Progress

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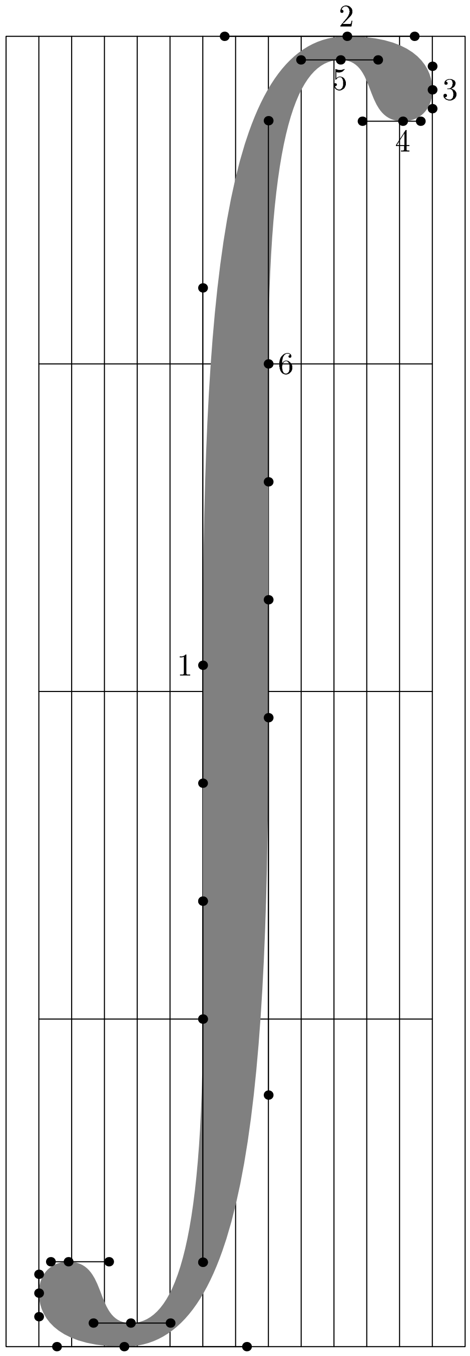
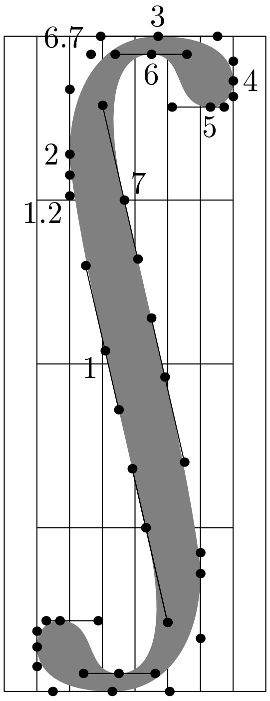
As I claim in many places, drawings, metrics and encoding of the mathabx series are unstable. Here there are some attempts of designing integral signs anew. I discard metaness and focus on outlines. Once the "perfect shape" found, integrals in mathabx series will be changed accordingly. Friendly remarks on design are welcome.





Pieces of code (MetaPost)

```
% mathematical symbols by Anthony Phan.
% file: integral.mp (plain MetaPost file)
% last modification: May 12, 2005.

mpt=0.65cm;
dh=6mpt;
u=20/36mpt;
appr=u;

def hround expr x = x enddef;
def vround expr y = y enddef;

def makebox =
  draw (0,-d)--(w,-d)--(w,h)--(0,h)--cycle;
  for $ = appr step u until w-appr+eps: draw ($,-d)..($,h); endfor
  for $ = 0.25, 0.5, 0.75: draw (appr,$[-d,h])..(w-appr,$[-d,h]); endfor
enddef;

def controlpoints(expr a, b) =
  for i  =  0 upto length lastpath:
    if unknown z[i]: z[i]=point (i-1) of lastpath; fi
    z[i]' = precontrol (i-1) of lastpath;
    z[i]'' = postcontrol (i-1) of lastpath;
    draw z[i]'--z[i]--z[i]'';
    dotlabel("", z[i]); dotlabel("", z[i]'); dotlabel("", z[i]'');
  endfor
enddef;

cap_hair:=11/36mpt;
cap_stem=hround 32/36mpt;
disp_hair=0.4mpt;
disp_stem=1.25cap_stem;

w=2appr+12u; h=0; d=200/54dh;

beginfig(1);
 % italcorr 5u#;
  % adjust_fit(0, -5u#);
  pickup pencircle scaled 0.4pt;
  makebox;
  z1 = (hround(0.5w-0.5disp_stem), 0.52[-d, h]);
  z2 = (w-appr-2.6u, 1[-d, h]);
  z3 = (w-appr, 0.63[y2, y4]);
  z4 = (w-appr-0.9u, vround(h-0.24dh));
  z5 = (w-appr-2.8u, 1[-d, h]-disp_hair);
  z6 = (x1+disp_stem, 0.75[-d, h]);
  path lastpath;
  lastpath :=
  z1..controls(x1, 0.6[y1, y2]) and (0.85[x2, x1], y2)..
  z2..controls(0.79[x2, x3], y2) and (x3, 0.44[y3, y2])..
```

```
  z3..controls(x3, 0.6[y3, y4]) and (0.6[x4, x3], y4)..
  z4..controls(0.65[x4, x5], y4) and (0.6[x5, x4], y5)..
  z5..controls(0.55[x5, x6], y5) and (x6, 0.8[y6, y5])..
  z6;
  lastpath := lastpath--lastpath shifted (-x1,0)
  rotated 180 shifted (x6, -d)--cycle;
  fill lastpath withcolor 0.5white;
  controlpoints(1,6);
  label.lft("1", z1);
  label.top("2", z2);
  label.rt("3", z3);
  label.bot("4", z4);
  label.bot("5", z5);
  label.rt("6", z6);
endfig;
```

```
w:=2appr+6u; h:=0; d:=100/54dh;
```

```
beginfig(2);
 % italcorr 0.5u#;
  % adjust_fit(0, -0.5u#);
  pickup pencircle scaled 0.4pt;
  makebox;
  z.c=(0.5w,0.5[-d,h]);
  y.t=y.tl=y.tr=h; y.b=y.bl=y.br=-d;
  x.c-x.t=x.b-x.c=2.3u;% slope
  x.tr-x.t=x.t-x.tl=x.br-x.b=x.b-x.bl=.5cap_stem/sind(angle(z.t-z.c));
  z1 = 0.52[z.bl,z.tl];
  z2 = (hround(appr+u), 0.82[-d, h]);
  z3 = (w-appr-2.3u, 1[-d, h]);
  z4 = (w-appr, 0.63[y3, y5]);
  z5 = (w-appr-0.7u, vround(h-0.2dh));
  z6 = (w-appr-2.5u, 1[-d, h]-cap_hair);
  z7 = 0.75[z.br,z.tr];
  x1.2=x2; z1.2-z1=whatever*(z.t-z.c);
  y6.7=y6; z6.7-z7=whatever*(z.t-z.c);
  path lastpath;
  lastpath :=
  z1..controls 0.55[z1,z1.2] and 0.5[z2,z1.2]..
  z2..controls(x2, 0.55[y2, y3]) and (0.65[x3, x2], y3)..
  z3..controls(0.79[x3, x4], y3) and (x4, 0.44[y4, y3])..
  z4..controls(x4, 0.6[y4, y5]) and (0.6[x5, x4], y5)..
  z5..controls(0.65[x5, x6], y5) and (0.6[x6, x5], y6)..
  z6..controls 0.6[z6, z6.7] and 0.65[z7, z6.7]..
  z7;
  lastpath := lastpath--lastpath rotated 180 shifted (w, -d)--cycle;
  fill lastpath withcolor 0.5white;
  controlpoints(1,7);
  label.llft("1", z1);
```

```
  label.lft("2", z2);
  label.top("3", z3);
  label.rt("4", z4);
  label.bot("5", z5);
  label.bot("6", z6);
  label.urt("7", z7);
  dotlabel.llft("1.2",z1.2);
  dotlabel.ulft("6.7",z6.7);
endfig;

end.
```