

# The `tugboat` package\*

The *TUGboat* team

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## 1 Document preambles

```

1 <ltugboatcls | ltugproccls | ltugcomm>\NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 <*dtx>
3 \ProvidesFile           {tugboat.dtx}
4 </dtx>
5 <ltugboatcls>\ProvidesClass {ltugboat}
6 <ltugproccls>\ProvidesClass {ltugproc}
7 <ltugboatsty>\ProvidesPackage{ltugboat}
8 <ltugprocsty>\ProvidesPackage{ltugproc}
9 <ltugcomm>  \ProvidesPackage{ltugcomm}
10           [2020-03-12 v2.23
11 <ltugboatcls>           TUGboat journal class%
12 <ltugproccls>          TUG conference proceedings class%
13 <ltugboatsty | ltugprocsty> TUG compatibility package%
14 <ltugcomm>             TUGboat 'common macros' package%
15 <*dtx>
16
17 </dtx>
18           ]
19 <*dtx>
20 \newif\ifoldlongtable
21 </dtx>

```

## 2 Introduction

This file contains all the macros for typesetting *TUGboat* with both plain T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

### 2.1 Summary of control sequences

Abbreviations. Just a listing with indications of expansion where that may not be obvious. For full definitions, see real code below (Section 3.4).

<code>\AllTeX</code>	( <del>L</del> )TeX
<code>\AMS</code>	American Mathematical Society
<code>\AmSTeX</code>	
<code>\aw</code>	A-W (abbreviation for Addison-Wesley)
<code>\API</code>	
<code>\AW</code>	Addison-Wesley
<code>\BibTeX</code>	
<code>\CandT</code>	Computers & Typesetting
<code>\ConTeXt</code>	ConTeXt
<code>\Cplusplus</code>	C++
<code>\DTD</code>	
<code>\DVD</code>	
<code>\DVI</code>	
<code>\DVIPDFMx</code>	DVIPDFMx
<code>\DVItOVDU</code>	DVItOVDU
<code>\ECMA</code>	
<code>\EPS</code>	
<code>\eTeX</code>	$\varepsilon$ -TeX
<code>\ExTeX</code>	$\varepsilon_X$ TeX
<code>\Ghostscript</code>	
<code>\Hawaii</code>	Hawai'i
<code>\HTML</code>	
<code>\ISBN</code>	ISBN
<code>\ISO</code>	
<code>\ISSN</code>	ISSN
<code>\JTeX</code>	
<code>\JoT</code>	The Joy of TeX
<code>\LaTeX</code>	
<code>\LyX</code>	
<code>\MacOSX</code>	Mac OS X
<code>\MathML</code>	
<code>\Mc</code>	M with raised c
<code>\MF</code>	METAFONT
<code>\mf</code>	METAFONT
<code>\MFB</code>	The Metafontbook
<code>\MP</code>	METAPOST
<code>\mp</code>	MetaPost (in text only: still ‘ $\mp$ ’ in math)
<code>\OMEGA</code>	Omega ‘logo’ ( $\Omega$ )
<code>\OCP</code>	Omega compiled process
<code>\OOXML</code>	
<code>\OTP</code>	Omega translation process
<code>\mtex</code>	multilingual TeX
<code>\NTS</code>	New Typesetting System
<code>\pcMF</code>	pcMF
<code>\PCTeX</code>	
<code>\pcTeX</code>	

<code>\Pas</code>	Pascal
<code>\PiCTeX</code>	
<code>\plain</code>	plain (in typewriter font)
<code>\POBox</code>	P. O. Box
<code>\PS</code>	PostScript (with hyphenation)
<code>\SC</code>	Steering Committee
<code>\SGML</code>	SGML
<code>\SliTeX</code>	
<code>\slMF</code>	Metafont, slanted: deprecated: use <code>\textsl</code> instead
<code>\stTeX</code>	$\TeX$ for the Atari ST
<code>\SVG</code>	
<code>\TANGLE</code>	
<code>\TB</code>	The $\TeX$ book
<code>\TeX</code>	(Although nearly every package defines this, most, including plain, are missing the spacefactor adjustment)
<code>\TeXhax</code>	
<code>\TeXMaG</code>	(defunct)
<code>\TeXtures</code>	
<code>\TeXXeT</code>	
<code>\Thanh</code>	
<code>\TFM</code>	TFM
<code>\TUB</code>	<i>TUGboat</i>
<code>\TUG</code>	$\TeX$ Users Group
<code>\UNIX</code>	
<code>\VAX</code>	
<code>\VnTeX</code>	
<code>\VorTeX</code>	
<code>\XeT</code>	
<code>\XeTeX</code>	reflected and lowered first ‘E’
<code>\XeLaTeX</code>	with extra space before ‘L’
<code>\XML</code>	
<code>\WEB</code>	
<code>\WEAVE</code>	
<code>\WYSIWYG</code>	

Macros for things that are slightly more significant.

<code>\NoBlackBoxes</code>	turns off marginal rules marking overfull boxes
<code>\BlackBoxes</code>	turns them back on
<code>\newline</code>	horizontal glue plus a break
<code>\ifundefined#1</code>	checks argument with <code>\csname</code> against <code>\relax</code>
<code>\topsmash</code>	smashes above baseline (from AMSTeX)
<code>\botsmash</code>	smashes below baseline (from AMSTeX)
<code>\smash</code>	smashes both (from plain)

<code>\ulap</code>	lap upwards
<code>\dlap</code>	lap downwards
<code>\xlap</code>	reference point at center horizontally; 0 width
<code>\ylap</code>	reference point at center vertically; 0 height, depth
<code>\zlap</code>	combination <code>\xlap</code> and <code>\ylap</code>
<code>\basezero</code>	to avoid insertion of <code>baselineskip</code> and <code>lineskip</code> glue
<code>\nullhrule</code>	empty <code>\hrule</code>
<code>\nullvrule</code>	empty <code>\vrule</code>
<code>\makestrut[#1;#2]</code>	ad hoc struts; #1=height, #2=depth
<code>\today</code>	today's date
<code>\SetTime</code>	converts <code>\time</code> to hours, minutes
<code>\now</code>	displays time in hours and minutes
<code>\Now</code>	shows current date and time
<code>\ifPrelimDraft</code>	flag to indicate status as preliminary draft
<code>\rtitlex</code>	<i>TUGboat</i> volume and number info for running head
<code>\midrttitle</code>	information for center of running head
<code>\rtitlenexttopage</code>	next to page number in running head
<code>\HorzR@gisterRule</code>	pieces of registration marks ('trimmarks')
<code>\DownShortR@gisterRule</code>	
<code>\UpShortR@gisterRule</code>	
<code>\ttopregister</code>	top registration line with 'T' in center
<code>\tbotregister</code>	bottom registration line with inverted 'T' in center
<code>\topregister</code>	register actually used
<code>\botregister</code>	
<code>\raggedskip</code>	parameters used for ragged settings
<code>\raggedstretch</code>	
<code>\raggedparfill</code>	
<code>\raggedspaces</code>	
<code>\raggedright</code>	
<code>\raggedleft</code>	
<code>\raggedcenter</code>	
<code>\normalspaces</code>	
<code>\raggedbottom</code>	
<code>\bull</code>	square bullet
<code>\cents</code>	'cents' sign
<code>\Dag</code>	superscripted dagger
<code>\careof</code>	c/o
<code>\sfrac</code>	slashed fraction (arguments optionally separated by a slash)
<code>\cs</code>	control sequence name <code>\cs{name}→\name</code>
<code>\env</code>	environment name <code>\env{name}→\begin{name}</code>

<code>\meta</code>	meta-argument name <code>\meta{name}→⟨name⟩</code>
<code>\dash</code>	en-dash surrounded by thinspaces; only breakable AFTER
<code>\Dash</code>	em-dash, as above
<code>\hyph</code>	permit automatic hyphenation after an actual hyphen
<code>\slash</code>	‘breakable’ slash
<code>\nth</code>	for obtaining ‘1 <sup>st</sup> ’, ‘2 <sup>nd</sup> ’, 3 <sup>rd</sup> , etc.
<code>\tubissue</code>	gets <code>\TUB</code> followed by volume and issue numbers
<code>\xEdNote</code>	Editor’s Note:
<code>\Review:</code>	Review: (for title of book review article)
<code>\reviewitem</code>	begin data for item being reviewed
<code>\revauth</code>	with one argument, author(s) of item being reviewed
<code>\revtitle</code>	with one argument, title of ...
<code>\revpubinfo</code>	with one argument, other info pertaining to ...
<code>\endreviewitem</code>	end data for item being reviewed
<code>\booktitle</code>	with one argument, format book title as straight text
<code>\Input</code>	<code>\input</code> with some other bookkeeping for case where multiple articles are put together
<code>\TBremark</code>	reminder to <i>TUGboat</i> editorial staff
<code>\TBenableRemarks</code>	enable <code>\TBremarks</code> (normally suppressed)
<code>\pagexref</code>	used to write out page numbers to screen and external files
<code>\pagexrefON</code>	
<code>\pagexrefOFF</code>	
<code>\xrefto</code>	used for symbolic cross-reference to other pages
<code>\xreftoON</code>	in <i>TUGboat</i>
<code>\xreftoOFF</code>	
<code>\TBdriver</code>	marks code which only takes effect when articles are run together in a driver file
<code>\signaturemark</code>	items for signatures
<code>\signaturewidth</code>	

### 3 L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> *TUGboat* class file

#### 3.1 Setup and options

Check for reloading. Hmm. . . Does this happen with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> classes? Probably, in fact, as well that it doesn’t, since the `\tugstyinit` referenced here doesn’t exist; however, it’s possible that we might need a similar mechanism in the future, so we retain its skeleton, without fleshing out the `\tugstyinit` bones.

```
22 <*tugboatcls>
23 \csname tugstyloaded@&endcsname
```

```

24 \def\tugstyloaded@{\tugstyinit\endinput}

    Acquire a name for this class if we don't already have one (by virtue of having
    been loaded by tugproc.cls). This name will be used in error messages and the
    like.
25 \providecommand{\@tugclass}{ltugboat}

    Warnings/error messages/information messages — if we're using LATEX 2ε we
    can use the \Class* commands:
26 \def\TBInfo{\ClassInfo{\@tugclass}}
27 \def\TBError{\ClassError{\@tugclass}}
28 \def\TBWarning{\ClassWarning{\@tugclass}}
29 \def\TBWarningNL{\ClassWarningNoLine{\@tugclass}}

    draft vs. preprint vs. final.
30 \newif\ifpreprint
31 \def\preprint{\preprinttrue}
32 \DeclareOption{draft}{%
33   \AtEndOfClass{%
34     \setcounter{page}{901}%
35     %
36     % Put a question mark into the page number in draft mode.
37     \let\tuborigthepage = \thepage
38     \def\thepage{%
39       \ifnum\value{page}>900
40         \textsl{?\texorpdfstring{\,}{\@arabic{\numexpr\the\c@page-900\relax}}}%
41       \else
42         \arabic{page}%
43       \fi}%
44     %
45     \BlackBoxes
46     \def\MakeRegistrationMarks{}%
47     \PrelimDrafttrue
48   }%
49 }
50 \DeclareOption{preprint}{%
51   \preprinttrue
52 }
53 \DeclareOption{final}{%
54   \AtEndOfClass{%
55     \let\thepage=\tuborigthepage
56     \NoBlackBoxes
57     % Insert draft date into the header even with [final], if we are not
58     % doing a production run. (tugboat.dates sets up page numbers
59     % above 900 in such pseudo-draft mode.) We use [final] in the first
60     % place for this case because draft can change page layout, wrt
61     % registration marks, etc.
62     \ifnum\value{page}>900 \PrelimDrafttrue \else \PrelimDraftfalse \fi
63     \@tubrunningfull
64   }%

```

65 }

We want to use `hyperref`'s `\texorpdfstring`, e.g., in the `draft` option above. If `hyperref` is not loaded, define our own trivial fallback to expand to the `TEX` (first) argument.

```
66 \AtBeginDocument{%
67   \ifx\undefined\texorpdfstring
68     \DeclareRobustCommand{\texorpdfstring}[2]{#1}%
69   \fi
70 }
```

*TUGboat* uses only 10pt for the main text.

```
71 \DeclareOption{11pt}{%
72   \TBWarning{The \@tugclass\space class only supports 10pt fonts:
73     \MessageBreak option \CurrentOption\space ignored}%
74 }
75 \DeclareOption{12pt}{\csname ds@11pt\endcsname}
```

Similarly, ignore one/two-side options.

```
76 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
77 \DeclareOption{twoside}{\ds@oneside}
```

There are these people who seem to think `tugproc` is an option rather than a class... (Note that it's already been filtered out if we were calling from `ltugproc`.)

```
78 \DeclareOption{tugproc}{%
79   \TBWarning{Option \CurrentOption\space ignored: use class ltugproc
80     instead of \@tugclass}%
81 }
```

Option `rawcite` (the default) specifies the default citation mechanism (as built-in to `LATEX`); option `harvardcite` specifies the author-date citation mechanism defined in section 3.24 below.

```
82 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
83 \DeclareOption{harvardcite}{\let\if@Harvardcite\iftrue}
```

Option `extralabel` (the default) specifies that the publication years of two successive references with otherwise identical labels will be tagged with distinguishing letters; option `noextralabel` causes those letters to be suppressed. Note that (a) no two references will in any case have the same labels in the default (plain) `rawcite` setup, and that (b) the distinguishing letters appear in the labels themselves; the reader can work out the correspondence one with the other...

```
84 \DeclareOption{extralabel}{\let\UseExtraLabel\@firstofone}
85 \DeclareOption{noextralabel}{\let\UseExtraLabel\@gobble}
```

The section-numbering style, so that we can allow the same heading layout as in the plain macros.

```
86 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
87 \DeclareOption{nonumber}{\let\if@numbersec\iffalse}
```



Minimal running headers/footers contain just the TUGboat volume/issue identification and page numbers. ‘runningfull’ is the default, and includes title and author. ‘runningoff’ makes both headers and footers empty.

```
88 \DeclareOption{runningoff}{\AtEndOfClass{\@tubrunningoff}}
89 \DeclareOption{runningminimal}{\AtEndOfClass{\@tubrunningminimal}}
90 \DeclareOption{runningfull}{\AtEndOfClass{\@tubrunningfull}}
```

`\if@tubtwocolumn` Occasionally (tb107jackowski, and past conference preprints), we need the option `onecolumn`. For alternative approaches to one-column articles, see `tb92hagen-euler` and `tb78milo`.

```
91 \newif\if@tubtwocolumn \@tubtwocolumntrue
92 \DeclareOption{onecolumn}{\@tubtwocolumnfalse}
```

Any other options, we pass on to `article.cls` before we load it:

```
93 \DeclareOption*{\PassOptionsToClass{CurrentOption}{article}}
```

Request default options (draft mode, standard citation, numbered sections, etc.), process all options, and then get the base document class on top of which we reside, namely `article`. Always call `article` with the `twoside` option, since we want the ability to have odd/even headers/footers.

```
94 \ExecuteOptions{draft,extralabel,numbersec,rawcite,runningminimal}
95 \ProcessOptions
96 \LoadClass[twoside]{article}
```

Various fonts used throughout. Some effort has been made to suppress these things with explicit sizes in the macro name (`\tensl` is an example below), but keeping in step with the documentation is one thing that restricts such a move.

```
97 \def\sectitlefont{\fontfamily\sfddefault\fontseries{bx}\fontshape{n}%
98     \fontsize\@xviipt\stbaselineskip\selectfont}
99 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xiipt
100     \selectfont}
```

This font selection command is used *only* for the ‘Editor’s Note’ introduction to notes; sadly it makes explicit reference to CMR, and Barbara Beeton has agreed that the reference may be constructed to use the current family such that, if no upright italic is defined, ordinary italics are used. A project for later...

```
101 \def\EdNoteFont{\fontfamily{cmr}\fontseries{m}\fontshape{ui}%
102     \selectfont}
103 </ltugboatcls>
```

If Ulrik Vieth’s `mflogo.sty` is around, we’ll use it. Otherwise (pro tem, at least) we’ll warn the user and define the absolute minimum of machinery that *TUGboat* requires (that which was used prior to the invention of L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>).

```
104 <*common>
105 \IfFileExists{mflogo.sty}%
106     {\RequirePackage{mflogo}}%
107 <!!tugcomn> {\TBWarning
108 <tugcomn>     {\PackageWarning{ltugcomn}
```

```

109     {Package mflogo.sty not available --\MessageBreak
110       Proceeding to emulate mflogo.sty}
111   \DeclareRobustCommand{\logofamily}{%
112     \not@math@alphabet\logofamily\relax
113     \fontencoding{U}\fontfamily{logo}\selectfont}
114   \DeclareTextFontCommand{\textlogo}{\logofamily}
115   \def\MF{\textlogo{META}\-\textlogo{FONT}\@}
116   \def\MP{\textlogo{META}\-\textlogo{POST}\@}
117   \DeclareFontFamily{U}{logo}{}
118   \DeclareFontShape{U}{logo}{m}{n}{%
119     <8><9>gen*logo%
120     <10><10.95><12><14.4><17.28><20.74><24.88>logo10%
121   }{}
122   \DeclareFontShape{U}{logo}{m}{sl}{%
123     <8><9>gen*logosl%
124     <10><10.95><12><14.4><17.28><20.74><24.88>logosl10%
125   }{}
126   \DeclareFontShape{U}{logo}{m}{it}{%
127     <->ssub*logo/m/sl%
128   }{}%
129   }

```

### 3.2 Resetting at start of paper

`\ResetCommands` We store a set of commands that should be executed at the start of each paper, before any paper-specific customisation. These commands (stored in the token register `\ResetCommands`) include things such as resetting section and footnote numbers, re-establishing default settings of typesetting parameters, and so on. The user (or more typically, editor) may execute the commands by using the command `\StartNewPaper`. Things I've not yet thought of may be added to the list of commands, by

```

130 \newtoks\ResetCommands
131 \ResetCommands{%
132   \setcounter{part}{0}%
133   \setcounter{section}{0}%
134   \setcounter{footnote}{0}%
135   \authornumber\z@
136 }
137 \newcommand{\AddToResetCommands}[1]{%
138   \AddToResetCommands\expandafter{\AddToResetCommands#1}%
139 }

```

### 3.3 Helpful shorthands (common code with Plain styles)

`\makescape`, `\makecomment` allow users to change the category code of a single character a little more easily. These require that the character be addressed as a control sequence: e.g., `\makescape\` will make `'/'` an escape character.

```

140 <*\latex>

```

```

141 \def\makeescape#1{\catcode'#1=0 }
142 \def\makebgroup#1{\catcode'#1=1 }
143 \def\makeegroup#1{\catcode'#1=2 }
144 \def\makemath #1{\catcode'#1=3 }
145 </!latex>
146 <*latex>
147 \def\makeescape#1{\catcode'#1=\z@}
148 \def\makebgroup#1{\catcode'#1=@ne}
149 \def\makeegroup#1{\catcode'#1=\tw@}
150 \def\makemath #1{\catcode'#1=\thr@@}
151 </!latex>
152 \def\makealign #1{\catcode'#1=4 }
153 \def\makeeol #1{\catcode'#1=5 }
154 \def\makeparm #1{\catcode'#1=6 }
155 \def\makesup #1{\catcode'#1=7 }
156 \def\makesub #1{\catcode'#1=8 }
157 \def\makeignore#1{\catcode'#1=9 }
158 \def\makespace #1{\catcode'#1=10 }
159 \def\makeletter#1{\catcode'#1=11 }
160 \chardef\other=12
161 \let\makeother\@makeother
162 \def\makeactive#1{\catcode'#1=13 }
163 \def\makecomment#1{\catcode'#1=14 }

```

`\savecat#1` and `\restorecat#1` will save and restore the category of a given character. These are useful in cases where one doesn't wish to localize the settings and therefore be required to globally define or set things.

```

164 \def\savecat#1{%
165   \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode'#1}
166 \def\restorecat#1{\catcode'#1=\csname\string#1savedcat\endcsname}
167 </!latex>\savecat\@
168 </!latex>\makeletter\@

```

`\SaveCS#1` and `\RestoreCS#1` save and restore 'meanings' of control sequences. Again this is useful in cases where one doesn't want to localize or where global definitions clobber a control sequence which is needed later with its 'old' definition.

```

169 \def\SaveCS#1{\expandafter\let\csname saved@@#1\expandafter\endcsname
170   \csname#1\endcsname}
171 \def\RestoreCS#1{\expandafter\let\csname#1\expandafter\endcsname
172   \csname saved@@#1\endcsname}

```

To distinguish between macro files loaded

```

173 \def\plaintubstyle{plain}
174 \def\latextubstyle{latex}

```

Control sequences that were first defined in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> of 1995/06/01 (or later), but which we merrily use. Only define if necessary:

```

175 \providecommand\hb@xt@{\hbox to}
176 \providecommand\textsuperscript[1]{\ensuremath{\m@th

```

```

177             ^{\mbox{\fontsize\sf@size\z@
178                \selectfont #1}}}}

```

(Note that that definition of `\textsuperscript` isn't robust, but probably doesn't need to be... What's more, it doesn't appear in the mythical 2.09 version of the package.)

### 3.4 Abbreviations and logos

Font used for the METAFONT logo, etc.

```

179 \DeclareRobustCommand{\AllTeX}{(\La\kern-.075em)\kern-.075em\TeX}
180 \def\AMS{American Mathematical Society}
181 \def\AmS{\mathcal{A}}\kern-.1667em\lower.5ex\hbox
182     {\mathcal{M}}\kern-.125em\mathcal{S}}
183 \def\AmSLaTeX{\AmS-\LaTeX}
184 \def\AmSTeX{\AmS-\TeX}
185 \def\ANSI{\acro{ANSI}}
186 \def\API{\acro{API}}
187 \def\ASCII{\acro{ASCII}}
188 \def\aw{\acro{A\kern.04em\raise.115ex\hbox{-}W}}
189 \def\AW{Addison\kern.1em-\penalty\z@\hskip\z@skip Wesley}
190 %
191 % make \BibTeX work in slanted contexts too; it's common in titles, and
192 % especially burdensome to hack in .bib files.
193 \def\Bib{%
194   \ifdim \fontdimen1\font>0pt
195     B{\SMC\SMC IB}%
196   \else
197     B\textsc{ib}%
198   \fi
199 }
200 \def\BibLaTeX{\Bib\kern.02em \LaTeX}
201 \def\BibTeX{\Bib\kern-.08em \TeX}
202 % no good way to determine bold font, and we want to lose the kern, too:
203 % (we \let BibTeX to this in maketitle)
204 \def\bfBibTeX{B{\SMC\SMC IB}\TeX}
205 %
206 \def\BSD{\acro{BSD}}
207 \def\CandT{\textsl{Computers \& Typesetting}}
208 % must not define \CJK, because the CJK package does.
209 %
210 % We place our \kern after \- so that it disappears if the hyphenation is taken:
211 \def\ConTeXt{C\kern-.0333em\-\kern-.0667em\TeX\kern-.0333em}
212 \def\CMkIV{\ConTeXt\ MkIV}
213 \def\Cplusplus{C\plusplus}
214 \def\plusplus{\raisebox{.7ex}{$_{++}$}}
215 \def\CPU{\acro{CPU}}
216 \def\CSczabbr{\ensuremath{\cal C}\kern-.1667em\lower.5ex\hbox{\cal S}}
217 \def\CSS{\acro{CSS}}
218 \def\CSTUG{\CSczabbr\acro{TUG}}

```

```

217 \def\CSV{\acro{CSV}}
218 \def\CTAN{\acro{CTAN}}
219 \def\DTD{\acro{DTD}}
220 \def\DTK{\acro{DTK}}
221 \def\DVD{\acro{DVD}}
222 \def\DVI{\acro{DVI}}
223 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
224 \def\DVItOVDU{DVItO\kern-.12em VDU}
225 \def\ECMA{\acro{ECMA}}
226 \def\EPS{\acro{EPS}}
227 % no line break at this hyphen please
228 \DeclareRobustCommand{\eTeX}{\ensuremath{\varepsilon}\mbox{-}\kern-.125em\TeX}
229 \DeclareRobustCommand{\ExTeX}{%
230   \ensuremath{\textstyle\varepsilon_{\kern-0.15em\cal{X}}}\kern-.2em\TeX}
231 \def\FAQ{\acro{FAQ}}
232 \def\FTP{\acro{FTP}}
233 \def\Ghostscript{Ghost\script}
234 \def\GNU{\acro{GNU}}
235 \def\GUI{\acro{GUI}}
236 \def\Hawaii{Hawai'i}
237 \def\HTML{\acro{HTML}}
238 \def\HTTP{\acro{HTTP}}
239 \def\iOS{i\acro{OS}}
240 \def\IDE{\acro{IDE}}
241 \def\IEEE{\acro{IEEE}}
242 \def\ISBN{\acro{ISBN}}
243 \def\ISO{\acro{ISO}}
244 \def\ISSN{\acro{ISSN}}
245 \def\JPEG{\acro{JPEG}}
246 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}\kern-.18em\TeX}}
247 \def\JoT{\textsl{The Joy of \TeX}}
248 \DeclareRobustCommand{\KOMAScript}{\textsf{K}\kern.05em O\kern.05em%
249   M\kern.05em A\kern.1em-\kern.1em Script}}
250 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
251   $\m@th$\fontsize\sf@size\z@\selectfont
252   $\m@th\mathcal{A}$}%
253   \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
254   {$\m@th\mathcal{S}$}-\TeX}
255 % This code
256 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
257 % example) to propagate into the raised (small) 'A':
258 %   \begin{macrocode}
259 \DeclareRobustCommand{\La}%
260   {L\kern-.36em
261     {\setbox0\hbox{T}%
262       \vbox to\ht0{\hbox{$\m@th$%
263         \csname S@\fontsize\endcsname
264         \fontsize\sf@size\z@
265         \math@fontsfalse\selectfont
266         A}%

```

```

267             \vss}%
268     }}

```

We started with the intention that we wouldn't redefine `\LaTeX` when we're running under it, so as not to trample on an existing definition. However, this proves less than satisfactory; a single logo may be OK for the run of documents, but for *TUGboat*, we find that something noticeably better is necessary; see section 3.12.

```

269 <!!latex>\def\LaTeX{\La\kern-.15em\TeX}
270 \def\LuaHBTeX{Lua\acro{HB}\-\TeX}%
271 \def\LuaHBLaTeX{Lua\acro{HB}\-\LaTeX}%
272 \def\LuaLaTeX{Lua\-\LaTeX}% dtk-logos defines it and people like to use it
273 \def\LuaTeX{Lua\-\TeX}% ditto
274 \def\LyX{L\kern-.1667em\lower.25em\hbox{Y}\kern-.125emX}
275 \def\macOS{mac\acro{OS}}
276 \def\MacOSX{Mac\,\acro{OS}\,X}
277 \def\MathML{Math\acro{ML}}
278 \def\Mc{\setbox\TestBox=\hbox{M}M\vbox
279   to\ht\TestBox{\hbox{c}\vfil}} % for Robert McGaffey

```

If we're running under  $\text{\LaTeX} 2_{\epsilon}$ , we use Ulrik Vieth's `mflogo.sty` if it's present. Otherwise, we're using a short extract of Vieth's stuff. Either way, we don't need to specify `\MF` or `\MP`.

```

280 \def\mf{\textsc{Metafont}}
281 \def\MFB{\textsl{The \MF\kernipt book}}
282 \def\MkIV{Mk\acro{IV}}
283 \let\TB@@mp\mp
284 \DeclareRobustCommand{\mp}{\ifmode\TB@@mp\else MetaPost\fi}
285 %
286 % In order that the \cs{OMEGA} command will switch to using the TS1
287 % variant of the capital Omega character if \texttt{textcomp.sty} is
288 % loaded, we define it in terms of the \cs{textohm} command. Note
289 % that this requires us to interpose a level of indirection, rather
290 % than to use \cs{let}\dots
291 %
292 % \begin{macrocode}
293 \DeclareRobustCommand{\NTG}{\acro{NTG}}
294 \DeclareRobustCommand{\NTS}{\ensuremath{\mathcal{N}\mkern-4mu
295   \raisebox{-0.5ex}{\mathcal{T}}\mkern-2mu \mathcal{S}}}
296 \DeclareTextSymbol{\textohm}{OT1}{'012}
297 \DeclareTextSymbolDefault{\textohm}{OT1}
298 \newcommand{\OMEGA}{\textohm}
299 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
300 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}
301 \DeclareRobustCommand{\OTF}{\acro{OTF}}
302 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
303 \def\mtex{T\kern-.1667em\lower.424ex\hbox{^E}\kern-.125emX\@}

```

Revised definition of `\NTS` based on that used by Phil Taylor.

```

304 \def\Pas{Pascal}

```

```

305 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}MF\@}
306 \def\PCTeX{PC\thinspace\TeX}
307 \def\pcTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}\TeX}
308 \def\pdflatex{pdf\-\LaTeX}% dtk-logos
309 \def\pdftex{pdf\-\TeX}% dtk-logos
310 \def\PDF{\acro{PDF}}
311 \def\PGF{\acro{PGF}}
312 \def\PHP{\acro{PHP}}
313 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
314 \def\PiCTeX{\PiC\kern-.11em\TeX}
315 \def\plain{\texttt{plain}}
316 \def\PNG{\acro{PNG}}
317 \def\POBox{P.\thinspace 0.\~Box }
318 \def\PS{\acro{Post}\-Script}}
319 \def\PSTricks{\acro{PST}ricks}
320 \def\RTF{\acro{RTF}}
321 \def\SC{Steering Committee}
322 \def\SGML{\acro{SGML}}
323 \def\SliTeX{\textrm{S\kern-.06em\textsc{l\kern-.035em}}%
324             \kern-.06em\TeX}}
325 \def\sLMF{\textsl{MF}} % should never be used
326 \def\SQL{\acro{SQL}}
327 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
328 \def\STIX{\acro{STIX}}
329 \def\SVG{\acro{SVG}}
330 \def\TANGLE{\texttt{TANGLE}\@}
331 \def\TB{\textsl{The \TeX book}}
332 \def\TIFF{\acro{TIFF}}
333 \def\TP{\textsl{\TeX}: \textsl{The Program}}
334 \DeclareRobustCommand{\TeX}{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
335 \def\TeXhax{\TeX hax}
336 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
337             \kern-.2267emG\@}
338 \def\TeXtures{\textit{Textures}}
339 \let\Textures=\TeXtures
340 \def\TeXworks{\TeX\kern-.07em works}
341 \def\TeXXeT{\TeX-{\-}\XeT}
342 \def\TFM{\acro{TFM}}
343 \ifx\Umathchardef\@thisisundefined % xetex|luatex
344 \def\Thanh{H\'an\~Th\^e\llap{\raise.5ex\hbox{\'{}}}\~Th\'anh}% non-XeTeX
345 \else
346 \def\Thanh{H\'an\~Th\textcircmacute{e}\~Th\'anh}% else xunicode drops the acute
347 \fi
348 \def\TikZ{Ti{\em k}Z}
349 \def\TTN{\textsl{TTN}\@}
350 \def\TTN{\textsl{\TeX} and TUG News}}
351 \let\texttub\textsl % redefined in other situations
352 \def\TUB{\texttub{TUGboat}}
353 \def\TUG{\TeX\ \UG}
354 \def\tug{\acro{TUG}}

```

```

355 \def\UG{Users Group}
356 \def\UNIX{\acro{UNIX}}
357 % omit \UTF, since other packages use it for Unicode character access.
358 \def\VAX{V\kern-.12em A\kern-.1em X\@}
359 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
360 \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{0\kern-1.4\p@ R}\kern-2.6\p@\TeX}
361 \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
362 \def\XML{\acro{XML}}
363 \def\WEB{\texttt{WEB}\@}
364 \def\WEAVE{\texttt{WEAVE}\@}
365 \def\WYSIWYG{\acro{WYSIWYG}}

XeTeX requires reflecting the first E, hence we complain if the graphics pack-
age is not present. (For plain documents, this can be loaded via Eplain.) Also,
at Barbara's suggestion, if the current font is slanted, we rotate by 180 instead of
reflecting so there is at least a chance to look ok. (The magic values here seem
more or less ok for cmsl and cmti.)

366 \def\tubreflect#1{%
367   \ifundefined{reflectbox}{%
368     \TError{A graphics package must be loaded for \string\XeTeX}%
369   }{%
370     \ifdim \fontdimen1\font>0pt
371       \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
372     \else
373       \reflectbox{#1}%
374     \fi
375   }%
376 }
377 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
378 \def\XekernbeforeE{-.125em}
379 \def\XekernafterE{-.1667em}
380 \DeclareRobustCommand{\Xe}{\leavevmode
381   \tubhideheight{\hbox{X%
382     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
383     \ifdim \fontdimen1\font>0pt
384       % XeTeX logo needs tinkering when slanted/italic font.
385       \def\XekernbeforeE{-.11em}%
386       \def\XekernafterE{-.11em}%
387       \dp1=-.17ex
388     \fi
389     \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
390     \kern\XekernafterE}}
391 \def\XeTeX{\Xe\TeX}
392 \def\XeLaTeX{\Xe{\kern.11em \LaTeX}}
393 %
394 \def\XHTML{\acro{XHTML}}
395 \def\XSL{\acro{XSL}}
396 \def\XSLFO{\acro{XSL}\raise.08ex\hbox{-}\acro{FO}}
397 \def\XSLT{\acro{XSLT}}

```



### 3.5 General typesetting rules

```
398 \newlinechar='^^J
399 \normallineskiplimit=\p@
400 \clubpenalty=10000
401 \widowpenalty=10000
402 \def\NoParIndent{\parindent=\z@}
403 \newdimen\normalparindent
404 \normalparindent=20\p@
405 \def\NormalParIndent{\global\parindent=\normalparindent}
406 \NormalParIndent
407 \def\BlackBoxes{\overfullrule=5\p@}
408 \def\NoBlackBoxes{\overfullrule=\z@}
409 \def\newline{\hskip\z@\@plus\pagewd\break}
```

Hyphen control: first, we save the hyphenpenalties in `\allowhyphens`. This allows us to permit hyphens temporarily in things like `\netaddresses`, which typically occur when `\raggedright` is set, but which need to be allowed to break at their artificial discretionaries.

```
410 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
411 \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
412 \def\nohyphens{\hyphenpenalty\@M\exhyphenpenalty\@M}
```

### 3.6 Utility registers and definitions

We define a few scratch registers (and the like) for transient use; they're all paired: an internal one (`\T@st*`) and an external one (`\Test*`).

*Comment:* Exercise for an idle day: find whether all these are necessary, or whether we can use the L<sup>A</sup>T<sub>E</sub>X temporaries for some (or all) of the `\T@st*` ones.

*Comment:* (bb) All these registers are used in the plain version, `tugboat.sty`.

```
413 \newbox\T@stBox           \newbox\TestBox
414 \newcount\T@stCount      \newcount\TestCount
415 \newdimen\T@stDimen     \newdimen\TestDimen
416 \newif\ifT@stIf         \newif\ifTestIf
```

Control sequence existence test, stolen from T<sub>E</sub>Xbook exercise 7.7 (note that this provides functionality that in some sense duplicates something within L<sup>A</sup>T<sub>E</sub>X).

```
417 \def\ifundefined#1{\expandafter\ifx\c#1\endcsname\relax }
```

L<sup>A</sup>T<sub>E</sub>X conventions which are also useful here.

```
418 <!*latex>
419 \let\@@input\input
420 \def\iinput#1{\@@input#1 }
421 \def\@inputcheck{\if\@nextchar\bgroup
422 \expandafter\iinput\else\expandafter\@@input\fi}
423 \def\input{\futurelet\@nextchar\@inputcheck}
424 </!latex>
```

Smashes repeated from AMS- $\TeX$ ; plain  $\TeX$  implements only full `\smash`.

```
425 \newif\iftop@           \newif\ifbot@
426 \def\topsmash{\top@true\bot@false\smash@}
427 \def\botsmash{\top@false\bot@true\smash@}
428 \def\smash{\top@true\bot@true\smash@}
429 \def\smash@{\relax\ifmode\def\next{\mathpalette\mathsm@sh}%
430           \else\let\next\makesm@sh\fi \next }
431 \def\finm@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

Vertical ‘laps’; cf. `\llap` and `\rlap`

```
432 \long\def\ulap#1{\vbox to \z@{\vss#1}}
433 \long\def\dlap#1{\vbox to \z@{#1\vss}}
```

And centered horizontal and vertical ‘laps’

```
434 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
435 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
436 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

```
437 \def\basezero{\baselineskip\z@skip \lineskip\z@skip}
```

Empty rules for special occasions

```
438 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
439 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

```
440 \def\makestrut[#1;#2]{\vrule \@height#1 \@depth#2 \@width\z@ }
```

Construct box for figure pasteup, etc.; height = #1, width = #2, rule thickness = #3

```
441 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
442   \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
443     \vss\hb@xt@#2{\vrule \@width\T@stDimen
444       \hfil\makestrut[#1;\z@]}%
445     \vrule \@width\T@stDimen}\vss
446   \hrule \@height\T@stDimen \@depth\z@}}
```

Today’s date, to be printed on drafts. Based on  $\TeX$ book, p.406.

```
447 <*\latex>
448 \def\today{\number\day\space \ifcase\month\or
449   Jan \or Feb \or Mar \or Apr \or May \or Jun \or
450   Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
451   \number\year}
452 </!\latex>
```

Current time; this may be system dependent!

```
453 \newcount\hours
454 \newcount\minutes
455 \def\SetTime{\hours=\time
456   \global\divide\hours by 60
457   \minutes=\hours
458   \multiply\minutes by 60}
```

```

459         \advance\minutes by-\time
460         \global\multiply\minutes by-1 }
461 \SetTime
462 \def\now{\number\hours:\ifnum\minutes<10 0\fi\number\minutes}
463 \def\Now{\today\ \now}
464 \newif\ifPrelimDraft
465 \def\midrttitle{} % center of running heads
466 \def\rtitlenexttopage{\ifPrelimDraft \textsl{\small draft: \Now}\fi}

```

### 3.7 Ragged right and friends

```

\raggedskip Plain TEX's definition of \raggedright doesn't permit any stretch, and results in
\raggedstretch too many overfull boxes. We also turn off hyphenation. This code lies somewhere
\raggedparfill between that of Plain TEX and of LATEX.
\raggedspaces
467 \newdimen\raggedskip \raggedskip=\z@
468 \newdimen\raggedstretch \raggedstretch=5em % ems of font set now (10pt)
469 \newskip\raggedparfill \raggedparfill=\z@\@plus 1fil
470 \def\raggedspaces{\spaceskip=.3333em \relax \xspaceskip=.5em \relax }

\raggedright Some applications may have to add stretch, in order to avoid all overfull boxes.
\raggedleft We define the following uses of the above skips, etc.
\raggedcenter
471 \def\raggedright{%
\normalspaces 472 \nohyphens
473 \rightskip=\raggedskip\@plus\raggedstretch \raggedspaces
474 \parfillskip=\raggedparfill
475 }
476 \def\raggedleft{%
477 \nohyphens
478 \leftskip=\raggedskip\@plus\raggedstretch \raggedspaces
479 \parfillskip=\z@skip
480 }
481 \def\raggedcenter{%
482 \nohyphens
483 \leftskip=\raggedskip\@plus\raggedstretch
484 \rightskip=\leftskip \raggedspaces
485 \parindent=\z@ \parfillskip=\z@skip
486 }
487 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}

```

### 3.8 Assorted user-level markup

L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> defines a robust `\,`, but that we provide a new definition of `\` by redefining `\` (`\DeclareRobustCommand` doesn't mind redefinition, fortunately). This is based on the version in AMS-T<sub>E</sub>X—the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> version (`ltspace.dtx`) has `\leavevmode` and does not do anything with the surrounding space(s). Our version messes up with the `\pfill` used in doc-generated indexes ([github.com/latex3/latex2e/issues/75](https://github.com/latex3/latex2e/issues/75)), but later (2018++) versions of doc should be protected against our redefinition.

```

488 \let\latexpnobreakspace=\nobreakspace
489 \DeclareRobustCommand{\nobreakspace}{\unskip\nobreak\ignorespaces}

Plain TeX defines \newbox as \outer. We solemnly preserve the following,
which removes the \outerness; of course, we carefully exclude it from what we
generate... (\outerness is a spawn of the devil, is it not? Barbara Beeton re-
sponded to the previous sentence “\outerness has its place: it avoids register
buildup, hence running out of memory”. In another context, David Carlisle re-
marked that an error control mechanism that causes more confusing errors than it
prevents is rather a poor one. This is perhaps not the place to conduct a serious
debate... )

490 \def\boxcs#1{\box\csname#1\endcsname}
491 \def\setboxcs#1{\setbox\csname#1\endcsname}
492 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
493 \let\gobble@gobble
494 \def\vellipsis{%
495   \leavevmode\kern0.5em
496   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
497 }
498 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
499 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
500 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
501   /\kern-.125em\smash{\lower.3ex\hbox{o}}}\ignorespaces}
502 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
503 %
504 \DeclareRobustCommand{\sfrac}[1]{\@ifnextchar/{\@sfrac{#1}}%
505   {\@sfrac{#1}/}}
506 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
507   \hbox{${\m@th\mbox{\fontsize\sf@size\z@
508     \selectfont#1}$}\kern-.1em
509   /\kern-.15em\lower.25ex
510   \hbox{${\m@th\mbox{\fontsize\sf@size\z@
511     \selectfont#2}$}}
512 %
513 % don't stay bold in description items, bold italic is too weird.
514 \DeclareRobustCommand\meta[1]{%
515   \ensuremath{\langle}%
516   \ifmmode \expandafter\mbox \fi % if in math
517   {\it #1\}/}% no typewriter italics, please
518   \ensuremath{\rangle}%
519 }
520 %
521 % Use \tt rather than \texttt because italic typewriter is just too ugly,
522 % and upright works well enough in both italic and bold contexts.
523 \DeclareRobustCommand{\cs}[1]{\tt \char'\@#1}
524 %
525 % This command was defined much later than the others around here, so
526 % let's not conflict with any existing definitions that might be out there.
527 % Don't allow hyphenations or other line breaks.

```

```

528 \DeclareRobustCommand{\tubbraced}[1]{\mbox{\texttt{\char'\{#1\char'\}}}
529 %
530 % Well, just the \begin part. Never seen it used.
531 \DeclareRobustCommand{\env}[1]{\cs{begin}\tubbraced{#1}}
532 %
533 % Not sure why we ever want this instead of LaTeX's \, (using \kern),
534 % but fine, just keeping it.
535 \DeclareRobustCommand{\thinskip}{\hskip 0.16667em\relax}
536 %
537 % Ah, urls. Nowadays, we like the visible url to not have any protocol,
538 % if it is \texttt{http://} or \texttt{https://}. But we need to include
539 % the protocol if we are making live links, since a string like
540 % \texttt{tug.org/whatever} will be taken as a local filename by
541 % browsers and PDF readers. Since we need to check for
542 % \texttt{hyperref}, make the definition \cs{AtBeginDocument}. In the
543 % end, \cs{tbsurl}\tubbraced{foo} produces \texttt{https://foo} and
544 % \cs{tbhurl}\tubbraced{foo} produces \texttt{http://foo}.
545 \AtBeginDocument{%
546 \ifx\hyper@normalise\undefined
547 \def\tbsurl{\url}% no hyperref, so just \url is fine.
548 \def\tbhurl{\url}%
549 \else
550 % This hyperref hook-in is due to Ulrike Fischer.
551 % \url{https://github.com/latex3/hyperref/issues/125}.
552 \DeclareRobustCommand*\tbsurl{\hyper@normalise\tbsurl@}%
553 \def\tbsurl@#1{\hyper@linkurl{Hurl{#1}}{https://#1}}%
554 \DeclareRobustCommand*\tbhurl{\hyper@normalise\tbhurl@}%
555 \def\tbhurl@#1{\hyper@linkurl{Hurl{#1}}{http://#1}}%
556 \fi
557 }
558 %
559 % Make \! work in text mode.
560 \DeclareRobustCommand{\!}{\ifmmode\mskip-\thinmuskip \else\kern-0.16667em \fi}
561 %
562 % Half a thinspace.
563 \DeclareRobustCommand{\tubthinnerospace}
564 {\ifmmode\mskip.5\thinmuskip \else\kern0.08333em \fi}
565 \DeclareRobustCommand{\tubthinnerospace}
566 {\ifmmode\mskip-.5\thinmuskip \else\kern-0.08333em \fi}
567 %

```

We play a merry game with dashes, providing all conceivable options of breakability before and after.

```

568 \def\endash{--}
569 \def\emdash{\endash-}
570 \def\d@sh#1#2{\unskip#1\thinspace#2\thinspace\ignorespaces}
571 \def\dash{\d@sh\nobreak\endash}
572 \def\Dash{\d@sh\nobreak\emdash}
573 \def\ldash{\d@sh\empty\hbox{\endash}\nobreak}
574 \def\rdash{\d@sh\nobreak\endash}

```

```
575 \def\Ldash{\dsh\empty{\hbox{\emdash}\nobreak}}
576 \def\Rdash{\dsh\nobreak\emdash}
```

Hacks to permit automatic hyphenation after an actual hyphen, or after a slash.

```
577 \def\hyph{-\penalty\z@\hskip\z@skip }
578 \def\slash{/\penalty\z@\hskip\z@skip }
```

Adapted from `comp.text.tex` posting by Donald Arseneau, 26 May 93.  
 $\LaTeX$  2<sub>ε</sub>-isation added by Robin Fairbairns. Destroys both the `TestCounts`.

```
579 \def\nth#1{%
580   \def\reserved@a##1##2\@nil{\ifcat##1n%
581     0%
582     \let\reserved@b\ensuremath
583     \else##1##2%
584     \let\reserved@b\relax
585     \fi}%
586   \TestCount=\reserved@a#1\@nil\relax
587   \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
588   \T@stCount=\TestCount
589   \divide\T@stCount by 100 \multiply\T@stCount by 100
590   \advance\TestCount by-\T@stCount % n mod 100
591   \ifnum\TestCount >20 \T@stCount=\TestCount
592     \divide\T@stCount by 10 \multiply\T@stCount by 10
593     \advance\TestCount by-\T@stCount % n mod 10
594   \fi
595   \reserved@b{#1}%
596   \textsuperscript{\ifcase\TestCount th%   0th
597     \or st%                               1st
598     \or nd%                               2nd
599     \or rd%                               3rd
600     \else th%                             nth
601     \fi}%
602 }
```

### 3.9 Reviews

Format information on reviewed items for book review articles. For the  $\LaTeX$  2<sub>ε</sub> version, we follow Fairbairns' maxim, and define something that can even look like a  $\LaTeX$  macro...

```
603 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
604 \def\@Review:{\@ifnextchar[%]
605   {\@Rev}%
606   {\@Rev[Book review]}}
607 \def\@Rev[#1]#2{\ignorespaces#1\unskip:\enspace\ignorespaces
608   \slshape\mdseries#2}}
609 \def\reviewitem{\addvspace{\BelowTitleSkip}}%
610 \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
611 \def\revtitle##1{\def\therevtitle{\slshape##1}. }\ignorespaces%
```

```

612 \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
613 }
614 \def\endreviewitem{\noindent\interlinepenalty=10000
615 \therevauth\therevtitle\therevpubinfo\endgraf}%
616 \vskip\medskipamount
617 }
618 \def\booktitle#1{{\slshape#1\}}

```

### 3.10 Dates, volume and issue numbers, etc.

Dates and other items which identify the volume and issue. `\issueseqno` is a sequential issue number starting from the first issue published; volume 15,4 has `\issueseqno=45`.

```
\vol 19, 1.
```

To use: `\issdate March 1998`.

```
\issueseqno=58
```

Starting with volume 23 (nominal 2002), we have `\issyear` instead of `\issdate`, because issues don't have months any more.

For production, these are set in a separate file, `tugboat.dates`, which is issue-specific.

**Comment:** I would like to make the code read a file `tugboat.dates` in the current directory or its parent. This is easy except under 'odd' operating systems (VMS is an example that springs to mind, RISCos may be even worse) whose syntax is out of the ordinary.

```

619 \newcount\issueseqno          \issueseqno=-1
620 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
621 \def\volyr{}
622 \def\volno{}
623 \def\vol #1,#2.{\gdef\volno{#1\unskip}%
624     \gdef\issno{\ignorespaces#2\unskip}%
625     \setbox\TestBox=\hbox{\volyr}%
626     \ifdim \wd\TestBox > .2em \v@lx \fi }
627 \def\issyear #1.{\gdef\issdt{#1}\gdef\volyr{#1}%
628     \gdef\bigissdt{#1}%
629     \setbox\TestBox=\hbox{\volno}%
630     \ifdim \wd\TestBox > .2em \v@lx \fi }
631 \def\issdate #1#2 #3.{\gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
632     \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
633     \setbox\TestBox=\hbox{\volno}%
634     \ifdim \wd\TestBox > .2em \v@lx \fi }
635 \vol 0, 0.
636 \issdate Thermidor, 9999.

```

(The curious should know that *Thermidor* was one of the French revolutionary month names...)

For L<sup>A</sup>T<sub>E</sub>X use, define a version of the issue declaration that can take or leave the old plain syntax

```

637 <!\latex>\def\tubissue#1(#2)%
638 <*\latex>
639 \def\tubissue#1{\@ifnextchar(%)
640   {\@tubissue@b{#1}}
641   {\@tubissue@a{#1}}}}
642 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
643 \def\@tubissue@a#1#2%
644 </latex>
645   {\TUB~#1, no.~#2}

```

*TUGboat* conventions include the sequential issue number in the file name. Permit this to be incorporated into file names automatically. If issue number = 11, `\Input filnam` will read `tb11filnam.tex`

```

646 \def\infil@{\jobname}
647 \def\Input #1 {\ifnum\issueseqno<0
648   \def\infil@{#1}%
649   \else
650     \def\infil@{tb\number\issueseqno#1}
651   \fi
652   \edef\jobname{\infil@}\@readFLN
653   \@input \infil@\relax
654   \ifRMKopen
655     \immediate\closeout\@TBremarkfile\@RMKopenfalse
656   \fi
657 }

```

`\TBremarks` are things that need to be drawn to the attention of the editors; the conscientious author will include such things in the article file. By default, remarks are suppressed, but their appearance may be enabled by the `\TBEnableRemarks` command, which can be included in the configuration file `ltugboat.cfg` (or `ltugproc.cfg`, if that's what we're at).

```

658 \newif\if@RMKopen           \@RMKopenfalse
659 \newwrite\@TBremarkfile
660 \def\@TBremark#1{%
661   \if@RMKopen
662   \else
663     \@RMKopenttrue\immediate\openout\@TBremarkfile=\infil@.rmk
664   \fi
665   \toks@={#1}%
666   \immediate\write\@TBremarkfile{^^J\the\toks@}%
667   \immediate\write16{^^JTremark:: \the\toks@^^J}%
668 }

```

We initialise `\TBremark` to ignore its argument (this used to involve a `\TBremarkOFF` which was cunningly defined exactly the same as `\gobble`)

```
669 \let\TBremark=\gobble
```

`\TBEnableRemarks` simply involves setting `\TBremark` to use the functional `\@TBremark` defined above.

```
670 \def\TBEnableRemarks{\let\TBremark\@TBremark}
```



For marking locations in articles that pertain to remarks in another file of editorial comments

```
671 \def\TUBedit#1{}
```

For using different filenames in the production process than those supplied by authors

```
672 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
673 \newread\altfilenames
674 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
675 \ifeof\@altfilenames\let\@result\relax\else
676 \def\@result{\@input\jobname.fln }\fi
677 \immediate\closein\@altfilenames
678 \@result}
679 \@readFLN
680 \everyjob=\expandafter{\the\everyjob\@readFLN}
681 \InputIfFileExists{\jobname.fln}%
682 {\TBIInfo{Reading alternative file file \jobname.fln}}{}
```

The following needs to work entirely in T<sub>E</sub>X's mouth

```
683 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
684 #1\else\csname file@@#1\endcsname\fi}
685 \def\fileinput#1{\@input\@tubfilename{#1} }
```

Write out (both to a file and to the log) the starting page number of an article, to be used for cross references and in contents. \pagexref is used for articles fully processed in the TUGboat run. \PageXref is used for 'extra' pages, where an item is submitted as camera copy, and only running heads (at most) are run.

```
686 <!!latex>
687 \def\pagexrefON#1{%
688 \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
689 \write\ppoutfile{%
690 \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
691 }
692 \def\PageXrefON#1{%
693 \immediate\write-1{\def\expandafter
694 \noexpand\csname#1\endcsname{\number\pageno}}%
695 \immediate\write\ppoutfile{\def\expandafter
696 \noexpand\csname#1\endcsname{\number\pageno}}%
697 </!!latex>
698 <*latex>
699 \def\pagexrefON#1{%
700 \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
701 \write\ppoutfile{%
702 \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
703 }
704 \def\PageXrefON#1{%
705 \immediate\write-1{\def\expandafter
706 \noexpand\csname#1\endcsname{\number\c@page}}%
707 \immediate\write\ppoutfile{\def\expandafter
```

```

708 \noexpand\csname#1\endcsname{\number\c@page}}
709 </latex>
710 \def\pagexrefOFF#1{}
711 \let\pagexref=\pagexrefOFF
712 \def\PageXrefOFF#1{}
713 \let\PageXref=\PageXrefOFF
714 \def\xreftoON#1{%
715 \ifundefined{#1}%
716 ???\TBremark{Need cross reference for #1.}%
717 \else\csname#1\endcsname\fi}
718 \def\xreftoOFF#1{???}
719 \let\xrefto=\xreftoOFF

```

\TBdriver ‘marks code for use when articles are run together in a driver file’. Since we don’t yet have a definition of that arrangement, we don’t have a definition of \TBdriver. Its argument (which one presumes was intended as the code for this unusual state) is just gobbled.

```
720 \let\TBdriver\gobble
```

Some hyphenation exceptions:

```

721 \ifx\tubomithyphenations\@thisisundefined
722 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
723 Flor-i-da Free-BSD Ghost-script Ghost-view
724 Hara-lam-bous Jac-kow-ski Karls-ruhe
725 Mac-OS Ma-la-ya-lam Math-Sci-Net
726 Net-BSD Open-BSD Open-Office
727 Pfa-Edit Post-Script Rich-ard Skoup South-all
728 Vieth VM-ware Win-Edt
729 acro-nym acro-nyms analy-sis ap-pen-di-ces ap-pen-dix asyn-chro-nous
730 bib-lio-graph-i-cal bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
731 col-umns com-put-able com-put-abil-ity cus-tom-iz-able
732 data-base data-bases
733 de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
734 de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion dis-trib-ut-able
735 es-sence
736 fall-ing
737 half-way
738 in-fra-struc-ture
739 key-note
740 long-est
741 ma-gyar man-u-script man-u-scripts meta-table meta-tables
742 mne-mon-ic mne-mon-ics mono-space mono-spaced
743 name-space name-spaces
744 off-line over-view
745 pal-ettes par-a-digm par-a-dig-mat-ic par-a-digms
746 pipe-line pipe-lines
747 plug-in plug-ins pres-ent-ly pro-gram-mable
748 re-allo-cate re-allo-cates re-allo-cated re-printed
749 set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
750 sub-ex-pres-sion sub-tables sur-gery syn-chro-ni-city syn-chro-nous

```

```

751 text-height text-length text-width
752 time-stamp time-stamped time-stamps
753 vis-ual vis-ual-ly
754 which-ever white-space white-spaces wide-spread wrap-around
755 }
756 \fi
757 <!!latex>\restorecat\@
758 </common>
759 <*classtail>
760 \PrelimDraffttrue

```

### 3.11 Page dimensions, glue, penalties, etc.

```

761 \textheight 54pc
762 \textwidth 39pc
763 \columnsep 1.5pc
764 \columnwidth 18.75pc
765 \hfuzz 1pt
766 \parindent \normalparindent
767 \parskip \z@ % \@plus\p@
768 \leftmargini 2em
769 \leftmarginv .5em
770 \leftmarginvi .5em
771 \oddsidemargin \z@
772 \evensidemargin \z@
773 \topmargin -2.5pc
774 \headheight 12\p@
775 \headsep 20\p@
776 \marginparwidth 48\p@
777 \marginparsep 10\p@
778 \partopsep=\z@
779 \topsep=3\p@\@plus\p@\@minus\p@
780 \parsep=3\p@\@plus\p@\@minus\p@
781 \itemsep=\parsep
782 %
783 % Ordinarily we typeset in two columns, but the onecolumn option
784 % goes to one. In which case we want to center the text block on an
785 % 8.5in width, given the default 72.27pt offset with margins of zero.
786 % We are always in LaTeX's twoside mode because of how we load article,
787 % and this is a good thing, since we want different headings.
788 \if@tubtwocolumn \twocolumn \else
789 \onecolumn
790 \textwidth=34pc
791 \oddsidemargin=30.8775pt
792 \evensidemargin=\oddsidemargin
793 \fi
794 %
795 \newdimen\pagewd \pagewd=\textwidth
796 \newdimen\trimwd \trimwd=\pagewd
797 \newdimen\trimlgt \trimlgt=11in

```

```
798 \newdimen\headmargin \headmargin=3.5pc
```

In L<sup>A</sup>T<sub>ε</sub>X, twoside option is forced on when `article.cls` is loaded.

### 3.12 Messing about with the L<sup>A</sup>T<sub>ε</sub>X logo

Barbara Beeton's pleas for L<sup>A</sup>T<sub>ε</sub>X logos that look right in any font shape provoked me to generate the following stuff that is configurable.

Here's the command for the user to define a new version. The arguments are font family, series and shape, and then the two kern values used in placing the raised 'A' of L<sup>A</sup>T<sub>ε</sub>X.

```
799 \newcommand{\DeclareLaTeXLogo}[5]{\expandafter\def
800 \csname @LaTeX#1/#2/#3\endcsname{#4-#5}}
```

The default values are as used in the source of L<sup>A</sup>T<sub>ε</sub>X itself:

```
801 \def\@LaTeX@default{.36-.15}
```

More are defined in the initial version, for bold CM sans (which is used as `\SecTitleFont`), and CM italic medium and bold, and Bitstream Charter (which Nelson Beebe likes to use). Duplicate for Latin Modern.

```
802 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
803 \DeclareLaTeXLogo{lmss}{bx}{n}{.3}{.15}
804 %
805 \DeclareLaTeXLogo{cmr}{m}{it}{.29}{.2}
806 \DeclareLaTeXLogo{lmr}{m}{it}{.29}{.2}
807 %
808 \DeclareLaTeXLogo{cmr}{m}{sl}{.29}{.15}
809 \DeclareLaTeXLogo{lmr}{m}{sl}{.29}{.15}
810 %
811 \DeclareLaTeXLogo{cmr}{bx}{it}{.29}{.2}
812 \DeclareLaTeXLogo{lmr}{bx}{it}{.29}{.2}
813 %
814 \DeclareLaTeXLogo{cmr}{bx}{sl}{.29}{.2}
815 \DeclareLaTeXLogo{lmr}{bx}{sl}{.29}{.2}
816 %
817 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
818 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}
```

Redefine `\LaTeX` to choose the parameters for the current font, or to use the default value otherwise:

```
819 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
820 \csname @LaTeX@f@family/\f@series/\f@shape\endcsname
821 \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
822 \expandafter\@LaTeX\reserved@a}
```

Here's the body of what was originally `\LaTeX`, pulled out with its roots dripping onto the smoking ruin of original L<sup>A</sup>T<sub>ε</sub>X, and then bits stuck in on the side.

`\@LaTeX@default` provides parameters as one finds in the original; other versions are added as needed.

```

823 \newcommand{\@LaTeX}[2]{%
824   %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
825   L\kern-#1em
826   {\sbox\z@ T%
827     \vbox to\ht0{\hbox{\$ \m@th$,
828                       \csname S@\f@size\endcsname
829                       \fontsize\sf@size\z@
830                       \math@fontsfalse\selectfont
831                       A}%
832                     \vss}%
833   }%
834   \kern-#2em%
835   \TeX}

```

### 3.13 Authors, contributors, addresses, signatures

An article may have several authors (of course), so we permit an `\author` command for each of them. The names are then stored in a set of `\csnames` called `\author1`, `\author2`, ... Similarly, there are several `\address<n>` and `\netaddress<n>` and `\PersonalURL<n>` and `\ORCID<n>` commands set up for each article.

*Comment:* I would like to make provision for several authors at the same address, but (short of preempting the `*` marker, which it would be nice to retain so as to preserve compatibility with the `plain` style) I'm not sure how one would signal it.

```

836 \def\theauthor#1{\csname theauthor#1\endcsname}
837 \def\theaddress#1{\csname theaddress#1\endcsname}
838 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
839 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
840 \def\theORCID#1{\csname theORCID#1\endcsname}

```

The standard way of listing authors is to iterate from 1 to `\count@` and to pick the author names as we go.

```

841 \!latex\newcount\@tempcnta
842 \def\@defaultauthorlist{%
843   \@getauthorlist\@firstofone
844 }

```

`\@getauthorlist` processes the author list, passing every bit of stuff that needs to be typeset to the macro specified as its argument.

```

845 \def\@getauthorlist#1{%
846   \count@\authornumber
847   \advance\count@ by -2
848   \@tempcnta0

```

Loop to output the first  $n - 2$  of the  $n$  authors (the loop does nothing if there are two or fewer authors)

```

849   \loop

```

```

850 \ifnum\count@>0
851 \advance\@tempcnta by \@ne
852 #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
853 \advance\count@ by \m@ne
854 \repeat
855 \count@\authornumber
856 \advance\count@ by -\@tempcnta
857 \ifnum\authornumber>0

```

If there are two or more authors, we output the penultimate author's name here, followed by 'and'

```

858 \ifnum\count@>1
859 \count@\authornumber
860 \advance\count@ by \m@ne
861 #1{\ignorespaces\theauthor{\number\count@}\unskip\@tubauthorlastsep}%
862 \fi

```

Finally (if there were any authors at all) output the last author's name:

```

863 #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
864 \fi
865 }
866 %
867 \def\@tubauthorlastsep{, }% until 2018, was: "\ and "

```

Signature blocks. The author can (in principle) define a different sort of signature block using `\signature`, though this could well cause the editorial group to have collective kittens (unless it had been discussed in advance...)

```

868 \def\signature#1{\def\@signature{#1}}
869 \def\@signature{\@defaultsignature}

```

`\@defaultsignature` loops through all the authors, outputting the details we have about that author, or (if we're in a sub-article) outputs the contributor's name and closes the group opened by `\contributor`. It is (as its name implies) the default body for `\makesignature`

```

870 \def\@defaultsignature{%
871 \let\thanks\@gobble
872 \frenchspacing
873 %
874 \ifnum\authornumber<0
875 \medskip
876 \signaturemark
877 \theauthor{\number\authornumber}\\
878 \theaddress{\number\authornumber}\\
879 \allowhyphens
880 \thenetaddress{\number\authornumber}\\
881 \thePersonalURL{\number\authornumber}\\
882 \theORCID{\number\authornumber}\\
883 \else

```

`\authornumber ≥ 0`, so we are in the body of an ordinary article

```
884     \count@=0
885     \loop
886     \ifnum\count@<\authornumber
887     \medskip
888     \advance\count@ by \@ne
889     \signaturemark
890     \theauthor{\number\count@}\
891     \theaddress{\number\count@}\
892     {%
893     \allowhyphens
894     \thenetaddress{\number\count@}\
895     \thePersonalURL{\number\count@}\
896     \theORCID{\number\count@}\
897     }%
898     \repeat
899     \fi
900 }%
901 }
902 \newdimen\signaturewidth \signaturewidth=12pc
The optional argument to \makesignature is useful in some circumstances (e.g.,
multi-contributor articles)
903 \newcommand{\makesignature}[1][\medskipamount]{%
    check the value the user has put in \signaturewidth: it may be at most
    1.5pc short of \columnwidth
904 \@tempdima\signaturewidth
905 \advance\@tempdima 1.5pc
906 \ifdim \@tempdima>\columnwidth
907 \signaturewidth \columnwidth
908 \advance\signaturewidth -1.5pc
909 \fi
910 \par
911 \penalty9000
912 \vspace{#1}%
913 \rightline{%
914 \vbox{\hsize\signaturewidth \ninepoint \raggedright
915 \parindent \z@ \everypar={\hangindent 1pc }%
916 \parskip \z@skip
917 \def\|{\unskip\hfil\break}%
918 \def\|\{\endgraf}%
919 \def\phone{\rm Phone: }%
920 \def\tubmultipleaffilauthor{\|\hspace*{1em}}%
921 \rm\@signature}%
922 }%
923 \ifnum\authornumber<0 \endgroup\fi
924 }
925 \def\signaturemark{\leavevmode\llap{\$\diamond$\enspace}}
```

The idea here is that if multiple authors share affiliation information, we need only typeset the affiliation once. We separate by commas for the `\maketitle`, and put on separate lines in the `\makesignature`. Similarly, within `\netaddress`, `!tubmultipleaffilnet` separates with a space before and after the comma, while `.` (All this per bb.) See `tb122childs-trotter.ltx` for an example.

```
926 \def\tubmultipleaffilauthor{\unskip, \ignorespaces}%
927 \def\tubmultipleaffilnet{\unskip\textrm{\,,\ \ignorespaces}}
```

Now all the awful machinery of author definitions. `\authornumber` records the number of authors we have recorded to date.

```
928 \newcount\authornumber
929 \authornumber=0
```

`\author` ‘allocates’ another author name (by bumping `\authornumber`) and also sets up the address and netaddress for this author to produce a warning and to prevent oddities if they’re invoked. This last assumes that invocation will be in the context of `\signature` (`ltugboat.cls`) or `\maketitle` (`ltugproc.cls`); in both cases, invocation is followed by a line break (tabular line break `\\` in `ltugproc`, `\endgraf` in `\makesignature` in `ltugboat`).

```
930 \def\author{%
931   \global\advance\authornumber\@ne
932   \TB@author
933 }
```

`\contributor` is for a small part of a multiple-part article; it begins a group that will be ended in `\makesignature`.

```
934 \def\contributor{%
935   \begingroup
936   \authornumber\m@ne
937   \TB@author
938 }
```

Both ‘types’ of author fall through here to set up the author name and to initialise author-related things. `\EDITORno*` commands allow the editor to record that there’s good reason for an *address* or *netaddress* not to be there (the *personalURL* and *ORCID* are optional anyway).

```
939 \def\TB@author#1{%
940   \expandafter\def\csname theauthor\number\authornumber\endcsname
941     {\ignorespaces#1\unskip}%
942   \expandafter\def\csname theaddress\number\authornumber\endcsname
943     {\TBWarningNL{Address for #1\space missing}\@gobble}%
944   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
945     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
946   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
947     \@gobble
948   \expandafter\let\csname theORCID\number\authornumber\endcsname
949     \@gobble
950 }
951 \def\EDITORnoaddress{%
```



```

952 \expandafter\let\csname theaddress\number\authornumber\endcsname
953   \@gobble
954 }
955 \def\EDITORnetaddress{%
956 \expandafter\let\csname thenetaddress\number\authornumber\endcsname
957   \@gobble
958 }

```

\address copies its argument into the \theaddress<n> for this author.

```

959 \def\address#1{%
960 \expandafter\def\csname theaddress\number\authornumber\endcsname
961   {\leavevmode\ignorespaces#1\unskip}}

```

\network is for use within the optional argument of \netaddress; it defines the *name* of the network the user is on.

*Comment:* I think this is a fantasy, since everyone (in practice, nowadays) quotes an internet address. In principle, there are people who will quote X.400 addresses (but they're few and far between) and I have (during 1995!) seen an address with an UUCP bang-path component on comp.text.tex, but *really!*

```

962 \def\network#1{\def\@network{#1: }}

```

\netaddress begins a group, executes an optional argument (which should not, presumably, contain global commands) and then relays to \@relay@netaddress with both @ and % made active (so that they can be discretionary points in the address). If we're using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, we use the default-argument form of \newcommand; otherwise we write it out in all its horribleness.

```

963 \newcommand{\netaddress}[1][\relax]{%
964 \begingroup
965 \def\@network{}%

```

Unfortunately, because of the catcode hackery, we have still to do one stage of relaying within our own code, even if we're using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

```

966 #1\@sanitize\makespace\ \makeactive\@%
967 \makeescape! \makebgroup[ \makeegroup]% seems more useful than literals
968 \makeactive\.\makeactive\%\@relay@netaddress}%

```

\@relay@netaddress finishes the job. It sets \thenetaddress for this author to contain the network name followed by the address. As a result of our kerfuffle above, @ and % are active at the point we're entered. We ensure they're active when \thenetaddress gets expanded, too. (**WOT?!**)

```

969 \def\@relay@netaddress#1{%
970 \ProtectNetChars
971 \expandafter\protected@xdef
972   \csname thenetaddress\number\authornumber\endcsname
973   {\protect\leavevmode\textrm{\@network}%
974   {\protect\NetAddrChars\net
975     \ignorespaces#1\unskip}}}%
976 \endgroup
977 }

```

`\personalURL` is in essence the same as `\netaddress`, apart from (1) the lack of the eccentric optional argument, and (2) the activation of `'/'`.

For general URLs, `url.sty` (with or without `hyperref`) suffices and is recommended.

```

978 \def\personalURL{\begingroup
979   \@sanitize\makespace\ \makeactive\@
980   \makeactive\.\makeactive%\makeactive\/\@personalURL}%
981 \def\@personalURL#1{%
982   \ProtectNetChars
983   \expandafter\protected@xdef
984     \csname thePersonalURL\number\authornumber\endcsname{%
985     \protect\leavevmode
986     {%
987       \protect\URLchars\net
988       \ignorespaces#1\unskip
989     }%
990   }%
991 \endgroup
992 }
```

Define the activation mechanism for `'@'`, `'%'`, `'.'` and `'/'`, for use in the above. Note that, since the code has `'%'` active, we have `'*'` as a comment character, which has a tendency to make things look peculiar...

```

993 {%
994   \makecomment\*
995   \makeactive\@
996   \gdef\netaddrat{\makeactive\@*
997     \def@\{\discretionary{\char"40}{\char"40}}
998   \makeactive\%
999   \gdef\netaddrpercent{\makeactive\%*
1000     \def%\{\discretionary{\char"25}{\char"25}}
1001   \makeactive\
1002   \gdef\netaddrdot{\makeactive\.*
1003     \def.\{\discretionary{\char"2E}{\char"2E}}}
```

`\NetAddrChars` is what *we* use (we're constrained to retain the old interface to this stuff, but it *is* clunky...). Since URLs are a new idea, we are at liberty not to define a separate `\netaddrslash` command, and we only have `\URLchars`.

```

1004 \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
1005 \makeactive\/
1006 \gdef\URLchars{*
1007   \NetAddrChars
1008   \makeactive\/*
1009   \def/{\discretionary{\char"2F}{\char"2F}}}
```

`\ProtectNetChars` includes protecting `'/'`, since this does no harm in the case of net addresses (where it's not going to be active) and we thereby gain by not having yet another `csname`.

```

1010 \gdef\ProtectNetChars{*
```

```

1011 \def@{\protect@}*
1012 \def%{\protect%}*
1013 \def.{\protect.}*
1014 \def/{\protect/}*
1015 }
1016 }

```

L<sup>A</sup>T<sub>ε</sub>E<sub>X</sub> 2<sub>ε</sub> (in its wisdom) suppresses `\DeclareOldFontCommand` when in compatibility mode, so that in that circumstance we need to use a declaration copied from `latex209.def` rather than the way we would normally do the thing (using the command L<sup>A</sup>T<sub>ε</sub>E<sub>X</sub> 2<sub>ε</sub> defines for the job).

```

1017 \if@compatibility
1018 \DeclareRobustCommand{\net}{\normalfont\ttfamily\mathgroup\symtypewriter}
1019 \else
1020 \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
1021 \fi
1022 \def\authorlist#1{\def\@author{#1}}
1023 \def\@author{\@defaultauthorlist}

```

`\ORCID` inserts ‘ORCID’ and then argument into the `\theORCID<n>` for this author. Also, we want `\small` for this.

```

1024 \def\ORCID#1{%
1025 \expandafter\def\csname theORCID\number\authornumber\endcsname
1026 {\leavevmode \ignorespaces {\SMC ORCID} #1\unskip}}

```

For the online re-publication (as of 2009) by Mathematical Sciences Publishers <http://mathscipub.org>, lots and lots of metadata is needed, much of it redundant with things we already do. They are flexible enough to allow us to specify it in any reasonable way, so let’s make one command `\mspmetavar` which takes two arguments. Example: `\mspmetavar{volumenumber}{30}`. For our purposes, it is just a no-op. And this initiative never came to anything, so it is not used at all.

`\mspmetavar`

```

1027 \def\mspmetavar#1#2{}

```

### 3.14 Article title

```

\if@articletitle \maketitle takes an optional “*”; if present, the operation is not defining the
\maketitle title of a paper, merely that of a “business” section (such as the participants at
\@r@maketitle a meeting) that has no credited author or other title. In this case, the command
flushes out the latest \sectitle (or whatever) but does nothing else.

```

Provide machinery to skip extra space, even one or more full columns, above the top of an article to leave space to paste up a previous article that has finished on the same page. This is a fall back to accommodate the fact that multiple articles cannot yet be run together easily with L<sup>A</sup>T<sub>ε</sub>E<sub>X</sub> 2<sub>ε</sub>.

```

1028 \newif\if@articletitle
1029 \def\maketitle{\@ifstar
1030 {\@articletitlefalse\@r@maketitle}%

```

```

1031  {\@articletitletrue\@r@maketitle}%
1032  }
1033  \def\@r@maketitle{\par
1034  \ifdim\PreTitleDrop > \z@
1035    \loop
1036    \ifdim \PreTitleDrop > \textheight
1037      \vbox{\vfil\eject
1038        \advance\PreTitleDrop by -\textheight
1039      \repeat
1040    \vbox to \PreTitleDrop{}
1041    \global\PreTitleDrop=\z@
1042  \fi
1043  \begingroup
1044  \setcounter{footnote}{0}
1045  \global\@topnum\z@ % disallow floats above the title
1046  \def\thefootnote{\fnsymbol{footnote}}
1047  \@maketitle
1048  \@thanks
1049  \endgroup
1050  \setcounter{footnote}{0}
1051  \gdef\@thanks{}
1052  }

```

`\title` We redefine the `\title` command, so as to set the `\rhTitle` command at the same time. While we're at it, we redefine it to have optional arguments for use as 'short' versions, thus obviating the need for users to use the `\shortTitle` command.

```

1053  \def\rhTitle{}% avoid error if no author or title
1054  \renewcommand{\title}{\@dblarg\TB@title}
1055  \def\TB@title[#1]#2{\gdef\@title{#2}%
1056  \bgroup
1057    \let\thanks\@gobble
1058    \def\{\unskip\space\ignorespaces}%
1059    \protected@xdef\rhTitle{#1}%
1060  \egroup
1061  }

```

`\shortTitle` The `\rh*` commands are versions to be used in the running head of the article.  
`\ifshortAuthor` Normally, they are the same things as the author and title of the article, but in the  
`\shortAuthor` case that there are confusions therein, the text should provide substitutes, using the `\short*` commands.

```

1062  \def\shortTitle #1{\def\rhTitle{#1}}
1063  \newif\ifshortAuthor
1064  \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}

```

### 3.15 Section titles

The following macros are used to set the large *TUGboat* section heads (e.g. “General Delivery”, “Fonts”, etc.)

Define the distance between articles which are run together:

```
1065 \def\secsep{\vskip 5\baselineskip}
```

Note that `\stbaselineskip` is used in the definition of `\sectitlefont`, in  $\text{\LaTeX} 2_{\epsilon}$ , so that it has (at least) to be defined before `\sectitlefont` is used (we do the whole job).

```
1066 \newdimen\stbaselineskip      \stbaselineskip=18\p@
```

```
1067 \newdimen\stfontheight
```

```
1068 \settoheight{\stfontheight}{\sectitlefont 0}
```

Declaring section titles; the conditional `\ifSecTitle` records the occurrence of a `\sectitle` command. If (when) a subsequent `\maketitle` occurs, the section title box will get flushed out; as a result of this, one could in principle have a set of `\sectitle` commands in a semi-fixed steering file, and inclusions of files inserted only as and when papers have appeared. Only the last `\sectitle` will actually be executed.

```
1069 \newif\ifWideSecTitle
```

```
1070 \newif\iftubtitlerulefullwidth
```

```
1071 \newif\ifSecTitle \SecTitlefalse
```

```
1072 \newcommand{\sectitle}{%
```

```
1073   \SecTitletrue
```

```
1074   \@ifstar
```

```
1075     {\WideSecTitletrue\def\s@ctitle}%
```

```
1076     {\WideSecTitlefalse\def\s@ctitle}%
```

```
1077 }
```

`\PreTitleDrop` records the amount of column-space we need to eject before we start any given paper. It gets zeroed after that ejection has happened.

```
1078 \newdimen\PreTitleDrop  \PreTitleDrop=\z@
```

The other parameters used in `\@sectitle`; I don't think there's the slightest requirement for them to be registers (since they're constant values, AFAIK), but converting them to macros would remove the essentially useless functionality of being able to change them using assignment, which I'm not about to struggle with just now...

`\AboveTitleSkip` and `\BelowTitleSkip` are what you'd expect; `\strulethickness` is the value to use for `\fboxrule` when setting the title, and for the rule above titles when there is no box.

```
1079 \newskip\AboveTitleSkip  \AboveTitleSkip=12\p@
```

```
1080 \newskip\BelowTitleSkip  \BelowTitleSkip=8\p@
```

```
1081 \newdimen\strulethickness  \strulethickness=.6\p@
```

`\@sectitle` actually generates the section title (in a rather generous box). It gets called from `\maketitle` under conditional `\ifSecTitle`; by the time `\@sectitle` takes control, we already have `\SecTitlefalse`. This implementation uses  $\text{\LaTeX}$ 's `\framebox` command, on the grounds that one doesn't keep a dog and bark for oneself...

```
1082 \def\@sectitle #1{%
```

```
1083 \par
1084 \penalty-1000
```

If we're setting a wide title, the stuff will be at the top of a page (let alone a column) but inside a box, so that the separator won't be discardable: so don't create the separator in this case.

```
1085 \ifWideSecTitle\else\secsep\fi
1086 {%
1087   \fboxrule\strulethickness
1088   \fboxsep\z@
1089   \noindent\framebox[\hsize]{%
1090     \vbox{%
1091       \raggedcenter
1092       \let\\\@sectitle@newline
1093       \sectitlefont
1094       \makestrut[2\stfontheight;\z@]%
1095       #1%
1096       \makestrut[\z@;\stfontheight]\endgraf
1097     }%
1098   }%
1099 }%
1100 \nobreak
1101 \vskip\baselineskip
1102 }
```

`\@sectitle@newline` For use inside `\sectitle` as `\\`. Works similarly to `\\` in the “real world”—uses an optional argument

```
1103 \newcommand{\@sectitle@newline}[1][\z@]{%
1104   \ifdim#1>\z@
1105     \makestrut[\z@;#1]%
1106   \fi
1107   \unskip\break
1108 }
```

We need to trigger the making of a section title in some cases where we don't have a section title proper (for example, in material taken over from TTN).

```
1109 \def\@makesectitle{\ifSecTitle
1110   \global\SecTitlefalse
1111   \ifWideSecTitle
1112     \twocolumn[\@sectitle{\s@ctitle}]%
1113     \global\WideSecTitlefalse
1114   \else
1115     \@sectitle{\s@ctitle}%
1116   \fi
1117 \else
1118   \vskip\AboveTitleSkip
1119   \kern\topskip
1120   \hrule \@height\z@ \@depth\z@ \@width 10\p@
1121   \kern-\topskip
```

```

1122 \kern-\strulethickness
1123 \iftubtitlerulefullwidth
1124 \hrule \@height\strulethickness \@depth\z@ width\textwidth
1125 \else
1126 \hrule \@height\strulethickness \@depth\z@
1127 \fi
1128 \kern\medskipamount
1129 \nobreak
1130 \fi
1131 }

```

`\@maketitle` Finally, the body of `\maketitle` itself.

```

1132 \def\@maketitle{%
1133 \@makesectitle
1134 \if@articletitle{%
1135 \nohyphens \interlinepenalty\@M
1136 \setbox0=\hbox{%
1137 \let\thanks\@gobble
1138 \let\=\quad
1139 \let\and=\quad
1140 \ignorespaces\@author}%
1141 {%
1142 \noindent\bf\raggedright\ignorespaces\frenchspacing
1143 \let\BibTeX=\bfBibTeX % else LaTeX Font Warning:
1144 % Font shape 'OT1/cmr/bx/sc' undefined
1145 \@title\endgraf
1146 }%
1147 \ifdim \wd0 < 5\p@ % omit if author is null
1148 \else

```

Since we have  $\text{\BelowTitleSkip} + 4\text{pt} = \text{\baselineskip}$ , we say:

```

1149 \nobreak \vskip 4\p@
1150 {%
1151 \leftskip=\normalparindent
1152 \raggedright
1153 \def\and{\unskip\}%
1154 \noindent\@author\endgraf
1155 }%
1156 \fi
1157 \nobreak
1158 \vskip\BelowTitleSkip
1159 }\fi%
1160 \global\@afterindentfalse
1161 \aftergroup\@afterheading
1162 }

```

Dedications are ragged right, in italics.

```

1163 \newenvironment{dedication}%
1164 {\raggedright\noindent\itshape\ignorespaces}%
1165 {\endgraf\medskip}

```

The `abstract` and `longabstract` environments both use `\section*`. For one-column articles (or in `ltugproc` class), indent the abstract. This is done in the usual bizarre L<sup>A</sup>T<sub>E</sub>X way, by treating it as a one-item list with an empty item marker.

```

1166 \def\@tubonecolumnabstractstart{%
1167     \list{}\@listparindent\normalparindent
1168     \itemindent\z@ \leftmargin\@tubfullpageindent
1169     \rightmargin\leftmargin \parsep \z@\item[]\ignorespaces
1170 }
1171 \def\@tubonecolumnabstractfinish{%
1172     \endlist
1173 }
1174 \renewenvironment{abstract}%
1175 {\begin{SafeSection}%
1176   \section*{%
1177     \if@tubtwocolumn\else \hspace*\@tubfullpageindent\fi
1178     Abstract}%
1179   \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1180 }%
1181 {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1182  \end{SafeSection}}
1183 \newenvironment{longabstract}%
1184 {\begin{SafeSection}%
1185   \section*{Abstract}%
1186   \bgroup\small
1187 }%
1188 {\endgraf\egroup
1189  \end{SafeSection}%
1190  \vspace{.25\baselineskip}
1191  \begin{center}
1192    {$--*--$}
1193  \end{center}
1194  \vspace{.5\baselineskip}}

```

### 3.16 Section headings

Redefine style of section headings to match plain *TUGboat*. Negative before skip suppresses following parindent. (So negate the stretch and shrink too).

These macros are called `\*head` in the plain styles.

Relaying via `\TB@startsection` detects inappropriate use of `\section*`. Of course, if (when) *we* use it, we need to avoid that relaying; this can be done by `\letting \TB@startsection to \TB@safe@startsection`, within a group.

First the version for use in the default case, when class option `NUMBERSEC` is in effect.

```

1195 \if@numbersec
1196   \def\section{\TB@startsection{section}%
1197     1%
1198     \z@

```



```

1199             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1200             {4\p@}%
1201             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1202 \def\subsection{\TB@startsection{subsection}%
1203             2%
1204             \z@
1205             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1206             {4\p@}%
1207             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1208 \def\subsubsection{\TB@startsection{subsubsection}%
1209             3%
1210             \z@
1211             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1212             {4\p@}%
1213             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1214 \def\paragraph{\TB@startsection{paragraph}%
1215             4%
1216             \z@
1217             {4\p@ \@plus1\p@ \@minus1\p@}%
1218             {-1em}%
1219             {\normalsize\bf}}

```

Now the version if class option NONUMBER is in effect, i.e., if `\if@numbersec` is false.

```

1220 \else
1221   \setcounter{secnumdepth}{0}
1222   \def\section{\TB@nolimlabel
1223             \TB@startsection{section}%
1224             1%
1225             \z@
1226             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1227             {4\p@}%
1228             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1229   \def\subsection{\TB@nolimlabel
1230             \TB@startsection{subsection}%
1231             2%
1232             \z@
1233             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1234             {-0.5em\@plus-\fontdimen3\font}%
1235             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1236   \def\subsubsection{\TB@nolimlabel
1237             \TB@startsection{subsubsection}%
1238             3%
1239             \parindent
1240             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1241             {-0.5em\@plus-\fontdimen3\font}%
1242             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1243 \fi

```

`\TB@startsection` used to warn about \* versions of sectioning commands when numbering wasn't in effect. But that eventually seemed a useless complaint, since it can be useful to switch back and forth between numbered and unnumbered can be useful during article development. So now `\TB@startsection` is just a synonym for `\@startsection`.

```
1244 \def\TB@startsection#1{\@startsection#1}%
```

`\TB@safe@startsection` is to be used where `\section*` (etc.) appear in places where the request is OK (because it's built in to some macro we don't fiddle with).

```
1245 \def\TB@safe@startsection#1{\@startsection#1}
```

The `SafeSection` environment allows use of \*-forms of sectioning environments. It's not documented for the general public: it's intended as an editor's facility.

```
1246 \newenvironment{SafeSection}%
```

```
1247   {\let\TB@startsection\TB@safe@startsection}%
```

```
1248   {}
```

And now for the exciting sectioning commands that L<sup>A</sup>T<sub>E</sub>X defines but we don't have a definition for (whatever else, we don't want Lamport's originals, which come out 'like the blare of a bugle in a lullaby'<sup>1</sup>).

The three inappropriate ones are subparagraph (indistinguishable from paragraph), and chapter and part. The last seemed almost to be defined in an early version of these macros, since there was a definition of `\l@part`. I've not got down to where that came from (or why). If class option `NONUMBER` is in effect, we also suppress `\paragraph`, since it has no parallel in the plain style.

```
1249 \if@numbersec
```

```
1250   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
```

```
1251 \else
```

```
1252   \def\paragraph{\TB@nosection\paragraph\subsubsection}
```

```
1253   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
```

```
1254 \fi
```

```
1255 \def\chapter{\TB@nosection\chapter\section}
```

```
1256 \def\part{\TB@nosection\part\section}
```

```
1257 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
```

```
1258   \string#2\space used instead}#2}
```

`\l@<sectioning-name>` is for table of contents (of an article). We define new macros to allow easily changing the font used for toc entries (for *TUGboat*, we usually want roman, not bold), and the space between entries. Nelson Beebe and Frank Mittelbach's articles often have toc's (and few others). Also turn off microtype protrusion after

---

<sup>1</sup>Thurber, *The Wonderful O*

## Contents

or leaders get messed up.

```
1259 \def\TBtocsectionfont{\normalfont}
1260 \newskip\TBtocsectionspace \TBtocsectionspace=1.0ex\@plus\p@
1261 \def\l@section#1#2{\addpenalty{\@secpenalty}%
1262 \addvspace{\TBtocsectionspace}%
1263 \@tempdima 1.5em
1264 \begingroup
1265 \parindent\z@ \rightskip\z@ % article style makes \rightskip > 0
1266 \parfillskip\z@
1267 \TBtocsectionfont
1268 \leavevmode\advance\leftskip\@tempdima\hskip-\leftskip#1\nobreak\hfil
1269 \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
1270 \endgroup}
```

### 3.17 Appendices

Appendices (which are really just another sort of section heading) raise a problem: if the sections are unnumbered, we plainly need to restore the section numbering, which in turn allows labelling of section numbers again (`\TBnolimelabel` happens before the `\refstepcounter`, so its effects get lost ... what a clever piece of design that was). So here we go:

```
1271 \renewcommand{\appendix}{\par
1272 \renewcommand{\thesection}{\@Alph\c@section}%
1273 \setcounter{section}{0}%
1274 \ifnumbersec
1275 \else
1276 \setcounter{secnumdepth}{1}%
1277 \fi
```

Now: is this the start of an appendix environment? This can be detected by looking at `\@currenvir`; if we are, we need to relay to `\@appendix@env` to pick up the optional argument.

```
1278 \def\@tempa{appendix}
1279 \ifx\@tempa\@currenvir
1280 \expandafter\@appendix@env
1281 \fi
1282 }
```

Here we deal with `\begin{appendix}[\langle app-name \rangle]`

```
1283 \newcommand{\app@prefix@section}{}
1284 \newcommand{\@appendix@env}[1][Appendix]{%
1285 \renewcommand{\@secntformat}[1]{\csname app@prefix@##1\endcsname
1286 \csname the##1\endcsname\quad}%
1287 \renewcommand{\app@prefix@section}{#1 }%
1288 }
```

Ending an appendix environment is pretty trivial...

```
1289 \let\endappendix\relax
```

### 3.18 References

If the sections aren't numbered, the natural tendency of the author to cross-reference (which, after all, is one of the things L<sup>A</sup>T<sub>E</sub>X is for ever being advertised as being good at) can cause headaches.

The following command is used by each of the sectioning commands to make a following `\ref` command bloop at the author. Even if the author then ignores the complaint, the poor old editor may find the offending `\label` rather more easily.

(Note that macro name is to be read as “*noli me label*” (I don't know the mediæval Latin for ‘label’).

*Comment* To come (perhaps): detection of the act of labelling, and an analogue of `\ifG@refundefined` for this sort of label

```
1290 \def\TB@nolimelabel{%
1291   \def\@currentlabel{%
1292     \protect\TBWarning{%
1293       Invalid reference to numbered label on page \thepage
1294       \MessageBreak made%
1295     }%
1296     \textbf{?!?}%
1297   }%
1298 }
```

### 3.19 Title references

This is a first cut at a mechanism for referencing by the title of a section; it employs the delightfully simple idea Sebastian Rahtz has in the `nameref` package (which is part of `hyperref`). As it stands, it lacks some of the bells and whistles of the original, but they could be added; this is merely proof-of-concept.

The name label comes from the moveable bit of the section argument; we subvert the `\@sect` and `\@ssect` commands (the latter deals with starred section commands) to grab the relevant argument.

```
1299 \let\TB@@sect\@sect
1300 \let\TB@@ssect\@ssect
1301 \def\@sect#1#2#3#4#5#6[#7]#8{%
1302   \def\@currentlabelname{#7}%
1303   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1304 }
1305 \def\@ssect#1#2#3#4#5{%
1306   \def\@currentlabelname{#5}%
1307   \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1308 }
```

We output the name label as a second `\newlabel` command in the `.aux` file. That way, packages such as `varioref` which also read the `.aux` information can still work. So we redefine `\label` to first call the standard L<sup>A</sup>T<sub>E</sub>X `\label` and then write our named label as `nr<label>`.

```

1309 \let\@savelatexlabel=\label % so save original LaTeX command
1310 %
1311 \def\label#1{% de
1312   \@savelatexlabel{#1}%
1313   \@bsphack
1314   \if@filesw
1315     \protected@write\@auxout{%
1316       {\string\newlabel{nr@#1}{\@currentlabel}{\@currentlabelname}}}%
1317   \fi
1318   \@esphack
1319 }

```

Of course, in the case of a sufficiently mad author, there will be no sectioning commands, so we need to

```

1320 \let\@currentlabelname\@empty

```

Getting named references is then just like getting page references in the L<sup>A</sup>T<sub>E</sub>X kernel (see `ltxref.dtx`).

```

1321 \DeclareRobustCommand{\nameref}[1]{\expandafter\@setref
1322   \csname r@nr@#1\endcsname\@secondoftwo{#1}}

```

### 3.20 Float captions

By analogy with what we've just done to section titles and the like, we now do our best to discourage hyphenation within captions. We also typeset them in `\small` (actually `\tubcaptionfonts`).

First, let's define a dimension by which we will indent full-page captions. We'll also use this to indent abstracts in proceedings style.

```

\@tubfullpageindent
1323 \newdimen\@tubfullpageindent
1324 \@tubfullpageindent = \if@tubtwocolumn 4.875pc \else 3.875pc \fi
1325 \let\tubcaptionleftglue=\hfil

```

One-line captions are normally centered, but sometimes we want to set them flush-left for consistency with other nearby figures.

```

\tubcaptionleftglue
1326 \let\tubcaptionleftglue=\hfil

```

Ok, here is `\@makecaption`.

```

1327 \def\tubcaptionfonts{\small}%
1328 \long\def\@makecaption#1#2{%
1329   \vskip\abovcaptionskip
1330   \sbox\@tempboxa{\tubcaptionfonts \frenchspacing \tubmakecaptionbox{#1}{#2}}% try in an hbox

```

```

1331 \ifdim \wd\@tempboxa > \hsize
1332   {% caption doesn't fit on one line; set as a paragraph.
1333   \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
1334   % indent full-width captions {figure*}, but not single-column {figure}.
1335   \ifdim\hsize = \textwidth
1336     \leftskip=\@tubfullpageindent \rightskip=\leftskip
1337     \advance\rightskip by 0pt plus2em % increase acceptable raggedness
1338   \fi
1339   \noindent \tubmakecaptionbox{#1}{#2}\par}%
1340 \else
1341   % fits on one line; use the hbox, centered. Do not reset its glue.
1342   \global\@minipagefalse
1343   \hb@xt@\hsize{\tubcaptionleftglue\box\@tempboxa\hfil}%
1344 \fi
1345 \vskip\belowcaptionskip}
1346 %
1347 \def\tubmakecaptionbox#1#2{#1:\ #2}% allow overriding for a paper

```

Also use `\tubcaptionfonts` for the caption labels, and put the label itself (e.g., “Figure 1”) in bold.

```

1348 \def\fnun@figure{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
1349 \def\fnun@table{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}

```

Let’s reduce the default space above captions a bit, and give it some flexibility. The default is 10pt, which seems too much.

```

1350 \setlength\abovecaptionskip{6pt plus1pt minus1pt}

```

### 3.21 Size changing commands

Apart from their ‘normal’ effects, these commands change the glue around displays.

```

1351 \renewcommand{\normalsize}{%
1352   \@setfontsize\normalsize\@xpt\@xipt
1353   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1354   \belowdisplayskip=\abovedisplayskip
1355   \abovedisplayshortskip=\z@\@plus 3\p@
1356   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1357 }
1358
1359 \renewcommand{\small}{%
1360   \@setfontsize\small\@ixpt{11}%
1361   \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1362   \belowdisplayskip=\abovedisplayskip
1363   \abovedisplayshortskip=\z@\@plus 2\p@
1364   \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1365 }
1366
1367 \renewcommand{\footnotesize}{%
1368   \@setfontsize\footnotesize\@viiipt{9.5}%

```

```

1369 \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1370 \belowdisplayskip=\abovedisplayskip
1371 \abovedisplaysshortskip=\z@\@plus 3\p@
1372 \belowdisplaysshortskip=\p@\@plus 3\p@\@minus\p@
1373 }

```

### 3.22 Lists and other text inclusions

```

1374 \def\@listi{%
1375 \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1376 \itemsep=\parsep
1377 \listparindent=1em
1378 }
1379
1380 \def\@listii{%
1381 \leftmargin\leftmarginii
1382 \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1383 \topsep=2\p@\@plus\p@\@minus\p@
1384 \parsep=\p@\@plus\p@\@minus\p@
1385 \itemsep=\parsep
1386 \listparindent=1em
1387 }
1388
1389 \def\@listiii{%
1390 \leftmargin=\leftmarginiii
1391 \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1392 \topsep=\p@\@plus\p@\@minus\p@
1393 \parsep=\z@
1394 \itemsep=\topsep
1395 \listparindent=1em
1396 }
1397 \def\quote{\list{}{\rightmargin.5\leftmargin}\item[]}

From Dominik Wujastyk's font article. First paragraph of a quotation will
not be indented, and right margin is decreased for narrow columns.
1398 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1399 \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}

The compactitemize, compactenumerate, and compactdescription envi-
ronments, without space between the items.
1400 \newenvironment{compactitemize}%
1401 {\begin{itemize}%
1402 \setlength{\itemsep}{0pt}%
1403 \setlength{\parskip}{0pt}%
1404 \setlength{\parsep}{0pt}%
1405 }%
1406 {\end{itemize}}
1407 %
1408 \newenvironment{compactenumerate}%
1409 {\begin{enumerate}%
1410 \setlength{\itemsep}{0pt}%

```

```

1411     \setlength{\parskip}{Opt}%
1412     \setlength{\parsep}{Opt}%
1413   }%
1414   {\end{enumerate}}
1415 %
1416 \newenvironment{compactdescription}%
1417   {\begin{description}%
1418     \setlength{\itemsep}{Opt}%
1419     \setlength{\parskip}{Opt}%
1420     \setlength{\parsep}{Opt}%
1421   }%
1422   {\end{description}}
1423 %

```

### 3.23 Some fun with verbatim

The plain *TUGboat* style allows [optional] arguments to its `\verbatim` command. This will allow the author (or editor) to specify a range of exciting features; we would definitely like the numbered verbatim style for code (that facility is reserved for a future version of this package), and the present little bit of code imposes the `\ruled` option on the built-in `verbatim` environment. (Note that we don't yet deal with `verbatim*`, which is in itself an option to the `plain` original.)

We start by saving various bits and bobs whose operation we're going to subvert.

```

1424 %\let\@TB@verbatim\@verbatim
1425 \let\@TBverbatim\verbatim
1426 \let\@TBendverbatim\endverbatim

    Impose an optional argument on the environment.
    We start the macro with \par to avoid a common error: if the optional
    argument is \small, and the document has no blank line before the verbatim block,
    we don't want that preceding paragraph to be set with \small's line spacing.
    (\obeylines added to prevent the \futurelet from propagating into the
    body of the verbatim, thus causing lines that start with odd characters (like # or
    even \) to behave peculiarly.)
1427 \def\verbatim{\par\obeylines
1428   \futurelet\reserved@a\@switch@sqbverbatim}
1429 %
1430 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1431   \expandafter\@sqbverbatim\else
1432   \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1433 %
1434 \def\@sqbverbatim[#1]{%

```

The optional argument consists entirely of functions that modify the appearance of the environment. Following the `plain` style, we define the functions we can execute in the optional argument here.

The command `\ruled` tells us that there should be rules above and below the verbatim block.



```

1435 \def\ruled{\let@if@ruled@iftrue}%
      The command \makevmeta says to make !;...; do <...>.
1436 \def\makevmeta{\makeescape\! \let\<\tubverb@meta \tubverb@clearliglist}
1437 \def\tubverb@meta##1>{\meta{##1}}
      The default verbatim defines ‘;,- as active characters to do stop ligatures;
      remove ;, from the list so we get normal characters. Just hope that the CM ;,
      ligatures aren’t used.
1438 \def\tubverb@clearliglist{%
1439   \def\verbatim@nolig@list{\do\‘\do\,\do\’\do\~}%
1440 }
      Then we execute the arguments we’ve got, and relay to a (hacked) copy of
      the LATEX verbatim environment.
1441 #1\@TBverbatim}
      The built-in environment itself relays to \@verbatim, which we’ve subverted
      to impose our views on appearance.
1442 \def\@verbatim{%
      First, we deal with \ruled:
1443   \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
      Now, the code out of the original verbatim environment:
1444   \trivlist \item\relax
1445   \if@minipage\else\vskip\parskip\fi
1446   \leftskip\@totalleftmargin\rightskip\z@skip
1447   \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1448   \@@par
1449   \@tempwafalse
1450   \def\par{%
1451     \if@tempswa
1452       \leavevmode \null \@@par\penalty\interlinepenalty
1453     \else
1454       \@tempwattrue
1455       \ifhmode\@@par\penalty\interlinepenalty\fi
1456     \fi}%
1457   \obeylines \verbatim@font \@noligs
1458   \let\do\@makeother \dospecials
1459   \everypar \expandafter{\the\everypar \unpenalty}%
1460 }% end |\@sqbverbatim|
      To end the environment, we do everything in reverse order: relay via the copy
      we made of \endverbatim, and then finish off the option changes (again \ruled
      only, so far).
1461 \def\endverbatim{\@TBendverbatim
1462   \if@ruled\kern5\p@\hrule\endtrivlist\fi}
      Define the \if used by the \ruled option:
1463 \let@if@ruled\iffalse

```

Finally, if `microtype` is loaded, we want it to be deactivated in verbatim blocks. It often manipulates a leading `\` rather too much, and messes with the visible fixed-width alignment.

```
1464 \AtBeginDocument{%
1465   \ifpackageloaded{microtype}
1466     {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{-}
1467 }
```

### 3.24 Bibliography

This is more or less copied verbatim from Glenn Paulley's *chicago.sty* (gnpaulle@bluebox.uwaterloo.ca). It produces an author-year citation style bibliography, using output from the `BIBTEX` style file based on that by Patrick Daly. It needs extra macros beyond those in standard `LATEX` to function properly. The form of the `bibitem` entries is:

```
\bibitem[\protect\citeauthoryear{Jones, Baker, and Smith}
{Jones et al.}{1990}{key}]...
```

The available citation commands are:

```
\cite{key}      → (Jones, Baker, and Smith 1990)
\citeA{key}     → (Jones, Baker, and Smith)
\citeNP{key}    → Jones, Baker, and Smith 1990
\citeANP{key}   → Jones, Baker, and Smith
\citeN{key}     → Jones, Baker, and Smith (1990)
\shortcite      → (Jones et al. 1990)
\citeyear       → (1990)
\citeyearNP     → 1990
```

First of all (after checking that we're to use Harvard citation at all), make a copy of `LATEX`'s default citation mechanism.

```
1468 \if@Harvardcite
1469 \let\@internalcite\cite
```

Normal forms.

```
1470 \def\cite{\def\@citesep{-1000}}%
1471   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1472   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1473 \def\citeNP{\def\@citesep{-1000}}%
1474   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1475   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1476 \def\citeN{\def\@citesep{-1000}}%
1477   \def\@cite##1##2{##1\if@tempswa , ##2\else{}}\fi}}%
1478   \def\citeauthoryear##1##2##3{##1 (##3)\@citedata}
1479 \def\citeA{\def\@citesep{-1000}}%
1480   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1481   \def\citeauthoryear##1##2##3{##1}\@internalcite}
1482 \def\citeANP{\def\@citesep{-1000}}%
```

```

1483 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1484 \def\citeauthoryear##1##2##3{##1}\@internalcite}
Abbreviated forms (using et al.)
1485 \def\shortcite{\def\@citeseppen{-1000}%
1486 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1487 \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1488 \def\shortciteNP{\def\@citeseppen{-1000}%
1489 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1490 \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1491 \def\shortciteN{\def\@citeseppen{-1000}%
1492 \def\cite##1##2{##1\if@tempswa , ##2\else{}}\fi}}%
1493 \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1494 \def\shortciteA{\def\@citeseppen{-1000}%
1495 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1496 \def\citeauthoryear##1##2##3{##2}\@internalcite}
1497 \def\shortciteANP{\def\@citeseppen{-1000}%
1498 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1499 \def\citeauthoryear##1##2##3{##2}\@internalcite}

```

When just the year is needed:

```

1500 \def\citeyear{\def\@citeseppen{-1000}%
1501 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1502 \def\citeauthoryear##1##2##3{##3}\@citedata}
1503 \def\citeyearNP{\def\@citeseppen{-1000}%
1504 \def\cite##1##2{##1\if@tempswa , ##2\fi}}%
1505 \def\citeauthoryear##1##2##3{##3}\@citedata}

```

Place commas in-between citations in the same `\citeyear`, `\citeyearNP`, `\citeN`, or `\shortciteN` command. Use something like `\citeN{ref1,ref2,ref3}` and `\citeN{ref4}` for a list.

```

1506 \def\@citedata{%
1507 \ifnextchar [{\@tempswatrue\@citedatax}%
1508 \else{\@tempswafalse\@citedatax[]}%
1509 }
1510
1511 \def\@citedatax[#1]#2{%
1512 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1513 \def\@citea{ }\@cite{\@for\@citeb:=#2\do%
1514 {\@citea\def\@citea{, }\@ifundefined% by Young
1515 {b@\@citeb}{\bf ?}}%
1516 \@warning{Citation '\@citeb' on page \thepage \space undefined}}%
1517 {\csname b@\@citeb\endcsname}}{#1}}%

```

Don't box citations, separate with ; and a space; Make the penalty between citations negative: a good place to break.

```

1518 \def\@citex[#1]#2{%
1519 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1520 \def\@citea{ }\@cite{\@for\@citeb:=#2\do%
1521 {\@citea\def\@citea{; }\@ifundefined% by Young
1522 {b@\@citeb}{\bf ?}}%

```

```

1523      \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}%
1524 {\csname b@\@citeb\endcsname}}{#1}}%

```

No labels in the bibliography.

```
1525 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```

1526 \newlength{\bibhang}
1527 \setlength{\bibhang}{2em}

```

Indent second and subsequent lines of bibliographic entries. Stolen from openbib.sty: \newblock is set to {}.

```

1528 \newdimen\bibindent
1529 \bibindent=1.5em
1530 \@ifundefined{refname}%
1531   {\newcommand{\refname}{References}}%
1532   {}%

```

For safety’s sake, suppress the \TB@startsection warnings here...

```

1533 \def\thebibliography#1{% for harvardcite
1534   \let\TB@startsection\TB@safe@startsection
1535   \section*{\refname
1536     \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1537   \list{[\arabic{enumi}]}{%
1538     \labelwidth\z@ \labelsep\z@
1539     \leftmargin\bibindent
1540     \itemindent -\bibindent
1541     \listparindent \itemindent
1542     \parsep \z@
1543     \usecounter{enumi}}%
1544   \def\newblock{}%
1545   \BibJustification
1546   \frenchspacing % more than just period, see comments below
1547 }

```

etal Other bibliography odds and ends.

```

\bibentry 1548 \def\etal{et\,al.\@}
1549 \def\bibentry{%
1550   \smallskip
1551   \hangindent=\parindent
1552   \hangafter=1
1553   \noindent
1554   \sloppy
1555   \clubpenalty500 \widowpenalty500
1556   \frenchspacing
1557 }

```

\bibliography Changes made to accommodate TUB file naming conventions

```

\bibliographystyle 1558 \def\bibliography#1{%
1559   \if@filesw
1560     \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%

```

```

1561 \fi
1562 \@input{\jobname.bbl}%
1563 }
1564 \def\bibliographystyle#1{%
1565 \if@filesw
1566 \immediate\write\auxout{\string\bibstyle{\@tubfilename{#1}}}%
1567 \fi
1568 }

```

`\thebibliography` If the user's asked to use L<sup>A</sup>T<sub>E</sub>X's default citation mechanism (using the `rawcite` option), we still need to patch `\sloppy` to support justification of the body of the bibliography. We kludge in a call to `\frenchspacing` too, since there is no reason to change only period's `\sfcode`, as L<sup>A</sup>T<sub>E</sub>X's original `thebibliography` (in `classes.dtx`) does.

By the way, `amsgen.sty` changes `\frenchspacing` to set the `\sfcode` of punctuation character to successively decreasing integers ending at 1001 for comma. Thus its 1006 for period is overwritten to 1000 for `thebibliography`, making `amsgen's \@addpunct` ineffective. Don't know what that means in practice, if anything.

Back here, we also play with *The T<sub>E</sub>Xbook* since we always have, though that is no longer needed.

```

1569 \else % not harvardcite
1570 \let\TB@origthebibliography\thebibliography
1571 \def\thebibliography{%
1572 \let\TB@startsection\TB@safe@startsection
1573 \def\sloppy{\frenchspacing\BibJustification}%
1574 \TB@origthebibliography} % latex's thebibliography now reads args.
1575 \fi % not harvardcite

```

`\BibJustification` `\BibJustification` defines how the bibliography is to be justified. The Lamport default is simply “`\sloppy`”, but we regularly find some sort of ragged right setting is appropriate. (`\BibJustification` is nevertheless reset to its default value at the start of a paper.)

```

1576 \let\TB@@sloppy\sloppy
1577 \let\BibJustification\TB@@sloppy
1578 \newcommand{\SetBibJustification}[1]{%
1579 \renewcommand{\BibJustification}{#1}%
1580 }
1581 \ResetCommands\expandafter{\the\ResetCommands
1582 \let\BibJustification\TB@@sloppy
1583 }

```

### 3.25 Registration marks

We no longer use these since Cadmus does not want them.

```

1584 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1585 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1586 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }

```

“T” marks centered on top and bottom edges of paper

```

1587 \def\ttopregister{\dlap{%
1588     \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1589         \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1590     \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}}
1591 \def\tbotregister{\ulap{%
1592     \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1593     \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1594         \HorzR@gisterRule \hfil \HorzR@gisterRule}}}
1595 \def\topregister{\ttopregister}
1596 \def\botregister{\tbotregister}

```

### 3.26 Running heads

```

1597 \def\rtitlex{\def\texttub##1{{\normalsize\textrm{##1}}}\TUB, \volx}
    registration marks; these are temporarily inserted in the running head
1598 \def\MakeRegistrationMarks{}
1599 \def\UseTrimMarks{%
1600     \def\MakeRegistrationMarks{%
1601         \ulap{\rlap{%
1602             \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}}%
1603             \topregister\vskip \headmargin \vskip 10\p@}}}%
1604     }
1605 % put issue identification and page number in header.
1606 \def\@oddhead{\MakeRegistrationMarks
1607     \frenchspacing
1608     \normalsize\csname normalshape\endcsname\rm \tubheadhook
1609     \rtitlex\quad \midrtitle\hfil \rtitlenexttopage\quad \thepage}
1610 \def\@evenhead{\MakeRegistrationMarks
1611     \frenchspacing
1612     \normalsize\csname normalshape\endcsname\rm \tubheadhook
1613     \thepage \quad\rtitlenexttopage \hfil\midrtitle \quad\rtitlex}
1614
1615 % can be used to reset the font, e.g., tb98kuester.
1616 \def\tubheadhook{}
1617
1618 % in case the official \author is too verbose for the footline.
1619 % (the \shortauthor / \rhAuthor stuff is only enabled for proceedings, fix!)
1620 \def\tubrunningauthor{\@author}
1621
1622 % put title and author in footer.
1623 \def\@tubrunningfull{%
1624     \def\@oddfoot{% make line break commands produce a normal space
1625         \def\{\unskip\ \ignorespaces}%
1626         \let\newline=\%
1627         \frenchspacing
1628         \hfil\rhTitle}
1629     \def\@evenfoot{\frenchspacing \let\thanks@gobble \tubrunningauthor\hfil}
1630 }

```

```

1631
1632 % empty footer.
1633 \def\@tubrunningminimal{%
1634   \def\@oddfoot{\hfil}%
1635   \def\@evenfoot{\hfil}%
1636 }
1637
1638 % empty footer and header.
1639 \def\@tubrunningoff{%
1640   \def\@oddfoot{\hfil}%
1641   \def\@evenfoot{\hfil}%
1642   \def\@oddhead{\hfil}%
1643   \def\@evenhead{\hfil}%
1644 }
1645
1646 \def\ps@headings{}
1647 \pagestyle{headings}

```

### 3.27 Output routine

Modified to alter `\brokenpenalty` across columns

*Comment* We’re playing with fire here: for example, `\outputdblcol` has changed in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> for 1995/06/01 (with the use of `\hb@xt@`). *This* time there’s no semantic change, but...

```

1648 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1649   \global\setbox\@leftcolumn\box\@outputbox
1650   \global\brokenpenalty10000
1651   \else \global\@firstcolumntrue
1652     \global\brokenpenalty100
1653     \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1654       {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1655       \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1656     \outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1657     \@whilesw\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1658   \fi}

```

### 3.28 Font-related definitions and machinery

These are mostly for compatibility with plain `tugboat.sty`

```

1659 \newif\ifFirstPar      \FirstParfalse
1660 \def\smc{\sc}
1661 \def\ninepoint{\small}
1662 </classtail>

```

`\SMC` *isn’t* small caps—Barbara Beeton says she thinks of it as “big small caps”. She says (modulo capitalisation of things...):

For the things it’s used for, regular small caps are not appropriate—they’re too small. Real small caps are appropriate for author names

(and are so used in continental bibliographies), section headings, running heads, and, on occasion, words to which some emphasis is to be given. `\SMC` was designed to be used for acronyms and all-caps abbreviations, which look terrible in small caps, but nearly as bad in all caps in the regular text size. The principle of using “one size smaller” than the text size is similar to the design of caps in German—where they are smaller relative to lowercase than are caps in fonts intended for English, to improve the appearance of regular text in which caps are used at the heads of all nouns, not just at the beginnings of sentences.

We define this in terms of the memory of the size currently selected that’s maintained in `\@currsize`: if the user does something silly re. selecting fonts, we’ll get the wrong results. The following code is adapted from an old version of `resize.sty` by Donald Arseneau and Matt Swift. (The order of examination of `\@currsize` is to get the commonest cases out of the way first.)

```

1663 <*common>
1664 \DeclareRobustCommand{\SMC}{%
1665   \ifx\@currsize\normalsize\small\else
1666   \ifx\@currsize\small\footnotesize\else
1667   \ifx\@currsize\footnotesize\scriptsize\else
1668   \ifx\@currsize\large\normalsize\else
1669   \ifx\@currsize\Large\large\else
1670   \ifx\@currsize\LARGE\Large\else
1671   \ifx\@currsize\scriptsize\tiny\else
1672   \ifx\@currsize\tiny\tiny\else
1673   \ifx\@currsize\huge\LARGE\else
1674   \ifx\@currsize\Huge\huge\else
1675   \small\SMC@unknown@warning
1676 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1677 }
1678 \newcommand{\SMC@unknown@warning}{\TBWarning{\string\SMC: nonstandard
1679   text font size command -- using \string\small}}
1680 \newcommand{\textSMC}[1]{\SMC #1}

```

The `\acro` command uses `\SMC` as it was originally intended. Since these things are uppercase-only, it fiddles with the spacefactor after inserting its text.

```

1681 \newcommand{\acro}[1]{\textSMC{#1}\@}
1682 </common>

```

### 3.29 Miscellaneous definitions

`\EdNote` allows the editor to enter notes in the text of a paper. If the command is given something that appears like an optional argument, the entire text of the note is placed in square brackets. (Yes, it really is!)

```

1683 <*classtail>
1684 \def\xEdNote{\EdNoteFont Editor’s note:\enspace }
1685 \def\EdNote{\@ifnextchar [%]
1686   {%

```



```

1687 \ifvmode
1688 \smallskip\noindent\let\@EdNote@\@EdNote@v
1689 \else
1690 \unskip\quad\def\@EdNote@\{unskip\quad}%
1691 \fi
1692 \@EdNote
1693 }%
1694 \xEdNote
1695 }
1696 \long\def\@EdNote[#1]{%
1697 [\thinspace\xEdNote\ignorespaces
1698 #1%
1699 \unskip\thinspace]%
1700 \@EdNote@
1701 }
1702 \def\@EdNote@v{\par\smallskip}

```

Macros for Mittelbach's self-documenting style

```

1703 \def\SelfDocumenting{%
1704 \setlength\textwidth{31pc}
1705 \onecolumn
1706 \parindent \z@
1707 \parskip 2\p@\@plus\p@\@minus\p@
1708 \oddsidemargin 8pc
1709 \evensidemargin 8pc
1710 \marginparwidth 8pc
1711 \toks@\expandafter{\@oddhead}%
1712 \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1713 \toks@\expandafter{\@evenhead}%
1714 \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1715 \def\ps@titlepage{}}
1716 }
1717 \def\ps@titlepage{}
1718
1719 \long\def\@makefntext#1{\parindent 1em\noindent\hb@xt@2em{}}%
1720 \llap{\@makefnmark}\null$\mskip5mu$#1}
1721
1722 %% \long\def\@makefntext#1{\parindent 1em
1723 %% \noindent
1724 %% \hb@xt@2em{\hss\@makefnmark}%
1725 %% \hskip0.27778\fontdimen6\textfont\z@\relax
1726 %% #1%
1727 %% }

```

`\tubraggedfoot` To get a ragged-right footnote.

```
1728 \newcommand{\tubraggedfoot}{\rightskip=\raggedskip plus\raggedstretch\relax}
```

`\creditfootnote` Sometimes we want the label “Editor’s Note:”, sometimes not.

```

\supportfootnote 1729 \def\creditfootnote{\nomarkfootnote\xEdNote}
1730 \def\supportfootnote{\nomarkfootnote\relax}

```

General macro `\nomarkfootnote` to make a footnote without a reference mark, etc. #1 is an extra command to insert, #2 the user's text.

```
1731 \gdef\nomarkfootnote#1#2{\begingroup
1732   \def\thefootnote{}%
1733   % no period, please, also no fnmark.
1734   \def\@makefntext##1{##1}%
1735   \footnotetext{\noindent #1#2}%
1736   \endgroup
1737 }
```

### 3.30 Initialization

If we're going to use Harvard-style bibliographies, we set up the bibliography style: the user doesn't get any choice.

```
1738 \if@Harvardcite
1739   \AtBeginDocument{%
1740     \bibliographystyle{ltugbib}%
1741   }
1742 \fi
1743 \authornumber\z@
1744 \let\@signature\@defaultsignature
1745 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
1746                                           configuration information}}{}
1747 </classtail>
```

## 4 L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> Proceedings class

`\@tugclass` Make the code of `ltugboat.cls` (when we load it) say it's really us:

```
1748 <*ltugproccls>
1749 \def\@tugclass{ltugproc}
```

`\if@proc@sober` TUG'96 proceedings switched to more sober headings still; so the `tug95` option establishes the original state. In the absence of any other guidance, we use the '96 for TUG'97 proceedings, but also allow numbering of sections.

```
1750 \newif\if@proc@sober
1751 \newif\if@proc@numerable
1752 \DeclareOption{tug95}{%
1753   \@proc@soberfalse
1754   \@proc@numerablefalse
1755 }
1756 \DeclareOption{tug96}{%
1757   \@proc@sobertrue
1758   \@proc@numerablefalse
1759 }
1760 \DeclareOption{tug97}{%
1761   \@proc@sobertrue
1762   \@proc@numerabletrue
```

```

1763 }
1764 \DeclareOption{tug2002}{%
1765   \@proc@sobertrue
1766   \@proc@numerabletrue
1767   \let\if@proc@numbersec\iftrue
1768   \PassOptionsToClass{numbersec}{ltugboat}%
1769 }

```

`\if@proc@numbersec` If we're in a class that allows section numbering (the actual check occurs after `\ProcessOptions`, we can have the following:

```

1770 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
1771   \PassOptionsToClass{numbersec}{ltugboat}%
1772 }
1773 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
1774   \PassOptionsToClass{nonumber}{ltugboat}%
1775 }

```

`\ifTB@title` If we have a paper for which we want to create a detached title, with an editor's note, and then set the paper separately, we use option `notitle`.

```

1776 \newif\ifTB@title
1777 \DeclareOption{title}{\TB@titletrue}
1778 \DeclareOption{notitle}{\TB@titlefalse}
1779 \AtBeginDocument{\stepcounter{page}}

```

There are these people who seem to think `tugproc` is an option as well as a class...

```

1780 \DeclareOption{tugproc}{%
1781   \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
1782 }

```

All other options are simply passed to `ltugboat`...

```

1783 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{ltugboat}}

```

If there's a `tugproc` defaults file, input it now: it may tell us which year we're to perform for... (Note: this code *is* millenium-proof. It's not terribly classy for years beyond 2069, but then I'm not going to be around then—this will be an interesting task for a future `TeX`ie...)

```

1784 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
1785   {Loading ltugproc configuration information}}{}
1786 \@ifundefined{TUGprocExtraOptions}{%
1787   {\let\TUGprocExtraOptions\@empty}}%
1788   {\edef\TUGprocExtraOptions{,\TUGprocExtraOptions}}

```

`\tugProcYear` Now work out what year it is

```

1789 \@tempcnta\year
1790 \ifnum\@tempcnta<2000
1791   \divide\@tempcnta by100
1792   \multiply\@tempcnta by100
1793   \advance\@tempcnta-\year

```

```

1794 \@tempcnta-\@tempcnta
1795 \fi
      And use that for calculating a year for us to use.
1796 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
1797             {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
1798 \@tempa
1799 \ClassInfo{ltugproc}{Class believes year is
1800 \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
1801 \gobble}

```

Check that this is a “sensible year” (one for which we have a class option defined). If not, make it a ‘suitable’ year, in particular, one that allows numbering sections.

```

1802 \expandafter\ifx\curname ds@tug\tugProcYear\endcsname\relax
1803 \def\tugProcYear{2002}\fi

```

Now execute the default ‘year’ option and get on with processing. Note that this command gets ignored if the configuration file specifies a silly year.

```

1804 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
1805 \ProcessOptions
1806 \if@proc@numbersec
1807 \if@proc@numerable
1808 \else
1809 \ClassWarning{\@tugclass}{This year’s proceedings may not have
1810 numbered sections}%
1811 \fi
1812 \fi

```

Call `ltugboat`, adding whichever section numbering option is appropriate

```

1813 \LoadClass[\if@proc@numbersec numbersec\else nonumber\fi]{ltugboat}

```

## 4.1 Proceedings titles

`\maketitle` There’s no provision for ‘section titles’ in proceedings issues, as there are in *TUGboat* proper. Note the tedious L<sup>A</sup>T<sub>E</sub>X bug-avoidance in the `\@TB@test@document` macro.

```

1814 \def\maketitle{%
1815 \begingroup
      first, a bit of flim-flam to generate an initial value for \rhAuthor (unless the
      user’s already given one with a \shortAuthor comand).
1816 \ifshortAuthor\else
1817 \global\let\rhAuthor\@empty
1818 \def@g@addto@rhAuthor##1{%
1819 \begingroup
1820 \toks@\expandafter{\rhAuthor}%
1821 \let\thanks@gobble
1822 \protected@xdef\rhAuthor{\the\toks@##1}%

```

```

1823     \endgroup
1824   }%
1825   \@getauthorlist\g@addto@rhAuthor
1826   \fi
      now, the real business of setting the title
1827   \ifTB@title
1828     \setcounter{footnote}{0}%
1829     \renewcommand{\thefootnote}{\@fnsymbol\c@footnote}%
1830     \if@twtwocolumn
1831       \twocolumn[\@maketitle]%
1832     \else
1833       \onecolumn
1834       \global\@topnum\z@
1835       \@maketitle
1836     \fi
1837     \@thanks
1838     \thispagestyle{TBproctitle}
1839   \fi
1840 \endgroup
1841 \TB@madetitletrue
1842 }
1843 \newif\ifTB@madetitle \TB@madetitlefalse

```

`\@TB@test@document` `\@TB@test@document` checks to see, at entry to `\maketitle`, if we've had `\begin{document}`. See L<sup>A</sup>T<sub>E</sub>X bug report latex/2212, submitted by Robin Fairbairns, for details.

```

1844 \def\@TB@test@document{%
1845   \edef\@tempa{\the\everypar}
1846   \def \@tempb{\@nodocument}
1847   \ifx \@tempa\@tempb
1848     \@nodocument
1849   \fi
1850 }

```

`\AUTHORfont` Define the fonts for titles and things

```

\TITLEfont 1851 \def \AUTHORfont {\large\rmfamily\mdseries\upshape}
\addressfont 1852 \def \TITLEfont {\Large\rmfamily\mdseries\upshape}
\netaddrfont 1853 \def \addressfont {\small\rmfamily\mdseries\upshape}
1854 \def \netaddrfont {\small\ttfamily\mdseries\upshape}

```

`\aboveauthorskip` Some changeable skips to permit variability in page layout depending on the particular paper's page breaks.

```

\belowabstractskip 1855 \newskip\aboveauthorskip \aboveauthorskip=18\p@ \@plus4\p@
1856 \newskip\belowauthorskip \belowauthorskip=\aboveauthorskip
1857 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@

```

`\@maketitle` The body of `\maketitle`

```

1858 \def\@maketitle{%

```

```

1859 {\parskip\z@
1860 \frenchspacing
1861 \TITLEfont\raggedright\noindent\@title\par
1862 \count@=0
1863 \loop
1864 \ifnum\count@<\authornumber
1865 \vskip\aboveauthorskip
1866 \advance\count@\@ne
1867 {\AUTHORfont\theauthor{\number\count@}\endgraf}%
1868 \addressfont\theaddress{\number\count@}\endgraf
1869 {%
1870 \allowhyphens
1871 \hangindent1.5pc
1872 \netaddrfont\thenetaddress{\number\count@}\endgraf
1873 \hangindent1.5pc
1874 \thePersonalURL{\number\count@}\endgraf
1875 }%
1876 \repeat
1877 \vskip\belowauthorskip}%
1878 \if@abstract
1879 \centerline{\bfseries Abstract}%
1880 \vskip.5\baselineskip\rmfamily
1881 \@tubonecolumnabstractstart
1882 \the\abstract@toks
1883 \@tubonecolumnabstractfinish
1884 \global\@ignoretrue
1885 \fi
1886 \vskip\belowabstractskip
1887 \global\@afterindentfalse\aftergroup\@afterheading
1888 }

```

`abstract` Save the contents of the abstract environment in the token register `\abstract@toks`.  
`\if@abstract` We need to do this, as otherwise it may get ‘typeset’ (previously, it got put in a  
`\abstract@toks` box) before `\begin{document}`, and experiments prove that this means our shiny  
new `\SMC` doesn’t work in this situation.

If you need to understand the ins and outs of this code, look at the place I  
lifted it from: `tabularx.dtx` (in the tools bundle). The whole thing pivots on  
having stored the name of the ‘abstract’ environment in `\@abstract@`

```

1889 \newtoks\abstract@toks \abstract@toks{}
1890 \let\if@abstract\iffalse
1891 \def\abstract{%

```

we now warn unsuspecting users who provide an `abstract` environment *after*  
the `\maketitle` that would typeset it...

```

1892 \ifTB@madetitle
1893 \TBWarning{abstract environment after \string\maketitle}
1894 \fi
1895 \def\@abstract@{abstract}%
1896 \ifx\@currenvir\@abstract@

```

```

1897 \else
1898   \TError{\string\abstract\space is illegal:%
1899     \MessageBreak
1900     use \string\begin{\@abstract@} instead}%
1901     {\@abstract@\space may only be used as an environment}
1902 \fi
1903 \global\let\if@abstract\iftrue
1904 {\ifnum0='}\fi
1905 \@abstract@getbody}
1906 \let\endabstract\relax

   \@abstract@getbody gets chunks of the body (up to the next occurrence of
   \end) and appends them to \abstract@toks. It then uses \@abstract@findend
   to detect whether this \end is followed by {abstract}

1907 \long\def\@abstract@getbody#1\end{%
1908   \global\abstract@toks\expandafter{\the\abstract@toks#1}%
1909   \@abstract@findend}

   Here we've got to \end in the body of the abstract. \@abstract@findend
   takes the 'argument' of the \end do its argument.

1910 \def\@abstract@findend#1{%
1911   \def\@tempa{#1}%

   If we've found an 'end' to match the 'begin' that we started with, we're done
   with gathering the abstract up; otherwise we stuff the end itself into the token
   register and carry on.

1912   \ifx\@tempa\@abstract@
1913     \expandafter\@abstract@end
1914   \else

   It's not \end{abstract}—check that it's not \end{document} either (which
   signifies that the author's forgotten about ending the abstract)

1915     \def\@tempb{document}%
1916     \ifx\@tempa\@tempb
1917       \TError{\string\begin{\@abstract@}
1918         ended by \string\end{\@tempb}}%
1919       {You've forgotten \string\end{\@abstract@}}
1920     \else
1921       \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
1922       \expandafter\expandafter\expandafter\@abstract@getbody
1923     \fi
1924   \fi}

   In our case, the action at the 'proper' \end is a lot simpler than what appears
   in tabularx.dtx ... don't be surprised!

1925 \def\@abstract@end{\ifnum0='}\fi}%
1926 \expandafter\end\expandafter{\@abstract@}

```

`\makesignature` \makesignature is improper in proceedings, so we replace it with a warning (and a no-op otherwise)

```

1927 \renewcommand{\makesignature}{\TBWarning
1928         {\string\makesignature\space is invalid in proceedings issues}}

\ps@TBproctitle Now we define the running heads in terms of the \rh* commands.
  \ps@TBproc 1929 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 1930 \let\@evenhead\MakeRegistrationMarks
\setpagecommands 1931 \TB@definefeet
\TB@definefeet 1932 }
  \pfoottext 1933 \def\ps@TBproc{%
  \rfoottext 1934 \def\@oddhead{\MakeRegistrationMarks
1935     {%
1936         \hfil
1937         \def\{\unskip\ \ignorespaces}%
1938         \rmfamily\rhTitle
1939     }%
1940 }%
1941 \def\@evenhead{\MakeRegistrationMarks
1942     {%
1943         \def\{\unskip\ \ignorespaces}%
1944         \rmfamily\rhAuthor
1945         \hfil
1946     }%
1947 }%
1948 \TB@definefeet
1949 }
1950
1951 \advance\footskip8\p@ % for deeper running feet
1952
1953 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
1954 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
1955     {#2}}
1956 \def\TB@definefeet{%
1957     \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
1958         \else\rfoottext\hfil\thepage\fi\dopagecommands}%
1959     \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
1960         \else\thepage\hfil\rfoottext\fi\dopagecommands}%
1961 }
1962
1963 \def\pfoottext{\smc Preprint}:
1964     Proceedings of the \volyr{} Annual Meeting}
1965 \def\rfoottext{\normalfont\TUB, \volx\Dash
1966     {Proceedings of the \volyr{} Annual Meeting}}
1967
1968 \pagestyle{TBproc}

```

## 4.2 Section divisions

Neither sections nor subsections are numbered by default in the proceedings style: note that this puts a degree of stress on authors' natural tendency to reference



sections, which is a matter that needs attention. The class option NUMBERSEC once again numbers the sections (and noticeably changes the layout).

```
1969 \if@proc@numbersec
1970 \else
1971 \setcounter{secnumdepth}{0}
1972 \fi
```

Otherwise, the `\section` command is pretty straightforward. However, the `\subsection` and `\subsubsection` are run-in, and we have to remember to have negative stretch (and shrink if we should in future choose to have one) on the `\afterskip` parameter of `\@startsection`, since the whole skip is going to end up getting negated. We use `\TB@startsection` to detect inappropriate forms.

```
1973 \if@proc@numbersec
1974 \else
1975 \if@proc@sober
1976 \def\section
1977     {\TB@nolimelabel
1978     \TB@startsection{{section}%
1979     1%
1980     \z@%
1981     {-8\p@\@plus-2\p@\@minus-2\p@}%
1982     {6\p@}%
1983     {\normalsize\bfseries\raggedright}}}
1984 \else
1985 \def\section
1986     {\TB@nolimelabel
1987     \TB@startsection{{section}%
1988     1%
1989     \z@%
1990     {-8\p@\@plus-2\p@\@minus-2\p@}%
1991     {6\p@}%
1992     {\large\bfseries\raggedright}}}
1993 \fi
1994 \def\subsection
1995     {\TB@nolimelabel
1996     \TB@startsection{{subsection}%
1997     2%
1998     \z@%
1999     {6\p@\@plus 2\p@\@minus2\p@}%
2000     {-5\p@\@plus -\fontdimen3\the\font}%
2001     {\normalsize\bfseries}}
2002 \def\subsubsection
2003     {\TB@nolimelabel
2004     \TB@startsection{{subsubsection}%
2005     3%
2006     \parindent%
2007     \z@%
2008     {-5\p@\@plus -\fontdimen3\the\font}%
2009     {\normalsize\bfseries}}
```

```
2010 \fi
2011 </ltugproccls>
```

## 5 Plain T<sub>E</sub>X styles

```
2012 <*tugboatsty>
2013 % err...
2014 </tugboatsty>
2015 <*tugprocsty>
2016 % err...
2017 </tugprocsty>
```

## 6 The L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> compatibility-mode style files

```
2018 <*ltugboatsty>
2019 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
2020 \LoadClass{ltugboat}
2021 </ltugboatsty>
2022 <*ltugprocsty>
2023 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
2024 \LoadClass{ltugproc}
2025 </ltugprocsty>
```