This is a list of all corrections made to *The \TeX*book* between the first and second printings. If your copy says ‘Second printing (October 1984)’ on the copyright page, you’ve already got all of these things corrected. Otherwise, you’re a lucky owner of the rare first edition; read on.

Page 29, lines 31–32 (8/25/84)

The underfull box that \TeX produces in the 1.5-inch case is really bad; with such narrow limits, an occasional wide space is unavoidable. But try

Page 54, lines 5–6 (4/20/84)

Appendix B shows that plain \TeX handles most of the accents by using \TeX’s \texttt{\accent} primitive. For example, \texttt{\'#1} is equivalent to \texttt{\accent19 #1}, where

Page 63, seven lines below the first illustration (2/27/84)

points, a width of 5.5555 points, and a depth of zero; the letter ‘g’ has a height from 0pt, but 0.00001fill11 is infinitely greater than 16383.99999fill1.

Page 72, line 35 (2/28/84)

$\hbox(6.25+1.94444)x312.0$, glue set 0.5783, shifted 36.0

Page 79, line 12 (2/28/84)

Page 98, line 24 (4/13/84)

and \texttt{\finalhyphenmerits=5000}. Demerits are in units of “badness squared,” so the

Page 101, lines 29–30 (3/13/84)

It’s possible to control the length of lines in a much more general way, if simple changes to \texttt{\leftskip} and \texttt{\rightskip} aren’t flexible enough for your

Page 113, bottom two lines (3/13/84)

Notice that the first “\% line” of our example says t=10.0; this is a consequence of another parameter, called \texttt{\topskip}. Glue disappears at a page break, but

Page 124, eighth-last line (8/25/84)

discarded, \texttt{\box100} will be void after the \texttt{\vsplit}. And if \texttt{\box100} was void before the

Page 131, display in exercise 16.8 (3/16/84)

\[ \text{If} \; x = y, \text{ then } x\; \text{is equal to } y. \]
Bugs in The \TeXbook, first printing

Page 170, table in middle of the page (2/12/84)

<table>
<thead>
<tr>
<th>\textbf{Left atom}</th>
<th>\textbf{Right atom}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ord</td>
<td>Op</td>
</tr>
<tr>
<td>Ord</td>
<td>0</td>
</tr>
<tr>
<td>Op</td>
<td>1</td>
</tr>
<tr>
<td>Bin</td>
<td>(2)</td>
</tr>
<tr>
<td>Rel</td>
<td>(3)</td>
</tr>
<tr>
<td>Open</td>
<td>0</td>
</tr>
<tr>
<td>Close</td>
<td>0</td>
</tr>
<tr>
<td>Punct</td>
<td>(1)</td>
</tr>
<tr>
<td>Inner</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Page 173, line 11 (1/2/84)

Clearly $a_i < b_i$ for $i = 1, 2, \ldots, n$.

Page 176, bottom two lines (7/20/84)

\begin{exercise}
Typeset the display
\begin{pmatrix}
  a & b & c \\
  d & e & f
\end{pmatrix}
\quad
\begin{pmatrix}
  u & x \\
  v & y \\
  w & z
\end{pmatrix},
\end{exercise}
using \texttt{\textbackslash group} and \texttt{\textbackslash group}.

Page 178, line 18 (2/13/84)

when there is an overlap.\[ If e = 0 \text{ and if there is an } \texttt{\textbackslash eqno}, \text{ the equation number is } \]

Page 204, line 31 (2/13/84)

of \texttt{\textbackslash a} is delimited by a left brace.

Page 212, line 23 (7/8/84)

it equals 2.) Similarly, \texttt{\textbackslash tracingmacros=2} will trace \texttt{\textbackslash output}, \texttt{\textbackslash everypar}, etc.

Page 216, first five lines (8/25/84)

\begin{exercise}
Expanded definitions that are made with \texttt{\edef} or \texttt{\xdef} continue to expand tokens until only unexpandable tokens remain, except that token lists produced by \texttt{\textbackslash the} are not expanded further. Furthermore a token following \texttt{\textbackslash noexpand} will not be expanded, since its ability to expand has been nullified. These two operations can be used to control what gets expanded and what doesn’t.
\end{exercise}

Page 219, simplification of line 18 (2/15/84)

\texttt{\textbackslash advance\textbackslash count0 \textbackslash by\textbackslash count2 \textbackslash \textbackslash hexdigit}
Chapters 24 to 26 present summaries of all \TeX’s operations in all modes, and when those summaries mention a ‘⟨box⟩’ they mean one of the seven

of a box that spans columns \textit{i} through \textit{j}, hence the glue in such a box might shrink.

You have to be careful with the use of & and \texttt{\span} and \texttt{\cr}, because these tokens are intercepted by \TeX’s scanner even when it is not expanding macros.

line (see Chapter 9). If you don’t want a \texttt{\cr} at the end of a certain line, just type ‘%’ and the corresponding \texttt{\cr} will be “commented out.” (This special mode doesn’t work with \texttt{\+} lines, since \texttt{\+} is a macro whose argument is delimited by the token ‘\texttt{\cr}’, not simply by a token that has the same meaning as \texttt{\cr}. But you can redefine \texttt{\+} to overcome this hurdle, if you want to. For example, define a macro \texttt{\alternateplus} that is just like \texttt{\+} except that its argument is delimited by the active character ‘\texttt{\\}’; then include the command ‘\texttt{\let\+=\alternateplus}’ as part of \texttt{\obeylines}.)

vertical list at what it thinks is the best place, and at such times it enters internal vertical mode and begins to read the commands in the current \texttt{\output} routine. When the output routine begins, \texttt{\box255} contains the page that \TeX\ has completed; the output routine is supposed to do something with this vbox. When the output routine ends, the list of items that it has constructed in internal vertical mode is placed just

\TeX’s primitive command \texttt{\shipout⟨box⟩} is what actually causes output. It sends the contents of the box to the \texttt{dvi} file, which is \TeX’s main output file; after \TeX\ has finished, the \texttt{dvi} file will contain a compact device-independent encoding of instructions that specify exactly what should be printed. When a box is shipped out, \TeX\ displays the values of \texttt{\count0} through \texttt{\count9} on your terminal, as explained in Chapter 15; these ten counters are also recorded in the \texttt{dvi} file, where they can be used to identify the page. All of the \texttt{\openout}, \texttt{\closeout}, and \texttt{\write} commands that appear inside of the ⟨box⟩ are performed in their natural order as that box is being shipped out. Since a \texttt{\write} command expands macros, as explained in Chapter 21, \TeX’s scanning mechanism might detect syntax errors while a \texttt{\shipout} is in progress. If \texttt{\tracingoutput} is nonzero at the time of a \texttt{\shipout}, the contents of the ⟨box⟩ being shipped are written into your log file in symbolic form. You can say \texttt{\shipout} anywhere, not only in an output routine.
\nointerlineskip

6) Finally, the \dosupereject macro is designed to clear out any insertions that have been held over, whether they are illustrations or footnotes or both:

\ifnum\insertpenalties>0
  \line{} \kern-\topskip \nobreak \vfill\supereject\fi

The mysterious negative \kern here cancels out the natural space of the \topskip glue that goes above the empty \line; that empty line box prevents the \vfill from disappearing into a page break. The vertical list that results from \dosupereject is placed on \TeX's list of things to put out next, just after the straggling insertions have been reconsidered as explained in Chapter 15. Hence another super-eject will occur, and the process will continue until no insertions remain.

\def\endindex{\mark{}\break\endgroup}

if \next is '\endindex', the next commands executed will be '\vfill\mark{}\break \endgroup'; otherwise the line will be treated as a main entry.

\lineskip (interline glue if \baselineskip isn't feasible)

A \langle \text{math character} \rangle defines a 15-bit number either by specifying it directly with \mathchar or in a previous \mathchardef, or by specifying a 27-bit \delimiter value; in the latter case, the least significant 12 bits are discarded.

6.3. It represents the heavy bar that shows up in your output. (This bar wouldn't be present if \overfullrule had been set to 0pt, nor is it present in an underfull box.)
12.17. You get ‘A’ at the extreme left and ‘puzzle.’ at the extreme right, because the space between words has the only stretchability that is finite; the infinite stretchability cancels out. (In this case, T\TeX’s rule about infinite glue differs from what you would get in the limit if the value of 1 \text{fil} were finite but getting larger and larger. The true

14.14. Just say \texttt{\parfillskip=\parindent}. Of course, \TeX will not be able to find appropriate line breaks unless each paragraph is sufficiently long or sufficiently lucky; but with an appropriate text, your output will be immaculately symmetrical.

18.41. \texttt{$\{$\underbrace{\overbrace{\mathstrut a,\ldots,a}}$\}$}

18.44. \texttt{\mathop{{\sum}'}_{x\in A}f(x)\mathrel{\mathop=^\text{def}}}

Note: The stated preamble solves the problem and demonstrates that \TeX’s line-breaking capability can be used within tables. But this particular table is not really a good example of the use of \texttt{\halign}, because \TeX could typeset it directly, using \texttt{\everypar} in an appropriate manner to set up the hanging indentation, and using \texttt{\par} instead of \texttt{\cr}. For example, one could say

Page 341, the bottom line was left out! (2/9/84)

Footline ............................................................. Page 1009

A mathcode is relevant only when the corresponding category code is 11 or 12; therefore many of these codes will rarely be looked at. For example, the math code for \texttt{\^{}\texttt{\^}} specifies the character \texttt{\oplus}, but it’s hard to imagine a user who would want \texttt{\^{}\texttt{\^}}

\texttt{\\delcode’\texttt{\textless}="26830A \delcode’\texttt{\textgreater}="26930B}

\texttt{\count18=3 \% this counter allocates math families 4, 5, 6, \ldots \count19=255 \% this counter allocates insertions 254, 253, 252, \ldots}

font, whose information does not have to be loaded again.
Page 354, line 5  
(6/7/84)
\def\ialign{\everycr={}\tabskip=0pt \halign} % initialized \halign

Page 355, lines 19–21  
(7/3/84)
subdivision in a document; to use it, you say `\beginsn section{section title}' followed by a blank line (or \par). The macro first emits glue and penalties, designed to start a new page if the present page is nearly full; then it makes a \bigskip and puts the section

Page 355, lines 27–29  
(7/3/84)
\outer\def\beginsn section#1\par{\vskip0pt plus.3\vsize\penalty-250 \vskip0pt plus-.3\vsize\bigskip\vskip\parskip \message{#1}\leftline{\bf#1}\nobreak\smallskip\noindent}

Page 355, line 37  
(4/24/84)
\outer\def\proclaim #1. #2\par{\medbreak

Page 356, seven lines from the bottom  
(4/11/84)
\def\TeX{T\kern-.1667em \lower.5ex\hbox{E}\kern-.125em X}

Page 359, starting with line 2  
(11/16/83)
\mathchardef\ldotp="602E\mathchardef\cdotp="6201\mathchardef\colon="603A\def\ldots{\mathinner{\ldotp\ldotp\ldotp}}\def\cdots{\mathinner{\cdotp\cdotp\cdotp}}\def\vdots{\vbox{\baselineskip=4pt \lineskiplimit=0pt \kern6pt \hbox{.}\hbox{.}\hbox{.}}}\def\ddots{\mathinner{\mskip1mu\raise7pt\vbox{\kern7pt\hbox{.}}\mskip2mu\raise4pt\hbox{.}\mskip2mu\raise1pt\hbox{.}\mskip1mu}}

Page 359, starting with line 19  
(11/3/83)
\def\overbrace#1{\mathop{\vbox{\ialign{##\crcr\noalign{\kern3pt}\downbracefill\crcr\noalign{\kern3pt\nointerlineskip}\%hfill\displaystyle{#1}\hfill\crcr}}}\limits}
\def\underbrace#1{\mathop{\vtop{\ialign{##\crcr\noalign{\kern3pt}\upbracefill\crcr\noalign{\kern3pt\nointerlineskip}\%hfill\displaystyle{#1}\hfill\crcr}}}\limits}

Page 359, seventh line from the bottom  
(2/29/84)
\def\backslash{\delimiter"026E30F } \def\bracevert{\delimiter"000033E }

Page 361, line 3  
(8/17/84)
\def\buildrel#1\over#2{\mathop{\null#2}\mathop{\null#1}}
Page 363, line 10  
(4/26/84)
\ifhmode\edef\@sf{\spacefactor=\the\spacefactor}\fi

Page 364, starting with line 10  
(11/1/83)
\def\dosupereject{% something is being held over
  \line{}\kern-\topskip\nobreak\vfill\supereject\fi}

Page 364, line 28  
(7/8/84)
\tracingmacros=2 \tracingparagraphs=1 \tracingrestores=1

Page 370, line 7  
(3/16/84)
information about the \TeX\ Users Group.)

Page 374, line 23  
(7/8/84)
log file when \tracingmacros=2 and \tracingcommands=2. One of the important ways

Page 379, line 1  
(1/12/84)
A particular item can be selected by its position number from the left:

Page 381, line 6  
(2/12/84)
\newcount\lineno % the number of file lines listed

Page 381, lines 24 and 25  
(12/15/83)
Instead of listing a file verbatim, you might want to define a \verbatim macro such that \verbatim{$this$ is \it!} yields \verbatim$this$ is \it!. It's somewhat

Page 385, lines 22 and 23  
(1/12/84)
macro, a parameter, or a token list variable; (b) when \TeX\ must determine whether
the token & or \span or \cr or \crcr is the end of an entry within an alignment.

Page 387, two paragraphs in right column  
(1/18/84)
A. Exactamente. Pero los profesores son tan conservadores que temian espan- 
tar al tipo de estudian\-te (apisonadora) que hace lo que le proponen para casa, 
obedentemente y de forma mecánica. Además, no creo que les gustase el tra-
bajo adicional de calificar respuestas a preguntas abiertas. 
La forma tradicional es dejar la parte 
creativa para los cursos altos. Durante diecisiete años o más se enseña al estu-
diante a aprobar, luego de golpe, cerca de 
la graduación, se le pide que haga algo 
original.
Notice that the macros need to do their own checking for ligatures, and they also take appropriate actions when a paragraph begins with an opening quote. Since \kern

Inside the output routine, \box\footins will now be a vbox of hboxes, and

\hbox(7.6359+0.0)x269.62617 []

\beginlinemode and \beginparmode are defined to initiate these modes; and another

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[Also change the ZIP code in the return address on the envelope illustrated at the bottom of page 405.]

\font\twelveit=cmti10 at 12pt % (a cheap substitute for cmti12)

\parskip of 0pt plus .8pt between adjacent entries, and since there is room for more than 50 lines per column; therefore the \manmac balancing routine tries to make both the top and bottom baselines agree at the end of the index. In applications where the glue is not so flexible it would be more appropriate to let the right-hand column be a little short; the best way to do this is probably to replace the command \unvbox3 by \dimen2=\dp3 \unvbox3 \kern-\dimen2 \vfil'.

(The last two lines use \danger and \ddanger, which are non-\outer equivalents of \danger and \ddanger; such duplication is necessary because control sequences of type \outer cannot appear within a \def.)

[The special fonts called cmi10 and cmi17 and cmi5 should really be called cmmi10 and cmmi17 and cmmi5.]
explained in Appendix G. If you want to increase the number of parameters past the number that actually appear in a font’s metric information file, you can assign new values immediately after that font has been loaded. For example, if some font \texttt{\textbackslash ff} with seven parameters has just entered \TeX’s memory, the command \texttt{\textbackslash fontdimen13\textbackslash ff=5pt} will set parameter number 13 to 5 pt; the intervening parameters, numbers 8–12, will be set to zero. You can even give more than seven parameters to \texttt{\textbackslash nullfont}, provided that you assign the values before any actual fonts have been loaded.

\textbf{Page 445, line 6} \hspace{1cm} (11/11/83)
\[(a - \frac{1}{2}\theta) - (h(z) - v) < \phi, \text{ increase } v \text{ by the difference. Finally construct a vbox of}\]

\textbf{Page 449, line 12} \hspace{1cm} (1/18/84)
immediately clear why the ‘n’ should be attached to the ‘e’ in one case but not

\textbf{Page 459, left column, line 2} \hspace{1cm} (1/18/84)
\[al-Khwârizmi, abu Ja‘far Muhammad\]

\textbf{Page 460, index entry for Beethoven} \hspace{1cm} (8/16/84)
\[Change ‘von’ to ‘van’.\]

\textbf{Page 461, third line in left column} \hspace{1cm} (8/25/84)
The entry for \texttt{\textbackslash box255} should not be indented.

\textbf{Page 461, index entry for boxed material} \hspace{1cm} (8/2/84)
\[Add ‘420’.\]

\textbf{Page 462, index entry for \texttt{\textbackslash colon}} \hspace{1cm} (11/16/83)
\[Add page 359 to this list.\]

\textbf{Page 462, right column, third-last line} \hspace{1cm} (5/21/84)
[Change ‘crochets’ to ‘crotchets’; then move this entry down two lines.]

\textbf{Page 463, right column, line 16} \hspace{1cm} (5/20/84)
\[design size, 16–17, 213.\]

\textbf{Page 464, index entry for \texttt{\textbackslash dump}} \hspace{1cm} (1/10/84)
\[Add page 344 to this list.\]
Page 464, right column, line 5 (1/5/84)
Dvořák, Antonín Leopold, 409.

Page 464, index entry for \texttt{end} (8/25/84)
Page number 264 should be underlined.

Page 465, index entry for \texttt{everydisplay} (8/25/84)
Add page 326 to this list.

Page 465, index entry for \texttt{filbreak} (7/3/84)
Delete the reference to page number 355.

Page 466, index entry for \texttt{footnote} (4/26/84)
Page number 363 should be underlined.

Page 467, index entry for \texttt{hidewidth} (7/3/84)
Page number 354 should be underlined.

Page 468, index entry for insertions (8/25/84)
Add pages 115–117, 122–125 to this list.

Page 469, index entry for \texttt{kern} (11/1/83)
Add page 256 to this list.

Page 470, index entry for \texttt{limits} (11/3/83)
Add page 359 to this list.

Page 472, right column, lines 10–11 (7/9/84)
\texttt{normalbaselines}, 325, 349, 351, 414–415.
\texttt{normalbaselineskip}, 349, 414–415.

Page 472, index entry for \texttt{null} (7/3/84)
Page number 351 should be underlined.

Page 472, right column, line 28 (1/3/84)
*\texttt{nullfont}, 14, 153, 271, 433.

Page 476, a new index entry (8/25/84)
shifted output, see \texttt{hoffset}, \texttt{voffset}. 
Page 476, index entry for shriek (8/25/84)
It should not be capitalized.

Page 478, index entry for Świerczkowski (9/15/84)
The middle name should be ‘Shawomir’.

Page 479, last seven lines in the left column (8/23/84)
*\tracingmacros, 205, 212, 273, 329.
*\tracingonline, 121, 212, 273, 303.
*\tracingoutput, 254, 273, 301–302.
*\tracingpages, 112–114, 124, 273, 303.
*\tracingparagraphs, 98–99, 273, 303.
*\tracingrestores, 273, 301, 303.
*\tracingstats, 273, 301, 303, 383.

Page 479, index entry for underlined text (8/2/84)
Add ‘see also \underline’.

Page 480, index entry for \vbox (11/1/83)
Delete page 256 from this list.