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Frequently Asked Questions [1]

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Frequently Asked Questions

This article[2] contains answers to some frequently asked questions on comp.text.tex. Please don't ask these questions again, as they've been answered many times before.

This article includes answers to:

1. Where can I get a DVI to PostScript conversion program?
2. How can I include a PostScript figure in LaTeX?
3. Where can I find a DVI previewer for machine Y running Q?
4. Where can I get the manual for PiCTeX?
5. What is VorTeX and where can I get it?
6. What is OzTeX and where can I get it (TeX for the Mac)?
7. What is Fig and where can I get it?
8. How do I get WEB for C, FORTRAN, or some other language?
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14. In LaTeX, how do I do Y?
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22. How do I get TeX material if I do not have access to anonymous ftp?
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25. How do I get a file into the major style repositories?
26. Where can I get font Y?
27. Where can I get a dvi driver for the HP LaserJet?

These are all legitimate questions, but they seem to appear too frequently for long-time readers of the list.

Many of the answers below tell you that you can obtain something through anonymous ftp. Remember that anonymous ftp is a privilege and that the system administrators for these sites have made these files available out of their own generosity. Therefore please restrict your ftp'ing to non-prime hours at the various sites. Also note that Raymond Chen (`raymond@math.berkeley.edu`) posts a monthly document "Supplementary TeX Information" to this newsgroup which contains other information and software relevant to TeX users but beyond the scope of this article. A LaTeX version of this article is available via anonymous ftp from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.documentation] and from the other inclusive archives. The most recent version should be available no later than a week from the date of this pos-

[1] This article has been adapted by Piet van Oostrum in order to reflect the local situation.

[2] Deze bijlage bevat een aangepaste versie van de "Frequently asked questions" uit de Usenet nieuwsgroep "comp.text.tex". De aanpassingen bestaan erin dat ftp adressen vervangen zijn door referenties naar de file servers op RUU en HEARN waar mogelijk. De originele tekst en de gerefereerde "Supplementary TeX information" gezamenlijk zijn te verkrijgen op RUU als FAQ/comp.text.tex.

Als in deze file staat: op RUU te verkrijgen als x/y/z (of equivalent: als z in directory x/y), dan kunt u:

- Via ftp archive.cs.ruu.nl [131.211.80.5] de file ophalen als pub/x/y/z.
- Via mail een boodschap sturen naar: mail-server@cs.ruu.nl met als inhoud: send x/y/z

Als u de mail-server niet kent, stuur dan eerst een boodschap met als inhoud: HELP

Als uw mail-verzender niet algemeen geldige adressen genereert dan is het verstandig om een regel op te nemen met als inhoud het woord PATH gevolgd door een adres in internet stijl. Voor gebruikers op BITNET is dat: PATH user@host.bitnet

De files op HEARN zijn te verkrijgen door een boodschap te sturen naar LISTSERV@HEARN.bitnet.

ting.

I would like to acknowledge Don Hosek, Ken Yap, Tomas Rokicki, and Micah Beck, whose postings provided many of the answers. Joe Weening, Hal Perkins, Walter Carlip, Max Hailpern, Tad Guy, Raymond Chen, Henning Schulzrinne, Sebastian Rahtz, Mark James, Peter Galko, and Mike Ernst provided additional material and criticisms. The format of this document is based on that of the Frequently Asked Questions appearing in comp.unix.wizards, and written by Steve Hayman. Any mistakes are mine. Corrections, suggestions, and additions to bobby@hot.caltech.edu.

1 Where can I get a DVI to PostScript conversion program?

Four very nice DVI to PostScript conversion programs that run under Unix are:

- **dvitps** part of the TEXPS package by Stephan Bectolsheim.
  Available via anonymous ftp from arthur.cs.purdue.edu (128.10.2.1) in ./pub/TeXPS.
- **dvi3ps** by Kevin Coombes.
  Available on RUU in TEX/DVI/dvi3ps.tar.Z
- **dvips** by Tomas Rokicki.
  This driver is very nice and has the ability to deal with virtual fonts. Available on RUU in TEX/DVI/dvips547.tar.Z, dvipslib.tar.Z, dvipsafm.tar.Z. Dvips ports easily to other operating systems. It is available for VMS via anonymous ftp from ymir.claremont.edu (134.173.4.23) in [.tex.drivers.dvips_new] and also through the DECUS library (see question 22). A precompiled version for MSDOS is available from RUU in TEX/DVI/dvips547_msdos_exes.zip. If you wish to use postscript fonts, get dvipslib.zip as well.
- **dvitops** by James Clark.
  Available via anonymous ftp from june.cs.washington.edu (128.95.1.4) in ./tex/dvitops.tar.Z and ymir.claremont.edu (134.173.4.23) in [anonymous.tex.drivers.dvitops]. Dvitops will compile under Unix, MSDOS, VMS, and Primos.

2 How can I include a PostScript figure in LATEX?

Perhaps the best way to do this is to use the psfig macros written by Trevor Darrell. They are available via anonymous ftp from whitechapel.media.mit.edu (18.85.0.125) in ./psfig or linc.cis.upenn.edu (130.91.6.8) in the directory ./dist/psfig. You will also need a dvi to PostScript conversion program that supports `\specials`. The ones mentioned in question 1 do, and the first two drivers come with a version of psfig ready to use with them. The psfig macros work best with Encapsulated PostScript Files (EPS). In particular, psfig will need the file to have a BoundingBox (see Appendix C of the PostScript Language Reference Manual). If you don't have an EPS file, life can be difficult. For people who don't have ftp access or can't deal with tar files, the files are also available from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.graphics.psfig].

3 Where can I find a DVI previewer for machine Y running Q?

This briefly lists some previewers which are available via anonymous ftp:

- **dvipage** For SunView. Available via anonymous ftp from june.cs.washington.edu (128.95.1.4) in ./tex/dvipages.tar.Z.
- **xtex**
  For X Windows. Available via anonymous ftp from foobar.colorado.edu (128.138.243.105) in ./pub/SeeTeX/SeeTeX/SeeTeX-2.17.x.tar.Z.
- **dviapollo**
  For Apollo Domain. Available via anonymous ftp from june.cs.washington.edu in ./tex/dviapollo.tar.Z.
- **dviis**
  For Integrated Systems. Available via anonymous ftp from june.cs.washington.edu in ./tex/dviis.tar.Z.
- **dvidis**
  For VAXstation VWS. Available via anonymous ftp from venus.ycc.yale.edu (130.132.1.5) in [.dvidis] (VMS machine).
- **xdvi**
  Also for X Windows. Available on RUU in TEX/DVI/xdvi.shar.
- **dvitovdu**
  For Tektronix 4010 and other terminals under Unix. Available via anonymous ftp from wsmr-simtel20.army.mil (26.2.0.74) in the directory `pd2:<unix-c.printers>` as dvi2vdu.tar-z (ftp in "tenex" mode). A C version is also available from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.drivers.dvitovdu_c_1].
- **dvi2tty**
  A dvi to ASCII conversion program, for normal terminals. Available from RUU in /TEX/DVI/dvi2tty.shar. I could not get this program to run on a Sun running SunOS 4.1.

4 Where can I get the manual for PiCTEX?

The PiCTEX manual is not free. It is available for $30 ($35 with the disk) from the TEX Users Group:

TEX Users Group
P. O. Box 9506
Providence, RI 02940 (USA)
401-751-7760

tug@math.ams.com

The proceeds from this sale go to Michael Wichura, the author of PiCTEX, and TUG.

5 What is VorTEX and where can I get it?

VorTEX is a package of programs written at the University of California. It includes several nice previewers and some Emacs modes for TEX and BibTEX. It is not free. Inquiries should be directed to

vortex@ucbarpa.berkeley.edu

or

Professor Michael A. Harrison
Att. Vortex Dist.
Computer Science Division
University of California
Berkeley, CA 94720

6 What is OzTEX and where can I get it (TEX for the Mac)?

OzTEX is a public domain version of TEX for the Macintosh. A DVI Previewer and PostScript driver are also included. It should run on any Macintosh Plus, SE, II, or newer model, but will not work on a 128K or 512K Mac. It was written by Andrew Trevorrow, and is available via anonymous ftp from from midway.uchicago.edu (128.135.12.73) in ./pub/OzTeX, which contains other public domain TEX-related software for the Mac as well. Questions about OzTEX may be directed to `oztex@midway.uchicago.edu`.

7 What is Fig and where can I get it?

Fig is a menu driven tool similar to MacDraw that allows you to draw objects on the screen of a Sun Workstation running SunView. TransFig is a set of tools which translate the code fig produces to other graphics languages including PostScript and the LATEX picture environment. Both are available via anonymous ftp from `svax.cs.cornell.edu` (128.84.254.2) in ./pub/fig. Both Fig and TransFig are also available from the Clarkson archive server at sun.soe.clarkson.edu (see question 19). Both Fig and TransFig are supported by Micah Beck (`beck@svax.cs.cornell.edu`).

XFig is essentially the same program except that it runs under X Windows. It is available via anonymous ftp from expo.lcs.mit.edu (18.30.0.212) in ./contrib/xfig-2.0.*.Z. Note that version 2.0 is the most recent. It was written by Brian Smith.

For complete compatibility with TransFig, be sure to get at least patchlevel 4 of XFig 2.0.

8 How do I get WEB for C, FORTRAN, or some other language?

There is a version of WEB for C called CWEB written by Silvio Levy. It is available on RUU in the directory TEX/TOOLS/cweb.

There is a version of WEB called Spidery WEB which supports many languages including ADA, awk, and C. It was written by Norman Ramsey and, while not in the public domain, is usable free for research purposes. It is available on RUU in TEX/TOOLS/spiderweb.tar.Z.

There is a version of WEB called FWEB for Fortran, Ratfor, and C written by John Krommes (krommes@lyman.pppl.gov). Version 1.13 is available via anonymous ftp from lyman.pppl.gov (192.55.106.129) in ./pub/fweb.

SchemeWEB is a Unix filter that translates SchemeWEB into LATEX source or Scheme source. It was written by John Ramsdell and is available from the Clarkson archive (see question 19) in ./submit/schemeweb.sh.

All of the above are also available from
ymir.claremont.edu (134.173.4.23)
in [anonymous.tex.utilities].

9 How can I typeset music in TEX?

A package called MuTEX, written by Andrea Steinbach and Angelika Schofer, aids in doing this. It is available on RUU in TEX/MuTeX.tar.Z. This package allows you to typeset single-staff music and lyrics.

A more powerful package which allows the typesetting of orchestral and polyphonic music is MusicTEX, written by Daniel Taupin. It is also available on RUU as TEX/musictex.tar.Z

10 What is TUG and TUGboat?

TUG is the TEX User's Group. TUGboat is their newsletter, which publishes useful articles about TEX and METAFONT. Inquiries should be directed to:

TEX Users Group
P. O. Box 9506
Providence, RI 02940 (USA)
401-751-7760
tug@math.ams.com

11 How do I convert Adobe's afm files to tfm format?

Use the afm2tfm program distributed with dvips (see Question 1)

For the Macintosh, there is a program called EdMetrics which does the job (and more).
It is available free from:

Blue Sky Research
534 Southwest Third Avenue
Portland, Oregon 97204 (USA)
800-622-8398 or 503-222-9571

12 In LaTeX, how do I get a double-spaced document?

One way is to change the value of `\baselinestretch` to 2 or 1.5 with the command `\renewcommand{\baselinestretch}{2}`. A better way is to use the doublespace style file doublespace.sty on RUU in TEX/latexstyle/ or, if you are using the new font selection scheme, get the doublespace.sty from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.inputs.latex-contrib].

13 In LaTeX, how do I include a file in the verbatim environment?

A good way to do this is to use Rainer Schoepf's verbatim.sty, which provides the command `\verbatiminput` that takes a file as an argument. This file is available on RUU in TEX/latexstyle/verbatim.zoo
Another way to do this is to use the alltt environment defined in the style file alltt.sty available in TEX/latexstyle/ on RUU.

14 In LaTeX, how do I do Y?

If you can't figure out how to do something in LaTeX after you have read the manual very carefully, asked your local LaTeX guru, and thought about it, there is a LaTeX help service available. Please note that the way to accomplish something in LaTeX is often by using an appropriate style file, so please check this also (see question 15). If none of this works, send mail describing your problem to latex-help@cs.stanford.edu. If you haven't gotten a reply to your problem within about a week, send mail to latex-help-coordinator@cs.stanford.edu.

15 Where can I find a LaTeX style file for doing Y?

Before you ask for a LaTeX style file to do something, please check the LaTeX style collection at RUU in TEX/latexstyle. It should be noted that the basic LaTeX style files are available on RUU in the directory TEX/TEX3/latex/ and on HEARN as LATEXSRC UUE, while latexstyle contains only supplementary style files.

16 How do I generate an index in TeX/LaTeX?

Making an index is not trivial. There are several indexing programs which aid in doing this. Some are:

- **makeindex**
  For LaTeX under Unix (but runs under other OS's without changes). Available on RUU in TEX/TOOLS/makeidx. A version for the Macintosh is available from Johnny Tolliver at tolliver%atf.mfenet@nmfecc.llnl.gov.
- **idxtex**
  For LaTeX under VMS. Available via anonymous ftp from ymir.claremont.edu in the directory [.tex.utilities.idxtex].
- **texix**
  For TeX on CMS and Macintosh machines. Available via anonymous ftp from ymir.claremont.edu in the directory [.tex.utilities.texix].
- **indexor**
  For LaTeX under Unix, VMS, and DOS. Available via anonymous ftp from ymir.claremont.edu in [.tex.utilities.indexor].

17 How do I get METAFONT to do what I want it to do?

METAFONT allows you to create your own fonts, and ordinary TeX users will never need to use it. METAFONT, unlike TeX, requires some customization. Each output device for which you will be generating fonts needs a mode associated with it. Modes are defined using the mode_def convention described on page 94 of 'The METAFONTbook'. So first create a file, which we will call local.mf, containing all the mode_defs you will be using. The file waits.mf (in the standard distribution or available on RUU in TEX/TEX3/lib) is a good starting point for this. Listings of settings for various output devices are also published periodically in TUGboat (see question 10). Now create a plain base file using inimf, plain.mf, and local.mf:

```
% inimf
This is METAFONT....
**plain              # you type plain
(output)
*input local         # you type this
(output)
*dump                # you type this
Beginning to dump on file plain....
(output)
%
```

This should create a base file named plain.base (or something close) and should be moved to the directory which contains the base files on your system.

Now we need to make sure that METAFONT loads this base when it starts up. If METAFONT loads the plain base by default on your system, then you're ready to go. Under Unix, we might, for instance define a command mf which executes "`virmf &plain`," loading the plain base file.

The usual way to create a font with plain METAFONT is to then start it with the line

```
\mode=<mode name>;
      mag=<magnification>;
      input <font file name>
```

in response to the * prompt or on the METAFONT command line. If `<mode name>` is unknown or omitted, then the mode defaults to proof mode. If this has happened METAFONT will produce an output file called `<font file name>.2602gf`. The `<magnification>` is a floating point number or magstep (magsteps are defined in 'The METAFONTbook' and 'The TEXbook'). If `mag=<magnification>` is omitted, then the default is 1. For example, to generate cmr10 at 12pt for an epson printer you would type

```
\mode=epson; mag=1.2; input cmr10
```

Note that under Unix the `'\'` and ';' characters must usually be escaped, so that this would typically look something like

```
mf \\mode=epson\; mag=1.2\; input cmr10
```

If you don't have inimf or need a special mode that isn't in the base, you can put its commands in a file (e.g., ln03.mf) and invoke it on the fly with the `\smode` command. For example, to create ln03.300gf for an LN03 printer, using the file

```
% This is ln03.mf as of 2/27/90
% mode_def courtesy of John Sauter
proofing:=0;
fontmaking:=1;
tracingtitles:=0;
pixels_per_inch:=300;
blacker:=0.65;
fillin:=-0.1;
o_correction:=.5;
    (note the absence of the mode_def
    and enddef commands), we would type
  mf \smode="ln03"; input cmr10
```

18 Where do I get TEX/LATEX for machine Y running Q?

- **Unix**
  The Unix TEX distribution is available for anonymous ftp from labrea.stanford.edu (36.8.0.47) in the directory ./tex/unix. It is large, so please be sure to observe proper ftp etiquette when getting it. It is also available through the University of Washington, for a small fee. Contact:
  Director
  Northwest Computing Support Center
  Thomson Hall, Mail Stop DR-10
  University of Washington
  Seattle, WA 98195 (USA)
  (206)543-6259
  or send electronic mail to Elizabeth Tachikawa at `elisabet@max.u.washington.edu` (note the "s"). The fee charged for getting the TEX distribution through the University of Washington helps fund the further development of Unix TEX, so it's a good idea to order it this way. This distribution compiles under Ultrix. Executables for the 386/ix are available via anonymous ftp from tik.vtt.fi (130.188.52.2) in ./pub/tex/bin-386ix and from math.berkeley.edu (128.32.183.94) in ./pub/tex386ix.tar.Z.
- **PC**
  A TEX package for the PC, including LATEX, BibTEX, previewers, and drivers is available via anonymous ftp from vax.eedsp.gatech.edu (130.207.226.2) in ./pub/TeX. The variety here is sbTEX version 30 by Wayne Sullivan. EmTEX, another TEX package for the PC by Eberhard Mattes, is available on RUU in TEX/emtex. This package includes LATEX, METAFONT, BibTEX, etc., as well. Documentation is available in both German and English.
  All Public Domain TEX software for the PC is also available through
  Jon Radel
  P. O. Box 2276
  Reston, VA 22090
  `jonradel@phoenix.princeton.edu`
  Send a self-addressed stamped envelope with 10 sheets of paper or $2.00 to obtain information on what's available.
- **Mac**
  See question 6 for a public domain version.
- **TOPS-20**
  TEX was originally written on a DEC-10 under WAITS, and so was easily ported to TOPS-20. A Distribution that runs on TOPS-20 is available via anonymous ftp from science.utah.edu (128.110.198.2) in ./pub/tex/pub/web.
- **VAX/VMS**
  VMS executables are available via anonymous ftp from ymir.claremont.edu (134.173.4.23) in [.tex.exe]. Source is available in [.tex.sources]. Version 3.1 is available in [.tex.sources.tex3_1]. Ymir has a mailserver for those without ftp access, although executables are not available through it. Send a message containing the line "help" to mailserv@ymir.claremont.edu. Standard tape distribution is through DECUS or Maria Code.
- **Atari**
  TEX is available for the Atari ST on RUU in ATARI-ST/tex/
- **Amiga**
  Disk 1 of the Amiga CommonTEX distribution is available via anonymous ftp from ab20.larc.nasa.gov (128.155.23.64) in ./amiga/commontex.lzh. The file

copying.tex in the distribution contains information on how to obtain the other disks. Also, experimental versions of TEX 3.1 and METAFONT 2.7 are available in ./incoming/amiga/TEX.

- **Tandy 6000**
  First get web2c-5.8a and web-5.8a from ics.uci.edu (128.195.1.1) in ./TeX and then apply the diffs available and plains.ndsu.nodak.edu (134.129.111.64) in ./pub/tandy/programing and build. This builds TEX 3.1 and METAFONT 2.7.

19 What is the Clarkson archive server?

The Clarkson archive server is a program that allows you to retrieve files via electronic mail. So it provides a way of getting many neat things if you don't have anonymous ftp. To get the archive server to do something you should send a message to archive-server@sun.soe.clarkson.edu (128.153.12.3). To get started using it, send the archive server a one line message "help" (case is unimportant). It will send you back a file describing how to use it more fully.

In particular, the Clarkson archive contains, among other things, a repository for LATEX style files, AMSTEX macros and style files, BibTEX style files, PiCTEX source (not the manual, see question 4), back issues of TEXhax and TEXMaG, files from TUGboat, and source to TEX, LATEX, WEB, and various utilities. The archive is maintained by Michael DeCorte.

If anonymous ftp is available to you, you may get the files directly from sun.soe.clarkson.edu.

If you have problems, contact
archive-management@sun.soe.clarkson.edu.

Ymir.claremont.edu (134.173.4.23) is also a TEX repository with lots of other stuff as well. It can be reached with anonymous ftp and also has a mailing program for people without anonymous ftp. See question 22 for more information.

20 Where can I get a thesis style for LATEX?

Thesis styles are usually very specific to your University, so it's usually not profitable to ask the whole newsgroup for one. If you want to write your own, a good place to start is the ucthesis style available in the LATEX style collection

(see questions 15 and 19).

21 How do I get symbols for "the real numbers", "the complex numbers", and so on?

These symbols are known as "blackboard bold" and are available in the recently released AMS fonts "msam" (e.g., "msam10" for 10pt) and "msbm". They replace the older "msxm" and "msym." The fonts have a large number of mathematical symbols to supplement the ones provided by TEX. The fonts are available on RUU in the directory TEX/AMS/amsfonts and on HEARN as AMSFONTS UU1 ... AMSFONTS UUA Two files which load the fonts and define the symbols are provided, and both work with either TEX or LATEX. Additionally a replacement for the old amssymbols.sty file using the new fonts was posted by Tony Li on August 13, 1990, but does not seem to have made it into the major style repositories. Questions or suggestions regarding these fonts should be directed to tech-support@math.ams.com.

22 How do I get TEX material if I do not have access to anonymous ftp?

There are several mail servers available, i.e., programs that will send you files via electronic mail. Some are:

- The mail server at Clarkson (see question 19), if you can send mail to the United States.
- Also in the US, the mail server at ymir.claremont.edu has access to all the TEX-related material there. This site has a lot of the PD TEX software, and even if it's not explicitly stated, much of the software mentioned in this document is available there. Unfortunately, executables are not available through the mail server. Send a message containing the line "help" to `MAILSERV@ymir.claremont.edu`.
- In the United Kingdom, you can get TEX -related material from the UK TEX archive at the University of Aston. (FTP access is also available for people on JANET:

  Site uk.ac.tex
  Username public
  Password public
  Top Level tex-archive

  A known file is [tex-archive]000directory.list.) For electronic mail access, send a message to texserver@uk.ac.tex. The first non-blank line of the message must contain a valid TEXserver command (help, directory, files, whereis, search, or path). The program will then mail you a response notifying you that your request has been received. If you fail to get a response from the TEXserver, you may need to use the path command to help the program out. For Internet users the return address is of the form name%site@nsfnet-relay, while for Bitnet and EARN it is name%site@earn-relay (i.e., include a line that says "path name%site@nsfnet-relay along with a line containing "help"). Note that the old three hyphen format is obsolete, but still accepted by the program for backward compatibility.

- archive.cs.ruu.nl (131.211.80.5) also contains a substantial TEX archive (ftp access is available). Send a messages containing the line "help" to `mail-server@cs.ruu.nl`. This mail server can send binary files in a variety of different formats.
- There are LISTSERV facilities for TEX at `LISTSERV@DHDURZ1.BITNET`. Send a message containing the line "help" to this address.
- For users on BITNET, access to anonymous ftp for some files can be obtained indirectly by sending mail to `BITFTP@PUCC.BITNET`. Send a message containing the line "help" to this address for more information.

There is also the DECUS TEX collection, a collection of TEX material for VMS, Unix, MS-DOS, and the Macintosh. It can be obtained from the DECUS Library (reference number VS0058) in the US, or through your DECUS office outside of the US. To contact the DECUS Library, send mail or call:

The DECUS Program Library
219 Boston Post Road BP02
Marlboro, MA 01752-1850
(508)480-3418

or send electronic mail to the DECUS TEX Collection Editor, Ted Nieland, at `decus_tex@nieland.dayton.oh.us`.

Another good source of information is NETWORK SOURCES OF TEX WARE by Peter Flynn which appeared in TEXhax, volume 90, issues 45-47 (in May 1990).

23 How do I use PostScript fonts with LATEX?

There are at least four problems with replacing the standard Computer Modern fonts used in LATEX:

1. The fonts are defined in a long set of macros in lfonts.tex which are not easy to understand and change;
2. You must have a device driver capable of understanding the idea of fonts built into the printer (all the drivers referred to in question 1 have this capability).
3. The default layout of the Adobe fonts is NOT the same as that for the CMR fonts, so you will not get the right characters (ligatures being a good example).
4. The official names of the PostScript fonts are long and in both upper and lower cases. While this presents no problems for Unix, it can cause problems with files under DOS, VMS, etc.

The first problem can be solved by one of:

1. Going through lfonts.tex and changing references to CMR to some new font, e.g., times.
2. Overloading the definitions of `\bf`, `\rm`, etc., with new font families.
3. Using the font selection mechanism described in TUGboat 10.3, p. 222 ff; a LATEX interface to this will be part of version 2.10 of LATEX, and is currently available. From RUU get the file TEX/latexstyle/fontsel.zoo.

The second problem is quickly disappearing since all recent DVI to PostScript drivers have had adequate facilities. The third problem can be solved by:

1. Changing TEX macros, etc., so that the Adobe font layouts are expected.
2. Re-encoding the Adobe fonts in a PostScript prolog so that they conform to TEX standards.
3. Using "virtual fonts" to perform the mapping between Adobe and TEX layouts. Tomas Rokicki's dvips driver (see question 1) has examples of this.

A definitive statement on short names for Adobe fonts is expected soon. Meanwhile, there is not much agreement on how to compress Garamond-LightItalic into 8 characters.

24 How can I convert from format Y to TEX or LATEX, and vice-versa?

- **troff**
  troff-to-latex.tar.Z is available on RUU in TEX/TOOLS/troff-to-latex.tar.Z. This program, written by Kamal Al-Yahya at Stanford, assists in the translation of a troff document into LATEX format. It recognizes most -ms and -man macros, plus most eqn and some tbl preprocessor commands. Anything fancier than that needs to be done by hand. Two style files are provided. There is also a man page (which converts very well to LATEX :-). The program is copyrighted but free. The DECUS TEX distribution (see question 22) also contains a program which converts troff to TEX.
- **scribe**
  Mark James has a copy of scribe2latex which he has been unable to test but which he will let anyone interested have. Send email to mark@bdblues.altair.fr. The program was written by Van Jacobson of Lawrence Berkeley Laboratory.
- **wordperfect**
  wp2latex.zip is available on RUU in TEX/TOOLS/wp2latex.arc and on HEARN as WP2LATEX UUE. This is a PC program written in Turbo Pascal by R. C. Houtepen at the Eindhoven University in the Netherlands. It converts WordPerfect 5.0 documents to LATEX. Pascal and (on RUU) C source is included. Users find it "helpful" and "decent" in spite of some limitations. It gets high marks for handling font changes. Limitations include no indices, table of contents, margins or graphics. It also

won't handle all the new features of WordPerfect 5.1, in particular the equation formatter. The program is copyrighted but free.

- **PC-Write**
  pcwritex.arc is available on wuarchive.wustl.edu (128.252.135.4) in directory mirrors/msdos/tex and on wsmr-simtel20.army.mil (26.2.0.74) in directory `pd1:<msdos.tex>`. This is a print driver for PC-Write that "prints" a PC-Write V2.71 document to a TEX-compatible disk file. It was written by Peter Flynn at University College, Cork, Ireland. It is public domain.
- **runoff**
  Peter Vanroose, of the University of Leuven, Belgium, has written a RUNOFF-to-TEX conversion program in VMS Pascal. It is available from comp.text archives (they do exist, don't they? The program was submitted in December 1987) or from the author (peter@dit.lth.se) or from Mark James (mark@bdblues.altair.fr).
- **refer/Tib**
  There are a few programs for converting bibliographic data between BibTEX and refer/Tib formats. They are available via anonymous ftp from wheaties.ai.mit.edu (128.52.32.13) in the directory ./refer-to-bibtex. In spite of the directory name, it also contains a shell script to convert BibTEX to REFER as well. This collection is maintained by Thomas M. Breuel (tmb@ai.mit.edu).

In addition, a group at Ohio State University is working on a common document format based on SGML. In theory any format could be translated to or from this one. Also, Framemaker supposedly has "import filters" to aid in the translation from alien formats (presumably including TEX) to Framemaker; perhaps other desktop publishing programs have similar things.

25 How do I get a file into the major style repositories?

Use anonymous ftp to fenris.claremont.edu (134.173.4.146) and transfer the file into the directory ./pub/tex-incoming. Then send notification to tex-group@hmcvax.claremont.edu. If the file is large, it's better to send the note before transferring the file. From there it will propagate to other inclusive archives.

26 Where can I get font Y?

A comprehensive list of METAFONT fonts is posted to Comp.fonts about once every six weeks by Lee Quin (lee@sq.sq.com). It contains both commercial fonts and fonts available via anonymous ftp. Most of the fonts available via anonymous ftp are available from ymir.claremont.edu (134.173.4.23). Also, the file wujastyk.txh on ymir.claremont.edu in [anonymous.tex.mf] is a copy of Dominik Wujastyk's font article, and contains information on METAFONT fonts as well.

27 Where can I get a dvi driver for the HP LaserJet?

PC - The emTEX package mentioned in question 18 contains a driver for the LaserJet, dvihplj. The driver is available by itself from RUU in TEX/emtex/disk3 in the files dvidrv[123].zip.

See also TEX/DVI/dvi2lj.arc on RUU.

Version 2.10 of the Beebe drivers support the LaserJet. These drivers will compile under Unix, VMS, and on the Atari ST and DEC-20's. They are available from science.utah.edu (128.110.198.2) in ./pub/tex/dvi and from ymir.claremont.edu (134.173.4.23) in [.tex.drivers.beebe2_10].

BIJLAGE U

Summary of Metafont Fonts Available [1]

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`lee@sq.com`

December, 1990

This report includes all known fonts available in metafont format, whether public domain or not. Archive sites for ftp are listed where known. There is also a BITNET archive at `LISTSERV@UBVM.CC.BUFFALO.EDU`.

I also included some notes on how to use the fonts, in the (probably vain) hope of avoiding a deluge of questions on the net. Note that I cannot give instructions for specific packages, and I cannot answer questions about specific printers. I have included some information about TEX and troff, but I can't go into more much more detail over the net (i.e. I am not offering to provide detailed technical support).

1 About Metafont

METAFONTis a programming language for describing fonts. It was written by Donald Knuth and is documented in Computers & Typesetting/C: The METAFONTbook Knuth, Donald E. Addison Wesley, 1986 ISBN 0-201-13445-4, or 0-201-13444-6 (soft cover) Library access: Z250.8.M46K58, or 686.2'24, or 85-28675.

A font written in METAFONT is actually a computer program which, when run, will generate a bitmap ('raster') for a given typeface at a given size, for some particular device.

2 What you need in order to use the fonts

You cannot print the METAFONT files directly (unless you want a listing of the program, that is). Instead, you must generate a bitmap font and use that to print something. If you have TEX or troff, the process for doing this is outlined below. This is not meant to be compete documentation, though, but simply enough to get you started.

If you want to use a font generated by METAFONT on an HP LaserJet, for example, you must follow this general procedure:

- Generate the bitmap font with METAFONT. This will produce a file called (for example) "myfont10.300gf".
- Convert this to a pk format file – the pk format is much more compact, and is used by most software in preference to gf files. You can use gftopk (which comes with METAFONT, or in a package called mfware).
  ```
  $ gftopk myfont10.300gf
  $
  ```
  This produces myfont10.300pk
- Convert the pk-format font into one suitable for your printer. For an HP, there are several utilities – the one I use is called pk2sfp:
  ```
  $ pk2sfp myfont10.300pk >
                      myfont10.300sfp
  ```
  You will have to find this program. If you are using TEX you do not need it, though – see "Converting between font formats" below.
- Download the font to the printer. You will need to do more than simply send the file to the printer. For example, on the HP you must send an escape sequence like ESC*c100D to tell the printer there's a font coming, and that it's going to be font number 100. You then send the font, and then in the rest of the job say something like ESC*c100ESC*c4FESC (100X to tell the printer you've finished, and to start using the font. (ESC in these examples stands for the ASCII Escape, chracter 033 octal, 27 in decimal). All of this must be in the same print job.

Doing this without going insane involves setting up macros or shell-scripts to automate it for you.

3 How to use Metafont fonts with TEX

In addition to generating a 'gf' file, METAFONT will also generate a '.tfm' file. You will need to put the

[1] Published in TeXMaG; Volume4, Number 6; dec 1990.

tfm file into your TEX font directory – for example, /usr/local/tex/fonts. You will need to put either the gf or the pk file there too – probably the pk file. Some dvi drivers need the font to be listed in a description file, too – the name and location of this seems to vary wildly from site to site, but FONTDESC is not unlikely. Chris Torek's 'mctex' package includes some drivers that need this.

For testing, you might be able to say something like
$ TEXFONTS="/users/lee/fonts:/usr/local/lib/tex/fonts"; export TEXFONTS to get TEX to look in more than one directory – see your local TEX guide.

When you have installed the font, you can use it from TEX directly in the usual way. For most fonts, the filename is the same as the font name, so, for example, ccr10.300pk contains the bitmaps for a font called ccr at size 10pt. You can look at the METAFONT source for a given font to determine the name of the font, and you might also be able to cheat by editing the font description file FONTDESC.

Using other fonts with LATEX generally requires more work.

4 How to use Metafont fonts with Troff

If, when you run troff, you get the message 'typesetter busy', you have the original Ossanna-troff, also called otroff. Chris Lewis has a package which will let you use TEX fonts with troff – it's called psroff, and comes with documentation.

ftp: gatekeeper.dec.com (16.1.0.2)
pub/misc/psroff-2.0.tar.Z
ftp: cs.toronto.edu [128.100.1.65]
pub/psroff.tar.Z

If, when you run troff, you get something like this:

```
x T 300
x res 300 1 1
```

you have ditroff. This is sometimes called titroff or psroff. In this case, you will probably need to do the following:

1. convert the font to your printer's format
2. generate a width table for the font
3. add the font to the DESC file for the appropriate device
4. arrange for troff to download the font
5. tell troff about the font by running 'makedev DESC' in the right place.

If, when you run troff, you get something like this:

```
X hp(SCM)(CM)(AF)(AD)  300 1 1
Y P default letter 2550 3300 0 0 90 90
                                  2460 3210
```

you have sqtroff, change (4) onwards to:

4. put the font in the appropriate raster directory
5. tell sqtroff about the font by running 'sqmakedev DESC'

or 'sqinstall'.

In each case, you should be able to get help from your vendor.

Note that Chris Lewis' psroff package has software to make width tables for troff from pk files.

5 Converting between font formats

Conversions to and from pbm and pk format were posted to comp.text.tex and to alt.sources on the 9th of August, 1990 by Angus Duggan (ajcd@cs.ed.ac.uk). The program is pbmtopk, and there are also at least two patches.

Chris Lewis' psroff package includes a program to go from pk both to the HP LaserJet and to PostScript.

John McClain (ophelp@tamvenus.bitnet) has some conversion programs for various graphics formats to/and from pk files.

CAPTURE turns HPGL files into PK format (a PC program, $130 from Micro Programs Inc., 251 Jackson Ave., Syosset, NY 11791

Metaplot can take pen-plotter files and prouce metafont files wilcox@cis.ohio-state.edu

6 Where to get bitmap versions of the fonts

There are archives containing the bitmaps of many of these fonts at various sizes and resolutions. The fonts must have been generated for the correct print engine: e.g. write-white or write-black. The archives generally hold only the sizes used by TEX. These are 'magstep' sizes, and are not exact point sizes. It is probably better to generate them from the METAFONT sources yourself if you can.

The best place to look for raster fonts is almost certainly
mims-iris.waterloo.edu (129.97.129.116)
This probably has all the HP fonts in the world.... some others are:
ctrsci.math.utah.edu (128.110.198.1)
science.utah.edu (128.110.192.2)
ymir.claremont.edu (134.173.4.23)

The occasional posting of ftp sites to comp.misc and comp.archives lists these and several other sites.

Getting fonts by FTP and Mail:

If you are using ftp, you will need either the name of the host or the Internet number. For example, to connect to ymir, listed as
ftp: ymir.claremont.edu [134.173.4.23] you will need to type something like

```
ftp ymir.claremont.edu
```

If that doesn't work, try using the number:

```
ftp 134.173.4.23
```

If that doesn't work, on Unix systems you can use nslookup (it's usually /usr/etc/nslookup) to find the host number – it might have changed. Type the entire host name, and after a few seconds nslookup will give you the address.

Once you have connected, you will need to go to the appropriate directory, lists its contents, and retrieve the files.

Most of the machines listed here run Unix, and you use "ls" and "cd" to list files and to change directories. Ymir runs VMS, and you will have to put square brackets around directory names, like [this].

Remember that although METAFONT sources are text files, pk fonts are not ASCII, and you will have to use binary mode for them. In general, use text mode for README files and *.mf files, and binary mode for other font files. Files ending in .Z are compressed binary files – you will need to use binary mode, and then uncompress the files when you get them.

You can get files from ymir by sending mail messages to `mailserv@ymir.claremont.edu`

For example,

send [tex.mf.misc]cmapl10.mf

will get the file cmapl10.mf from the directory "tex.mf.misc". You can only get text files in this way.

7 Fonts

7.1 AMS (see under Euler)

The American Mathematical Society has adopted TEX, and has had some fonts designed especially by Herman Zapf. These are known as the Euler fonts, and are described below. The METAFONT sources are now available by ftp.

NOTE that you should build these using virmf, or at least with a version of METAFONT that does not have cmbase pre-loaded. You may also get errors reported when building some of the smaller sizes – simply press return.

There are

1. AMS Euler – a calligraphic font. This is not suitable as it stands for text use in TEX, because it has a non-standard encoding.
2. AMS extra maths symbols
3. AMS computer modern extensions
4. AMS Cyrillic (this is the same as University of Washington Cyrillic)

There is also some documentation.

You can get them from the ams or from ymir: ftp: e-math.ams.com [130.44.1.100] /ams/amsfonts/sources

ftp: ymir.claremont.edu (134.173.4.23)

7.2 APL (A Programming Language)

ftp: ymir.claremont.edu (134.173.4.23):
cd SOFTWARE:[anonymous.tex.misc]
ftp: (the file is cmapl10.mf). Associated macros and documentation
ftp: are in SOFTWARE:[anonymous:tex:periodicals.tugboat] and also
ftp: [anonymous.tex.inputs.plain-contrib] in files apldef.tex,
ftp: aplstyle.tex, and aplverb.tex.

ftp: power.eee.ndsu.nodak.edu (134.129.123.1)
apl-tex-font/27-Jul-90

7.3 Babel – language support

The Babel archive at ymir.claremont.edu contains:

- **Greek Fonts:**
  Brian Hamilton Kelly's cmgr family
  Sylvio Levy's gr family [modern and classical]
  Yannis Haramboulos' rgr family
- **Hebrew fonts:**
  REDIS (a thin-looking sans serif)
  burkis (coming in January??)
- **Icelandic**
  Icelandic Modern (this is Computer Modern with extensions)
- **Russian (Cyrillic)**
  IFVE's cmc family
  U Washington's wncyr family
  Bashkiren/Mongolian (not sure if this is there yet)
- **Turkish**
  Turkish Modern (this is Computer Modern with extensions)

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.babel]

7.4 Chess

Some chess typesetting macros were posted to comp.text.tex on July 31, 1990. The chess fonts are available for ftp from ymir.

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.misc]

7.5 Chinese

ChTEX is a set of macros and fonts for typesetting Chinese under TEX. It only supports PostScript, and requires a modivied dvi2ps. You write your article with PinYin.

ftp: 192.12.216.114 (name: chiris.stevens-tech.edu)
ftp: note that the usercode is "ftp", not "anonymous".
Included are source, fonts, VMS binary for 5.2, DOS binary, etc.

7.6 Bar Code

Dimitri Vulis's barcode font
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.7 Committee

This was produced during a workshop tutorial given by Donald Knuth. This is said (by Don Hosek, whom I trust in such things) to be hard-wired for the APS typesetter... It is described in Tugboat Vol. 5 No. 2 (Nov. 84).

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.misc]
ftp: files are font1.mf and font1base.mf

7.8 Computer Modern

Computer Modern is Donald Knuth's font family used for his later 'Art of Computer Programming' books. It contains

cmr – computer modern roman
cmmi – computer modern maths italic
cmti – computer modern text italic
cmb – computer modern bold
cmss – computer modern sans serif
cmtt – computer modern typewriter
cmvtt – computer modern variable-spaced typewriter

and several variations on each of the above (e.g. bold extended...). There are also some experimental fonts, such as cmff, a 'funny' font, and cmfib, a font based on Fibonacci numbers.

These are all included in a standard TEX distribution, although I only know of one site archiving the METAFONT files seperately. The official TEX distribution site is labrea.stanford.edu:

ftp: labrea.stanford.edu [36.8.0.47]
cd pub/tex/cm
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.standard]

Many TEX ftp archive sites also give access to the bitmaps (pk files), although you usually have to get them all at once.

There is also a reparameterised version of CM by John Sauter, which makes it easy to generate fonts at desired sizes– this is especially useful for non-TEX users.

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.sauter] See also: Babel, Sauter

There are some more Computer Modern variants stored at ymir; these include parameters for generating cm fonts at sizes 14, 18, 24 and 36pt. ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.variants]

There is also a Pica typewriter font – italic and bold come out with straight and wavy underlines (respectively), however. This is in ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.pica]

Versions of these fonts suitable for use with an X Windows previewer (xtex and SeeTEX) are available from ftp: foobar.colorado.edu pub/SeeTeX

7.9 Concrete

This font was designed for Donald Knuth's Concrete Mathematics book. It looks a little like a cross between American Typewriter and Computer Modern Roman. There are Roman and Italic faces.

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.10 Cyrillic

There are several Cyrillic (Russion-Alphabet) fonts:

- Tom Ridgeway's Cyrillic fonts
  `[BITNET: LISTSERV@UBVM.CC.BUFFALO.EDU]`
- WN-Cyrillic
  ftp: june.cs.washington.edu (128.95.1.4)

There is a mailing list, rustex-l, for discussion of typesetting Cyrilic-based languages. To subscribe, send mail to listserv@ubvm.bitnet containing the text `SUBSCRIBE RUSTEX-L <your name here>` or send mail to
Dimitri Vulis,
DLV%CUNYVMS1.BITNET@cunyvm.cuny.edu

7.11 Duerer

Based on the 16th Century drawings of Albrecht Duerer – see, for example, his "The Painter's Manual" publisshed in Fac Simile by Abaris Books. Upper case only.
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.duerer]

7.12 Devanagari

(this is a font for use with Sanskrit)
Created by Frans Velthuis in 1987/88 and is available from him
(Velthuis%hgrrug5.earn@cunyvm.cunyvm.edu) for a small charge. Another address is "velthuis@hgrrug5.bitnet".

F.J. Velthuis,
Nyensteinheerd 267
9736 TV Groningen
The Netherlands

7.13 Dingbats

By Doug Henderson.
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.14 Euler

These were designed by Herman Zapf for the American Mathematical Society. See AMS.
The fonts are Fraktur, Script, Upright Italic, Math extension. (see TUGboat Vol. 10 No. 1)

7.15 Greek

Sylvio Levy's Greek font.
ftp: xydeco.siemens.com (129.73.1.101) – greek*
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.babel.greek.levy] (But Don Hosek tells me this is really Brian Hamilton Kelly's Greek font)

Also the Sylvio Levy 'gr' greek family, for both Modern and Classical Greek. This includes roman, typewriter and bold, plus TEX macros.

Brian Hamilton Kelly's cmgr family
Yannis Haramboulos' rgr family

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.babel.greek]

See also Babel.

7.16 Hebrew

There is a sans-serif Hebrew font called REDIS available from ymir. It comes in three faces, including italic (slanting to the right, of course).
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.17 Helvetica

Produced by the Metafoundry and sold commercially. Unfortunately they do not distribute the METAFONT sources, so they are not really very useful in this file ...

The Metafounndry,
OCLC Inc., MC 485
6565 Frantz Road
Dublin, OH 43017
USA
+1 614 764-6087

7.18 Hershey

The Hershey fonts were designed for use by plotters, and published in 1972. These fonts are of relatively low typographic quality, but are useful on devices with lower resolution.

ftp: cs.uoregon.edu [128.223.4.13]
(but these are not in METAFONT – does anyone know where to get the METAFONT versions?)

7.19 International Phonetic Alphabet

Used by linguists, and also in some dictionaries. It's designed to go with Computer Modern. From WSU.
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.20 Music

MuTEX is a basic music package for TEX. It seems to be the same as mtex, but with documentation in English rather than (or as well as) German.

ftp: stolaf.edu [130.71.128.1]
/pub/MuTeX.tar.Z /pub/MuTeX_doc.Z
ftp: suned.zoo.cs.yale.edu [128.36.21]
ftp: cs.ubc.edu [128.189.97.5]
src/MuTeX/MuTeX.tar.Z (slow)
ftp: wuarchive.wustl.edu: /mirrors/msdos/tex/mutex.arc
ftp: ymir.claremont.edu [134.173.4.23]:
cd [anonymous.tex.musix.mutex]

In Europe,
ftp: sol.cs.ruu.nl [131.211.80.5] in subdirectory pub/TEX
ftp: mtex.tar.Z (sources, including METAFONT sources and documentation)
ftp: mtexfonts.tar.Z (300dpi pk files) These are also available in Europe by mail-server. Send mail to mail-server@cs.ruu.nl with HELP in the subject and the body and probably the .signature as well :-)

7.21 OCR (Optical Character Recognition)

OCR A (this is not the font for printing on cheques)
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.22 Oriya

Sabita Panigrahi is working on Oriya (one of the modern Indian scripts), but this is not yet available.

7.23 Pandora

This is a little like Palatino, annd includes a sans-serif variant. It is not yet of production quality, unfortunately.

ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.24 Pica

There is also a Pica typewriter font – italic and bold come out with straight and wavy underlines (respectively), however. This is in ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.pica]

7.25 Pointing Hands

Various manual extremities, designed by Georgia Tobin
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.26 Punk

A punK hAndWritten fOnT...
For writing on walls, perhaps. The lower case is simply a smaller version of the upper case.
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.27 Sanskrit

(see Fonts: Devanagari)

7.28 Sauter

This is a rework of Computer Modern. The outlines are the same, as far as I know, but it is much easier to generate the various fonts.
By John Sauter.
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf]

7.29 Tengwar

There are at least two Tengwar fonts, Mike Urban's:
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.mf.tengwar]

Julian Bradfield `<jcb@lfcs.edinburgh.ac.uk>` also has both Tengwar and a prototype version of Cirth runes. Email only, although I have a copy and can mail them to you if you can't reach Julian. I prefer Julian's Tengwar, I think, but I am not an expert on Tolkien fonts...

7.30 Thai

There are at least two Thai fonts around. The rmit font is a little tricky to make, as it needs to be in a directory called "thai2", because it refers to files called "../thai2/name".
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.babel.thai.rmit]
ftp: ymir.claremont.edu (134.173.4.23):
cd [anonymous.tex.babel.thai.usl]

7.31 Vietnamese

ftp: blackbox.hacc.washington.edu [128.95.200.1]
cd /pub/testviet

This test package includes tfm and pk fonts at 10 point roman and italic. I understand that you need TEX 3.0 or later to use this, and drivers that cope with fonts containing more than 128 characters.