COMPUTERS & TYPESETTING

JUBILEE
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edition

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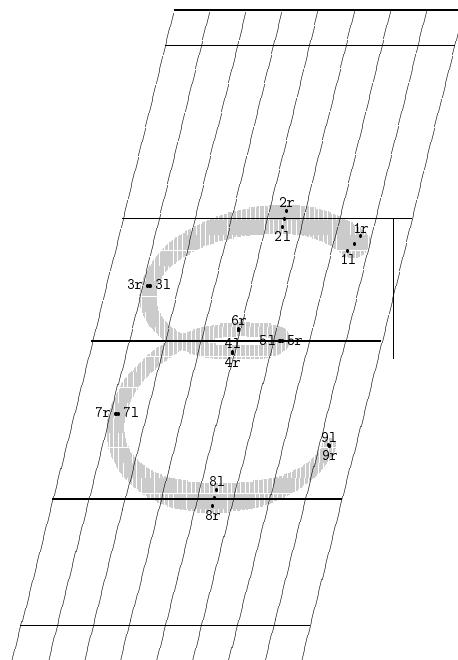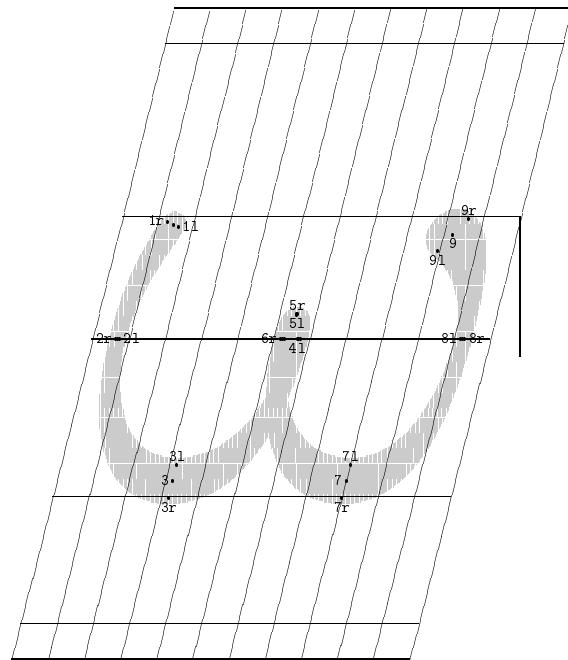
Computer Modern Typefaces

cmchar "Lowercase Greek chi";
beginchar(oct "037", $11u\#$, $x\_height\#$, $desc\_depth\#$);
italcorr $x\_height\# * slant + .5hair\# - 1.5u\#$;
adjust_fit$(0, 0)$; **pickup** *fine.nib*;
$pos_1(hair, 180)$; $pos_2(vair, 80)$; $pos_5(vair, 80)$; $pos_6(hair, 180)$;
$x_1 - .5hair = $ hround $-.5hair$; $x_6 = w - x_1$; $x_2 = w - x_5 = u$;
$y_1 = y_{2l} - h/8$; $top\ y_{2r} = h + oo$; $bot\ y_{5l} = -d - oo$; $y_6 = y_{5r} + h/8$;
$z_0 = .5[z_2, z_5]$; $z_{2'} = z_{2l} + (.5u, 0)$; $z_{5'} = z_{5r} - (.5u, 0)$;
numeric *theta*; $theta = \text{angle}(z_{5'} - z_{2'}) + 90$;
$pos_3(stem, theta)$; $pos_4(stem, theta)$;
$y_{3r} = y_{2r} - h/8$; $y_{4l} = y_{5l} + h/8$; $z_{3l} = whatever[z_{2'}, z_0]$; $z_{4r} = whatever[z_0, z_{5'}]$;
filldraw stroke $z_{1e}\{up\} \dots z_{2e}\{right\} \dots z_{3e}\{z_{4r} - z_{3l}\}$
    $\dots z_{4e}\{z_{4r} - z_{3l}\} \dots \{right\}z_{5e} \dots \{up\}z_{6e}$;   % major diagonal and hooks
$x_8 = w - x_7 = 2u$; $y_7 + .5hair = h$; $y_8 - .5hair = -d$;
numeric *theta*; $theta = \text{angle}(z_7 - z_8) - 90$;
$pos_7(hair, theta)$; $pos_8(hair, theta)$;
filldraw z_{7l} --- z_{8l} .. z_{8r} --- z_{7r} .. **cycle**;   % minor diagonal
math_fit$((desc\_depth\# - x\_height\#) * slant + ic\#, ic\#)$;
penlabels$(0, 1, 2, 2', 3, 4, 5', 5, 6, 7, 8)$; **endchar**;

cmchar "Lowercase Greek psi";
beginchar(oct "040", $11u\#$, $asc\_height\#$, $desc\_depth\#$);
italcorr $x\_height\# * slant$;
adjust_fit$(0, 0)$; **pickup** *fine.nib*; **interim** *superness* := *more_super*;
$x_0 = 0$; $x_2 = x_3 + .25u$; $pos_3(stem, -180)$; $lft\ x_{3r} = \text{hround}(2.5u - .5stem)$;
$hook\_in(0, 1, 2)(skewed)$;   % opening hook
$pos_{2'}(stem, -180)$; $z_{2'} = z_2$; $pos_4(vair, -90)$; $pos_5(hair, 0)$;
$x_4 = .5w + u$; $rt\ x_{5r} = \text{hround}(w - .5u)$;
$y_3 = .7[y_4, y_5]$; $bot\ y_{4r} = -oo$; $y_5 = .57x\_height$;
filldraw stroke $z_{2'e}\{-u, -x\_height\} \dots super\_arc_e(3, 4)$
    $\dots$ **tension atleast** $1.05 \dots \{up\}z_{5e}$;   % left stem and arc
$v\_bulb(5, 6)$;   % closing bulb
$pos_7(hair, 0)$; $pos_8(hair, 0)$; $x_7 = x_8 = .5w + .5u$; $top\ y_7 = h$; $bot\ y_8 = -d - oo$;
filldraw stroke z_{7e} -- z_{8e};   % stem
math_fit$(-{}^2/_3 x\_height\# * slant + .5hair\# + .5u\#, {}^2/_3 ic\#)$;
penlabels$(0, 1, 2, 3, 4, 5, 6, 7, 8)$; **endchar**;
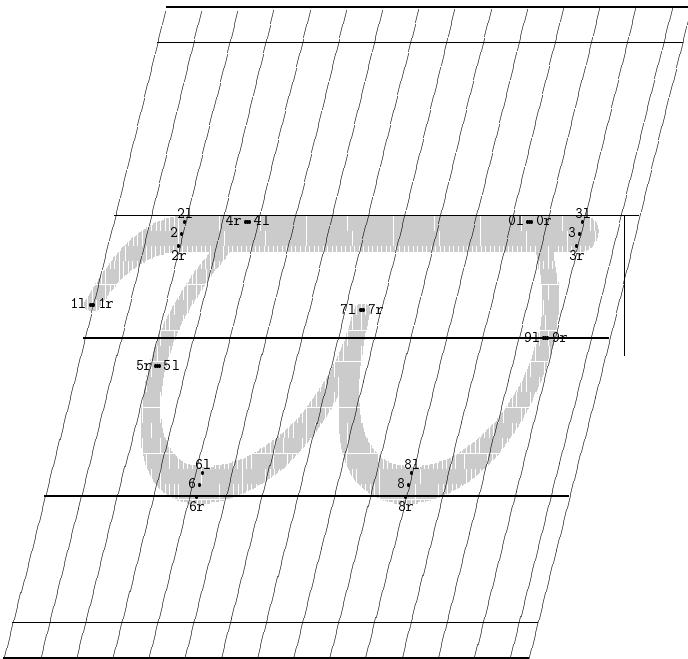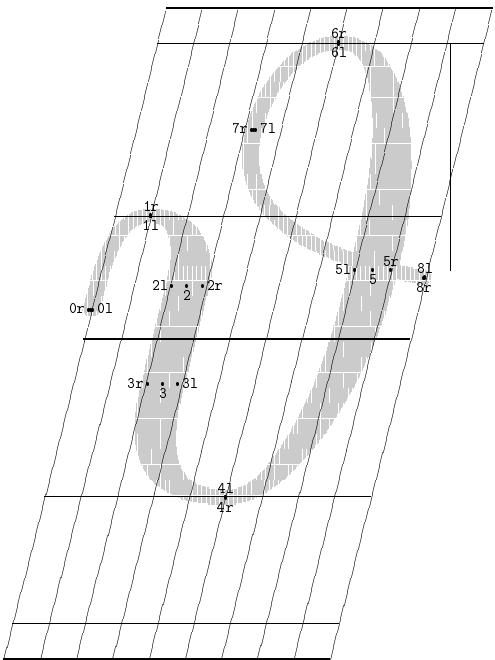
cmchar "Lowercase Greek omega";
beginchar(oct "041", $11u^\#$, $x\_height^\#$, 0);
italcorr $x\_height^\# * slant$;
adjust_fit(0, 0); **pickup** $fine.nib$;
$pos_2(hair, -180)$; *lft* x_{2r} = hround $.5u$; $y_2 = y_4 = y_6 = y_8 = bar\_height$;
$y_1 + .5hair = h$; $x_1 = x_2 + .75u$; $pos_1(hair + dw, \text{angle}(2(x_1 - x_2), y_1 - y_2) + 90)$;
$pos_3(vstem + dw, -90)$; $pos_4(hair, 0)$; $pos_5(vair, 90)$;
$pos_6(hair, 180)$; $pos_7(vstem + dw, 270)$; $pos_8(hair, 360)$;
bot y_{3r} = *bot* $y_{7r} = -oo$; *top* y_{5r} = vround$(.2[y_4, h] + .5vair)$;
$x_3 = .5[x_2, x_4]$; $x_7 - .25u = .5[x_6, x_8]$; *rt* x_{8r} = hround$(w - .5u)$;
$x_5 + .5stem$ = hround$(.5w + .5stem) + eps$;
$x_5 = .5[x_4, x_6]$; *rt* x_{4r} − *lft* x_{6r} = min$(stem, 2hair) + 2eps$;
if $x_{4l} < x_{6l}$: $x_{4l} := x_{6l} := x_5$; **fi**
filldraw circ_stroke $z_{1e}\{2(x_2 - x_1), y_2 - y_1\}$ ... $z_{2e}\{down\}$ ... $z_{3e}\{right\}$
     ... $\{up\}z_{4e}$ ... $\{left\}z_{5e}$;   % left arc
filldraw stroke $z_{5e}\{left\}$ ... $z_{6e}\{down\}$ ... $z_{7e}\{right\}$ ... $\{up\}z_{8e}$;   % right arc
$v\_bulb(8, 9)$;   % closing bulb
math_fit$(-bar\_height^\# * slant, {}^2\!/_3 ic^\#)$; **penlabels**(1, 2, 3, 4, 5, 6, 7, 8, 9); **endchar**;

cmchar "Variant lowercase Greek epsilon";
beginchar(oct "042", $8u^\#$, $x\_height^\#$, 0);
italcorr $x\_height^\# * slant - .5u^\#$;
adjust_fit(0, 0); **pickup** $fine.nib$;
numeric $light\_vstem$; $light\_vstem$ = Vround ${}^2\!/_3[vair, vstem]$;
$pos_2(light\_vstem, 90)$; $x_2 = x_8 = .5w + .5u$; *top* $y_{2r} = h + o$;
$x_1 + .5light\_vstem$ = hround$(w - u)$; $y_1 = .2[y_2, bar\_height]$;
$pos_1(light\_vstem, \text{angle}(x_1 - x_2, 2(y_1 - y_2)) + 90)$; $pos_3(hair, 180)$; $pos_4(vair, 270)$;
$pos_5(hair, 360)$; $pos_6(vair, 450)$; $pos_7(hair, 540)$; $pos_8(light\_vstem, 630)$;
lft x_{3r} = hround u; $x_4 = x_6 = .5w$; *rt* x_{5r} = hround$(w - 2.5u)$; $x_7 = x_3$;
$y_3 = .5[y_2, y_4]$; $y_5 = bar\_height = .5[y_4, y_6]$; $y_7 = .5[y_6, y_8]$; *bot* $y_{8r} = -o$;
top y_{6r} − *bot* $y_{4r} = vstem + eps$; **if** $y_{6l} < y_{4l}$: $y_{6l} := y_{4l} := y_5$; **fi**
$x_9 + .5vair$ = hround$(w - .5u)$; $y_9 = {}^1\!/_3[y_8, bar\_height]$;
$pos_9(vair, \text{angle}(x_8 - x_9, 2(y_8 - y_9)) + 90)$;
filldraw circ_stroke $z_{1e}\{x_2 - x_1, 2(y_2 - y_1)\}$ ... $pulled\_super\_arc_e(2, 3)(.5superpull)$
     & $super\_arc_e(3, 4)$ ... $\{up\}z_{5e}$;   % upper arc
filldraw circ_stroke $z_{9e}\{x_8 - x_9, 8(y_8 - y_9)\}$ ... $pulled\_arc_e(8, 7)$
     & $super\_arc_e(7, 6)$ ... $\{down\}z_{5e}$;   % lower arc
math_fit$(-.5bar\_height^\# * slant - .5u^\#, ic^\#)$;
penlabels(1, 2, 3, 4, 5, 6, 7, 8, 9); **endchar**;

cmchar "Variant lowercase Greek theta";
beginchar(oct "043", $9u^\#$, $asc\_height^\#$, 0);
italcorr $.5[bar\_height^\#, x\_height^\#] * slant + .5vair^\# + .5u^\#$;
adjust_fit(0, 0); **pickup** *fine.nib*;
numeric *light_curve*; $light_curve = $ hround $.5[stem, curve]$;
$x_0 = 0$; $x_2 - .5stem = $ hround$(2.5u - .5stem)$; $hook\_in(0, 1, 2)$;   % opening hook
$pos_{2'}(stem, -180)$; $z_{2'} = z_2$; $pos_3(stem, -180)$; $pos_4(vair, -90)$;
$pos_5(light\_curve, 0)$; $pos_6(vair, 90)$; $pos_7(hair, 180)$; $pos_8(vair, 270)$;
$x_3 = x_2$; $x_4 = x_6 = .5[x_3, x_5]$; $rt\ x_{5r} = $ hround$(w - 1.5u + .5light\_curve)$;
$lft\ x_{7r} = $ hround$(3.25u - .5hair)$; $x_8 + .5vair = $ hround$(w + .5vair - epsilon)$;
$y_3 = .4x\_height$; $bot\ y_{4r} = -oo$; $y_5 = .5[y_4, y_6]$; $top\ y_{6r} = h + oo$;
$y_7 = .5[x\_height, h]$; $y_8 = .5[bar\_height, x\_height]$;
filldraw stroke $z_{2'e}$ .. {{ **interim** *superness* := *hein_super*; $super\_arc_e(3, 4)$ }}
   & $pulled\_arc_e(4, 5)$ & $pulled\_arc_e(5, 6)$
   ... $\{down\}z_{7e}$ ... $\{4(x_8 - x_7), y_8 - y_7\}z_{8e}$;   % bowl and loop
math_fit$(- {}^2\!/_3 x\_height^\# * slant + .5hair^\# + .5u^\#, ic^\#)$;
penlabels$(0, a, 1, 2, 3, 4, 5, 6, 7, 8)$; **endchar**;

cmchar "Variant lowercase Greek pi";
beginchar(oct "044", $14.5u^\#$, $x\_height^\#$, 0);
italcorr $x\_height^\# * slant + .5stem^\# - u^\#$;
adjust_fit(0, 0); *pi_stroke*;   % hook and bar
$pos_4(hair, -180)$; $pos_5(hair, -180)$; $pos_6(vstem, -90)$;
$pos_7(hair, 0)$; $pos_{7'}(hair, -180)$; $z_{7'} = z_7$;
$pos_8(vstem, -90)$; $pos_9(hair, 0)$; $pos_0(hair, 0)$;
$x_4 = x_5 + 1.5u$; $lft\ x_{5r} = $ hround $2u$;
$x_6 = x_4 + .5u$; $lft\ x_{7l} = $ hround$(.5w + .25u - .5hair)$;
$x_8 = w - 4.5u$; $rt\ x_{9r} = $ hround$(w - 1.5u)$; $x_0 = x_9 - 1.25u$;
$top\ y_4 = top\ y_0 = h$; $y_5 + .1h = y_7 - .1h = y_9 = bar\_height$; $bot\ y_{6r} = bot\ y_{8r} = -oo$;
filldraw stroke $z_{4e}\{2(x_5 - x_4), y_5 - y_4\}$ ... $z_{5e}\{down\}$
   ... $z_{6e}\{right\}$ ... $z_{7e}\{up\}$;   % left bowl
filldraw stroke $z_{0e}\{2(x_9 - x_0), y_9 - y_0\}$ ... $z_{9e}\{down\}$
   ... $z_{8e}\{left\}$ ... $z_{7'e}\{up\}$;   % right bowl
math_fit$(-.7x\_height^\# * slant + .5hair^\# + .5u^\#, ic^\# - .5u^\#)$;
penlabels$(0, 1, 2, 3, 4, 5, 6, 7, 8, 9)$; **endchar**;