The **tugboat** package[*]

The *TUGboat* team
(Distributed by Robin Fairbairns)

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Contents

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1 Document preambles

```
 1 ⟨ltugboatcls | ltugproccls | ltugcomn⟩\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 ⟨ltugcomn⟩   \ProvidesPackage{ltugcomn}
10                   [2010/11/13 v2.8
11 ⟨ltugboatcls⟩                    TUGboat journal class%
12 ⟨ltugproccls⟩                    TUG conference proceedings class%
13 ⟨ltugboatsty | ltugprocsty⟩      TUG compatibility package%
14 ⟨ltugcomn⟩                       TUGboat 'common macros' package%
15 ⟨*dtx⟩
16                                  TUG macros source file%
17 ⟨/dtx⟩
18                  ]
19 ⟨*dtx⟩
20 \newif\ifoldlongtable
21 ⟨/dtx⟩
```

2 Introduction

This file contains all the macros for typesetting *TUGboat* with both plain TeX
and LaTeX 2ε.

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).

`\AllTeX`	(LA)TEX
`\AMS`	American Mathematical Society
`\AmSTeX`	
`\aw`	A-W (abbreviation for Addison-Wesley)
`\API`	
`\AW`	Addison-Wesley
`\BibTeX`	
`\CandT`	Computers & Typesetting
`\ConTeXt`	ConTEXt
`\Cplusplus`	C++
`\DTD`	
`\DVD`	
`\DVI`	
`\DVIPDFMx`	DVIPDFMx
`\DVItoVDU`	DVItoVDU
`\ECMA`	
`\EPS`	
`\eTeX`	ε-TEX
`\ExTeX`	ε_χTEX
`\Ghostscript`	
`\Hawaii`	Hawai'i
`\HTML`	
`\ISBN`	ISBN
`\ISO`	
`\ISSN`	ISSN
`\JTeX`	
`\JoT`	The Joy of TEX
`\LaTeX`	
`\LyX`	
`\MacOSX`	Mac OS X
`\MathML`	
`\Mc`	M with raised c
`\MF`	METAFONT
`\mf`	METAFONT
`\MFB`	The Metafont book
`\MP`	METAPOST
`\mp`	MetaPost (in text only: remains '$\mp$' in maths)
`\OMEGA`	Omega 'logo' (Ω)
`\OCP`	Omega compiled process
`\OOXML`	
`\OTP`	Omega translation process
`\mtex`	multilingual TEX
`\NTS`	New Typesetting System
`\pcMF`	pcMF
`\PCTeX`	
`\pcTeX`	

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

Macros for things that are slightly more significant.

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

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

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

3 LaTeX 2$_\varepsilon$ *TUGboat* class file

3.1 Setup and options

Check for reloading. Hmmm. . . Does this happen with LaTeX 2$_\varepsilon$ classes? Probably, in fact, as well that it doesn't, since the `\tugstyinit` referenced here doesn't exist; however, it's possible that we might need a similar mechanism in the future, so we retain its skeleton, without fleshing out the `\tugstyinit` bones.

```
22 ⟨∗ltugboatcls⟩
23 \csname tugstyloaded@\endcsname
24 \def\tugstyloaded@{\tugstyinit\endinput}
```

Acquire a name for this class if we don't already have one (by virtue of having been loaded by `tugproc.cls`). This name will be used in error messages and the like.

```
25 \providecommand{\@tugclass}{ltugboat}
```

Warnings/error messages/information messages — if we're using LaTeX 2_ε we can use the `\Class*` commands:

```
26 \def\TBInfo{\ClassInfo{\@tugclass}}
27 \def\TBError{\ClassError{\@tugclass}}
28 \def\TBWarning{\ClassWarning{\@tugclass}}
29 \def\TBWarningNL{\ClassWarningNoLine{\@tugclass}}
```

Some trivial options, just flicking switches, etc.

```
30 \newif\ifpreprint
31 \def\preprint{\preprinttrue}
32 \DeclareOption{draft}{%
33   \AtEndOfClass{%
34     \setcounter{page}{1001}%
35     \BlackBoxes
36     \def\MakeRegistrationMarks{}%
37     \PrelimDrafttrue
38     \@tubrunningminimal
39   }%
40 }
41 \DeclareOption{preprint}{%
42     \preprinttrue
43 }
44 \DeclareOption{final}{%
45   \AtEndOfClass{%
46     \NoBlackBoxes
47     \PrelimDraftfalse
48     }%
49 }
```

The rules dictate that the output should be set using a 10pt base font.

```
50 \DeclareOption{11pt}{%
51   \TBWarning{The \@tugclass\space class only supports 10pt fonts:
52     \MessageBreak option \CurrentOption\space ignored}%
53 }
54 \DeclareOption{12pt}{\csname ds@11pt\endcsname}
```

Similarly, ignore one/two-side/column

```
55 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
56 \DeclareOption{twoside}{\ds@oneside}
57 \DeclareOption{onecolumn}{\ds@oneside}
58 \DeclareOption{twocolumn}{\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`.)

```
59 \DeclareOption{tugproc}{%
60   \TBWarning{Option \CurrentOption\space ignored: use class ltugproc
61     instead of \@tugclass}%
62 }
```

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 3.23 below.

```
63 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
64 \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 even remotely intelligent reader should be able to work out the correspondence one with the other...

```
65 \DeclareOption{extralabel}{\let\UseExtraLabel\@firstofone}
66 \DeclareOption{noextralabel}{\let\UseExtraLabel\@gobble}
```

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

```
67 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
68 \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.

```
69 \DeclareOption{runningoff}{\AtEndOfClass{\@tubrunningoff}}
70 \DeclareOption{runningminimal}{\AtEndOfClass{\@tubrunningminimal}}
71 \DeclareOption{runningfull}{\AtEndOfClass{\@tubrunningfull}}
```

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

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

Request default options (draft mode, standard citation, double-sided printing, etc.), process all options, and then get the base document class on top of which we reside.

```
73 \ExecuteOptions{draft,extralabel,numbersec,rawcite,runningfull}
74 \ProcessOptions
75 \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.

```
76 \def\sectitlefont{\fontfamily\sfdefault\fontseries{bx}\fontshape{n}%
77         \fontsize\@xviipt\stbaselineskip\selectfont}
78 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xiipt
79          \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...

```
80 \def\EdNoteFont{\fontfamily{cmr}\fontseries{m}\fontshape{ui}%
81         \selectfont}
82 ⟨/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 LaTeX 2_ε).

```
83 ⟨*common⟩
84 \IfFileExists{mflogo.sty}%
85   {\RequirePackage{mflogo}}%
86 ⟨!ltugcomn⟩ {\TBWarning
87 ⟨ltugcomn⟩  {\PackageWarning{ltugcomn}
88     {Package mflogo.sty not available --\MessageBreak
89       Proceeding to emulate mflogo.sty}
90   \DeclareRobustCommand\logofamily{%
91     \not@math@alphabet\logofamily\relax
92     \fontencoding{U}\fontfamily{logo}\selectfont}
93   \DeclareTextFontCommand{\textlogo}{\logofamily}
94   \def\MF{\textlogo{META}\-\textlogo{FONT}\@}
95   \def\MP{\textlogo{META}\-\textlogo{POST}\@}
96   \DeclareFontFamily{U}{logo}{}
97   \DeclareFontShape{U}{logo}{m}{n}{%
98     <8><9>gen*logo%
99     <10><10.95><12><14.4><17.28><20.74><24.88>logo10%
100    }{}
101   \DeclareFontShape{U}{logo}{m}{sl}{%
102     <8><9>gen*logosl%
103     <10><10.95><12><14.4><17.28><20.74><24.88>logosl10%
104    }{}
105   \DeclareFontShape{U}{logo}{m}{it}{%
106     <->ssub*logo/m/sl%
107    }{}%
108  }
```

3.2   Resetting at start of paper

`\ResetCommands`
`\AddToResetCommands`
`\StartNewPaper`

We store a set of commands that should be executed at the start of each paper, before any paper-specific customisation. These commands (stored in the token register `\ResetCommands`) include things suc 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

```
109 \newtoks\ResetCommands
```

```
110 \ResetCommands{%
111   \setcounter{part}{0}%
112   \setcounter{section}{0}%
113   \setcounter{footnote}{0}%
114   \authornumber\z@
115 }
116 \newcommand{\AddToResetCommands}[1]{%
117   \AddToResetCommands\expandafter{\AddToResetCommands#1}%
118 }
```

3.3   Helpful shorthand (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.

```
119 ⟨∗!latex⟩
120 \def\makeescape#1{\catcode'#1=0 }
121 \def\makebgroup#1{\catcode'#1=1 }
122 \def\makeegroup#1{\catcode'#1=2 }
123 \def\makemath   #1{\catcode'#1=3 }
124 ⟨/!latex⟩
125 ⟨∗latex⟩
126 \def\makeescape#1{\catcode'#1=\z@}
127 \def\makebgroup#1{\catcode'#1=\@ne}
128 \def\makeegroup#1{\catcode'#1=\tw@}
129 \def\makemath   #1{\catcode'#1=\thr@@}
130 ⟨/latex⟩
131 \def\makealign #1{\catcode'#1=4 }
132 \def\makeeol    #1{\catcode'#1=5 }
133 \def\makeparm  #1{\catcode'#1=6 }
134 \def\makesup   #1{\catcode'#1=7 }
135 \def\makesub   #1{\catcode'#1=8 }
136 \def\makeignore#1{\catcode'#1=9 }
137 \def\makespace #1{\catcode'#1=10 }
138 \def\makeletter#1{\catcode'#1=11 }
139 \chardef\other=12
140 \let\makeother\@makeother
141 \def\makeactive#1{\catcode'#1=13 }
142 \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.

```
143 \def\savecat#1{%
144   \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode'#1}}
145 \def\restorecat#1{\catcode'#1=\csname\string#1savedcat\endcsname}
146 ⟨!latex⟩\savecat\@
147 ⟨!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.

```
148 \def\SaveCS#1{\expandafter\let\csname saved@@#1\expandafter\endcsname
149   \csname#1\endcsname}
150 \def\RestoreCS#1{\expandafter\let\csname#1\expandafter\endcsname
151   \csname saved@@#1\endcsname}
```

To distinguish between macro files loaded

```
152 \def\plaintubstyle{plain}
153 \def\latextubstyle{latex}
```

Control sequences that were first defined in LaTeX 2_ε of 1995/06/01 (or later), but which we merrily use. Only define if necessary:

```
154 \providecommand\hb@xt@{\hbox to}
155 \providecommand\textsuperscript[1]{\ensuremath{\m@th
156                                    ^{\mbox{\fontsize\sf@size\z@
157                                        \selectfont #1}}}}
```

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

3.4   Abbreviations and logos

Font used for the METAFONT logo, etc.

```
158 \def\AllTeX{(\La\kern-.075em)\kern-.075em\TeX}
159 \def\AMS{American Mathematical Society}
160 \def\AmS{$\mathcal{A}$\kern-.1667em\lower.5ex\hbox
161   {$\mathcal{M}$}\kern-.125em$\mathcal{S}$}
162 \def\AmSLaTeX{\AmS-\LaTeX}
163 \def\AmSTeX{\AmS-\TeX}
164 \def\ANSI{\acro{ANSI}}
165 \def\API{\acro{API}}
166 \def\ASCII{\acro{ASCII}}
167 \def\aw{A\kern.1em-W}
168 \def\AW{Addison\kern.1em-\penalty\z@\hskip\z@skip Wesley}
169 %
170 % make \BibTeX work in slanted contexts too; it's common in titles, and
171 % especially burdensome to hack in .bib files.
172 \def\Bib{%
173   \ifdim \fontdimen1\font>0pt
174     B{\SMC\SMC IB}%
175   \else
176     \textsc{Bib}%
177   \fi
178 }
179 \def\BibTeX{\Bib\kern-.08em \TeX}
```

```
180 %
181 \def\BSD{\acro{BSD}}
182 \def\CandT{\textsl{Computers \& Typesetting}}
183 \def\CJK{\acro{CJK}}
```

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

```
184 \def\ConTeXt{C\kern-.0333emon\-\kern-.0667em\TeX\kern-.0333emt}
185 \def\CMkIV{\ConTeXt\ \MkIV}
186 \def\Cplusplus{C\plusplus}
187 \def\plusplus{\raisebox{.7ex}{$_{++}$}}
188 \def\CSS{\acro{CSS}}
189 \def\CSV{\acro{CSV}}
190 \def\CTAN{\acro{CTAN}}
191 \def\DTD{\acro{DTD}}
192 \def\DTK{\acro{DTK}}
193 \def\DVD{\acro{DVD}}
194 \def\DVI{\acro{DVI}}
195 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
196 \def\DVItoVDU{DVIto\kern-.12em VDU}
197 \def\ECMA{\acro{ECMA}}
198 \def\EPS{\acro{EPS}}
199 \DeclareRobustCommand\eTeX{\ensuremath{\varepsilon}-\kern-.125em\TeX}
200 \DeclareRobustCommand\ExTeX{%
201    \ensuremath{\textstyle\varepsilon_{\kern-0.15em\cal{X}}}\kern-.2em\TeX}
202 \def\FAQ{\acro{FAQ}}
203 \def\FTP{\acro{FTP}}
204 \def\Ghostscript{Ghost\-script}
205 \def\GNU{\acro{GNU}}
206 \def\GUI{\acro{GUI}}
207 \def\Hawaii{Hawai‘i}
208 \def\HTML{\acro{HTML}}
209 \def\HTTP{\acro{HTTP}}
210 \def\IEEE{\acro{IEEE}}
211 \def\ISBN{\acro{ISBN}}
212 \def\ISO{\acro{ISO}}
213 \def\ISSN{\acro{ISSN}}
214 \def\JPEG{\acro{JPEG}}
215 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}\kern-.18em\TeX}}
216 \def\JoT{\textsl{The Joy of \TeX}}
217 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
218                    $\m@th$\fontsize\sf@size\z@\selectfont
219                    $\m@th\mathcal{A}$}%
220    \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
221    {$\m@th\mathcal{S}$}-\TeX}
222 % This code
223 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
224 % example) to propagate into the raised (small) ‘A’:
225 %    \begin{macrocode}
226 \newcommand{\La}%
227    {L\kern-.36em
```

```
228          {\setbox0\hbox{T}%
229           \vbox to\ht0{\hbox{$\m@th$%
230                              \csname S@\f@size\endcsname
231                              \fontsize\sf@size\z@
232                              \math@fontsfalse\selectfont
233                              A}%
234                     \vss}%
235          }}
```

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 3.11.

```
236 ⟨!latex⟩\def\LaTeX{\La\kern-.15em\TeX}
237 \def\LyX{L\kern-.1667em\lower.25em\hbox{Y}\kern-.125emX}
238 \def\MacOSX{Mac\,\acro{OS\,X}}
239 \def\MathML{Math\acro{ML}}
240 \def\Mc{\setbox\TestBox=\hbox{M}M\vbox
241   to\ht\TestBox{\hbox{c}\vfil}} %  for Robert McGaffey
```

If we're running under LaTeX 2ε, we're using (at least pro tem) 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`

```
242 \def\mf{\textsc{Metafont}}
243 \def\MFB{\textsl{The \MF book}}
244 \def\MkIV{Mk\acro{IV}}
245 \let\TB@@mp\mp
246 \DeclareRobustCommand\mp{\ifmmode\TB@@mp\else MetaPost\fi}
247 %
248 % In order that the \cs{OMEGA} command will switch to using the TS1
249 % variant of the capital Omega character if \texttt{textcomp.sty} is
250 % loaded, we define it in terms of the \cs{textohm} command.  Note
251 % that this requires us to interpose a level of indirection, rather
252 % than to use \cs{let}\dots
253 %
254 %    \begin{macrocode}
255 \DeclareTextSymbol{\textohm}{OT1}{'012}
256 \DeclareTextSymbolDefault{\textohm}{OT1}
257 \newcommand\OMEGA{\textohm}
258 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
259 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}
260 \DeclareRobustCommand{\OTF}{\acro{OTF}}
261 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
262 \def\mtex{T\kern-.1667em\lower.424ex\hbox{\^E}\kern-.125emX\@}
```

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

```
263 \DeclareRobustCommand\NTS{\ensuremath{\mathcal{N}\mkern-4mu
264   \raisebox{-0.5ex}{$\mathcal{T}$}\mkern-2mu \mathcal{S}}}
265 \def\Pas{Pascal}
```

```
266 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}MF\@}
267 \def\PCTeX{PC\thinspace\TeX}
268 \def\pcTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}\TeX}
269 \def\PDF{\acro{PDF}}
270 \def\PGF{\acro{PGF}}
271 \def\PHP{\acro{PHP}}
272 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
273 \def\PiCTeX{\PiC\kern-.11em\TeX}
274 \def\plain{\texttt{plain}}
275 \def\PNG{\acro{PNG}}
276 \def\POBox{P.\thinspace O.~Box }
277 \def\PS{{Post\-Script}}
278 \def\PSTricks{\acro{PST}ricks}
279 \def\RTF{\acro{RTF}}
280 \def\SC{Steering Committee}
281 \def\SGML{\acro{SGML}}
282 \def\SliTeX{\textrm{S\kern-.06em\textsc{l\kern-.035emi}%
283                      \kern-.06em\TeX}}
284 \def\slMF{\textsl{\MF}} % should never be used
285 \def\SQL{\acro{SQL}}
286 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
287 \def\STIX{\acro{STIX}}
288 \def\SVG{\acro{SVG}}
289 \def\TANGLE{\texttt{TANGLE}\@}
290 \def\TB{\textsl{The \TeX book}}
291 \def\TIFF{\acro{TIFF}}
292 \def\TP{\textsl{\TeX}: \textsl{The Program}}
293 \DeclareRobustCommand\TeX{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
294 \def\TeXhax{\TeX hax}
295 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
296    \kern-.2267emG\@}
297 \def\TeXtures{\textit{Textures}}
298 \let\Textures=\TeXtures
299 \def\TeXXeT{\TeX-{}-\XeT}
300 \def\TFM{\acro{TFM}}
301 \def\Thanh{H\`an~Th\^e\llap{\raise 0.5ex\hbox{\'{}}}~Th\`anh}
302 \def\TikZ{Ti{\em k}Z}
303 \def\ttn{\textsl{TTN}\@}
304 \def\TTN{\textsl{\TeX{} and TUG News}}
305 \let\texttub\textsl               % redefined in other situations
306 \def\TUB{\texttub{TUGboat}}
307 \def\TUG{\TeX\ \UG}
308 \def\tug{\acro{TUG}}
309 \def\UG{Users Group}
310 \def\UNIX{\acro{UNIX}}
311 \def\UTF{\acro{UTF}}
312 \def\VAX{V\kern-.12em A\kern-.1em X\@}
313 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
314 \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{O\kern-1.4\p@ R}\kern-2.6\p@\TeX}
315 \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
```

```
316 \def\XML{\acro{XML}}
317 \def\WEB{\texttt{WEB}\@}
318 \def\WEAVE{\texttt{WEAVE}\@}
319 \def\WYSIWYG{\acro{WYSIWYG}}
```

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

```
320 \def\tubreflect#1{%
321   \@ifundefined{reflectbox}{%
322     \TBerror{A graphics package must be loaded for \string\XeTeX}%
323   }{%
324     \ifdim \fontdimen1\font>0pt
325       \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
326     \else
327       \reflectbox{#1}%
328     \fi
329   }%
330 }
331 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
332 \DeclareRobustCommand\Xe[1]{\leavevmode
333   \tubhideheight{\hbox{X%
334     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
335     \lower\dp0\hbox{\raise\dp1\hbox{\kern-.125em\tubreflect{E}}}%
336     \kern-.1667em #1}}}
337 \def\XeTeX{\Xe\TeX}
338 \def\XeLaTeX{\Xe{\,\LaTeX}}
339 %
340 \def\XHTML{\acro{XHTML}}
341 \def\XSL{\acro{XSL}}
342 \def\XSLFO{\acro{XSL}\raise.08ex\hbox{-}\acro{FO}}
343 \def\XSLT{\acro{XSLT}}
```

3.5   General typesetting rules

```
344 \newlinechar='\^^J
345 \normallineskiplimit=\p@
346 \clubpenalty=10000
347 \widowpenalty=10000
348 \def\NoParIndent{\parindent=\z@}
349 \newdimen\normalparindent
350 \normalparindent=20\p@
351 \def\NormalParIndent{\global\parindent=\normalparindent}
352 \NormalParIndent
353 \def\BlackBoxes{\overfullrule=5\p@}
354 \def\NoBlackBoxes{\overfullrule=\z@}
355 \def\newline{\hskip\z@\@plus\pagewd\break}
```

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

```
356 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
357   \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
358 \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 LaTeX temporaries for some (or all) of the `\T@st*` ones.

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

```
359 \newbox\T@stBox            \newbox\TestBox
360 \newcount\T@stCount        \newcount\TestCount
361 \newdimen\T@stDimen        \newdimen\TestDimen
362 \newif\ifT@stIf            \newif\ifTestIf
```

Control sequence existence test, stolen from TeXbook exercise 7.7 (note that this provides functionality that in some sense duplicates something within LaTeX).

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

LaTeX conventions which are also useful here.

```
364 ⟨∗!latex⟩
365   \let\@@input\input
366   \def\iinput#1{\@@input#1 }
367   \def\@inputcheck{\if\@nextchar\bgroup
368     \expandafter\iinput\else\expandafter\@@input\fi}
369   \def\input{\futurelet\@nextchar\@inputcheck}
370 ⟨/!latex⟩
```

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

```
371 \newif\iftop@           \newif\ifbot@
372 \def\topsmash{\top@true\bot@false\smash@}
373 \def\botsmash{\top@false\bot@true\smash@}
374 \def\smash{\top@true\bot@true\smash@}
375 \def\smash@{\relax\ifmmode\def\next{\mathpalette\mathsm@sh}%
376         \else\let\next\makesm@sh\fi \next }
377 \def\finsm@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

Vertical 'laps'; cf. `\llap` and `\rlap`

```
378 \long\def\ulap#1{\vbox to \z@{\vss#1}}
379 \long\def\dlap#1{\vbox to \z@{#1\vss}}
```

And centered horizontal and vertical 'laps'

```
380 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
381 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
382 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
384 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
385 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
387 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
388         \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
389             \vss\hb@xt@#2{\vrule \@width\T@stDimen
390                 \hfil\makestrut[#1;\z@]%
391                 \vrule \@width\T@stDimen}\vss
392             \hrule \@height\T@stDimen \@depth\z@}}
```

Today's date, to be printed on drafts. Based on T_EXbook, p.406.

```
393 ⟨*!latex⟩
394 \def\today{\number\day\space \ifcase\month\or
395         Jan \or Feb \or Mar \or Apr \or May \or Jun \or
396         Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
397         \number\year}
398 ⟨/!latex⟩
```

Current time; this may be system dependent!

```
399 \newcount\hours
400 \newcount\minutes
401 \def\SetTime{\hours=\time
402         \global\divide\hours by 60
403         \minutes=\hours
404         \multiply\minutes by 60
405         \advance\minutes by-\time
406         \global\multiply\minutes by-1 }
407 \SetTime
408 \def\now{\number\hours:\ifnum\minutes<10 0\fi\number\minutes}
409 \def\Now{\today\ \now}
410 \newif\ifPrelimDraft
411 \def\midrtitle{\ifPrelimDraft {\textsl{preliminary draft, \Now}}\fi}
```

3.7   Ragged right and friends

\raggedskip
\raggedstretch
\raggedparfill
\raggedspaces

Plain T_EX's definition of \raggedright doesn't permit any stretch, and results in too many overfull boxes. We also turn off hyphenation. This code lies somewhere between that of Plain T_EX and of L^AT_EX.

17

```
412 \newdimen\raggedskip    \raggedskip=\z@
413 \newdimen\raggedstretch \raggedstretch=5em    % ems of font set now (10pt)
414 \newskip\raggedparfill  \raggedparfill=\z@\@plus 1fil
415 \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
\normalspaces
```
416 \def\raggedright{%
417   \nohyphens
418   \rightskip=\raggedskip\@plus\raggedstretch \raggedspaces
419   \parfillskip=\raggedparfill
420 }
421 \def\raggedleft{%
422   \nohyphens
423   \leftskip=\raggedskip\@plus\raggedstretch \raggedspaces
424   \parfillskip=\z@skip
425 }
426 \def\raggedcenter{%
427   \nohyphens
428   \leftskip=\raggedskip\@plus\raggedstretch
429   \rightskip=\leftskip \raggedspaces
430   \parindent=\z@ \parfillskip=\z@skip
431 }
432 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}
```

Miscellaneous useful stuff. Note that LaTeX 2_ε defines a robust \,, but that
we provide a new definition of ~ by redefining its robust underpinnings[1] (based
on the version in AMS-TeX — the LaTeX 2_ε version has \leavevmode and doesn't
care about surrounding space).

```
433 \DeclareRobustCommand{\nobreakspace}{%
434   \unskip\nobreak\ \ignorespaces}
```

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

```
435 \def\boxcs#1{\box\csname#1\endcsname}
436 \def\setboxcs#1{\setbox\csname#1\endcsname}
437 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
438 \let\gobble\@gobble
439 \def\vellipsis{%
440   \leavevmode\kern0.5em
441   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
```

---

[1]\DeclareRobustCommand doesn't mind redefinition, fortunately

```
442   }
443 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
444 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
445 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
446                   /\kern-.125em\smash{\lower.3ex\hbox{o}}}} \ignorespaces}
447 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
448 %
449 \DeclareRobustCommand\sfrac[1]{\@ifnextchar/{\@sfrac{#1}}%
450                                               {\@sfrac{#1}/}}
451 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
452         \hbox{$\m@th\mbox{\fontsize\sf@size\z@
453                       \selectfont#1}$}\kern-.1em
454         /\kern-.15em\lower.25ex
455          \hbox{$\m@th\mbox{\fontsize\sf@size\z@
456                       \selectfont#2}$}}
457 %
458 % don't stay bold in description items, bold italic is too weird.
459 \DeclareRobustCommand\meta[1]{%
460   \ensuremath{\langle}%
461   \ifmmode \mbox\bgroup \fi % if in math
462   {\it #1\/}% no typewriter italics, please
463   \ifmmode \egroup \fi
464   \ensuremath{\rangle}%
465 }
466 %
467 \DeclareRobustCommand\cs[1]{\texttt{\char`\\#1}}
468 %
469 \DeclareRobustCommand\env[1]{%
470   \cs{begin}\texttt{\char`\{#1\char`\}}}
471 %
472 \def\thinskip{\hskip 0.16667em\relax}
```

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

```
473 \def\endash{--}
474 \def\emdash{\endash-}
475 \def\d@sh#1#2{\unskip#1\thinskip#2\thinskip\ignorespaces}
476 \def\dash{\d@sh\nobreak\endash}
477 \def\Dash{\d@sh\nobreak\emdash}
478 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
479 \def\rdash{\d@sh\nobreak\endash}
480 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
481 \def\Rdash{\d@sh\nobreak\emdash}
```

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

```
482 \def\hyph{-\penalty\z@\hskip\z@skip }
483 \def\slash{/\penalty\z@\hskip\z@skip }
```

Adapted from `comp.text.tex` posting by Donald Arseneau, 26 May 93. LaTeX 2_ε-isation added by Robin Fairbairns. Destroys both the `TestCounts`.

```
484 \def\nth#1{%
485     \def\reserved@a##1##2\@nil{\ifcat##1n%
486          0%
487          \let\reserved@b\ensuremath
488       \else##1##2%
489          \let\reserved@b\relax
490       \fi}%
491    \TestCount=\reserved@a#1\@nil\relax
492    \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
493    \T@stCount=\TestCount
494    \divide\T@stCount by 100 \multiply\T@stCount by 100
495    \advance\TestCount by-\T@stCount      % n mod 100
496    \ifnum\TestCount >20 \T@stCount=\TestCount
497      \divide\T@stCount by 10 \multiply\T@stCount by 10
498      \advance\TestCount by-\T@stCount   % n mod 10
499    \fi
500     \reserved@b{#1}%
501      \textsuperscript{\ifcase\TestCount th%      0th
502                       \or   st%                  1st
503                       \or   nd%                  2nd
504                       \or   rd%                  3rd
505                       \else th%                  nth
506                       \fi}%
507 }
```

3.8   Reviews

Format information on reviewed items for book review articles. For the LaTeX 2_ε version, we follow Fairbairns' maxim, and define something that can even look like a LaTeX macro. . .

```
508 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
509 \def\@Review:{\@ifnextchar[%
510   {\@Rev}%
511   {\@Rev[Book review]}}
512 \def\@Rev[#1]#2{{\ignorespaces#1\unskip:\enspace\ignorespaces
513                                   \slshape\mdseries#2}}
514 \def\reviewitem{\addvspace{\BelowTitleSkip}%
515   \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
516   \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
517   \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
518 }
519 \def\endreviewitem{{\noindent\interlinepenalty=10000
520   \therevauth\therevtitle\therevpubinfo\endgraf}%
521   \vskip\medskipamount
522 }
523 \def\booktitle#1{{\slshape#1\/}}
```

3.9 Dates, volume and issue numbers, etc.

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

```
               \vol 19, 1.
    To use:    \issdate March 1998.
               \issueseqno=58
```

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

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

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

```
524 \newcount\issueseqno              \issueseqno=-1
525 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
526 \def\volyr{}
527 \def\volno{}
528 \def\vol #1,#2.{\gdef\volno{#1\unskip}%
529         \gdef\issno{\ignorespaces#2\unskip}%
530         \setbox\TestBox=\hbox{\volyr}%
531         \ifdim \wd\TestBox > .2em \v@lx \fi }
532 \def\issyear #1.{\gdef\issdt{#1}\gdef\volyr{#1}%
533         \gdef\bigissdt{#1}%
534         \setbox\TestBox=\hbox{\volno}%
535         \ifdim \wd\TestBox > .2em \v@lx \fi }
536 \def\issdate #1#2 #3.{\gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
537         \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
538         \setbox\TestBox=\hbox{\volno}%
539         \ifdim \wd\TestBox > .2em \v@lx \fi }
540 \vol 0, 0.
541 \issdate Thermidor, 2060.
```

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

For LaTeX use, define a version of the issue declaration that can take or leave the old plain syntax

```
542 ⟨!latex⟩\def\tubissue#1(#2)%
543 ⟨*latex⟩
544 \def\tubissue#1{\@ifnextchar(%
545   {\@tubissue@b{#1}}
546   {\@tubissue@a{#1}}}
547 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
548 \def\@tubissue@a#1#2%
549 ⟨/latex⟩
550   {\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`

```
551 \def\infil@{\jobname}
552 \def\Input #1 {\ifnum\issueseqno<0
553    \def\infil@{#1}%
554    \else
555    \def\infil@{tb\number\issueseqno#1}
556    \fi
557    \edef\jobname{\infil@}\@readFLN
558    \@@input \infil@\relax
559    \if@RMKopen
560    \immediate\closeout\@TBremarkfile\@RMKopenfalse
561    \fi
562 }
```

\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).

```
563 \newif\if@RMKopen        \@RMKopenfalse
564 \newwrite\@TBremarkfile
565 \def\@TBremark#1{%
566    \if@RMKopen
567    \else
568    \@RMKopentrue\immediate\openout\@TBremarkfile=\infil@.rmk
569    \fi
570    \toks@={#1}%
571    \immediate\write\@TBremarkfile{^^J\the\toks@}%
572    \immediate\write16{^^JTBremark:: \the\toks@^^J}%
573 }
```

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

```
574 \let\TBremark=\gobble
```

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

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

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

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

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

```
577 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
578 \newread\@altfilenames
```

```
579 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
580   \ifeof\@altfilenames\let\@result\relax\else
581   \def\@result{\@@input\jobname.fln }\fi
582   \immediate\closein\@altfilenames
583   \@result}
584 \@readFLN
585 \everyjob=\expandafter{\the\everyjob\@readFLN}
586 \InputIfFileExists{\jobname.fln}%
587     {\TBInfo{Reading alternative file file \jobname.fln}}{}
```

The following needs to work entirely in TeX's mouth

```
588 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
589   #1\else\csname file@@#1\endcsname\fi}
590 \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.

```
591 ⟨∗!latex⟩
592 \def\pagexrefON#1{%
593         \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
594         \write\ppoutfile{%
595                 \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
596         }
597 \def\PageXrefON#1{%
598         \immediate\write-1{\def\expandafter
599                         \noexpand\csname#1\endcsname{\number\pageno}}%
600         \immediate\write\ppoutfile{\def\expandafter
601                         \noexpand\csname#1\endcsname{\number\pageno}}}
602 ⟨/!latex⟩
603 ⟨∗latex⟩
604 \def\pagexrefON#1{%
605         \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
606         \write\ppoutfile{%
607                 \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
608         }
609 \def\PageXrefON#1{%
610         \immediate\write-1{\def\expandafter
611                         \noexpand\csname#1\endcsname{\number\c@page}}%
612         \immediate\write\ppoutfile{\def\expandafter
613                         \noexpand\csname#1\endcsname{\number\c@page}}}
614 ⟨/latex⟩
615 \def\pagexrefOFF#1{}
616 \let\pagexref=\pagexrefOFF
617 \def\PageXrefOFF#1{}
618 \let\PageXref=\PageXrefOFF
619 \def\xreftoON#1{%
620   \ifundefined{#1}%
621     ???\TBremark{Need cross reference for #1.}%
```

```
622   \else\csname#1\endcsname\fi}
623 \def\xreftoOFF#1{???}
624 \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.

```
625 \let\TBdriver\gobble
```

Some hyphenation exceptions:

```
626 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
627   Flor-i-da Free-BSD Ghost-script Ghost-view
628   Hara-lam-bous Jac-kow-ski Karls-ruhe
629   Mac-OS Ma-la-ya-lam Math-Sci-Net
630   Net-BSD Open-BSD Open-Office
631   Pfa-Edit Post-Script Rich-ard Skoup South-all
632   Vieth VM-ware Win-Edt
633   acro-nym ap-pen-dix asyn-chro-nous
634   bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
635   col-umns com-put-able com-put-abil-ity cus-tom-iz-able
636   data-base data-bases
637    de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
638    de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion
639   es-sence
640   fall-ing
641   half-way
642   in-fra-struc-ture input-enc
643   key-note
644   long-est
645   ma-gyar man-u-script man-u-scripts mne-mon-ic mne-mon-ics
646    mono-space mono-spaced
647   name-space name-spaces
648   off-line over-view
649   pal-ettes par-a-digm par-a-dig-mat-ic par-a-digms
650    pipe-line pipe-lines
651    plug-in plug-ins pres-ent-ly pro-gram-mable
652   re-allo-cate re-allo-cates re-allo-cated
653   set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
654    sub-ex-pres-sion syn-chro-ni-city syn-chro-nous
655   text-height text-length text-width
656    time-stamp time-stamped
657   vis-ual vis-ual-ly
658   which-ever white-space white-spaces wide-spread widget wrap-around
659 }
660 ⟨!latex⟩\restorecat\@
661 ⟨/common⟩
662 ⟨*classtail⟩
663 \PrelimDrafttrue
```

3.10   Page dimensions, glue, penalties etc

```
664 \textheight 54pc
665 \textwidth 39pc
666 \columnsep 1.5pc
667 \columnwidth 18.75pc
668 \parindent \normalparindent
669 \parskip \z@ % \@plus\p@
670 \leftmargini 2em
671 \leftmarginv .5em
672 \leftmarginvi .5em
673 \oddsidemargin \z@
674 \evensidemargin \z@
675 \topmargin -2.5pc
676 \headheight 12\p@
677 \headsep 20\p@
678 \marginparwidth 48\p@
679 \marginparsep 10\p@
680 \partopsep=\z@
681 \topsep=3\p@\@plus\p@\@minus\p@
682 \parsep=3\p@\@plus\p@\@minus\p@
683 \itemsep=\parsep
684 \twocolumn
685 \newdimen\pagewd          \pagewd=39pc
686 \newdimen\trimwd          \trimwd=\pagewd
687 \newdimen\trimlgt         \trimlgt=11in
688 \newdimen\headmargin      \headmargin=3.5pc
```

In LaTeX 2ε, twoside option is forced on when `article.cls` is loaded.

3.11   Messing about with the LaTeX logo

Barbara Beeton's pleas for 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 hir own new version. The arguments are font family, series and shape, and then the two kern values used in placing the raised 'A' of LaTeX.

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

The default values are as used in the source of LaTeX itself:

```
691 \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):

```
692 \DeclareLaTeXLogo{cmss}{bx}n{.3}{.15}
693 \DeclareLaTeXLogo{cmr}m{it}{.3}{.27}
694 \DeclareLaTeXLogo{cmr}{bx}{it}{.3}{.27}
695 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
696 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}
```

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

```
697 \DeclareRobustCommand\LaTeX{\expandafter\let\expandafter\reserved@a
698     \csname @LaTeX@\f@family/\f@series/\f@shape\endcsname
699     \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
700     \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.

```
701 \newcommand\@LaTeX[2]{L\kern-#1em
702         {\sbox\z@ T%
703          \vbox to\ht0{\hbox{$\m@th$%
704                         \csname S@\f@size\endcsname
705                         \fontsize\sf@size\z@
706                         \math@fontsfalse\selectfont
707                         A}%
708                     \vss}%
709         }%
710         \kern-#2em%
711         \TeX}
```

3.12   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 `\csname`s called `\author1`, `\author2`, ... Similarly, there are several `\address<n>` and `\netaddress<n>` and `\PersonalURL<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.

```
712 \def\theauthor#1{\csname theauthor#1\endcsname}
713 \def\theaddress#1{\csname theaddress#1\endcsname}
714 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
715 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
```

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

```
716 ⟨!latex⟩\newcount\@tempcnta
717 \def\@defaultauthorlist{%
718   \@getauthorlist\@firstofone
719 }
```

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

```
720 \def\@getauthorlist#1{%
721   \count@\authornumber
722   \advance\count@ by -2
723   \@tempcnta0
```

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

```
724   \loop
725     \ifnum\count@>0
726       \advance\@tempcnta by \@ne
727       #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
728       \advance\count@ by \m@ne
729   \repeat
730   \count@\authornumber
731   \advance\count@ by -\@tempcnta
732   \ifnum\authornumber>0
```

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

```
733     \ifnum\count@>1
734       \count@\authornumber
735       \advance\count@ by \m@ne
736       #1{\ignorespaces\theauthor{\number\count@}\unskip\ and }%
737     \fi
```

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

```
738     #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
739   \fi
740 }
```

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. . .)

```
741 \def\signature#1{\def\@signature{#1}}
742 \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`

```
743 \def\@defaultsignature{{%
744     \let\thanks\@gobble
745     \frenchspacing
746     %
747     \ifnum\authornumber<0
```

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

```
748        \medskip
749        \signaturemark
750        \theauthor{\number\authornumber}\\
751        \theaddress{\number\authornumber}\\
752        \allowhyphens
753        \thenetaddress{\number\authornumber}\\
754        \thePersonalURL{\number\authornumber}\\
755      \else
```

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

```
756        \count@=0
757        \loop
758          \ifnum\count@<\authornumber
759            \medskip
760            \advance\count@ by \@ne
761            \signaturemark
762            \theauthor{\number\count@}\\
763            \theaddress{\number\count@}\\
764            {%
765              \allowhyphens
766              \thenetaddress{\number\count@}\\
767              \thePersonalURL{\number\count@}\\
768            }%
769        \repeat
770      \fi
771   }%
772 }
773 \newdimen\signaturewidth    \signaturewidth=12pc
```

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

```
774 \newcommand\makesignature[1][\medskipamount]{%
```

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

```
775   \@tempdima\signaturewidth
776   \advance\@tempdima 1.5pc
777   \ifdim \@tempdima>\columnwidth
778     \signaturewidth \columnwidth
779     \advance\signaturewidth -1.5pc
780   \fi
781   \par
782   \penalty9000
783   \vspace{#1}%
784   \rightline{%
785     \vbox{\hsize\signaturewidth \ninepoint \raggedright
786       \parindent \z@ \everypar={\hangindent 1pc }
787       \parskip \z@skip
788       \def\|{\unskip\hfil\break}%
789       \def\\{\endgraf}%
```

```
790        \def\phone{\rm Phone: }
791        \rm\@signature}%
792    }%
793    \ifnum\authornumber<0 \endgroup\fi
794 }
795 \def\signaturemark{\leavevmode\llap{$\diamond$\enspace}}
```

The code previously defined the following:

```
{\makeactive\@
 \gdef\signatureat{\makeactive\@\def@{\char"40\discretionary{}{}{}}}
 \makeactive\%
 \gdef\signaturepercent{\makeactive\%\def%{\char"25\discretionary{}{}{}}}
}
```

However, they were never used within the class (or within `ltugproc.cls`). They have therefore been deleted; the identically defined `\netaddrat` and `\netaddrpercent` may be used in the unlikely event that they're needed elsewhere.

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

```
796 \newcount\authornumber
797 \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`).

```
798 \def\author{%
799    \global\advance\authornumber\@ne
800    \TB@author
801 }
```

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

```
802 \def\contributor{%
803    \begingroup
804    \authornumber\m@ne
805    \TB@author
806 }
```

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* is optional anyway).

```
807 \def\TB@author#1{%
808    \expandafter\def\csname theauthor\number\authornumber\endcsname
```

```
809        {\ignorespaces#1\unskip}%
810    \expandafter\def\csname theaddress\number\authornumber\endcsname
811      {\TBWarningNL{Address for #1\space missing}\@gobble}%
812    \expandafter\def\csname thenetaddress\number\authornumber\endcsname
813      {\TBWarningNL{Net address for #1\space missing}\@gobble}%
814    \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
815      \@gobble
816    }
817  \def\EDITORnoaddress{%
818    \expandafter\let\csname theaddress\number\authornumber\endcsname
819      \@gobble
820  }
821  \def\EDITORnonetaddress{%
822    \expandafter\let\csname thenetaddress\number\authornumber\endcsname
823      \@gobble
824  }
```

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

```
825  \def\address#1{%
826    \expandafter\def\csname theaddress\number\authornumber\endcsname
827        {\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*!

```
828  \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 LaTeX 2ε, we use the default-argument form of \newcommand; otherwise we write it out in all its horribleness.

```
829  \newcommand\netaddress[1][\relax]{%
830    \begingroup
831    \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 LaTeX 2ε.

```
832    #1\@sanitize\makespace\ \makeactive\@
833    \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?!***)

```
834 \def\@relay@netaddress#1{%
835   \ProtectNetChars
836   \expandafter\protected@xdef
837       \csname thenetaddress\number\authornumber\endcsname
838     {\protect\leavevmode\textrm{\@network}%
839      {\protect\NetAddrChars\net
840       \ignorespaces#1\unskip}}%
841   \endgroup
842   }
```

\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.

```
843 \def\personalURL{\begingroup
844   \@sanitize\makespace\ \makeactive\@
845   \makeactive\.\makeactive\%\makeactive\/\@personalURL}%
846 \def\@personalURL#1{%
847   \ProtectNetChars
848   \expandafter\protected@xdef
849     \csname thePersonalURL\number\authornumber\endcsname{%
850       \protect\leavevmode
851       {%
852         \protect\URLchars\net
853         \ignorespaces#1\unskip
854       }%
855     }%
856   \endgroup
857   }
```

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. . .

```
858 {%
859   \makecomment\*
860   \makeactive\@
861   \gdef\netaddrat{\makeactive\@*
862     \def@{\discretionary{\char"40}{}{\char"40}}}
863   \makeactive\%
864   \gdef\netaddrpercent{\makeactive\%*
865     \def%{\discretionary{\char"25}{}{\char"25}}}
866   \makeactive\.
867   \gdef\netaddrdot{\makeactive\.*
868     \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.

```
869    \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
870    \makeactive\/
871    \gdef\URLchars{*
872      \NetAddrChars
873      \makeactive\/*
874      \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.

```
875    \gdef\ProtectNetChars{*
876      \def@{\protect@}*
877      \def%{\protect%}*
878      \def.{\protect.}*
879      \def/{\protect/}*
880      }
881 }
```

LaTeX 2_ε (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 LaTeX 2_ε defines for the job).

```
882 \if@compatibility
883    \DeclareRobustCommand\net{\normalfont\ttfamily\mathgroup\symtypewriter}
884 \else
885    \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
886 \fi
887 \def\authorlist#1{\def\@author{#1}}
888 \def\@author{\@defaultauthorlist}
```

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.

\mspmetavar

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

3.13   Article title

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

Provide machinery to skip extra space, even one or more full columns, above the top of an article to leave space to paste up a previous article that has finished

on the same page. This is a fall back to accommodate the fact that multiple
articles cannot yet be run together easily with LaTeX2ε.

```
890 \newif\if@articletitle
891 \def\maketitle{\@ifstar
892   {\@articletitlefalse\@r@maketitle}%
893   {\@articletitletrue\@r@maketitle}%
894 }
895 \def\@r@maketitle{\par
896 \ifdim\PreTitleDrop > \z@
897   \loop
898   \ifdim \PreTitleDrop > \textheight
899     \vbox{}\vfil\eject
900     \advance\PreTitleDrop by -\textheight
901   \repeat
902   \vbox to \PreTitleDrop{}
903   \global\PreTitleDrop=\z@
904 \fi
905 \begingroup
906 \setcounter{footnote}{0}
907 \def\thefootnote{\fnsymbol{footnote}}
908 \@maketitle
909 \@thanks
910 \endgroup
911 \setcounter{footnote}{0}
912 \gdef\@thanks{}
913 }
```

\title   We redefine the \title command, so as to set the \rhTitle command at the same
\TB@title   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.

```
914 \def\rhTitle{}% avoid error if no author or title
915 \renewcommand\title{\@dblarg\TB@title}
916 \def\TB@title[#1]#2{\gdef\@title{#2}%
917   \bgroup
918     \let\thanks\@gobble
919     \def\\{\unskip\space\ignorespaces}%
920     \protected@xdef\rhTitle{#1}%
921   \egroup
922 }
```

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

```
923 \def\shortTitle #1{\def\rhTitle{#1}}
924 \newif\ifshortAuthor
925 \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}
```

33

3.14 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:

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

Note that \stbaselineskip is used in the definition of \sectitlefont, in LaTeX 2ε, so that it has (at least) to be defined before \sectitlefont is used (we do the whole job).

```
927 \newdimen\stbaselineskip        \stbaselineskip=18\p@
928 \newdimen\stfontheight
929 \settoheight{\stfontheight}{\sectitlefont O}
```

Declaring section titles; the conditional \ifSecTitle records the occurence 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.

```
930 \newif\ifSecTitle
931 \SecTitlefalse
932 \newif\ifWideSecTitle
933 \newcommand\sectitle{%
934   \SecTitletrue
935   \@ifstar
936     {\WideSecTitletrue\def\s@ctitle}%
937     {\WideSecTitlefalse\def\s@ctitle}%
938 }
```

\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.

```
939 \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.

```
940 \newskip\AboveTitleSkip  \AboveTitleSkip=12\p@
941 \newskip\BelowTitleSkip  \BelowTitleSkip=8\p@
942 \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 LaTeX's `\framebox` command, on the grounds that one doesn't keep a dog and bark for oneself...

```
943 \def\@sectitle #1{%
944   \par
945   \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.

```
946   \ifWideSecTitle\else\secsep\fi
947   {%
948     \fboxrule\strulethickness
949     \fboxsep\z@
950     \noindent\framebox[\hsize]{%
951       \vbox{%
952         \raggedcenter
953         \let\\\@sectitle@newline
954         \sectitlefont
955         \makestrut[2\stfontheight;\z@]%
956         #1%
957         \makestrut[\z@;\stfontheight]\endgraf
958       }%
959     }%
960   }%
961   \nobreak
962   \vskip\baselineskip
963 }
```

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

```
964 \newcommand{\@sectitle@newline}[1][\z@]{%
965   \ifdim#1>\z@
966     \makestrut[\z@;#1]%
967   \fi
968   \unskip\break
969 }
```

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).

```
970 \def\@makesectitle{\ifSecTitle
971     \global\SecTitlefalse
972     \ifWideSecTitle
973       \twocolumn[\@sectitle{\s@ctitle}]%
974       \global\WideSecTitlefalse
975     \else
976       \@sectitle{\s@ctitle}%
977     \fi
978   \else
```

```
979        \vskip\AboveTitleSkip
980        \kern\topskip
981        \hrule \@height\z@ \@depth\z@ \@width 10\p@
982        \kern-\topskip
983        \kern-\strulethickness
984        \hrule \@height\strulethickness \@depth\z@
985        \kern\medskipamount
986        \nobreak
987    \fi
988 }
```

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

```
989 \def\@maketitle{%
990    \@makesectitle
991    \if@articletitle{%
992      \nohyphens \interlinepenalty\@M
993      \setbox0=\hbox{%
994        \let\thanks\@gobble
995        \let\\=\quad
996        \let\and=\quad
997        \ignorespaces\@author}%
998      {%
999        \noindent\bf\raggedright\ignorespaces\@title\endgraf
1000     }%
1001     \ifdim \wd0 < 5\p@              % omit if author is null
1002     \else
```

Since we have `\BelowTitleSkip` + 4pt = `\baselineskip`, we say:

```
1003        \nobreak \vskip 4\p@
1004        {%
1005          \leftskip=\normalparindent
1006          \raggedright
1007          \def\and{\unskip\\}%
1008          \noindent\@author\endgraf
1009        }%
1010     \fi
1011     \nobreak
1012     \vskip\BelowTitleSkip
1013   }\fi%
1014   \global\@afterindentfalse
1015   \aftergroup\@afterheading
1016 }
```

Dedications are ragged right, in italics.

```
1017 \newenvironment{dedication}%
1018   {\raggedright\noindent\itshape\ignorespaces}%
1019   {\endgraf\medskip}
```

The `abstract` and `longabstract` environments both use `\section*`.

```
1020 \renewenvironment{abstract}%
```

```
1021  {%
1022     \begin{SafeSection}%
1023     \section*{Abstract}%
1024  }%
1025  {\end{SafeSection}}
1026  \newenvironment{longabstract}%
1027  {%
1028     \begin{SafeSection}%
1029     \section*{Abstract}%
1030     \bgroup\small
1031  }%
1032  {%
1033     \endgraf\egroup
1034     \end{SafeSection}%
1035  \vspace{.25\baselineskip}
1036  \begin{center}
1037     {$--*--$}
1038  \end{center}
1039  \vspace{.5\baselineskip}}
```

3.15 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 `\let`ting `\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.

```
1040  \if@numbersec
1041     \def\section{\TB@startsection{{section}%
1042                                    1%
1043                                    \z@
1044                                    {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1045                                    {4\p@}%
1046          {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1047     \def\subsection{\TB@startsection{{subsection}%
1048                                       2%
1049                                       \z@
1050                                       {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1051                                       {4\p@}%
1052          {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1053     \def\subsubsection{\TB@startsection{{subsubsection}%
1054                                          3%
1055                                          \z@
1056                                          {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1057                                          {4\p@}%
```

```
1058              {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1059   \def\paragraph{\TB@startsection{{paragraph}%
1060                                  4%
1061                                  \z@
1062                                  {4\p@ \@plus1\p@ \@minus1\p@}%
1063                                  {-1em}%
1064                                  {\normalsize\bf}}}
```

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

```
1065 \else
1066   \setcounter{secnumdepth}{0}
1067   \def\section{\TB@nolimelabel
1068            \TB@startsection{{section}%
1069                            1%
1070                            \z@
1071                            {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1072                            {4\p@}%
1073          {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1074   \def\subsection{\TB@nolimelabel
1075                \TB@startsection{{subsection}%
1076                                2%
1077                                \z@
1078                                {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1079                                {-0.5em\@plus-\fontdimen3\font}%
1080          {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1081   \def\subsubsection{\TB@nolimelabel
1082                  \TB@startsection{{subsubsection}%
1083                                  3%
1084                                  \parindent
1085                                  {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1086                                  {-0.5em\@plus-\fontdimen3\font}%
1087          {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1088 \fi
```

\TB@startsection traps * versions of sectioning commands, if numbering
isn't in effect. Its argument is the complete set of \@startsection arguments.

```
1089 \if@numbersec
1090   \def\TB@startsection#1{\@startsection#1}%
1091 \else
1092   \def\TB@startsection#1{%
1093     \@ifstar
1094       {\TBWarning{*-form of \expandafter\string\csname\@firstofsix#1%
1095                   \endcsname\space
1096                   \MessageBreak
1097                   conflicts with nonumber class option}%
1098        \@startsection#1}%
1099       {\@startsection#1}%
1100   }
1101 \fi
```

```
1102 \def\@firstofsix#1#2#3#4#5#6{#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).

```
1103 \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.

```
1104 \newenvironment{SafeSection}%
1105    {\let\TB@startsection\TB@safe@startsection}%
1106    {}
```

And now for the exciting sectioning commands that LaTeX 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'[2]).

The three inappropriate ones are subparagraph (indistiguishable 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.

```
1107 \if@numbersec
1108    \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1109 \else
1110    \def\paragraph{\TB@nosection\paragraph\subsubsection}
1111    \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1112 \fi
1113 \def\chapter{\TB@nosection\chapter\section}
1114 \def\part{\TB@nosection\part\section}
1115 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1116    \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's articles are almost the only ones that ever have toc's.

```
1117 \def\TBtocsectionfont{\normalfont}
1118 \newskip\TBtocsectionspace  \TBtocsectionspace=1.0em\@plus\p@
```

Don't ask me (RF) why \l@part is there; I commented it out because I couldn't understand why it had been left there for me. To be finally deleted in a future release of these macros. . .

```
1119 %\def\l@part#1#2{\addpenalty{\@secpenalty}%
1120 %   \addvspace{2.25em\@plus\p@}%
1121 %   \begingroup
1122 %     \@tempdima 3em \parindent\z@ \rightskip\z@ \parfillskip\z@
```

---

[2]Thurber, *The Wonderful O*

```
1123 %    {\large \bf \leavevmode #1\hfil \hbox to\@pnumwidth{\hss #2}}\par
1124 %    \nobreak
1125 %  \endgroup}
1126 %
1127 \def\l@section#1#2{\addpenalty{\@secpenalty}%
1128   \addvspace{\TBtocsectionspace}%
1129   \@tempdima 1.5em
1130   \begingroup
1131     \parindent\z@ \rightskip\z@  % article style makes \rightskip > 0
1132     \parfillskip\z@
1133     \TBtocsectionfont
1134     \leavevmode\advance\leftskip\@tempdima\hskip-\leftskip#1\nobreak\hfil
1135     \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
1136   \endgroup}
```

3.16   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:

```
1137 \renewcommand\appendix{\par
1138   \renewcommand\thesection{\@Alph\c@section}%
1139   \setcounter{section}{0}%
1140   \if@numbersec
1141   \else
1142     \setcounter{secnumdepth}{1}%
1143   \fi
```

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

```
1144   \def\@tempa{appendix}
1145   \ifx\@tempa\@currenvir
1146     \expandafter\@appendix@env
1147   \fi
1148 }
```

Here we deal with `\begin{appendix}[`⟨*app-name*⟩`]`

```
1149 \newcommand\app@prefix@section{}
1150 \newcommand\@appendix@env[1][Appendix]{%
1151   \renewcommand\@seccntformat[1]{\csname app@prefix@##1\endcsname
1152     \csname the##1\endcsname\quad}%
1153   \renewcommand\app@prefix@section{#1 }%
1154 }
```

Ending an appendix environment is pretty trivial…

```
1155 \let\endappendix\relax
```

3.17 References

If the sections aren't numbered, the natural tendency of the author to cross-reference (which, after all, is one of the things LaTeX is for ever being advertised as being good at) can cause headaches for the editor. (Yes it can; believe me ... there's always one.)

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

```
1156 \def\TB@nolimelabel{%
1157   \def\@currentlabel{%
1158     \protect\TBWarning{%
1159       Invalid reference to numbered label on page \thepage
1160       \MessageBreak made%
1161     }%
1162     \textbf{?!?}%
1163   }%
1164 }
```

3.18 Title references

This is a first cut at a mecahnism 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.

```
1165 \let\TB@@sect\@sect
1166 \let\TB@@ssect\@ssect
1167 \def\@sect#1#2#3#4#5#6[#7]#8{%
1168   \def\@currentlabelname{#7}%
1169   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1170 }
1171 \def\@ssect#1#2#3#4#5{%
1172   \def\@currentlabelname{#5}%
1173   \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1174 }
```

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 LATEX `\label` and then write our named label as `nr<label>`.

```
1175 \let\@savelatexlabel=\label  % so save original LaTeX command
1176 %
1177 \def\label#1{% de
1178   \@savelatexlabel{#1}%
1179   \@bsphack
1180   \if@filesw
1181     \protected@write\@auxout{}%
1182       {\string\newlabel{nr@#1}{{\@currentlabel}{\@currentlabelname}}}%
1183   \fi
1184   \@esphack
1185 }
```

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

```
1186 \let\@currentlabelname\@empty
```

Getting named references is then just like getting page references in the LATEX kernel (see `ltxref.dtx`).

```
1187 \DeclareRobustCommand\nameref[1]{\expandafter\@setref
1188   \csname r@nr@#1\endcsname\@secondoftwo{#1}}
```

3.19   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`.

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`

```
1189 \newdimen\tubfullpageindent  \tubfullpageindent=4.875pc
```

Ok, here is the `\@makecaption`.

```
1190 \long\def\@makecaption#1#2{%
1191   \vskip\abovecaptionskip
1192   \sbox\@tempboxa{\small #1: #2}% try in an hbox
1193   \ifdim \wd\@tempboxa > \hsize
1194     {% caption doesn't fit on one line; set as a paragraph.
1195     \small \raggedright \hyphenpenalty=\@M \parindent=1em
1196     % indent full-width captions {figure*}, but not single-column {figure}.
1197     \ifdim\hsize = \textwidth
1198       \leftskip=\tubfullpageindent \rightskip=\leftskip
1199       \advance\rightskip by 0pt plus2em  % increase acceptable raggedness
1200     \fi
1201     \noindent #1: #2\par}%
1202   \else
1203     % fits on one line; use the hbox, centered.  Do not reset its glue.
1204     \global\@minipagefalse
```

```
1205      \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
1206    \fi
1207    \vskip\belowcaptionskip}
```

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

```
1208 \def\fnum@figure{{\small \bf \figurename\nobreakspace\thefigure}}
1209 \def\fnum@table{{\small \bf \tablename\nobreakspace\thetable}}
```

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

```
1210 \setlength\abovecaptionskip{6pt plus1pt minus1pt}
```

3.20   Size changing commands

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

```
1211 \renewcommand\normalsize{%
1212    \@setfontsize\normalsize\@xpt\@xiipt
1213    \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1214    \belowdisplayskip=\abovedisplayskip
1215    \abovedisplayshortskip=\z@\@plus 3\p@
1216    \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1217 }
1218
1219 \renewcommand\small{%
1220    \@setfontsize\small\@ixpt{11}%
1221    \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1222    \belowdisplayskip=\abovedisplayskip
1223    \abovedisplayshortskip=\z@\@plus 2\p@
1224    \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1225 }
1226 \renewcommand\footnotesize{%
1227    \@setfontsize\footnotesize\@viiipt{9.5}%
1228    \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1229    \belowdisplayskip=\abovedisplayskip
1230    \abovedisplayshortskip=\z@\@plus 3\p@
1231    \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1232 }
```

3.21   Lists and other text inclusions

```
1233 \def\@listi{%
1234  \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1235  \itemsep=\parsep
1236  \listparindent=1em
1237  }
1238
1239 \def\@listii{%
```

```
1240    \leftmargin\leftmarginii
1241    \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1242    \topsep=2\p@\@plus\p@\@minus\p@
1243    \parsep=\p@\@plus\p@\@minus\p@
1244    \itemsep=\parsep
1245    \listparindent=1em
1246    }
1247
1248 \def\@listiii{%
1249    \leftmargin=\leftmarginiii
1250    \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1251    \topsep=\p@\@plus\p@\@minus\p@
1252    \parsep=\z@
1253    \itemsep=\topsep
1254    \listparindent=1em
1255    }
1256 \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.

```
1257 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1258      \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}
```

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

```
1259 \newenvironment{compactitemize}%
1260    {\begin{itemize}%
1261      \setlength{\itemsep}{0pt}%
1262      \setlength{\parskip}{0pt}%
1263      \setlength{\parsep} {0pt}%
1264    }%
1265    {\end{itemize}}
1266 %
1267 \newenvironment{compactenumerate}%
1268    {\begin{enumerate}%
1269      \setlength{\itemsep}{0pt}%
1270      \setlength{\parskip}{0pt}%
1271      \setlength{\parsep} {0pt}%
1272    }%
1273    {\end{enumerate}}
```

3.22   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.

```
1274 %\let\@TB@verbatim\@verbatim
1275 \let\@TBverbatim\verbatim
1276 \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.)

```
1277 \def\verbatim{\par\obeylines
1278   \futurelet\reserved@a\@switch@sqbverbatim}
1279 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1280   \expandafter\@sqbverbatim\else
1281   \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1282 \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.

```
1283   \def\ruled{\let\if@ruled\iftrue}%
```

Then we just execute the ones we've got, and relay to a (hacked) copy of the built-in environment.

```
1284   #1\@TBverbatim}
```

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

```
1285 \def\@verbatim{%
```

First, we deal with \ruled:

```
1286     \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1287   \trivlist \item\relax
1288   \if@minipage\else\vskip\parskip\fi
1289   \leftskip\@totalleftmargin\rightskip\z@skip
1290   \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1291   \@@par
1292   \@tempswafalse
1293   \def\par{%
1294     \if@tempswa
1295       \leavevmode \null \@@par\penalty\interlinepenalty
1296     \else
1297       \@tempswatrue
1298       \ifhmode\@@par\penalty\interlinepenalty\fi
```

```
1299    \fi}%
1300    \obeylines \verbatim@font \@noligs
1301    \let\do\@makeother \dospecials
1302    \everypar \expandafter{\the\everypar \unpenalty}%
1303 }%
```

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).

```
1304 \def\endverbatim{\@TBendverbatim
1305    \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

`\enablemetacode` simply typesets[3] something that looks (verbatim) like:

```
    <meta-text>
```

as:

$\langle meta\text{-}text\rangle$

```
1306 {\makeactive<
1307    \gdef<#1>{{\reset@font\ensuremath{\langle}%
1308       \textit{#1}%
1309       \ensuremath{\rangle}}}
1310 }
```

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

```
1311 \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.

```
1312 \AtBeginDocument{%
1313    \@ifpackageloaded{microtype}
1314       {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{}
1315 }
```

3.23   Bibliography

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

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

The available citation commands are:

---

[3]Or will simply typeset, when we get around to implementation proper

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

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

```
1316 \if@Harvardcite
1317 \let\@internalcite\cite
```

Normal forms.

```
1318 \def\cite{\def\@citeseppen{-1000}%
1319     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1320     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1321 \def\citeNP{\def\@citeseppen{-1000}%
1322     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1323     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1324 \def\citeN{\def\@citeseppen{-1000}%
1325     \def\@cite##1##2{##1\if@tempswa , ##2)\else)}\fi}%
1326     \def\citeauthoryear##1##2##3{##1 (##3}\@citedata}
1327 \def\citeA{\def\@citeseppen{-1000}%
1328     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1329     \def\citeauthoryear##1##2##3{##1}\@internalcite}
1330 \def\citeANP{\def\@citeseppen{-1000}%
1331     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1332     \def\citeauthoryear##1##2##3{##1}\@internalcite}
```

Abbreviated forms (using *et al.*)

```
1333 \def\shortcite{\def\@citeseppen{-1000}%
1334     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1335     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1336 \def\shortciteNP{\def\@citeseppen{-1000}%
1337     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1338     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1339 \def\shortciteN{\def\@citeseppen{-1000}%
1340     \def\@cite##1##2{##1\if@tempswa , ##2)\else)}\fi}%
1341     \def\citeauthoryear##1##2##3{##2 (##3}\@citedata}
1342 \def\shortciteA{\def\@citeseppen{-1000}%
1343     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1344     \def\citeauthoryear##1##2##3{##2}\@internalcite}
1345 \def\shortciteANP{\def\@citeseppen{-1000}%
1346     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1347     \def\citeauthoryear##1##2##3{##2}\@internalcite}
```

When just the year is needed:

```
1348 \def\citeyear{\def\@citeseppen{-1000}%
1349     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
```

```
1350        \def\citeauthoryear##1##2##3{##3}\@citedata}
1351 \def\citeyearNP{\def\@citeseppen{-1000}%
1352        \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1353        \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.

```
1354 \def\@citedata{%
1355          \@ifnextchar [{\@tempswatrue\@citedatax}%
1356                                   {\@tempswafalse\@citedatax[]}%
1357 }
1358
1359 \def\@citedatax[#1]#2{%
1360 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1361   \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1362     {\@citea\def\@citea{, }\@ifundefined% by Young
1363        {b@\@citeb}{{\bf ?}%
1364        \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1365 {\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.

```
1366 \def\@citex[#1]#2{%
1367 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1368   \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1369     {\@citea\def\@citea{; }\@ifundefined% by Young
1370        {b@\@citeb}{{\bf ?}%
1371        \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1372 {\csname b@\@citeb\endcsname}}}{#1}}%
```

No labels in the bibliography.

```
1373 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```
1374 \newlength{\bibhang}
1375 \setlength{\bibhang}{2em}
```

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

```
1376 \newdimen\bibindent
1377 \bibindent=1.5em
1378 \@ifundefined{refname}%
1379    {\newcommand{\refname}{References}}%
1380    {}%
```

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

```
1381 \def\thebibliography#1{%
1382   \let\TB@startsection\TB@safe@startsection
1383   \section*{\refname
1384     \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
```

```
1385    \list{[\arabic{enumi}]}{%
1386      \labelwidth\z@ \labelsep\z@
1387      \leftmargin\bibindent
1388      \itemindent -\bibindent
1389      \listparindent \itemindent
1390      \parsep \z@
1391      \usecounter{enumi}}
1392    \def\newblock{}
1393    \BibJustification
1394    \sfcode`\.=1000\relax
1395 }
```

etal   Other bibliography odds and ends.

\bibentry
```
1396 \def\etal{et\,al.\@}
1397 \def\bibentry{%
1398    \smallskip
1399    \hangindent=\parindent
1400    \hangafter=1
1401    \noindent
1402    \sloppy
1403    \clubpenalty500 \widowpenalty500
1404    \frenchspacing
1405 }
```

\bibliography   Changes made to accommodate TUB file naming conventions

\bibliographystyle
```
1406 \def\bibliography#1{%
1407    \if@filesw
1408      \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1409    \fi
1410    \@input{\jobname.bbl}%
1411 }
1412 \def\bibliographystyle#1{%
1413    \if@filesw
1414      \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1415    \fi
1416 }
```

\thebibliography   If the user's asked to use LATEX's default citation mechanism (using the `rawcite`
\TB@@thebibliography option), we still need to play with \TB@startsection: this is a boring fact of
life. . .

      We also patch \sloppy in case there's a need for alternative justification of
the body of the bibliography.

```
1417 \else
1418 \let\TB@@thebibliography\thebibliography
1419 \def\thebibliography{%
1420    \let\TB@startsection\TB@safe@startsection
1421    \let\sloppy\BibJustification
1422    \TB@@thebibliography}
1423 \fi
```

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

```
1424 \let\TB@@sloppy\sloppy
1425 \let\BibJustification\TB@@sloppy
1426 \newcommand{\SetBibJustification}[1]{%
1427   \renewcommand{\BibJustification}{#1}%
1428 }
1429 \ResetCommands\expandafter{\the\ResetCommands
1430   \let\BibJustification\TB@@sloppy
1431 }
```

3.24   Registration marks

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

```
1432 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1433 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1434 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }
```

"T" marks centered on top and bottom edges of paper

```
1435 \def\ttopregister{\dlap{%
1436         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1437                       \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1438         \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}}
1439 \def\tbotregister{\ulap{%
1440         \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1441         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1442                       \HorzR@gisterRule \hfil \HorzR@gisterRule}}}
1443 \def\topregister{\ttopregister}
1444 \def\botregister{\tbotregister}
```

3.25   Running heads

```
1445 \def \rtitlex{\def\texttub##1{{\normalsize\textrm{##1}}}\TUB, \volx }
1446 \def\PrelimDraftfooter{%
1447   \dlap{\kern\textheight\kern3pc
1448         \rlap{\hb@xt@\pagewd{\midrtitle\hfil\midrtitle}}
1449   }}
```

registration marks; these are temporarily inserted in the running head

```
1450 \def\MakeRegistrationMarks{}
1451 \def\UseTrimMarks{%
1452   \def\MakeRegistrationMarks{%
1453     \ulap{\rlap{%
1454       \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}%
1455             \topregister\vskip \headmargin \vskip 10\p@}}}}%
1456   }
1457 % put issue identification and page number in header.
```

```
1458 \def\@oddhead{\MakeRegistrationMarks\PrelimDraftfooter
1459   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1460   \rtitlex\qquad\midrtitle \hfil \thepage}
1461 \def\@evenhead{\MakeRegistrationMarks\PrelimDraftfooter
1462   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1463   \thepage\hfil\midrtitle\qquad\rtitlex}
1464
1465 % can be used to reset the font, e.g., tb98kuester.
1466 \def\tubheadhook{}
1467
1468 % put title and author in footer.
1469 \def\@tubrunningfull{%
1470   \def\@oddfoot{\hfil\rhTitle}
1471   \def\@evenfoot{\@author\hfil}
1472 }
1473
1474 \def\@tubrunninggetauthor#1{#1
1475   \begingroup
1476     \let\thanks\@gobble
1477     \protected@xdef\rhAuthor{\the\toks@##1}%
1478   \endgroup
1479 }%
1480
1481 % empty footer.
1482 \def\@tubrunningminimal{%
1483   \def\@oddfoot{\hfil}%
1484   \def\@evenfoot{\hfil}%
1485 }
1486
1487 % empty footer and header.
1488 \def\@tubrunningoff{%
1489   \def\@oddfoot{\hfil}%
1490   \def\@evenfoot{\hfil}%
1491   \def\@oddhead{\hfil}%
1492   \def\@evenhead{\hfil}%
1493 }
1494
1495 \def\ps@headings{}
1496 \pagestyle{headings}
```

3.26   Output routine

Modified to alter `\brokenpenalty` across columns

> **Comment** We're playing with fire here: for example, `\@outputdblcol` has changed in LaTeX 2_ε for 1995/06/01 (with the use of `\hb@xt@`). *This* time there's no semantic change, but...

```
1497 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1498     \global\setbox\@leftcolumn\box\@outputbox
1499     \global\brokenpenalty10000
```

```
1500    \else \global\@firstcolumntrue
1501      \global\brokenpenalty100
1502      \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1503        {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1504        \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1505        \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1506        \@whilesw\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1507      \fi}
```

3.27   Font-related definitions and machinery

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

```
1508 \newif\ifFirstPar        \FirstParfalse
1509 \def\smc{\sc}
1510 \def\ninepoint{\small}
1511 ⟨/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 `relsize.sty` by Donald Arseneau and Matt Swift. (The order of examination of \@currsize is to get the commonest cases out of the way first.)

```
1512 ⟨*common⟩
1513 \DeclareRobustCommand\SMC{%
1514   \ifx\@currsize\normalsize\small\else
1515     \ifx\@currsize\small\footnotesize\else
1516       \ifx\@currsize\footnotesize\scriptsize\else
1517         \ifx\@currsize\large\normalsize\else
1518           \ifx\@currsize\Large\large\else
1519             \ifx\@currsize\LARGE\Large\else
1520               \ifx\@currsize\scriptsize\tiny\else
1521                 \ifx\@currsize\tiny\tiny\else
1522                   \ifx\@currsize\huge\LARGE\else
1523                     \ifx\@currsize\Huge\huge\else
```

```
1524            \small\SMC@unknown@warning
1525  \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1526 }
1527 \newcommand\SMC@unknown@warning{\TBWarning{\string\SMC: nonstandard
1528     text font size command -- using \string\small}}
1529 \newcommand\textSMC[1]{{\SMC #1}}
```

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

```
1530 \newcommand\acro[1]{\textSMC{#1}\@}
1531 ⟨/common⟩
```

3.28   Miscellaneous definitions

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

```
1532 ⟨*classtail⟩
1533 \def\xEdNote{{\EdNoteFont Editor's note:\enspace }}
1534 \def \EdNote{\@ifnextchar[%
1535   {%
1536     \ifvmode
1537       \smallskip\noindent\let\@EdNote@\@EdNote@v
1538     \else
1539       \unskip\quad\def\@EdNote@{\unskip\quad}%
1540     \fi
1541     \@EdNote
1542   }%
1543   \xEdNote
1544 }
1545 \long\def\@EdNote[#1]{%
1546   [\thinspace\xEdNote\ignorespaces
1547     #1%
1548   \unskip\thinspace]%
1549   \@EdNote@
1550 }
1551 \def\@EdNote@v{\par\smallskip}
```

Macros for Mittelbach's self-documenting style

```
1552 \def\SelfDocumenting{%
1553   \setlength\textwidth{31pc}
1554   \onecolumn
1555   \parindent \z@
1556   \parskip 2\p@\@plus\p@\@minus\p@
1557   \oddsidemargin 8pc
1558   \evensidemargin 8pc
1559   \marginparwidth 8pc
1560   \toks@\expandafter{\@oddhead}%
```

```
1561    \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1562    \toks@\expandafter{\@evenhead}%
1563    \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1564    \def\ps@titlepage{}%
1565 }
1566 \def\ps@titlepage{}
1567
1568 \long\def\@makefntext#1{\parindent 1em\noindent\hb@xt@2em{}%
1569    \llap{\@makefnmark}\null$\mskip5mu$#1}
1570
1571 %% \long\def\@makefntext#1{\parindent 1em
1572 %%    \noindent
1573 %%    \hb@xt@2em{\hss\@makefnmark}%
1574 %%    \hskip0.27778\fontdimen6\textfont\z@\relax
1575 %%    #1%
1576 %% }
```

\creditfootnote Sometimes we want the label "Editor's Note:", sometimes not.
\supportfootnote
```
1577 \def\creditfootnote{\nomarkfootnote\xEdNote}
1578 \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.

```
1579 \gdef\nomarkfootnote#1#2{\begingroup
1580    \def\thefootnote{}%
1581    % no period, please, also no fnmark.
1582    \def\@makefntext##1{##1}%
1583    \footnotetext{\noindent #1#2}%
1584    \endgroup
1585 }
```

3.29   Initialization

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

```
1586 \if@Harvardcite
1587    \AtBeginDocument{%
1588       \bibliographystyle{ltugbib}%
1589    }
1590 \fi
1591 \authornumber\z@
1592 \let\@signature\@defaultsignature
1593 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
1594                                      configuration information}}{}
1595 ⟨/classtail⟩
```

4 LATEX 2ε Proceedings class

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

```
1596 ⟨*ltugproccls⟩
1597 \def\@tugclass{ltugproc}
```

\if@proctw@column For the case where we're preparing the preprints, we may not have been able to prepare submissions for typesetting in two columns. In this case, therefore, we may need the option `onecolumn`, that will suppress the use of twocolumn setting within the article.

```
1598 \newif\if@proctw@column  \@proctw@columntrue
1599 \DeclareOption{onecolumn}{\@proctw@columnfalse}
```

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

```
1600 \newif\if@proc@sober
1601 \newif\if@proc@numerable
1602 \DeclareOption{tug95}{%
1603   \@proc@soberfalse
1604   \@proc@numerablefalse
1605 }
1606 \DeclareOption{tug96}{%
1607   \@proc@sobertrue
1608   \@proc@numerablefalse
1609 }
1610 \DeclareOption{tug97}{%
1611   \@proc@sobertrue
1612   \@proc@numerabletrue
1613 }
1614 \DeclareOption{tug2002}{%
1615   \@proc@sobertrue
1616   \@proc@numerabletrue
1617   \let\if@proc@numbersec\iftrue
1618   \PassOptionsToClass{numbersec}{ltugboat}%
1619 }
```

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

```
1620 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
1621   \PassOptionsToClass{numbersec}{ltugboat}%
1622 }
1623 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
1624   \PassOptionsToClass{nonumber}{ltugboat}%
1625 }
```

\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.

```
1626 \newif\ifTB@title
1627 \DeclareOption{title}{\TB@titletrue}
1628 \DeclareOption{notitle}{\TB@titlefalse
1629   \AtBeginDocument{\stepcounter{page}}}
```

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

```
1630 \DeclareOption{tugproc}{%
1631   \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
1632 }
```

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

```
1633 \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...)

```
1634 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
1635           {Loading ltugproc configuration information}}{}
1636 \@ifundefined{TUGprocExtraOptions}%
1637   {\let\TUGprocExtraOptions\@empty}%
1638   {\edef\TUGprocExtraOptions{,\TUGprocExtraOptions}}
```

\tugProcYear   Now work out what year it is

```
1639 \@tempcnta\year
1640 \ifnum\@tempcnta<2000
1641   \divide\@tempcnta by100
1642   \multiply\@tempcnta by100
1643   \advance\@tempcnta-\year
1644   \@tempcnta-\@tempcnta
1645 \fi
```

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

```
1646 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
1647                 {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
1648 \@tempa
1649 \ClassInfo{ltugproc}{Class believes year is
1650   \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
1651     \@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.

```
1652 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
1653   \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.

```
1654 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
1655 \ProcessOptions
1656 \if@proc@numbersec
1657   \if@proc@numerable
1658   \else
1659     \ClassWarning{\@tugclass}{This year's proceedings may not have
1660       numbered sections}%
1661   \fi
1662 \fi
```

Call ltugboat, adding whichever section numbering option is appropriate

```
1663 \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-*
\ifTB@madetitle *boat* proper. Note the tedious LaTeX bug-avoidance in the `\@TB@test@document`
macro.

```
1664 \def\maketitle{%
1665   \begingroup
```

first, a bit of flim-flam to generate an initial value for `\rhAuthor` (unless the user's already given one with a `\shortAuthor` comand).

```
1666     \ifshortAuthor\else
1667       \global\let\rhAuthor\@empty
1668       \def\g@addto@rhAuthor##1{%
1669         \begingroup
1670           \toks@\expandafter{\rhAuthor}%
1671           \let\thanks\@gobble
1672           \protected@xdef\rhAuthor{\the\toks@##1}%
1673         \endgroup
1674       }%
1675       \@getauthorlist\g@addto@rhAuthor
1676     \fi
```

now, the real business of setting the title

```
1677     \ifTB@title
1678       \setcounter{footnote}{0}%
1679       \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
1680       \if@proctw@column
1681         \twocolumn[\@maketitle]%
1682       \else
1683         \onecolumn
1684         \global\@topnum\z@
1685         \@maketitle
1686       \fi
1687       \@thanks
1688       \thispagestyle{TBproctitle}
1689     \fi
1690   \endgroup
```

57

```
1691     \TB@madetitletrue
1692 }
1693 \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.

```
1694 \def\@TB@test@document{%
1695   \edef\@tempa{\the\everypar}
1696   \def \@tempb{\@nodocument}
1697   \ifx \@tempa\@tempb
1698     \@nodocument
1699   \fi
1700 }
```

\AUTHORfont   Define the fonts for titles and things
\TITLEfont
\addressfont
\netaddrfont

```
1701 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
1702 \def\TITLEfont  {\Large\rmfamily\mdseries\upshape}
1703 \def\addressfont{\small\rmfamily\mdseries\upshape}
1704 \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

```
1705 \newskip\aboveauthorskip   \aboveauthorskip=18\p@ \@plus4\p@
1706 \newskip\belowauthorskip   \belowauthorskip=\aboveauthorskip
1707 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@
```

\@maketitle   The body of \maketitle

```
1708 \def\@maketitle{%
1709   {\parskip\z@
1710     \frenchspacing
1711     \TITLEfont\raggedright\noindent\@title\par
1712       \count@=0
1713       \loop
1714       \ifnum\count@<\authornumber
1715         \vskip\aboveauthorskip
1716         \advance\count@\@ne
1717         {\AUTHORfont\theauthor{\number\count@}\endgraf}%
1718         \addressfont\theaddress{\number\count@}\endgraf
1719         {%
1720           \allowhyphens
1721           \hangindent1.5pc
1722           \netaddrfont\thenetaddress{\number\count@}\endgraf
1723           \hangindent1.5pc
1724           \thePersonalURL{\number\count@}\endgraf
1725         }%
1726       \repeat
1727   \vskip\belowauthorskip}%
1728   \if@abstract
```

```
1729        \centerline{\bfseries Abstract}%
1730        \vskip.5\baselineskip\rmfamily
1731        \list{}{\listparindent20\p@
1732           \itemindent\z@ \leftmargin\tubfullpageindent
1733           \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1734              \the\abstract@toks
1735        \endlist\global\@ignoretrue
1736     \fi
1737     \vskip\belowabstractskip
1738     \global\@afterindentfalse\aftergroup\@afterheading
1739   }
```

<div style="text-align:right">abstract</div>
<div style="text-align:right">\if@abstract</div>
<div style="text-align:right">\abstract@toks</div>

Save the contents of the abstract environment in the token register `\abstract@toks`. We need to do this, as otherwise it may get 'typeset' (previously, it got put in a 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@`

```
1740 \newtoks\abstract@toks  \abstract@toks{}
1741 \let\if@abstract\iffalse
1742 \def\abstract{%
```

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

```
1743    \ifTB@madetitle
1744      \TBWarning{abstract environment after \string\maketitle}
1745    \fi
1746    \def\@abstract@{abstract}%
1747    \ifx\@currenvir\@abstract@
1748    \else
1749      \TBError{\string\abstract\space is illegal:%
1750        \MessageBreak
1751        use \string\begin{\@abstract@} instead}%
1752        {\@abstract@\space may only be used as an environment}
1753    \fi
1754    \global\let\if@abstract\iftrue
1755    {\ifnum0=`}\fi
1756    \@abstract@getbody}
1757 \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}`

```
1758 \long\def\@abstract@getbody#1\end{%
1759    \global\abstract@toks\expandafter{\the\abstract@toks#1}%
1760    \@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.

```
1761 \def\@abstract@findend#1{%
1762   \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.

```
1763   \ifx\@tempa\@abstract@
1764     \expandafter\@abstract@end
1765   \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)

```
1766     \def\@tempb{document}%
1767     \ifx\@tempa\@tempb
1768       \TBError{\string\begin{\@abstract@}
1769           ended by \string\end{\@tempb}}%
1770         {You've forgotten \string\end{\@abstract@}}
1771     \else
1772       \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
1773       \expandafter\expandafter\expandafter\@abstract@getbody
1774     \fi
1775   \fi}
```

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

```
1776 \def\@abstract@end{\ifnum0=`{\fi}%
1777   \expandafter\end\expandafter{\@abstract@}}
```

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

```
1778 \renewcommand{\makesignature}{\TBWarning
1779         {\string\makesignature\space is invalid in proceedings issues}}
```

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

```
\ps@TBproc 1780 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 1781   \let\@evenhead\MakeRegistrationMarks
\setpagecommands 1782   \TB@definefeet
\TB@definefeet 1783 }
\pfoottext 1784 \def\ps@TBproc{%
\rfoottext 1785   \def\@oddhead{\MakeRegistrationMarks
1786     {%
1787       \hfil
1788       \def\\{\unskip\ \ignorespaces}%
1789       \rmfamily\rhTitle
1790     }%
1791   }%
1792   \def\@evenhead{\MakeRegistrationMarks
1793     {%
1794       \def\\{\unskip\ \ignorespaces}%
1795       \rmfamily\rhAuthor
```

```
1796        \hfil
1797      }%
1798    }%
1799    \TB@definefeet
1800 }
1801
1802 \advance\footskip8\p@     % for deeper running feet
1803
1804 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
1805 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
1806    {#2}}
1807 \def\TB@definefeet{%
1808    \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
1809      \else\rfoottext\hfil\thepage\fi\dopagecommands}%
1810    \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
1811      \else\thepage\hfil\rfoottext\fi\dopagecommands}%
1812 }
1813
1814 \def\pfoottext{{\smc Preprint}:
1815    Proceedings of the \volyr{} Annual Meeting}
1816 \def\rfoottext{\normalfont\TUB, \volx\Dash
1817    {Proceedings of the \volyr{} Annual Meeting}}
1818
1819 \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).

```
1820 \if@proc@numbersec
1821 \else
1822    \setcounter{secnumdepth}{0}
1823 \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.

```
1824 \if@proc@numbersec
1825 \else
1826    \if@proc@sober
1827      \def\section
1828            {\TB@nolimelabel
1829             \TB@startsection{{section}%
1830                              1%
1831                              \z@%
```

```
1832                            {-8\p@\@plus-2\p@\@minus-2\p@}%
1833                            {6\p@}%
1834                            {\normalsize\bfseries\raggedright}}}
1835   \else
1836     \def\section
1837            {\TB@nolimelabel
1838             \TB@startsection{{section}%
1839                            1%
1840                            \z@%
1841                            {-8\p@\@plus-2\p@\@minus-2\p@}%
1842                            {6\p@}%
1843                            {\large\bfseries\raggedright}}}
1844   \fi
1845   \def\subsection
1846            {\TB@nolimelabel
1847             \TB@startsection{{subsection}%
1848                            2%
1849                            \z@%
1850                            {6\p@\@plus 2\p@\@minus2\p@}%
1851                            {-5\p@\@plus -\fontdimen3\the\font}%
1852                            {\normalsize\bfseries}}}
1853   \def\subsubsection
1854            {\TB@nolimelabel
1855             \TB@startsection{{subsubsection}%
1856                            3%
1857                            \parindent%
1858                            \z@%
1859                            {-5\p@\@plus -\fontdimen3\the\font}%
1860                            {\normalsize\bfseries}}}
1861 \fi
1862 ⟨/ltugproccls⟩
```

5   Plain TeX styles

```
1863 ⟨*tugboatsty⟩
1864 % err...
1865 ⟨/tugboatsty⟩
1866 ⟨*tugprocsty⟩
1867 % err...
1868 ⟨/tugprocsty⟩
```

6   The LaTeX 2ε compatibility-mode style files

```
1869 ⟨*ltugboatsty⟩
1870 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
1871 \LoadClass{ltugboat}
1872 ⟨/ltugboatsty⟩
1873 ⟨*ltugprocsty⟩
1874 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
```

1875 `\LoadClass{ltugproc}`
1876 ⟨/ltugprocsty⟩