

The `tugboat` package*

The *TUGboat* team

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1 Document preambles

```

1 <ltugboatcls | ltugproccls | ltugcomm>\NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 <*dtx>
3 \ProvidesFile           {tugboat.dtx}
4 </dtx>
5 <ltugboatcls>\ProvidesClass {ltugboat}
6 <ltugproccls>\ProvidesClass {ltugproc}
7 <ltugboatsty>\ProvidesPackage{ltugboat}
8 <ltugprocsty>\ProvidesPackage{ltugproc}
9 <ltugcomm>  \ProvidesPackage{ltugcomm}
10           [2023-07-03 v2.30
11 <ltugboatcls>           TUGboat journal class%
12 <ltugproccls>          TUG conference proceedings class%
13 <ltugboatsty | ltugprocsty> TUG compatibility package%
14 <ltugcomm>             TUGboat ‘common macros’ package%
15 <*dtx>
16                       TUG macros source file%
17 </dtx>
18 ]

```

2 Introduction

This file contains all the macros for typesetting *TUGboat* with both plain T_EX and L^AT_EX 2_ε.

2.1 Summary of control sequences

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

<code>\AllTeX</code>	(L ^A)T _E X
<code>\AMS</code>	American Mathematical Society
<code>\AmSTeX</code>	
<code>\aw</code>	A-W (abbreviation for Addison-Wesley)
<code>\API</code>	
<code>\AW</code>	Addison-Wesley
<code>\BibTeX</code>	
<code>\CandT</code>	Computers & Typesetting
<code>\ConTeXt</code>	ConT _E Xt

<code>\Cplusplus</code>	C++
<code>\DTD</code>	
<code>\DVD</code>	
<code>\DVI</code>	
<code>\DVIPDFMx</code>	DVIPDFM <i>x</i>
<code>\DVItοVDU</code>	DVItοVDU
<code>\ECMA</code>	
<code>\EPS</code>	
<code>\eTeX</code>	ε -T _E X
<code>\ExTeX</code>	ε_X T _E X
<code>\Ghostscript</code>	
<code>\Hawaii</code>	Hawai'i
<code>\HTML</code>	
<code>\ISBN</code>	ISBN
<code>\ISO</code>	
<code>\ISSN</code>	ISSN
<code>\JTeX</code>	
<code>\JoT</code>	The Joy of T _E X
<code>\LaTeX</code>	
<code>\LyX</code>	
<code>\macOS</code>	mac OS
<code>\MacOSX</code>	Mac OS X
<code>\MathML</code>	
<code>\Mc</code>	M with raised c
<code>\MF</code>	METAFONT
<code>\mf</code>	METAFONT
<code>\MFB</code>	The Metafontbook
<code>\MP</code>	METAPOST
<code>\mp</code>	MetaPost (in text only: still ‘ \mp ’ in math)
<code>\OMEGA</code>	Omega ‘logo’ (Ω)
<code>\OCP</code>	Omega compiled process
<code>\OOXML</code>	
<code>\OTP</code>	Omega translation process
<code>\mtex</code>	multilingual T _E X
<code>\NTS</code>	New Typesetting System
<code>\pcMF</code>	pcMF
<code>\PCTeX</code>	
<code>\pcTeX</code>	
<code>\Pas</code>	Pascal
<code>\PiCTeX</code>	
<code>\plain</code>	plain (in typewriter font)
<code>\POBox</code>	P. O. Box
<code>\PS</code>	PostScript (with hyphenation)
<code>\SC</code>	Steering Committee
<code>\SGML</code>	SGML
<code>\SliTeX</code>	
<code>\slMF</code>	Metafont, slanted: deprecated: use <code>\textsl</code> instead
<code>\stTeX</code>	T _E X for the Atari ST
<code>\SVG</code>	

<code>\TANGLE</code>	
<code>\TB</code>	The \TeX book
<code>\TeX</code>	(Although nearly every package defines this, most, including plain, are missing the spacefactor adjustment)
<code>\TeXhax</code>	
<code>\TeXMaG</code>	(defunct)
<code>\TeXtures</code>	
<code>\TeXXeT</code>	
<code>\Thanh</code>	
<code>\TFM</code>	TFM
<code>\TUB</code>	<i>TUGboat</i>
<code>\TUG</code>	\TeX Users Group
<code>\UNIX</code>	
<code>\VAX</code>	
<code>\VnTeX</code>	
<code>\VorTeX</code>	
<code>\XeT</code>	
<code>\XeTeX</code>	reflected and lowered first ‘E’
<code>\XeLaTeX</code>	with extra space before ‘L’
<code>\XML</code>	
<code>\WEB</code>	
<code>\WEAVE</code>	
<code>\WYSIWYG</code>	

Macros for things that are slightly more significant.

<code>\NoBlackBoxes</code>	turns off marginal rules marking overfull boxes
<code>\BlackBoxes</code>	turns them back on
<code>\newline</code>	horizontal glue plus a break
<code>\ifundefined#1</code>	checks argument with <code>\csname</code> against <code>\relax</code>
<code>\topsmash</code>	smashes above baseline (from AMSTeX)
<code>\botsmash</code>	smashes below baseline (from AMSTeX)
<code>\smash</code>	smashes both (from plain)
<code>\ulap</code>	lap upwards
<code>\dlap</code>	lap downwards
<code>\xlap</code>	reference point at center horizontally; 0 width
<code>\ylap</code>	reference point at center vertically; 0 height, depth
<code>\zlap</code>	combination <code>\xlap</code> and <code>\ylap</code>
<code>\basezero</code>	to avoid insertion of <code>baselineskip</code> and <code>lineskip</code> glue
<code>\nullhrule</code>	empty <code>\hrule</code>
<code>\nullvrule</code>	empty <code>\vrule</code>
<code>\makestrut[#1;#2]</code>	ad hoc struts; #1=height, #2=depth
<code>\today</code>	today’s date
<code>\SetTime</code>	converts <code>\time</code> to hours, minutes
<code>\now</code>	displays time in hours and minutes
<code>\Now</code>	shows current date and time
<code>\ifPrelimDraft</code>	flag to indicate status as preliminary draft

<code>\rtitlex</code>	<i>TUGboat</i> volume and number info for running head
<code>\midrtitlex</code>	information for center of running head
<code>\rtitlexnexttopage</code>	next to page number in running head
<code>\HorzR@gisterRule</code>	pieces of registration marks ('trimmarks')
<code>\DownShortR@gisterRule</code>	
<code>\UpShortR@gisterRule</code>	
<code>\ttopregister</code>	top registration line with 'T' in center
<code>\tbotregister</code>	bottom registration line with inverted 'T' in center
<code>\topregister</code>	register actually used
<code>\botregister</code>	
<code>\raggedskip</code>	parameters used for ragged settings
<code>\raggedstretch</code>	
<code>\raggedparfill</code>	
<code>\raggedspaces</code>	
<code>\raggedright</code>	
<code>\raggedleft</code>	
<code>\raggedcenter</code>	
<code>\normalspaces</code>	
<code>\raggedbottom</code>	
<code>\bull</code>	square bullet
<code>\cents</code>	'cents' sign
<code>\Dag</code>	superscripted dagger
<code>\careof</code>	c/o
<code>\sfrac</code>	slashed fraction (arguments optionally separated by a slash)
<code>\cs</code>	control sequence name <code>\cs{name}→\name</code>
<code>\env</code>	environment name <code>\env{name}→\begin{name}</code>
<code>\meta</code>	meta-argument name <code>\meta{name}→{name}</code>
<code>\dash</code>	en-dash surrounded by thinspaces; only breakable AFTER
<code>\Dash</code>	em-dash, as above
<code>\hyph</code>	permit automatic hyphenation after an actual hyphen
<code>\slash</code>	'breakable' slash
<code>\nth</code>	for obtaining '1 st ', '2 nd ', '3 rd ', etc.
<code>\tubissue</code>	gets \TUB followed by volume and issue numbers
<code>\xEdNote</code>	Editor's Note:
<code>\Review:</code>	Review: (for title of book review article)
<code>\reviewitem</code>	begin data for item being reviewed
<code>\revauth</code>	with one argument, author(s) of item being reviewed
<code>\revtitle</code>	with one argument, title of ...
<code>\revpubinfo</code>	with one argument, other info pertaining to ...
<code>\endreviewitem</code>	end data for item being reviewed

<code>\titleref</code>	with one argument, format title as straight text (slanted, frenchspacing)
<code>\Input</code>	<code>\input</code> with some other bookkeeping for case where multiple articles are put together
<code>\TBremark</code>	reminder to <i>TUGboat</i> editorial staff
<code>\TBEenableRemarks</code>	enable <code>\TBremarks</code> (normally suppressed)
<code>\pagexref</code>	used to write out page numbers to screen and external files
<code>\pagexrefON</code>	
<code>\pagexrefOFF</code>	
<code>\xref</code>	used for symbolic cross-reference to other pages in <i>TUGboat</i>
<code>\xrefON</code>	
<code>\xrefOFF</code>	
<code>\TBdriver</code>	marks code which only takes effect when articles are run together in a driver file
<code>\signaturemark</code>	items for signatures
<code>\signaturewidth</code>	

3 L^AT_EX 2_ε 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   \TBunicodeengine>true
25 \fi
26 </common>

```

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

```

27 <*ltugboatcls>
28 \csname tugstyloaded@\endcsname
29 \def\tugstyloaded@{\tugstyinit\endinput}

```

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

```

30 \providecommand{\@tugclass}{ltugboat}

```

Warnings/error messages/information messages — if we're using L^AT_EX 2_ε 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 L^AT_EX); 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\sfddefault\fontseries{bx}\fontshape{n}%
115     \fontsize\@xviipt\stbaselineskip\selectfont}
116 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xipt
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 </tugboatcls>
```

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 $\text{\LaTeX} 2_{\epsilon}$).

```
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` We store a set of commands that should be executed at the start of each paper, `\AddToResetCommands` before any paper-specific customisation. These commands (stored in the token register `\StartNewPaper` `\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`, `\dots`, `\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 L^AT_EX 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 L^AT_EX 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-.075emTeX}{(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-.0333em\-\kern-.0667em\TeX\kern-.0333em}
234 \def\CMkIV{\ConTeXt\ MkIV}
235 \def\Cplusplus{Cplusplus}
236 \def\plusplus{\raisebox{.7ex}{\_ {++}}}
237 \def\CPU{\acro{CPU}}
238 \def\CSzabbr{\ensuremath{\cal C}\kern-.1667em\lower.5ex\hbox{\cal S}}
239 \def\CSS{\acro{CSS}}
240 \def\CSTUG{\CSzabbr\kern.05em\acro{TUG}}
241 \def\CSV{\acro{CSV}}
242 \def\CTAN{\acro{CTAN}}
243 \def\DTD{\acro{DTD}}
244 \def\DTK{\acro{DTK}}
245 \def\DVD{\acro{DVD}}
246 \def\DVI{\acro{DVI}}
247 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
```

```

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

```

```

302                                     A}%
303                                     \vss}%
304     }}

```

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.

```

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

```

If we're running under L^AT_EX 2_ε, 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`.

```

316 \def\mf{\textsc{Metafont}}
317 \def\MFB{\textsl{The \MF\kern.1em\-book}}
318 \def\MkIV{Mk\acro{IV}}
319 \let\TB@mp\mp
320 \DeclareRobustCommand{\mp}{\ifmode\TB@mp\else MetaPost\fi}
321 \def\mtx{T\kern-.1667em\lower.424ex\hbox{^E}\kern-.125emX\@}
322 %
323 % In order that the \cs{OMEGA} command will switch to using the TS1
324 % variant of the capital Omega character if \texttt{textcomp.sty} is
325 % loaded, we define it in terms of the \cs{textohm} command. Note
326 % that this requires us to interpose a level of indirection, rather
327 % than to use \cs{let}\dots
328 % Revised definition of \cs{NTS} based on that used by Phil Taylor.
329 %
330 %   \begin{macrocode}
331 \DeclareRobustCommand{\NTG}{\acro{NTG}}
332 \DeclareRobustCommand{\NTS}{\ensuremath{\mathcal{N}\mkern-4mu
333   \raisebox{-0.5ex}{\mathcal{T}}\mkern-2mu \mathcal{S}}}
334 \DeclareTextSymbol{\textohm}{OT1}{'012}
335 \DeclareTextSymbolDefault{\textohm}{OT1}
336 \newcommand{\OMEGA}{\textohm}
337 \DeclareRobustCommand{\OCP}{\OMEGA\acro{CP}}
338 \DeclareRobustCommand{\OOXML}{\acro{OOXML}}
339 \DeclareRobustCommand{\OTF}{\acro{OTF}}
340 \DeclareRobustCommand{\OTP}{\OMEGA\acro{TP}}
341 \DeclareRobustCommand{\OpTeX}{Op\kern-.05em\TeX}
342 \def\Pas{Pascal}
343 \def\pcMF{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}MF\@}
344 \def\PCTeX{PC\thinspace\TeX}
345 \def\pCTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@ c}\TeX}

```

```

346 \def\pdflatex{pdf\-\LaTeX}% dtk-logos
347 \def\pdftex{pdf\-\TeX}% dtk-logos
348 \def\pdfTeX{\pdftex}
349 \def\PDF{\acro{PDF}}
350 \def\PGF{\acro{PGF}}
351 \def\PHP{\acro{PHP}}
352 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
353 \def\PiCTeX{\PiC\kern-.11em\TeX}
354 \def\plain{\texttt{plain}}
355 \def\PNG{\acro{PNG}}
356 \def\POBox{P.\thinspace 0.\~Box }
357 \def\PS{{Post-Script}}
358 \def\PSTricks{\acro{PST}ricks}
359 \def\RIT{\acro{RIT}}
360 \def\RTF{\acro{RTF}}
361 \def\SC{Steering Committee}
362 \def\SGML{\acro{SGML}}
363 \def\SliTeX{\textrm{S\kern-.06em\textsc{l}\kern-.035emi}%
364 \kern-.06em\TeX}}
365 \def\slMF{\textsl{MF}} % should never be used
366 \def\SQL{\acro{SQL}}
367 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
368 \def\STIX{\acro{STIX}}
369 \def\SVG{\acro{SVG}}
370 \def\TANGLE{\texttt{TANGLE}\@}
371 \def\TB{\textsl{The \TeX\-book}}
372 \def\TIFF{\acro{TIFF}}
373 \def\TP{\textsl{\TeX:\ The Program/}}
374 \DeclareRobustCommand{\TeX}{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
375 \def\TeXhax{\TeX hax}
376 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
377 \kern-.2267emG\@}
378 \def\TeXtures{\textit{Textures}}
379 \let\Textures=\TeXtures
380 \def\TeXworks{\TeX\kern-.07em works}
381 \def\TeXXeT{\TeX\{-}\-XeT}
382 \def\TFM{\acro{TFM}}
383 \ifTBunicodeengine
384 \AtBeginDocument{% in case a different font is loaded
385 % \iffontchar is from e-TeX; safe to use under Unicode engines.
386 \iffontchar\font"1EBF
387 \def\TBecircacute{\char"1EBF }%
388 \else
389 \def\TBecircacute{\^e\llap{\raise 0.5ex\hbox{'}}}%
390 \fi
391 \def\Thanh{H\'an\~Th\TBecircacute\~Th\'anh}%
392 }%
393 \else % non-Unicode engine, use our traditional definition.
394 \def\Thanh{H\'an\~Th\^e\llap{\raise 0.5ex\hbox{'}}\~Th\'anh}
395 % We could also go the other direction, and always use the Unicode
396 % character, after:
397 % \ifdefined\DeclareUnicodeCharacter
398 % \DeclareUnicodeCharacter{1EBF}{\^e\llap{\raise 0.5ex\hbox{'}}}
399 % \fi

```

```

400 % but let's make the smaller change.
401 \fi
402 \def\TikZ{Ti{\em k}Z}
403 \def\TTN{\textsl{TTN}\@}
404 \def\TTN{\textsl{\TeX} and TUG News}}
405 \def\TUB{\texttub{TUGboat}}\def\texttub{\textsl} % redefined in some situations
406 \def\TUG{\TeX\ \UG}
407 \def\tug{\acro{TUG}}
408 \def\UG{Users Group}
409 \def\UNIX{\acro{UNIX}}
410 % Don't define \UTF, since other packages use it for Unicode character access.
411 % On the other hand, we want a macro for UTF-8 that doesn't break at the -.
412 \def\tbUTF{\acro{UTF}\futurelet\@nextchar\tbUTFcheck}
413 \def\@tbUTFcheck{\ifx\@nextchar-%
414     \mbox{-}\let\next=\tbgobbedash
415     \else
416     \let\next=\empty
417     \fi\next}
418 \def\tbgobbedash-{}
419 \def\VAX{V\kern-.12em A\kern-.1em X\@}
420 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
421 \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{0\kern-1.4\p@ R}\kern-2.6\p@\TeX}
422 \def\XeT{X\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
423 \def\XML{\acro{XML}}
424 \def\XMP{\acro{XMP}}
425 \def\WEB{\texttt{WEB}\@}
426 \def\WEAVE{\texttt{WEAVE}\@}
427 \def\WYSIWYG{\acro{WYSIWYG}}

```

XeTeX requires reflecting the first E, hence we complain if the graphics package is not present. (For plain documents, this can be loaded via `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`.)

```

428 \def\tubreflect#1{%
429   \@ifundefined{reflectbox}{%
430     \TBEError{A graphics package must be loaded to use \string\XeTeX}
431     {Load graphicx or graphics.}%
432   }{%
433     \ifdim \fontdimen1\font>Opt
434       \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
435     \else
436       \reflectbox{#1}%
437     \fi
438   }%
439 }
440 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=Opt \dp0=Opt \box0 }
441 \def\XekernbeforeE{-.125em}
442 \def\XekernafterE{-.1667em}
443 \DeclareRobustCommand{\Xe}{\leavevmode
444   \tubhideheight{\hbox{X%
445     \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
446     \ifdim \fontdimen1\font>Opt
447       % XeTeX logo needs tinkering when slanted/italic font.

```



```

448     \def\XekernbeforeE{-.11em}%
449     \def\XekernafterE{-.16em}%
450     \dp1=-.17ex
451     \fi
452     \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
453     \kern\XekernafterE}}
454 \def\XeTeX{\XeTeX}
455 \def\XeLaTeX{\Xe{\kern.11em \LaTeX}}
456 %
457 \def\XHTML{\acro{XHTML}}
458 \def\XSL{\acro{XSL}}
459 \def\XSLF0{\acro{XSL}\raise.08ex\hbox{-}\acro{F0}}
460 \def\XSLT{\acro{XSLT}}

```

3.5 General typesetting rules

```

461 \newlinechar='^^J
462 \normallineskiplimit=\p@
463 \clubpenalty=10000
464 \widowpenalty=10000
465 \def\NoParIndent{\parindent=\z@}
466 \newdimen\normalparindent
467 \normalparindent=20\p@
468 \def\NormalParIndent{\global\parindent=\normalparindent}
469 \NormalParIndent
470 \def\BlackBoxes{\overfullrule=5\p@}
471 \def\NoBlackBoxes{\overfullrule=\z@}
472 \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 `\@` cannot be used because the sentence-ending punctuation itself occurs inside a control sequence that prevents it.

```

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

```

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

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

```

474 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
475 \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
476 \def\nohyphens{\hyphenpenalty\@M\exhyphenpenalty\@M}

```

3.6 Utility registers and definitions

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

Comment: Exercise for an idle day: find whether all these are necessary, or whether we can use the L^AT_EX temporaries for some (or all) of the `\T@st*` ones.

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

```
477 \newbox\T@stBox          \newbox\TestBox
478 \newcount\T@stCount     \newcount\TestCount
479 \newdimen\T@stDimen    \newdimen\TestDimen
480 \newif\ifT@stIf        \newif\ifTestIf
```

Control sequence existence test, stolen from T_EXbook exercise 7.7 (note that this provides functionality that in some sense duplicates something within L^AT_EX).

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

L^AT_EX conventions which are also useful here.

```
482 <!*latex>
483   \let\@input\input
484   \def\iinput#1{\@input#1 }
485   \def\@inputcheck{\if\@nextchar\bgroup
486     \expandafter\iinput\else\expandafter\@input\fi}
487   \def\input{\futurelet\@nextchar\@inputcheck}
488 </!latex>
```

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

```
489 \newif\iftop@           \newif\ifbot@
490 \def\topsmash{\top@true\bot@false\smash@}
491 \def\botsmash{\top@false\bot@true\smash@}
492 \def\smash{\top@true\bot@true\smash@}
493 \def\smash@{\relax\ifmode\def\next{\mathpalette\mathsm@sh}%
494   \else\let\next\makesm@sh\fi \next }
495 \def\fin@m@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

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

```
496 \long\def\ulap#1{\vbox to \z@{\vss#1}}
497 \long\def\dlap#1{\vbox to \z@{\#1\vss}}
```

And centered horizontal and vertical ‘laps’

```
498 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
499 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
500 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
502 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
503 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

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

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

```
511 <!!latex>
512 \def\today{\number\day\space \ifcase\month\or
513     Jan \or Feb \or Mar \or Apr \or May \or Jun \or
514     Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
515     \number\year}
516 </!!latex>
```

Current time; this may be system dependent!

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

3.7 Ragged right and friends

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

```
\raggedspaces 532 \newdimen\raggedskip \raggedskip=\z@
533 \newdimen\raggedstretch \raggedstretch=5em % ems of font set now (10pt)
534 \newskip\raggedparfill \raggedparfill=\z@\@plus 1fil
535 \def\raggedspaces{\spaceskip=.3333em \relax \xspaceskip=.5em \relax }
```

`\raggedright` Some applications may have to add stretch, in order to avoid all overfull boxes.

`\raggedleft` We define the following uses of the above skips, etc.

```
\raggedcenter 536 \def\raggedright{%
\normalspaces 537 \nohyphens \raggedspaces
538 \rightskip=\raggedskip\@plus\raggedstretch
539 \parfillskip=\raggedparfill
540 }
541 \def\raggedleft{%
542 \nohyphens \raggedspaces
543 \leftskip=\raggedskip\@plus\raggedstretch
```

```

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

```

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

```

558 \def\tubjustifiedpar{\rightskip=0pt \parfillskip=0pt plus1fil
559           \allowhyphens \normalspaces}

```

3.8 Assorted user-level markup

L^AT_εX 2_ε defines a robust `\`, we provide a new definition of `~` by redefining `\` (`\DeclareRobustCommand` doesn't mind redefinition, fortunately). This is based on the version in AMS- \TeX —the L^AT_εX 2_ε 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 be protected against our redefinition.

```

560 \let\latexnobreakspace=\nobreakspace
561 \DeclareRobustCommand{\nobreakspace}{\unskip\nobreak\ \ignorespaces}

```

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

```

562 \def\boxcs#1{\box\cscname#1\endcscname}
563 \def\setboxcs#1{\setbox\cscname#1\endcscname}
564 \def\newboxcs#1{\expandafter\newbox\cscname#1\endcscname}
565 \let\gobble@\gobble
566 \def\vellipsis{%
567   \leavevmode\kern0.5em
568   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
569 }
570 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
571 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
572 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
573   /\kern-.125em\smash{\lower.3ex\hbox{o}}}\ \ignorespaces}
574 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}

```

```

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

```

```

629 \ifx\url\undefined      % make sure \url is defined
630   \def\url{\begingroup  % might as well catch common special chars
631     \catcode'\#=12 \catcode'\$=12 \catcode'\%=12 \catcode'\^=12
632     \catcode'\&=12 \catcode'\_ =12 \catcode'\~=12
633     \finish@tub@url}
634 \def\finish@tub@url#1{\tt #1\endgroup}
635 \fi
636 \else
637 % This hyperref hook-in is due to Ulrike Fischer.
638 % \url{https://github.com/latex3/hyperref/issues/125}.
639 % \tb[sh]url@ are defined next.
640 \DeclareRobustCommand*\tburly{\tbsurl}%
641 \DeclareRobustCommand*\tbsurl{\hyper@normalise\tbsurl}%
642 \DeclareRobustCommand*\tbhurl{\hyper@normalise\tbhurl@}
643 \fi
644 }
645 %
646 % Outside \AtBeginDocument, back at the top level of the dtx, we
647 % turn on expl syntax for the main definitions of \tb[sh]url. We want
648 % to auto-remove an explicit protocol in case it
649 % was given.
650 %
651 % Only the correct protocol is removed; if \verb|http://| is
652 % given to \cs{tbsurl}, it is used (and printed) as-is. This is useful
653 % so we can do \verb|\let\url\tbsurl| when printing bibliographies.
654 %
655 % Giving \verb|https://| to \cs{tbhurl}, on the other hand, generates an
656 % invalid link; in practice there's no use for that so we don't bother
657 % to check for it.
658 %
659 \ExplSyntaxOn
660 \def\tbsurl@#1 % https
661 {
662   \str_set:Nn\l_tmpa_str{#1}
663   \str_if_in:NnTF \l_tmpa_str {http://}
664   {
665     \expandafter\hyper@linkurl
666     \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}{\l_tmpa_str}
667   }
668   {
669     \str_remove_once:Nn\l_tmpa_str{https://}
670     \expandafter\hyper@linkurl
671     \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}
672     {https://\l_tmpa_str}
673   }
674 }
675 \def\tbhurl@#1 % http
676 {
677   \str_set:Nn\l_tmpa_str{#1}
678   \str_remove_once:Nn\l_tmpa_str{http://}
679   \expandafter\hyper@linkurl\expandafter{\expandafter\Hurl\expandafter
680     {\l_tmpa_str}}{http://\l_tmpa_str}
681 }
682 \ExplSyntaxOff

```

```

683 %
684 % Now let's use those macros for putting a url into a simple
685 % ragged-right footnote.
686 \def\tburlfootnote{\tbsurlfootnote}
687 \def\tbsurlfootnote#1{\footnote{\raggedright\tbsurl{#1}}}
688 \def\tbhurlfootnote#1{\footnote{\raggedright\tbhurl{#1}}}
689 %
690 % Make \! work in text mode.
691 \DeclareRobustCommand{\!}{\ifmmode\mskip-\thinmuskip \else\kern-0.16667em \fi}
692 %
693 % Half a thinspace, positive and negative.
694 \DeclareRobustCommand{\tubthinerspace}
695   {\ifmmode\mskip.5\thinmuskip \else\kern0.08333em \fi}
696 \DeclareRobustCommand{\tubthinerspaceneg}
697   {\ifmmode\mskip-.5\thinmuskip \else\kern-0.08333em \fi}
698 %
699 % Half a smallskip.
700 \DeclareRobustCommand{\tubsmallerskip}
701   {\vskip 1.5pt plus .75pt minus .75pt\relax}
702 %

```

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

```

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

```

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

```

712 \def\hyph{-\penalty\z@\hskip\z@skip }
713 \def\slash{/\penalty\z@\hskip\z@skip }

```

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

```

714 \def\nth#1{%
715   \def\reserved@a##1##2\@nil{\ifcat##1n%
716     0%
717     \let\reserved@b\ensuremath
718     \else##1##2%
719     \let\reserved@b\relax
720     \fi}%
721   \TestCount=\reserved@a#1\@nil\relax
722   \ifnum\TestCount < 0 \multiply\TestCount by\m@ne \fi % subdue negatives
723   \T@stCount=\TestCount
724   \divide\T@stCount by 100 \multiply\T@stCount by 100
725   \advance\TestCount by-\T@stCount % n mod 100
726   \ifnum\TestCount > 20 \T@stCount=\TestCount
727   \divide\T@stCount by 10 \multiply\T@stCount by 10

```

```

728     \advance\TestCount by-\T@stCount    % n mod 10
729     \fi
730     \reservedb{#1}%
731     \textsuperscript{\ifcase\TestCount th%    0th
732                     \or st%                1st
733                     \or nd%                2nd
734                     \or rd%                3rd
735                     \else th%              nth
736                     \fi}%
737 }

```

3.9 Reviews

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

```

738 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
739 \def\@Review:{\@ifnextchar[%
740   {\@Rev}%
741   {\@Rev[Book review]}}
742 \def\@Rev[#1]#2{{\ignorespaces#1\unskip:\enspace\ignorespaces
743                \slshape\mdseries#2}}
744 \def\reviewitem{\advvspace{\BelowTitleSkip}%
745   \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
746   \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
747   \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
748 }
749 \def\endreviewitem{{\noindent\interlinepenalty=10000
750   \therevauth\therevtitle\therevpubinfo\endgraf}%
751   \vskip\medskipamount
752 }
753 \def\titleref#1{{\slshape\frenchspacing#1/}}
754 \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.

```

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

```



```

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

```

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

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

```

778 <!\latex>\def\tubissue#1(#2)%
779 <*\latex>
780 \def\tubissue#1{\@ifnextchar(%)
781   {\@tubissue@b{#1}}
782   {\@tubissue@a{#1}}}}
783 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
784 \def\@tubissue@a#1#2%
785 </\latex>
786   {\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`

```

787 \def\infil@{\jobname}
788 \def\Input #1 {\ifnum\issueseqno<0
789   \def\infil@{#1}%
790   \else
791     \def\infil@{tb\number\issueseqno#1}
792   \fi
793   \edef\jobname{\infil@}\@readFLN
794   \@@input \infil@\relax
795   \if@RMKopen
796     \immediate\closeout\@TBremarkfile\@RMKopenfalse
797   \fi
798 }

```

`\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).

```

799 \newif\if@RMKopen      \@RMKopenfalse
800 \newwrite\@TBremarkfile
801 \def\@TBremark#1{%
802   \if@RMKopen
803   \else
804     \@RMKopentruer\immediate\openout\@TBremarkfile=\infile.rm
805   \fi
806   \toks@={#1}%
807   \immediate\write\@TBremarkfile{^^J\the\toks@}%
808   \immediate\write16{^^JTBremark:: \the\toks@^^J}%
809 }

```

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

```
810 \let\TBremark=\gobble
```

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

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

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

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

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

```

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

```

The following needs to work entirely in T_EX's mouth

```

824 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
825   #1\else\csname file@@#1\endcsname\fi}
826 \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.

```

827 <!!latex>
828 \def\pagexrefON#1{%
829   \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
830   \write\ppoutfile{%
831     \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
832   }
833 \def\PageXrefON#1{%

```

```

834     \immediate\write-1{\def\expandafter
835         \noexpand\csname#1\endcsname{\number\pageno}}}%
836     \immediate\write\ppoutfile{\def\expandafter
837         \noexpand\csname#1\endcsname{\number\pageno}}}%
838 </!latex>
839 <*latex>
840 \def\pagexrefON#1{%
841     \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}}%
842     \write\ppoutfile{%
843         \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}}%
844     }
845 \def\PageXrefON#1{%
846     \immediate\write-1{\def\expandafter
847         \noexpand\csname#1\endcsname{\number\c@page}}}%
848     \immediate\write\ppoutfile{\def\expandafter
849         \noexpand\csname#1\endcsname{\number\c@page}}}%
850 </latex>
851 \def\pagexrefOFF#1{}
852 \let\pagexref=\pagexrefOFF
853 \def\PageXrefOFF#1{}
854 \let\PageXref=\PageXrefOFF
855 \def\xreftoON#1{%
856     \ifundefined{#1}%
857         ???\TBremark{Need cross reference for #1.}%
858         \else\csname#1\endcsname\fi}
859 \def\xreftoOFF#1{???}
860 \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.

```
861 \let\TBdriver\gobble
```

Some hyphenation exceptions:

```

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

```

```

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

```

3.11 Page dimensions, glue, penalties, etc.

```

902 \textheight 54pc      % 648pt = 645.58bp = 8.97in
903 \textwidth 39pc      % 468pt = 466.25bp = 6.48in
904 \columnsep 1.5pc     % 18pt = 17.93bp = .249in
905 \columnwidth 18.75pc % 225pt = 224.16bp = 3.11in
906 \hfuzz 1pt
907 \parindent \normalparindent % 20pt
908 \parskip \z@ % \@plus\p@
909 \leftmargini 2em
910 \leftmarginv .5em
911 \leftmarginvi .5em
912 \oddsidemargin \z@
913 \evensidemargin \z@
914 \topmargin -2.5pc    % 30pt = 29.89bp = .415in
915 \headheight 12\p@
916 \headsep 20\p@
917 \marginparwidth 48\p@
918 \marginparsep 10\p@
919 \partopsep=\z@
920 \topsep=3\p@\@plus\p@\@minus\p@
921 \parsep=3\p@\@plus\p@\@minus\p@
922 \itemsep=\parsep
923 %
924 % The width of one column plus gutter (=243pt =242.09bp) is useful sometimes.
925 \newdimen\tubcolwidthandgutter
926 \tubcolwidthandgutter=\columnwidth
927 \advance\tubcolwidthandgutter by \columnsep
928 %
929 % Ordinarily we typeset in two columns, but the onecolumn option
930 % goes to one. In which case we want to center the text block on an
931 % 8.5in width, given the default 72.27pt offset with margins of zero.

```

```

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

```

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

3.12 Messing about with the \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 .

```

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

```

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

```

947 \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.

```

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

```

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

```

965 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
966   \csname @LaTeX@f@family/\f@series/\f@shape\endcsname
967   \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
968   \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.

```

969 \newcommand{\@LaTeX}[2]{%
970   %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
971   L\kern-#1em
972   {\sbox\z@ T%
973     \vbox to\ht0{\hbox{\$ \m@th$,
974       \csname S@\f@size\endcsname
975         \fontsize\sf@size\z@
976         \math@fontsfalse\selectfont
977         A}%
978       \vss}%
979   }%
980   \kern-#2em%
981   \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.

```

982 \def\theauthor#1{\csname theauthor#1\endcsname}
983 \def\theaddress#1{\csname theaddress#1\endcsname}
984 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
985 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
986 \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.

```

987 <!\latex>\newcount\@tempcnta
988 \def\@defaultauthorlist{%
989   \@getauthorlist\@firstofone
990 }

```

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

```

991 \def\@getauthorlist#1{%
992   \count@\authornumber
993   \advance\count@ by -2
994   \@tempcnta0

```

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

```

995 \loop
996   \ifnum\count@>0
997     \advance\@tempcnta by \@ne
998     #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
999     \advance\count@ by \m@ne
1000 \repeat
1001 \count@\authornumber
1002 \advance\count@ by -\@tempcnta
1003 \ifnum\authornumber>0

```

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

```

1004   \ifnum\count@>1
1005     \count@\authornumber
1006     \advance\count@ by \m@ne
1007     #1{\ignorespaces\theauthor{\number\count@}\unskip\@tubauthorlastsep}%
1008   \fi

```

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

```

1009   #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
1010 \fi
1011 }
1012 %
1013 \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...)

```

1014 \def\signature#1{\def\@signature{#1}}
1015 \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`

```

1016 \def\@defaultsignature{%
1017   \let\thanks\@gobble
1018   \frenchspacing
1019   %
1020   \ifnum\authornumber<0

```

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

```

1021     \medskip
1022     \signaturemark
1023     \theauthor{\number\authornumber}\\
1024     \theaddress{\number\authornumber}\\
1025     \allowhyphens
1026     \thenetaddress{\number\authornumber}\\
1027     \thePersonalURL{\number\authornumber}\\
1028     \theORCID{\number\authornumber}\\
1029   \else

```

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

```

1030     \count@=0

```

```

1031     \loop
1032     \ifnum\count@<\authornumber
1033         \medskip
1034         \advance\count@ by \@ne
1035         \signaturemark
1036         \theauthor{\number\count@}\
1037         \theaddress{\number\count@}\
1038         {%
1039             \allowhyphens
1040             \thenetaddress{\number\count@}\
1041             \thePersonalURL{\number\count@}\
1042             \theORCID{\number\count@}\
1043         }%
1044     \repeat
1045     \fi
1046 }%
1047 }

```

```

1048 \newdimen\signaturewidth \signaturewidth=12pc

```

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

```

1049 \newcommand{\makesignature}[1][\medskipamount]{%

```

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

```

1050 \@tempdima\signaturewidth
1051 \advance\@tempdima 1.5pc
1052 \ifdim \@tempdima>\columnwidth
1053     \signaturewidth \columnwidth
1054     \advance\signaturewidth -1.5pc
1055 \fi
1056 \par
1057 \penalty9000
1058 \vspace{#1}%
1059 \rightline{%
1060     \vbox{\hsize\signaturewidth \ninepoint \raggedright
1061         \parindent \z@ \everypar={\hangindent 1pc }%
1062         \parskip \z@skip
1063         \def\|{\unskip\hfil\break}%
1064         \def\|\{\endgraf}%
1065         \def\phone{\rm Phone: }%
1066         \def\tubmultipleaffilauthor{\unskip,\\\hspace*{1em}}%
1067         \rm\@signature}%
1068 }%
1069 \ifnum\authornumber<0 \endgroup\fi
1070 }
1071 \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.


```

1072 \def\tubmultipleaffilauthor{\unskip,\ \ignorespaces}%
1073 \def\tubmultipleaffilnet{\unskip\textrm{\,,\ \ignorespaces}}

```

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

```

1074 \newcount\authornumber
1075 \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`).

```

1076 \def\author{%
1077   \global\advance\authornumber\@ne
1078   \TB@author
1079 }

```

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

```

1080 \def\contributor{%
1081   \begingroup
1082   \authornumber\m@ne
1083   \TB@author
1084 }

```

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

```

1085 \def\TB@author#1{%
1086   \expandafter\def\csname theauthor\number\authornumber\endcsname
1087     {\ignorespaces#1\unskip}%
1088   \expandafter\def\csname theaddress\number\authornumber\endcsname
1089     {\TBWarningNL{Address for #1\space missing}\@gobble}%
1090   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
1091     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
1092   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
1093     \@gobble
1094   \expandafter\let\csname theORCID\number\authornumber\endcsname
1095     \@gobble
1096 }
1097 \def\EDITORnoaddress{%
1098   \expandafter\let\csname theaddress\number\authornumber\endcsname
1099     \@gobble
1100 }
1101 \def\EDITORnonetaddress{%
1102   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
1103     \@gobble
1104 }

```

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

```

1105 \def\address#1{%

```

```

1106 \expandafter\def\csname theaddress\number\authornumber\endcsname
1107     {\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!*

```

1108 \def\network#1{\def\@network{#1: }}

```

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

```

1109 \newcommand{\netaddress}[1][\relax]{%
1110 \begingroup
1111 \def\@network{}%

```

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

```

1112 #1\@sanitize\makespace\ \makeactive\@%
1113 \makeescape! \makebgroup[ \makeegroup]% seems more useful than literals
1114 \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?!**)

```

1115 \def\@relay@netaddress#1{%
1116 \ProtectNetChars
1117 \expandafter\protected@xdef
1118     \csname thenetaddress\number\authornumber\endcsname
1119     {\protect\leavevmode\textrm{\@network}}%
1120     {\protect\NetAddrChars\net
1121     \ignorespaces#1\unskip}}%
1122 \endgroup
1123 }

```

`\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.

```

1124 \def\personalURL{\begingroup
1125 \@sanitize\makespace\ \makeactive\@
1126 \makeactive\.\makeactive%\makeactive\/\@personalURL}%
1127 \def\@personalURL#1{%
1128 \ProtectNetChars
1129 \expandafter\protected@xdef
1130     \csname thePersonalURL\number\authornumber\endcsname{#1%
1131     \protect\leavevmode

```

```

1132     {%
1133       \protect\URLchars\net
1134       \ignorespaces#1\unskip
1135     }%
1136   }%
1137 \endgroup
1138 }

```

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...

```

1139 {%
1140   \makecomment\*
1141   \makeactive\@
1142   \gdef\netaddrat{\makeactive\@*
1143     \def@{\discretionary{\char"40}{\char"40}}
1144   \makeactive\%
1145   \gdef\netaddrpercent{\makeactive\%*
1146     \def%{\discretionary{\char"25}{\char"25}}
1147   \makeactive\.
1148   \gdef\netaddrdot{\makeactive\.*
1149     \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.

```

1150   \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
1151   \makeactive\/
1152   \gdef\URLchars{*
1153     \NetAddrChars
1154     \makeactive\/*
1155     \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.

```

1156   \gdef\ProtectNetChars{*
1157     \def@{\protect@}*
1158     \def%{\protect%}*
1159     \def.\{\protect.}*
1160     \def/{\protect/}*
1161   }
1162 }

```

L^AT_EX 2_ε (in its wisdom) suppresses \DeclareOldFontCommand when in compatibility mode, so that in that circumstance we need to use a declaration copied from latex209.def rather than the way we would normally do the thing (using the command L^AT_EX 2_ε defines for the job).

```

1163 \if@compatibility
1164   \DeclareRobustCommand{\net}{\normalfont\ttfamily\mathgroup\symtypewriter}
1165 \else
1166   \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
1167 \fi
1168 \def\authorlist#1{\def\@author{#1}}

```

```
1169 \def\@author{\@defaultauthorlist}
```

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

```
1170 \def\ORCID#1{%
1171   \expandafter\def\csname theORCID\number\authornumber\endcsname
1172     {\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
```

```
1173 \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.

```
1174 \newif\if@articletitle
1175 \def\maketitle{\@ifstar
1176   {\@articletitlefalse\@r@maketitle}%
1177   {\@articletitletrue\@r@maketitle}%
1178 }
1179 \def\@r@maketitle{\par
1180   \iftubsecondcolstart \null\newpage\tubsecondcolstartextra \fi
1181   \ifdim\PreTitleDrop > \z@
1182     \loop
1183       \ifdim \PreTitleDrop > \textheight
1184         \vbox{\vfil\ejct
1185           \advance\PreTitleDrop by -\textheight
1186         \repeat
1187       \vbox to \PreTitleDrop{\vfil}%
1188     \global\PreTitleDrop=\z@
1189   \fi
1190   \begingroup
1191   \setcounter{footnote}{0}
1192   \global\@topnum\z@ % disallow floats above the title
1193   \def\thefootnote{\fnsymbol{footnote}}
1194   \@maketitle
1195   \@thanks
1196   \endgroup
```

```

1197 \setcounter{footnote}{0}
1198 \gdef\@thanks{}
1199 }

```

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

```

1200 \def\rhTitle{}% avoid error if no author or title
1201 \renewcommand{\title}{\@dblarg\TB@title}
1202 \def\TB@title[#1]#2{\gdef\@title{#2}%
1203   \bgroup
1204     \let\thanks\@gobble
1205     \def\{\unskip\space\ignorespaces}%
1206     \protected@xdef\rhTitle{#1}%
1207   \egroup
1208 }

```

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

```

1209 \def\shortTitle #1{\def\rhTitle{#1}}
1210 \newif\ifshortAuthor
1211 \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:

```

1212 \def\secsep{\vskip 5\baselineskip}

```

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

```

1213 \newdimen\stbaselineskip      \stbaselineskip=18\p@
1214 \newdimen\stfontheight
1215 \settoheight{\stfontheight}{\sectitlefont 0}

```

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

```

1216 \newif\ifWideSecTitle
1217 \newif\iftubtitlerulefullwidth
1218 \newif\ifSecTitle \SecTitlefalse
1219 \newcommand{\sectitle}{%
1220   \SecTiteltrue
1221   \@ifstar
1222     {\WideSecTiteltrue\def\s@ctitle}%

```

```

1223   {\WideSecTitlefalse\def\s@ctitle}%
1224 }

```

`\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.

```

1225 \newdimen\PreTitleDrop   \PreTitleDrop=\z@

```

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

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

```

1226 \newskip\AboveTitleSkip   \AboveTitleSkip=12\p@
1227 \newskip\BelowTitleSkip   \BelowTitleSkip=8\p@
1228 \newdimen\strulethickness   \strulethickness=.6\p@

```

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

```

1229 \def\@sectitle #1{%
1230   \par
1231   \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.

```

1232   \ifWideSecTitle\else\secsep\fi
1233   {%
1234     \fboxrule\strulethickness
1235     \fboxsep\z@
1236     \noindent\framebox[\hsize]{%
1237       \vbox{%
1238         \raggedcenter
1239         \let\\\@sectitle@newline
1240         \sectitlefont
1241         \makestrut[2\stfontheight;\z@]%
1242         #1%
1243         \makestrut[\z@;\stfontheight]\endgraf
1244       }%
1245     }%
1246   }%
1247   \nobreak
1248   \vskip\baselineskip
1249 }

```

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

```

1250 \newcommand{\@sectitle@newline}[1][\z@]{%

```

```

1251 \ifdim#1>\z@
1252   \makestrut[\z@;#1]%
1253 \fi
1254 \unskip\break
1255 }

```

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).

```

1256 \def\@makesectitle{\ifSecTitle
1257   \global\SecTitlefalse
1258   \ifWideSecTitle
1259     \twocolumn[\@sectitle{\s@ctitle}]%
1260     \global\WideSecTitlefalse
1261   \else
1262     \@sectitle{\s@ctitle}%
1263   \fi
1264 \else
1265   \vskip\AboveTitleSkip
1266   \kern\topskip
1267   \hrule \@height\z@ \@depth\z@ \@width 10\p@
1268   \kern-\topskip
1269   \kern-\strulethickness
1270   \iftubtitlerulefullwidth
1271     \hrule \@height\strulethickness \@depth\z@ width\textwidth
1272   \else
1273     \hrule \@height\strulethickness \@depth\z@
1274   \fi
1275   \kern\medskipamount
1276   \nobreak
1277 \fi
1278 }

```

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

```

1279 \def\@maketitle{%
1280   \@makesectitle
1281   \if@articletitle{%
1282     \nohyphens \interlinepenalty\M
1283     \setbox0=\hbox{%
1284       \let\thanks\@gobble
1285       \let\=\quad
1286       \let\and=\quad
1287       \ignorespaces\@author}%
1288     {%
1289       \noindent\bf\raggedright\ignorespaces\frenchspacing
1290       \let\BibTeX=\bfBibTeX % else LaTeX Font Warning:
1291                             %      Font shape 'OT1/cmr/bx/sc' undefined
1292       \@title\endgraf
1293     }%
1294     \ifdim \wd0 < 5\p@           % omit if author is null
1295   \else

```

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

```

1296   \nobreak \vskip 4\p@
1297   {%

```

```

1298     \leftskip=\normalparindent
1299     \raggedright
1300     \def\and{\unskip\}%
1301     \noindent\@author\endgraf
1302   }%
1303   \fi
1304   \nobreak
1305   \vskip\BelowTitleSkip
1306 } \fi%
1307 \global\@afterindentfalse
1308 \aftergroup\@afterheading
1309 }

```

Dedications are ragged right, in italics.

```

1310 \newenvironment{dedication}%
1311   {\raggedright\noindent\itshape\ignorespaces}%
1312   {\endgraf\medskip}

```

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

```

1313 \def\@tubonecolumnabstractstart{%
1314   \list{}{\listparindent\normalparindent
1315     \itemindent\z@ \leftmargin\@tubfullpageindent
1316     \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1317 }
1318 \def\@tubonecolumnabstractfinish{%
1319   \endlist
1320 }
1321 \renewenvironment{abstract}%
1322   {\begin{SafeSection}%
1323     \section*{%
1324       \if@tubtwocolumn\else \hspace*\@tubfullpageindent}\fi
1325     Abstract}%
1326   \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1327 }%
1328 {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1329 \end{SafeSection}}
1330 \newenvironment{longabstract}%
1331   {\begin{SafeSection}%
1332     \section*{Abstract}%
1333     \bgroup\small
1334   }%
1335   {\endgraf\egroup
1336     \end{SafeSection}%
1337     \vspace{.25\baselineskip}
1338     \begin{center}
1339       {\$--*--\$}
1340     \end{center}
1341     \vspace{.5\baselineskip}}

```


3.16 Section headings

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

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

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

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

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

```
1342 \def\tubsechook{}
1343 \def\tubsecfmt{\normalsize\bf\raggedright\frenchspacing\tubsechook}
1344 %
1345 \if@numbersec
1346   \def\section{\TB@startsection{{section}}%
1347     1%
1348     \z@
1349     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1350     {4\p@}%
1351     {\tubsecfmt}}
1352   \def\subsection{\TB@startsection{{subsection}}%
1353     2%
1354     \z@
1355     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1356     {4\p@}%
1357     {\tubsecfmt}}
1358   \def\subsubsection{\TB@startsection{{subsubsection}}%
1359     3%
1360     \z@
1361     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1362     {4\p@}%
1363     {\tubsecfmt}}
1364   \def\paragraph{\TB@startsection{{paragraph}}%
1365     4%
1366     \z@
1367     {4\p@ \@plus1\p@ \@minus1\p@}%
1368     {-1em}%
1369     {\normalsize\bf\tubsechook}}
```

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

```
1370 \else
1371   \setcounter{secnumdepth}{0}
1372   \def\section{\TB@nolimelabel
1373     \TB@startsection{{section}}%
1374     1%
1375     \z@
1376     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1377     {4\p@}%
1378     {\tubsecfmt}}
```

```

1379 \def\subsection{\TB@nolimelabel
1380         \TB@startsection{\subsection}%
1381             2%
1382             \z@
1383             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1384             {-0.5em\@plus-\fontdimen3\font}%
1385             {\tubsecfmt}}
1386 \def\subsubsection{\TB@nolimelabel
1387         \TB@startsection{\subsubsection}%
1388             3%
1389             \parindent
1390             {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1391             {-0.5em\@plus-\fontdimen3\font}%
1392         {\tubsecfmt}}
1393 \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`.

```
1394 \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).

```
1395 \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.

```

1396 \newenvironment{SafeSection}%
1397   {\let\TB@startsection\TB@safe@startsection}%
1398   {}

```

And now for the exciting sectioning commands that L^AT_EX 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.

```

1399 \if@numbersec
1400   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1401 \else
1402   \def\paragraph{\TB@nosection\paragraph\subsubsection}
1403   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1404 \fi
1405 \def\chapter{\TB@nosection\chapter\section}
1406 \def\part{\TB@nosection\part\section}

```

¹Thurber, *The Wonderful O*

```

1407 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1408   \string#2\space used instead}#2}

```

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

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or leaders get messed up.

```

1409 \def\TBtocsectionfont{\normalfont}
1410 \newskip\TBtocsectionsapace \TBtocsectionsapace=1.0ex\@plus\p@
1411 % |#1| is both the section number and title; |#2| is the page number.
1412 % Per Ulrike, the hook calls are for tagging, introduced with the
1413 % June 2023 \LaTeX.
1414 \def\l@section#1#2{%
1415   \addpenalty{\@secpenalty}%
1416   \addvspace{\TBtocsectionsapace}%
1417   \@tempdima 1.5em
1418   \begingroup
1419     \parindent\z@
1420     \rightskip\z@ % article style makes \rightskip > 0
1421     \parfillskip\z@
1422     \TBtocsectionfont
1423     \leavevmode
1424     \advance\leftskip\@tempdima
1425     \hskip-\leftskip
1426     \ifx\UseHookWithArguments\undefined\else
1427       \UseHookWithArguments{contentsline/text/before}{4}
1428       {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1429     \fi
1430     % don't worry if this cs is not defined, hence the \csname.
1431     \csname contentsline@text@1@format\endcsname{#1}% number and title
1432     \ifx\UseHookWithArguments\undefined\else
1433       \UseHookWithArguments{contentsline/text/after}{4}
1434       {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1435     \fi
1436     \nobreak
1437     \hfil
1438     \nobreak
1439     % page number
1440     \hb@xt@\@pnumwidth{\hss
1441       \ifx\UseHookWithArguments\undefined\else
1442         \UseHookWithArguments{contentsline/page/before}{4}
1443         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1444       \fi
1445       #2%
1446       \ifx\UseHookWithArguments\undefined\else
1447         \UseHookWithArguments{contentsline/page/after}{4}
1448         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%

```

```

1449     \fi
1450   }\par
1451 \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:

```

1452 \renewcommand{\appendix}{\par
1453   \renewcommand{\thesection}{\@Alph\c@section}%
1454   \setcounter{section}{0}%
1455   \if@numbersec
1456   \else
1457     \setcounter{secnumdepth}{1}%
1458   \fi

```

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

```

1459   \def\@tempa{appendix}
1460   \ifx\@tempa\@currentenv
1461     \expandafter\@appendix@env
1462   \fi
1463 }

```

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

```

1464 \newcommand{\app@prefix@section}{}
1465 \newcommand{\@appendix@env}[1][Appendix]{%
1466   \renewcommand{\@secntformat}[1]{\csname app@prefix@##1\endcsname
1467     \csname the##1\endcsname\quad}%
1468   \renewcommand{\app@prefix@section}{#1 }%
1469 }

```

Ending an appendix environment is pretty trivial. . .

```

1470 \let\endappendix\relax

```

3.18 References

If the sections aren't numbered, the natural tendency of the author to cross-reference (which, after all, is one of the things L^AT_EX 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

```

1471 \def\TB@nolimelabel{%
1472   \def\@currentlabel{%
1473     \protect\TBWarning{%
1474       Invalid reference to numbered label on page \thepage
1475       \MessageBreak made%
1476     }%
1477     \textbf{?!?}%
1478   }%
1479 }

```

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 L^AT_EX (or somewhat earlier, but this is good enough), there are hooks that allow us to avoid redefining `\@sect` and `\@ssect`.

```

1480 \ifl@t@r\fmtversion{2023-06-01}{-}{%
1481   \let\TB@sect\@sect
1482   \let\TB@ssect\@ssect
1483   \def\@sect#1#2#3#4#5#6[#7]#8{%
1484     \def\@currentlabelname{#7}%
1485     \TB@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1486   }
1487   \def\@ssect#1#2#3#4#5{%
1488     \def\@currentlabelname{#5}%
1489     \TB@ssect{#1}{#2}{#3}{#4}{#5}%
1490   }
1491 } % 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 L^AT_EX `\label` and then write our named label as `nr<label>`.

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

```

1492 \ifl@t@r\fmtversion{2023-06-01}{-}{%
1493   \AddToHookWithArguments{cmd/@sect/before}{\def\@currentlabelname{#7}}%
1494   \AddToHookWithArguments{cmd/@ssect/before}{\def\@currentlabelname{#5}}%
1495 }{%
1496   \let\@savelatexlabel=\label % so save original LaTeX command
1497   %
1498   \def\label#1{%
1499     \@savelatexlabel{#1}%
1500     \@bsphack
1501     \if@filesw
1502       \protected@write\@auxout{%
1503         {\string\newlabel{nr@#1}{\@currentlabel}{\@currentlabelname}}}%
1504     \fi

```

```

1505   \@esphack}
1506   % in case there are no sectioning commands:
1507   \let\@currentlabelname\@empty
1508 }

```

Getting named references is then just like getting page references in the L^AT_EX 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.

```

1509 \AtBeginDocument{%
1510   \@ifl@t@r\fmtversion{2023-06-01}%
1511   { % after June 2023, LaTeX stores the label name; use that.
1512     \long\def\@thirdoffive#1#2#3#4#5{#3}
1513     \providecommand\nameref[1]{%
1514       \expandafter\@setref
1515       \csname r@#1\endcsname\@thirdoffive{#1}}%
1516   }
1517   { % for earlier versions, still avoid overwriting \nameref per above.
1518     % but if not otherwise defined, use the "nr" label defined by our \label.
1519     \providecommand\nameref[1]{%
1520       \expandafter\@setref
1521       \csname r@nr@#1\endcsname\@secondoftwo{#1}}%
1522   }%
1523 }

```

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
```

```

1524 \newdimen\@tubfullpageindent
1525 \@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
```

```
1526 \let\tubcaptionleftglue=\hfil
```

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

```
1527 \def\tubcaptionfonts{\small}%

```

Ok, here is `\makecaption`.

```
1528 \long\def\makecaption#1#2{%
1529   \vskip\abovcaptionskip
1530   % try in an hbox:
1531   \sbox\@tempboxa{\tubcaptionfonts \frenchspacing \tubmakecaptionbox{#1}{#2}}%
1532   \ifdim \wd\@tempboxa > \hsize
1533     {% caption doesn't fit on one line; set as a paragraph.
1534     \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
1535     % indent full-width captions {figure*}, but not single-column {figure}.
1536     \ifdim\hsize = \textwidth
1537       \leftskip=\@tubfullpageindent \rightskip=\leftskip
1538       \advance\rightskip by 0pt plus2em % increase acceptable raggedness
1539     \fi
1540     \noindent \tubmakecaptionbox{#1}{#2}\par}%
1541   \else
1542     % fits on one line; use the hbox, usually centered. Do not reset its glue.
1543     \global\@minipagefalse
1544     \hb@xt@\hsize{\tubcaptionleftglue\box\@tempboxa\hfil}%
1545   \fi
1546   \vskip\belowcaptionskip}
1547 %
1548 \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.

```
1549 \def\fnnum@figure{{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
1550 \def\fnnum@table{{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}
1551 \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.

```
1552 \setlength\abovcaptionskip{6pt plus1pt minus1pt}
```

3.21 Size changing commands

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

```
1553 \renewcommand{\normalsize}{%
1554   \@setfontsize\normalsize\@xpt\@xipt
1555   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1556   \belowdisplayskip=\abovedisplayskip
1557   \abovedisplayshortskip=\z@\@plus 3\p@
1558   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1559 }
1560
1561 \renewcommand{\small}{%
1562   \@setfontsize\small\@ixpt{11}%
1563   \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1564   \belowdisplayskip=\abovedisplayskip
1565   \abovedisplayshortskip=\z@\@plus 2\p@
1566   \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1567 }
```

```

1568
1569 \renewcommand{\footnotesize}{%
1570   \setfontsize\footnotesize\@viipt{9.5}%
1571   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1572   \belowdisplayskip=\abovedisplayskip
1573   \abovedisplayshortskip=\z@\@plus 3\p@
1574   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1575 }

```

3.22 Lists and other text inclusions

```

1576 \def\@listi{%
1577   \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1578   \itemsep=\parsep
1579   \listparindent=1em
1580 }
1581
1582 \def\@listii{%
1583   \leftmargin\leftmarginii
1584   \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1585   \topsep=2\p@\@plus\p@\@minus\p@ % space between first item and preceding
1586   \parsep=\p@\@plus\p@\@minus\p@
1587   \itemsep=\parsep % space between successive items
1588   \listparindent=1em % indentation of subsequent paragraphs
1589 }
1590
1591 \def\@listiii{%
1592   \leftmargin=\leftmarginiii
1593   \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1594   \topsep=\p@\@plus\p@\@minus\p@
1595   \parsep=\z@
1596   \itemsep=\topsep
1597   \listparindent=1em
1598 }
1599 \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.

```

1600 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1601   \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}

```

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

```

1602 \newenvironment{compactitemize}%
1603   {\begin{itemize}%
1604     \setlength{\itemsep}{0pt}%
1605     \setlength{\parskip}{0pt}%
1606     \setlength{\parsep}{0pt}%
1607   }%
1608   {\end{itemize}}
1609 %
1610 \newenvironment{compactenumerate}%
1611   {\begin{enumerate}%
1612     \setlength{\itemsep}{0pt}%
1613     \setlength{\parskip}{0pt}%

```



```

1614     \setlength{\parsep}{0pt}%
1615   }%
1616   {\end{enumerate}}
1617 %
1618 \newenvironment{compactdescription}%
1619   {\begin{description}%
1620     \setlength{\itemsep}{0pt}%
1621     \setlength{\parskip}{0pt}%
1622     \setlength{\parsep}{0pt}%
1623   }%
1624   {\end{description}}
1625 %

```

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.

```

1626 %\let\@TB@verbatim\@verbatim
1627 \let\@TBverbatim\verbatim
1628 \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.)

```

1629 \def\verbatim{\par\obeylines
1630   \futurelet\reserved@a\@switch@sqbverbatim}
1631 %
1632 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1633   \expandafter\@sqbverbatim\else
1634   \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1635 %
1636 \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.

```

1637   \def\ruled{\let\if@ruled\iftrue}%

```

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

```

1638   \def\makevmeta{\makeescape! \let\<tubverb@meta \tubverb@clearlist}
1639   \def\tubverb@meta##1>{\meta{##1}}

```

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

```
1640 \def\tubverb@clearliglist{%
1641   \def\verbatim@nolig@list{\do\‘\do\,\do\’\do\-%}
1642 }
```

Then we execute the arguments we’ve got, and relay to a (hacked) copy of the L^AT_EX verbatim environment.

```
1643 #1\@TBverbatim}
```

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

```
1644 \def\@verbatim{%
```

First, we deal with \ruled:

```
1645   \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1646 \trivlist \item\relax
1647 \if@minipage\else\vskip\parskip\fi
1648 \leftskip\@totalleftmargin\rightskip\z@skip
1649 \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1650 \@@par
1651 \@tempwafalse
1652 \def\par{%
1653   \if@tempswa
1654     \leavevmode \null \@@par\penalty\interlinepenalty
1655   \else
1656     \@tempwatrue
1657     \ifhmode\@@par\penalty\interlinepenalty\fi
1658   \fi}%
1659 \obeylines \verbatim@font \@noligs
1660 \let\do\@makeother \dospecials
1661 \everypar \expandafter{\the\everypar \unpenalty}%
1662 }% 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).

```
1663 \def\endverbatim{\@TBendverbatim
1664   \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

Define the \if used by the \ruled option:

```
1665 \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.

```
1666 \AtBeginDocument{%
1667   \@ifpackageloaded{microtype}
1668     {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{ }
1669 }
```

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 L^AT_EX to function properly. The form of the bibitem entries is:

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

The available citation commands are:

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

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

```
1670 \if@Harvardcite
1671 \let\@internalcite\cite
```

Normal forms.

```
1672 \def\cite{\def\@citeseppen{-1000}%
1673   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1674   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1675 \def\citeNP{\def\@citeseppen{-1000}%
1676   \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1677   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1678 \def\citeN{\def\@citeseppen{-1000}%
1679   \def\@cite##1##2{##1\if@tempswa , ##2}\else{}}\fi}%
1680   \def\citeauthoryear##1##2##3{##1 (##3)\@citedata}
1681 \def\citeA{\def\@citeseppen{-1000}%
1682   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1683   \def\citeauthoryear##1##2##3{##1}\@internalcite}
1684 \def\citeANP{\def\@citeseppen{-1000}%
1685   \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1686   \def\citeauthoryear##1##2##3{##1}\@internalcite}
```

Abbreviated forms (using *et al.*)

```
1687 \def\shortcite{\def\@citeseppen{-1000}%
1688   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1689   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1690 \def\shortciteNP{\def\@citeseppen{-1000}%
1691   \def\@cite##1##2{##1\if@tempswa , ##2\fi}%
1692   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1693 \def\shortciteN{\def\@citeseppen{-1000}%
1694   \def\@cite##1##2{##1\if@tempswa , ##2}\else{}}\fi}%
1695   \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1696 \def\shortciteA{\def\@citeseppen{-1000}%
```

```

1697 \def\cite##1##2{##1\if@tempswa , ##2\fi)}%
1698 \def\citeauthoryear##1##2##3{##2}\@internalcite}
1699 \def\shortciteANP{\def\citeseppen{-1000}%
1700 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1701 \def\citeauthoryear##1##2##3{##2}\@internalcite}

```

When just the year is needed:

```

1702 \def\citeyear{\def\citeseppen{-1000}%
1703 \def\cite##1##2{##1\if@tempswa , ##2\fi)}%
1704 \def\citeauthoryear##1##2##3{##3}\@citedata}
1705 \def\citeyearNP{\def\citeseppen{-1000}%
1706 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1707 \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.

```

1708 \def\@citedata{%
1709 \ifnextchar [{\@tempswatrue\@citedatax}%
1710 \ifnextchar ]{\@tempswafalse\@citedatax[]}%
1711 }
1712
1713 \def\@citedatax[#1]#2{%
1714 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1715 \def\@citea{\@cite{\@for\citeb:=#2\do%
1716 {\@citea\def\@citea{, }\@ifundefined% by Young
1717 {b@\citeb}{\bf ?}%
1718 \@warning{Citation '\@citeb' on page \thepage \space undefined}}%
1719 {\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.

```

1720 \def\@citex[#1]#2{%
1721 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1722 \def\@citea{\@cite{\@for\citeb:=#2\do%
1723 {\@citea\def\@citea{; }\@ifundefined% by Young
1724 {b@\citeb}{\bf ?}%
1725 \@warning{Citation '\@citeb' on page \thepage \space undefined}}%
1726 {\csname b@\citeb\endcsname}}{#1}}%

```

No labels in the bibliography.

```
1727 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```

1728 \newlength{\bibhang}
1729 \setlength{\bibhang}{2em}

```

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

```

1730 \newdimen\bibindent
1731 \bibindent=1.5em
1732 \@ifundefined{refname}%
1733 {\newcommand{\refname}{References}}%
1734 {}%

```

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

```

1735 \def\thebibliography#1{% for harvardcite
1736 \let\TB@startsection\TB@safe@startsection
1737 \section*{\refname
1738 \mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1739 \list{[\arabic{enumi}]}{%
1740 \labelwidth\z@ \labelsep\z@
1741 \leftmargin\bibindent
1742 \itemindent -\bibindent
1743 \listparindent \itemindent
1744 \parsep \z@
1745 \usecounter{enumi}}%
1746 \def\newblock{}%
1747 \BibJustification
1748 \frenchspacing % more than just period, see comments below
1749 }

```

`etal` Other bibliography odds and ends.

```

\bibentry 1750 \def\etal{et\,al.\@}
1751 \def\bibentry{%
1752 \smallskip
1753 \hangindent=\parindent
1754 \hangafter=1
1755 \noindent
1756 \sloppy
1757 \clubpenalty500 \widowpenalty500
1758 \frenchspacing
1759 }

```

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

```

\bibliographystyle 1760 \def\bibliographystyle#1{%
1761 \if@filesw
1762 \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1763 \fi
1764 \@input{\jobname.bbl}%
1765 }
1766 \def\bibliographystyle#1{%
1767 \if@filesw
1768 \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1769 \fi
1770 }

```

`\thebibliography` If the user's asked to use L^AT_EX's default citation mechanism (using the `rawcite` option), we still need to patch `\sloppy` to support justification of the body of the bibliography. We kludge in a call to `\frenchspacing` too, since there is no reason to change only period's `\sfcode`, as L^AT_EX'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* since we always have, though that is no longer needed.

```

1771 \else % not harvardcite
1772 \let\TB@origthebibliography\thebibliography
1773 \def\thebibliography{%
1774   \let\TB@startsection\TB@safe@startsection
1775   \def\sloppy{\frenchspacing\BibJustification}%
1776   \TB@origthebibliography} % latex's thebibliography now reads args.
1777 \fi % not harvardcite

```

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

```

1778 \let\TB@@sloppy\sloppy
1779 \let\BibJustification\TB@@sloppy
1780 \newcommand{\SetBibJustification}[1]{%
1781   \renewcommand{\BibJustification}{#1}%
1782 }
1783 \ResetCommands\expandafter{\the\ResetCommands
1784   \let\BibJustification\TB@@sloppy
1785 }

```

3.25 Registration marks

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

```

1786 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1787 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1788 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }

```

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

```

1789 \def\ttopregister{\dlap{%
1790   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1791     \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1792   \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}}
1793 \def\tbotregister{\ulap{%
1794   \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1795   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1796     \HorzR@gisterRule \hfil \HorzR@gisterRule}}}
1797 \def\topregister{\ttopregister}
1798 \def\botregister{\tbotregister}

```

3.26 Running headers and footers

```

1799 \def\rtitlex{\def\texttub##1{\{\normalsize\textrm{##1}}}\TUB, \volx}

```

registration marks; these are temporarily inserted in the running head

```

1800 \def\MakeRegistrationMarks{}
1801 \def\UseTrimMarks{%
1802   \def\MakeRegistrationMarks{%
1803     \ulap{\rlap{%
1804       \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}%
1805         \topregister\vskip \headmargin \vskip 10\p@}}}}%

```

```

1806 }
1807 % put issue identification and page number in header.
1808 \def\@oddhead{\MakeRegistrationMarks
1809   \frenchspacing
1810   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1811   \rtitlex\quad \midrtitlex\hfil \rtitlenexttopage\quad\thepage}
1812 \def\@evenhead{\MakeRegistrationMarks
1813   \frenchspacing
1814   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1815   \thepage\quad\rtitlenexttopage \hfil\midrtitlex \quad\rtitlex}
1816
1817 % Put a ? into the page number in all but a final run, so people
1818 % aren't tempted to cite it.
1819 %
1820 % We redefine |\thepage| so that the ? will also be used in page
1821 % references (in the text) and the toc. This is what's recommended by
1822 % the LaTeX developers: https://tex.stackexchange.com/questions/687258.
1823 % (Ulrike's example does this after loading hyperref, but doesn't seem
1824 % to matter?)
1825 \renewcommand\thepage{%
1826   \ifnum\value{page}>900
1827     % in CM, numerals are exactly .5em.
1828     %
1829     % The \texorpdfstring avoids the usual hyperref warning:
1830     % Token not allowed in a PDF string ... removing '\@ifnextchar'
1831     \texorpdfstring{\makebox[.5em][l]{\small ?}}{?}%
1832     %
1833     \textsl{\@arabic{\numexpr\value{page}-900\relax}}% e-tex
1834   \else
1835     \@arabic{\value{page}}%
1836   \fi
1837 }
1838 % This custom page number format will break makeindex, etc., so we have
1839 % to tell about the format. Per Ulrike:
1840 % \usepackage{index}
1841 % \newcommand\specialthepage{\interval{\value{page}-900}}
1842 % \newindex[specialthepage]*{default}{idx}{ind}{Index}
1843
1844 % can be used to reset the font, e.g., tb98kuester.
1845 \def\tubheadhook{}
1846
1847 % in case the official \author is too verbose for the footline.
1848 % (the \shortauthor / \rhAuthor stuff is only enabled for proceedings, fix!)
1849 \def\tubrunningauthor{\@author}
1850
1851 % put title and author in footer.
1852 \def\@tubrunningfull{%
1853   \def\@oddfoot{% make line break commands produce a normal space
1854     \def\@unskip\@ignorespaces}%
1855     \let\newline=\\%
1856     \tubtypesetdoi
1857     \frenchspacing\hfil\rhTitle}
1858 \def\@evenfoot{%
1859   \let\thanks\@gobble

```

```

1860     \tubtypesetdoi
1861     \frenchspacing\tubrunningauthor\hfil}
1862 }
1863
1864 % empty footer.
1865 \def\tubrunningminimal{%
1866   \def\@oddfoot{\tubtypesetdoi\hfil}%
1867   \def\@evenfoot{\tubtypesetdoi\hfil}%
1868 }
1869
1870 % empty footer and header.
1871 \def\tubrunningoff{%
1872   \@tubrunningminimal
1873   \def\@oddhead{\hfil}%
1874   \def\@evenhead{\hfil}%
1875 }
1876
1877 \def\ps@headings{}
1878 \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 manu-
ally 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.
1879 %
1880 \def\tubdoiprefix{10.47397/tb} % the number crossref assigned us
1881 \def\tubabovedoi{} % fudge spacing or whatever.
1882 %
1883 \def\tubtypesetdoi{%
1884   \iftubomitdoioption\else % do if not explicit omission ...
1885     \ifnum\volno>0 % and if being run for production ...
1886       \iftubfinaloption % and if [final], even if pageno>900
1887         \vbox to 0pt{% don't impact normal layout
1888           \edef\thedoi{% but make url invalid if >900
1889             \ifnum\count0>900 example.org%
1890               \else doi.org\fi
1891             /\tubdoiprefix/\volno-\issno/\jobname}%
1892           \scriptsize
1893           \vskip\baselineskip
1894           \tubabovedoi
1895           \iftubsecondcolstart \moveright \tubcolwidthandgutter \fi
1896           \rlap{\expandafter\tbsurl\expandafter{\thedoi}}%
1897           \vss
1898         }%
1899       \fi % tubfinaloption
1900     \fi % volno>0
1901   \fi % !tubomitdoioption
1902   \global\let\tubtypesetdoi\@empty % only do it once, no matter what.
1903 }
1904 %

```


1905 %

3.27 Output routine

Modified to alter `\brokenpenalty` across columns

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

```
1906 \def\outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1907   \global\setbox\@leftcolumn\box\@outputbox
1908   \global\brokenpenalty10000
1909 \else \global\@firstcolumntrue
1910   \global\brokenpenalty100
1911   \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1912     {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1913     \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1914   \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1915   \@whilesw@if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1916   \fi}
```

3.28 Font-related definitions and machinery

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

```
1917 \newif\ifFirstPar \FirstParfalse
1918 \def\smc{\sc}
1919 \def\ninepoint{\small}
1920 </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.)

```
1921 <*common>
1922 \DeclareRobustCommand{\SMC}{%
1923   \ifx\@currsize\normalsize\small\else
1924   \ifx\@currsize\small\footnotesize\else
```

```

1925 \ifx\@currsize\footnotesize\scriptsize\else
1926 \ifx\@currsize\large\normalsize\else
1927 \ifx\@currsize\Large\large\else
1928 \ifx\@currsize\LARGE\Large\else
1929 \ifx\@currsize\scriptsize\tiny\else
1930 \ifx\@currsize\tiny\tiny\else
1931 \ifx\@currsize\huge\LARGE\else
1932 \ifx\@currsize\Huge\huge\else
1933 \small\SMC@unknown@warning
1934 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1935 }
1936 \newcommand{\SMC@unknown@warning}{\TBWarning{\string\SMC: nonstandard
1937 text font size command -- using \string\small}}
1938 \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.

```

1939 \newcommand{\acro}[1]{\textSMC{#1}\@}
1940 \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!)

```

1941 <*classtail>
1942 \def\xEdNote{\EdNoteFont Editor's note:\enspace }
1943 \def\EdNote{\@ifnextchar[%]
1944   {%
1945     \ifvmode
1946       \smallskip\noindent\let\@EdNote@\@EdNote@v
1947     \else
1948       \unskip\quad\def\@EdNote@\@EdNote@{\unskip\quad}%
1949     \fi
1950     \@EdNote
1951   }%
1952   \xEdNote
1953 }
1954 \long\def\@EdNote[#1]{%
1955   [\thinspace\xEdNote\ignorespaces
1956   #1%
1957   \unskip\thinspace]%
1958   \@EdNote@
1959 }
1960 \def\@EdNote@v{\par\smallskip}

```

Macros for Mittelbach's self-documenting style

```

1961 \def\SelfDocumenting{%
1962   \setlength\textwidth{31pc}
1963   \onecolumn
1964   \parindent \z@
1965   \parskip 2\p@\@plus\p@\@minus\p@
1966   \oddsidemargin 8pc
1967   \evensidemargin 8pc

```

```

1968 \marginparwidth 8pc
1969 \toks@\expandafter{\@oddhead}%
1970 \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1971 \toks@\expandafter{\@evenhead}%
1972 \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1973 \def\ps@titlepage{}%
1974 }
1975 \def\ps@titlepage{}
1976
1977 \long\def\@makefnmark#1{\parindent 1em\noindent\hb@xt@2em{}}%
1978 \llap{\@makefnmark}\null$\mskip5mu$#1}
1979
1980 %% \long\def\@makefnmark#1{\parindent 1em
1981 %% \noindent
1982 %% \hb@xt@2em{\hss\@makefnmark}%
1983 %% \hskip0.27778\fontdimen6\textfont\z@\relax
1984 %% #1%
1985 %% }

```

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

```
1986 \newcommand{\tubraggedfoot}{\rightskip=\raggedskip plus\raggedstretch\relax}
```

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

```

\supportfootnote 1987 \def\creditfootnote{\nomarkfootnote\xEdNote}
1988 \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.

```

1989 \gdef\nomarkfootnote#1#2{\begingroup
1990 \def\thefootnote{}}%
1991 % no period, please, also no fnmark.
1992 \def\@makefnmark##1{##1}%
1993 \def\Hy@Warning##1{}}%
1994 \footnotetext{\noindent #1#2}%
1995 \endgroup
1996 }

```

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.)

```

1997 \if@Harvardcite
1998 \AtBeginDocument{%
1999 \bibliographystyle{ltugbib}}%
2000 }
2001 \fi
2002 \authornumber\z@
2003 \let\@signature\@defaultsignature
2004 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
2005 configuration information}}{}
2006 </classtail>

```

4 L^AT_EX 2_ε Proceedings class

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

```
2007 \ltugproccls
2008 \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.

```
2009 \newif\if@proc@sober
2010 \newif\if@proc@numerable
2011 \DeclareOption{tug95}{%
2012   \@proc@soberfalse
2013   \@proc@numerablefalse
2014 }
2015 \DeclareOption{tug96}{%
2016   \@proc@sobertrue
2017   \@proc@numerablefalse
2018 }
2019 \DeclareOption{tug97}{%
2020   \@proc@sobertrue
2021   \@proc@numerabletrue
2022 }
2023 \DeclareOption{tug2002}{%
2024   \@proc@sobertrue
2025   \@proc@numerabletrue
2026   \let\if@proc@numbersec\iftrue
2027   \PassOptionsToClass{numbersec}{ltugboat}%
2028 }
```

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

```
2029 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
2030   \PassOptionsToClass{numbersec}{ltugboat}%
2031 }
2032 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
2033   \PassOptionsToClass{nonumber}{ltugboat}%
2034 }
```

`\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`.

```
2035 \newif\ifTB@title
2036 \DeclareOption{title}{\TB@titletrue}
2037 \DeclareOption{notitle}{\TB@titlefalse}
2038 \AtBeginDocument{\stepcounter{page}}
```

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

```
2039 \DeclareOption{tugproc}{%
2040   \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
2041 }
```

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

```
2042 \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`...)

```
2043 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
2044         {Loading ltugproc configuration information}}{}
2045 \@ifundefined{TUGprocExtraOptions}%
2046     {\let\TUGprocExtraOptions\empty}%
2047     {\edef\TUGprocExtraOptions{\TUGprocExtraOptions}}
```

`\tugProcYear` Now work out what year it is

```
2048 \@tempcnta\year
2049 \ifnum\@tempcnta<2000
2050     \divide\@tempcnta by100
2051     \multiply\@tempcnta by100
2052     \advance\@tempcnta-\year
2053     \@tempcnta-\@tempcnta
2054 \fi
```

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

```
2055 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
2056             {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
2057 \@tempa
2058 \ClassInfo{ltugproc}{Class believes year is
2059     \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
2060     \@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.

```
2061 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
2062     \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.

```
2063 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
2064 \ProcessOptions
2065 \if@proc@numbersec
2066     \if@proc@numerable
2067     \else
2068         \ClassWarning{\@tugclass}{This year's proceedings may not have
2069             numbered sections}%
2070     \fi
2071 \fi
```

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

```
2072 \LoadClass[\if@proc@numbersec numbersec\else nonumber\fi]{ltugboat}
```

4.1 Proceedings titles

`\maketitle` There's no provision for 'section titles' in proceedings issues, as there are in *TUG-boat* proper. Note the tedious L^AT_EX bug-avoidance in the `\@TB@test@document` macro.

```

2073 \def\maketitle{%
2074   \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).
2075   \ifshortAuthor\else
2076     \global\let\rhAuthor\@empty
2077     \def\g@addto@rhAuthor##1{%
2078       \begingroup
2079         \toks@\expandafter{\rhAuthor}%
2080         \let\thanks@gobble
2081         \protected@xdef\rhAuthor{\the\toks@##1}%
2082       \endgroup
2083     }%
2084     \@getauthorlist\g@addto@rhAuthor
2085   \fi
      now, the real business of setting the title
2086   \ifTB@title
2087     \setcounter{footnote}{0}%
2088     \renewcommand{\thefootnote}{\fnsymbol\c@footnote}%
2089     \if@twtwocolumn
2090       \twocolumn[\@maketitle]%
2091     \else
2092       \onecolumn
2093       \global\@topnum\z@
2094       \@maketitle
2095     \fi
2096     \@thanks
2097     \thispagestyle{TBproctitle}
2098   \fi
2099 \endgroup
2100 \TB@madetitletrue
2101 }
2102 \newif\ifTB@madetitle \TB@madetitlefalse

```

`\@TB@test@document` `\@TB@test@document` checks to see, at entry to `\maketitle`, if we've had `\begin{document}`. See L^AT_EX bug report latex/2212, submitted by Robin Fairbairns, for details.

```

2103 \def\@TB@test@document{%
2104   \edef\@tempa{\the\everypar}
2105   \def \@tempb{\@nodocument}
2106   \ifx \@tempa\@tempb
2107     \@nodocument
2108   \fi
2109 }

```

`\AUTHORfont` Define the fonts for titles and things

```

\TITLEfont 2110 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
\addressfont
\netaddrfont

```

```

2111 \def\TITLEfont {\Large\rmfamily\mdseries\upshape}
2112 \def\addressfont{\small\rmfamily\mdseries\upshape}
2113 \def\netaddrfont{\small\ttfamily\mdseries\upshape}

```

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

```

\belowauthorskip
\belowabstractskip 2114 \newskip\aboveauthorskip \aboveauthorskip=18\p@ \@plus4\p@
2115 \newskip\belowauthorskip \belowauthorskip=\aboveauthorskip
2116 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@

```

\@maketitle The body of \@maketitle

```

2117 \def\@maketitle{%
2118   {\parskip\z@
2119     \frenchspacing
2120     \TITLEfont\raggedright\noindent\@title\par
2121     \count@=0
2122     \loop
2123     \ifnum\count@<\authornumber
2124       \vskip\aboveauthorskip
2125       \advance\count@\@ne
2126       {\AUTHORfont\theauthor{\number\count@}\endgraf}%
2127       \addressfont\theaddress{\number\count@}\endgraf
2128       {%
2129         \allowhyphens
2130         \hangindent1.5pc
2131         \netaddrfont\thenetaddress{\number\count@}\endgraf
2132         \hangindent1.5pc
2133         \thePersonalURL{\number\count@}\endgraf
2134       }%
2135     \repeat
2136   \vskip\belowauthorskip}%
2137 \if@abstract
2138   \centerline{\bfseries Abstract}%
2139   \vskip.5\baselineskip\rmfamily
2140   \@tubonecolumnabstractstart
2141   \the\abstract@toks
2142   \@tubonecolumnabstractfinish
2143   \global\@ignoretrue
2144 \fi
2145 \vskip\belowabstractskip
2146 \global\@afterindentfalse\aftergroup\@afterheading
2147 }

```

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 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@

```

2148 \newtoks\abstract@toks \abstract@toks{}
2149 \let\if@abstract\iffalse
2150 \def\abstract{%

```

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

```

2151 \ifTB@madetitle
2152   \TBWarning{abstract environment after \string\maketitle}
2153 \fi
2154 \def\@abstract@{abstract}%
2155 \ifx\@currenvir\@abstract@
2156 \else
2157   \TBEError{\string\abstract\space is illegal:%
2158     \MessageBreak
2159     use \string\begin{\@abstract@} instead}%
2160   {\@abstract@\space may only be used as an environment}
2161 \fi
2162 \global\let\if@abstract\iftrue
2163 {\ifnum0='}\fi
2164 \@abstract@getbody}
2165 \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}`

```

2166 \long\def\@abstract@getbody#1\end{%
2167   \global\abstract@toks\expandafter{\the\abstract@toks#1}%
2168   \@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.

```

2169 \def\@abstract@findend#1{%
2170   \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.

```

2171 \ifx\@tempa\@abstract@
2172   \expandafter\@abstract@end
2173 \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)

```

2174   \def\@tempb{document}%
2175   \ifx\@tempa\@tempb
2176     \TBEError{\string\begin{\@abstract@}
2177       ended by \string\end{\@tempb}}%
2178     {You've forgotten \string\end{\@abstract@}}
2179   \else
2180     \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
2181     \expandafter\expandafter\expandafter\@abstract@getbody
2182   \fi
2183 \fi}

```

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

```

2184 \def\@abstract@end{\ifnum0='{ \fi}%
2185   \expandafter\end\expandafter{\@abstract@}}

```



```

\makesignature \makesignature is improper in proceedings, so we replace it with a warning (and
                a no-op otherwise)
2186 \renewcommand{\makesignature}{\TBWarning
2187         {\string\makesignature\space is invalid in proceedings issues}}

\ps@TBproctitle Now we define the running heads in terms of the \rh* commands.
    \ps@TBproc 2188 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 2189 \let\@evenhead\MakeRegistrationMarks
\setpagecommands 2190 \TB@definefeet
    \TB@definefeet 2191 }
    \pfoottext 2192 \def\ps@TBproc{%
    \rfoottext 2193 \def\@oddhead{\MakeRegistrationMarks
2194     {%
2195         \hfil
2196         \def\{\unskip\ \ignorespaces}%
2197         \rmfamily\rhTitle
2198     }%
2199 }%
2200 \def\@evenhead{\MakeRegistrationMarks
2201     {%
2202         \def\{\unskip\ \ignorespaces}%
2203         \rmfamily\rhAuthor
2204         \hfil
2205     }%
2206 }%
2207 \TB@definefeet
2208 }
2209
2210 \advance\footskip8\p@    % for deeper running feet
2211
2212 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
2213 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
2214     {#2}}
2215 \def\TB@definefeet{%
2216     \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
2217         \else\rfoottext\hfil\thepage\fi\dopagecommands}%
2218     \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
2219         \else\thepage\hfil\rfoottext\fi\dopagecommands}%
2220 }
2221
2222 \def\pfoottext{\smc Preprint}:
2223     Proceedings of the \volyr{} Annual Meeting}
2224 \def\rfoottext{\normalfont\TUB, \volx\Dash
2225     {Proceedings of the \volyr{} Annual Meeting}}
2226
2227 \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).

```

2228 \if@proc@numbersec
2229 \else
2230   \setcounter{secnumdepth}{0}
2231 \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.

```

2232 \if@proc@numbersec
2233 \else
2234   \if@proc@sober
2235     \def\section
2236       {\TB@nolimelabel
2237        \TB@startsection{section}%
2238          1%
2239          \z@%
2240          {-8\p@\@plus-2\p@\@minus-2\p@}%
2241          {6\p@}%
2242          {\normalsize\bfseries\raggedright}}
2243   \else
2244     \def\section
2245       {\TB@nolimelabel
2246        \TB@startsection{section}%
2247          1%
2248          \z@%
2249          {-8\p@\@plus-2\p@\@minus-2\p@}%
2250          {6\p@}%
2251          {\large\bfseries\raggedright}}
2252   \fi
2253   \def\subsection
2254     {\TB@nolimelabel
2255      \TB@startsection{subsection}%
2256        2%
2257        \z@%
2258        {6\p@\@plus 2\p@\@minus2\p@}%
2259        {-5\p@\@plus -\fontdimen3\the\font}%
2260        {\normalsize\bfseries}}
2261   \def\subsubsection
2262     {\TB@nolimelabel
2263      \TB@startsection{subsubsection}%
2264        3%
2265        \parindent%
2266        \z@%
2267        {-5\p@\@plus -\fontdimen3\the\font}%
2268        {\normalsize\bfseries}}
2269 \fi
2270 </ltugproccls>

```

5 Plain TeX styles

```

2271 <*tugboatsty>

```

```
2272 % err...
2273 </tugboatsty>
2274 <*tugprocsty>
2275 % err...
2276 </tugprocsty>
```

6 The L^AT_EX 2_ε compatibility-mode style files

```
2277 <*ltugboatsty>
2278 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
2279 \LoadClass{ltugboat}
2280 </ltugboatsty>
2281 <*ltugprocsty>
2282 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
2283 \LoadClass{ltugproc}
2284 </ltugprocsty>
```