

The `tugboat` package*

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tugboat.dtx - main source for LaTeX TUGboat classes.	

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                [2006/05/05 v2.0
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                ]
19 <*dtx>
20 \newif\ifoldlongtable
21 </dtx>

```

2 Introduction

This file contains all the macros for typesetting *TUGboat* with 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>	(I ^A)T _E X
<code>\AMS</code>	American Mathematical Society
<code>\AmSTeX</code>	
<code>\aw</code>	A-W (abbreviation for Addison-Wesley)
<code>\AW</code>	Addison-Wesley
<code>\BibTeX</code>	
<code>\CandT</code>	Computers & Typesetting

<code>\ConTeXt</code>	ConTeXt
<code>\Cplusplus</code>	C++
<code>\DTD</code>	
<code>\DVIPDFMx</code>	DVIPDFMx
<code>\DVItOVDU</code>	DVItOVDU
<code>\eTeX</code>	ϵ -TeX
<code>\Ghostscript</code>	
<code>\Hawaii</code>	Hawai'i
<code>\HTML</code>	
<code>\ISBN</code>	ISBN
<code>\ISSN</code>	ISSN
<code>\JTeX</code>	
<code>\JoT</code>	The Joy of TeX
<code>\LaTeX</code>	
<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 Metafont book
<code>\MP</code>	METAPOST
<code>\mp</code>	MetaPost (in text only: remains ‘ \mp ’ in maths)
<code>\OMEGA</code>	Omega ‘logo’ (Ω)
<code>\OCP</code>	Omega compiled process
<code>\OTP</code>	Omega translation process
<code>\mtex</code>	multilingual TeX
<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>	TeX for the Atari ST
<code>\TANGLE</code>	
<code>\TB</code>	The TeXbook
<code>\TeX</code>	(Although nearly every package defines this, most—including plain—are missing the space-factor adjustment)
<code>\TeXhax</code>	
<code>\TeXMaG</code>	(defunct)
<code>\TeXtures</code>	
<code>\TeXXeT</code>	

<code>\Thanh</code>	
<code>\TUB</code>	<i>TUGboat</i>
<code>\TUG</code>	TeX Users Group
<code>\UNIX</code>	
<code>\VAX</code>	
<code>\VorTeX</code>	
<code>\XeT</code>	
<code>\XeTeX</code>	reflected and lowered first ‘E’
<code>\XML</code>	
<code>\WEB</code>	
<code>\WEAVE</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>\midrtitle</code>	information for center of 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>\booktitle</code>	with one argument, format book title in text
<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 \TBremarks (normally suppressed)
<code>\pagexref</code>	used to write out page numbers to screen and external files
<code>\pagexrefON</code>	
<code>\pagexrefOFF</code>	
<code>\xref to</code>	used for symbolic cross-reference to other pages
<code>\xref toON</code>	in <i>TUGboat</i>
<code>\xref toOFF</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

Check for reloading. Hmmmm... 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.

```
22 <*\tugboatcls>
23 \csname tugstyloaded\endcsname
24 \def\tugstyloaded{\tugstyinit\endinput}
```

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

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

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

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

Some trivial options, just flicking switches, etc.

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

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

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

Similarly, ignore one/two-side/column

```

54 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
55 \DeclareOption{twoside}{\ds@oneside}
56 \DeclareOption{onecolumn}{\ds@oneside}
57 \DeclareOption{twocolumn}{\ds@oneside}

```

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

```

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

```

Option `rawcite` (the default) specifies the default citation mechanism (as built-in to \LaTeX); option `harvardcite` specifies the author-date citation mechanism defined in section 3.22 below.

```

62 \DeclareOption{rawcite}{\let\if@Harvardcite\iffalse}
63 \DeclareOption{harvardcite}{\let\if@Harvardcite\iftrue}

```

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

```

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

```

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

```

66 \DeclareOption{numbersec}{\let\if@numbersec\iftrue}
67 \DeclareOption{nonumber}{\let\if@numbersec\iffalse}

```

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

```

68 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{article}}

```

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

```

69 \ExecuteOptions{draft,extralabel,numbersec,rawcite}
70 \ProcessOptions
71 \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.

```

72 \def\sectitlefont{\fontfamily\sfddefault\fontseries{bx}\fontshape{n}%
73   \fontsize\@xvipt\stbaselineskip\selectfont}
74 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xipt
75   \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...

```
76 \def\EdNoteFont{\fontfamily{cmr}\fontseries{m}\fontshape{ui}%
77     \selectfont}
78 \ltugboatcls
```

If Ulrik Vieth’s `mflogo.sty` is around, we’ll use it. Otherwise (pro tem, at least) we’ll warn the user and define the absolute minimum of machinery that *TUGboat* requires (that which was used prior to the invention of L^AT_EX 2_ε).

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

3.2 Resetting at start of paper

`\ResetCommands` We store a set of commands that should be executed at the start of each paper, before any paper-specific customisation. These commands (stored in the token register `\ResetCommands`) include things such as resetting section and footnote numbers, re-establishing default settings of typesetting parameters, and so on. The user (or more typically, editor) may execute the commands by using the command `\StartNewPaper`. Things I’ve not yet thought of may be added to the list of commands, by

```
105 \newtoks\ResetCommands
106 \ResetCommands{%
107   \setcounter{part}{0}%
108   \setcounter{section}{0}%
109   \setcounter{footnote}{0}%
```



```

110 \authornumber\z@
111 }
112 \newcommand{\AddToResetCommands}[1]{%
113 \AddToResetCommands\expandafter{\AddToResetCommands#1}%
114 }

```

3.3 Helpful shorthand (common code with Plain styles)

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

```

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

```

139 \def\savecat#1{%
140 \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode'#1}}
141 \def\restorecat#1{\catcode'#1=\csname\string#1savedcat\endcsname}
142 <!!latex>\savecat\@
143 <!!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.

```

144 \def\SaveCS#1{\expandafter\let\csname saved@@#1\expandafter\endcsname
145 \csname#1\endcsname}
146 \def\RestoreCS#1{\expandafter\let\csname#1\expandafter\endcsname
147 \csname saved@@#1\endcsname}

```

To distinguish between macro files loaded

```
148 \def\plaintubstyle{plain}
149 \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:

```
150 \providecommand\hb@xt@{\hbox to}
151 \providecommand\textsuperscript[1]{\ensuremath{\m@th
152             ^{\mbox{\fontsize\sf@size\z@
153             \selectfont #1}}}}
```

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

3.4 Abbreviations and logos

Font used for the METAFONT logo, etc.

```
154 \def\AllTeX{(\La\kern-.075em)\kern-.075em\TeX}
155 \def\AMS{American Mathematical Society}
156 \def\AmS{${\mathcal{A}}$\kern-.1667em\lower.5ex\hbox
157     {${\mathcal{M}}$}\kern-.125em${\mathcal{S}}$}
158 \def\AmSLaTeX{\AmS-\LaTeX}
159 \def\AmSTeX{\AmS-\TeX}
160 \def\ANSI{\acro{ANSI}}
161 \def\ASCII{\acro{ASCII}}
162 \def\aw{A\kern.1em-W}
163 \def\AW{Addison\kern.1em-\penalty\z@\hskip\z@skip Wesley}
164 \def\BibTeX{\textsc{Bib}\kern-.08em\TeX}
165 \def\CandT{\textsl{Computers \& Typesetting}}
```

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

```
166 \newcommand\ConTeXt{C\kern-.0333em-\kern-.0667em\TeX\kern-.0333emt}
167 \newcommand\Cplusplus{C\raisebox{.7ex}{$_{++}$}}
168 \def\CSS{\acro{CSS}}
169 \def\CTAN{\acro{CTAN}}
170 \def\DTD{\acro{DTD}}
171 \def\DVD{\acro{DVD}}
172 \def\DVIPDFMx{\acro{DVIPDFM}$x$}
173 \def\DVIttoVDU{DVItto\kern-.12em VDU}
174 \DeclareRobustCommand\epsilon{\ensuremath{\varepsilon}}\kern-.125em\TeX}
175 \def\FAQ{\acro{FAQ}}
176 \def\FTP{\acro{FTP}}
177 \def\Ghostscript{Ghost\script}
178 \def\GNU{\acro{GNU}}
179 \def\GUI{\acro{GUI}}
180 \def\Hawaii{Hawai'i}
181 \def\HTML{\acro{HTML}}
182 \def\HTTP{\acro{HTTP}}
183 \def\ISBN{\acro{ISBN}}
184 \def\ISSN{\acro{ISSN}}
185 \def\JPEG{\acro{JPEG}}
186 \def\JTeX{\leavevmode\hbox{\lower.5ex\hbox{J}}\kern-.18em\TeX}
187 \def\JoT{\textsl{The Joy of \TeX}}
```

```

188 \def\LAMSTeX{L\raise.42ex\hbox{\kern-.3em
189     $\m@th$\fontsize\sf@size\z@\selectfont
190     $\m@th\mathcal{A}$}%
191     \kern-.2em\lower.376ex\hbox{$\m@th\mathcal{M}$}\kern-.125em
192     {$\m@th\mathcal{S}$}-\TeX}
193 % This code
194 % is hacked from its definition of \cs{LaTeX}; it allows slants (for
195 % example) to propagate into the raised (small) 'A':
196 % \begin{macrocode}
197 \newcommand{\La}%
198     {\L\kern-.36em
199     {\setbox0\hbox{T}%
200     \vbox to\ht0{\hbox{$\m@th$%
201         \csname S@f@size\endcsname
202         \fontsize\sf@size\z@
203         \math@fontsfalse\selectfont
204         A}%
205         \vss}%
206     }}

```

We started with the intention that we wouldn't redefine `\LaTeX` when we're running under it, so as not to trample on an existing definition. However, this proves less than satisfactory; a single logo may be OK for the run of documents, but for *TUGboat*, we find that something noticeably better is necessary; see section 3.11.

```

207 (!latex)\def\LaTeX{\La\kern-.15em\TeX}
208 \def\MacOSX{Mac\,\acro{OS}\,X}
209 \def\MathML{Math\acro{ML}}
210 \def\Mc{\setbox\TestBox=\hbox{M}\vbox
211     to\ht\TestBox{\hbox{c}\vfil}} % for Robert McGaffey

```

If we're running under $\text{\LaTeX 2}_{\varepsilon}$, we're using (at least pro tem) Ulrik Vieth's `mflogo.sty` if it's present. Otherwise, we're using a short extract of Vieth's stuff. Either way, we don't need to specify `\MF` or `\MP`

```

212 \def\mf{\textsc{Metafont}}
213 \def\MFB{\textsl{The \MF book}}
214 \let\TB@mp\mp
215 \DeclareRobustCommand\mp{\ifmmode\TB@mp\else MetaPost\fi}
216 %
217 % In order that the \cs{OMEGA} command will switch to using the TS1
218 % variant of the capital Omega character if \texttt{textcomp.sty} is
219 % loaded, we define it in terms of the \cs{textohm} command. Note
220 % that this requires us to interpose a level of indirection, rather
221 % than to use \cs{let}\dots
222 %
223 % \begin{macrocode}
224 \DeclareTextSymbol{\textohm}{OT1}{'012}
225 \DeclareTextSymbolDefault{\textohm}{OT1}
226 \newcommand\OMEGA{\textohm}
227 \DeclareRobustCommand\OCP{\OMEGA\acro{CP}}
228 \DeclareRobustCommand\OTP{\OMEGA\acro{TP}}
229 \def\mtex{T\kern-.1667em\lower.424ex\hbox{\^E}\kern-.125emX\@}

```

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


```

278 \TError{A graphics package must be loaded for \string\XeTeX}%
279 }{%
280 \ifdim \fontdimen1\font>0pt
281 \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
282 \else
283 \reflectbox{#1}%
284 \fi
285 }%
286 }
287 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
288 \def\XeTeX{\leavevmode
289 \tubhideheight{\hbox{X%
290 \lower.5ex \hbox{\kern-.125em\tubreflect{E}}}%
291 \kern-.1667em \TeX}}
292 %
293 \def\XHTML{\acro{XHTML}}
294 \def\XSLT{\acro{XSLT}}

```

3.5 General typesetting rules

```

295 \newlinechar='^^J
296 \normallineskiplimit=\p@
297 \clubpenalty=10000
298 \widowpenalty=10000
299 \def\NoParIndent{\parindent=\z@}
300 \newdimen\normalparindent
301 \normalparindent=20\p@
302 \def\NormalParIndent{\global\parindent=\normalparindent}
303 \NormalParIndent
304 \def\BlackBoxes{\overfullrule=5\p@}
305 \def\NoBlackBoxes{\overfullrule=\z@}
306 \def\newline{\hskip\z@ \@plus\pagewd\break}

```

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

```

307 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
308 \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
309 \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`.

```

310 \newbox\T@stBox \newbox\TestBox
311 \newcount\T@stCount \newcount\TestCount
312 \newdimen\T@stDimen \newdimen\TestDimen
313 \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).

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

L^AT_EX conventions which are also useful here.

```
315 <!!latex>
316 \let\@input\input
317 \def\iinput#1{\@input#1 }
318 \def\inputcheck{\if\@nextchar\bgroup
319 \expandafter\iinput\else\expandafter\@input\fi}
320 \def\input{\futurelet\@nextchar\inputcheck}
321 </!!latex>
```

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

```
322 \newif\iftop@ \newif\ifbot@
323 \def\topsmash{\top@true\bot@false\smash@}
324 \def\botsmash{\top@false\bot@true\smash@}
325 \def\smash{\top@true\bot@true\smash@}
326 \def\smash@{\relax\ifmmode\def\next{\mathpalette\mathsm@sh}%
327 \else\let\next\makesm@sh\fi \next }
328 \def\finsm@sh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

Vertical ‘laps’; cf. \llap and \rlap

```
329 \long\def\ulap#1{\vbox to \z@{\vss#1}}
330 \long\def\dlap#1{\vbox to \z@{#1\vss}}
```

And centered horizontal and vertical ‘laps’

```
331 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
332 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
333 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
335 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
336 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
338 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
339 \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
340 \vss\hb@xt@#2{\vrule \@width\T@stDimen
341 \hfil\makestrut[#1;\z@]%
342 \vrule \@width\T@stDimen}\vss
343 \hrule \@height\T@stDimen \@depth\z@}}
```

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

```
344 <!!latex>
345 \def\today{\number\day\space \ifcase\month\or
346 Jan \or Feb \or Mar \or Apr \or May \or Jun \or
347 Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
348 \number\year}
349 </!!latex>
```

Current time; this may be system dependent!

```

350 \newcount\hours
351 \newcount\minutes
352 \def\SetTime{\hours=\time
353         \global\divide\hours by 60
354         \minutes=\hours
355         \multiply\minutes by 60
356         \advance\minutes by-\time
357         \global\multiply\minutes by-1 }
358 \SetTime
359 \def\now{\number\hours:\ifnum\minutes<10 0\fi\number\minutes}
360 \def\Now{\today\ \now}
361 \newif\ifPrelimDraft
362 \def\midrttitle{\ifPrelimDraft {\textsl{preliminary draft, \Now}}\fi}

```

3.7 Ragged right and friends

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

```

\raggedspaces 363 \newdimen\raggedskip \raggedskip=\z@
364 \newdimen\raggedstretch \raggedstretch=5em % ems of font set now (10pt)
365 \newskip\raggedparfill \raggedparfill=\z@\@plus 1fil
366 \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 367 \def\raggedright{%
\normalspaces 368 \nohyphens
369 \rightskip=\raggedskip\@plus\raggedstretch \raggedspaces
370 \parfillskip=\raggedparfill
371 }
372 \def\raggedleft{%
373 \nohyphens
374 \leftskip=\raggedskip\@plus\raggedstretch \raggedspaces
375 \parfillskip=\z@skip
376 }
377 \def\raggedcenter{%
378 \nohyphens
379 \leftskip=\raggedskip\@plus\raggedstretch
380 \rightskip=\leftskip \raggedspaces
381 \parindent=\z@ \parfillskip=\z@skip
382 }
383 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}

```

Miscellaneous useful stuff. Note that $\text{\LaTeX}_{2\epsilon}$ defines a robust `\,`, but that we provide a new definition of `\~` by redefining its robust underpinnings¹ (based on the version in \AMS-TeX — the $\text{\LaTeX}_{2\epsilon}$ version has `\leavevmode` and doesn't care about surrounding space).

```

384 \DeclareRobustCommand{\nobreakspace}{%
385 \unskip\nobreak\ \ignorespaces}

```

¹`\DeclareRobustCommand` doesn't mind redefinition, fortunately

Plain T_EX 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...)

```

386 \def\boxcs#1{\box\csname#1\endcsname}
387 \def\setboxcs#1{\setbox\csname#1\endcsname}
388 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
389 \let\gobble\@gobble
390 \def\vellipsis{%
391   \leavevmode\kern0.5em
392   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
393 }
394 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
395 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
396 \def\Dag{\raise .6ex\hbox{$\scriptstyle\dagger$}}
397 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
398   /\kern-.125em\smash{\lower.3ex\hbox{o}}}\ignorespaces}
399 \DeclareRobustCommand\sfrac[1]{\@ifnextchar/{\@sfrac{#1}}%
400   {\@sfrac{#1}/}}
401 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
402   \hbox{$\m@th\mbox{\fontsize\sf@size\z@
403     \selectfont#1}$}\kern-.1em
404   /\kern-.15em\lower.25ex
405   \hbox{$\m@th\mbox{\fontsize\sf@size\z@
406     \selectfont#2}$}}
407 \DeclareRobustCommand\cs[1]{\texttt{\char'\@#1}}
408 \DeclareRobustCommand\meta[1]{%
409   \ensuremath{\langle\emph{#1}\rangle}}
410 \DeclareRobustCommand\env[1]{%
411   \cs{begin}\texttt{\char'\@#1\char'\@}}
412 \def\thinskip{\hskip 0.16667em\relax}

```

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

```

413 \def\endash{--}
414 \def\emdash{\endash-}
415 \def\d@sh#1#2{\unskip#1\thinskip#2\thinskip\ignorespaces}
416 \def\dash{\d@sh\nobreak\endash}
417 \def\Dash{\d@sh\nobreak\emdash}
418 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
419 \def\rdash{\d@sh\nobreak\endash}
420 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
421 \def\Rdash{\d@sh\nobreak\emdash}

```

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

```

422 \def\hyph{-\penalty\z@\hskip\z@skip }
423 \def\slash{/\penalty\z@\hskip\z@skip }

```


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

```

424 \def\nth#1{%
425   \def\reserved@a##1##2\@nil{\ifcat##1n%
426     0%
427     \let\reserved@b\ensuremath
428     \else##1##2%
429     \let\reserved@b\relax
430     \fi}%
431   \TestCount=\reserved@a#1\@nil\relax
432   \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
433   \T@stCount=\TestCount
434   \divide\T@stCount by 100 \multiply\T@stCount by 100
435   \advance\TestCount by-\T@stCount % n mod 100
436   \ifnum\TestCount >20 \T@stCount=\TestCount
437     \divide\T@stCount by 10 \multiply\T@stCount by 10
438     \advance\TestCount by-\T@stCount % n mod 10
439   \fi
440   \reserved@b{#1}%
441   \textsuperscript{\ifcase\TestCount th%      0th
442                     \or st%                  1st
443                     \or nd%                  2nd
444                     \or rd%                  3rd
445                     \else th%                nth
446                     \fi}%
447 }
```

3.8 Reviews

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

```

448 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
449 \def\@Review:{\@ifnextchar[%]
450   {\@Rev}%
451   {\@Rev[Book review]}}
452 \def\@Rev[#1]#2{\@ignorespaces#1\unskip:\enspace\ignorespaces
453   \slshape\mdseries#2}}
454 \def\reviewitem{\addvspace{\BelowTitleSkip}%
455   \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
456   \def\revtitle##1{\def\therevtitle{\slshape##1. }\ignorespaces}%
457   \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%
458 }
459 \def\endreviewitem{\noindent\interlinepenalty=10000
460   \therevauth\therevtitle\therevpubinfo\endgraf}%
461   \vskip\medskipamount
462 }
463 \def\booktitle#1{\slshape#1\}
```

3.9 Dates, volume and issue numbers, etc.

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

`\vol 19, 1.`

To use: `\issdate March 1998.`

`\issueseqno=58`

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

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

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

```

464 \newcount\issueseqno          \issueseqno=-1
465 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
466 \def\volyr{}
467 \def\volno{}
468 \def\vol #1,#2.{\gdef\volno{#1\unskip}%
469     \gdef\issno{\ignorespaces#2\unskip}%
470     \setbox\TestBox=\hbox{\volyr}%
471     \ifdim \wd\TestBox > .2em \v@lx \fi }
472 \def\issyear #1.{\gdef\issdt{#1}\gdef\volyr{#1}%
473     \gdef\bigissdt{#1}%
474     \setbox\TestBox=\hbox{\volno}%
475     \ifdim \wd\TestBox > .2em \v@lx \fi }
476 \def\issdate #1#2 #3.{\gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
477     \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
478     \setbox\TestBox=\hbox{\volno}%
479     \ifdim \wd\TestBox > .2em \v@lx \fi }
480 \vol 0, 0.
481 \issdate Thermidor, 2060.

```

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

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

```

482 \!latex\def\tubissue#1(#2)%
483 \*latex
484 \def\tubissue#1{\@ifnextchar(%)
485     {\@tubissue@b{#1}}
486     {\@tubissue@a{#1}}}
487 \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
488 \def\@tubissue@a#1#2%
489 \!latex
490 {\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`

```

491 \def\infil@{\jobname}
492 \def\Input #1 {\ifnum\issueseqno<0
493   \def\infil@{#1}%
494   \else
495     \def\infil@{tb\number\issueseqno#1}
496   \fi
497   \edef\jobname{\infil@}\@readFLN
498   \@@input \infil@\relax
499   \if@RMKopen
500     \immediate\closeout\@TBremarkfile\@RMKopenfalse
501   \fi
502 }

```

\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).

```

503 \newif\if@RMKopen      \@RMKopenfalse
504 \newwrite\@TBremarkfile
505 \def\@TBremark#1{%
506   \if@RMKopen
507   \else
508     \@RMKopenttrue\immediate\openout\@TBremarkfile=\infil@.rmk
509   \fi
510   \toks@={#1}%
511   \immediate\write\@TBremarkfile{^^J\the\toks@}%
512   \immediate\write16{^^JTBremark:: \the\toks@^^J}%
513 }

```

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

```

514 \let\TBremark=\gobble

```

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

```

515 \def\TBenableRemarks{\let\TBremark\@TBremark}

```

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

```

516 \def\TUBedit#1{}

```

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

```

517 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
518 \newread\@altfilenames
519 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
520   \ifeof\@altfilenames\let\@result\relax\else
521   \def\@result{\@input\jobname.fln }\fi
522   \immediate\closein\@altfilenames
523   \@result}
524 \@readFLN
525 \everyjob=\expandafter{\the\everyjob\@readFLN}
526 \InputIfFileExists{\jobname.fln}%
527   {\TBInfo{Reading alternative file file \jobname.fln}}{}

```

The following needs to work entirely in T_EX's mouth

```

528 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
529   #1\else\csname file@@#1\endcsname\fi}
530 \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.

531 \*!latex)
532 \def\pagexrefON#1{%
533   \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
534   \write\ppoutfile{%
535     \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
536   }
537 \def\PageXrefON#1{%
538   \immediate\write-1{\def\expandafter
539     \noexpand\csname#1\endcsname{\number\pageno}}%
540   \immediate\write\ppoutfile{\def\expandafter
541     \noexpand\csname#1\endcsname{\number\pageno}}%
542 \*!latex)
543 \*!latex)
544 \def\pagexrefON#1{%
545   \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
546   \write\ppoutfile{%
547     \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
548   }
549 \def\PageXrefON#1{%
550   \immediate\write-1{\def\expandafter
551     \noexpand\csname#1\endcsname{\number\c@page}}%
552   \immediate\write\ppoutfile{\def\expandafter
553     \noexpand\csname#1\endcsname{\number\c@page}}%
554 \*!latex)
555 \def\pagexrefOFF#1{}
556 \let\pagexref=\pagexrefOFF
557 \def\PageXrefOFF#1{}
558 \let\PageXref=\PageXrefOFF
559 \def\xreftoON#1{%
560   \ifundefined{#1}%
561     ???\TBremark{Need cross reference for #1.}%
562   \else\csname#1\endcsname\fi}
563 \def\xreftoOFF#1{???}
564 \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.

```

565 \let\TBdriver\gobble

```

Some hyphenation exceptions:

```

566 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
567   Flor-i-da Free-BSD Ghost-script Ghost-view
568   Hara-lam-bous Jac-kow-ski Karls-ruhe

```

```

569 Mac-OS Math-Sci-Net
570 Net-BSD Open-BSD Open-Office
571 Pfa-Edit Post-Script Rich-ard Skoup South-all
572 VM-ware Win-Edt
573 acro-nym ap-pen-dix asyn-chro-nous
574 bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
575 col-umns cus-tom-iz-able
576 data-base data-bases
577 de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion
578 fall-ing
579 half-way
580 key-note
581 long-est
582 ma-gyar man-u-script man-u-scripts
583 off-line over-view
584 pal-ettes par-a-digm par-a-dig-mat-ic par-a-digms
585 pipe-line pipe-lines
586 plug-in plug-ins pro-gram-mable
587 se-vere-ly spell-ing spell-ings stand-alone strong-est
588 sub-ex-pres-sion syn-chro-ni-city syn-chro-nous
589 time-stamp time-stamped
590 vis-ual vis-ual-ly
591 which-ever white-space white-spaces wide-spread wrap-around
592 }
593 <!!latex>\restorecat\@
594 </common>
595 <*classtail>
596 \PrelimDrafttrue

```

3.10 Page dimensions, glue, penalties etc

```

597 \textheight 54pc
598 \textwidth 39pc
599 \columnsep 1.5pc
600 \columnwidth 18.75pc
601 \parindent \normalparindent
602 \parskip \z@ % \@plus\p@
603 \leftmargini 2em
604 \leftmarginv .5em
605 \leftmarginvi .5em
606 \oddsidemargin \z@
607 \evensidemargin \z@
608 \topmargin -2.5pc
609 \headheight 12\p@
610 \headsep 20\p@
611 \marginparwidth 48\p@
612 \marginparsep 10\p@
613 \partopsep=\z@
614 \topsep=3\p@\@plus\p@\@minus\p@
615 \parsep=3\p@\@plus\p@\@minus\p@
616 \itemsep=\parsep
617 \twocolumn
618 \newdimen\pagewd \pagewd=39pc
619 \newdimen\trimwd \trimwd=\pagewd

```

```

620 \newdimen\trimlgt      \trimlgt=11in
621 \newdimen\headmargin   \headmargin=3.5pc

```

In L^AT_EX 2_ε, twoside option is forced on when `article.cls` is loaded.

3.11 Messing about with the L^AT_EX logo

Barbara Beeton's pleas for L^AT_EX logos that look right in any font shape provoked me to generate the following stuff that is configurable.

Here's the command for the user to define hir own new version. The arguments are font family, series and shape, and then the two kern values used in placing the raised 'A' of L^AT_EX.

```

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

```

The default values are as used in the source of L^AT_EX itself:

```

624 \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):

```

625 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
626 \DeclareLaTeXLogo{cmr}{m}{it}{.3}{.27}
627 \DeclareLaTeXLogo{cmr}{bx}{it}{.3}{.27}
628 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
629 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}

```

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

```

630 \DeclareRobustCommand\LaTeX{\expandafter\let\expandafter\reserved@a
631   \csname @LaTeX@\f@family/\f@series/\f@shape\endcsname
632   \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
633   \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 L^AT_EX, and then bits stuck in on the side.

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

```

634 \newcommand\@LaTeX[2]{L\kern-#1em
635   {\sbox\z@ T%
636     \vbox to\ht0{\hbox{$\m@th$%
637       \csname S@\f@size\endcsname
638       \fontsize\sf@size\z@
639       \math@fontsfalse\selectfont
640       A}%
641     \vss}%
642   }%
643   \kern-#2em%
644   \TeX}

```

3.12 Authors, contributors, addresses, signatures

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

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

```
645 \def\theauthor#1{\csname theauthor#1\endcsname}
646 \def\theaddress#1{\csname theaddress#1\endcsname}
647 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
648 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
```

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

```
649 \!latex\newcount\@tempcnta
650 \def\@defaultauthorlist{%
651   \@getauthorlist\@firstofone
652 }
```

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

```
653 \def\@getauthorlist#1{%
654   \count@\authornumber
655   \advance\count@ by -2
656   \@tempcnta0
```

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

```
657   \loop
658     \ifnum\count@>0
659       \advance\@tempcnta by \@ne
660       #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
661       \advance\count@ by \m@ne
662   \repeat
663   \count@\authornumber
664   \advance\count@ by -\@tempcnta
665   \ifnum\authornumber>0
```

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

```
666     \ifnum\count@>1
667       \count@\authornumber
668       \advance\count@ by \m@ne
669       #1{\ignorespaces\theauthor{\number\count@}\unskip\ and }%
670     \fi
```

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

```
671     #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
672   \fi
673 }
```

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...)

```
674 \def\signature#1{\def\@signature{#1}}
675 \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`

```
676 \def\@defaultsignature{%
677     \let\thanks\@gobble
678     \ifnum\authornumber<0

    if \authornumber< 0, we are in a contributor's section
679         \medskip
680         \signaturemark
681         \theauthor{\number\authornumber}\\
682         \theaddress{\number\authornumber}\\
683         \allowhyphens
684         \thenetaddress{\number\authornumber}\\
685         \thePersonalURL{\number\authornumber}\\
686     \else

    \authornumber ≥ 0, so we are in the body of an ordinary article
687         \count@=0
688         \loop
689             \ifnum\count@<\authornumber
690                 \medskip
691                 \advance\count@ by \@ne
692                 \signaturemark
693                 \theauthor{\number\count@}\\
694                 \theaddress{\number\count@}\\
695                 {%
696                     \allowhyphens
697                     \thenetaddress{\number\count@}\\
698                     \thePersonalURL{\number\count@}\\
699                 }%
700             \repeat
701         \fi
702     }%
703 }
```

```
704 \newdimen\signaturewidth \signaturewidth=12pc
```

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

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

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

```
706 \@tempdima\signaturewidth
707 \advance\@tempdima 1.5pc
708 \ifdim \@tempdima>\columnwidth
709     \signaturewidth \columnwidth
```



```

710 \advance\signaturewidth -1.5pc
711 \fi
712 \par
713 \penalty9000
714 \vspace{#1}%
715 \rightline{%
716 \vbox{\hsize\signaturewidth \ninepoint \raggedright
717 \parindent \z@ \everypar={\hangindent 1pc }
718 \parskip \z@skip
719 \def\{\{\unskip\hfil\break}\}%
720 \def\{\{\endgraf}\}%
721 \def\phone{\rm Phone: }
722 \rm\@signature}%
723 }%
724 \ifnum\authornumber<0 \endgroup\fi
725 }
726 \def\signaturemark{\leavevmode\llap{$\diamond$\enspace}}

```

The code used to define the following:

```

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

```

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

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

```

727 \newcount\authornumber
728 \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`).

```

729 \def\author{%
730 \global\advance\authornumber\@ne
731 \TB@author
732 }

```

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

```

733 \def\contributor{%
734 \beginngroup
735 \authornumber\m@ne
736 \TB@author
737 }

```

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

```

738 \def\TB@author#1{%
739   \expandafter\def\csname theauthor\number\authornumber\endcsname
740     {\ignorespaces#1\unskip}%
741   \expandafter\def\csname theaddress\number\authornumber\endcsname
742     {\TBWarningNL{Address for #1\space missing}\@gobble}%
743   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
744     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
745   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
746     \@gobble
747 }
748 \def\EDITORnoaddress{%
749   \expandafter\let\csname theaddress\number\authornumber\endcsname
750     \@gobble
751 }
752 \def\EDITORnonetaddress{%
753   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
754     \@gobble
755 }

```

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

```

756 \def\address#1{%
757   \expandafter\def\csname theaddress\number\authornumber\endcsname
758     {\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*!

```

759 \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 $\text{\LaTeX 2}_{\varepsilon}$, we use the default-argument form of `\newcommand`; otherwise we write it out in all its horribleness.

```

760 \newcommand\netaddress[1][\relax]{%
761   \begingroup
762   \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 $\text{\LaTeX 2}_{\varepsilon}$.

```

763   #1\@sanitize\makespace\ \makeactive\@
764   \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?!*)

```

765 \def\@relay@netaddress#1{%
766   \ProtectNetChars
767   \expandafter\protected@xdef
768     \csname thenetaddress\number\authornumber\endcsname
769     {\protect\leavevmode\textrm{\@network}}%
770     {\protect\NetAddrChars\net
771       \ignorespaces#1\unskip}}%
772   \endgroup
773 }
```

`\personalURL` is in essence the same as `\netaddress`, apart from (1) the lack of the eccentric optional argument, and (2) the activation of `'`.

We could imagine needing an `\URL` command in general. If so, we must remember that the code here would naturally permit a break between the last two characters of `http://`, and some sort of special action must be taken to ensure that it doesn't happen.

```

774 \def\personalURL{\begingroup
775   \@sanitize\makespace\ \makeactive\@
776   \makeactive\.\makeactive\%\makeactive\/\@personalURL}%
777 \def\@personalURL#1{%
778   \ProtectNetChars
779   \expandafter\protected@xdef
780     \csname thePersonalURL\number\authornumber\endcsname{%
781     \protect\leavevmode
782     {%
783       \protect\URLchars\net
784       \ignorespaces#1\unskip
785     }%
786   }%
787   \endgroup
788 }
```

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...

```

789 {%
790   \makecomment\*
791   \makeactive\@
792   \gdef\netaddrat{\makeactive\@*
793     \def@{\discretionary{\char"40}{-}{\char"40}}}
794   \makeactive\%
795   \gdef\netaddrpercent{\makeactive\%*
796     \def%{\discretionary{\char"25}{-}{\char"25}}}
797   \makeactive\.
798   \gdef\netaddrdot{\makeactive\.*
799     \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`.

```

800 \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
801 \makeactive\
802 \gdef\URLchars{*
803   \NetAddrChars
804   \makeactive\/*
805   \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.

```

806 \gdef\ProtectNetChars{*
807   \def@{\protect@}*
808   \def%{\protect%}*
809   \def.{\protect.}*
810   \def/{\protect/}*
811   }
812 }

```

$\text{\LaTeX 2}_{\epsilon}$ (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 $\text{\LaTeX 2}_{\epsilon}$ defines for the job).

```

813 \if@compatibility
814   \DeclareRobustCommand\net{\normalfont\ttfamily\mathgroup\syntypewriter}
815 \else
816   \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
817 \fi
818 \def\authorlist#1{\def\@author{#1}}
819 \def\@author{\@defaultauthorlist}

```

```

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

```

Provide machinery to skip extra space, even one or more full columns, above the top of an article to leave space to paste up a previous article that has finished on the same page. This is a fall back to accommodate the fact that multiple articles cannot yet be run together easily with $\text{\LaTeX 2}_{\epsilon}$.

```

820 \newif\if@articletitle
821 \def\maketitle{\@ifstar
822   {\@articletitlefalse\@r@maketitle}%
823   {\@articletitletrue\@r@maketitle}%
824 }
825 \def\@r@maketitle{\par
826   \ifdim\PreTitleDrop > \z@
827     \loop
828       \ifdim \PreTitleDrop > \textheight
829         \vbox{\vfil\ejct
830           \advance\PreTitleDrop by -\textheight
831         }
832       \vbox to \PreTitleDrop{}
833       \global\PreTitleDrop=\z@
834   \fi

```

```

835 \begingroup
836 \setcounter{footnote}{0}
837 \def\thefootnote{\fnsymbol{footnote}}
838 \@maketitle
839 \@thanks
840 \endgroup
841 \setcounter{footnote}{0}
842 \gdef\@thanks{}
843 }

```

3.13 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:

```

844 \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).

```

845 \newdimen\stbaselineskip \stbaselineskip=18\p@
846 \newdimen\stfontheight
847 \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.

```

848 \newif\ifSecTitle
849 \SecTitlefalse
850 \newif\ifWideSecTitle
851 \newcommand\sectitle{%
852   \SecTiteltrue
853   \@ifstar
854     {\WideSecTiteltrue\def\s@ctitle}%
855     {\WideSecTitlefalse\def\s@ctitle}%
856 }

```

`\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.

```

857 \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.

```

858 \newskip\AboveTitleSkip \AboveTitleSkip=12\p@

```

```

859 \newskip\BelowTitleSkip \BelowTitleSkip=8\p@
860 \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...

```

861 \def\@sectitle #1{%
862   \par
863   \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.

```

864   \ifWideSecTitle\else\secsep\fi
865   {%
866     \fboxrule\strulethickness
867     \fboxsep\z@
868     \noindent\framebox[\hsize]{%
869       \vbox{%
870         \raggedcenter
871         \let\\ \@sectitle@newline
872         \sectitlefont
873         \makestrut[2\stfontheight;\z@]%
874         #1%
875         \makestrut[\z@;\stfontheight]\endgraf
876       }%
877     }%
878   }%
879   \nobreak
880   \vskip\baselineskip
881 }

```

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

```

882 \newcommand{\@sectitle@newline}[1][\z@]{%
883   \ifdim#1>\z@
884     \makestrut[\z@;#1]%
885   \fi
886   \unskip\break
887 }

```

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).

```

888 \def\@makesectitle{\ifSecTitle
889   \global\SecTitlefalse
890   \ifWideSecTitle
891     \twocolumn[\@sectitle{\s@ctitle}]%
892     \global\WideSecTitlefalse
893   \else
894     \@sectitle{\s@ctitle}%
895   \fi

```

```

896 \else
897   \vskip\AboveTitleSkip
898   \kern\topskip
899   \hrule \@height\z@ \@depth\z@ \@width 10\p@
900   \kern-\topskip
901   \kern-\strulethickness
902   \hrule \@height\strulethickness \@depth\z@
903   \kern\medskipamount
904   \nobreak
905 \fi
906 }

```

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

```

907 \def\@maketitle{%
908   \@makesectitle
909   \if@articletitle{%
910     \nohyphens \interlinepenalty\@M
911     \setbox0=\hbox{%
912       \let\thanks\@gobble
913       \let\=\quad
914       \let\and=\quad
915       \ignorespaces\@author}%
916     {%
917       \noindent\bf\raggedright\ignorespaces\@title\endgraf
918     }%
919     \ifdim \wd0 < 5\p@           % omit if author is null
920     \else

```

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

```

921   \nobreak \vskip 4\p@
922   {%
923     \leftskip=\normalparindent
924     \raggedright
925     \def\and{\unskip\}%
926     \noindent\@author\endgraf
927   }%
928 \fi
929 \nobreak
930 \vskip\BelowTitleSkip
931 }\fi%
932 \global\@afterindentfalse
933 \aftergroup\@afterheading
934 }

```

Dedications are ragged right, in italics.

```

935 \newenvironment{dedication}%
936 {\raggedright\noindent\itshape\ignorespaces}%
937 {\endgraf\medskip}

```

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

```

938 \renewenvironment{abstract}%
939 {%
940   \begin{SafeSection}%
941   \section*{Abstract}%

```

```

942 }%
943 {\end{SafeSection}}
944 \newenvironment{longabstract}%
945 {%
946   \begin{SafeSection}%
947   \section*{Abstract}%
948   \bgroup\small
949 }%
950 {%
951   \endgraf\egroup
952   \end{SafeSection}%
953   \vspace{.25\baselineskip}
954   \begin{center}
955     {$---$}
956   \end{center}
957   \vspace{.5\baselineskip}}

```

3.14 Headings

Redefine style of section headings for *TUGboat*: `\vskip 8pt plus2pt minus2pt \vskip\parskip` before; `\vskip 4pt plus.5pt` after. Negative before skip suppresses following parindent. (So negate the stretch and shrinktoo).

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.

```

958 \if@numbersec
959   \def\section{\TB@startsection{\section}%
960                                 1%
961                                 \z@
962                                 {-8\p@\@plus-2\p@\@minus-2\p@}%
963                                 {4\p@\@plus.5\p@}%
964                                 {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
965   \def\subsection{\TB@startsection{\subsection}%
966                                   2%
967                                   \z@
968                                   {-8\p@\@plus-2\p@\@minus-2\p@}%
969                                   {4\p@\@plus.5\p@}%
970                                   {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
971   \def\subsubsection{\TB@startsection{\subsubsection}%
972                                     3%
973                                     \z@
974                                     {-8\p@\@plus-2\p@\@minus-2\p@}%
975                                     {4\p@\@plus.5\p@}%
976                                     {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
977   \def\paragraph{\TB@startsection{\paragraph}%
978                                   4%
979                                   \z@
980                                   {2.5ex\@plus 1ex}%
981                                   {-1em}%
982                                   {\normalsize\bf}}

```


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

```

983 \else
984   \setcounter{secnumdepth}{0}
985   \def\section{\TB@nolimelabel
986             \TB@startsection{section}%
987                             1%
988                             \z@
989                             {-8\p@\@plus-2\p@\@minus-2\p@}%
990                             {4\p@\@plus.5\p@}%
991             {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
992   \def\subsection{\TB@nolimelabel
993                 \TB@startsection{subsection}%
994                                 2%
995                                 \z@
996                                 {-8\p@\@plus-2\p@\@minus-2\p@}%
997                                 {-0.5em\@plus-\fontdimen3\font}%
998                 {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
999   \def\subsubsection{\TB@nolimelabel
1000                    \TB@startsection{subsubsection}%
1001                                    3%
1002                                    \parindent
1003                                    {-8\p@\@plus-2\p@\@minus-2\p@}%
1004                                    {-0.5em\@plus-\fontdimen3\font}%
1005                    {\normalsize\bf\raggedright\hyphenpenalty=\@M}}
1006 \fi

```

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

```

1007 \if@numbersec
1008   \def\TB@startsection#1{\@startsection#1}%
1009 \else
1010   \def\TB@startsection#1{%
1011     \ifstar
1012       {\TBWarning{*-form of \expandafter\string\csname\@firstofsix#1%
1013                 \endcsname\space
1014                 \MessageBreak
1015                 conflicts with nonumber class option}%
1016       \@startsection#1}%
1017     {\@startsection#1}%
1018   }
1019 \fi
1020 \def\@firstofsix#1#2#3#4#5#6{#1}

```

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

```

1021 \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.

```

1022 \newenvironment{SafeSection}%

```

```

1023 {\let\TB@startsection\TB@safe@startsection}%
1024 {}

```

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'²).

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

```

1025 \if@numbersec
1026 \def\subparagraph{\TB@nosection\subparagraph\paragraph}
1027 \else
1028 \def\paragraph{\TB@nosection\paragraph\subsubsection}
1029 \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
1030 \fi
1031 \def\chapter{\TB@nosection\chapter\section}
1032 \def\part{\TB@nosection\part\section}
1033 \def\TB@nosection#1#2{\TBWarning{class does not support \string#1,
1034 \string#2\space used instead}\#2}

```

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

```

1035 %\def\l@part#1#2{\addpenalty{\@secpenalty}%
1036 % \addvspace{2.25em\@plus\p@}%
1037 % \begingroup
1038 % \@tempdima 3em \parindent\z@ \rightskip\z@ \parfillskip\z@
1039 % {\large \bf \leavevmode #1\hfil \hbox to\@pnumwidth{\hss #2}}\par
1040 % \nobreak
1041 % \endgroup}
1042 \def\l@section#1#2{\addpenalty{\@secpenalty}%
1043 \addvspace{1.0em\@plus\p@}%
1044 \@tempdima 1.5em
1045 \begingroup
1046 \parindent\z@ \rightskip\z@ % article style makes \rightskip > 0
1047 \parfillskip\z@
1048 \bf\leavevmode\advance\leftskip\@tempdima\hskip-\leftskip#1\nobreak\hfil
1049 \nobreak\hb@xt@\@pnumwidth{\hss #2}\par
1050 \endgroup}

```

3.15 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:

```

1051 \renewcommand\appendix{\par

```

²Thurber, *The Wonderful O*

```

1052 \renewcommand\thesection{\@Alph\c@section}%
1053 \setcounter{section}{0}%
1054 \if@numbersec
1055 \else
1056 \setcounter{secnumdepth}{1}%
1057 \fi

```

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

```

1058 \def\@tempa{appendix}
1059 \ifx\@tempa\@currenvir
1060 \expandafter\@appendix@env
1061 \fi
1062 }

```

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

```

1063 \newcommand\app@prefix@section{}
1064 \newcommand\@appendix@env[1][Appendix]{%
1065 \renewcommand\@secntformat[1]{\csname app@prefix@##1\endcsname
1066 \csname the##1\endcsname\quad}%
1067 \renewcommand\app@prefix@section{#1 }%
1068 }

```

Ending an appendix environment is pretty trivial...

```

1069 \let\endappendix\relax

```

3.16 References

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

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

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

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

```

1070 \def\TB@nolimelabel{%
1071 \def\@currentlabel{%
1072 \protect\TBWarning{%
1073 Invalid reference to numbered label on page \thepage
1074 \MessageBreak made%
1075 }%
1076 \textbf{?!?}%
1077 }%
1078 }

```

3.17 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.

```

1079 \let\TB@@sect\@sect
1080 \let\TB@@ssect\@ssect
1081 \def\@sect#1#2#3#4#5#6[#7]#8{%
1082   \def\@currentlabelname{#7}%
1083   \TB@@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1084 }
1085 \def\@ssect#1#2#3#4#5{%
1086   \def\@currentlabelname{#5}%
1087   \TB@@ssect{#1}{#2}{#3}{#4}{#5}%
1088 }

```

The `\newlabel` command that gets written to the `.aux` file needs to be redefined to have three components to its argument:

```

1089 \def\label#1{%
1090   \@bsphack
1091   \let\label@gobble
1092   \let\index@gobble
1093   \if@filesw
1094     \protected@write\@auxout{%
1095       {\string\newlabel{#1}{%
1096         {\@currentlabel}{\thepage}{\@currentlabelname}}}%
1097     }%
1098   \fi
1099   \@esphack
1100 }%
1101 }

```

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

```

1102 \let\@currentlabelname\@empty

```

References are pretty straightforward, but need three extra utility commands (analagous to the `\@firstof...`, etc., defined in the kernel).

```

1103 \DeclareRobustCommand\ref[1]{\expandafter\@setref
1104   \csname r@#1\endcsname\@firstofthree{#1}}
1105 \DeclareRobustCommand\pageref[1]{\expandafter\@setref
1106   \csname r@#1\endcsname\@secondofthree{#1}}
1107 \DeclareRobustCommand\nameref[1]{\expandafter\@setref
1108   \csname r@#1\endcsname\@thirdofthree{#1}}
1109 \long\def\@firstofthree#1#2#3{#1}
1110 \long\def\@secondofthree#1#2#3{#2}
1111 \long\def\@thirdofthree#1#2#3{#3}

```

3.18 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`.

```
1112 \def\@makecaption#1#2{%
1113   \vskip\abovecaptionskip
1114   \def\@makecaptiontext{\small \parindent=1em\noindent #1: #2}%
1115   \setbox\@tempboxa=\vbox{\@makecaptiontext\par}%
1116   \ifdim \wd\@tempboxa >\hsize
1117     \raggedright\hyphenpenalty=\@M
1118     \@makecaptiontext
1119   \else
1120     \global \@minipagefalse
1121     \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
1122   \fi
1123   \vskip\belowcaptionskip}
```

3.19 Size changing commands

Apart from their ‘normal’ effects, these commands are

```
1124 \renewcommand\normalsize{%
1125   \@setfontsize\normalsize\@xpt\@xipt
1126   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1127   \belowdisplayskip=\abovedisplayskip
1128   \abovedisplayshortskip=\z@\@plus 3\p@
1129   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1130 }
1131
1132 \renewcommand\small{%
1133   \@setfontsize\small\@ixpt{11}%
1134   \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1135   \belowdisplayskip=\abovedisplayskip
1136   \abovedisplayshortskip=\z@\@plus 2\p@
1137   \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1138 }
1139 \renewcommand\footnotesize{%
1140   \@setfontsize\footnotesize\@viipt{9.5}%
1141   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1142   \belowdisplayskip=\abovedisplayskip
1143   \abovedisplayshortskip=\z@\@plus 3\p@
1144   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1145 }
```

3.20 Lists and other text inclusions

```
1146 \def\@listi{%
1147   \leftmargin\leftmarginiparsep=\p@\@plus\p@\@minus\p@
1148   \itemsep=\parsep
1149   \listparindent=1em
1150 }
1151
1152 \def\@listii{%
1153   \leftmargin\leftmarginii
```

```

1154 \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1155 \topsep=2\p@\@plus\p@\@minus\p@
1156 \parsep=\p@\@plus\p@\@minus\p@
1157 \itemsep=\parsep
1158 \listparindent=1em
1159 }
1160
1161 \def\@listiii{%
1162 \leftmargin=\leftmarginiii
1163 \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1164 \topsep=\p@\@plus\p@\@minus\p@
1165 \parsep=\z@
1166 \itemsep=\topsep
1167 \listparindent=1em
1168 }
1169 \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.

```

1170 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1171 \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}

```

3.21 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.

```

1172 %\let\@TB@verbatim\@verbatim
1173 \let\@TBverbatim\verbatim
1174 \let\@TBendverbatim\endverbatim

Impose an optional argument on the environment.
(\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.)

1175 \def\verbatim{\obeylines
1176 \futurelet\reserved@a\@switch@sqbverbatim}
1177 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1178 \expandafter\@sqbverbatim\else
1179 \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1180 \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.

```

1181 \def\ruled{\let@if@ruled\iftrue}%

```

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

```
1182 #1\@TBverbatim}
```

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

```
1183 \def\@verbatim{%
```

First, we deal with `\ruled`:

```
1184 \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1185 \trivlist \item\relax
1186 \if@minipage\else\vskip\parskip\fi
1187 \leftskip\@totalleftmargin\rightskip\z@skip
1188 \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1189 \@@par
1190 \@tempswafalse
1191 \def\par{%
1192 \if@tempswa
1193 \leavevmode \null \@@par\penalty\interlinepenalty
1194 \else
1195 \@tempswatrue
1196 \ifhmode\@@par\penalty\interlinepenalty\fi
1197 \fi}%
1198 \obeylines \verbatim@font \@noligs
1199 \let\do\@makeother \dospecials
1200 \everypar \expandafter{\the\everypar \unpenalty}%
1201 }%
```

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).

```
1202 \def\endverbatim{\@TBendverbatim
```

```
1203 \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

`\enablemetacode` simply typesets³ something that looks (verbatim) like:

```
<meta-text>
```

as:

```
<meta-text>
```

```
1204 {\makeactive<
```

```
1205 \gdef<#1>{\reset@font\ensuremath{\langle}%
```

```
1206 \textit{#1}%
```

```
1207 \ensuremath{\rangle}}}
```

```
1208 }
```

Finally, we define the `\if` used by the `\ruled` option

```
1209 \let\if@ruled\iffalse
```

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

3.22 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.

```
1210 \if@Harvardcite
1211 \let\@internalcite\cite
```

Normal forms.

```
1212 \def\cite{\def\@citesep{~}\@citesep{-1000}%
1213   \def\@cite##1##2{(\@if@tempswa , ##2\fi)}%
1214   \def\citeauthoryear##1##2##3{##1, ##3\@internalcite}
1215 \def\citeNP{\def\@citesep{~}\@citesep{-1000}%
1216   \def\@cite##1##2{##1\@if@tempswa , ##2\fi}%
1217   \def\citeauthoryear##1##2##3{##1, ##3\@internalcite}
1218 \def\citeN{\def\@citesep{~}\@citesep{-1000}%
1219   \def\@cite##1##2{##1\@if@tempswa , ##2\fi}\else{}\fi}%
1220   \def\citeauthoryear##1##2##3{##1 (##3)\@citedata}
1221 \def\citeA{\def\@citesep{~}\@citesep{-1000}%
1222   \def\@cite##1##2{(\@if@tempswa , ##2\fi)}%
1223   \def\citeauthoryear##1##2##3{##1\@internalcite}
1224 \def\citeANP{\def\@citesep{~}\@citesep{-1000}%
1225   \def\@cite##1##2{##1\@if@tempswa , ##2\fi}%
1226   \def\citeauthoryear##1##2##3{##1\@internalcite}
```

Abbreviated forms (using *et al.*)

```
1227 \def\shortcite{\def\@citesep{~}\@citesep{-1000}%
1228   \def\@cite##1##2{(\@if@tempswa , ##2\fi)}%
1229   \def\citeauthoryear##1##2##3{##2, ##3\@internalcite}
1230 \def\shortciteNP{\def\@citesep{~}\@citesep{-1000}%
1231   \def\@cite##1##2{##1\@if@tempswa , ##2\fi}%
1232   \def\citeauthoryear##1##2##3{##2, ##3\@internalcite}
1233 \def\shortciteN{\def\@citesep{~}\@citesep{-1000}%
1234   \def\@cite##1##2{##1\@if@tempswa , ##2\fi}\else{}\fi}%
1235   \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1236 \def\shortciteA{\def\@citesep{~}\@citesep{-1000}%
1237   \def\@cite##1##2{(\@if@tempswa , ##2\fi)}%
1238   \def\citeauthoryear##1##2##3{##1\@internalcite}
```



```

1237 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1238 \def\citeauthoryear##1##2##3{##2\@internalcite}
1239 \def\shortciteNP{\def\@citesep{-1000}%
1240 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1241 \def\citeauthoryear##1##2##3{##2\@internalcite}

```

When just the year is needed:

```

1242 \def\citeyear{\def\@citesep{-1000}%
1243 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1244 \def\citeauthoryear##1##2##3{##3\@citedata}
1245 \def\citeyearNP{\def\@citesep{-1000}%
1246 \def\cite##1##2{##1\if@tempswa , ##2\fi}%
1247 \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.

```

1248 \def\@citedata{%
1249 \ifnextchar [{\@tempwattrue\@citedatax}%
1250 \ifnextchar [%{\@tempwafalse\@citedatax[]}%
1251 }
1252
1253 \def\@citedatax[#1]#2{%
1254 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1255 \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1256 {\@citea\def\@citea{, }\@ifundefined% by Young
1257 {b@\@citeb}{\bf ?}%
1258 \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}%
1259 {\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.

```

1260 \def\@citex[#1]#2{%
1261 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1262 \def\@citea{}\@cite{\@for\@citeb:=#2\do%
1263 {\@citea\def\@citea{; }\@ifundefined% by Young
1264 {b@\@citeb}{\bf ?}%
1265 \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}%
1266 {\csname b@\@citeb\endcsname}}{#1}}%

```

No labels in the bibliography.

```

1267 \def\@biblabel#1{}

```

Set length of hanging indentation for bibliography entries.

```

1268 \newlength{\bibhang}
1269 \setlength{\bibhang}{2em}

```

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

```

1270 \newdimen\bibindent
1271 \bibindent=1.5em
1272 \@ifundefined{refname}%
1273 {\newcommand{\refname}{References}}%
1274 {}%

```

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

```

1275 \def\thebibliography#1{%
1276   \let\TB@startsection\TB@safe@startsection
1277   \section*{\refname
1278     \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1279   \list{[\arabic{enumi}]}{%
1280     \labelwidth\z@ \labelsep\z@
1281     \leftmargin\bibindent
1282     \itemindent -\bibindent
1283     \listparindent \itemindent
1284     \parsep \z@
1285     \usecounter{enumi}}
1286   \def\newblock{}
1287   \BibJustification
1288   \sfcode'\.=1000\relax
1289 }

```

etal Other bibliography odds and ends.

```

\bibentry 1290 \def\etal{et\,al.\@}
1291 \def\bibentry{%
1292   \smallskip
1293   \hangindent=\parindent
1294   \hangafter=1
1295   \noindent
1296   \sloppy
1297   \clubpenalty500 \widowpenalty500
1298   \frenchspacing
1299 }

```

\bibliography Changes made to accommodate TUB file naming conventions

```

\bibliographystyle 1300 \def\bibliography#1{%
1301   \if@filesw
1302     \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1303   \fi
1304   \@input{\jobname.bbl}%
1305 }
1306 \def\bibliographystyle#1{%
1307   \if@filesw
1308     \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1309   \fi
1310 }

```

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

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

```

1311 \else
1312 \let\TB@thebibliography\thebibliography
1313 \def\thebibliography{%
1314   \let\TB@startsection\TB@safe@startsection
1315   \let\sloppy\BibJustification
1316   \TB@thebibliography}
1317 \fi

```

`\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.)

```
1318 \let\TB@@sloppy\sloppy
1319 \let\BibJustification\TB@@sloppy
1320 \newcommand{\SetBibJustification}[1]{%
1321   \renewcommand{\BibJustification}{#1}%
1322 }
1323 \ResetCommands\expandafter{\the\ResetCommands
1324   \let\BibJustification\TB@@sloppy
1325 }
```

3.23 Registration marks

```
1326 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1327 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1328 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }
```

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

```
1329 \def\ttopregister{\dlap{%
1330   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1331     \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1332   \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}%
1333 \def\tbotregister{\ulap{%
1334   \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1335   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1336     \HorzR@gisterRule \hfil \HorzR@gisterRule}}%
1337 \def\topregister{\ttopregister}
1338 \def\botregister{\tbotregister}
```

3.24 Running heads

```
1339 \def \rtitlex{\def\texttub#1{{\normalsize\textrm{##1}}}\TUB, \volx }
1340 \def\PrelimDraftfooter{%
1341   \dlap{\kern\textheight\kern3pc
1342     \rlap{\hb@xt@\pagewd{\midrtitle\hfil\midrtitle}}
1343   }}
1344
```

registration marks; these are temporarily inserted in the running head

```
1345 \def\MakeRegistrationMarks{}
1346 \def\UseTrimMarks{%
1347   \def\MakeRegistrationMarks{%
1348     \ulap{\rlap{%
1349       \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}}%
1350       \topregister\vskip \headmargin \vskip 10\p@}}}%
1351   }
1352
1353 \def\@oddhead{\MakeRegistrationMarks\PrelimDraftfooter
1354   \normalsize\cename normalshape\endcename\rm
1355   \rtitlex\quad\midrtitle \hfil \thepage}
1356 \def\@evenhead{\MakeRegistrationMarks\PrelimDraftfooter
1357   \normalsize\cename normalshape\endcename\rm
1358   \thepage\hfil\midrtitle\quad\rtitlex}
```

```

1359 \def\@oddfoot{}
1360 \def\@evenfoot{}
1361 \def\ps@headings{}
1362 \pagestyle{headings}

```

3.25 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...

```

1363 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1364   \global\setbox\@leftcolumn\box\@outputbox
1365   \global\brokenpenalty10000
1366   \else \global\@firstcolumntrue
1367   \global\brokenpenalty100
1368   \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1369     {\box\@leftcolumn \hss}\hfil \vrule \width\columnseprule\hfil
1370     \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1371   \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1372   \@whiles\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1373   \fi}

```

3.26 Font-related definitions and machinery

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

```

1374 \newif\ifFirstPar \FirstParfalse
1375 \def\smc{\sc}
1376 \def\ninepoint{\small}
1377 \</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. (Note that the order of examination of `\@currsize` is to get the commonest cases out of the way first.)

```

1378 \<common>

```

```

1379 \DeclareRobustCommand\SMC{%
1380   \ifx\@currsize\normalsize\small\else
1381   \ifx\@currsize\small\footnotesize\else
1382   \ifx\@currsize\footnotesize\scriptsize\else
1383   \ifx\@currsize\large\normalsize\else
1384   \ifx\@currsize\Large\large\else
1385   \ifx\@currsize\LARGE\Large\else
1386   \ifx\@currsize\scriptsize\tiny\else
1387   \ifx\@currsize\tiny\tiny\else
1388   \ifx\@currsize\huge\LARGE\else
1389   \ifx\@currsize\Huge\huge\else
1390   \small\SMC@unknown@warning
1391 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1392 }
1393 \newcommand\SMC@unknown@warning{\TBWarning{\string\SMC: nonstandard
1394   text font size command -- using \string\small}}
1395 \newcommand\textSMC[1]{\textSMC{#1}}

```

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

```

1396 \newcommand\acro[1]{\textSMC{#1}\@}
1397 </common>

```

3.27 Miscellaneous definitions

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

```

1398 <*classtail>
1399 \def\xEdNote{\@EdNoteFont Editor's note:\enspace }
1400 \def \EdNote{\@ifnextchar[%]
1401   {%
1402     \ifvmode
1403       \smallskip\noindent\let\@EdNote@\@EdNote@v
1404     \else
1405       \unskip\quad\def\@EdNote@{\unskip\quad}%
1406     \fi
1407     \@EdNote
1408   }%
1409   \xEdNote
1410 }
1411 \long\def\@EdNote[#1]{%
1412   [\thinspace\xEdNote\ignorespaces
1413     #1%
1414     \unskip\thinspace]%
1415   \@EdNote@
1416 }
1417 \def\@EdNote@v{\par\smallskip}

```

Macros for Mittelbach's self-documenting style

```

1418 \def\SelfDocumenting{%
1419   \setlength\textwidth{31pc}
1420   \onecolumn

```

```

1421 \parindent \z@
1422 \parskip 2\p@\@plus\p@\@minus\p@
1423 \oddsidemargin 8pc
1424 \evensidemargin 8pc
1425 \marginparwidth 8pc
1426 \toks@\expandafter{\@oddhead}%
1427 \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1428 \toks@\expandafter{\@evenhead}%
1429 \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
1430 \def\ps@titlepage{%
1431 }
1432 \def\ps@titlepage{}
1433
1434 \long\def\@makefnmark#1{\parindent 1em\noindent\hb@xt@2em{}}%
1435 \llap{\@makefnmark}\null$\mskip5mu$#1}
1436
1437 %% \long\def\@makefnmark#1{\parindent 1em
1438 %% \noindent
1439 %% \hb@xt@2em{\hss\@makefnmark}}%
1440 %% \hskip0.27778\fontdimen6\textfont\z@\relax
1441 %% #1%
1442 %% }
1443
1444
1445 \def\fnnum@figure{{\small\bf Figure \thefigure}}

```

3.28 Initialization

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

```

1446 \if@Harvardcite
1447 \AtBeginDocument{%
1448 \bibliographystyle{ltugbib}%
1449 }
1450 \fi
1451 \authornumber\z@
1452 \let\@signature\@defaultsignature
1453 \InputIfFileExists{ltugboat.cfg}{\TBInfo{Loading ltugboat
1454 configuration information}}{}
1455 \</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:

```

1456 \*ltugproccls)
1457 \def\@tugclass{ltugproc}

```

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

```

1458 \newif\if@proctw@column \@proctw@columntrue
1459 \DeclareOption{onecolumn}{\@proctw@columnfalse}

\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.

1460 \newif\if@proc@sober
1461 \newif\if@proc@numerable
1462 \DeclareOption{tug95}{%
1463 \@proc@soberfalse
1464 \@proc@numerablefalse
1465 }
1466 \DeclareOption{tug96}{%
1467 \@proc@sobertrue
1468 \@proc@numerablefalse
1469 }
1470 \DeclareOption{tug97}{%
1471 \@proc@sobertrue
1472 \@proc@numerabletrue
1473 }
1474 \DeclareOption{tug2002}{%
1475 \@proc@sobertrue
1476 \@proc@numerabletrue
1477 \let\if@proc@numbersec\iftrue
1478 \PassOptionsToClass{numbersec}{ltugboat}%
1479 }

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

1480 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
1481 \PassOptionsToClass{numbersec}{ltugboat}%
1482 }
1483 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
1484 \PassOptionsToClass{nonumber}{ltugboat}%
1485 }

\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.

1486 \newif\ifTB@title
1487 \DeclareOption{title}{\TB@titletrue}
1488 \DeclareOption{notitle}{\TB@titlefalse
1489 \AtBeginDocument{\stepcounter{page}}}

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

1490 \DeclareOption{tugproc}{%
1491 \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
1492 }

All other options are simply passed to ltugboat...

1493 \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 \TeX ie...)

```

1494 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
1495         {Loading ltugproc configuration information}}{}
1496 \@ifundefined{TUGprocExtraOptions}%
1497     {\let\TUGprocExtraOptions\empty}%
1498     {\edef\TUGprocExtraOptions{\TUGprocExtraOptions}}

```

`\tugProcYear` Now work out what year it is

```

1499 \@tempcnta\year
1500 \ifnum\@tempcnta<2000
1501     \divide\@tempcnta by100
1502     \multiply\@tempcnta by100
1503     \advance\@tempcnta-\year
1504     \@tempcnta-\@tempcnta
1505 \fi

```

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

```

1506 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
1507             {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
1508 \@tempa
1509 \ClassInfo{ltugproc}{Class believes year is
1510     \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
1511     \@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.

```

1512 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
1513     \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.

```

1514 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
1515 \ProcessOptions
1516 \if@proc@numbersec
1517     \if@proc@numerable
1518     \else
1519         \ClassWarning{\@tugclass}{This year's proceedings may not have
1520             numbered sections}%
1521     \fi
1522 \fi

```

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

```

1523 \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 *TUGboat* proper. Note the tedious \LaTeX bug-avoidance in the `\@TB@test@document` macro.


```

1524 \def\maketitle{%
1525   \begin{group}

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

1526   \ifshortAuthor\else
1527     \global\let\rhAuthor\@empty
1528     \def\g@addto@rhAuthor##1{%
1529       \begin{group}
1530         \toks@\expandafter{\rhAuthor}%
1531         \let\thanks\@gobble
1532         \protected@xdef\rhAuthor{\the\toks@##1}%
1533       \end{group}
1534     }%
1535     \@getauthorlist\g@addto@rhAuthor
1536   \fi

      now, the real business of setting the title

1537   \ifTB@title
1538     \setcounter{footnote}{0}%
1539     \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
1540     \if@proctw@column
1541       \twocolumn[\@maketitle]%
1542     \else
1543       \onecolumn
1544       \global\@topnum\z@
1545       \@maketitle
1546     \fi
1547     \@thanks
1548     \thispagestyle{TBproctitle}
1549   \fi
1550 \end{group}
1551 \TB@madetitletrue
1552 }
1553 \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.

```

1554 \def\@TB@test@document{%
1555   \edef\@tempa{\the\everypar}
1556   \def \@tempb{\@nodocument}
1557   \ifx \@tempa\@tempb
1558     \@nodocument
1559   \fi
1560 }

```

\AUTHORfont Define the fonts for titles and things

```

\TITLEfont 1561 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
\addressfont 1562 \def\TITLEfont {\Large\rmfamily\mdseries\upshape}
\netaddrfont 1563 \def\addressfont{\small\rmfamily\mdseries\upshape}
1564 \def\netaddrfont{\small\ttfamily\mdseries\upshape}

```

\aboveauthorskip Some stretchable stuff to permit variability in page layout.

\belowauthorskip

\belowabstractskip

```

1565 \newskip\aboveauthorskip \aboveauthorskip=18\p@ \@plus4\p@
1566 \newskip\belowauthorskip \belowauthorskip=\aboveauthorskip
1567 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@

```

\maketitle The body of \maketitle

```

1568 \def\@maketitle{%
1569   {\parskip\z@
1570    \TITLEfont\raggedright\noindent\@title\par
1571     \count@=0
1572     \loop
1573     \ifnum\count@<\authornumber
1574       \vskip\aboveauthorskip
1575       \advance\count@\@ne
1576       {\AUTHORfont\theauthor{\number\count@}\endgraf}%
1577       \addressfont\theaddress{\number\count@}\endgraf
1578       {%
1579         \allowhyphens
1580         \hangindent1.5pc
1581         \frenchspacing
1582         \netaddrfont\thenetaddress{\number\count@}\endgraf
1583         \hangindent1.5pc
1584         \thePersonalURL{\number\count@}\endgraf
1585       }%
1586     \repeat
1587   \vskip\belowauthorskip}%
1588   \if@abstract
1589     \centerline{\bfseries Abstract}%
1590     \vskip.5\baselineskip\rmfamily
1591     \list{}{\listparindent20\p@
1592       \itemindent\z@ \leftmargin4.875pc
1593       \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1594       \the\abstract@toks
1595     \endlist\global\@ignoretrue
1596   \fi
1597   \vskip\belowabstractskip
1598   \global\@afterindentfalse\aftergroup\@afterheading
1599 }

```

Comment This is all very weird... why we (of all people) don't allow \thanks currently escapes me.

This restriction simply removed 1998/01/09

```

1600 %\def\thanks#1{\@bsphack\TBWarning{\string\thanks\space
1601 %          is not supported}\@esphack}

```

abstract Save the contents of the abstract environment in the token register \abstract@toks.
\if@abstract We need to do this, as otherwise it may get 'typeset' (previously, it got put in a
\abstract@toks box) before \begin{document}, and experiments prove that this means our shiny new \SMC doesn't work in this situation.

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

```

1602 \newtoks\abstract@toks \abstract@toks{}

```

```

1603 \let\if@abstract\iffalse
1604 \def\abstract{%
    we now warn unsuspecting users who provide an abstract environment after
    the \maketitle that would typeset it...
1605 \ifTB@madetitle
1606 \TBWarning{abstract environment after \string\maketitle}
1607 \fi
1608 \def\@abstract@{abstract}%
1609 \ifx\@currenvir\@abstract@
1610 \else
1611 \TBError{\string\abstract\space is illegal:%
1612 \MessageBreak
1613 use \string\begin{\@abstract@} instead}%
1614 {\@abstract@\space may only be used as an environment}
1615 \fi
1616 \global\let\if@abstract\iftrue
1617 {\ifnum0='}\fi
1618 \@abstract@getbody}
1619 \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}
1620 \long\def\@abstract@getbody#1\end{%
1621 \global\abstract@toks\expandafter{\the\abstract@toks#1}%
1622 \@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.
1623 \def\@abstract@findend#1{%
1624 \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.
1625 \ifx\@tempa\@abstract@
1626 \expandafter\@abstract@end
1627 \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)
1628 \def\@tempb{document}%
1629 \ifx\@tempa\@tempb
1630 \TBError{\string\begin{\@abstract@}
1631 ended by \string\end{\@tempb}}%
1632 {You've forgotten \string\end{\@abstract@}}
1633 \else
1634 \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
1635 \expandafter\expandafter\expandafter\@abstract@getbody
1636 \fi
1637 \fi}

```

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

```

1638 \def\@abstract@end{\ifnum0='{ \fi}%
1639 \expandafter\end\expandafter{\@abstract@}}

\creditfootnote Sometimes we want the label "Editor's Note:", sometimes not.
\supportfootnote
1640 \def\creditfootnote{\nomarkfootnote\xEdNote}
1641 \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.
1642 \gdef\nomarkfootnote#1#2{\begingroup
1643 \def\thefootnote{}%
1644 % no period, please, also no fnmark.
1645 \def\@makefnctext##1{##1}%
1646 \footnotetext{\noindent #1#2}%
1647 \endgroup
1648 }

\makesignature \makesignature is improper in proceedings, so we replace it with a warning (and
a no-op otherwise)
1649 \renewcommand{\makesignature}{\TBWarning
1650 {\string\makesignature\space is invalid in proceedings issues}}

\ttitle We redefine the \ttitle command, so as to set the \rhTitle command at the same
\tB@ttitle 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.
1651 \renewcommand\ttitle{\@dblarg\tB@ttitle}
1652 \def\tB@ttitle[#1]#2{\gdef\@ttitle{#2}%
1653 \bgroup
1654 \let\thanks\@gobble
1655 \let\\ %
1656 \protected@xdef\rhTitle{#1}%
1657 \egroup
1658 }

\shortTitle The \rh* commands are versions to be used in the running head of the article.
\ifshortAuthor Normally, they are the same things as the author and title of the article, but in the
\shortAuthor case that there are confusions therein, the text should provide substitutes, using
the \short* commands.
1659 \def\shortTitle #1{\def\rhTitle{#1}}
1660 \newif\ifshortAuthor
1661 \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}

\ps@TBproctitle Now we define the running heads in terms of the \rh* commands.
\ps@TBproc 1662 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 1663 \let\@evenhead\MakeRegistrationMarks
\setpagecommands 1664 \TB@definefeet
\TB@definefeet 1665 }
\pfoottext 1666 \def\ps@TBproc{%
\rfoottext 1667 \def\@oddhead{\MakeRegistrationMarks
1668 {%
1669 \hfil
1670 \def\{\unskip\ \ignorespaces}%
1671 \rmfamily\rhTitle

```

```

1672 }%
1673 }%
1674 \def\@evenhead{\MakeRegistrationMarks
1675 {%
1676     \def\{\unskip\ \ignorespaces}%
1677     \rmfamily\rhAuthor
1678     \hfil
1679 }%
1680 }%
1681 \TB@definefeet
1682 }
1683
1684 \advance\footskip8\p@    % for deeper running feet
1685
1686 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
1687 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
1688     {#2}}
1689 \def\TB@definefeet{%
1690     \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
1691         \else\rfoottext\hfil\thepage\fi\dopagecommands}%
1692     \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
1693         \else\thepage\hfil\rfoottext\fi\dopagecommands}%
1694 }
1695
1696 \def\pfoottext{\smc Preprint}: Proceedings of the \volyr{} Annual Meeting}
1697 \def\rfoottext{\normalfont\TUB, \volx\Dash
1698     {Proceedings of the \volyr{} Annual Meeting}}
1699
1700 \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).

```

1701 \if@proc@numbersec
1702 \else
1703     \setcounter{secnumdepth}{0}
1704 \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.

```

1705 \if@proc@numbersec
1706 \else
1707     \if@proc@sober
1708         \def\section
1709             {\TB@nolimelabel
1710             \TB@startsection{{section}%
1711                 1%

```

```

1712 \z@%
1713 {-8\p@\@plus-2\p@\@minus-2\p@}%
1714 {6\p@}%
1715 {\normalsize\bfseries\raggedright}}
1716 \else
1717 \def\section
1718 {\TB@nolimlabel
1719 \TB@startsection{{section}%
1720 1%
1721 \z@%
1722 {-8\p@\@plus-2\p@\@minus-2\p@}%
1723 {6\p@}%
1724 {\large\bfseries\raggedright}}}
1725 \fi
1726 \def\subsection
1727 {\TB@nolimlabel
1728 \TB@startsection{{subsection}%
1729 2%
1730 \z@%
1731 {6\p@\@plus 2\p@\@minus2\p@}%
1732 {-5\p@\@plus -\fontdimen3\the\font}%
1733 {\normalsize\bfseries}}}
1734 \def\subsubsection
1735 {\TB@nolimlabel
1736 \TB@startsection{{subsubsection}%
1737 3%
1738 \parindent%
1739 \z@%
1740 {-5\p@\@plus -\fontdimen3\the\font}%
1741 {\normalsize\bfseries}}}
1742 \fi
1743 \end{tugproccls}

```

5 Plain T_EX styles

```

1744 \begin{tugboatsty}
1745 % err...
1746 \end{tugboatsty}
1747 \begin{tugprocsty}
1748 % err...
1749 \end{tugprocsty}

```

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

```

1750 \begin{ltugboatsty}
1751 \obsoletedefile{ltugboat.cls}{ltugboat.sty}
1752 \LoadClass{ltugboat}
1753 \end{ltugboatsty}
1754 \begin{ltugprocsty}
1755 \obsoletedefile{ltugproc.cls}{ltugproc.sty}
1756 \LoadClass{ltugproc}
1757 \end{ltugprocsty}

```