A LaTeX survival guide for Unix systems

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Contents

1 Introduction **1**

2 Getting Started **2**
2.1 Running a Sample File 2
2.2 Preparing and Running LaTeX on Your Own Files 2

3 Carrying On **4**
3.1 Operating system issues 4
3.2 How to use the `dvips` command 5
3.2.1 Using the ‘epsfig’ package 6

4 Document classes **6**
4.1 ‘Mainz’ packages 6
4.2 Other packages 8
4.3 Local macros and environments 9

5 Additional BibTeX style files **9**

6 Fonts **11**
6.1 Using PostScript fonts 11

7 Previewers **13**

8 Related software **15**

A Joining the TeX and LaTeX Community **15**
A.1 UK TeX users 16

1 Introduction

This document is designed to provide new users of LaTeX with a reference for the local features not documented in the manual (*The LaTeX Book*, Lesley Lamport, Addison Wesley 1987); it takes the place of the *Local Guide* referred to in the book. For a general introduction to LaTeX, you are referred to the companion manual *Essential LaTeX* ++, mostly by Jon Warbrick. For a general introduction to the concepts of the TeX software distribution, see Joachim Schröd’s *Components of TeX*.

Readers of this document will normally be staff or students who have either taught themselves LaTeX, or are being taught it as part of a course. Completely new users should read *Essential LaTeX*

++ first, to familiarize themselves with basic concepts. Most of this manual is for reference purposes, so do not read it as a tutorial text!

LaTeX runs on a variety of computers at many different sites. This document tells you how to use LaTeX on Unix computers.[1] It is not about LaTeX itself, which is described by the manual—*LaTeX: A Document Preparation System*, published by Addison-Wesley, available at the book shop.

If you have a question that you can't answer by reading the manual and this document, ask the local support team.

2 Getting Started

2.1 Running a Sample File

Before preparing your own documents, you may want to get acquainted with LaTeX by running it on a sample input file. First make your own copy of the file `sample.tex` by typing the following command:

```
cp /usr/local/tex/texmf/tex/latex/base/sample2e.tex .
```

(You must type the space followed by the period at the end. This and all other commands are ended by typing *return*.) A copy of the file `sample.tex` is now in your current directory; you can edit it just like any other file. If you destroy or mess up your copy, typing the above command again gets you a fresh one. Study this file as an example of a complete LaTeX document, which uses many of the common features.

Next, run LaTeX on the file `sample.tex` by typing:

```
latex sample
```

When LaTeX has finished, it will have produced the file `sample.dvi` in your directory. You can print this file by typing the command

```
dvips sample
```

After it has been printed, you can delete `sample.dvi`. You'll also see a file called `sample.log` which contains a copy of all the messages that came on the screen (with, sometimes, more detail). You can safely delete this after your run.

2.2 Preparing and Running LaTeX on Your Own Files

You can use any text editor which produces plain ASCII text files to prepare input for LaTeX. The easiest way to start learning about LaTeX is by examining the file `small2e.tex` with your text editor. You can obtain your own copy of this file, in your directory, by typing the command

```
cp /usr/local/tex/texmf/tex/latex/base/small2e.tex .
```

After you have prepared your file, whose name should have the extension `tex`, you must run it through LaTeX and print the output. Follow the instructions in Section 2.1, except substitute the first name of your file for `sample`. Remember to save disk space by deleting the `dvi` files after printing the output.

If you are used to using an Emacs-type editor, you may wish to utilise the facilities provided by GnuEmacs. These can be used on ordinary terminals, but if used on a workstation console, can use the mouse and function keys. Look out for the AUC-TeX package which provides a comprehensive set of facilities for editing LaTeX code.

[1] Excellent public domain implementations of TeX for MSDOS, OS/2 and Macintosh computers are available from the UK TeX Archive; see A.1 below.

Question	*Answer*
How do I run LaTeX	Use the 'latex' command…
How do I print a file?	Use the `dvips` command…
Can I have bibliographies done for me?	Use BibTeX (it's documented in the LaTeX book Appendix B!)—see section 5 below.
How do I recover from errors?	TeX is notorious for giving you apparently meaningless error messages! If you type 'e' when you get a TeX '?' prompt, you will be put into the editor (by default, 'vi'—set the environment variable `TEXEDITOR` to use a different one) at the error-producing line.
What if I run out of TeX memory?	This is a very big TeX already that you are running. If you run out of memory, its probably your fault.
Is it possible to draw pictures?	LaTeX itself has a 'picture' environment, described in the manual, but the simplest way is to include a PostScript figure created with any good drawing tool (see section 3.2.1 below for how to include PostScript in LaTeX).
How do I preview files before I print them?	Use one of two previewers, `dvipage` and `xdvi`, depending on whether your windowing system is Sunview or X Windows.
Are there other packages for LaTeX?	Lots. We have tried to collect useful-looking things. Some of these are documented below.
Are we in contact with the rest of the LaTeX community?	Yes. There is a world-wide TeX-hackers mailing list, and a UK list. These are the next line of defense after your local gurus; the UK bulletin is posted on Usenet news.
Are there other macro packages than LaTeX?	Yes, certainly, but do not expect as much documentation and examples. AMS-TeX (from the American Mathematical Society) is widely used. Such formats are not available by default—talk to technical support if you want to use them.
Can I use Metafont to create my own fonts?	Yes, it is installed. But don't expect much help about design!
Can I join a TeX User Group?	Yes, contact the TeX Users Group, P. O. Box 869, Santa Barbara, CA 93102, USA. telephone 805-899-4673; email `Internet: tug@tug.org`

Table 1: Common questions, with answers

If you want to stop LaTeX in the middle of its execution, perhaps because it is printing a seemingly unending string of uninformative error messages, press *Ctrl-C*, and respond to the prompt with 'X'

3 Carrying On

3.1 Operating system issues

The only special problems in using LaTeX under this operating system involve the way files are handled. The first problem arises because, when a program starts to write a file, the previous version of that file is destroyed. Thus, if an error forces you to stop LaTeX prematurely (by typing *Ctrl-C*), then the files that LaTeX was writing are incomplete, and the previous complete versions have been destroyed. You probably don't care about the output on the `dvi` file, but, if you are making a table of contents or using cross-referencing commands, then LaTeX also writes one or more *auxiliary files* that it reads the next time it processes the same input file. If the auxiliary files are incomplete because LaTeX was stopped before reaching the end of its input file, then the table of contents and cross-references will be incorporated the next time LaTeX is run on the same input file. You will have to run LaTeX a second time to get them right. If you want to avoid having to run LaTeX twice after making an error—for example, if your input is very long—then you should save copies of these auxiliary files before running LaTeX. An input file named `myfile.tex` and all the auxiliary files produced by LaTeX from it are included in the file specifier `myfile.*`. Use the `cp` command to save copies of these files.

The second problem in using LaTeX involves the files that LaTeX reads. The file whose name you type with the `latex` command is called the *root file*. In addition to reading the root file, LaTeX also reads the files specified by `\input` and `\include` commands. With our directory system, LaTeX must know not only the names of these file but also on what directories they are. It will have no problem finding the correct files if you follow two simple rules:

1. Run LaTeX from the directory containing the root file.
2. Keep all files specified by `\input` and `\include` commands in the same directory as the root file.

If you follow these rules, you never have to type a path specifier when using LaTeX.

You should never break the first rule, otherwise LaTeX will have trouble finding auxiliary files. (To run LaTeX on someone else's file, copy the file to your directory.) If you break the second rule, specifying a file from another directory in an `\input` or `\include` command, you must use a complete path name. For example, to include the file `hisfile.tex` from `kk`'s directory `foo/bar`, you can type

```
\include{/home/kk/foo/bar/hisfile}
```

For people who don't like to obey rules, here is exactly how LaTeX finds its files. The root file is found by the operating system according to its usual rules. LaTeX's auxiliary files are read and written in the directory from which it is run. All file names specified in the LaTeX input, including the names of document class files specified by the `\documentclass` command, are interpreted relative to the directory from which LaTeX is run. If LaTeX does not find a file starting in this directory, it looks in the system directory `/usr/local/tex/texmf/tex/latex`. You can change the directories in which LaTeX looks for its input files by setting the environment variable `TEXINPUTS`. You need to type a shell command:

Shell	command to type
rc	`TEXINPUTS=(.  /home/dracula/texdocs)`
sh	`TEXINPUTS=.:/home/dracula/texdocs:; export TEXINPUTS`
csh	`setenv TEXINPUTS .:/home/dracula/texdocs:`

This causes LaTeX to look for files first in the current directory (do not neglect to specify a . for the current directory as the first place in the list), then in dracula's `texdocs` directory, and then in the system directory (the trailing : implies this). You might want to do this if your name is Dracula and you have your own personal package files in your `texdocs` directory.

3.2 How to use the `dvips` command

The `dvips` command is used to convert the TeX output file into POSTSCRIPT, and spool it to a LaserWriter or other POSTSCRIPT printer (including screen-based POSTSCRIPT interpreters like GhostScriptor OpenWindows). It includes the facility to incorporate raw POSTSCRIPT files into LaTeX, using a `\special` command (see below, section 3.2.1). It is normally configured to invoke `lpr` directly.

The `dvips` driver has a plethora of command line options. Reading through this section will give a good idea of the capabilities of the driver.

Many of the parameterless options can be turned off by immediately suffixing the option with a zero (0); for instance, to turn off page reversal if it is turned on by default, use `-r0`. The options that can be turned off in this way are −a, −f, −k, −i, −m, −q, −r, −s, −E, −F, −K, −M, −N, −U, and −Z.

This is a handy summary of the options; it is printed out when you run `dvips` with no arguments.

```
This is dvipsk 5.58a Copyright 1986, 1994 Radical Eye Software
     Usage: dvips [options] filename[.dvi]
 a*  Conserve memory, not time      y # Multiply by dvi magnification
 b # Page copies, for posters e.g.  A   Print only odd (TeX) pages
 c # Uncollated copies              B   Print only even (TeX) pages
 d # Debugging                      C # Collated copies
 e # Maxdrift value                 D # Resolution
 f*  Run as filter                  E*  Try to create EPSF
 h f Add header file                F*  Send control-D at end
 i*  Separate file per section      K*  Pull comments from inclusions
 k*  Print crop marks               M*  Don't make fonts
 l # Last page                      N*  No structured comments
 m*  Manual feed                    O c Set/change paper offset
 n # Maximum number of pages        P s Load config.$s
 o f Output file                    R   Run securely
 p # First page                     S # Max section size in pages
 q*  Run quietly                    T c Specify desired page size
 r*  Reverse order of pages         U*  Disable string param trick
 s*  Enclose output in save/restore V*  Send downloadable PS fonts as PK
 t s Paper format                   X # Horizontal resolution
 x # Override dvi magnification     Y # Vertical resolution
                                    Z*  Compress bitmap fonts
 pp #-# First-last page
     # = number   f = file   s = string  * = suffix, `0' to turn off
     c = comma-separated dimension pair (e.g., 3.2in,-32.1cm)
```

The `-E` option makes `dvips` attempt to generate an EPSF file with a tight bounding box. This only works on one-page files, and it only looks at marks made by characters and rules, not by any included graphics. In addition, it gets the glyph metrics from the `tfm` file, so characters that lie outside their enclosing `tfm` box may confuse it. In addition, the bounding box might be a bit too loose if the character glyph has significant left or right side bearings. Nonetheless, this option works well for creating small EPSF files for equations or tables or the like.

3.2.1 Using the 'epsfig' package

If you want to include a POSTSCRIPT graphic into a LaTeX file, use the `\epsfig` package with, e.g.:

```
\documentclass{article}
\usepackage{epsfig}
```

Now, at the point you want to include the file, enter a line such as `\epsfig{figure=foo.ps}`. If your file did not (or does not currently) have a bounding box comment, you should supply it as in the following example:

```
\epsfig{bbllx=100,bblly=100,bburx=500,bbury=500,file=foo.ps}
```

(in the same order they would have been in a normal bounding box comment). Note that all information for `\epsfig` is included in a single parameter, separated by commas. Now, save your changes and run TeX and `\dvips`; the output should have your graphic positioned at precisely the point you indicated, with the proper amount of space reserved.

The effect of the `\epsffile` macro is to typeset the figure as a TeX `\vbox` at the point of the page that the command is executed. By default, the graphic will have its 'natural' width (namely, the width of its bounding box). The TeX box will have depth zero and a 'natural' height. For graphics included with `\epsfig` where the size is given in TeX dimensions, this scaling will produce the correct, or expected, results.

You can enlarge or reduce the figure by putting `width=<dimen>` in the parameter of `\epsfig`. Then the width of the TeX box will be `\<dimen>` and its height will be scaled proportionately. Alternatively you can force the vertical size to a particular size with `height=<dimen>` in which case the height will be set and the width will be scaled proportionally. If you set both, the aspect ratio of the included graphic will be distorted but both size specifications will be honored.

By default, clipping is disabled for included EPSF images. This is because clipping to the bounding box dimensions often cuts off a small portion of the figure, due to slightly inaccurate bounding box arguments. The problem might be subtle; lines around the boundary of the image might be half their intended width, or the tops or bottoms of some text annotations might be sliced off. If you want to turn clipping on, just use the parameter `clip=` to `\epsfig`.

4 Document classes

The normal `article, book` and `report` classes described in the manual are available. There are three groups of *package* files available: a) those supplied with LaTeX, and endorsed by the maintainers; b) those initially developed by Frank Mittelbach and Rainer Schöpf (sometimes known as the 'Mainz' packages), and other members of the LaTeX team, which will definitely work; those written and distributed by other LaTeX users which have come into common use, but which are not so carefully tested. These packages may affect the main layout and style (eg 'times', 'multicol') or add new facilities (eg 'longtable').

4.1 'Mainz' packages

The recent, widely-used, packages from Mittelbach and Schöpf have their own documentation, stored with the source of the packages in directories of the relevant name in `/usr/local/tex/texmf/tex/latex/tools`.

If you want to read the full documentation, copy the files from the relevant directory, and look at the *readme* file for how to get a printout. The packages are:

array An extensive revision of the LaTeX tabular and array modes by Frank Mittelbach; the chief differences are new options in the preamble, listed in Table 2, quoted from the documentation.

`m{width}`	Definines a column of width `width`. Every entry will be centered in proportion to the rest of the line. It is somewhat like `\parbox{width}`.
`p{width}`	Equivalent to `\parbox[t]{width}`.
`b{width}`	Coincides with `\parbox[b]{width}`.
`>{decl.}`	Can be used before an `l`, `r`, `c`, `p`, `m` or a `b` option. It inserts `decl.` directly in front of the entry of the column.
`<{decl.}`	Can be used after an `l`, `r`, `c`, `p{..}`, `t{..}` or a `b{..}` option. It inserts `decl.` right after the entry of the column.
|	Inserts a vertical line. The distance between two columns will be enlarged by the width of the line in contrast to the original definition of LaTeX.
`!{decl.}`	Can be used anywhere and corresponds with the | option. The difference is that `decl.` is inserted instead of a vertical line, so this option doesn't suppress the normally inserted space between columns in contrast to `@{...}`.

Table 2: The new preamble options for 'array'

Additionally there is a new parameter called `\extrarowheight`. If it takes a positive length, the value of the parameter is added to the normal height of every row of the table, while the depth will remain the same. This is important for tables with horizontal lines because those lines normally touch the capital letters.

Facilities are available for defining new column specifiers, and for columns which line up on a decimal point.

This package also provides a 'longtable' package which implements arbitrarily-long multi-page tables. For simple multi-page tables, the *supertab* package described below in section 4.2 will probably suffice.

ftnright a package which sets footnotes in the right-hand column of a two column style.

multicol Provides a flexible mechanism for multiple columns on a page. An ennvironment `multicols` is provided, with a parameter of the number of columns desired. The number of columns (up to 10) can be changed in the middle of a page.

This is set in four columns across the page, and 'multicols' is going to take care of the column breaks and making the columns the same height. You can see that the normal justification of TeX is finding this hard work.

What is that sound high in the air
Murmur of maternal lamentation
Who are those hooded hordes swarming
Over endless plains, stumbling in cracked earth
Ringed by the flat horizon only
What is the city over the mountains
Cracks and reforms and bursts in the violet air
Falling towers

theorem new implementations of theorem environments.

verbatim new, more robust, implementations of verbatim environments, including facilities for verbatim input of a text file.

Some of these documents are rather technical. Ask for advice if you do not understand them.

4.2 Other packages

Some commonly-used, or interesting, packages which change the normal layout or style, or add new facilities, are

pifont Gives you access to Zapf Dingbats, *if you have a PostScript printer and use dvips*.

- ❋ `\ding` generates a Zapf Dingbat character; it has a parameter of the Dingbat number (see chart p. 14 below). Thus `\ding{166}` generates ❦.
- ❋ `\dingfill` (with the usual numeric parameter) acts like other filling commands, but fills the space with a chosen Dingbat ❧ ❧ ❧ ❧ ❧ ❧ ❧ ❧ like that.
- ❋ `\dingline` generates a freestanding line of the little chaps:

  ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌ ✌
- ❋ Inevitably, the 'dinglist' environment sets up an itemized list, but has a Dingbat instead of a bullet (you are reading a `dinglist` at the moment).

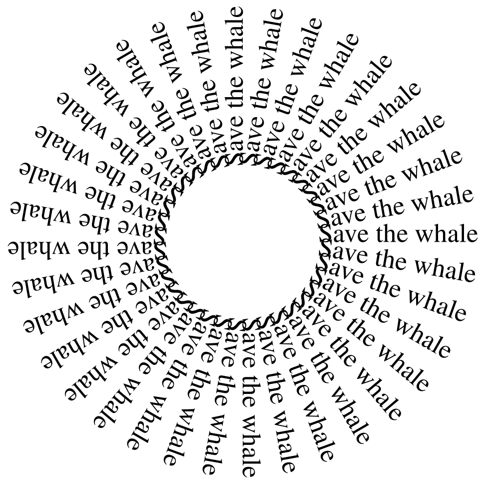
rotating This package provides three new environments.

'Rotate' provides a generalised rotation environment, where the text will be rotated (clockwise, as is normal in POSTSCRIPT) by the number of degrees specified as a parameter to the environment, but no special arrangement is made to find space for the result. Note the % at the end of `\begin{rotate}{56}` — this is vital to prevent a space getting into the rotated text.

Start here Save whales End here

```
Start here
  \begin{rotate}{56}%
   Save whales
  \end{rotate}
End here
```

A complete example of rotating text without leaving space would the 'Save the whale' text written at 10 degree intervals round the compass. We use 'rlap' to ensure that all the texts are printed at the same point. Just to show that TEX can handle POSTSCRIPT muckings-about properly. . .



```
\newcount\wang
\newsavebox{\wangtext}
\newdimen\wangspace
\def\wheel#1{\savebox{\wangtext}{#1}%
\wangspace\wd\wangtext
\advance\wangspace by 1cm%
\centerline{%
\rule{0pt}{\wangspace}%
\rule[-\wangspace]{0pt}{\wangspace}%
\wang=-180\loop\ifnum\wang<180
\rlap{\begin{rotate}{\the\wang}%
\rule{1cm}{0pt}#1\end{rotate}}%
\advance\wang by 10\repeat}}
\wheel{Save the whale}
```

The following list is like `description`, but the labels are set in a wider box:

cats and bears
are jolly good creatures to make money from, if you draw greetings cards

vultures
seldom appear on any cards

fleas, ticks, mites and cockroaches
have no credibility at all, though they do appear occasionally in literature, most famously in the case of 'archie and mehitabel'

Figure 1: Demonstration of `catalogue` environment

If the user desires LaTeX to leave space for the rotated box, then 'turn' is used:

Start here Save the whale end here

```
Start here \begin{turn}{-56}%
  Save the whale
 \end{turn} end here
```

The environment 'Sideways' is a special case, setting the rotation to -90, and leaving the correct space for the rotated box.

Start here Save the whale End here

```
Start here
\begin{sideways}%
Save the whale
\end{sideways}
End here
```

4.3 Local macros and environments

A number of useful macros and environments are provided in a single file `local.sty`, which is read in by the 'localart.sty' style. It defines (at least) the following commands:

- `catalogue` is a new environment for lists, demonstrated in Fig. 1.
- `widedesc` is a new environment for lists, demonstrated in Fig. 2.
- `screen` is a new environment for quoting code, demonstrated in Fig. 3. The text is set in a verbatim frame to make it stand out.
- Leslie Lamport's `alltt` environment is provided, which is like `verbatim` except that the \, { and } characters remain active, permitting you to change font etc

  In addition, all the names of TeX-related products are provided as macros, listed in Table 3.

5 Additional BibTeX style files

In addition to the 'plain' and 'alpha' style files for BibTeX described in the LaTeX book, a number of other style files are available:

acm generates the style suitable for submission to the ACM

The following list is like `description`, but the labels are set in a wider box:

cats and bears are jolly good creatures to make money from, if you draw greetings cards

vultures seldom appear on any cards

fleas, ticks, mites and cockroaches have no credibility at all, though they do appear occasionally in literature, most famously in the case of 'archie and mehitabel'

Figure 2: Demonstration of `widedesc` environment

```
psfig: including cstr3.ps
psfig: searching article1.ps \ ps@stream for bounding box
psfig: including article1.ps
psfig: searching article2.ps \ ps@stream for bounding box
psfig: including article2.ps
psfig: searching article3.ps \ ps@stream for bounding box
psfig: including article3.ps
No file csstyles.ind.
[29] [30] [31] [32] [33] [34] [35] (csstyles.aux)
LaTeX Warning: Label(s) may have changed. Rerun to get cross-references right.
(see the transcript file for additional information)
```

Figure 3: Demonstration of `screen` environment

\SLiTeX	SLiTeX
\SliTeX	SLiTeX
\slitex	SLiTeX
\PiCTeX	PiCTeX
\pictex	PiCTeX
\AmSTeX	AMS-TeX
\AMSTeX	AMS-TeX
\AMSTEX	AMS-TeX
\amstex	AMS-TeX
\BIBTeX	BibTeX
\BibTeX	BibTeX
\bibtex	BibTeX
\METAFONT	METAFONT
\Metafont	METAFONT
\metafont	METAFONT
\MF	METAFONT
\latex	LaTeX
\TeXsis	TeXsis
\Unix	UNIX
\unix	UNIX
\PS	POSTSCRIPT

Table 3: Macros to print various TeX names

Magstep	*GF/PK*	*PXL*	*point*
.9	270	1350	9
1	300	1500	10
1.095	329	1643	11
1.2	360	1800	12
1.440	432	2160	14
1.728	518	2592	17
2.073	622	3110	20
2.488	746	3732	24

Table 4: Relationship between fontsize conventions

ieeetr generates style for IEEETR

apalike is a generic 'natural science' style that is essentially Harvard. You must use package `apalike` if you intend to use this bibliography style.

6 Fonts

A very large number of fonts are available to you, both ones generated by METAFONT, which should be available anywhere, and the POSTSCRIPT ones if you have a POSTSCRIPT printer (see 6.1 below). In case you are curious about the relationship between magnification, point size, file name etc, Table 4 may help.

6.1 Using POSTSCRIPT fonts

A number of special packages are available if you know that output is going to a POSTSCRIPT printer: for instance, using package `palatino` will make LaTeX use Palatino for Roman, Avant Garde for Sans Serif, Courier for Typewriter. Similar packages are available for Times (`times` package), New Century Schoolbook (`newcen`). In general POSTSCRIPT fonts are to be preferred, since the Computer Modern Roman fonts do not reproduce well on a 300 dpi LaserWriter. You should *not* use the DVI output files on other systems or send them to other sites; the original LaTeX source is, however, totally standard, and can be happily distributed to other TeX users (who will simply get the CMR fonts when they print by removing the package). **BEWARE** that you may get problems if you use a lot of mathematics: the maths fonts were designed to go with Knuth's Computer Modern Roman, and may not look good with Palatino or Times. You are recommended to consider using pure Computer Modern Roman if you are a heavy maths user, or purchase the Lucida Bright and Lucida New Math, or MathTime, fonts.

Examples of common POSTSCRIPT typefaces are:

- Family pag (AvantGarde)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains
  Cracks and reforms and bursts in the violet air
  Falling towers

- Family pbk (Bookman)

  ptmWhat is that sound high in the air

Murmur of maternal lamentation
Who are those hooded hordes swarming
Over endless plains, stumbling in cracked earth
Ringed by the flat horizon only
What is the city over the mountains
Cracks and reforms and bursts in the violet air
Falling towers

- Family phv (Helvetica)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains
  Cracks and reforms and bursts in the violet air
  Falling towers

- Family pnc (New Century Schoolbook)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains
  Cracks and reforms and bursts in the violet air
  Falling towers

- Family ppl (Palatino)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains
  Cracks and reforms and bursts in the violet air
  Falling towers

- Family ptm (Times)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains
  Cracks and reforms and bursts in the violet air
  Falling towers

- Family pcr (Courier)

  ptmWhat is that sound high in the air
  Murmur of maternal lamentation
  Who are those hooded hordes swarming
  Over endless plains, stumbling in cracked earth
  Ringed by the flat horizon only
  What is the city over the mountains

TEX font name	LaserWriter font name	TEX font name	LaserWriter font name
pagd	AvantGarde-Demi	pagdo	AvantGarde-DemiOblique
pagk	AvantGarde-Book	pagko	AvantGarde-BookOblique
pbkd	Bookman-Demi	pbkdi	Bookman-DemiItalic
pbkl	Bookman-Light	pbkli	Bookman-LightItalic
pcrb	Courier-Bold	pcrbo	Courier-BoldOblique
pcrr	Courier	pcrro	Courier-Oblique
phvb	Helvetica-Bold	phvbo	Helvetica-BoldOblique
phvr	Helvetica	phvro	Helvetica-Oblique
pnbb	NewBaskerville-Bold	pnbbi	NewBaskerville-BoldItalic
pnbr	NewBaskerville-Roman	pnbri	NewBaskerville-Italic
pncb	NewCenturySchlbk-Bold	pncbi	NewCenturySchlbk-BoldItalic
pncr	NewCenturySchlbk-Roman	pncri	NewCenturySchlbk-Italic
pplb	Palatino-Bold	pplbi	Palatino-BoldItalic
pplr	Palatino-Roman	pplri	Palatino-Italic
psyr	Symbol	ptmb	Times-Bold
ptmbi	Times-BoldItalic	ptmr	Times-Roman
ptmri	Times-Italic	pzcmi	ZapfChancery-MediumItalic
pzdr	ZapfDingbats		

Table 5: Names for common POSTSCRIPT fonts in TEX

Cracks and reforms and bursts in the violet air
Falling towers

One particular font is more difficult to use, the collection of symbols called Zapf Dingbats. A chart of Dingbats is given in table 6. See p. 8 for details of a package which lets you easily access this font.

If you buy other POSTSCRIPT fonts, you will find that you are supplied with the font itself and a font metric file. The latter can be converted to a TEX font metric file, and the font either downloaded permanently to a printer, or sent with every job. The details of this of beyond the scope of this guide, and you are advised to consult the support team.

7 Previewers

Previewing your output before printing can save lots of paper. There are two possibilities:

1. Use a `dvi` previewer. The recommended ones are *dvipage* for those using Sunview, and *xdvi* for those using X Windows. The former is fast, and has an excellent interface, but it does not support some of the more modern features of dvi drivers, and may not reproduce your output accurately (not at all if you use POSTSCRIPT fonts). The latter is rather more cumbersome, but has more features. In particular, it can access a set of bitmap versions of the common POSTSCRIPT fonts, which allows users of packages like ‘times’ to see exactly what they are getting. The manual pages for the two commands should be consulted for usage.
2. Neither of the previewers lets you see embedded POSTSCRIPT graphics, or effects like text rotation or gray shades. It is therefore often desirable to run the output through *dvips* (using the `-o` option to save the output) and use a POSTSCRIPT previewer. If you use Sun’s OpenWindows, this includes the *pageview* command to show any POSTSCRIPT file. The public domain Ghostscript (*gs*) is rather faster and more reliable, but has a poor interface. It is enhanced by the GhostView (*ghostview*) command which offers a good interface and calls on *ghostscript* to do the work.

32		80	✰	160		208	➐
33	✁	81	✱	161	❡	209	➑
34	✂	82	✲	162	❢	210	➒
35	✃	83	✳	163	❣	211	➓
36	✄	84	✴	164	❤	212	➔
37	☎	85	✵	165	❥	213	→
38	✆	86	✶	166	❦	214	↔
39	✇	87	✷	167	❧	215	↕
40	✈	88	✸	168	♣	216	➘
41	✉	89	✹	169	♦	217	➙
42	☛	90	✺	170	♥	218	➚
43	☞	91	✻	171	♠	219	➛
44	✌	92	✼	172	①	220	➜
45	✍	93	✽	173	②	221	➝
46	✎	94	✾	174	③	222	➞
47	✏	95	✿	175	④	223	➟
48	✐	96	❀	176	⑤	224	➠
49	✑	97	❁	177	⑥	225	➡
50	✒	98	❂	178	⑦	226	➢
51	✓	99	❃	179	⑧	227	➣
52	✔	100	❄	180	⑨	228	➤
53	✕	101	❅	181	⑩	229	➥
54	✖	102	❆	182	❶	230	➦
55	✗	103	❇	183	❷	231	➧
56	✘	104	❈	184	❸	232	➨
57	✙	105	❉	185	❹	233	➩
58	✚	106	❊	186	❺	234	➪
59	✛	107	❋	187	❻	235	➫
60	✜	108	●	188	❼	236	➬
61	✝	109	❍	189	❽	237	➭
62	✞	110	■	190	❾	238	➮
63	✟	111	❏	191	❿	239	➯
64	✠	112	❐	192	➀	240	
65	✡	113	❑	193	➁	241	➱
66	✢	114	❒	194	➂	242	➲
67	✣	115	▲	195	➃	243	➳
68	✤	116	▼	196	➄	244	➴
69	✥	117	◆	197	➅	245	➵
70	✦	118	❖	198	➆	246	➶
71	✧	119	◗	199	➇	247	➷
72	★	120	❘	200	➈	248	➸
73	✩	121	❙	201	➉	249	➹
74	✪	122	❚	202	➊	250	➺
75	✫	123	❛	203	➋	251	➻
76	✬	124	❜	204	➌	252	➼
77	✭	125	❝	205	➍	253	➽
78	✮	126	❞	206	➎	254	➾
79	✯	127		207	➏	255	

Table 6: Dingbat Chart

8 Related software

There is a wide variety of supporting or related software available; a brief description is given below of commands which may be of interest. Unix manual pages are provided for all of these; note that you must add /usr/local/`man` to your *manpath* to access some of these:

tex Plain TeX.

The following commands are for serious TeXnicians only:

MakeTeXPK used by dvips and xdvi to create new .pk files from font sources on demand

afm2tfm create .tfm files from Adobe .afm files

dvicopy take a .dvi file and resolve all virtual font references, and write a new .dvi file with the result

dvitype list a .dvi file in human-readable form for debugging

gftodvi convert .gf font file to .dvi form for printing

gftopk convert .gf font file to .pk form

gftype list a .gf font file in human-readable form

initex a special version of TeX which can read hyphenation patterns and write format files

patgen generate a TeX hyphenation file from list of hyphenated words

pktogf convert .pk font file to .gf form

pktype list a .pk font file in human-readable form

pltotf convert a .pl (human readable) font metric file to .tfm

tangle convert .web files to compilable Pascal

tftopl convert a .tfm font metric file to .pl (human readable) form

vftovp convert .vf virtual font files to .vpl (human readable) form

vptovf convert .vpl (human readable) form virtual font files to .vf form

weave convert .web files to .tex files for printing

A Joining the TeX and LaTeX Community

Thanks to the generosity of Don Knuth and Leslie Lamport, and contributions from many individuals around the world, TeX, METAFONT and LaTeX are available, and in the public domain, on machines ranging from microcomputers like the IBM PC and the Apple Macintosh, to large mainframes. Actual implementations of these programs usually cost some money, but only because a certain expenditure of human effort is required to prepare a smoothly-functioning installation.

There is a large and active TeX Users Group, TUG, which meets every summer, and which publishes an excellent quarterly journal, TUGBOAT, which averages about 200 pages per year. Membership in TUG costs only about $50 a year, and order forms for membership, back issues, and other TeX publications are available from the TeX Users Group, P. O. Box 869, Santa Barbara, CA 93102, USA. Telephone 805-899-4673. Email (Internet) tug@tug.org

Immediately before and after the summer conference, there are workshops and tutorials for new, intermediate, and advanced users, and video tapes of several of them are available for rent or purchase through TUG. If sufficient local interest and support exists, TUG will also coordinate the holding of local on-site workshops to train people in the use of TeX and LaTeX.

A.1 UK TEX users

The UK TEX Users Group offers a joint membership with international TUG, publishes a newsletter, and has regular workshop meetings. Mail `p.abbott@aston.ac.uk` for details. It is also closely associated with the UK TEX Archive at Aston University. This is a huge collection of TEX-related material which may have what you want. You can access it using *ftp* to site ftp.tex.ac.uk (134.151.40.18).

Local TEX users with access to Usenet news and becoming addicted to TEX should also read *comp.text.tex*, but be warned that this is a high-volume news group and can get quite technical.

Index

ACM, 9
array.sty, 6
AvantGarde, 11

Bookman, 11

Courier, 12

font
    AvantGarde, 11
    Bookman, 11
    Courier, 12
    Helvetica, 12
    New Century Schoolbook, 12
    Palatino, 12
    Times, 12

Harvard bibliography style, 11
Helvetica, 12

IEEE, 11

multicol.sty, 7

New Century Schoolbook, 12

packages
    array, 6
    multicol, 7
    rotate, 8
Palatino, 12

rotating.sty, 8

Times, 12