*Setting up on* `UNIX`.

This document explains how to set up `mfpic` on one specific configuration of machine – a `UNIX` machine running `csh` and X Windows, with a PostScript compatible printer. In particular, this document explains how to set up the `UNIX` environment variables for TeX, METAFONT, `dvips`, and `xdvi` (which is a DVI viewer for X Windows). Many of these procedures will be necessary, in some form or another, on most machines.

Look at the case of processing the sample file `pictures.tex`. TeX generates a Metafont file `pics.mf`. Then processing `pics.mf` with METAFONT (using the `UNIX` command "`mf '\mode=localfont; input pics'`") generates the files `pics.tfm` and `pics.360gf` (since `pictures.tex` includes the command `\magnification=\magstep1`). However, when you run TeX again on `pictures.tex`, TeX still can't find the file `pics.tfm`. This is because the system default for the `UNIX` path environment variable `TEXFONTS` doesn't include the current directory. This is, in fact, the problem with most of the relevant environment variables – TeX can't find `pics.tfm` because of the `TEXFONTS` environment variable, `xdvi` can't find `pics.360gf` because of the `XDVIFONTS` environment variable, etc. All of the relevant variables can be set up properly by installing the `mfpicsetup` script below and then typing "`source mfpicsetup`" at the command prompt (or including this command in your `.cshrc` file).

There is a more serious problem, though. The printing command "`lpr -d`" ("`-d`" is the DVI printing option) will not find local fonts, and there is no environment variable you can change to make it find them. The best thing to do in this case is to convert your DVI file to PostScript format using `dvips`, then print the PostScript file. But `dvips` uses fonts in PK (packed pixel) format, not the GF (generic font) format that METAFONT generates. So you need to run `gftopk` in the file `pics.360gf`. There are scripts included below to make all of these processes easier.

The scripts included here are all `csh` scripts. You should save them in one of the directories that your `PATH` environment variable points to. The first script sets up the environment variables so that TeX, `xdvi`, and `dvips` can all find the fonts generated by METAFONT in the current directory. You should save this script as "`mfpicsetup`", then include the line "`source mfpicsetup`" in your `.cshrc` file. The last line of this script makes sure that `xdvi` looks for the font in the appropriate resolution.

```
#!/bin/csh
set A=$TEXFONTS
setenv TEXFONTS .:$A
set A=$TEXPKS
setenv TEXPKS .:$A
set A=$XDVIFONTS
setenv XDVIFONTS .:$A
alias xdvi 'xdvi -p 300 -s 3'
```

The next script allows you to process a TeX file containing `mfpic` commands and generate the fonts all in one step. It will automatically go through the first two steps (processing with TeX and processing with METAFONT) – with the "`-n`" option (mnemonic for "new file"), it will also include the third step, reprocessing with TeX. You must include *both* the name of the TeX file and the name of the METAFONT file it generates. You should save this script as "`domfpic`" – then, for example, the command

```
domfpic -n pictures pics
```

will go through all three steps for `pictures.tex`, generating the files `pictures.dvi`, `pics.mf`, `pics.tfm`, and `pics.360gf`. This will allow you to view `pictures.dvi` with `xdvi`.

```
#!/bin/csh
set OPT=-n
if ($1 == $OPT) then
tex $2
mf '\mode=localfont;' input $3
tex $2
else
tex $1
mf '\mode=localfont;' input $2
endif
```

The next script does the printing – so it includes the `gftopk` and `dvips` steps, along with an `lpr` command. Again, you must include *both* the name of the TEX file and the name of the METAFONT file it generates – but this time you absolutely *cannot* include the subscripts `.tex` and `mf`. This script also cleans up after itself by removing the PK and PostScript files when it is done. You should save this script as "`prmfpic`".

```
#!/bin/csh
foreach B ($2.*gf)
gftopk -v $B
end
dvips -Z $1.dvi
lpr $1.ps
rm $2.*pk
rm $1.ps
```