

# 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           [2023-01-16 v2.28
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                       TUG macros source file%
17 </dtx>
18 ]

```

## 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>	(L <sup>A</sup> )T <sub>E</sub> X
<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>	ConT <sub>E</sub> Xt

<code>\Cplusplus</code>	C++
<code>\DTD</code>	
<code>\DVD</code>	
<code>\DVI</code>	
<code>\DVIPDFMx</code>	DVIPDFM <i>x</i>
<code>\DVItοVDU</code>	DVItοVDU
<code>\ECMA</code>	
<code>\EPS</code>	
<code>\eTeX</code>	$\varepsilon$ -T <sub>E</sub> X
<code>\ExTeX</code>	$\varepsilon_X$ T <sub>E</sub> X
<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 T <sub>E</sub> X
<code>\LaTeX</code>	
<code>\LyX</code>	
<code>\macOS</code>	mac OS
<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 T <sub>E</sub> X
<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>	T <sub>E</sub> X 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 baselineskip and lineskip 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>\midrtitlex</code>	information for center of running head
<code>\rtitlexnexttopage</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 \TUB 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>\titleref</code>	with one argument, format title as straight text (slanted, frenchspacing)
<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>\TEnableRemarks</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 in <i>TUGboat</i>
<code>\xreftoON</code>	
<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

Occasionally we need to do different things when running under traditional (pdf)latex or a native Unicode engine. Since we don't need any fancier distinctions, instead of reading the `iftex` or another package, do the test directly.

```

19 <*common>
20 \newif\ifTBunicodeengine
21 \ifx\Umathchardef\@thisisundefined % not (xetex|luatex)
22   \TBunicodeenginefalse
23 \else
24   \TBunicodeenginetrue
25 \fi
26 </common>

```

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.

```

27 <*ltugboatcls>
28 \csname tugstyloaded@&endcsname
29 \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.

```

30 \providecommand{\@tugclass}{ltugboat}

```

Warnings/error messages/information messages — if we're using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> we can use the `\Class*` commands:

```

31 \def\TBInfo{\ClassInfo{\@tugclass}}
32 \def\TBError{\ClassError{\@tugclass}}
33 \def\TBWarning{\ClassWarning{\@tugclass}}

```

```

34 \def\TBWarningNL{\ClassWarningNoLine{\@tugclass}}
    Class options: draft vs. preprint vs. final.
35 \DeclareOption{draft}{%
36   \AtEndOfClass{%
37     \setcounter{page}{901}%
38     %
39     % Put a question mark into the page number in draft mode.
40     \let\tuborigthepage = \thepage
41     \def\thepage{%
42       \ifnum\value{page}>900
43         \textsl{?\texorpdfstring{\,}\}\@arabic{\numexpr\the\c@page-900\relax}}%
44       \else
45         \arabic{page}%
46       \fi}%
47     %
48     \BlackBoxes
49     \def\MakeRegistrationMarks{}%
50     \PrelimDrafttrue
51   }%
52 }
53
54 \newif\ifpreprint
55 \def\preprint{\preprinttrue}
56 \DeclareOption{preprint}{%
57   \preprinttrue
58 }
59
60 \newif\iftubfinaloption % [final]
61 \DeclareOption{final}{%
62   \tubfinaloptiontrue
63   \AtEndOfClass{%
64     \let\thepage=\tuborigthepage
65     \NoBlackBoxes
66     % Insert draft date into the header even with [final], if we are not
67     % doing a production run. (tugboat.dates sets up page numbers
68     % above 900 in such pseudo-draft mode.) We use [final] in the first
69     % place for this case because draft mode can change page layout, wrt
70     % registration marks, etc.
71     \ifnum\value{page}>900 \PrelimDrafttrue \else \PrelimDraftfalse \fi
72     \@tubrunningfull
73   }%
74 }

```

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.

Similarly, disable and more if we have `hyperref`, so section titles using them don't cause useless warnings.

```

75 \AtBeginDocument{%
76   \ifx\undefined\texorpdfstring
77     \DeclareRobustCommand{\texorpdfstring}[2]{#1}%
78   \fi
79   %

```

```

80 \ifx\undefined\pdfstringdefDisableCommands\else
81   \pdfstringdefDisableCommands{%
82     \let\acro\relax
83     \let\origDash=\Dash \def\Dash{\texorpdfstring{\origDash}{--}}%
84     % lots more could be added.
85   }%
86 \fi
87 }

```

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

```

88 \DeclareOption{11pt}{%
89   \TBWarning{The \@tugclass\space class only supports 10pt fonts:
90     \MessageBreak option \CurrentOption\space ignored}%
91 }
92 \DeclareOption{12pt}{\csname ds@11pt\endcsname}

```

Similarly, ignore one/two-side options.

```

93 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
94 \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`.)

```

95 \DeclareOption{tugproc}{%
96   \TBWarning{Option \CurrentOption\space ignored: use class ltugproc
97     instead of \@tugclass}%
98 }

```

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.

```

99 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
100 \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...

```

101 \DeclareOption{extralabel}{\let\UseExtraLabel\@firstofone}
102 \DeclareOption{noextralabel}{\let\UseExtraLabel\@gobble}

```

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

```

103 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
104 \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.

```

105 \DeclareOption{runningoff}{\AtEndOfClass{\@tubrunningoff}}
106 \DeclareOption{runningminimal}{\AtEndOfClass{\@tubrunningminimal}}
107 \DeclareOption{runningfull}{\AtEndOfClass{\@tubrunningfull}}

```



Usually we want to print the doi if [final], else not. But sometimes we want to omit it even if [final], namely when we're posting a review or other item early.

```
108 \newif\iftubomitdoioption
109 \DeclareOption{omitdoi}{%
110   \tubomitdoioptiontrue
111 }
```

`\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.

```
112 \newif\if@tubtwocolumn \@tubtwocolumntrue
113 \DeclareOption{onecolumn}{\@tubtwocolumnfalse}
```

`\ifsecondcolstart` Occasionally, we need to start an article in the second column of a page, due to splicing with a previous article. Let's try declaring that. Then, before `\maketitle`, we'll force the move to the second column.

```
114 \newif\iftubsecondcolstart
115 \DeclareOption{secondcolstart}{\tubsecondcolstarttrue}
```

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

```
116 \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.

```
117 \ExecuteOptions{draft,extralabel,numbersec,rawcite,runningminimal}
118 \ProcessOptions
119 \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.

```
120 \def\sectitlefont{\fontfamily\sfddefault\fontseries{bx}\fontshape{n}%
121   \fontsize\@xviipt\stbaselineskip\selectfont}
122 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xipt
123   \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...

```
124 \ifTBunicodeengine
125   % there is no "LM unslanted" in OpenType, so use the standard cmu
126   % scaled for the current text size. Not worth more effort.
127   \def\EdNoteFont{\font\ednotefont = cmu10 at 1em }
128 \else % traditional engine:
129   \def\EdNoteFont{\fontfamily{cmr}\fontseries{m}\fontshape{ui}\selectfont}
130 \fi
131 \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>).

```

132 <*common>
133 \IfFileExists{mflogo.sty}%
134   {\RequirePackage{mflogo}}%
135 <!tugcomn> {\TBWarning
136 <tugcomn>   {\PackageWarning{!tugcomn}
137             {Package mflogo.sty not available --\MessageBreak
138               Proceeding to emulate mflogo.sty}
139   \DeclareRobustCommand{\logofamily}{%
140     \not@math@alphabet\logofamily\relax
141     \fontencoding{U}\fontfamily{logo}\selectfont}
142   \DeclareTextFontCommand{\textlogo}{\logofamily}
143   \def\MF{\textlogo{META}\-\textlogo{FONT}\@}
144   \def\MP{\textlogo{META}\-\textlogo{POST}\@}
145   \DeclareFontFamily{U}{logo}{}
146   \DeclareFontShape{U}{logo}{m}{n}{%
147     <8><9>gen*logo%
148     <10><10.95><12><14.4><17.28><20.74><24.88>logo10%
149   }{}
150   \DeclareFontShape{U}{logo}{m}{sl}{%
151     <8><9>gen*logosl%
152     <10><10.95><12><14.4><17.28><20.74><24.88>logosl10%
153   }{}
154   \DeclareFontShape{U}{logo}{m}{it}{%
155     <->ssub*logo/m/sl%
156   }{}%
157 }

```

### 3.2 Resetting at start of paper

`\ResetCommands` We store a set of commands that should be executed at the start of each paper, `\AddToResetCommands` 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

```

158 \newtoks\ResetCommands
159 \ResetCommands{%
160   \setcounter{part}{0}%
161   \setcounter{section}{0}%
162   \setcounter{footnote}{0}%
163   \authornumber\z@
164 }
165 \newcommand{\AddToResetCommands}[1]{%
166   \AddToResetCommands\expandafter{\AddToResetCommands#1}%
167 }

```

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

`\makeescape`, `\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., `\makeescape\/` will make `'/'` an escape character.

```
168 <!!latex>
169 \def\makeescape#1{\catcode'#1=0 }
170 \def\makebgroup#1{\catcode'#1=1 }
171 \def\makeegroup#1{\catcode'#1=2 }
172 \def\makemath #1{\catcode'#1=3 }
173 </!!latex>
174 <*latex>
175 \def\makeescape#1{\catcode'#1=\z@}
176 \def\makebgroup#1{\catcode'#1=\@ne}
177 \def\makeegroup#1{\catcode'#1=\tw@}
178 \def\makemath #1{\catcode'#1=\thr@@}
179 </latex>
180 \def\makealign #1{\catcode'#1=4 }
181 \def\makeeol #1{\catcode'#1=5 }
182 \def\makeparm #1{\catcode'#1=6 }
183 \def\makesup #1{\catcode'#1=7 }
184 \def\makesub #1{\catcode'#1=8 }
185 \def\makeignore#1{\catcode'#1=9 }
186 \def\makespace #1{\catcode'#1=10 }
187 \def\makeletter#1{\catcode'#1=11 }
188 \chardef\other=12
189 \let\makeother\@makeother
190 \def\makeactive#1{\catcode'#1=13 }
191 \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.

```
192 \def\savecat#1{%
193   \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode'#1}}
194 \def\restorecat#1{\catcode'#1=\csname\string#1savedcat\endcsname}
195 <!!latex>\savecat \@
196 <!!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.

```
197 \def\SaveCS#1{\expandafter\let\csname saved@@#1\expandafter\endcsname
198   \csname#1\endcsname}
199 \def\RestoreCS#1{\expandafter\let\csname#1\expandafter\endcsname
200   \csname saved@@#1\endcsname}
```

To distinguish between macro files loaded

```
201 \def\plaintubstyle{plain}
202 \def\largetubstyle{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:

```

203 \providecommand\hb@xt@\hbox to
204 \providecommand\textsuperscript[1]{\ensuremath{\m@th
205             ^{\mbox{\fontsize\sf@size\z@
206             \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.)

We end up wanting this fairly often, and L<sup>A</sup>T<sub>E</sub>X removed `\line`.

```

207 \def\tubline{\hbox to \hsize}

```

### 3.4 Abbreviations and logos

Font used for the METAFONT logo, etc.

```

208 \DeclareRobustCommand{\AllTeX}{(\La\kern-.075em)\kern-.075em\TeX}
209 \def\AMS{American Mathematical Society}
210 \def\AmS{\mathcal{A}}\kern-.1667em\lower.5ex\hbox
211     {\mathcal{M}}\kern-.125em\mathcal{S}}
212 \def\AmSLaTeX{\AmS-\LaTeX}
213 \def\AmSTeX{\AmS-\TeX}
214 \def\ANSI{\acro{ANSI}}
215 \def\API{\acro{API}}
216 \def\ASCII{\acro{ASCII}}
217 \def\aw{\acro{A\kern.04em\raise.115ex\hbox{-}W}}
218 \def\AW{Addison\kern.1em-\penalty\z@\hskip\z@skip Wesley}
219 %
220 % make \BibTeX work in slanted contexts too; it's common in titles, and
221 % especially burdensome to hack in .bib files.
222 \def\Bib{%
223     \ifdim \fontdimen1\font>0pt
224         B{\SMC\SMC IB}%
225     \else
226         B\textsc{ib}%
227     \fi
228 }
229 \def\BibLaTeX{\Bib\kern.02em \LaTeX}
230 \def\BibTeX{\Bib\kern-.08em \TeX}
231 % no good way to determine bold font, and we want to lose the kern, too:
232 % (we \let BibTeX to this in maketitle)
233 \def\bfBibTeX{B{\SMC\SMC IB}\TeX}
234 %
235 \def\BSD{\acro{BSD}}
236 \def\CandT{\textsl{Computers \& Typesetting}}
237 % must not define \CJK, because the CJK package does.

```

We place our `\kern` after `\-` so that it disappears if the hyphenation is taken:

```

238 \def\ConTeXt{C\kern-.0333em\-\kern-.0667em\TeX\kern-.0333em}
239 \def\CMkIV{\ConTeXt\ \MkIV}
240 \def\Cplusplus{C\plusplus}
241 \def\plusplus{\raisebox{.7ex}{$_{++}$}}
242 \def\CPU{\acro{CPU}}
243 \def\CSzabbr{\ensuremath{\cal C}}\kern-.1667em\lower.5ex\hbox{\cal S}}
244 \def\CSS{\acro{CSS}}
245 \def\CSTUG{\CSzabbr\kern.05em\acro{TUG}}

```

```

246 \def\CSV{\acro{CSV}}
247 \def\CTAN{\acro{CTAN}}
248 \def\DTD{\acro{DTD}}
249 \def\DTK{\acro{DTK}}
250 \def\DVD{\acro{DVD}}
251 \def\DVI{\acro{DVI}}
252 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
253 \def\DVIttoVDU{DVItto\kern-.12em VDU}
254 \def\ECMA{\acro{ECMA}}
255 \def\EPS{\acro{EPS}}
256 % no line break at this hyphen please, and try to get a bold \varepsilon.
257 \def\TUBdefaultTeX{\ensuremath{\varepsilon}\mbox{-}\kern-.125em\TeX}%
258 \DeclareRobustCommand{\eTeX}{%
259   \ifx\series\bfseries@rm
260     \ifx\boldsymbol\undefined % \boldsymbol is from amsmath; also support bm?
261       \TUBdefaultTeX
262     \else
263       \ensuremath{\boldsymbol{\varepsilon}}\mbox{-}\kern-.125em\TeX
264     \fi
265   \else
266     \TUBdefaultTeX
267   \fi
268 }
269 \DeclareRobustCommand{\ExTeX}{%
270   \ensuremath{\textstyle\varepsilon_{\kern-0.15em\cal{X}}}\kern-.2em\TeX}
271 \def\FAQ{\acro{FAQ}}
272 \def\FTP{\acro{FTP}}
273 \def\Ghostscript{Ghost\script}
274 \def\GNU{\acro{GNU}}
275 \def\GUI{\acro{GUI}}
276 \DeclareRobustCommand{\HarfBuzz}{Harf\discretionary{-}{-}{\kern.077em}Buzz}
277 \def\Hawaii{Hawai'i}
278 \def\HTML{\acro{HTML}}
279 \def\HTTP{\acro{HTTP}}
280 \def\iOS{i\acro{OS}}
281 \def\IDE{\acro{IDE}}
282 \def\IEEE{\acro{IEEE}}
283 \def\ISBN{\acro{ISBN}}
284 \def\ISO{\acro{ISO}}
285 \def\ISSN{\acro{ISSN}}
286 \def\JPEG{\acro{JPEG}}
287 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}}\kern-.18em\TeX}
288 \def\JoT{\textsl{The Joy of \TeX}}
289 \DeclareRobustCommand{\KOMAScript}{\textsf{K\kern.05em O\kern.05em%
290   M\kern.05em A\kern.1em\hyph\kern.1em Script}}
291 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
292   $\m@th$\fontsize\sf@size\z@\selectfont
293   $\m@th\mathcal{A}$}%
294   \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
295   {\m@th\mathcal{S}$}-\TeX}
296 % This code
297 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
298 % example) to propagate into the raised (small) 'A':
299 % \begin{macrocode}

```

```

300 \DeclareRobustCommand{\La}%
301   {L\kern-.36em
302     {\setbox0\hbox{T}%
303       \vbox to\ht0{\hbox{\m@th$%
304         \csname S@\f@size\endcsname
305         \fontsize\sf@size\z@
306         \math@fontsfalse\selectfont
307         A}%
308         \vss}%
309     }}

```

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.

```

310 <!!latex>\def\LaTeX{L\kern-.15em\TeX}
311 \def\LuaHBTeX{Lua\acro{HB}\-\TeX}%
312 \def\LuaHBLaTeX{Lua\acro{HB}\-\LaTeX}%
313 \def\LuaLaTeX{Lua\-\TeX}% dtk-logos defines it and people like to use it
314 \def\LuaTeX{Lua\-\TeX}% ditto
315 \def\LyX{L\kern-.1667em\lower.25em\hbox{Y}\kern-.125emX}
316 \def\macOS{mac\acro{OS}}
317 \def\MacOSX{Mac\,\acro{OS},X}}
318 \def\MathML{Math\acro{ML}}
319 \def\Mc{\setbox\TestBox=\hbox{M}\vbox
320   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`.

```

321 \def\mf{\textsc{Metafont}}
322 \def\MFB{\textsl{The \MF\kern.1em\-\book}}
323 \def\MkIV{Mk\acro{IV}}
324 \let\TB@omp\mp
325 \DeclareRobustCommand{\mp}{\ifmmode\TB@omp\else MetaPost\fi}
326 \def\mtex{T\kern-.1667em\lower.424ex\hbox{\^E}\kern-.125emX\@}
327 %
328 % In order that the \cs{OMEGA} command will switch to using the TS1
329 % variant of the capital Omega character if \texttt{textcomp.sty} is
330 % loaded, we define it in terms of the \cs{textohm} command. Note
331 % that this requires us to interpose a level of indirection, rather
332 % than to use \cs{let}\dots
333 % Revised definition of \cs{NTS} based on that used by Phil Taylor.
334 %
335 %   \begin{macrocode}
336 \DeclareRobustCommand{\NTG}{\acro{NTG}}
337 \DeclareRobustCommand{\NTS}{\ensuremath{\mathcal{N}\mkern-4mu
338   \raisebox{-0.5ex}{\mathcal{T}}\mkern-2mu \mathcal{S}}}
339 \DeclareTextSymbol{\textohm}{OT1}{'012}
340 \DeclareTextSymbolDefault{\textohm}{OT1}
341 \newcommand{\OMEGA}{\textohm}
342 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
343 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}

```

```

344 \DeclareRobustCommand{\OTF}{\acro{OTF}}
345 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
346 \DeclareRobustCommand{\OpTeX}{Op\kern-.05em\TeX}

347 \def\Pas{Pascal}
348 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@c}MF\@}
349 \def\PCTeX{PC\thinspace\TeX}
350 \def\pCTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@c}\TeX}
351 \def\pdflatex{pdf\-\LaTeX}% dtk-logos
352 \def\pdftex{pdf\-\TeX}% dtk-logos
353 \def\pdfTeX{\pdftex}
354 \def\PDF{\acro{PDF}}
355 \def\PGF{\acro{PGF}}
356 \def\PHP{\acro{PHP}}
357 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
358 \def\PiCTeX{\PiC\kern-.11em\TeX}
359 \def\plain{\texttt{plain}}
360 \def\PNG{\acro{PNG}}
361 \def\POBox{P.\thinspace 0.\~Box }
362 \def\PS{\{Post\-\Script}}
363 \def\PSTricks{\acro{PST}ricks}
364 \def\RIT{\acro{RIT}}
365 \def\RTF{\acro{RTF}}
366 \def\SC{Steering Committee}
367 \def\SGML{\acro{SGML}}
368 \def\SliTeX{\textrm{S\kern-.06em\textsc{l}\kern-.035emi}%
369           \kern-.06em\TeX}}
370 \def\sLMF{\textsl{MF}} % should never be used
371 \def\SQL{\acro{SQL}}
372 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
373 \def\STIX{\acro{STIX}}
374 \def\SVG{\acro{SVG}}
375 \def\TANGLE{\texttt{TANGLE}\@}
376 \def\TB{\textsl{The \TeX\-\book}}
377 \def\TIFF{\acro{TIFF}}
378 \def\TP{\textsl{\TeX}:\ \textsl{The Program}}
379 \DeclareRobustCommand{\TeX}{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
380 \def\TeXhax{\TeX hax}
381 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
382           \kern-.2267emG\@}
383 \def\TeXtures{\textit{Textures}}
384 \let\Textures=\TeXtures
385 \def\TeXworks{\TeX\kern-.07em works}
386 \def\TeXXeT{\TeX\{-}\-\XeT}
387 \def\TFM{\acro{TFM}}
388 \ifTBunicodeengine
389   \AtBeginDocument{% in case a different font is loaded
390     % \iffontchar is from e-TeX; safe to use under Unicode engines.
391     \iffontchar\font"1EBF
392       \def\TBecircacute{\char"1EBF }%
393     \else
394       \def\TBecircacute{\^e\llap{\raise.5ex\hbox{'}}}%
395     \fi
396     \def\Thanh{H\'an\~Th\TBecircacute\~Th\'anh}%
397   }%

```

```

398 \else % non-Unicode engine, use our traditional definition.
399 \def\Thanh{H\`an\`Th\`e\llap{\raise 0.5ex\hbox{\`{}}}\`Th\`anh}
400 % We could also go the other direction, and always use the Unicode
401 % character, after:
402 % \ifdefined\DeclareUnicodeCharacter
403 % \DeclareUnicodeCharacter{1EBF}{\`e\llap{\raise 0.5ex\hbox{\`{}}}}
404 % \fi
405 % but let's make the smaller change.
406 \fi
407 \def\TikZ{Ti{\em k}Z}
408 \def\TTN{\textsl{TTN}\@}
409 \def\TTN{\textsl{\TeX} and TUG News}
410 \def\TUB{\texttub{TUGboat}}\def\texttub{\textsl} % redefined in some situations
411 \def\TUG{\TeX\ \UG}
412 \def\tug{\acro{TUG}}
413 \def\UG{Users Group}
414 \def\UNIX{\acro{UNIX}}
415 % Don't define \UTF, since other packages use it for Unicode character access.
416 % On the other hand, we want a macro for UTF-8 that doesn't break at the -.
417 \def\tbUTF{\acro{UTF}\futurelet\@nextchar\tbUTFcheck}
418 \def\@tbUTFcheck{\ifx\@nextchar-%
419 \mbox{-}\let\next=\tbgobbedash
420 \else
421 \let\next=\empty
422 \fi\next}
423 \def\tbgobbedash-{}
424 \def\VAX{V\kern-.12em A\kern-.1em X\@}
425 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
426 \def\VorTeX{V\kern-2.7\p@lower.5ex\hbox{0\kern-1.4\p@ R}\kern-2.6\p@\TeX}
427 \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
428 \def\XML{\acro{XML}}
429 \def\WEB{\texttt{WEB}\@}
430 \def\WEAVE{\texttt{WEAVE}\@}
431 \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 miniltx or
Eplain.) Also, at Barbara's suggestion, if the current font is slanted, we rotate by
180 instead of reflecting so there is a better chance to look ok. (The magic values
here seem more or less ok for cmsl and cmti.)

432 \def\tubreflect#1{%
433 \@ifundefined{reflectbox}{%
434 \TBError{A graphics package must be loaded to use \string\XeTeX}
435 {Load graphicx or graphics.}%
436 }{%
437 \ifdim \fontdimen1\font>Opt
438 \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
439 \else
440 \reflectbox{#1}%
441 \fi
442 }%
443 }
444 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=Opt \dp0=Opt \box0 }
445 \def\XekernbeforeE{-.125em}

```



```

446 \def\XekernafterE{-.1667em}
447 \DeclareRobustCommand{\Xe}{\leavevmode
448   \tubhideheight{\hbox{X%
449     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}}%
450     \ifdim \fontdimen1\font>Opt
451       % XeTeX logo needs tinkering when slanted/italic font.
452       \def\XekernbeforeE{-.11em}%
453       \def\XekernafterE{-.16em}%
454       \dp1=-.17ex
455     \fi
456     \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
457     \kern\XekernafterE}}
458 \def\XeTeX{\XeTeX}
459 \def\XeLaTeX{\Xe{\kern.11em \LaTeX}}
460 %
461 \def\XHTML{\acro{XHTML}}
462 \def\XSL{\acro{XSL}}
463 \def\XSLF0{\acro{XSL}\raise.08ex\hbox{-}\acro{F0}}
464 \def\XSLT{\acro{XSLT}}

```

### 3.5 General typesetting rules

```

465 \newlinechar='^^J
466 \normallineskiplimit=\p@
467 \clubpenalty=10000
468 \widowpenalty=10000
469 \def\NoParIndent{\parindent=\z@}
470 \newdimen\normalparindent
471 \normalparindent=20\p@
472 \def\NormalParIndent{\global\parindent=\normalparindent}
473 \NormalParIndent
474 \def\BlackBoxes{\overfullrule=5\p@}
475 \def\NoBlackBoxes{\overfullrule=\z@}
476 \def\newline{\hskip\z@\@plus\pagewd\break}

```

`\tubsentencespace` Occasionally, notably after citations that need to come after a sentence-ending period, we want to tell T<sub>E</sub>X that it's still at the end of a sentence. As in: ... whatever. `\cite{foo}\tubsentencespace` This happens when, e.g., the reference applies to more than the final sentence. Also can be needed when `\@` cannot be used because the sentence-ending punctuation itself occurs inside a control sequence that prevents it.

```

477 \def\tubsentencespace{\spacefactor=3000}\space\ignorespaces}

```

Latin Modern and many other fonts irritatingly make the Unicode ellipsis character (U+2026) a single character's width, typically more squashed together than three period characters. This just looks wrong. It is too painful to try to redefine in general, but provide the normal definition for `\let` in individual papers.

`\allowhyphens` Hyphen control: first, we save (via `\edef`) 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.

```

478 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
479 \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
480 \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`.

```

481 \newbox\T@stBox           \newbox\TestBox
482 \newcount\T@stCount      \newcount\TestCount
483 \newdimen\T@stDimen      \newdimen\TestDimen
484 \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).

```

485 \def\ifundefined#1{\expandafter\ifx\csname#1\endcsname\relax }

```

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

```

486 <!!latex>
487 \let\@@input\input
488 \def\iinput#1{\@@input#1 }
489 \def\@inputcheck{\if\@nextchar\bgroup
490 \expandafter\iinput\else\expandafter\@@input\fi}
491 \def\input{\futurelet\@nextchar\@inputcheck}
492 </!!latex>

```

Smashes repeated from AMS-T<sub>E</sub>X; plain T<sub>E</sub>X implements only full `\smash`.

```

493 \newif\iftop@           \newif\ifbot@
494 \def\topsmash{\top@true\bot@false\smash@}
495 \def\botsmash{\top@false\bot@true\smash@}
496 \def\smash{\top@true\bot@true\smash@}
497 \def\smash@{\relax\ifmode\def\next{\mathpalette\mathsm@sh}%
498 \else\let\next\makesm@sh\fi \next }
499 \def\fin@m@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}

```

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

```

500 \long\def\ulap#1{\vbox to \z@\{vss#1}}
501 \long\def\dlap#1{\vbox to \z@\{#1vss}}

```

And centered horizontal and vertical ‘laps’

```

502 \def\xlap#1{\hb@xt@\z@\{hss#1\hss}}
503 \long\def\ylap#1{\vbox to \z@\{vss#1vss}}
504 \long\def\zlap#1{\ylap{xlap{#1}}}

```

Avoid unwanted vertical glue when making up pages.

```

505 \def\basezero{\baselineskip\z@skip \lineskip\z@skip}

```

Empty rules for special occasions

```
506 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
507 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
509 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
510     \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
511         \vss\hb@xt@#2{\vrule \@width\T@stDimen
512             \hfil\makestrut[#1;\z@]}%
513         \vrule \@width\T@stDimen}\vss
514     \hrule \@height\T@stDimen \@depth\z@}}
```

Today's date, to be printed on drafts. Based on T<sub>E</sub>Xbook, p.406.

```
515 <!*latex>
516 \def\today{number\day\space \ifcase\month\or
517     Jan \or Feb \or Mar \or Apr \or May \or Jun \or
518     Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
519     \number\year}
520 </!*latex>
```

Current time; this may be system dependent!

```
521 \newcount\hours
522 \newcount\minutes
523 \def\SetTime{\hours=\time
524     \global\divide\hours by 60
525     \minutes=\hours
526     \multiply\minutes by 60
527     \advance\minutes by-\time
528     \global\multiply\minutes by-1 }
529 \SetTime
530 \def\now{\ifnum\hours<10 0\fi\number\hours:%
531     \ifnum\minutes<10 0\fi\number\minutes}
532 \def\Now{\today\ \now}
533 \newif\ifPrelimDraft % [draft] or [preprint] or pageno>900
534 \def\midrttitle{} % center of running heads
535 \def\rtitlenexttopage{\ifPrelimDraft \textsl{\small draft: \Now}\fi}
```

### 3.7 Ragged right and friends

`\raggedskip` Plain T<sub>E</sub>X'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 between that of Plain T<sub>E</sub>X and of L<sup>A</sup>T<sub>E</sub>X.

```
\raggedspaces 536 \newdimen\raggedskip \raggedskip=\z@
537 \newdimen\raggedstretch \raggedstretch=5em % ems of font set now (10pt)
538 \newskip\raggedparfill \raggedparfill=\z@\@plus 1fil
539 \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 540 \def\raggedright{%
\normalspaces
```

```

541 \nohyphens \raggedspaces
542 \rightskip=\raggedskip\@plus\raggedstretch
543 \parfillskip=\raggedparfill
544 }
545 \def\raggedleft{%
546 \nohyphens \raggedspaces
547 \leftskip=\raggedskip\@plus\raggedstretch
548 \parfillskip=\z@skip
549 \let\ \@centercr % else tabulararray fails,
550 % https://github.com/lvjlr/tabularray/issues/348
551 }
552 \def\raggedcenter{%
553 \nohyphens \raggedspaces
554 \leftskip=\raggedskip\@plus\raggedstretch
555 \rightskip=\leftskip
556 \parindent=\z@
557 \parfillskip=\z@skip
558 }
559 %
560 % Undo |\raggedspaces|.
561 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}

```

`\tubjustifiedpar` Undo the `\raggedright` (or other such) settings, restoring normality.

```

562 \def\tubjustifiedpar{\rightskip=0pt \parfillskip=0pt plus1fil
563 \allowhyphens \normalspaces}

```

### 3.8 Assorted user-level markup

$\text{\LaTeX} 2_{\epsilon}$  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-TeX`—the  $\text{\LaTeX} 2_{\epsilon}$  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.

```

564 \let\latexpnobreakspace=\nobreakspace
565 \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 responded to the previous sentence “`\outerness` has its place: it avoids register buildup, hence running out of memory”. In another context, David Carlisle remarked 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...)

```

566 \def\boxcs#1{\box\csname#1\endcsname}
567 \def\setboxcs#1{\setbox\csname#1\endcsname}
568 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
569 \let\gobble@\gobble
570 \def\vellipsis{%
571 \leavevmode\kern0.5em

```

```

572 \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
573 }
574 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
575 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
576 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
577 \kern-.125em\smash{\lower.3ex\hbox{o}}}\ignorespaces}
578 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
579 %
580 \DeclareRobustCommand{\sfrac}[1]{\@ifnextchar/{\@sfrac{#1}}%
581 \sfrac{#1}}{\@sfrac{#1}/}}
582 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
583 \hbox{$\m@th\mbox{\fontsize\sf@size\z@
584 \selectfont#1}$}\kern-.1em
585 \kern-.15em\lower.25ex
586 \hbox{$\m@th\mbox{\fontsize\sf@size\z@
587 \selectfont#2}$}}
588 %
589 % don't stay bold in description items, bold italic is too weird.
590 \DeclareRobustCommand\meta[1]{%
591 \ensuremath{\langle}%
592 \ifmmode \expandafter\mbox \fi % if in math
593 {\it #1\}/}% no typewriter italics, please
594 \ensuremath{\rangle}%
595 }
596 %
597 % Use \tt rather than \texttt because italic typewriter is just too ugly,
598 % and upright works well enough in both italic and bold contexts.
599 % Would be nice to change catcode of _ for LaTeX3.
600 \DeclareRobustCommand{\cs}[1]{\texorpdfstring
601 {\tt \char'\#1}}%
602 {\textbackslash #1}%
603 }
604 %
605 % This command was defined much later than the others around here, so
606 % let's not conflict with any existing definitions that might be out there.
607 % Don't allow hyphenations or other line breaks.
608 \DeclareRobustCommand{\tubbraced}[1]{\texorpdfstring
609 {\mbox{\texttt{\char'\#1\char'\}}}%
610 {\textbraceleft #1\textbraceright}}%
611 }
612 %
613 % Well, just the \begin part. Never seen it used.
614 \DeclareRobustCommand{\env}[1]{\cs{begin}\tubbraced{#1}}
615 %
616 % Not sure why we ever want this instead of LaTeX's \, (using \kern),
617 % but fine, just keeping it.
618 \DeclareRobustCommand{\thinskip}{\hskip 0.16667em\relax}
619 %
620 % Ah, urls. Nowadays, we like the visible url to not have any protocol,
621 % if it is \texttt{http://} or \texttt{https://}. But we need to include
622 % the protocol if we are making live links, since a string like
623 % \texttt{tug.org/whatever} will be taken as a local filename by
624 % browsers and PDF readers. Since we need to check for
625 % \texttt{hyperref}, make the definition \cs{AtBeginDocument}. In the

```

```

626 % end, \cs{tbsurl}\tubbraced{foo} produces \texttt{https://foo} and
627 % \cs{tbhurl}\tubbraced{foo} produces \texttt{http://foo}.
628 \AtBeginDocument{%
629 \ifx\hyper@normalise\undefined
630 \def\tburl{\url}%
631 \def\tbsurl{\url}% no hyperref, so just \url is fine.
632 \def\tbhurl{\url}%
633 \ifx\url\undefined \let\url\texttt \fi % er, make sure \url is defined
634 \else
635 % This hyperref hook-in is due to Ulrike Fischer.
636 % \url{https://github.com/latex3/hyperref/issues/125}.
637 % \tb[sh]url@ are defined next.
638 \DeclareRobustCommand*\tburl{\tbsurl}%
639 \DeclareRobustCommand*\tbsurl{\hyper@normalise\tbsurl}%
640 \DeclareRobustCommand*\tbhurl{\hyper@normalise\tbhurl}%
641 \fi
642 }
643 %
644 % Outside \AtBeginDocument, back at the top level of the dtx, we
645 % turn on expl syntax for the main definitions of \tb[sh]url. We want
646 % to auto-remove an explicit protocol in case it
647 % was given.
648 %
649 % Only the correct protocol is removed; if \verb|http://| is
650 % given to \cs{tbsurl}, it is used (and printed) as-is. This is useful
651 % so we can do \verb|\let\url\tbsurl| when printing bibliographies.
652 %
653 % Giving \verb|https://| to \cs{tbhurl}, on the other hand, generates an
654 % invalid link; in practice there's no use for that so we don't bother
655 % to check for it.
656 %
657 \ExplSyntaxOn
658 \def\tbsurl@#1 % https
659 {
660 \str_set:Nn\l_tmpa_str{#1}
661 \str_if_in:NnTF \l_tmpa_str {http://}
662 {
663 \expandafter\hyper@linkurl
664 \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}{\l_tmpa_str}
665 }
666 {
667 \str_remove_once:Nn\l_tmpa_str{https://}
668 \expandafter\hyper@linkurl
669 \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}
670 \expandafter{\l_tmpa_str}
671 }
672 }
673 \def\tbhurl@#1 % http
674 {
675 \str_set:Nn\l_tmpa_str{#1}
676 \str_remove_once:Nn\l_tmpa_str{http://}
677 \expandafter\hyper@linkurl\expandafter{\expandafter\Hurl\expandafter
678 {\l_tmpa_str}}{http://\l_tmpa_str}
679 }

```

```

680 \ExplSyntaxOff
681 %
682 % Now let's use those macros for putting a url into a simple
683 % ragged-right footnote.
684 \def\tburlfootnote{\tbsurlfootnote}
685 \def\tbsurlfootnote#1{\footnote{\raggedright\tbsurl{#1}}}
686 \def\tbhurlfootnote#1{\footnote{\raggedright\tbhurl{#1}}}
687 %
688 % Make \! work in text mode.
689 \DeclareRobustCommand{\!}{\ifmmode\mskip-\thinmuskip \else\kern-0.16667em \fi}
690 %
691 % Half a thinspace, positive and negative.
692 \DeclareRobustCommand{\tubthinspace}
693   {\ifmmode\mskip.5\thinmuskip \else\kern0.08333em \fi}
694 \DeclareRobustCommand{\tubthinspaceeneg}
695   {\ifmmode\mskip-.5\thinmuskip \else\kern-0.08333em \fi}
696 %
697 % Half a smallskip.
698 \DeclareRobustCommand{\tubsmallerskip}
699   {\vskip 1.5pt plus .75pt minus .75pt\relax}
700 %

```

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

```

701 \def\endash{--}
702 \def\emdash{\endash-}
703 \def\d@sh#1#2{\unskip#1\thinspace#2\thinspace\ignorespaces}
704 \def\dash{\d@sh\nobreak\endash}
705 \def\Dash{\d@sh\nobreak\emdash}
706 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
707 \def\rdash{\d@sh\nobreak\endash}
708 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
709 \def\Rdash{\d@sh\nobreak\emdash}

```

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

```

710 \def\hyph{-\penalty\z@\hskip\z@skip }
711 \def\slash{/\penalty\z@\hskip\z@skip }

```

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

```

712 \def\nth#1{%
713   \def\reserved@a##1##2\@nil{\ifcat##1n%
714     0%
715     \let\reserved@b\ensuremath
716     \else##1##2%
717     \let\reserved@b\relax
718     \fi}%
719   \TestCount=\reserved@a#1\@nil\relax
720   \ifnum\TestCount < 0 \multiply\TestCount by\m@ne \fi % subdue negatives
721   \T@stCount=\TestCount
722   \divide\T@stCount by 100 \multiply\T@stCount by 100
723   \advance\TestCount by-\T@stCount % n mod 100
724   \ifnum\TestCount > 20 \T@stCount=\TestCount

```

```

725     \divide\T@stCount by 10 \multiply\T@stCount by 10
726     \advance\TestCount by-\T@stCount % n mod 10
727   \fi
728   \reserved@b{#1}%
729     \textsuperscript{\ifcase\TestCount th%      0th
730                       \or st%                  1st
731                       \or nd%                  2nd
732                       \or rd%                  3rd
733                       \else th%                nth
734                       \fi}%
735 }

```

### 3.9 Reviews

Format information on reviewed items for book review articles. For the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> version, we follow Fairbairns' maxim, and define something that can even look like a L<sup>A</sup>T<sub>E</sub>X macro...

```

736 \def\Review{\@ifnextchar{\@Review}{\@Review:}}
737 \def\@Review:{\@ifnextchar[%]
738   {\@Rev}%
739   {\@Rev[Book review]}}
740 \def\@Rev[#1]#2{{\ignorespaces#1\unskip:\enspace\ignorespaces
741                \slshape\mdseries#2}}
742 \def\reviewitem{\advvspace{\BelowTitleSkip}%
743   \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
744   \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
745   \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
746 }
747 \def\endreviewitem{{\noindent\interlinepenalty=10000
748   \therevauth\therevtitle\therevpubinfo\endgraf}%
749   \vskip\medskipamount
750 }
751 \def\titleref#1{{\slshape\frenchspacing#1/}}
752 \let\booktitle=\titleref % older name

```

### 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.

```

753 \newcount\issueseqno \issueseqno=-1
754 \def\volx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
755 \def\volyr{}
756 \def\volno{}
757 \def\vol#1, #2.{%

```



```

758     \gdef\volno{#1}%
759     \gdef\issno{#2}%
760     \setbox\TestBox=\hbox{\volyr}%
761     \ifdim \wd\TestBox > .2em \v@l{x} \fi }
762 \def\issyear#1.{%
763     \gdef\issdt{#1}\gdef\volyr{#1}%
764     \gdef\bigissdt{#1}%
765     \setbox\TestBox=\hbox{\volno}%
766     \ifdim \wd\TestBox > .2em \v@l{x} \fi }
767 \def\issdate#1#2 #3.{%
768     \gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
769     \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
770     \setbox\TestBox=\hbox{\volno}%
771     \ifdim \wd\TestBox > .2em \v@l{x} \fi }
772 % The \vol command must be invoked precisely like this, including spaces.
773 % Since we are the only ones who write it, we can be strict.
774 \vol 0, 0.
775 \issdate Thermidor, 9999.

```

(The curious may like to 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

```

776 <!\latex>\def\tubissue#1(#2)%
777 <*\latex>
778 \def\tubissue#1{\@ifnextchar(%)
779   {\@tubissue@b{#1}}
780   {\@tubissue@a{#1}}}}
781 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
782 \def\@tubissue@a#1#2%
783 </\latex>
784 {\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`

```

785 \def\infil@{\jobname}
786 \def\Input #1 {\ifnum\issueseqno<0
787   \def\infil@{#1}%
788   \else
789     \def\infil@{tb\number\issueseqno#1}
790   \fi
791   \edef\jobname{\infil@}\@readFLN
792   \@input \infil@\relax
793   \if@RMKopen
794     \immediate\closeout\@TBremarkfile\@RMKopenfalse
795   \fi
796 }

```

`\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).

```

797 \newif\if@RMKopen      \@RMKopenfalse
798 \newwrite\@TBremarkfile
799 \def\@TBremark#1{%
800   \if@RMKopen
801   \else
802     \@RMKopenttrue\immediate\openout\@TBremarkfile=\infile.rm
803   \fi
804   \toks@={#1}%
805   \immediate\write\@TBremarkfile{^^J\the\toks@}%
806   \immediate\write16{^^JTBremark:: \the\toks@^^J}%
807 }

```

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

```
808 \let\TBremark=\gobble
```

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

```
809 \def\TBenableRemarks{\let\TBremark\@TBremark}
```

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

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

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

```

811 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
812 \newread\@altfilenames
813 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
814   \ifeof\@altfilenames\let\@result\relax\else
815   \def\@result{\@input\jobname.fln }\fi
816   \immediate\closein\@altfilenames
817   \@result}
818 \@readFLN
819 \everyjob=\expandafter{\the\everyjob\@readFLN}
820 \InputIfFileExists{\jobname.fln}%
821   {\TBInfo{Reading alternative file file \jobname.fln}}{}

```

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

```

822 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
823   #1\else\csname file@@#1\endcsname\fi}
824 \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.

```

825 <*\latex>
826 \def\pagexrefON#1{%
827   \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
828   \write\ppoutfile{%
829     \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
830   }
831 \def\PageXrefON#1{%

```

```

832     \immediate\write-1{\def\expandafter
833         \noexpand\csname#1\endcsname{\number\pageno}}}%
834     \immediate\write\ppoutfile{\def\expandafter
835         \noexpand\csname#1\endcsname{\number\pageno}}}%
836 </!latex>
837 <*latex>
838 \def\pagexrefON#1{%
839     \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}}%
840     \write\ppoutfile{%
841         \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}}%
842     }
843 \def\PageXrefON#1{%
844     \immediate\write-1{\def\expandafter
845         \noexpand\csname#1\endcsname{\number\c@page}}}%
846     \immediate\write\ppoutfile{\def\expandafter
847         \noexpand\csname#1\endcsname{\number\c@page}}}%
848 </latex>
849 \def\pagexrefOFF#1{}
850 \let\pagexref=\pagexrefOFF
851 \def\PageXrefOFF#1{}
852 \let\PageXref=\PageXrefOFF
853 \def\xreftoON#1{%
854     \ifundefined{#1}%
855         ???\TBremark{Need cross reference for #1.}%
856         \else\csname#1\endcsname\fi}
857 \def\xreftoOFF#1{???}
858 \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.

```
859 \let\TBdriver\gobble
```

Some hyphenation exceptions:

```

860 \ifx\tubomithyphenations\@thisisundefined
861 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
862 Flor-i-da Free-BSD Ghost-script Ghost-view
863 Hara-lam-bous Jac-kow-ski Ja-pa-nese Karls-ruhe Lua-Meta
864 Mac-OS Ma-la-ya-lam Math-Sci-Net
865 Net-BSD Open-BSD Open-Office
866 Pak-i-stan Pfa-Edit Post-Script Rich-ard Skoup South-all
867 Vieth VM-ware Win-Edt
868 acro-nym acro-nyms analy-sis ap-pen-di-ces ap-pen-dix asyn-chro-nous
869 bib-lio-graph-i-cal bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
870 col-umns com-put-able com-put-abil-ity cus-tom-iz-able
871 data-base data-bases
872 de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
873 de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion dis-trib-ut-able
874 es-sence
875 fall-ing
876 half-way
877 in-fra-struc-ture
878 key-note

```

```

879 long-est
880 ma-gyar man-u-script man-u-scripts meta-table meta-tables
881 mne-mon-ic mne-mon-ics mono-space mono-spaced
882 name-space name-spaces
883 off-line over-view
884 pal-ettes par-a-digm par-a-dig-mat-ic par-a-digms
885 pipe-line pipe-lines
886 plug-in plug-ins pres-ent-ly pro-gram-mable
887 re-allo-cate re-allo-cates re-allo-cated re-printed
888 set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
889 sub-ex-pres-sion sub-tables sur-gery syn-chro-ni-city syn-chro-nous
890 text-height text-length text-width
891 time-stamp time-stamped time-stamps
892 vis-ual vis-ual-ly
893 which-ever white-space white-spaces wide-spread wrap-around
894 }
895 \fi
896 <!!latex>\restorecat\@
897 </common>
898 <*classtail>
899 \PrelimDraffttrue

```

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

```

900 \textheight 54pc      % 648pt = 645.58bp = 8.97in
901 \textwidth 39pc      % 468pt = 466.25bp = 6.48in
902 \columnsep 1.5pc    % 18pt = 17.93bp = .249in
903 \columnwidth 18.75pc % 225pt = 224.16bp = 3.11in
904 \hfuzz 1pt
905 \parindent \normalparindent % 20pt
906 \parskip \z@ % \@plus\p@
907 \leftmargini 2em
908 \leftmarginv .5em
909 \leftmarginvi .5em
910 \oddsidemargin \z@
911 \evensidemargin \z@
912 \topmargin -2.5pc    % 30pt = 29.89bp = .415in
913 \headheight 12\p@
914 \headsep 20\p@
915 \marginparwidth 48\p@
916 \marginparsep 10\p@
917 \partopsep=\z@
918 \topsep=3\p@\@plus\p@\@minus\p@
919 \parsep=3\p@\@plus\p@\@minus\p@
920 \itemsep=\parsep
921 %
922 % The width of one column plus gutter (=243pt =242.09bp) is useful sometimes.
923 \newdimen\tubcolwidthandgutter
924 \tubcolwidthandgutter=\columnwidth
925 \advance\tubcolwidthandgutter by \columnsep
926 %
927 % Ordinarily we typeset in two columns, but the onecolumn option
928 % goes to one. In which case we want to center the text block on an
929 % 8.5in width, given the default 72.27pt offset with margins of zero.

```

```

930 % We are always in LaTeX's twoside mode because of how we load article,
931 % and this is a good thing, since we want different headings.
932 \if@tubtwocolumn \twocolumn \else
933   \onecolumn
934   \textwidth=34pc
935   \oddsidemargin=30.8775pt
936   \evensidemargin=\oddsidemargin
937 \fi
938 %
939 \newdimen\pagewd      \pagewd=\textwidth
940 \newdimen\trimwd     \trimwd=\pagewd
941 \newdimen\trimlgt    \trimlgt=11in
942 \newdimen\headmargin \headmargin=3.5pc

```

In  $\text{\LaTeX} 2_{\epsilon}$ , twoside option is forced on when `article.cls` is loaded.

### 3.12 Messing about with the $\text{\LaTeX}$ logo

Barbara Beeton's pleas for  $\text{\LaTeX}$  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  $\text{\LaTeX}$ .

```

943 \newcommand{\DeclareLaTeXLogo}[5]{\expandafter\def
944   \csname @LaTeX@#1/#2/#3\endcsname{#{4}{#5}}

```

The default values are as used in the source of  $\text{\LaTeX}$  itself:

```

945 \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.

```

946 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
947 \DeclareLaTeXLogo{lmss}{bx}{n}{.3}{.15}
948 %
949 \DeclareLaTeXLogo{cmr}{m}{it}{.29}{.2}
950 \DeclareLaTeXLogo{lmr}{m}{it}{.29}{.2}
951 %
952 \DeclareLaTeXLogo{cmr}{m}{sl}{.29}{.15}
953 \DeclareLaTeXLogo{lmr}{m}{sl}{.29}{.15}
954 %
955 \DeclareLaTeXLogo{cmr}{bx}{it}{.29}{.2}
956 \DeclareLaTeXLogo{lmr}{bx}{it}{.29}{.2}
957 %
958 \DeclareLaTeXLogo{cmr}{bx}{sl}{.29}{.2}
959 \DeclareLaTeXLogo{lmr}{bx}{sl}{.29}{.2}
960 %
961 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
962 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}

```

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

```

963 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
964   \csname @LaTeX@f@family/\f@series/\f@shape\endcsname
965   \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
966   \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 `LATEX`, and then bits stuck in on the side.

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

```

967 \newcommand{\@LaTeX}[2]{%
968   %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
969   L\kern-#1em
970   {\sbox\z@ T%
971     \vbox to\ht0{\hbox{\$ \m@th$,
972       \csname S@\f@size\endcsname
973         \fontsize\sf@size\z@
974         \math@fontsfalse\selectfont
975         A}%
976       \vss}%
977   }%
978   \kern-#2em%
979   \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.

```

980 \def\theauthor#1{\csname theauthor#1\endcsname}
981 \def\theaddress#1{\csname theaddress#1\endcsname}
982 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
983 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
984 \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.

```

985 <!\latex>\newcount\@tempcna
986 \def\@defaultauthorlist{%
987   \@getauthorlist\@firstofone
988 }

```

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

```

989 \def\@getauthorlist#1{%
990   \count@\authornumber
991   \advance\count@ by -2
992   \@tempcna0

```

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

```

993 \loop
994   \ifnum\count@>0
995     \advance\@tempcnta by \@ne
996     #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
997     \advance\count@ by \m@ne
998 \repeat
999 \count@\authornumber
1000 \advance\count@ by -\@tempcnta
1001 \ifnum\authornumber>0

```

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

```

1002   \ifnum\count@>1
1003     \count@\authornumber
1004     \advance\count@ by \m@ne
1005     #1{\ignorespaces\theauthor{\number\count@}\unskip\@tubauthorlastsep}%
1006   \fi

```

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

```

1007   #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
1008 \fi
1009 }
1010 %
1011 \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...)

```

1012 \def\signature#1{\def\@signature{#1}}
1013 \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`

```

1014 \def\@defaultsignature{%
1015   \let\thanks\@gobble
1016   \frenchspacing
1017   %
1018   \ifnum\authornumber<0

```

if `\authornumber < 0`, we are in a contributor's section

```

1019     \medskip
1020     \signaturemark
1021     \theauthor{\number\authornumber}\\
1022     \theaddress{\number\authornumber}\\
1023     \allowhyphens
1024     \thenetaddress{\number\authornumber}\\
1025     \thePersonalURL{\number\authornumber}\\
1026     \theORCID{\number\authornumber}\\
1027   \else

```

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

```

1028     \count@=0

```

```

1029     \loop
1030     \ifnum\count@<\authornumber
1031         \medskip
1032         \advance\count@ by \@ne
1033         \signaturemark
1034         \theauthor{\number\count@}\
1035         \theaddress{\number\count@}\
1036         {%
1037             \allowhyphens
1038             \thenetaddress{\number\count@}\
1039             \thePersonalURL{\number\count@}\
1040             \theORCID{\number\count@}\
1041         }%
1042     \repeat
1043 \fi
1044 }%
1045 }

```

```

1046 \newdimen\signaturewidth \signaturewidth=12pc

```

The optional argument to `\makesignature` is useful in some circumstances (e.g., multi-contributor articles)

```

1047 \newcommand{\makesignature}[1][\medskipamount]{%

```

check the value the user has put in `\signaturewidth`: it may be at most 1.5pc short of `\columnwidth`

```

1048 \@tempdima\signaturewidth
1049 \advance\@tempdima 1.5pc
1050 \ifdim \@tempdima>\columnwidth
1051     \signaturewidth \columnwidth
1052     \advance\signaturewidth -1.5pc
1053 \fi
1054 \par
1055 \penalty9000
1056 \vspace{#1}%
1057 \rightline{%
1058     \vbox{\hsize\signaturewidth \ninepoint \raggedright
1059         \parindent \z@ \everypar={\hangindent 1pc }%
1060         \parskip \z@skip
1061         \def\|{\unskip\hfil\break}%
1062         \def\|\{\endgraf}%
1063         \def\phone{\rm Phone: }%
1064         \def\tubmultipleaffilauthor{\unskip,\\\hspace*{1em}}%
1065         \rm\@signature}%
1066 }%
1067 \ifnum\authornumber<0 \endgroup\fi
1068 }
1069 \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, also with commas, in the `\makesignature`.

Similarly, within `\netaddress`, `!tubmultipleaffilnet` separates with a space before and after the comma. (All this per bb.) See `tb122childs-trotter.ltx`, `tb131sojka-czech.ltx` for examples.



```

1070 \def\tubmultipleaffilauthor{\unskip,\ \ignorespaces}%
1071 \def\tubmultipleaffilnet{\unskip\textrm{\,,\ \ignorespaces}}

```

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

```

1072 \newcount\authornumber
1073 \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`).

```

1074 \def\author{%
1075   \global\advance\authornumber\@ne
1076   \TB@author
1077 }

```

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

```

1078 \def\contributor{%
1079   \begingroup
1080   \authornumber\m@ne
1081   \TB@author
1082 }

```

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).

```

1083 \def\TB@author#1{%
1084   \expandafter\def\csname theauthor\number\authornumber\endcsname
1085     {\ignorespaces#1\unskip}%
1086   \expandafter\def\csname theaddress\number\authornumber\endcsname
1087     {\TBWarningNL{Address for #1\space missing}\@gobble}%
1088   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
1089     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
1090   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
1091     \@gobble
1092   \expandafter\let\csname theORCID\number\authornumber\endcsname
1093     \@gobble
1094 }
1095 \def\EDITORnoaddress{%
1096   \expandafter\let\csname theaddress\number\authornumber\endcsname
1097     \@gobble
1098 }
1099 \def\EDITORnonetaddress{%
1100   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
1101     \@gobble
1102 }

```

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

```

1103 \def\address#1{%

```

```

1104 \expandafter\def\csname theaddress\number\authornumber\endcsname
1105     {\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!*

```

1106 \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.

```

1107 \newcommand{\netaddress}[1][\relax]{%
1108   \begingroup
1109   \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>.

```

1110 #1\@sanitize\makespace\ \makeactive\@%
1111 \makeescape! \makebgroup[ \makeegroup]% seems more useful than literals
1112 \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?!**)

```

1113 \def\@relay@netaddress#1{%
1114   \ProtectNetChars
1115   \expandafter\protected@xdef
1116     \csname thenetaddress\number\authornumber\endcsname
1117     {\protect\leavevmode\textrm{\@network}}%
1118     {\protect\NetAddrChars\net
1119       \ignorespaces#1\unskip}}%
1120 \endgroup
1121 }

```

`\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.

```

1122 \def\personalURL{\begingroup
1123   \@sanitize\makespace\ \makeactive\@
1124   \makeactive\.\makeactive%\makeactive\/\@personalURL}%
1125 \def\@personalURL#1{%
1126   \ProtectNetChars
1127   \expandafter\protected@xdef
1128     \csname thePersonalURL\number\authornumber\endcsname{#1%
1129     \protect\leavevmode

```

```

1130     {%
1131         \protect\URLchars\net
1132         \ignorespaces#1\unskip
1133     }%
1134 }%
1135 \endgroup
1136 }

```

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...

```

1137 {%
1138 \makecomment\*
1139 \makeactive\@
1140 \gdef\netaddrat{\makeactive\@*
1141     \def@{\discretionary{\char"40}{\char"40}}
1142 \makeactive\%
1143 \gdef\netaddrpercent{\makeactive\%*
1144     \def%{\discretionary{\char"25}{\char"25}}
1145 \makeactive\.
1146 \gdef\netaddrdot{\makeactive\.*
1147     \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.

```

1148 \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
1149 \makeactive\/
1150 \gdef\URLchars{*
1151     \NetAddrChars
1152     \makeactive\/*
1153     \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.

```

1154 \gdef\ProtectNetChars{*
1155     \def@{\protect@}*
1156     \def%{\protect%}*
1157     \def.{\protect.}*
1158     \def/{\protect/}*
1159 }
1160 }

```

L<sup>A</sup>T<sub>E</sub>X 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>E</sub>X 2<sub>ε</sub> defines for the job).

```

1161 \if@compatibility
1162 \DeclareRobustCommand{\net}{\normalfont\ttfamily\mathgroup\symtypewriter}
1163 \else
1164 \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
1165 \fi
1166 \def\authorlist#1{\def\@author{#1}}

```

```
1167 \def\@author{\@defaultauthorlist}
```

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

```
1168 \def\ORCID#1{%
1169   \expandafter\def\csname theORCID\number\authornumber\endcsname
1170     {\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

```
1171 \def\mspmetavar#1#2{}
```

### 3.14 Article title

\ifarticletitle \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 a meeting) that has no credited author or other title. In this case, the command \@r@maketitle flushes out the latest \sectitle (or whatever) but does nothing else.

Provide machinery (\PreTitleDrop 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>E</sub>X 2<sub>ε</sub>.

In addition, if the secondcolstart option was specified, do \null\newpage to move over. This is separate from \PreTitleDrop, for no particular reason.

```
1172 \newif\ifarticletitle
1173 \def\maketitle{\@ifstar
1174   {\@articletitlefalse\@r@maketitle}%
1175   {\@articletitletrue\@r@maketitle}%
1176 }
1177 \def\@r@maketitle{\par
1178   \ifdim\PreTitleDrop > \z@
1179     \loop
1180       \ifdim \PreTitleDrop > \textheight
1181         \vbox{\vfil\eject
1182           \advance\PreTitleDrop by -\textheight
1183         \repeat
1184       \vbox to \PreTitleDrop{}
1185     \global\PreTitleDrop=\z@
1186   \fi
1187   \iftubsecondcolstart \null\newpage\fi
1188   \begingroup
1189   \setcounter{footnote}{0}
1190   \global\@topnum\z@ % disallow floats above the title
1191   \def\thefootnote{\fnsymbol{footnote}}
1192   \@maketitle
1193   \@thanks
1194   \endgroup
```

```

1195 \setcounter{footnote}{0}
1196 \gdef\@thanks{}
1197 }

```

`\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.

```

1198 \def\rhTitle{}% avoid error if no author or title
1199 \renewcommand{\title}{\@dblarg\TB@title}
1200 \def\TB@title[#1]#2{\gdef\@title{#2}%
1201 \bgroup
1202 \let\thanks\@gobble
1203 \def\{\unskip\space\ignorespaces}%
1204 \protected@xdef\rhTitle{#1}%
1205 \egroup
1206 }

```

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

```

1207 \def\shortTitle #1{\def\rhTitle{#1}}
1208 \newif\ifshortAuthor
1209 \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:

```

1210 \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).

```

1211 \newdimen\stbaselineskip \stbaselineskip=18\p@
1212 \newdimen\stfontheight
1213 \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.

```

1214 \newif\ifWideSecTitle
1215 \newif\iftubtitlerulefullwidth
1216 \newif\ifSecTitle \SecTitlefalse
1217 \newcommand{\sectitle}{%
1218 \SecTiteltrue
1219 \@ifstar
1220 {\WideSecTiteltrue\def\s@ctitle}%

```

```

1221   {\WideSecTitlefalse\def\s@ctitle}%
1222 }

```

`\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.

```

1223 \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.

```

1224 \newskip\AboveTitleSkip   \AboveTitleSkip=12\p@
1225 \newskip\BelowTitleSkip   \BelowTitleSkip=8\p@
1226 \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 L<sup>A</sup>T<sub>E</sub>X's `\framebox` command, on the grounds that one doesn't keep a dog and bark for oneself...

```

1227 \def\@sectitle #1{%
1228   \par
1229   \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.

```

1230   \ifWideSecTitle\else\secsep\fi
1231   {%
1232     \fboxrule\strulethickness
1233     \fboxsep\z@
1234     \noindent\framebox[\hsize]{%
1235       \vbox{%
1236         \raggedcenter
1237         \let\\\@sectitle@newline
1238         \sectitlefont
1239         \makestrut[2\stfontheight;\z@]%
1240         #1%
1241         \makestrut[\z@;\stfontheight]\endgraf
1242       }%
1243     }%
1244   }%
1245   \nobreak
1246   \vskip\baselineskip
1247 }

```

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

```

1248 \newcommand{\@sectitle@newline}[1][\z@]{%

```

```

1249 \ifdim#1>\z@
1250   \makestrut[\z@;#1]%
1251 \fi
1252 \unskip\break
1253 }

```

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).

```

1254 \def\@makesectitle{\ifSecTitle
1255   \global\SecTitlefalse
1256   \ifWideSecTitle
1257     \twocolumn[\@sectitle{\s@ctitle}]%
1258     \global\WideSecTitlefalse
1259   \else
1260     \@sectitle{\s@ctitle}%
1261   \fi
1262 \else
1263   \vskip\AboveTitleSkip
1264   \kern\topskip
1265   \hrule \@height\z@ \@depth\z@ \@width 10\p@
1266   \kern-\topskip
1267   \kern-\strulethickness
1268   \iftubtitlerulefullwidth
1269     \hrule \@height\strulethickness \@depth\z@ width\textwidth
1270   \else
1271     \hrule \@height\strulethickness \@depth\z@
1272   \fi
1273   \kern\medskipamount
1274   \nobreak
1275 \fi
1276 }

```

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

```

1277 \def\@maketitle{%
1278   \@makesectitle
1279   \if@articletitle{%
1280     \nohyphens \interlinepenalty\@M
1281     \setbox0=\hbox{%
1282       \let\thanks\@gobble
1283       \let\=\quad
1284       \let\and=\quad
1285       \ignorespaces\@author}%
1286   {%
1287     \noindent\bf\raggedright\ignorespaces\frenchspacing
1288     \let\BibTeX=\bfBibTeX % else LaTeX Font Warning:
1289                           %      Font shape 'OT1/cmr/bx/sc' undefined
1290     \@title\endgraf
1291   }%
1292   \ifdim \wd0 < 5\p@           % omit if author is null
1293   \else

```

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

```

1294   \nobreak \vskip 4\p@
1295   {%

```

```

1296     \leftskip=\normalparindent
1297     \raggedright
1298     \def\and{\unskip\}%
1299     \noindent\@author\endgraf
1300   }%
1301   \fi
1302   \nobreak
1303   \vskip\BelowTitleSkip
1304 } \fi%
1305 \global\@afterindentfalse
1306 \aftergroup\@afterheading
1307 }

```

Dedications are ragged right, in italics.

```

1308 \newenvironment{dedication}%
1309   {\raggedright\noindent\itshape\ignorespaces}%
1310   {\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.

```

1311 \def\@tubonecolumnabstractstart{%
1312   \list{}{\listparindent\normalparindent
1313     \itemindent\z@ \leftmargin\@tubfullpageindent
1314     \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1315 }
1316 \def\@tubonecolumnabstractfinish{%
1317   \endlist
1318 }
1319 \renewenvironment{abstract}%
1320   {\begin{SafeSection}%
1321     \section*{%
1322       \if@tubtwocolumn\else \hspace*{\@tubfullpageindent}\fi
1323       Abstract}%
1324     \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1325   }%
1326   {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1327   \end{SafeSection}}
1328 \newenvironment{longabstract}%
1329   {\begin{SafeSection}%
1330     \section*{Abstract}%
1331     \bgroup\small
1332   }%
1333   {\endgraf\egroup
1334     \end{SafeSection}%
1335     \vspace{.25\baselineskip}
1336     \begin{center}
1337       {$--*--$}
1338     \end{center}
1339     \vspace{.5\baselineskip}}

```



### 3.16 Section headings

Redefine style of section headings to match plain *TUGboat*. Negative beforeskip 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.

The `\tubsecfmt` macro defines our standard formatting for section titles: ragged right, french spacing, no hyphenation. The `\tubsechook` macro allows overriding the defaults.

```
1340 \def\tubsechook{}
1341 \def\tubsecfmt{\normalsize\bf\raggedright\frenchspacing\tubsechook}
1342 %
1343 \if@numbersec
1344   \def\section{\TB@startsection{{section}}%
1345     1%
1346     \z@
1347     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1348     {4\p@}%
1349     {\tubsecfmt}}
1350   \def\subsection{\TB@startsection{{subsection}}%
1351     2%
1352     \z@
1353     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1354     {4\p@}%
1355     {\tubsecfmt}}
1356   \def\subsubsection{\TB@startsection{{subsubsection}}%
1357     3%
1358     \z@
1359     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1360     {4\p@}%
1361     {\tubsecfmt}}
1362   \def\paragraph{\TB@startsection{{paragraph}}%
1363     4%
1364     \z@
1365     {4\p@ \@plus1\p@ \@minus1\p@}%
1366     {-1em}%
1367     {\normalsize\bf\tubsechook}}
```

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

```
1368 \else
1369   \setcounter{secnumdepth}{0}
1370   \def\section{\TB@nolimelabel
1371     \TB@startsection{{section}}%
1372     1%
1373     \z@
1374     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1375     {4\p@}%
1376     {\tubsecfmt}}
```

```

1377 \def\subsection{\TB@nolimelabel
1378         \TB@startsection{\subsection}%
1379             2%
1380             \z@
1381             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1382             {-0.5em\@plus-\fontdimen3\font}%
1383             {\tubsecfmt}}
1384 \def\subsubsection{\TB@nolimelabel
1385         \TB@startsection{\subsubsection}%
1386             3%
1387             \parindent
1388             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1389             {-0.5em\@plus-\fontdimen3\font}%
1390             {\tubsecfmt}}
1391 \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`.

```
1392 \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).

```
1393 \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.

```

1394 \newenvironment{SafeSection}%
1395   {\let\TB@startsection\TB@safe@startsection}%
1396   {}

```

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.

```

1397 \if@numbersec
1398   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1399 \else
1400   \def\paragraph{\TB@nosection\paragraph\subsubsection}
1401   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1402 \fi
1403 \def\chapter{\TB@nosection\chapter\section}
1404 \def\part{\TB@nosection\part\section}

```

---

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

```

1405 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1406   \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

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or leaders get messed up.

```

1407 \def\TBtocsectionfont{\normalfont}
1408 \newskip\TBtocsectionspace \TBtocsectionspace=1.0ex\@plus\p@
1409 \def\l@section#1#2{\addpenalty{\@secpenalty}%
1410   \addvspace{\TBtocsectionspace}%
1411   \@tempdima 1.5em
1412   \begingroup
1413     \parindent\z@ \rightskip\z@ % article style makes \rightskip > 0
1414     \parfillskip\z@
1415     \TBtocsectionfont
1416     \leavevmode\advance\leftskip\@tempdima\hskip-\leftskip#1\nobreak\hfil
1417     \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
1418   \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:

```

1419 \renewcommand{\appendix}{\par
1420   \renewcommand{\thesection}{\@Alph\c@section}%
1421   \setcounter{section}{0}%
1422   \if@numbersec
1423   \else
1424     \setcounter{secnumdepth}{1}%
1425   \fi

```

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

```

1426   \def\@tempa{appendix}
1427   \ifx\@tempa\@currentenv
1428     \expandafter\@appendix@env
1429   \fi
1430 }

```

Here we deal with `\begin{appendix} [ <app-name> ]`

```

1431 \newcommand{\app@prefix@section}{}

```

```

1432 \newcommand{\@appendix@env}[1][Appendix]{%
1433   \renewcommand{\@secntformat}[1]{\csname app@prefix@##1\endcsname
1434     \csname the##1\endcsname\quad}%
1435   \renewcommand{\app@prefix@section}{#1 }%
1436 }

      Ending an appendix environment is pretty trivial...
1437 \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

```

1438 \def\TB@nolimelabel{%
1439   \def\@currentlabel{%
1440     \protect\TBWarning{%
1441       Invalid reference to numbered label on page \thepage
1442       \MessageBreak made%
1443     }%
1444     \textbf{?!?}%
1445   }%
1446 }

```

### 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.

```

1447 \let\TB@@sect\@sect
1448 \let\TB@@ssect\@ssect
1449 \def\@sect#1#2#3#4#5#6[#7]#8{%
1450   \def\@currentlabelname{#7}%
1451   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6} [{#7}] {#8}%
1452 }
1453 \def\@ssect#1#2#3#4#5{%
1454   \def\@currentlabelname{#5}%
1455   \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1456 }

```

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>`.

```

1457 \let\@savelatexlabel=\label % so save original LaTeX command
1458 %
1459 \def\label#1{% de
1460   \@savelatexlabel{#1}%
1461   \@bsphack
1462   \if@filesw
1463     \protected@write\@auxout{%
1464       {\string\newlabel{nr@#1}{\@currentlabel}{\@currentlabelname}}}%
1465   \fi
1466   \@esphack
1467 }

```

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

```

1468 \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`).

The above was written by RobinF decades ago; the macros in *TUGboat* were never changed. Meanwhile, the `\nameref` in `hyperref` has changed many times, and we want to use its version if available. So we provide our `\nameref` `\AtBeginDocument`, so as not to overwrite any previous version. Until May 2022, `hyperref` silently overwrote an existing definition, that is, *TUGboat*'s. But now it is no longer silent.

It seems that all the internal definitions above do not cause problems, so just let them alone.

```

1469 \AtBeginDocument{%
1470   \providecommand\nameref[1]{%
1471     \expandafter\@setref
1472     \csname r@nr@#1\endcsname\@secondoftwo{#1}%
1473   }%
1474 }

```

### 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
```

```

1475 \newdimen\@tubfullpageindent
1476 \@tubfullpageindent = \if@tubtwocolumn 4.875pc \else 3.875pc \fi

```

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

`\tubcaptionleftglue`

```
1477 \let\tubcaptionleftglue=\hfil
```

For *TUGboat*, we like 9pt captions to help differentiate from the main text.

```
1478 \def\tubcaptionfonts{\small}%
```

Ok, here is `\@makecaption`.

```
1479 \long\def\@makecaption#1#2{%
```

```
1480 \vskip\abovcaptionskip
```

```
1481 % try in an hbox:
```

```
1482 \sbox\@tempboxa{\tubcaptionfonts \frenchspacing \tubmakecaptionbox{#1}{#2}}%
```

```
1483 \ifdim\wd\@tempboxa > \hsiz
```

```
1484 {% caption doesn't fit on one line; set as a paragraph.
```

```
1485 \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
```

```
1486 % indent full-width captions {figure*}, but not single-column {figure}.
```

```
1487 \ifdim\hsiz = \textwidth
```

```
1488 \leftskip=\@tubfullpageindent \rightskip=\leftskip
```

```
1489 \advance\rightskip by 0pt plus2em % increase acceptable raggedness
```

```
1490 \fi
```

```
1491 \noindent \tubmakecaptionbox{#1}{#2}\par}%
```

```
1492 \else
```

```
1493 % fits on one line; use the hbox, usually centered. Do not reset its glue.
```

```
1494 \global\@minipagefalse
```

```
1495 \hb@xt@\hsiz{\tubcaptionleftglue\box\@tempboxa\hfil}%
```

```
1496 \fi
```

```
1497 \vskip\belowcaptionskip}
```

```
1498 %
```

```
1499 \def\tubmakecaptionbox#1#2{#1:\ #2}% allow overriding for a paper
```

Also use `\tubcaptionfonts` for the caption labels, and put the label (e.g., “Figure 1”) in bold. If the `listings` package is being used, bold for its label too; this `\def` is too early, but maybe `listings` will play nice later.

```
1500 \def\fnun@figure{{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
```

```
1501 \def\fnun@table{{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}
```

```
1502 \def\lstlistingnamestyle{\bfseries}
```

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

```
1503 \setlength\abovcaptionskip{6pt plus1pt minus1pt}
```

### 3.21 Size changing commands

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

```
1504 \renewcommand{\normalsize}{%
```

```
1505 \setfontsize\normalsize\@xpt\@xipt
```

```
1506 \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
```

```
1507 \belowdisplayskip=\abovedisplayskip
```

```
1508 \abovedisplayshortskip=\z@\@plus 3\p@
```

```
1509 \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
```

```
1510 }
```

```
1511
```

```
1512 \renewcommand{\small}{%
```

```
1513 \setfontsize\small\@ixpt{11}%
```

```

1514 \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1515 \belowdisplayskip=\abovedisplayskip
1516 \abovedisplayshortskip=\z@\@plus 2\p@
1517 \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1518 }
1519
1520 \renewcommand{\footnotesize}{%
1521   \setfontsize\footnotesize\@viipt{9.5}%
1522   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1523   \belowdisplayskip=\abovedisplayskip
1524   \abovedisplayshortskip=\z@\@plus 3\p@
1525   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1526 }

```

### 3.22 Lists and other text inclusions

```

1527 \def\@listi{%
1528   \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1529   \itemsep=\parsep
1530   \listparindent=1em
1531 }
1532
1533 \def\@listii{%
1534   \leftmargin\leftmarginii
1535   \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1536   \topsep=2\p@\@plus\p@\@minus\p@ % space between first item and preceding
1537   \parsep=\p@\@plus\p@\@minus\p@
1538   \itemsep=\parsep % space between successive items
1539   \listparindent=1em % indentation of subsequent paragraphs
1540 }
1541
1542 \def\@listiii{%
1543   \leftmargin=\leftmarginiii
1544   \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1545   \topsep=\p@\@plus\p@\@minus\p@
1546   \parsep=\z@
1547   \itemsep=\topsep
1548   \listparindent=1em
1549 }
1550 \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.

```

1551 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1552   \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}

```

The `compactitemize`, `compactenumerate`, and `compactdescription` environments, without space between the items.

```

1553 \newenvironment{compactitemize}%
1554   {\begin{itemize}%
1555     \setlength{\itemsep}{0pt}%
1556     \setlength{\parskip}{0pt}%
1557     \setlength{\parsep}{0pt}%
1558   }%
1559   {\end{itemize}}

```

```

1560 %
1561 \newenvironment{compactenumerate}%
1562   {\begin{enumerate}%
1563     \setlength{\itemsep}{0pt}%
1564     \setlength{\parskip}{0pt}%
1565     \setlength{\parsep}{0pt}%
1566   }%
1567   {\end{enumerate}}
1568 %
1569 \newenvironment{compactdescription}%
1570   {\begin{description}%
1571     \setlength{\itemsep}{0pt}%
1572     \setlength{\parskip}{0pt}%
1573     \setlength{\parsep}{0pt}%
1574   }%
1575   {\end{description}}
1576 %

```

### 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.

```

1577 %\let\@TB@verbatim\@verbatim
1578 \let\@TBverbatim\verbatim
1579 \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.)

```

1580 \def\verbatim{\par\obeylines
1581   \futurelet\reserved@a\@switch@sqbverbatim}
1582 %
1583 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1584   \expandafter\@sqbverbatim\else
1585   \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1586 %
1587 \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.

```

1588 \def\ruled{\let\if@ruled\iftrue}%

```



The command `\makevmeta` says to make `!i...i` do `<...>`.

```
1589 \def\makevmeta{\makeescape\! \let\<\tubverb@meta \tubverb@clearliglist}
1590 \def\tubverb@meta##1>{\meta{##1}}
```

The default verbatim defines “`i`,- as active characters to stop ligatures; remove `i` from the list so we get normal characters. Just hope that the CM `i` ligatures aren’t used.

```
1591 \def\tubverb@clearliglist{%
1592   \def\verbatim@nolig@list{\do\‘\do\,\do\’\do\-%
1593 }
```

Then we execute the arguments we’ve got, and relay to a (hacked) copy of the  $\text{\LaTeX}$  verbatim environment.

```
1594 #1\@TBverbatim}
```

The built-in environment itself relays to `\@verbatim`, which we’ve subverted to impose our views on appearance.

```
1595 \def\@verbatim{%
```

First, we deal with `\ruled`:

```
1596   \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1597 \trivlist \item\relax
1598 \if@minipage\else\vskip\parskip\fi
1599 \leftskip\@totalleftmargin\rightskip\z@skip
1600 \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1601 \@@par
1602 \@tempwafalse
1603 \def\par{%
1604   \if@tempswa
1605     \leavevmode \null \@@par\penalty\interlinepenalty
1606   \else
1607     \@tempswatrue
1608     \ifhmode\@@par\penalty\interlinepenalty\fi
1609   \fi}%
1610 \obeylines \verbatim@font \@noligs
1611 \let\do\@makeoother \dospecials
1612 \everypar \expandafter{\the\everypar \unpenalty}%
1613 }% 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).

```
1614 \def\endverbatim{\@TBendverbatim
1615   \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

Define the `\if` used by the `\ruled` option:

```
1616 \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, thus messing with the visible fixed-width alignment.

```
1617 \AtBeginDocument{%
```

```

1618 \ifpackageloaded{microtype}
1619   {\g@addto@macro\verbatim{\microtypesetup{activate=false}}}{ }
1620 }

```

### 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 BIB<sub>T</sub>E<sub>X</sub> style file based on that by Patrick Daly. It needs extra macros beyond those in standard L<sup>A</sup>T<sub>E</sub>X 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 L<sup>A</sup>T<sub>E</sub>X's default citation mechanism.

```

1621 \if@Harvardcite
1622 \let\@internalcite\cite

```

Normal forms.

```

1623 \def\cite{\def\@citeseppen{-1000}%
1624   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1625   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1626 \def\citeNP{\def\@citeseppen{-1000}%
1627   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1628   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1629 \def\citeN{\def\@citeseppen{-1000}%
1630   \def\@cite##1##2{##1\if@tempswa , ##2\else{}}\fi}}%
1631   \def\citeauthoryear##1##2##3{##1 (##3)\@citedata}
1632 \def\citeA{\def\@citeseppen{-1000}%
1633   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1634   \def\citeauthoryear##1##2##3{##1}\@internalcite}
1635 \def\citeANP{\def\@citeseppen{-1000}%
1636   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1637   \def\citeauthoryear##1##2##3{##1}\@internalcite}

```

Abbreviated forms (using *et al.*)

```

1638 \def\shortcite{\def\@citeseppen{-1000}%
1639   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1640   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1641 \def\shortciteNP{\def\@citeseppen{-1000}%
1642   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1643   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}

```

```

1644 \def\shortciteN{\def\@citesep{-1000}%
1645   \def\@cite##1##2{##1\if@tempswa , ##2\else{}}\fi}%
1646   \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1647 \def\shortciteA{\def\@citesep{-1000}%
1648   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1649   \def\citeauthoryear##1##2##3{##2}\@internalcite}
1650 \def\shortciteANP{\def\@citesep{-1000}%
1651   \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1652   \def\citeauthoryear##1##2##3{##2}\@internalcite}

```

When just the year is needed:

```

1653 \def\citeyear{\def\@citesep{-1000}%
1654   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1655   \def\citeauthoryear##1##2##3{##3}\@citedata}
1656 \def\citeyearNP{\def\@citesep{-1000}%
1657   \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1658   \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.

```

1659 \def\@citedata{%
1660   \ifnextchar [{\@tempwatrue\@citedatax}%
1661   {\@tempwafalse\@citedatax []}%
1662 }
1663
1664 \def\@citedatax[#1]#2{%
1665 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1666 \def\@citea{\@cite{\@for\@citeb:=#2\do%
1667   {\@citea\def\@citea{, }\@ifundefined% by Young
1668     {b@\@citeb}{\bf ?}%
1669     \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}%
1670 {\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.

```

1671 \def\@citex[#1]#2{%
1672 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1673 \def\@citea{\@cite{\@for\@citeb:=#2\do%
1674   {\@citea\def\@citea{; }\@ifundefined% by Young
1675     {b@\@citeb}{\bf ?}%
1676     \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}%
1677 {\csname b@\@citeb\endcsname}}{#1}}%

```

No labels in the bibliography.

```
1678 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```

1679 \newlength{\bibhang}
1680 \setlength{\bibhang}{2em}

```

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

```

1681 \newdimen\bibindent
1682 \bibindent=1.5em
1683 \@ifundefined{refname}%

```

```

1684   {\newcommand{\refname}{References}}%
1685   {}%
      For safety's sake, suppress the \TB@startsection warnings here...
1686 \def\thebibliography#1{% for harvardcite
1687   \let\TB@startsection\TB@safe@startsection
1688   \section*{\refname
1689     \mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1690   \list{[\arabic{enumi}]}{%
1691     \labelwidth\z@ \labelsep\z@
1692     \leftmargin\bibindent
1693     \itemindent -\bibindent
1694     \listparindent \itemindent
1695     \parsep \z@
1696     \usecounter{enumi}}}%
1697 \def\newblock{}%
1698 \BibJustification
1699 \frenchspacing % more than just period, see comments below
1700 }

```

etal Other bibliography odds and ends.

```

\bibentry 1701 \def\etal{et\,al.\@}
1702 \def\bibentry{%
1703   \smallskip
1704   \hangindent=\parindent
1705   \hangafter=1
1706   \noindent
1707   \sloppy
1708   \clubpenalty500 \widowpenalty500
1709   \frenchspacing
1710 }

```

\bibliography Changes made to accommodate TUB file naming conventions

```

\bibliographystyle 1711 \def\bibliography#1{%
1712   \if@filesw
1713     \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1714   \fi
1715   \@input{\jobname.bbl}%
1716 }
1717 \def\bibliographystyle#1{%
1718   \if@filesw
1719     \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1720   \fi
1721 }

```

\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.

```
1722 \else % not harvardcite
1723 \let\TB@origthebibliography\thebibliography
1724 \def\thebibliography{%
1725   \let\TB@startsection\TB@safe@startsection
1726   \def\sloppy{\frenchspacing\BibJustification}%
1727   \TB@origthebibliography} % latex’s thebibliography now reads args.
1728 \fi % not harvardcite
```

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

```
1729 \let\TB@@sloppy\sloppy
1730 \let\BibJustification\TB@@sloppy
1731 \newcommand{\SetBibJustification}[1]{%
1732   \renewcommand{\BibJustification}{#1}%
1733 }
1734 \ResetCommands\expandafter{\the\ResetCommands
1735   \let\BibJustification\TB@@sloppy
1736 }
```

### 3.25 Registration marks

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

```
1737 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1738 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1739 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }
```

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

```
1740 \def\ttopregister{\dlap{%
1741   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1742     \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1743   \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}%
1744 \def\tbotregister{\ulap{%
1745   \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1746   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1747     \HorzR@gisterRule \hfil \HorzR@gisterRule}}%
1748 \def\topregister{\ttopregister}
1749 \def\botregister{\tbotregister}
```

### 3.26 Running headers and footers

```
1750 \def\rtitlex{\def\texttub##1{\{\normalsize\textrm{##1}\}}\TUB, \volx}
```

registration marks; these are temporarily inserted in the running head

```
1751 \def\MakeRegistrationMarks{}
1752 \def\UseTrimMarks{%
1753   \def\MakeRegistrationMarks{%
1754     \ulap{\rlap{%
```

```

1755     \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}}%
1756         \topregister\vskip \headmargin \vskip 10\p@}}}%
1757   }
1758 % put issue identification and page number in header.
1759 \def\@oddhead{\MakeRegistrationMarks
1760   \frenchspacing
1761   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1762   \rtitlex\qqquad \midrtitlex\hfil \rtitlenexttopage\quad \thepage}
1763 \def\@evenhead{\MakeRegistrationMarks
1764   \frenchspacing
1765   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1766   \thepage \quad\rtitlenexttopage \hfil\midrtitlex \qqquad\rtitlex}
1767
1768 % can be used to reset the font, e.g., tb98kuester.
1769 \def\tubheadhook{}
1770
1771 % in case the official \author is too verbose for the footline.
1772 % (the \shortauthor / \rhAuthor stuff is only enabled for proceedings, fix!)
1773 \def\tubrunningauthor{\@author}
1774
1775 % put title and author in footer.
1776 \def\@tubrunningfull{%
1777   \def\@oddfoot{% make line break commands produce a normal space
1778     \def\@{\unskip\ ignorespaces}%
1779     \let\newline=\%
1780     \tubtypesetdoi
1781     \frenchspacing\hfil\rhTitle}
1782   \def\@evenfoot{%
1783     \let\thanks\@gobble
1784     \tubtypesetdoi
1785     \frenchspacing\tubrunningauthor\hfil}
1786 }
1787
1788 % empty footer.
1789 \def\@tubrunningminimal{%
1790   \def\@oddfoot{\tubtypesetdoi\hfil}%
1791   \def\@evenfoot{\tubtypesetdoi\hfil}%
1792 }
1793
1794 % empty footer and header.
1795 \def\@tubrunningoff{%
1796   \@tubrunningminimal
1797   \def\@oddhead{\hfil}%
1798   \def\@evenhead{\hfil}%
1799 }
1800
1801 \def\ps@headings{}
1802 \pagestyle{headings}

```

Typeset the doi. The format we decided on looks like: <https://doi.org/10.47397/tb/41-3/tb129> where the last element is the \jobname.

We put this below the footline. The footer definitions above specify that it is always called, even if the regular footer is empty.

If the article started in the second column (option [secondcolstart]), we manually move the doi over.

We do not check for validity of \volno, \issno, \jobname. For testing, etc., seems simpler to just typeset what we've got. Other scripts will verify consistency.

```

1803 %
1804 \def\tubdoiprefix{10.47397/tb} % the number crossref assigned us
1805 \def\tubabovedoi{} % fudge spacing or whatever.
1806 %
1807 \def\tubtypesetdoi{\iftubomitdoioption\else % if not explicit omission ...
1808 \iftubfinaloption % do this if [final], even if pageno>900
1809 \vbox to Opt{% don't impact normal layout
1810 \edef\thedoi{\ifnum\count0>900 xnot\fi % but make url invalid if >900
1811 doi.org/\tubdoiprefix/\volno-\issno/\jobname}%
1812 \scriptsize
1813 \vskip\baselineskip
1814 \tubabovedoi
1815 \iftubsecondcolstart \moveright \tubcolwidthhandgutter \fi
1816 \rlap{\expandafter\tsurl\expandafter{\thedoi}}}%
1817 \vss
1818 }%
1819 \global\let\tubtypesetdoi\empty % only do it once, no matter what.
1820 \fi
1821 \fi}
1822 %
1823 %

```

### 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...

```

1824 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1825 \global\setbox\@leftcolumn\box\@outputbox
1826 \global\brokenpenalty10000
1827 \else \global\@firstcolumntrue
1828 \global\brokenpenalty100
1829 \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1830 {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1831 \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1832 \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1833 \@whilesw@if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1834 \fi}

```

### 3.28 Font-related definitions and machinery

These are mostly for compatibility with plain tugboat.sty

```

1835 \newif\ifFirstPar \FirstParfalse
1836 \def\smc{\sc}
1837 \def\ninepoint{\small}
1838 </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.)

```

1839 <*common>
1840 \DeclareRobustCommand{\SMC}{%
1841   \ifx\@currsize\normalsize\small\else
1842   \ifx\@currsize\small\footnotesize\else
1843   \ifx\@currsize\footnotesize\scriptsize\else
1844   \ifx\@currsize\large\normalsize\else
1845   \ifx\@currsize\Large\large\else
1846   \ifx\@currsize\LARGE\Large\else
1847   \ifx\@currsize\scriptsize\tiny\else
1848   \ifx\@currsize\tiny\tiny\else
1849   \ifx\@currsize\huge\LARGE\else
1850   \ifx\@currsize\Huge\huge\else
1851   \small\SMC@unknown@warning
1852 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1853 }
1854 \newcommand{\SMC@unknown@warning}{\TBWarning{\string\SMC: nonstandard
1855   text font size command -- using \string\small}}
1856 \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.

```

1857 \newcommand{\acro}[1]{\textSMC{#1}\@}
1858 </common>

```

### 3.29 Editor's notes and other footnotes

`\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!)

```

1859 <*classtail>
1860 \def\xEdNote{\EdNoteFont Editor's note:\enspace }}
1861 \def\EdNote{\@ifnextchar[%]

```



```

1862 {%
1863   \ifvmode
1864     \smallskip\noindent\let\@EdNote@\@EdNote@v
1865   \else
1866     \unskip\quad\def\@EdNote@\{\unskip\quad}%
1867   \fi
1868   \@EdNote
1869 }%
1870 \xEdNote
1871 }
1872 \long\def\@EdNote[#1]{%
1873   [\thinspace\xEdNote\ignorespaces
1874   #1%
1875   \unskip\thinspace]%
1876   \@EdNote@
1877 }
1878 \def\@EdNote@v{\par\smallskip}

```

Macros for Mittelbach's self-documenting style

```

1879 \def\SelfDocumenting{%
1880   \setlength\textwidth{31pc}
1881   \onecolumn
1882   \parindent \z@
1883   \parskip 2\p@\@plus\p@\@minus\p@
1884   \oddsidemargin 8pc
1885   \evensidemargin 8pc
1886   \marginparwidth 8pc
1887   \toks@\expandafter{\@oddhead}%
1888   \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1889   \toks@\expandafter{\@evenhead}%
1890   \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1891   \def\ps@titlepage{}%
1892 }
1893 \def\ps@titlepage{}
1894
1895 \long\def\@makefnmark#1{\parindent 1em\noindent\hb@xt@2em{}}%
1896   \llap{\@makefnmark}\null$\mskip5mu$#1}
1897
1898 %% \long\def\@makefnmark#1{\parindent 1em
1899 %%   \noindent
1900 %%   \hb@xt@2em{\hss\@makefnmark}%
1901 %%   \hskip0.27778\fontdimen6\textfont\z@\relax
1902 %%   #1%
1903 %% }

```

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

```
1904 \newcommand{\tubraggedfoot}{\rightskip=\raggedskip plus\raggedstretch\relax}
```

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

```

\supportfootnote 1905 \def\creditfootnote{\nomarkfootnote\xEdNote}
1906 \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.

```

1907 \gdef\nomarkfootnote#1#2{\begingroup
1908 \def\thefootnote{}%
1909 % no period, please, also no fnmark.
1910 \def\@makefnmark##1{##1}%
1911 \footnotetext{\noindent #1#2}%
1912 \endgroup
1913 }

```

### 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. (Not recommended.)

```

1914 \if@Harvardcite
1915 \AtBeginDocument{%
1916 \bibliographystyle{ltugbib}%
1917 }
1918 \fi
1919 \authornumber\z@
1920 \let\@signature\@defaultsignature
1921 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
1922 configuration information}}{ }
1923 </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:

```

1924 <*ltugproccls>
1925 \def\@tugclass{ltugproc}

```

`\if@proc@sober` TUG'96 proceedings switched to more sober headings still; so the `tug95` option  
`\if@proc@numerable` 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.

```

1926 \newif\if@proc@sober
1927 \newif\if@proc@numerable
1928 \DeclareOption{tug95}{%
1929 \@proc@soberfalse
1930 \@proc@numerablefalse
1931 }
1932 \DeclareOption{tug96}{%
1933 \@proc@sobertrue
1934 \@proc@numerablefalse
1935 }
1936 \DeclareOption{tug97}{%
1937 \@proc@sobertrue
1938 \@proc@numerabletrue
1939 }
1940 \DeclareOption{tug2002}{%
1941 \@proc@sobertrue
1942 \@proc@numerabletrue
1943 \let\if@proc@numbersec\iftrue
1944 \PassOptionsToClass{numbersec}{ltugboat}%
1945 }

```

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

```
1946 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
1947 \PassOptionsToClass{numbersec}{ltugboat}%
1948 }
1949 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
1950 \PassOptionsToClass{nonumber}{ltugboat}%
1951 }
```

`\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`.

```
1952 \newif\ifTB@title
1953 \DeclareOption{title}{\TB@titletrue}
1954 \DeclareOption{notitle}{\TB@titlefalse}
1955 \AtBeginDocument{\stepcounter{page}}
```

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

```
1956 \DeclareOption{tugproc}{%
1957 \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
1958 }
```

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

```
1959 \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 `TeXie`...)

```
1960 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
1961 \Loading ltugproc configuration information}}{}
1962 \@ifundefined{TUGprocExtraOptions}{%
1963 \let\TUGprocExtraOptions\@empty}%
1964 {\edef\TUGprocExtraOptions{\TUGprocExtraOptions}}
```

`\tugProcYear` Now work out what year it is

```
1965 \@tempcnta\year
1966 \ifnum\@tempcnta<2000
1967 \divide\@tempcnta by100
1968 \multiply\@tempcnta by100
1969 \advance\@tempcnta-\year
1970 \@tempcnta-\@tempcnta
1971 \fi
```

And use that for calculating a year for us to use.

```
1972 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
1973 \ifnum10>\@tempcnta0\fi\the\@tempcnta}
1974 \@tempa
1975 \ClassInfo{ltugproc}{Class believes year is
1976 \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
1977 \@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.

```
1978 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
1979 \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.

```
1980 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
1981 \ProcessOptions
1982 \if@proc@numbersec
1983 \if@proc@numerable
1984 \else
1985 \ClassWarning{\@tugclass}{This year’s proceedings may not have
1986 numbered sections}%
1987 \fi
1988 \fi
```

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

```
1989 \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 *TUG-boat* proper. Note the tedious L<sup>A</sup>T<sub>E</sub>X bug-avoidance in the `\@TB@test@document` macro.

```
1990 \def\maketitle{%
1991 \begingroup
1992 \ifshortAuthor\else
1993 \global\let\rhAuthor\@empty
1994 \def@g@addto@rhAuthor##1{%
1995 \begingroup
1996 \toks@\expandafter{\rhAuthor}%
1997 \let\thanks\@gobble
1998 \protected@xdef\rhAuthor{\the\toks@##1}%
1999 \endgroup
2000 }%
2001 \@getauthorlist@g@addto@rhAuthor
2002 \fi
```

now, the real business of setting the title

```
2003 \ifTB@title
2004 \setcounter{footnote}{0}%
2005 \renewcommand{\thefootnote}{\@fnsymbol\c@footnote}%
2006 \if@tubtwocolumn
2007 \twocolumn[\@maketitle]%
2008 \else
2009 \onecolumn
2010 \global\@topnum\z@
2011 \@maketitle
```

```

2012     \fi
2013     \@thanks
2014     \thispagestyle{TBproctitle}
2015     \fi
2016 \endgroup
2017 \TB@madetitletrue
2018 }
2019 \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 LATEX bug report latex/2212, submitted by Robin Fair-
bairns, for details.

2020 \def\@TB@test@document{%
2021   \edef\@tempa{\the\everypar}
2022   \def \@tempb{\@nodocument}
2023   \ifx \@tempa\@tempb
2024     \@nodocument
2025   \fi
2026 }

\AUTHORfont Define the fonts for titles and things
\TITLEfont 2027 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
\addressfont 2028 \def\TITLEfont {\Large\rmfamily\mdseries\upshape}
\netaddrfont 2029 \def\addressfont{\small\rmfamily\mdseries\upshape}
2030 \def\netaddrfont{\small\ttfamily\mdseries\upshape}

\aboveauthorskip Some changeable skips to permit variability in page layout depending on the par-
\belowauthorskip ticular paper's page breaks.
\belowabstractskip 2031 \newskip\aboveauthorskip \aboveauthorskip=18\p@ \@plus4\p@
2032 \newskip\belowauthorskip \belowauthorskip=\aboveauthorskip
2033 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@

\@maketitle The body of \maketitle
2034 \def\@maketitle{%
2035   {\parskip\z@
2036     \frenchspacing
2037     \TITLEfont\raggedright\noindent\@title\par
2038     \count@=0
2039     \loop
2040     \ifnum\count@<\authornumber
2041       \vskip\aboveauthorskip
2042       \advance\count@\@ne
2043       {\AUTHORfont\theauthor{\number\count@}\endgraf}%
2044       \addressfont\theaddress{\number\count@}\endgraf
2045       {%
2046         \allowhyphens
2047         \hangindent1.5pc
2048         \netaddrfont\thenetaddress{\number\count@}\endgraf
2049         \hangindent1.5pc
2050         \thePersonalURL{\number\count@}\endgraf
2051       }%
2052     \repeat
2053     \vskip\belowauthorskip}%

```

```

2054 \if@abstract
2055   \centerline{\bfseries Abstract}%
2056   \vskip.5\baselineskip\rmfamily
2057   \@tubonecolumnabstractstart
2058   \the\abstract@toks
2059   \@tubonecolumnabstractfinish
2060   \global\@ignoretrue
2061 \fi
2062 \vskip\belowabstractskip
2063 \global\@afterindentfalse\aftergroup\@afterheading
2064 }

```

`abstract` (*env.*) 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@`

```

2065 \newtoks\abstract@toks \abstract@toks{}
2066 \let\if@abstract\iffalse
2067 \def\abstract{%

```

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

```

2068 \ifTB@madetitle
2069   \TBWarning{abstract environment after \string\maketitle}
2070 \fi
2071 \def\@abstract@{abstract}%
2072 \ifx\@currenvir\@abstract@
2073 \else
2074   \TBError{\string\abstract\space is illegal:%
2075     \MessageBreak
2076     use \string\begin{\@abstract@} instead}%
2077   {\@abstract@\space may only be used as an environment}
2078 \fi
2079 \global\let\if@abstract\iftrue
2080 {\ifnum0='}\fi
2081 \@abstract@getbody}
2082 \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}`

```

2083 \long\def\@abstract@getbody#1\end{%
2084 \global\abstract@toks\expandafter{\the\abstract@toks#1}%
2085 \@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.

```

2086 \def\@abstract@findend#1{%
2087 \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.

```
2088 \ifx\@tempa\@abstract@
2089   \expandafter\@abstract@end
2090 \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)

```
2091   \def\@tempb{document}%
2092   \ifx\@tempa\@tempb
2093     \TBError{\string\begin{\@abstract@}
2094       ended by \string\end{\@tempb}}%
2095     {You've forgotten \string\end{\@abstract@}}
2096   \else
2097     \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
2098     \expandafter\expandafter\expandafter\@abstract@getbody
2099   \fi
2100 \fi}
```

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

```
2101 \def\@abstract@end{\ifnum0='{\fi}%
2102   \expandafter\end\expandafter{\@abstract@}}
```

```
\makesignature \makesignature is improper in proceedings, so we replace it with a warning (and
a no-op otherwise)
2103 \renewcommand{\makesignature}{\TBWarning
2104   {\string\makesignature\space is invalid in proceedings issues}}
```

`\ps@TBproctitle` Now we define the running heads in terms of the `\rh*` commands.

```
\ps@TBproc 2105 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 2106 \let\@evenhead\MakeRegistrationMarks
\setpagecommands 2107 \TB@definefeet
\TB@definefeet 2108 }
\pfoottext 2109 \def\ps@TBproc{%
\rfoottext 2110 \def\@oddhead{\MakeRegistrationMarks
2111   {%
2112     \hfil
2113     \def\{\unskip\ \ignorespaces}%
2114     \rmfamily\rhTitle
2115   }%
2116 }%
2117 \def\@evenhead{\MakeRegistrationMarks
2118   {%
2119     \def\{\unskip\ \ignorespaces}%
2120     \rmfamily\rhAuthor
2121     \hfil
2122   }%
2123 }%
2124 \TB@definefeet
2125 }
2126
```

```

2127 \advance\footskip8\p@    % for deeper running feet
2128
2129 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
2130 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
2131   {#2}}
2132 \def\TB@definefeet{%
2133   \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
2134     \else\rfoottext\hfil\thepage\fi\dopagecommands}%
2135   \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
2136     \else\thepage\hfil\rfoottext\fi\dopagecommands}%
2137 }
2138
2139 \def\pfoottext{{\smc Preprint}:
2140   Proceedings of the \volyr{} Annual Meeting}
2141 \def\rfoottext{\normalfont\TUB, \volx\Dash
2142   {Proceedings of the \volyr{} Annual Meeting}}
2143
2144 \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).

```

2145 \if@proc@numbersec
2146 \else
2147   \setcounter{secnumdepth}{0}
2148 \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.

```

2149 \if@proc@numbersec
2150 \else
2151   \if@proc@sober
2152     \def\section
2153       {\TB@nolimelabel
2154         \TB@startsection{section}%
2155           1%
2156           \z@%
2157           {-8\p@\@plus-2\p@\@minus-2\p@}%
2158           {6\p@}%
2159           {\normalsize\bfseries\raggedright}}
2160   \else
2161     \def\section
2162       {\TB@nolimelabel
2163         \TB@startsection{section}%
2164           1%
2165           \z@%
2166           {-8\p@\@plus-2\p@\@minus-2\p@}%

```



```

2167             {6\p@}%
2168             {\large\bfseries\raggedright}}
2169 \fi
2170 \def\subsection
2171     {\TB@nolimelabel
2172     \TB@startsection{subsection}%
2173     2%
2174     \z@%
2175     {6\p@\@plus 2\p@\@minus2\p@}%
2176     {-5\p@\@plus -\fontdimen3\the\font}%
2177     {\normalsize\bfseries}}
2178 \def\subsubsection
2179     {\TB@nolimelabel
2180     \TB@startsection{subsubsection}%
2181     3%
2182     \parindent%
2183     \z@%
2184     {-5\p@\@plus -\fontdimen3\the\font}%
2185     {\normalsize\bfseries}}
2186 \fi
2187 </tugproccls>

```

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

```

2188 <*tugboatsty>
2189 % err...
2190 </tugboatsty>
2191 <*tugprocsty>
2192 % err...
2193 </tugprocsty>

```

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

```

2194 <*tugboatsty>
2195 \@obsoletedefile{ltugboat.cls}{ltugboat.sty}
2196 \LoadClass{ltugboat}
2197 </tugboatsty>
2198 <*tugprocsty>
2199 \@obsoletedefile{ltugproc.cls}{ltugproc.sty}
2200 \LoadClass{ltugproc}
2201 </tugprocsty>

```