A UNIVERS CONDENSED FONT LIBRARY FOR LaTeX

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funivers—A generic foundary installation of the Univers Compressed Family from the USGS Adobe Printer Font Binary (`*.pfb`) and Adobe Font Metric (`*.afm`) files from a 2001 packaging of the fonts for Solaris operating system available from the USGS Visual Identity web site. These font files are available in the `build/visid_fonts directory`. The `visid_fonts` directory is the actual Solaris package. It contains the Univers Compressed Family and the Times Roman, but the Times Roman does not concern us here. This directory also contains `*.inf` files (I do not know what these are and I did not use them.) Also the `additional_resources` directory of this distribution has several PDF files that were useful in my learning process towards my from scratch development of this distribution.

The leading `f` in the package and file names represents a generic foundary. This naming convention is used in case Univers Compressed fonts are ever installed through a separate package; I am intentionally avoiding namespace clash. The `un` in the name represents the Univers family as this is standard LaTeX practice.

THE BEGINNING

`type1/funivers/*.pfb` contains the printer font binary files:

```
funb8a.pfb      funl8a.pfb      funr8a.pfb
funbo8a.pfb     funlo8a.pfb     funro8a.pfb
```

These are renamed `*.pfb` files that originated from the USGS Solaris visual identity font package. The third character of the file names, `b`, `l`, and `r`, respectively represent 'bold', 'light', and 'medium' font weights. The addition of the `o` represents the oblique characters. The `8a` is for standard encoding for LaTeX—this does not concern us here. Note that the LaTeX naming convention would also have us add a `c` before the `.pfb` extension (such as `funro8ac.pfb`)[*Note to self–try the* `c` *after the* `o` *in the names*]. The `c` is supposed to represent the condensed variant, which is true for the fonts here. However, such a practice does not work for the `fun-drv.tex` file, which drives the fontinst program. The `fun-drv.tex` file builds most of the things we need for a LaTeX font from `*.pfb` and `*.afm` files. I copied

the fun-drv.tex file from an article on the Internet, and I simply do not understand the fontinst.pdf manual (again from the Internet). If I have the c in the name fun-drv.tex when run through LaTeX does not build the *.fd, .pl, and *.vpl files that we must have in later steps. Fortunately, the USGS visual id system uses only a compressed Univers version.

afm/funivers/*.afm contains the Adobe font metric files:

funb8a.afm	funl8a.afm	funr8a.afm
funbo8a.afm	funlo8a.afm	funro8a.afm

These are renamed *.afm files that originated from the USGS Solaris visual identity font package and following the convention established for the *.pfb files. See the discussion in the previous paragraph.

Using the terminal.app on MacOSX, the following intermediate steps were performed by me in November 2006. Although, these steps should be readily performed on other unix-like systems.

INTERMEDIATE STEPS

The steps described in this section are already performed for you. We need to create TeX font metric (*.tfm) and virtual font (*.vf) from the *.pfb and *.afm files. However, I've already done this potentially troublesome part and have the results in the tfm, vf, and fd directories. To build these files, the fontinst program driven by LaTeX is used. The package is run by the fun-drv.tex file supplied here. The *.tfm and *.vf files must be in a common directory when the fontinst program is run. The fun-drv.tex contains, and I have no idea what the terms general mean (learned this from the Internet), the following three lines:

```
\input fontinst.sty
\latinfamily{fun}{}
\bye
```

After this file was created, the following steps were performed:

1. Copy *.pfb files to a common directory.
2. Copy *.afm files to the same common directory.
3. Copy fun-drv.tex to the same common directory.

4. Run `latex fun-drv.tex`

A bunch of files are created, including `*.fd`, `*.pl`, and `*.vpl` files. Tests show that the `*.pl` and `*.vpl` files are not created or are partially created if the naming convention for the `*.pfb` and `*.afm` files discussed above is not used.

After successful operation of the `fun-drv.tex` file, the following steps were performed in the same directory as the previous steps:

1. Run `apply pltotf*.pl`

2. Run `apply vptovf *.vpl`

These two steps create `*.tfm` and `*.vf` files. The `*.pl` and `*.vpl` files are ASCII files and can be and were deleted after the conversion to the BINARY `*.afm` and `*.tfm` formats. Following these conversions, the following directories were populated by manual move commands and represent the core of the funivers distribution.

`tfm/funivers/*.tfm` contains the TeX font metric files:

funb7t.tfm	funbo8c.tfm	funlc8t.tfm	funr8r.tfm
funb8a.tfm	funbo8r.tfm	funlo7t.tfm	funr8t.tfm
funb8c.tfm	funbo8t.tfm	funlo8a.tfm	funrc7t.tfm
funb8r.tfm	funl7t.tfm	funlo8c.tfm	funrc8t.tfm
funb8t.tfm	funl8a.tfm	funlo8r.tfm	funro7t.tfm
funbc7t.tfm	funl8c.tfm	funlo8t.tfm	funro8a.tfm
funbc8t.tfm	funl8r.tfm	funr7t.tfm	funro8c.tfm
funbo7t.tfm	funl8t.tfm	funr8a.tfm	funro8r.tfm
funbo8a.tfm	funlc7t.tfm	funr8c.tfm	funro8t.tfm

`vf/funivers/*.vf` contains virtual font files:

funb7t.vf	funbo8c.vf	funlc8t.vf	funr8t.vf
funb8c.vf	funbo8t.vf	funlo7t.vf	funrc7t.vf
funb8t.vf	funl7t.vf	funlo8c.vf	funrc8t.vf
funbc7t.vf	funl8c.vf	funlo8t.vf	funro7t.vf
funbc8t.vf	funl8t.vf	funr7t.vf	funro8c.vf
funbo7t.vf	funlc7t.vf	funr8c.vf	funro8t.vf

The font definition files (`*.fd`) are used to map user level commands and requests for fonts to the TeX font metric (`*.tfm`) files. The `*.fd` files are built by the fontinst program using that `fun-drv.tex` file. I have made no

changes to the `*.fd` as they appear complete including reasonable font substitution mechanisms. The `8r`, `ot1`, `t1`, and `ts1` represent a font encoding model.

`fd/funivers/*.fd` contains the font definition files:

```
8rfun.fd        ot1fun.fd       t1fun.fd        ts1fun.fd
```

Finally, we need to generate the `*.map` file that maps the encoding of the font as known by LaTeX to the fonts as needed by the `dvips` program and and ultimately for `pdf` production. I do not really understand the exact process, but have read enough manuals to proudly say that I have build the map file for you: `map/funivers.map` contains

---

```
funr8r Univers-Condensed             'TexBase1Encoding ReEncodeFont' <8r.enc <funr8a.pfb
funb8r Univers-CondensedBold         'TexBase1Encoding ReEncodeFont' <8r.enc <funb8a.pfb
funbo8r Univers-CondensedOblique     'TexBase1Encoding ReEncodeFont' <8r.enc <funbo8a.pfb
funro8r Univers-CondensedOblique     'TexBase1Encoding ReEncodeFont' <8r.enc <funro8a.pfb
funl8r Univers-CondensedLight        'TexBase1Encoding ReEncodeFont' <8r.enc <funl8a.pfb
funlo8r Univers-CondensedLightOblique 'TexBase1Encoding ReEncodeFont' <8r.enc <funlo8a.pfb
```

The first column is the LaTeX name for the font, and the second name is the official Adobe Postscript name for the font. The Adobe names can be found in the header of the `*.afm` files. The third column is a mandate and the `8r.enc` file is a standard builtin encoding file. The `*.pfb` are the printer font binary files as available in the `type1/funivers/*.pfb`. Here are some examples:

INSTALLATION

Let `$TEXROOT` equal the main path to the distribution or local directory structure of LaTeX.

```
MacOSX with fink
  \$TEXROOT=/sw/share/tex-dist
              OR
  \$TEXROOT=/sw/share/tex-local OR
MacOSX with other

Redhat Linux
  \$TEXROOT=/usr/share/texmf
```

Basically, you need to figure this out for your system. I have had troubles using the various incarnations of the local path; further I remain confused on all the different locations that LaTeX can look for files. Your milage will vary with these instructions as I have had to play around before everything works. In other words the `$TEXROOT` is the question, but otherwise the structure of the remainder of the instructions and the destination directories are sound.

In the `$TEXROOT/fonts` one finds `afm`, `tfm`, `type1`, and `vf` subdirectories. From the respective directories of this font distribution copy the files over creating a funivers directory in each of the four fonts/subdirectories. For example, using manual copying method—the following commands require ROOT user. Starting from the root directory of this font distribution.

Copy the core font files of the distribution over to LaTeX.

```
cd afm;   cp -R funivers \$TEXROOT/fonts/afm/.;   cd ..
cd tfm;   cp -R funivers \$TEXROOT/fonts/tfm/.;   cd ..
cd type1; cp -R funivers \$TEXROOT/fonts/type1/.; cd ..
cd vf;    cp -R funivers \$TEXROOT/fonts/vf/.;    cd ..
```

Now copy the font definition files of the distribution over to LaTeX.

```
cd fd;    cp -R funivers \$TEXROOT/tex/latex/.;   cd ..
```

Now copy the `funivers.sty` file in `tex/latex/funivers/funivers.sty` of this font distribution over to LaTeX. (I have a `usgsfonts.sty` file that is more complete in defining USGS font conventions for the San Sarif font [Univers Condensed] and the Roman font [Times Roman].)

```
cd tex/latex/funivers
cp funivers.sty \$TEXROOT/tex/latex/funivers/.
cd ..
```

Now copy the map file (this is the squirrelly part?).

```
cd map;
cp -R funivers \$TEXROOT/fonts/map/dvips/.;
cd ..
                      OR
cd map;
cp -R funivers \$TEXROOT/dvips/.;
cd ..
```

Basically, in some sort of `dvips` directory. Suggest that you search for `*.map` files and see how others are laid down in a `dvips` directory on your specific LaTeX installation. Finally, rebuild the hash tables for the file locations using the following program as ROOT.

```
texhash
```

and then enable `dvips` to see the `funivers.map` file

```
updmap --enable Map funivers.map
# It is possible you need to cd to the directory containing
# the now installed map file before this command works
# correctly. This command appears to work correctly on
# /usr/share/texmf on my linux box.

updmap-sys
# Be on the look out for the Map message and the finding of
# the funivers.map file. I am not sure this step is needed
# since the --enable, but whatever. Also, I DO NOT know what
# difference updmap and updmap-sys have, but I have seen
# a message on the Internet suggesting the updmap-sys was
# preferred for some MacOSX distributions as it works with
# the 'system' instead of just 'user' level. context. My
# linux box only has updmap. See the TexonMacOSX.pdf
# in the additional_resources directory.
```

Testing and Problems?

The directory `test` contains `testunivers.tex`. This file is self contained in its definition of the Univers family, and does not use a separate package file. Try running `testuniveres.tex` file through LaTeX as in `latex testunivers.tex` and inspect the `testunivers.pdf` pdf file. Compare the content of the generated `pdf` file to `testuniversPROOF.pdf`. If these two `pdf` files appear different, in other words I bet that you had warnings that font substitution has been made on the console. You might have forgotten to copy some of the file types or LaTeX otherwise does not know how to file them. You must have `*.afm`, `*.fd`, `*.pfb`, `*.tfm`, and `*.vf`, and `*.map` copies into the LaTeX tree. If you forgot a step, you will have to rerun `texhash` before things will work.

I have sucessfully installed `funivers` on three MacOSX boxes. One with `fink` distribution of LaTeX, and two with `teTeX` distributions. Also, I have

successfully installed these fonts on my RedHat linux box with stock `texmf` distribution, but

```
latex testunivers.tex
dvipdf testunivers.dvi
acroread testunivers.pdf
```

does not work (bit mapped font?), but

```
pdflatex testunivers.tex
acroread testunivers.pdf
```

does.

Using `funivers`

The simplest LaTeX style file for implementing the funivers distribution follows. It defines the Univers Condensed (`fun`) as the San Sarif font using OT1 encoding. The `funivers.sty` file, which is located in the `test` directory follows:

```
%------------------------ indentifcation ------------------
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{funivers}[2006/12/04]
%------------------------ initial code --------------------
\RequirePackage[OT1]{fontenc}
%------------------------ declaration of options ----------
%------------------------ execution of options
\ProcessOptions \relax
%------------------------ package loading -----------------
%------------------------ main code -----------------------
\renewcommand\sfdefault{fun}
```
