Notes on setup of PostScript fonts for LaTeX 2ε

Sebastian Rahtz
Sebastian.Rahtz@tex.ac.uk

1994/08/14

Contents

1 Introduction

This set of files[1] offers a sample working setup for LaTeX 2ε's NFSS and PostScript fonts; it is based on the system I created between 1989 and 1991 for Southampton Computer Science department, checked and updated for NFSS2, and subsequently LaTeX 2ε. You should be familiar with the standard LaTeX 2ε files and their use to follow this document.

Packages are offered to set documents in the common PostScript fonts, plus common free fonts (Charter, Utopia etc). All Lucida fonts are supported, and the MathTime fonts. It is assumed that Karl Berry's naming scheme is followed. Textures users, however, can get a basic set of .sty and .fd files using Textures font names by running TeX on `textures.ins`.

IMPORTANT NOTE: .fd files and .tfm files for the common setup are *not* included in this package. They can be found in the CTAN archives in the companion collection (`fonts/metrics`) for each font family separately. That collection also includes simpler LaTeX 2ε package files for each font family. To install a font family, take the following steps:

[1] Thanks are due to many, many, people for correcting errors and helping, including Michel Goossens, Alois Steindl, Constantin Kahn, Berthold Horn, Alan Jeffrey, Howard Marvel, Frank Poppe, Andrew Trevorrow…

1. Locate the font family in the `fonts/metrics` directory, which is divided up by foundry (eg adobe, monotype etc). If, for instance, you want the 'normal' Times Roman, this is in `adobe/times`. The family names for the directories are made by taking the first 8 letters of the full family name.

2. Each family directory has subdirectories containing `.tfm`, `.vf` and `.fd` files. You need to install these where LaTeX 2_ε and your driver will find them. LaTeX 2_ε will need the `.tfm` and `.fd` files, and the driver needs the `.vf` files (and possibly the `.tfm` ones too).

3. You now need to tell your driver that you are going to use these new PostScript fonts (to stop it looking for Metafont sources and `.pk` files). Using `dvips` this is accomplished by taking the `.map` file in the family directory and appending it to the standard `psfonts.map` file of dvips. Alternatively you can install the `.map` and the config file (named `config.`*short family name* (eg Times' short name is ptm, so the config file is `config.ptm`) where dvips' support files live, and use eg `dvips -Pptm` to load the extra `.map` file on the fly. Refer to the dvips manual for full details of map and config files.

   If you don't use dvips, refer to your driver's manual for how to tell it about new PostScript fonts.

4. If the font is not resident in the printer, you'll have to download it. You can use software supplied with the font to do this, or (if you use dvips) have it done on the fly. *However*, note that the names in the `.map` files supplied on CTAN assume strict conformancy with the Berry scheme — you may have to rename your `.pfb` or `.pfa` font file.

5. If you just want to load one font family, and have it replace the default roman, sans or typewriter family in your document, each of the font family directories has a simple LaTeX2e .sty package file.

It is also **Very Important** to understand the naming system and generation of the fonts! This setup follows the latest version of the scheme by Karl Berry (on CTAN in `info/fontname`) religiously; this means that the default `psfonts.map` file of `dvips` does *not* use the same names as us, so you *do* need to use the procedure above. The metric and `.fd` files are *different* from those distributed by all other suppliers as this time (June 1994). Thus, for Times Roman, the OT1-encoded font is called `ptmr7t`, the T1-encoded font is `ptmrq` and the raw font is `ptmr0`. This system will be followed exactly in all PostScript font support in LaTeX 2_ε.

The font metric files whose use we assume are those generated using Alan Jeffrey's *fontinst* package. These generate quite tight setting compared to other systems, which may produce a lot of hyphenation or overfull boxes if you are not careful. If you are having trouble, Alan Jeffrey recommends the following settings:

```
\tolerance800
\emergencystretch2em
\doublehyphendemerits5000
\hfuzz0pt
\leftskip0pt minus 1pt
\rightskip0pt minus 1pt
```

2 Standard installation

This distribution is provided as a set of `.dtx` files which need to be unpacked using *docstrip* to create user files. The resulting `.sty` files change the font defaults to use some new group of fonts (sometimes just one default is changed).

Scripts are provided for *docstrip* in the form of `.ins` files, which simply need to be run through TEX; when that has been done, install all the `.sty` files that result in a directory where LATEX will find them.

You have an important decision to make at some point — are you going to use fonts encoded in the 'Cork' layout, or the old ones which look like the CM fonts described in the TEX book? This manual will not attempt to explain why you should or should not use Cork fonts... Font description (`.fd`) files are available for both T1 and OT1 encoding in the CTAN `fonts/metrics` directories.

If you follow the Cork-encoding route, you need different TEX font metric files and virtual font files. To activate this, use the package `t1enc`.

Important. If you use the Cork (T1 in LATEX 2ε scheme) encoding, you will probably also need the 'dc' CM fonts to go with them, for maths and so on.

The standard '35' PostScript fonts built into most PostScript printers are known by their 'Berry' names:

Family name	Full name
pag	Adobe AvantGarde
pbk	Adobe Bookman
pcr	Adobe Courier
phv	Adobe Helvetica
pnc	Adobe NewCenturySchoolbook
ppl	Adobe Palatino
ptm	Adobe TimesRoman
pzc	Adobe ZapfChancery
psy	Adobe Symbol font
pzd	Adobe ZapfDingbats

To create font and package files for Lucida and Lucida Bright (including Lucida Bright maths), run TEX on `lucida.ins`.

If you have the MathTime fonts, look at the separate instructions (`readme` etc) in the `mathtime` directory, which will provide setups for using the fonts with a variety of typefaces apart from Times.

Package	Sans font	Roman font	Typewriter font
times.sty	Helvetica	Times	Courier
palatino.sty	Helvetica	Palatino	Courier
helvet.sty	Helvetica		
avant.sty	AvantGarde		
newcent.sty	AvantGarde	NewCenturySchoolbook	Courier
bookman.sty	AvantGarde	Bookman	Courier

Table 1: Effect of package files

3 Testing

All installers should run `test0.tex` through LaTeX and print the result, after installing their chosen setup, to ensure that things are more or less working. The OT1 encoding demonstration will *not* have a proper set of pounds signs! They will all be italic. `test1.tex` will exercise your supply of PostScript fonts.

Do not worry if nothing but `test0.tex` works!. `test0.ps` is a prebuilt version of `test0.tex` for you to compare.

4 User interface

The daily user will simply use one of the packages `times`, `newcent`, `helvet`, `palatino` etc to change the default text fonts for one or more of the roman, sans-serif and typewriter faces. Table 1 lists the effects of the package files created in the installation procedure.

The special package `pifont` gives access to the Dingbat and Symbol fonts. This is described in *The LaTeX Companion*. Note that maths fonts will stay the same unless you have suitable fonts to load. If the Adobe Lucida Maths fonts have been purchased, and appropriate metrics obtained, loading `lucmath` will remove all reference to CMR fonts in the document. Alternatively, purchase the Lucida Bright font set and use the `lucbr` package.

4.1 Important — variant OT1 font encoding

The package files assume that you have already made the choice of which text font encoding scheme you prefer (T1 or OT1), and that it is the default when the LaTeX job starts. However, you may need to override the defaults if you use the OT1 `tfm` files distributed with dvips, as some characters are not in the expected places. Similarly, Textures users will find things not quite right. For this purpose the package file `ot1var` is provided; this changes some macro definitions to make the necessary fixes, with options [dvips] and [textures] (default is [dvips]).

Package	Sans font	Roman font	Typewriter font
basker.sty		Monotype Baskerville	
bembo.sty		Bembo	
charter		Bitstream Charter	
garamond.sty		Adobe Garamond	
mtimes		Monotype Times	
nimbus	URW NimbusSans-Regular	URW NimbusRoman-Regular	
utopia		Utopia	
lucid.sty	LucidaSans	Lucida	Courier
lucbr.sty	LucidaSans	LucidaBright	LucidaTypewriter

Table 2: Effect of extra package files

Notes: a) `lucbr.sty` uses the font names for Lucida Bright which conform to Karl Berry's scheme. Use package optipn 'yy' to use the font names supplied by Y&Y. b) If you want to use just standard PostScript fonts for math, Alan Jeffrey's *mathptm* package does as good a job as possible (though it still needs access to some CMR math fonts). The extra metric and virtual font files that this needs are supplied with Adobe Times Roman in the CTAN `fonts/metrics/adobe/times` directory.

Family name	Full name
bch	Bitstream Charter
hlc	B&H Lucida Bright
hlcs	B&H Lucida Sans
hlct	B&H Lucida Bright Typewriter
pgm	Adobe Garamond
mim	Monotype Imprint
mnt	Monotype Times New Roman
pgm	Adobe ITC Garamond
pgs	Adobe MGillSans
pgs	Adobe MGillSans
plc	Adobe Lucida
plcs	Adobe Lucida Sans
pnb	NewBaskerville
pop	Adobe Optima
pun	Adobe Univers
put	Adobe Utopia-Regular
unmr	URW NimbusRoman-Regular
unmrs	URW NimbusSans-Regular