

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_EXbook* 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.

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 _ is a control sequence of the second kind, namely a control symbol, since there is a single nonletter (_) following

Page A43, line –17 (8/4/98)

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

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)

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

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

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

Page A115, line –19 (8/5/98)

If there’s no room for such an insertion on this page, T_EX will insert it at the top of

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

of \dimen3, assuming that \dimen3 is positive.

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

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

Page A233, line –2 (8/5/98)

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

2 Bugs in Computers & Typesetting, 2000

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

$\langle \text{code assignment} \rangle \longrightarrow \langle \text{codename} \rangle \langle \text{8-bit number} \rangle \langle \text{equals} \rangle \langle \text{number} \rangle$

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

[Move this line, which defines $\langle \text{at clause} \rangle$, up to the top of the page.]

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

$\langle \text{math field} \rangle \longrightarrow \langle \text{filler} \rangle \langle \text{math symbol} \rangle \mid \langle \text{filler} \rangle \{ \langle \text{math mode material} \rangle \}$

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

8.4. $\$3 \text{ x}_{11} \wedge 7 \text{ z}_{12} \$3 \sim_{13} \sqcup_{10} \boxed{\text{TeX}} \text{ b}_{11} \vee_{11} \sqcup_{10}$. The final space comes from the

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

stands for ‘ $\backslash \text{par} \backslash \text{vfill} \dots$ ’, so the next three commands are

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

$\{ \text{vertical mode} : \backslash \text{par} \}$

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

15.8. $\backslash \text{advance} \backslash \text{dimen}2 \text{ by} \backslash \text{ifnum} \backslash \text{dimen}2 < 0 - \backslash \text{fi} .5 \backslash \text{dimen}3$
 $\backslash \text{divide} \backslash \text{dimen}2 \text{ by} \backslash \text{dimen}3 \backslash \text{multiply} \backslash \text{dimen}2 \text{ by} \backslash \text{dimen}3$

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

$0 \& \backslash \text{mapright} \{ \} \& \{ \backslash \text{cal } 0 \} _C \& \backslash \text{mapright} \backslash \text{pi} \&$

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

DONALD E. KNUTH, *The T_EXbook* (1984)

Page A348, lines 14–16 (8/6/98)

$\backslash \text{def} \backslash \text{if} \#1 \{ \text{true} \} \{ \backslash \text{let} \#1 = \text{iftrue} \} \%$
 $\backslash \text{expandafter} \backslash \text{expandafter} \backslash \text{expandafter}$
 $\backslash \text{def} \backslash \text{if} \#1 \{ \text{false} \} \{ \backslash \text{let} \#1 = \text{iffalse} \} \%$

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

$\backslash \text{def} \backslash \text{AA} \{ \backslash \text{leavevmode} \backslash \text{setbox} 0 = \backslash \text{hbox} \{ ! \} \backslash \text{dimen} @ = \backslash \text{ht} 0 \backslash \text{advance} \backslash \text{dimen} @ \text{ by} -1 \text{ex}$

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{##\crcr#1\crcr}} \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\crcr\hidewidth\sh@ft{-1ex}.\hidewidth}}
\def\b#1{\o@lign{\relax#1\crcr\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\crcr\hidewidth\char'30\hidewidth}\fi}
\def\copyright{\oalign{\hfil\raise.07ex\hbox{c}\hfil\crcr\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 ${}_0\mathbf{h}_0\mathbf{e}_2\mathbf{n}_0$, 0 from ${}_0\mathbf{h}_0\mathbf{e}_0\mathbf{n}_0\mathbf{a}_4$, 0 from ${}_0\mathbf{h}_0\mathbf{e}_0\mathbf{n}_5\mathbf{a}_0\mathbf{t}_0$, 1 from ${}_1\mathbf{n}_0\mathbf{a}_0$, and 0 from ${}_0\mathbf{n}_2\mathbf{a}_0\mathbf{t}_0$); the maximum of these is 2. The result of all the maximizations is

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

tion dictionary, except that plain T_EX blocks hyphens after the very first letter or be-

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

≤, 45, 135, 368–369; see also \le.
≠, 45, 135, 368–369; see also \ne.
≥, 45, 135, 368–369; see also \ge.

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

↑ and ↓, 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.

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’.

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

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

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

`\orb` (\bigcirc), 356.

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 \mathbb{S} stands for the numeric

Page B2, line –10	(3/8/95)
-------------------	----------

`\define banner` \equiv ‘`ThisisTeX,Version3.14159`’ { printed when T_EX 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  $z_4\{curl 0\} \dots z_2\{z_3 - z_4\} \dots \{curl 0\} z_3;$ 
draw  $z_4\{curl 2\} \dots z_2\{z_3 - z_4\} \dots \{curl 2\} z_3$ 

```

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 'c' 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 **exprs**:

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 **penrazor** stands for '**makepen** ((-.5,0) -- (.5,0) -- cycle)', and **pensquare**

Page C171, line 19 (8/5/98)

($\langle \text{path tertiary} \rangle$) and ($\langle \text{pair tertiary} \rangle$). 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)

$\langle \text{path primary} \rangle \longrightarrow \langle \text{pair primary} \rangle \mid \langle \text{path variable} \rangle \mid \langle \text{path argument} \rangle$
 $\mid (\langle \text{path expression} \rangle)$
 $\mid \text{begingroup} \langle \text{statement list} \rangle \langle \text{path expression} \rangle \text{endgroup}$
 $\mid \text{makepath} \langle \text{pen primary} \rangle \mid \text{makepath} \langle \text{future pen primary} \rangle$
 $\mid \text{reverse} \langle \text{path primary} \rangle$
 $\mid \text{subpath} \langle \text{pair expression} \rangle \text{of} \langle \text{path primary} \rangle$
 $\langle \text{path secondary} \rangle \longrightarrow \langle \text{pair secondary} \rangle \mid \langle \text{path primary} \rangle$
 $\mid \langle \text{path secondary} \rangle \langle \text{transformer} \rangle$
 $\langle \text{path tertiary} \rangle \longrightarrow \langle \text{pair tertiary} \rangle \mid \langle \text{path secondary} \rangle$
 $\langle \text{path subexpression} \rangle \longrightarrow \langle \text{path expression} \rangle$
 $\mid \langle \text{path subexpression} \rangle \langle \text{path join} \rangle \langle \text{path tertiary} \rangle$

Page C213, line –4

(8/5/98)

$\langle \text{path expression} \rangle \longrightarrow \langle \text{pair expression} \rangle \mid \langle \text{path tertiary} \rangle$

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)

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

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 *breath_*[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{\noboundary\char\n\noboundary}%
```

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)

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

Evetts, Leonard Charles, 153.

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](#).

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_EX Users Group
email: TUG@tug.org
internet: http://www.tug.org/
DONALD E. KNUTH, *The T_EXbook* (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)

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

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 <i>cur_mod</i> controls the <i>verbosity</i> in the <i>print_exp</i> routine: If it's <i>show_code</i> ,	
Page D464, bottom line	(9/14/00)
<i>long_help_seen</i> : <i>boolean</i> ; { 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, <i>The Printer’s Grammar</i> (1755)	
Page E95, line 16	(8/8/98)
<code>-- z_{1r} -- z_{1l} -- subpath (t, 0) of (z_{3l}{z₉ - z₃} .. z_{5r})</code>	
Page E95, line 11 from the bottom	(8/8/98)
<code>-- z_{1r} -- z_{1l} -- subpath (t, 0) of (z_{3r}{z₉ - z₃} .. z_{5r})</code>	
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)
<code>x₅ = .5[x₄, x₆]; x₄ - x₆ = 1.2u; lft x_{5r} = hround(.5w - .5curve);</code>	
Page E113, line 10 from the bottom	(3/6/95)
<code>x₅ = .5[x₄, x₆]; x₄ - x₆ = 4.8u; lft x_{5r} = hround(.5w - .5max_size);</code>	
Page E115, line 9	(3/6/95)
<code>x₅ = .5[x₄, x₆]; x₄ - x₆ = 1.2u; lft x_{5r} = hround(.5w - .5curve);</code>	
Page E115, line 12 from the bottom	(3/6/95)
<code>x₅ = .5[x₄, x₆]; x₄ - x₆ = 4.8u; lft x_{5r} = hround(.5w - .5max_size);</code>	

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_arci(3, 4)(pull)}};
```

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

```
lft x1 = hround .5u; x2 = w - x1; y1 = y2 = good.y.7[x_height, 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_arci(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)
$x_4 = 1/3[x_5, x_{3l}]; \quad z_4 = z_5 + \text{whatever} * (15u, .1h);$	
Page E297, line 17	(5/10/98)
path p ; $\{\{\text{interim } \text{superness} := \text{more_super}; \quad p = \text{pulled_super_arc}_i(3, 4)(\text{pull})\}\};$	
Page E303, line 17	(5/10/98)
path p ; $\{\{\text{interim } \text{superness} := \text{more_super}; \quad p = \text{pulled_super_arc}_i(3, 4)(\text{pull})\}\};$	
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)
$\text{top } y_{1r} = \text{vround } .95h + oo; \quad \text{top } y_{2r} = h + oo; \quad y_3 = .5h;$ $\text{bot } y_{4r} = -oo; \quad \text{bot } y_{5r} = \text{vround } .08h - oo; \quad y_{5l} := \text{good.y } y_{5l}; \quad x_{5l} := \text{good.x } x_{5l};$	
Page E381, lines 11 and 12 from the bottom	(7/13/97)
$\text{top } y_{1r} = \text{vround } .93h + oo; \quad \text{top } y_{2r} = h + oo; \quad y_3 = .5h;$ $\text{bot } y_{4r} = -oo; \quad \text{bot } y_{5r} = \text{vround } .07h - oo;$	
Page E389, bottom two lines	(8/7/98)
numeric $aa_ , bb_ , cc_ ; \quad bb_ = b/y; \quad cc_ = c/y; \quad aa_ = a * a - bb_ * bb_ ;$ $(a * (cc_ ++ \text{sqrt } aa_) - bb_ * cc_)/aa_ \text{ enddef};$	
Page E423, line 17	(8/8/98)
$x_{13} = x_{11} - .5; \quad \text{top } y_{14r} = \min(^{10}/_7x_height + .5\text{bulb_diam}, h) + 1; \quad \text{top } y_{11} = x_height;$	
Page E427, line 21	(8/8/98)
$x_{23} = x_{21} - .5; \quad \text{top } y_{24r} = \min(^{10}/_7x_height + .5\text{bulb_diam}, h) + 1; \quad \text{top } y_{21} = x_height;$	
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} z5r)
```

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} .. z5r)
```

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

```
--- z1r .. z1l --- subpath (t, 0) of (z3l{z9 - z3} .. z5r)
```

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

```
--- z1l .. z1r --- subpath (t, 0) of (z3r{z9 - z3} .. z5r)
```

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

```
--- z1l .. z1r --- subpath (t, 0) of (z3l{z9 - z3} .. z5r)
```

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

```
--- z1l .. z1r --- subpath (t, 0) of (z3r{z9 - z3} .. z5r)
```

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

```
--- z11l .. z12r --- subpath (t, 0) of (z13l{z19 - z13} .. z15r)
```

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)
$lft\ x_6 = hround\ u;$ $x_2 = w - x_6;$ $top\ y_8 = h;$ $y_8 - y_4 = x_2 - x_6;$ $circle_points;$	
Page E491, line 3 from the bottom	(3/6/95)
$spread := 2ceiling(spread\# * hppp/2) + eps;$ enddef ;	
Page E507, line 15	(8/8/98)
$---\ z_{1r} \dots z_{1l} ---$ subpath ($t, 0$) of ($z_{3r}\{z_9 - z_3\} \dots z_{5r}$)	
Page E507, line 3 from the bottom	(8/8/98)
$---\ z_{11r} \dots z_{11l} ---$ subpath ($t, 0$) of ($z_{13l}\{z_{19} - z_{13}\} \dots z_{15r}$)	
Page E509, line 17	(8/8/98)
$---\ z_{1l} \dots z_{1r} ---$ subpath ($t, 0$) of ($z_{3l}\{z_9 - z_3\} \dots z_{5r}$)	
Page E509, lines 3 and 4 from the bottom	(8/8/98)
$---\ z_{1l} \dots z_{1r} ---$ subpath ($t, 0$) of ($z_{3l}\{z_9 - z_3\} \dots z_{5r}$)	
Page E511, line 17	(8/8/98)
$---\ z_{1l} \dots z_{1r} ---$ subpath ($t, 0$) of ($z_{3l}\{z_9 - z_3\} \dots z_{5r}$)	
Page E511, lines 3 and 4 from the bottom	(8/8/98)
$---\ z_{1l} \dots z_{1r} ---$ subpath ($t, 0$) of ($z_{3l}\{z_9 - z_3\} \dots z_{5r}$)	
Page E541, bottom line	(2/27/97)
labels (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15); endchar ;	
Page E568, the example of cmtex8	(4/18/96)
(The word ‘ logician ’ should not be hyphenated.)	
Page E574, left column	(3/6/95)
$currentbreadth$, 483, <u>545</u> , 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.	