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                    [2014/06/27 v2.15
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`	(L^A)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 '∓' 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}{901}%
35     \BlackBoxes
36     \def\MakeRegistrationMarks{}%
37     \PrelimDrafttrue
38   }%
39 }
40 \DeclareOption{preprint}{%
41    \preprinttrue
42 }
43 \DeclareOption{final}{%
44   \AtEndOfClass{%
45     \NoBlackBoxes
46     \PrelimDraftfalse
47     \@tubrunningfull
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 options.

```
55 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
56 \DeclareOption{twoside}{\ds@oneside}
```

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

```
57 \DeclareOption{tugproc}{%
58   \TBWarning{Option \CurrentOption\space ignored: use class ltugproc
```

```
59     instead of \@tugclass}%
60 }
```

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.

```
61 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
62 \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. . .

```
63 \DeclareOption{extralabel}{\let\UseExtraLabel\@firstofone}
64 \DeclareOption{noextralabel}{\let\UseExtraLabel\@gobble}
```

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

```
65 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
66 \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.

```
67 \DeclareOption{runningoff}{\AtEndOfClass{\@tubrunningoff}}
68 \DeclareOption{runningminimal}{\AtEndOfClass{\@tubrunningminimal}}
69 \DeclareOption{runningfull}{\AtEndOfClass{\@tubrunningfull}}
```

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

```
70 \newif\if@tubtwocolumn  \@tubtwocolumntrue
71 \DeclareOption{onecolumn}{\@tubtwocolumnfalse}
```

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,runningminimal}
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 }
```

10

\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 \DeclareRobustCommand{\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{\acro{A\kern.04em\raise.115ex\hbox{-}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}}
```

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

```
183 \def\ConTeXt{C\kern-.0333emon\-\kern-.0667em\TeX\kern-.0333emt}
184 \def\CMkIV{\ConTeXt\ \MkIV}
185 \def\Cplusplus{C\plusplus}
186 \def\plusplus{\raisebox{.7ex}{$_{++}$}}
187 \def\CPU{\acro{CPU}}
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\IDE{\acro{IDE}}
211 \def\IEEE{\acro{IEEE}}
212 \def\ISBN{\acro{ISBN}}
213 \def\ISO{\acro{ISO}}
214 \def\ISSN{\acro{ISSN}}
215 \def\JPEG{\acro{JPEG}}
216 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}\kern-.18em\TeX}}
217 \def\JoT{\textsl{The Joy of \TeX}}
218 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
```

```
219                    $\m@th$\fontsize\sf@size\z@\selectfont
220                    $\m@th\mathcal{A}$}%
221    \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
222    {$\m@th\mathcal{S}$}-\TeX}
223 % This code
224 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
225 % example) to propagate into the raised (small) 'A':
226 %    \begin{macrocode}
227 \DeclareRobustCommand{\La}%
228    {L\kern-.36em
229        {\setbox0\hbox{T}%
230         \vbox to\ht0{\hbox{$\m@th$%
231                            \csname S@\f@size\endcsname
232                            \fontsize\sf@size\z@
233                            \math@fontsfalse\selectfont
234                            A}%
235                    \vss}%
236        }}
```

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.

```
237 ⟨!latex⟩\def\LaTeX{\La\kern-.15em\TeX}
238 \def\LyX{L\kern-.1667em\lower.25em\hbox{Y}\kern-.125emX}
239 \def\MacOSX{Mac\,\acro{OS\,X}}
240 \def\MathML{Math\acro{ML}}
241 \def\Mc{\setbox\TestBox=\hbox{M}M\vbox
242   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**

```
243 \def\mf{\textsc{Metafont}}
244 \def\MFB{\textsl{The \MF book}}
245 \def\MkIV{Mk\acro{IV}}
246 \let\TB@@mp\mp
247 \DeclareRobustCommand\mp{\ifmmode\TB@@mp\else MetaPost\fi}
248 %
249 % In order that the \cs{OMEGA} command will switch to using the TS1
250 % variant of the capital Omega character if \texttt{textcomp.sty} is
251 % loaded, we define it in terms of the \cs{textohm} command.  Note
252 % that this requires us to interpose a level of indirection, rather
253 % than to use \cs{let}\dots
254 %
255 %    \begin{macrocode}
256 \DeclareRobustCommand{\NTG}{\acro{NTG}}
257 \DeclareRobustCommand{\NTS}{\ensuremath{\mathcal{N}}\mkern-4mu
258   \raisebox{-0.5ex}{$\mathcal{T}$}\mkern-2mu \mathcal{S}}}
```

```
259 \DeclareTextSymbol{\textohm}{OT1}{'012}
260 \DeclareTextSymbolDefault{\textohm}{OT1}
261 \newcommand\OMEGA{\textohm}
262 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
263 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}
264 \DeclareRobustCommand{\OTF}{\acro{OTF}}
265 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
266 \def\mtex{T\kern-.1667em\lower.424ex\hbox{\^E}\kern-.125emX\@}
```

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

```
267 \def\Pas{Pascal}
268 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}MF\@}
269 \def\PCTeX{PC\thinspace\TeX}
270 \def\pcTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}\TeX}
271 \def\PDF{\acro{PDF}}
272 \def\PGF{\acro{PGF}}
273 \def\PHP{\acro{PHP}}
274 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
275 \def\PiCTeX{\PiC\kern-.11em\TeX}
276 \def\plain{\texttt{plain}}
277 \def\PNG{\acro{PNG}}
278 \def\POBox{P.\thinspace O.~Box }
279 \def\PS{{Post\-Script}}
280 \def\PSTricks{\acro{PST}ricks}
281 \def\RTF{\acro{RTF}}
282 \def\SC{Steering Committee}
283 \def\SGML{\acro{SGML}}
284 \def\SliTeX{\textrm{S\kern-.06em\textsc{l\kern-.035emi}%
285                     \kern-.06em\TeX}}
286 \def\slMF{\textsl{\MF}} % should never be used
287 \def\SQL{\acro{SQL}}
288 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
289 \def\STIX{\acro{STIX}}
290 \def\SVG{\acro{SVG}}
291 \def\TANGLE{\texttt{TANGLE}\@}
292 \def\TB{\textsl{The \TeX book}}
293 \def\TIFF{\acro{TIFF}}
294 \def\TP{\textsl{\TeX}: \textsl{The Program}}
295 \DeclareRobustCommand\TeX{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
296 \def\TeXhax{\TeX hax}
297 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
298     \kern-.2267emG\@}
299 \def\TeXtures{\textit{Textures}}
300 \let\Textures=\TeXtures
301 \def\TeXworks{\TeX\kern-.07em works}
302 \def\TeXXeT{\TeX-{}-\XeT}
303 \def\TFM{\acro{TFM}}
304 \expandafter\ifx\csname XeTeXrevision\endcsname\relax
305 \def\Thanh{H\`an~Th\^e\llap{\raise 0.5ex\hbox{\'{}}}~Th\`anh}% non-XeTeX
306 \else
```

```
307 \def\Thanh{H\`an~Th\textcircumacute{e}~Th\`anh}% xunicode drops the acute else
308 \fi
309 \def\TikZ{Ti{\em k}Z}
310 \def\ttn{\textsl{TTN}\@}
311 \def\TTN{\textsl{\TeX{} and TUG News}}
312 \let\texttub\textsl                 % redefined in other situations
313 \def\TUB{\texttub{TUGboat}}
314 \def\TUG{\TeX\ \UG}
315 \def\tug{\acro{TUG}}
316 \def\UG{Users Group}
317 \def\UNIX{\acro{UNIX}}
318 % let's not do \UTF, since other packages use it for Unicode character access.
319 \def\VAX{V\kern-.12em A\kern-.1em X\@}
320 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
321 \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{O\kern-1.4\p@ R}\kern-2.6\p@\TeX}
322 \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
323 \def\XML{\acro{XML}}
324 \def\WEB{\texttt{WEB}\@}
325 \def\WEAVE{\texttt{WEAVE}\@}
326 \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`.)

```
327 \def\tubreflect#1{%
328   \@ifundefined{reflectbox}{%
329     \TBerror{A graphics package must be loaded for \string\XeTeX}%
330   }{%
331     \ifdim \fontdimen1\font>0pt
332       \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
333     \else
334       \reflectbox{#1}%
335     \fi
336   }%
337 }
338 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
339 \def\XekernbeforeE{-.125em}
340 \def\XekernafterE{-.1667em}
341 \DeclareRobustCommand\Xe{\leavevmode
342   \tubhideheight{\hbox{X%
343     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
344     \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
345     \kern\XekernafterE}}}
346 \def\XeTeX{\Xe\TeX}
347 \def\XeLaTeX{\Xe{\kern.11em \LaTeX}}
348 %
349 \def\XHTML{\acro{XHTML}}
350 \def\XSL{\acro{XSL}}
```

```
351 \def\XSLFO{\acro{XSL}\raise.08ex\hbox{-}\acro{FO}}
352 \def\XSLT{\acro{XSLT}}
```

3.5   General typesetting rules

```
353 \newlinechar='\^^J
354 \normallineskiplimit=\p@
355 \clubpenalty=10000
356 \widowpenalty=10000
357 \def\NoParIndent{\parindent=\z@}
358 \newdimen\normalparindent
359 \normalparindent=20\p@
360 \def\NormalParIndent{\global\parindent=\normalparindent}
361 \NormalParIndent
362 \def\BlackBoxes{\overfullrule=5\p@}
363 \def\NoBlackBoxes{\overfullrule=\z@}
364 \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.

```
365 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
366    \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
367 \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`.

```
368 \newbox\T@stBox          \newbox\TestBox
369 \newcount\T@stCount      \newcount\TestCount
370 \newdimen\T@stDimen      \newdimen\TestDimen
371 \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).

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

LaTeX conventions which are also useful here.

```
373 ⟨*!latex⟩
374    \let\@@input\input
375    \def\iinput#1{\@@input#1 }
376    \def\@inputcheck{\if\@nextchar\bgroup
```

```
377        \expandafter\iinput\else\expandafter\@@input\fi}
378    \def\input{\futurelet\@nextchar\@inputcheck}
379 ⟨/!latex⟩
```

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

```
380 \newif\iftop@            \newif\ifbot@
381 \def\topsmash{\top@true\bot@false\smash@}
382 \def\botsmash{\top@false\bot@true\smash@}
383 \def\smash{\top@true\bot@true\smash@}
384 \def\smash@{\relax\ifmmode\def\next{\mathpalette\mathsm@sh}%
385        \else\let\next\makesm@sh\fi \next }
386 \def\finsm@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

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

```
387 \long\def\ulap#1{\vbox to \z@{\vss#1}}
388 \long\def\dlap#1{\vbox to \z@{#1\vss}}
```

And centered horizontal and vertical 'laps'

```
389 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
390 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
391 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
393 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
394 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
396 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
397        \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
398            \vss\hb@xt@#2{\vrule \@width\T@stDimen
399                \hfil\makestrut[#1;\z@]%
400                \vrule \@width\T@stDimen}\vss
401            \hrule \@height\T@stDimen \@depth\z@}}
```

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

```
402 ⟨*!latex⟩
403 \def\today{\number\day\space \ifcase\month\or
404        Jan \or Feb \or Mar \or Apr \or May \or Jun \or
405        Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
406        \number\year}
407 ⟨/!latex⟩
```

Current time; this may be system dependent!

```
408 \newcount\hours
409 \newcount\minutes
```

```
410 \def\SetTime{\hours=\time
411        \global\divide\hours by 60
412        \minutes=\hours
413        \multiply\minutes by 60
414        \advance\minutes by-\time
415        \global\multiply\minutes by-1 }
416 \SetTime
417 \def\now{\number\hours:\ifnum\minutes<10 0\fi\number\minutes}
418 \def\Now{\today\ \now}
419 \newif\ifPrelimDraft
420 \def\midrtitle{\ifPrelimDraft {\textsl{preliminary draft, \Now}}\fi}
```

3.7   Ragged right and friends

\raggedskip Plain TEX's definition of \raggedright doesn't permit any stretch, and results in
\raggedstretch too many overfull boxes. We also turn off hyphenation. This code lies somewhere
\raggedparfill between that of Plain TEX and of LATEX.
\raggedspaces

```
421 \newdimen\raggedskip     \raggedskip=\z@
422 \newdimen\raggedstretch \raggedstretch=5em    % ems of font set now (10pt)
423 \newskip\raggedparfill  \raggedparfill=\z@\@plus 1fil
424 \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

```
425 \def\raggedright{%
426    \nohyphens
427    \rightskip=\raggedskip\@plus\raggedstretch \raggedspaces
428    \parfillskip=\raggedparfill
429 }
430 \def\raggedleft{%
431    \nohyphens
432    \leftskip=\raggedskip\@plus\raggedstretch \raggedspaces
433    \parfillskip=\z@skip
434 }
435 \def\raggedcenter{%
436    \nohyphens
437    \leftskip=\raggedskip\@plus\raggedstretch
438    \rightskip=\leftskip \raggedspaces
439    \parindent=\z@ \parfillskip=\z@skip
440 }
441 \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).

```
442 \DeclareRobustCommand{\nobreakspace}{%
```

---

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

18

```
443    \unskip\nobreak\ \ignorespaces}
```

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

```
444 \def\boxcs#1{\box\csname#1\endcsname}
445 \def\setboxcs#1{\setbox\csname#1\endcsname}
446 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
447 \let\gobble\@gobble
448 \def\vellipsis{%
449   \leavevmode\kern0.5em
450   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
451   }
452 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
453 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
454 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
455                /\kern-.125em\smash{\lower.3ex\hbox{o}}} \ignorespaces}
456 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
457 %
458 \DeclareRobustCommand\sfrac[1]{\@ifnextchar/{\@sfrac{#1}}%
459                                         {\@sfrac{#1}/}}
460 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
461         \hbox{$\m@th\mbox{\fontsize\sf@size\z@
462                         \selectfont#1}$}\kern-.1em
463         /\kern-.15em\lower.25ex
464          \hbox{$\m@th\mbox{\fontsize\sf@size\z@
465                         \selectfont#2}$}}
466 %
467 % don't stay bold in description items, bold italic is too weird.
468 \DeclareRobustCommand\meta[1]{%
469   \ensuremath{\langle}%
470   \ifmmode \mbox\bgroup \fi % if in math
471   {\it #1\/}% no typewriter italics, please
472   \ifmmode \egroup \fi
473   \ensuremath{\rangle}%
474 }
475 %
476 % Use \tt rather than \texttt because italic typewriter is just too ugly,
477 % and upright works well enough in both italic and bold contexts.
478 \DeclareRobustCommand{\cs}[1]{{\tt \char`\\#1}}
479 %
480 \DeclareRobustCommand\env[1]{%
481   \cs{begin}\texttt{\char`\{#1\char`\}}}
482 %
```

```
483 \def\thinskip{\hskip 0.16667em\relax}
```

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

```
484 \def\endash{--}
485 \def\emdash{\endash-}
486 \def\d@sh#1#2{\unskip#1\thinskip#2\thinskip\ignorespaces}
487 \def\dash{\d@sh\nobreak\endash}
488 \def\Dash{\d@sh\nobreak\emdash}
489 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
490 \def\rdash{\d@sh\nobreak\endash}
491 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
492 \def\Rdash{\d@sh\nobreak\emdash}
```

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

```
493 \def\hyph{-\penalty\z@\hskip\z@skip }
494 \def\slash{/\penalty\z@\hskip\z@skip }
```

Adapted from `comp.text.tex` posting by Donald Arseneau, 26 May 93. $\text{\LaTeX}\,2_\varepsilon$-isation added by Robin Fairbairns. Destroys both the `TestCount`s.

```
495 \def\nth#1{%
496     \def\reserved@a##1##2\@nil{\ifcat##1n%
497         0%
498         \let\reserved@b\ensuremath
499       \else##1##2%
500         \let\reserved@b\relax
501     \fi}%
502   \TestCount=\reserved@a#1\@nil\relax
503   \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
504   \T@stCount=\TestCount
505   \divide\T@stCount by 100 \multiply\T@stCount by 100
506   \advance\TestCount by-\T@stCount      % n mod 100
507   \ifnum\TestCount >20 \T@stCount=\TestCount
508     \divide\T@stCount by 10 \multiply\T@stCount by 10
509     \advance\TestCount by-\T@stCount    % n mod 10
510   \fi
511   \reserved@b{#1}%
512     \textsuperscript{\ifcase\TestCount th%     0th
513                   \or   st%                1st
514                   \or   nd%                2nd
515                   \or   rd%                3rd
516                   \else th%                nth
517                   \fi}%
518 }
```

3.8   Reviews

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

```
519 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
520 \def\@Review:{\@ifnextchar[%]
521     {\@Rev}%
522     {\@Rev[Book review]}}
523 \def\@Rev[#1]#2{{\ignorespaces#1\unskip:\enspace\ignorespaces
524                                        \slshape\mdseries#2}}
525 \def\reviewitem{\addvspace{\BelowTitleSkip}%
526     \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
527     \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
528     \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
529 }
530 \def\endreviewitem{{\noindent\interlinepenalty=10000
531     \therevauth\therevtitle\therevpubinfo\endgraf}%
532     \vskip\medskipamount
533 }
534 \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.

```
535 \newcount\issueseqno          \issueseqno=-1
536 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
537 \def\volyr{}
538 \def\volno{}
539 \def\vol #1,#2.{\gdef\volno{#1\unskip}%
540        \gdef\issno{\ignorespaces#2\unskip}%
541        \setbox\TestBox=\hbox{\volyr}%
542        \ifdim \wd\TestBox > .2em \v@lx \fi }
```

```
543 \def\issyear #1.{\gdef\issdt{#1}\gdef\volyr{#1}%
544        \gdef\bigissdt{#1}%
545        \setbox\TestBox=\hbox{\volno}%
546        \ifdim \wd\TestBox > .2em \v@lx \fi }
547 \def\issdate #1#2 #3.{\gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
548        \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
549        \setbox\TestBox=\hbox{\volno}%
550        \ifdim \wd\TestBox > .2em \v@lx \fi }
551 \vol 0, 0.
552 \issdate Thermidor, 9999.
```

(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

```
553 ⟨!latex⟩\def\tubissue#1(#2)%
554 ⟨*latex⟩
555 \def\tubissue#1{\@ifnextchar(%
556   {\@tubissue@b{#1}}
557   {\@tubissue@a{#1}}}
558 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
559 \def\@tubissue@a#1#2%
560 ⟨/latex⟩
561   {\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`

```
562 \def\infil@{\jobname}
563 \def\Input #1 {\ifnum\issueseqno<0
564     \def\infil@{#1}%
565   \else
566     \def\infil@{tb\number\issueseqno#1}
567   \fi
568   \edef\jobname{\infil@}\@readFLN
569   \@@input \infil@\relax
570   \if@RMKopen
571     \immediate\closeout\@TBremarkfile\@RMKopenfalse
572   \fi
573 }
```

`\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).

```
574 \newif\if@RMKopen        \@RMKopenfalse
575 \newwrite\@TBremarkfile
576 \def\@TBremark#1{%
```

```
577    \if@RMKopen
578    \else
579      \@RMKopentrue\immediate\openout\@TBremarkfile=\infil@.rmk
580    \fi
581    \toks@={#1}%
582    \immediate\write\@TBremarkfile{^^J\the\toks@}%
583    \immediate\write16{^^JTBremark:: \the\toks@^^J}%
584 }
```

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

```
585 \let\TBremark=\gobble
```

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

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

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

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

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

```
588 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
589 \newread\@altfilenames
590 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
591    \ifeof\@altfilenames\let\@result\relax\else
592    \def\@result{\@@input\jobname.fln }\fi
593    \immediate\closein\@altfilenames
594    \@result}
595 \@readFLN
596 \everyjob=\expandafter{\the\everyjob\@readFLN}
597 \InputIfFileExists{\jobname.fln}%
598        {\TBInfo{Reading alternative file file \jobname.fln}}{}
```

The following needs to work entirely in TeX's mouth

```
599 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
600    #1\else\csname file@@#1\endcsname\fi}
601 \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.

```
602 ⟨∗!latex⟩
603 \def\pagexrefON#1{%
604        \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
605        \write\ppoutfile{%
606                \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
607        }
```

```
608 \def\PageXrefON#1{%
609         \immediate\write-1{\def\expandafter
610                         \noexpand\csname#1\endcsname{\number\pageno}}%
611         \immediate\write\ppoutfile{\def\expandafter
612                         \noexpand\csname#1\endcsname{\number\pageno}}}
```
613 ⟨/!latex⟩
614 ⟨∗latex⟩
```
615 \def\pagexrefON#1{%
616         \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
617         \write\ppoutfile{%
618                 \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
619         }
620 \def\PageXrefON#1{%
621         \immediate\write-1{\def\expandafter
622                         \noexpand\csname#1\endcsname{\number\c@page}}%
623         \immediate\write\ppoutfile{\def\expandafter
624                         \noexpand\csname#1\endcsname{\number\c@page}}}
```
625 ⟨/latex⟩
```
626 \def\pagexrefOFF#1{}
627 \let\pagexref=\pagexrefOFF
628 \def\PageXrefOFF#1{}
629 \let\PageXref=\PageXrefOFF
630 \def\xreftoON#1{%
631   \ifundefined{#1}%
632     ???\TBremark{Need cross reference for #1.}%
633   \else\csname#1\endcsname\fi}
634 \def\xreftoOFF#1{???}
635 \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.

```
636 \let\TBdriver\gobble
```

Some hyphenation exceptions:

```
637 \ifx\tubomithyphenations\@thisisundefined
638 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
639   Flor-i-da Free-BSD Ghost-script Ghost-view
640   Hara-lam-bous Jac-kow-ski Karls-ruhe
641   Mac-OS Ma-la-ya-lam Math-Sci-Net
642   Net-BSD Open-BSD Open-Office
643   Pfa-Edit Post-Script Rich-ard Skoup South-all
644   Vieth VM-ware Win-Edt
645   acro-nym acro-nyms analy-sis ap-pen-di-ces ap-pen-dix asyn-chro-nous
646   bib-lio-graph-i-cal bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
647   col-umns com-put-able com-put-abil-ity cus-tom-iz-able
648   data-base data-bases
649    de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
650    de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion dis-trib-ut-able
```

24

```
651   es-sence
652   fall-ing
653   half-way
654   in-fra-struc-ture
655   key-note
656   long-est
657   ma-gyar man-u-script man-u-scripts meta-table meta-tables
658    mne-mon-ic mne-mon-ics mono-space mono-spaced
659   name-space name-spaces
660   off-line over-view
661   pal-ettes par-a-digm par-a-dig-mat-ic par-a-digms
662    pipe-line pipe-lines
663    plug-in plug-ins pres-ent-ly pro-gram-mable
664   re-allo-cate re-allo-cates re-allo-cated re-printed
665   set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
666    sub-ex-pres-sion sub-tables sur-gery syn-chro-ni-city syn-chro-nous
667   text-height text-length text-width
668    time-stamp time-stamped time-stamps
669   vis-ual vis-ual-ly
670   which-ever white-space white-spaces wide-spread wrap-around
671 }
672 \fi
673 ⟨!latex⟩\restorecat\@
674 ⟨/common⟩
675 ⟨*classtail⟩
676 \PrelimDrafttrue
```

3.10   Page dimensions, glue, penalties etc

```
677 \textheight 54pc
678 \textwidth 39pc
679 \columnsep 1.5pc
680 \columnwidth 18.75pc
681 \parindent \normalparindent
682 \parskip \z@ % \@plus\p@
683 \leftmargini 2em
684 \leftmarginv .5em
685 \leftmarginvi .5em
686 \oddsidemargin \z@
687 \evensidemargin \z@
688 \topmargin -2.5pc
689 \headheight 12\p@
690 \headsep 20\p@
691 \marginparwidth 48\p@
692 \marginparsep 10\p@
693 \partopsep=\z@
694 \topsep=3\p@\@plus\p@\@minus\p@
695 \parsep=3\p@\@plus\p@\@minus\p@
696 \itemsep=\parsep
697 %
```

```
698 % Ordinarily we typeset in two columns.  But if option is given, revert to one.
699 \if@tubtwocolumn \twocolumn \else \onecolumn \textwidth=34pc \fi
700 %
701 \newdimen\pagewd        \pagewd=\textwidth
702 \newdimen\trimwd        \trimwd=\pagewd
703 \newdimen\trimlgt       \trimlgt=11in
704 \newdimen\headmargin    \headmargin=3.5pc
```

In LaTeX 2_ε, `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 a new version. The arguments are font family, series and shape, and then the two kern values used in placing the raised 'A' of LaTeX.

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

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

```
707 \def\@LaTeX@default{{.36}{.15}}
```

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

```
708 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
709 \DeclareLaTeXLogo{lmss}{bx}{n}{.3}{.15}
710 %
711 \DeclareLaTeXLogo{cmr}{m}{it}{.29}{.2}
712 \DeclareLaTeXLogo{lmr}{m}{it}{.29}{.2}
713 %
714 \DeclareLaTeXLogo{cmr}{m}{sl}{.29}{.15}
715 \DeclareLaTeXLogo{lmr}{m}{sl}{.29}{.15}
716 %
717 \DeclareLaTeXLogo{cmr}{bx}{it}{.29}{.2}
718 \DeclareLaTeXLogo{lmr}{bx}{it}{.29}{.2}
719 %
720 \DeclareLaTeXLogo{cmr}{bx}{sl}{.29}{.2}
721 \DeclareLaTeXLogo{lmr}{bx}{sl}{.29}{.2}
722 %
723 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
724 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}
```

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

```
725 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
726    \csname @LaTeX@\f@family/\f@series/\f@shape\endcsname
727    \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
728    \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.

```
729 \newcommand\@LaTeX[2]{%
730   %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
731   L\kern-#1em
732   {\sbox\z@ T%
733    \vbox to\ht0{\hbox{$\m@th$%
734                     \csname S@\f@size\endcsname
735                     \fontsize\sf@size\z@
736                     \math@fontsfalse\selectfont
737                     A}%
738                \vss}%
739   }%
740   \kern-#2em%
741   \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 `\csnames` 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.

```
742 \def\theauthor#1{\csname theauthor#1\endcsname}
743 \def\theaddress#1{\csname theaddress#1\endcsname}
744 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
745 \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.

```
746 ⟨!latex⟩\newcount\@tempcnta
747 \def\@defaultauthorlist{%
748   \@getauthorlist\@firstofone
749 }
```

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

```
750 \def\@getauthorlist#1{%
751   \count@\authornumber
752   \advance\count@ by -2
753   \@tempcnta0
```

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

```
754  \loop
755    \ifnum\count@>0
756      \advance\@tempcnta by \@ne
757      #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
758      \advance\count@ by \m@ne
759  \repeat
760  \count@\authornumber
761  \advance\count@ by -\@tempcnta
762  \ifnum\authornumber>0
```

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

```
763      \ifnum\count@>1
764        \count@\authornumber
765        \advance\count@ by \m@ne
766        #1{\ignorespaces\theauthor{\number\count@}\unskip\ and }%
767      \fi
```

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

```
768      #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
769  \fi
770 }
```

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...)

```
771 \def\signature#1{\def\@signature{#1}}
772 \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

```
773 \def\@defaultsignature{{%
774      \let\thanks\@gobble
775      \frenchspacing
776      %
777      \ifnum\authornumber<0
```

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

```
778        \medskip
779        \signaturemark
780        \theauthor{\number\authornumber}\\
781        \theaddress{\number\authornumber}\\
782        \allowhyphens
783        \thenetaddress{\number\authornumber}\\
784        \thePersonalURL{\number\authornumber}\\
785      \else
```

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

```
786        \count@=0
787        \loop
788          \ifnum\count@<\authornumber
789            \medskip
790            \advance\count@ by \@ne
791            \signaturemark
792            \theauthor{\number\count@}\\
793            \theaddress{\number\count@}\\
794            {%
795              \allowhyphens
796              \thenetaddress{\number\count@}\\
797              \thePersonalURL{\number\count@}\\
798            }%
799          \repeat
800      \fi
801    }%
802 }
803 \newdimen\signaturewidth   \signaturewidth=12pc
```

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

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

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

```
805    \@tempdima\signaturewidth
806    \advance\@tempdima 1.5pc
807    \ifdim \@tempdima>\columnwidth
808      \signaturewidth \columnwidth
809      \advance\signaturewidth -1.5pc
810    \fi
811    \par
812    \penalty9000
813    \vspace{#1}%
814    \rightline{%
815      \vbox{\hsize\signaturewidth \ninepoint \raggedright
816        \parindent \z@ \everypar={\hangindent 1pc }
817        \parskip \z@skip
818        \def\|{\unskip\hfil\break}%
819        \def\\{\endgraf}%
820        \def\phone{\rm Phone: }
821        \rm\@signature}%
822    }%
823    \ifnum\authornumber<0 \endgroup\fi
824 }
825 \def\signaturemark{\leavevmode\llap{$\diamond$\enspace}}
```

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

```
826 \newcount\authornumber
827 \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).

```
828 \def\author{%
829   \global\advance\authornumber\@ne
830   \TB@author
831 }
```

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

```
832 \def\contributor{%
833   \begingroup
834   \authornumber\m@ne
835   \TB@author
836 }
```

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).

```
837 \def\TB@author#1{%
838   \expandafter\def\csname theauthor\number\authornumber\endcsname
839     {\ignorespaces#1\unskip}%
840   \expandafter\def\csname theaddress\number\authornumber\endcsname
841     {\TBWarningNL{Address for #1\space missing}\@gobble}%
842   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
843     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
844   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
845     \@gobble
846   }
847 \def\EDITORnoaddress{%
848   \expandafter\let\csname theaddress\number\authornumber\endcsname
849     \@gobble
850 }
851 \def\EDITORnonetaddress{%
852   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
853     \@gobble
854 }
```

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

```
855 \def\address#1{%
856   \expandafter\def\csname theaddress\number\authornumber\endcsname
857     {\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*!

858 \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 2$_\varepsilon$, we use the default-argument form of \newcommand; otherwise we write it out in all its horribleness.

859 \newcommand\netaddress[1][\relax]{%
860 \begingroup
861 \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 2$_\varepsilon$.

862 #1\@sanitize\makespace\ \makeactive\@
863 \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*?!**)

864 \def\@relay@netaddress#1{%
865 \ProtectNetChars
866 \expandafter\protected@xdef
867   \csname thenetaddress\number\authornumber\endcsname
868   {\protect\leavevmode\textrm{\@network}%
869   {\protect\NetAddrChars\net
870   \ignorespaces#1\unskip}}%
871 \endgroup
872 }

\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.

873 \def\personalURL{\begingroup
874 \@sanitize\makespace\ \makeactive\@
875 \makeactive\.\makeactive\%\makeactive\/\@personalURL}%
876 \def\@personalURL#1{%
877 \ProtectNetChars
878 \expandafter\protected@xdef
879   \csname thePersonalURL\number\authornumber\endcsname{%

```
880        \protect\leavevmode
881        {%
882          \protect\URLchars\net
883          \ignorespaces#1\unskip
884        }%
885    }%
886  \endgroup
887  }
```

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...

```
888 {%
889    \makecomment\*
890    \makeactive\@
891    \gdef\netaddrat{\makeactive\@*
892      \def@{\discretionary{\char"40}{}{\char"40}}}
893    \makeactive\%
894    \gdef\netaddrpercent{\makeactive\%*
895      \def%{\discretionary{\char"25}{}{\char"25}}}
896    \makeactive\.
897    \gdef\netaddrdot{\makeactive\.*
898      \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.

```
899    \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
900    \makeactive\/
901    \gdef\URLchars{*
902      \NetAddrChars
903      \makeactive\/*
904      \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.

```
905    \gdef\ProtectNetChars{*
906      \def@{\protect@}*
907      \def%{\protect%}*
908      \def.{\protect.}*
909      \def/{\protect/}*
910    }
911 }
```

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).

```
912 \if@compatibility
913   \DeclareRobustCommand\net{\normalfont\ttfamily\mathgroup\symtypewriter}
914 \else
915   \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
916 \fi
917 \def\authorlist#1{\def\@author{#1}}
918 \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`

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

3.13   Article title

`\if@articletitle`
`\maketitle`
`\@r@maketitle`

`\maketitle` takes an optional "*"; if present, the operation is not defining the title of a paper, merely that of a "business" section (such as the participants at a meeting) that has no credited author or other title. In this case, the command 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 LaTeX 2_ε.

```
920 \newif\if@articletitle
921 \def\maketitle{\@ifstar
922   {\@articletitlefalse\@r@maketitle}%
923   {\@articletitletrue\@r@maketitle}%
924 }
925 \def\@r@maketitle{\par
926 \ifdim\PreTitleDrop > \z@
927   \loop
928   \ifdim \PreTitleDrop > \textheight
929     \vbox{}\vfil\eject
930     \advance\PreTitleDrop by -\textheight
931   \repeat
932   \vbox to \PreTitleDrop{}
933   \global\PreTitleDrop=\z@
934 \fi
935 \begingroup
936 \setcounter{footnote}{0}
937 \def\thefootnote{\fnsymbol{footnote}}
938 \@maketitle
939 \@thanks
940 \endgroup
```

```
941 \setcounter{footnote}{0}
942 \gdef\@thanks{}
943 }
```

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

```
944 \def\rhTitle{}% avoid error if no author or title
945 \renewcommand\title{\@dblarg\TB@title}
946 \def\TB@title[#1]#2{\gdef\@title{#2}%
947   \bgroup
948     \let\thanks\@gobble
949     \def\\{\unskip\space\ignorespaces}%
950     \protected@xdef\rhTitle{#1}%
951   \egroup
952 }
```

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

```
953 \def\shortTitle #1{\def\rhTitle{#1}}
954 \newif\ifshortAuthor
955 \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}
```

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:

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

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

```
957 \newdimen\stbaselineskip        \stbaselineskip=18\p@
958 \newdimen\stfontheight
959 \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.

```
960 \newif\ifSecTitle
961 \SecTitlefalse
962 \newif\ifWideSecTitle
```

```
963 \newcommand\sectitle{%
964     \SecTitletrue
965     \@ifstar
966        {\WideSecTitletrue\def\s@ctitle}%
967        {\WideSecTitlefalse\def\s@ctitle}%
968 }
```

`\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.

```
969 \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.

```
970 \newskip\AboveTitleSkip   \AboveTitleSkip=12\p@
971 \newskip\BelowTitleSkip   \BelowTitleSkip=8\p@
972 \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. . .

```
973 \def\@sectitle #1{%
974     \par
975     \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.

```
976     \ifWideSecTitle\else\secsep\fi
977     {%
978        \fboxrule\strulethickness
979        \fboxsep\z@
980        \noindent\framebox[\hsize]{%
981           \vbox{%
982              \raggedcenter
983              \let\\\@sectitle@newline
984              \sectitlefont
985              \makestrut[2\stfontheight;\z@]%
986              #1%
987              \makestrut[\z@;\stfontheight]\endgraf
988           }%
989        }%
990     }%
```

```
991    \nobreak
992    \vskip\baselineskip
993 }
```

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

```
994 \newcommand{\@sectitle@newline}[1][\z@]{%
995    \ifdim#1>\z@
996      \makestrut[\z@;#1]%
997    \fi
998    \unskip\break
999 }
```

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).

```
1000 \def\@makesectitle{\ifSecTitle
1001     \global\SecTitlefalse
1002     \ifWideSecTitle
1003       \twocolumn[\@sectitle{\s@ctitle}]%
1004       \global\WideSecTitlefalse
1005     \else
1006       \@sectitle{\s@ctitle}%
1007     \fi
1008   \else
1009     \vskip\AboveTitleSkip
1010     \kern\topskip
1011     \hrule \@height\z@ \@depth\z@ \@width 10\p@
1012     \kern-\topskip
1013     \kern-\strulethickness
1014     \hrule \@height\strulethickness \@depth\z@
1015     \kern\medskipamount
1016     \nobreak
1017   \fi
1018 }
```

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

```
1019 \def\@maketitle{%
1020   \@makesectitle
1021   \if@articletitle{%
1022     \nohyphens \interlinepenalty\@M
1023     \setbox0=\hbox{%
1024       \let\thanks\@gobble
1025       \let\\=\quad
1026       \let\and=\quad
1027       \ignorespaces\@author}%
1028     {%
1029       \noindent\bf\raggedright\ignorespaces\@title\endgraf
1030     }%
1031     \ifdim \wd0 < 5\p@                % omit if author is null
1032     \else
```

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

```
1033        \nobreak \vskip 4\p@
1034        {%
1035          \leftskip=\normalparindent
1036          \raggedright
1037          \def\and{\unskip\\}%
1038          \noindent\@author\endgraf
1039        }%
1040      \fi
1041      \nobreak
1042      \vskip\BelowTitleSkip
1043    }\fi%
1044    \global\@afterindentfalse
1045    \aftergroup\@afterheading
1046 }
```

Dedications are ragged right, in italics.

```
1047 \newenvironment{dedication}%
1048   {\raggedright\noindent\itshape\ignorespaces}%
1049   {\endgraf\medskip}
```

The `abstract` and `longabstract` environments both use `\section*`. For one-column articles (or in `ltugproc` class), indent the abstract. This is done in the usual bizarre LaTeX way, by treating it as a one-item list with an empty item marker.

```
1050 \def\@tubonecolumnabstractstart{%
1051      \list{}{\listparindent\normalparindent
1052        \itemindent\z@ \leftmargin\@tubfullpageindent
1053        \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1054 }
1055 \def\@tubonecolumnabstractfinish{%
1056      \endlist
1057 }
1058 \renewenvironment{abstract}%
1059   {\begin{SafeSection}%
1060     \section*{%
1061       \if@tubtwocolumn\else \hspace*{\@tubfullpageindent}\fi
1062       Abstract}%
1063     \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1064   }%
1065   {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1066    \end{SafeSection}}
1067 \newenvironment{longabstract}%
1068   {\begin{SafeSection}%
1069     \section*{Abstract}%
1070     \bgroup\small
1071   }%
1072   {\endgraf\egroup
1073     \end{SafeSection}%
```

```
1074   \vspace{.25\baselineskip}
1075   \begin{center}
1076     {$--*--$}
1077   \end{center}
1078   \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 `\letting` `\TB@startsection` to `\TB@safe@startsection`, within a group.

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

```
1079 \if@numbersec
1080   \def\section{\TB@startsection{{section}%
1081                               1%
1082                               \z@
1083                               {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1084                               {4\p@}%
1085        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1086   \def\subsection{\TB@startsection{{subsection}%
1087                                   2%
1088                                   \z@
1089                                   {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1090                                   {4\p@}%
1091        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1092   \def\subsubsection{\TB@startsection{{subsubsection}%
1093                                      3%
1094                                      \z@
1095                                      {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1096                                      {4\p@}%
1097        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1098   \def\paragraph{\TB@startsection{{paragraph}%
1099                                  4%
1100                                  \z@
1101                                  {4\p@ \@plus1\p@ \@minus1\p@}%
1102                                  {-1em}%
1103                                  {\normalsize\bf}}}
```

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

```
1104 \else
1105   \setcounter{secnumdepth}{0}
1106   \def\section{\TB@nolimelabel
1107               \TB@startsection{{section}%
```

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```
1108                               1%
1109                               \z@
1110                               {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1111                               {4\p@}%
1112        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1113  \def\subsection{\TB@nolimelabel
1114            \TB@startsection{{subsection}%
1115                               2%
1116                               \z@
1117                               {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1118                               {-0.5em\@plus-\fontdimen3\font}%
1119        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1120  \def\subsubsection{\TB@nolimelabel
1121            \TB@startsection{{subsubsection}%
1122                               3%
1123                               \parindent
1124                               {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1125                               {-0.5em\@plus-\fontdimen3\font}%
1126        {\normalsize\bf\raggedright\hyphenpenalty=\@M}}}
1127 \fi
```

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

```
1128 \if@numbersec
1129   \def\TB@startsection#1{\@startsection#1}%
1130 \else
1131   \def\TB@startsection#1{%
1132     \@ifstar
1133       {\TBWarning{*-form of \expandafter\string\csname\@firstofsix#1%
1134                  \endcsname\space
1135                  \MessageBreak
1136                  conflicts with nonumber class option}%
1137        \@startsection#1}%
1138       {\@startsection#1}%
1139   }
1140 \fi
1141 \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).

```
1142 \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.

```
1143 \newenvironment{SafeSection}%
1144   {\let\TB@startsection\TB@safe@startsection}%
1145   {}
```

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

```
1146 \if@numbersec
1147   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1148 \else
1149   \def\paragraph{\TB@nosection\paragraph\subsubsection}
1150   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1151 \fi
1152 \def\chapter{\TB@nosection\chapter\section}
1153 \def\part{\TB@nosection\part\section}
1154 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1155     \string#2\space used instead}#2}
```

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

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or leaders get messed up.

```
1156 \def\TBtocsectionfont{\normalfont}
1157 \newskip\TBtocsectionspace  \TBtocsectionspace=1.0em\@plus\p@

1158 \def\l@section#1#2{\addpenalty{\@secpenalty}%
1159   \addvspace{\TBtocsectionspace}%
1160   \@tempdima 1.5em
1161   \begingroup
1162     \parindent\z@ \rightskip\z@  % article style makes \rightskip > 0
1163     \parfillskip\z@
1164     \TBtocsectionfont
1165     \leavevmode\advance\leftskip\@tempdima\hskip-\leftskip#1\nobreak\hfil
1166     \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
1167   \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,

---

[2]Thurber, *The Wonderful O*

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:

```
1168 \renewcommand\appendix{\par
1169   \renewcommand\thesection{\@Alph\c@section}%
1170   \setcounter{section}{0}%
1171   \if@numbersec
1172   \else
1173     \setcounter{secnumdepth}{1}%
1174   \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.

```
1175   \def\@tempa{appendix}
1176   \ifx\@tempa\@currenvir
1177     \expandafter\@appendix@env
1178   \fi
1179 }
```

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

```
1180 \newcommand\app@prefix@section{}
1181 \newcommand\@appendix@env[1][Appendix]{%
1182   \renewcommand\@seccntformat[1]{\csname app@prefix@##1\endcsname
1183     \csname the##1\endcsname\quad}%
1184   \renewcommand\app@prefix@section{#1 }%
1185 }
```

Ending an appendix environment is pretty trivial...

```
1186 \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

```
1187 \def\TB@nolimelabel{%
1188   \def\@currentlabel{%
1189     \protect\TBWarning{%
1190       Invalid reference to numbered label on page \thepage
1191       \MessageBreak made%
1192     }%
1193     \textbf{?!?}%
1194   }%
1195 }
```

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.

```
1196 \let\TB@@sect\@sect
1197 \let\TB@@ssect\@ssect
1198 \def\@sect#1#2#3#4#5#6[#7]#8{%
1199   \def\@currentlabelname{#7}%
1200   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1201 }
1202 \def\@ssect#1#2#3#4#5{%
1203  \def\@currentlabelname{#5}%
1204  \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1205 }
```

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>`.

```
1206 \let\@savelatexlabel=\label  % so save original LaTeX command
1207 %
1208 \def\label#1{% de
1209   \@savelatexlabel{#1}%
1210   \@bsphack
1211   \if@filesw
1212     \protected@write\@auxout{}%
1213       {\string\newlabel{nr@#1}{{\@currentlabel}{\@currentlabelname}}}%
1214   \fi
1215   \@esphack
1216 }
```

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

```
1217 \let\@currentlabelname\@empty
```

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

```
1218 \DeclareRobustCommand\nameref[1]{\expandafter\@setref
1219   \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` (actually `\tubcaptionfonts`).

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

`\@tubfullpageindent`

```
1220 \newdimen\@tubfullpageindent
1221 \@tubfullpageindent = \if@tubtwocolumn 4.875pc \else 3.875pc \fi
```

Ok, here is the `\@makecaption`.

```
1222 \def\tubcaptionfonts{\small}%
1223 \long\def\@makecaption#1#2{%
1224   \vskip\abovecaptionskip
1225   \sbox\@tempboxa{\tubcaptionfonts \tubmakecaptionbox{#1}{#2}}% try in an hbox
1226   \ifdim \wd\@tempboxa > \hsize
1227     {% caption doesn't fit on one line; set as a paragraph.
1228     \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
1229     % indent full-width captions {figure*}, but not single-column {figure}.
1230     \ifdim\hsize = \textwidth
1231       \leftskip=\@tubfullpageindent \rightskip=\leftskip
1232       \advance\rightskip by 0pt plus2em  % increase acceptable raggedness
1233     \fi
1234     \noindent \tubmakecaptionbox{#1}{#2}\par}%
1235   \else
1236     % fits on one line; use the hbox, centered.  Do not reset its glue.
1237     \global\@minipagefalse
1238     \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
1239   \fi
1240   \vskip\belowcaptionskip}
1241 %
1242 \def\tubmakecaptionbox#1#2{#1: #2}% allow overriding for a paper
```

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

```
1243 \def\fnum@figure{{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
1244 \def\fnum@table{{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}
```

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

```
1245 \setlength\abovecaptionskip{6pt plus1pt minus1pt}
```

3.20   Size changing commands

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

```
1246 \renewcommand\normalsize{%
1247    \@setfontsize\normalsize\@xpt\@xiipt
1248    \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1249    \belowdisplayskip=\abovedisplayskip
1250    \abovedisplayshortskip=\z@\@plus 3\p@
1251    \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1252 }
1253
1254 \renewcommand\small{%
1255    \@setfontsize\small\@ixpt{11}%
1256    \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1257    \belowdisplayskip=\abovedisplayskip
1258    \abovedisplayshortskip=\z@\@plus 2\p@
1259    \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1260 }
1261 \renewcommand\footnotesize{%
1262    \@setfontsize\footnotesize\@viiipt{9.5}%
1263    \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1264    \belowdisplayskip=\abovedisplayskip
1265    \abovedisplayshortskip=\z@\@plus 3\p@
1266    \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1267 }
```

3.21   Lists and other text inclusions

```
1268 \def\@listi{%
1269    \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1270    \itemsep=\parsep
1271    \listparindent=1em
1272    }
1273
1274 \def\@listii{%
1275    \leftmargin\leftmarginii
1276    \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1277    \topsep=2\p@\@plus\p@\@minus\p@
1278    \parsep=\p@\@plus\p@\@minus\p@
1279    \itemsep=\parsep
1280    \listparindent=1em
1281    }
1282
1283 \def\@listiii{%
1284    \leftmargin=\leftmarginiii
1285    \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1286    \topsep=\p@\@plus\p@\@minus\p@
1287    \parsep=\z@
1288    \itemsep=\topsep
```

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```
1289    \listparindent=1em
1290    }
1291 \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.

```
1292 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1293        \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}
```

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

```
1294 \newenvironment{compactitemize}%
1295    {\begin{itemize}%
1296        \setlength{\itemsep}{0pt}%
1297        \setlength{\parskip}{0pt}%
1298        \setlength{\parsep} {0pt}%
1299    }%
1300    {\end{itemize}}
1301 %
1302 \newenvironment{compactenumerate}%
1303    {\begin{enumerate}%
1304        \setlength{\itemsep}{0pt}%
1305        \setlength{\parskip}{0pt}%
1306        \setlength{\parsep} {0pt}%
1307    }%
1308    {\end{enumerate}}
1309 %
1310 \newenvironment{compactdescription}%
1311    {\begin{description}%
1312        \setlength{\itemsep}{0pt}%
1313        \setlength{\parskip}{0pt}%
1314        \setlength{\parsep} {0pt}%
1315    }%
1316    {\end{description}}
1317 %
```

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.

```
1318 %\let\@TB@verbatim\@verbatim
1319 \let\@TBverbatim\verbatim
1320 \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.)

```
1321 \def\verbatim{\par\obeylines
1322    \futurelet\reserved@a\@switch@sqbverbatim}
1323 %
1324 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1325    \expandafter\@sqbverbatim\else
1326    \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1327 %
1328 \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.

```
1329    \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.

```
1330    #1\@TBverbatim}
```

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

```
1331 \def\@verbatim{%
```

First, we deal with `\ruled`:

```
1332      \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1333    \trivlist \item\relax
1334    \if@minipage\else\vskip\parskip\fi
1335    \leftskip\@totalleftmargin\rightskip\z@skip
1336    \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1337    \@@par
1338    \@tempswafalse
1339    \def\par{%
1340      \if@tempswa
1341        \leavevmode \null \@@par\penalty\interlinepenalty
1342      \else
1343        \@tempswatrue
1344        \ifhmode\@@par\penalty\interlinepenalty\fi
1345      \fi}%
1346    \obeylines \verbatim@font \@noligs
1347    \let\do\@makeother \dospecials
```

```
1348     \everypar \expandafter{\the\everypar \unpenalty}%
1349 }%
```

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).

```
1350 \def\endverbatim{\@TBendverbatim
1351     \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

Define the \if used by the \ruled option:

```
1352 \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.

```
1353 \AtBeginDocument{%
1354     \@ifpackageloaded{microtype}
1355       {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{}
1356 }
```

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:

\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.

```
1357 \if@Harvardcite
1358 \let\@internalcite\cite
```

Normal forms.

```
1359 \def\cite{\def\@citeseppen{-1000}%
1360     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1361     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
```

```
1362 \def\citeNP{\def\@citeseppen{-1000}%
1363     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1364     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1365 \def\citeN{\def\@citeseppen{-1000}%
1366     \def\@cite##1##2{##1\if@tempswa , ##2)\else{)}\fi}%
1367     \def\citeauthoryear##1##2##3{##1 (##3}\@citedata}
1368 \def\citeA{\def\@citeseppen{-1000}%
1369     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1370     \def\citeauthoryear##1##2##3{##1}\@internalcite}
1371 \def\citeANP{\def\@citeseppen{-1000}%
1372     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1373     \def\citeauthoryear##1##2##3{##1}\@internalcite}
```

  Abbreviated forms (using *et al.*)

```
1374 \def\shortcite{\def\@citeseppen{-1000}%
1375     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1376     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1377 \def\shortciteNP{\def\@citeseppen{-1000}%
1378     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1379     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1380 \def\shortciteN{\def\@citeseppen{-1000}%
1381     \def\@cite##1##2{##1\if@tempswa , ##2)\else{)}\fi}%
1382     \def\citeauthoryear##1##2##3{##2 (##3}\@citedata}
1383 \def\shortciteA{\def\@citeseppen{-1000}%
1384     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1385     \def\citeauthoryear##1##2##3{##2}\@internalcite}
1386 \def\shortciteANP{\def\@citeseppen{-1000}%
1387     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1388     \def\citeauthoryear##1##2##3{##2}\@internalcite}
```

  When just the year is needed:

```
1389 \def\citeyear{\def\@citeseppen{-1000}%
1390     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1391     \def\citeauthoryear##1##2##3{##3}\@citedata}
1392 \def\citeyearNP{\def\@citeseppen{-1000}%
1393     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1394     \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.

```
1395 \def\@citedata{%
1396         \@ifnextchar [{\@tempswatrue\@citedatax}%
1397                                 {\@tempswafalse\@citedatax[]}%
1398 }
1399
1400 \def\@citedatax[#1]#2{%
1401 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1402   \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1403     {\@citea\def\@citea{, }\@ifundefined% by Young
1404        {b@\@citeb}{{\bf ?}%
```

```
1405          \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1406 {\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.

```
1407 \def\@citex[#1]#2{%
1408 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1409    \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1410      {\@citea\def\@citea{; }\@ifundefined% by Young
1411         {b@\@citeb}{{\bf ?}%
1412         \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1413 {\csname b@\@citeb\endcsname}}}{#1}}%
```

No labels in the bibliography.

```
1414 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```
1415 \newlength{\bibhang}
1416 \setlength{\bibhang}{2em}
```

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

```
1417 \newdimen\bibindent
1418 \bibindent=1.5em
1419 \@ifundefined{refname}%
1420    {\newcommand{\refname}{References}}%
1421    {}%
```

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

```
1422 \def\thebibliography#1{%
1423    \let\TB@startsection\TB@safe@startsection
1424    \section*{\refname
1425      \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1426    \list{[\arabic{enumi}]}{%
1427      \labelwidth\z@ \labelsep\z@
1428      \leftmargin\bibindent
1429      \itemindent -\bibindent
1430      \listparindent \itemindent
1431      \parsep \z@
1432      \usecounter{enumi}}
1433    \def\newblock{}
1434    \BibJustification
1435    \sfcode`\.=1000\relax
1436 }
```

etal   Other bibliography odds and ends.

```
\bibentry 1437 \def\etal{et\,al.\@}
1438 \def\bibentry{%
1439    \smallskip
1440    \hangindent=\parindent
1441    \hangafter=1
```

```
1442    \noindent
1443    \sloppy
1444    \clubpenalty500 \widowpenalty500
1445    \frenchspacing
1446 }
```

`\bibliography`
`\bibliographystyle` Changes made to accommodate TUB file naming conventions

```
1447 \def\bibliography#1{%
1448    \if@filesw
1449      \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1450    \fi
1451    \@input{\jobname.bbl}%
1452 }
1453 \def\bibliographystyle#1{%
1454    \if@filesw
1455      \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1456    \fi
1457 }
```

`\thebibliography`
`\TB@@thebibliography` If the user's asked to use LaTeX's default citation mechanism (using the `rawcite` 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.

```
1458 \else
1459 \let\TB@@thebibliography\thebibliography
1460 \def\thebibliography{%
1461    \let\TB@startsection\TB@safe@startsection
1462    \let\sloppy\BibJustification
1463    \TB@@thebibliography}
1464 \fi
```

`\BibJustification`
`\SetBibJustification`
`\TB@@sloppy` `\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.)

```
1465 \let\TB@@sloppy\sloppy
1466 \let\BibJustification\TB@@sloppy
1467 \newcommand{\SetBibJustification}[1]{%
1468    \renewcommand{\BibJustification}{#1}%
1469 }
1470 \ResetCommands\expandafter{\the\ResetCommands
1471    \let\BibJustification\TB@@sloppy
1472 }
```

3.24 Registration marks

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

```
1473 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1474 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1475 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }
```
     "T" marks centered on top and bottom edges of paper
```
1476 \def\ttopregister{\dlap{%
1477         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1478                         \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1479         \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}}
1480 \def\tbotregister{\ulap{%
1481         \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1482         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1483                         \HorzR@gisterRule \hfil \HorzR@gisterRule}}}
1484 \def\topregister{\ttopregister}
1485 \def\botregister{\tbotregister}
```

3.25 Running heads

```
1486 \def \rtitlex{\def\texttub##1{{\normalsize\textrm{##1}}}\TUB, \volx }
1487 \def\PrelimDraftfooter{%
1488   \dlap{\kern\textheight\kern3pc
1489         \rlap{\hb@xt@\pagewd{\midrtitle\hfil\midrtitle}}
1490   }}
```
  registration marks; these are temporarily inserted in the running head
```
1491 \def\MakeRegistrationMarks{}
1492 \def\UseTrimMarks{%
1493   \def\MakeRegistrationMarks{%
1494     \ulap{\rlap{%
1495       \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}%
1496             \topregister\vskip \headmargin \vskip 10\p@}}}}%
1497   }
1498 % put issue identification and page number in header.
1499 \def\@oddhead{\MakeRegistrationMarks\PrelimDraftfooter
1500   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1501   \rtitlex\qquad\midrtitle \hfil \thepage}
1502 \def\@evenhead{\MakeRegistrationMarks\PrelimDraftfooter
1503   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1504   \thepage\hfil\midrtitle\qquad\rtitlex}
1505
1506 % can be used to reset the font, e.g., tb98kuester.
1507 \def\tubheadhook{}
1508
1509 % put title and author in footer.
1510 \def\@tubrunningfull{%
1511   \def\@oddfoot{% make line break commands produce a normal space
1512     \def\\{\unskip\ \ignorespaces}%
1513     \let\newline=\\%
1514     \hfil\rhTitle}
1515   \def\@evenfoot{\@author\hfil}
```

```
1516 }
1517
1518 \def\@tubrunninggetauthor#1{#1
1519   \begingroup
1520     \let\thanks\@gobble
1521     \protected@xdef\rhAuthor{\the\toks@##1}%
1522   \endgroup
1523 }%
1524
1525 % empty footer.
1526 \def\@tubrunningminimal{%
1527   \def\@oddfoot{\hfil}%
1528   \def\@evenfoot{\hfil}%
1529 }
1530
1531 % empty footer and header.
1532 \def\@tubrunningoff{%
1533   \def\@oddfoot{\hfil}%
1534   \def\@evenfoot{\hfil}%
1535   \def\@oddhead{\hfil}%
1536   \def\@evenhead{\hfil}%
1537 }
1538
1539 \def\ps@headings{}
1540 \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. . .

```
1541 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1542     \global\setbox\@leftcolumn\box\@outputbox
1543     \global\brokenpenalty10000
1544   \else \global\@firstcolumntrue
1545     \global\brokenpenalty100
1546     \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1547       {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1548        \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1549        \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1550        \@whilesw\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1551     \fi}
```

3.27   Font-related definitions and machinery

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

```
1552 \newif\ifFirstPar      \FirstParfalse
```

```
1553 \def\smc{\sc}
1554 \def\ninepoint{\small}
1555 ⟨/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.)

```
1556 ⟨*common⟩
1557 \DeclareRobustCommand\SMC{%
1558   \ifx\@currsize\normalsize\small\else
1559    \ifx\@currsize\small\footnotesize\else
1560     \ifx\@currsize\footnotesize\scriptsize\else
1561      \ifx\@currsize\large\normalsize\else
1562       \ifx\@currsize\Large\large\else
1563        \ifx\@currsize\LARGE\Large\else
1564         \ifx\@currsize\scriptsize\tiny\else
1565          \ifx\@currsize\tiny\tiny\else
1566           \ifx\@currsize\huge\LARGE\else
1567            \ifx\@currsize\Huge\huge\else
1568             \small\SMC@unknown@warning
1569  \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1570 }
1571 \newcommand\SMC@unknown@warning{\TBWarning{\string\SMC: nonstandard
1572     text font size command -- using \string\small}}
1573 \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.

```
1574 \newcommand\acro[1]{\textSMC{#1}\@}
1575 ⟨/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!)

```
1576 ⟨∗classtail⟩
1577 \def\xEdNote{{\EdNoteFont Editor's note:\enspace }}
1578 \def \EdNote{\@ifnextchar[%
1579   {%
1580     \ifvmode
1581       \smallskip\noindent\let\@EdNote@\@EdNote@v
1582     \else
1583       \unskip\quad\def\@EdNote@{\unskip\quad}%
1584     \fi
1585     \@EdNote
1586   }%
1587   \xEdNote
1588 }
1589 \long\def\@EdNote[#1]{%
1590   [\thinspace\xEdNote\ignorespaces
1591    #1%
1592    \unskip\thinspace]%
1593   \@EdNote@
1594 }
1595 \def\@EdNote@v{\par\smallskip}
```

Macros for Mittelbach's self-documenting style

```
1596 \def\SelfDocumenting{%
1597   \setlength\textwidth{31pc}
1598   \onecolumn
1599   \parindent \z@
1600   \parskip 2\p@\@plus\p@\@minus\p@
1601   \oddsidemargin 8pc
1602   \evensidemargin 8pc
1603   \marginparwidth 8pc
1604   \toks@\expandafter{\@oddhead}%
1605   \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1606   \toks@\expandafter{\@evenhead}%
1607   \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1608   \def\ps@titlepage{}%
1609 }
1610 \def\ps@titlepage{}
1611
1612 \long\def\@makefntext#1{\parindent 1em\noindent\hb@xt@2em{}%
1613   \llap{\@makefnmark}\null$\mskip5mu$#1}
1614
1615 %% \long\def\@makefntext#1{\parindent 1em
1616 %%    \noindent
1617 %%    \hb@xt@2em{\hss\@makefnmark}%
1618 %%    \hskip0.27778\fontdimen6\textfont\z@\relax
```

```
1619 %%    #1%
1620 %% }
```

\tubraggedfoot To get a ragged-right footnote.

```
1621 \newcommand\tubraggedfoot{\rightskip=\raggedskip plus\raggedstretch\relax}
```

\creditfootnote Sometimes we want the label "Editor's Note:", sometimes not.
\supportfootnote
```
1622 \def\creditfootnote{\nomarkfootnote\xEdNote}
1623 \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.

```
1624 \gdef\nomarkfootnote#1#2{\begingroup
1625   \def\thefootnote{}%
1626   % no period, please, also no fnmark.
1627   \def\@makefntext##1{##1}%
1628   \footnotetext{\noindent #1#2}%
1629   \endgroup
1630 }
```

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.

```
1631 \if@Harvardcite
1632   \AtBeginDocument{%
1633     \bibliographystyle{ltugbib}%
1634   }
1635 \fi
1636 \authornumber\z@
1637 \let\@signature\@defaultsignature
1638 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
1639                                          configuration information}}{}
1640 ⟨/classtail⟩
```

4   LaTeX 2ε Proceedings class

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

```
1641 ⟨*ltugproccls⟩
1642 \def\@tugclass{ltugproc}
```

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

```
1643 \newif\if@proc@sober
1644 \newif\if@proc@numerable
1645 \DeclareOption{tug95}{%
```

```
1646    \@proc@soberfalse
1647    \@proc@numerablefalse
1648 }
1649 \DeclareOption{tug96}{%
1650    \@proc@sobertrue
1651    \@proc@numerablefalse
1652 }
1653 \DeclareOption{tug97}{%
1654    \@proc@sobertrue
1655    \@proc@numerabletrue
1656 }
1657 \DeclareOption{tug2002}{%
1658    \@proc@sobertrue
1659    \@proc@numerabletrue
1660    \let\if@proc@numbersec\iftrue
1661    \PassOptionsToClass{numbersec}{ltugboat}%
1662 }
```

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

```
1663 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
1664    \PassOptionsToClass{numbersec}{ltugboat}%
1665 }
1666 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
1667    \PassOptionsToClass{nonumber}{ltugboat}%
1668 }
```

\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.

```
1669 \newif\ifTB@title
1670 \DeclareOption{title}{\TB@titletrue}
1671 \DeclareOption{notitle}{\TB@titlefalse
1672    \AtBeginDocument{\stepcounter{page}}}
```

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

```
1673 \DeclareOption{tugproc}{%
1674    \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
1675 }
```

All other options are simply passed to ltugboat. . .

```
1676 \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. . .)

```
1677 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
1678              {Loading ltugproc configuration information}}{}
```

```
1679 \@ifundefined{TUGprocExtraOptions}%
1680   {\let\TUGprocExtraOptions\@empty}%
1681   {\edef\TUGprocExtraOptions{,\TUGprocExtraOptions}}
```

\tugProcYear Now work out what year it is

```
1682 \@tempcnta\year
1683 \ifnum\@tempcnta<2000
1684   \divide\@tempcnta by100
1685   \multiply\@tempcnta by100
1686   \advance\@tempcnta-\year
1687   \@tempcnta-\@tempcnta
1688 \fi
```

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

```
1689 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
1690               {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
1691 \@tempa
1692 \ClassInfo{ltugproc}{Class believes year is
1693   \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
1694     \@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.

```
1695 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
1696   \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.

```
1697 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
1698 \ProcessOptions
1699 \if@proc@numbersec
1700   \if@proc@numerable
1701   \else
1702     \ClassWarning{\@tugclass}{This year's proceedings may not have
1703       numbered sections}%
1704   \fi
1705 \fi
```

Call ltugboat, adding whichever section numbering option is appropriate

```
1706 \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.

```
1707 \def\maketitle{%
1708   \begingroup
```

57

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

```
1709    \ifshortAuthor\else
1710      \global\let\rhAuthor\@empty
1711      \def\g@addto@rhAuthor##1{%
1712        \begingroup
1713          \toks@\expandafter{\rhAuthor}%
1714          \let\thanks\@gobble
1715          \protected@xdef\rhAuthor{\the\toks@##1}%
1716        \endgroup
1717      }%
1718      \@getauthorlist\g@addto@rhAuthor
1719    \fi
```

now, the real business of setting the title

```
1720    \ifTB@title
1721      \setcounter{footnote}{0}%
1722      \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
1723      \if@tubtwocolumn
1724        \twocolumn[\@maketitle]%
1725      \else
1726        \onecolumn
1727        \global\@topnum\z@
1728        \@maketitle
1729      \fi
1730      \@thanks
1731      \thispagestyle{TBproctitle}
1732    \fi
1733    \endgroup
1734    \TB@madetitletrue
1735 }
1736 \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 Fairbairns, for details.

```
1737 \def\@TB@test@document{%
1738    \edef\@tempa{\the\everypar}
1739    \def \@tempb{\@nodocument}
1740    \ifx \@tempa\@tempb
1741      \@nodocument
1742    \fi
1743 }
```

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

```
1744 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
1745 \def\TITLEfont  {\Large\rmfamily\mdseries\upshape}
1746 \def\addressfont{\small\rmfamily\mdseries\upshape}
1747 \def\netaddrfont{\small\ttfamily\mdseries\upshape}
```

<table>
<tr><td>\aboveauthorskip</td><td rowspan="2">Some changeable skips to permit variability in page layout depending on the particular paper's page breaks.</td></tr>
<tr><td>\belowauthorskip</td></tr>
</table>

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

```
1748 \newskip\aboveauthorskip    \aboveauthorskip=18\p@ \@plus4\p@
1749 \newskip\belowauthorskip    \belowauthorskip=\aboveauthorskip
1750 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@
```

\@maketitle The body of \maketitle

```
1751 \def\@maketitle{%
1752    {\parskip\z@
1753     \frenchspacing
1754     \TITLEfont\raggedright\noindent\@title\par
1755       \count@=0
1756       \loop
1757       \ifnum\count@<\authornumber
1758         \vskip\aboveauthorskip
1759         \advance\count@\@ne
1760         {\AUTHORfont\theauthor{\number\count@}\endgraf}%
1761         \addressfont\theaddress{\number\count@}\endgraf
1762         {%
1763           \allowhyphens
1764           \hangindent1.5pc
1765           \netaddrfont\thenetaddress{\number\count@}\endgraf
1766           \hangindent1.5pc
1767           \thePersonalURL{\number\count@}\endgraf
1768         }%
1769       \repeat
1770    \vskip\belowauthorskip}%
1771    \if@abstract
1772       \centerline{\bfseries Abstract}%
1773       \vskip.5\baselineskip\rmfamily
1774       \@tubonecolumnabstractstart
1775           \the\abstract@toks
1776       \@tubonecolumnabstractfinish
1777       \global\@ignoretrue
1778    \fi
1779    \vskip\belowabstractskip
1780    \global\@afterindentfalse\aftergroup\@afterheading
1781    }
```

abstract
\if@abstract
\abstract@toks 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@

```
1782 \newtoks\abstract@toks  \abstract@toks{}
1783 \let\if@abstract\iffalse
1784 \def\abstract{%
```

59

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

```
1785  \ifTB@madetitle
1786    \TBWarning{abstract environment after \string\maketitle}
1787  \fi
1788  \def\@abstract@{abstract}%
1789  \ifx\@currenvir\@abstract@
1790  \else
1791    \TBError{\string\abstract\space is illegal:%
1792      \MessageBreak
1793      use \string\begin{\@abstract@} instead}%
1794      {\@abstract@\space may only be used as an environment}
1795  \fi
1796  \global\let\if@abstract\iftrue
1797  {\ifnum0='}\fi
1798  \@abstract@getbody}
1799 \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}`

```
1800 \long\def\@abstract@getbody#1\end{%
1801    \global\abstract@toks\expandafter{\the\abstract@toks#1}%
1802    \@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.

```
1803 \def\@abstract@findend#1{%
1804    \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.

```
1805    \ifx\@tempa\@abstract@
1806      \expandafter\@abstract@end
1807    \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)

```
1808      \def\@tempb{document}%
1809      \ifx\@tempa\@tempb
1810        \TBError{\string\begin{\@abstract@}
1811            ended by \string\end{\@tempb}}%
1812          {You've forgotten \string\end{\@abstract@}}
1813      \else
1814        \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
1815        \expandafter\expandafter\expandafter\@abstract@getbody
1816      \fi
1817  \fi}
```

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

```
1818 \def\@abstract@end{\ifnum0=`{\fi}%
1819   \expandafter\end\expandafter{\@abstract@}}
```

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

```
1820 \renewcommand{\makesignature}{\TBWarning
1821         {\string\makesignature\space is invalid in proceedings issues}}
```

\ps@TBproctitle   Now we define the running heads in terms of the \rh* commands.
\ps@TBproc
\dopagecommands
\setpagecommands
\TB@definefeet
\pfoottext
\rfoottext

```
1822 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
1823   \let\@evenhead\MakeRegistrationMarks
1824   \TB@definefeet
1825 }
1826 \def\ps@TBproc{%
1827   \def\@oddhead{\MakeRegistrationMarks
1828     {%
1829       \hfil
1830       \def\\{\unskip\ \ignorespaces}%
1831       \rmfamily\rhTitle
1832     }%
1833   }%
1834   \def\@evenhead{\MakeRegistrationMarks
1835     {%
1836       \def\\{\unskip\ \ignorespaces}%
1837       \rmfamily\rhAuthor
1838       \hfil
1839     }%
1840   }%
1841   \TB@definefeet
1842 }
1843
1844 \advance\footskip8\p@    % for deeper running feet
1845
1846 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
1847 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
1848   {#2}}
1849 \def\TB@definefeet{%
1850   \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
1851     \else\rfoottext\hfil\thepage\fi\dopagecommands}%
1852   \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
1853     \else\thepage\hfil\rfoottext\fi\dopagecommands}%
1854 }
1855
1856 \def\pfoottext{{\smc Preprint}:
1857   Proceedings of the \volyr{} Annual Meeting}
1858 \def\rfoottext{\normalfont\TUB, \volx\Dash
1859   {Proceedings of the \volyr{} Annual Meeting}}
```

```
1860
1861 \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).

```
1862 \if@proc@numbersec
1863 \else
1864   \setcounter{secnumdepth}{0}
1865 \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.

```
1866 \if@proc@numbersec
1867 \else
1868   \if@proc@sober
1869     \def\section
1870           {\TB@nolimelabel
1871            \TB@startsection{{section}%
1872                            1%
1873                            \z@%
1874                            {-8\p@\@plus-2\p@\@minus-2\p@}%
1875                            {6\p@}%
1876                            {\normalsize\bfseries\raggedright}}}
1877   \else
1878     \def\section
1879           {\TB@nolimelabel
1880            \TB@startsection{{section}%
1881                            1%
1882                            \z@%
1883                            {-8\p@\@plus-2\p@\@minus-2\p@}%
1884                            {6\p@}%
1885                            {\large\bfseries\raggedright}}}
1886   \fi
1887   \def\subsection
1888           {\TB@nolimelabel
1889            \TB@startsection{{subsection}%
1890                            2%
1891                            \z@%
1892                            {6\p@\@plus 2\p@\@minus2\p@}%
1893                            {-5\p@\@plus -\fontdimen3\the\font}%
1894                            {\normalsize\bfseries}}}
1895   \def\subsubsection
```

```
1896              {\TB@nolimelabel
1897               \TB@startsection{{subsubsection}%
1898                            3%
1899                            \parindent%
1900                            \z@%
1901                            {-5\p@\@plus -\fontdimen3\the\font}%
1902                            {\normalsize\bfseries}}}
1903 \fi
1904 ⟨/ltugproccls⟩
```

5 Plain TeX styles

```
1905 ⟨*tugboatsty⟩
1906 % err...
1907 ⟨/tugboatsty⟩
1908 ⟨*tugprocsty⟩
1909 % err...
1910 ⟨/tugprocsty⟩
```

6 The LaTeX 2_ε compatibility-mode style files

```
1911 ⟨*ltugboatsty⟩
1912 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
1913 \LoadClass{ltugboat}
1914 ⟨/ltugboatsty⟩
1915 ⟨*ltugprocsty⟩
1916 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
1917 \LoadClass{ltugproc}
1918 ⟨/ltugprocsty⟩
```