The **tugboat** package[*]

The *TUGboat* team

2024-10-29

Contents

---

[*]This file has version number v2.34, last revised 2024-10-29

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                    [2024-10-29 v2.34
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                    ]
```

2 Introduction

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

2.1 Summary of control sequences

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

    \AllTeX   (LA)TEX
    \AMS   American Mathematical Society
    \AmSTeX
    \aw   A-W (abbreviation for Addison-Wesley)
    \API
    \AW   Addison-Wesley
    \BibTeX
    \CandT   Computers & Typesetting
    \ConTeXt ConTEXt

Command	Expansion
`\Cplusplus`	C++
`\DTD`	
`\DVD`	
`\DVI`	
`\DVIPDFMx`	DVIPDFMx
`\DVItoVDU`	DVItoVDU
`\ECMA`	
`\EPS`	
`\eTeX`	ε-TeX
`\ExTeX`	ε_{χ}TeX
`\Ghostscript`	
`\Hawaii`	Hawai'i
`\HTML`	
`\ISBN`	ISBN
`\ISO`	
`\ISSN`	ISSN
`\JTeX`	
`\JoT`	The Joy of TeX
`\LaTeX`	
`\LyX`	
`\macOS`	mac OS
`\MacOSX`	Mac OS X
`\MathML`	
`\Mc`	M with raised c
`\MF`	METAFONT
`\mf`	METAFONT
`\MFB`	The Metafontbook
`\MP`	METAPOST
`\mp`	MetaPost (in text only: still '∓' in math)
`\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 spacefactor adjustment)
`\TeXhax`	
`\TeXMaG`	(defunct)
`\TeXtures`	
`\TeXXeT`	
`\Thanh`	
`\TFM`	TFM
`\TUB`	*TUGboat*
`\TUG`	TEX Users Group
`\UNIX`	
`\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
`\rtitlenexttopage`	next to page number in 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 sequence name `\cs{name}`→`\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 '1$^{\text{st}}$', '2$^{\text{nd}}$', 3$^{\text{rd}}$, 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
`\titleref`	one argument, format title as straight text (slanted, frenchspacing)

`\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 2ε *TUGboat* class file

3.1 Setup and options

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

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

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

```
27 ⟨∗ltugboatcls⟩
28 \csname tugstyloaded@\endcsname
29 \def\tugstyloaded@{\tugstyinit\endinput}
```

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

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

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

```
31 \def\TBInfo{\ClassInfo{\@tugclass}}
32 \def\TBError{\ClassError{\@tugclass}}
33 \def\TBWarning{\ClassWarning{\@tugclass}}
34 \def\TBWarningNL{\ClassWarningNoLine{\@tugclass}}
```

Class options: `draft` vs. `preprint` vs. `final`.

```
35 \DeclareOption{draft}{% [draft], the default
36   % If the user loads hyperref, avoid passing on the global draft option
37   % (which would remove all links in the pdf).
38   \PassOptionsToPackage{final}{hyperref}
39   %
40   \AtEndOfClass{%
41     \setcounter{page}{901}%
42     \BlackBoxes
43     \def\MakeRegistrationMarks{}%
44     \PrelimDrafttrue
45   }%
46 }
47
48 \newif\ifpreprint
49 \def\preprint{\preprinttrue} % [preprint], hardly used
50 \DeclareOption{preprint}{%
51     \preprinttrue
52 }
53
54 \newif\iftubfinaloption % [final], manually inserted by us for processing
55 \DeclareOption{final}{%
56   \tubfinaloptiontrue
57   \AtEndOfClass{%
58     % Insert draft date into the header even with [final], if we are not
59     % doing a production run. (|tugboat.dates| sets up page numbers
60     % above 900 in such pseudo-draft mode.) We use [final] in the first
61     % place for this case because draft vs. final can change page
62     % layout, wrt registration marks, etc. (Not good, but too painful to
63     % change at this late date.)
64     \ifnum\value{page}>900 \PrelimDrafttrue \else \PrelimDraftfalse \fi
65     \@tubrunningfull
66   }%
67 }
```

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

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

```
68 \AtBeginDocument{%
69   \ifx\undefined\texorpdfstring
70     \DeclareRobustCommand{\texorpdfstring}[2]{#1}%
71   \fi
72   %
73   \ifx\undefined\pdfstringdefDisableCommands\else
74     \pdfstringdefDisableCommands{%
75       \let\acro\relax
76       \let\origDash=\Dash \def\Dash{\texorpdfstring{\origDash}{--}}%
77       % lots more could/should be added.
78     }%
79   \fi
80 }
```

TUGboat uses only 10pt for the main text.

```
81 \DeclareOption{11pt}{%
82   \TBWarning{The \@tugclass\space class only supports 10pt fonts:
83     \MessageBreak option \CurrentOption\space ignored}%
84 }
85 \DeclareOption{12pt}{\csname ds@11pt\endcsname}
```

Similarly, ignore one/two-side options.

```
86 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
87 \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`.)

```
88 \DeclareOption{tugproc}{%
89   \TBWarning{Option \CurrentOption\space ignored: use class ltugproc
90     instead of \@tugclass}%
91 }
```

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

```
92 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
93 \DeclareOption{harvardcite}{\let\if@Harvardcite\iftrue}
```

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

```
94 \DeclareOption{extralabel}{\let\UseExtraLabel\@firstofone}
95 \DeclareOption{noextralabel}{\let\UseExtraLabel\@gobble}
```

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

```
96 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
97 \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.

```
 98 \DeclareOption{runningoff}{\AtEndOfClass{\@tubrunningoff}}
 99 \DeclareOption{runningminimal}{\AtEndOfClass{\@tubrunningminimal}}
100 \DeclareOption{runningfull}{\AtEndOfClass{\@tubrunningfull}}
```

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

```
101 \newif\iftubomitdoioption
102 \DeclareOption{omitdoi}{%
103   \tubomitdoioptiontrue
104 }
```

\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`.

```
105 \newif\if@tubtwocolumn  \@tubtwocolumntrue
106 \DeclareOption{onecolumn}{\@tubtwocolumnfalse}
```

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

And sometimes we need to add space at the top of that second column (e.g., `tb136lettre`); there's no way to intervene in the article source, so define a hook `\tubsecondcolstartextra`.

```
107 \newif\iftubsecondcolstart
108 \DeclareOption{secondcolstart}{\tubsecondcolstarttrue}
109 \let\tubsecondcolstartextra\relax
```

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

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

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

```
111 \ExecuteOptions{draft,extralabel,numbersec,rawcite,runningminimal}
112 \ProcessOptions
113 \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.

```
114 \def\sectitlefont{\fontfamily\sfdefault\fontseries{bx}\fontshape{n}%
115         \fontsize\@xviipt\stbaselineskip\selectfont}
116 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xiipt
117         \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...

```
118 \ifTBunicodeengine
119   % there is no "LM unslanted" in OpenType, so use the standard cmu
120   % scaled for the current text size. Not worth more effort.
121   \def\EdNoteFont{\font\ednotefont = cmu10 at 1em }
122 \else % traditional engine:
123   \def\EdNoteFont{\fontfamily{cmr}\fontseries{m}\fontshape{ui}\selectfont}
124 \fi
125 ⟨/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$_\varepsilon$).

```
126 ⟨∗common⟩
```

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

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 such as resetting section and footnote numbers, re-establishing default settings of typesetting parameters, and so on. The user (or more typically, editor) may execute the commands by using the command \StartNewPaper. Things I've not yet thought of may be added to the list of commands, by

```
152 \newtoks\ResetCommands
153 \ResetCommands{%
154   \setcounter{part}{0}%
155   \setcounter{section}{0}%
156   \setcounter{footnote}{0}%
157   \authornumber\z@
158 }
159 \newcommand{\AddToResetCommands}[1]{%
160   \AddToResetCommands\expandafter{\AddToResetCommands#1}%
161 }
```

3.3   Helpful shorthands (common code with Plain styles)

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

```
162 ⟨*!latex⟩
```

```
163 \def\makeescape#1{\catcode`#1=0 }
164 \def\makebgroup#1{\catcode`#1=1 }
165 \def\makeegroup#1{\catcode`#1=2 }
166 \def\makemath  #1{\catcode`#1=3 }
167 ⟨/!latex⟩
168 ⟨∗latex⟩
169 \def\makeescape#1{\catcode`#1=\z@}
170 \def\makebgroup#1{\catcode`#1=\@ne}
171 \def\makeegroup#1{\catcode`#1=\tw@}
172 \def\makemath  #1{\catcode`#1=\thr@@}
173 ⟨/latex⟩
174 \def\makealign #1{\catcode`#1=4 }
175 \def\makeeol    #1{\catcode`#1=5 }
176 \def\makeparm  #1{\catcode`#1=6 }
177 \def\makesup    #1{\catcode`#1=7 }
178 \def\makesub    #1{\catcode`#1=8 }
179 \def\makeignore#1{\catcode`#1=9 }
180 \def\makespace #1{\catcode`#1=10 }
181 \def\makeletter#1{\catcode`#1=11 }
182 \chardef\other=12
183 \let\makeother\@makeother
184 \def\makeactive#1{\catcode`#1=13 }
185 \def\makecomment#1{\catcode`#1=14 }
```

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

```
186 \def\savecat#1{%
187   \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode`#1}}
188 \def\restorecat#1{\catcode`#1=\csname\string#1savedcat\endcsname}
189 ⟨!latex⟩\savecat\@
190 ⟨!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.

```
191 \def\SaveCS#1{\expandafter\let\csname saved@@#1\expandafter\endcsname
192   \csname#1\endcsname}
193 \def\RestoreCS#1{\expandafter\let\csname#1\expandafter\endcsname
194   \csname saved@@#1\endcsname}
```

To distinguish between macro files loaded

```
195 \def\plaintubstyle{plain}
196 \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:

```
197 \providecommand\hb@xt@{\hbox to}
198 \providecommand\textsuperscript[1]{\ensuremath{\m@th
199                              ^{\mbox{\fontsize\sf@size\z@
200                                  \selectfont #1}}}}
```

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

We end up wanting this fairly often, and LaTeX removed `\line`.

```
201 \def\tubline{\hbox to \hsize}
```

3.4   Abbreviations and logos

Font used for the METAFONT logo, etc.

```
202 \DeclareRobustCommand{\AllTeX}{%
203   \texorpdfstring{(\La\kern-.075em)\kern-.05em\TeX}{(La)TeX}}
204 \def\AMS{American Mathematical Society}
205 \def\AmS{$\mathcal{A}$\kern-.1667em\lower.5ex\hbox
206     {$\mathcal{M}$}\kern-.125em$\mathcal{S}$}
207 \def\AmSLaTeX{\AmS-\LaTeX}
208 \def\AmSTeX{\AmS-\TeX}
209 \def\ANSI{\acro{ANSI}}
210 \def\API{\acro{API}}
211 \def\ASCII{\acro{ASCII}}
212 \def\aw{\acro{A\kern.04em\raise.115ex\hbox{-}W}}
213 \def\AW{Addison\kern.1em-\penalty\z@\hskip\z@skip Wesley}
214 %
215 % make \BibTeX work in slanted contexts too; it's common in titles, and
216 % especially burdensome to hack in .bib files.
217 \def\Bib{%
218   \ifdim \fontdimen1\font>0pt
219     B{\SMC\SMC IB}%
220   \else
221     B\textsc{ib}%
222   \fi
223 }
224 \def\BibLaTeX{\Bib\kern.02em \LaTeX}
225 \def\BibTeX{\Bib\kern-.08em \TeX}
226 % no good way to determine bold font, and we want to lose the kern, too:
227 % (we \let BibTeX to this in maketitle)
228 \def\bfBibTeX{B{\SMC\SMC IB}\TeX}
229 %
230 \def\BSD{\acro{BSD}}
231 \def\CandT{\textsl{Computers \& Typesetting}}
232 % must not define \CJK, because the CJK package does.
```

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

```
233 \def\ConTeXt{C\kern-.0333emon\-\kern-.0667em\TeX\kern-.0333emt}
234 \def\CMkIV{\ConTeXt\ \MkIV}
235 \def\Cplusplus{C\plusplus}
236 \def\plusplus{\raisebox{.7ex}{$_{++}$}}
237 % consider rm vs. bold + tb139may-automata.ltx
238 \def\CPU{\acro{CPU}}
239 \def\CSczabbr{\ensuremath{\cal C}\kern-.1667em\lower.5ex\hbox{$\cal S$}}
240 \def\CSS{\acro{CSS}}
241 \def\CSTUG{\CSczabbr\kern.05em\acro{TUG}}
242 \def\CSV{\acro{CSV}}
243 \def\CTAN{\acro{CTAN}}
244 \def\DTD{\acro{DTD}}
245 \def\DTK{\acro{DTK}}
246 \def\DVD{\acro{DVD}}
247 \def\DVI{\acro{DVI}}
```

```
248 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
249 \def\DVItoVDU{DVIto\kern-.12em VDU}
250 \def\ECMA{\acro{ECMA}}
251 \def\EPS{\acro{EPS}}
252 % no line break at this hyphen please, and try to get a bold \varepsilon.
253 \def\TUBdefaulteTeX{\ensuremath{\varepsilon}\mbox{-}\kern-.125em\TeX}%
254 \DeclareRobustCommand{\eTeX}{%
255   \ifx\f@series\bfseries@rm
256     \ifx\boldsymbol\undefined % \boldsymbol is from amsmath; also support bm?
257       \TUBdefaulteTeX
258     \else
259       \ensuremath{\boldsymbol{\varepsilon}}\mbox{-}\kern-.125em\TeX
260     \fi
261   \else
262     \TUBdefaulteTeX
263   \fi
264 }
265 \DeclareRobustCommand{\ExTeX}{%
266   \ensuremath{\textstyle\varepsilon_{\kern-0.15em\cal{X}}}\kern-.2em\TeX}
267 \def\FAQ{\acro{FAQ}}
268 \def\FTP{\acro{FTP}}
269 \def\Ghostscript{Ghost\-script}
270 \def\GNU{\acro{GNU}}
271 \def\GUI{\acro{GUI}}
272 \DeclareRobustCommand{\HarfBuzz}{Harf\discretionary{-}{}{\kern.077em}Buzz}
273 \def\Hawaii{Hawai`i}
274 \def\HTML{\acro{HTML}}
275 \def\HTTP{\acro{HTTP}}
276 \def\HTTPS{\acro{HTTPS}}
277 \def\iOS{i\acro{OS}}
278 \def\IDE{\acro{IDE}}
279 \def\IEEE{\acro{IEEE}}
280 \def\ISBN{\acro{ISBN}}
281 \def\ISO{\acro{ISO}}
282 \def\ISSN{\acro{ISSN}}
283 \def\JPEG{\acro{JPEG}}
284 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}\kern-.18em\TeX}}
285 \def\JoT{\textsl{The Joy of \TeX}}
286 \DeclareRobustCommand{\KOMAScript}{\textsf{K\kern.05em O\kern.05em%
287     M\kern.05em A\kern.1em\hyph\kern.1em Script}}
288 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
289                 $\m@th$\fontsize\sf@size\z@\selectfont
290                 $\m@th\mathcal{A}$}%
291   \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
292   {$\m@th\mathcal{S}$}-\TeX}
293 % This code
294 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
295 % example) to propagate into the raised (small) `A':
296 %   \begin{macrocode}
297 \DeclareRobustCommand{\La}%
298   {L\kern-.36em
299       {\setbox0\hbox{T}%
300        \vbox to\ht0{\hbox{$\m@th$%
301                         \csname S@\f@size\endcsname
```

13

```
302                                 \fontsize\sf@size\z@
303                                 \math@fontsfalse\selectfont
304                                 A}%
305                             \vss}%
306             }}
```

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

```
307 ⟨!latex⟩\def\LaTeX{\La\kern-.15em\TeX}
308 \def\LMTX{\acro{LMTX}}
309 \def\LuaHBTeX{Lua\acro{HB}\-\TeX}%
310 \def\LuaHBLaTeX{Lua\acro{HB}\-\LaTeX}%
311 \def\LuaLaTeX{Lua\-\LaTeX}% dtk-logos defines it and people like to use it
312 \def\LuaTeX{Lua\-\TeX}% ditto
313 \def\luatex{\LuaTeX}% ditto
314 \def\LyX{L\kern-.1667em\lower.25em\hbox{Y}\kern-.125emX}
315 \def\macOS{mac\acro{OS}}
316 \def\MacOSX{Mac\,\acro{OS\,X}}
317 \def\MathML{Math\acro{ML}}
318 \def\Mc{\setbox\TestBox=\hbox{M}M\vbox
319   to\ht\TestBox{\hbox{c}\vfil}} %  for Robert McGaffey
```

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

```
320 \def\mf{\textsc{Metafont}}
321 \def\MFB{\textsl{The \MF\kern.1em\-book}}
322 \def\MkIV{Mk\acro{IV}}
323 \let\TB@@mp\mp
324 \DeclareRobustCommand{\mp}{\ifmmode\TB@@mp\else MetaPost\fi}
325 \def\mtex{T\kern-.1667em\lower.424ex\hbox{\^E}\kern-.125emX\@}
326 %
327 % In order that the \cs{OMEGA} command will switch to using the TS1
328 % variant of the capital Omega character if \texttt{textcomp.sty} is
329 % loaded, we define it in terms of the \cs{textohm} command.  Note
330 % that this requires us to interpose a level of indirection, rather
331 % than to use \cs{let}\dots
332 % Revised definition of \cs{NTS} based on that used by Phil Taylor.
333 %
334 %     \begin{macrocode}
335 \DeclareRobustCommand{\NTG}{\acro{NTG}}
336 \DeclareRobustCommand{\NTS}{\ensuremath{\mathcal{N}\mkern-4mu
337   \raisebox{-0.5ex}{$\mathcal{T}$}\mkern-2mu \mathcal{S}}}
338 \DeclareTextSymbol{\textohm}{OT1}{'012}
339 \DeclareTextSymbolDefault{\textohm}{OT1}
340 \newcommand{\OMEGA}{\textohm}
341 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
342 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}
343 \DeclareRobustCommand{\OTF}{\acro{OTF}}
344 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
345 \DeclareRobustCommand{\OpTeX}{Op\kern-.05em\TeX}
```

```
346 \def\Pas{Pascal}
347 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}MF\@}
348 \def\PCTeX{PC\thinspace\TeX}
349 \def\pcTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}\TeX}
350 \def\pdfLaTeX{pdf\/\-\LaTeX}% dtk-logos
351 \def\pdflatex{\pdfLatex}
352 \def\pdfTeX{pdf\/\-\TeX}% dtk-logos
353 \def\pdftex{\pdfTeX}
354 \def\PDF{\acro{PDF}}
355 \def\PGF{\acro{PGF}}
356 \def\PHP{\acro{PHP}}
357 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
358 \def\PiCTeX{\PiC\kern-.11em\TeX}
359 \def\plain{\texttt{plain}}
360 \def\PNG{\acro{PNG}}
361 \def\POBox{P.\thinspace O.~Box }
362 \def\PS{{Post\-Script}}
363 \def\PSTricks{\acro{PST}ricks}
364 \def\RIT{\acro{RIT}}
365 \def\RTF{\acro{RTF}}
366 \def\SC{Steering Committee}
367 \def\SGML{\acro{SGML}}
368 \def\SliTeX{\textrm{S\kern-.06em\textsc{l\kern-.035emi}%
369                     \kern-.06em\TeX}}
370 \def\slMF{\textsl{\MF}} % should never be used
371 \def\SQL{\acro{SQL}}
372 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
373 \def\STIX{\acro{STIX}}
374 \def\SVG{\acro{SVG}}
375 \def\TANGLE{\texttt{TANGLE}\@}
376 \def\TB{\textsl{The \TeX\-book}}
377 \def\TIFF{\acro{TIFF}}
378 \def\TP{\textsl{\TeX:\ The Program\/}}
379 \DeclareRobustCommand{\TeX}{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
380 \def\TeXhax{\TeX hax}
381 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
382    \kern-.2267emG\@}
383 \def\TeXtures{\textit{Textures}}
384 \let\Textures=\TeXtures
385 \def\TeXworks{\TeX\kern-.07em works}
386 \def\TeXXeT{\TeX-{}-\XeT}
387 \def\TFM{\acro{TFM}}
388 \ifTBunicodeengine
389   \AtBeginDocument{% in case a different font is loaded
390     % \iffontchar is from e-TeX; safe to use under Unicode engines.
391     \iffontchar\font"1EBF
392       \def\TBecircacute{\char"1EBF }%
393     \else
394       \def\TBecircacute{\^e\llap{\raise 0.5ex\hbox{\'{}}}}%
395     \fi
396     \def\Thanh{H\`an~Th\TBecircacute~Th\`anh}%
397   }%
398 \else % non-Unicode engine, use our traditional definition.
399   \def\Thanh{H\`an~Th\^e\llap{\raise 0.5ex\hbox{\'{}}}~Th\`anh}
```

```
400   % We could also go the other direction, and always use the Unicode
401   % character, after:
402   % \ifdefined\DeclareUnicodeCharacter
403   %   \DeclareUnicodeCharacter{1EBF}{\^e\llap{\raise 0.5ex\hbox{\'{}}}}
404   % \fi
405   % but let's make the smaller change.
406   \fi
407   \def\TikZ{Ti\/{\em k}Z}
408   \def\ttn{\textsl{TTN}\@}
409   \def\TTN{\textsl{\TeX{} and TUG News}}
410   \def\TUB{\texttub{TUGboat}}\def\texttub{\textsl} % redefined in some situations
411   \def\TUG{\TeX\ \UG}
412   \def\tug{\acro{TUG}}
413   \def\UG{Users Group}
414   \def\UNIX{\acro{UNIX}}
415   % Don't define \UTF, since other packages use it for Unicode character access.
416   % On the other hand, we want a macro for UTF-8 that doesn't break at the -.
417   \def\tbUTF{\acro{UTF}\futurelet\@nextchar\@tbUTFcheck}
418     \def\@tbUTFcheck{\ifx\@nextchar-%
419                       \mbox{-}\let\next=\tbgobbledash
420                     \else
421                       \let\next=\empty
422                     \fi\next}
423     \def\tbgobbledash-{}
424   \def\VAX{V\kern-.12em A\kern-.1em X\@}
425   \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
426   \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{O\kern-1.4\p@ R}\kern-2.6\p@\TeX}
427   \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
428   \def\XML{\acro{XML}}
429   \def\XMP{\acro{XMP}}
430   \def\WEB{\texorpdfstring{\texttt{WEB}\@}{WEB}}
431   \def\WEAVE{\texttt{WEAVE}\@}
432   \def\WYSIWYG{\acro{WYSIWYG}}
433   \def\YAML{\acro{YAML}}
```

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

```
434   \def\tubreflect#1{%
435     \@ifundefined{reflectbox}{%
436       \TBError{A graphics package must be loaded to use \string\XeTeX}
437               {Load graphicx or graphics.}%
438     }{%
439       \ifdim \fontdimen1\font>0pt
440         \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
441       \else
442         \reflectbox{#1}%
443       \fi
444     }%
445   }
446   \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
447   \def\XekernbeforeE{-.125em}
```

```
448 \def\XekernafterE{-.1667em}
449 % From Max, mail of 13sep24:
450 % hyperref is trying to expand \Xe to get a string for
451 % the embedded PDF table of contents, but \Xe is unsafe in an
452 % expansion-only context [even when defined with \DeclareRobustCommand,
453 % for reasons unknown].
454 % An easy way to fix this is to replace \DeclareRobustCommand with
455 % \NewDocumentCommand, which defines the macro as ''\protected'' instead
456 % as ''\protect''ed.
457 \NewDocumentCommand\tub@Xe{}{\leavevmode
458   \tubhideheight{\hbox{X%
459     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
460     \ifdim \fontdimen1\font>0pt
461       % XeTeX logo needs tinkering when slanted/italic font,
462       % so make kerns changeable
463       \def\XekernbeforeE{-.11em}%
464       \def\XekernafterE{-.16em}%
465       \dp1=-.17ex
466     \fi
467     \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
468     \kern\XekernafterE}}}
469 % [But then,] For hyperref to be able to see the \texorpdfstring, it
470 % needs to be inside of a non-protected macro, but we still want the
471 % graphics commands to be protected, so we need to make a wrapper command:
472 \newcommand\Xe{\texorpdfstring{\tub@Xe}{Xe}}
473 \def\XeTeX{\texorpdfstring{\Xe\TeX}{XeTeX}}
474 \def\XeLaTeX{\texorpdfstring{\Xe{\kern.11em \LaTeX}}{XeLaTeX}}
475 %
476 \def\XHTML{\acro{XHTML}}
477 \def\XSL{\acro{XSL}}
478 \def\XSLFO{\acro{XSL}\raise.08ex\hbox{-}\acro{FO}}
479 \def\XSLT{\acro{XSLT}}
```

3.5   General typesetting rules

```
480 \newlinechar='\^^J
481 \normallineskiplimit=\p@
482 \clubpenalty=10000
483 \widowpenalty=10000
484 \def\NoParIndent{\parindent=\z@}
485 \newdimen\normalparindent
486 \normalparindent=20\p@
487 \def\NormalParIndent{\global\parindent=\normalparindent}
488 \NormalParIndent
489 \def\BlackBoxes{\overfullrule=5\p@}
490 \def\NoBlackBoxes{\overfullrule=\z@}
491 \def\newline{\hskip\z@\@plus\pagewd\break}
```

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

17

```
492 \def\tubsentencespace{\spacefactor=3000{}\space\ignorespaces}
```

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

```
493 \DeclareRobustCommand{\tubdots}{\ifmmode\mathellipsis\else
494   .\kern\fontdimen3\font
495   .\kern\fontdimen3\font
496   .\kern\fontdimen3\font\fi}
```

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

```
497 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
498   \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
499 \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`.

```
500 \newbox\T@stBox              \newbox\TestBox
501 \newcount\T@stCount          \newcount\TestCount
502 \newdimen\T@stDimen          \newdimen\TestDimen
503 \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).

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

LaTeX conventions which are also useful here.

```
505 ⟨*!latex⟩
506   \let\@@input\input
507   \def\iinput#1{\@@input#1 }
508   \def\@inputcheck{\if\@nextchar\bgroup
509     \expandafter\iinput\else\expandafter\@@input\fi}
510   \def\input{\futurelet\@nextchar\@inputcheck}
511 ⟨/!latex⟩
```

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

```
512 \newif\iftop@            \newif\ifbot@
513 \def\topsmash{\top@true\bot@false\smash@}
514 \def\botsmash{\top@false\bot@true\smash@}
```

```
515 \def\smash{\top@true\bot@true\smash@}
516 \def\smash@{\relax\ifmmode\def\next{\mathpalette\mathsm@sh}%
517         \else\let\next\makesm@sh\fi \next }
518 \def\finsm@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

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

```
519 \long\def\ulap#1{\vbox to \z@{\vss#1}}
520 \long\def\dlap#1{\vbox to \z@{#1\vss}}
```

And centered horizontal and vertical 'laps'

```
521 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
522 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
523 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
525 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
526 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
528 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
529         \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
530             \vss\hb@xt@#2{\vrule \@width\T@stDimen
531                 \hfil\makestrut[#1;\z@]%
532                 \vrule \@width\T@stDimen}\vss
533             \hrule \@height\T@stDimen \@depth\z@}}
```

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

```
534 ⟨∗!latex⟩
535 \def\today{\number\day\space \ifcase\month\or
536         Jan \or Feb \or Mar \or Apr \or May \or Jun \or
537         Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
538         \number\year}
539 ⟨/!latex⟩
```

Current time; this may be system dependent!

```
540 \newcount\hours
541 \newcount\minutes
542 \def\SetTime{\hours=\time
543         \global\divide\hours by 60
544         \minutes=\hours
545         \multiply\minutes by 60
546         \advance\minutes by-\time
547         \global\multiply\minutes by-1 }
548 \SetTime
549 \def\now{\ifnum\hours<10 0\fi\number\hours:%
550         \ifnum\minutes<10 0\fi\number\minutes}
551 \def\Now{\today\ \now}
552 \newif\ifPrelimDraft    % true if ([draft] or [preprint] or pageno>900)
553 \def\midrtitle{} % center of running heads
554 \def\rtitlenexttopage{\ifPrelimDraft \textsl{\small draft: \Now}\fi}
555 %\def\rtitlenexttopage{\ifnum\value{page}>900 \textsl{\small draft: \Now}\fi}
```

Sometimes we want to refer to the pages of another article in the same issue. `tugboat.dates` makes the real definition; here we define a placeholder so it won't be undefined when we send the source back to the author.

```
556 \let\thisissuepageref\empty
```

3.7 Ragged right and friends

\raggedskip
\raggedstretch
\raggedparfill
\raggedspaces

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

```
557 \newdimen\raggedskip    \raggedskip=\z@
558 \newdimen\raggedstretch \raggedstretch=5em   % ems of font set now (10pt)
559 \newskip\raggedparfill  \raggedparfill=\z@\@plus 1fil
560 \def\raggedspaces{\spaceskip=.3333em \relax \xspaceskip=.5em \relax }
```

\raggedright
\raggedleft
\raggedcenter
\normalspaces

Some applications may have to add stretch, in order to avoid all overfull boxes. We define the following uses of the above skips, etc.

```
561 \def\raggedright{%
562   \nohyphens \raggedspaces
563   \rightskip=\raggedskip\@plus\raggedstretch
564   \parfillskip=\raggedparfill
565 }
566 \def\raggedleft{%
567   \nohyphens \raggedspaces
568   \leftskip=\raggedskip\@plus\raggedstretch
569   \parfillskip=\z@skip
570   \let\\ \@centercr % else tabulararray fails,
571                     % https://github.com/lvjr/tabularray/issues/348
572 }
573 \def\raggedcenter{%
574   \nohyphens \raggedspaces
575   \leftskip=\raggedskip\@plus\raggedstretch
576   \rightskip=\leftskip
577   \parindent=\z@
578   \parfillskip=\z@skip
579 }
580 %
581 % Undo |\raggedspaces|.
582 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}
```

\tubjustifiedpar

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

```
583 \def\tubjustifiedpar{\rightskip=0pt \parfillskip=0pt plus1fil
584                      \allowhyphens \normalspaces}
```

3.8 Assorted user-level markup

We provide a new definition of ~ by redefining \ (\DeclareRobustCommand doesn't mind redefinition, fortunately). This is based on the version in AMS-TEX—the LATEX 2ε version (`ltspace.dtx`) has \leavevmode and does not do anything with the surrounding space(s). Our version messes up with the \pfill used in `doc`-generated indexes (github.com/latex3/latex2e/issues/75), but later (2018++) versions of `doc` should protect against our redefinition.

```
585 \let\latexnobreakspace=\nobreakspace
586 \DeclareRobustCommand{\nobreakspace}{\unskip\nobreak\ \ignorespaces}
```

Plain TeX defines `\newbox` as `\outer`. We solemnly preserve the following, which removes the `\outer`ness; of course, we carefully exclude it from what we generate... (`\outer`ness is a spawn of the devil, is it not? Barbara Beeton responded to the previous sentence "`\outer`ness 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...)

```
587 \def\boxcs#1{\box\csname#1\endcsname}
588 \def\setboxcs#1{\setbox\csname#1\endcsname}
589 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
590 \let\gobble\@gobble
591 \def\vellipsis{%
592   \leavevmode\kern0.5em
593   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
594   }
595 % \bull doesn't work with tagging; requires ActualText using, e.g.,
596 % accsup, but the ActualText is ignored since it's just a rule.
597 % (Lots of our other commands also are not properly tagged.)
598 % https://github.com/latex3/tagging-project/pull/535
599 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
600 \DeclareRobustCommand{\cents}{\textcent}
601 \def\tubcentsold{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
602 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
603                 /\kern-.125em\smash{\lower.3ex\hbox{o}}} \ignorespaces}
604 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
605 %
606 \DeclareRobustCommand{\sfrac}[1]{\@ifnextchar/{\@sfrac{#1}}%
607                                         {\@sfrac{#1}/}}
608 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
609         \hbox{$\m@th\mbox{\fontsize\sf@size\z@
610                         \selectfont#1}$}\kern-.1em
611         /\kern-.15em\lower.25ex
612          \hbox{$\m@th\mbox{\fontsize\sf@size\z@
613                         \selectfont#2}$}}
614 %
615 % don't stay bold in description items, bold italic is too weird.
616 \DeclareRobustCommand\meta[1]{%
617   \ensuremath{\langle}%
618   \ifmmode \expandafter\mbox \fi % if in math
619   {\it #1\/}% no typewriter italics, please
620   \ensuremath{\rangle}%
621 }
622 %
623 % Use \tt rather than \texttt because italic typewriter is just too strange
624 % and upright works well enough in both italic and bold contexts.
625 % Would be nice to change catcode of _ for \LaTeX3, but we don't.
626 %
627 % By the way, it would be possible to substitute typewriter slanted for
628 % typewriter italic in general:
629 % \url{https://tex.stackexchange.com/questions/692277}.
```

```
630 % But it feels like that is too intrusive a change, even though in
631 % practice we always prefer tt slanted.
632 \DeclareRobustCommand{\cs}[1]{\texorpdfstring
633   {{\tt \char'\\#1}\@}%
634   {\textbackslash #1}%
635 }
636 %
637 % This command was defined much later than the others around here, so
638 % let's not conflict with any existing definitions that might be out there.
639 % Don't allow hyphenations or other line breaks.
640 \DeclareRobustCommand{\tubbraced}[1]{\texorpdfstring
641   {\mbox{\texttt{\char'\{#1\char'\}}}}%
642   {\textbraceleft #1\textbraceright}%
643 }
644 %
645 % Literal text, such as class names, package names, filenames, etc,
646 % Trying to define separate commands for each seems impossible and pointless.
647 % Usually we don't want hyphenation or any other kind of break.
648 \DeclareRobustCommand{\tbcode}[1]{\mbox{\texttt{#1}}}
649 %
650 % On the other hand, sometimes we need to break such code fragments.
651 % If |hyperref| is loaded, we want |\nolinkurl|, else just |\url|.
652 \AtBeginDocument{%
653 \ifx\nolinkurl\undefined
654   \DeclareRobustCommand{\tbcodebreak}{\url}
655 \else
656   \DeclareRobustCommand{\tbcodebreak}{\nolinkurl}
657 \fi
658 }
659 %
660 % Not sure why we ever want this instead of LaTeX's \, (using \kern),
661 % but fine, just keeping it.
662 \DeclareRobustCommand{\thinskip}{\hskip 0.16667em\relax}
663 %
664 % Ah, urls. Nowadays, we like the visible url to not have any protocol,
665 % if it is \texttt{http://} or \texttt{https://}. But we need to include
666 % the protocol if we are making live links, since a string like
667 % \texttt{tug.org/whatever} will be taken as a local filename by
668 % browsers and PDF readers. Since we need to check for
669 % \texttt{hyperref}, make the definition \cs{AtBeginDocument}. In the
670 % end, \cs{tbsurl}\tubbraced{foo} produces \texttt{https://foo} and
671 % \cs{tbhurl}\tubbraced{foo}  produces \texttt{http://foo}.
672 \AtBeginDocument{%
673 \ifx\hyper@normalise\undefined
674   \ifx\url\undefined      % define our own simplistic non-hyperref \url
675     \def\url{\begingroup  % might as well catch common special chars
676       \catcode'\#=12 \catcode'\$=12 \catcode'\%=12 \catcode'\^=12
677       \catcode'\&=12 \catcode'\_=12 \catcode'\~=12
678       \finish@tub@url}
679   \def\finish@tub@url#1{\tt #1\endgroup}
680   \fi
681   \let\tburl\url  % no hyperref, so just \url is fine;
682   \let\tbsurl\url % \let instead of \def so we can still
683   \let\tbhurl\url % use \def\url{\tbsurl} without infloop.
```

```
684 \else
685   % This hyperref hook-in is due to Ulrike Fischer.
686   % \url{https://github.com/latex3/hyperref/issues/125}.
687   % \tb[sh]url@ are defined next.
688   \DeclareRobustCommand*{\tburl}{\tbsurl}%
689   \DeclareRobustCommand*{\tbsurl}{\hyper@normalise\tbsurl@}%
690   \DeclareRobustCommand*{\tbhurl}{\hyper@normalise\tbhurl@}
691 \fi
692 }
693 %
694 % Outside \AtBeginDocument, back at the top level of the dtx, we
695 % turn on expl syntax for the main definitions of \tb[sh]url.  We want
696 % to auto-remove an explicit protocol in case it
697 % was given.
698 %
699 % Only the correct protocol is removed; if \verb|http://| is
700 % given to \cs{tbsurl}, it is used (and printed) as-is. This is useful
701 % so we can do \verb|\let\url\tbsurl| when printing bibliographies.
702 %
703 % Giving \verb|https://| to \cs{tbhurl}, on the other hand, generates an
704 % invalid link; in practice there's no use for that so we don't bother
705 % to check for it.
706 %
707 \ExplSyntaxOn
708 \def\tbsurl@#1  % https
709  {
710    \str_set:Nn\l_tmpa_str{#1}
711    \str_if_in:NnTF \l_tmpa_str {http://}
712     {
713       \tbhurl@{#1} % if http, redirect to remove protocol
714       % this version prints the http, as we originally thought was better.
715       % \expandafter\hyper@linkurl
716       % \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}{\l_tmpa_str}
717     }
718     {
719       \str_remove_once:Nn \l_tmpa_str {https://}
720       \expandafter\hyper@linkurl
721         \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}
722                                                 {https://\l_tmpa_str}
723     }
724 }
725 \def\tbhurl@#1  % http
726 {
727    \str_set:Nn\l_tmpa_str{#1}
728    \str_remove_once:Nn \l_tmpa_str {http://}
729    \expandafter\hyper@linkurl\expandafter{\expandafter\Hurl\expandafter
730                                    {\l_tmpa_str}}{http://\l_tmpa_str}
731 }
732 \ExplSyntaxOff
733 %
734 % Now let's use those macros for putting a url into a simple
735 % ragged-right footnote.
736 \def\tburlfootnote{\tbsurlfootnote}
737 \def\tbsurlfootnote#1{\footnote{\raggedright\tbsurl{#1}}}
```

23

```
738 \def\tbhurlfootnote#1{\footnote{\raggedright\tbhurl{#1}}}
739 %
740 % Close up space between footnote mark and punctuation (``pre-punctuation'').
741 \DeclareRobustCommand{\tbppkernfoot}{\tubthinnerspace}
742
743 % Make \! work in text mode, for older LaTeX.
744 \DeclareRobustCommand{\!}{\ifmmode\mskip-\thinmuskip \else\kern-0.16667em \fi}
745 %
746 % Half a thinspace, positive and negative. Should have named these
747 % \cs{tb} instead of \cs{tub}, but not worth changing now.
748 \DeclareRobustCommand{\tubthinnerspace}
749   {\ifmmode\mskip.5\thinmuskip \else\kern0.08333em \fi}
750 \DeclareRobustCommand{\tubthinnerspaceneg}
751   {\ifmmode\mskip-.5\thinmuskip \else\kern-0.08333em \fi}
752 %
753 % Half a smallskip.
754 \DeclareRobustCommand{\tubsmallerskip}
755   {\vskip 1.5pt plus .75pt minus .75pt\relax}
756 %
```

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

```
757 \def\endash{--}
758 \def\emdash{\endash-}
759 \def\d@sh#1#2{\unskip#1\thinskip#2\thinskip\ignorespaces}
760 \def\dash{\d@sh\nobreak\endash}
761 \def\Dash{\d@sh\nobreak\emdash}
762 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
763 \def\rdash{\d@sh\nobreak\endash}
764 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
765 \def\Rdash{\d@sh\nobreak\emdash}
```

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

```
766 \def\hyph{-\penalty\z@\hskip\z@skip }
767 \def\slash{/\penalty\z@\hskip\z@skip }
```

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

```
768 \def\nth#1{%
769     \def\reserved@a##1##2\@nil{\ifcat##1n%
770           0%
771           \let\reserved@b\ensuremath
772       \else##1##2%
773           \let\reserved@b\relax
774       \fi}%
775     \TestCount=\reserved@a#1\@nil\relax
776     \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
777     \T@stCount=\TestCount
778     \divide\T@stCount by 100 \multiply\T@stCount by 100
779     \advance\TestCount by-\T@stCount      % n mod 100
780     \ifnum\TestCount >20 \T@stCount=\TestCount
781       \divide\T@stCount by 10 \multiply\T@stCount by 10
782       \advance\TestCount by-\T@stCount    % n mod 10
```

```
783     \fi
784       \reserved@b{#1}%
785         \textsuperscript{\ifcase\TestCount th%    0th
786                          \or   st%               1st
787                          \or   nd%               2nd
788                          \or   rd%               3rd
789                          \else th%               nth
790                          \fi}%
791 }
```

3.9 Reviews

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

```
792 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
793 \def\@Review:{\@ifnextchar[%
794   {\@Rev}%
795   {\@Rev[Book review]}}
796 \def\@Rev[#1]#2{{\ignorespaces#1\unskip:\enspace\ignorespaces
797                                     \slshape\mdseries#2}}
798 \def\reviewitem{\addvspace{\BelowTitleSkip}%
799   \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
800   \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
801   \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
802 }
803 \def\endreviewitem{{\noindent\interlinepenalty=10000
804   \therevauth\therevtitle\therevpubinfo\endgraf}%
805   \vskip\medskipamount
806 }
807 \def\titleref#1{{\slshape\frenchspacing#1\nocorr}}
808 \let\booktitle=\titleref % older name
```

3.10 Dates, volume and issue numbers, etc.

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

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

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

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

```
809 \newcount\issueseqno \issueseqno=-1
810 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
811 \def\volyr{}
812 \def\volno{}
813 \def\vol#1, #2.{%
814       \gdef\volno{#1}%
815       \gdef\issno{#2}%
```

```
816          \setbox\TestBox=\hbox{\volyr}%
817          \ifdim \wd\TestBox > .2em \v@lx \fi }
818 \def\issyear#1.{%
819          \gdef\issdt{#1}\gdef\volyr{#1}%
820          \gdef\bigissdt{#1}%
821          \setbox\TestBox=\hbox{\volno}%
822          \ifdim \wd\TestBox > .2em \v@lx \fi }
823 \def\issdate#1#2 #3.{%
824          \gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
825          \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
826          \setbox\TestBox=\hbox{\volno}%
827          \ifdim \wd\TestBox > .2em \v@lx \fi }
828 % The \vol command must be invoked precisely like this, including spaces.
829 % Since we are the only ones who write it, we can be strict.
830 \vol 0, 0.
831 \issdate Thermidor, 9999.
```

(The curious may like to 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

```
832 ⟨!latex⟩\def\tubissue#1(#2)%
833 ⟨*latex⟩
834 \def\tubissue#1{\@ifnextchar(%
835   {\@tubissue@b{#1}}
836   {\@tubissue@a{#1}}}
837 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
838 \def\@tubissue@a#1#2%
839 ⟨/latex⟩
840   {\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

```
841 \def\infil@{\jobname}
842 \def\Input #1 {\ifnum\issueseqno<0
843     \def\infil@{#1}%
844   \else
845     \def\infil@{tb\number\issueseqno#1}
846   \fi
847   \edef\jobname{\infil@}\@readFLN
848   \@@input \infil@\relax
849   \if@RMKopen
850     \immediate\closeout\@TBremarkfile\@RMKopenfalse
851   \fi
852 }
```

\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).

```
853 \newif\if@RMKopen       \@RMKopenfalse
854 \newwrite\@TBremarkfile
```

```
855 \def\@TBremark#1{%
856   \if@RMKopen
857   \else
858     \@RMKopentrue\immediate\openout\@TBremarkfile=\infil@.rmk
859   \fi
860   \toks@={#1}%
861   \immediate\write\@TBremarkfile{^^J\the\toks@}%
862   \immediate\write16{^^JTBremark:: \the\toks@^^J}%
863 }
```

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

```
864 \let\TBremark=\gobble
```

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

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

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

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

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

```
867 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
868 \newread\@altfilenames
869 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
870   \ifeof\@altfilenames\let\@result\relax\else
871   \def\@result{\@@input\jobname.fln }\fi
872   \immediate\closein\@altfilenames
873   \@result}
874 \@readFLN
875 \everyjob=\expandafter{\the\everyjob\@readFLN}
876 \InputIfFileExists{\jobname.fln}%
877   {\TBInfo{Reading alternative file \jobname.fln}}
878   {}
```

The following needs to work entirely in TeX's mouth

```
879 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
880   #1\else\csname file@@#1\endcsname\fi}
881 \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.

```
882 ⟨*!latex⟩
883 \def\pagexrefON#1{%
884       \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
885       \write\ppoutfile{%
886             \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
887       }
888 \def\PageXrefON#1{%
889       \immediate\write-1{\def\expandafter
```

```
890                                  \noexpand\csname#1\endcsname{\number\pageno}}%
891             \immediate\write\ppoutfile{\def\expandafter
892                                  \noexpand\csname#1\endcsname{\number\pageno}}}
893 ⟨/!latex⟩
894 ⟨∗latex⟩
895 \def\pagexrefON#1{%
896         \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
897         \write\ppoutfile{%
898                 \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}%
899         }
900 \def\PageXrefON#1{%
901         \immediate\write-1{\def\expandafter
902                                  \noexpand\csname#1\endcsname{\number\c@page}}%
903         \immediate\write\ppoutfile{\def\expandafter
904                                  \noexpand\csname#1\endcsname{\number\c@page}}}
905 ⟨/latex⟩
906 \def\pagexrefOFF#1{}
907 \let\pagexref=\pagexrefOFF
908 \def\PageXrefOFF#1{}
909 \let\PageXref=\PageXrefOFF
910 \def\xreftoON#1{%
911   \ifundefined{#1}%
912     ???\TBremark{Need cross reference for #1.}%
913   \else\csname#1\endcsname\fi}
914 \def\xreftoOFF#1{???}
915 \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.

```
916 \let\TBdriver\gobble
```

Hyphenation exceptions. We read our own full ushyphex.tex (generated from tb0hyf.tex) if it's available. The additional exceptions are nearly all included in the file, but keep defining them anyway, since we have for many years.

But do not define any exceptions if \tubomithyphenations is defined. This is needed for the hyf articles themselves.

```
917 \ifx\tubomithyphenations\@thisisundefined
918 \InputIfFileExists{ushyphex.tex}{}{} % ok if it's missing
919 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
920   Flor-i-da Free-BSD Ghost-script
921   Hara-lam-bous Jac-kow-ski Ja-pa-nese Karls-ruhe Lua-Meta
922   Mac-OS Math-Sci-Net
923   Net-BSD Open-BSD Open-Office
924   Pak-i-stan Post-Script Rich-ard Skoup South-all
925   Vieth VM-ware Win-Edt
926   acro-nym acro-nyms analy-sis ap-pen-di-ces ap-pen-dix asyn-chro-nous
927   bib-lio-graph-i-cal bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
928   col-umns com-put-able com-put-abil-ity
929   data-base data-bases
930    de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
931    de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion dis-trib-ut-able
932   es-sence
```

```
933    fall-ing
934    half-way
935    in-fra-struc-ture
936    key-note
937    long-est
938    ma-gyar man-u-script man-u-scripts meta-table meta-tables
939     mne-mon-ic mne-mon-ics mono-space mono-spaced
940    name-space name-spaces
941    off-line over-view
942    pal-ettes par-a-digm par-a-dig-matic par-a-digms
943     pipe-line pipe-lines
944     plug-in plug-ins pres-ent-ly pro-gram-mable
945    re-allo-cate re-allo-cates re-allo-cated re-printed
946    set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
947     sub-ex-pres-sion sub-tables sur-gery syn-chro-ni-city syn-chro-nous
948    text-height text-length text-width
949     time-stamp time-stamped time-stamps
950    vis-ual vis-ual-ly
951    which-ever white-space white-spaces wide-spread wrap-around
952 }
953 \fi
954 ⟨!latex⟩\restorecat\@
955 ⟨/common⟩
956 ⟨*classtail⟩
957 \PrelimDrafttrue
```

3.11   Page dimensions, glue, penalties, etc.

```
958 \textheight 54pc       % 648pt = 645.58bp = 8.97in
959 \textwidth 39pc        % 468pt = 466.25bp = 6.48in
960 \columnsep 1.5pc       %  18pt =  17.93bp =  .249in
961 \columnwidth 18.75pc % 225pt = 224.16bp = 3.11in
962 \hfuzz 1pt
963 \parindent \normalparindent % 20pt
964 \parskip \z@ % \@plus\p@
965 \leftmargini 2em
966 \leftmarginv .5em
967 \leftmarginvi .5em
968 \oddsidemargin \z@
969 \evensidemargin \z@
970 \topmargin -2.5pc    % 30pt = 29.89bp = .415in
971 \headheight 12\p@
972 \headsep 20\p@
973 \marginparwidth 48\p@
974 \marginparsep 10\p@
975 \partopsep=\z@
976 \topsep=3\p@\@plus\p@\@minus\p@
977 \parsep=3\p@\@plus\p@\@minus\p@
978 \itemsep=\parsep
979 %
980 % The width of one column plus gutter (=243pt =242.09bp) is useful sometimes.
981 \newdimen\tubcolwidthandgutter
982   \tubcolwidthandgutter=\columnwidth
983   \advance\tubcolwidthandgutter by \columnsep
```

```
984 %
985 % Ordinarily we typeset in two columns, but the onecolumn option
986 % goes to one.  In which case we want to center the text block on an
987 % 8.5in width, given the default 72.27pt offset with margins of zero.
988 % We are always in LaTeX's twoside mode because of how we load article,
989 % and this is a good thing, since we want different headings.
990 \if@tubtwocolumn \twocolumn \else
991   \onecolumn
992   \textwidth=34pc
993   \oddsidemargin=30.8775pt
994   \evensidemargin=\oddsidemargin
995 \fi
996 %
997 \newdimen\pagewd        \pagewd=\textwidth
998 \newdimen\trimwd        \trimwd=\pagewd
999 \newdimen\trimlgt       \trimlgt=11in
1000 \newdimen\headmargin    \headmargin=3.5pc
```

Don't go to a float page so soon. Not all of these are relevant to all articles, but we may as well set them all.

```
1001 \renewcommand{\topfraction}{.9}  % don't go to a float page so soon
1002 \renewcommand{\dbltopfraction}{.9}
1003 \renewcommand{\bottomfraction}{.7}
1004 \renewcommand{\textfraction}{.1}
1005 \renewcommand{\floatpagefraction}{.8}
1006 \renewcommand{\dblfloatpagefraction}{.8} % the most common one used
```

3.12   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.

```
1007 \newcommand{\DeclareLaTeXLogo}[5]{\expandafter\def
1008   \csname @LaTeX@#1/#2/#3\endcsname{{#4}{#5}}}
```

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

```
1009 \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.

```
1010 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
1011 \DeclareLaTeXLogo{lmss}{bx}{n}{.3}{.15}
1012 %
1013 \DeclareLaTeXLogo{cmr}{m}{it}{.29}{.2}
1014 \DeclareLaTeXLogo{lmr}{m}{it}{.29}{.2}
1015 %
1016 \DeclareLaTeXLogo{cmr}{m}{sl}{.29}{.15}
1017 \DeclareLaTeXLogo{lmr}{m}{sl}{.29}{.15}
1018 %
1019 \DeclareLaTeXLogo{cmr}{bx}{it}{.29}{.2}
1020 \DeclareLaTeXLogo{lmr}{bx}{it}{.29}{.2}
```

```
1021 %
1022 \DeclareLaTeXLogo{cmr}{bx}{sl}{.29}{.2}
1023 \DeclareLaTeXLogo{lmr}{bx}{sl}{.29}{.2}
1024 %
1025 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
1026 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}
```

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

```
1027 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
1028   \csname @LaTeX@\f@family/\f@series/\f@shape\endcsname
1029   \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
1030   \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.

```
1031 \newcommand{\@LaTeX}[2]{%
1032   %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
1033   L\kern-#1em
1034   {\sbox\z@ T%
1035    \vbox to\ht0{\hbox{$\m@th$%
1036                       \csname S@\f@size\endcsname
1037                       \fontsize\sf@size\z@
1038                       \math@fontsfalse\selectfont
1039                       A}%
1040                 \vss}%
1041   }%
1042   \kern-#2em%
1043   \TeX}
```

3.13   Authors, contributors, addresses, signatures

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

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

```
1044 \def\theauthor#1{\csname theauthor#1\endcsname}
1045 \def\theaddress#1{\csname theaddress#1\endcsname}
1046 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
1047 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
1048 \def\theORCID#1{\csname theORCID#1\endcsname}
```

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

31

```
1049 ⟨!latex⟩\newcount\@tempcnta
1050 \def\@defaultauthorlist{%
1051   \@getauthorlist\@firstofone
1052 }
```

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

```
1053 \def\@getauthorlist#1{%
1054   \count@\authornumber
1055   \advance\count@ by -2
1056   \@tempcnta0
```

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

```
1057   \loop
1058     \ifnum\count@>0
1059       \advance\@tempcnta by \@ne
1060       #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
1061       \advance\count@ by \m@ne
1062   \repeat
1063   \count@\authornumber
1064   \advance\count@ by -\@tempcnta
1065   \ifnum\authornumber>0
```

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

```
1066     \ifnum\count@>1
1067       \count@\authornumber
1068       \advance\count@ by \m@ne
1069       #1{\ignorespaces\theauthor{\number\count@}\unskip\@tubauthorlastsep}%
1070     \fi
```

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

```
1071     #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
1072   \fi
1073 }
1074 %
1075 \def\@tubauthorlastsep{, }% until 2018, was: "\ and "
```

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

```
1076 \def\signature#1{\def\@signature{#1}}
1077 \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

```
1078 \def\@defaultsignature{{%
1079   \let\thanks\@gobble
1080   \frenchspacing
1081   %
1082   \ifnum\authornumber<0
```

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

```
1083      \medskip
1084      \signaturemark
1085      \theauthor{\number\authornumber}\\
1086      \theaddress{\number\authornumber}\\
1087      \allowhyphens
1088      \thenetaddress{\number\authornumber}\\
1089      \thePersonalURL{\number\authornumber}\\
1090      \theORCID{\number\authornumber}\\
1091    \else
```

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

```
1092      \count@=0
1093      \loop
1094        \ifnum\count@<\authornumber
1095          \medskip
1096          \advance\count@ by \@ne
1097          \signaturemark
1098          \theauthor{\number\count@}\\
1099          \theaddress{\number\count@}\\
1100          {%
1101            \allowhyphens
1102            \thenetaddress{\number\count@}\\
1103            \thePersonalURL{\number\count@}\\
1104            \theORCID{\number\count@}\\
1105          }%
1106      \repeat
1107    \fi
1108  }%
1109 }
1110 \newdimen\signaturewidth   \signaturewidth=12pc
```

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

```
1111 \newcommand{\makesignature}[1][\medskipamount]{%
```

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

```
1112   \@tempdima\signaturewidth
1113   \advance\@tempdima 1.5pc
1114   \ifdim \@tempdima>\columnwidth
1115     \signaturewidth \columnwidth
1116     \advance\signaturewidth -1.5pc
1117   \fi
1118   \par
1119   \penalty9000
1120   \vspace{#1}%
1121   \rightline{%
1122     \vbox{\hsize\signaturewidth \ninepoint \raggedright
1123       \parindent \z@ \everypar={\hangindent 1pc }%
1124       \parskip \z@skip
1125       \def\|{\unskip\hfil\break}%
1126       \def\\{\endgraf}%
1127       \def\phone{\rm Phone: }%
1128       \def\tubmultipleaffilauthor{\unskip,\\\hspace*{1em}}%
```

```
1129        \rm\@signature}%
1130    }%
1131    \ifnum\authornumber<0 \endgroup\fi
1132 }
1133 \def\signaturemark{\leavevmode\llap{$\diamond$\enspace}}
```

The idea here is that if multiple authors share affiliation information, we need only typeset the affiliation once. We separate by commas for the `\maketitle`, and put on separate lines, also with commas, in the `\makesignature`.

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

```
1134 \def\tubmultipleaffilauthor{\unskip,\ \ignorespaces}%
1135 \def\tubmultipleaffilnet{\unskip\textrm{\,,\ \ignorespaces}}
```

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

```
1136 \newcount\authornumber
1137 \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`).

```
1138 \def\author{%
1139    \global\advance\authornumber\@ne
1140    \TB@author
1141 }
```

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

```
1142 \def\contributor{%
1143    \begingroup
1144    \authornumber\m@ne
1145    \TB@author
1146 }
```

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, but nowadays, we consider all address information optional.

```
1147 \def\TB@author#1{%
1148    \expandafter\def\csname theauthor\number\authornumber\endcsname
1149        {\ignorespaces#1\unskip}%
1150 %  \expandafter\def\csname theaddress\number\authornumber\endcsname
1151 %    {\TBWarningNL{Address for #1\space missing}\@gobble}%
1152 %  \expandafter\def\csname thenetaddress\number\authornumber\endcsname
1153 %    {\TBWarningNL{Net address for #1\space missing}\@gobble}%
1154    \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
1155      \@gobble
1156    \expandafter\let\csname theORCID\number\authornumber\endcsname
1157      \@gobble
```

```
1158   }
1159 \def\EDITORnoaddress{%
1160   \expandafter\let\csname theaddress\number\authornumber\endcsname
1161     \@gobble
1162 }
1163 \def\EDITORnonetaddress{%
1164   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
1165     \@gobble
1166 }
```

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

```
1167 \def\address#1{%
1168   \expandafter\def\csname theaddress\number\authornumber\endcsname
1169       {\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*!

```
1170 \def\network#1{\def\@network{#1: }}
```

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

```
1171 \newcommand{\netaddress}[1][\relax]{%
1172   \begingroup
1173   \def\@network{}%
```

Unfortunately, because of the catcode hackery, we have still to do one stage of relaying within our own code, even if we're using LaTeX 2ε.

```
1174   #1\@sanitize\makespace\ \makeactive\@%
1175   \makeescape! \makebgroup[ \makeegroup]% seems more useful than literals
1176   \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*?!**)

```
1177 \def\@relay@netaddress#1{%
1178   \ProtectNetChars
1179   \expandafter\protected@xdef
1180       \csname thenetaddress\number\authornumber\endcsname
1181     {\protect\leavevmode\textrm{\@network}%
1182       {\protect\NetAddrChars\net
1183       \ignorespaces#1\unskip}}%
1184   \endgroup
1185   }
```

`\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.

```
1186 \def\personalURL{\begingroup
1187   \@sanitize\makespace\ \makeactive\@
1188   \makeactive\.\makeactive\%\makeactive\/\@personalURL}%
1189 \def\@personalURL#1{%
1190   \ProtectNetChars
1191   \expandafter\protected@xdef
1192     \csname thePersonalURL\number\authornumber\endcsname{%
1193       \protect\leavevmode
1194       {%
1195         \protect\URLchars\net
1196         \ignorespaces#1\unskip
1197       }%
1198     }%
1199   \endgroup
1200   }
```

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...

```
1201 {%
1202   \makecomment\*
1203   \makeactive\@
1204   \gdef\netaddrat{\makeactive\@*
1205     \def@{\discretionary{\char"40}{}{\char"40}}}
1206   \makeactive\%
1207   \gdef\netaddrpercent{\makeactive\%*
1208     \def%{\discretionary{\char"25}{}{\char"25}}}
1209   \makeactive\.
1210   \gdef\netaddrdot{\makeactive\.*
1211     \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`.

```
1212   \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
1213   \makeactive\/
1214   \gdef\URLchars{*
1215     \NetAddrChars
1216     \makeactive\/*
1217     \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.

```
1218   \gdef\ProtectNetChars{*
1219     \def@{\protect@}*
1220     \def%{\protect%}*
1221     \def.{\protect.}*
1222     \def/{\protect/}*
```

36

```
1223      }
1224 }
```

LaTeX 2$_\varepsilon$ (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$_\varepsilon$ defines for the job).

```
1225 \if@compatibility
1226   \DeclareRobustCommand{\net}{\normalfont\ttfamily\mathgroup\symtypewriter}
1227 \else
1228   \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
1229 \fi
1230 \def\authorlist#1{\def\@author{#1}}
1231 \def\@author{\@defaultauthorlist}
```

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

```
1232 \def\ORCID#1{%
1233   \expandafter\def\csname theORCID\number\authornumber\endcsname
1234       {\leavevmode \ignorespaces {\SMC ORCID} #1\unskip}}
```

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

\mspmetavar

```
1235 \def\mspmetavar#1#2{}
```

3.14   Article title

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

Provide machinery (`\PreTitleDrop` to skip extra space, even one or more full columns, above the top of an article to leave space to paste up a previous article that has finished on the same page. This is a fall back to accommodate the fact that multiple articles cannot be run together easily.

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

```
1236 \newif\if@articletitle
1237 \def\maketitle{\@ifstar
1238   {\@articletitlefalse\@r@maketitle}%
1239   {\@articletitletrue\@r@maketitle}%
1240 }
1241 \def\@r@maketitle{\par
1242 \iftubsecondcolstart \null\newpage\tubsecondcolstartextra \fi
1243 \ifdim\PreTitleDrop > \z@
1244   \loop
```

37

```
1245    \ifdim \PreTitleDrop > \textheight
1246      \vbox{}\vfil\eject
1247      \advance\PreTitleDrop by -\textheight
1248    \repeat
1249    \vbox to \PreTitleDrop{\vfil}%
1250    \global\PreTitleDrop=\z@
1251  \fi
1252  \begingroup
1253  \setcounter{footnote}{0}
1254  \global\@topnum\z@ % disallow floats above the title
1255  \def\thefootnote{\fnsymbol{footnote}}
1256  \@maketitle
1257  \@thanks
1258  \endgroup
1259  \setcounter{footnote}{0}
1260  \gdef\@thanks{}
1261  }
```

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

```
1262 \def\rhTitle{}% avoid error if no author or title
1263 \renewcommand{\title}{\@dblarg\TB@title}
1264 \def\TB@title[#1]#2{\gdef\@title{#2}%
1265   \bgroup
1266     \let\thanks\@gobble
1267     \def\\{\unskip\space\ignorespaces}%
1268     \protected@xdef\rhTitle{#1}%
1269   \egroup
1270 }
```

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

```
1271 \def\shortTitle #1{\def\rhTitle{#1}}
1272 \newif\ifshortAuthor
1273 \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}
```

3.15   Section titles

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

Define the distance between articles which are run together:

```
1274 \def\secsep{\vskip 5\baselineskip}
```

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

```
1275 \newdimen\stbaselineskip        \stbaselineskip=18\p@
1276 \newdimen\stfontheight
1277 \settoheight{\stfontheight}{\sectitlefont O}
```

38

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.

```
1278 \newif\ifWideSecTitle
1279 \newif\iftubtitlerulefullwidth
1280 \newif\ifSecTitle \SecTitlefalse
1281 \newcommand{\sectitle}{%
1282   \SecTitletrue
1283   \@ifstar
1284     {\WideSecTitletrue\def\s@ctitle}%
1285     {\WideSecTitlefalse\def\s@ctitle}%
1286 }
```

`\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.

```
1287 \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` is glue above the article title; `\BelowTitleSkip` is glue below the authors in the title block. `\strulethickness` is the value to use for `\fboxrule` when setting the title, and for the rule above titles when there is no box.

For `\BelowTitleSkip`, add some stretch and shrink since the first column of an article often needs it; otherwise, a first column of all text will come out underfull. Use `plus2pt` since that is the same as the glue above sections, but `minus1pt` since we'd usually prefer to shrink somewhere else if possible.

```
1288 \newskip\AboveTitleSkip   \AboveTitleSkip=12pt
1289 \newskip\BelowTitleSkip   \BelowTitleSkip=8pt plus2pt minus1pt
1290 \newdimen\strulethickness \strulethickness=.6pt
```

`\@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...

```
1291 \def\@sectitle #1{%
1292   \par
1293   \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.

```
1294   \ifWideSecTitle\else\secsep\fi
1295   {%
1296     \fboxrule\strulethickness
```

```
1297    \fboxsep\z@
1298    \noindent\framebox[\hsize]{%
1299      \vbox{%
1300        \raggedcenter
1301        \let\\\@sectitle@newline
1302        \sectitlefont
1303        \makestrut[2\stfontheight;\z@]%
1304        #1%
1305        \makestrut[\z@;\stfontheight]\endgraf
1306      }%
1307    }%
1308  }%
1309  \nobreak
1310  \vskip\baselineskip
1311 }
```

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

```
1312 \newcommand{\@sectitle@newline}[1][\z@]{%
1313   \ifdim#1>\z@
1314     \makestrut[\z@;#1]%
1315   \fi
1316   \unskip\break
1317 }
```

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).

```
1318 \def\@makesectitle{\ifSecTitle
1319    \global\SecTitlefalse
1320    \ifWideSecTitle
1321      \twocolumn[\@sectitle{\s@ctitle}]%
1322      \global\WideSecTitlefalse
1323    \else
1324      \@sectitle{\s@ctitle}%
1325    \fi
1326  \else
1327    \vskip\AboveTitleSkip
1328    \kern\topskip
1329    \hrule \@height\z@ \@depth\z@ \@width 10\p@
1330    \kern-\topskip
1331    \kern-\strulethickness
1332    \iftubtitlerulefullwidth
1333      \hrule \@height\strulethickness \@depth\z@ width\textwidth
1334    \else
1335      \hrule \@height\strulethickness \@depth\z@
1336    \fi
1337    \kern\medskipamount
1338    \nobreak
1339  \fi
1340 }
```

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

```
1341 \def\@maketitle{%
1342   \@makesectitle
```

40

```
1343    \if@articletitle{%
1344      \nohyphens \interlinepenalty\@M
1345      \setbox0=\hbox{%
1346        \let\thanks\@gobble
1347        \let\\=\quad
1348        \let\and=\quad
1349        \ignorespaces\@author}%
1350      {%
1351        \noindent\bf\raggedright\ignorespaces\frenchspacing
1352        \let\BibTeX=\bfBibTeX % else LaTeX Font Warning:
1353                             %       Font shape 'OT1/cmr/bx/sc' undefined
1354        \@title\endgraf
1355      }%
1356      \ifdim \wd0 < 5\p@              % omit if author is null
1357      \else
```

Since we have \BelowTitleSkip + 4pt = \baselineskip, we skip by 4pt here. However, an all-text first column still comes out underfull, maybe because of the top rule? Thus \BelowTitleSkip is given a little stretch and shrink.

```
1358        \nobreak \vskip 4\p@
1359        {%
1360          \leftskip=\normalparindent
1361          \raggedright
1362          \def\and{\unskip\\}%
1363          \noindent\@author\endgraf
1364        }%
1365      \fi
1366      \nobreak
1367      \vskip\BelowTitleSkip
1368    }\fi%
1369    \global\@afterindentfalse
1370    \aftergroup\@afterheading
1371 }
```

Dedications are ragged right, in italics.

```
1372 \newenvironment{dedication}%
1373   {\raggedright\noindent\itshape\ignorespaces}%
1374   {\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.

```
1375 \def\@tubonecolumnabstractstart{%
1376      \list{}{\listparindent\normalparindent
1377        \itemindent\z@ \leftmargin\@tubfullpageindent
1378        \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1379 }
1380 \def\@tubonecolumnabstractfinish{%
1381      \endlist
1382 }
1383 \renewenvironment{abstract}%
1384   {\begin{SafeSection}%
1385     \section*{%
```

```
1386          \if@tubtwocolumn\else \hspace*{\@tubfullpageindent}\fi
1387          Abstract}%
1388       \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1389    }%
1390    {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1391      \end{SafeSection}}
1392  \newenvironment{longabstract}%
1393    {\begin{SafeSection}%
1394      \section*{Abstract}%
1395      \bgroup\small
1396    }%
1397    {\endgraf\egroup
1398      \end{SafeSection}%
1399    \vspace{.25\baselineskip}
1400    \begin{center}
1401      {$--*--$}
1402    \end{center}
1403    \vspace{.5\baselineskip}}
```

3.16   Section headings

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

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

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

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

The `\tubsecfmt` macro defines our standard formatting for section titles: ragged right, french spacing, no hyphenation. The `\tubruninsecfmt` macro is the simpler form for run-in section headings (when the afterskip is negative), with the afterskip glue given by `\tubruninglue`. The `\tubsechook` macro allows overriding the defaults.

```
1404  \def\tubsechook{}
1405  \def\tubsecfmt{\normalsize\bf\raggedright\frenchspacing\nohyphens\tubsechook}
1406  \def\tubruninglue{-1em plus-2\fontdimen3\font minus-\fontdimen4\font}
1407  \def\tubruninsecfmt{\normalsize\bf\tubsechook}
1408  %
1409  \if@numbersec
1410    \def\section{\TB@startsection{%
1411      {section}                % name of counter
1412      {1}                      % level
1413      {0pt}                    % indent
1414      {-8pt plus-2pt minus-2pt} % beforeskip; negative -> \noindent after
1415      {4pt}                    % afterskip;  negative -> hspace for run-in
1416      {\tubsecfmt}}}           % style
1417    %
1418    \def\subsection{\TB@startsection{%
1419      {subsection}%
1420      2%
1421      \z@
```

```
1422    {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1423    {4\p@}%
1424    {\tubsecfmt}}}
1425  %
1426  \def\subsubsection{\TB@startsection{%
1427    {subsubsection}%
1428    3%
1429    \z@
1430    {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1431    {4\p@}%
1432    {\tubsecfmt}}}
1433  %
1434  \def\paragraph{\TB@startsection{%
1435    {paragraph}%
1436    4%
1437    \z@
1438    {4\p@ \@plus1\p@ \@minus1\p@}%
1439    {\tubruninglue}
1440    {\tubruninsecfmt}}}
```

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

```
1441 \else
1442   \setcounter{secnumdepth}{0}
1443   \def\section{\TB@nolimelabel\TB@startsection{%
1444     {section}% same as numbeed
1445     1%
1446     \z@
1447     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1448     {4\p@}%
1449     {\tubsecfmt}}}
1450   %
1451   \def\subsection{\TB@nolimelabel\TB@startsection{%
1452     {subsection}%
1453     2%
1454     \z@
1455     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1456     {\tubruninglue}
1457     {\tubruninsecfmt}}}
1458   %
1459   \def\subsubsection{\TB@nolimelabel\TB@startsection{%
1460     {subsubsection}%
1461     3%
1462     \parindent
1463     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1464     {\tubruninglue}
1465     {\tubruninsecfmt}}}
1466 \fi
```

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

```
1467 \def\TB@startsection#1{\@startsection#1}%
```

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

```
1468 \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.

```
1469 \newenvironment{SafeSection}%
1470   {\let\TB@startsection\TB@safe@startsection}%
1471   {}
```

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'[1]).

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.

```
1472 \if@numbersec
1473   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1474 \else
1475   \def\paragraph{\TB@nosection\paragraph\subsubsection}
1476   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1477 \fi
1478 \def\chapter{\TB@nosection\chapter\section}
1479 \def\part{\TB@nosection\part\section}
1480 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1481     \string#2\space used instead}#2}
```

\l@<sectioninglevel> 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

Contents

, or leaders get messed up.

```
1482 \def\TBtocsectionfont{\normalfont}
1483 \newskip\TBtocsectionspace  \TBtocsectionspace=1.0ex\@plus\p@
1484 % |#1| is both the section number and title, as in
1485 %    |{\numberline {1}Introduction}|.
1486 % |#2| is the page number.
1487 %
1488 % Per Ulrike, the hook calls are for tagging, introduced with the
1489 % June 2023 \LaTeX.
```

---

[1] Thurber, *The Wonderful O*

```
1490 % qqq need to also do subsections like tb137carlisle to avoid hyphenation
1491 \def\l@section#1#2{%
1492   \addpenalty{\@secpenalty}%
1493   \addvspace{\TBtocsectionspace}%
1494   \@tempdima 1.5em
1495   \begingroup
1496     \parindent\z@
1497     \rightskip=0pt plus2em
1498     \parfillskip\z@
1499     \hyphenpenalty=10000
1500     \TBtocsectionfont
1501     \leavevmode
1502     \advance\leftskip by \@tempdima % space between section number and text
1503     \hskip-\leftskip
1504     %
1505     \ifx\UseHookWithArguments\undefined\else % hook before number and text
1506       \UseHookWithArguments{contentsline/text/before}{4}
1507         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1508     \fi
1509     %
1510     % don't worry if this cs is not defined, hence the \csname.
1511     % If it doesn't exist, we just typeset #1 as text.
1512     \csname contentsline@text@1@format\endcsname
1513     {#1% number and title
1514      \unskip % avoid extra space just in case
1515      \csname pdffakespace\endcsname % fake space if pdftex
1516      ~% ensure at least a word space between text and page number
1517     }
1518     %
1519     \ifx\UseHookWithArguments\undefined\else % hook after number and text
1520       \UseHookWithArguments{contentsline/text/after}{4}
1521         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1522     \fi
1523     \nobreak\hfil
1524     \nobreak
1525     % page number
1526     \hb@xt@\@pnumwidth{\hfil
1527       \ifx\UseHookWithArguments\undefined\else
1528         \UseHookWithArguments{contentsline/page/before}{4}
1529           {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1530       \fi
1531       \tubtypesetpageno{#2}%
1532       \ifx\UseHookWithArguments\undefined\else
1533         \UseHookWithArguments{contentsline/page/after}{4}
1534           {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1535       \fi
1536     }\par
1537   \endgroup}
```

3.17 Appendices

Appendices (which are really just another sort of section heading) raise a problem:
if the sections are unnumbered, we plainly need to restore the section numbering,
which in turn allows labelling of section numbers again (\TBnolimelabel happens

before the \refstepcounter, so its effects get lost ... what a clever piece of design that was). So here we go:

```
1538 \renewcommand{\appendix}{\par
1539   \renewcommand{\thesection}{\@Alph\c@section}%
1540   \setcounter{section}{0}%
1541   \if@numbersec
1542   \else
1543     \setcounter{secnumdepth}{1}%
1544   \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.

```
1545   \def\@tempa{appendix}
1546   \ifx\@tempa\@currenvir
1547     \expandafter\@appendix@env
1548   \fi
1549 }
```

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

```
1550 \newcommand{\app@prefix@section}{}
1551 \newcommand{\@appendix@env}[1][Appendix]{%
1552   \renewcommand{\@seccntformat}[1]{\csname app@prefix@##1\endcsname
1553     \csname the##1\endcsname\quad}%
1554   \renewcommand{\app@prefix@section}{#1 }%
1555 }
```

Ending an appendix environment is pretty trivial...

```
1556 \let\endappendix\relax
```

3.18   References

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

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

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

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

```
1557 \def\TB@nolimelabel{%
1558   \def\@currentlabel{%
1559     \protect\TBWarning{%
1560       Invalid reference to numbered label on page \thepage
1561       \MessageBreak made%
1562     }%
1563     \textbf{?!?}%
1564   }%
1565 }
```

46

3.19 Title references

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

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

As of the June 2023 LATEX (or somewhat earlier, but this is good enough), there are hooks that allow us to avoid redefinig `\@sect` and `\@ssect`.

```
1566 \@ifl@t@r\fmtversion{2023-06-01}{}{%
1567 \let\TB@@sect\@sect
1568 \let\TB@@ssect\@ssect
1569 \def\@sect#1#2#3#4#5#6[#7]#8{%
1570   \def\@currentlabelname{#7}%
1571   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1572 }
1573 \def\@ssect#1#2#3#4#5{%
1574 \def\@currentlabelname{#5}%
1575 \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1576 }
1577 } % LaTeX earlier than June 2023
```

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>`.

Similarly, we only need this with pre-June 2023 LATEX. With more recent LaTeX, define currentlabelname via hooks.

```
1578 \@ifl@t@r\fmtversion{2023-06-01}{%
1579   \RequirePackage{gettitlestring}
1580   \AddToHookWithArguments{cmd/@sect/before}{%
1581     \GetTitleString{#7}%
1582     \let\@currentlabelname\GetTitleStringResult}%
1583   \AddToHookWithArguments{cmd/@ssect/before}{%
1584     \GetTitleString{#5}%
1585     \let\@currentlabelname\GetTitleStringResult}%
1586 }{% else older latex:
1587   \let\@savelatexlabel=\label  % so save original LaTeX command
1588   %
1589   \def\label#1{%
1590     \@savelatexlabel{#1}%
1591     \@bsphack
1592     \if@filesw
1593       \protected@write\@auxout{}%
1594         {\string\newlabel{nr@#1}{{\@currentlabel}{\@currentlabelname}}}%
1595     \fi
1596     \@esphack}
1597   % in case there are no sectioning commands:
1598   \let\@currentlabelname\@empty
1599 }
```

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

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

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

```
1600 \AtBeginDocument{%
1601   \@ifl@t@r\fmtversion{2023-06-01}%
1602   { % after June 2023, LaTeX stores the label name; use that.
1603     \long\def\@thirdoffive#1#2#3#4#5{#3}
1604     \providecommand\nameref[1]{%
1605       \expandafter\@setref
1606       \csname r@#1\endcsname\@thirdoffive{#1}}%
1607   }
1608   { % for earlier versions, still avoid overwriting \nameref per above.
1609     % but if not otherwise defined, use the "nr" label defined by our \label.
1610   \providecommand\nameref[1]{%
1611     \expandafter\@setref
1612     \csname r@nr@#1\endcsname\@secondoftwo{#1}}%
1613   }%
1614 }
```

3.20   Float captions

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

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

`\@tubfullpageindent`

```
1615 \newdimen\@tubfullpageindent
1616 \@tubfullpageindent = \if@tubtwocolumn 4.875pc \else 3.875pc \fi
```

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

`\tubcaptionleftglue`

```
1617 \let\tubcaptionleftglue=\hfil
```

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

```
1618 \def\tubcaptionfonts{\small}%
```

Ok, here is `\@makecaption`.

```
1619 \long\def\@makecaption#1#2{%
1620   \vskip\abovecaptionskip
1621   % try in an hbox:
1622   \sbox\@tempboxa{\tubcaptionfonts \frenchspacing \tubmakecaptionbox{#1}{#2}}%
1623   \ifdim \wd\@tempboxa > \hsize
```

```
1624    {% caption doesn't fit on one line; set as a paragraph.
1625     \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
1626     % indent full-width captions {figure*}, but not single-column {figure}.
1627     \ifdim\hsize = \textwidth
1628       \leftskip=\@tubfullpageindent \rightskip=\leftskip
1629       \advance\rightskip by 0pt plus2em  % increase acceptable raggedness
1630     \fi
1631     \noindent \tubmakecaptionbox{#1}{#2}\par}%
1632   \else
1633     % fits on one line; use the hbox, usually centered.  Do not reset its glue.
1634     \global\@minipagefalse
1635     \hb@xt@\hsize{\tubcaptionleftglue\box\@tempboxa\hfil}%
1636   \fi
1637   \vskip\belowcaptionskip}
1638 %
1639 \def\tubmakecaptionbox#1#2{#1:\ #2}% allow overriding for a paper
```

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

```
1640 \def\fnum@figure{{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
1641 \def\fnum@table{{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}
1642 \def\lstlistingnamestyle{\bfseries}
```

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

```
1643 \setlength\abovecaptionskip{3pt plus1pt minus1pt}
```

Let's also reduce the space between floats, and between floats and text. The `\dbl...` versions of these parameters are not used, even though we're typesetting in double columns.

```
1644 \setlength\floatsep     { 9pt plus3pt minus2pt} % default 12pt plus2pt minus2pt
1645 \setlength\textfloatsep{12pt plus4pt minus3pt} % default 20pt plus2pt minus4pt
```

We want to allow more floats at the top/bottom/everywhere on a page; all depends on their content.

```
1646 \setcounter{bottomnumber}{2} % default 1
1647 \setcounter{topnumber}{4}    % default 2
1648 \setcounter{totalnumber}{6}  % default 3
```

3.21   Size changing commands

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

```
1649 \renewcommand{\normalsize}{%
1650   \@setfontsize\normalsize\@xpt\@xiipt
1651   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1652   \belowdisplayskip=\abovedisplayskip
1653   \abovedisplayshortskip=\z@\@plus 3\p@
1654   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1655 }
1656
1657 \renewcommand{\small}{%
1658   \@setfontsize\small\@ixpt{11}%
```

```
1659    \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1660    \belowdisplayskip=\abovedisplayskip
1661    \abovedisplayshortskip=\z@\@plus 2\p@
1662    \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1663 }
1664
1665 \renewcommand{\footnotesize}{%
1666     \@setfontsize\footnotesize\@viiipt{9.5}%
1667     \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1668     \belowdisplayskip=\abovedisplayskip
1669     \abovedisplayshortskip=\z@\@plus 3\p@
1670     \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1671 }
```

3.22   Lists and other text inclusions

```
1672 \def\@listi{%
1673    \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1674    \itemsep=\parsep
1675    \listparindent=1em
1676    }
1677
1678 \def\@listii{%
1679    \leftmargin\leftmarginii
1680    \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1681    \topsep=2\p@\@plus\p@\@minus\p@ % space between first item and preceding
1682    \parsep=\p@\@plus\p@\@minus\p@
1683    \itemsep=\parsep                % space between successive items
1684    \listparindent=1em              % indentation of subsequent paragraphs
1685    }
1686
1687 \def\@listiii{%
1688    \leftmargin=\leftmarginiii
1689    \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1690    \topsep=\p@\@plus\p@\@minus\p@
1691    \parsep=\z@
1692    \itemsep=\topsep
1693    \listparindent=1em
1694    }
1695 \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.

```
1696 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1697      \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}
```

   The compactitemize, compactenumerate, and compactdescription envi-
ronments, without space between the items.

```
1698 \newenvironment{compactitemize}%
1699    {\begin{itemize}%
1700     \setlength{\itemsep}{0pt}%
1701     \setlength{\parskip}{0pt}%
1702     \setlength{\parsep} {0pt}%
1703    }%
1704    {\end{itemize}}
```

```
1705 %
1706 \newenvironment{compactenumerate}%
1707    {\begin{enumerate}%
1708      \setlength{\itemsep}{0pt}%
1709      \setlength{\parskip}{0pt}%
1710      \setlength{\parsep} {0pt}%
1711    }%
1712    {\end{enumerate}}
1713 %
1714 \newenvironment{compactdescription}%
1715    {\begin{description}%
1716      \setlength{\itemsep}{0pt}%
1717      \setlength{\parskip}{0pt}%
1718      \setlength{\parsep} {0pt}%
1719    }%
1720    {\end{description}}
1721 %
```

3.23   Some fun with `verbatim`

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

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

```
1722 %\let\@TB@verbatim\@verbatim
1723 \let\@TBverbatim\verbatim
1724 \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.)

```
1725 \def\verbatim{\par\obeylines
1726    \futurelet\reserved@a\@switch@sqbverbatim}
1727 %
1728 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1729    \expandafter\@sqbverbatim\else
1730    \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1731 %
1732 \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.

```
1733    \def\ruled{\let\if@ruled\iftrue}%
```

51

The command `\makevmeta` says to make `!¡...¿` do ⟨...⟩.

```
1734    \def\makevmeta{\makeescape\! \let\<\tubverb@meta \tubverb@clearliglist}
1735    \def\tubverb@meta##1>{\meta{##1}}
```

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

```
1736    \def\tubverb@clearliglist{%
1737      \def\verbatim@nolig@list{\do\'\do\,\do\'\do\-}%
1738    }
```

Then we execute the arguments we've got, and relay to a (hacked) copy of the LaTeX verbatim environment.

```
1739    #1\@TBverbatim}
```

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

```
1740 \def\@verbatim{%
```

First, we deal with `\ruled`:

```
1741      \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1742    \trivlist \item\relax
1743    \if@minipage\else\vskip\parskip\fi
1744    \leftskip\@totalleftmargin\rightskip\z@skip
1745    \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1746    \@@par
1747    \@tempswafalse
1748    \def\par{%
1749      \if@tempswa
1750        \leavevmode \null \@@par\penalty\interlinepenalty
1751      \else
1752        \@tempswatrue
1753        \ifhmode\@@par\penalty\interlinepenalty\fi
1754      \fi}%
1755    \obeylines \verbatim@font \@noligs
1756    \let\do\@makeother \dospecials
1757    \everypar \expandafter{\the\everypar \unpenalty}%
1758 }% end |\@sqbverbatim|
```

To end the environment, we do everything in reverse order: relay via the copy we made of `\endverbatim`, and then finish off the option changes (again `\ruled` only, so far).

```
1759 \def\endverbatim{\@TBendverbatim
1760    \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

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

```
1761 \let\if@ruled\iffalse
```

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

```
1762 \AtBeginDocument{%
```

```
1763    \@ifpackageloaded{microtype}
1764       {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{}
1765 }
```

3.24 Bibliography

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

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

The available citation commands are:

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

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

```
1766 \if@Harvardcite
1767 \let\@internalcite\cite
```

Normal forms.

```
1768 \def\cite{\def\@citeseppen{-1000}%
1769     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1770     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1771 \def\citeNP{\def\@citeseppen{-1000}%
1772     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1773     \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1774 \def\citeN{\def\@citeseppen{-1000}%
1775     \def\@cite##1##2{##1\if@tempswa , ##2)\else{)}\fi}%
1776     \def\citeauthoryear##1##2##3{##1 (##3}\@citedata}
1777 \def\citeA{\def\@citeseppen{-1000}%
1778     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1779     \def\citeauthoryear##1##2##3{##1}\@internalcite}
1780 \def\citeANP{\def\@citeseppen{-1000}%
1781     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1782     \def\citeauthoryear##1##2##3{##1}\@internalcite}
```

Abbreviated forms (using *et al.*)

```
1783 \def\shortcite{\def\@citeseppen{-1000}%
1784     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1785     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1786 \def\shortciteNP{\def\@citeseppen{-1000}%
1787     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1788     \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
```

```
1789 \def\shortciteN{\def\@citeseppen{-1000}%
1790     \def\@cite##1##2{##1\if@tempswa , ##2)\else{)}\fi}%
1791     \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1792 \def\shortciteA{\def\@citeseppen{-1000}%
1793     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1794     \def\citeauthoryear##1##2##3{##2}\@internalcite}
1795 \def\shortciteANP{\def\@citeseppen{-1000}%
1796     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1797     \def\citeauthoryear##1##2##3{##2}\@internalcite}
```

When just the year is needed:

```
1798 \def\citeyear{\def\@citeseppen{-1000}%
1799     \def\@cite##1##2{(##1\if@tempswa , ##2\fi)}%
1800     \def\citeauthoryear##1##2##3{##3}\@citedata}
1801 \def\citeyearNP{\def\@citeseppen{-1000}%
1802     \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1803     \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.

```
1804 \def\@citedata{%
1805         \@ifnextchar [{\@tempswatrue\@citedatax}%
1806                          {\@tempswafalse\@citedatax[]}%
1807 }
1808
1809 \def\@citedatax[#1]#2{%
1810 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1811   \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1812     {\@citea\def\@citea{, }\@ifundefined% by Young
1813       {b@\@citeb}{{\bf ?}%
1814       \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1815 {\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.

```
1816 \def\@citex[#1]#2{%
1817 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1818   \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1819     {\@citea\def\@citea{; }\@ifundefined% by Young
1820       {b@\@citeb}{{\bf ?}%
1821       \@warning{Citation `\@citeb' on page \thepage \space undefined}}%
1822 {\csname b@\@citeb\endcsname}}}{#1}}%
```

No labels in the bibliography.

```
1823 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```
1824 \newlength{\bibhang}
1825 \setlength{\bibhang}{2em}
```

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

```
1826 \newdimen\bibindent
1827 \bibindent=1.5em
1828 \@ifundefined{refname}%
```

```
1829     {\newcommand{\refname}{References}}%
1830     {}%
```

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

```
1831 \def\thebibliography#1{% for harvardcite
1832   \let\TB@startsection\TB@safe@startsection
1833   \section*{\refname
1834     \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1835   \list{[\arabic{enumi}]}{%
1836     \labelwidth\z@ \labelsep\z@
1837     \leftmargin\bibindent
1838     \itemindent -\bibindent
1839     \listparindent \itemindent
1840     \parsep \z@
1841     \usecounter{enumi}}%
1842   \def\newblock{}%
1843   \BibJustification
1844   \frenchspacing % more than just period, see comments below
1845 }
```

etal   Other bibliography odds and ends.

```
\bibentry 1846 \def\etal{et\,al.\@}
1847 \def\bibentry{%
1848   \smallskip
1849   \hangindent=\parindent
1850   \hangafter=1
1851   \noindent
1852   \sloppy
1853   \clubpenalty500 \widowpenalty500
1854   \frenchspacing
1855 }
```

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

```
1856 \def\bibliography#1{%
1857   \if@filesw
1858     \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1859   \fi
1860   \@input{\jobname.bbl}%
1861 }
1862 \def\bibliographystyle#1{%
1863   \if@filesw
1864     \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1865   \fi
1866 }
```

\thebibliography   If the user's asked to use LaTeX's default citation mechanism (using the rawcite
\TB@@thebibliography   option), we still need to patch \sloppy to support justification of the body of
the bibliography. We kludge in a call to \frenchspacing too, since there is no
reason to change only period's \sfcode, as LaTeX's original thebibliography (in
classes.dtx) does.

By the way, amsgen.sty changes \frenchspacing to set the \sfcode of punctuation character to successively decreasing integers ending at 1001 for comma.
Thus its 1006 for period is overwritten to 1000 for thebibliography, making

amsgen's `\@addpunct` ineffective. Don't know what that means in practice, if anything.

Back here, we also play with *The T_EXbook*@startsection since we always have, though that is no longer needed.

```
1867 \else % not harvardcite
1868 \let\TB@origthebibliography\thebibliography
1869 \def\thebibliography{%
1870   \let\TB@startsection\TB@safe@startsection
1871   \def\sloppy{\frenchspacing\BibJustification}%
1872   \TB@origthebibliography} % latex's thebibliography now reads args.
1873 \fi  % not harvardcite
```

`\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.)

```
1874 \let\TB@@sloppy\sloppy
1875 \let\BibJustification\TB@@sloppy
1876 \newcommand{\SetBibJustification}[1]{%
1877   \renewcommand{\BibJustification}{#1}%
1878 }
1879 \ResetCommands\expandafter{\the\ResetCommands
1880   \let\BibJustification\TB@@sloppy
1881 }
```

3.25   Registration marks

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

```
1882 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1883 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1884 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }
```

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

```
1885 \def\ttopregister{\dlap{%
1886         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1887                       \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1888         \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}}
1889 \def\tbotregister{\ulap{%
1890         \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1891         \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1892                       \HorzR@gisterRule \hfil \HorzR@gisterRule}}}
1893 \def\topregister{\ttopregister}
1894 \def\botregister{\tbotregister}
```

3.26   Running headers and footers

```
1895 \def\rtitlex{\def\texttub##1{{\normalsize\textrm{##1}}}\TUB, \volx}
```

registration marks; these are temporarily inserted in the running head

```
1896 \def\MakeRegistrationMarks{}
1897 \def\UseTrimMarks{%
1898   \def\MakeRegistrationMarks{%
1899     \ulap{\rlap{%
```

```
1900          \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}%
1901                  \topregister\vskip \headmargin \vskip 10\p@}}}}%
1902   }
1903 % put issue identification and page number in header.
1904 \def\@oddhead{\MakeRegistrationMarks
1905   \frenchspacing
1906   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1907   \rtitlex\qquad \midrtitle\hfil
1908   \rtitlenexttopage\quad\tubtypesetpageno{\thepage}}
1909 \def\@evenhead{\MakeRegistrationMarks
1910   \frenchspacing
1911   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1912   \tubtypesetpageno{\thepage}\quad\rtitlenexttopage
1913   \hfil\midrtitle \qquad\rtitlex}
1914
1915 % Put a ? into the page number in the headers in all but a final run, so
1916 % people aren't tempted to cite it.
1917 %
1918 \newcommand{\tubtypesetpageno}[1]{%
1919   \ifnum #1>900
1920     % in CM, numerals are exactly .5em.
1921     %
1922     % The \texorpdfstring avoids the usual hyperref warning:
1923     %   Token not allowed in a PDF string ... removing '\@ifnextchar'
1924     \texorpdfstring{\makebox[.5em][l]{\small ?}}{?}%
1925     %
1926     \textsl{\@arabic{\numexpr#1-900\relax}}% assuming e-tex
1927   \else
1928     \@arabic{#1}%
1929   \fi
1930 }
1931 %
1932 % The above changes the page number in the headers and tocs. It does not
1933 % change the page number in cross-references, which will still show up
1934 % as '901' instead of '?1'. In order to do that, we'd have to redefine
1935 % |\thepage| (https://tex.stackexchange.com/questions/687258).
1936 %
1937 % The problem is that |\thepage| is not expected to contain typesetting
1938 % commands like |\makebox| and |\textsl|, but to expand to the simple
1939 % page number (in whatever form). For example, when redefining
1940 % |\thepage| to the above, terminal warnings then look like:
1941 % |LaTeX Warning: Citation 'foo' on page \makebox [.5em][l]{...|
1942 % losing the actual page number.
1943 %
1944 % So apparently there is no way to add the ? correctly in all contexts.
1945 %
1946 % BTW, such a custom page number format would also break makeindex,
1947 % etc., but for that we could provide the information. Per Ulrike:
1948 %\usepackage{index}
1949 %\newcommand\specialthepage{\inteval{\value{page}-900}}
1950 %\newindex[specialthepage]*{default}{idx}{ind}{Index}
1951
1952 % can be used to reset the font, e.g., tb98kuester.
1953 \def\tubheadhook{}
```

```
1954
1955 % in case the official \author is too verbose for the footline.
1956 % (the \shortauthor / \rhAuthor stuff is only enabled for proceedings, fix!)
1957 \def\tubrunningauthor{\@author}
1958
1959 % put title and author in footer.
1960 \def\@tubrunningfull{%
1961   \def\@oddfoot{% make line break commands produce a normal space
1962     \def\\{\unskip\ \ignorespaces}%
1963     \let\newline=\\%
1964     \tubtypesetdoi
1965     \frenchspacing\hfil\rhTitle}
1966   \def\@evenfoot{%
1967     \let\thanks\@gobble
1968     \tubtypesetdoi
1969     \frenchspacing\tubrunningauthor\hfil}
1970 }
1971
1972 % empty footer.
1973 \def\@tubrunningminimal{%
1974   \def\@oddfoot{\tubtypesetdoi\hfil}%
1975   \def\@evenfoot{\tubtypesetdoi\hfil}%
1976 }
1977
1978 % empty footer and header.
1979 \def\@tubrunningoff{%
1980   \@tubrunningminimal
1981   \def\@oddhead{\hfil}%
1982   \def\@evenhead{\hfil}%
1983 }
1984
1985 \def\ps@headings{}
1986 \pagestyle{headings}
```

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

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

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

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

```
1987 %
1988 \def\tubdoiprefix{10.47397/tb} % the number crossref assigned us
1989 \def\tubabovedoi{}                  % fudge spacing or whatever.
1990 %
1991 \def\tubtypesetdoi{%
1992   \iftubomitdoioption\else % do if not explicit omission ...
1993     \ifnum\volno>0          % and if being run for production ...
1994       \iftubfinaloption     % and if [final], even if pageno>900
1995         \vbox to 0pt{% don't impact normal layout
1996           \edef\thedoi{% but make url invalid if >900
1997                       \ifnum\count0>900 example.org%
1998                                       \else doi.org\fi
```

```
1999                        /\tubdoiprefix/\volno-\issno/\jobname}%
2000            \scriptsize
2001            \vskip\baselineskip
2002            \tubabovedoi
2003            \iftubsecondcolstart \moveright \tubcolwidthandgutter \fi
2004            \rlap{\expandafter\tbsurl\expandafter{\thedoi}}%
2005            \vss
2006          }%
2007       \fi  % tubfinaloption
2008     \fi    % volno>0
2009   \fi      % !tubomitdoioption
2010   \global\let\tubtypesetdoi\@empty % only do it once, no matter what.
2011 }
2012 %
2013 %
```

3.27 Output routine

Modified to alter `\brokenpenalty` across columns

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

```
2014 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
2015     \global\setbox\@leftcolumn\box\@outputbox
2016     \global\brokenpenalty10000
2017   \else \global\@firstcolumntrue
2018     \global\brokenpenalty100
2019   \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
2020     {\box\@leftcolumn \hfil}\hfil \vrule \@width\columnseprule\hfil
2021     \hb@xt@\columnwidth{\box\@outputbox \hfil}}}\@combinedblfloats
2022     \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
2023     \@whilesw\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
2024   \fi}
```

3.28 Font-related definitions and machinery

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

```
2025 \newif\ifFirstPar       \FirstParfalse
2026 \def\smc{\sc}
2027 \def\ninepoint{\small}
2028 ⟨/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.)

```
2029 ⟨*common⟩
2030 \DeclareRobustCommand{\SMC}{%
2031   \ifx\@currsize\normalsize\small\else
2032    \ifx\@currsize\small\footnotesize\else
2033     \ifx\@currsize\footnotesize\scriptsize\else
2034      \ifx\@currsize\large\normalsize\else
2035       \ifx\@currsize\Large\large\else
2036        \ifx\@currsize\LARGE\Large\else
2037         \ifx\@currsize\scriptsize\tiny\else
2038          \ifx\@currsize\tiny\tiny\else
2039           \ifx\@currsize\huge\LARGE\else
2040            \ifx\@currsize\Huge\huge\else
2041             \small\SMC@unknown@warning
2042  \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
2043 }
2044 \newcommand{\SMC@unknown@warning}{\TBWarning{\string\SMC: nonstandard
2045     text font size command -- using \string\small}}
2046 \newcommand{\textSMC}[1]{{\SMC #1}}
```

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

```
2047 \DeclareRobustCommand{\acro}[1]{\textSMC{#1}\@}
2048 ⟨/common⟩
```

3.29   Editor's notes and other footnotes

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

```
2049 ⟨*classtail⟩
2050 \def\xEdNote{{\EdNoteFont Editor's note:\enspace }}
2051 \def\EdNote{\@ifnextchar[%
2052   {%
2053     \ifvmode
2054       \smallskip\noindent\let\@EdNote@\@EdNote@v
2055     \else
2056       \unskip\quad\def\@EdNote@{\unskip\quad}%
2057     \fi
2058     \@EdNote
2059   }%
2060   \xEdNote
2061 }
2062 \long\def\@EdNote[#1]{%
2063   [\thinspace\xEdNote\ignorespaces
```

```
2064    #1%
2065    \unskip\thinspace]%
2066    \@EdNote@
2067 }
2068 \def\@EdNote@v{\par\smallskip}
```

Macros for Mittelbach's self-documenting style

```
2069 \def\SelfDocumenting{%
2070    \setlength\textwidth{31pc}
2071    \onecolumn
2072    \parindent \z@
2073    \parskip 2\p@\@plus\p@\@minus\p@
2074    \oddsidemargin 8pc
2075    \evensidemargin 8pc
2076    \marginparwidth 8pc
2077    \toks@\expandafter{\@oddhead}%
2078    \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
2079    \toks@\expandafter{\@evenhead}%
2080    \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
2081    \def\ps@titlepage{}%
2082 }
2083 \def\ps@titlepage{}
2084
2085 \long\def\@makefntext#1{\parindent 1em\noindent\hb@xt@2em{}%
2086    \llap{\@makefnmark}\null$\mskip5mu$#1}
2087
2088 %% \long\def\@makefntext#1{\parindent 1em
2089 %%    \noindent
2090 %%    \hb@xt@2em{\hss\@makefnmark}%
2091 %%    \hskip0.27778\fontdimen6\textfont\z@\relax
2092 %%    #1%
2093 %% }
```

\tubraggedfoot   To get a ragged-right footnote.

```
2094 \newcommand{\tubraggedfoot}{\rightskip=\raggedskip plus\raggedstretch\relax}
```

\creditfootnote   Sometimes we want the label "Editor's Note:", sometimes not.
\supportfootnote
```
2095 \def\creditfootnote{\nomarkfootnote\xEdNote}
2096 \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.

```
2097 \gdef\nomarkfootnote#1#2{\begingroup
2098    \def\thefootnote{}%
2099    % no period, please, also no fnmark. Also no hyperref warning.
2100    \def\@makefntext##1{##1}%
2101    \def\Hy@Warning##1{}%
2102    \footnotetext{\noindent #1#2}%
2103 \endgroup}
```

3.30   Initialization

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

```
2104 \if@Harvardcite
2105   \AtBeginDocument{%
2106     \bibliographystyle{ltugbib}%
2107   }
2108 \fi
2109 \authornumber\z@
2110 \let\@signature\@defaultsignature
2111 \InputIfFileExists{ltugboat.cfg}
2112   {\TBInfo{Loading ltugboat.cfg configuration information}}
2113   {}
2114 ⟨/classtail⟩
```

4   LaTeX 2ε proceedings class (no longer used)

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

```
2115 ⟨*ltugproccls⟩
2116 \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.

```
2117 \newif\if@proc@sober
2118 \newif\if@proc@numerable
2119 \DeclareOption{tug95}{%
2120   \@proc@soberfalse
2121   \@proc@numerablefalse
2122 }
2123 \DeclareOption{tug96}{%
2124   \@proc@sobertrue
2125   \@proc@numerablefalse
2126 }
2127 \DeclareOption{tug97}{%
2128   \@proc@sobertrue
2129   \@proc@numerabletrue
2130 }
2131 \DeclareOption{tug2002}{%
2132   \@proc@sobertrue
2133   \@proc@numerabletrue
2134   \let\if@proc@numbersec\iftrue
2135   \PassOptionsToClass{numbersec}{ltugboat}%
2136 }
```

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

```
2137 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
2138   \PassOptionsToClass{numbersec}{ltugboat}%
2139 }
2140 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
2141   \PassOptionsToClass{nonumber}{ltugboat}%
2142 }
```

\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.

```
2143 \newif\ifTB@title
2144 \DeclareOption{title}{\TB@titletrue}
2145 \DeclareOption{notitle}{\TB@titlefalse
2146   \AtBeginDocument{\stepcounter{page}}}
```

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

```
2147 \DeclareOption{tugproc}{%
2148   \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
2149 }
```

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

```
2150 \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...)

```
2151 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
2152             {Loading ltugproc.cfg configuration information}}{}
2153 \@ifundefined{TUGprocExtraOptions}%
2154   {\let\TUGprocExtraOptions\@empty}%
2155   {\edef\TUGprocExtraOptions{,\TUGprocExtraOptions}}
```

\tugProcYear Now work out what year it is

```
2156 \@tempcnta\year
2157 \ifnum\@tempcnta<2000
2158   \divide\@tempcnta by100
2159   \multiply\@tempcnta by100
2160   \advance\@tempcnta-\year
2161   \@tempcnta-\@tempcnta
2162 \fi
```

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

```
2163 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
2164               {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
2165 \@tempa
2166 \ClassInfo{ltugproc}{Class believes year is
2167   \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
2168     \@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.

```
2169 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
2170   \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.

```
2171 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
2172 \ProcessOptions
```

63

```
2173 \if@proc@numbersec
2174   \if@proc@numerable
2175   \else
2176     \ClassWarning{\@tugclass}{This year's proceedings may not have
2177        numbered sections}%
2178   \fi
2179 \fi
```

Call ltugboat, adding whichever section numbering option is appropriate

```
2180 \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.

```
2181 \def\maketitle{%
2182   \begingroup
```

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

```
2183    \ifshortAuthor\else
2184     \global\let\rhAuthor\@empty
2185     \def\g@addto@rhAuthor##1{%
2186       \begingroup
2187         \toks@\expandafter{\rhAuthor}%
2188         \let\thanks\@gobble
2189         \protected@xdef\rhAuthor{\the\toks@##1}%
2190       \endgroup
2191     }%
2192     \@getauthorlist\g@addto@rhAuthor
2193    \fi
```

now, the real business of setting the title

```
2194    \ifTB@title
2195     \setcounter{footnote}{0}%
2196     \renewcommand{\thefootnote}{\@fnsymbol\c@footnote}%
2197     \if@tubtwocolumn
2198       \twocolumn[\@maketitle]%
2199     \else
2200       \onecolumn
2201       \global\@topnum\z@
2202       \@maketitle
2203     \fi
2204     \@thanks
2205     \thispagestyle{TBproctitle}
2206    \fi
2207   \endgroup
2208   \TB@madetitletrue
2209 }
2210 \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.

```
2211 \def\@TB@test@document{%
2212   \edef\@tempa{\the\everypar}
2213   \def \@tempb{\@nodocument}
2214   \ifx \@tempa\@tempb
2215     \@nodocument
2216   \fi
2217 }
```

\AUTHORfont Define the fonts for titles and things
\TITLEfont
```
2218 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
```
\addressfont
```
2219 \def\TITLEfont  {\Large\rmfamily\mdseries\upshape}
```
\netaddrfont
```
2220 \def\addressfont{\small\rmfamily\mdseries\upshape}
2221 \def\netaddrfont{\small\ttfamily\mdseries\upshape}
```

\aboveauthorskip Some changeable skips to permit variability in page layout depending on the par-
\belowauthorskip ticular paper's page breaks.
\belowabstractskip
```
2222 \newskip\aboveauthorskip    \aboveauthorskip=18\p@ \@plus4\p@
2223 \newskip\belowauthorskip    \belowauthorskip=\aboveauthorskip
2224 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@
```

\@maketitle The body of \maketitle
```
2225 \def\@maketitle{%
2226    {\parskip\z@
2227     \frenchspacing
2228     \TITLEfont\raggedright\noindent\@title\par
2229       \count@=0
2230       \loop
2231       \ifnum\count@<\authornumber
2232         \vskip\aboveauthorskip
2233         \advance\count@\@ne
2234         {\AUTHORfont\theauthor{\number\count@}\endgraf}%
2235         \addressfont\theaddress{\number\count@}\endgraf
2236         {%
2237           \allowhyphens
2238           \hangindent1.5pc
2239           \netaddrfont\thenetaddress{\number\count@}\endgraf
2240           \hangindent1.5pc
2241           \thePersonalURL{\number\count@}\endgraf
2242         }%
2243       \repeat
2244    \vskip\belowauthorskip}%
2245    \if@abstract
2246       \centerline{\bfseries Abstract}%
2247       \vskip.5\baselineskip\rmfamily
2248       \@tubonecolumnabstractstart
2249           \the\abstract@toks
2250       \@tubonecolumnabstractfinish
2251       \global\@ignoretrue
2252    \fi
2253    \vskip\belowabstractskip
2254    \global\@afterindentfalse\aftergroup\@afterheading
2255  }
```

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

box) before `\begin{document}`, and experiments prove that this means our shiny new `\SMC` doesn't work in this situation.

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

```
2256 \newtoks\abstract@toks  \abstract@toks{}
2257 \let\if@abstract\iffalse
2258 \def\abstract{%
```

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

```
2259   \ifTB@madetitle
2260     \TBWarning{abstract environment after \string\maketitle}
2261   \fi
2262   \def\@abstract@{abstract}%
2263   \ifx\@currenvir\@abstract@
2264   \else
2265     \TBError{\string\abstract\space is illegal:%
2266       \MessageBreak
2267       use \string\begin{\@abstract@} instead}%
2268       {\@abstract@\space may only be used as an environment}
2269   \fi
2270   \global\let\if@abstract\iftrue
2271   {\ifnum0=`}\fi
2272   \@abstract@getbody}
2273 \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}`

```
2274 \long\def\@abstract@getbody#1\end{%
2275   \global\abstract@toks\expandafter{\the\abstract@toks#1}%
2276   \@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.

```
2277 \def\@abstract@findend#1{%
2278   \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.

```
2279   \ifx\@tempa\@abstract@
2280     \expandafter\@abstract@end
2281   \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)

```
2282     \def\@tempb{document}%
2283     \ifx\@tempa\@tempb
2284       \TBError{\string\begin{\@abstract@}
2285         ended by \string\end{\@tempb}}%
2286       {You've forgotten \string\end{\@abstract@}}
```

```
2287        \else
2288            \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
2289            \expandafter\expandafter\expandafter\@abstract@getbody
2290        \fi
2291    \fi}
```

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

```
2292 \def\@abstract@end{\ifnum0='{\fi}%
2293    \expandafter\end\expandafter{\@abstract@}}
```

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

```
2294 \renewcommand{\makesignature}{\TBWarning
2295              {\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

```
2296 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
2297    \let\@evenhead\MakeRegistrationMarks
2298    \TB@definefeet
2299 }
2300 \def\ps@TBproc{%
2301    \def\@oddhead{\MakeRegistrationMarks
2302        {%
2303          \hfil
2304          \def\\{\unskip\ \ignorespaces}%
2305          \rmfamily\rhTitle
2306        }%
2307    }%
2308    \def\@evenhead{\MakeRegistrationMarks
2309        {%
2310          \def\\{\unskip\ \ignorespaces}%
2311          \rmfamily\rhAuthor
2312          \hfil
2313        }%
2314    }%
2315    \TB@definefeet
2316 }
2317
2318 \advance\footskip8\p@    % for deeper running feet
2319
2320 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
2321 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
2322    {#2}}
2323 \def\TB@definefeet{%
2324    \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
2325      \else\rfoottext\hfil\thepage\fi\dopagecommands}%
2326    \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
2327      \else\thepage\hfil\rfoottext\fi\dopagecommands}%
2328 }
2329
2330 \def\pfoottext{{\smc Preprint}:
2331    Proceedings of the \volyr{} Annual Meeting}
2332 \def\rfoottext{\normalfont\TUB, \volx\Dash
```

```
2333    {Proceedings of the \volyr{} Annual Meeting}}
2334
2335 \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).

```
2336 \if@proc@numbersec
2337 \else
2338   \setcounter{secnumdepth}{0}
2339 \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.

```
2340 \if@proc@numbersec
2341 \else
2342   \if@proc@sober
2343     \def\section
2344          {\TB@nolimelabel
2345           \TB@startsection{{section}%
2346                           1%
2347                           \z@%
2348                           {-8\p@\@plus-2\p@\@minus-2\p@}%
2349                           {6\p@}%
2350                           {\normalsize\bfseries\raggedright}}}
2351   \else
2352     \def\section
2353          {\TB@nolimelabel
2354           \TB@startsection{{section}%
2355                           1%
2356                           \z@%
2357                           {-8\p@\@plus-2\p@\@minus-2\p@}%
2358                           {6\p@}%
2359                           {\large\bfseries\raggedright}}}
2360   \fi
2361   \def\subsection
2362          {\TB@nolimelabel
2363           \TB@startsection{{subsection}%
2364                           2%
2365                           \z@%
2366                           {6\p@\@plus 2\p@\@minus2\p@}%
2367                           {-5\p@\@plus -\fontdimen3\the\font}%
2368                           {\normalsize\bfseries}}}
2369   \def\subsubsection
2370          {\TB@nolimelabel
2371           \TB@startsection{{subsubsection}%
2372                           3%
```

```
2373                             \parindent%
2374                             \z@%
2375                             {-5\p@\@plus -\fontdimen3\the\font}%
2376                             {\normalsize\bfseries}}}
2377 \fi
2378 ⟨/ltugproccls⟩
```

5   Plain TeX styles

```
2379 ⟨*tugboatsty⟩
2380 % err...
2381 ⟨/tugboatsty⟩
2382 ⟨*tugprocsty⟩
2383 % err...
2384 ⟨/tugprocsty⟩
```

6   The LaTeX 2ε compatibility-mode style files

```
2385 ⟨*ltugboatsty⟩
2386 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
2387 \LoadClass{ltugboat}
2388 ⟨/ltugboatsty⟩
2389 ⟨*ltugprocsty⟩
2390 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
2391 \LoadClass{ltugproc}
2392 ⟨/ltugprocsty⟩
```