

# Using T<sub>E</sub>X Fonts in the Gnuplot Postscript Terminal

Harald Harders, [h.harders@tu-bs.de](mailto:h.harders@tu-bs.de)

2003-03-03

The Postscript terminal can embed Postscript Type 1 fonts (with extensions `.pfa` and `.pfb`) and TrueType fonts (extension `.ttf`)<sup>1</sup> using the command

```
set terminal postscript fontfile '<filename>'
```

The `fontfile` option can be used multiple times. See the sections *set terminal postscript* and *set fontpath* in the Gnuplot documentation for further description.

The embedded font can be used by

```
set terminal postscript '<fontname>' <size>
```

or in postscript enhanced terminal as following example:

```
set xlabel '{/CMMI10 x}'
```

Among other things, the font embedding is useful for generating plots to be included in L<sup>A</sup>T<sub>E</sub>X documents. For normal text, the *cm-super* Postscript Type 1 fonts are a good choice. They are available from CTAN servers, e.g.

```
ftp://ftp.dante.de/tex-archive/fonts/ps-type1/cm-super/
```

The normal upright font with serifes is defined in `sfrm1000.pfb`, and the font name is `SFRM1000`<sup>2</sup> (The 1000 means that this font is designed for 10pt). Replace the `rm` by `it`, `bx` or other combinations in both the file name and the font name (here, in uppercase letters) in order to get other font shapes. The encoding of these fonts is ordinary and thus is not described here. Table 1 shows some examples of fonts contained in the *cm-super* font bundle.

For mathematics the Type 1 versions of the Computer Modern fonts are useful. They should be installed in most T<sub>E</sub>X implementations and are also available from CTAN servers, e.g.

```
ftp://ftp.dante.de/tex-archive/fonts/cm/ps-type1/bluesky/pfb/
```

Here, the font name is the base of the file name in uppercase letters, e.g. the file `cmmi10.pfb` contains the font `CMMI10`. Since the encoding of these fonts is strange, a table containing all characters for some fonts follows. The font `CMEX10` contains large symbols for mathematics. They overlap sometimes in the table. Since the baseline of the `CMEX10` font is at the top of the signs, Gnuplot defines a font `CMEX10-Baseline` with a different baseline if `CMEX10` is embedded (normally by using `fontfile 'cmex10.pfb'`). In contrast to the other fonts, `CMEX10` is only available in the design size 10pt.

You can access all characters of the fonts by typing their octal code. To get a ♥ symbol, you may type:

```
set label '{/CMSY10 \176}' at graph 0.5,0.5
```

---

<sup>1</sup>If `.pfb` and `.ttf` fonts really can be embedded depends on your gnuplot installation: It needs to be able to handle pipes.

<sup>2</sup>If you have an old version of the *cm-super* font, prior 2001-10-14, the font name is in lowercase letters: `sfrm1000`. You should update to a new version.

Table 1: Some fonts in the cm-super font bundle (for a designsizes of 10pt)

| File name                 | Full font name<br>(all preceded by <code>Computer Modern</code> ) | Example               |
|---------------------------|-------------------------------------------------------------------|-----------------------|
| <code>sfrm1000.pfb</code> | Roman                                                             | Example               |
| <code>sfbx1000.pfb</code> | Bold Extended                                                     | <b>Example</b>        |
| <code>sfti1000.pfb</code> | Italic                                                            | <i>Example</i>        |
| <code>sfbi1000.pfb</code> | Bold Extended Italic                                              | <b><i>Example</i></b> |
| <code>sfs11000.pfb</code> | Slanted                                                           | <i>Example</i>        |
| <code>sfbl1000.pfb</code> | Bold Extended Slanted                                             | <b><i>Example</i></b> |
| <code>sfcc1000.pfb</code> | Caps and Small Caps                                               | <b>EXAMPLE</b>        |
| <code>sfss1000.pfb</code> | Sans Serif                                                        | Example               |
| <code>sfsi1000.pfb</code> | Sans Serif Slanted                                                | <i>Example</i>        |
| <code>sfsx1000.pfb</code> | Sans Serif Bold Extended                                          | <b>Example</b>        |
| <code>sfso1000.pfb</code> | Sans Serif Bold Extended Slanted                                  | <b><i>Example</i></b> |
| <code>sftt1000.pfb</code> | Typewriter                                                        | Example               |
| <code>sfit1000.pfb</code> | Typewriter Italic                                                 | <i>Example</i>        |
| <code>sfst1000.pfb</code> | Typewriter Slanted                                                | <i>Example</i>        |
| <code>sftc1000.pfb</code> | Typewriter Caps and Small Caps                                    | <b>EXAMPLE</b>        |

Since characters with an octal number below `\040` can't be displayed by some postscript interpreters, these characters are repeated in the Computer Modern Fonts with a larger code. Thus, you should use the larger number, where two octal numbers are given (e.g. `\000`, `\241`). For example, you better use

```
set xlabel '{/CMR10 \242}'
```

than

```
set xlabel '{/CMR10 \001}'
```

to get an upright uppercase Delta  $\Delta$ .

| Oct                     | CMR10      | CMT10      | CMTT10     | CMMI10     | CMU10      | CMSS10     | CMTEX10      | CMFF10     | CMST10     | LAT10    | CMEX10-Baseline | Oct                       | Dec    |
|-------------------------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|----------|-----------------|---------------------------|--------|
| <code>\000, \241</code> | $\Gamma$   | $\Gamma$   | $\Gamma$   | $\Gamma$   | $\Gamma$   | $\Gamma$   | $\cdot$      | $\Gamma$   | $-$        |          |                 | <code>( \000, \241</code> | 0, 161 |
| <code>\001, \242</code> | $\Delta$   | $\Delta$   | $\Delta$   | $\Delta$   | $\Delta$   | $\Delta$   | $\downarrow$ | $\Delta$   | $\cdot$    | $\Delta$ | )               | <code>\001, \242</code>   | 1, 162 |
| <code>\002, \243</code> | $\Theta$   | $\Theta$   | $\Theta$   | $\Theta$   | $\Theta$   | $\Theta$   | $\alpha$     | $\Theta$   | $\times$   | $\Delta$ | [               | <code>\002, \243</code>   | 2, 163 |
| <code>\003, \244</code> | $\Lambda$  | $\Lambda$  | $\Lambda$  | $\Lambda$  | $\Lambda$  | $\Lambda$  | $\beta$      | $\Lambda$  | $*$        | $\nabla$ | ]               | <code>\003, \244</code>   | 3, 164 |
| <code>\004, \245</code> | $\Xi$      | $\Xi$      | $\Xi$      | $\Xi$      | $\Xi$      | $\Xi$      | $\wedge$     | $\Xi$      | $\div$     | $\nabla$ | [               | <code>\004, \245</code>   | 4, 165 |
| <code>\005, \246</code> | $\Pi$      | $\Pi$      | $\Pi$      | $\Pi$      | $\Pi$      | $\Pi$      | $\neg$       | $\Pi$      | $\diamond$ |          | ]               | <code>\005, \246</code>   | 5, 166 |
| <code>\006, \247</code> | $\Sigma$   | $\Sigma$   | $\Sigma$   | $\Sigma$   | $\Sigma$   | $\Sigma$   | $\epsilon$   | $\Sigma$   | $\pm$      |          | [               | <code>\006, \247</code>   | 6, 167 |
| <code>\007, \250</code> | $\Upsilon$ | $\Upsilon$ | $\Upsilon$ | $\Upsilon$ | $\Upsilon$ | $\Upsilon$ | $\pi$        | $\Upsilon$ | $\mp$      |          | ]               | <code>\007, \250</code>   | 7, 168 |
| <code>\010, \251</code> | $\Phi$     | $\Phi$     | $\Phi$     | $\Phi$     | $\Phi$     | $\Phi$     | $\lambda$    | $\Phi$     | $\oplus$   |          | {               | <code>\010, \251</code>   | 8, 169 |

| Oct        | CMR10          | CMTH10         | CMTT10         | CMMI10         | CMU10          | CMSS10         | CMTEX10        | CMFF10         | CMSY10            | LASY10         | CMEX10-Baseline | Oct        | Dec     |
|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|----------------|-----------------|------------|---------|
| \011, \252 | $\Psi$         | $\Psi$         | $\Psi$         | $\Psi$         | $\Psi$         | $\Psi$         | $\gamma$       | $\psi$         | $\oplus$          |                | }               | \011, \252 | 9, 170  |
| \012, \255 | $\Omega$       | $\Omega$       | $\Omega$       | $\Omega$       | $\Omega$       | $\Omega$       | $\delta$       | $\Omega$       | $\otimes$         |                | <               | \012, \255 | 10, 173 |
| \013, \256 | $\mathfrak{f}$ | $\mathfrak{f}$ | $\uparrow$     | $\alpha$       | $\mathfrak{f}$ | $\mathfrak{f}$ | $\uparrow$     | $\pi$          | $\otimes$         |                | >               | \013, \256 | 11, 174 |
| \014, \257 | $\mathfrak{f}$ | $\mathfrak{f}$ | $\downarrow$   | $\beta$        | $\mathfrak{f}$ | $\mathfrak{f}$ | $\pm$          | $\pi$          | $\odot$           |                |                 | \014, \257 | 12, 175 |
| \015, \260 | $\mathfrak{f}$ | $\mathfrak{f}$ | $\prime$       | $\gamma$       | $\mathfrak{f}$ | $\mathfrak{f}$ | $\mathfrak{e}$ | $\pi$          | $\bigcirc$        |                |                 | \015, \260 | 13, 176 |
| \016, \261 | $\mathfrak{f}$ | $\mathfrak{f}$ | $\mathfrak{i}$ | $\delta$       | $\mathfrak{f}$ | $\mathfrak{f}$ | $\mathfrak{e}$ | $\mathfrak{m}$ | $\circ$           |                | /               | \016, \261 | 14, 177 |
| \017, \262 | $\mathfrak{f}$ | $\mathfrak{f}$ | $\mathfrak{i}$ | $\epsilon$     | $\mathfrak{f}$ | $\mathfrak{f}$ | $\partial$     | $\mathfrak{m}$ | $\bullet$         |                | \               | \017, \262 | 15, 178 |
| \020, \263 | $\mathfrak{i}$ | $\mathfrak{i}$ | $\mathfrak{i}$ | $\zeta$        | $\mathfrak{i}$ | $\mathfrak{i}$ | $\mathfrak{c}$ | $\mathfrak{i}$ | $\times$          |                | (               | \020, \263 | 16, 179 |
| \021, \264 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\eta$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\equiv$          |                | )               | \021, \264 | 17, 180 |
| \022, \265 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\theta$       | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqsubset$       |                | (               | \022, \265 | 18, 181 |
| \023, \266 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\iota$        | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | )               | \023, \266 | 19, 182 |
| \024, \267 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\kappa$       | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | )               | \024, \267 | 20, 183 |
| \025, \270 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\lambda$      | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | }               | \025, \270 | 21, 184 |
| \026, \271 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mu$          | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | }               | \026, \271 | 22, 185 |
| \027, \272 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\nu$          | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | }               | \027, \272 | 23, 186 |
| \030, \273 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\xi$          | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sim$            |                | }               | \030, \273 | 24, 187 |
| \031, \274 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\pi$          | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\approx$         |                | }               | \031, \274 | 25, 188 |
| \032, \275 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\rho$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqsubset$       |                | }               | \032, \275 | 26, 189 |
| \033, \276 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\sigma$       | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\sqcup$          |                | }               | \033, \276 | 27, 190 |
| \034, \277 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\tau$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\ll$             |                | }               | \034, \277 | 28, 191 |
| \035, \300 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\upsilon$     | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\gg$             |                | }               | \035, \300 | 29, 192 |
| \036, \301 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\phi$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\mathfrak{j}$    |                | }               | \036, \301 | 30, 193 |
| \037, \302 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\chi$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\mathfrak{j}$    |                | }               | \037, \302 | 31, 194 |
| \040, \303 | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{j}$ | $\psi$         | $\mathfrak{j}$ | $\mathfrak{j}$ | $\mathfrak{c}$ | $\mathfrak{j}$ | $\mathfrak{j}$    |                | }               | \040, \303 | 32, 195 |
| \041       | $!$            | $!$            | $!$            | $\omega$       | $!$            | $!$            | $!$            | $!$            | $\rightarrow$     |                | }               | \041       | 33      |
| \042       | $"$            | $"$            | $"$            | $\epsilon$     | $"$            | $"$            | $"$            | $"$            | $\uparrow$        |                | }               | \042       | 34      |
| \043       | $\#$           | $\#$           | $\#$           | $\vartheta$    | $\#$           | $\#$           | $\#$           | $\#$           | $\downarrow$      |                | }               | \043       | 35      |
| \044       | $\$$           | $\mathcal{L}$  | $\$$           | $\mathfrak{L}$ | $\mathcal{L}$  | $\$$           | $\$$           | $\$$           | $\leftrightarrow$ |                | }               | \044       | 36      |
| \045       | $\%$           | $\%$           | $\%$           | $\varrho$      | $\%$           | $\%$           | $\%$           | $\%$           | $\nearrow$        |                | }               | \045       | 37      |
| \046       | $\&$           | $\mathfrak{E}$ | $\&$           | $\varsigma$    | $\mathfrak{E}$ | $\&$           | $\&$           | $\&$           | $\searrow$        |                | }               | \046       | 38      |
| \047       | $'$            | $'$            | $'$            | $\varphi$      | $'$            | $'$            | $'$            | $'$            | $\mathfrak{L}$    |                | }               | \047       | 39      |
| \050       | $($            | $($            | $($            | $\mathfrak{L}$ | $($            | $($            | $($            | $($            | $\Leftarrow$      | $\mathfrak{L}$ | }               | \050       | 40      |
| \051       | $)$            | $)$            | $)$            | $\mathfrak{L}$ | $)$            | $)$            | $)$            | $)$            | $\Rightarrow$     | $\mathfrak{L}$ | }               | \051       | 41      |
| \052       | $*$            | $*$            | $*$            | $\mathfrak{L}$ | $*$            | $*$            | $*$            | $*$            | $\Uparrow$        | $\mathfrak{L}$ | }               | \052       | 42      |
| \053       | $+$            | $+$            | $+$            | $\rightarrow$  | $+$            | $+$            | $+$            | $+$            | $\Downarrow$      | $\mathfrak{L}$ | }               | \053       | 43      |
| \054       | $,$            | $,$            | $,$            | $\mathfrak{L}$ | $,$            | $,$            | $,$            | $,$            | $\Leftrightarrow$ | $\mathfrak{L}$ | }               | \054       | 44      |
| \055       | $-$            | $-$            | $-$            | $\mathfrak{L}$ | $-$            | $-$            | $-$            | $-$            | $\nearrow$        | $\mathfrak{L}$ | }               | \055       | 45      |
| \056       | $\cdot$        | $\cdot$        | $\cdot$        | $\mathfrak{L}$ | $\cdot$        | $\cdot$        | $\cdot$        | $\cdot$        | $\swarrow$        | $\mathfrak{L}$ | }               | \056       | 46      |
| \057       | $/$            | $/$            | $/$            | $\mathfrak{L}$ | $/$            | $/$            | $/$            | $/$            | $\propto$         | $\mathfrak{L}$ | }               | \057       | 47      |

|      | CMEX10-Baseline |        |        |            |       |        |         |        |               |             |                |      |     |
|------|-----------------|--------|--------|------------|-------|--------|---------|--------|---------------|-------------|----------------|------|-----|
| Oct  | CMR10           | CMTH10 | CMTT10 | CMMI10     | CMU10 | CMSS10 | CMTEX10 | CMFF10 | CMSY10        | LASY10      |                | Oct  | Dec |
| \060 | 0               | 0      | 0      | 0          | 0     | 0      | 0       | 0      | '             | U           | /              | \060 | 48  |
| \061 | 1               | 1      | 1      | 1          | 1     | 1      | 1       | 1      | $\infty$      | $\boxtimes$ | \              | \061 | 49  |
| \062 | 2               | 2      | 2      | 2          | 2     | 2      | 2       | 2      | $\in$         | $\square$   | [              | \062 | 50  |
| \063 | 3               | 3      | 3      | 3          | 3     | 3      | 3       | 3      | $\ni$         | $\diamond$  | ]              | \063 | 51  |
| \064 | 4               | 4      | 4      | 4          | 4     | 4      | 4       | 4      | $\triangle$   |             |                | \064 | 52  |
| \065 | 5               | 5      | 5      | 5          | 5     | 5      | 5       | 5      | $\nabla$      |             | ]              | \065 | 53  |
| \066 | 6               | 6      | 6      | 6          | 6     | 6      | 6       | 6      | /             |             |                | \066 | 54  |
| \067 | 7               | 7      | 7      | 7          | 7     | 7      | 7       | 7      |               |             |                | \067 | 55  |
| \070 | 8               | 8      | 8      | 8          | 8     | 8      | 8       | 8      | $\forall$     |             | /              | \070 | 56  |
| \071 | 9               | 9      | 9      | 9          | 9     | 9      | 9       | 9      | $\exists$     |             | )              | \071 | 57  |
| \072 | :               | :      | :      | .          | :     | :      | :       | :      | $\neg$        | $\sim$      | )              | \072 | 58  |
| \073 | ;               | ;      | ;      | ,          | ;     | ;      | ;       | ;      | $\emptyset$   | $\leadsto$  | )              | \073 | 59  |
| \074 | i               | i      | <      | <          | i     | i      | <       | i      | $\Re$         | $\sqsubset$ | }              | \074 | 60  |
| \075 | =               | =      | =      | /          | =     | =      | =       | =      | $\Im$         | $\sqsupset$ | }              | \075 | 61  |
| \076 | i               | i      | >      | >          | i     | i      | >       | i      | $\top$        |             | }              | \076 | 62  |
| \077 | ?               | ?      | ?      | *          | ?     | ?      | ?       | ?      | $\perp$       |             |                | \077 | 63  |
| \100 | @               | @      | @      | $\partial$ | @     | @      | @       | @      | $\aleph$      |             | /              | \100 | 64  |
| \101 | A               | A      | A      | A          | A     | A      | A       | A      | $\mathcal{A}$ |             | )              | \101 | 65  |
| \102 | B               | B      | B      | B          | B     | B      | B       | B      | $\mathcal{B}$ |             |                | \102 | 66  |
| \103 | C               | C      | C      | C          | C     | C      | C       | C      | $\mathcal{C}$ |             |                | \103 | 67  |
| \104 | D               | D      | D      | D          | D     | D      | D       | D      | $\mathcal{D}$ |             | <              | \104 | 68  |
| \105 | E               | E      | E      | E          | E     | E      | E       | E      | $\mathcal{E}$ |             | >              | \105 | 69  |
| \106 | F               | F      | F      | F          | F     | F      | F       | F      | $\mathcal{F}$ |             | $\sqcup$       | \106 | 70  |
| \107 | G               | G      | G      | G          | G     | G      | G       | G      | $\mathcal{G}$ |             | $\sqcup$       | \107 | 71  |
| \110 | H               | H      | H      | H          | H     | H      | H       | H      | $\mathcal{H}$ |             | $\mathfrak{H}$ | \110 | 72  |
| \111 | I               | I      | I      | I          | I     | I      | I       | I      | $\mathcal{I}$ |             | $\mathfrak{I}$ | \111 | 73  |
| \112 | J               | J      | J      | J          | J     | J      | J       | J      | $\mathcal{J}$ |             | $\odot$        | \112 | 74  |
| \113 | K               | K      | K      | K          | K     | K      | K       | K      | $\mathcal{K}$ |             | $\odot$        | \113 | 75  |
| \114 | L               | L      | L      | L          | L     | L      | L       | L      | $\mathcal{L}$ |             | $\oplus$       | \114 | 76  |
| \115 | M               | M      | M      | M          | M     | M      | M       | M      | $\mathcal{M}$ |             | $\oplus$       | \115 | 77  |
| \116 | N               | N      | N      | N          | N     | N      | N       | N      | $\mathcal{N}$ |             | $\otimes$      | \116 | 78  |
| \117 | O               | O      | O      | O          | O     | O      | O       | O      | $\mathcal{O}$ |             | $\otimes$      | \117 | 79  |
| \120 | P               | P      | P      | P          | P     | P      | P       | P      | $\mathcal{P}$ |             | $\Sigma$       | \120 | 80  |
| \121 | Q               | Q      | Q      | Q          | Q     | Q      | Q       | Q      | $\mathcal{Q}$ |             | $\Pi$          | \121 | 81  |
| \122 | R               | R      | R      | R          | R     | R      | R       | R      | $\mathcal{R}$ |             | $\int$         | \122 | 82  |
| \123 | S               | S      | S      | S          | S     | S      | S       | S      | $\mathcal{S}$ |             | $\cup$         | \123 | 83  |
| \124 | T               | T      | T      | T          | T     | T      | T       | T      | $\mathcal{T}$ |             | $\cap$         | \124 | 84  |
| \125 | U               | U      | U      | U          | U     | U      | U       | U      | $\mathcal{U}$ |             | $\uplus$       | \125 | 85  |
| \126 | V               | V      | V      | V          | V     | V      | V       | V      | $\mathcal{V}$ |             | $\wedge$       | \126 | 86  |

|      | CMR10 | CMTH10 | CMTT10 | CMMI10 | CMU10 | CMSS10 | CMTEX10 | CMFF10 | CMSY10 | LASY10 | CMEX10-Baseline |   | Oct  | Dec |
|------|-------|--------|--------|--------|-------|--------|---------|--------|--------|--------|-----------------|---|------|-----|
| \127 | W     | W      | w      | W      | W     | W      | w       | W      | W      |        | ∇               |   | \127 | 87  |
| \130 | X     | X      | x      | X      | X     | X      | x       | X      | X      |        | Σ               |   | \130 | 88  |
| \131 | Y     | Y      | Y      | Y      | Y     | Y      | Y       | Y      | Y      |        | Π               |   | \131 | 89  |
| \132 | Z     | Z      | Z      | Z      | Z     | Z      | Z       | Z      | Z      |        | ∫               |   | \132 | 90  |
| \133 | [     | [      | [      | b      | [     | [      | [       | [      | U      |        | U               |   | \133 | 91  |
| \134 | “     | “      | \      | h      | “     | “      | \       | “      | U      |        | U               |   | \134 | 92  |
| \135 | ]     | /      | ]      | #      | ]     | ]      | ]       | ]      | ⊕      |        | ⊕               |   | \135 | 93  |
| \136 | ^     | ^      | ^      | (      | ^     | ^      | ^       | ^      | ^      |        | ^               |   | \136 | 94  |
| \137 | .     | .      | .      | )      | .     | .      | .       | .      | ∨      |        | ∨               |   | \137 | 95  |
| \140 | ‘     | ‘      | ‘      | ℓ      | ‘     | ‘      | ‘       | ‘      | ⊥      |        | Π               |   | \140 | 96  |
| \141 | a     | a      | a      | a      | a     | a      | a       | a      | ⊥      |        | Π               | ^ | \141 | 97  |
| \142 | b     | b      | b      | b      | b     | b      | b       | b      | ⊥      |        | ⊂               |   | \142 | 98  |
| \143 | c     | c      | c      | c      | c     | c      | c       | c      | ⊥      |        | ⊂               |   | \143 | 99  |
| \144 | d     | d      | d      | d      | d     | d      | d       | d      | ⊥      |        | ~               | ~ | \144 | 100 |
| \145 | e     | e      | e      | e      | e     | e      | e       | e      | ⊥      |        | ~               | ~ | \145 | 101 |
| \146 | f     | f      | f      | f      | f     | f      | f       | f      | {      |        | ~               |   | \146 | 102 |
| \147 | g     | g      | g      | g      | g     | g      | g       | g      | }      |        |                 |   | \147 | 103 |
| \150 | h     | h      | h      | h      | h     | h      | h       | h      | ⊂      |        |                 |   | \150 | 104 |
| \151 | i     | i      | i      | i      | i     | i      | i       | i      | ⊃      |        |                 |   | \151 | 105 |
| \152 | j     | j      | j      | j      | j     | j      | j       | j      |        |        |                 |   | \152 | 106 |
| \153 | k     | k      | k      | k      | k     | k      | k       | k      |        |        |                 |   | \153 | 107 |
| \154 | l     | l      | l      | l      | l     | l      | l       | l      | ↕      |        |                 |   | \154 | 108 |
| \155 | m     | m      | m      | m      | m     | m      | m       | m      | ↕      |        |                 |   | \155 | 109 |
| \156 | n     | n      | n      | n      | n     | n      | n       | n      | \      |        |                 | { | \156 | 110 |
| \157 | o     | o      | o      | o      | o     | o      | o       | o      | ⊂      |        |                 | { | \157 | 111 |
| \160 | p     | p      | p      | p      | p     | p      | p       | p      | √      |        |                 | √ | \160 | 112 |
| \161 | q     | q      | q      | q      | q     | q      | q       | q      | Π      |        | √               |   | \161 | 113 |
| \162 | r     | r      | r      | r      | r     | r      | r       | r      | ∇      |        | √               | √ | \162 | 114 |
| \163 | s     | s      | s      | s      | s     | s      | s       | s      | ∫      |        | √               | √ | \163 | 115 |
| \164 | t     | t      | t      | t      | t     | t      | t       | t      | ⊥      |        | √               | √ | \164 | 116 |
| \165 | u     | u      | u      | u      | u     | u      | u       | u      | ⊥      |        | √               | √ | \165 | 117 |
| \166 | v     | v      | v      | v      | v     | v      | v       | v      | ⊥      |        |                 | ⊥ | \166 | 118 |
| \167 | w     | w      | w      | w      | w     | w      | w       | w      | ⊥      |        |                 |   | \167 | 119 |
| \170 | x     | x      | x      | x      | x     | x      | x       | x      | §      |        |                 | ↑ | \170 | 120 |
| \171 | y     | y      | y      | y      | y     | y      | y       | y      | †      |        | ↓               |   | \171 | 121 |
| \172 | z     | z      | z      | z      | z     | z      | z       | z      | ‡      |        |                 | ⋃ | \172 | 122 |
| \173 | —     | —      | {      | ι      | —     | —      | {       | —      | ¶      |        | ⋃               | ⋃ | \173 | 123 |
| \174 | —     | —      |        | j      | —     | —      |         | —      | ♣      |        | ⋃               | ⋃ | \174 | 124 |
| \175 | ”     | ”      | }      | ⊗      | ”     | ”      | }       | ”      | ◇      |        | ⋃               | ⋃ | \175 | 125 |

---

| Oct        | CMR10 | CMTH10 | CMTT10 | CMMI10 | CMU10 | CMSS10 | CMTEX10 | CMFF10 | CMSY10 | LASY10 | CMEX10-Baseline | Oct        | Dec      |
|------------|-------|--------|--------|--------|-------|--------|---------|--------|--------|--------|-----------------|------------|----------|
| \176       | ~     | ~      | ~      | ~      | ~     | ~      | ~       | ~      | ♡      |        | ↗               | \176       | 126      |
| \177, \304 | :     | :      | :      | )      | :     | :      | ∫       | :      | ♠      |        | ↘               | \177, \304 | 127, 196 |

---