

This is a list of all substantial corrections made to *Computers & Typesetting* from the mid-1990s until the first “Millennium edition” was published at the end of the year 2000. Corrections made to the softcover version of *The T<sub>E</sub>Xbook* are the same as corrections to Volume A. Corrections to the softcover version of *The METAFONTbook* are the same as corrections to Volume C. Changes to the mini-indexes and master indexes of Volumes B, D, and E are not shown here unless they are not obviously derivable from what has been shown.

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Page A3, line 14 (in certain printings only) (9/6/00)

---

that looks like ' or ´.

---

Page A8, lines 14 and 15 (9/6/00)

---

that is not to be ignored. Notice that  $\backslash_{\square}$  is a control sequence of the second kind, namely a control symbol, since there is a single nonletter ( $\square$ ) following

---

Page A43, line –17 (8/4/98)

---

into your manuscript, if the **b**-key on your keyboard is broken. (An optional

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Page A88, lines 14, 16, 18, and 21 (8/12/00)

---

[Insert two blank spaces between ‘blank space’ and ‘}’]

---

Page A96, lines 9 and 10 (8/6/98)

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Before 1998, some German words changed their spelling when split between lines. For example, ‘backen’ became ‘bak-ken’ and ‘Bettuch’ sometimes became ‘Bett-

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Page A107, line 2 (8/5/98)

---

ually, you might be tempted to set  $\backslashtolerance=10000$ ; this allows arbitrarily bad

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Page A115, line –19 (8/5/98)

---

If there’s no room for such an insertion on this page, T<sub>E</sub>X will insert it at the top of

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Page A119, line 15 (8/5/98)

---

of  $\backslashdimen3$ , assuming that  $\backslashdimen3$  is positive.

---

Page A182, middle line of the displayed commutative diagram (12/3/99)

---

$$0 \longrightarrow \mathcal{O}_C \xrightarrow{\pi} \pi_*\mathcal{O}_D \xrightarrow{\delta} R^1f_*\mathcal{O}_V(-D) \longrightarrow 0$$

---

Page A233, line –2 (8/5/98)

---

could avoid this by adding  $\backslashhskip 0pt minus-1fil$ ; then an oversize text would

---

Page A277, line 1 (8/5/98)

`<code assignment> → <codename><8-bit number><equals><number>`

---

Page A277, line -11 (8/5/98)

[Move this line, which defines `<at clause>`, up to the top of the page.]

---

Page A289, line 24 (2/3/97)

`<math field> → <filler><math symbol> | <filler>{<math mode material>}`

---

Page A309, line 3 (8/12/97)

8.4.  $\$3 x_{11} \wedge_7 2_{12} \$3 \sim_{13} \sqcup_{10} \boxed{\text{TeX}} b_{11} v_{11} \sqcup_{10}$ . The final space comes from the

---

Page A313, line 24 (9/19/00)

stands for `'\par\vfill...'`, so the next three commands are

---

Page A313, line 27 (9/19/00)

`{vertical mode: \par}`

---

Page A318, lines 12 and 13 (8/5/98)

15.8. `\advance\dimen2 by\ifnum\dimen2<0 -\fi.5\dimen3`  
`\divide\dimen2 by\dimen3 \multiply\dimen2 by\dimen3`

---

Page A325, line 22 (12/3/99)

`0&\mapright{}&{\cal 0}_C&\mapright\pi&`

---

Page A337, line 3 from the bottom (9/6/00)

DONALD E. KNUTH, *The T<sub>E</sub>Xbook* (1984)

---

Page A348, lines 14-16 (8/6/98)

`\def\@if#1{true}{\let#1=\iftrue}%`  
`\expandafter\expandafter\expandafter`  
`\def\@if#1{false}{\let#1=\iffalse}%`

---

Page A356, line 21 (8/6/98)

`\def\AA{\leavevmode\setbox0=\hbox{!}\dimen@=\ht0 \advance\dimen@ by-1ex`

---

Page A356, lines 9–21 from the bottom (8/6/98)

---

```

\def\S{\mathhexbox278} \def\P{\mathhexbox27B} \def\Orb{\mathhexbox20D}
\def\oalign#1{\leavevmode\top{\baselineskip0pt \lineskip.25ex
  \ialign{##\cr#1\cr}} \def\o@lign{\lineskiplimit=0pt \oalign}
\def\ooalign{\lineskiplimit=-\maxdimen \oalign} % chars over each other
{\catcode'p=12 \catcode't=12 \gdef\#1pt{#1}} \let\getf@ctor=\
\def\sh@ft#1{\dimen@=#1 \kern\expandafter\getf@ctor\the\fontdimen1\font
  \dimen@} % kern by #1 times the current slant
\def\d#1{\o@lign{\relax#1\cr\hidewidth\sh@ft{-1ex}.\hidewidth}}
\def\b#1{\o@lign{\relax#1\cr\hidewidth\sh@ft{-3ex}%
  \vbox to.2ex{\hbox{\char'26}\vss}\hidewidth}}
\def#c#1{\setbox0=\hbox{#1}\ifdim\ht0=1ex \accent'30 #1%
  \else\ooalign{\unhbox0\cr\hidewidth\char'30\hidewidth}\fi}
\def\copyright{\oalign{\hfil\raise.07ex\hbox{c}\hfil\cr\Orb}}

```

---

Page A364, line 9 (8/9/98)

---

```

\def\makefootline{\baselineskip=24pt \lineskiplimit=0pt
  \line{\the\footline}}

```

---

Page A364, line 4 from the bottom (8/6/98)

---

```

\def\fmtversion{3.1415926} % identifies the current format

```

---

Page A447, bottom line (6/3/98)

---

— JOHN SMITH, *The Printer's Grammar* (1755)

---

Page A450, lines 11–13 (4/12/98)

---

between ‘e’ and ‘n’ there are five relevant values in this case (2 from  ${}_0h_0e_2n_0$ , 0 from  ${}_0h_0e_0n_0a_4$ , 0 from  ${}_0h_0e_0n_5a_0t_0$ , 1 from  ${}_1n_0a_0$ , and 0 from  ${}_0n_2a_0t_0$ ); the maximum of these is 2. The result of all the maximizations is

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Page A453, line 6 (8/5/98)

---

tion dictionary, except that plain T<sub>E</sub>X blocks hyphens after the very first letter or be-

---

Page A458, left column (9/6/00)

---

$\leq$ , 45, 135, 368–369; see also `\le`.  
 $\neq$ , 45, 135, 368–369; see also `\ne`.  
 $\geq$ , 45, 135, 368–369; see also `\ge`.

---

Page A458, right column (7/5/99)

---

$\uparrow$  and  $\downarrow$ , 135, 343, 368–369, 429;  
al-Khwārizmī, abu ‘Abd Allāh Muḥammad ibn Mūsā, 53.

4 *Bugs in Computers & Typesetting, 2000*

---

Page A464, right column (8/6/98)

`*\edef`, 215–216, 275, 328, 373–374.

---

Page A466, right column (8/8/98)

`\getfactor`, 356, 375, 398.

---

Page A467, right column (8/5/98)

`*\hfilneg`, 72, 100, 283, 285, 290, 397.

---

Page A469, left column (8/5/98)

italic type, 13–14, 100, 127, 165, 409, 428, 430.

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Page A469–A477, passim (5/13/98)

Add page 272 to the index entries for `\lastskip`, `\pagedepth`, `\pagefilllstretch`, `\pagefillstretch`, `\pagefilstretch`, `\pagegoal`, `\pageshrink`, `\pagestretch`, `\pagetotal`, `\parshape`, `\prevdepth`, and `\spacefactor`.

Also change ‘369’ to ‘370’ in the index entries for `\lbrack`, `\lq`, `\rbrack`, `\rq`, `\sb`, and `\sp`.

Also change ‘Luckombe, Philip’ to ‘Smith, John’.

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Page A472, right column (8/6/98)

`*\noexpand`, 209, 213, 215, 216, 377, 424.

---

Page A473, left column (8/6/98)

`\orb` (  $\circ$  ), 356.

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Page Bix, line 16 (1/16/00)

- “Word hy-phen-a-tion by com-put-er” by Franklin Mark Liang, Stan-

---

Page Bxiv, line 13 (4/19/96)

preprocessor converts these into numeric constants that are 256 or more. This

---

Page Bxiv, line –1 (4/19/96)

This file contains one line per string, starting with string number 256, then number 257,

---

Page Bxv, lines 10 and 11 (4/19/96)

In this case, occurrences of “” in the WEB program will be replaced by 256; occurrences of “This longer string” will be replaced by 257. The symbol  $\textcircled{\$}$  stands for the numeric

---

Page B2, line –10 (3/8/95)

`define banner`  $\equiv$  ‘This<sub>is</sub>TeX<sub>Version</sub>3.14159’ { printed when T<sub>E</sub>X starts }

---

Page B169, line 13 (9/22/95)

something in a “muskip” register, or to one of the three parameters `\thinmuskip`, `\medmuskip`,

---

Page B221, line 9 (3/4/95)

```
define non_address = 0 { a spurious bchar_label }
```

---

Page B221, line 17 (3/4/95)

*font\_params*: **array**[*internal\_font\_number*] **of** *font\_index*; { how many font parameters are present }

---

Page B256, insert new line 12 before the bottom (3/7/95)

```
glue_temp: real; { glue value before rounding }
```

---

Page B258, line 11 before the bottom becomes four lines (3/7/95)

```
625. define billion  $\equiv$  float_constant(1000000000)
define vet_glue(#)  $\equiv$  glue_temp  $\leftarrow$  #;
  if glue_temp > billion then glue_temp  $\leftarrow$  billion
  else if glue_temp < -billion then glue_temp  $\leftarrow$  -billion
(Move right or output leaders 625)  $\equiv$ 
```

---

Page B258, lines 3–6 from the bottom (3/7/95)

```
  begin vet_glue(float(glue_set(this_box)) * stretch(g));
  rule_wd  $\leftarrow$  rule_wd + round(glue_temp);
  end;
end
else if shrink_order(g) = g_order then
  begin vet_glue(float(glue_set(this_box)) * shrink(g));
  rule_wd  $\leftarrow$  rule_wd - round(glue_temp);
```

---

Page B260, line 13 from the bottom (6/26/93)

```
doing_leaders  $\leftarrow$  outer_doing_leaders; dvi_v  $\leftarrow$  save_v; dvi_h  $\leftarrow$  save_h; cur_v  $\leftarrow$  base_line;
```

---

Page B261, insert new line after line 7 (3/7/95)

```
glue_temp: real; { glue value before rounding }
```

---

Page B262, lines 3–6 from the bottom (3/7/95)

```
  begin vet_glue(float(glue_set(this_box)) * stretch(g));
  rule_ht  $\leftarrow$  rule_ht + round(glue_temp);
  end;
end
else if shrink_order(g) = g_order then
  begin vet_glue(float(glue_set(this_box)) * shrink(g));
  rule_ht  $\leftarrow$  rule_ht - round(glue_temp);
```

---

Page B264, line 22 (6/26/93)

---

```
doing_leaders ← outer_doing_leaders; dvi_v ← save_v; dvi_h ← save_h; cur_h ← left_edge;
```

---

Page B297, line 11 (3/7/95)

---

```
width(p) ← mu_mult(width(p)); subtype(p) ← explicit;
```

---

Page B309, line 7 (9/22/95)

---

```
if cur_style < text_style then { display style }
```

---

Page B356, line -5 (3/4/95)

---

*hang\_after* = 1, and *hang\_indent* = 0. Note that if *hang\_indent* = 0, the value of *hang\_after* is

---

Page B388, bottom line (3/4/95)

---

```
if bchar_label[hf] ≠ non_address then { put left boundary at beginning of new line }
```

---

Page B406, line 10 (5/1/98)

---

```
q ← p; { now node q represents p1 . . . pl-1 }
```

---

Page B503, line 12 (3/4/95)

---

of the following procedure. (Exception: The tabskip glue isn't trapped while preambles are being scanned.)

---

Page B529, line 12 (3/4/95)

---

```
undump(0)(fmem_ptr - 1)(bchar_label[k]);
undump(min_quarterword)(non_char)(font_bchar[k]);
```

---

Page B531, line 2 (11/23/98)

---

from appearing again.

---

Page B531, line 14 (11/23/98)

---

```
print_int(year); print_char("."); print_int(month); print_char("."); print_int(day);
```

---

Page B534, insert new material between lines -16 and -15 (3/20/95)

---

```
while input_ptr > 0 do
  if state = token_list then end_token_list else end_file_reading;
```

---

Page B534, line -2 (3/20/95)

---

```
temp_ptr ← cond_ptr; cond_ptr ← link(cond_ptr); free_node(temp_ptr, if_node_size);
```

---

Page B535, line 9 (3/20/95)


---

```

begin init for  $c \leftarrow top\_mark\_code$  to  $split\_bot\_mark\_code$  do
  if  $cur\_mark[c] \neq null$  then  $delete\_token\_ref(cur\_mark[c]);$ 
   $store\_fmt\_file;$  return; tini

```

---

Page B581, Zabala entry (8/19/00)


---

Zabala Salelles, Ignacio Andrés: 2.

---

Page C17, lines 12 and 13 (9/6/00)


---

```

draw  $z_4\{curl0\} \dots z_2\{z_3 - z_4\} \dots \{curl0\} z_3;$ 
draw  $z_4\{curl2\} \dots z_2\{z_3 - z_4\} \dots \{curl2\} z_3$ 

```

---

Page C23, line -7 (8/5/98)


---

 $x_1 = ss = w - x_5; \quad y_3 - y_1 = ygap$ 


---

Page C69, line 17 (9/6/00)


---

"abra", while  $p_1$  is '(0,0) .. (3,3)' and  $p_2$  is '(0,0) .. (3,3) .. cycle'.

---

Page C94, line -11 (3/4/95)


---

put are assumed to have square pixels. But if, for example, the `mode_def` sets

---

Page C107, line 15 (3/4/95)


---

```

labels(1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b, range 1 thru 36); endchar;

```

---

Page C123, lines 21 and 22 (12/19/95)


---



► **EXERCISE 14.3**

Use a *rotated* quarter-circle to produce 'r' in font position 'c'.

---


Page C129, lines 6–17 (8/5/98)


---

```

⟨path primary⟩ → ⟨pair primary⟩ | ⟨path variable⟩
  | (⟨path expression⟩)
  | reverse ⟨path primary⟩
  | subpath ⟨pair expression⟩ of ⟨path primary⟩
⟨path secondary⟩ → ⟨pair secondary⟩ | ⟨path primary⟩
  | ⟨path secondary⟩⟨transformer⟩
⟨path tertiary⟩ → ⟨pair tertiary⟩ | ⟨path secondary⟩
⟨path expression⟩ → ⟨pair expression⟩ | ⟨path tertiary⟩
  | ⟨path subexpression⟩⟨direction specifier⟩
  | ⟨path subexpression⟩⟨path join⟩ cycle
⟨path subexpression⟩ → ⟨path expression⟩
  | ⟨path subexpression⟩⟨path join⟩⟨path tertiary⟩

```

|   |   |
|---|---|
| Page C134, line 8   | (3/4/95)  |
| of $p$ ; if $t \leq 0$ , precontrol $t$ of $p$ is $z_0$ . In particular, if $t$ is an integer, postcontrol $t$ of $p$ |   |
| Page C139, illustration   | (8/5/98)  |
| [Remove the labels 2r, 2, and 2l below their dots.]   |   |
| Page C143, top two lines  | (3/4/95)  |
|                                      | In order to have some transform variables to work with, it's necessary to 'hide' some declarations and commands before giving the next <code>exprs</code> : |
| Page C147, lines 14, 16, and 19   | (9/6/00)  |
| [Change 'savepen' to 'savepen'.]  |   |
| Page C147, line 2 from the bottom   | (9/6/00)  |
| FONT's <code>penrazor</code> stands for 'makepen ((-.5, 0) -- (.5, 0) -- cycle)', and <code>pensquare</code>          |   |
| Page C171, line 19  | (8/5/98)  |
| ((path tertiary)) and ((pair tertiary)). A pair expression is not considered to                                       |   |
| Page C172, line 14  | (8/5/98)  |
| been evaluated and changed to numeric tokens before being substituted for $s$ .                                       |   |
| Page C175, line 23  | (1/11/88)   |
| expand into a sequence of tokens. (The language SIMULA67 demonstrated that it is                                      |   |
| Page C206, minor changes to lines -19 to -5   | (3/4/95)  |

Path at line 15, before subdivision into octants:

```
(1.53745,9.05345)..controls (1.53745,4.00511) and (5.75409,-0.00049)
..(10.85147,-0.00049)..controls (16.2217,-0.00049) and (20.46255,4.51297)
..(20.46255,9.94655)..controls (20.46255,14.99713) and (16.23842,19.00049)
..(11.13652,19.00049)..controls (5.77066,19.00049) and (1.53745,14.48491)
..cycle
```

Cycle spec at line 15, after subdivision:

```
(1.53745,9.05345) % beginning in octant 'SSE'
..controls (1.53745,6.58786) and (2.54324,4.371)
..(4.16621,2.74803) % segment 0
% entering octant 'ESE'
..controls (5.8663,1.04794) and (8.24362,-0.00049)
..(10.85147,-0.00049) % segment 0
% entering octant 'ENE'
```

... and so on; there are lots more numbers! What does this all mean? Well, the first segment of the curve, from (1.53745, 9.05345) to (10.85147, -0.00049), has been



---

Page C207, minor changes to lines 1–23

(3/4/95)

---

Cycle spec at line 15, after subdivision and autorounding:

```
(2,9.05348) % beginning in octant 'SSE'
  ..controls (2,6.50526) and (3.02194,4.22272)
  ..(4.6577,2.58696) % segment 0
% entering octant 'ESE'
  ..controls (6.2624,0.98225) and (8.45786,0)
  ..(10.85873,0) % segment 0
% entering octant 'ENE'
```

---

Point (1.53745,9.05345), where there was a vertical tangent, has been rounded to (2,9.05348); point (10.85147,−.00049), where there was a horizontal tangent, has been rounded to (10.85873,0); the intermediate control points have been adjusted accordingly. (Rounding of  $x$  coordinates has been done separately from  $y$  coordinates.) Finally, with *autorounding* = 2, additional adjustments are made so that the 45° transition point will occur at what METAFONT thinks is a good spot:

---

Cycle spec at line 15, after subdivision and double autorounding:

```
(2,9.05348) % beginning in octant 'SSE'
  ..controls (2,6.6761) and (3.07103,4.42897)
  ..(4.78537,2.71463) % segment 0
% entering octant 'ESE'
  ..controls (6.46927,1.03073) and (8.62749,0)
  ..(10.85873,0) % segment 0
% entering octant 'ENE'
```

---

(Notice that  $4.78537 + 2.71463 = 7.50000$ ; when the slope is  $-1$  at a transition point

---

Page C210, line −7

(8/5/98)

---

| ⟨numeric token primary⟩

---

Page C210, line −2

(8/5/98)

---

⟨numeric token primary⟩ → ⟨numeric token⟩ / ⟨numeric token⟩

---

Page C211, line 16

(8/5/98)

---

| ⟨numeric token primary not followed by + or - or a numeric token⟩

---

Page C213, lines 17–27 (8/5/98)


---

```

⟨path primary⟩ → ⟨pair primary⟩ | ⟨path variable⟩ | ⟨path argument⟩
  | (⟨path expression⟩)
  | begingroup ⟨statement list⟩ ⟨path expression⟩ endgroup
  | makepath ⟨pen primary⟩ | makepath ⟨future pen primary⟩
  | reverse ⟨path primary⟩
  | subpath ⟨pair expression⟩ of ⟨path primary⟩
⟨path secondary⟩ → ⟨pair secondary⟩ | ⟨path primary⟩
  | ⟨path secondary⟩ ⟨transformer⟩
⟨path tertiary⟩ → ⟨pair tertiary⟩ | ⟨path secondary⟩
⟨path subexpression⟩ → ⟨path expression⟩
  | ⟨path subexpression⟩ ⟨path join⟩ ⟨path tertiary⟩

```

---

Page C213, line –4 (8/5/98)


---

```

⟨path expression⟩ → ⟨pair expression⟩ | ⟨path tertiary⟩

```

---

Page C234, line 6 (9/6/00)


---

line  $z_1 \dots z_5$  that bisects  $z_4 \dots z_2$ , so it starts out in a south-by-southwesterly direction;

---

Page C246, line 5 of answer 14.15 (8/5/98)


---

```

/ length(postcontrol  $t$  of  $p$  – point  $t$  of  $p$ ) enddef;

```

---

Page C246, line 10 of answer 14.15 (8/5/98)


---

```

/ length(precontrol  $t$  of  $p$  – point  $t$  of  $p$ ) enddef;

```

---

Page C252, line –6 (8/5/98)


---

$h + o$  and *bot*  $y_4 = -o$ , so nothing needs to be done there. We should, however, say

---

Page C257, large display on line 5 (3/4/95)


---


$$\left\{ \begin{array}{l} \text{boolean} \\ \text{numeric} \\ \text{pair} \\ \text{path} \\ \text{pen} \\ \text{picture} \\ \text{string} \\ \text{transform} \end{array} \right\} \langle \text{expression} \rangle; \left\{ \begin{array}{l} \langle \text{boolean} \rangle \\ \langle \text{numeric} \rangle \\ \langle \text{pair} \rangle \\ \langle \text{string} \rangle \\ \langle \text{transform} \rangle \end{array} \right\} \left\{ \begin{array}{l} < \\ \leq \\ = \\ <> \\ \geq \\ > \end{array} \right\} \left\{ \begin{array}{l} \langle \text{boolean} \rangle \\ \langle \text{numeric} \rangle \\ \langle \text{pair} \rangle \\ \langle \text{string} \rangle \\ \langle \text{transform} \rangle \end{array} \right\};$$


---

Page C261, line –15 (8/5/98)


---

- *Hacks*: gobble, gobbled, killtext; capsule\_def; numtok.

---

Page C286, line 15 (8/5/98)

isn't entirely expanded by `expandafter`; only METAFONT's first step in loop expansion

---

Page C299, line 2 (12/6/99)

$$t[u_1, \dots, u_n] = \sum_{k=1}^n \binom{n-1}{k-1} (1-t)^{n-k} t^{k-1} u_k,$$

---

Page C299, swap lines 11 and 12 (8/5/98)

```
def lbrack = hide(delimiters []) lookahead [ enddef;
let [[ [ = [; let ]]] = ]; let [ = lbrack;
```

---

Page C306, line 1 (11/4/98)

```
ligtable oct"013": "i" =: oct"016", "l" =: oct"017", % ffi and ffl
```

---

Page C311, line 2 (8/5/98)

`fine := 4 - eps`, and `breadth_[1] := 4 - eps`. (A small amount `eps` has been subtracted

---

Page C323, line -3 (8/5/98)

statement occurs, the special string `"title "&(title)` is output. (This is how the

---

Page C332, lines 22-24 (8/5/98)

be replicated so that the final proofs will be `rep` times bigger than usual, and the pattern will be clipped slightly at the edges so that discrete pixels can be seen plainly.

---

Page C341, line 23 (10/10/96)

```
\def\:{\setbox0=\hbox{\nboundary\char\n\nboundary}}%
```

---

Page C346, left column (9/6/00)

... (bounded join), 18-19, 127, 248, 262.  
 ... (truncation of displayed context), 44.

---

Page C346, and throughout the index (3/7/95)

(Many index entries for rules of syntax in chapters 25-26 should have been underlined)

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Page C350, left column (4/24/00)

Evetts, Leonard Charles, 153.

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Page C351, right column (9/22/97)

---

\*`intersectiontimes`, [136](#), [178](#), [213](#), [265](#), [294](#), [298](#).

---

Page C353, right column (8/5/98)

---

(numeric token atom), *delete this entry*.  
 (numeric token primary), [72](#), [210](#).

---

Page C354, left column (7/26/98)

---

Orwell, George (= Blair, Eric Arthur), [85](#).

---

Page C355, right column (3/7/95)

---

`rt`, [23](#), [77](#), [80](#), [103](#), [147](#), [151](#), [273](#).

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Page C361, lines 14–15 (4/29/97)

---

```
email: {\tt TUG@tug.org}
internet: {\tt http://www.tug.org/}
}
```

---

Page C361, bottom five lines (4/29/97)

---

*Don't delay, subscribe today! That address again is*  
*T<sub>E</sub>X Users Group*  
*email: TUG@tug.org*  
*internet: http://www.tug.org/*  
 DONALD E. KNUTH, *The T<sub>E</sub>Xbook* (1996)

---

Page Dix, line ix (8/19/00)

---

- “Interfacing with graphic objects” by Ignacio Andrés Zabala Salelles,

---

Page D71, line 11 of section 178 (9/13/00)

---

{ previous `mem_end`, `lo_mem_max`, and `hi_mem_min` }

---

Page D132, line 6 of section 291 (9/13/00)

---

$$= v_n + w_n \theta_0 - u_n (v_1 + w_1 \theta_0 - u_1 (v_2 + \dots - u_{n-2} (v_{n-1} + w_{n-1} \theta_0 - u_{n-1} \theta_0) \dots)),$$

---

Page D213, line 7 (9/14/00)

---

( $-y + \epsilon$ ,  $x + y + \epsilon \delta$ ). We should therefore round as if our skewed coordinates were  $(x + \epsilon + \epsilon \delta, y - \epsilon)$

---

Page D349, line 4 of section 784 (9/14/00)

---

**procedure** `pack_job_name`(`s : str_number`); { `s = ".log"`, `".gf"`, `".tfm"`, or `base_extension` }

---

Page D451, line 11 (9/14/00)

**1040.** The value of *cur\_mod* controls the *verbosity* in the *print\_exp* routine: If it's *show\_code*,

---

Page D464, bottom line (9/14/00)

*long\_help\_seen*: *boolean*; { has the long **errmessage** help been used? }

---

Page D551, Zabala entry (8/19/00)

Zabala Salelles, Ignacio Andrés: 812.

---

Page Exiii, lines 3 and 4 from the bottom (7/17/98)

■ “Metamarks: Preliminary studies for a Pandora’s Box of shapes” by Neenie Billawala, Stanford Computer Science report 1256 (Stanford, California,

---

Page E87, bottom line (6/4/98)

— JOHN SMITH, *The Printer’s Grammar* (1755)

---

Page E95, line 16 (8/8/98)

--  $z_{1r}$  --  $z_{1l}$  -- **subpath** ( $t, 0$ ) of ( $z_{3l}\{z_9 - z_3\} \dots z_{5r}$ )

---

Page E95, line 11 from the bottom (8/8/98)

--  $z_{1r}$  --  $z_{1l}$  -- **subpath** ( $t, 0$ ) of ( $z_{3r}\{z_9 - z_3\} \dots z_{5r}$ )

---

Page E95, line 8 from the bottom (3/6/95)

**cmchar** "Extensible vertical arrow--extension module";

---

Page E97, line 8 from the bottom (3/6/95)

**cmchar** "Extensible double vertical arrow--extension module";

---

Page E113, line 9 (3/6/95)

$x_5 = .5[x_4, x_6]$ ;  $x_4 - x_6 = 1.2u$ ; *lft*  $x_{5r} = \text{hround}(.5w - .5\text{curve})$ ;

---

Page E113, line 10 from the bottom (3/6/95)

$x_5 = .5[x_4, x_6]$ ;  $x_4 - x_6 = 4.8u$ ; *lft*  $x_{5r} = \text{hround}(.5w - .5\text{max\_size})$ ;

---

Page E115, line 9 (3/6/95)

$x_5 = .5[x_4, x_6]$ ;  $x_4 - x_6 = 1.2u$ ; *lft*  $x_{5r} = \text{hround}(.5w - .5\text{curve})$ ;

---

Page E115, line 12 from the bottom (3/6/95)

$x_5 = .5[x_4, x_6]$ ;  $x_4 - x_6 = 4.8u$ ; *lft*  $x_{5r} = \text{hround}(.5w - .5\text{max\_size})$ ;

---

Page E147, lines 11–14 from the bottom (7/7/97)

---

```
pos3(.8[hair, stem], 0); pos4(vair, -90); pos5(hair, -180);
pos6(vair, -270); pos7(stem, -360); pos8(vair, -450); pos9(hair, -540);
x0 = x1 = x9; lft x0l = hround(1.5u - .5hair); x2 = x4 = x6 = x8 = .5w - .25u;
rt x3r = hround(w - 1.75u); rt x7r = hround(w - u);
```

---

Page E147, line 8 from the bottom (7/7/97)

---

```
y5 = .5[y4, y6]; top y6r - bot y4r = vstem + eps; bot y8 = -oo; y7 = y9 = .55[y6, y8];
```

---

Page E165, line 6 (2/8/97)

---

```
y1 + .5hair = h; x1 = x2 + .75u; pos1(hair + dw, angle(2(x1 - x2), y1 - y2) + 90);
```

---

Page E165, line 10 (2/8/97)

---

```
x3 = .5[x2, x4]; x7 - .25u = .5[x6, x8]; rt x8r = hround(w - .5u);
```

---

Page E187, line 9 (3/6/95)

---

```
lft x1l = lft x2l = hround(.5w - .5shaved_stem); top y1 = h; bot y2 = 0;
```

---

Page E189, line 8 (3/6/95)

---

```
lft x1l = lft x2l = hround(.5w - .5shaved_stem); top y1 = h; bot y2 = 0;
```

---

Page E233, line 21 (3/6/95)

---

```
path p; {{interim superness := more_super; p = pulled_super_arc1(3, 4)(pull)}};
```

---

Page E237, line 5 (8/6/98)

---

```
lft x1 = hround .5u; x2 = w - x1; y1 = y2 = good.y .7[xheight, asc_height];
```

---

Page E239, line 7 from the bottom (3/6/95)

---

```
lft x6r = hround u; x7 = 3u; x8 = w - 3.5u; rt x9l = hround(w - u);
```

---

Page E253, line 2 from the bottom (8/9/98)

---

```
.. z3e{down} .. {z5l - z4l}z4e -- z5e -- z6e; % stroke
```

---

Page E263, line 21 (5/10/98)

---

```
path p; {{interim superness := more_super; p = pulled_super_arc1(3, 4)(pull)}};
```

---

Page E289, line 2 from the bottom (8/9/98)

---

```
.. z3e{down} .. {z5l - z4l}z4e -- z5e -- z6e; % stroke
```

---

Page E291, line 18 (3/6/95)

$x_4 = 1/3[x_5, x_{3l}]; z_4 = z_5 + \text{whatever} * (15u, .1h);$

---

Page E297, line 17 (5/10/98)

**path**  $p; \{\{\text{interim } \text{superness} := \text{more\_super}; p = \text{pulled\_super\_arc}_1(3, 4)(\text{pull})\}\};$

---

Page E303, line 17 (5/10/98)

**path**  $p; \{\{\text{interim } \text{superness} := \text{more\_super}; p = \text{pulled\_super\_arc}_1(3, 4)(\text{pull})\}\};$

---

Page E309, line 7 from the bottom (5/8/98)

$y_{@0} = y_{@2l} - \text{bracket} - \text{eps};$

---

Page E313, line 7 from the bottom (5/8/98)

$y_{@0} = y_{@2l} + \text{bracket} + \text{eps};$

---

Page E319, line 8 (5/11/98)

$\text{loop\_top} = \text{if } \text{serifs}: \text{Vround } .77[\text{vair}, \text{fudged.stem}] \text{ else: } \text{vair } \text{fi};$

---

Page E373, lines 5 and 6 from the bottom (7/13/97)

$\text{top } y_{1r} = \text{vround } .95h + oo; \text{ top } y_{2r} = h + oo; y_3 = .5h;$   
 $\text{bot } y_{4r} = -oo; \text{ bot } y_{5r} = \text{vround } .08h - oo; y_{5l} := \text{good.y } y_{5l}; x_{5l} := \text{good.x } x_{5l};$

---

Page E381, lines 11 and 12 from the bottom (7/13/97)

$\text{top } y_{1r} = \text{vround } .93h + oo; \text{ top } y_{2r} = h + oo; y_3 = .5h;$   
 $\text{bot } y_{4r} = -oo; \text{ bot } y_{5r} = \text{vround } .07h - oo;$

---

Page E389, bottom two lines (8/7/98)

**numeric**  $aa_, bb_, cc_;$   $bb_ = b/y;$   $cc_ = c/y;$   $aa_ = a * a - bb_ * bb_;$   
 $(a * (cc_ ++ \text{sqrt } aa_) - bb_ * cc_)/aa_ \text{ enddef};$

---

Page E423, line 17 (8/8/98)

$x_{13} = x_{11} - .5; \text{ top } y_{14r} = \min(^{10}/_7x\_height + .5\text{bulb\_diam}, h) + 1; \text{ top } y_{11} = x\_height;$

---

Page E427, line 21 (8/8/98)

$x_{23} = x_{21} - .5; \text{ top } y_{24r} = \min(^{10}/_7x\_height + .5\text{bulb\_diam}, h) + 1; \text{ top } y_{21} = x\_height;$

---

Page E431, lines 18 and 19 (8/8/98)

**filldraw**  $z_0 \text{ -- } (x_0, y_{2l}) \text{ -- } z_{1l}\{\text{right}\} \dots \{\text{left}\} z_{1r}$   
 $\text{-- subpath } (t, 0) \text{ of } (z_{3r} \dots \{2(x_0 - x_3), y_0 - y_3\} z_{5r})$

---

Page E431, line 2 from the bottom (8/8/98)

```
-- z1l{right} .. {left}z1r -- (x0, y2r) -- cycle;           % arrowhead and stem
```

---

Page E433, lines 13 and 14 (8/8/98)

```
filldraw z0 -- (x0, y2l) -- z1l{left} .. {right}z1r
-- subpath (t, 0) of (z3l .. {2(x0 - x3), y0 - y3}}5r)
```

---

Page E433, line 2 from the bottom (8/8/98)

```
-- z1l{left} .. {right}z1r -- (x0, y2r) -- cycle;           % arrowhead and stem
```

---

Page E463, line 15 (8/8/98)

```
--- z1r .. z1l --- subpath (t, 0) of (z3r{z9 - z3}}5r)
```

---

Page E463, line 3 from the bottom (8/8/98)

```
--- z1r .. z1l --- subpath (t, 0) of (z3l{z9 - z3}}5r)
```

---

Page E465, line 16 (8/8/98)

```
--- z1l .. z1r --- subpath (t, 0) of (z3r{z9 - z3}}5r)
```

---

Page E465, line 3 from the bottom (8/8/98)

```
--- z1l .. z1r --- subpath (t, 0) of (z3l{z9 - z3}}5r)
```

---

Page E467, line 18 (8/8/98)

```
--- z1l .. z1r --- subpath (t, 0) of (z3r{z9 - z3}}5r)
```

---

Page E467, line 3 from the bottom (8/8/98)

```
--- z11l .. z12r --- subpath (t, 0) of (z13l{z19 - z13}}15r)
```

---

Page E483, lines 12–14 from the bottom (3/6/95)

```
beginarithchar(oct "004"); pickup fine.nib; pickup rule.nib;
numeric del; del = dot.size - currentbreadth;           % currentbreadth = fine
x3 - .5del = good.x(.5w - .5del); center_on(x3);
y3 + .5del = good.y(math.axis + math.spread[.5x.height, .6x.height] + .5del);
```

---

Page E485, bottom line (6/4/98)

— JOHN SMITH, *The Printer's Grammar* (1755)

---

Page E489, line 4 (8/8/98)

```
lft x6 = hround u; x2 = w - x6; top y8 = h; y8 - y4 = x2 - x6;
```



|   |           |
|---|-----------|
| Page E489, line 10  | (8/8/98)  |
| <i>lft</i> $x_6 = \text{hround } u$ ; $x_2 = w - x_6$ ; <i>top</i> $y_8 = h$ ; $y_8 - y_4 = x_2 - x_6$ ; <i>circle_points</i> ; |           |
| Page E491, line 3 from the bottom   | (3/6/95)  |
| <i>spread</i> := 2ceiling( <i>spread</i> # * <i>hppp</i> /2) + <i>eps</i> ; <b>enddef</b> ;                                     |           |
| Page E507, line 15  | (8/8/98)  |
| --- $z_{1r} \dots z_{1l}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{3r}\{z_9 - z_3\} \dots z_{5r}$ )                               |           |
| Page E507, line 3 from the bottom   | (8/8/98)  |
| --- $z_{11r} \dots z_{11l}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{13l}\{z_{19} - z_{13}\} \dots z_{15r}$ )                     |           |
| Page E509, line 17  | (8/8/98)  |
| --- $z_{1l} \dots z_{1r}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{3l}\{z_9 - z_3\} \dots z_{5r}$ )                               |           |
| Page E509, lines 3 and 4 from the bottom  | (8/8/98)  |
| --- $z_{1l} \dots z_{1r}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{3l}\{z_9 - z_3\} \dots z_{5r}$ )                               |           |
| Page E511, line 17  | (8/8/98)  |
| --- $z_{1l} \dots z_{1r}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{3l}\{z_9 - z_3\} \dots z_{5r}$ )                               |           |
| Page E511, lines 3 and 4 from the bottom  | (8/8/98)  |
| --- $z_{1l} \dots z_{1r}$ --- <b>subpath</b> ( $t, 0$ ) of ( $z_{3l}\{z_9 - z_3\} \dots z_{5r}$ )                               |           |
| Page E541, bottom line  | (2/27/97) |
| <b>labels</b> (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15); <b>endchar</b> ;  |           |
| Page E568, the example of <code>cmtex8</code>   | (4/18/96) |
| (The word ‘ <code>logician</code> ’ should not be hyphenated.)  |           |
| Page E574, left column  | (3/6/95)  |
| <i>currentbreadth</i> , 483, <a href="#">545</a> , 546.   |           |
| Page E575, right column   | (9/10/98) |
| Holmes, Kris Ann, vi, vii.  |           |
| Page E576, right column   | (6/4/98)  |
| Delete the entry for Luckombe   |           |
| Page E579, left column  | (6/4/98)  |
| Smith, John, 87, 485.   |           |