Frequently Asked Questions[*]

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Frequently Asked Questions

This article[1] 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. Note that Guoying Chen (chenguo@spunky.cs.nyu.edu) posts the monthly document *Supplementary TEX Information* to this newsgroup containing other information and software relevant to TEX users but beyond the scope of this article.

This article includes answers to:

1. How can I get a copy of this article?
2. Where can I get a DVI to PostScript conversion program?
3. How can I include a PostScript figure in LATEX?
4. Where can I find a DVI previewer for machine Y running Q?
5. Where can I get the manual for PiCTEX?
6. What is VorTEX and where can I get it?
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28. TEX and LATEX are hyphenating words weirdly. What can I do?
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31. In LATEX, I used , but the first page is still numbered. What do I do?
32. Where do I find documentation about BIBTEX?
33. How do I use BIBTEXwith plain TEX?
34. How do I draw Feynman diagrams in LATEX?
35. What is the New Font Selection Scheme (NFSS)?
36. In LATEX, my cross-references for floats (figures and tables) are incorrect. What's wrong?
37. I want to change the margins in LATEX. What can I do?
38. How do I find the width of a letter, word, or phrase in TEX?

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. *Ftp* stands for file transfer protocol, and is also the name of a program implementing the protocol. The program allows users to transfer files to and from remote sites, if the sites are connected via a network such as the Internet. *Anonymous ftp* indicates a user may connect to a remote site as the user *anonymous* with a password consisting of their email address, and thus be able to retrieve files from that site. Remember, anonymous ftp is a privilege and 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.

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[*]Version 1.37 for August, last changed 8/15/93.

[1]Deze bijlage bevat een recente versie van de 'Frequently asked questions' uit de Internet nieuwsgroep *comp.text.tex*. Het orgineel van dit artikel en ook de genoemde *Supplemantary TEX Information* zijn beschikbaar via *anonymous ftp* op *ftp.cs.ruu.nl*[131.211.80.17]. Ook is deze server bereikbaar als *mail*-server onder de naam *mail-server@cs.ruu.nl*. Behalve op deze server zijn veel TEX-zaken te vinden op een BITNET-machine in Nijmegen, te bereiken via het sturen van boodschappen naar *LISTSERV@HEARN.bitnet*. Ook is er sinds begin 1993 een *bulletin board* (**FGBBS**) operationeel waar zich veel TEX- en aan TEX-verwante programmatuur bevindt. Voor meer informatie zie elders in deze MAPS

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, Mike Ernst, Rainer Schöpf, Oren Patashnik, Philippe Louarn, Rafal Zbikowski, Anita Marie Hoover, David Rhead, Darrell McCauley, Cameron Smith, Emma Pease, and Patrick McPhee provided additional material and criticisms. The format of this document is based on the Frequently Asked Questions appearing in comp.unix.wizards, and written by Steve Hayman. Any mistakes are mine. Send corrections, suggestions, and additions to bobby@hot.caltech.edu.

1 How can I get a copy of this article?

You're reading it aren't you? SAVE it :-). Seriously, though, this article is posted monthly to comp.text.tex and cross-posted to news.answers. It is therefore archived at any site that archives news.answers. News.answers is archived on rtfm.mit.edu (18.70.0.224), and this article is available there via anonymous ftp in the directory ./pub/usenet/news.answers/tex-faq. If you do not have anonymous ftp, send an e-mail message containing the lines *SENDME FAQ.* to fileserv@shsu.edu (fileserv@shsu.bitnet). Another way to retrieve it via email is through the mailserver at rtfm: send a message containing the lines *help* and *index* to mailserver@rtfm.mit.edu for information on how to obtain it.

Other news.answers/FAQ archives are: cnam.cnam.fr (163.173.128.6) in the anonymous ftp directory /pub/FAQ; ftp.uu.net (192.48.96.2) in the anonymous ftp directory /pub/usenet (also available via mail server requests to netlib@uunet.uu.net, or via uunet's 1-900 anonymous UUCP phone number); and ftp.cs.ruu.nl (131.211.80.17) in the anonymous ftp directory NEWS.ANSWERS (also accessible via mail server requests to mail-server@cs.ruu.nl). Many of the archives mentioned in question 22 also maintain current versions of this article.

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

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

- **dvips** by Tomas Rokicki.
  This driver is very nice and has the ability to deal with virtual fonts. Available via anonymous ftp from labrea.stanford.edu (36.8.0.112) in ./pub. Dvips is written in C and 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 MS-DOS is available from monu1.cc.monash.edu.au (130.194.1.101) in ./pub/dvips54.zip or from shape.mps.ohio-state.edu (128.146.110.30) in ./pub/msdos/dvips/dvips54.zip. If you wish to use postscript fonts, get dvipslib.zip as well. Documentation is available in dvips.ps.Z.

- **dvitops** by James Clark.
  Available via anonymous ftp from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.drivers.dvitops]. Dvitops is written in C and will compile under Unix, MSDOS, VMS, and Primos.

3 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 ./pub/psfig. You will also need a dvi to PostScript conversion program that supports \specials. The ones mentioned in question 2 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 *Post-Script 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].

One further note about including PostScript figures is that they are not part of the dvi file, but are included when you use a dvi to PostScript conversion program. As a result, most dvi previewers will simply show the blank space TeX has reserved for your figure, not the figure itself.

Anil K. Goel has written a long document desribing in detail how to include figures, pictures, and images in LaTeX documents. It is available via anonymous ftp from math.uwaterloo.ca (129.97.140.144) in ./pub/figsInLatex.ps.Z. A dvi file with the included PostScript files is also available.

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

This briefly lists some previewers available via anonymous ftp:

- **dvipage**
  For SunView. This was published in volume 15 of comp.sources.unix and is available at sites that archive this. One such source is archive.cis.ohio-state.edu (128.146.8.52).

- **xtex**
  For the X Window System.
  Available via anonymous ftp from ftp.cs.colorado.edu (128.138.243.151) in ./pub/cs/misc/SeeTeX/SeeTeX/SeeTeX-*.tar.Z.

- **dviapollo**
  For Apollo Domain.
  Available via anonymous ftp from labrea.stanford.edu (36.8.0.112) in ./pub/dviapollo.tar.Z.

- **dvidis**
  For VAXstation VWS. Available via anonymous ftp from src.doc.ic.ac.uk (146.169.2.1) in /packages/tex/dviware/dvidis.

- **xdvi**
  Also for the X Window System. Available via anonymous ftp from export.lcs.mit.edu (18.24.0.12) in ./contrib/xdvi.tar.Z.

- **dvitovdu**
  For Tektronix 4010 and other terminals under Unix. Available via anonymous ftp from wsmr-simtel20.army.mil (192.88.110.20) in the directory pd6:<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 ftp.cs.ruu.nl (131.211.80.17) in ./pub/TEX/DVI/dvi2tty.shar. A VMS version is available from fileserv@shsu.edu (see question 22).

- **texsgi**
  For SGI under Irix. Available via anonymous ftp from ftp.brl.mil (128.63.16.158) in ./info-iris/tex. Both a binary and source are available, but be sure to get the fonts as well.

5   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 869
Santa Barbara, CA 93102 (USA)
805-899-4673
tug@tug.org

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

6   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 Bib-TeX. 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

Actually, the emacs modes are freely available separate from VorTEX itself. They are available via an-
onymous ftp as vortex-macros.tar.Z from a.cs.uiuc.edu (128.174.252.1) in ./pub/TeX.

7   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, or on a floppy disk from TUG (see question 11). Questions about OzTeX may be directed to oztex@midway.uchicago.edu.

8   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 ftp.cs.cornell.edu (128.84.218.75) in ./pub/fig. Both Fig and TransFig are also available from the Clarkson archive server at sun.soe.clarkson.edu (see question 22). Both Fig and TransFig are supported by Micah Beck (beck@cs.cornell.edu). Another tool for fig conversion is fig2MF which generates METAFONT code from fig input. It is available from the CTAN archives discussed in question 22.

XFig is essentially the same program except it runs under the X Window System. It is available via anonymous ftp from export.lcs.mit.edu (18.24.0.12) in ./contrib/R5fixes/xfig-patches/xfig-2.1.*.Z.
It was written by Brian Smith.

9   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 via anonymous ftp from princeton.edu (128.112.128.1) in the directory ./pub/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. It is available via anonymous ftp from pip.shsu.edu (192.92.115.10) in tex-archive/web/spiderweb.

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 22) in ./submit/schemeweb.sh.

APLWEB is a version of WEB for APL and is available from watserv1.waterloo.edu (129.97.129.140) in ./languages/apl.

FunnelWeb is a version of WEB that is language independent. It is available via anonymous ftp from ftp.adelaide.edu.au (129.127.40.3) in ./pub/funnelweb. It also appeared in comp.sources.unix volume 26 issue 121, posted 11 April 1993.

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

10 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 via anonymous ftp from ftp.cs.ruu.nl (131.211.80.17) in pub/TEX/MuTeX.tar.Z and from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.music.mtex]. 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 (taupin@frups51.bitnet). It is available via anonymous ftp from rsovax.ups.circe.fr (130.84.128.100) [.musictex]. It should also be available from the archive sites detailed in question 22.

There is a mailing list for discussion of typesetting music in TEX. To subscribe, send a request to mutex-request@stolaf.edu.

11 What is TUG and TUGboat?

TUG is the TEX Users Group. TUGboat is their newsletter, containing useful articles about TEX and METAFONT. TUG also distributes TEX-related microcomputer software on disks. Inquiries should be directed to:

TEX Users Group
P.O. Box 869
Santa Barbara, CA 93102 (USA)
805-899-4673
tug@tug.org

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

Use the afm2tfm program distributed with dvips, available via anonymous ftp from labrea.stanford.edu (36.8.0.112) in ./pub.

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

13 In LATEX, how do I get a double-spaced document?

Are you producing a thesis, and trying to obey regulations that were drafted in the typewriter era? LATEX is a typesetting system, so the appropriate design conventions are for *real books*. Find whoever is responsible for the regulations, and try to get the wording changed to cater for typeset theses (e.g., to say *if using a typesetting system, aim to make your thesis look like a well-designed book*).

If you fail to convince your officials, or want some inter-line space for copy-editing:
- Try changing \baselinestretch: \renewcommand{\baselinestretch}{1.2} may be enough to give officials the impression you've kept to their regulations. Don't try changing \baselineskip: its value is reset at any size-changing command.
- Alternatively, get doublespace.sty from ./pub/tex/latex-style at sun.soe.clarkson.edu, or, if you are using the new font selection scheme, get doublespace.sty from ymir.claremont.edu (134.173.4.23) in [anonymous.tex.inputs.latex-contrib]. There's a setspace.sty from fileserv@shsu.edu which is more flexible, and consistent with the latest release of LATEX. See question 22.

It's not worth going to a lot of trouble. (If officials won't allow standard typographic conventions, you won't be able to produce an aesthetically pleasing document anyway!)

14 In LATEX, how do I include a file in the verbatim environment?

A good way to do this is to use Rainer Schöpf's verbatim.sty, which provides the command \verbatiminput that takes a file as an argument. This file is available from both the Aston archive (see question 22) and ymir.claremont.edu (134.173.4.23). Several files are needed. From ymir.claremont.edu, get the file [tex.inputs.latex-mainz]verbatim.readme to find out what other files you will need.

Another way to do this is to use the alltt environment defined in the style file alltt.sty available in ./pub/tex/latex-style from sun.soe.clarkson.edu (see question 22).

15 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 16). If none of this works, send mail in English 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.

16 Where can I find a TeX macro or LaTeX style file for doing Y?

Before you ask for a TeX macro or LaTeX style file to do something, please search the TeX macro index written by David M. Jones (dmjones@theory.lcs.mit.edu) and available via anonymous ftp from theory.lcs.mit.edu (18.52.0.92) in ./pub/tex/TeX-index. Those without access to anonymous ftp can send a message containing the line *send tex TeX-index* to archive-server@theory.lcs.mit.edu. The index is an excellent reference document with plenty of cross-references. Also, many of the archive sites mentioned in question 22 maintain extensive LaTeX style collections, which you can look through if you need something not in the index.

17 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 via anonymous ftp from ymir.claremont.edu (134.173.4.23, VMS) in the directory [.tex.utilities.makeindex]. A version for the Macintosh is available from Johnny Tolliver at tolliver%atf.mfenet@nmfecc.llnl.gov. The Makeindex documentation is a pretty good source of information on how to create your own index.
- **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].
- **texindex**
  For LaTeX under Unix. Available from comp.sources.misc archives in Volume 23.

18 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 modes.mf by Karl Berry, available via anonymous ftp from ftp.cs.umb.edu (158.121.104.33) in ./pub/tex is a good starting point for this. Listings of settings for various output devices are also published periodically in TUGboat (see question 11). 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 containing the base files on your system.

Now you need to make sure 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
```
mf \mode=epson; mag=1.2; input cmr10
```

Note that under Unix the '\' and ';' characters must usually be escaped, so 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), you would type

```
mf \smode=ln03; input cmr10
```

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

- **Unix**

  The Unix TEX distribution is via anonymous ftp from any CTAN archive (see question 22).If you don't want to do this, you can order it from 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.

  The following discussion is a bit outdated, and explains how to retrieve TEX from many different archive sites. It is probably easiest retrieve them all from the CTAN site or mirror nearest you. To get TEX via anonymous ftp, first get the current web2c and web distributions from ftp.cs.umb.edu (192.12.26.23) in ./pub/tex. If you plan on using METAFONT, also grab the current version of modes.mf (see question 18). The web2c distribution will allow you to create initex, virtex, inimf, virmf, bibtex, and several programs for manipulating fonts. Next you will need the basic TEX and METAFONT macro files, available from labrea.stanford.edu (36.8.0.112) in ./pub/tex/lib. The

  basic BibTeX style files are here as well, in ./pub/tex/bibtex. If you want LATEX, the current distribution is available from rusinfo.rus.uni-stuttgart.de (129.69.1.12) in ./soft/tex/latex. I recommend LATEX be installed with the New Font Selection Scheme (NFSS) (see question 35). It resides in ./soft/tex/macros/latex/distribs/nfss. If you want AMSLATEX or AMSTeX, get them from e-math.ams.com (130.44.1.100) in ./ams. Finally, you need fonts. TEX itself needs font files with the extension *.tfm*. Your output device driver needs fonts in a different format, probably *.pk*. Both ymir.claremont.edu (134.173.4.23) and rusinfo.rus.uni-stuttgart.de maintain collections of fonts in these formats. These collections contain the necessary fonts for the plain format and LATEX, and other fonts you might want. Alternatively, the necessary font formats can be generated from the METAFONT source, either by you, or automatically if you use the dvips driver mentioned in question 2. The METAFONT sources are available from the ymir and rusinfo archives. Note that I have tried to mention the definitive sources for all the programs above.

  Note the Unix version of TEX allows your 'macros' or 'inputs' and 'fonts' directories to be hierarchically organized with further subdirectories, rather than dumping everything into one directory. This can cause TEX to start very slowly. The cure for this problem is to insure each subdirectory contains either only directories or only files.

- **AIX**

  TEX for the IBM RS6000 running AIX can be found on rusinfo.rus.uni-stuttgart.de (129.69.1.12) in ./soft/tex/systems/unix/aix3.1.

- **PC**

  A TEX package for the PC, including LATEX, BIBTEX, previewers, and drivers is available via anonymous ftp from vax.eedsp.gatech.edu (130.207.226.24) 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 via anonymous ftp from rusinfo.rus.uni-stuttgart.de (129.69.1.12) in ./soft/tex/systems/msdos/emtex and also from niord.shsu.edu (192.92.115.8) in [.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 TUG. A catalog is available free from them at the address given in question 11. This collection is maintained by Jon Radel, who will answer technical questions on the material (with no service guarantee). Send electronic mail to jon@radel.com.

- **Mac**

  See question 7 for a public domain version (Oz-TeX). Another version CMacTEX, which has TEX

3.14, METAFONT 2.7, a screen previewer, dvips, a PostScript printing utility for the LaserWriter, and some font managing utilities. It is available from the CTAN archives discussed in question 22.

- **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 from atari.archive.umich.edu (141.211.165.41) in ./atari/tex. If anonymous ftp is not available to you, send a message containing the line *help* to atari@atari.archive.umich.edu. The mail server can uuencode binary files. Another version can be obtained via anonymous ftp from ifi.informatik.uni-stuttgart.de (129.69.211.1) in ./pub/atari.st/tex. There is also lots of TEX stuff for the Atari on the rusinfo and ftp.cs.ruu.nl archives mentioned in question 22.

- **Amiga**

  A full implementation of TEX 3.1 call PasTeX and METAFONT 2.7 are available via anonymous ftp from merlin.etsu.edu (192.43.199.20) in ./ab20/AMIGA. It is also available via anonymous ftp from forwiss.uni-passau.de (132.231.20.10) in ./pub/amiga/tex. You can also order a CDROM containing this and other amiga software from Walnut Creek CDROM, (510) 947-5997.

- **Tandy 6000**

  If you are interested in building TEX on this machine contact Ken Yap (ken@syd.dit.csiro.au), and he'll help you.

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 at sun.soe.clarkson.edu (see question 22).

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 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 via anonymous ftp from e-math.ams.com (130.44.1.100) in the directory ./ams/amsfonts. Two files which load the fonts and define the symbols are provided, and both work with either TEX or LATEX. Questions or suggestions regarding these fonts should be directed to tech-support@math.ams.com.

A set of LATEX macros for a *lazy person's* blackboard bold are:

```
\newcommand{\R}{{\sf R\hspace*{-0.9ex}%
   \rule{0.15ex} {1.5ex}\hspace*{0.9ex}}}
\newcommand{\N}{{\sf N\hspace*{-1.0ex}%
   \rule{0.15ex} {1.3ex}\hspace*{1.0ex}}}
\newcommand{\Q}{{\sf Q\hspace*{-1.1ex}%
   \rule{0.15ex} {1.5ex}\hspace*{1.1ex}}}
\newcommand{\C}{{\sf C\hspace*{-0.9ex}%
   \rule{0.15ex} {1.3ex}\hspace*{0.9ex}}}
```

22   What repositories of TEX material are available, and how can I access them?

To better facilitate the archiving of TEX material, a TUG working group developed the Comprehensive TEX Archive Network (CTAN). Each CTAN site has identical material, and maintains authoritative copies of material archived there. All these archives contain extensive collections of TEXrelated material. In particular, almost everything mentioned in this document is archived at the CTAN sites, even if not explicitly stated.

The CTAN sites are currently ftp.uni-stuttgart.de (128.69.1.12) with the TEX root directory ./soft/tex, ftp.tex.ac.uk (134.151.44.19) with root directory ./pub/archive, and pip.shsu.edu (192.92.115.10) with root directory ./tex-archive. Under the root directory, the organization of material is identical.

To find software at a CTAN site, use anonymous ftp to the host, and then execute the command 'quote site index **search-term**'.

The mail servers of the CTAN sites are not yet identical, but this is planned. Here are the current methods of access via electronic mail:

- For the UK site, send a message to tex-server@tex.ac.uk. 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.

- For ftp.uni-stuttgart.de, send a message containing the line *help* to mail-server@ftp.uni-stuttgart.de.
- For the shsu send, send a message with the line HELP to FILESERV@SHSU.BITNET. SENDME FILELIST will get an annotated listing of all packages available there.

The host nic.switch.ch (130.59.1.40) mirrors ftp.uni-stuttgart.de in /mirrors/tex.

There are several other repositories of TEX material available:

- In the US, the archive at ymir.claremont.edu (134.173.4.23) has a lot of PD TEX software Anonymous ftp is supported, as is a mail server. Unfortunately, executables are not available through the mail server. Send a message containing the line *help* to MAILSERV@ymir.claremont.edu.
- The archive at Clarkson University, although out of date, still has some things of interest. Use anonymous ftp to get files from sun.soe.clarkson.edu (128.153.12.3). An archive server is available if you can send mail to the United States. Send a one-line message *help* to archive-server@sun.soe.clarkson.edu and it will send you a file describing how to use it more fully. If you have problems, contact archive-management@sun.soe.clarkson.edu
- ftp.cs.ruu.nl (131.211.80.17) also contains a substantial TEX archive with ftp access. To use it via email, send a message 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 is available via anonymous ftp from wuarchive.wustl.edu (128.252.135.4) in ./decus/tex. It can also 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?

The best way to do this is to install the New Font Selection Scheme (NFSS) (see question 35), and use the psnfss package written by Sebastian Rahtz. It is available from all the major archives mentioned in question 22. Unfortunately, on some it is known as soton and on others as psnfss. The definitive home for it is the UK TEX archive, tex.ac.uk (134.151.40.18) in [tex-archive.macros.latex.distribs.psnfss]. Other methods for using PostScript fonts in LATEX are cumbersome at best.

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

- **troff**
  TROFF-TO-LATEX.TAR-Z is available via anonymous ftp from wsmr-simtel20.army.mil (192.88.110.20) in the directory pd2:<unix-c.textproc>. 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 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. An enhanced version of this program, tr2latex, is available from ftp.informatik.rwth-aachen.de (137.226.112.172) in ./pub/TeX. The DECUS TEX distribution (see question 22) also contains a program which converts troff to TEX. If you are interested in obtaining a copy of this program without getting the entire DECUS TEX distribution, send the command: SENDME TROFFTOTEX in the body of a mail message to FILESERV@SHSU.BITNET (FILESERV@SHSU.edu), or use anonymous ftp to the directory [.TROFFTOTEX] on Niord.SHSU.edu (192.92.115.8).

- **scribe**
  Mark James has a copy of scribe2latex he has been unable to test but which he will let anyone interested have. Send email to jamesm@procor.dialogic.com. The program was written by Van Jacobson of Lawrence Berkeley Laboratory.

- **wordperfect**
  wp2latex.zip is available on wuarchive.wustl.edu (128.252.135.4) in the directory ./mirrors/msdos/tex and on wsmr-simtel20.army.mil (192.88.110.20) in the directory pd1:<msdos.tex>. 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 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 the new features of WordPerfect 5.1, in particular the equation formatter. The program is copyrighted but free.
  Glenn Geers of the University of Sydney (glenn@qed.physics.su.oz.au) is translating wp2latex into C and adding some WordPerfect 5.1 features, in particular its equation handling. This is an ongoing project; the most recent version can be retrieved via anonymous ftp from suphys.physics.su.oz.au (129.78.129.1) in ./wp2latex. It is also available by anonymous ftp from ymir.claremont.edu (134.173.4.23) in the directory [anonymous.tex.ibm_pc.front_ends.wp2latex]. It was posted to alt.sources on 8 August 1990.
- **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 (192.88.110.20) 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 (vanroose@esat.kuleuven.ac.be) 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 (jamesm@procor.dialogic.com).
- **refer/Tib** There are a few programs for converting bibliographic data between BibTeX and refer/Tib formats. They are available via anonymous ftp from ftp.ai.mit.edu (128.52.32.11) in the directory ./pub/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).
- **RTF** A program for converting Microsoft's Rich Text Format to TeX is available via anonymous ftp from astro.princeton.edu (128.112.128.131) in ./pub/rtf2TeX.tar.Z. It was written and is maintained by Robert Lupton (rhl@astro.princeton.edu).
- **Microsoft Word**
  A rudimentary program for converting MS-Word

to LaTeX is wd2latex, for MS-DOS, available via anonymous ftp from ymir.claremont.edu (134.173.4.23) in [.tex.ibm_pc.front_ends]. Probably a better idea, however, is to convert the document to RTF format and use the RTF converter mentioned above.

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 rusinfo.rus.uni-stuttgart.de (129.69.1.12) and transfer the file into the directory ./soft/tex/incoming. Then send notification texinfo1@rusinfo.rus.uni-stuttgart.de. From there it will propagate to other inclusive archives. If you cannot use ftp, mail your contribution to sty-mgr@shsu.edu and it will be passed along. You will make everyone's life easier if you choose a descriptive and unique name for your submission, so it's probably good idea to browse through some of the style repositories mentioned in question 22 to insure your style file's name is not already in use.

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 19 contains a driver for the LaserJet, dvihplj. The driver is available by itself from ymir.claremont.edu (134.173.4.23) in [.tex.ibm_pc.drivers.emtex] in the files dvidrv[123].zip.

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].

28 TEX and LATEX are hyphenating words weirdly. What can I do?

You have a version mismatch problem. The hyphenation algorithm changed between version 2.9 and 3.0. If you are using TEX version 3.0 or later, make sure you have plain.tex and lplain.tex files with a version number of at least 3.0.

For those of you curious about the change, here's what happened: in versions of TEX before 3.0 the hyphenation algorithm would not break a word if the part before the break was not at least two characters long, and the part after the break at least three characters long. Starting with version 3.0 two integer parameters, \lefthyphenmin and \righthyphenmin, control the length of these fragments. These are set to 2 and 3, respectively, in the new plain and lplain formats. They can be set to any value, of course, but if \lefthyphenmin + \righthyphenmin is greater than 62, all hyphenation is suppressed.

29 How can I convert a TEX or LATEX file into a plain ASCII file, with all the formatting intact, a la nroff?

Ralph Droms (droms@bucknell.edu) has a style file and a C program that provide the LATEX equivalent of nroff. Although it doesn't do a good job with tables and math, it's the best way to convert that I've seen. The software is available for anonymous ftp from sol.cs.bucknell.edu (134.82.1.8) in ./droms/txt-dist.tar.

Another possibility is to use screen.sty, available from all the major archives. However you need a program called crudetype to process the resulting dvi file. It is available from emx.utexas.edu (128.83.186.11) in ./pub/mnt/source/tex/tex-3.0/DVIware/lpr-viewers/crudetype and from rusinfo.rus.uni-stuttgart.de (129.69.1.12) in ./serv2/soft/dviware/screenview. Another possibility is to use the LATEX-to-ASCII conversion program, l2a, available from comp.sources.misc archives (one archive site is ftp.uu.net (192.48.96.9)), although this is really more of a de-TeXing program. Finally, if you are running under Unix and have C++ and perl, you might try Jonathan Monsarrat's LameTeX package (which actually does much more than this), available from wilma.cs.brown.edu (128.148.33.66) in ./pub/lametex.tar.Z.

30 How do I enlarge TEX? I keep getting 'memory capacity exceeded' errors.

Most of the time, a *memory capacity exceeded* error can be fixed without enlarging TEX. The most common causes are unmatched braces, extra-long lines, and poorly-written macros. Extra-long lines are often introduced when files are transferred incorrectly between operating systems. (The tell-tale sign of an extra-long line error is when the complaint is that the 'buf_size' has overflowed.)

If you really need to extend your TEX's capacity, the proper method varies depending on your installation. In the purest form, you change the parameters in module 11 (*The following parameters can be changed...*) In less pure forms, you might need to modify a change file, or perhaps change some environment variables. Consult the documentation that came with your particular implementation.

31 In LATEX, I used \pagestyleempty, but the first page is still numbered. What do I do?

If you see this problem, you are using the \maketitle command too. This is a bug in LATEX. The workaround is to put the command \thispagestyleempty immediately after the \title command, with no blank line between them.

32 Where do I find documentation about BibTeX?

BibTeX, a program originally designed to produce bibliographies in conjunction with LATEX, is explained in Section 4.3 and Appendix B of Leslie Lamport's LATEX manual. The *BibTeXing* document, contained in the file btxdoc.tex, gives a more complete description.

The *Designing BibTeX Styles* document, contained in the file btxhak.tex, explains the postfix stack-based language used to write BibTeX styles (.bst files). The file btxbst.doc is the template file for the four standard styles (plain, abbrv, alpha, unsrt). It also contains the documentation for them.

The current Unix-BibTeX man page, contained in the file bibtex.1, was updated in January 1992 and is about one page long. There's an old and obsolete version floating around, written in 1985 before *BibTeXing* and *Designing BibTeX Styles* appeared, that is several pages long. You should ignore it (or throw it away), since it describes BibTeX version 0.98, style files of which are incompatible with the current version, 0.99 (to be precise, 0.99c).

All files mentioned in this answer are available via anonymous ftp from labrea.stanford.edu (36.8.0.112) in the BIBTEX ftp area, tex/bibtex. All the non-Unix files should be available on any system that runs BIBTEX; if they're not on your system, please complain to your BIBTEX installer or to your distribution source.

33 How do I use BibTEX with plain TEX?

The file btxmac.tex contains TEX macros and documentation for using BIBTEX with plain TEX, either directly or with Karl Berry's Eplain package. It is available via anonymous ftp from labrea.stanford.edu (36.8.0.112) in tex/bibtex (see question 32 for more information about BIBTEX).

34 How do I draw Feynman diagrams in LATEX?

Michael Levine's macro package for drawing Feynman diagrams in LATEX is available via mail-server from physics.utoronto.ca. Send a message containing the line *send INDEX* to mail-server@physics.utoronto.ca for information on how to retrieve it.

35 What is the New Font Selection Scheme (NFSS)?

NFSS is an extension to LATEX written by Frank Mittelbach and Rainer Schöpf. It is described in TUGboat, volume 10 (1989), No. 2. In traditional typesetting, fonts are described by four parameters: the family (e.g., computer modern), the series (i.e., the weight and width of the font, like light or bold), the shape (e.g., italic), and the size. NFSS is a mechanism allowing the user to change any of these independently. NFSS makes it relatively easy to use nonstandard fonts such as the PostScript ones with LATEX, and easy to change math fonts. It also allows dynamic loading of fonts at runtime (not when the format file is created).

NFSS will be part of version 3.0 of LATEX. Currently, you need to create a new format file to use it. It is available via anonymous ftp from all the major archives mentioned in question 22. Its home is on rusinfo.rus.uni-stuttgart.de (129.69.1.12) in ./soft/tex/macros/latex/distribs/nfss. NFSS can be used in plain TEX as well, through an interface written by Wayne Sullivan.

There is one caveat that applies to LATEX documents written for the OLD scheme: some of them use special styles for special fonts which will not work under the NFSS.

36 In LATEX, my cross-references floats (figures and tables) are incorrect. What's wrong?

The `label` command must come after the `caption` command, or be part of it. For example,

```
\begin{figure}
  \caption{A Figure}
 \label{fig}
\end{figure}
```

or

```
\begin{figure}
  \caption{A Figure\label{fig}}
\end{figure}
```

37 I want to change the margins in LATEX. What can I do?

This answer first helps you change the margins throughout a document, then tells you how to change the margins in a portion of the document.

Perhaps the easiest way to get more out of a page in LATEX is to get fullpage.sty, available from all the major archive servers mentioned in question 22. This sets the margins of the page identical to those of Plain TEX, i.e., 1-inch margins at all four sides of the paper. It also contains an adjustment for A4 paper.

Here is a brief explanation of what's going on with the page parameters in LATEX. They are explained in section C.4.2 of the LATEX manual (p. 163). The margin parameters represent measurements made to the DVI file. The origin in DVI coordinates is one inch from the top of the paper and one inch from the left side. This explains the *one inch less than* terminology used in the LATEX manual. In DVI coordinates, positive horizontal measurements extend right across the page, and positive vertical measurements extend down the page. Thus, for margins closer to the left and top edges of the page than 1 inch, the corresponding parameters, e.g., *endverbatimensidemargin,* *oddsidemargin,* *topmargin,* can be set to negative values.

Finally, to change the margins of a document within the document, modifying the parameters listed on page 163 will not work. They can only be changed in the preamble of the document, i.e, before the *begindocument* statement. To adjust the margins within a document we define an environment which does it:

```
\newenvironment{changemargin}[2]{%
  \begin{list}{}{
  \setlength{\topsep}{0pt}
  \setlength{\leftmargin}{0pt}
  \setlength{\rightmargin}{0pt}
  \setlength{\listparindent}{\parindent}
  \setlength{\itemindent}{\parindent}
  \setlength{\parsep}{0pt plus 1pt}
  \addtolength{\leftmargin}{#1}
   \addtolength{\rightmargin}{#2}
}\item }{\end{list}}
```

This environment takes two arguments, and will indent the left and right margins by their values, respectively. Negative values will cause the margins to be widened, so `\begin{changemargin}{-1cm}{-1cm}` widens the left and right margins by 1cm.

38 How do I find the width of a letter, word, or phrase in TEX?

Put the word in a box, and measure the width of the box. For example,

```
\setbox0=\hbox{hi}
width=\wd0
```

Note that if the quantity in the hbox is a phrase, the actual measurement only approximates this width, since the interword glue can be adjusted in paragraph mode.