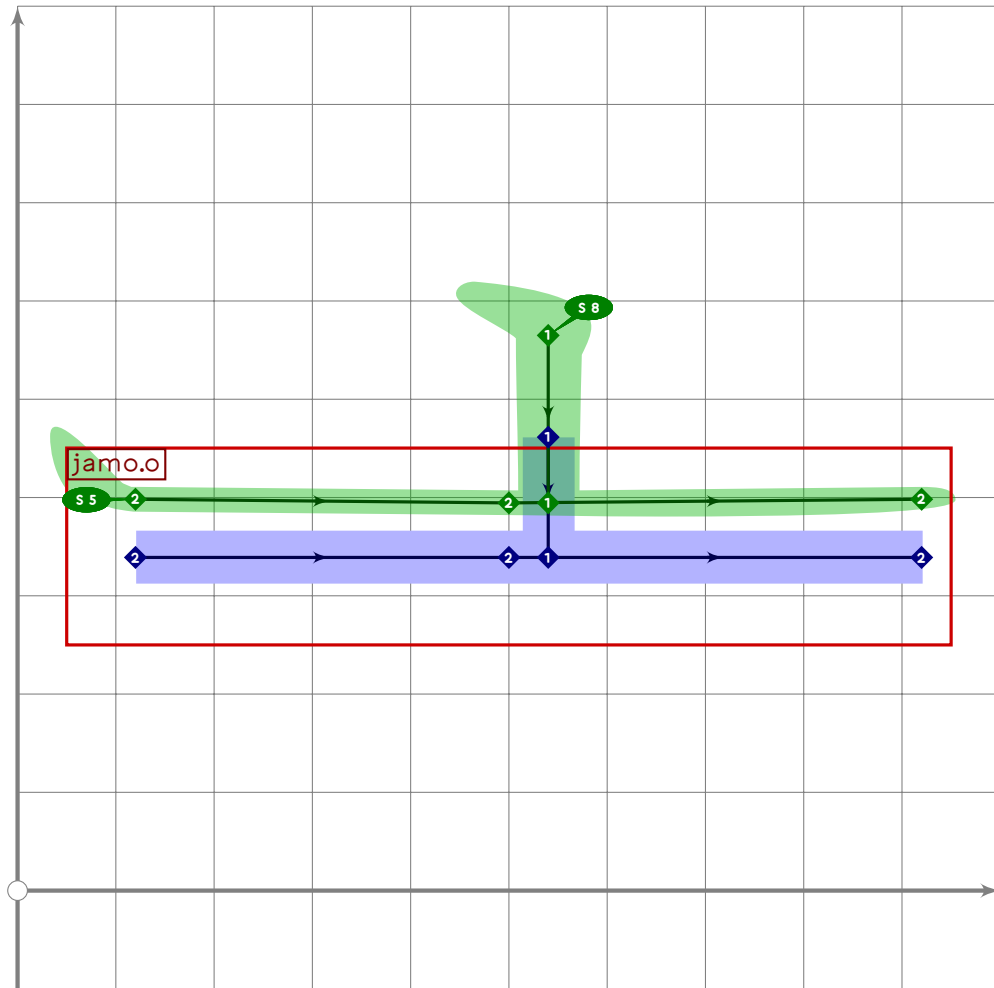
```



```

691 % hangul vowel ye
692 begintsuglyph("uni1168",104);
693 hangul.combine.lr(306,320)(307,vixf,voxf);
694 tsu_render;
695 endtsuglyph;
696

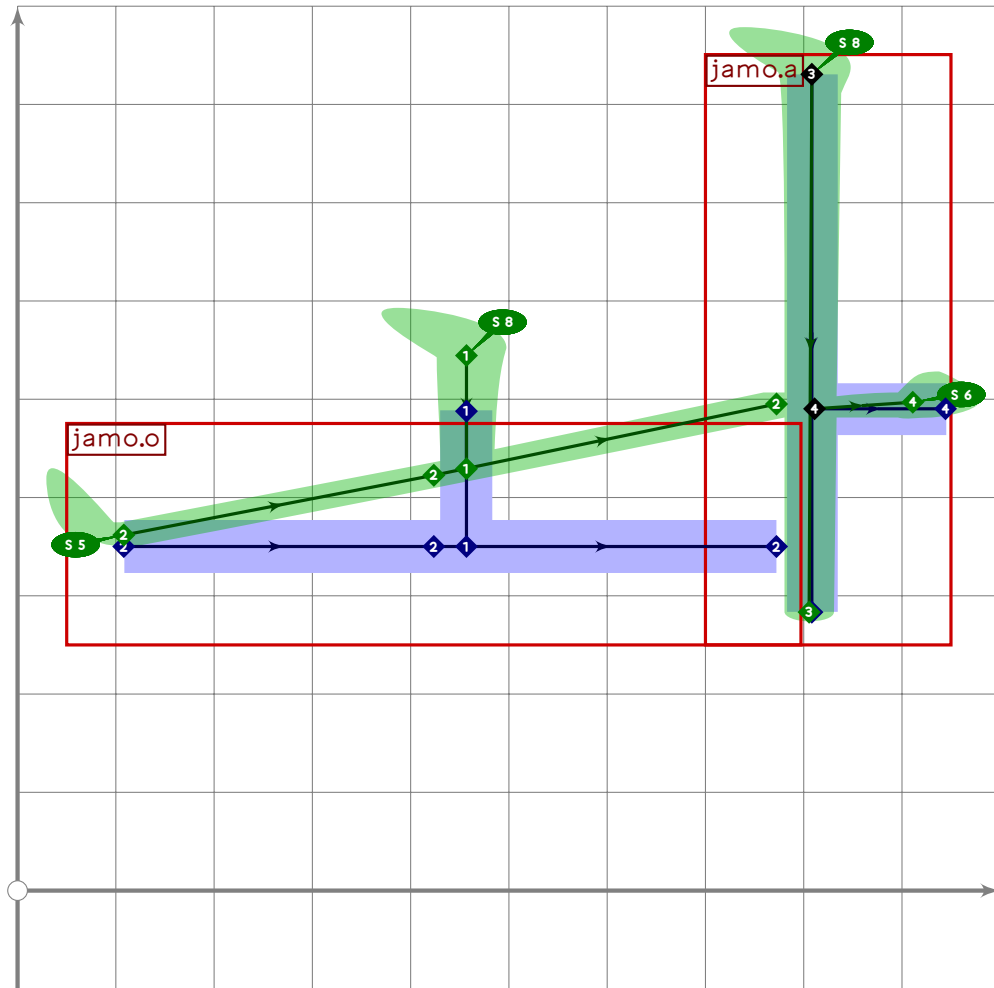
```



```

697 % hangul vowel o
698 begint Suglyph("uni1169",105);
699 hangul.jamo.o(308,vixf,voxf);
700 tsu_render;
701 endtsuglyph;
702

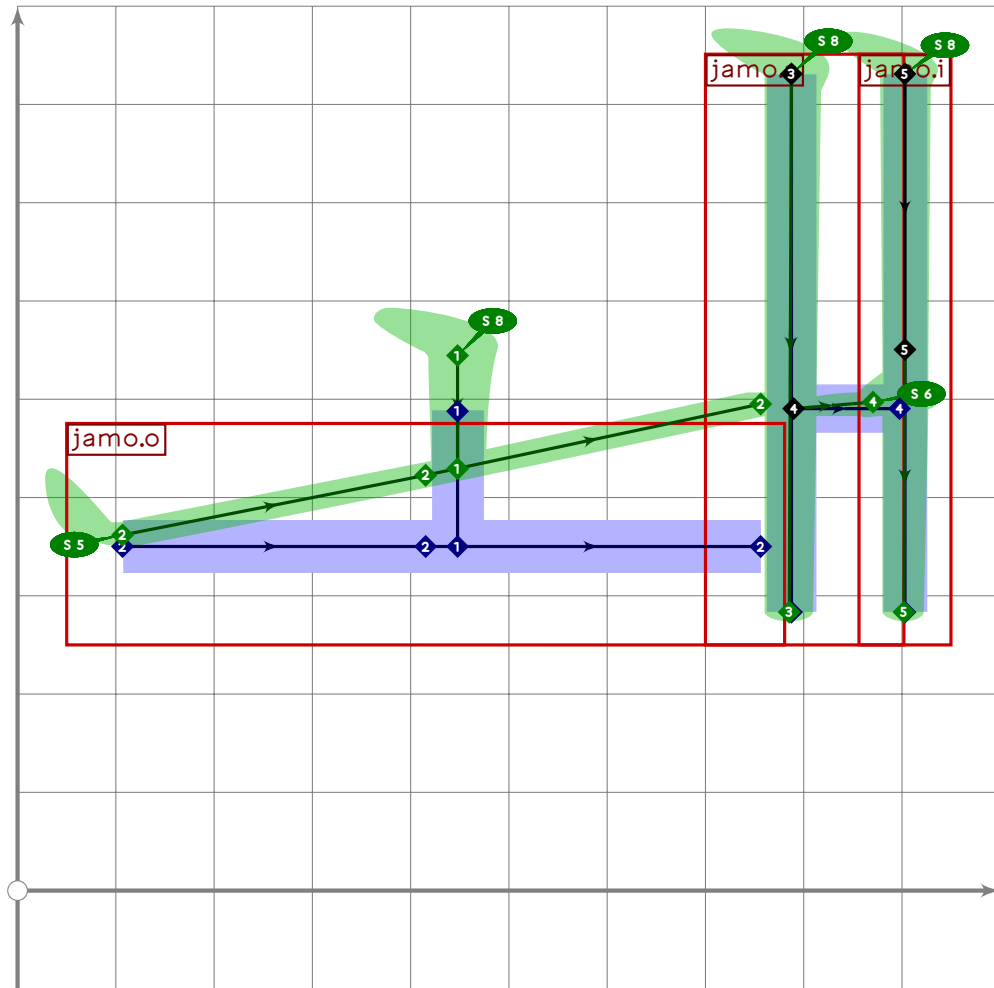
```



```

703 % hangul vowel wa
704 begint Suglyph("uni116A",106);
705 hangul.combine.lr(308,300)(309,vixf,voxf);
706 tsu_render;
707 endtsuglyph;
708

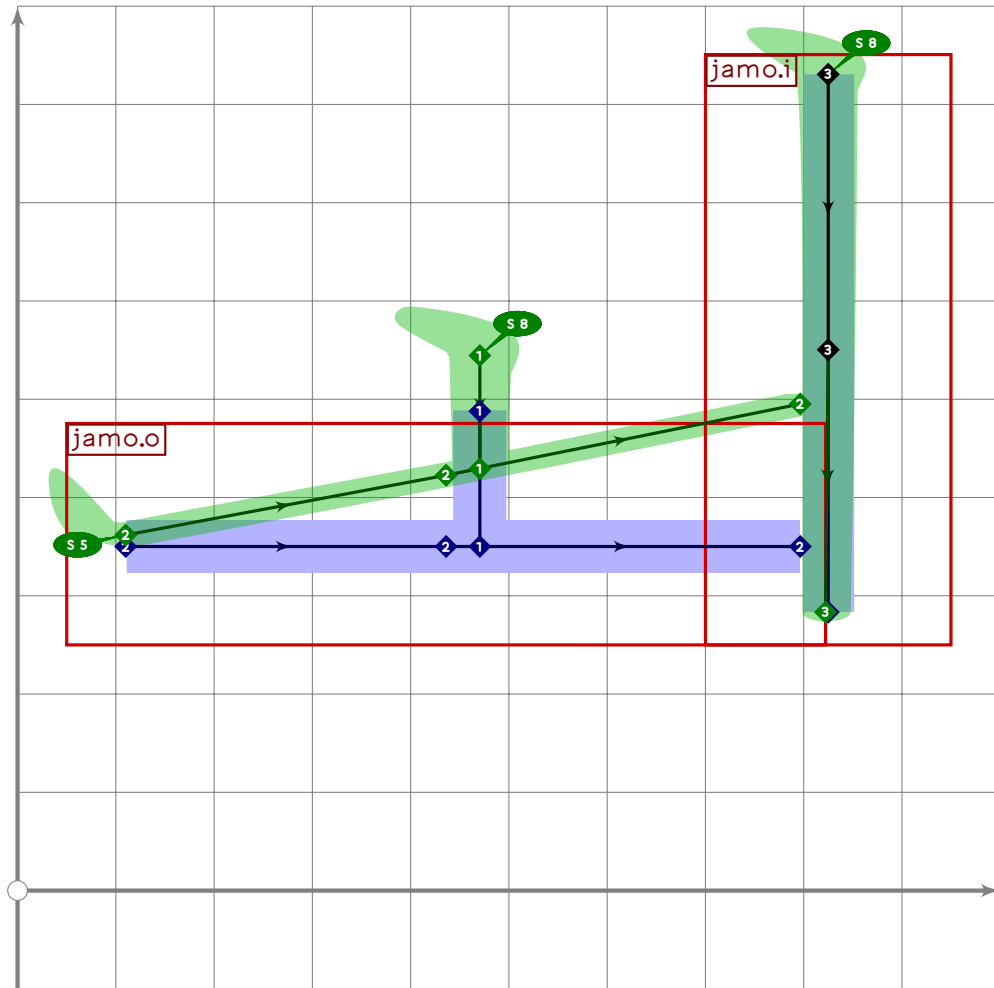
```



```

709 % hangul vowel wae
710 begint Suglyph("uni116B",107);
711 hangul.combine.lr(308,301)(310,vixf,voxf);
712 tsu_render;
713 endtsuglyph;
714

```

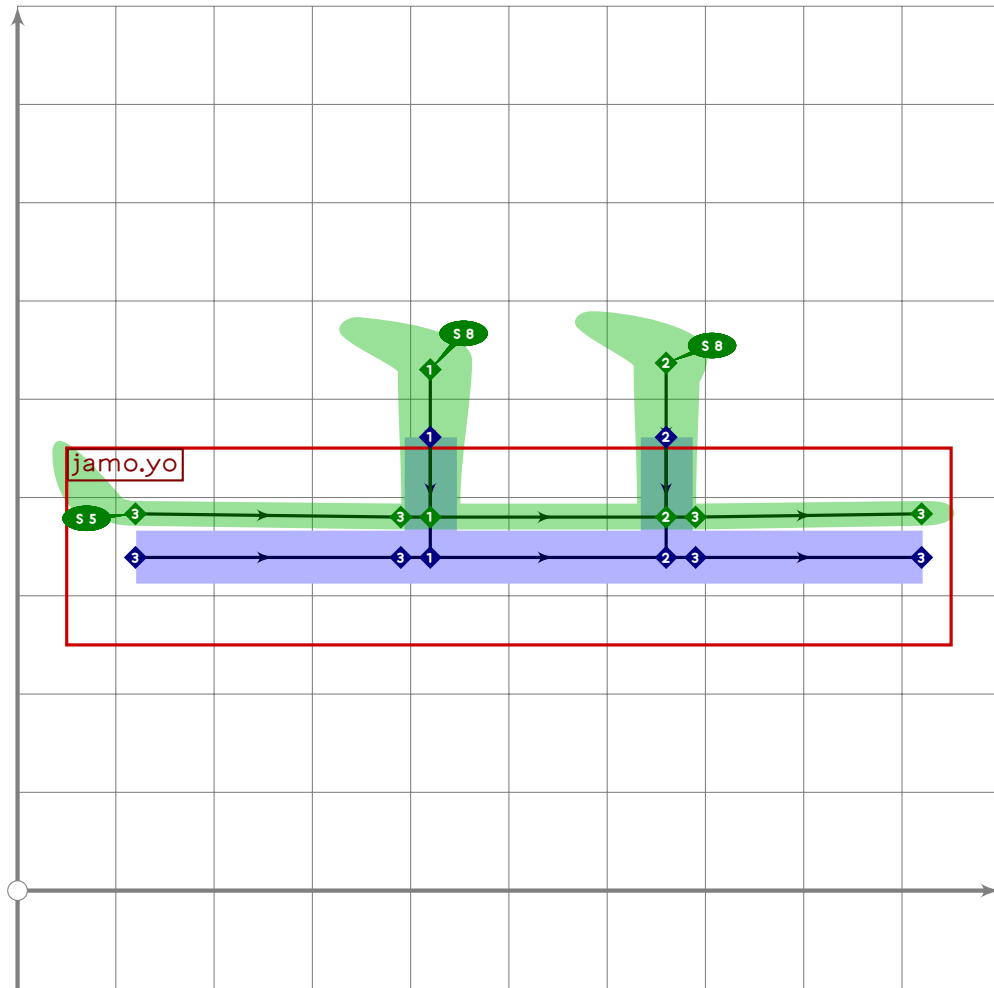


```

715 % hangul vowel oe
716 begintsuglyph("uni116C",108);
717 hangul.combine.lr(308,320)(311,vixf,voxf);
718 tsu_render;
719 endtsuglyph;
720

```

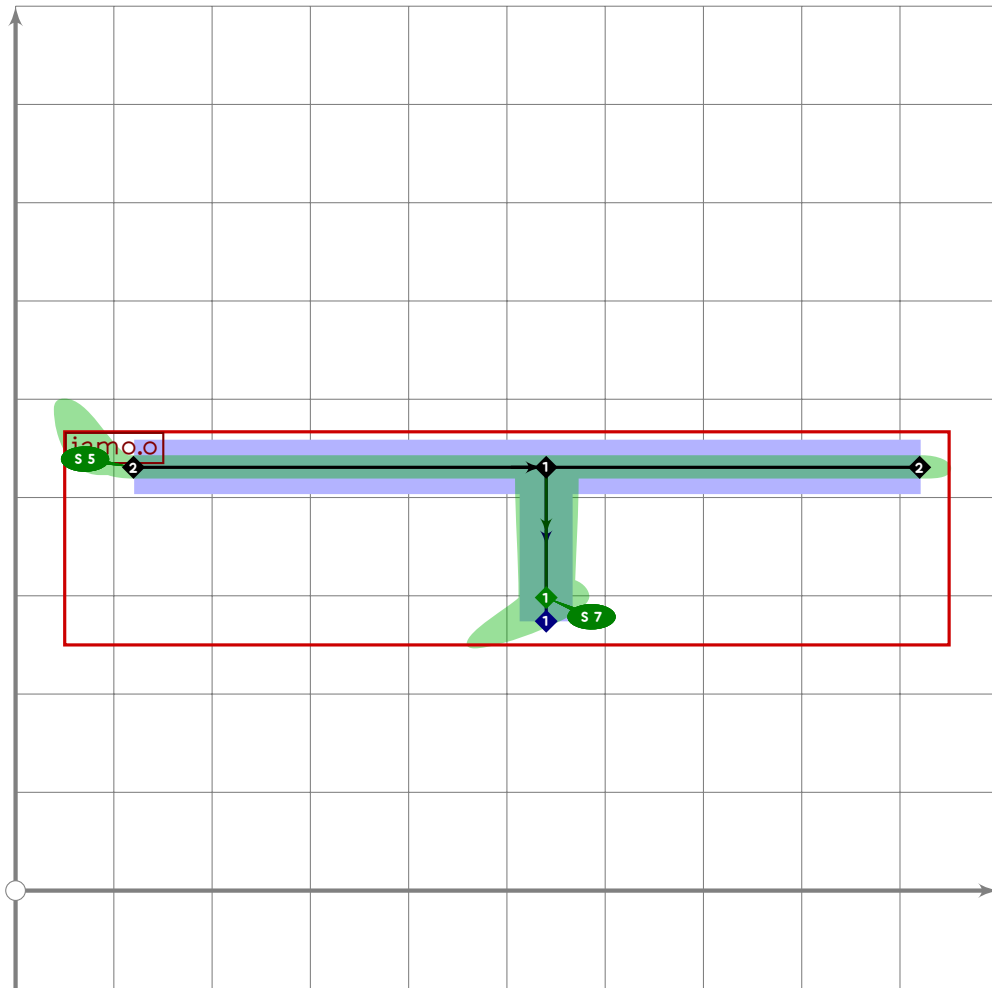




```

721 % hangul vowel yo
722 begint Suglyph("uni116D",109);
723 hangul.jamo.yo(312,vixf,voxf);
724 tsu_render;
725 endtsuglyph;
726

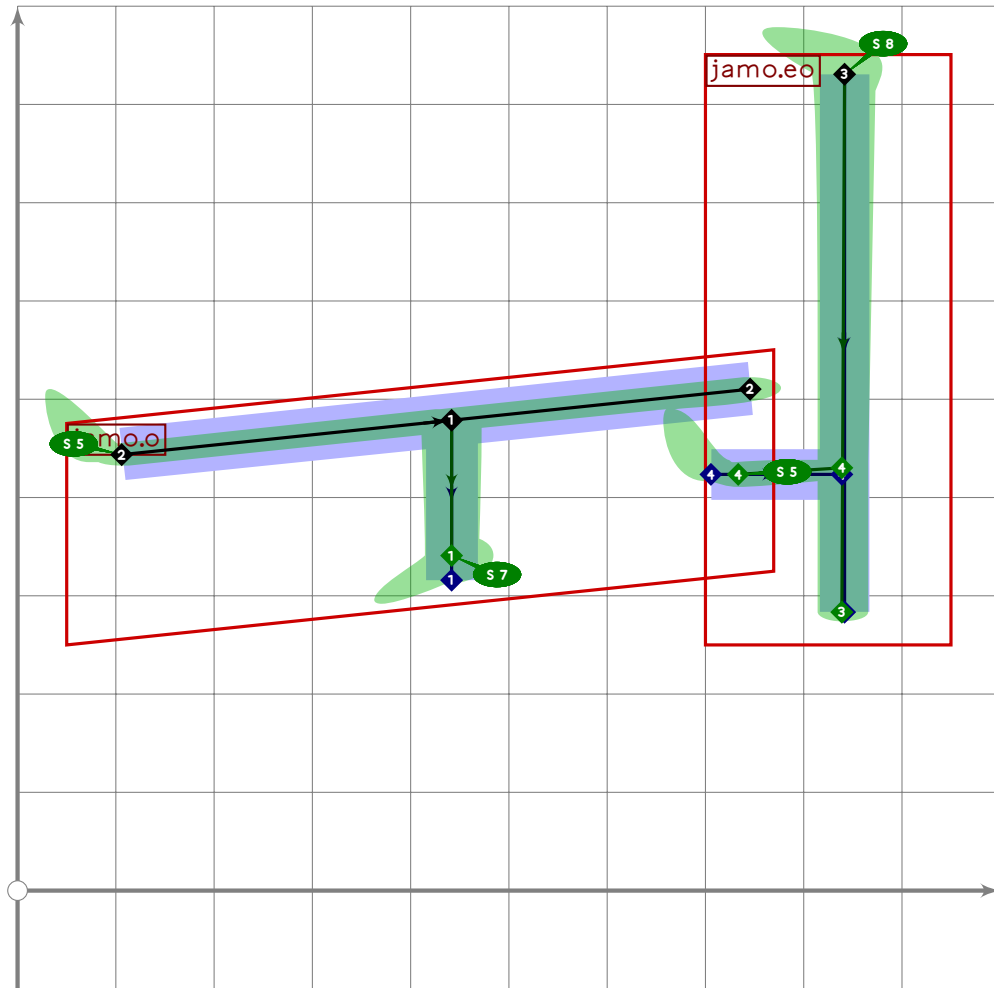
```



```

727 % hangul vowel u
728 begint Suglyph("uni116E",110);
729 hangul.jamo.u(313,vixf,voxf);
730 tsu_render;
731 endtsuglyph;
732

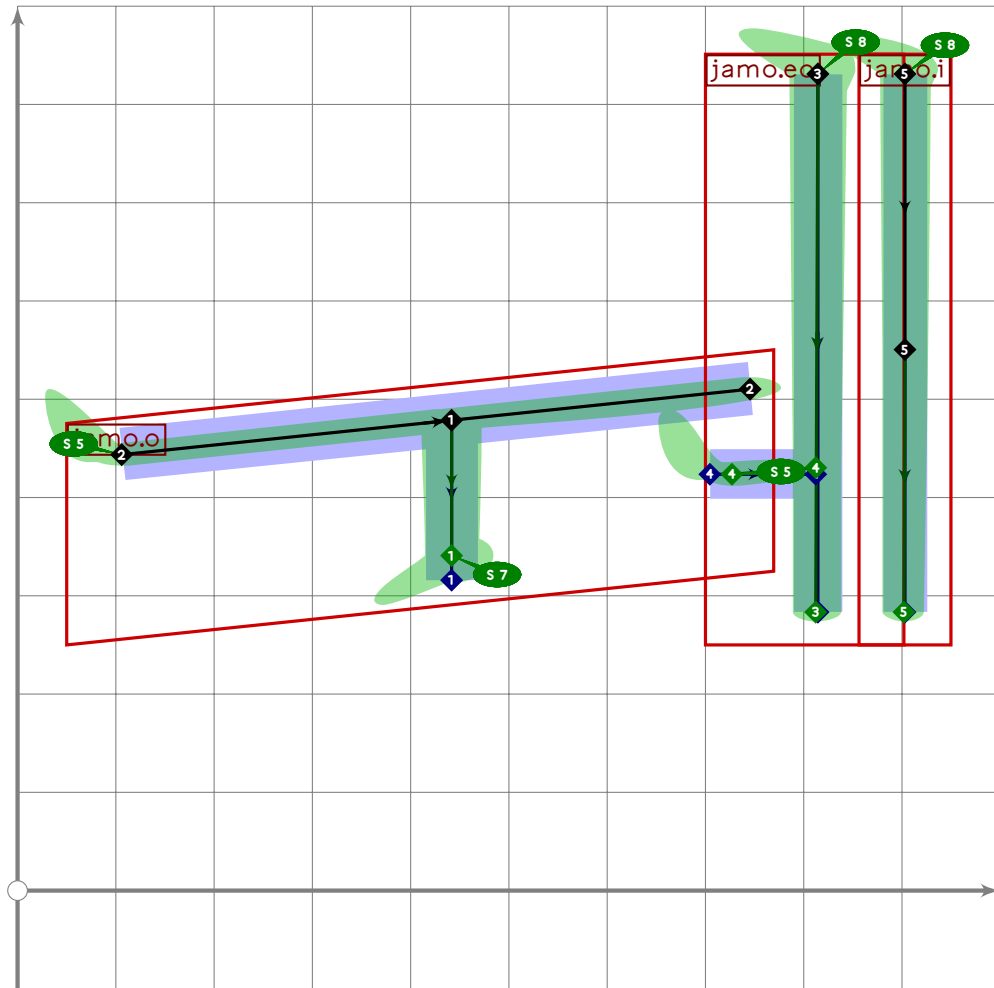
```



```

733 % hangul vowel weo
734 begint Suglyph("uni116F",111);
735 hangul.combine.lr(313,304)(314,vixf,vox);
736 tsu_render;
737 endtsuglyph;
738

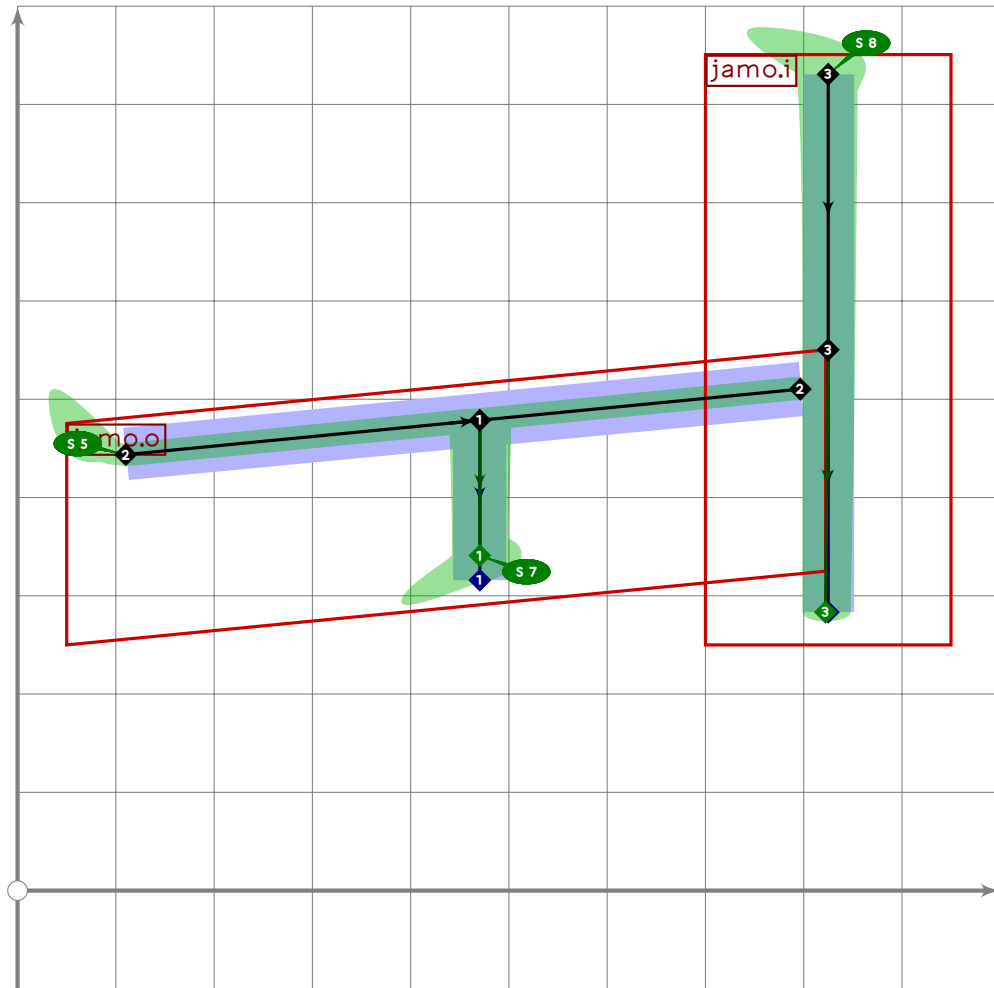
```



```

739 % hangul vowel we
740 begint Suglyph("uni1170",112);
741 hangul.combine.lr(313,305)(315,vixf,voxf);
742 tsu_render;
743 endtsuglyph;
744

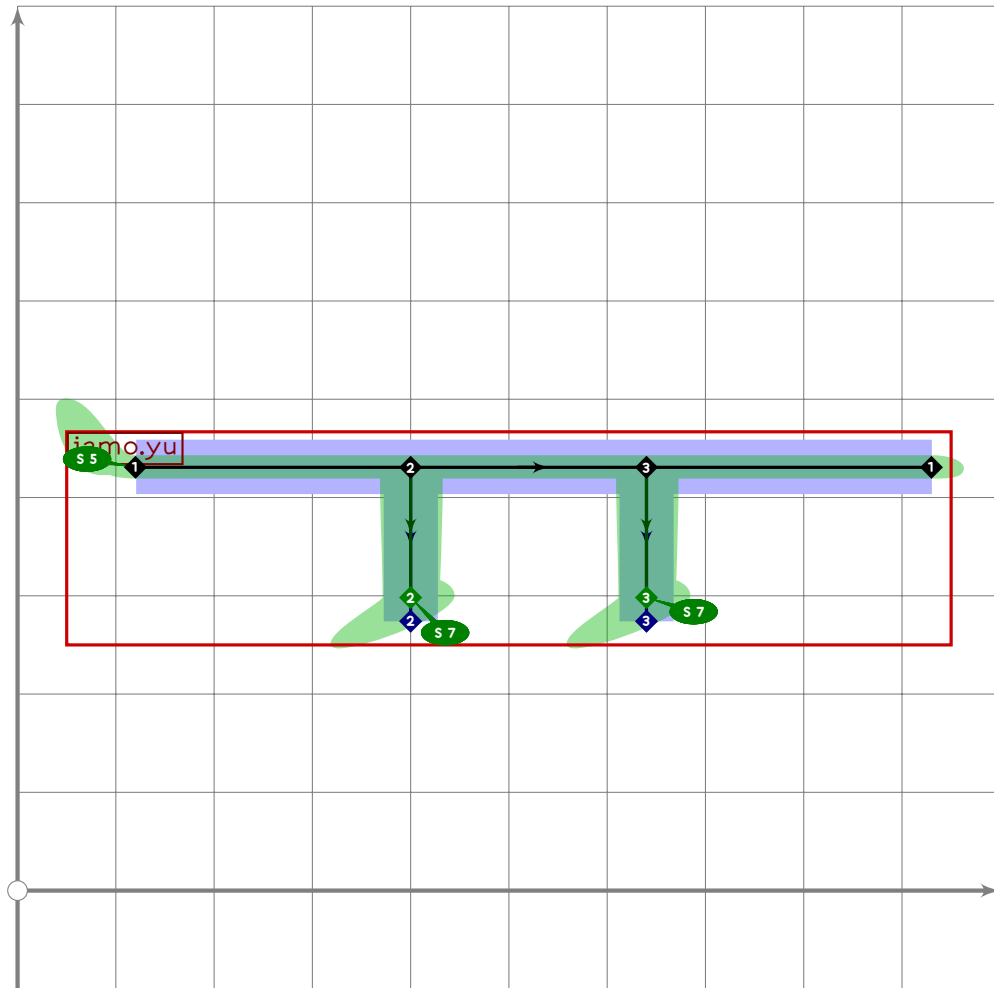
```



```

745 % hangul vowel wi
746 begint Suglyph("uni1171",113);
747 hangul.combine.lr(313,320)(316,vixf,vox);
748 tsu_render;
749 endtsuglyph;
750

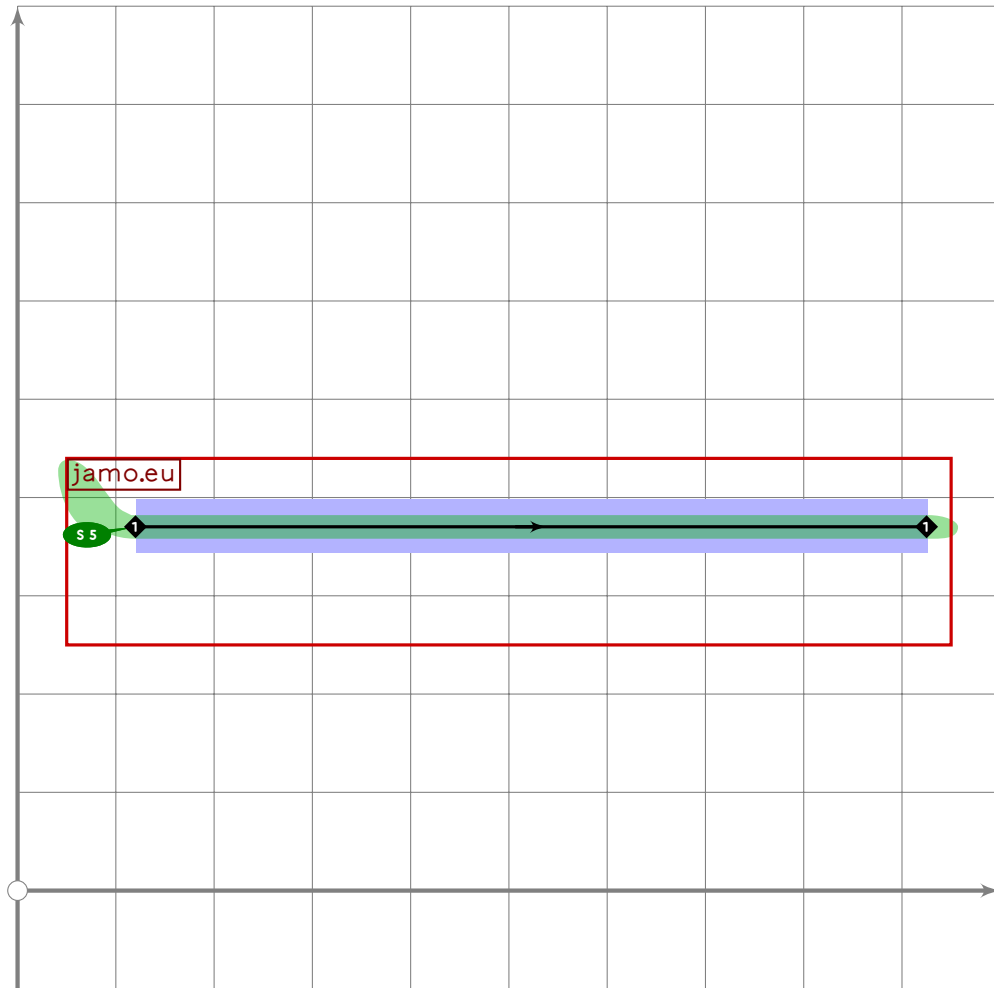
```



```

751 % hangul vowel yu
752 begint Suglyph("uni1172",114);
753 hangul.jamo.yu(317,vixf,voxf);
754 tsu_render;
755 endtsuglyph;
756

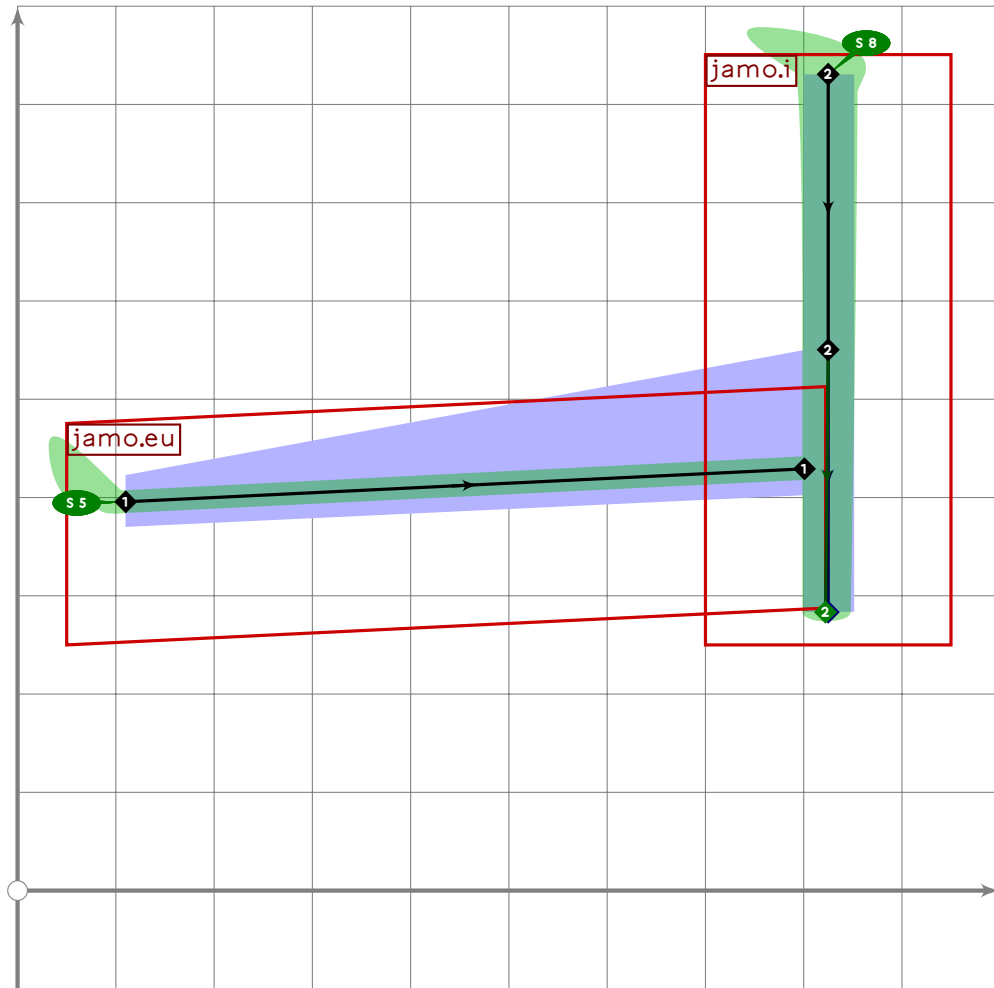
```



```

757 % hangul vowel eu
758 begintsuglyph("uni1173",115);
759 hangul.jamo.eu(318,vixf,voxf);
760 tsu_render;
761 endtsuglyph;
762

```

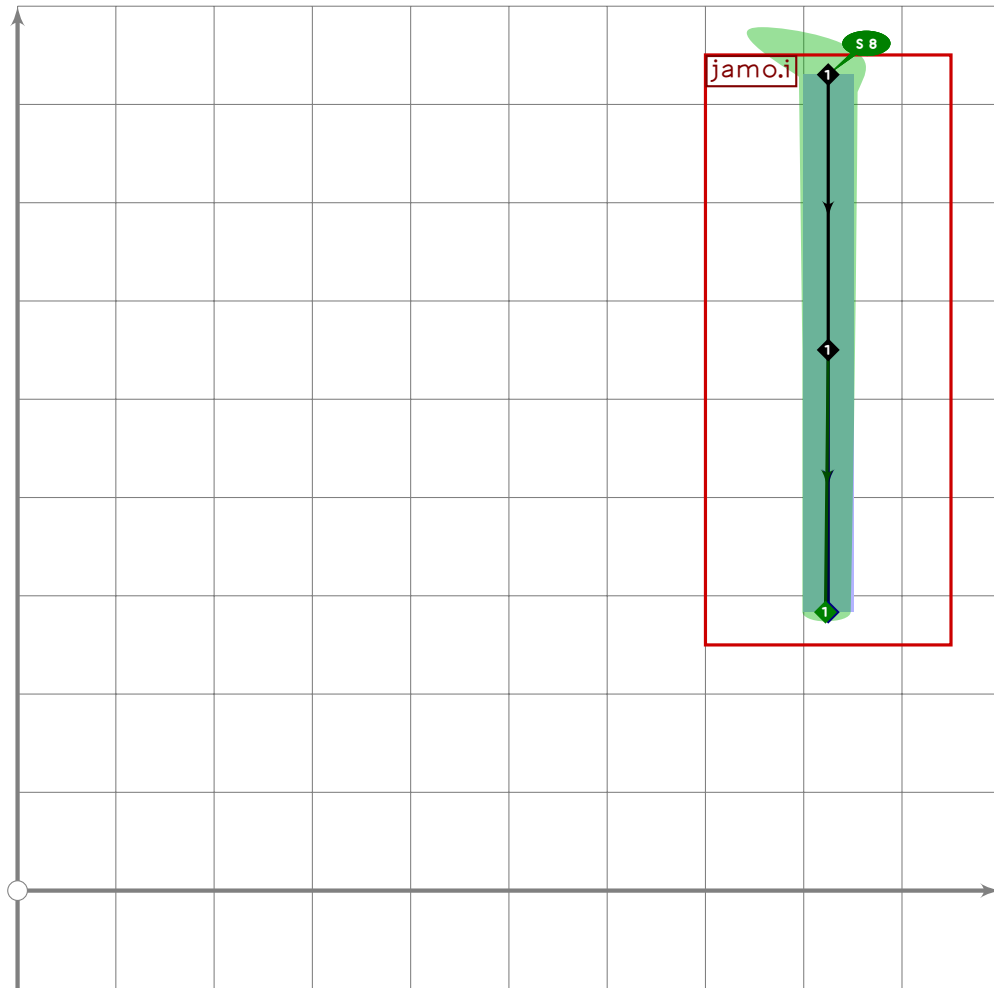


```

763 % hangul vowel yi
764 begintsuglyph("uni1174",116);
765 hangul.combine.lr(318,320)(319,vixf,vox);
766 tsu_render;
767 endtsuglyph;
768

```

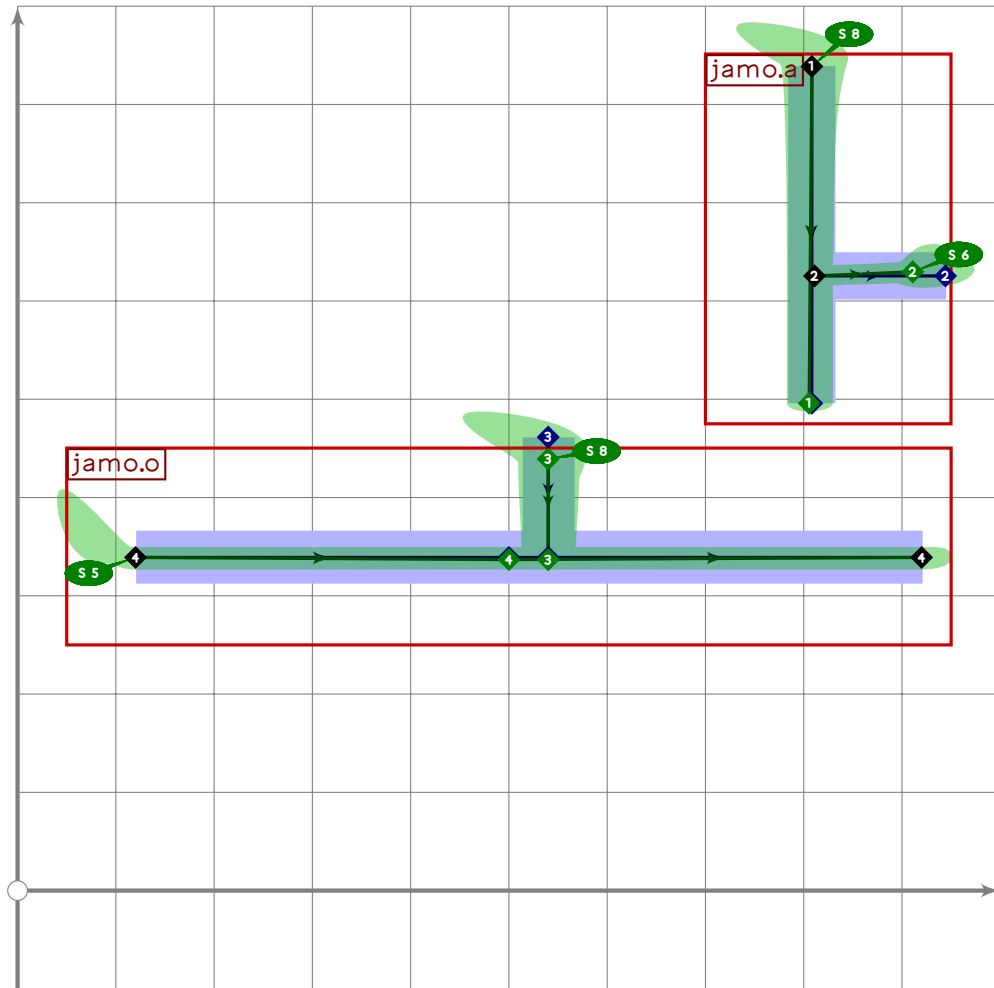




```

769 % hangul vowel i
770 begint Suglyph("uni1175",117);
771 hangul,jamo.i(320,vixf,voxf);
772 tsu_render;
773 endtsuglyph;
774

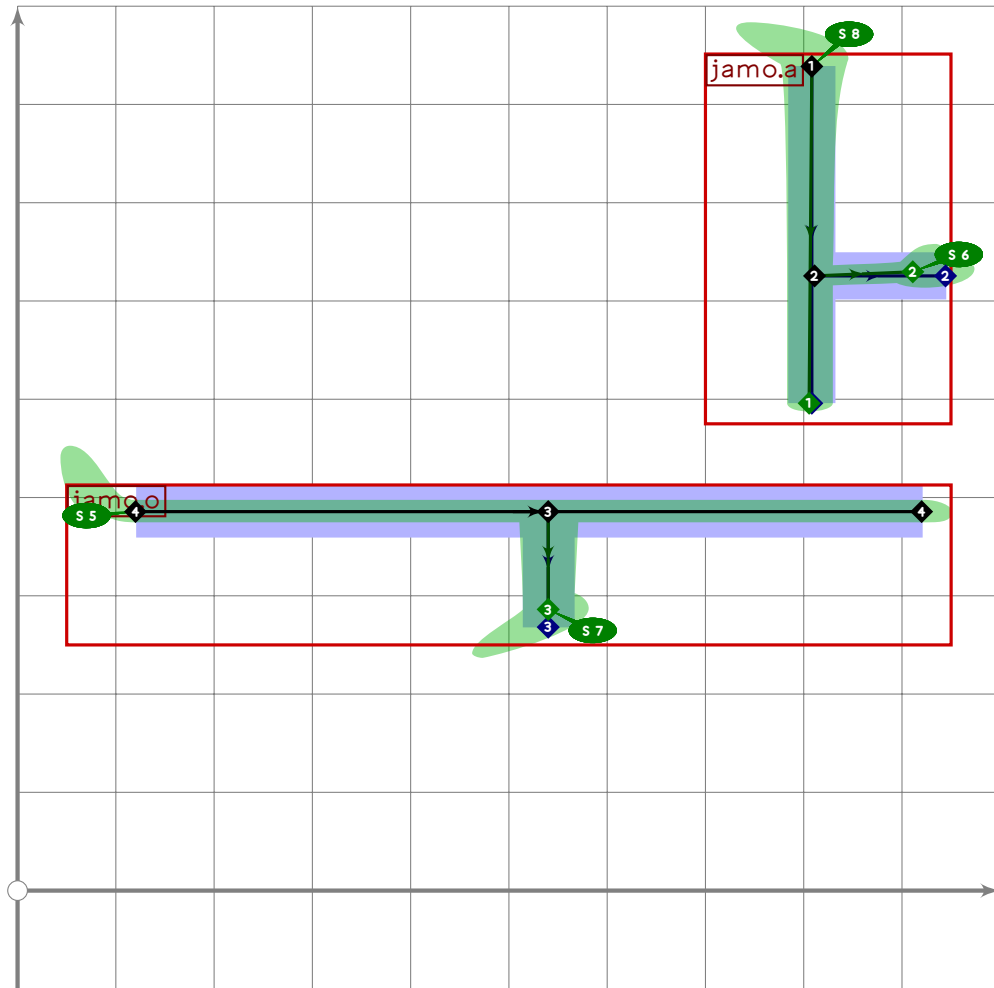
```



```

775 % hangul vowel a-o
776 begintuglyph("uni1176",118);
777 hangul.combine.tb(300,308)(whatever,vixf,vox);
778 tsu_render;
779 endtsuglyph;
780

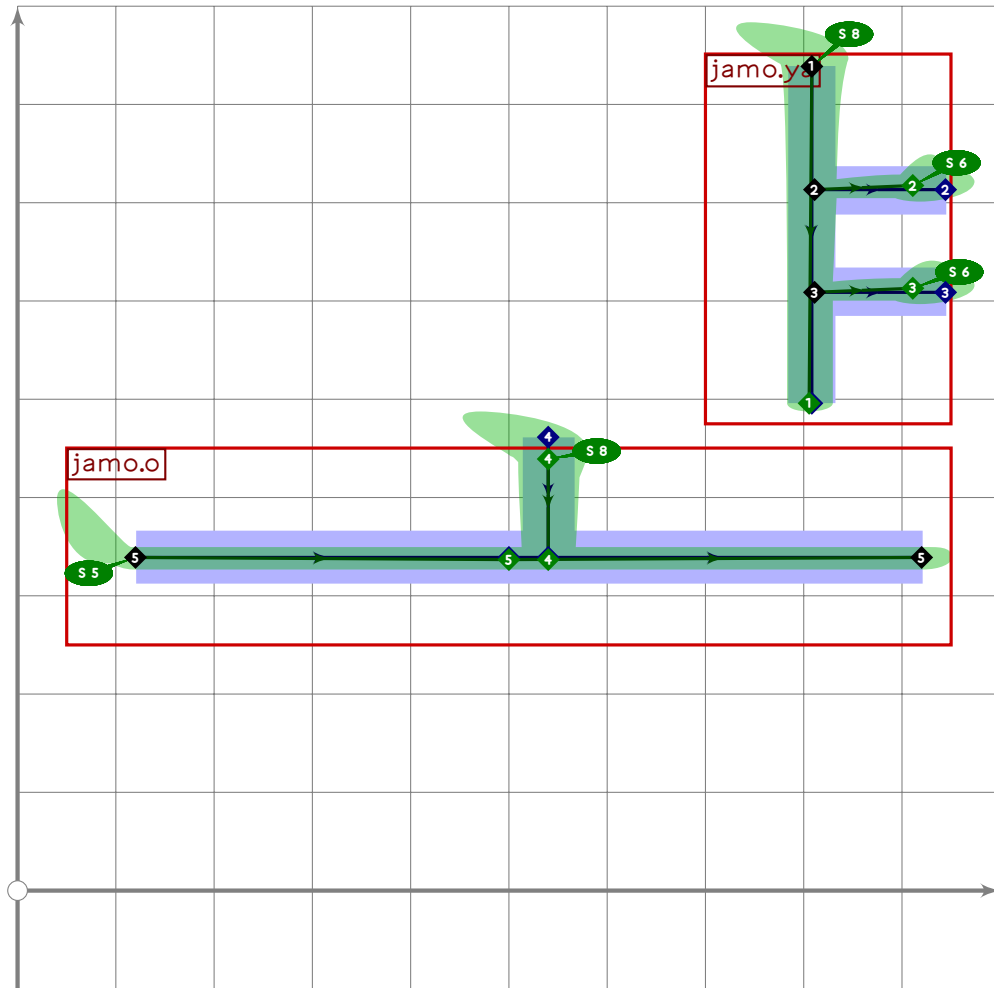
```



```

781 % hangul vowel a-u
782 begint Suglyph("uni1177",119);
783 hangul.combine.tb(300,313)(whatever,vixf,vox f);
784 tsu_render;
785 endtsuglyph;
786

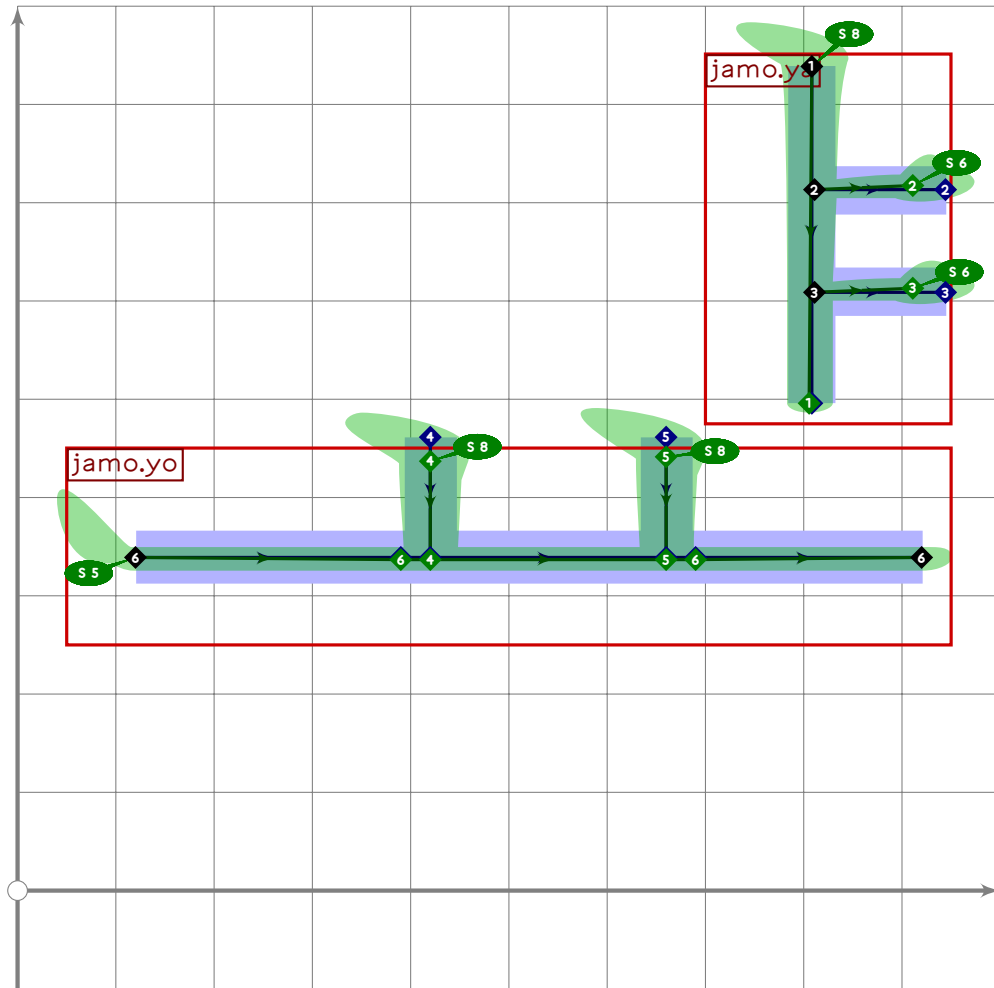
```



```

787 % hangul vowel ya-o
788 begintsuglyph("uni1178",120);
789 hangul.combine.tb(302,308)(whatever,vixf,vox);
790 tsu_render;
791 endtsuglyph;
792

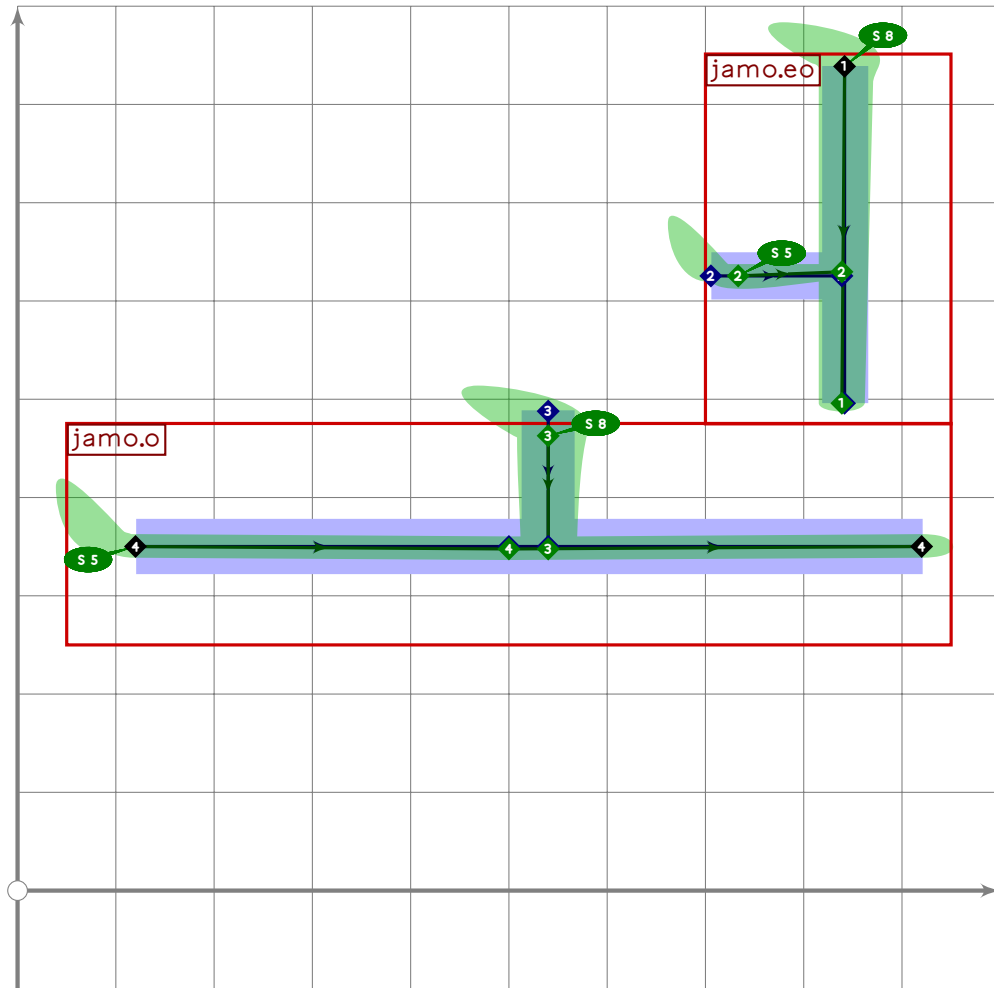
```



```

793 % hangul vowel ya-yo
794 begint Suglyph("uni1179",121);
795 hangul.combine.tb(302,312)(whatever,vixf,voxf);
796 tsu_render;
797 endtsuglyph;
798

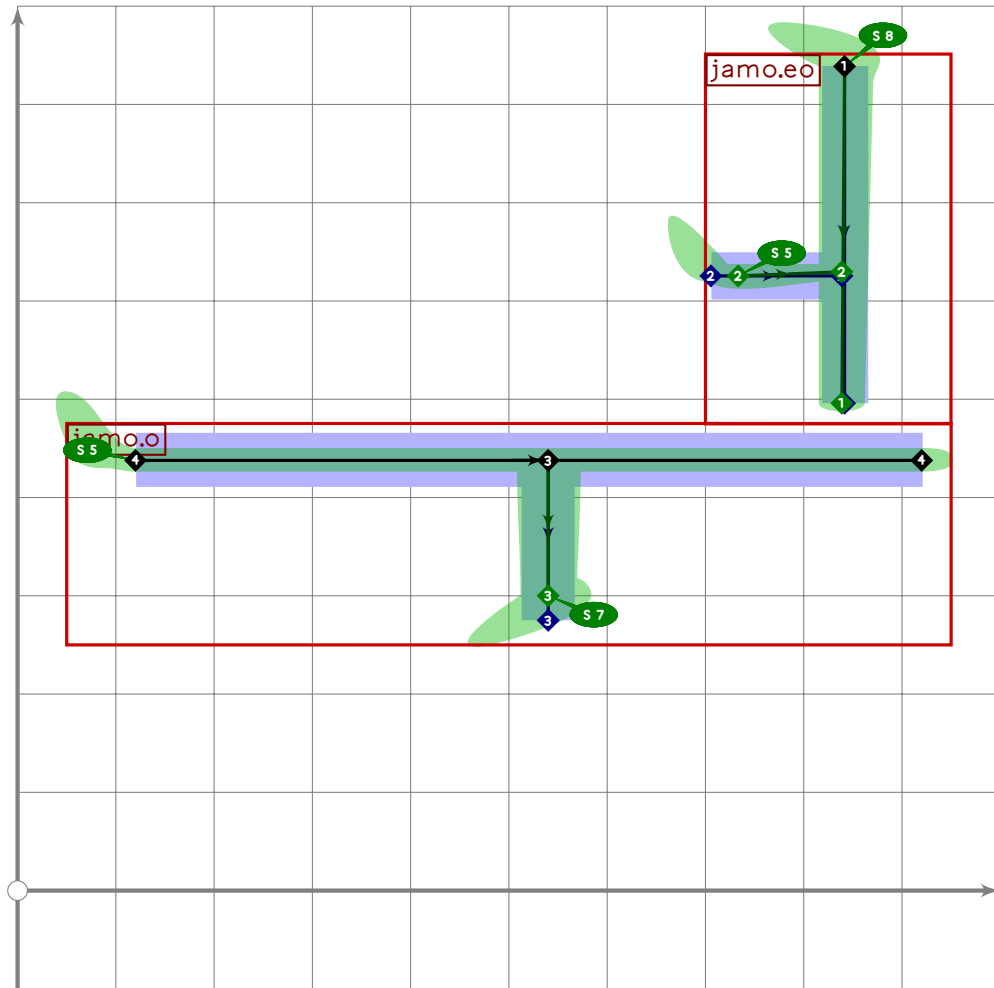
```



```

799 % hangul vowel eo-o
800 begint Suglyph("uni117A";122);
801 hangul.combine.tb(304,308)(whatever,vixf,vox);
802 tsu_render;
803 endtsuglyph;
804

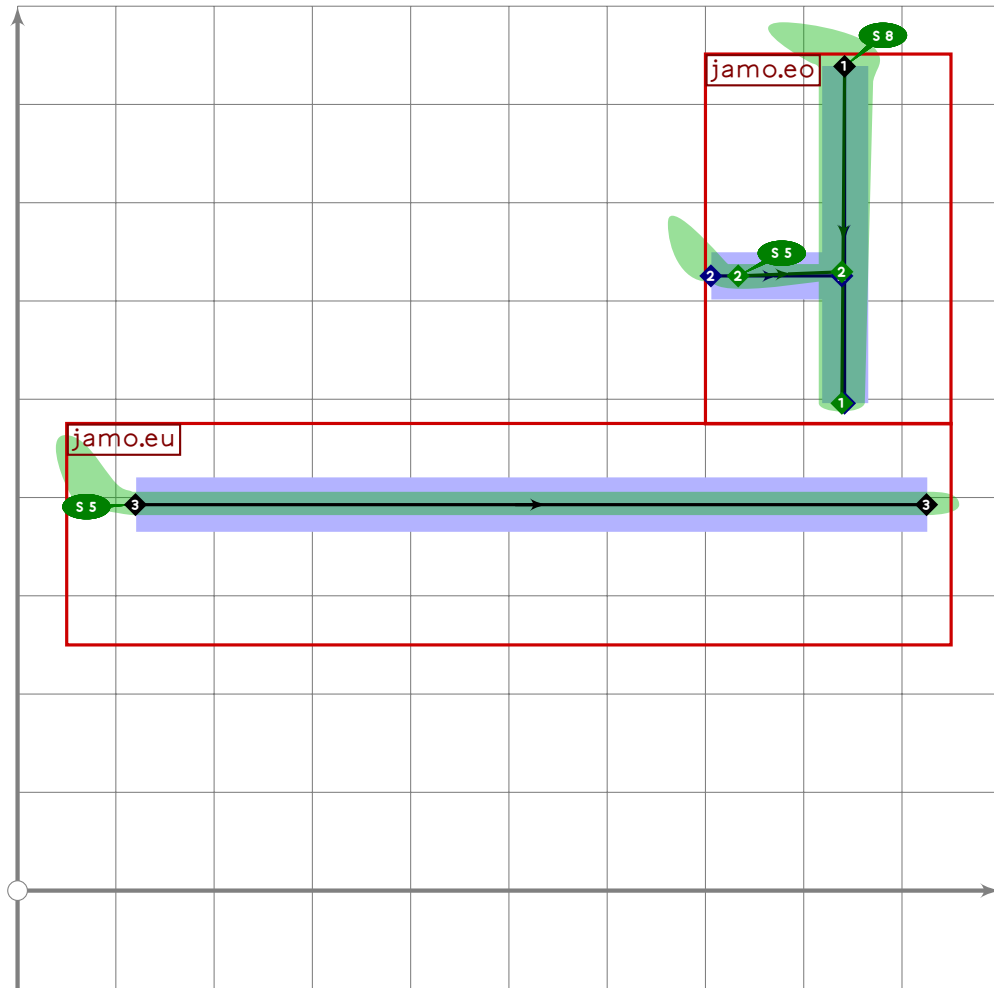
```



```

805 % hangul vowel eo-u
806 begint Suglyph("uni117B",123);
807 hangul.combine.tb(304,313)(whatever,vixf,vox);
808 tsu_render;
809 endtsuglyph;
810

```

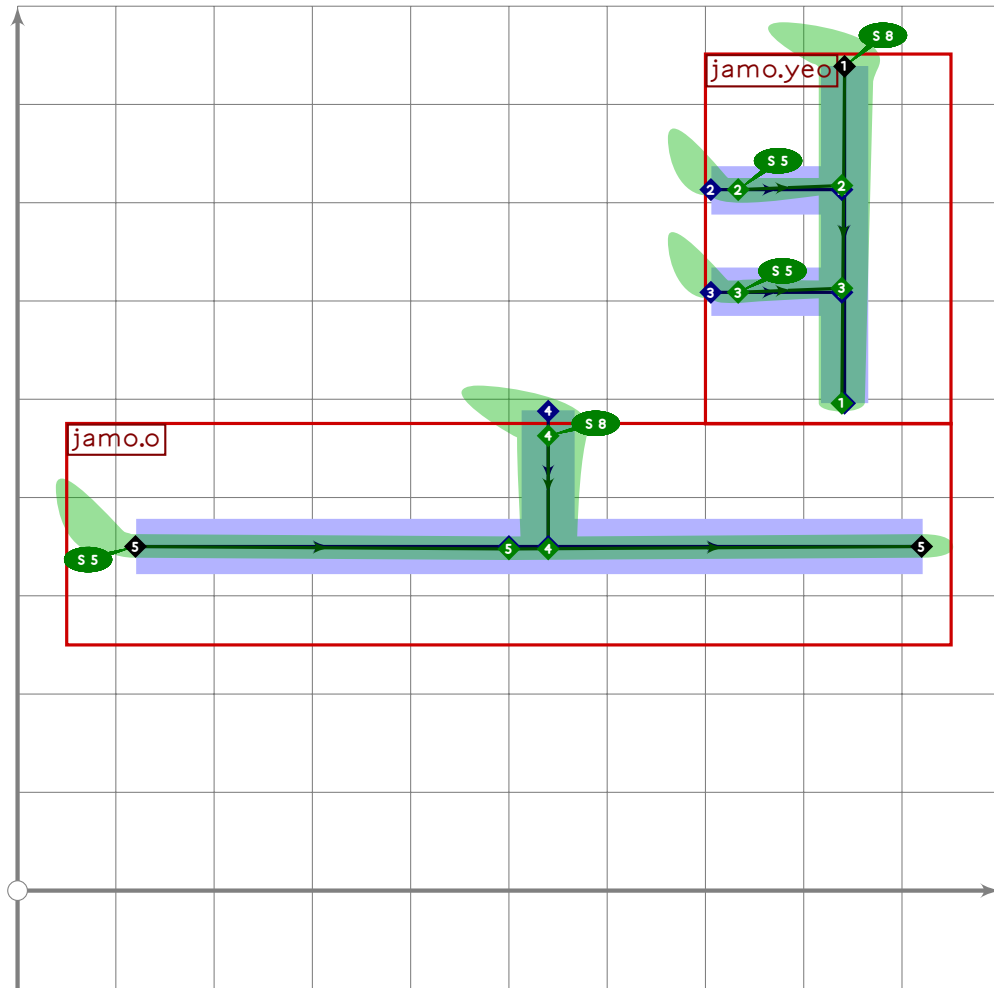


```

811 % hangul vowel eo-eu
812 begintsuglyph("uni117C",124);
813 hangul.combine.tb(304,318)(whatever,vixf,vox);
814 tsu_render;
815 endtsuglyph;
816

```

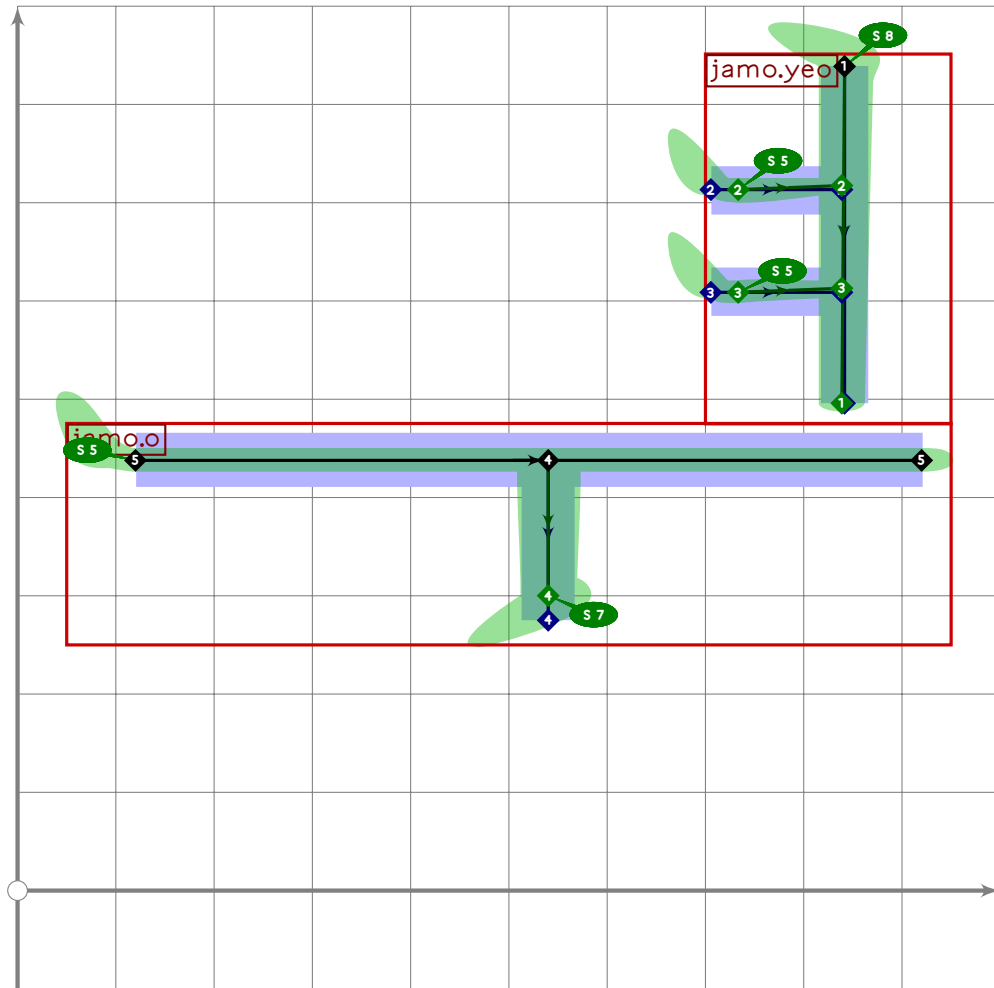




```

817 % hangul vowel yeo-o
818 begintsuglyph("uni117D",125);
819 hangul.combine.tb(306,308)(whatever,vixf,vox);
820 tsu_render;
821 endtsuglyph;
822

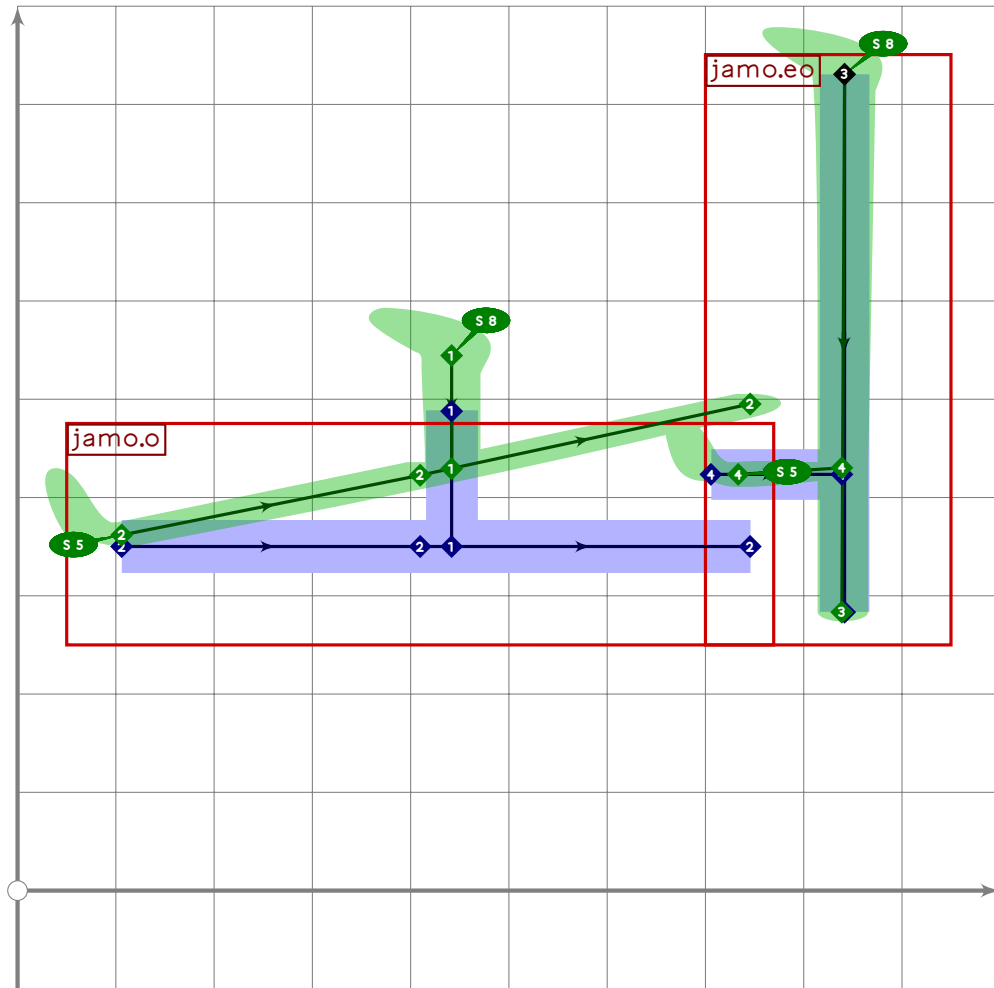
```



```

823 % hangul vowel yeo-u
824 begint Suglyph("uni117E",126);
825 hangul.combine.tb(306,313)(whatever,vixf,vox);
826 tsu_render;
827 endtsuglyph;
828

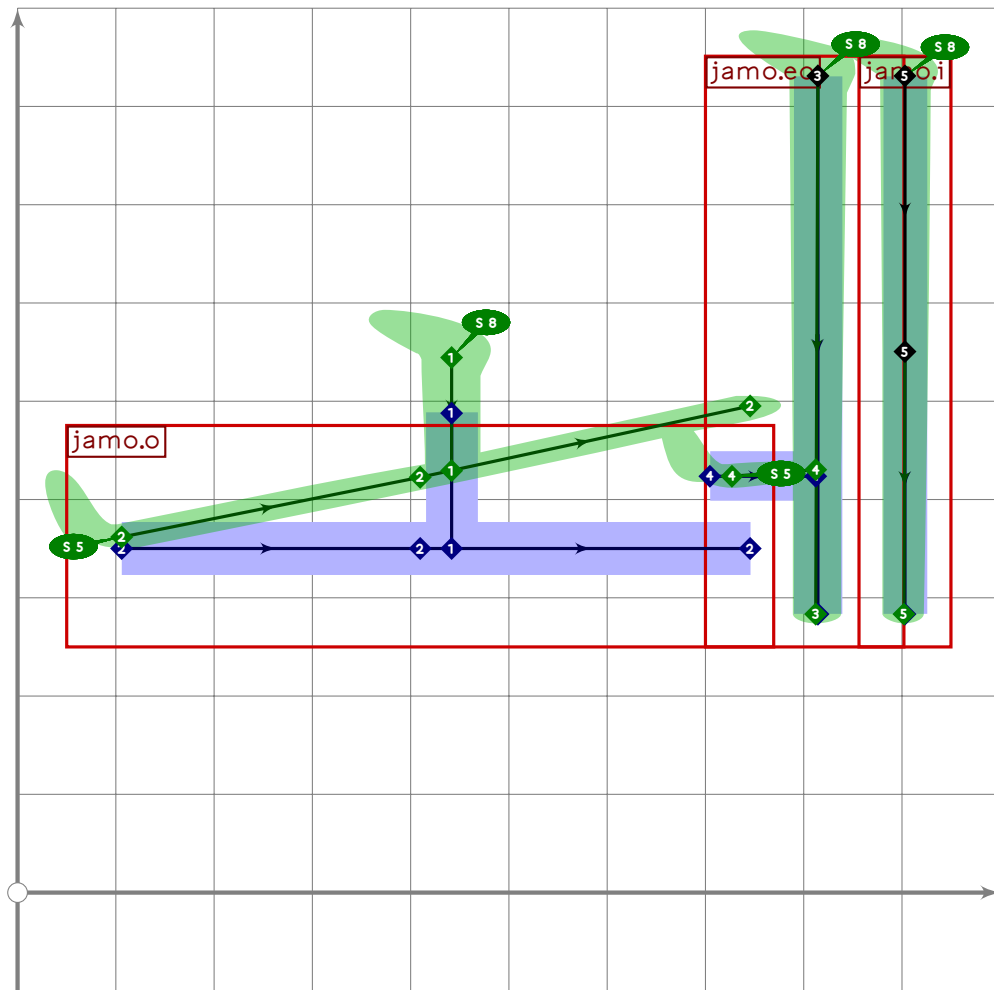
```



```

829 % hangul vowel o-eo
830 begint Suglyph("uni117F",127);
831 hangul.combine.lr(308,304)(429;vixf,voxf);
832 tsu_render;
833 endtsuglyph;
834

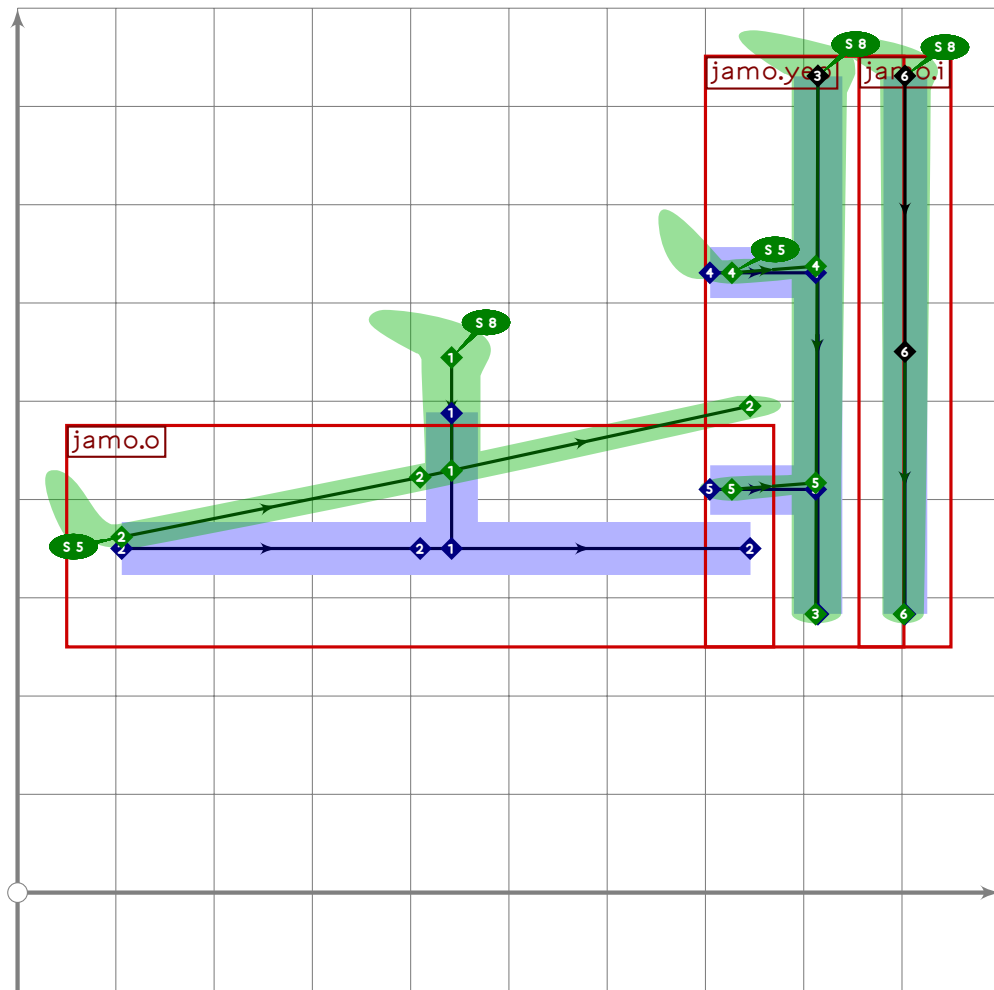
```



```

835 % hangul vowel o-e
836 begint Suglyph("uni1180",128);
837 hangul.combine.lr(308,305)(430,vixf,voxf);
838 tsu_render;
839 endtsuglyph;
840

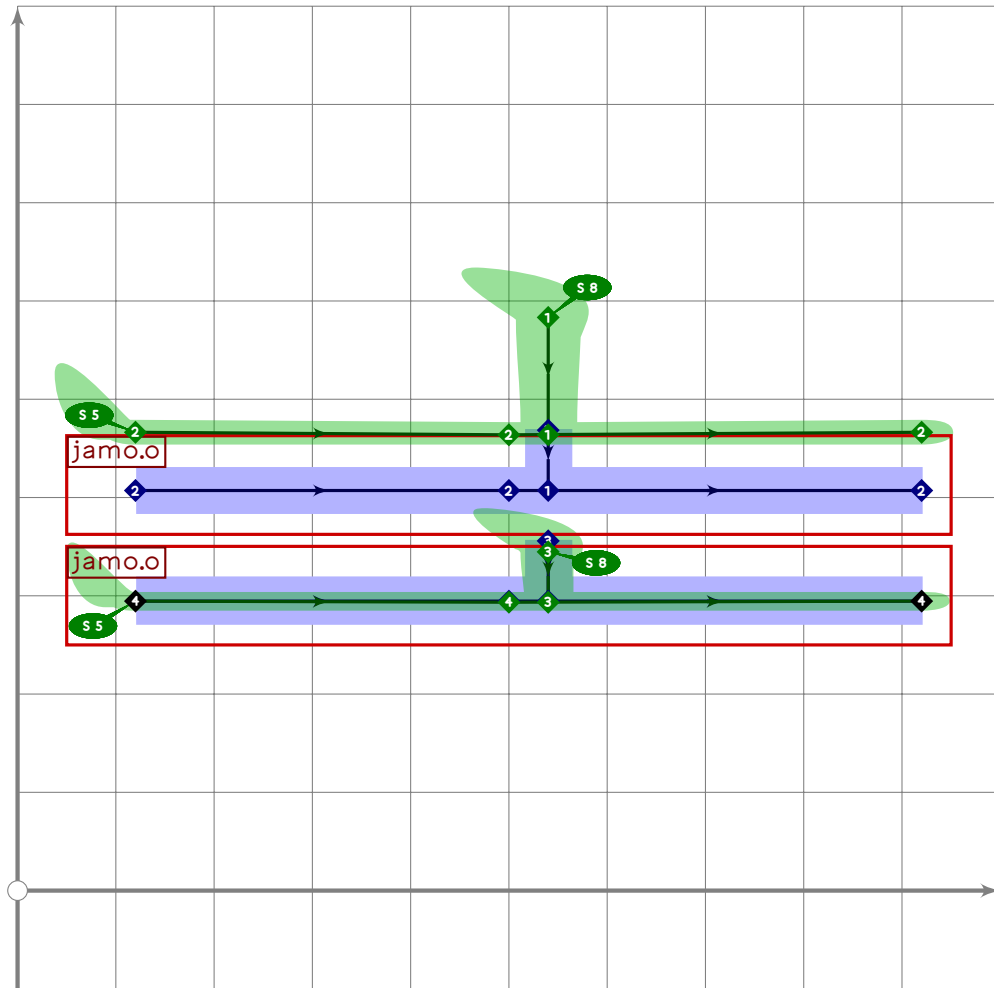
```



```

841 % hangul vowel o-ye
842 begintsuglyph("uni1181";129);
843 hangul.combine.lr(308,307)(431,vixf,voxf);
844 tsu_render;
845 endtsuglyph;
846

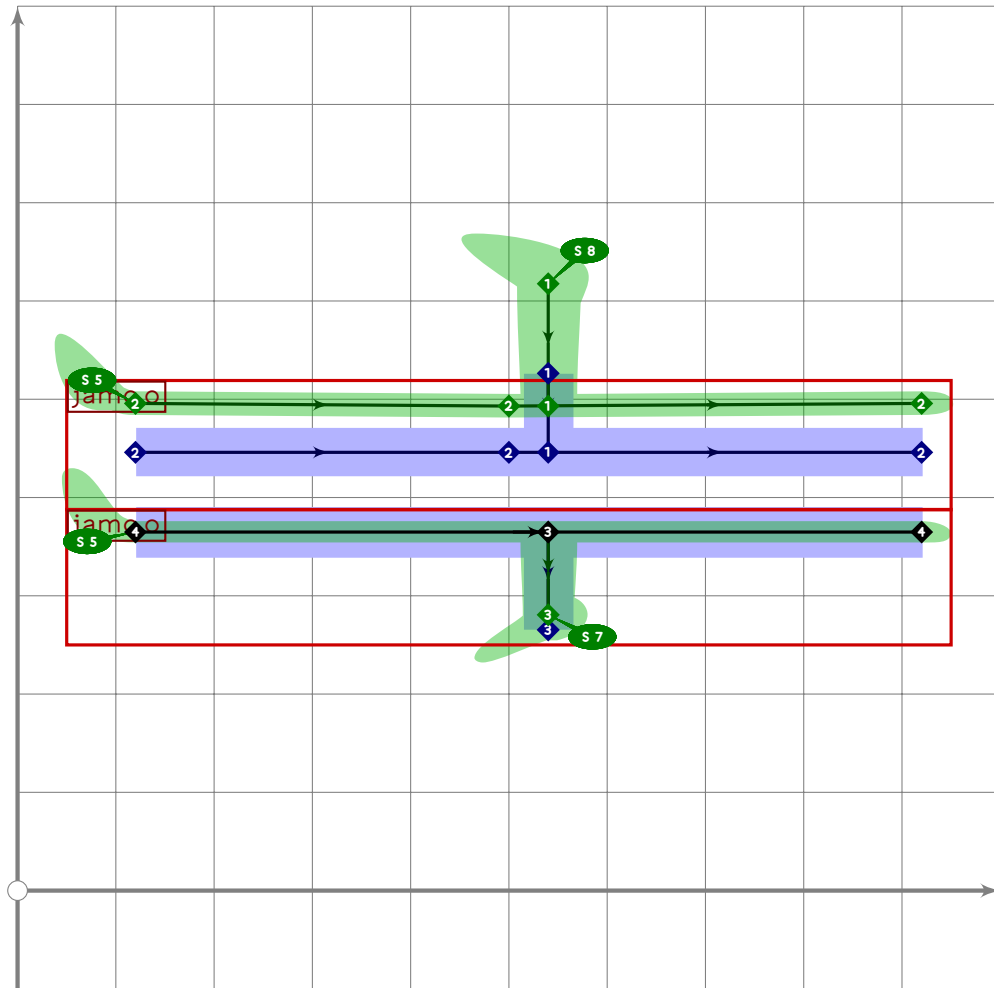
```



```

847 % hangul vowel o-o
848 begint Suglyph("uni1182",130);
849 hangul.combine.tb(308,308)(whatever,vixf,vox);
850 tsu_render;
851 endtsuglyph;
852

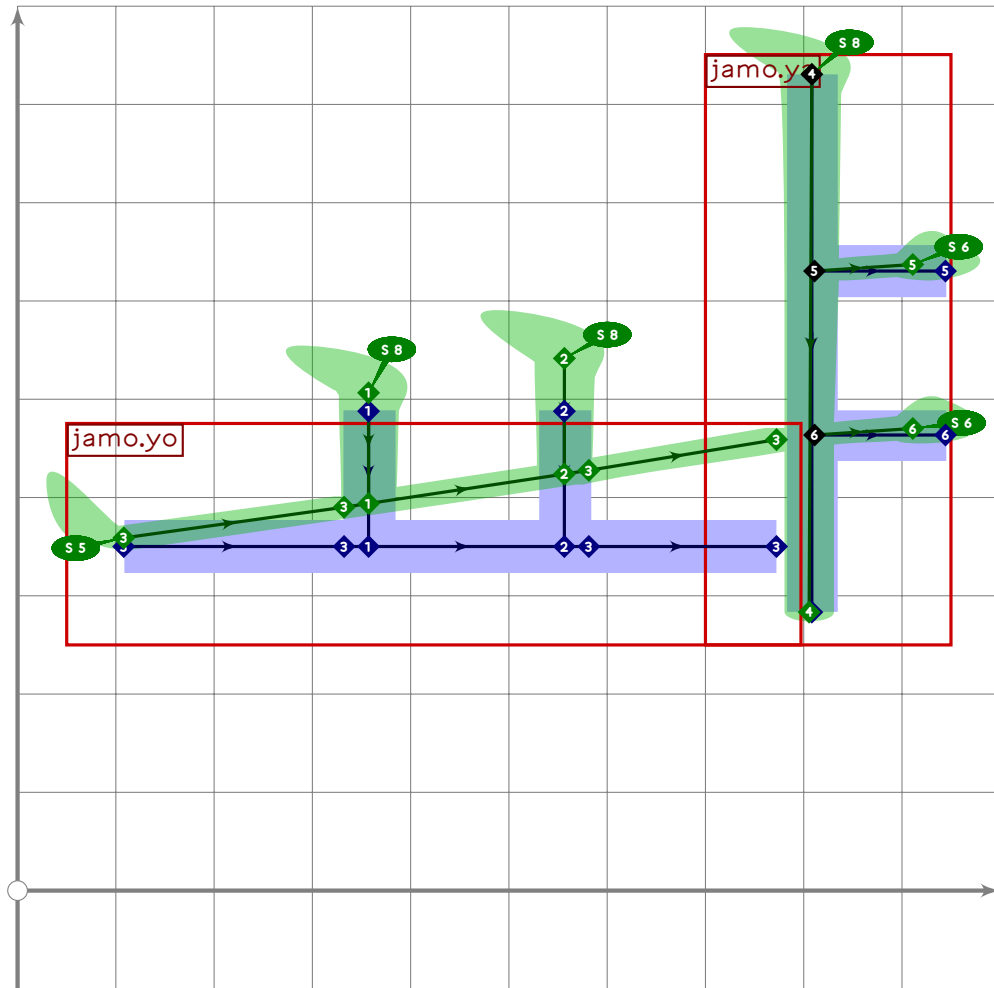
```



```

853 % hangul vowel o-u
854 begint Suglyph("uni1183",131);
855 hangul.combine.tb(308,313)(whatever,tvixf,voxf);
856 tsu_render;
857 endtsuglyph;
858

```

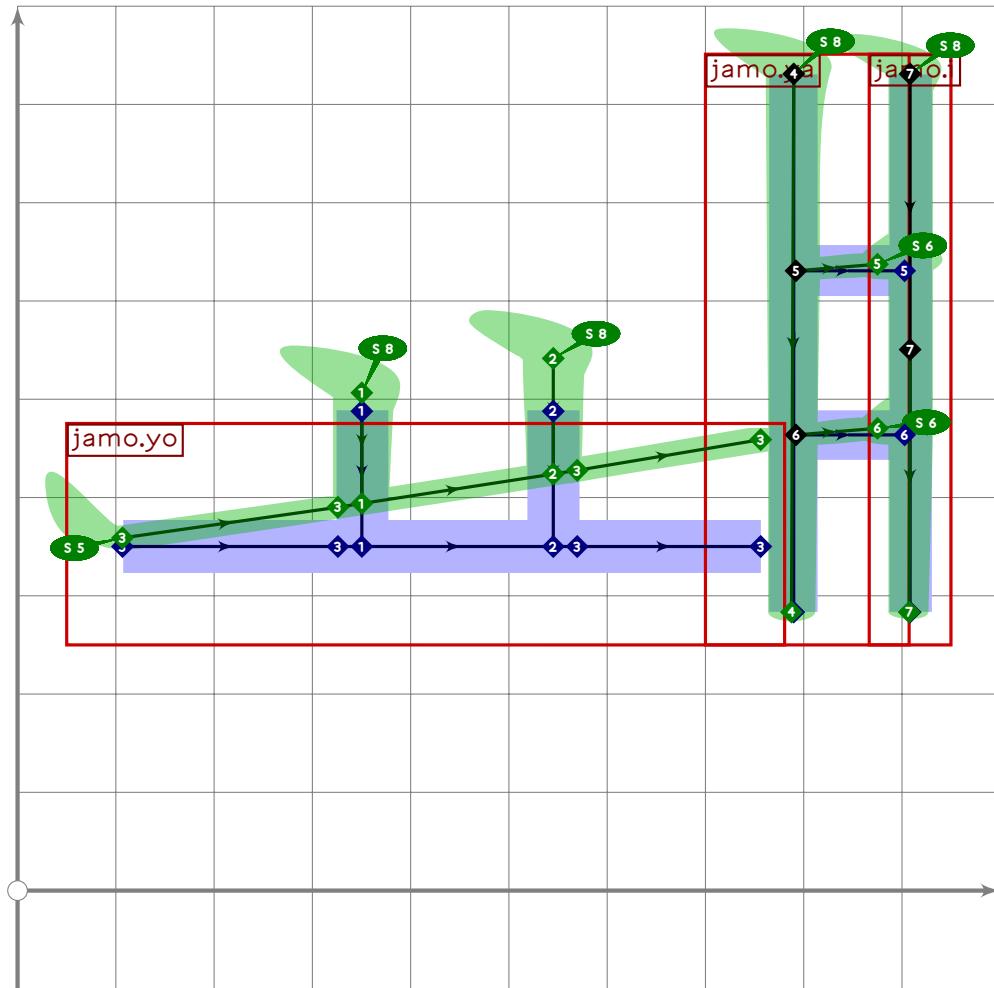


```

859 % hangul vowel yo-ya
860 begint Suglyph("uni1184",132);
861 hangul.combine.lr(312,302)(421,vixf,voxf);
862 tsu_render;
863 endtsuglyph;
864

```

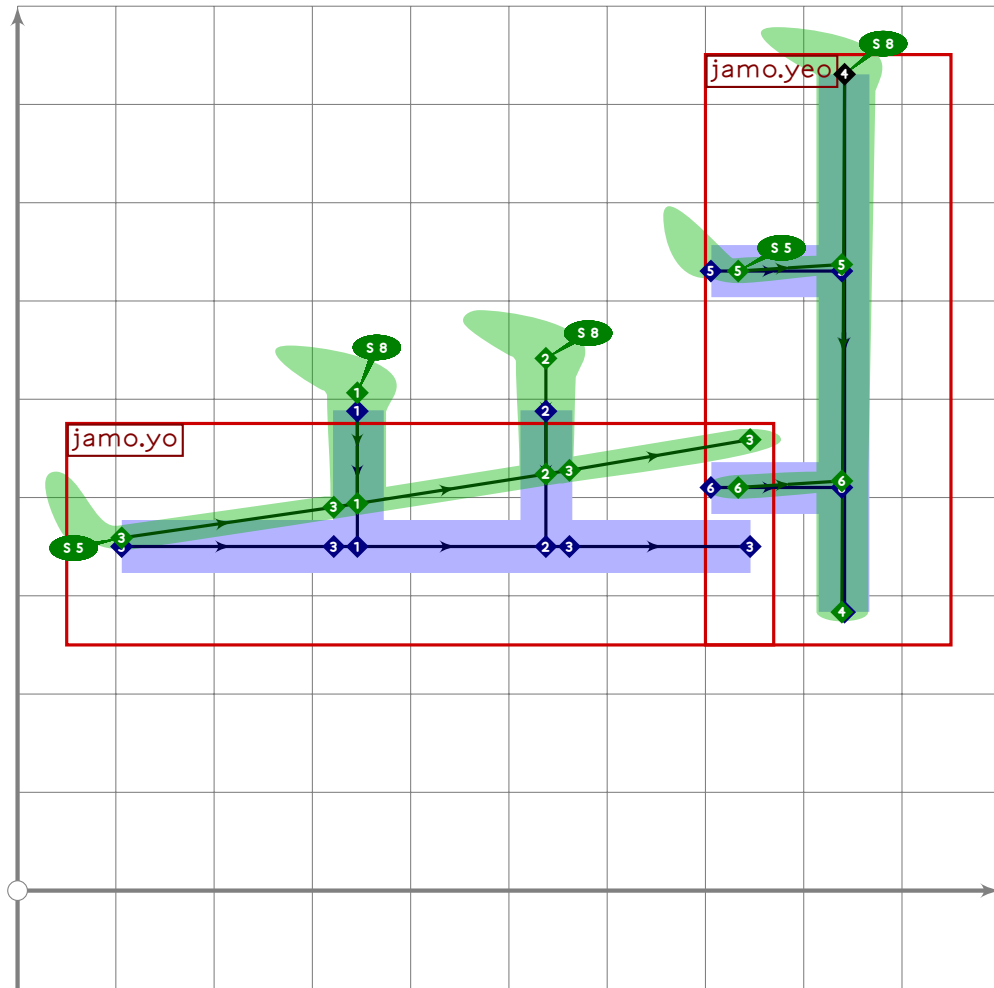




```

865 % hangul vowel yo-yae
866 begintsuglyph("uni1185",133);
867 hangul.combine.lr(312,303)(422,vixf,voxf);
868 tsu_render;
869 endtsuglyph;
870

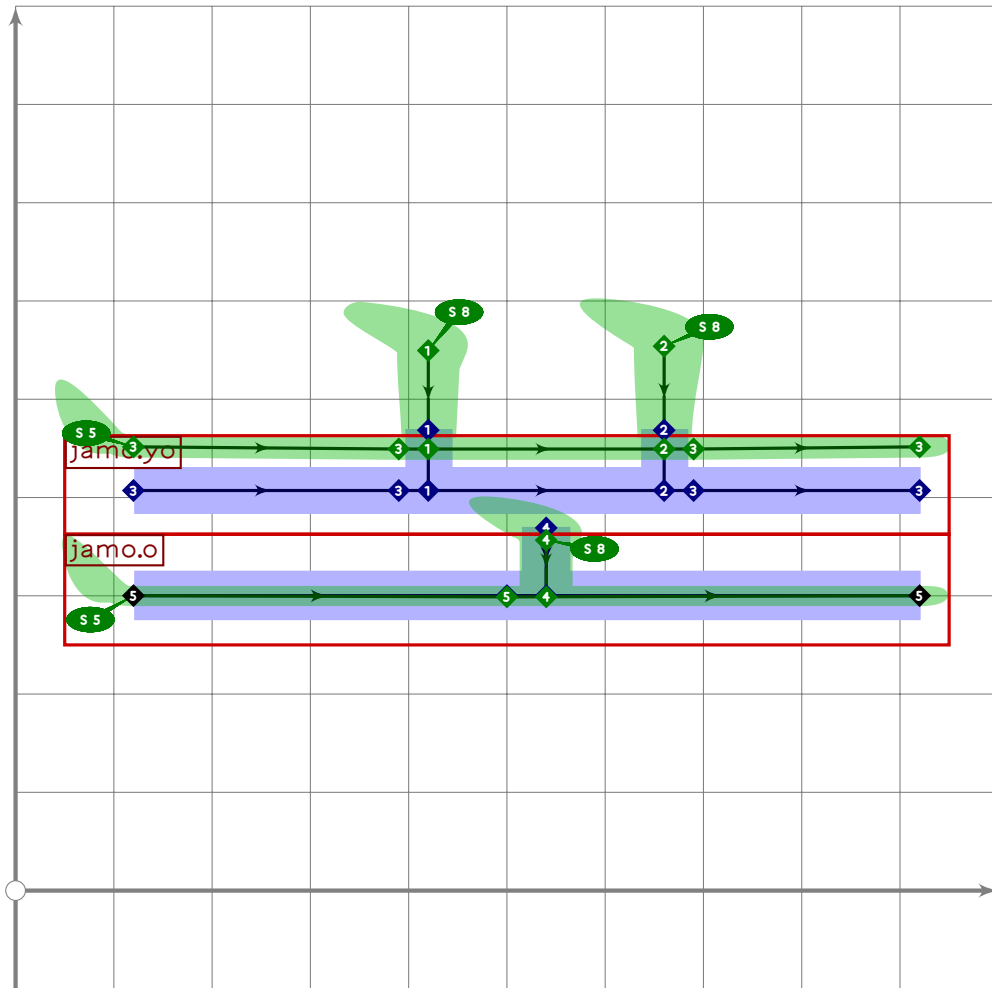
```



```

871 % hangul vowel yo-yeo
872 begint Suglyph("uni1186",134);
873 hangul.combine.lr(312,306)(432,vixf,voxf);
874 tsu_render;
875 endtsuglyph;
876

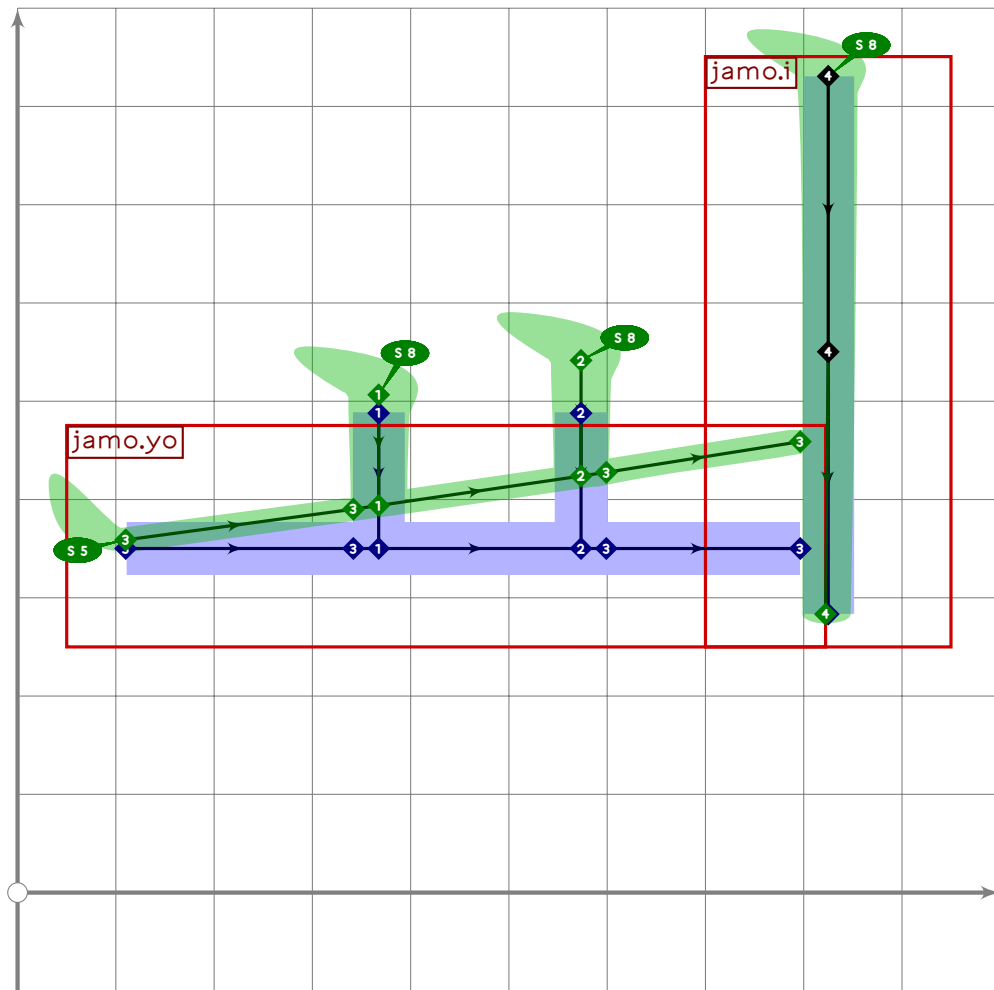
```



```

877 % hangul vowel yo-o
878 begintsuglyph("uni1187",135);
879 hangul.combine.tb(312,308)(whatever,vixf,vox);
880 tsu_render;
881 endtsuglyph;
882

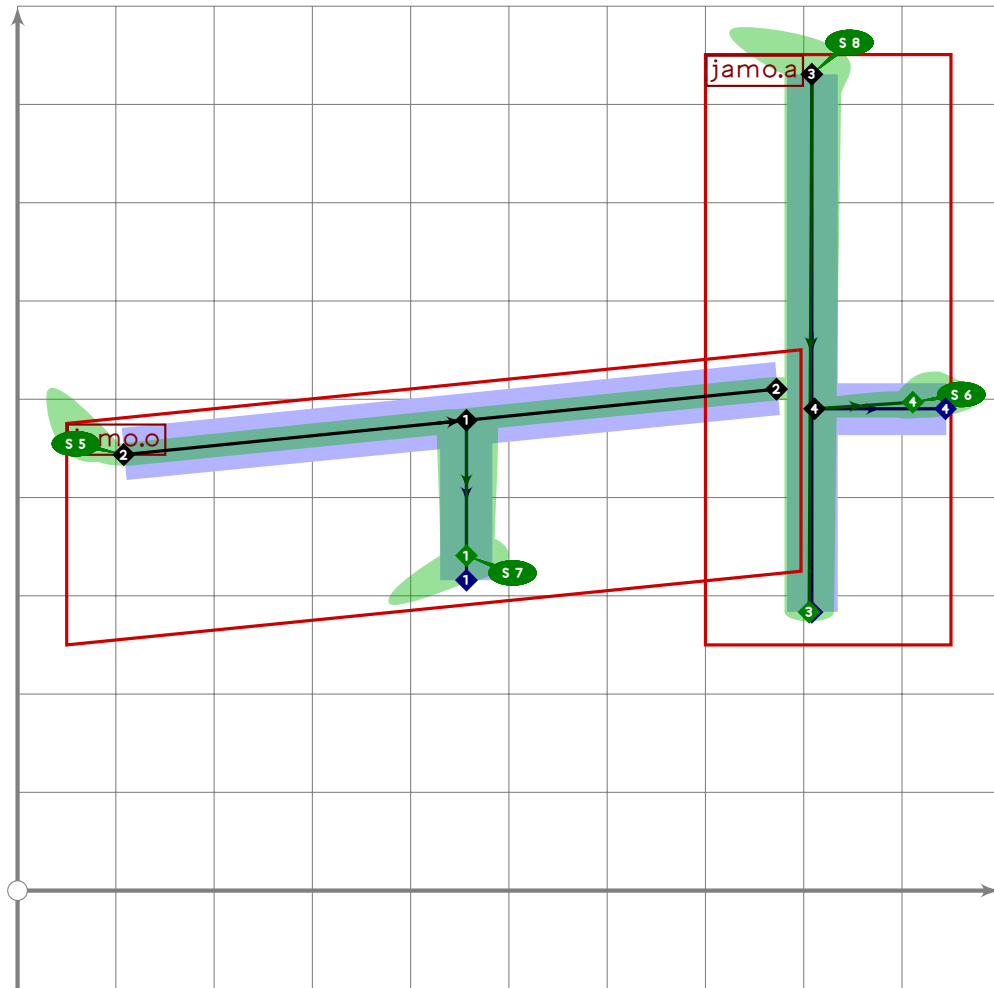
```



```

883 % hangul vowel yo-i
884 begint Suglyph("uni1188",136);
885 hangul.combine.lr(312,320)(423,vixf,voxf);
886 tsu_render;
887 endtsuglyph;
888

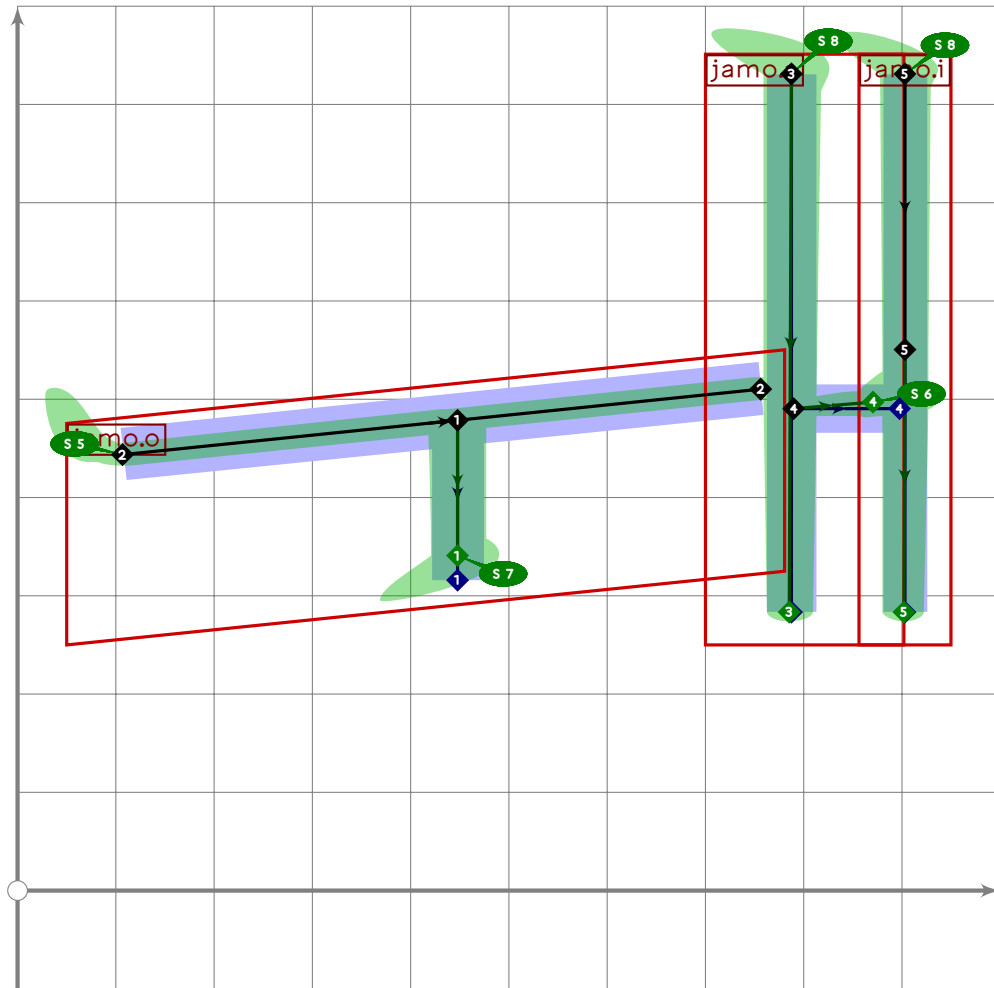
```



```

889 % hangul vowel u-a
890 begint Suglyph("uni1189",137);
891 hangul.combine.lr(313,300)(433,vixf,voxf);
892 tsu_render;
893 endtsuglyph;
894

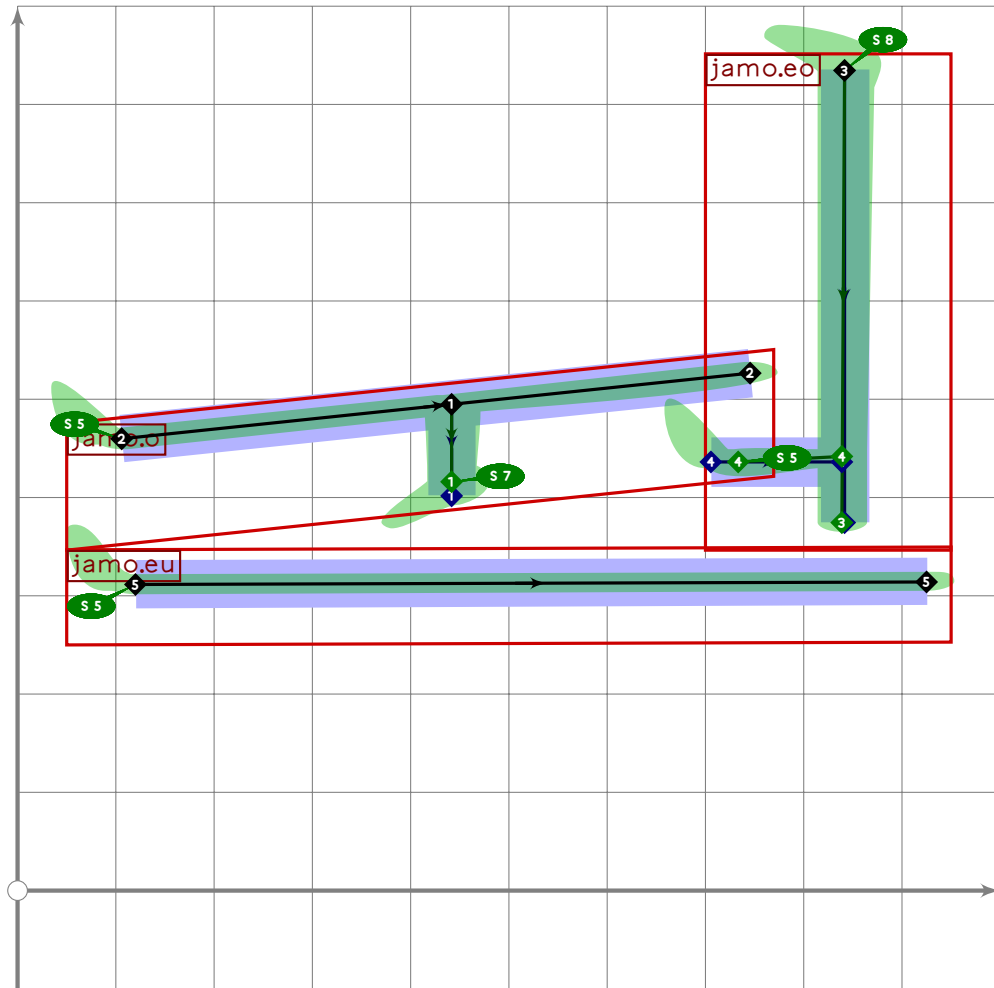
```



```

895 % hangul vowel u-ae
896 begintsuglyph("uni118A",138);
897 hangul.combine.lr(313,301)(434,vixf,voxf);
898 tsu_render;
899 endtsuglyph;
900

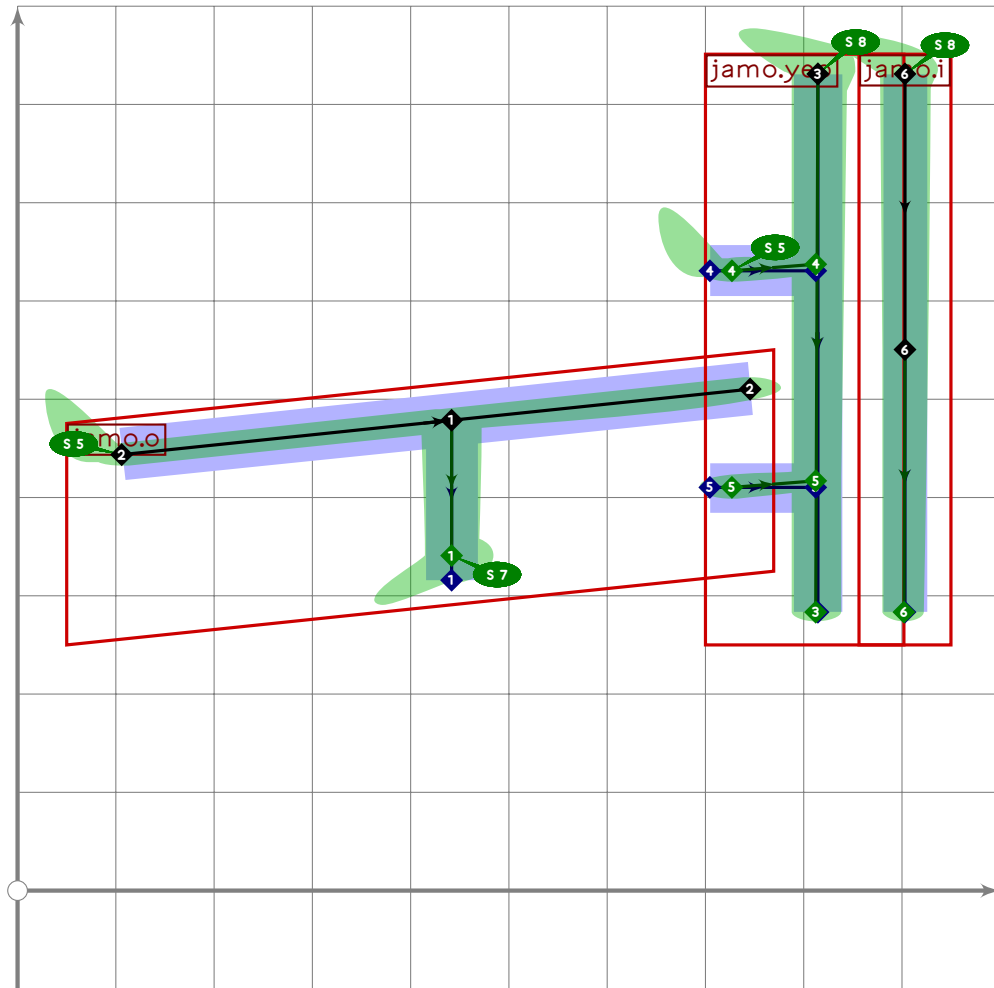
```



```

901 % hangul vowel u-eo-eu
902 begintsuglyph("uni118B",139);
903 hangul.combine.tb(314,318)(435,vixf,vox);
904 tsu_render;
905 endtsuglyph;
906

```

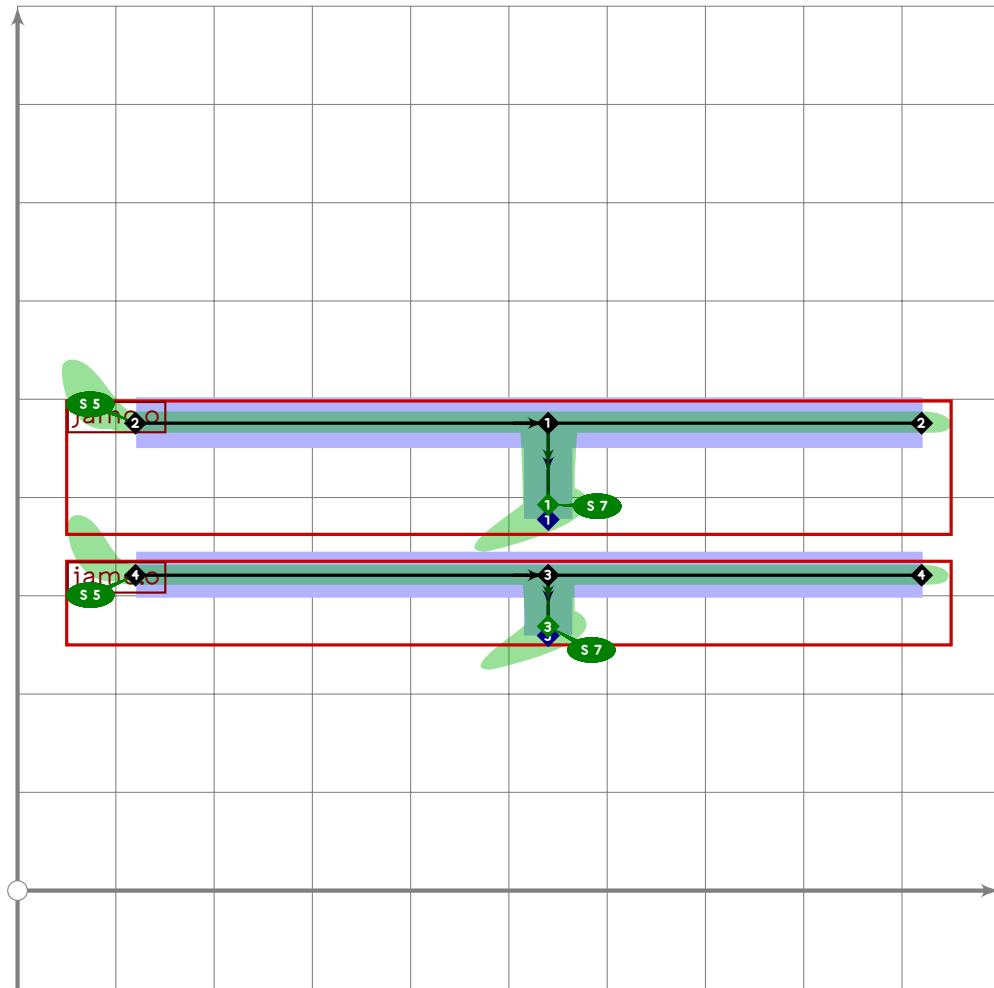


```

907 % hangul vowel u-ye
908 begintsuglyph("uni118C",140);
909 hangul.combine.lr(313,307)(436,vixf,voxf);
910 tsu_render;
911 endtsuglyph;
912

```

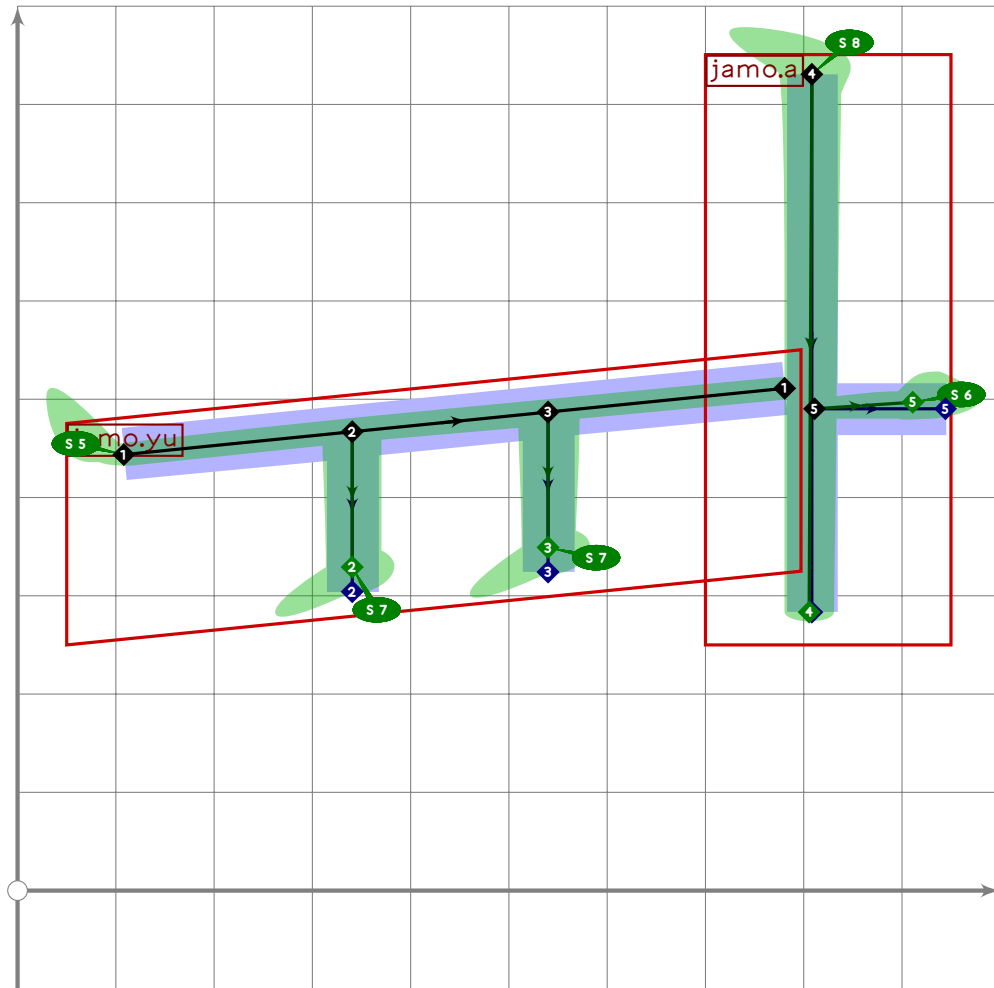




```

913 % hangul vowel u-u
914 begintsuglyph("uni118D",141);
915 hangul.combine.tb(313,313)(whatever,vixf,voxf);
916 tsu_render;
917 endtsuglyph;
918

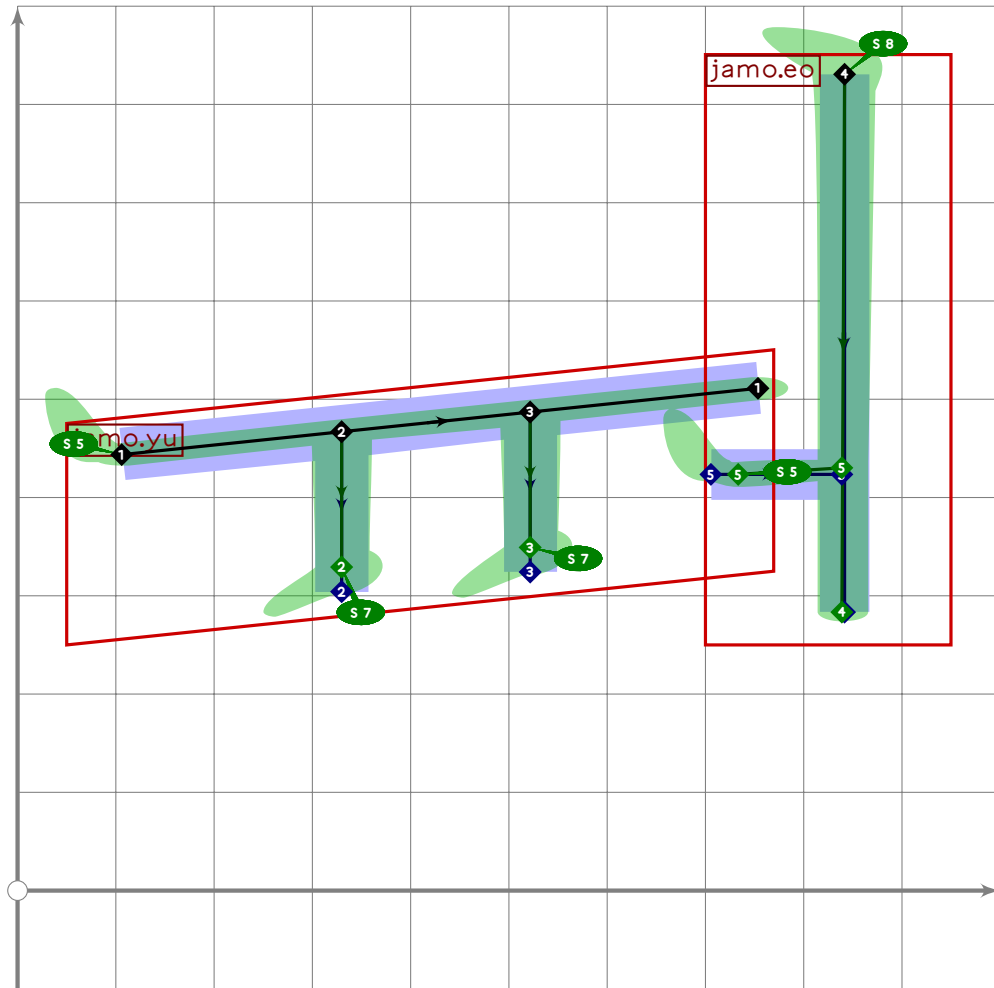
```



```

919 % hangul vowel yu-a
920 begint Suglyph("uni118E",142);
921 hangul.combine.lr(317,300)(437,vixf,voxf);
922 tsu_render;
923 endtsuglyph;
924

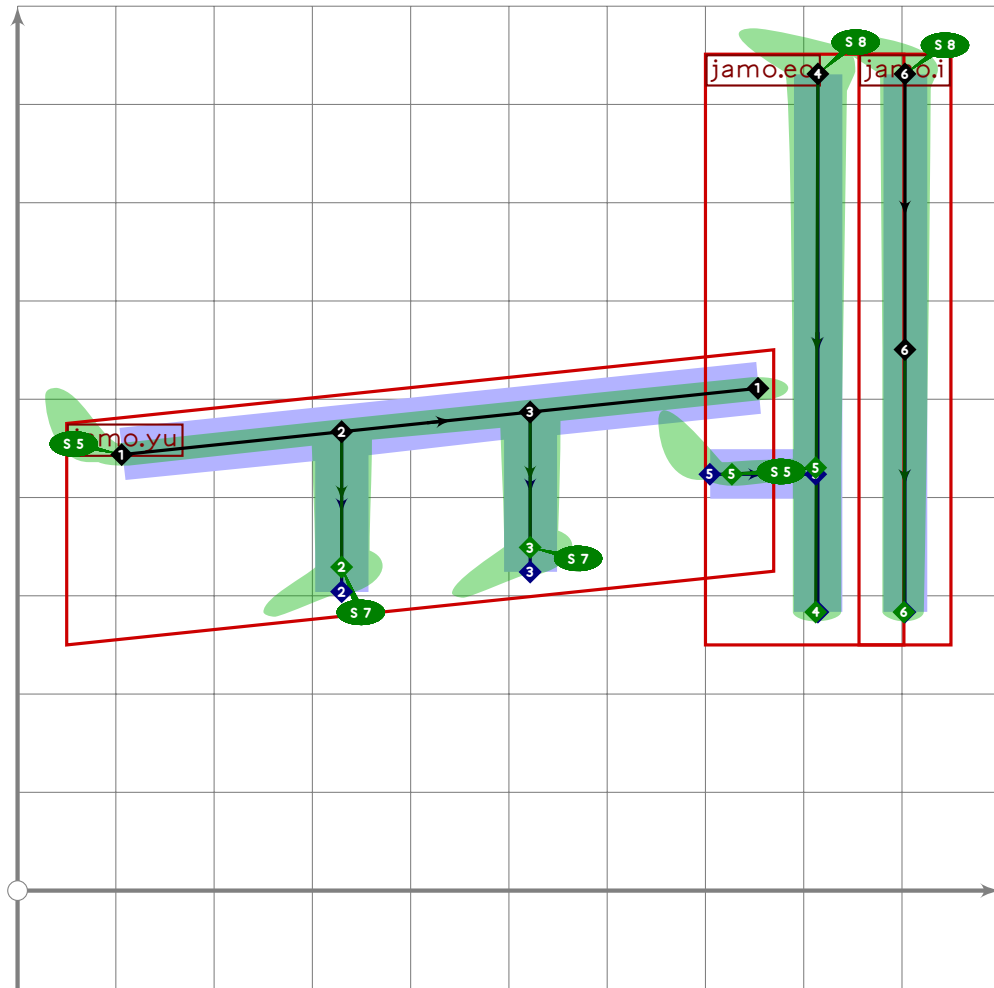
```



```

925 % hangul vowel yu-eo
926 begint Suglyph("uni118F",143);
927 hangul.combine.lr(317,304)(438,vixf,vox);
928 tsu_render;
929 endtsuglyph;
930

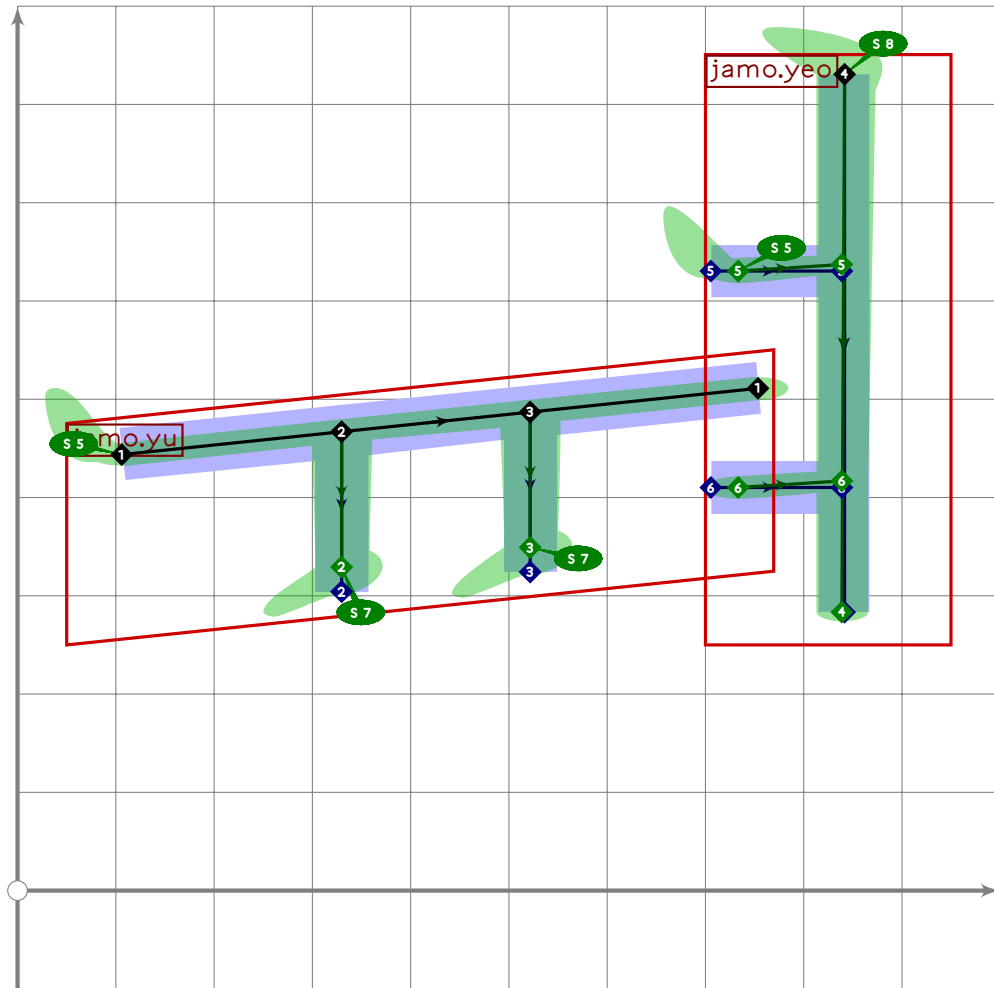
```



```

931 % hangul vowel yu-e
932 begintsuglyph("uni1190",144);
933 hangul.combine.lr(317,305)(439,vixf,voxf);
934 tsu_render;
935 endtsuglyph;
936

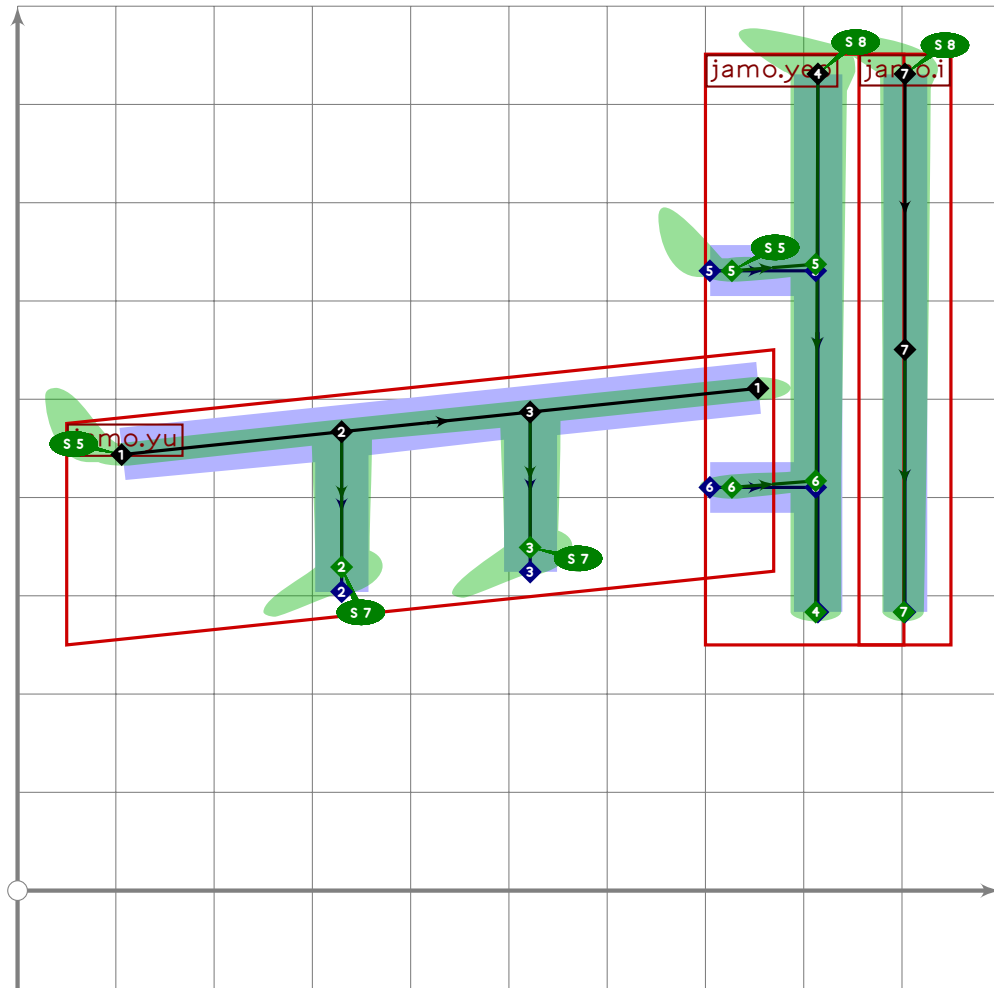
```



```

937 % hangul vowel yu-yeo
938 begintsuglyph("uni1191",145);
939 hangul.combine.lr(317,306)(424,vixf,vox);
940 tsu_render;
941 endtsuglyph;
942

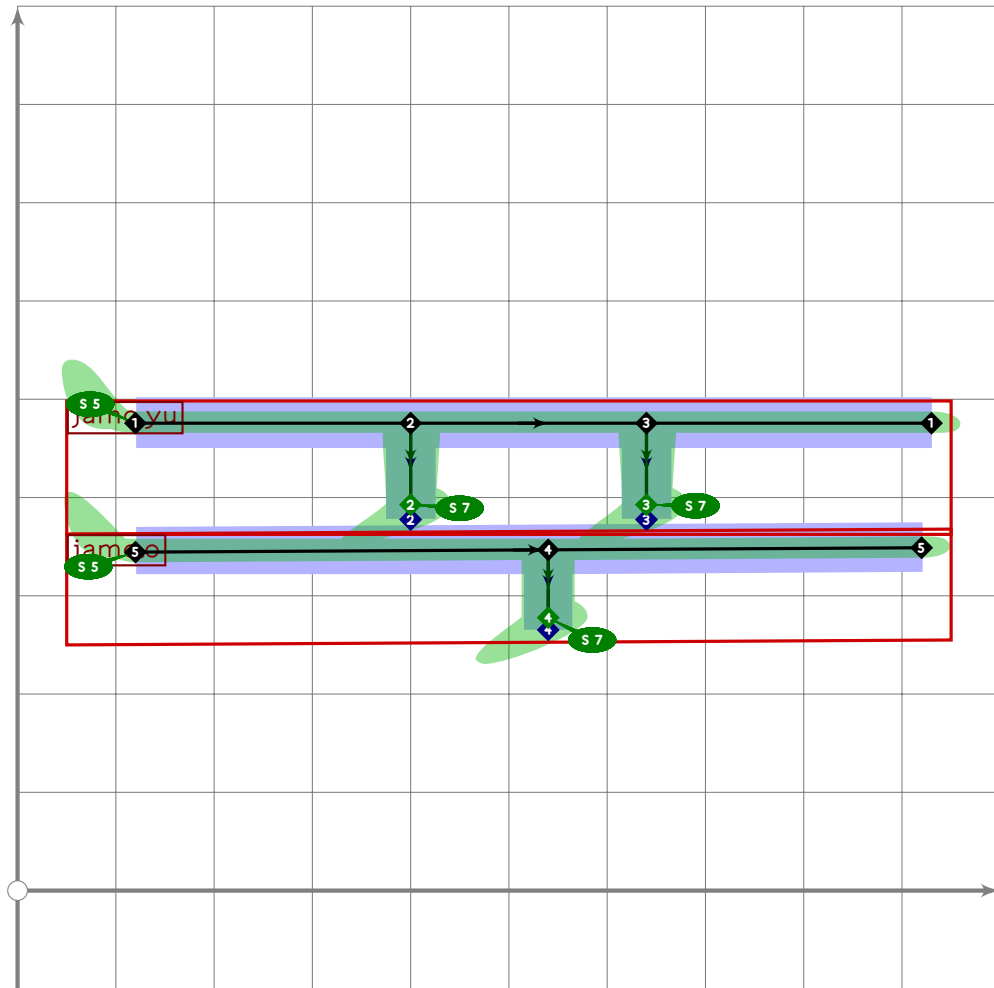
```



```

943 % hangul vowel yu-ye
944 begintsuglyph("uni1192",146);
945 hangul.combine.lr(317,307)(425,vixf,voxf);
946 tsu_render;
947 endtsuglyph;
948

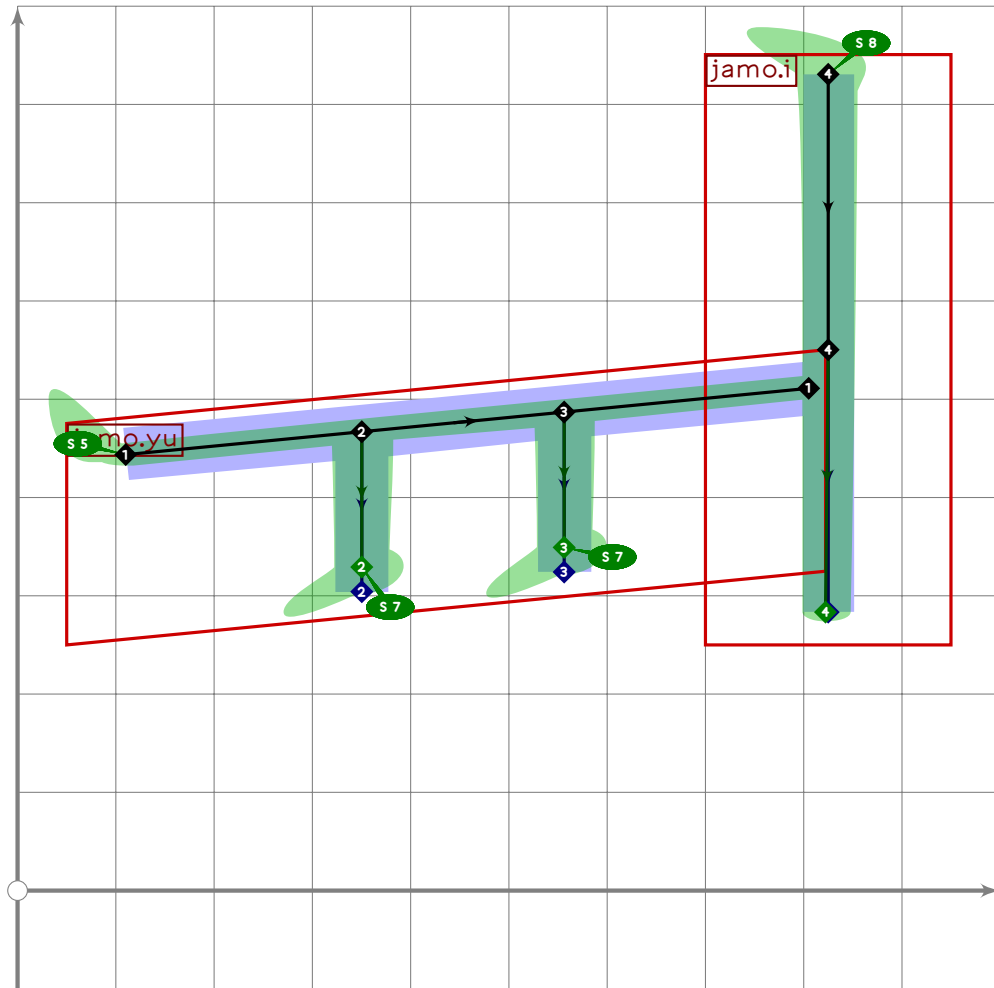
```



```

949 % hangul vowel yu-u
950 begintsuglyph("uni1193",147);
951 hangul.combine.tb(317,313)(whatever,vixf,voxf);
952 tsu_render;
953 endtsuglyph;
954

```

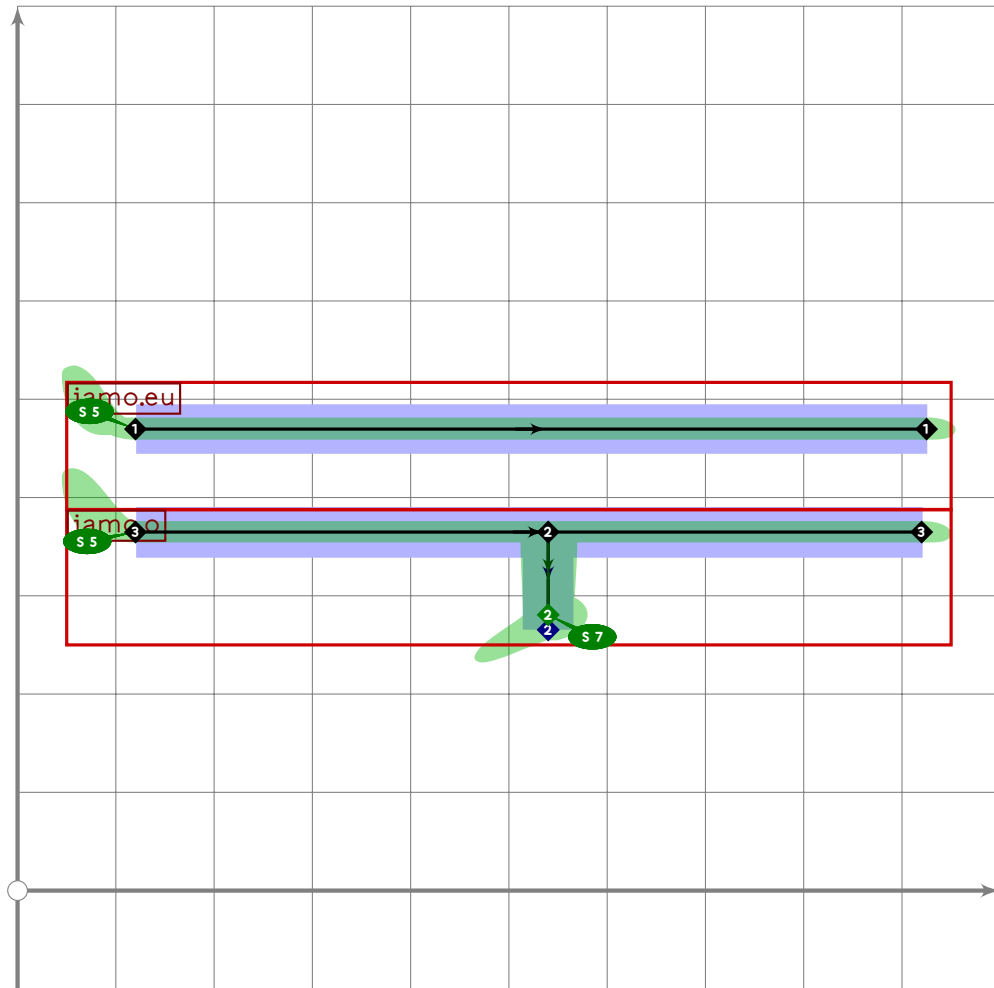


```

955 % hangul vowel yu-i
956 begint Suglyph("uni1194",148);
957 hangul.combine.lr(317,320)(426,vixf,voxf);
958 tsu_render;
959 endtsuglyph;
960

```

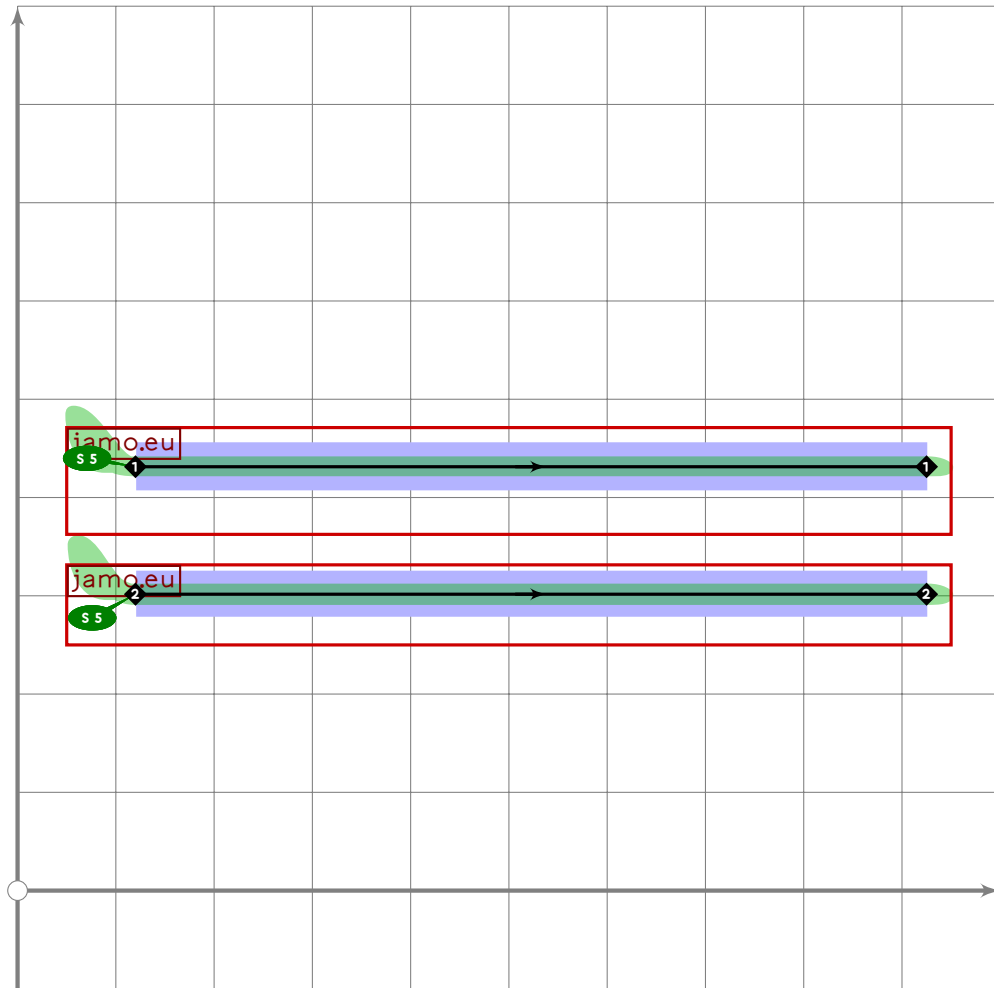




```

961 % hangul vowel eu-u
962 begint Suglyph("uni1195",149);
963 hangul.combine.tb(318,313)(whatever,tvixf,voxf);
964 tsu_render;
965 endtsuglyph;
966

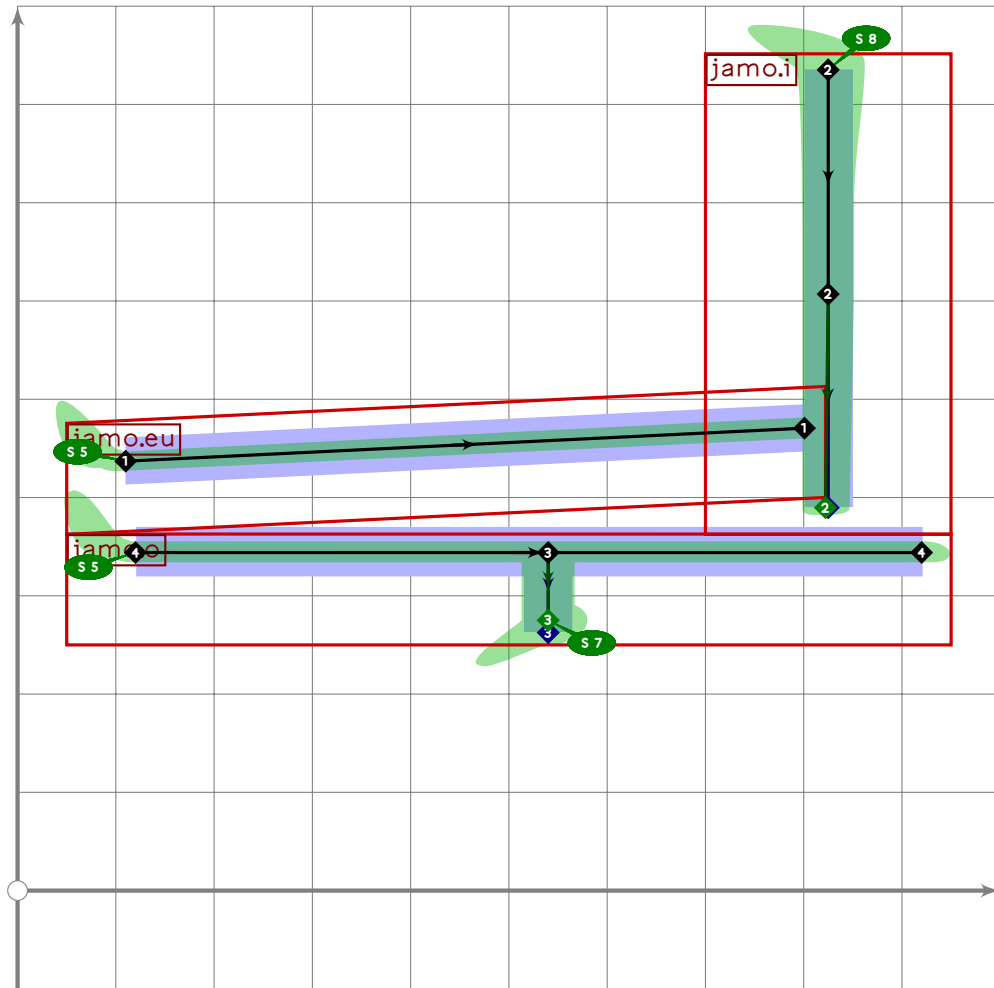
```



```

967 % hangul vowel eu-eu
968 begint Suglyph("uni1196",150);
969 hangul.combine.tb(318,318)(whatever,vixf,vox f);
970 tsu_render;
971 endtsuglyph;
972

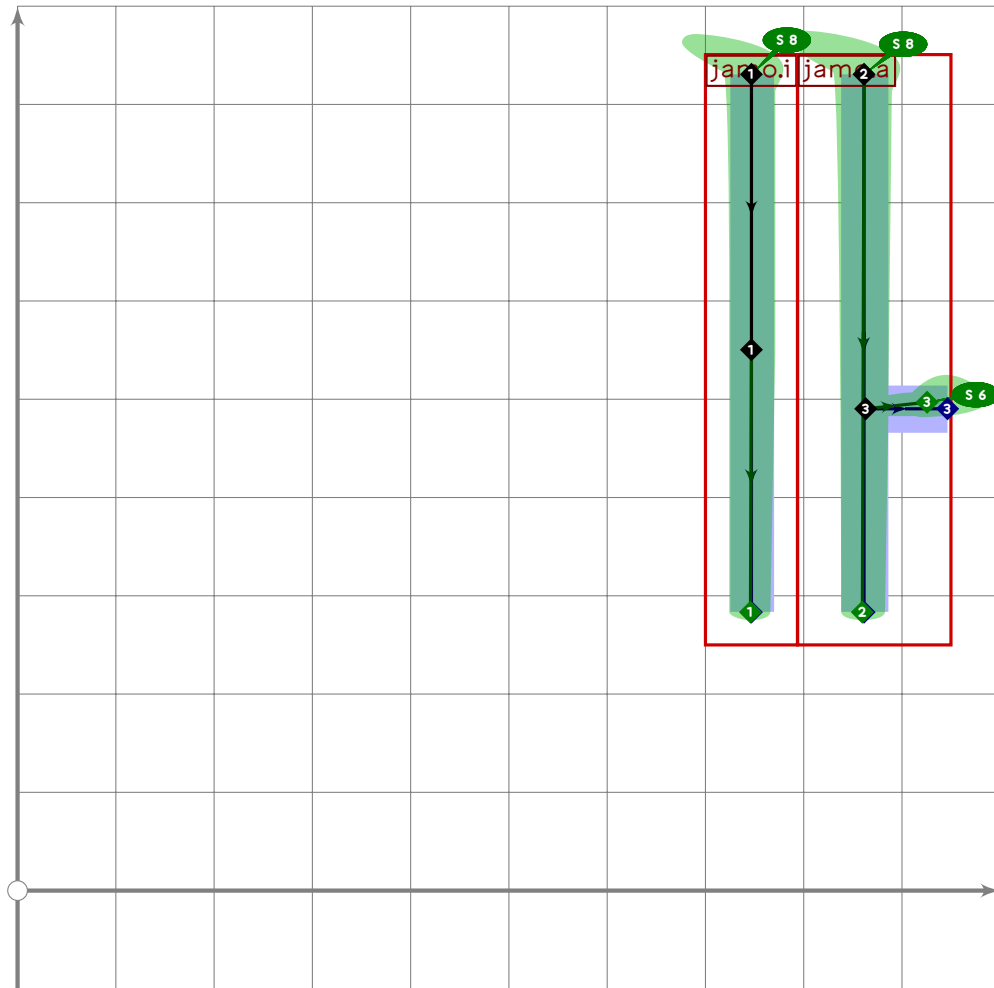
```



```

973 % hangul vowel yi-u
974 begint Suglyph("uni1197",151);
975 hangul.combine.tb(319,313)(440,vixf,vox f);
976 tsu_render;
977 endtsuglyph;
978

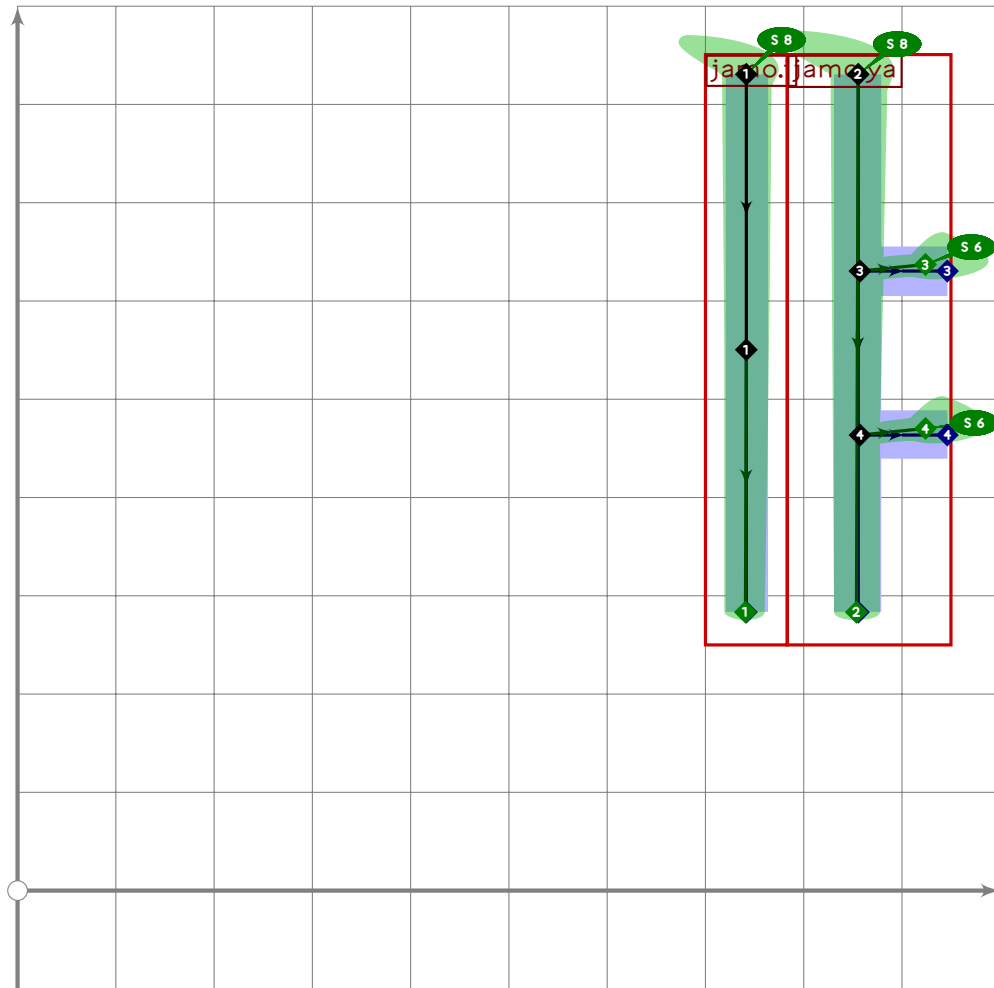
```



```

979 % hangul vowel i-a
980 begintsuglyph("uni1198",152);
981 hangul.combine.lr(320,300)(whatever,vixf,voxf);
982 tsu_render;
983 endtsuglyph;
984

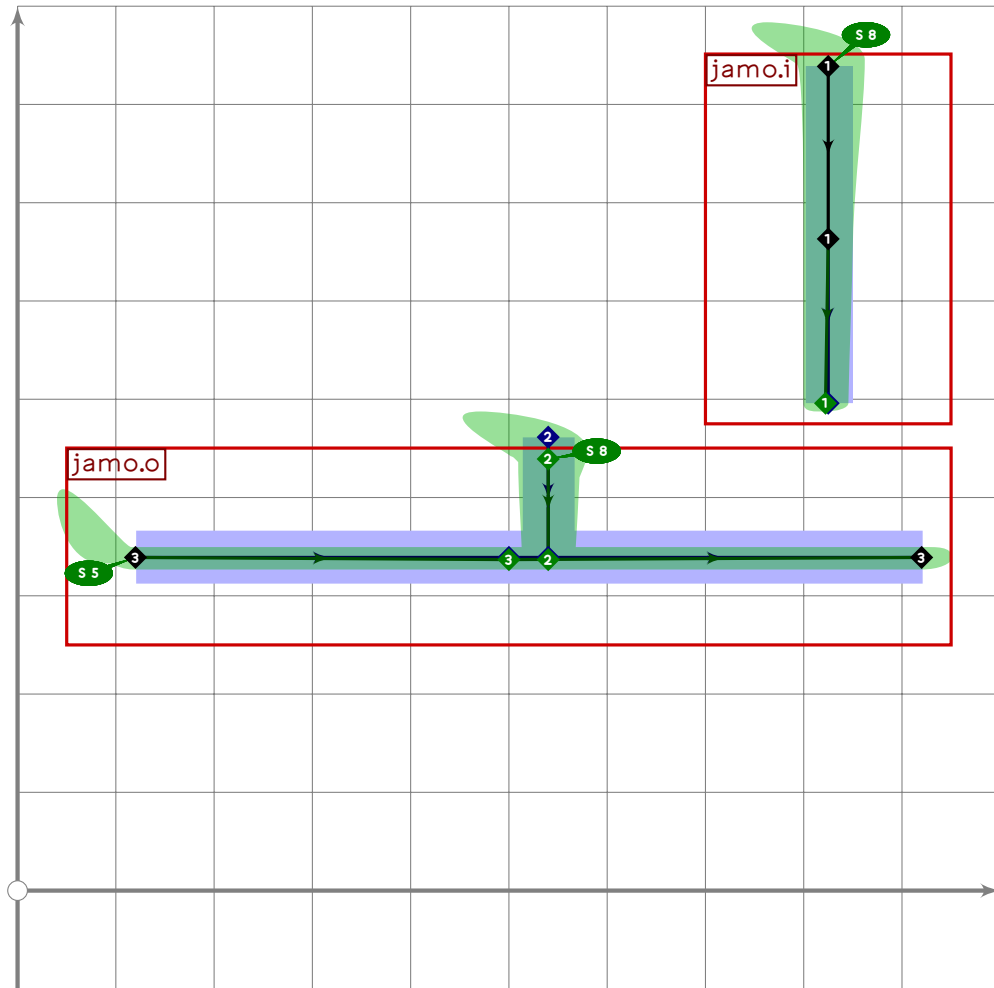
```



```

985 % hangul vowel i-ya
986 begintsuglyph("uni1199",153);
987 hangul.combine.lr(320,302)(whatever,vixf,vox);
988 tsu_render;
989 endtsuglyph;
990

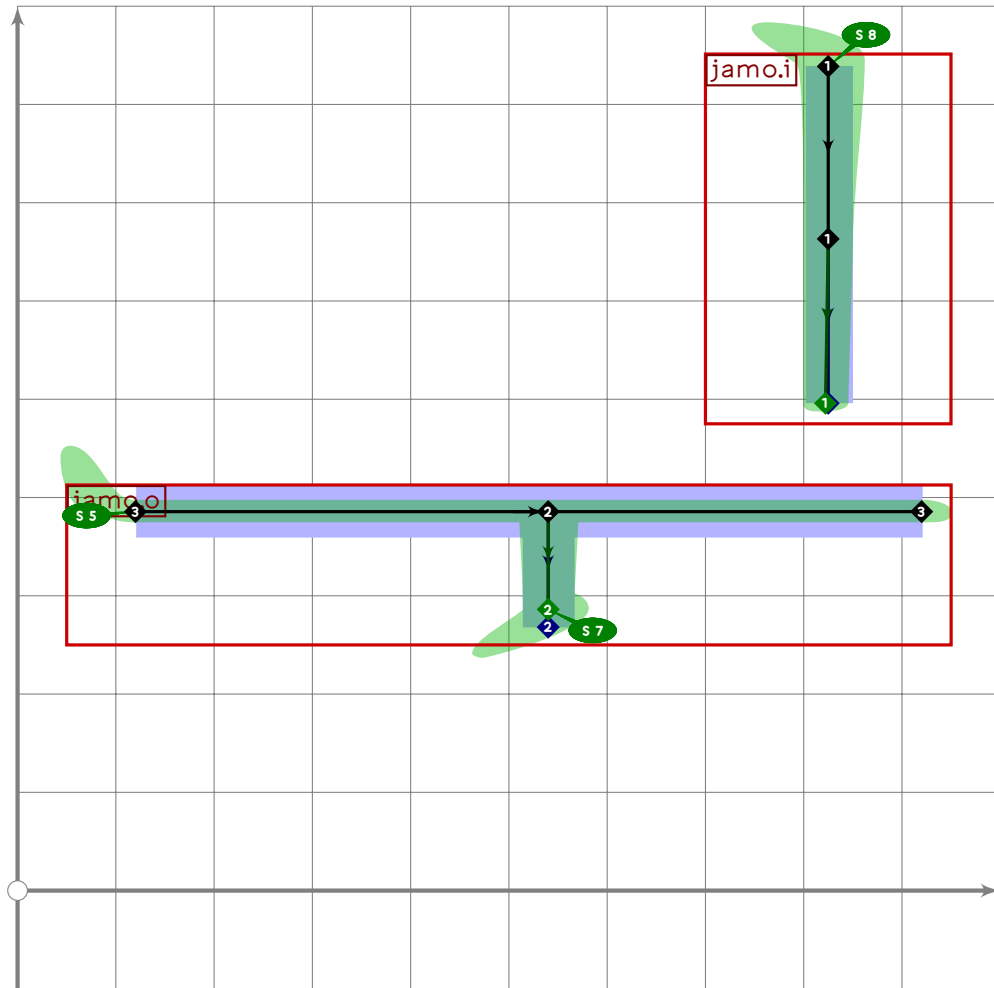
```



```

991 % hangul vowel i-o
992 begintuglyph("uni119A",154);
993 hangul.combine.tb(320,308)(whatever,vixf,vox);
994 tsu_render;
995 endtsuglyph;
996

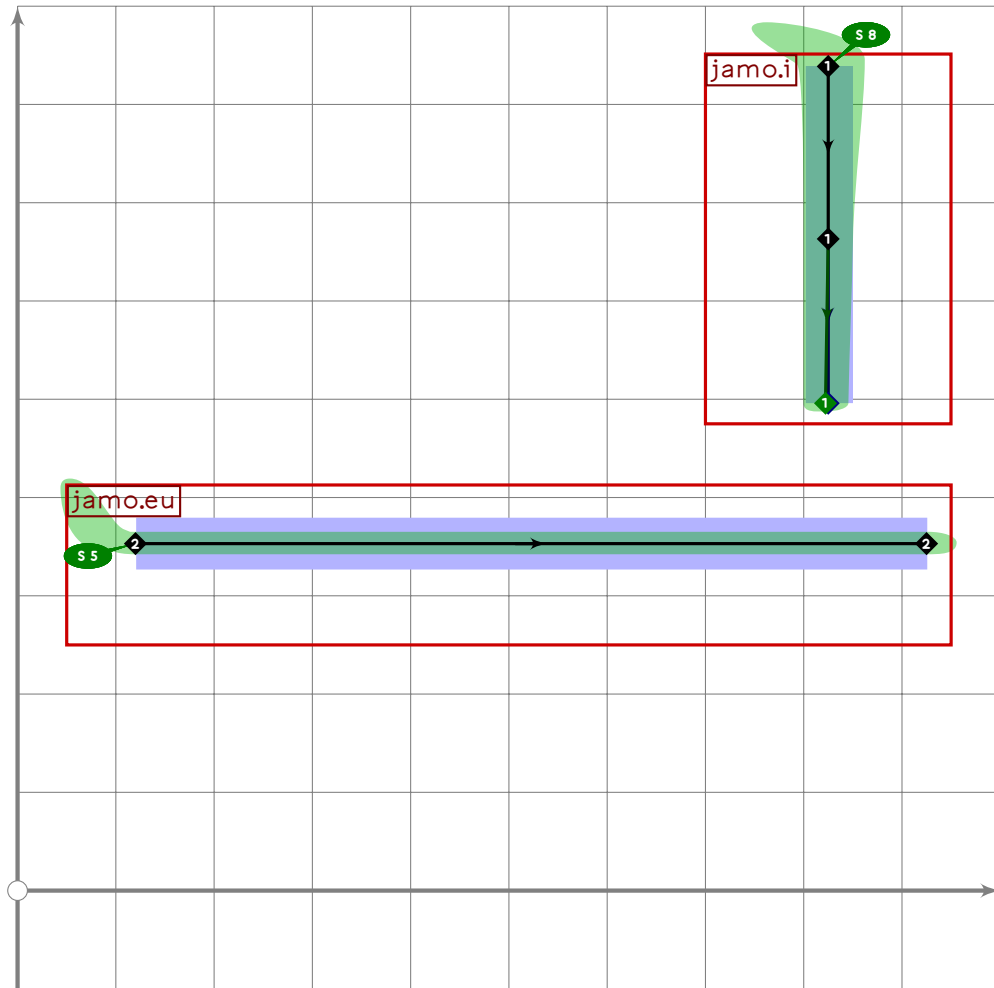
```



```

997 % hangul vowel i-u
998 begint Suglyph("uni119B",155);
999 hangul.combine.tb(320,313)(whatever,vixf,voxf);
1000 tsu_render;
1001 endtsuglyph;
1002

```

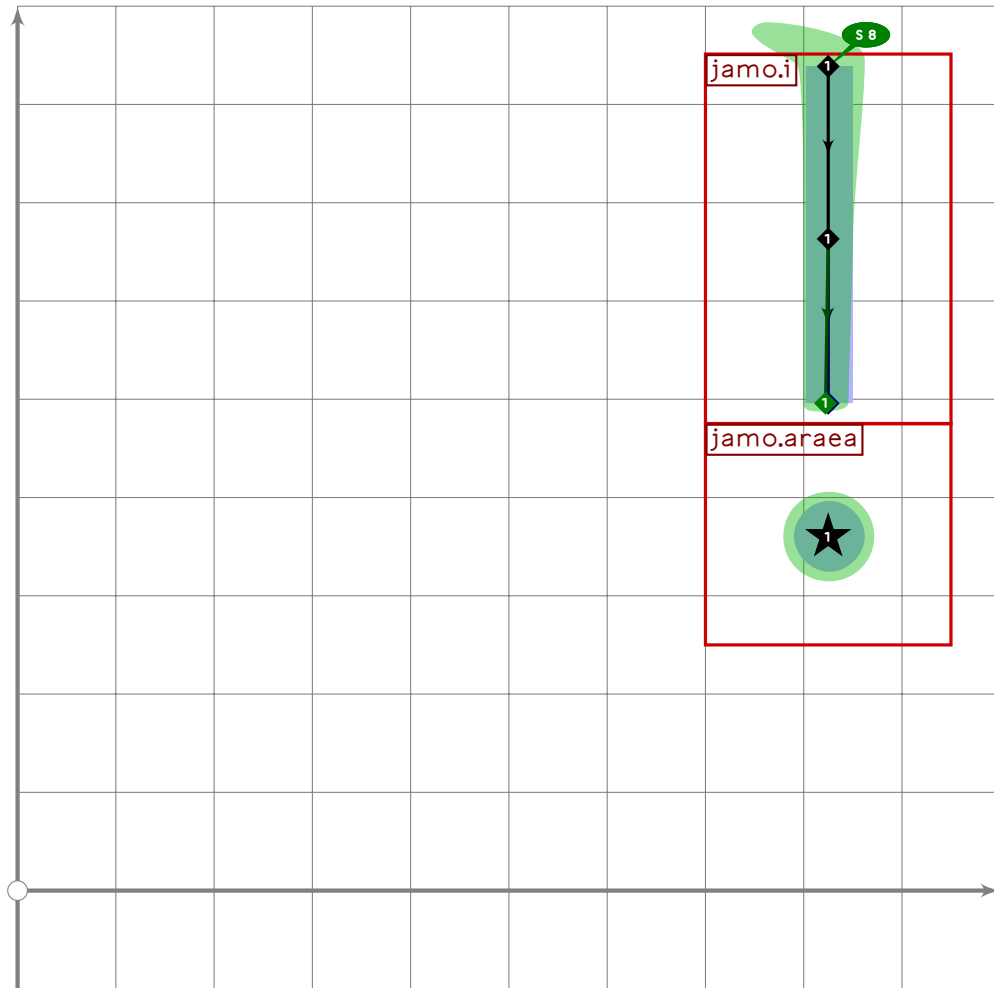


```

1003 % hangul vowel i-eu
1004 begint Suglyph("uni119C",156);
1005 hangul.combine.tb(320,318)(whatever,vixf,vox);
1006 tsu_render;
1007 endtsuglyph;
1008

```

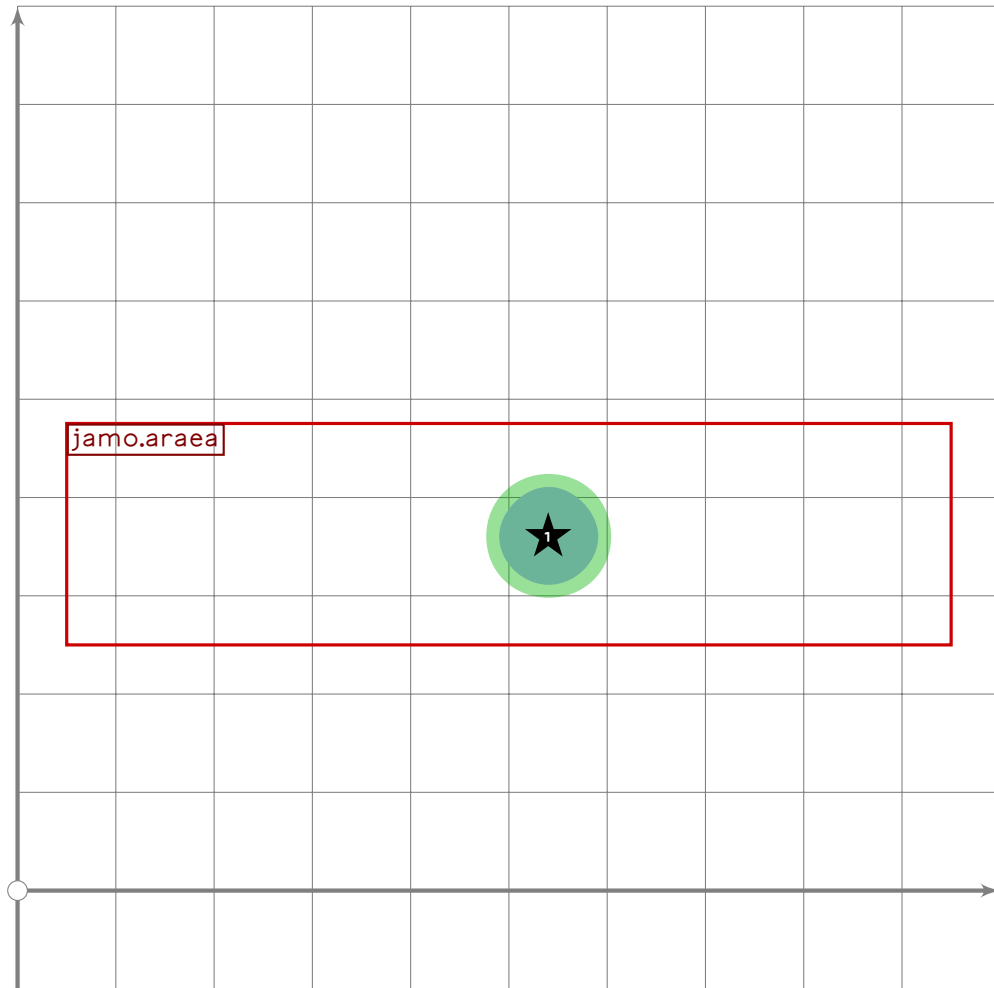




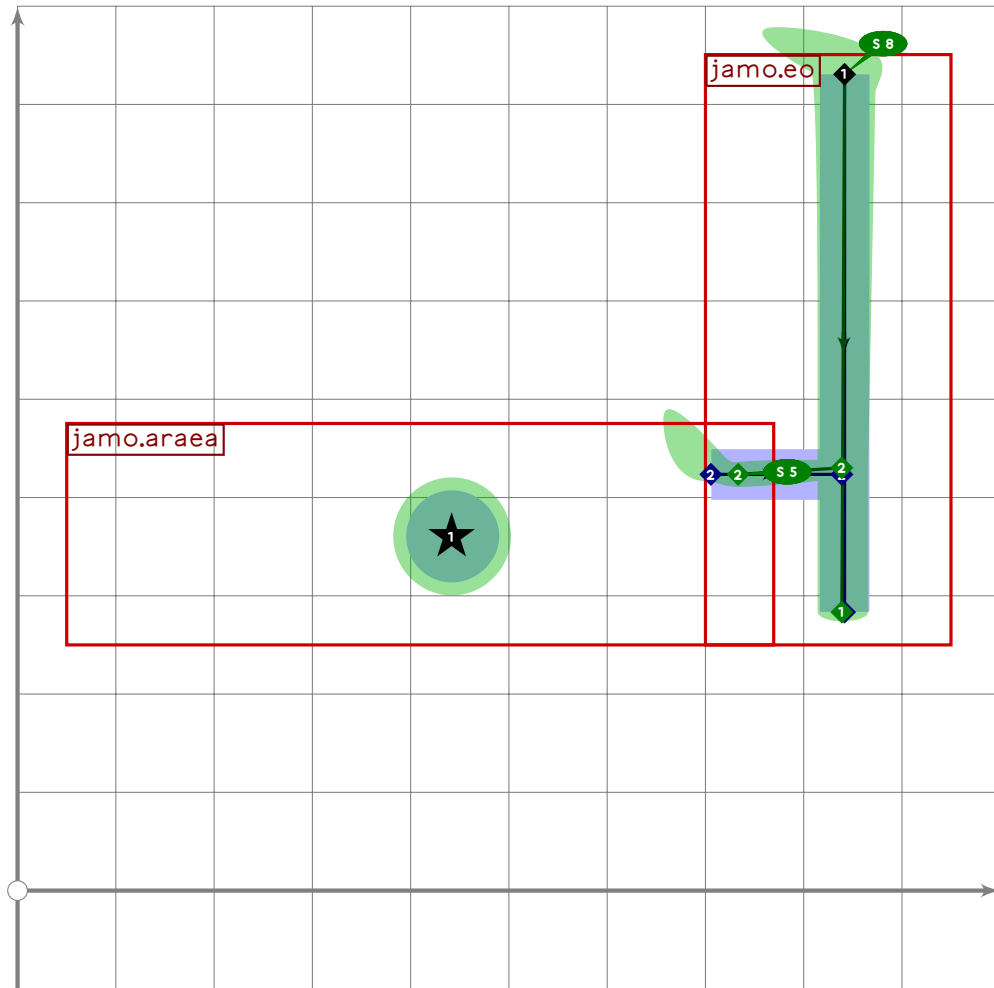
```

1009 % hangul vowel i-araea
1010 begintsuglyph("uni119D",157);
1011 hangul.combine.tb(320,428)(441,vixf,voxf);
1012 tsu_render;
1013 endtsuglyph;
1014

```



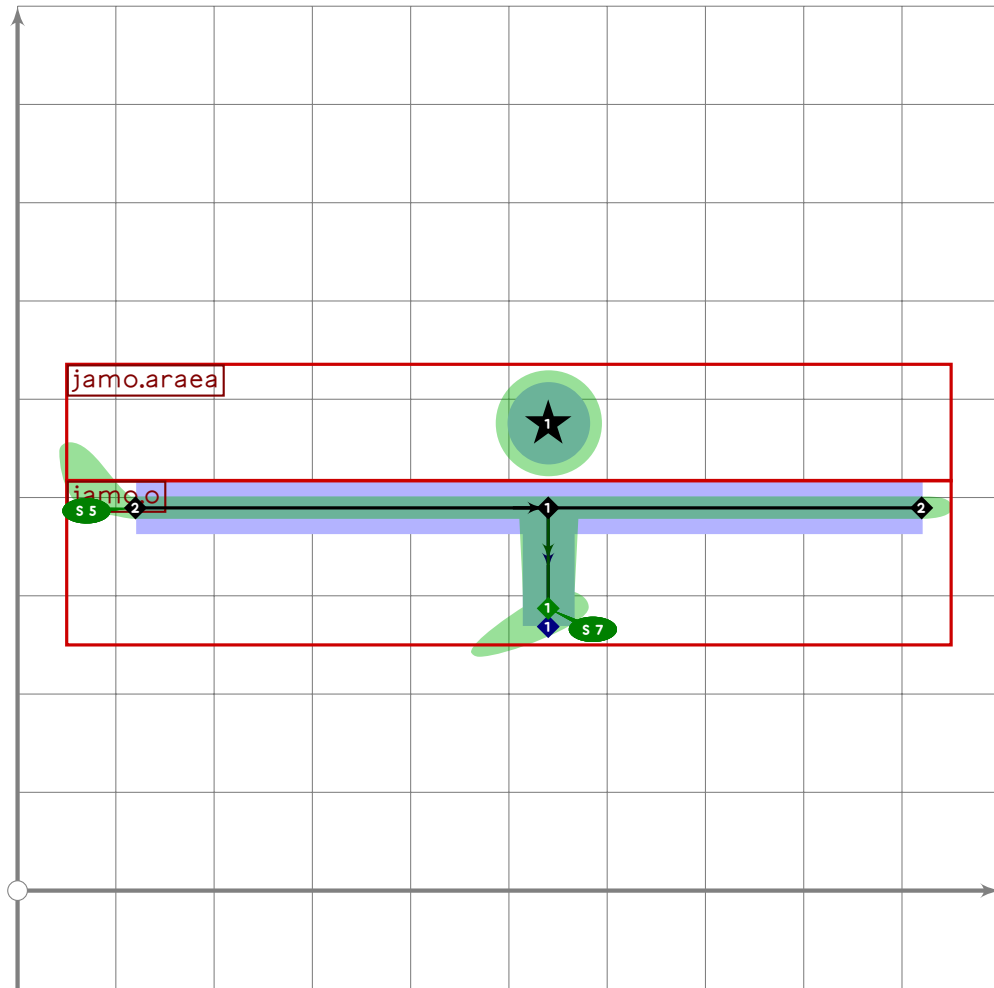
```
1015 % hangul vowel araea  
1016 begintsuglyph("uni119E",158);  
1017 hangul.jamo.araea(428,vixf,voxf);  
1018 tsu_render;  
1019 endtsuglyph;  
1020
```



```

1021 % hangul vowel araea-eo
1022 begintsuglyph("uni119F",159);
1023 hangul.combine.lr(428,304)(whatever,vixf,voxf);
1024 tsu_render;
1025 endtsuglyph;
1026

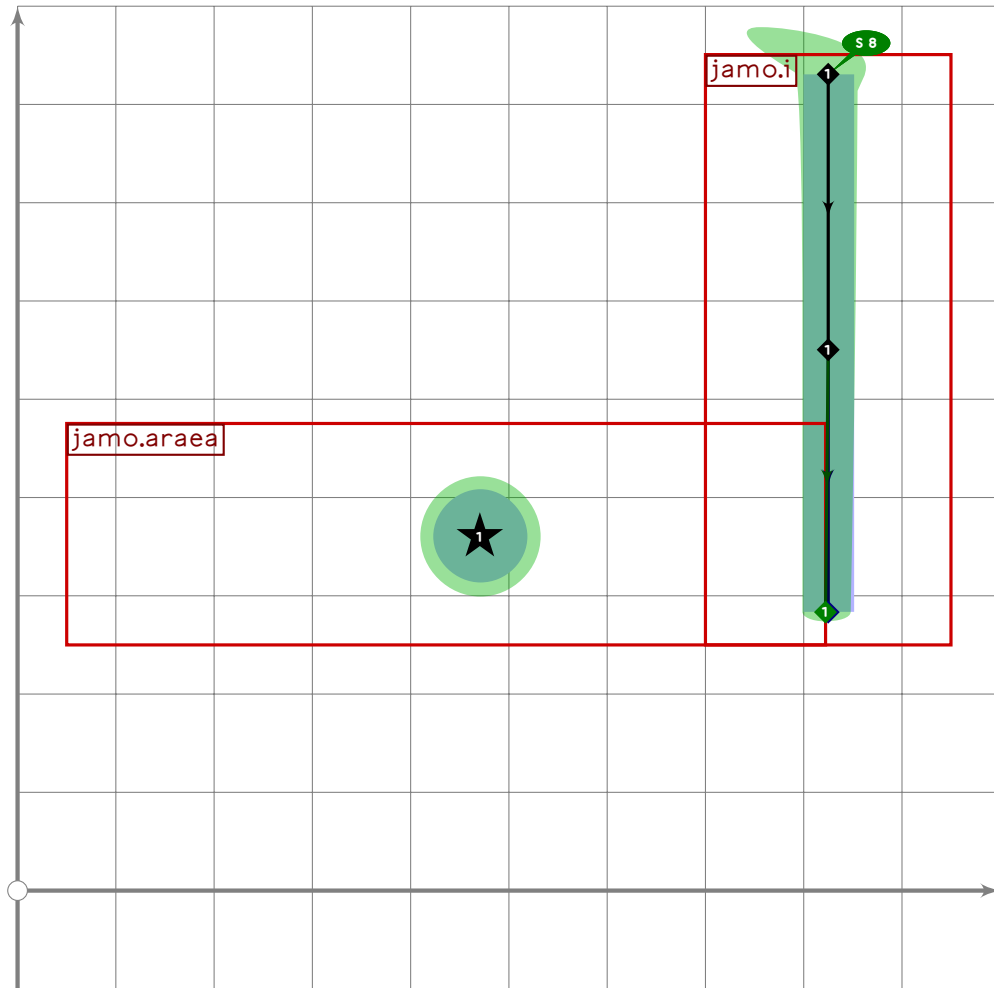
```



```

1027 % hangul vowel araea-u
1028 begint Suglyph("uni11A0",160);
1029 hangul.combine.tb(428,313)(whatever,tvixf,voxf);
1030 tsu_render;
1031 endtsuglyph;
1032

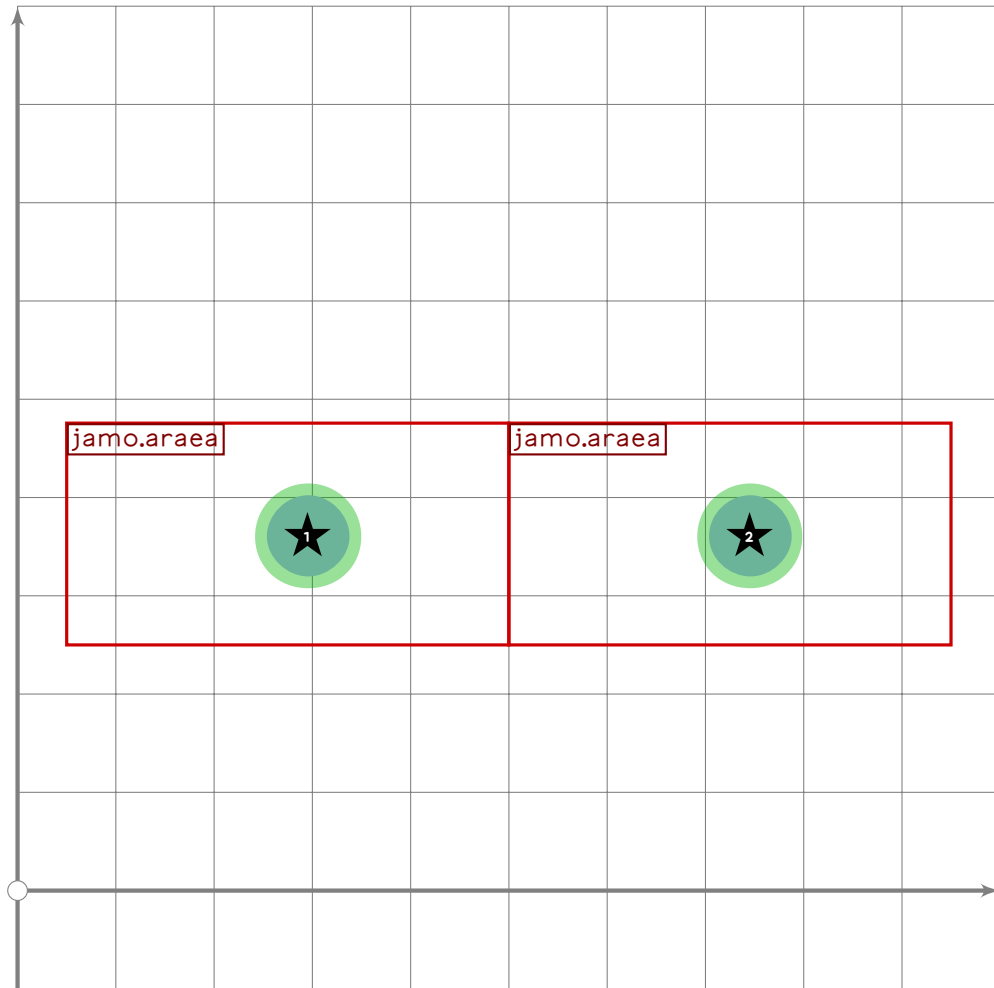
```



```

1033 % hangul vowel araea-i
1034 begintsuglyph("uni11A1",161);
1035 hangul.combine.lr(428,320)(427,vixf,vox);
1036 tsu_render;
1037 endtsuglyph;
1038

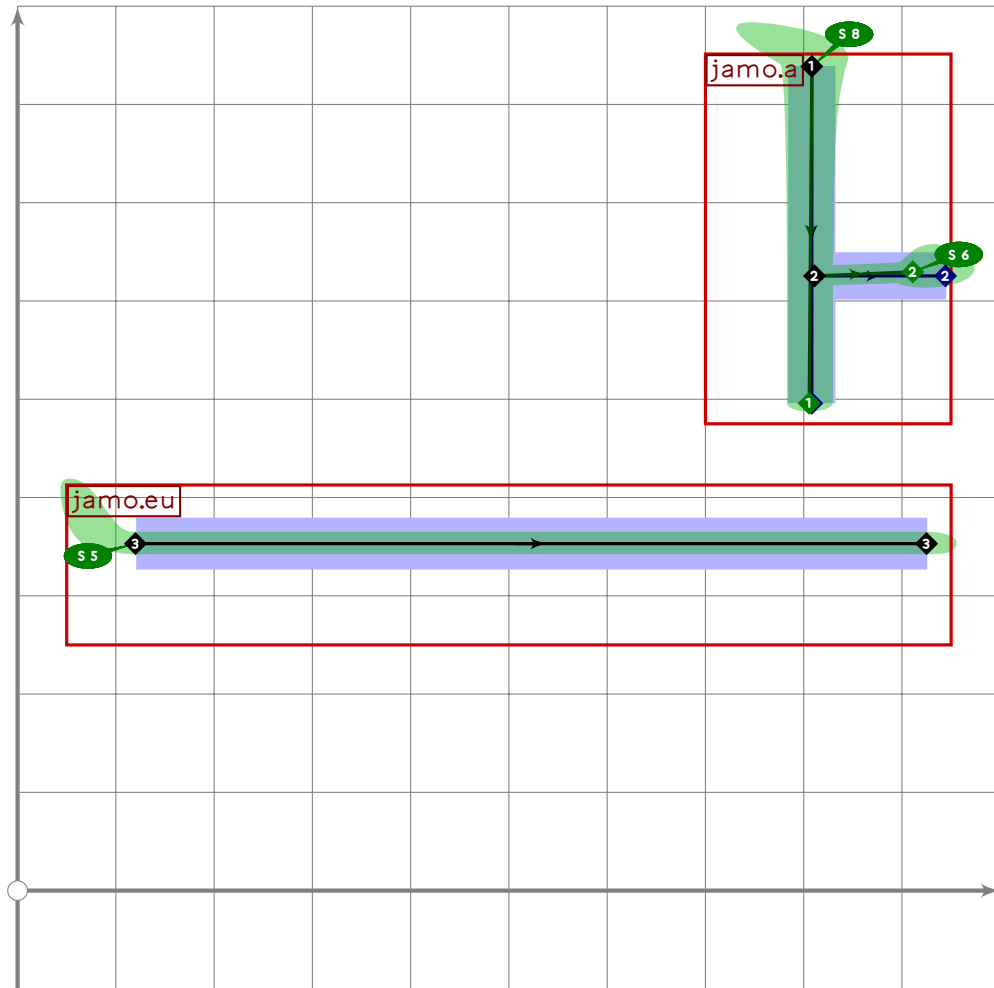
```



```

1039 % hangul vowel ssangaraea
1040 begintsuglyph("uni11A2",162);
1041 hangul.combine.lr(428,428)(whatever,
1042   hxf_inout(5,vixf,voxf),voxf);
1043 tsu_render;
1044 endtsuglyph;
1045

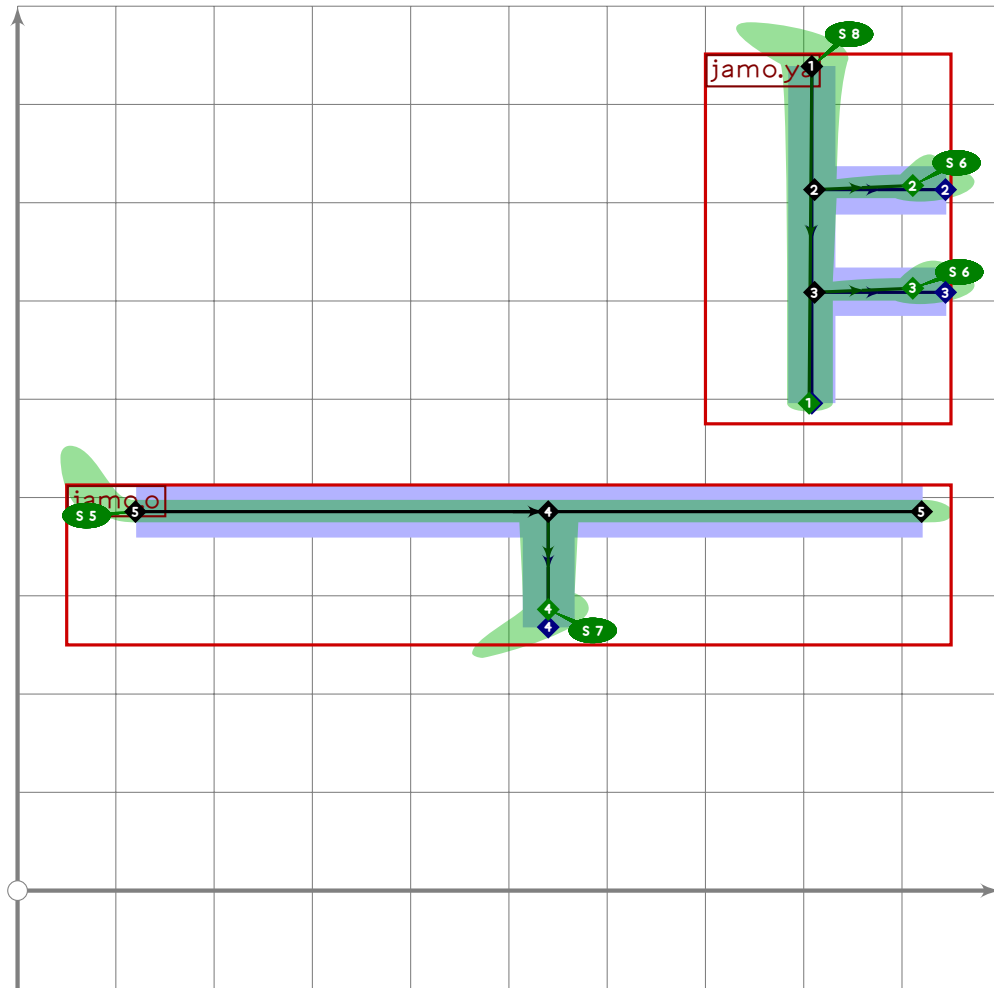
```



```

1046 % hangul vowel a-eu
1047 begintsuglyph("uni11A3",163);
1048 hangul.combine.tb(300,318)(whatever,vixf,voxf);
1049 tsu_render;
1050 endtsuglyph;
1051

```

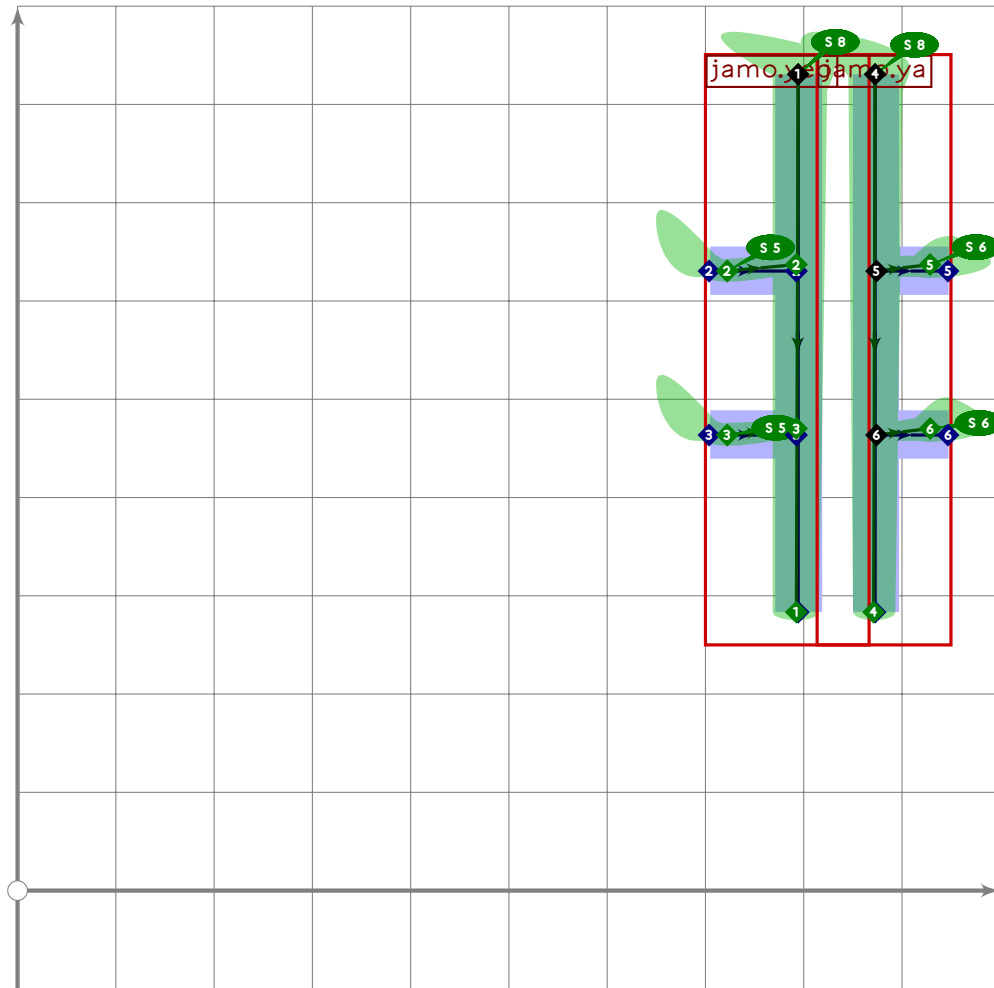


```

1052 % hangul vowel ya-u
1053 begint Suglyph("uni11A4",164);
1054 hangul.combine.tb(302,313)(whatever,vixf,voxf);
1055 tsu_render;
1056 endtsuglyph;
1057

```

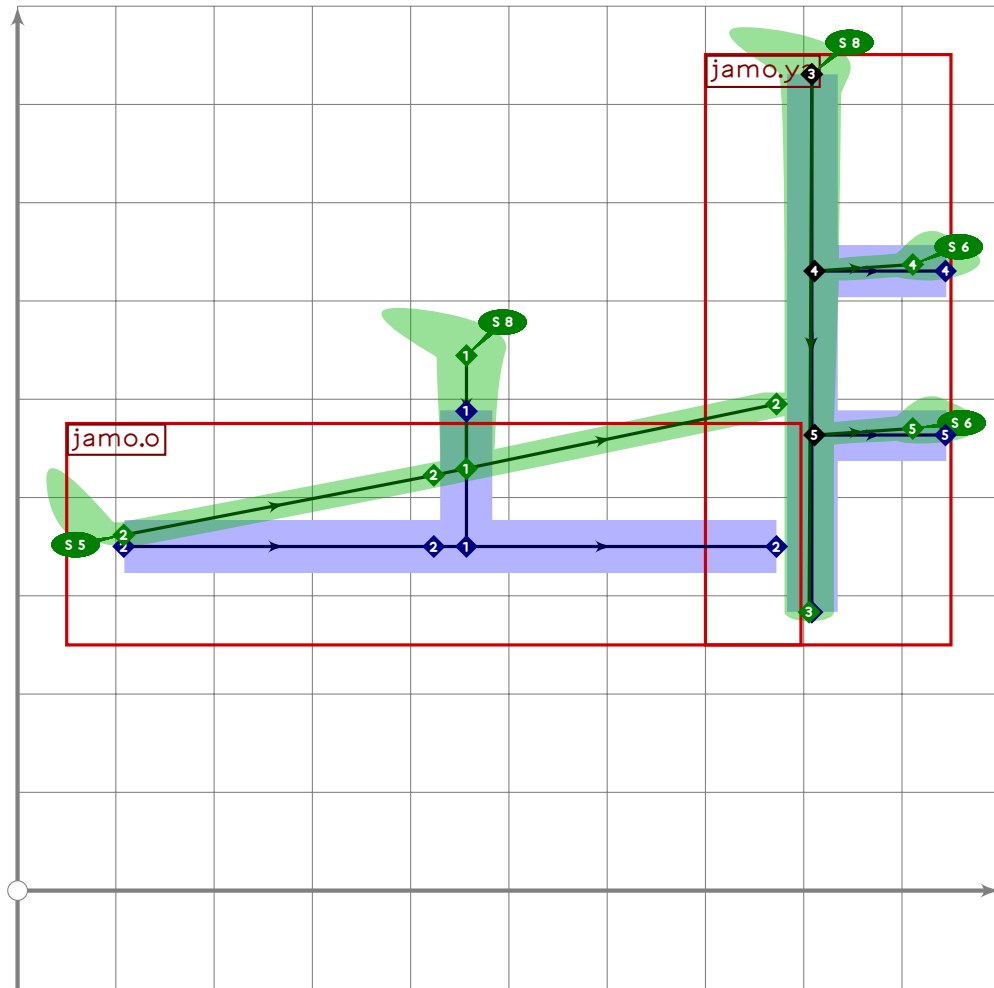




```

1058 % hangul vowel yeo-ya
1059 begintsuglyph("uni11A5",165);
1060 hangul.combine.lr(306,302)(whatever,vixf,voxf);
1061 tsu_render;
1062 endtsuglyph;
1063

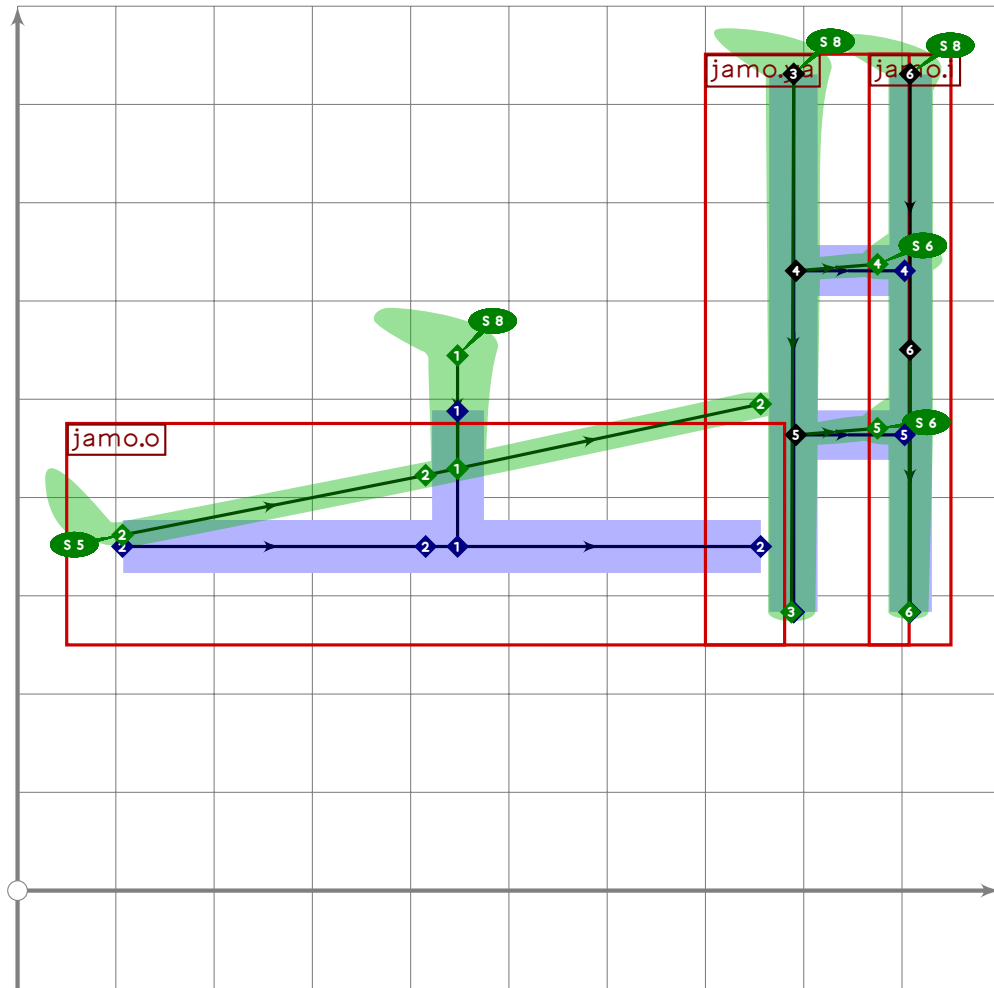
```



```

1064 % hangul vowel o-ya
1065 begint Suglyph("uni11A6",166);
1066 hangul.combine.lr(308,302)(442,vixf,voxf);
1067 tsu_render;
1068 endtsuglyph;
1069

```



```

1070 % hangul vowel o-yae
1071 begintsuglyph("uni11A7",167);
1072 hangul.combine.lr(308,303)(443,vixf,voxf);
1073 tsu_render;
1074 endtsuglyph;
1075
1076
1077

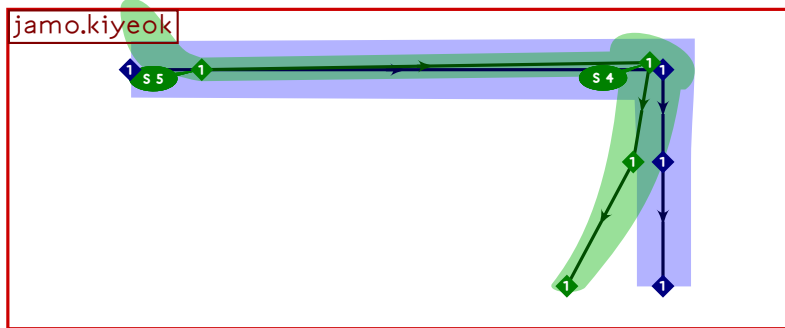
```

## Hangul Jongseong (Tail) Jamo

```

1078 % HANGUL JONGSEONG (TAIL) JAMO
1079
1080 tsu_rescale_native_zero;
1081

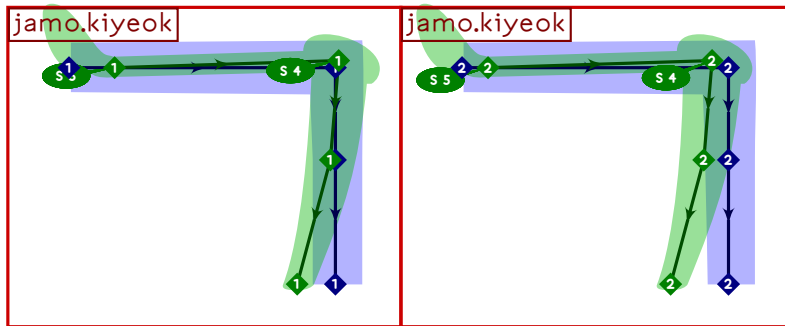
```



```

1082 % hangul tail kiyeok
1083 begintsuglyph("uni11A8",168);
1084 hangul,jamo.kiyeok(whatever,tixf,toxf);
1085 tsu_render;
1086 endtsuglyph;
1087

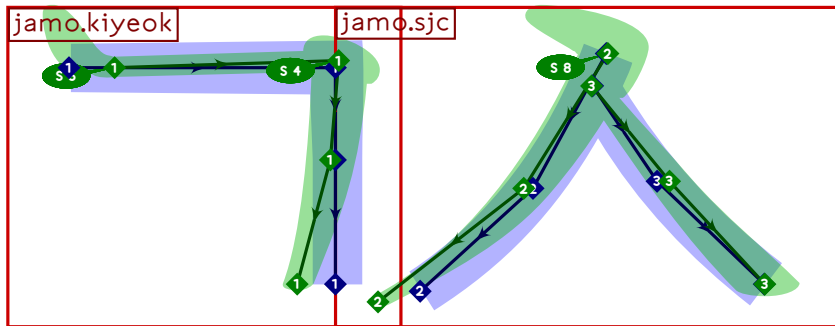
```



```

1088 % hangul tail ssangkiyeok
1089 begintsuglyph("uni11A9",169);
1090 hangul.combine.lr(501,501)(whatever,tixf,toxf);
1091 tsu_render;
1092 endtsuglyph;
1093

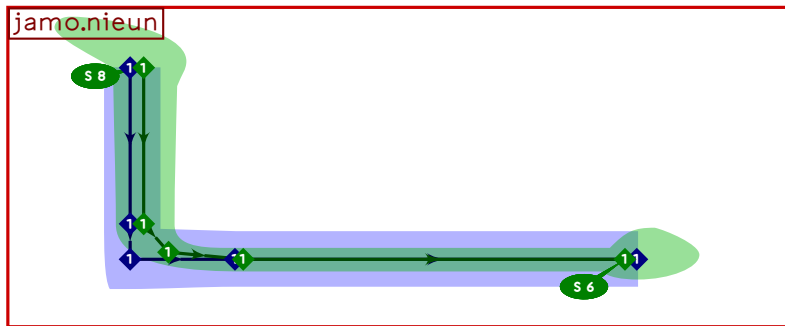
```



```

1094 % hangul tail kiyeok-sios
1095 begintsuglyph("uni11AA",170);
1096 hangul.combine.lr(501,519)(whatever,tixf,toxf);
1097 tsu_render;
1098 endtsuglyph;
1099

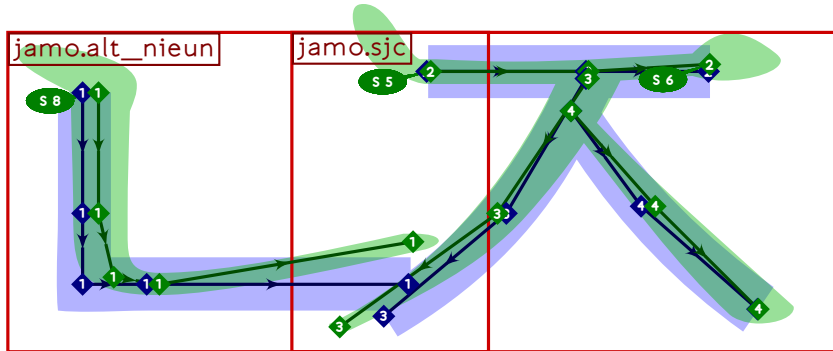
```



```

1100 % hangul tail nieun
1101 begint Suglyph("uni11AB",171);
1102 hangul,jamo.nieun(whatever,tixf,toxf);
1103 tsu_render;
1104 endtsuglyph;
1105

```

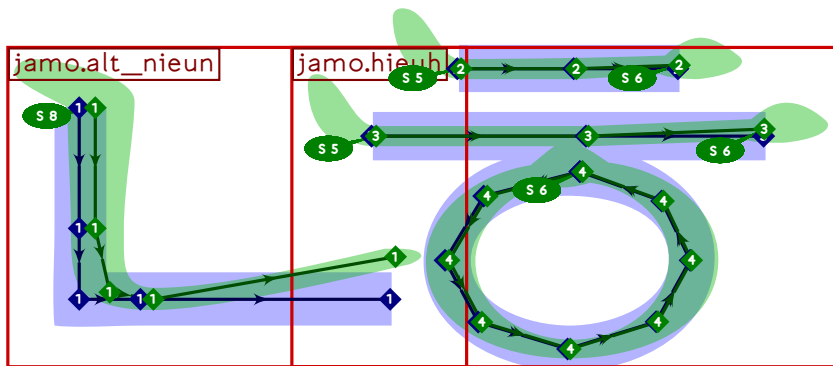


```

1106 % hangul tail nieun-cieuc
1107 begintsuglyph("uni11AC",172);
1108 hangul.combine.lr(604,522)(whatever,tixf,toxf);
1109 tsu_render;
1110 endtsuglyph;
1111

```

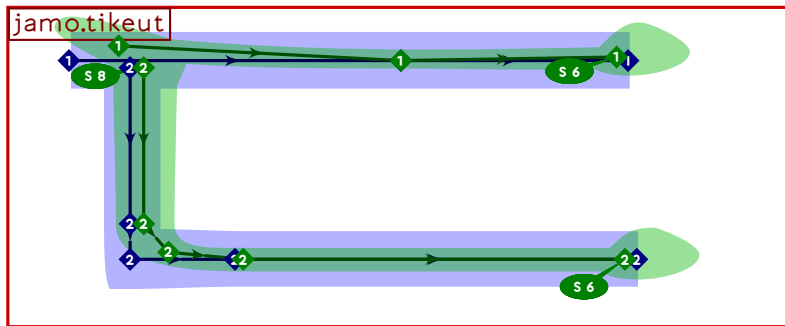




```

1112 % hangul tail nieun-hieuh
1113 begint Suglyph("uni11AD",173);
1114 hangul.combine.lr(604,527)(whatever,tixf,toxf);
1115 tsu_render;
1116 endtsuglyph;
1117

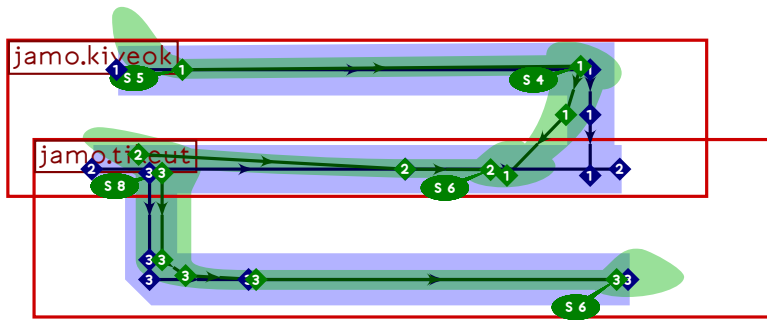
```



```

1118 % hangul tail tikeut
1119 begintsuglyph("uni11AE",174);
1120 hangul,jamo.tikeut(whatever,tixf,toxf);
1121 tsu_render;
1122 endtsuglyph;
1123

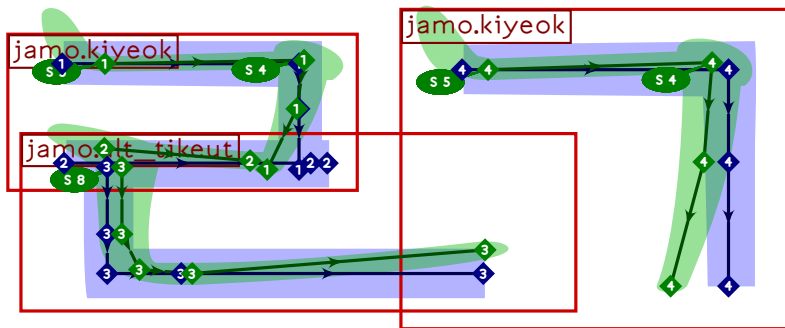
```



```

1124 % hangul tail rieul
1125 beginsuglyph("uni11AF",175);
1126 hangul.jamo.rieul(whatever,tixf,toxf);
1127 tsu_render;
1128 endsuglyph;
1129

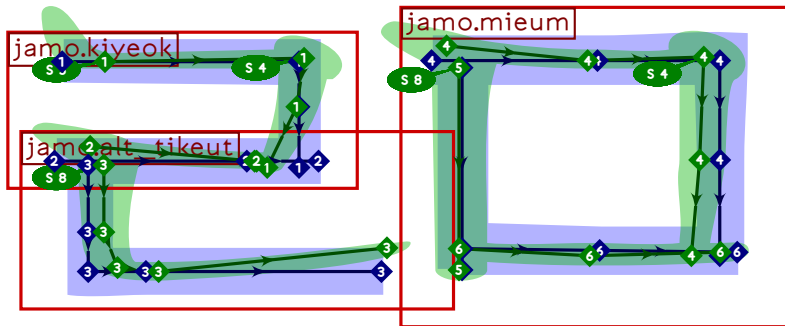
```



```

1130 % hangul tail riul-kiyeok
1131 begint Suglyph("uni11B0",176);
1132 hangul.combine.lr(608,501)(whatever,tixf,toxf);
1133 tsu_render;
1134 endtsuglyph;
1135

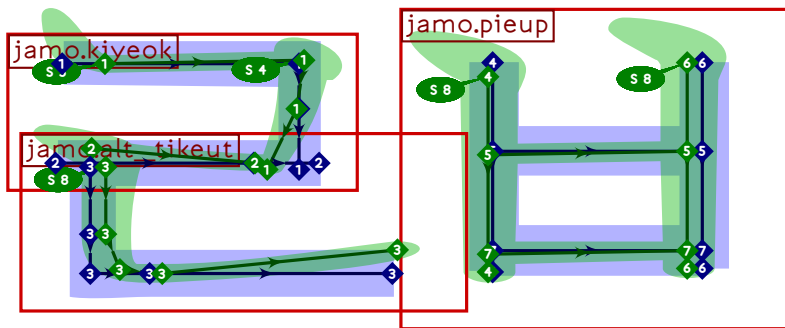
```



```

1136 % hangul tail riul-mieum
1137 begintsuglyph("uni11B1";177);
1138 hangul.combine.lr(608,516)(whatever,tixf,toxf);
1139 tsu_render;
1140 endtsuglyph;
1141

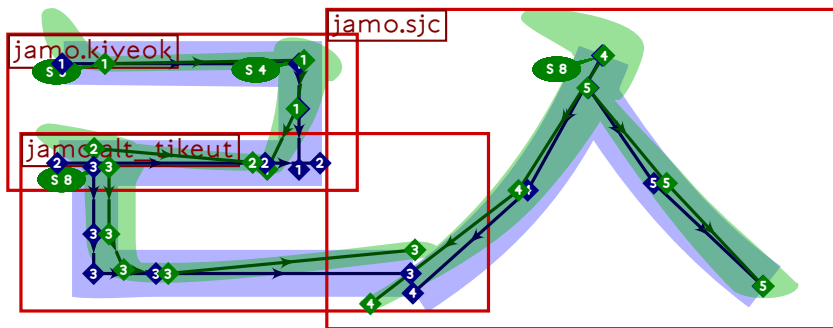
```



```

1142 % hangul tail riul-pieup
1143 begint Suglyph("uni11B2",178);
1144 hangul.combine.lr(608,517)(whatever,tixf,toxf);
1145 tsu_render;
1146 endtsuglyph;
1147

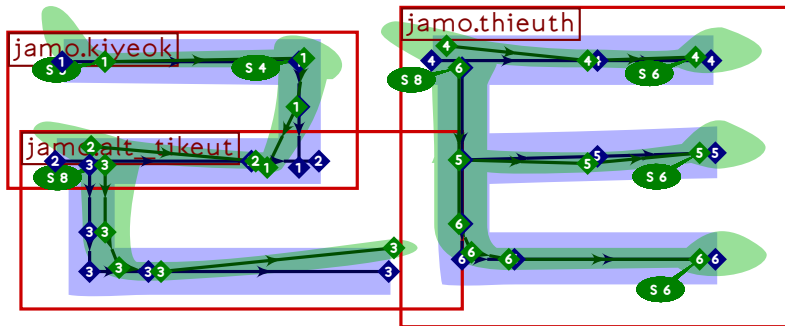
```



```

1148 % hangul tail rieul-sios
1149 begintsuglyph("uni11B3",179);
1150 hangul.combine.lr(608,519)(whatever,tixf,toxf);
1151 tsu_render;
1152 endtsuglyph;
1153

```

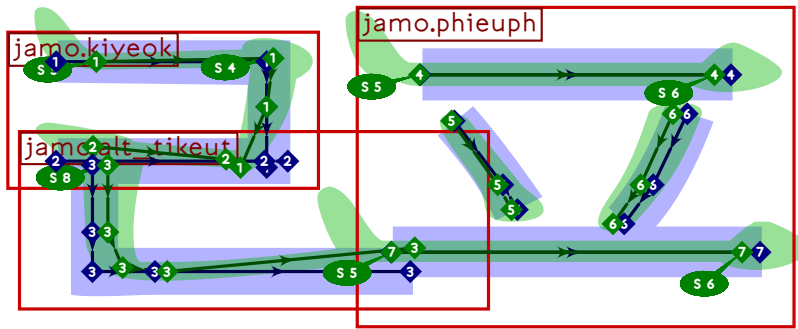


```

1154 % hangul tail riul-thieuth
1155 begint Suglyph("uni11B4",180);
1156 hangul.combine.lf(608,525)(whatever,tixf,toxf);
1157 tsu_render;
1158 endtsuglyph;
1159

```

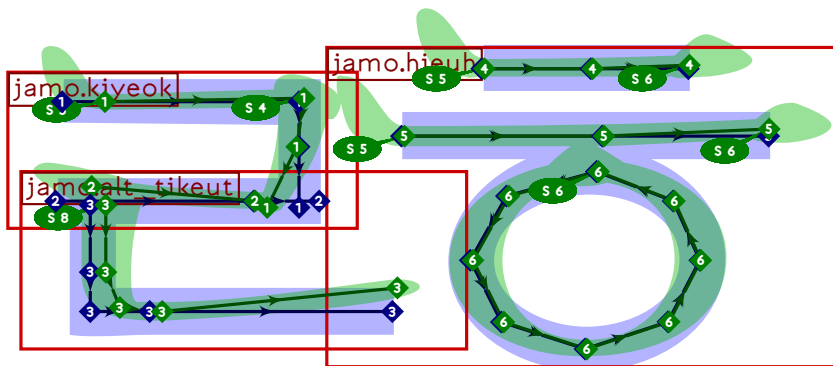




```

1160 % hangul tail riul-phieuph
1161 begintsuglyph("uni11B5",181);
1162 hangul.combine.lr(608,526)(whatever,tixf,toxf);
1163 tsu_render;
1164 endtsuglyph;
1165

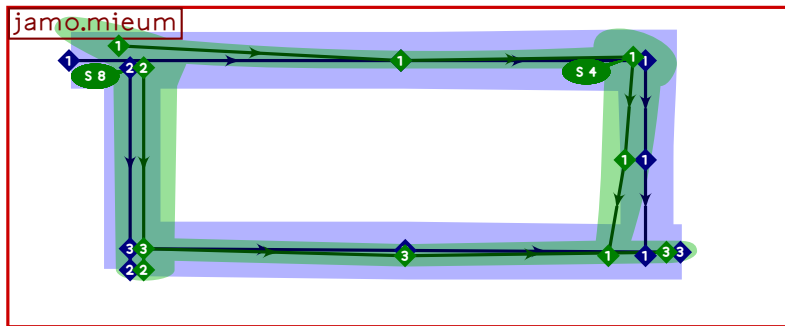
```



```

1166 % hangul tail riul-hieuh
1167 begintsuglyph("uni11B6",182);
1168 hangul.combine.lr(608,527)(whatever,tixf,toxf);
1169 tsu_render;
1170 endsuglyph;
1171

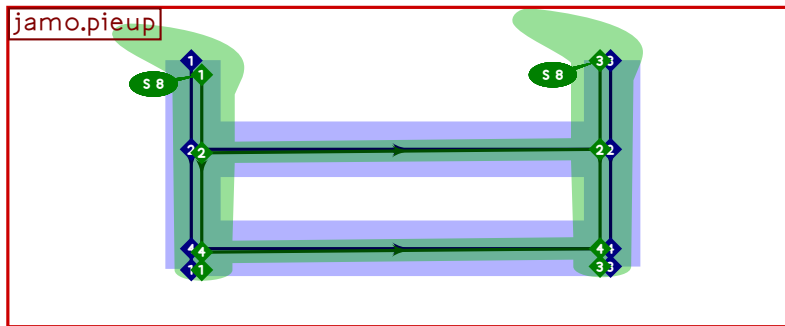
```



```

1172 % hangul tail mieum
1173 begintsuglyph("uni11B7",183);
1174 hangul,jamo.mieum(whatever,tixf,toxf);
1175 tsu_render;
1176 endtsuglyph;
1177

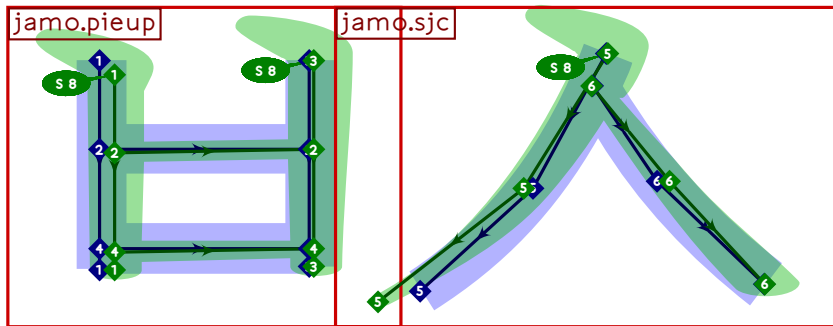
```



```

1178 % hangul tail pieup
1179 begint Suglyph("uni11B8",184);
1180 hangul,jamo.pieup(whatever,tixf,toxf);
1181 tsu_render;
1182 endtsuglyph;
1183

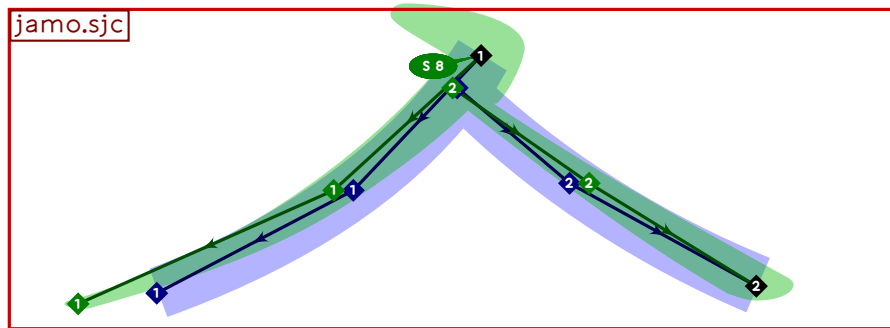
```



```

1184 % hangul tail pieup-sios
1185 begint Suglyph("uni11B9",185);
1186 hangul.combine.lr(517,519)(whatever,tixf,toxf);
1187 tsu_render;
1188 endtsuglyph;
1189

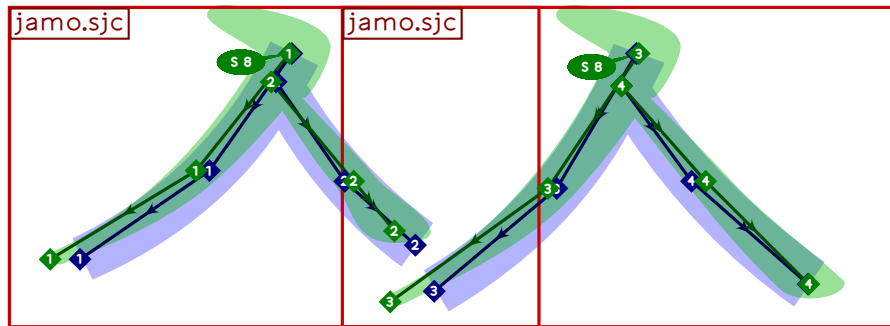
```



```

1190 % hangul tail sios
1191 begintsuglyph("uni11BA",186);
1192 hangul.jamo.sjc(0,0,false)(whatevert,ixf,toxf);
1193 tsu_render;
1194 endtsuglyph;
1195

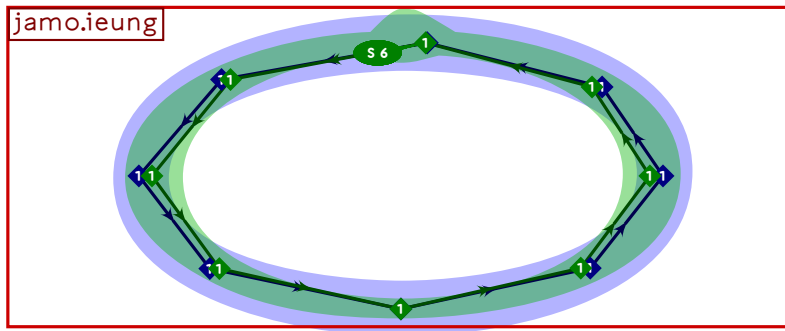
```



```

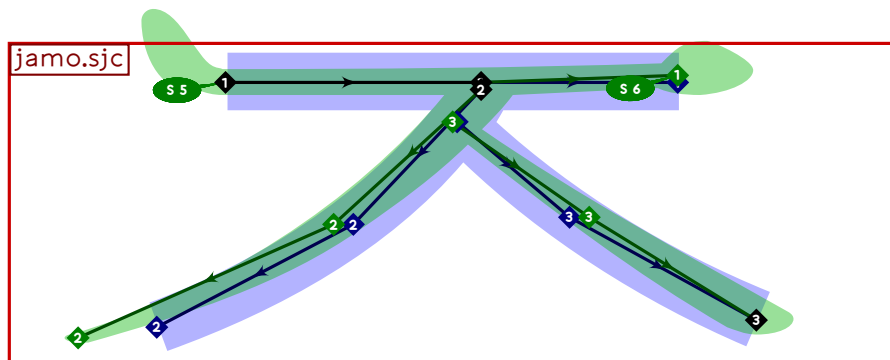
1196 % hangul tail ssangsios
1197 begintsuglyph("uni11BB",187);
1198 hangul.combine.lr(619,519)(whatever,tixf,toxf);
1199 tsu_render;
1200 endtsuglyph;
1201

```



```
1202 % hangul tail ieung
1203 begintsuglyph("uni11BC",188);
1204 hangul,jamo.ieung(whatever,tixf,toxf);
1205 tsu_render;
1206 endtsuglyph;
1207
```

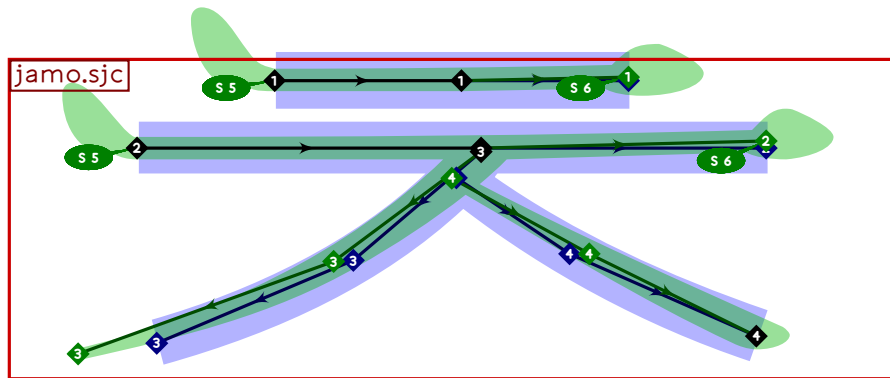




```

1208 % hangul tail cieuc
1209 begintuglyph("uni11BD",189);
1210 hangul.jamoo.sjc(1,0,false)(whatever,tixf,toxf);
1211 tsu_render;
1212 endtuglyph;
1213

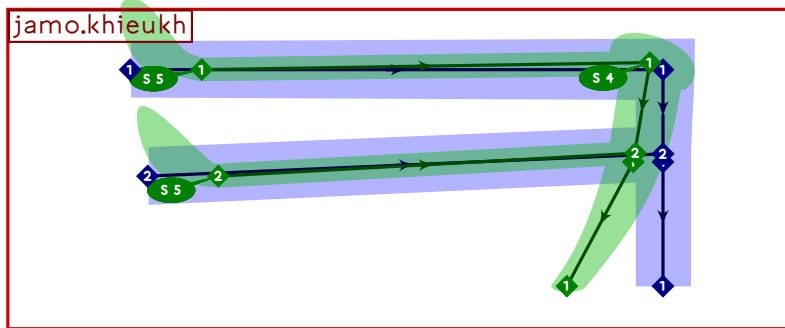
```



```

1214 % hangul tail chieuch
1215 begintsuglyph("uni11BE",190);
1216 hangul.jamo.sjc(2,0,false)(whatever,tixf,toxf);
1217 tsu_render;
1218 endtsuglyph;
1219

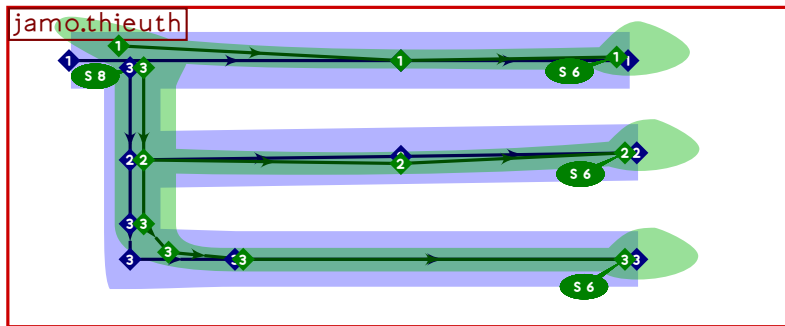
```



```

1220 % hangul tail khieukh
1221 begintsuglyph("uni11BF",191);
1222 hangul,jamo.khieukh(whatever,tixf,toxf);
1223 tsu_render;
1224 endtsuglyph;
1225

```

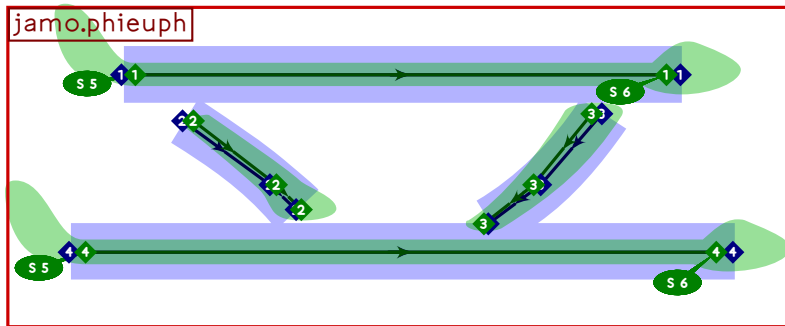


```

1226 % hangul tail thieuth
1227 begintsuglyph("uni11C0",192);
1228 hangul,jamo.thieuth(whatever,tixf,toxf);
1229 tsu_render;
1230 endtsuglyph;
1231

```

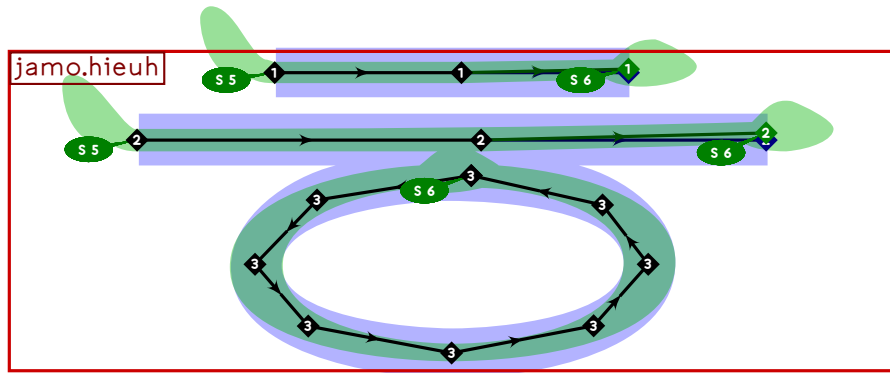




```

1232 % hangul tail phieuph
1233 begint Suglyph("uni11C1",193);
1234 hangul,jamo.phieuph(whatever,tixf,toxf);
1235 tsu_render;
1236 endtsuglyph;
1237

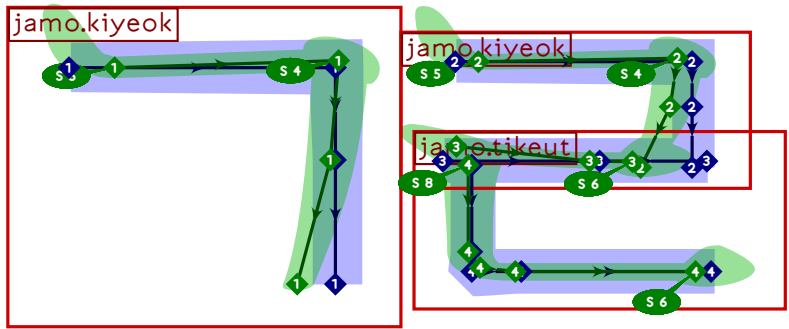
```



```

1238 % hangul tail hieuh
1239 begintsuglyph("uni11C2",194);
1240 hangul,jamo.hieuh(whatever,tixf,toxf);
1241 tsu_render;
1242 endtsuglyph;
1243

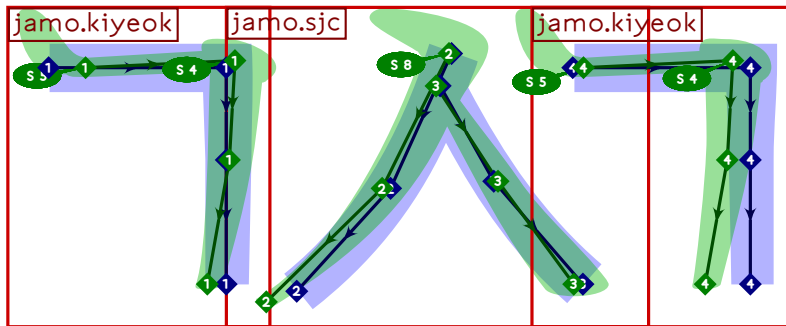
```



```

1244 % hangul tail kiyeok-rieul
1245 begint Suglyph("uni11C3",195);
1246 hangul.combine.lr(501,508)(whatever,tixf,toxf);
1247 tsu_render;
1248 endtsuglyph;
1249

```

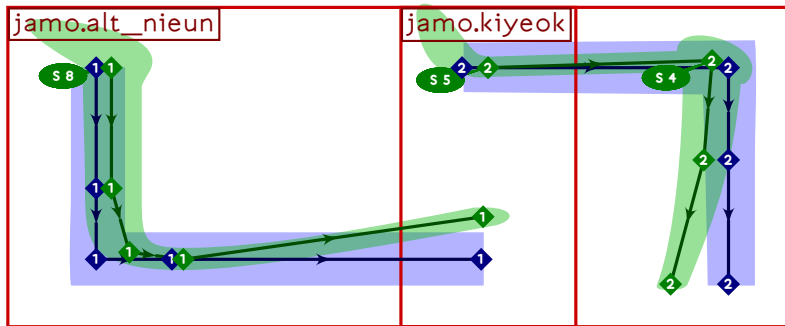


```

1250 % hangul tail kiyeok-sios-kiyeok
1251 begintsuglyph("uni11C4",196);
1252 hangul.combine.lcr(501,519,501)(whatever,tixf,toxf);
1253 tsu_render;
1254 endtsuglyph;
1255

```

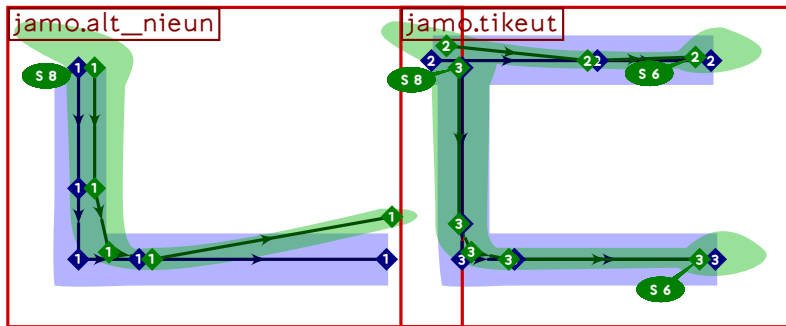




```

1256 % hangul tail nieun-kiyeok
1257 begint Suglyph("uni11C5",197);
1258 hangul.combine.lr(604,501)(whatever,tixf,toxf);
1259 tsu_render;
1260 endtsuglyph;
1261

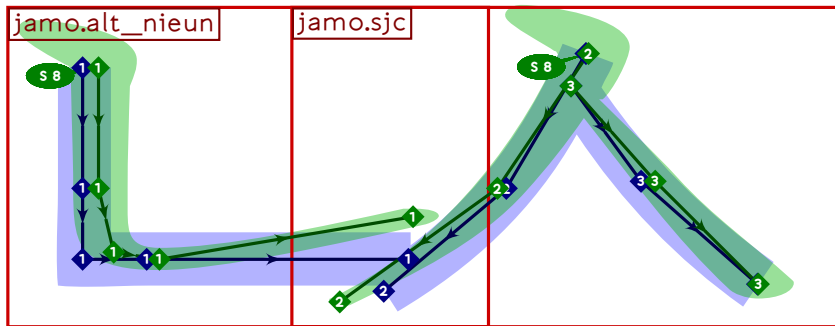
```



```

1262 % hangul tail nieun-tikeut
1263 begintsuglyph("uni11C6",198);
1264 hangul.combine.lr(604,507)(whatever,tixf,toxf);
1265 tsu_render;
1266 endtsuglyph;
1267

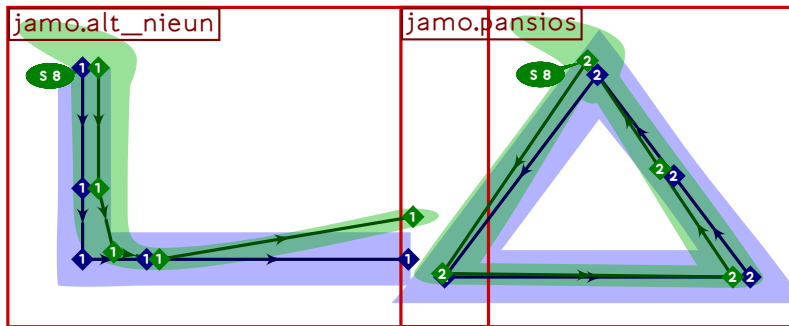
```



```

1268 % hangul tail nieun-sios
1269 begintsuglyph("uni11C7",199);
1270 hangul.combine.lr(604,519)(whatever,tixf,toxf);
1271 tsu_render;
1272 endtsuglyph;
1273

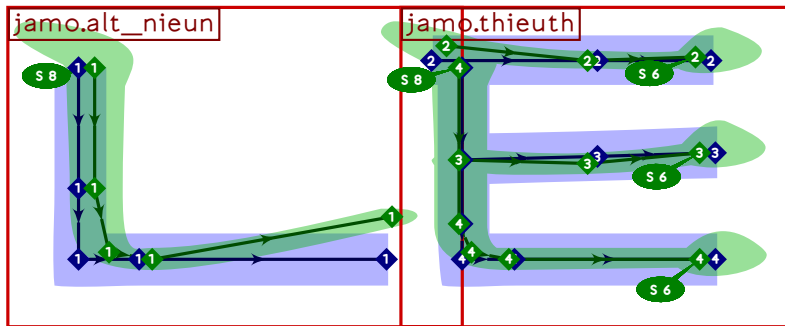
```



```

1274 % hangul tail nieun-pansios
1275 begintsuglyph("uni11C8",200);
1276 hangul.combine.lr(604,628)(whatever,tixf,toxf);
1277 tsu_render;
1278 endtsuglyph;
1279

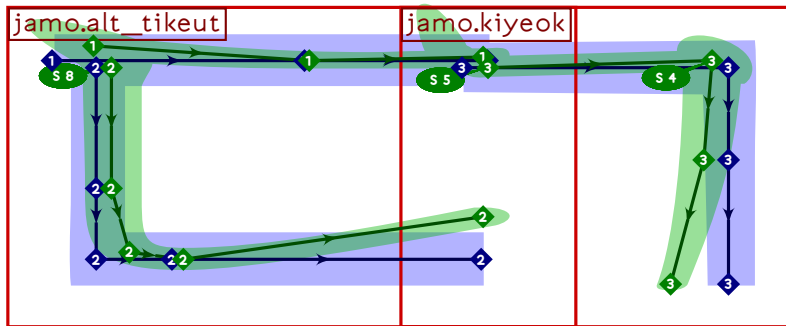
```



```

1280 % hangul tail nieun-thieuth
1281 begintsuglyph("uni11C9",201);
1282 hangul.combine.lr(604,525)(whatever,tixf,toxf);
1283 tsu_render;
1284 endtsuglyph;
1285

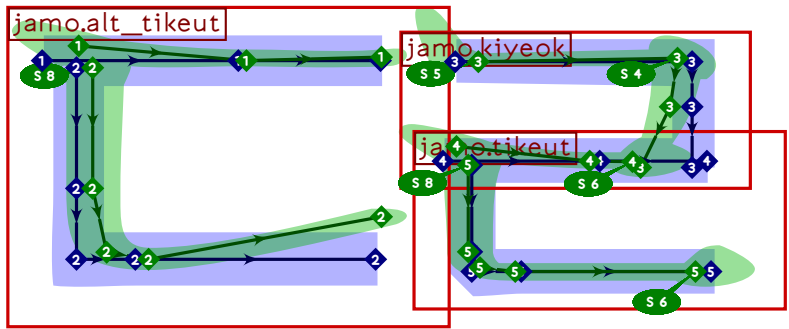
```



```

1286 % hangul tail tikeut-kiyeok
1287 begintuglyph("uni11CA",202);
1288 hangul.combine.lr(607,501)(whatever,tixf,toxf);
1289 tsu_render;
1290 endtsuglyph;
1291

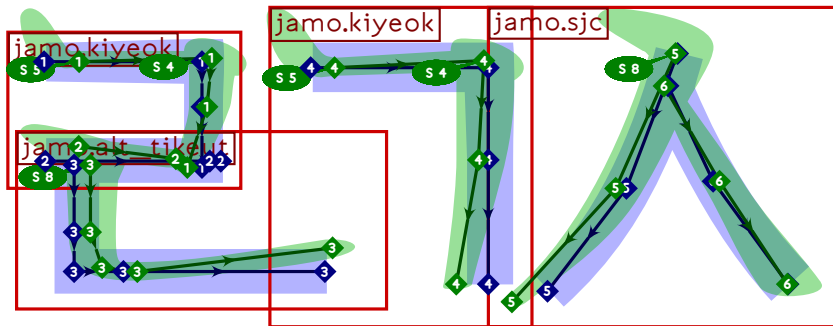
```



```

1292 % hangul tail tikeut-rieul
1293 begint Suglyph("uni11CB",203);
1294 hangul.combine.lr(607,508)(whatever,tixf,toxf);
1295 tsu_render;
1296 endtsuglyph;
1297

```

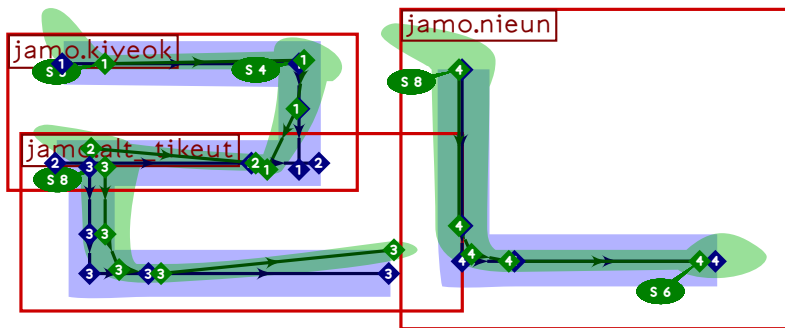


```

1298 % hangul tail riul-kiyeok-sios
1299 begintsuglyph("uni11CC",204);
1300 hangul.combine.lcr(608,501,519)(whatever,tixf,toxf);
1301 tsu_render;
1302 endtsuglyph;
1303

```

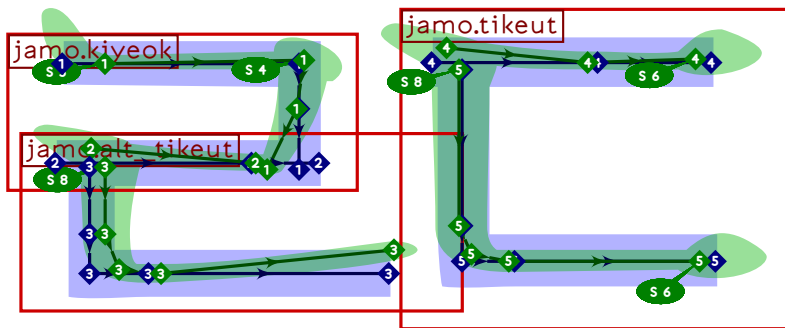




```

1304 % hangul tail riul-nieun
1305 begintsuglyph("uni11CD",205);
1306 hangul.combine.lr(608,504)(whatever,tixf,toxf);
1307 tsu_render;
1308 endtsuglyph;
1309

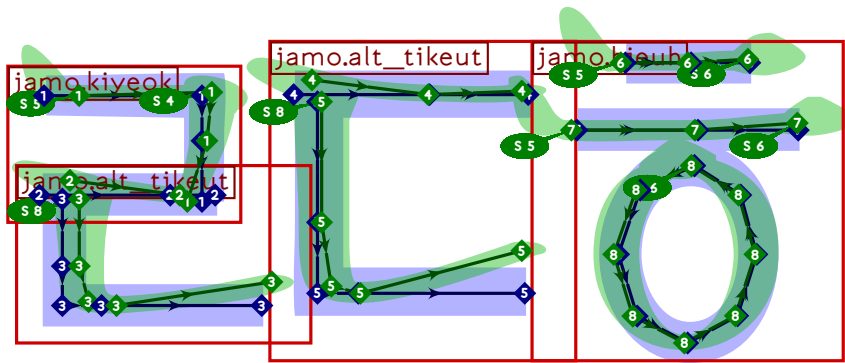
```



```

1310 % hangul tail riul-tikeut
1311 begintsuglyph("uni11CE",206);
1312 hangul.combine.lr(608,507)(whatever,tixf,toxf);
1313 tsu_render;
1314 endsuglyph;
1315

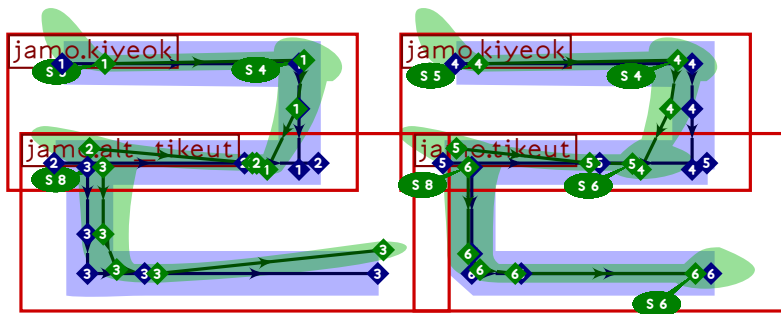
```



```

1316 % hangul tail riul-tikeut-hieuh
1317 begintsuglyph("uni11CF",207);
1318 hangul.combine.lcr(608,607,627)(whatever,tixf,toxf);
1319 tsu_render;
1320 endtsuglyph;
1321

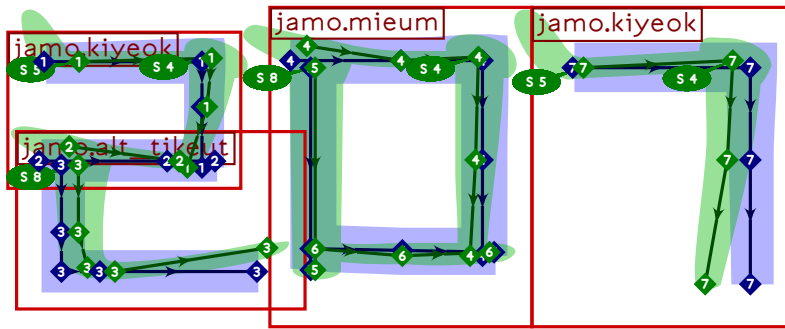
```



```

1322 % hangul tail riul-riul
1323 begint Suglyph("uni11D0",208);
1324 hangul.combine.lr(608,508)(whatever,tixf,toxf);
1325 tsu_render;
1326 endtsuglyph;
1327

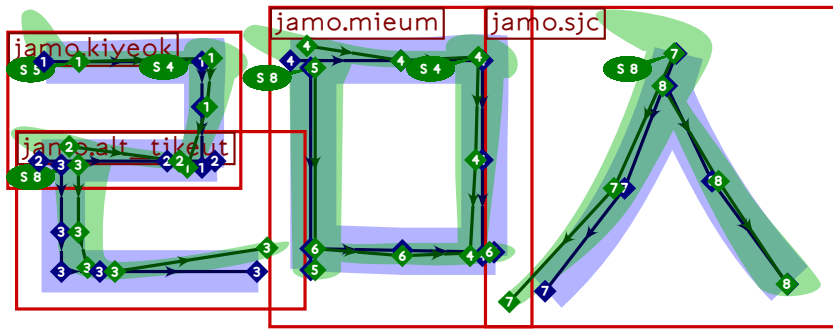
```



```

1328 % hangul tail riul-mieum-kiyeok
1329 begintsuglyph("uni11D1";209);
1330 hangul.combine.lcr(608,516,501)(whatever,tixf,toxf);
1331 tsu_render;
1332 endtsuglyph;
1333

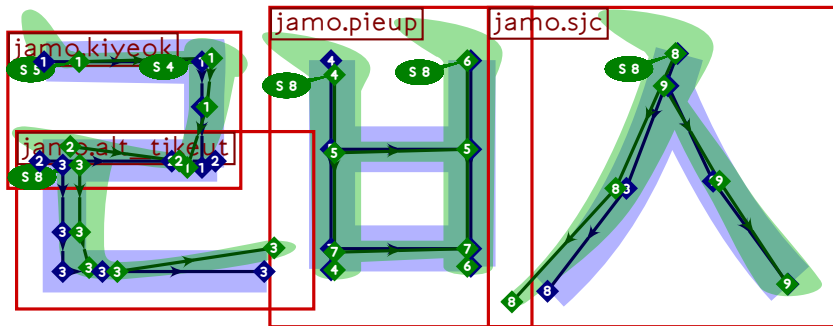
```



```

1334 % hangul tail riul-mieum-sios
1335 begintuglyph("uni11D2",210);
1336 hangul.combine.lcr(608,516,519)(whatever,tixf,toxf);
1337 tsu_render;
1338 endtsuglyph;
1339

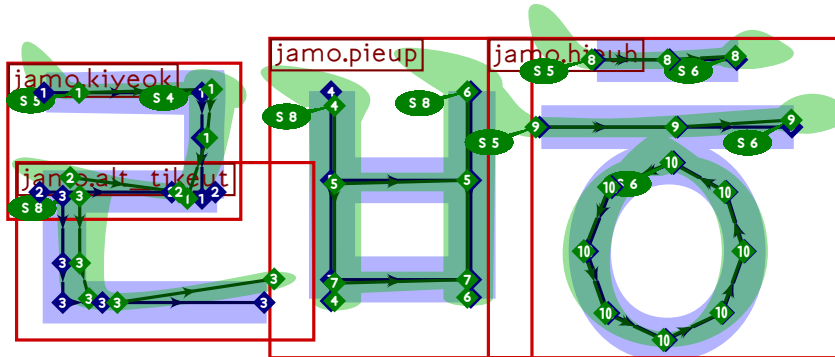
```



```

1340 % hangul tail rioul-pieup-sios
1341 begint Suglyph("uni11D3",211);
1342 hangul.combine.lcr(608,517,519)(whatever,tixf,toxf);
1343 tsu_render;
1344 endtsuglyph;
1345

```

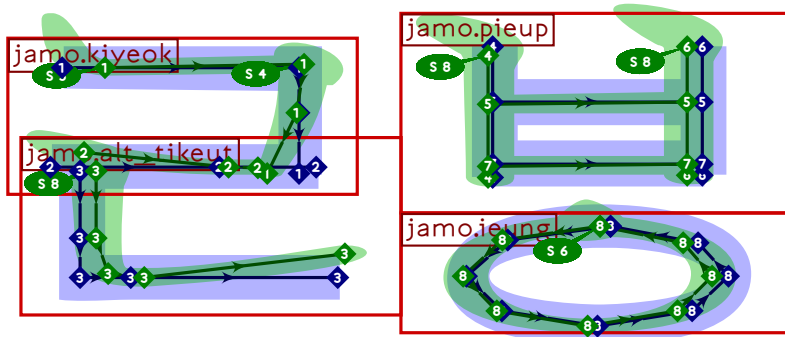


```

1346 % hangul tail riul-pieup-hieuh
1347 begint Suglyph("uni11D4",212);
1348 hangul.combine.lcr(608,517,527)(whatever,tixf,toxf);
1349 tsu_render;
1350 endtsuglyph;
1351

```

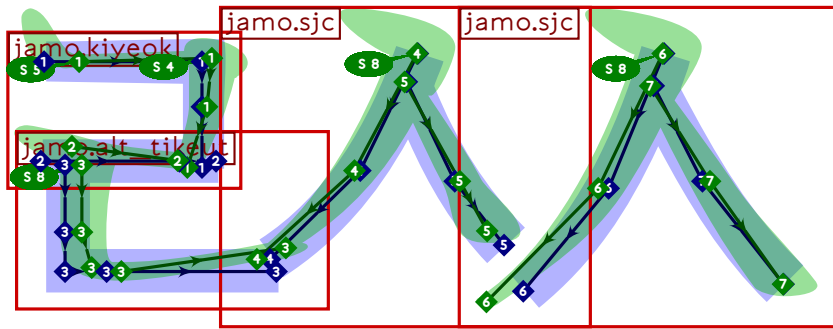




```

1352 % hangul tail rieul-kapyeounpieup
1353 begintsuglyph("uni11D5";213);
1354 hangul.combine.lr(608,630)(whatever,tixf,toxf);
1355 tsu_render;
1356 endtsuglyph;
1357

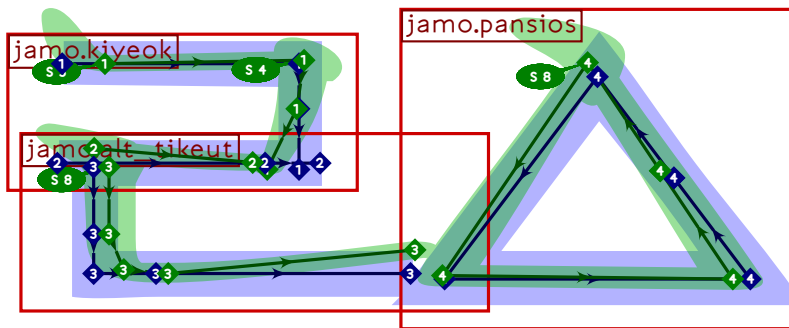
```



```

1358 % hangul tail riul-sios-sios
1359 begintsuglyph("uni11D6",214);
1360 hangul.combine.lcr(608,619,519)(whatever,tixf,toxf);
1361 tsu_render;
1362 endtsuglyph;
1363

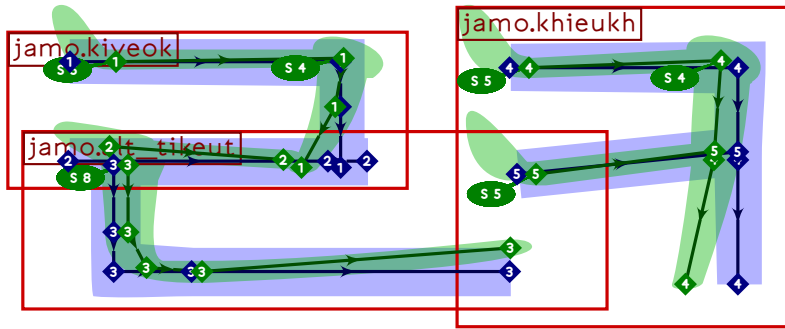
```



```

1364 % hangul tail riul-pansios
1365 begintsuglyph("uni11D7",215);
1366 hangul.combine.lr(608,628)(whatever,tixf,toxf);
1367 tsu_render;
1368 endtsuglyph;
1369

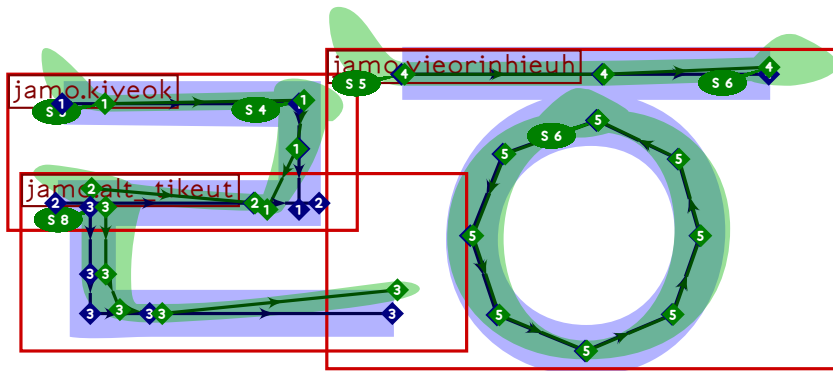
```



```

1370 % hangul tail riul-khieukh
1371 begintsuglyph("uni11D8",216);
1372 hangul.combine.lr(608,524)(whatever,tixf,toxf);
1373 tsu_render;
1374 endtsuglyph;
1375

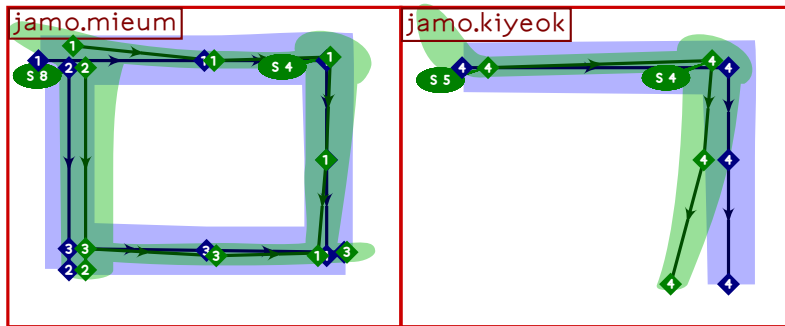
```



```

1376 % hangul tail riul-yeorinhieuh
1377 begint Suglyph("uni11D9",217);
1378 hangul.combine.lr(608,631)(whatever,tixf,toxf);
1379 tsu_render;
1380 endtsuglyph;
1381

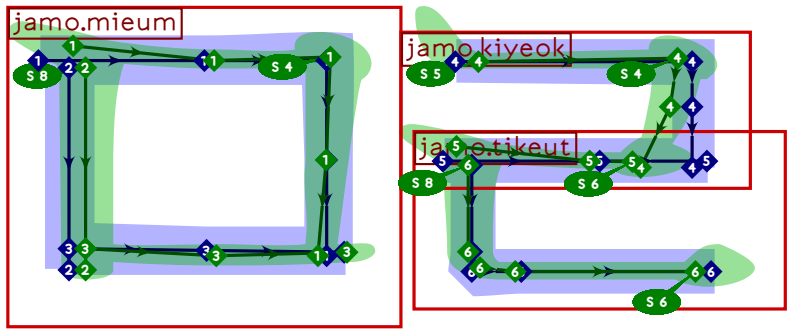
```



```

1382 % hangul tail mieum-kiyeok
1383 begintsuglyph("uni11DA",218);
1384 hangul.combine.lr(516,501)(whatever,tixf,toxf);
1385 tsu_render;
1386 endtsuglyph;
1387

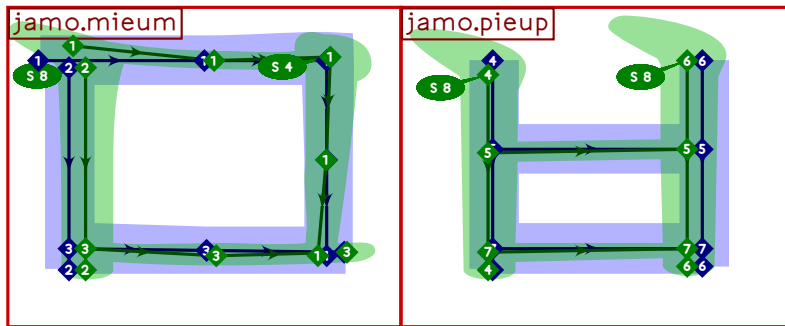
```



```

1388 % hangul tail mieum-rieul
1389 begintuglyph("uni11DB",219);
1390 hangul.combine.lr(516,508)(whatever,tixf,toxf);
1391 tsu_render;
1392 endtsuglyph;
1393

```

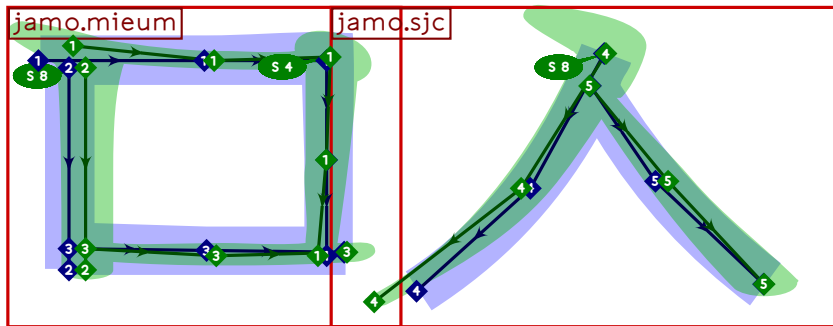


```

1394 % hangul tail mieum-pieup
1395 begintsuglyph("uni11DC";220);
1396 hangul.combine.lr(516,517)(whatever,tixf,toxf);
1397 tsu_render;
1398 endtsuglyph;
1399

```

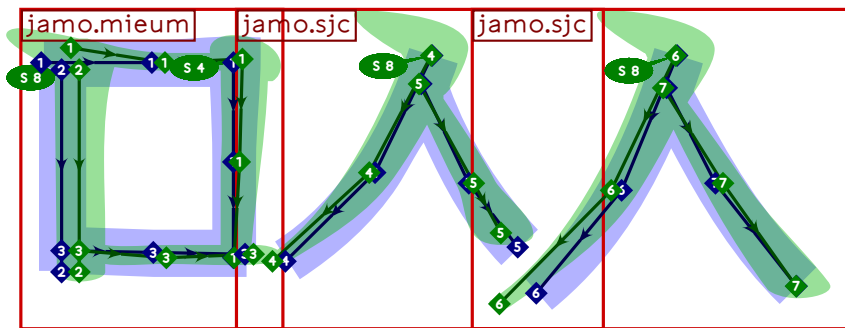




```

1400 % hangul tail mieum-sios
1401 begintsuglyph("uni11DD";221);
1402 hangul.combine.lr(516,519)(whatever,tixf,toxf);
1403 tsu_render;
1404 endtsuglyph;
1405

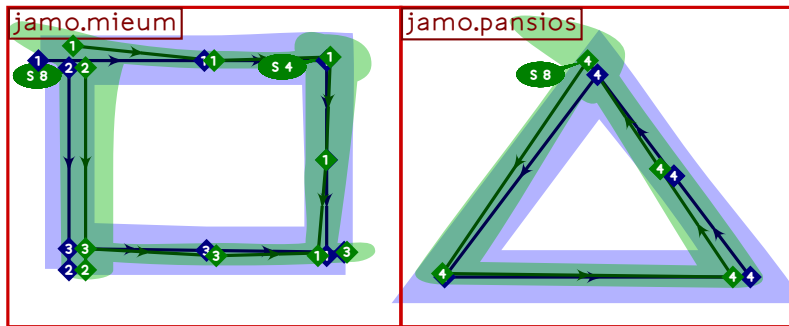
```



```

1406 % hangul tail mieum-sios-sios
1407 begintuglyph("uni11DE",222);
1408 hangul.combine.lcr(516,619,519)(whatever,tixf,toxf);
1409 tsu_render;
1410 endtsuglyph;
1411

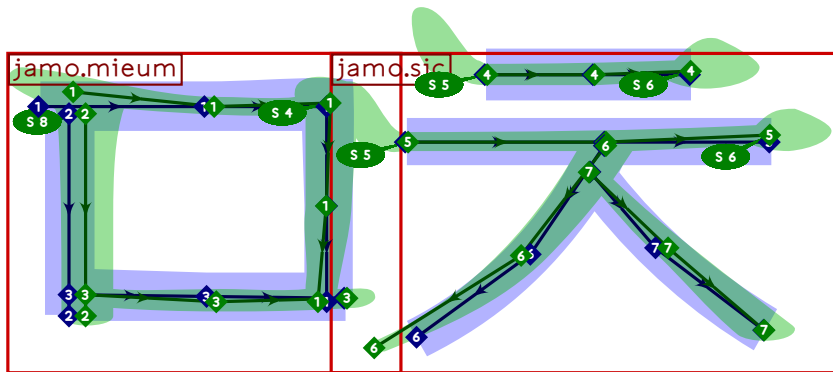
```



```

1412 % hangul tail mieum-pansios
1413 begintsuglyph("uni11DF",223);
1414 hangul.combine.lr(516,628)(whatever,tixf,toxf);
1415 tsu_render;
1416 endtsuglyph;
1417

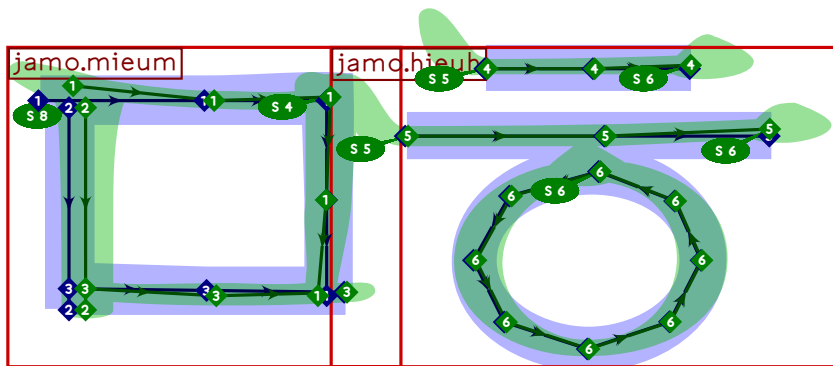
```



```

1418 % hangul tail mieum-chieuch
1419 begintsuglyph("uni11E0",224);
1420 hangul.combine.lr(516,523)(whatever,tixf,toxf);
1421 tsu_render;
1422 endtsuglyph;
1423

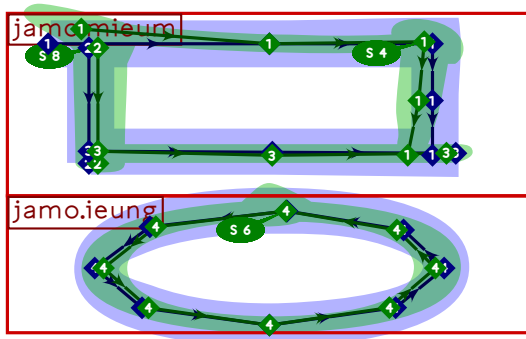
```



```

1424 % hangul tail mieum-hieuh
1425 begintuglyph("uni11E1";225);
1426 hangul.combine.lr(516,527)(whatever;tixf,toxf);
1427 tsu_render;
1428 endtsuglyph;
1429

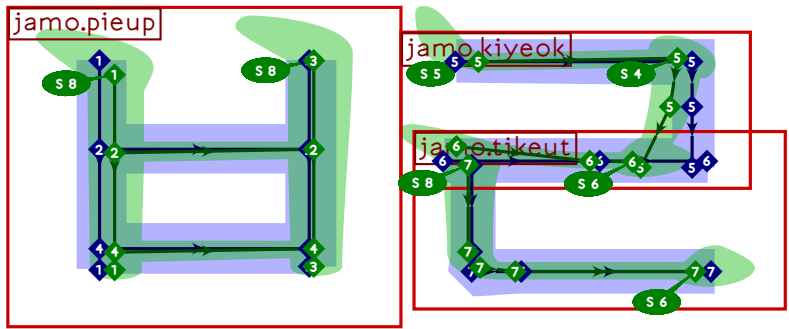
```



```

1430 % hangul tail kapyeounmieum
1431 begintsuglyph("uni11E2",226);
1432 hangul.combine.tb(516,521)(whatever,
1433   hxf((200,850),(800,-50)) transformed tixf,toxf);
1434 tsu_render;
1435 endtsuglyph;
1436

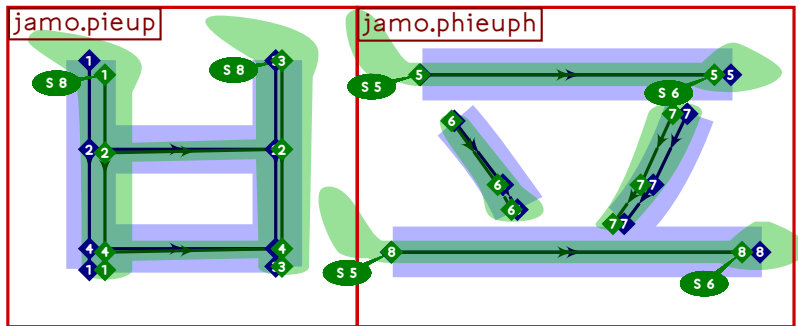
```



```

1437 % hangul tail pieup-rieul
1438 begintsuglyph("uni11E3",227);
1439 hangul.combine.lr(517,508)(whatever,tixf,toxf);
1440 tsu_render;
1441 endtsuglyph;
1442

```

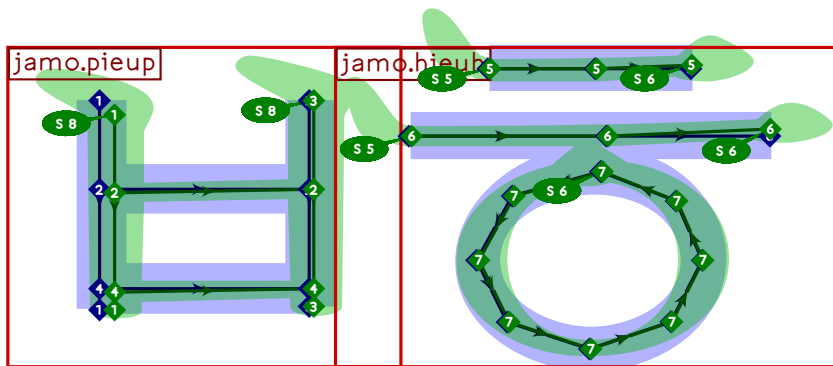


```

1443 % hangul tail pieup-phieuph
1444 begintsuglyph("uni11E4";228);
1445 hangul.combine.lr(517,526)(whatever,tixf,toxf);
1446 tsu_render;
1447 endtsuglyph;
1448

```

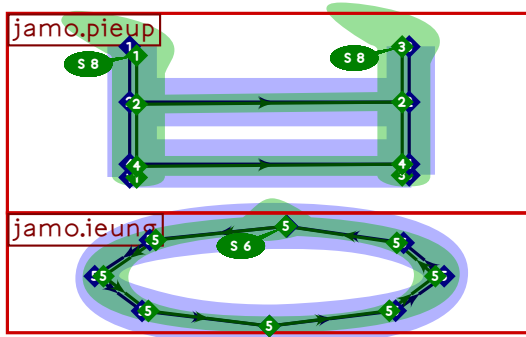




```

1449 % hangul tail pieup-hieuh
1450 begintsuglyph("uni11E5",229);
1451 hangul.combine.lr(517,527)(whatever,tixf,toxf);
1452 tsu_render;
1453 endtsuglyph;
1454

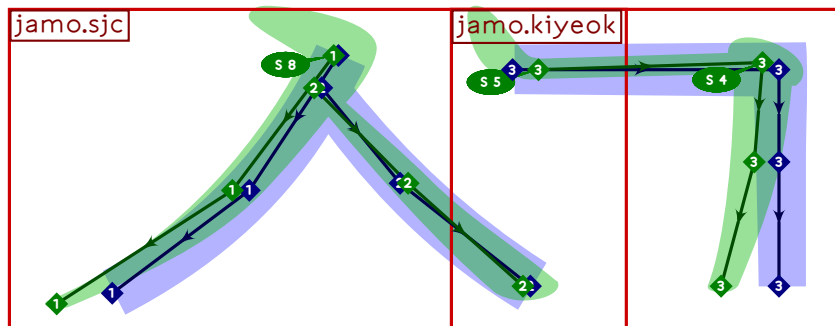
```



```

1455 % hangul tail kapyeounpieup
1456 begintsuglyph("uni11E6",230);
1457 hangul.combine.tb(517,521)(whatever,
1458   hxf((200,850),(800,-50)) transformed tixf,toxf);
1459 tsu_render;
1460 endtsuglyph;
1461

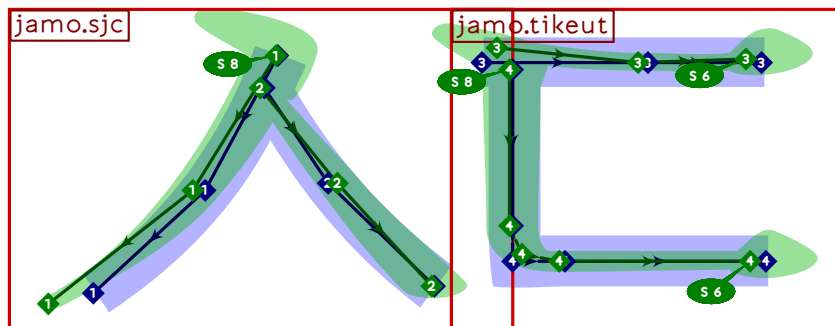
```



```

1462 % hangul tail sios-kiyeok
1463 begint Suglyph("uni11E7",231);
1464 hangul.combine.lr(519,501)(whatever,tixf,toxf);
1465 tsu_render;
1466 endtsuglyph;
1467

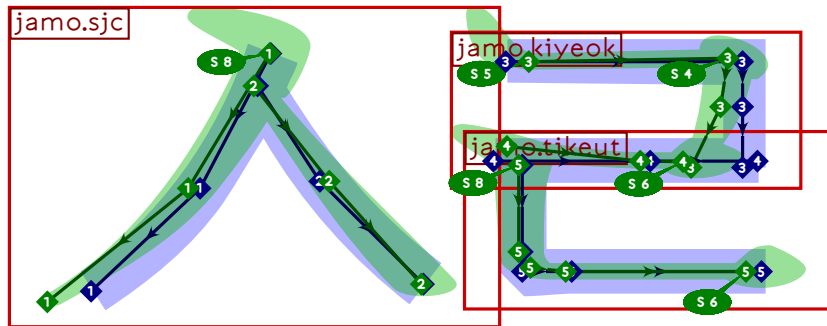
```



```

1468 % hangul tail sios-tikeut
1469 begintuglyph("uni11E8",232);
1470 hangul.combine.lr(519,507)(whatever,tixf,toxf);
1471 tsu_render;
1472 endsuglyph;
1473

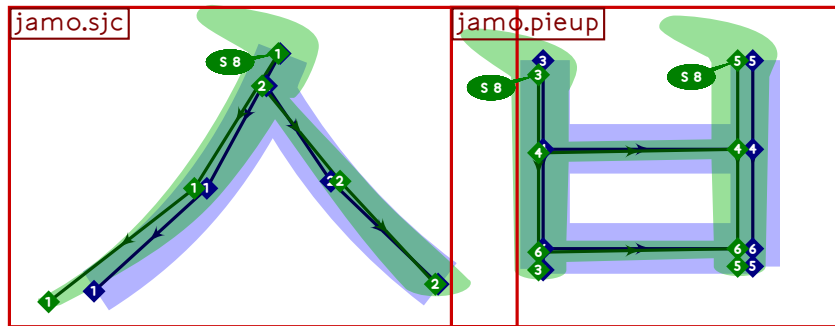
```



```

1474 % hangul tail sios-rieul
1475 begintuglyph("uni11E9";233);
1476 hangul.combine.lr(519,508)(whatever,tixf,toxf);
1477 tsu_render;
1478 endtsuglyph;
1479

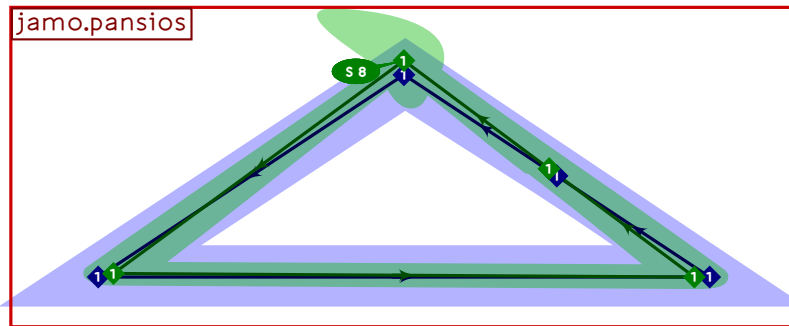
```



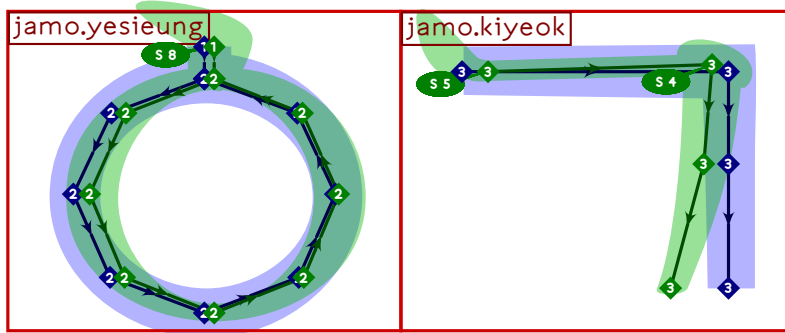
```

1480 % hangul tail sios-pieup
1481 begintuglyph("uni11EA",234);
1482 hangul.combine.lr(519,517)(whatever,tixf,toxf);
1483 tsu_render;
1484 endtsuglyph;
1485

```



```
1486 % hangul tail pansios
1487 begint Suglyph("uni11EB",235);
1488 hangul,jamo.pansios(whatever,tixf,toxf);
1489 tsu_render;
1490 endtsuglyph;
1491
```

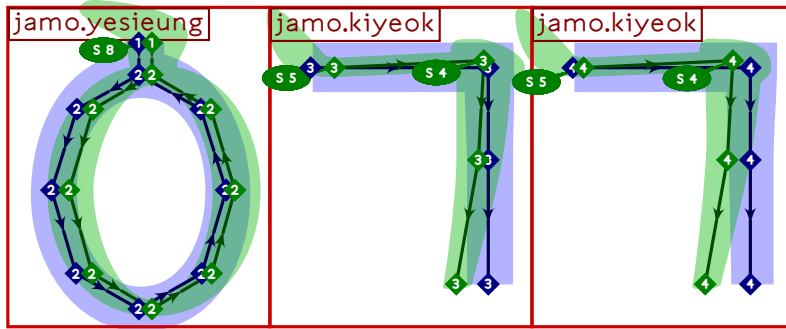


```

1492 % hangul tail yesieung-kiyeok
1493 begint Suglyph("uni11EC",236);
1494 hangul.combine.lr(629,501)(whatever,tixf,toxf);
1495 tsu_render;
1496 endtsuglyph;
1497

```

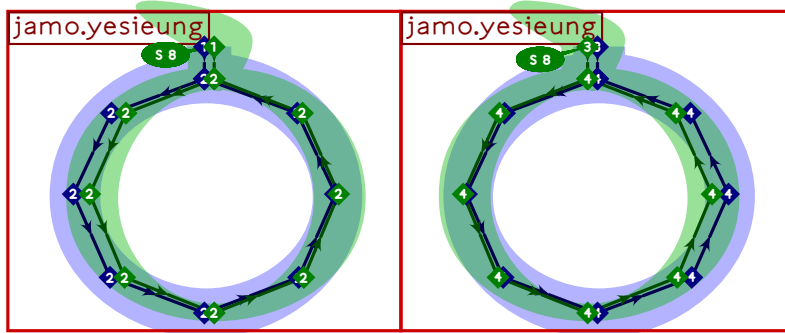




```

1498 % hangul tail yesieung-kiyeok-kiyeok
1499 begintsuglyph("uni11ED",237);
1500 hangul.combine.lcr(629,501,501)(whatever,tixf,toxf);
1501 tsu_render;
1502 endsuglyph;
1503

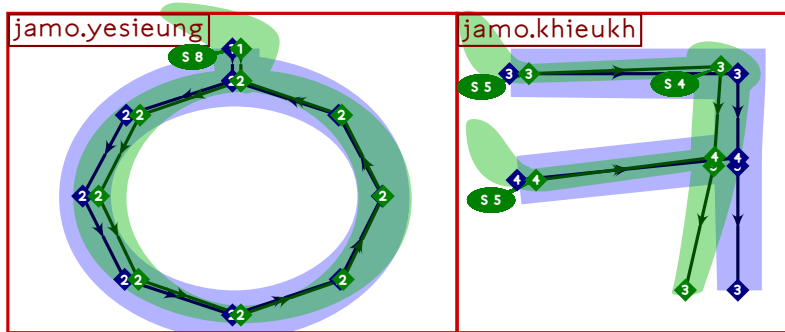
```



```

1504 % hangul tail yesieung=yesieung
1505 begint Suglyph("uni11EE",238);
1506 hangul.combine.lr(629,629)(whatever,tixf,toxf);
1507 tsu_render;
1508 endtsuglyph;
1509

```

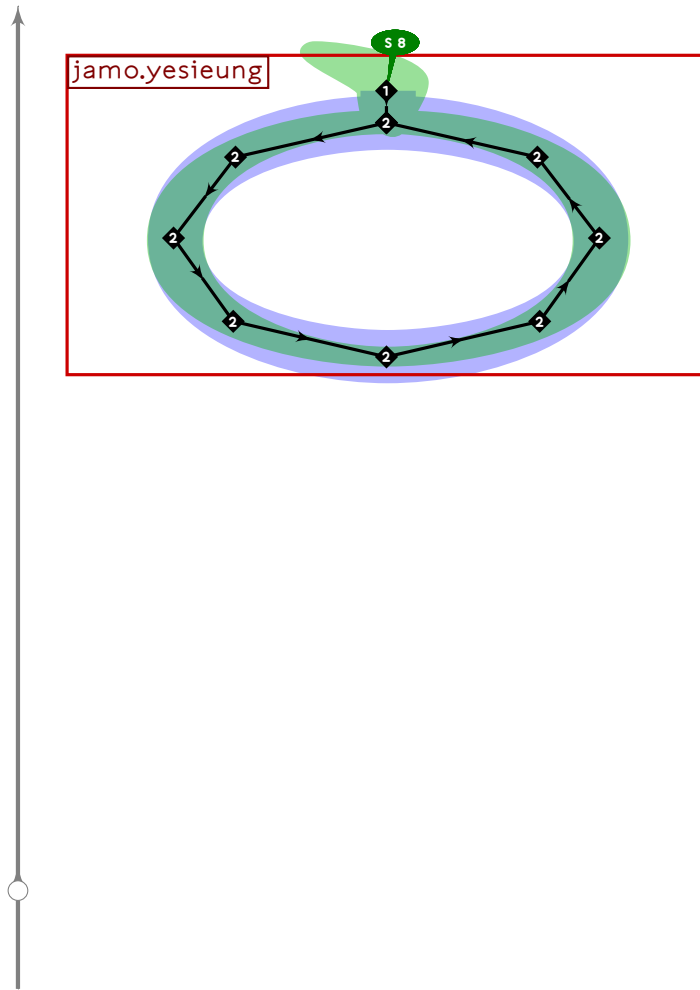


```

1510 % hangul tail yesieung-khieukh
1511 begint Suglyph("uni11EF",239);
1512 hangul.combine.lr(629,524)(whatever,tixf,toxf);
1513 tsu_render;
1514 endtsuglyph;
1515

```

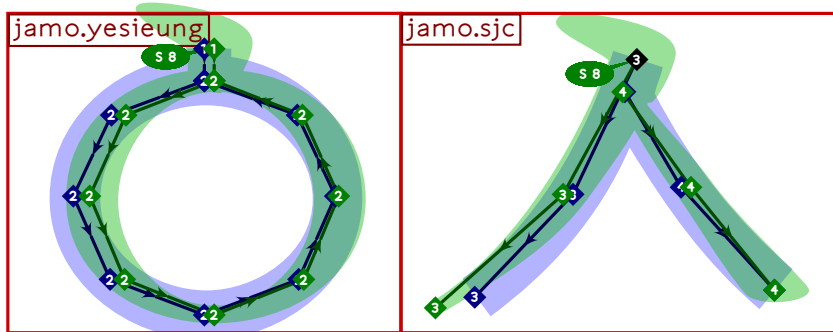




```

1516 % hangul tail yesieung
1517 begintsuglyph("uni11F0",240);
1518 hangul,jamo.yesieung(whatever,lixf,loxf);
1519 tsu_render;
1520 endsuglyph;
1521

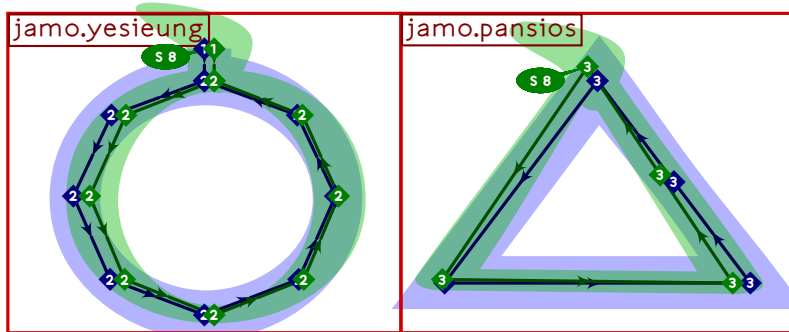
```



```

1522 % hangul tail yesieung-sios
1523 begintsuglyph("uni11F1",241);
1524 hangul.combine.lr(629,519)(whatever,tixf,toxf);
1525 tsu_render;
1526 endtsuglyph;
1527

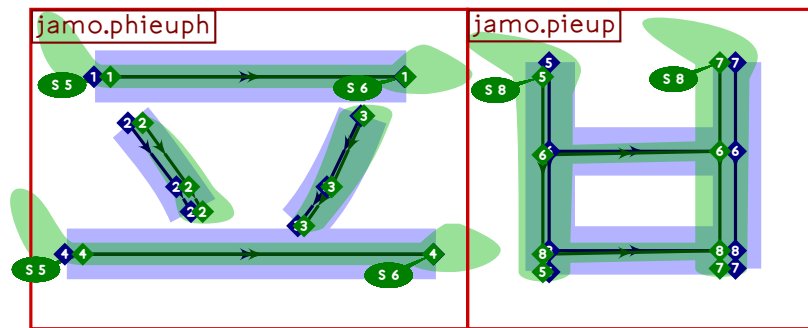
```



```

1528 % hangul tail yesieung-pansios
1529 begintsuglyph("uni11F2";242);
1530 hangul.combine.lr(629,628)(whatevertixf,toxf);
1531 tsu_render;
1532 endtsuglyph;
1533

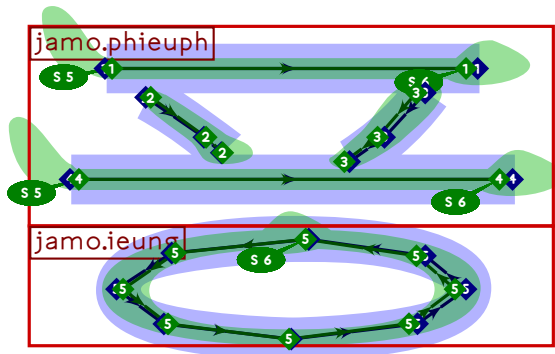
```



```

1534 % hangul tail phieuph-pieup
1535 begintsuglyph("uni11F3";243);
1536 hangul.combine.lr(526,517)(whatever;tixf,toxf);
1537 tsu_render;
1538 endtsuglyph;
1539

```

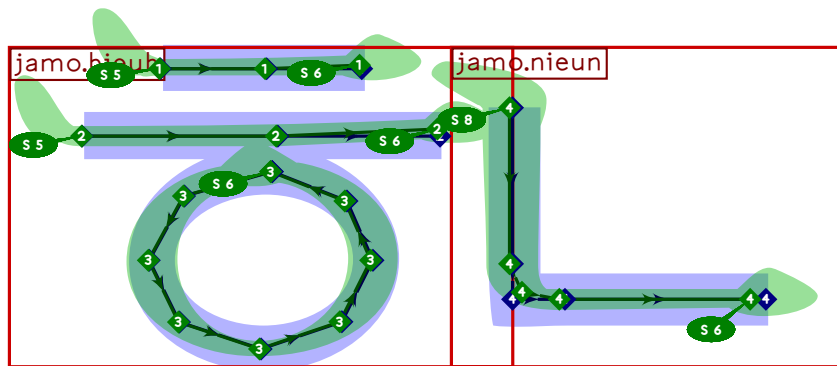


```

1540 % hangul tail kapyeounphieuph
1541 begint Suglyph("uni11F4";244);
1542 hangul.combine.tb(526,521)(whatever,
1543   hxf((250,850),(850,-50)) transformed tixf,toxf);
1544 tsu_render;
1545 endtsuglyph;
1546

```

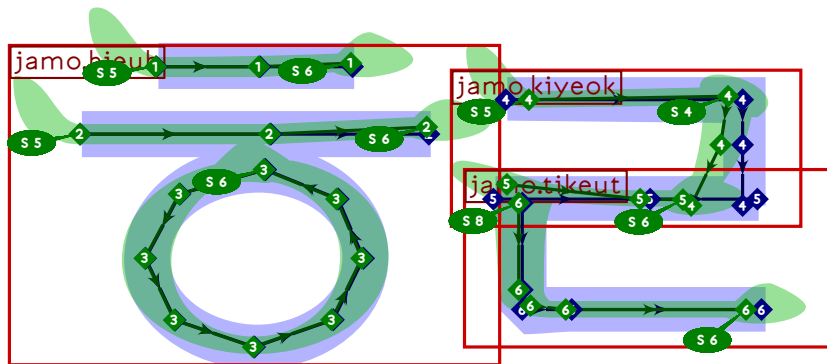




```

1547 % hangul tail hieuh-nieun
1548 begintsuglyph("uni11F5";245);
1549 hangul.combine.lr(527,504)(whatever,tixf,toxf);
1550 tsu_render;
1551 endtsuglyph;
1552

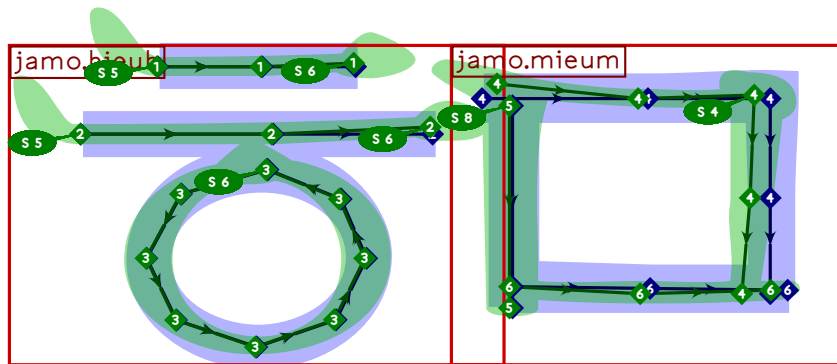
```



```

1553 % hangul tail hieuh-rieul
1554 begintsuglyph("uni11F6",246);
1555 hangul.combine.lr(527,508)(whatevertixf,toxf);
1556 tsu_render;
1557 endtsuglyph;
1558

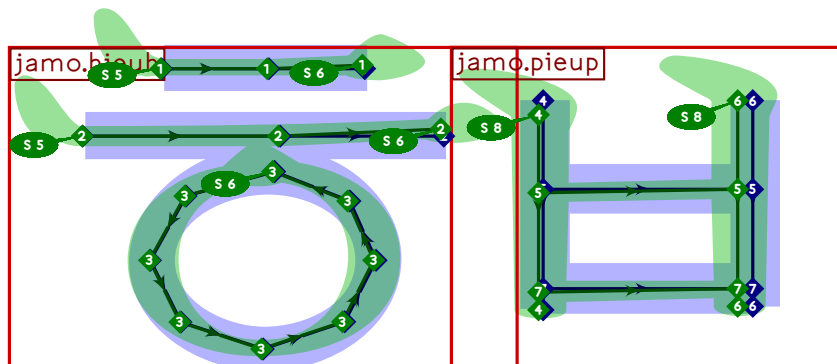
```



```

1559 % hangul tail hieuh-mieum
1560 begint Suglyph("uni11F7";247);
1561 hangul.combine.lr(527,516)(whatever,tixf,toxf);
1562 tsu_render;
1563 endtsuglyph;
1564

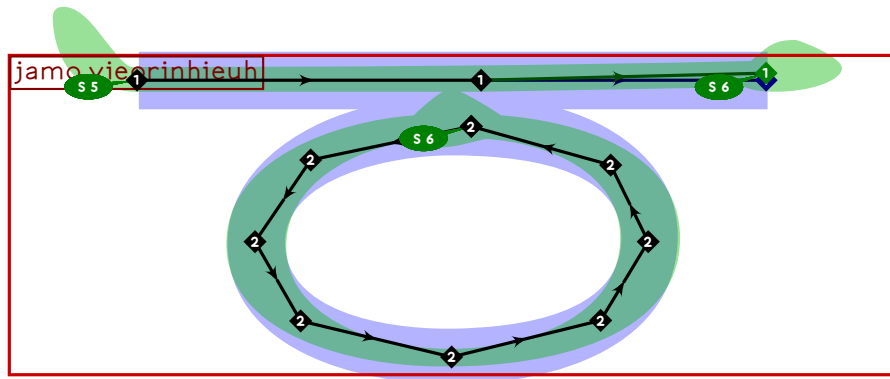
```



```

1565 % hangul tail hieuh-pieup
1566 begintsuglyph("uni11F8",248);
1567 hangul.combine.lr(527,517)(whatever,tixf,toxf);
1568 tsu_render;
1569 endtsuglyph;
1570

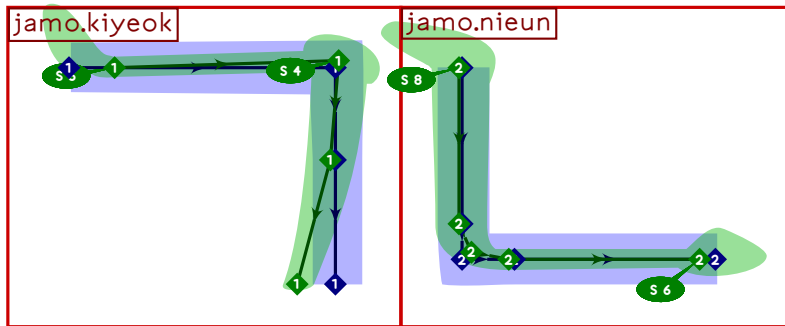
```



```

1571 % hangul tail yeorinhieuh
1572 begint Suglyph("uni11F9",249);
1573 hangul.jamo.yeorinhieuh(whatever,tixf,toxf);
1574 tsu_render;
1575 endtsuglyph;
1576

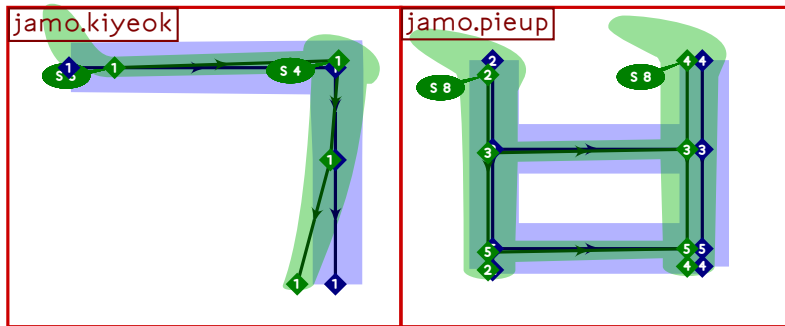
```



```

1577 % hangul tail kiyeok-nieun
1578 begintsuglyph("uni11FA";250);
1579 hangul.combine.lr(501,504)(whatever,tixf,toxf);
1580 tsu_render;
1581 endtsuglyph;
1582

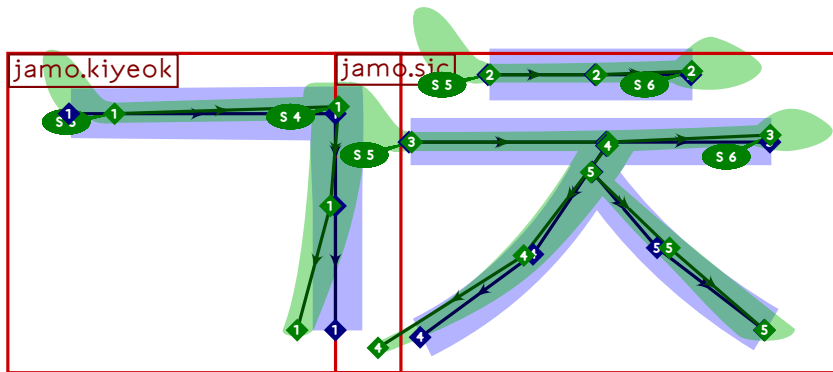
```



```

1583 % hangul tail kiyeok-pieup
1584 begintsuglyph("uni11FB",251);
1585 hangul.combine.lr(501,517)(whatever,tixf,toxf);
1586 tsu_render;
1587 endtsuglyph;
1588

```

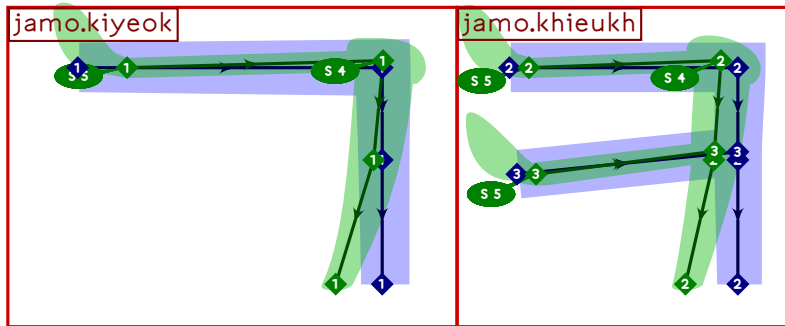


```

1589 % hangul tail kiyek-chieuch
1590 begintsuglyph("uni11FC",252);
1591 hangul.combine.lr(501,523)(whatever,tixf,toxf);
1592 tsu_render;
1593 endtsuglyph;
1594

```

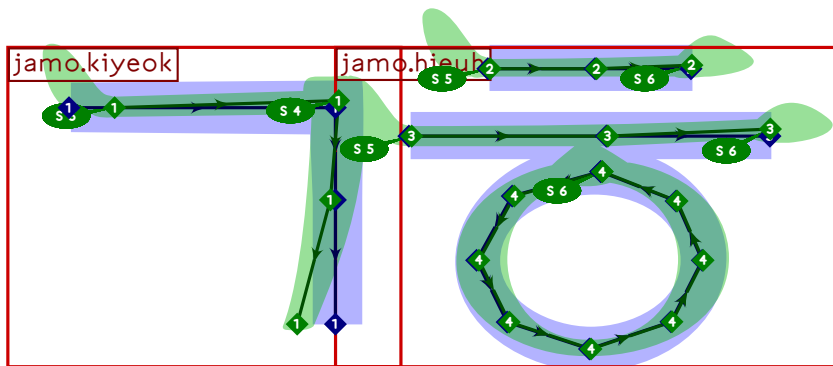




```

1595 % hangul tail kiyeok-khieukh
1596 begintsuglyph("uni11FD",253);
1597 hangul.combine.lr(501,524)(whatever,tixf,toxf);
1598 tsu_render;
1599 endtsuglyph;
1600

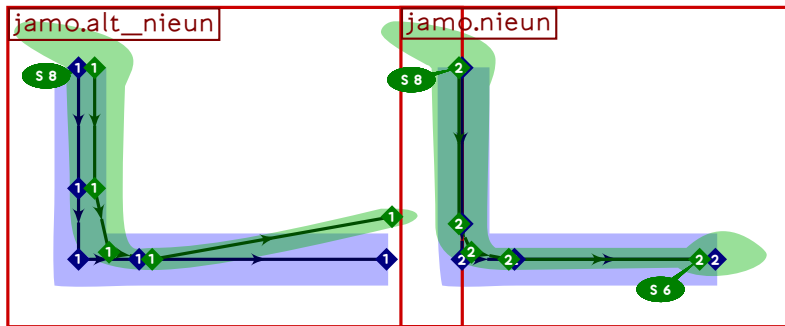
```



```

1601 % hangul tail kiyeok-hieuh
1602 begintsuglyph("uni11FE",254);
1603 hangul.combine.lr(501,527)(whatever,tixf,toxf);
1604 tsu_render;
1605 endtsuglyph;
1606

```



```

1607 % hangul tail ssangnieun
1608 begintuglyph("uni11FF",255);
1609 hangul.combine.lr(604,504)(whatever,tixf,toxf);
1610 tsu_render;
1611 endtsuglyph;
1612
1613 _____
1614
1615 endfont;
1616
1617 _____

```

# jieub-31.mp

```
1 %
2 % Unicode page 31 (Hangul Compatibility Jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---

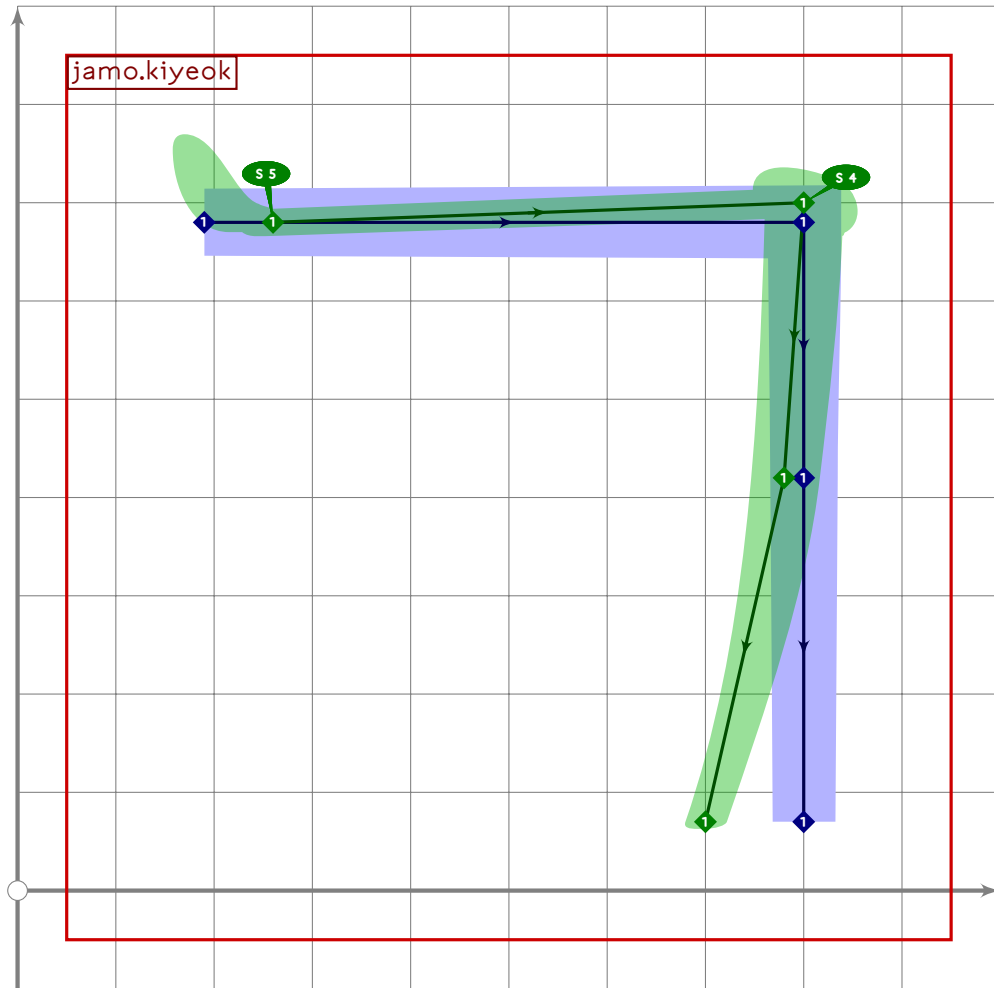

32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
```

## Hangul Compatibility Jamo

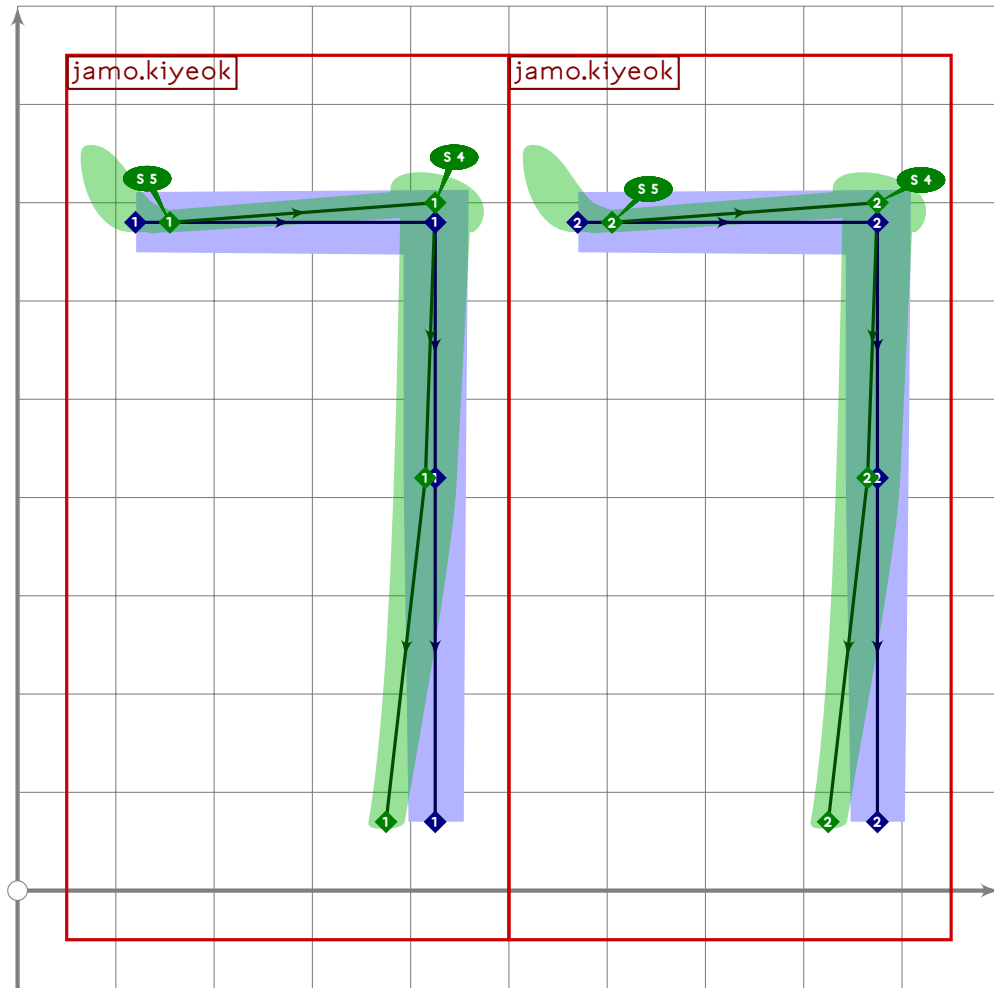
```
42 % HANGUL COMPATIBILITY JAMO
43
```



```

44 % hangul kiyeok
45 begint Suglyph("uni3131";49);
46 hangul,jamo.kiyeok(whatever,identity,identity);
47 tsu_render;
48 endtsuglyph;
49

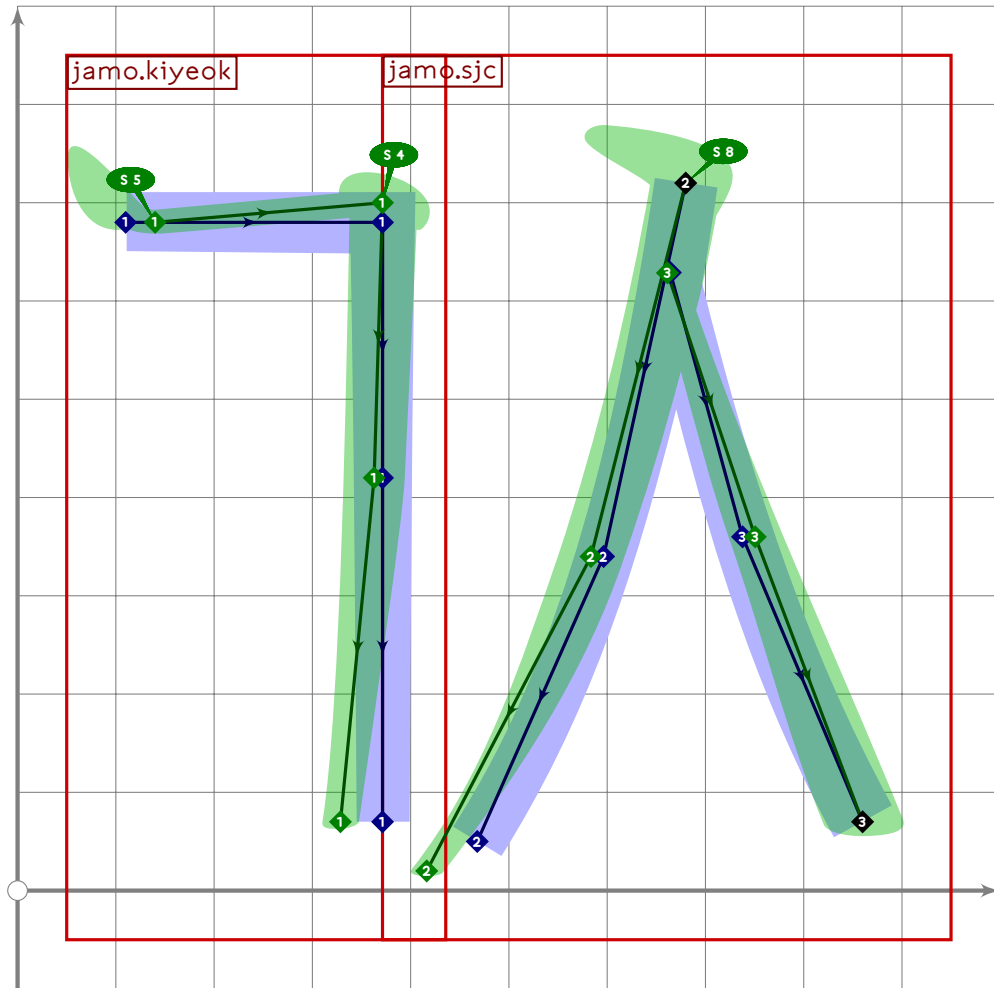
```



```

50 % hangul ssangkiyeok
51 begint Suglyph("uni3132",50);
52 hangul.combine.lf(100,100)(whatever,identity,identity);
53 tsu_render;
54 endtsuglyph;
55

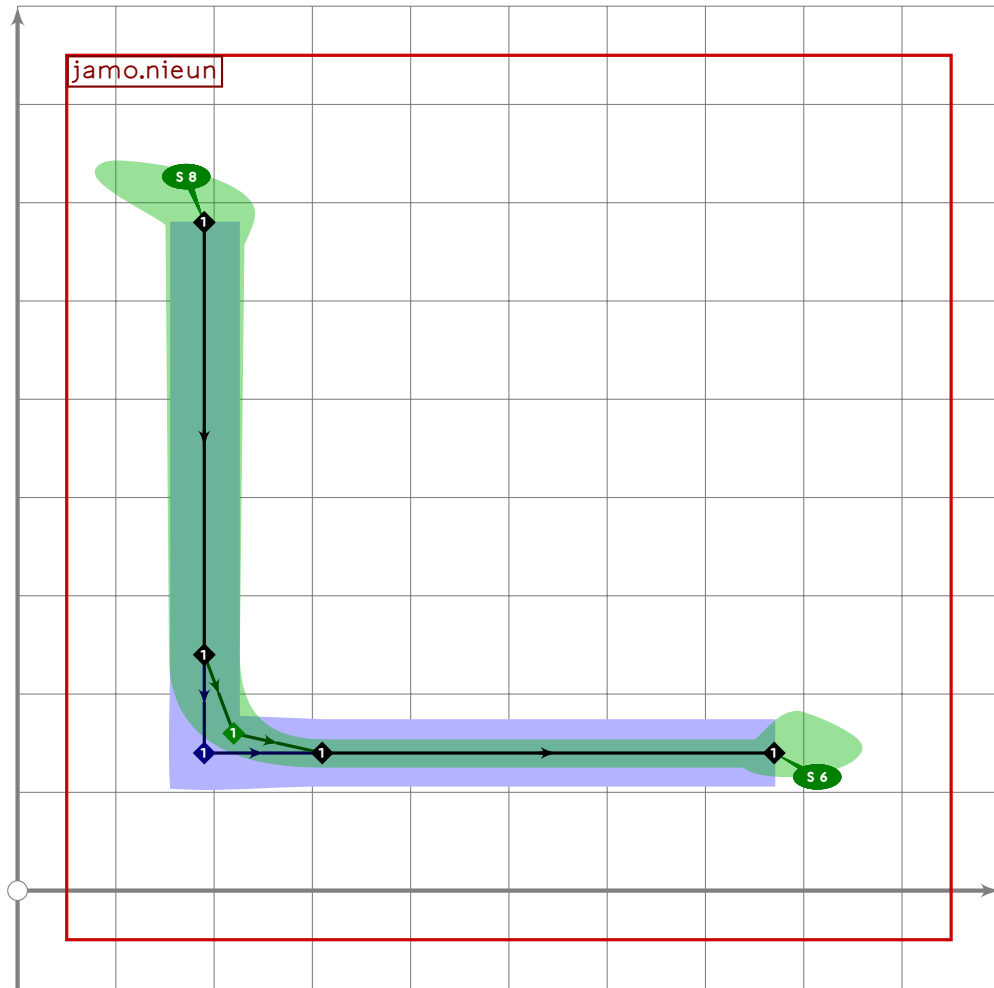
```



```

56 % hangul kiyook-sios
57 begintsuglyph("uni3133";51);
58 hangul.combine.lr(100,109)(whatever,identity,identity);
59 tsu_render;
60 endtsuglyph;
61

```

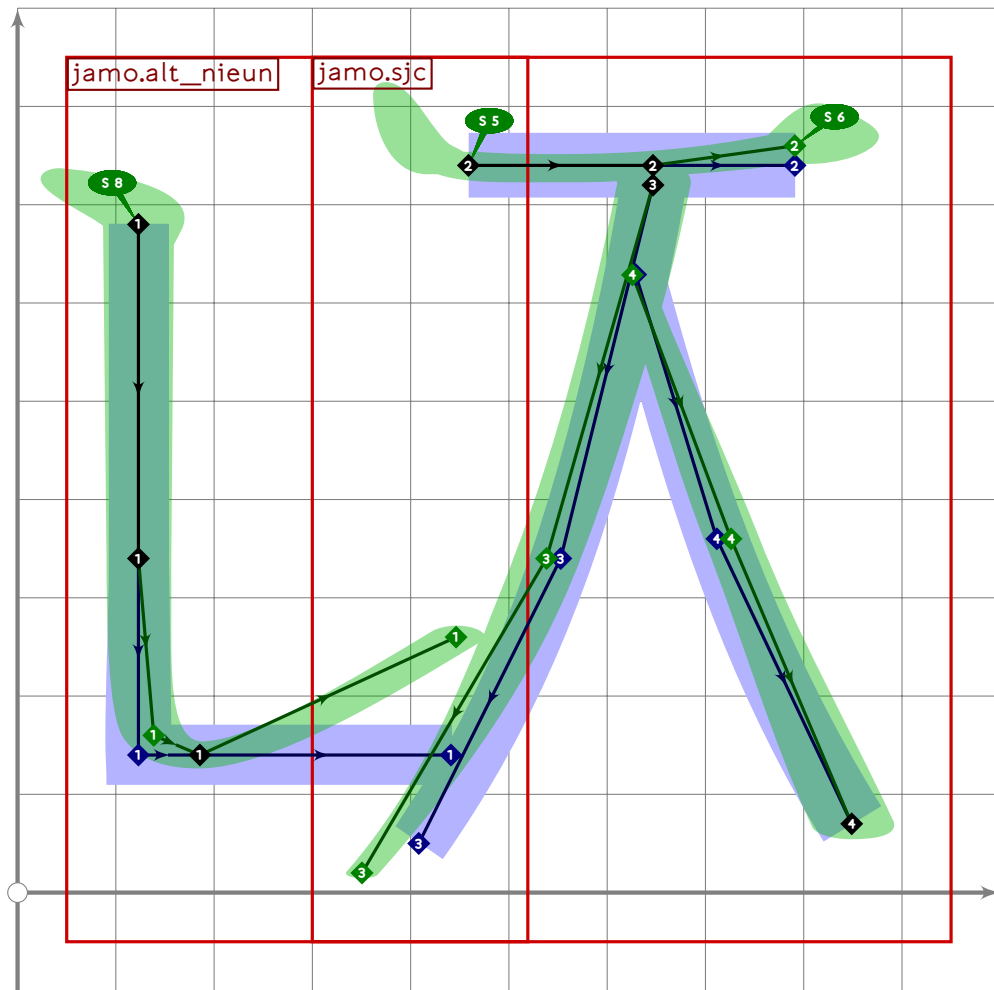


```

62 % hangul nieun
63 begint Suglyph("uni3134";52);
64 hangul,jamo.nieun(whatever,identity,identity);
65 tsu_render;
66 endtsuglyph;
67

```

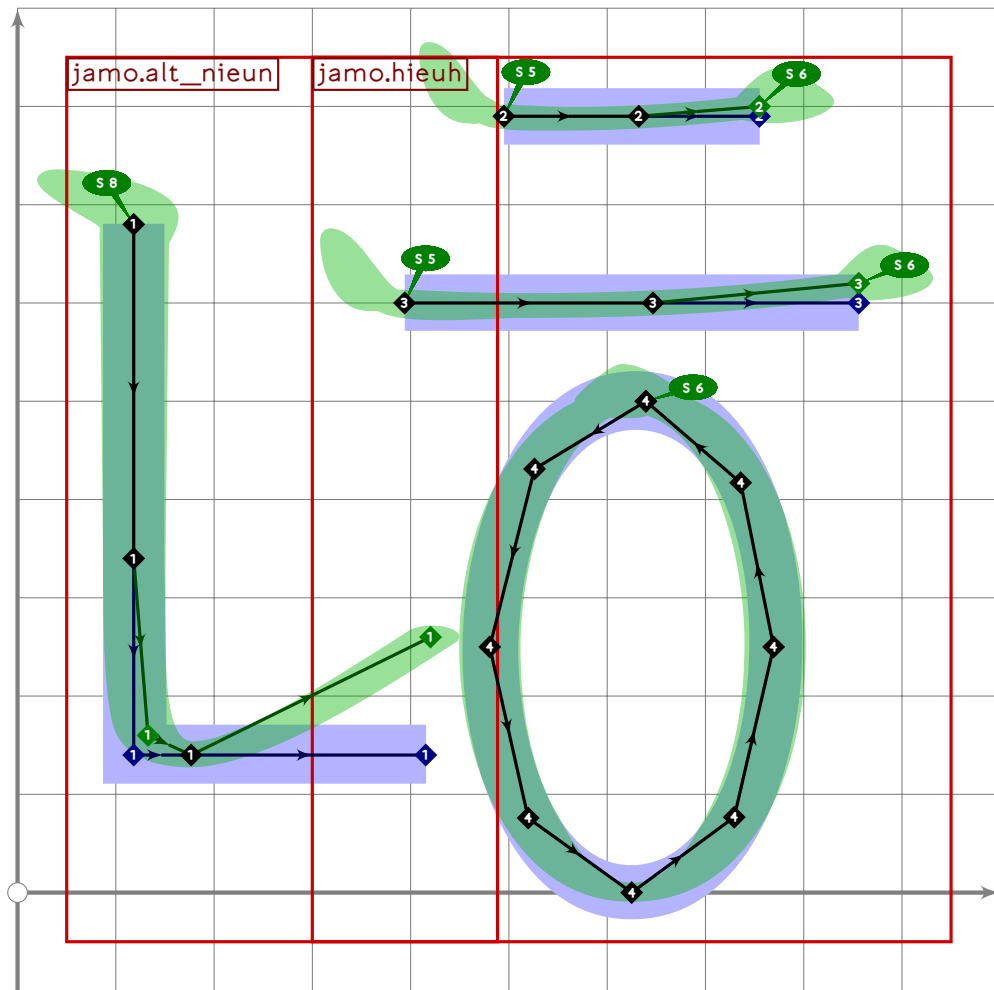




```

68 % hangul nieun-cieuc
69 begintsuglyph("uni3135",53);
70 hangul.combine.lr(202,112)(whatever;identity;identity);
71 tsu_render;
72 endtsuglyph;
73

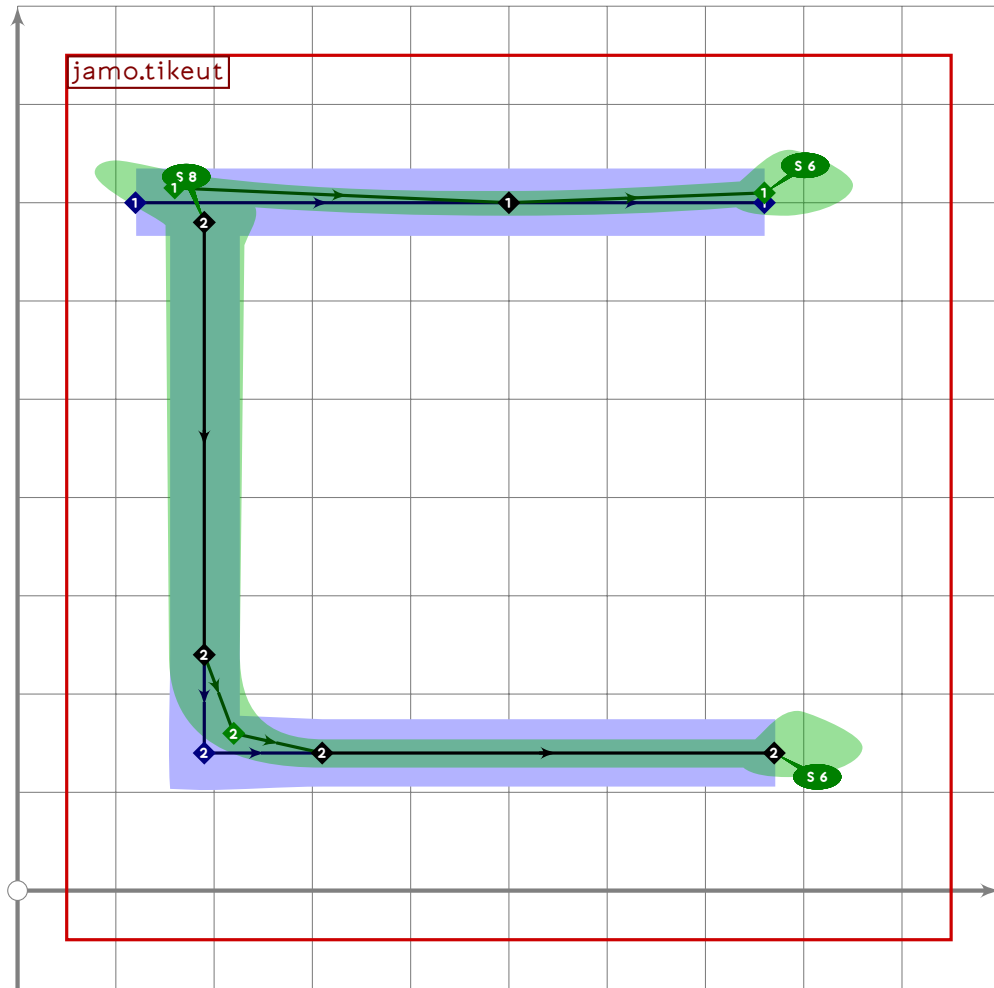
```



```

74 % hangul nieun-hieuh
75 begint Suglyph("uni3136",54);
76 hangul.combine.lr(202,118)(whatever;identity;identity);
77 tsu_render;
78 endtsuglyph;
79

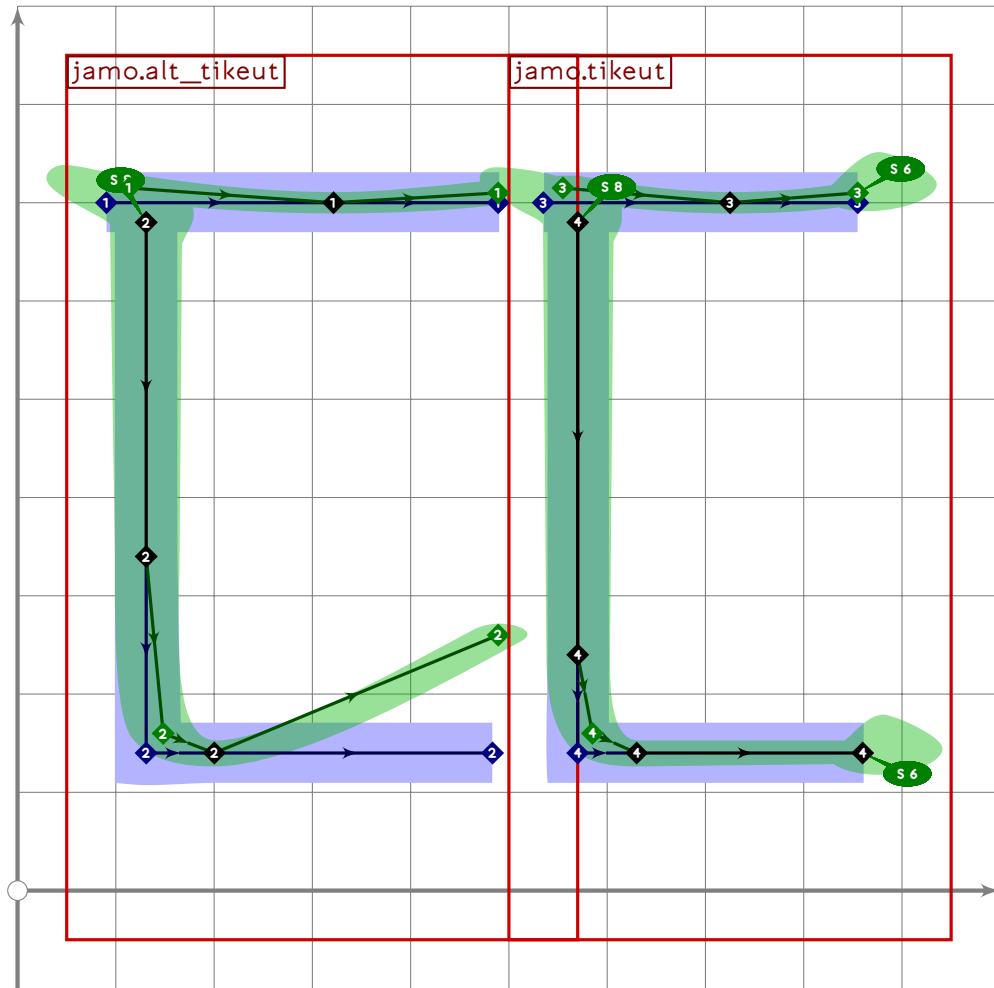
```



```

80 % hangul tikeut
81 begint Suglyph("uni3137";55);
82 hangul.jamo.tikeut(whatever,identity,identity);
83 tsu_render;
84 endtsuglyph;
85

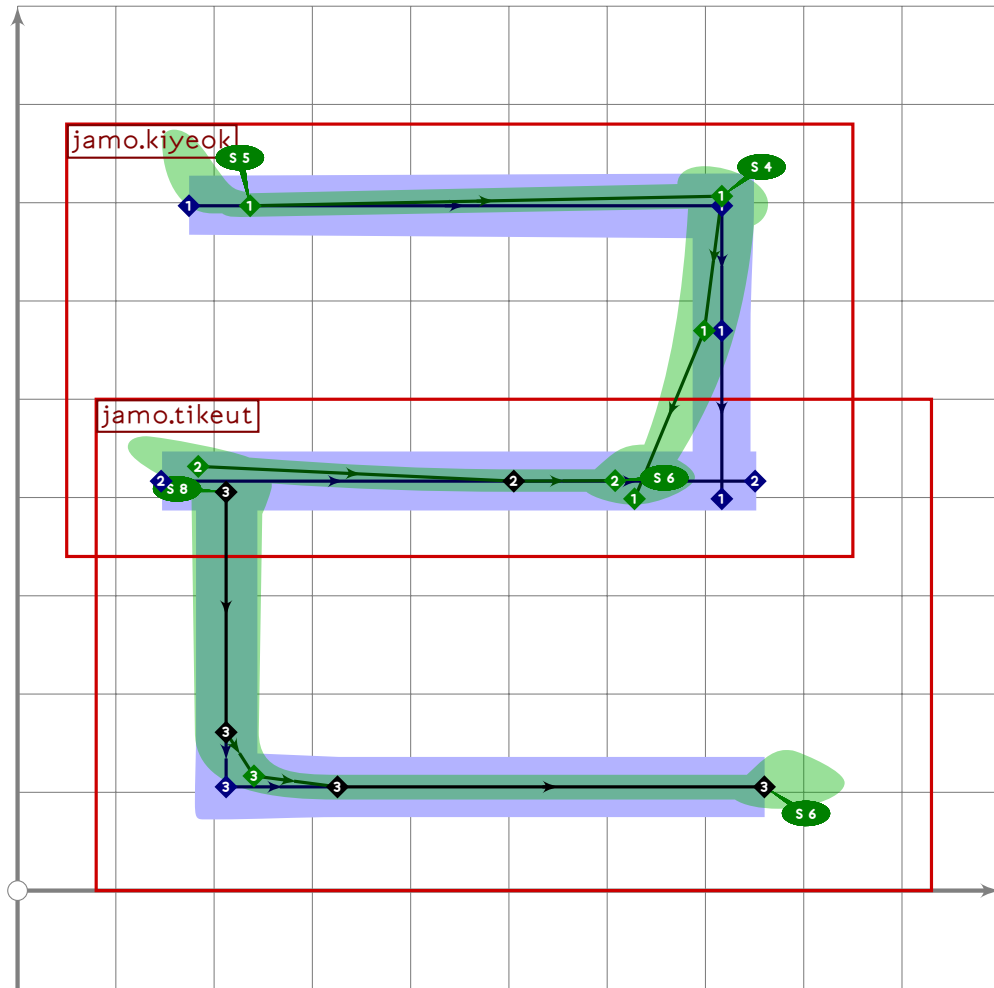
```



```

86 % hangul ssangtikeut
87 begint Suglyph("uni3138",56);
88 hangul.combine.lr(203,103)(whatever,identity,identity);
89 tsu_render;
90 endtsuglyph;
91

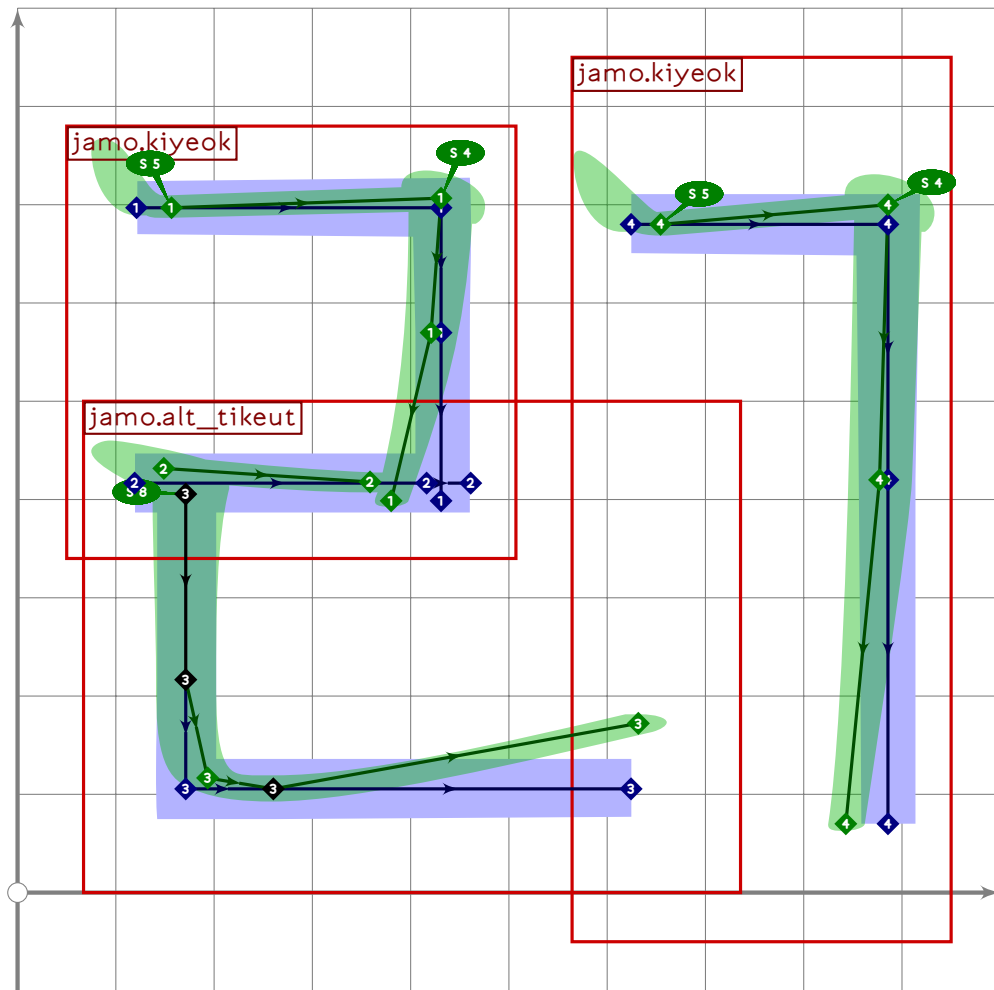
```



```

92 % hangul rieul
93 begint Suglyph("uni3139",57);
94 hangul.jamo.rieul(whatever,identity,identity);
95 tsu_render;
96 endtsuglyph;
97

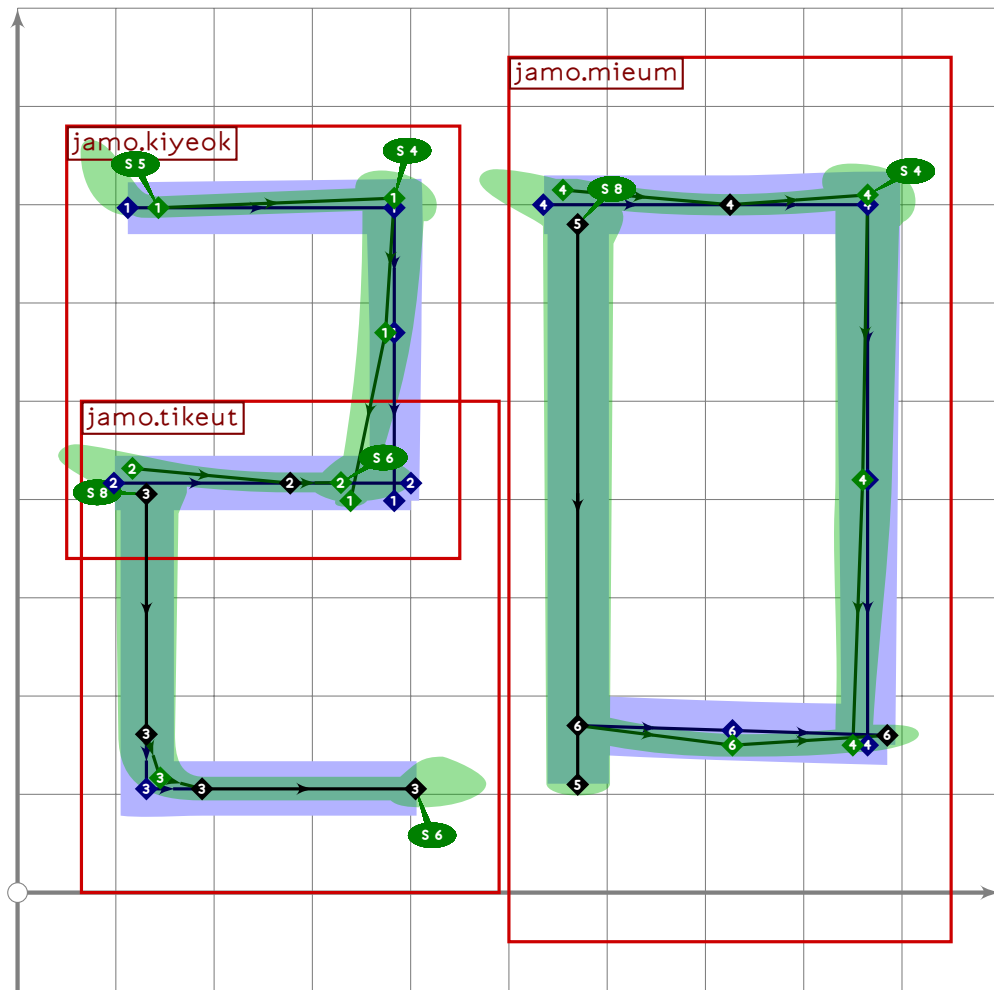
```



```

98 % hangul rieul-kiyeok
99 begint Suglyph("uni313A",58);
100 hangul.combine.lr(205,100)(whatever,identity,identity);
101 tsu_render;
102 endtsuglyph;
103

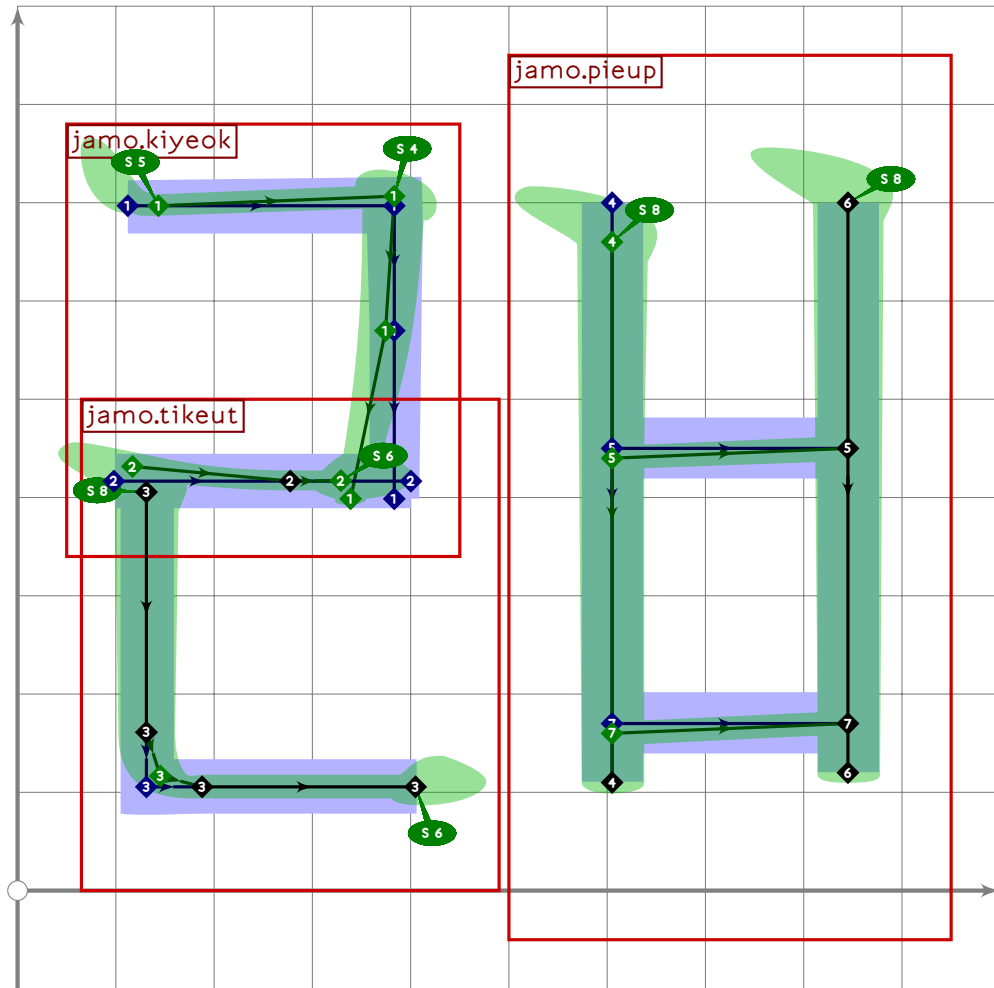
```



```

104 % hangul rieul-mieum
105 begint Suglyph("uni313B",59);
106 hangul.combine.lr(105,106)(whatever;identity;identity);
107 tsu_render;
108 endtsuglyph;
109

```

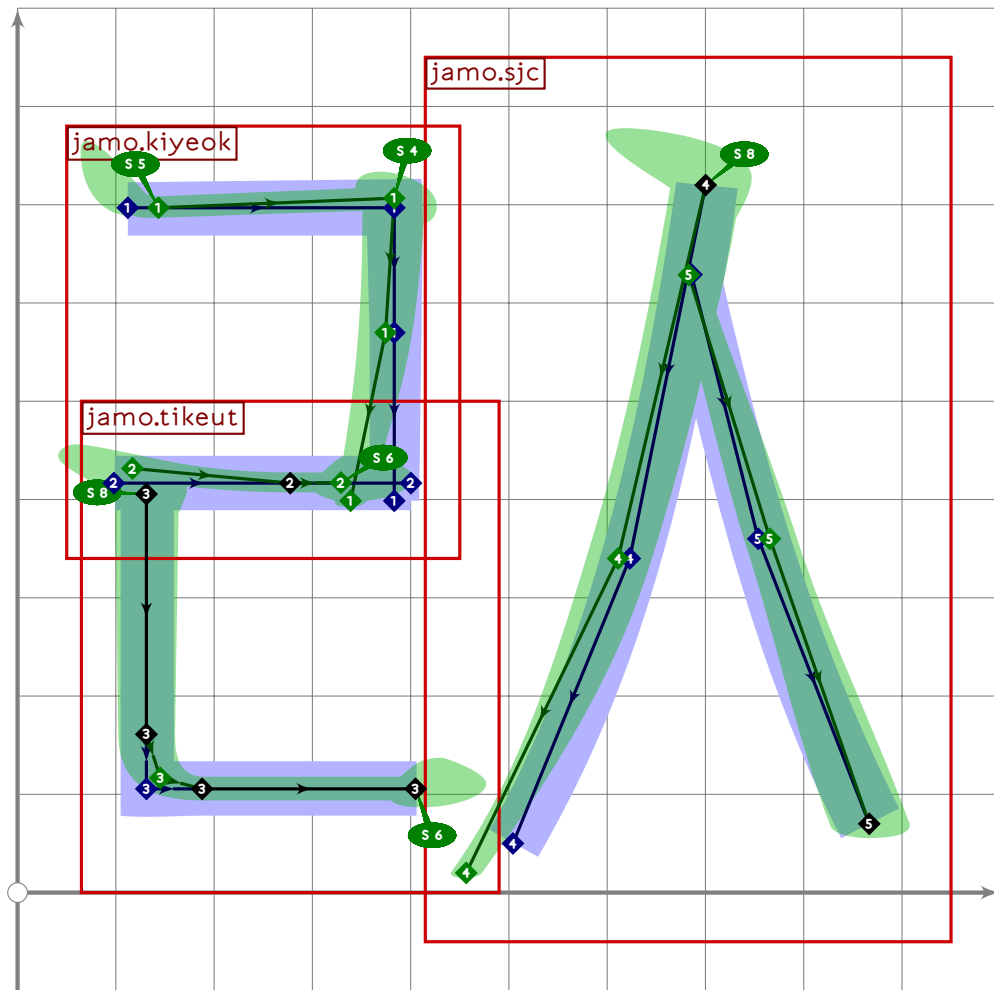


```

110 % hangul rieul-pieup
111 begint Suglyph("uni313C",60);
112 hangul.combine.lr(105,107)(whatever,identity,identity);
113 tsu_render;
114 endtsuglyph;
115

```

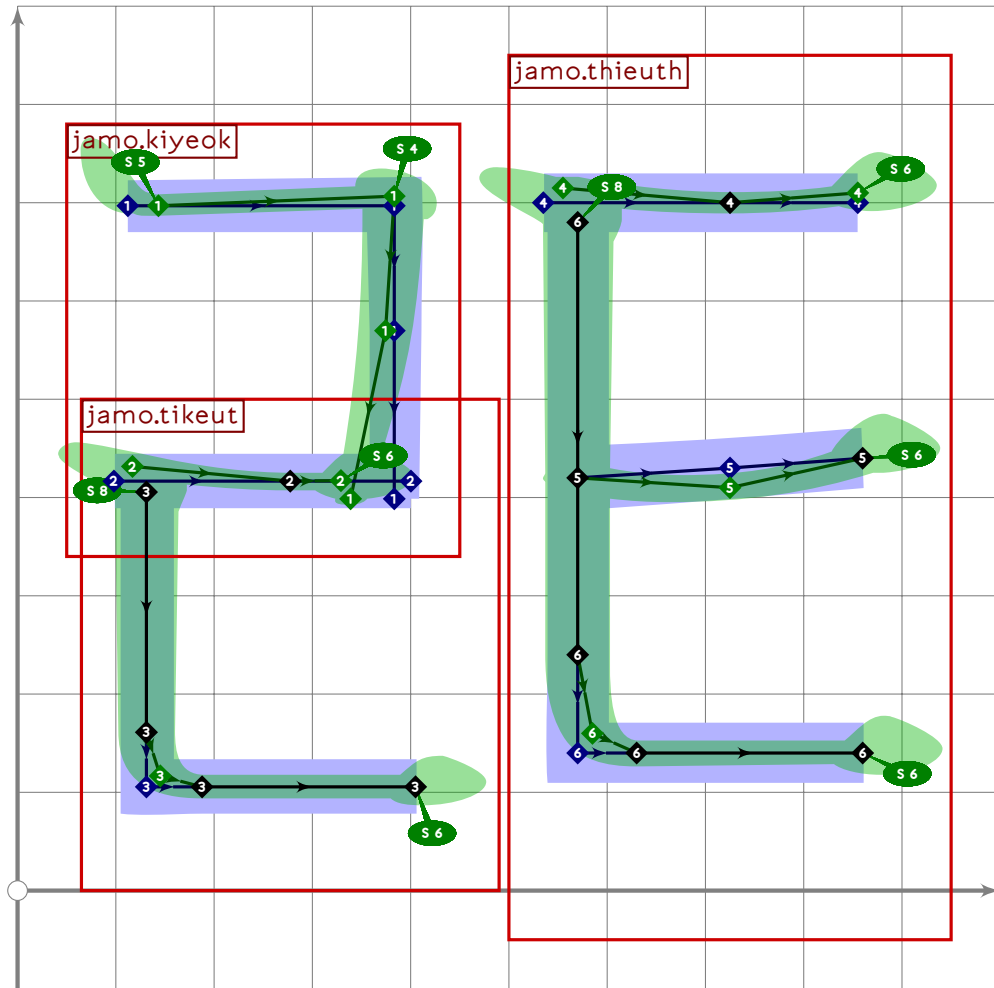




```

116 % hangul rieul-sios
117 begint Suglyph("uni313D",61);
118 hangul.combine.lr(105,109)(whatever;identity;identity);
119 tsu_render;
120 endtsuglyph;
121

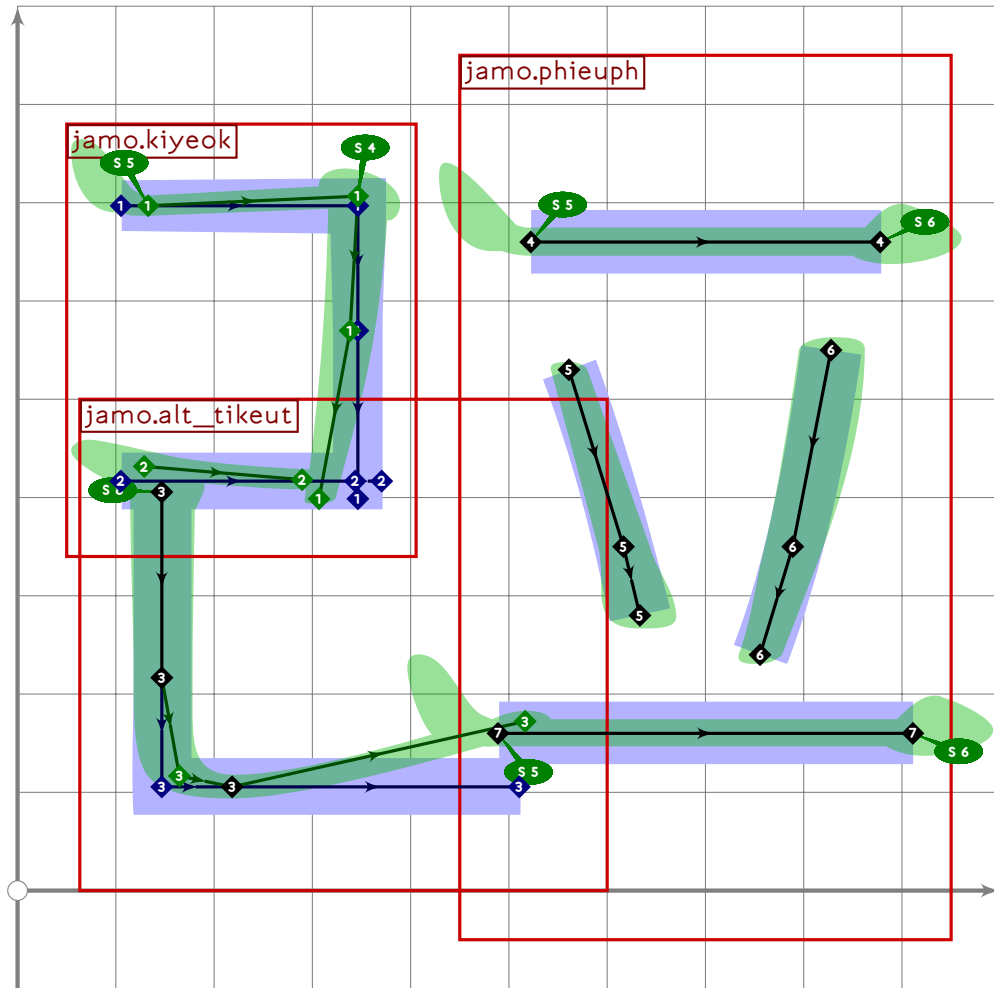
```



```

122 % hangul rieul-thieuth
123 begint Suglyph("uni313E",62);
124 hangul.combine.lr(105,116)(whatever,identity,identity);
125 tsu_render;
126 endtsuglyph;
127

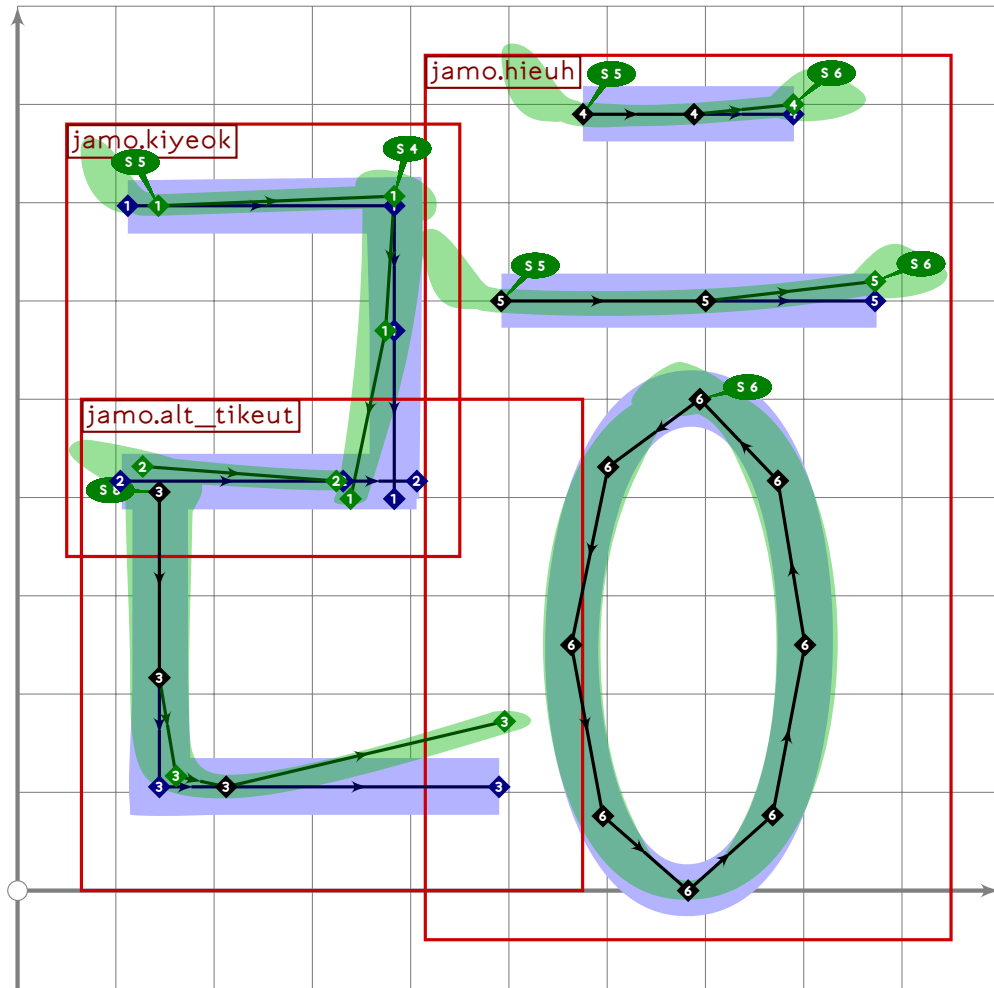
```



```

128 % hangul rieul-phieuph
129 begintsuglyph("uni313F",63);
130 hangul.combine.lr(205,117)(whatever,identity,identity);
131 tsu_render;
132 endtsuglyph;
133

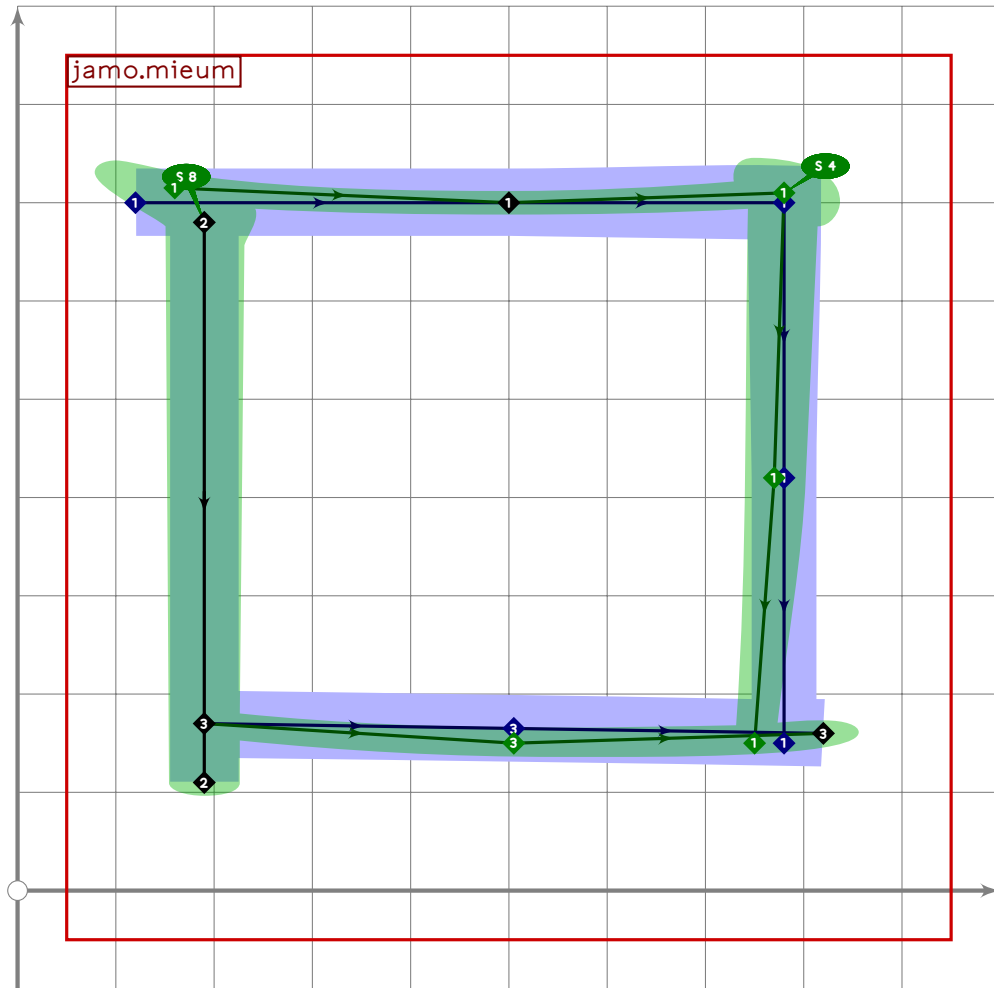
```



```

134 % hangul rieul-hieuh
135 begintsuglyph("uni3140",64);
136 hangul.combine.lr(205,118)(whatever;identity,identity);
137 tsu_render;
138 endtsuglyph;
139

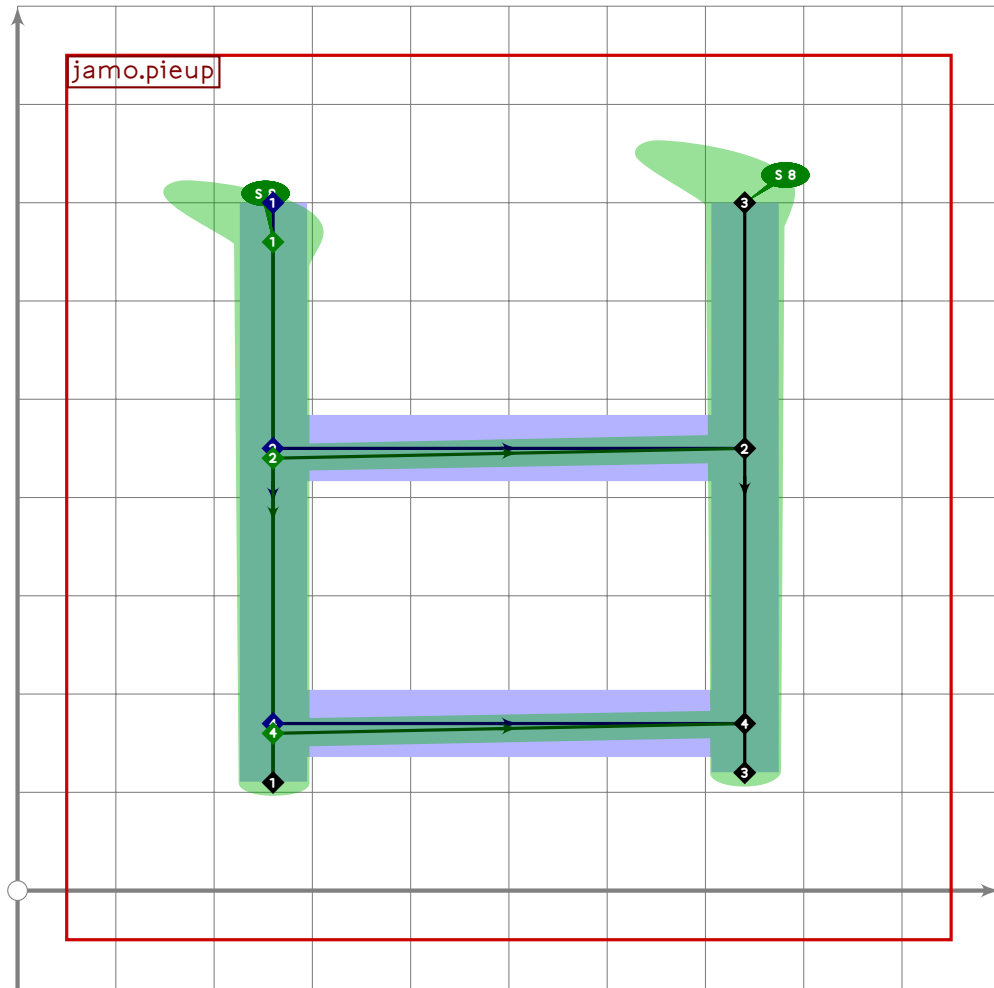
```



```

140 % hangul mieum
141 begint Suglyph("uni3141",65);
142 hangul.jamo.mieum(whatever,identity,identity);
143 tsu_render;
144 endtsuglyph;
145

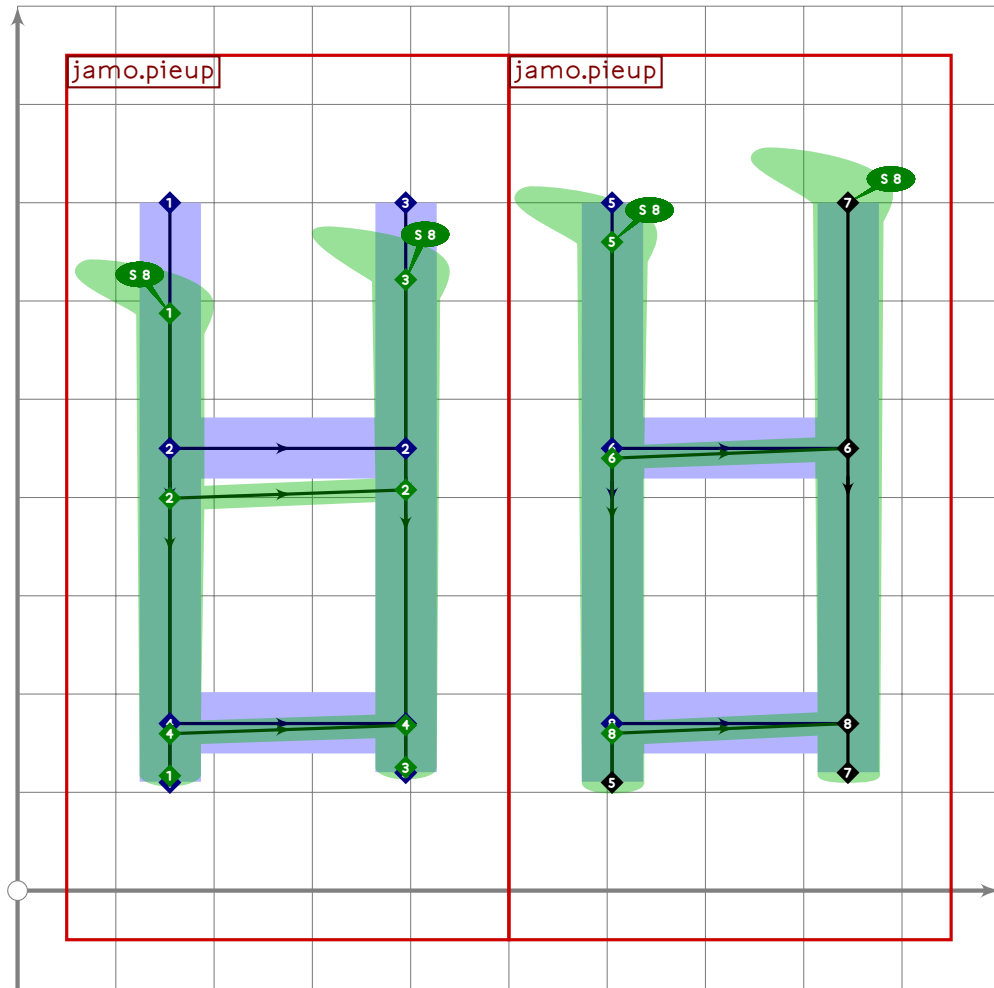
```



```

146 % hangul pieup
147 begint Suglyph("uni3142",66);
148 hangul.jamo.pieup(whatever,identity,identity);
149 tsu_render;
150 endtsuglyph;
151

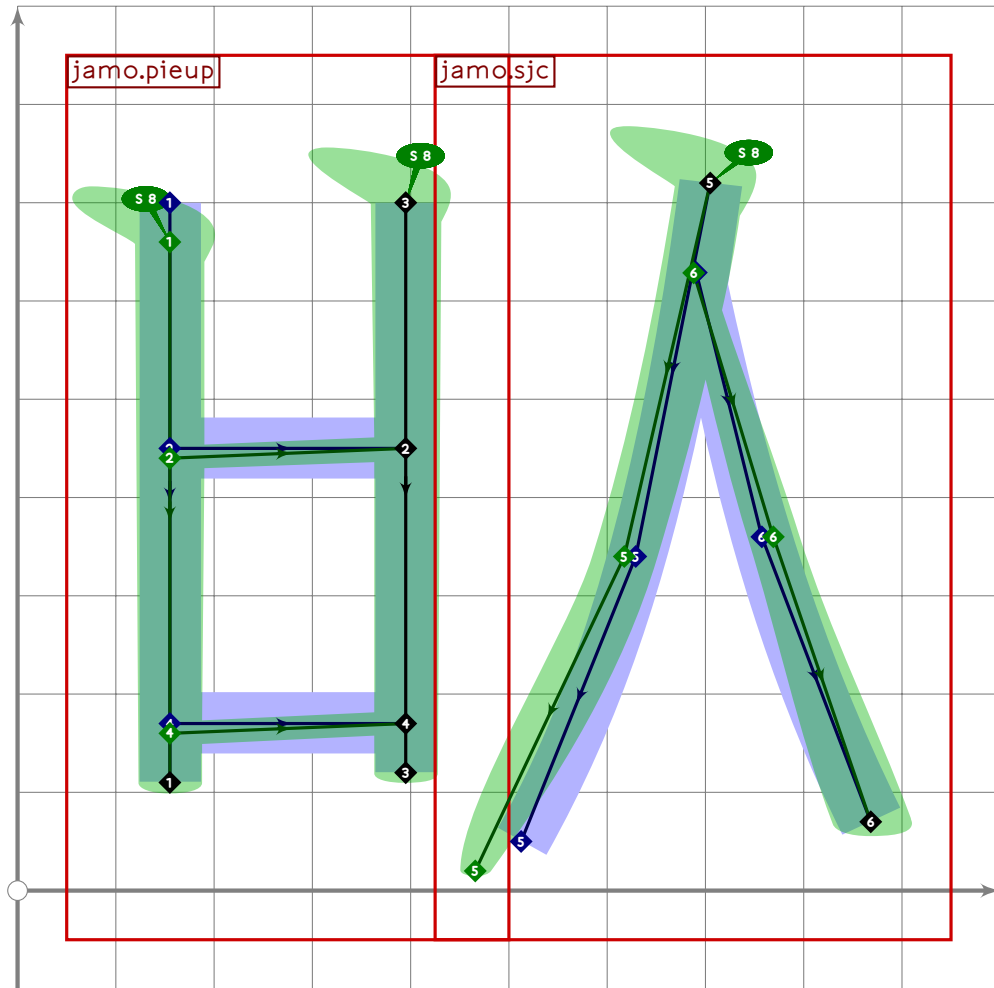
```



```

152 % hangul ssangpieup
153 begint Suglyph("uni3143",67);
154 hangul.combine.lr(207,107)(whatever;identity,identity);
155 tsu_render;
156 endtsuglyph;
157

```

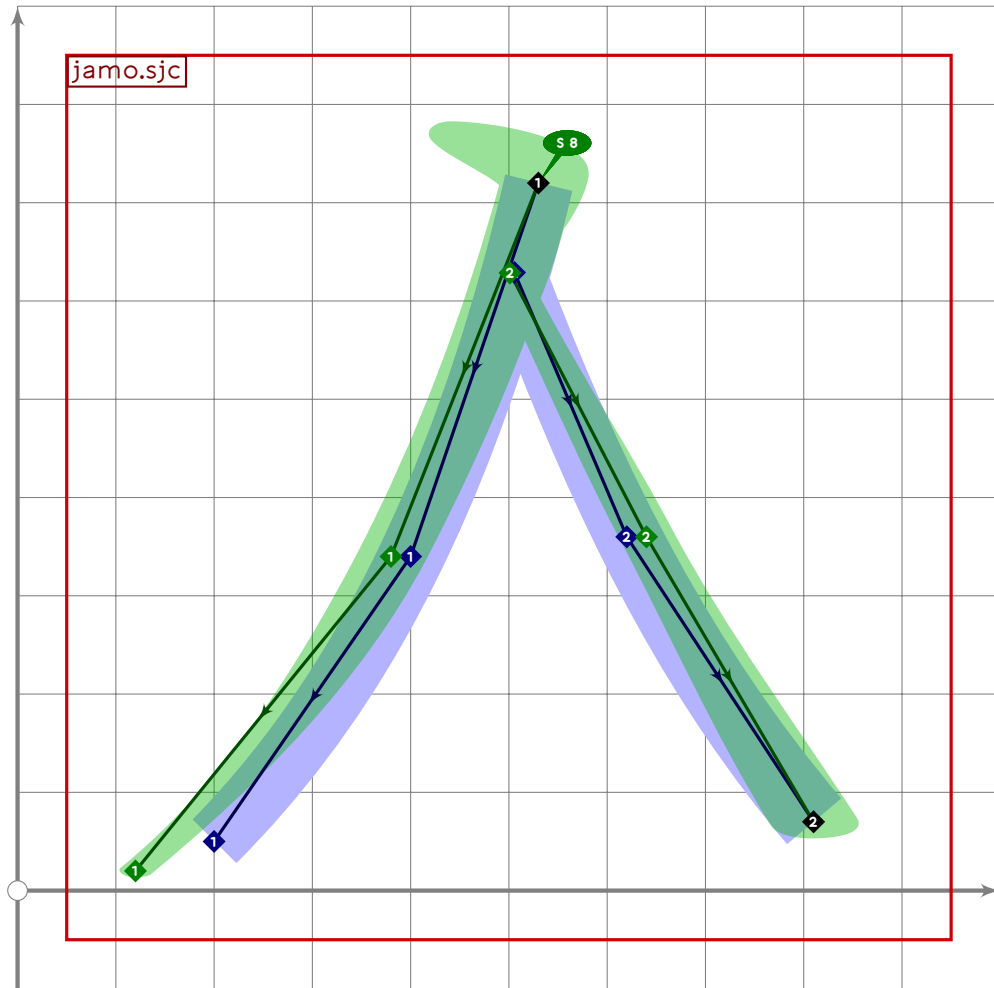


```

158 % hangul pieup-sios
159 begintsuglyph("uni3144",68);
160 hangul.combine.lr(107,109)(whatever,identity,identity);
161 tsu_render;
162 endtsuglyph;
163

```

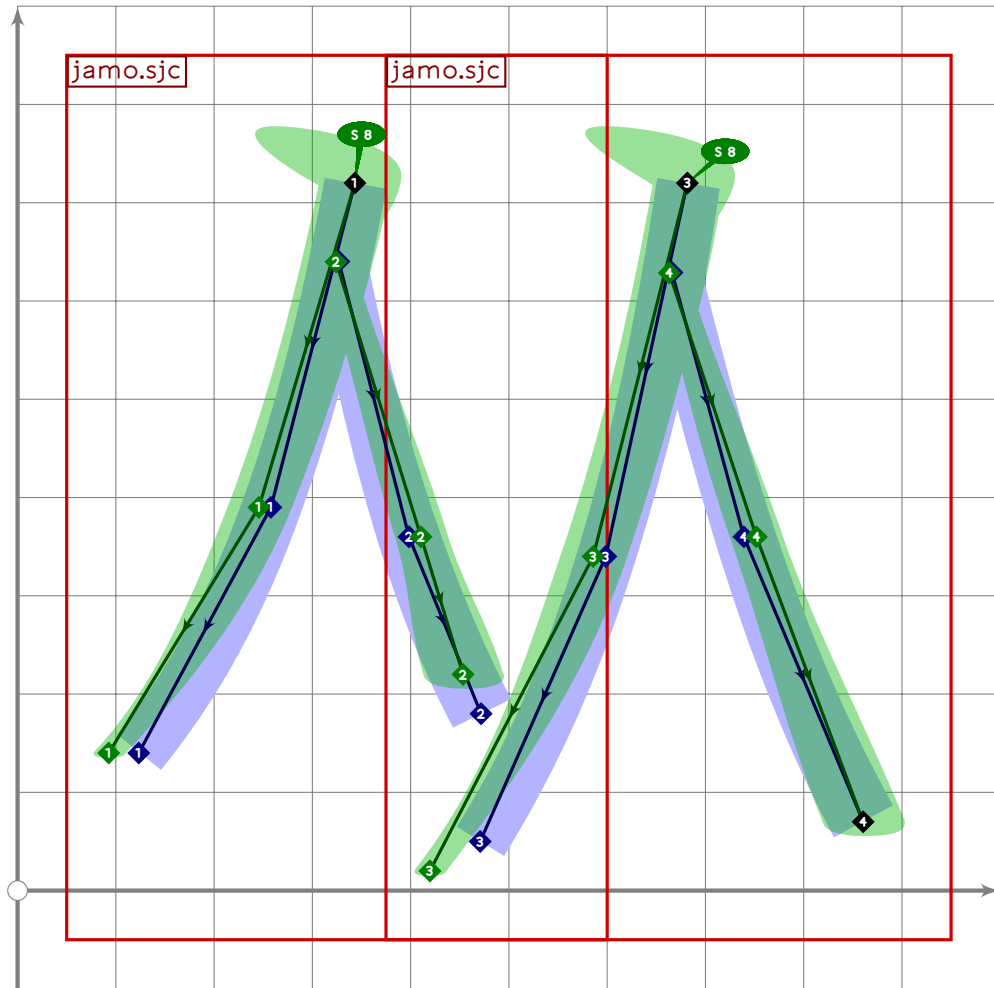




```

164 % hangul sios
165 begint Suglyph("uni3145",69);
166 hangul.jamo.sjc(0,0,false)(whatever,identity,identity);
167 tsu_render;
168 endtsuglyph;
169

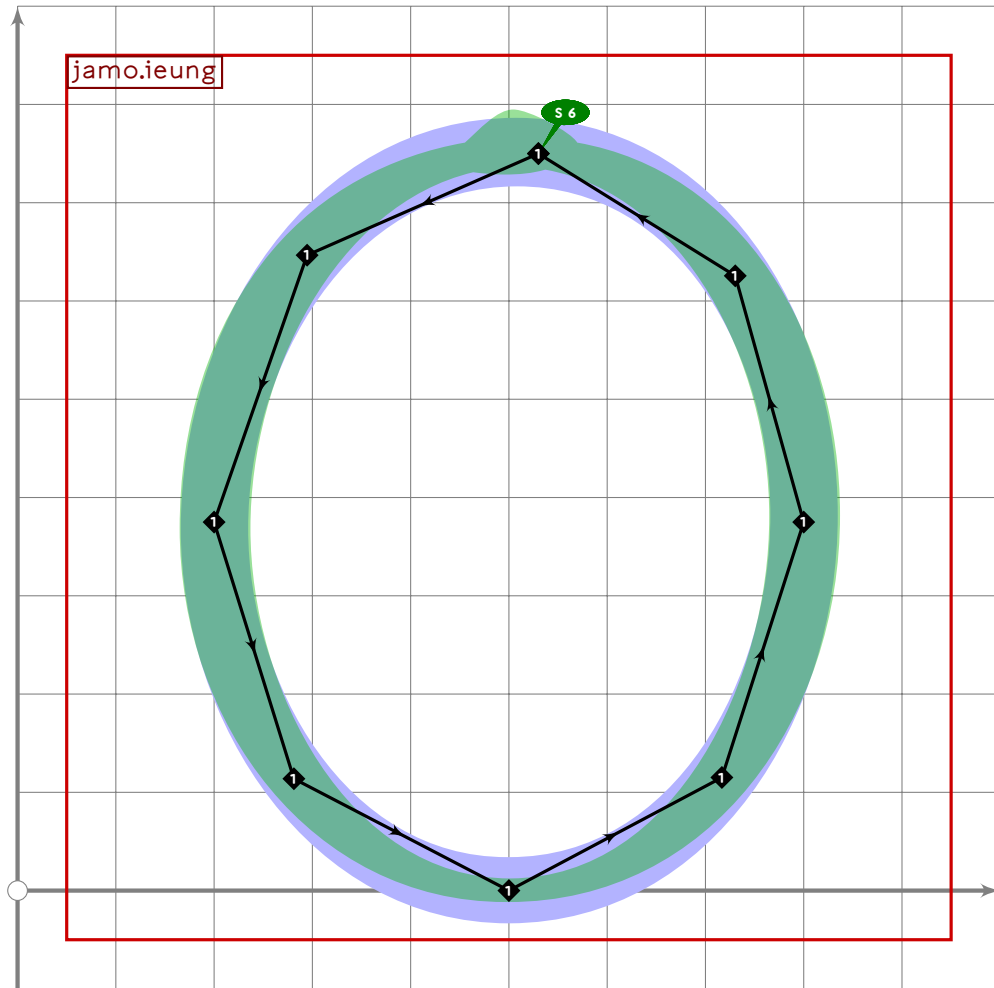
```



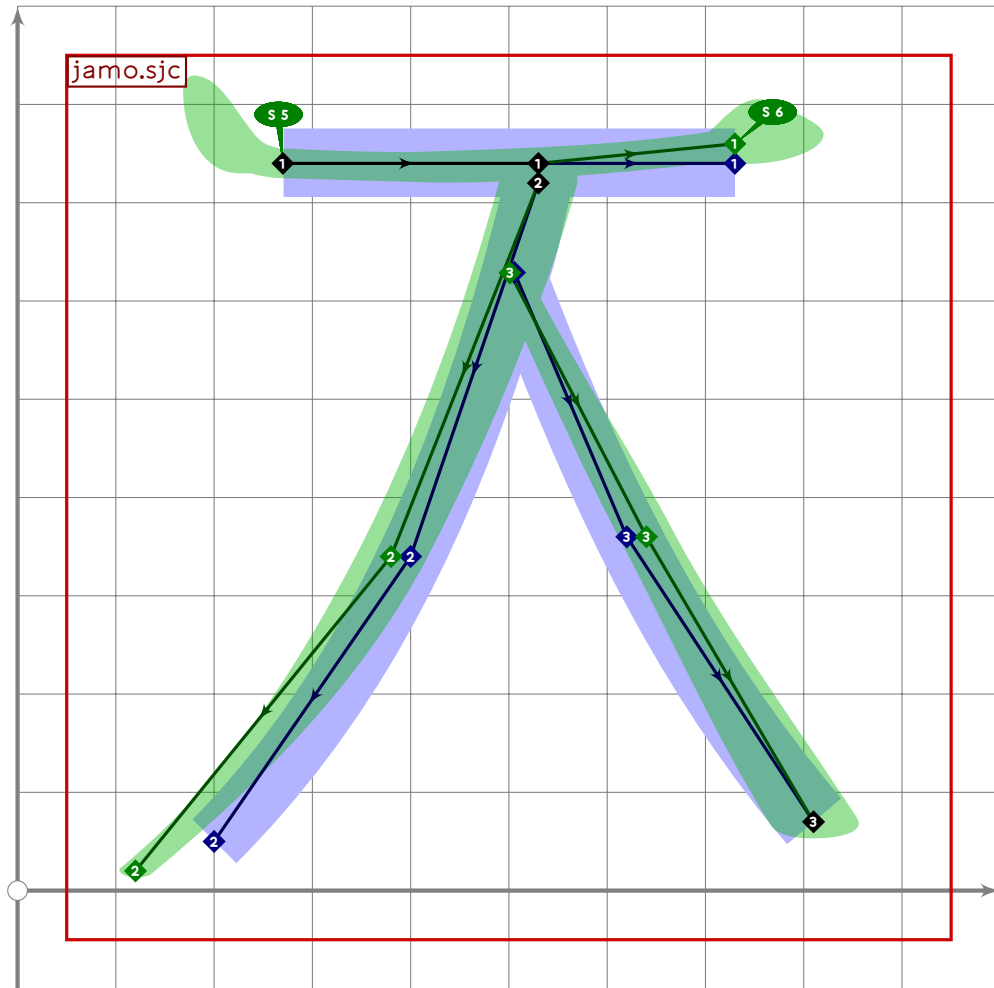
```

170 % hangul ssangsios
171 begint Suglyph("uni3146",70);
172 hangul.combine.lr(209,109)(whatever,identity,identity);
173 tsu_render;
174 endtsuglyph;
175

```



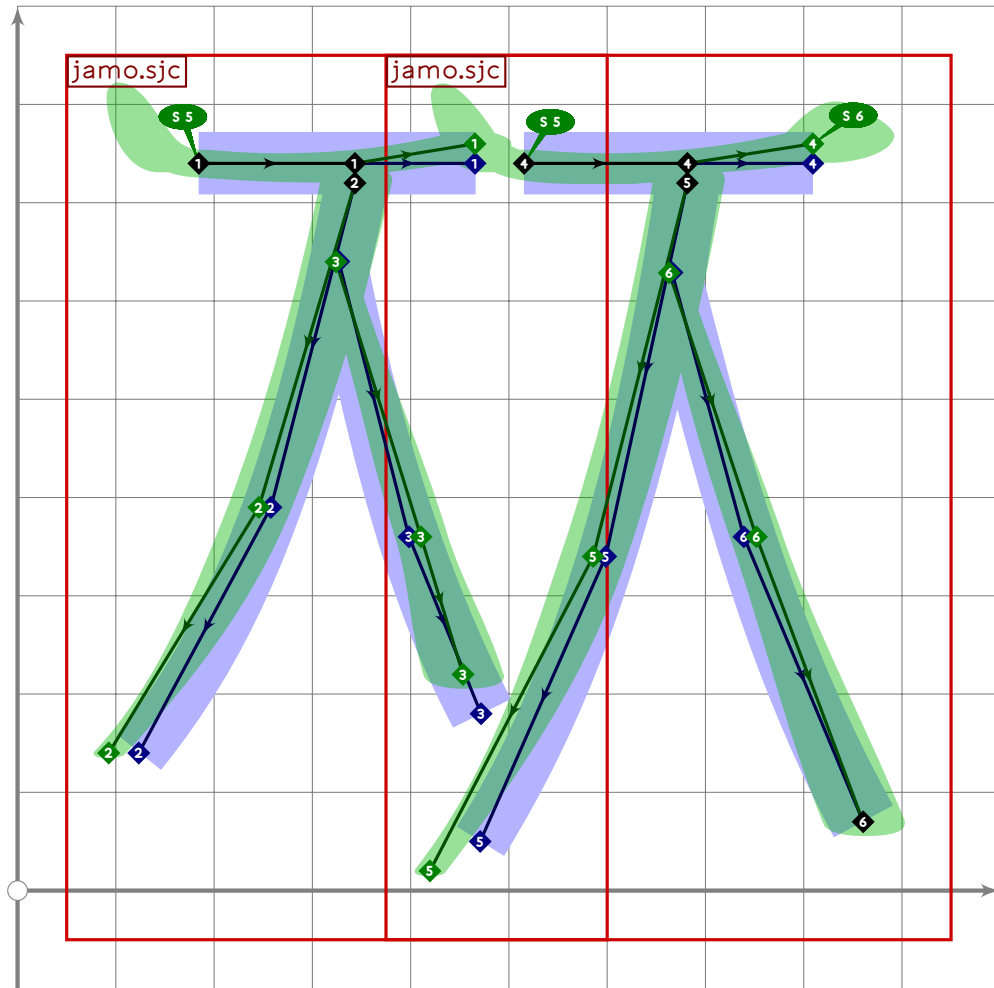
```
176 % hangul ieung  
177 begintsuglyph("uni3147",71);  
178 hangul,jamo.ieung(whatever,identity,identity);  
179 tsu_render;  
180 endtsuglyph;  
181
```



```

182 % hangul cieuc
183 begint Suglyph("uni3148",72);
184 hangul.jamo.sjc(1,0,false)(whatever,identity,identity);
185 tsu_render;
186 endtsuglyph;
187

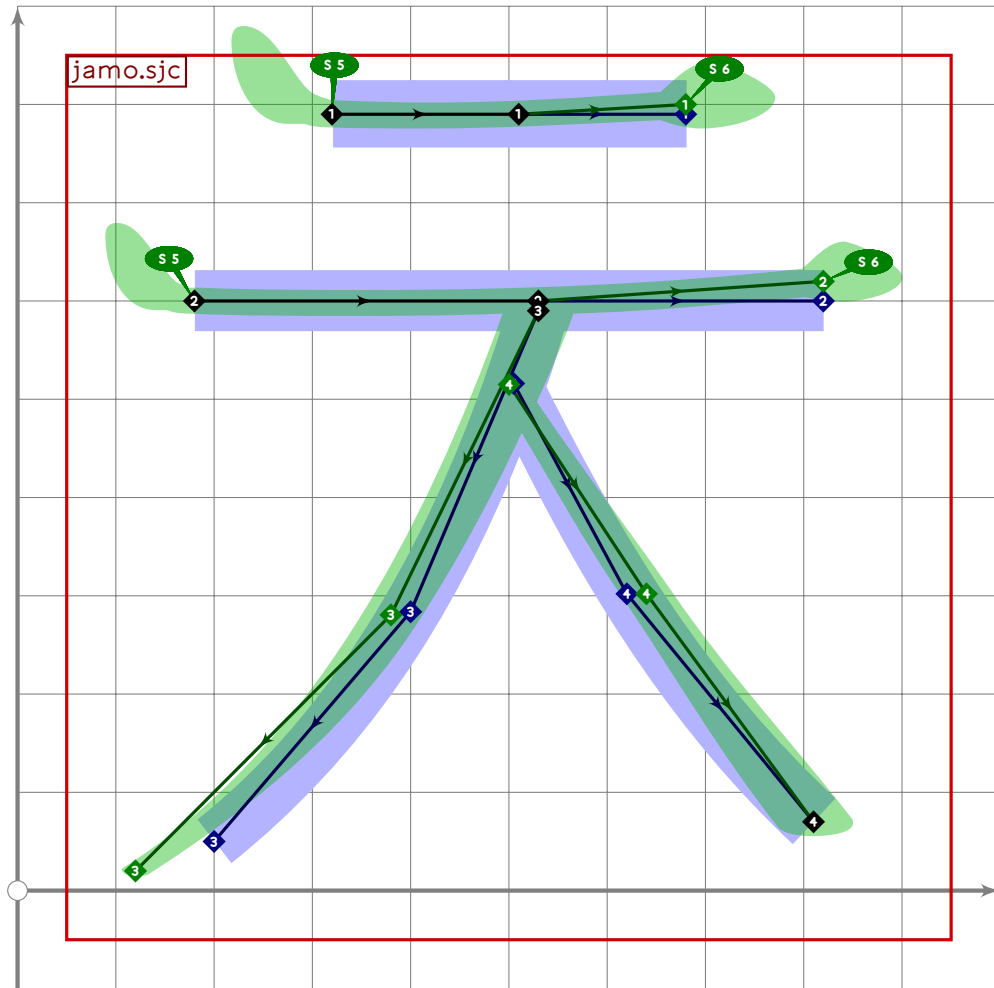
```



```

188 % hangul ssangcieuc
189 begintsuglyph("uni3149",73);
190 hangul.combine.lr(212,112)(whatever,identity,identity);
191 tsu_render;
192 endtsuglyph;
193

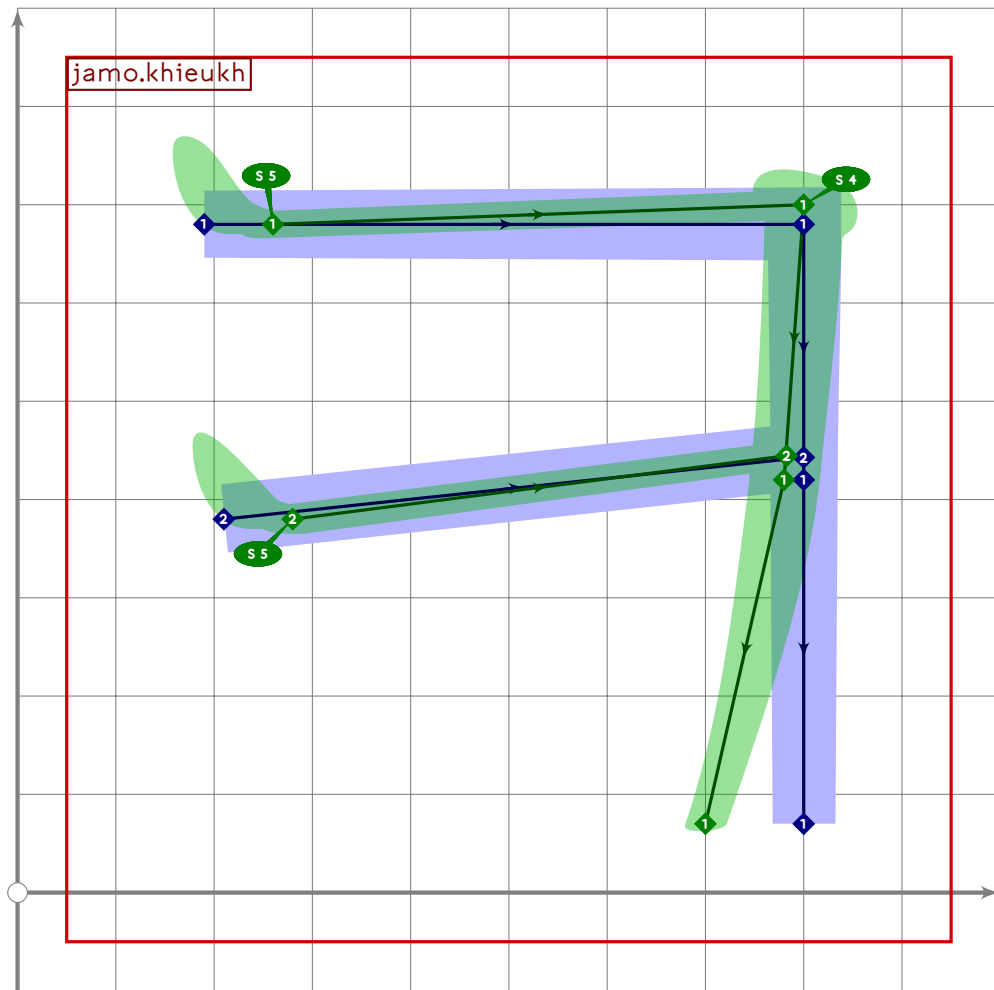
```



```

194 % hangul chieuch
195 begint Suglyph("uni314A",74);
196 hangul.jamo.sjc(2,0,false)(whatever,identity,identity);
197 tsu_render;
198 endtsuglyph;
199

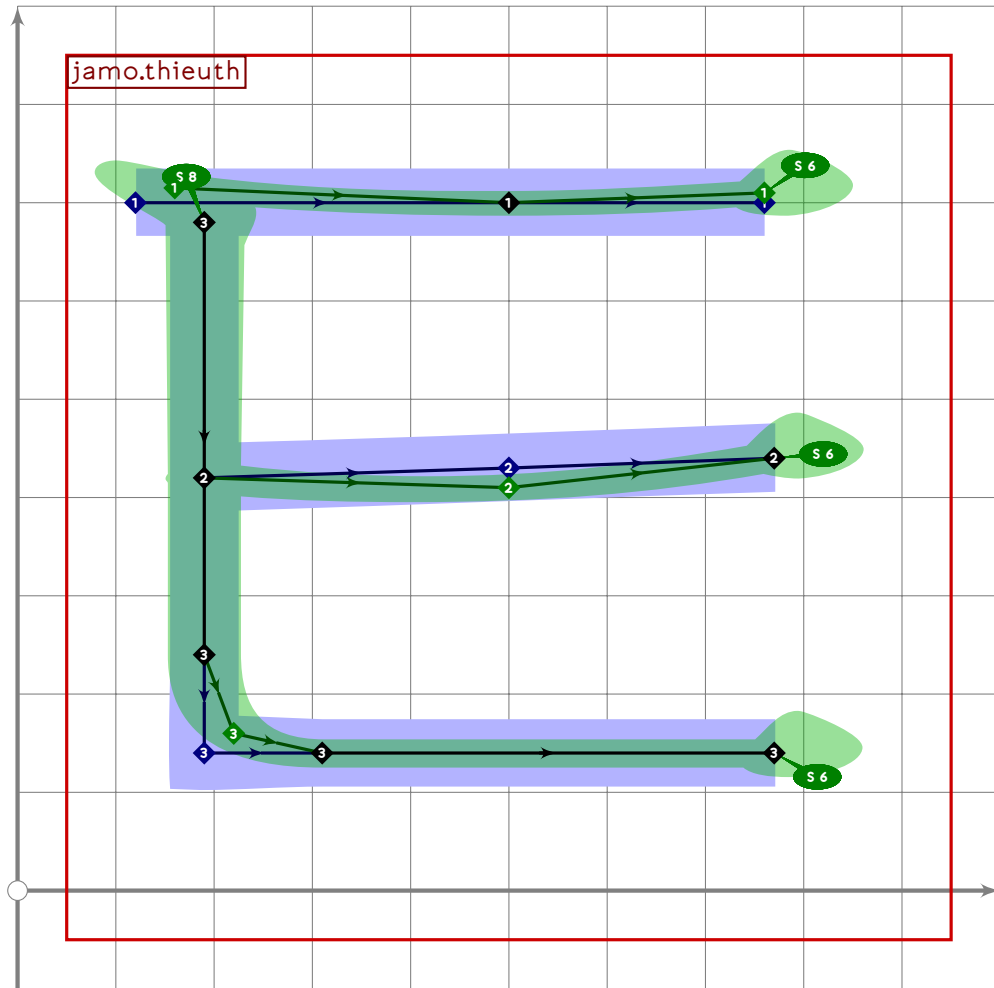
```



```

200 % hangul khieukh
201 begint Suglyph("uni314B",75);
202 hangul,jamo.khieukh(whatever,identity,identity);
203 tsu_render;
204 endtsuglyph;
205

```

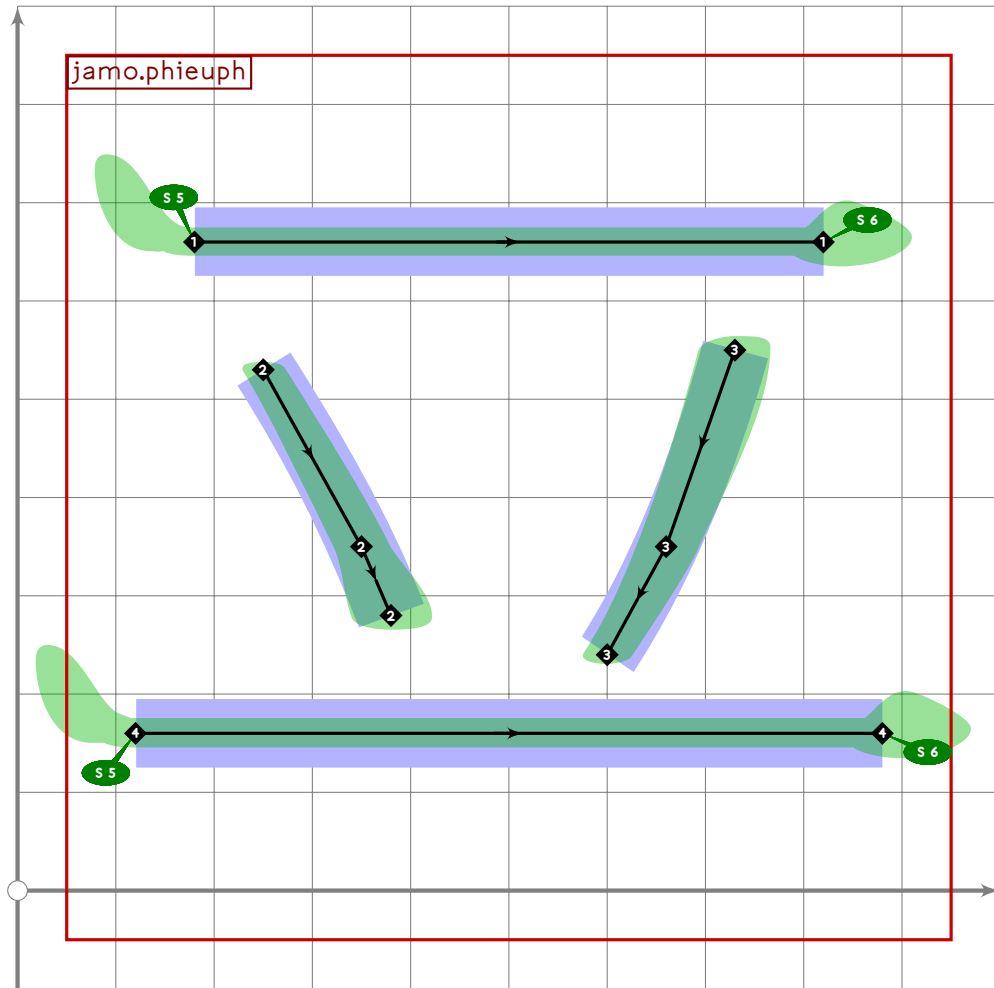


```

206 % hangul thieuth
207 begint Suglyph("uni314C";76);
208 hangul.jamo.thieuth(whatever,identity,identity);
209 tsu_render;
210 endtsuglyph;
211

```

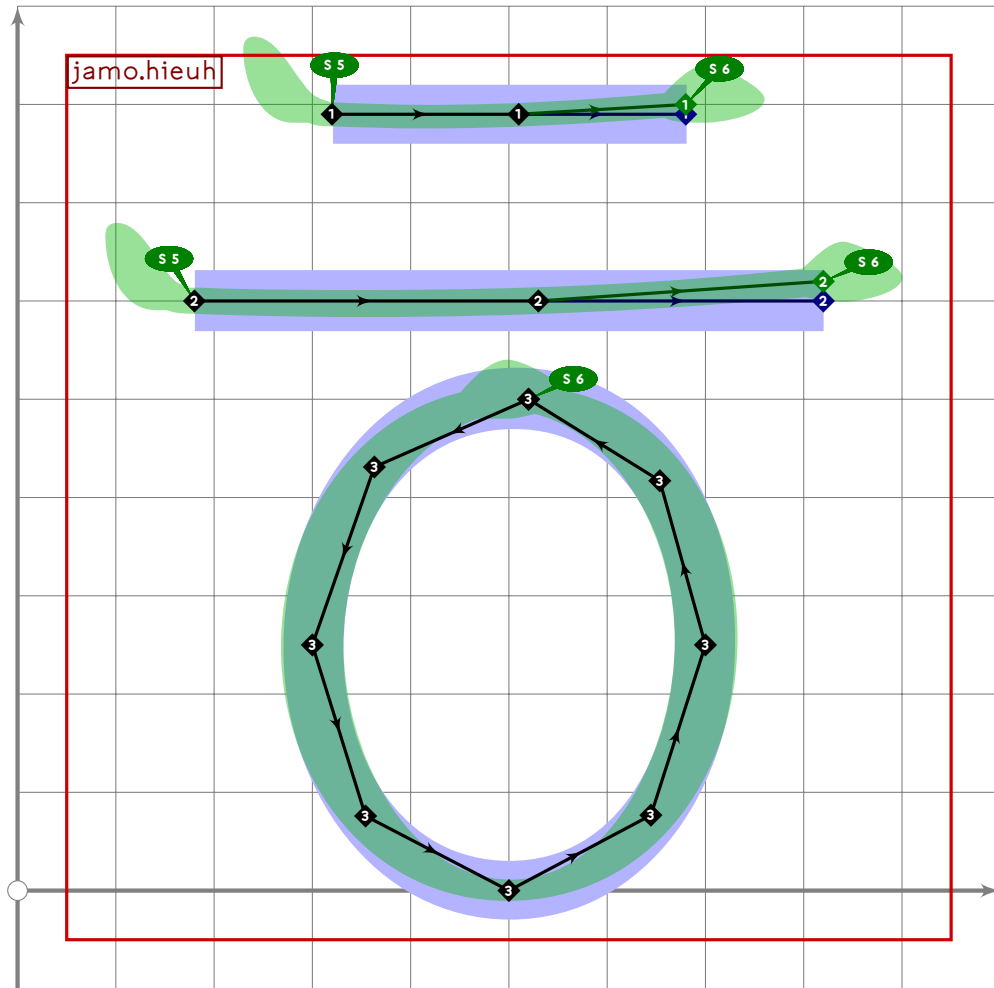




```

212 % hangul phieup
213 begint Suglyph("uni314D',77);
214 hangul.jamo.phieup(whatever,identity,identity);
215 tsu_render;
216 endtsuglyph;
217

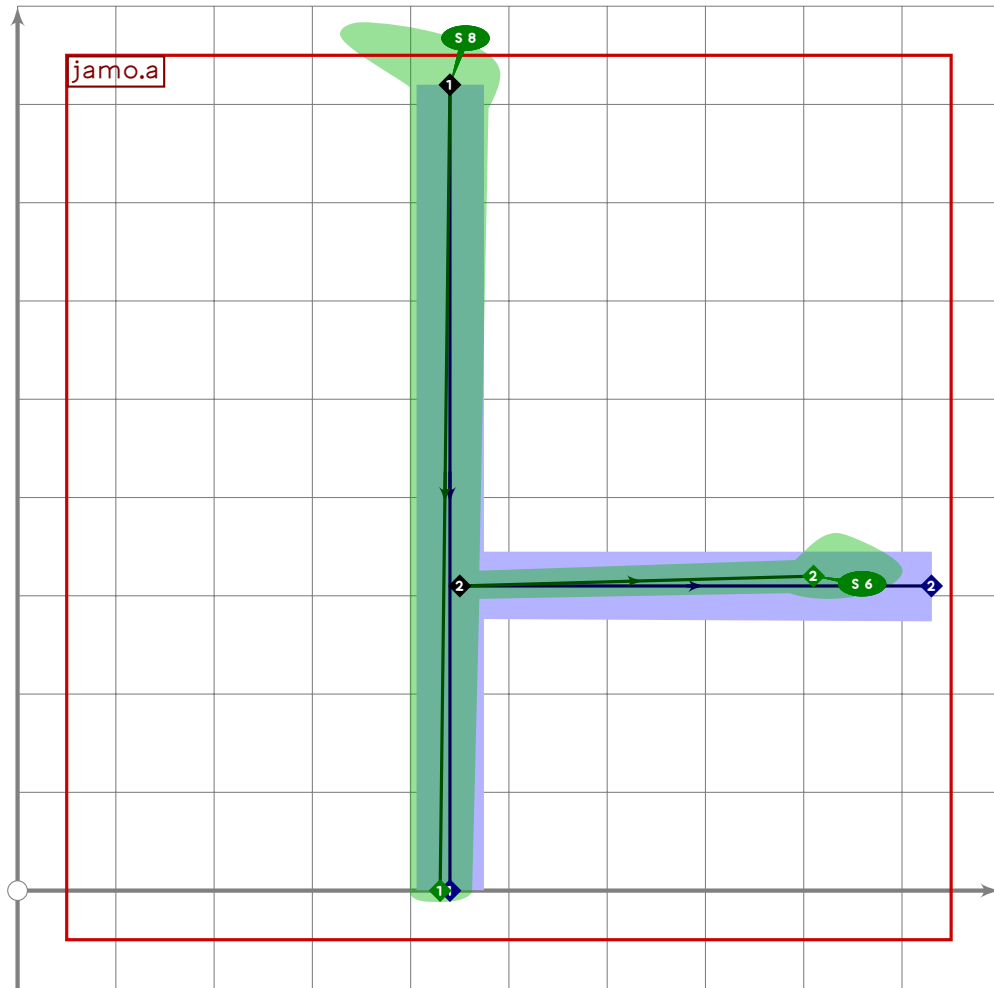
```



```

218 % hangul hieuh
219 begint Suglyph("uni314E",78);
220 hangul,jamo.hieuh(whatever,identity,identity);
221 tsu_render;
222 endtsuglyph;
223

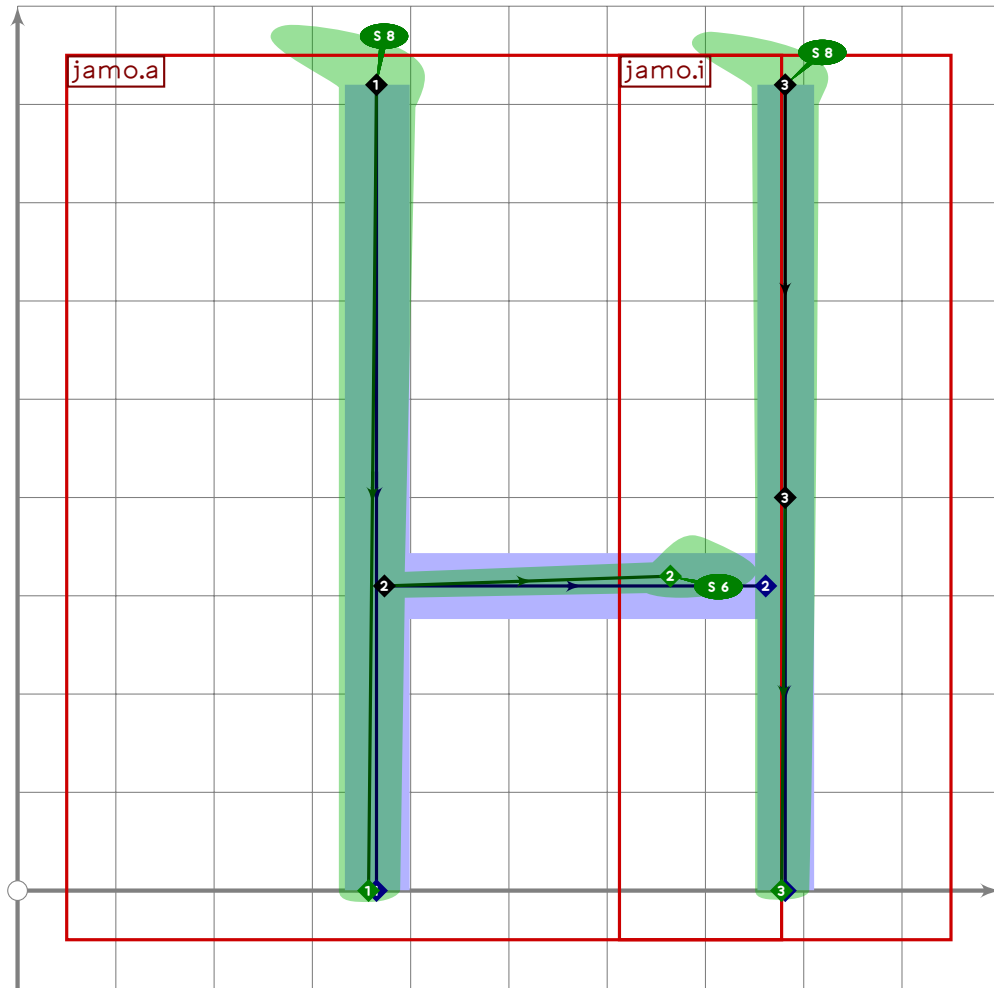
```



```

224 % hangul a
225 begint Suglyph("uni314F",79);
226 hangul.jamo.a(whatever,identity,identity);
227 tsu_render;
228 endtsuglyph;
229

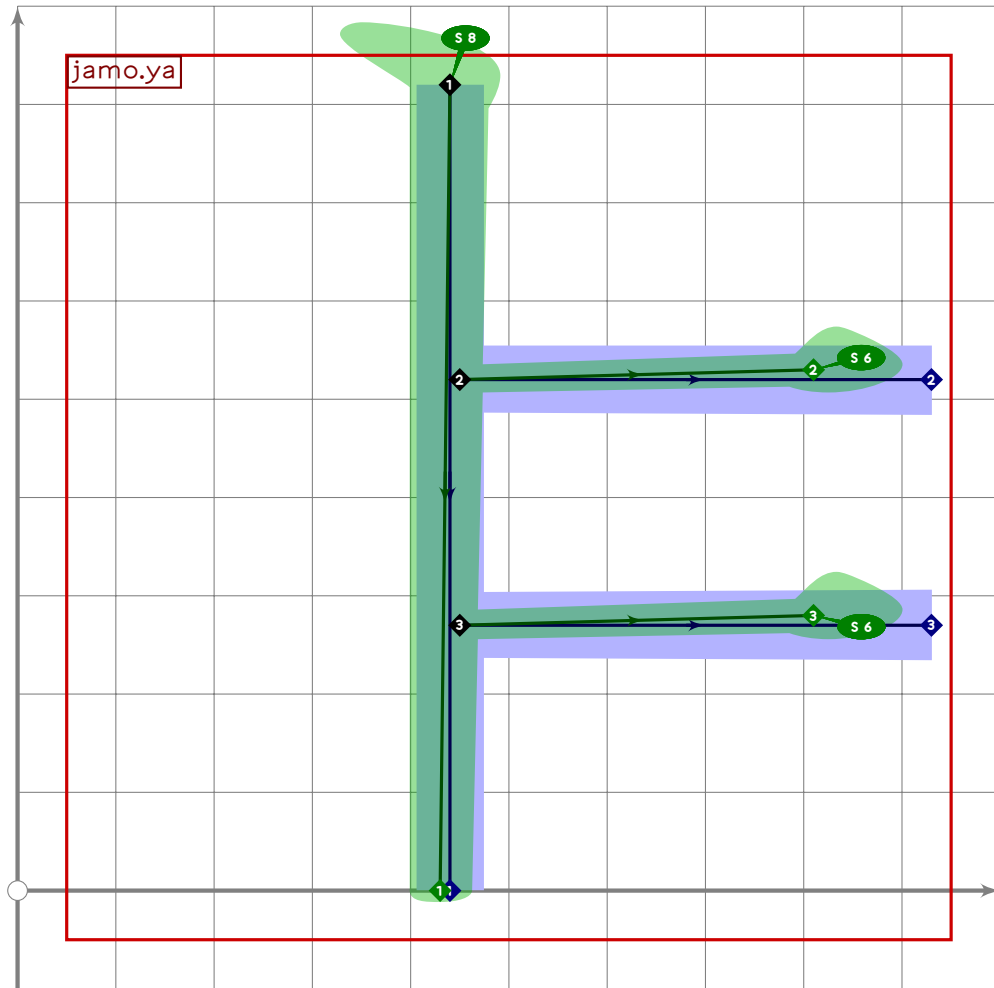
```



```

230 % hangul ae
231 begintuglyph("uni3150",80);
232 hangul.combine.lr(300,320)(whatever;identity;identity);
233 tsu_render;
234 endtsuglyph;
235

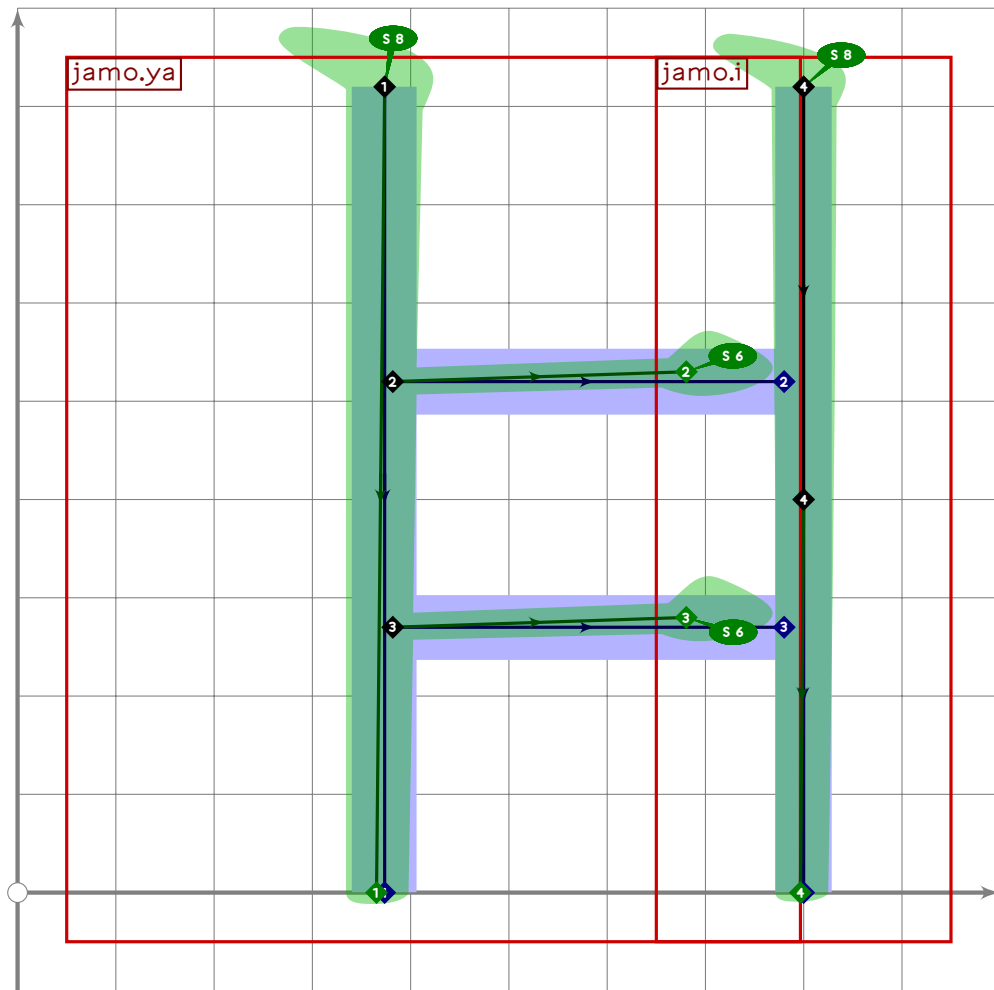
```



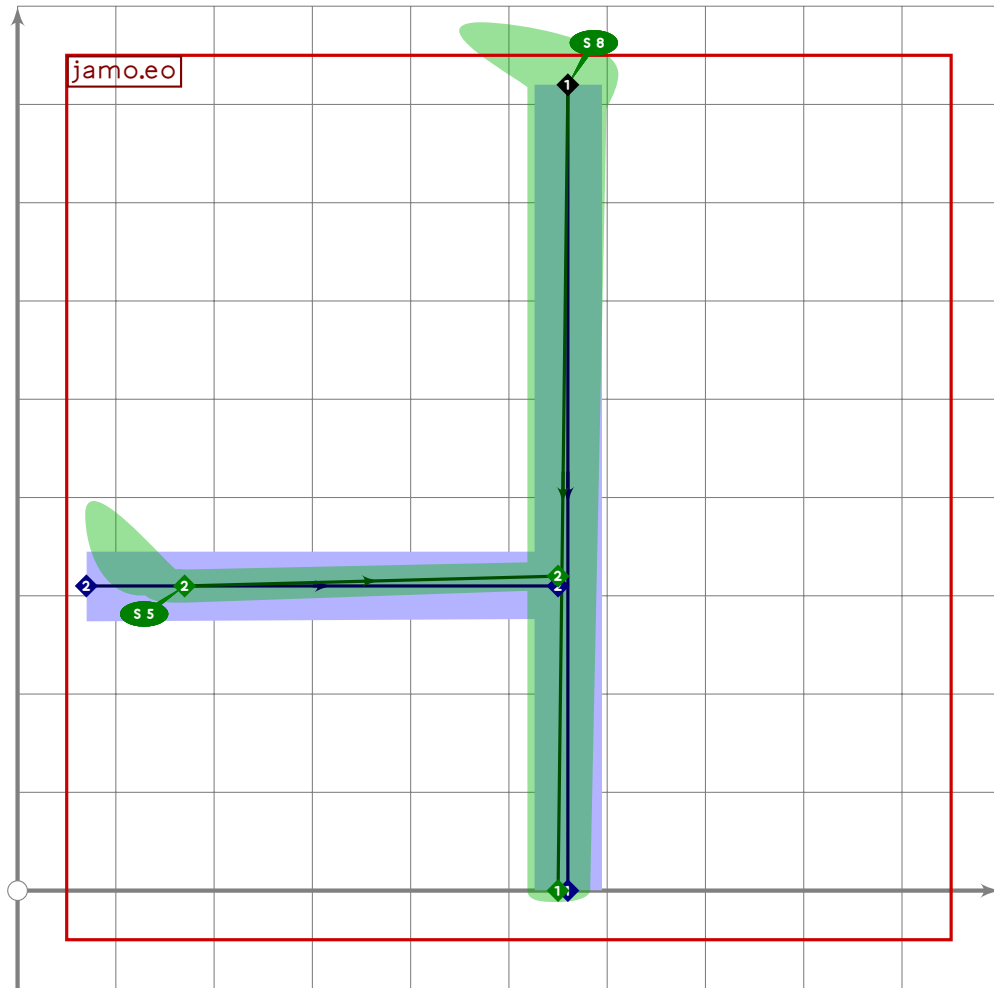
```

236 % hangul ya
237 begint Suglyph("uni3151",81);
238 hangul.jamo.ya(whatever,identity,identity);
239 tsu_render;
240 endtsuglyph;
241

```



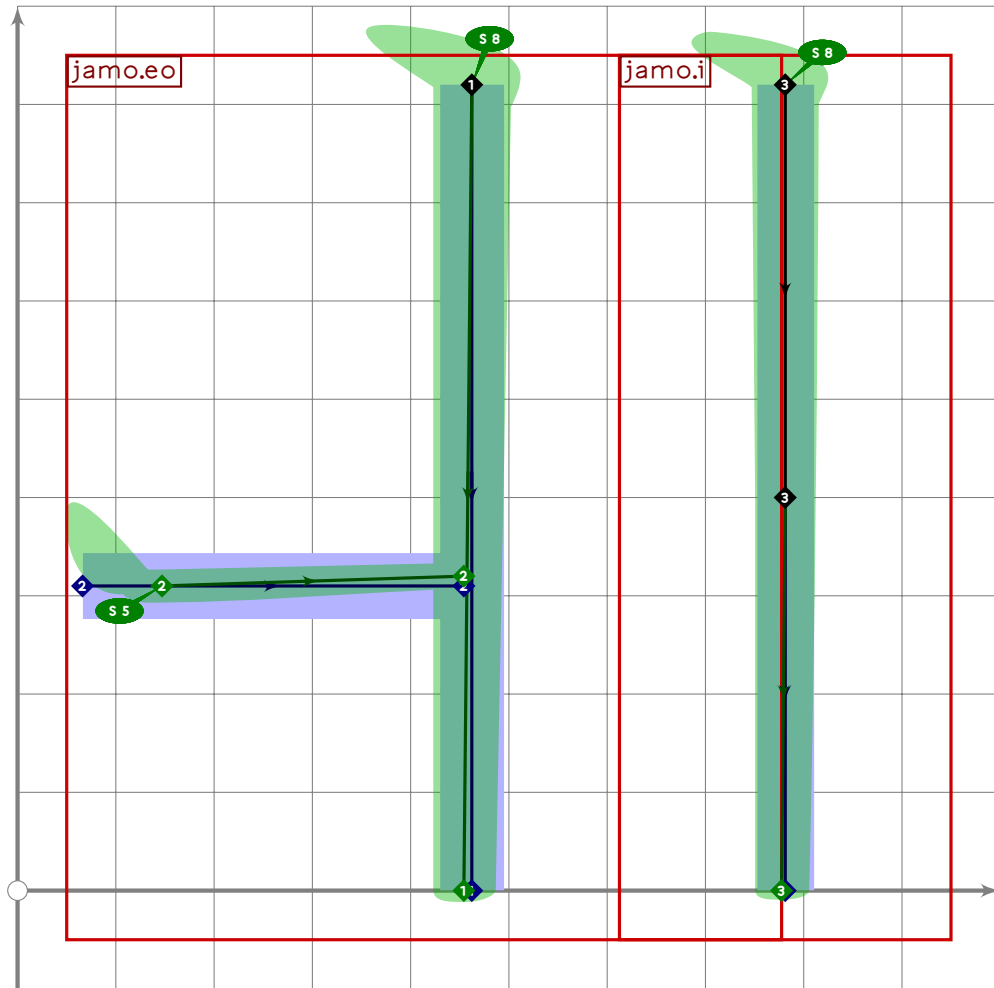
```
242 % hangu yae
243 begintuglyph("uni3152";82);
244 hangu.combine.lr(302,320)(whatever;identity,identity);
245 tsu_render;
246 endtuglyph;
247
```



```

248 % hangul eo
249 begint Suglyph("uni3153",83);
250 hangul.jamo.eo(whatever,identity,identity);
251 tsu_render;
252 endtsuglyph;
253

```

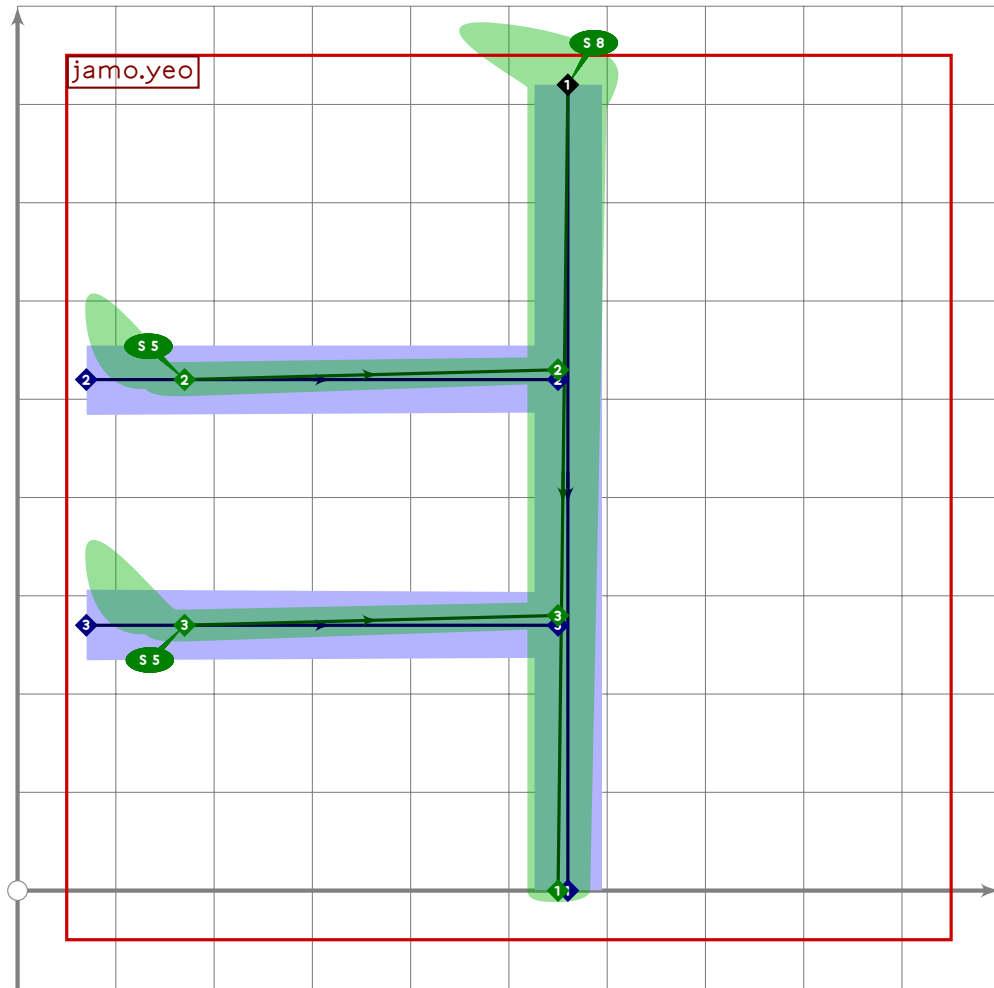


```

254 % hangul e
255 begint Suglyph("uni3154";84);
256 hangul.combine.lr(304,320)(whatever;identity,identity);
257 tsu_render;
258 endtsuglyph;
259

```

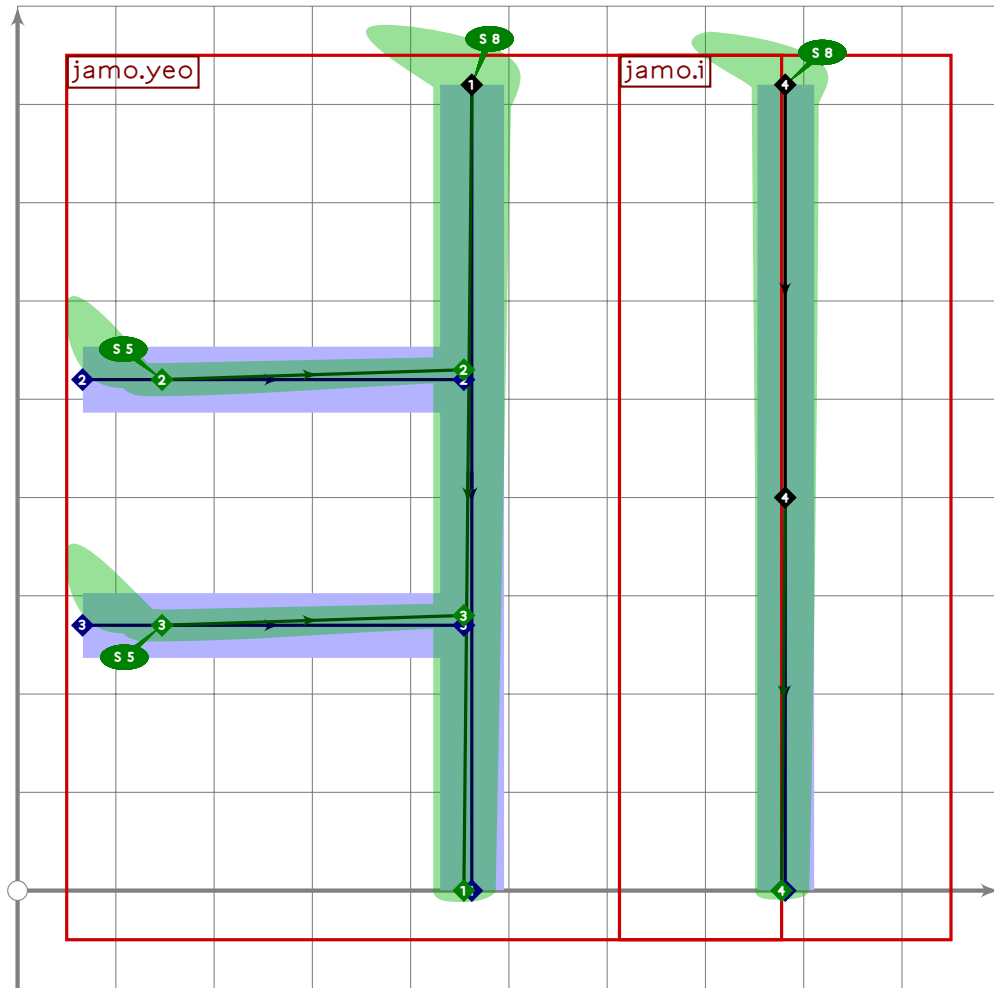




```

260 % hangul yeo
261 begint Suglyph("uni3155",85);
262 hangul.jamo.yeo(whatever,identity,identity);
263 tsu_render;
264 endtsuglyph;
265

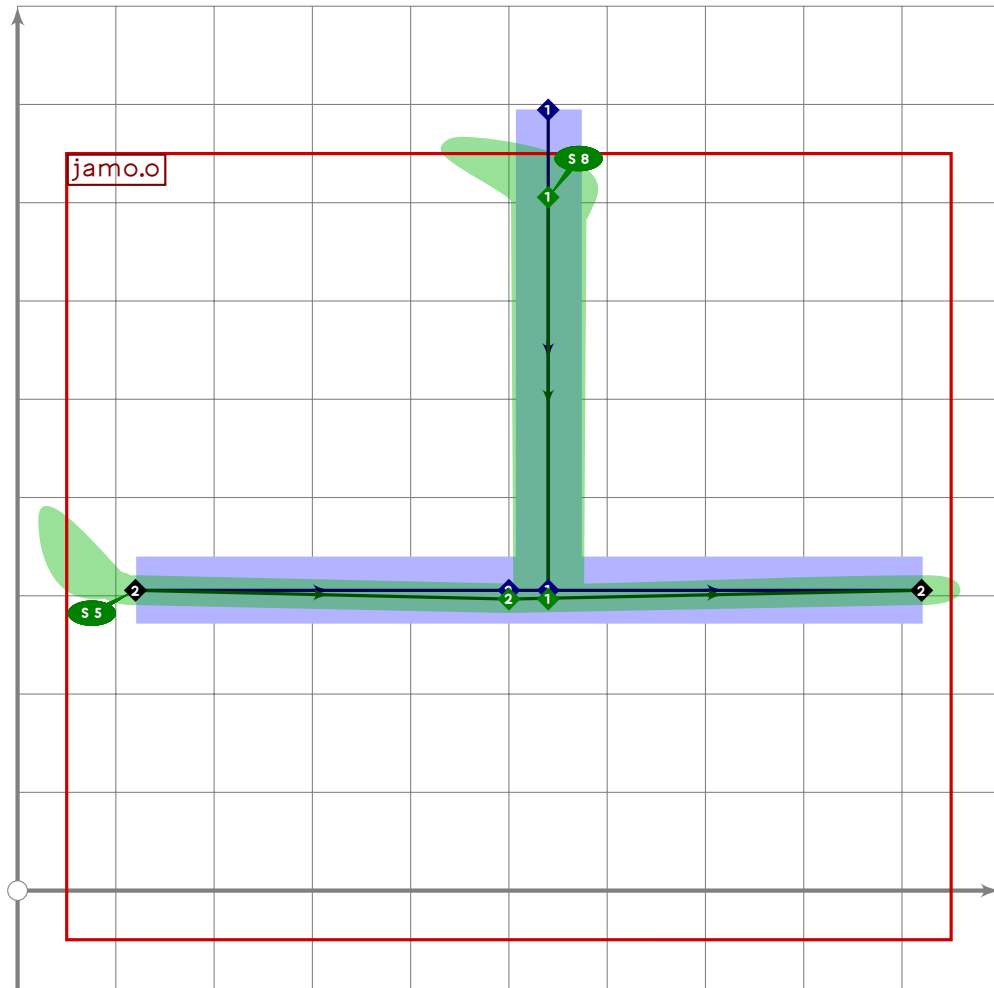
```



```

266 % hangul ye
267 begintsuglyph("uni3156",86);
268 hangul.combine.lr(306,320)(whatever,identity,identity);
269 tsu_render;
270 endtsuglyph;
271

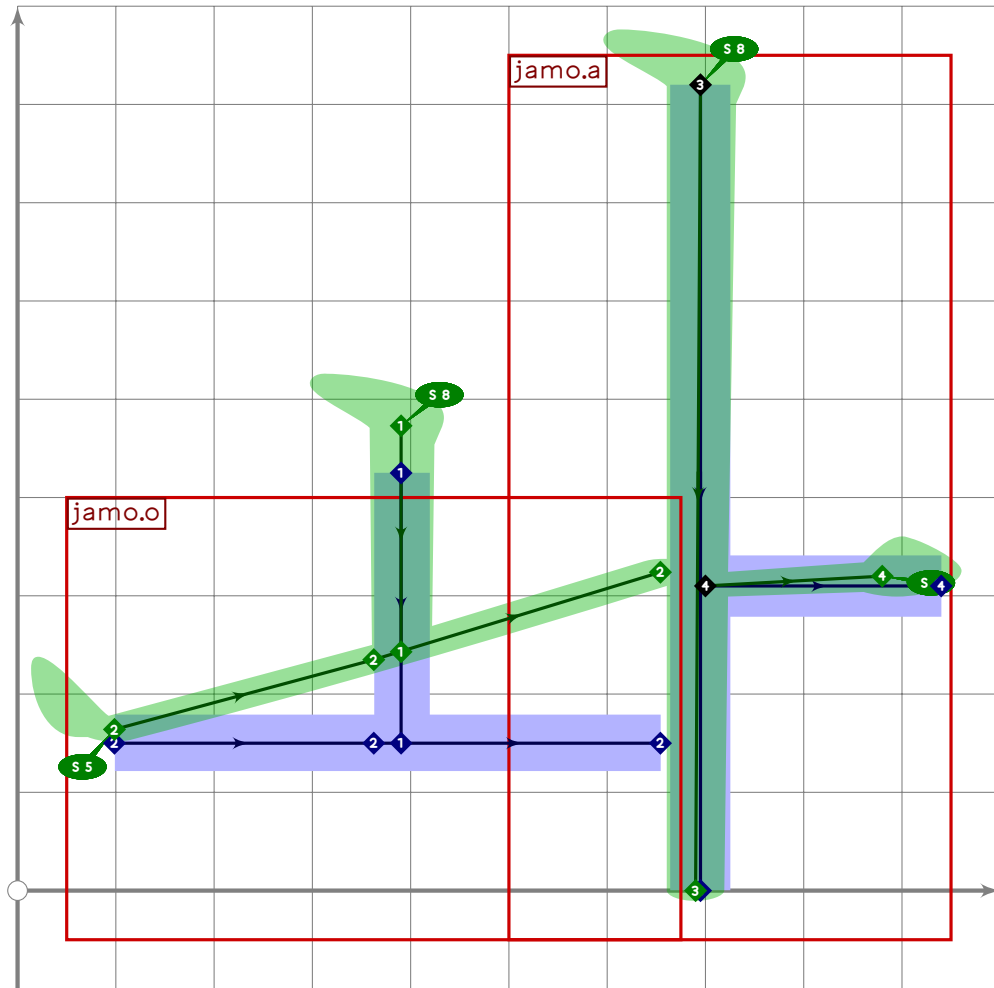
```



```

272 % hangul o
273 begint Suglyph("uni3157";87);
274 hangul.jamo.o(whatever,identity,identity);
275 tsu_render;
276 endtsuglyph;
277

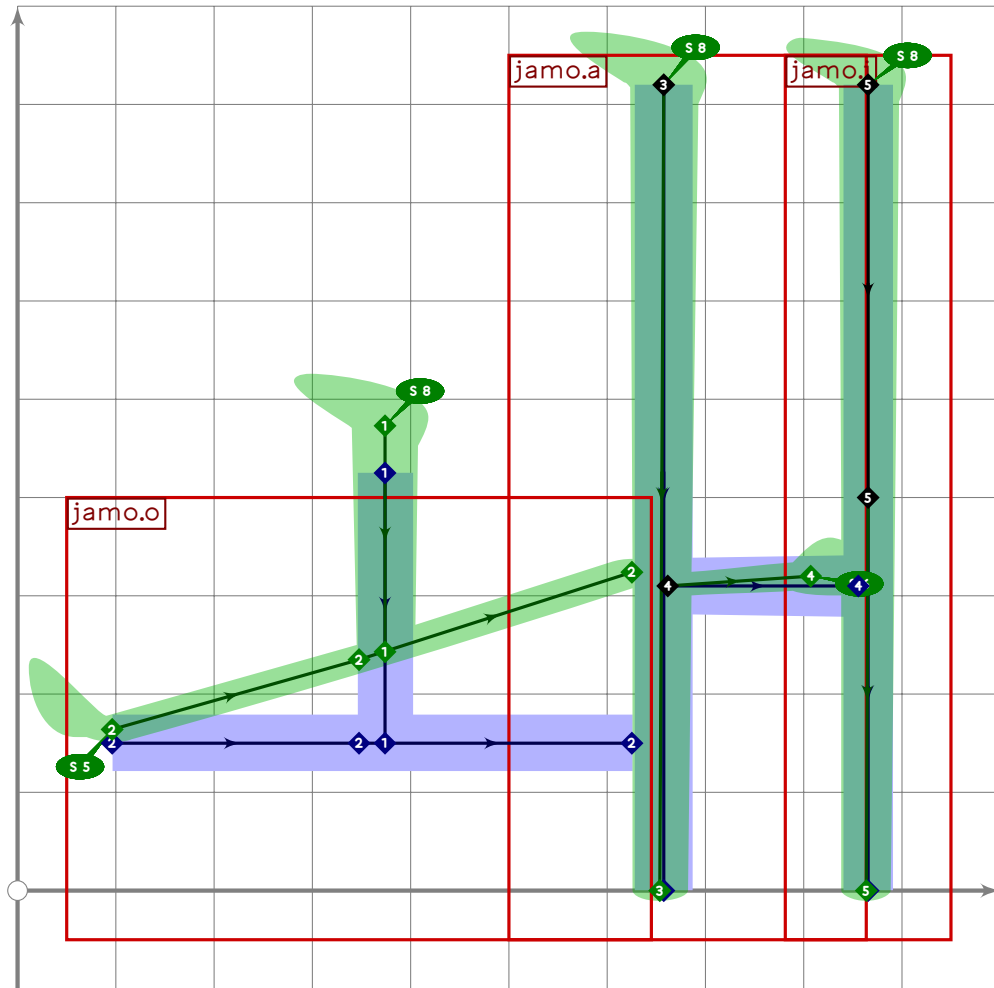
```



```

278 % hangul wa
279 begintuglyph("uni3158",88);
280 hangul.combine.lr(308,300)(309,hxf((500,400),(950,-50)),identity);
281 tsu_render;
282 endtuglyph;
283

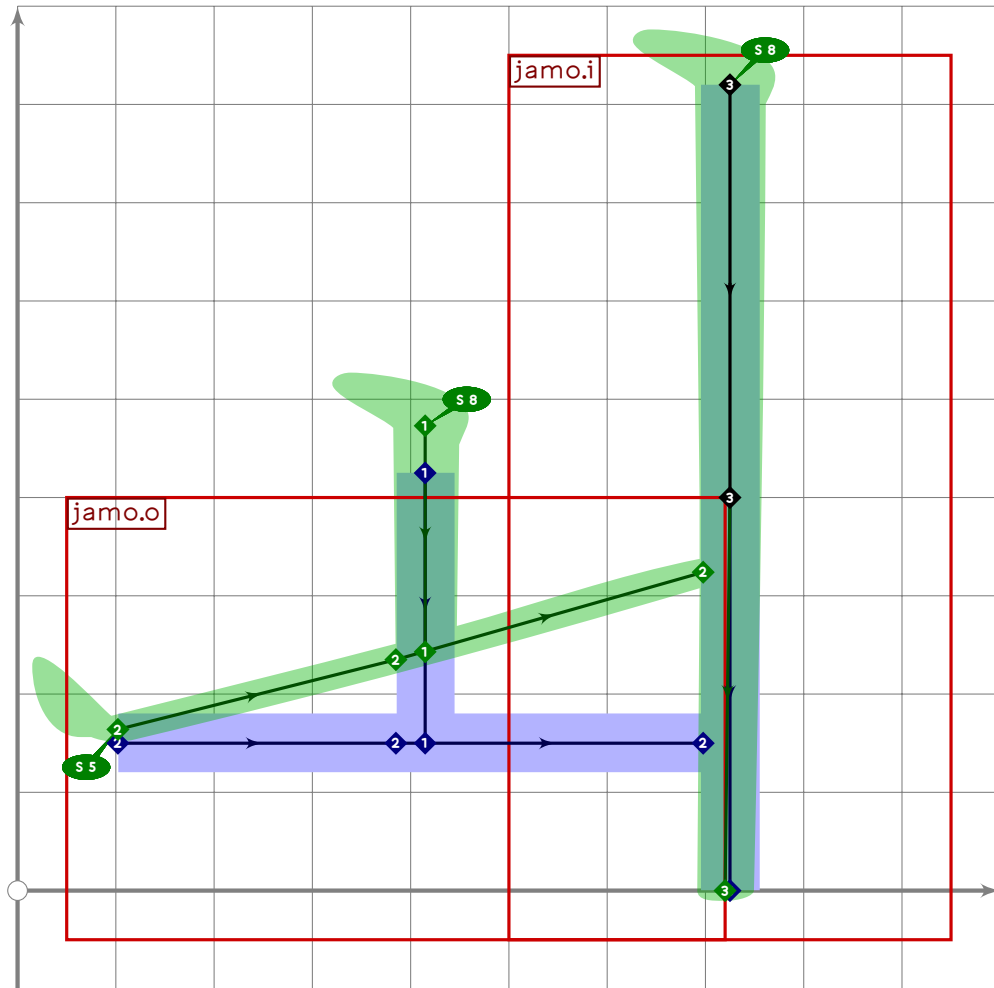
```



```

284 % hangul wae
285 begint Suglyph("uni3159",89);
286 hangul.combine.lr(308,301)(310,hxf((500,400),(950,-50)),identity);
287 tsu_render;
288 endsuglyph;
289

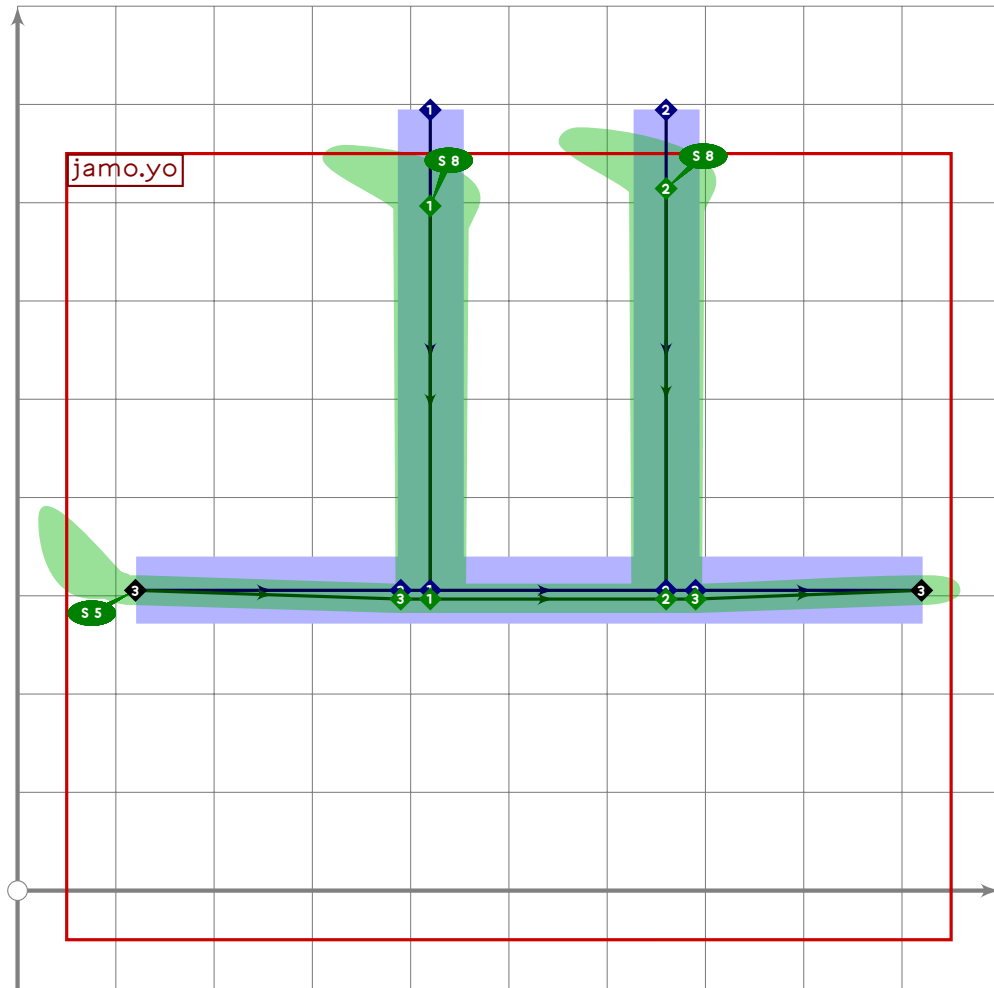
```



```

290 % hangul oe
291 begint Suglyph("uni315A";90);
292 hangul.combine.lr(308,320)(311,hxf((500,400),(950,-50)),identity);
293 tsu_render;
294 endtsuglyph;
295

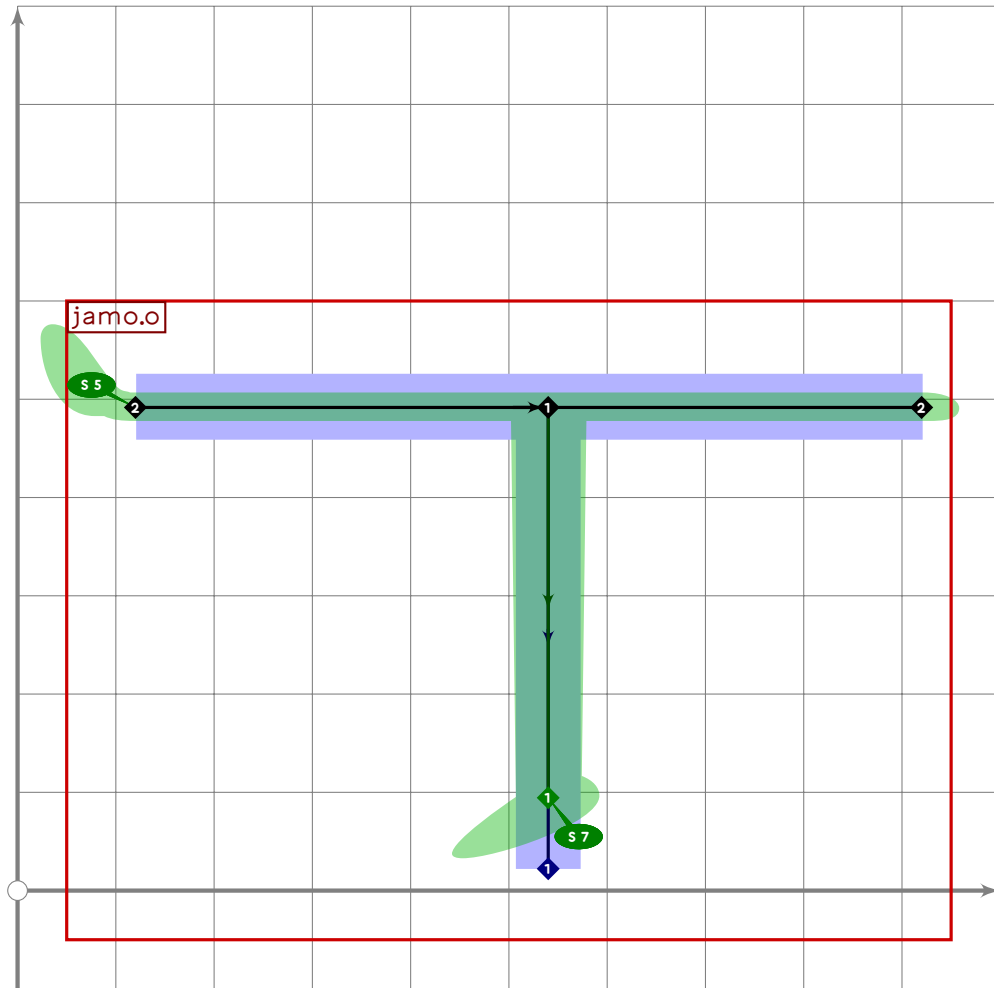
```



```

296 % hangul yo
297 begint Suglyph("uni315B";91);
298 hangul.jamo.yo(whatever;identity,identity);
299 tsu_render;
300 endtsuglyph;
301

```

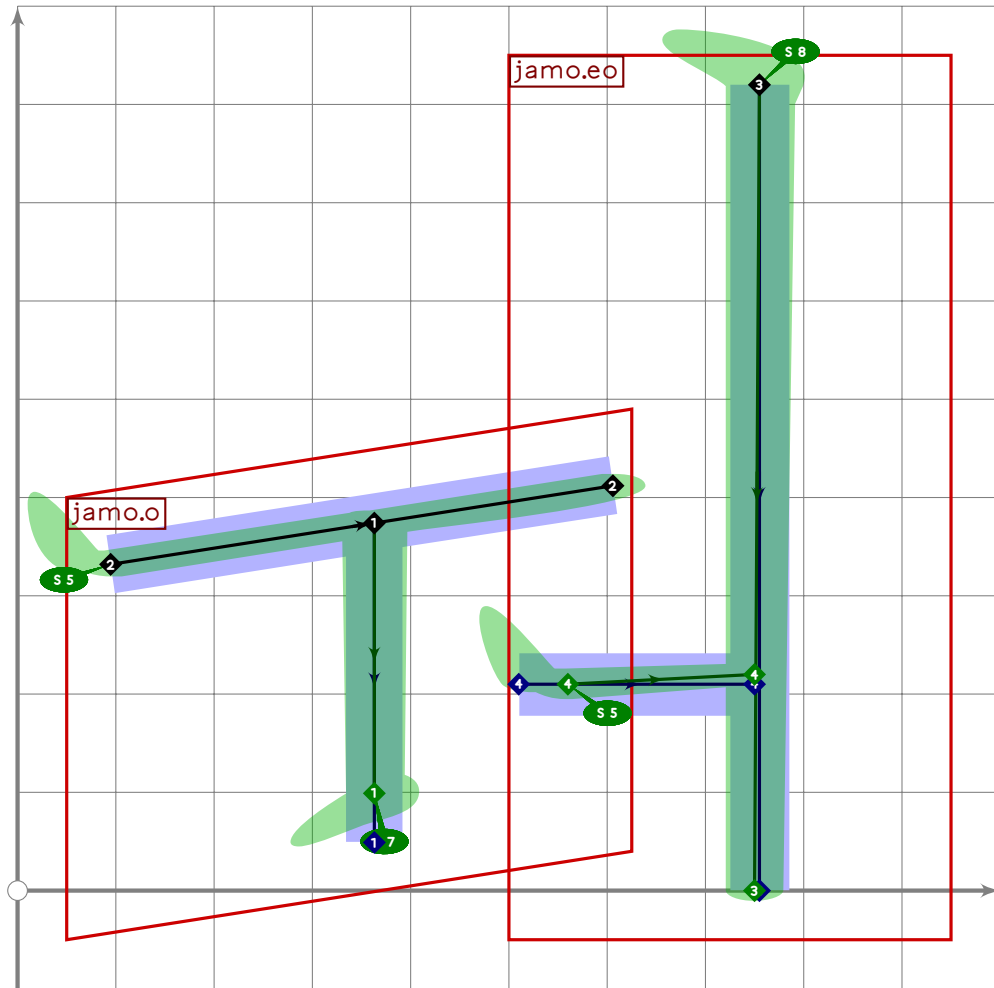


```

302 % hangul u
303 begint Suglyph("uni315C";92);
304 hangul.jamo.u(whatever,identity,identity);
305 tsu_render;
306 endtsuglyph;
307

```

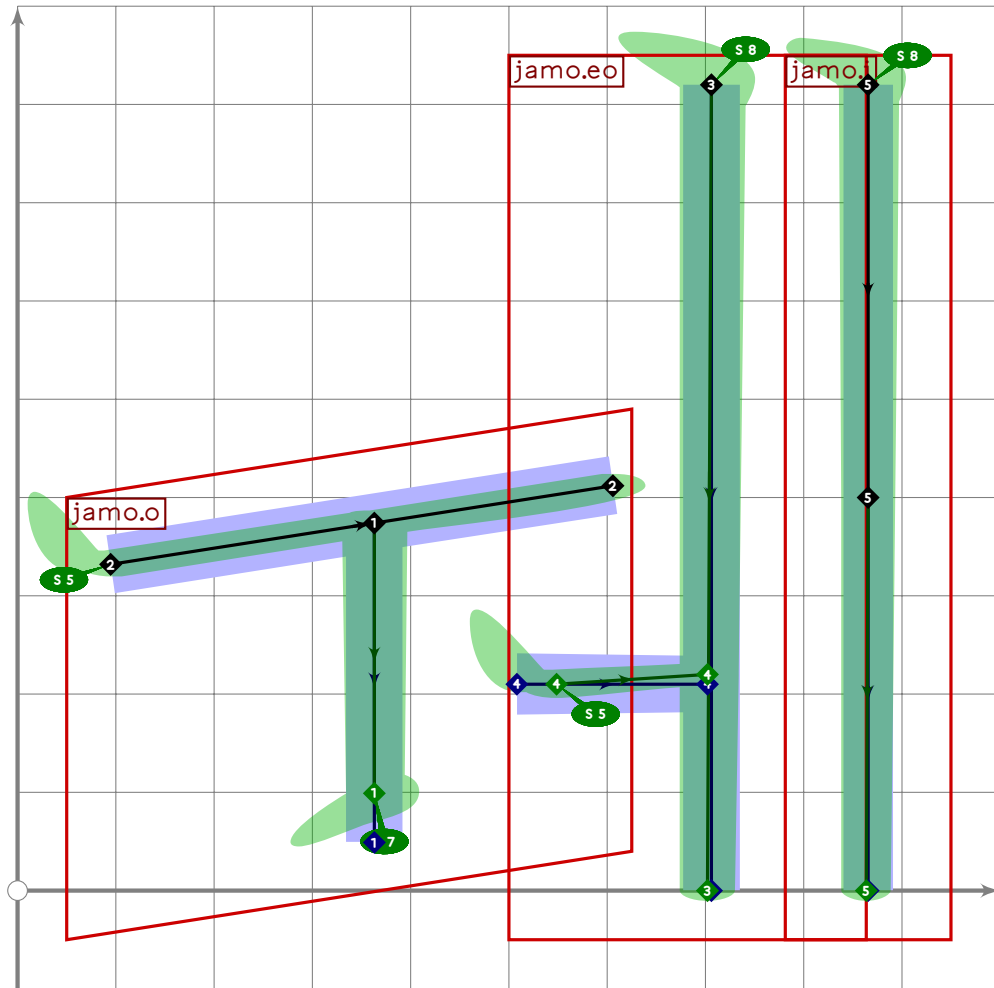




```

308 % hangul weo
309 begint Suglyph("uni315D",93);
310 hangul.combine.lr(313,304)(314,hxf((500,400),(950,-50)),identity);
311 tsu_render;
312 endsuglyph;
313

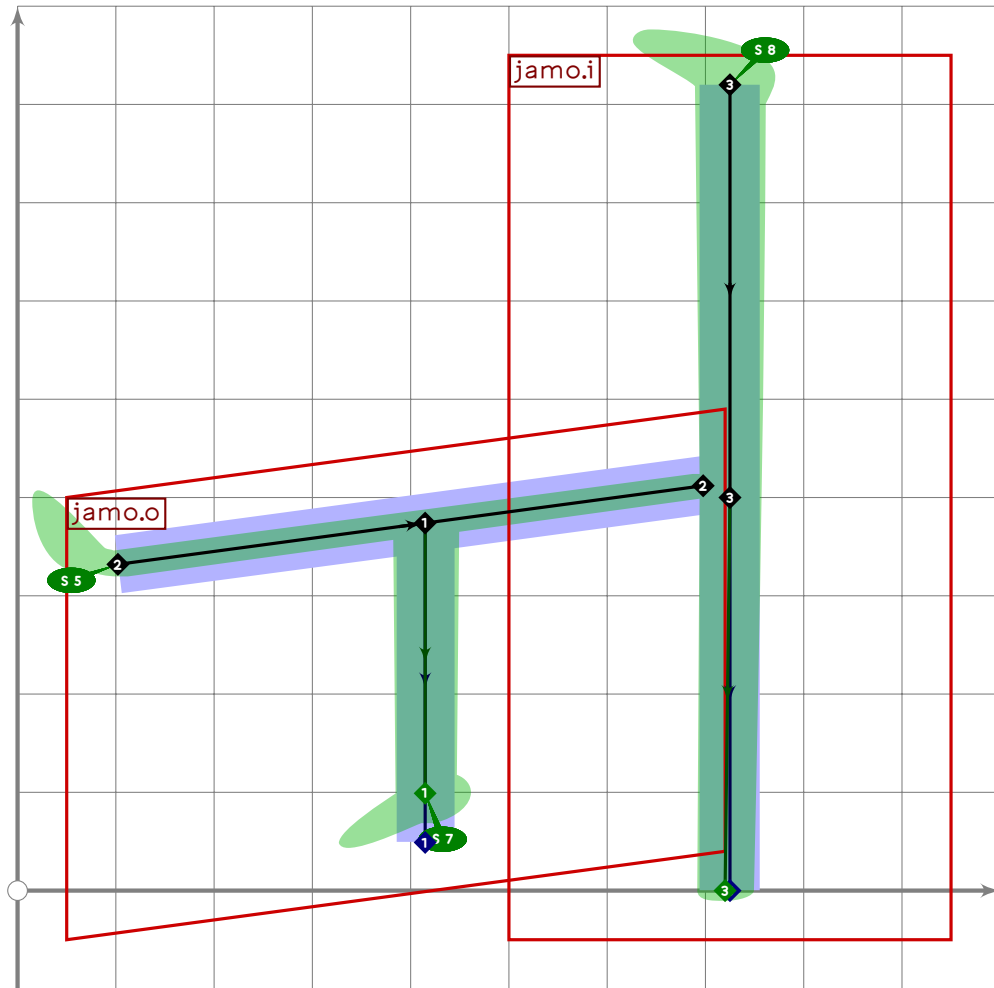
```



```

314 % hangul we
315 begintsuglyph("uni315E",94);
316 hangul.combine.lr(313,305)(315,hxf((500,400),(950,-50)),identity);
317 tsu_render;
318 endsuglyph;
319

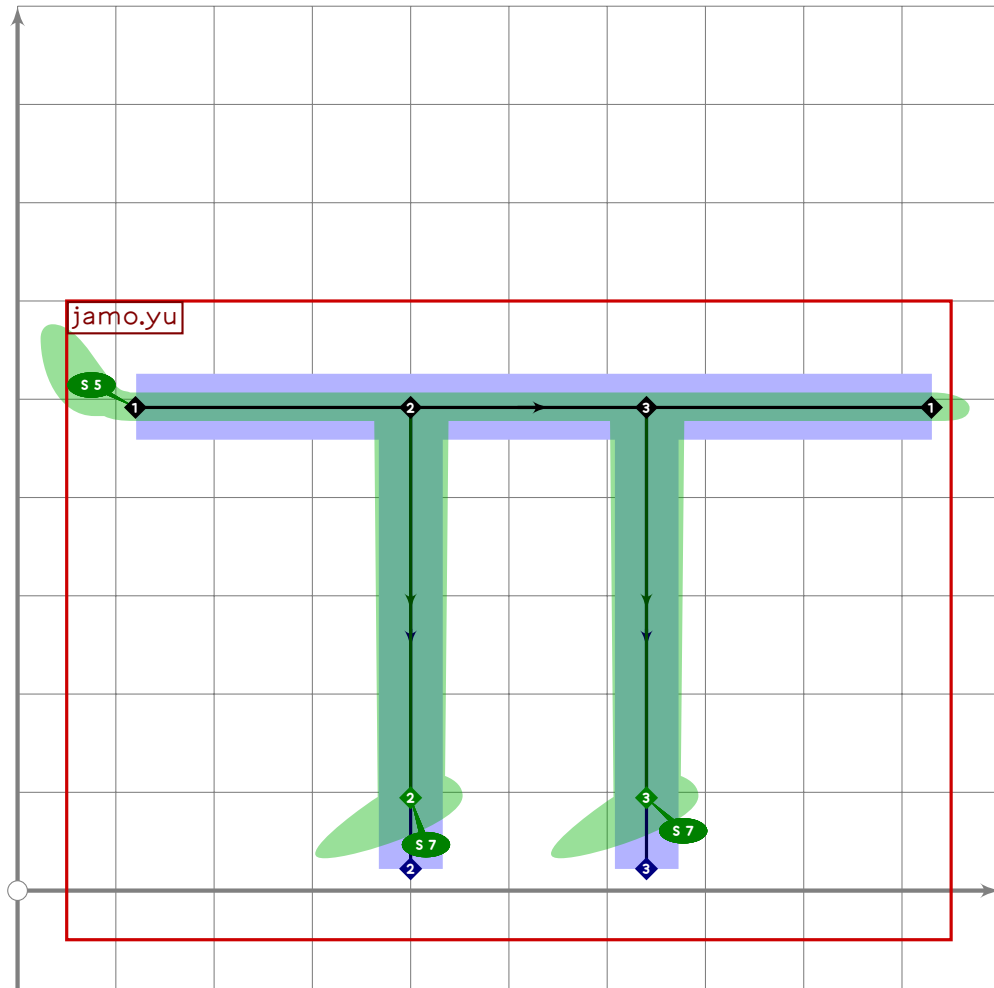
```



```

320 % hangul wi
321 begint Suglyph("uni315F";95);
322 hangul.combine.lr(313,320)(316,hxf((500,400),(950,-50)),identity);
323 tsu_render;
324 endtsuglyph;
325

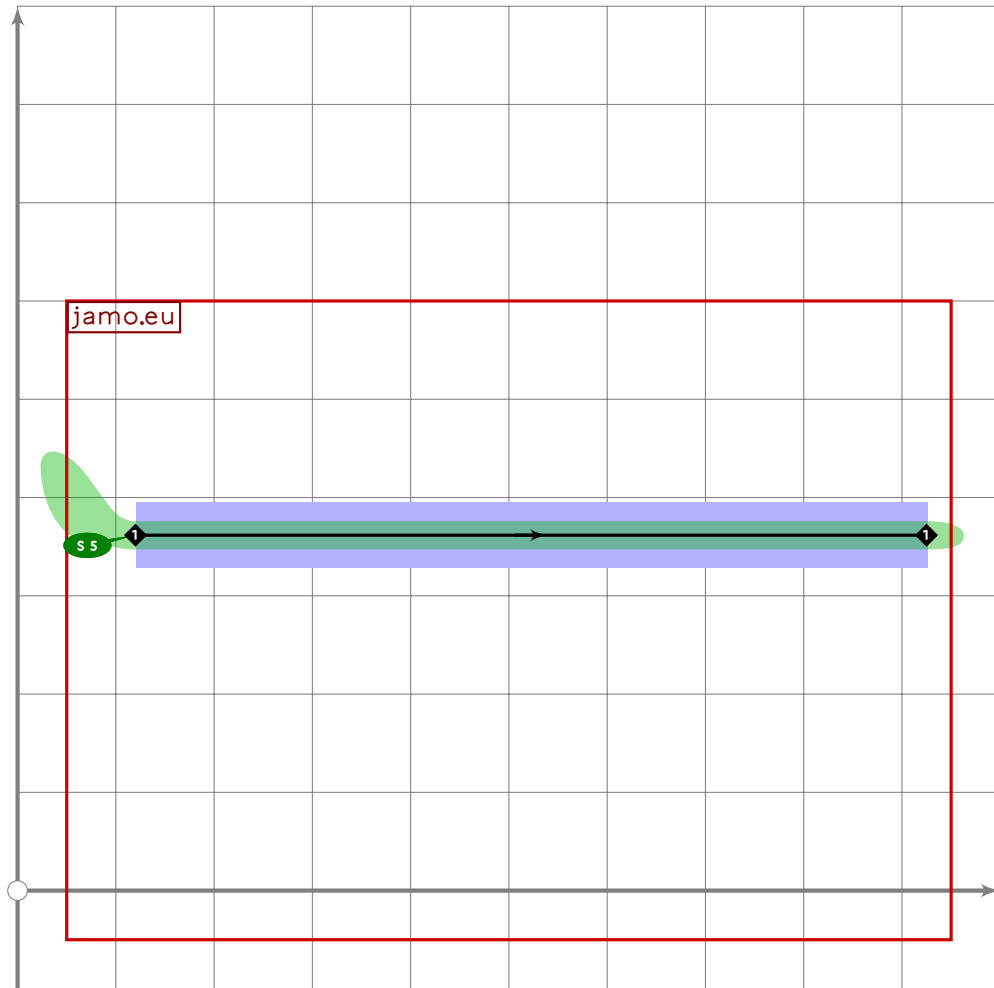
```



```

326 % hangul yu
327 begint Suglyph("uni3160",96);
328 hangul.jamo.yu(whatever,identity,identity);
329 tsu_render;
330 endtsuglyph;
331

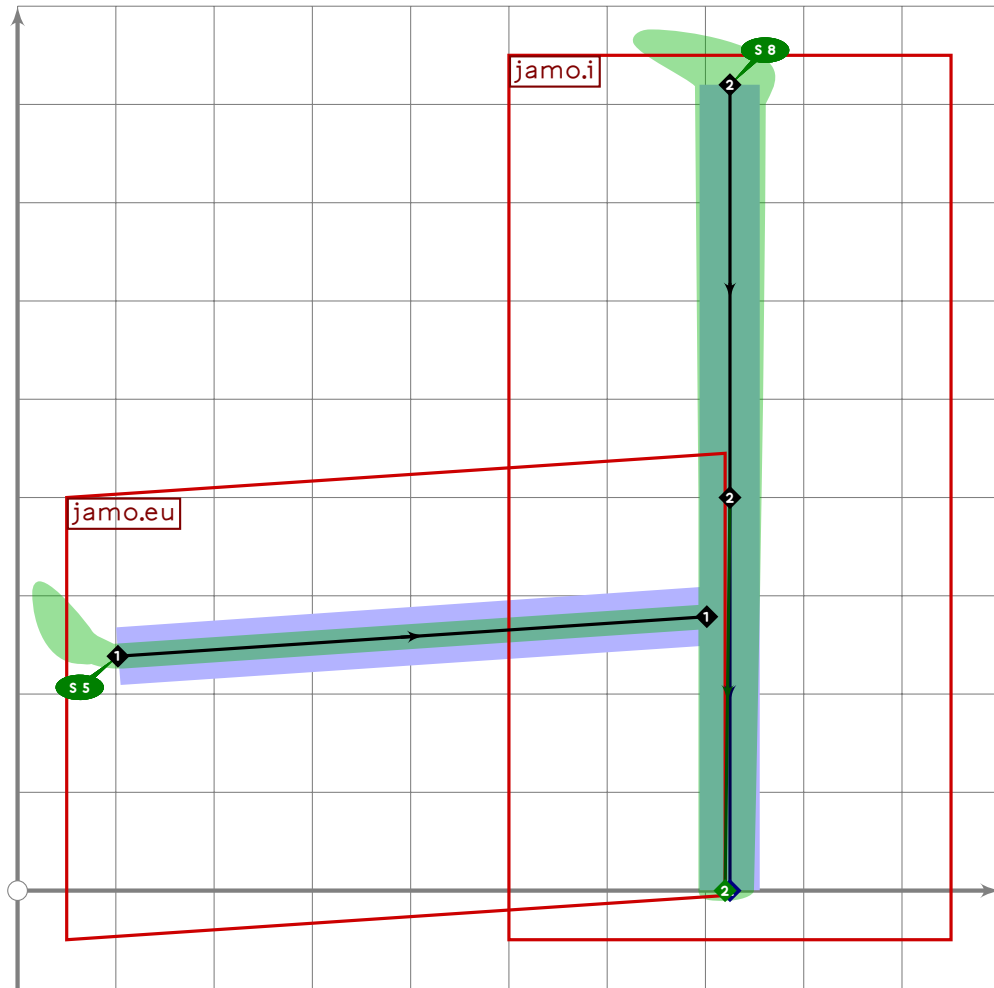
```



```

332 % hangul eu
333 begint Suglyph("uni3161";97);
334 hangul.jamo.eu(whatever,identity,identity);
335 tsu_render;
336 endtsuglyph;
337

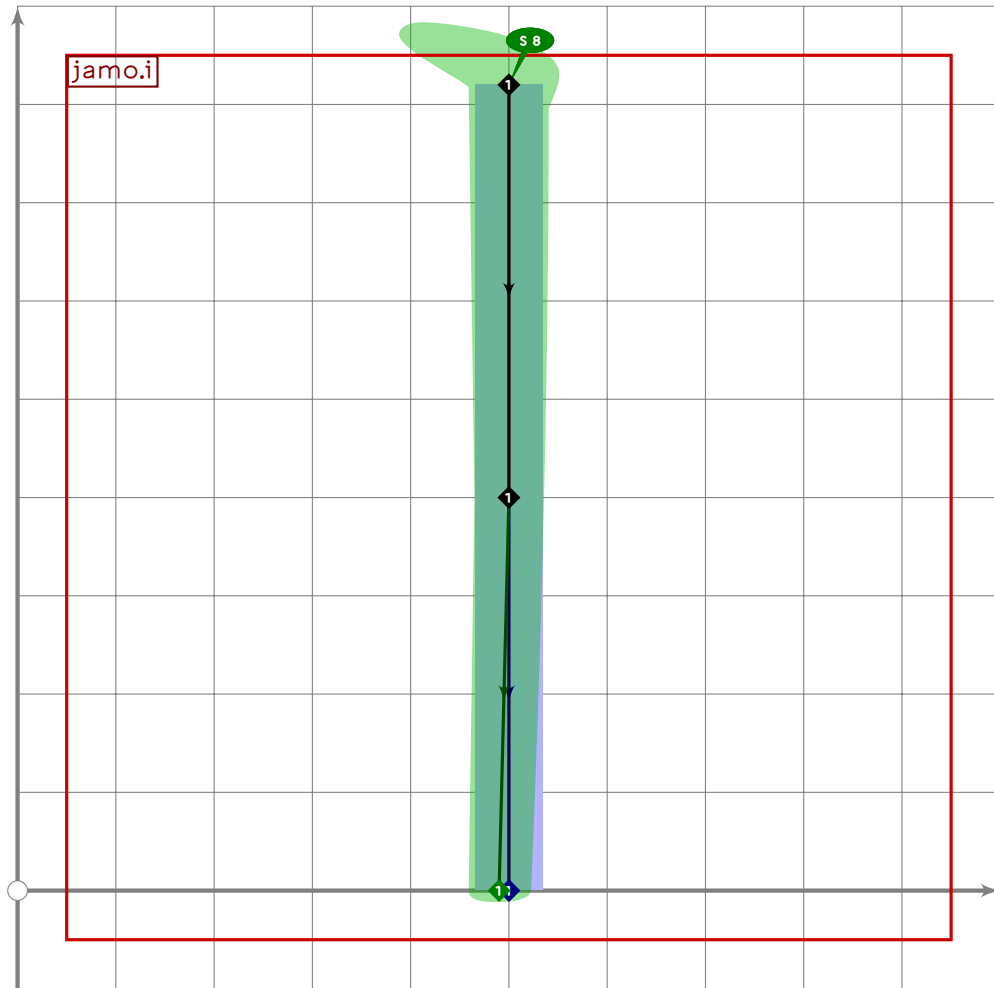
```



```

338 % hangul yi
339 begint Suglyph("uni3162",98);
340 hangul.combine.lr(318,320)(319,hxf((500,400),(950,-50)),identity);
341 tsu_render;
342 endtsuglyph;
343

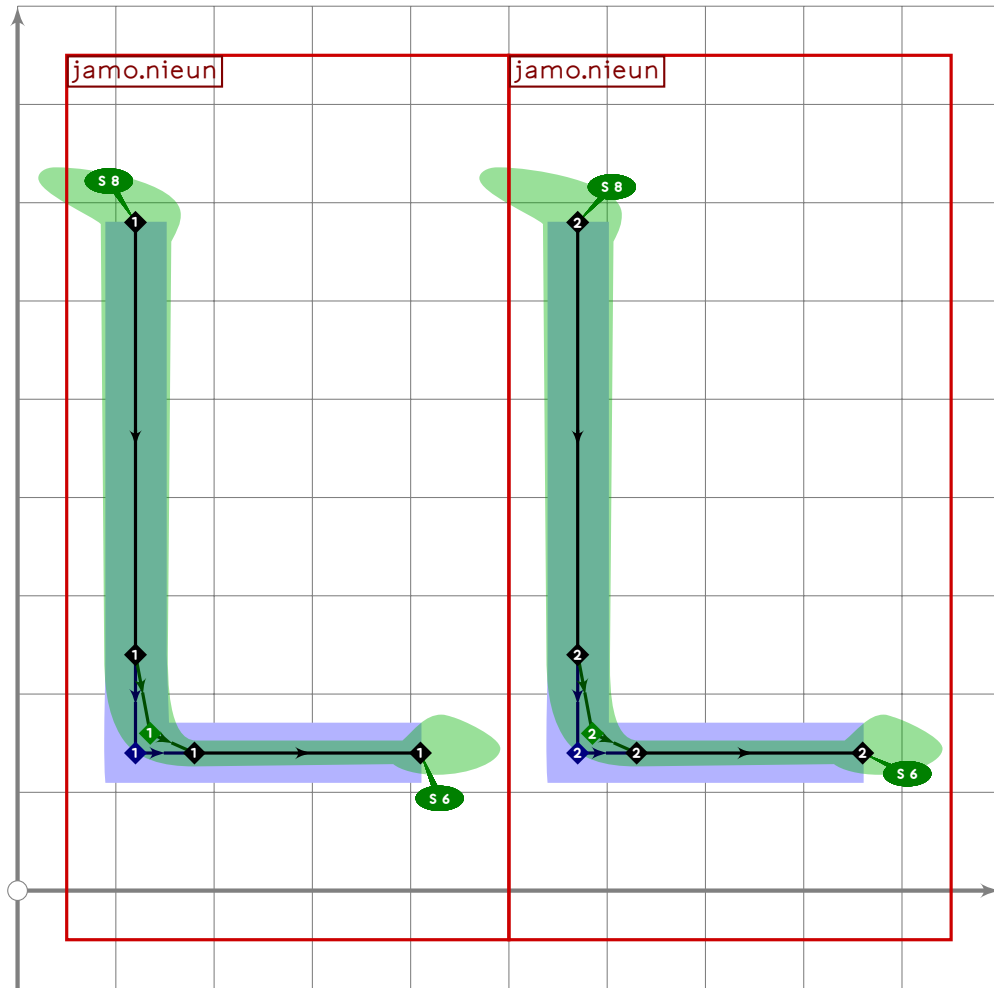
```



```

344 % hangul i
345 begint Suglyph("uni3163";99);
346 hangul.jamo.i(whatever,identity,identity);
347 tsu_render;
348 endtsuglyph;
349
350 % uni3164 is "hangul filler," a full-width space created by external script
351

```

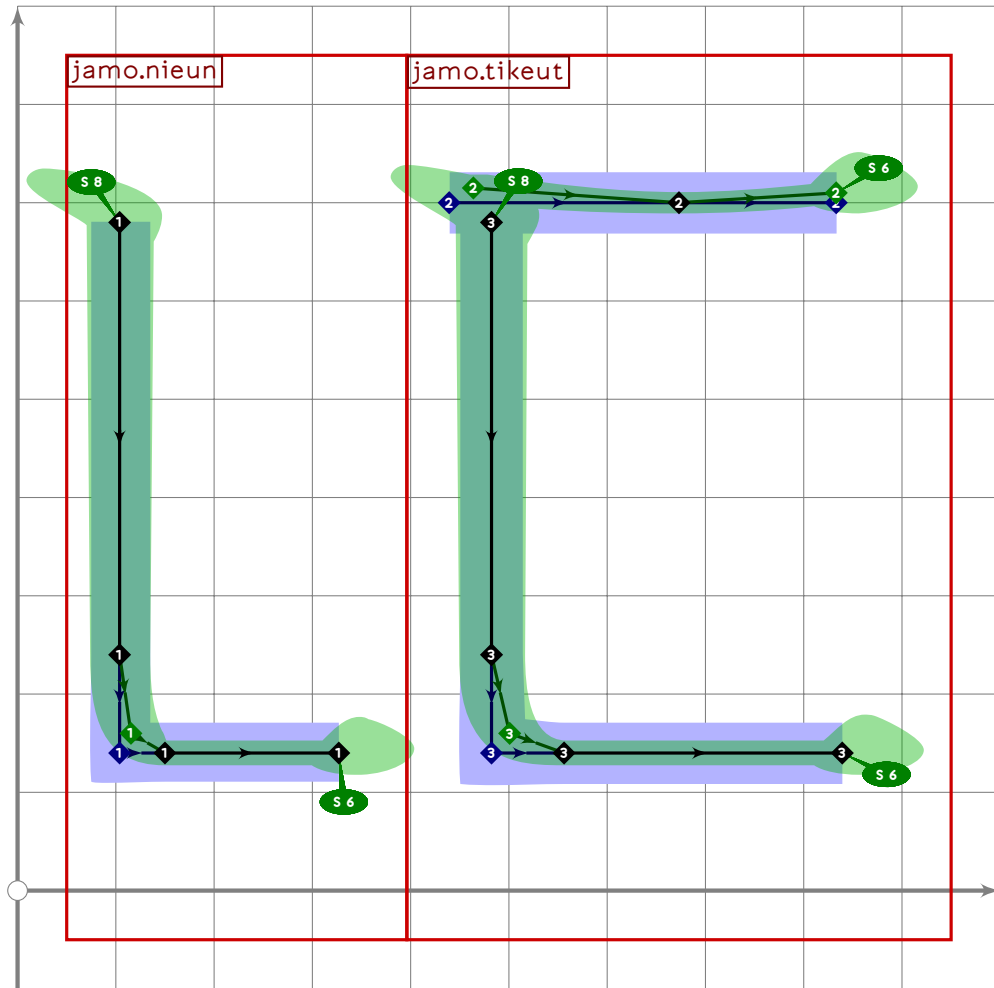


```

352 % hangul ssangnieun
353 begintsuglyph("uni3165",101);
354 hangul.combine.lr(102,102)(whatever,identity,identity);
355 tsu_render;
356 endtsuglyph;
357

```

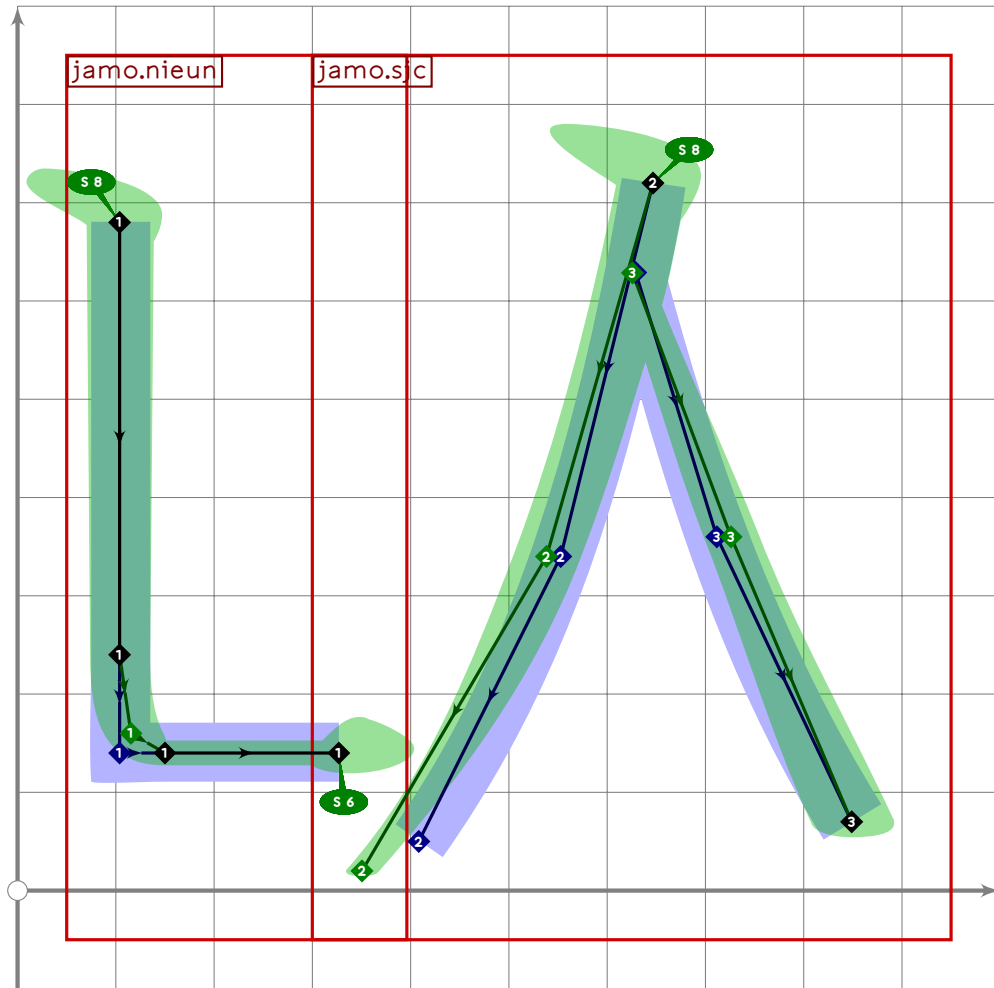




```

358 % hangul nieun-tieuk
359 begint Suglyph("uni3166",102);
360 hangul.combine.lr(102,103)(whatever;identity,identity);
361 tsu_render;
362 endtsuglyph;
363

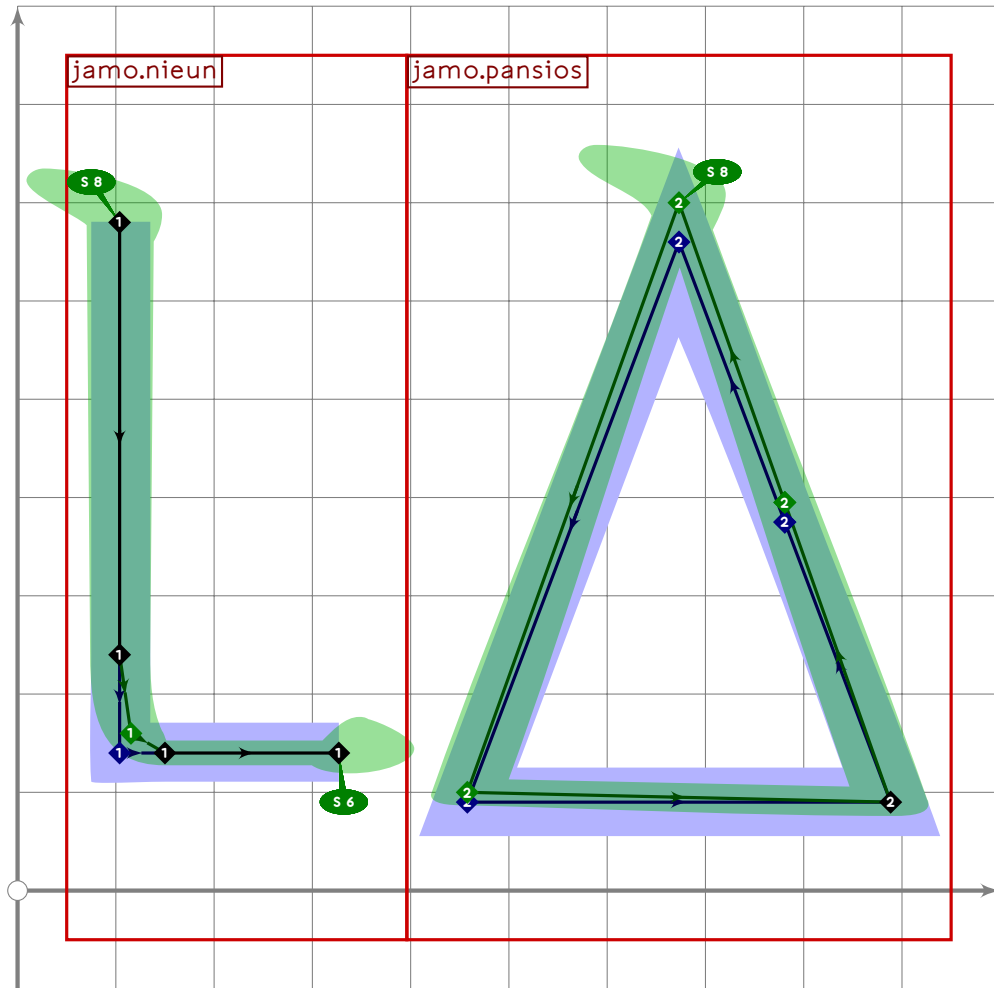
```



```

364 % hangul nieun-sios
365 begintsuglyph("uni3167",103);
366 hangul.combine.lr(102,109)(whatever,identity,identity);
367 tsu_render;
368 endtsuglyph;
369

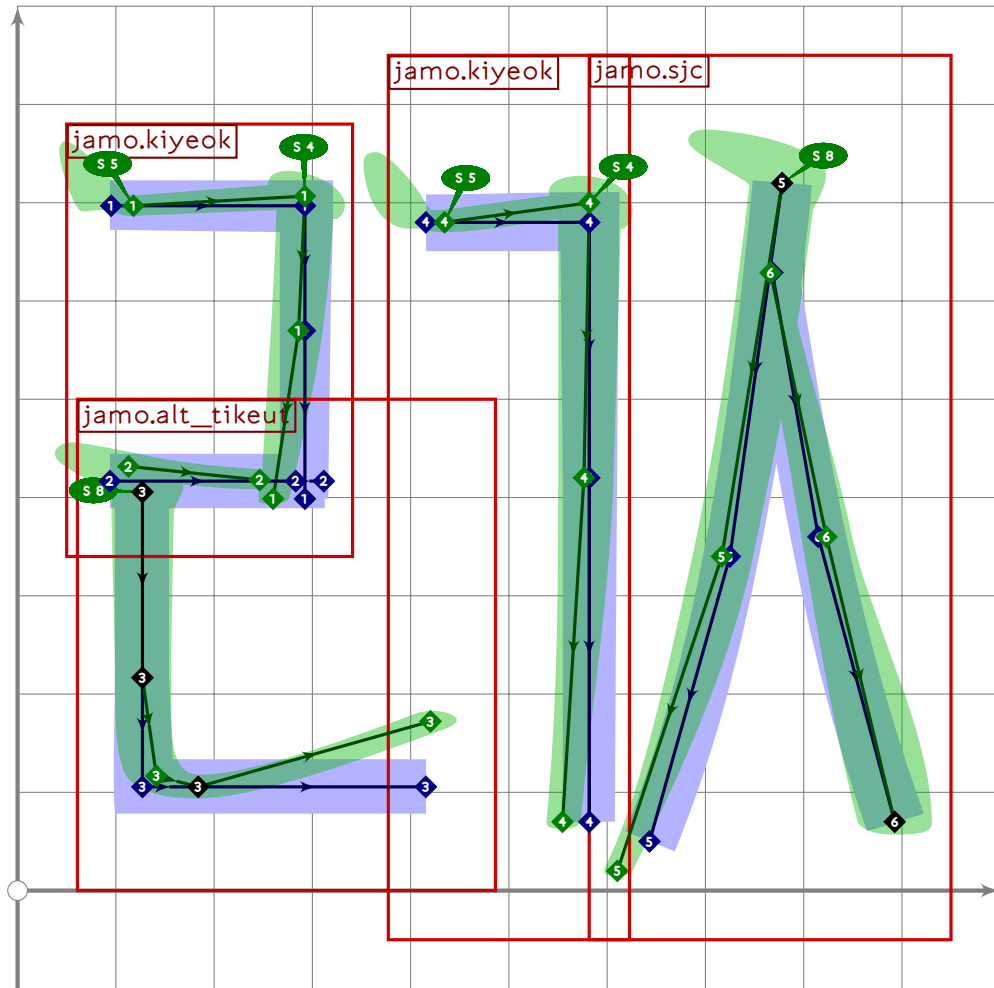
```



```

370 % hangul nieun-pansios
371 begintsuglyph("uni3168",104);
372 hangul.combine.lr(102,219)(whatever,identity,identity);
373 tsu_render;
374 endtsuglyph;
375

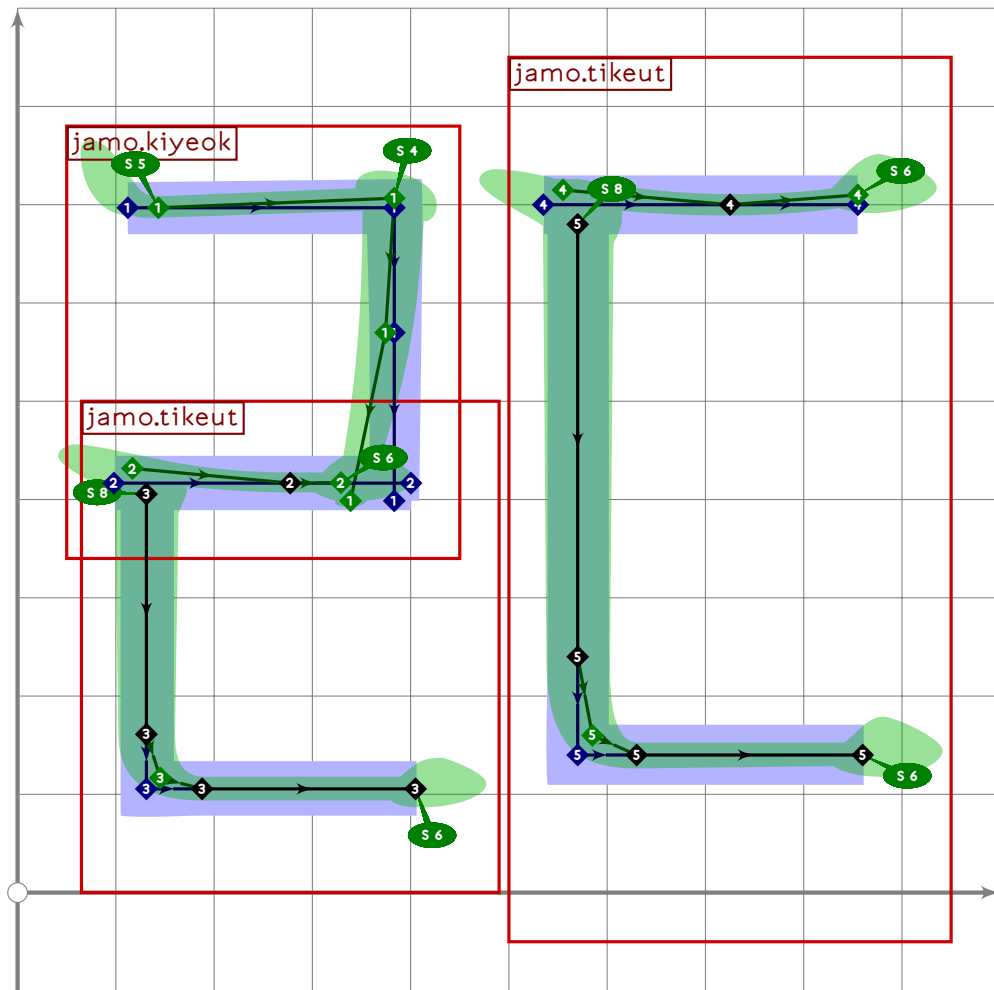
```



```

376 % hangul rieul-kiyeok-sios
377 begint Suglyph("uni3169",105);
378 hangul.combine.lcr(205,100,109)(whatever,identity,identity);
379 tsu_render;
380 endtsuglyph;
381

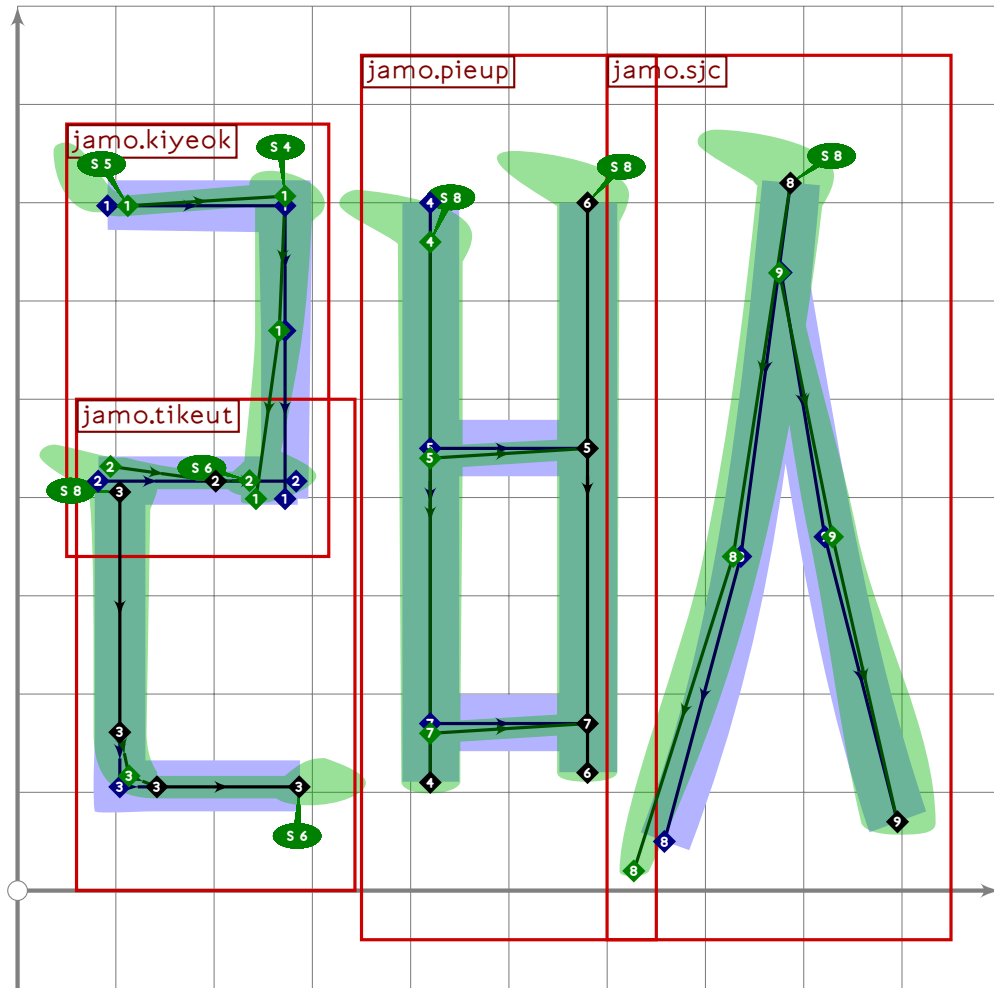
```



```

382 % hangul rieul-tikeut
383 begintsuglyph("uni316A",106);
384 hangul.combine.lr(105,103)(whatever,identity,identity);
385 tsu_render;
386 endtsuglyph;
387

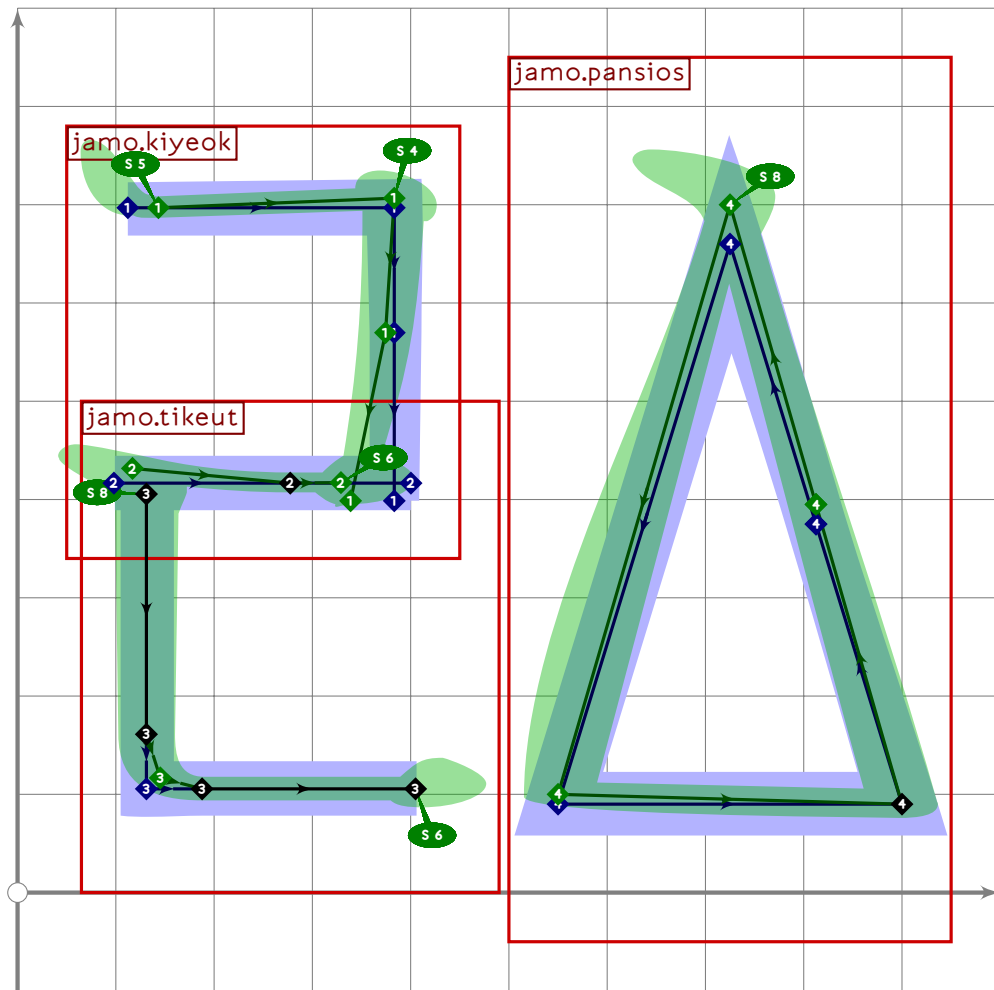
```



```

388 % hangul rieul-pieup-sios
389 begintsuglyph("uni316B",107);
390 hangul.combine.lcr(105,107,109)(whatever,identity,identity);
391 tsu_render;
392 endtsuglyph;
393

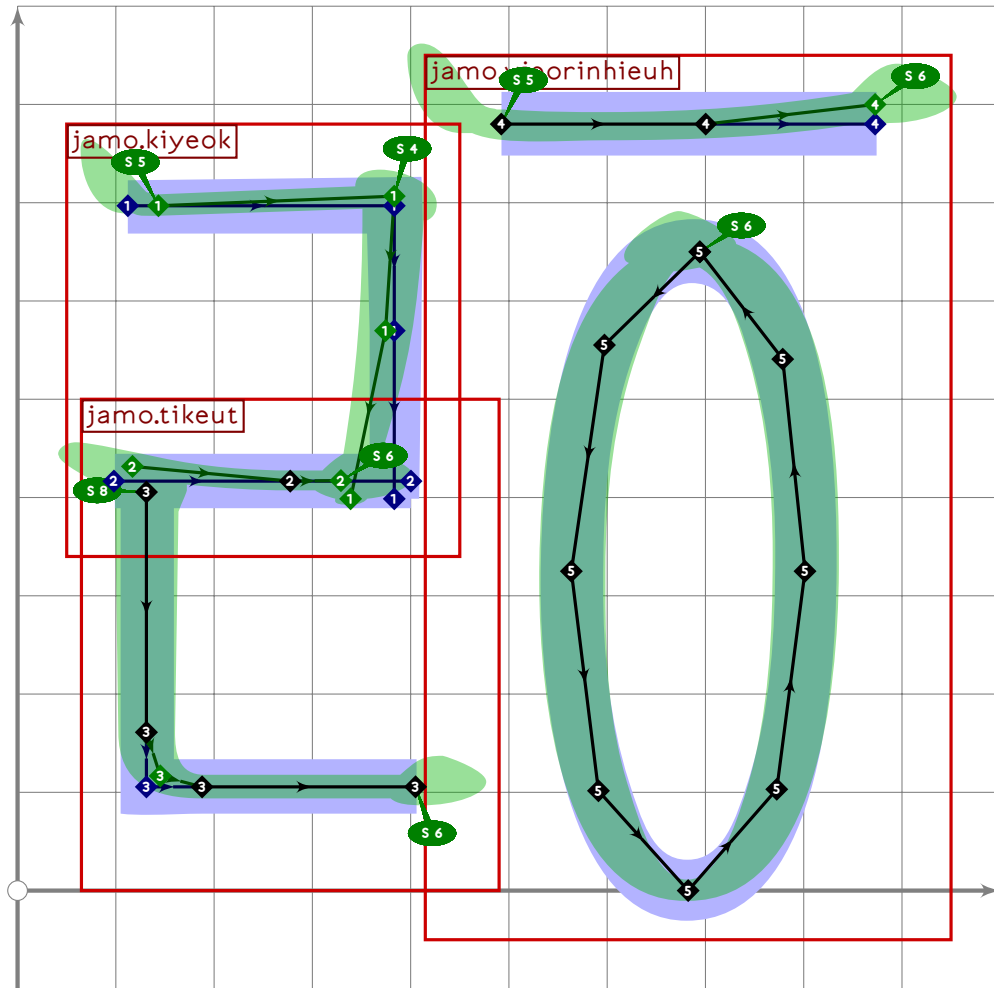
```



```

394 % hangul rieul-pansios
395 begint Suglyph("uni316C";108);
396 hangul.combine.lr(105,219)(whatever;identity,identity);
397 tsu_render;
398 endtsuglyph;
399

```

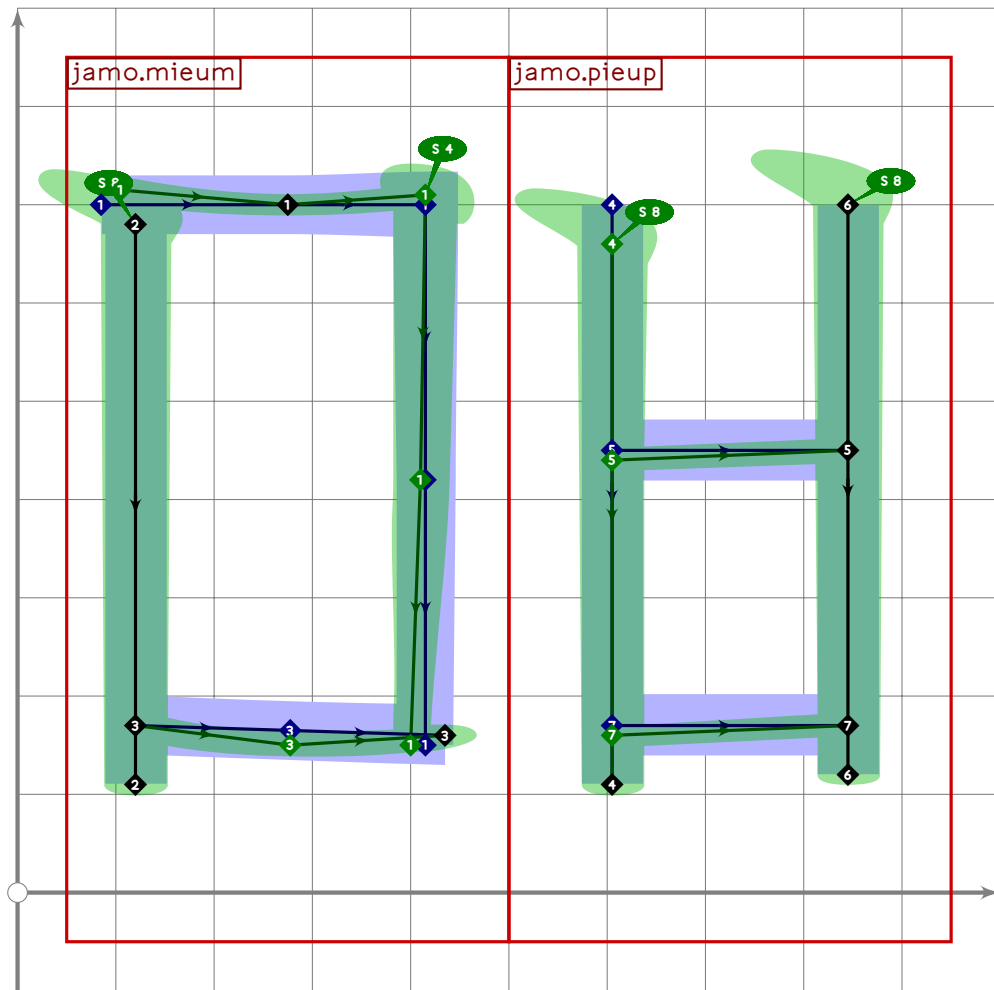


```

400 % hangul rieul-yeorinhieuh
401 begint Suglyph("uni316D",109);
402 hangul.combine.lf(105,221)(whatever;identity;identity);
403 tsu_render;
404 endtsuglyph;
405

```

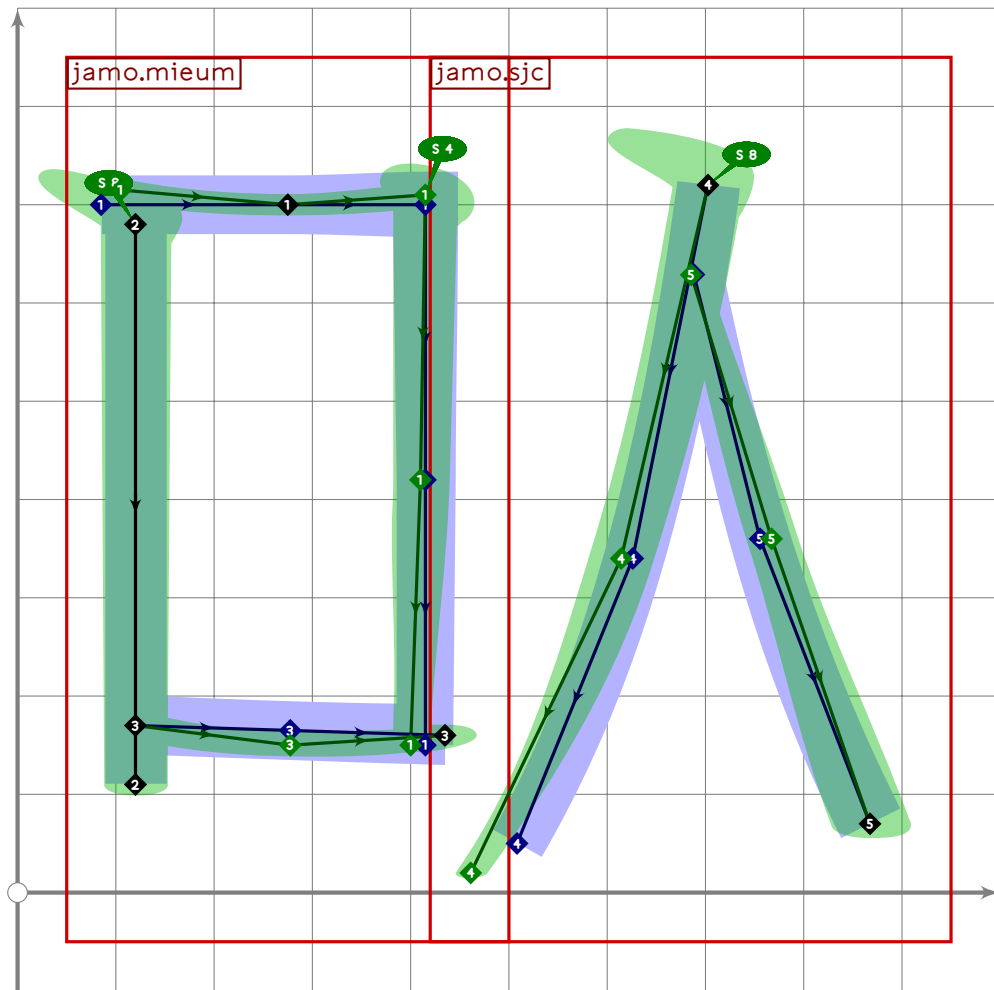




```

406 % hangul mieum-pieup
407 begint Suglyph("uni316E",110);
408 hangul.combine.lr(106,107)(whatever;identity;identity);
409 tsu_render;
410 endtsuglyph;
411

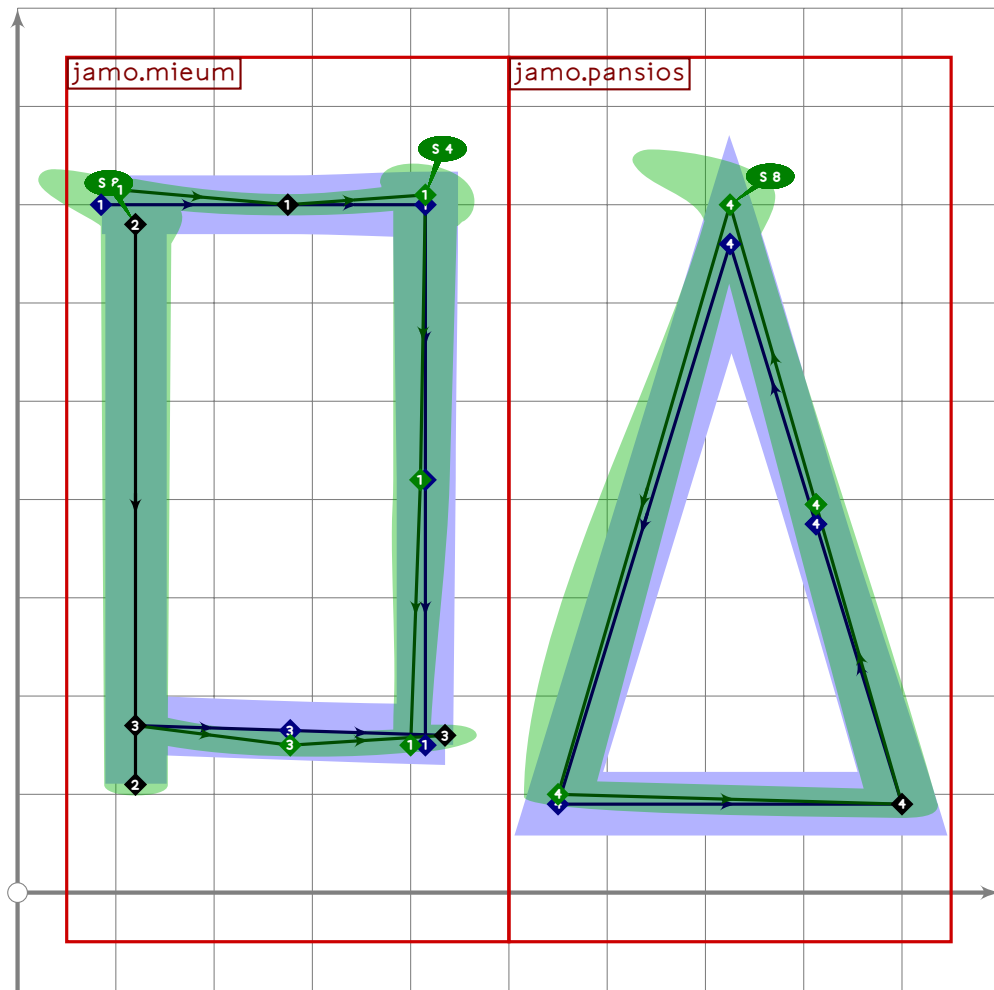
```



```

412 % hangul mieum-sios
413 begint Suglyph("uni316F",111);
414 hangul.combine.lr(106,109)(whatever,identity,identity);
415 tsu_render;
416 endtsuglyph;
417

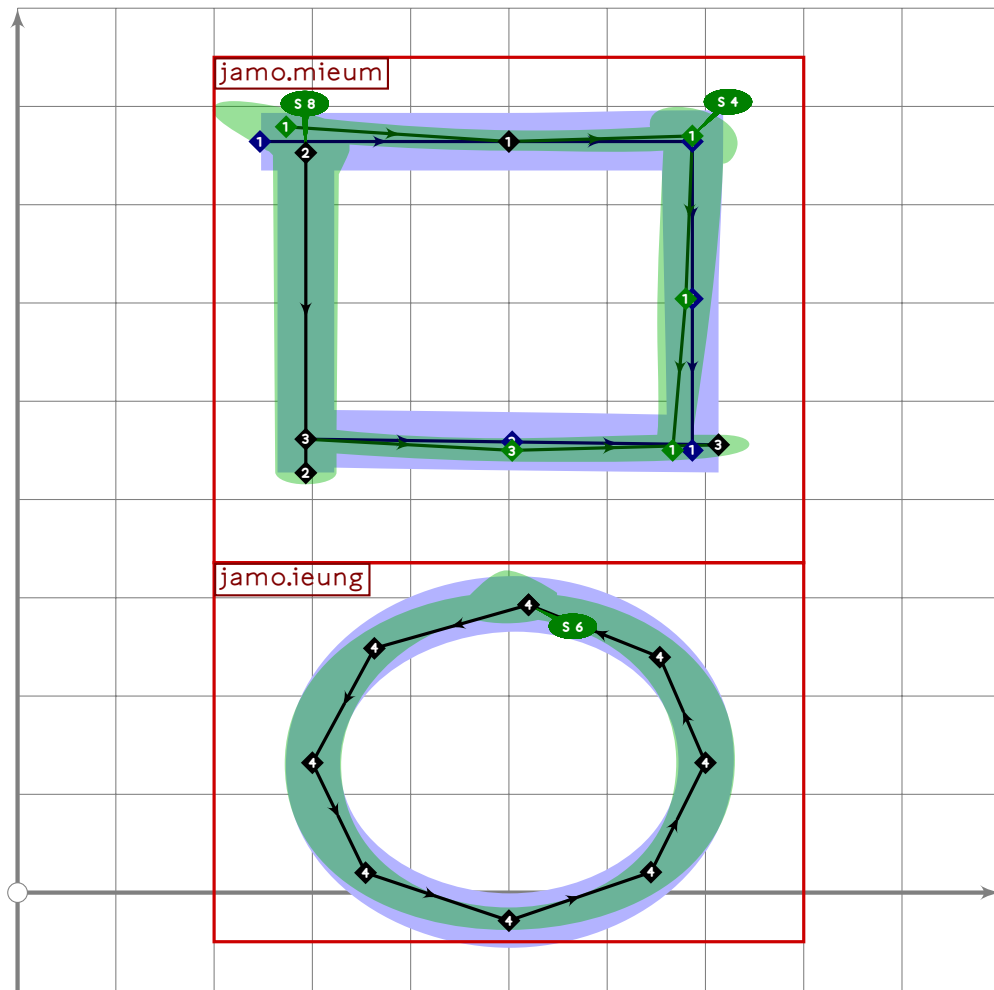
```



```

418 % hangul mieum-pansios
419 begint Suglyph("uni3170",112);
420 hangul.combine.lr(106,219)(whatever,identity,identity);
421 tsu_render;
422 endsuglyph;
423

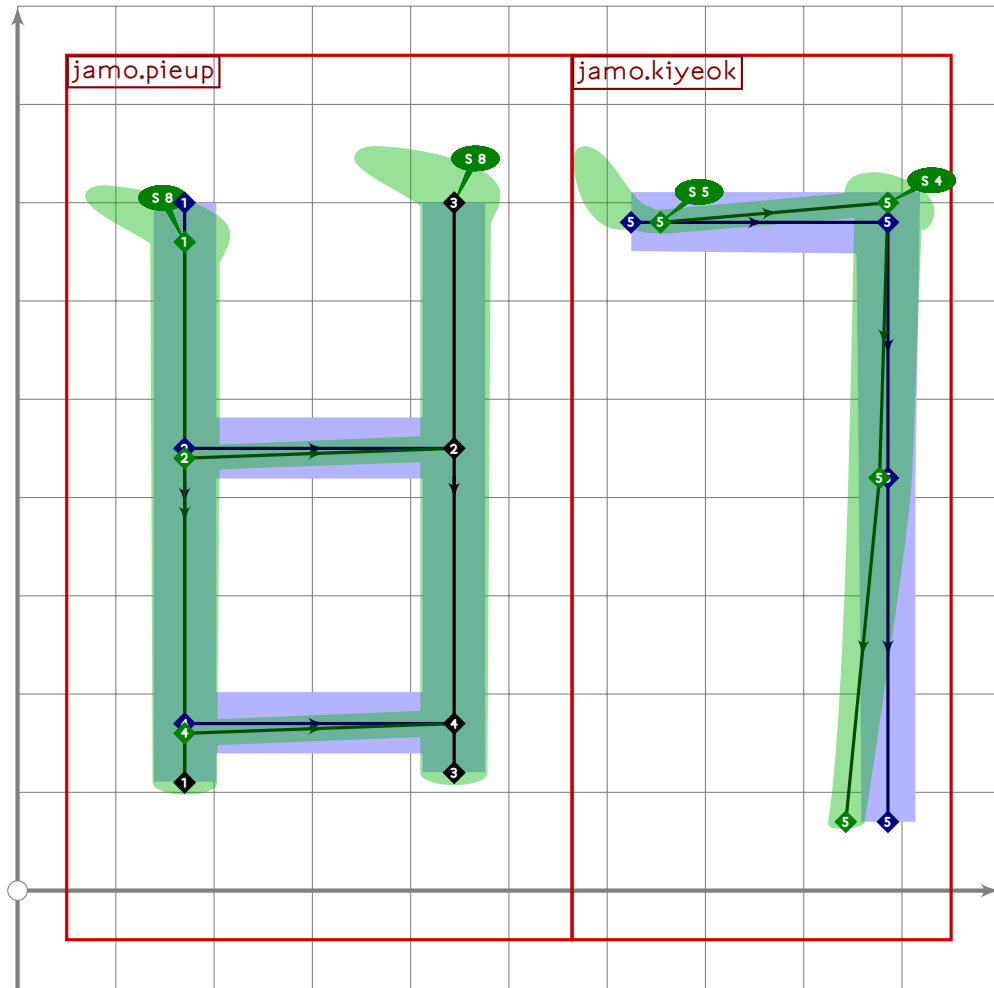
```



```

424 % hangul kapyeounmieum
425 begint Suglyph("uni3171";113);
426 hangul.combine.tb(106,521)(whatever,hxf((200,850),(800,-50)),identity);
427 tsu_render;
428 endtsuglyph;
429

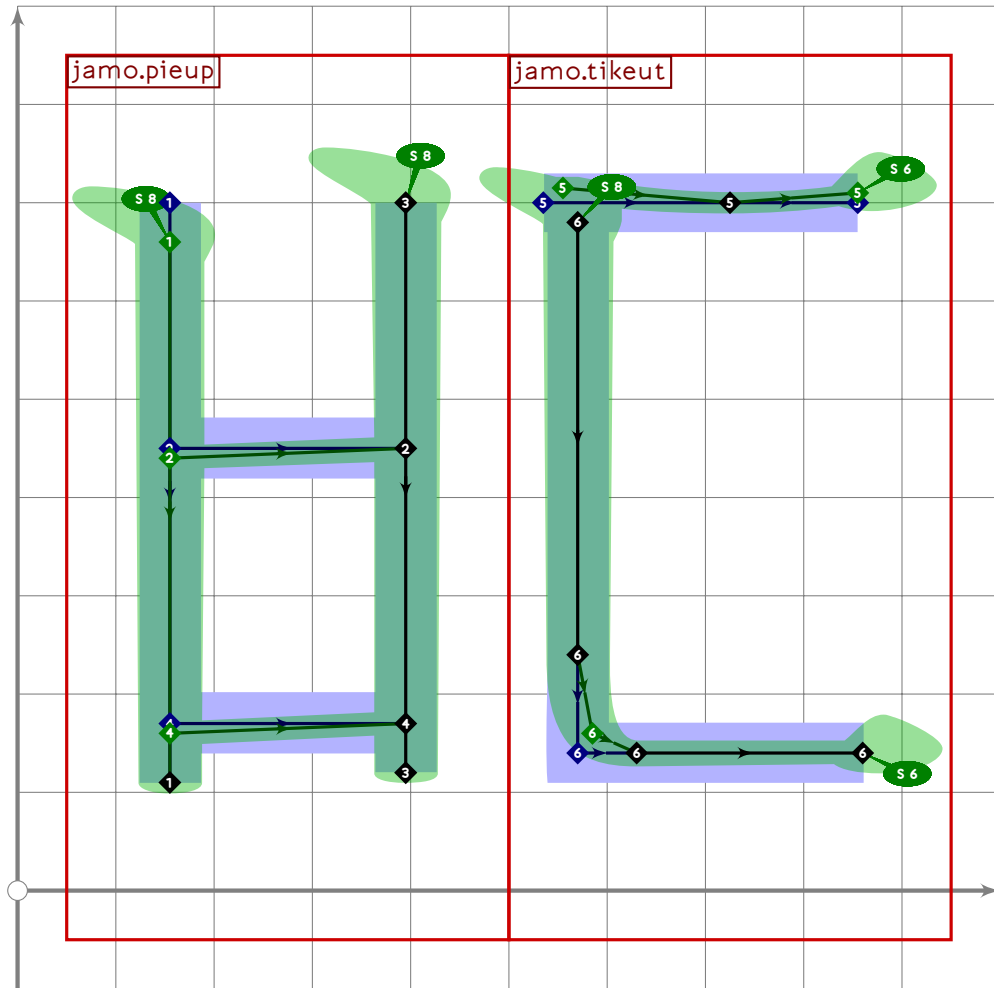
```



```

430 % hangul pieup-kiyeok
431 begintsuglyph("uni3172",114);
432 hangul.combine.lr(107,100)(whatever,identity,identity);
433 tsu_render;
434 endtsuglyph;
435

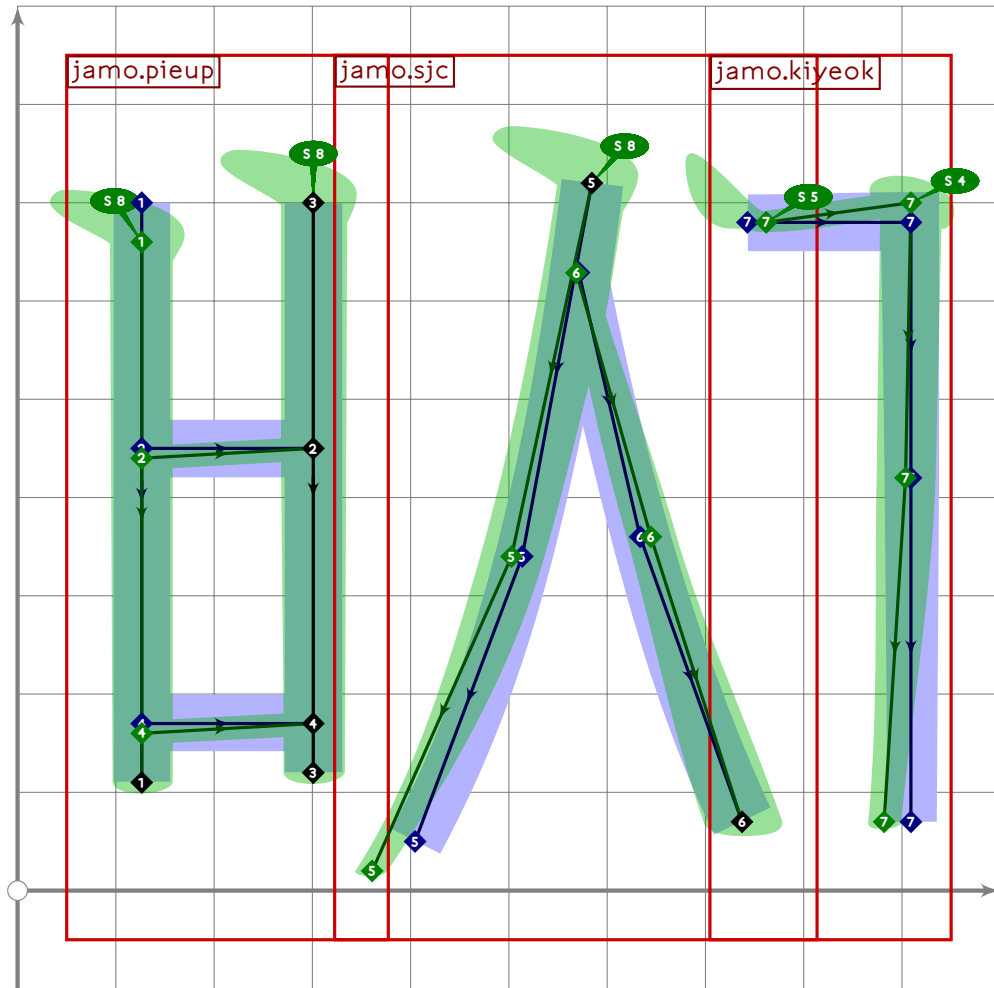
```



```

436 % hangul pieup-tikeut
437 begint Suglyph("uni3173",115);
438 hangul.combine.lr(107,103)(whatever,identity,identity);
439 tsu_render;
440 endtsuglyph;
441

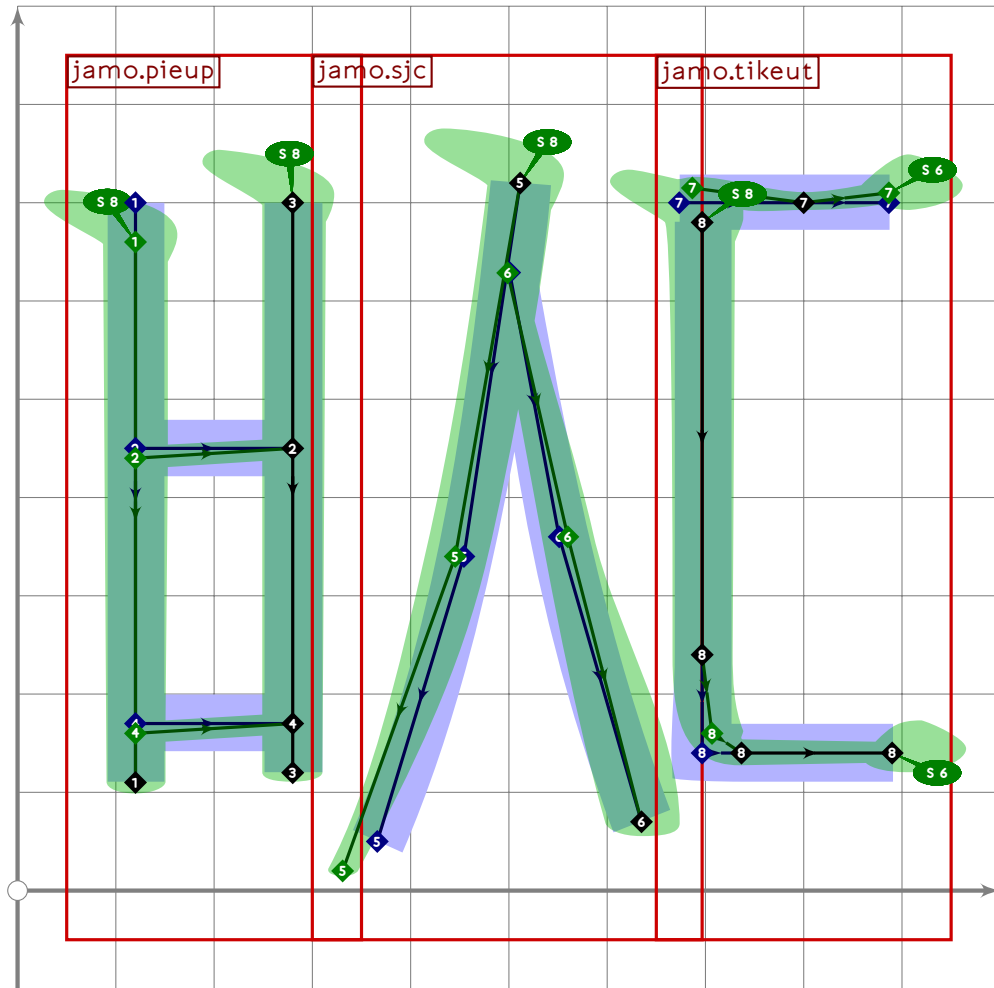
```



```

442 % hangul pieup-sios-kiyeok
443 begintsuglyph("uni3174",116);
444 hangul.combine.lcr(107,109,100)(whatever,identity,identity);
445 tsu_render;
446 endtsuglyph;
447

```

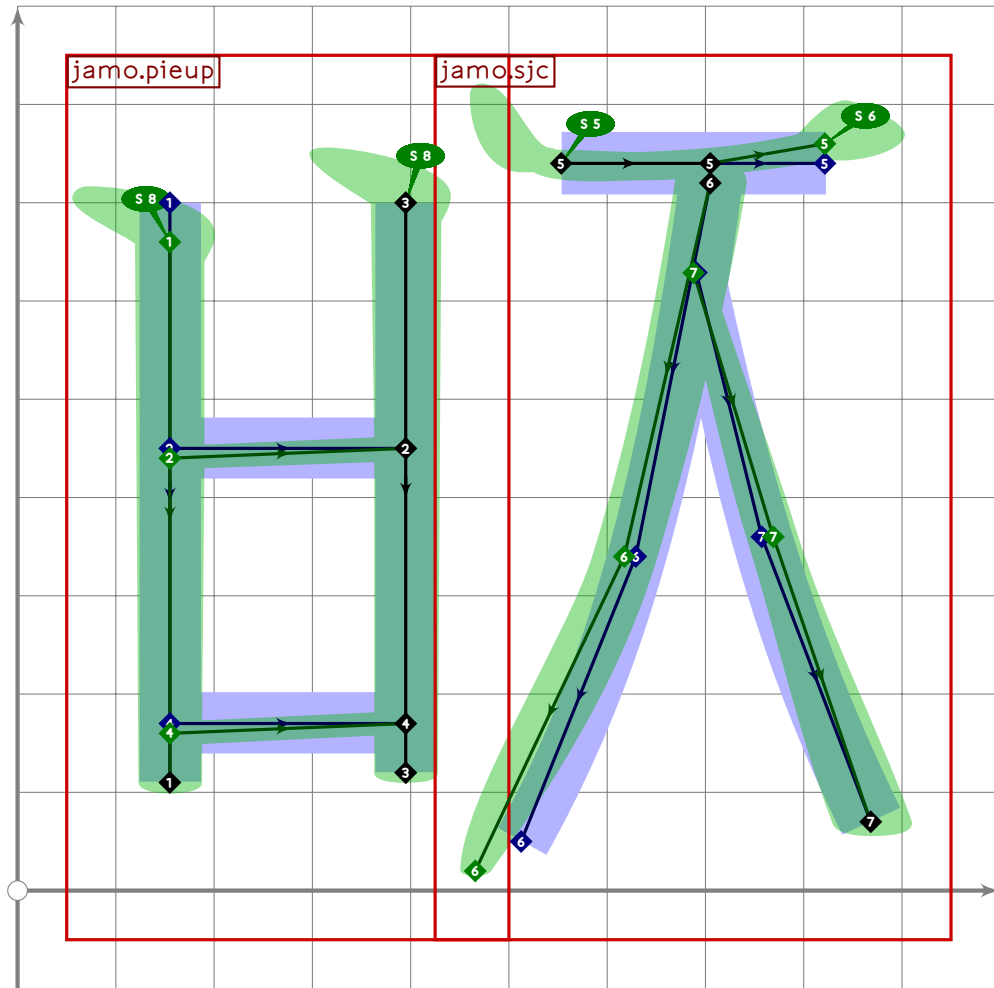


```

448 % hangul pieup-sios-tikeut
449 begint Suglyph("uni3175",117);
450 hangul.combine.lcr(107,109,103)(whatever,identity,identity);
451 tsu_render;
452 endtsuglyph;
453

```

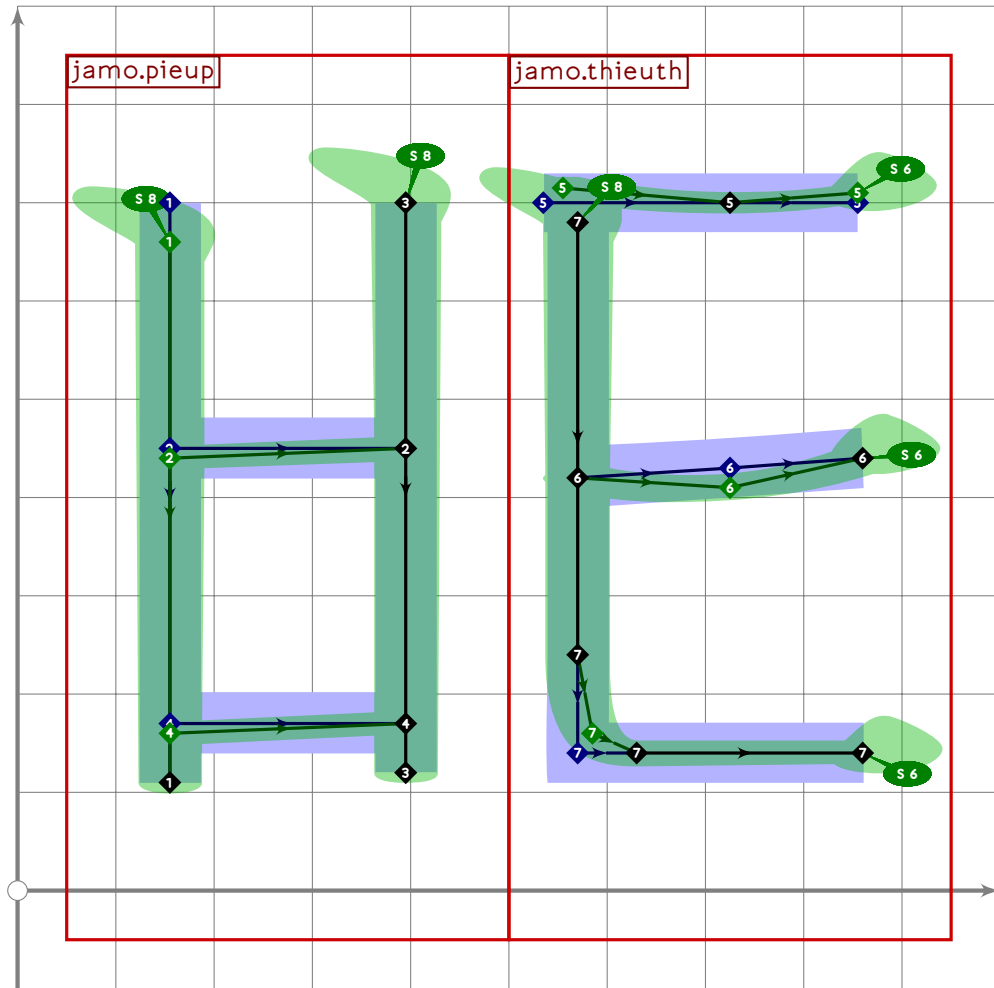




```

454 % hangul pieup-cieuc
455 begintsuglyph("uni3176",118);
456 hangul.combine.lr(107,112)(whatever,identity,identity);
457 tsu_render;
458 endsuglyph;
459

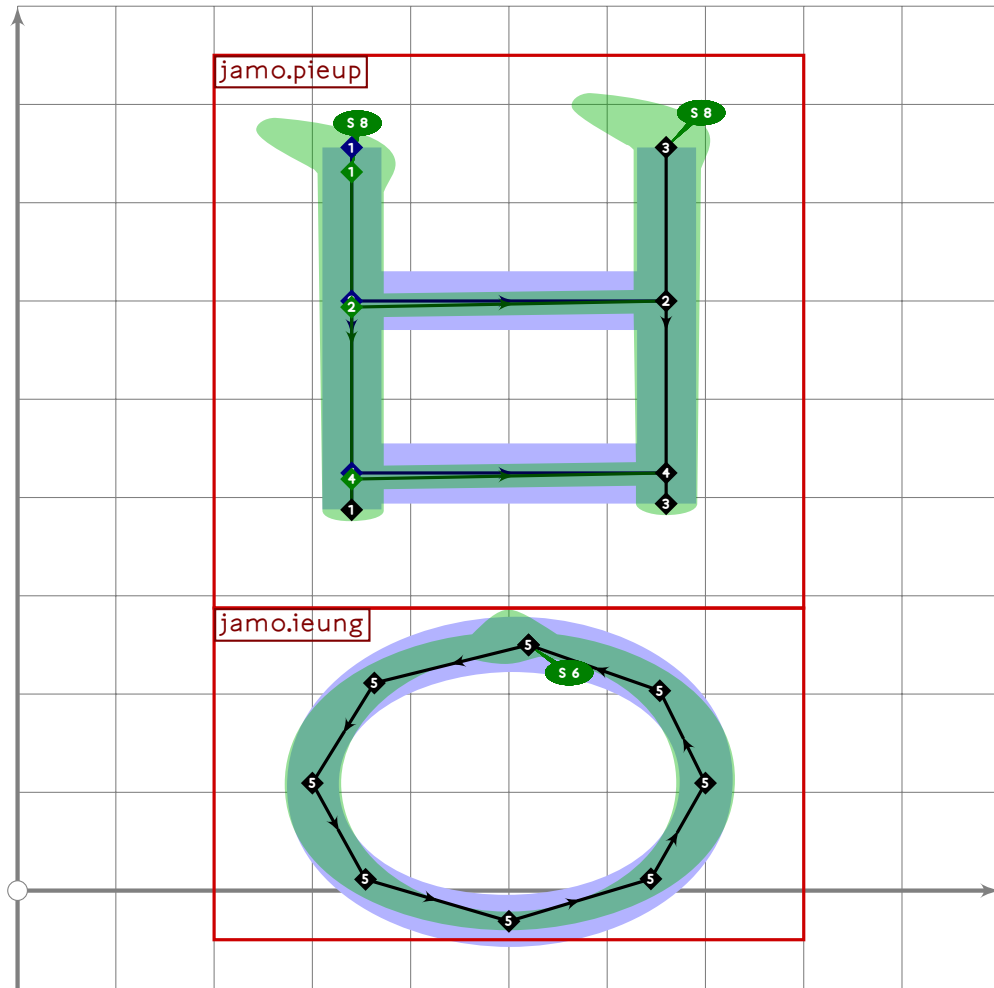
```



```

460 % hangul pieup-thieuth
461 begint Suglyph("uni3177",119);
462 hangul.combine.lr(107,116)(whatever,identity,identity);
463 tsu_render;
464 endtsuglyph;
465

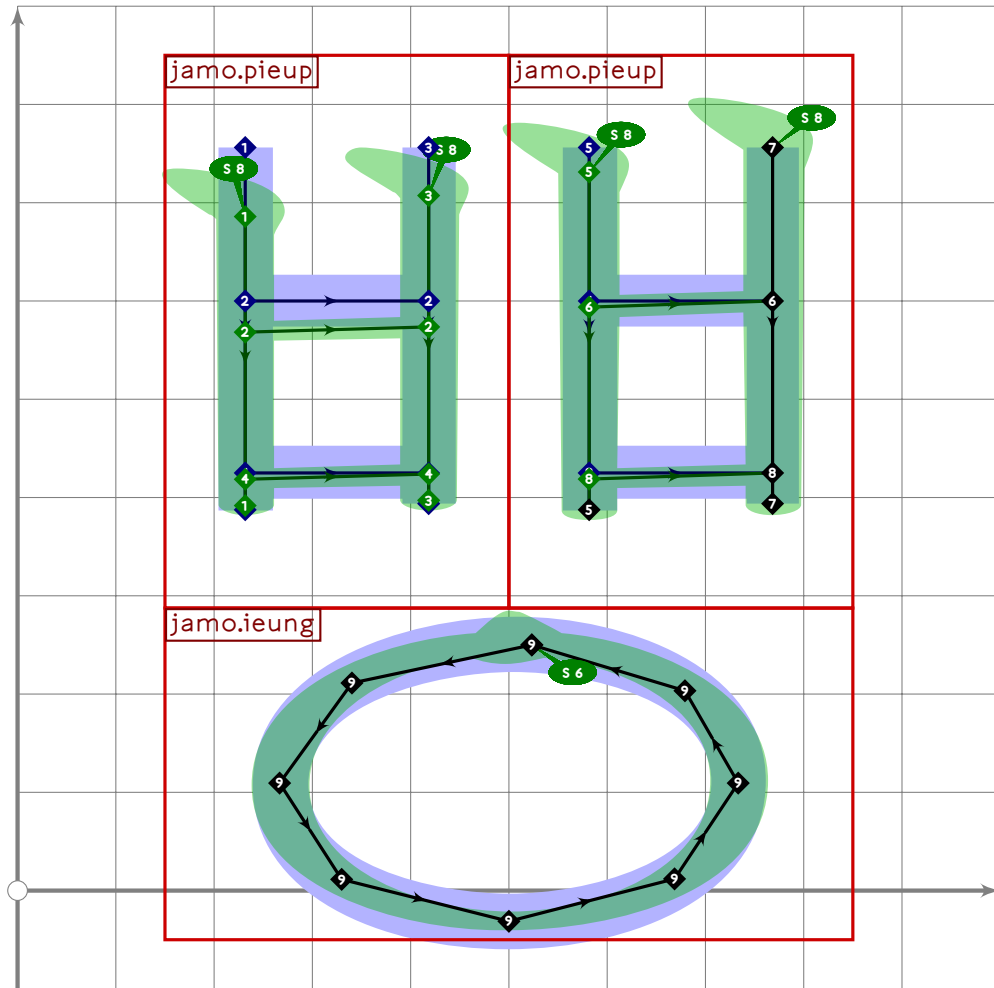
```



```

466 % hangul kapyeounpieup
467 begint Suglyph("uni3178",120);
468 hangul.combine.tb(107,521)(whatever,hxf((200,850),(800,-50)),identity);
469 tsu_render;
470 endtsuglyph;
471

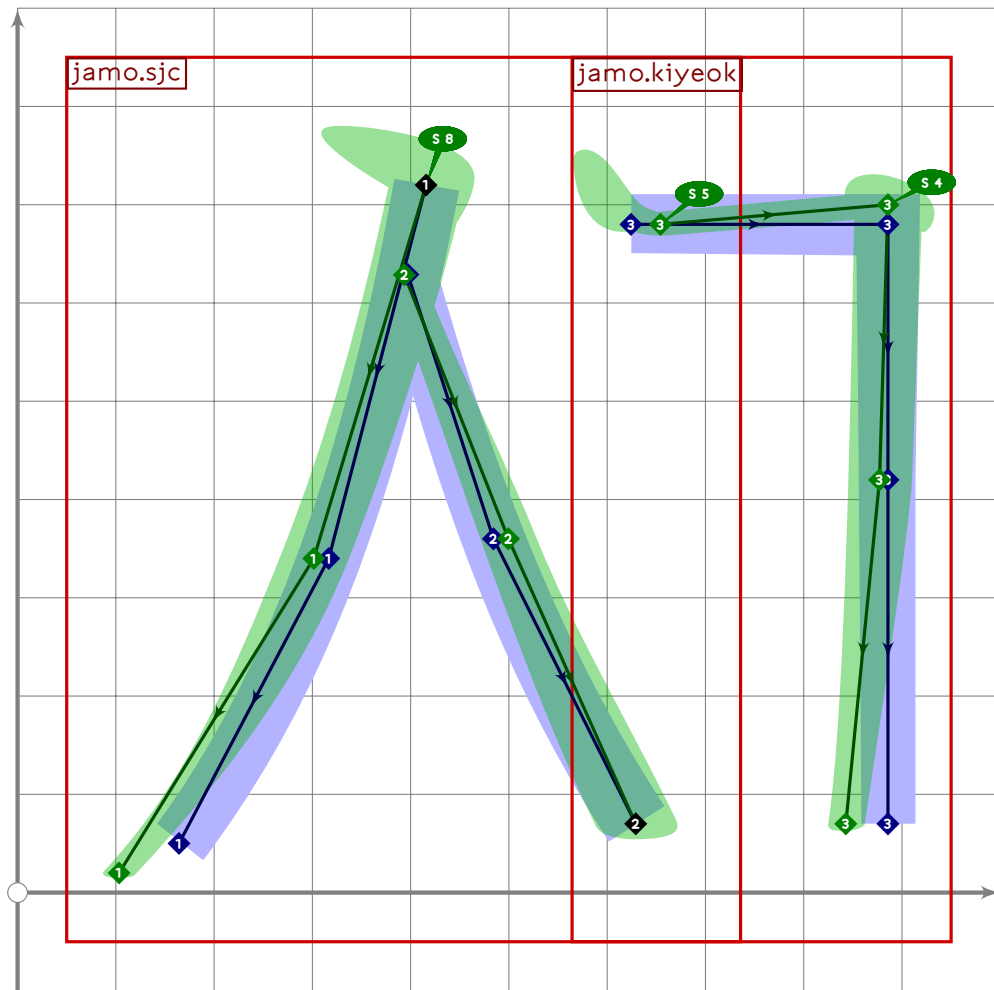
```



```

472 % hangul kapyeounssangpieup
473 begintsuglyph("uni3179",121);
474 hangul.combine.tb(108,521)(whatever,hxf((150,850),(850,-50)),identity);
475 tsu_render;
476 endtsuglyph;
477

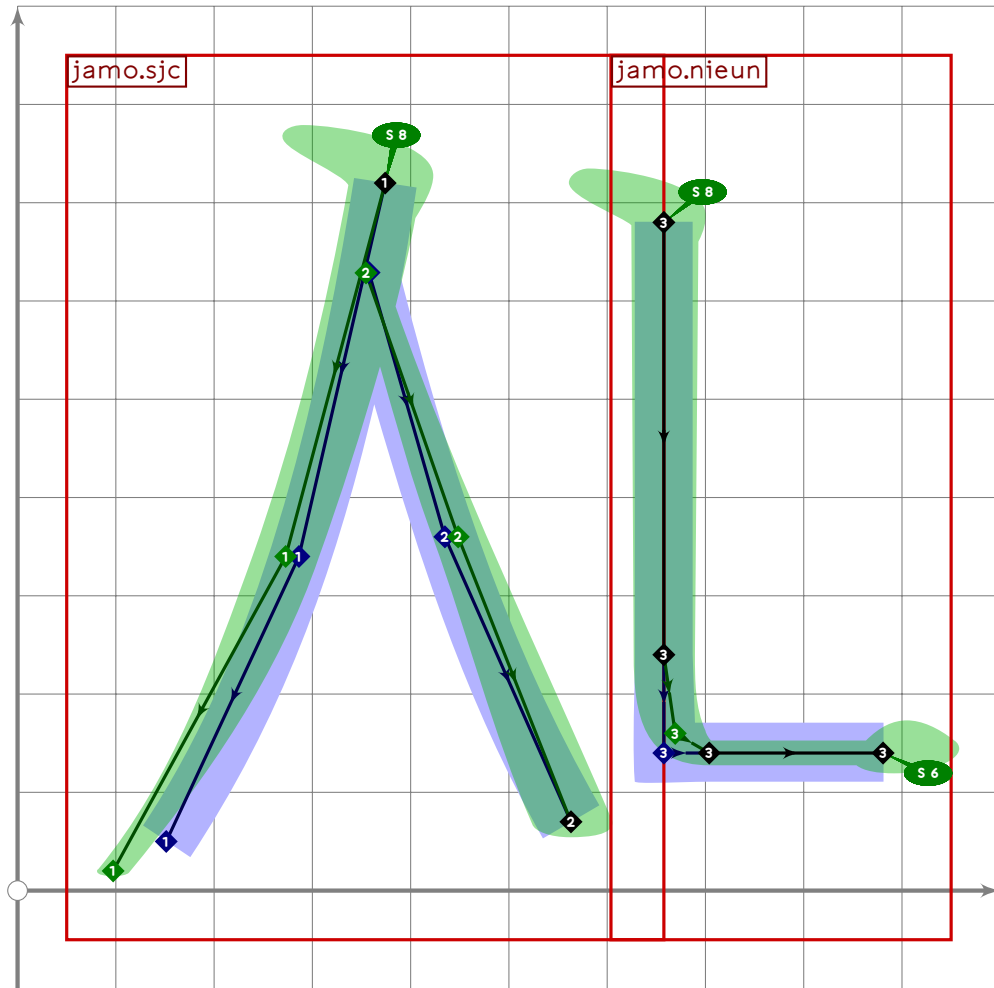
```



```

478 % hangul sios-kiyeok
479 begint Suglyph("uni317A",122);
480 hangul.combine.lr(109,100)(whatever,identity,identity);
481 tsu_render;
482 endtsuglyph;
483

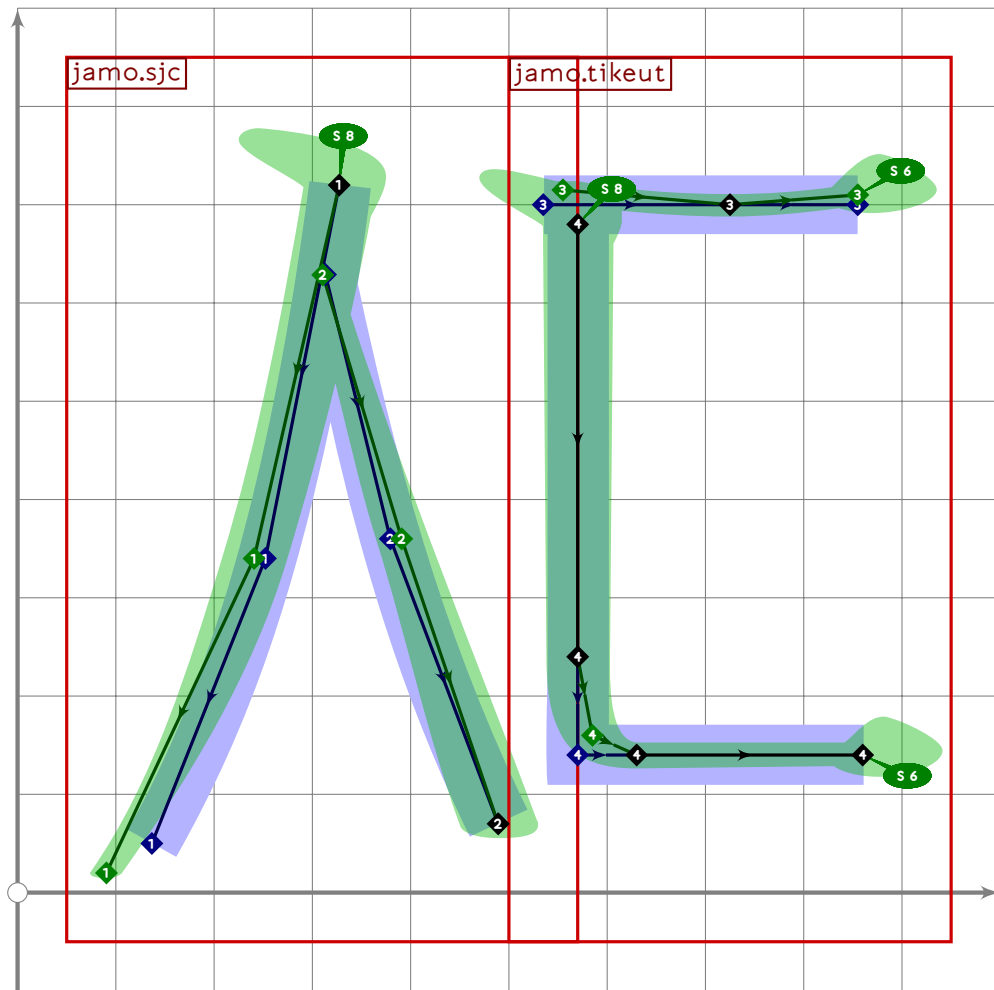
```



```

484 % hangul sios-nieun
485 begint Suglyph("uni317B",123);
486 hangul.combine.lr(109;102)(whatever;identity;identity);
487 tsu_render;
488 endtsuglyph;
489

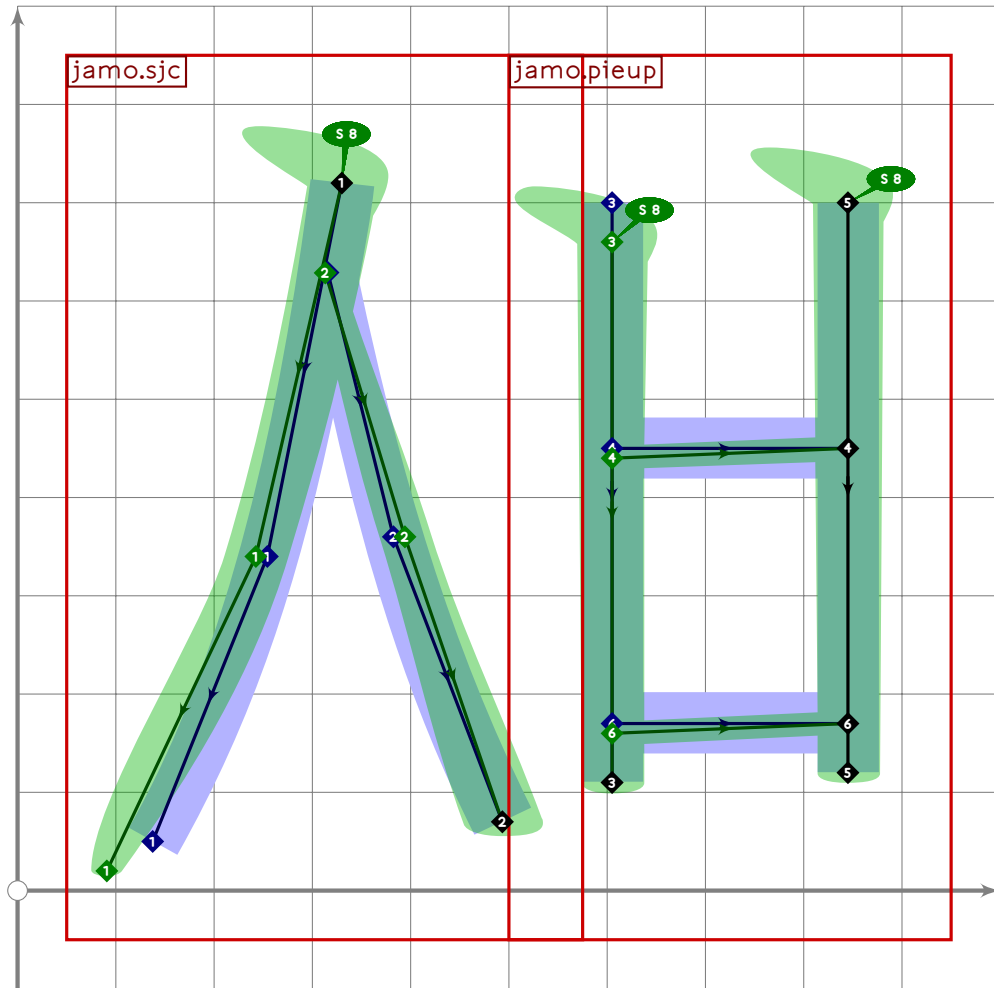
```



```

490 % hangul sios-tikeut
491 begint Suglyph("uni317C";124);
492 hangul.combine.lr(109;103)(whatever;identity;identity);
493 tsu_render;
494 endtsuglyph;
495

```

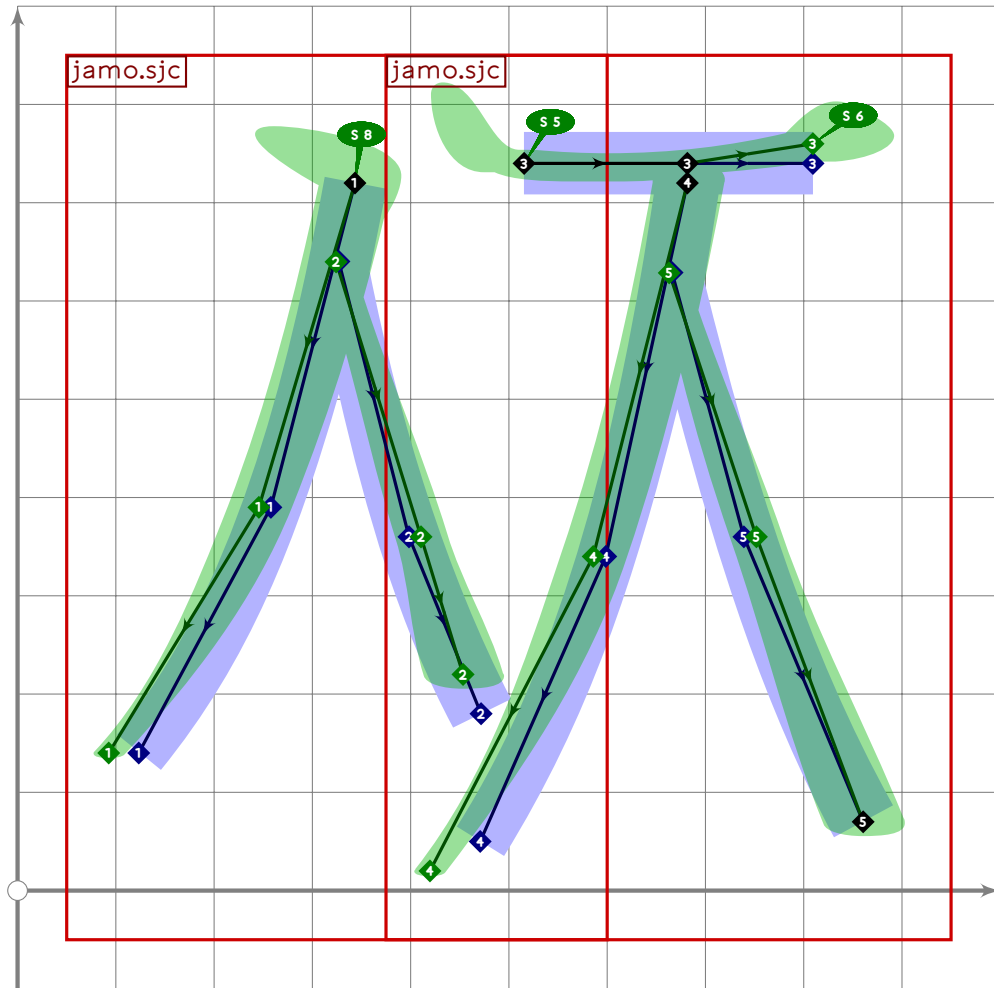


```

496 % hangul sios-pieup
497 begint Suglyph("uni317D",125);
498 hangul.combine.lr(109,107)(whatever,identity,identity);
499 tsu_render;
500 endtsuglyph;
501

```

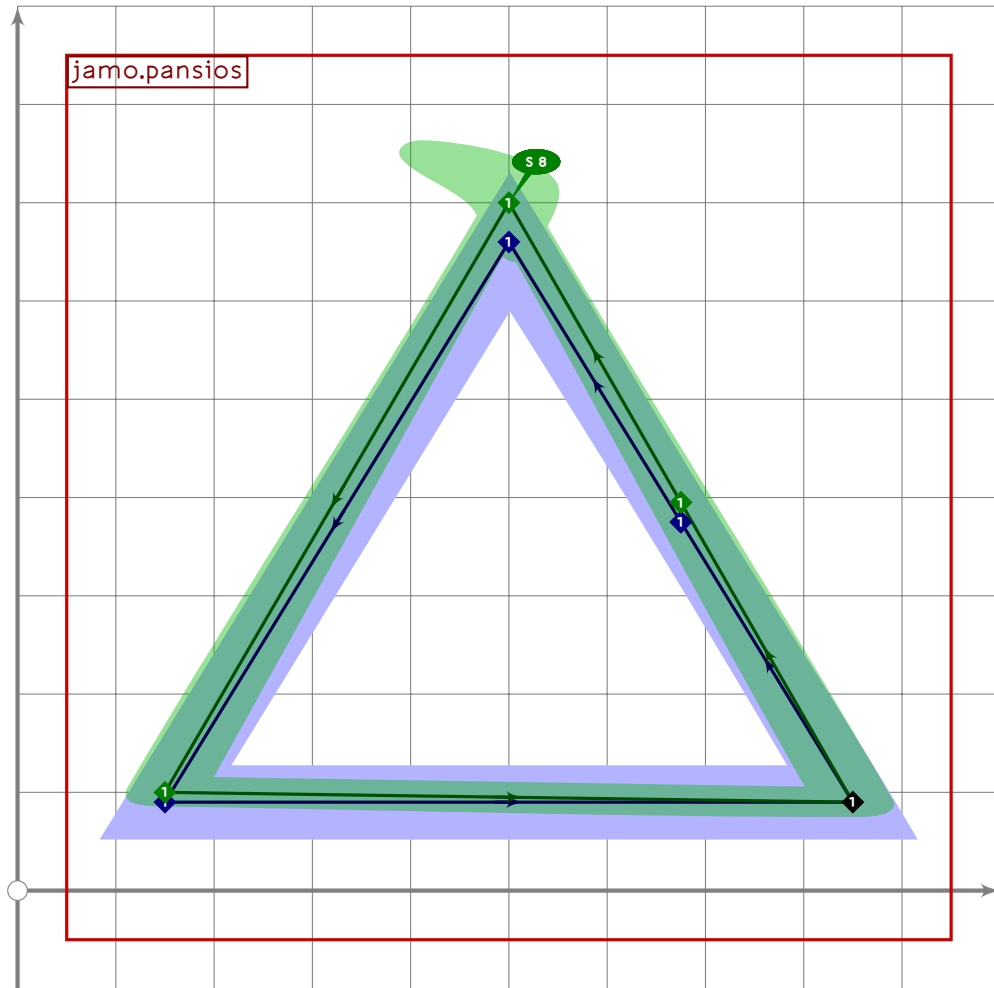




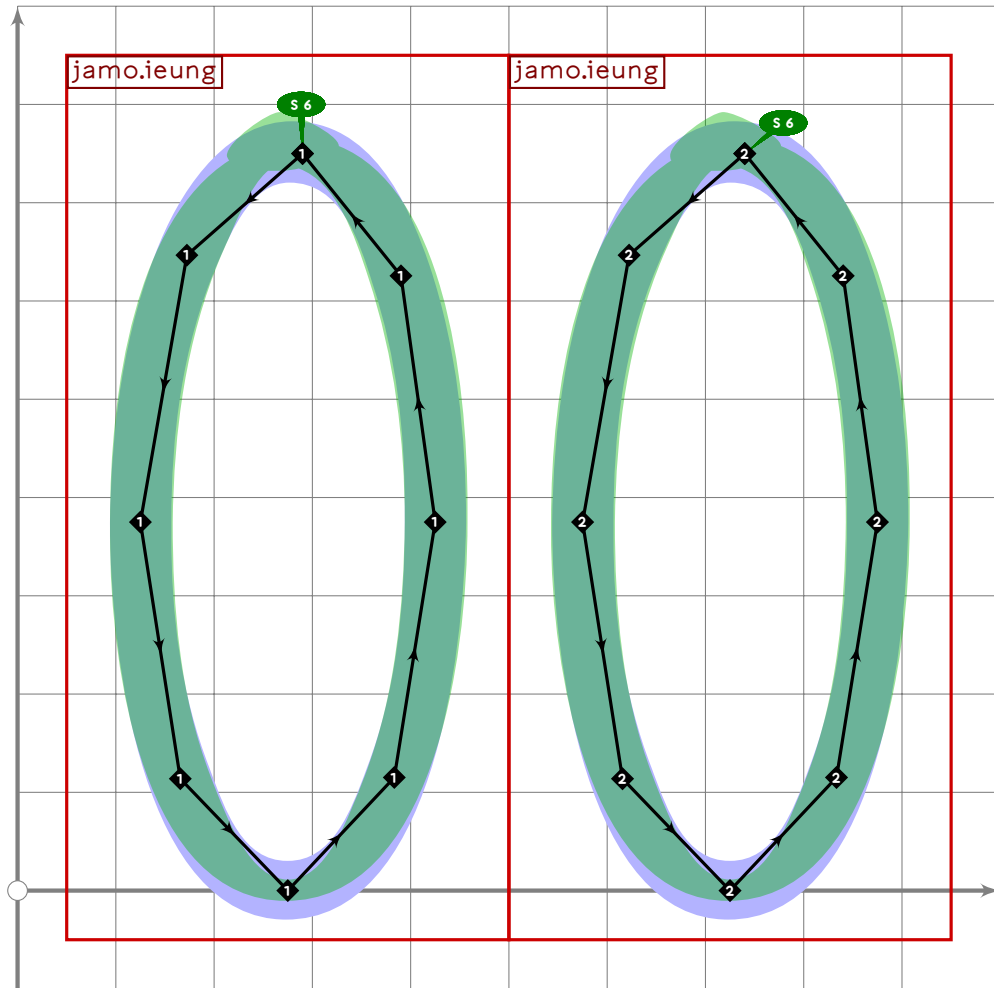
```

502 % hangul sios-cieuc
503 begintsuglyph("uni317E",126);
504 hangul.combine.lr(209,112)(whatever,identity,identity);
505 tsu_render;
506 endtsuglyph;
507

```



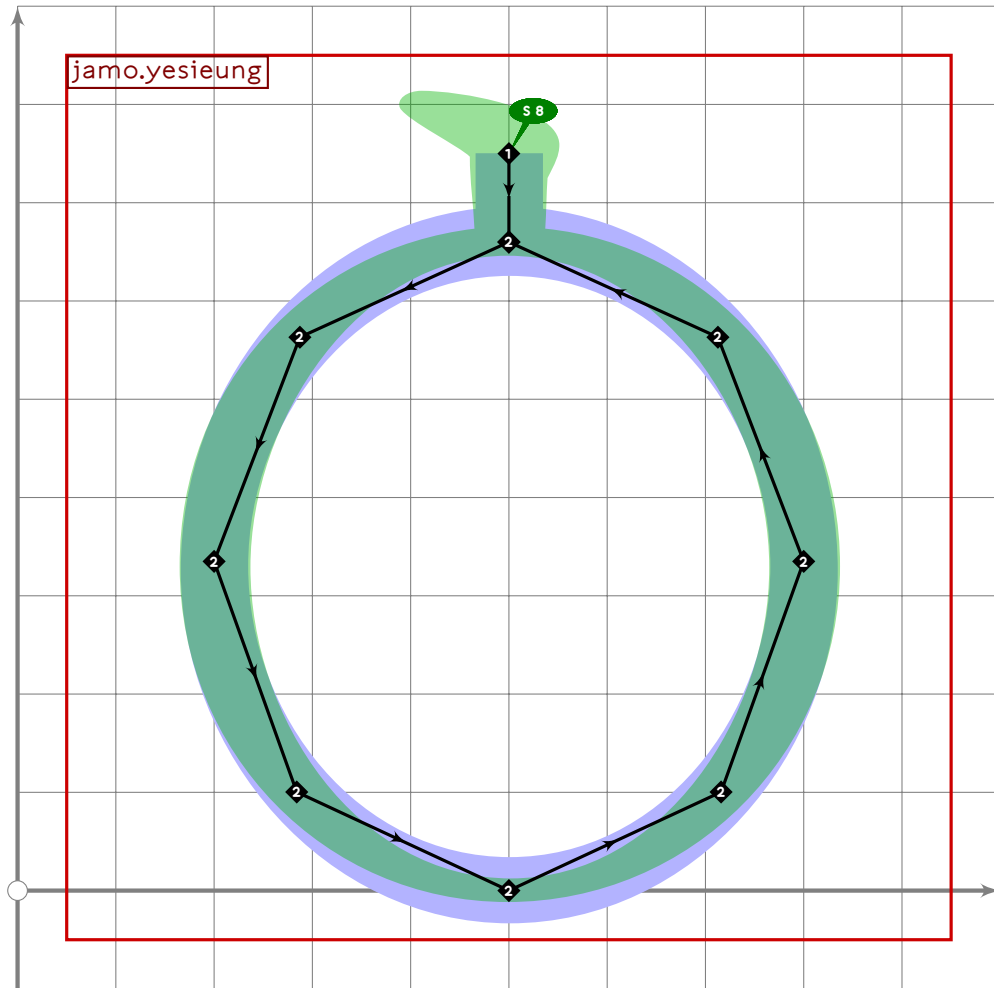
```
508 % hangul pansios
509 begintsuglyph("uni317F",127);
510 hangul.jamo.pansios(whatever;identity,identity);
511 tsu_render;
512 endtsuglyph;
513
```



```

514 % hangul ssangieung
515 begintsuglyph("uni3180",128);
516 hangul.combine.lr(111,111)(whatever,identity,identity);
517 tsu_render;
518 endtsuglyph;
519

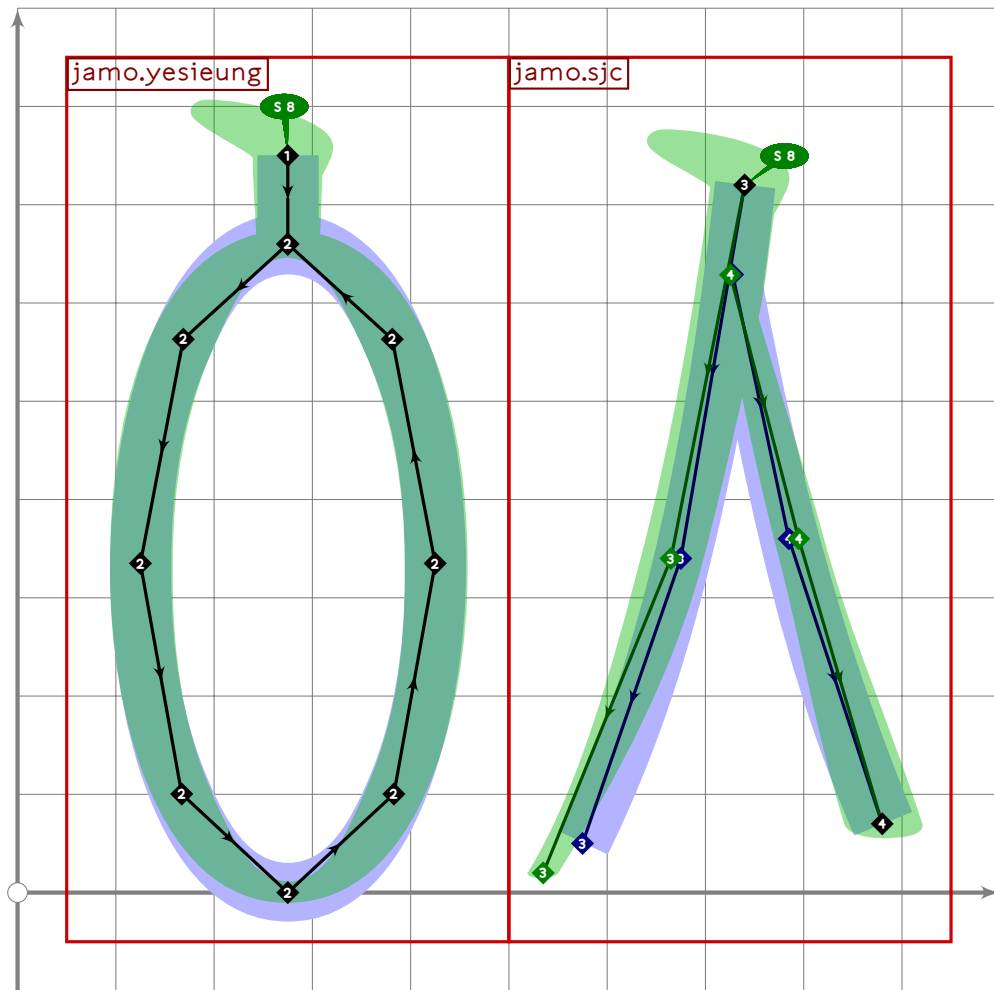
```



```

520 % hangeul yesieung
521 begint Suglyph("uni3181",129);
522 hangul,jamo.yesieung(whatever,identity,identity);
523 tsu_render;
524 endtsuglyph;
525

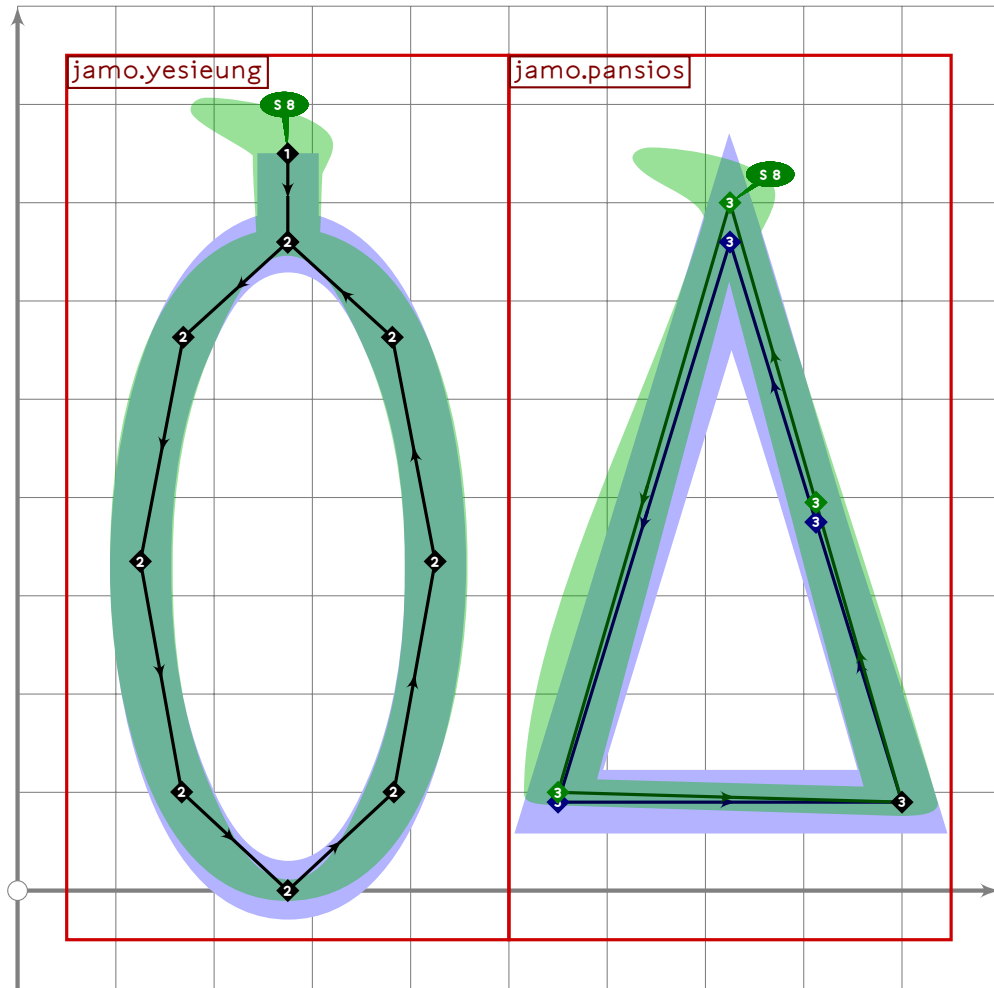
```



```

526 % hangul yesieung-sios
527 begint Suglyph("uni3182",130);
528 hangul.combine.lr(220,109)(whatever,identity,identity);
529 tsu_render;
530 endtsuglyph;
531

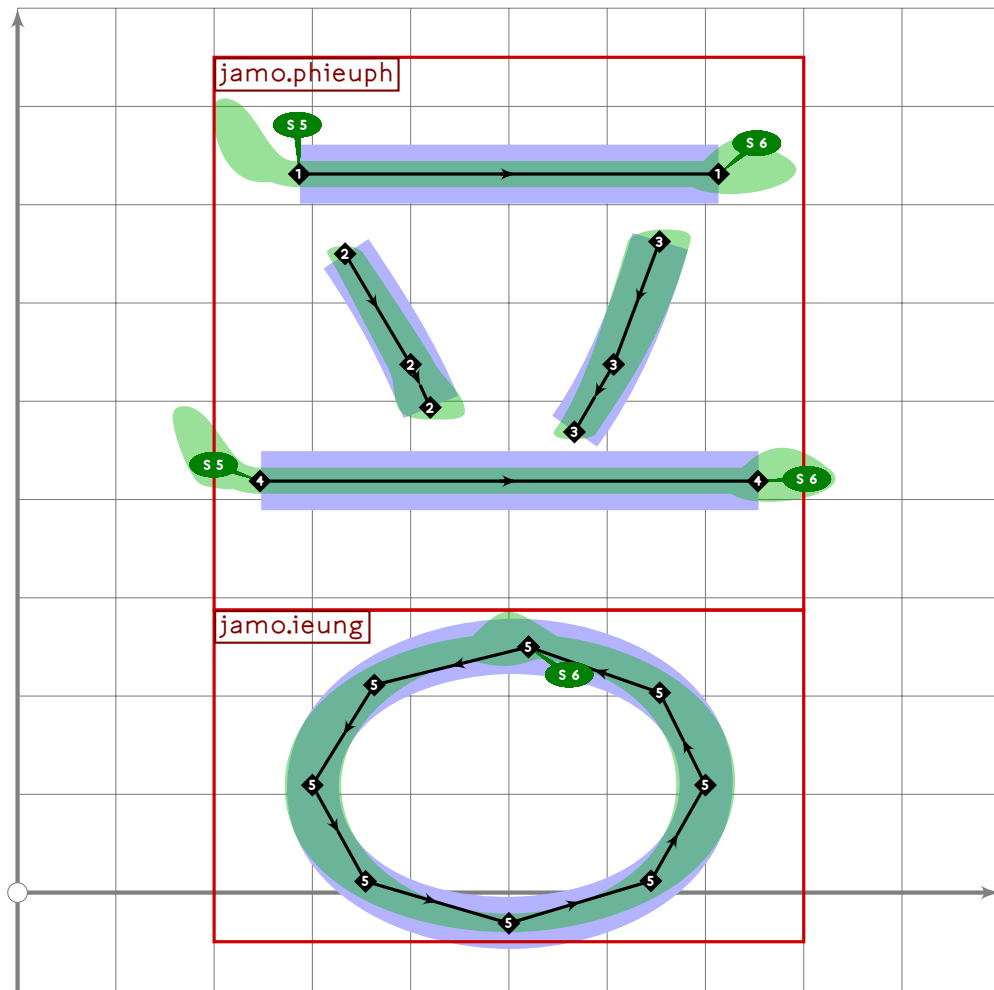
```



```

532 % hangul yesieung-pansios
533 begintsuglyph("uni3183",131);
534 hangul.combine.lr(220,219)(whatever,identity,identity);
535 tsu_render;
536 endtsuglyph;
537

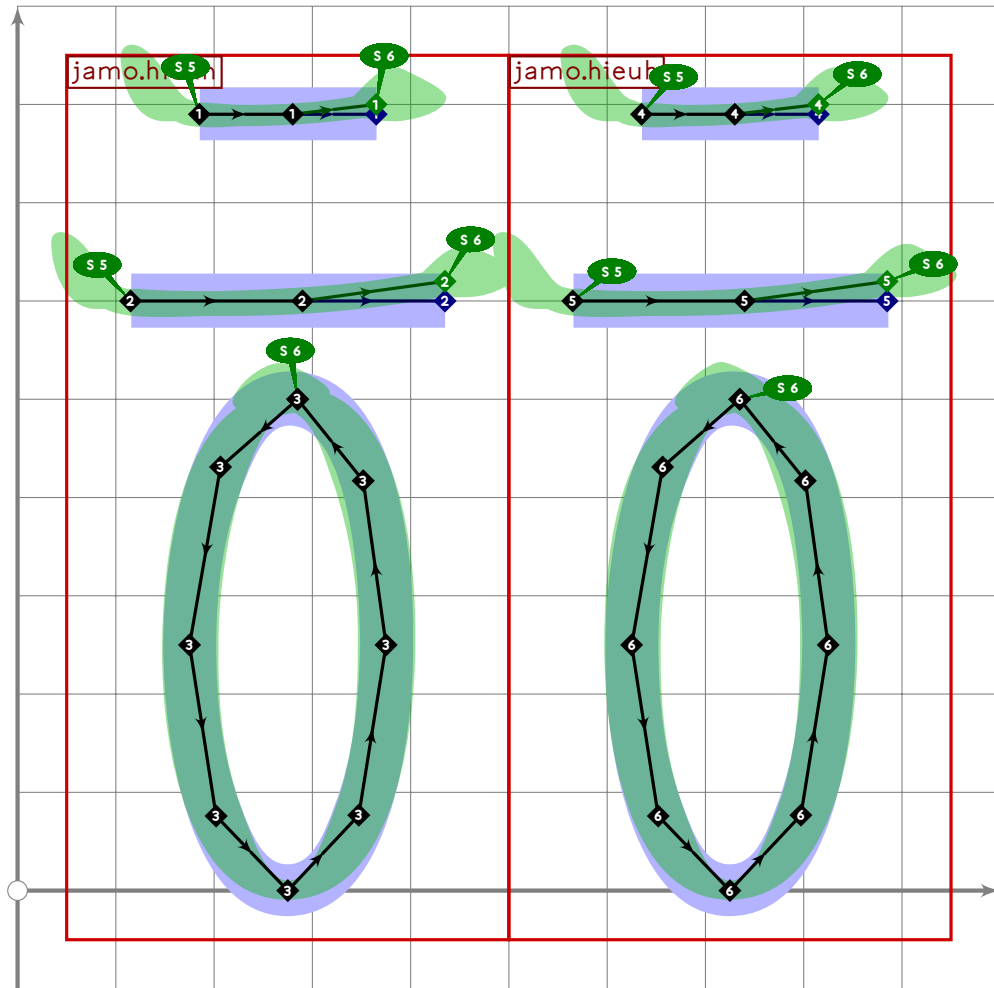
```



```

538 % hangul kapyeounphieuph
539 begint Suglyph("uni3184",132);
540 hangul.combine.tb(117,521)(whatever,hxf((200,850),(800,-50)),identity);
541 tsu_render;
542 endtsuglyph;
543

```

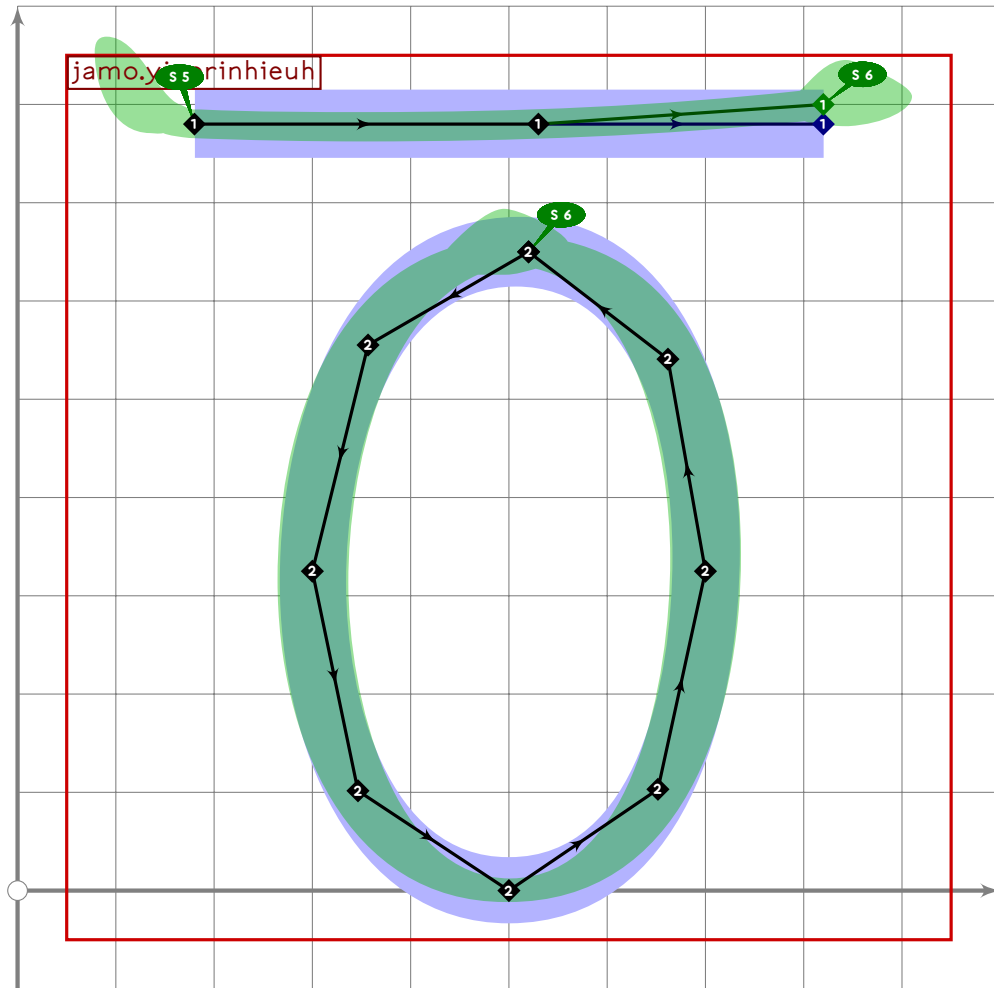


```

544 % hangul ssanghieuh
545 begintsuglyph("uni3185",133);
546 hangul.combine.lcr(118,230,118)(whatever,identity,identity);
547 tsu_render;
548 endtsuglyph;
549

```

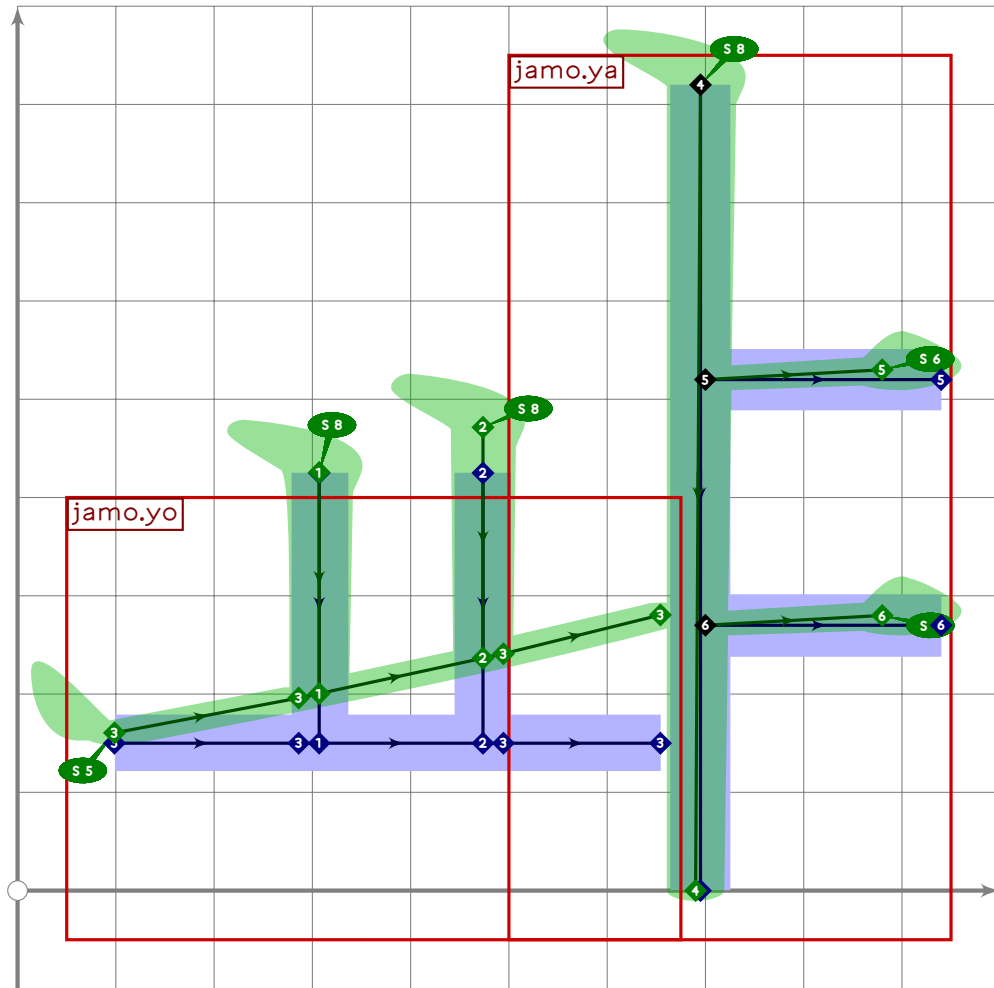




```

550 % hangul yeorinhieuh
551 begint Suglyph("uni3186",134);
552 hangul.jamo.yeorinhieuh(whatever,identity,identity);
553 tsu_render;
554 endtsuglyph;
555

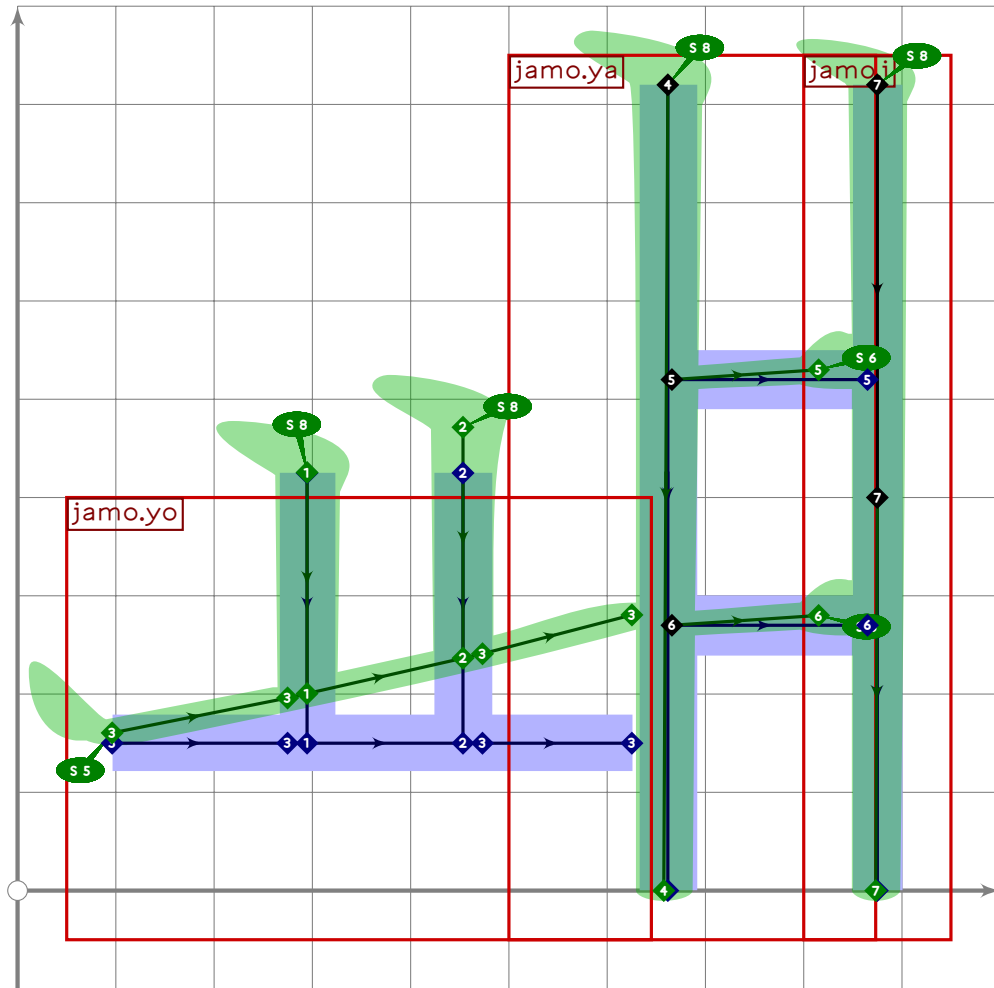
```



```

556 % hangul yo-ya
557 begint Suglyph("uni3187",135);
558 hangul.combine.lr(312,302)(421,hxf((500,400),(950,-50)),identity);
559 tsu_render;
560 endtsuglyph;
561

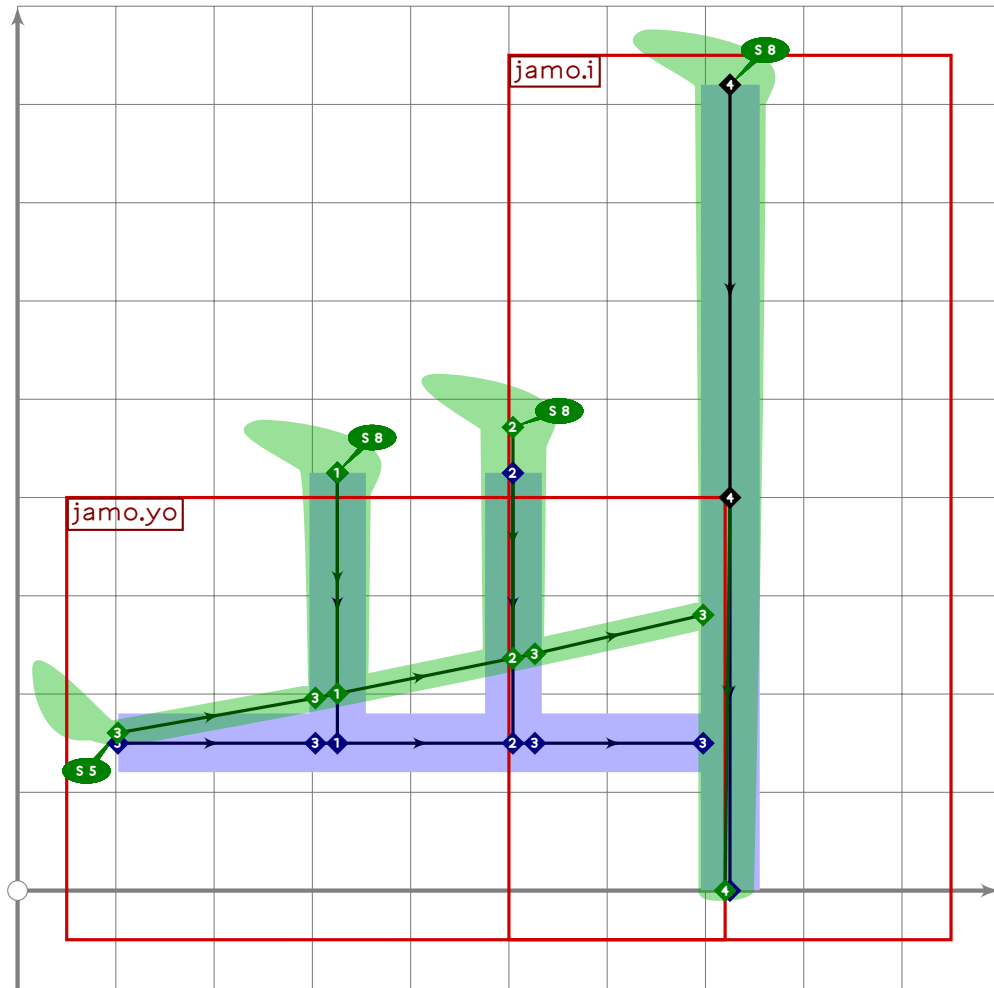
```



```

562 % hangul yo-yaе
563 begintsuglyph("uni3188",136);
564 hangul.combine.lr(312,303)(422,hxf((500,400),(950,-50)),identity);
565 tsu_render;
566 endtsuglyph;
567

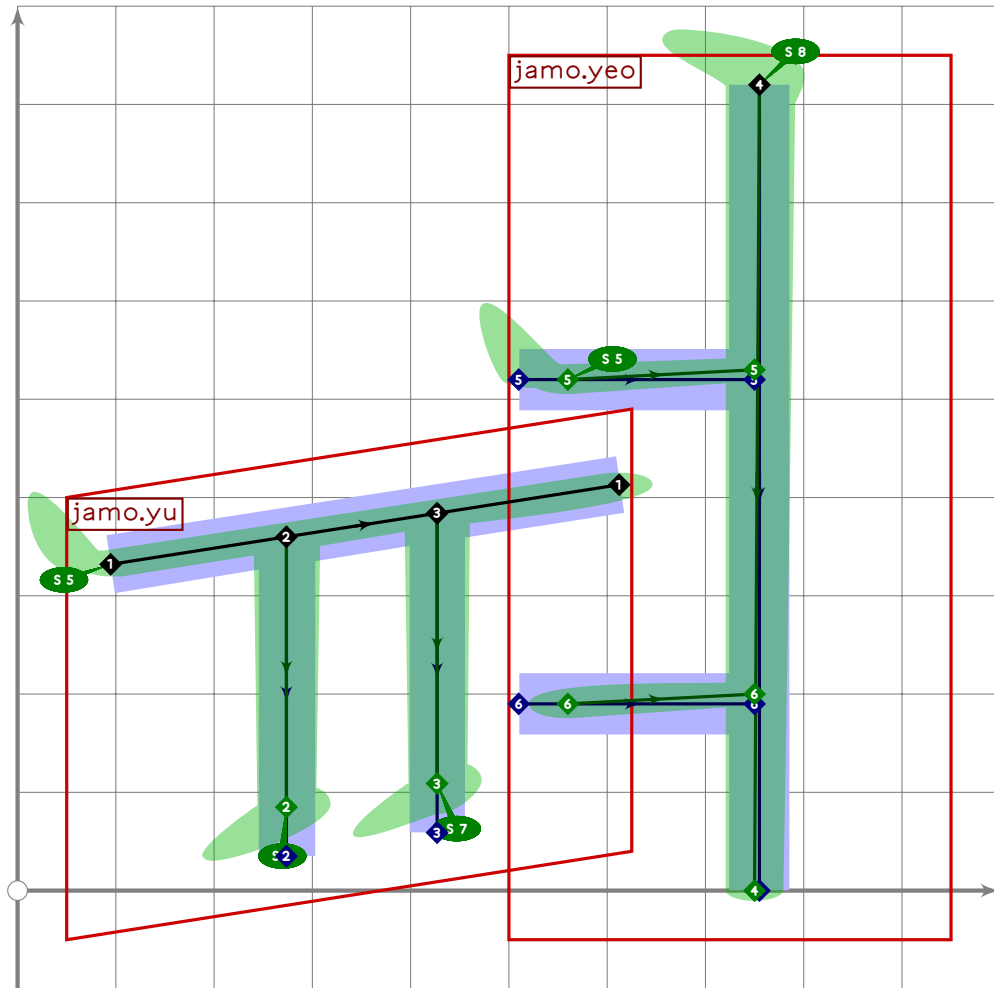
```



```

568 % hangul yo-i
569 begint Suglyph("uni3189",137);
570 hangul.combine.lr(312,320)(423,hxf((500,400),(950,-50)),identity);
571 tsu_render;
572 endtsuglyph;
573

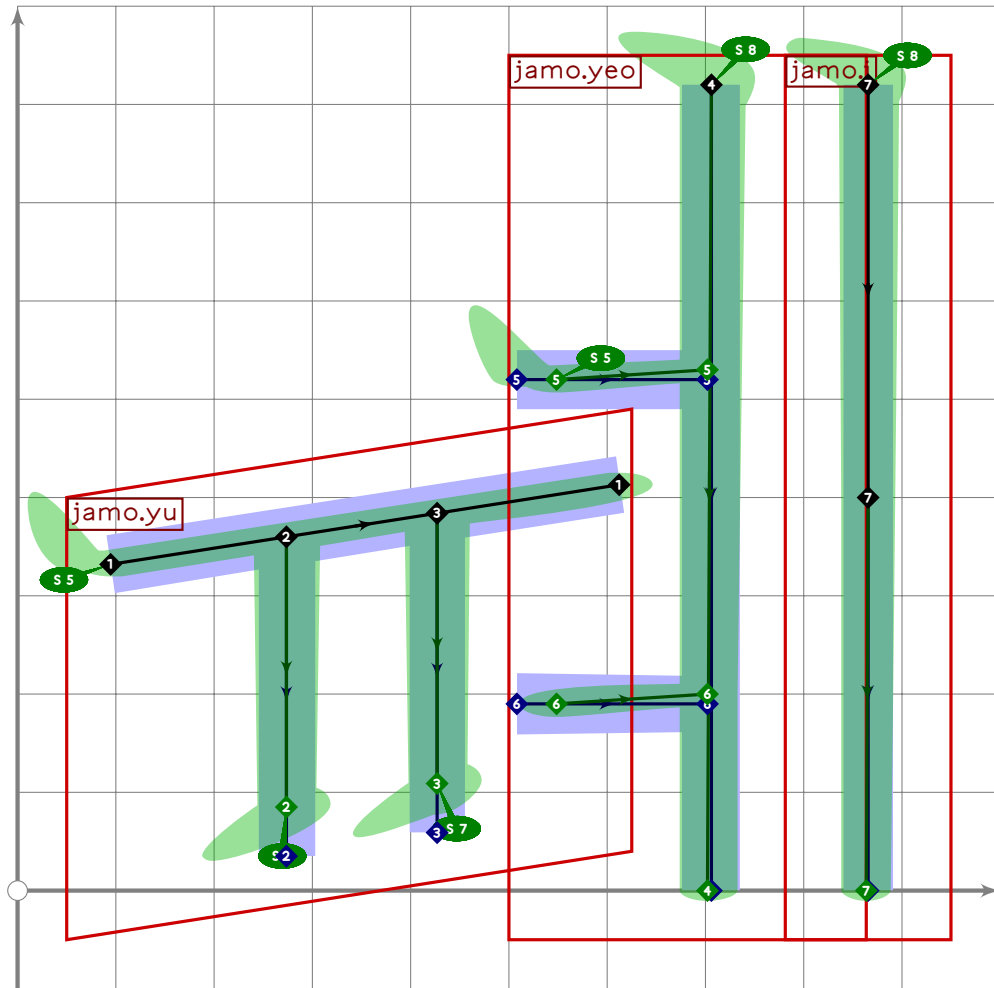
```



```

574 % hangul yu-yeo
575 begint Suglyph("uni318A",138);
576 hangul.combine.lr(317,306)(424,hxf((500,400),(950,-50)),identity);
577 tsu_render;
578 endtsuglyph;
579

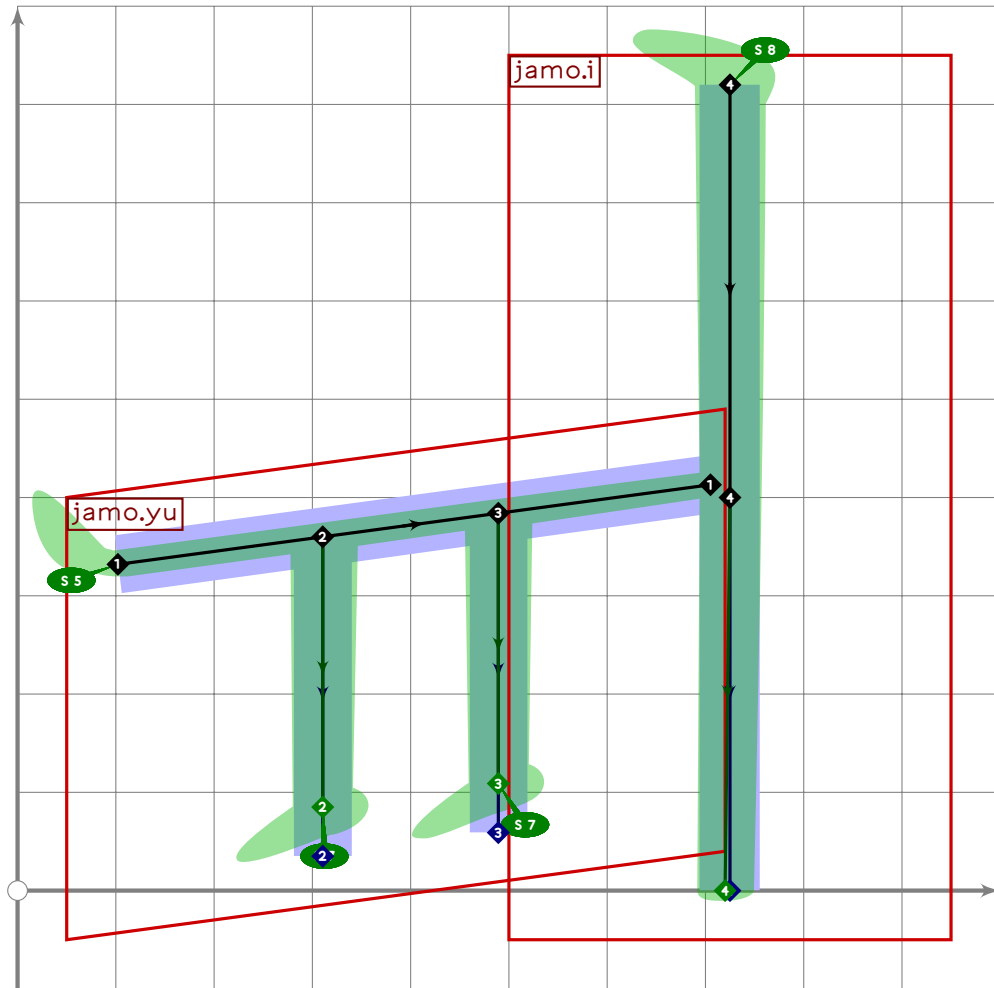
```



```

580 % hangul yu-ye
581 begintsuglyph("uni318B",139);
582 hangul.combine.lr(317,307)(425,hxf((500,400),(950,-50)),identity);
583 tsu_render;
584 endtsuglyph;
585

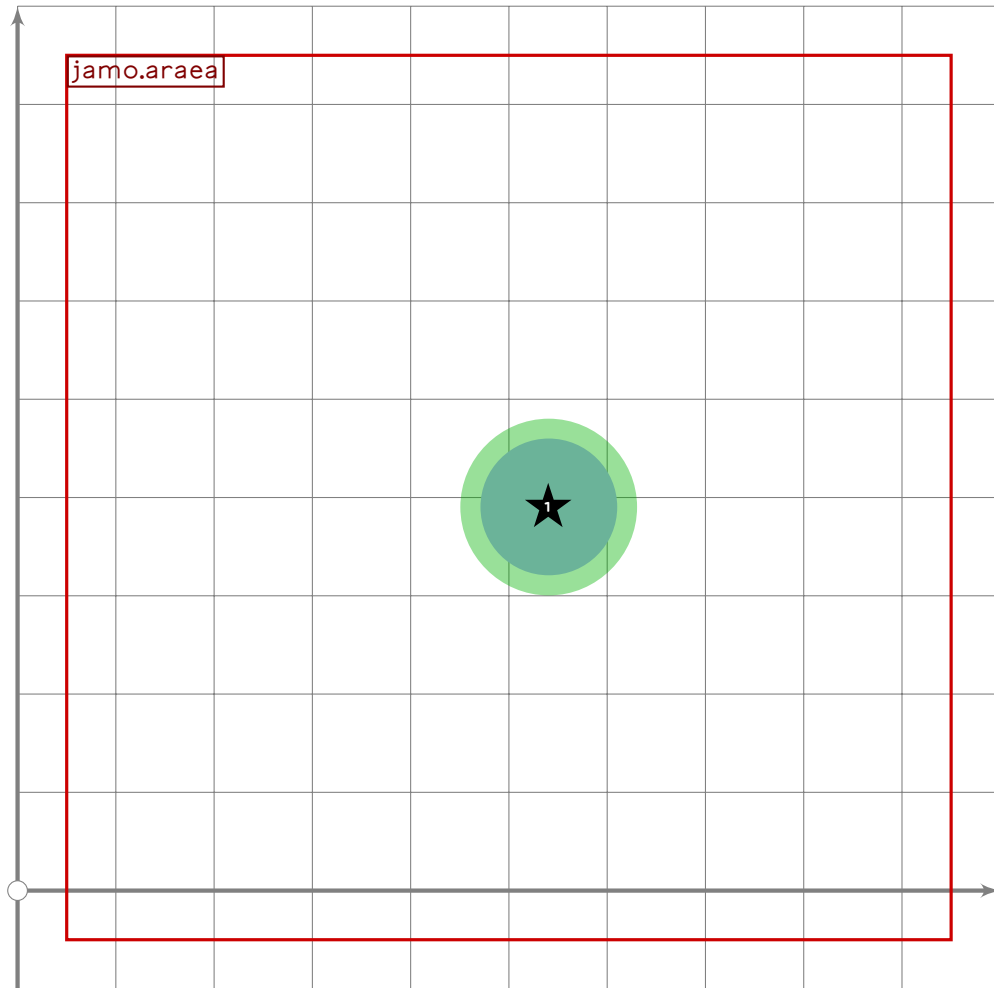
```



```

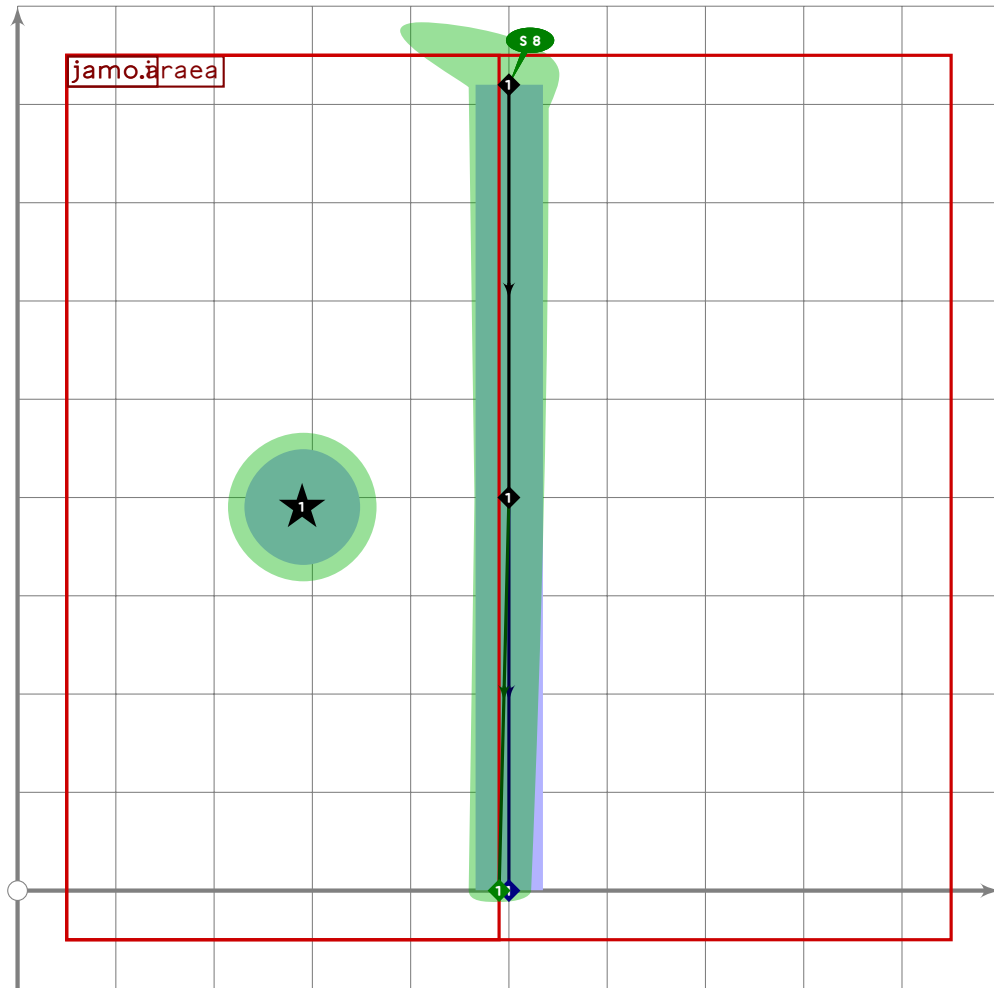
586 % hangul yu-i
587 begintsuglyph("uni318C";140);
588 hangul.combine.lr(317,320)(426,hxf((500,400),(950,-50)),identity);
589 tsu_render;
590 endtsuglyph;
591

```



```
592 % hangul araea  
593 begintsuglyph("uni318D";141);  
594 hangul.jamo.araea(428,identity,identity);  
595 tsu_render;  
596 endtsuglyph;  
597
```





```

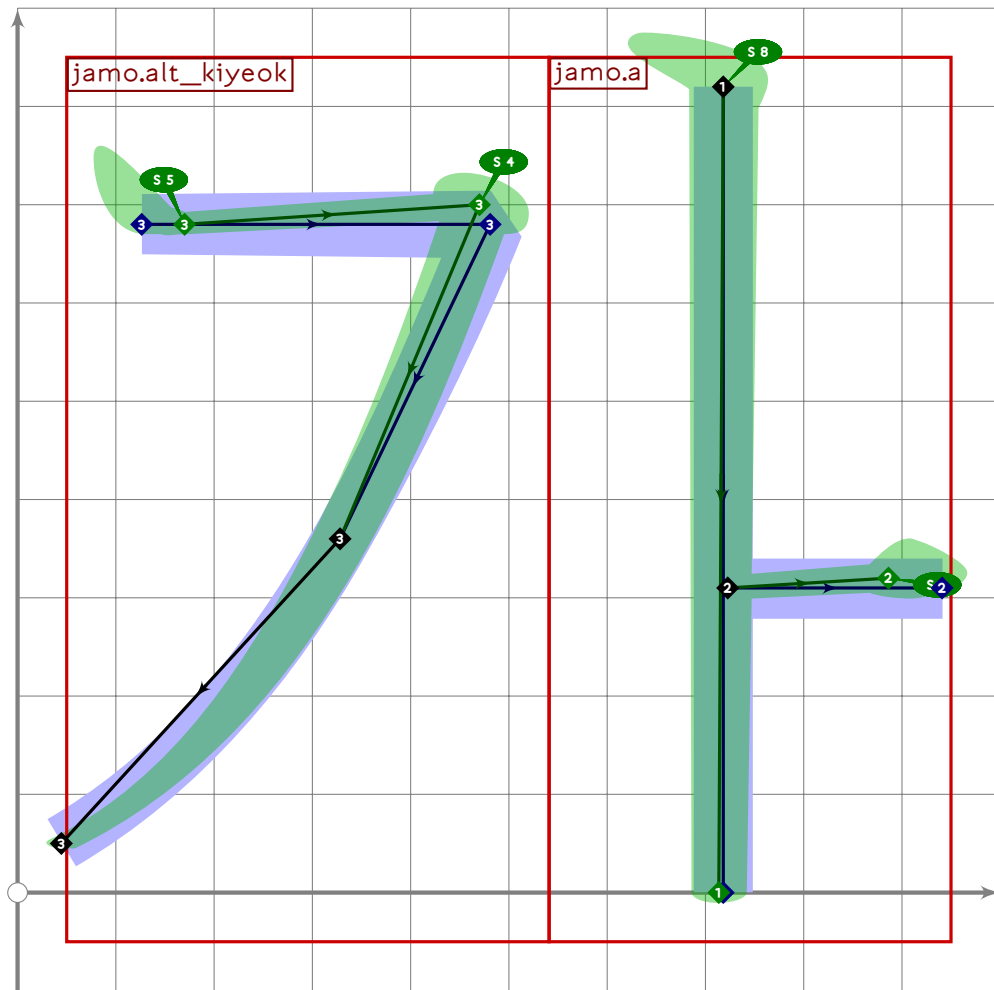
598 % hangul araeae
599 begintsuglyph("uni318E",142);
600 hangul.combine.lr(428,320)(427,identity,identity);
601 tsu_render;
602 endtsuglyph;
603
604 _____
605
606 endfont;
607
608 _____

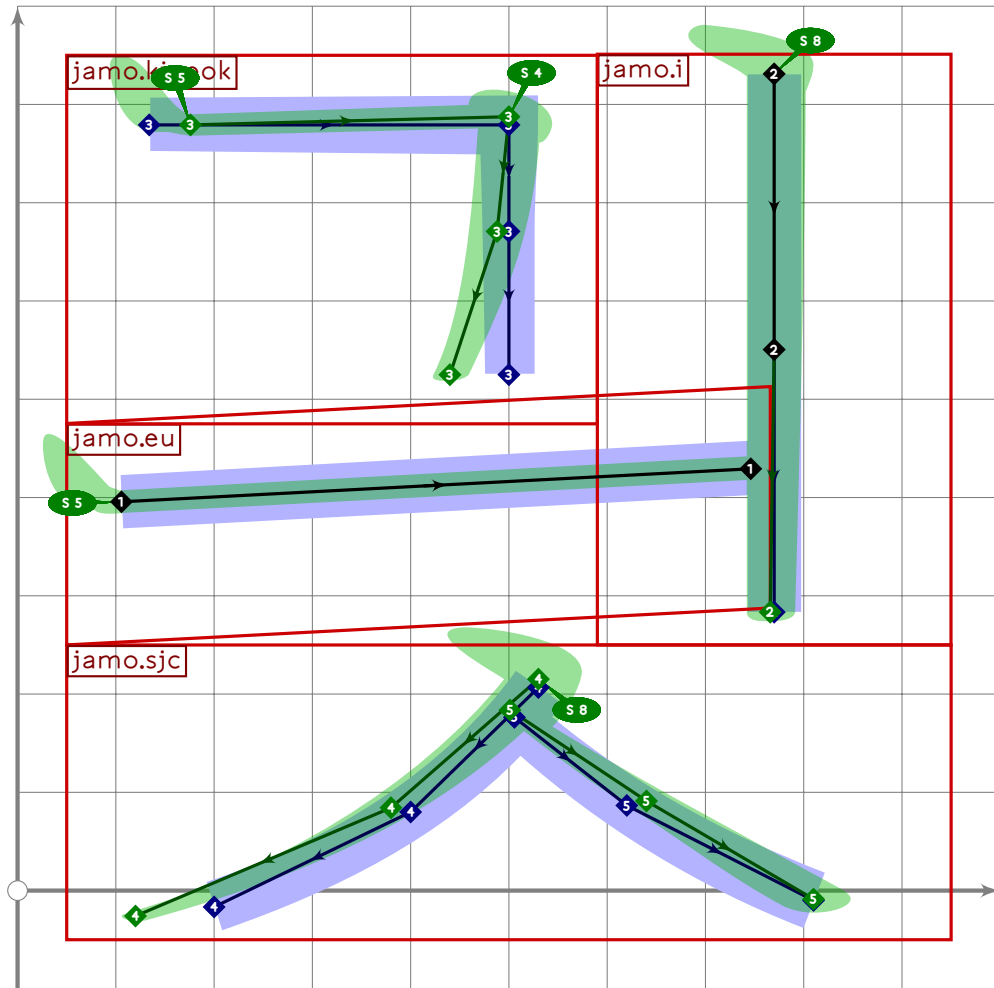
```

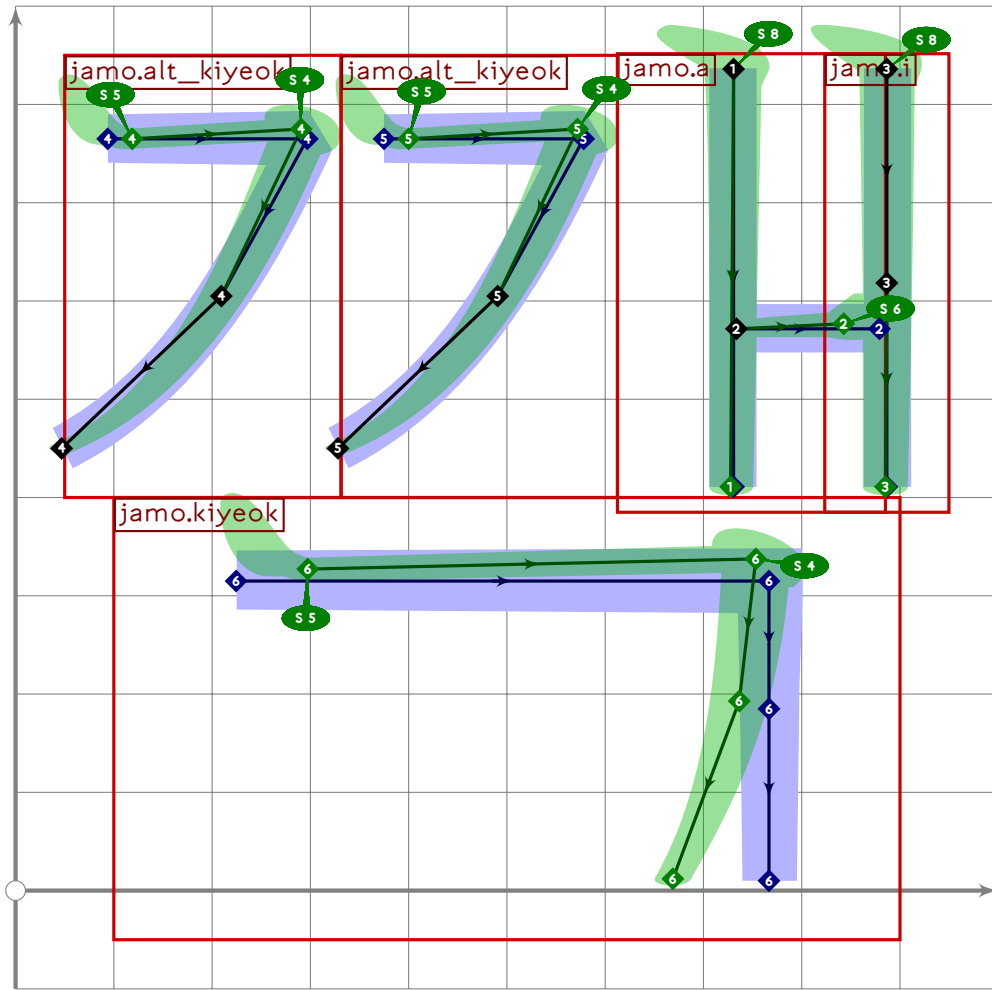
## jieub-ac.mp

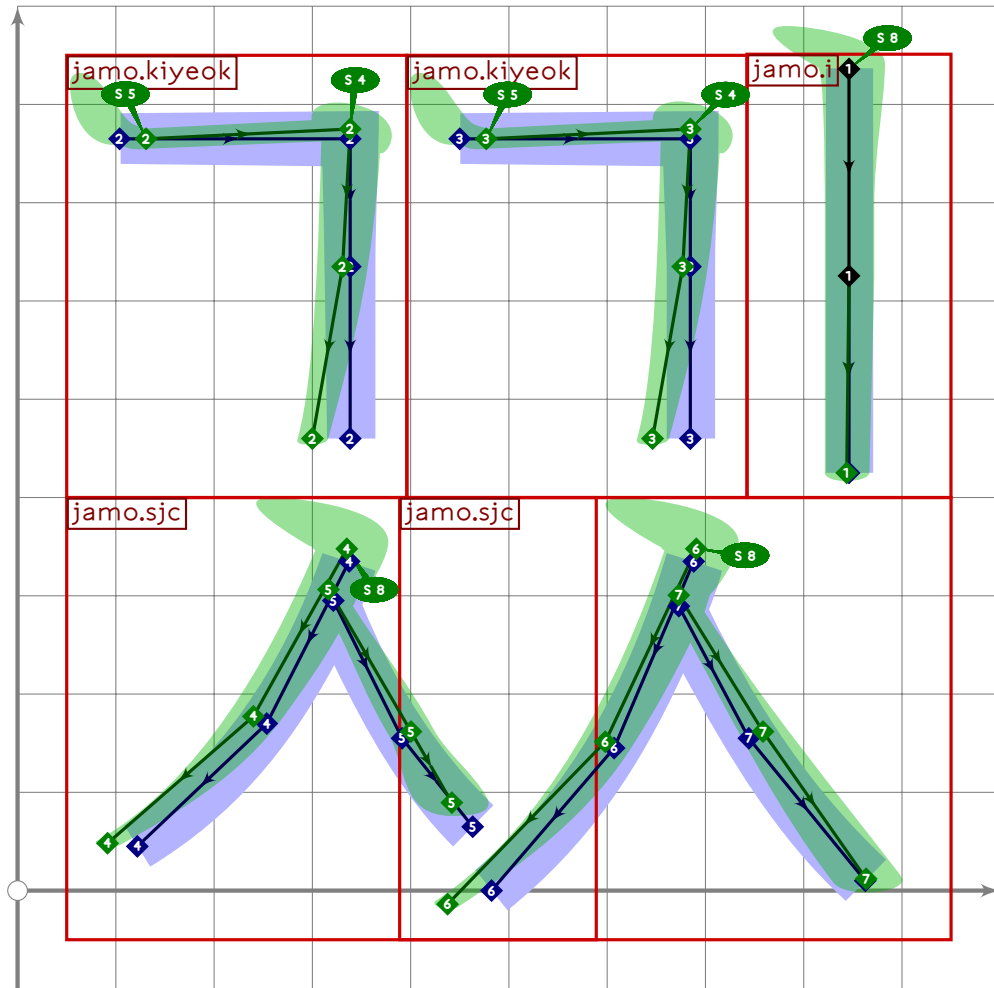
```
1 % GENERATED FILE - edit the source in make-hglpages instead!
2
3 string hgl_page; hgl_page="AC";
4 hgl_lead=0;
5 hgl_vowel=0;
6 hgl_tail=0;
7
8 input hglpage.mp;
```

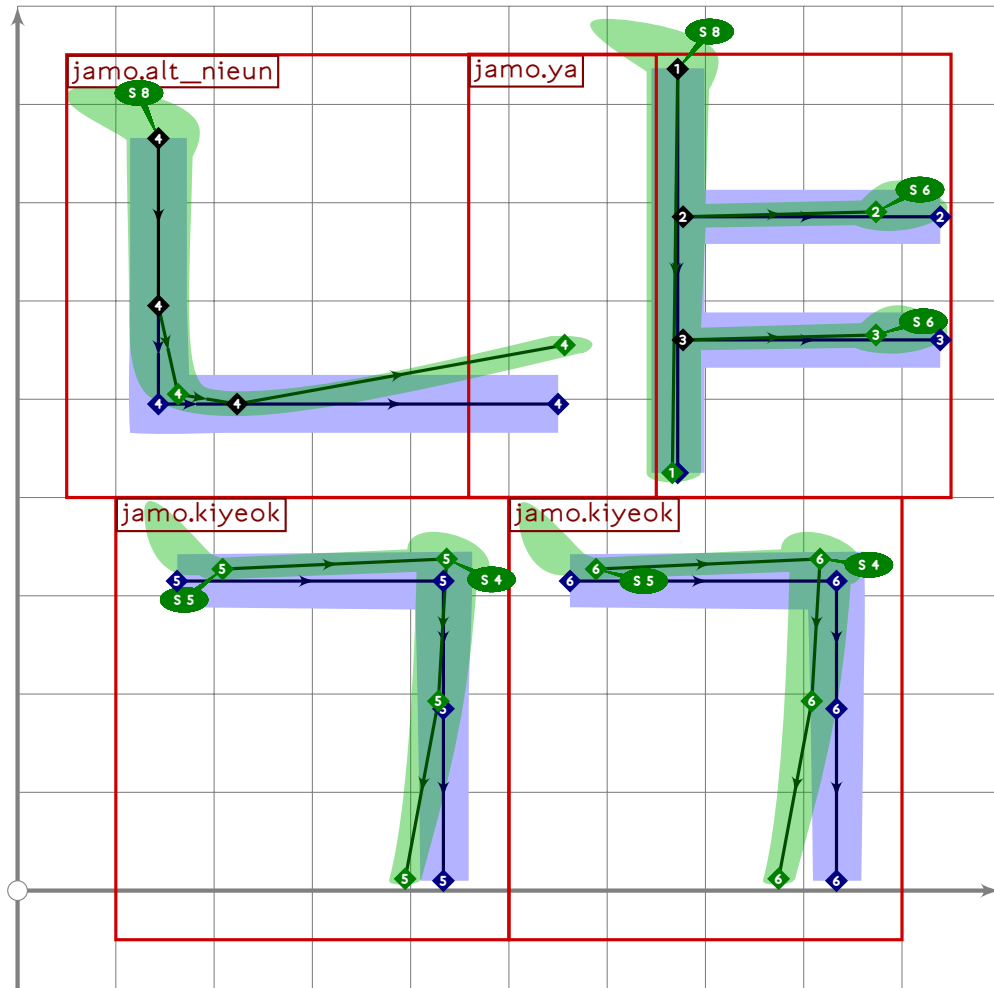
PLEASE NOTE: The files jieub-ac.mp through jieub-d7.mp are algorithmically generated, and identical except for the four variable assignments defining the start of each file's coverage range. They define a total of 11172 glyphs for precomposed hangul syllables, which all consist of the same few jamo in systematically varying arrangements. It seems that generating a proof page for every one of these files and glyphs would not be a good use of resources. Instead, we give an example of one MetaPost file above, and on the following pages, detailed proofs for 28 syllable glyphs covering at least one example of every lead, vowel, and tail jamo. After that is a table of all the precomposed syllables printed 480 per page.

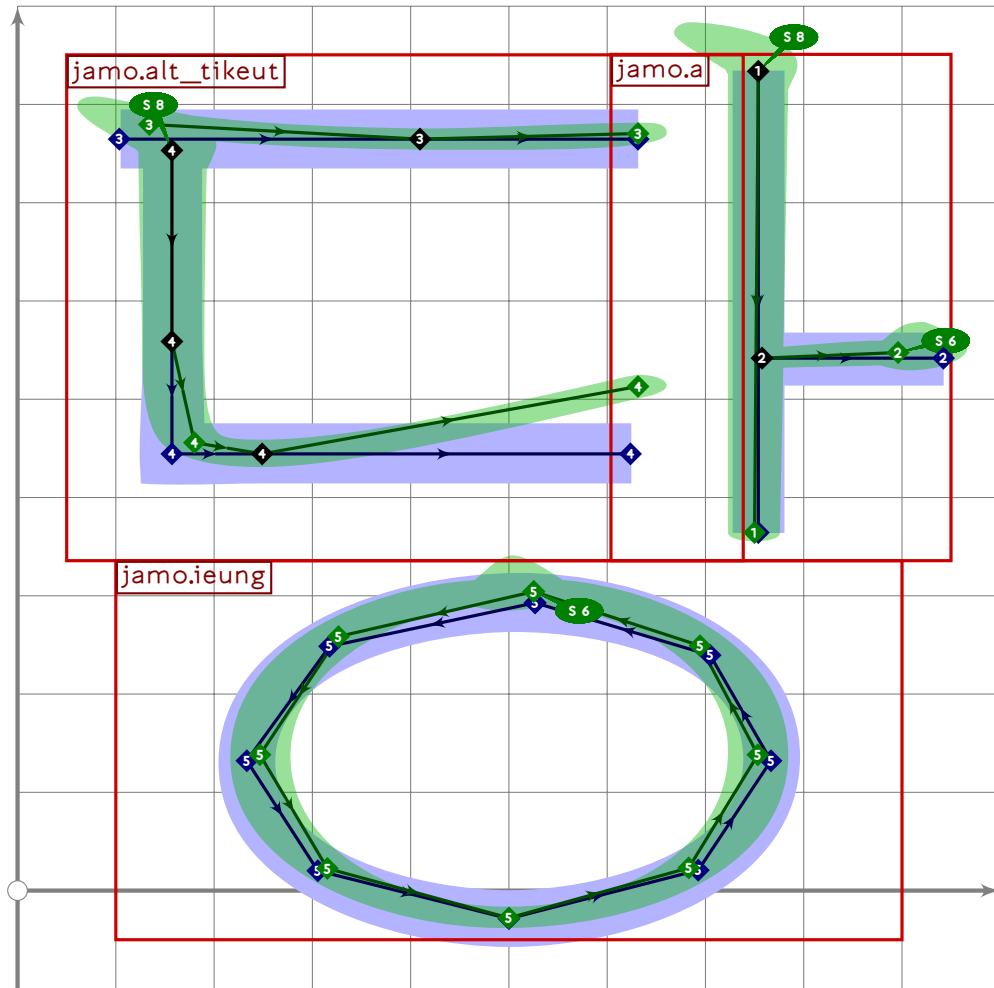




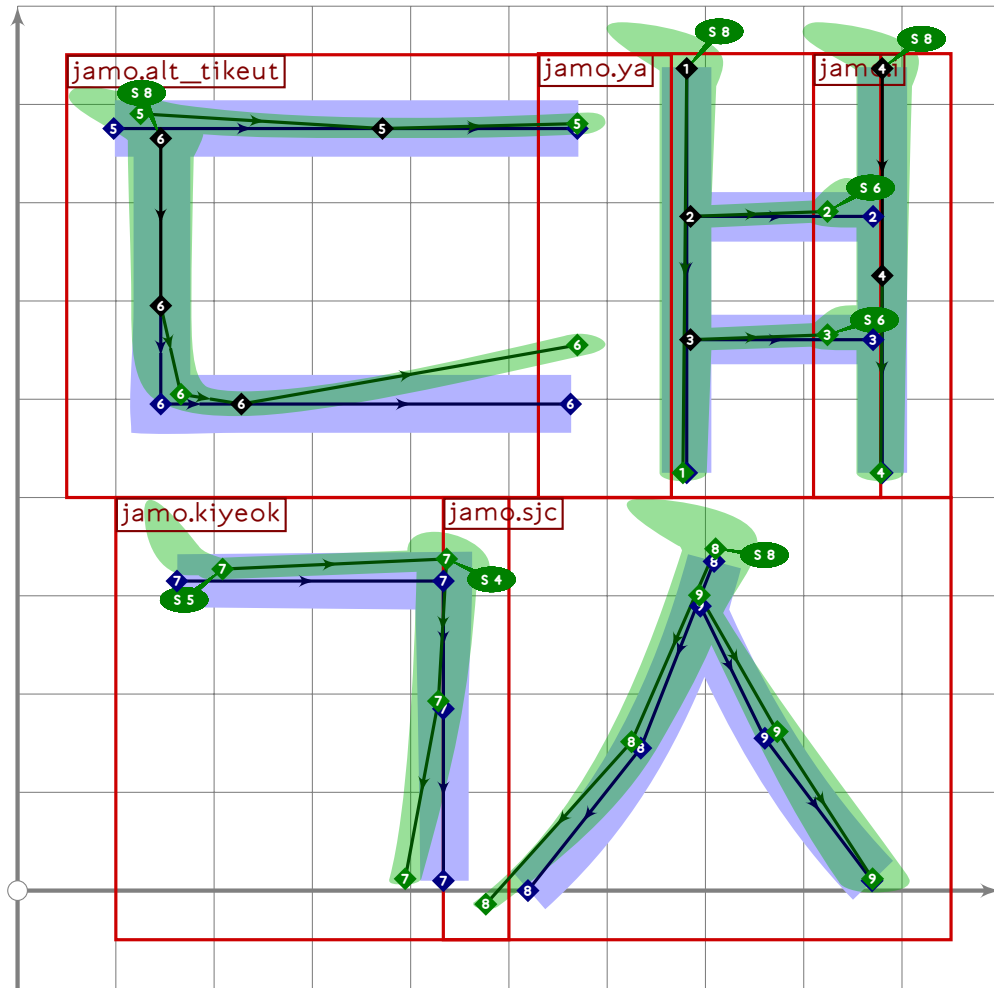


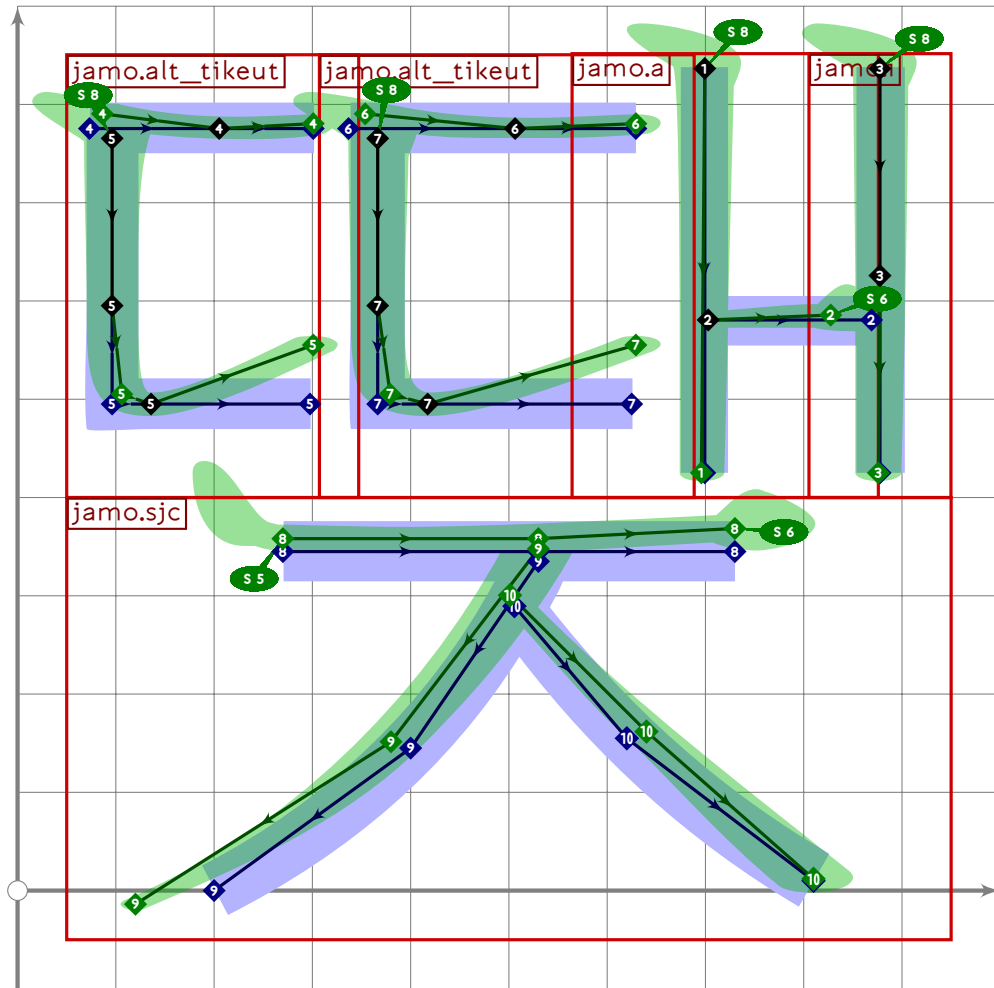


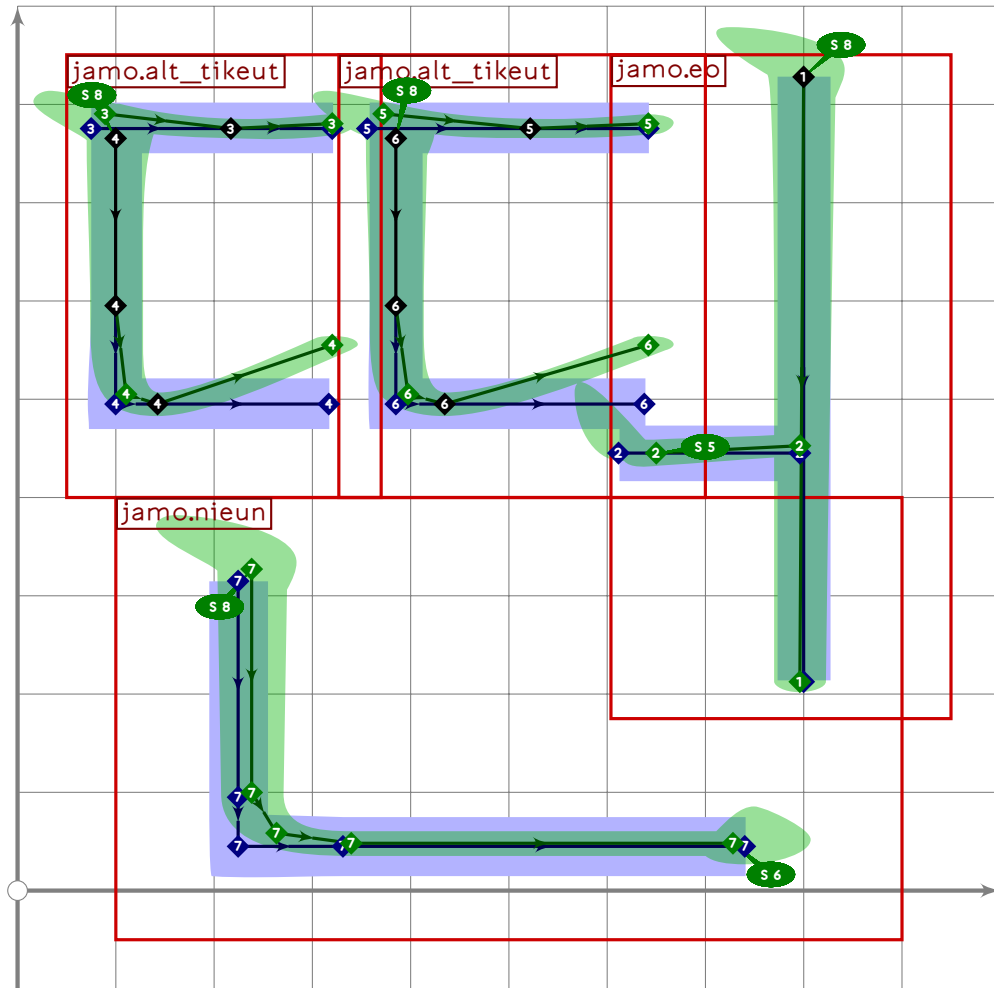


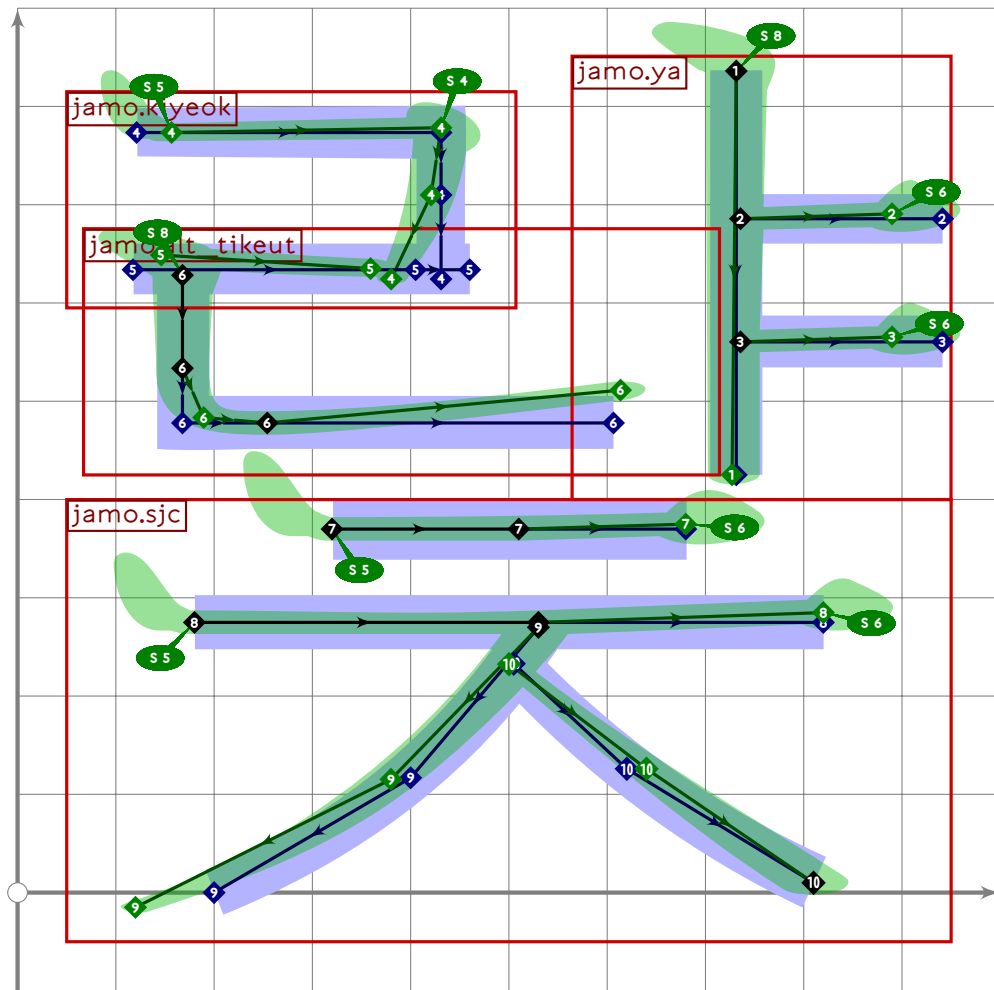


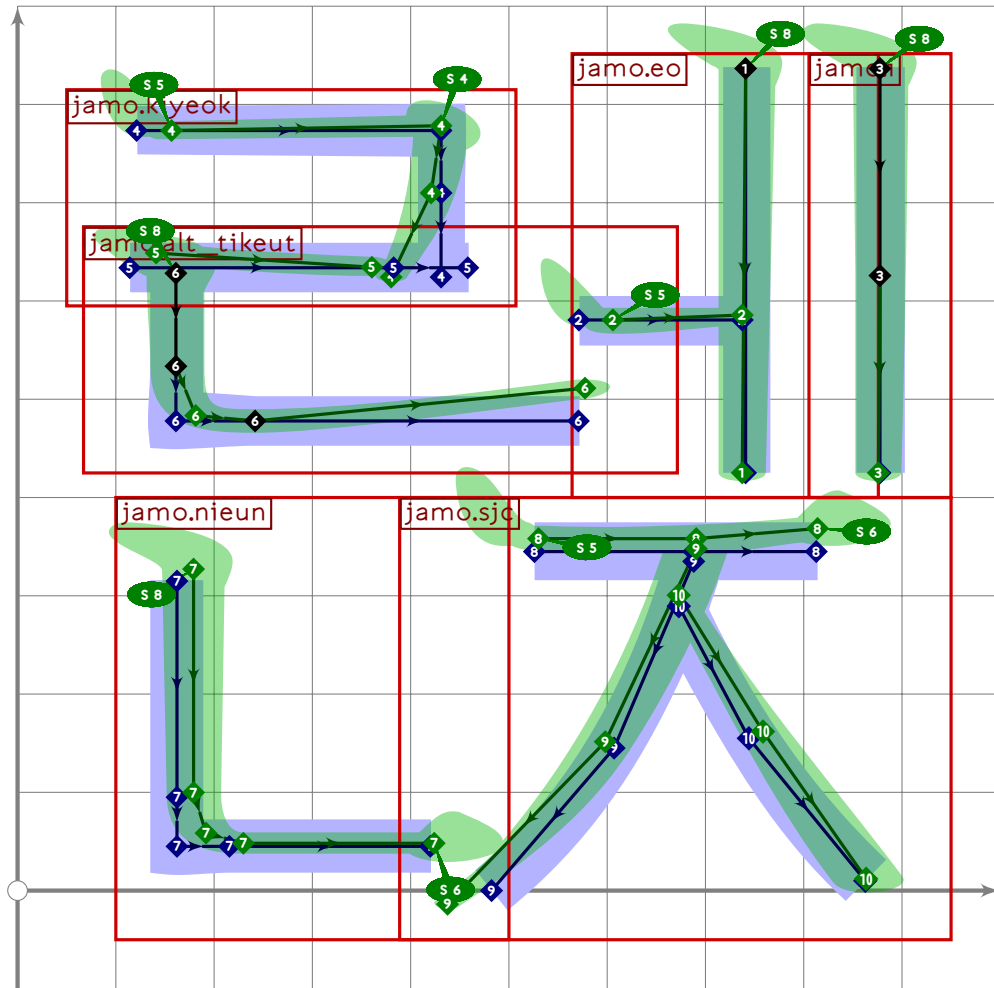


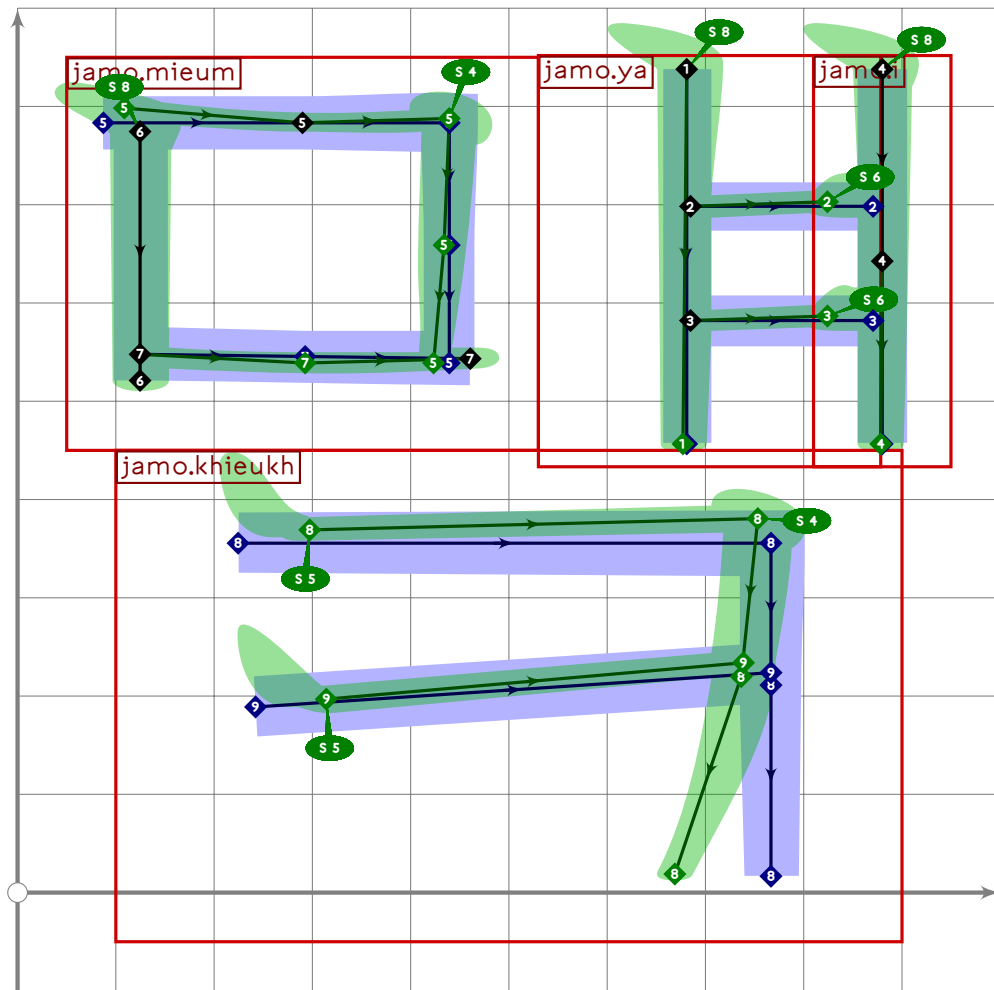


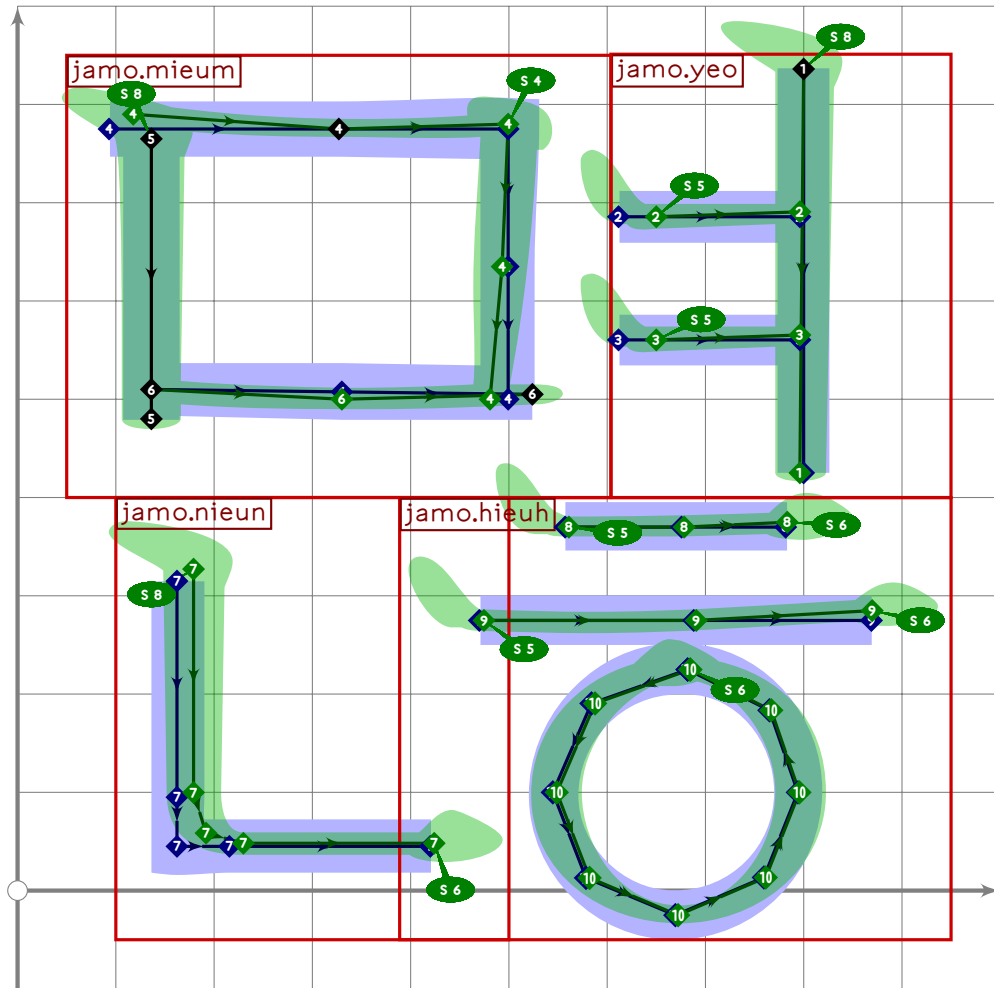


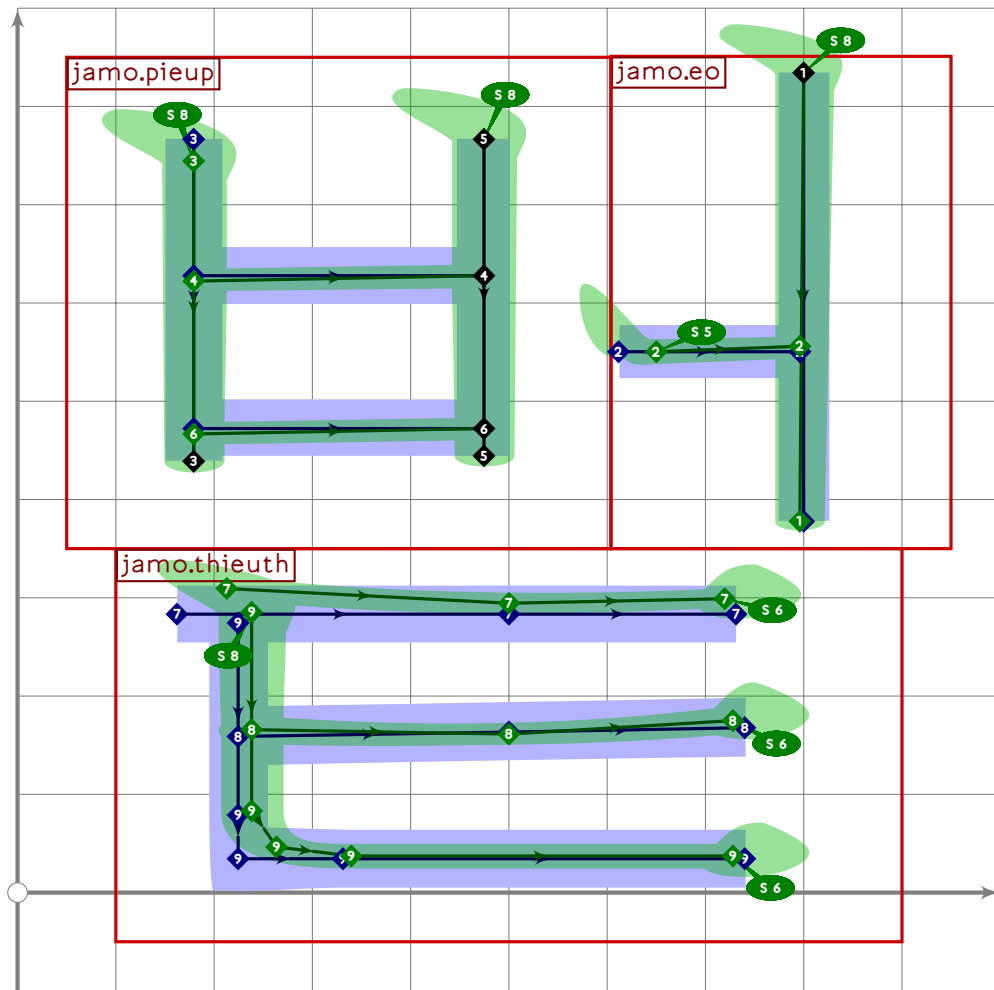




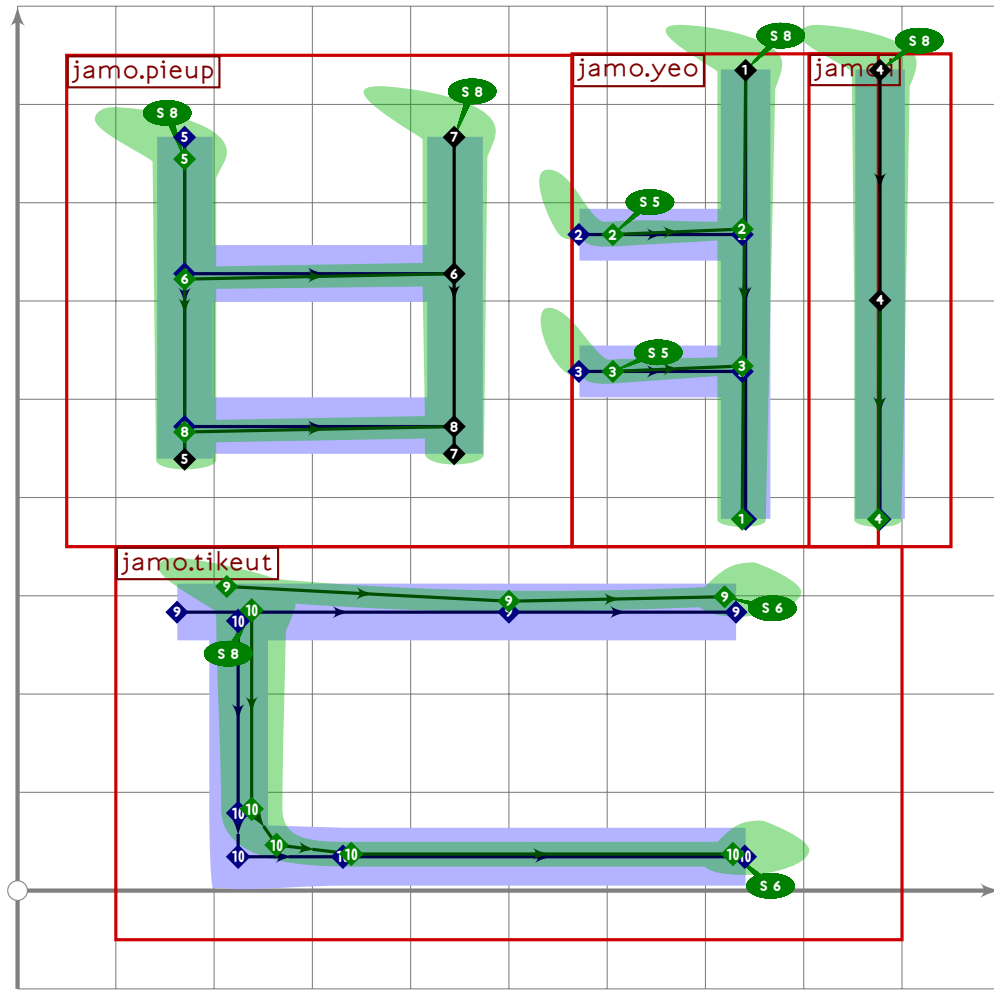


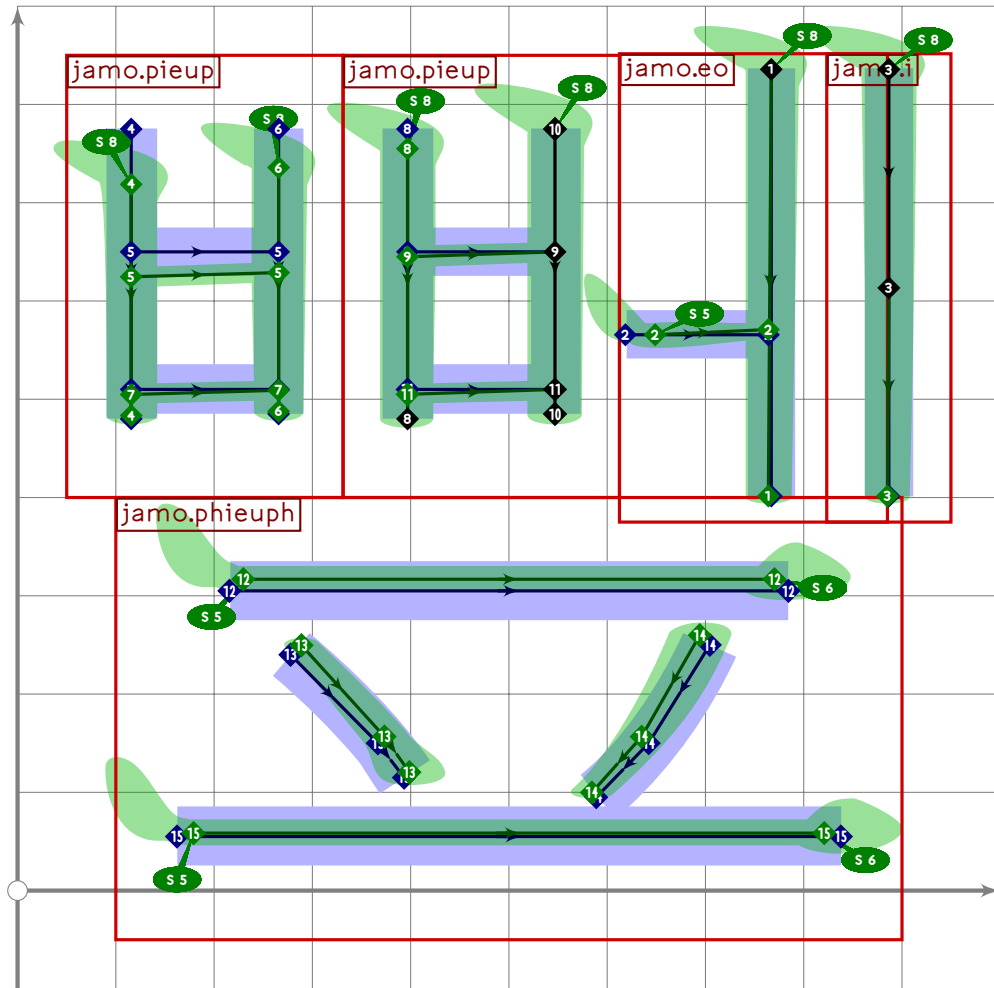


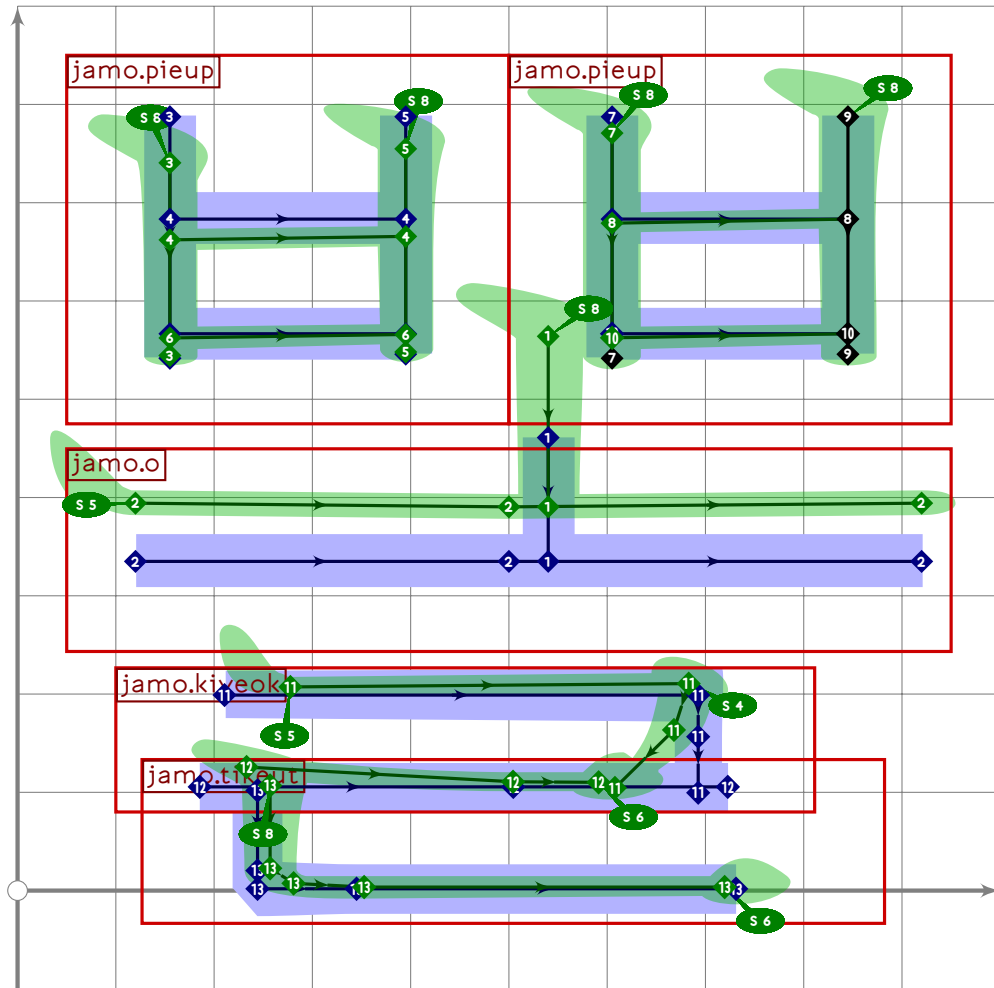


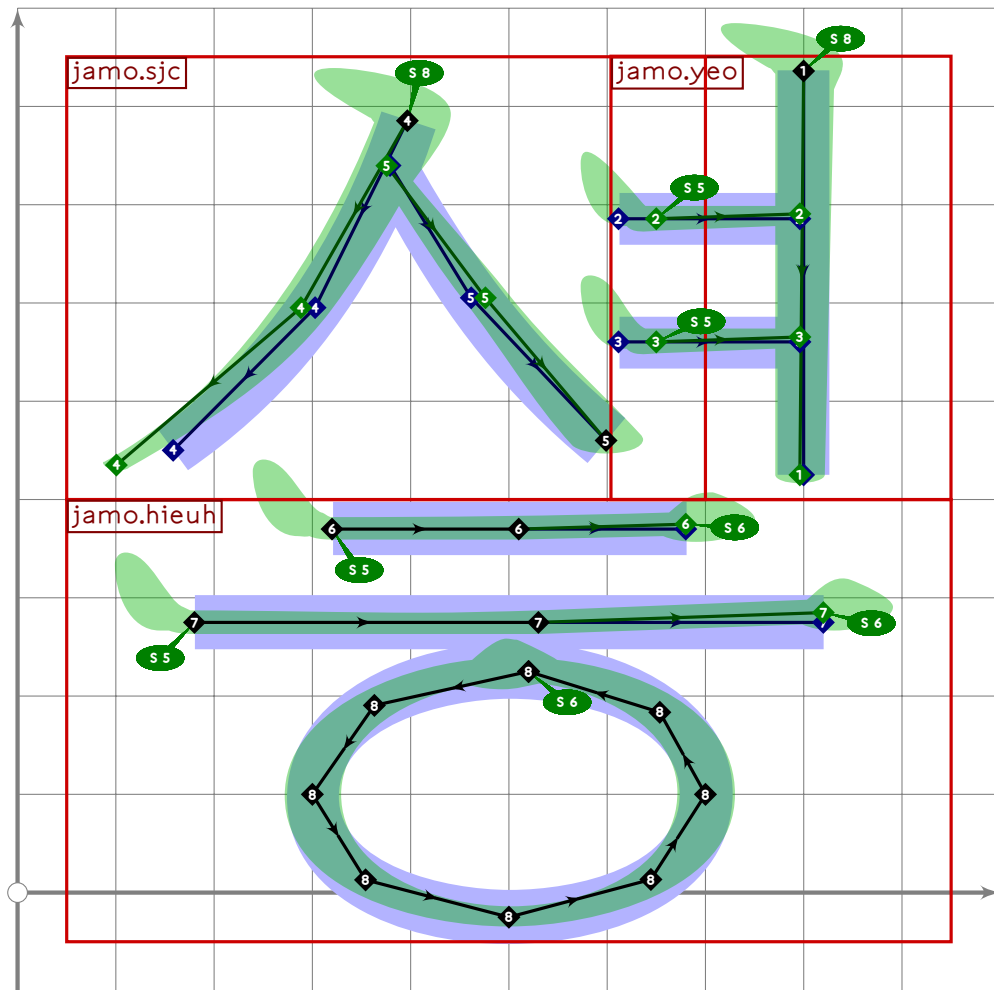


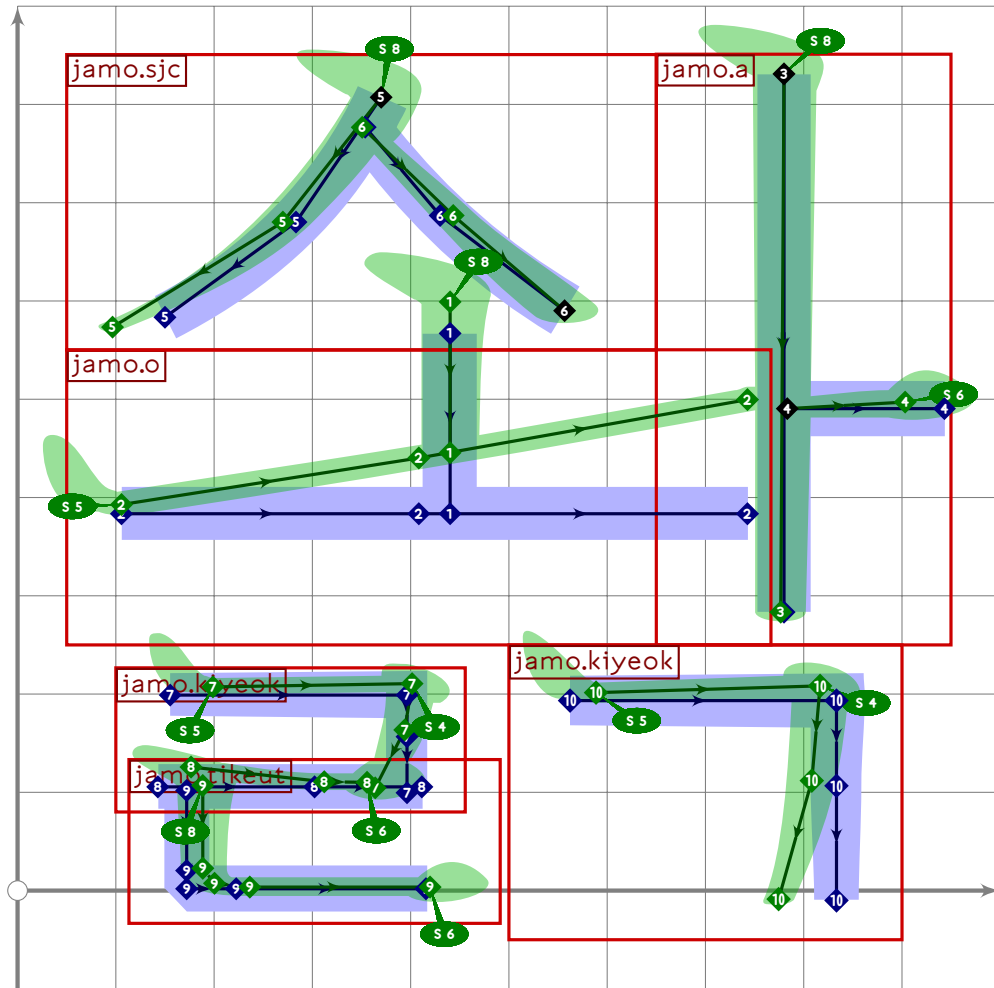


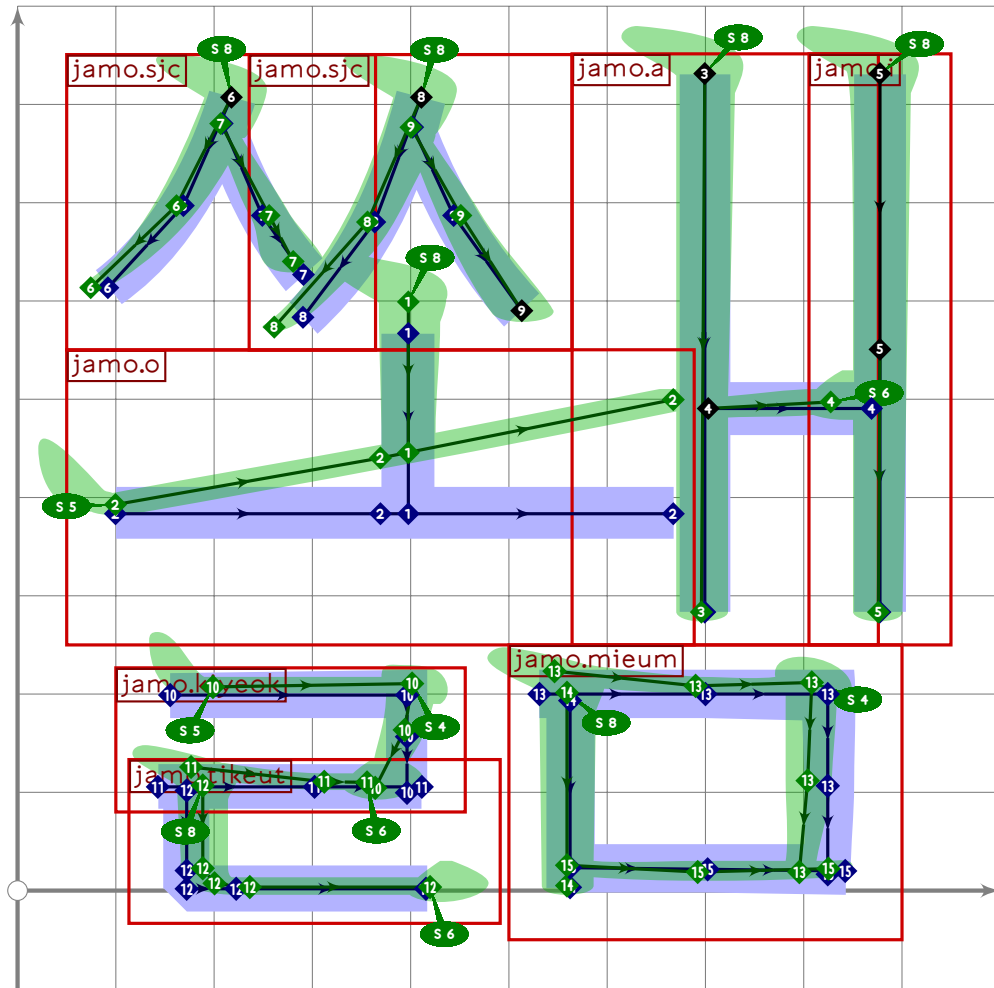


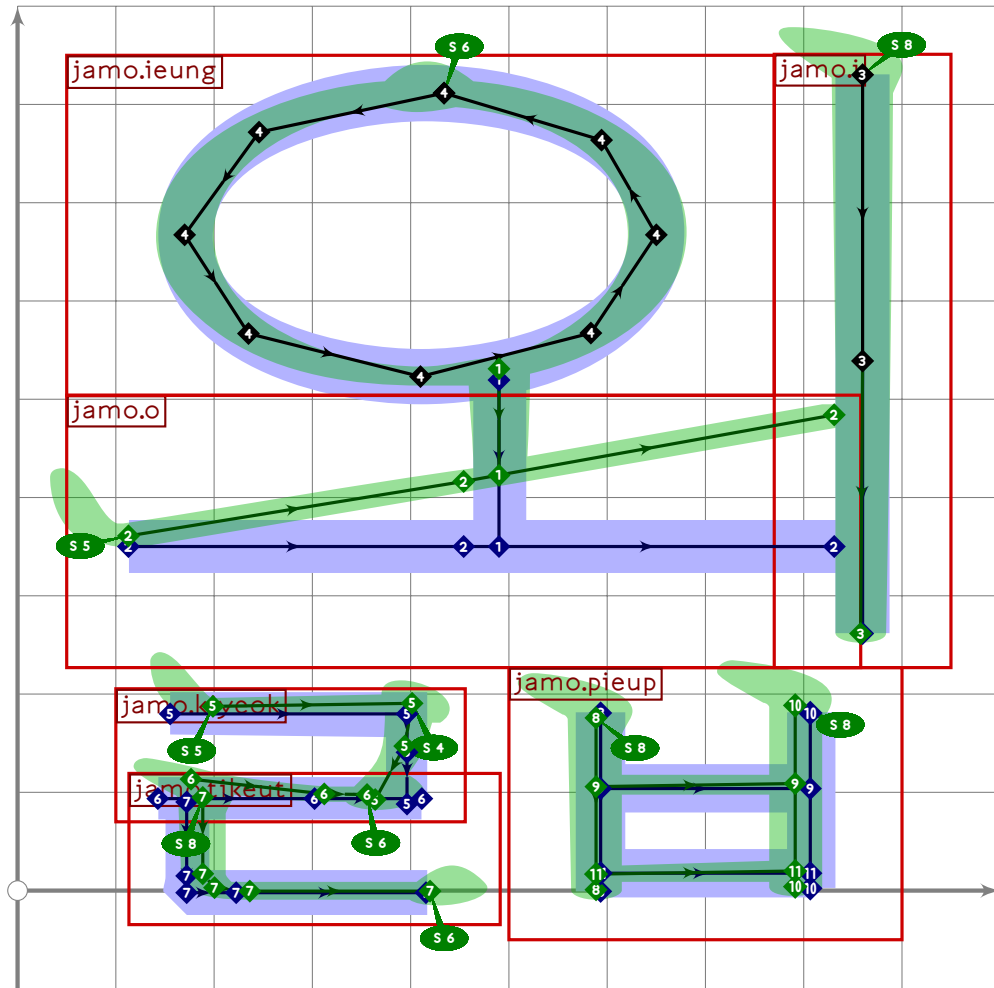


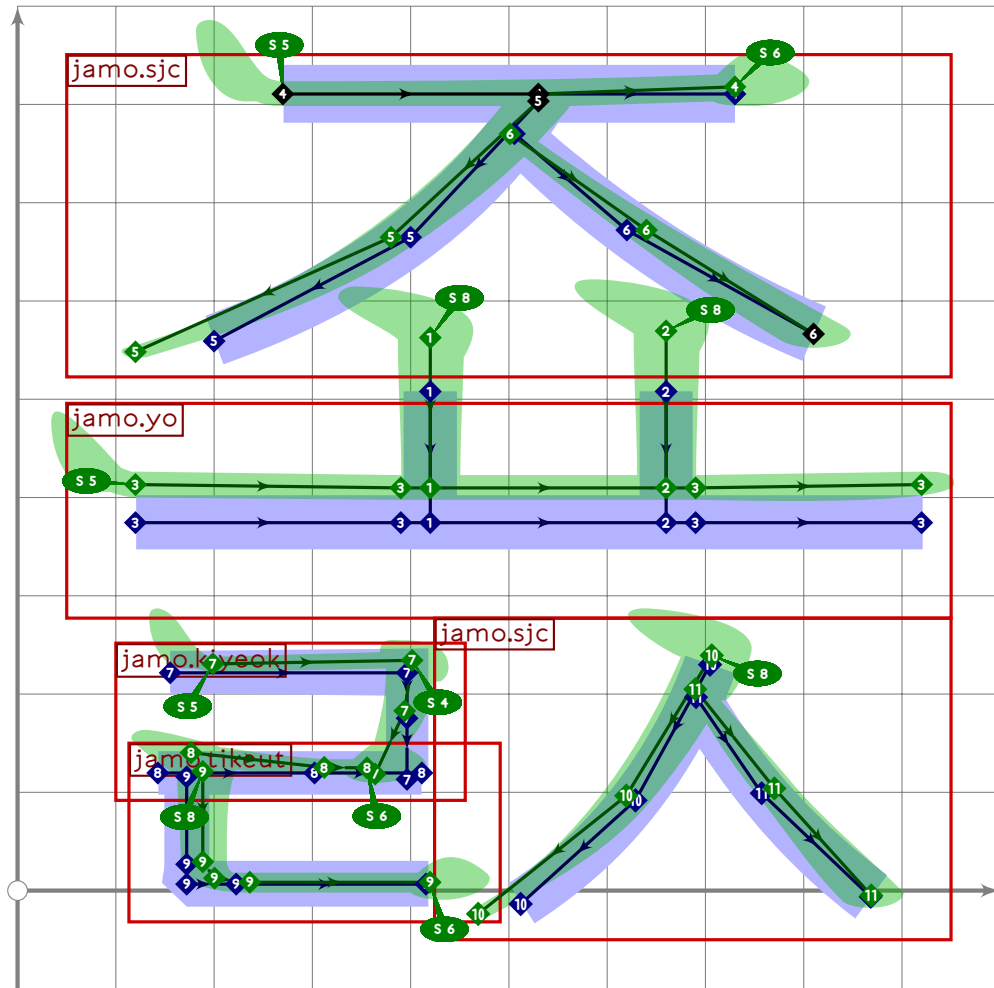




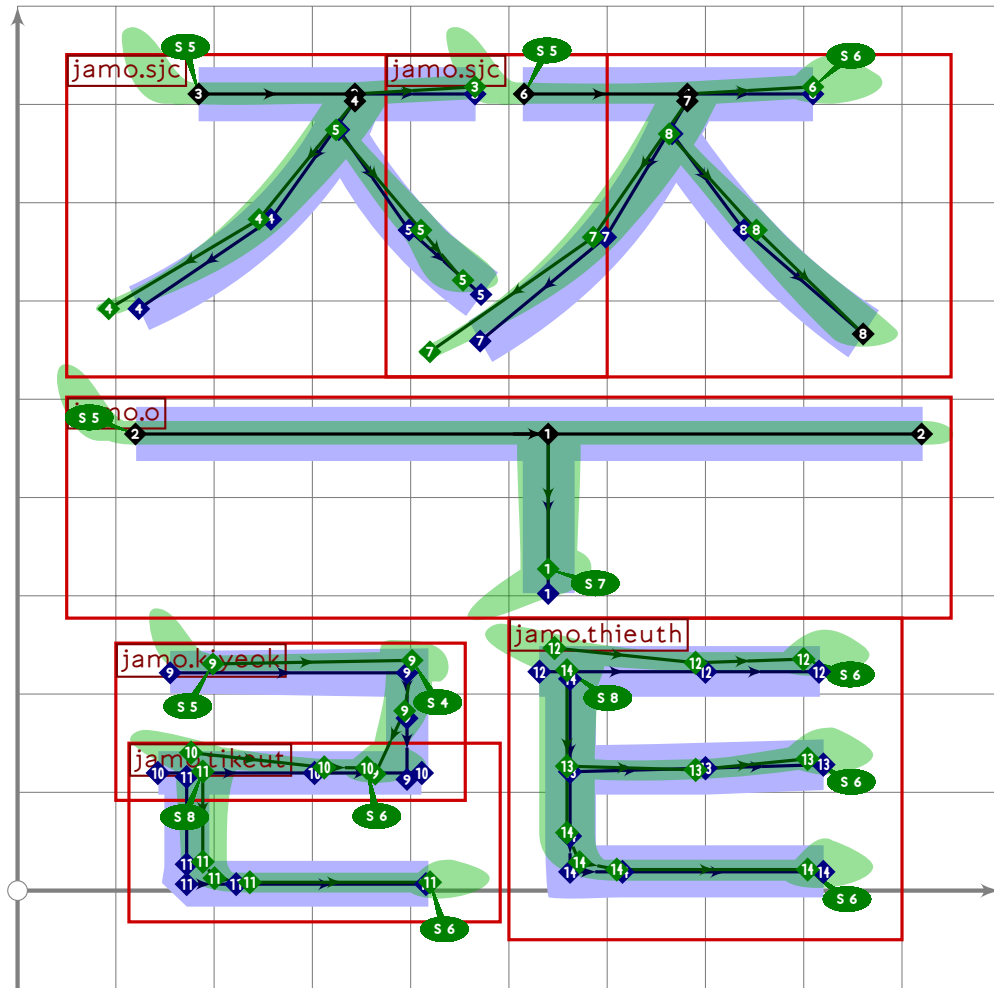


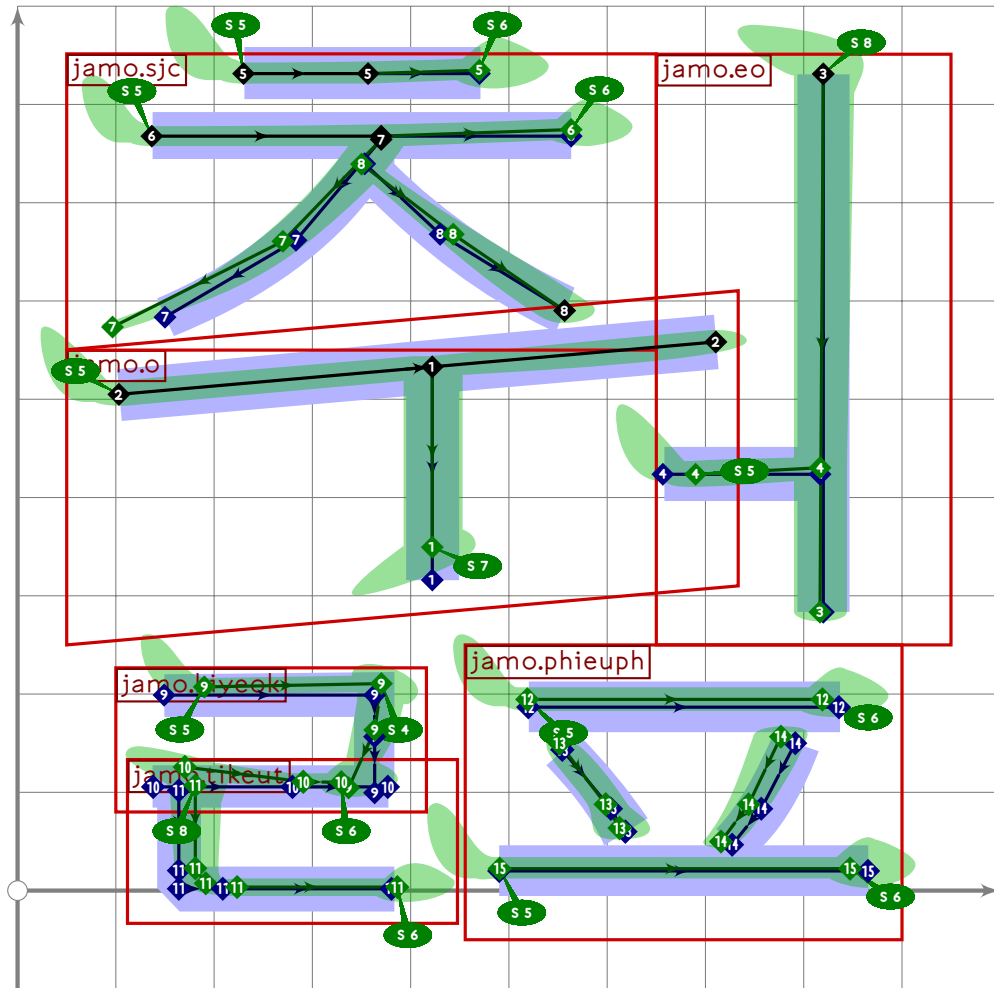


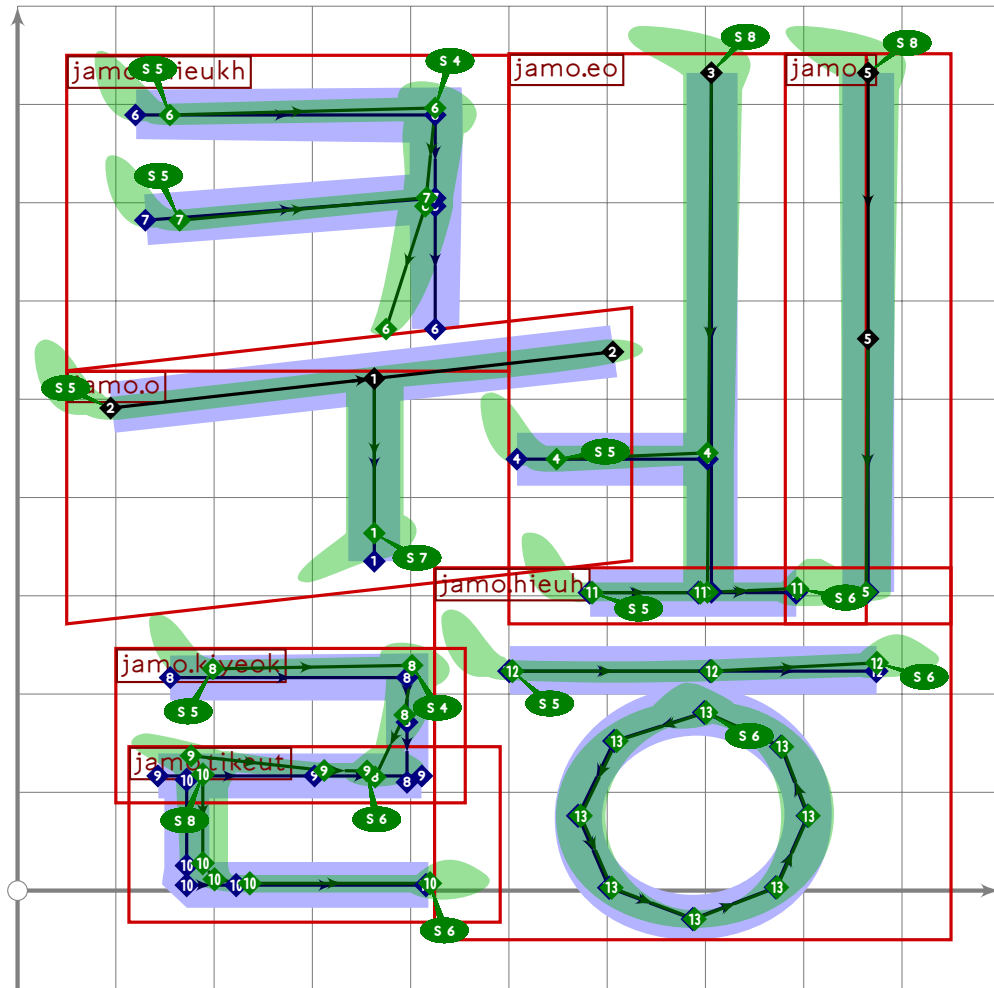


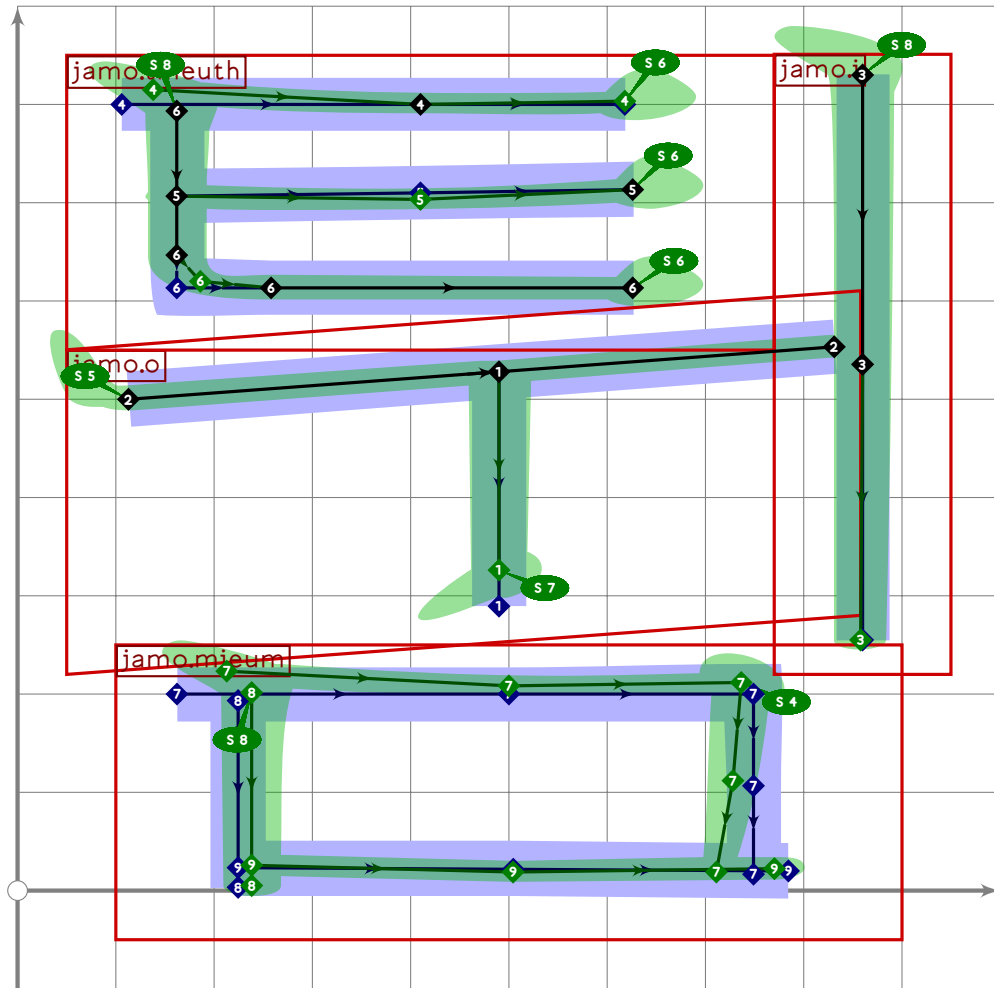


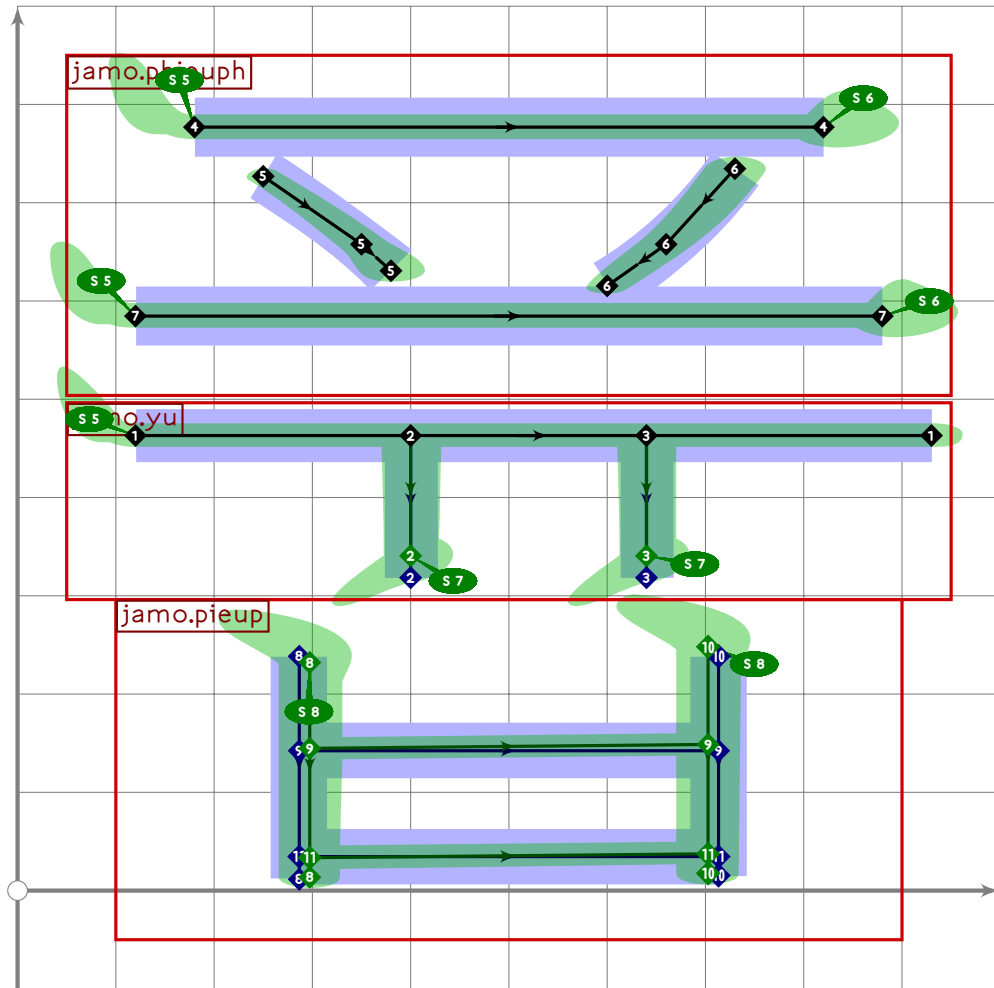


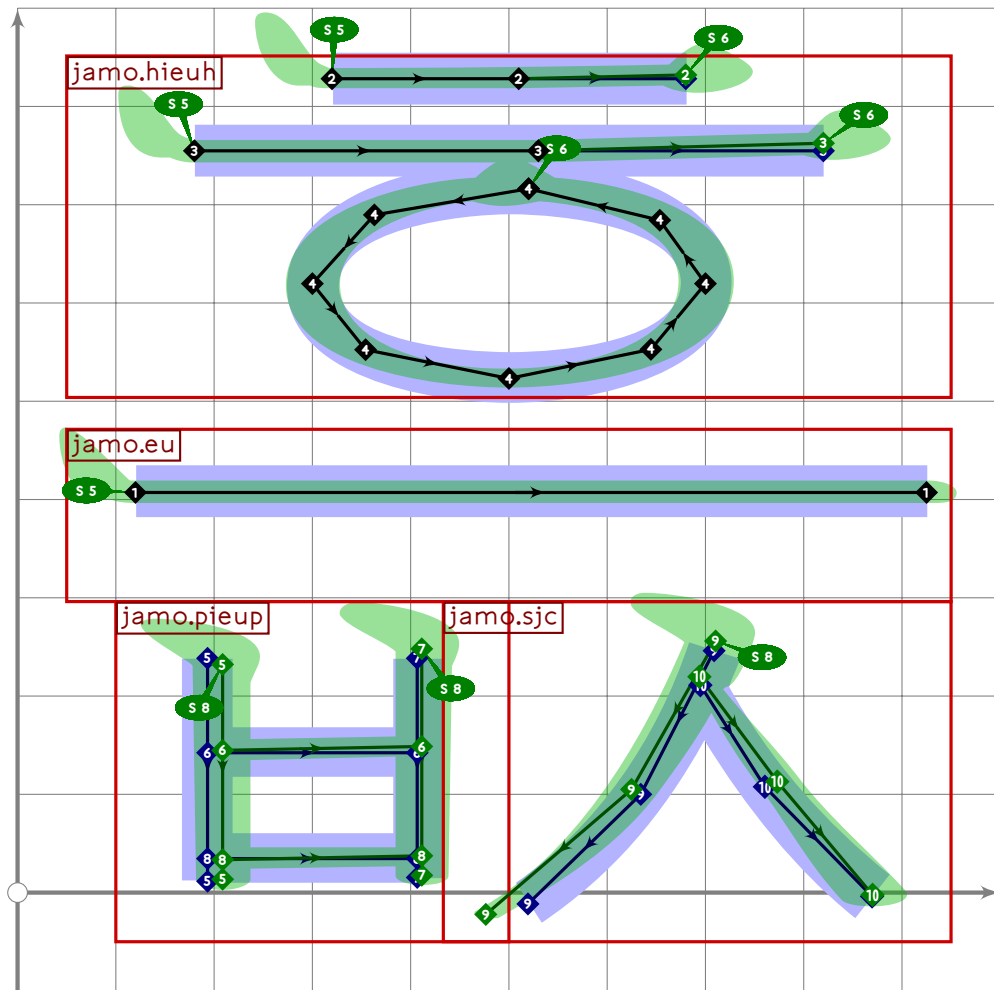












	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AC00	가	각	각	각	간	간	간	간	간	간	간	간	간	간	간	간
AC10	감	갑	갑	갑	간	간	간	간	간	간	간	간	간	간	간	간
AC20	개	개	개	개	개	개	개	개	개	개	개	개	개	개	개	개
AC30	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸
AC40	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈
AC50	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯	갯
AC60	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬	갬
AC70	거	거	거	거	거	거	거	거	거	거	거	거	거	거	거	거
AC80	검	검	검	검	검	검	검	검	검	검	검	검	검	검	검	검
AC90	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐	겐
ACA0	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸	갸
ACB0	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨	겨
ACC0	격	격	격	격	격	격	격	격	격	격	격	격	격	격	격	격
ACD0	계	계	계	계	계	계	계	계	계	계	계	계	계	계	계	계
ACE0	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고	고
ACF0	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰
AD00	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
AD10	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AD20	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AD30	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AD40	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AD50	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교	교
AD60	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰	곰
AD70	근	근	근	근	근	근	근	근	근	근	근	근	근	근	근	근
AD80	근	근	근	근	근	근	근	근	근	근	근	근	근	근	근	근
AD90	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADA0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADB0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADC0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권
ADD0	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권	권

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ADE0	관	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
ADF0	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AE00	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AE10	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AE20	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AE30	기	기	기	기	기	기	기	기	기	기	기	기	기	기	기	기
AE40	김	김	김	김	김	김	김	김	김	김	김	김	김	김	김	김
AE50	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까
AE60	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까
AE70	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨
AE80	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨
AE90	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까	까
AEA0	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨
AEB0	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨	깨
AEC0	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼
AED0	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼
AEE0	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼	꺼
AEF0	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴
AF00	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴
AF10	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴
AF20	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴	껴
AF30	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF40	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF50	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF60	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF70	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF80	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AF90	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AFA0	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘
AFB0	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘	괘







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B380	데	데	데	데	데	데	데	데	데	데	데	데	데	데	데	데
B390	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴
B3A0	데	데	데	데	데	데	데	데	데	데	데	데	데	데	데	데
B3B0	델	델	델	델	델	델	델	델	델	델	델	델	델	델	델	델
B3C0	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴	덴
B3D0	도	도	도	도	도	도	도	도	도	도	도	도	도	도	도	도
B3E0	되	되	되	되	되	되	되	되	되	되	되	되	되	되	되	되
B3F0	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨	됨
B400	된	된	된	된	된	된	된	된	된	된	된	된	된	된	된	된
B410	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐	됐
B420	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌	돌
B430	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
B440	프	프	프	프	프	프	프	프	프	프	프	프	프	프	프	프
B450	구	구	구	구	구	구	구	구	구	구	구	구	구	구	구	구
B460	금	금	금	금	금	금	금	금	금	금	금	금	금	금	금	금
B470	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관	관
B480	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원
B490	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원
B4A0	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원
B4B0	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원	원
B4C0	구	구	구	구	구	구	구	구	구	구	구	구	구	구	구	구
B4D0	금	금	금	금	금	금	금	금	금	금	금	금	금	금	금	금
B4E0	크	크	크	크	크	크	크	크	크	크	크	크	크	크	크	크
B4F0	크	크	크	크	크	크	크	크	크	크	크	크	크	크	크	크
B500	티	티	티	티	티	티	티	티	티	티	티	티	티	티	티	티
B510	티	티	티	티	티	티	티	티	티	티	티	티	티	티	티	티
B520	리	리	리	리	리	리	리	리	리	리	리	리	리	리	리	리
B530	따	따	따	따	따	따	따	따	따	따	따	따	따	따	따	따
B540	따	따	따	따	따	따	따	따	따	따	따	따	따	따	따	따
B550	편	편	편	편	편	편	편	편	편	편	편	편	편	편	편	편











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BCE0	베	베	베	베	베	베	베	베	베	베	베	베	베	베	베	베
BCF0	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵	벵
BD00	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부
BD10	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐	봐
BD20	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤
BD30	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘
BD40	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠
BD50	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡
BD60	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢
BD70	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣
BD80	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부
BD90	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤
BDA0	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘
BD80	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠
BDC0	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡
BDD0	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢
BDE0	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣
BDF0	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부	부
BE00	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤
BE10	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘
BE20	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠
BE30	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡
BE40	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢
BE50	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣	뵣
BE60	배	배	배	배	배	배	배	배	배	배	배	배	배	배	배	배
BE70	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤
BE80	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘	뵘
BE90	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠	뵠
BEA0	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡	뵡
BEBO	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢	뵢





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COA0	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	뵤	사	삭	삭
COB0	산	산	산	산	산	산	산	산	산	산	산	산	산	삼	삽	삽
COC0	삿	삿	삿	삿	삿	삿	삿	삿	삿	삿	삿	삿	삿	산	삿	삿
COD0	샐	샐	샐	샐	샐	샐	샐	샐	샐	샐	샐	샐	샐	생	샐	샐
COE0	색	색	색	색	색	색	색	색	색	색	색	색	색	샐	샐	샐
COF0	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏	샏
C100	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새	새
C110	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	쌈	시	식	식
C120	신	신	신	신	신	신	신	신	신	신	신	신	신	심	십	십
C130	섯	섯	섯	섯	섯	섯	섯	섯	섯	섯	섯	섯	섯	신	섯	섯
C140	셀	셀	셀	셀	셀	셀	셀	셀	셀	셀	셀	셀	셀	세	셋	셋
C150	섹	섹	섹	섹	섹	섹	섹	섹	섹	섹	섹	섹	섹	세	셋	셋
C160	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔	셔
C170	세	세	세	세	세	세	세	세	세	세	세	세	세	세	세	세
C180	셈	셈	셈	셈	셈	셈	셈	셈	셈	셈	셈	셈	셈	소	속	속
C190	손	손	손	손	손	손	손	손	손	손	손	손	손	소	속	속
C1A0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C1B0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C1C0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C1D0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C1E0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C1F0	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C200	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C210	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C220	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C230	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C240	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C250	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C260	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속
C270	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	솟	소	속	속

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C280	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬	쉬
C290	수	수	수	수	수	수	수	수	수	수	수	수	수	수	수	수
C2A0	소	소	소	소	소	소	소	소	소	소	소	소	소	소	소	소
C2B0	수	수	수	수	수	수	수	수	수	수	수	수	수	수	수	수
C2C0	시	시	시	시	시	시	시	시	시	시	시	시	시	시	시	시
C2D0	심	심	심	심	심	심	심	심	심	심	심	심	심	심	심	심
C2E0	신	신	신	신	신	신	신	신	신	신	신	신	신	신	신	신
C2F0	시	시	시	시	시	시	시	시	시	시	시	시	시	시	시	시
C300	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸	싸
C310	작	작	작	작	작	작	작	작	작	작	작	작	작	작	작	작
C320	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C330	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤	샤
C340	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C350	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C360	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C370	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C380	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C390	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3A0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3B0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3C0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3D0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3E0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C3F0	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C400	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C410	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C420	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C430	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C440	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌
C450	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌	쌌



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C460	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C470	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C480	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C490	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4A0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4B0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4C0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4D0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4E0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C4F0	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C500	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C510	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C520	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C530	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤	쑤
C540	쑤	쑤	쑤	쑤	아	악	악	악	안	안	안	안	안	안	안	안
C550	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안
C560	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애
C570	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎	앎
C580	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀	얀
C590	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏	얏
C5A0	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏	앏
C5B0	억	억	억	억	억	억	억	억	억	억	억	억	억	억	억	억
C5C0	억	억	억	억	억	억	억	억	억	억	억	억	억	억	억	억
C5D0	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C5E0	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C5F0	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C600	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예
C610	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예
C620	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예
C630	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예	예

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C640	어	애	안	아	안	어	앙	엔	얼	엘	엄	업	엇	엣	엣	엣
C650	에	예	안	아	안	어	앙	엔	얼	엘	엄	업	엇	엣	엣	엣
C660	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔
C670	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어
C680	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C690	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애
C6A0	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안
C6B0	아	아	아	아	아	아	아	아	아	아	아	아	아	아	아	아
C6C0	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안
C6D0	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어
C6E0	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C6F0	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔
C700	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어
C710	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C720	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애	애
C730	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안
C740	아	아	아	아	아	아	아	아	아	아	아	아	아	아	아	아
C750	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안	안
C760	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어	어
C770	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에	에
C780	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔	엔
C790	자	자	자	자	자	자	자	자	자	자	자	자	자	자	자	자
C7A0	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡	잡
C7B0	재	재	재	재	재	재	재	재	재	재	재	재	재	재	재	재
C7C0	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈
C7D0	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈
C7E0	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈
C7F0	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈	쟈
C800	저	저	저	저	저	저	저	저	저	저	저	저	저	저	저	저
C810	점	점	점	점	점	점	점	점	점	점	점	점	점	점	점	점

















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D360	패	팩	패	패	패	패	패	패	패	패	패	패	패	패	패	패
D370	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜	팜
D380	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀
D390	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼	퍼
D3A0	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠	펠
D3B0	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍	펍
D3C0	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄	펄
D3D0	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페	페
D3E0	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸	팸
D3F0	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰
D400	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
D410	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D420	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D430	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D440	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀	핀
D450	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼	폼
D460	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰	폰
D470	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포	포
D480	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D490	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4A0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4B0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4C0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4D0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4E0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D4F0	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D500	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D510	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D520	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플
D530	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플	플





	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D720	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D730	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D740	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D750	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D760	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D770	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D780	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D790	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후
D7A0	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후	후

Part X

Jieubsida alternates





# jieub-ff2.mp

```
1 %
2 % Unicode page FF2 (alternate glyphs for vowel jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---

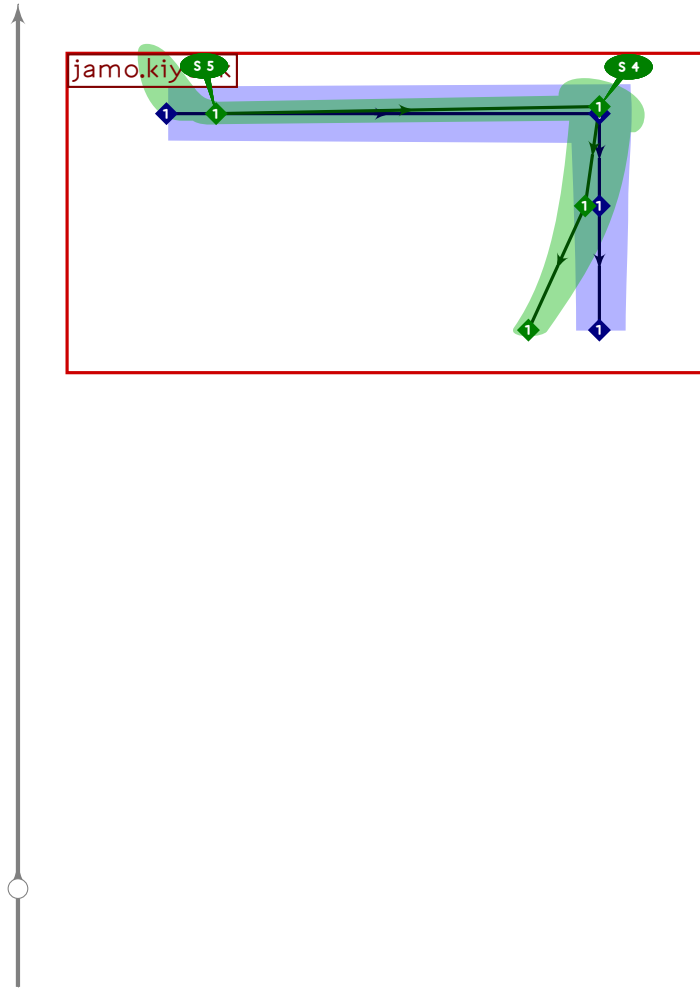

41
42 % This file is supposed to cover vowels only, for the "empty tail" layouts
43 % (layouts 3, 4, and 5). But for the moment, it also contains a set of
44 % lead jamo for layout 0, duplicating the ones on the U+11xx page, in
45 % order to work around XeTeX's apparent inability to process "ignore sub"
46 % feature rules.
47
48 transform lixf,loxf,vixf,tvixf,voxf;
49
50 lixf=loxf=hxf((50,850),(700,525));
51 vixf=hxf((700,275),(950,-50));
52 tvixf=hxf((700,335),(950,-50));
53 voxf=identity;
54
55 

---


56
```

## Hangul Choseong (Lead) Jamo

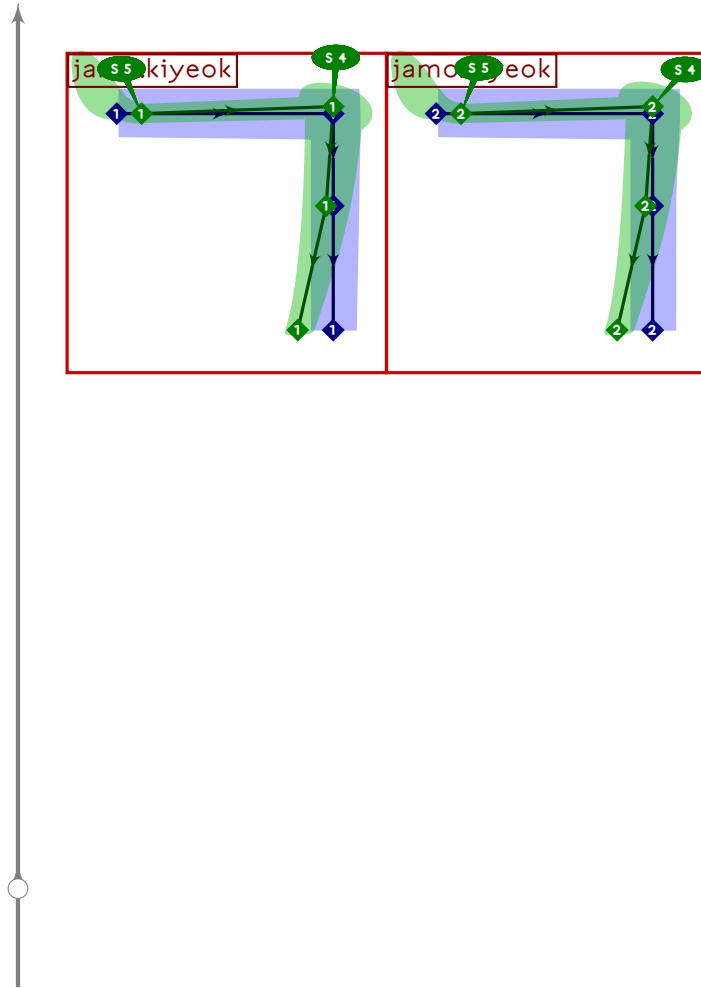
```
57 % HANGUL CHOSEONG (LEAD) JAMO
58
59 tsu_rescale_native_zero;
60
```



```

61 % hangul lead kiyek
62 begint Suglyph("uni1100.bug",0);
63 hangul,jamo.kiyek(whatever,lixf,loxf);
64 tsu_render;
65 endtsuglyph;
66

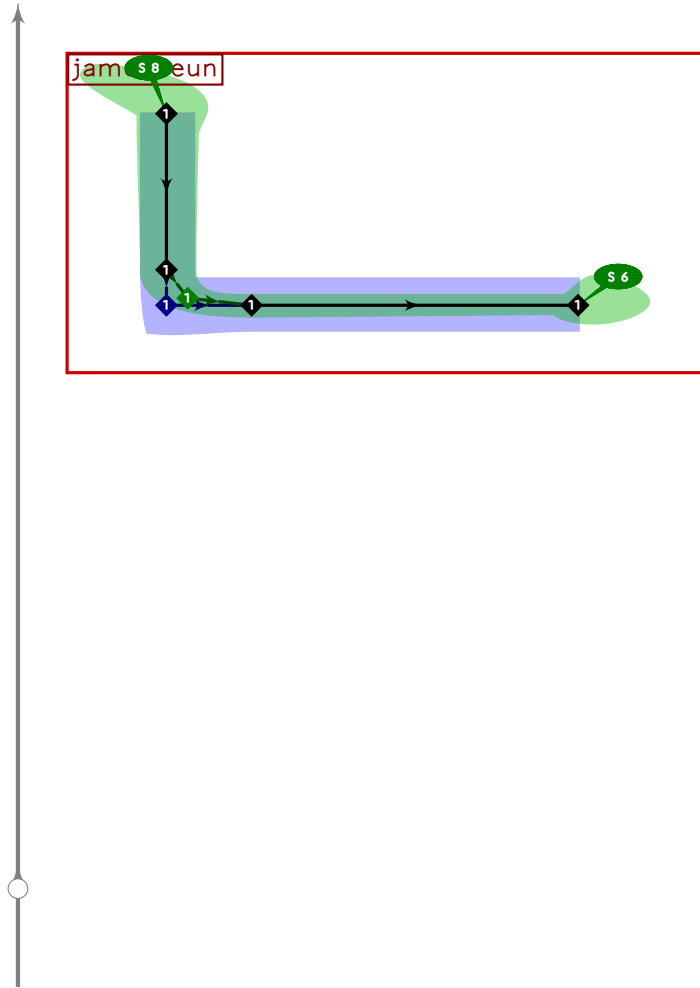
```



```

67 % hangul lead ssangkiyeok
68 begint Suglyph("uni1101.bug",1);
69 hangul.combine.lr(100,100)(whatever,lixf,loxf);
70 tsu_render;
71 endtsuglyph;
72

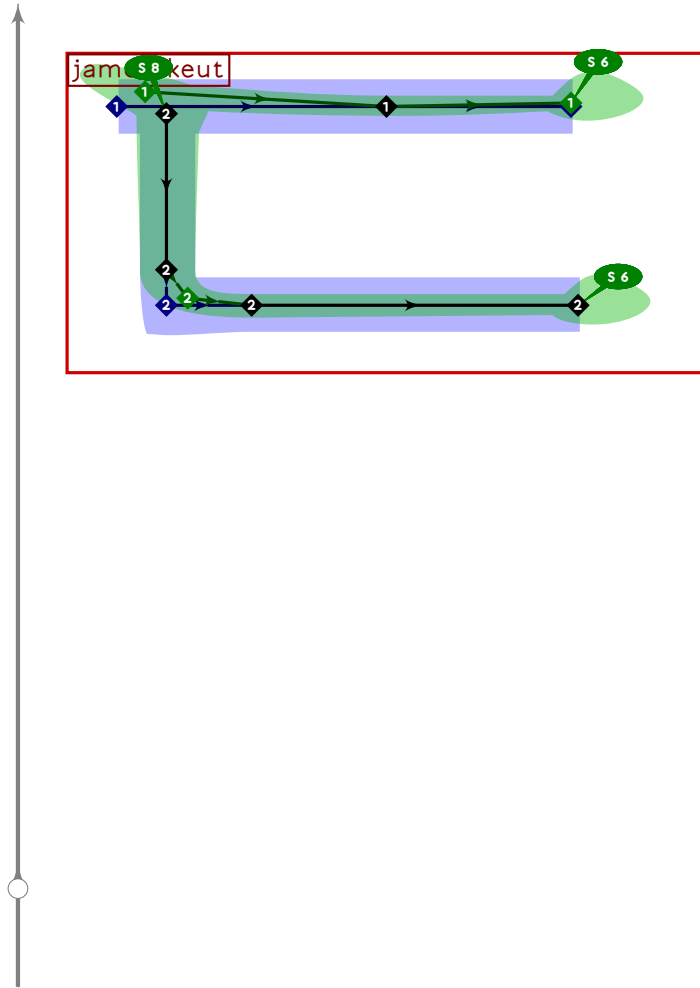
```



```

73 % hangul lead nieun
74 begintsuglyph("uni1102.bug",2);
75 hangul,jamo.nieun(whatever,lixf,loxf);
76 tsu_render;
77 endtsuglyph;
78

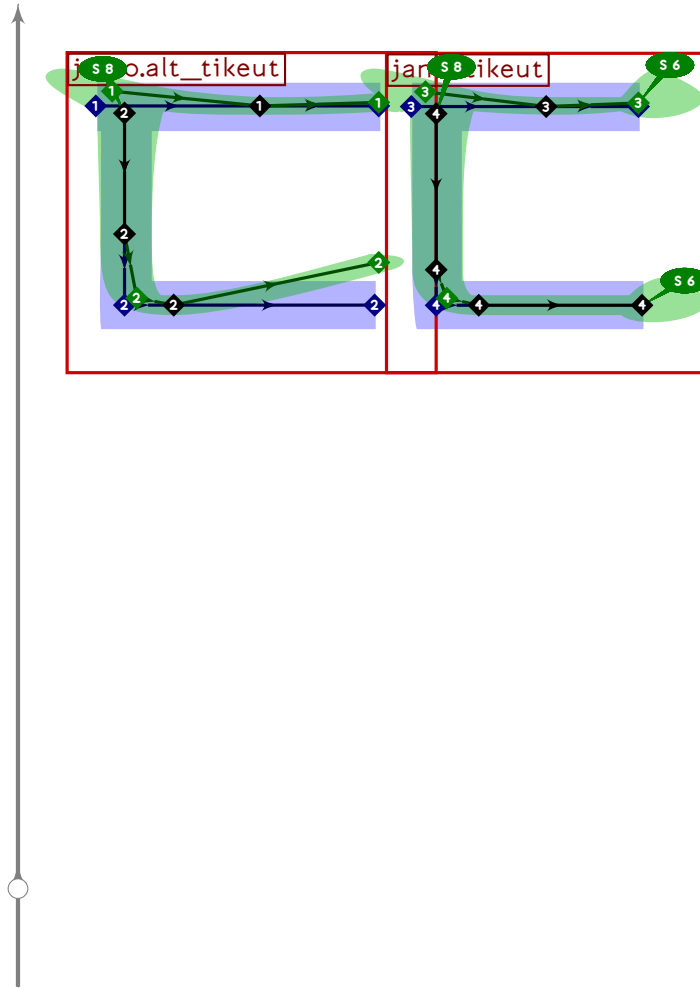
```



```

79 % hangul lead tikeut
80 begint Suglyph("uni1103.bug",3);
81 hangul.jamo.tikeut(whatever,lixf,loxf);
82 tsu_render;
83 endtsuglyph;
84

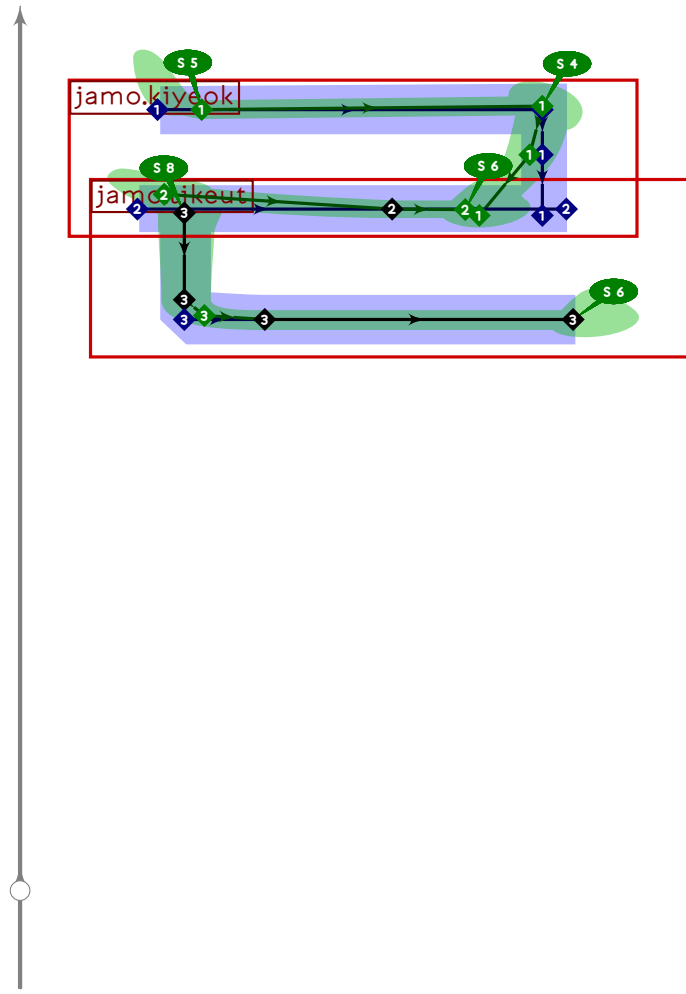
```



```

85 % hangul lead ssangtikeut
86 begintsuglyph("uni1104.bug";4);
87 hangul.combine.lr(203,103)(whatever,lixf,loxf);
88 tsu_render;
89 endtsuglyph;
90

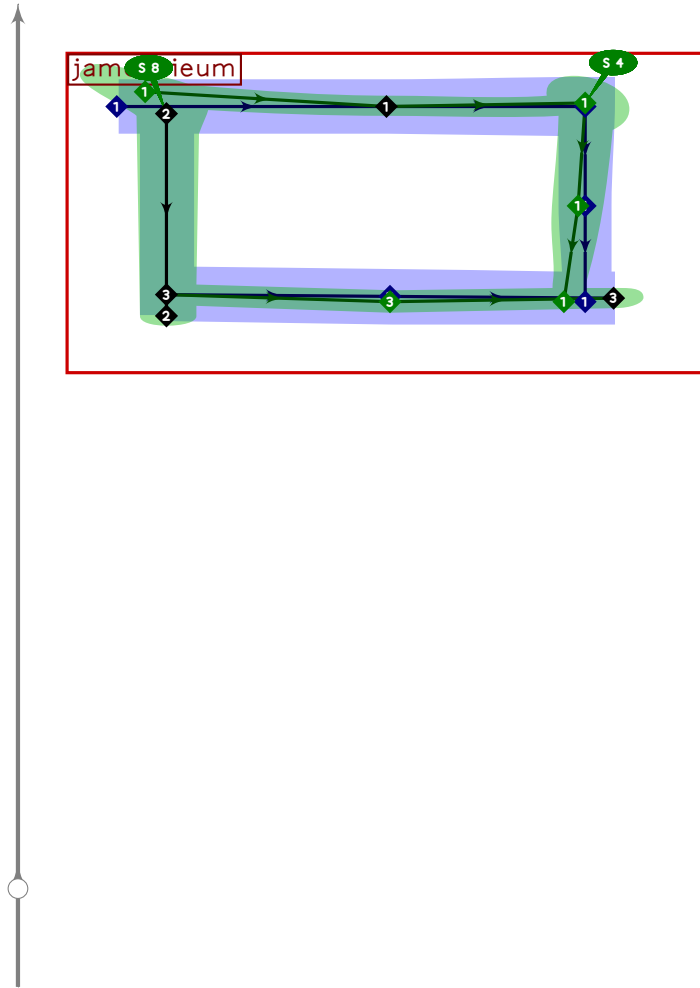
```



```

91 % hangul lead rieul
92 begintsuglyph("uni1105.bug",5);
93 hangul.jamo.rieul(whatever,lixf,loxf);
94 tsu_render;
95 endtsuglyph;
96

```

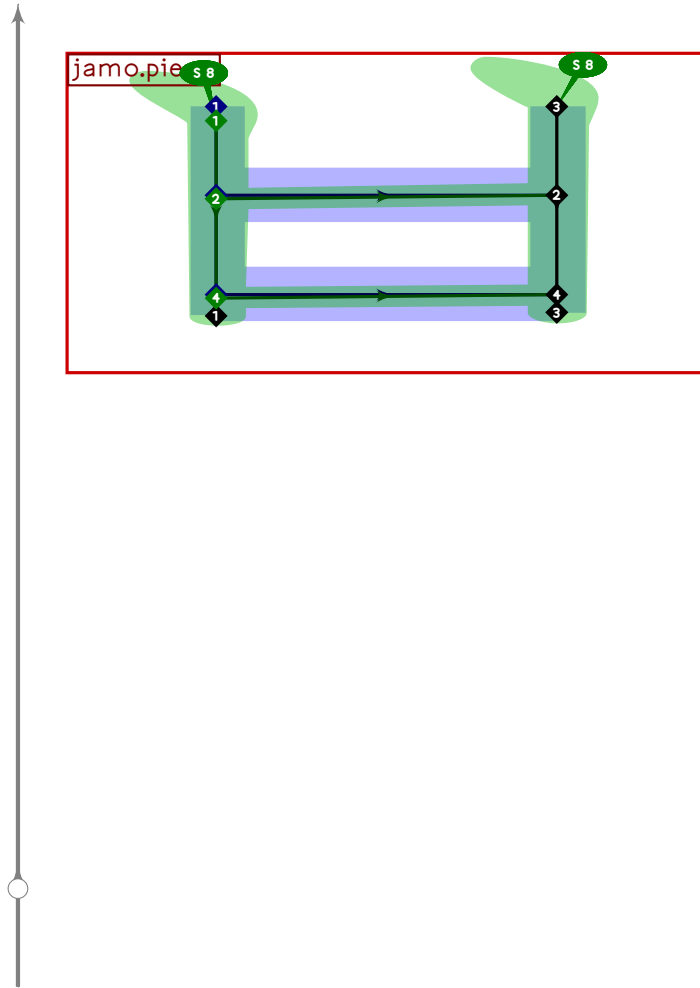


```

97 % hangul lead mieum
98 begintsuglyph("uni1106.bug",6);
99 hangul.jamo.mieum(whatever,lixf,loxf);
100 tsu_render;
101 endtsuglyph;
102

```

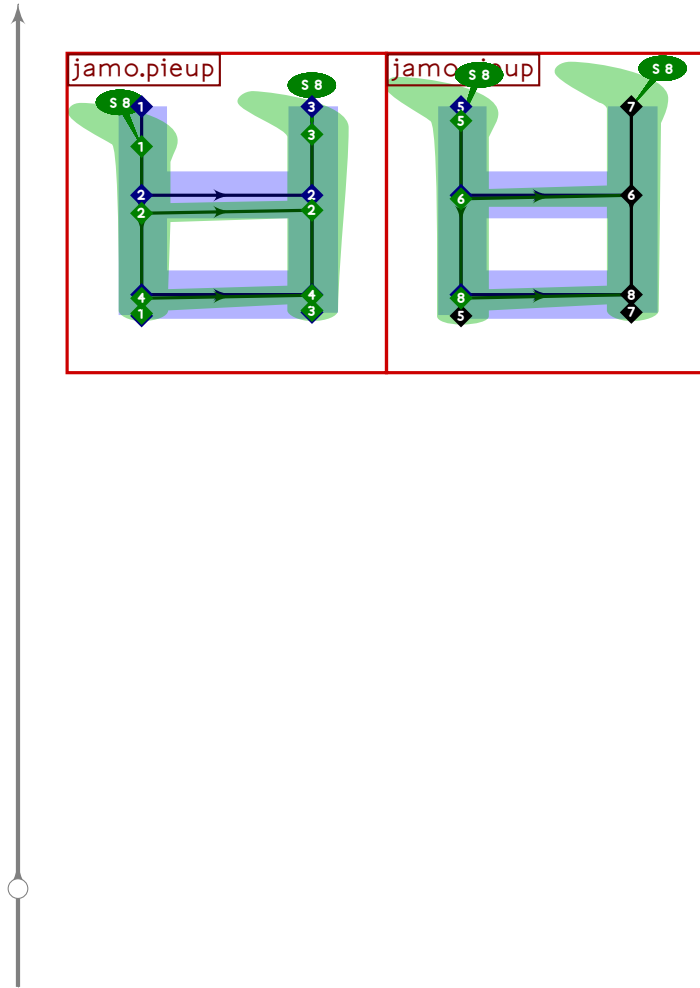




```

103 % hangul lead pieup
104 begintsuglyph("uni1107.bug",7);
105 hangul.jamo.pieup(whatever,lixf,loxf);
106 tsu_render;
107 endtsuglyph;
108

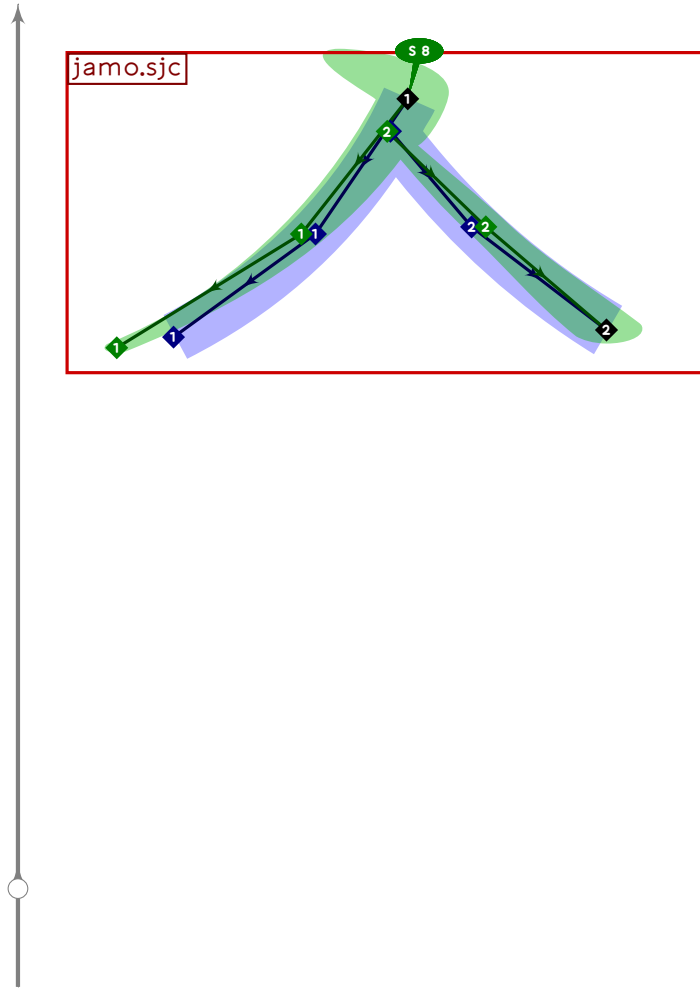
```



```

109 % hangul lead ssangpieup
110 begintsuglyph("uni1108.bug",8);
111 hangul.combine.lr(207,107)(whatever,lixf,loxf);
112 tsu_render;
113 endtsuglyph;
114

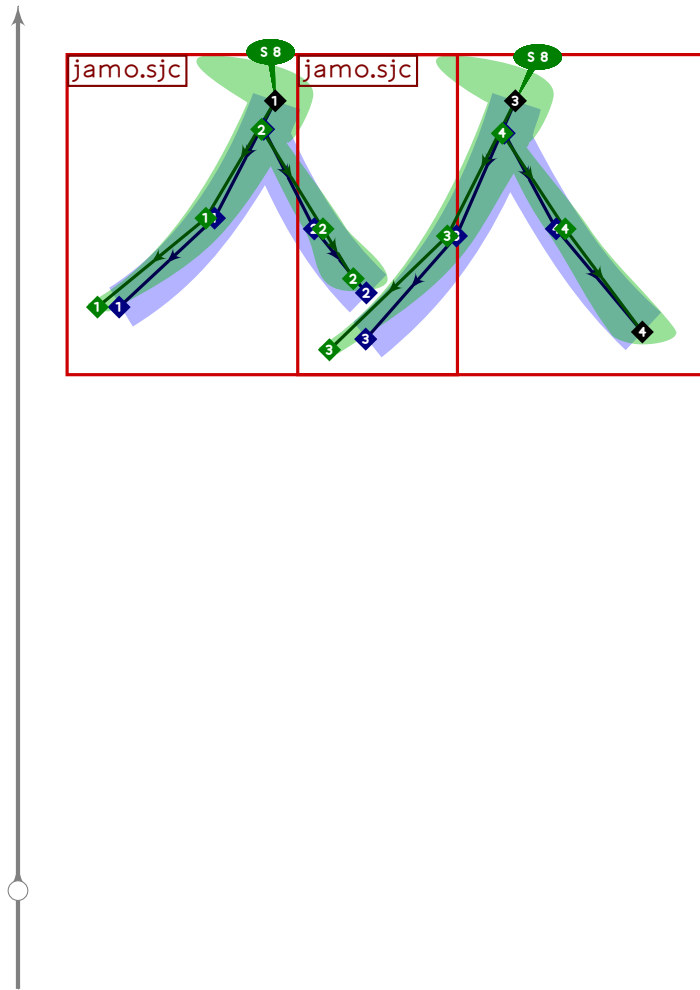
```



```

115 % hangul lead sios
116 begintsuglyph("uni1109.bug";9);
117 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
118 tsu_render;
119 endtsuglyph;
120

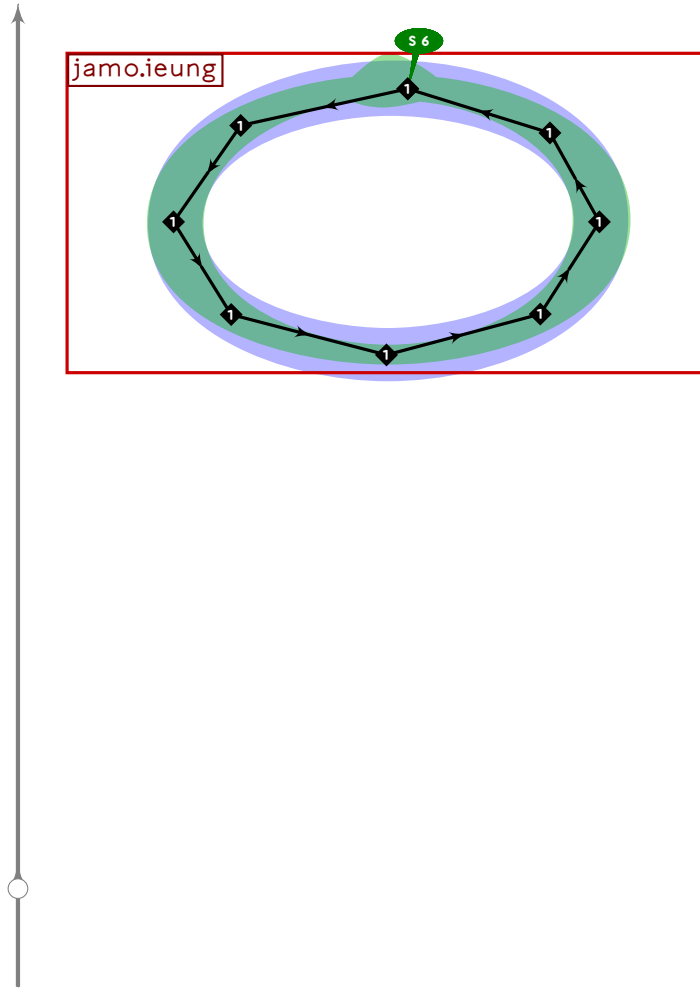
```



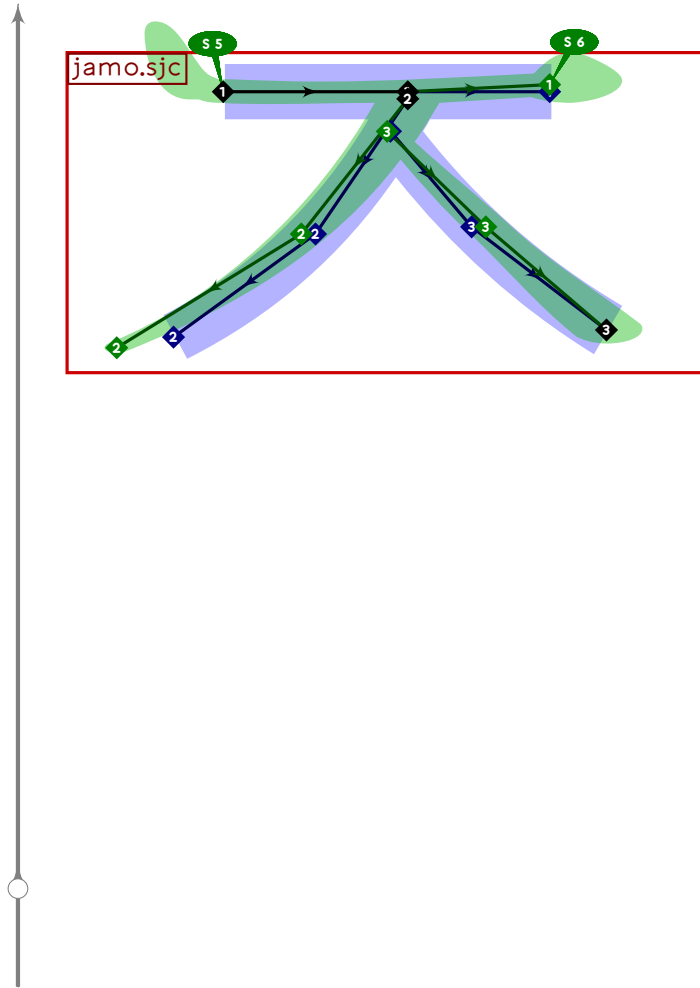
```

121 % hangul lead ssangsios
122 begintsuglyph("uni110A.bug";10);
123 hangul.combine.lr(209,109)(whatever,lixf,loxf);
124 tsu_render;
125 endtsuglyph;
126

```



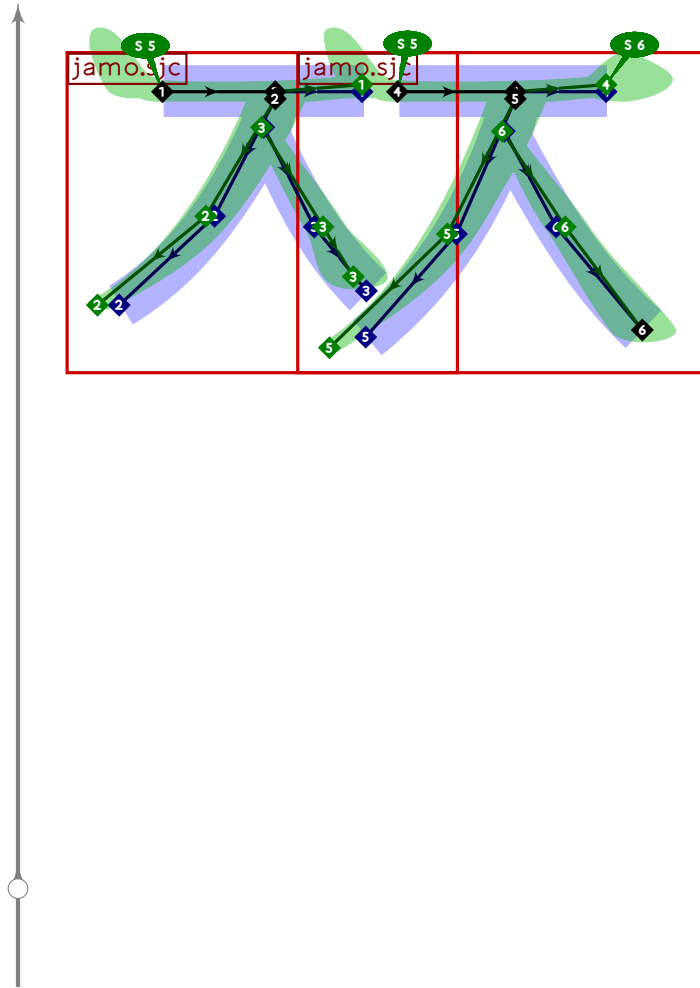
```
127 % hangul lead ieung
128 begintsuglyph("uni110B.bug",11);
129 hangul,jamo.ieung(whatever,lixf,loxf);
130 tsu_render;
131 endtsuglyph;
132
```



```

133 % hangul lead cieuc
134 begintsuglyph("uni110C.bug",12);
135 hangul,jamo.sjc(1,0,false)(whatever,lixf,loxf);
136 tsu_render;
137 endtsuglyph;
138

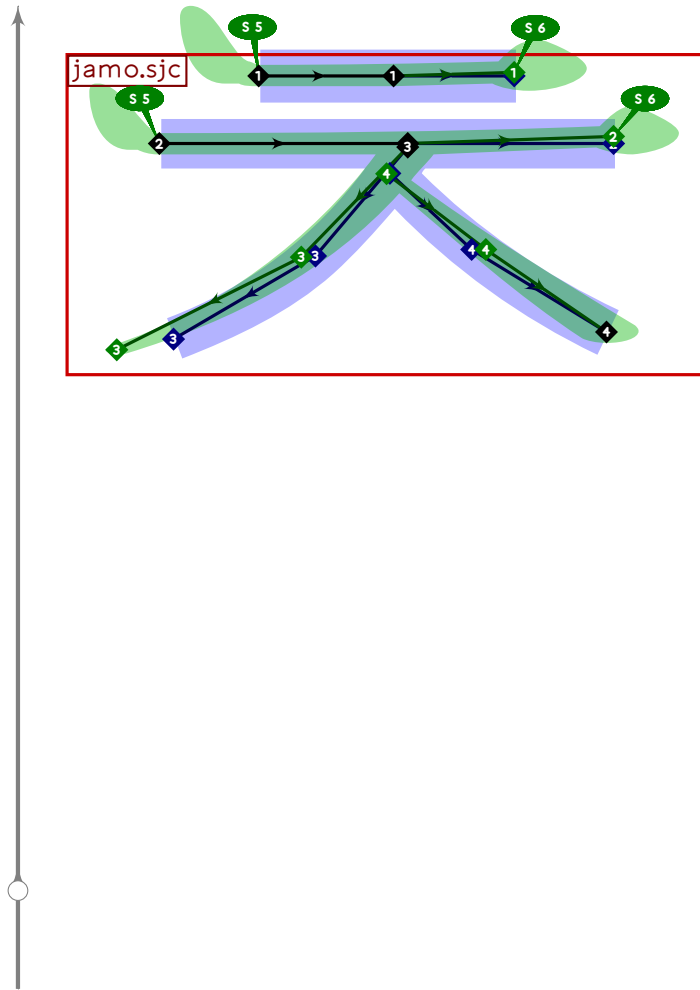
```



```

139 % hangul lead ssangcieuc
140 begint Suglyph("uni110D.bug",13);
141 hangul.combine.lr(212,112)(whatever,lixf,loxf);
142 tsu_render;
143 endtsuglyph;
144

```

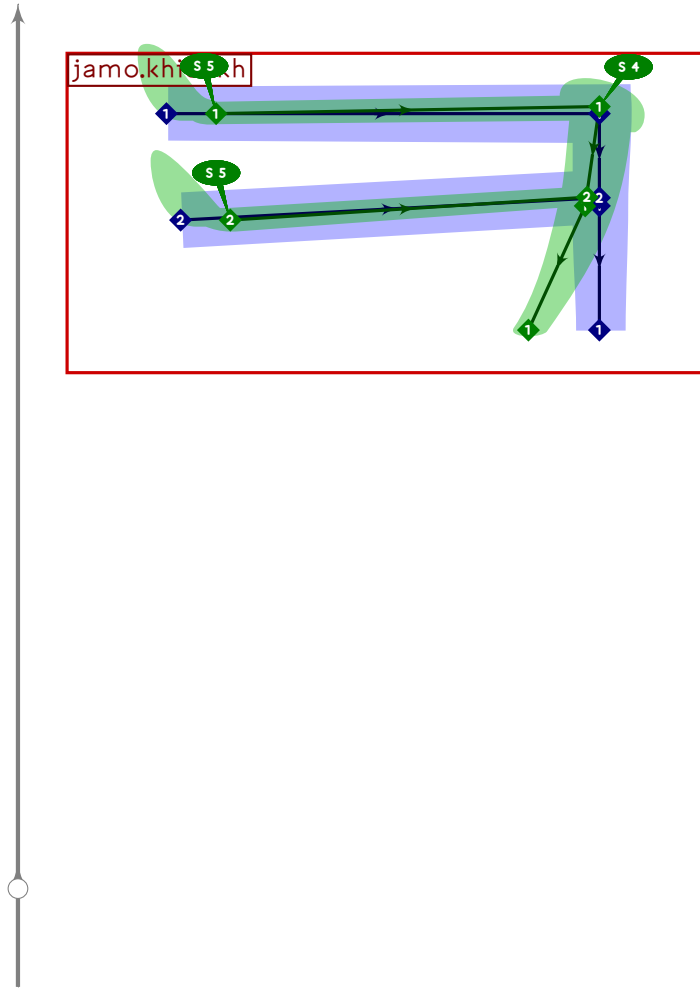


```

145 % hangul lead chieuch
146 begint Suglyph("uni110E.bug",14);
147 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
148 tsu_render;
149 endtsuglyph;
150

```

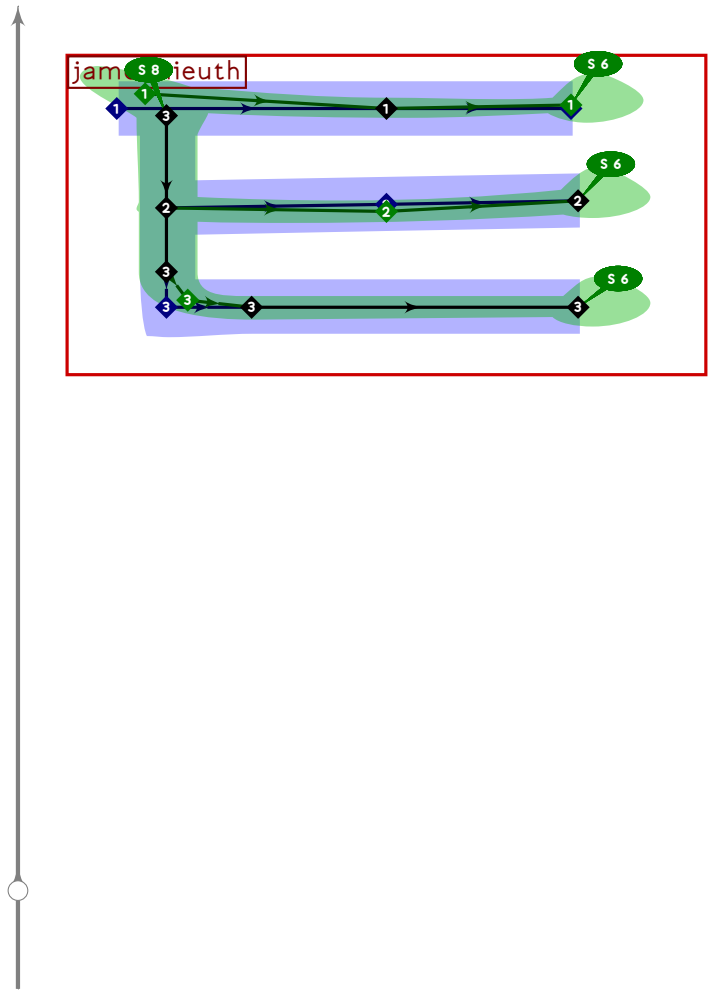




```

151 % hangul lead khieukh
152 begint Suglyph("uni110F.bug",15);
153 hangul,jamo.khieukh(whatever,lixf,loxf);
154 tsu_render;
155 endtsuglyph;
156

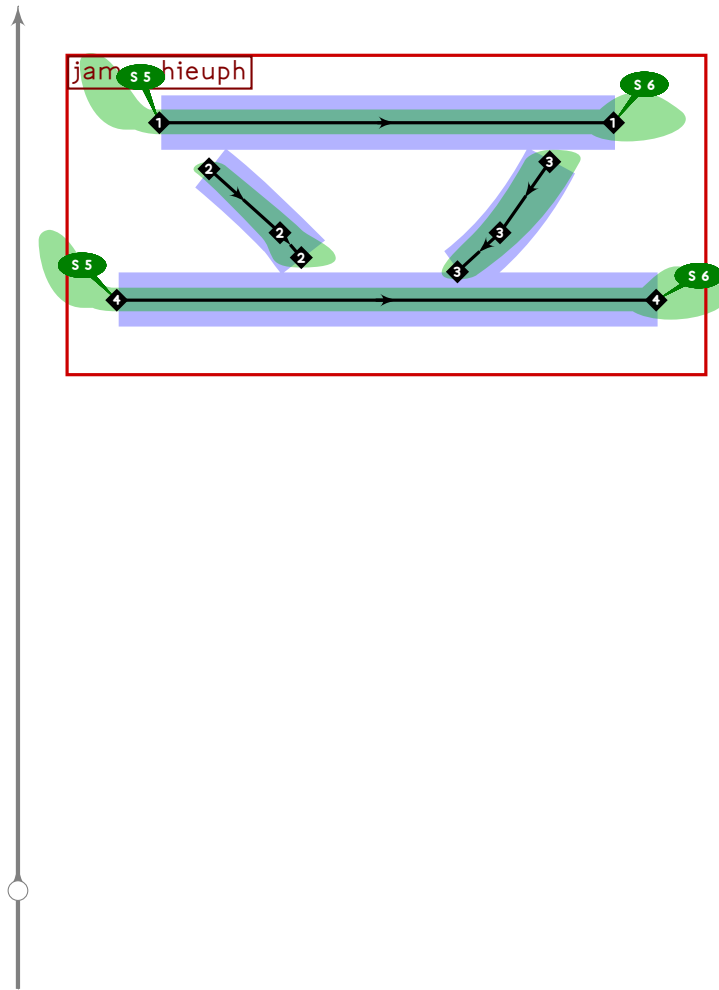
```



```

157 % hangul lead thieuth
158 begintsuglyph("uni1110.bug",16);
159 hangul,jamo.thieuth(whatever,lixf,loxf);
160 tsu_render;
161 endtsuglyph;
162

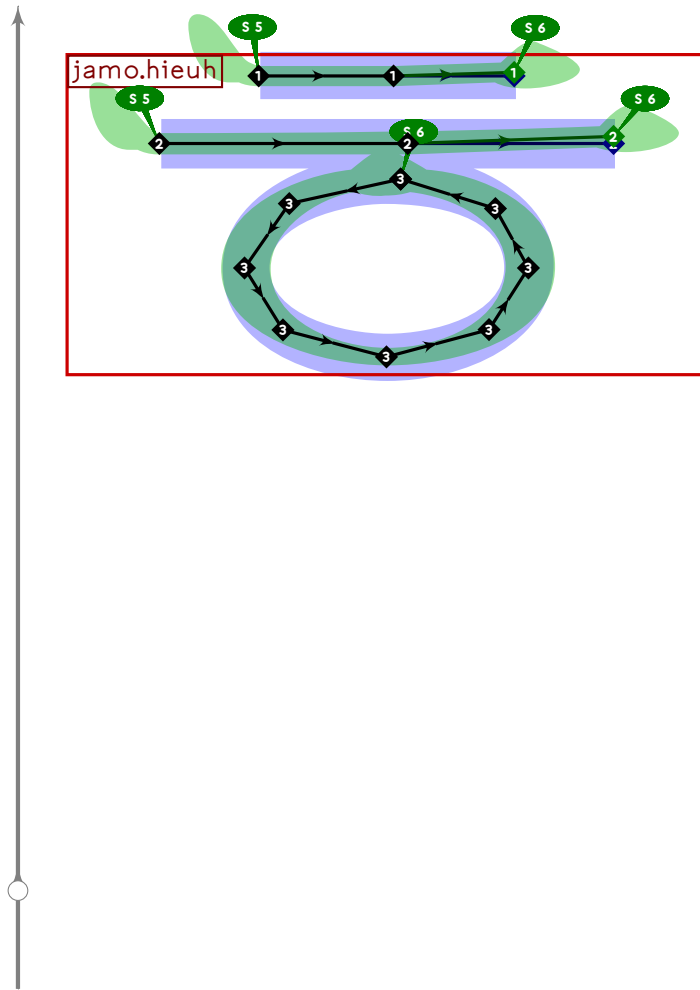
```



```

163 % hangul lead phieuph
164 begintsuglyph("uni1111.bug",17);
165 hangul,jamo.phieuph(whatever,lixf,loxf);
166 tsu_render;
167 endtsuglyph;
168

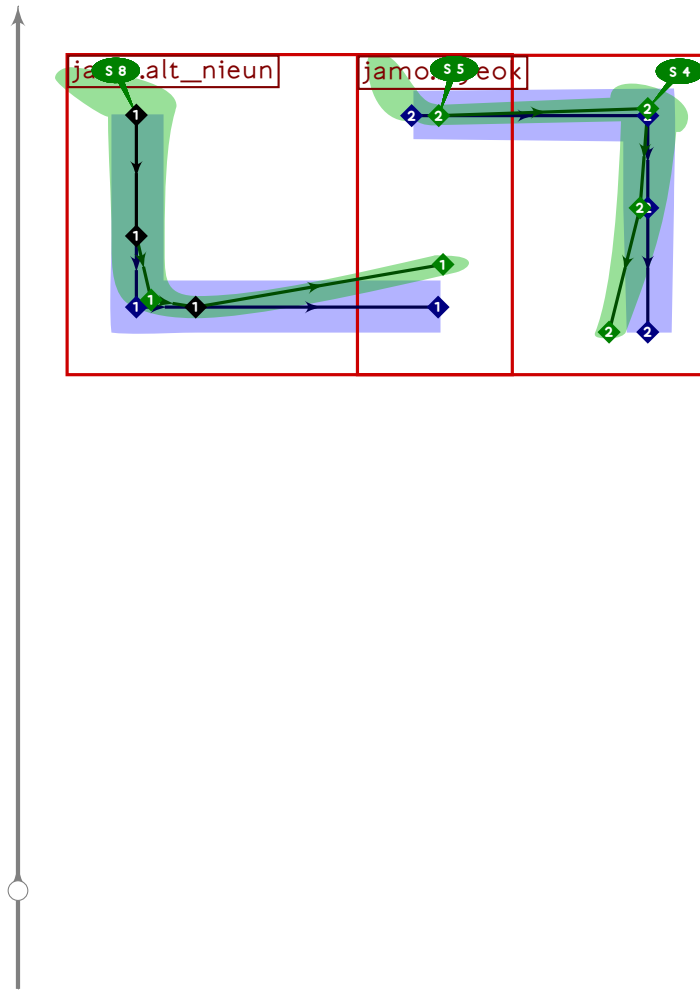
```



```

169 % hangul lead hieuh
170 begintsuglyph("uni1112.bug",18);
171 hangul,jamo.hieuh(whatever,lixf,loxf);
172 tsu_render;
173 endtsuglyph;
174

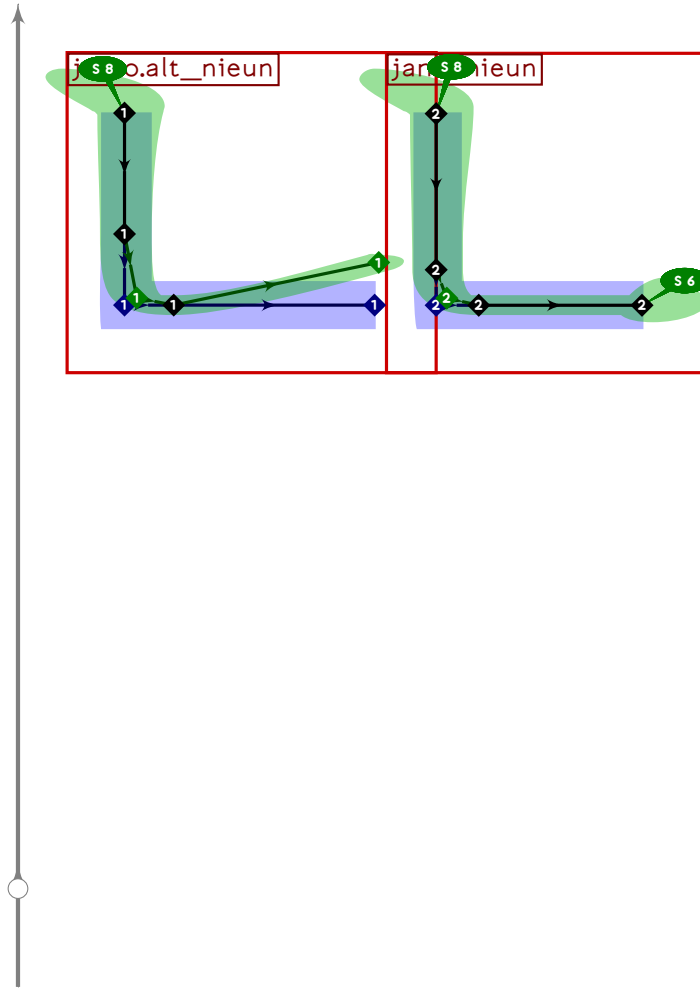
```



```

175 % hangul lead nieun-kiyeok
176 begintsuglyph("uni1113.bug",19);
177 hangul.combine.lr(202,100)(whatever,lixf,loxf);
178 tsu_render;
179 endtsuglyph;
180

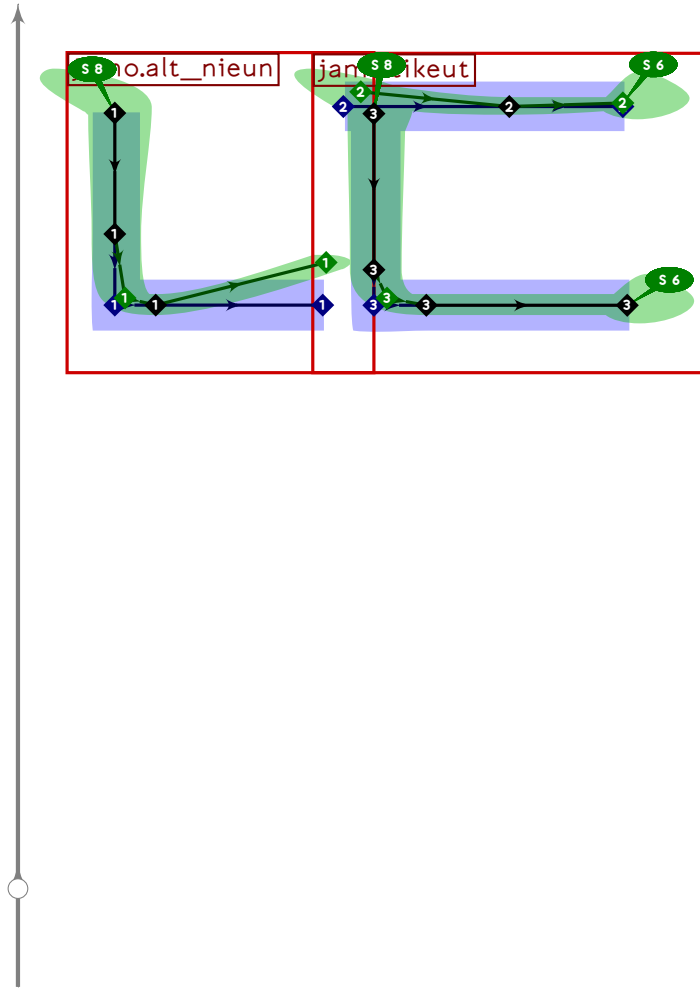
```



```

181 % hangul lead ssangnieun
182 begintsuglyph("uni1114.bug";20);
183 hangul.combine.lr(202,102)(whatever,lixf,loxf);
184 tsu_render;
185 endtsuglyph;
186

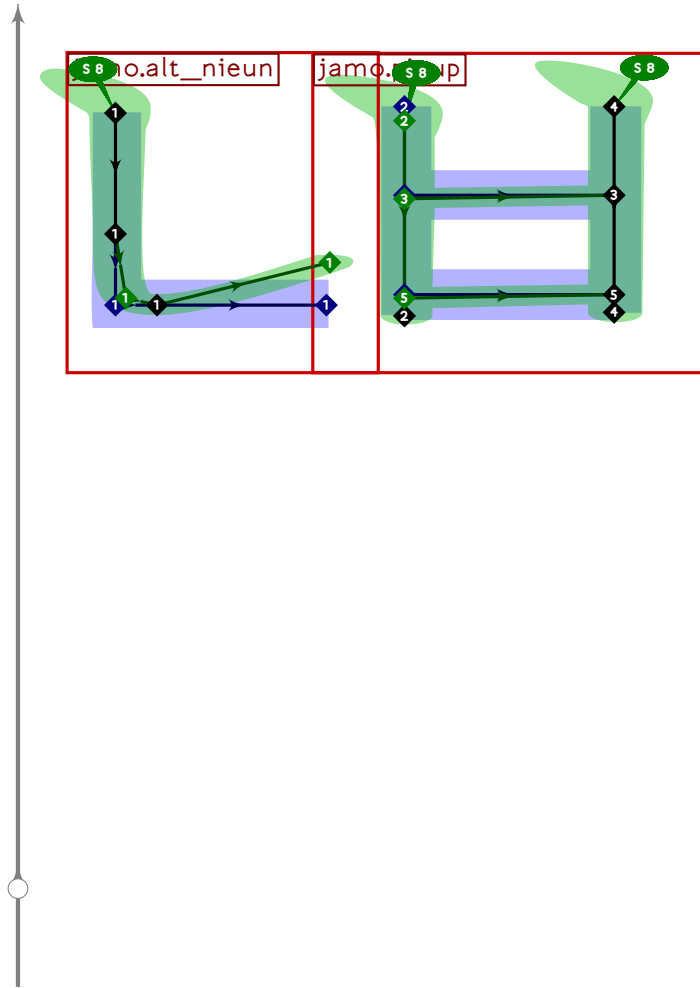
```



```

187 % hangul lead nieun-tikeut
188 begintsuglyph("uni1115.bug";21);
189 hangul.combine.lr(202,103)(whatever,lixf,loxf);
190 tsu_render;
191 endtsuglyph;
192

```

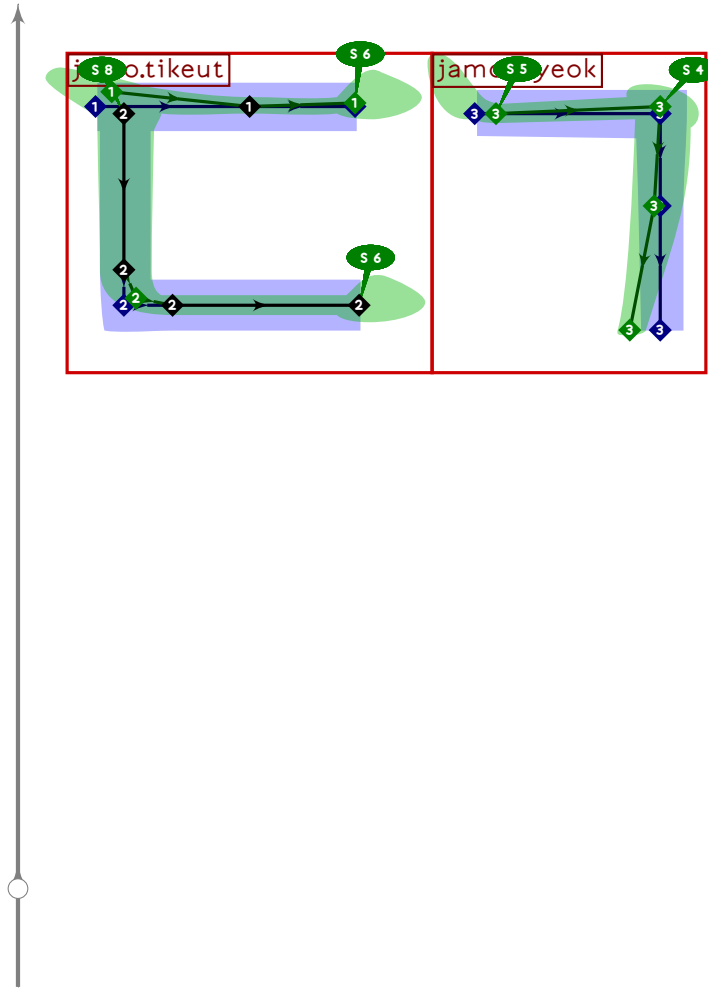


```

193 % hangul lead nieun-pieup
194 begintsuglyph("uni1116.bug";22);
195 hangul.combine.lr(202,107)(whatever,lixf,loxf);
196 tsu_render;
197 endtsuglyph;
198

```

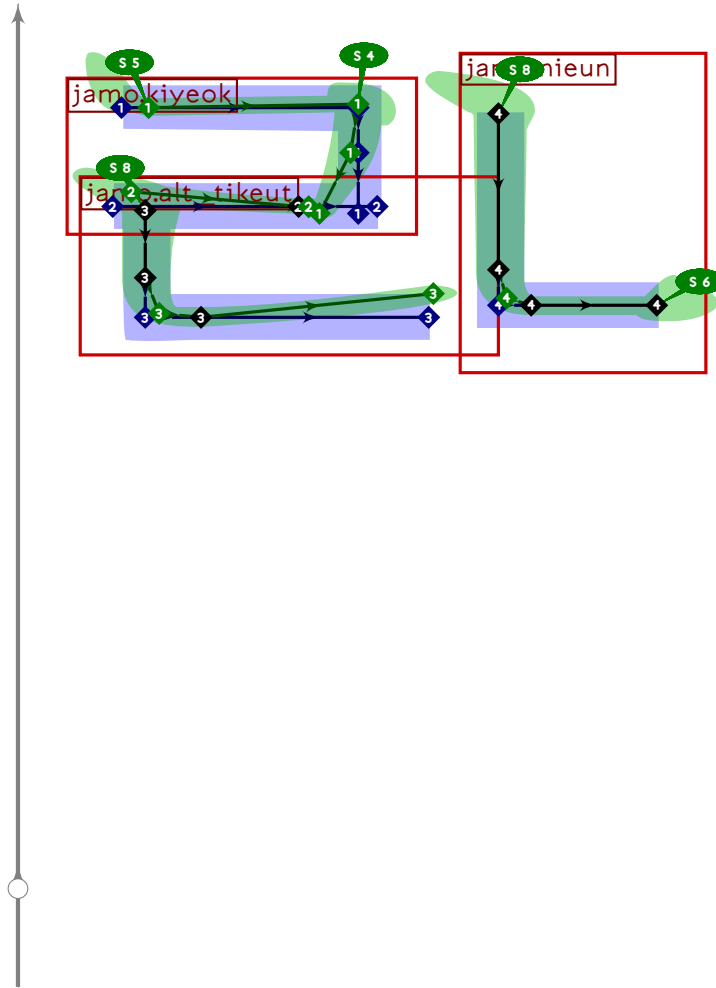




```

199 % hangul lead tikeut-kiyeok
200 begintsuglyph("uni1117.bug";23);
201 hangul.combine.lr(103,100)(whatever,lixf,loxf);
202 tsu_render;
203 endtsuglyph;
204

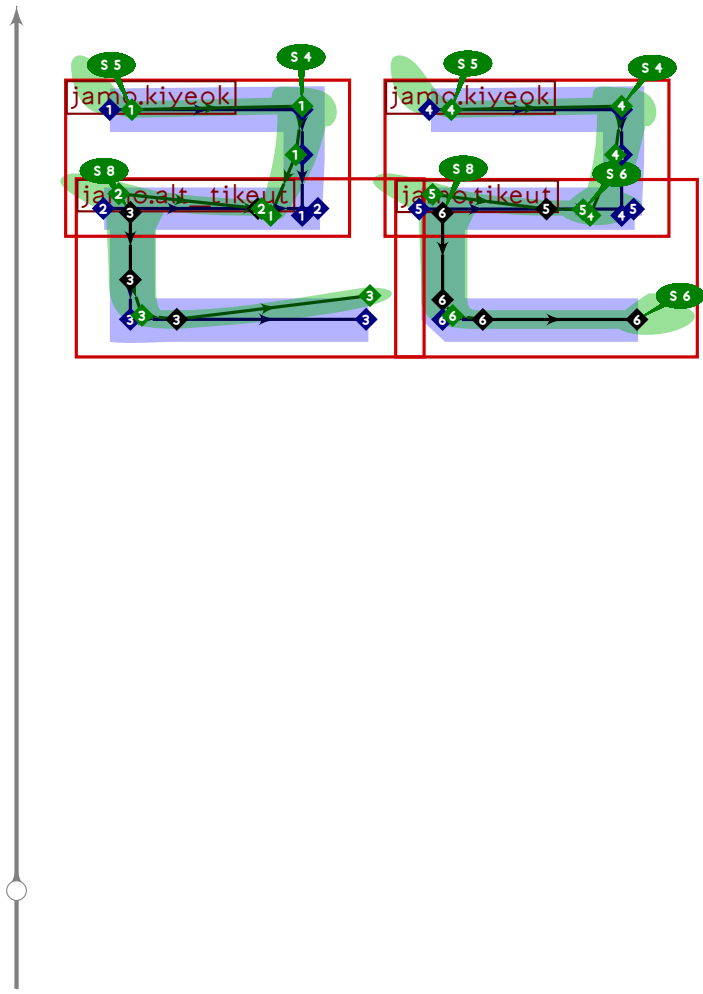
```



```

205 % hangul lead rioul-nieun
206 begintsuglyph("uni1118.bug",24);
207 hangul.combine.lr(205,102)(whatever,lixf,loxf);
208 tsu_render;
209 endtsuglyph;
210

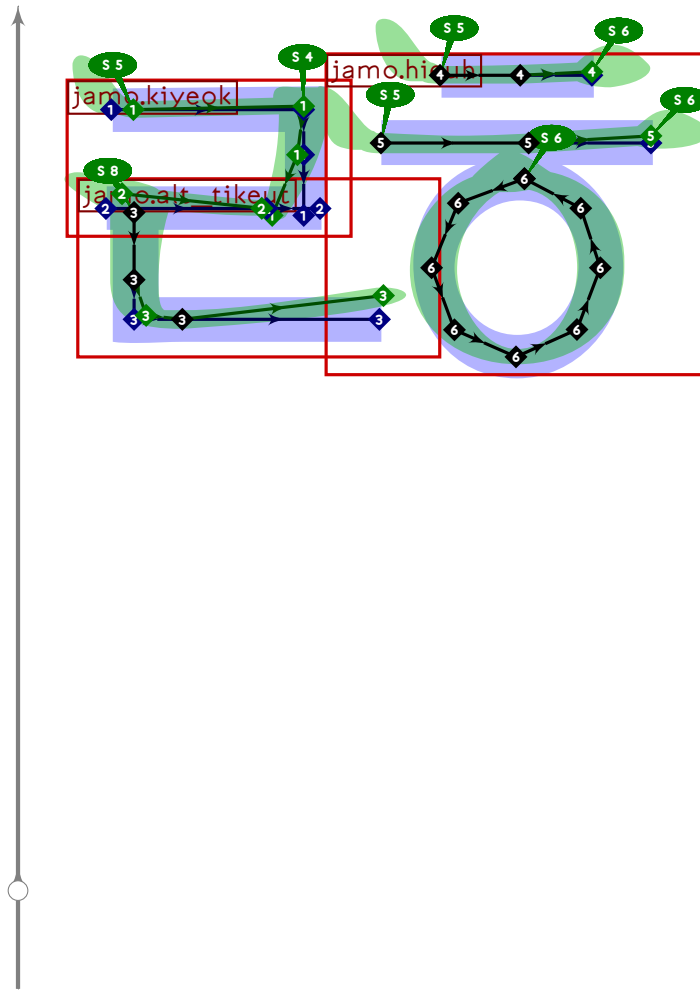
```



```

211 % hangul lead ssangrieul
212 begintsuglyph("uni1119.bug";25);
213 hangul.combine.lr(205,105)(whatever,lixf,loxf);
214 tsu_render;
215 endtsuglyph;
216

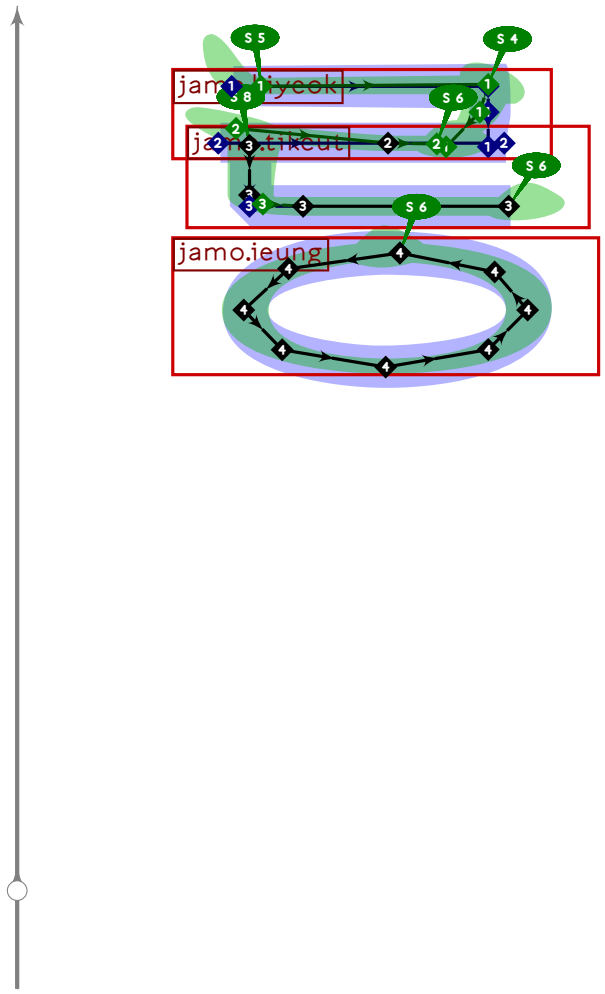
```



```

217 % hangul lead rieul-hieuh
218 begintsuglyph("uni111A.bug",26);
219 hangul.combine.lr(205,118)(whatever,lixf,loxf);
220 tsu_render;
221 endtsuglyph;
222

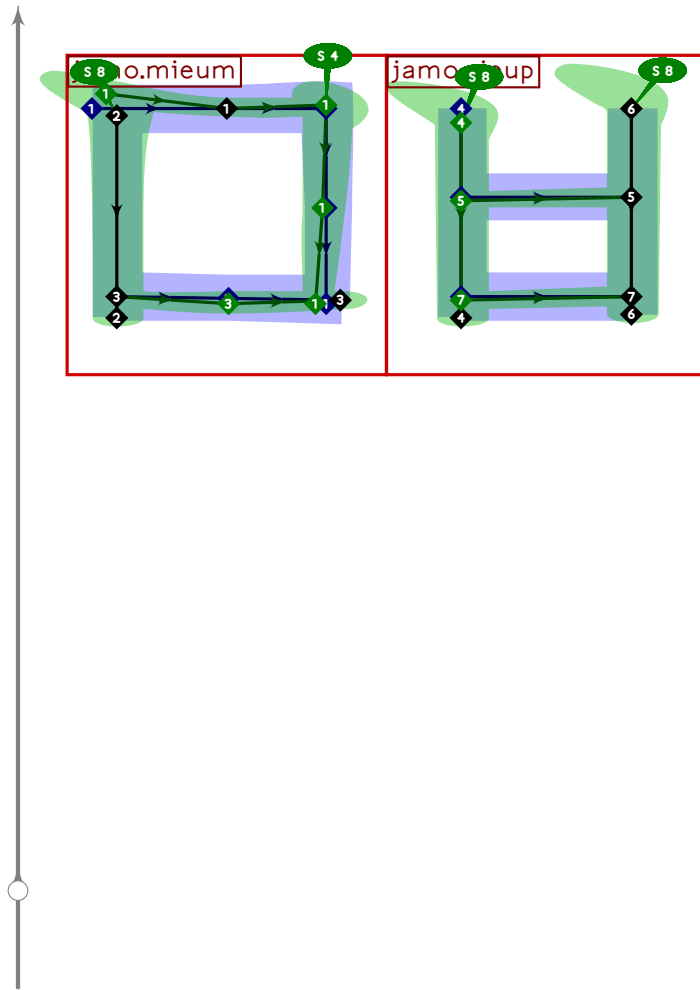
```



```

223 % hangul lead kapyounrieul
224 begintsuglyph("uni111B.bug",27);
225 hangul.combine.tb(105,521)(whatever,
226   hxf((200,850),(800,-50)) transformed lixf,loxf);
227 tsu_render;
228 endtsuglyph;
229

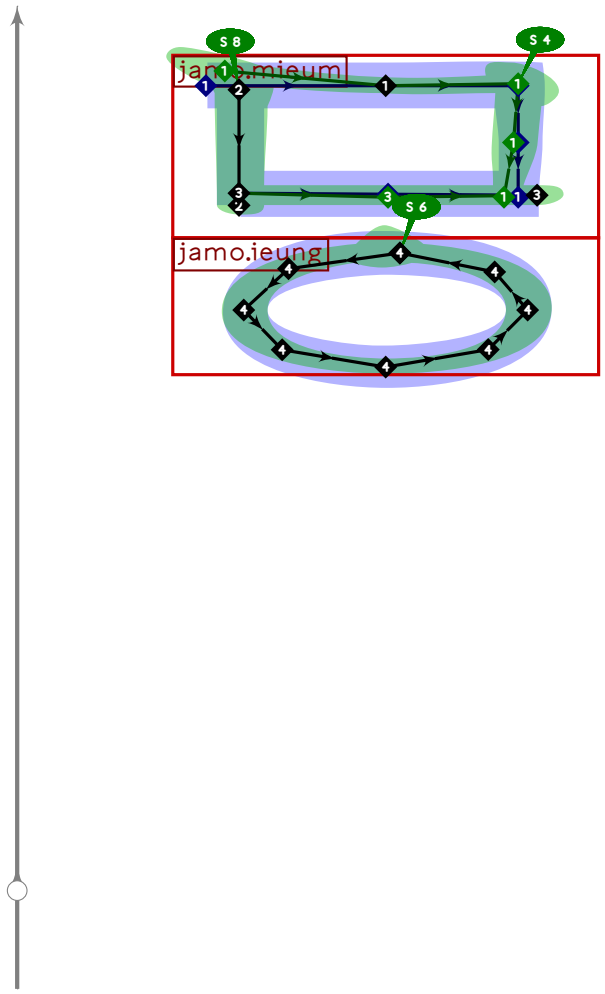
```



```

230 % hangul lead mieum-pieup
231 begintuglyph("uni111C.bug",28);
232 hangul.combine.lr(106,107)(whatever,lixf,loxf);
233 tsu_render;
234 endtsuglyph;
235

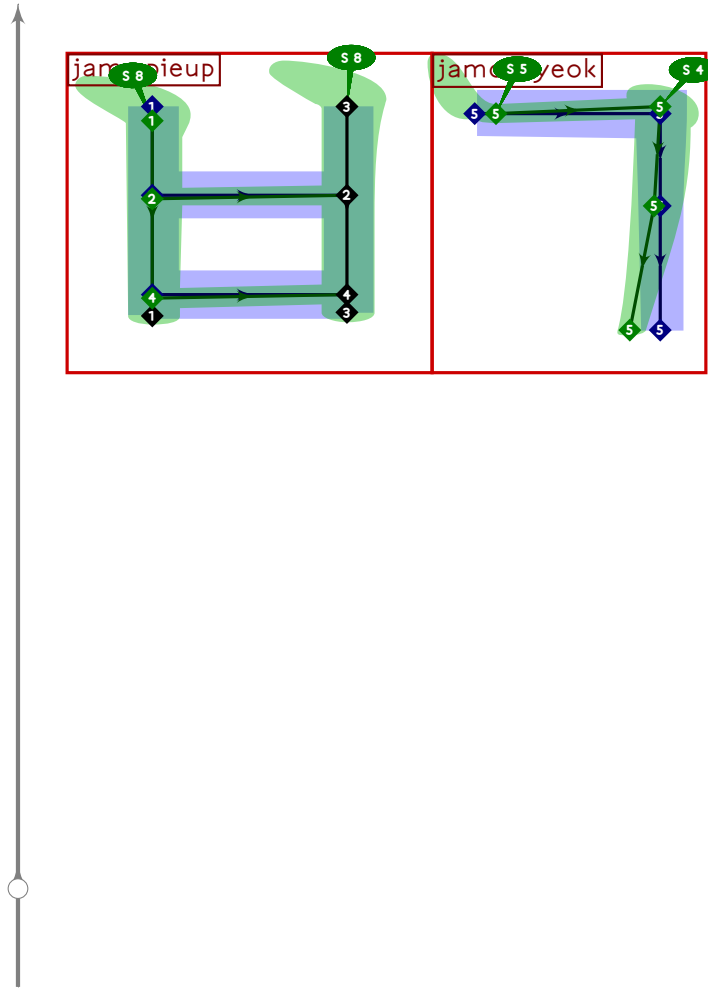
```



```

236 % hangul lead kapyeounmieum
237 begintsuglyph("uni111D.bug",29);
238 hangul.combine.tb(106,521)(whatever,
239   hxf((200,850),(800,-50)) transformed lixf,loxf);
240 tsu_render;
241 endtsuglyph;
242

```

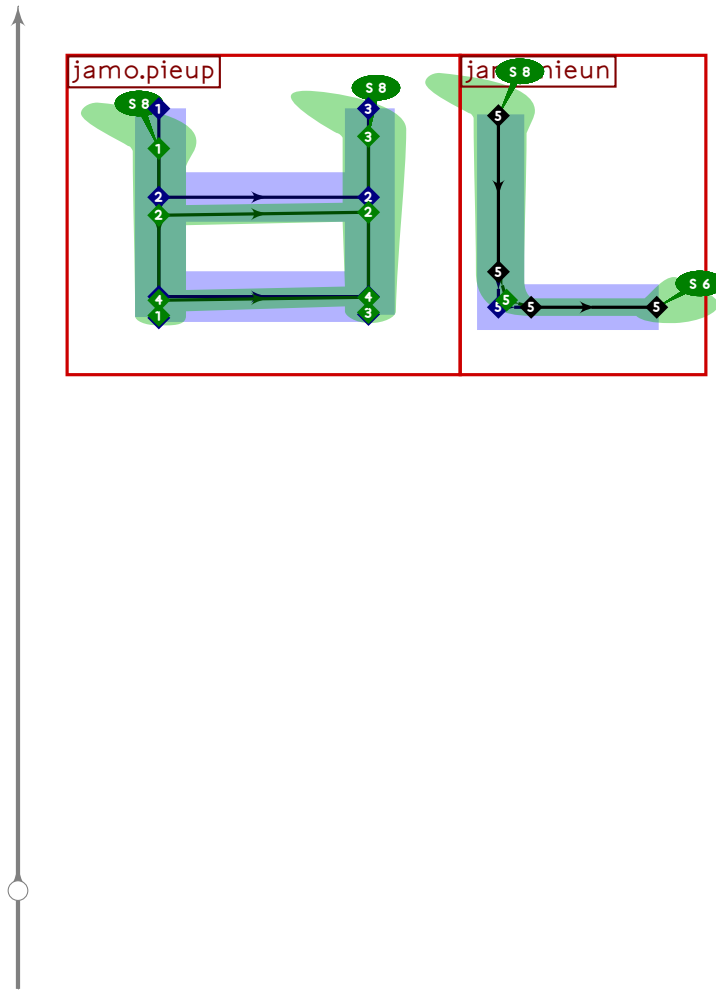


```

243 % hangul lead pieup-kiyeok
244 begintsuglyph("uni111E.bug",30);
245 hangul.combine.lr(107,100)(whatever,lixf,loxf);
246 tsu_render;
247 endtsuglyph;
248

```

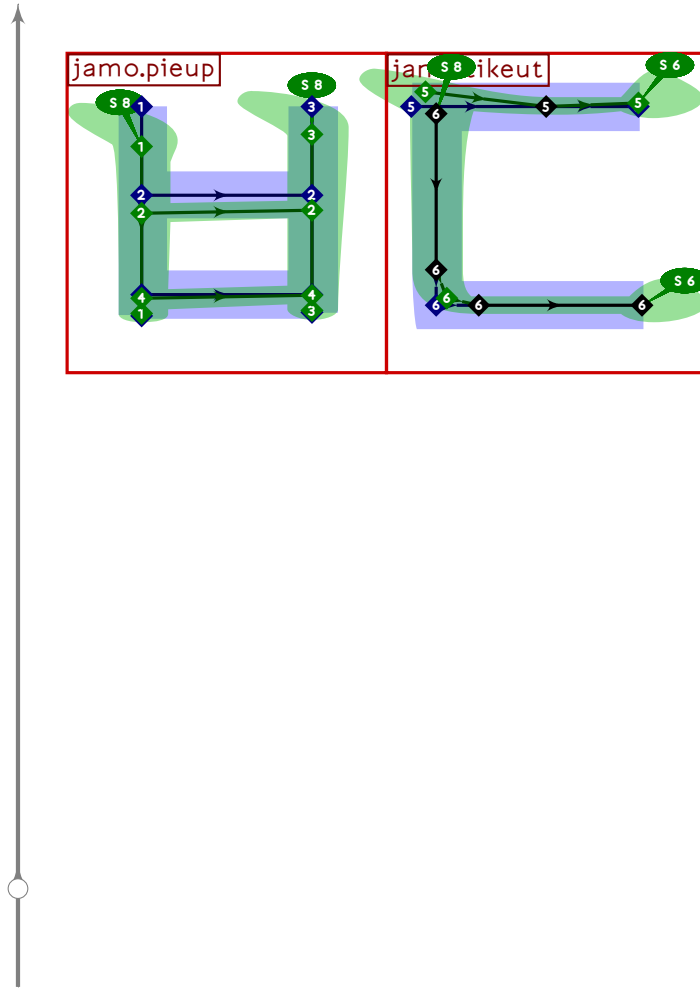




```

249 % hangul lead pieup-nieun
250 begintsuglyph("uni111F.bug";31);
251 hangul.combine.lr(207,102)(whatever,lixf,loxf);
252 tsu_render;
253 endtsuglyph;
254

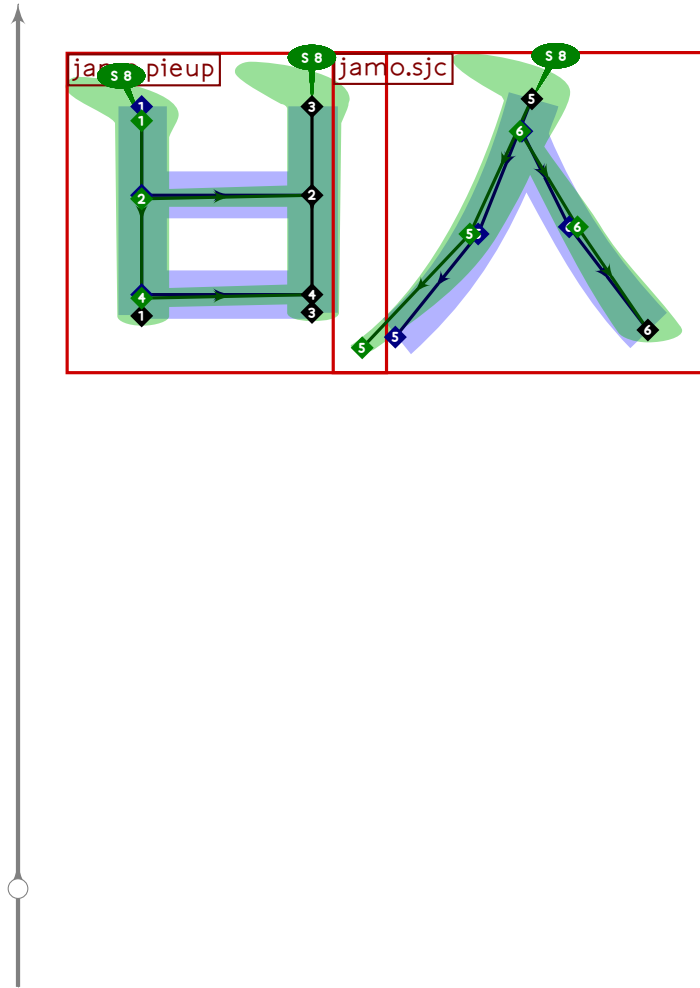
```



```

255 % hangul lead pieup-tikeut
256 begintsuglyph("uni1120.bug",32);
257 hangul.combine.lr(207,103)(whatever,lixf,loxf);
258 tsu_render;
259 endtsuglyph;
260

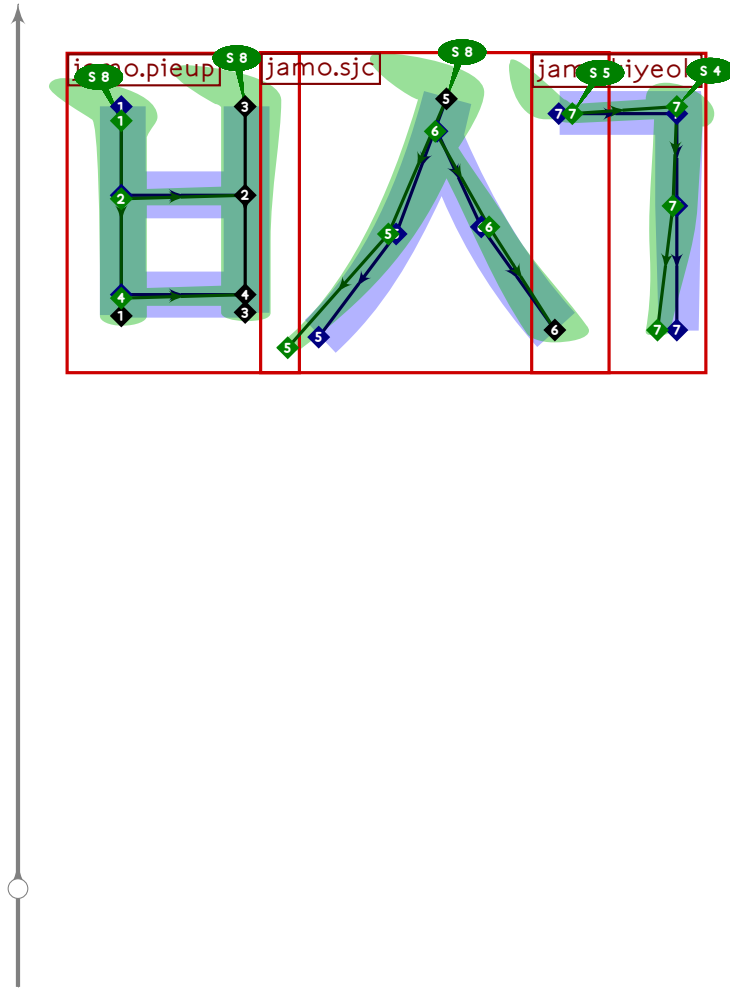
```



```

261 % hangul lead pieup-sios
262 begintsuglyph("uni1121.bug";33);
263 hangul.combine.lr(107,109)(whatever,lixf,loxf);
264 tsu_render;
265 endtsuglyph;
266

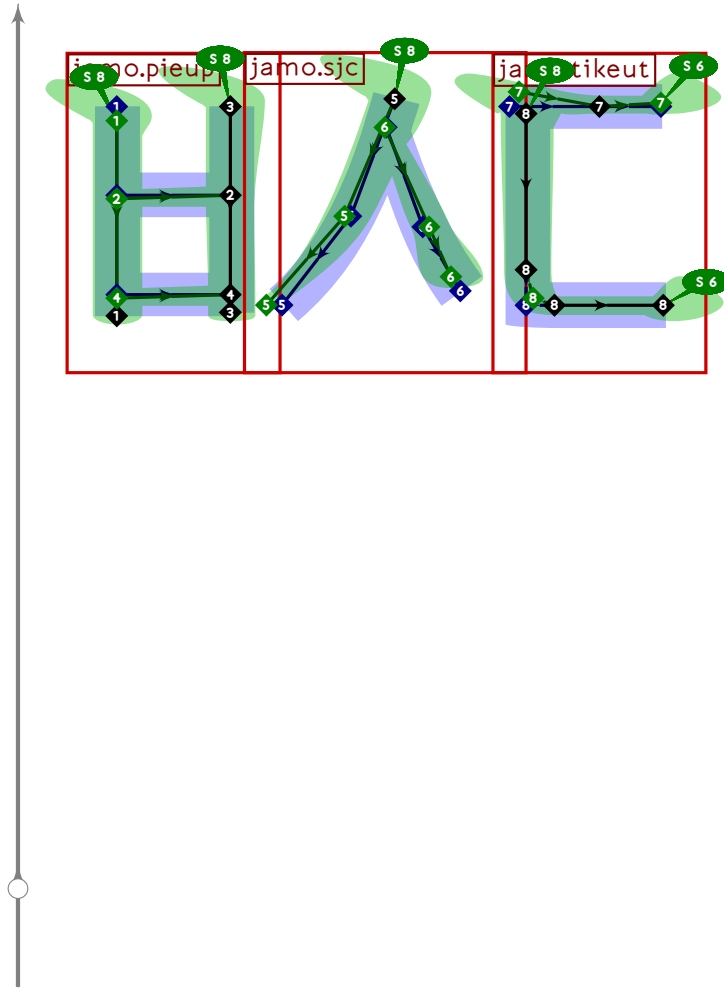
```



```

267 % hangul lead pieup-sios-kiyeok
268 begintsuglyph("uni1122.bug",34);
269 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
270 tsu_render;
271 endtsuglyph;
272

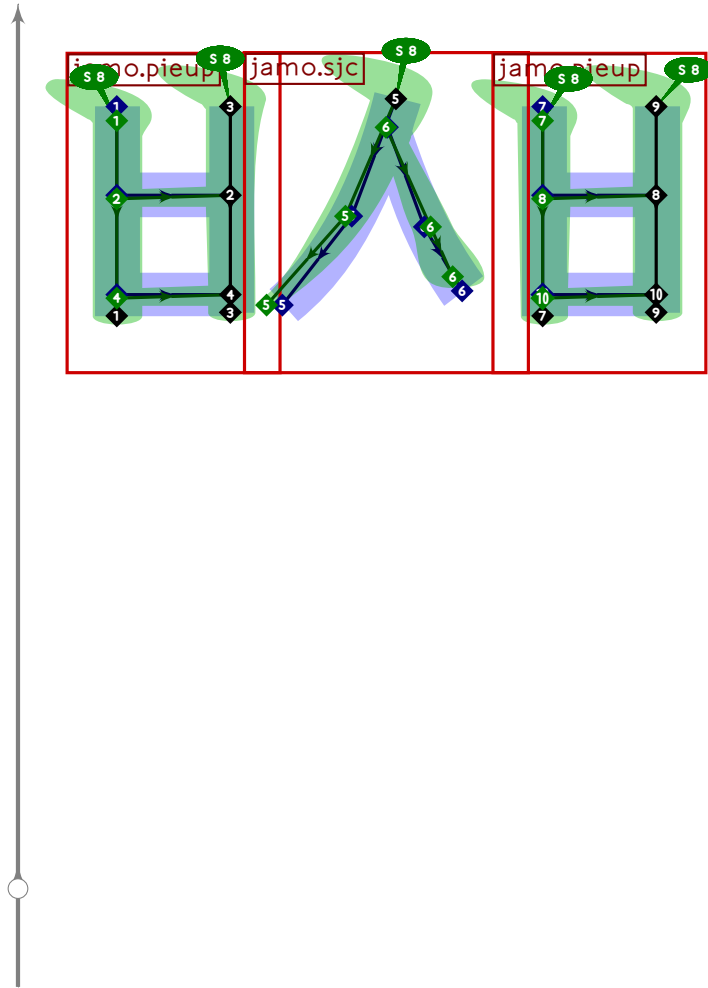
```



```

273 % hangul lead pieup-sios-tikeut
274 begintsuglyph("uni1123.bug",35);
275 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
276 tsu_render;
277 endtsuglyph;
278

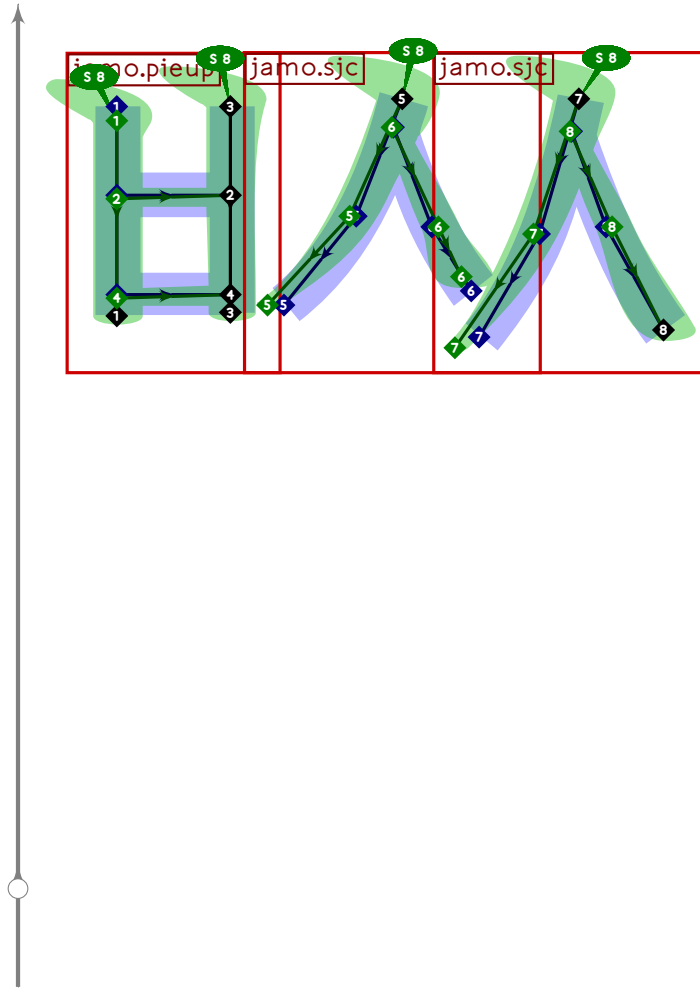
```



```

279 % hangul lead pieup-sios-pieup
280 begintsuglyph("uni1124.bug",36);
281 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
282 tsu_render;
283 endtsuglyph;
284

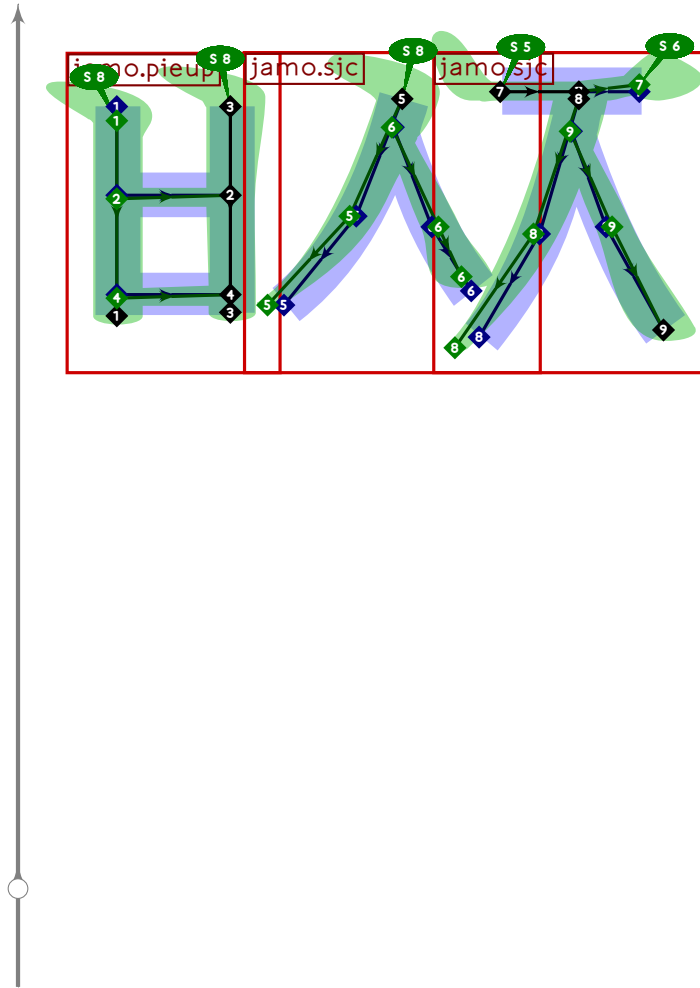
```



```

285 % hangul lead pieup-ssangsios
286 begintsuglyph("uni1125.bug",37);
287 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
288 tsu_render;
289 endtsuglyph;
290

```

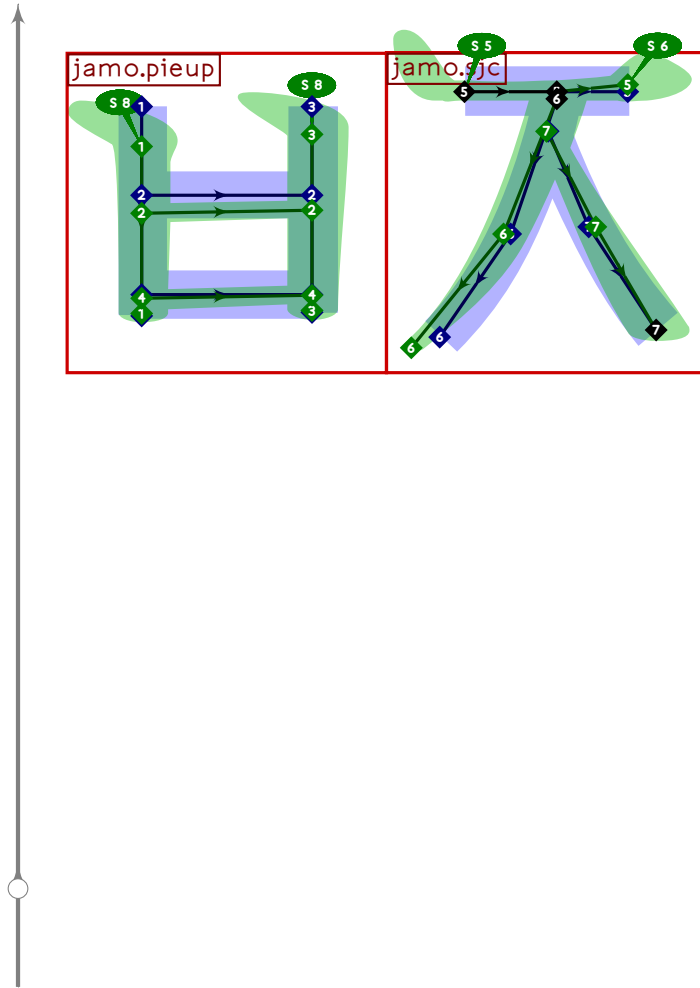


```

291 % hangul lead pieup-sios-cieuc
292 begintsuglyph("uni1126.bug",38);
293 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
294 tsu_render;
295 endtsuglyph;
296

```

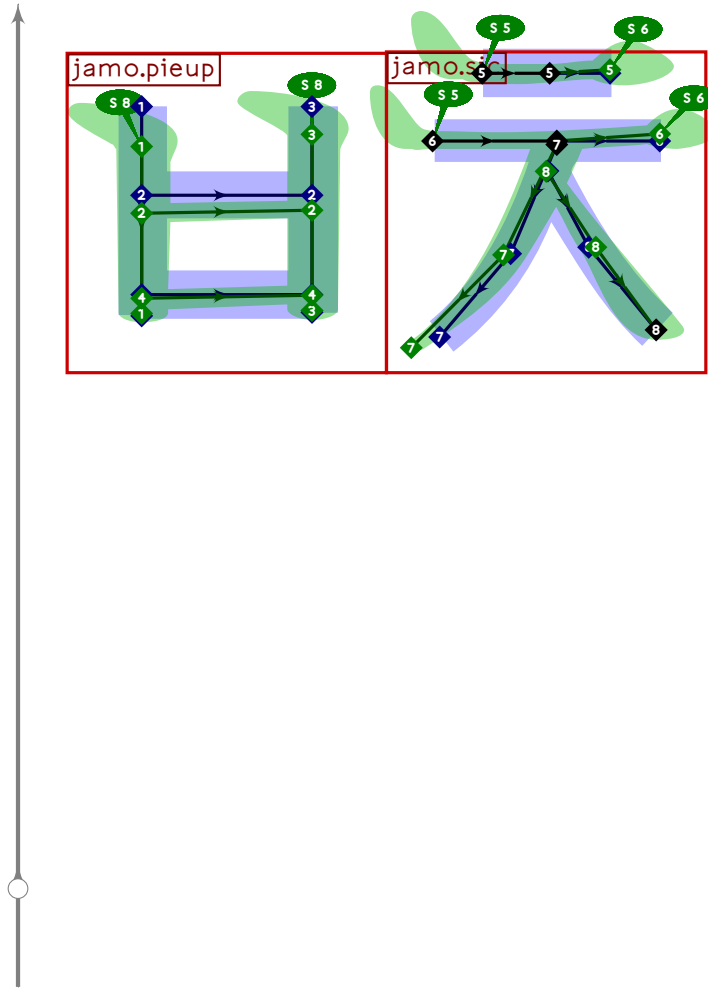




```

297 % hangul lead pieup-cieuc
298 begintsuglyph("uni1127.bug",39);
299 hangul.combine.lr(207,112)(whatever,lixf,loxf);
300 tsu_render;
301 endtsuglyph;
302

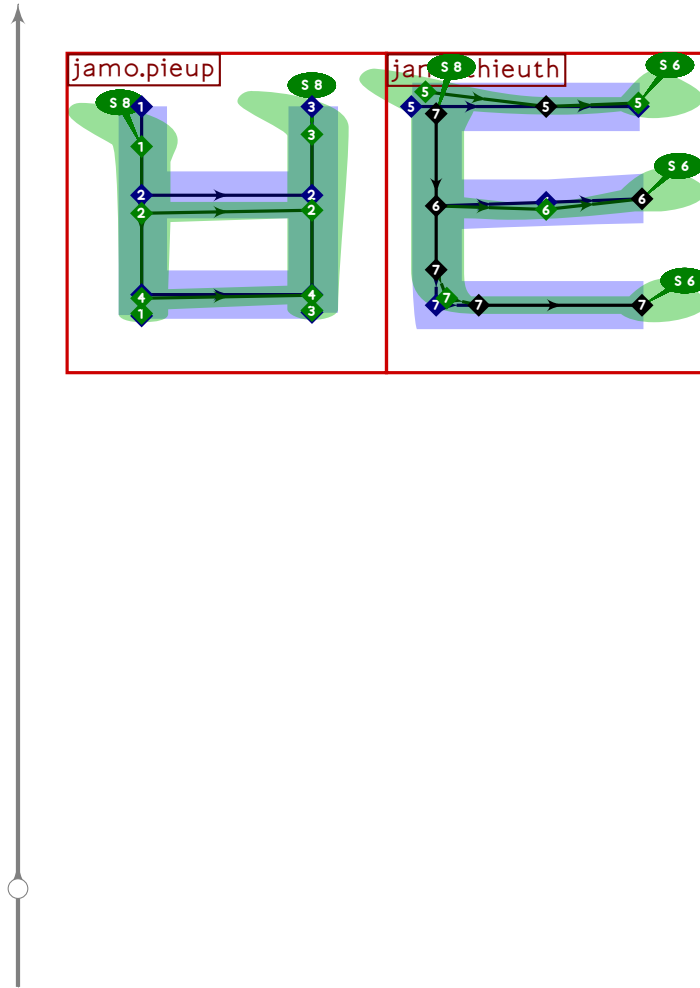
```



```

303 % hangul lead pieup-chieuch
304 begintsuglyph("uni1128.bug";40);
305 hangul.combine.lr(207,114)(whatever,lixf,loxf);
306 tsu_render;
307 endtsuglyph;
308

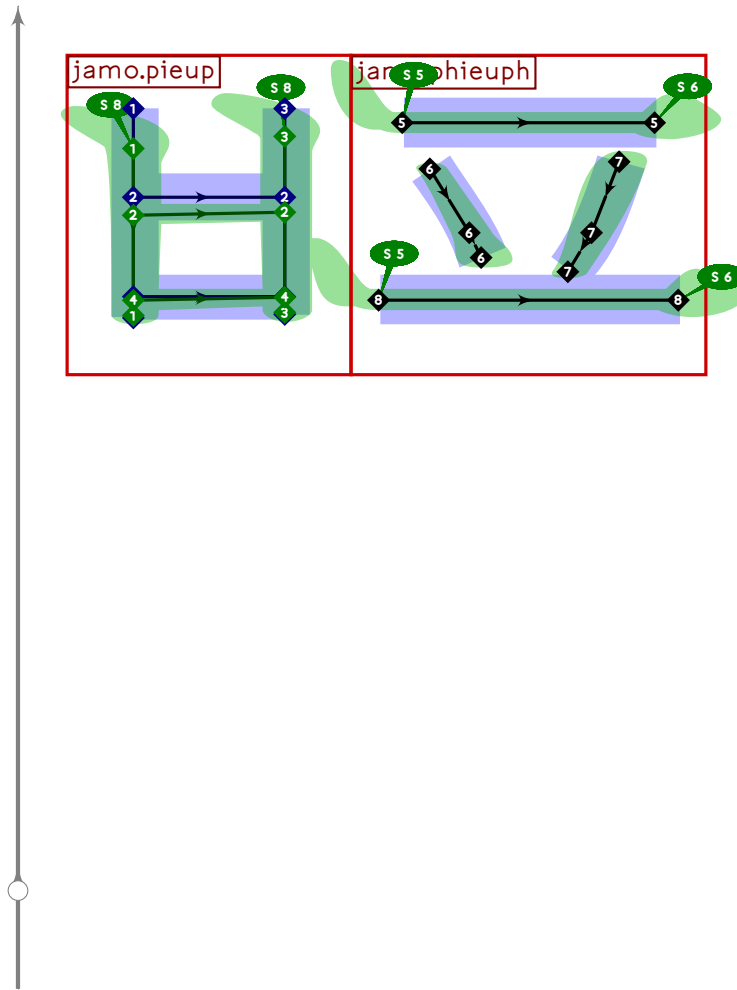
```



```

309 % hangul lead pieup-thieuth
310 begintsuglyph("uni1129.bug",41);
311 hangul.combine.lr(207,116)(whatever,lixf,loxf);
312 tsu_render;
313 endtsuglyph;
314

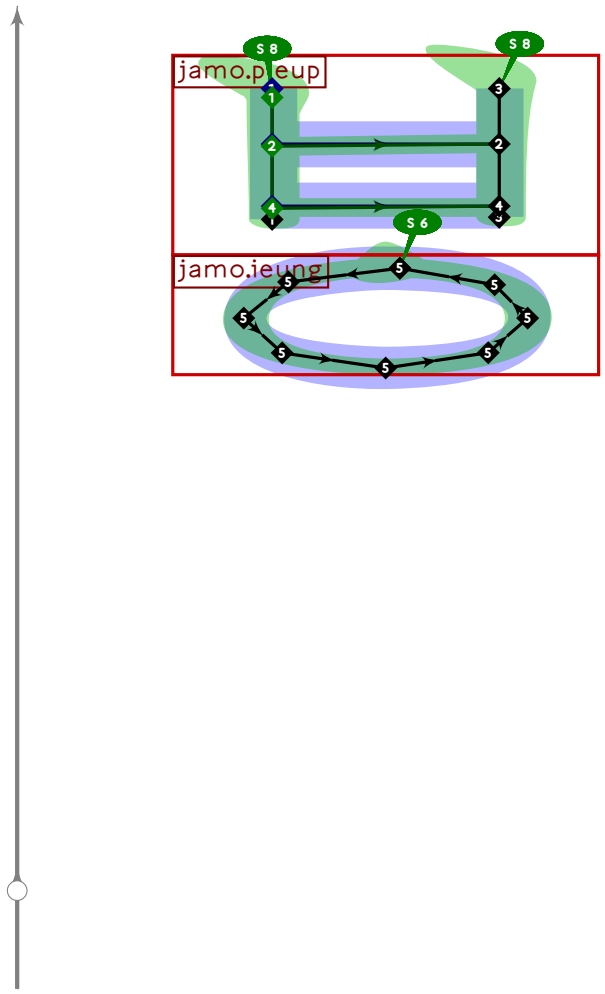
```



```

315 % hangul lead pieup-phieup
316 begintsuglyph("uni112A.bug";42);
317 hangul.combine.lr(207,117)(whatever,lixf,loxf);
318 tsu_render;
319 endtsuglyph;
320

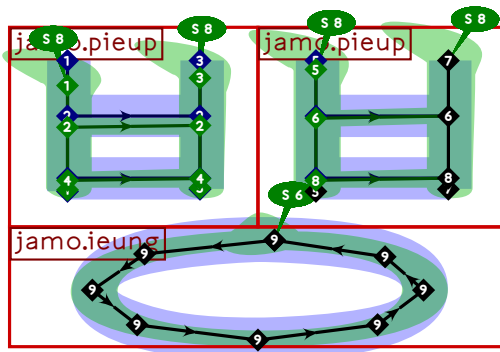
```



```

321 % hangul lead kopyeounpieup
322 begintsuglyph("uni112B.bug";43);
323 hangul.combine.tb(107,521)(whatever,
324   hxf((200,850),(800,-50)) transformed lixf,loxf);
325 tsu_render;
326 endtsuglyph;
327

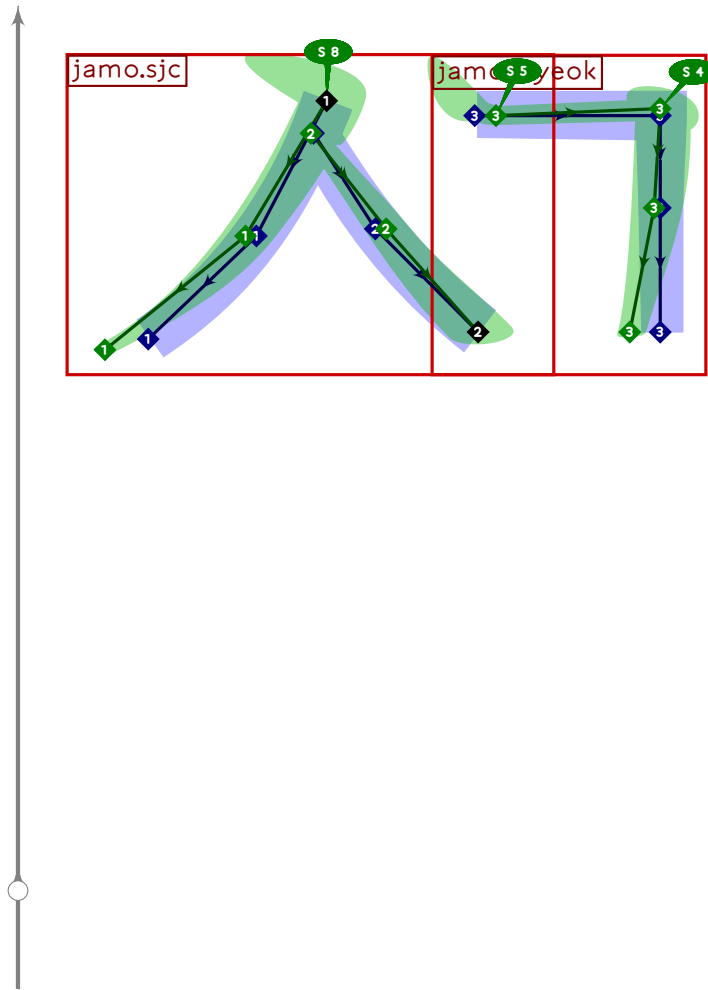
```



```

328 % hangul lead kapyeounssangpieup
329 begintsuglyph("uni112C.bug";44);
330 hangul.combine.tb(108,521)(whatever,
331   hxf((150,850),(850,-50)) transformed lixf,loxf);
332 tsu_render;
333 endtsuglyph;
334

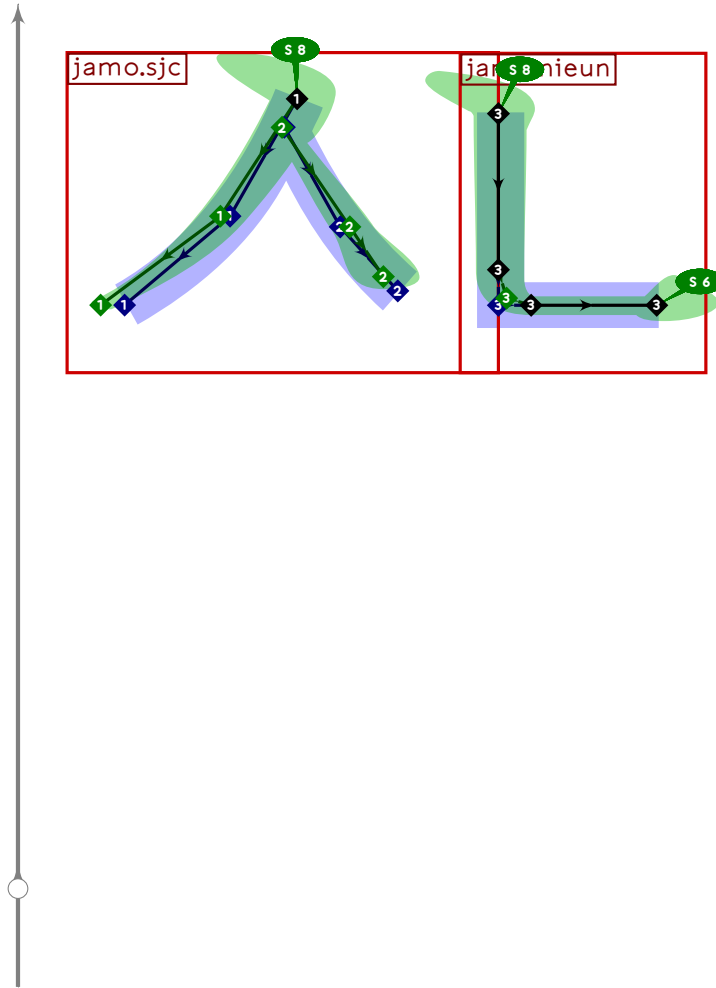
```



```

335 % hangul lead sios-kiyeok
336 begint Suglyph("uni112D.bug";45);
337 hangul.combine.lr(109;100)(whatever,lixf,loxf);
338 tsu_render;
339 endtsuglyph;
340

```

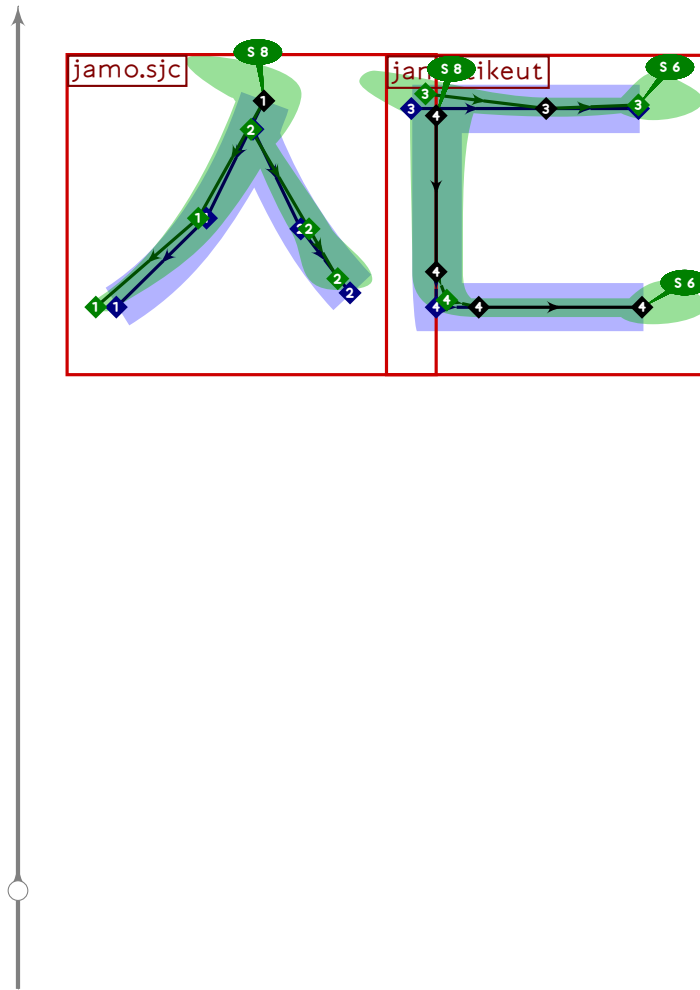


```

341 % hangul lead sios-nieun
342 begintsuglyph("uni112E.bug";46);
343 hangul.combine.lr(209,102)(whatever,lixf,loxf);
344 tsu_render;
345 endtsuglyph;
346

```

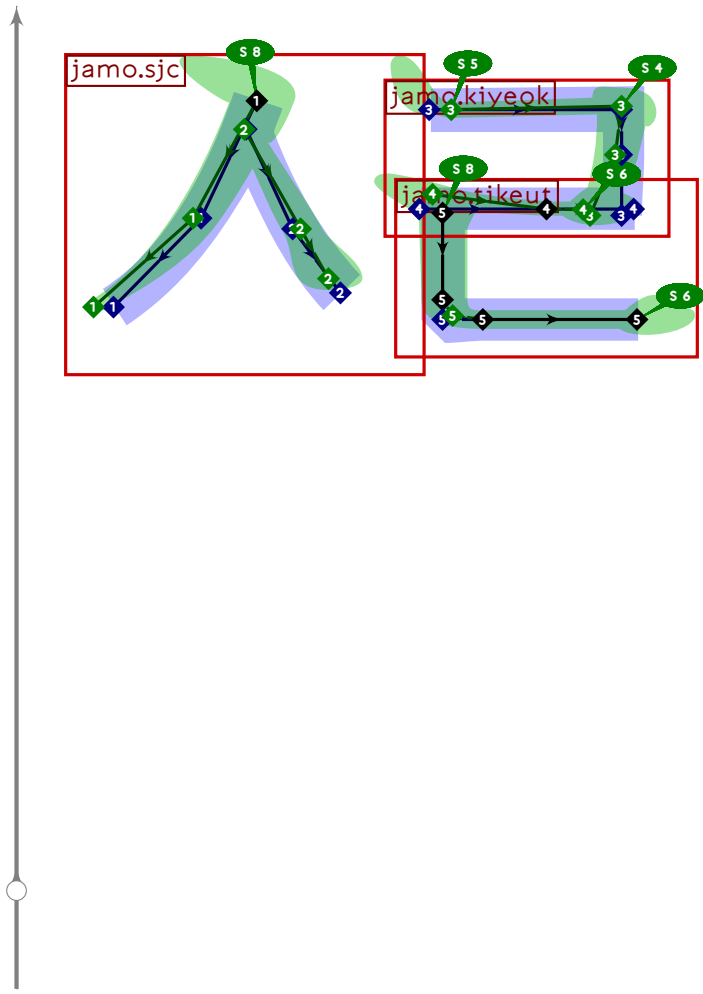




```

347 % hangul lead sios-tikeut
348 begintsuglyph("uni112F.bug",47);
349 hangul.combine.lr(209,103)(whatever,lixf,loxf);
350 tsu_render;
351 endtsuglyph;
352

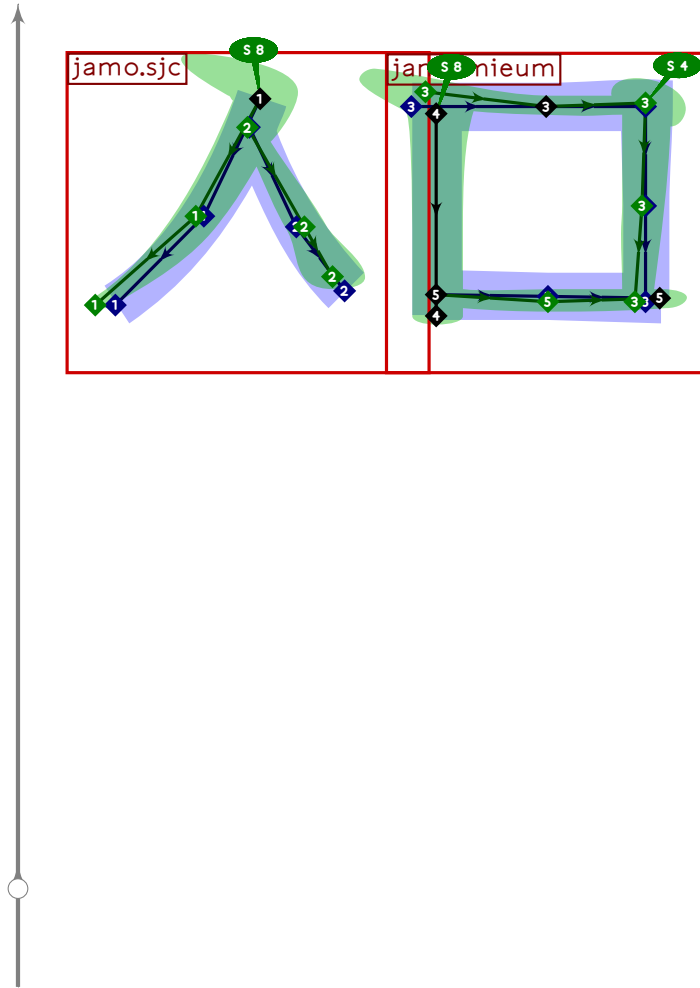
```



```

353 % hangul lead sios-rieul
354 begintsuglyph("uni1130.bug";48);
355 hangul.combine.lr(209,105)(whatever,lixf,loxf);
356 tsu_render;
357 endtsuglyph;
358

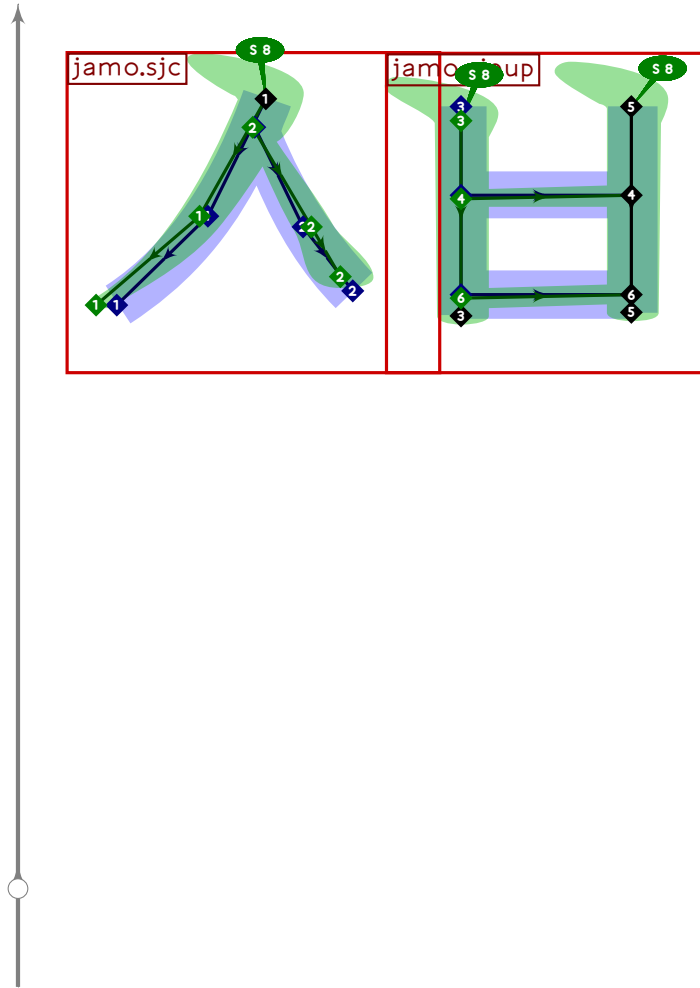
```



```

359 % hangul lead sios-mieum
360 begintsuglyph("uni1131.bug"49);
361 hangul.combine.lr(209,106)(whatever,lixf,loxf);
362 tsu_render;
363 endtsuglyph;
364

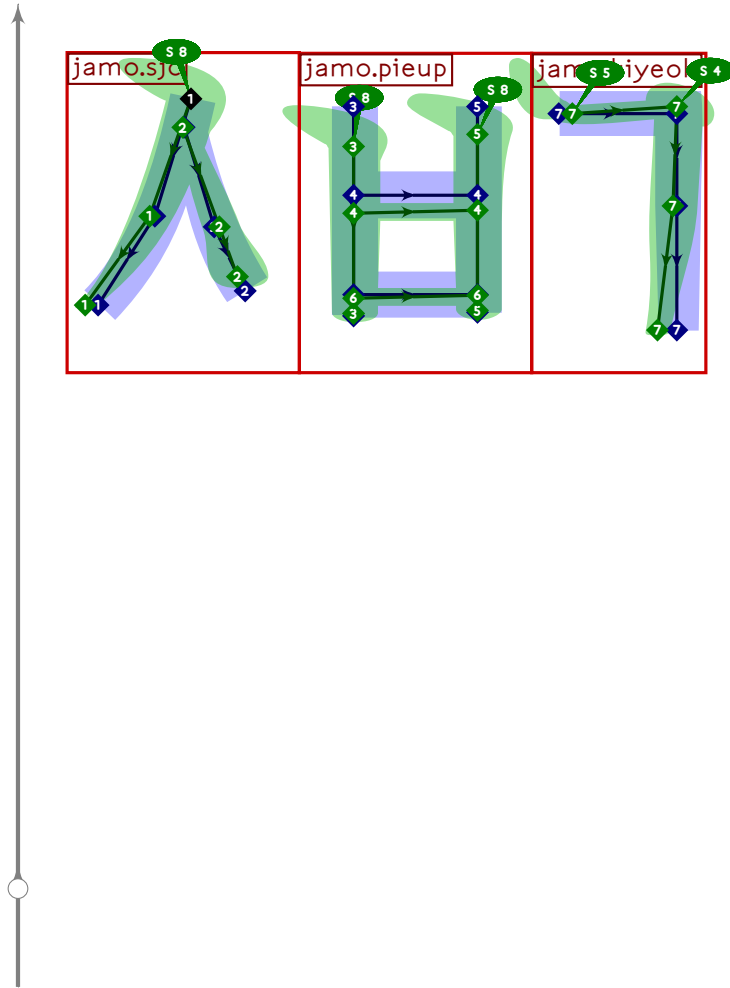
```



```

365 % hangul lead sios-pieup
366 begintsuglyph("uni1132.bug",50);
367 hangul.combine.lr(209,107)(whatever,lixf,loxf);
368 tsu_render;
369 endtsuglyph;
370

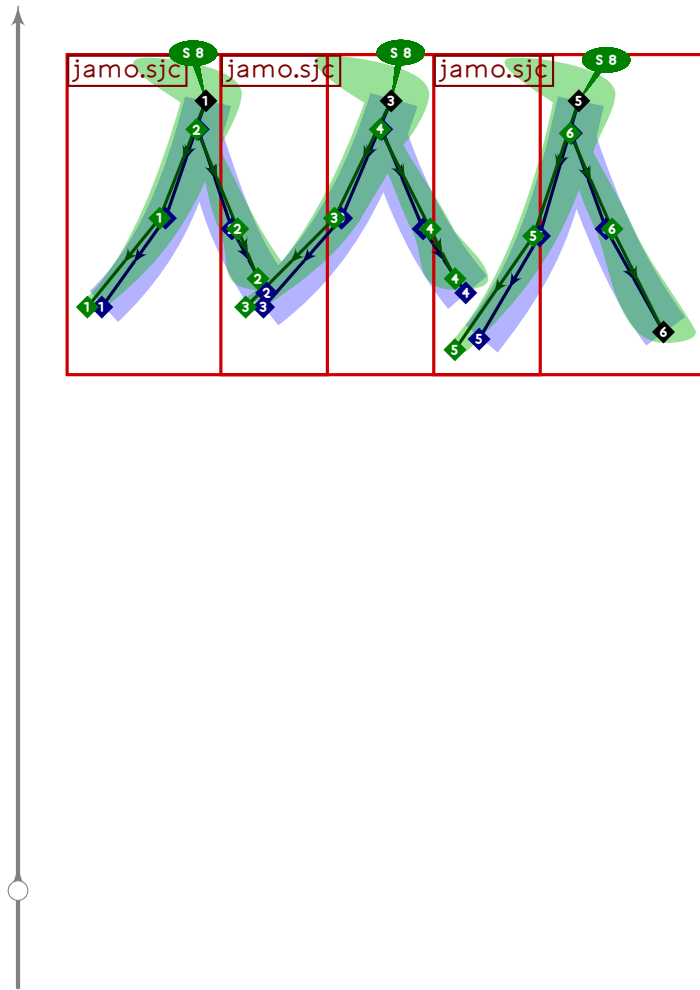
```



```

371 % hangul lead sios-pieup-kiyeok
372 begintsuglyph("uni1133.bug",51);
373 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
374 tsu_render;
375 endtsuglyph;
376

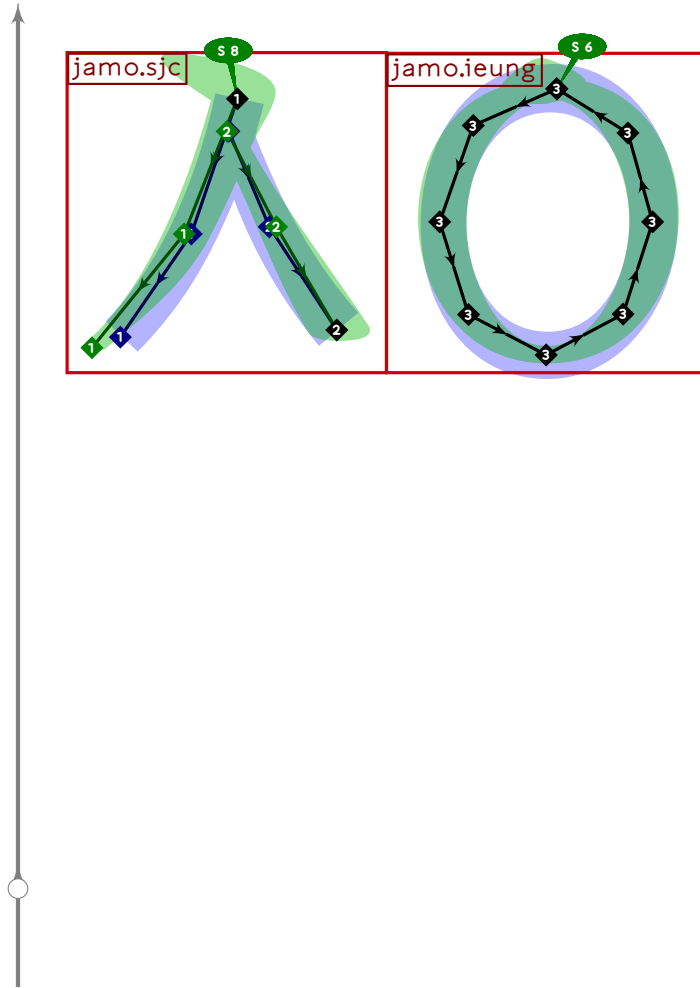
```



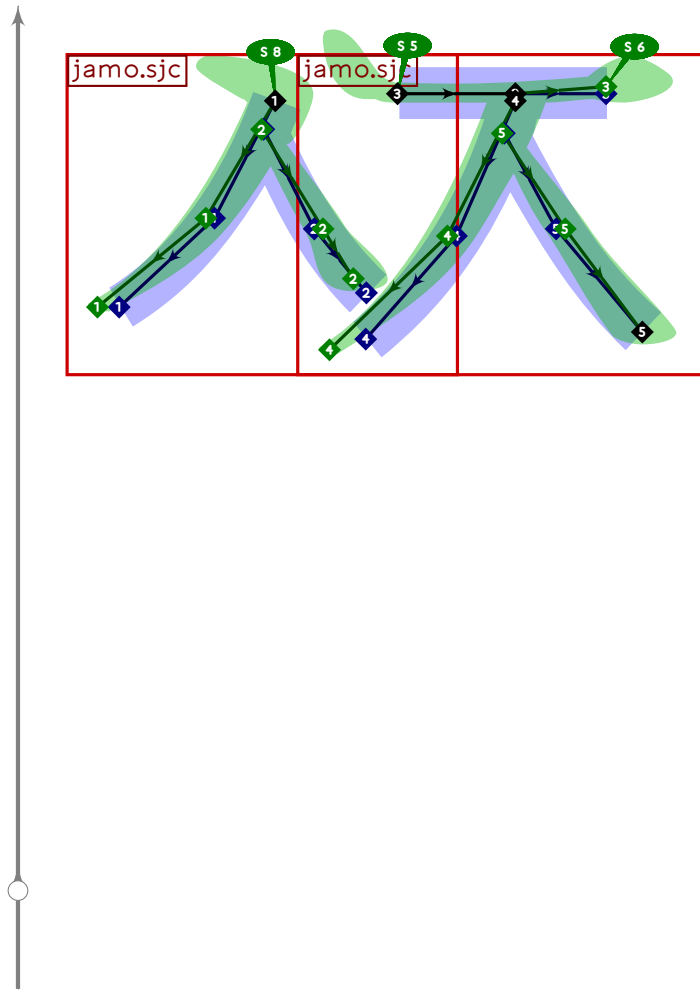
```

377 % hangul lead sios-sios-sios
378 begintsuglyph("uni1134.bug",52);
379 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
380 tsu_render;
381 endtsuglyph;
382

```



```
383 % hangul lead sio-sieung
384 begintsuglyph("uni1135.bug",53);
385 hangul.combine.lr(109,111)(whatever,lixf,loxf);
386 tsu_render;
387 endtsuglyph;
388
```

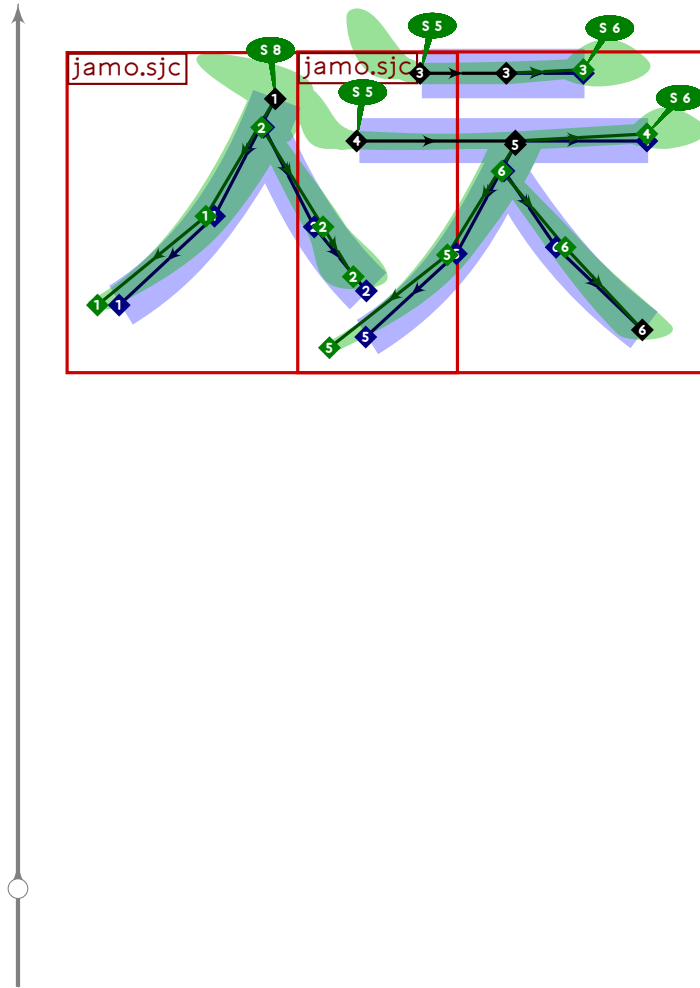


```

389 % hangul lead sios-cieuc
390 begint Suglyph("uni1136.bug",54);
391 hangul.combine.lr(209,112)(whatever,lixf,loxf);
392 tsu_render;
393 endtsuglyph;
394

```

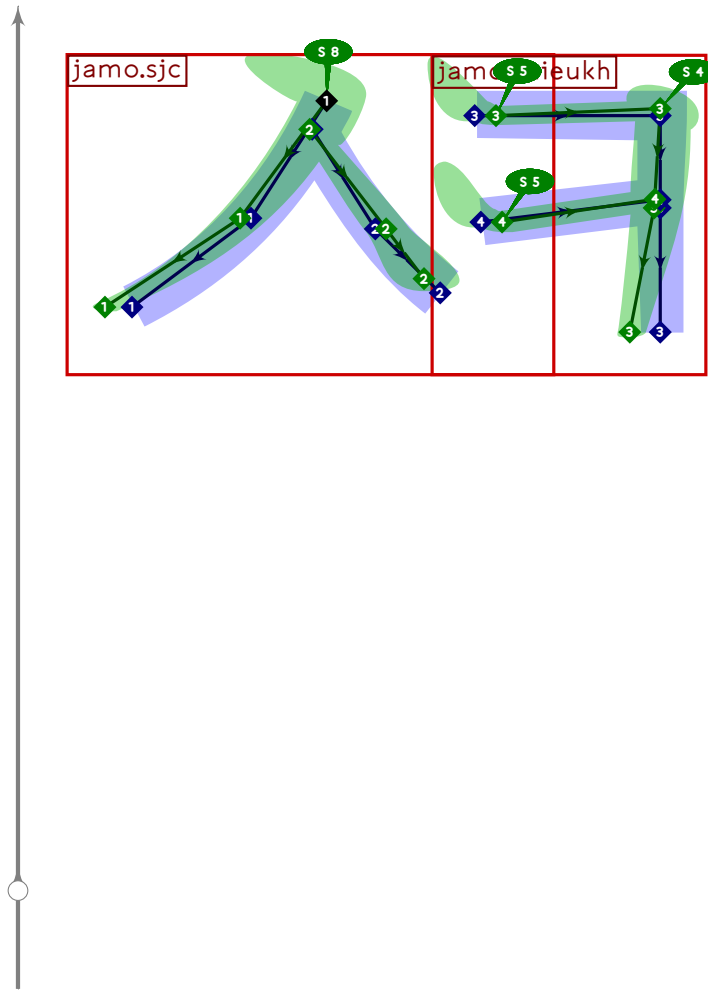




```

395 % hangul lead sios-chieuch
396 begint Suglyph("uni1137.bug",55);
397 hangul.combine.lr(209,114)(whatever,lixf,loxf);
398 tsu_render;
399 endtsuglyph;
400

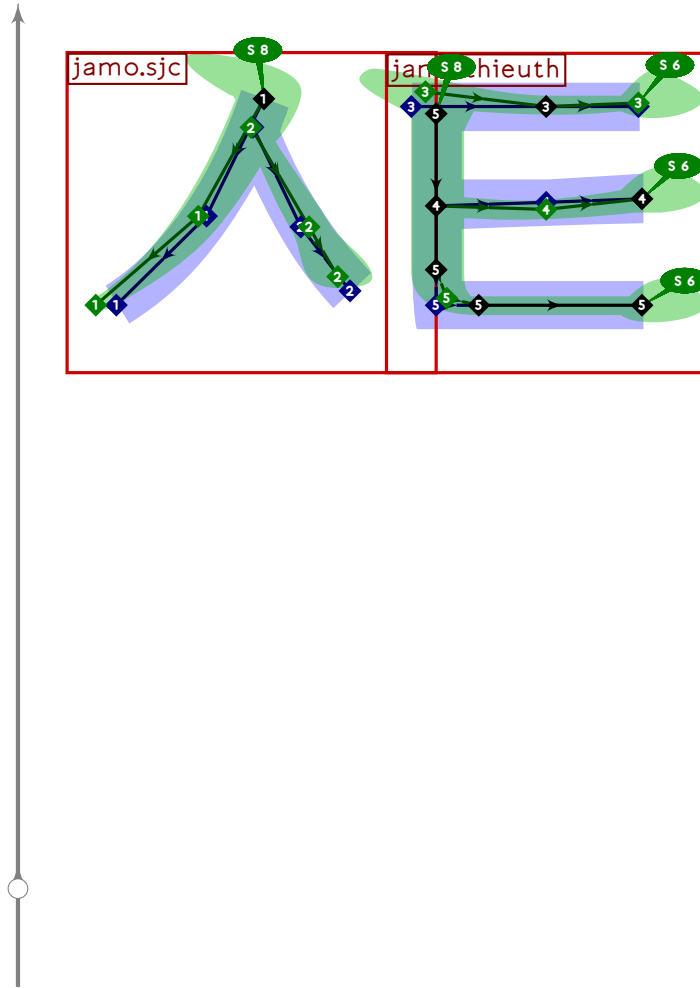
```



```

401 % hangul lead sios-khieukh
402 begintsuglyph("uni1138.bug",56);
403 hangul.combine.lr(209,115)(whatever,lixf,loxf);
404 tsu_render;
405 endtsuglyph;
406

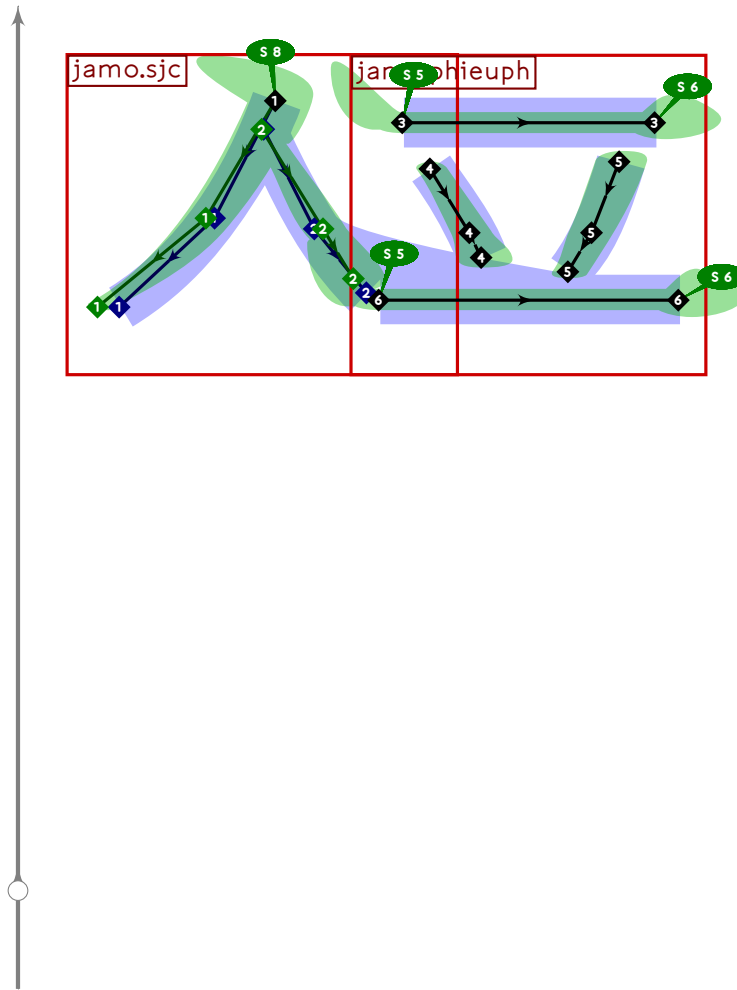
```



```

407 % hangul lead sios-thieuth
408 begintsuglyph("uni1139.bug",57);
409 hangul.combine.lr(209,116)(whatever,lixf,loxf);
410 tsu_render;
411 endtsuglyph;
412

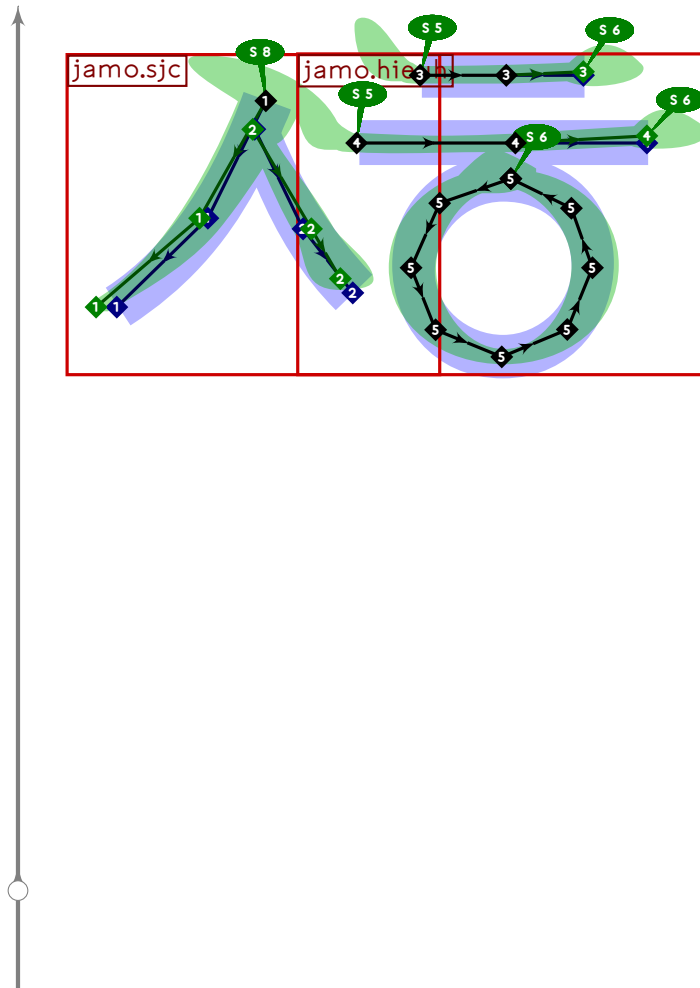
```



```

413 % hangul lead sios-phieuph
414 begintsuglyph("uni113A.bug",58);
415 hangul.combine.lr(209,117)(whatever,lixf,loxf);
416 tsu_render;
417 endtsuglyph;
418

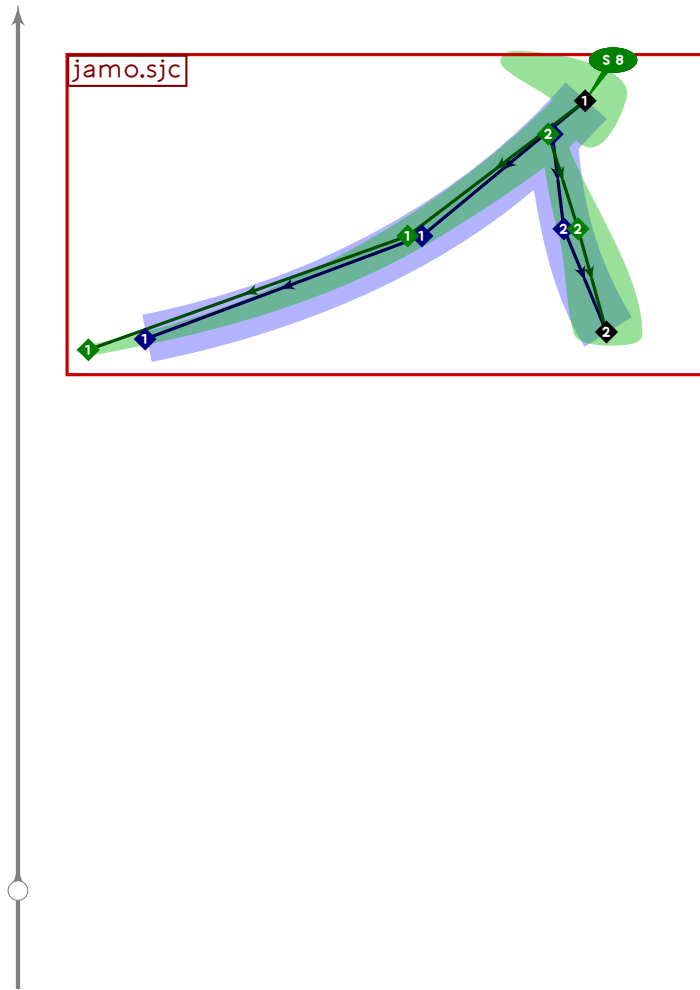
```



```

419 % hangul lead sios-hieuh
420 begintsuglyph("uni113B.bug",59);
421 hangul.combine.lr(209,118)(whatever,lixf,loxf);
422 tsu_render;
423 endtsuglyph;
424

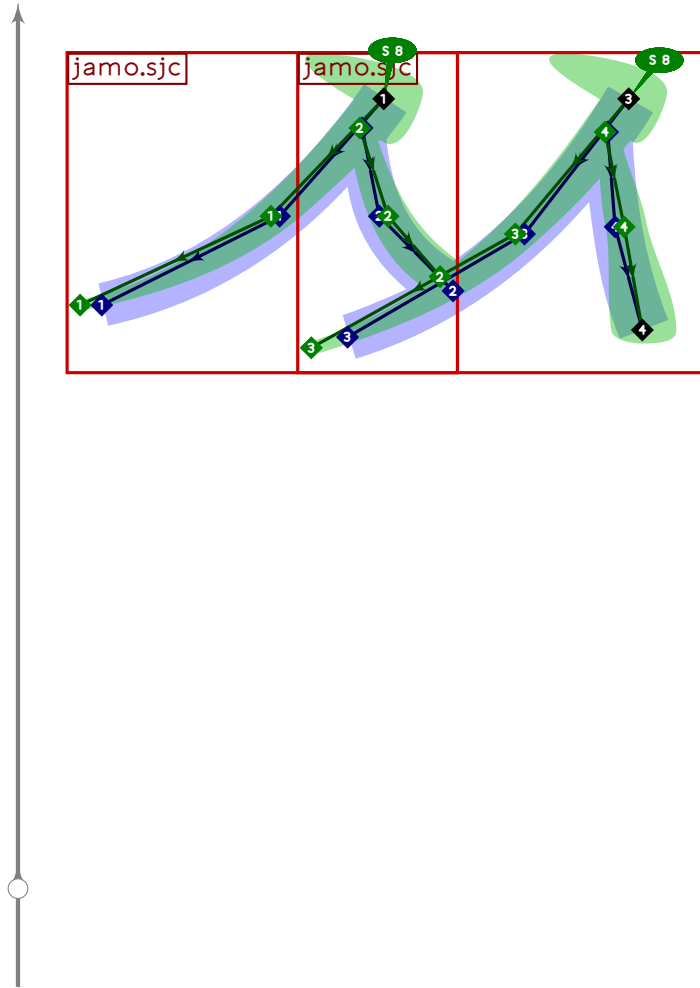
```



```

425 % hangul lead chitueumsios
426 begintsuglyph("uni113C.bug",60);
427 hangul,jamo.sjc(0,1,false)(whatever,lixf,loxf);
428 tsu_render;
429 endtsuglyph;
430

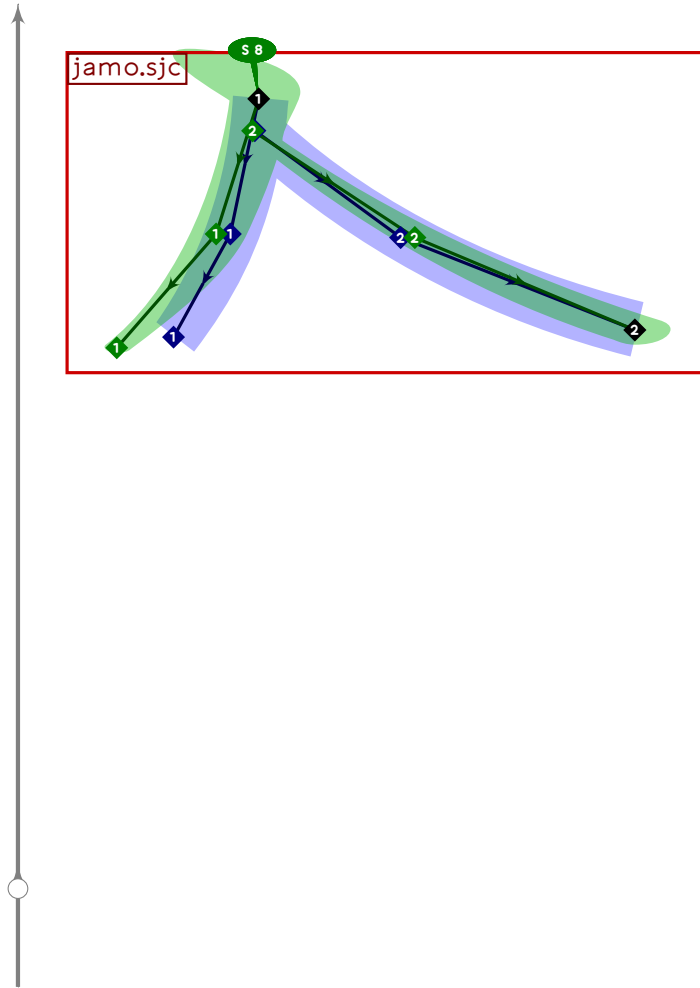
```



```

431 % hangul lead chitueumssangsios
432 begintuglyph("uni113D.bug",61);
433 hangul.combine.lr(223,222)(whatever,lixf,loxf);
434 tsu_render;
435 endtuglyph;
436

```

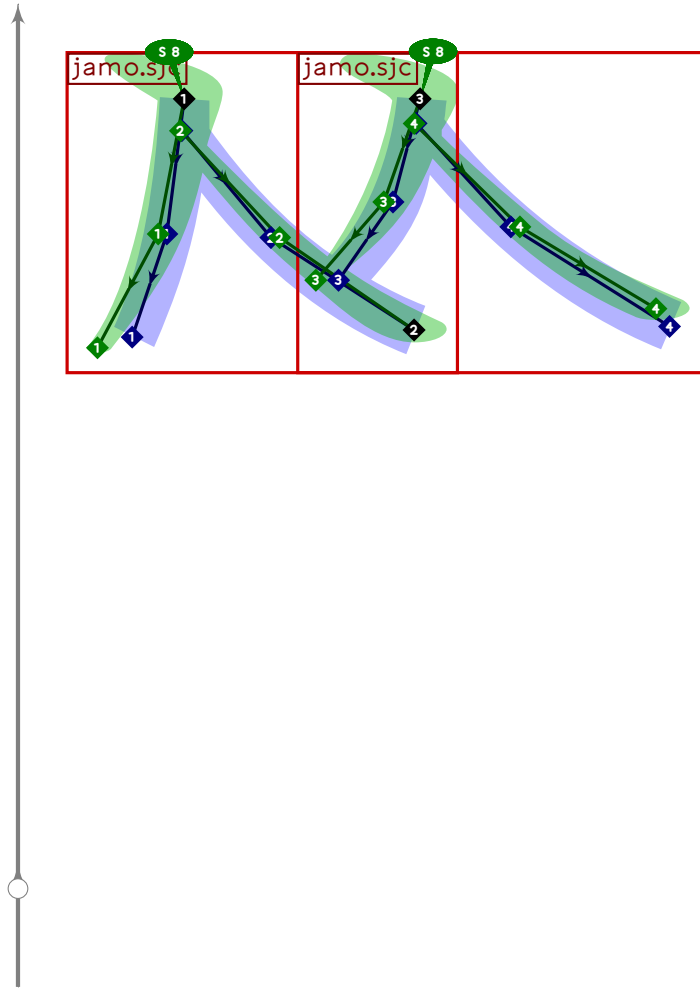


```

437 % hangul lead ceongchieumsios
438 begint Suglyph("uni113E.bug",62);
439 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
440 tsu_render;
441 endtsuglyph;
442

```

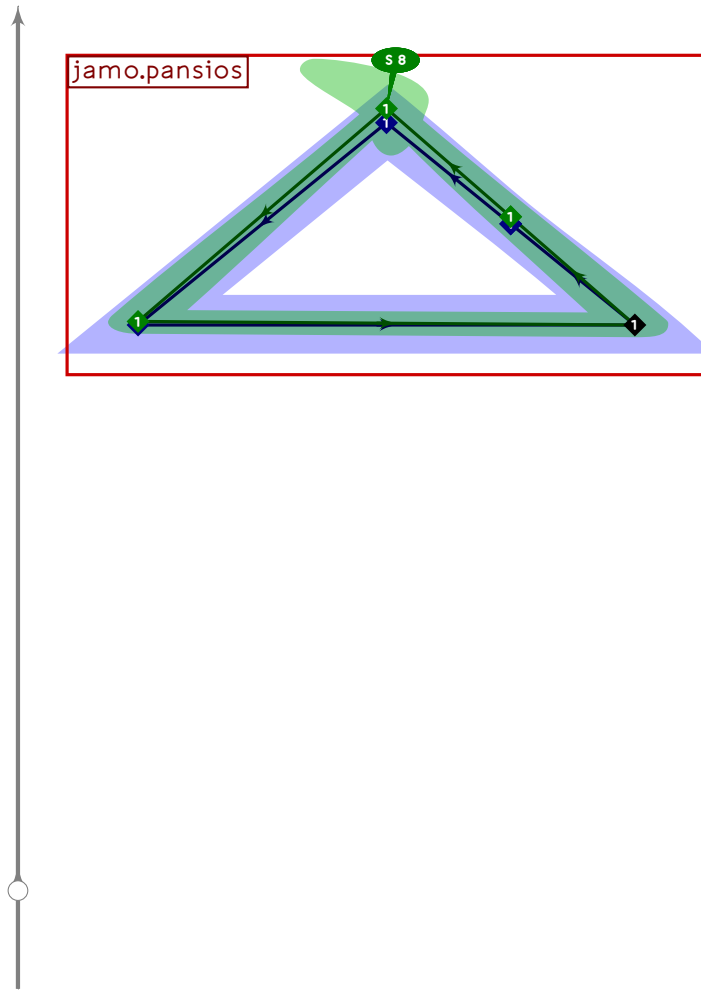




```

443 % hangul lead ceongchieumssangsios
444 begintsuglyph("uni113F.bug",63);
445 hangul.combine.lr(224,225)(whatever,lixf,loxf);
446 tsu_render;
447 endtsuglyph;
448

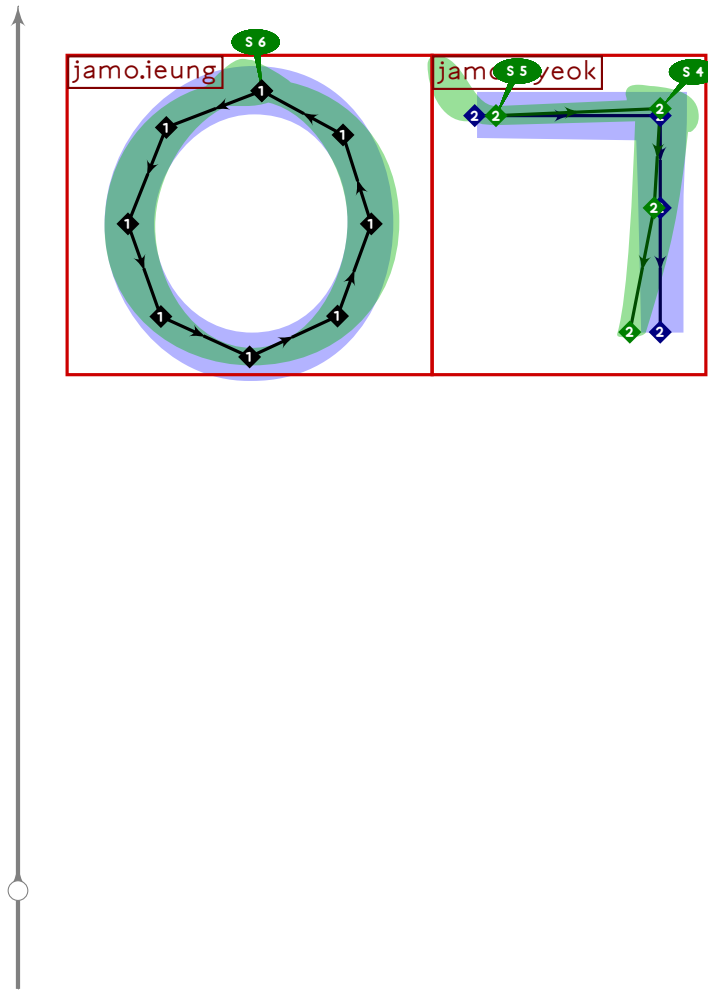
```



```

449 % hangul lead pansios
450 begint Suglyph("uni1140.bug",64);
451 hangul,jamo.pansios(whatever,lixf,loxf);
452 tsu_render;
453 endtsuglyph;
454

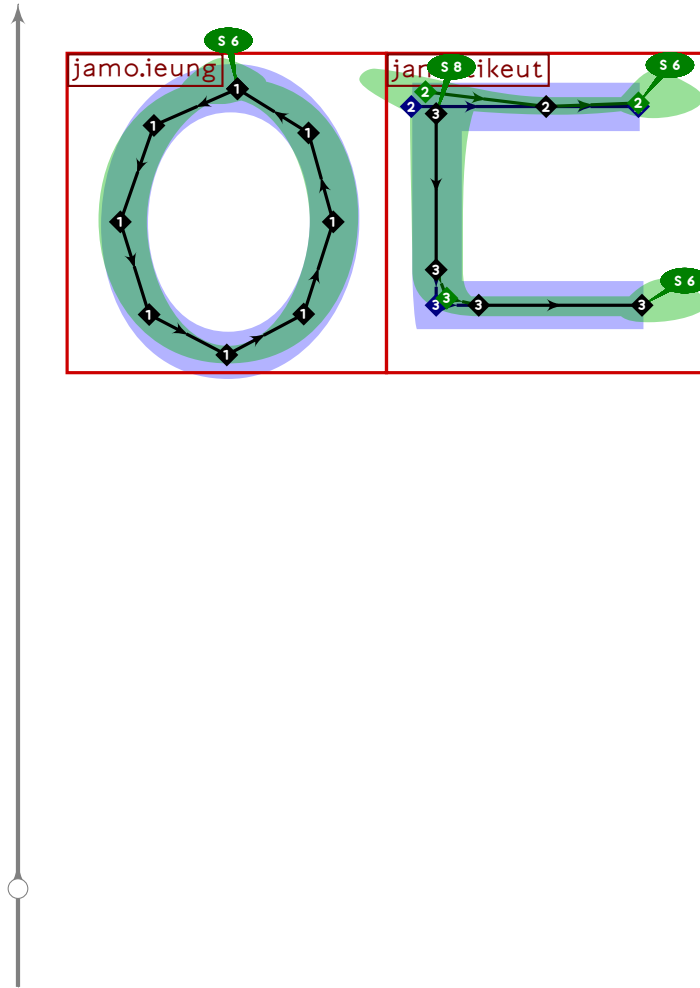
```



```

455 % hangul lead ieung-kiyeok
456 begintsuglyph("uni1141.bug";65);
457 hangul.combine.lr(111,100)(whatever,lixf,loxf);
458 tsu_render;
459 endtsuglyph;
460

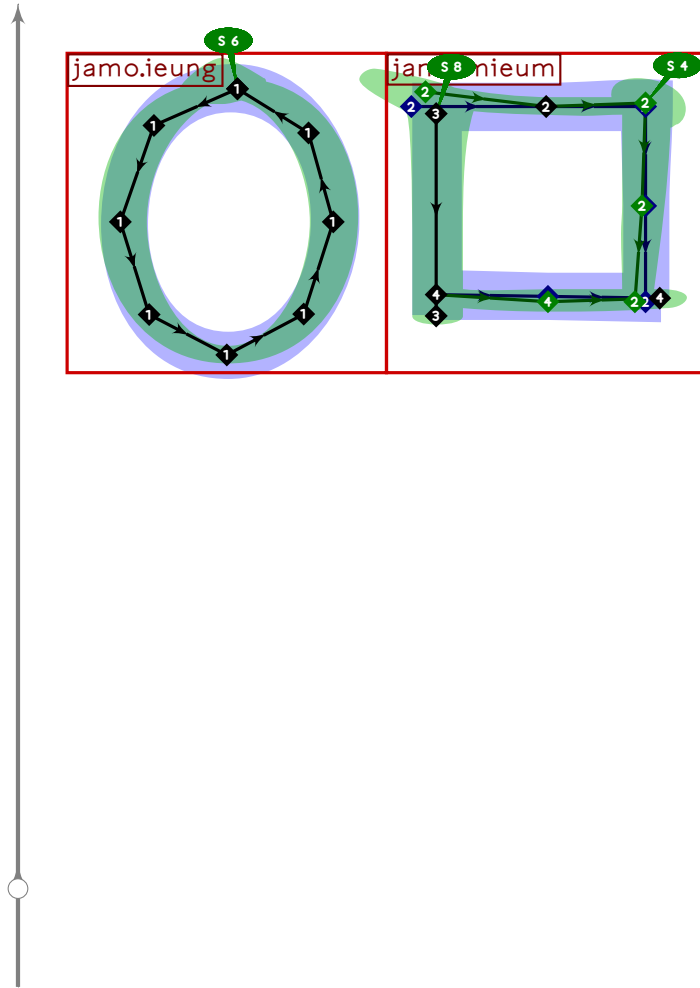
```



```

461 % hangul lead ieung-tikeut
462 begintsuglyph("uni1142.bug",66);
463 hangul.combine.lr(111,103)(whatever,lixf,loxf);
464 tsu_render;
465 endtsuglyph;
466

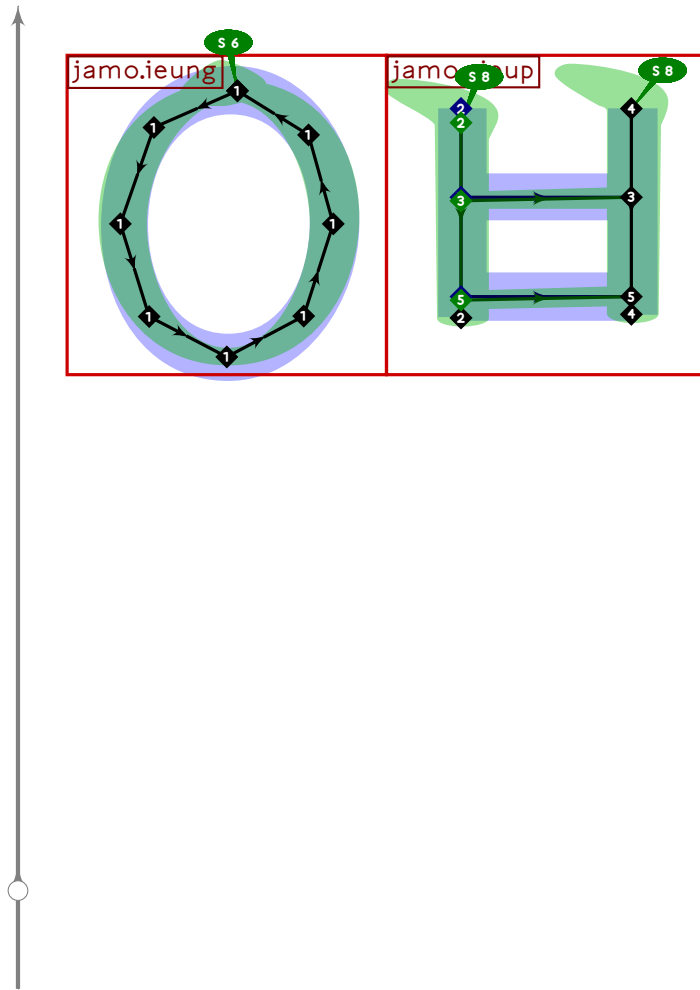
```



```

467 % hangul lead ieung-mieum
468 begintsuglyph("uni1143.bug",67);
469 hangul.combine.lr(111,106)(whatever,lixf,loxf);
470 tsu_render;
471 endtsuglyph;
472

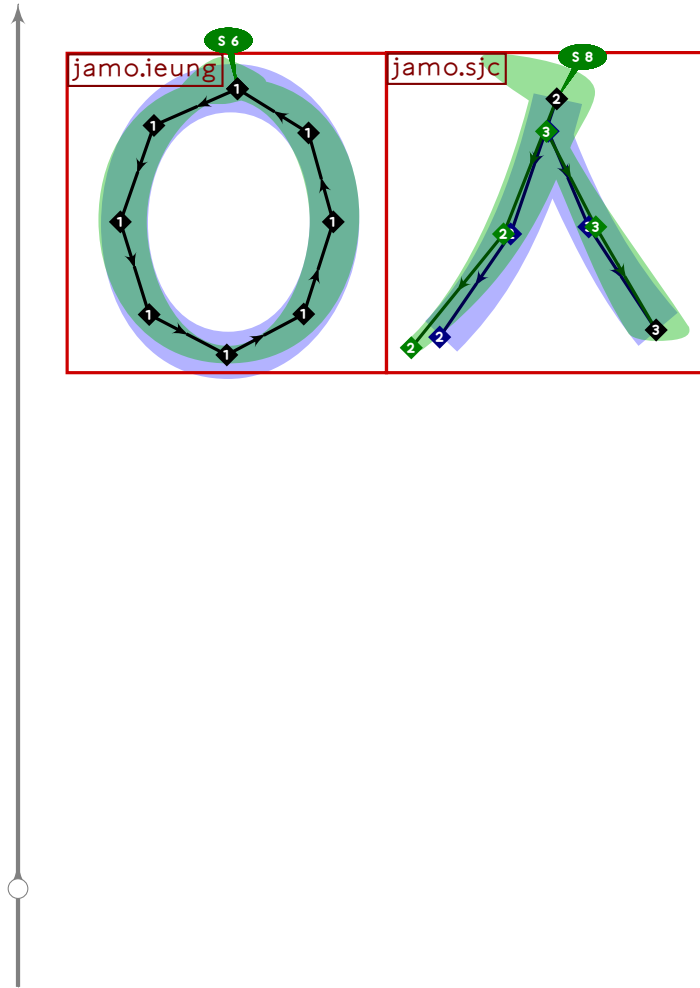
```



```

473 % hangul lead ieung-pieup
474 begintsuglyph("uni1144.bug",68);
475 hangul.combine.lr(111,107)(whatever,lixf,loxf);
476 tsu_render;
477 endtsuglyph;
478

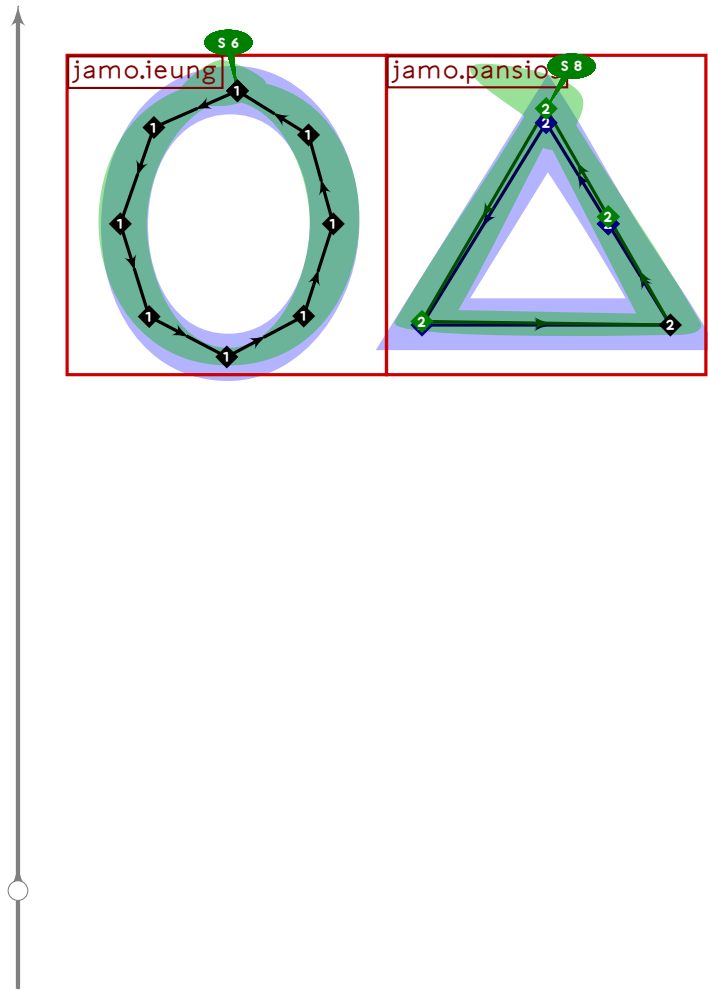
```



```

479 % hangul lead ieung-sios
480 begintsuglyph("uni1145.bug",69);
481 hangul.combine.lr(111,109)(whatever,lixf,loxf);
482 tsu_render;
483 endtsuglyph;
484

```

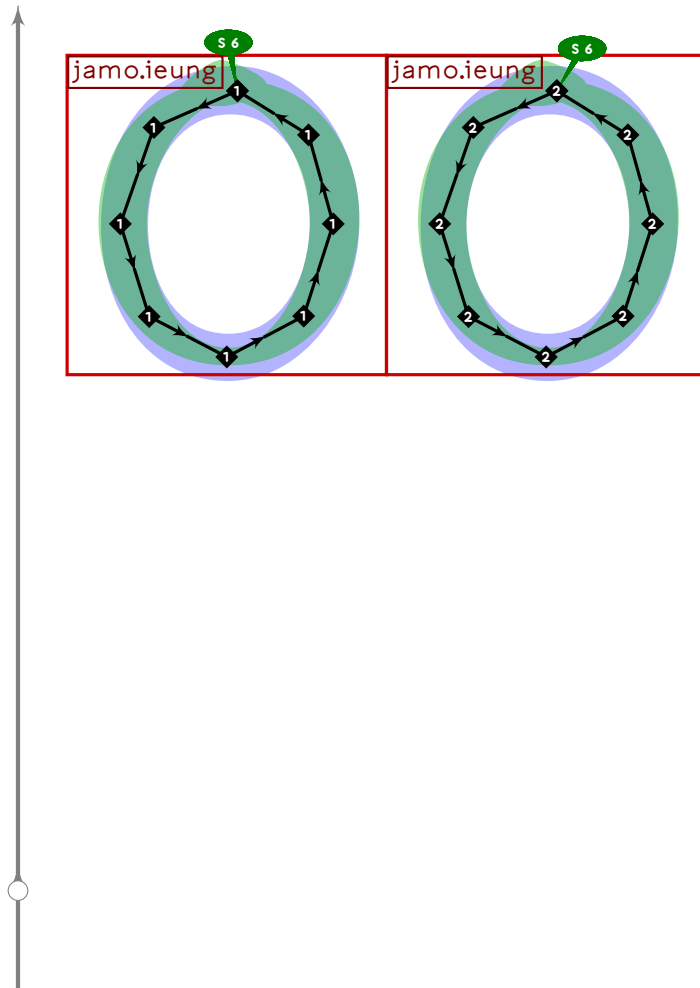


```

485 % hangul lead ieung-pansios
486 begintsuglyph("uni1146.bug",70);
487 hangul.combine.lr(111,219)(whatever,lixf,loxf);
488 tsu_render;
489 endtsuglyph;
490

```

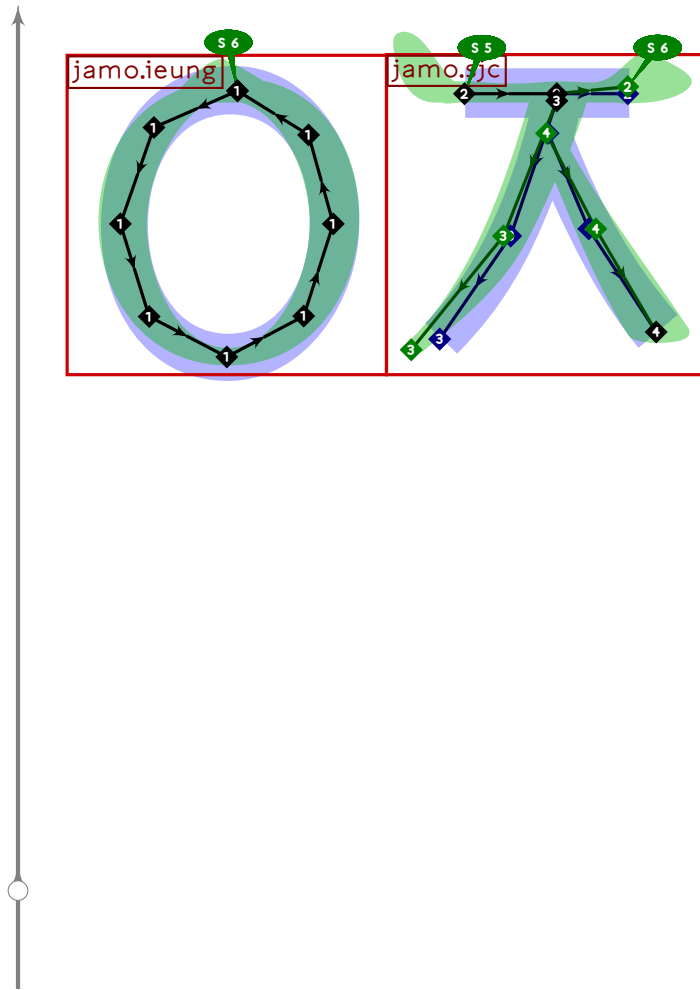




```

491 % hangul lead ssangieung
492 begintsuglyph("uni1147.bug";71);
493 hangul.combine.lr(111,111)(whatever,lixf,loxf);
494 tsu_render;
495 endtsuglyph;
496

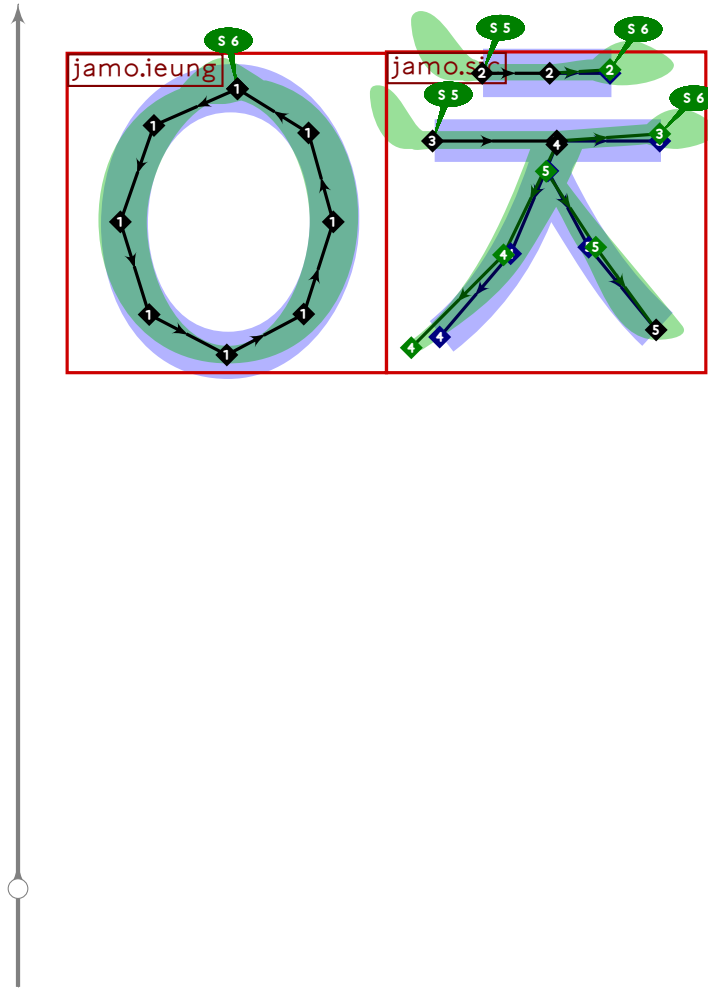
```



```

497 % hangul lead ieung-cieuc
498 begintsuglyph("uni1148.bug",72);
499 hangul.combine.lr(111,112)(whatever,lixf,loxf);
500 tsu_render;
501 endtsuglyph;
502

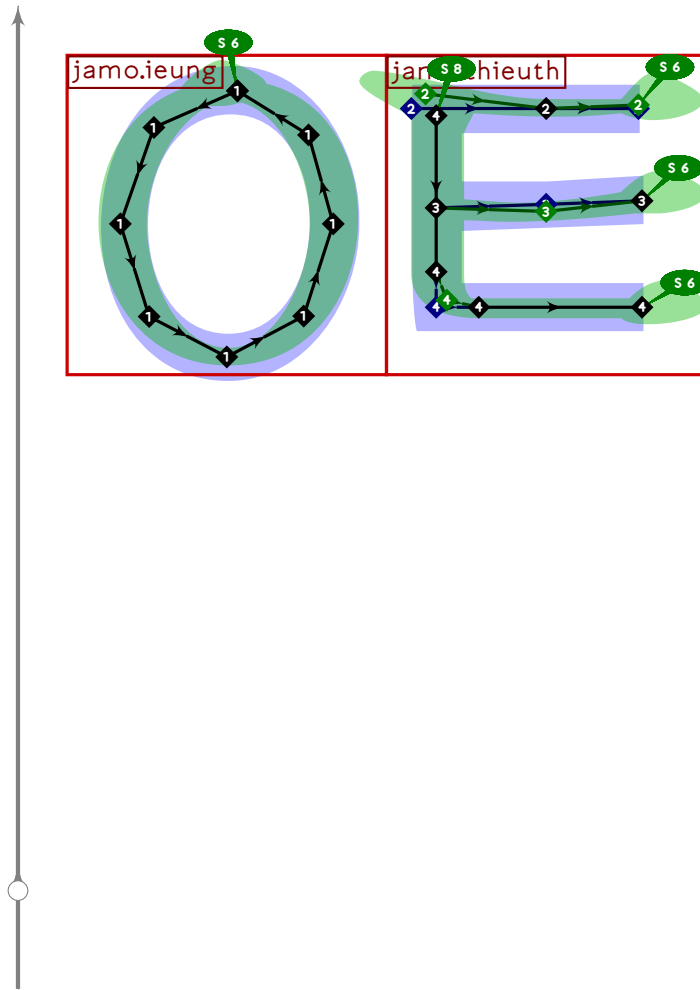
```



```

503 % hangul lead ieung-chieuch
504 begintsuglyph("uni1149.bug",73);
505 hangul.combine.lr(111,114)(whatever,lixf,loxf);
506 tsu_render;
507 endtsuglyph;
508

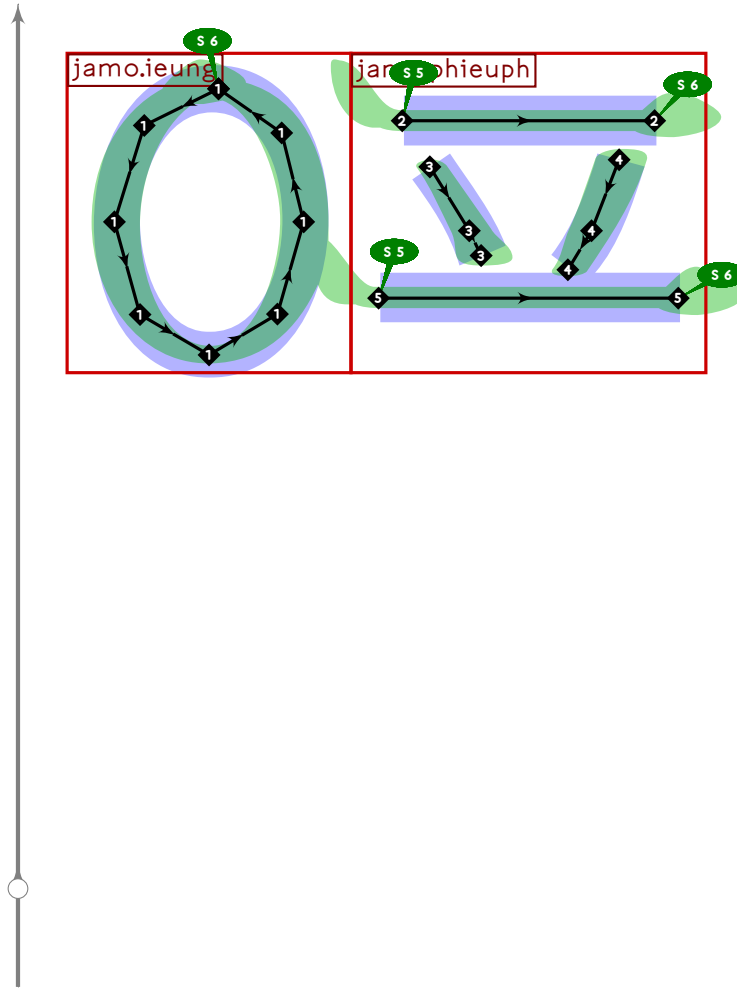
```



```

509 % hangul lead ieung-theiuth
510 begintsuglyph("uni114A.bug",74);
511 hangul.combine.lr(111,116)(whatever,lixf,loxf);
512 tsu_render;
513 endtsuglyph;
514

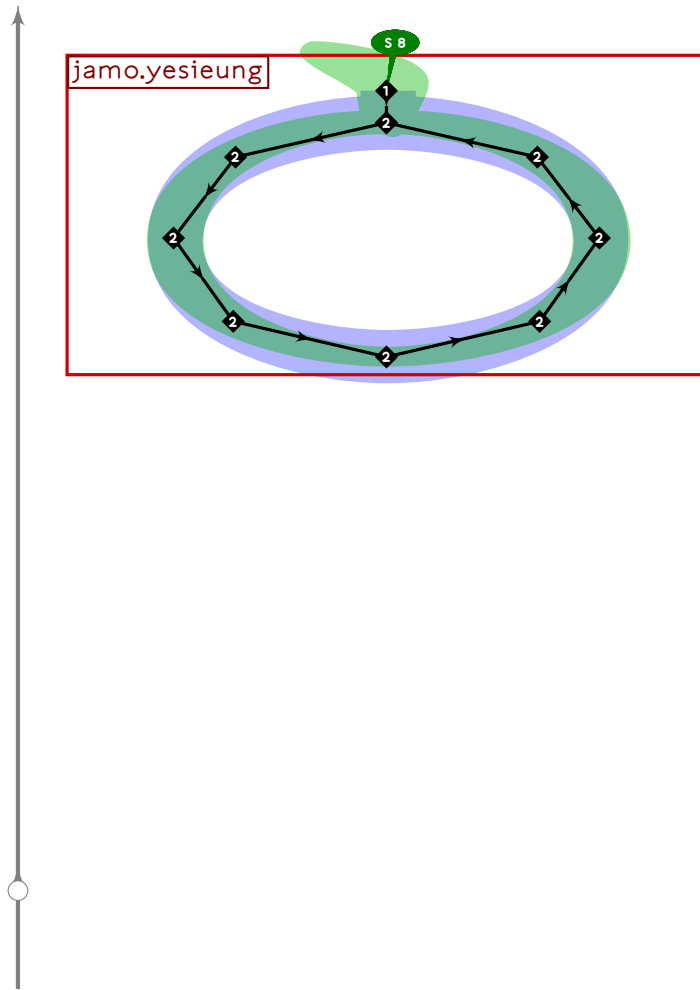
```



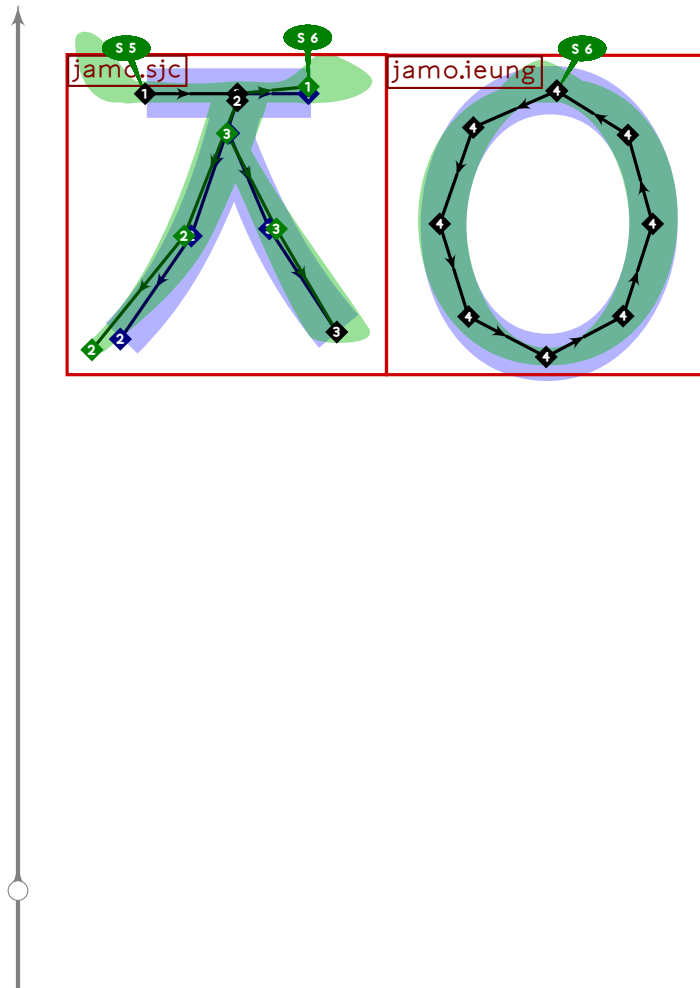
```

515 % hangul lead ieung-phieuph
516 begintsuglyph("uni114B.bug",75);
517 hangul.combine.lr(111,117)(whatever,lixf,loxf);
518 tsu_render;
519 endtsuglyph;
520

```



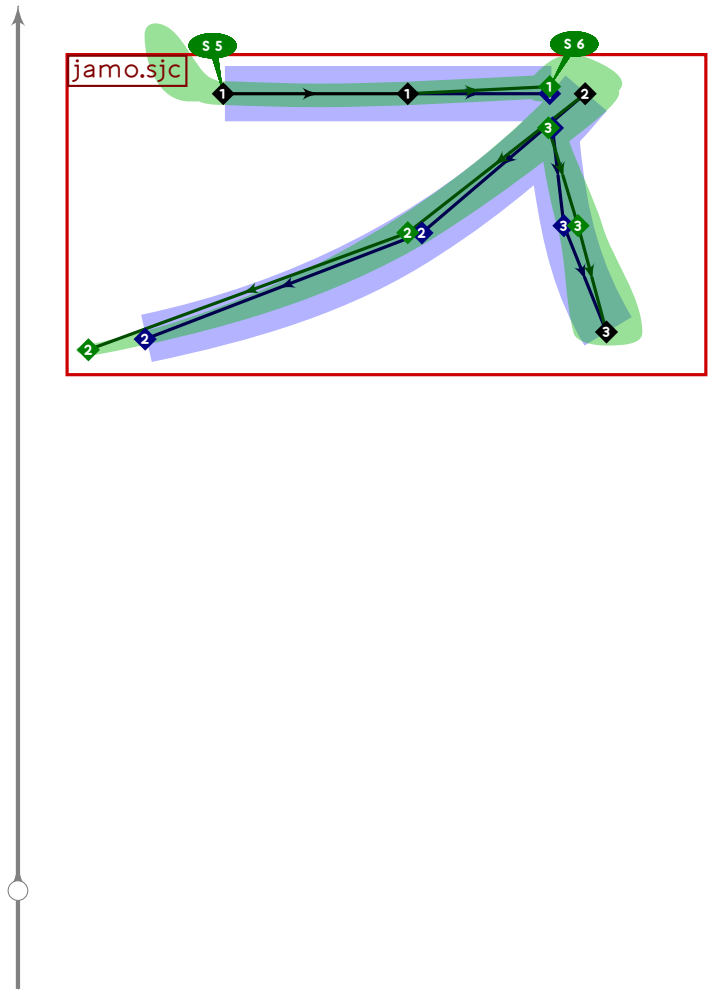
```
521 % hangul lead yesieung
522 begintsuglyph("uni114C.bug",76);
523 hangul,jamo.yesieung(whatever,lixf,loxf);
524 tsu_render;
525 endtsuglyph;
526
```



```

527 % hangul lead cieuc-ieung
528 begintsuglyph("uni114D.bug",77);
529 hangul.combine.lr(112,111)(whatever,lixf,loxf);
530 tsu_render;
531 endtsuglyph;
532

```

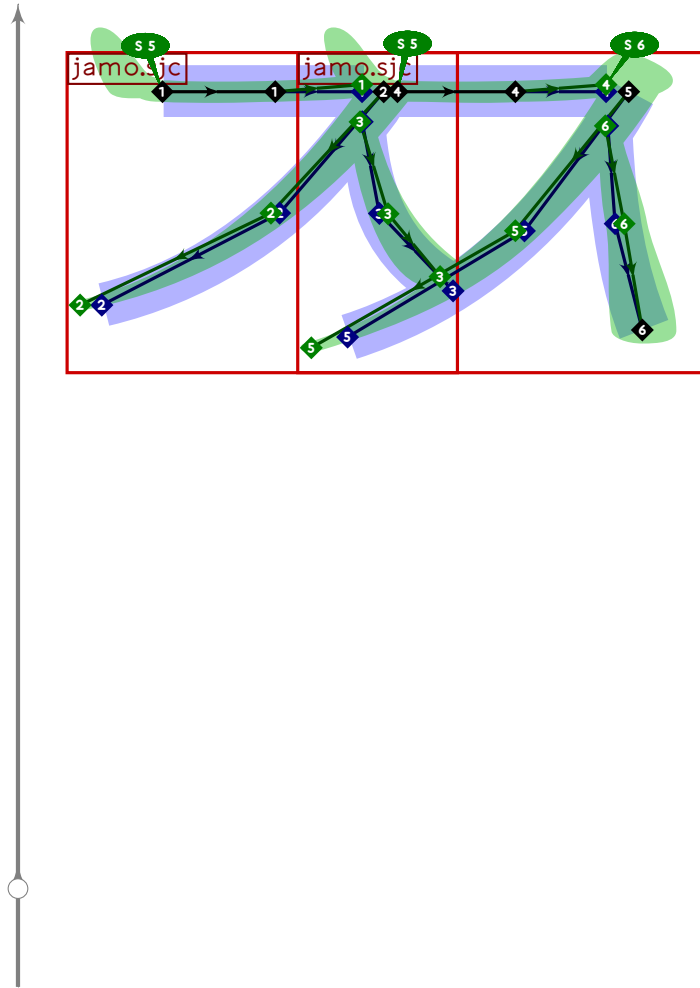


```

533 % hangul lead chitueumcieuc
534 begintsuglyph("uni114E.bug",78);
535 hangul,jamo.sjc(1,1,false)(whatever,lixf,loxf);
536 tsu_render;
537 endtsuglyph;
538

```

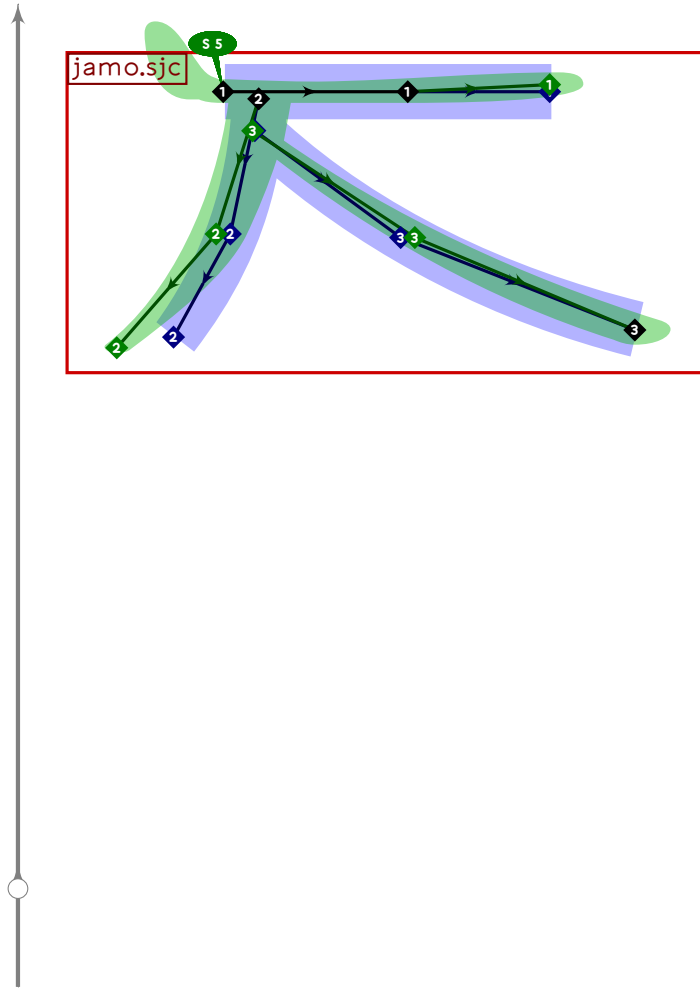




```

539 % hangul lead chitueumssangcieuc
540 begintuglyph("uni114F.bug",79);
541 hangul.combine.lr(227,226)(whatever,lixf,loxf);
542 tsu_render;
543 endtsuglyph;
544

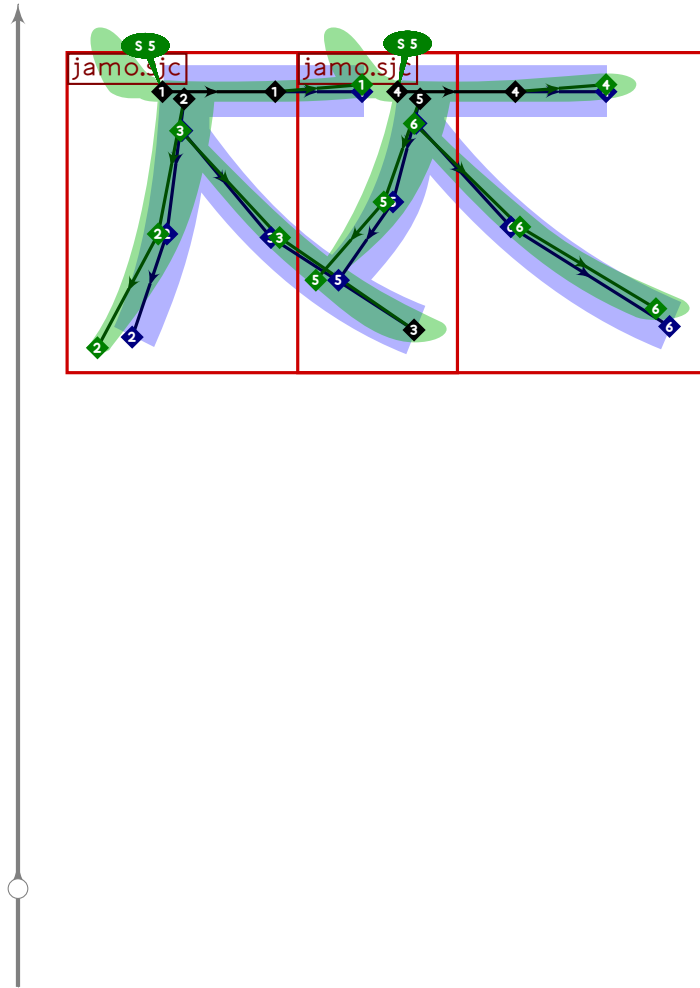
```



```

545 % hangul lead ceongchieumcieuc
546 begint Suglyph("uni1150.bug",80);
547 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
548 tsu_render;
549 endtsuglyph;
550

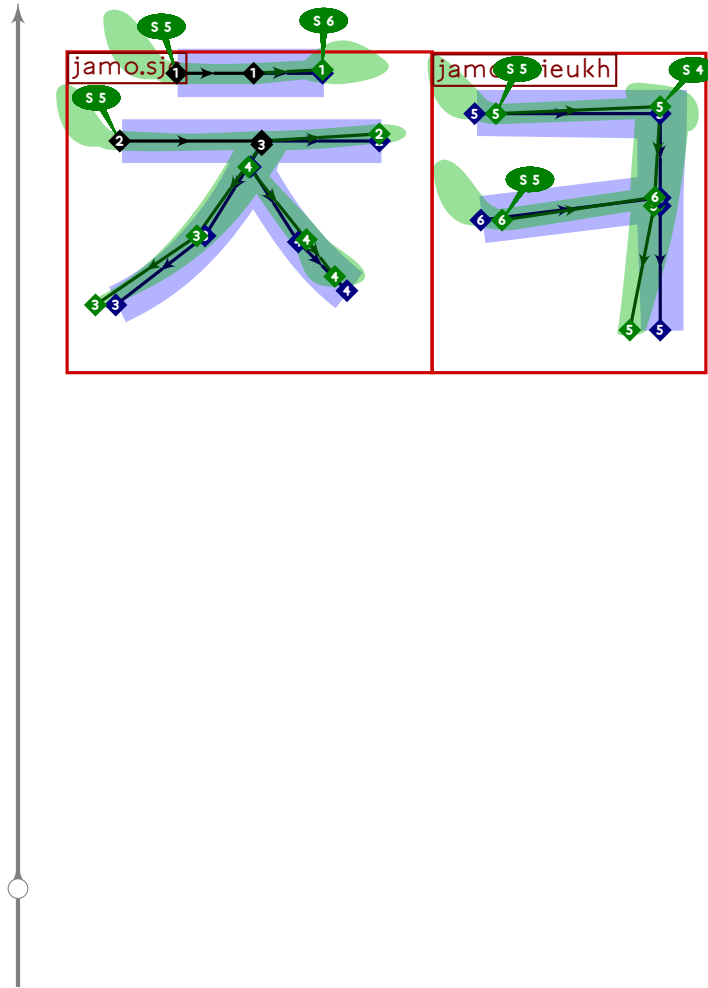
```



```

551 % hangul lead ceongchieumssangcieuc
552 begintuglyph("uni1151.bug";81);
553 hangul.combine.lr(228,229)(whatever,lixf,loxf);
554 tsu_render;
555 endtsuglyph;
556

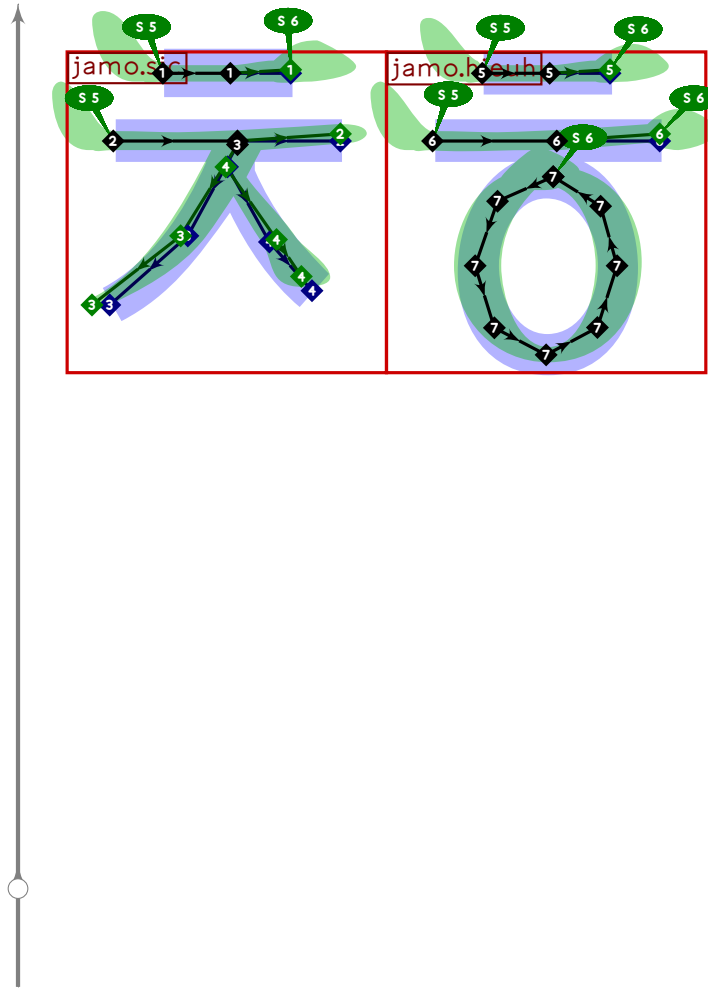
```



```

557 % hangul lead chieuch-khieukh
558 begintsuglyph("uni1152.bug",82);
559 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
560 tsu_render;
561 endtsuglyph;
562

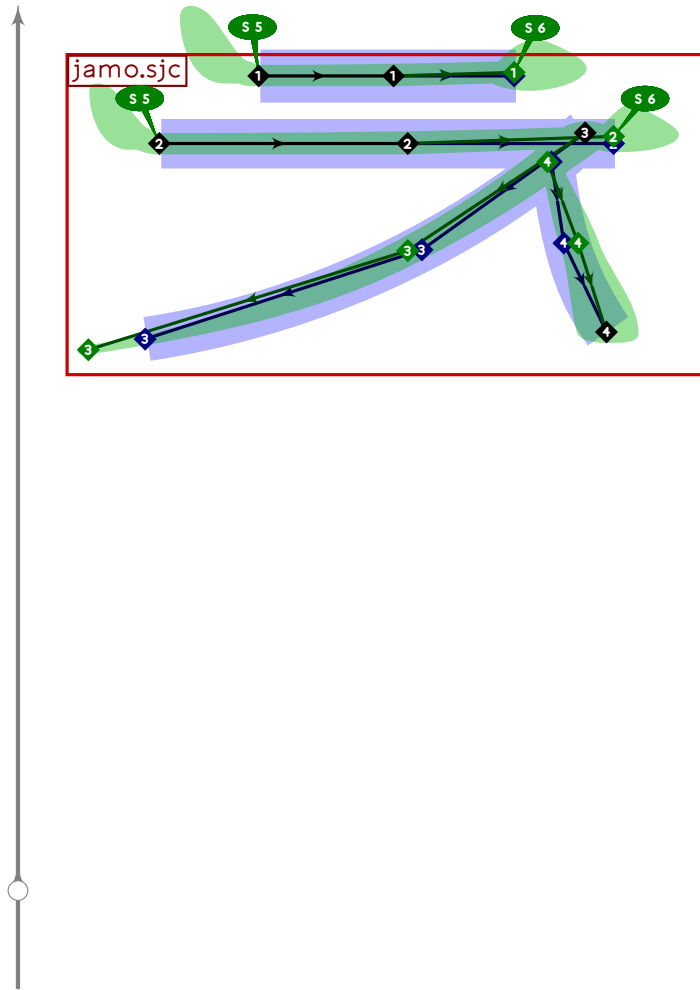
```



```

563 % hangul lead chieuch-hieuh
564 begintsuglyph("uni1153.bug",83);
565 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
566 tsu_render;
567 endtsuglyph;
568

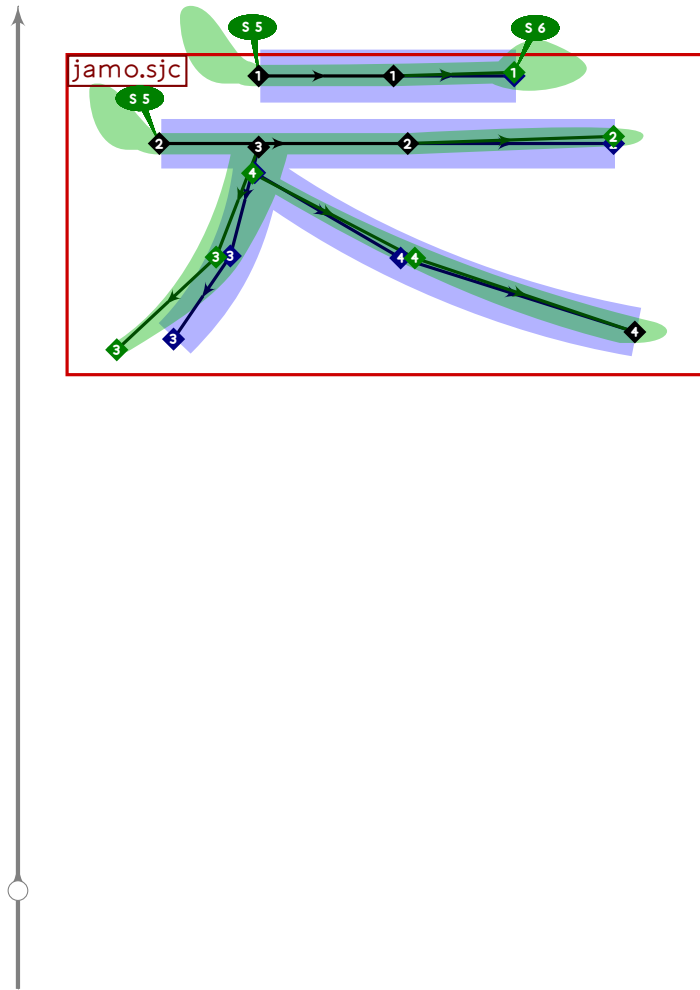
```



```

569 % hangul lead chitueumcieuc
570 begintsuglyph("uni1154.bug",84);
571 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
572 tsu_render;
573 endtsuglyph;
574

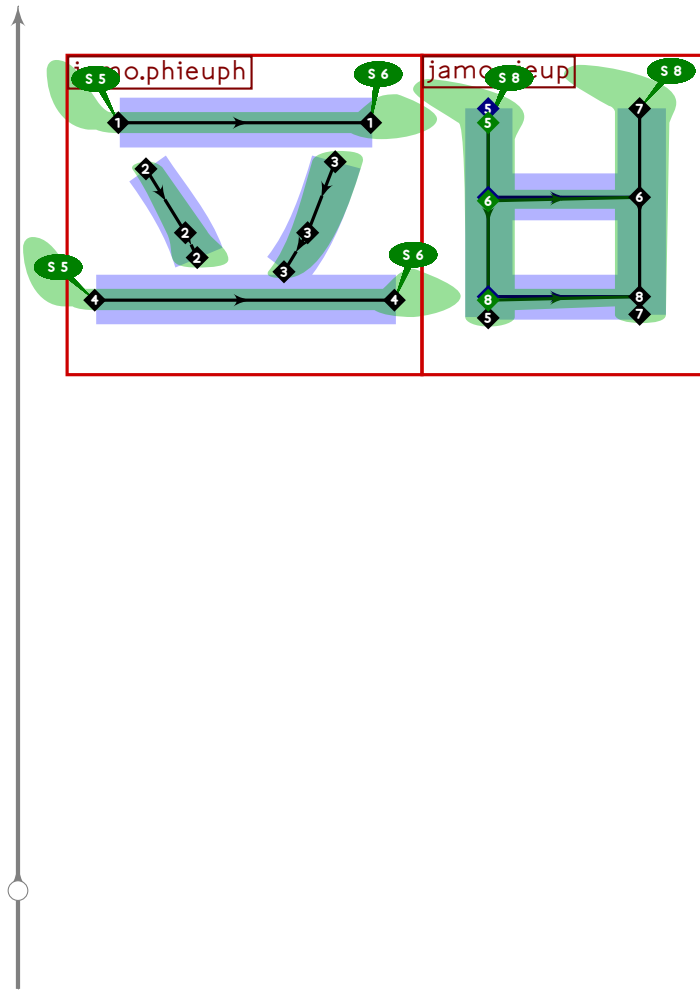
```



```

575 % hangul lead ceongchieumcieuc
576 begint Suglyph("uni1155.bug",85);
577 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
578 tsu_render;
579 endtsuglyph;
580

```

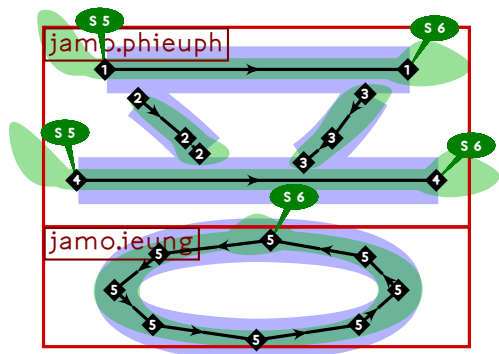


```

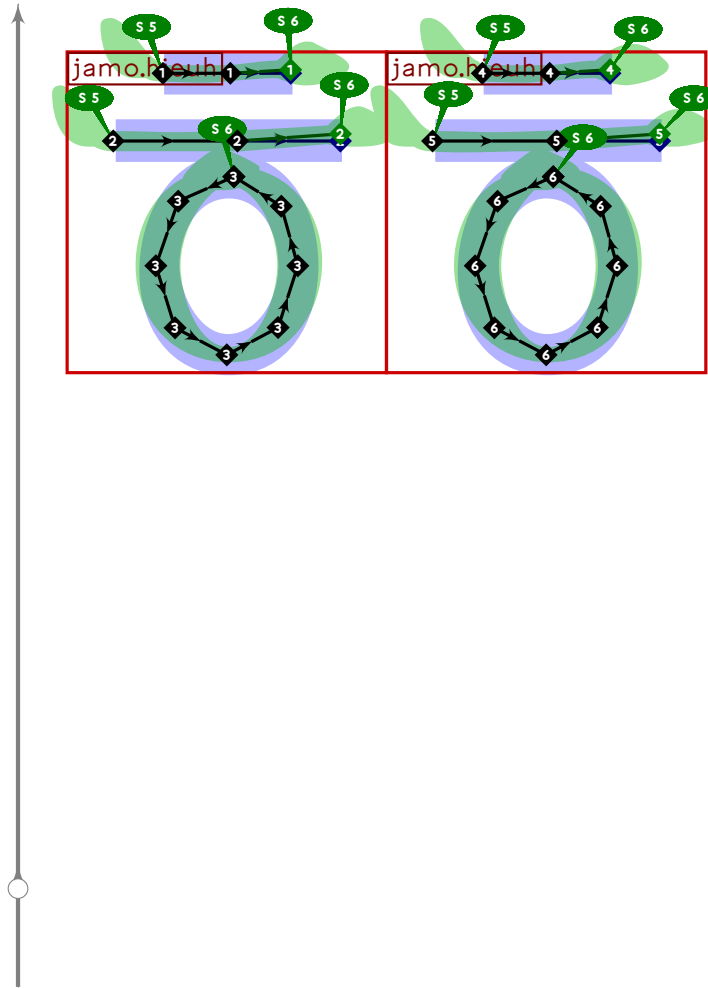
581 % hangul lead phieuph-pieup
582 begintsuglyph("uni1156.bug",86);
583 hangul.combine.lr(117,107)(whatever,lixf,loxf);
584 tsu_render;
585 endtsuglyph;
586

```





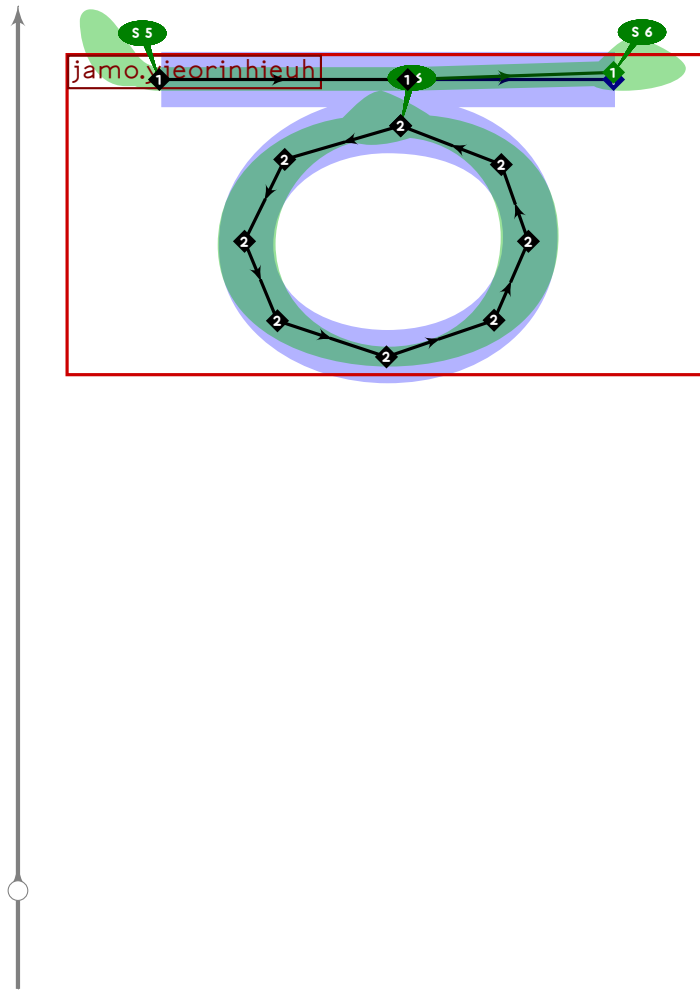
```
587 % hangul lead kapyeounphieuph
588 begintsuglyph("uni1157.bug";87);
589 hangul.combine.tb(117,521)(whatever,
590   hxf((250,850),(850,-50)) transformed lixf,loxf);
591 tsu_render;
592 endtsuglyph;
593
```



```

594 % hangul lead ssanghieuh
595 begintsuglyph("uni1158.bug",88);
596 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
597 tsu_render;
598 endtsuglyph;
599

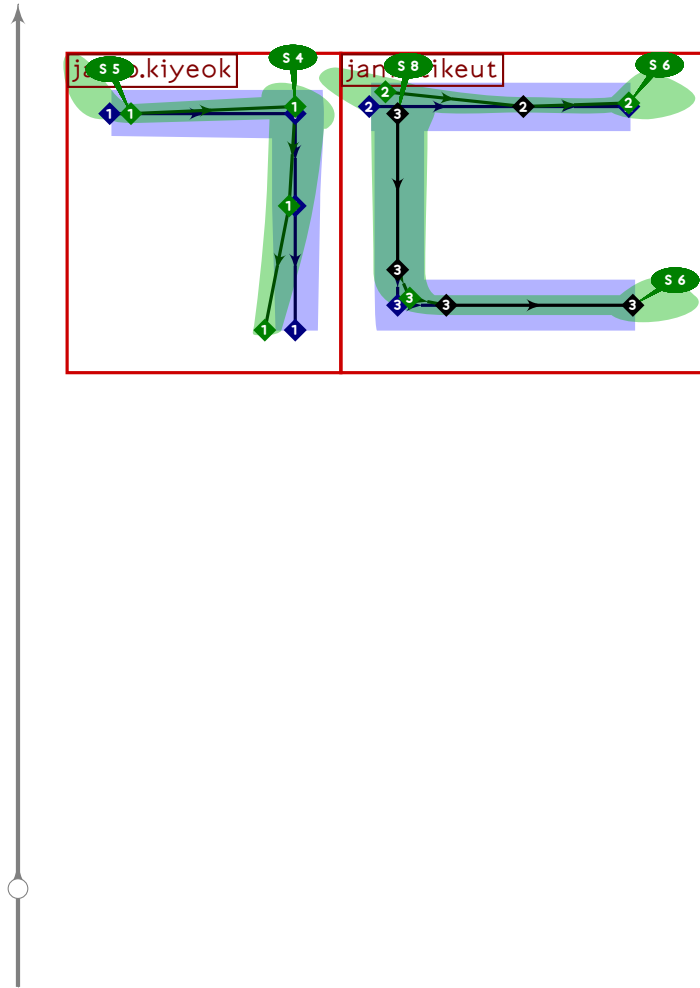
```



```

600 % hangul lead yeorinhieuh
601 begint Suglyph("uni1159.bug",89);
602 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
603 tsu_render;
604 endtsuglyph;
605

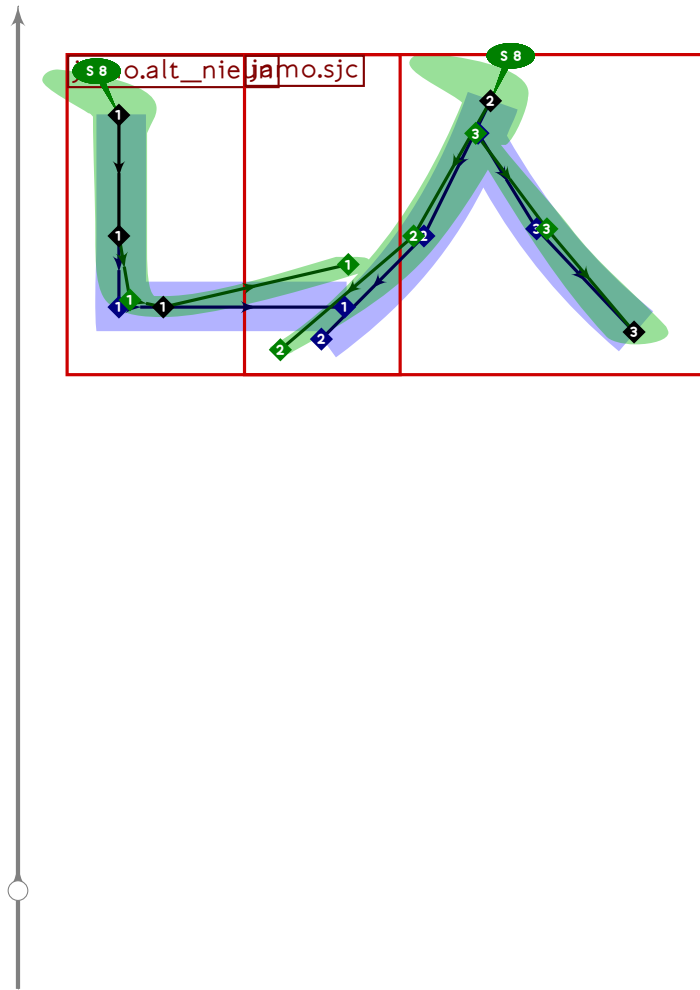
```



```

606 % hangul lead kiyeok-tikeut
607 begintsuglyph("uni115A.bug",90);
608 hangul.combine.lr(100,103)(whatever,lixf,loxf);
609 tsu_render;
610 endtsuglyph;
611

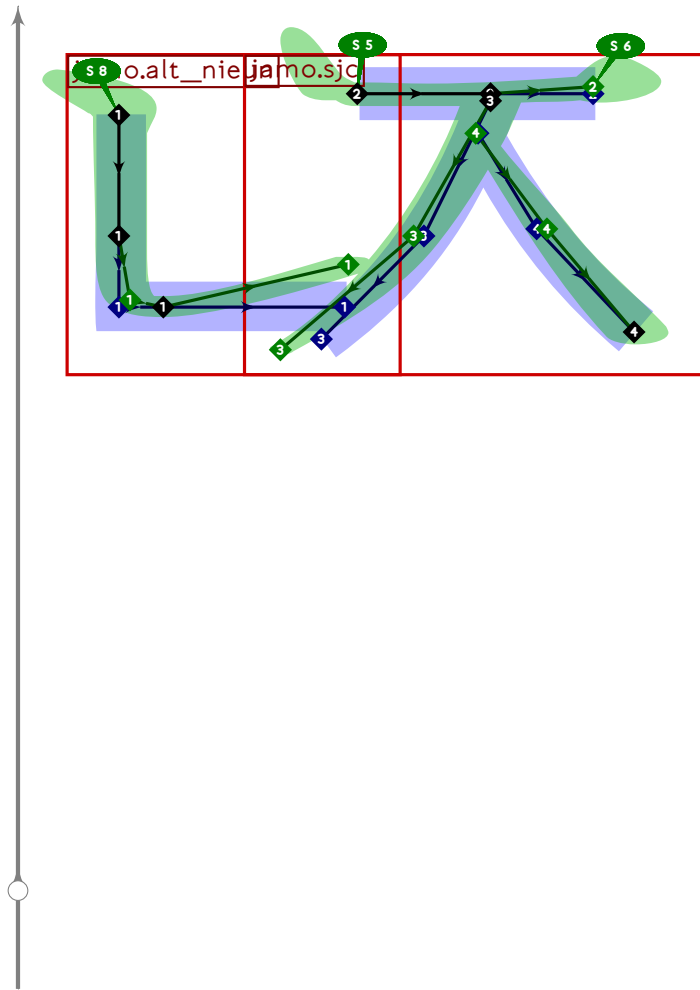
```



```

612 % hangul lead nieun-sios
613 begintsuglyph("uni115B.bug";91);
614 hangul.combine.lr(202,109)(whatever,lixf,loxf);
615 tsu_render;
616 endtsuglyph;
617

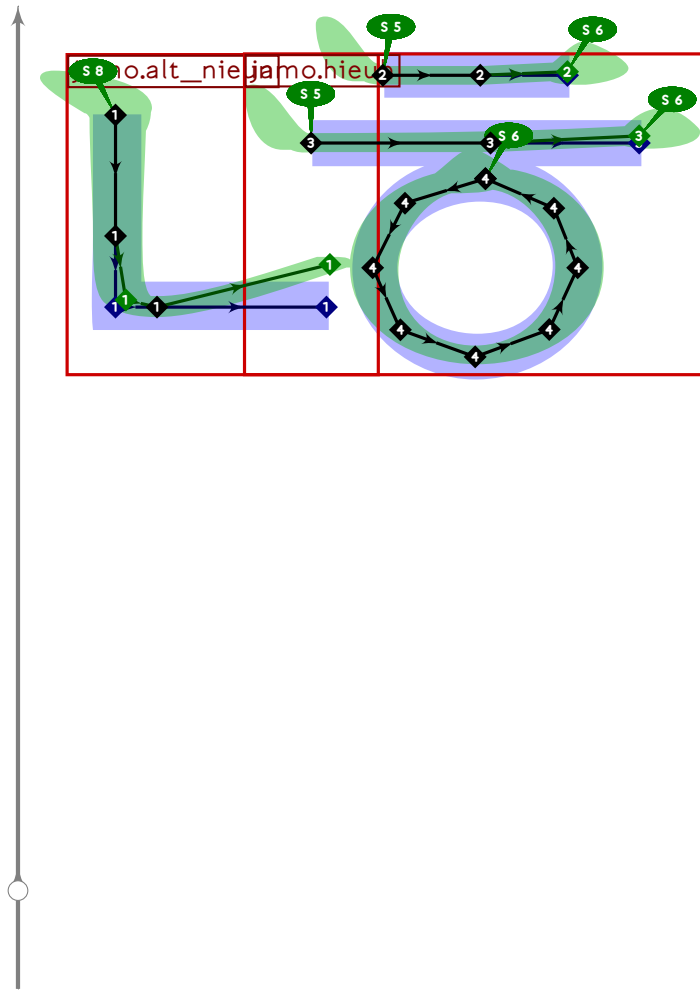
```



```

618 % hangul lead nieun-cieuc
619 begintsuglyph("uni115C.bug",92);
620 hangul.combine.lr(202,112)(whatever,lixf,loxf);
621 tsu_render;
622 endtsuglyph;
623

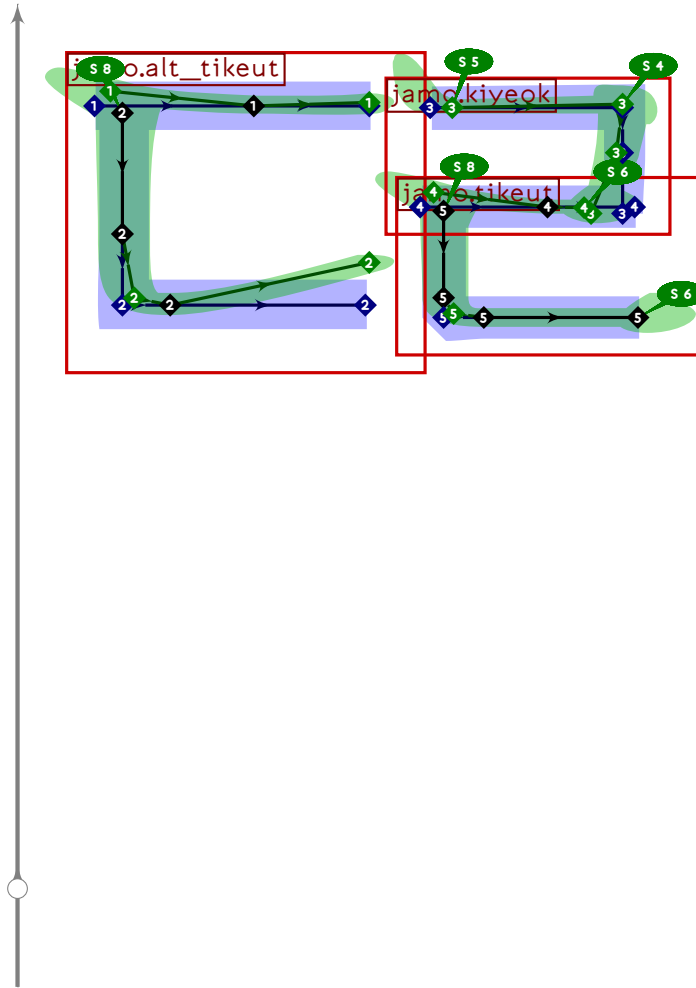
```



```

624 % hangul lead nieun-hieuh
625 begintsuglyph("uni115D.bug",93);
626 hangul.combine.lr(202,118)(whatever,lixf,loxf);
627 tsu_render;
628 endtsuglyph;
629

```



```

630 % hangul lead tikeut-rieul
631 begint Suglyph("uni115E.bug";94);
632 hangul.combine.lr(203,105)(whatever,lixf,loxf);
633 tsu_render;
634 endtsuglyph;
635
636
637

```

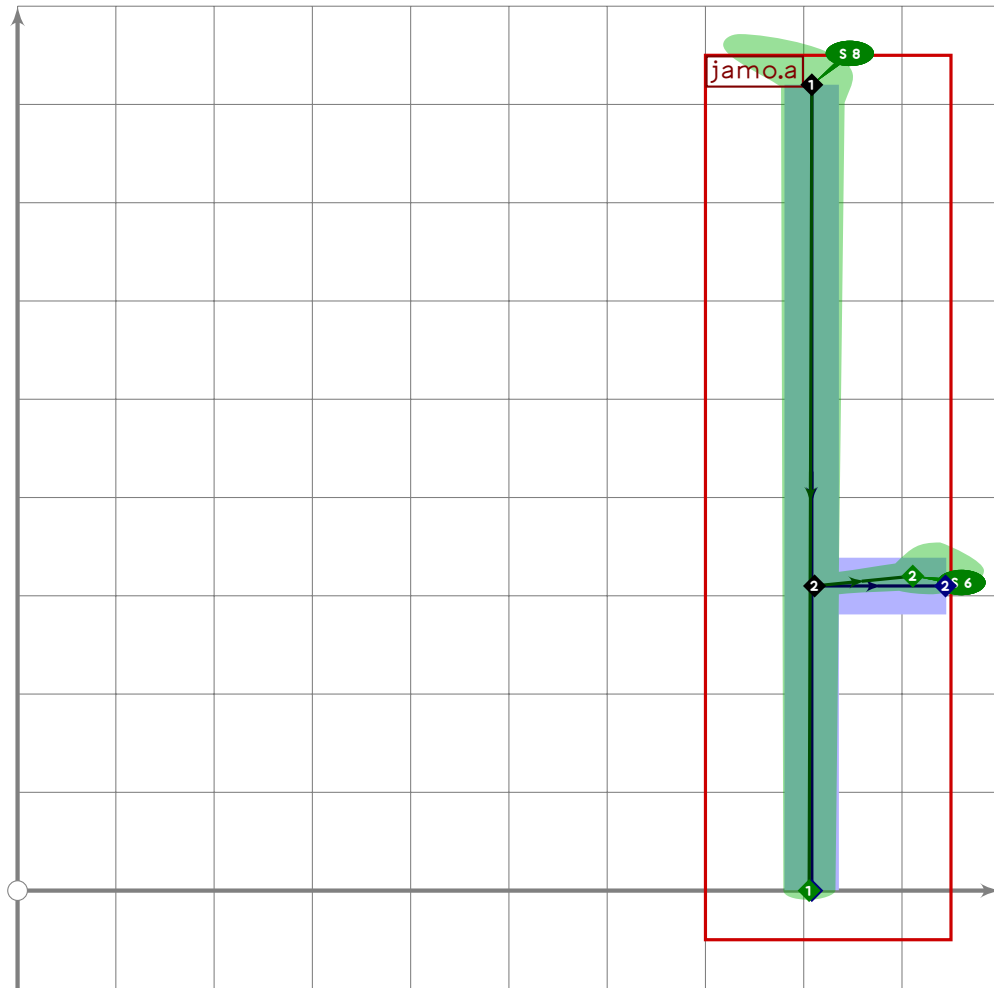
## Hangul Jungseong (Vowel) Jamo

```

638 % HANGUL JUNGSEONG (VOWEL) JAMO
639
640 tsu_rescale_full;
641

```

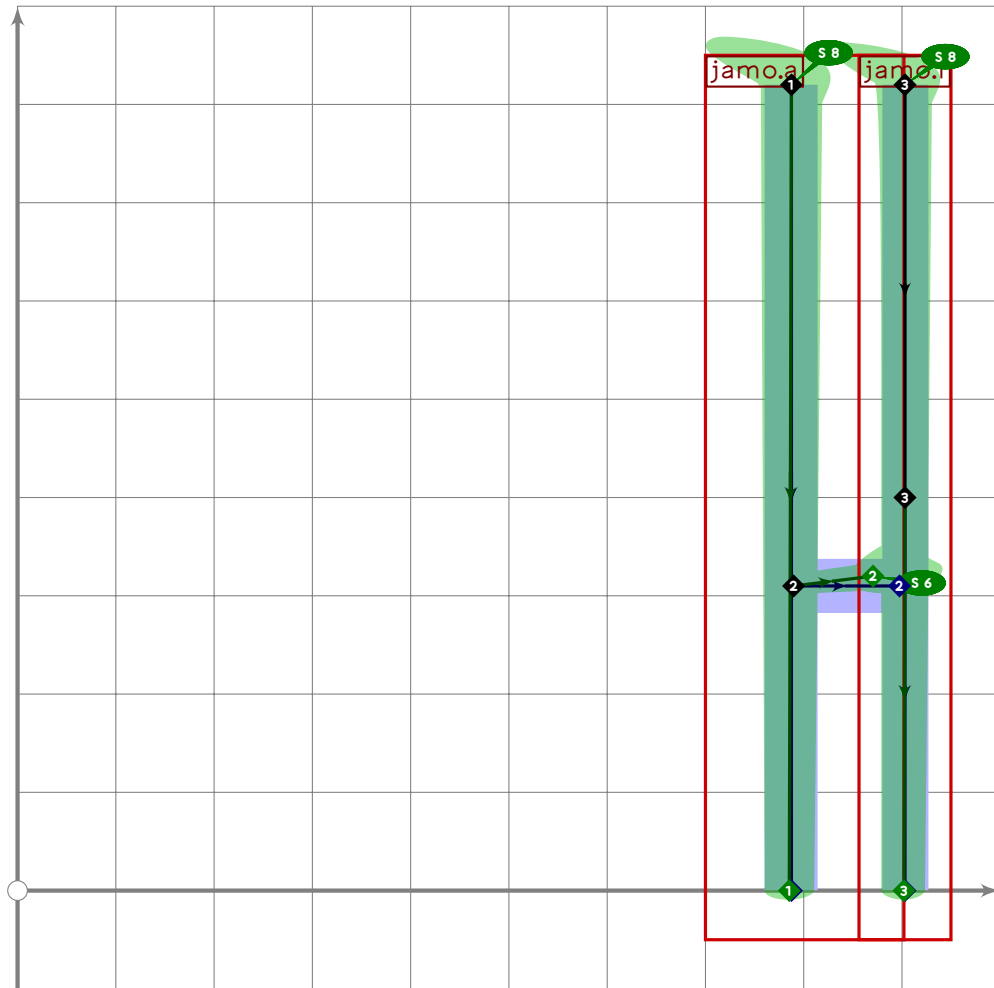




```

642 % hangul vowel a
643 begint Suglyph("uni1161.nt";97);
644 hangul.jamo.a(300,vixf,voxf);
645 tsu_render;
646 endtsuglyph;
647

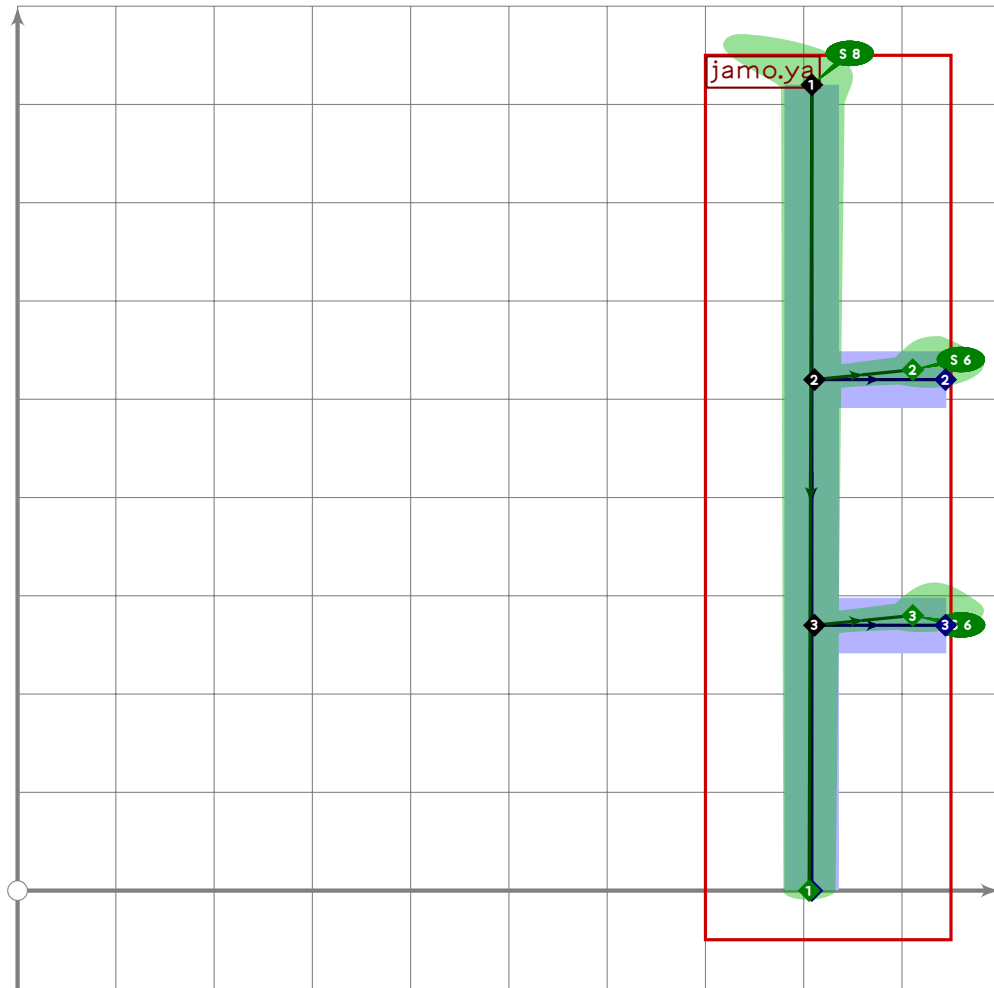
```



```

648 % hangul vowel ae
649 begintsuglyph("uni1162.nt";98);
650 hangul.combine.lr(300,320)(301,vixf,voxf);
651 tsu_render;
652 endtsuglyph;
653

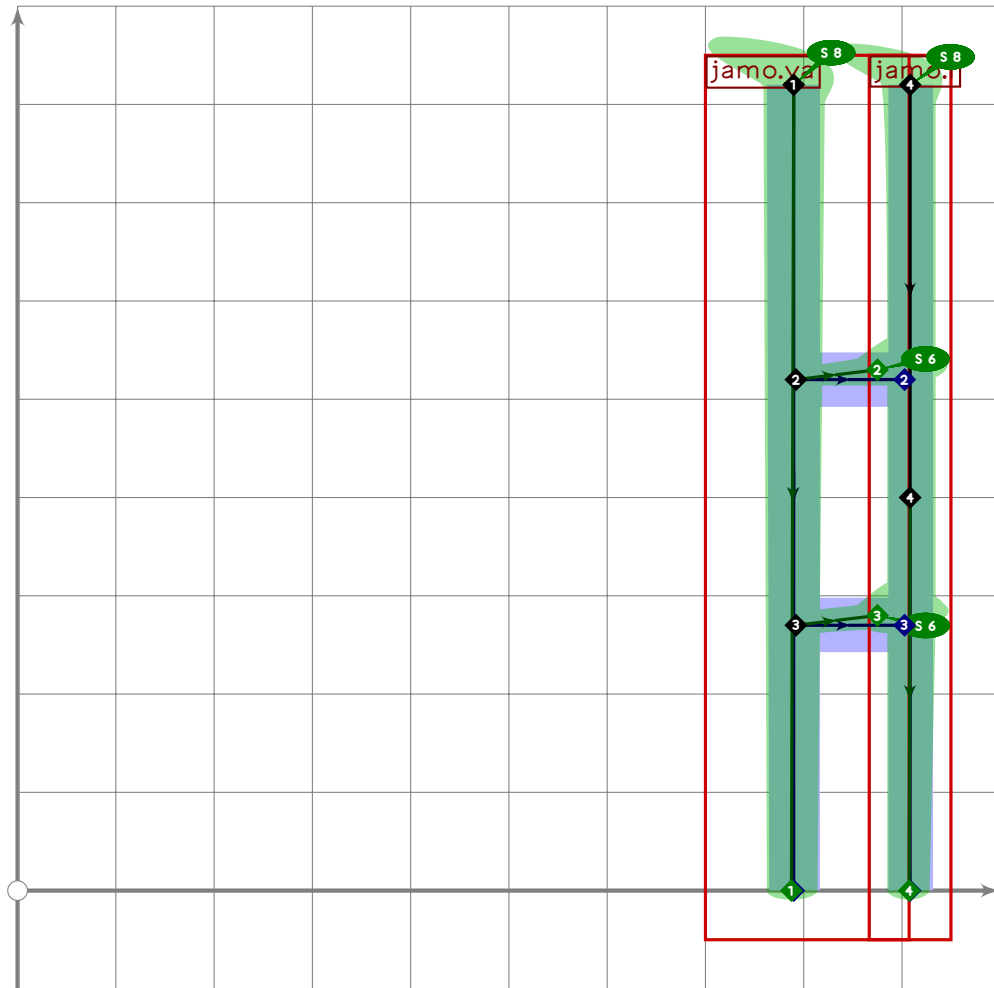
```



```

654 % hangul vowel ya
655 begint Suglyph("uni1163.nt";99);
656 hangul.jamo.ya(302,vixf,vox);
657 tsu_render;
658 endtsuglyph;
659

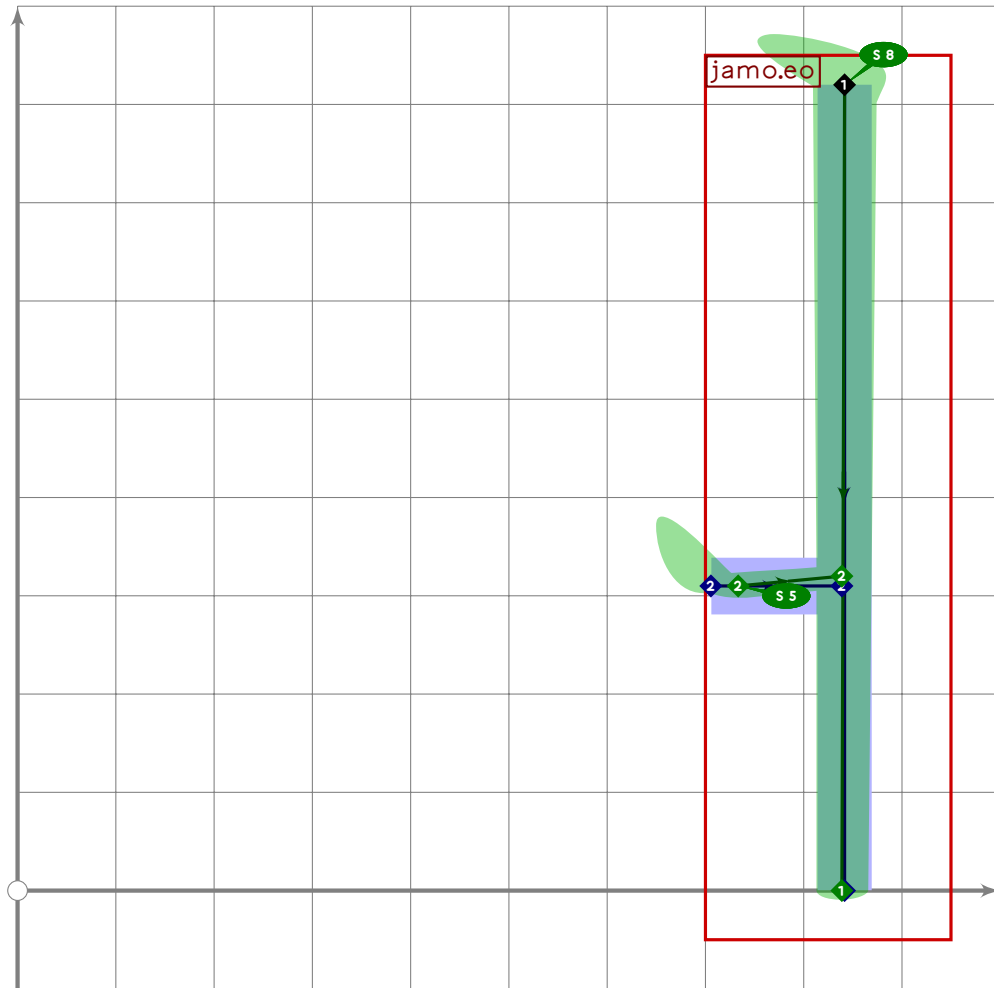
```



```

660 % hangul vowel yae
661 begint Suglyph("uni1164.nt",100);
662 hangul.combine.lr(302,320)(303,vixf,voxf);
663 tsu_render;
664 endtsuglyph;
665

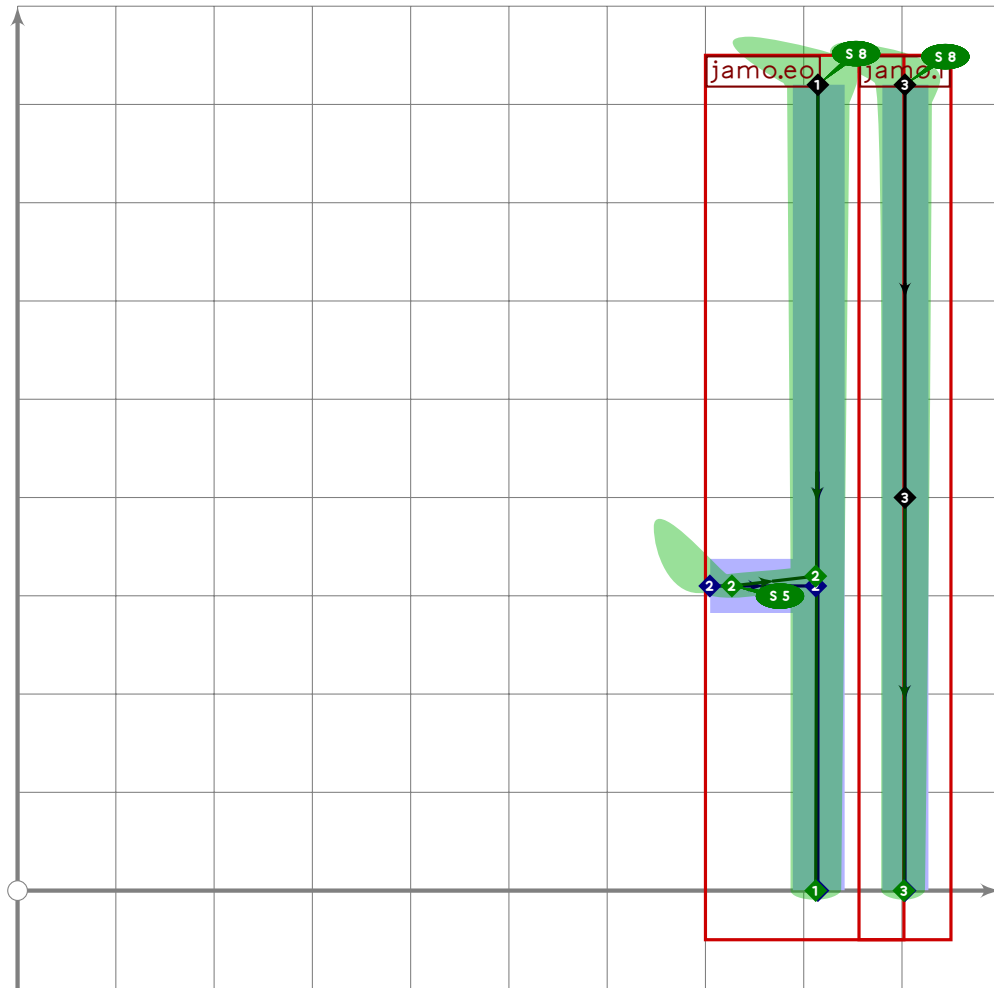
```



```

666 % hangul vowel eo
667 begint Suglyph("uni1165.nt",101);
668 hangul.jamo.eo(304,vixf,vox);
669 tsu_render;
670 endtsuglyph;
671

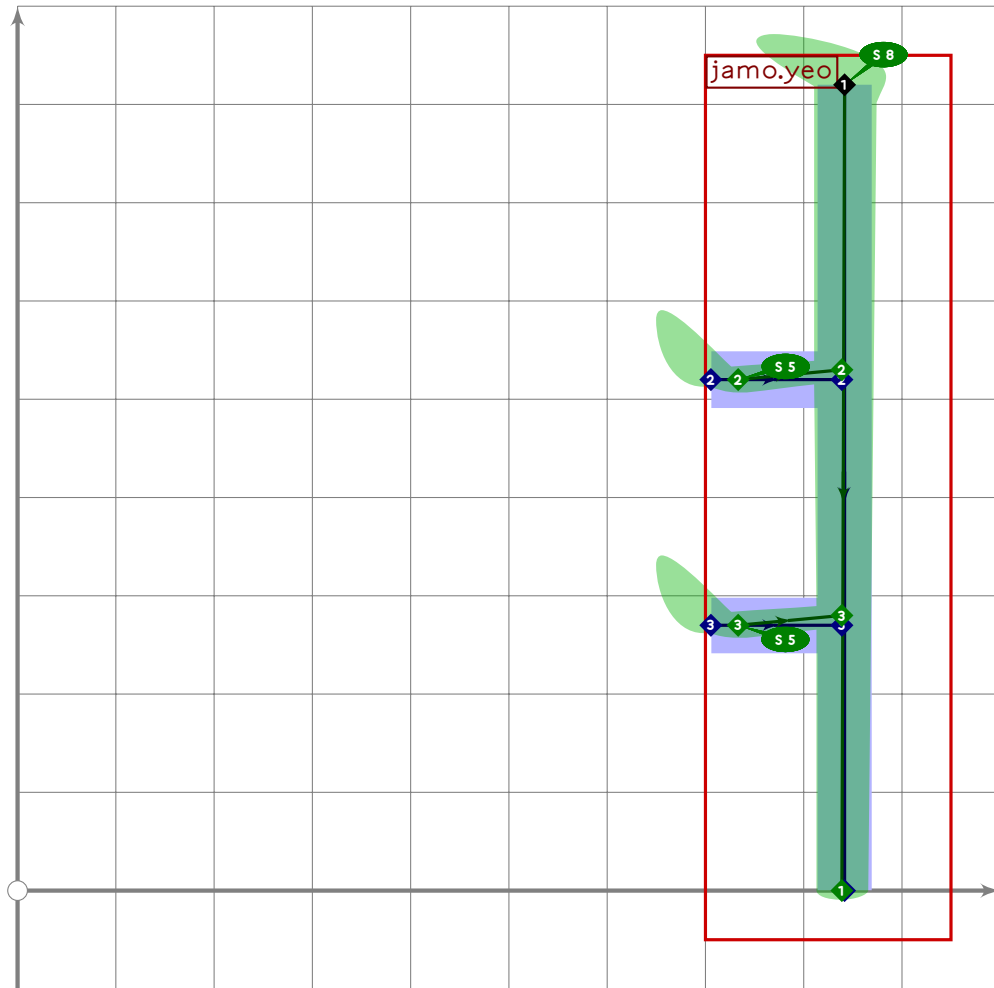
```



```

672 % hangul vowel e
673 begint Suglyph("uni1166.nt",102);
674 hangul.combine.lr(304,320)(305,vixf,voxf);
675 tsu_render;
676 endtsuglyph;
677

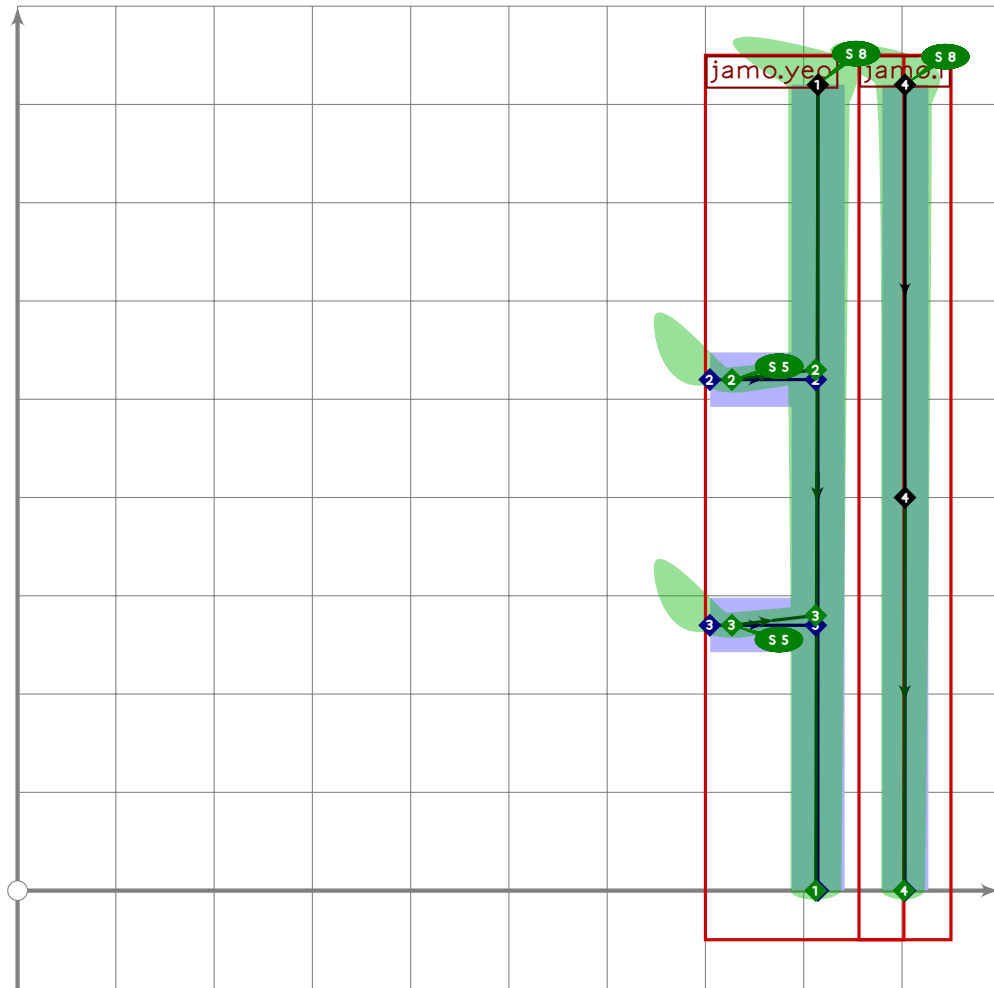
```



```

678 % hangul vowel yeo
679 begint Suglyph("uni1167.nt";103);
680 hangul.jamo.yeo(306,vixf,voxf);
681 tsu_render;
682 endtsuglyph;
683

```

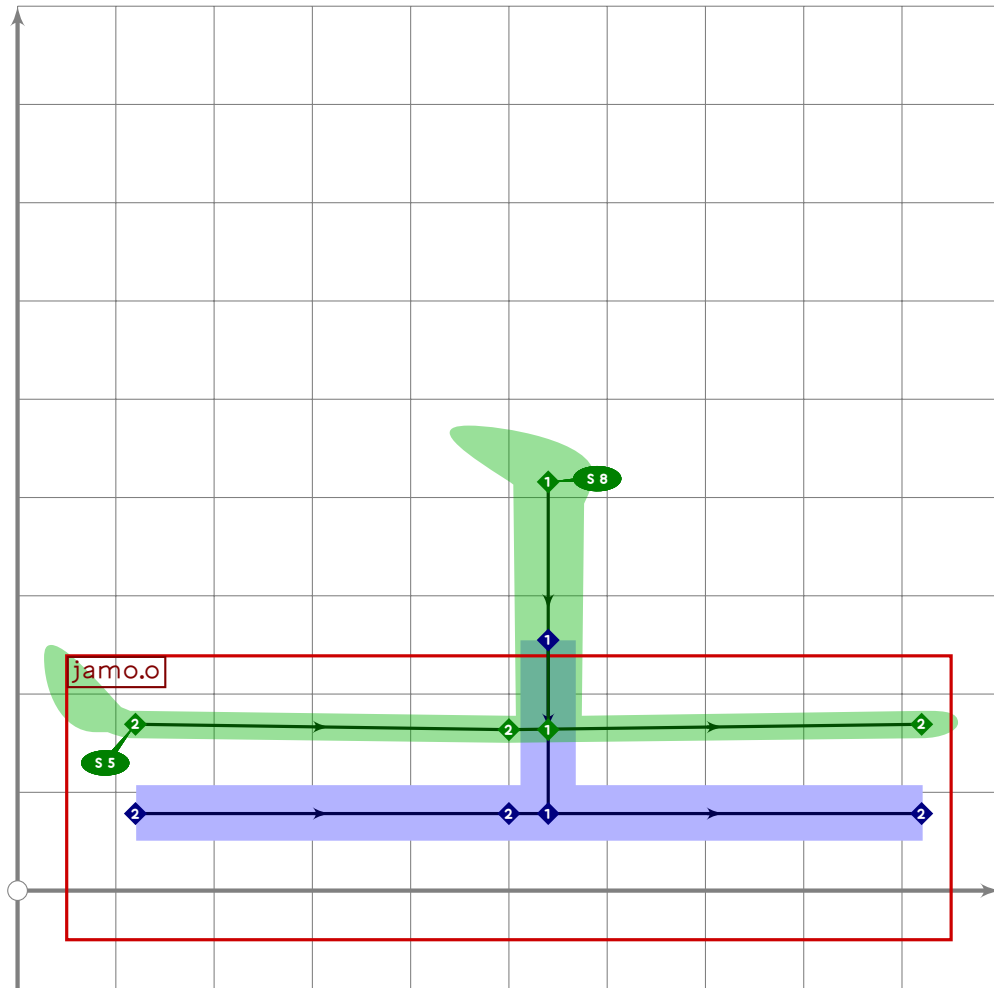


```

684 % hangul vowel ye
685 begint Suglyph("uni1168.nt",104);
686 hangul.combine.lr(306,320)(307,vixf,voxf);
687 tsu_render;
688 endtsuglyph;
689

```

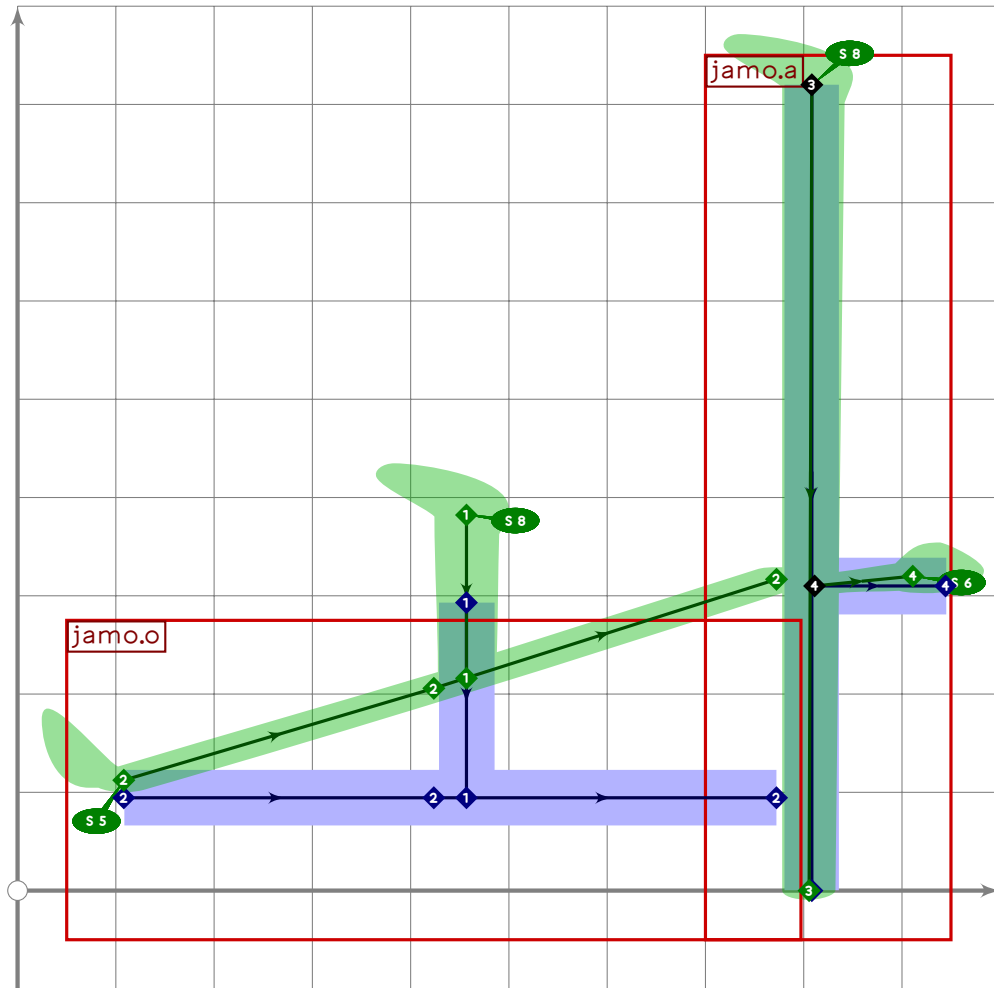




```

690 % hangul vowel o
691 begint Suglyph("uni1169.nt",105);
692 hangul.jamo.o(308,vixf,voxf);
693 tsu_render;
694 endtsuglyph;
695

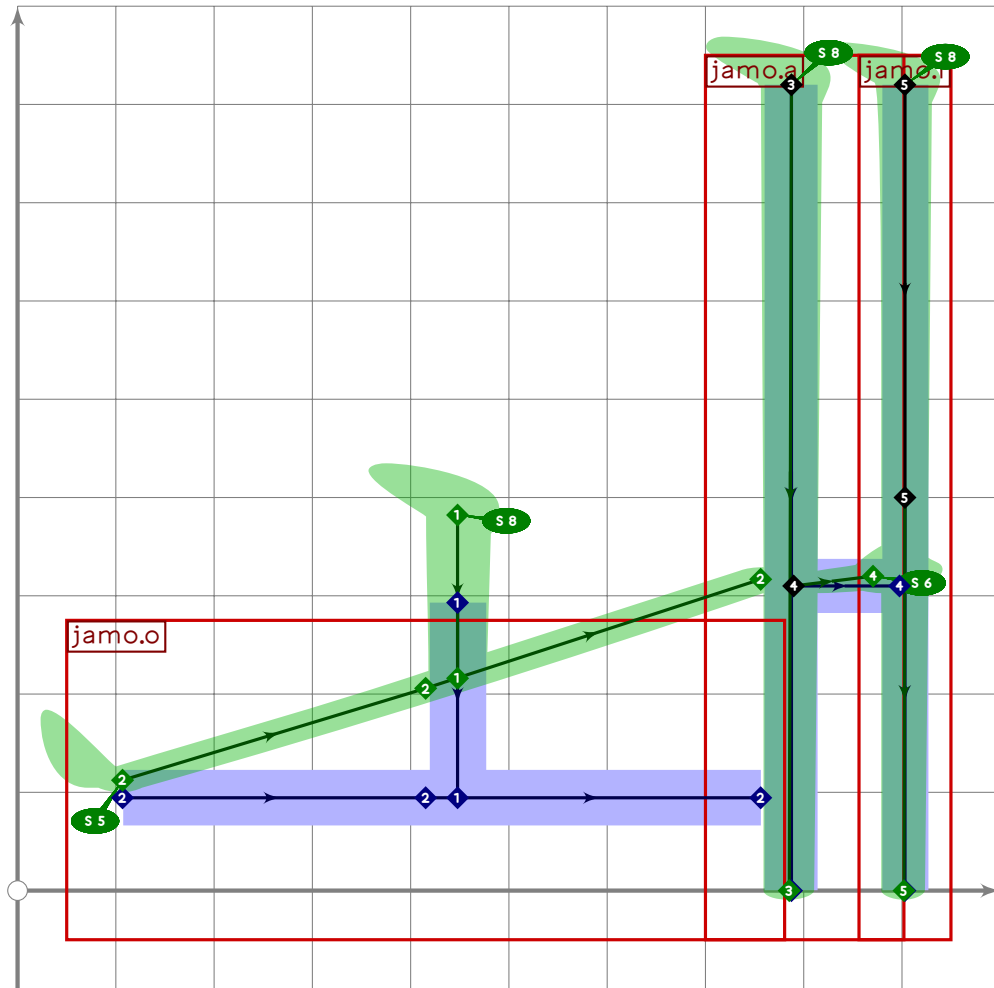
```



```

696 % hangul vowel wa
697 begintsuglyph("uni116A.nt",106);
698 hangul.combine.lr(308,300)(309,vixf,voxf);
699 tsu_render;
700 endtsuglyph;
701

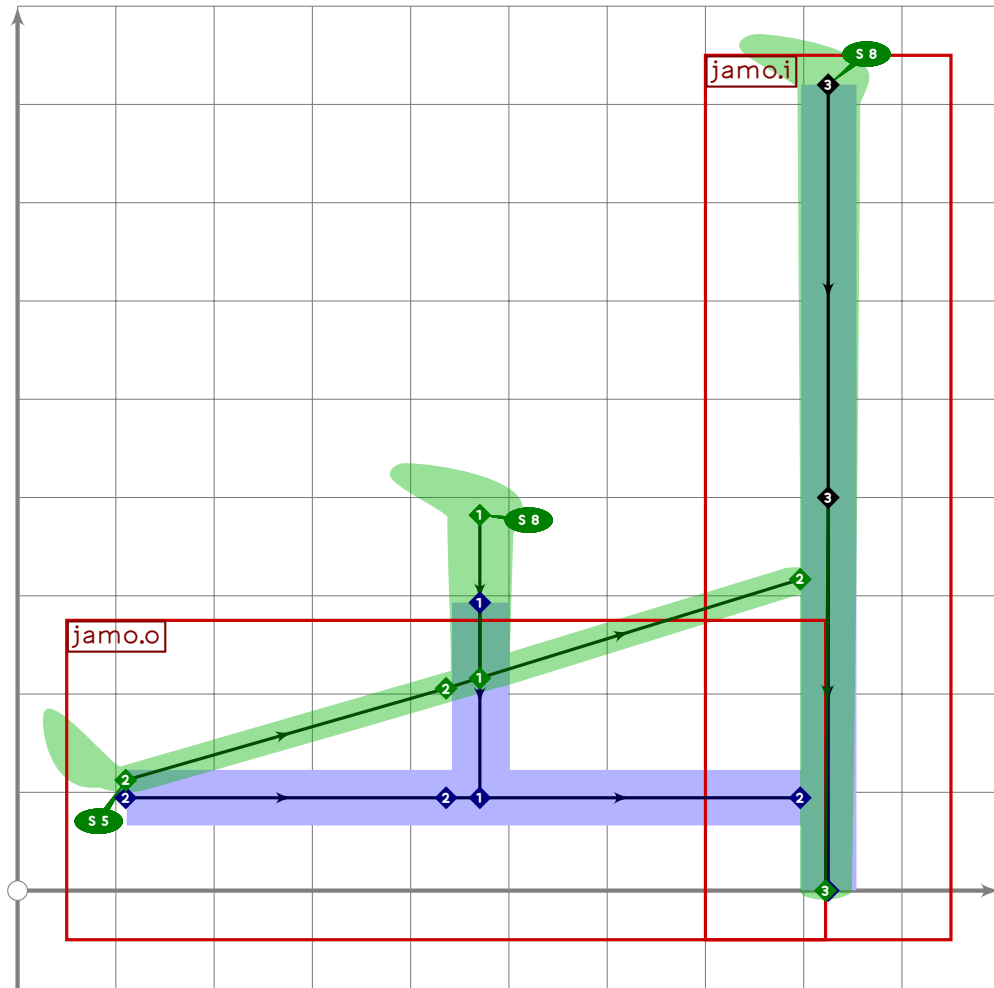
```



```

702 % hangul vowel wae
703 begint Suglyph("uni116B.nt",107);
704 hangul.combine.lr(308,301)(310,vixf,voxf);
705 tsu_render;
706 endtsuglyph;
707

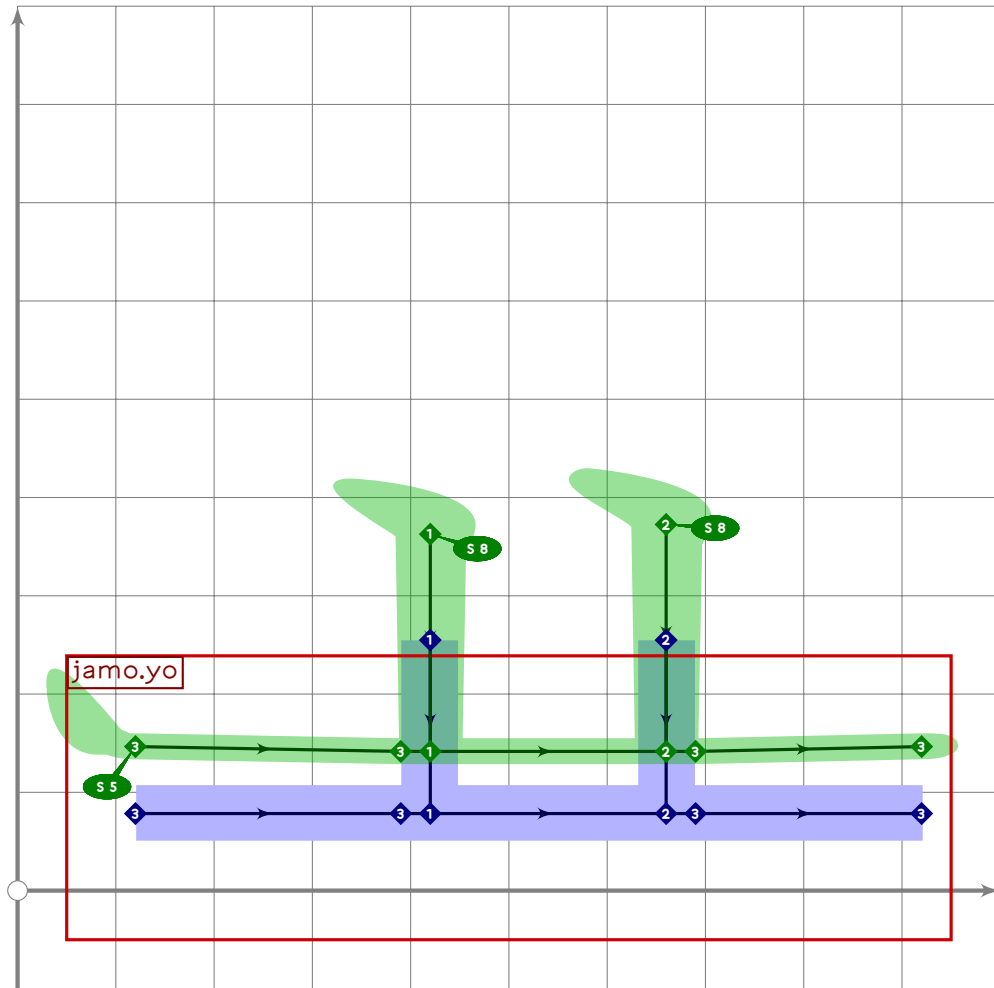
```



```

708 % hangul vowel oe
709 begintsuglyph("uni116C.nt",108);
710 hangul.combine.lr(308,320)(311,vixf,voxf);
711 tsu_render;
712 endsuglyph;
713

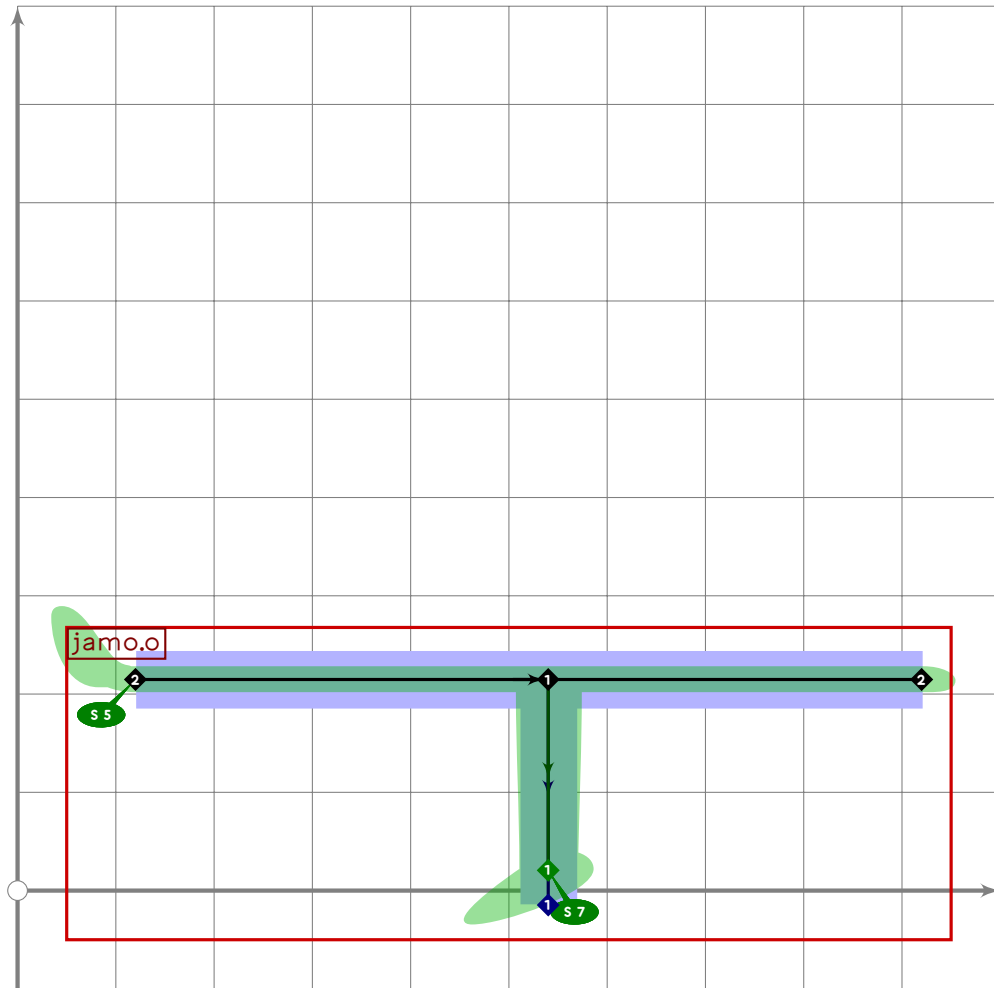
```



```

714 % hangul vowel yo
715 begint Suglyph("uni116D.nt",109);
716 hangul,jamo.yo(312,vixf,voxf);
717 tsu_render;
718 endtsuglyph;
719

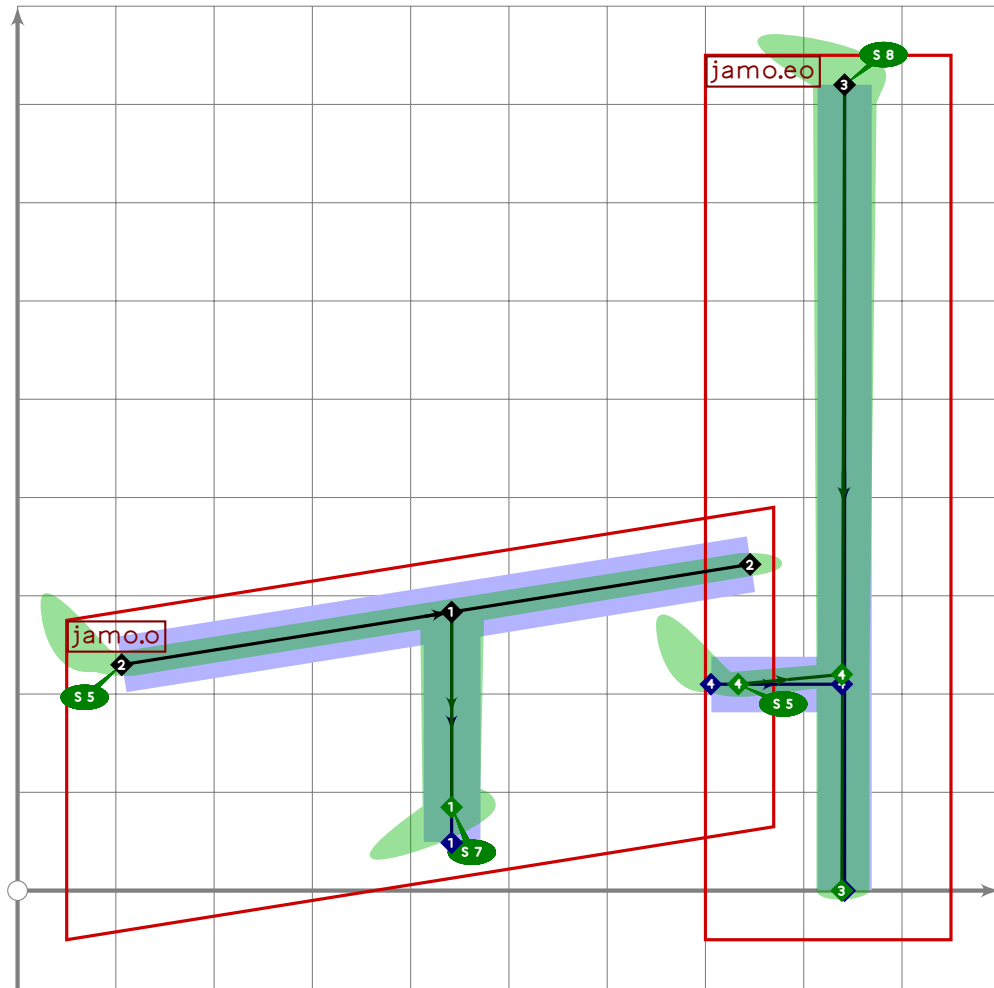
```



```

720 % hangul vowel u
721 begint Suglyph("uni116E.nt",110);
722 hangul.jamo.u(313,vixf,voxf);
723 tsu_render;
724 endtsuglyph;
725

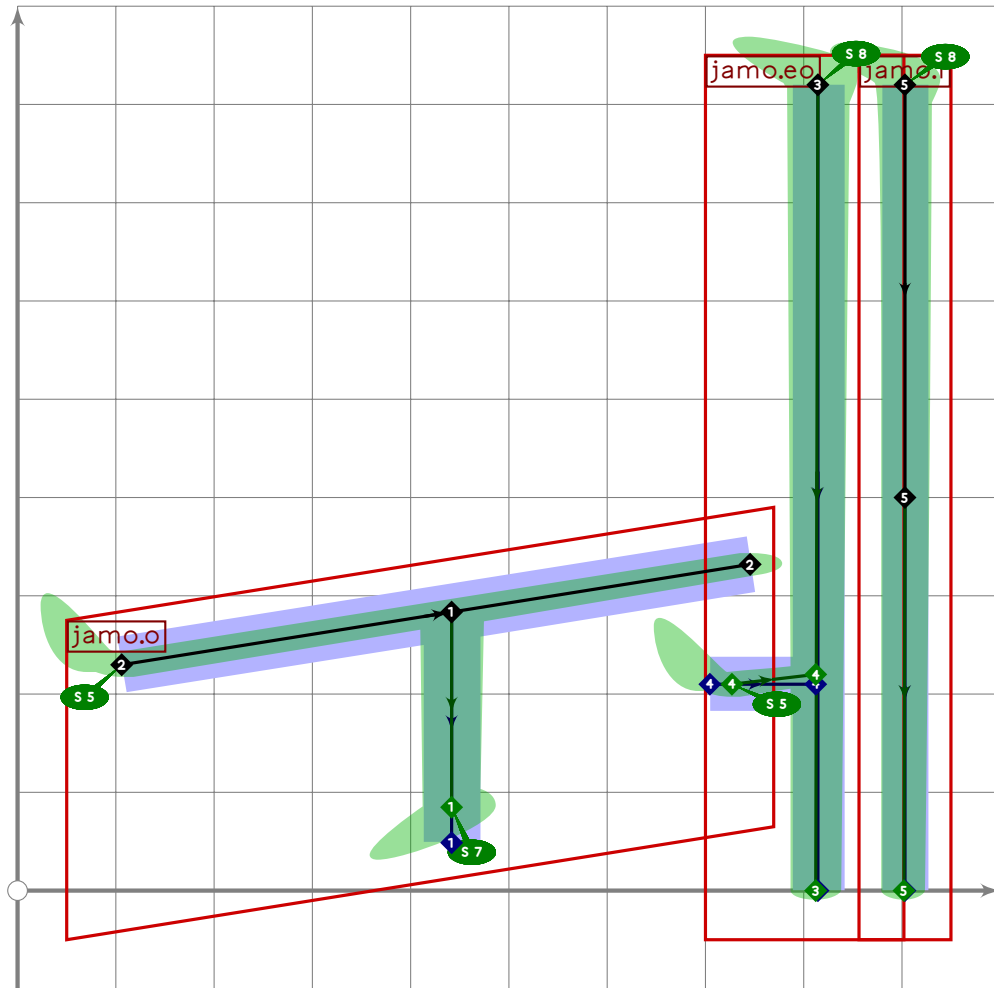
```



```

726 % hangul vowel weo
727 begintsuglyph("uni116F.nt",111);
728 hangul.combine.lr(313,304)(314,vixf,vox);
729 tsu_render;
730 endtsuglyph;
731

```

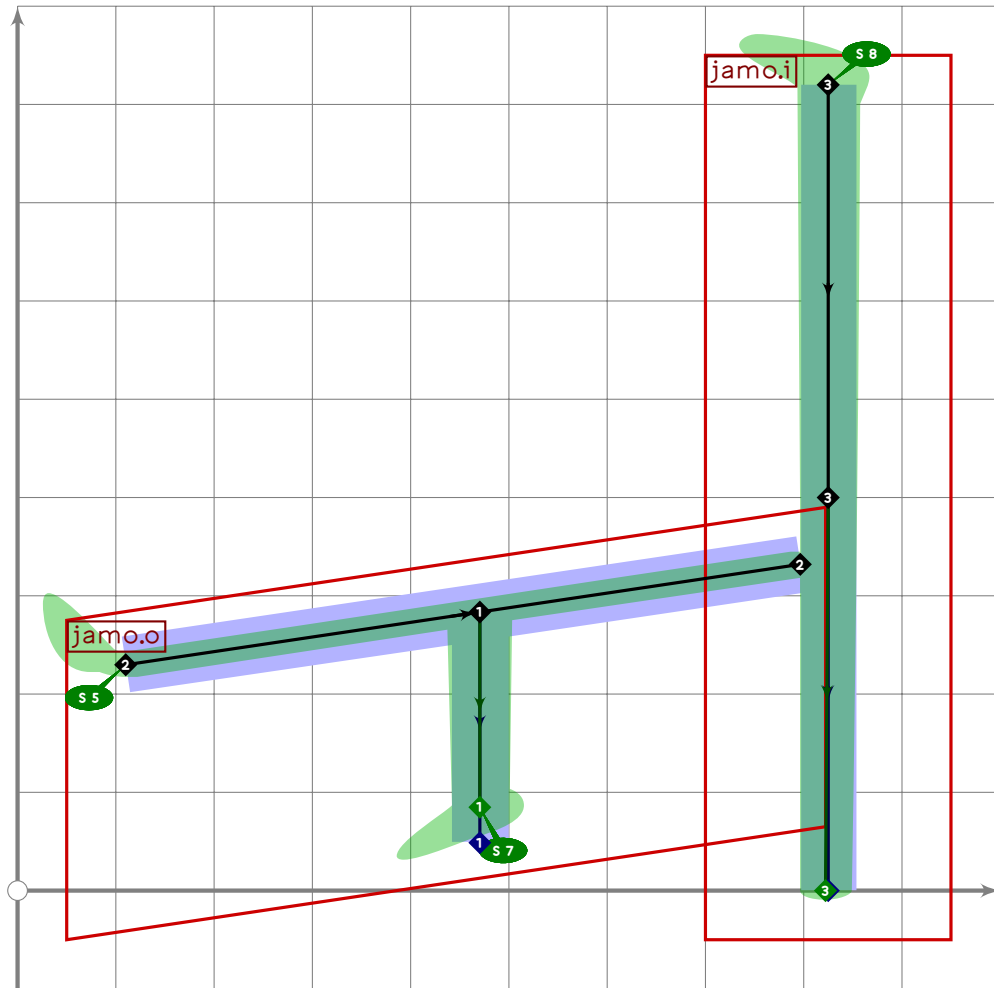


```

732 % hangul vowel we
733 begintsuglyph("uni1170.nt",112);
734 hangul.combine.lr(313,305)(315,vixf,voxf);
735 tsu_render;
736 endtsuglyph;
737

```

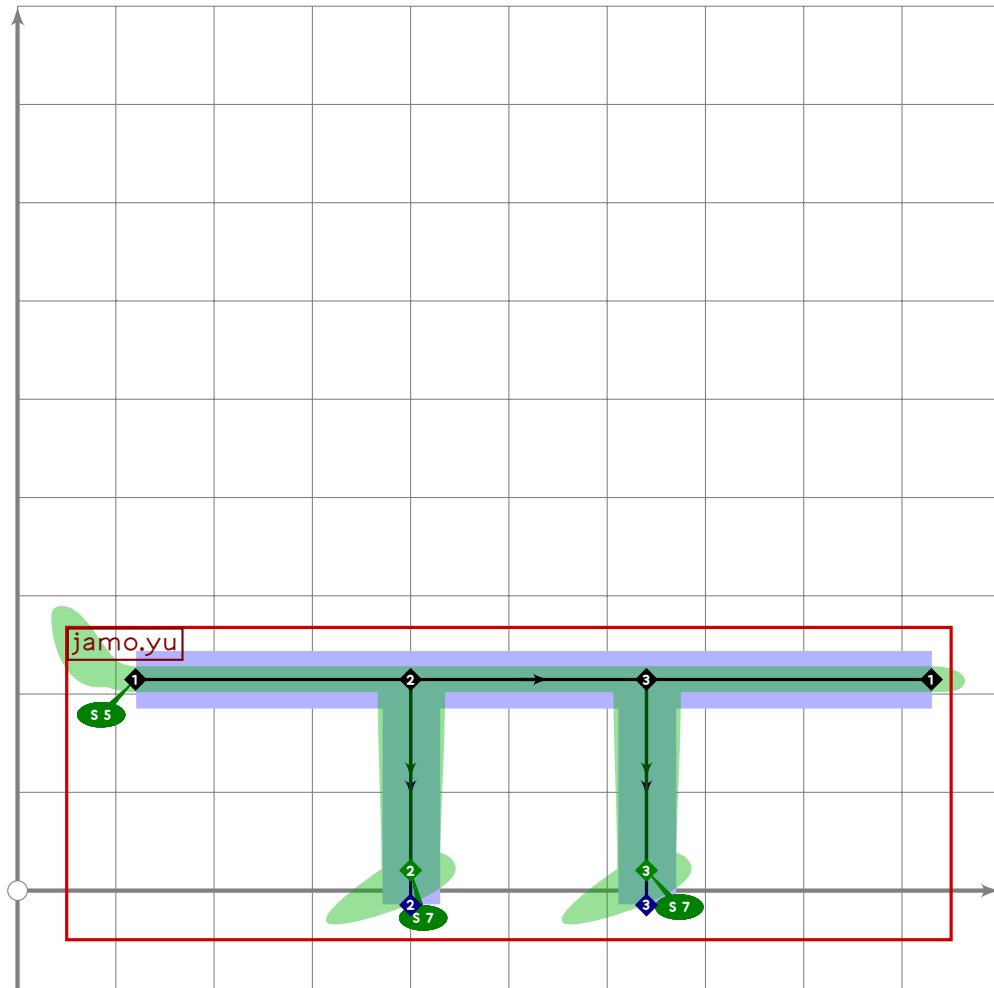




```

738 % hangul vowel wi
739 begintsuglyph("uni1171.nt",113);
740 hangul.combine.lr(313,320)(316,vixf,voxof);
741 tsu_render;
742 endtsuglyph;
743

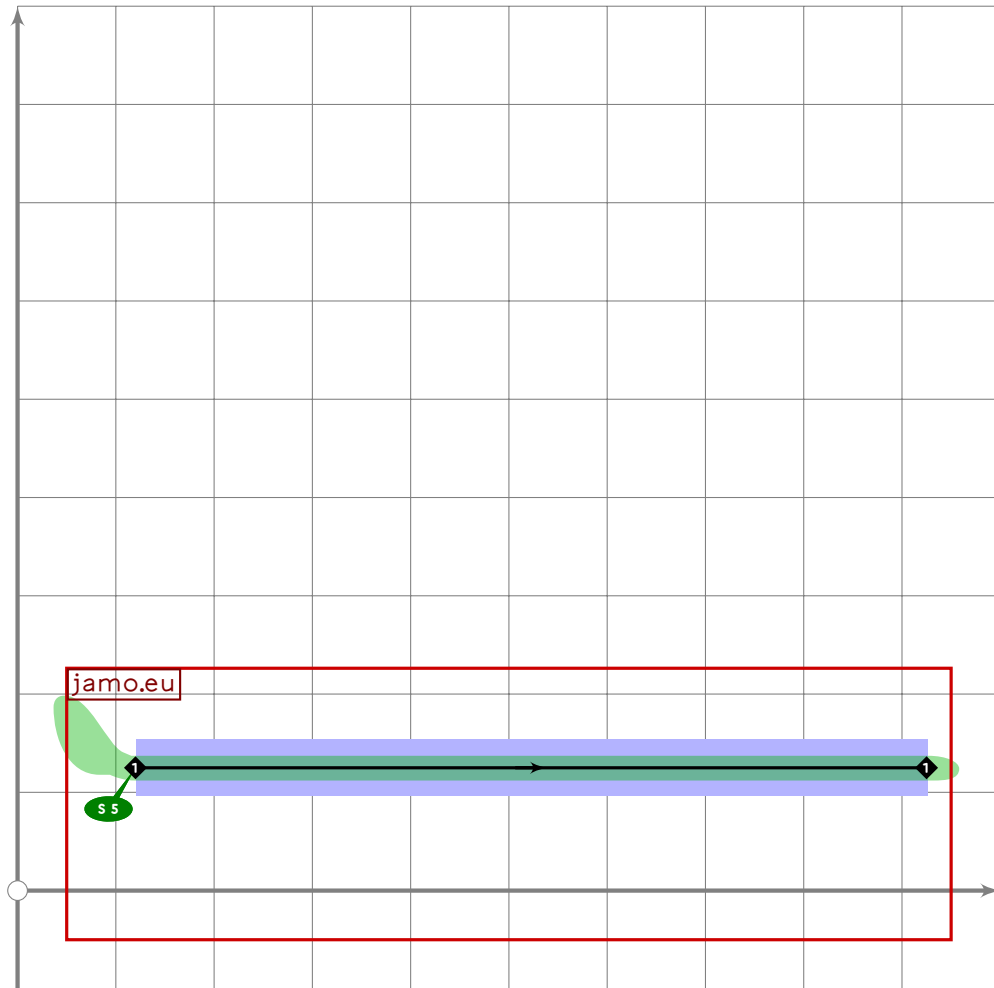
```



```

744 % hangul vowel yu
745 begint Suglyph("uni1172.nt",114);
746 hangul.jamo.yu(317,vixf,voxf);
747 tsu_render;
748 endtsuglyph;
749

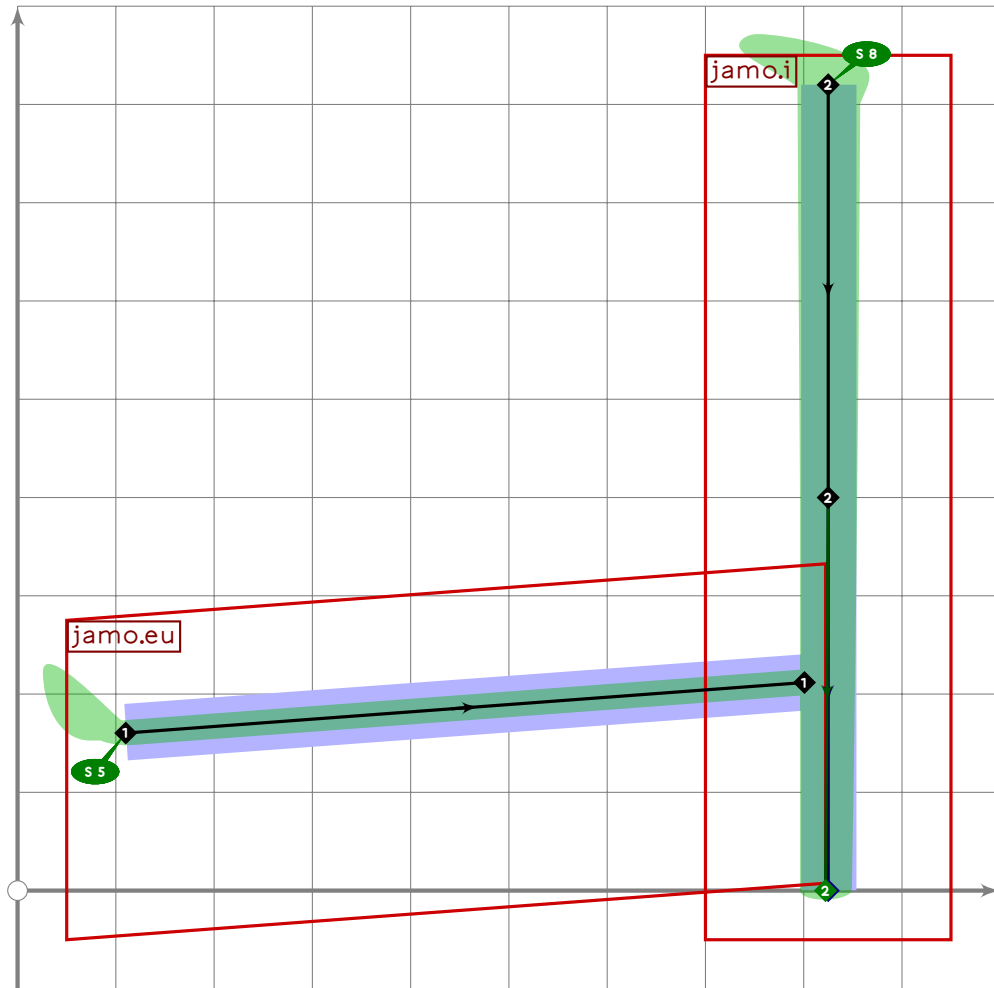
```



```

750 % hangul vowel eu
751 begint Suglyph("uni1173.nt",115);
752 hangul.jamo.eu(318,vixf,voxf);
753 tsu_render;
754 endtsuglyph;
755

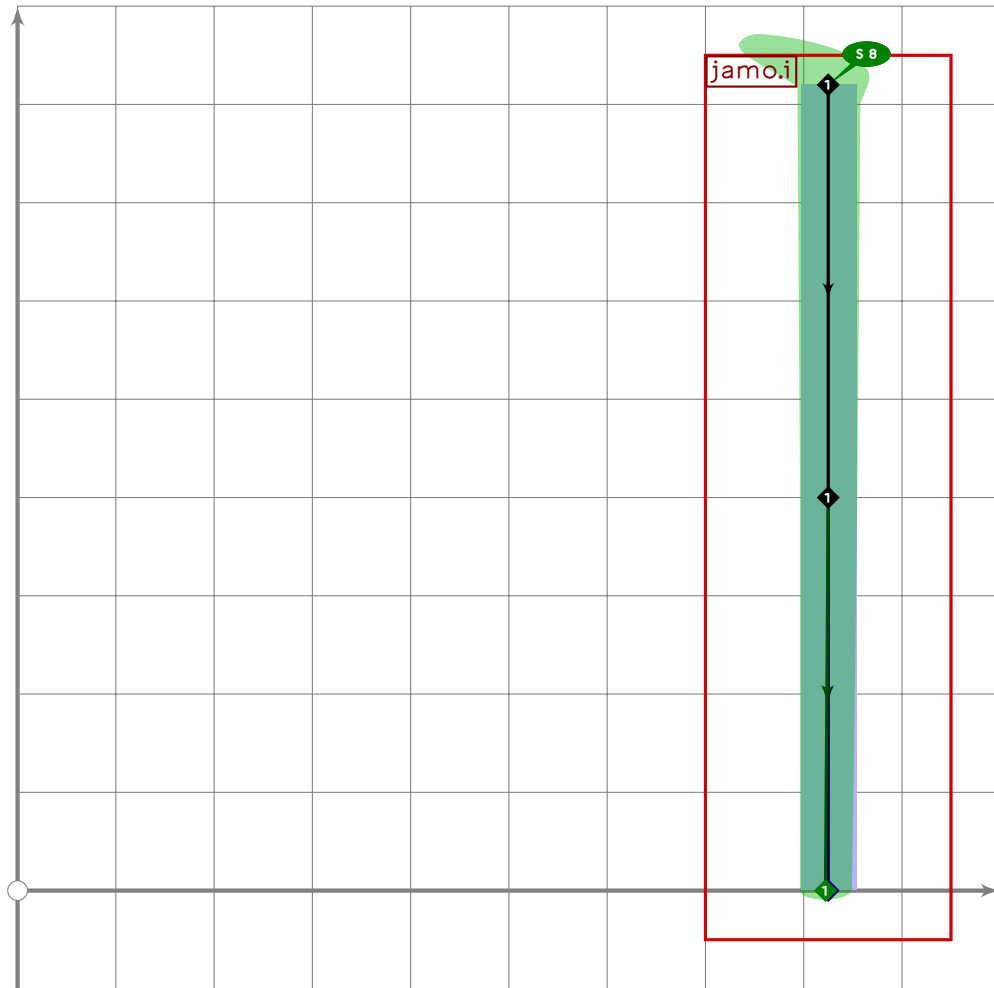
```



```

756 % hangul vowel yi
757 begint Suglyph("uni1174.nt",116);
758 hangul.combine.lr(318,320)(319,vixf,vox);
759 tsu_render;
760 endtsuglyph;
761

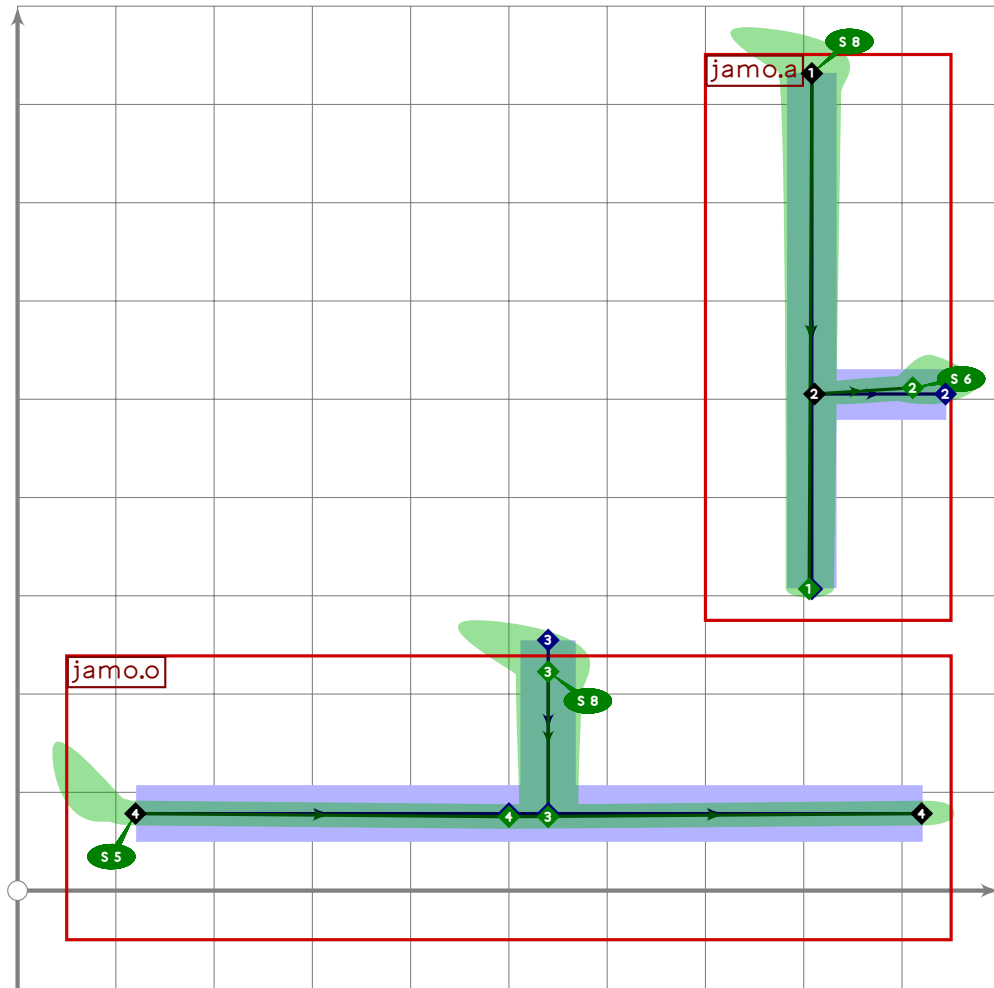
```



```

762 % hangul vowel i
763 begint Suglyph("uni1175.nt",117);
764 hangul.jamo.i(320,vixf,voxf);
765 tsu_render;
766 endtsuglyph;
767

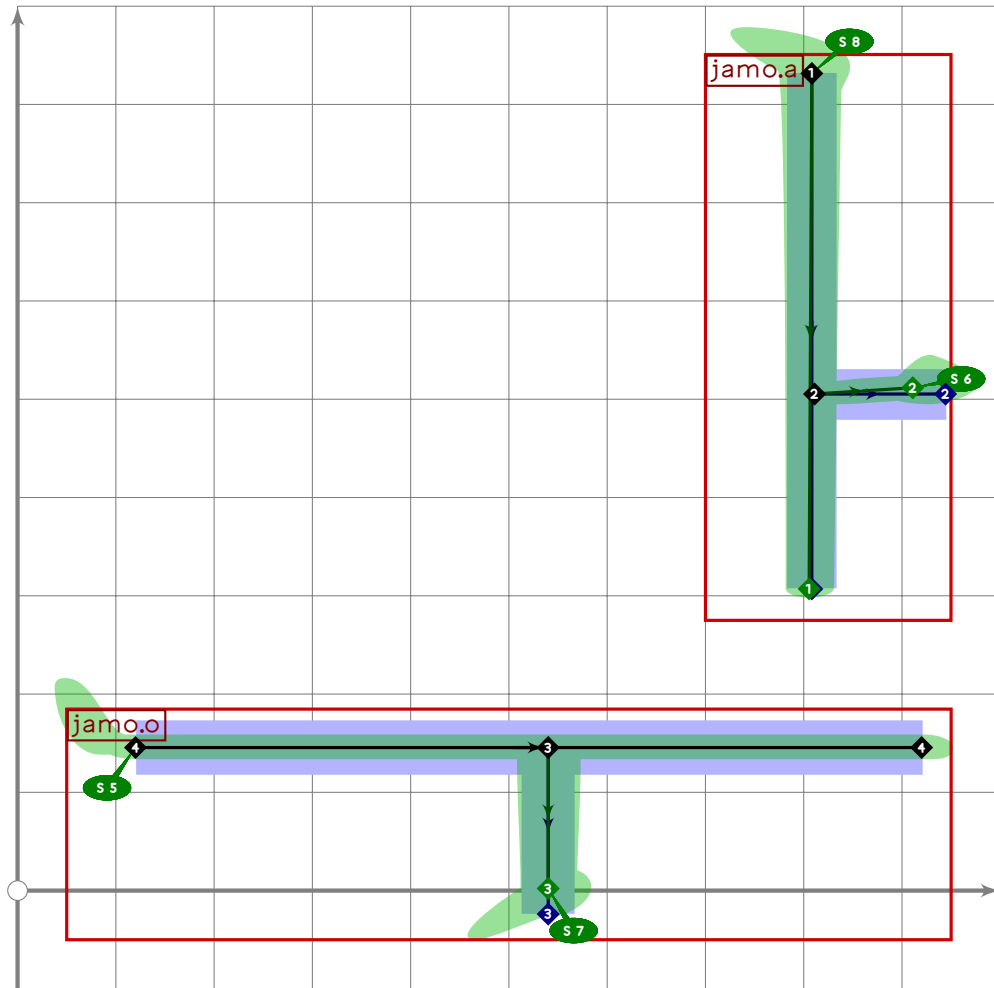
```



```

768 % hangul vowel a-o
769 begintsuglyph("uni1176.nt",118);
770 hangul.combine.tb(300,308)(whatever,vixf,voxf);
771 tsu_render;
772 endtsuglyph;
773

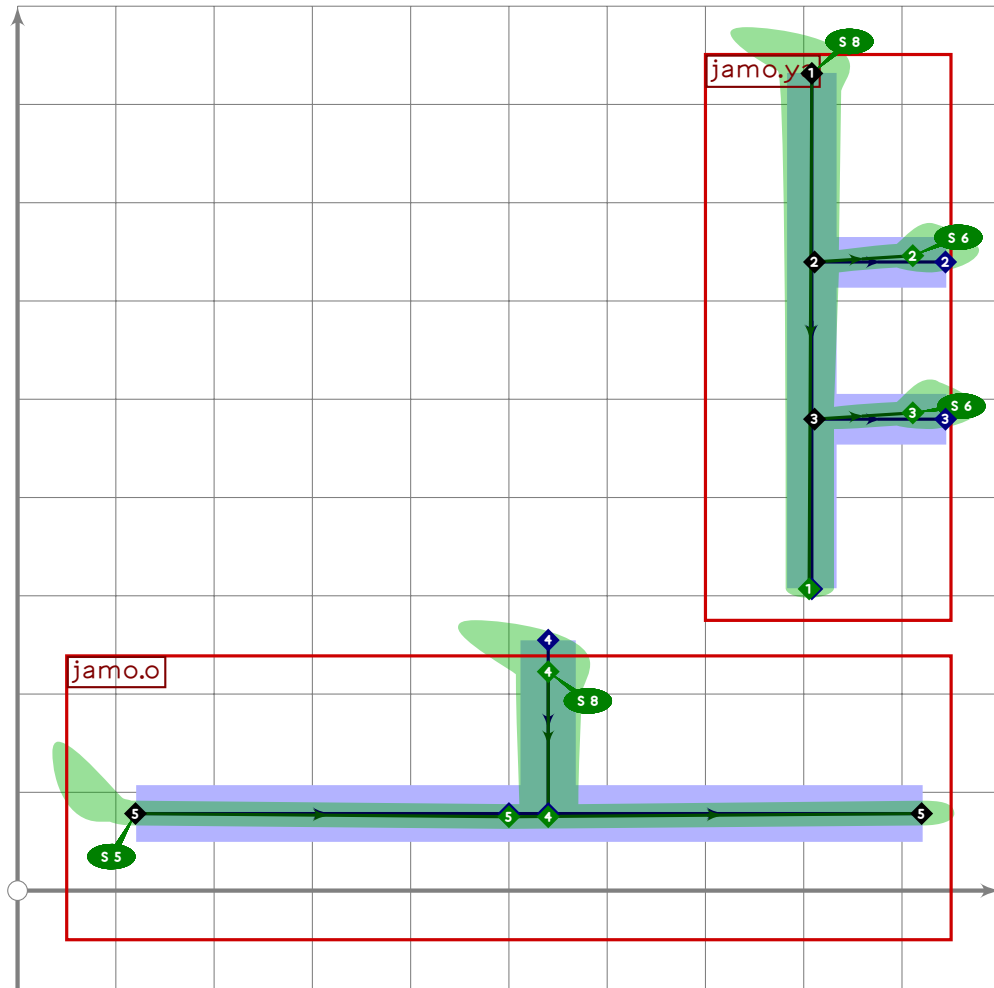
```



```

774 % hangul vowel a-u
775 begintsuglyph("uni1177.nt";119);
776 hangul.combine.tb(300,313)(whatever,vixf,vox);
777 tsu_render;
778 endtsuglyph;
779

```

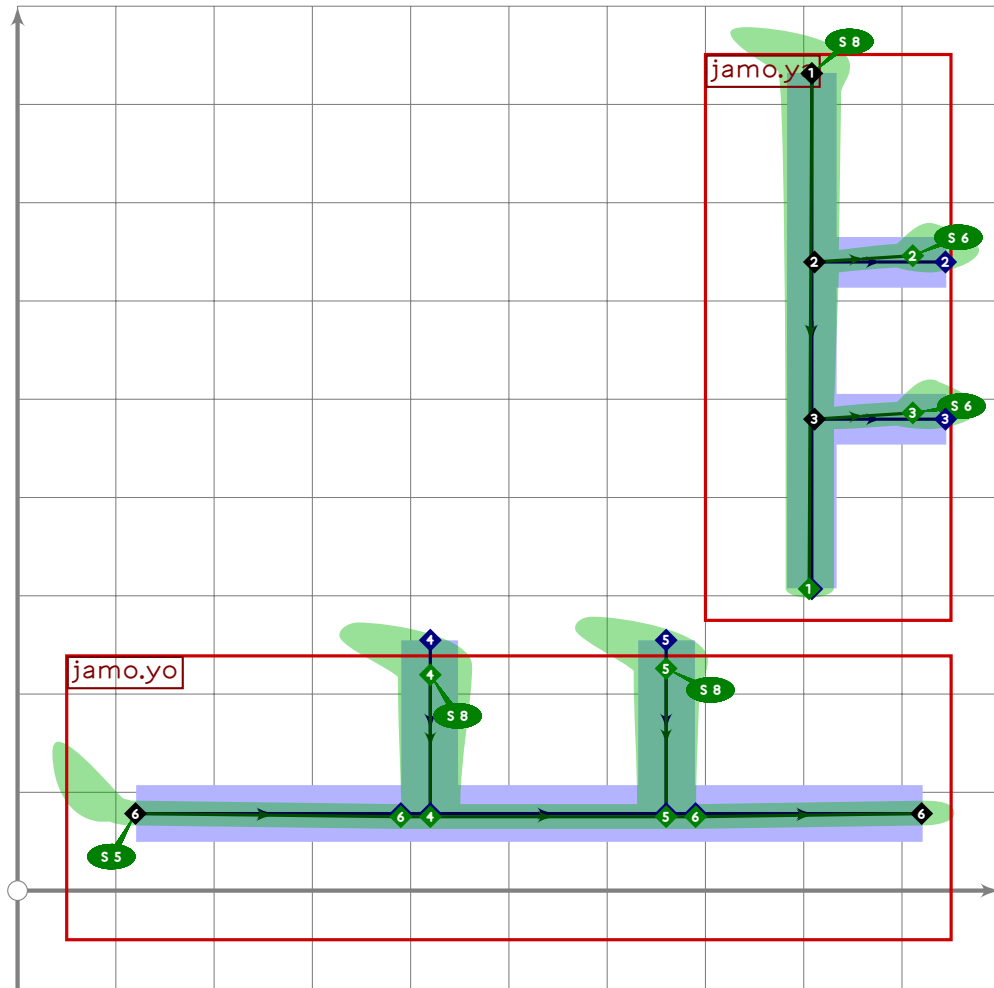


```

780 % hangul vowel ya-o
781 begintsuglyph("uni1178.nt",120);
782 hangul.combine.tb(302,308)(whatever,vixf,vox);
783 tsu_render;
784 endtsuglyph;
785

```

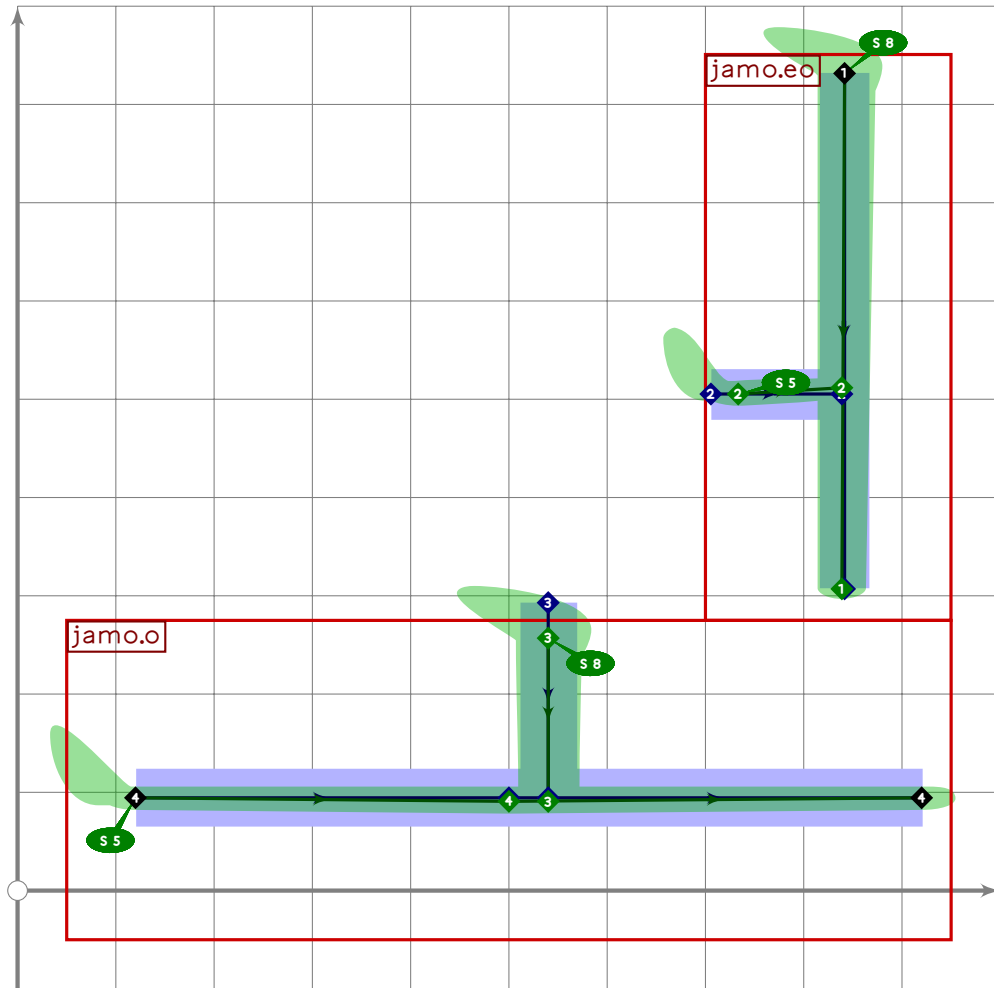




```

786 % hangul vowel ya-yo
787 begintsuglyph("uni1179.nt",121);
788 hangul.combine.tb(302,312)(whatever,vixf,vox);
789 tsu_render;
790 endtsuglyph;
791

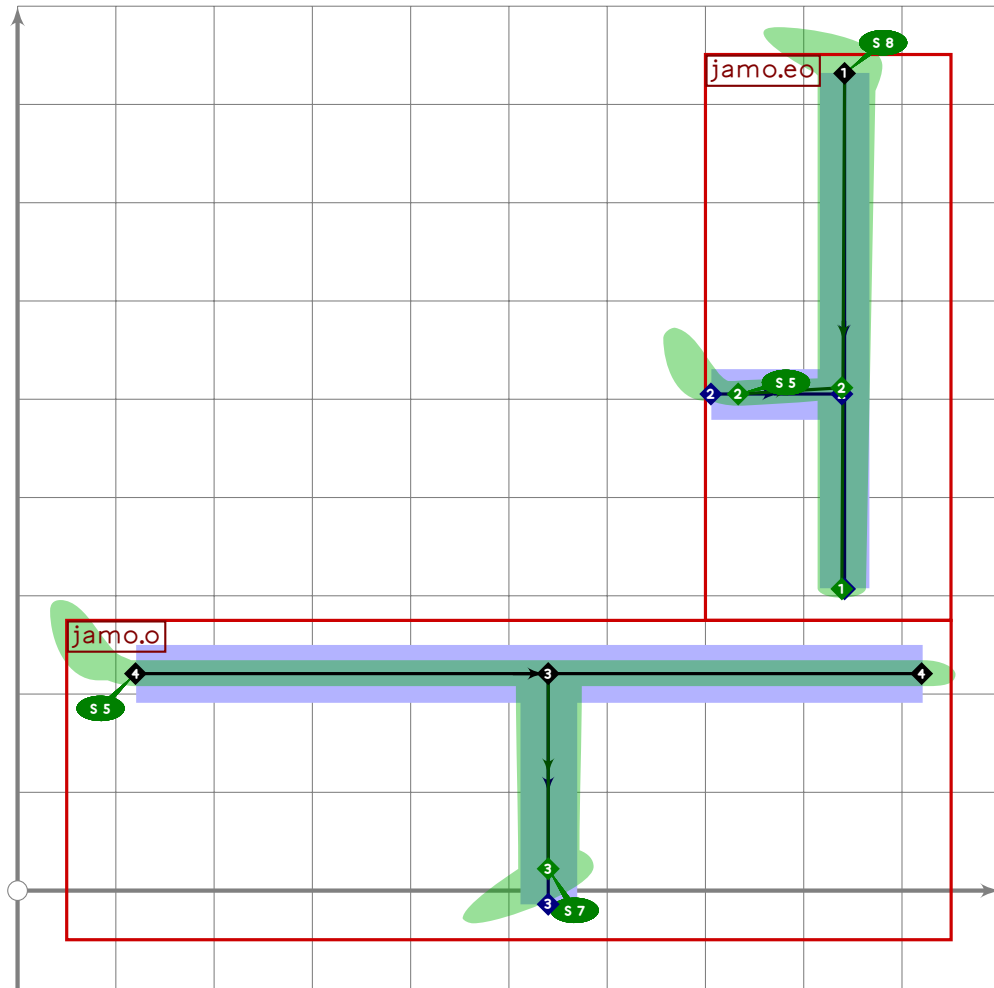
```



```

792 % hangul vowel eo-o
793 begintsuglyph("uni117A.nt",122);
794 hangul.combine.tb(304,308)(whatever,vixf,vox);
795 tsu_render;
796 endtsuglyph;
797

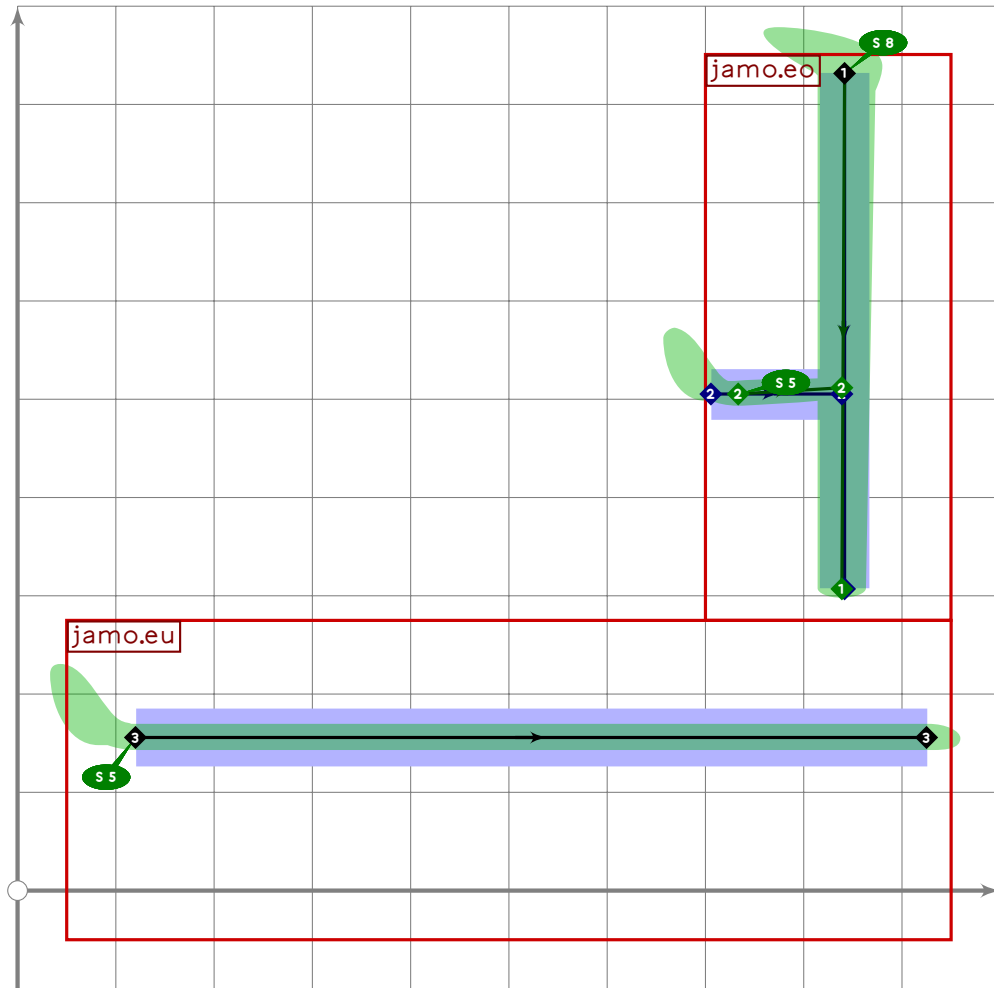
```



```

798 % hangul vowel eo-u
799 begintsuglyph("uni117B.nt",123);
800 hangul.combine.tb(304,313)(whatever,vixf,voxf);
801 tsu_render;
802 endtsuglyph;
803

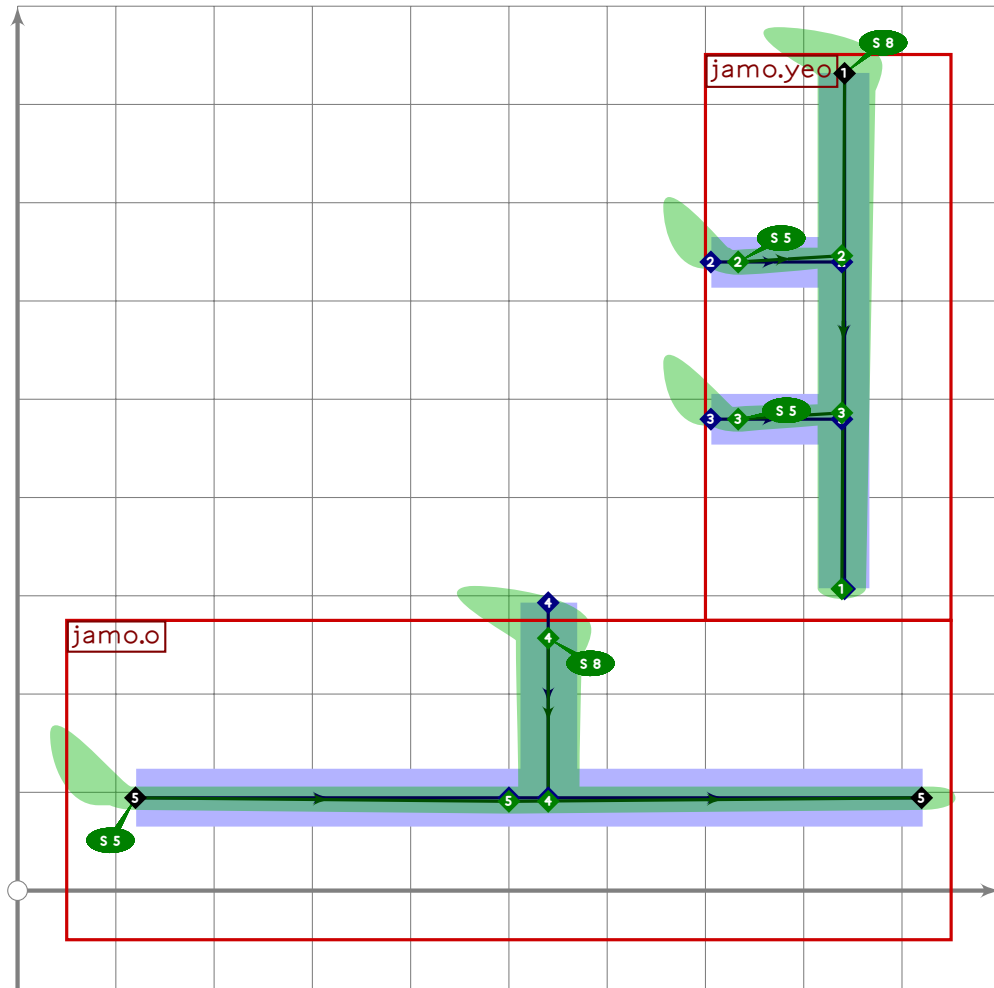
```



```

804 % hangul vowel eo-eu
805 begint Suglyph("uni117C.nt",124);
806 hangul.combine.tb(304,318)(whatever,vixf,vox);
807 tsu_render;
808 endtsuglyph;
809

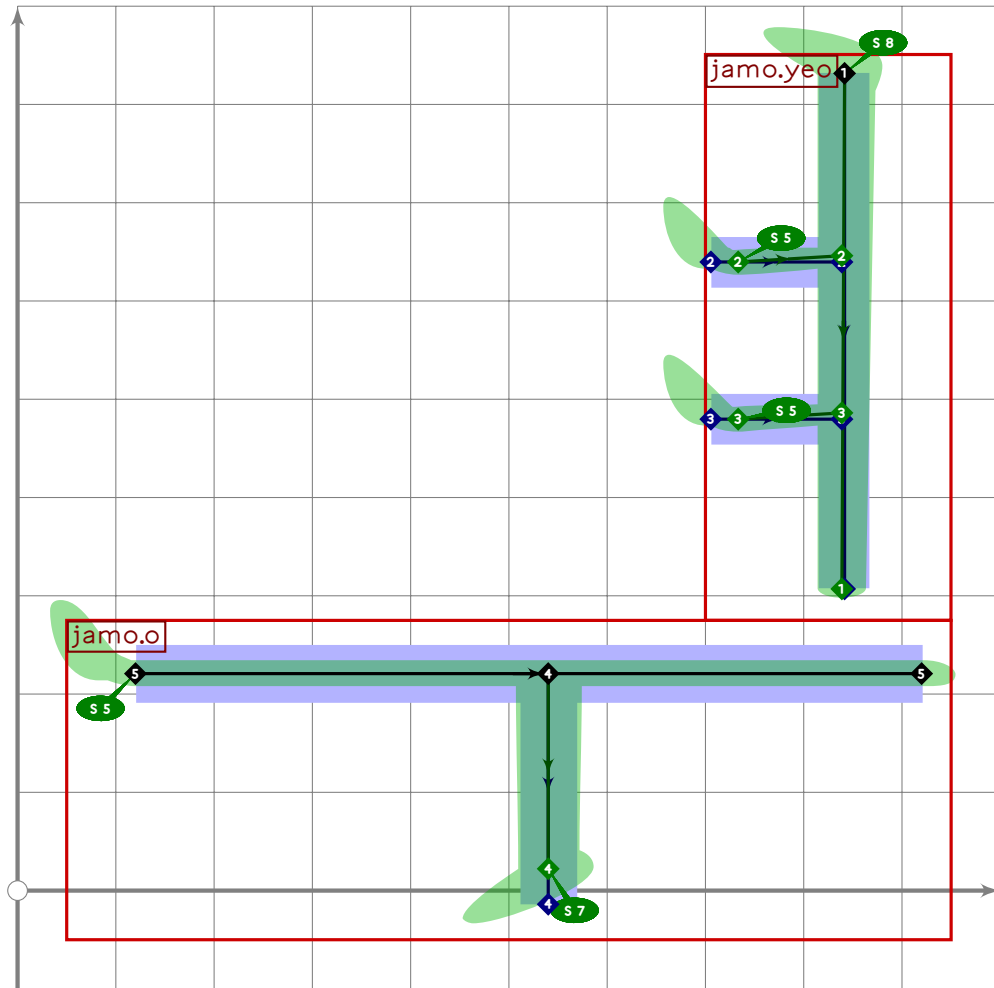
```



```

810 % hangul vowel yeo-o
811 begintsuglyph("uni117D.nt",125);
812 hangul.combine.tb(306,308)(whatever,vixf,voxf);
813 tsu_render;
814 endsuglyph;
815

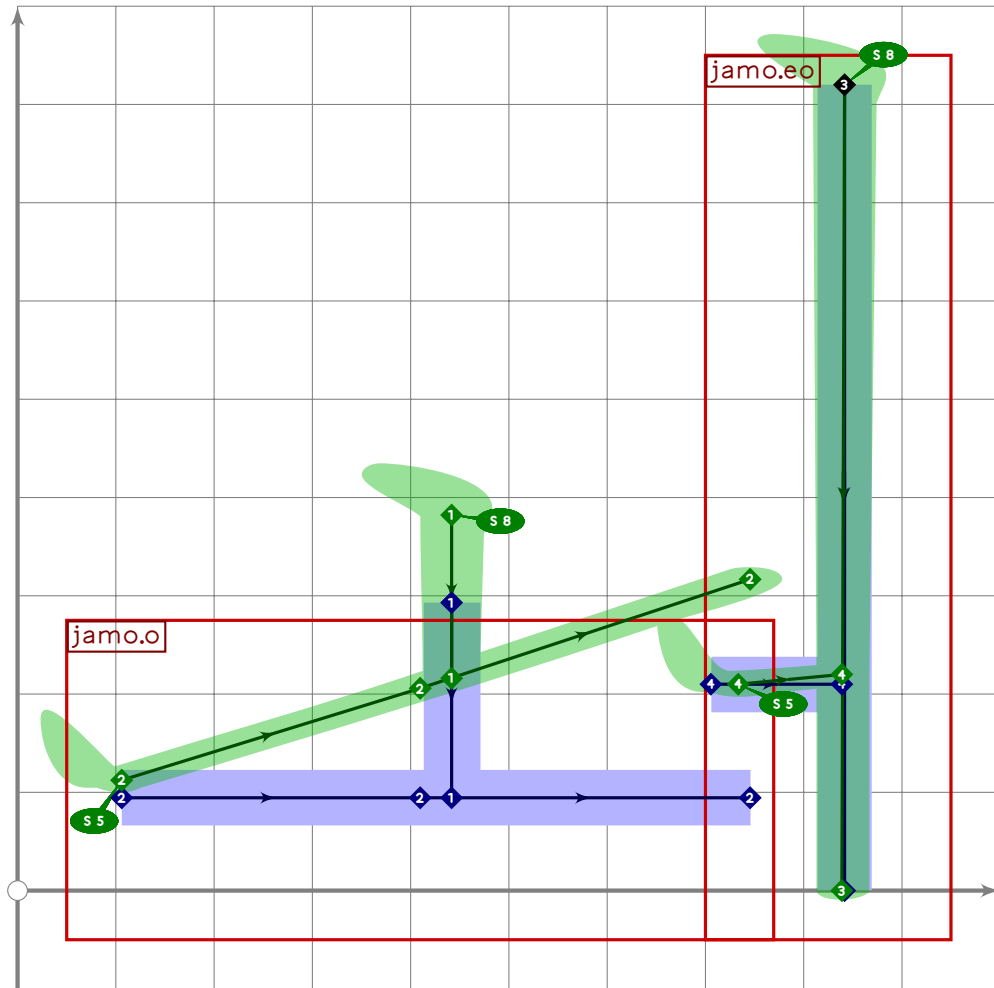
```



```

816 % hangul vowel yeo-u
817 begint Suglyph("uni117E.nt",126);
818 hangul.combine.tb(306,313)(whatever,vixf,vox);
819 tsu_render;
820 endtsuglyph;
821

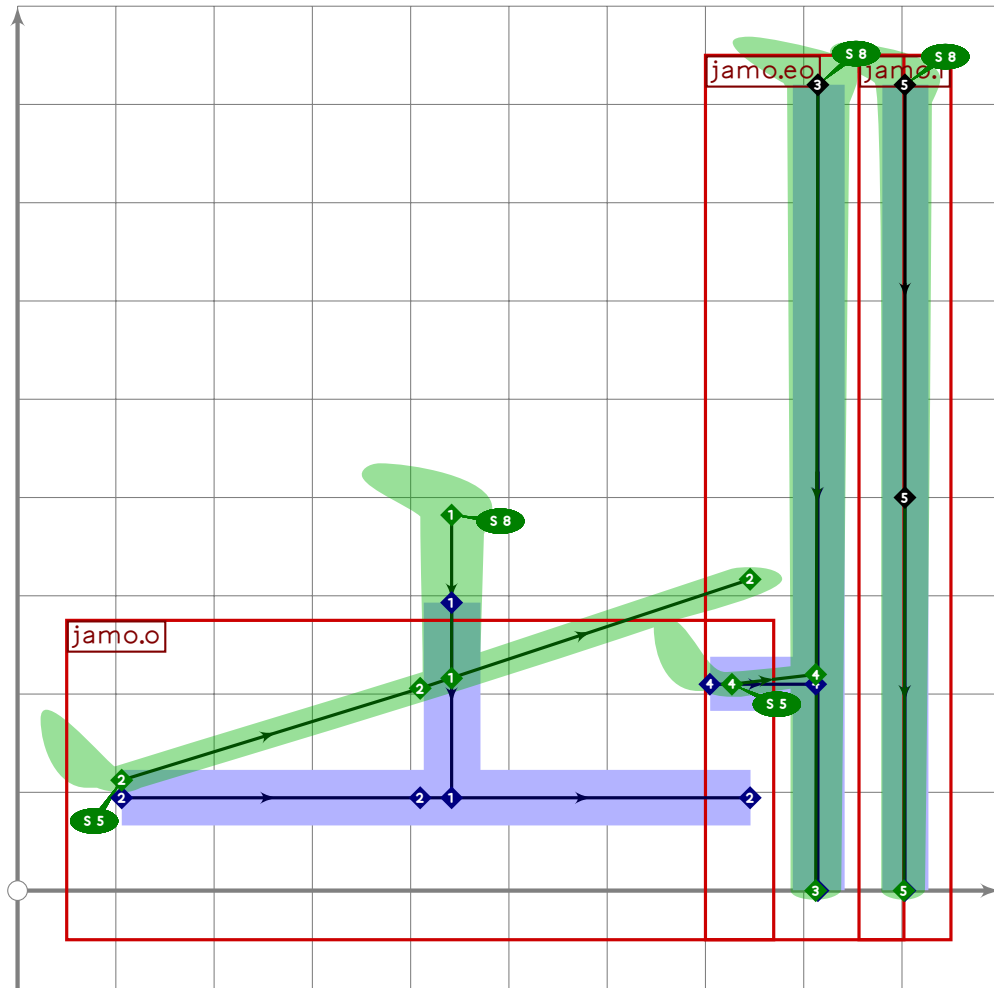
```



```

822 % hangul vowel o-eo
823 begintsuglyph("uni117F.nt";127);
824 hangul.combine.lr(308,304)(429;vixf,voxf);
825 tsu_render;
826 endtsuglyph;
827

```

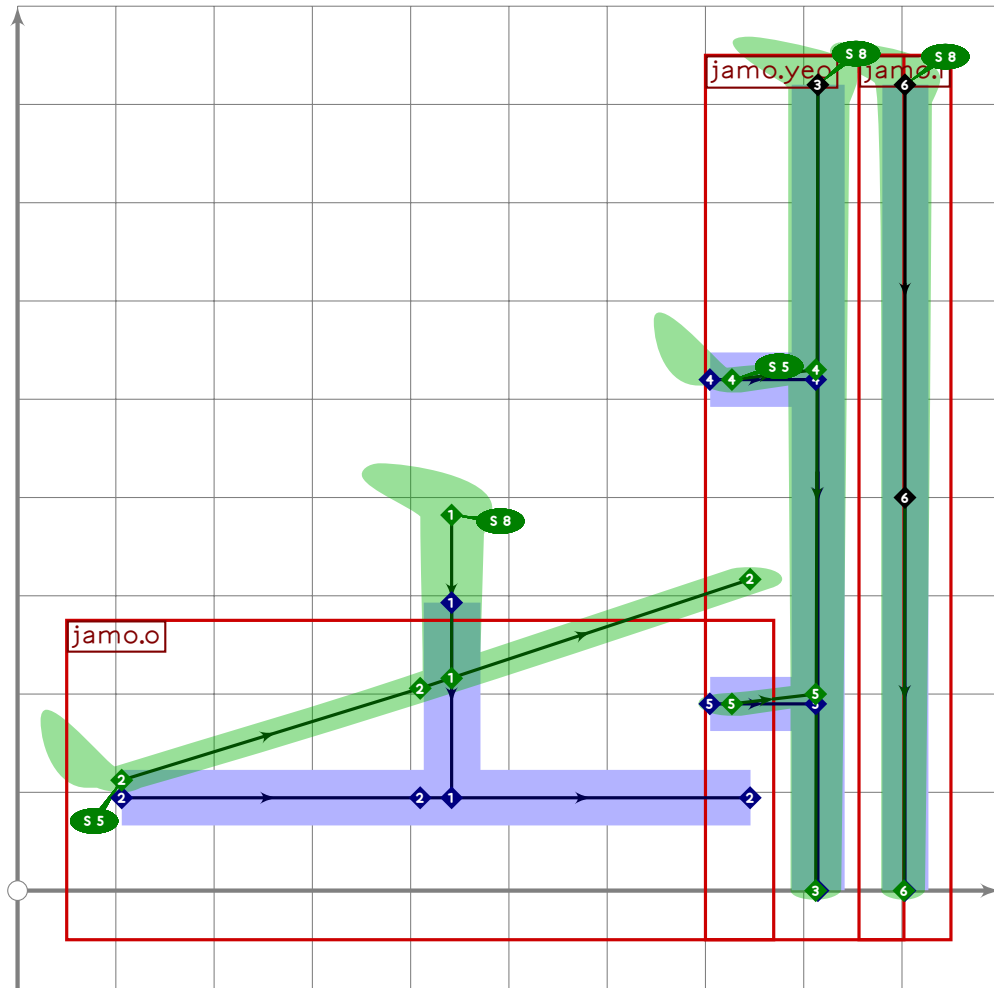


```

828 % hangul vowel o-e
829 begintuglyph("uni1180.nt",128);
830 hangul.combine.lr(308,305)(430,vixf,voxf);
831 tsu_render;
832 endtsuglyph;
833

```

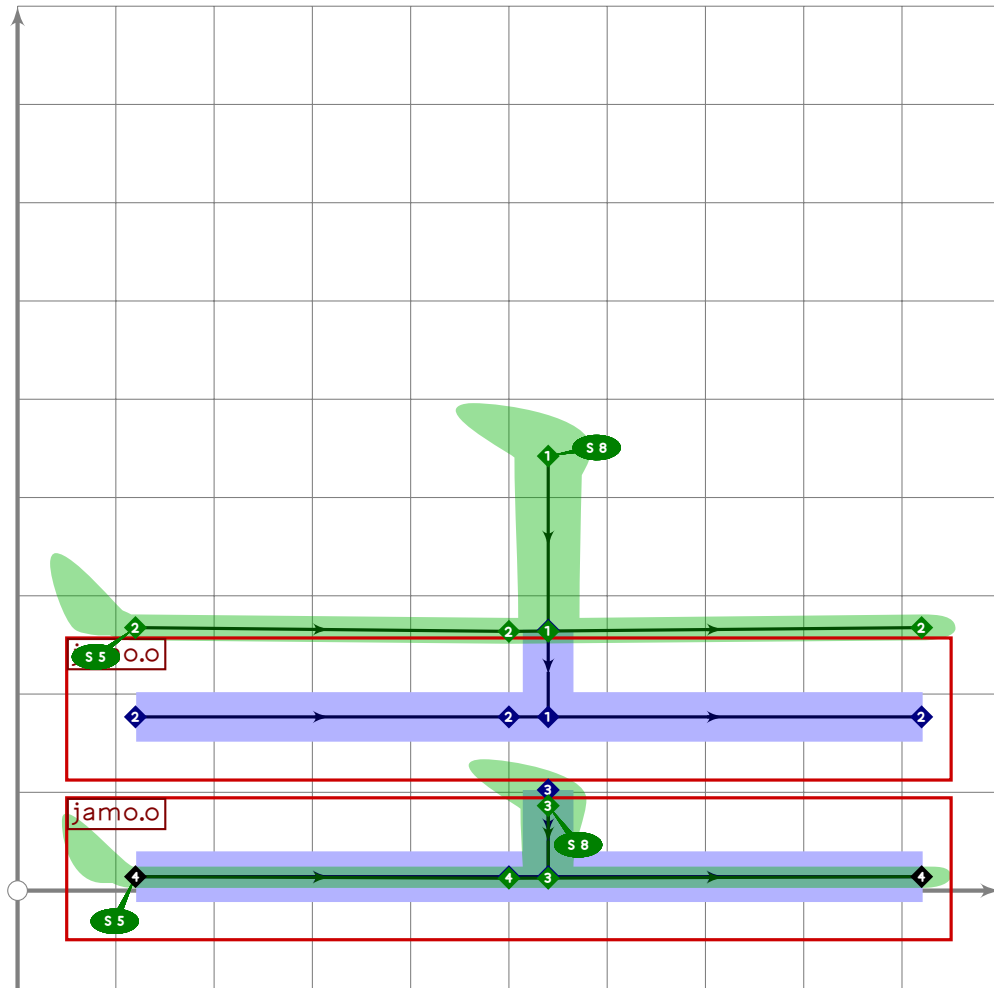




```

834 % hangul vowel o-ye
835 begintsuglyph("uni1181.nt";129);
836 hangul.combine.lr(308,307)(431,vixf,voxf);
837 tsu_render;
838 endtsuglyph;
839

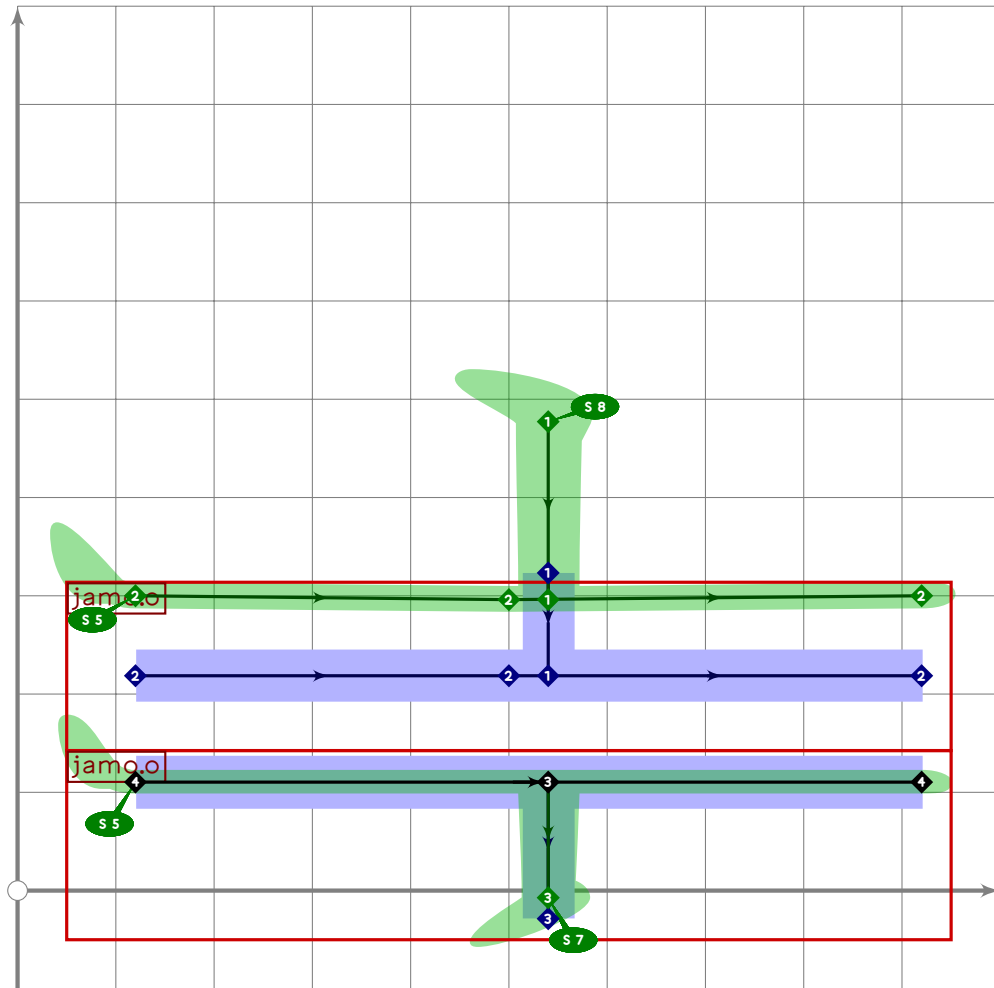
```



```

840 % hangul vowel o-o
841 begint Suglyph("uni1182.nt",130);
842 hangul.combine.tb(308,308)(whatever,vixf,voxf);
843 tsu_render;
844 endtsuglyph;
845

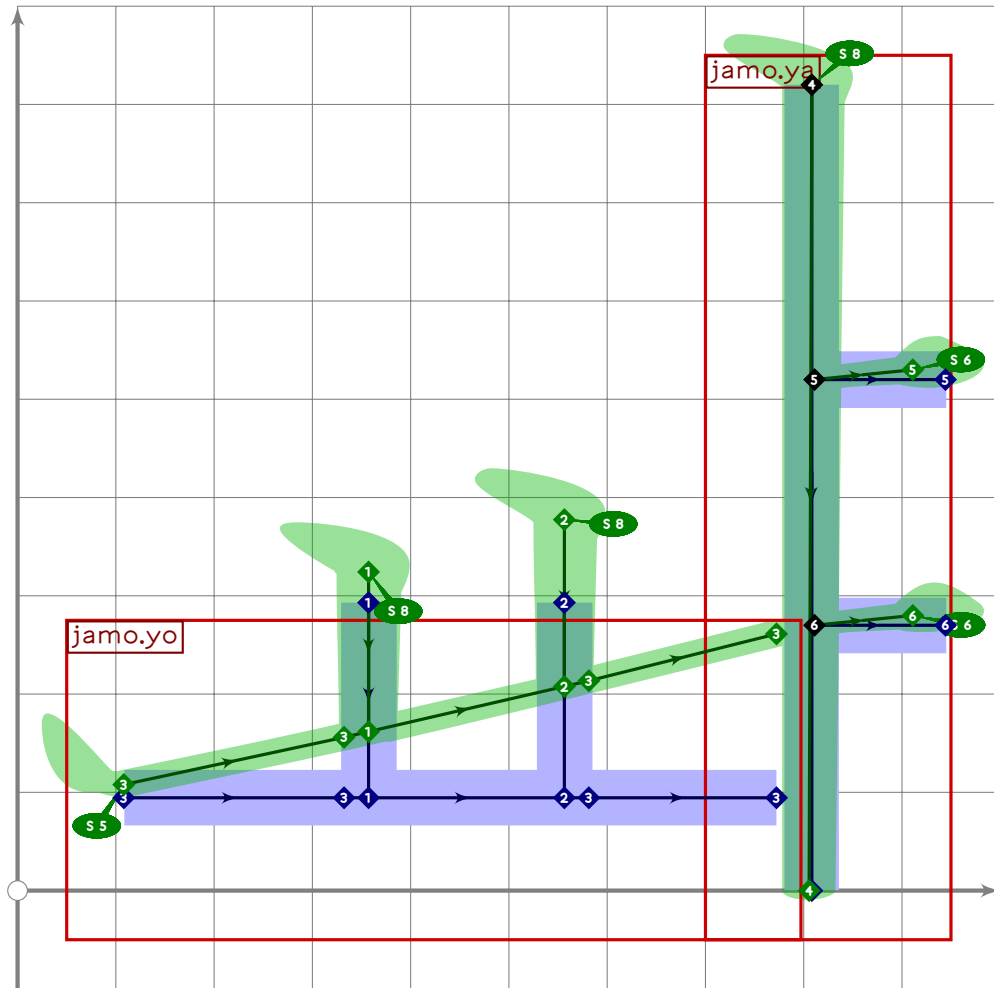
```



```

846 % hangul vowel o-u
847 begint Suglyph("uni1183.nt",131);
848 hangul.combine.tb(308,313)(whatever,tvixf,voxf);
849 tsu_render;
850 endtsuglyph;
851

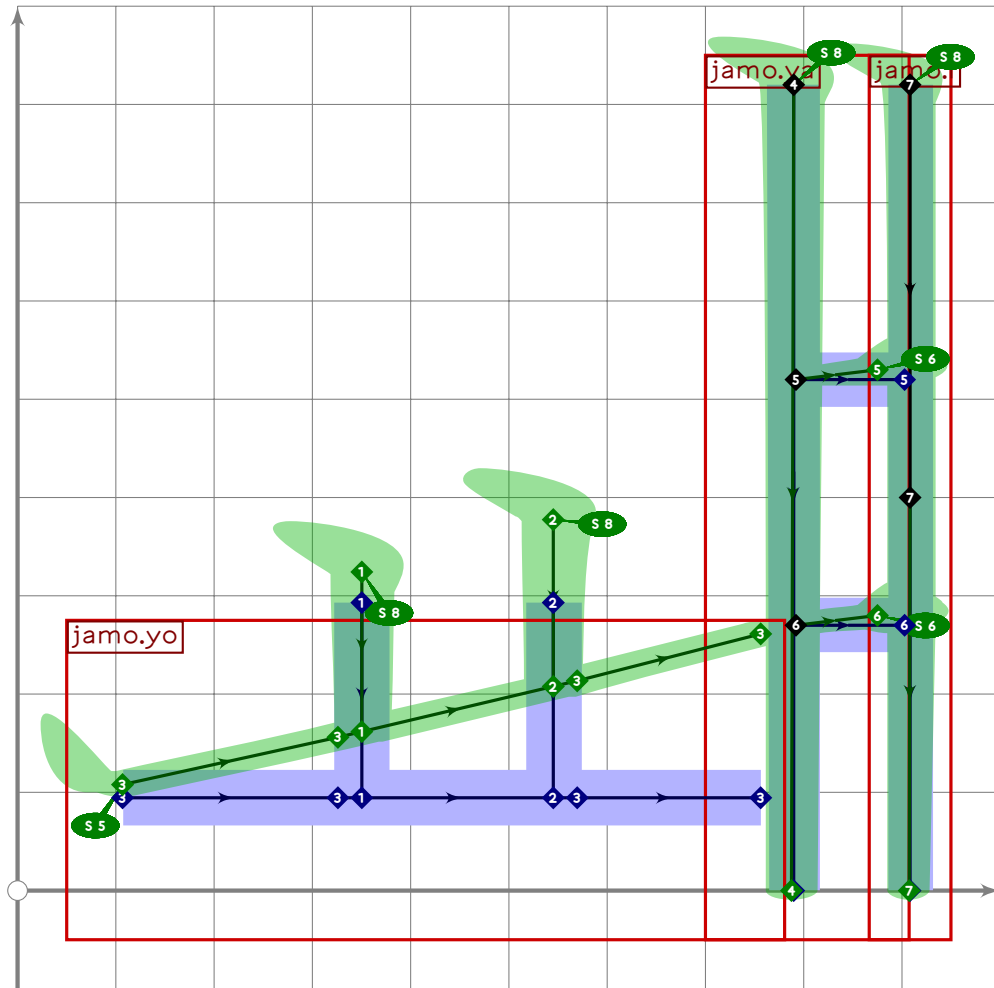
```



```

852 % hangul vowel yo-ya
853 begintsuglyph("uni1184.nt",132);
854 hangul.combine.lr(312,302)(421,vixf,voxf);
855 tsu_render;
856 endtsuglyph;
857

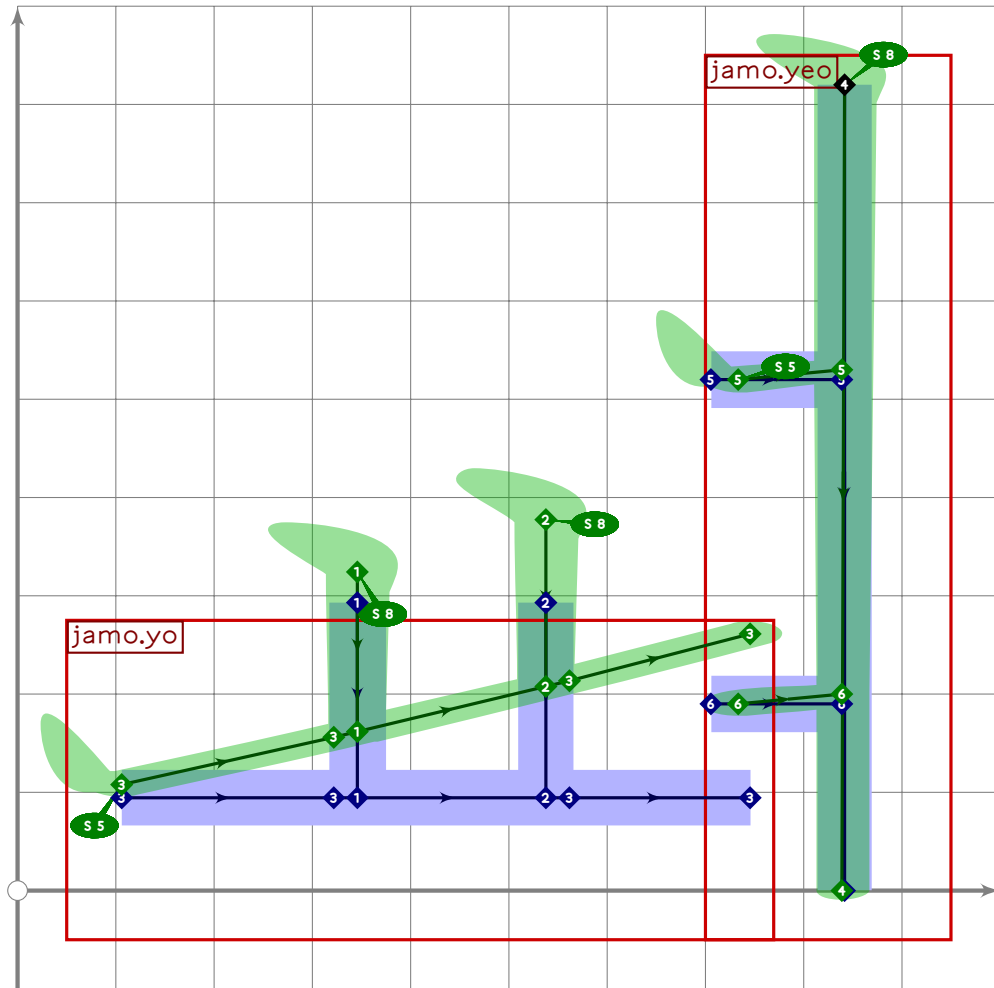
```



```

858 % hangul vowel yo-yae
859 begint Suglyph("uni1185.nt",133);
860 hangul.combine.lr(312,303)(422,vixf,voxf);
861 tsu_render;
862 endtsuglyph;
863

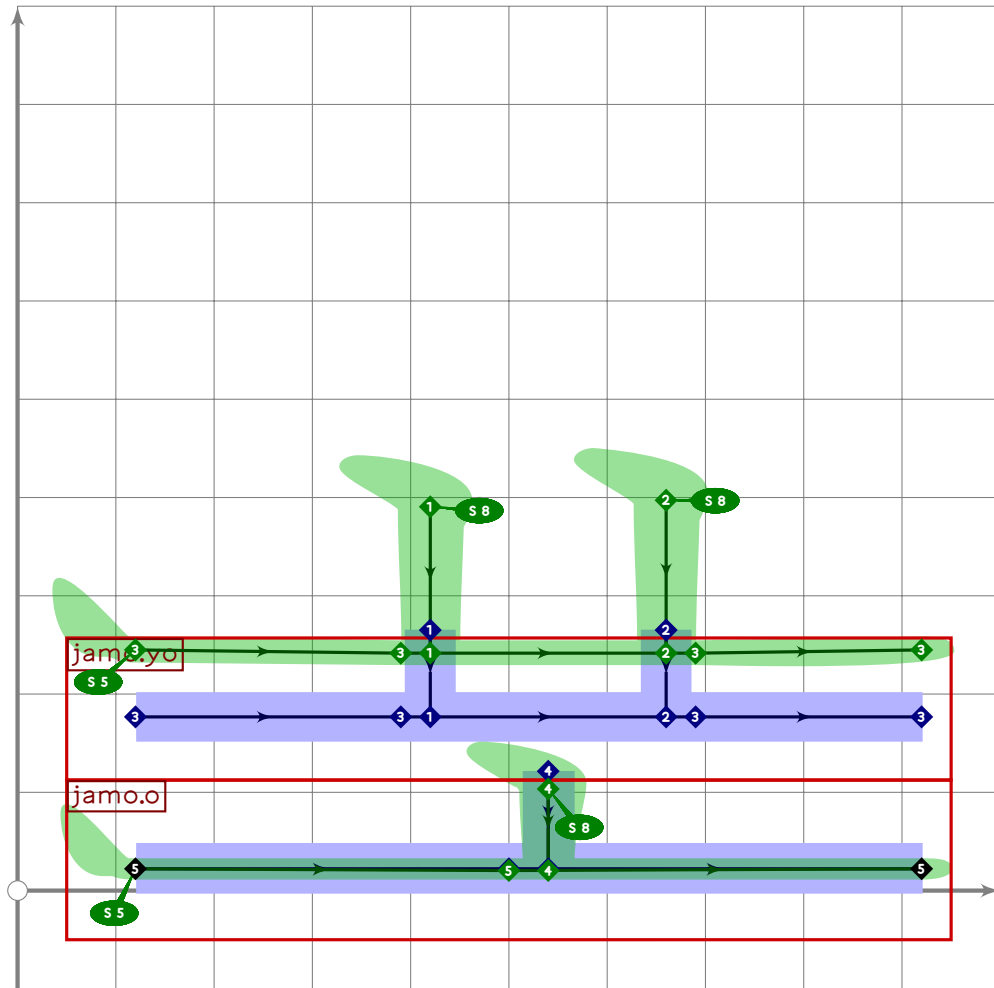
```



```

864 % hangul vowel yo-yeo
865 begint Suglyph("uni1186.nt",134);
866 hangul.combine.lr(312,306)(432,vixf,voxf);
867 tsu_render;
868 endtsuglyph;
869

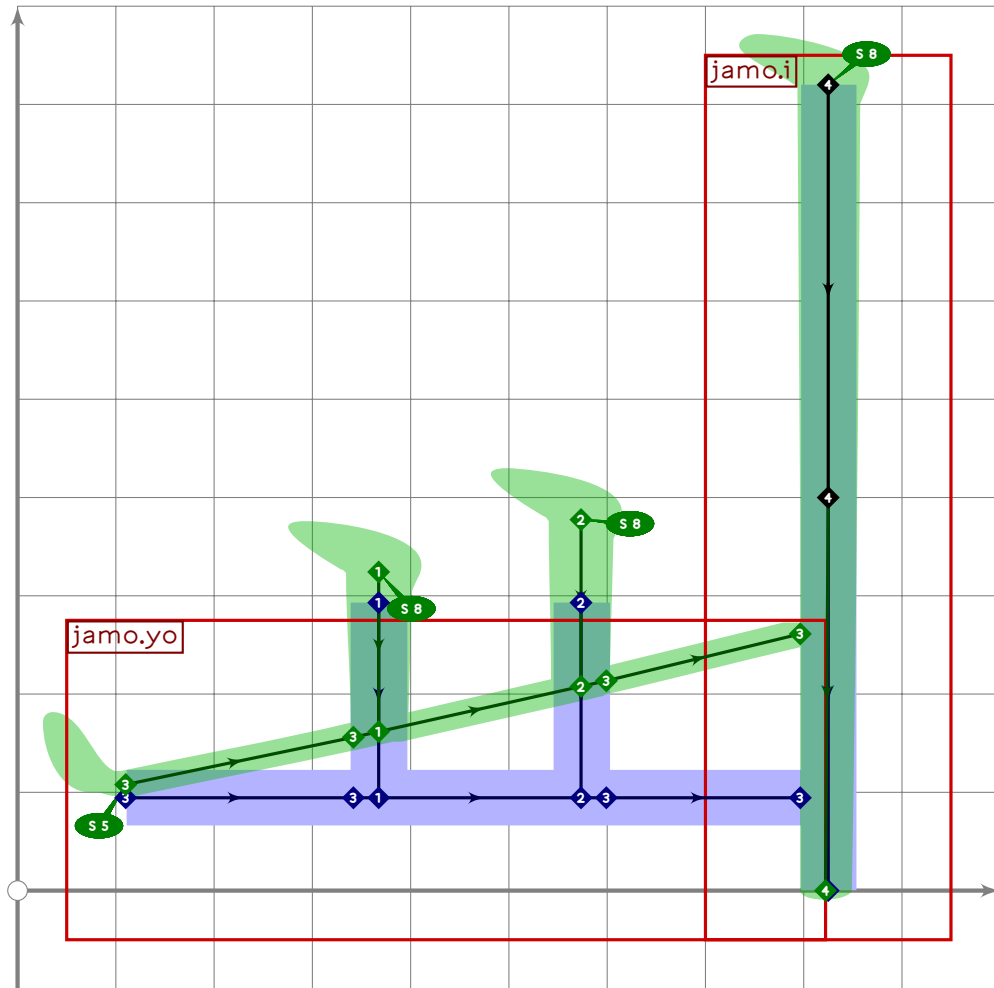
```



```

870 % hangul vowel yo-o
871 begint Suglyph("uni1187.nt",135);
872 hangul.combine.tb(312,308)(whatever,vixf,vox f);
873 tsu_render;
874 endtsuglyph;
875

```

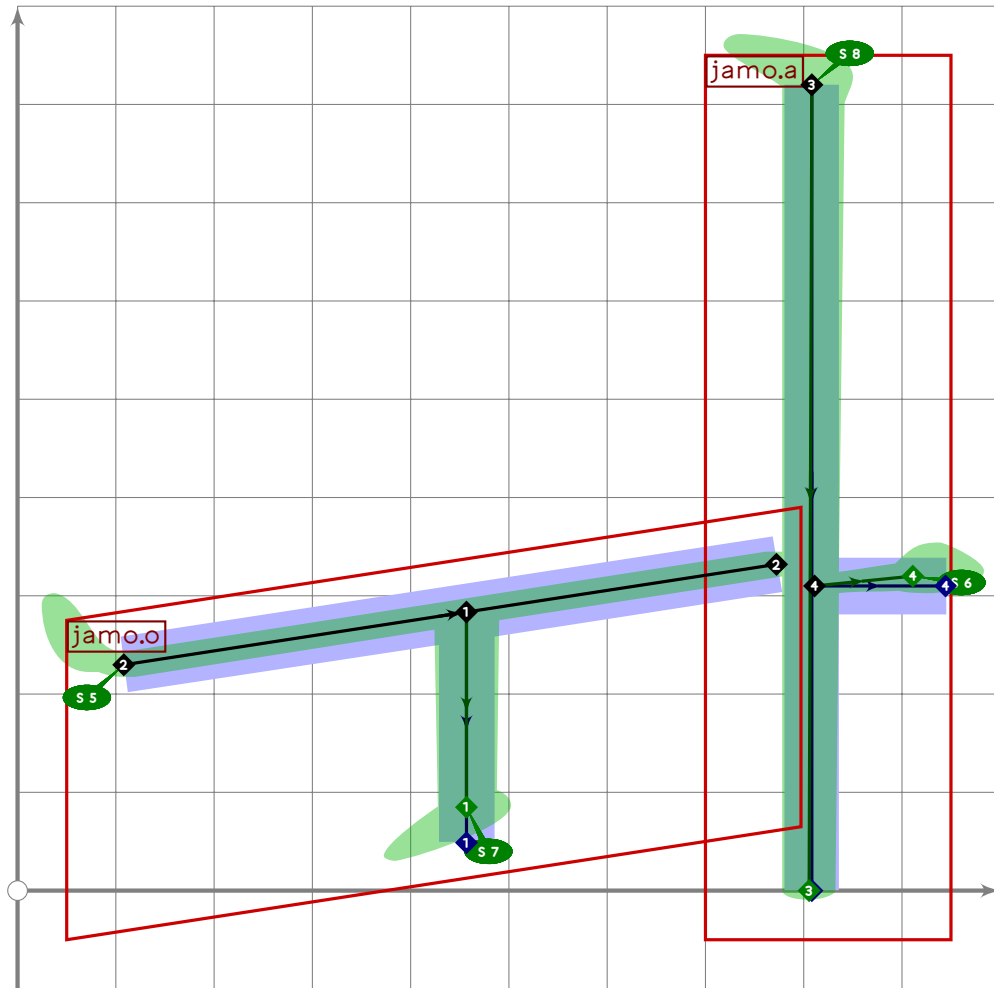


```

876 % hangul vowel yo-i
877 begintsuglyph("uni1188.nt",136);
878 hangul.combine.lr(312,320)(423,vixf,vox);
879 tsu_render;
880 endtsuglyph;
881

```

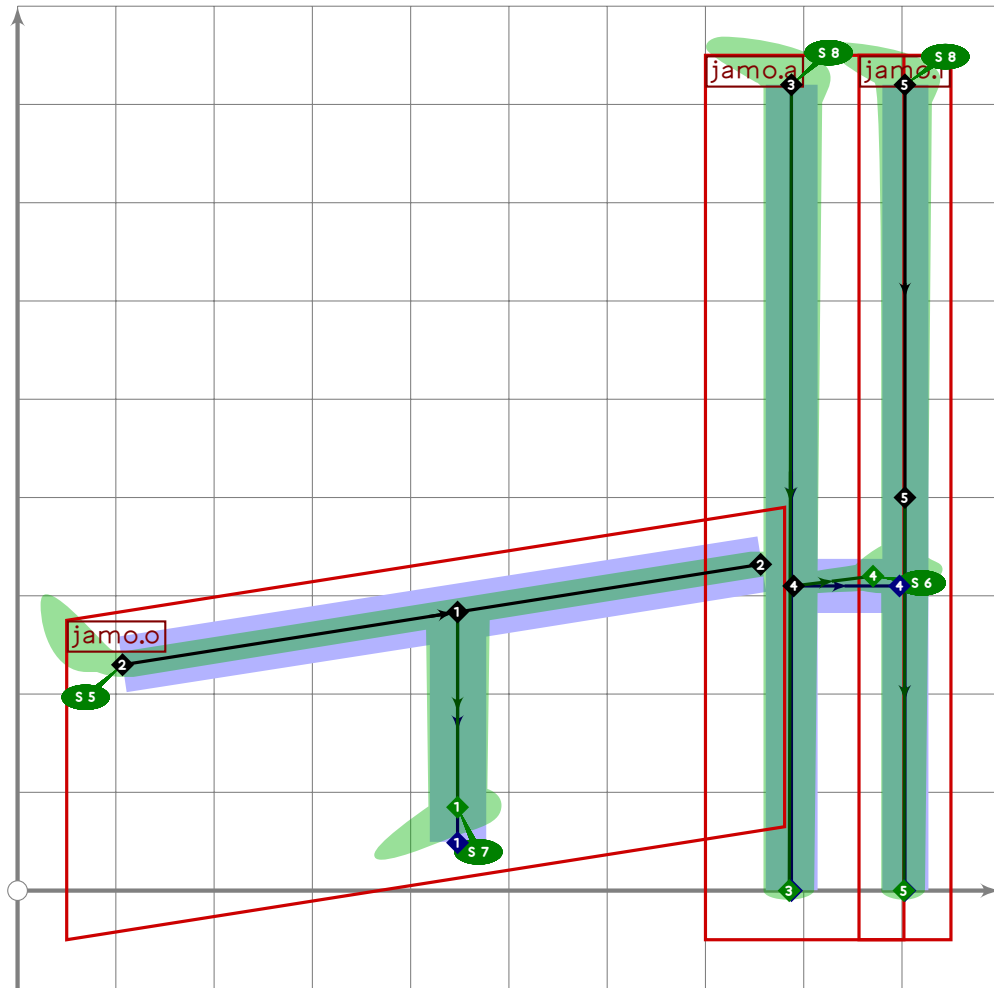




```

882 % hangul vowel u-a
883 begint Suglyph("uni1189.nt",137);
884 hangul.combine.lr(313,300)(433,vixf,voxf);
885 tsu_render;
886 endtsuglyph;
887

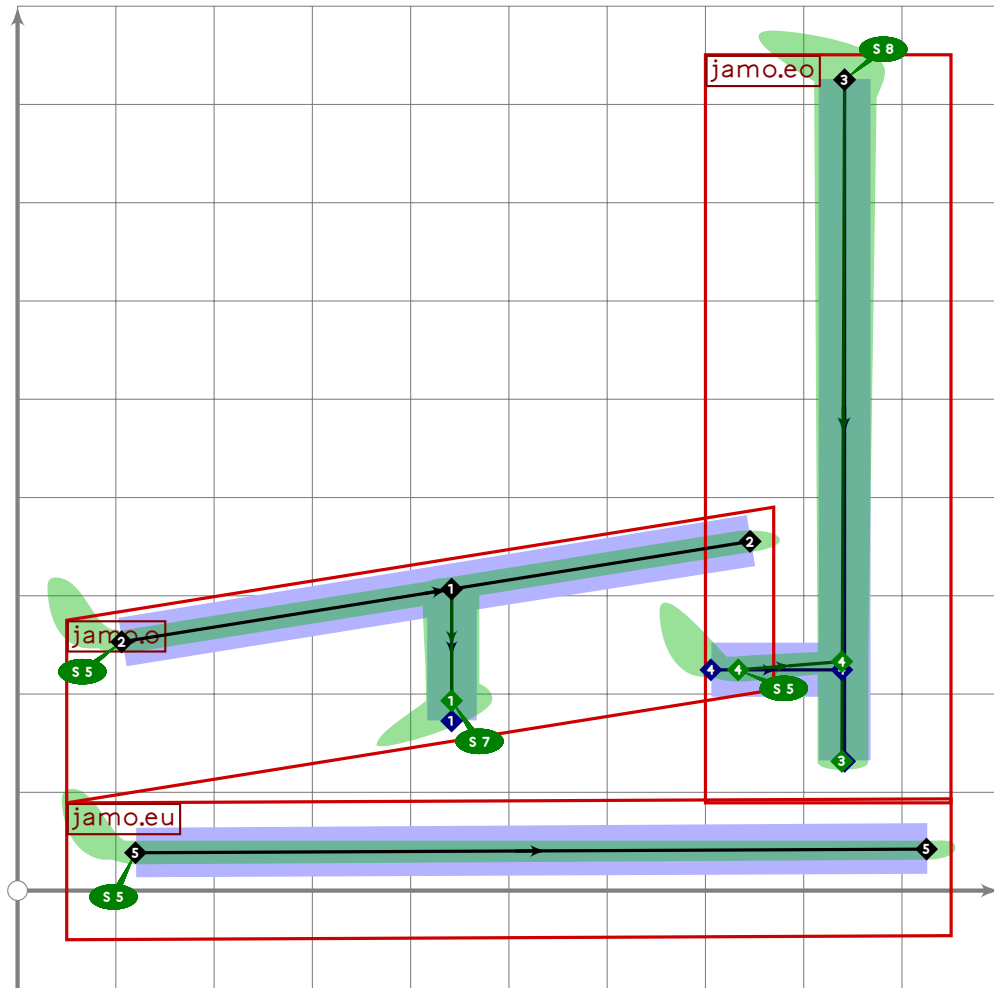
```



```

888 % hangul vowel u-ae
889 begintsuglyph("uni118A.nt",138);
890 hangul.combine.lr(313,301)(434,vixf,voxf);
891 tsu_render;
892 endtsuglyph;
893

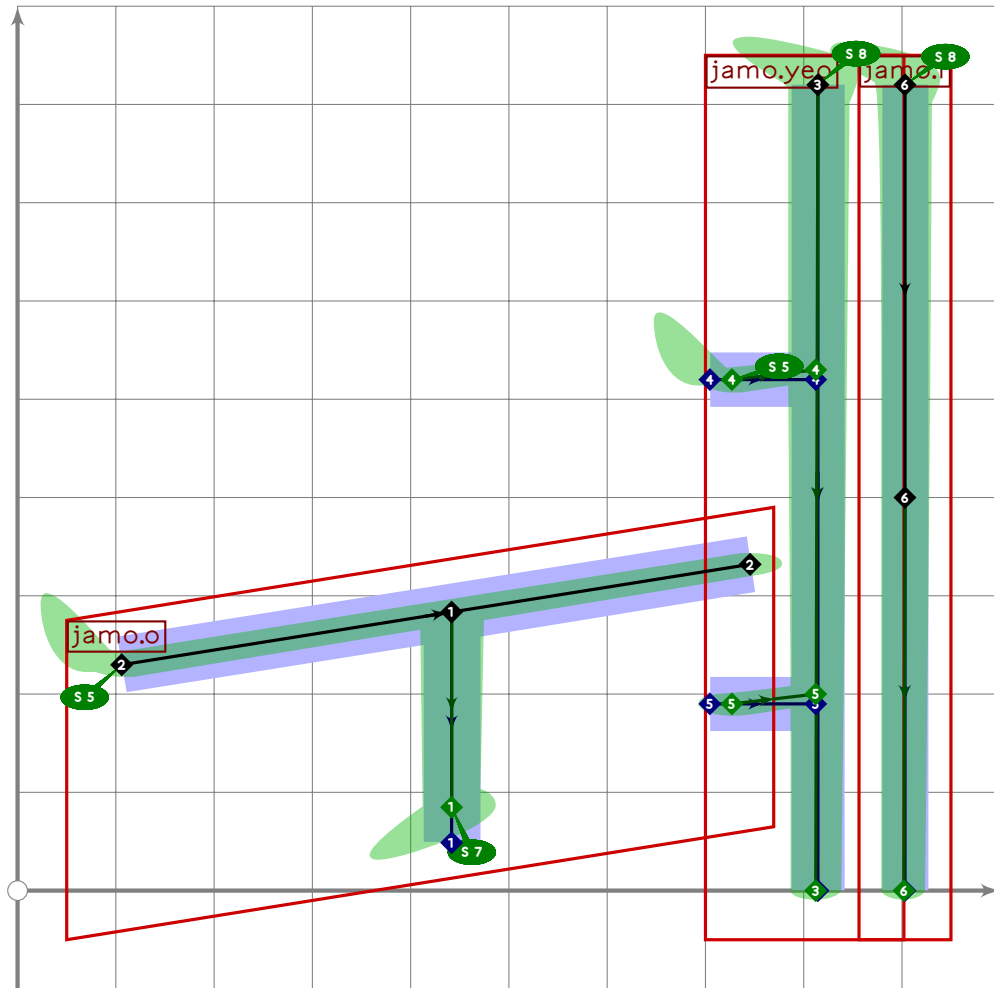
```



```

894 % hangul vowel u-eo-eu
895 begint Suglyph("uni118B.nt",139);
896 hangul.combine.tb(314,318)(435,vixf,voxf);
897 tsu_render;
898 endtsuglyph;
899

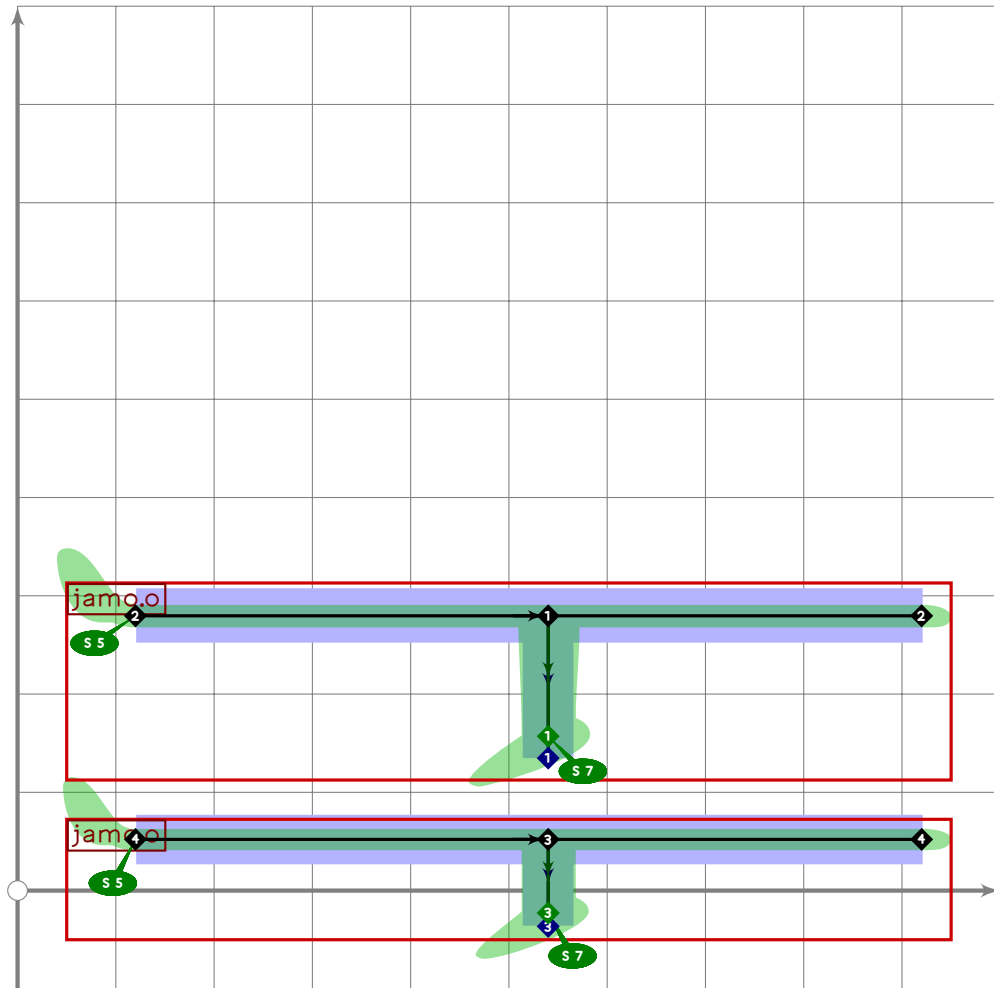
```



```

900 % hangul vowel u-ye
901 begint Suglyph("uni118C.nt",140);
902 hangul.combine.lr(313,307)(436,vixf,voxf);
903 tsu_render;
904 endtsuglyph;
905

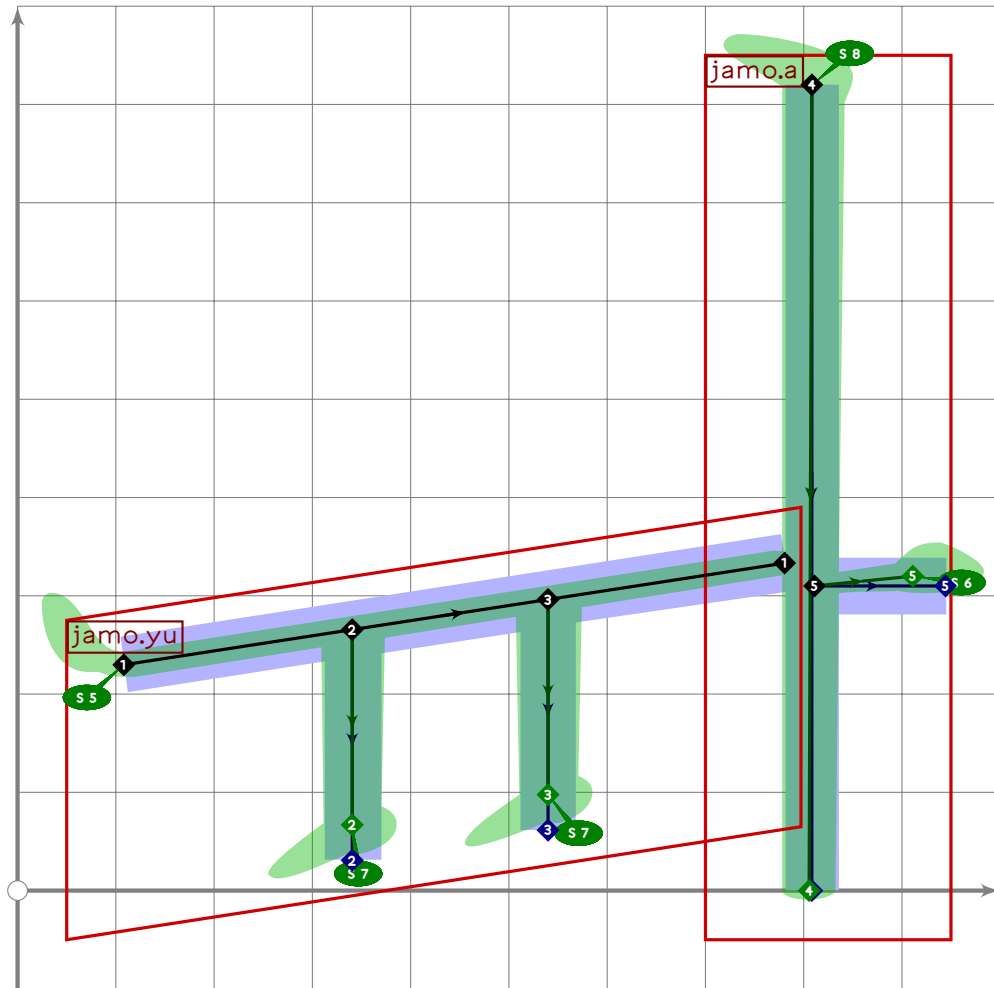
```



```

906 % hangul vowel u-u
907 begint Suglyph("uni118D.nt",141);
908 hangul.combine.tb(313,313)(whatever,vixf,voxf);
909 tsu_render;
910 endtsuglyph;
911

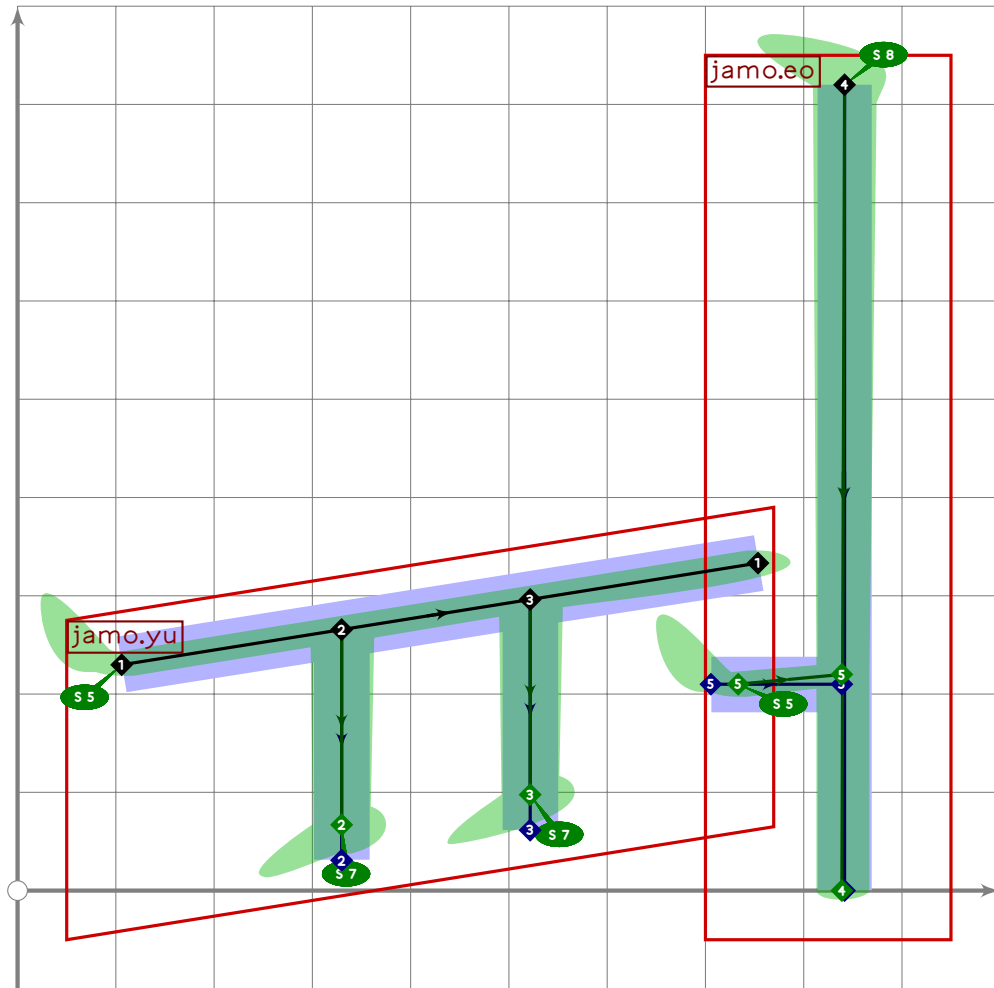
```



```

912 % hangul vowel yu-a
913 begint Suglyph("uni118E.nt",142);
914 hangul.combine.lr(317,300)(437,vixf,voxf);
915 tsu_render;
916 endtsuglyph;
917

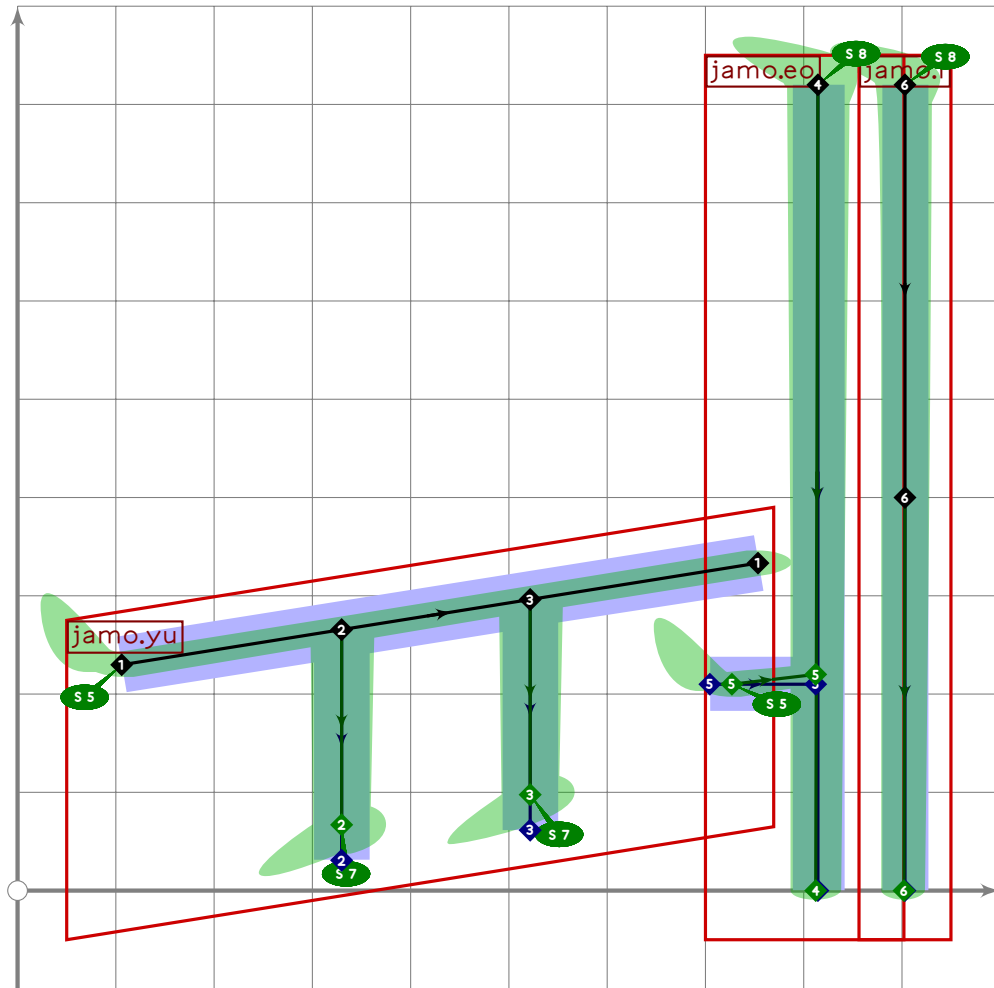
```



```

918 % hangul vowel yu-eo
919 begint Suglyph("uni118F.nt",143);
920 hangul.combine.lr(317,304)(438,vixf,vox f);
921 tsu_render;
922 endtsuglyph;
923

```

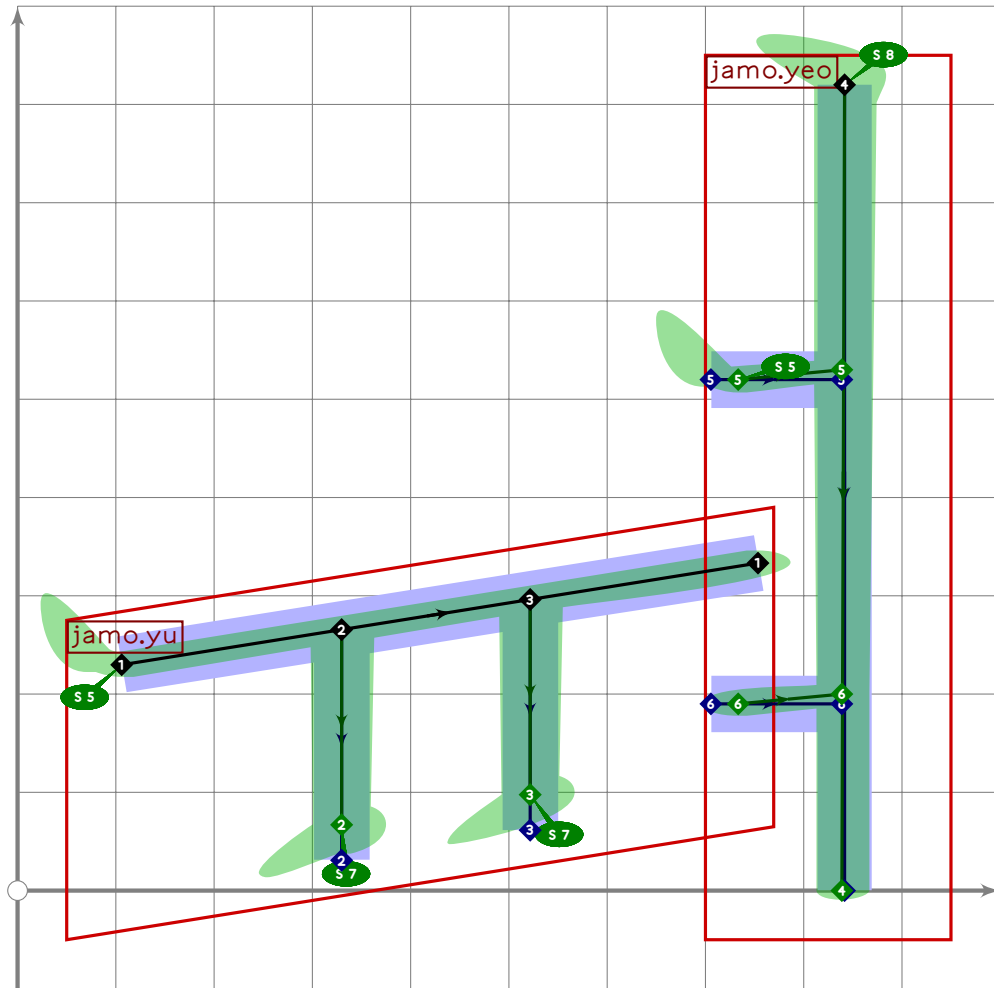


```

924 % hangul vowel yu-e
925 begint Suglyph("uni1190.nt",144);
926 hangul.combine.lr(317,305)(439,vixf,voxf);
927 tsu_render;
928 endtsuglyph;
929

```

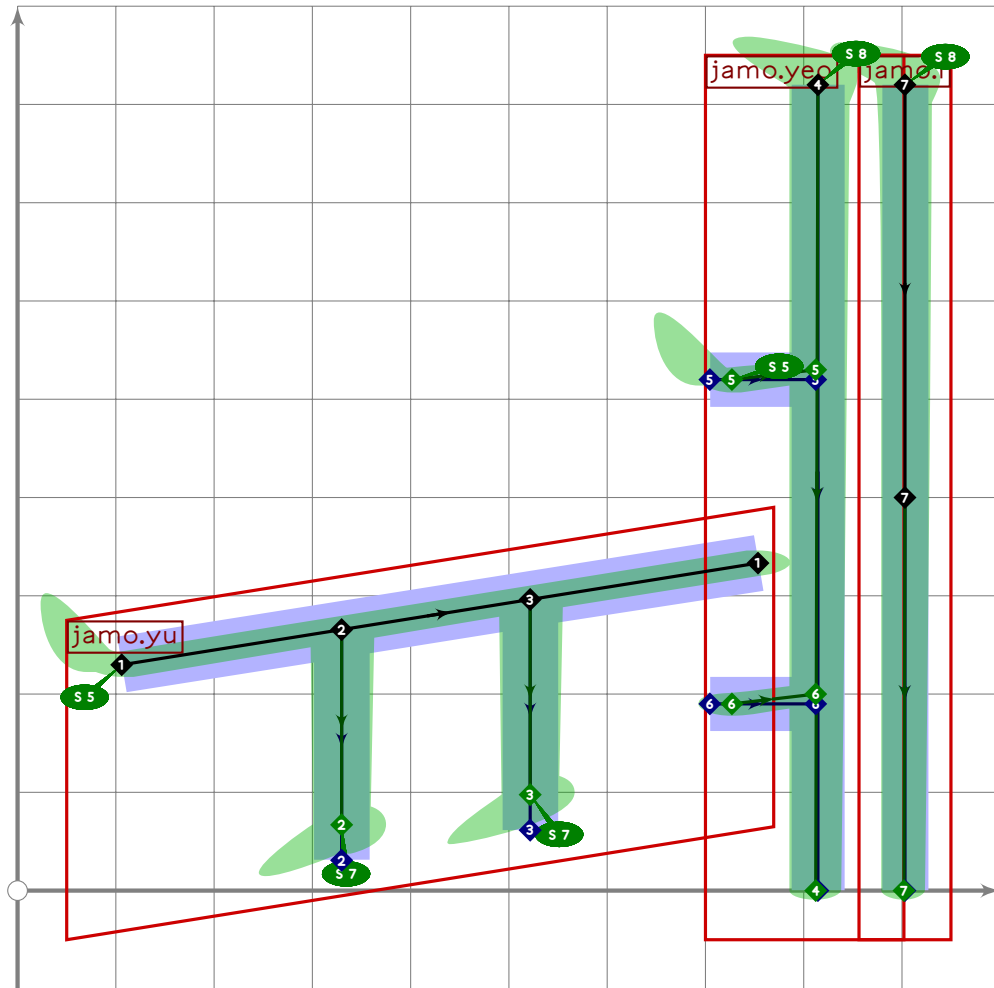




```

930 % hangul vowel yu-yeo
931 begint Suglyph("uni1191.nt",145);
932 hangul.combine.lr(317,306)(424,vixf,vox);
933 tsu_render;
934 endtsuglyph;
935

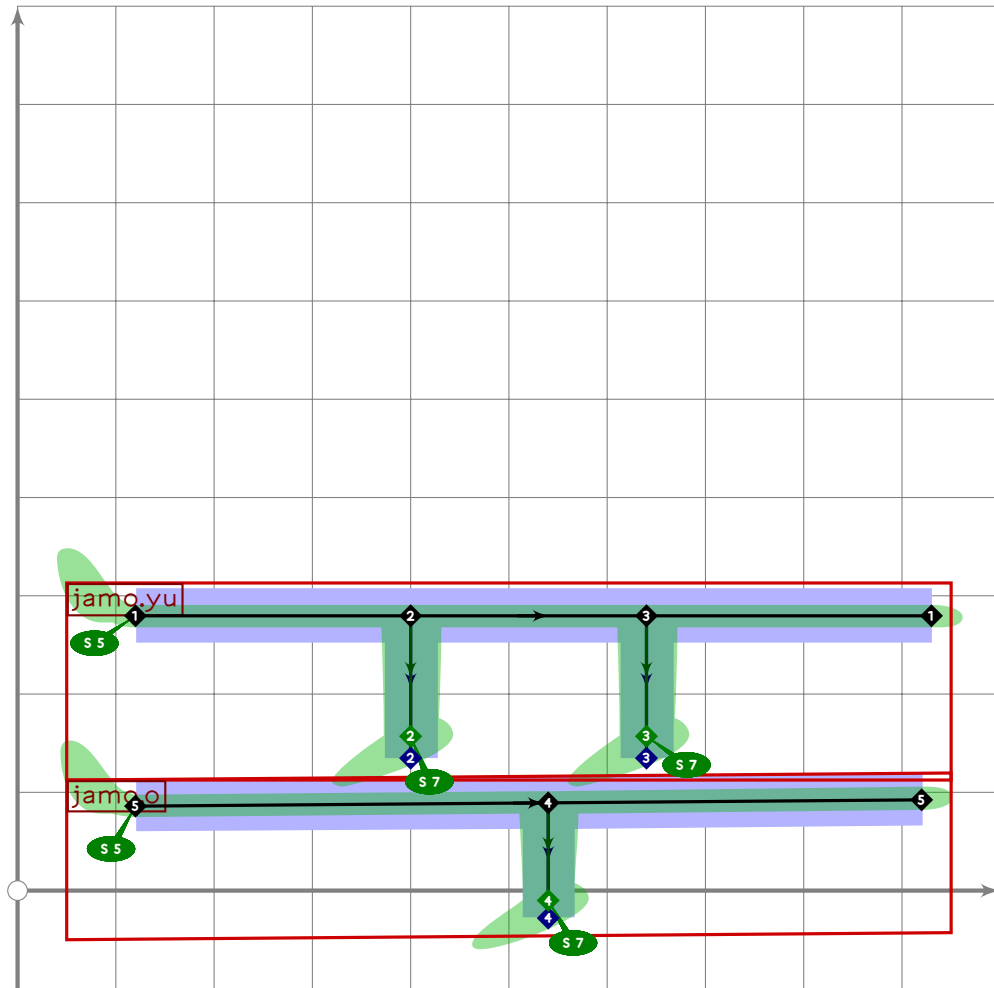
```



```

936 % hangul vowel yu-ye
937 begint Suglyph("uni1192.nt",146);
938 hangul.combine.lr(317,307)(425,vixf,voxf);
939 tsu_render;
940 endtsuglyph;
941

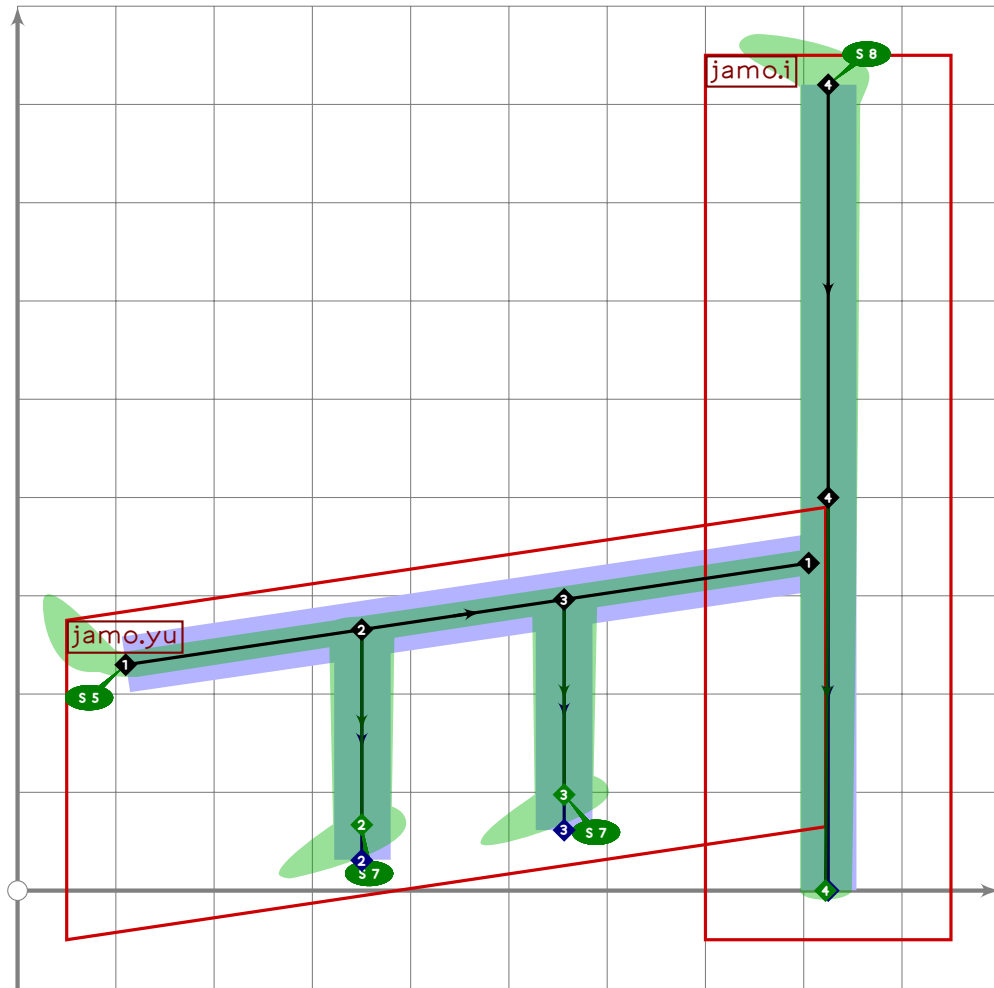
```



```

942 % hangul vowel yu-u
943 begintsuglyph("uni1193.nt",147);
944 hangul.combine.tb(317,313)(whatever,vixf,voxf);
945 tsu_render;
946 endsuglyph;
947

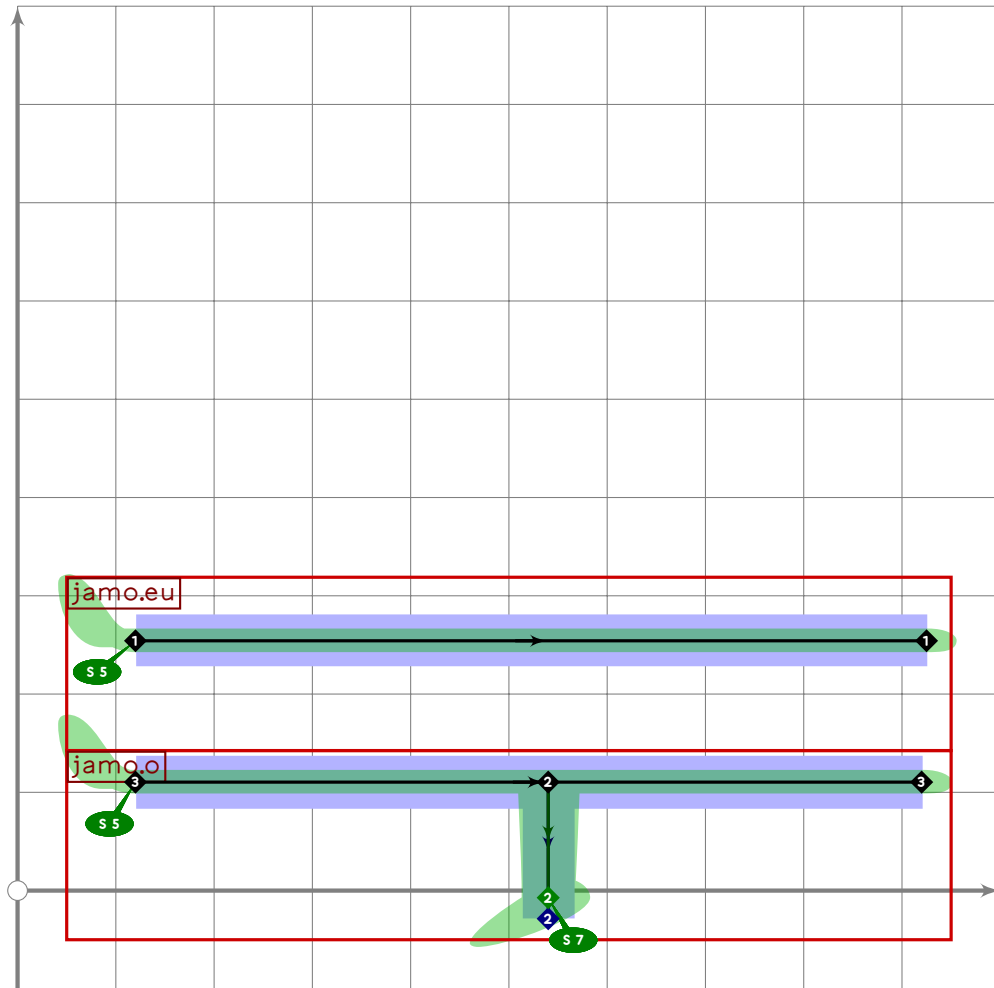
```



```

948 % hangul vowel yu-i
949 begint Suglyph("uni1194.nt",148);
950 hangul.combine.lr(317,320)(426,vixf,voxf);
951 tsu_render;
952 endtsuglyph;
953

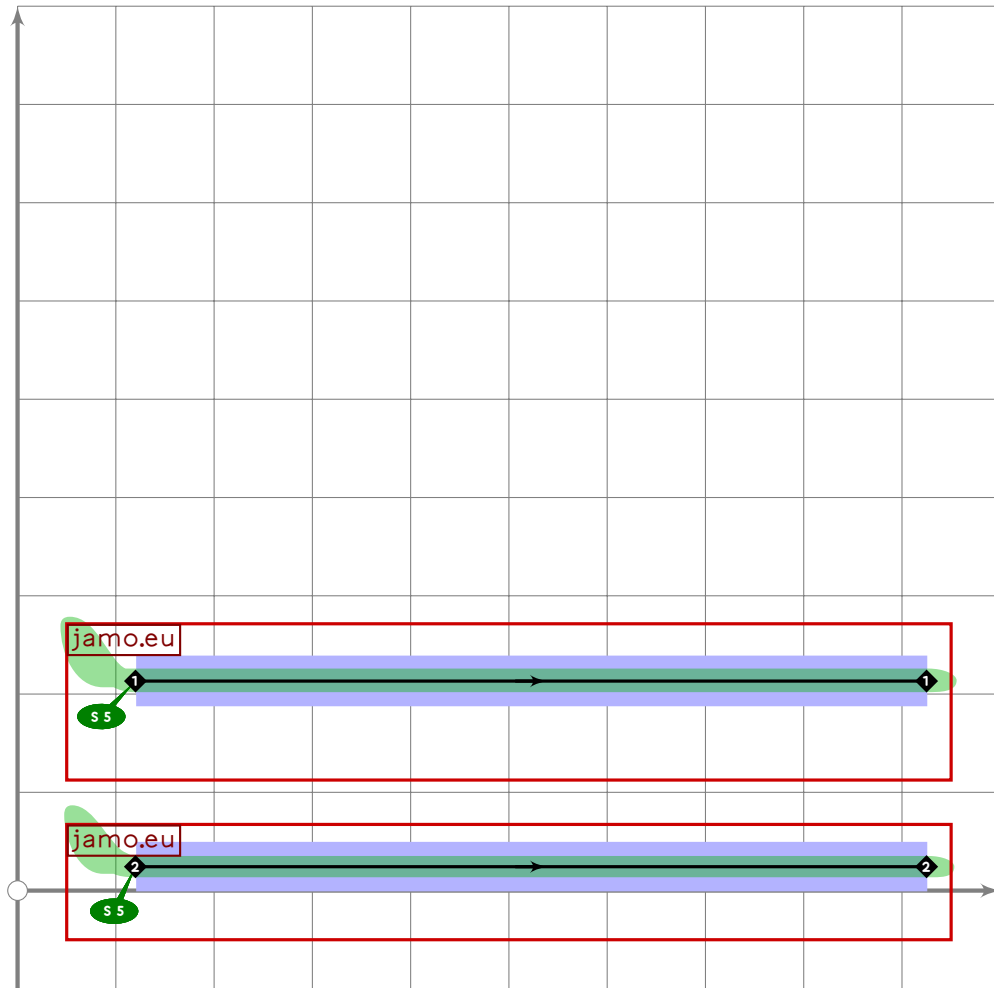
```



```

954 % hangul vowel eu-u
955 begintsuglyph("uni1195.nt",149);
956 hangul.combine.tb(318,313)(whatever,tvixf,voxf);
957 tsu_render;
958 endsuglyph;
959

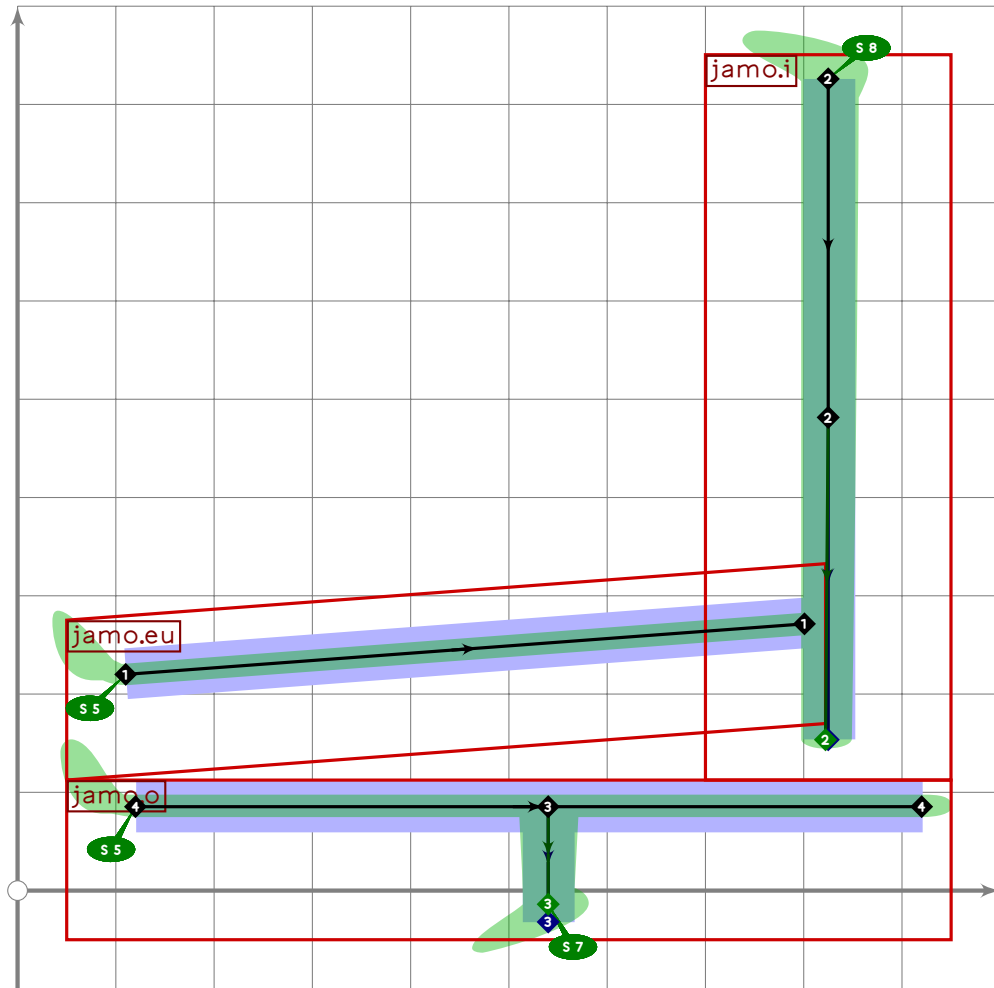
```



```

960 % hangul vowel eu-eu
961 begint Suglyph("uni1196.nt",150);
962 hangul.combine.tb(318,318)(whatever,vixf,voxf);
963 tsu_render;
964 endtsuglyph;
965

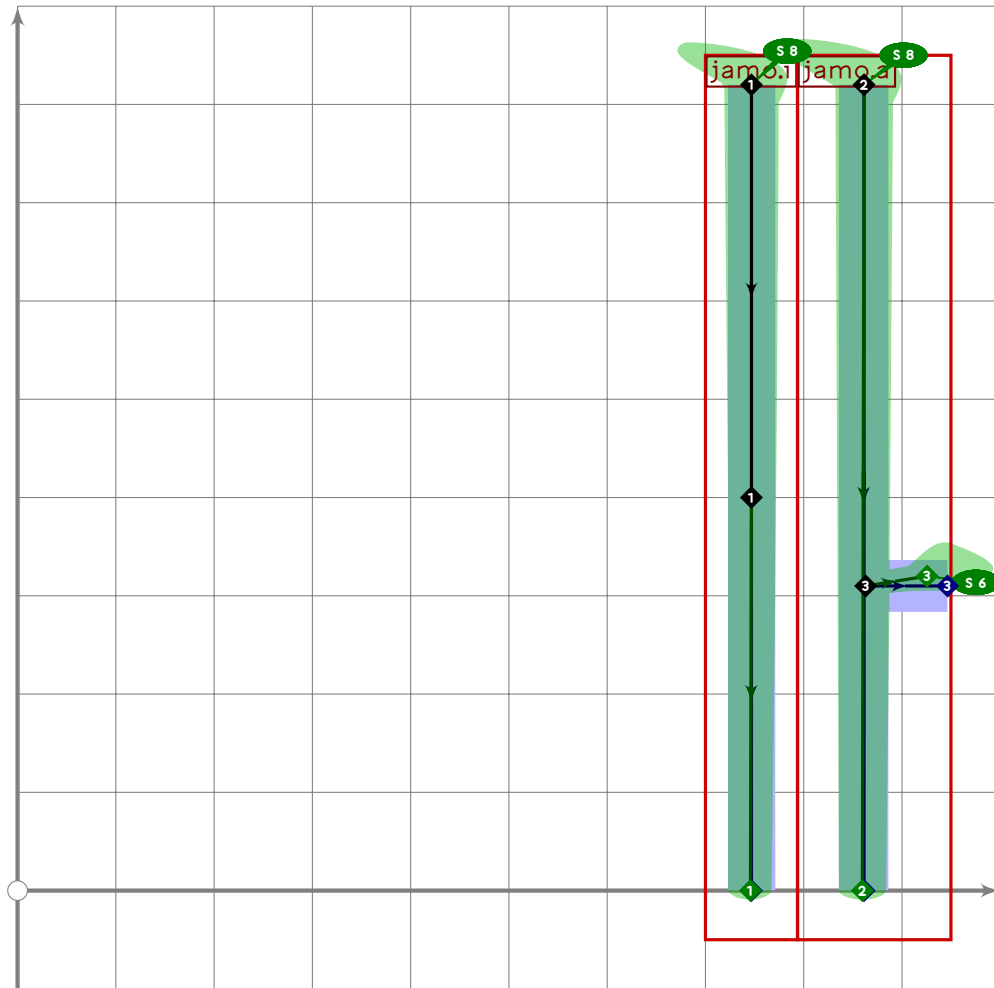
```



```

966 % hangul vowel yi-u
967 begint Suglyph("uni1197.nt";151);
968 hangul.combine.tb(319,313)(440,vixf,vox);
969 tsu_render;
970 endtsuglyph;
971

```

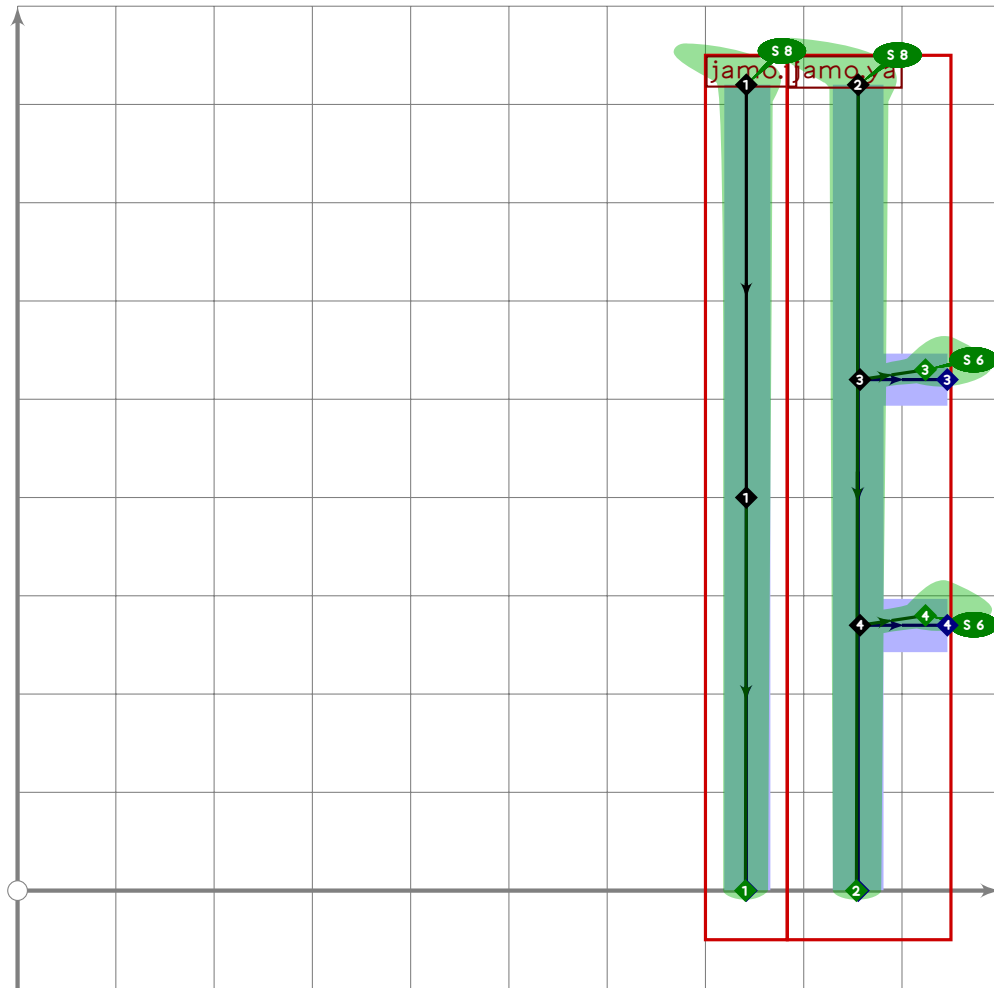


```

972 % hangul vowel i-a
973 begint Suglyph("uni1198.nt",152);
974 hangul.combine.lr(320,300)(whatever,vixf,voxf);
975 tsu_render;
976 endtsuglyph;
977

```

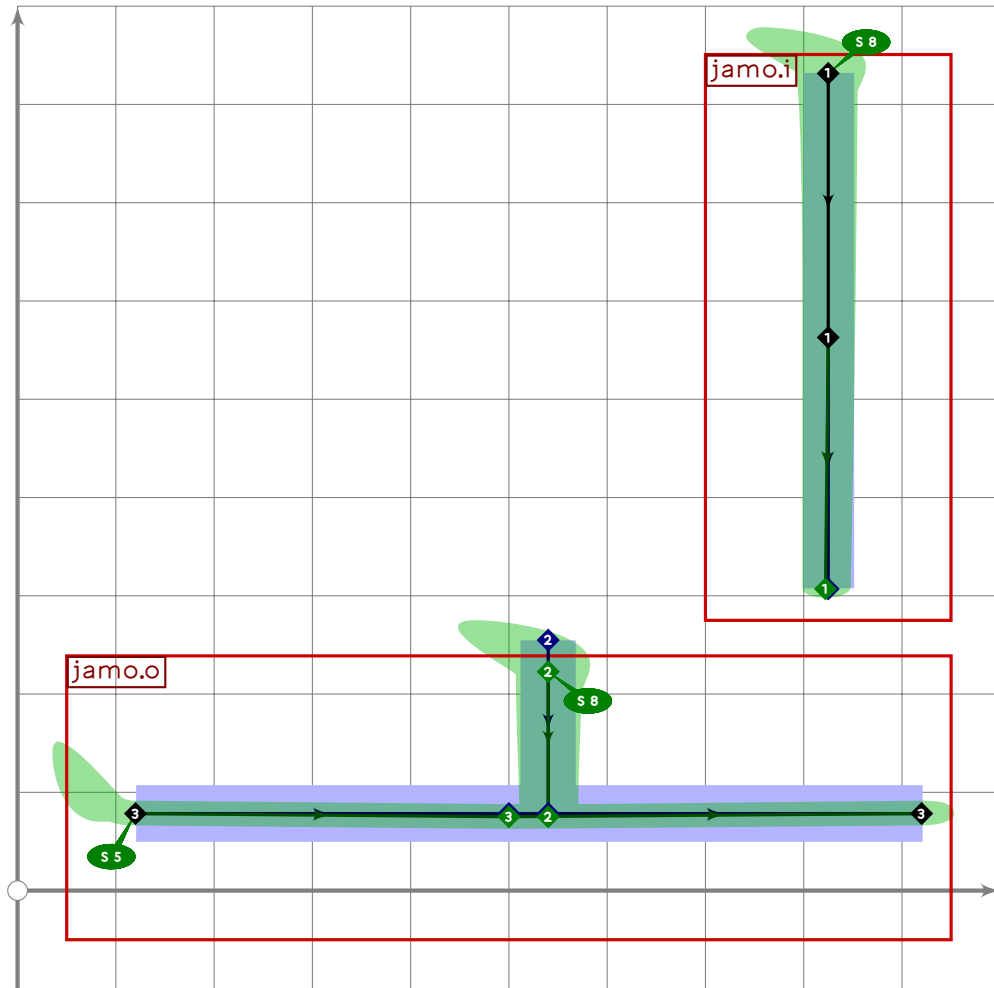




```

978 % hangul vowel i-ya
979 begintsuglyph("uni1199.nt",153);
980 hangul.combine.lr(320,302)(whatever,vixf,vox);
981 tsu_render;
982 endtsuglyph;
983

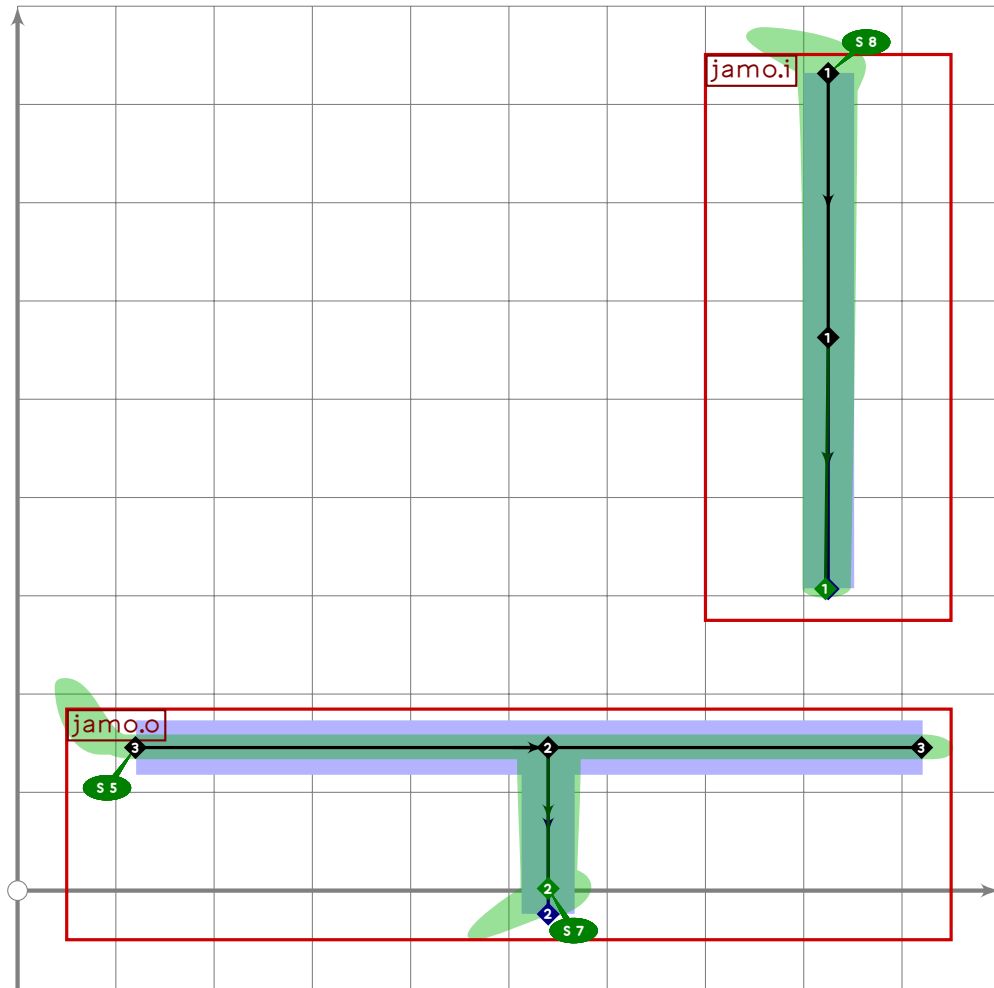
```



```

984 % hangul vowel i-o
985 begint Suglyph("uni119A.nt",154);
986 hangul.combine.tb(320,308)(whatever,vixf,vox);
987 tsu_render;
988 endtsuglyph;
989

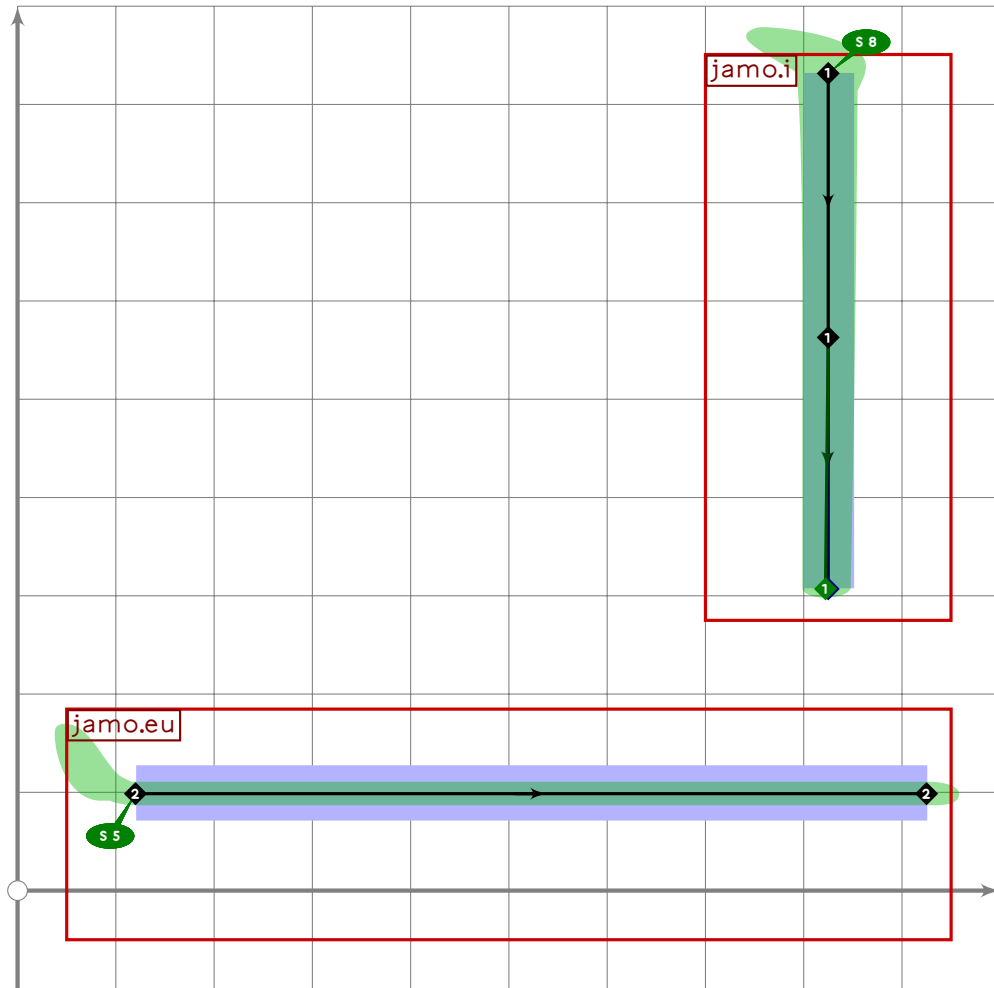
```



```

990 % hangul vowel i-u
991 begint Suglyph("uni119B.nt",155);
992 hangul.combine.tb(320,313)(whatever,vixf,voxf);
993 tsu_render;
994 endtsuglyph;
995

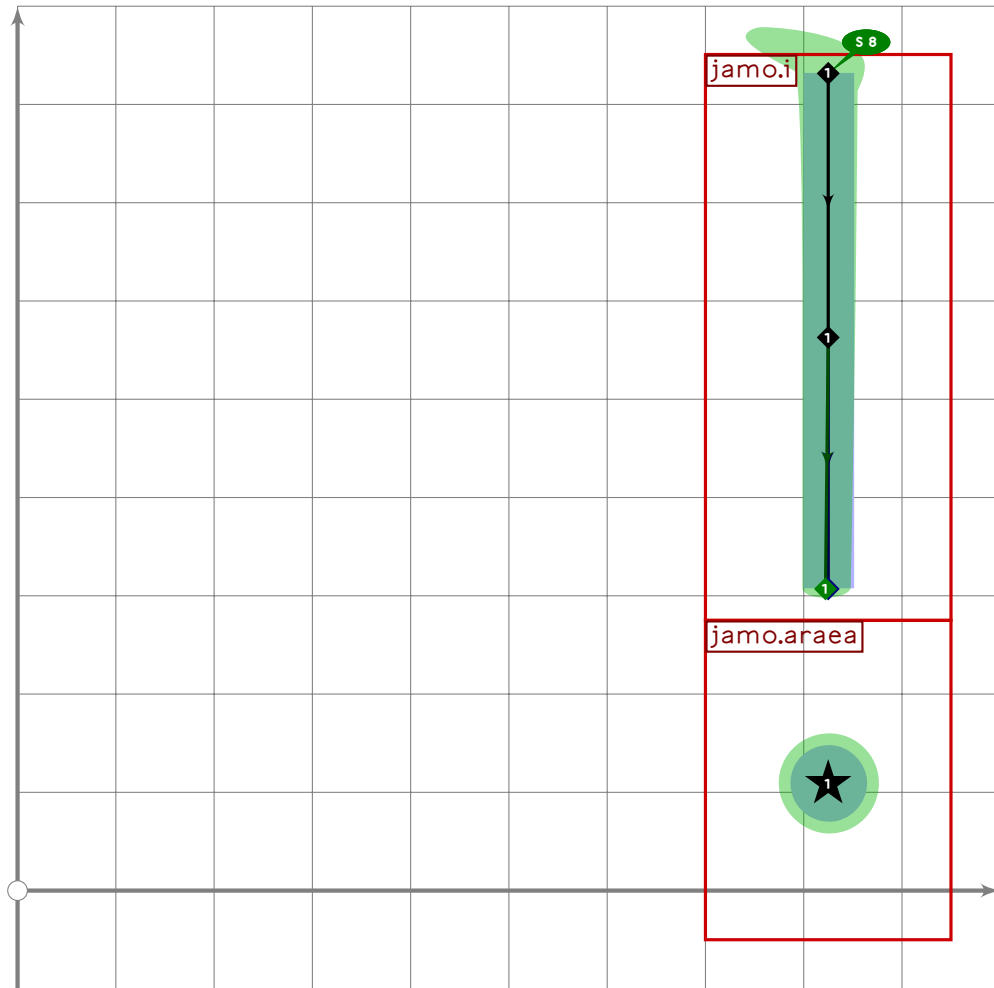
```



```

996 % hangul vowel i-eu
997 begint Suglyph("uni119C.nt",156);
998 hangul.combine.tb(320,318)(whatever,vixf,voxf);
999 tsu_render;
1000 endtsuglyph;
1001

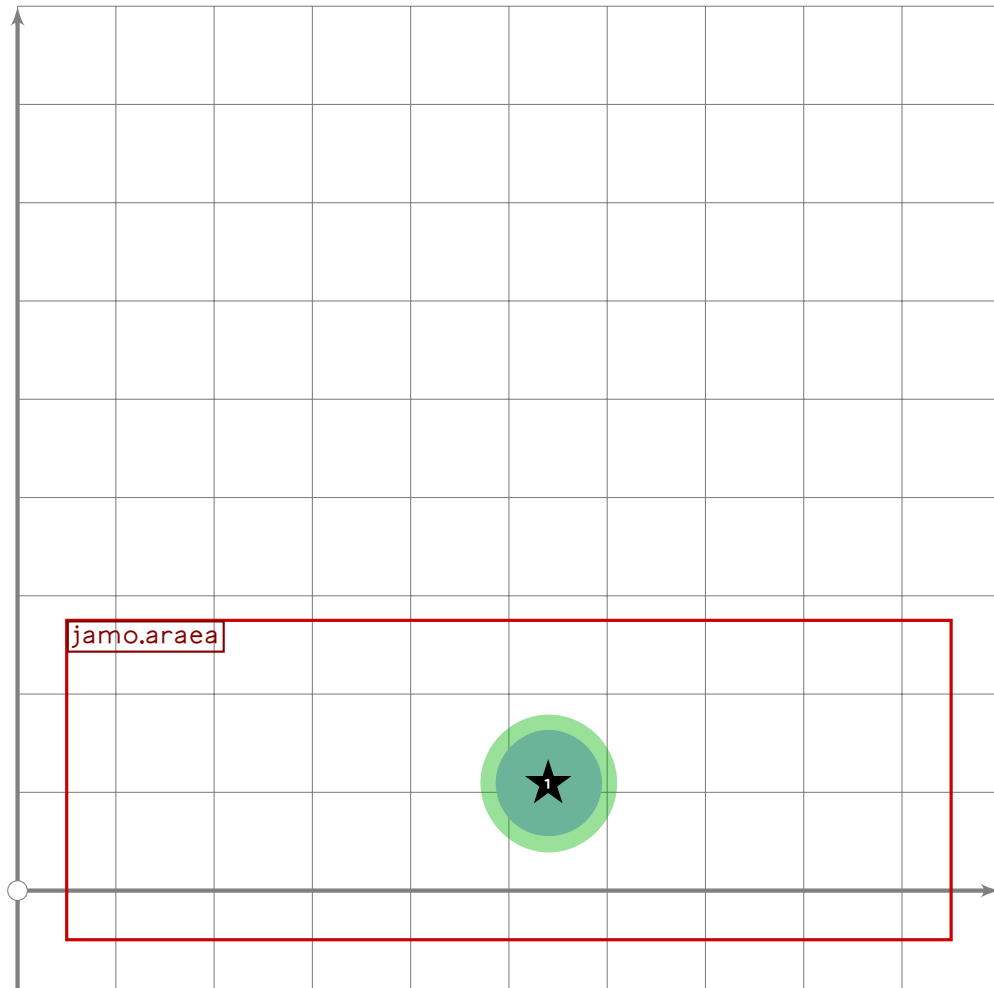
```



```

1002 % hangul vowel i-araea
1003 begintsuglyph("uni119D.nt",157);
1004 hangul.combine.tb(320,428)(441,vixf,voxf);
1005 tsu_render;
1006 endtsuglyph;
1007

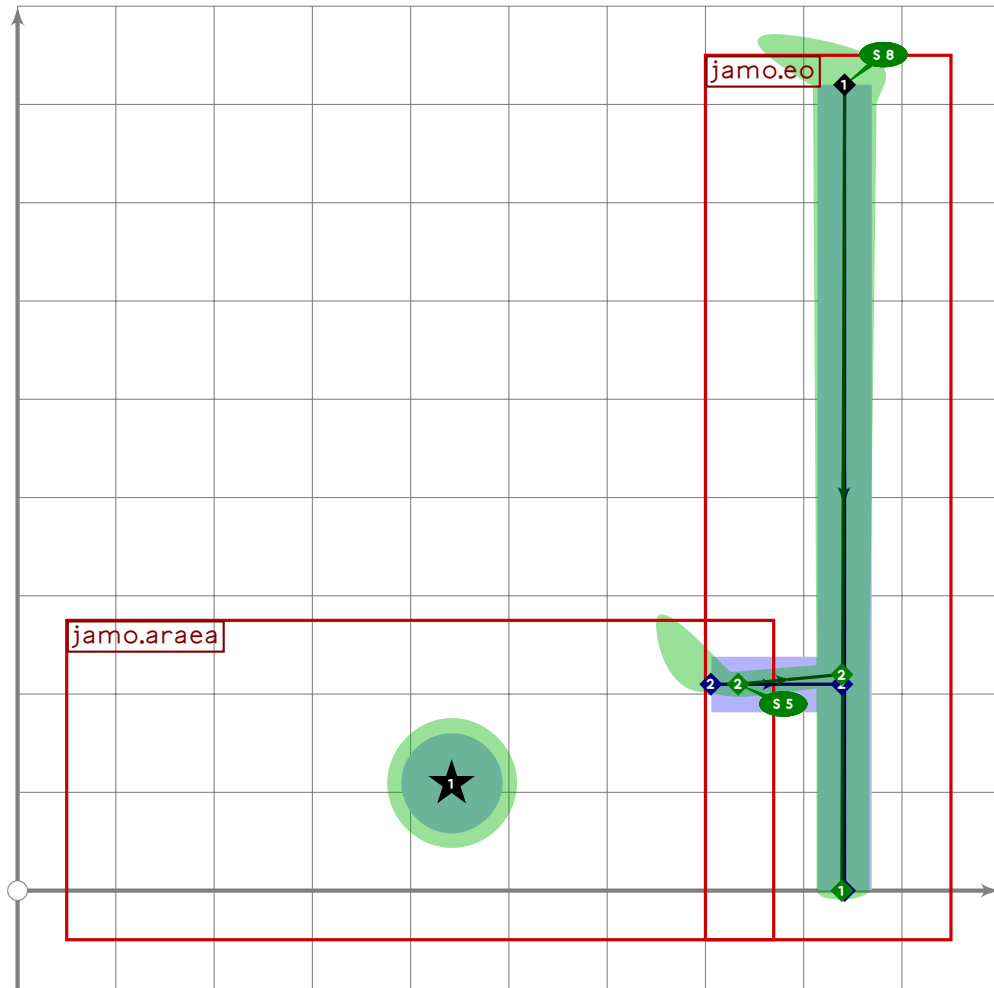
```



```

1008 % hangul vowel araea
1009 begint Suglyph("uni119E.nt",158);
1010 hangul.jamo.araea(428,vixf,voxf);
1011 tsu_render;
1012 endtsuglyph;
1013

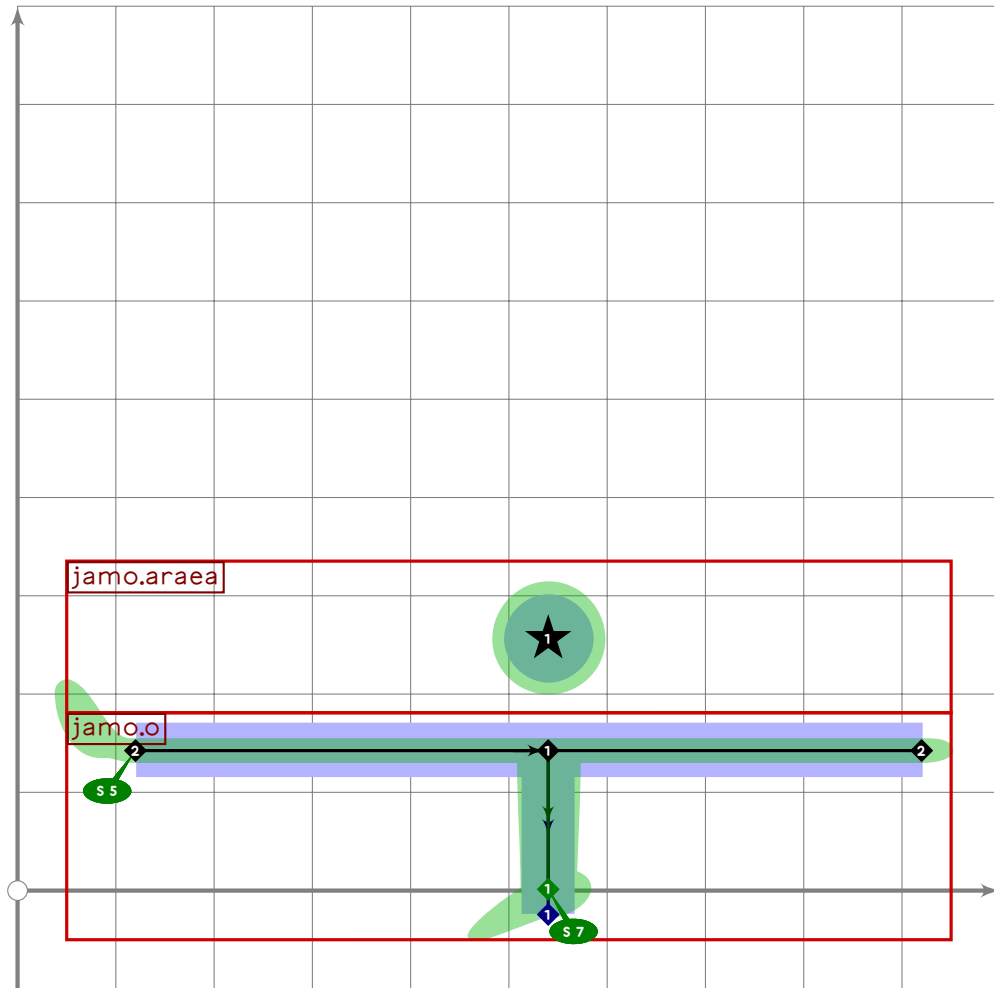
```



```

1014 % hangul vowel araea-eo
1015 begint Suglyph("uni119F.nt",159);
1016 hangul.combine.lr(428,304)(whatever,vixf,voxf);
1017 tsu_render;
1018 endtsuglyph;
1019

```

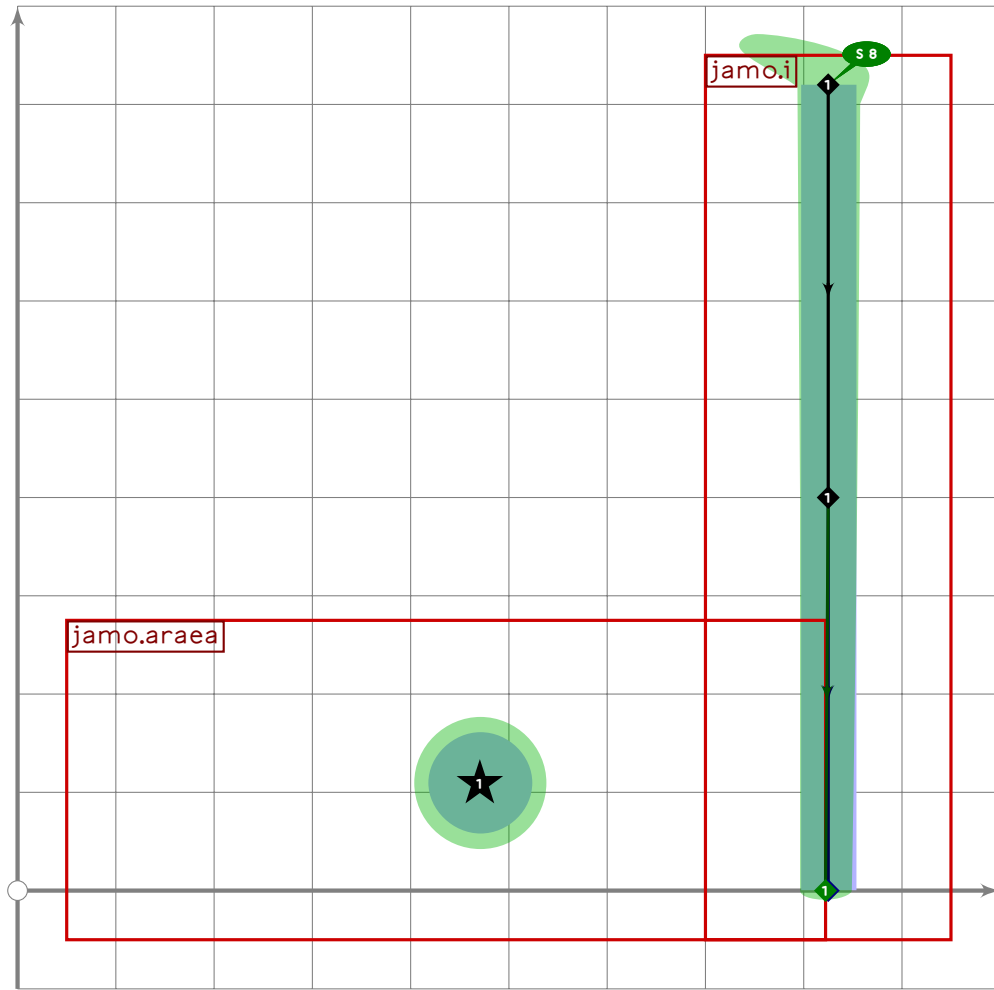


```

1020 % hangul vowel araea-u
1021 begint Suglyph("uni11A0.nt",160);
1022 hangul.combine.tb(428,313)(whatever,tvixf,voxf);
1023 tsu_render;
1024 endtsuglyph;
1025

```

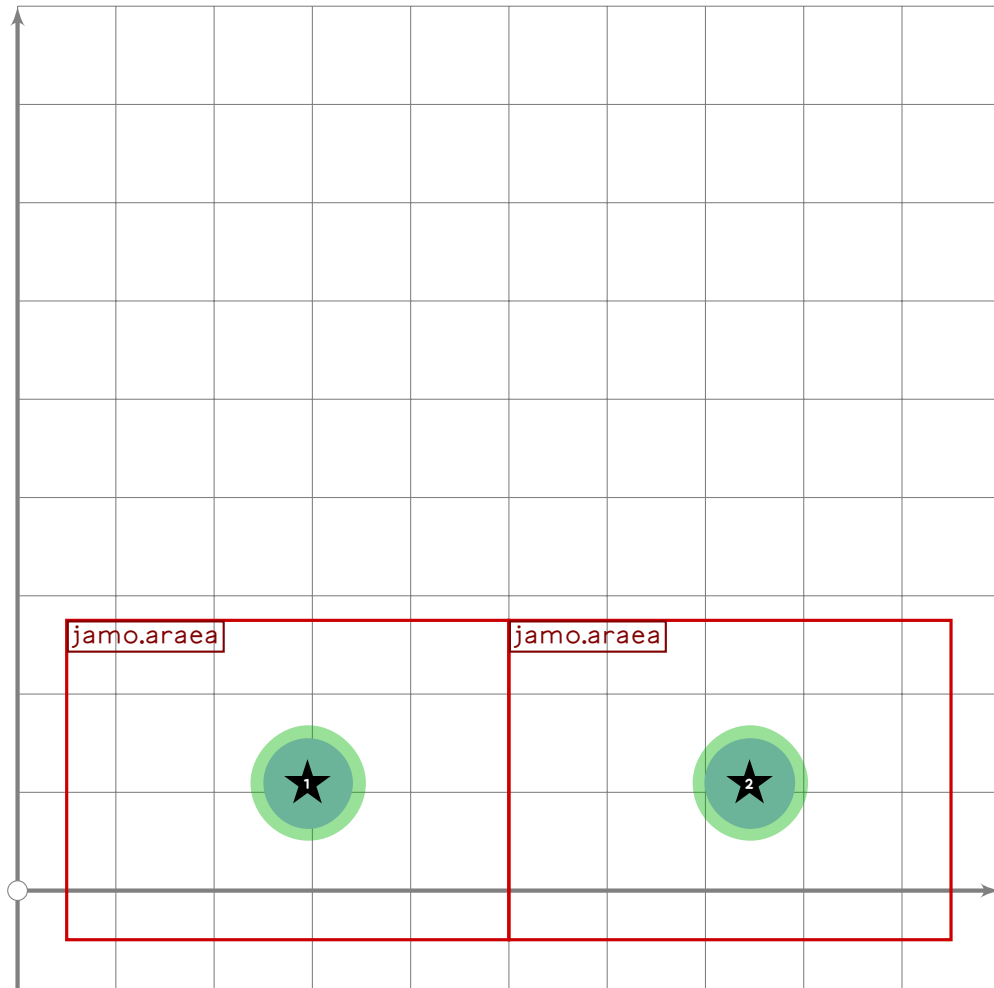




```

1026 % hangul vowel araea-i
1027 begint Suglyph("uni11A1.nt",161);
1028 hangul.combine.lr(428,320)(427,vixf,vox f);
1029 tsu_render;
1030 endtsuglyph;
1031

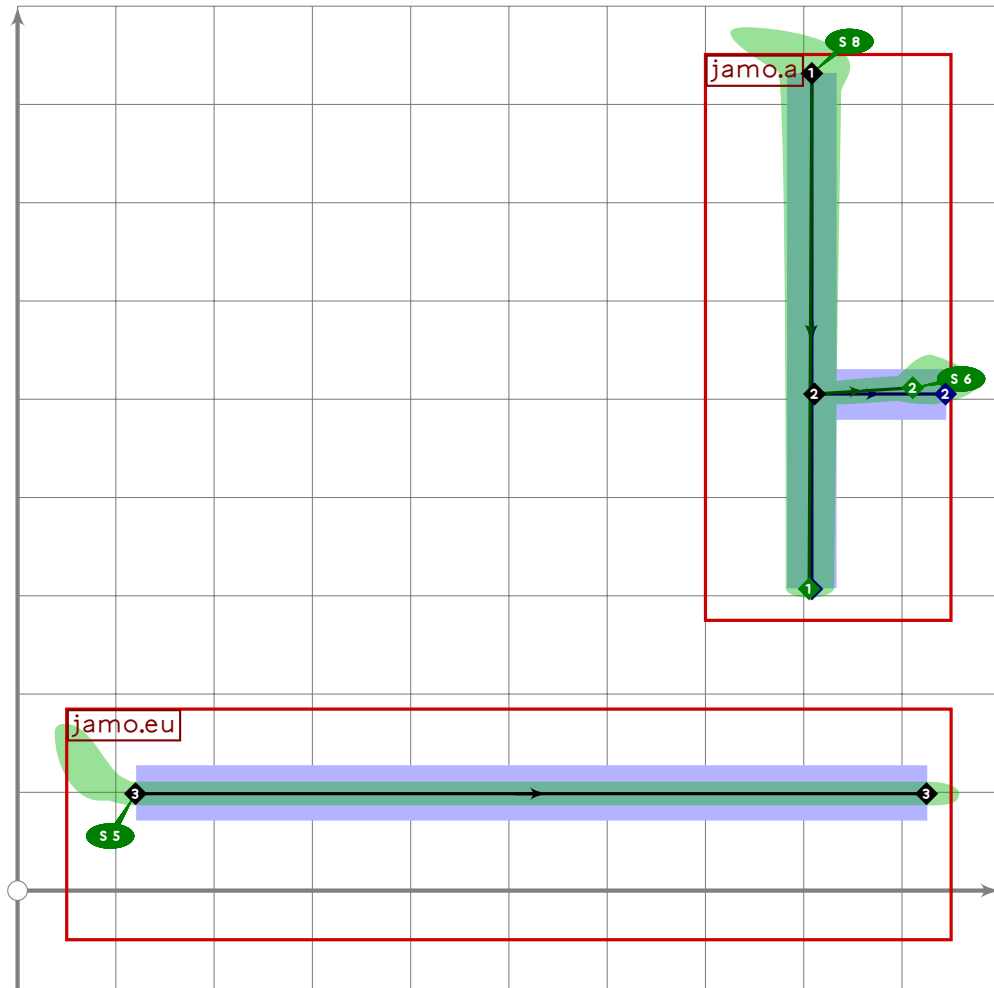
```



```

1032 % hangul vowel ssangaraea
1033 begintsuglyph("uni11A2.nt",162);
1034 hangul.combine.lr(428,428)(whatever,
1035   hxf_inout(5,vixf,vox),vox);
1036 tsu_render;
1037 endtsuglyph;
1038

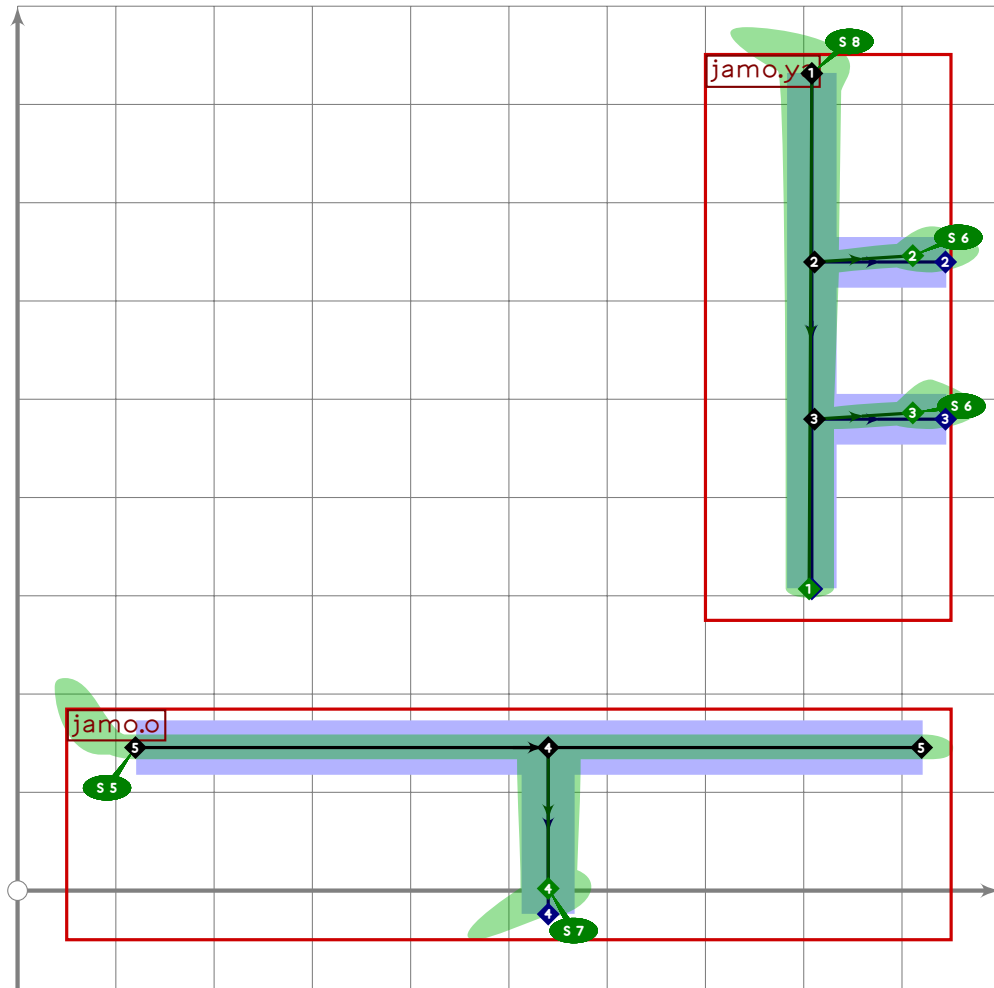
```



```

1039 % hangul vowel a-eu
1040 begintsuglyph("uni11A3.nt",163);
1041 hangul.combine.tb(300,318)(whatever,vixf,voxf);
1042 tsu_render;
1043 endtsuglyph;
1044

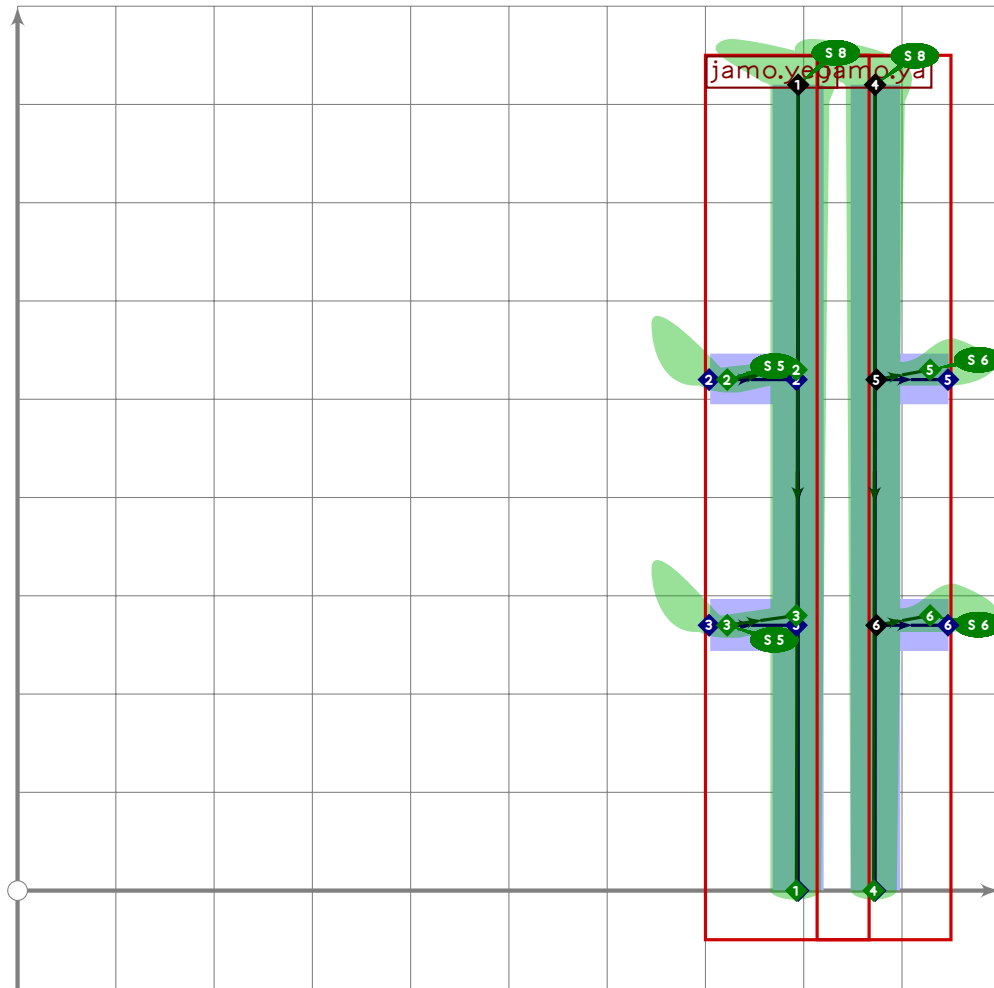
```



```

1045 % hangul vowel ya-u
1046 begintsuglyph("uni11A4.nt",164);
1047 hangul.combine.tb(302,313)(whatever,vixf,vox);
1048 tsu_render;
1049 endtsuglyph;
1050

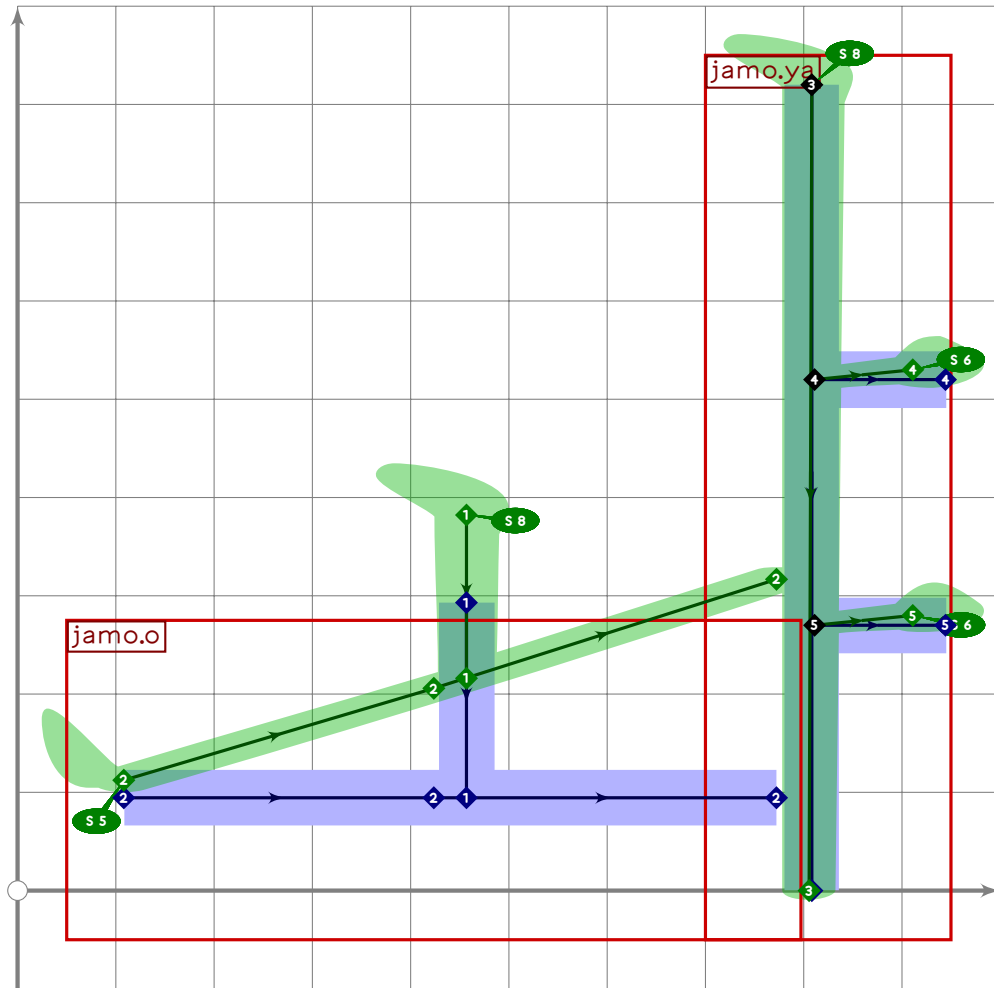
```



```

1051 % hangul vowel yeo-ya
1052 begintsuglyph("uni11A5.nt",165);
1053 hangul.combine.lr(306,302)(whatever,vixf,voxf);
1054 tsu_render;
1055 endtsuglyph;
1056

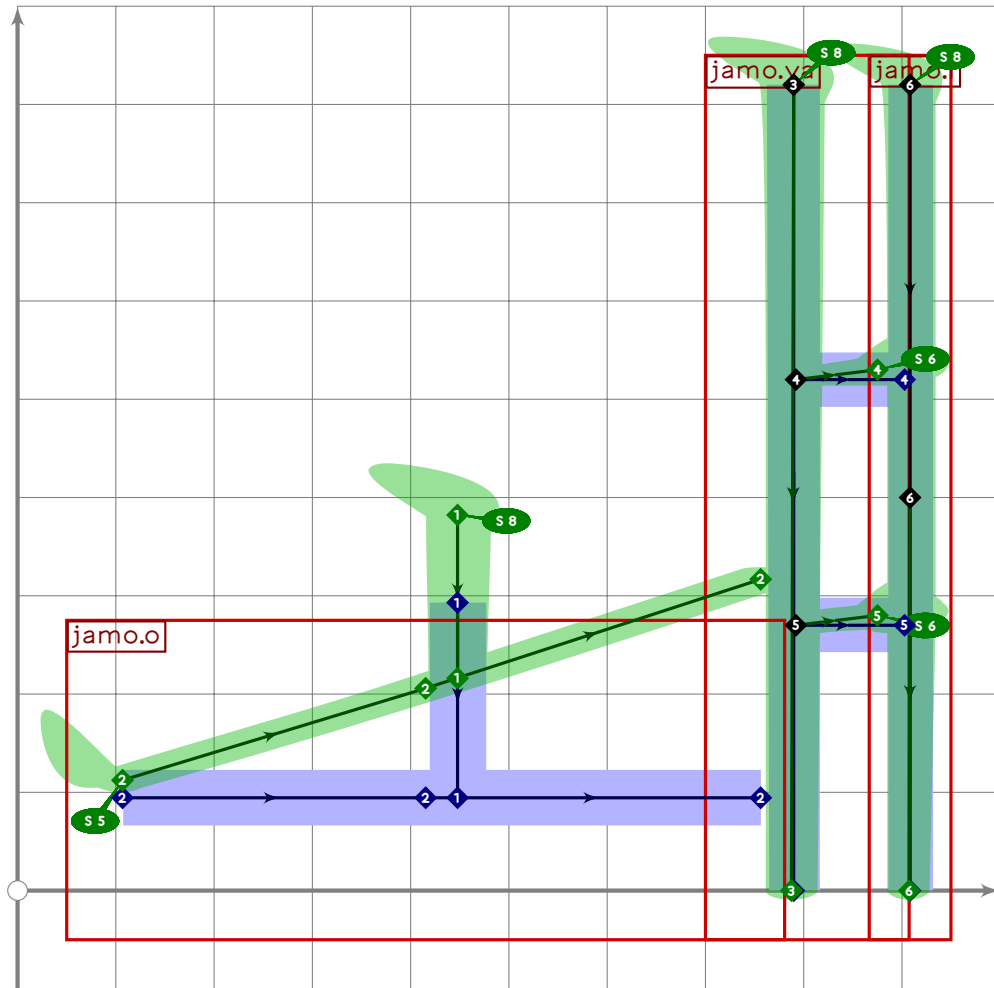
```



```

1057 % hangul vowel o-ya
1058 begint Suglyph("uni11A6.nt",166);
1059 hangul.combine.lr(308,302)(442,vixf,voxf);
1060 tsu_render;
1061 endtsuglyph;
1062

```



```

1063 % hangul vowel o-yae
1064 begintsuglyph("uni11A7.nt",167);
1065 hangul.combine.lr(308,303)(443,vixf,voxf);
1066 tsu_render;
1067 endtsuglyph;
1068
1069 _____
1070
1071 endfont;
1072
1073 _____

```

# jieub-ff3.mp

```
1 %
2 % Unicode page FF3 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
42 % This file contains leads for layouts 1 and 3: vertical vowel and nonempty
43 % tail, or vertical and horizontal vowel with empty tail.
44
45 transform lixf,loxf;
46
47 lixf=loxf=hxf((50,850),(700,325));
48
49 

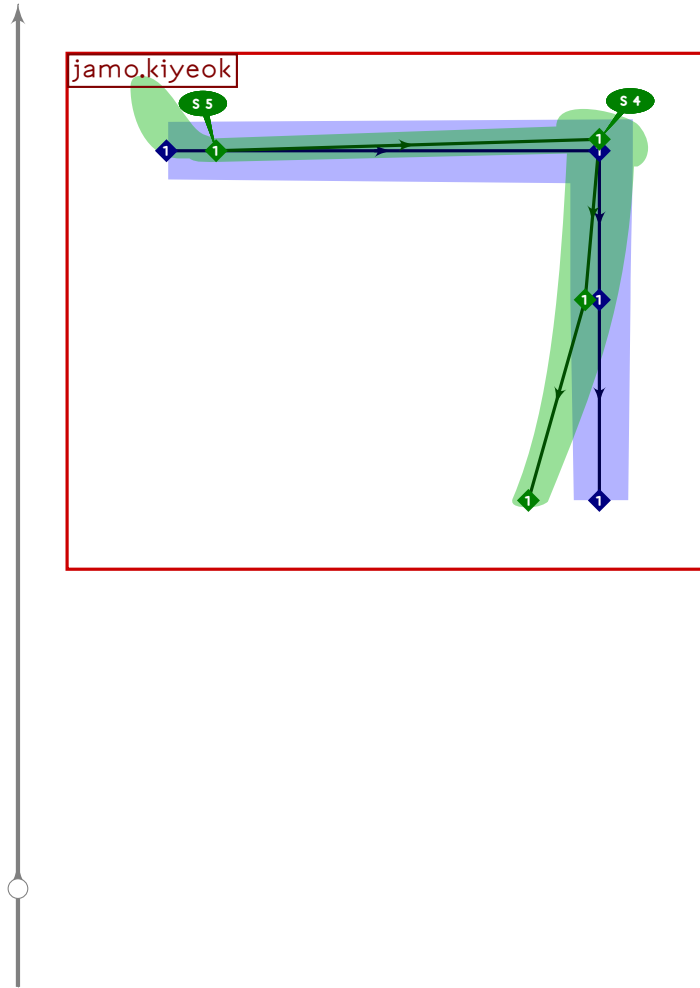
---


50
```

## Hangul Choseong (Lead) Jamo

```
51 % HANGUL CHOSEONG (LEAD) JAMO
52
53 tsu_rescale_native_zero;
54
```

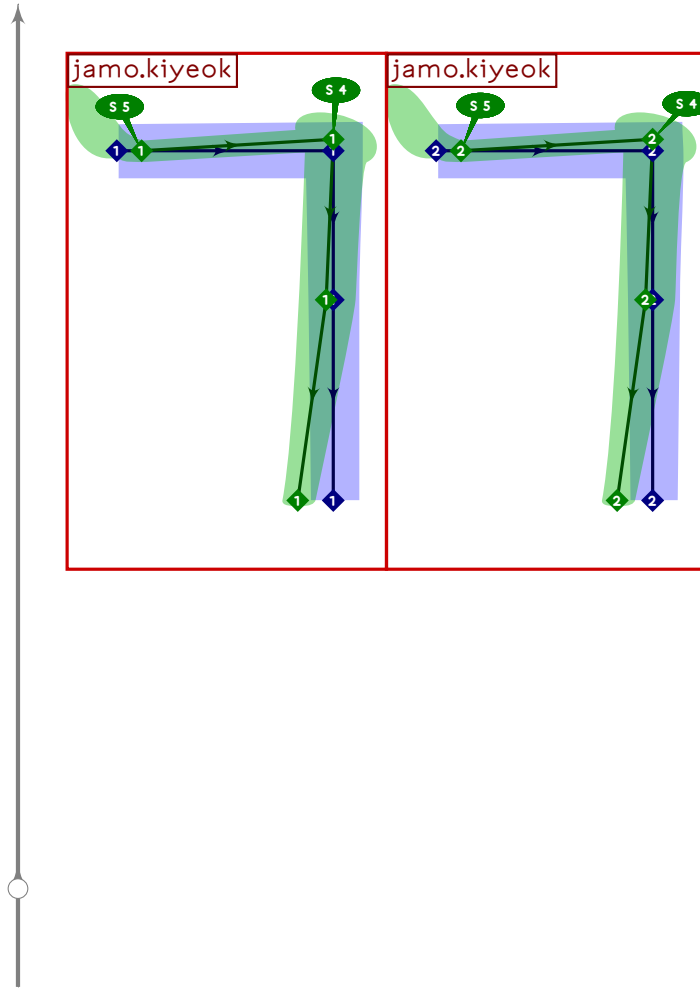




```

55 % hangul lead kiyook
56 begint Suglyph("uni1100.11";0);
57 hangul,jamo.kiyook(whatever,lixf,loxf);
58 tsu_render;
59 endtsuglyph;
60

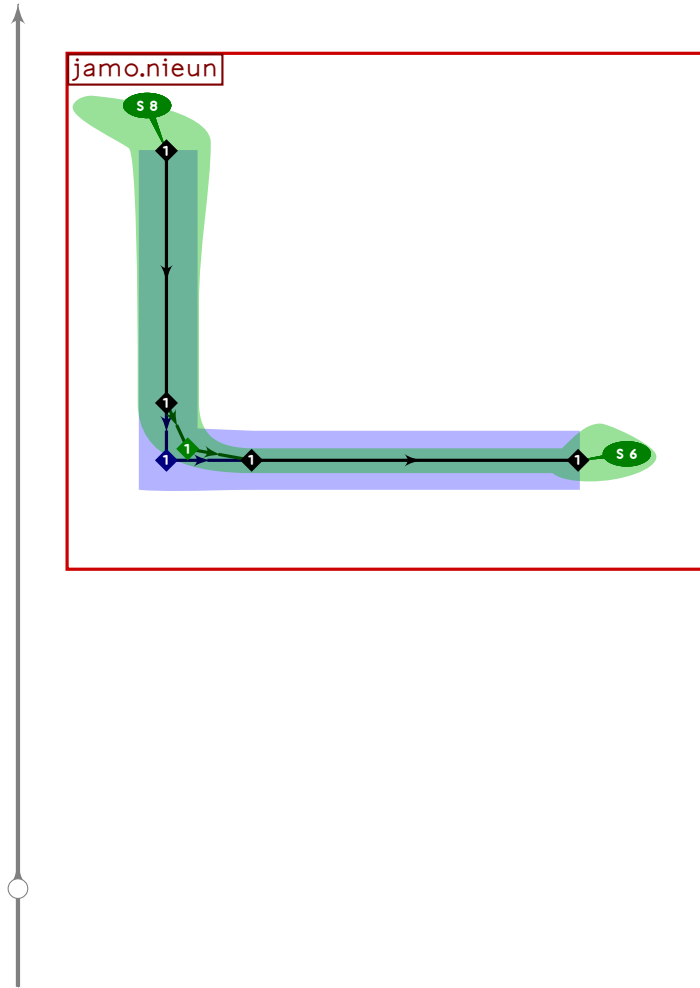
```



```

61 % hangul lead ssangkiyeok
62 begintsuglyph("uni1101.l1",1);
63 hangul.combine.lr(100,100)(whatever,lixf,loxf);
64 tsu_render;
65 endtsuglyph;
66

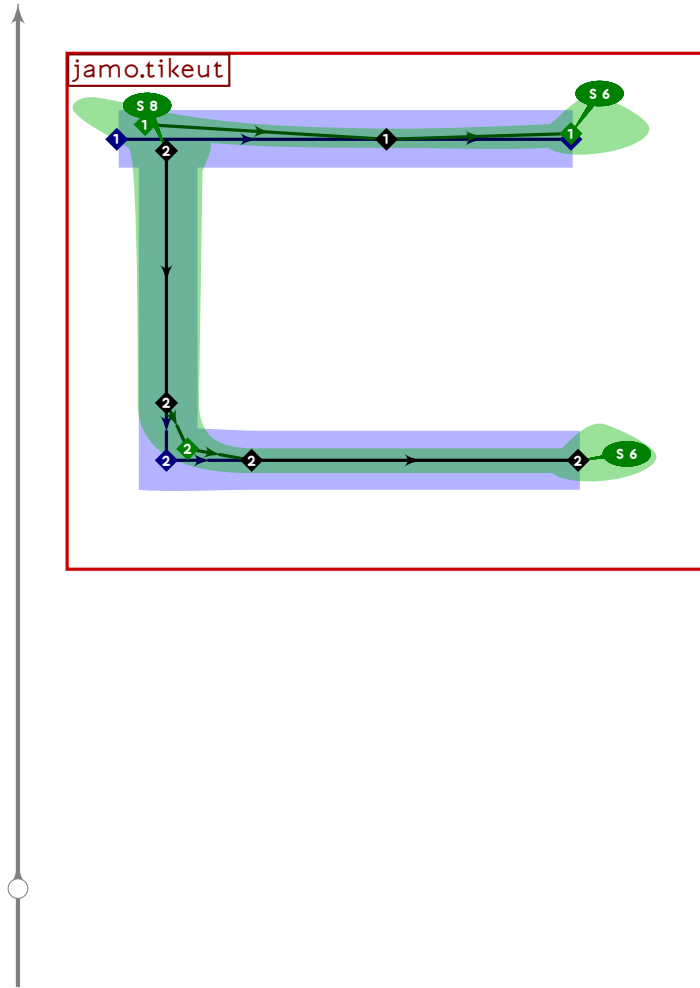
```



```

67 % hangul lead nieun
68 begintsuglyph("uni1102.l1"2);
69 hangul,jamo.nieun(whatever,lixf,loxf);
70 tsu_render;
71 endtsuglyph;
72

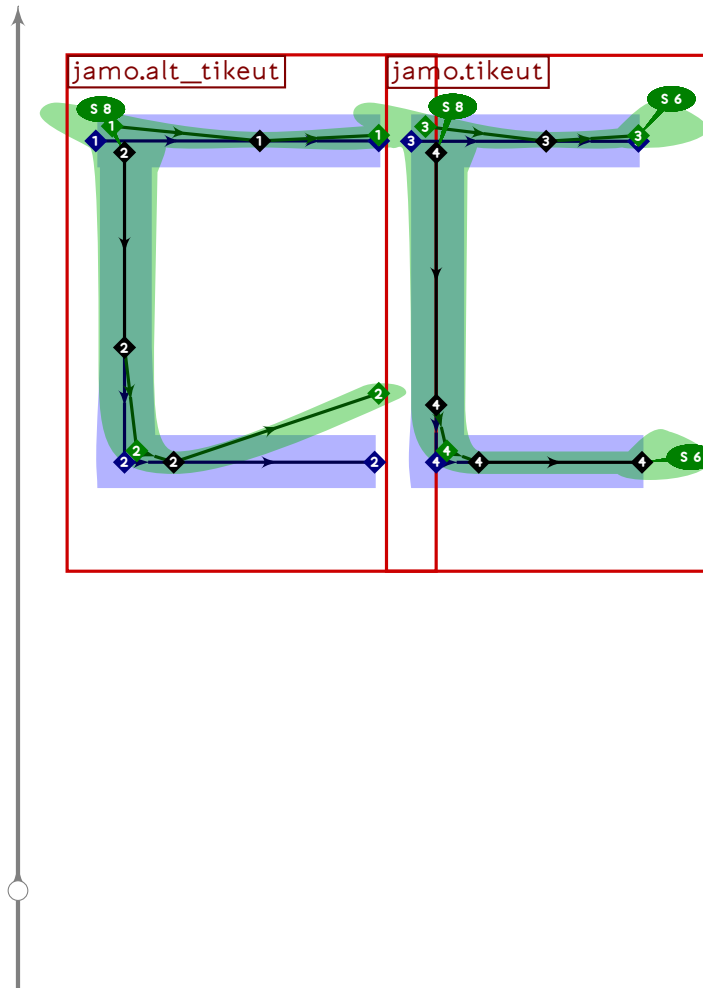
```



```

73 % hangul lead tikeut
74 begintsuglyph("uni1103.l1",3);
75 hangul.jamo.tikeut(whatever,lixf,loxf);
76 tsu_render;
77 endtsuglyph;
78

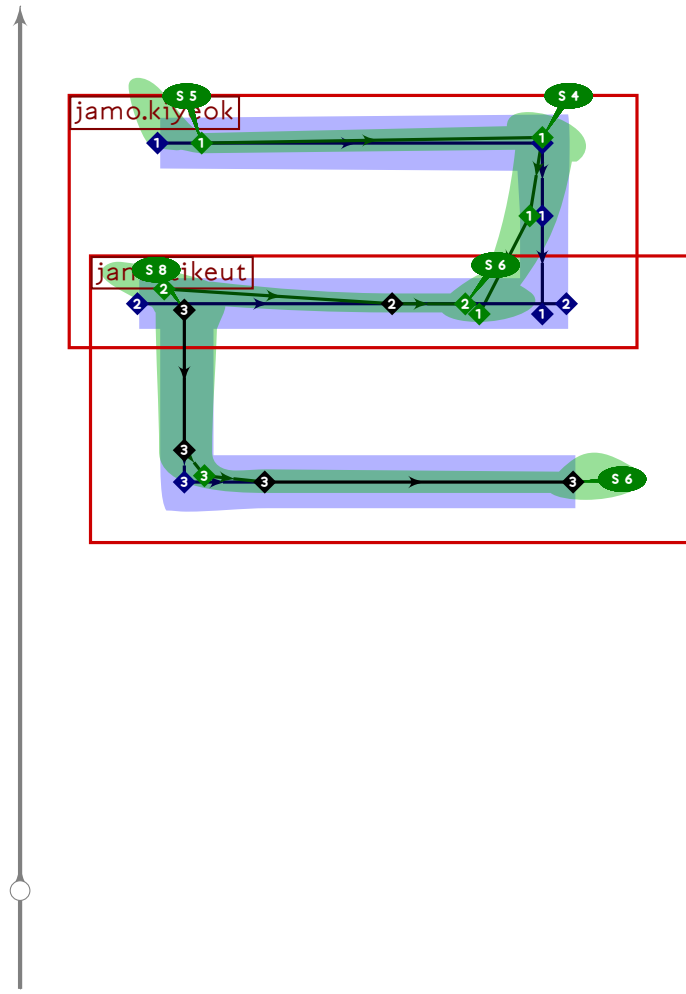
```



```

79 % hangul lead ssangtikeut
80 begint Suglyph("uni1104.l1"4);
81 hangul.combine.lr(203,103)(whatever,lixf,loxf);
82 tsu_render;
83 endtsuglyph;
84

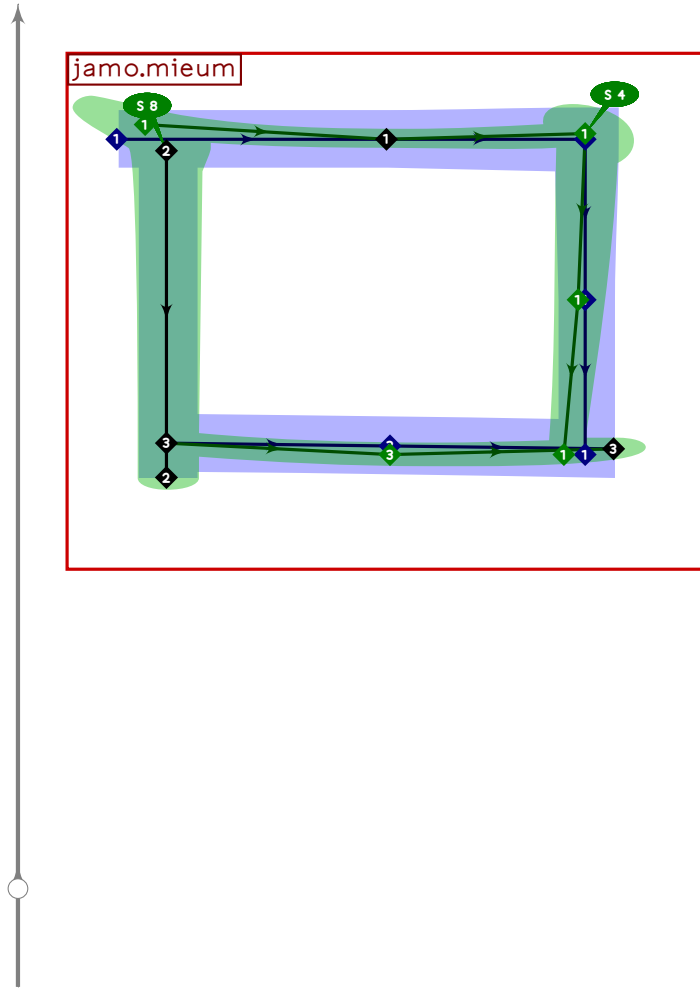
```



```

85 % hangul lead rieul
86 begint Suglyph("uni1105.l1",5);
87 hangul.jamo.rieul(whatever,lixf,loxf);
88 tsu_render;
89 endtsuglyph;
90

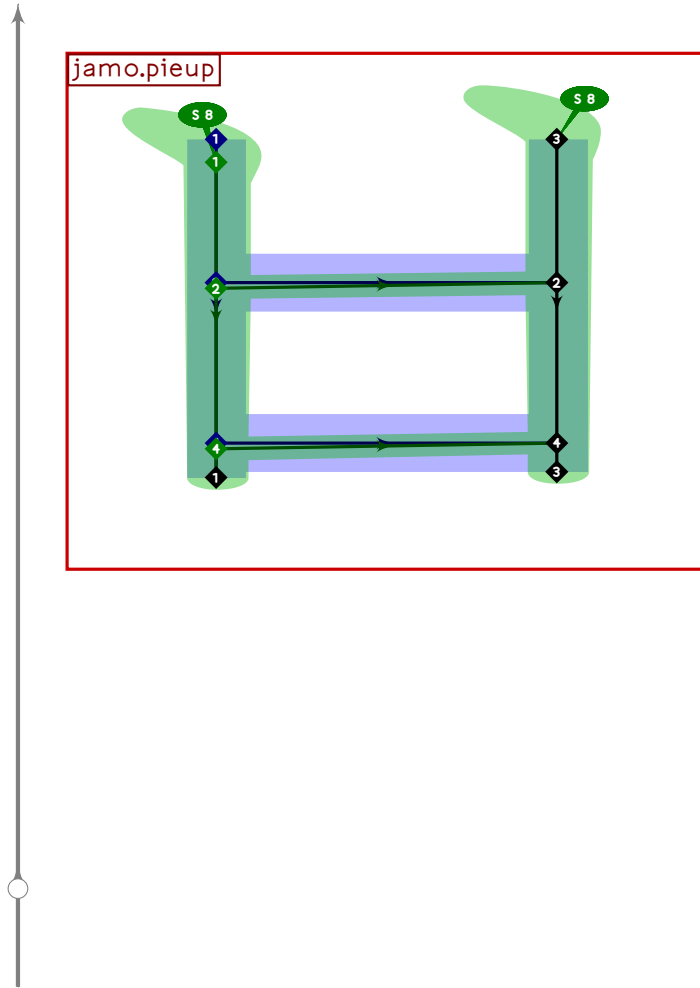
```



```

91 % hangul lead mieum
92 begintsuglyph("uni1106.l1",6);
93 hangul.jamo.mieum(whatever,lixf,loxf);
94 tsu_render;
95 endtsuglyph;
96

```

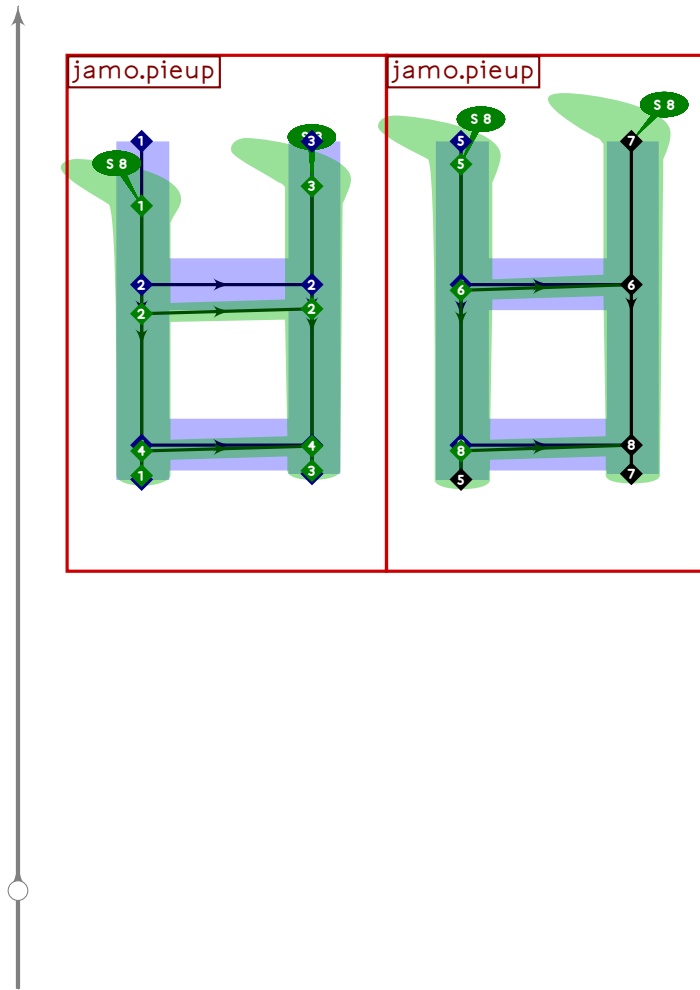


```

97 % hangul lead pieup
98 begintsuglyph("uni1107.1!";7);
99 hangul.jamo.pieup(whatever,lixf,loxf);
100 tsu_render;
101 endtsuglyph;
102

```

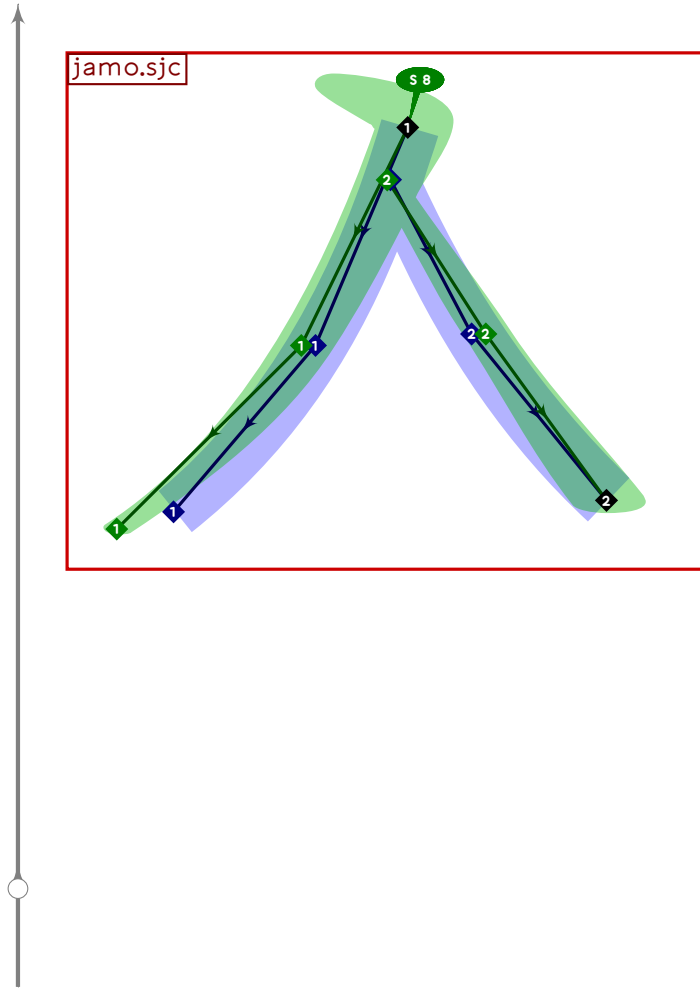




```

103 % hangul lead ssangpieup
104 begintsuglyph("uni1108.l1"8);
105 hangul.combine.lr(207,107)(whatever,lixf,loxf);
106 tsu_render;
107 endtsuglyph;
108

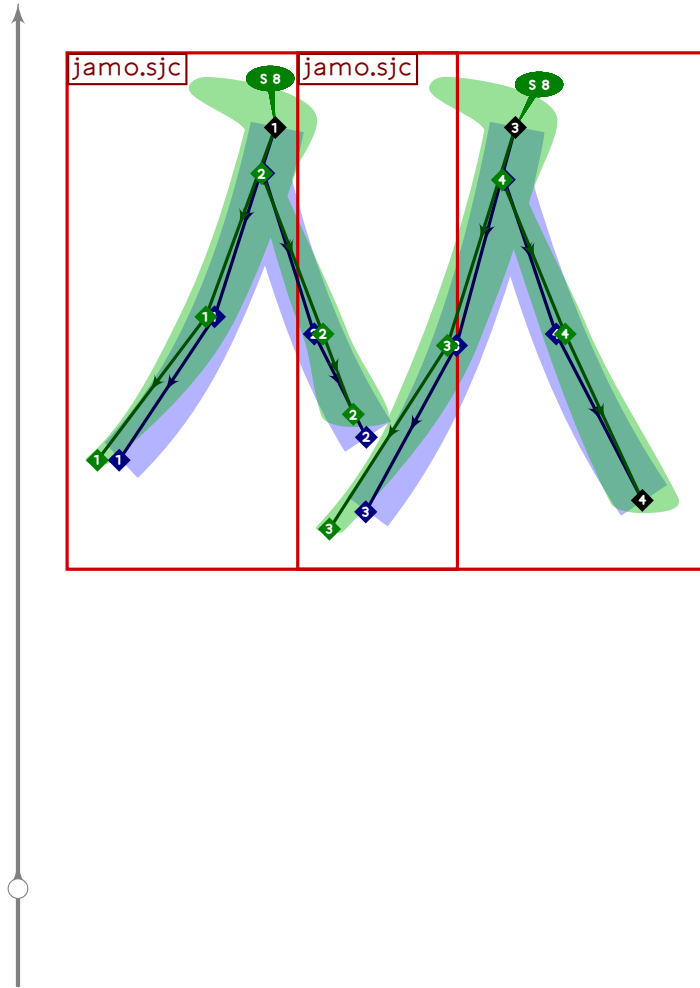
```



```

109 % hangul lead sios
110 begint Suglyph("uni1109.l1";9);
111 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
112 tsu_render;
113 endtsuglyph;
114

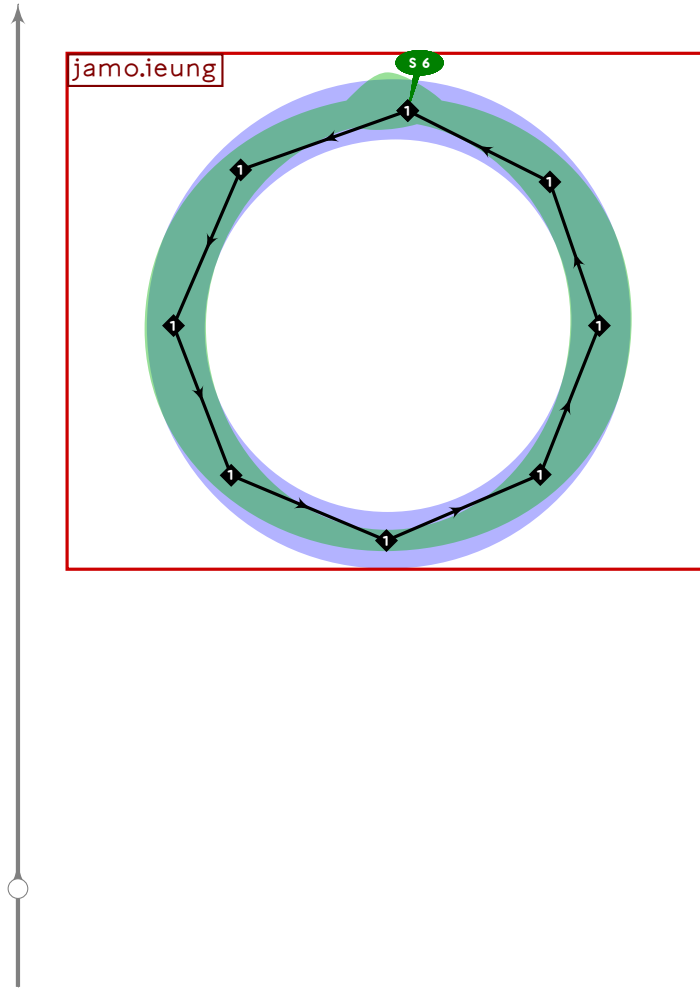
```



```

115 % hangul lead ssangsios
116 begint Suglyph("uni110A.l1",10);
117 hangul.combine.lr(209,109)(whatever,lixf,loxf);
118 tsu_render;
119 endtsuglyph;
120

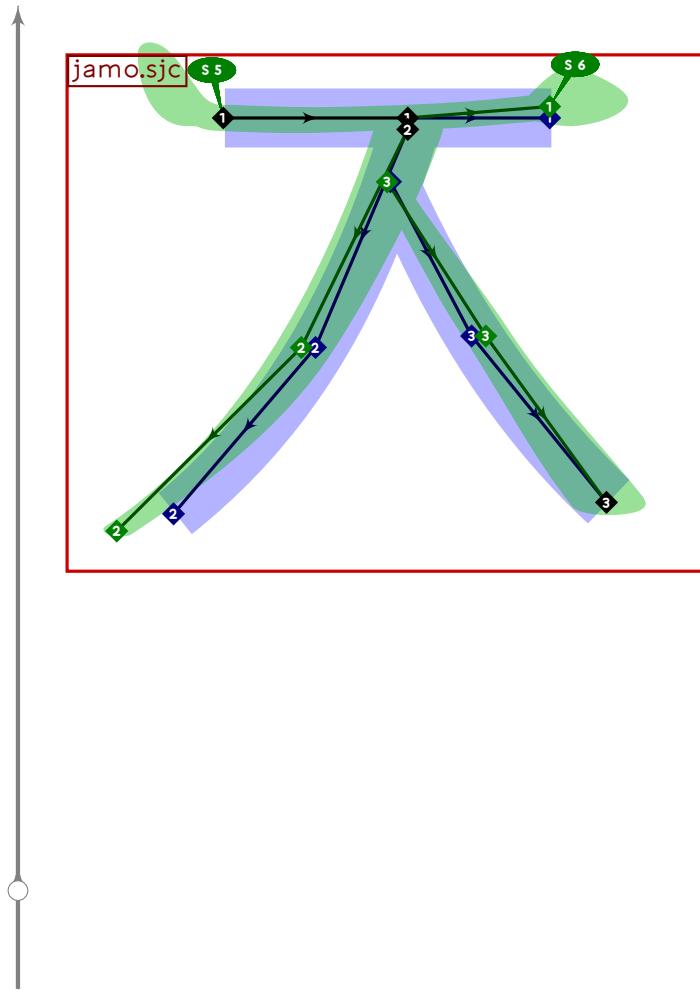
```



```

121 % hangul lead ieung
122 begintsuglyph("uni110B.l1";1);
123 hangul,jamo.ieung(whatever,lixf,loxf);
124 tsu_render;
125 endtsuglyph;
126

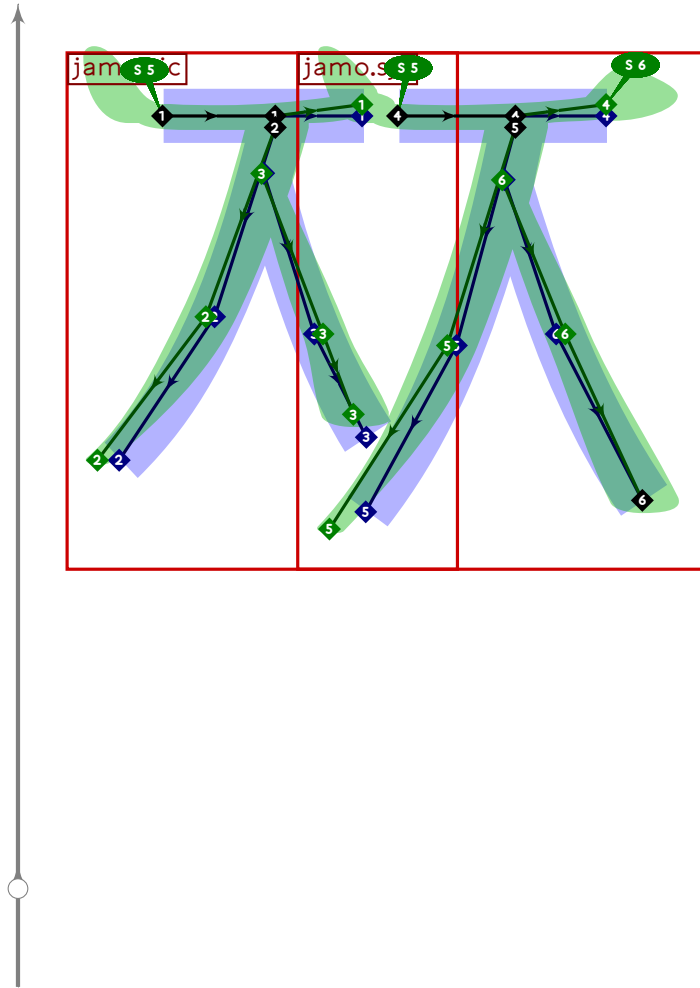
```



```

127 % hangul lead ciuc
128 begintuglyph("uni110C.l1",12);
129 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
130 tsu_render;
131 endtsuglyph;
132

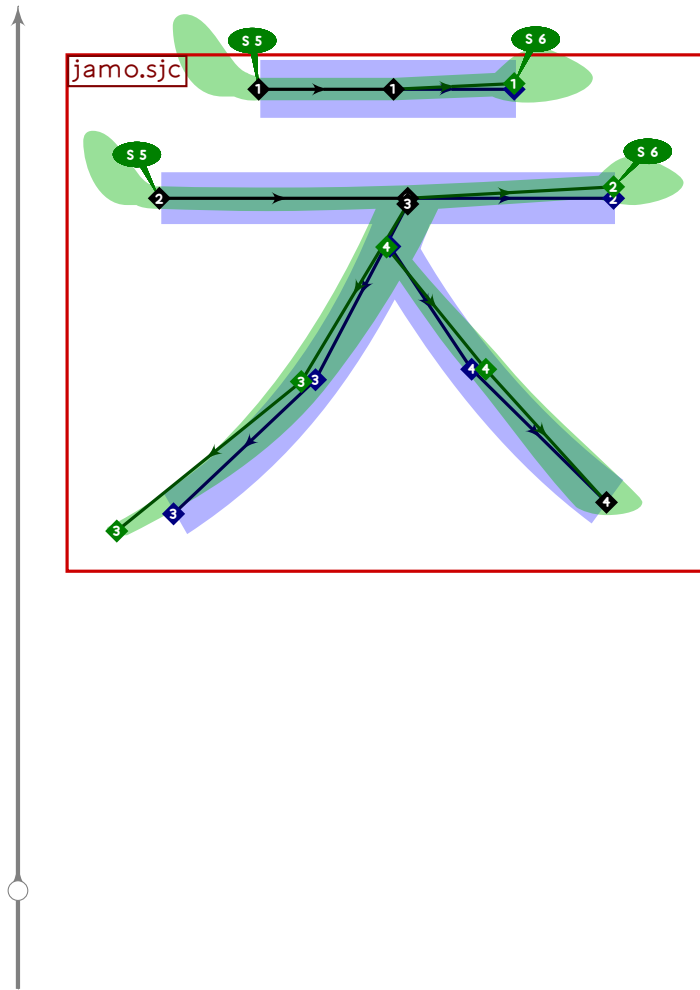
```



```

133 % hangul lead ssangcieuc
134 begint Suglyph("uni110D.l1",13);
135 hangul.combine.lr(212,112)(whatever,lixf,loxf);
136 tsu_render;
137 endtsuglyph;
138

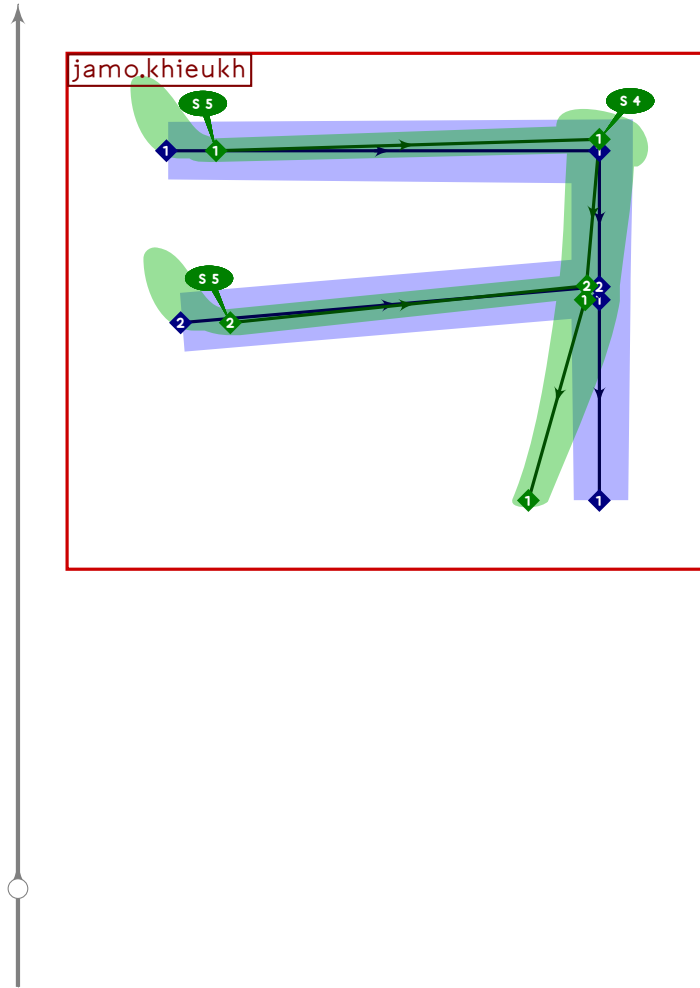
```



```

139 % hangul lead chieuch
140 begint Suglyph("uni110E.l1";14);
141 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
142 tsu_render;
143 endtsuglyph;
144

```

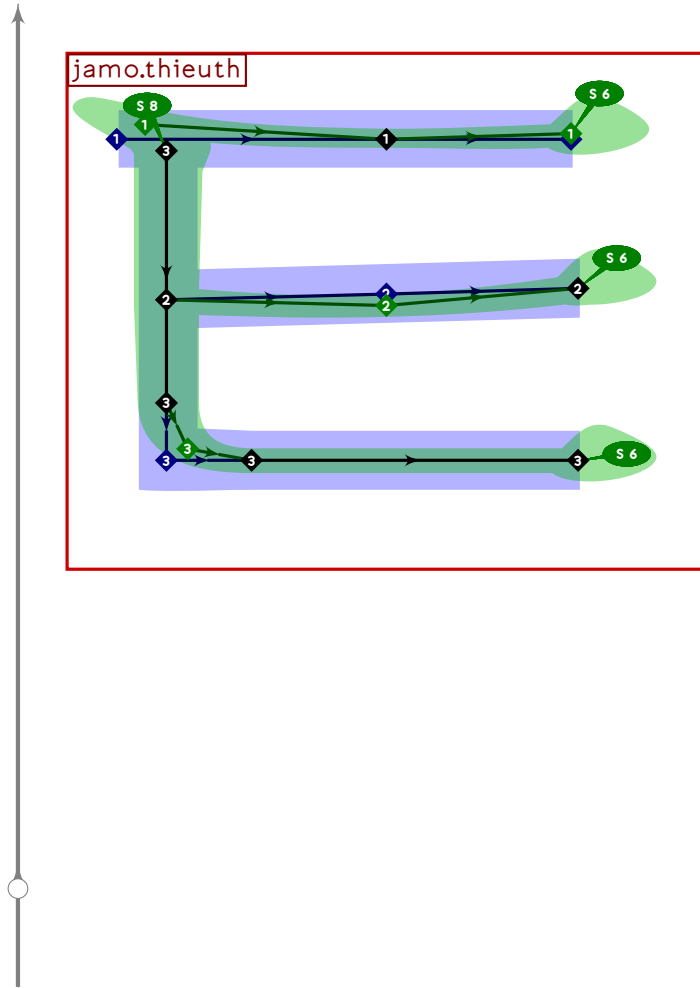


```

145 % hangul lead khieukh
146 begintsuglyph("uni110F.l1",15);
147 hangul,jamo.khieukh(whatever,lixf,loxf);
148 tsu_render;
149 endtsuglyph;
150

```

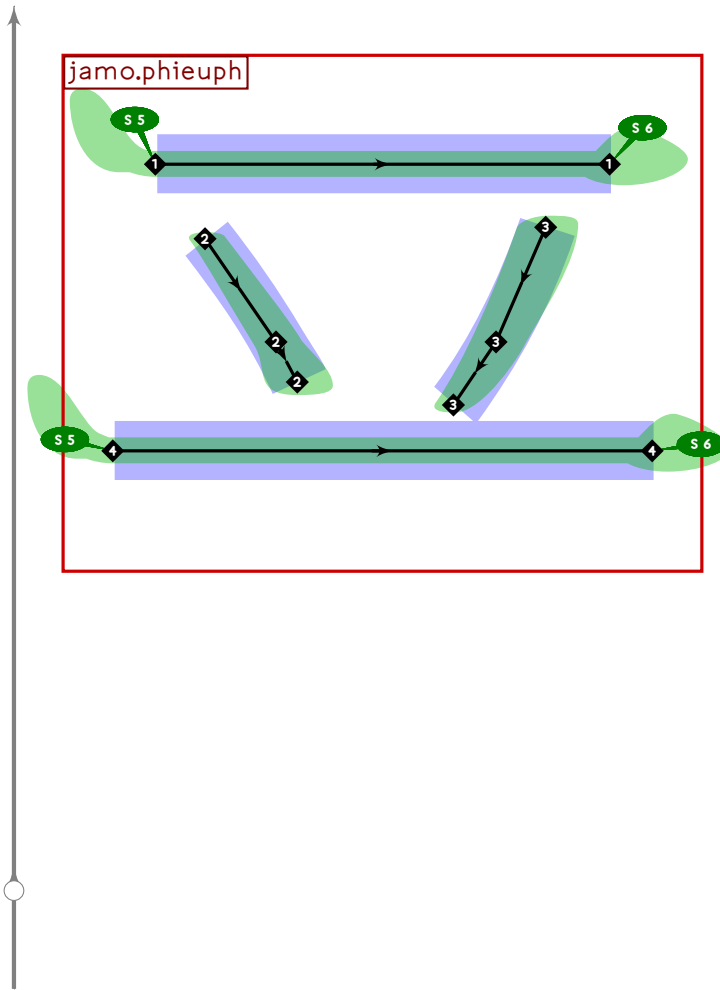




```

151 % hangul lead thieuth
152 begintsuglyph("uni1110.l1",16);
153 hangul,jamo.thieuth(whatever,lixf,loxf);
154 tsu_render;
155 endtsuglyph;
156

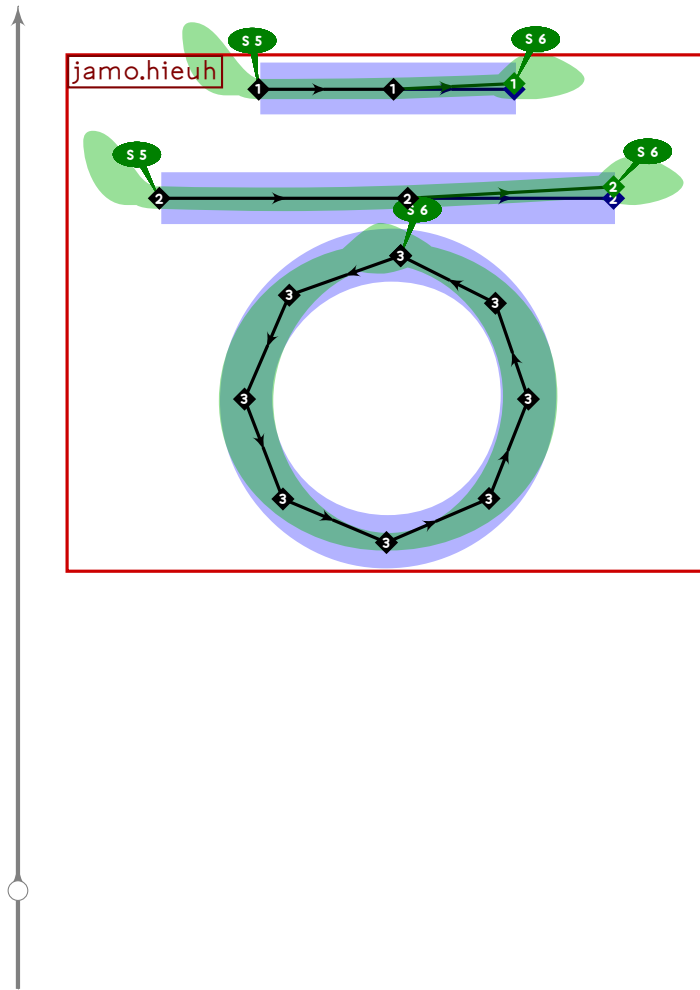
```



```

157 % hangul lead phieuph
158 begint Suglyph("uni1111.l1";17);
159 hangul,jamo.phieuph(whatever,lixf,loxf);
160 tsu_render;
161 endtsuglyph;
162

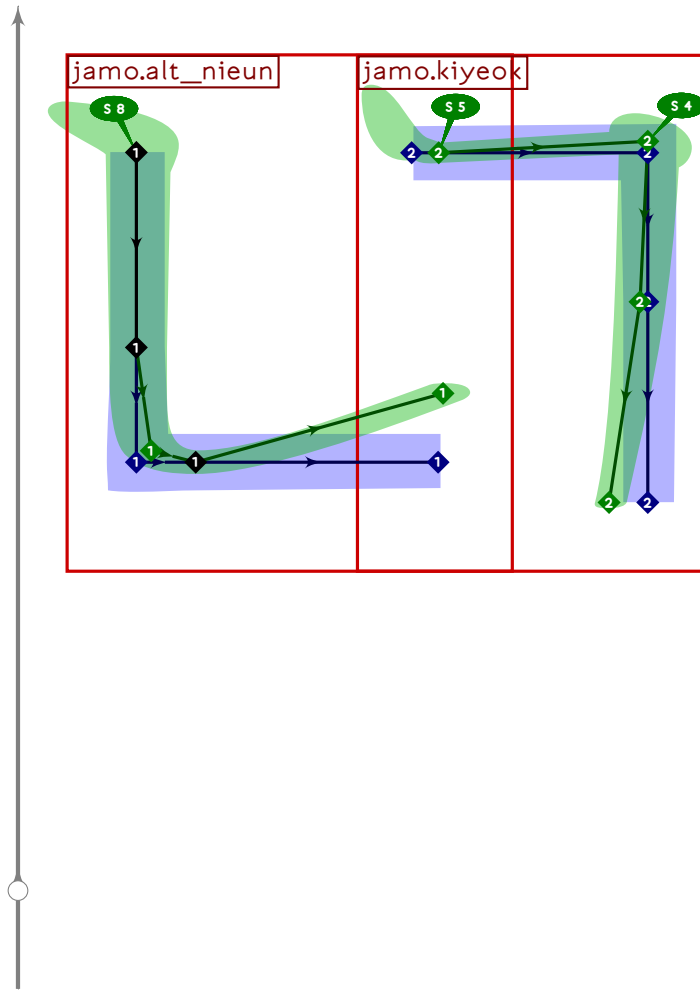
```



```

163 % hangul lead hieuh
164 begintsuglyph("uni1112.l1",18);
165 hangul,jamo.hieuh(whatever,lixf,loxf);
166 tsu_render;
167 endtsuglyph;
168

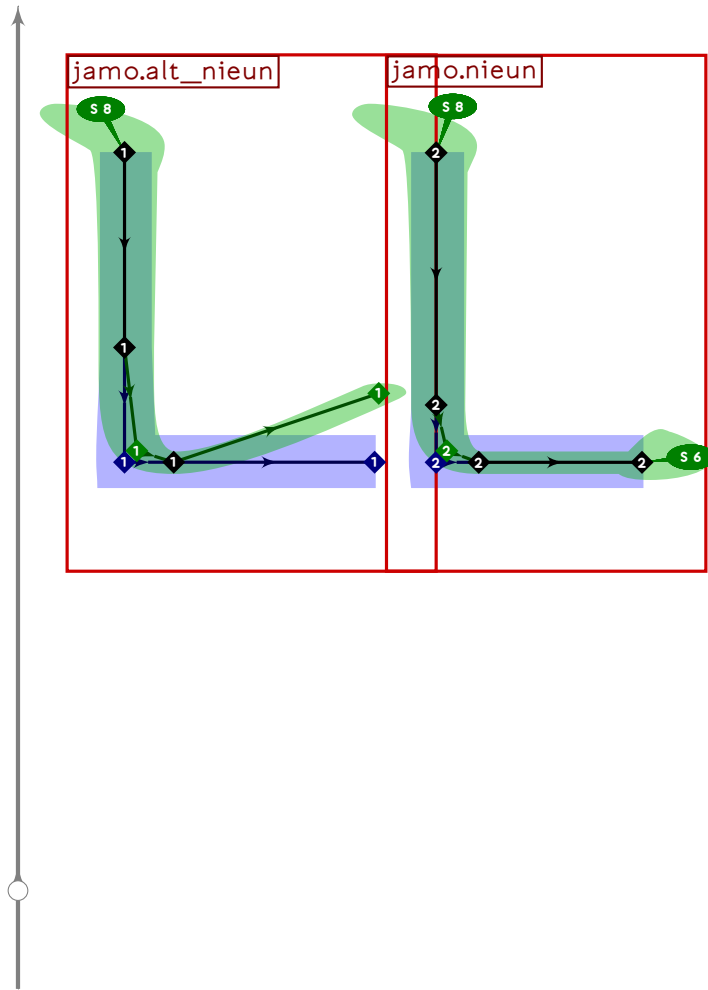
```



```

169 % hangul lead nieun-kiyeok
170 begintsuglyph("uni1113.l1",19);
171 hangul.combine.lr(202,100)(whatever,lixf,loxf);
172 tsu_render;
173 endsuglyph;
174

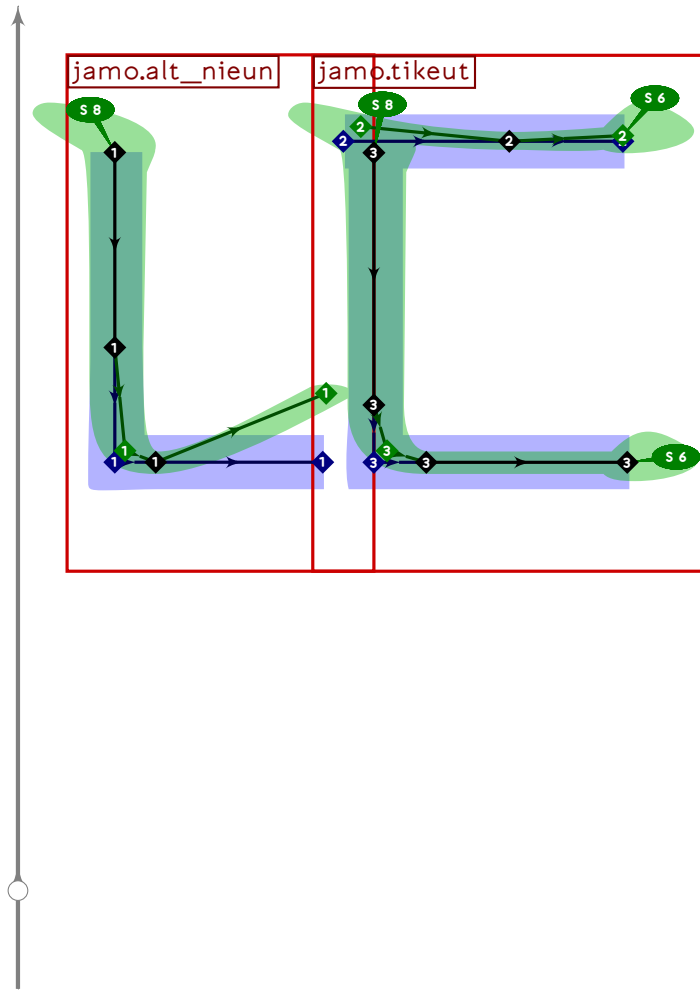
```



```

175 % hangul lead ssangnieun
176 begintsuglyph("uni1114.l1",20);
177 hangul.combine.lr(202,102)(whatever,lixf,loxf);
178 tsu_render;
179 endtsuglyph;
180

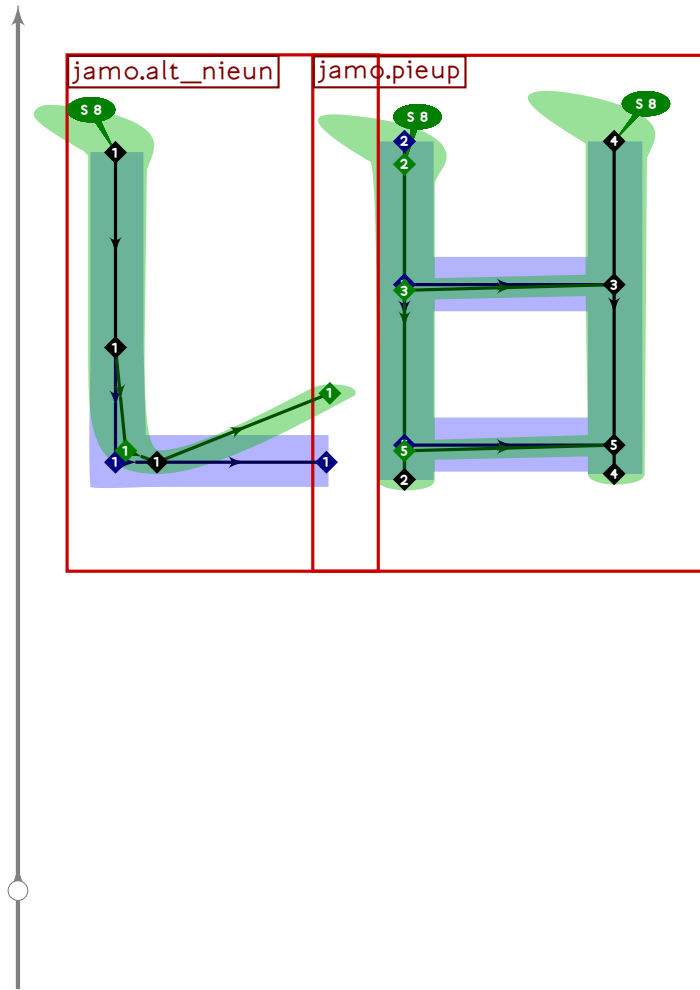
```



```

181 % hangul lead nieun-tikeut
182 begintsuglyph("uni1115.l1";21);
183 hangul.combine.lr(202,103)(whatever,lixf,loxf);
184 tsu_render;
185 endtsuglyph;
186

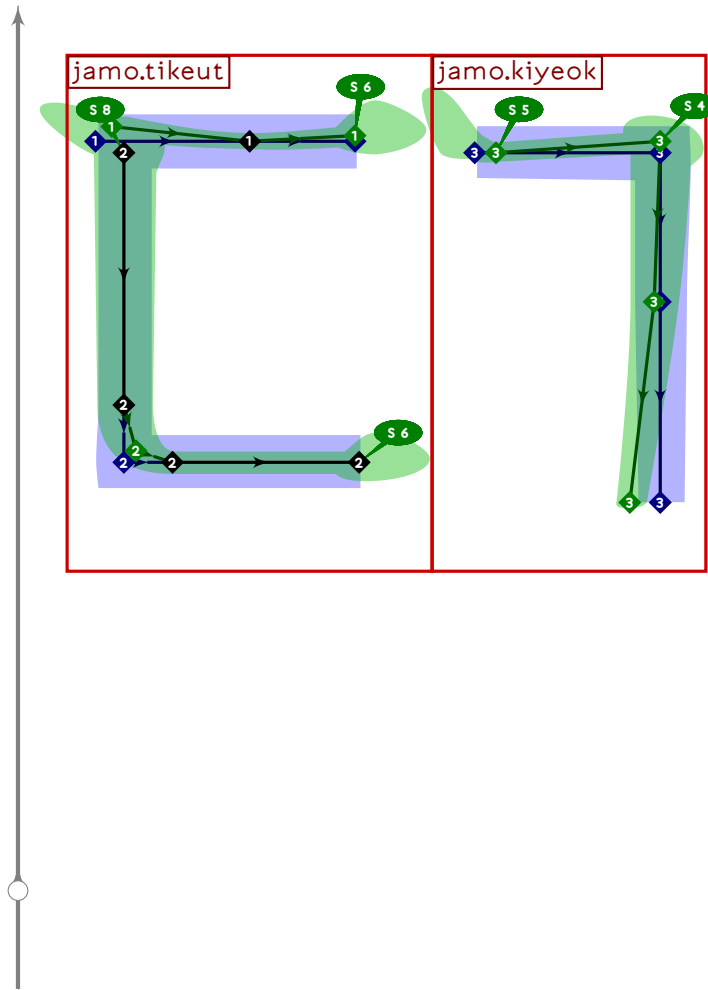
```



```

187 % hangul lead nieun-pieup
188 begintsuglyph("uni1116.l1",22);
189 hangul.combine.lr(202,107)(whatever,lixf,loxf);
190 tsu_render;
191 endtsuglyph;
192

```

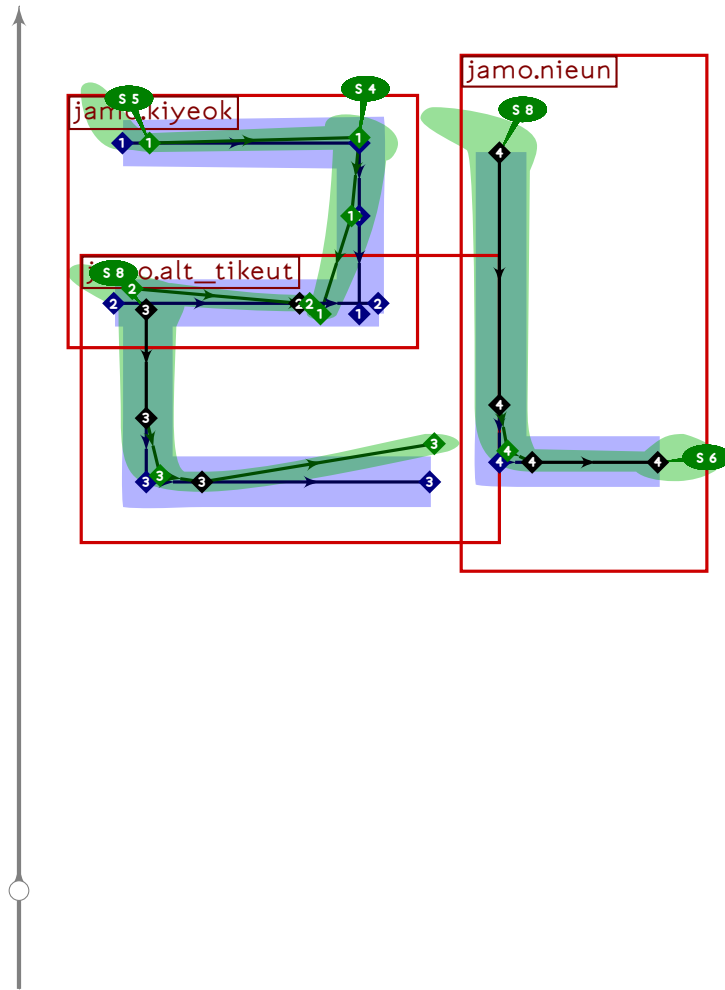


```

193 % hangul lead tikeut-kiyeok
194 begintsuglyph("uni1117.11";23);
195 hangul.combine.lr(103,100)(whatever,lixf,loxf);
196 tsu_render;
197 endtsuglyph;
198

```

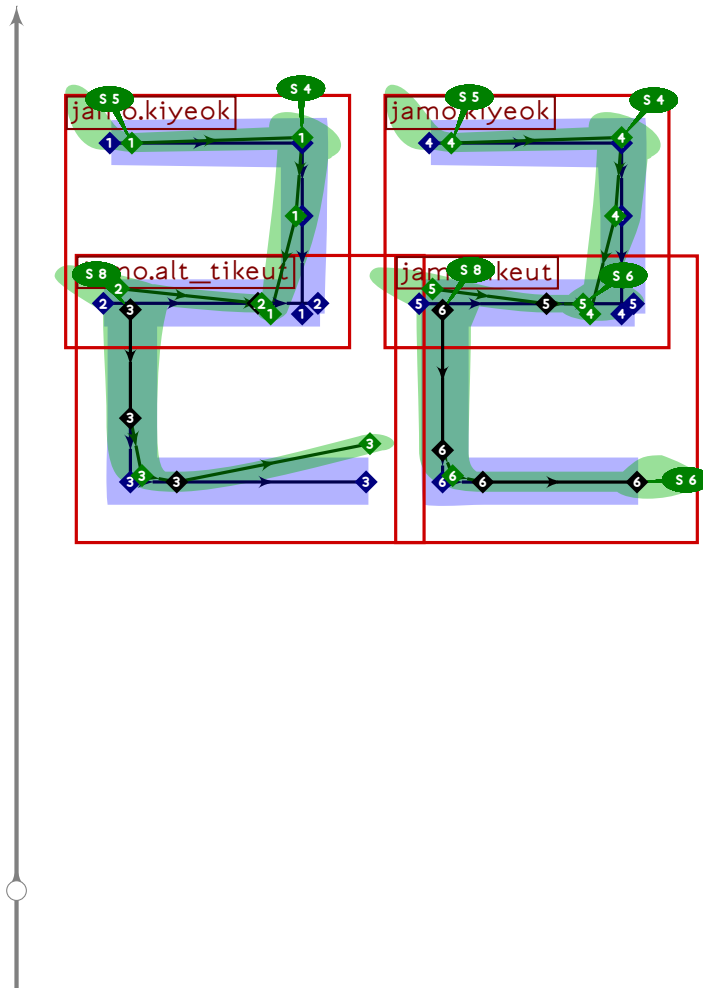




```

199 % hangul lead rieul-nieun
200 begintuglyph("uni1118.l1",24);
201 hangul.combine.lr(205,102)(whatever,lixf,loxf);
202 tsu_render;
203 endtsuglyph;
204

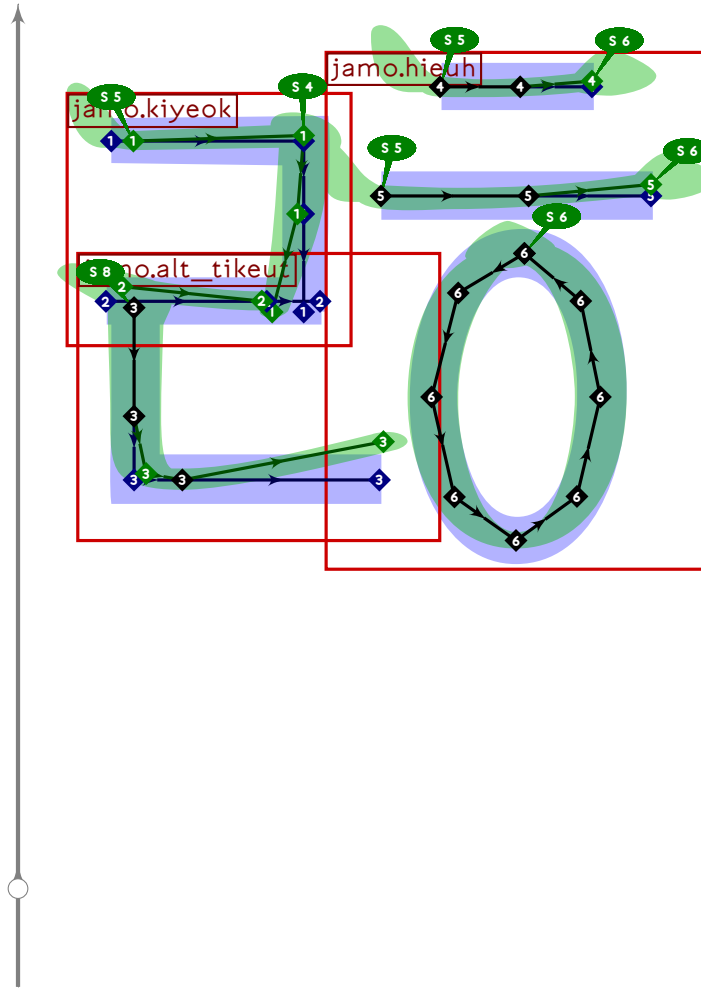
```



```

205 % hangul lead ssangrieul
206 begintsuglyph("uni1119.11";25);
207 hangul.combine.lr(205,105)(whatever,lixf,loxf);
208 tsu_render;
209 endtsuglyph;
210

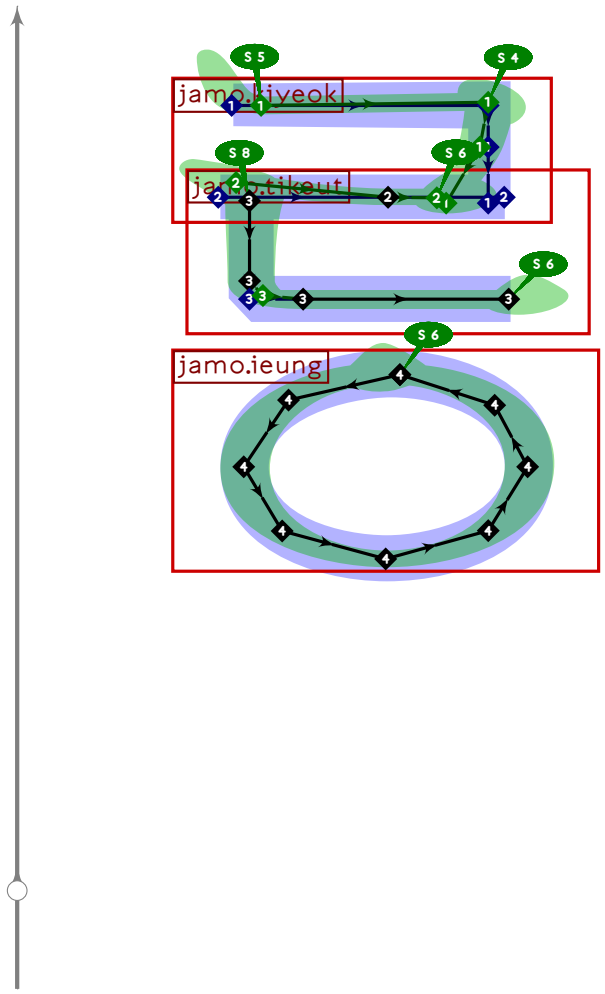
```



```

211 % hangul lead rioul-hieuh
212 begintsuglyph("uni111A.l1",26);
213 hangul.combine.lr(205,118)(whatever,lixf,loxf);
214 tsu_render;
215 endtsuglyph;
216

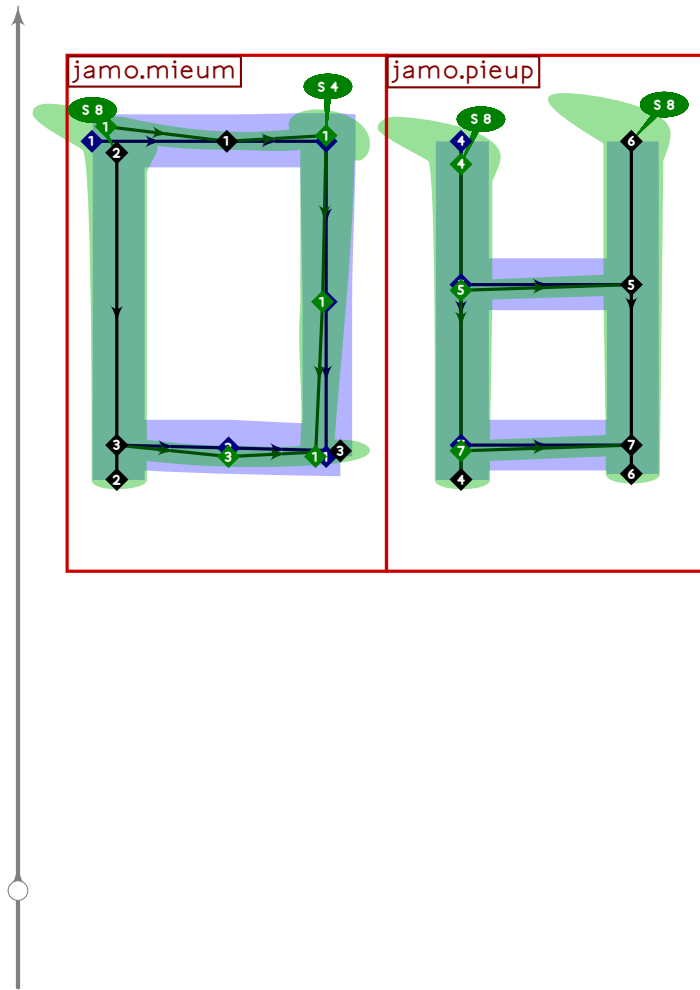
```



```

217 % hangul lead kapyeounrieul
218 begintsuglyph("uni111B.l!",27);
219 hangul.combine.tb(105,521)(whatever,
220   hxf((200,850),(800,-50)) transformed lixf,loxf);
221 tsu_render;
222 endtsuglyph;
223

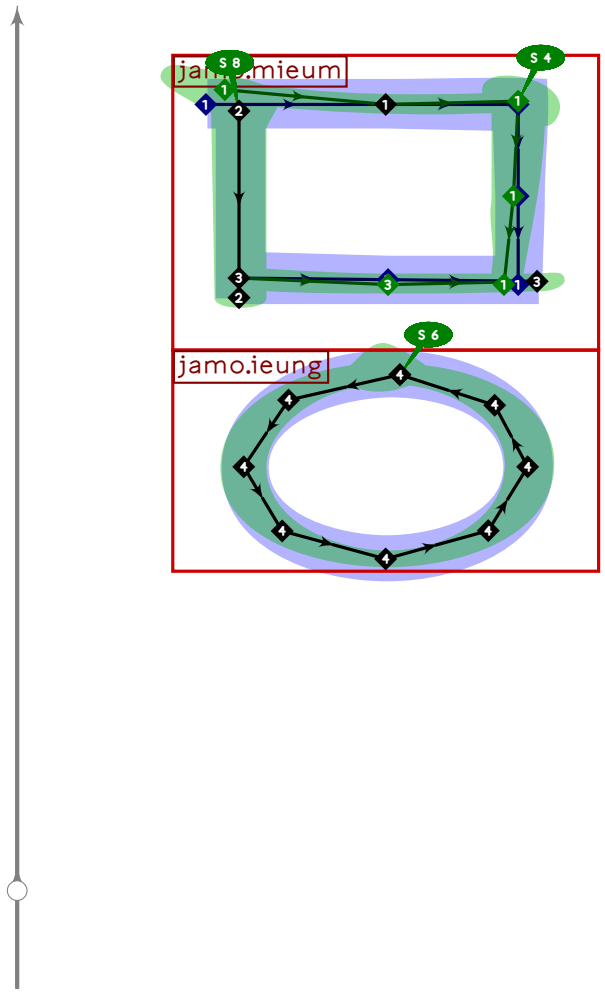
```



```

224 % hangul lead mieum-pieup
225 begintsuglyph("uni111C.l1",28);
226 hangul.combine.lr(106,107)(whatever,lixf,loxf);
227 tsu_render;
228 endtsuglyph;
229

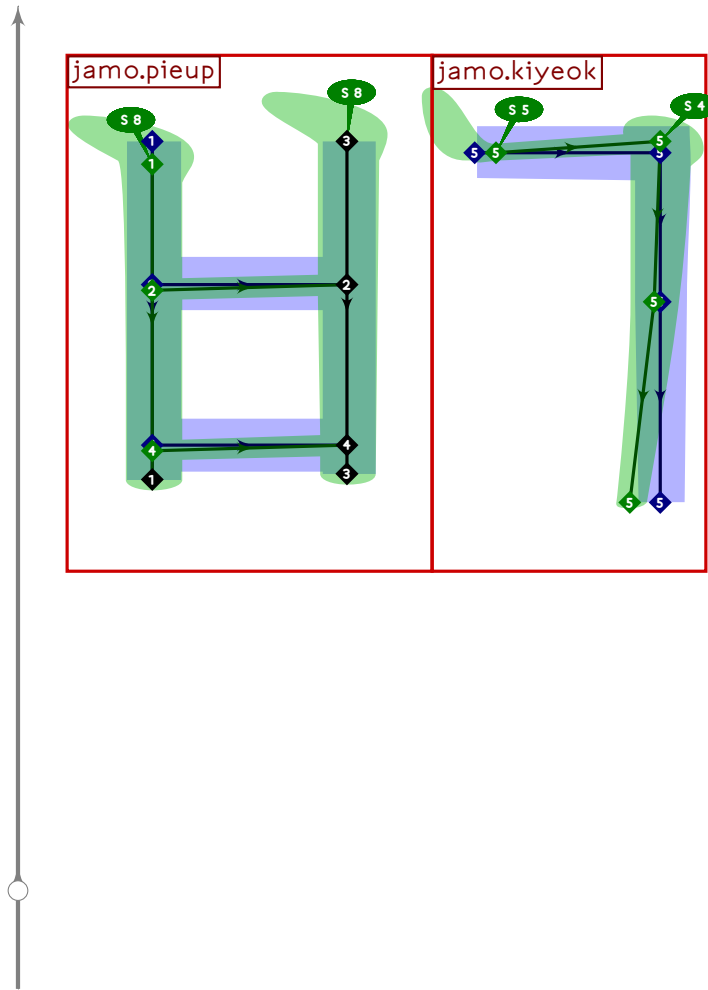
```



```

230 % hangul lead kapyeounmieum
231 begintsuglyph("uni111D.l1",29);
232 hangul.combine.tb(106,521)(whatever,
233   hxf((200,850),(800,-50)) transformed lixf,loxf);
234 tsu_render;
235 endtsuglyph;
236

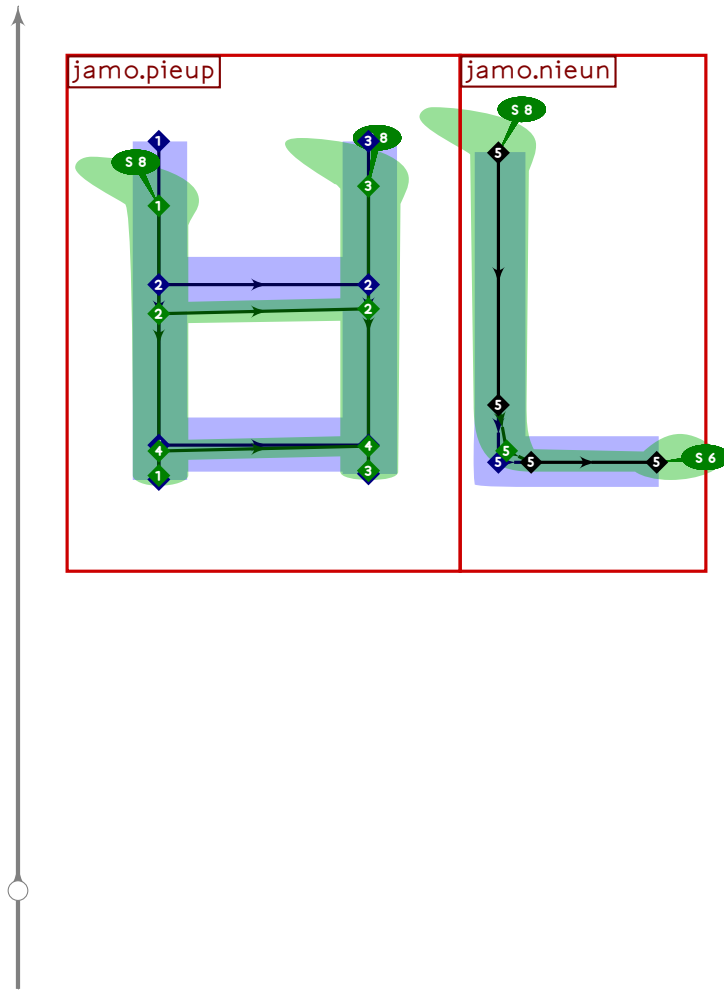
```



```

237 % hangul lead pieup-kiyeok
238 begintsuglyph("uni111E.l",30);
239 hangul.combine.lr(107,100)(whatever,lixf,loxf);
240 tsu_render;
241 endtsuglyph;
242

```

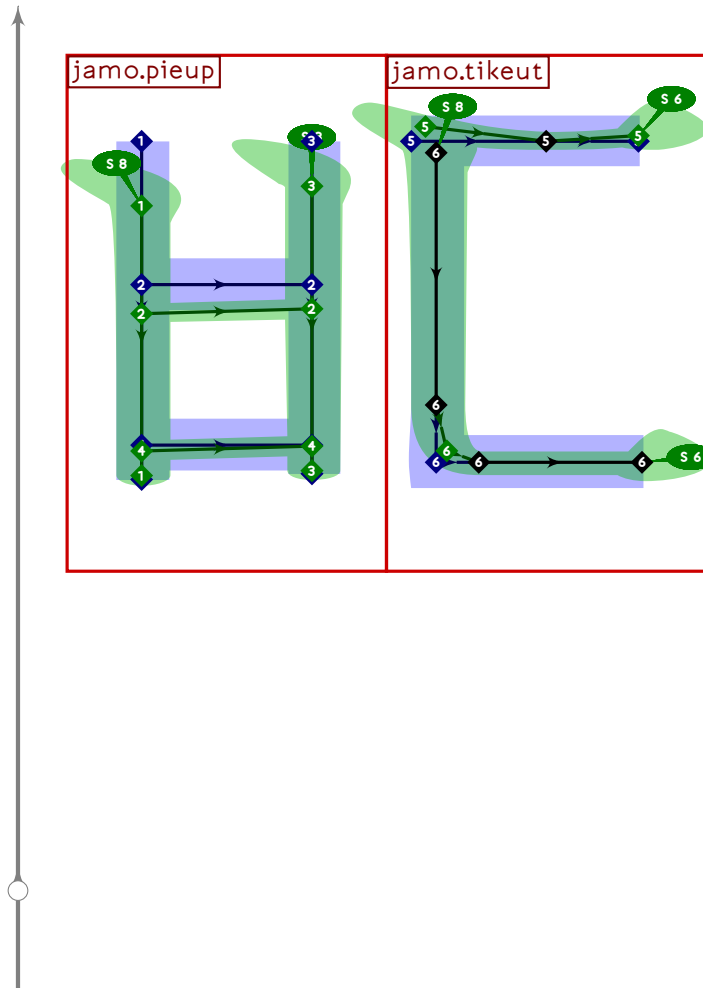


```

243 % hangul lead pieup-nieun
244 begintsuglyph("uni111F.l1"31);
245 hangul.combine.lr(207,102)(whatever,lixf,loxf);
246 tsu_render;
247 endtsuglyph;
248

```

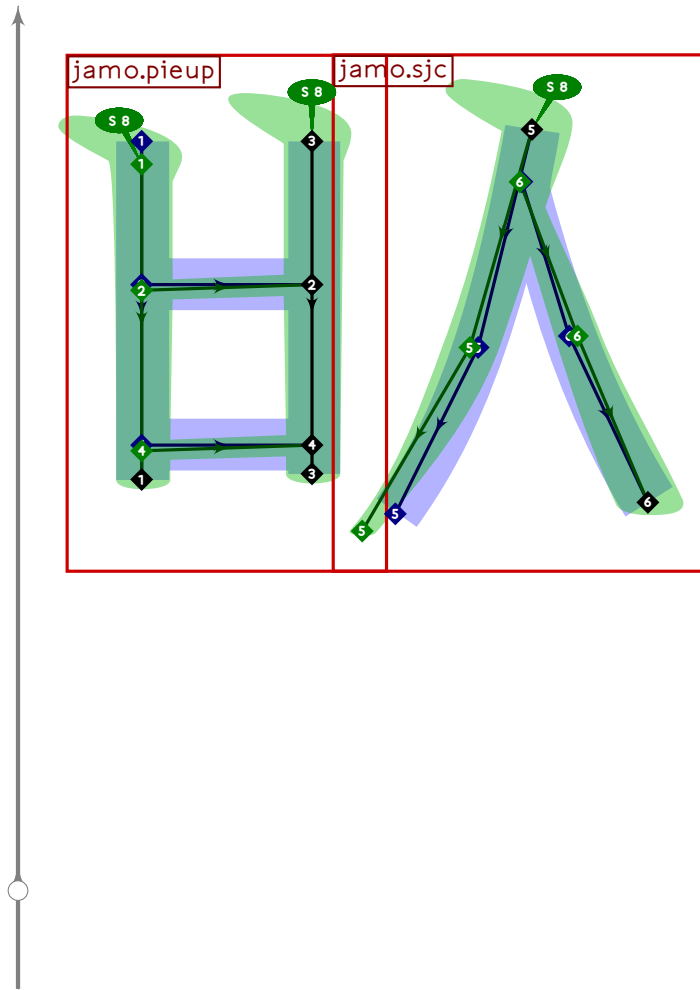




```

249 % hangul lead pieup-tikeut
250 begintsuglyph("uni1120.l1",32);
251 hangul.combine.lr(207,103)(whatever,lixf,loxf);
252 tsu_render;
253 endtsuglyph;
254

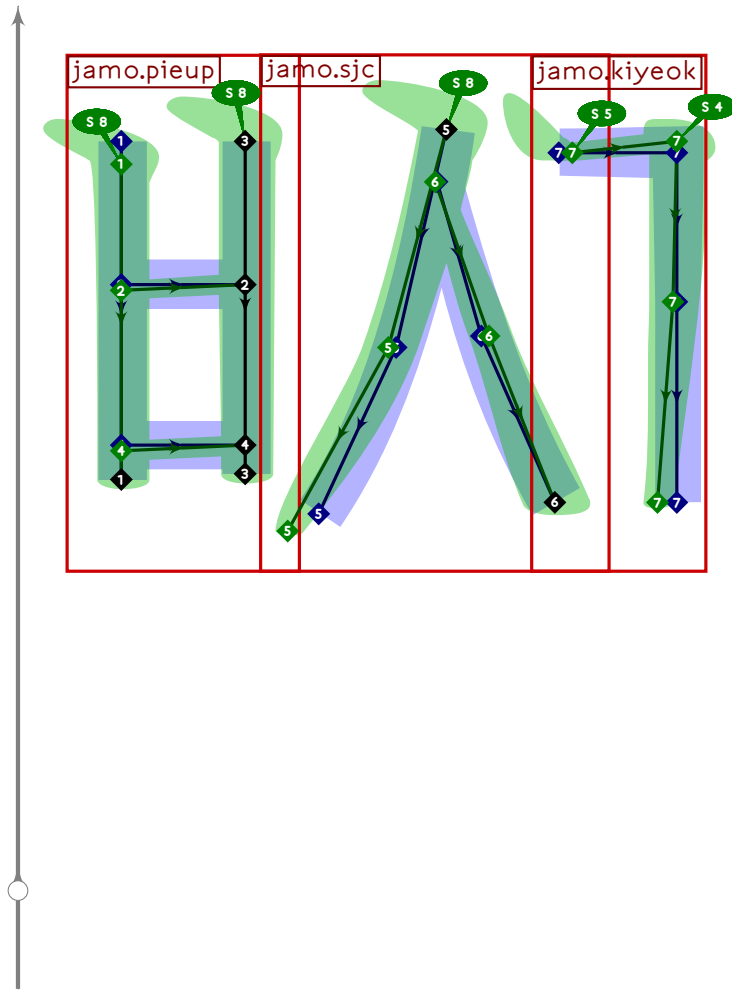
```



```

255 % hangul lead pieup-sios
256 begintsuglyph("uni1121.11",33);
257 hangul.combine.lr(107,109)(whatever,lixf,loxf);
258 tsu_render;
259 endtsuglyph;
260

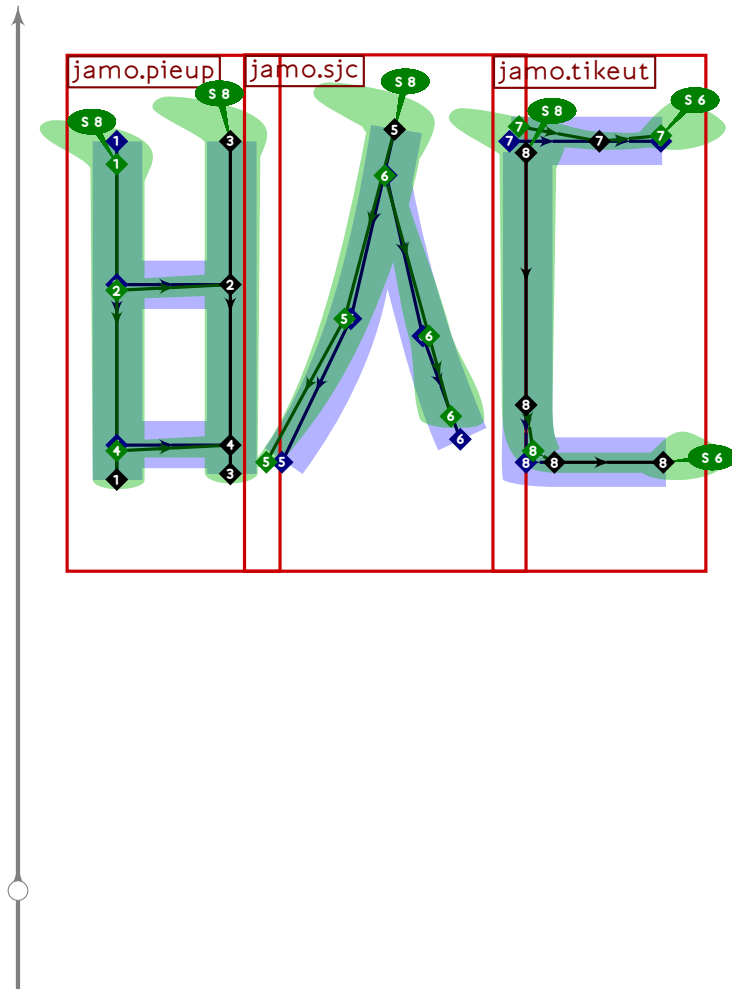
```



```

261 % hangul lead pieup-sios-kiyeok
262 begintsuglyph("uni1122.l1",34);
263 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
264 tsu_render;
265 endtsuglyph;
266

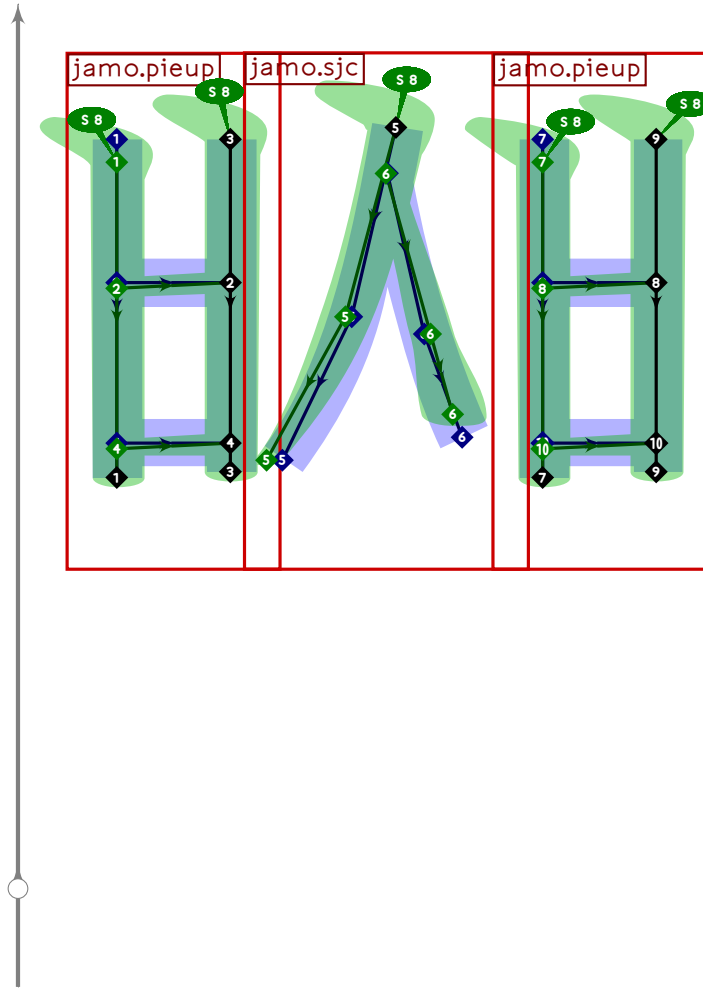
```



```

267 % hangul lead pieup-sios-tikeut
268 begintsuglyph("uni1123.l1",35);
269 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
270 tsu_render;
271 endtsuglyph;
272

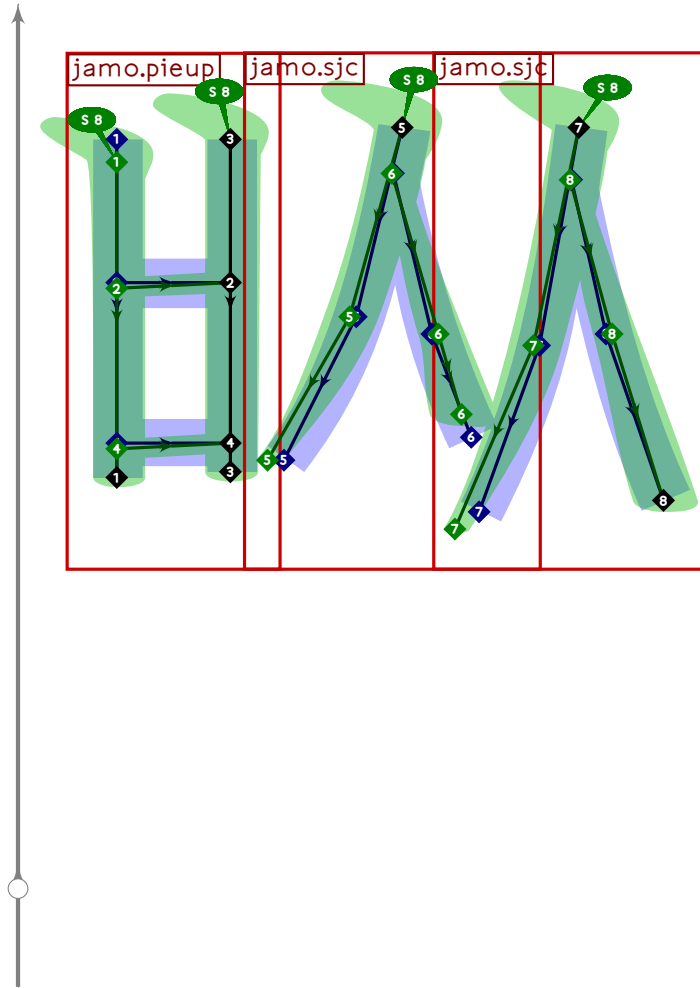
```



```

273 % hangul lead pieup-sios-pieup
274 begintsuglyph("uni1124.l1",36);
275 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
276 tsu_render;
277 endtsuglyph;
278

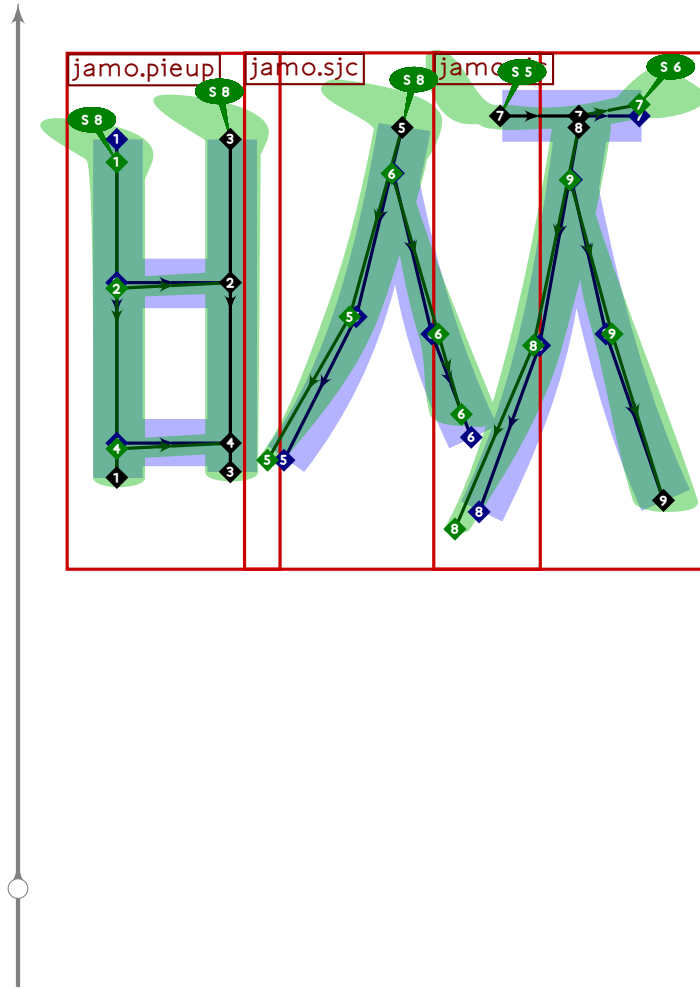
```



```

279 % hangul lead pieup-ssangsios
280 begintsuglyph("uni1125.l1",37);
281 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
282 tsu_render;
283 endtsuglyph;
284

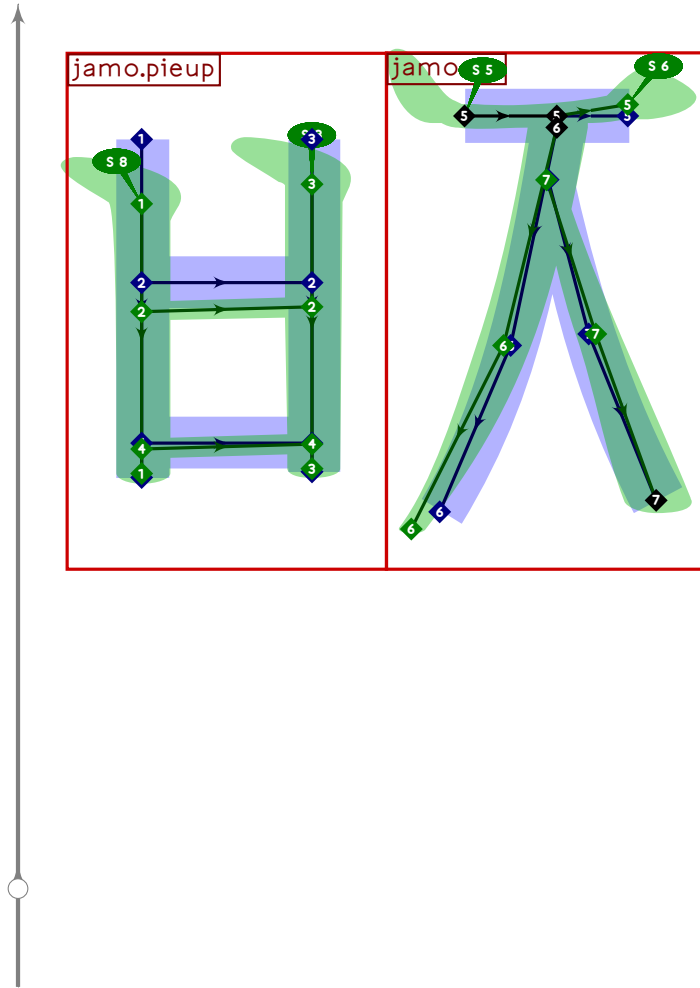
```



```

285 % hangul lead pieup-sios-cieuc
286 begintsuglyph("uni1126.l1",38);
287 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
288 tsu_render;
289 endtsuglyph;
290

```

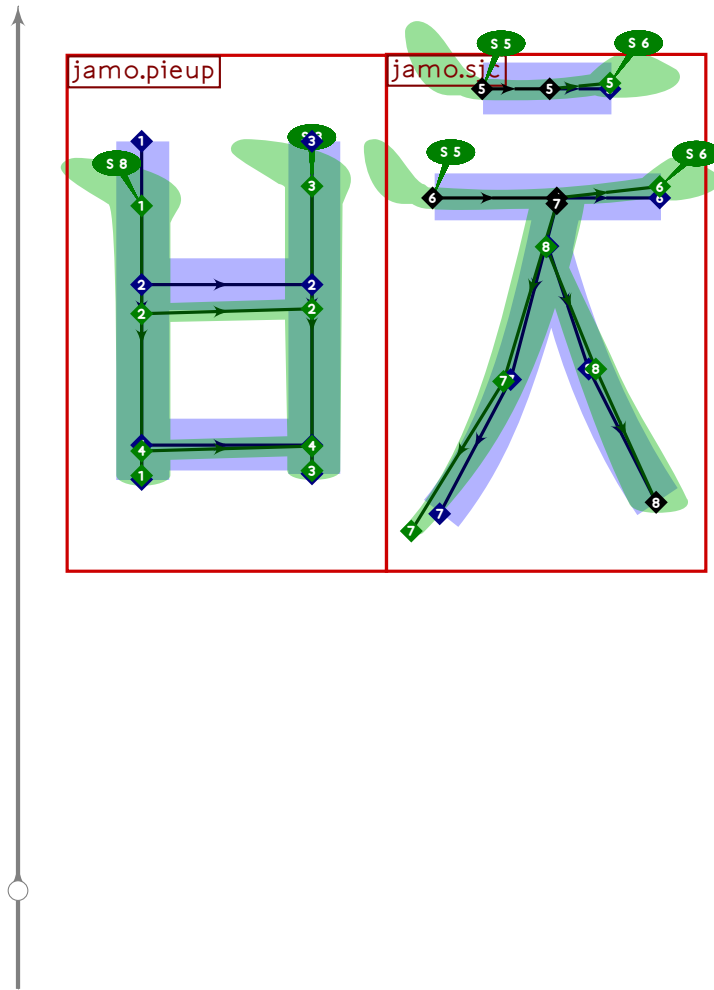


```

291 % hangul lead pieup-cieuc
292 begintsuglyph("uni1127.l1",39);
293 hangul.combine.lr(207,112)(whatever,lixf,loxf);
294 tsu_render;
295 endtsuglyph;
296

```

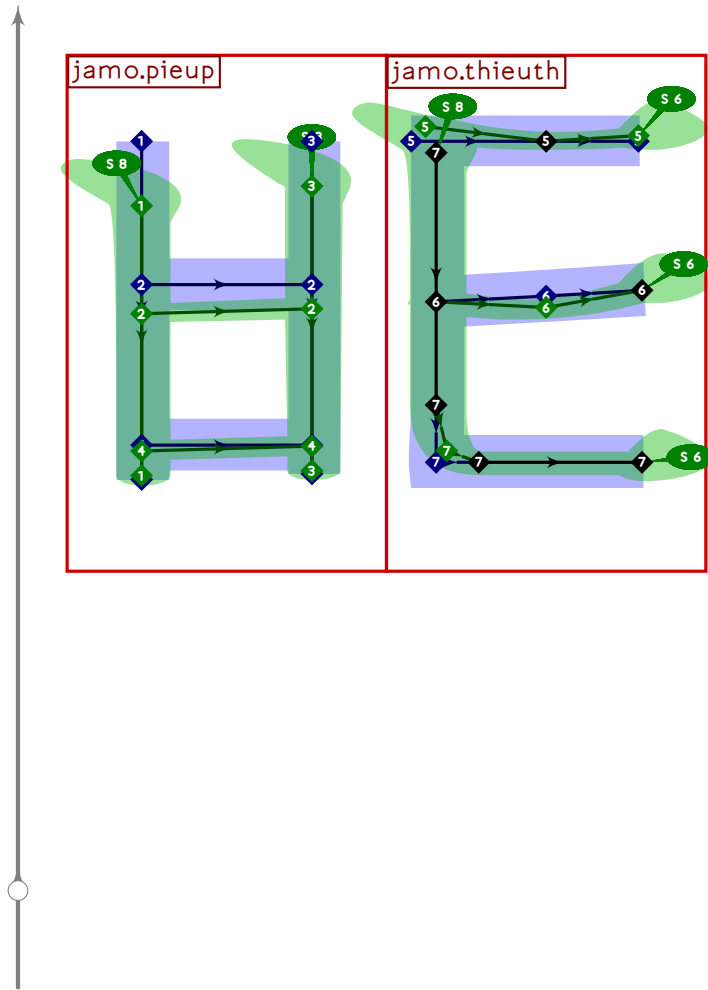




```

297 % hangul lead pieup-chieuch
298 begintsuglyph("uni1128.l"40);
299 hangul.combine.lr(207,114)(whatever,lixf,loxf);
300 tsu_render;
301 endtsuglyph;
302

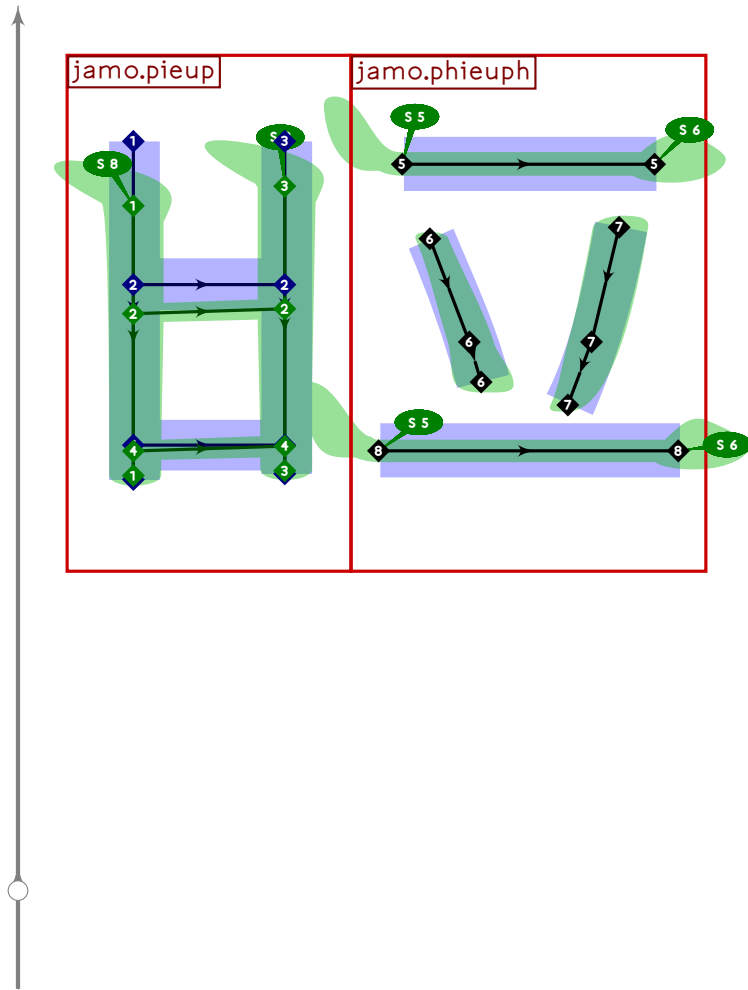
```



```

303 % hangul lead pieup-thieuth
304 begintsuglyph("uni1129.l1"41);
305 hangul.combine.lr(207,116)(whatever,lixf,loxf);
306 tsu_render;
307 endtsuglyph;
308

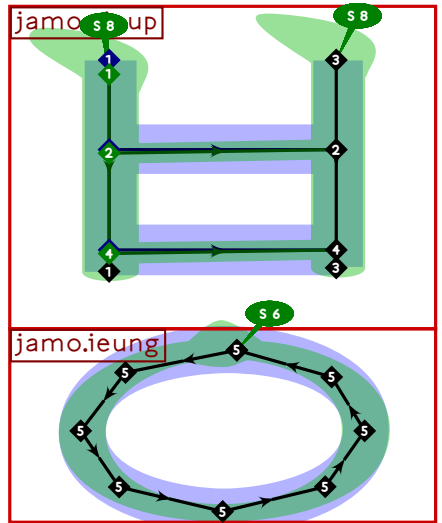
```



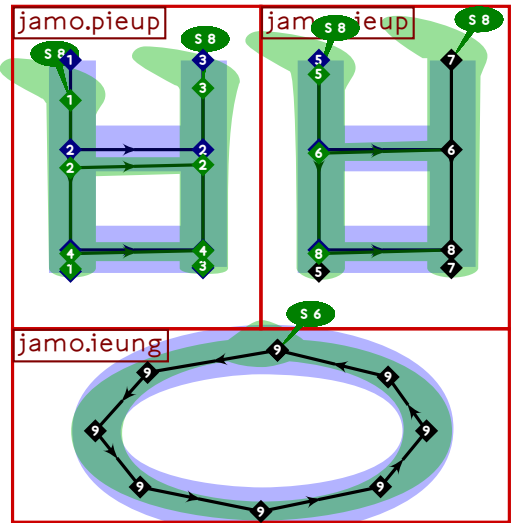
```

309 % hangul lead pieup-phieuph
310 begintsuglyph("uni112A.l1"42);
311 hangul.combine.lr(207,117)(whatever,lixf,loxf);
312 tsu_render;
313 endtsuglyph;
314

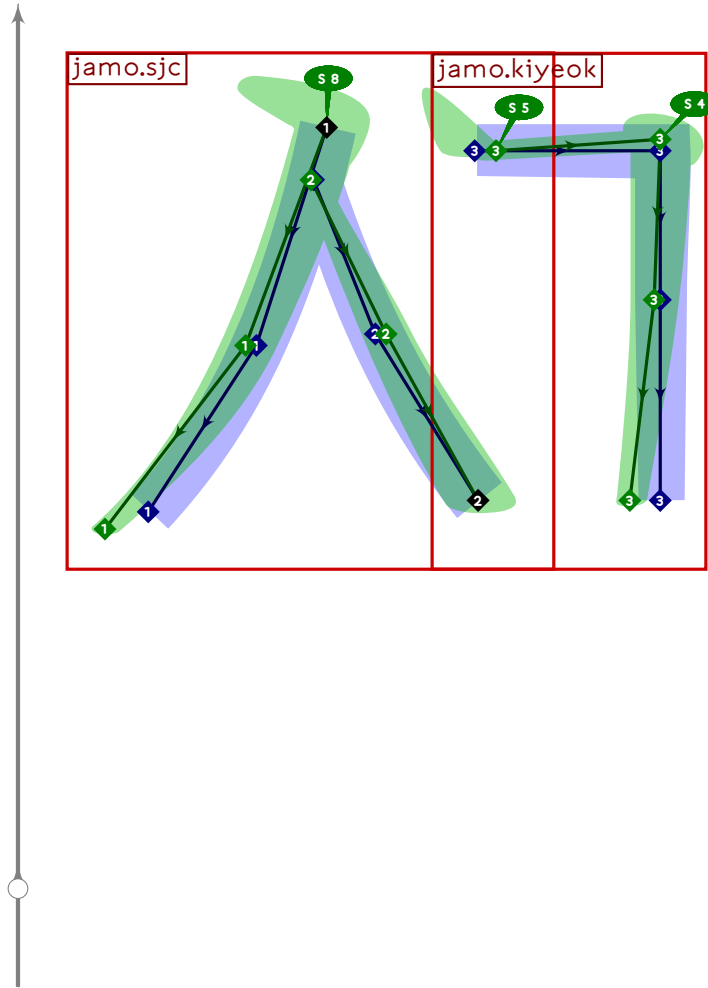
```



```
315 % hangul lead kapyeounpieup
316 begintsuglyph("uni112B.l1";43);
317 hangul.combine.tb(107,521)(whatever,
318   hxf((200,850),(800,-50)) transformed lixf,loxf);
319 tsu_render;
320 endtsuglyph;
321
```



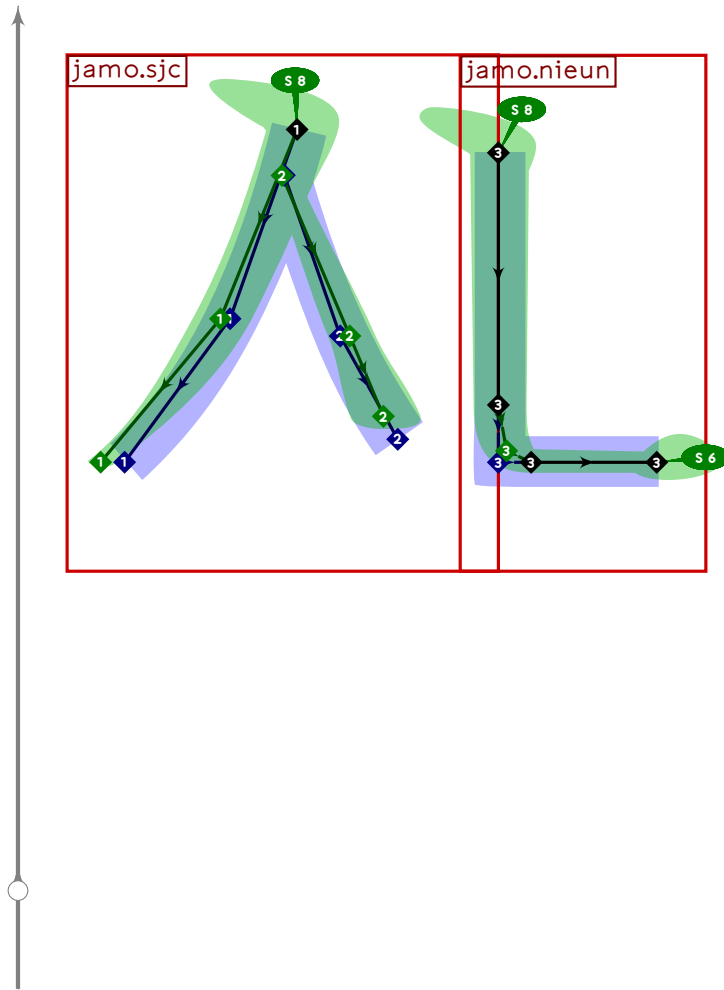
```
322 % hangul lead kapyeounssangpieup
323 begintsuglyph("uni112C.l1"44);
324 hangul.combine.tb(108,521)(whatever,
325   hxf((150,850),(850,-50)) transformed lixf,loxf);
326 tsu_render;
327 endtsuglyph;
328
```



```

329 % hangul lead sios-kiyeok
330 begintsuglyph("uni112D.l1"45);
331 hangul.combine.lr(109;100)(whatever,lixf,loxf);
332 tsu_render;
333 endtsuglyph;
334

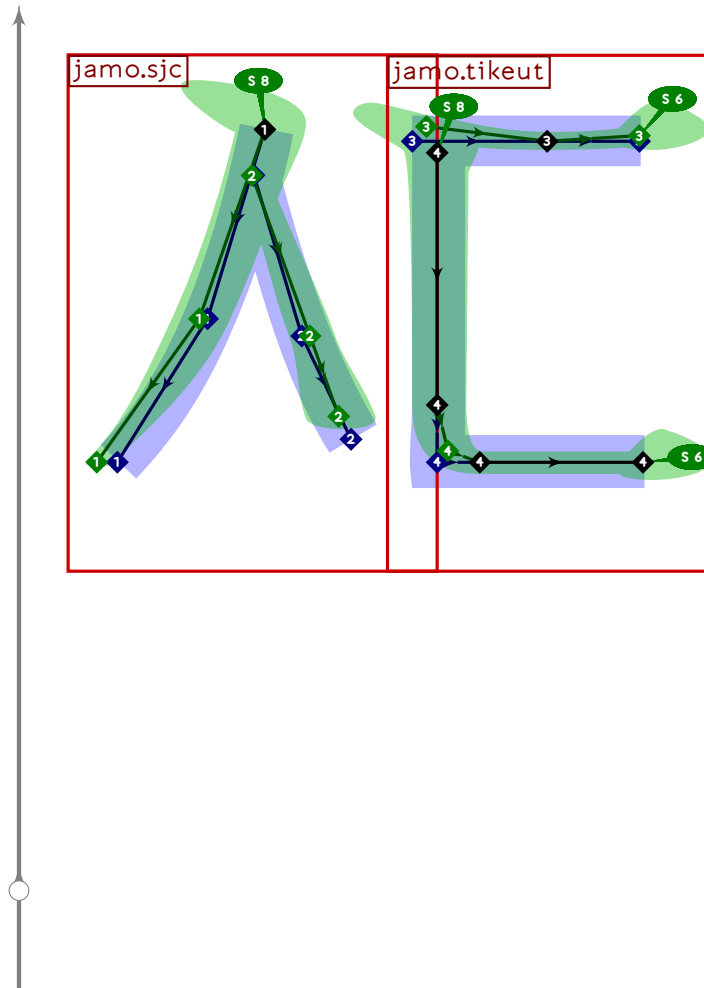
```



```

335 % hangul lead sios-nieun
336 begintsuglyph("uni112E.l!"46);
337 hangul.combine.lr(209,102)(whatever,lixf,loxf);
338 tsu_render;
339 endtsuglyph;
340

```

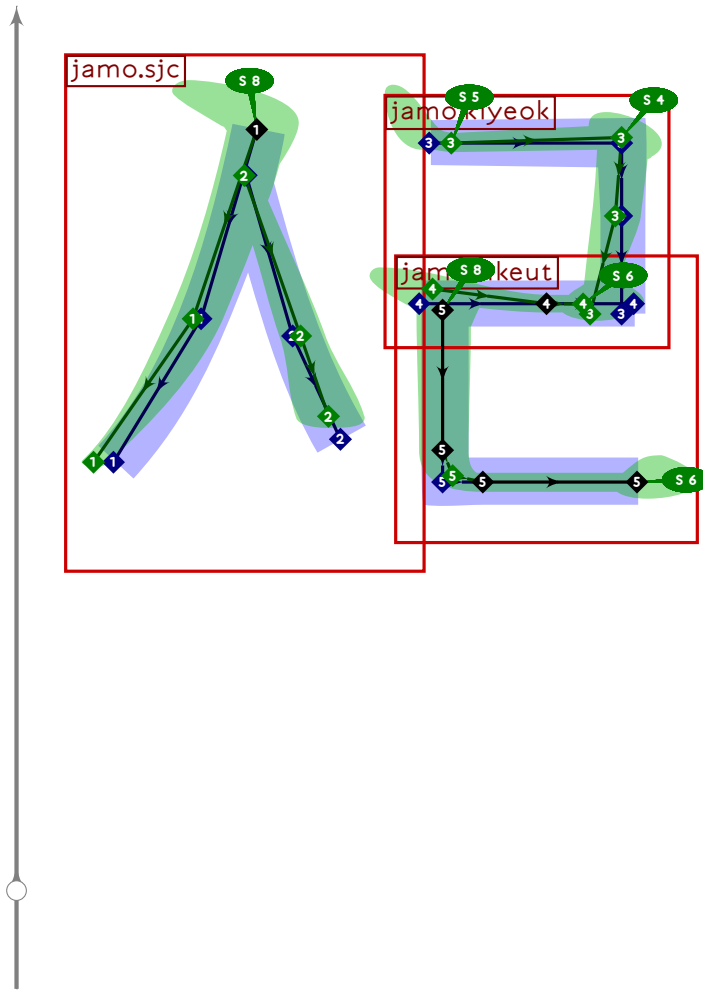


```

341 % hangul lead sios-tikeut
342 begintsuglyph("uni112F.l1"47);
343 hangul.combine.lr(209,103)(whatever,lixf,loxf);
344 tsu_render;
345 endtsuglyph;
346

```

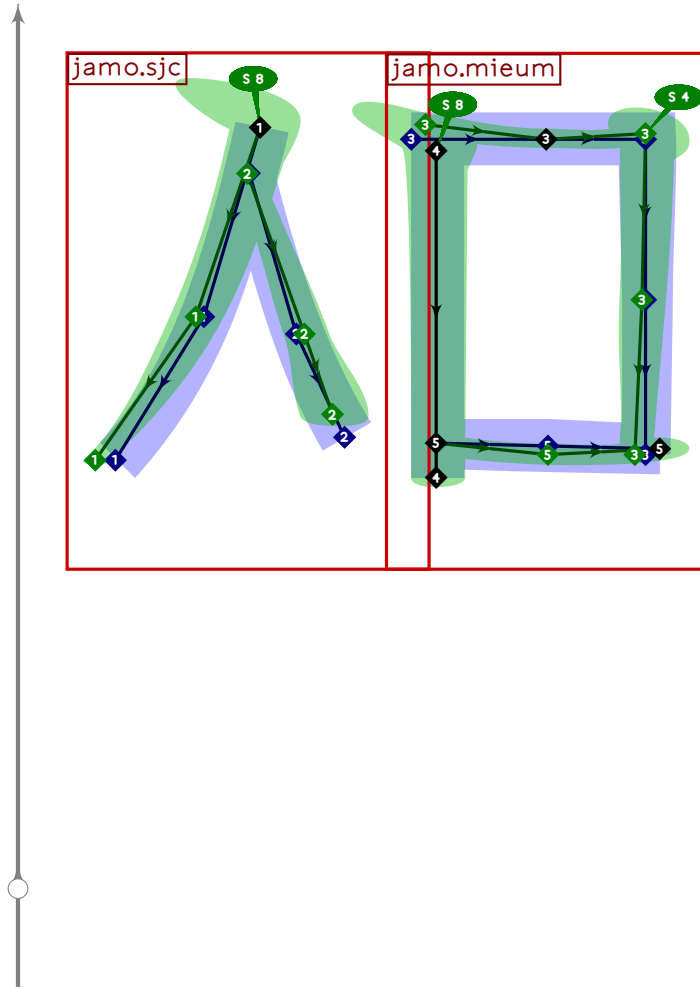




```

347 % hangul lead sios-rieul
348 begint Suglyph("uni1130.l1"48);
349 hangul.combine.lf(209,105)(whatever,lixf,loxf);
350 tsu_render;
351 endtsuglyph;
352

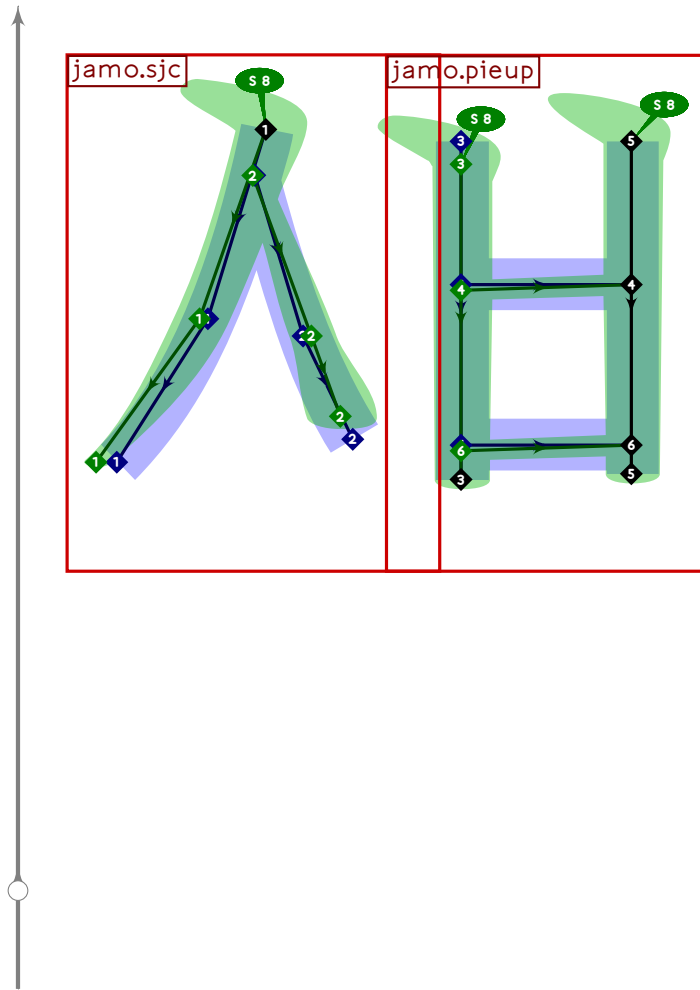
```



```

353 % hangul lead sios-mieum
354 begintsuglyph("uni1131.l1";49);
355 hangul.combine.lr(209,106)(whatever,lixf,loxf);
356 tsu_render;
357 endtsuglyph;
358

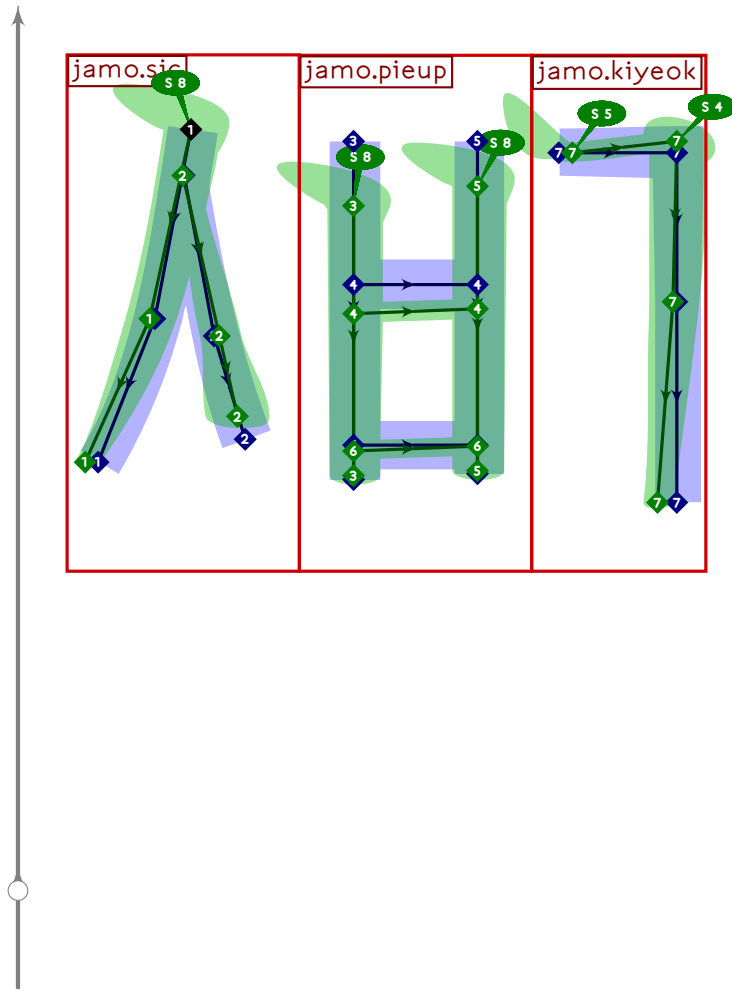
```



```

359 % hangul lead sios-pieup
360 begint Suglyph("uni1132.l1",50);
361 hangul.combine.lr(209,107)(whatever,lixf,loxf);
362 tsu_render;
363 endtsuglyph;
364

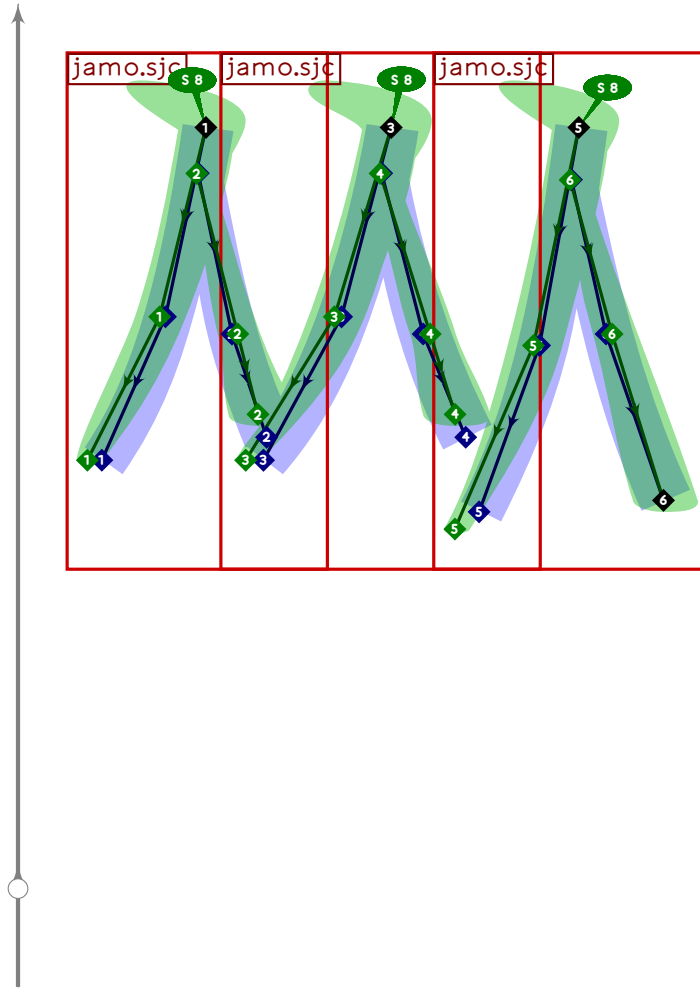
```



```

365 % hangul lead sios-pieup-kiyeok
366 begintsuglyph("uni1133.l1",51);
367 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
368 tsu_render;
369 endtsuglyph;
370

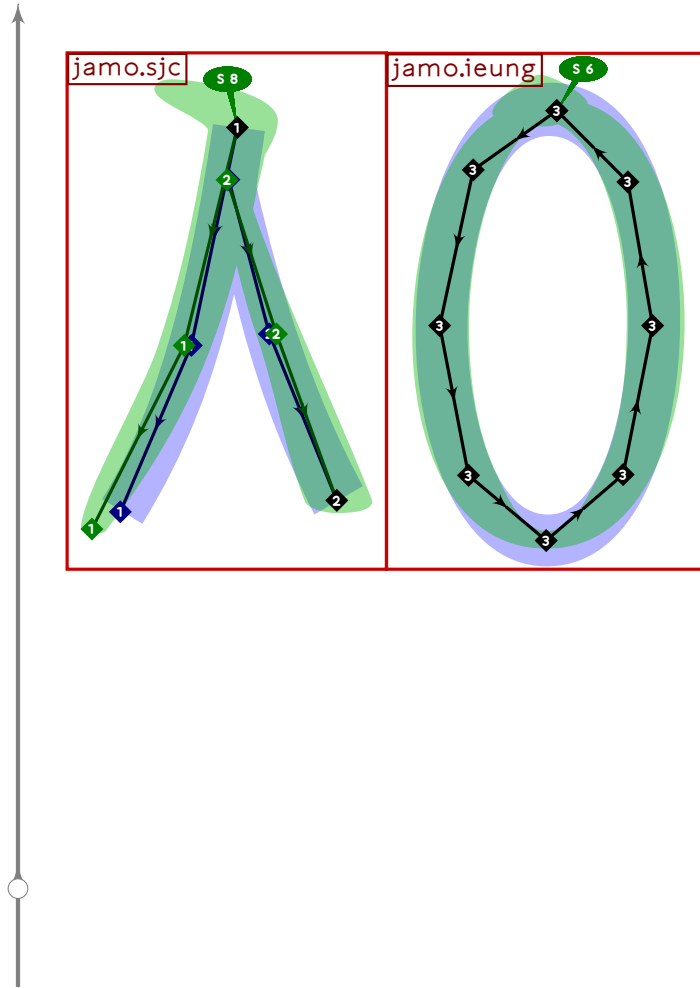
```



```

371 % hangul lead sios-sios-sios
372 begintsuglyph("uni1134.l1",52);
373 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
374 tsu_render;
375 endtsuglyph;
376

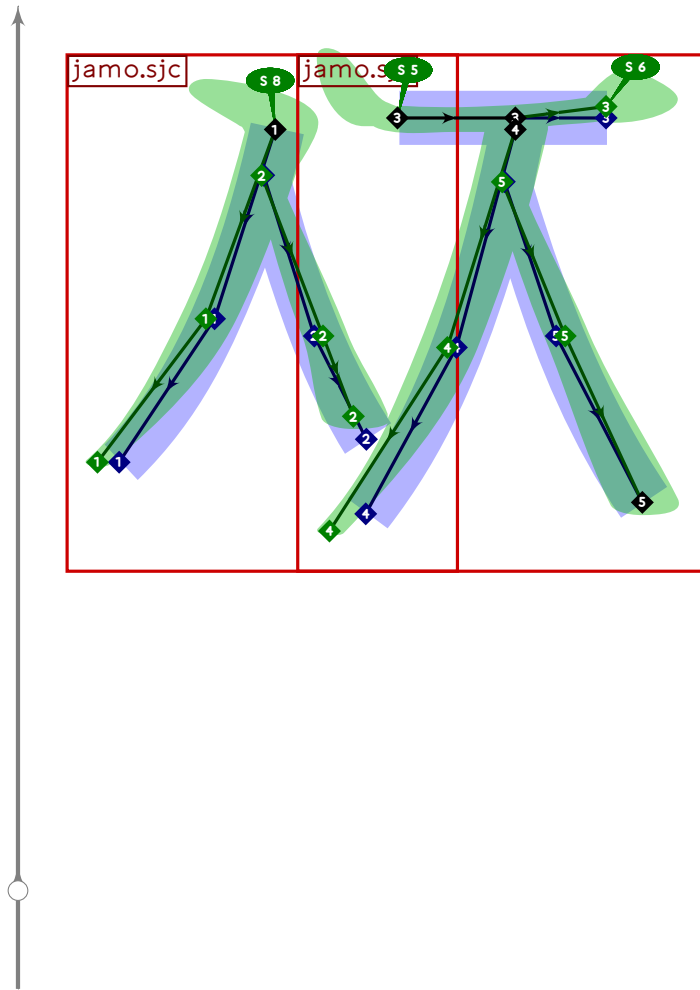
```



```

377 % hangul lead sios-ieung
378 begintsuglyph("uni1135.l1",53);
379 hangul.combine.lr(109,111)(whatever,lixf,loxf);
380 tsu_render;
381 endtsuglyph;
382

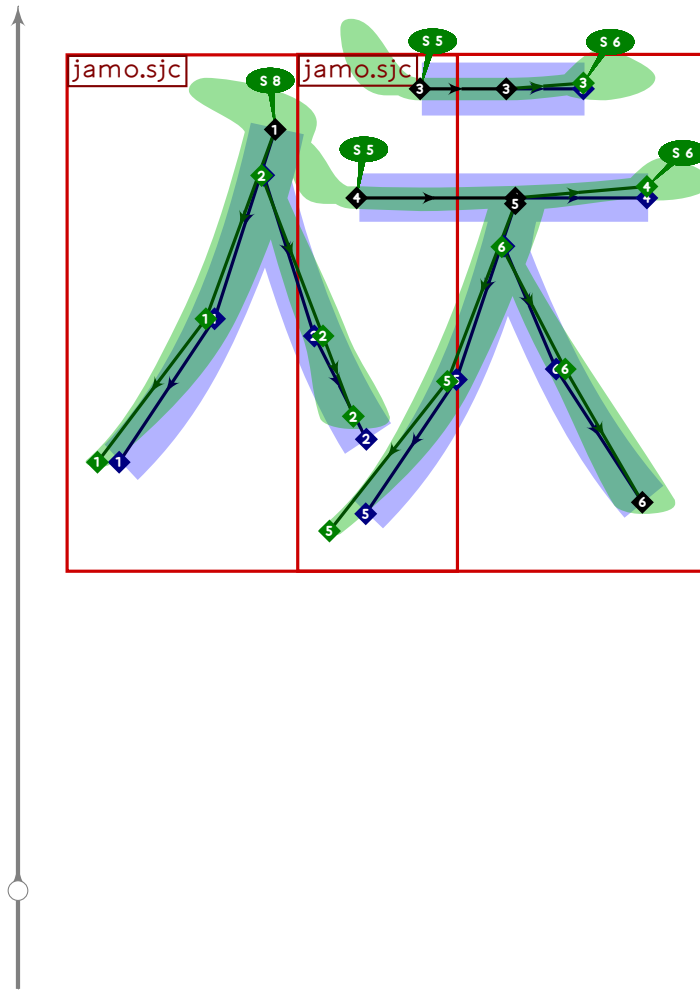
```



```

383 % hangul lead sios-cieuc
384 begintsuglyph("uni1136.l1",54);
385 hangul.combine.lr(209,112)(whatever,lixf,loxf);
386 tsu_render;
387 endtsuglyph;
388

```

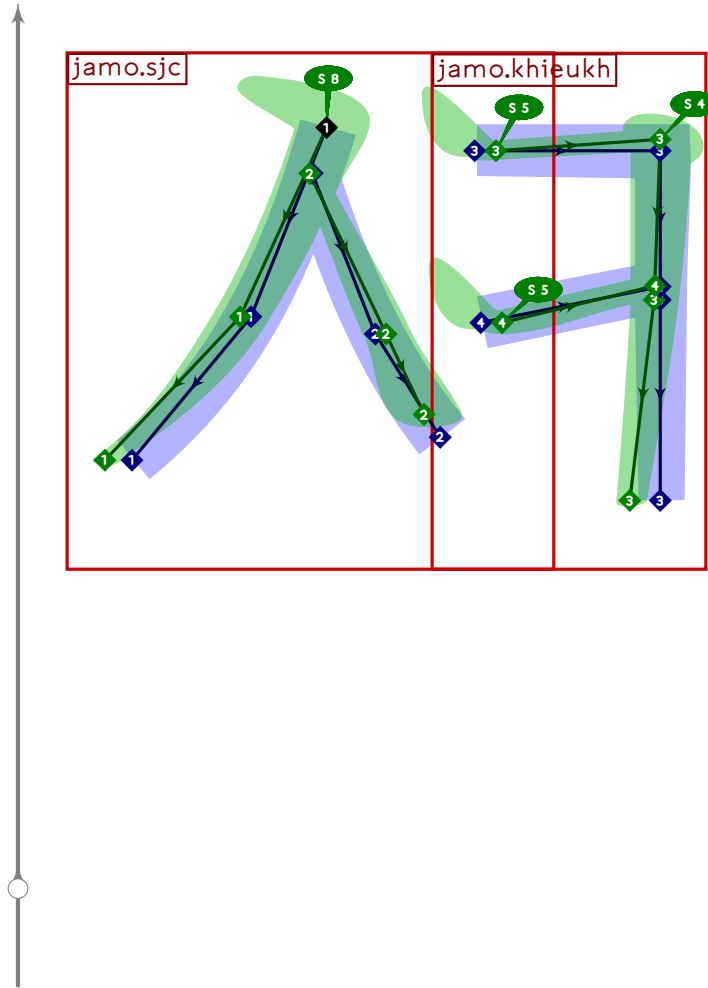


```

389 % hangul lead sios-chieuch
390 begintsuglyph("uni1137.l1",55);
391 hangul.combine.lr(209,114)(whatever,lixf,loxf);
392 tsu_render;
393 endtsuglyph;
394

```

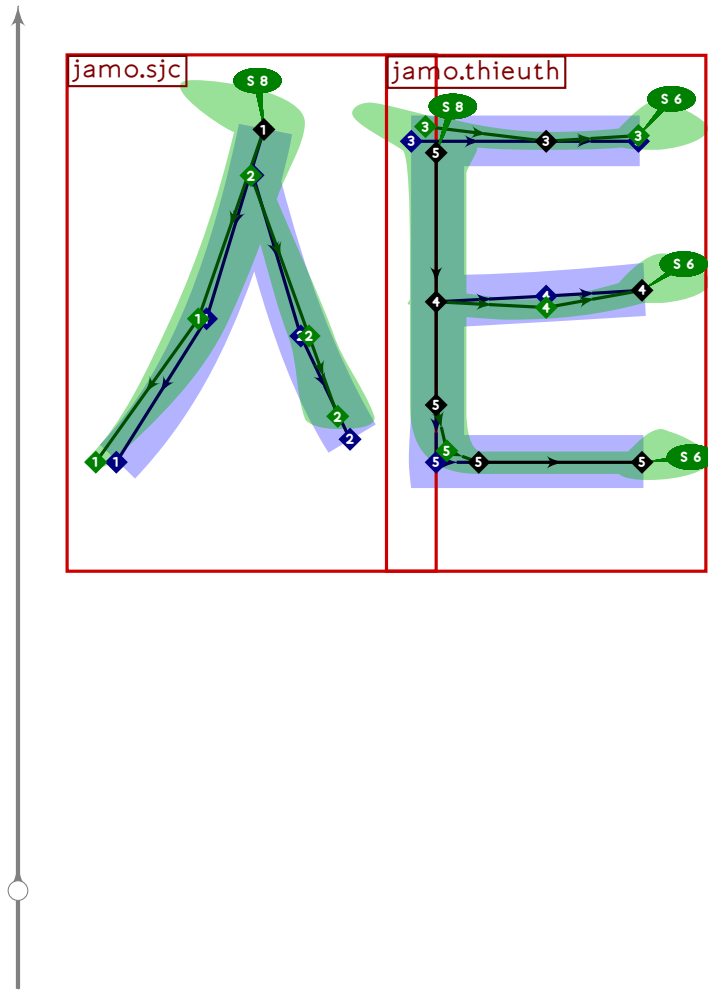




```

395 % hangul lead sios-khieukh
396 begintsuglyph("uni1138.l1",56);
397 hangul.combine.lr(209,115)(whatever,lixf,loxf);
398 tsu_render;
399 endtsuglyph;
400

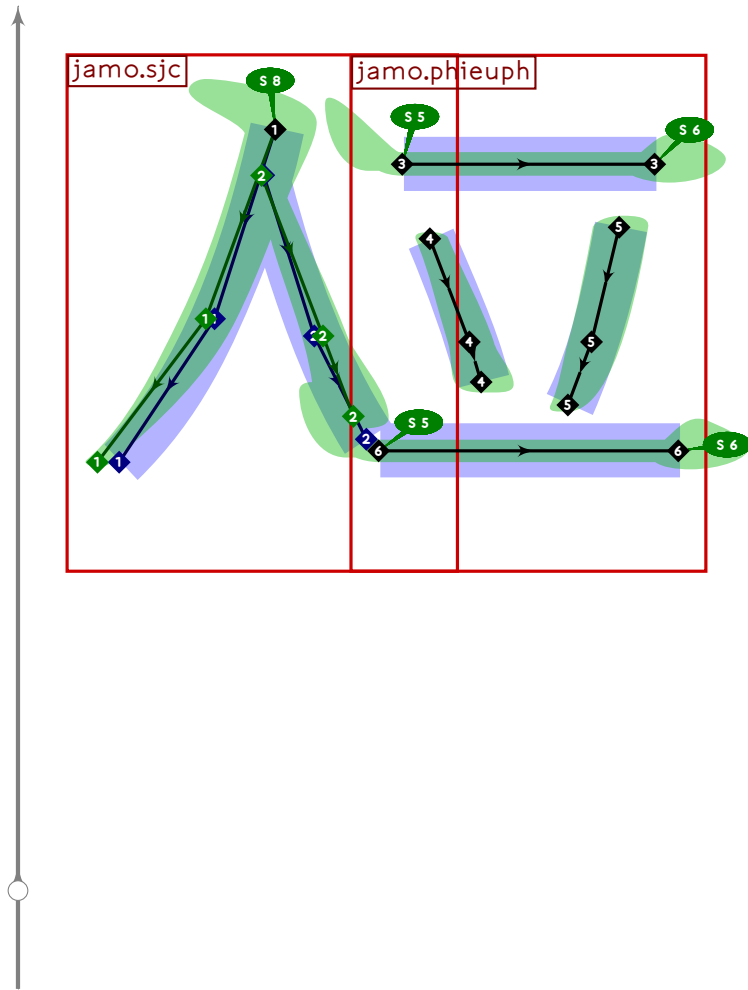
```



```

401 % hangul lead sios-thieuth
402 begintsuglyph("uni1139.l1",57);
403 hangul.combine.lr(209,116)(whatever,lixf,loxf);
404 tsu_render;
405 endtsuglyph;
406

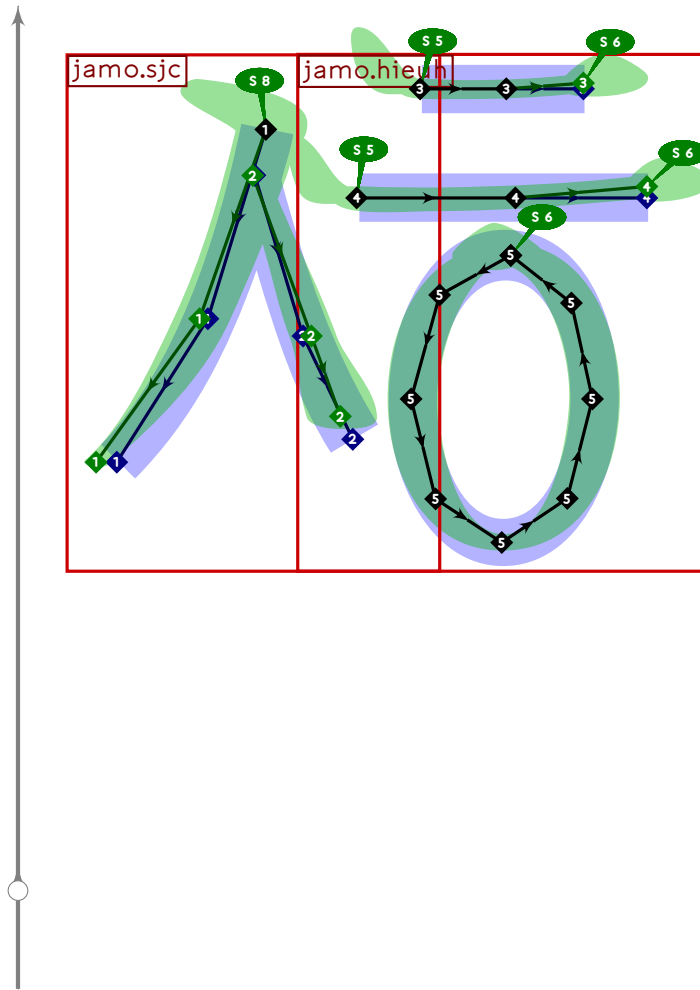
```



```

407 % hangul lead sios-phieuph
408 begint Suglyph("uni113A.l1",58);
409 hangul.combine.lr(209,117)(whatever,lixf,loxf);
410 tsu_render;
411 endtsuglyph;
412

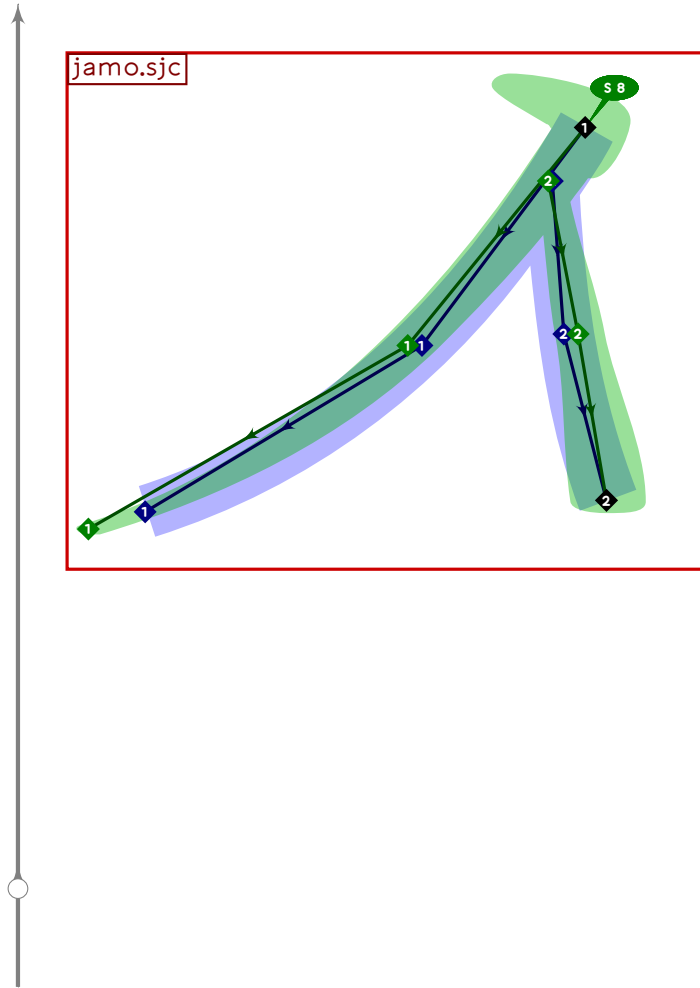
```



```

413 % hangul lead sios-hieuh
414 begintsuglyph("uni113B.l1",59);
415 hangul.combine.lr(209,118)(whatever,lixf,loxf);
416 tsu_render;
417 endtsuglyph;
418

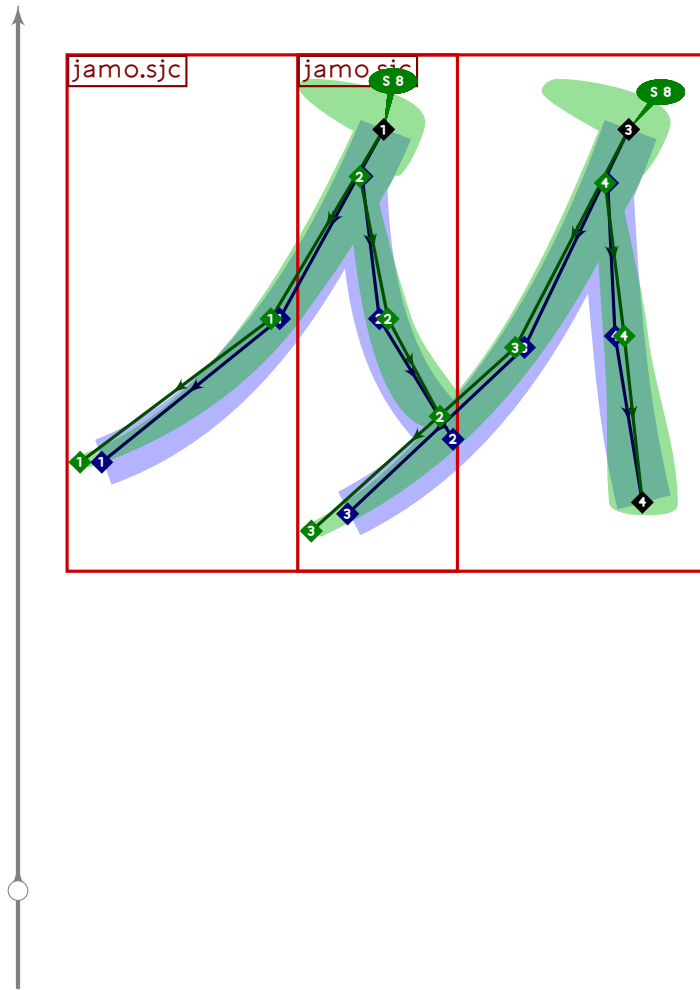
```



```

419 % hangul lead chitueumsios
420 begint Suglyph("uni113C.l1",60);
421 hangul,jamo.sjc(0,1,false)(whatever,lixf,loxf);
422 tsu_render;
423 endtsuglyph;
424

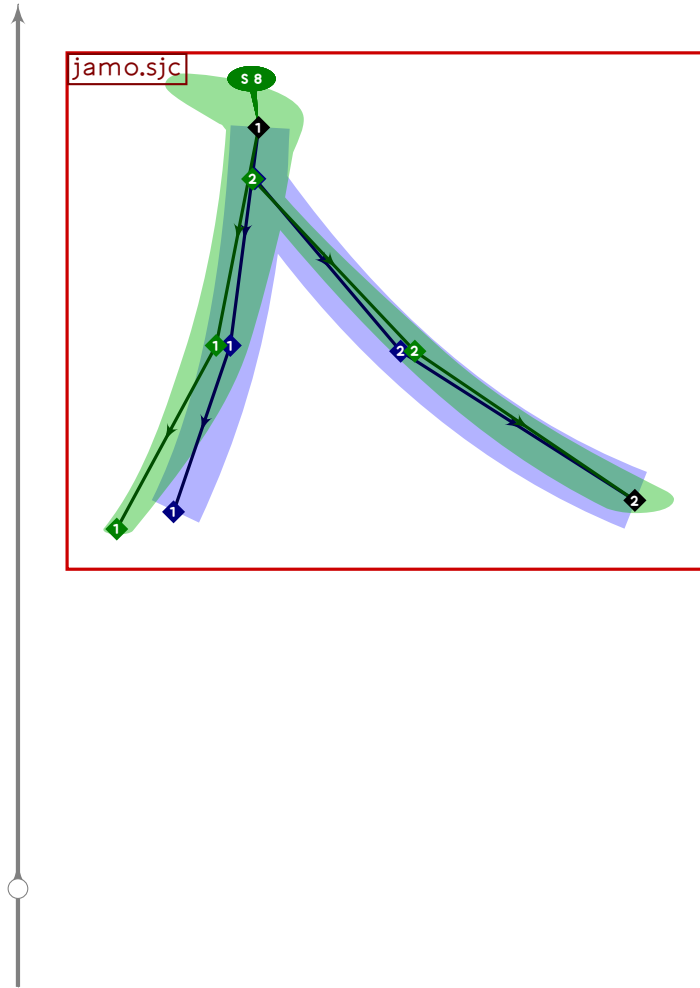
```



```

425 % hangul lead chitueumssangsios
426 begint Suglyph("uni113D.l1",61);
427 hangul.combine.lr(223,222)(whatever,lixf,loxf);
428 tsu_render;
429 endtsuglyph;
430

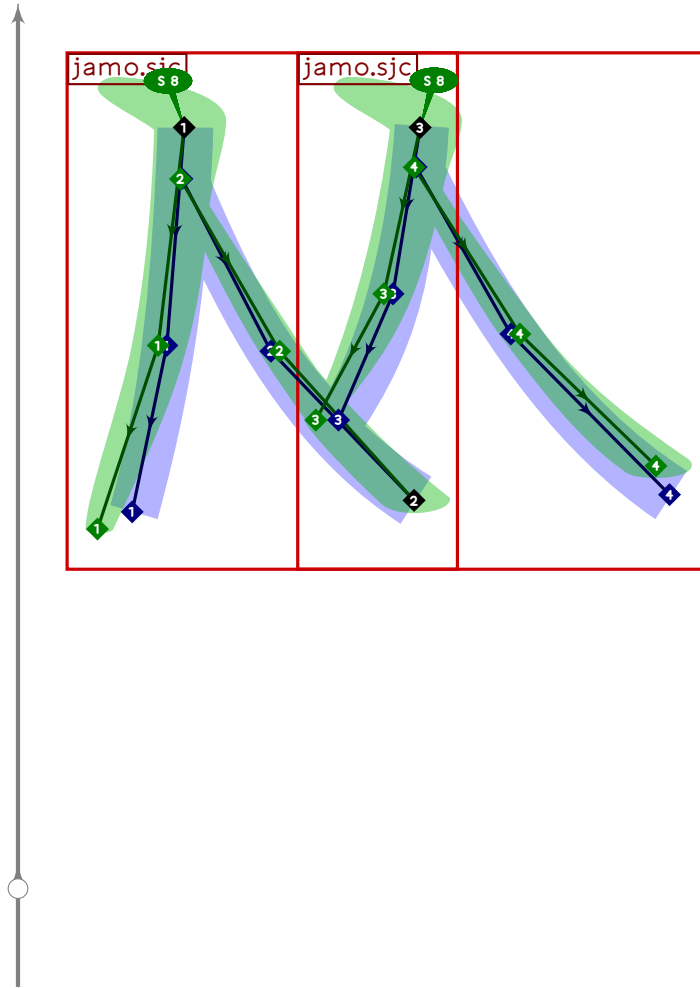
```



```

431 % hangul lead ceongchieumsios
432 begint Suglyph("uni113E.l",62);
433 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
434 tsu_render;
435 endtsuglyph;
436

```

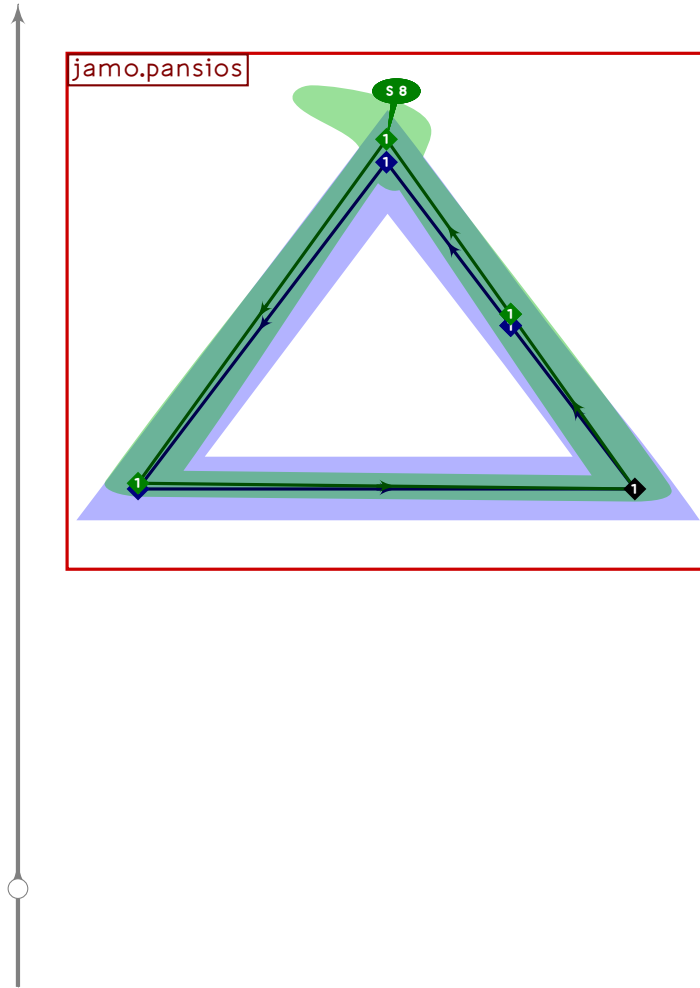


```

437 % hangul lead ceongchieumssangsios
438 begintsuglyph("uni113F.1",63);
439 hangul.combine.lr(224,225)(whatever,lixf,loxf);
440 tsu_render;
441 endtsuglyph;
442

```

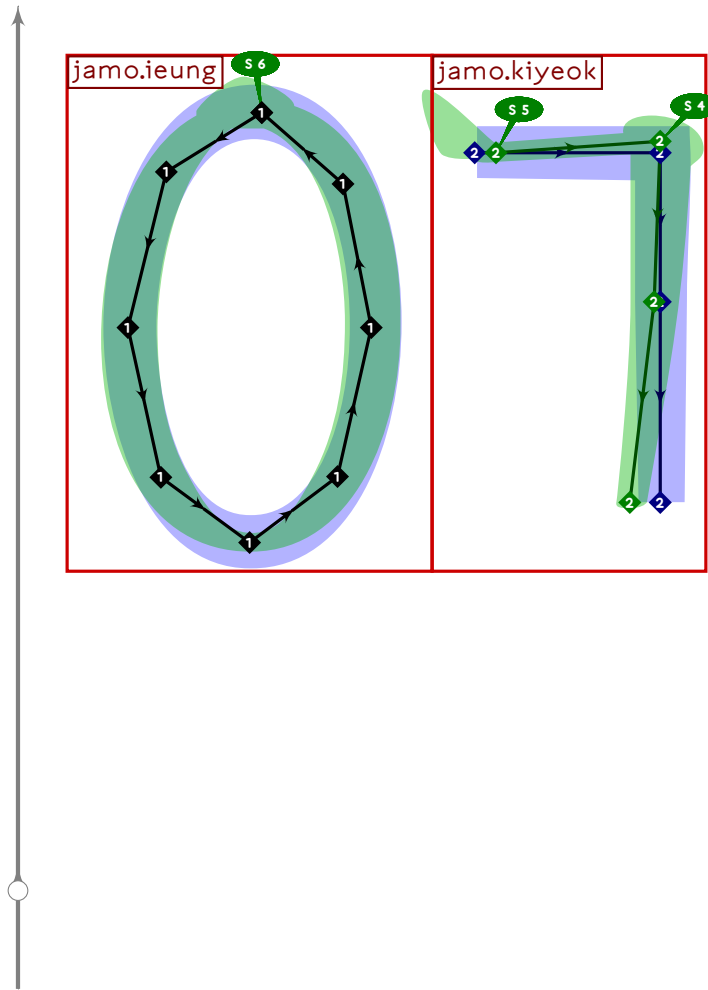




```

443 % hangul lead pansios
444 begintsuglyph("uni1140.l1",64);
445 hangul,jamo.pansios(whatever,lixf,loxf);
446 tsu_render;
447 endtsuglyph;
448

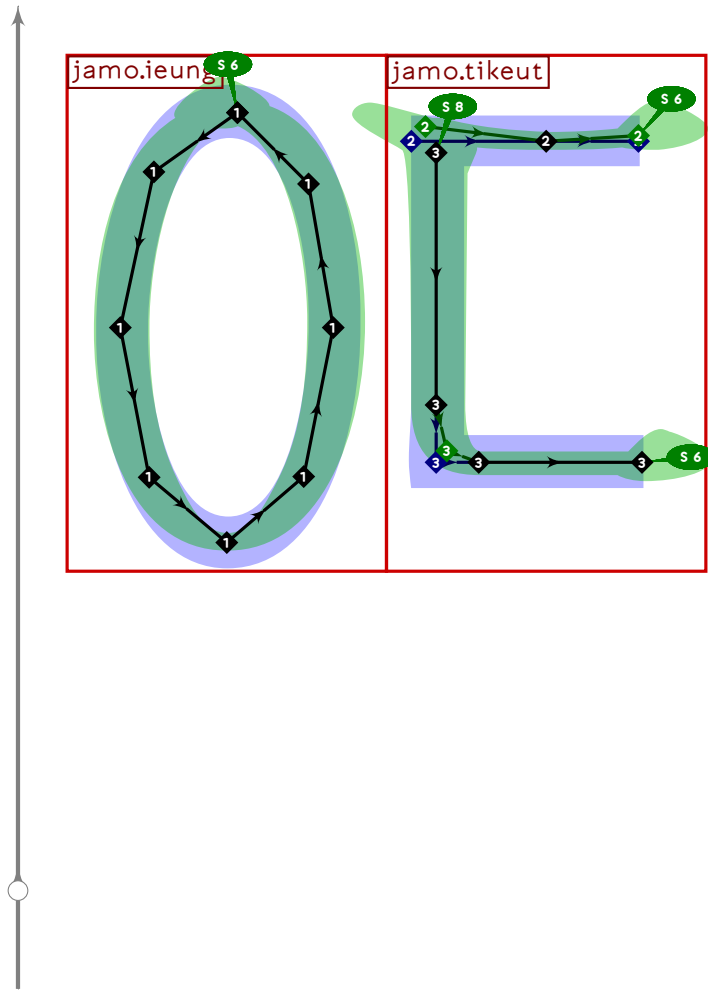
```



```

449 % hangul lead ieung-kiyeok
450 begintsuglyph("uni1141.l1",65);
451 hangul.combine.lr(111,100)(whatever,lixf,loxf);
452 tsu_render;
453 endtsuglyph;
454

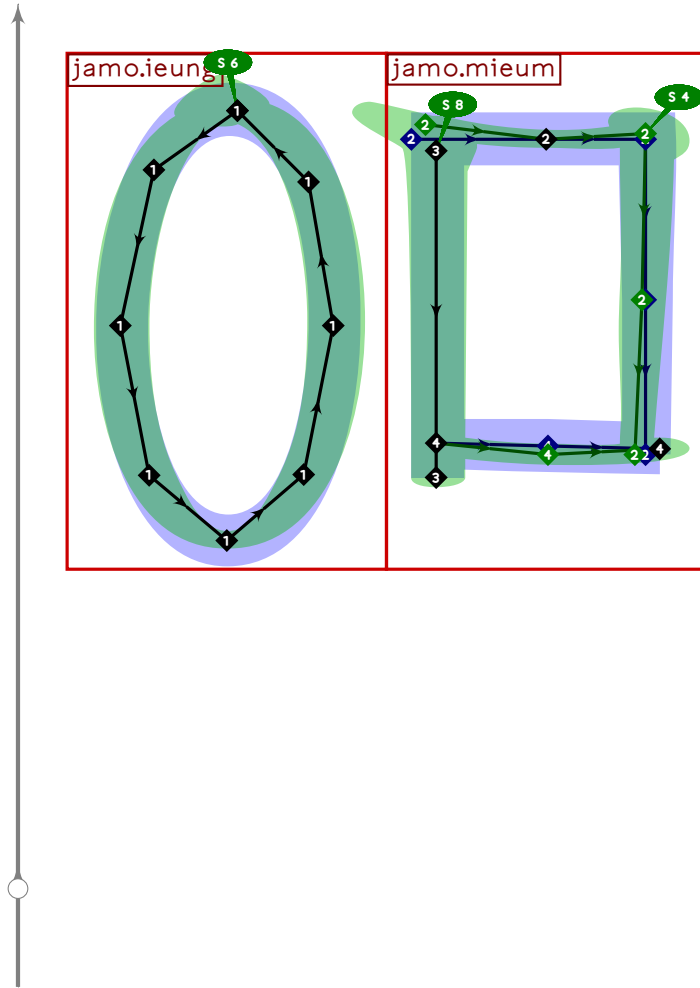
```



```

455 % hangul lead ieung-tikeut
456 begintsuglyph("uni1142.l1",66);
457 hangul.combine.lr(111,103)(whatever,lixf,loxf);
458 tsu_render;
459 endtsuglyph;
460

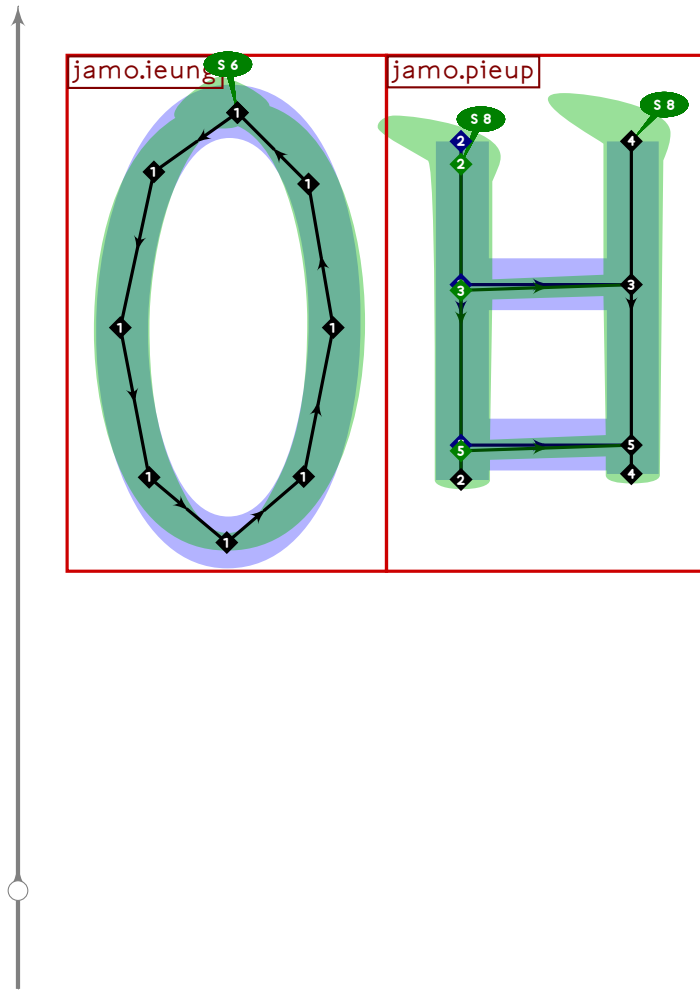
```



```

461 % hangul lead ieung-mieum
462 begintsuglyph("uni1143.l1",67);
463 hangul.combine.lr(111,106)(whatever,lixf,loxf);
464 tsu_render;
465 endtsuglyph;
466

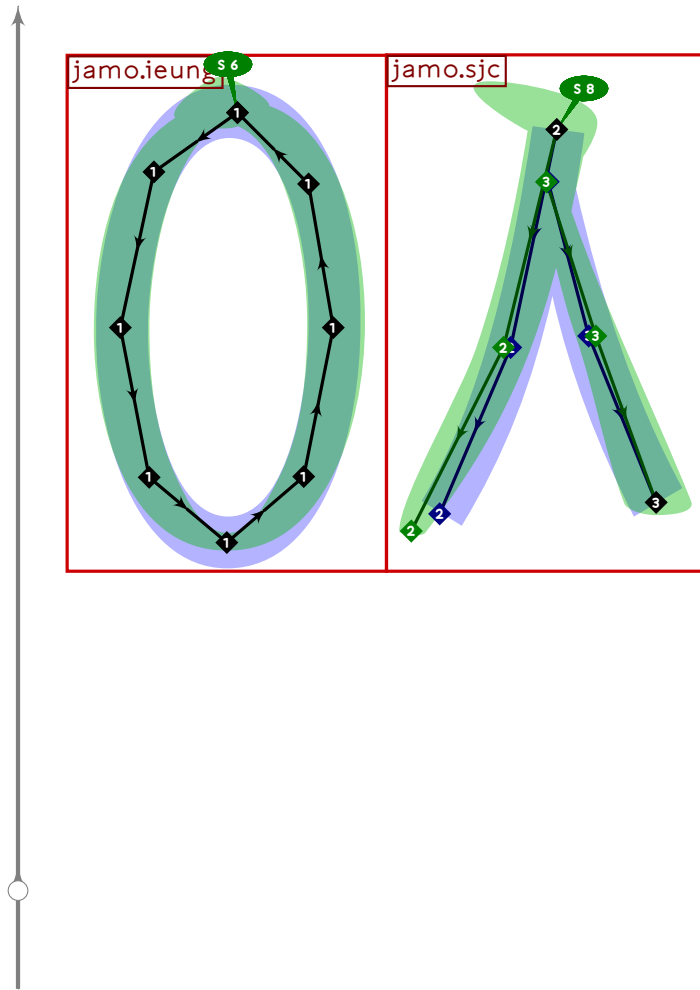
```



```

467 % hangul lead ieung-pieup
468 begintsuglyph("uni1144.l1",68);
469 hangul.combine.lr(111,107)(whatever,lixf,loxf);
470 tsu_render;
471 endtsuglyph;
472

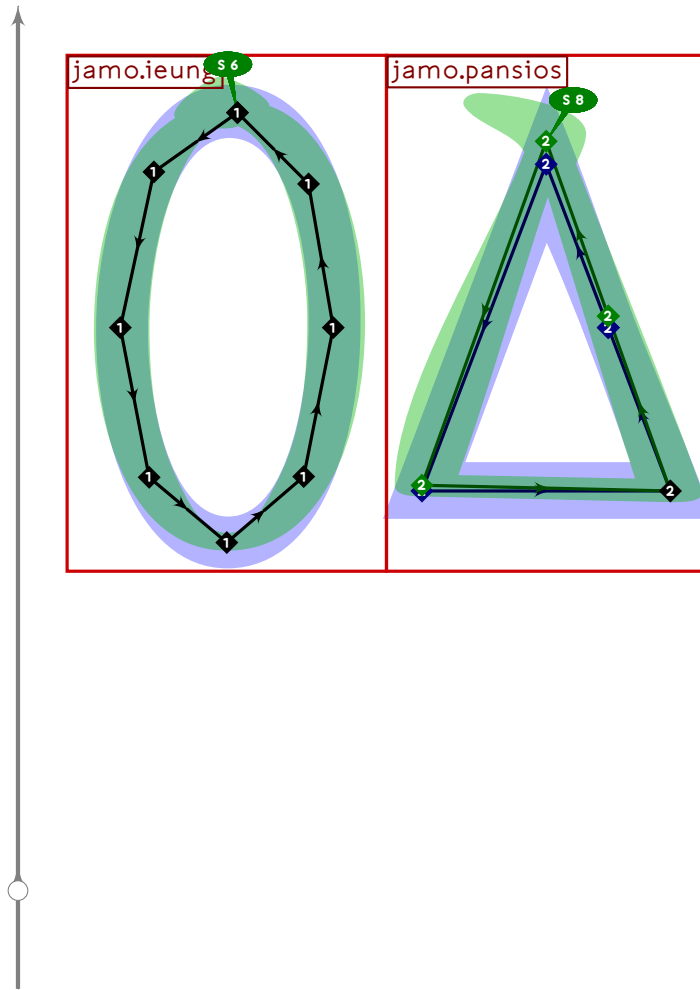
```



```

473 % hangul lead ieung-sios
474 begintsuglyph("uni1145.l1",69);
475 hangul.combine.lr(111,109)(whatever,lixf,loxf);
476 tsu_render;
477 endtsuglyph;
478

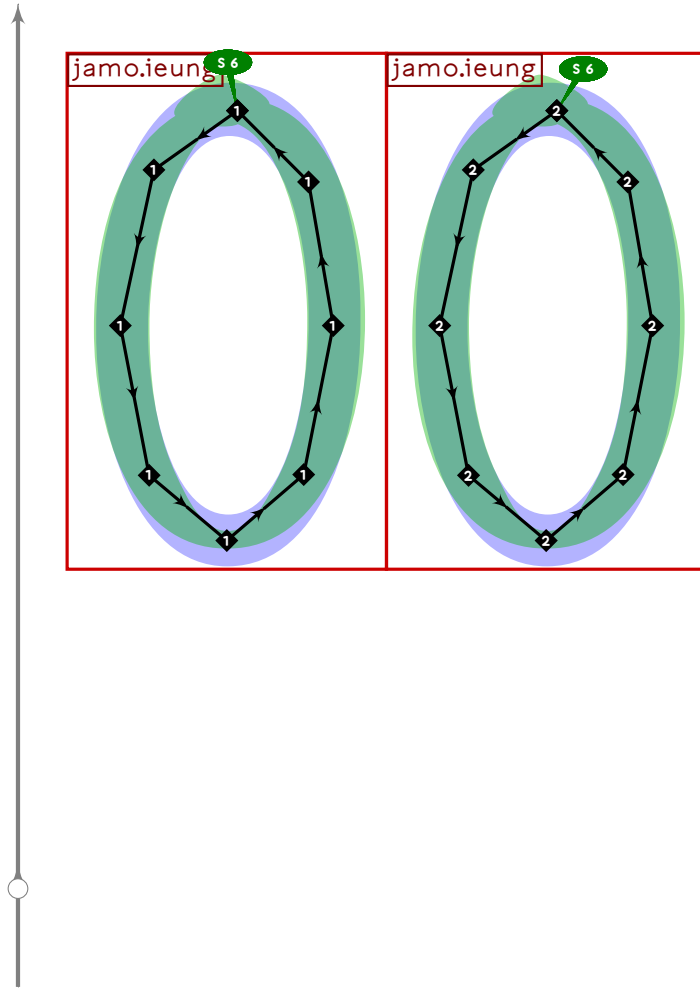
```



```

479 % hangul lead ieung-pansios
480 begintsuglyph("uni1146.l",70);
481 hangul.combine.lr(111,219)(whatever,lixf,loxf);
482 tsu_render;
483 endtsuglyph;
484

```

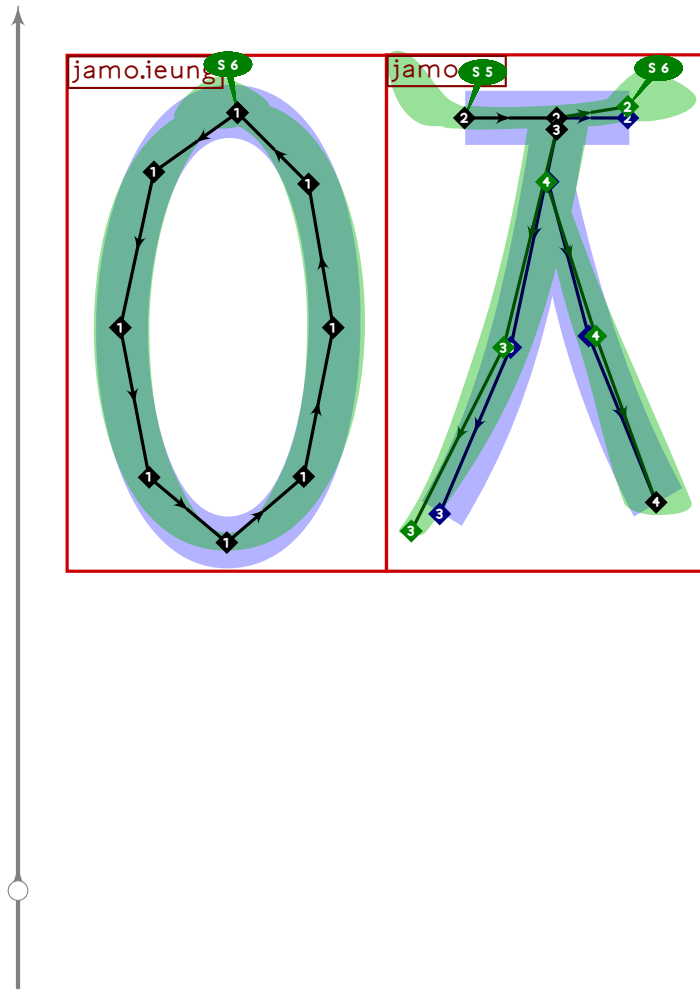


```

485 % hangul lead ssangieung
486 begintsuglyph("uni1147.1!"71);
487 hangul.combine.lr(111,111)(whatever,lixf,loxf);
488 tsu_render;
489 endtsuglyph;
490

```

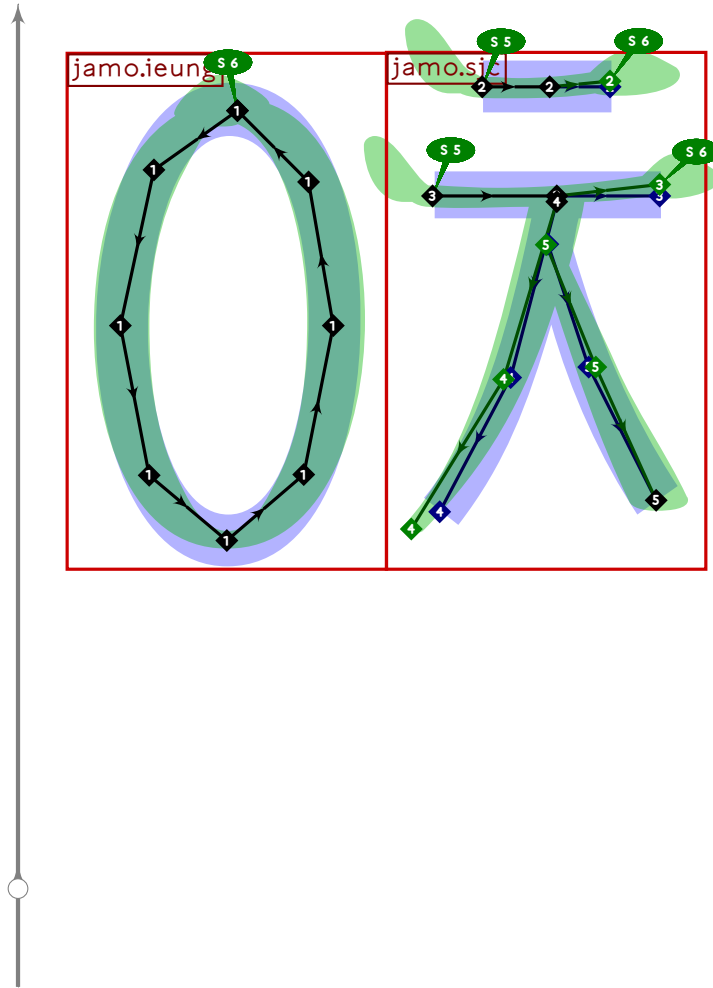




```

491 % hangul lead ieung-cieuc
492 begintsuglyph("uni1148.l",72);
493 hangul.combine.lr(111,112)(whatever,lixf,loxf);
494 tsu_render;
495 endtsuglyph;
496

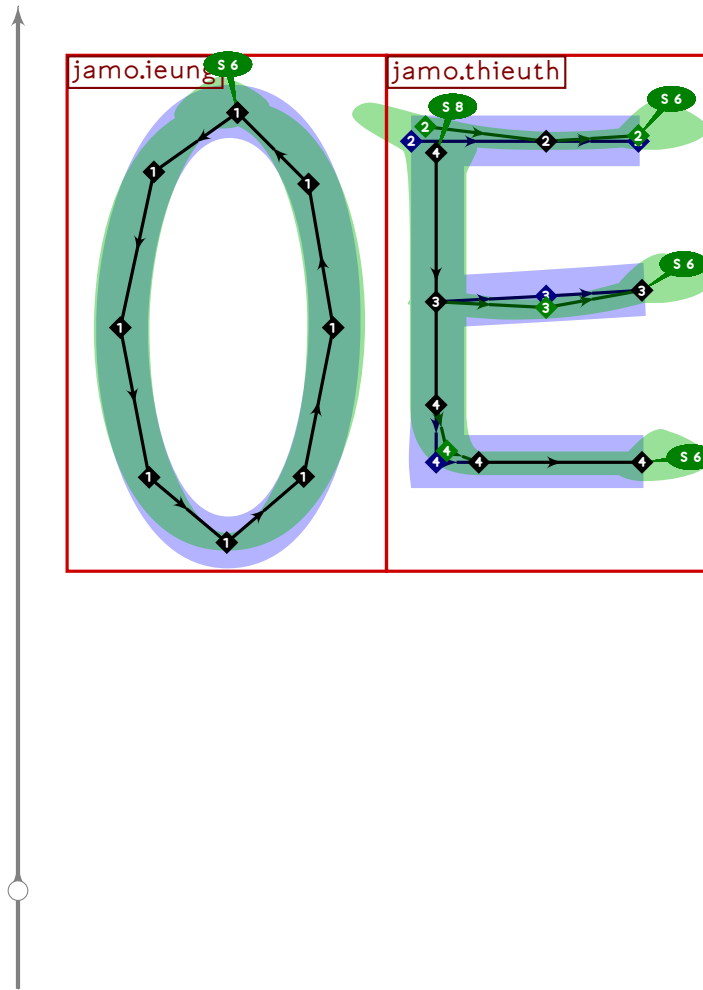
```



```

497 % hangul lead ieung-chieuch
498 begintsuglyph("uni1149.l1",73);
499 hangul.combine.lr(111,114)(whatever,lixf,loxf);
500 tsu_render;
501 endtsuglyph;
502

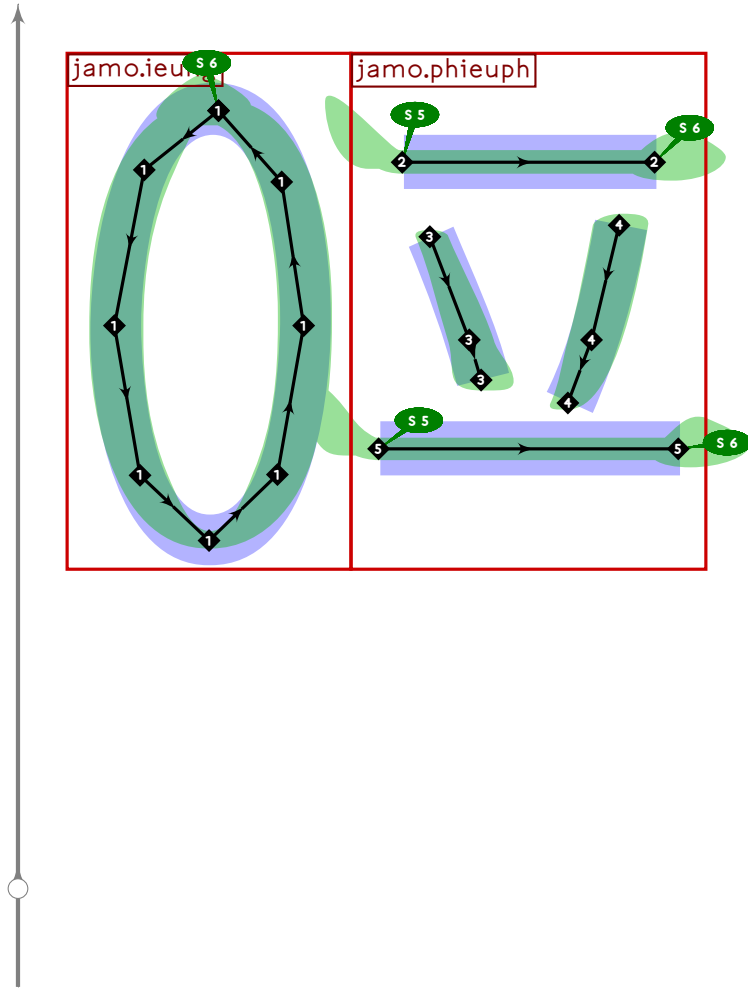
```



```

503 % hangul lead ieung-theiuth
504 begintsuglyph("uni114A.l1",74);
505 hangul.combine.lr(111,116)(whatever,lixf,loxf);
506 tsu_render;
507 endtsuglyph;
508

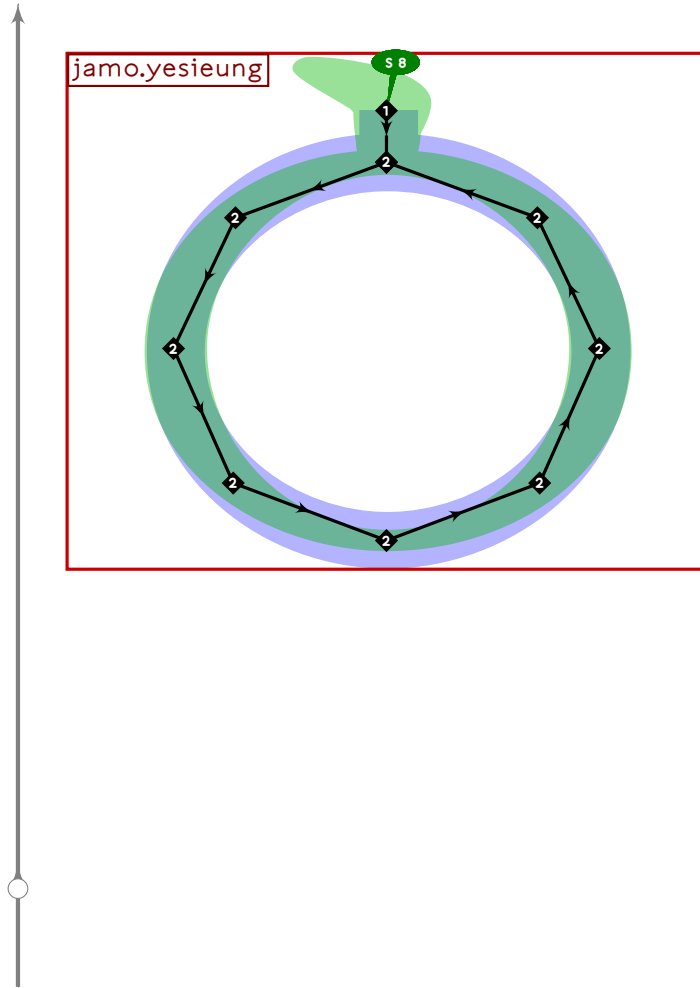
```



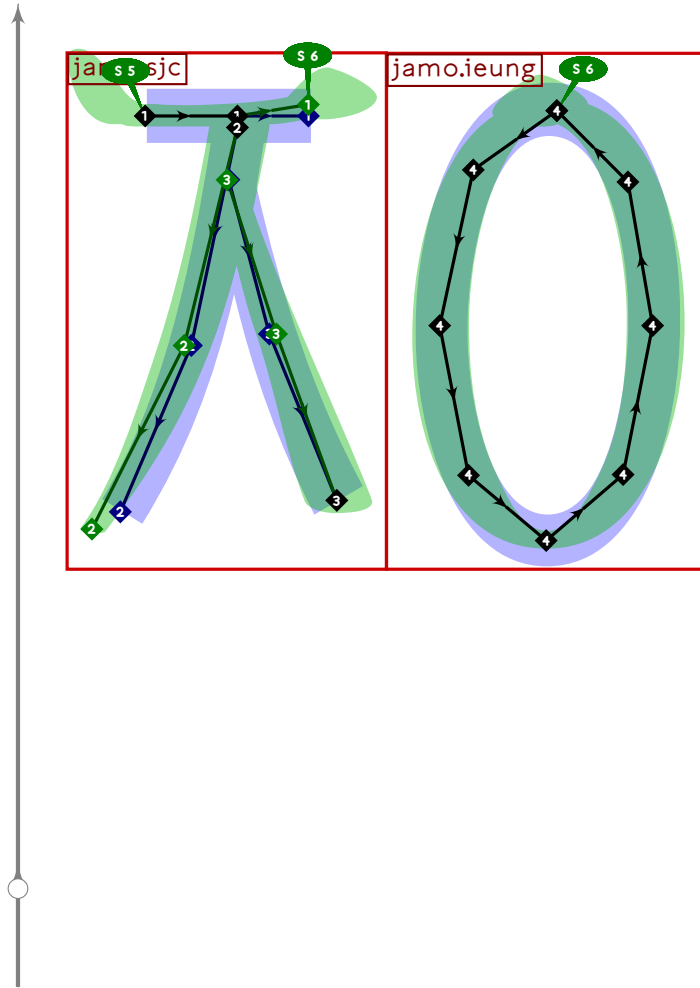
```

509 % hangul lead ieung-phieuph
510 begintsuglyph("uni114B.l1",75);
511 hangul.combine.lr(111,117)(whatever,lixf,loxf);
512 tsu_render;
513 endtsuglyph;
514

```



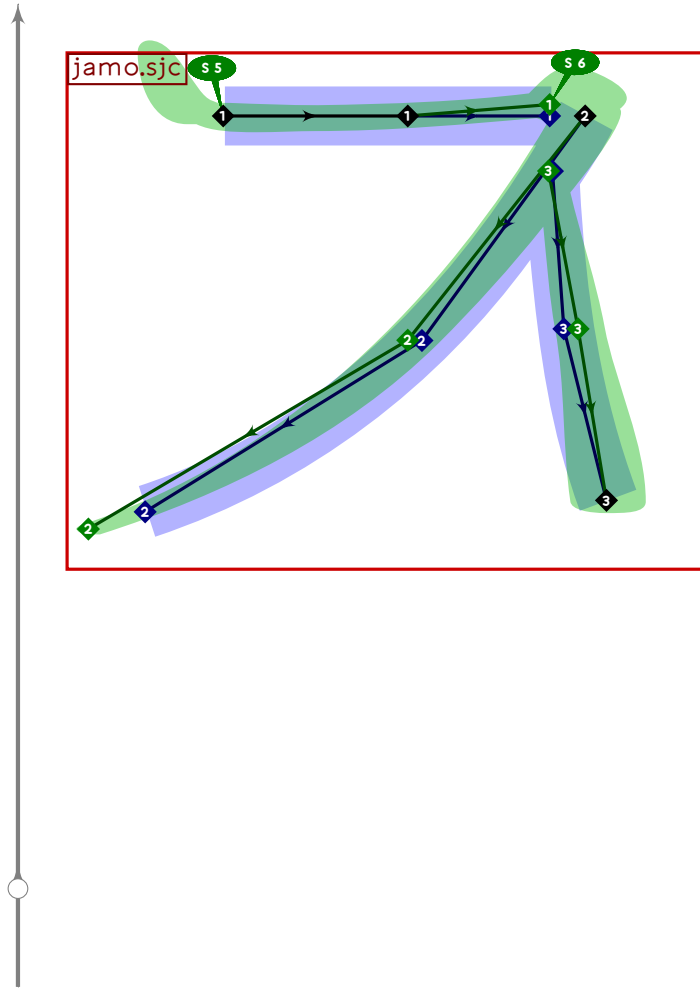
```
515 % hangul lead yesieung
516 begintsuglyph("uni114C.l1"76);
517 hangul,jamo.yesieung(whatever,lixf,loxf);
518 tsu_render;
519 endtsuglyph;
520
```



```

521 % hangul lead cieuc-ieung
522 begintsuglyph("uni114D.l1'77);
523 hangul.combine.lr(112,111)(whatever,lixf,loxf);
524 tsu_render;
525 endtsuglyph;
526

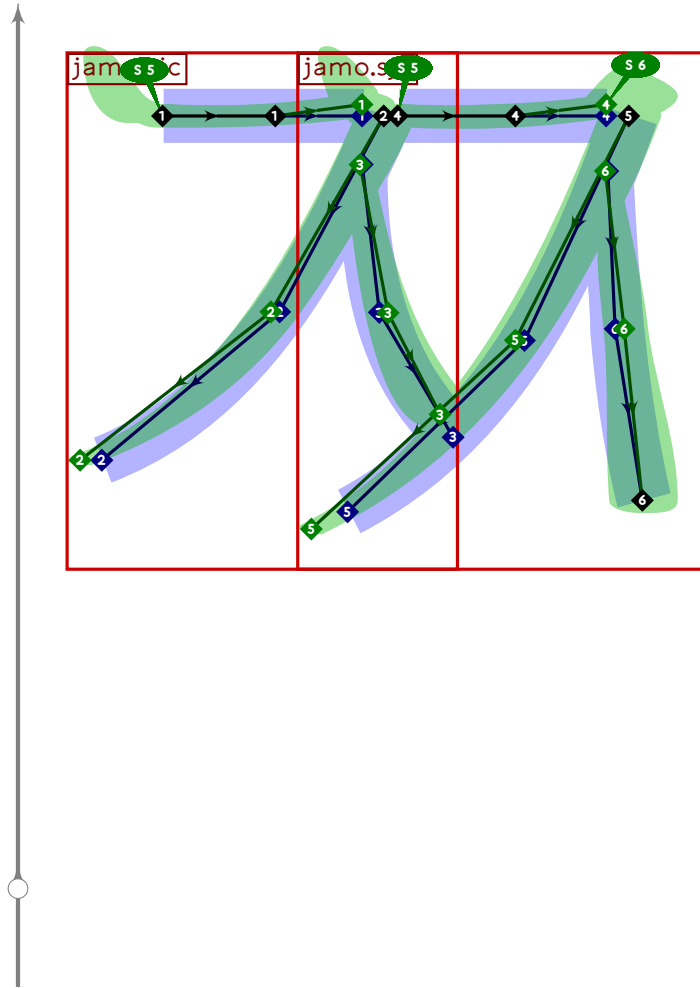
```



```

527 % hangul lead chitueumcieuc
528 begint Suglyph("uni114E.l",78);
529 hangul,jamo.sjc(1,1,false)(whatever,lixf,loxf);
530 tsu_render;
531 endtsuglyph;
532

```

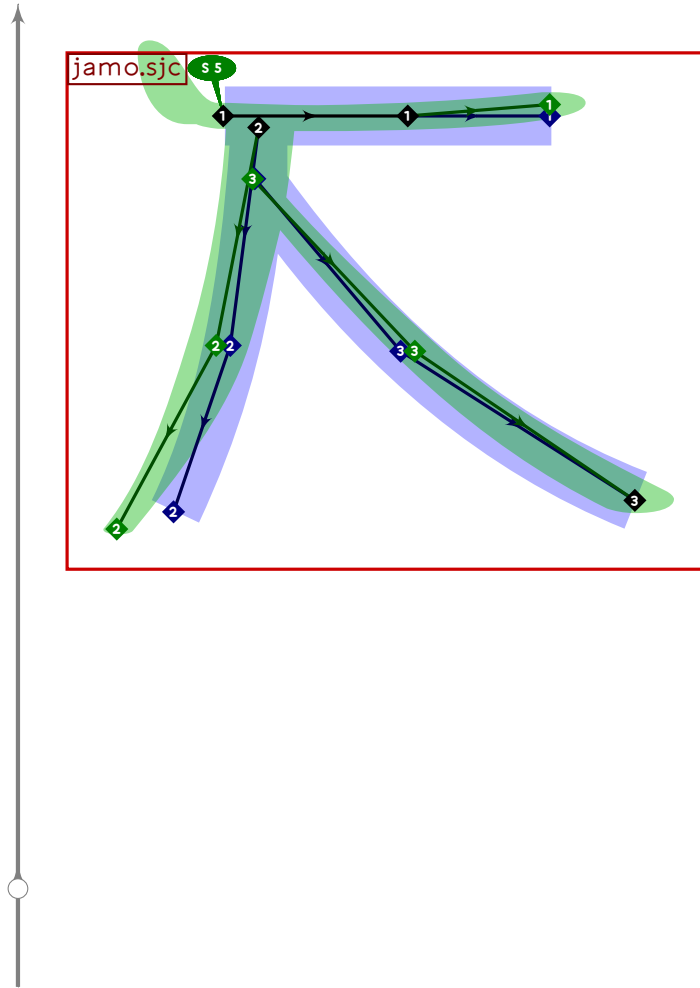


```

533 % hangul lead chitueumssangcieuc
534 begintsuglyph("uni114F.l1",79);
535 hangul.combine.lr(227,226)(whatever,lixf,loxf);
536 tsu_render;
537 endtsuglyph;
538

```

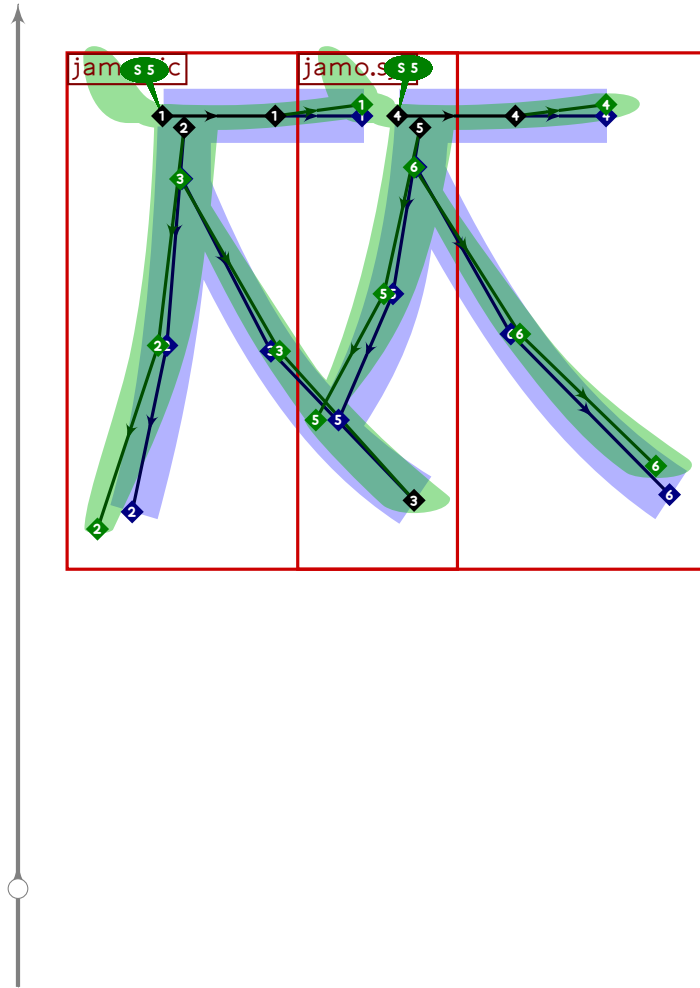




```

539 % hangul lead ceongchieumcieuc
540 begint Suglyph("uni1150.l1",80);
541 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
542 tsu_render;
543 endtsuglyph;
544

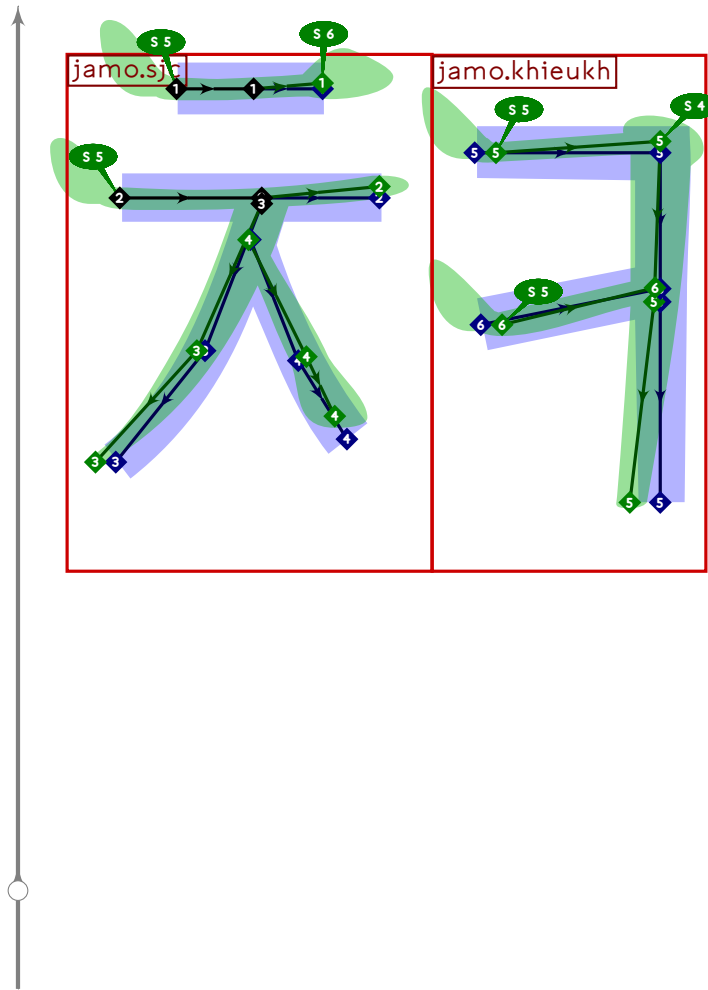
```



```

545 % hangul lead ceongchieumssangcieuc
546 begintsuglyph("uni1151.l1";81);
547 hangul.combine.lr(228,229)(whatever,lif,loxf);
548 tsu_render;
549 endtsuglyph;
550

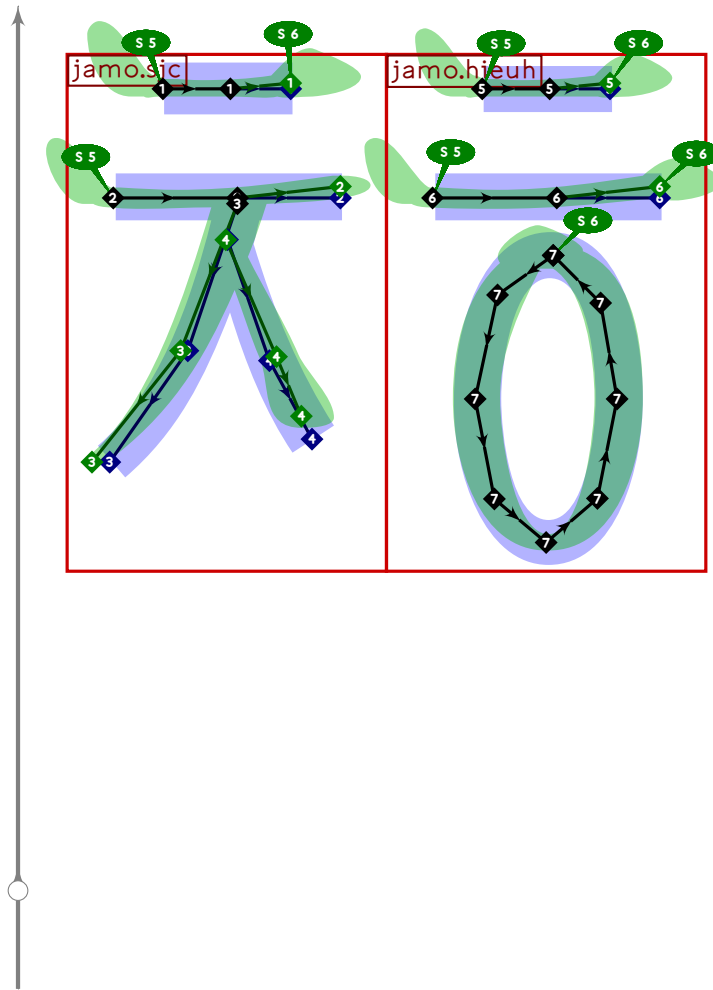
```



```

551 % hangul lead chieuch-khieukh
552 begintsuglyph("uni1152.l1",82);
553 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
554 tsu_render;
555 endtsuglyph;
556

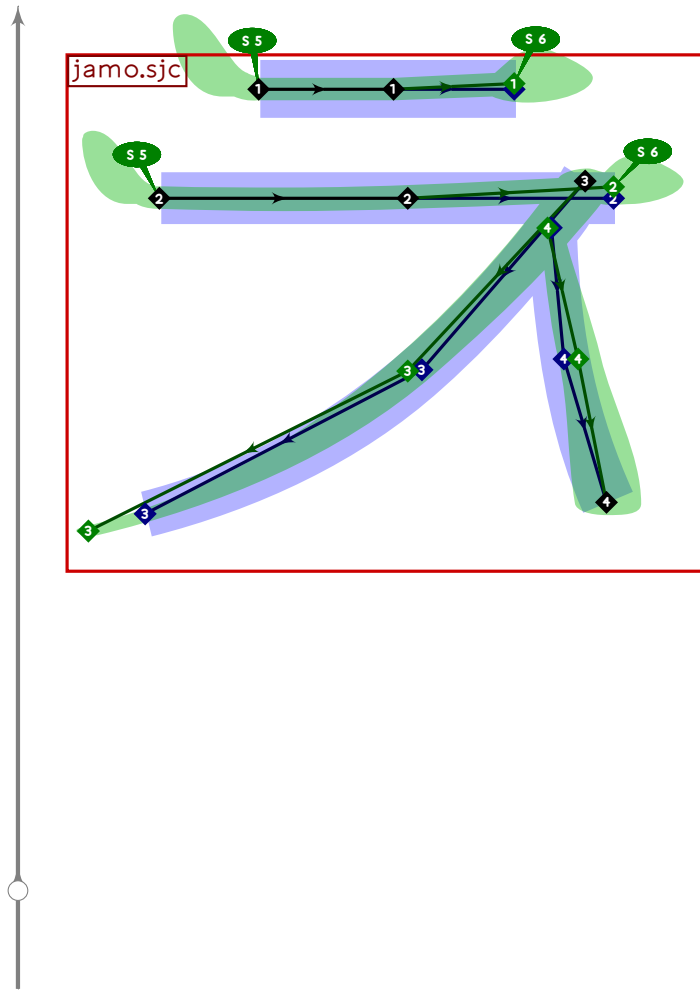
```



```

557 % hangul lead chieuch-hieuh
558 begintsuglyph("uni1153.l1",83);
559 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
560 tsu_render;
561 endtsuglyph;
562

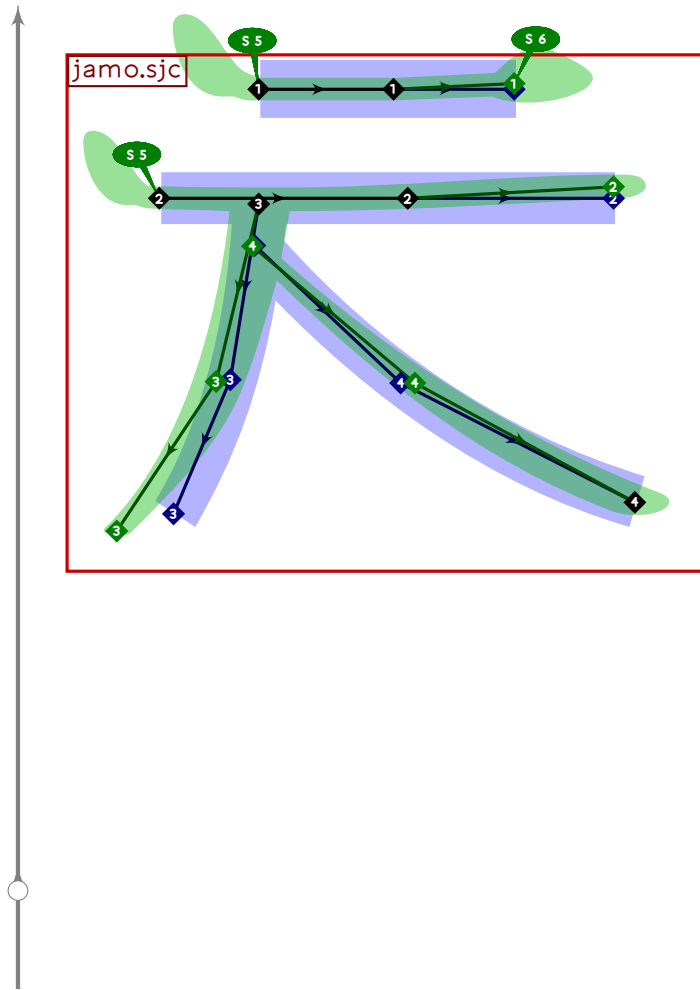
```



```

563 % hangul lead chitueumcieuc
564 begint Suglyph("uni1154.l1",84);
565 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
566 tsu_render;
567 endtsuglyph;
568

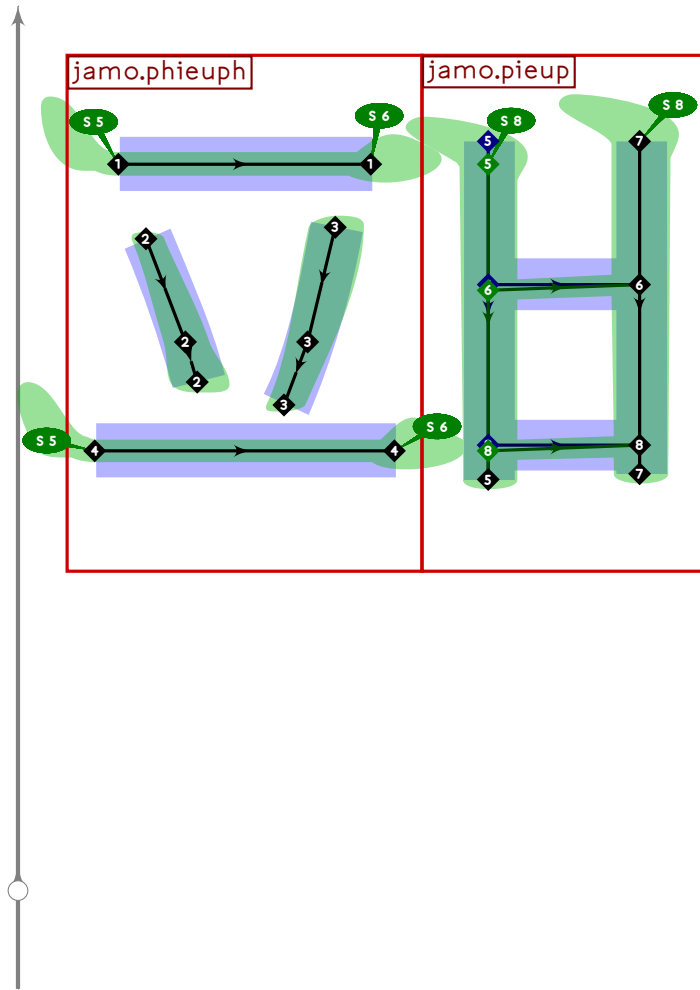
```



```

569 % hangul lead ceongchieumcieuc
570 begint Suglyph("uni1155.l1",85);
571 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
572 tsu_render;
573 endtsuglyph;
574

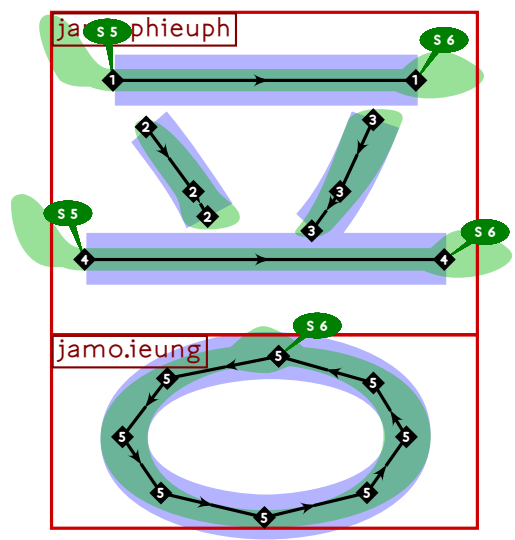
```



```

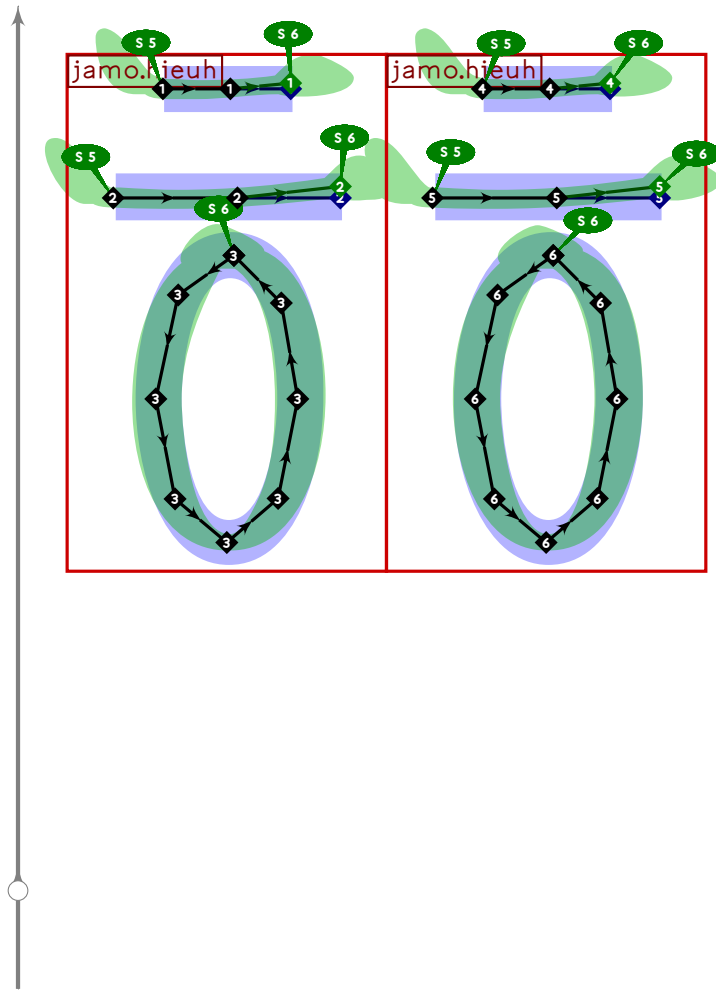
575 % hangul lead phieuph-pieup
576 begintsuglyph("uni1156.l1",86);
577 hangul.combine.lr(117,107)(whatever,lixf,loxf);
578 tsu_render;
579 endtsuglyph;
580

```



```
581 % hangul lead kapyeounphieuph
582 begintsuglyph("uni1157.l1";87);
583 hangul.combine.tb(117,521)(whatever,
584   hxf((250,850),(850,-50)) transformed lixf,loxf);
585 tsu_render;
586 endtsuglyph;
587
```

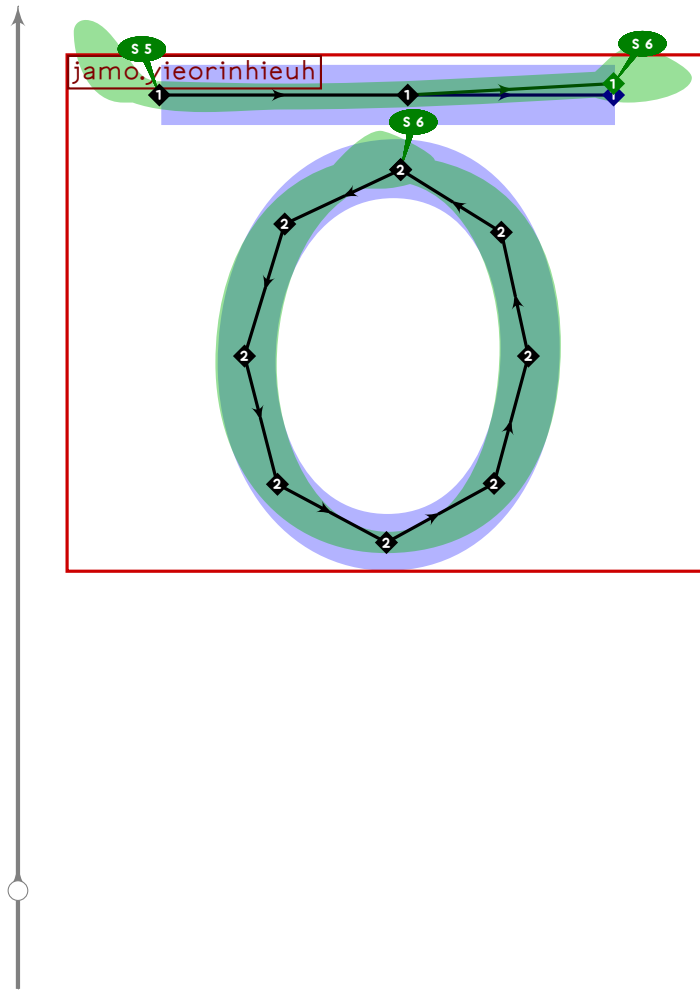




```

588 % hangul lead ssanghieuh
589 begintsuglyph("uni1158.l",88);
590 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
591 tsu_render;
592 endtsuglyph;
593

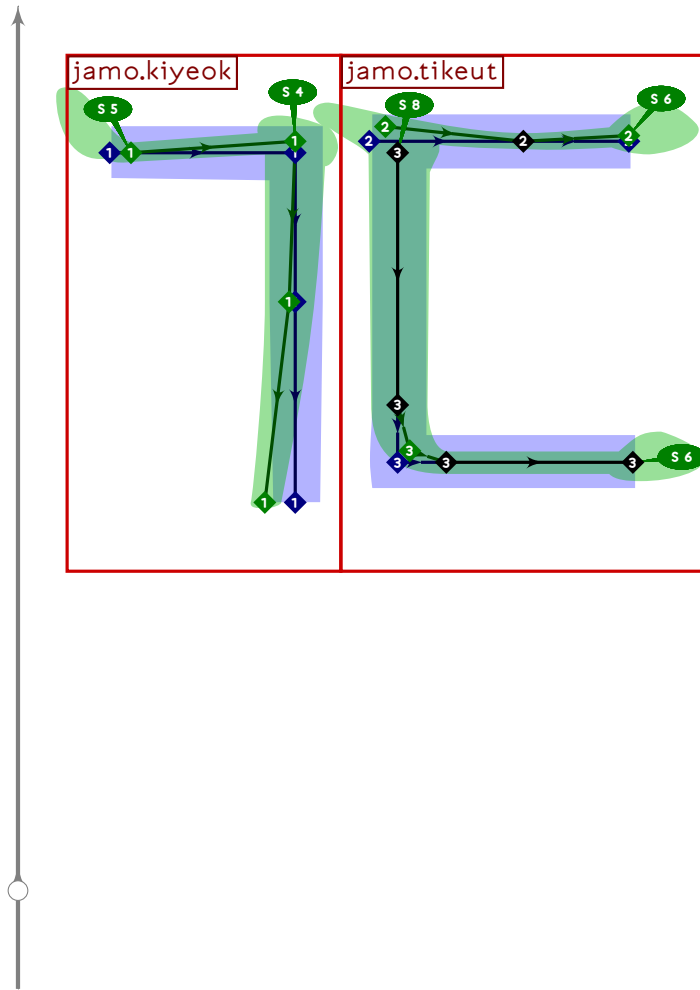
```



```

594 % hangul lead yeorinhieuh
595 begintsuglyph("uni1159.l1",89);
596 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
597 tsu_render;
598 endtsuglyph;
599

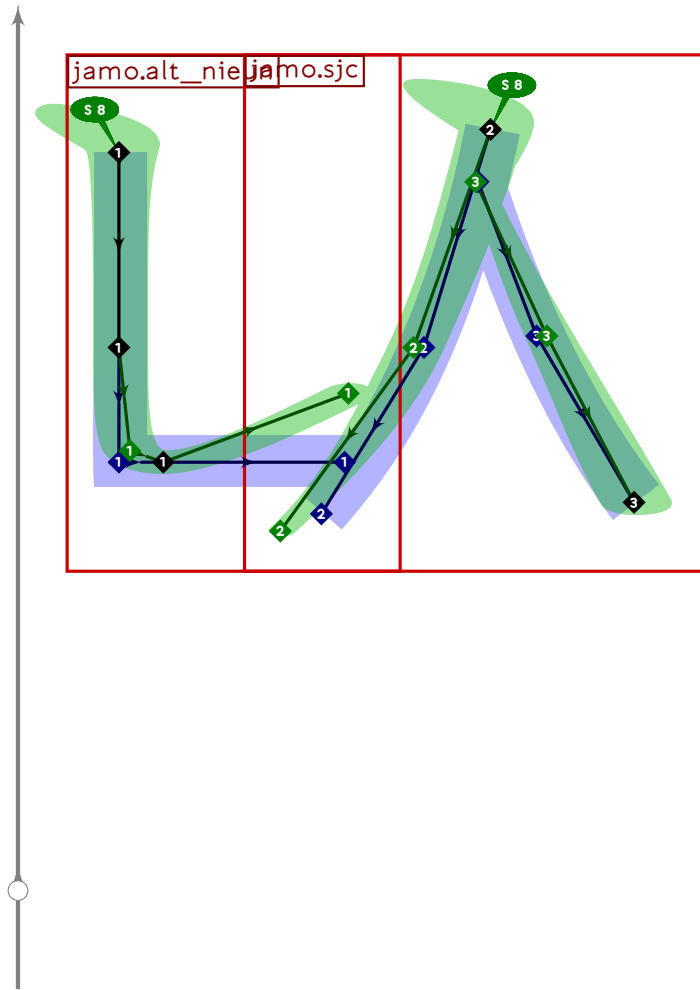
```



```

600 % hangul lead kiyeok-tikeut
601 begint Suglyph("uni115A.l1"90);
602 hangul.combine.lr(100,103)(whatever,lixf,loxf);
603 tsu_render;
604 endtsuglyph;
605

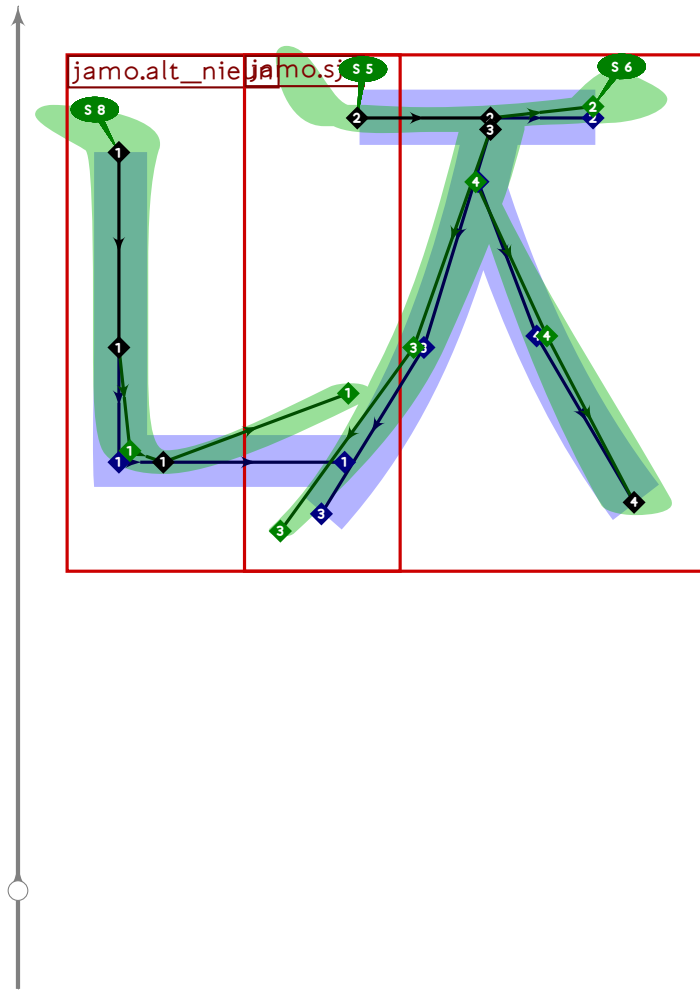
```



```

606 % hangul lead nieun-sios
607 begintsuglyph("uni115B.l1";91);
608 hangul.combine.lr(202,109)(whatever,lixf,loxf);
609 tsu_render;
610 endtsuglyph;
611

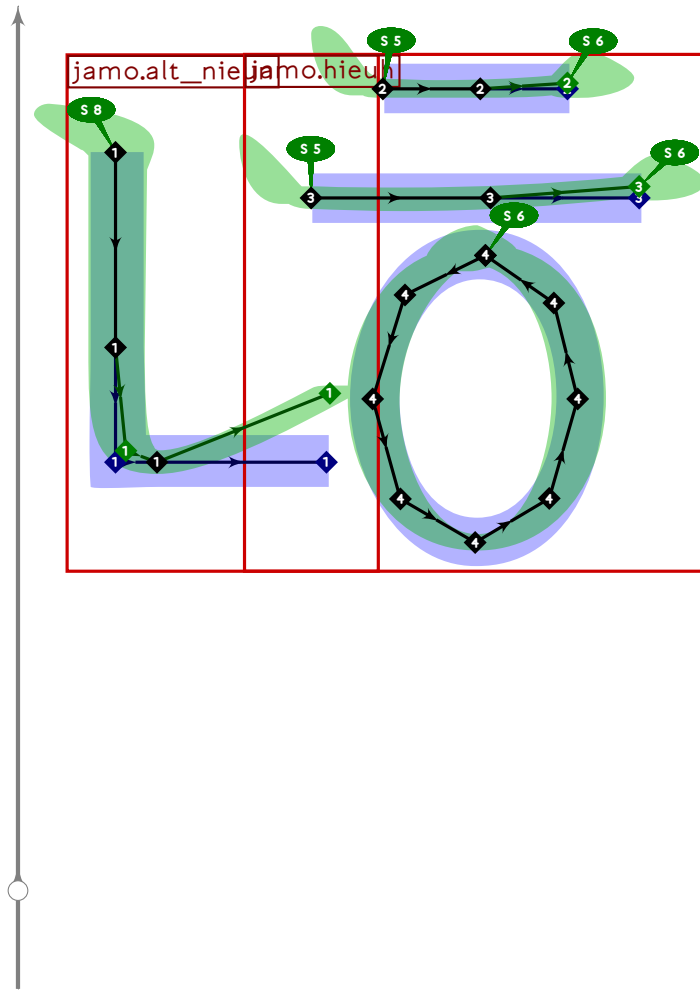
```



```

612 % hangul lead nieun-cieuc
613 begintsuglyph("uni115C.l1"92);
614 hangul.combine.lr(202,112)(whatever,lixf,loxf);
615 tsu_render;
616 endtsuglyph;
617

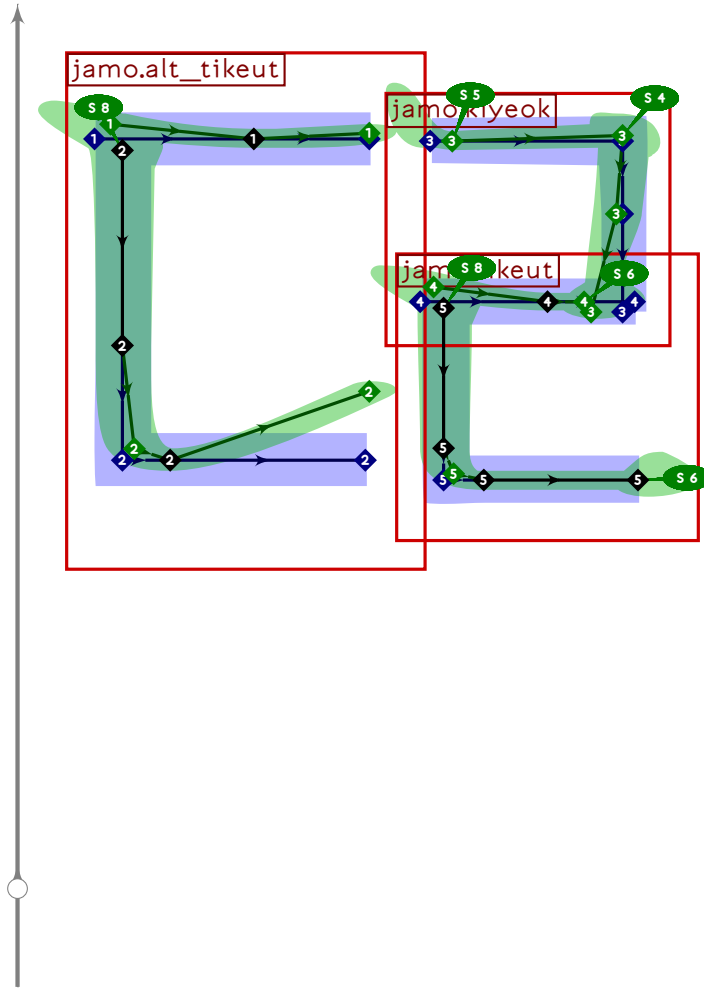
```



```

618 % hangul lead nieun-hieuh
619 begintsuglyph("uni115D.l1"93);
620 hangul.combine.lr(202,118)(whatever,lixf,loxf);
621 tsu_render;
622 endtsuglyph;
623

```



```

624 % hangul lead tikeut-rieul
625 begintsuglyph("uni115E.l1";94);
626 hangul.combine.lr(203,105)(whatever,lixf,loxf);
627 tsu_render;
628 endtsuglyph;
629
630 _____
631
632 endfont;
633
634 _____

```

# jieub-ff4.mp

```
1 %
2 % Unicode page FF4 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
42 % This file contains leads for layout 2: horizontal vowel and nonempty tail.
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(950,525));
47
48 

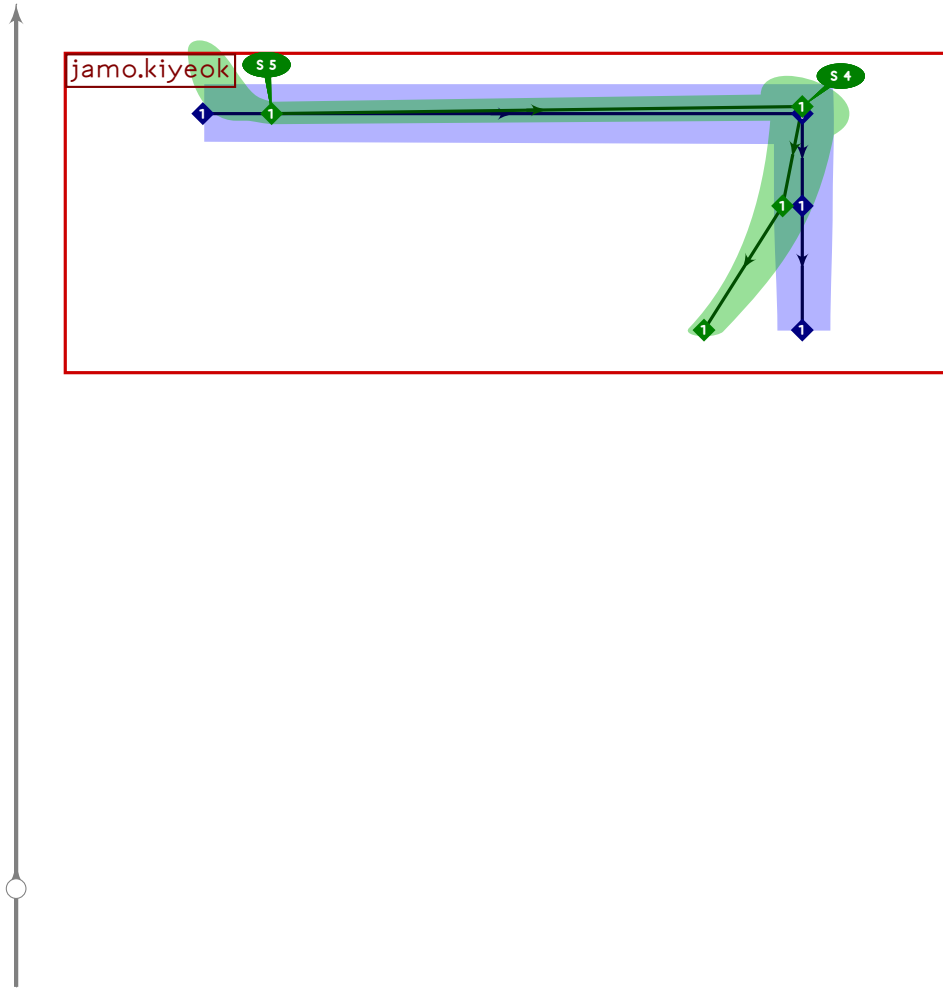
---


49
```

## Hangul Choseong (Lead) Jamo

```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```

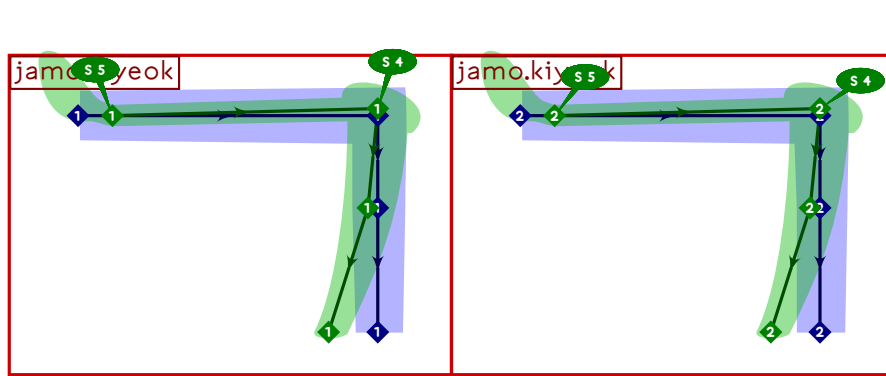




```

54 % hangul lead kiyek
55 begintuglyph("uni1100.12",0);
56 hangul,jamo.kiyek(whatever,lixf,loxf);
57 tsu_render;
58 endtuglyph;
59

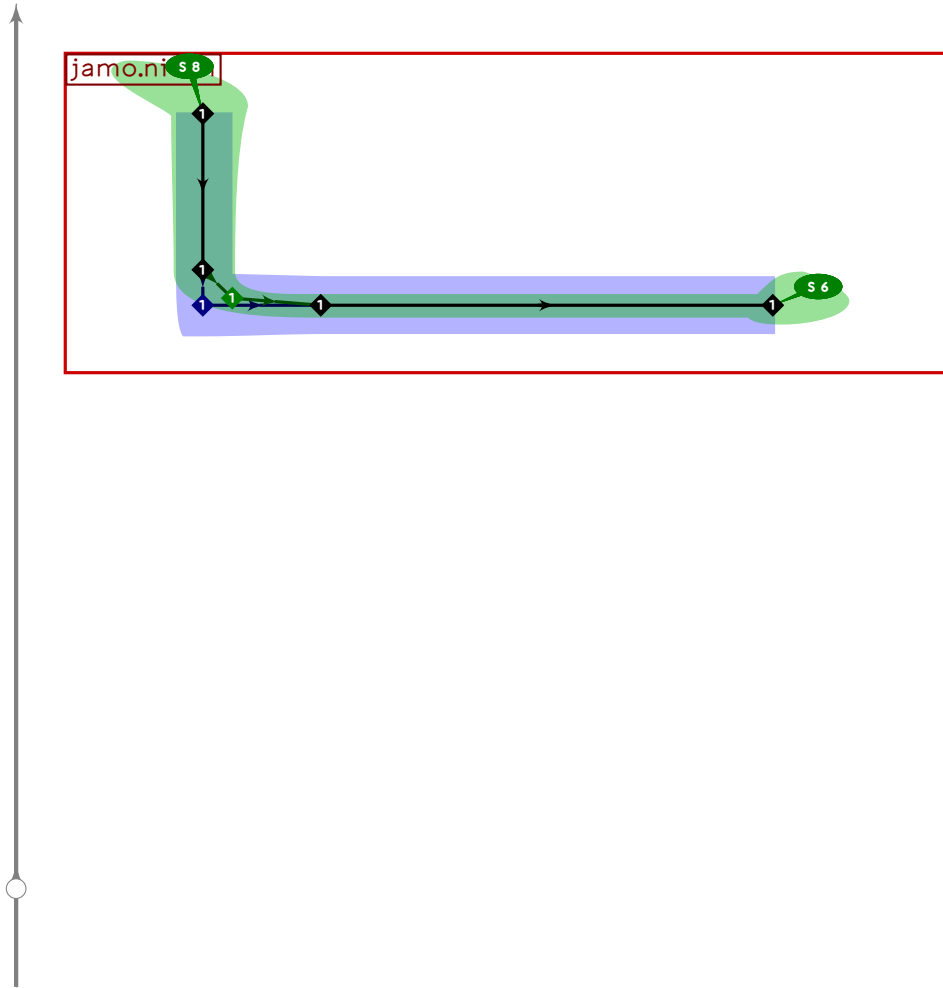
```



```

60 % hangul lead ssangkiyeok
61 begint Suglyph("uni1101.12",1);
62 hangul.combine.lr(100,100)(whatever,lixf,loxf);
63 tsu_render;
64 endtsuglyph;
65

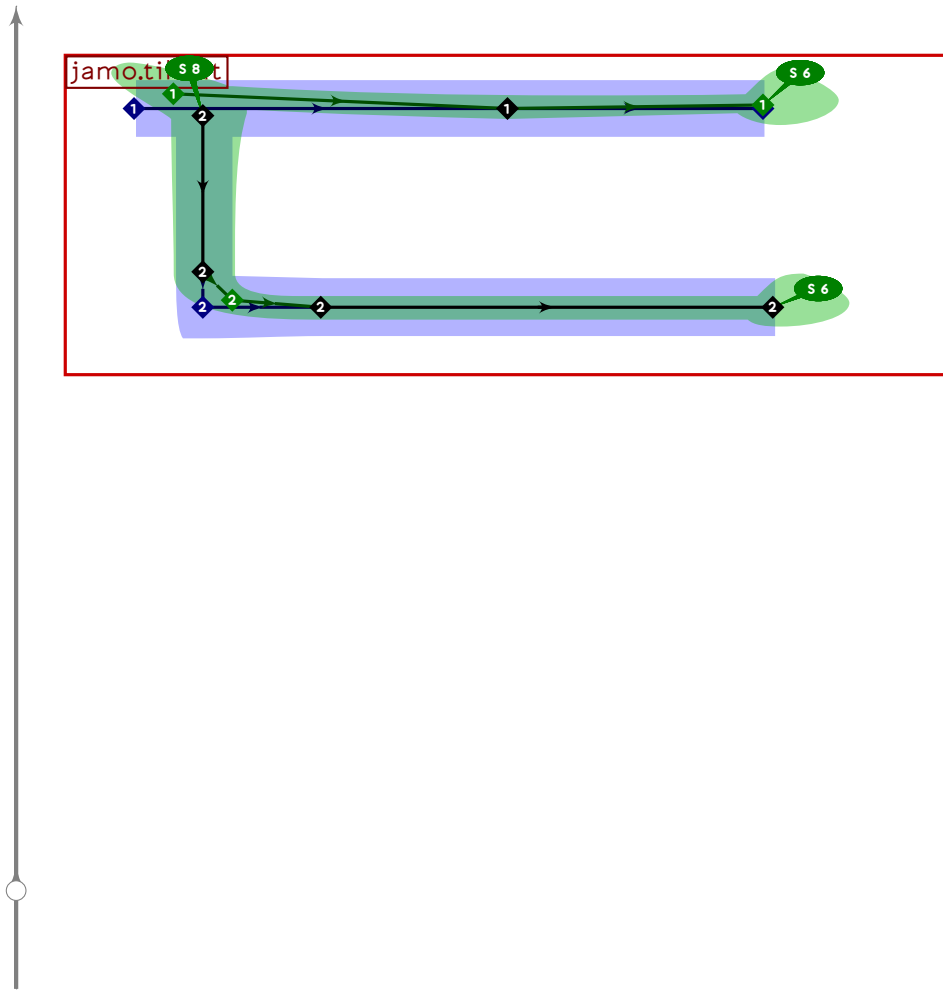
```



```

66 % hangul lead nieun
67 begint Suglyph("uni1102.12";2);
68 hangul,jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtsuglyph;
71

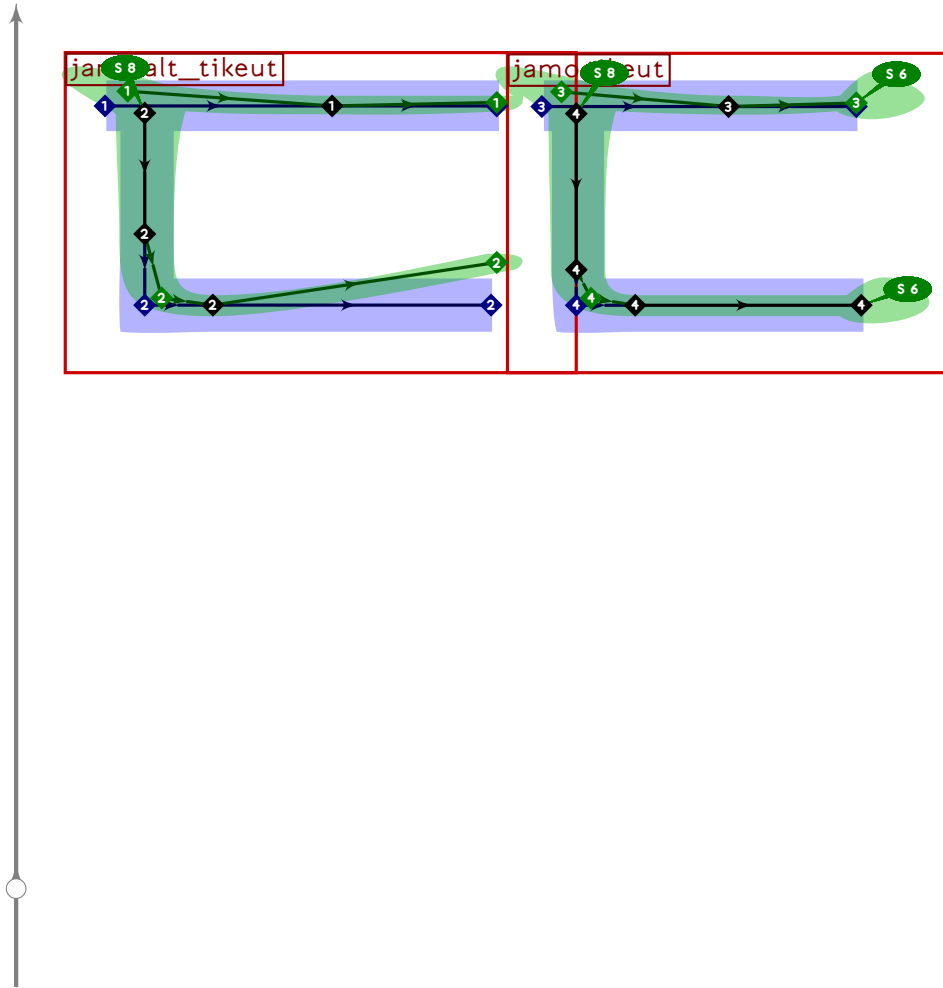
```



```

72 % hangul lead tikeut
73 begintsuglyph("uni1103.l2";3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endtsuglyph;
77

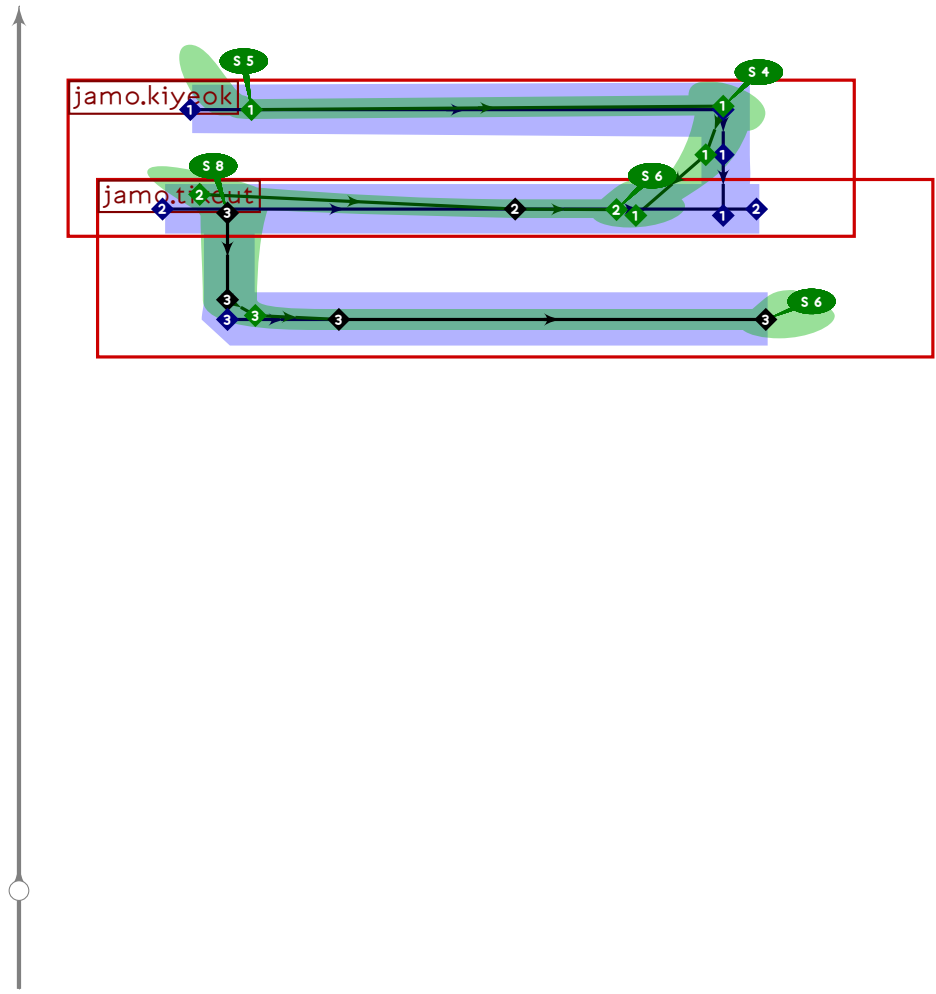
```



```

78 % hangul lead ssangtikeut
79 begint Suglyph("uni1104.12"4);
80 hangul.combine.lr(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endtsuglyph;
83

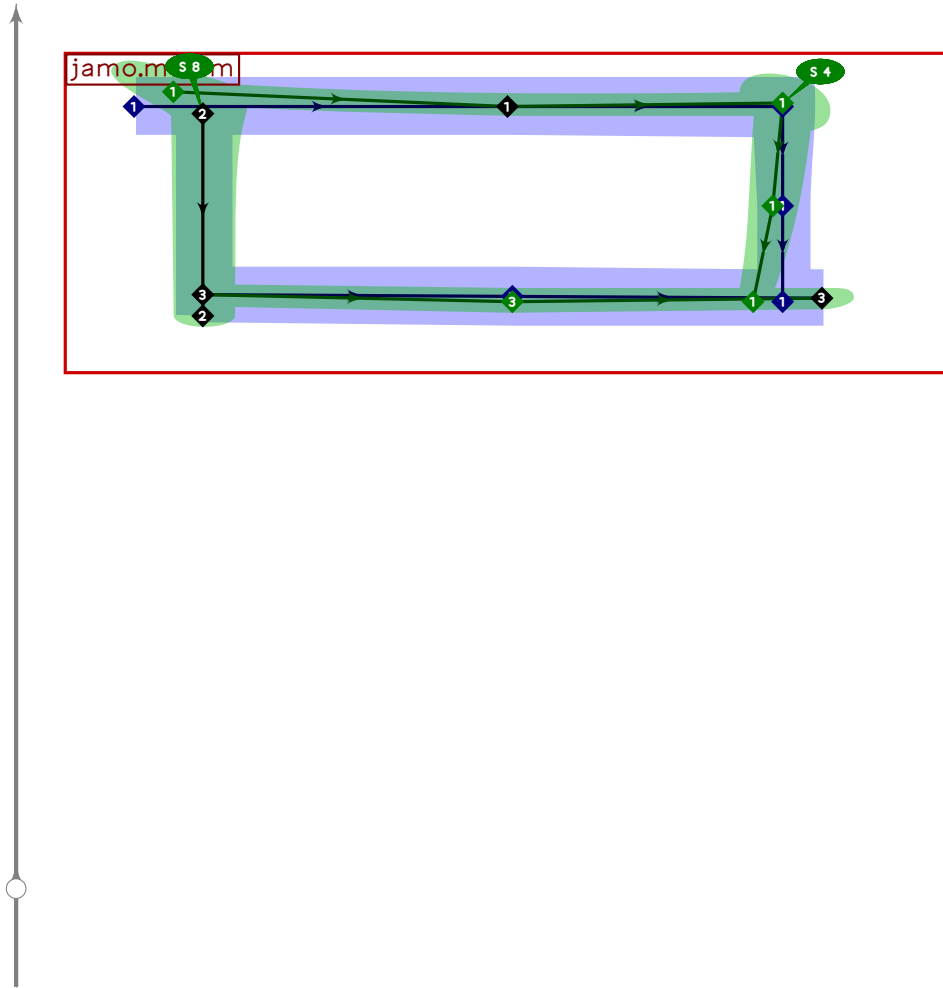
```



```

84 % hangul lead rieul
85 begint Suglyph("uni1105.l2"5);
86 hangul.jamo.rieul(whatever,lixf,loxf);
87 tsu_render;
88 endtsuglyph;
89

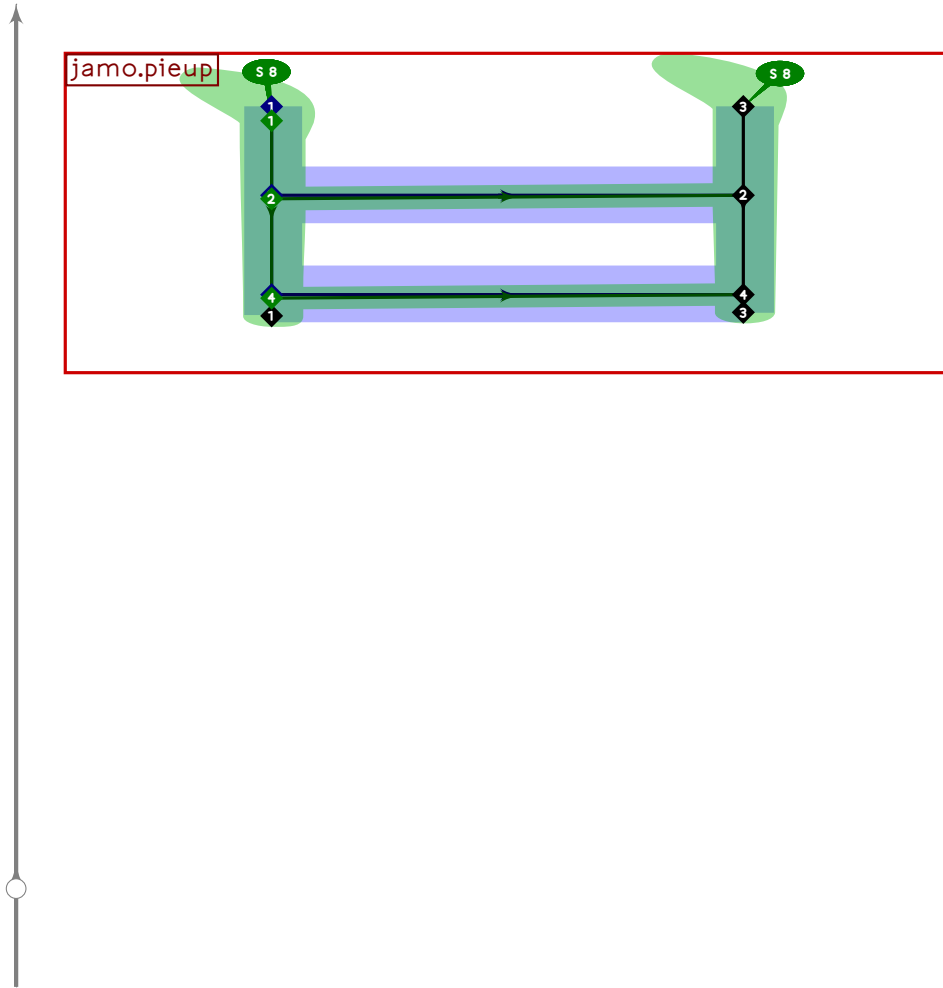
```



```

90 % hangul lead mieum
91 begint Suglyph("uni1106.l2",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endtsuglyph;
95

```

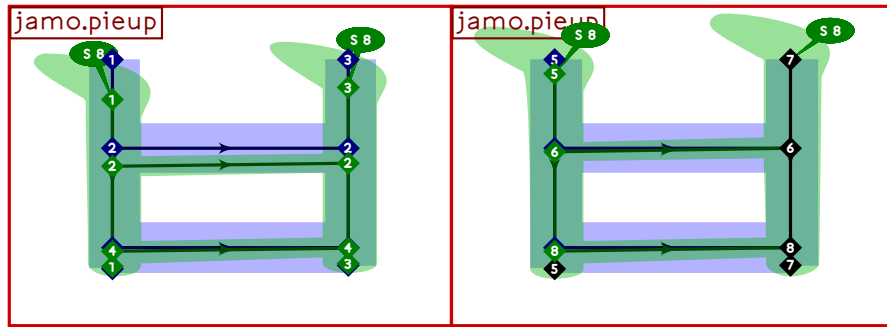


```

96 % hangul lead pieup
97 begint Suglyph("uni1107.12'7);
98 hangul.jamo.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

```

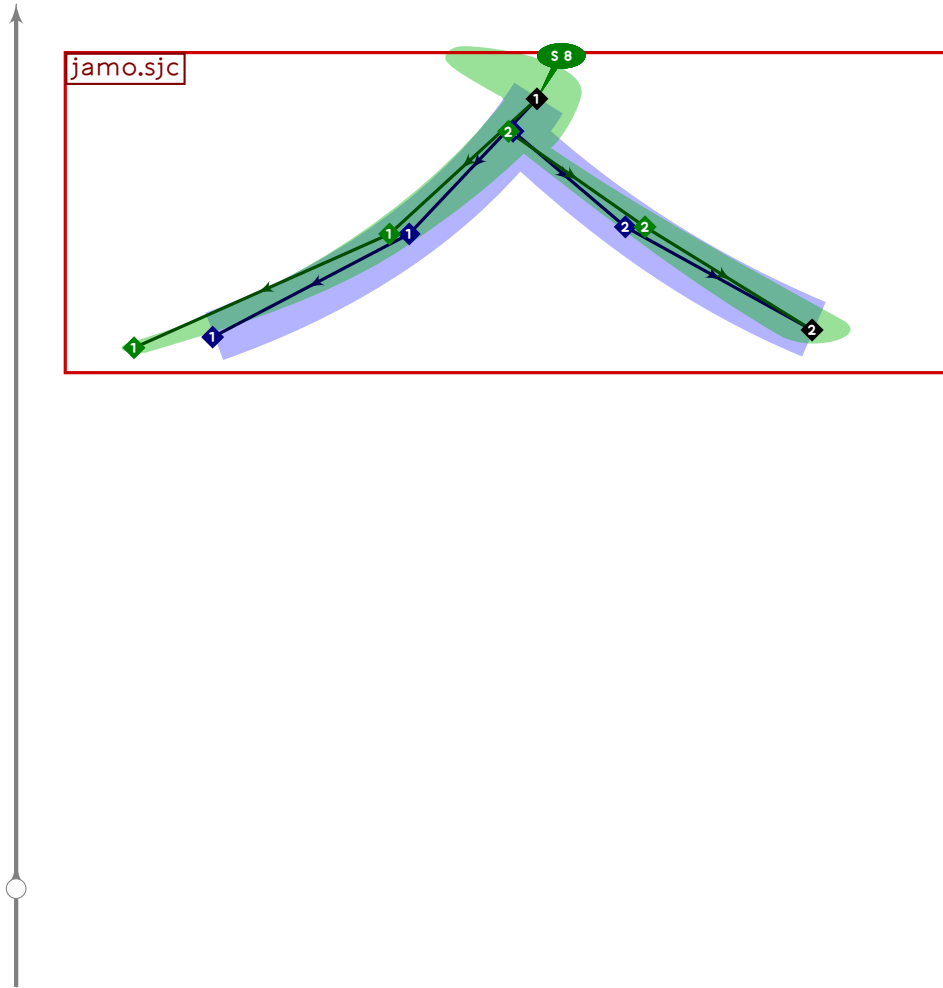




```

102 % hangul lead ssangpieup
103 begintsuglyph("uni1108.l2";8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

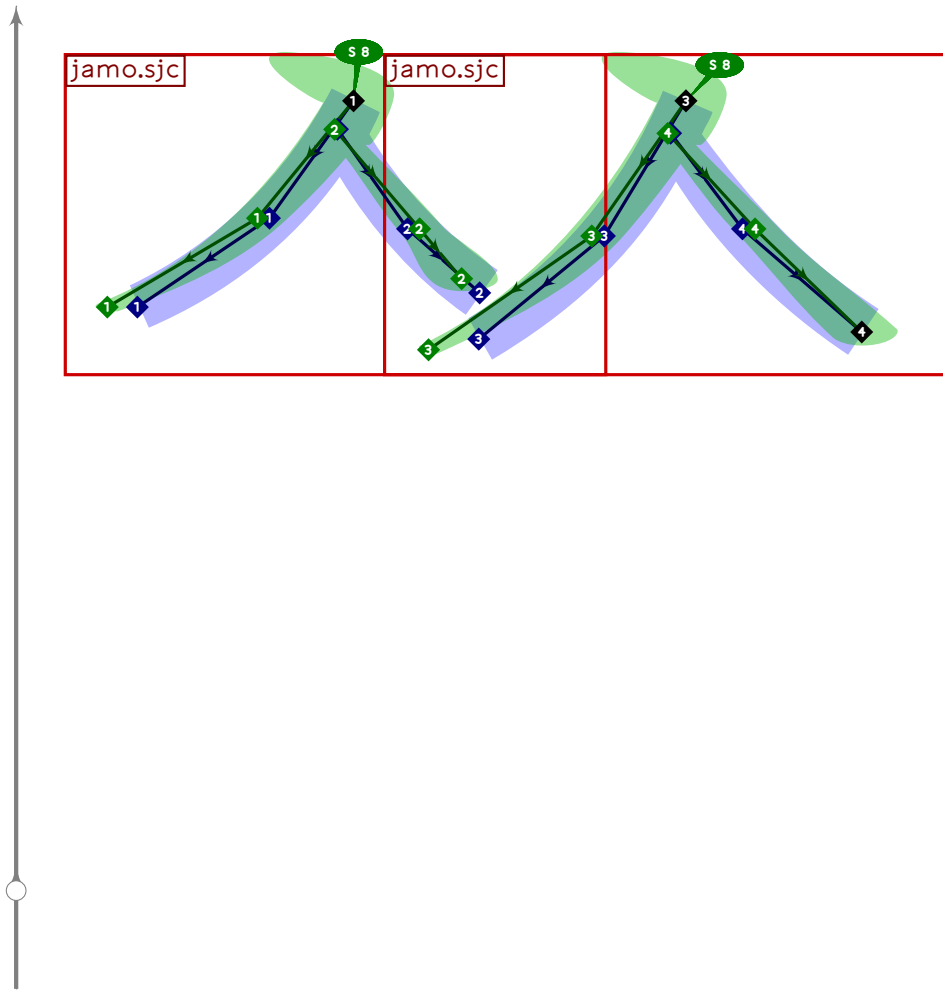
```



```

108 % hangul lead sios
109 begintsuglyph("uni1109.l2"?9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113

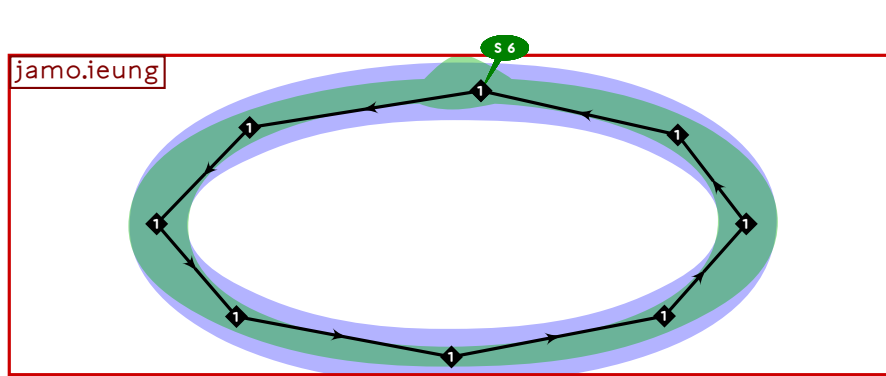
```



```

114 % hangul lead ssangsios
115 begintsuglyph("uni110A.12",10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endtsuglyph;
119

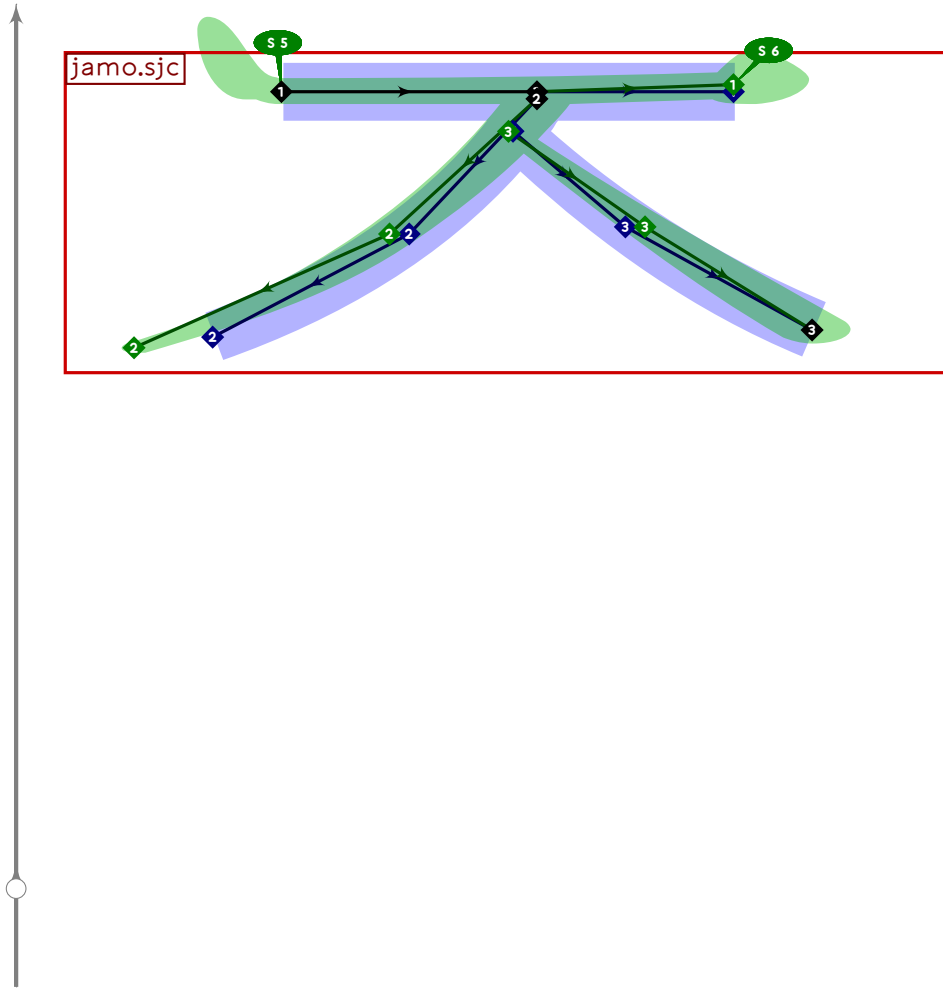
```



```

120 % hangul lead ieung
121 begintsuglyph("uni110B.l2",11);
122 hangul,jamo.ieung(whatever,lixf,loxf);
123 tsu_render;
124 endtsuglyph;
125

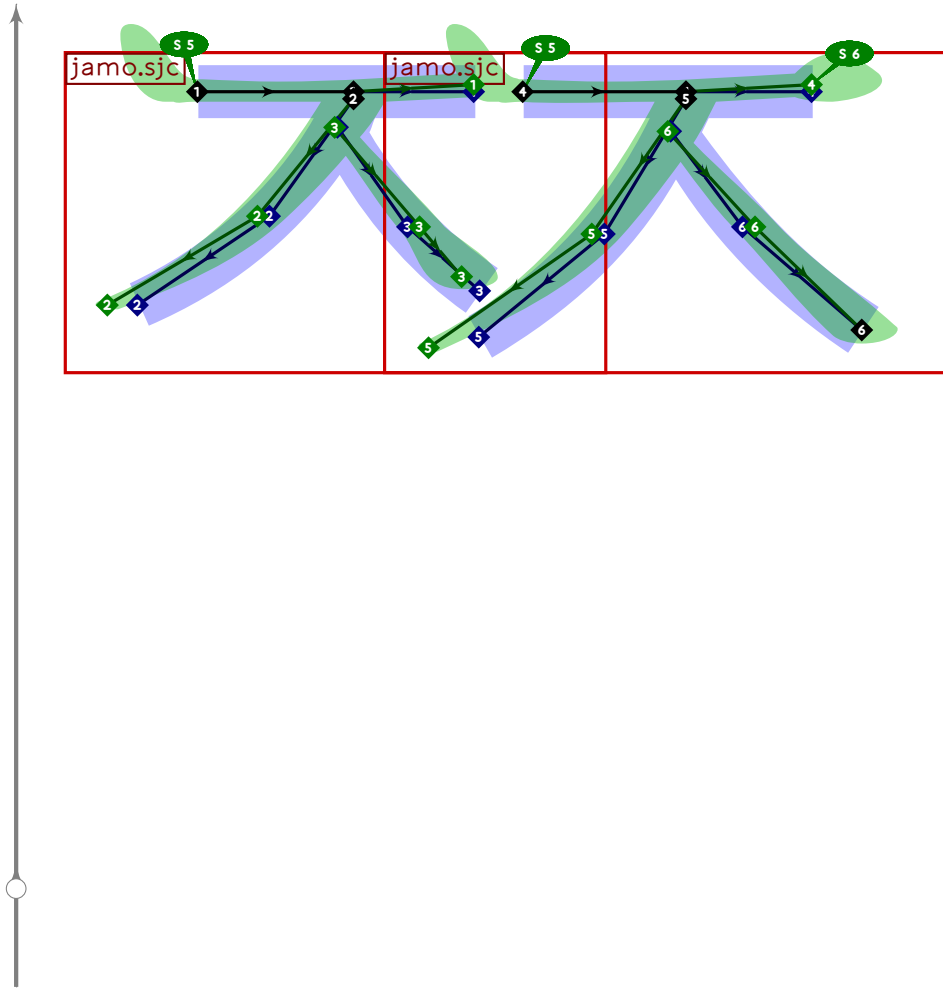
```



```

126 % hangul lead cieuc
127 begint Suglyph("uni110C.12",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

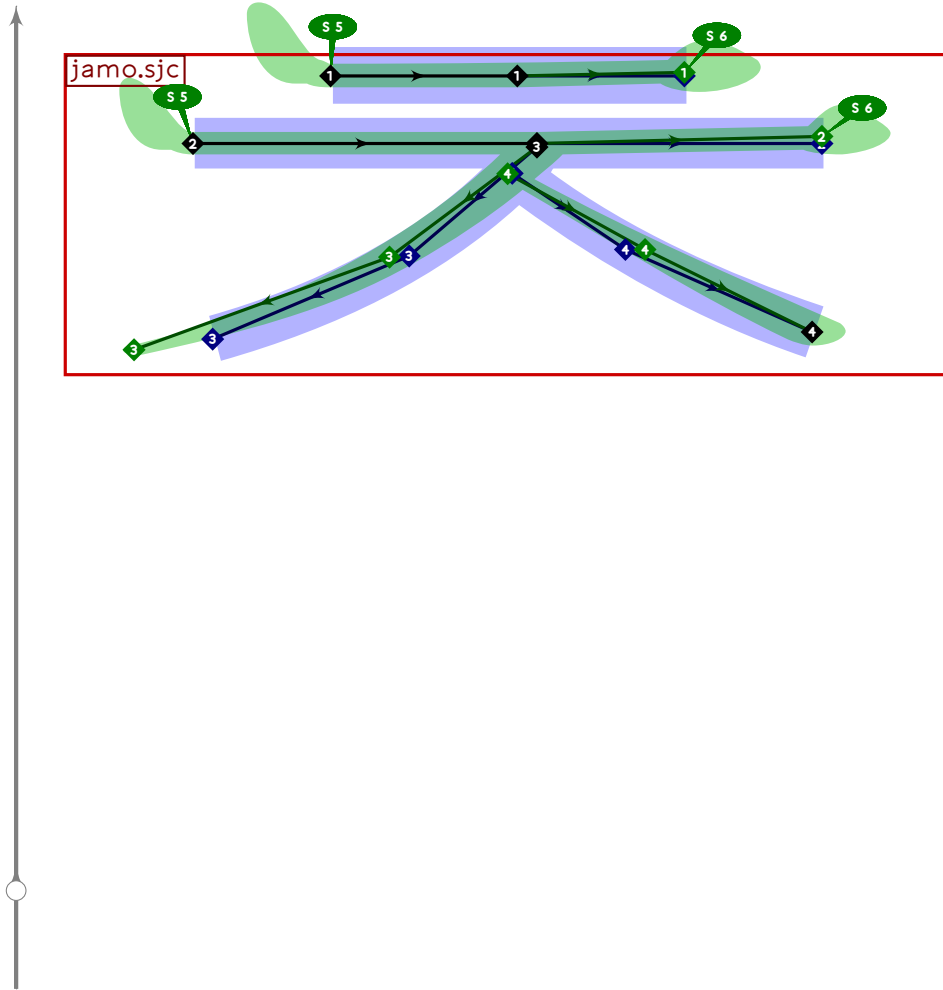
```



```

132 % hangul lead ssangcieuc
133 begint Suglyph("uni110D.12",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtsuglyph;
137

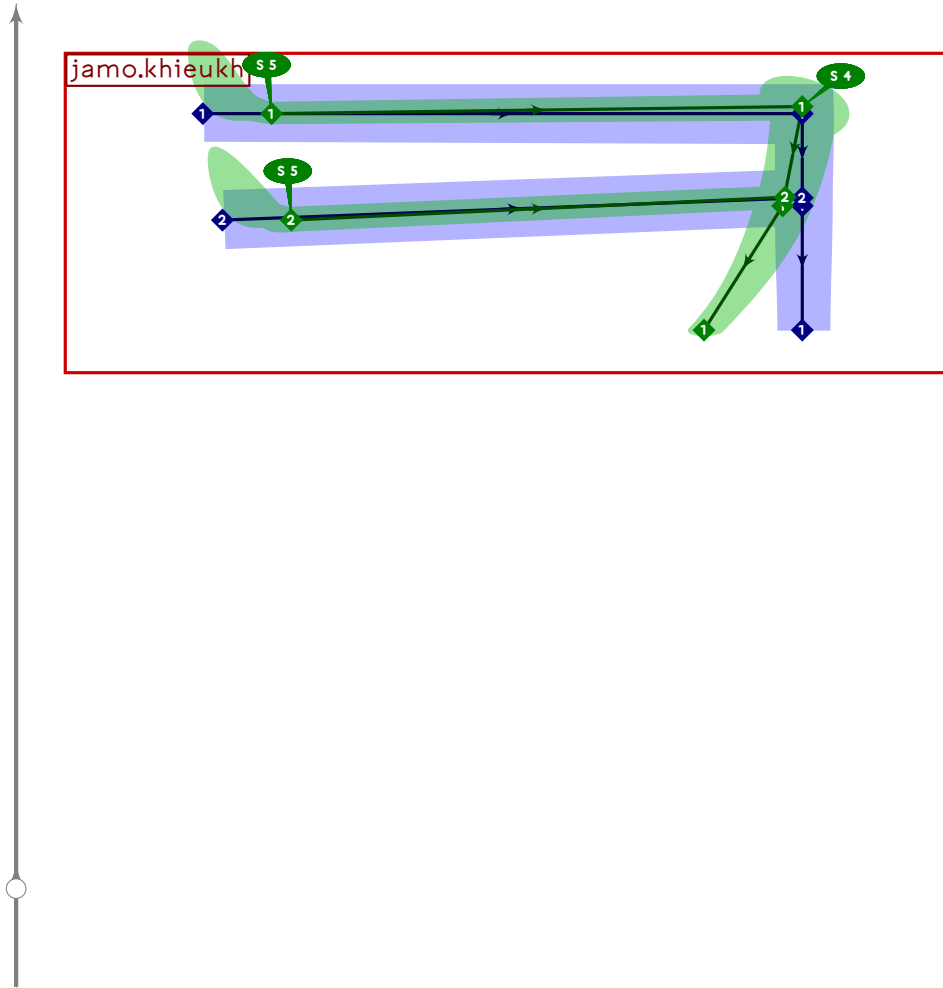
```



```

138 % hangul lead chieuch
139 begint Suglyph("uni110E.l2",14);
140 hangul.jamo.sjc(2,0,false)(whatever,lixf,loxf);
141 tsu_render;
142 endtsuglyph;
143

```

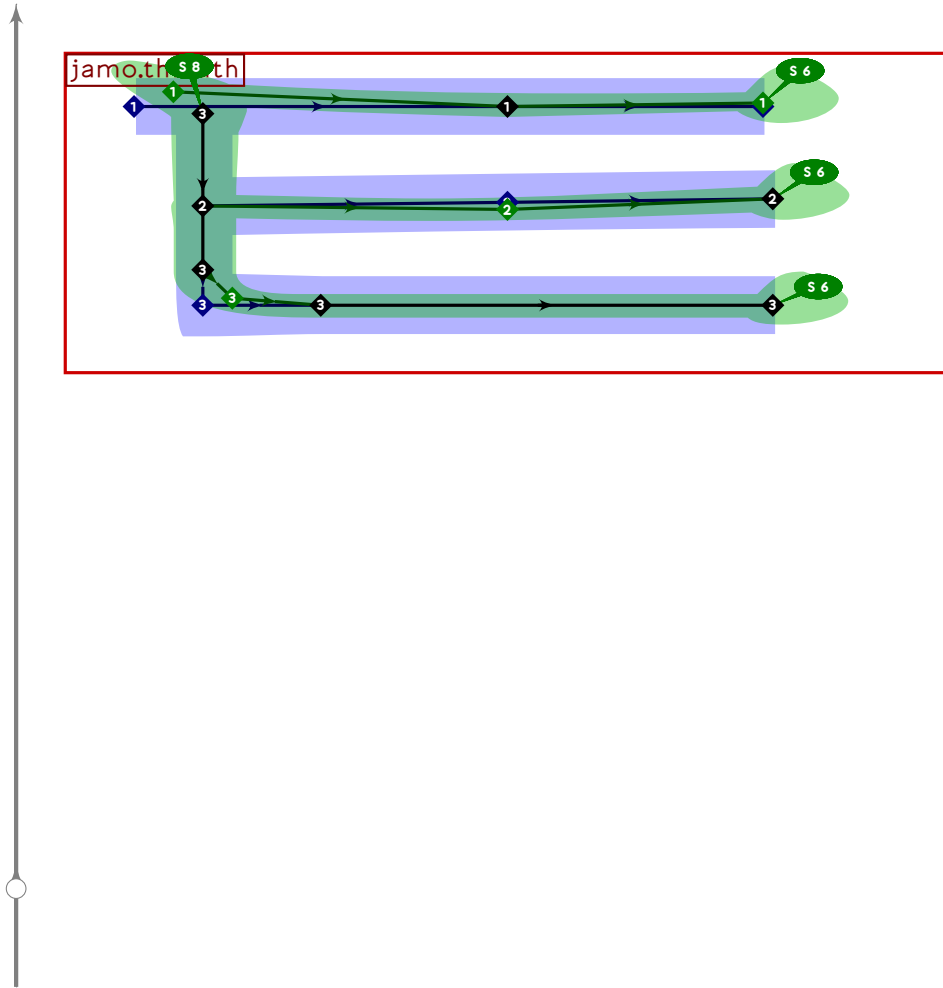


```

144 % hangul lead khieukh
145 begintsuglyph("uni110F.l2";15);
146 hangul,jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

```

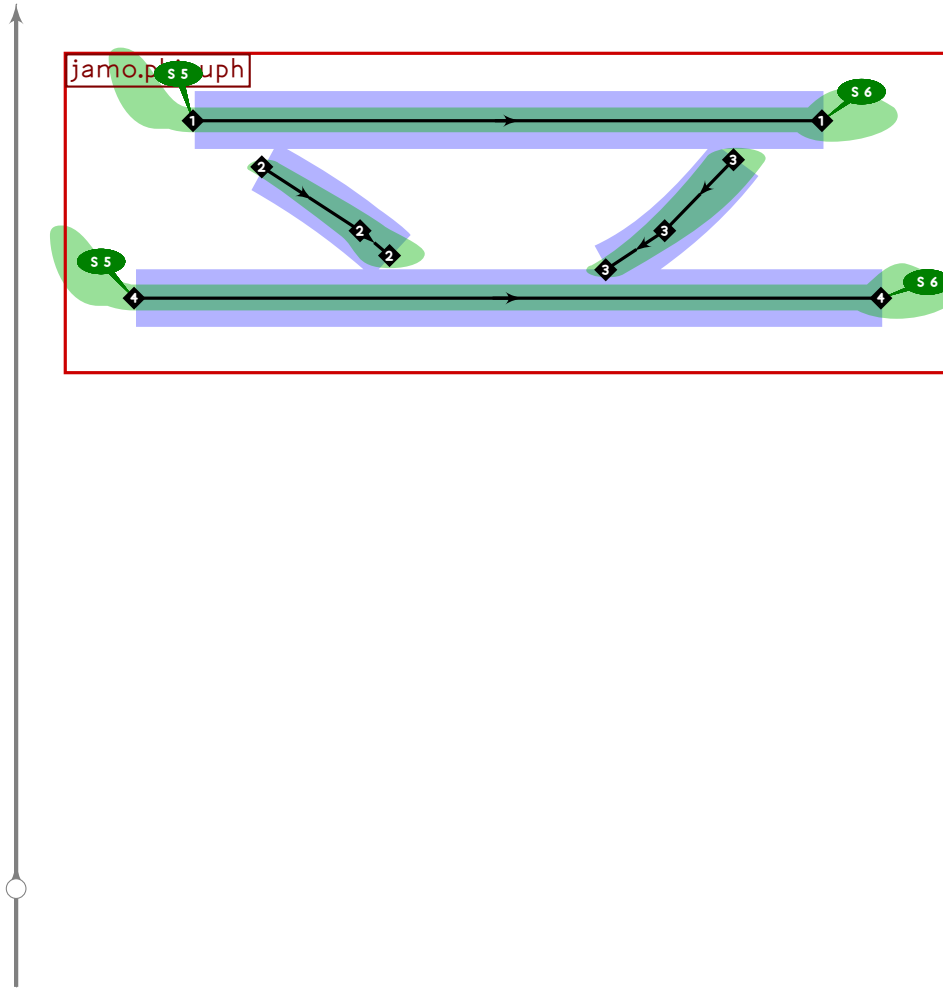




```

150 % hangul lead thieuth
151 begint Suglyph("uni1110.l2",16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endtsuglyph;
155

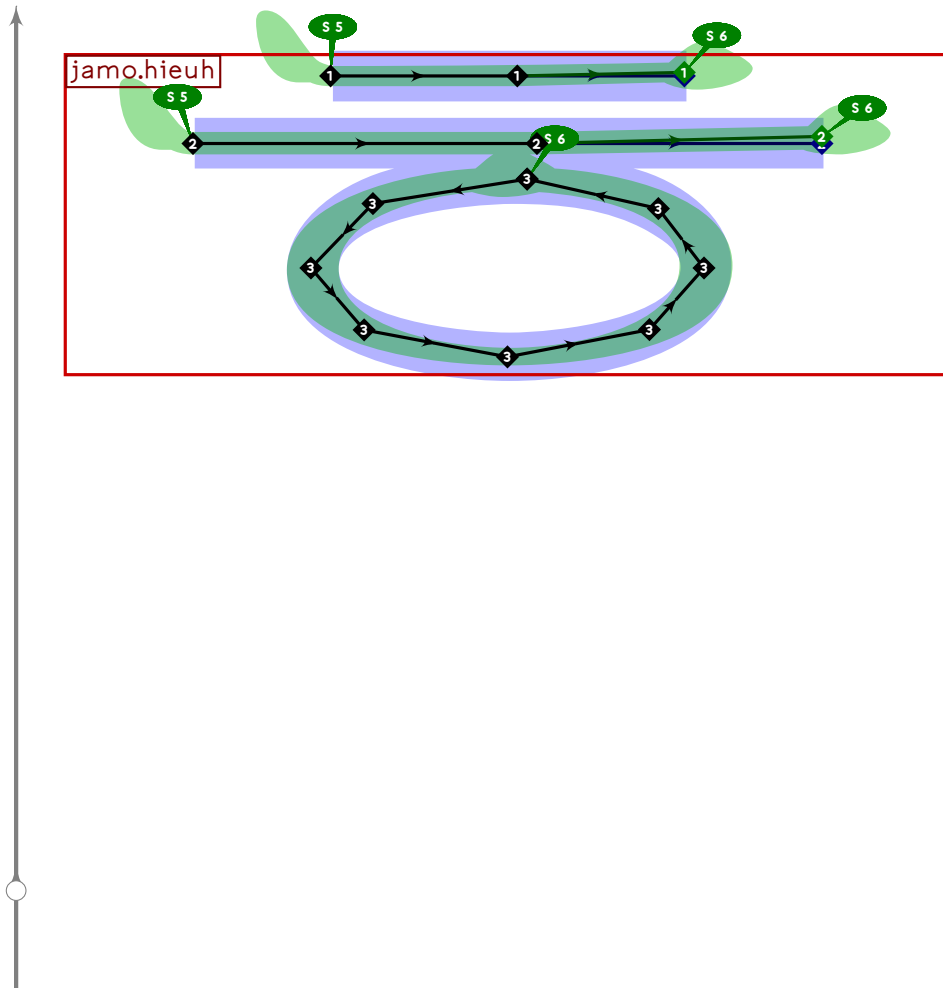
```



```

156 % hangul lead phieuph
157 begintsuglyph("uni1111.l2",17);
158 hangul,jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

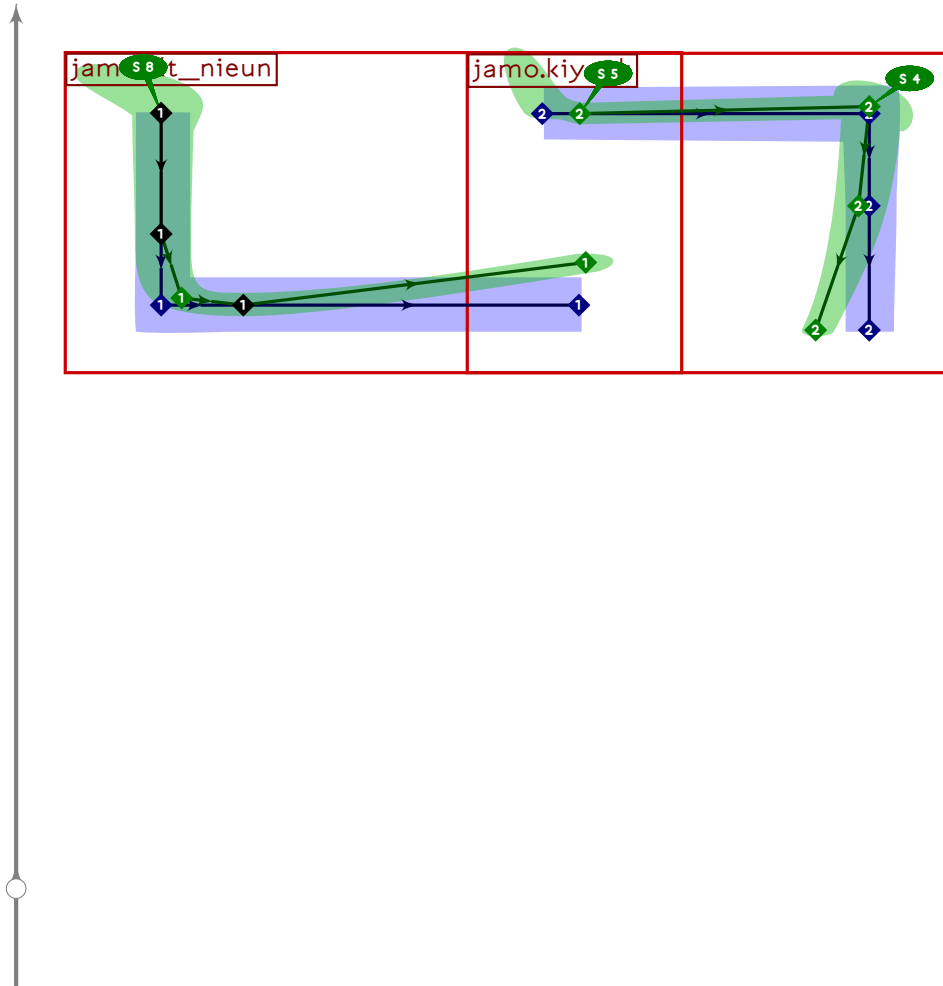
```



```

162 % hangul lead hieuh
163 begintsuglyph("uni1112.l2",18);
164 hangul,jamo.hieuh(whatever,lixf,loxf);
165 tsu_render;
166 endtsuglyph;
167

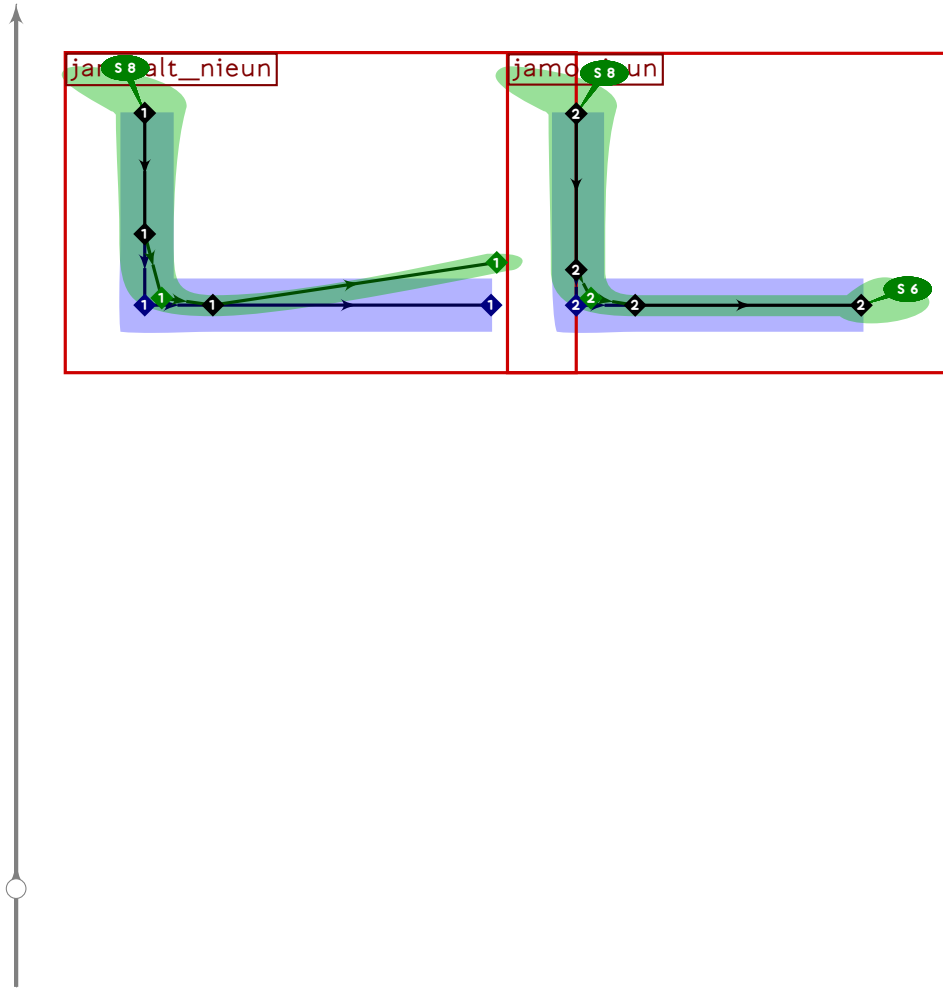
```



```

168 % hangul lead nieun-kieok
169 begintsuglyph("uni1113.l2",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endtsuglyph;
173

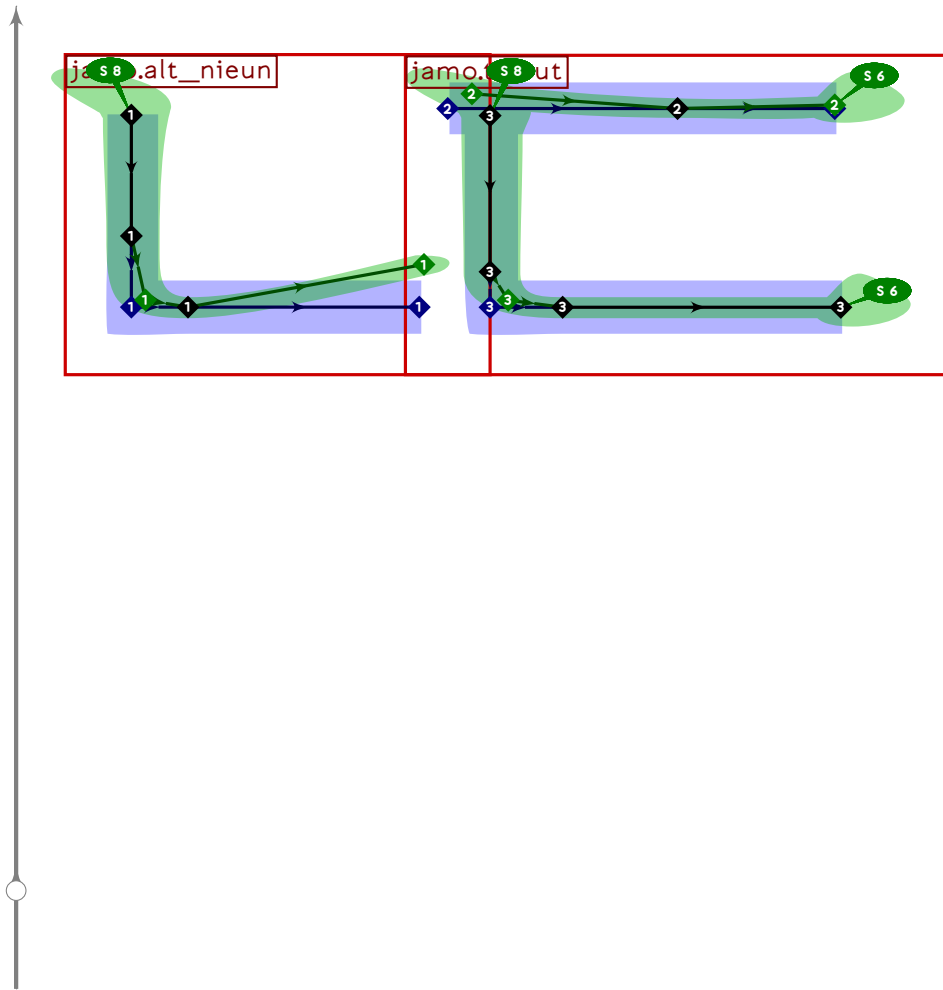
```



```

174 % hangul lead ssangnieun
175 begintsuglyph("uni1114.l2",20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endtsuglyph;
179

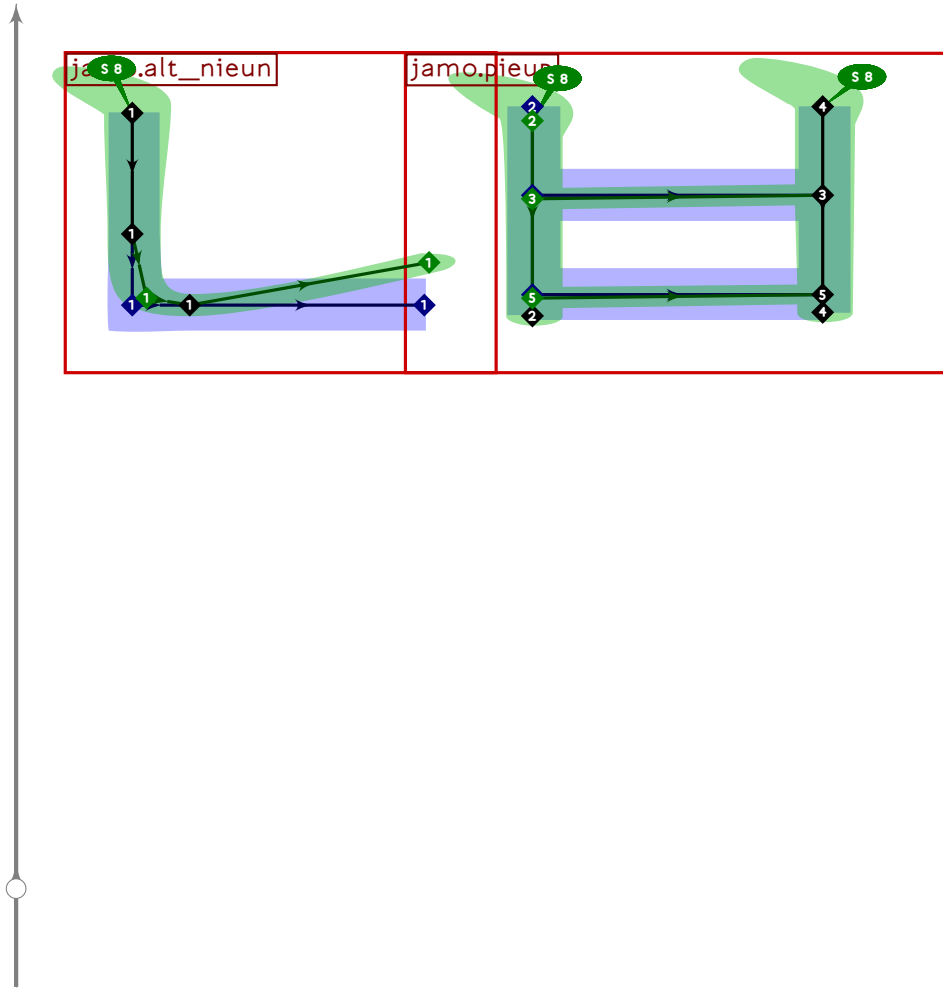
```



```

180 % hangul lead nieun-tikeut
181 begintsuglyph("uni1115.l2",21);
182 hangul.combine.lr(202,103)(whatever,lixf,loxf);
183 tsu_render;
184 endtsuglyph;
185

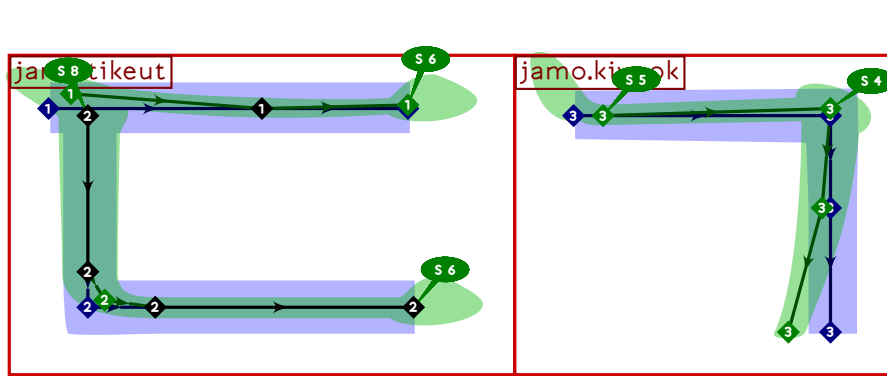
```



```

186 % hangul lead nieun-pieup
187 begintsuglyph("uni1116.l2",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endtsuglyph;
191

```

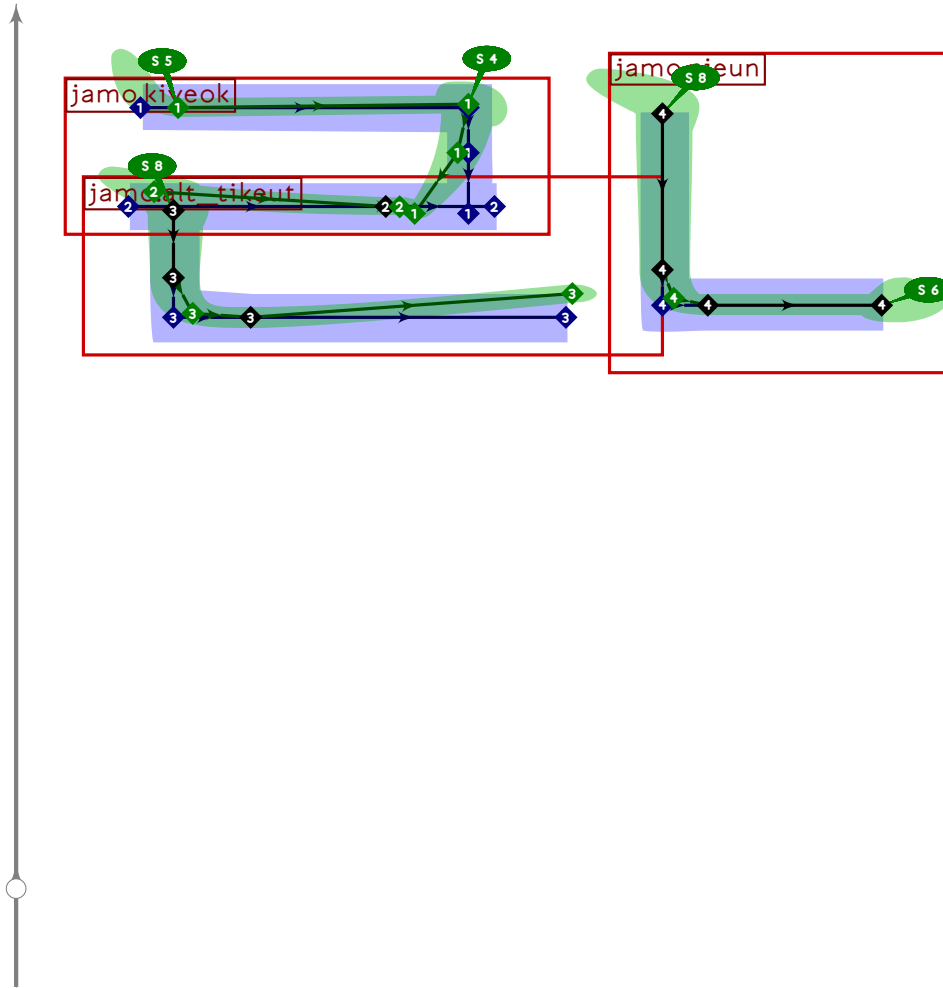


```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.12",23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endtsuglyph;
197

```

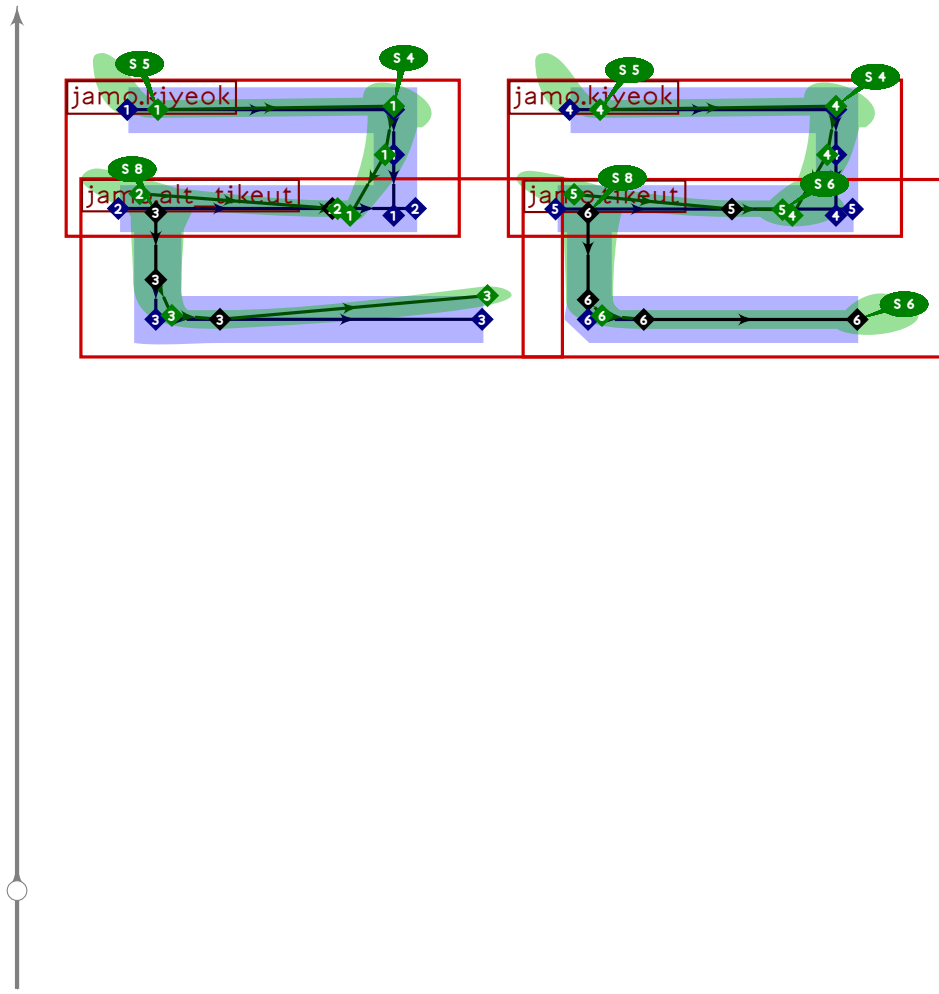




```

198 % hangul lead riul-nieun
199 begintsuglyph("uni1118.l2",24);
200 hangul.combine.lr(205,102)(whatever,lixf,loxf);
201 tsu_render;
202 endtsuglyph;
203

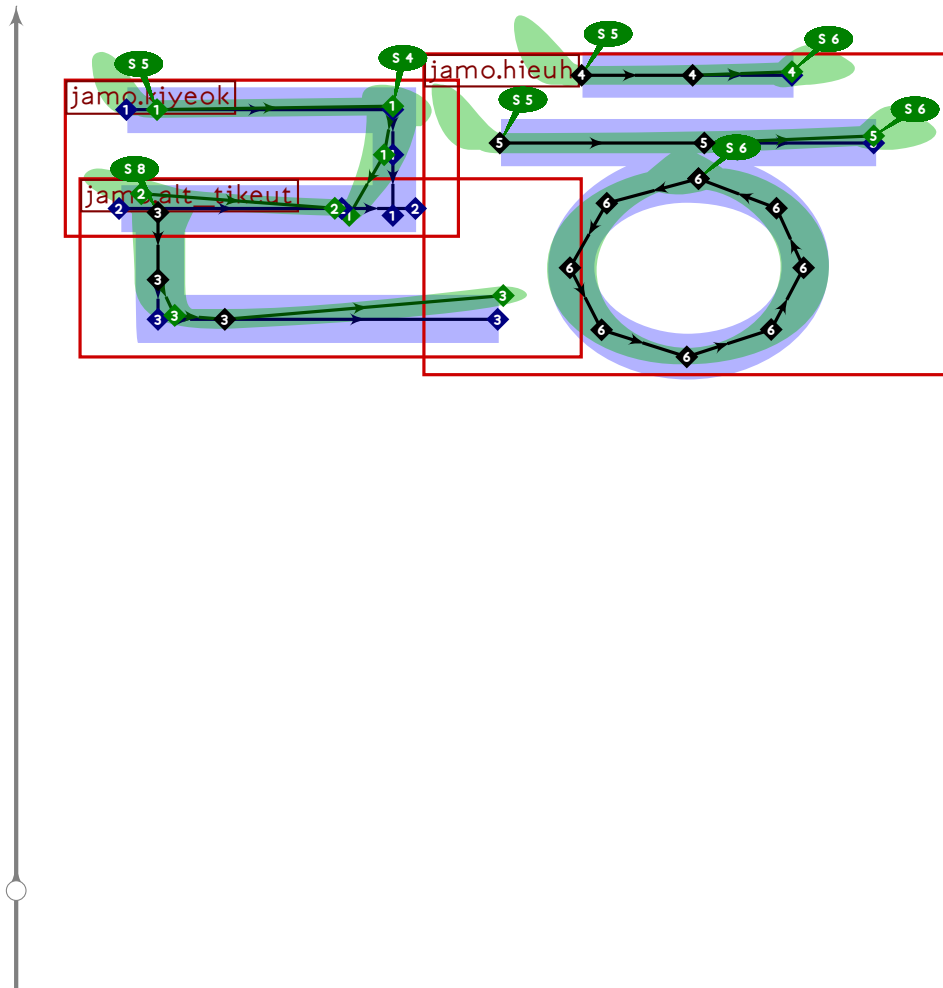
```



```

204 % hangul lead ssangrieul
205 begintsuglyph("uni1119.12",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endtsuglyph;
209

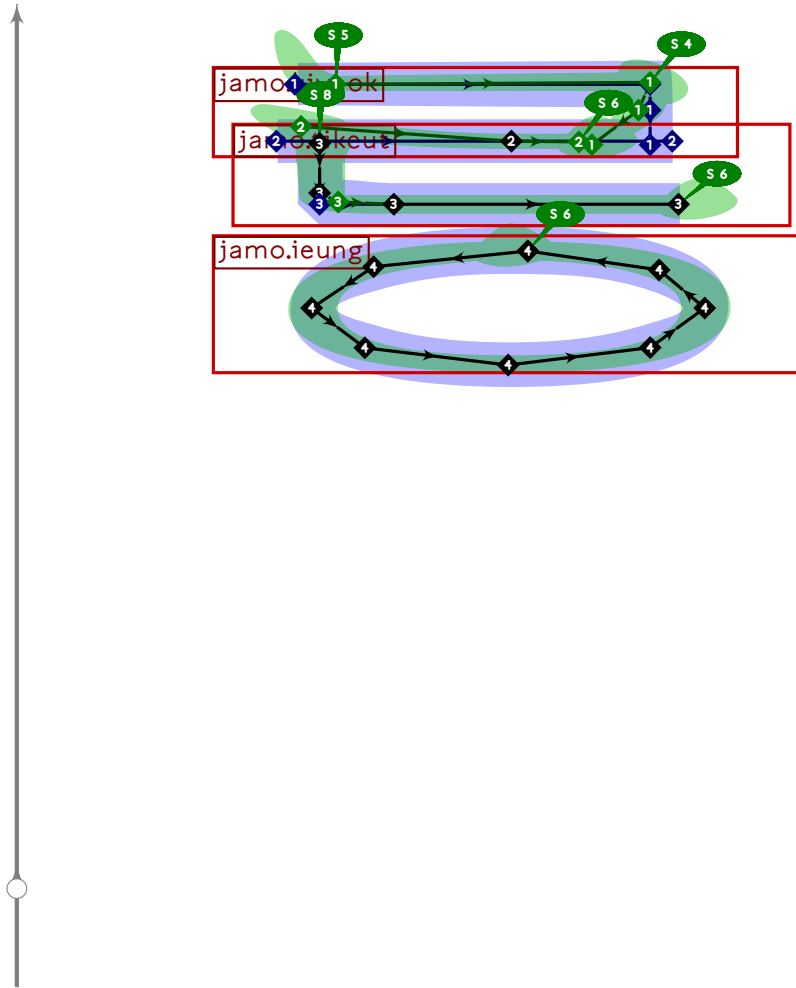
```



```

210 % hangul lead rieul-hieuh
211 begintsuglyph("uni111A.l2";26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endtsuglyph;
215

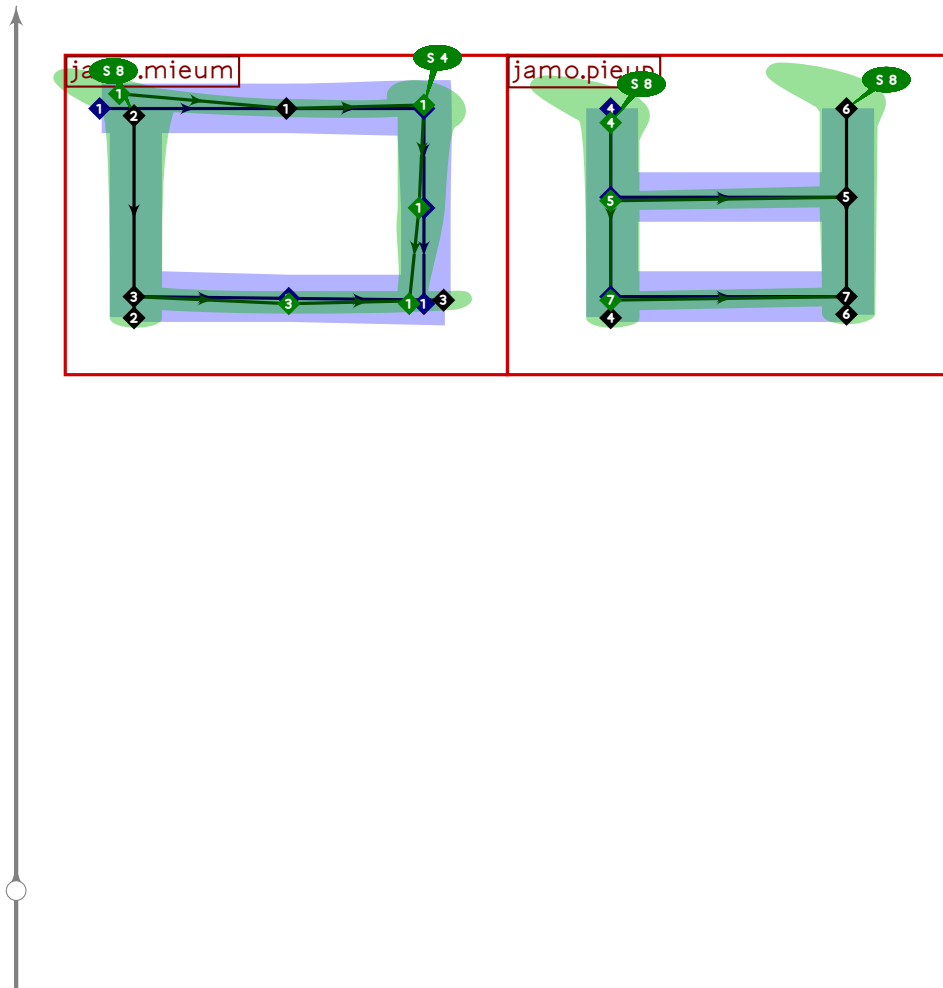
```



```

216 % hangul lead kapyeounrieul
217 begintsuglyph("uni111B.l2",27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endtsuglyph;
222

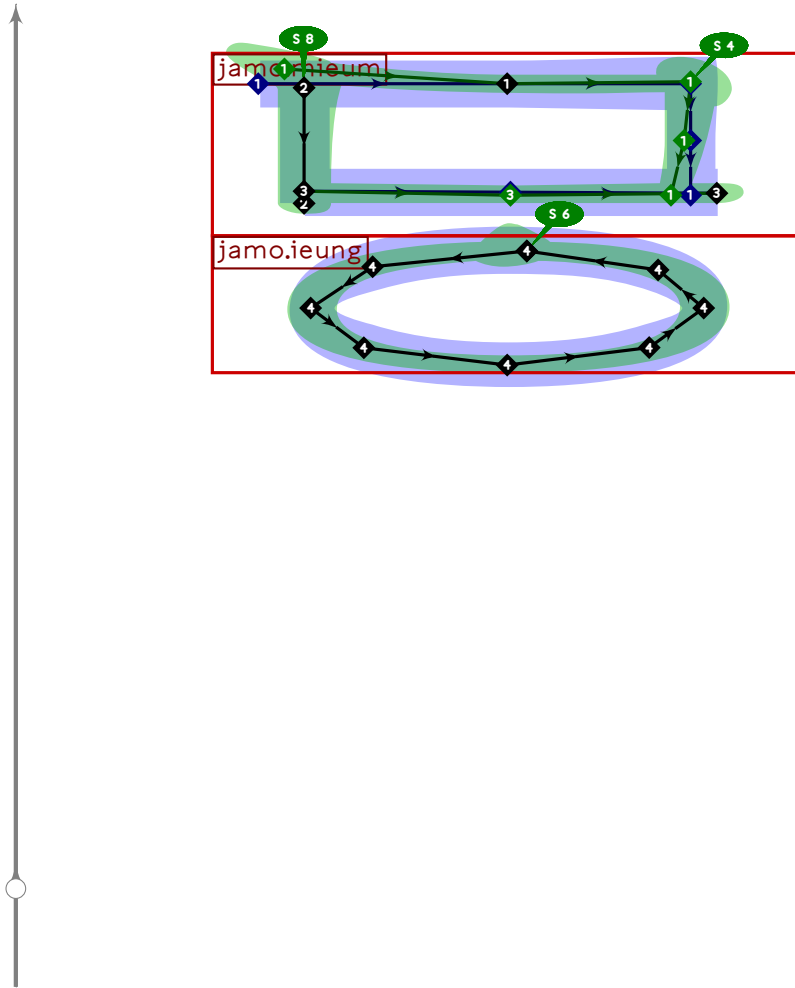
```



```

223 % hangul lead mieum-pieup
224 begint Suglyph("uni111C.12";28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endtsuglyph;
228

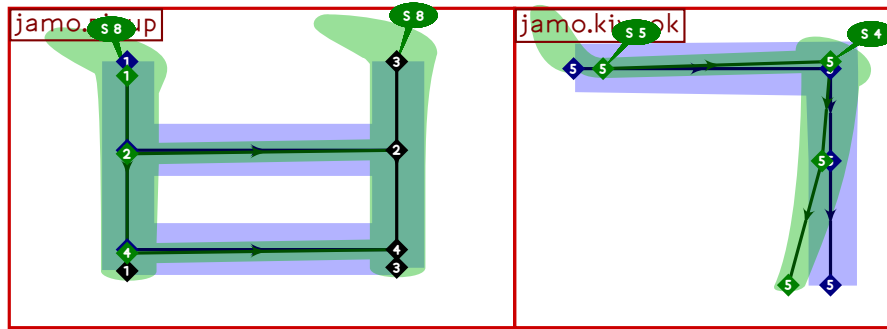
```



```

229 % hangul lead kapyeounmieum
230 begintsuglyph("uni111D.l2";29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endtsuglyph;
235

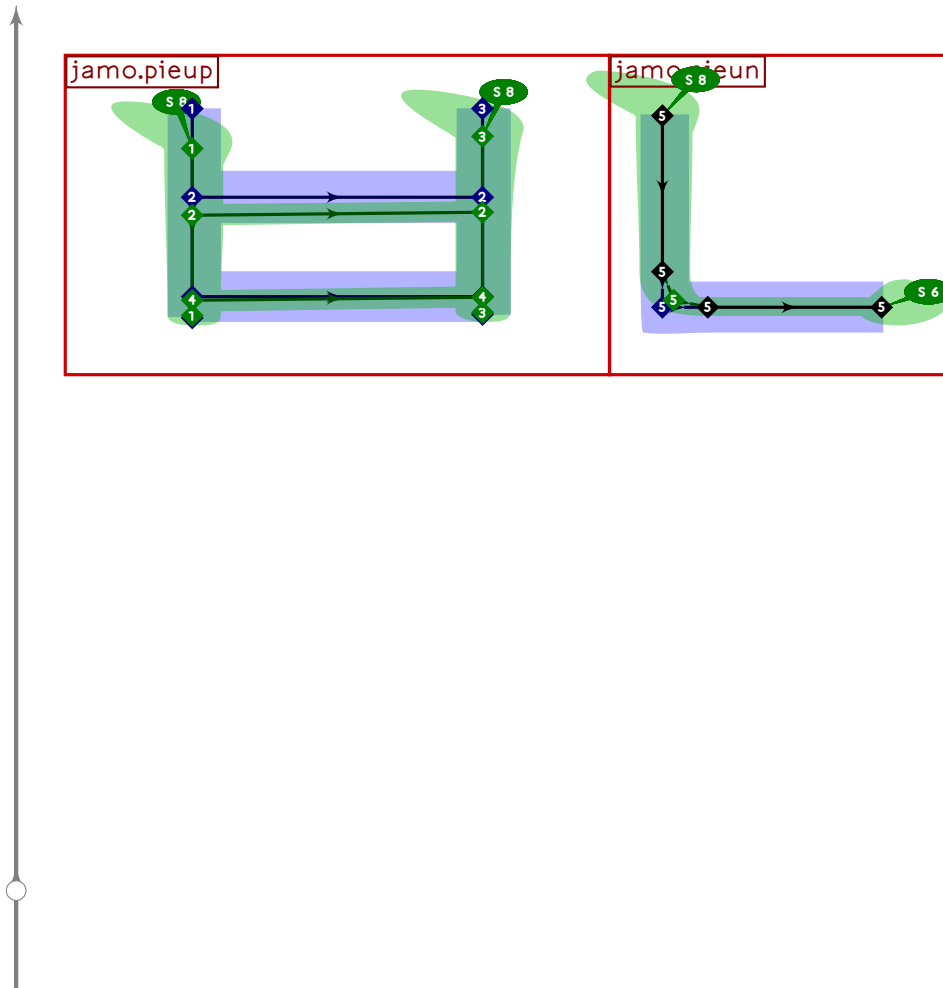
```



```

236 % hangul lead pieup-kiyeok
237 begintuglyph("uni111E.12",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endtsuglyph;
241

```

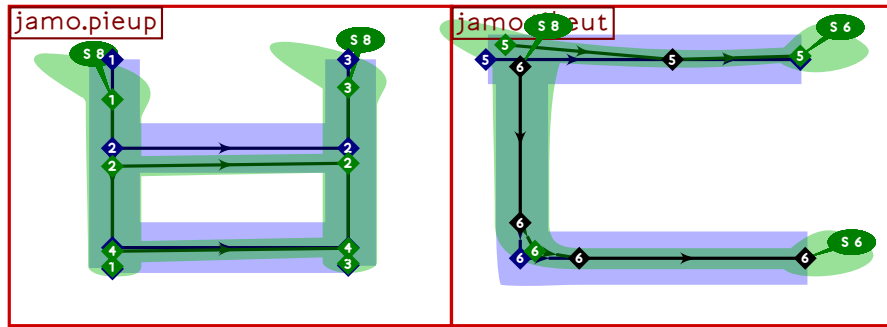


```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.12",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endtsuglyph;
247

```

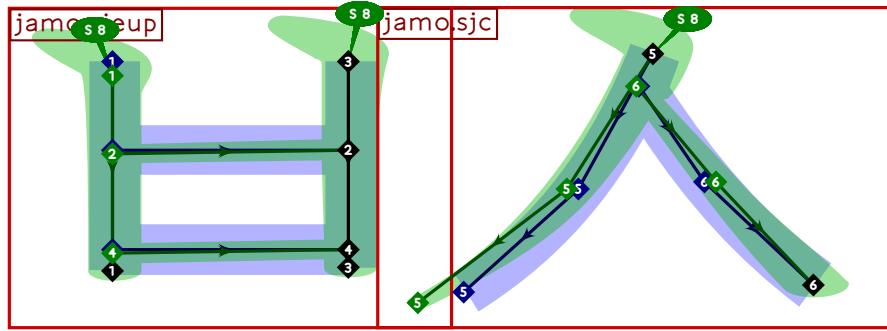




```

248 % hangul lead pieup-tikeut
249 begintsuglyph("uni1120.l2";32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endtsuglyph;
253

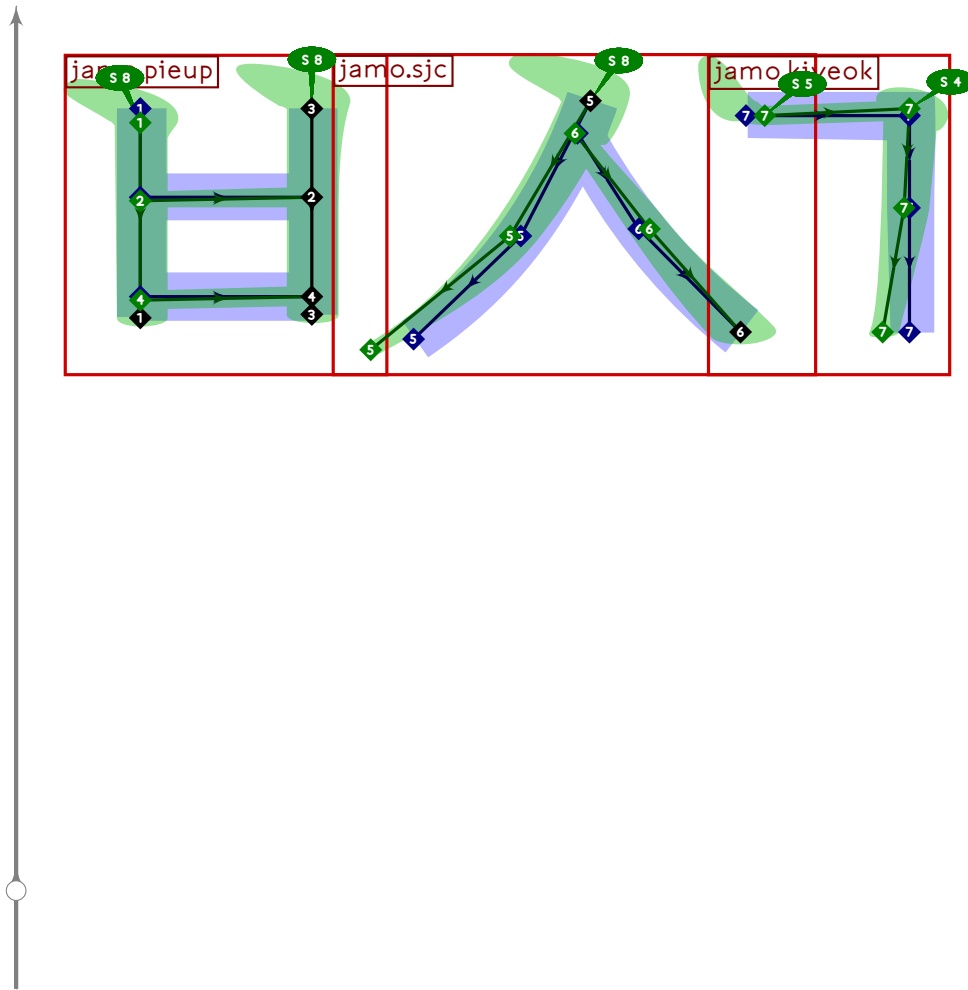
```



```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.12",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endtsuglyph;
259

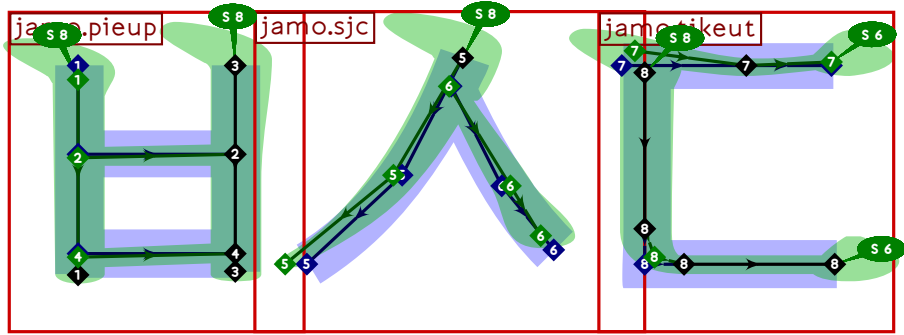
```



```

260 % hangul lead pieup-sios-kiyeok
261 begintsuglyph("uni1122.l2";34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endtsuglyph;
265

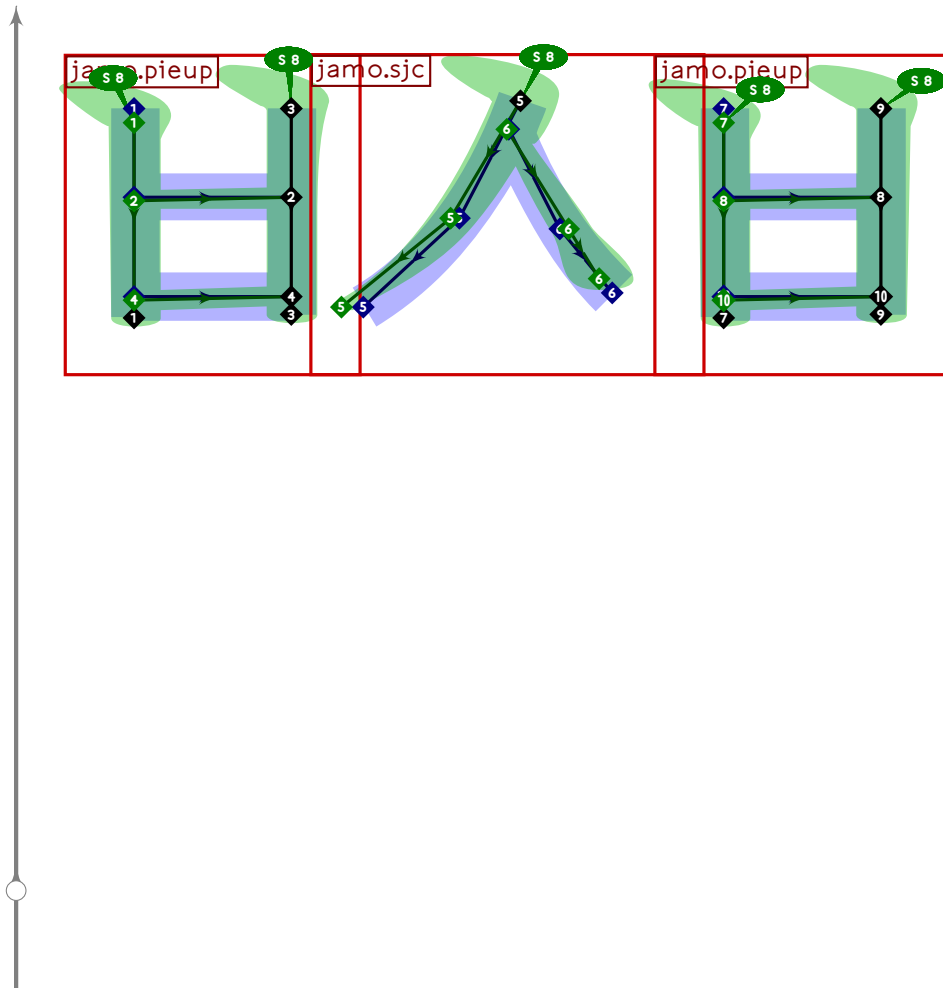
```



```

266 % hangul lead pieup-sios-tikeut
267 begintsuglyph("uni1123.l2";35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endtsuglyph;
271

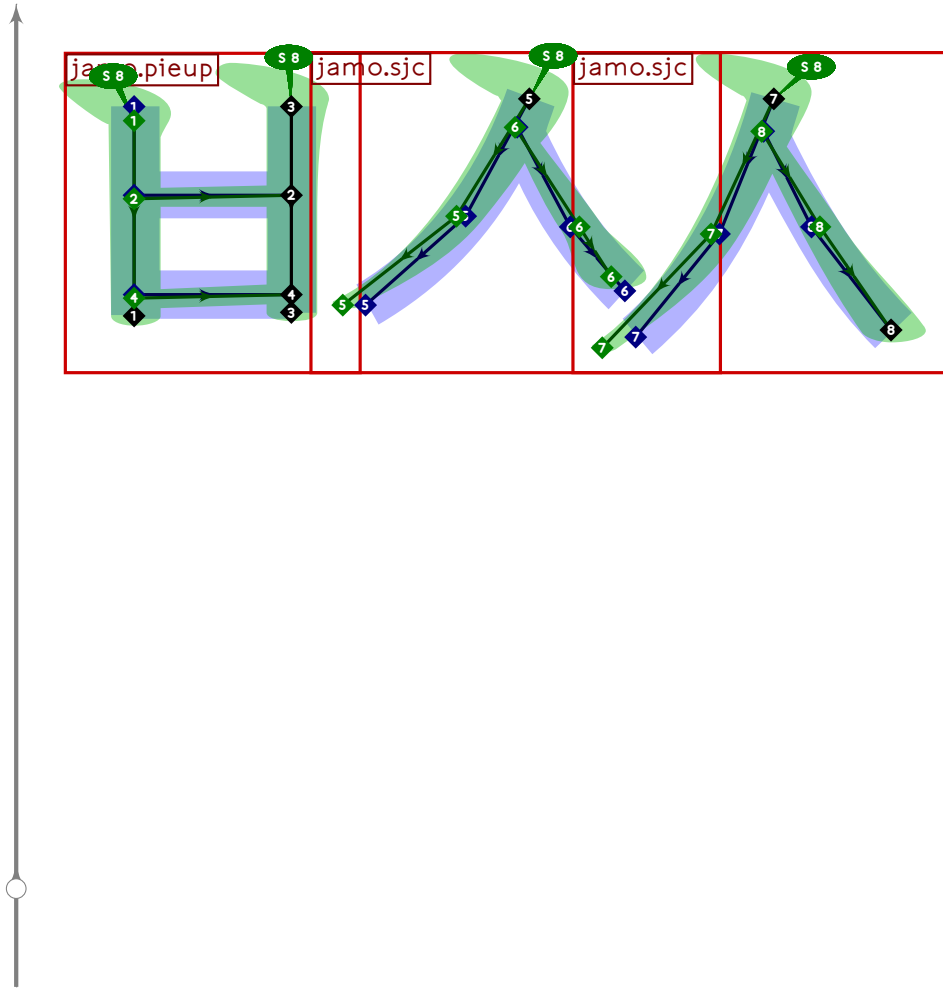
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.l2";36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endtsuglyph;
277

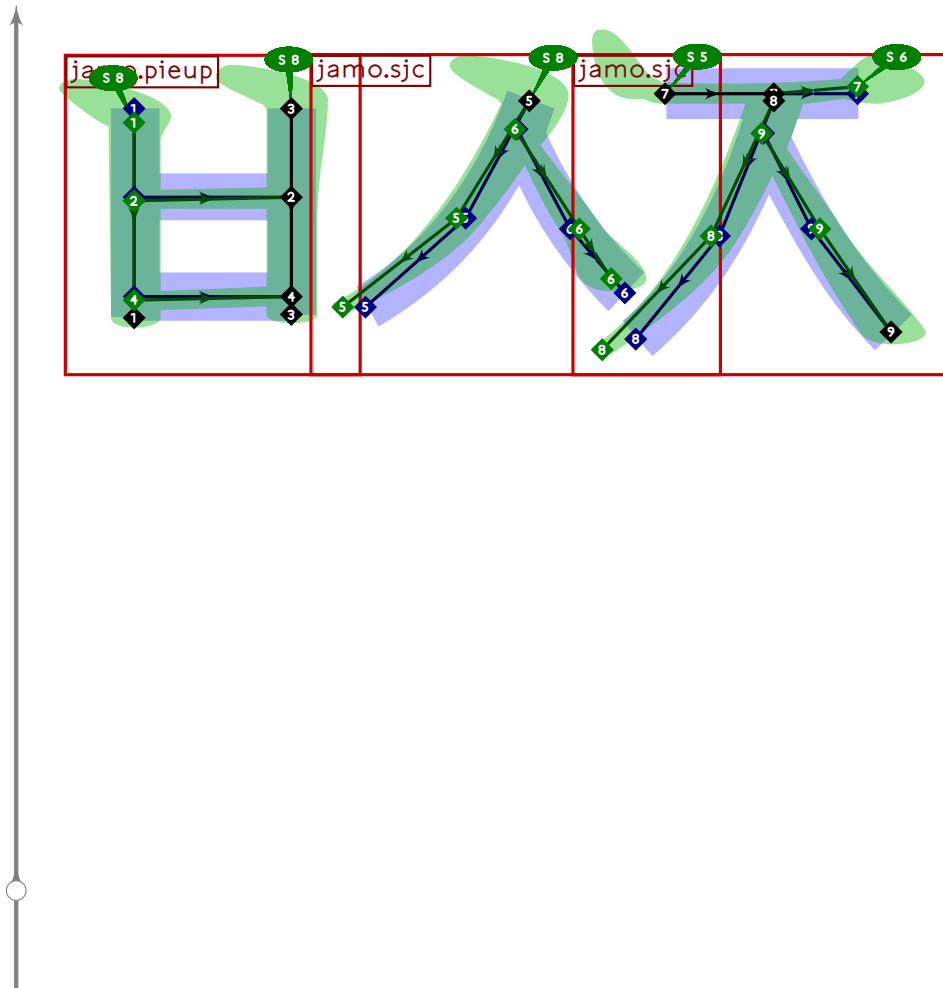
```



```

278 % hangul lead pieup-ssangsios
279 begintsuglyph("uni1125.l2";37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endtsuglyph;
283

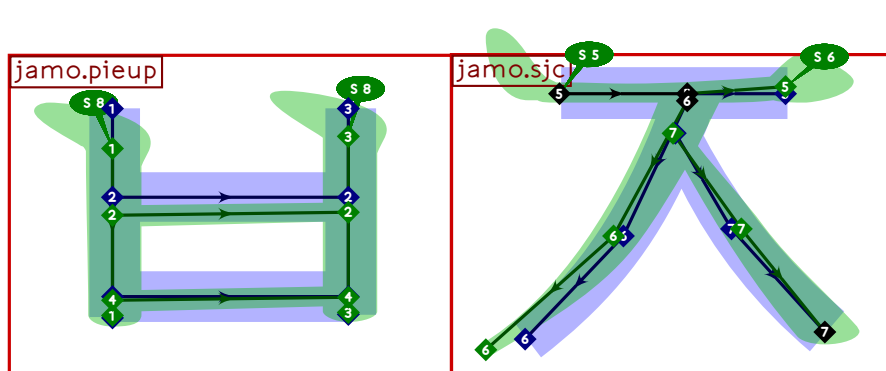
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.l2";38);
286 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
287 tsu_render;
288 endtsuglyph;
289

```

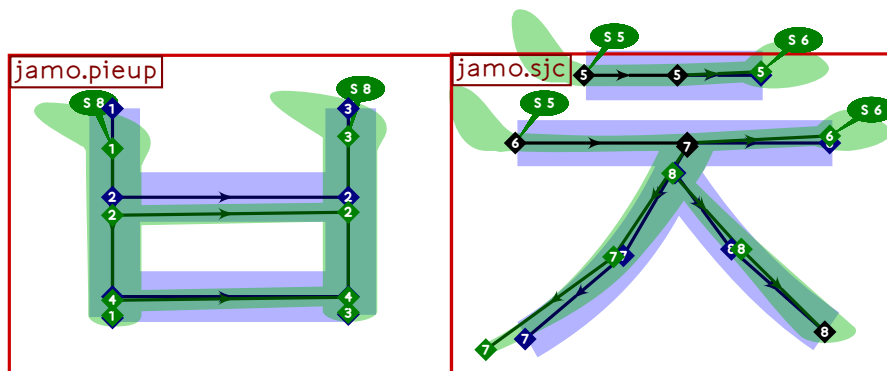


```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.12",39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endtsuglyph;
295

```

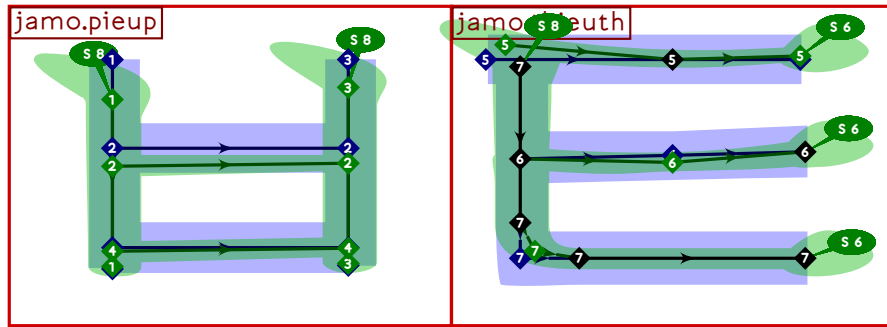




```

296 % hangul lead pieup-chieuch
297 begintsuglyph("uni1128.l2"40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endtsuglyph;
301

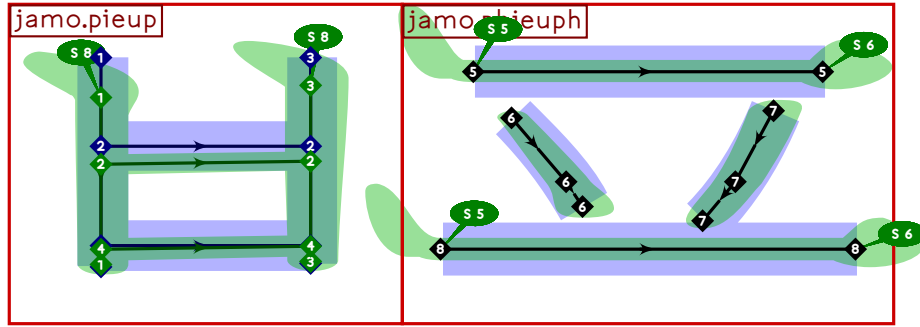
```



```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.12"41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endtsuglyph;
307

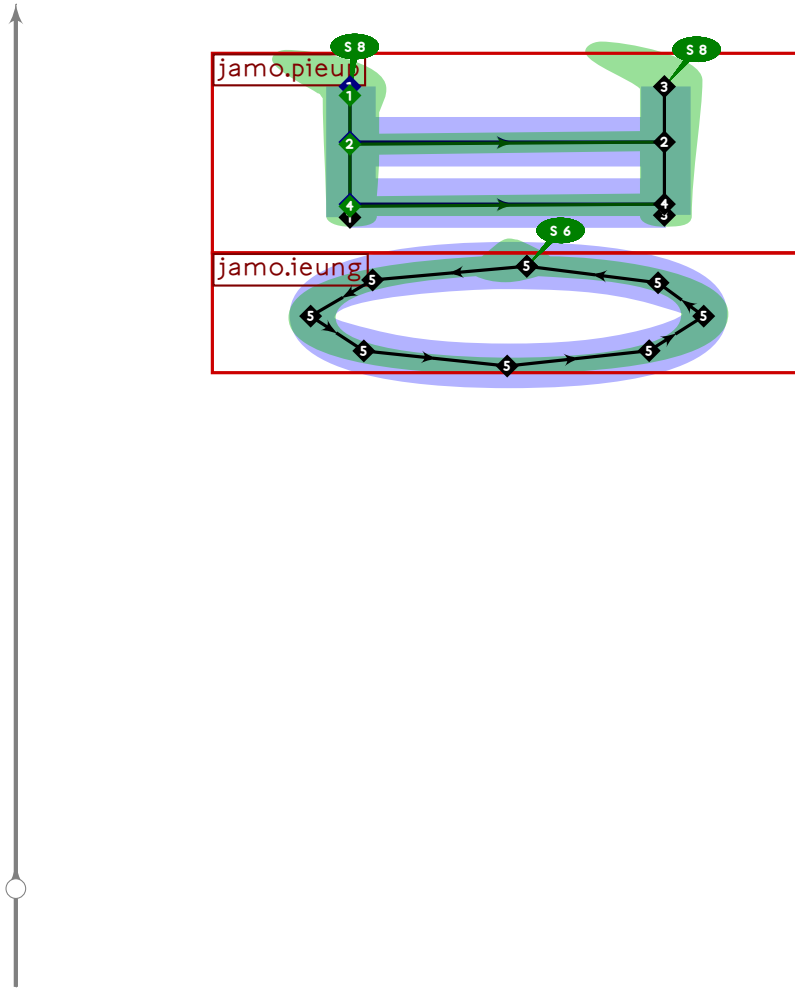
```



```

308 % hangul lead pieup-phieup
309 begintsuglyph("uni112A.12",42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endtsuglyph;
313

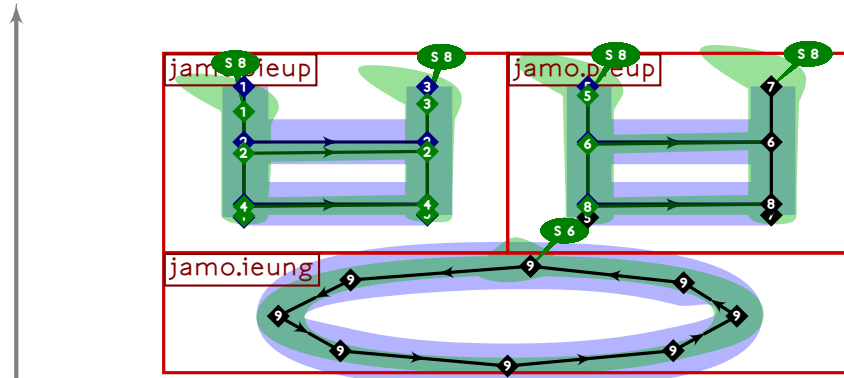
```



```

314 % hangul lead kapyeounpieup
315 begintsuglyph("uni112B.l2"43);
316 hangul.combine.tb(107,521)(whatever,
317   hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endtsuglyph;
320

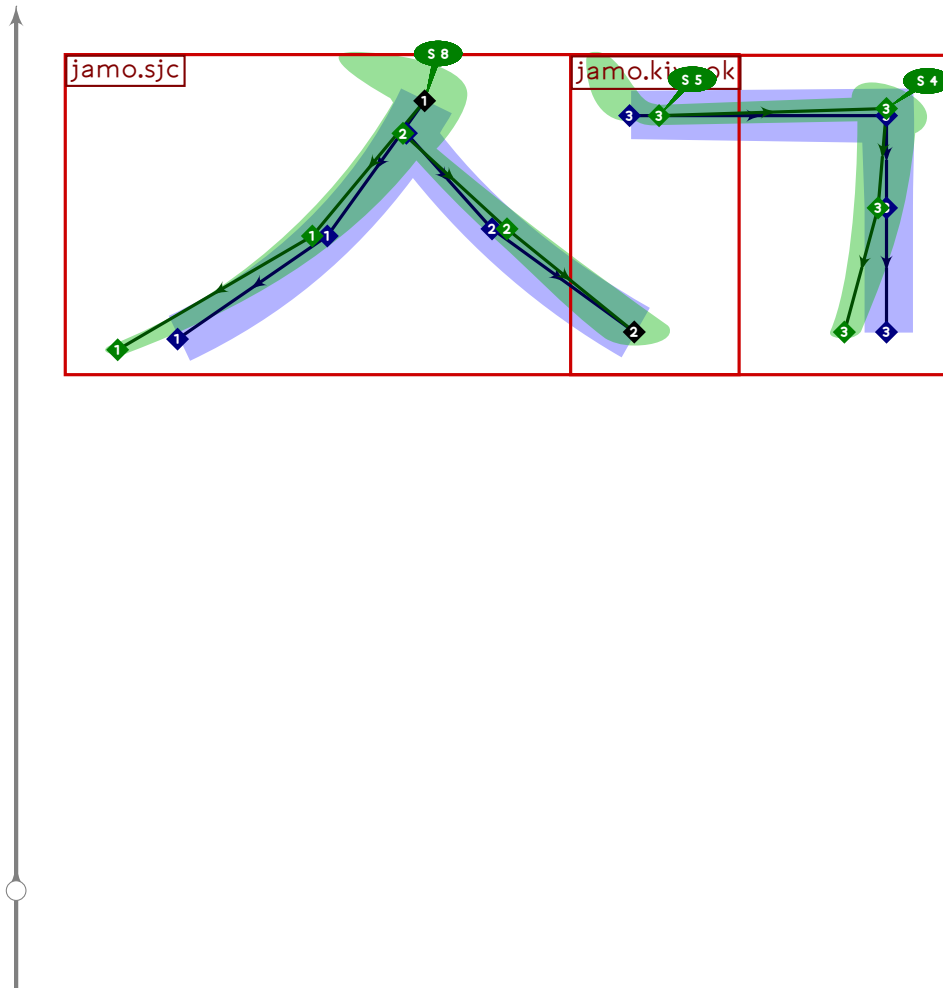
```



```

321 % hangul lead kapyeounssangpieup
322 begintsuglyph("uni112C.12"44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endtsuglyph;
327

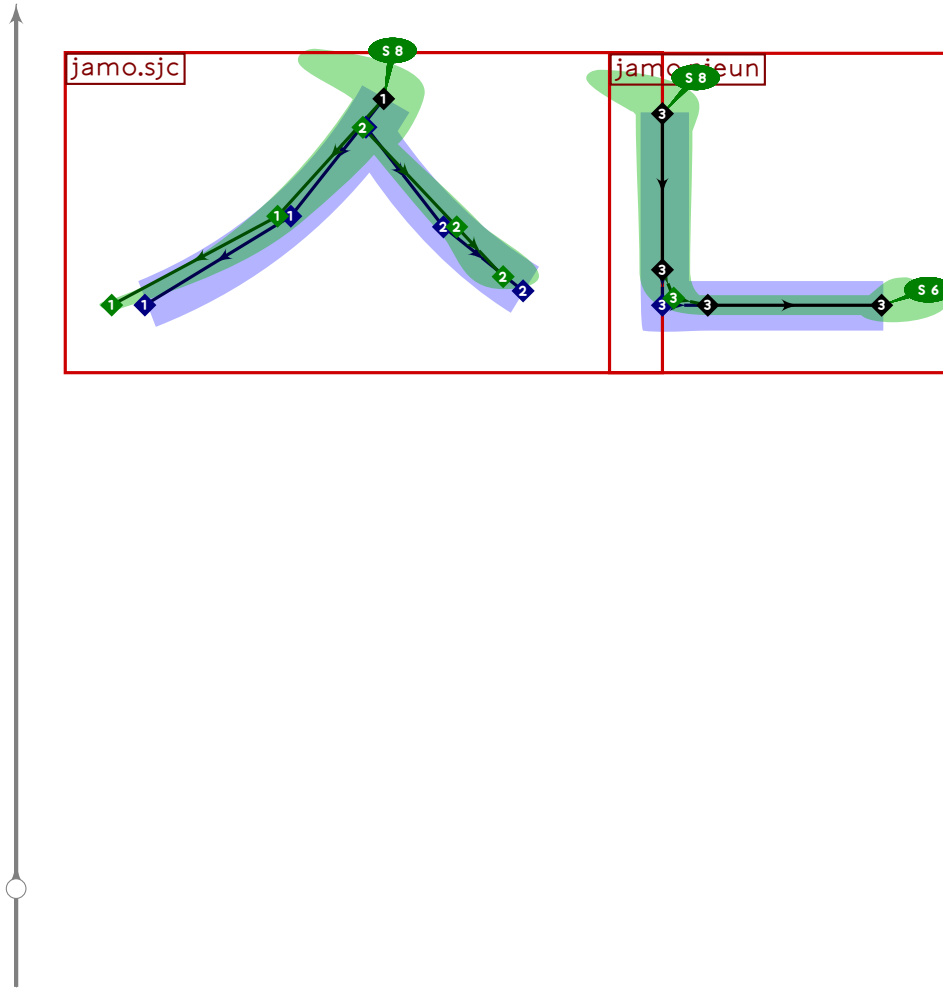
```



```

328 % hangul lead sios-kkiyeok
329 begintsuglyph("uni112D.12",45);
330 hangul.combine.lr(109,100)(whatever,lixf,loxf);
331 tsu_render;
332 endtsuglyph;
333

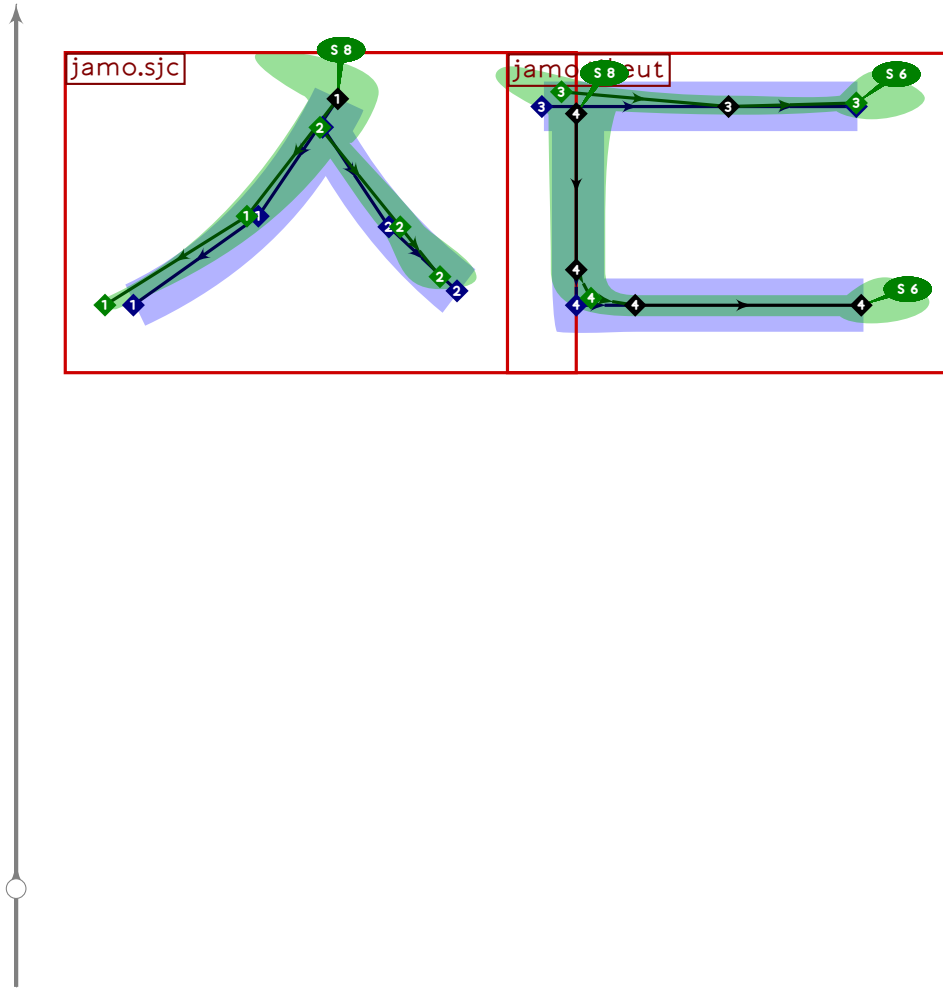
```



```

334 % hangul lead sios-nieun
335 begint Suglyph("uni112E.l2"46);
336 hangul.combine.lf(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endtsuglyph;
339

```

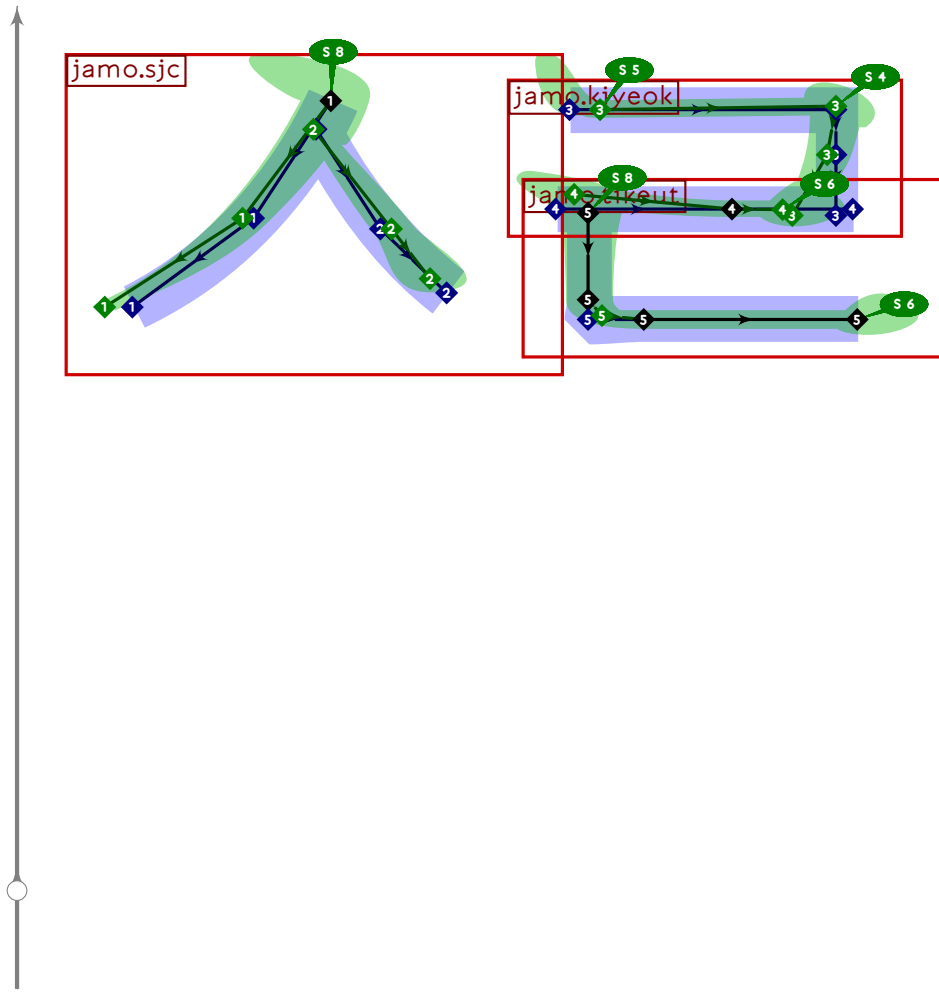


```

340 % hangul lead sios-tikeut
341 begintsuglyph("uni112F.12"47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endtsuglyph;
345

```

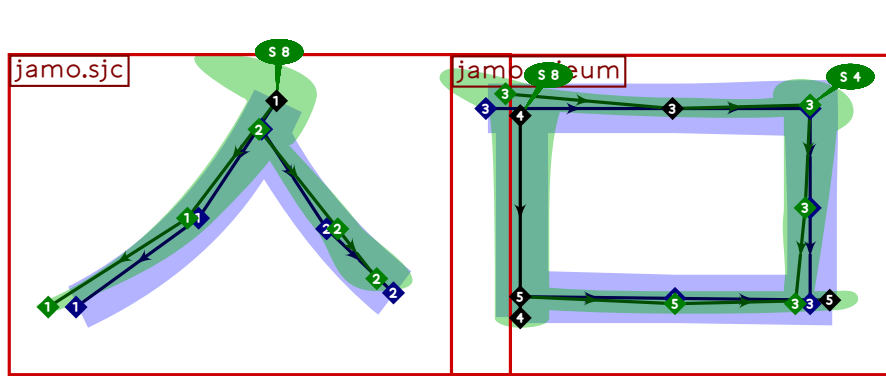




```

346 % hangul lead sios-rieul
347 begintsuglyph("uni1130.l2"48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

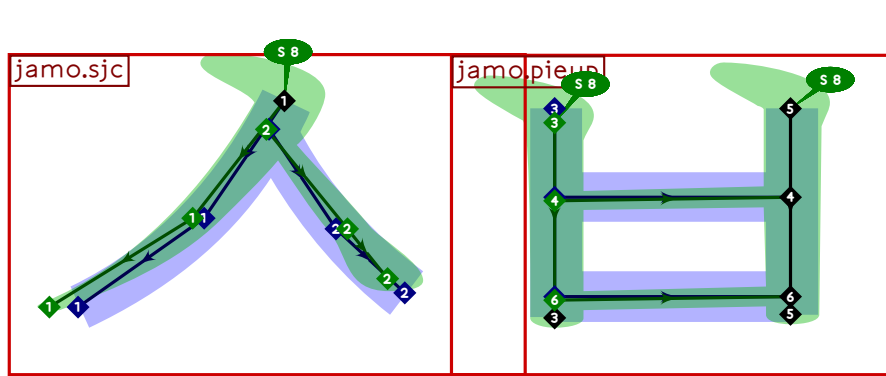
```



```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.l2";49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endtsuglyph;
357

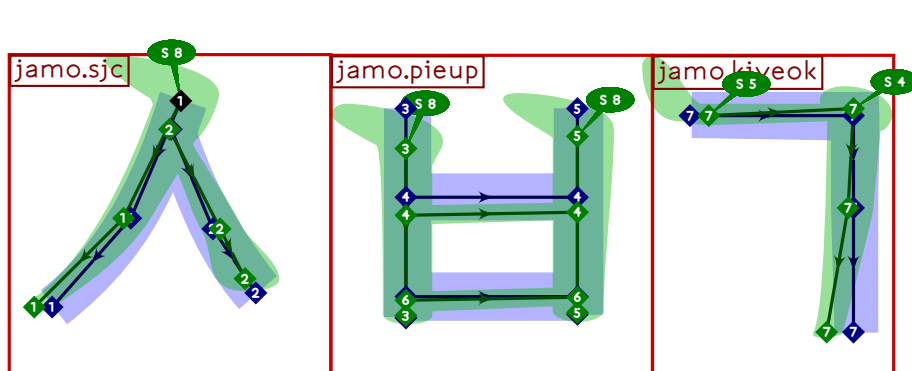
```



```

358 % hangul lead sios-pieup
359 begintsuglyph("uni1132.l2";50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

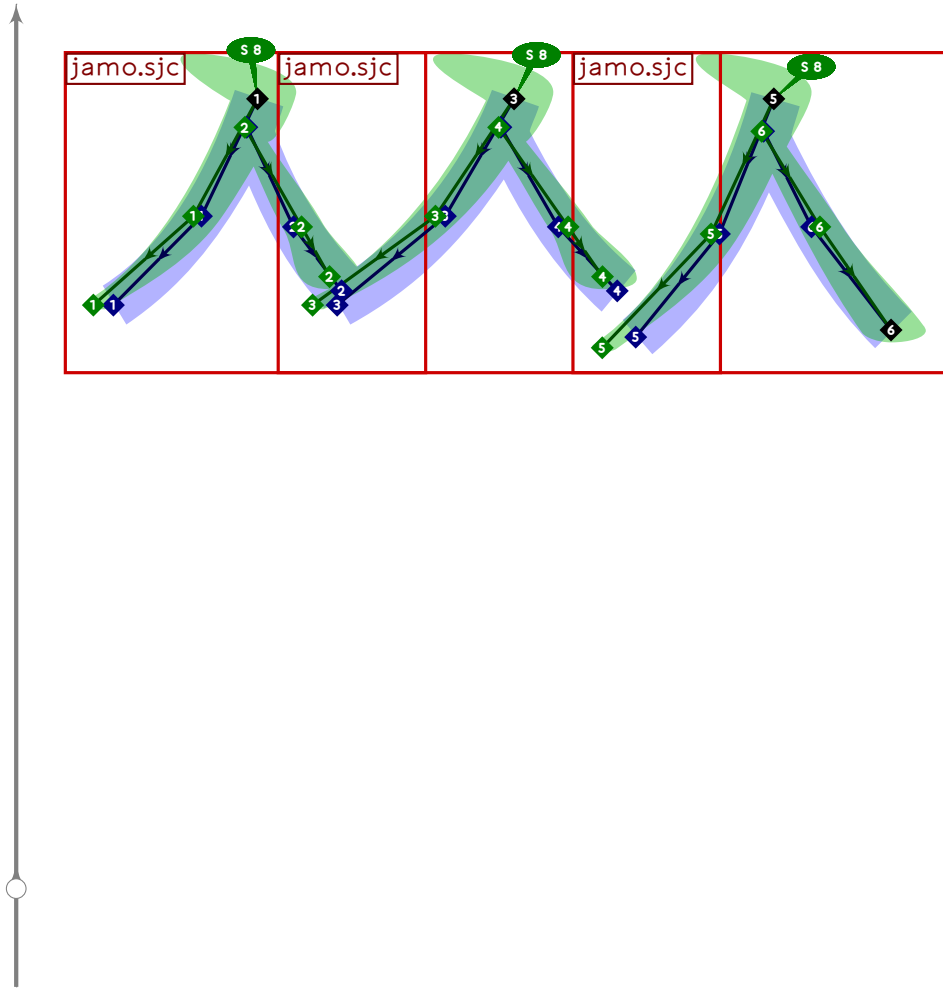
```



```

364 % hangul lead sios-pieup-kiyeok
365 begint Suglyph("uni1133.12";51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endtsuglyph;
369

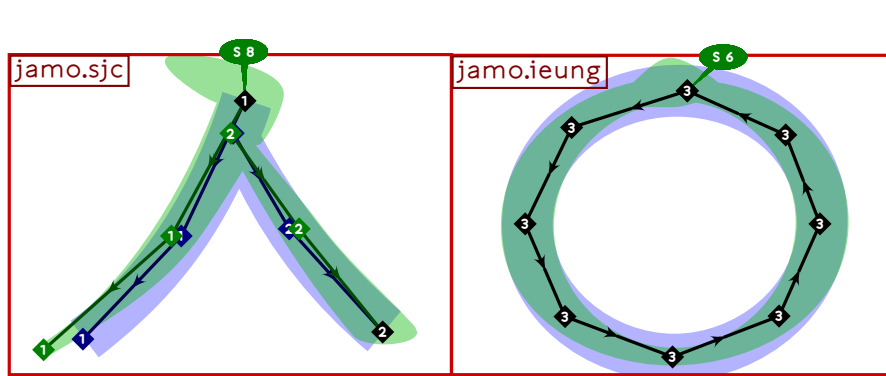
```



```

370 % hangul lead sios-sios-sios
371 begintsuglyph("uni1134.l2";52);
372 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endtsuglyph;
375

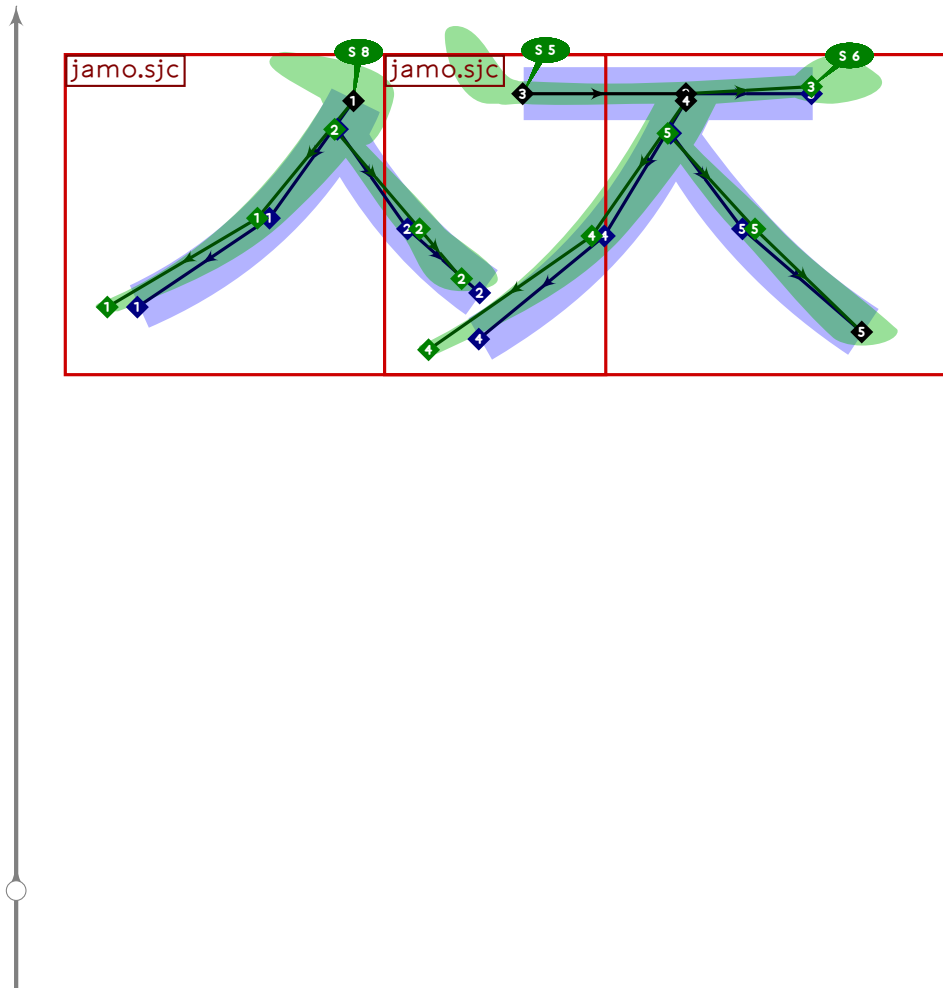
```



```

376 % hangul lead sios-ieung
377 begintsuglyph("uni1135.l2";53);
378 hangul.combine.lr(109;111)(whatever,lixf,loxf);
379 tsu_render;
380 endtsuglyph;
381

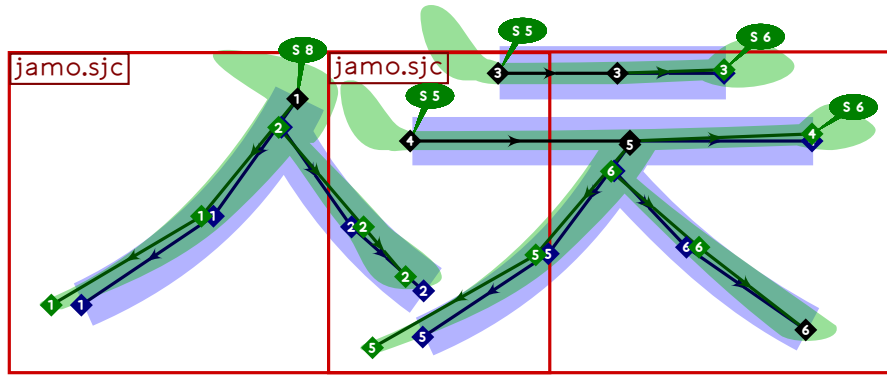
```



```

382 % hangul lead sios-cieuc
383 begintsuglyph("uni1136.l2";54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endtsuglyph;
387

```

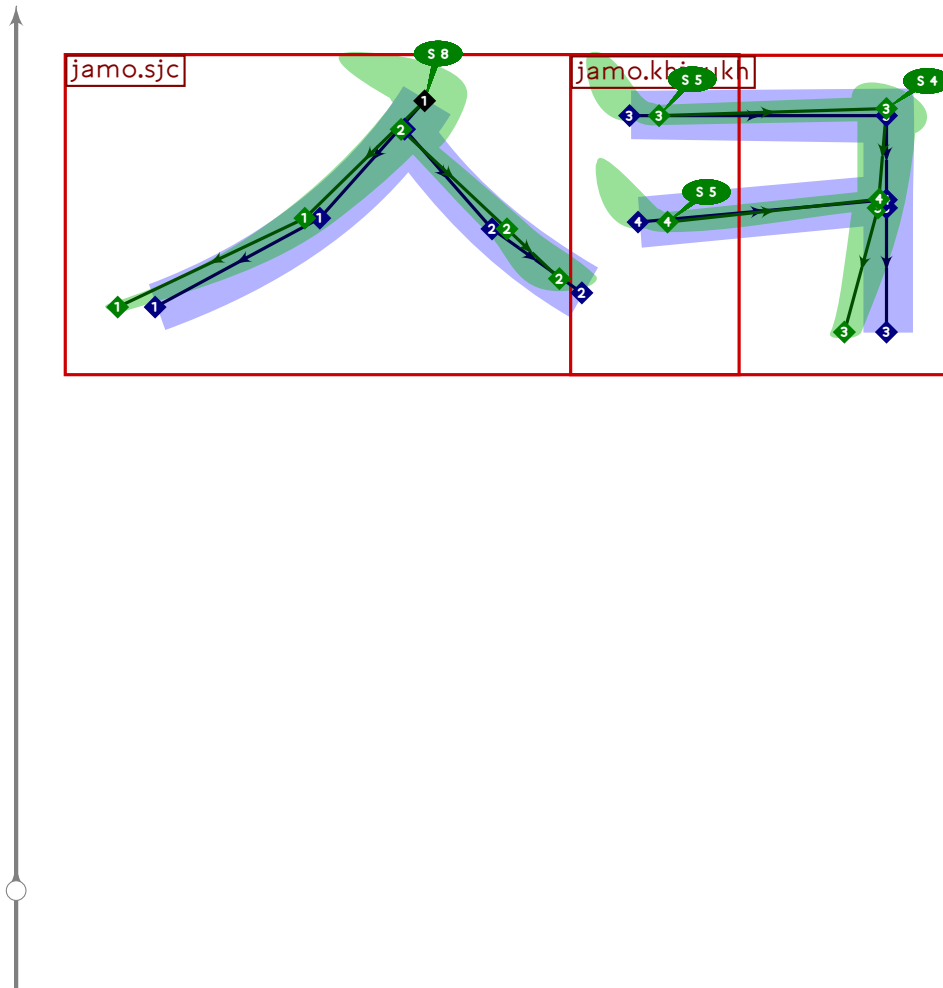


```

388 % hangul lead sios-chieuch
389 begintsuglyph("uni1137.12",55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endtsuglyph;
393

```

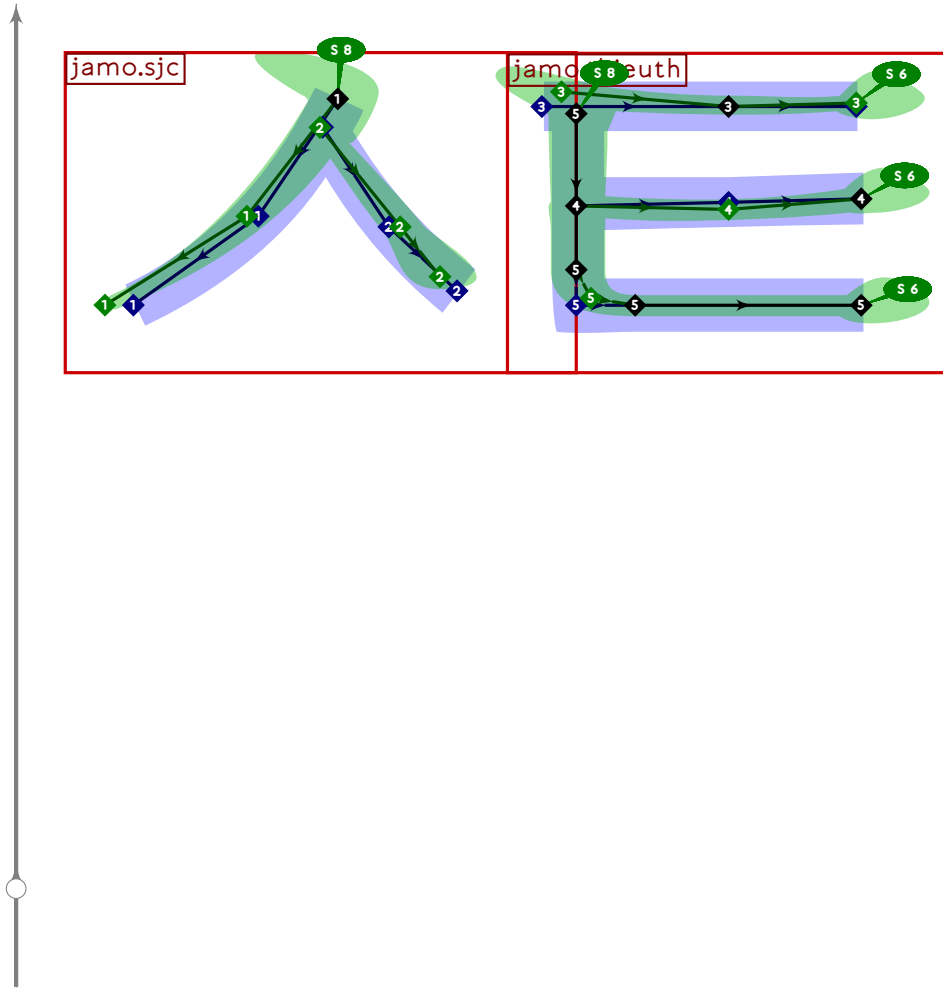




```

394 % hangul lead sios-khieukh
395 begint Suglyph("uni1138.l2";56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endtsuglyph;
399

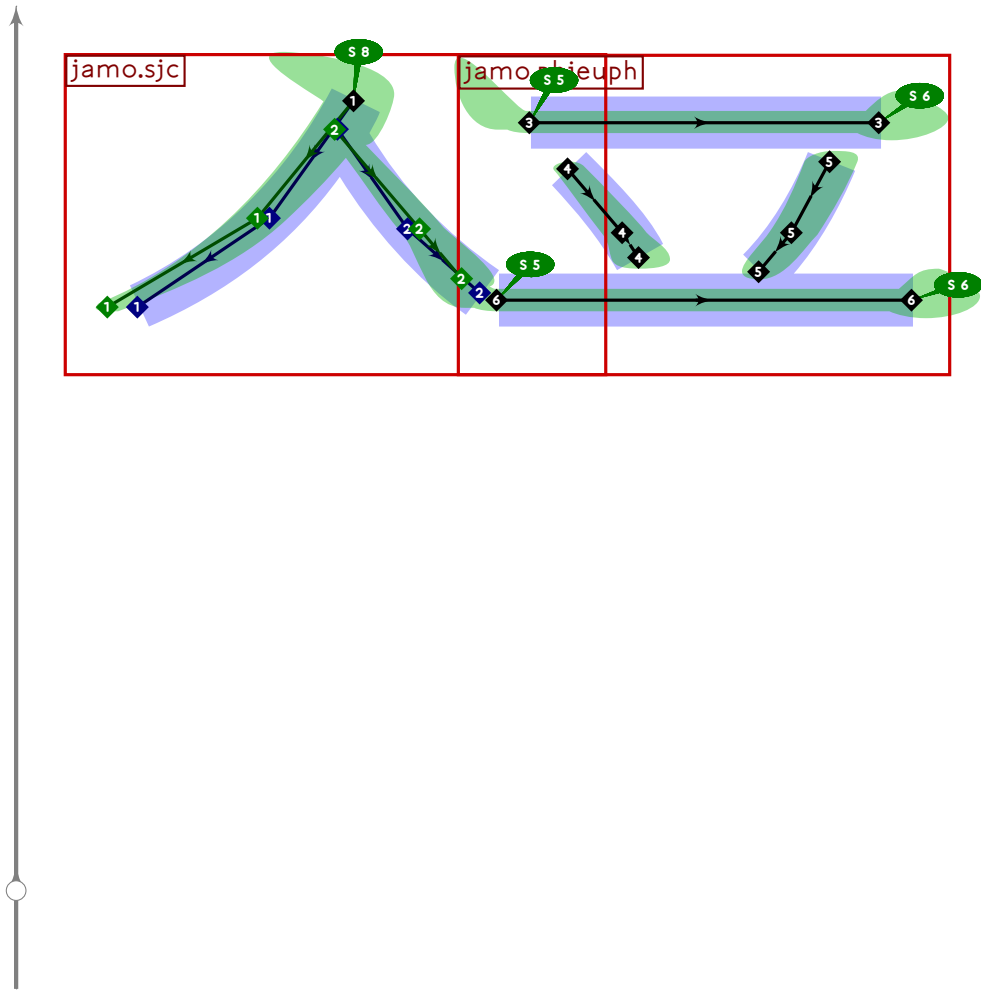
```



```

400 % hangul lead sios-thieuth
401 begint Suglyph("uni1139.12";57);
402 hangul.combine.lf(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endtsuglyph;
405

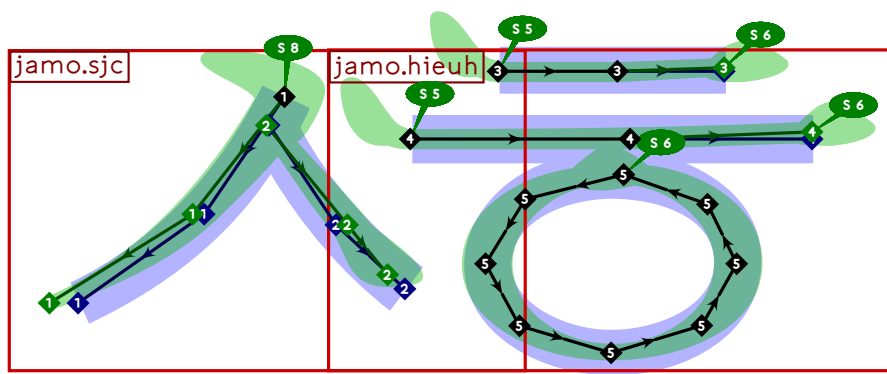
```



```

406 % hangul lead sios-phieuph
407 begint Suglyph("uni113A.l2",58);
408 hangul.combine.lr(209,117)(whatever,lixf,loxf);
409 tsu_render;
410 endtsuglyph;
411

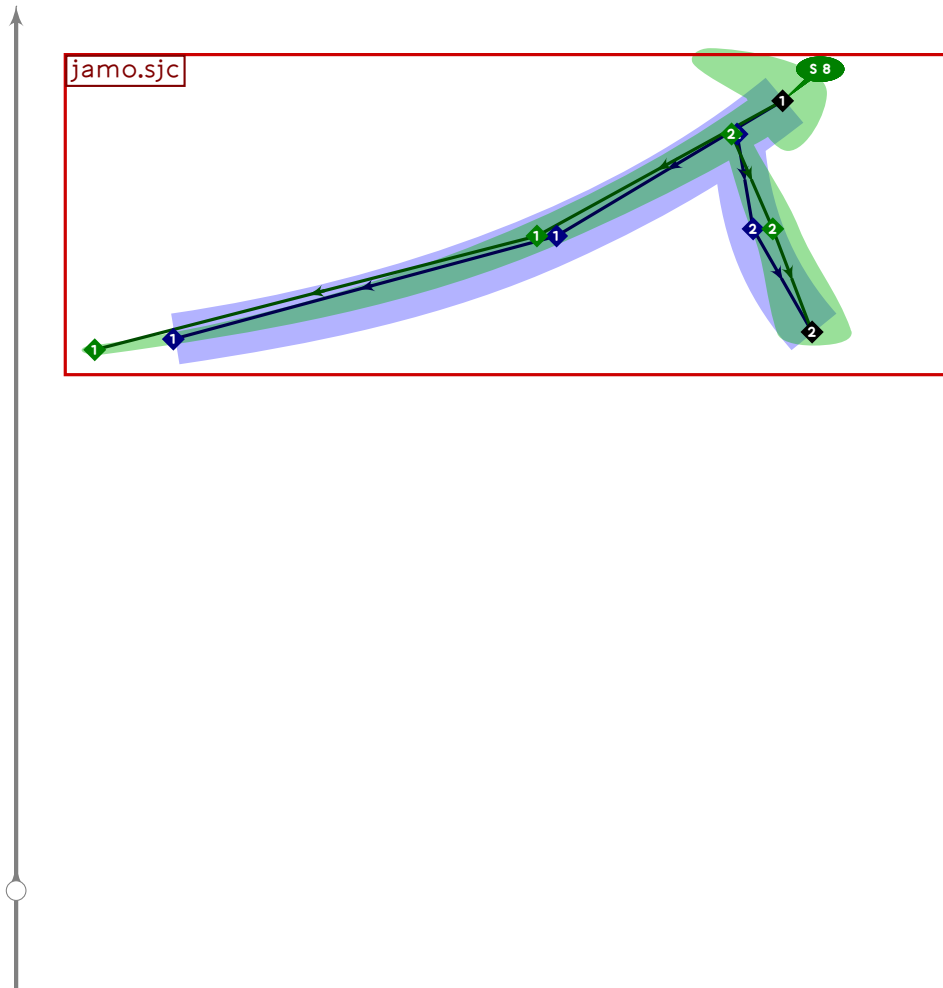
```



```

412 % hangul lead sios-hieuh
413 begintsuglyph("uni113B.l2";59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

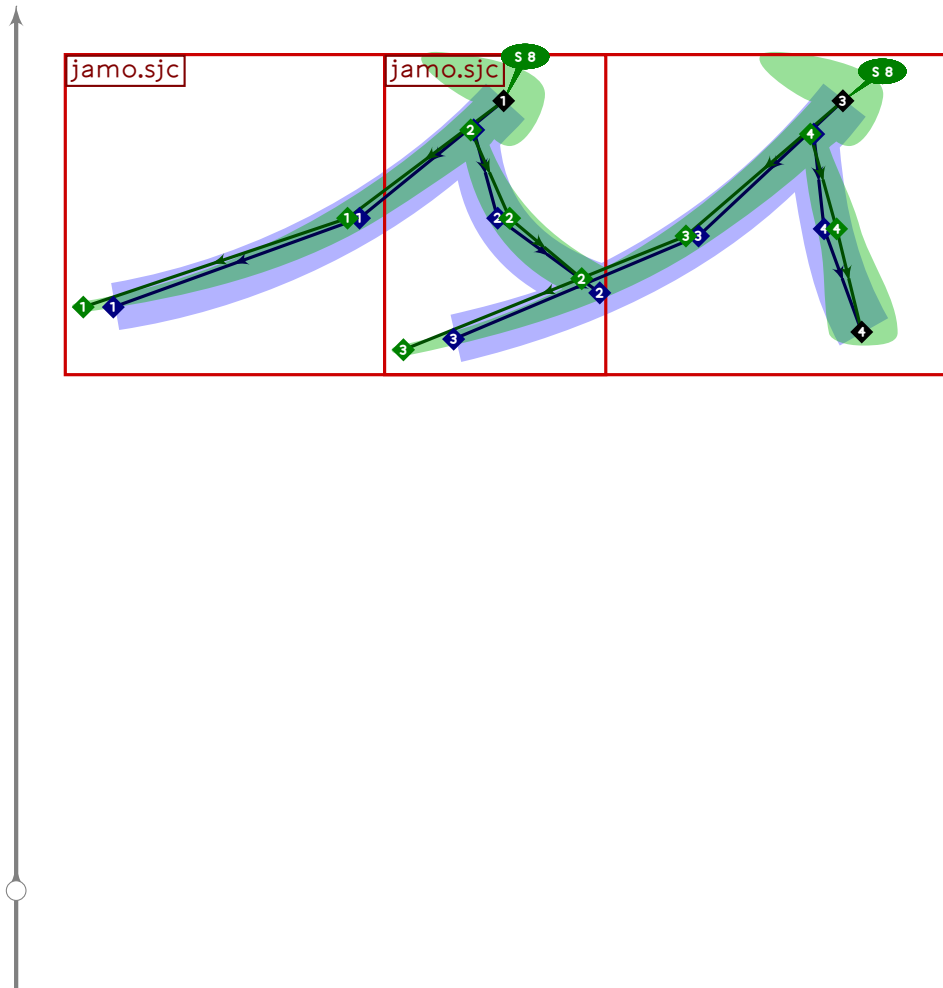
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.l2",60);
420 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

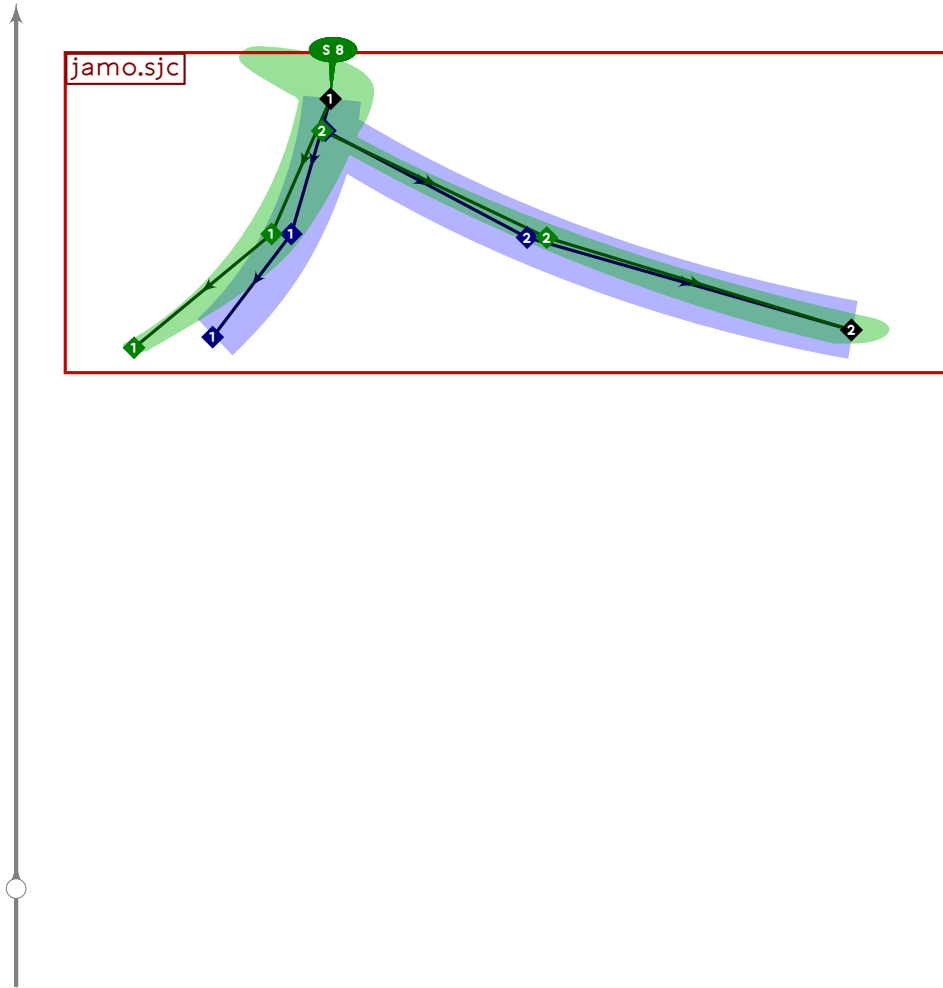
```



```

424 % hangul lead chitueumssangsios
425 begint Suglyph("uni113D.l2",61);
426 hangul.combine.lr(223,222)(whatever,lxf,loxf);
427 tsu_render;
428 endtsuglyph;
429

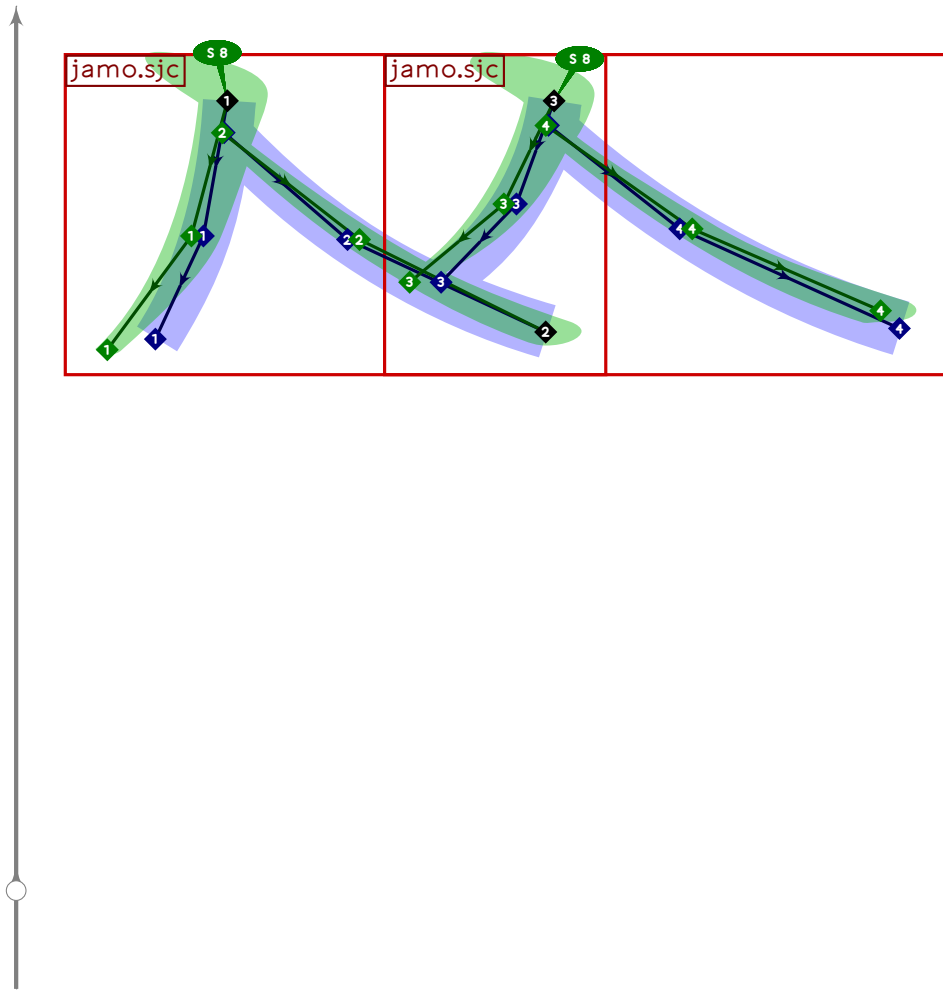
```



```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.l2"62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

```

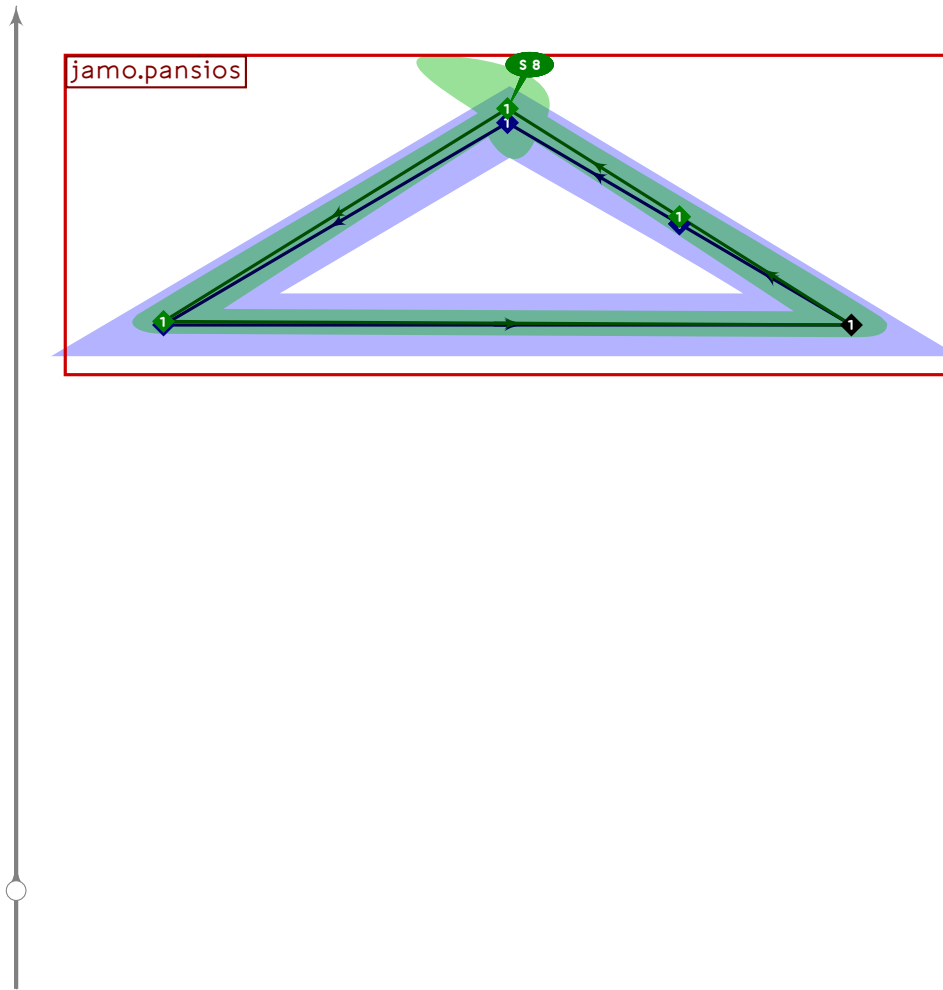


```

436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.l2",63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endtsuglyph;
441

```

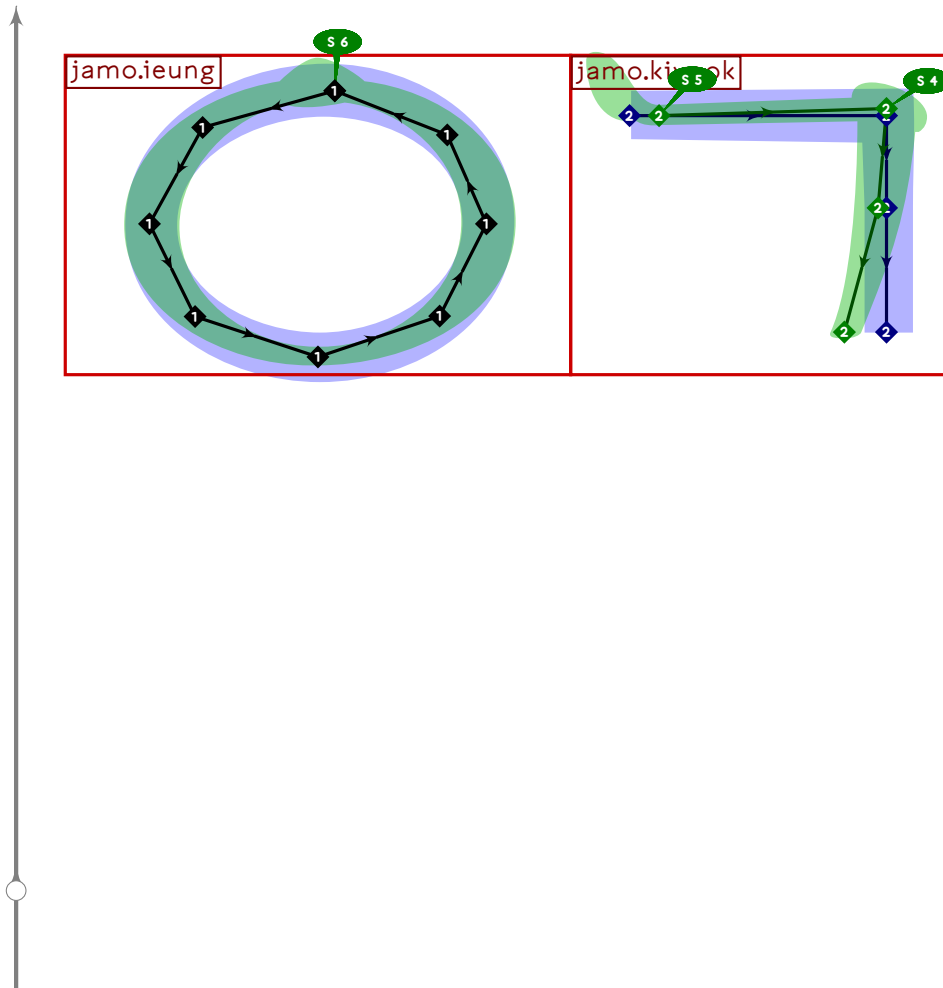




```

442 % hangul lead pansios
443 begintsuglyph("uni1140.l2",64);
444 hangul,jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endtsuglyph;
447

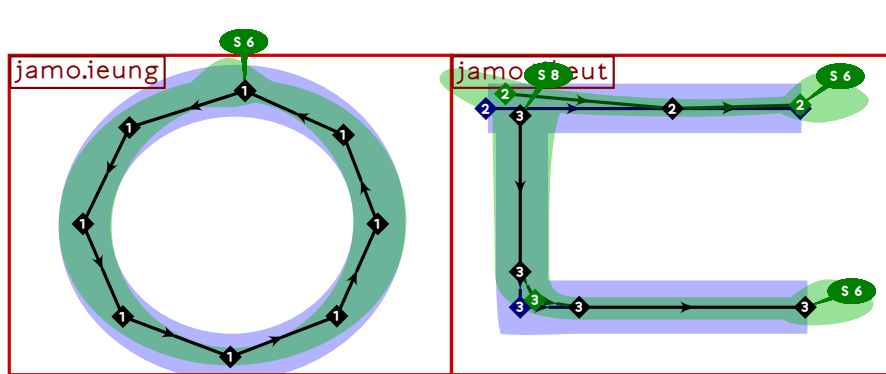
```



```

448 % hangul lead ieung-kiyeok
449 begintsuglyph("uni1141.l2",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endtsuglyph;
453

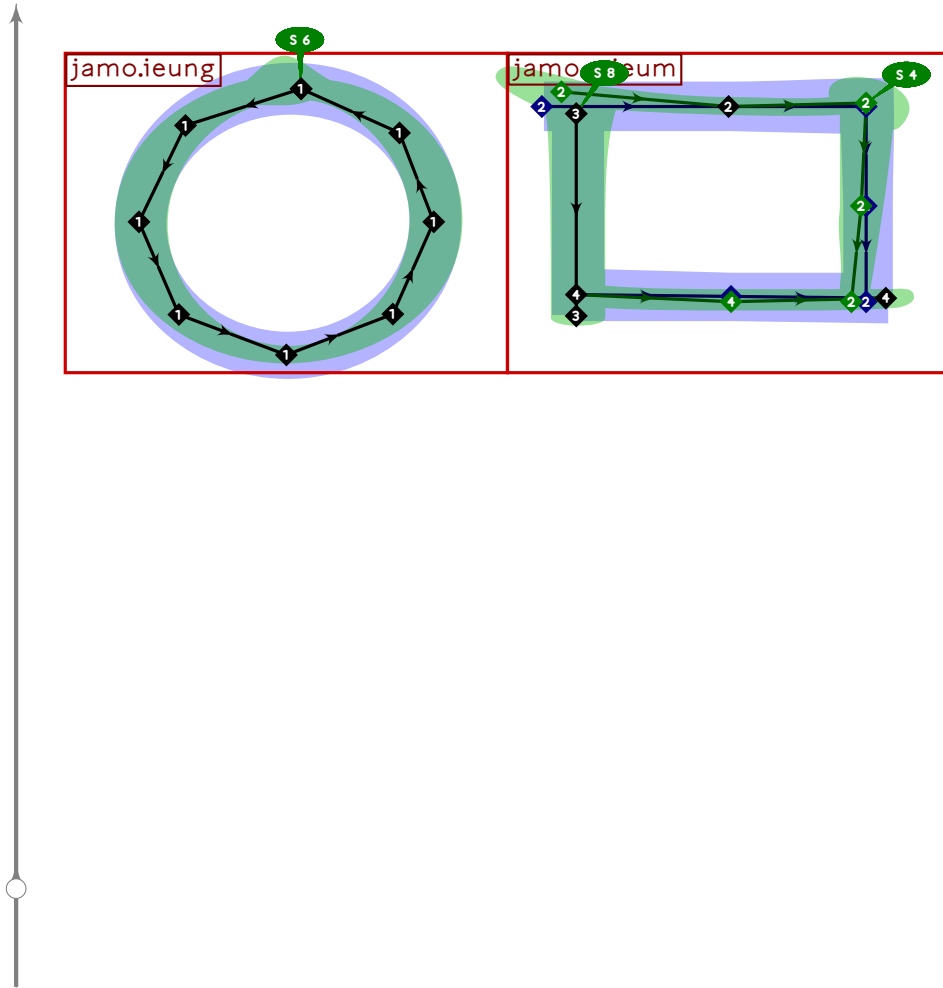
```



```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.l2",66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endtsuglyph;
459

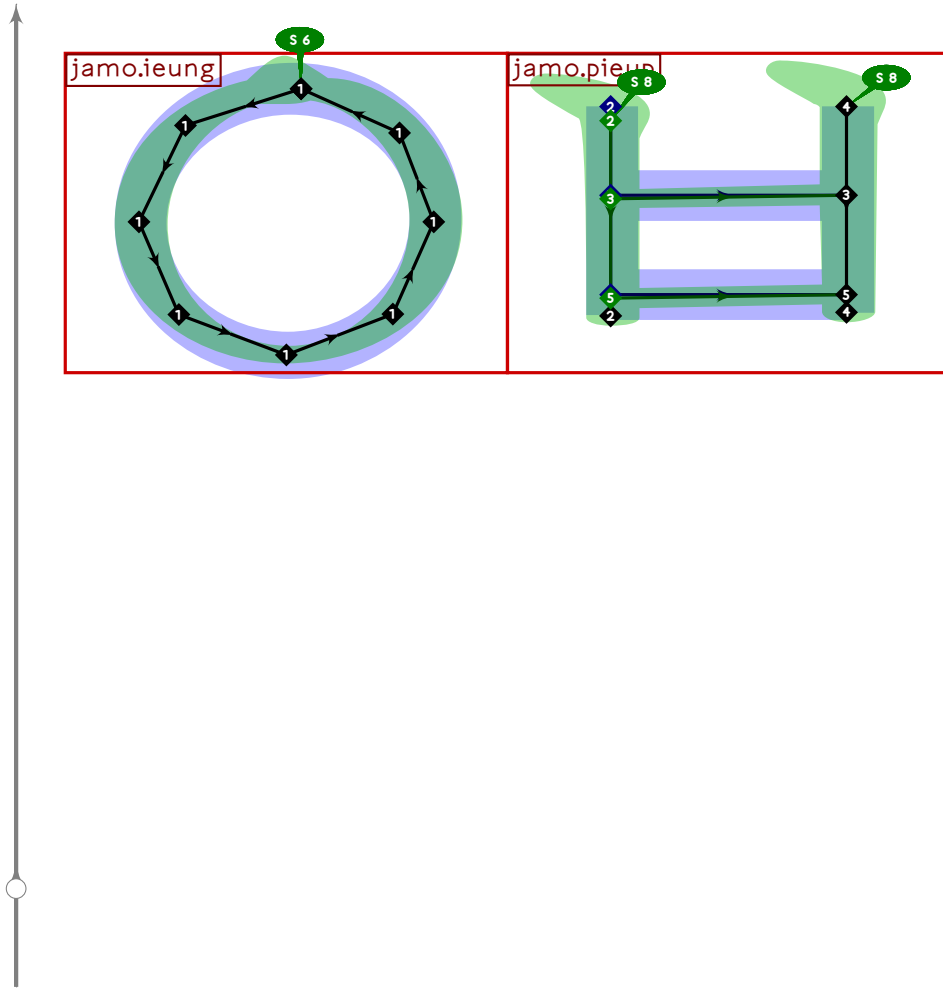
```



```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.12",67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endtsuglyph;
465

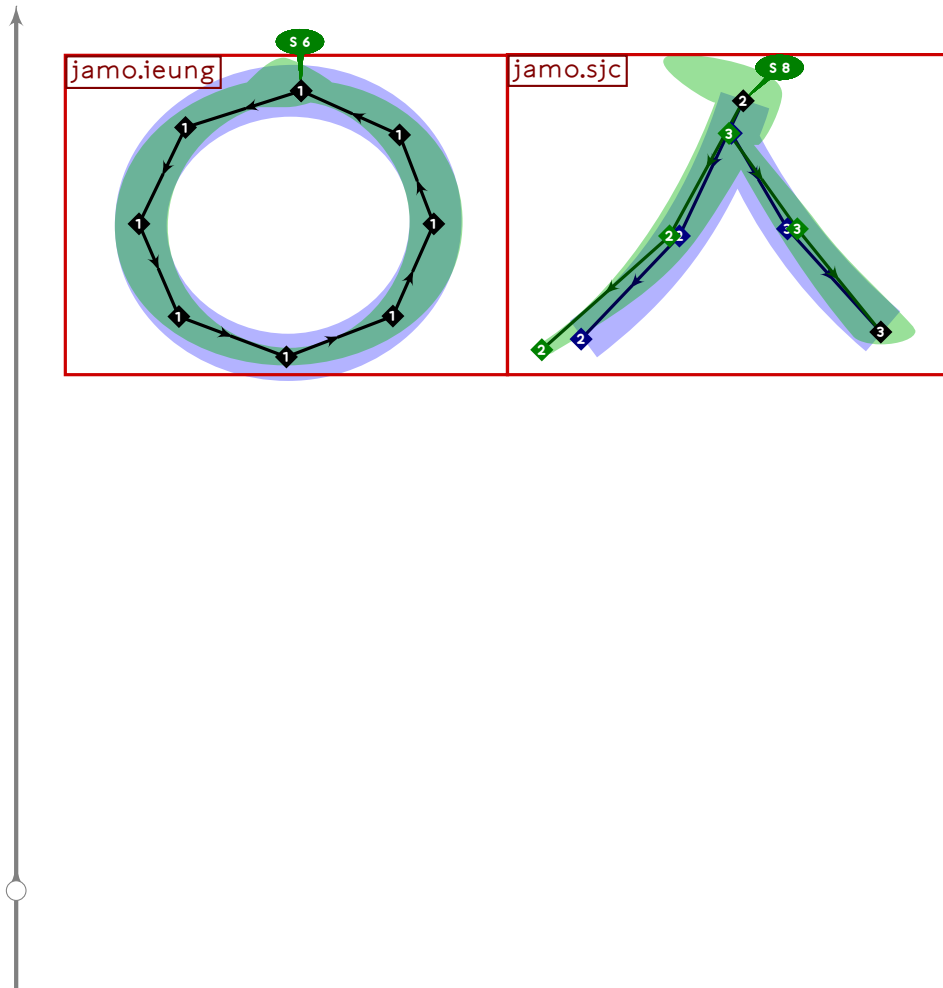
```



```

466 % hangul lead ieung-pieup
467 begintsuglyph("uni1144.l2",68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endtsuglyph;
471

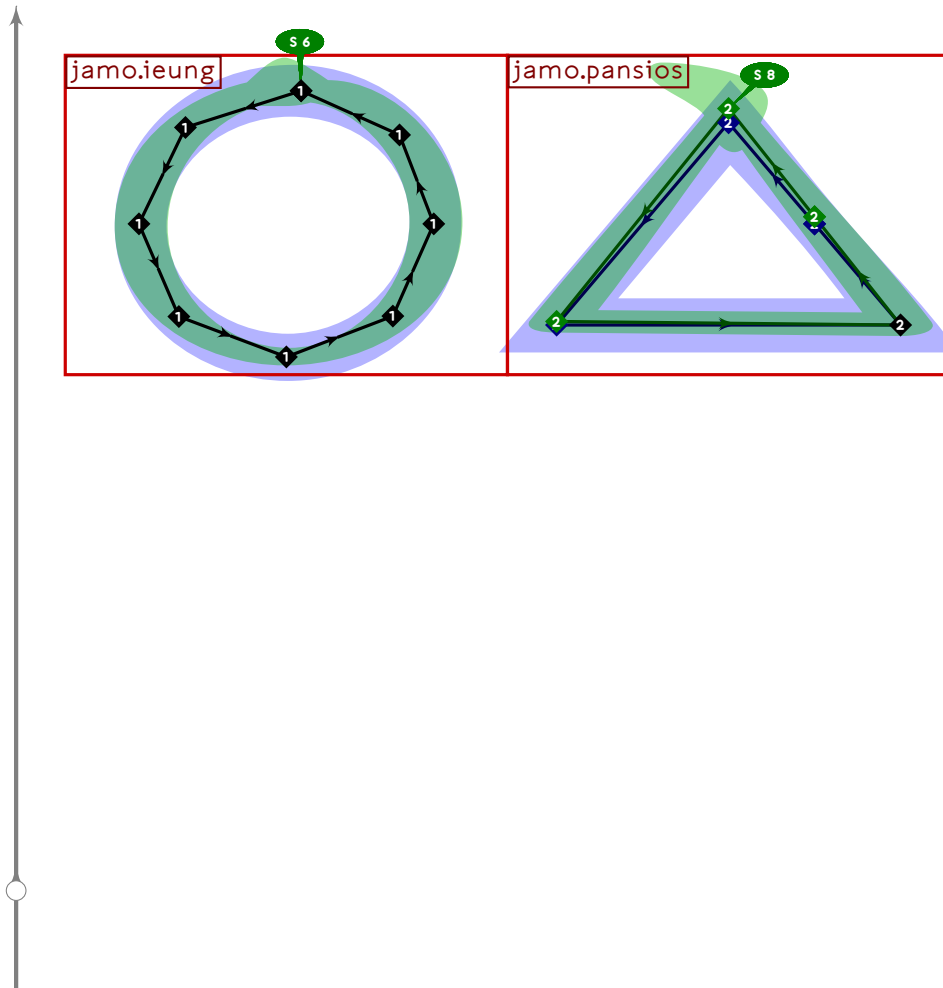
```



```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.12";69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endtsuglyph;
477

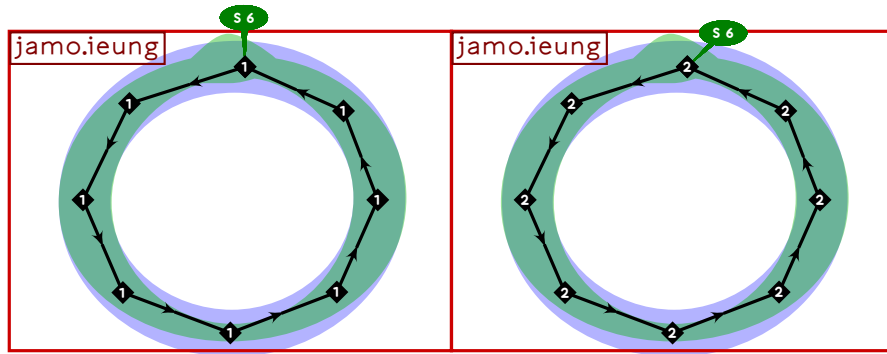
```



```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l2";70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endtsuglyph;
483

```

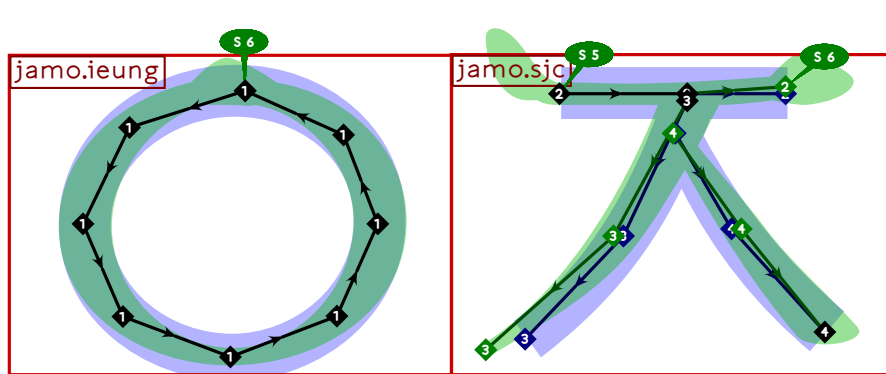


```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.l2",71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endtsuglyph;
489

```

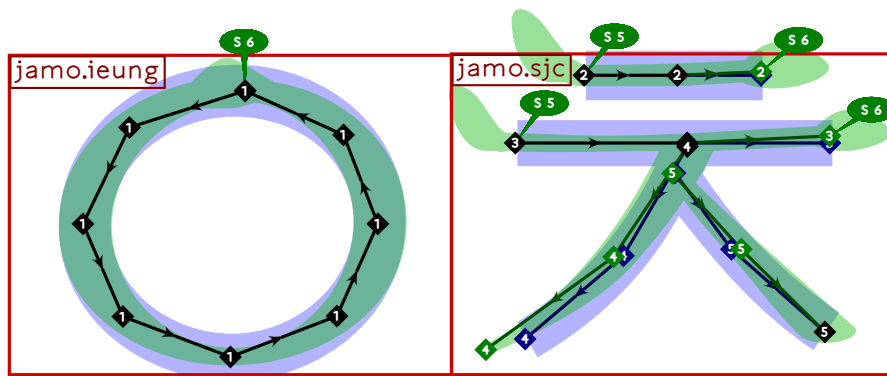




```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.l2";72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endtsuglyph;
495

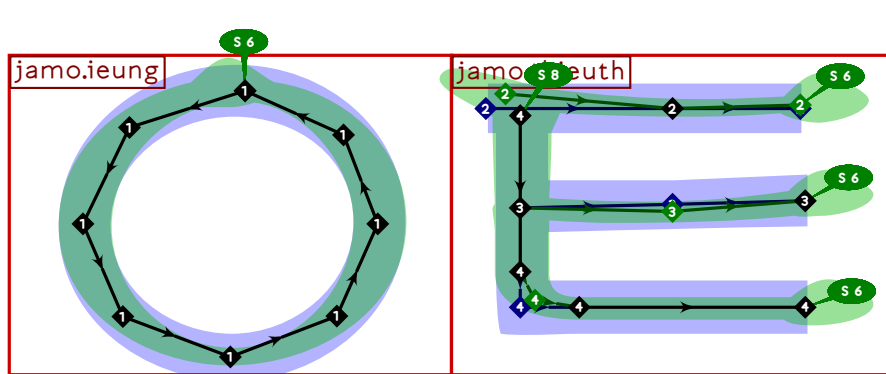
```



```

496 % hangul lead ieung-chieuch
497 begint Suglyph("uni1149.l2"73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endtsuglyph;
501

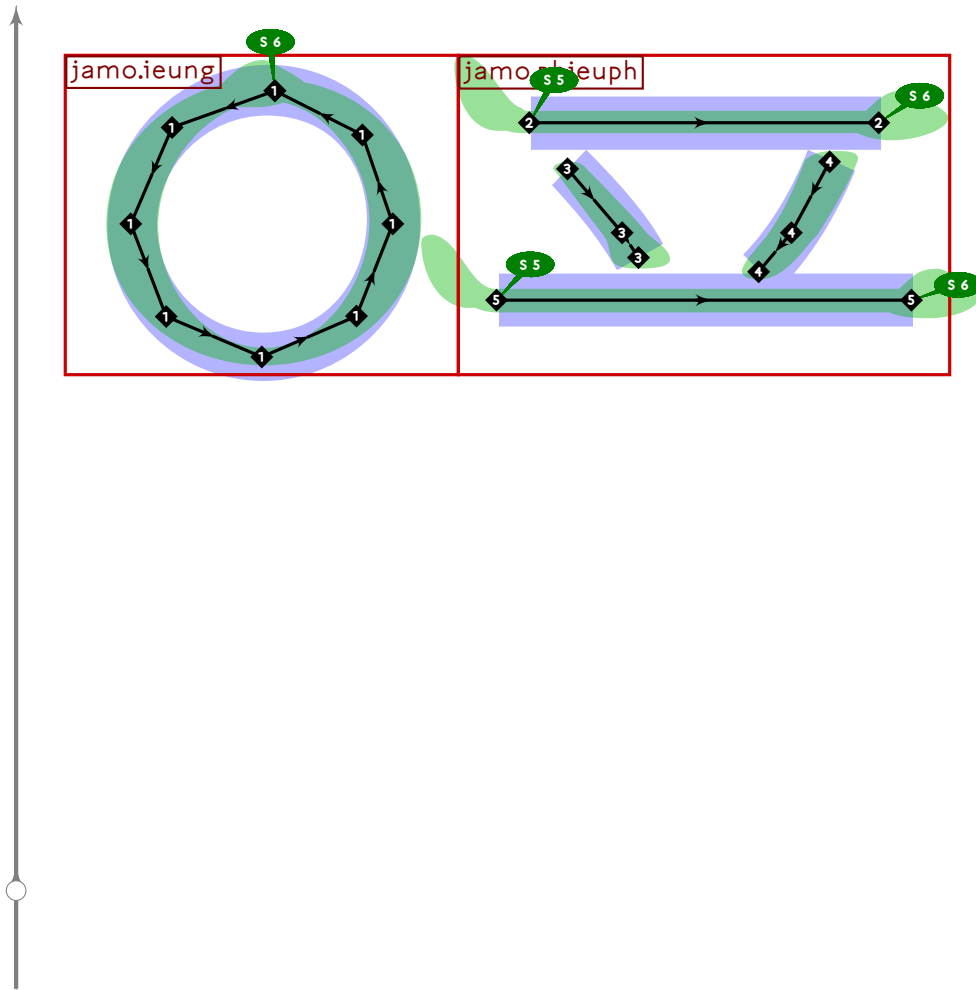
```



```

502 % hangul lead ieung-theiuth
503 begintsuglyph("uni114A.l2",74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endtsuglyph;
507

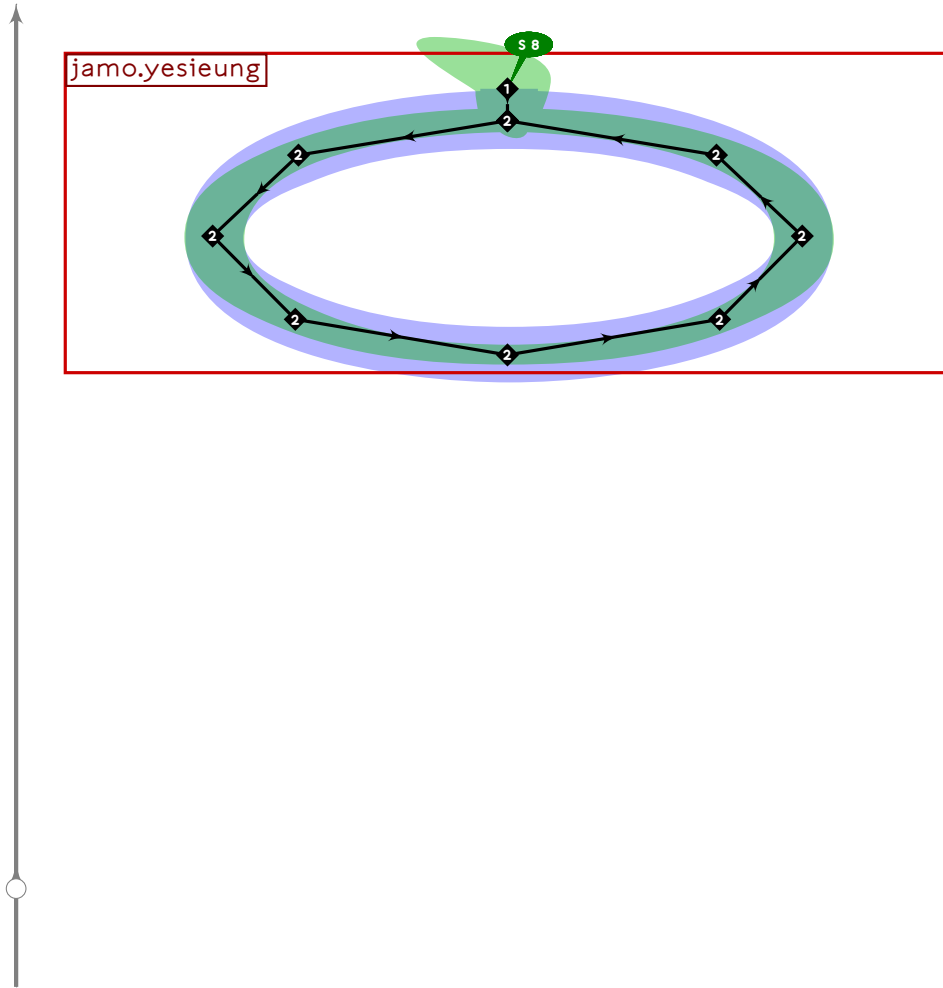
```



```

508 % hangul lead ieung-phieuph
509 begintsuglyph("uni114B.l2";75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endtsuglyph;
513

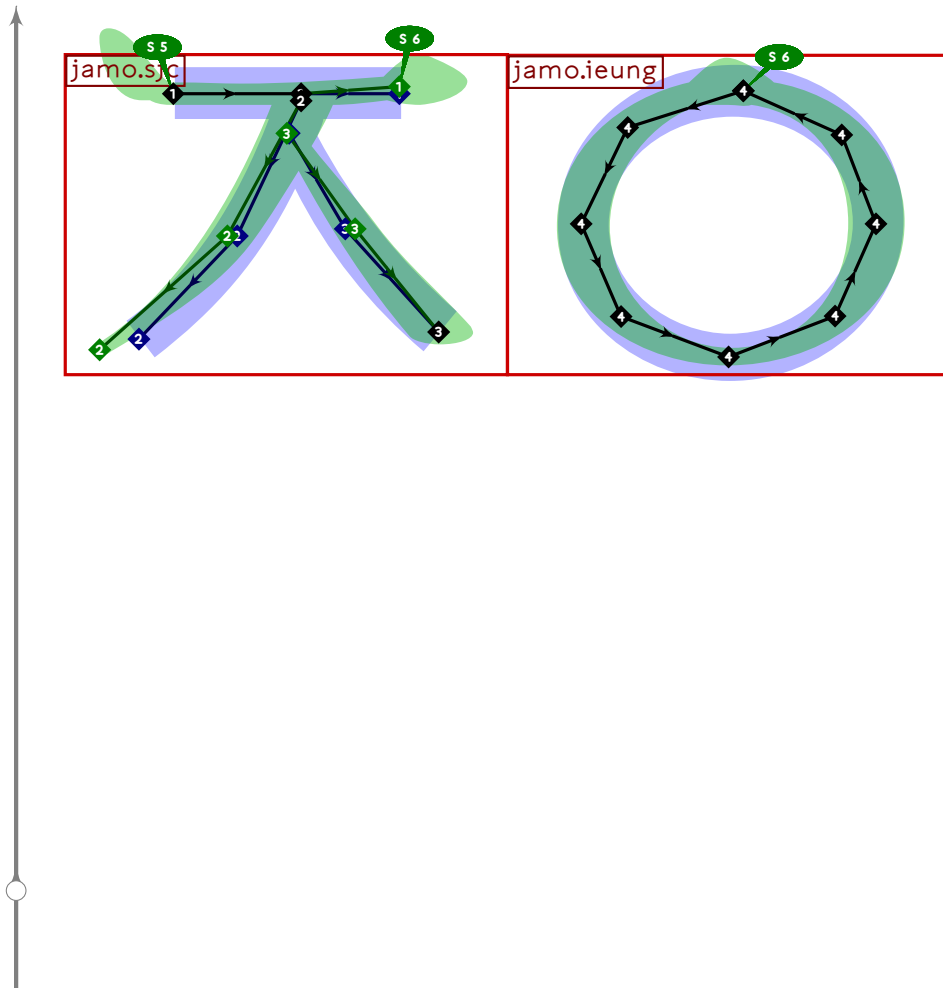
```



```

514 % hangul lead yesieung
515 begintsuglyph("uni114C.12",76);
516 hangul,jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endtsuglyph;
519

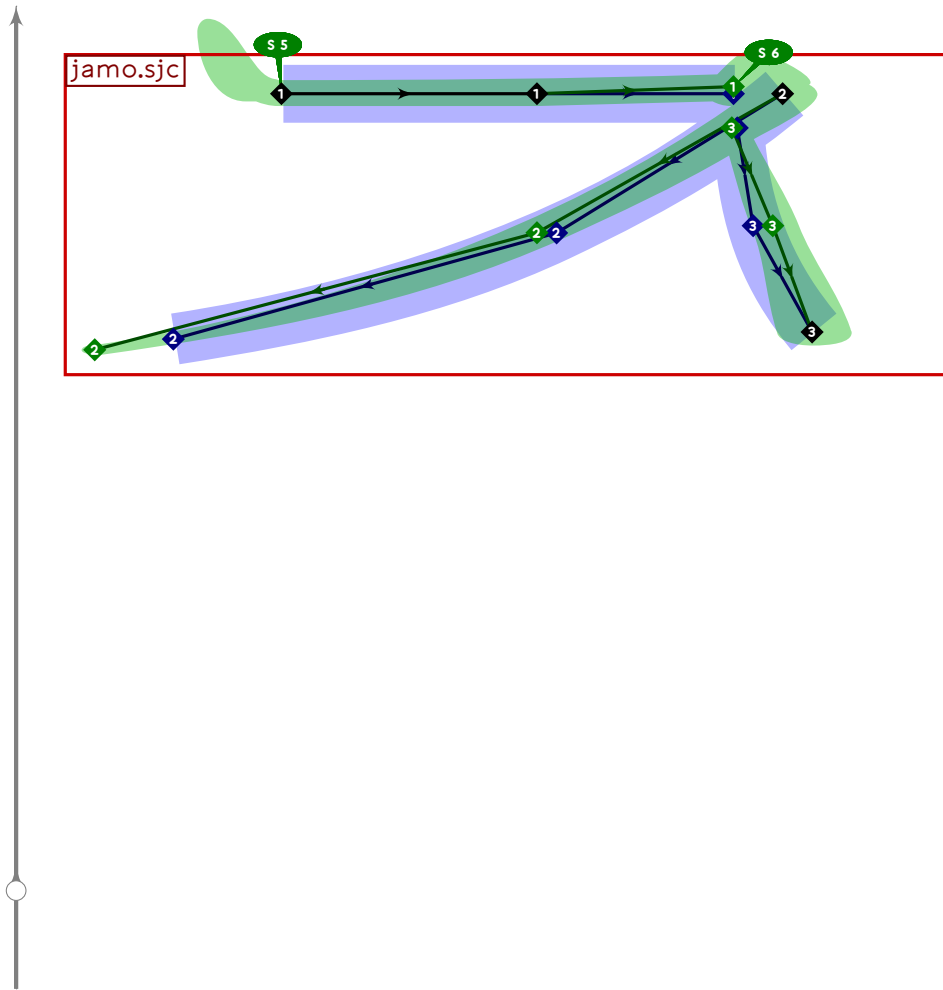
```



```

520 % hangul lead cieuc-ieung
521 begintsuglyph("uni114D.l2",77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

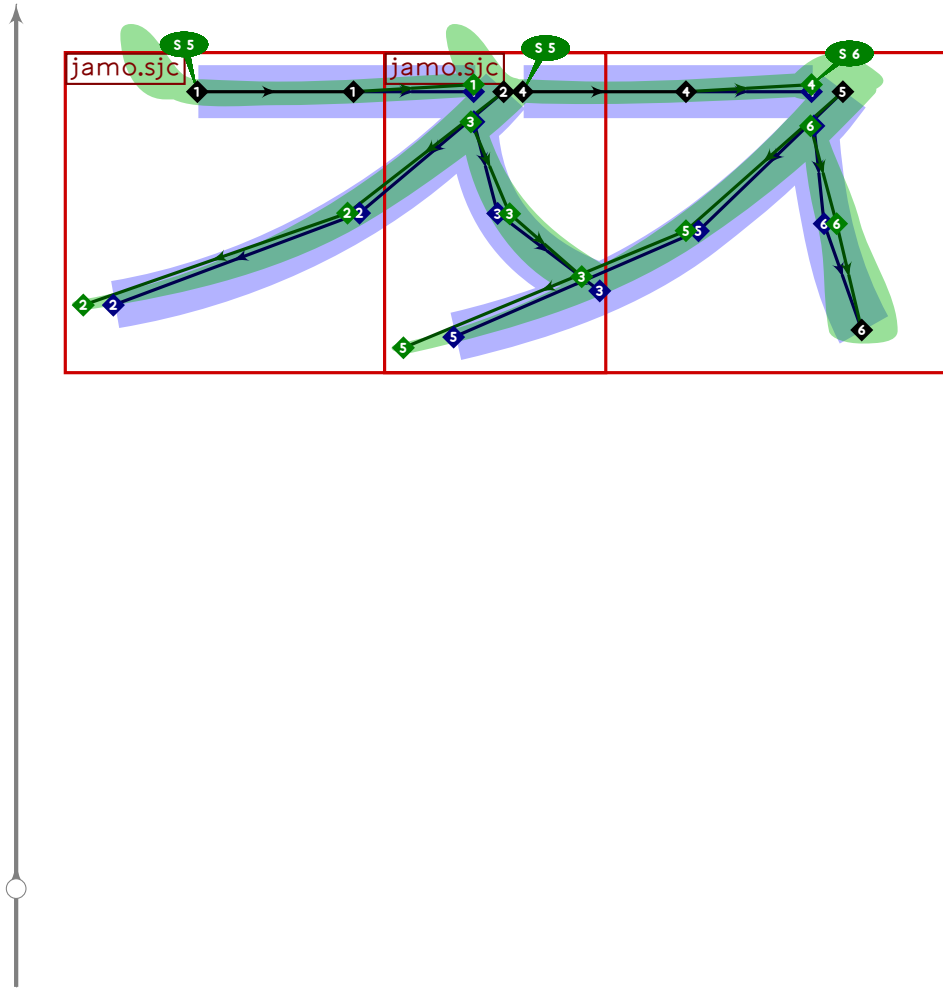
```



```

526 % hangul lead chitueumcieuc
527 begint Suglyph("uni114E.l2";78);
528 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endtsuglyph;
531

```

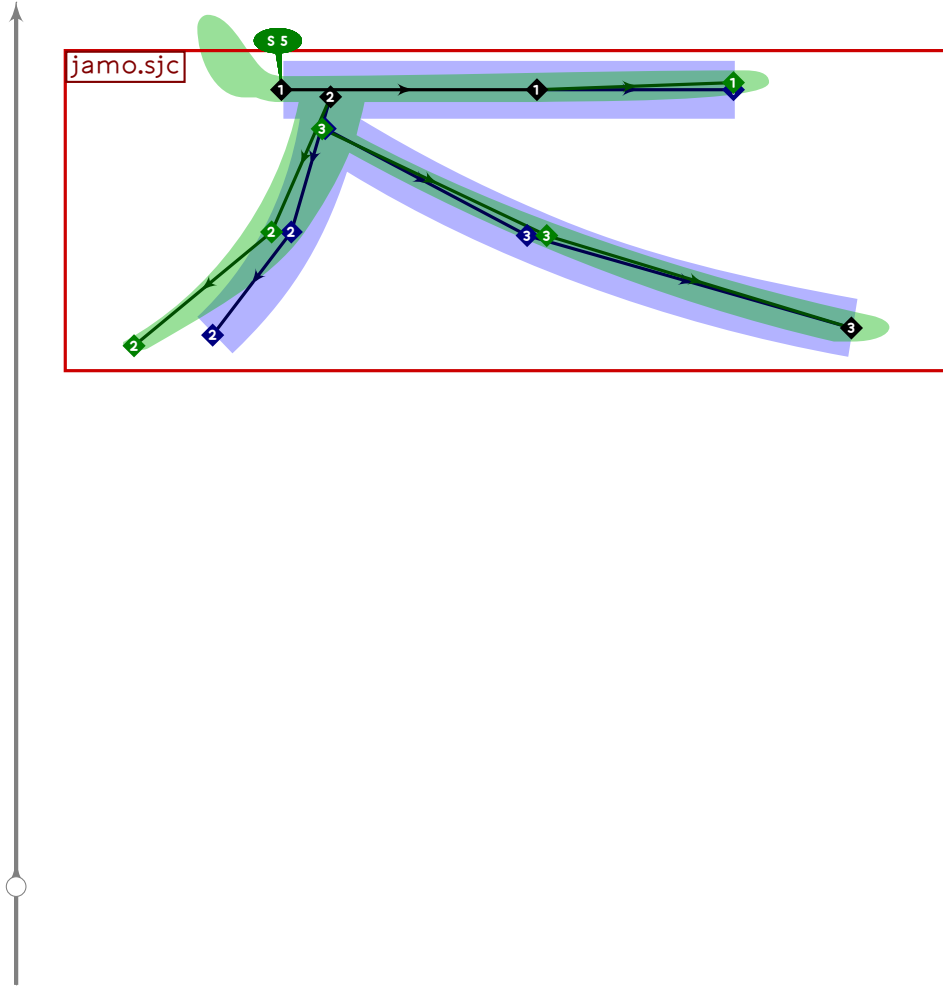


```

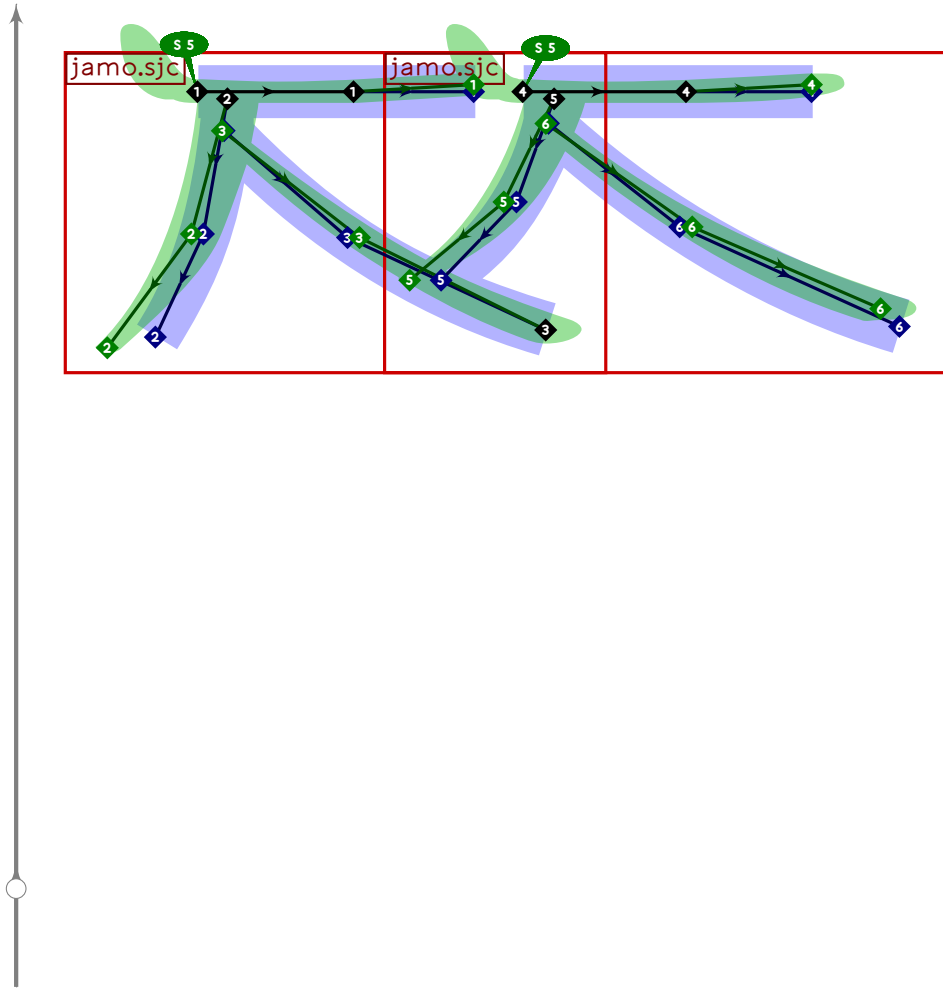
532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.12'79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endtsuglyph;
537

```





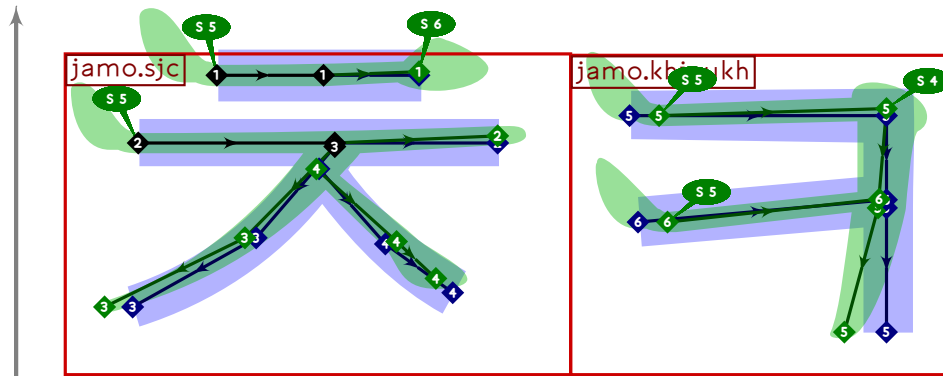
```
538 % hangul lead ceongchieumcieuc  
539 begint Suglyph("uni1150.l2";80);  
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);  
541 tsu_render;  
542 endtsuglyph;  
543
```



```

544 % hangul lead ceongchieumssangcieuc
545 begintsuglyph("uni1151.l2",81);
546 hangul.combine.lr(228,229)(whatever,lxf,loxf);
547 tsu_render;
548 endtsuglyph;
549

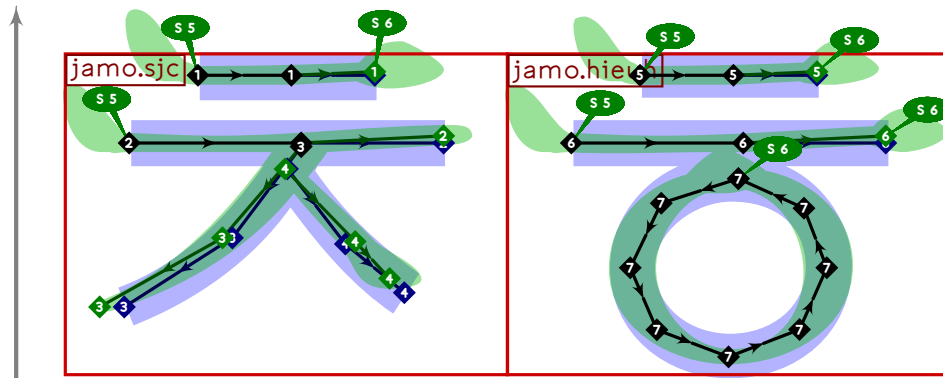
```



```

550 % hangul lead chieuch-khieukh
551 begintsuglyph("uni1152.l2";82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endtsuglyph;
555

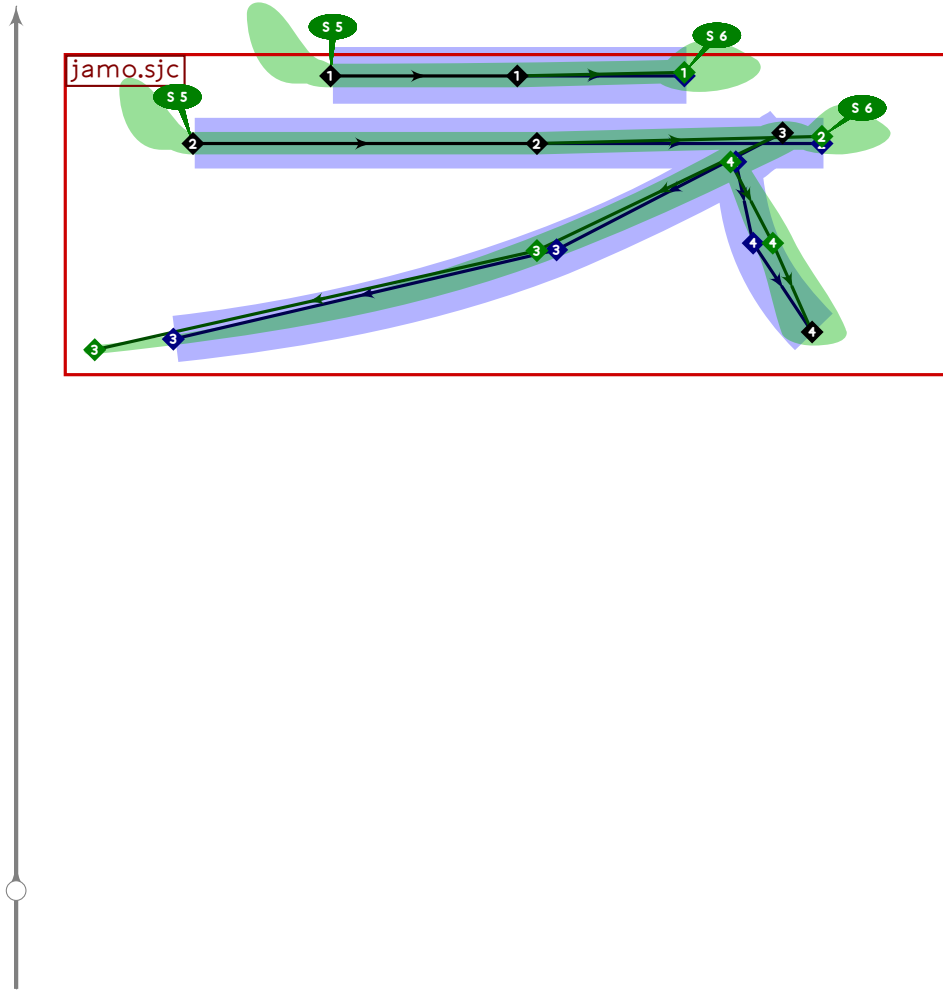
```



```

556 % hangul lead chieuch-hieuh
557 begintsuglyph("uni1153.l2";83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endtsuglyph;
561

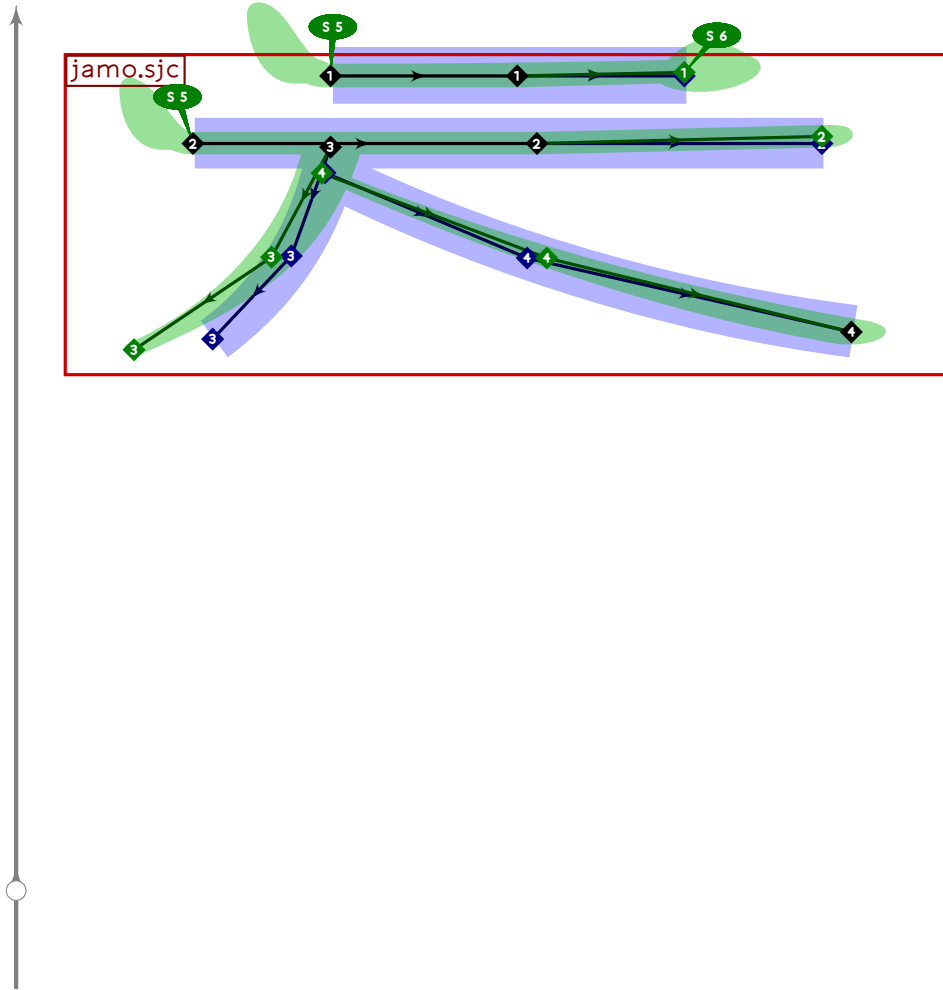
```



```

562 % hangul lead chitueumcieuc
563 begintsuglyph("uni1154.l2";84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endtsuglyph;
567

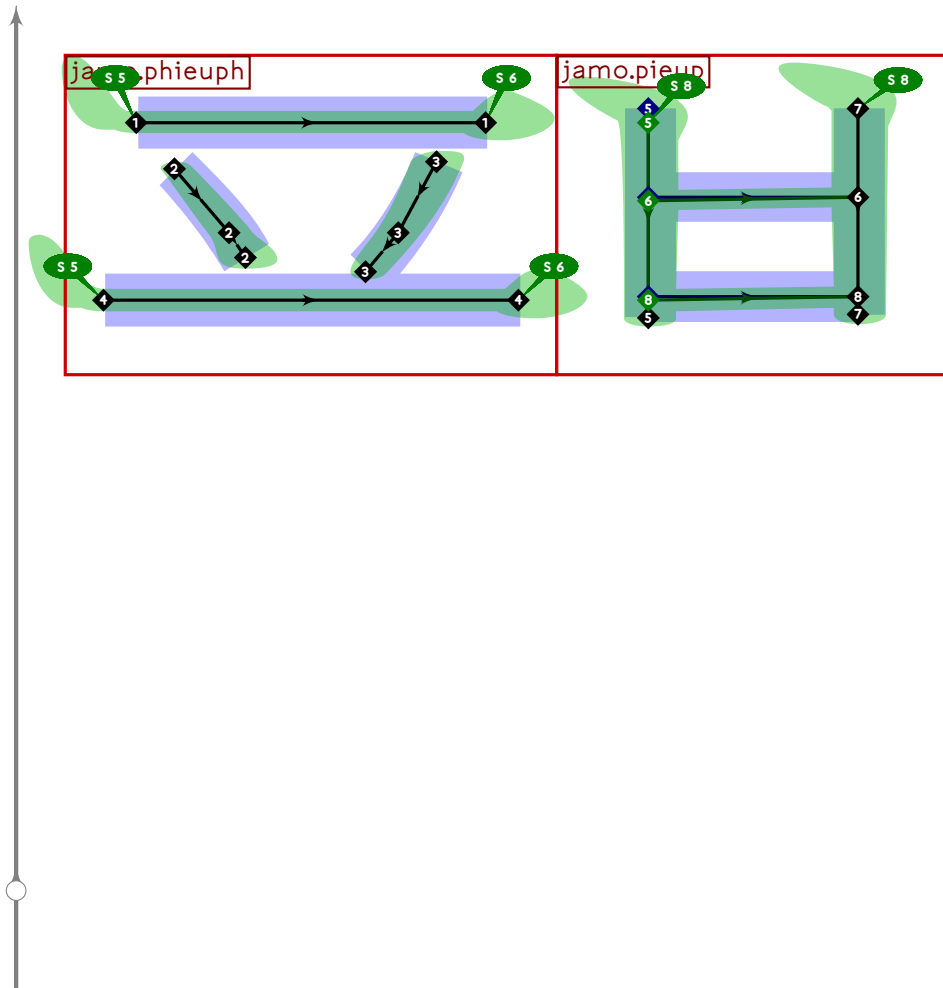
```



```

568 % hangul lead ceongchieumcieuc
569 begint Suglyph("uni1155.l2";85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endtsuglyph;
573

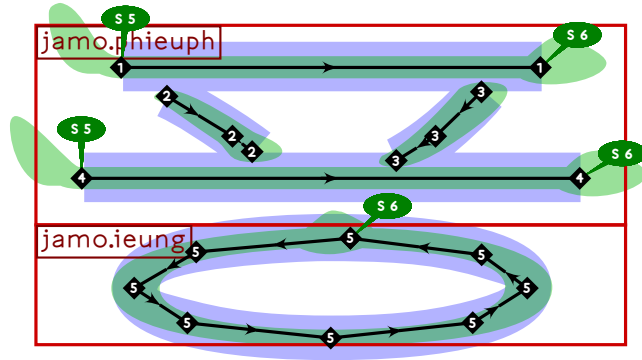
```



```

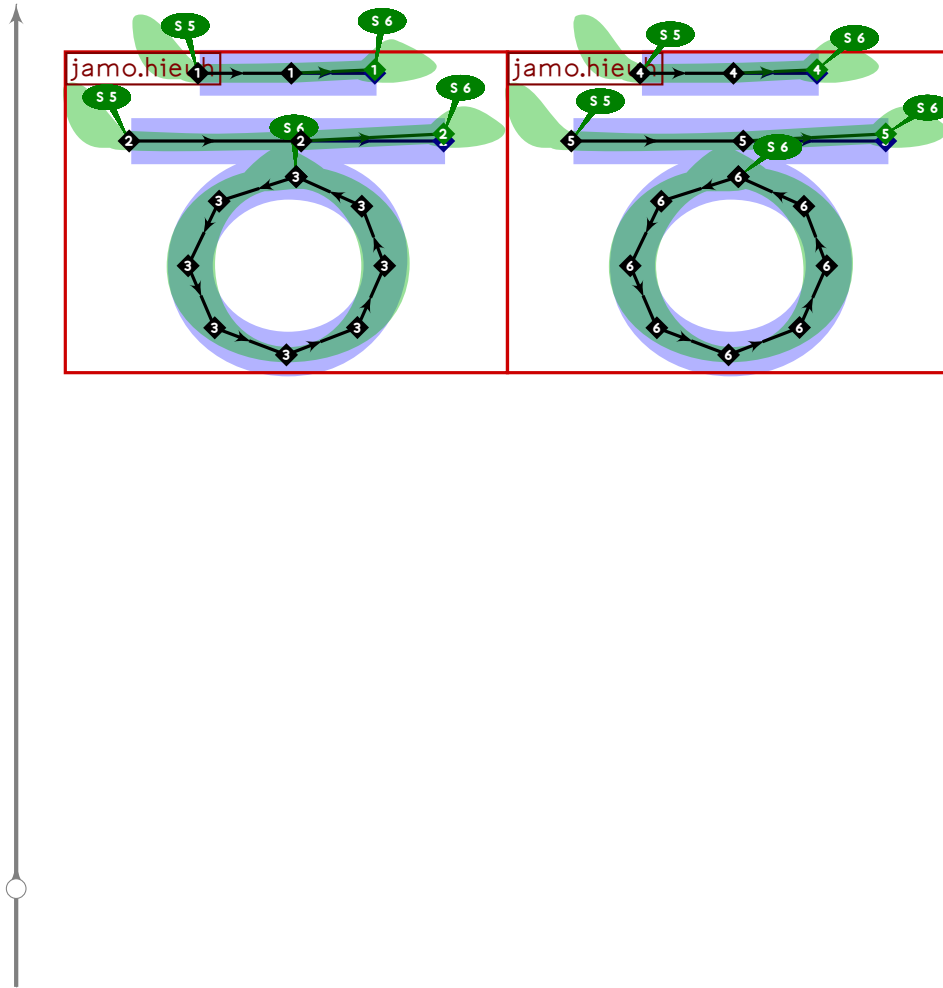
574 % hangul lead phieuph-pieup
575 begintsuglyph("uni1156.l2";86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endtsuglyph;
579

```



```
580 % hangul lead kapyeounphieuph
581 begintsuglyph("uni1157.l2",87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endtsuglyph;
586
```

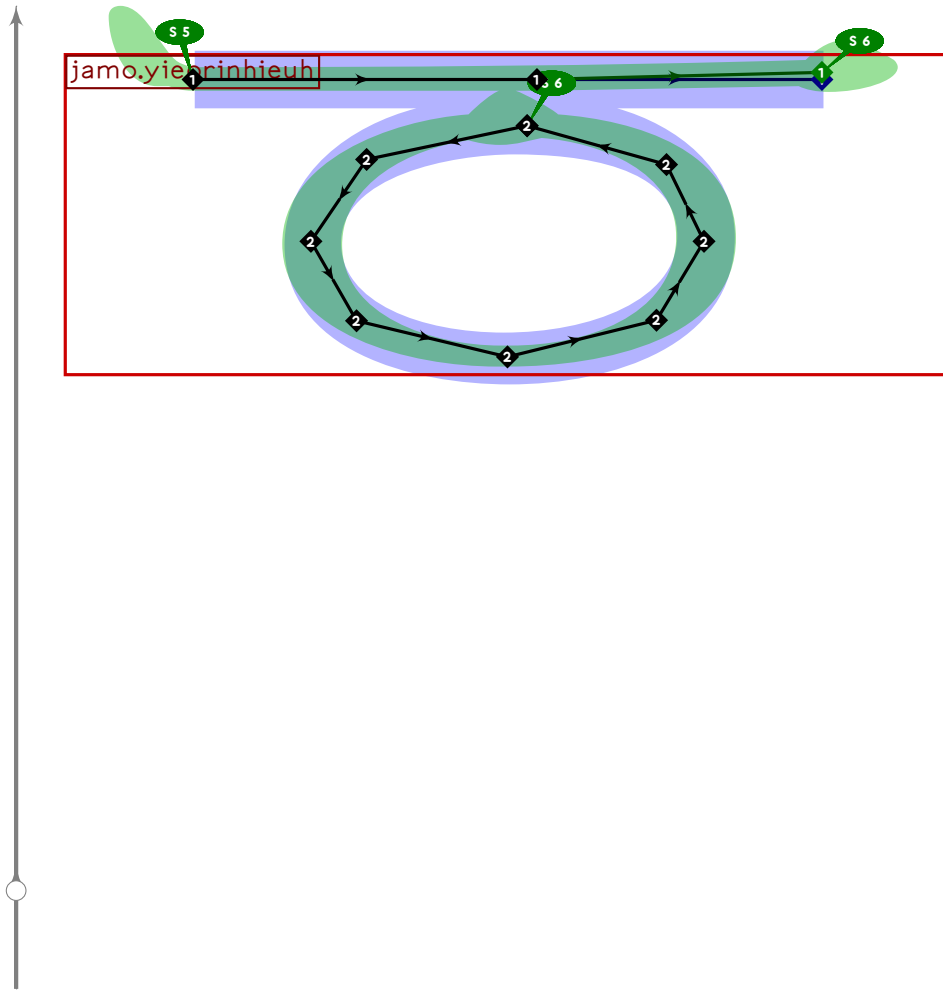




```

587 % hangul lead ssanghieuh
588 begintsuglyph("uni1158.l2";88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endtsuglyph;
592

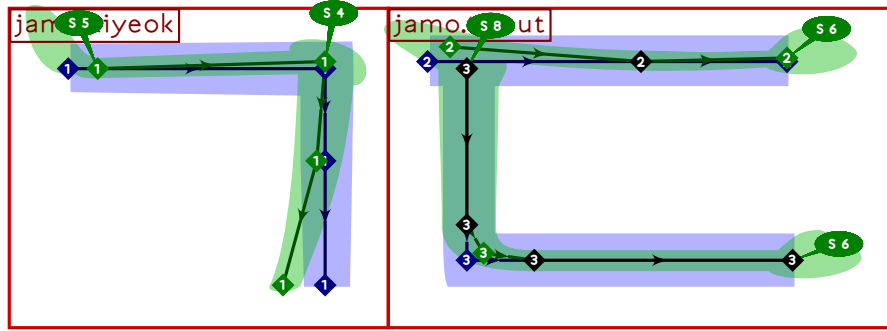
```



```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.l2",89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endtsuglyph;
598

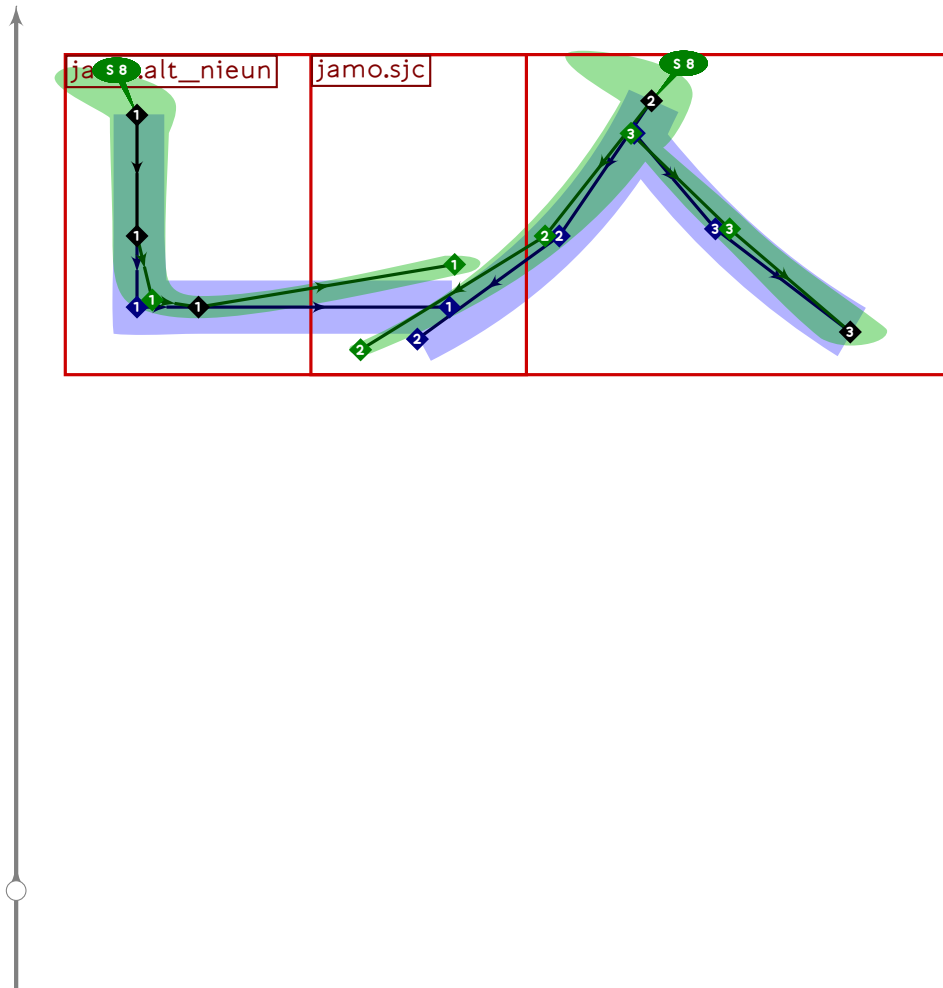
```



```

599 % hangul lead kiyek-tikeut
600 begint Suglyph("uni115A.l2";90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endtsuglyph;
604

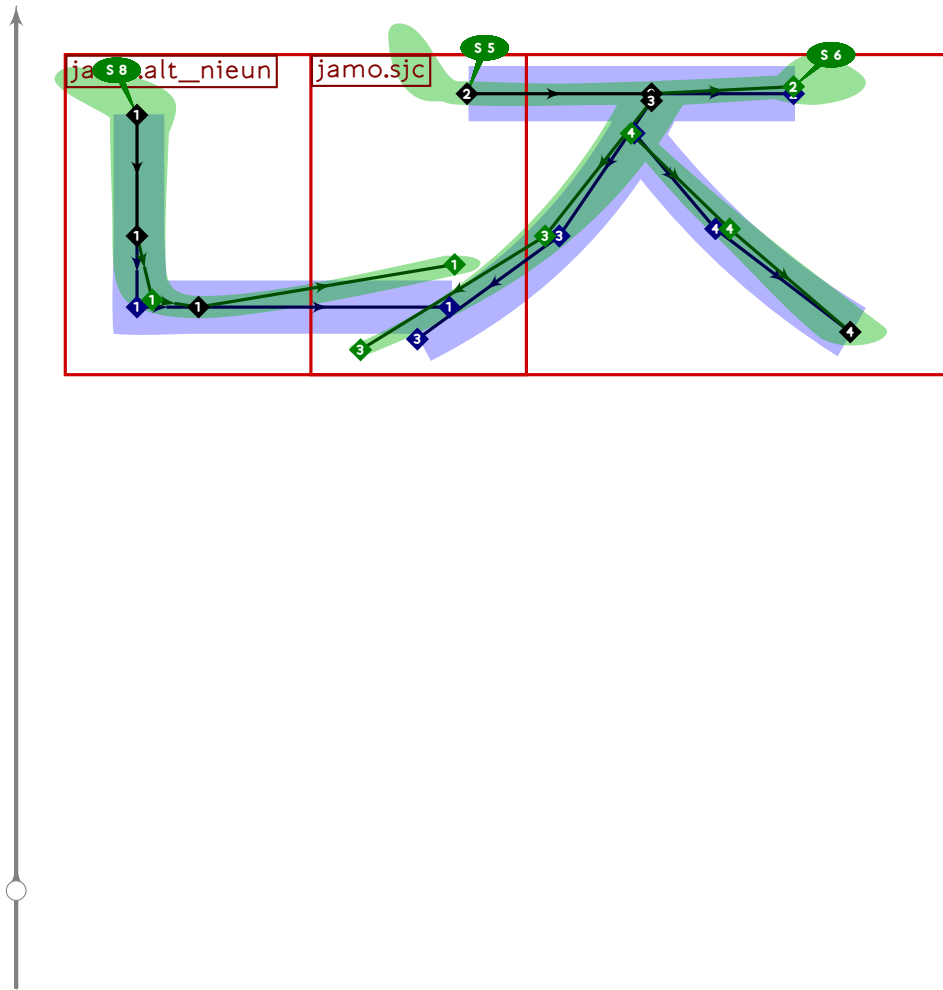
```



```

605 % hangul lead nieun-sios
606 begintsuglyph("uni115B.l2";91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endtsuglyph;
610

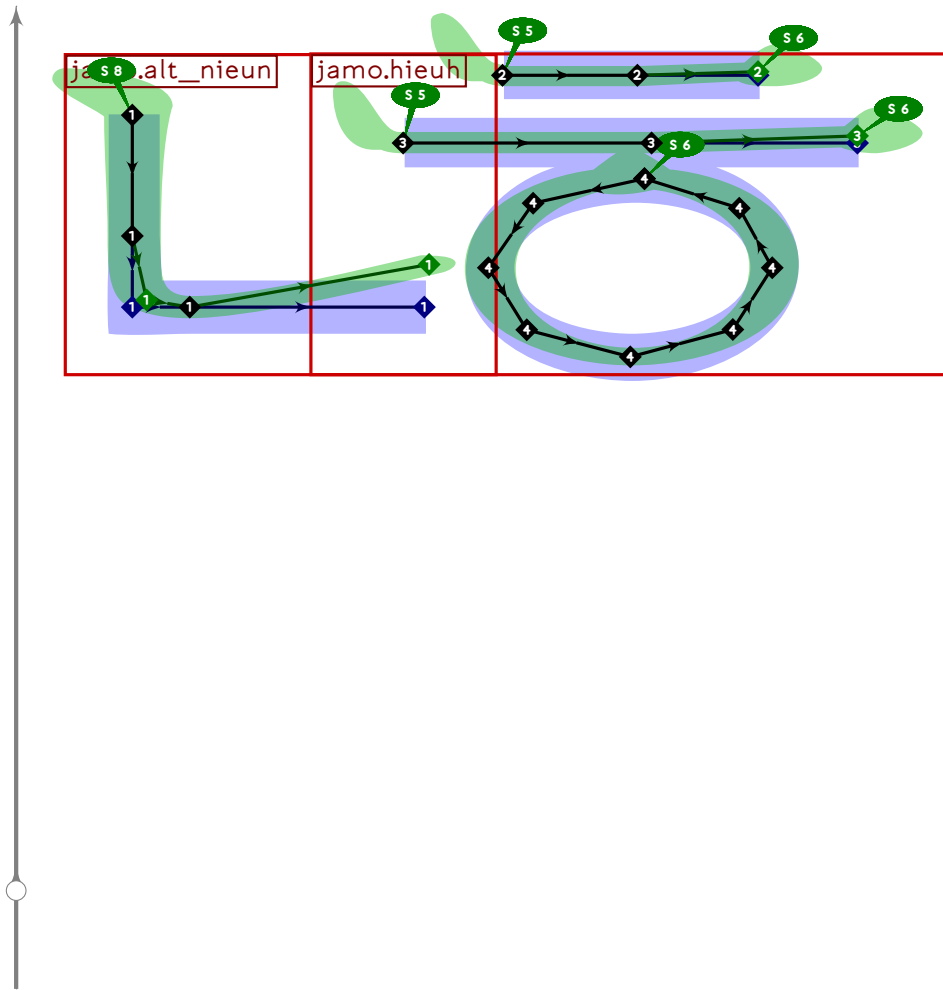
```



```

611 % hangul lead nieun-cieuc
612 begint Suglyph("uni115C.l2";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endtsuglyph;
616

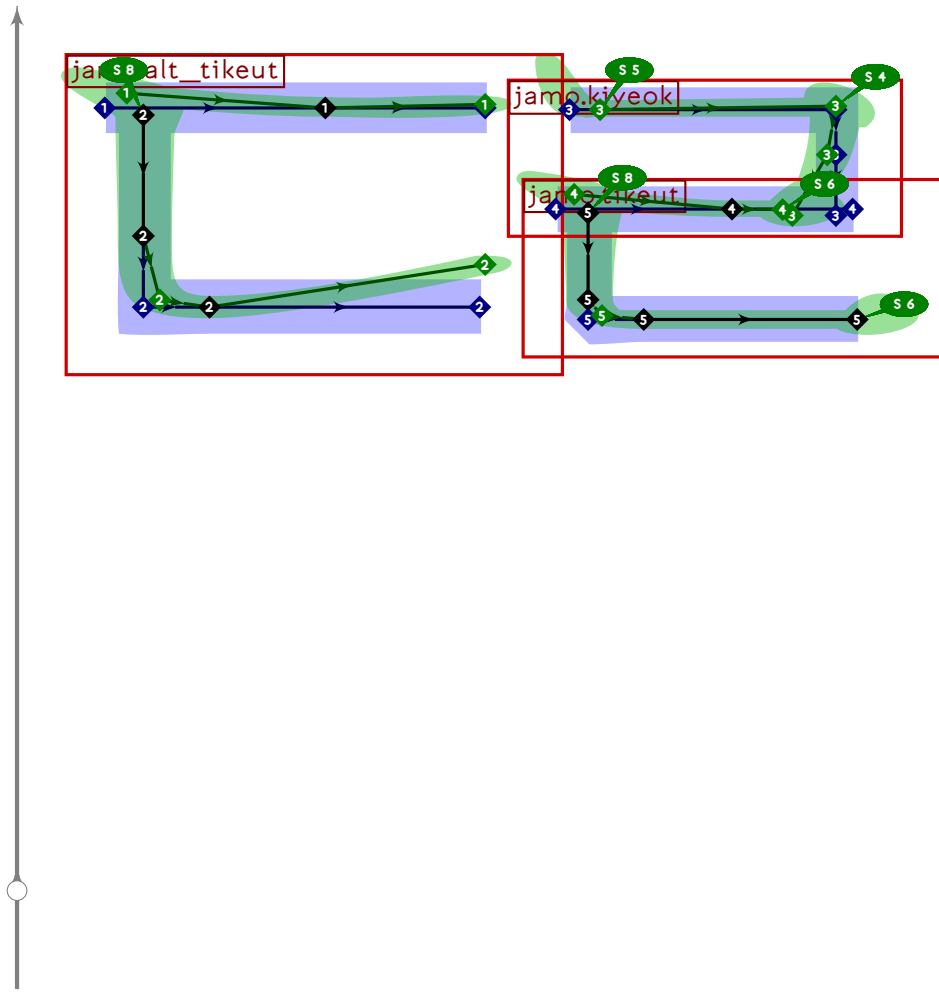
```



```

617 % hangul lead nieun-hieuh
618 begint Suglyph("uni115D.l2"93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endtsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 begintsuglyph("uni115E.l2"94);
625 hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 tsu_render;
627 endtsuglyph;
628
629 _____
630
631 endfont;
632
633 _____

```

# jieub-ff5.mp

```
1 %
2 % Unicode page FF5 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
42 % This file contains leads for layout 4: vertical vowel and empty tail
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(700,-50));
47
48 

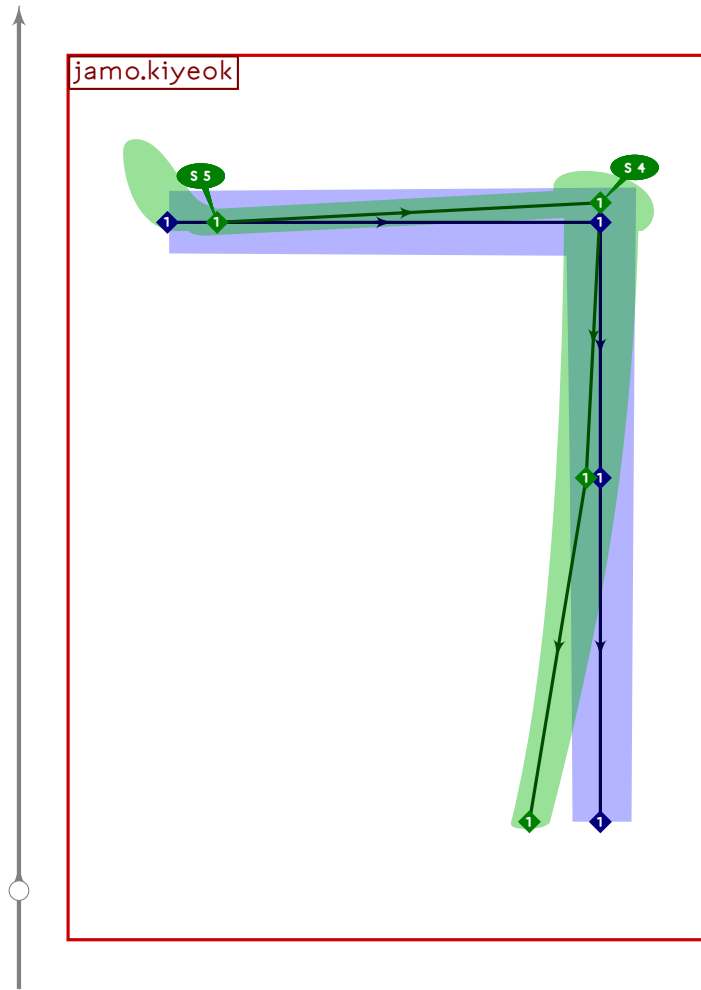
---


49
```

## Hangul Choseong (Lead) Jamo

```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```

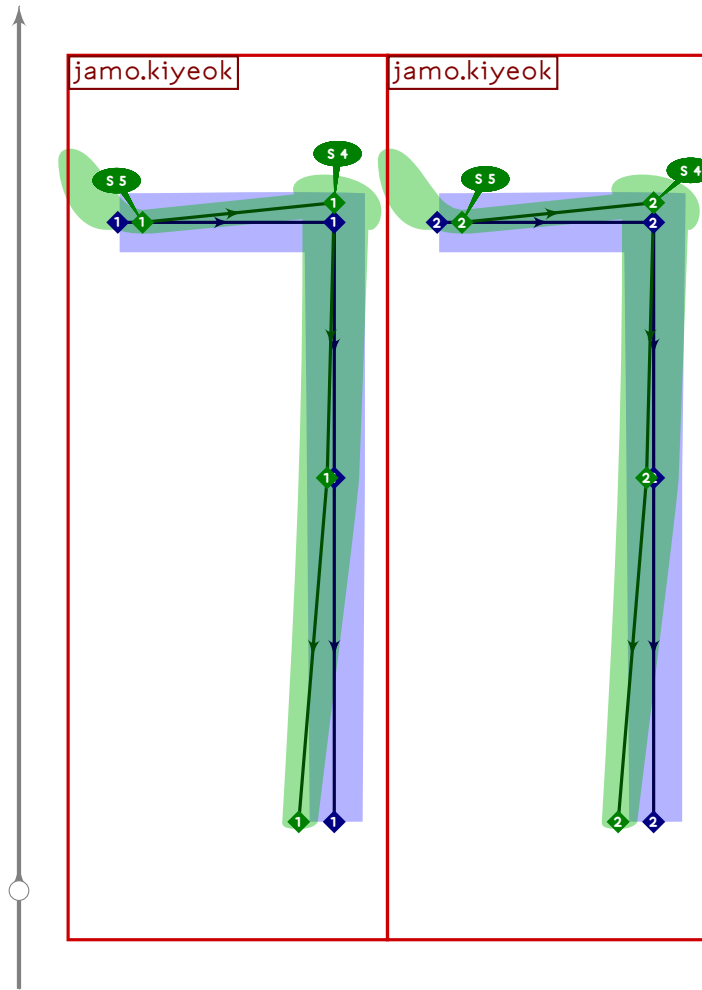




```

54 % hangul lead kiyeok
55 begint Suglyph("uni1100.14";0);
56 hangul,jamo.kiyeok(whatever,lixf,loxf);
57 tsu_render;
58 endtsuglyph;
59

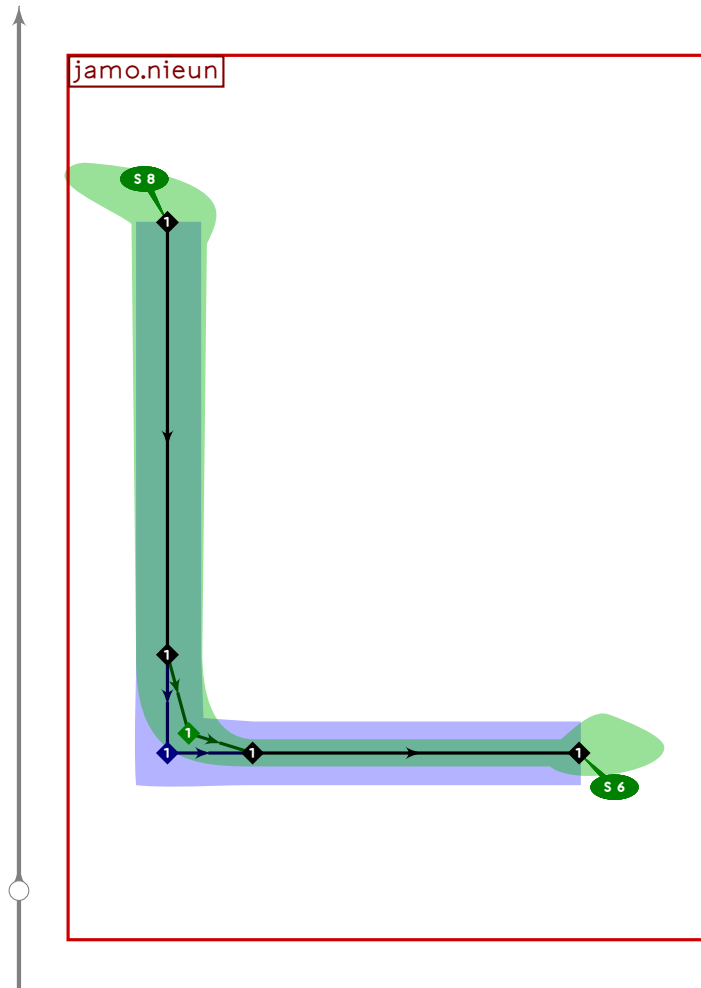
```



```

60 % hangul lead ssangkiyeok
61 begintuglyph("uni1101.14",1);
62 hangul.combine.lr(100,100)(whatever,lixf,loxf);
63 tsu_render;
64 endtsuglyph;
65

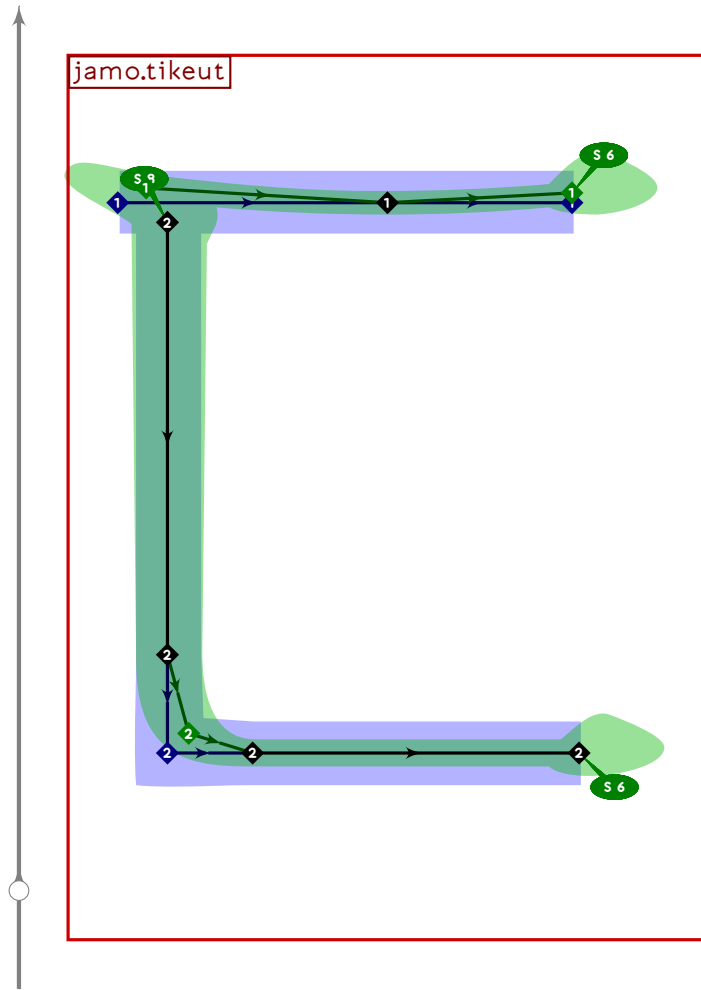
```



```

66 % hangul lead nieun
67 begintuglyph("uni1102.14";2);
68 hangul,jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtuglyph;
71

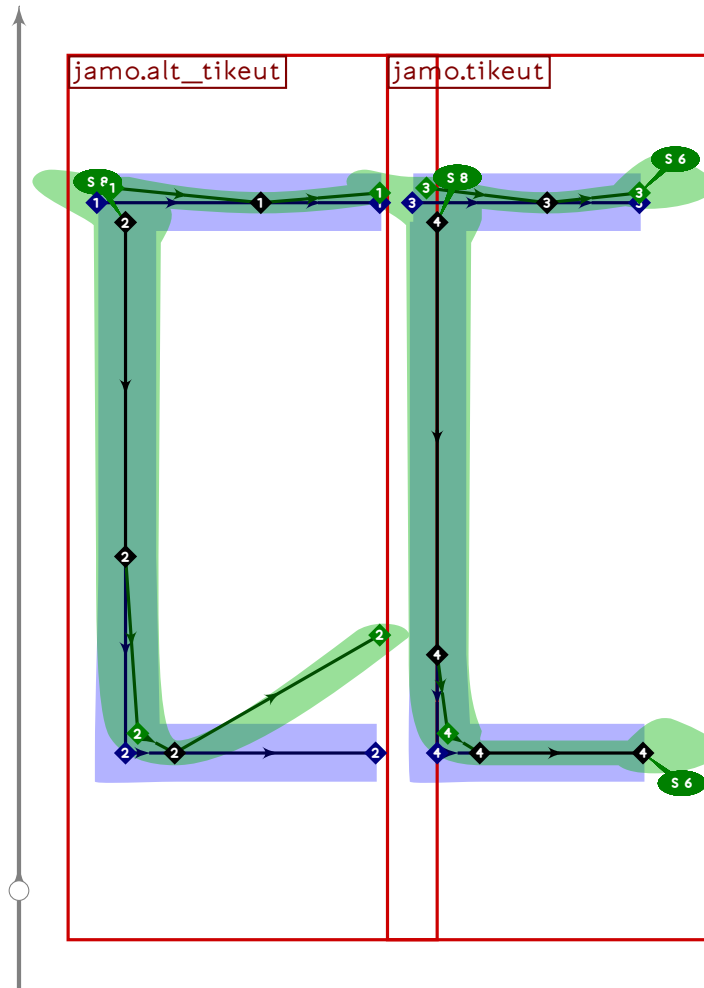
```



```

72 % hangul lead tikeut
73 begintuglyph("uni1103.l4",3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endtsuglyph;
77

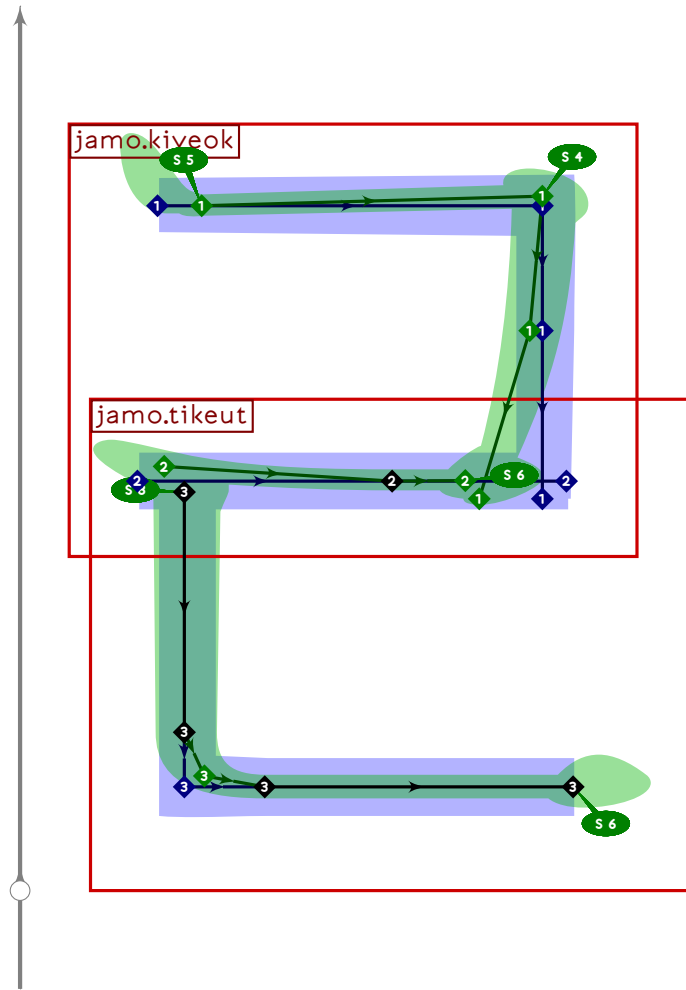
```



```

78 % hangul lead ssangtikeut
79 begintsuglyph("uni1104.l4"4);
80 hangul.combine.lr(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endtsuglyph;
83

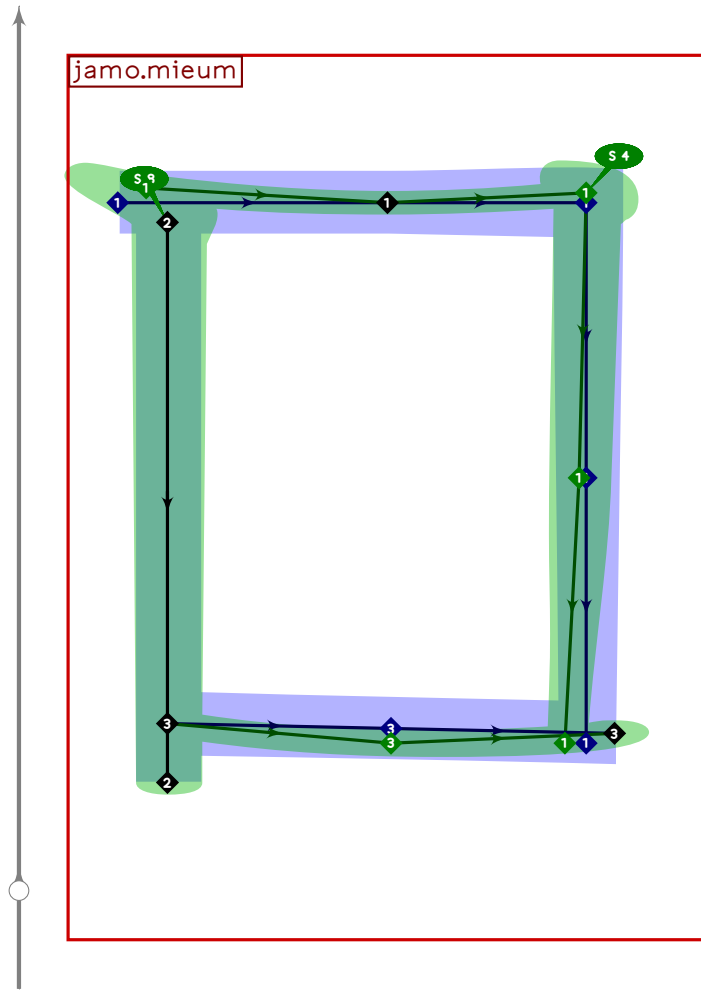
```



```

84 % hangul lead rieul
85 begint Suglyph("uni1105.l4";5);
86 hangul.jamo.rieul(whatever,lixf,loxf);
87 tsu_render;
88 endtsuglyph;
89

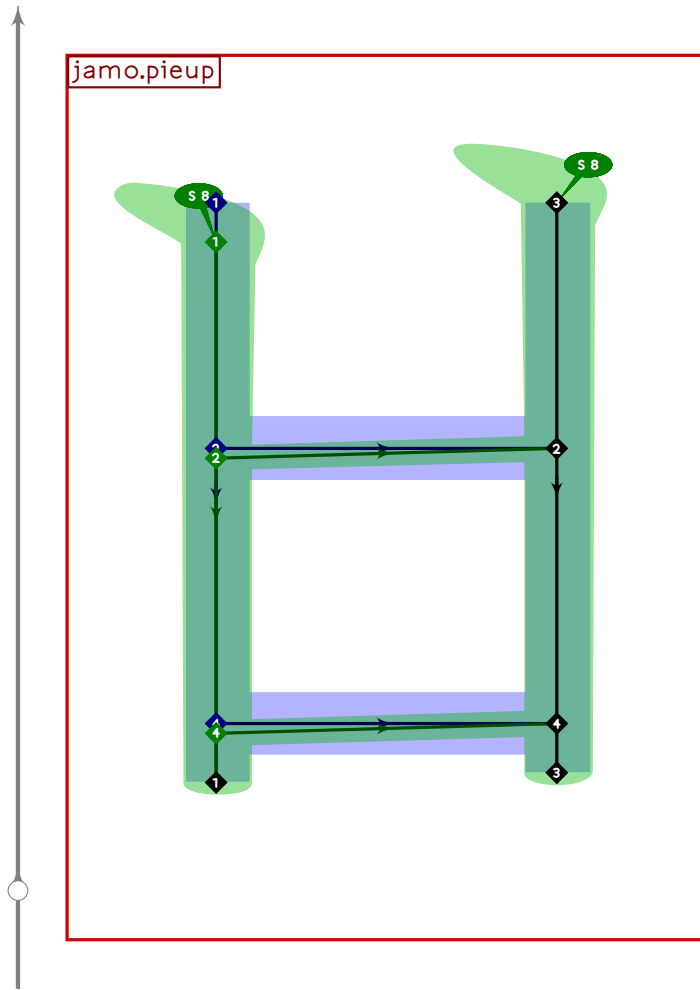
```



```

90 % hangul lead mieum
91 begint Suglyph("uni1106.l4",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endtsuglyph;
95

```

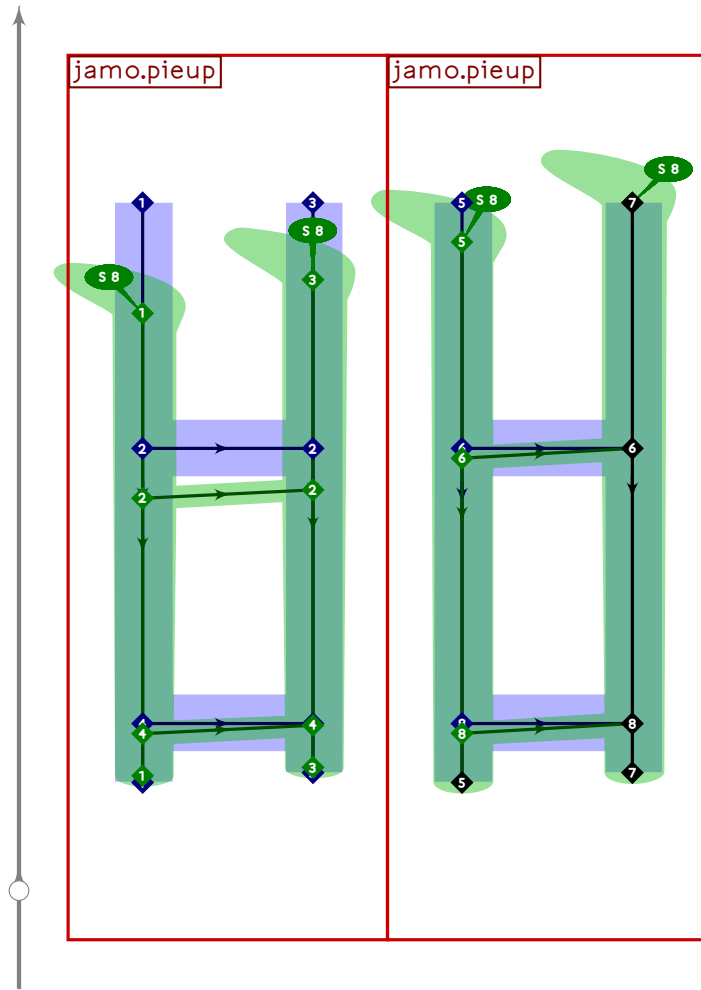


```

96 % hangul lead pieup
97 begint Suglyph("uni1107.14",7);
98 hangul.jam.o.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

```

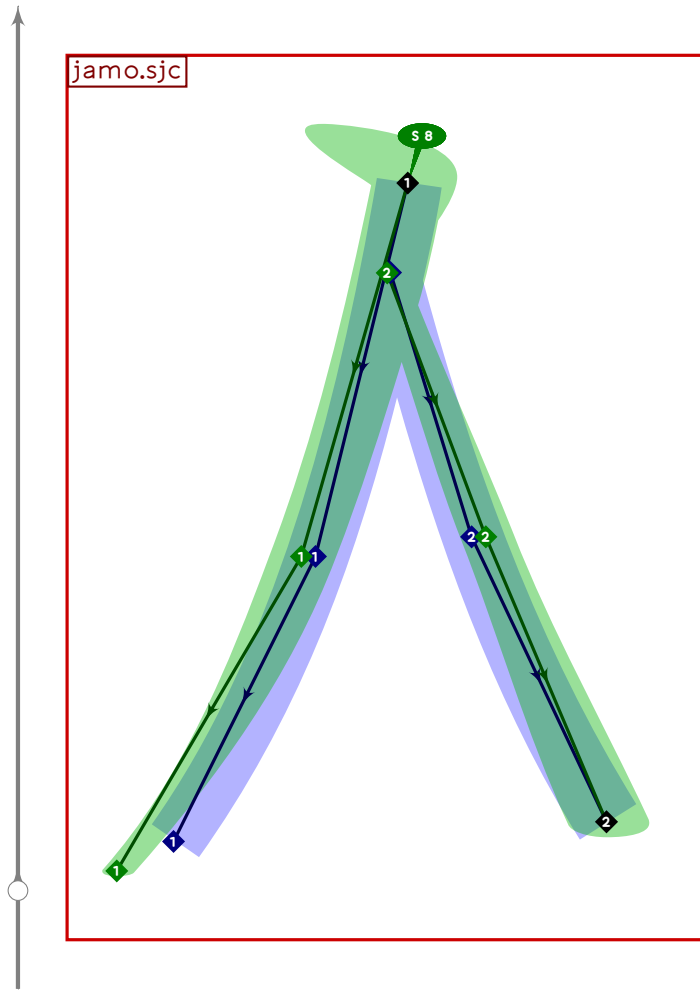




```

102 % hangul lead ssangpieup
103 begint Suglyph("uni1108.l4"8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

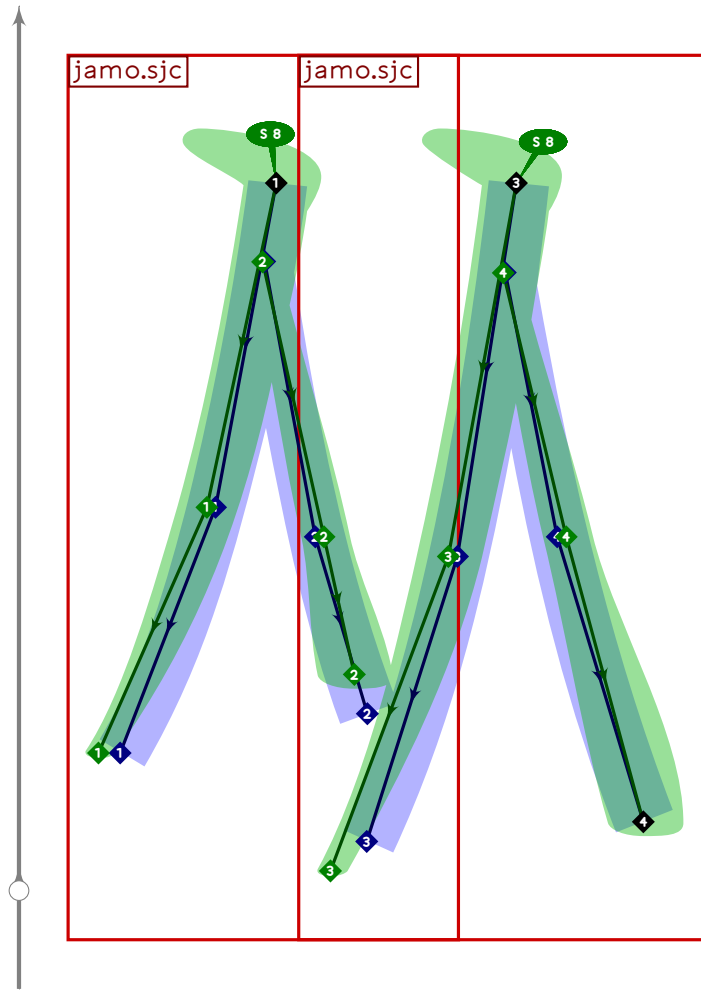
```



```

108 % hangul lead sios
109 begintsuglyph("uni1109.l4";9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113

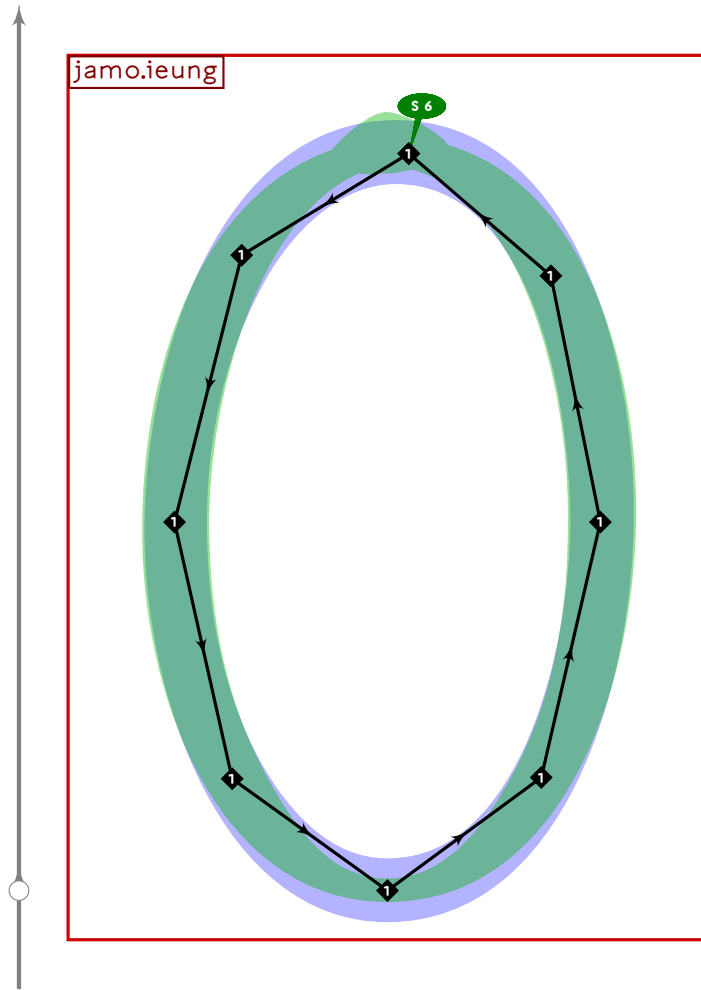
```



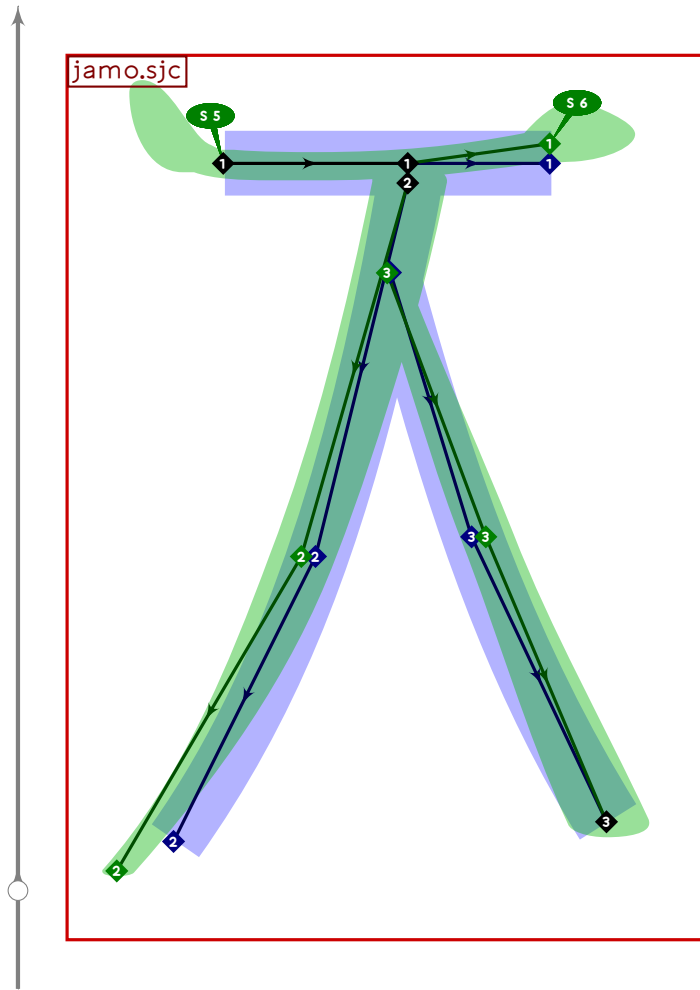
```

114 % hangul lead ssangsios
115 begint Suglyph("uni110A.l4",10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endtsuglyph;
119

```



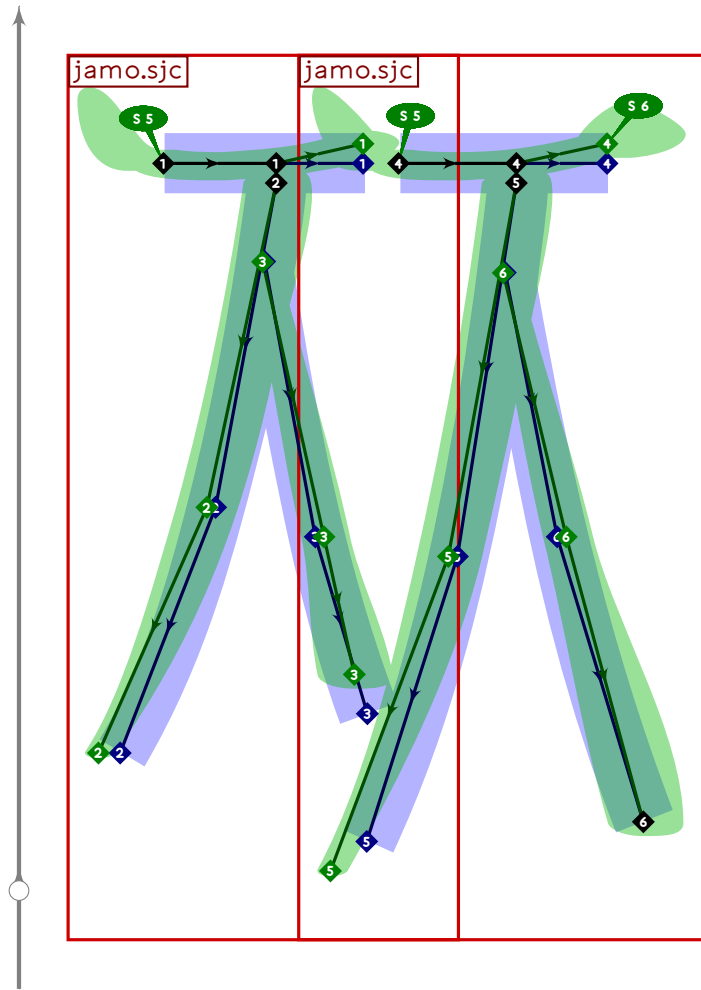
```
120 % hangul lead ieung
121 begintsuglyph("uni110B.14",11);
122 hangul,jamo.ieung(whatever,lixf,loxf);
123 tsu_render;
124 endtsuglyph;
125
```



```

126 % hangul lead cieuc
127 begintsuglyph("uni110C.l4",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

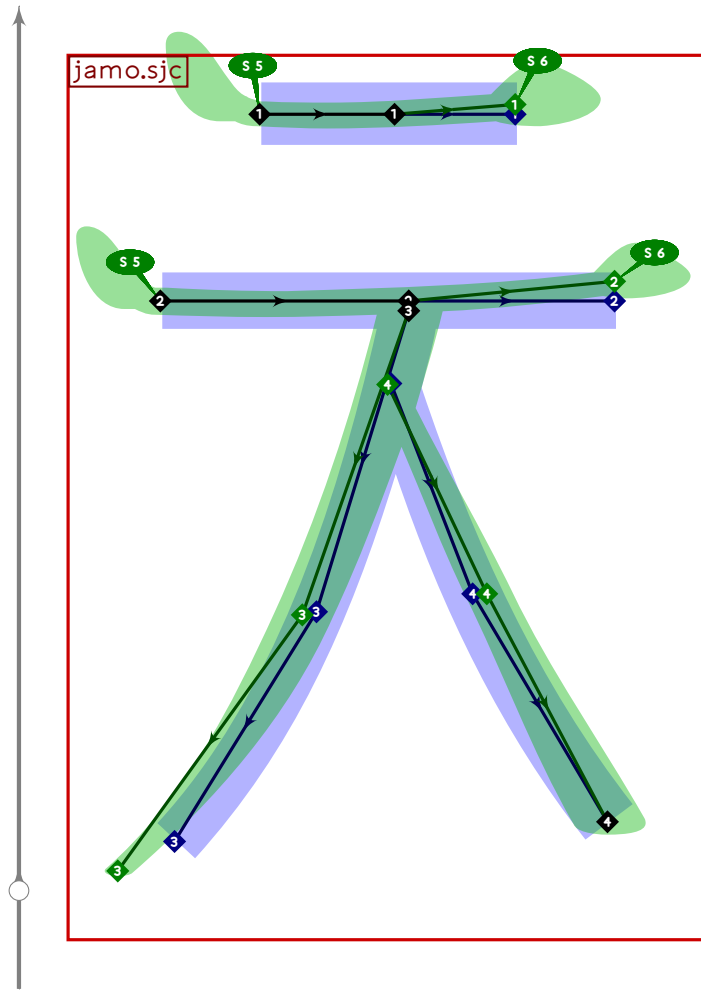
```



```

132 % hangul lead ssangcieuc
133 begint Suglyph("uni110D.14",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtsuglyph;
137

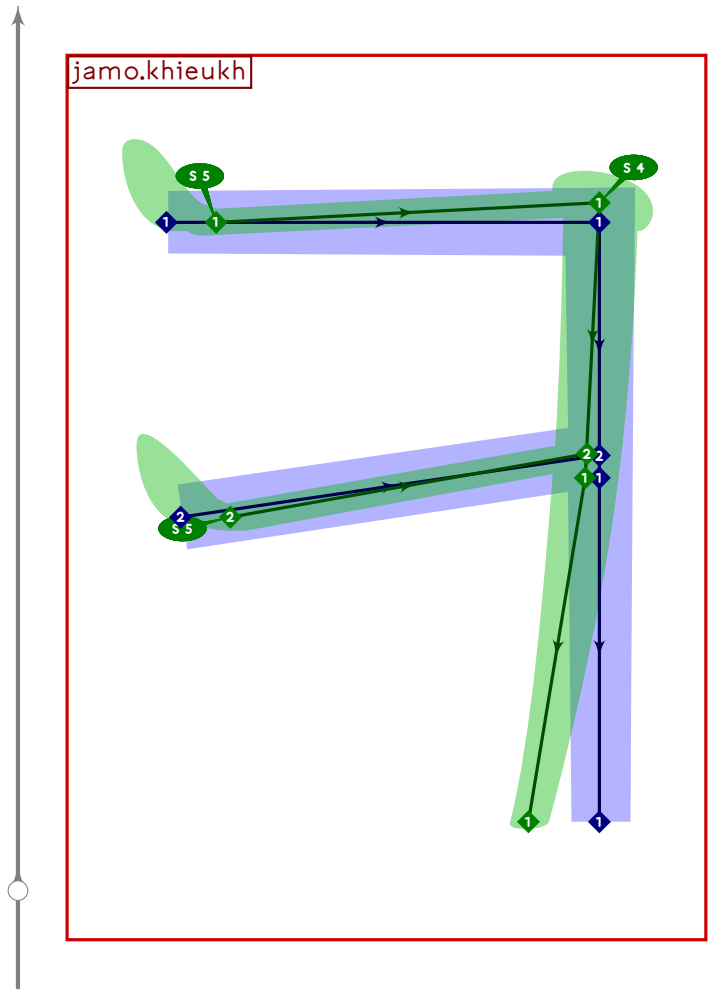
```



```

138 % hangul lead chieuch
139 begintsuglyph("uni110E.l4",14);
140 hangul,jamo.sjc(2,0,false)(whatever,lixf,loxf);
141 tsu_render;
142 endtsuglyph;
143

```

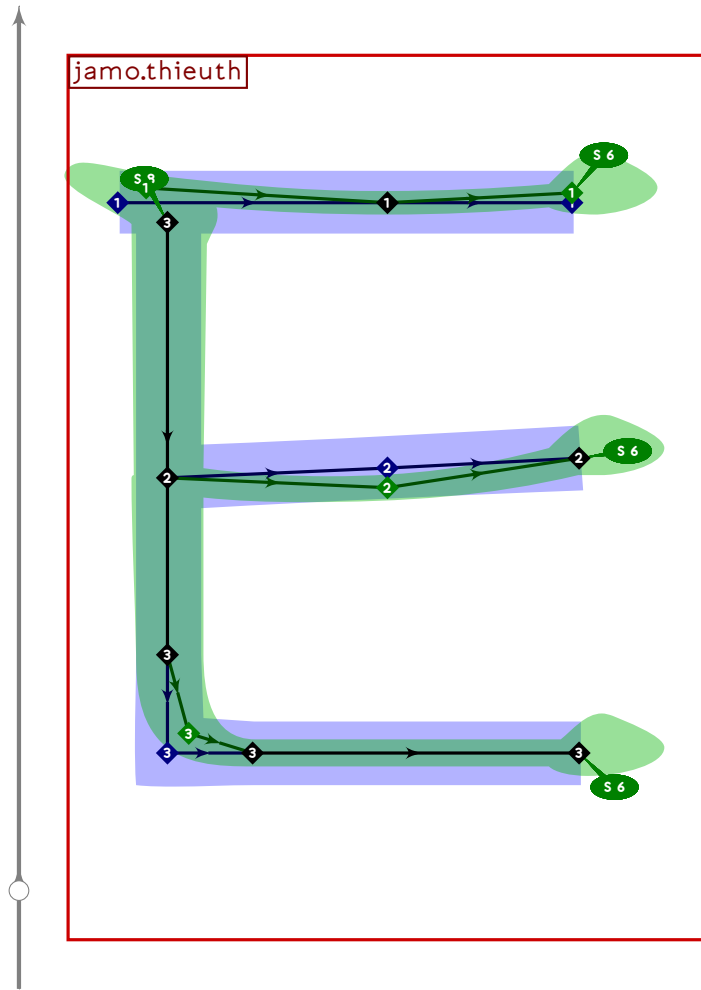


```

144 % hangul lead khieukh
145 begint Suglyph("uni110F.l4";15);
146 hangul,jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

```

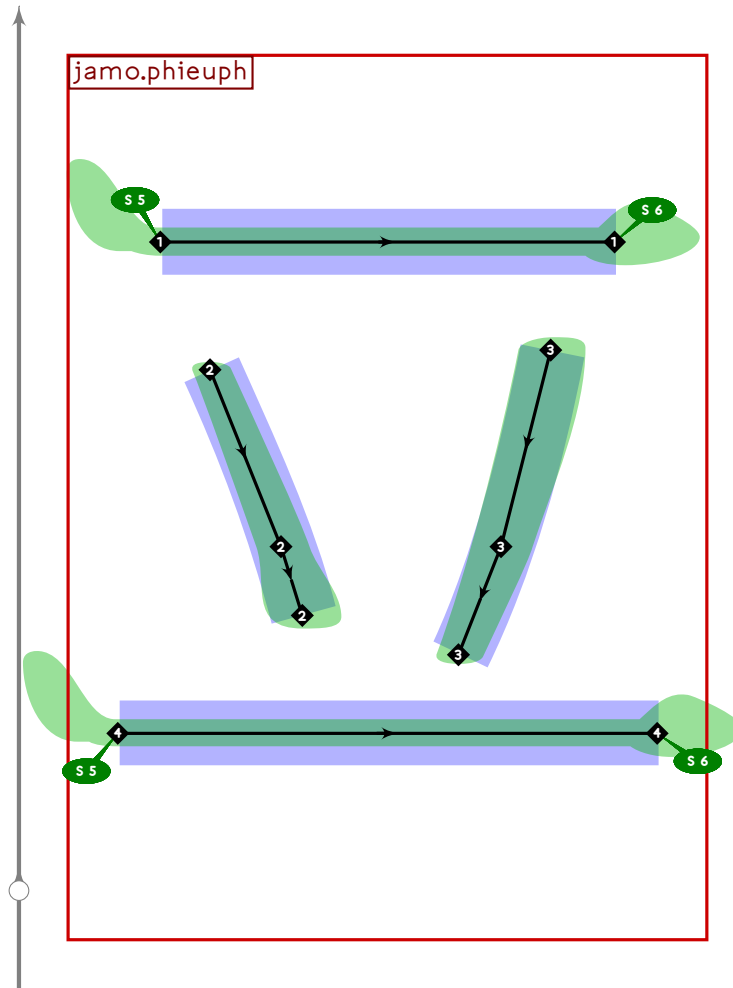




```

150 % hangul lead thieuth
151 begint Suglyph("uni1110.l4",16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endtsuglyph;
155

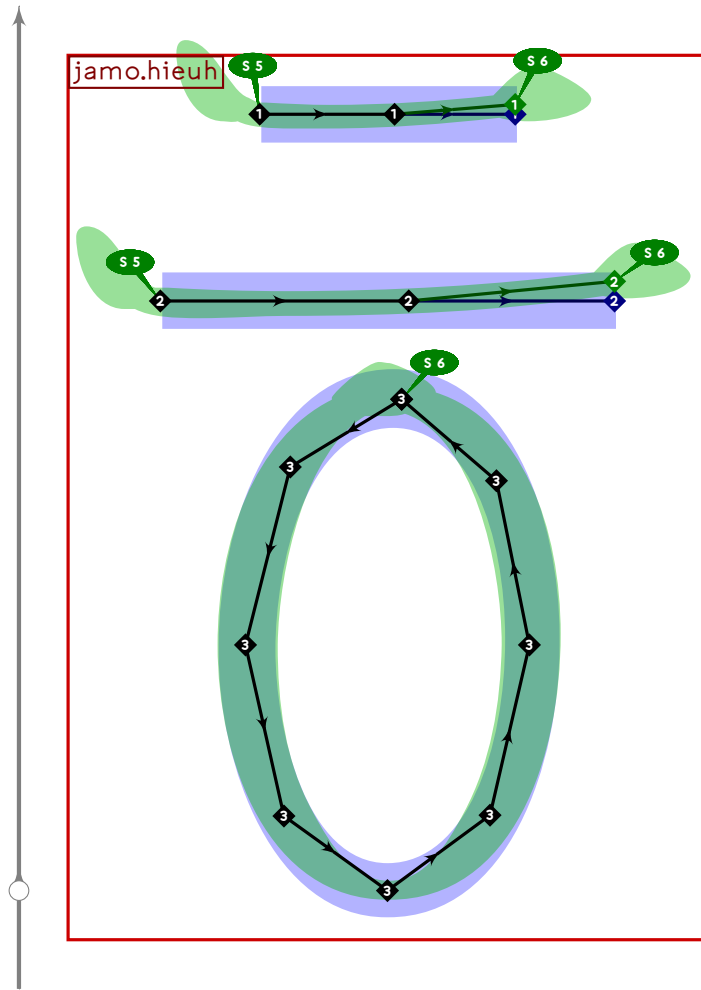
```



```

156 % hangul lead phieuph
157 begint Suglyph("uni1111.l4",17);
158 hangul,jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

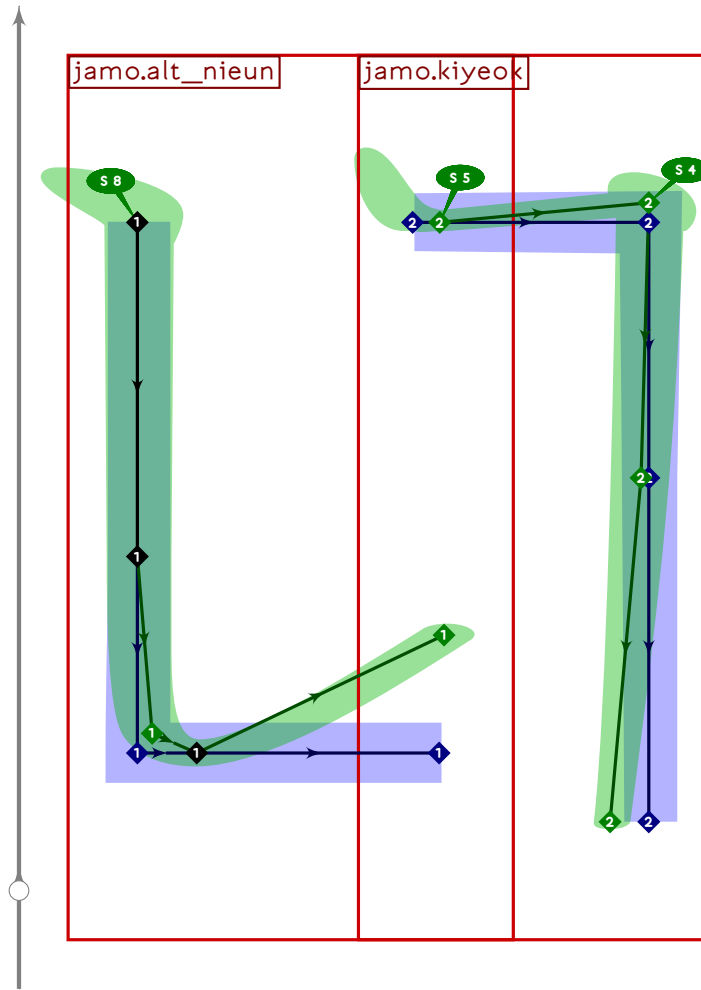
```



```

162 % hangul lead hieuh
163 begintsuglyph("uni1112.l4",18);
164 hangul,jamo.hieuh(whatever,lixf,loxf);
165 tsu_render;
166 endtsuglyph;
167

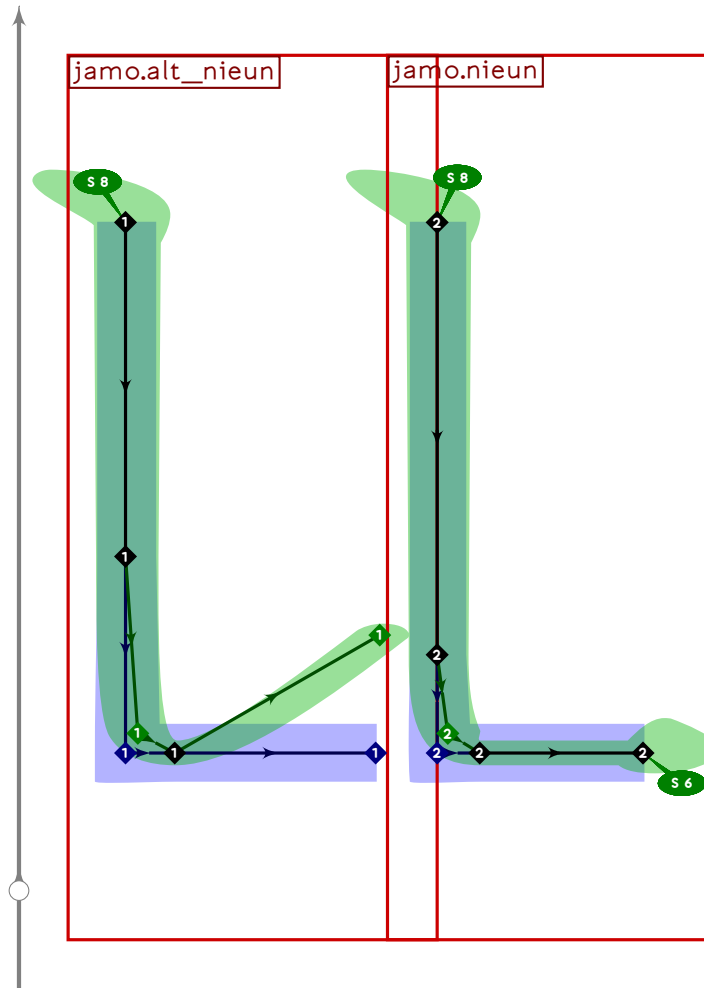
```



```

168 % hangul lead nieun-kiyeok
169 begintsuglyph("uni1113.14",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endsuglyph;
173

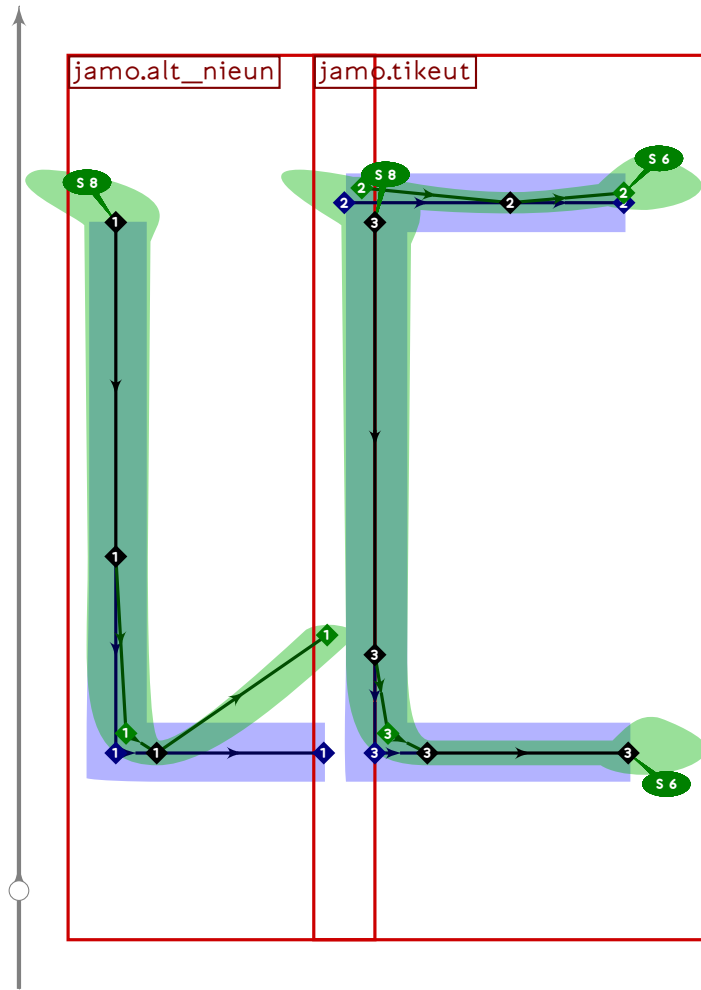
```



```

174 % hangul lead ssangnieun
175 begintsuglyph("uni1114.l4",20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endsuglyph;
179

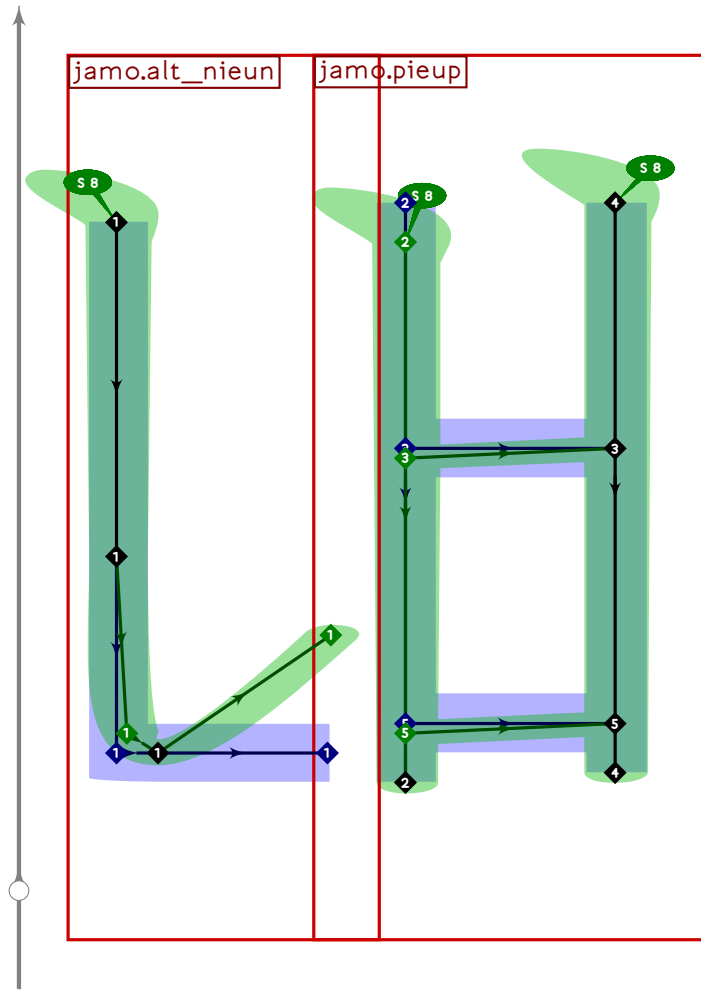
```



```

180 % hangul lead nieun-tikeut
181 begintsuglyph("uni1115.l4",21);
182 hangul.combine.lr(202,103)(whatever,lixf,loxf);
183 tsu_render;
184 endsuglyph;
185

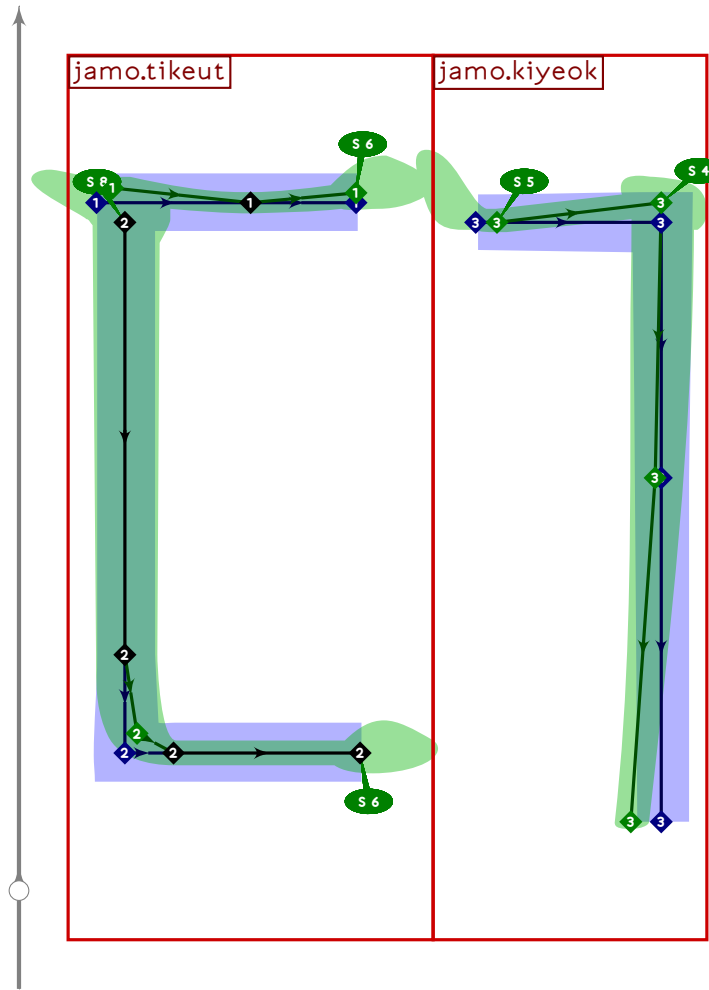
```



```

186 % hangul lead nieun-pieup
187 begint Suglyph("uni1116.l4",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endtsuglyph;
191

```

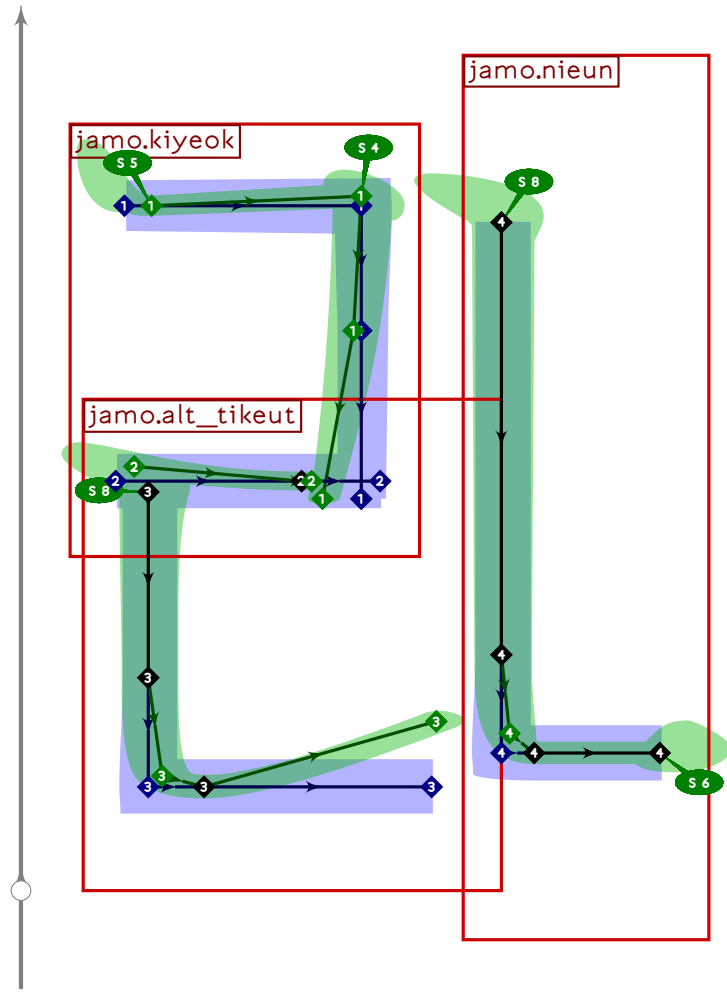


```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.14",23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endtsuglyph;
197

```

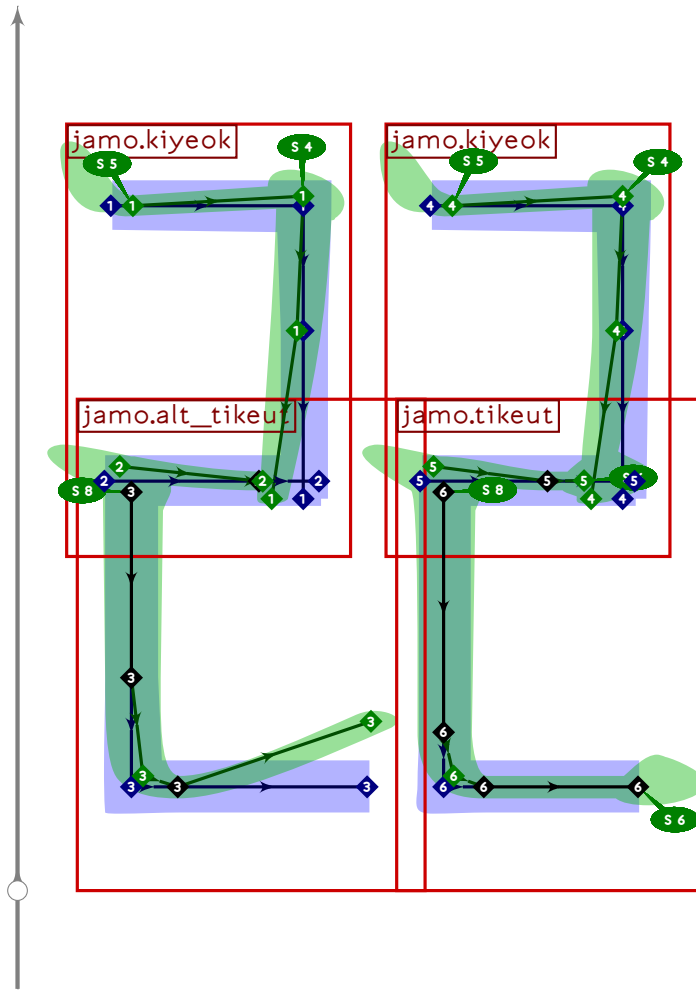




```

198 % hangul lead rieul-nieun
199 begintsuglyph("uni1118.l4",24);
200 hangul.combine.lr(205,102)(whatever,lixf,loxf);
201 tsu_render;
202 endtsuglyph;
203

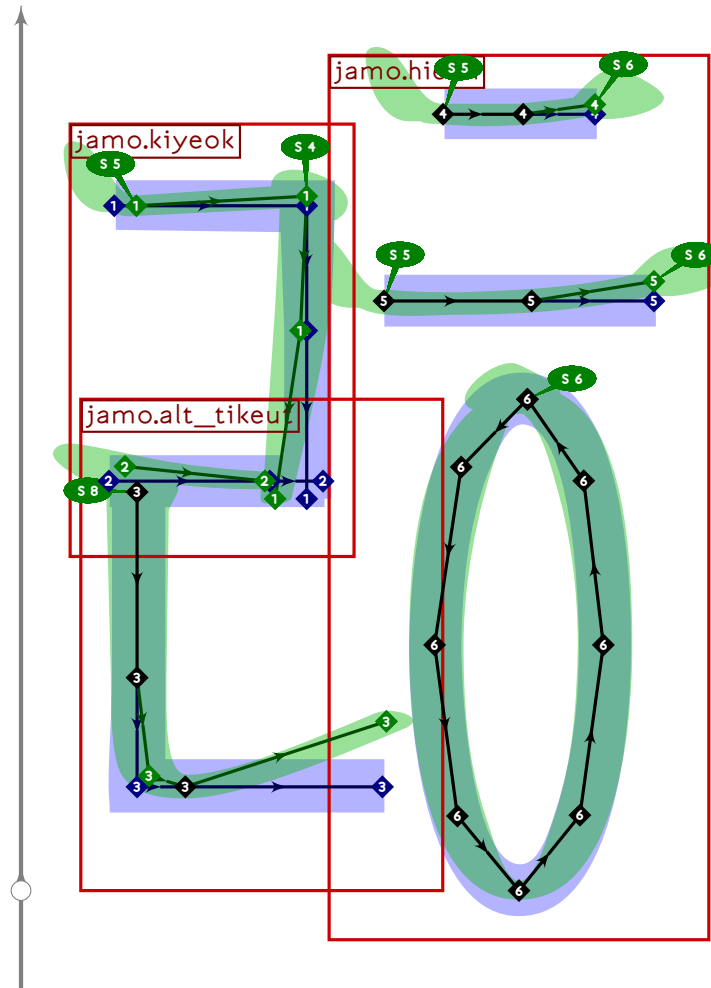
```



```

204 % hangul lead ssangrieul
205 begint Suglyph("uni1119.l4",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endtsuglyph;
209

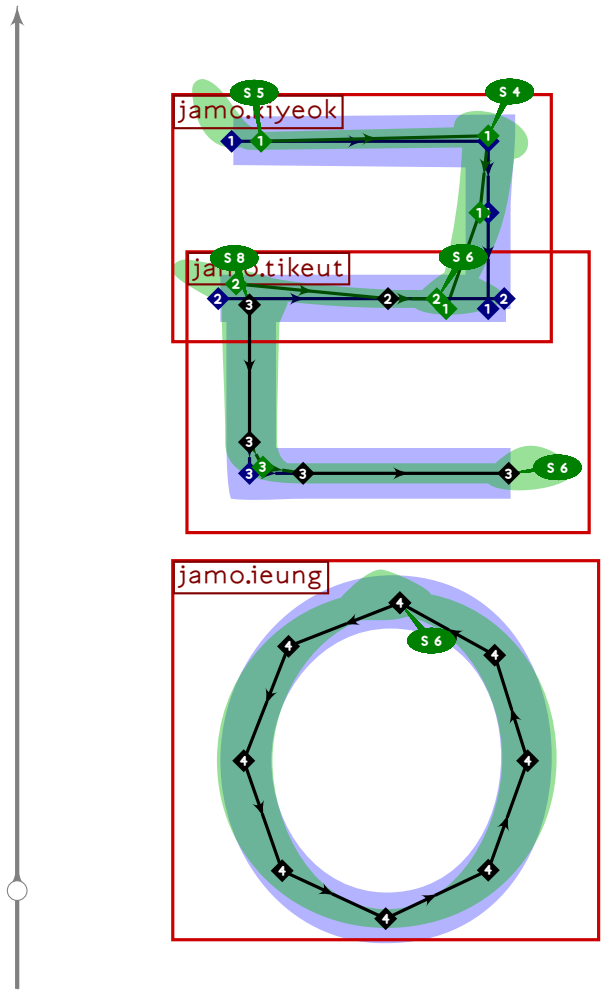
```



```

210 % hangul lead rieul-hieuh
211 begintsuglyph("uni111A.l4",26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endtsuglyph;
215

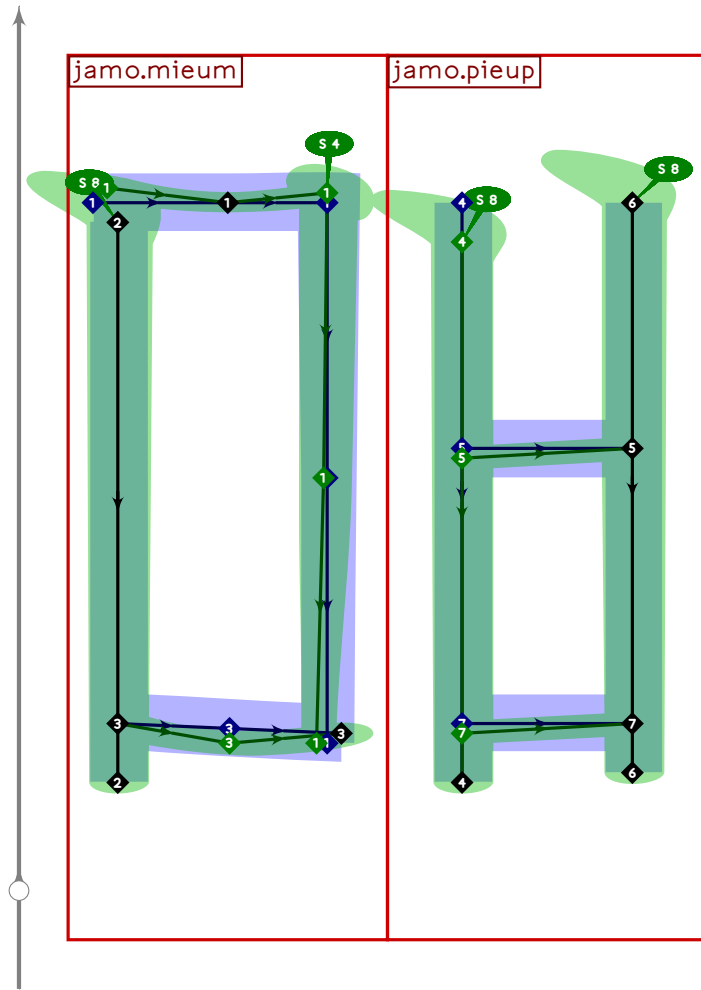
```



```

216 % hangul lead kapyounrieul
217 begint Suglyph("uni111B.l4",27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endtsuglyph;
222

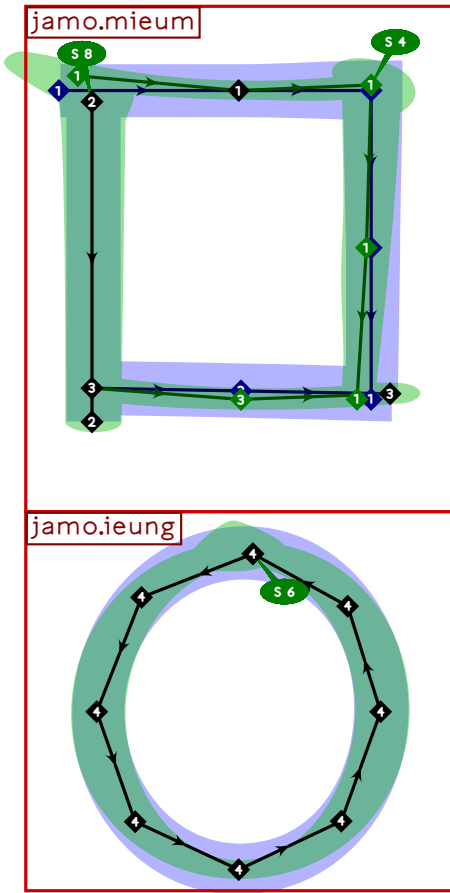
```



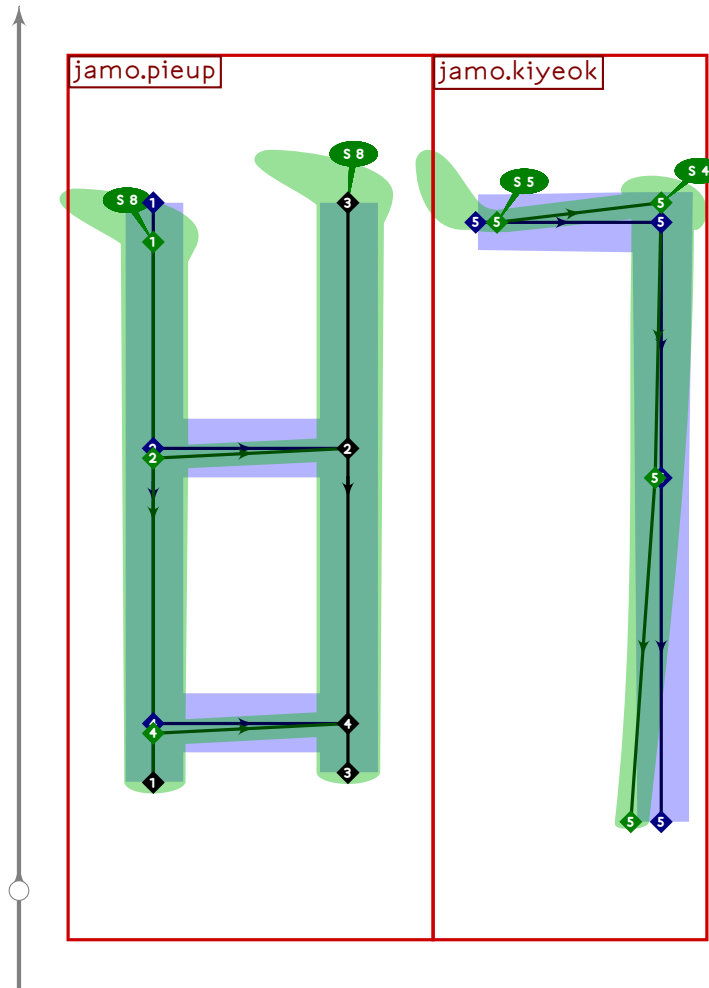
```

223 % hangul lead mieum-pieup
224 begintsuglyph("uni111C.I4",28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endtsuglyph;
228

```



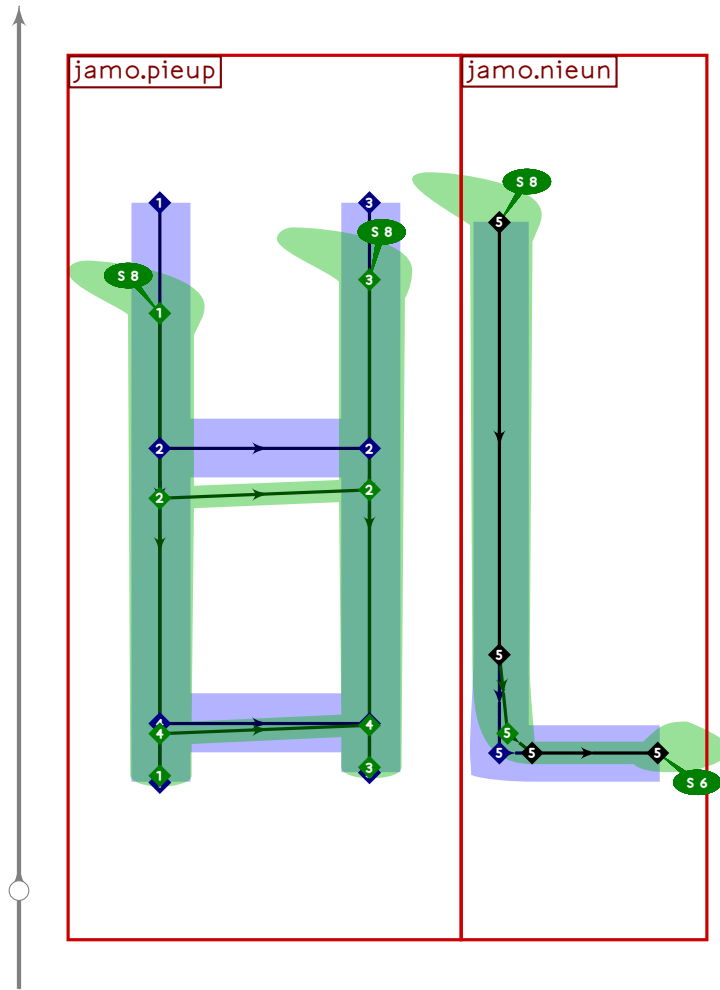
```
229 % hangul lead kapyeounmieum
230 begintsuglyph("uni111D.l4",29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endtsuglyph;
235
```



```

236 % hangul lead pieup-kiyeok
237 begintuglyph("uni111E.l4",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endtsuglyph;
241

```

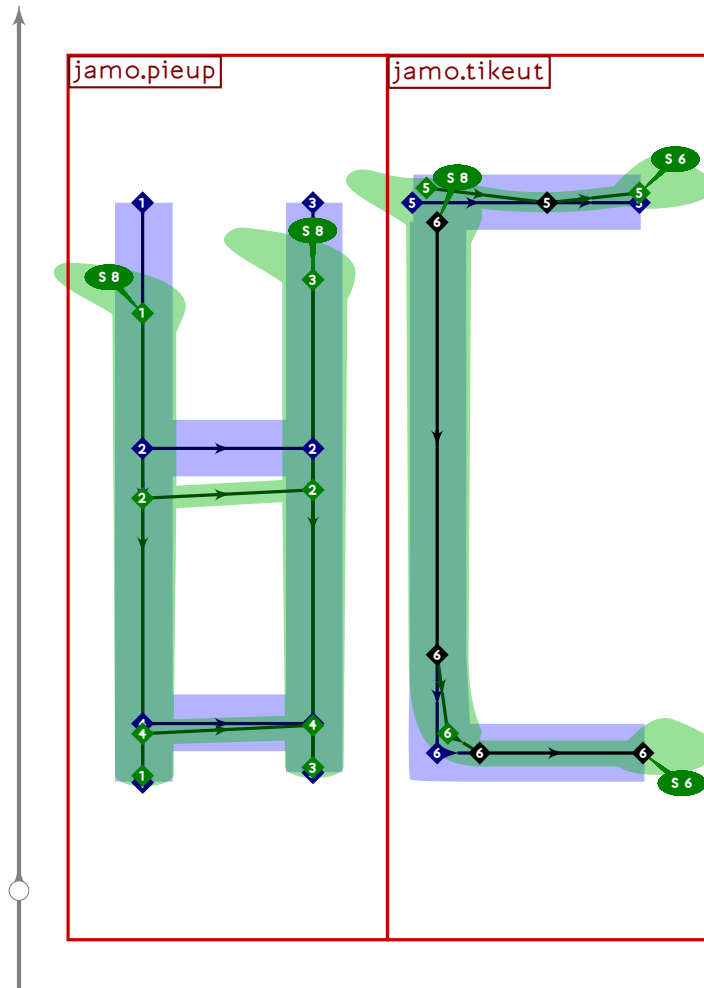


```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.l4",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endtsuglyph;
247

```

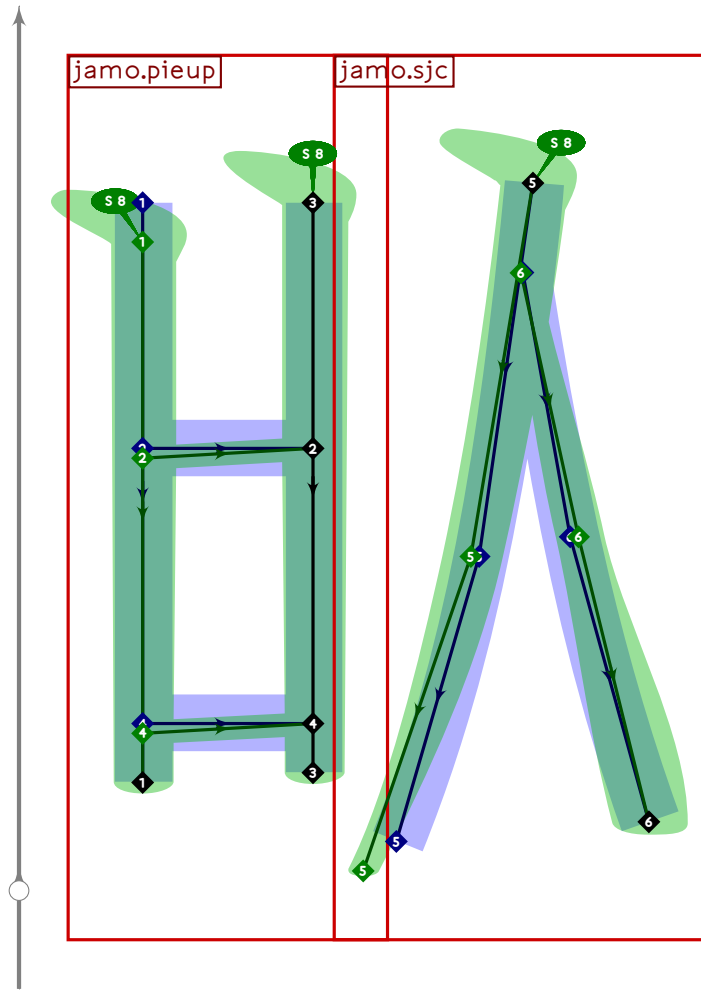




```

248 % hangul lead pieup-tikeut
249 begint Suglyph("uni1120.l4";32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endtsuglyph;
253

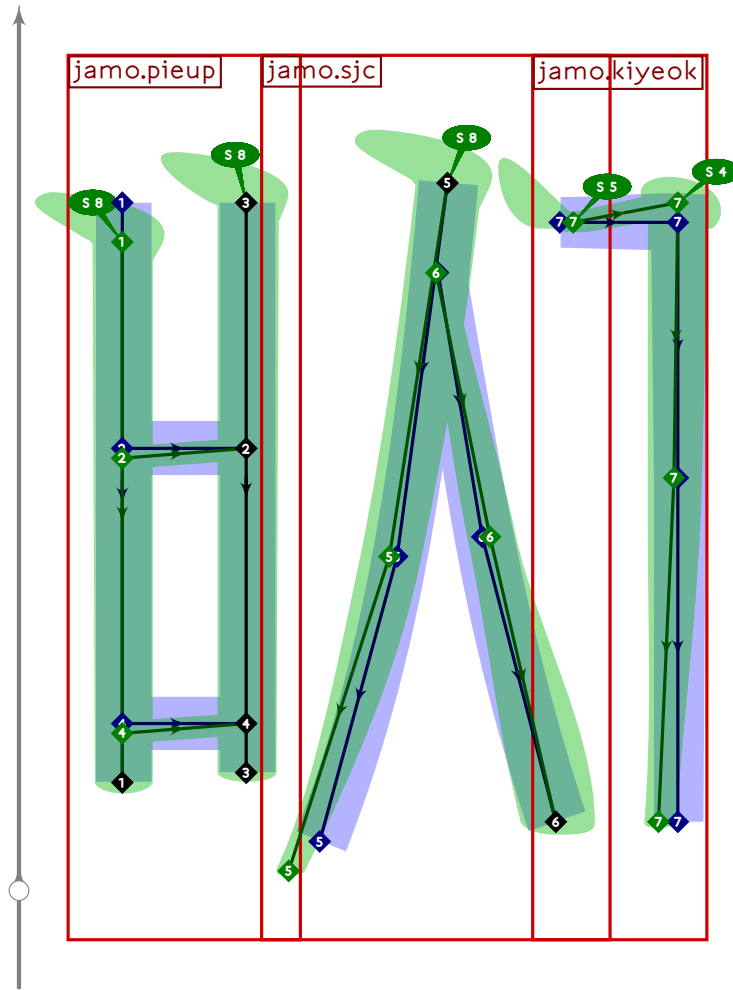
```



```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.l4",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endtsuglyph;
259

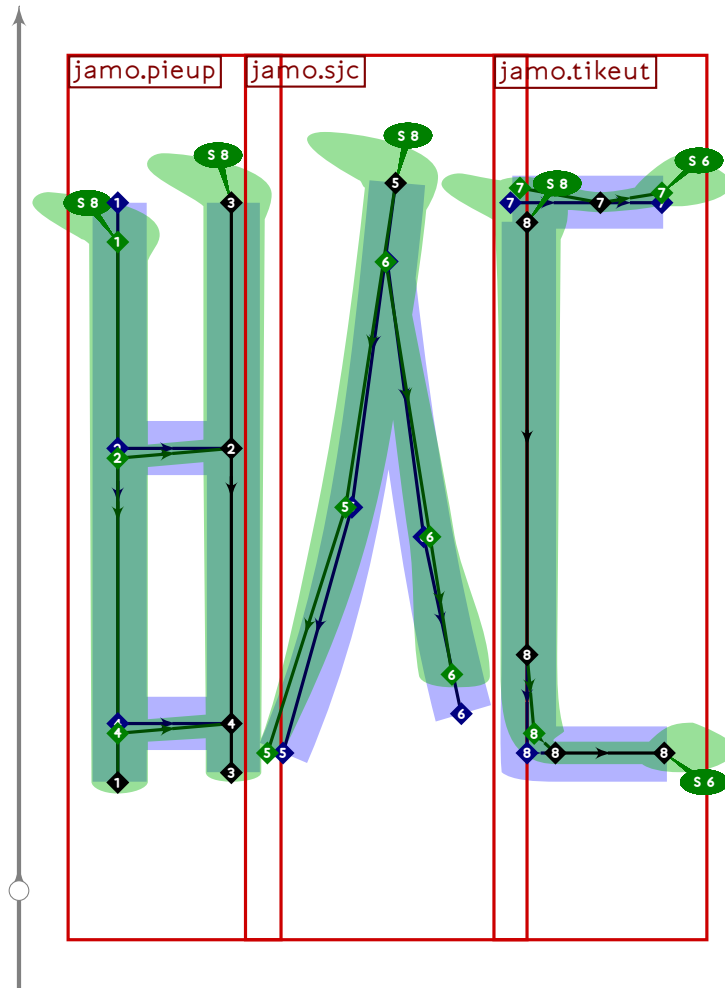
```



```

260 % hangul lead pieup-sios-kiyeok
261 begint Suglyph("uni1122.l4";34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endtsuglyph;
265

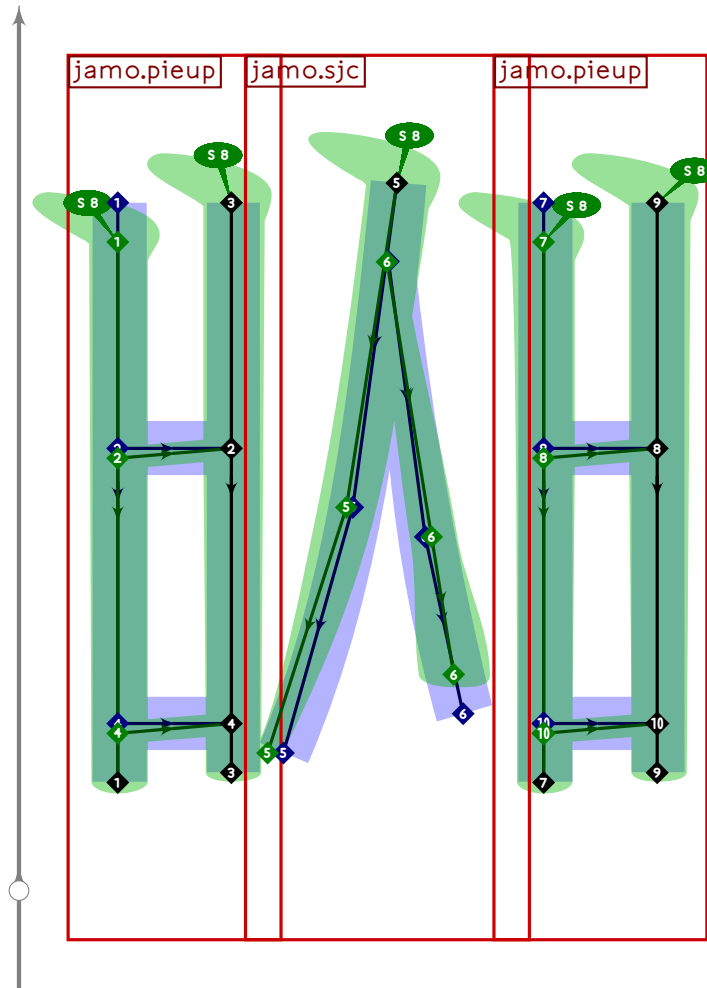
```



```

266 % hangul lead pieup-sios-tikeut
267 begintuglyph("uni1123.l4";35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endtsuglyph;
271

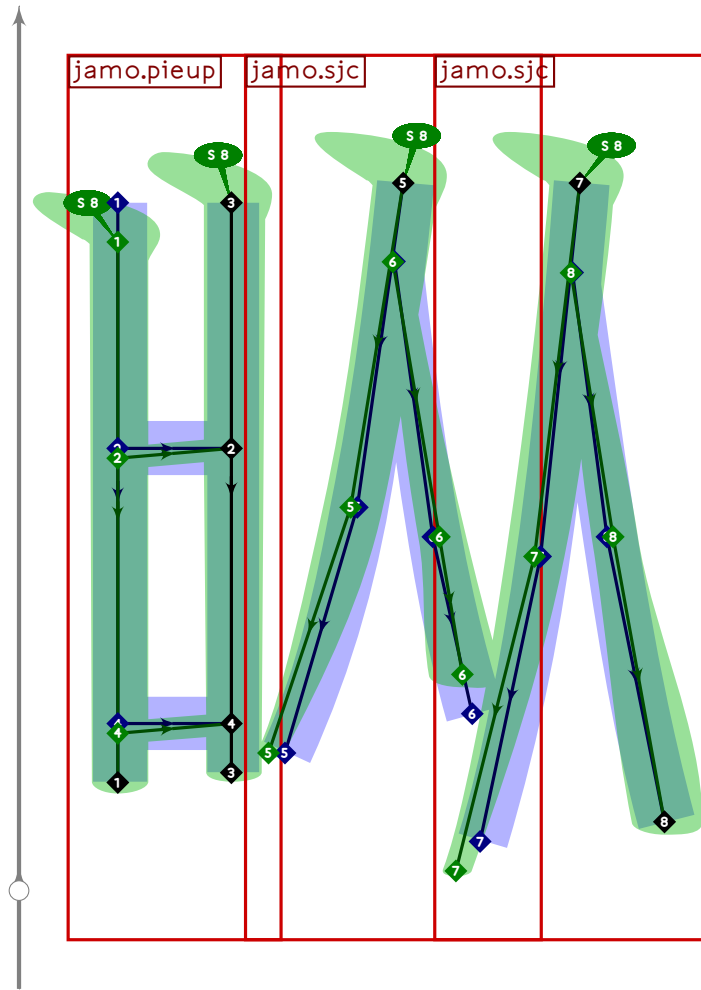
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.l4";36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endtsuglyph;
277

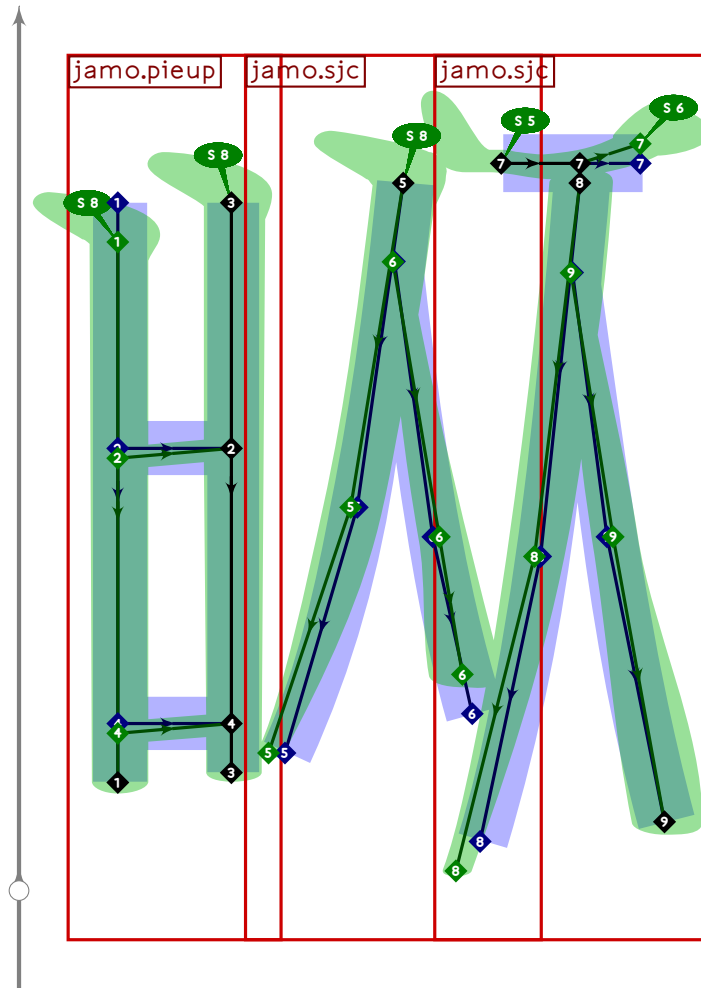
```



```

278 % hangul lead pieup-ssangsios
279 begintsuglyph("uni1125.l4";37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endtsuglyph;
283

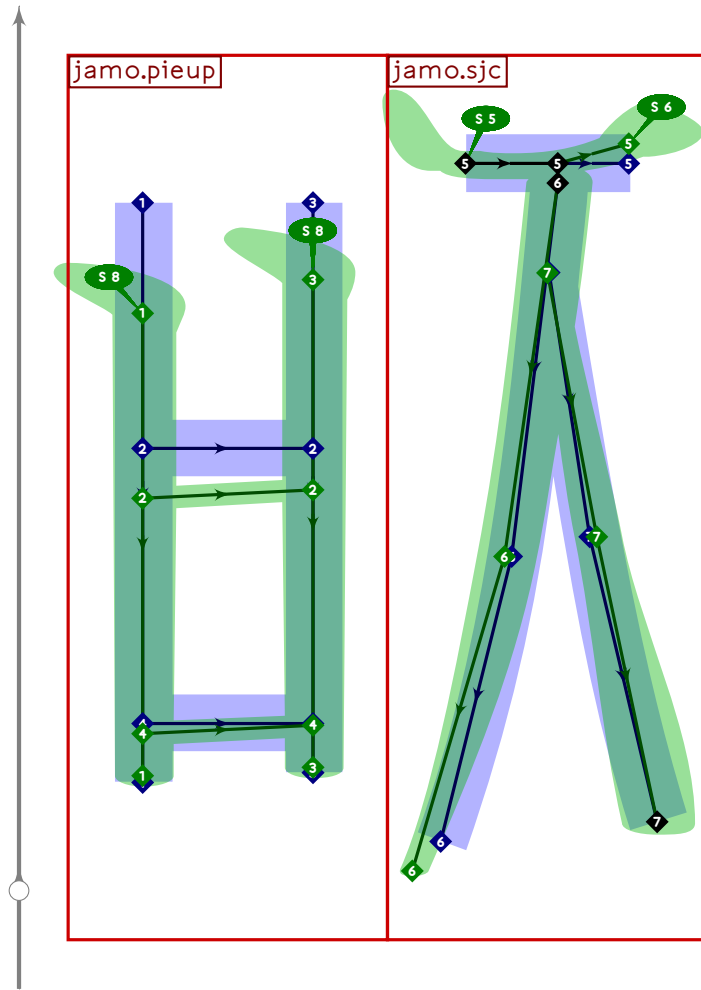
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.l4";38);
286 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
287 tsu_render;
288 endtsuglyph;
289

```

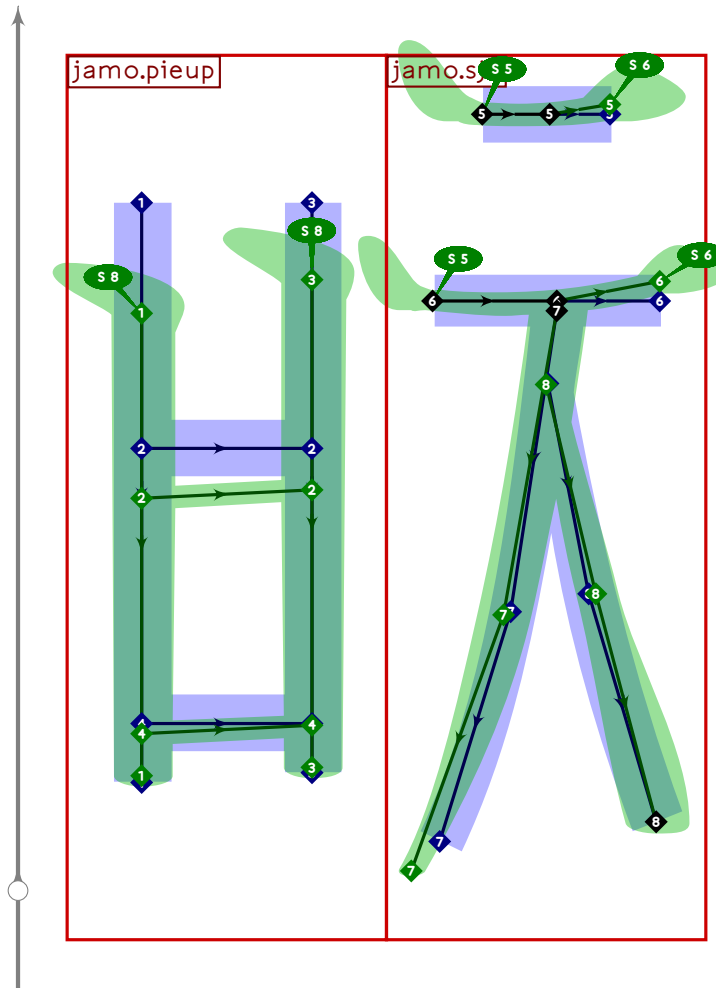


```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.14",39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endtsuglyph;
295

```

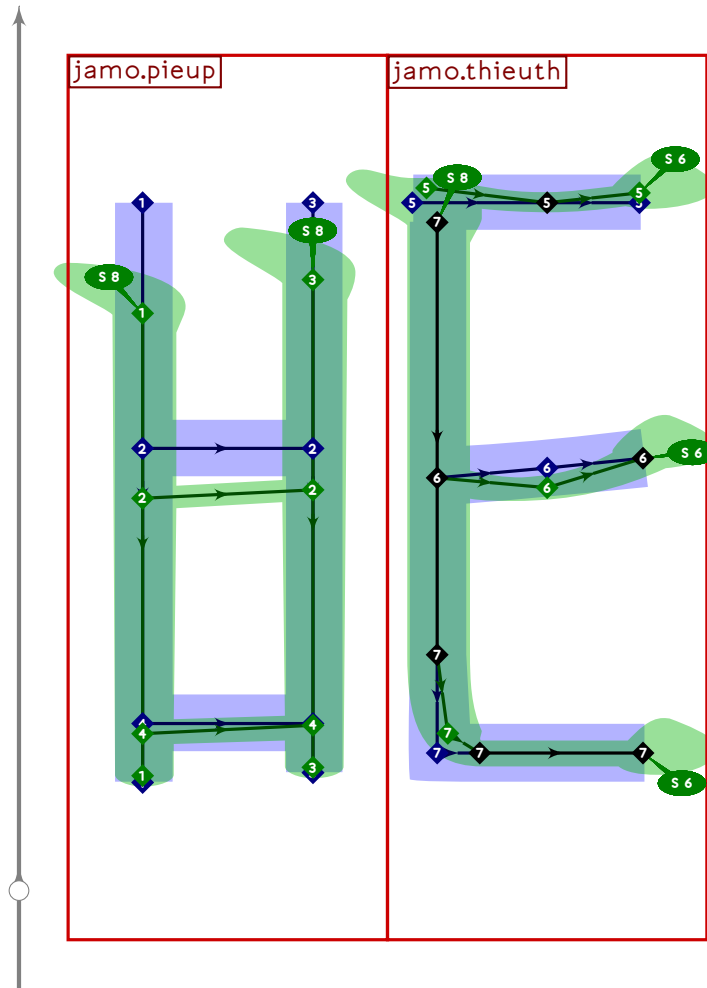




```

296 % hangul lead pieup-chieuch
297 begintsuglyph("uni1128.l4";40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endtsuglyph;
301

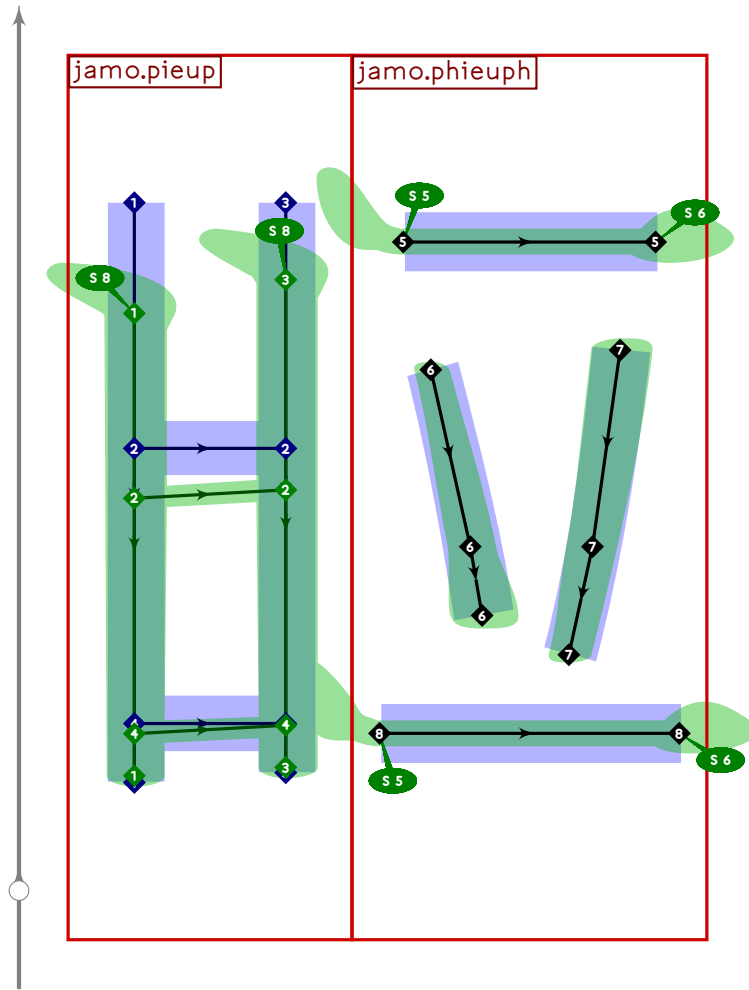
```



```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.l4";41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endtsuglyph;
307

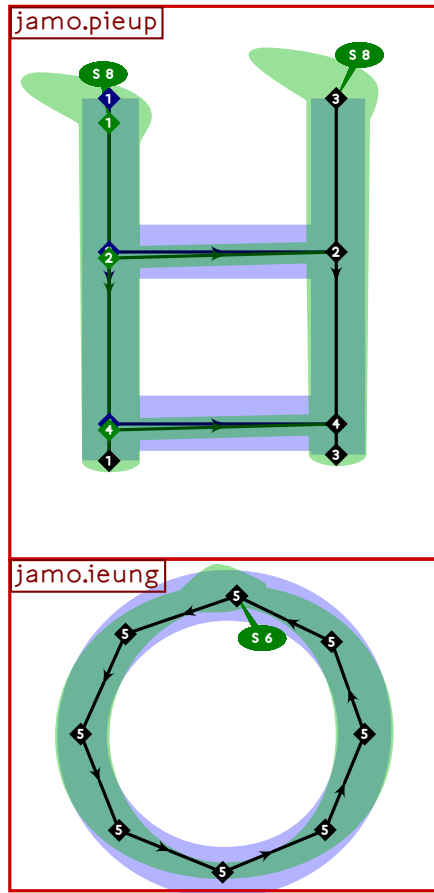
```



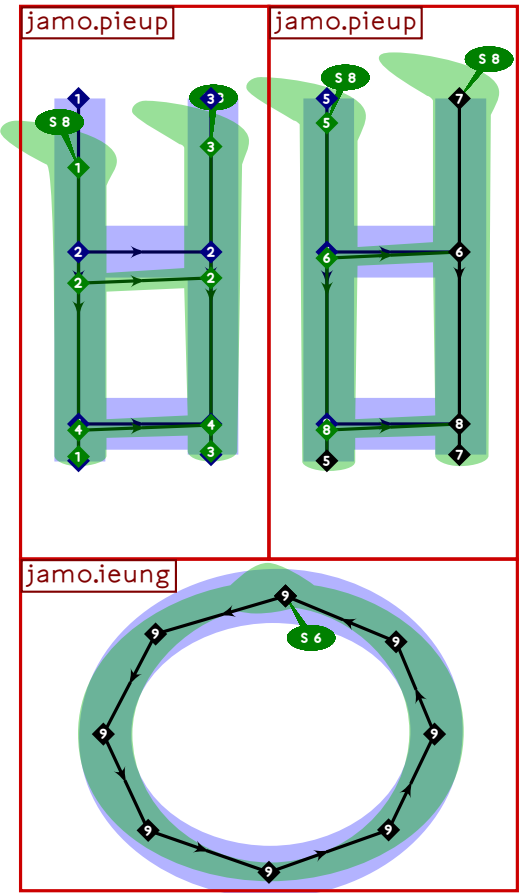
```

308 % hangul lead pieup-phieuph
309 begintsuglyph("uni112A.l4";42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endtsuglyph;
313

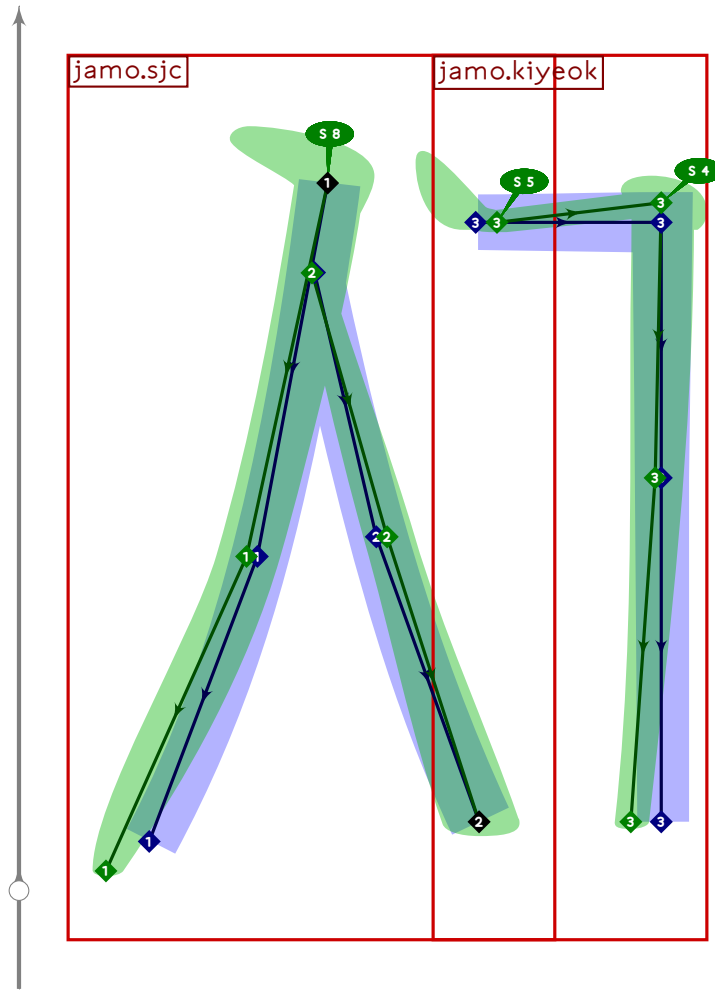
```



```
314 % hangul lead kapyeounpieup
315 begintsuglyph("uni112B.l4"43);
316 hangul.combine.tb(107,521)(whatever,
317   hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endtsuglyph;
320
```



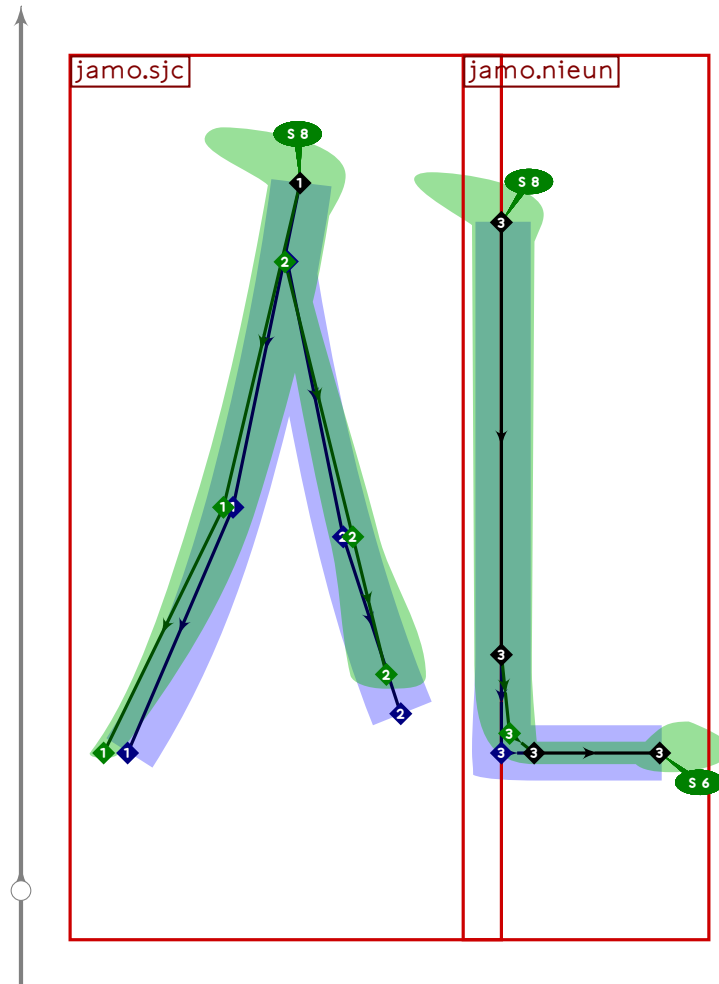
```
321 % hangul lead kapyeounssangpieup
322 begintsuglyph("uni112C.14";44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endtsuglyph;
327
```



```

328 % hangul lead sios-kiyeok
329 begintuglyph("uni112D.I4";45);
330 hangul.combine.lr(109;100)(whatever,lixf,loxf);
331 tsu_render;
332 endtsuglyph;
333

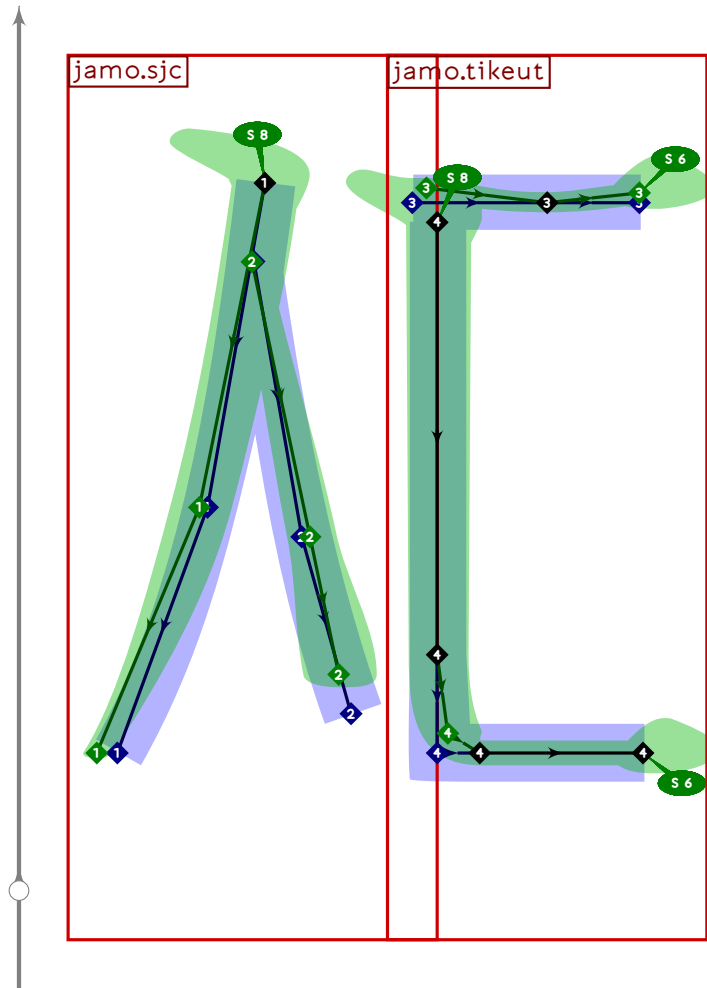
```



```

334 % hangul lead sios-nieun
335 begintsuglyph("uni112E.l4"46);
336 hangul.combine.lr(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endtsuglyph;
339

```

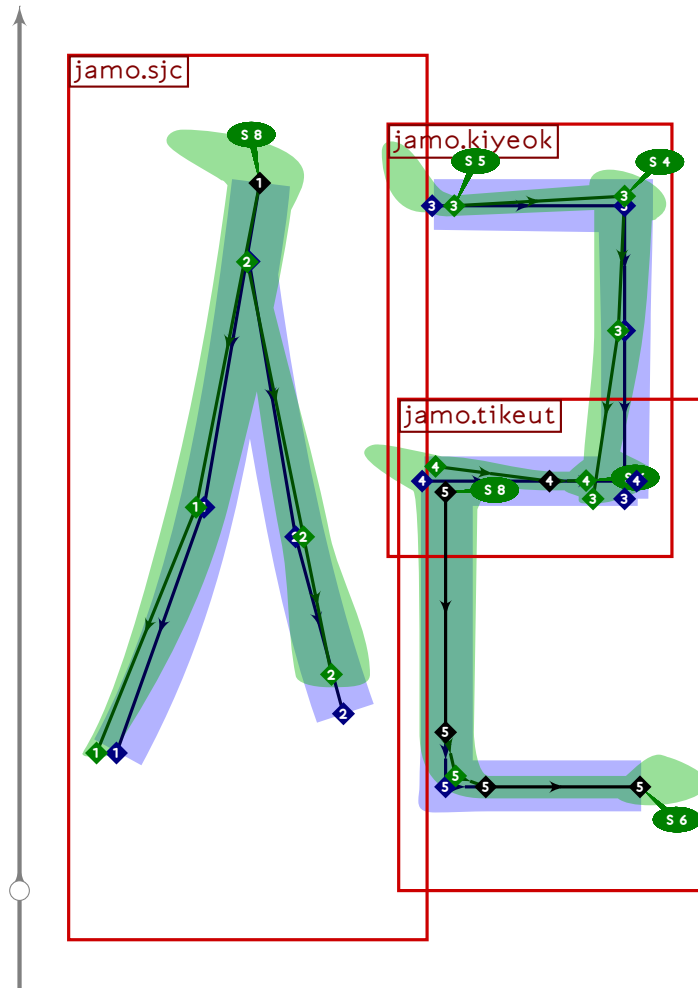


```

340 % hangul lead sios-tikeut
341 begintuglyph("uni112F.14";47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endtsuglyph;
345

```

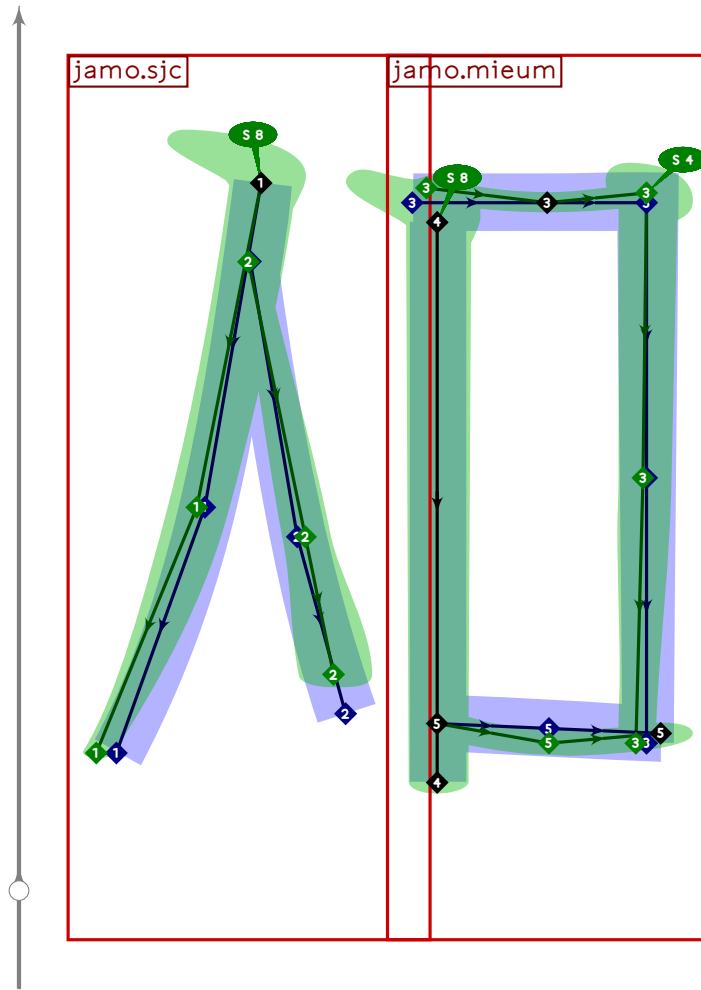




```

346 % hangul lead sios-rieul
347 begint Suglyph("uni1130.l4"48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

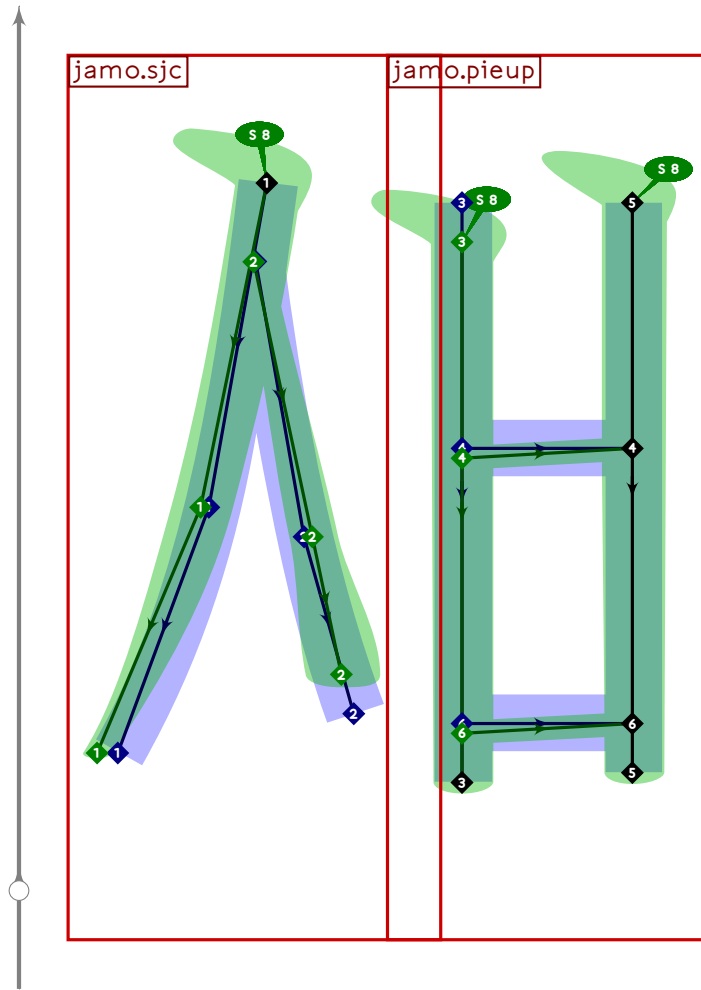
```



```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.l4"49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endtsuglyph;
357

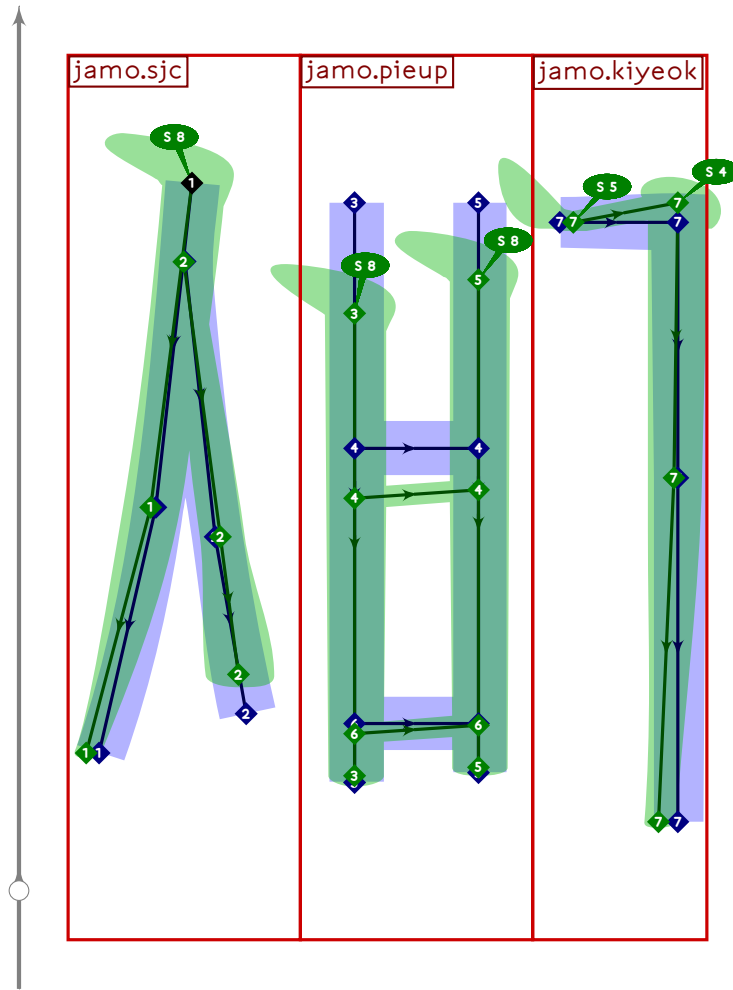
```



```

358 % hangul lead sios-pieup
359 begintsuglyph("uni1132.l4";50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

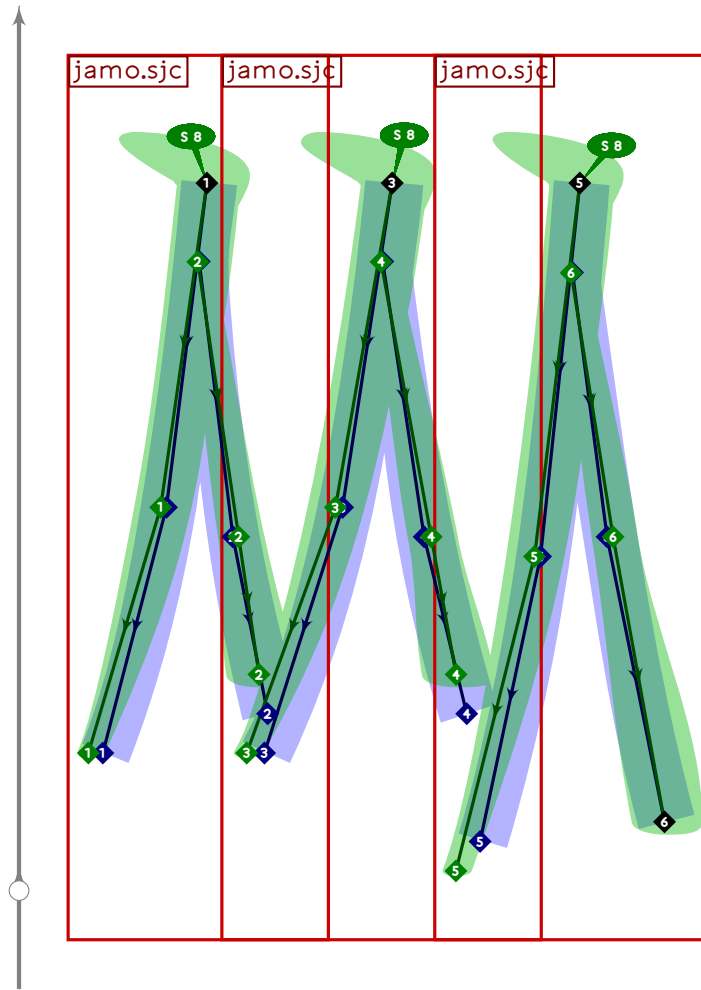
```



```

364 % hangul lead sios-pieup-kiyeok
365 begintuglyph("uni1133.14",51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endtsuglyph;
369

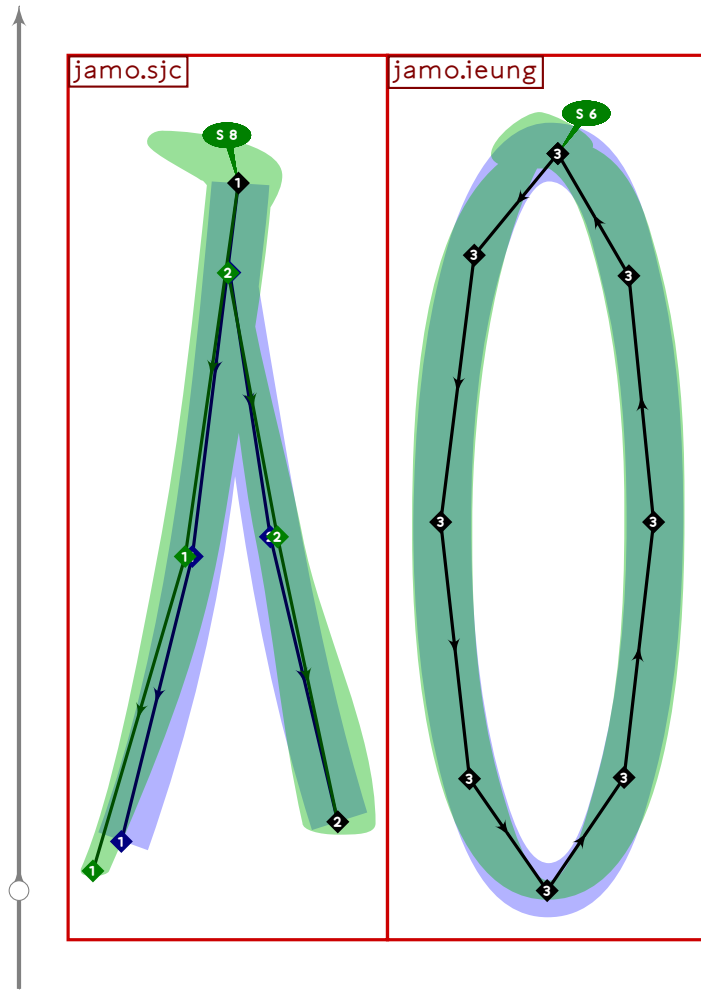
```



```

370 % hangul lead sios-sios-sios
371 begint Suglyph("uni1134.14",52);
372 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endtsuglyph;
375

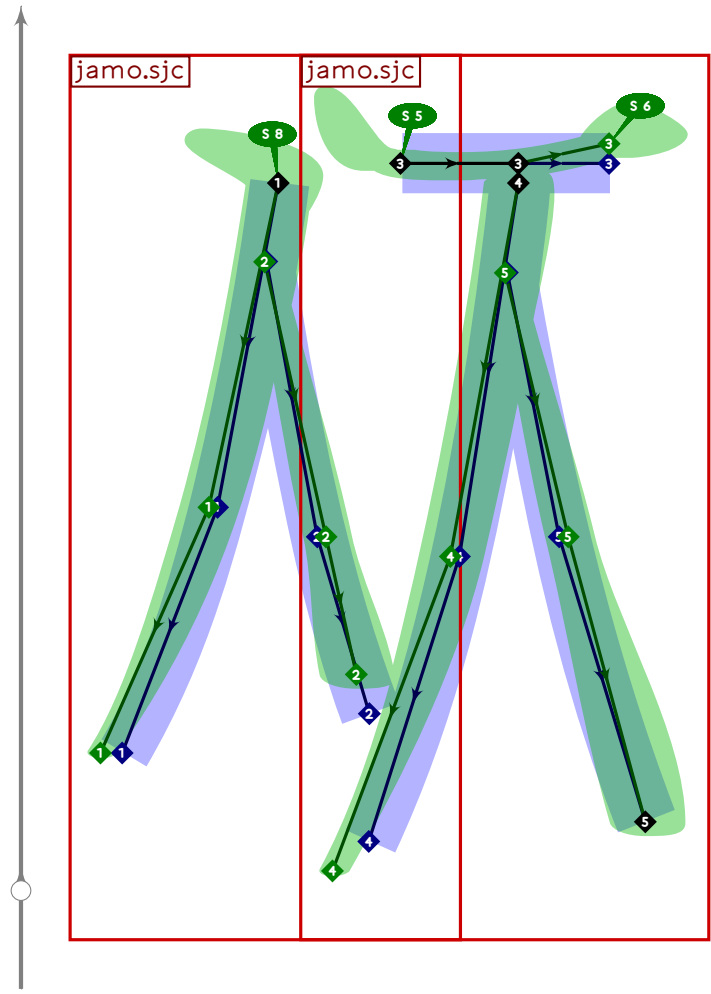
```



```

376 % hangul lead sios-ieung
377 begintsuglyph("uni1135.14";53);
378 hangul.combine.lr(109;111)(whatever,lixf,loxf);
379 tsu_render;
380 endtsuglyph;
381

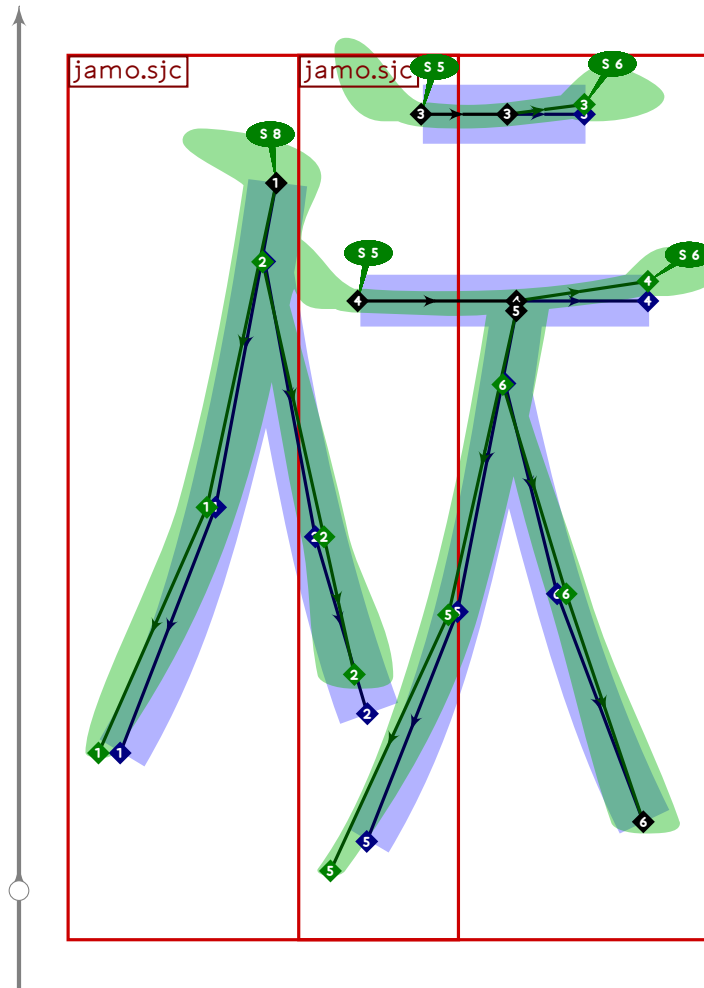
```



```

382 % hangul lead sios-cieuc
383 begintuglyph("uni1136.l4";54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endtsuglyph;
387

```

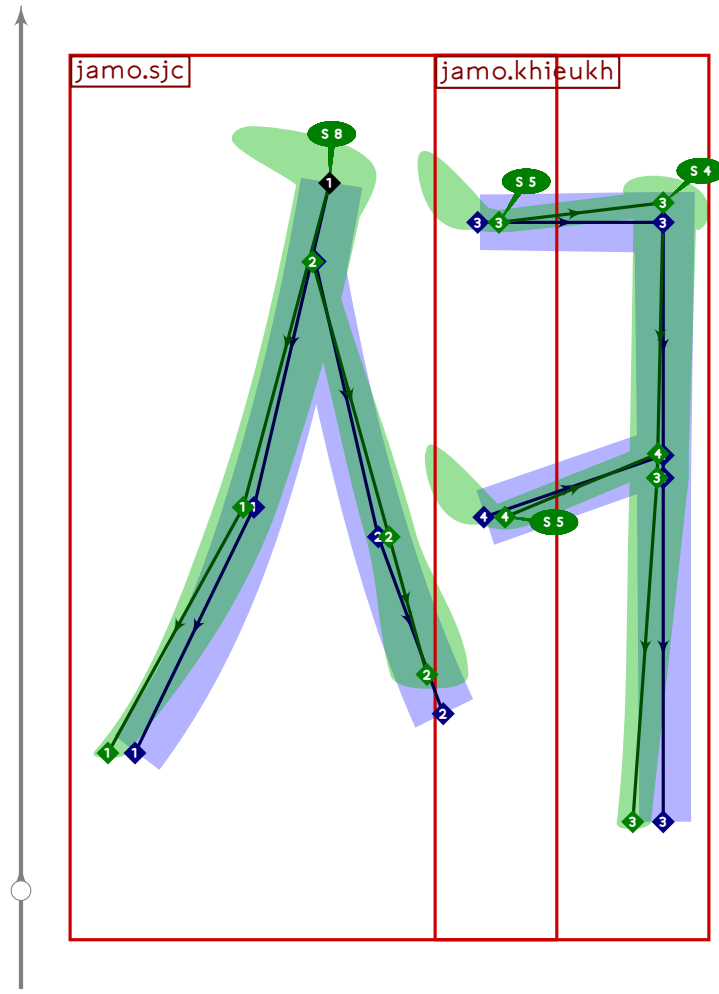


```

388 % hangul lead sios-chieuch
389 begint Suglyph("uni1137.14",55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endtsuglyph;
393

```

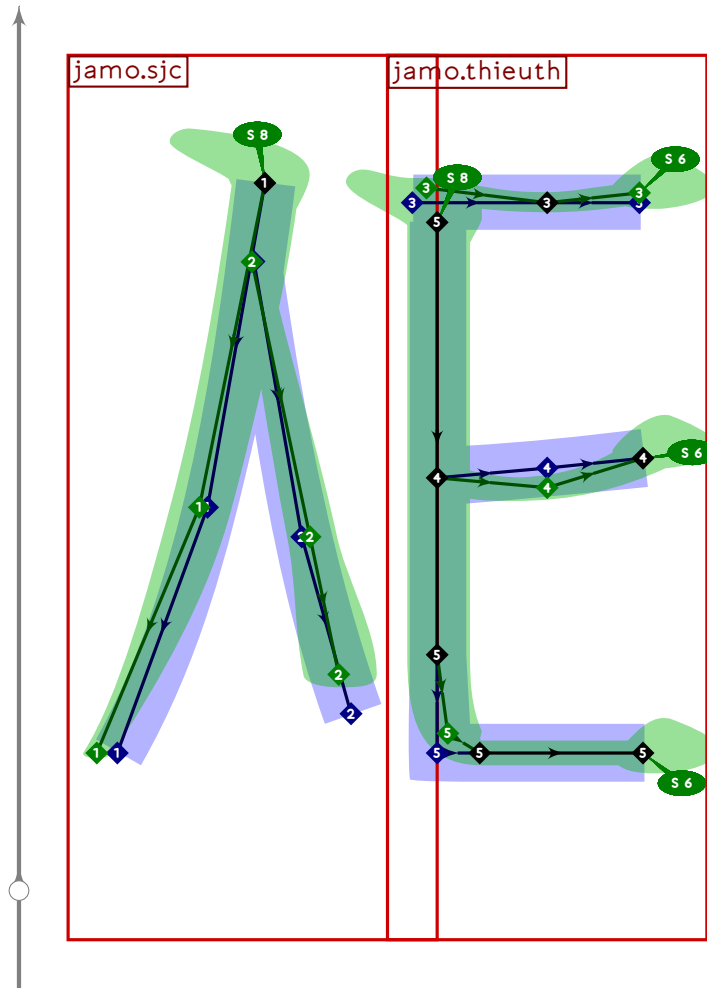




```

394 % hangul lead sio-khieukh
395 begintsuglyph("uni1138.l4",56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endtsuglyph;
399

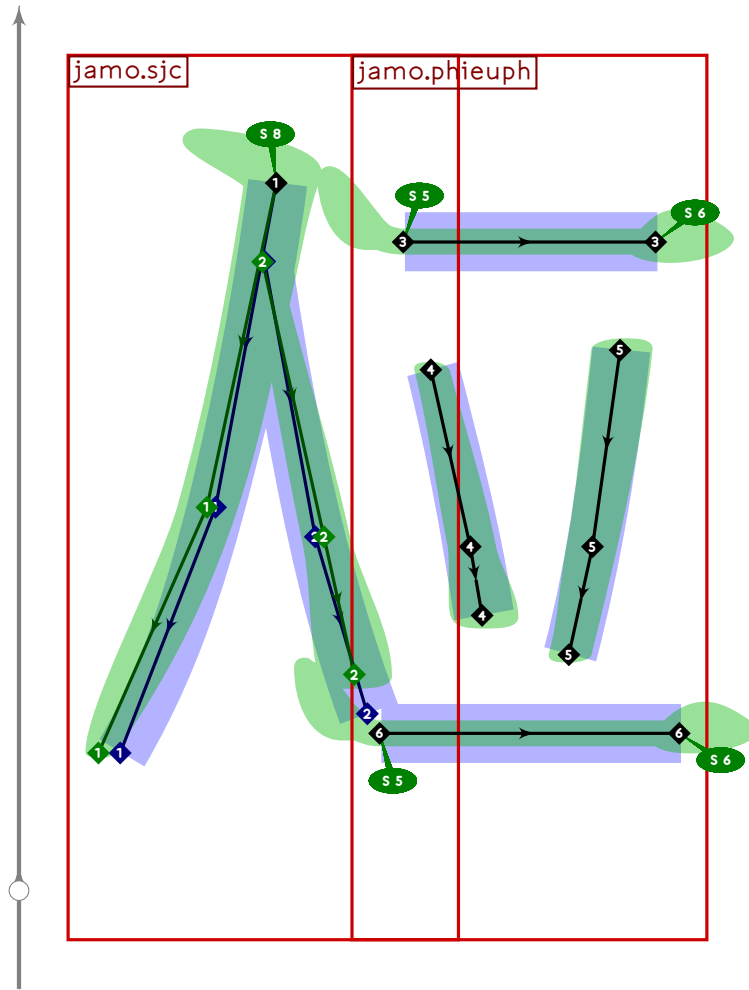
```



```

400 % hangul lead sios-thieuth
401 begintsuglyph("uni1139.14",57);
402 hangul.combine.lr(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endtsuglyph;
405

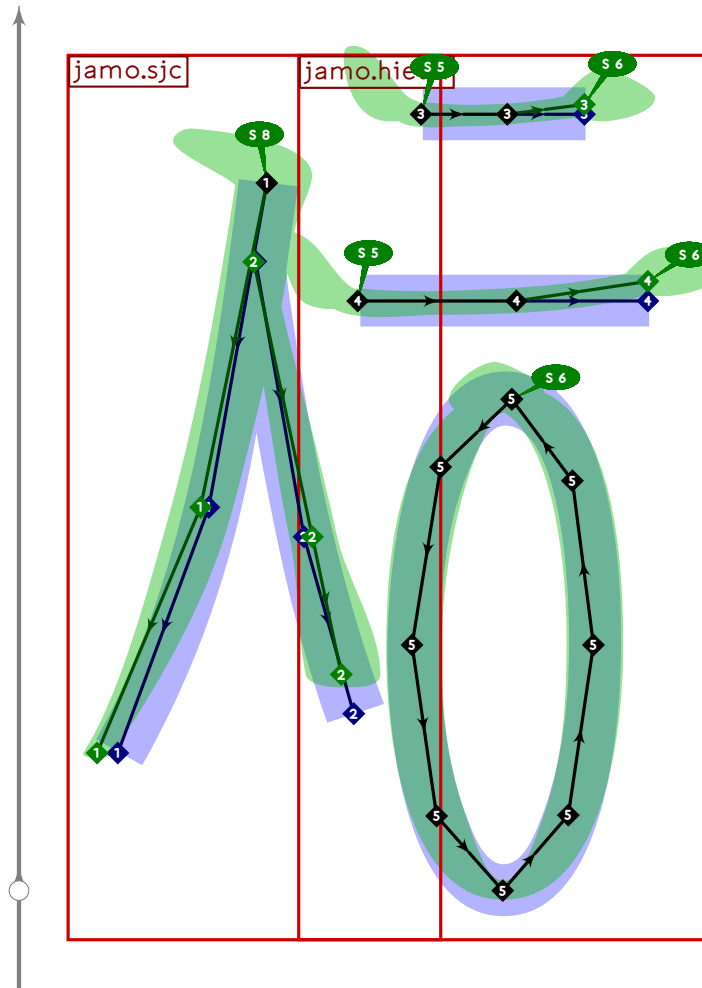
```



```

406 % hangu lead sios-phieuph
407 begintsuglyph("uni113A.l4",58);
408 hangu.combine.lr(209,117)(whatever,lixf,loxf);
409 tsu_render;
410 endtsuglyph;
411

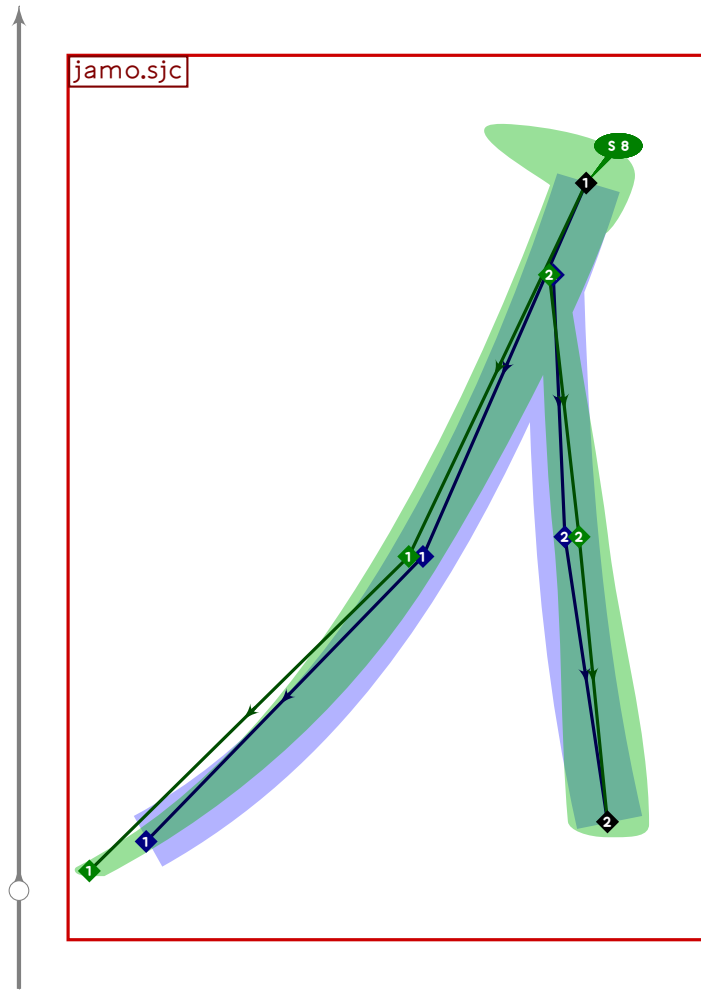
```



```

412 % hangul lead sios-hieuh
413 begintsuglyph("uni113B.l4";59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

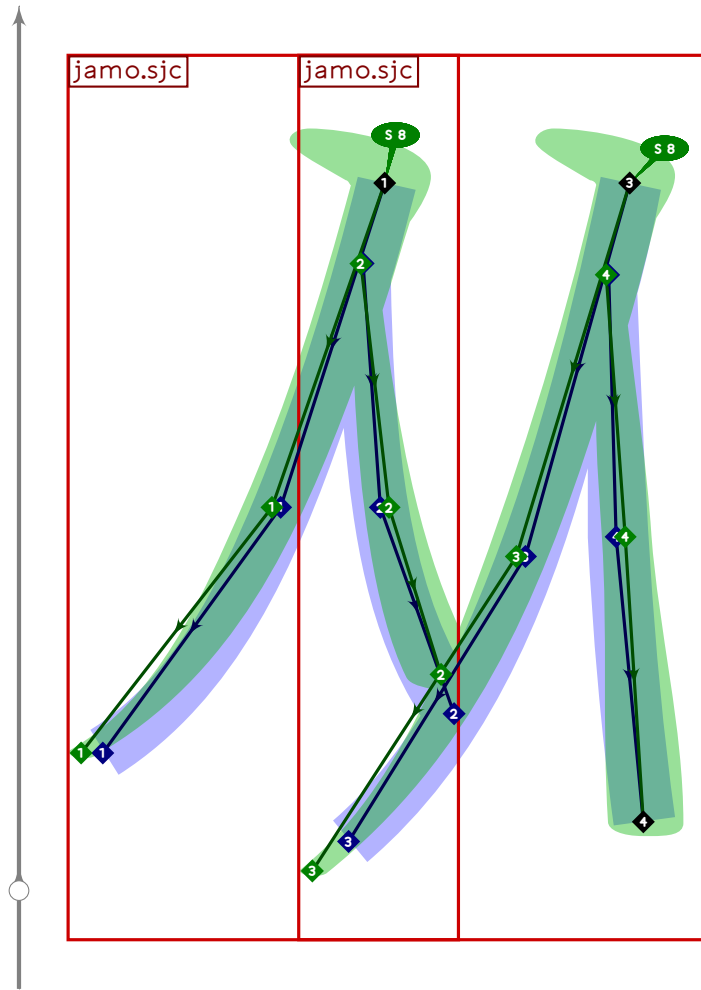
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.14",60);
420 hangul,jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

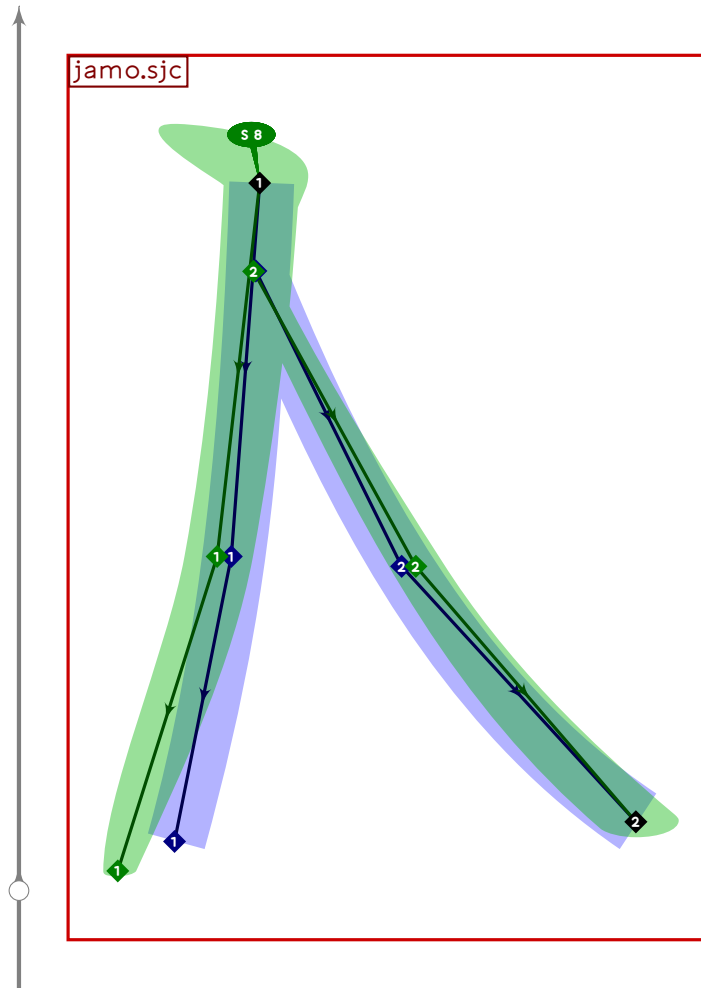
```



```

424 % hangul lead chitueumssangsios
425 begint Suglyph("uni113D.l4"61);
426 hangul.combine.lr(223,222)(whatever,lixf,loxf);
427 tsu_render;
428 endtsuglyph;
429

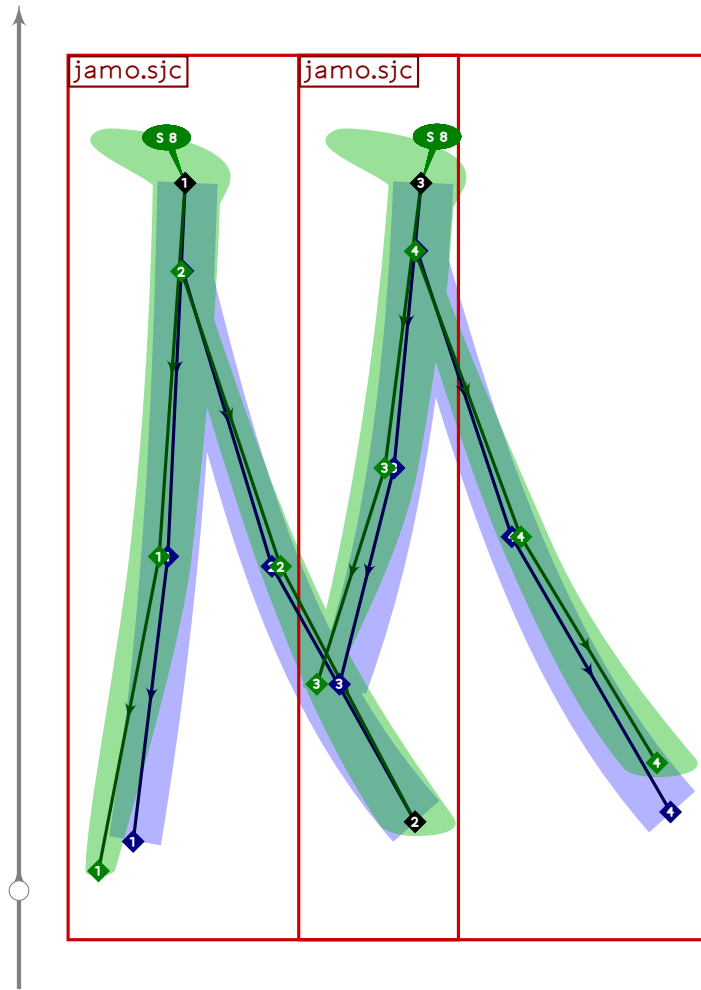
```



```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.l4";62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

```

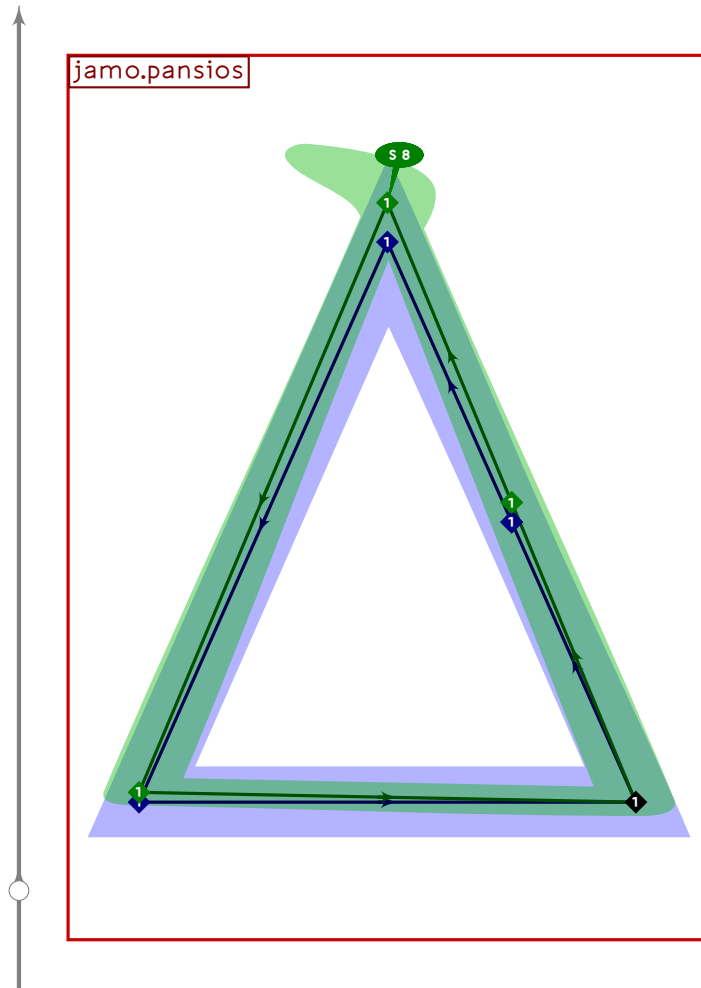


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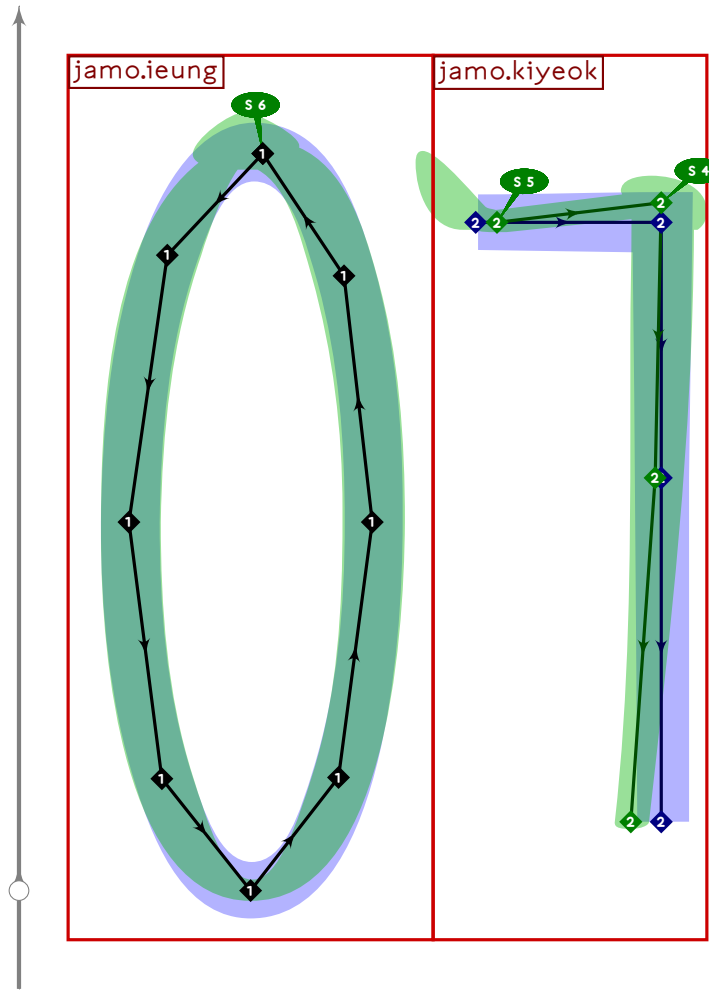
436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.14",63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endtsuglyph;
441

```





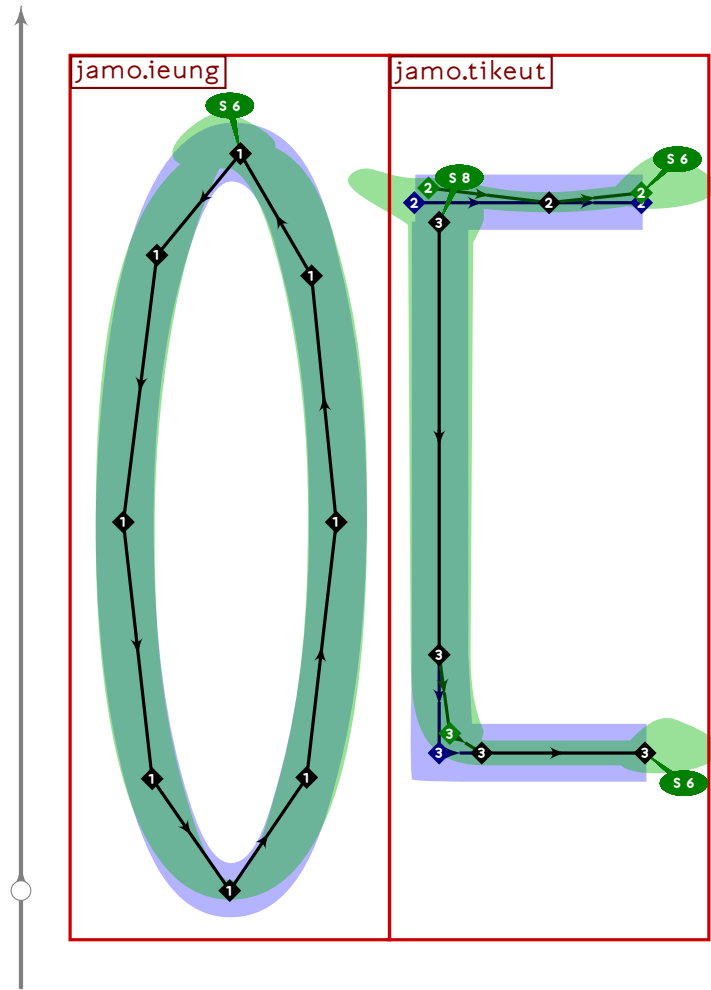
```
442 % hangul lead pansios
443 begintsuglyph("uni1140.l4",64);
444 hangul,jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endtsuglyph;
447
```



```

448 % hangul lead ieung-kiyeok
449 begintsuglyph("uni1141.l4",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endsuglyph;
453

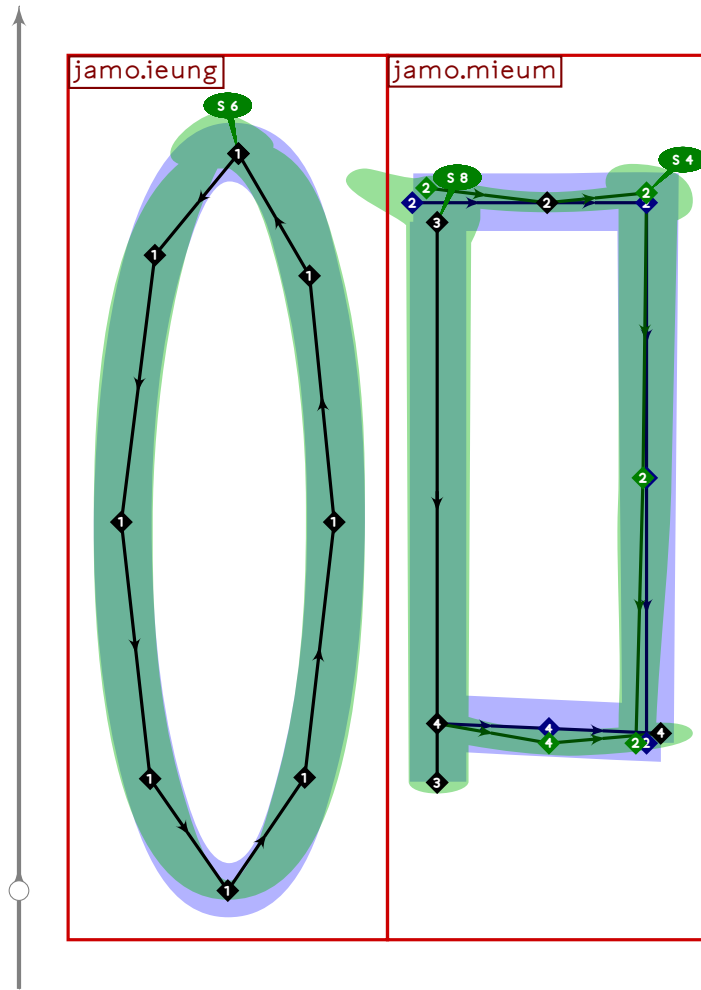
```



```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.14",66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endsuglyph;
459

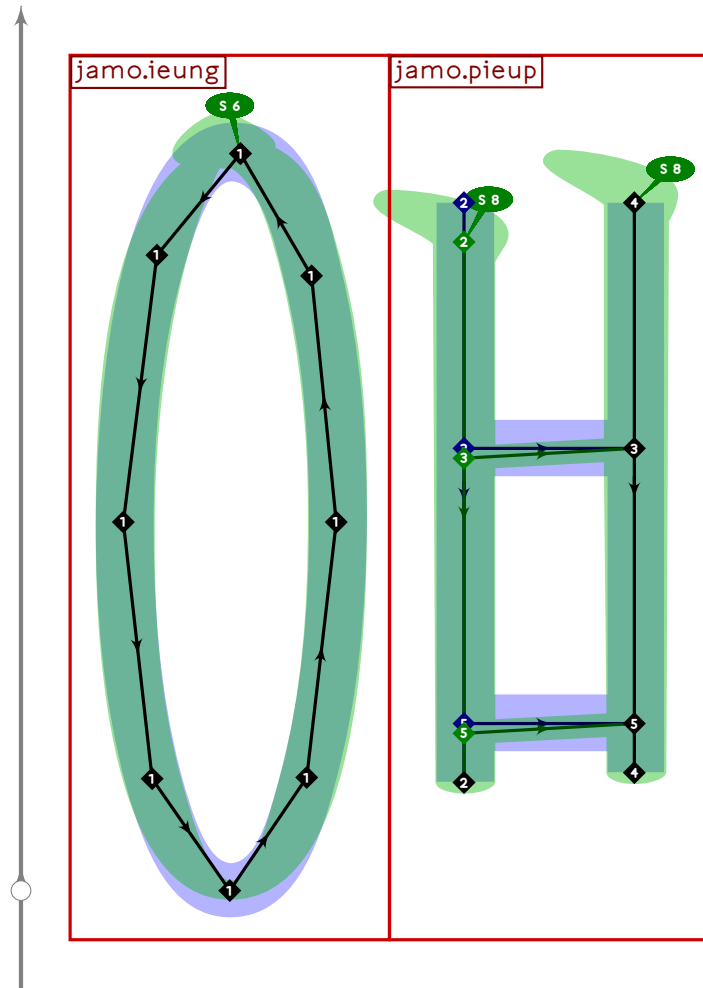
```



```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.14",67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endsuglyph;
465

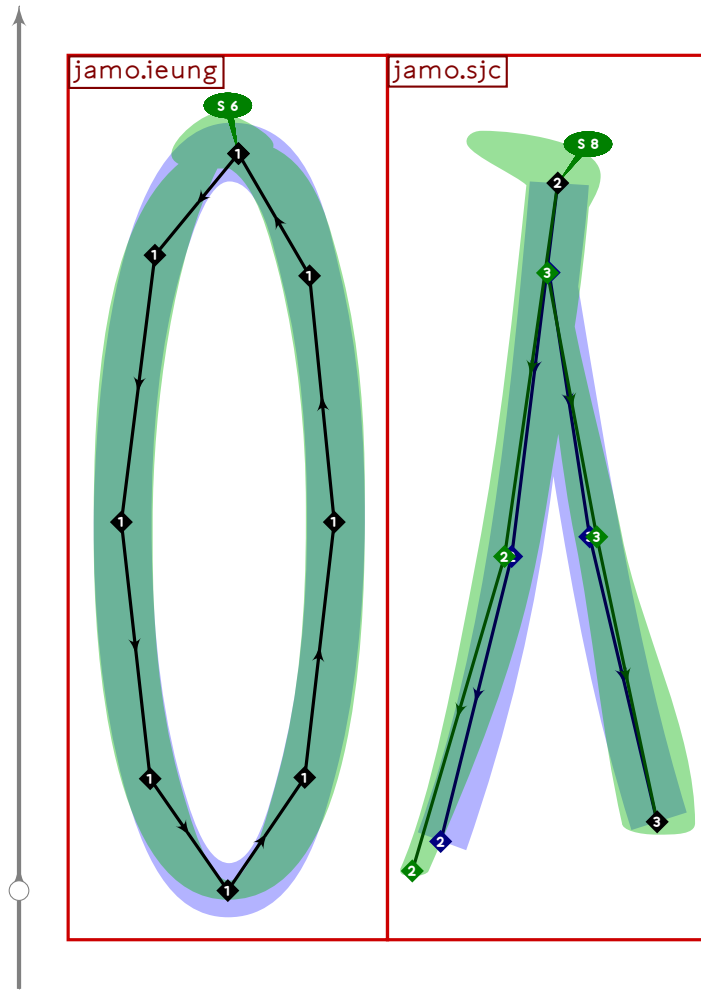
```



```

466 % hangul lead ieung-pieup
467 begintsuglyph("uni1144.14",68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endsuglyph;
471

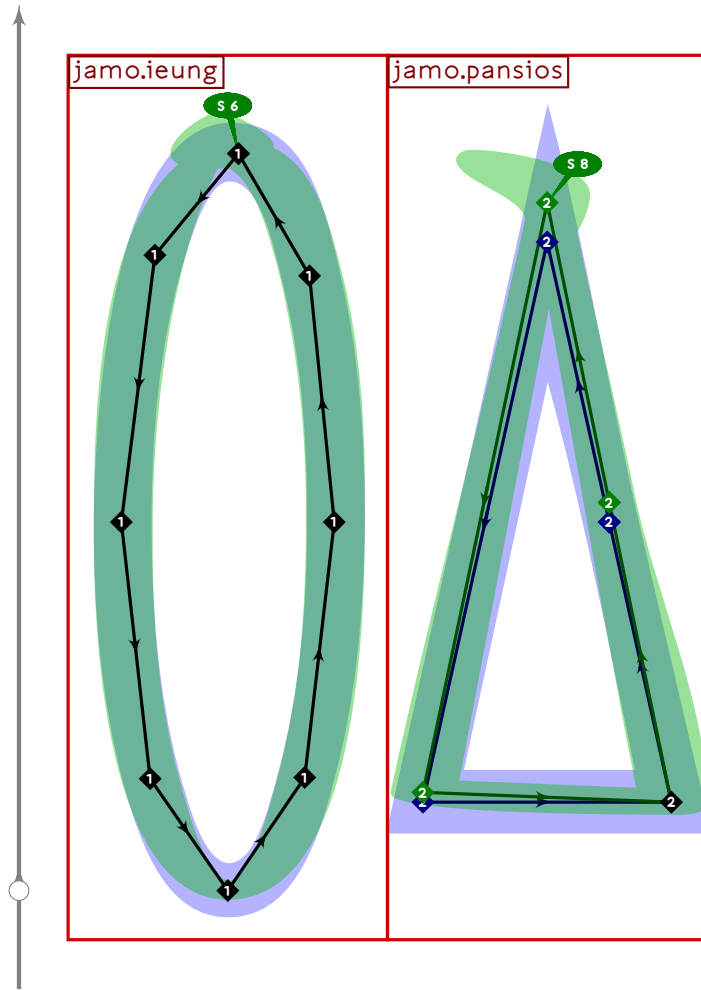
```



```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.l4",69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endtsuglyph;
477

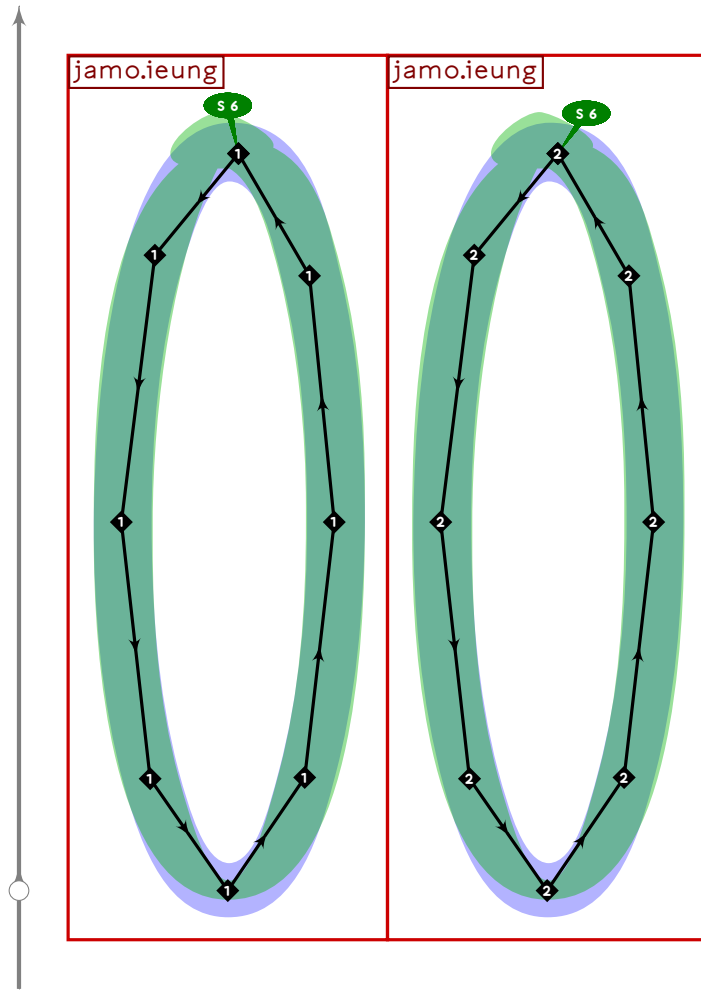
```



```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l4",70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endtsuglyph;
483

```

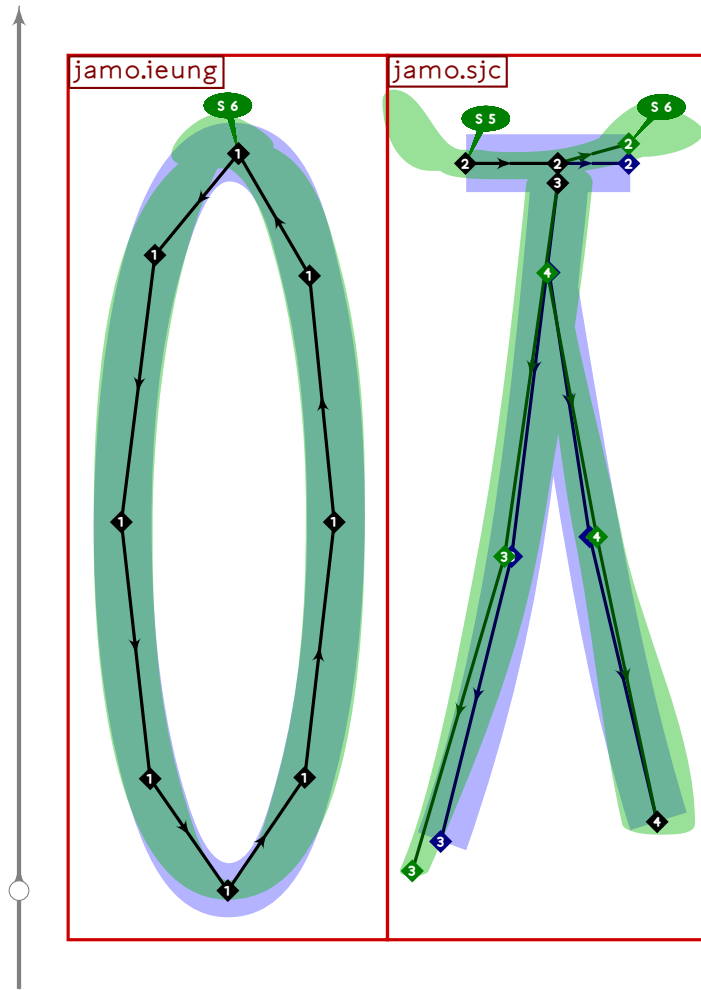


```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.14",71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endsuglyph;
489

```

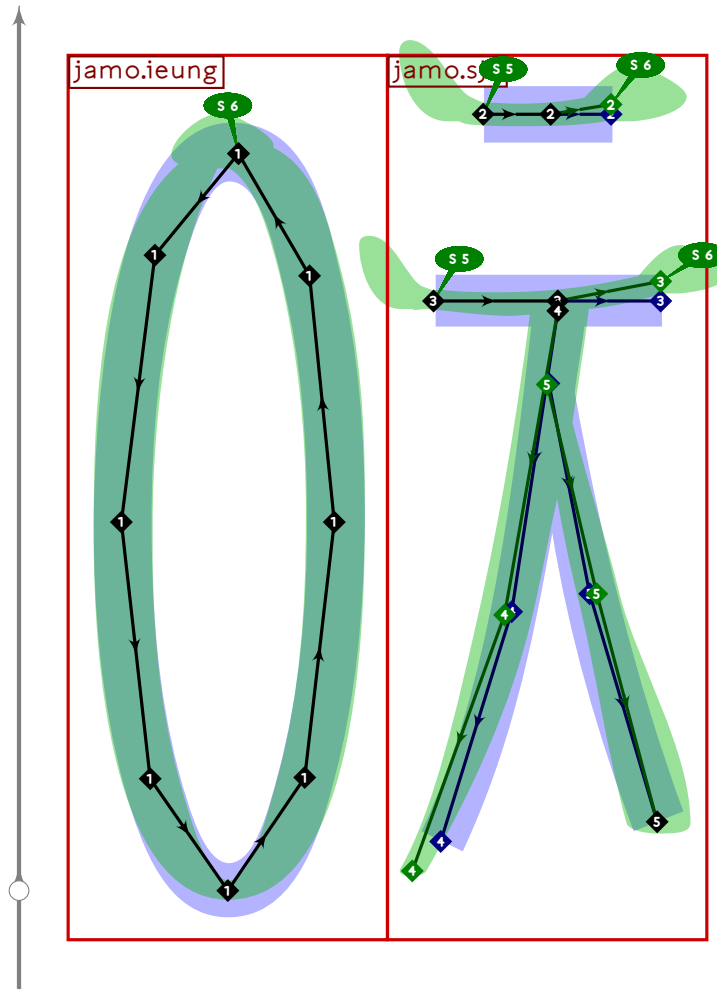




```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.l4",72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endtsuglyph;
495

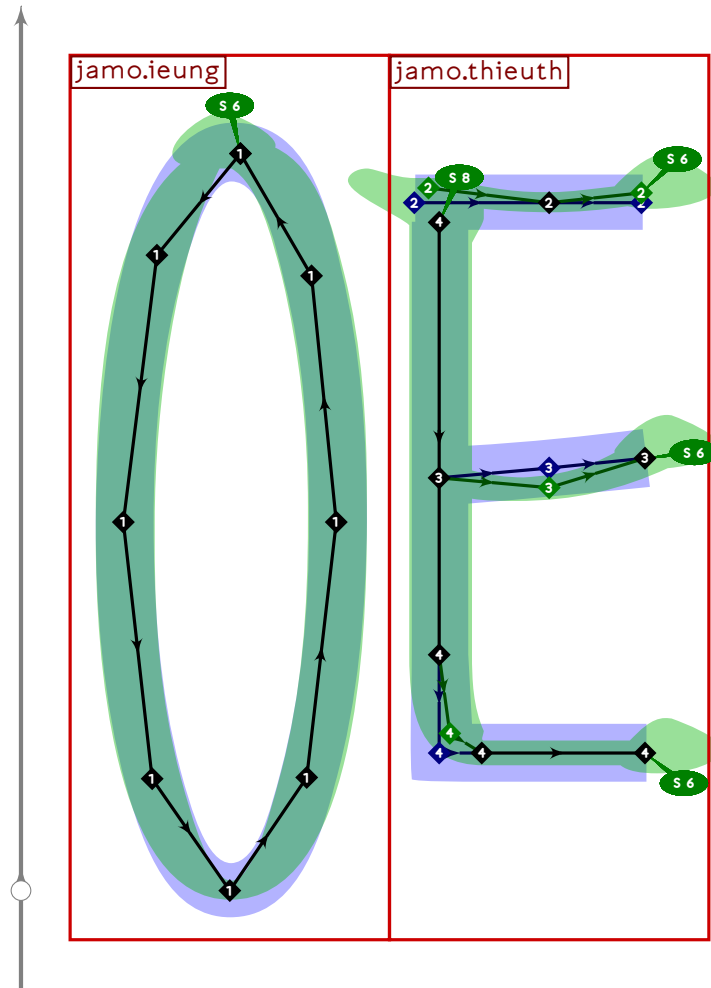
```



```

496 % hangul lead ieung-chieuch
497 begintsuglyph("uni1149.l4",73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endtsuglyph;
501

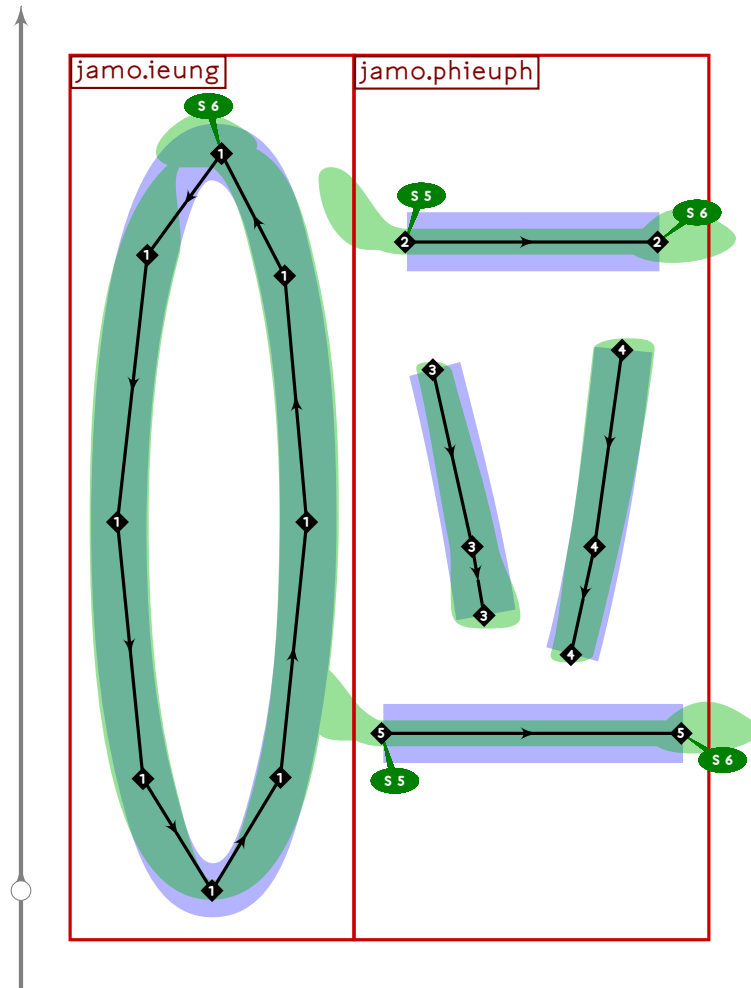
```



```

502 % hangul lead ieung-theiuth
503 begintsuglyph("uni114A.l4",74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endtsuglyph;
507

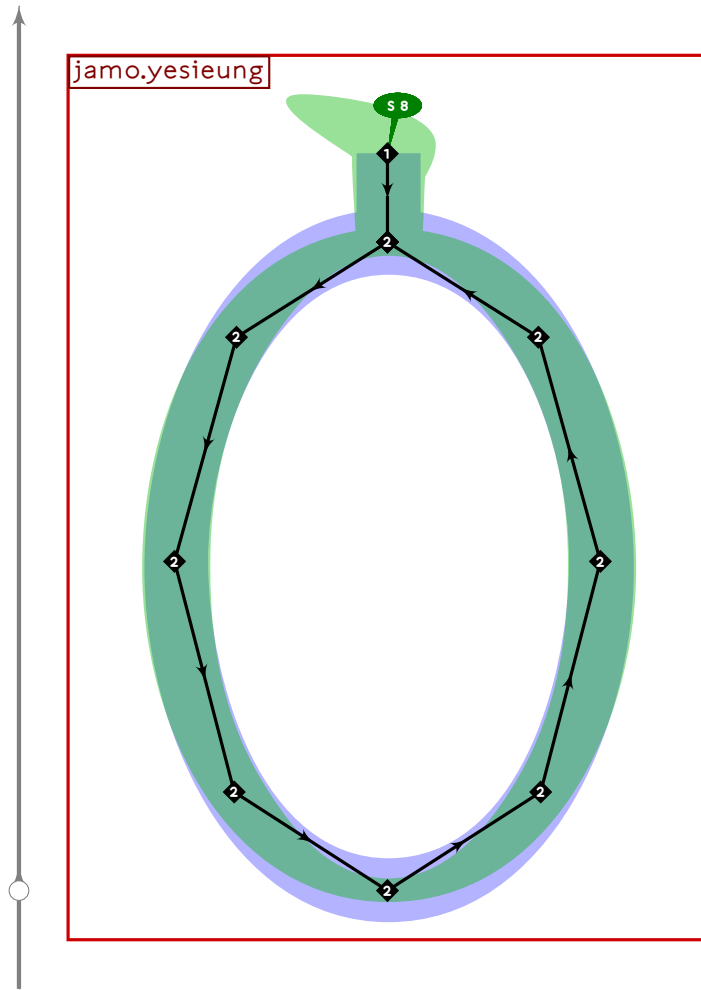
```



```

508 % hangul lead ieung-phieuph
509 begintsuglyph("uni114B.l4;75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endtsuglyph;
513

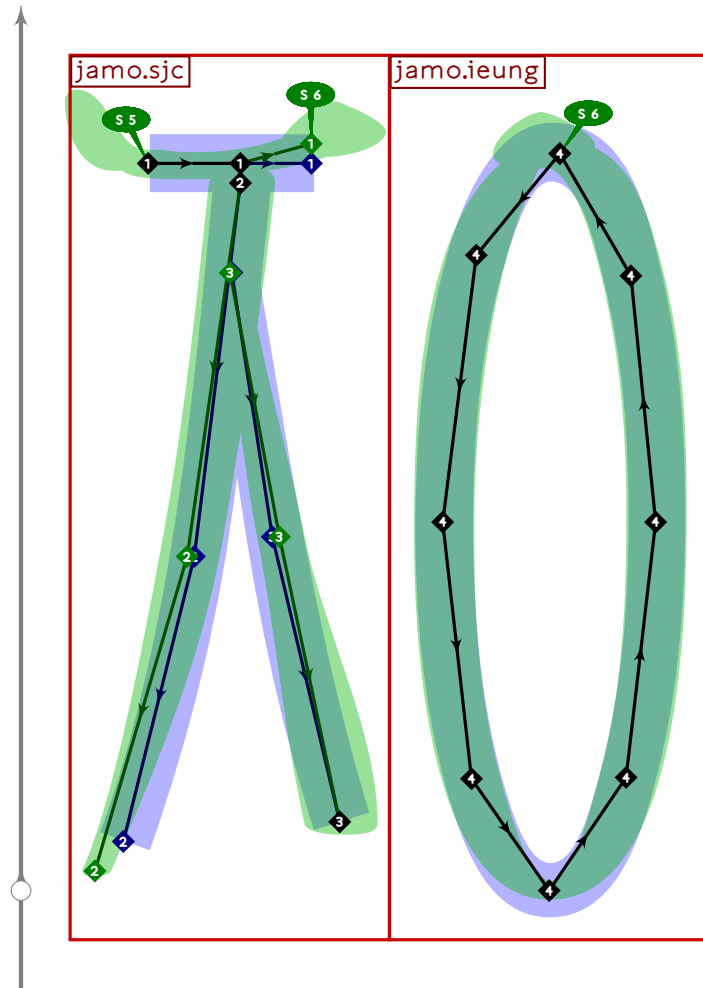
```



```

514 % hangul lead yesieung
515 begintsuglyph("uni114C.14";76);
516 hangul,jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endsuglyph;
519

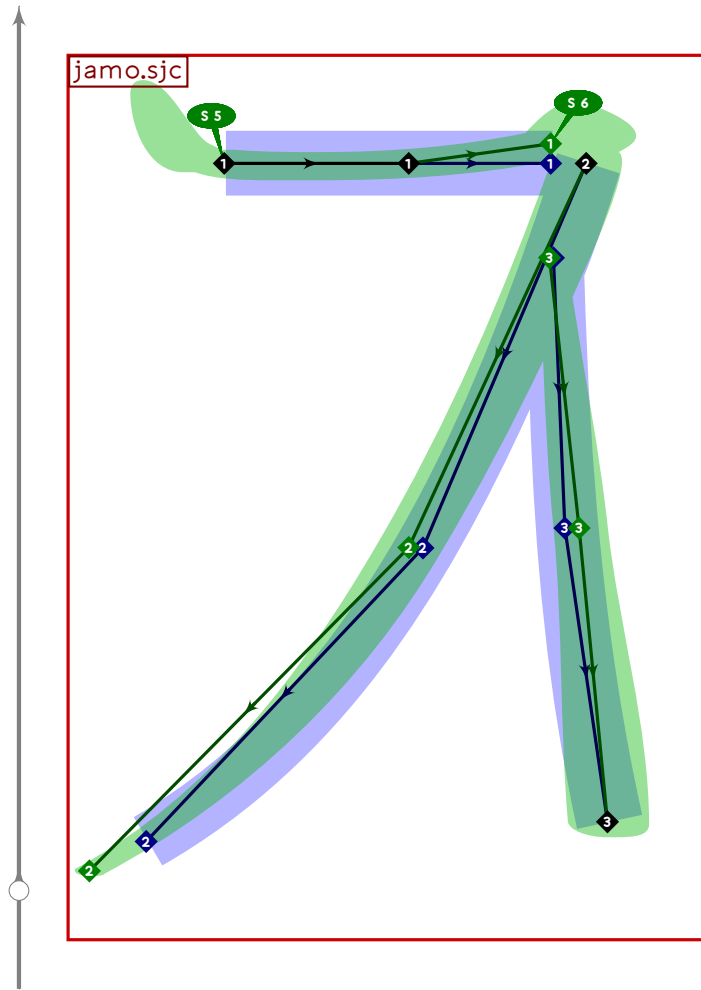
```



```

520 % hangul lead cieuc-ieung
521 begintsuglyph("uni114D.l4";77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

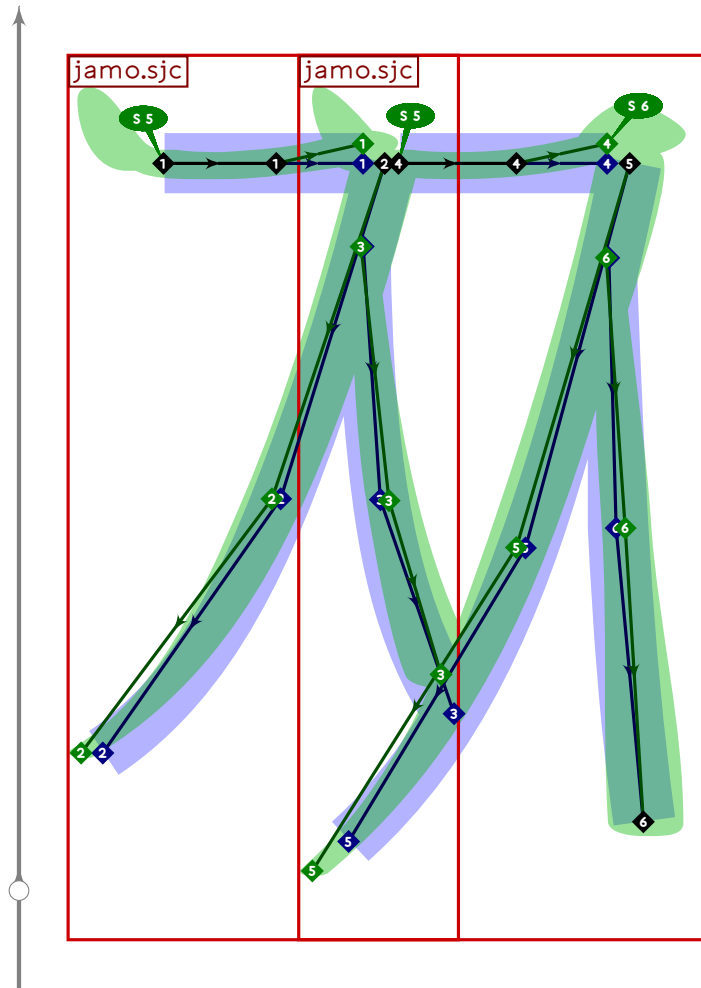
```



```

526 % hangul lead chitueumcieuc
527 begint Suglyph("uni114E.l4",78);
528 hangul,jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endtsuglyph;
531

```

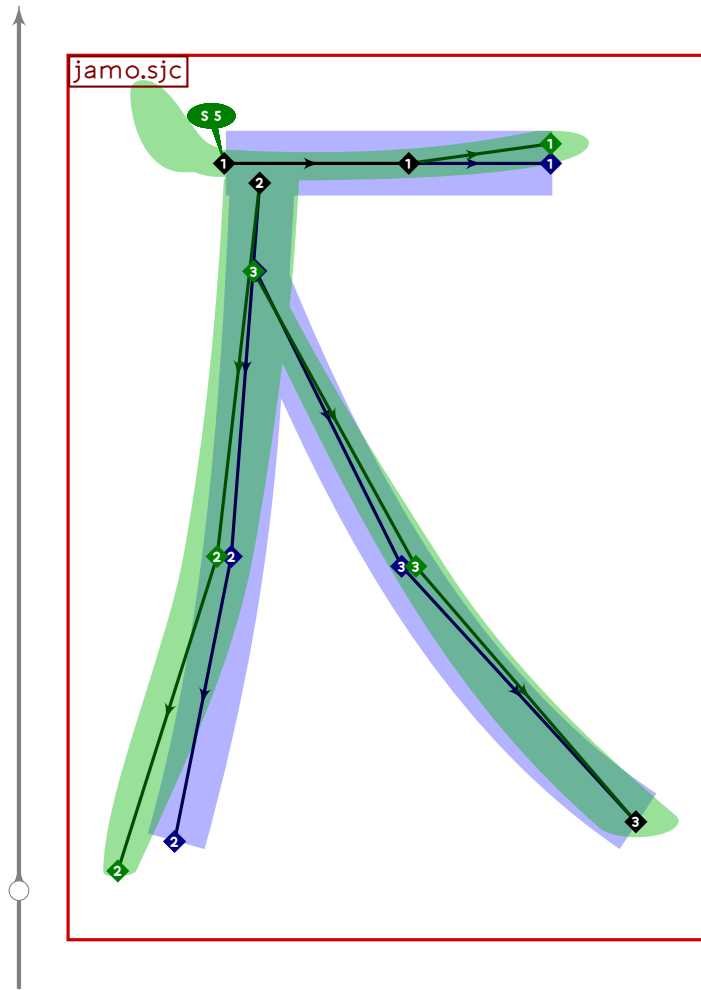


```

532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.14",79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endtsuglyph;
537

```

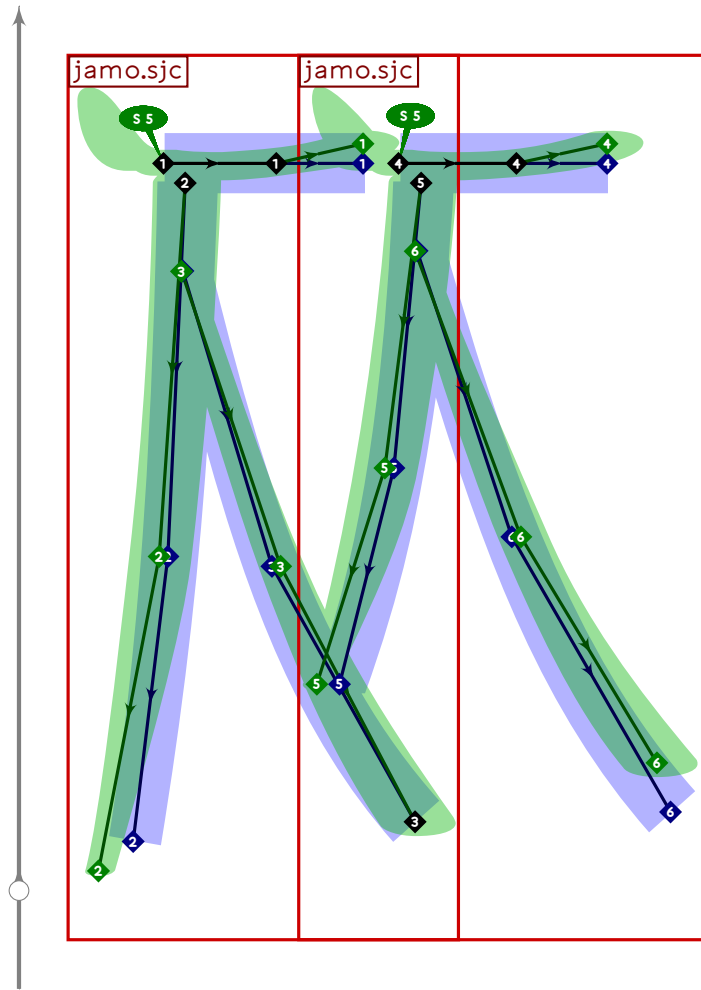




```

538 % hangul lead ceongchieumcieuc
539 begint Suglyph("uni1150.l4";80);
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
541 tsu_render;
542 endtsuglyph;
543

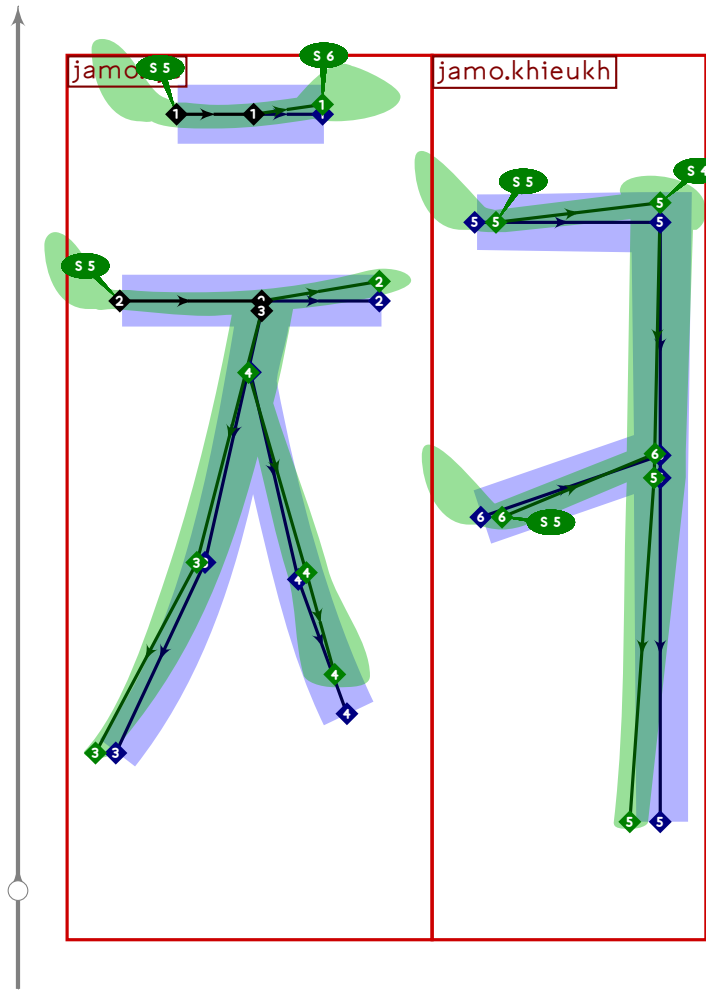
```



```

544 % hangul lead ceongchieumssangcieuc
545 begintsuglyph("uni1151.l4",81);
546 hangul.combine.lr(228,229)(whatever,lxf,lxf);
547 tsu_render;
548 endtsuglyph;
549

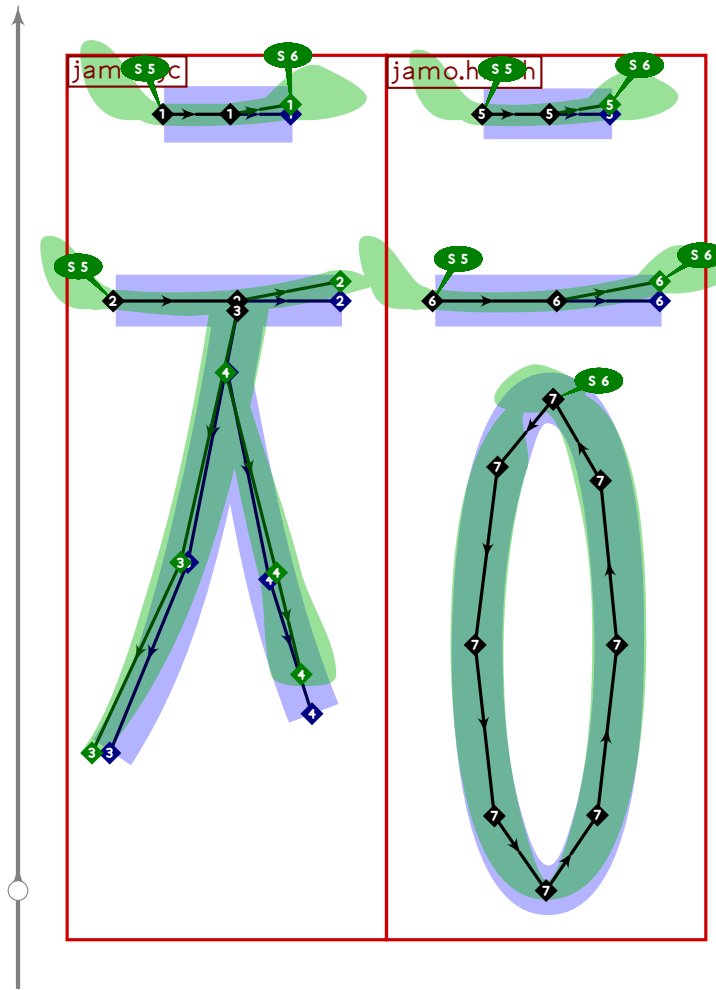
```



```

550 % hangul lead chieuch-khieukh
551 begint Suglyph("uni1152.l4";82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endtsuglyph;
555

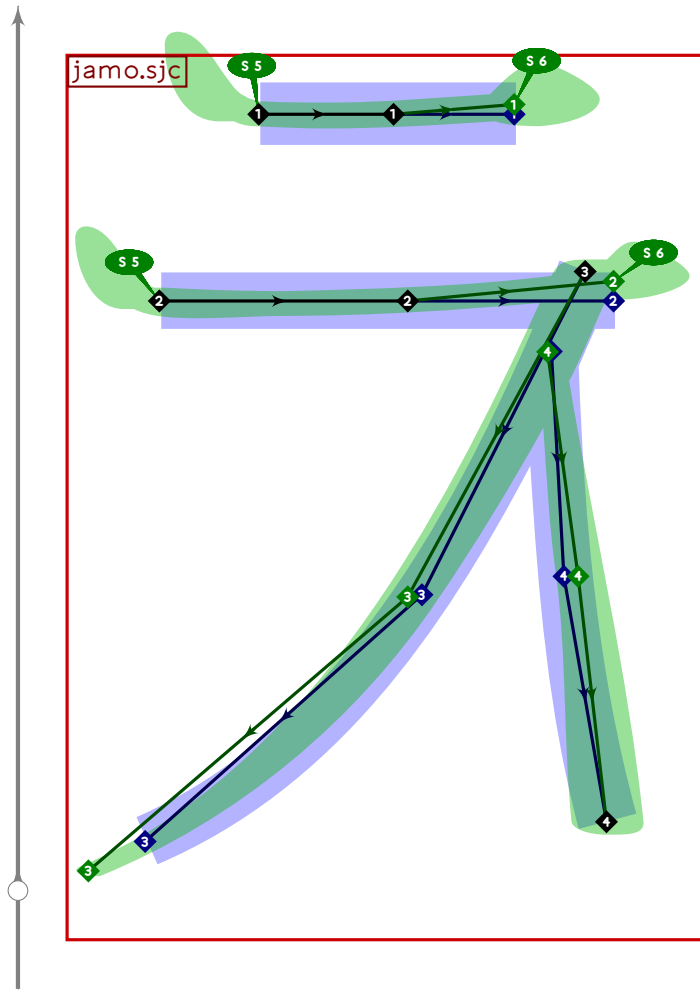
```



```

556 % hangul lead chieuch-hieuh
557 begintsuglyph("uni1153.l4",83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endtsuglyph;
561

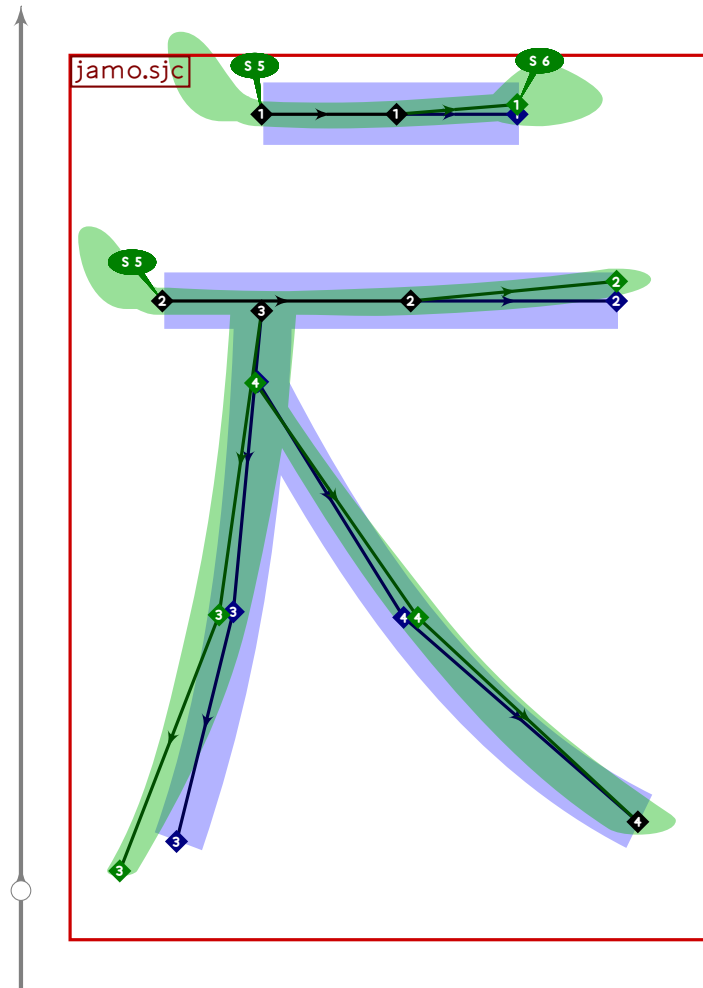
```



```

562 % hangul lead chitueumcieuc
563 begint Suglyph("uni1154.14",84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endtsuglyph;
567

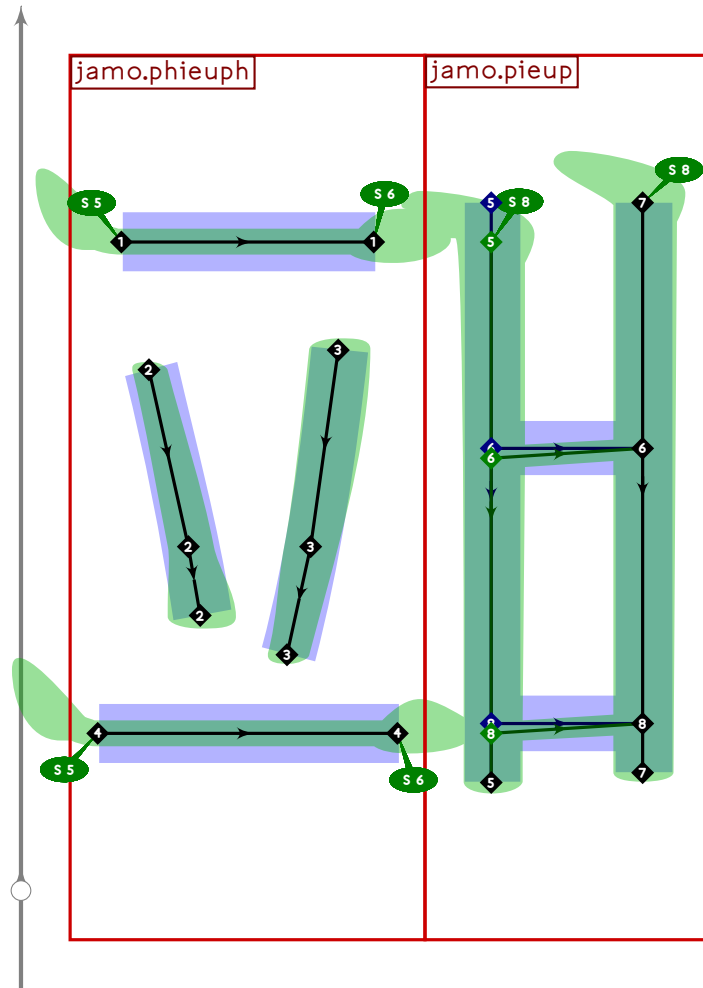
```



```

568 % hangul lead ceongchieumcieuc
569 begint Suglyph("uni1155.l4",85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endtsuglyph;
573

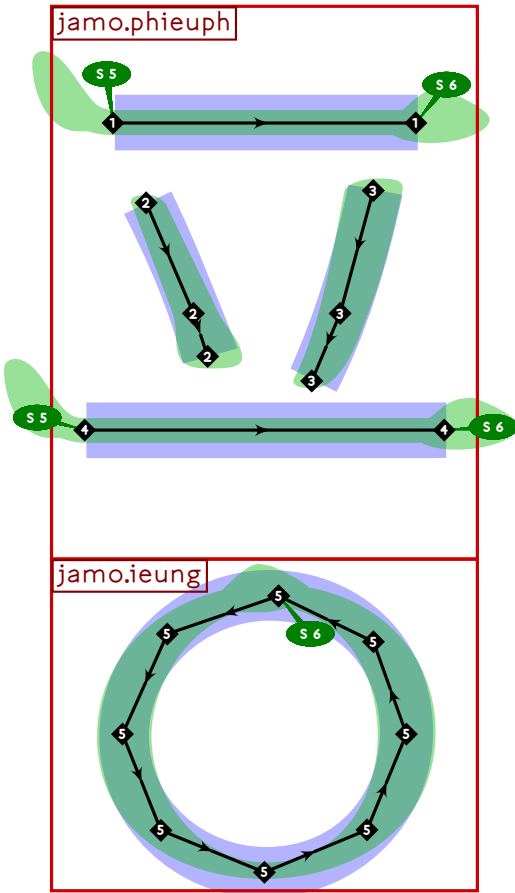
```



```

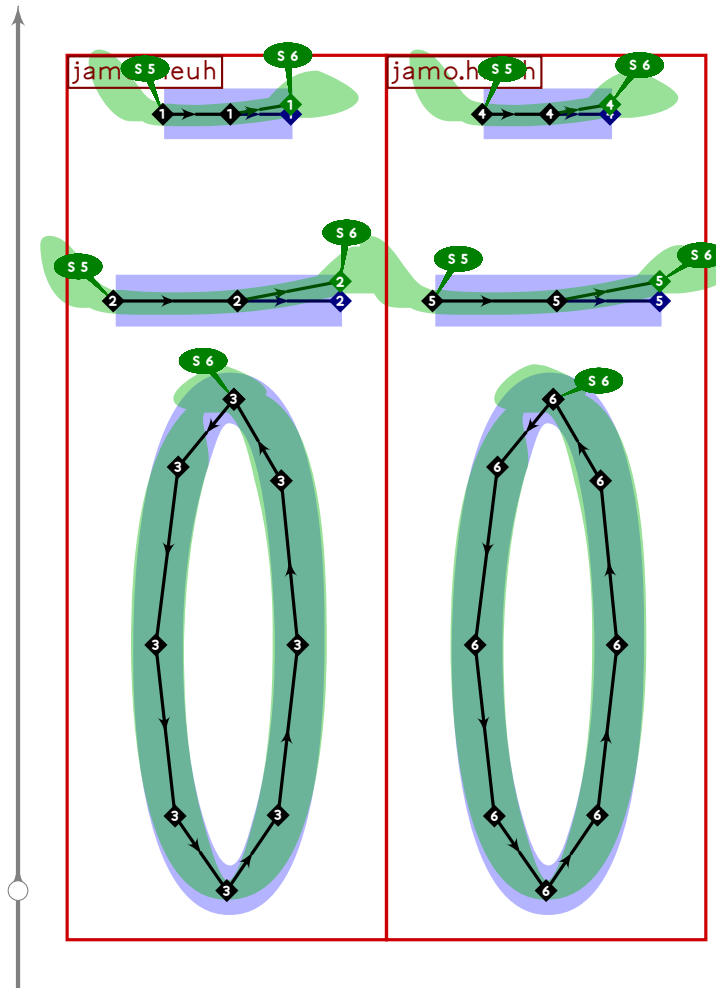
574 % hangul lead phieup-pieup
575 begintsuglyph("uni1156.l4";86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endtsuglyph;
579

```



```
580 % hangul lead kapyeounphieuph
581 begint Suglyph("uni1157.14",87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endtsuglyph;
586
```

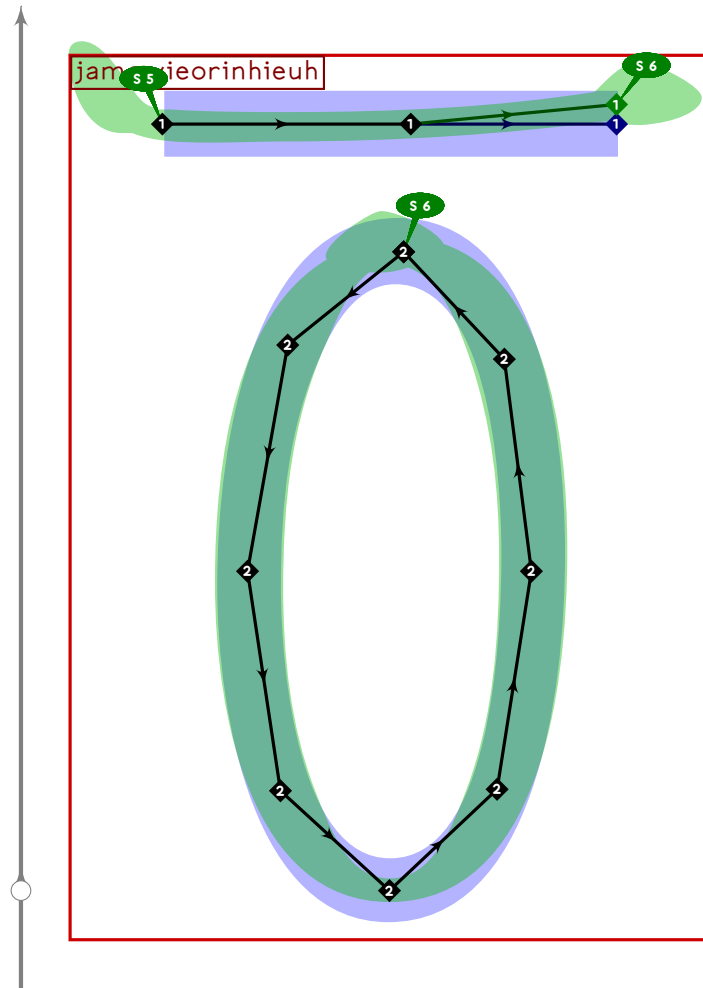




```

587 % hangul lead ssanghieuh
588 begintsuglyph("uni1158.l4";88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endtsuglyph;
592

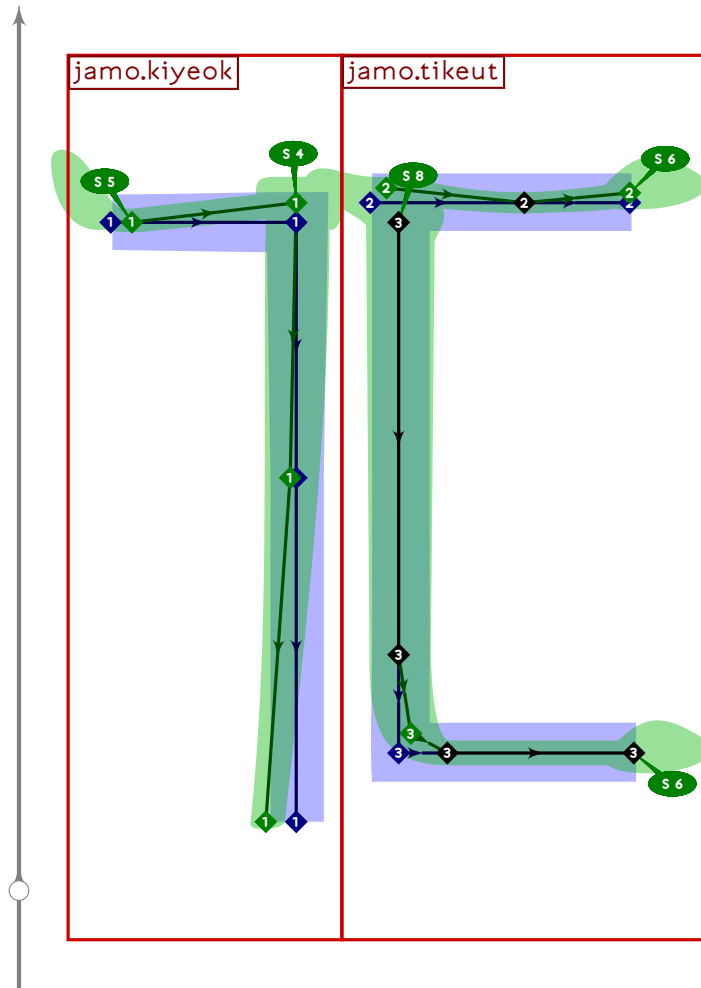
```



```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.l4",89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endtsuglyph;
598

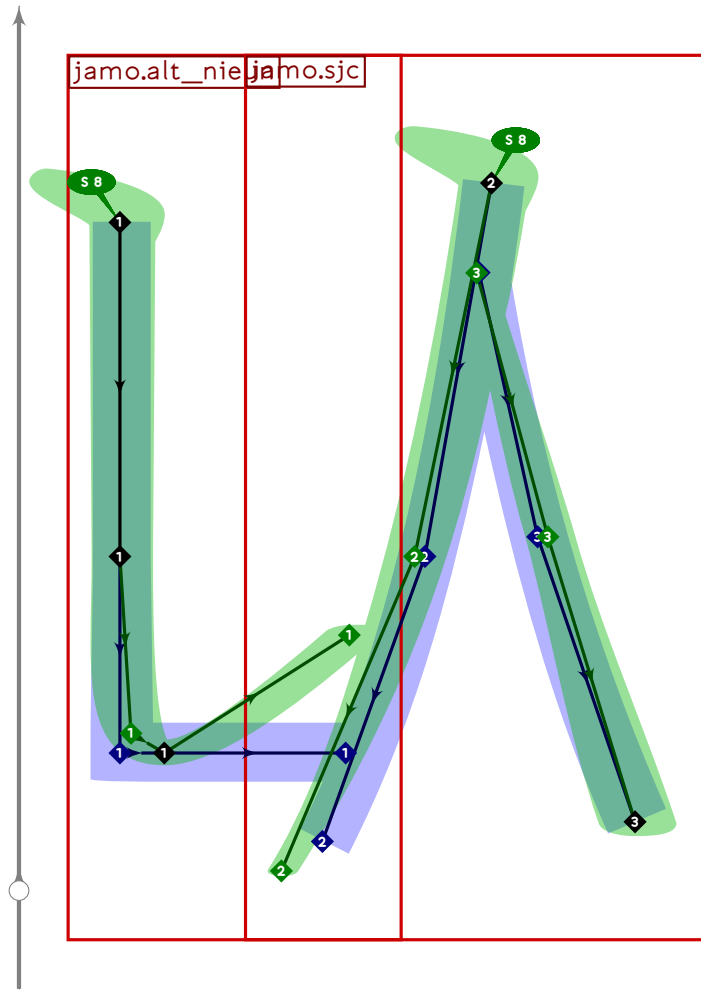
```



```

599 % hangul lead kiyeok-tikeut
600 begintsuglyph("uni115A.l4";90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endtsuglyph;
604

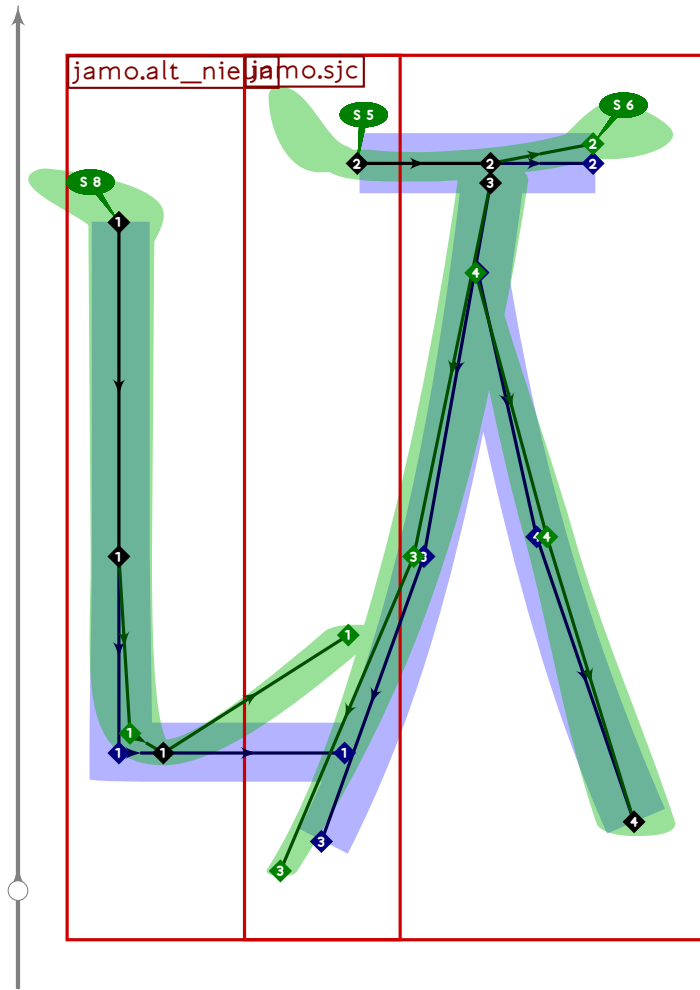
```



```

605 % hangul lead nieun-sios
606 begintsuglyph("uni115B.l4";91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endtsuglyph;
610

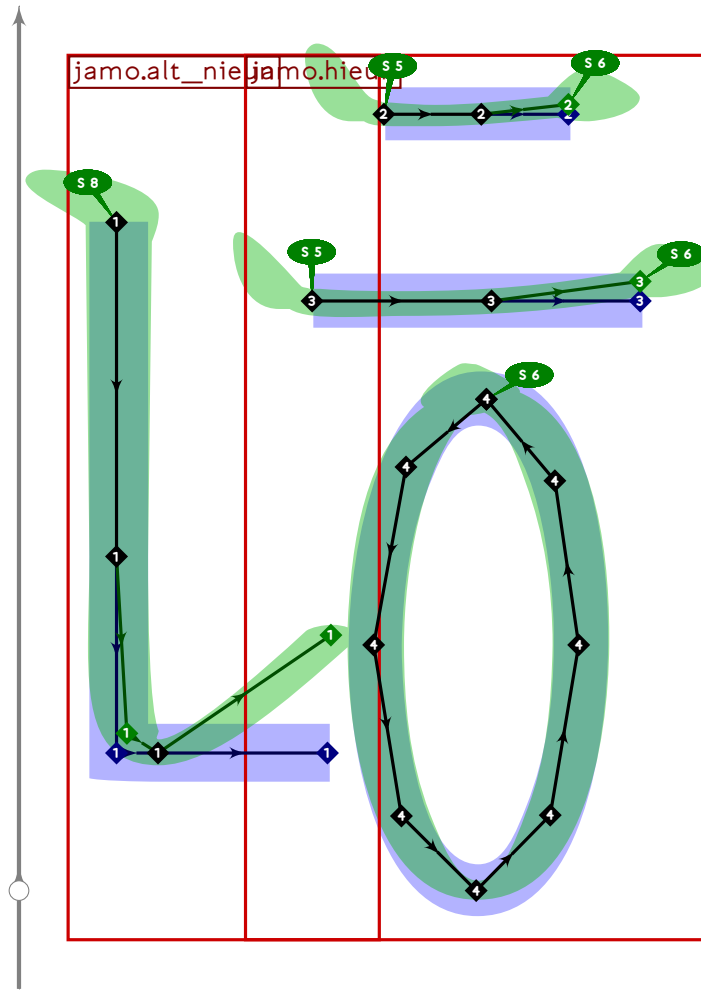
```



```

611 % hangul lead nieun-cieuc
612 begintsuglyph("uni115C.l4";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endtsuglyph;
616

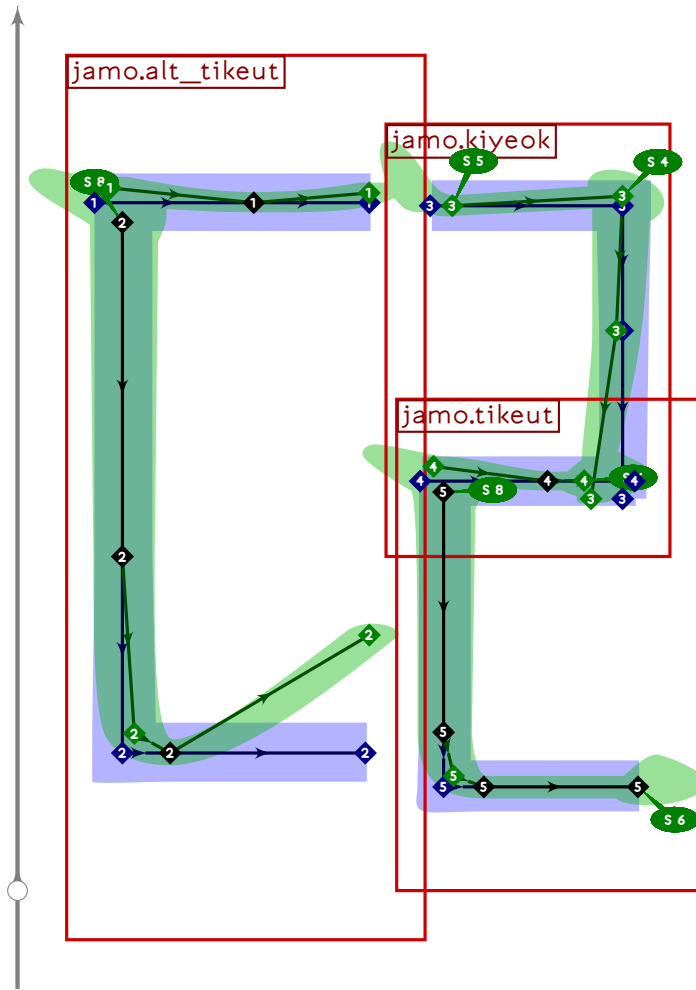
```



```

617 % hangul lead nieun-hieuh
618 begintuglyph("uni115D.l4";93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endtsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 begintsuglyph("uni115E.l4";94);
625 hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 tsu_render;
627 endtsuglyph;
628
629 _____
630
631 endfont;
632
633 _____

```

# jieub-ff6.mp

```
1 %
2 % Unicode page FF6 (alternate lead jamo) for Jieubsida
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 beginfont
34
35 % AUTODEPS
36 input hangul.mp;
37 input jamo-basic.mp;
38 input jamo-extra.mp;
39
40 

---


41
42 % This file contains leads for layout 5: horizontal vowel and empty tail.
43
44 transform lixf,loxf;
45
46 lixf=loxf=hxf((50,850),(950,325));
47
48 

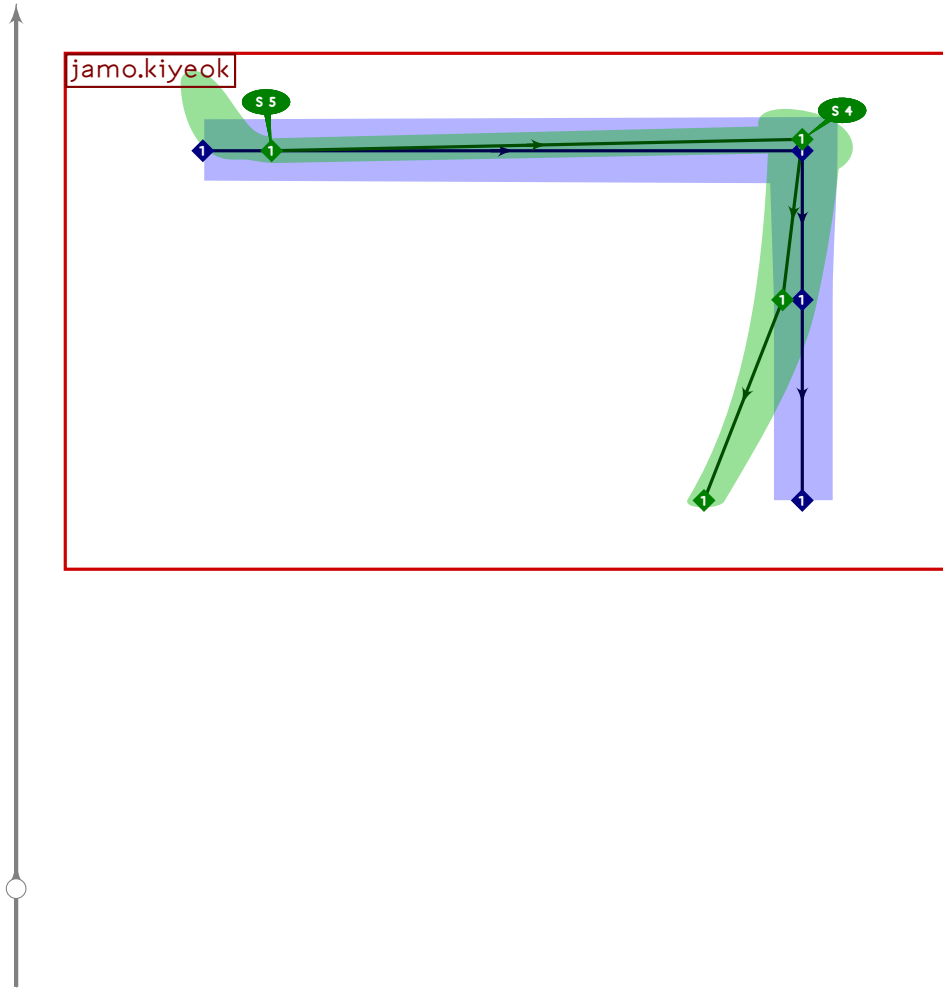
---


49
```

## Hangul Choseong (Lead) Jamo

```
50 % HANGUL CHOSEONG (LEAD) JAMO
51
52 tsu_rescale_native_zero;
53
```

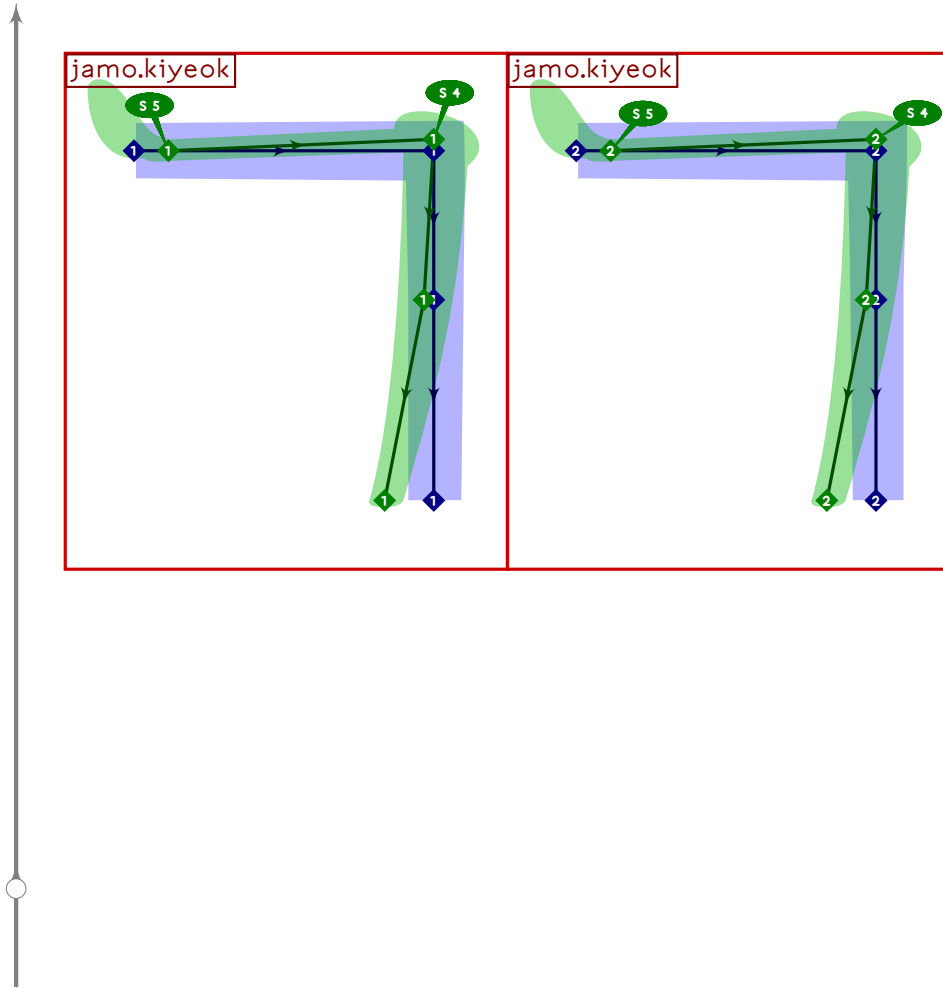




```

54 % hangul lead kiyeok
55 begint Suglyph("uni1100.15"0);
56 hangul,jamo.kiyeok(whatever,lixf,loxf);
57 tsu_render;
58 endtsuglyph;
59

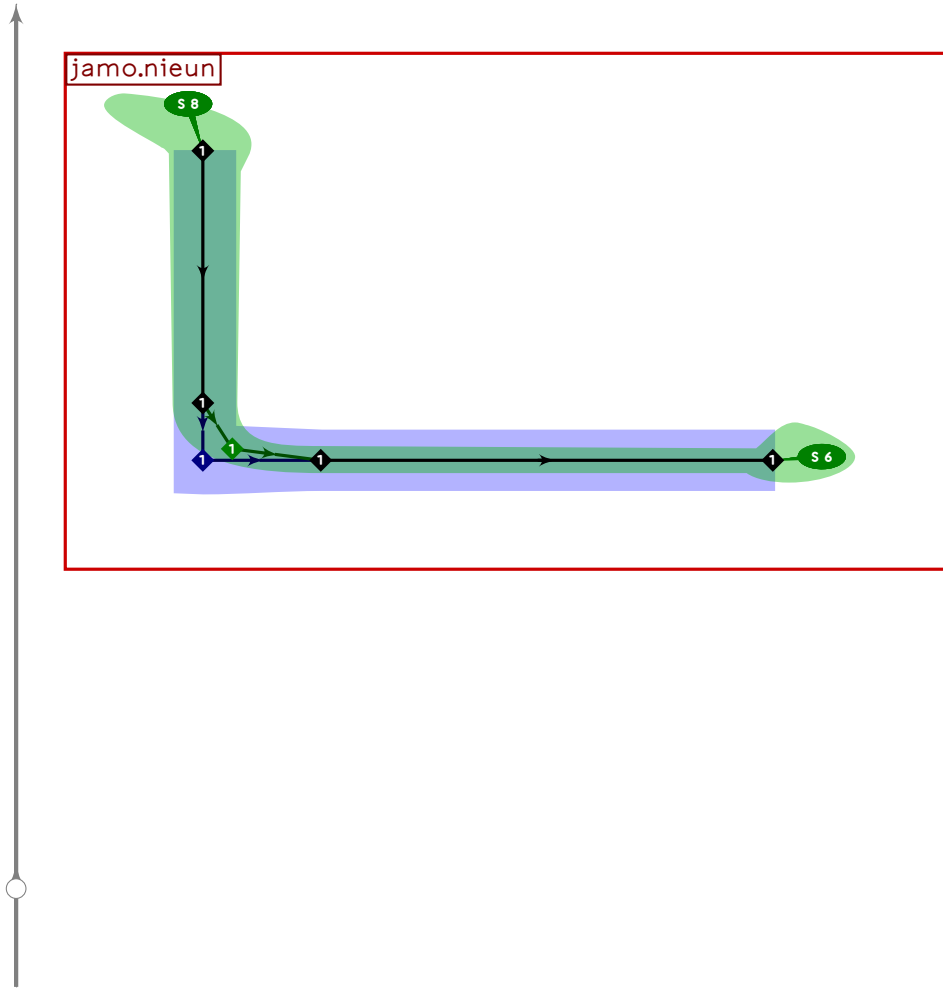
```



```

60 % hangul lead ssangkiyeok
61 begintuglyph("uni1101.15",1);
62 hangul.combine.lr(100,100)(whatever,lixf,loxf);
63 tsu_render;
64 endtsuglyph;
65

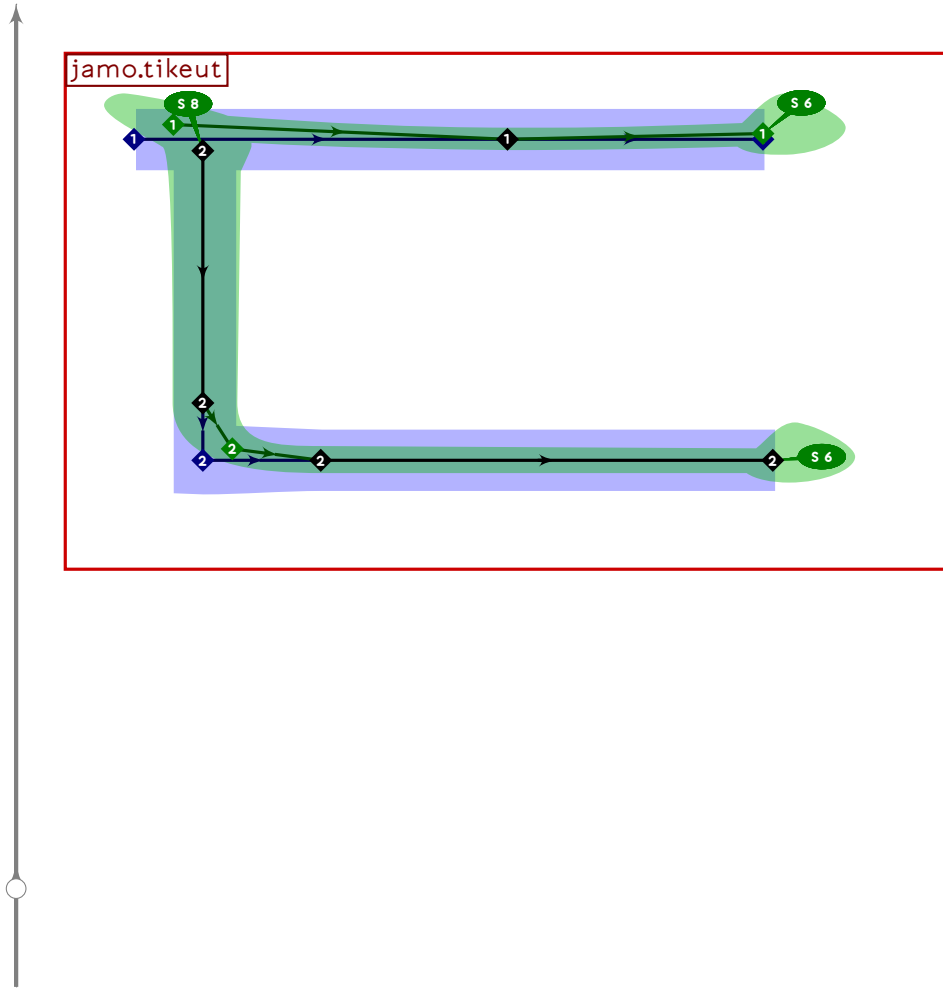
```



```

66 % hangul lead nieun
67 begint Suglyph("uni1102.15";2);
68 hangul,jamo.nieun(whatever,lixf,loxf);
69 tsu_render;
70 endtsuglyph;
71

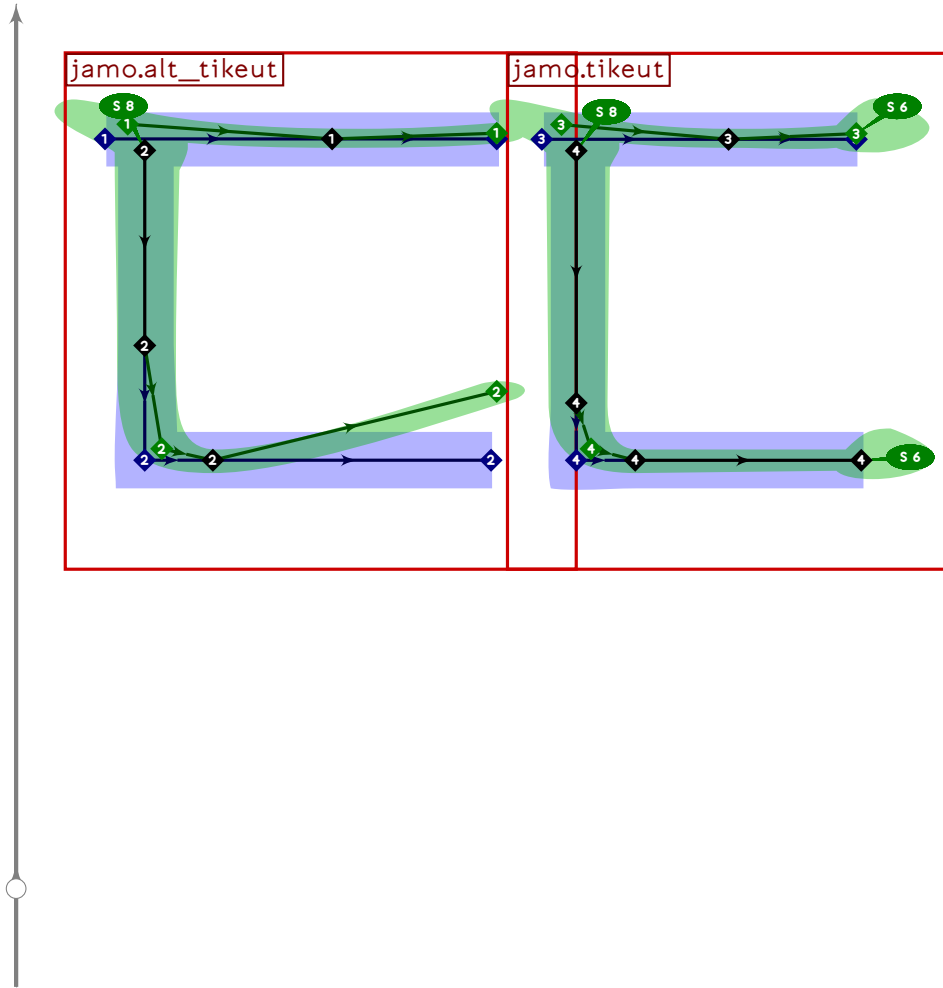
```



```

72 % hangul lead tikeut
73 begintsuglyph("uni1103.l5",3);
74 hangul.jamo.tikeut(whatever,lixf,loxf);
75 tsu_render;
76 endtsuglyph;
77

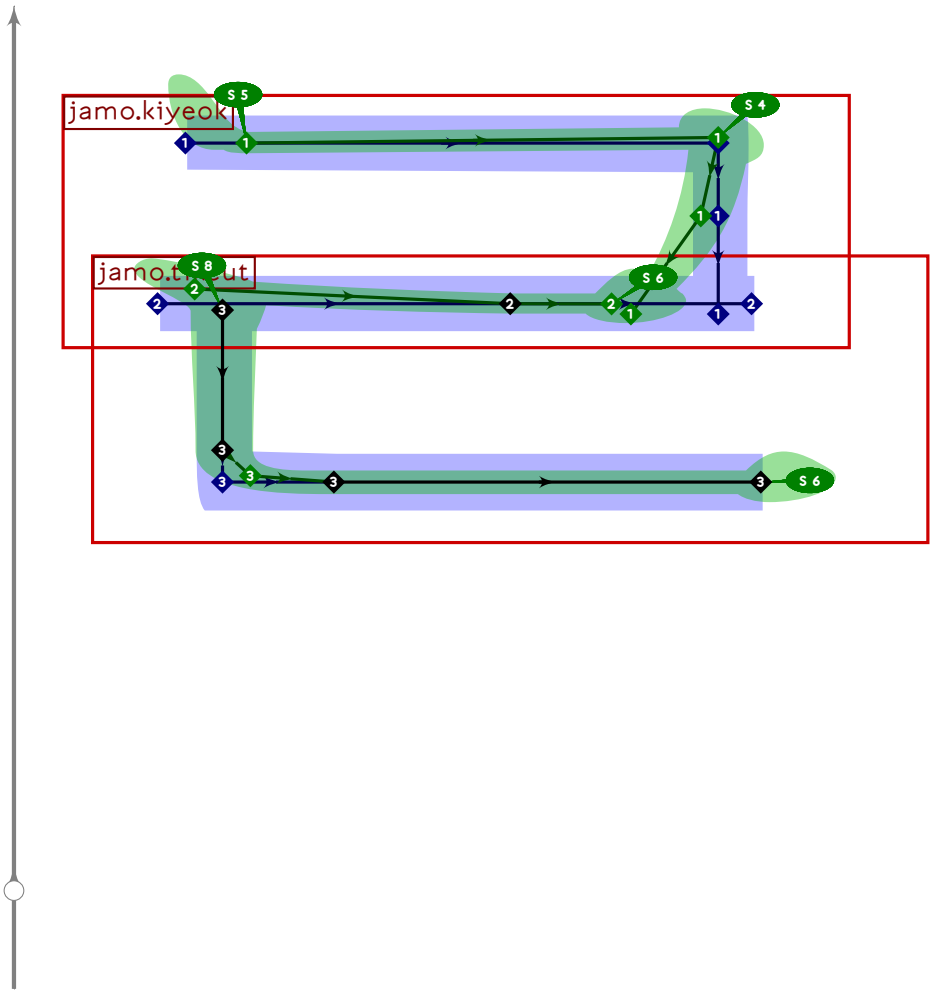
```



```

78 % hangul lead ssangtikeut
79 begint Suglyph("uni1104.15"4);
80 hangul.combine.lf(203,103)(whatever,lixf,loxf);
81 tsu_render;
82 endtsuglyph;
83

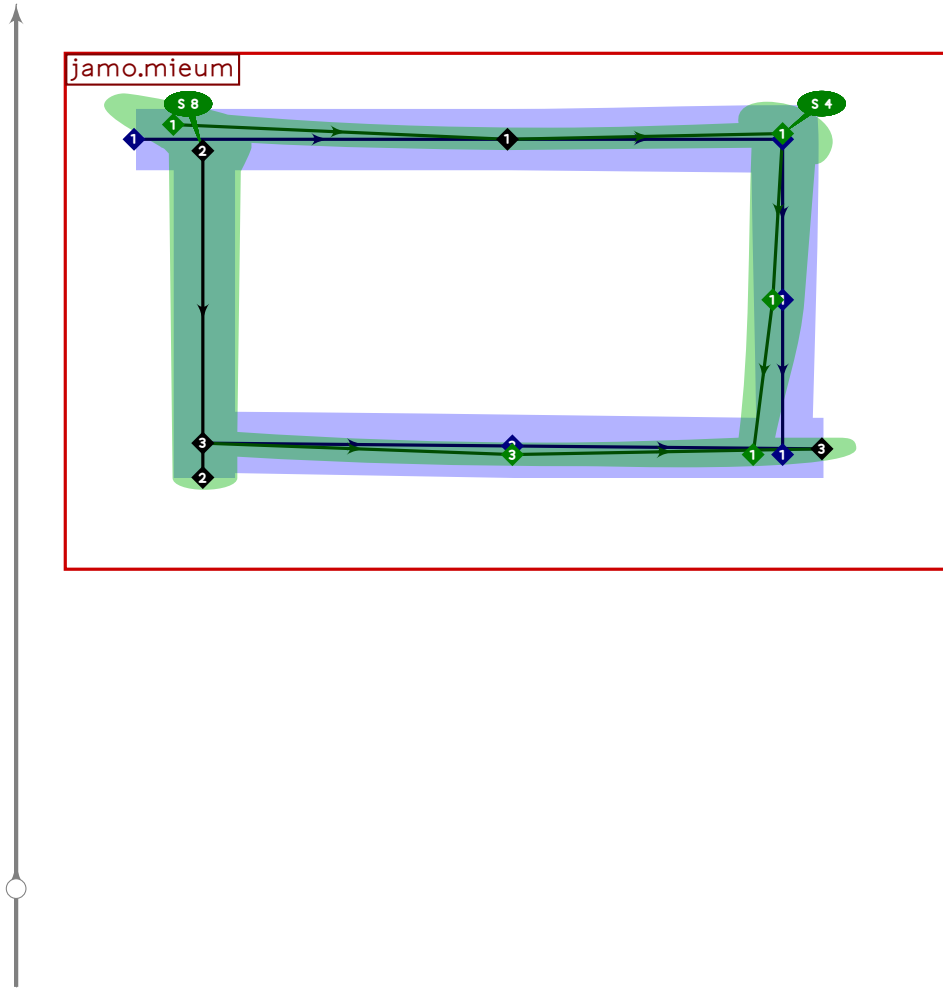
```



```

84 % hangul lead rieul
85 begint Suglyph("uni1105.l5";5);
86 hangul.jamo.rieul(whatever,lixf,loxf);
87 tsu_render;
88 endtsuglyph;
89

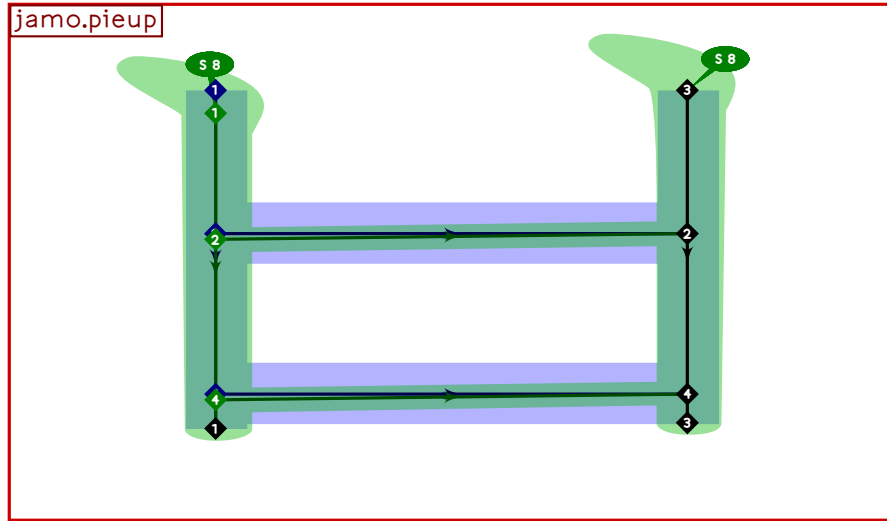
```



```

90 % hangul lead mieum
91 begint Suglyph("uni1106.15",6);
92 hangul.jamo.mieum(whatever,lixf,loxf);
93 tsu_render;
94 endtsuglyph;
95

```

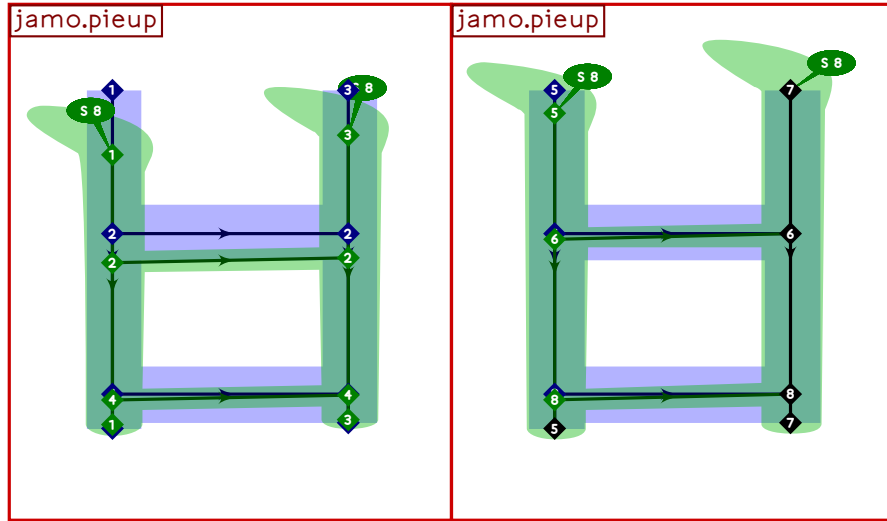


```

96 % hangul lead pieup
97 begintsuglyph("uni1107.15",7);
98 hangul.jamo.pieup(whatever,lixf,loxf);
99 tsu_render;
100 endtsuglyph;
101

```

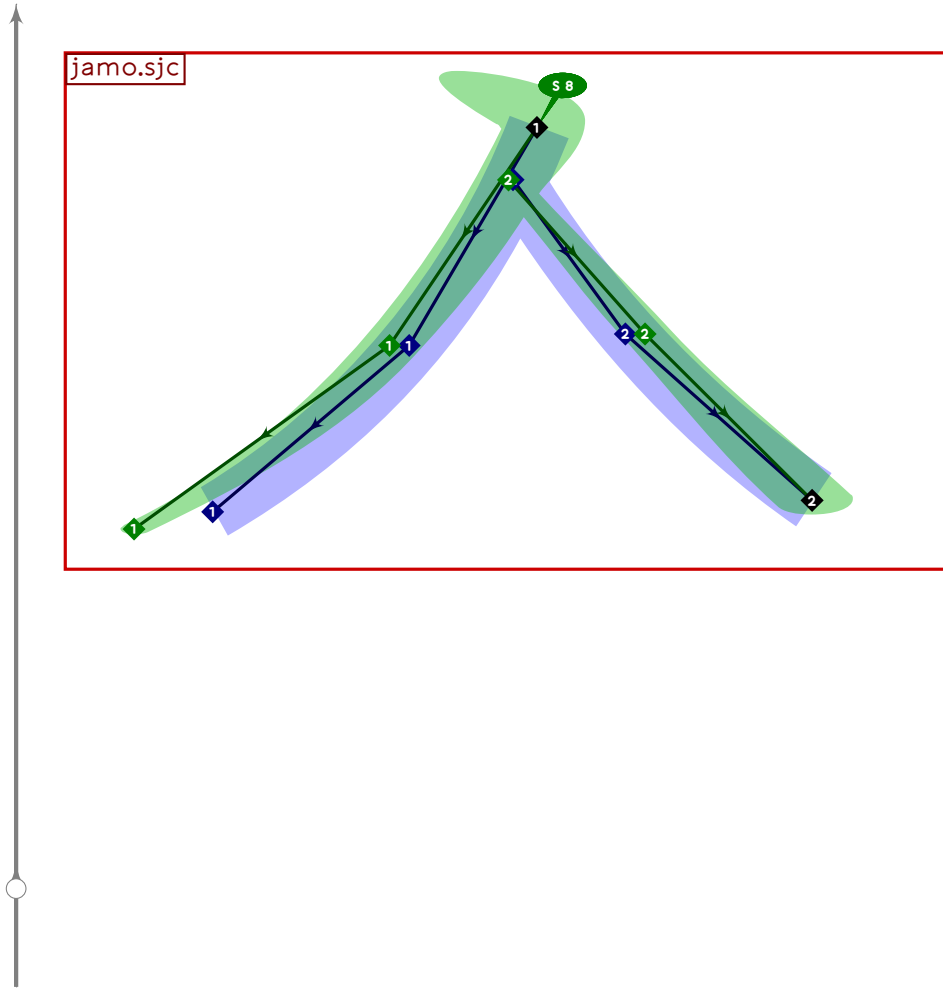




```

102 % hangul lead ssangpieup
103 begint Suglyph("uni1108.15";8);
104 hangul.combine.lr(207,107)(whatever,lixf,loxf);
105 tsu_render;
106 endtsuglyph;
107

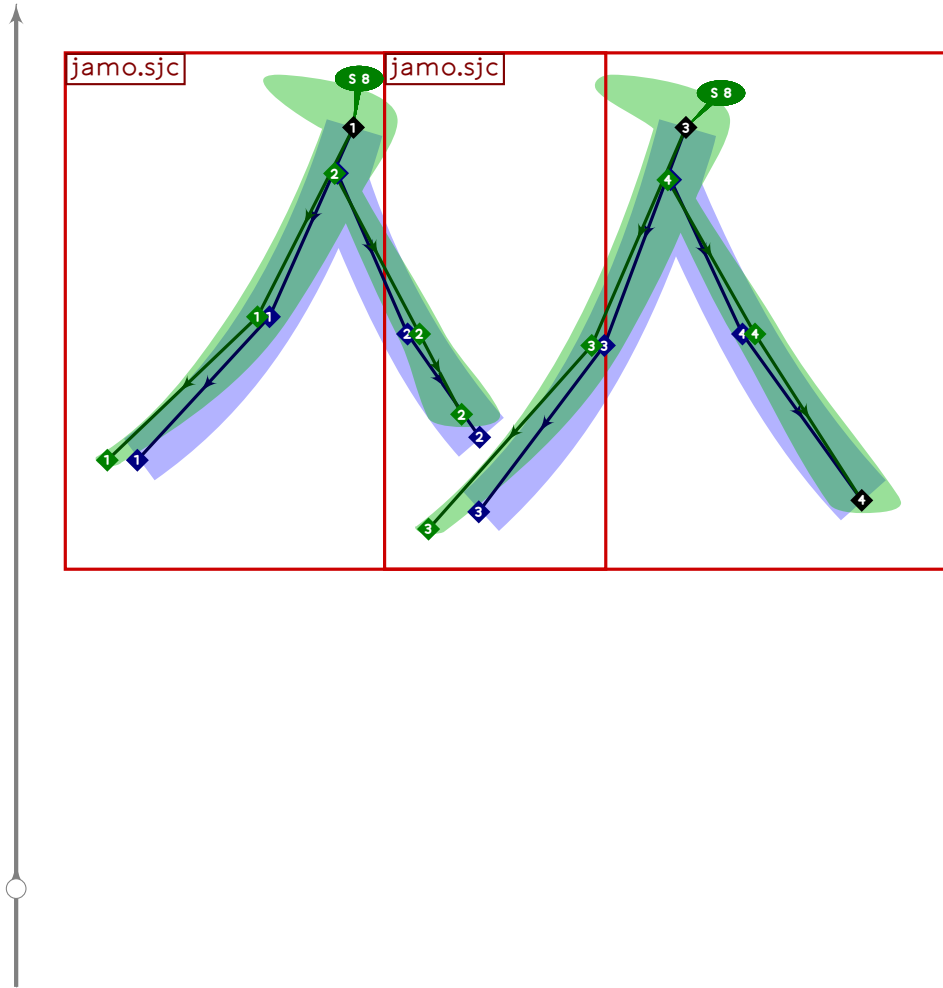
```



```

108 % hangul lead sios
109 begint Suglyph("uni1109.l5"9);
110 hangul.jamo.sjc(0,0,false)(whatever,lixf,loxf);
111 tsu_render;
112 endtsuglyph;
113

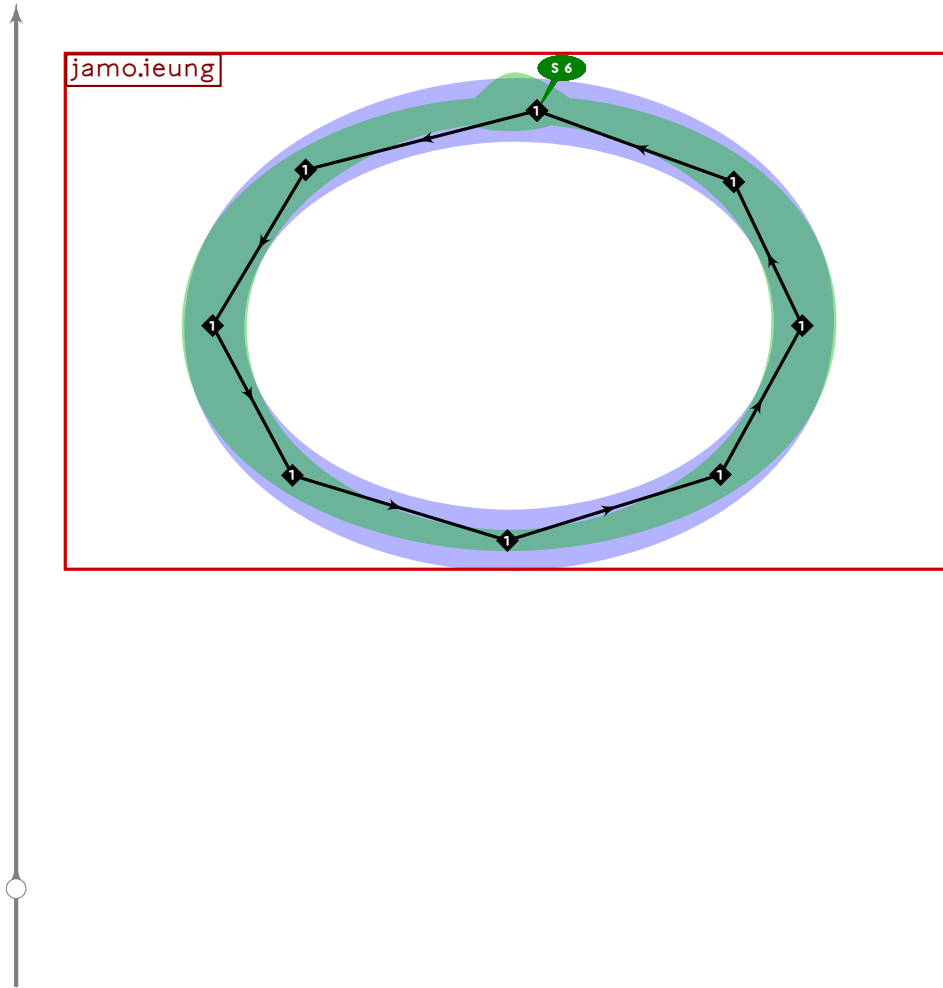
```



```

114 % hangul lead ssangsios
115 begint Suglyph("uni110A.15",10);
116 hangul.combine.lr(209,109)(whatever,lixf,loxf);
117 tsu_render;
118 endtsuglyph;
119

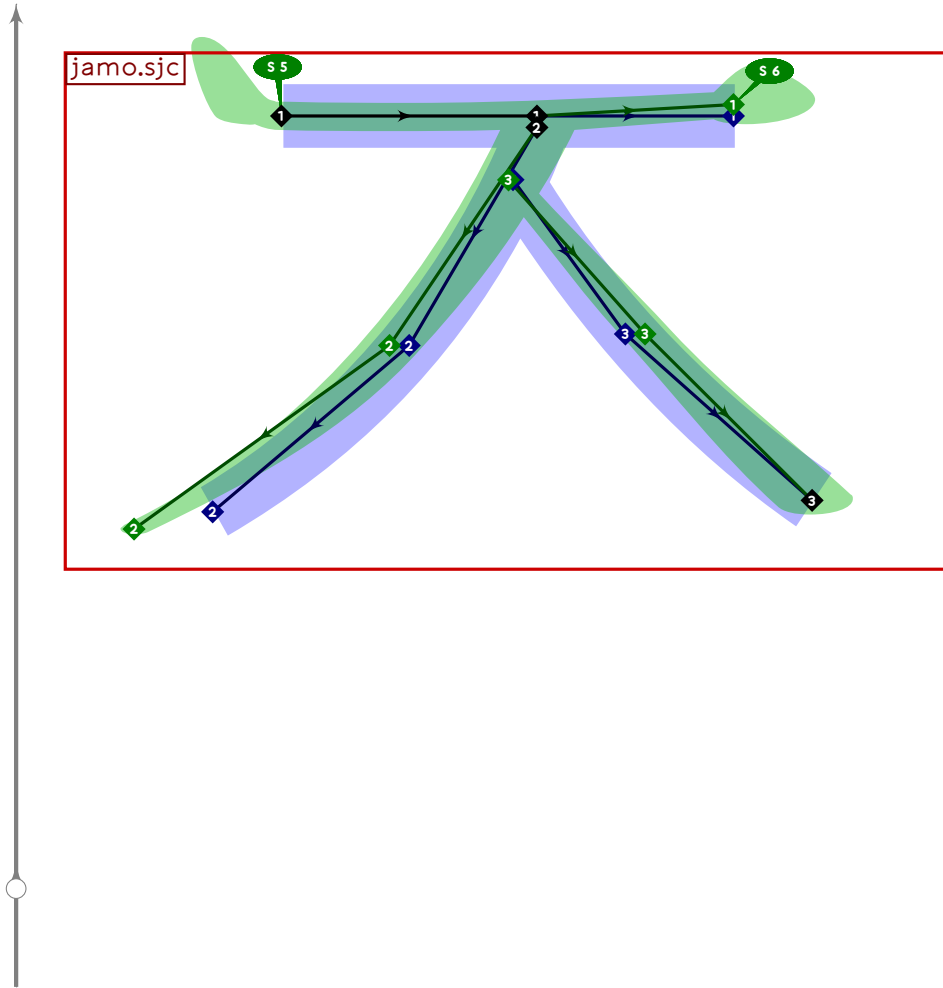
```



```

120 % hangul lead ieung
121 begintsuglyph("uni110B.15",11);
122 hangul,jamo.ieung(whatever,lixf,loxf);
123 tsu_render;
124 endtsuglyph;
125

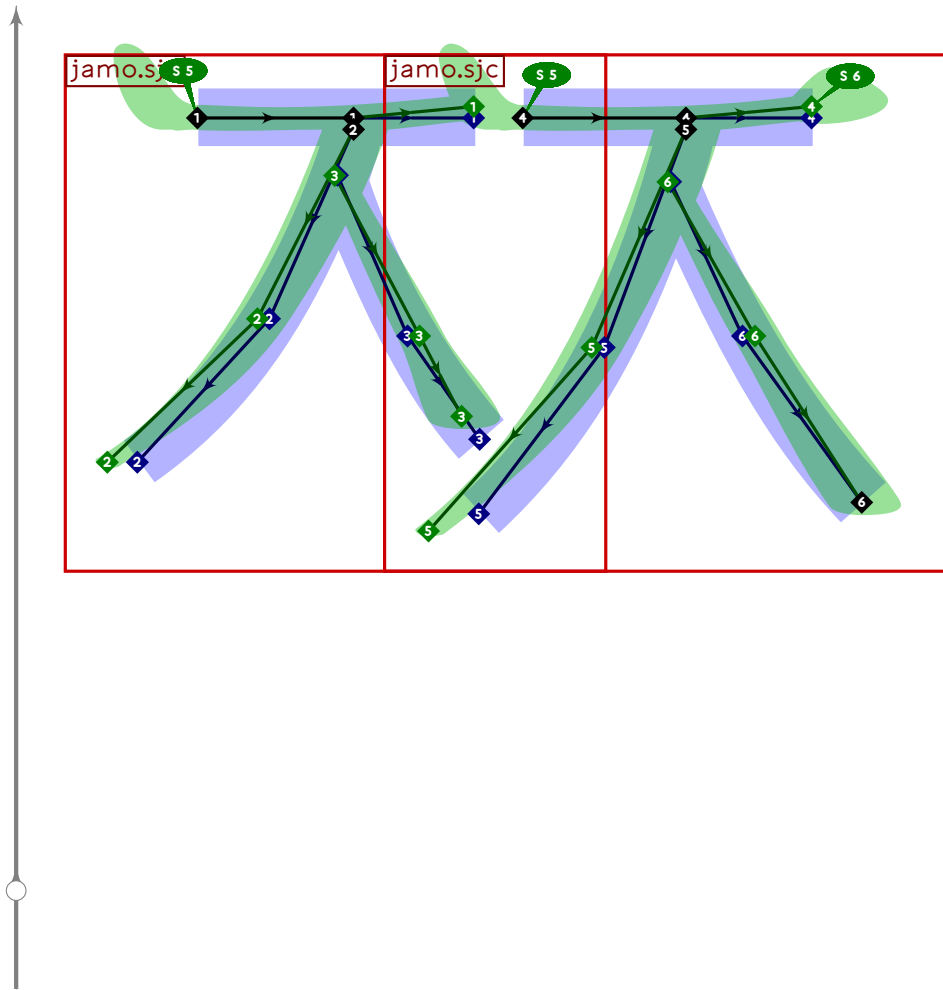
```



```

126 % hangul lead cieuc
127 begint Suglyph("uni110C.15",12);
128 hangul.jamo.sjc(1,0,false)(whatever,lixf,loxf);
129 tsu_render;
130 endtsuglyph;
131

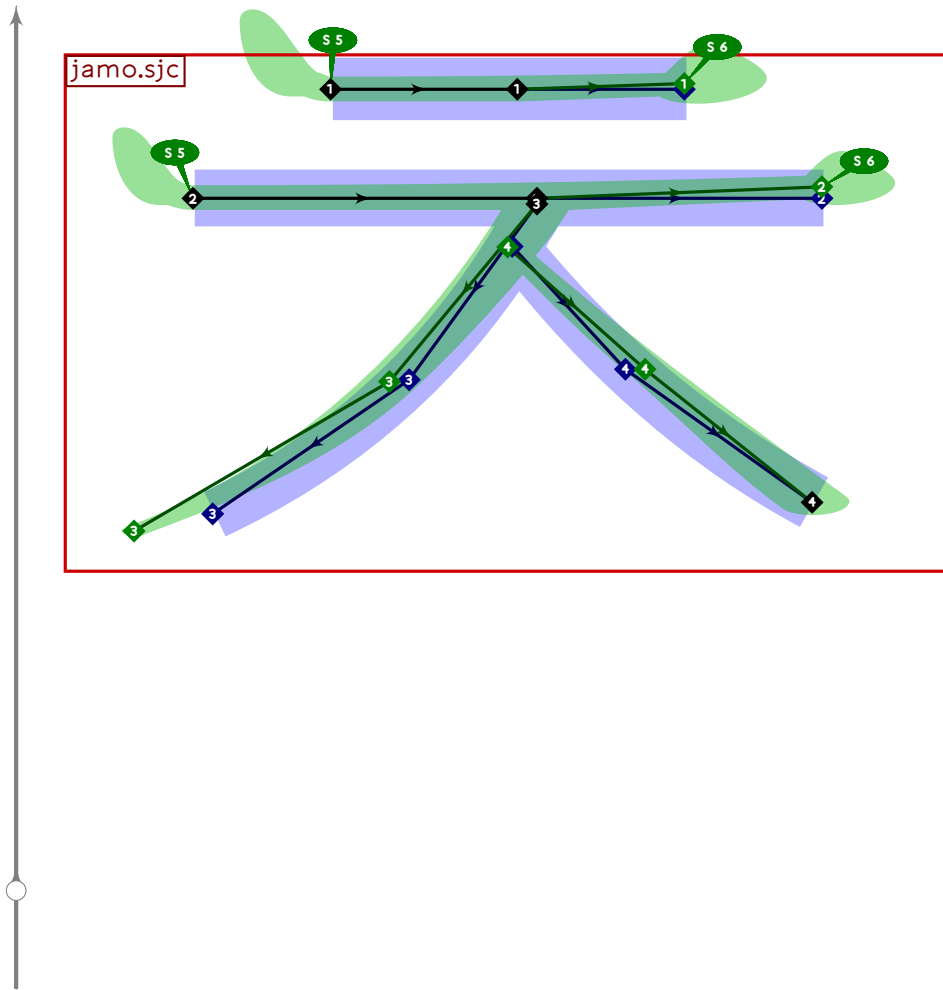
```



```

132 % hangul lead ssangcieuc
133 begintsuglyph("uni110D.15",13);
134 hangul.combine.lr(212,112)(whatever,lixf,loxf);
135 tsu_render;
136 endtsuglyph;
137

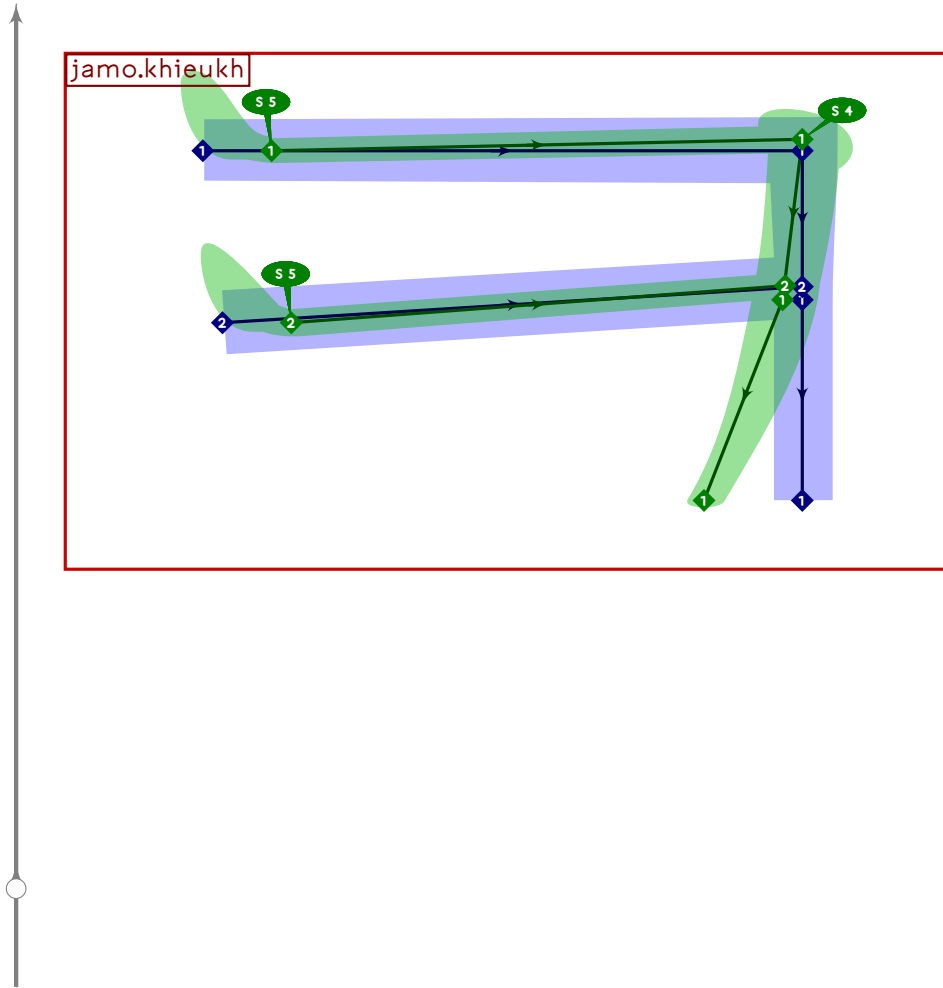
```



```

138 % hangul lead chieuch
139 begint Suglyph("uni110E.15",14);
140 hangul.jamo.sjc(2,0,false)(whatever,lif,loxf);
141 tsu_render;
142 endtsuglyph;
143

```

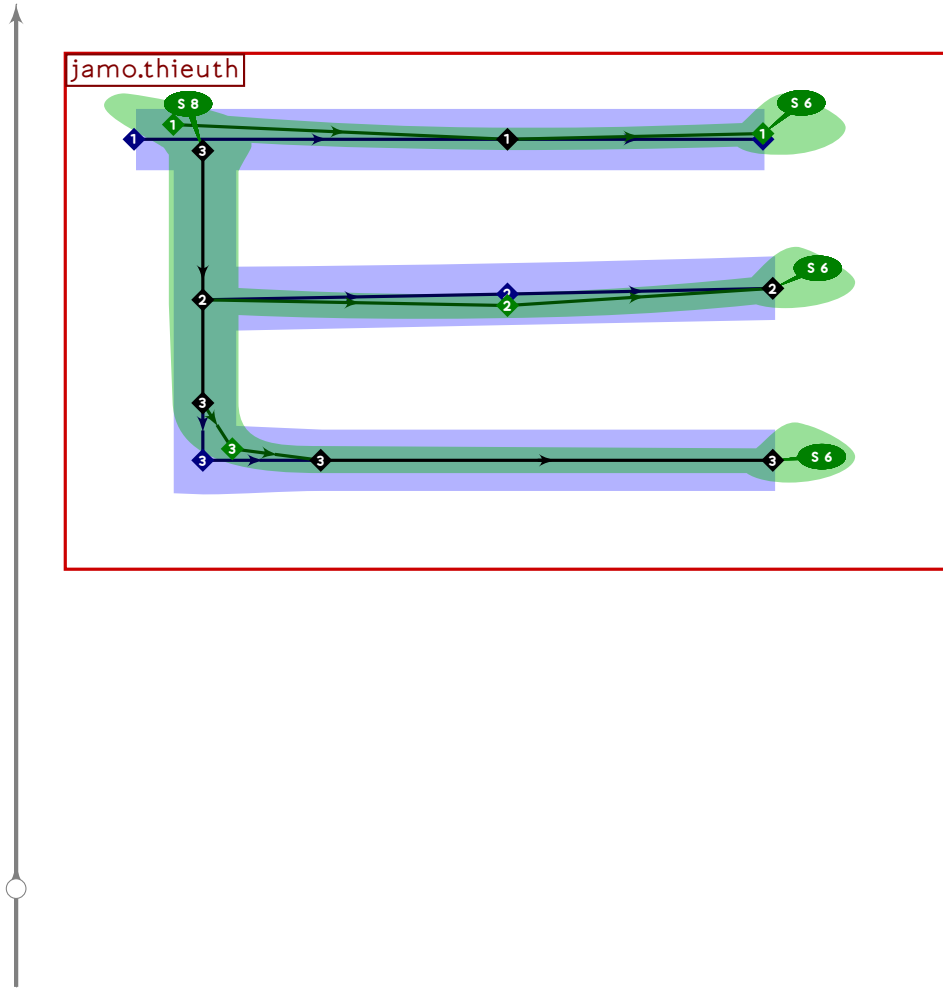


```

144 % hangul lead khieukh
145 begint Suglyph("uni110F.15";15);
146 hangul,jamo.khieukh(whatever,lixf,loxf);
147 tsu_render;
148 endtsuglyph;
149

```

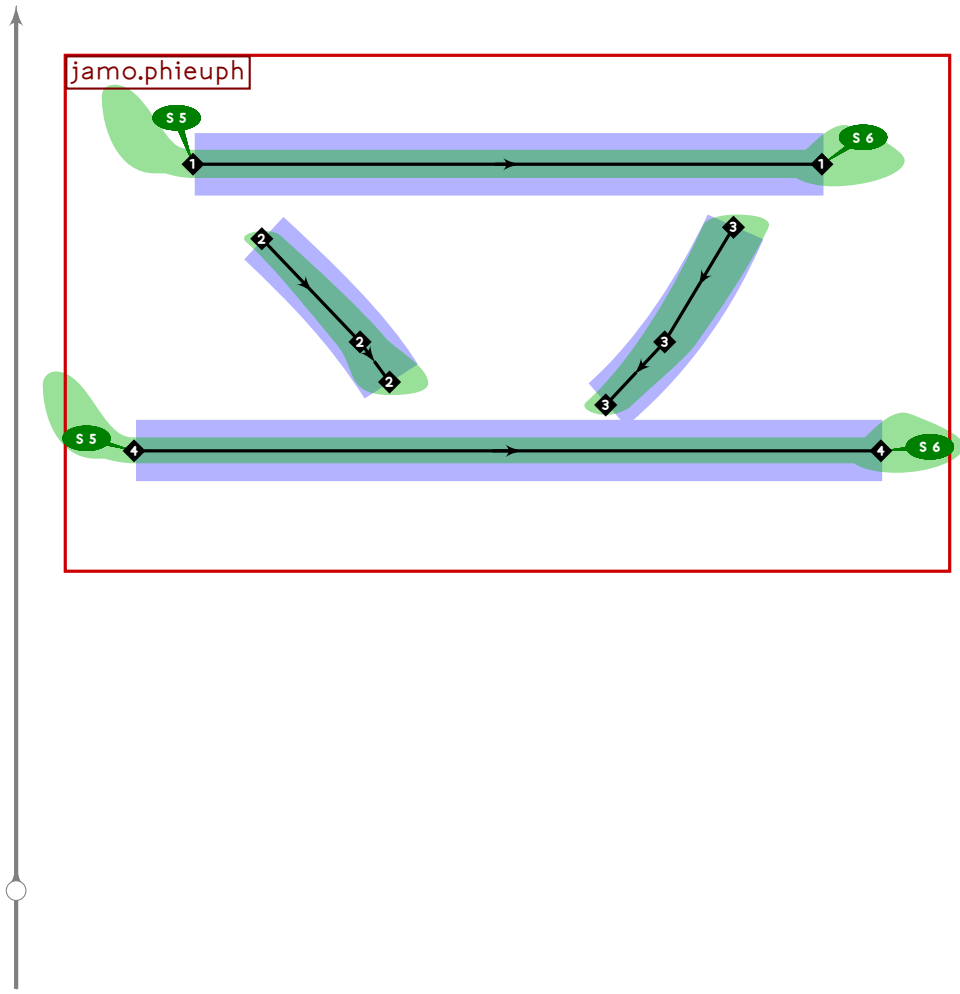




```

150 % hangul lead thieuth
151 begintsuglyph("uni1110.15",16);
152 hangul.jamo.thieuth(whatever,lixf,loxf);
153 tsu_render;
154 endtsuglyph;
155

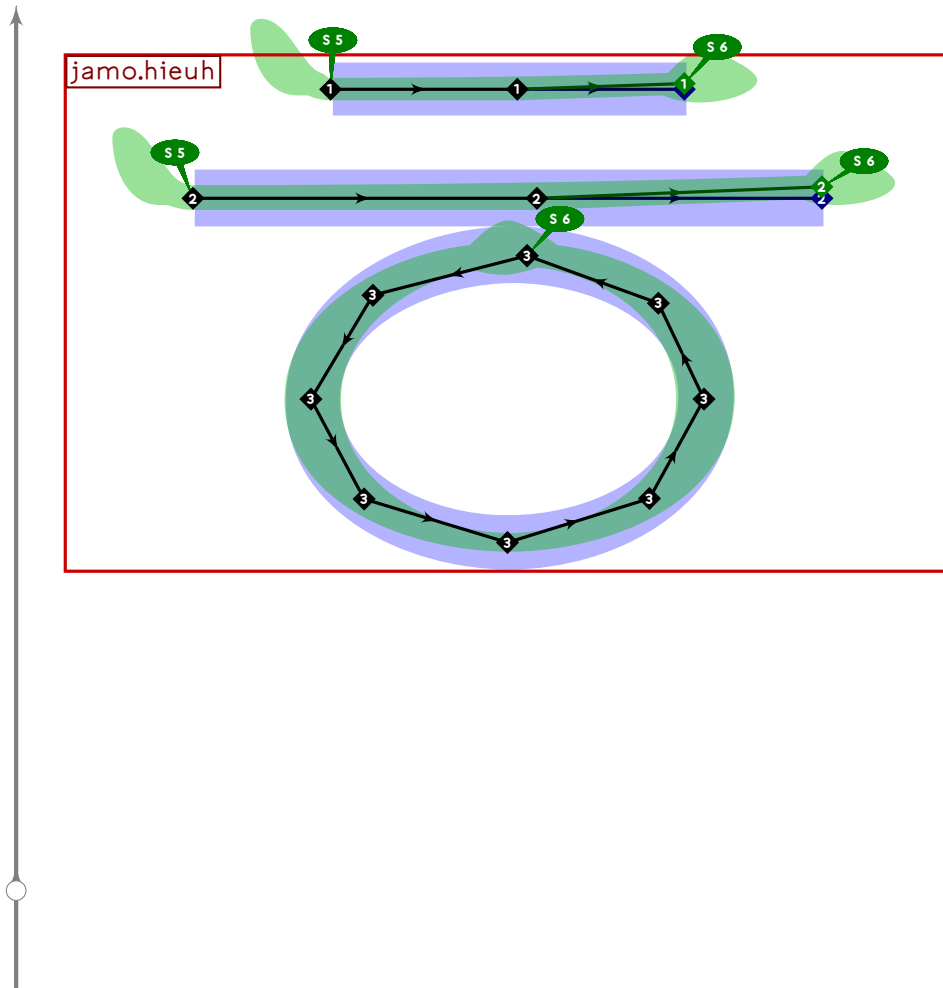
```



```

156 % hangul lead phieuph
157 begint Suglyph("uni1111.15",17);
158 hangul,jamo.phieuph(whatever,lixf,loxf);
159 tsu_render;
160 endtsuglyph;
161

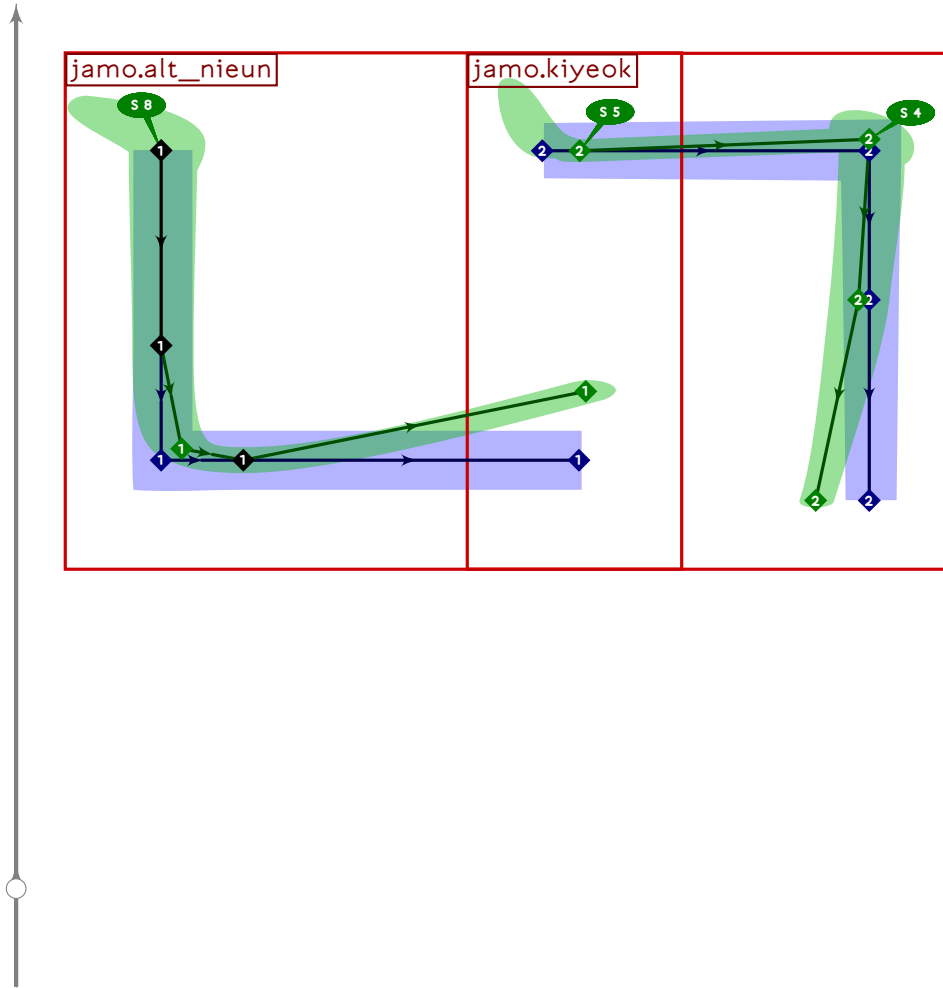
```



```

162 % hangul lead hieuh
163 begintsuglyph("uni1112.15",18);
164 hangul,jamo.hieuh(whatever,lixf,loxf);
165 tsu_render;
166 endtsuglyph;
167

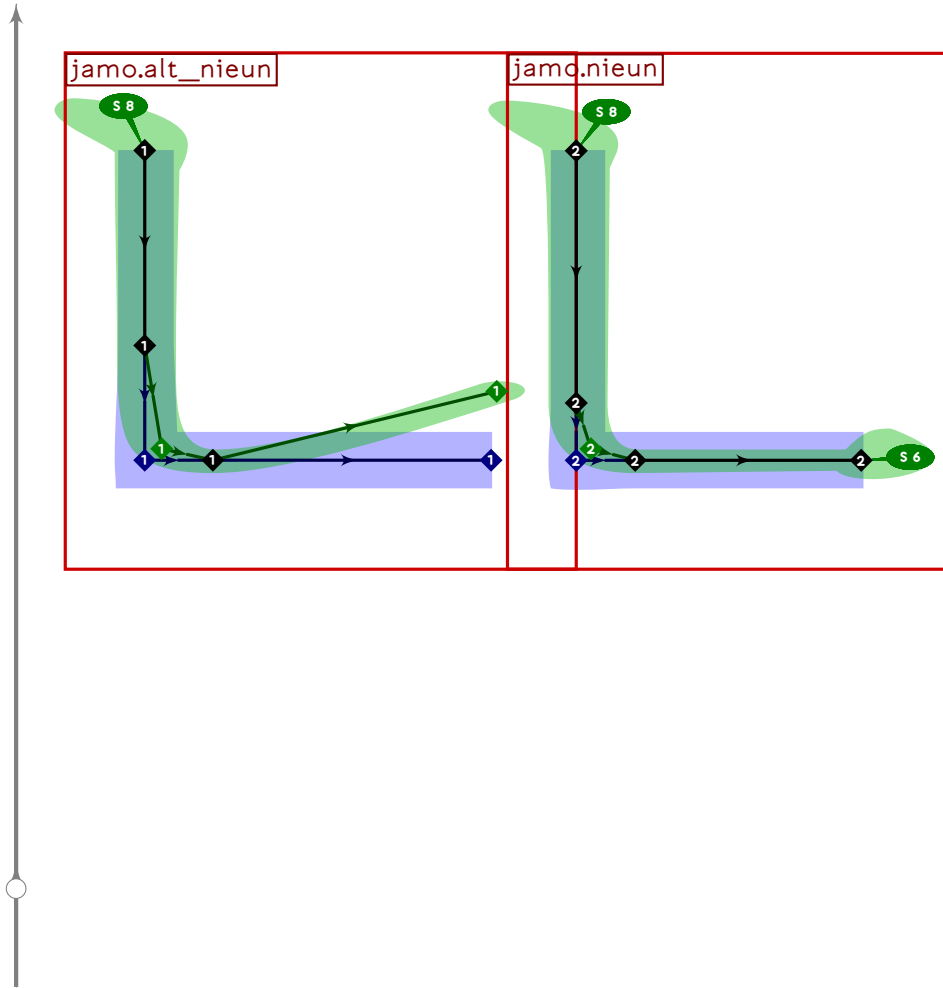
```



```

168 % hangul lead nieun-kiyeok
169 begintsuglyph("uni1113.15",19);
170 hangul.combine.lr(202,100)(whatever,lixf,loxf);
171 tsu_render;
172 endtsuglyph;
173

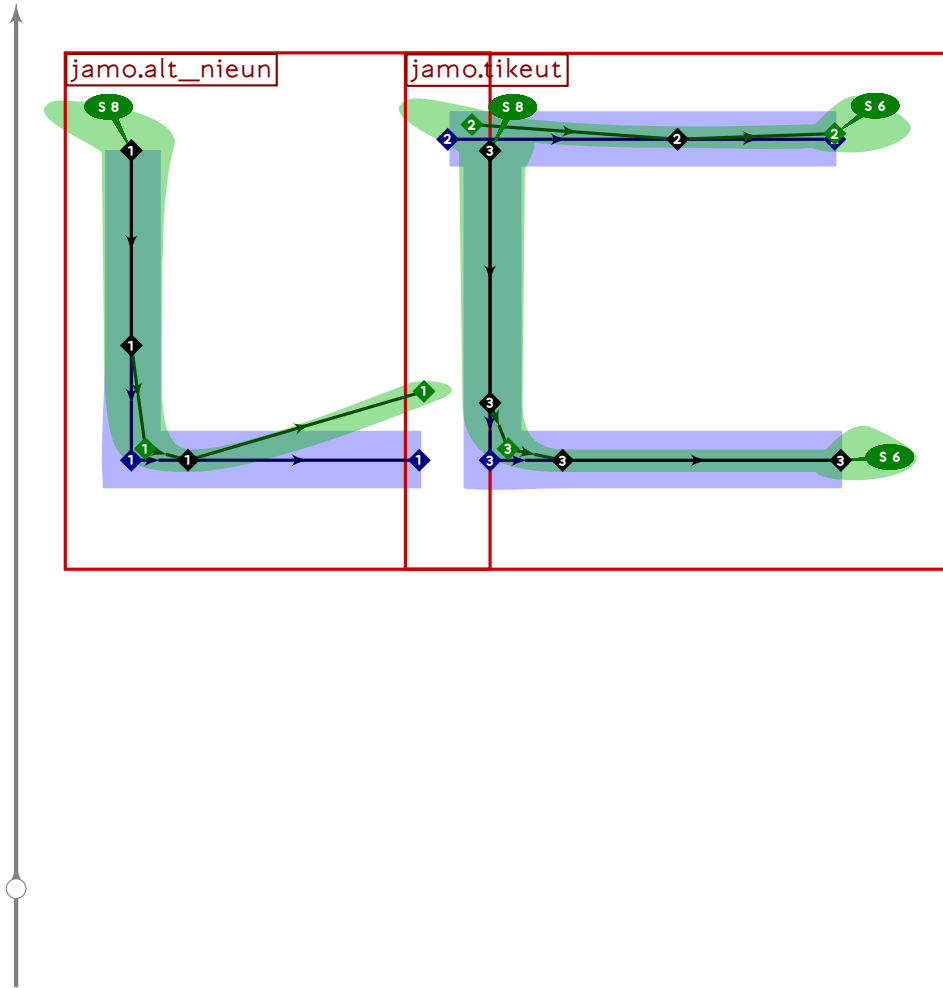
```



```

174 % hangul lead ssangnieun
175 begintsuglyph("uni1114.I5",20);
176 hangul.combine.lr(202,102)(whatever,lixf,loxf);
177 tsu_render;
178 endtsuglyph;
179

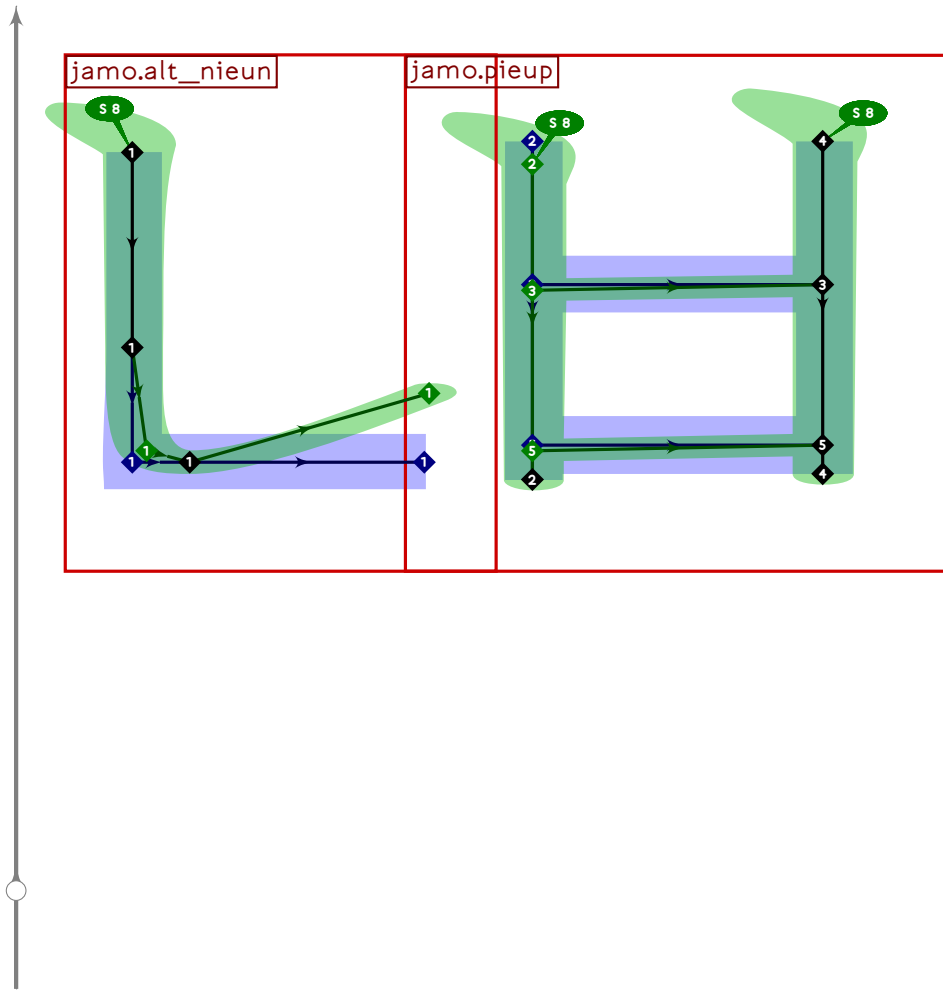
```



```

180 % hangul lead nieun-tikeut
181 begintsuglyph("uni1115.15",21);
182 hangul.combine.lr(202,103)(whatever,lixf,loxf);
183 tsu_render;
184 endtsuglyph;
185

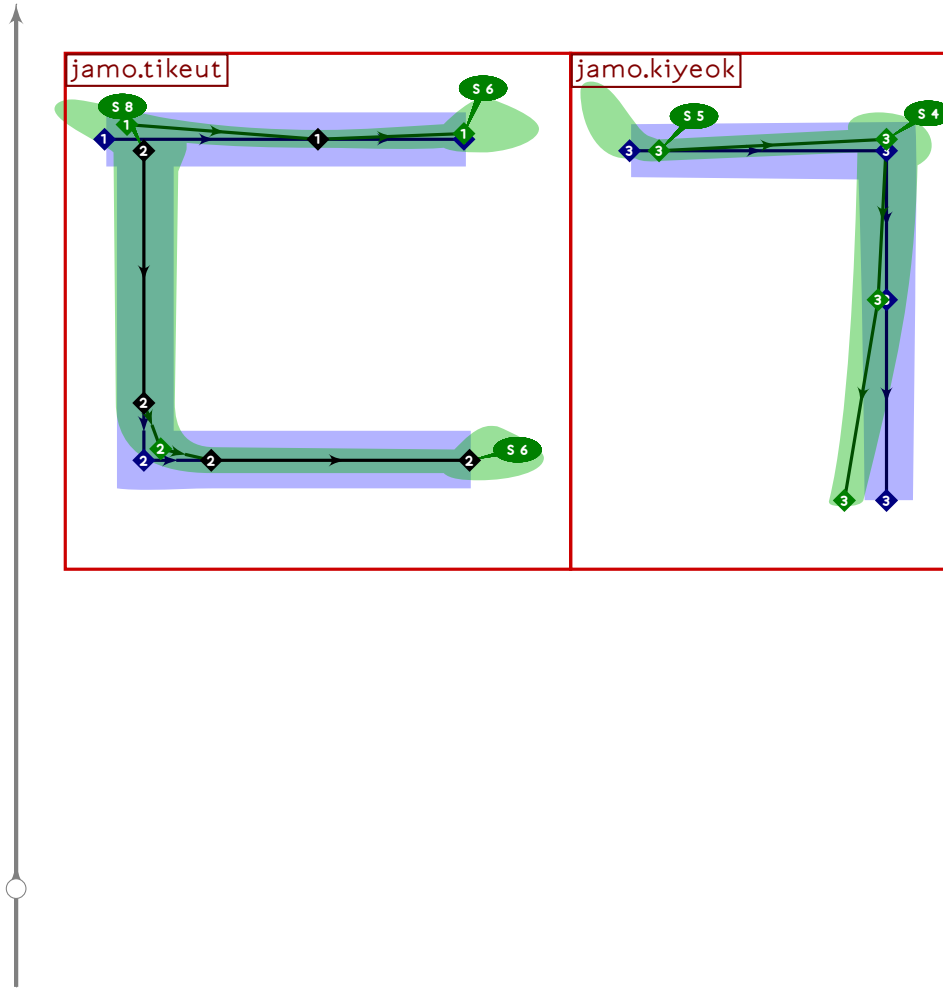
```



```

186 % hangul lead nieun-pieup
187 begintsuglyph("uni1116.l5",22);
188 hangul.combine.lr(202,107)(whatever,lixf,loxf);
189 tsu_render;
190 endtsuglyph;
191

```

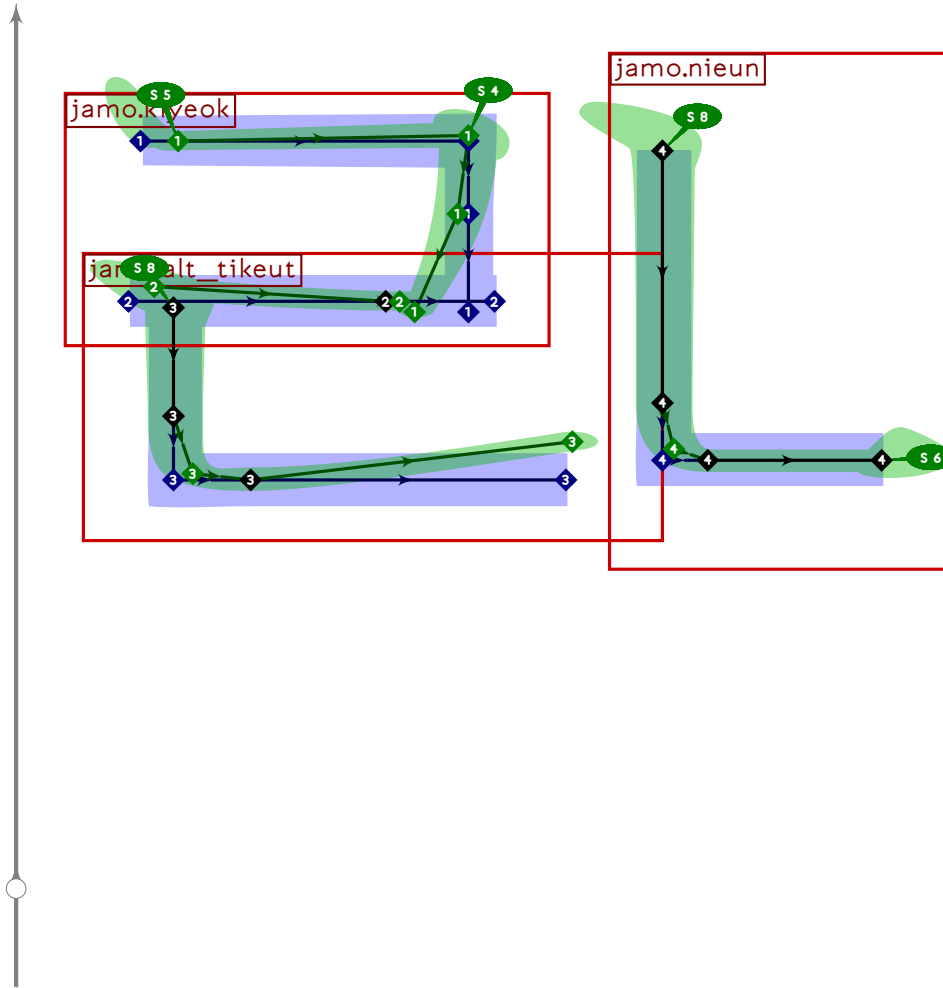


```

192 % hangul lead tikeut-kiyeok
193 begintsuglyph("uni1117.15";23);
194 hangul.combine.lr(103,100)(whatever,lixf,loxf);
195 tsu_render;
196 endtsuglyph;
197

```

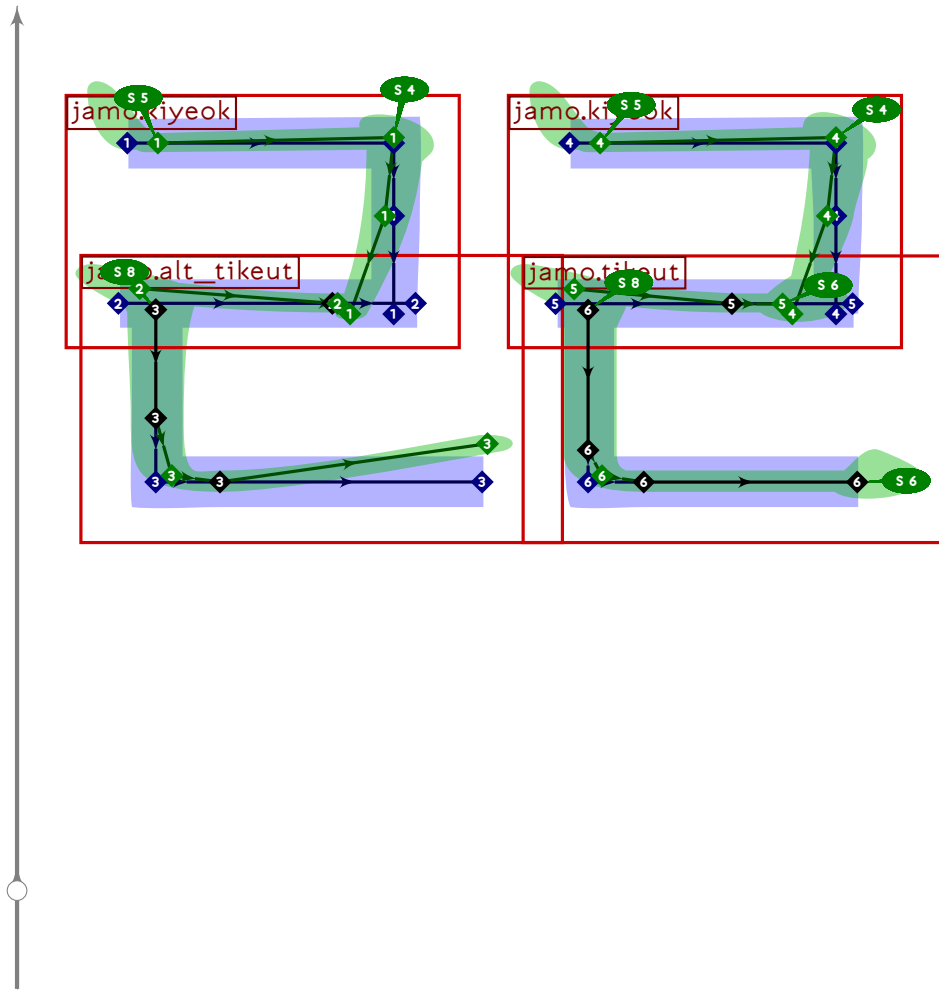




```

198 % hangul lead rieul-nieun
199 begintsuglyph("uni1118.l5",24);
200 hangul.combine.lr(205,102)(whatever,lixf,loxf);
201 tsu_render;
202 endtsuglyph;
203

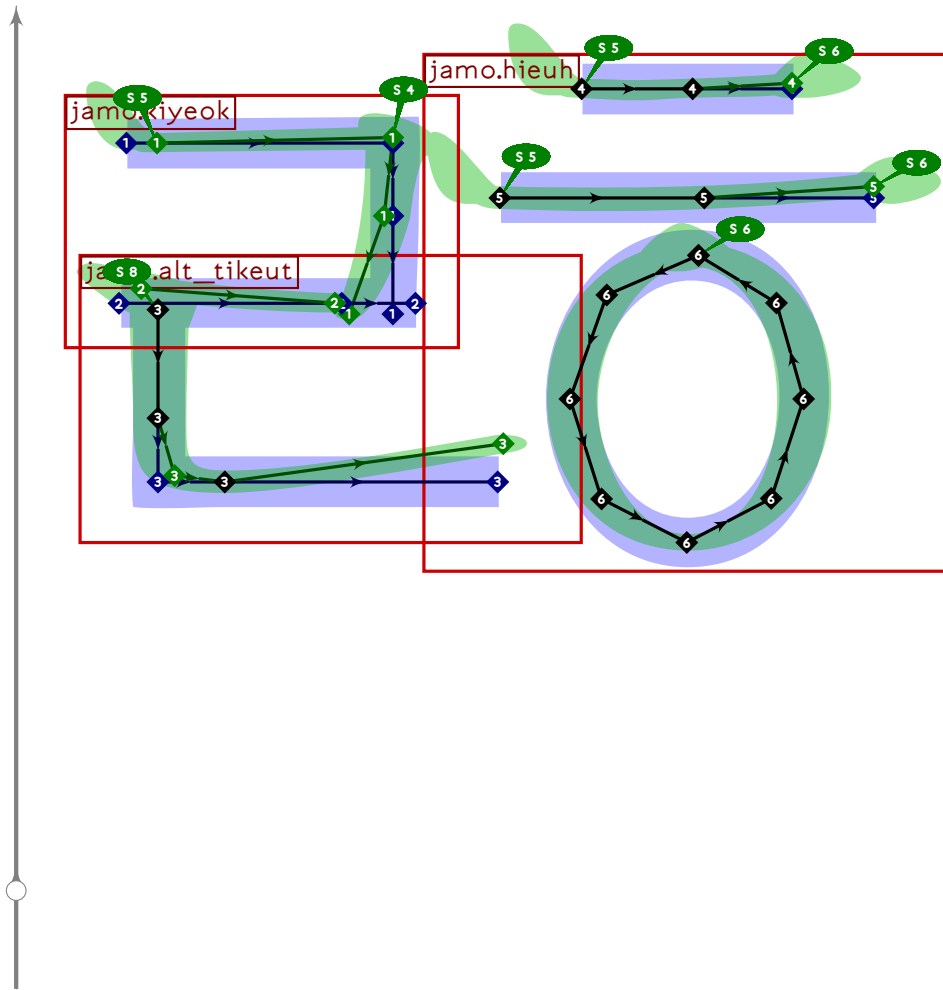
```



```

204 % hangul lead ssangrieul
205 begintsuglyph("uni1119.15",25);
206 hangul.combine.lr(205,105)(whatever,lixf,loxf);
207 tsu_render;
208 endtsuglyph;
209

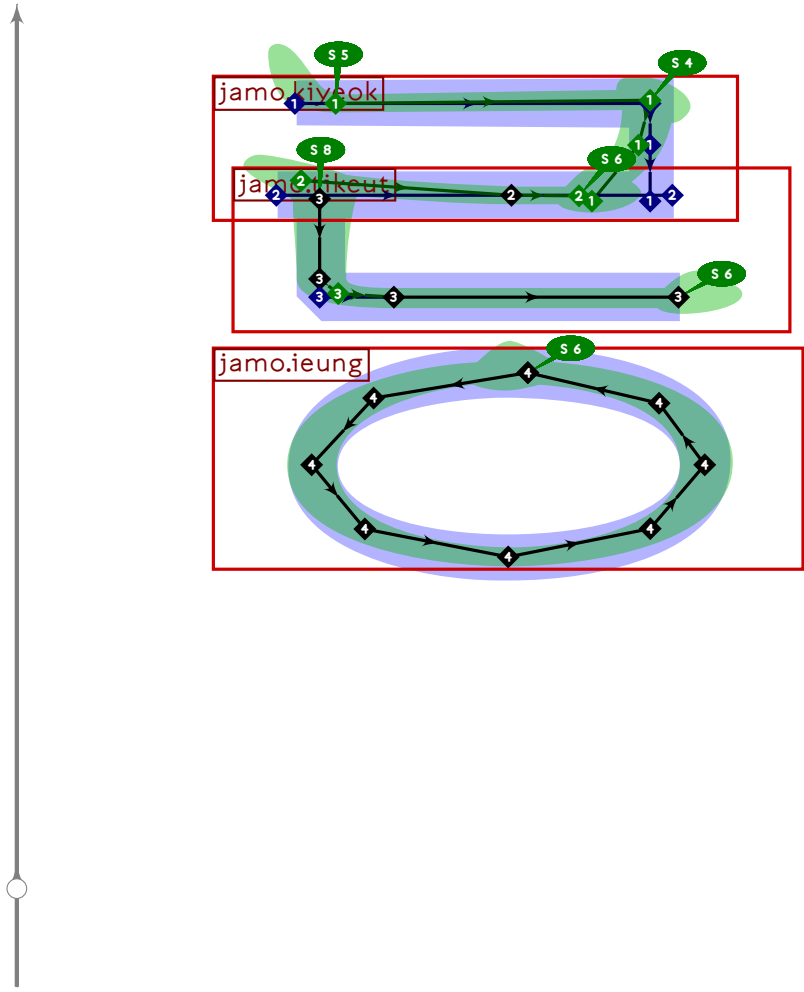
```



```

210 % hangul lead rieul-hieuh
211 begintsuglyph("uni111A.I5",26);
212 hangul.combine.lr(205,118)(whatever,lixf,loxf);
213 tsu_render;
214 endtsuglyph;
215

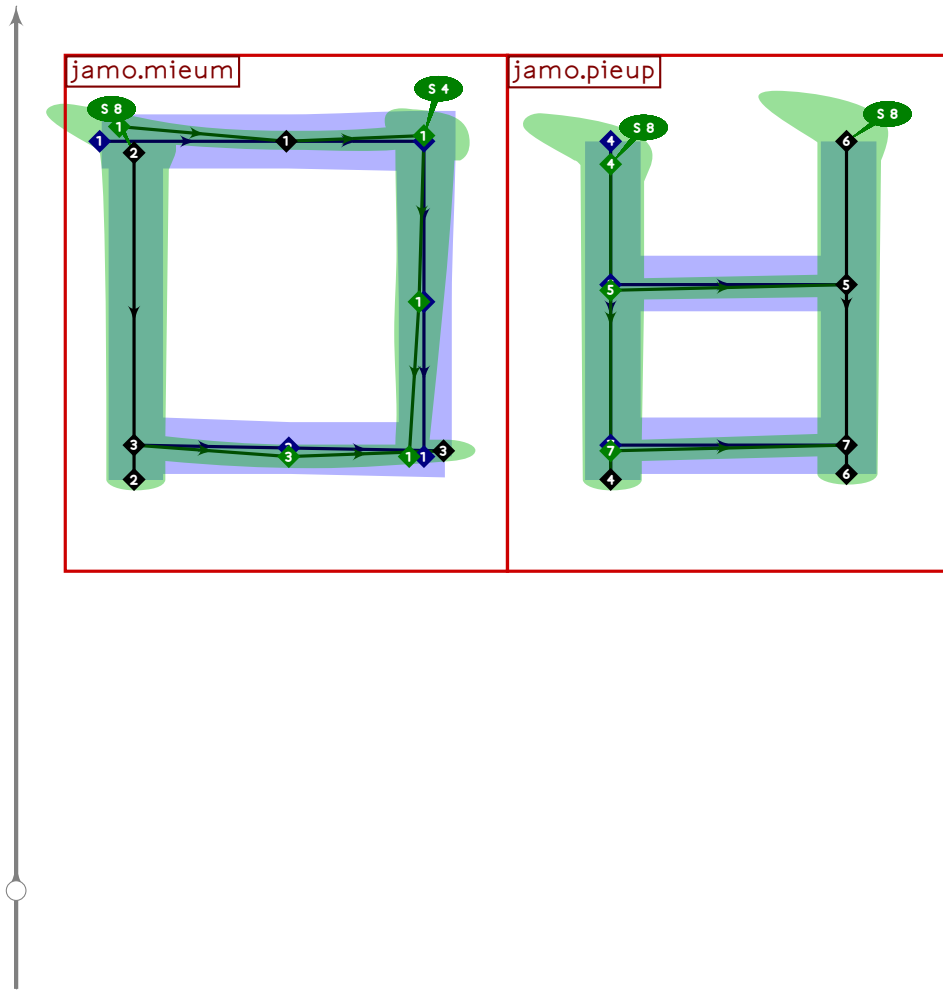
```



```

216 % hangul lead kapyeounrieul
217 begintsuglyph("uni111B.l5",27);
218 hangul.combine.tb(105,521)(whatever,
219   hxf((200,850),(800,-50)) transformed lixf,loxf);
220 tsu_render;
221 endtsuglyph;
222

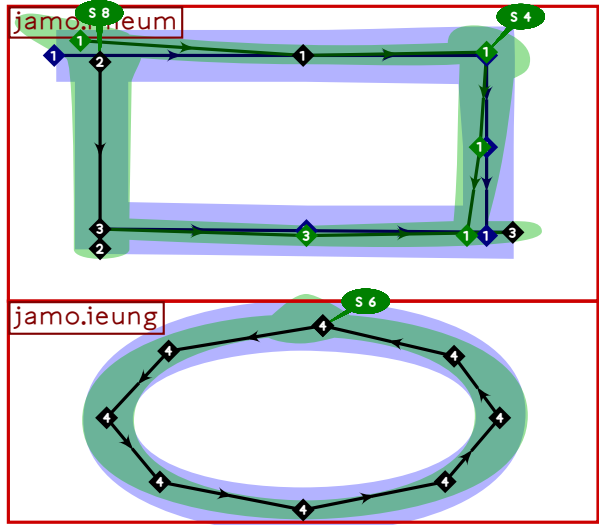
```



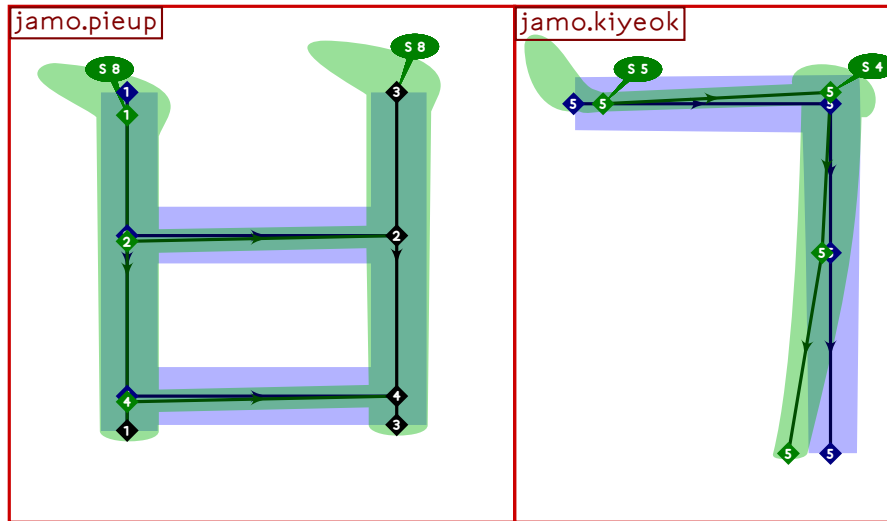
```

223 % hangul lead mieum-pieup
224 begintsuglyph("uni111C.15",28);
225 hangul.combine.lr(106,107)(whatever,lixf,loxf);
226 tsu_render;
227 endtsuglyph;
228

```



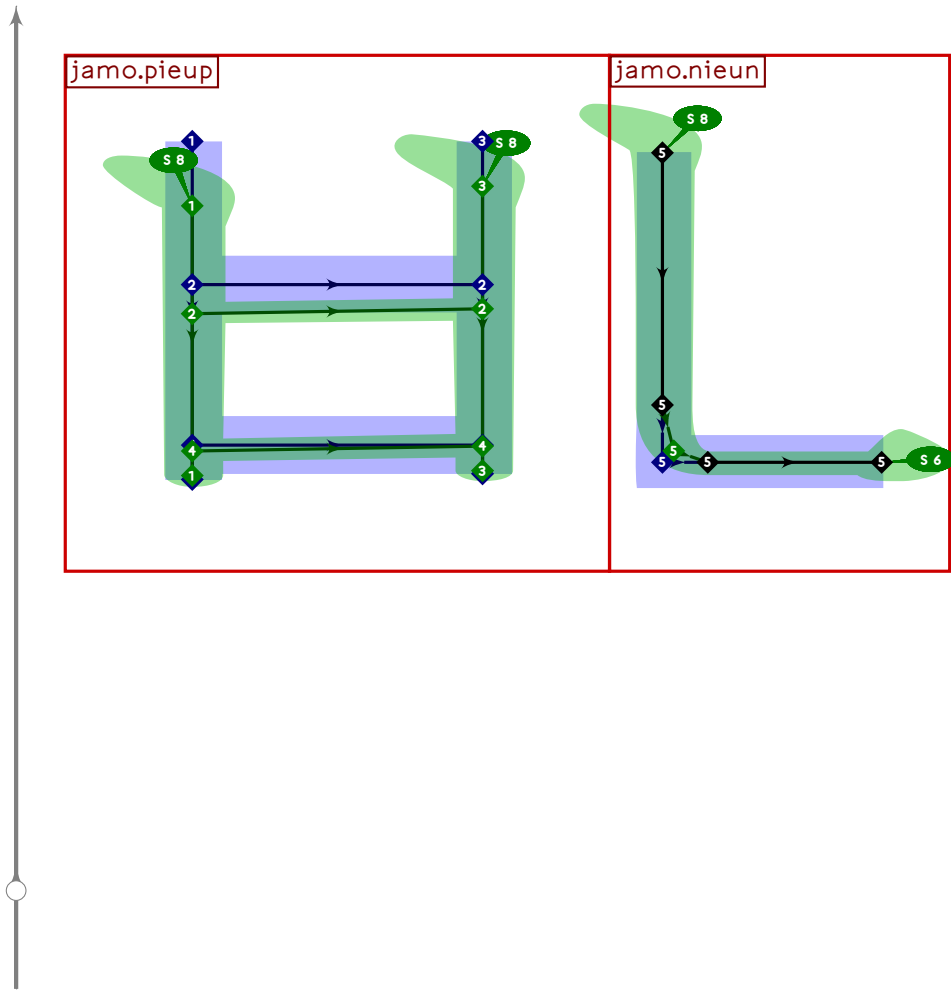
```
229 % hangul lead kapyeounmieum
230 begintsuglyph("uni111D.15",29);
231 hangul.combine.tb(106,521)(whatever,
232   hxf((200,850),(800,-50)) transformed lixf,loxf);
233 tsu_render;
234 endtsuglyph;
235
```



```

236 % hangul lead pieup-kiyeok
237 begintsuglyph("uni111E.15",30);
238 hangul.combine.lr(107,100)(whatever,lixf,loxf);
239 tsu_render;
240 endtsuglyph;
241

```

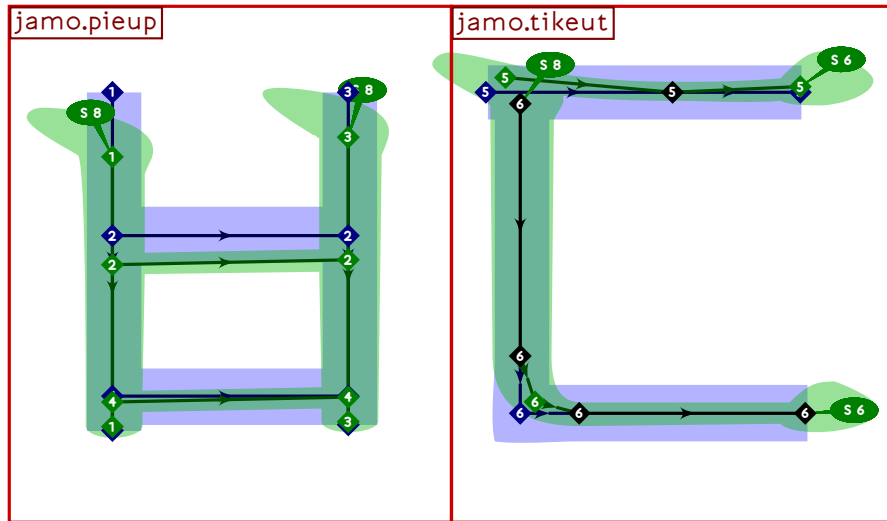


```

242 % hangul lead pieup-nieun
243 begintsuglyph("uni111F.15",31);
244 hangul.combine.lr(207,102)(whatever,lixf,loxf);
245 tsu_render;
246 endtsuglyph;
247

```

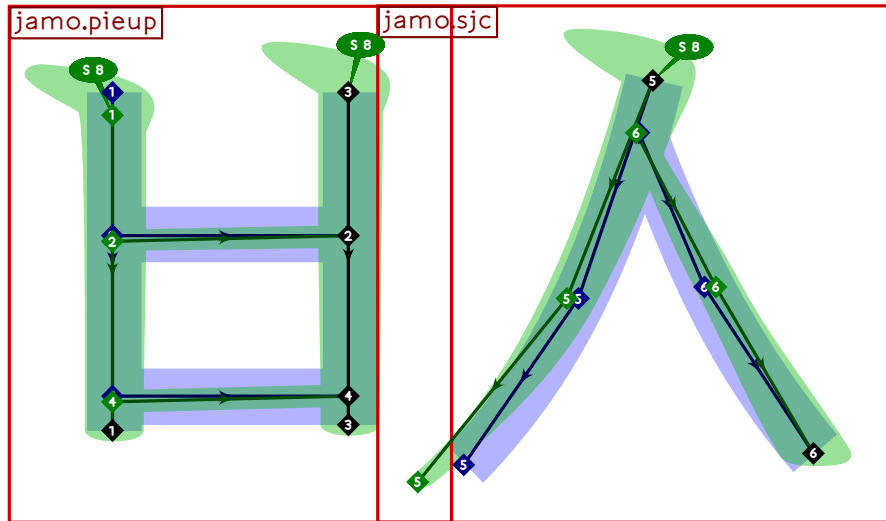




```

248 % hangul lead pieup-tikeut
249 begintsuglyph("uni1120.15",32);
250 hangul.combine.lr(207,103)(whatever,lixf,loxf);
251 tsu_render;
252 endtsuglyph;
253

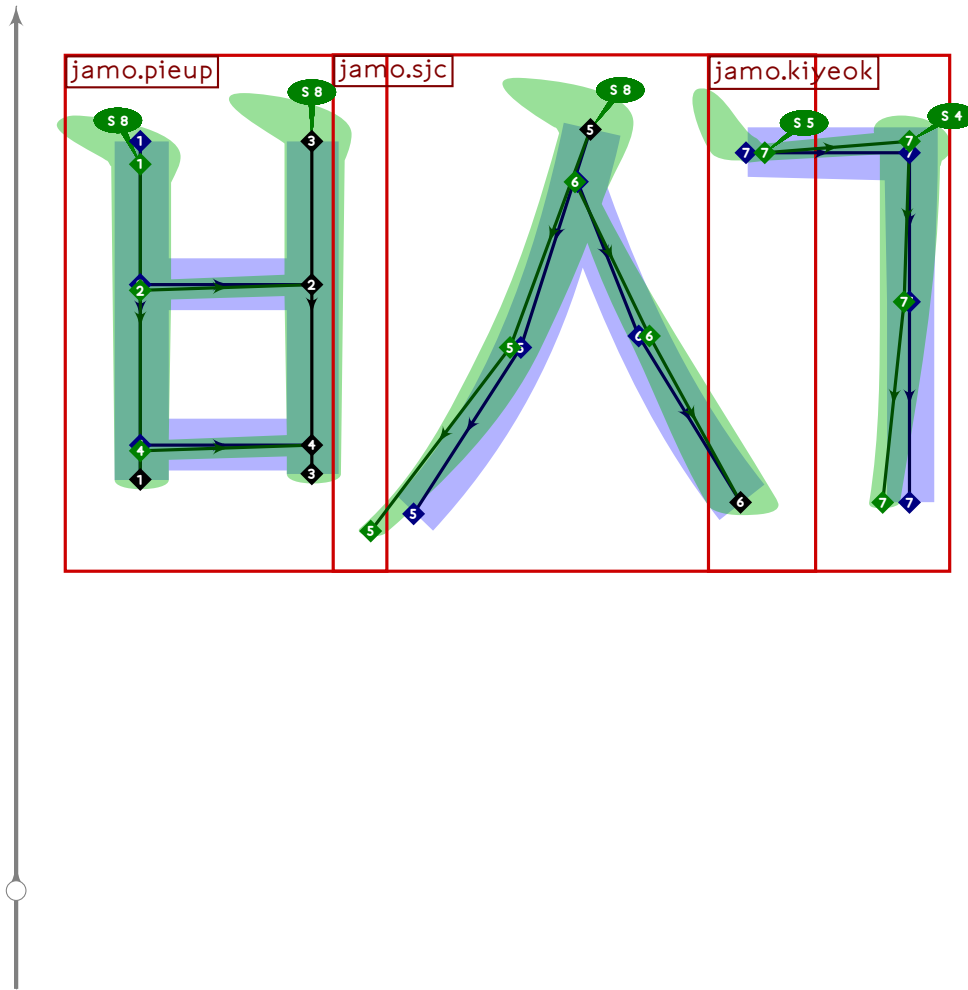
```



```

254 % hangul lead pieup-sios
255 begintsuglyph("uni1121.l5",33);
256 hangul.combine.lr(107,109)(whatever,lixf,loxf);
257 tsu_render;
258 endtsuglyph;
259

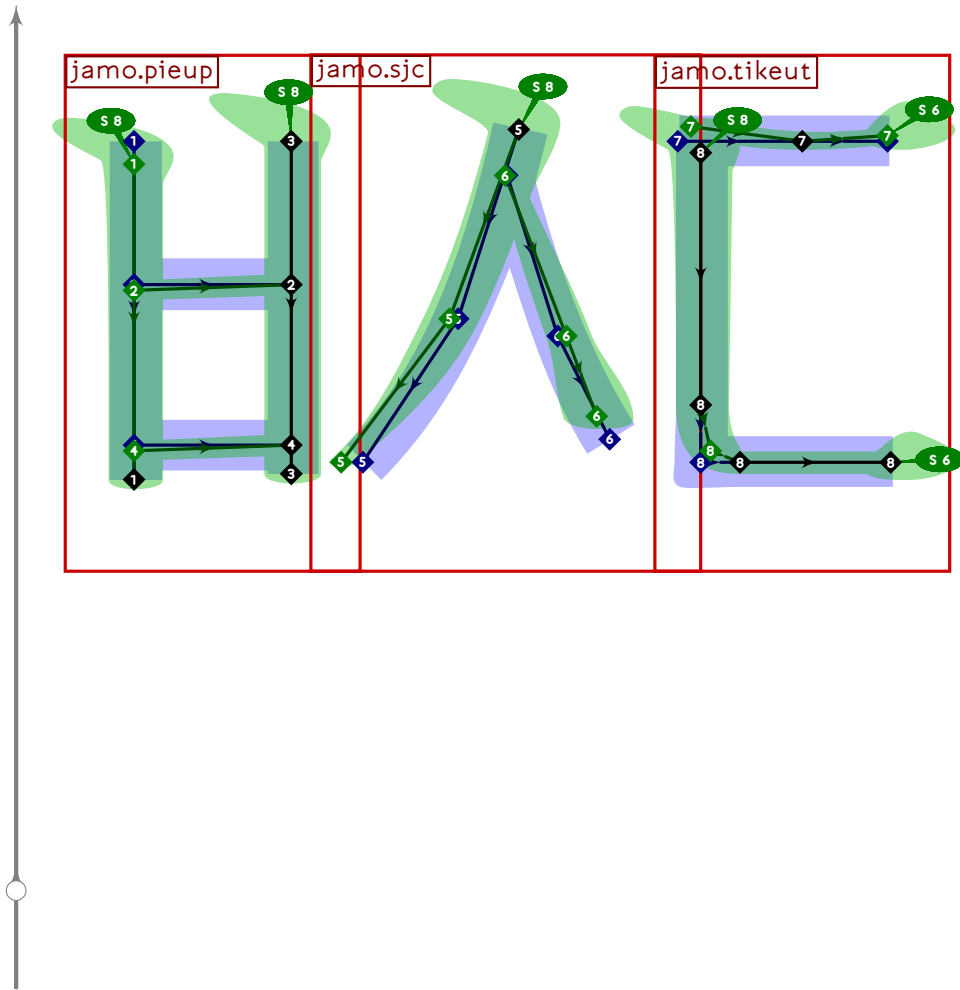
```



```

260 % hangul lead pieup-sios-kiyeok
261 begintsuglyph("uni1122.l5",34);
262 hangul.combine.lcr(107,109,100)(whatever,lixf,loxf);
263 tsu_render;
264 endtsuglyph;
265

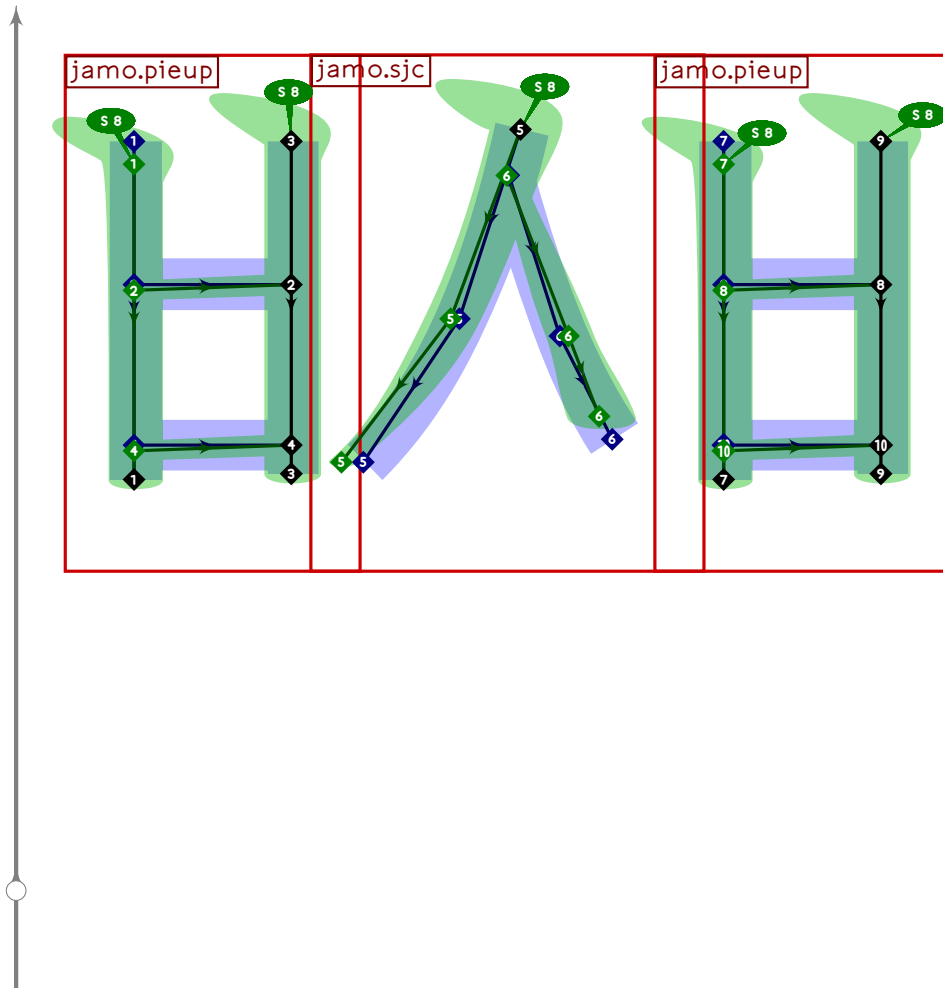
```



```

266 % hangul lead pieup-sios-tikeut
267 begint Suglyph("uni1123.15",35);
268 hangul.combine.lcr(107,209,103)(whatever,lixf,loxf);
269 tsu_render;
270 endtsuglyph;
271

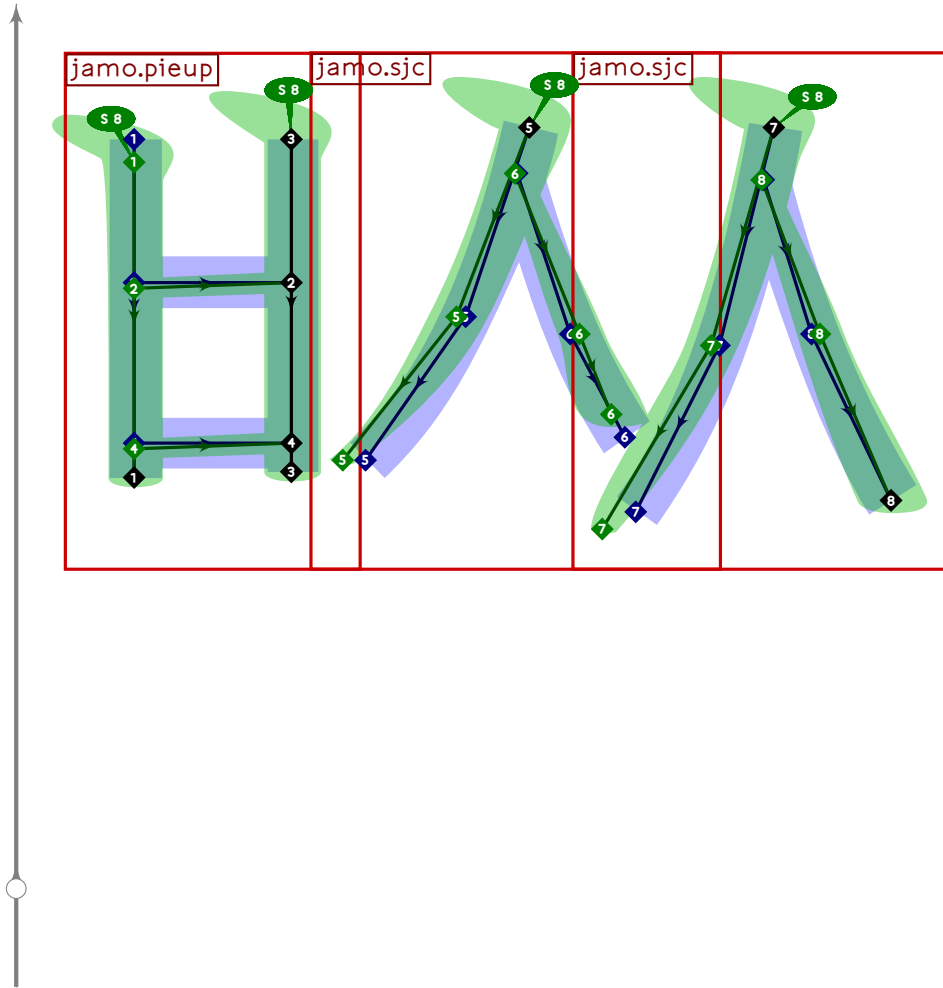
```



```

272 % hangul lead pieup-sios-pieup
273 begintsuglyph("uni1124.l5",36);
274 hangul.combine.lcr(107,209,107)(whatever,lixf,loxf);
275 tsu_render;
276 endtsuglyph;
277

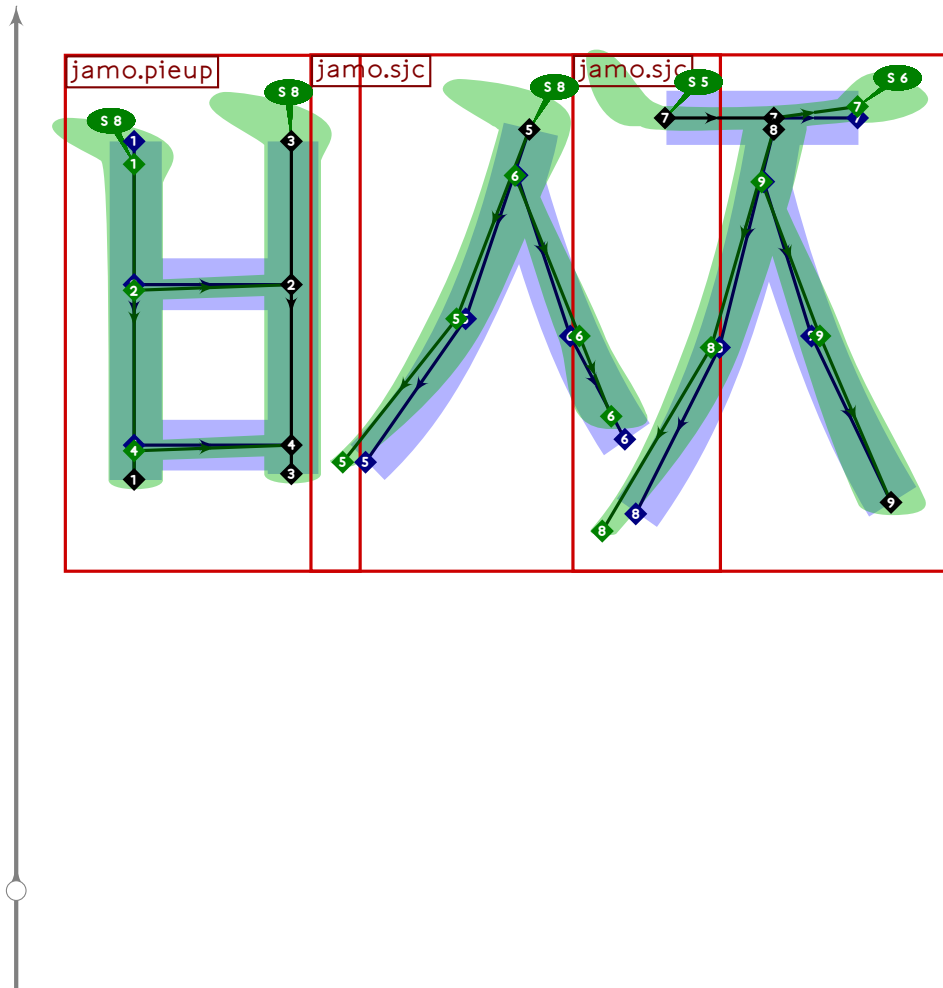
```



```

278 % hangul lead pieup-ssangsios
279 begintsuglyph("uni1125.l5",37);
280 hangul.combine.lcr(107,209,109)(whatever,lixf,loxf);
281 tsu_render;
282 endtsuglyph;
283

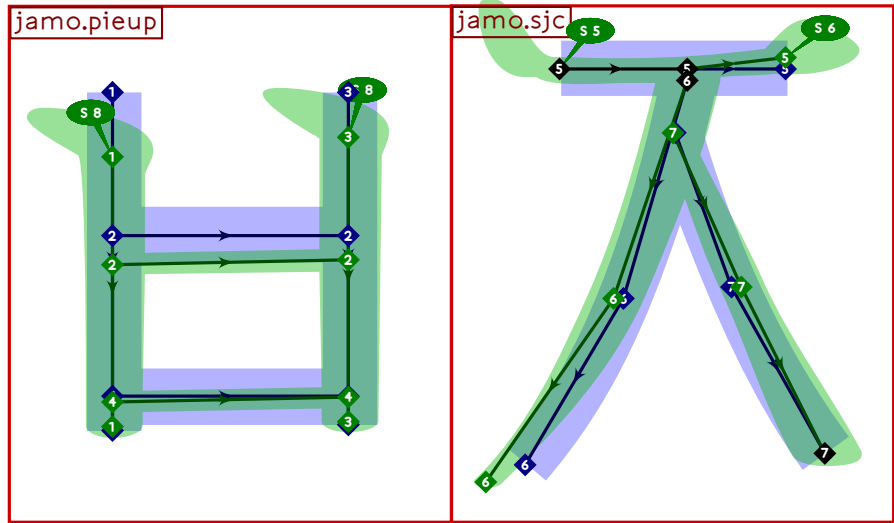
```



```

284 % hangul lead pieup-sios-cieuc
285 begintsuglyph("uni1126.l5",38);
286 hangul.combine.lcr(107,209,112)(whatever,lixf,loxf);
287 tsu_render;
288 endtsuglyph;
289

```

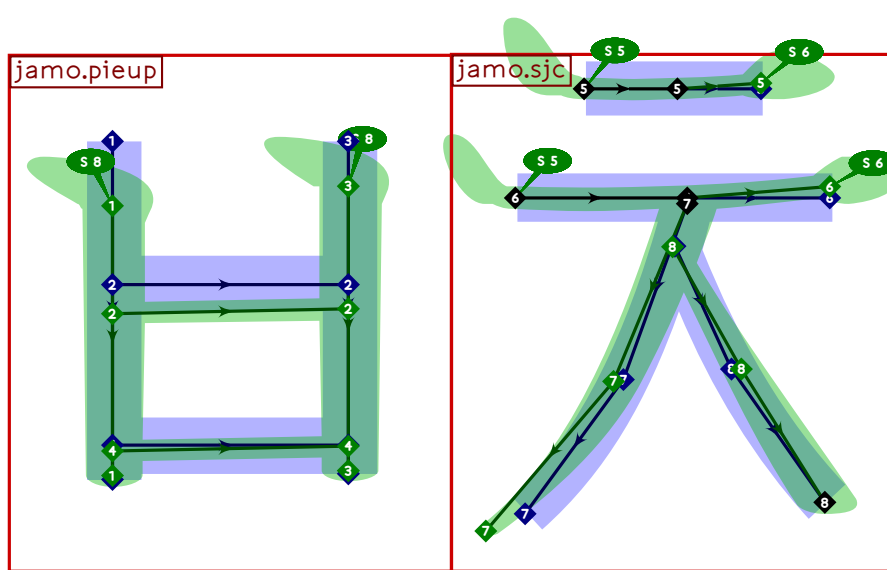


```

290 % hangul lead pieup-cieuc
291 begintsuglyph("uni1127.15",39);
292 hangul.combine.lr(207,112)(whatever,lixf,loxf);
293 tsu_render;
294 endtsuglyph;
295

```

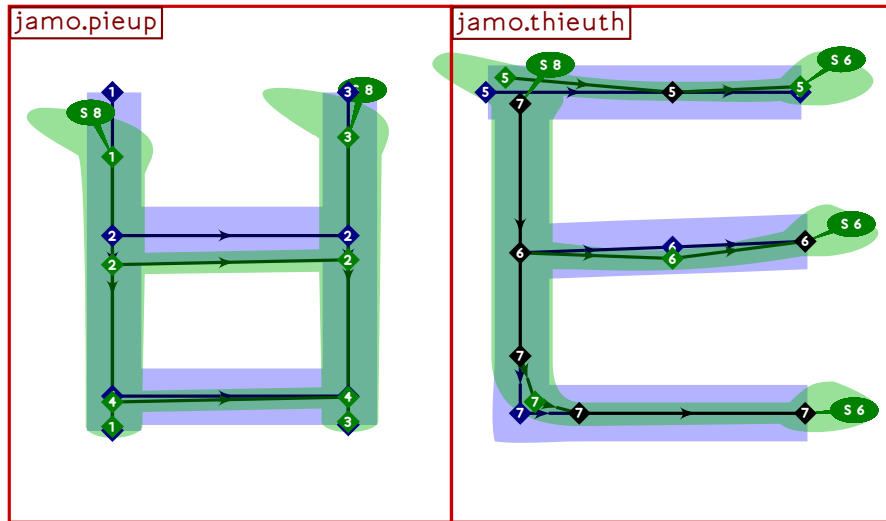




```

296 % hangul lead pieup-chieuch
297 begintsuglyph("uni1128.l5"40);
298 hangul.combine.lr(207,114)(whatever,lixf,loxf);
299 tsu_render;
300 endtsuglyph;
301

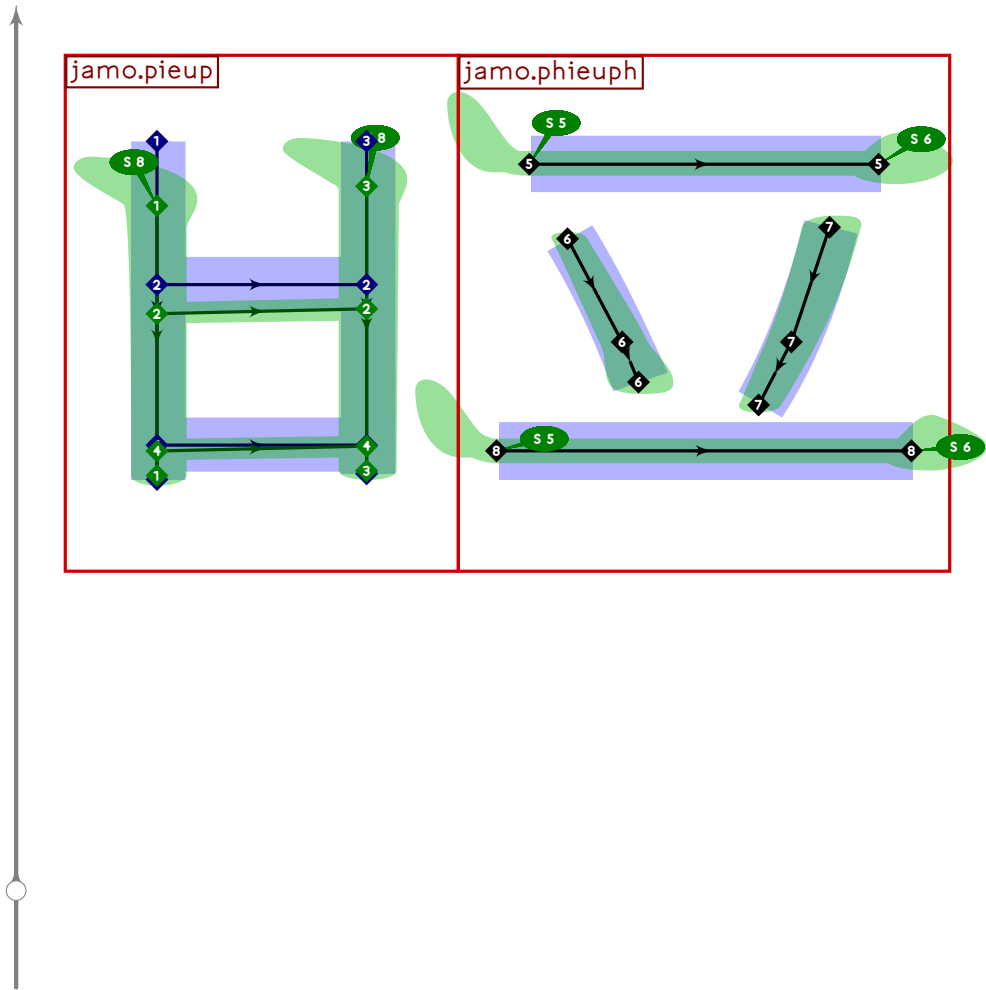
```



```

302 % hangul lead pieup-thieuth
303 begintsuglyph("uni1129.15";41);
304 hangul.combine.lr(207,116)(whatever,lixf,loxf);
305 tsu_render;
306 endtsuglyph;
307

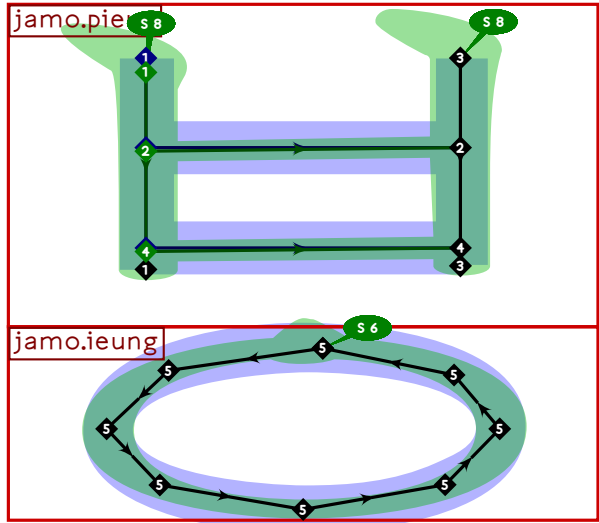
```



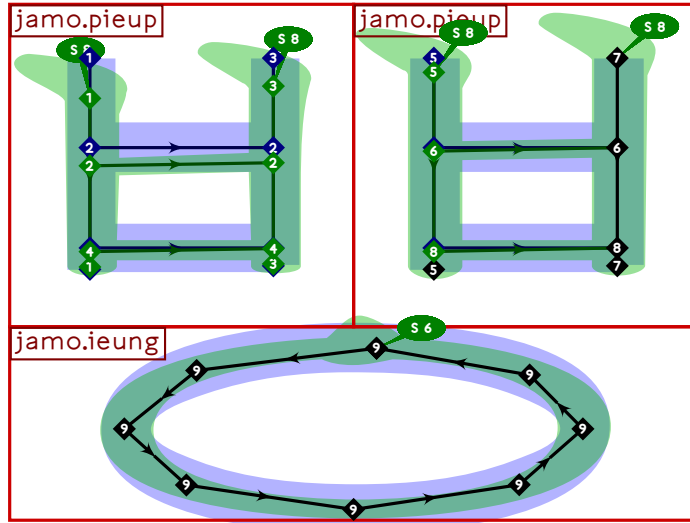
```

308 % hangul lead pieup-phieup
309 begintsuglyph("uni112A.15",42);
310 hangul.combine.lr(207,117)(whatever,lixf,loxf);
311 tsu_render;
312 endtsuglyph;
313

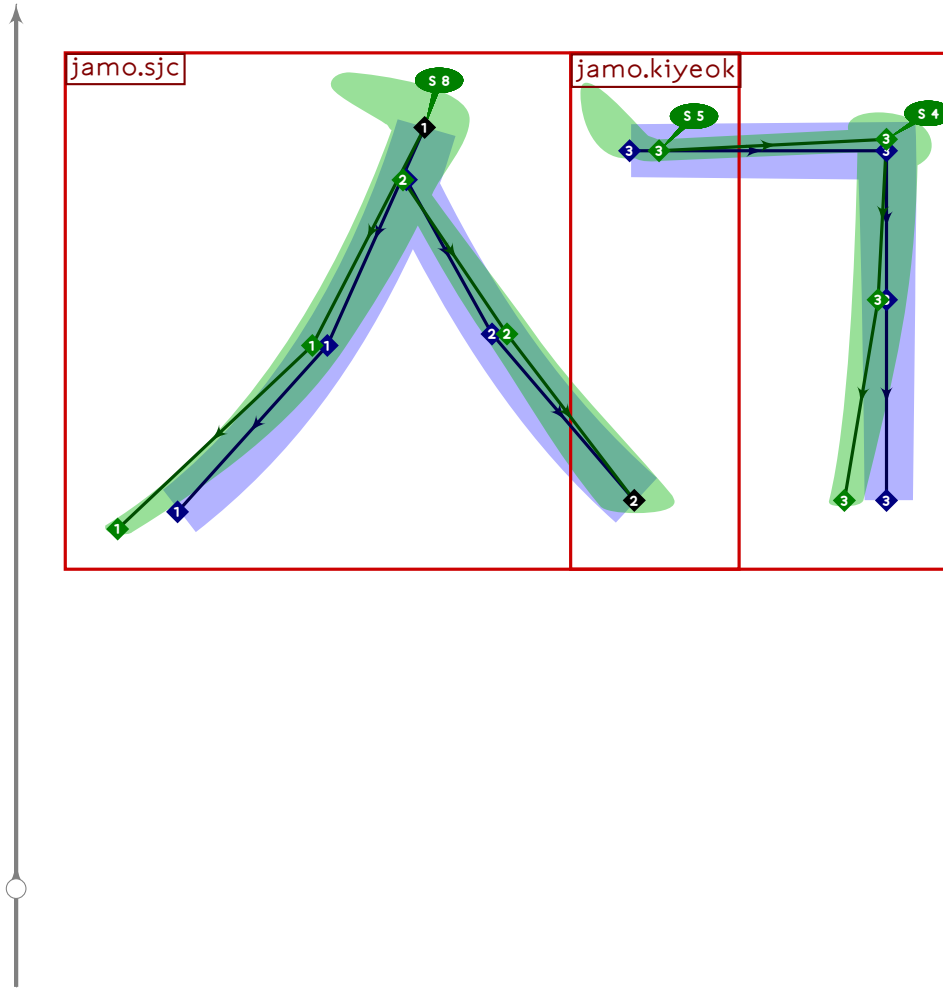
```



```
314 % hangul lead kapyeounpieup
315 begintsuglyph("uni112B.15";43);
316 hangul.combine.tb(107,521)(whatever,
317   hxf((200,850),(800,-50)) transformed lixf,loxf);
318 tsu_render;
319 endtsuglyph;
320
```



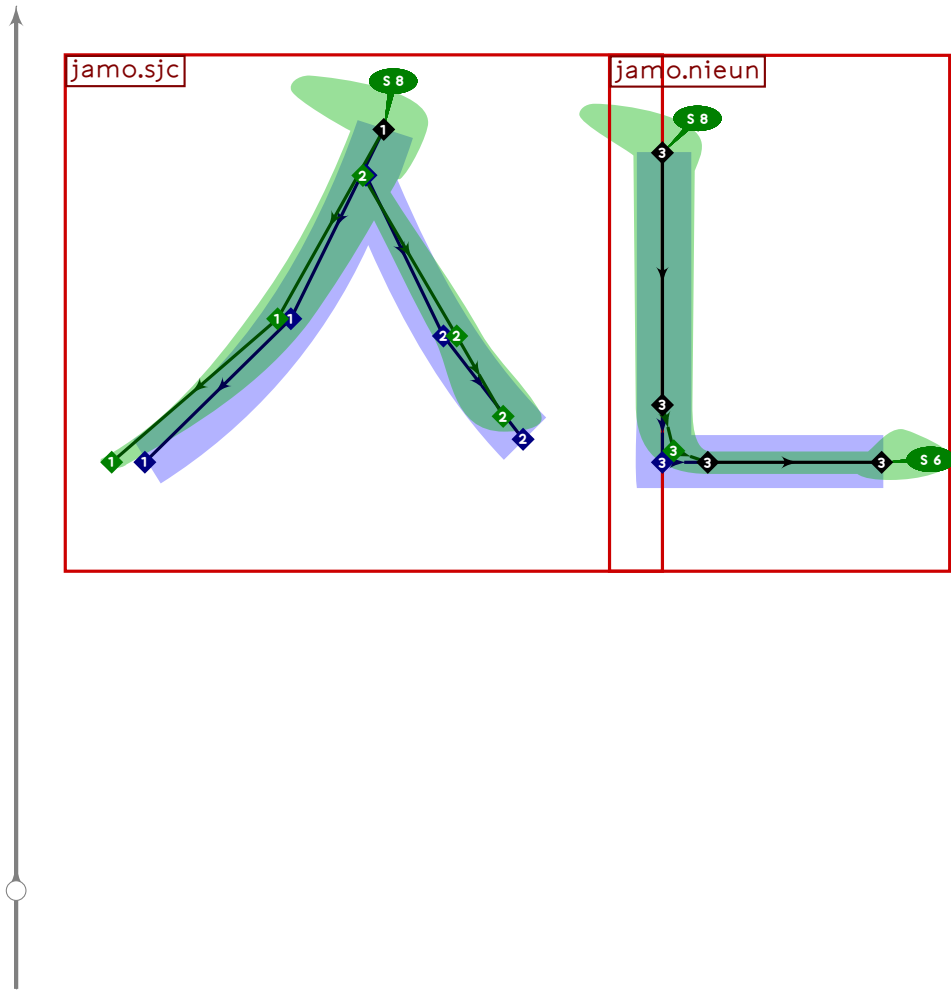
```
321 % hangul lead kapyeounssangpieup
322 begintsuglyph("uni112C.15";44);
323 hangul.combine.tb(108,521)(whatever,
324   hxf((150,850),(850,-50)) transformed lixf,loxf);
325 tsu_render;
326 endtsuglyph;
327
```



```

328 % hangul lead sios-kiyeok
329 begintsuglyph("uni112D.I5";45);
330 hangul.combine.lr(109;100)(whatever,lixf,loxf);
331 tsu_render;
332 endtsuglyph;
333

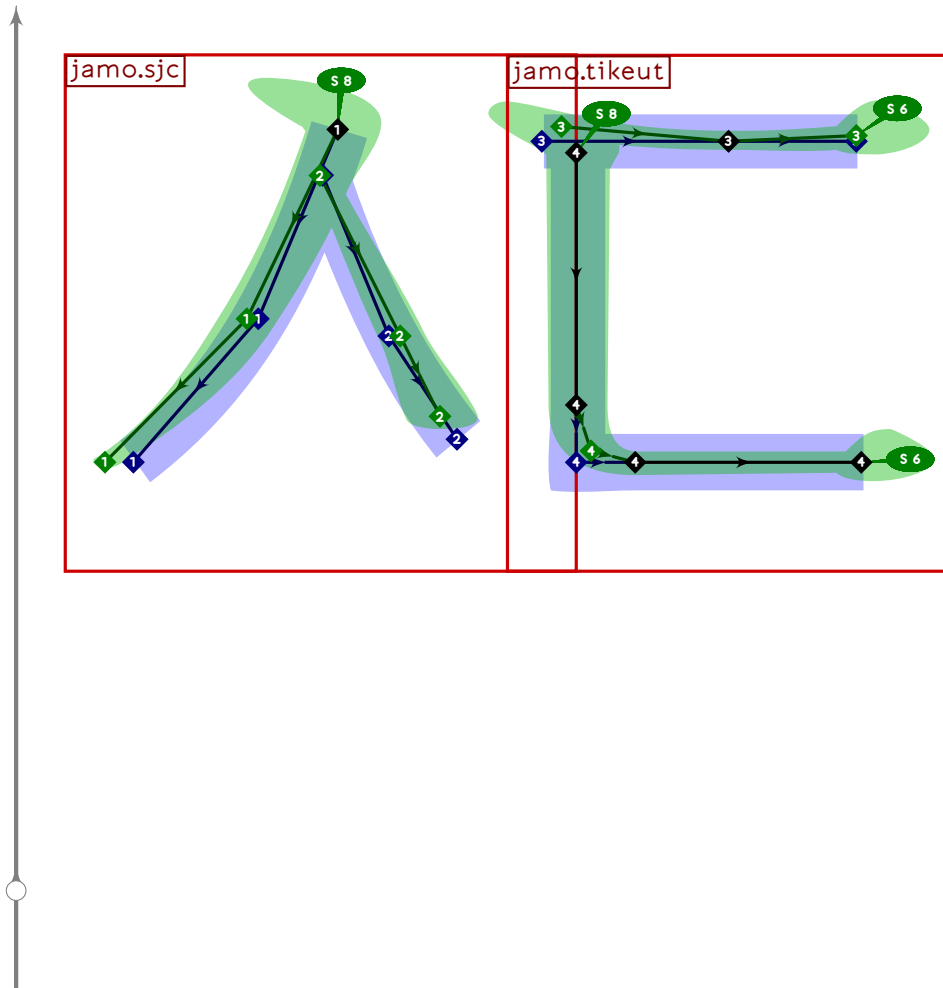
```



```

334 % hangul lead sios-nieun
335 begint Suglyph("uni112E.15"46);
336 hangul.combine.lf(209,102)(whatever,lixf,loxf);
337 tsu_render;
338 endtsuglyph;
339

```

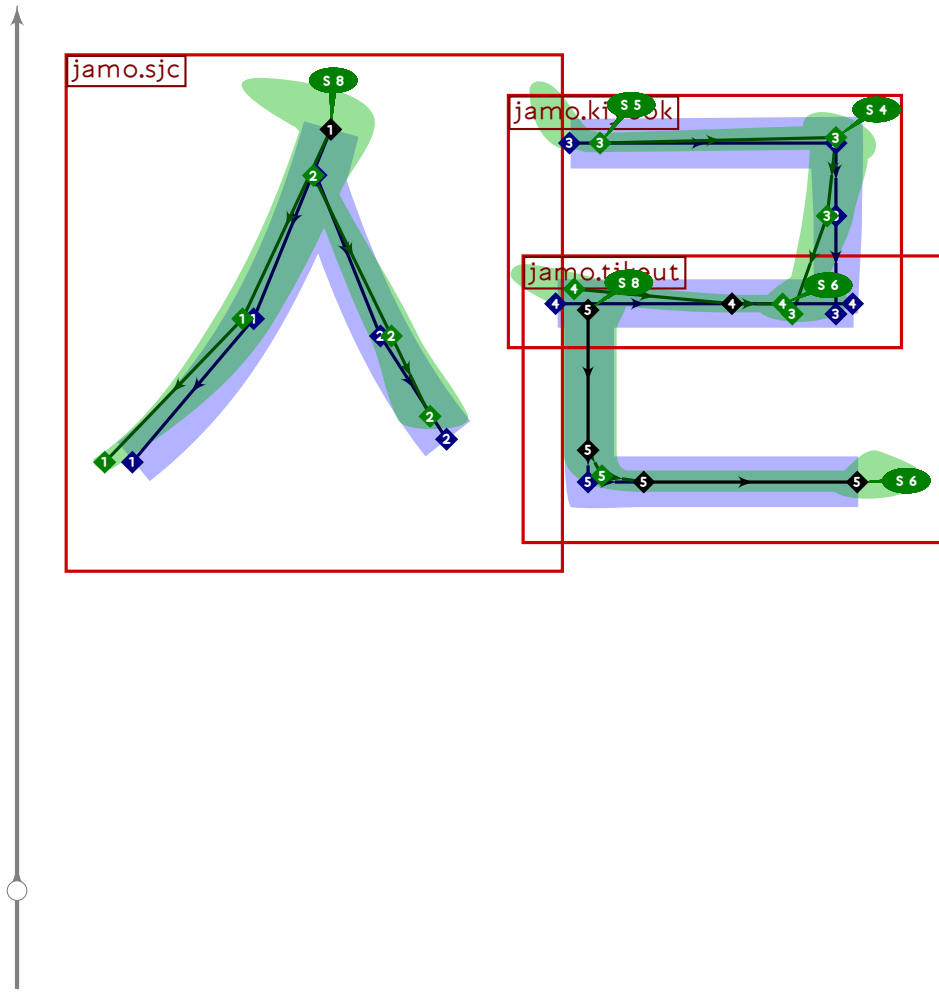


```

340 % hangul lead sios-tikeut
341 begintsuglyph("uni112F.15";47);
342 hangul.combine.lr(209,103)(whatever,lixf,loxf);
343 tsu_render;
344 endtsuglyph;
345

```

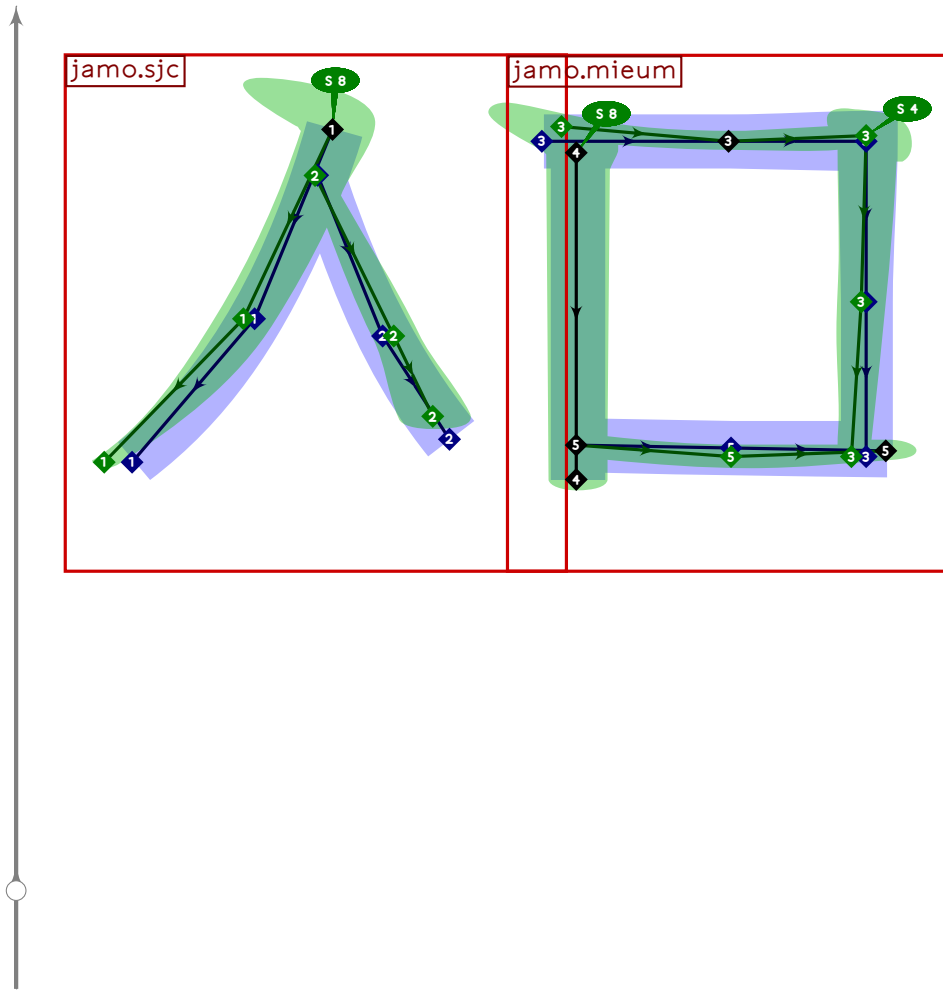




```

346 % hangul lead sios-rieul
347 begint Suglyph("uni1130.l5"48);
348 hangul.combine.lr(209,105)(whatever,lixf,loxf);
349 tsu_render;
350 endtsuglyph;
351

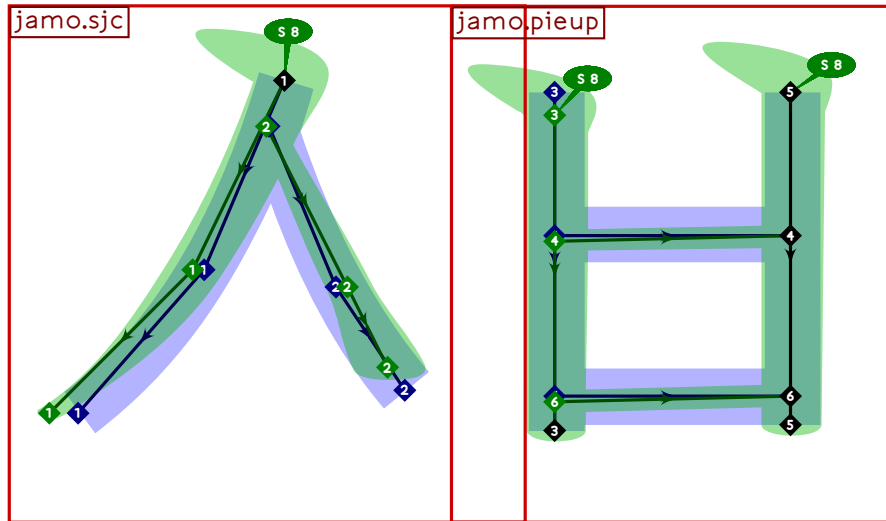
```



```

352 % hangul lead sios-mieum
353 begintsuglyph("uni1131.I5"49);
354 hangul.combine.lr(209,106)(whatever,lixf,loxf);
355 tsu_render;
356 endtsuglyph;
357

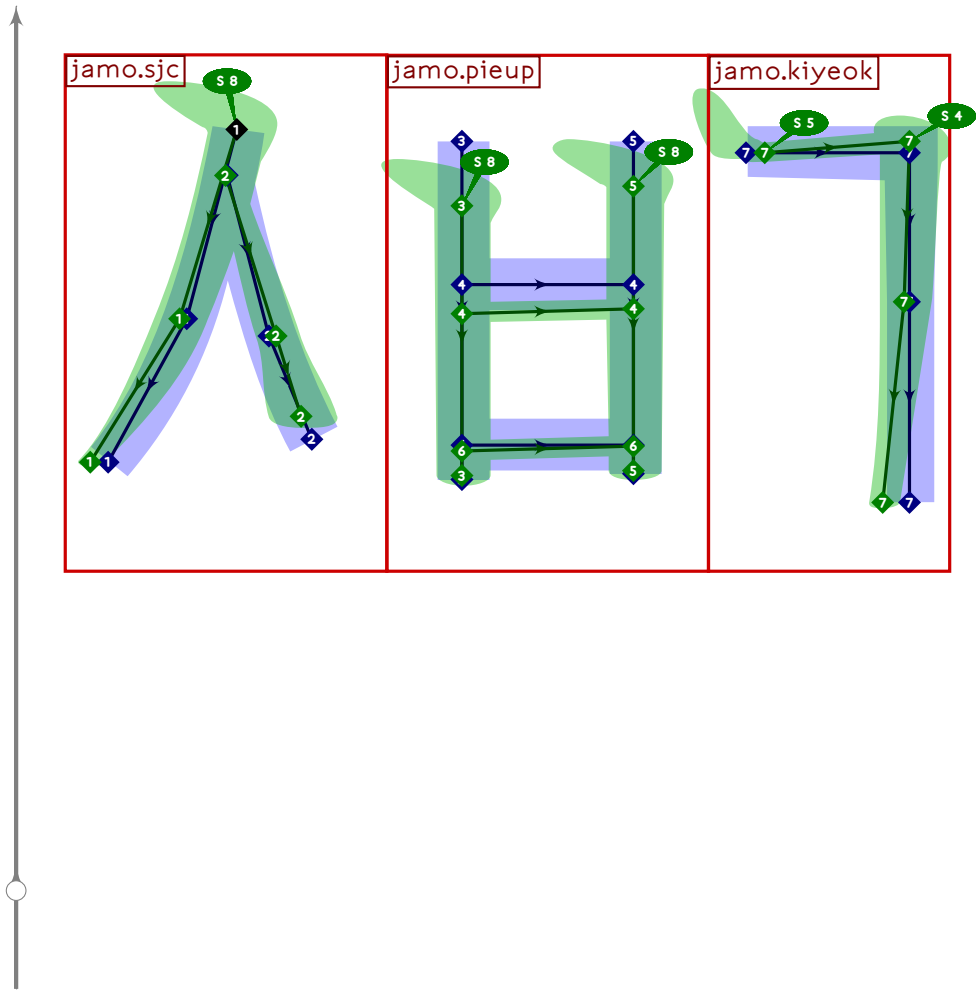
```



```

358 % hangul lead sios-pieup
359 begintsuglyph("uni1132.15";50);
360 hangul.combine.lr(209,107)(whatever,lixf,loxf);
361 tsu_render;
362 endtsuglyph;
363

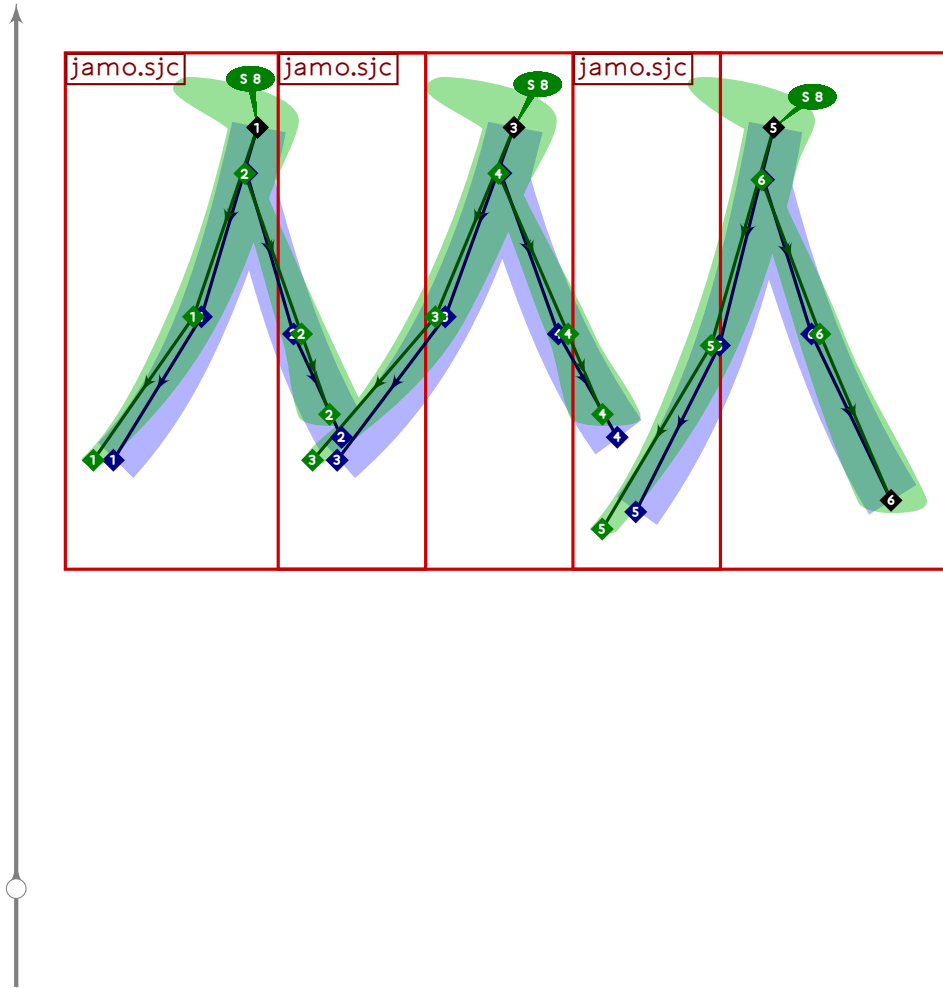
```



```

364 % hangul lead sios-pieup-kiyeok
365 begintuglyph("uni1133.15",51);
366 hangul.combine.lcr(209,207,100)(whatever,lixf,loxf);
367 tsu_render;
368 endtsuglyph;
369

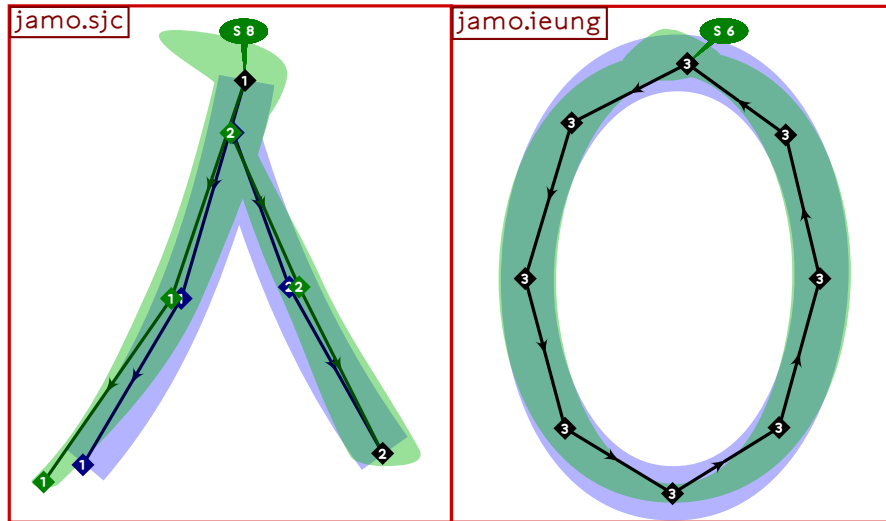
```



```

370 % hangul lead sios-sios-sios
371 begint Suglyph("uni1134.15",52);
372 hangul.combine.lcr(209,209,109)(whatever,lixf,loxf);
373 tsu_render;
374 endtsuglyph;
375

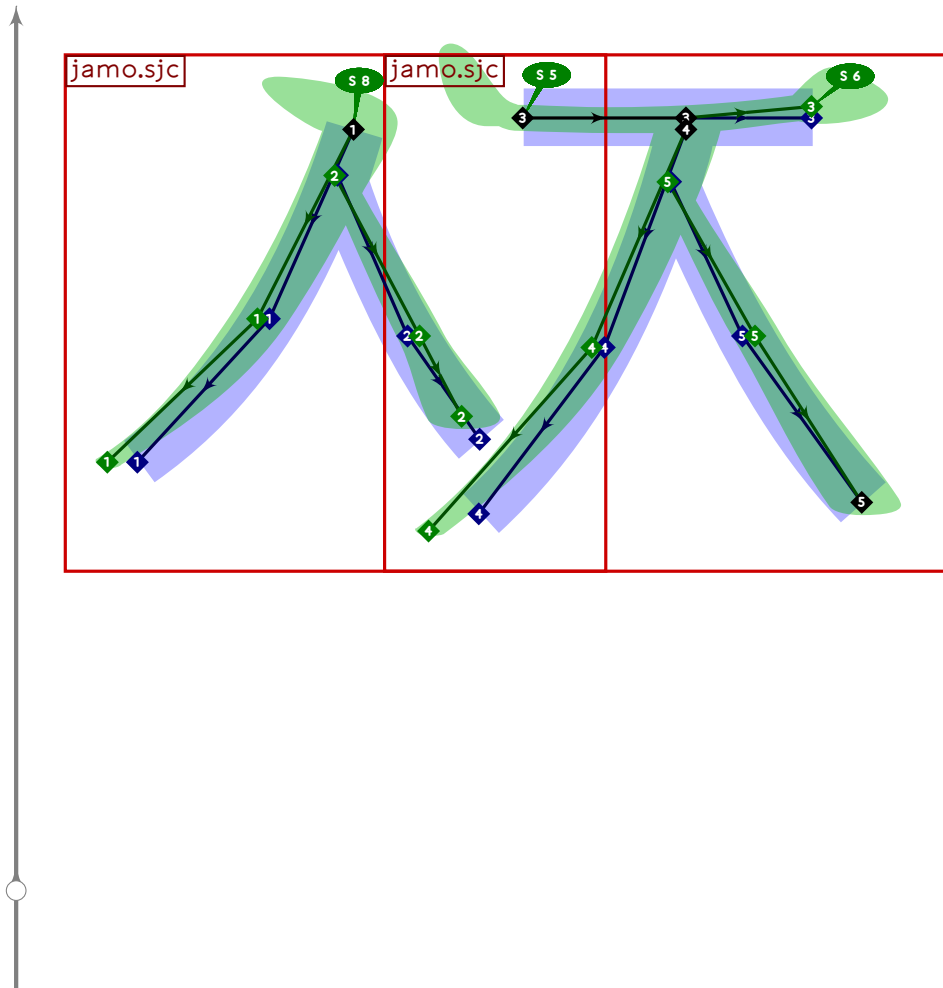
```



```

376 % hangul lead sios-ieung
377 begint Suglyph("uni1135.15",53);
378 hangul.combine.lr(109,111)(whatever,lixf,loxf);
379 tsu_render;
380 endtsuglyph;
381

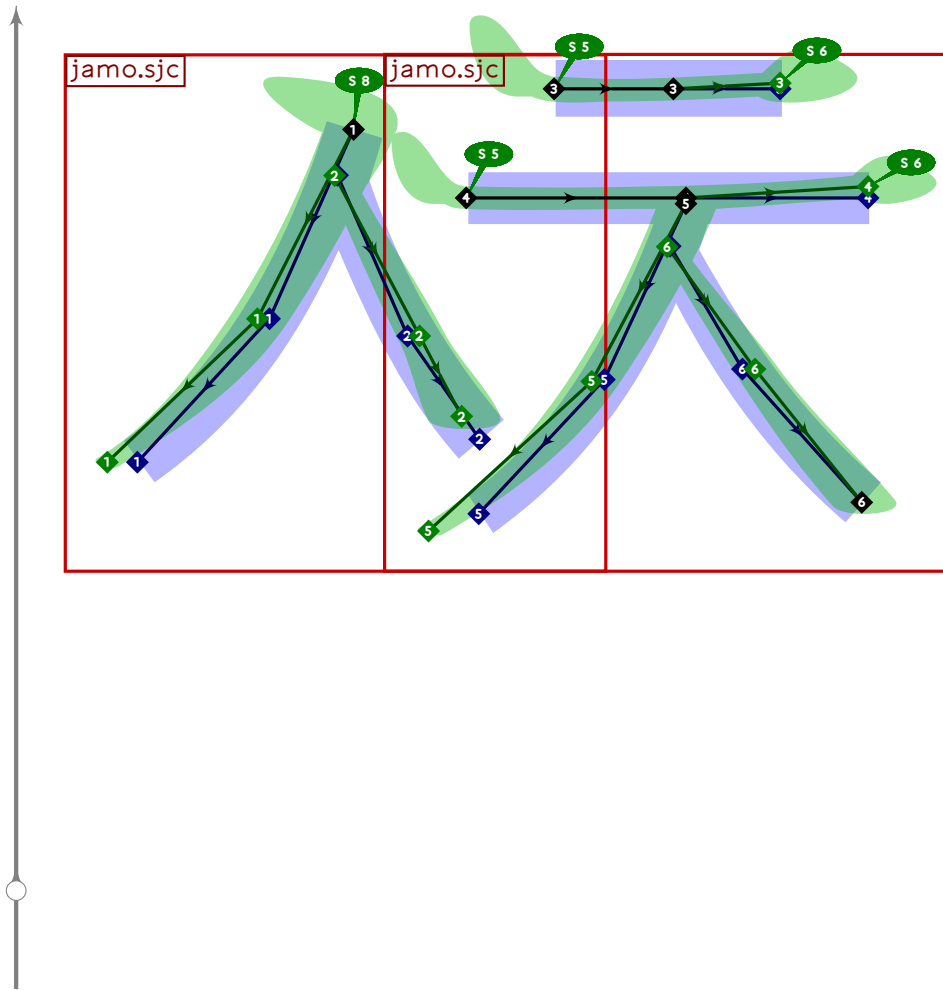
```



```

382 % hangul lead sios-cieuc
383 begintsuglyph("uni1136.l5",54);
384 hangul.combine.lr(209,112)(whatever,lixf,loxf);
385 tsu_render;
386 endtsuglyph;
387

```

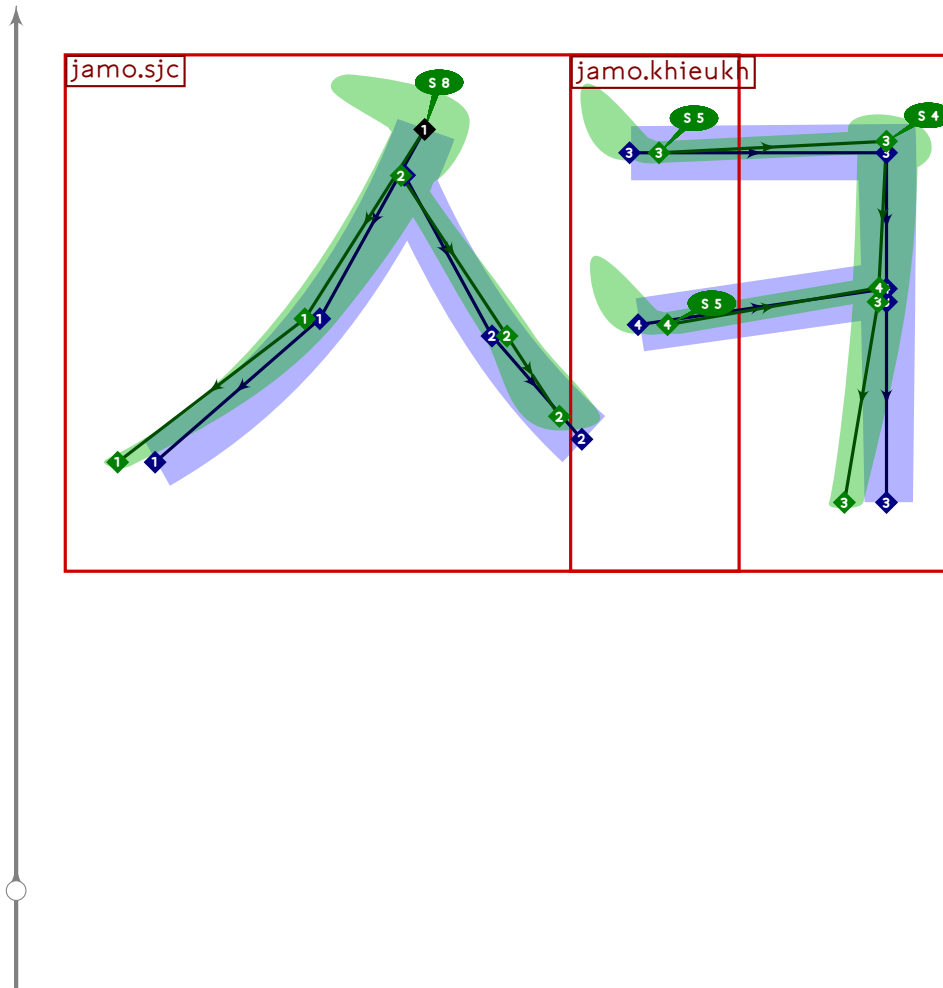


```

388 % hangul lead sios-chieuch
389 begint Suglyph("uni1137.15",55);
390 hangul.combine.lr(209,114)(whatever,lixf,loxf);
391 tsu_render;
392 endtsuglyph;
393

```

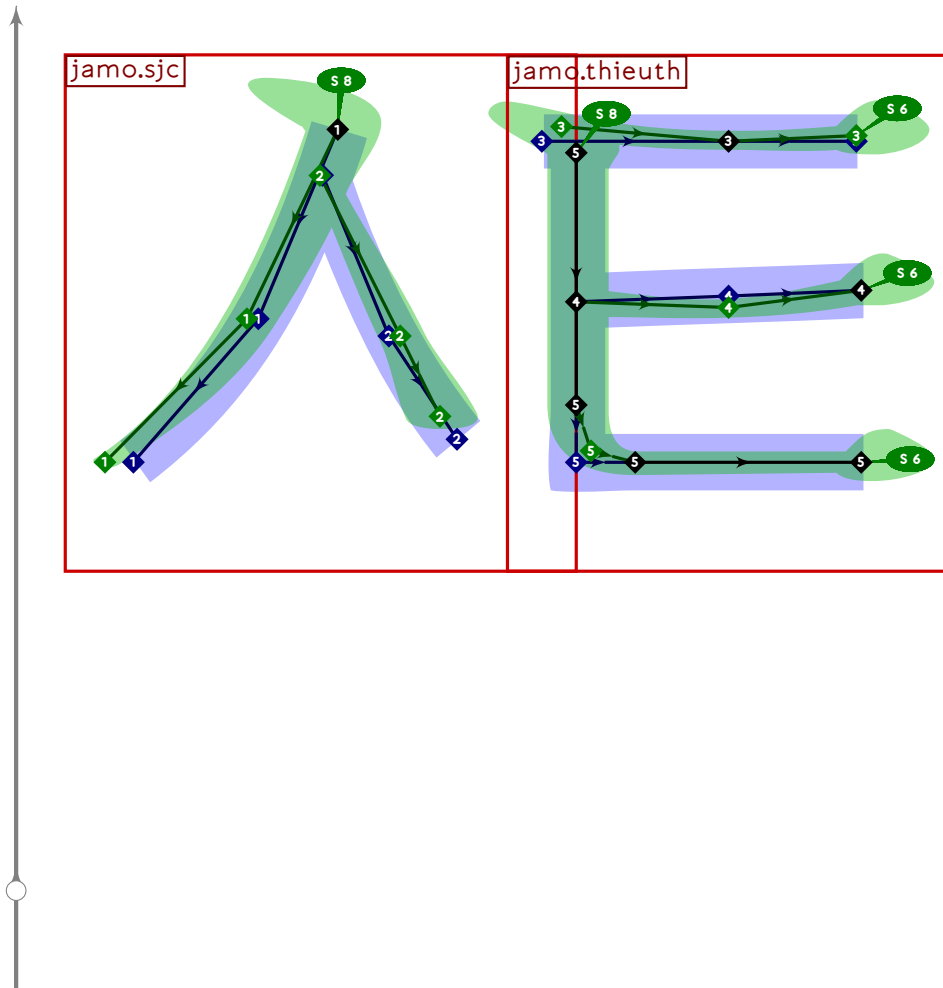




```

394 % hangul lead sios-khieukh
395 begintsuglyph("uni1138.l5",56);
396 hangul.combine.lr(209,115)(whatever,lixf,loxf);
397 tsu_render;
398 endtsuglyph;
399

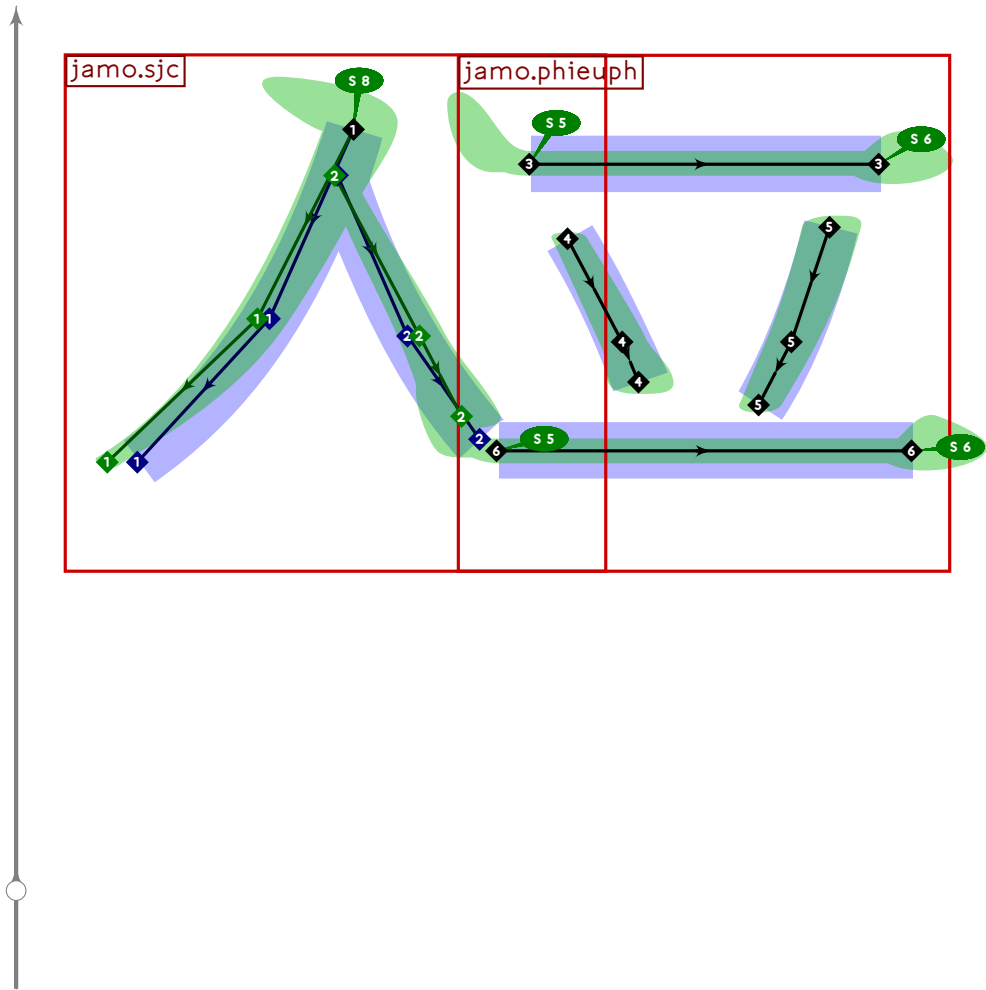
```



```

400 % hangul lead sios-thieuth
401 begintsuglyph("uni1139.15",57);
402 hangul.combine.lr(209,116)(whatever,lixf,loxf);
403 tsu_render;
404 endtsuglyph;
405

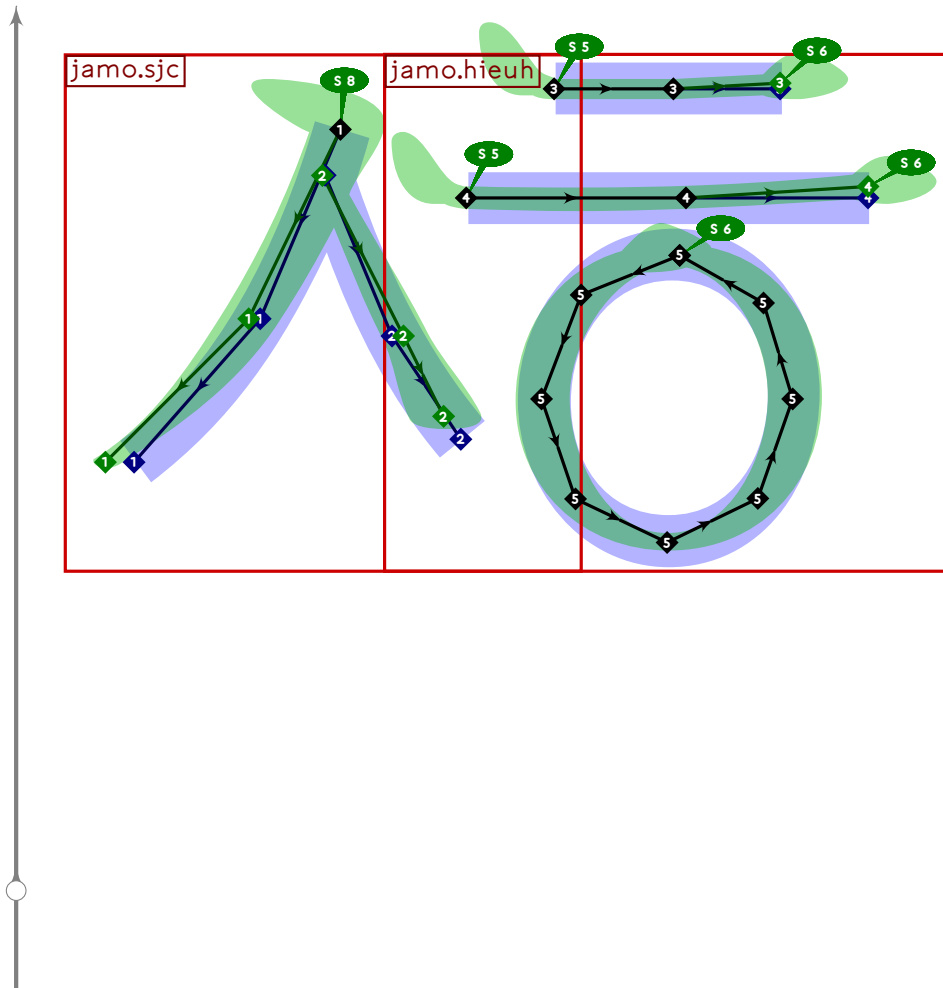
```



```

406 % hangul lead sios-phieuph
407 begint Suglyph("uni113A.15",58);
408 hangul.combine.lf(209,117)(whatever,lixf,loxf);
409 tsu_render;
410 endtsuglyph;
411

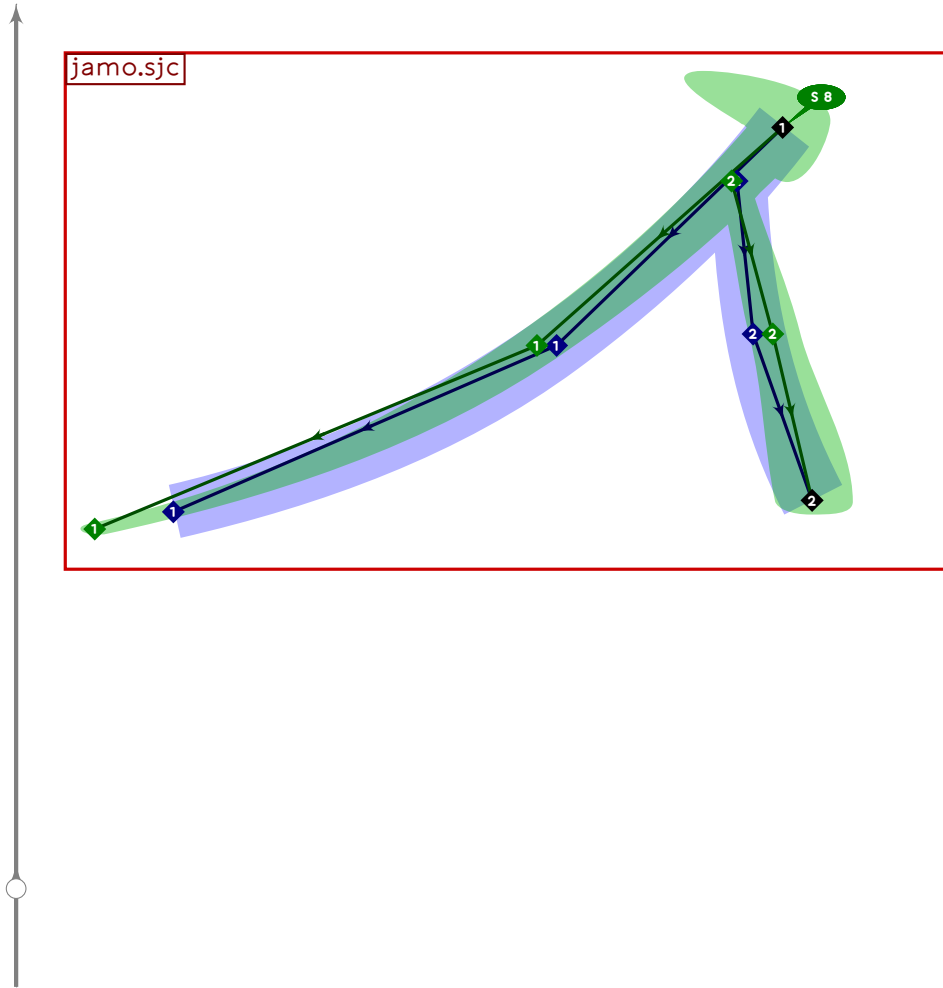
```



```

412 % hangul lead sios-hieuh
413 begintsuglyph("uni113B.l5";59);
414 hangul.combine.lr(209,118)(whatever,lixf,loxf);
415 tsu_render;
416 endtsuglyph;
417

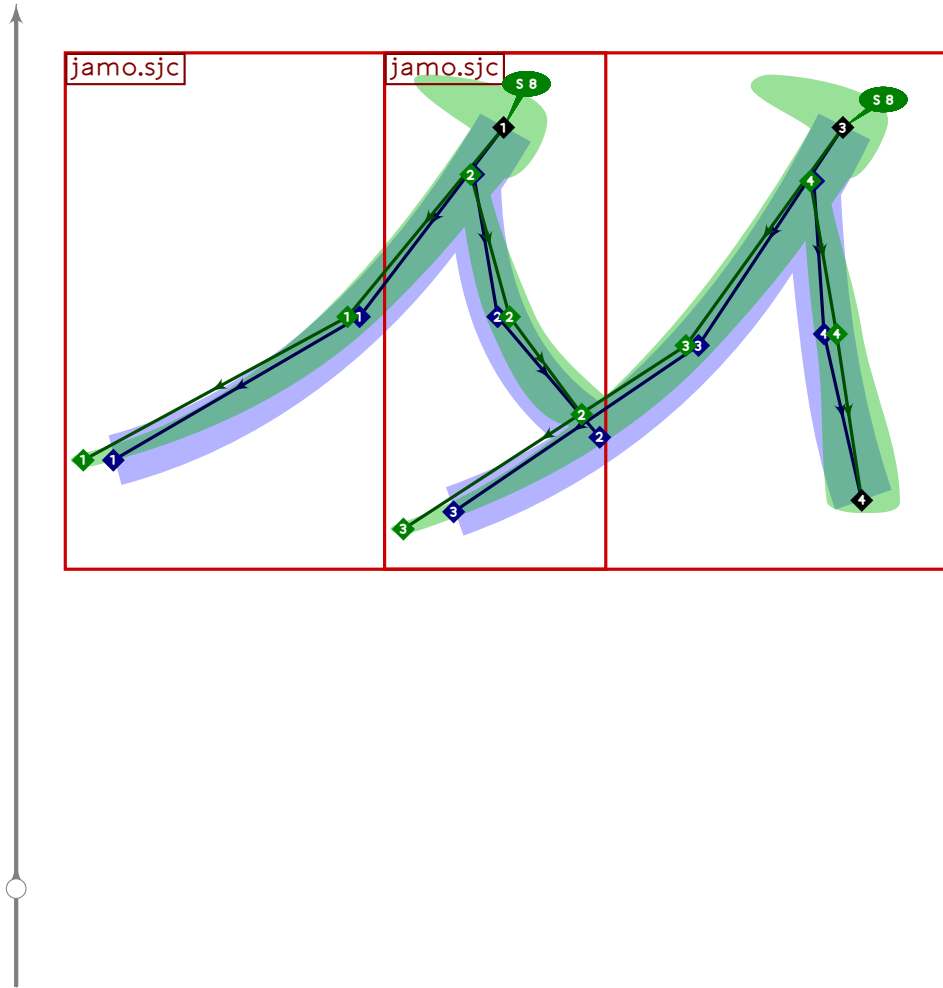
```



```

418 % hangul lead chitueumsios
419 begint Suglyph("uni113C.I5",60);
420 hangul.jamo.sjc(0,1,false)(whatever,lixf,loxf);
421 tsu_render;
422 endtsuglyph;
423

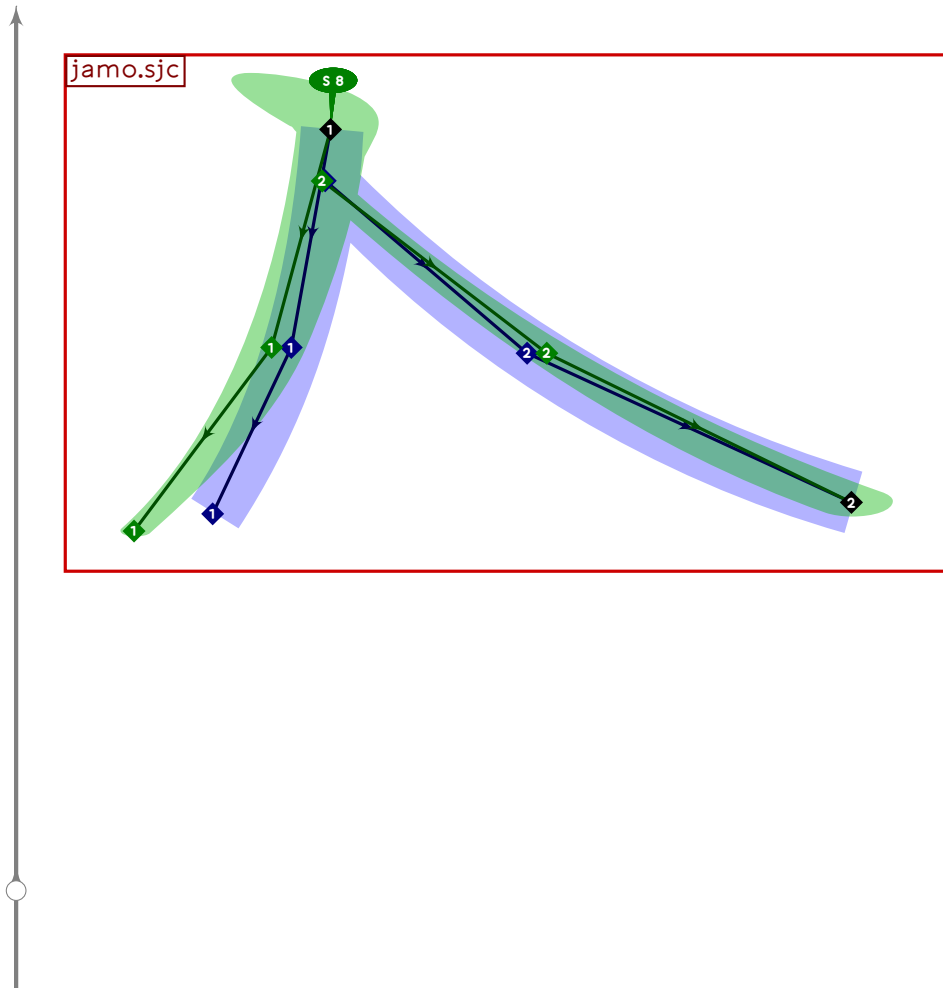
```



```

424 % hangul lead chitueumssangsios
425 begintsuglyph("uni113D.I5",61);
426 hangul.combine.lr(223,222)(whatever,lxf,loxf);
427 tsu_render;
428 endtsuglyph;
429

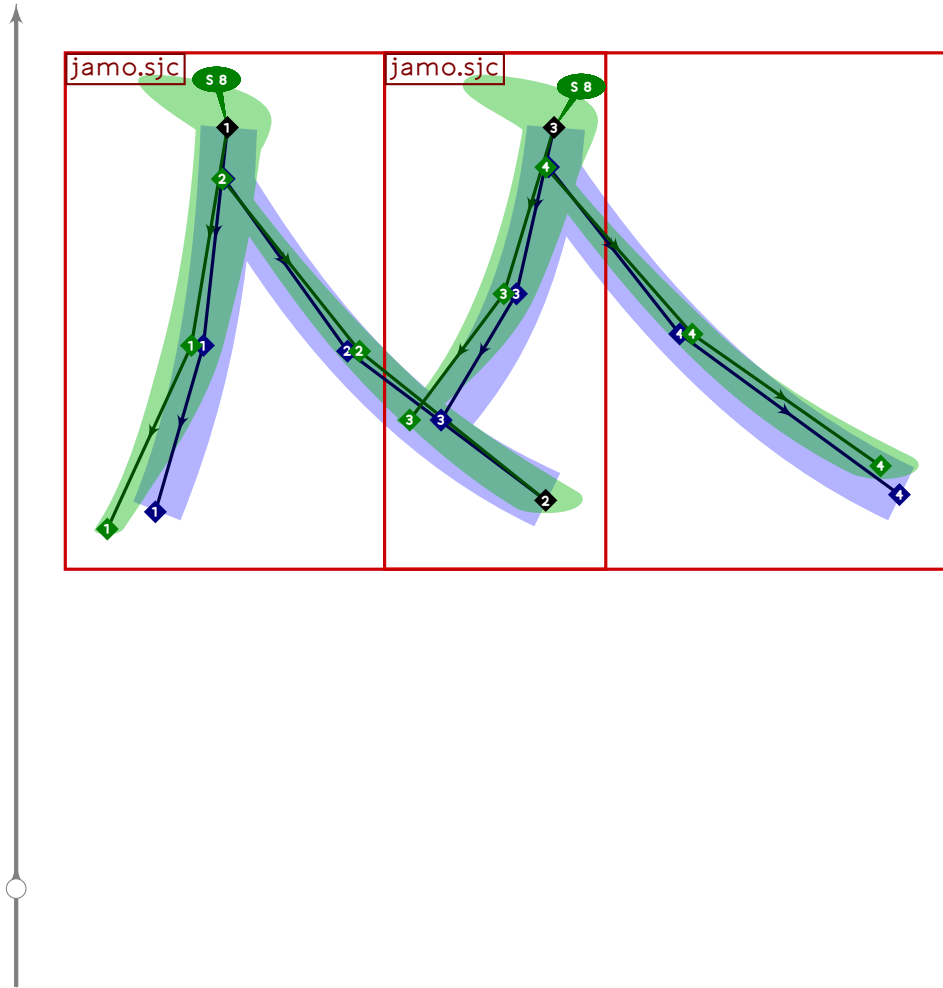
```



```

430 % hangul lead ceongchieumsios
431 begint Suglyph("uni113E.15",62);
432 hangul.jamo.sjc(0,-1,false)(whatever,lixf,loxf);
433 tsu_render;
434 endtsuglyph;
435

```

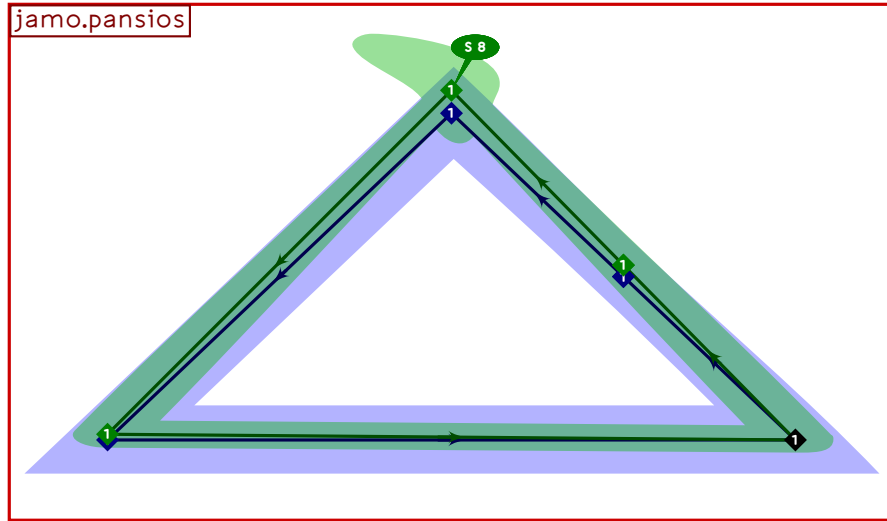


```

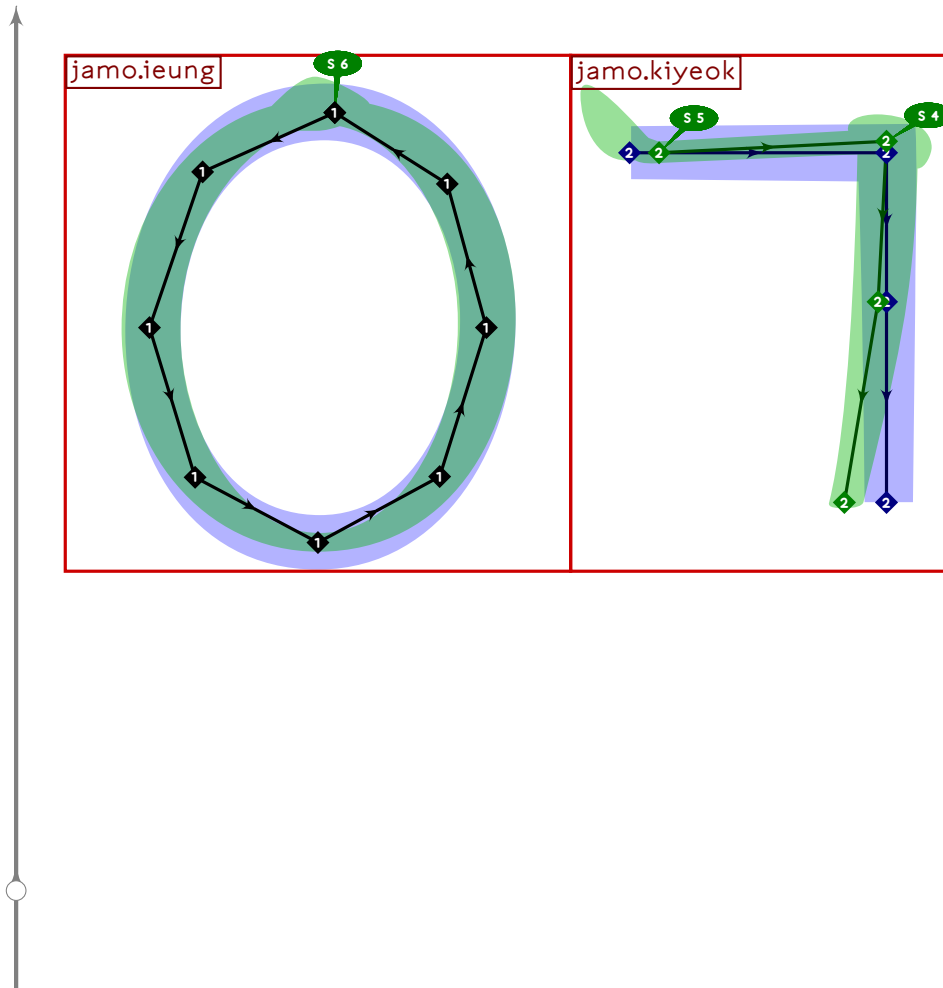
436 % hangul lead ceongchieumssangsios
437 begint Suglyph("uni113F.15",63);
438 hangul.combine.lr(224,225)(whatever,lixf,loxf);
439 tsu_render;
440 endtsuglyph;
441

```





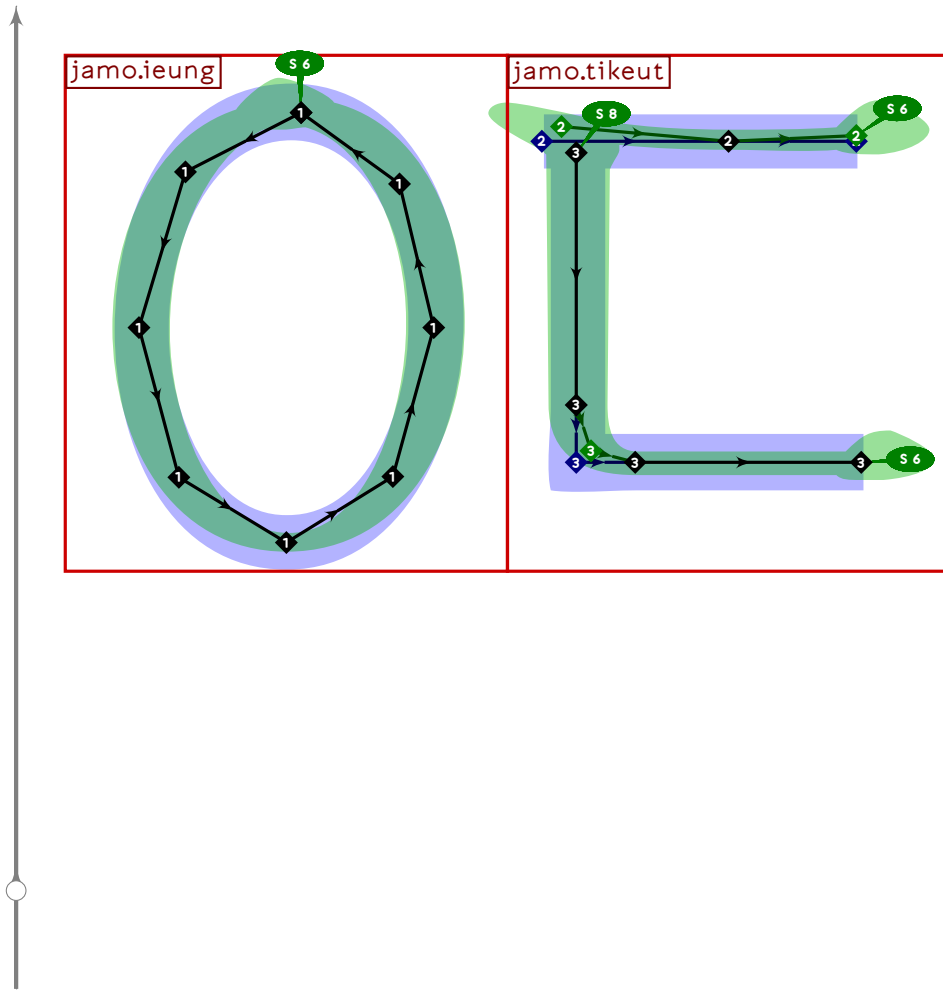
```
442 % hangul lead pansios
443 begintsuglyph("uni1140.l5",64);
444 hangul,jamo.pansios(whatever,lixf,loxf);
445 tsu_render;
446 endtsuglyph;
447
```



```

448 % hangul lead ieung-kiyeok
449 begintsuglyph("uni1141.15",65);
450 hangul.combine.lr(111,100)(whatever,lixf,loxf);
451 tsu_render;
452 endtsuglyph;
453

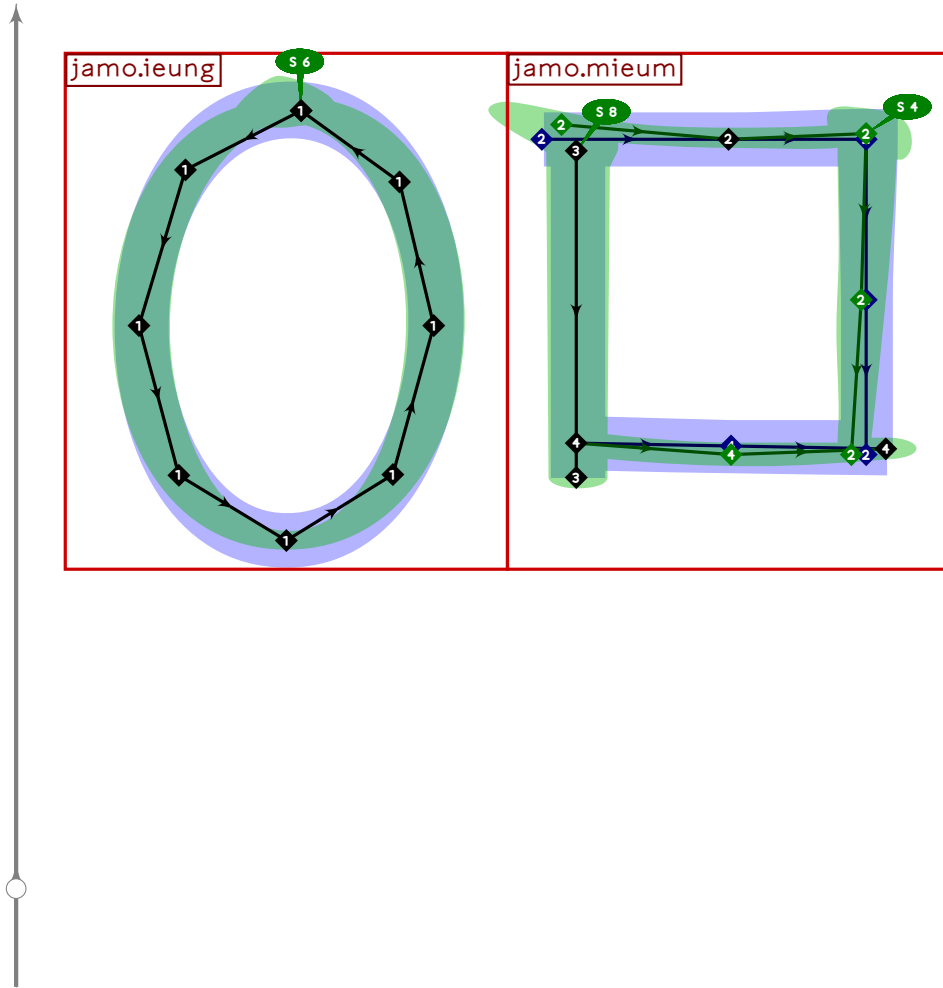
```



```

454 % hangul lead ieung-tikeut
455 begintsuglyph("uni1142.15",66);
456 hangul.combine.lr(111,103)(whatever,lixf,loxf);
457 tsu_render;
458 endtsuglyph;
459

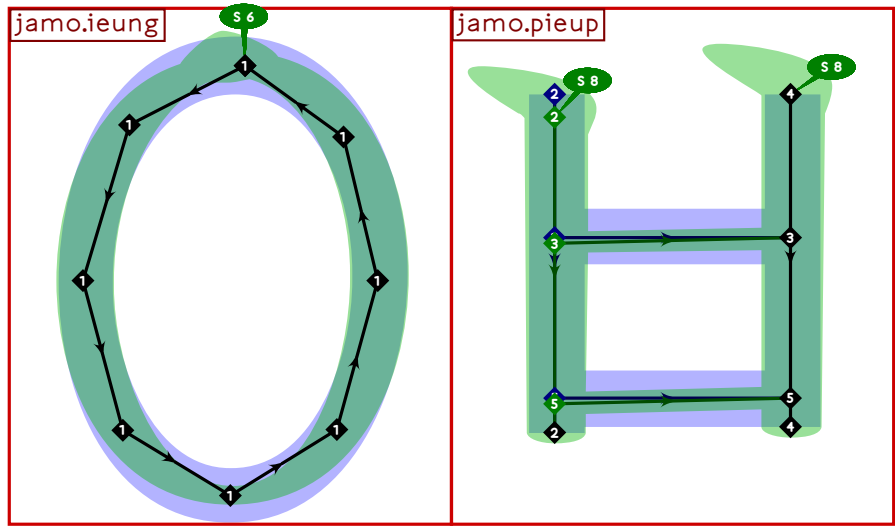
```



```

460 % hangul lead ieung-mieum
461 begintsuglyph("uni1143.15",67);
462 hangul.combine.lr(111,106)(whatever,lixf,loxf);
463 tsu_render;
464 endtsuglyph;
465

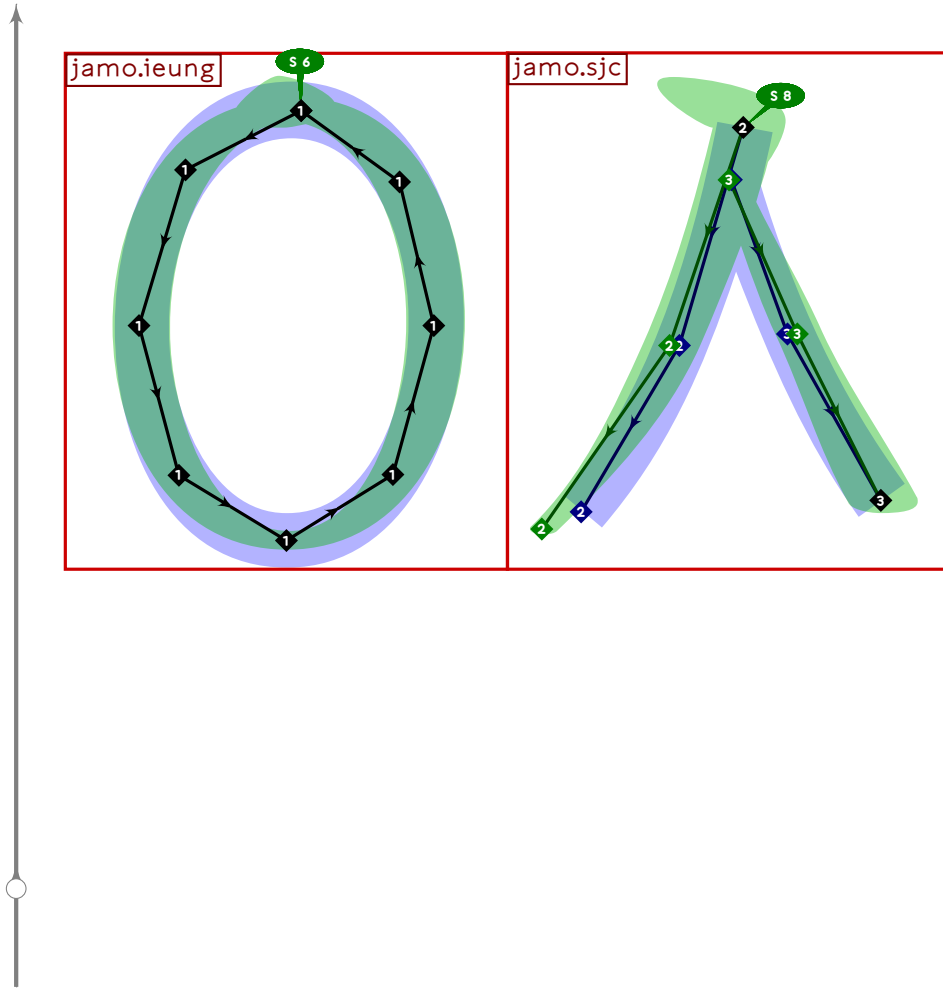
```



```

466 % hangul lead ieung-pieup
467 begintsuglyph("uni1144.15",68);
468 hangul.combine.lr(111,107)(whatever,lixf,loxf);
469 tsu_render;
470 endtsuglyph;
471

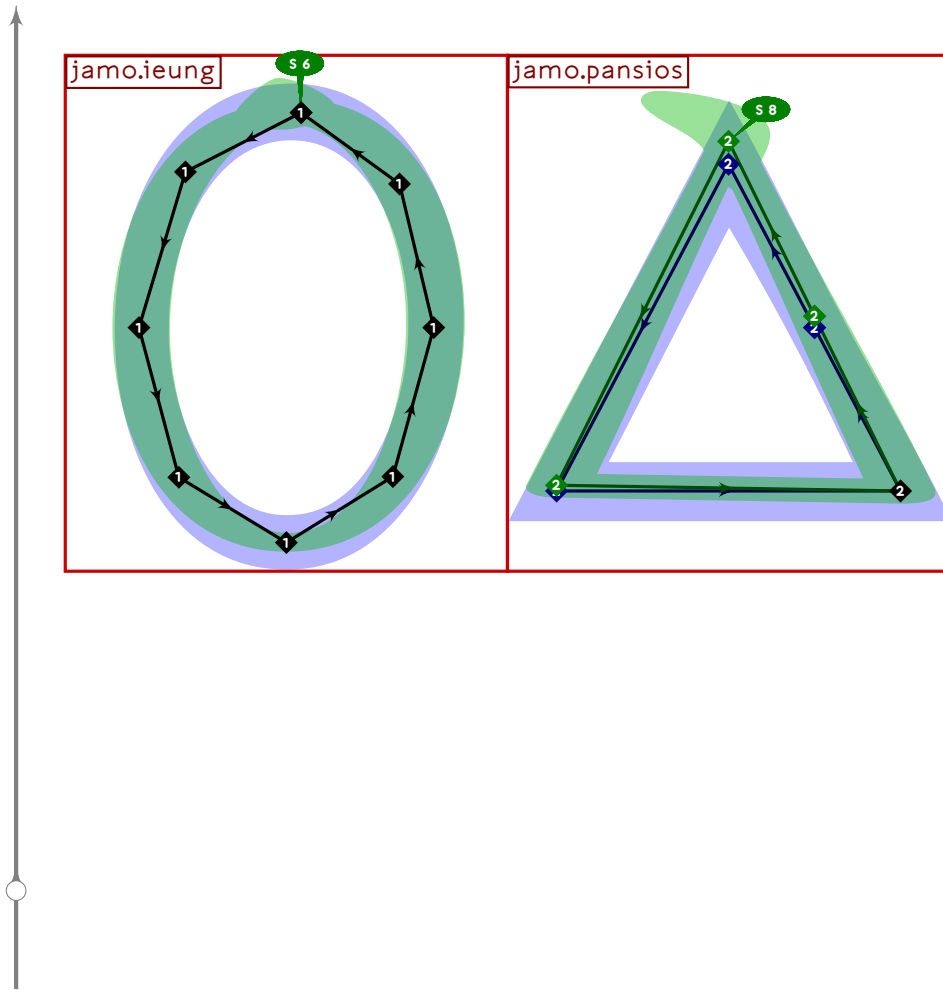
```



```

472 % hangul lead ieung-sios
473 begintsuglyph("uni1145.15",69);
474 hangul.combine.lr(111,109)(whatever,lixf,loxf);
475 tsu_render;
476 endtsuglyph;
477

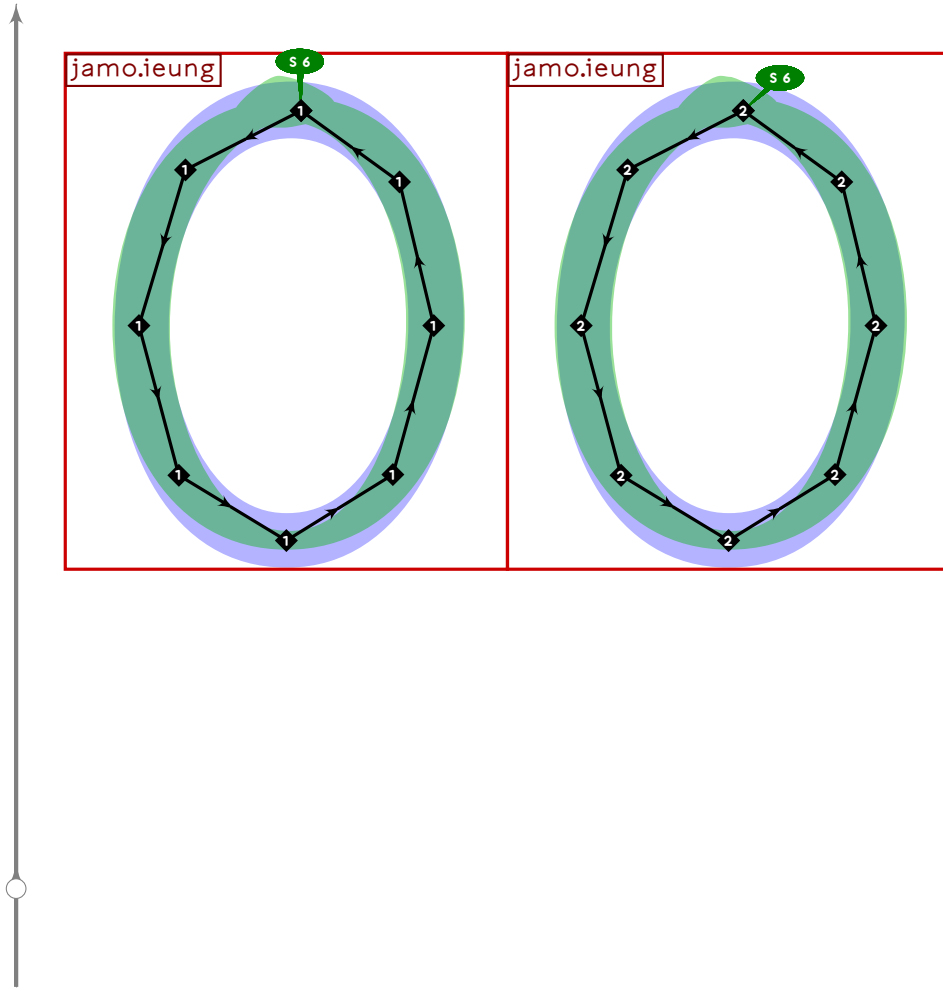
```



```

478 % hangul lead ieung-pansios
479 begintsuglyph("uni1146.l5",70);
480 hangul.combine.lr(111,219)(whatever,lixf,loxf);
481 tsu_render;
482 endtsuglyph;
483

```

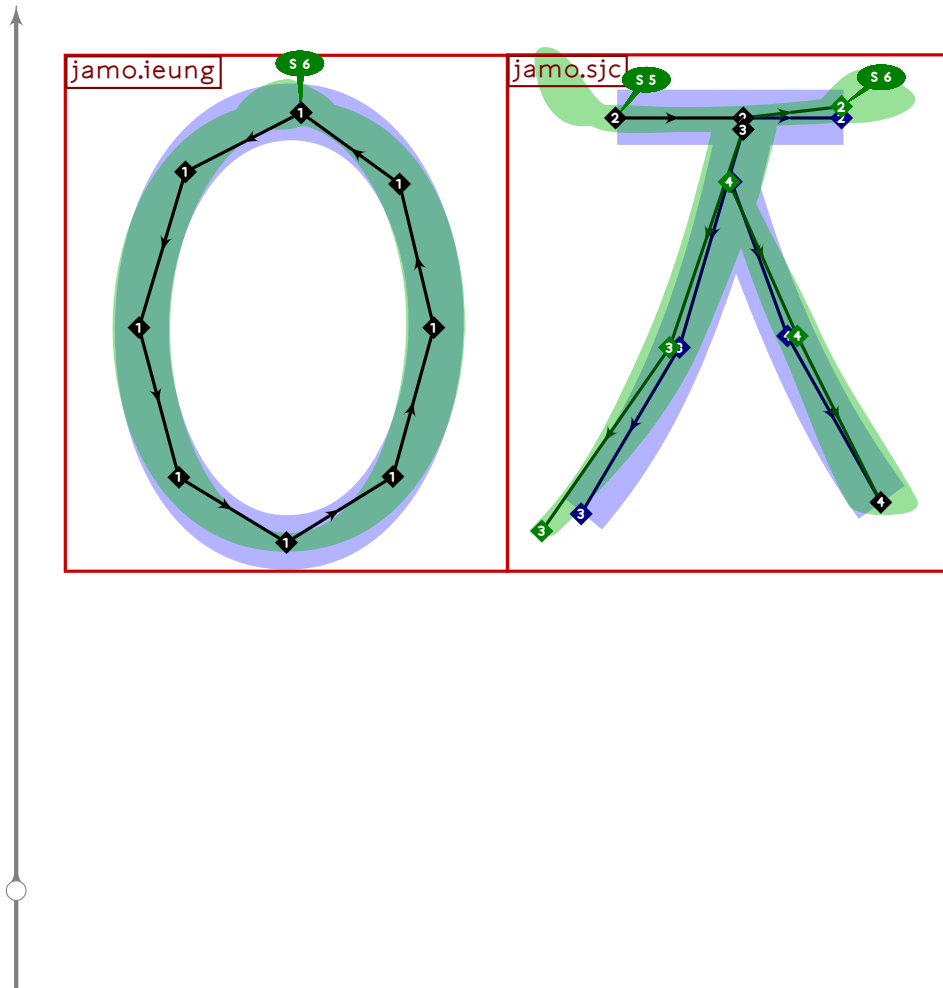


```

484 % hangul lead ssangieung
485 begintsuglyph("uni1147.15;71);
486 hangul.combine.lr(111,111)(whatever,lixf,loxf);
487 tsu_render;
488 endtsuglyph;
489

```

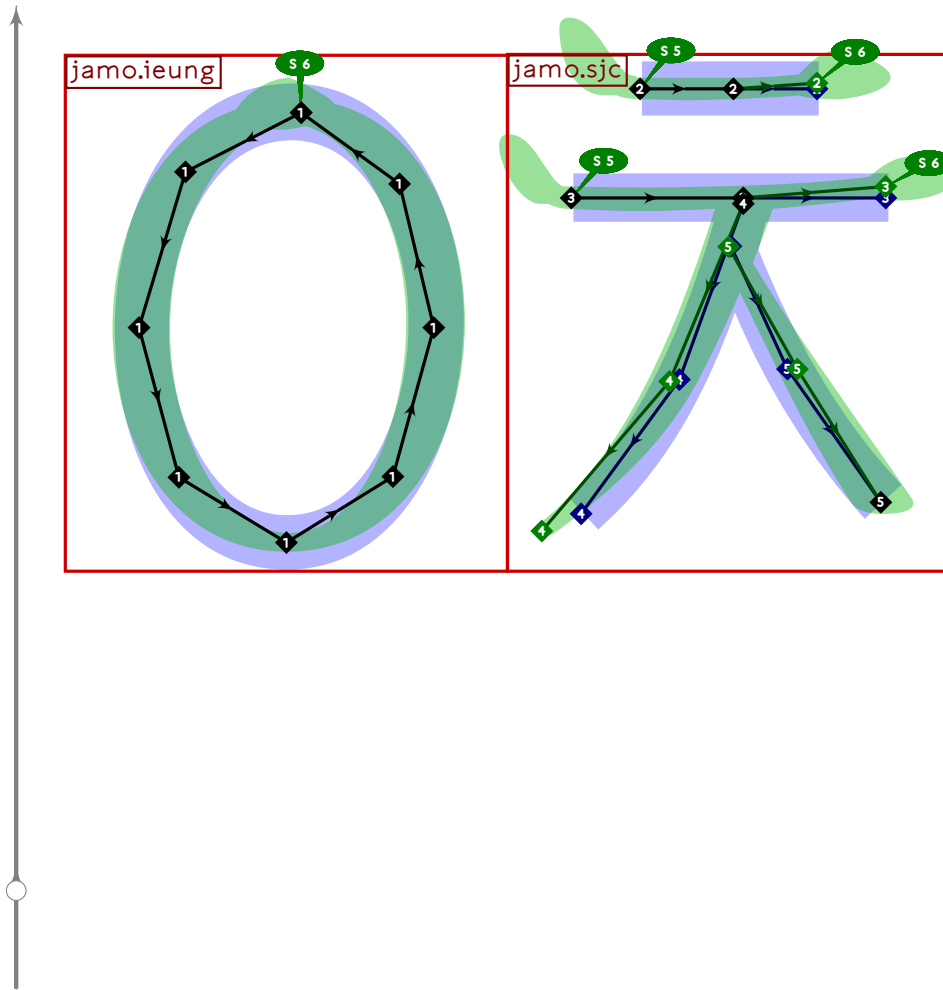




```

490 % hangul lead ieung-cieuc
491 begintsuglyph("uni1148.l5;72);
492 hangul.combine.lr(111,112)(whatever,lixf,loxf);
493 tsu_render;
494 endtsuglyph;
495

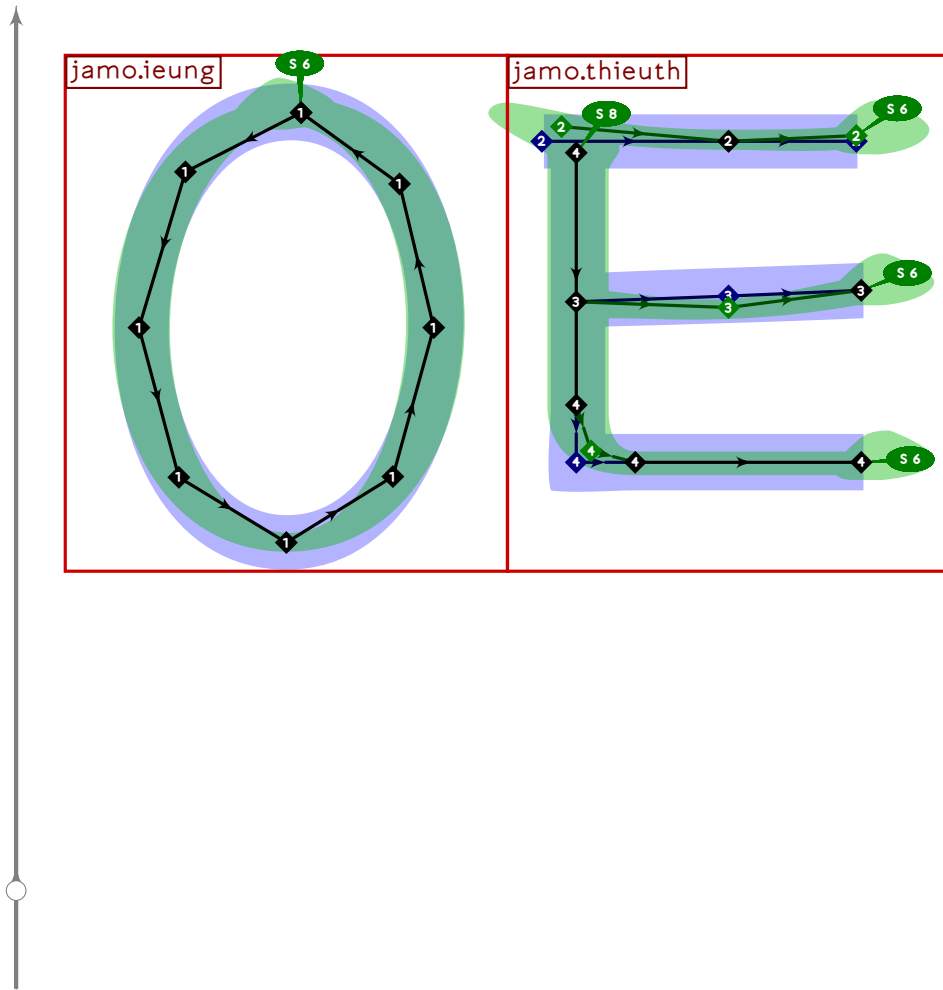
```



```

496 % hangul lead ieung-chieuch
497 begint Suglyph("uni1149.15",73);
498 hangul.combine.lr(111,114)(whatever,lixf,loxf);
499 tsu_render;
500 endtsuglyph;
501

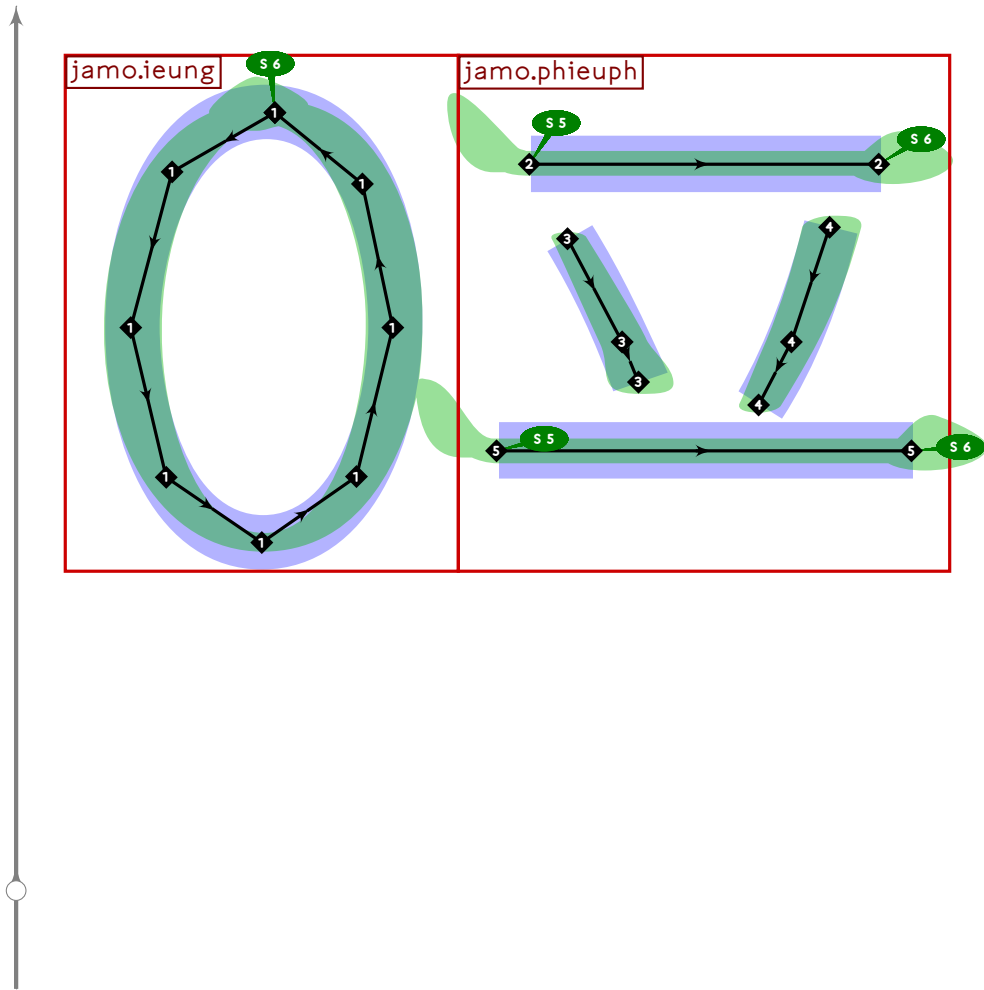
```



```

502 % hangul lead ieung-theiuth
503 begintsuglyph("uni114A.I5",74);
504 hangul.combine.lr(111,116)(whatever,lixf,loxf);
505 tsu_render;
506 endtsuglyph;
507

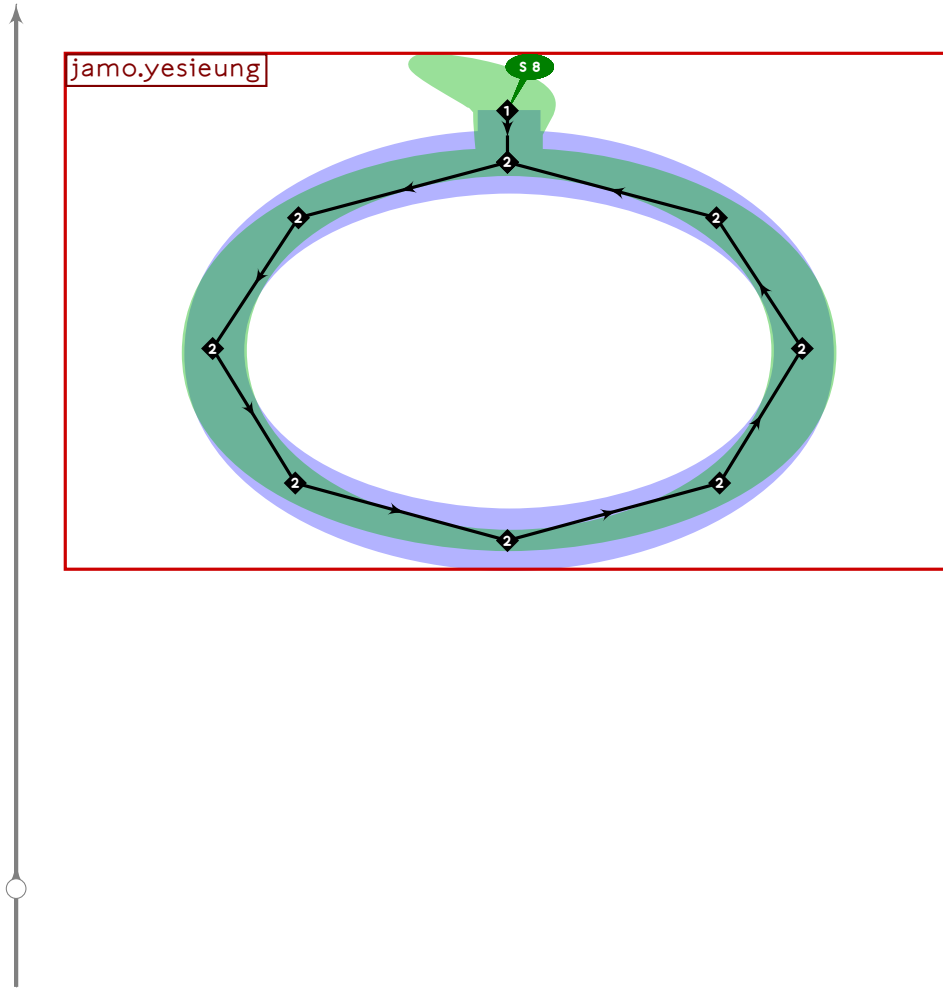
```



```

508 % hangul lead ieung-phieuph
509 begintsuglyph("uni114B.l5;75);
510 hangul.combine.lr(111,117)(whatever,lixf,loxf);
511 tsu_render;
512 endtsuglyph;
513

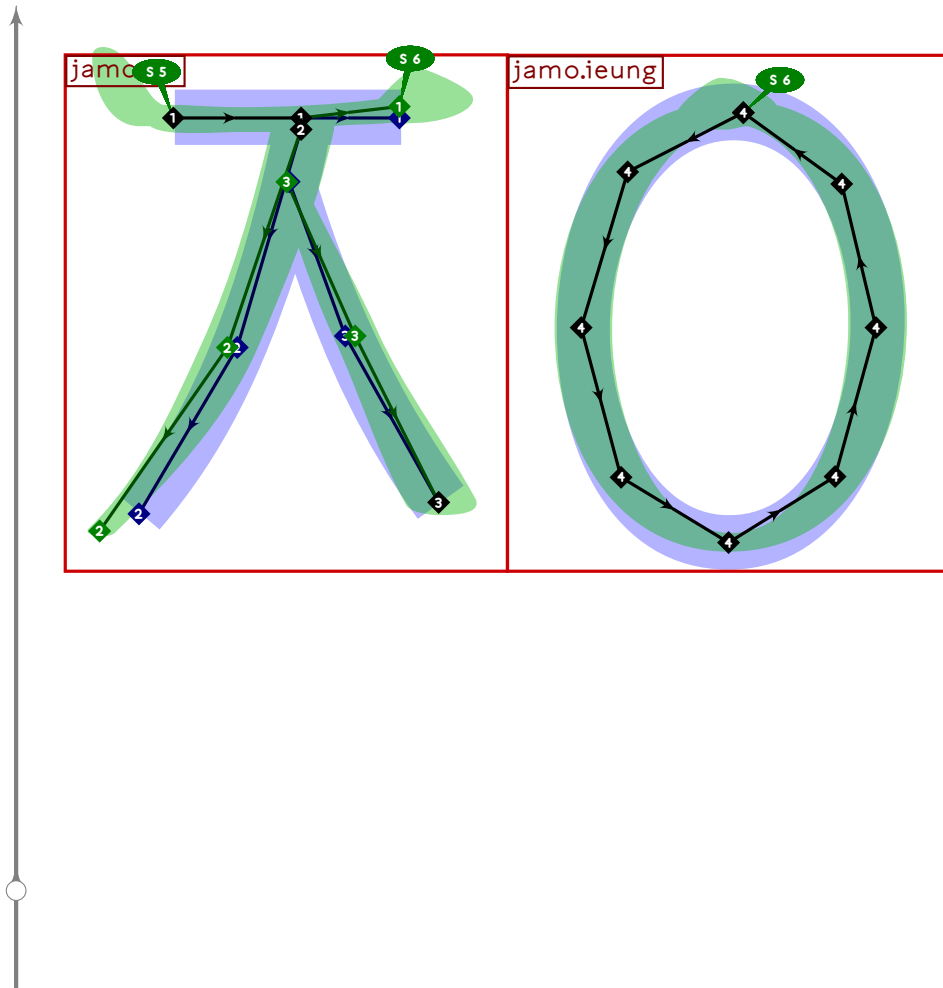
```



```

514 % hangul lead yesieung
515 begintsuglyph("uni114C.15",76);
516 hangul,jamo.yesieung(whatever,lixf,loxf);
517 tsu_render;
518 endtsuglyph;
519

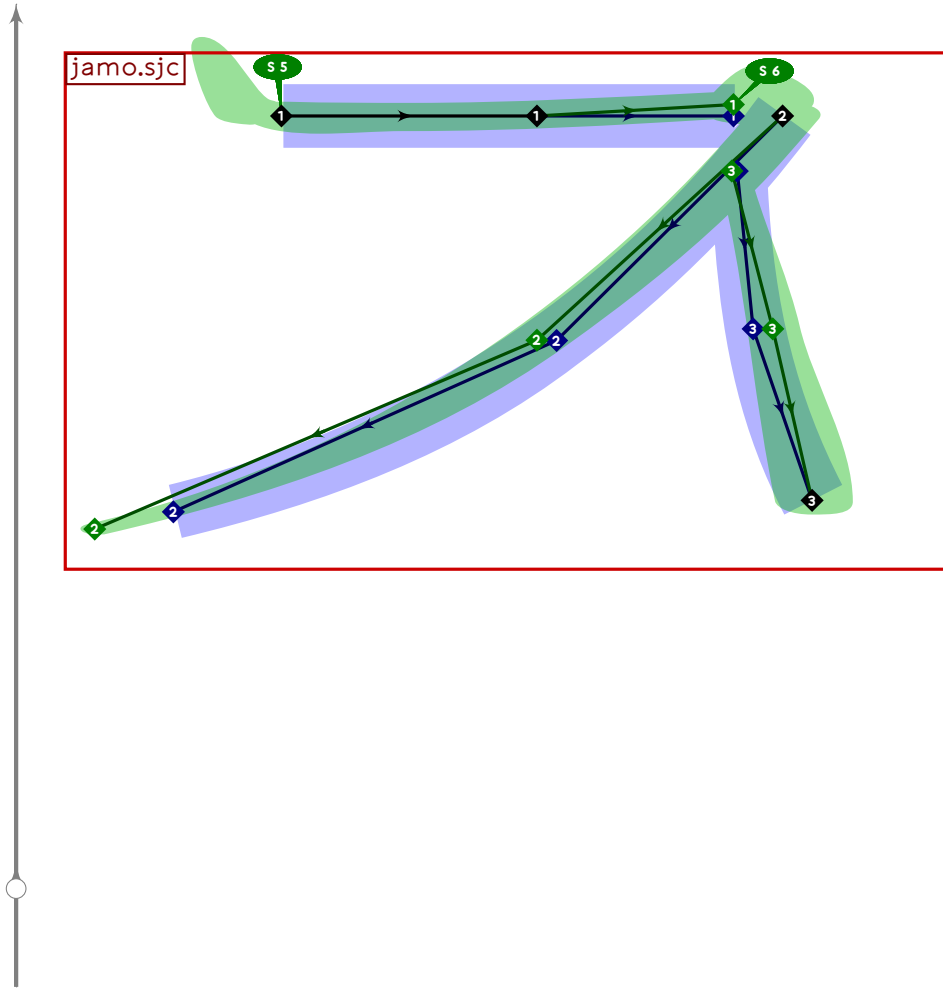
```



```

520 % hangul lead cieuc-ieung
521 begintsuglyph("uni114D.I5;77);
522 hangul.combine.lr(112,111)(whatever,lixf,loxf);
523 tsu_render;
524 endtsuglyph;
525

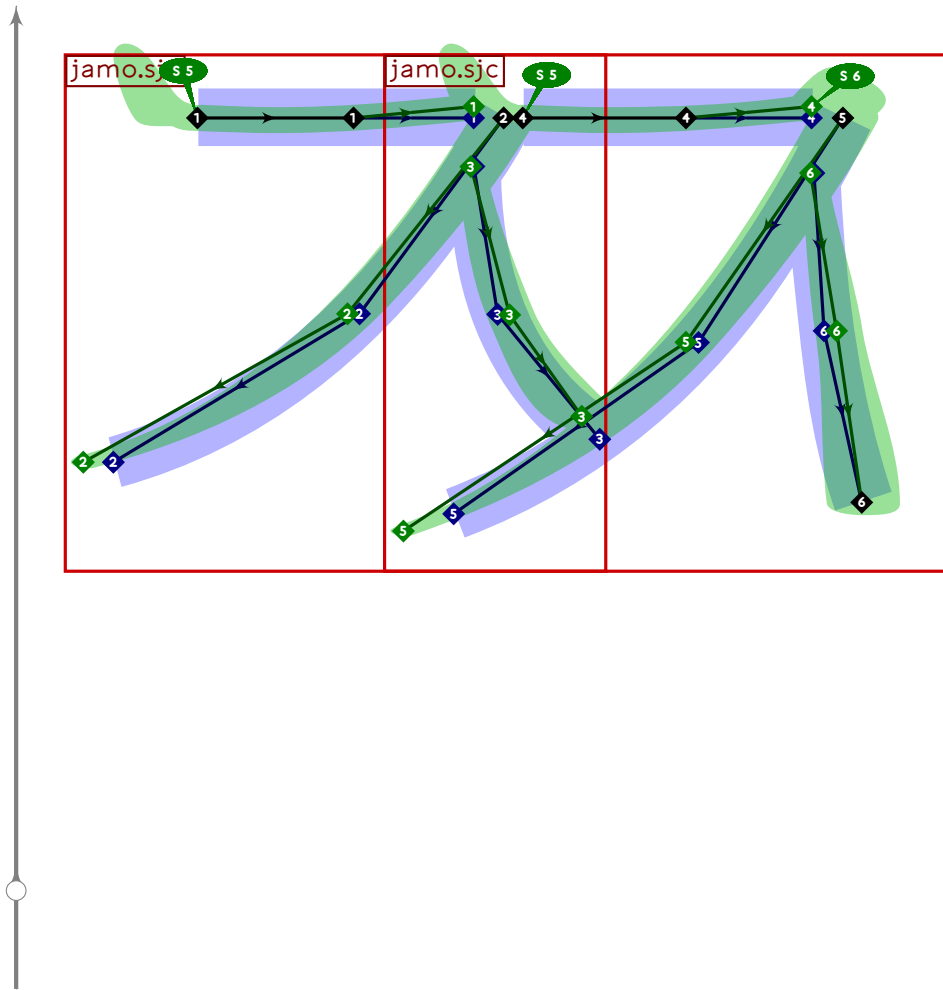
```



```

526 % hangul lead chitueumcieuc
527 begint Suglyph("uni114E.15",78);
528 hangul.jamo.sjc(1,1,false)(whatever,lixf,loxf);
529 tsu_render;
530 endtsuglyph;
531

```

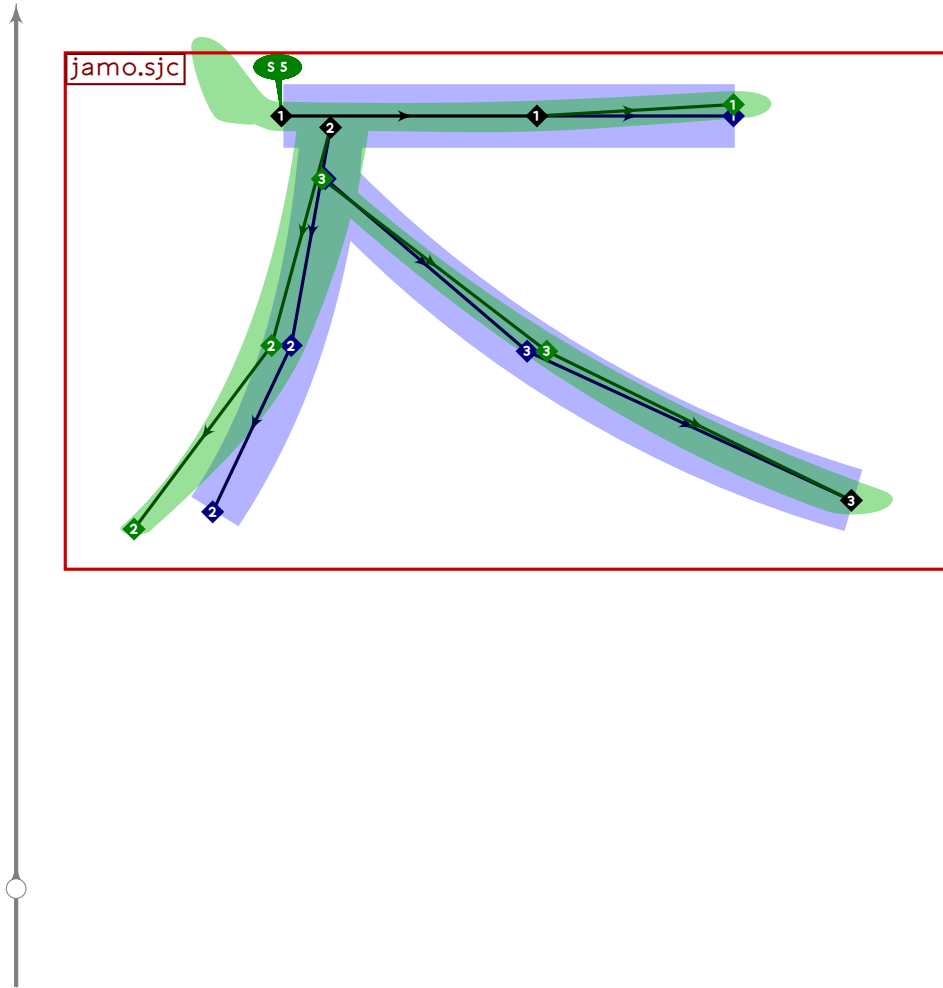


```

532 % hangul lead chitueumssangcieuc
533 begintsuglyph("uni114F.15",79);
534 hangul.combine.lr(227,226)(whatever,lixf,loxf);
535 tsu_render;
536 endtsuglyph;
537

```

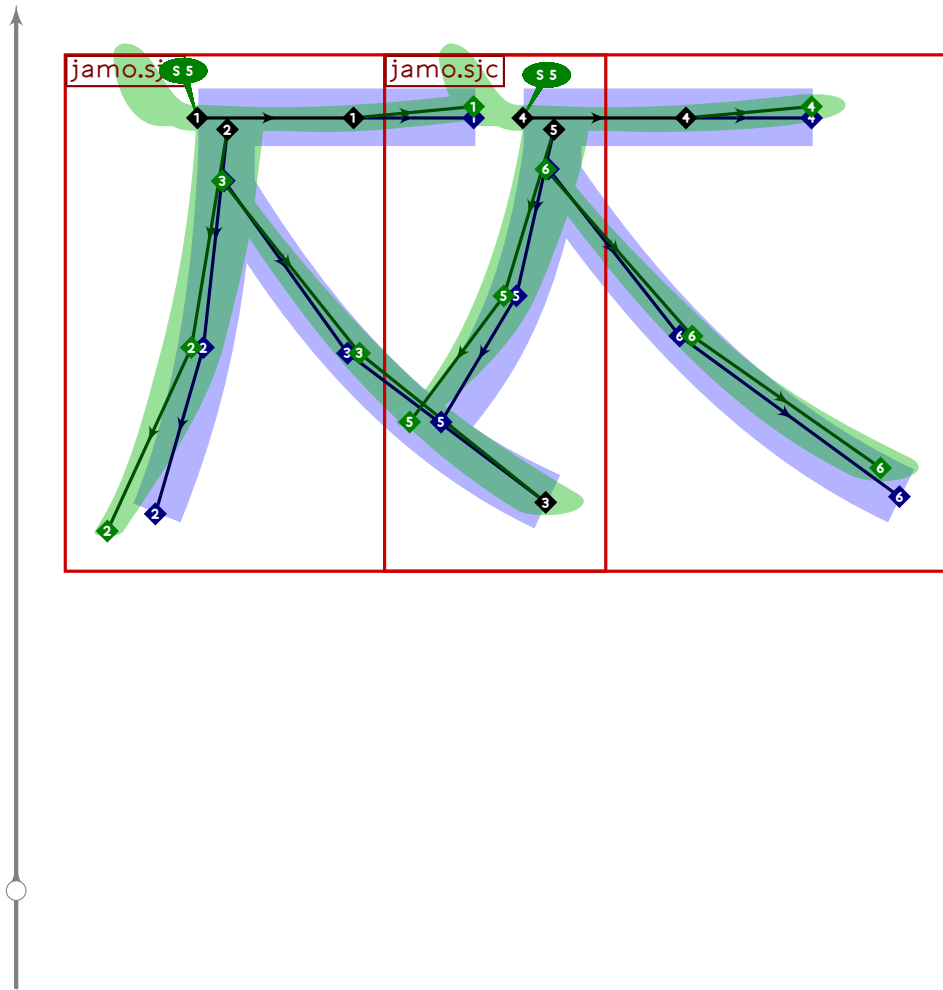




```

538 % hangul lead ceongchieumcieuc
539 begint Suglyph("uni1150.l5",80);
540 hangul.jamo.sjc(1,-1,false)(whatever,lixf,loxf);
541 tsu_render;
542 endtsuglyph;
543

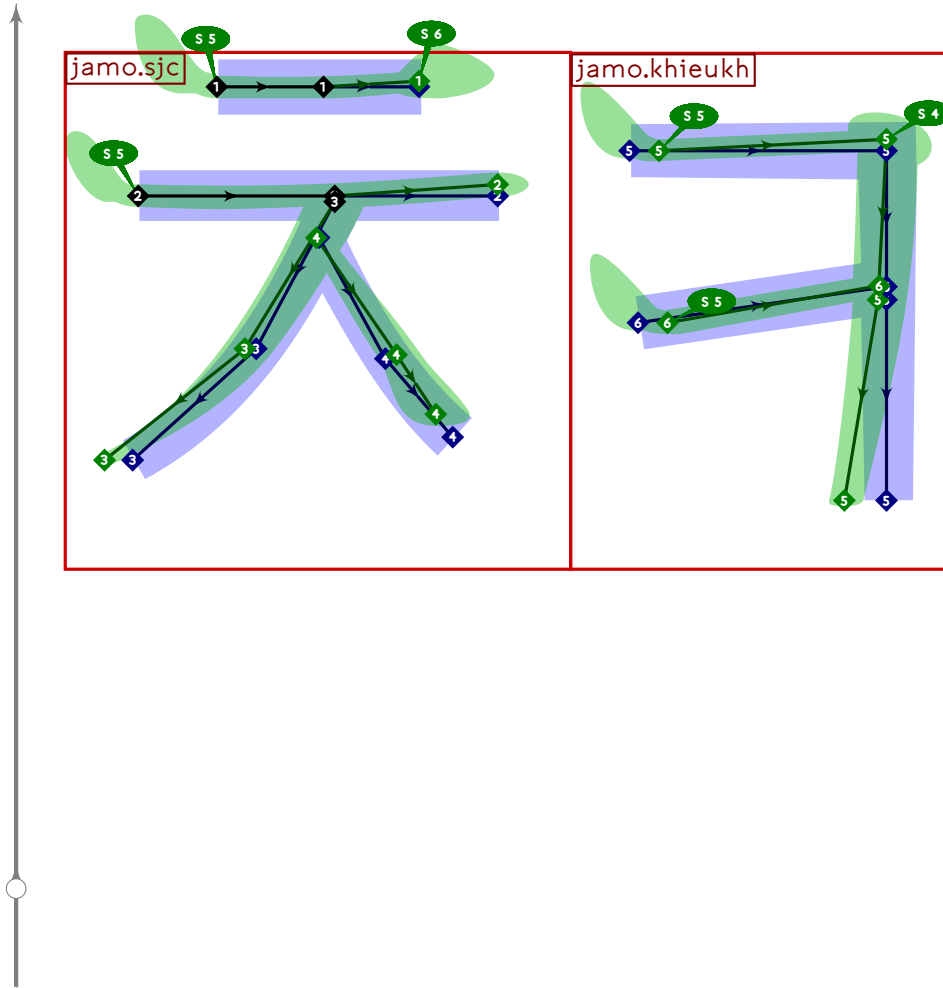
```



```

544 % hangul lead ceongchieumssangcieuc
545 begint Suglyph("uni1151.15",81);
546 hangul.combine.lr(228,229)(whatever,lif,loxf);
547 tsu_render;
548 endtsuglyph;
549

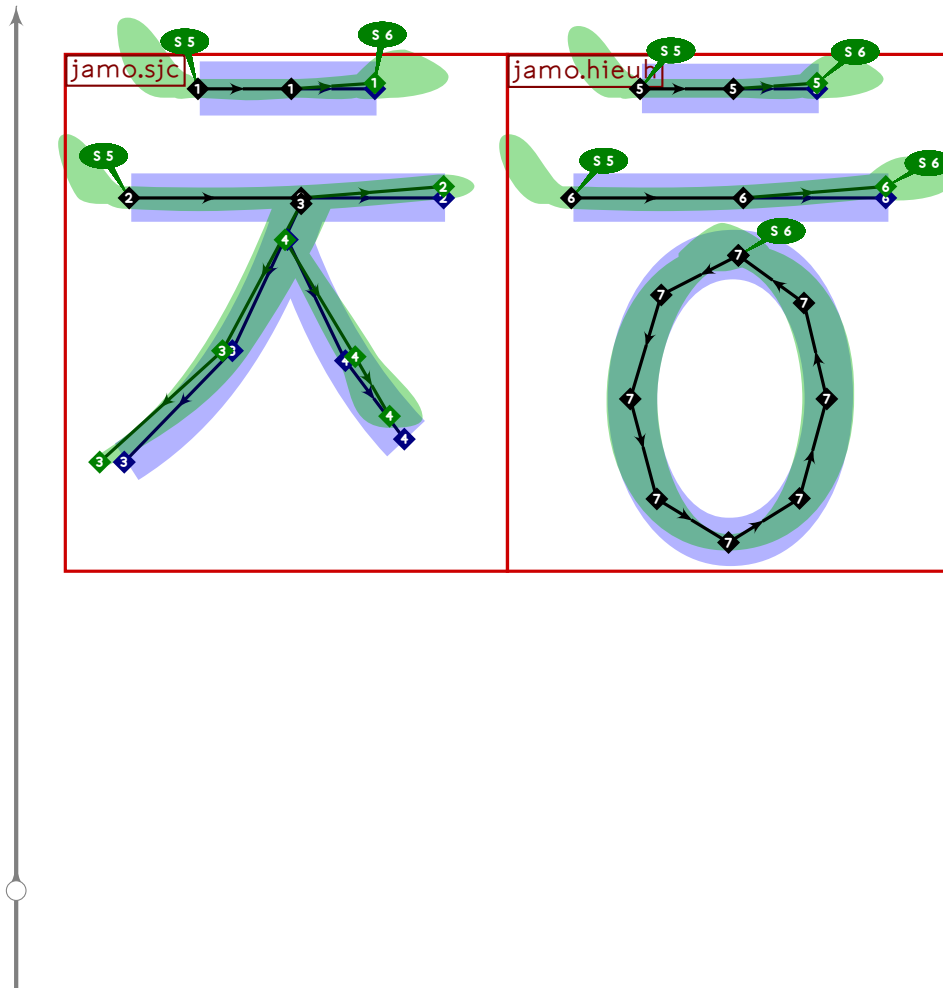
```



```

550 % hangul lead chieuch-khieukh
551 begint Suglyph("uni1152.l5",82);
552 hangul.combine.lcr(214,230,115)(whatever,lixf,loxf);
553 tsu_render;
554 endtsuglyph;
555

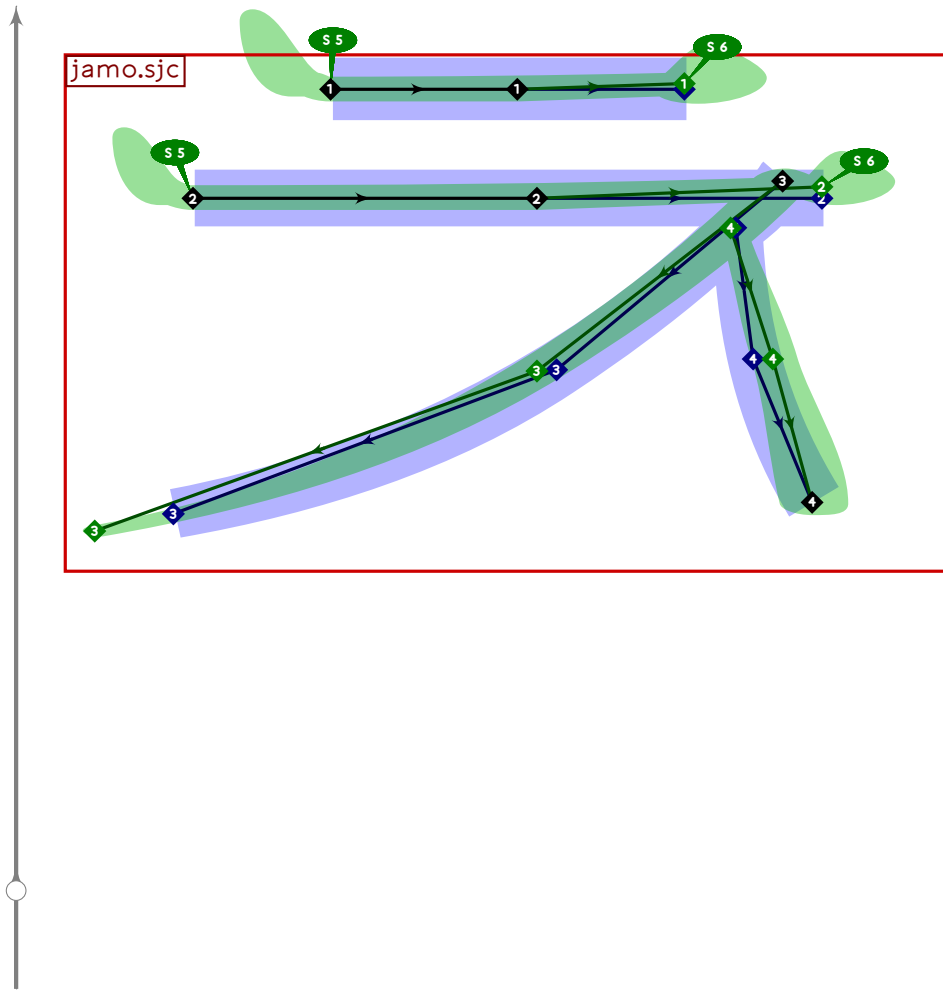
```



```

556 % hangul lead chieuch-hieuh
557 begintsuglyph("uni1153.l5",83);
558 hangul.combine.lcr(214,230,118)(whatever,lixf,loxf);
559 tsu_render;
560 endtsuglyph;
561

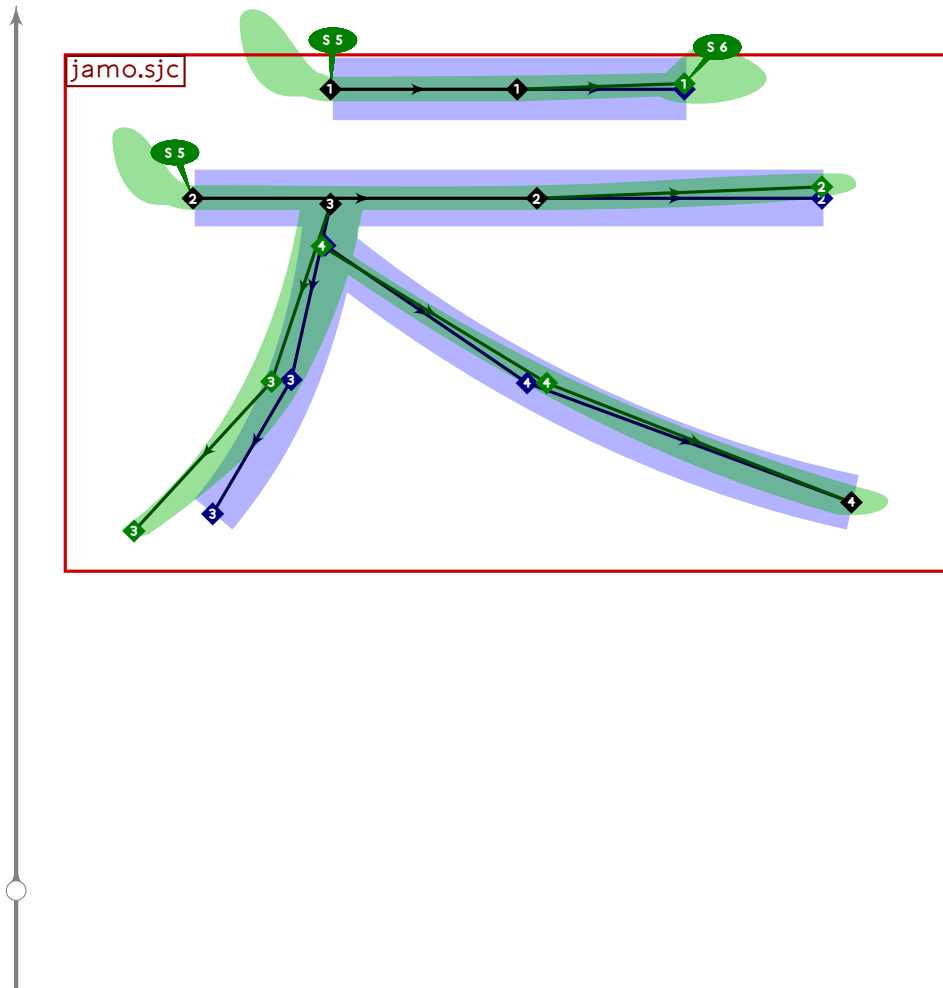
```



```

562 % hangul lead chitueumcieuc
563 begint Suglyph("uni1154.15",84);
564 hangul.jamo.sjc(2,1,false)(whatever,lixf,loxf);
565 tsu_render;
566 endtsuglyph;
567

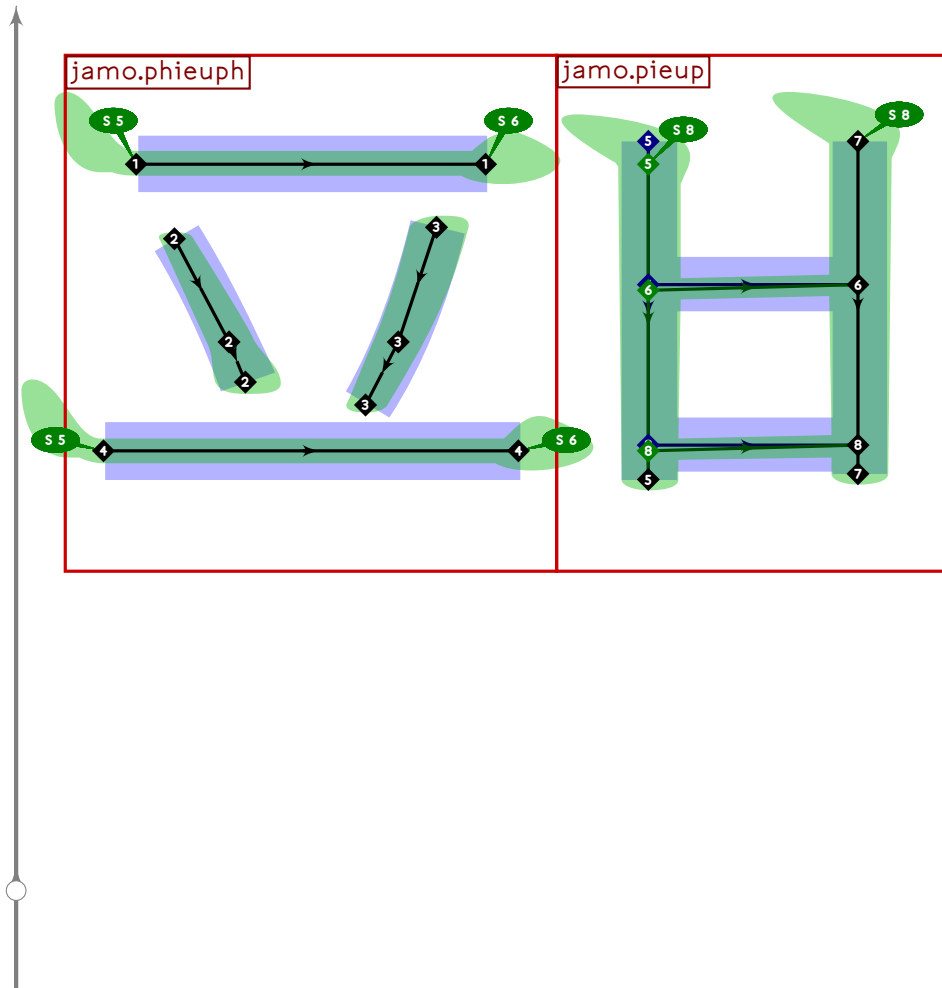
```



```

568 % hangul lead ceongchieumcieuc
569 begint Suglyph("uni1155.15",85);
570 hangul.jamo.sjc(2,-1,false)(whatever,lixf,loxf);
571 tsu_render;
572 endtsuglyph;
573

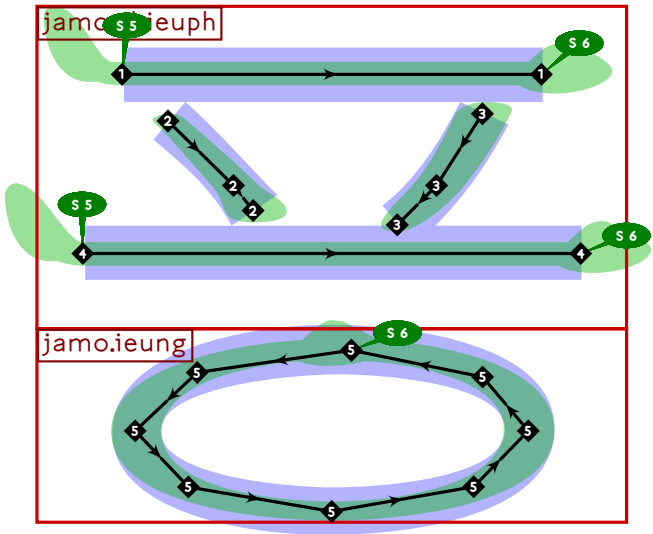
```



```

574 % hangul lead phieuph-pieup
575 begintsuglyph("uni1156.l5",86);
576 hangul.combine.lr(117,107)(whatever,lixf,loxf);
577 tsu_render;
578 endtsuglyph;
579

```

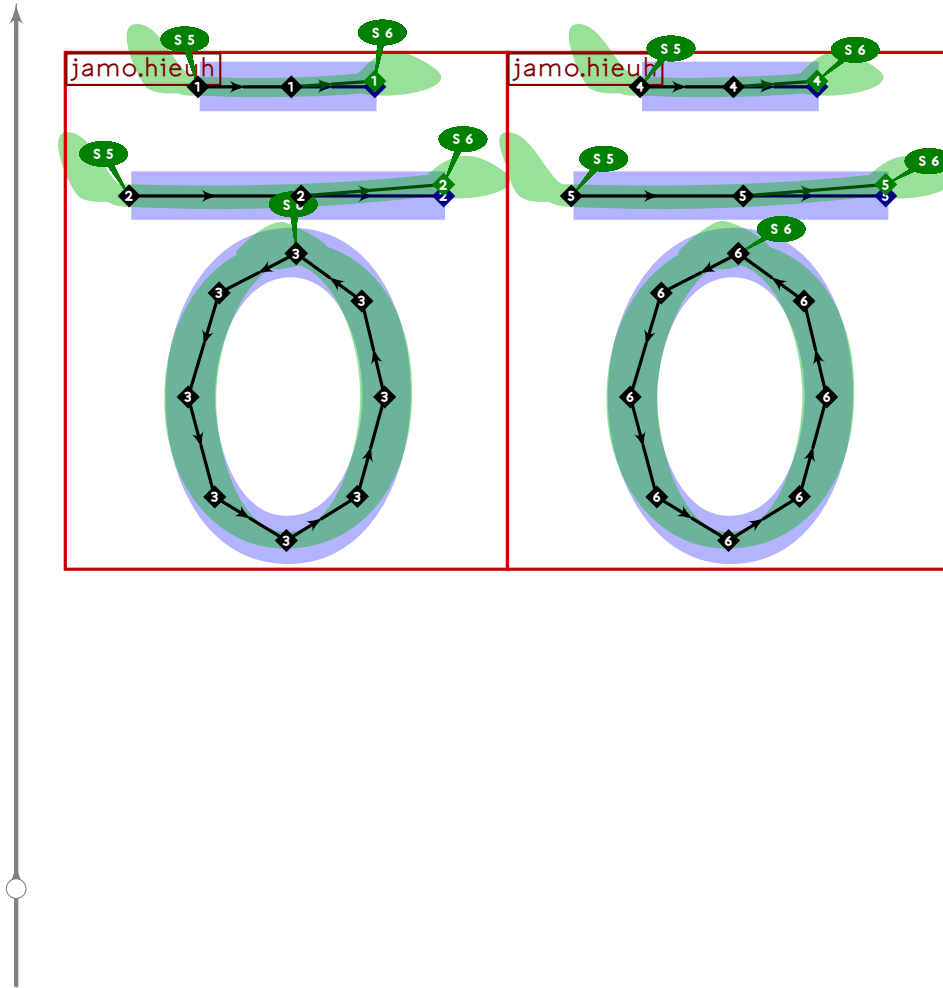


```

580 % hangul lead kapyeounphieuph
581 begintsuglyph("uni1157.15",87);
582 hangul.combine.tb(117,521)(whatever,
583   hxf((250,850),(850,-50)) transformed lixf,loxf);
584 tsu_render;
585 endtsuglyph;
586

```

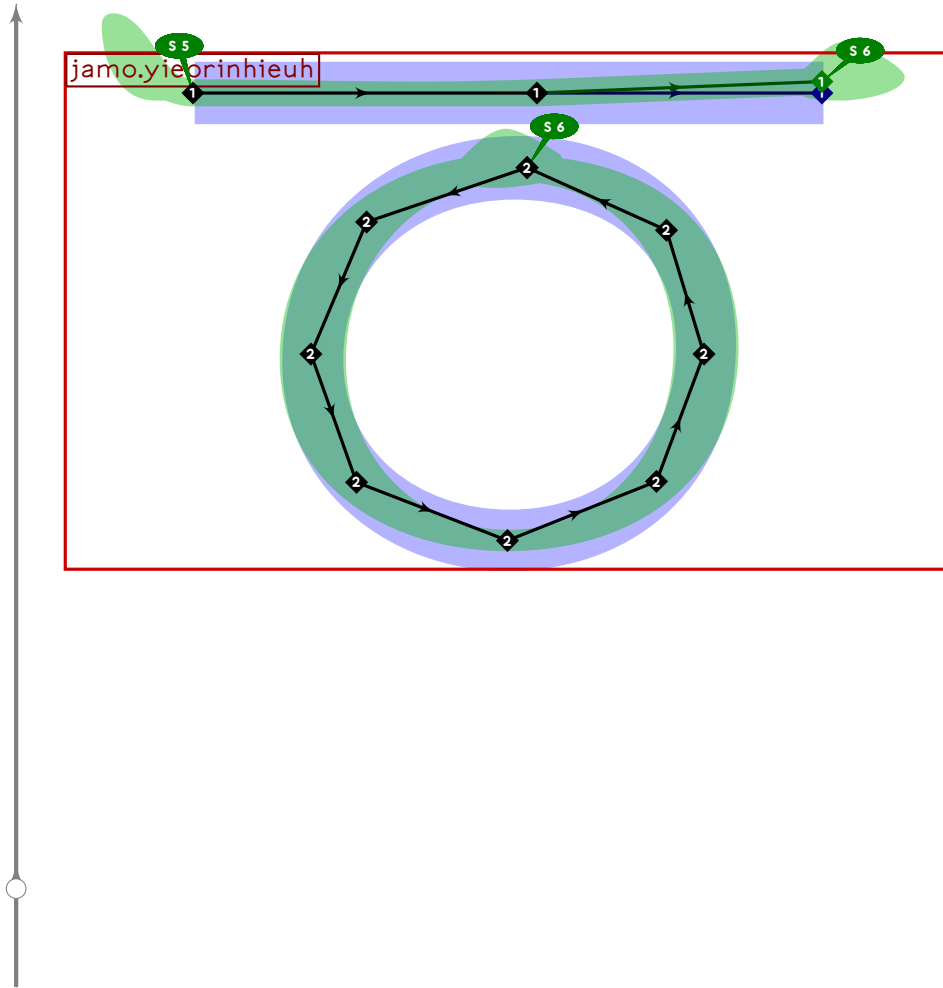




```

587 % hangul lead ssanghieuh
588 begintsuglyph("uni1158.l5",88);
589 hangul.combine.lcr(118,230,118)(whatever,lixf,loxf);
590 tsu_render;
591 endtsuglyph;
592

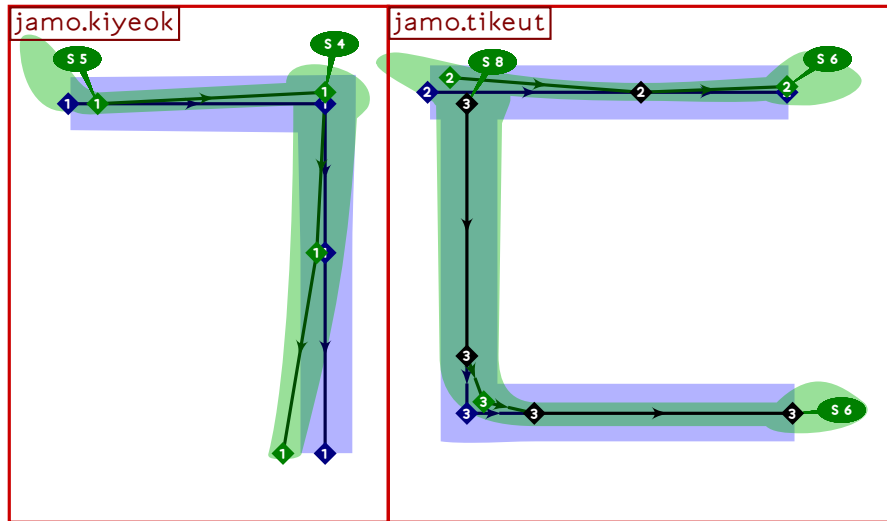
```



```

593 % hangul lead yeorinhieuh
594 begintsuglyph("uni1159.15",89);
595 hangul.jamo.yeorinhieuh(whatever,lixf,loxf);
596 tsu_render;
597 endtsuglyph;
598

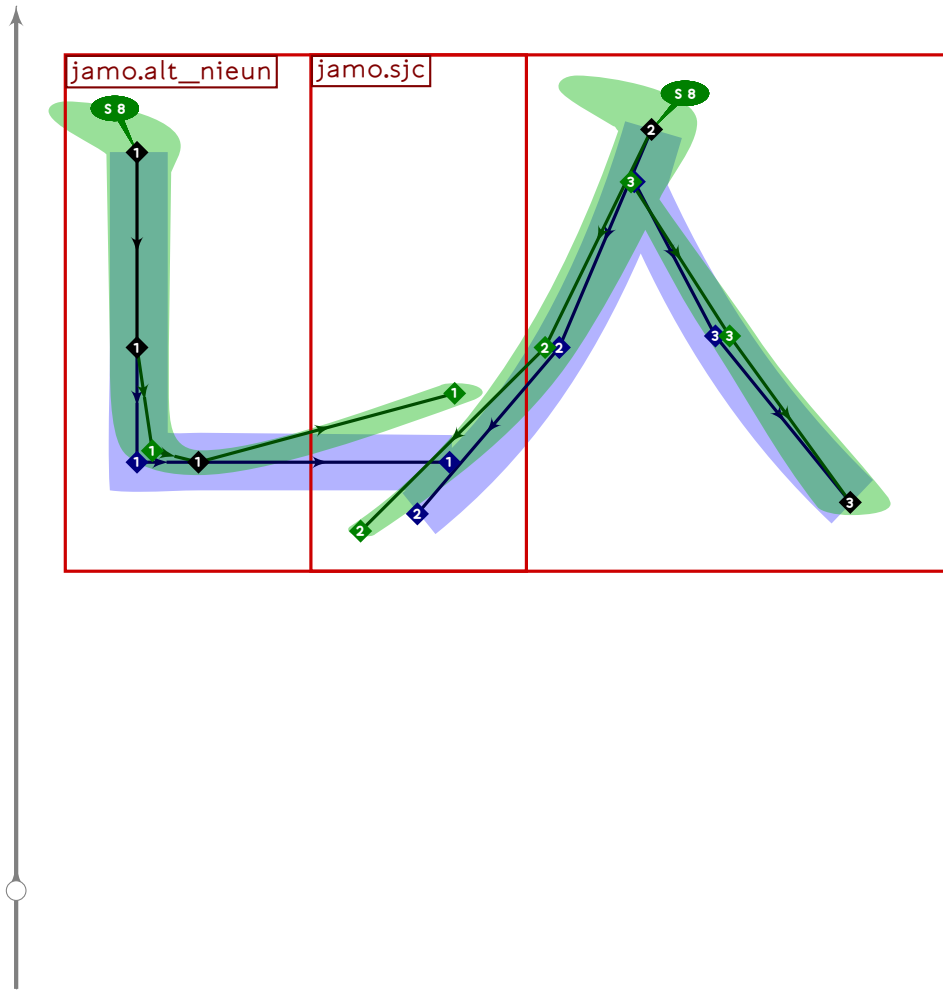
```



```

599 % hangul lead kiyeok-tikeut
600 begint Suglyph("uni115A.15",90);
601 hangul.combine.lr(100,103)(whatever,lixf,loxf);
602 tsu_render;
603 endtsuglyph;
604

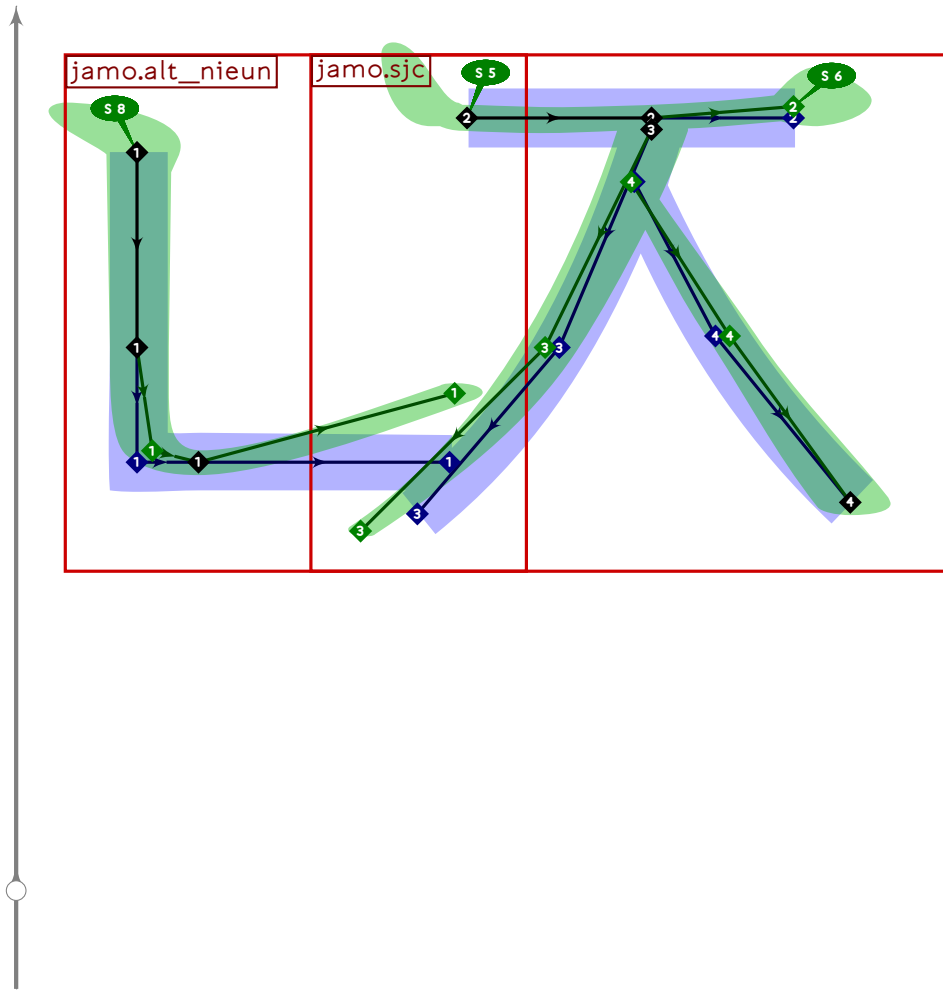
```



```

605 % hangul lead nieun-sios
606 begint Suglyph("uni115B.l5"91);
607 hangul.combine.lr(202,109)(whatever,lixf,loxf);
608 tsu_render;
609 endtsuglyph;
610

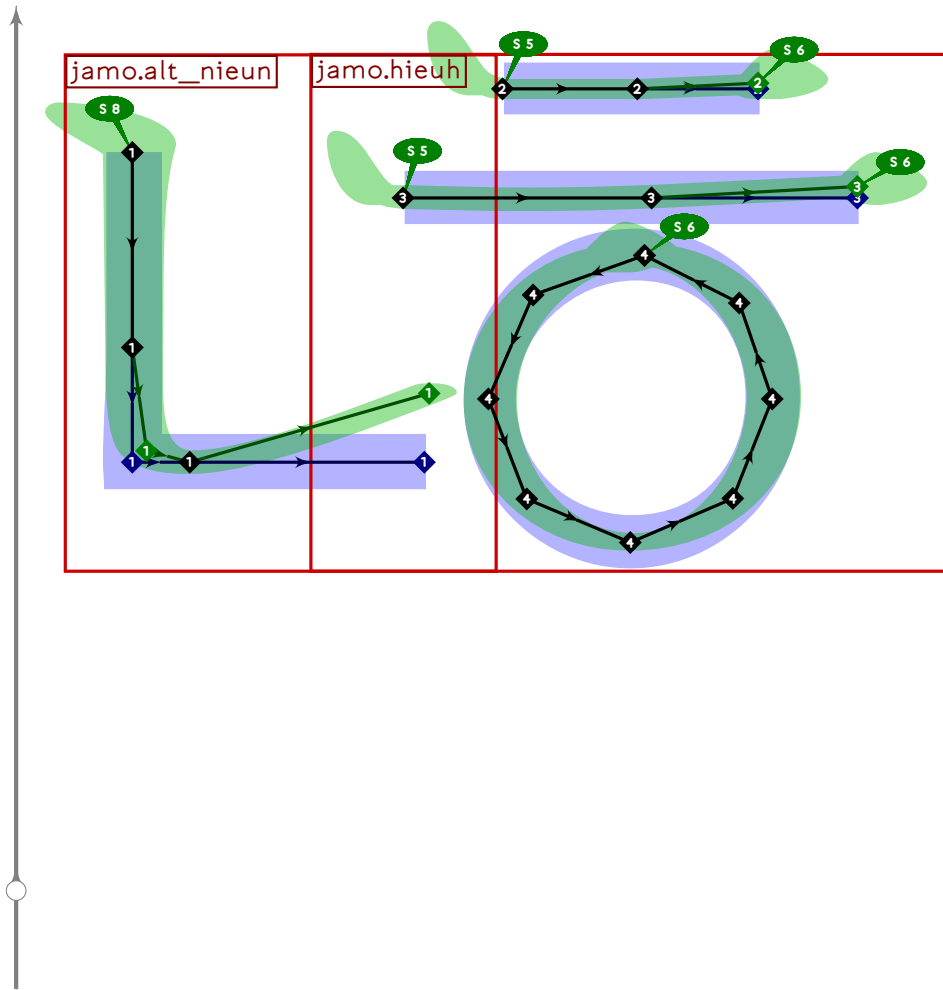
```



```

611 % hangul lead nieun-cieuc
612 begintsuglyph("uni115C.I5";92);
613 hangul.combine.lr(202,112)(whatever,lixf,loxf);
614 tsu_render;
615 endtsuglyph;
616

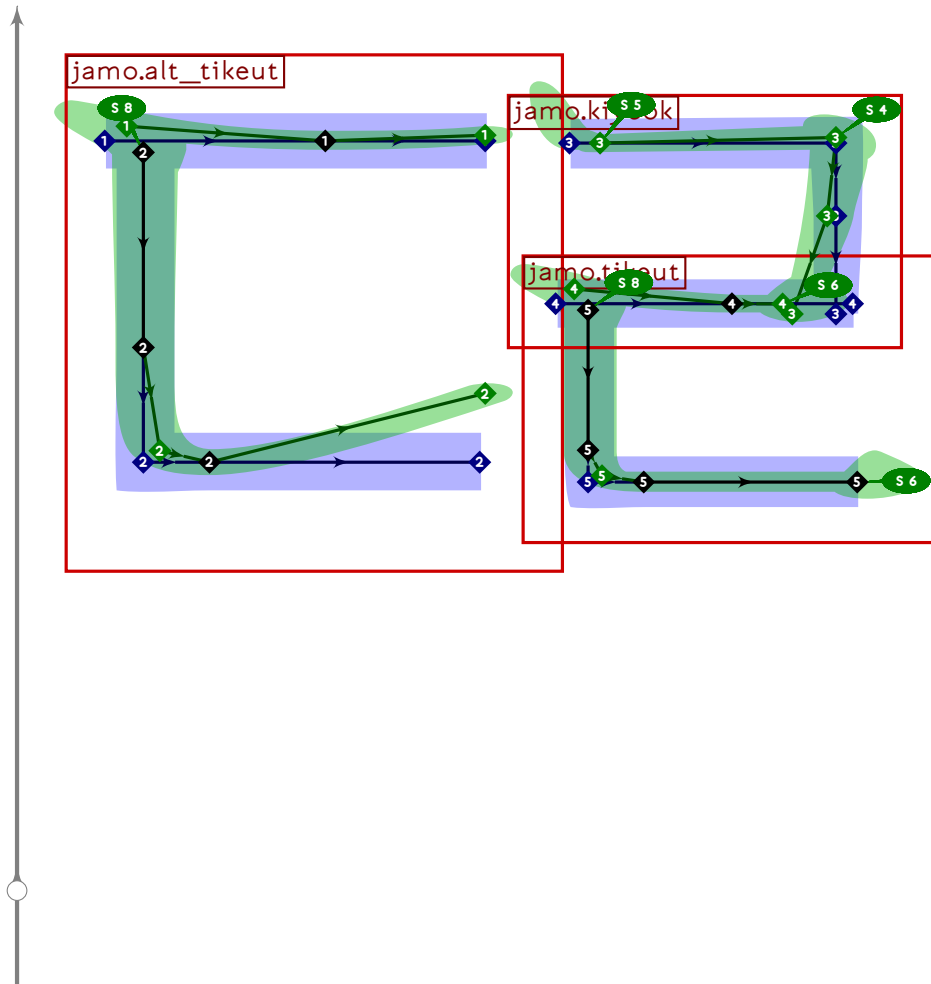
```



```

617 % hangul lead nieun-hieuh
618 begintsuglyph("uni115D.I5";93);
619 hangul.combine.lr(202,118)(whatever,lixf,loxf);
620 tsu_render;
621 endtsuglyph;
622

```



```

623 % hangul lead tikeut-rieul
624 begintsuglyph("uni115E.I5"94);
625 hangul.combine.lr(203,105)(whatever,lixf,loxf);
626 tsu_render;
627 endtsuglyph;
628
629 _____
630
631 endfont;
632
633 _____

```





Part XI

# Blackletter Lolita



# bl.mp

```
1 %
2 % Blackletter Lolita overrides for Tsukurimashou
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
31 

---


32
33 is_blackletter:=true;
34
35 

---


36
37 pair bl_stroke_dir[];
38 numeric bl_stroke_width[];
39
40 bl_stroke_dir[0]:=dir 0;
41 bl_stroke_dir[1]:=dir 45;
42 bl_stroke_dir[2]:=dir 90;
43 bl_stroke_dir[3]:=dir 135;
44 bl_stroke_dir[4]:=dir 180;
45 bl_stroke_dir[5]:=dir 225;
46 bl_stroke_dir[6]:=dir 270;
47 bl_stroke_dir[7]:=dir 315;
48 num_bl_strokes:=8;
49
50 bl_stroke_width[0]:=0.4;
51 bl_stroke_width[1]:=0.6;
52 bl_stroke_width[2]:=1.6;
53 bl_stroke_width[3]:=0.8;
54 bl_stroke_width[4]:=0.4;
55 bl_stroke_width[5]:=0.6;
56 bl_stroke_width[6]:=1.6;
57 bl_stroke_width[7]:=0.8;
58
59 for state:=0 upto num_bl_strokes-1:
60   bl_stroke_dir[state]:=bl_stroke_dir[state]/abs(bl_stroke_dir[state]);
61 endfor;
62
63 

---


64
65 vardef tsu_render_segment(expr i,p,q) =
66   begingroup
67     save lp,glyph,pcorner,pdir,k,ta,tz,dl,dr,dp,sl,sr,goodness,best,dtl,dtr,
68     itl,itr;
69     path lp,glyph;
70     numeric pdir[],k,ta,tz,sl,sr,goodness,best,dtl,dtr,itl,itr;
```

```

71 pair pcorner[],dl,dr,dp;
72
73 % for debugging - dot the path to be approximated
74 if false:
75   for j:=0 step 0.25 until length p:
76     glstk[nxls]:=fullcircle scaled 25 shifted point j of p;
77     nxls:=nxls+1;
78   endfor;
79 fi;
80
81 pcorner[0]:=point 0 of p;
82 pdir[0]=-1;
83 k:=0;
84 ta:=0;
85 forever:
86   k:=k+1;
87
88   if ta=floor(ta):
89     dp:=(postcontrol ta of p)-(point ta of p);
90   else:
91     dp:=direction ta of p;
92   fi;
93   dp:=dp/abs(dp);
94
95   tz:=floor(ta+1);
96   forever:
97     exitif tz=length p;
98     dr:=(point tz of p)-(precontrol tz of p);
99     exitif (dr dotprod dp)<=0;
100    dl:=(postcontrol tz of p)-(point tz of p);
101    dl:=dl/abs(dl);
102    dr:=dr/abs(dr);
103    exitif (dl dotprod dr)<0.95;
104    tz:=tz+1;
105  endfor;
106
107  dr:=(point tz of p)-(point ta of p);
108  dr:=dr/abs(dr);
109  dp:=(dp+0.05*dr)/abs(dp+0.05*dr);
110
111  dl:=bl_stroke_dir[0];
112  dr:=bl_stroke_dir[num_bl_strokes-1];
113  sl:=0;
114  sr:=num_bl_strokes-1;
115  best:=(dl dotprod dp)+(dr dotprod dp);
116
117  for j:=0 upto num_bl_strokes-2:
118    goodness:=(bl_stroke_dir[j] dotprod dp)

```

```

119         +(bl_stroke_dir[j+1] dotprod dp);
120     if goodness>best:
121         best:=goodness;
122         dr:=bl_stroke_dir[j];
123         dl:=bl_stroke_dir[j+1];
124         sr:=j;
125         sl:=j+1;
126     fi;
127     endfor;
128 % message "ta "&(decimal ta)&
129 % " tz "&(decimal tz)&
130 % " sl "&(decimal sl)&
131 % " sr "&(decimal sr);
132
133     if (((point tz of p)-(point ta of p)) dotprod dl>=
134         abs((point tz of p)-(point ta of p))*0.999)
135         and (tz-ta<3):
136         pdir[k]:=sl;
137     elseif (((point tz of p)-(point ta of p)) dotprod dr>=
138         abs((point tz of p)-(point ta of p))*0.999)
139         and (tz-ta<3):
140         pdir[k]:=sr;
141     else:
142         itl:=xpart (p intersectiontimes
143             ((dl*10)+point ta of p)-((dl*1000)+point ta of p));
144         itr:=xpart (p intersectiontimes
145             ((dr*10)+point ta of p)-((dr*1000)+point ta of p));
146         if (itl<ta+0.01) or (itl>tz):
147             itl:=-1;
148         fi;
149         if (itr<ta+0.01) or (itr>tz):
150             itr:=-1;
151         fi;
152         dtl:=directiontime dl of p;
153         dtr:=directiontime dr of p;
154         if (dtl<ta+0.01) or (dtl>tz):
155             dtl:=-1;
156         fi;
157         if (dtr<ta+0.01) or (dtr>tz):
158             dtr:=-1;
159         fi;
160         if (itl>ta) and ((itl<=itr) or (itr<ta)):
161             tz:=itl;
162             pdir[k]:=sl;
163         elseif itr>ta:
164             tz:=itr;
165             pdir[k]:=sr;
166         elseif (dtl>ta) and ((dtl<dtr) or (dtr<ta)):

```

```

167         tz:=dtl;
168         pdir[k]:=sr;
169         pcorner[k]:=(whatever*dr)+point ta of p;
170         pcorner[k]:=(whatever*d1)+point tz of p;
171         if k>1:
172             if pdir[k]=pdir[k-1]:
173                 pcorner[k-1]:=pcorner[k];
174                 k:=k-1;
175             fi;
176         fi;
177         k:=k+1;
178         pdir[k]:=sl;
179     elseif dtr>ta:
180         tz:=dtr;
181         pdir[k]:=sl;
182         pcorner[k]:=(whatever*d1)+point ta of p;
183         pcorner[k]:=(whatever*dr)+point tz of p;
184         if k>1:
185             if pdir[k]=pdir[k-1]:
186                 pcorner[k-1]:=pcorner[k];
187                 k:=k-1;
188             fi;
189         fi;
190         k:=k+1;
191         pdir[k]:=sr;
192     elseif false and (pdir[k-1]=sr):
193         pcorner[k-1]:=whatever*dr+point ta of p;
194         pcorner[k-1]:=whatever*d1+point tz of p;
195         pdir[k]:=sl;
196     elseif false and (pdir[k-1]=sl):
197         pcorner[k-1]:=whatever*d1+point ta of p;
198         pcorner[k-1]:=whatever*dr+point tz of p;
199         pdir[k]:=sr;
200     elseif abs(y part d1)>abs(y part dr):
201         pdir[k]:=sr;
202         pcorner[k]:=whatever*dr+point ta of p;
203         pcorner[k]=whatever*d1+point tz of p;
204         k:=k+1;
205         pdir[k]:=sl;
206     else:
207         pdir[k]:=sl;
208         pcorner[k]:=whatever*d1+point ta of p;
209         pcorner[k]=whatever*dr+point tz of p;
210         k:=k+1;
211         pdir[k]:=sr;
212     fi;
213 fi;
214 pcorner[k]:=point tz of p;

```

```

215
216     if k>1:
217         if pdir[k]=pdir[k-1]:
218             pcorner[k-1]:=pcorner[k];
219             k:=k-1;
220         fi;
221     fi;
222
223     exitif tz>=length p;
224     ta:=tz;
225 endfor;
226
227 for j:=1 upto k:
228     if (abs(pcorner[j-1]-pcorner[j])>10) and (pdir[j]>=0):
229         lp:=subpath (0.01,0.99) of (pcorner[j-1]-pcorner[j]);
230         default_nib:=fix_nib(obstackna.bosize[i]*tsu_brush_max
231             *bl_stroke_width[pdir[j]],
232             obstackna.bosize[i]*tsu_brush_max*tsu_brush_shape
233             *bl_stroke_width[pdir[j]],
234             tsu_brush_angle);
235         pen_stroke()(lp)(glyph);
236         glstk[nxls]:=regenerate(glyph);
237         nxls:=nxls+1;
238     fi;
239 endfor;
240 endgroup;
241 enddef;

```

## bll-co.mp

```
1 %
2 % Blackletter Lolita Cosette
3 % Copyright (C) 2011 Matthew Skala
4 %
5-29 [Standard copyright notice]
30
```

## Bll Cosette

```
31 % BLL COSETTE
32
33 input preintro.mp;
34
35 stylename:="Cosette";
36
37 (0,4) transformed tsu_brush_xf = (4,0.75);
38 (1,1) transformed tsu_brush_xf = (1,0.62);
39 (4,0) transformed tsu_brush_xf = (0,0.75);
40
41 tsu_brush_min:=0.62;
42 tsu_brush_max:=0.75;
43
44 def tsu_brush_opt(expr n,l) = cut(n,rel 90)(l) enddef;
45 sharp_corners:=true;
46
47 input intro.mp;
48 input bll.mp;
```



# pentacross.mp

```
1 %
2 % Pentagrams and crosses for Blackletter Lolita
3 % Copyright (C) 2011 Matthew Skala
4 %
```

```
5-29 [Standard copyright notice]
```

```
30
31 inclusion_lock(pentacross);
32
33 _____
34
```

## Utilities For Pentagrams And Crosses

```
35 % UTILITIES FOR PENTAGRAMS AND CROSSES
36
37 path my_nib,my_path;
38
39 % Golden Ratio
40 phi:=(1+sqrt(5))/2;
41
42 % lw - line width
43 % ct - corner type, use -1 for rounded, 0 for bevelled, 1 for mitred
44 % dp - path to draw
45 vardef draw_stroked(expr lw,ct)(expr dp) =
46   default_nib:=fix_nib(lw,lw,0);
47   if ct<0:
48     draw_stroked_opts()(dp);
49   else:
50     draw_stroked_opts(tip(ct))(0 for i:=1 upto length dp: ,i endfor)(dp);
51   fi;
52 enddef;
53
54 vardef draw_stroked_opts(text myopts)(expr dp) =
55   begingroup
56     save glyph;
57     path glyph;
58     pen_stroke(myopts)(dp)(glyph);
59     if cycle dp:
60       glyph.r:=regenerate(glyph.r);
61       glyph.l:=regenerate(glyph.l);
62       dangerousFill glyph.r;
63       dangerousFill glyph.l;
64     else:
65       glyph:=regenerate(glyph);
66       dangerousFill glyph;
67     fi;
68   endgroup;
```

```

69 endif;
70
71 path pentagram;
72 pentagram:=
73 ((dir 0)-(dir 144)-(dir 288)-(dir 72)-(dir 216)-cycle)
74 rotated 90 scaled 0.5;
75
76 % "tip isolated" pentagram, used to de-emphasize corners
77 path tipentagram;
78 tipentagram:=insert_nodes(pentagram)
79 (0.15,0.85,1.15,1.85,2.15,2.85,3.15,3.85,4.15,4.85);
80
81 vardef cross_path(expr hwid) =
82   begingroup
83     save x,y;
84     numeric x,y;
85     z1=(0,0.5); % spectacles
86     z2=(0,-0.5); % testicles
87     z3=(y3-y1,(phi-1)[y2,y1]); % wallet
88     z4=(y1-y3,y3); % watch
89     x5=x12=x13=x16=x1-hwid;
90     x6=x7=x10=x11=x1+hwid;
91     x8=x9=x4;
92     x14=x15=x3;
93     y5=y6=y1;
94     y7=y8=y15=y16=y3+hwid;
95     y9=y10=y13=y14=y3-hwid;
96     y11=y12=y2;
97     z5-z6-z7-z8-z9-z10-z11-z12-z13-z14-z15-z16-cycle
98   endgroup
99 endif;

```

# bll-f5c.mp

```
1 %  
2 % Unicode page F5C (pentagrams and crosses) for Blackletter Lolita  
3 % Copyright (C) 2011 Matthew Skala  
4 %  
5-29 [Standard copyright notice]  
30  
31 

---

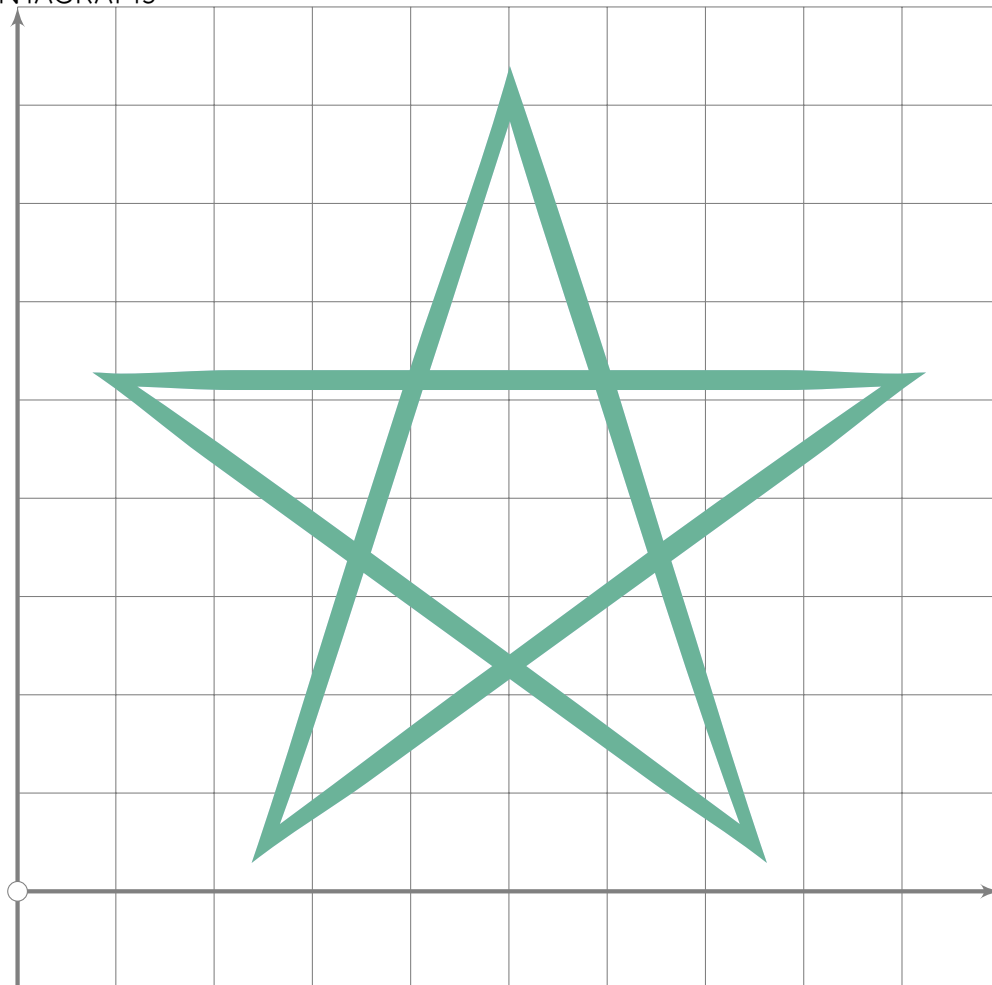
  
32  
33 beginfont  
34  
35 % AUTODEPS  
36 input pentacross.mp;  
37  
38 

---

  
39
```

## Pentagrams

40 % PENTAGRAMS

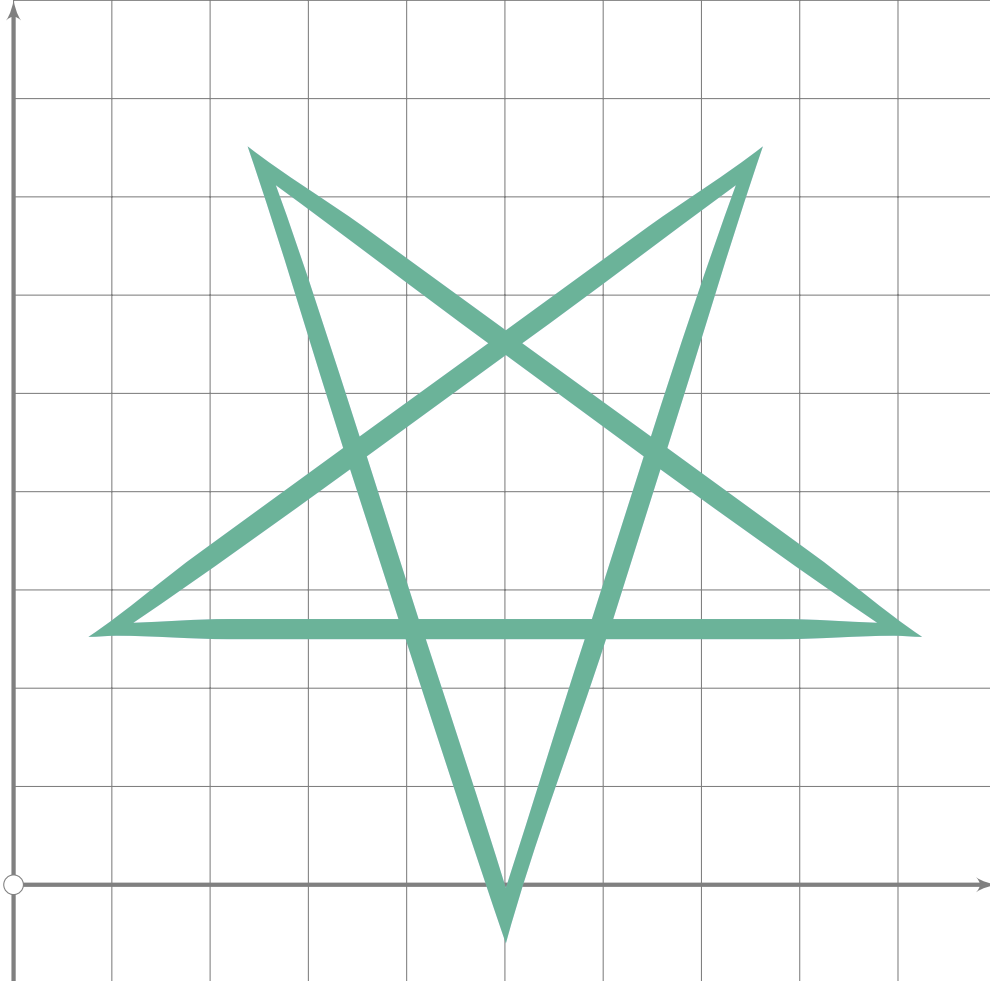


41

```

42 begintsuglyph("pentagram01";1);
43 default_nib:=fix_nib(20,20,0);
44 my_nib:=fix_nib(14,14,0);
45 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
46   (tipentagram scaled 844 shifted centre_pt);
47 endsuglyph;

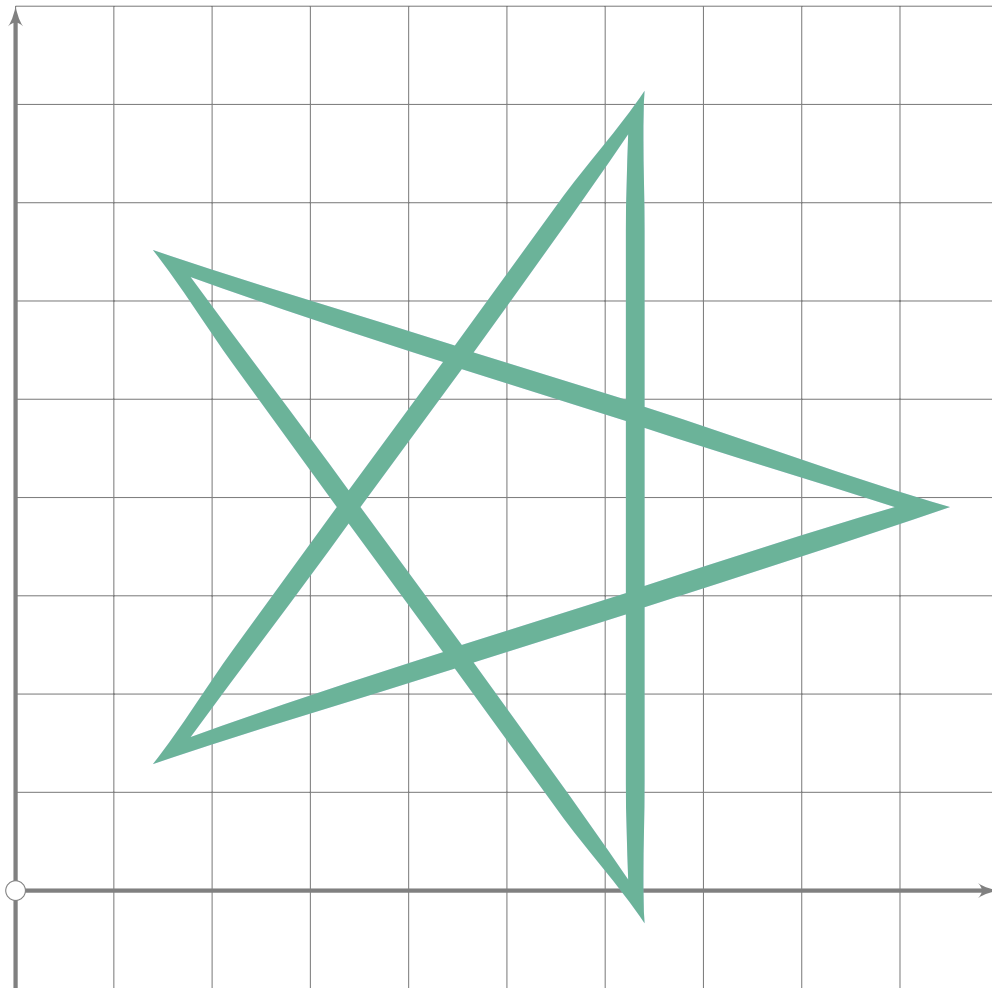
```



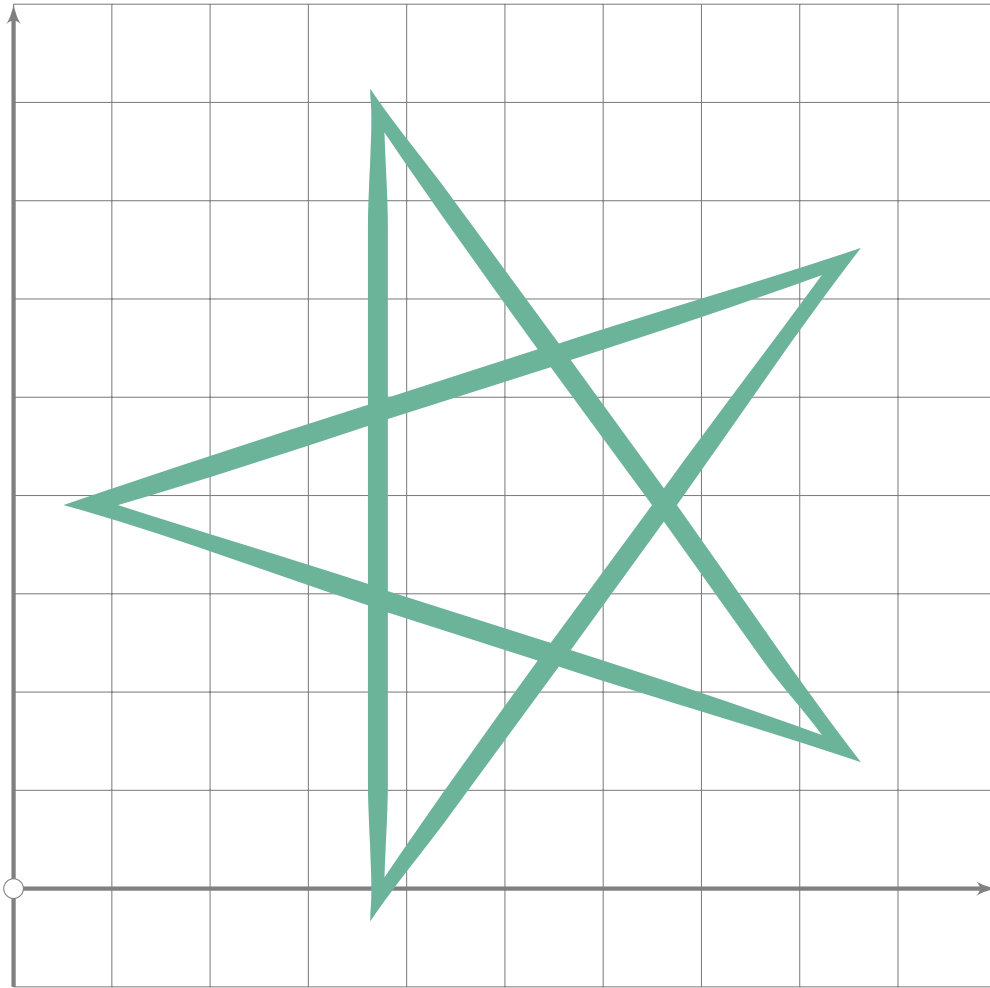
```

48
49 begintsuglyph("pentagram02";2);
50 default_nib:=fix_nib(20,20,0);
51 my_nib:=fix_nib(14,14,0);
52 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
53   (tipentagram rotated 180 scaled 844 shifted centre_pt);
54 endsuglyph;

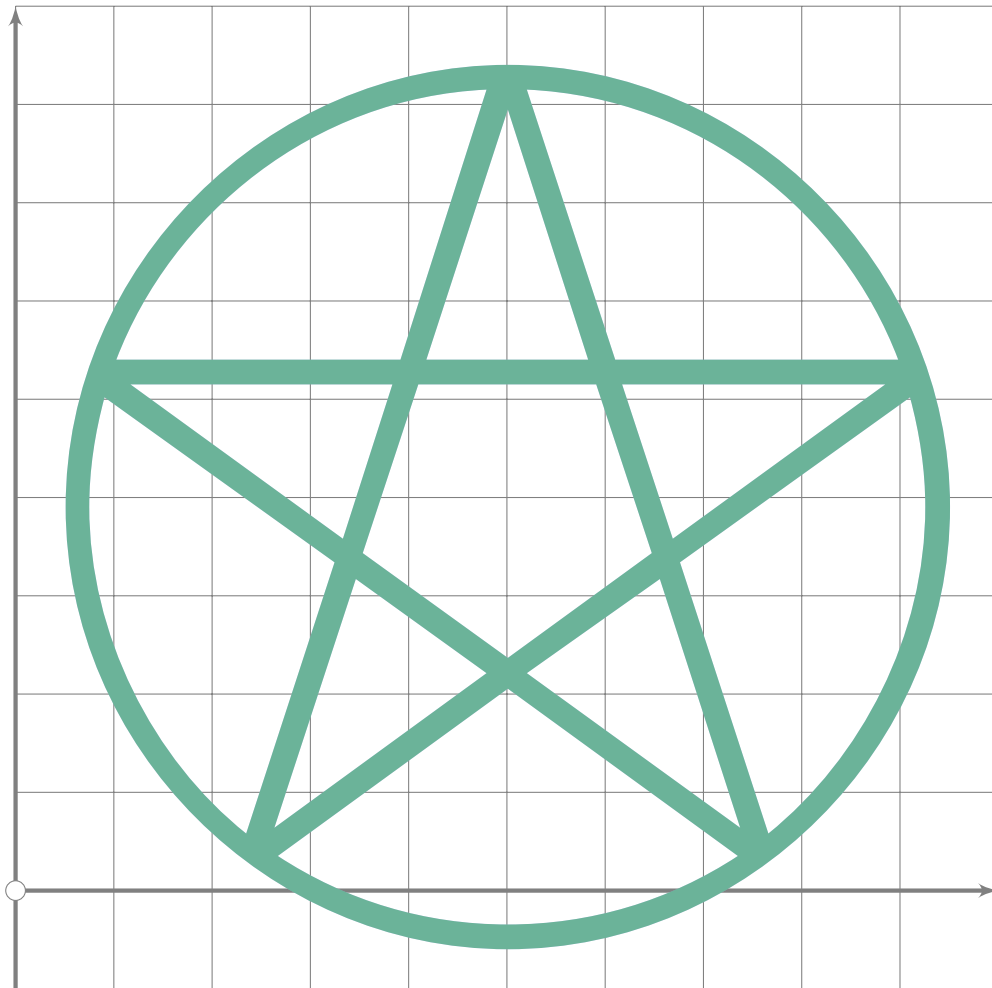
```



```
55  
56 begintsuglyph("pentagram03",3);  
57 default_nib:=fix_nib(20,20,0);  
58 my_nib:=fix_nib(14,14,0);  
59 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))  
60   (tipentagram rotated 270 scaled 844 shifted centre_pt);  
61 endsuglyph;
```



```
62
63 begintsuglyph("pentagram04";4);
64 default_nib:=fix_nib(20,20,0);
65 my_nib:=fix_nib(14,14,0);
66 draw_stroked_opts(tip(my_nib,1,1)(0,3,6,9,12,15))
67   (tipentagram rotated 90 scaled 844 shifted centre_pt);
68 endsuglyph;
```



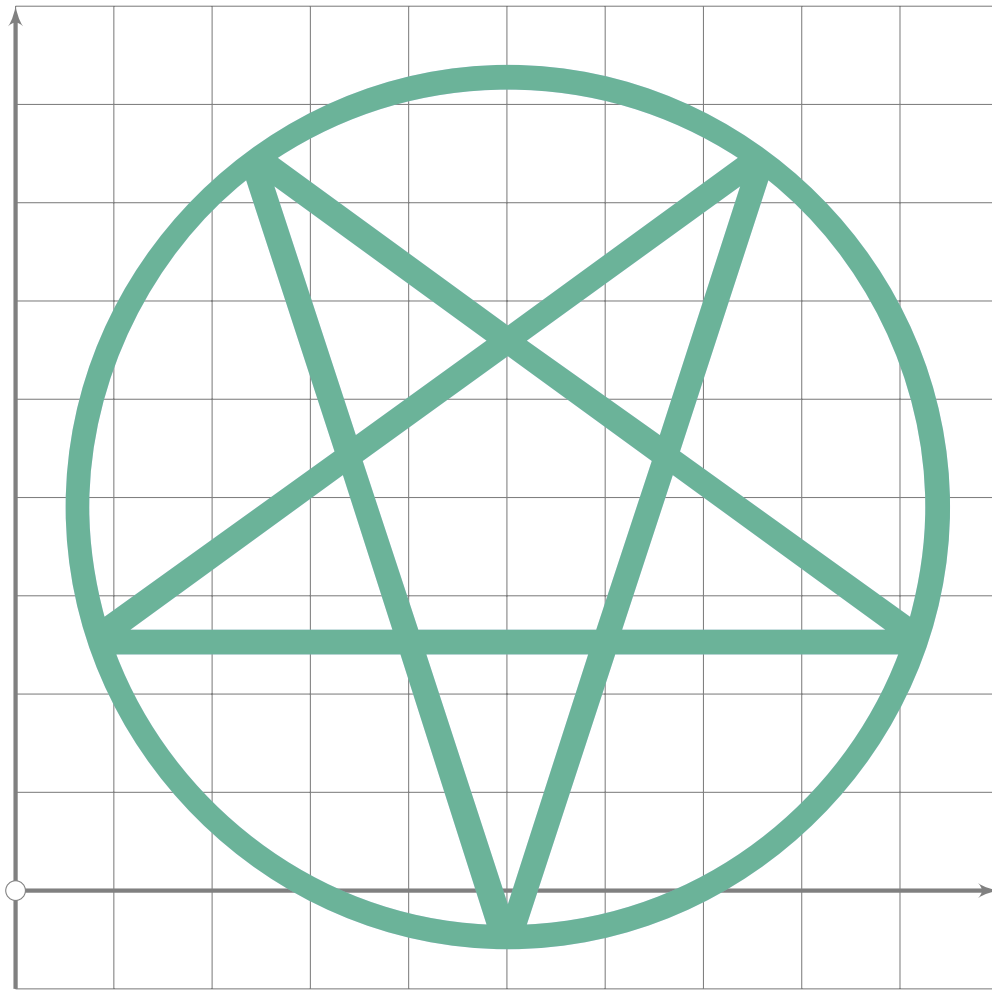
69

```
70 begintsuglyph("pentagram05";5);
```

```
71 draw_stroked(25,0)(pentagram scaled 888 shifted centre_pt);
```

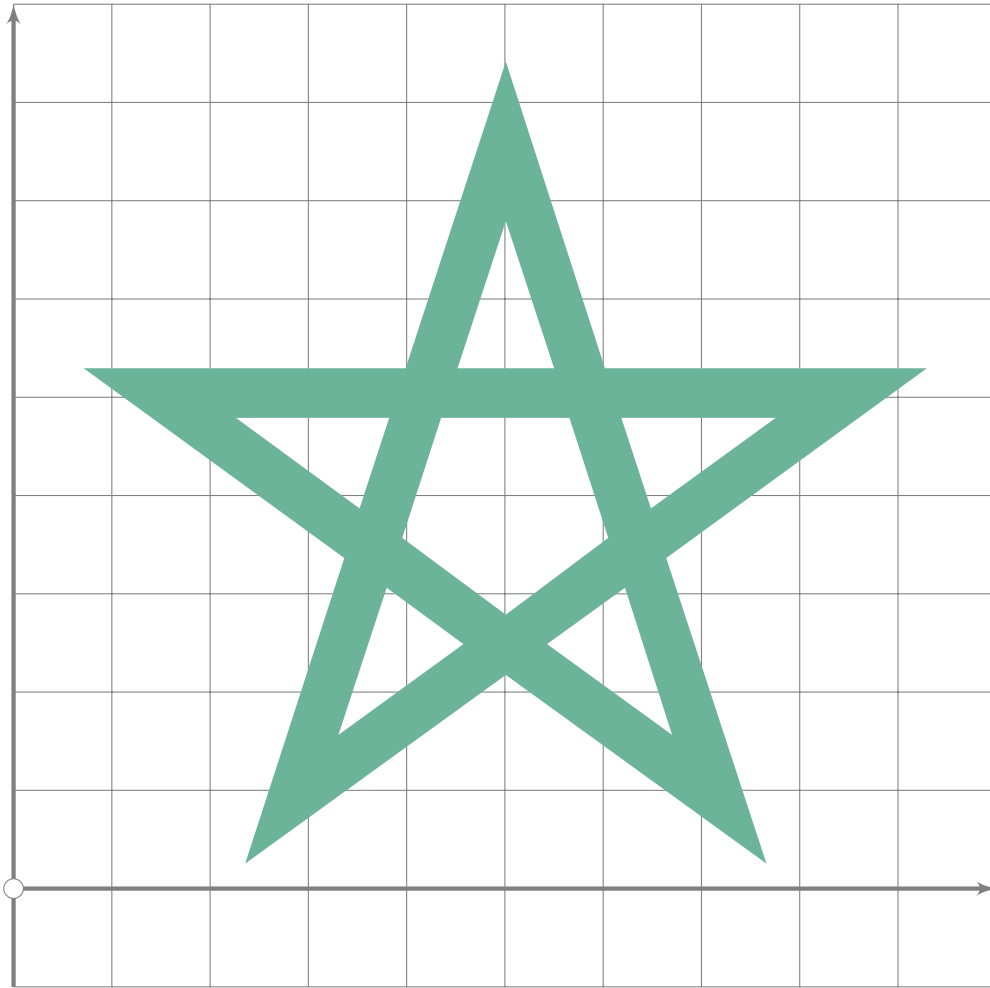
```
72 draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);
```

```
73 endsuglyph;
```

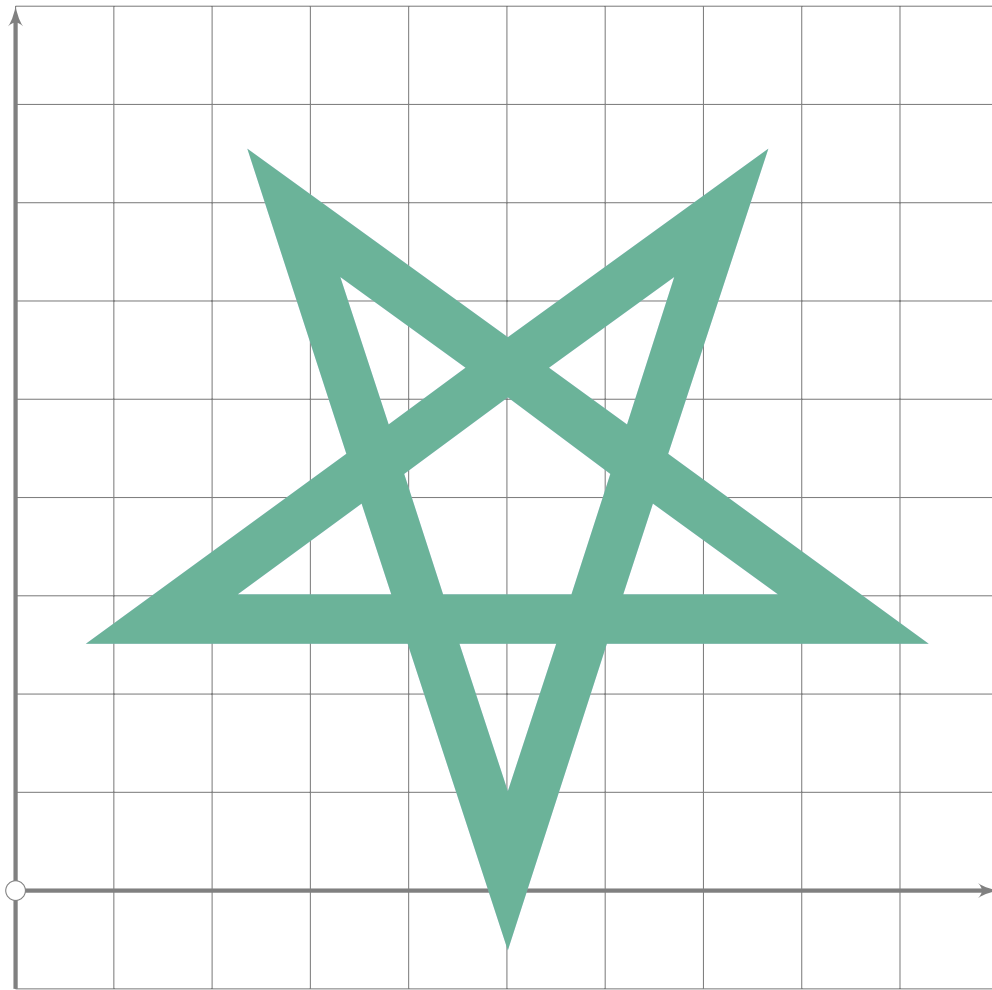


```
74  
75 begintsuglyph("pentagram06",6);  
76 draw_stroked(25,0)(pentagram rotated 180 scaled 888 shifted centre_pt);  
77 draw_stroked(25,-1)(fullcircle scaled 875 shifted centre_pt);  
78 endsuglyph;
```





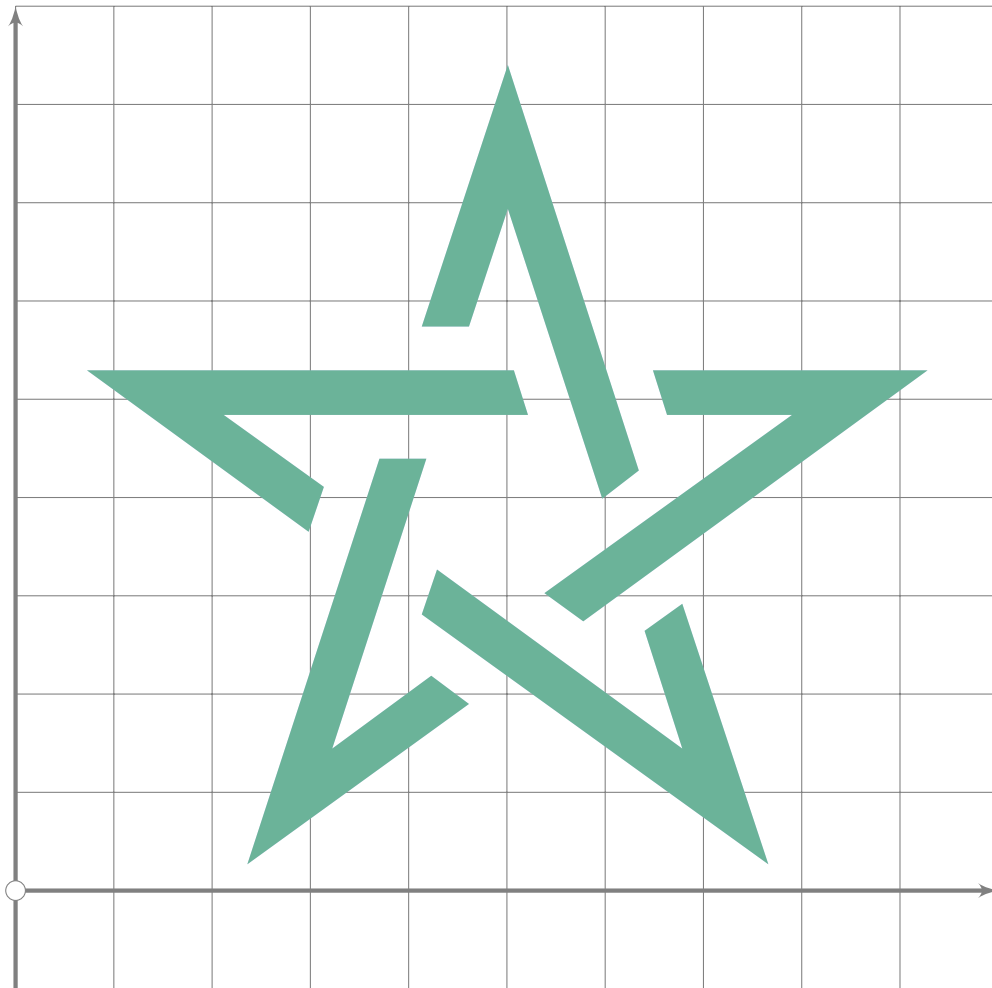
```
79  
80 begintsuglyph("pentagram07",7);  
81 draw_stroked(50,1)(pentagram scaled 740 shifted centre_pt);  
82 endsuglyph;
```



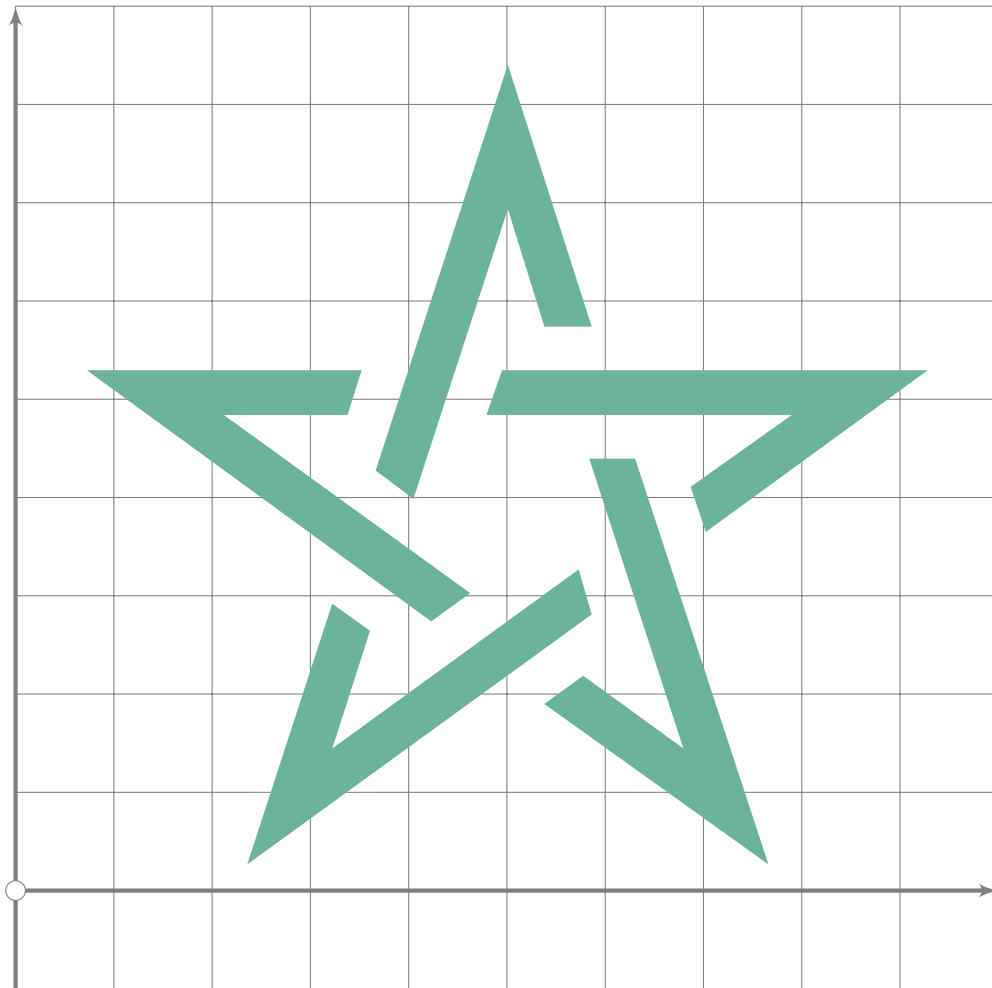
```

83
84 begintsuglyph("pentagram08",8);
85 draw_stroked(50,1)(pentagram rotated 180 scaled 740 shifted centre_pt);
86 endsuglyph;
87
88 vardef penta_ell(expr lw,loff) =
89   begingroup
90     save myl;
91     path myl[];
92     myl1:=(dir 90)-(dir 234);
93     myl2:=((dir 162)-(dir 18)) shifted (loff*dir 90);
94     myl3:=myl1 shifted (lw*dir 342);
95     myl6:=(dir 90)-(dir 306);
96     myl4:=myl6 shifted (lw*dir 198);
97     myl5:=((dir 18)-(dir 234)) shifted ((loff+lw)*dir 126);
98     (dir 90)-(myl6 intersectionpoint myl5)-
99     (myl5 intersectionpoint myl4)-(myl4 intersectionpoint myl3)-
100    (myl3 intersectionpoint myl2)-(myl2 intersectionpoint myl1)-cycle
101   endgroup
102 enddef;

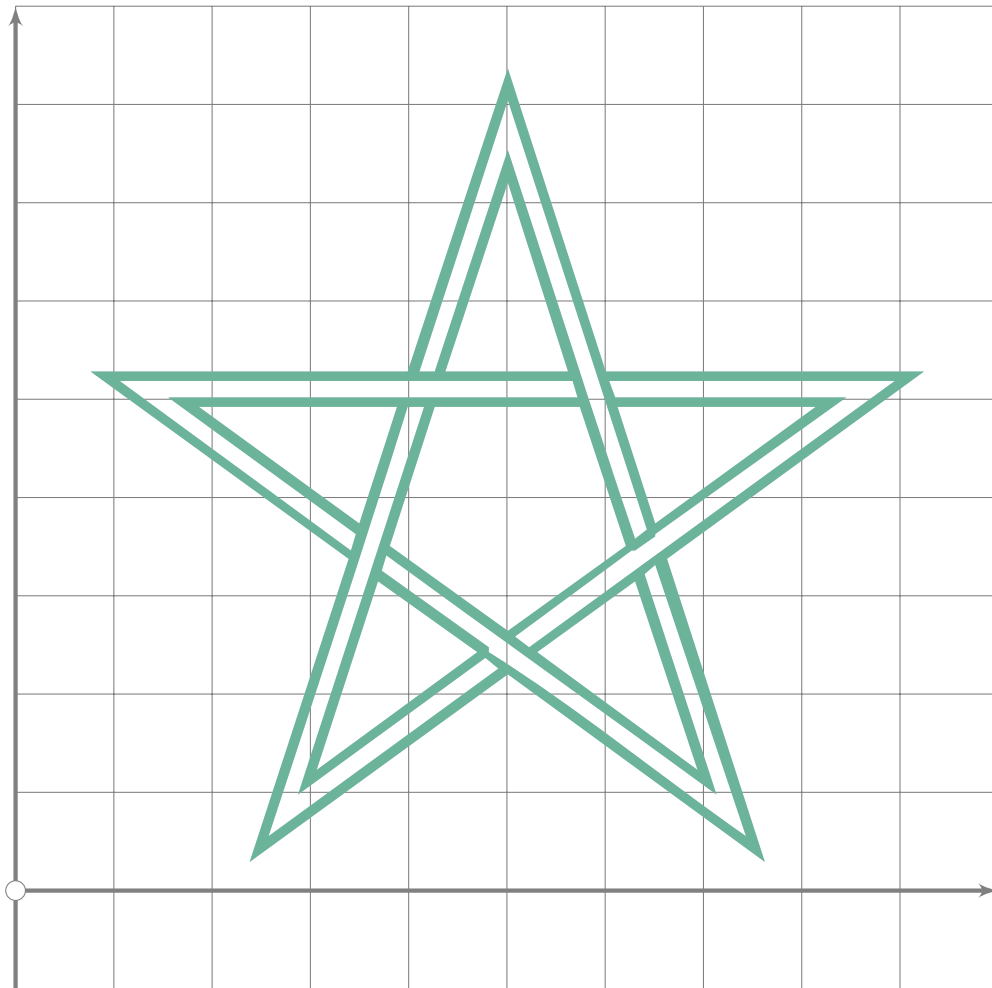
```



```
103  
104 begintsuglyph("pentagram09";9);  
105 my_path:=penta_ell(0,1,0,1);  
106 for i:=0 upto 4:  
107   dangerousFill my_path rotated (i*72) scaled 450 shifted centre_pt;  
108 endfor;  
109 endsuglyph;
```



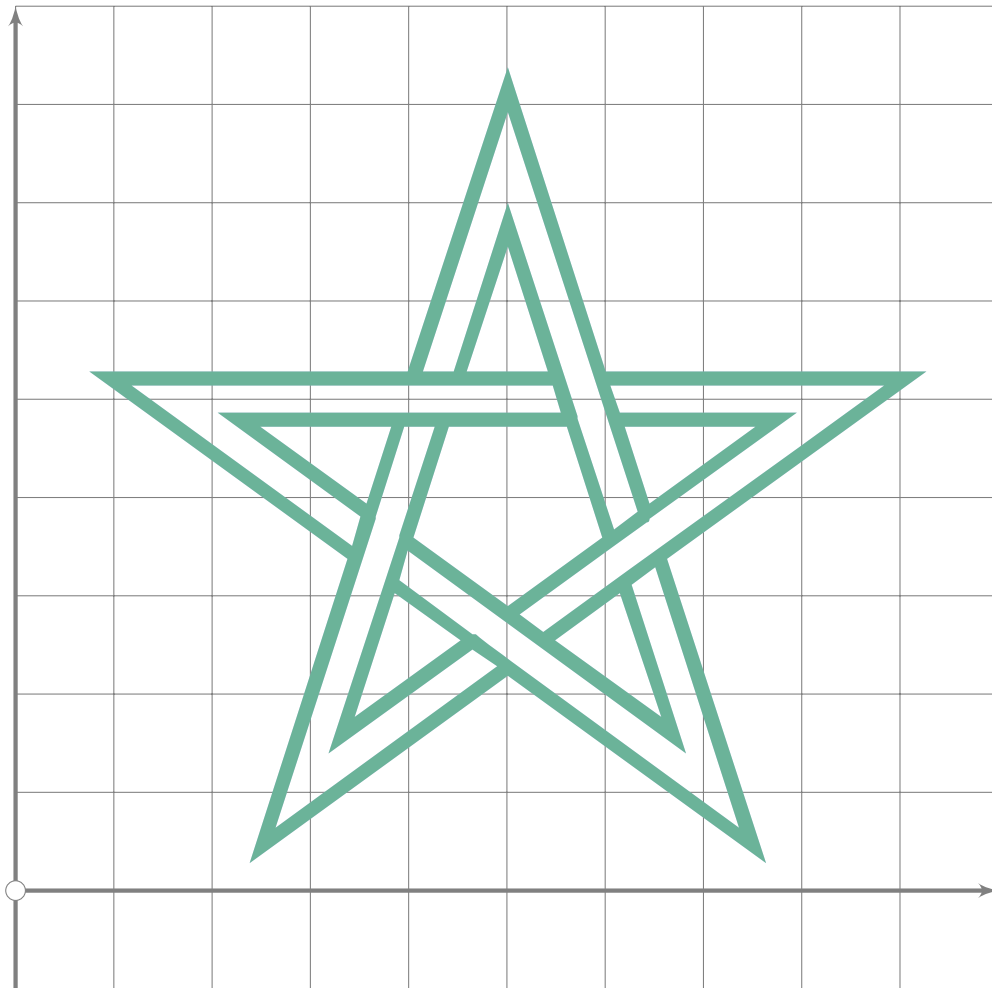
```
110
111 begintsuglyph("pentagram10",10);
112 my_path:=penta_ell(0,1,0,1);
113 for i:=0 upto 4:
114     dangerousFill my_path
115         reflectedabout (down,up) rotated (i*72) scaled 450 shifted centre_pt;
116 endfor;
117 endsuglyph;
```



```

118
119 begintsuglyph("pentagram1",1);
120 begingroup
121   save lp;
122   path lp[];
123   my_path:=penta_ell(0.06,0);
124   lp1:=subpath (5,7) of my_path;
125   lp2:=subpath (2,4) of my_path;
126   default_nib:=fix_nib(10,10,0);
127   pen_stroke(tip(1)(1))(lp1 scaled 430 shifted centre_pt)(lp3);
128   pen_stroke(tip(1)(1))(lp2 scaled 430 shifted centre_pt)(lp4);
129   lp3:=regenerate(lp3);
130   lp4:=regenerate(lp4);
131   for i:=0 upto 4:
132     dangerousFill lp3 rotatedaround (centre_pt,i*72);
133     dangerousFill lp4 rotatedaround (centre_pt,i*72);
134   endfor;
135 endgroup;
136 endtsuglyph;

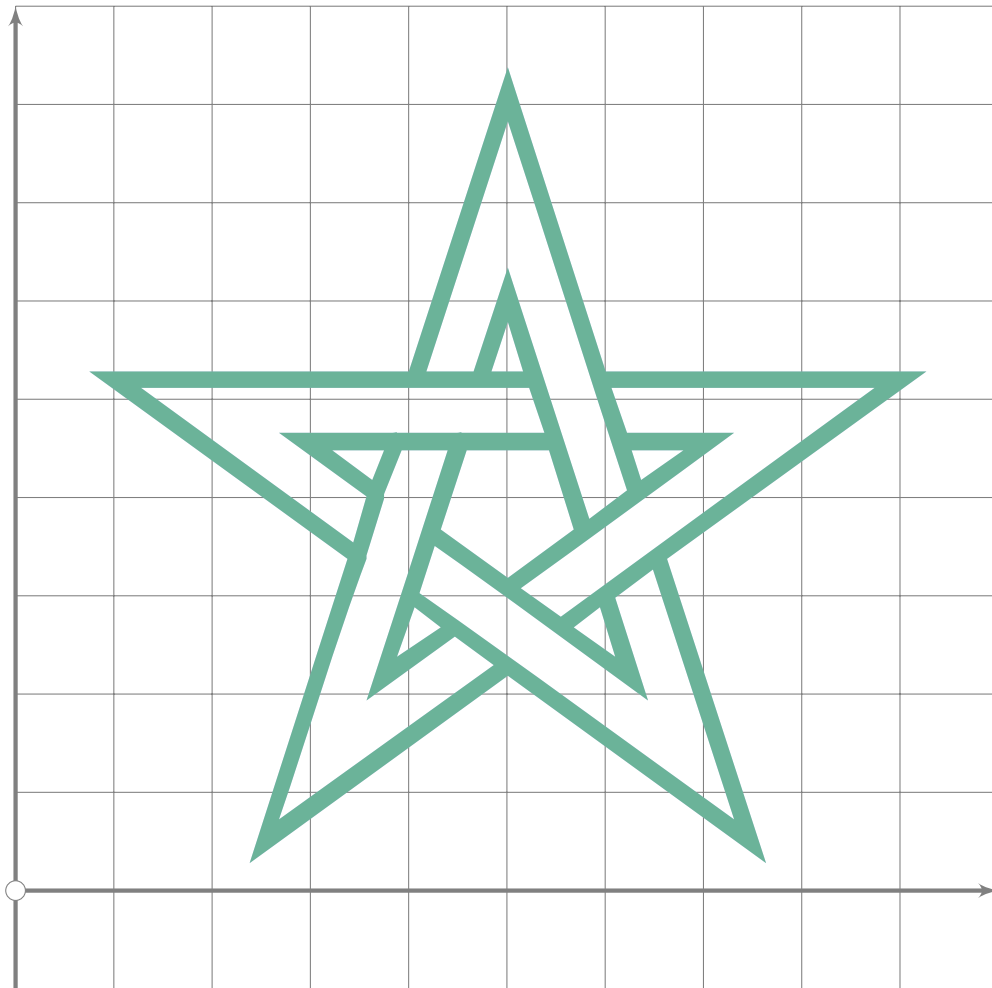
```



```

137
138 begint Suglyph("pentagram12";12);
139   begingroup
140     save lp;
141     path lp[];
142     my_path:=penta_ell(0.10,0);
143     lp1:=subpath (5,7) of my_path;
144     lp2:=subpath (2,4) of my_path;
145     default_nib:=fix_nib(14,14,0);
146     pen_stroke(tip(1)(1))(lp1 scaled 425 shifted centre_pt)(lp3);
147     pen_stroke(tip(1)(1))(lp2 scaled 425 shifted centre_pt)(lp4);
148     lp3:=regenerate(lp3);
149     lp4:=regenerate(lp4);
150     for i:=0 upto 4:
151       dangerousFill lp3 rotatedaround (centre_pt,i*72);
152       dangerousFill lp4 rotatedaround (centre_pt,i*72);
153     endfor;
154   endgroup;
155 endtsuglyph;

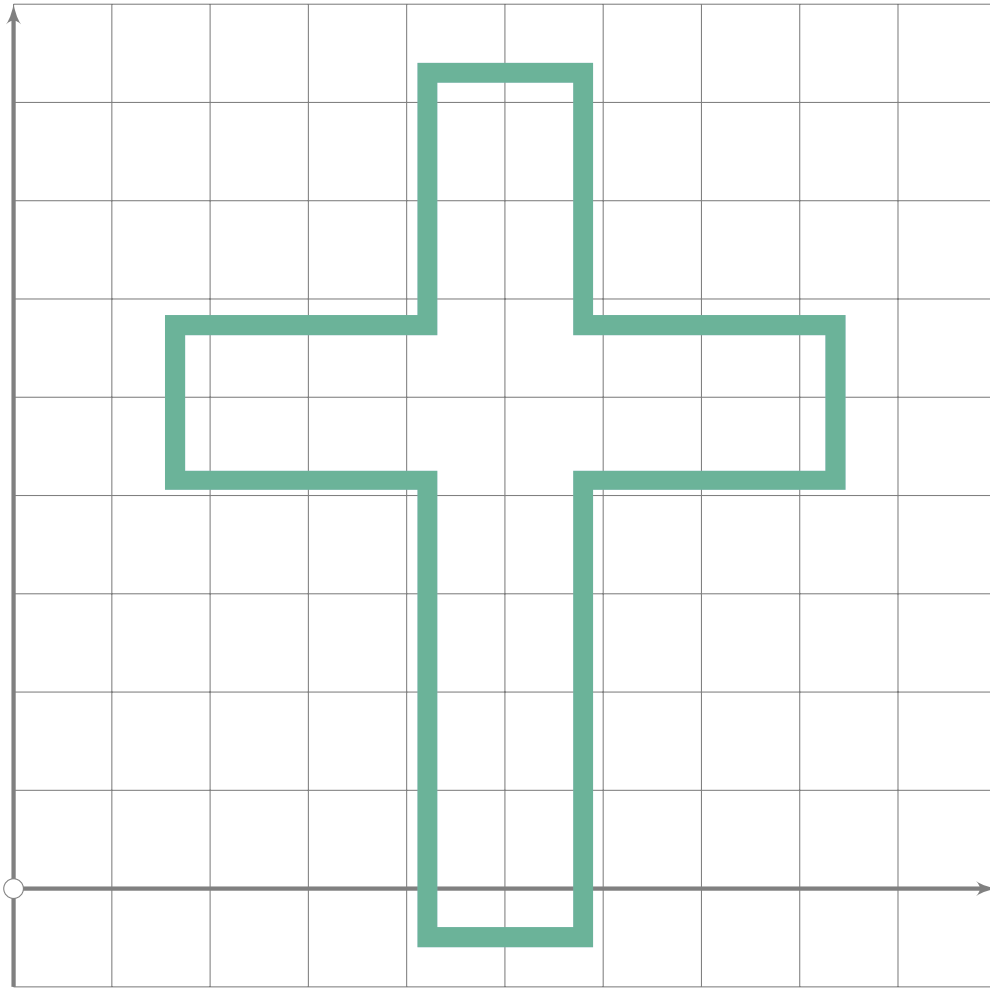
```



```

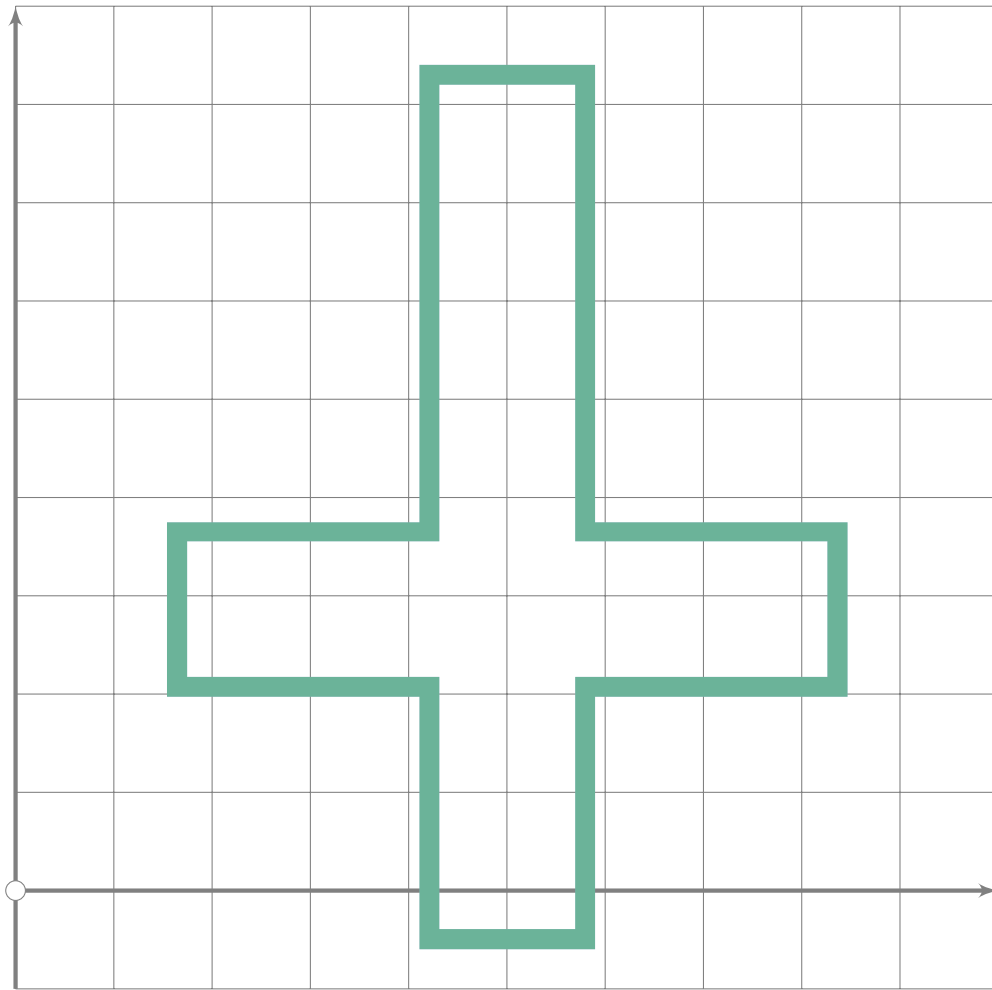
156
157 begintsuglyph("pentagram13";13);
158   begingroup
159     save lp;
160     path lp[];
161     my_path:=penta_ell(0.15,0);
162     lp1:=subpath (5,7) of my_path;
163     lp2:=subpath (2,4) of my_path;
164     default_nib:=fix_nib(17,17,0);
165     pen_stroke(tip(1)(1))(lp1 scaled 420 shifted centre_pt)(lp3);
166     pen_stroke(tip(1)(1))(lp2 scaled 420 shifted centre_pt)(lp4);
167     lp3:=regenerate(lp3);
168     lp4:=regenerate(lp4);
169     for i:=0 upto 4:
170       dangerousFill lp3 rotatedaround (centre_pt,i*72);
171       dangerousFill lp4 rotatedaround (centre_pt,i*72);
172     endfor;
173   endgroup;
174 endtsuglyph;
175
176

```

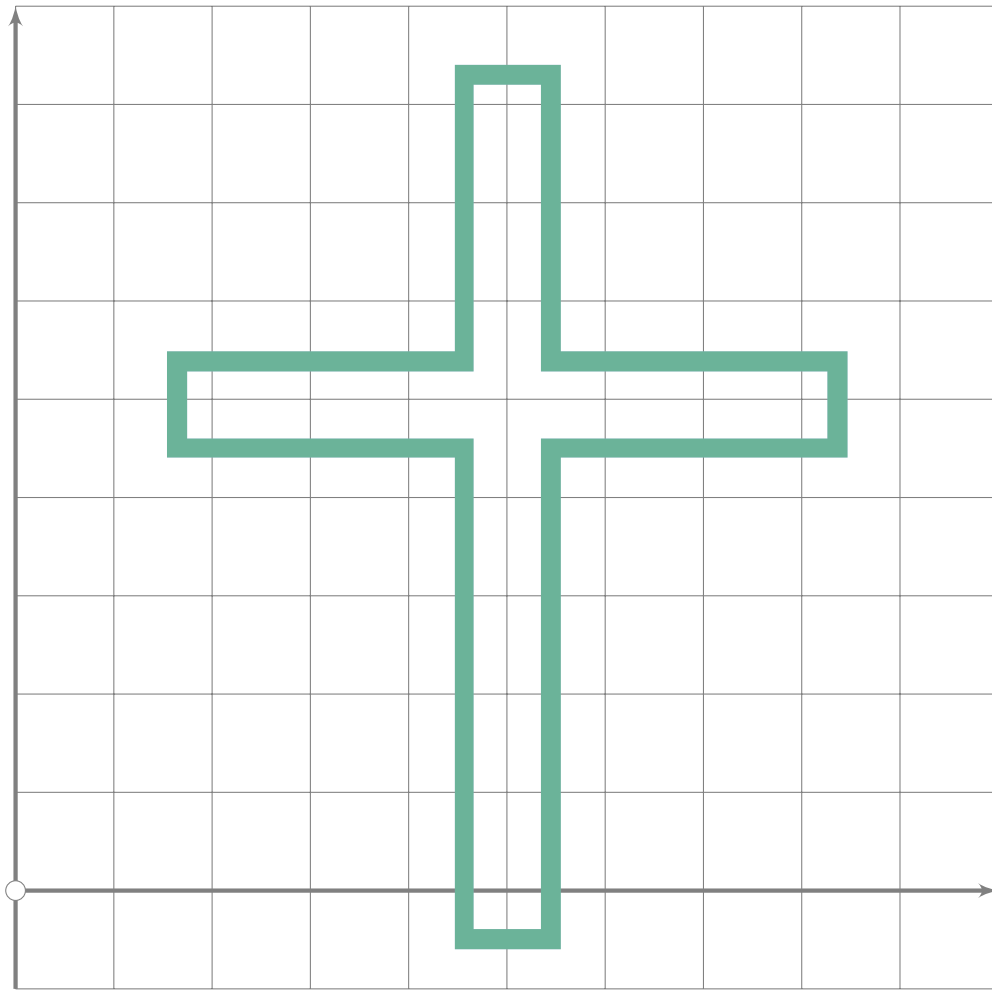


```
177  
178 begintsuglyph("cross01",129);  
179 draw_stroked(20,1)(cross_path(0.09) scaled 880 shifted centre_pt);  
180 endsuglyph;
```

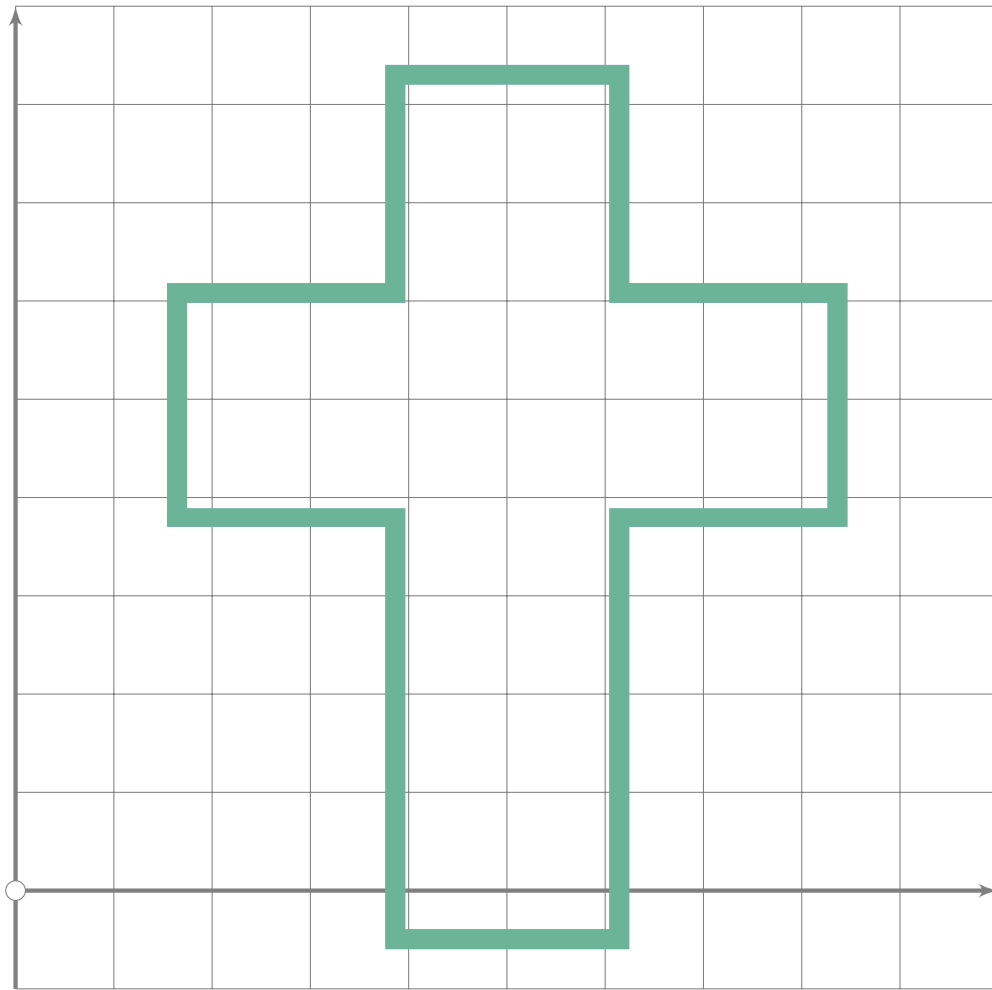




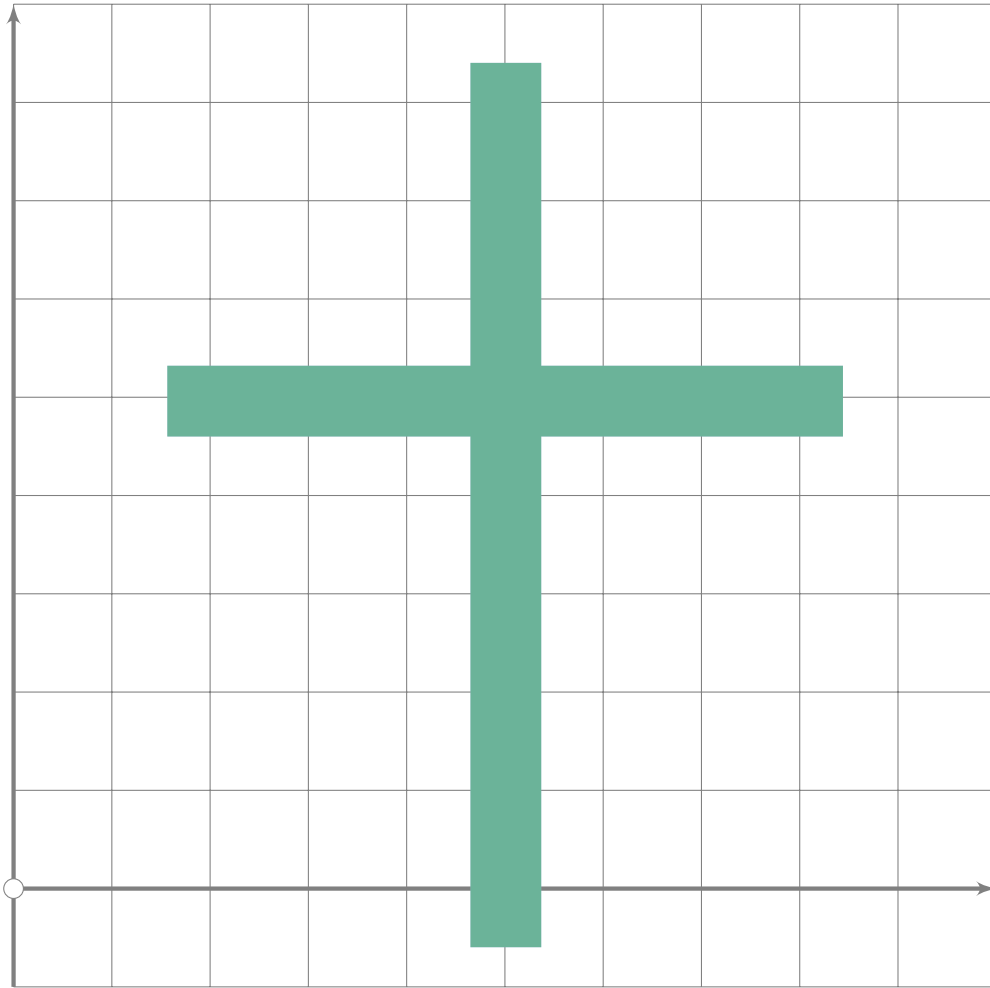
```
181  
182 begintsuglyph("cross02",130);  
183 draw_stroked(20,1)(cross_path(0.09)  
184 rotated 180 scaled 880 shifted centre_pt);  
185 endsuglyph;
```



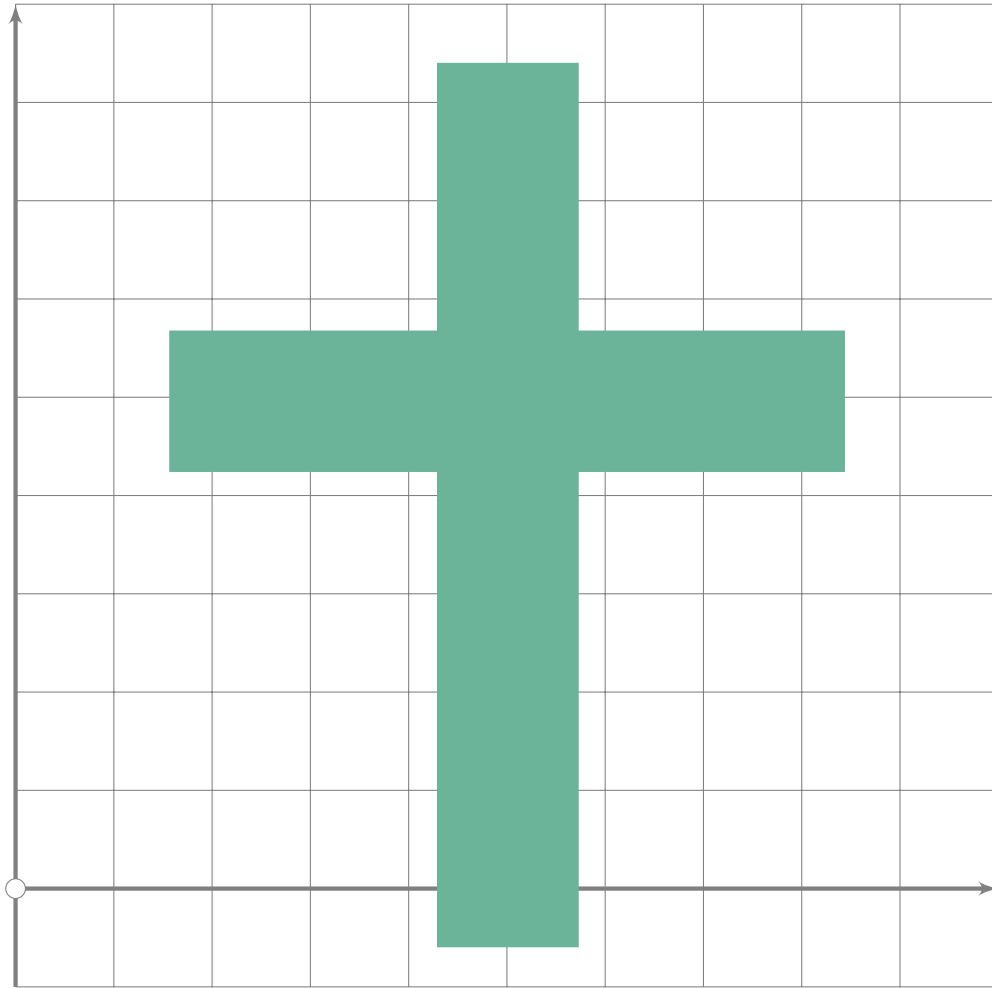
```
186  
187 begintsuglyph("cross03",131);  
188 draw_stroked(20,1)(cross_path(0.05) scaled 880 shifted centre_pt);  
189 endsuglyph;
```



```
190  
191 begintsuglyph("cross04";132);  
192 draw_stroked(20,1)(cross_path(0.13) scaled 880 shifted centre_pt);  
193 endsuglyph;
```



```
194  
195 begintsuglyph("cross05",133);  
196 dangerousFill cross_path(0.04) scaled 900 shifted centre_pt;  
197 endsuglyph;
```



```
198  
199 begintsuglyph("cross06",134);  
200 dangerousFill cross_path(0.08) scaled 900 shifted centre_pt;  
201 endsuglyph;  
202  
203 

---

  
204  
205 endfont;  
206  
207 

---


```