Samples of common TEX font encodings

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The pkfix-helper program occasionally needs help from the user in selecting an appropriate TFM file to match a Type 3 font found in a PostScript document. This document assists with the task of identifying fonts by presenting character-by-character comparisons of all 256 character positions in a selection of common TeX fonts. The following encodings are represented:

- TEX text (e.g., cmr10)
- TeX math italic (e.g., cmmi10)
- TeX math symbols (e.g., cmsy10, msam10, and msbm10—each of which provides different symbols)
- LATEX symbols (e.g., lasy10)
- T_EX math extension (e.g., cmex10)
- TeX base 1 encoding (e.g., ptmr8r)
- Adobe standard encoding (e.g., rptmr)
- Adobe symbol encoding (e.g., rpsyr)
- TeX extended ASCII (e.g., cmtex10)
- extended T_FX font encoding (e.g., ecrm1000)
- TeX text companion symbols (e.g., tcrm1000)
- TeX text subset (e.g., eufm10, which provides fraktur letters for mathematical typesetting)
- unspecified (e.g., stmary10; wasy10 is also included here although it erroneously claims to be TEX text)

The following encodings are not shown in this document because the glyphs they provide exhibit little variety and are therefore relatively easy to identify:

- LATEX line (e.g., line10)—line segments and arrowheads in different lengths and orientations
- LATEX circle (e.g., lcircle10)—circles and 90° arcs in different sizes

- Xy line segments (e.g., xyline10)—line segments in different orientations
- Xy miscellaneous (e.g., xymisc)—90° arcs in different sizes
- Xy quarter circles (e.g., xyqc10)—small 90° arcs in different orientations
- Xy-pic 1/8 circles (e.g., xycirc10)—45° arcs in different sizes
- Xy-pic directional (e.g., xyatip10, xybsql10, xybtip10, and many others)—small-degree arcs in different orientations
- Xy-pic semidirectional (e.g., xydash10)—short line segments in different orientations

To use the tables that appear below, first produce "before" and "after" font sheets using pkfix-helper's --ps and --tex options. (See the pkfix-helper documentation for details.) For each font in which the "after" characters are completely different from the "before" characters—as opposed to merely the wrong selection of font size, weight, or slant—make a note of the font that pkfix-helper announced it had selected. Find the table and column in which the "before" symbol exists and the "after" symbol is associated with the font selected by pkfix-helper. The font associated with the "before" symbol is what should be specified in a --force option to pkfix-helper. For example, consider the observations shown in Figure 1. We find that the "after" character, " η ", is associated with *cmmi10* (the same typeface used for cmmib10 but in book weight) at character position 17. The "before" character, "≡", is also present in position 17 and is associated with cmsy10. Therefore, we know we need to re-run pkfix-helper with the --force="Fj=cmsy10 @ 1.2X" option to force it to associate document font F_j with cmsy10 instead of cmmib10.

The font size may need adjusting. In the preceding example, --force="Fj=cmsy9" produces less mismatch for cmmib10 @ 1.2X than does --force="Fj=cmsy10 @ 1.2X" (mismatch=0.00106 vs. mismatch=4.43701).

Making such a determination still requires human involvement. A suggested approach is to observe that $--force="Fj=cmsy10 @ *" causes pkfix-helper to select a scaling factor of 0.92918X for a scaled font size of <math>0.92918 \times 10 \, \mathrm{pt.} = 9.2918 \, \mathrm{pt.}$ Noting that cmsy9.tfm

exists and assuming that the document source did not specify a fractional scaling of the font, we can hypothesize that unscaled cmsy9 is the font actually utilized in the document.

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pkfix-helper: Processing Fj ... done (cmmib10 @ 1.2%, mismatch=0.00073)  
--ps file: Fj: \equiv  
--tex file: Fj: \eta
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Figure 1: Sample observations of pkfix-helper output and output files

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| amr 10 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |
| cmr10 $cmmi10$ | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |
| cmmi10 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |
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| cmmi10 $cmsy10$ $msam10$ $msbm10$ | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |
| cmmi10 $cmsy10$ $msam10$ $msbm10$ $lasy10$ | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |
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