

# Using L<sup>A</sup>T<sub>E</sub>X with e<sup>m</sup>T<sub>E</sub>X

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27 October 1988  
For L<sup>A</sup>T<sub>E</sub>X Version 2.09

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$\LaTeX$  runs on a variety of computers at many different sites. This document tells you how to use  $\LaTeX$  with  $\text{emTeX}$  on computers running OS/2, MS-DOS or PC-DOS. It is not about  $\LaTeX$  itself, which is described by the manual— $\LaTeX$ : *A Document Preparation System*, published by Addison-Wesley, available at fine book stores everywhere.

If you have a question about running  $\LaTeX$  that you can't answer by reading the manual and this document, ask Eberhard Mattes. He should also be informed of any possible  $\LaTeX$  bugs or undocumented anomalies.

## 1 Getting Started

### 1.1 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 OS/2 or DOS command:

```
copy c:\emtex\texinput\sample.tex
```

(You may have to use a different drive letter. 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.

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 a command like

```
prthplj sample
```

See the **dvidrv** manual for details.

After your output has been printed, you can delete `sample.dvi` by typing

```
del sample.dvi
```

### 1.2 Preparing and Running $\LaTeX$ on Your Own Files

You must use a text editor to prepare an input file for  $\LaTeX$ . The easiest way to start learning about  $\LaTeX$  is by examining the file `small.tex` with your text editor. You can obtain your own copy of this file, in your directory, by typing the command

```
copy c:\emtex\texinput\small.tex
```

After you have prepared your file, whose name should have the extension `tex`, you must run it through  $\text{\LaTeX}$  and print the output. Follow the instructions in Section 1.1, except substitute the first name of your file for “`sample`”. Remember to save disk space by deleting the `dvi` file after printing the output.

If you want to stop  $\text{\LaTeX}$  in the middle of its execution, perhaps because it is printing a seemingly unending string of uninformative error messages, type *Control-C* (press *C* while holding down the key labeled *CTRL*). This will make  $\text{\LaTeX}$  stop as if it had encountered an ordinary error, and you can return to OS/2 or DOS command level by typing *X*, as described in the manual.

## 2 Carrying On

### 2.1 $\text{\LaTeX}$ under OS/2 and DOS

The only special problems in using  $\text{\LaTeX}$  caused by OS/2 and DOS 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  $\text{\LaTeX}$  prematurely (by typing *Control-C*), then the files that  $\text{\LaTeX}$  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  $\text{\LaTeX}$  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  $\text{\LaTeX}$  was stopped before reaching the end of its input file, then the table of contents and cross-references will be incorrect the next time  $\text{\LaTeX}$  is run on the same input file. You will have to run  $\text{\LaTeX}$  a second time to get them right. If you want to avoid having to run  $\text{\LaTeX}$  twice after making an error—for example, if your input is very long—then you should save copies of these auxiliary files before running  $\text{\LaTeX}$ . An input file named `myfile.tex` and all the auxiliary files produced by  $\text{\LaTeX}$  from it are included in the file specification `myfile.*`. Use the `copy` command to save copies of these files.

The second problem in using  $\text{\LaTeX}$  on OS/2 and DOS involves the files that  $\text{\LaTeX}$  reads. The file whose name you type with the `latex` command is called the *root file*. In addition to reading the root file,  $\text{\LaTeX}$  also reads the files specified by `\input` and `\include` commands. With the OS/2 and DOS directory systems,  $\text{\LaTeX}$  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  $\text{\LaTeX}$  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 name when using  $\text{\LaTeX}$ .

You should never break the first rule, otherwise  $\text{\LaTeX}$  will have trouble finding auxiliary files. (To run  $\text{\LaTeX}$  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 the directory `\foo\bar` on drive D, you can type

```
\include{d:/foo/bar/hisfile}
```

The `\` character cannot be used, so you *must* use `/` instead.

For people who don't like to obey rules, here is exactly how  $\text{\LaTeX}$  finds its files. The root file and all files specified in the  $\text{\LaTeX}$  input, including document-style (`sty`) files specified by the `\documentstyle` command, are read from the current directory (or the specified drive/directory if the file specification includes a drive and/or a path).

$\text{\LaTeX}$ 's auxiliary files are read and written in the directory from which it is run (current directory). If  $\text{\LaTeX}$  does not find a file starting in this directory, it searches all directories listed in the `TEXINPUT` environment variable. As a last resort,  $\text{\LaTeX}$  tries to find the file in the `\emtex\texinput` directory of the current drive. You can change the directories in which  $\text{\LaTeX}$  looks for its input files by setting the environment variable `TEXINPUT`. Putting the command

```
set TEXINPUT=d:\mytex;d:\texinput
```

in your `autoexec.bat` or `config.sys` file causes  $\text{\LaTeX}$  to look for files first in the current directory, then in the `d:\mytex` directory, then in the `d:\texinput` directory and finally in the `\emtex\texinput` directory.

## 2.2 Document Styles

There are six document styles and style options available that are not described in the manual: the `proc` style option for making camera-ready copy for conference proceedings, the `bezier` option for drawing curves, the `ifthen` option for implementing **if-then-else** and **while-do** control structures, the `letter` style for making letters, the `showidx` option for printing index entries in the margin, and the `makeidx` option for use with the *MakeIndex* program. See Section 2.8 for further information on the *MakeIndex* program that uses the `makeidx` option.

### 2.2.1 The `proc` Style Option

The `proc` option is used with the `article` document style. It produces two-column output for ACM and IEEE conference proceedings. The command `\copyrightspace` makes the blank space at the bottom of the first column of the first page, where the proceedings editor will insert a copyright notice. This command works by producing a blank footnote, so it is placed in the text

of the first column. It must go after any `\footnote` command that generates a footnote in that column.

L<sup>A</sup>T<sub>E</sub>X automatically numbers the output pages. It's a good idea to identify the paper on each page of output. Placing the command

```
\markright{Jones---Foo}
```

in the preamble (before the `\begin{document}` command) prints “Jones—Foo” at the bottom of each page.

### 2.2.2 The `bezier` Style Option

This option defines a single command, `\bezier`, that draws a curved line in a `picture` environment. Let  $P_i$  be the point with coordinates  $(x_i, y_i)$ , for  $i = 1, 2$ , and  $3$ . The command

```
\bezier{n}(x_1,y_1)(x_2,y_2)(x_3,y_3)
```

draws  $n$  points on the quadratic Bezier spline determined by the three points  $P_1$ ,  $P_2$ , and  $P_3$ . The locus of points on this spline is a parabolic arc from  $P_1$  to  $P_3$  having the line  $P_1P_2$  tangent to it at  $P_1$  and the line  $P_2P_3$  tangent to it at  $P_3$ . Note that  $P_2$  is *not* on this arc unless  $P_1$ ,  $P_2$ , and  $P_3$  are colinear, in which case the arc is a straight line. Bezier splines are useful because it's easy to join two of them together smoothly by giving them the same tangent line where they meet.

It takes roughly 75 points per inch to form a solid line, depending upon the line thickness. See Section C.13.3 of the manual for commands to specify line thickness in a `picture` environment. This command is *very* slow, and T<sub>E</sub>X has enough memory to hold only about 1000 points plus a page of text. (Remember that T<sub>E</sub>X keeps the current page plus all as yet unprinted figures in memory.) So, the `bezier` command should be used for only a small number of small curves.

### 2.2.3 The `ifthen` Style Option

This option provides two programming language features that are useful only for people who already know how to program. It defines the two commands

```
\ifthenelse{test}{then clause}{else clause}
\whiledo{test}{do clause}
```

that implement the following two Pascal language structures

```
if test then then clause
    else else clause
while test do do clause
```

The *then*, *else*, and *do* clauses are ordinary L<sup>A</sup>T<sub>E</sub>X input; *test* is one of the following:

- A relation between two numbers formed with `<`, `>`, or `=`; for example, `\value{page}>3`.
- `\equal{string1}{string2}`, which evaluates to *true* if *string1* and *string2* are the same strings of characters after all commands have been replaced by their definitions. (Upper- and lowercase letters are unequal.)
- A logical combination of the above two kinds of tests using the operators `\or`, `\and`, and `\not` and the parentheses `\(` and `\)`—for example:

```
\not \( \value{section} = 1 \and \equal{Jones}{\myname} \)
```

The *test* argument is a violently moving argument, which means that not only fragile commands but even some commands that are not normally fragile will break, causing T<sub>E</sub>X to enter an infinite loop. The `\protect` command works in these situations.

These commands, together with `\renewcommand` and the commands of Section C.7.4 for manipulating counters, open up a whole new world of hacking.

#### 2.2.4 Letters

The `letter` document style, described in the manual, should be used for generating personal letters. Mailing labels are formatted in two columns of five 2" × 4-1/4" labels each, suitable for copying onto Avery brand, number 5352 address labels.

There are no features for making letters other than those described in the manual. However, suggestions will be accepted for such options as the ability to print ones net address as part of the letterhead.

#### 2.2.5 The `showidx` Style Option

This style option, for use with the `report` or `book` document styles, causes index entries to be printed in the outer margin. It does not change the effect of `\makeindex`, which controls whether or not an `.idx` file is written. No attempt is made to avoid overprinting marginal notes. This option issues a `\flushbottom` declaration.

### 2.3 Where the Files Are

All L<sup>A</sup>T<sub>E</sub>X files mentioned in the manual, including the `sty` and `doc` files, are in the directory `\emtex\texinput`. Fonts are stored in two directories: the `tfm` files used by T<sub>E</sub>X are in `\emtex\tfm`, and the pixel files used by the device drivers are usually in `\texfonts`.

## 2.4 Running `lablst.tex` and `idx.tex`

A list of labels and citations in an input file is printed by running  $\text{\LaTeX}$  on the input file `lablst.tex`, which is done by typing

```
latex lablst
```

$\text{\LaTeX}$  will then ask for the name of the input file, which should be typed without an extension, and for the name of the main document style (e.g., `article`), used by that file.

The index entries on an `idx` file are printed by running  $\text{\LaTeX}$  on the file `idx.tex`, which is done by typing

```
latex idx
```

$\text{\LaTeX}$  will ask for the name of the `idx` file, which is typed without an extension.

## 2.5 Differences from the Manual

All  $\text{\LaTeX}$  features described in the manual are provided by the the  $\text{emTeX}$  implementation.

## 2.6 Using $\text{BIBTeX}$

$\text{BIBTeX}$  is a program for compiling a reference list for a document from a bibliographic database. It is run by typing

```
bibtex myfile
```

where `myfile.tex` is the name of your  $\text{\LaTeX}$  input file. This reads the file `myfile.aux`, which was generated when you ran  $\text{\LaTeX}$  on `myfile.tex`, and produces the file `myfile.bbl`.  $\text{BIBTeX}$  should be run from the directory containing `myfile.tex` (which should be the same directory from which  $\text{\LaTeX}$  was run on that file).

If the `bib` file is not in the current directory or in a directory defined by the `BIBINPUT` environment variable or in the `\emtex\bibinput` directory then you must include a path as part of the file name specified by the `\bibliography` command. A `\` character cannot appear in the argument of a `\bibliography` command, so you should use `/` instead. For example, the  $\text{\LaTeX}$  command

```
\bibliography{/jones/bibfiles/gnus}
```

specifies the file `gnus.bib` kept in the `\jones\bibfiles` directory.

There is now no formal provision for sharing bibliographic database information, nor are there programs to assist in making your own `bib` files. Suggestions for forming one or more common `bib` files are welcome.

In addition to the bibliography styles described in the manual, there is a `ieeetr` style that formats entries in the style of the IEEE transactions.



In addition to the usual three-letter abbreviations for the months, the following abbreviations are defined by the bibliography styles:

acmcs *ACM Computing Surveys*  
acta *Acta Informatica*  
cacm *Communications of the ACM*  
ibmjrd *IBM Journal of Research and Development*  
ibmsj *IBM Systems Journal*  
ieeese *IEEE Transactions on Software Engineering*  
ieeetc *IEEE Transactions on Computers*  
ieeetcad *IEEE Transactions on Computer-Aided Design of Integrated Circuits*  
ipl *Information Processing Letters*  
jacm *Journal of the ACM*  
jcss *Journal of Computer and System Sciences*  
scp *Science of Computer Programming*  
sicomp *SIAM Journal on Computing*  
tocs *ACM Transactions on Computer Systems*  
todds *ACM Transactions on Database Systems*  
tog *ACM Transactions on Graphics*  
toms *ACM Transactions on Mathematical Software*  
toois *ACM Transactions on Office Information Systems*  
toplas *ACM Transactions on Programming Languages and Systems*  
tcs *Theoretical Computer Science*

## 2.7 Using SLI<sub>T</sub>E<sub>X</sub>

SLI<sub>T</sub>E<sub>X</sub> is a version of L<sub>A</sub>T<sub>E</sub>X for making slides. To run SLI<sub>T</sub>E<sub>X</sub> with a root file `myroot.tex`, you type

```
tex &splain myroot
```

(You should be connected to the directory containing `myroot.tex`.) Refer to Section 2.1 if you want slide files or `\input` files to be in a different directory from your root file.

size	default (10pt)	11pt option	12pt option
<code>\tiny</code>	5pt	6pt	6pt
<code>\scriptsize</code>	7pt	8pt	8pt
<code>\footnotesize</code>	8pt	9pt	10pt
<code>\small</code>	9pt	10pt	11pt
<code>\normalsize</code>	10pt	11pt	12pt
<code>\large</code>	12pt	12pt	14pt
<code>\Large</code>	14pt	14pt	17pt
<code>\LARGE</code>	17pt	17pt	20pt
<code>\huge</code>	20pt	20pt	25pt
<code>\Huge</code>	25pt	25pt	25pt

Table 1: Type sizes for L<sup>A</sup>T<sub>E</sub>X size-changing commands.

	<code>\it</code>	<code>\bf</code>	<code>\sl</code>	<code>\sf</code>	<code>\sc</code>	<code>\tt</code>
5pt	D	D	X	X	X	X
6pt	X	D	X	X	X	X
7pt	P	D	X	X	X	X
8pt	P	D	D	D	D	D
9pt	P	P	D	D	D	P
10pt	P	P	P	P	D	P
11pt	P	P	P	P	D	P
12pt	P	P	P	P	D	P
14pt	D	P	D	D	D	D
17pt	D	P	D	D	D	D
20pt	D	D	D	D	D	D
25pt	X	D	X	X	X	X

Table 2: Font classes: P = preloaded, D = loaded on demand, X = unavailable.

## 2.8 Using *MakeIndex*

The *MakeIndex* program helps in making an index. It is described in a separate document. The *MakeIndex* program is actually called `makeindx`.

## 2.9 Fonts

Almost all the symbols available on our fonts can be generated by ordinary L<sup>A</sup>T<sub>E</sub>X commands. However, there are type sizes not obtainable by L<sup>A</sup>T<sub>E</sub>X's size-changing commands with the ordinary document styles. Consult a local T<sub>E</sub>X expert to find the T<sub>E</sub>X name for such a font.

Tables 1 and 2 allow you to determine if the font for a type style at a particular size is preloaded, loaded on demand, or unavailable. Table 1 tells you what size of type is used for each L<sup>A</sup>T<sub>E</sub>X type-size command in the various document-

style options. For example, with the `12pt` option, the `\large` declaration causes  $\LaTeX$  to use 14pt type. Table 2 tells, for every type size, to which class of fonts each type style belongs. For example, in 14pt type, `\bf` uses a preloaded font and the other five type-style commands use load-on-demand fonts. Roman (`\rm`) and math italic (`\mit`) fonts are all preloaded; the `\em` declaration uses either italic (`\it`) or roman.

## 2.10 Special Versions

A version of  $\LaTeX$  which includes German hyphenation patterns and which maps accented letters to corresponding  $\LaTeX$  commands is available by typing `glatex` instead of `latex`. Accented letters do not work in the `tabbing` environment, use  $\LaTeX$  commands instead.

## 3 Bugs

There are a few known bugs in  $\LaTeX$  that occur very seldom and cause the user little trouble, but would be very difficult to fix. Moreover, given the nature of complex systems, it is not unlikely that the corrections would lead to even worse problems. Therefore, these bugs will probably not be fixed.

The bugs and ways to get around them are listed below. Do not worry about any of them until you are preparing the final draft, since changes to the text are very likely to cause the problem to disappear.

- In rare instances, a figure or table will be printed on the page preceding the text where the `figure` or `table` environment appears. This can be fixed by either moving the environment further towards the end of the document.
- A marginal note at the top of a page may appear in the wrong margin. This can be fixed by inserting a redundant `\pagebreak` command to force a page break exactly where  $\LaTeX$  started the new page anyway.
- A footnote can be broken across two pages when it should fit on a single page. This happens when there is one or more figures or tables on the page. The problem is corrected by moving, towards the end of the file, the last `figure` or `table` environment that produces a figure or table on the page where the footnote starts.

## 4 Errata and Additions to the Manual

These are all the errors and omissions to the manual,  *$\LaTeX$ : A Document Preparation System* reported by 31 October 1990.

## 4.1 First Four Printings

The following errors were corrected in the Fifth Printing. To see if your copy is one of the first four printings, turn to the copyright page—the one with the Library of Congress cataloging information, on the back of the title page. If the fifth line on that page begins “that, as of August 27, 1985”, then your copy is from the first four printings.

### page xiii

Add Mike Urban to the list of people thanked in the third paragraph.

### page 2

In the first paragraph of Section 1.1, replace the three instances of `sample.tex` by `small.tex`.

### page 15, line 18

Replace “thay” by “that”.

### page 24, line 13

Add a period to the end of the line.

### page 31, line 7

Delete one “will”.

### page 39, line 2

Change “six” to “five”.

### page 39, line 17

Remove the extra “it”.

### page 40, line –8

Change “five” to “six”.

### Section 3.3.5, page 49

The name of the environment is `eqnarray`. There are two instances on this page of the incorrect name “`eqnarry`” that should be changed.

**page 52, last line**

Replace “instead of  $\int \int y dx dy$ ” by “instead of  $\int \int z dx dy$ ”.

**pages 55–58, 124, and 173–174**

Commands that define or redefine a command or environment, such as the `\newcommand` and `\renewenvironment` commands, should not be nested within one another. Doing so may result in the following T<sub>E</sub>X error:

```
! Illegal parameter number in definition of ... .
```

**page 56, line –3**

Change “`\bf x`” to “`{x}`”.

**page 60, line –7**

Replace “one of these environments” by “a `figure` or `table` environment”.

**page 74, line 20**

Change `\begin{documentstyle}` to `\begin{document}`.

**page 75, line 15**

Change `\thebibliography` to `\bibliography`.

**page 79, line 16**

Change “diplaying” to “displaying”.

**page 88, line 27**

Change “entire the paragraph” to “the entire paragraph”.

**page 89, line 16**

Change “page-breaking” to “line-breaking”.

**page 95, line 5**

Replace “`{.01in}`” by “`{1.01in}`”.

**page 96**

In the penultimate paragraph of Section 5.4.2, replace

The `\vfill` command is an abbreviation for `\vspace{\fill}`.

with the following:

The `\vfill` command is equivalent to a blank line followed by `\vspace{\fill}`.

**page 98, line 6**

Remove an “i” from “directiion”.

**page 102**

In Figure 5.1, replace the two occurrences of “-1.8” by “−1.8”.

**page 104, line −3**

Correct the spelling of “positioning”.

**page 113**

Change the label on the arrow above Item 2 from `\itemsep` to `\itemsep + \parsep`.

**page 116, line 20**

Change “fourteen-point Plus Roman” to “twelve-point Plus Roman”.

**page 118, line −10**

Change this line to:

```
... (myfile.tex [1] [2] [3] (part1.tex [4] [5]) (part2.tex [6] [7]
```

**page 129**

The following  $\LaTeX$  warning messages should be listed:

No ... **typeface in this size, using ...**

A type style declaration specified a type style and size combination that is not available, so  $\LaTeX$  is substituting another one.

... **in math mode.**

The indicated command is not permitted in math mode but was used there. Remember that `\boldmath`, `\unboldmath`, and size-changing commands may not be used in math mode.

**pages 141–142**

Change “von Beethoven” to “van Beethoven”.

**page 142**

Add the following near the bottom of the page, just above the **Titles** heading.

If an `author` or `editor` field has more names than you want to type, just end the list of names with `and others`; the standard styles convert this to the conventional *et al.*

**page 147, line 6**

Change “Scribe-compatible” to “*Scribe*-compatible”.

**page 152, line –6**

Add `\newtheorem` and `\hyphenation` to the list of global declarations.

**page 157, line –10**

The first paragraph of Section C.3.1 should note that the `*`-form of a sectioning command does not affect the running head.

**page 158, line –12**

Change “chapters” to “appendix chapters”.

**page 160, top line**

Change “(Section 5.6)” to “(Section 5.3)”.

**page 160, line –9**

Change the description of the `openbib` style option to: “Causes the bibliography (Section 4.3) to be formatted in open style. (See van Leunen [7].)”

**page 163, line 19**

Change “Section 5.1.2” to “Section 5.1.1”.

**page 168, line –5**

Replace “printed as  $\sqcup$ ” by “printed as  $\sqcup$ ”.

**page 169, line -5**

Change “first and third rows” to “first and third columns”.

**page 169, line -3**

Add a period to the end of the sentence.

**page 170**

Add the following paragraph after line 5:

An overfull `\hbox` warning occurs if a formula extends beyond the prevailing margins. However, if the formula does lie within the margins, no warning is generated even if it extends far enough to overprint the equation number.

**page 174, line -1**

Add the following sentence: “It is a global declaration.”

**page 176**

Change the four lines immediately following the heading for Section C.8.1 to:

```
\begin{figure}[loc]   body   \end{figure}
\begin{figure*}[loc]  body   \end{figure*}
\begin{table}[loc]   body   \end{table}
\begin{table*}[loc]  body   \end{table*}
```

**page 185, line -5**

Replace “suppresses command” by “command suppresses”.

**page 187, lines 15–17**

The sentence “It also writes *bib\_files...*” is redundant and can be eliminated.

**page 188, lines 1, 2, 4, 8**

Change “*key\_lst*” to “*key\_list*”.

**page 191, line 13**

The word “paragraph” misspelled.



**page 191, line 14**

Remove the space between `\begin` and `{sloppypar}`. (This is for consistency only;  $\text{\LaTeX}$  ignores the space.)

**page 199**

Add the following sentence to the last paragraph on the page:

Words typeset in typewriter style or in two different styles are not hyphenated except where permitted by `\-` commands.

(This is a change to  $\text{\LaTeX}$  made on 18 December 1985.) Also, add the following index entry citations to this page: “`\-`”, “hyphenation, suppressed”, and “typewriter type style, no hyphenation in”.

**page 217**

Add the subentry “`openbib`, 160” to the index entry “document-style option”.

**page 223, column 2, line 13**

Change “mad” to “made”.

**page 225**

Add page 47 to the index entry for “Leunen, Mary-Claire van”.

**page 228**

In index entry for `\multicolumn`, change “194” to “184”.

**Tear-Out Command Sheet**

In the first column, sixth line after “Sentences and Paragraphs” heading, replace “`& &`” by “`& \&`”.

## 4.2 First Five Printings

**page xiii, line –7**

The hyphenation of “Leunen” is obviously incorrect.

**page7, line 33**

Add the following sentence after “[6].”

(Many of the details of  $\text{\LaTeX}$ , including command names, were also taken from *Scribe*.)

**page 12, line -7**

Replace “every” with “ever”.

**page 14**

The discussion of space after a period should include an example like `et_{} ‘ ‘a1.’ ’\_{} \_{} showing where to put the \_{} command when there is no space right after the period.`

**Section 3.3.3, page 47**

Somewhere, it should be mentioned that each item in an `array` environment is a separate math formula.

**page 50, line 5**

Replace the sentence beginning “A + or –” with:

A + or – that begins a formula (or certain subformulas) is assumed to be a unary operator, so typing `-$-x$` produces  $-x$  (and typing `-$\sum -x_{i}$` produces  $\sum -x_i$ ), with no space between the “-” and the “ $x$ ”.

**page 53, line 16**

Change “math italic is the default in math mode” to “math italic is almost identical to the default type style of math mode”.

**page 71, last line**

Change “comand” to “command”.

**page 84**

Add the following paragraph just after line 2.

Some commands, such as `\chapter`, change the style of the current page. You can change it yourself with the `\thispagestyle` command.

Also, add the appropriate index entries for `\thispagestyle` and `\chapter`.

**page 88, line 29**

Change “its” to “it’s”.

**page 91, line 5**

It should be noted that in the `book` document style, `\chapter` uses `\cleardoublepage`.

**page 111, line -4**

Remove the extra `t` from “`withtout`”.

**page 114, line 31**

Change “Section 5.6” to “Section 5.3”.

**page 122, line 17**

Change the sentence that begins “The most probable cause is” to the following:

The most probable cause is a list-making environment with no `\item` command.

**Page 126, line 12ff**

An un`\protected` command—even a robust one—in the argument of one of these commands can cause `TEX` to run out of this kind of space. It’s a good idea to `\protect` all commands in these arguments.

**Page 153, top of page**

It should be noted that if the invisible “word” occurs at the end of a paragraph, not attached to a real word, then it could appear on a line by itself, producing a blank line in the output.

**Page 156**

In the third line of the description of `\footnotemark`, remove the phrase “just like `\footnote`”.

**Page 160, line -7**

Replace “`equations`” with “`equation`”.

**Page 162**

In the description of `\pagenumbering`, it should be mentioned that the command sets the value of the `page` counter to 1.

**Page 161, line -9**

Replace “head information” by “head information (but not page number)”

**Page 162, line 6**

Replace “heading” by “headings”.

**Page 173, line -2**

Replace “*cmd*” with “`\begin{nam}`”.

**Page 177, line 1**

It should be noted that, in a two-column page style, a single-column figure can come before an earlier double-column figure, and vice-versa.

**Page 177, line 3**

Replace “*pos*” by “*loc*”.

**Page 177, line -1**

Replace “page” with “text page”.

**Page 178, lines 1 and 8**

Replace “page” with “text page”.

**Page 181, line 11**

Replace “or \ command” with “or \’ command”.

**page 183**

The description of `\extracolsep` should mention that no extra space is put to the left of the first column.

**page 191**

Add to the description of `\pagebreak` the information that it has an effect only when used in paragraph mode, not inside a parbox.

**page 191, line -2**

Add a “t” to “explicitly”.

**page 213**

Change the page reference for “\bibitem, moving argument of” from 153 to 152.

**page 211**

Change index entry for \AE to page 40.

**page 213**

Change the first page reference for “bb1 (bibliography) file” from 74 to 75.  
Add page 95 to the entry for “backspace”.

**page 217**

Add an index entry “diacritical marks, see accents”.  
Move the index entry for \def to its proper place on the preceding page.

**page 219, index entry for “figures”**

Remove the “and” from the subentry for “output by \end{document}”.

**page 219, column 1, line 3**

Replace “anomolous” by “anomalous”.

**page 223, left column, line 2**

Remove the page number “79” from the first subentry under \index.

**page 228**

Change the page reference for “\multicolumn” from 194 to 184.

**page 228**

Remove the extra “,” from the index entries for \o and \O.

**page 234**

Add “48–49” to the index entry for \right.