

# The `tugboat` package\*

The *TUGboat* team

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## Contents

<b>1 Document preambles</b>	<b>2</b>
<b>2 Introduction</b>	<b>2</b>
2.1 Summary of control sequences . . . . .	2
<b>3 L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> TUGboat class file</b>	<b>6</b>
3.1 Setup and options . . . . .	6
3.2 Resetting at start of paper . . . . .	10
3.3 Helpful shorthands (common code with Plain styles) . . . . .	10
3.4 Abbreviations and logos . . . . .	12
3.5 General typesetting rules . . . . .	17
3.6 Utility registers and definitions . . . . .	18
3.7 Ragged right and friends . . . . .	19
3.8 Assorted user-level markup . . . . .	20
3.9 Reviews . . . . .	24
3.10 Dates, volume and issue numbers, etc. . . . .	25
3.11 Page dimensions, glue, penalties, etc. . . . .	29
3.12 Messing about with the L <sup>A</sup> T <sub>E</sub> X logo . . . . .	30
3.13 Authors, contributors, addresses, signatures . . . . .	31
3.14 Article title . . . . .	37
3.15 Section titles . . . . .	38
3.16 Section headings . . . . .	41
3.17 Appendices . . . . .	44
3.18 References . . . . .	45
3.19 Title references . . . . .	46
3.20 Float captions . . . . .	47
3.21 Size changing commands . . . . .	48
3.22 Lists and other text inclusions . . . . .	49
3.23 Some fun with <code>verbatim</code> . . . . .	50
3.24 Bibliography . . . . .	51
3.25 Registration marks . . . . .	55
3.26 Running headers and footers . . . . .	55
3.27 Output routine . . . . .	58
3.28 Font-related definitions and machinery . . . . .	58

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3.29	Editor’s notes and other footnotes	59
3.30	Initialization	60
<b>4</b>	<b>L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> proceedings class (no longer used)</b>	<b>61</b>
4.1	Proceedings titles	63
4.2	Section divisions	66
<b>5</b>	<b>Plain T<sub>E</sub>X styles</b>	<b>67</b>
<b>6</b>	<b>The L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> compatibility-mode style files</b>	<b>68</b>

## 1 Document preambles

```

1 <ltugboatcls | ltugproccls | ltugcomm>\NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 <*dtx>
3 \ProvidesFile           {tugboat.dtx}
4 </dtx>
5 <ltugboatcls>\ProvidesClass {ltugboat}
6 <ltugproccls>\ProvidesClass {ltugproc}
7 <ltugboatsty>\ProvidesPackage{ltugboat}
8 <ltugprocsty>\ProvidesPackage{ltugproc}
9 <ltugcomm>  \ProvidesPackage{ltugcomm}
10           [2023-10-28 v2.31]
11 <ltugboatcls>           TUGboat journal class%
12 <ltugproccls>          TUG conference proceedings class%
13 <ltugboatsty | ltugprocsty> TUG compatibility package%
14 <ltugcomm>             TUGboat ‘common macros’ package%
15 <*dtx>
16                       TUG macros source file%
17 </dtx>
18 ]

```

## 2 Introduction

This file contains all the macros for typesetting *TUGboat* with both plain T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

### 2.1 Summary of control sequences

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

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

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

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

Macros for things that are slightly more significant.

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

<code>\rtitlex</code>	<i>TUGboat</i> volume and number info for running head
<code>\midrtitlex</code>	information for center of running head
<code>\rtitlenexttopage</code>	next to page number in running head
<code>\HorzR@gisterRule</code>	pieces of registration marks ('trimmarks')
<code>\DownShortR@gisterRule</code>	
<code>\UpShortR@gisterRule</code>	
<code>\ttopregister</code>	top registration line with 'T' in center
<code>\tbotregister</code>	bottom registration line with inverted 'T' in center
<code>\topregister</code>	register actually used
<code>\botregister</code>	
<code>\raggedskip</code>	parameters used for ragged settings
<code>\raggedstretch</code>	
<code>\raggedparfill</code>	
<code>\raggedspaces</code>	
<code>\raggedright</code>	
<code>\raggedleft</code>	
<code>\raggedcenter</code>	
<code>\normalspaces</code>	
<code>\raggedbottom</code>	
<code>\bull</code>	square bullet
<code>\cents</code>	'cents' sign
<code>\Dag</code>	superscripted dagger
<code>\careof</code>	c/o
<code>\sfrac</code>	slashed fraction (arguments optionally separated by a slash)
<code>\cs</code>	control sequence name <code>\cs{name}→\name</code>
<code>\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 <sup>st</sup> ', '2 <sup>nd</sup> ', '3 <sup>rd</sup> ', etc.
<code>\tubissue</code>	gets \TUB followed by volume and issue numbers
<code>\xEdNote</code>	Editor's Note:
<code>\Review:</code>	Review: (for title of book review article)
<code>\reviewitem</code>	begin data for item being reviewed
<code>\revauth</code>	with one argument, author(s) of item being reviewed
<code>\revtitle</code>	with one argument, title of ...
<code>\revpubinfo</code>	with one argument, other info pertaining to ...
<code>\endreviewitem</code>	end data for item being reviewed
<code>\titleref</code>	one argument, format title as straight text (slanted, frenchspacing)

<code>\Input</code>	<code>\input</code> with some other bookkeeping for case where multiple articles are put together
<code>\TBremark</code>	reminder to <i>TUGboat</i> editorial staff
<code>\TBEEnableRemarks</code>	enable <code>\TBremarks</code> (normally suppressed)
<code>\pagexref</code>	used to write out page numbers to screen and external files
<code>\pagexrefON</code>	
<code>\pagexrefOFF</code>	
<code>\xrefto</code>	used for symbolic cross-reference to other pages in <i>TUGboat</i>
<code>\xreftoON</code>	
<code>\xreftoOFF</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<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> *TUGboat* class file

#### 3.1 Setup and options

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

```

19 {*common}
20 \newif\ifTBunicodeengine
21 \ifx\Umathchardef\@thisisundefined % not (xetex|luatex)
22 \TBunicodeenginefalse
23 \else
24 \TBunicodeengine>true
25 \fi
26 {/common}

```

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

```

27 {*tugboatcls}
28 \csname tugstyloaded@\endcsname
29 \def\tugstyloaded@{\tugstyinit\endinput}

```

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

```

30 \providecommand{\@tugclass}{1tugboat}

```

Warnings/error messages/information messages — if we're using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> we can use the `\Class*` commands:

```

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

```

Class options: draft vs. preprint vs. final.

```

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

```

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

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

```

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

```

*TUGboat* uses only 10pt for the main text.

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

Similarly, ignore one/two-side options.

```
86 \DeclareOption{oneside}{\TBWarning{Option \CurrentOption\space ignored}}
87 \DeclareOption{twoside}{\ds@oneside}
```

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

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

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

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

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

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

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

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

Minimal running headers/footers contain just the *TUGboat* volume/issue identification and page numbers. ‘`runningfull`’ is the default, and includes title and author. ‘`runningoff`’ makes both headers and footers empty.

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

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

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



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

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

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

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

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

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

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

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

```
111 \ExecuteOptions{draft,extralabel,numbersec,rawcite,runningminimal}
112 \ProcessOptions
113 \LoadClass[twoside]{article}
```

Various fonts used throughout. Some effort has been made to suppress these things with explicit sizes in the macro name (`\tensl` is an example below), but keeping in step with the documentation is one thing that restricts such a move.

```
114 \def\sectitlefont{\fontfamily\sfddefault\fontseries{bx}\fontshape{n}%
115     \fontsize\@xvipt\stbaselineskip\selectfont}
116 \def\tensl{\fontseries{m}\fontshape{sl}\fontsize\@xpt\@xipt
117     \selectfont}
```

This font selection command is used *only* for the 'Editor's Note' introduction to notes; sadly it makes explicit reference to `CMR`, and Barbara Beeton has agreed that the reference may be constructed to use the current family such that, if no upright italic is defined, ordinary italics are used. A project for later...

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

If Ulrik Vieth's `mflogo.sty` is around, we'll use it. Otherwise (pro tem, at least) we'll warn the user and define the absolute minimum of machinery that `TUGboat` requires (that which was used prior to the invention of  $\text{\LaTeX} 2_{\epsilon}$ ).

```
126 <*common>
```

```

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

```

### 3.2 Resetting at start of paper

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

```

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

```

### 3.3 Helpful shorthands (common code with Plain styles)

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

```

162 \*!latex)

```

```

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

```

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

```

186 \def\savecat#1{%
187   \expandafter\xdef\csname\string#1savedcat\endcsname{\the\catcode'#1}}
188 \def\restorecat#1{\catcode'#1=\csname\string#1savedcat\endcsname}
189 </!latex>\savecat\@
190 </!latex>\makeletter\@

```

`\SaveCS#1` and `\RestoreCS#1` save and restore 'meanings' of control sequences. Again this is useful in cases where one doesn't want to localize or where global definitions clobber a control sequence which is needed later with its 'old' definition.

```

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

```

To distinguish between macro files loaded

```

195 \def\plaintubstyle{plain}
196 \def\latextubstyle{latex}

```

Control sequences that were first defined in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> of 1995/06/01 (or later), but which we merrily use. Only define if necessary:

```

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

```

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

We end up wanting this fairly often, and L<sup>A</sup>T<sub>E</sub>X removed `\line`.

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

### 3.4 Abbreviations and logos

Font used for the METAFONT logo, etc.

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

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

```
233 \def\ConTeXt{C\kern-.0333em\-\kern-.0667em\TeX\kern-.0333em}
234 \def\CMkIV{\ConTeXt\ \MkIV}
235 \def\Cplusplus{Cplusplus}
236 \def\plusplus{\raisebox{.7ex}{\_{++}}}
237 \def\CPU{\acro{CPU}}
238 \def\CSzabbr{\ensuremath{\cal C}\kern-.1667em\lower.5ex\hbox{\cal S}}
239 \def\CSS{\acro{CSS}}
240 \def\CSTUG{\CSzabbr\kern.05em\acro{TUG}}
241 \def\CSV{\acro{CSV}}
242 \def\CTAN{\acro{CTAN}}
243 \def\DTD{\acro{DTD}}
244 \def\DTK{\acro{DTK}}
245 \def\DVD{\acro{DVD}}
246 \def\DVI{\acro{DVI}}
247 \def\DVIPDFMx{\acro{DVIPDFM}\$x\$}
```

```

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

```

```

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

```

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

```

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

```

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

```

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

```

```

346 \def\PCTeX{PC\thinspace\TeX}
347 \def\pcTeX{\leavevmode\raise.5ex\hbox{p\kern-.3\p@c}\TeX}
348 \def\pdfLaTeX{pdf\/\-\LaTeX}% dtk-logos
349 \def\pdflatex{\pdfLatex}
350 \def\pdfTeX{pdf\/\-\TeX}% dtk-logos
351 \def\pdftex{\pdfTeX}
352 \def\PDF{\acro{PDF}}
353 \def\PGF{\acro{PGF}}
354 \def\PHP{\acro{PHP}}
355 \def\PiC{P\kern-.12em\lower.5ex\hbox{I}\kern-.075emC\@}
356 \def\PiCTeX{\PiC\kern-.11em\TeX}
357 \def\plain{\texttt{plain}}
358 \def\PNG{\acro{PNG}}
359 \def\POBox{P.\thinspace 0.\~Box }
360 \def\PS{\Post\-\Script}}
361 \def\PSTricks{\acro{PST}ricks}
362 \def\RIT{\acro{RIT}}
363 \def\RTF{\acro{RTF}}
364 \def\SC{Steering Committee}
365 \def\SGML{\acro{SGML}}
366 \def\SliTeX{\textrm{S\kern-.06em\textsc{l}\kern-.035emi}%
367         \kern-.06em\TeX}}
368 \def\sLMF{\textsl{MF}} % should never be used
369 \def\SQL{\acro{SQL}}
370 \def\stTeX{\textsc{st}\kern-0.13em\TeX}
371 \def\STIX{\acro{STIX}}
372 \def\SVG{\acro{SVG}}
373 \def\TANGLE{\texttt{TANGLE}\@}
374 \def\TB{\textsl{The \TeX\-\book}}
375 \def\TIFF{\acro{TIFF}}
376 \def\TP{\textsl{\TeX:\ The Program\}}
377 \DeclareRobustCommand{\TeX}{T\kern-.1667em\lower.424ex\hbox{E}\kern-.125emX\@}
378 \def\TeXhax{\TeX hax}
379 \def\TeXMaG{\TeX M\kern-.1667em\lower.5ex\hbox{A}%
380     \kern-.2267emG\@}
381 \def\TeXtures{\textit{Textures}}
382 \let\Textures=\TeXtures
383 \def\TeXworks{\TeX\kern-.07em works}
384 \def\TeXXeT{\TeX-{\}-XeT}
385 \def\TFM{\acro{TFM}}
386 \ifTBunicodeengine
387   \AtBeginDocument{% in case a different font is loaded
388     % \iffontchar is from e-TeX; safe to use under Unicode engines.
389     \iffontchar\font"1EBF
390       \def\TBecircacute{\char"1EBF }%
391       \else
392         \def\TBecircacute{\^e\llap{\raise 0.5ex\hbox{'{}}}}%
393       \fi
394       \def\Thanh{H\'an\~Th\TBecircacute\~Th\'anh}%
395     }%
396 \else % non-Unicode engine, use our traditional definition.
397   \def\Thanh{H\'an\~Th\^e\llap{\raise 0.5ex\hbox{'{}}}\~Th\'anh}
398   % We could also go the other direction, and always use the Unicode
399   % character, after:

```

```

400 % \ifdefined\DeclareUnicodeCharacter
401 %   \DeclareUnicodeCharacter{1EBF}{\^e\llap{\raise 0.5ex\hbox{'}}}
402 % \fi
403 % but let's make the smaller change.
404 \fi
405 \def\TikZ{Ti/{\em k}Z}
406 \def\TTN{\textsl{TTN}\@}
407 \def\TTN{\textsl{\TeX{}} and TUG News}
408 \def\TUB{\texttub{TUGboat}}\def\texttub{\textsl} % redefined in some situations
409 \def\TUG{\TeX\ \UG}
410 \def\tug{\acro{TUG}}
411 \def\UG{Users Group}
412 \def\UNIX{\acro{UNIX}}
413 % Don't define \UTF, since other packages use it for Unicode character access.
414 % On the other hand, we want a macro for UTF-8 that doesn't break at the -.
415 \def\tbUTF{\acro{UTF}\futurelet\@nextchar\@tbUTFcheck}
416 \def\@tbUTFcheck{\ifx\@nextchar-
417   \mbox{-}\let\next=\tbgobbledash
418   \else
419     \let\next=\empty
420   \fi\next}
421 \def\tbgobbledash-{}
422 \def\VAX{V\kern-.12em A\kern-.1em X\@}
423 \def\VnTeX{V\kern-.03em n\kern-.02em \TeX}
424 \def\VorTeX{V\kern-2.7\p@\lower.5ex\hbox{0\kern-1.4\p@ R}\kern-2.6\p@\TeX}
425 \def\XeTeX{\kern-.125em\lower.424ex\hbox{E}\kern-.1667emT\@}
426 \def\XML{\acro{XML}}
427 \def\XMP{\acro{XMP}}
428 \def\WEB{\texttt{WEB}\@}
429 \def\WEAVE{\texttt{WEAVE}\@}
430 \def\WYSIWYG{\acro{WYSIWYG}}

```

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

```

431 \def\tubreflect#1{%
432   \@ifundefined{reflectbox}{%
433     \TBError{A graphics package must be loaded to use \string\XeTeX}
434     {Load graphicx or graphics.}%
435   }{%
436     \ifdim \fontdimen1\font>0pt
437       \raise 1.75ex \hbox{\kern.1em\rotatebox{180}{#1}}\kern-.1em
438     \else
439       \reflectbox{#1}%
440     \fi
441   }%
442 }
443 \def\tubhideheight#1{\setbox0=\hbox{#1}\ht0=0pt \dp0=0pt \box0 }
444 \def\XekernbeforeE{-.125em}
445 \def\XekernafterE{-.1667em}
446 \DeclareRobustCommand{\Xe}{\leavevmode
447   \tubhideheight{\hbox{X%

```



```

448 \setbox0=\hbox{\TeX}\setbox1=\hbox{E}%
449 \ifdim \fontdimen1\font>0pt
450 % XeTeX logo needs tinkering when slanted/italic font.
451 \def\XekernbeforeE{-.11em}%
452 \def\XekernafterE{-.16em}%
453 \dp1=-.17ex
454 \fi
455 \lower\dp0\hbox{\raise\dp1\hbox{\kern\XekernbeforeE\tubreflect{E}}}%
456 \kern\XekernafterE}}
457 \def\XeTeX{\Xe\TeX}
458 \def\XeLaTeX{\Xe{\kern.11em \LaTeX}}
459 %
460 \def\XHTML{\acro{XHTML}}
461 \def\XSL{\acro{XSL}}
462 \def\XSLFO{\acro{XSL}\raise.08ex\hbox{-}\acro{FO}}
463 \def\XSLT{\acro{XSLT}}

```

### 3.5 General typesetting rules

```

464 \newlinechar='^^J
465 \normallineskiplimit=\p@
466 \clubpenalty=10000
467 \widowpenalty=10000
468 \def\NoParIndent{\parindent=\z@}
469 \newdimen\normalparindent
470 \normalparindent=20\p@
471 \def\NormalParIndent{\global\parindent=\normalparindent}
472 \NormalParIndent
473 \def\BlackBoxes{\overfullrule=5\p@}
474 \def\NoBlackBoxes{\overfullrule=\z@}
475 \def\newline{\hskip\z@\@plus\pagewd\break}

```

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

```

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

```

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

```

477 \DeclareRobustCommand{\tubdots}{\ifmmode\mathellipsis\else
478 .\kern\fontdimen3\font
479 .\kern\fontdimen3\font
480 .\kern\fontdimen3\font\fi}

```

`\allowhyphens` Hyphen control: first, we save (via `\edef`) the hyphenpenalties in `\allowhyphens`. This allows us to permit hyphens temporarily in things like `\netaddresses`, which

typically occur when `\raggedright` is set, but which need to be allowed to break at their artificial discretionaries.

```
481 \edef\allowhyphens{\noexpand\hyphenpenalty\the\hyphenpenalty\relax
482 \noexpand\exhyphenpenalty\the\exhyphenpenalty\relax}
483 \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<sup>A</sup>T<sub>E</sub>X temporaries for some (or all) of the `\T@st*` ones.

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

```
484 \newbox\T@stBox           \newbox\TestBox
485 \newcount\T@stCount      \newcount\TestCount
486 \newdimen\T@stDimen      \newdimen\TestDimen
487 \newif\ifT@stIf          \newif\ifTestIf
```

Control sequence existence test, stolen from T<sub>E</sub>Xbook exercise 7.7 (note that this provides functionality that in some sense duplicates something within L<sup>A</sup>T<sub>E</sub>X).

```
488 \def\ifundefined#1{\expandafter\ifx\c#1\endc#1\relax }
```

L<sup>A</sup>T<sub>E</sub>X conventions which are also useful here.

```
489 <!*latex>
490 \let\@input\input
491 \def\iinput#1{\@input#1 }
492 \def\@inputcheck{\if\@nextchar\bgroup
493 \expandafter\iinput\else\expandafter\@input\fi}
494 \def\input{\futurelet\@nextchar\@inputcheck}
495 </!latex>
```

Smashes repeated from AMS-T<sub>E</sub>X; plain T<sub>E</sub>X implements only full `\smash`.

```
496 \newif\iftop@           \newif\ifbot@
497 \def\topsmash{\top@true\bot@false\smash@}
498 \def\botsmash{\top@false\bot@true\smash@}
499 \def\smash{\top@true\bot@true\smash@}
500 \def\smash@{\relax\ifmmode\def\next{\mathpalette\mathsm@sh}%
501 \else\let\next\makesm@sh\fi \next }
502 \def\fin@msh{\iftop@\ht\z@\z@\fi\ifbot@\dp\z@\z@\fi\box\z@}
```

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

```
503 \long\def\ulap#1{\vbox to \z@{\vss#1}}
504 \long\def\dlap#1{\vbox to \z@{\#1\vss}}
```

And centered horizontal and vertical 'laps'

```
505 \def\xlap#1{\hb@xt@\z@{\hss#1\hss}}
506 \long\def\ylap#1{\vbox to \z@{\vss#1\vss}}
507 \long\def\zlap#1{\ylap{\xlap{#1}}}
```

Avoid unwanted vertical glue when making up pages.

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

Empty rules for special occasions

```
509 \def\nullhrule{\hrule \@height\z@ \@depth\z@ \@width\z@ }
510 \def\nullvrule{\vrule \@height\z@ \@depth\z@ \@width\z@ }
```

Support ad-hoc strut construction.

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

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

```
512 \def\drawoutlinebox[#1;#2;#3]{\T@stDimen=#3
513     \vbox to#1{\hrule \@height\T@stDimen \@depth\z@
514         \vss\hb@xt@#2{\vrule \@width\T@stDimen
515             \hfil\makestrut[#1;\z@]%
516             \vrule \@width\T@stDimen}\vss
517         \hrule \@height\T@stDimen \@depth\z@}}
```

Today's date, to be printed on drafts. Based on T<sub>E</sub>Xbook, p.406.

```
518 <!*latex>
519 \def\today{\number\day\space \ifcase\month\or
520     Jan \or Feb \or Mar \or Apr \or May \or Jun \or
521     Jul \or Aug \or Sep \or Oct \or Nov \or Dec \fi
522     \number\year}
523 </!latex>
```

Current time; this may be system dependent!

```
524 \newcount\hours
525 \newcount\minutes
526 \def\SetTime{\hours=\time
527     \global\divide\hours by 60
528     \minutes=\hours
529     \multiply\minutes by 60
530     \advance\minutes by-\time
531     \global\multiply\minutes by-1 }
532 \SetTime
533 \def\now{\ifnum\hours<10 0\fi\number\hours:%
534     \ifnum\minutes<10 0\fi\number\minutes}
535 \def\Now{\today\ \now}
536 \newif\ifPrelimDraft % true if ([draft] or [preprint] or pageno>900)
537 \def\midrttitle{} % center of running heads
538 \def\rtitlenexttopage{\ifPrelimDraft \textsl{\small draft: \Now}\fi}
539 %\def\rtitlenexttopage{\ifnum\value{page}>900 \textsl{\small draft: \Now}\fi}
```

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

```
540 \let\thisissuepageref\empty
```

### 3.7 Ragged right and friends

`\raggedskip` Plain T<sub>E</sub>X's definition of `\raggedright` doesn't permit any stretch, and results in `\raggedstretch` too many overfull boxes. We also turn off hyphenation. This code lies somewhere between that of Plain T<sub>E</sub>X and of L<sup>A</sup>T<sub>E</sub>X.

```
\raggedspaces 541 \newdimen\raggedskip \raggedskip=\z@
542 \newdimen\raggedstretch \raggedstretch=5em % ems of font set now (10pt)
543 \newskip\raggedparfill \raggedparfill=\z@\@plus 1fil
```

```

544 \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 545 \def\raggedright{%
\normalspaces 546 \nohyphens \raggedspaces
547 \rightskip=\raggedskip\@plus\raggedstretch
548 \parfillskip=\raggedparfill
549 }
550 \def\raggedleft{%
551 \nohyphens \raggedspaces
552 \leftskip=\raggedskip\@plus\raggedstretch
553 \parfillskip=\z@skip
554 \let\@centercr % else tabulararray fails,
555 % https://github.com/lvjlr/tabulararray/issues/348
556 }
557 \def\raggedcenter{%
558 \nohyphens \raggedspaces
559 \leftskip=\raggedskip\@plus\raggedstretch
560 \rightskip=\leftskip
561 \parindent=\z@
562 \parfillskip=\z@skip
563 }
564 %
565 % Undo |\raggedspaces|.
566 \def\normalspaces{\spaceskip\z@skip \xspaceskip\z@skip}

\tubjustifiedpar Undo the \raggedright (or other such) settings, restoring normality.
567 \def\tubjustifiedpar{\rightskip=0pt \parfillskip=0pt plus1fil
568 \allowhyphens \normalspaces}

```

### 3.8 Assorted user-level markup

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

```

569 \let\latexnobreakspace=\nobreakspace
570 \DeclareRobustCommand{\nobreakspace}{\unskip\nobreak\ \ignorespaces}

```

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

```

571 \def\boxcs#1{\box\csname#1\endcsname}
572 \def\setboxcs#1{\setbox\csname#1\endcsname}

```

```

573 \def\newboxcs#1{\expandafter\newbox\csname#1\endcsname}
574 \let\gobble@gobble
575 \def\vellipsis{%
576   \leavevmode\kern0.5em
577   \raise\p@\vbox{\baselineskip6\p@\vskip7\p@\hbox{.}\hbox{.}\hbox{.}}
578 }
579 \def\bull{\vrule \@height 1ex \@width .8ex \@depth -.2ex }
580 \def\cents{{\rm\raise.2ex\rlap{\kern.05em$\scriptstyle/$}c}}
581 \def\careof{\leavevmode\hbox{\raise.75ex\hbox{c}\kern-.15em
582   /\kern-.125em\smash{\lower.3ex\hbox{o}}}\ignorespaces}
583 \def\Dag{\raise.6ex\hbox{$\scriptstyle\dagger$}}
584 %
585 \DeclareRobustCommand{\sfrac}[1]{\@ifnextchar/{\@sfrac{#1}}%
586   {\@sfrac{#1}/}}
587 \def\@sfrac#1/#2{\leavevmode\kern.1em\raise.5ex
588   \hbox{$\m@th\mbox{\fontsize\sf@size\z@
589     \selectfont#1}$}\kern-.1em
590   /\kern-.15em\lower.25ex
591   \hbox{$\m@th\mbox{\fontsize\sf@size\z@
592     \selectfont#2}$}}
593 %
594 % don't stay bold in description items, bold italic is too weird.
595 \DeclareRobustCommand\meta[1]{%
596   \ensuremath{\langle}#1\rangle}%
597   \ifmmode \expandafter\mbox \fi % if in math
598   {\it #1/}% no typewriter italics, please
599   \ensuremath{\rangle}#1}%
600 }
601 %
602 % Use \tt rather than \texttt because italic typewriter is just too ugly,
603 % and upright works well enough in both italic and bold contexts.
604 % Would be nice to change catcode of _ for LaTeX3.
605 \DeclareRobustCommand{\cs}[1]{\texorpdfstring
606   {\tt \char'\#1}}%
607   {\textbackslash #1}}%
608 }
609 %
610 % This command was defined much later than the others around here, so
611 % let's not conflict with any existing definitions that might be out there.
612 % Don't allow hyphenations or other line breaks.
613 \DeclareRobustCommand{\tubbraced}[1]{\texorpdfstring
614   {\mbox{\texttt{\char'\#1\char'\}}}#1}%
615   {\textbraceleft #1\textbraceright}}%
616 }
617 %
618 % Literal text, such as class names, package names, filenames, etc,
619 % Trying to define separate commands for each seems impossible and pointless.
620 % Usually we don't want hyphenation or any other kind of break.
621 \DeclareRobustCommand{\tbcode}[1]{\mbox{\texttt{#1}}}
622 %
623 % On the other hand, sometimes we need to break such code fragments.
624 % If |hyperref| is loaded, we want |\nolinkurl|, else just |\url|.
625 \AtBeginDocument{%
626 \ifx\nolinkurl\undefined

```

```

627 \DeclareRobustCommand{\tbcodebreak}{\url}
628 \else
629 \DeclareRobustCommand{\tbcodebreak}{\nolinkurl}
630 \fi
631 }
632 %
633 % Not sure why we ever want this instead of LaTeX's \, (using \kern),
634 % but fine, just keeping it.
635 \DeclareRobustCommand{\thinskip}{\hskip 0.16667em\relax}
636 %
637 % Ah, urls. Nowadays, we like the visible url to not have any protocol,
638 % if it is \texttt{http://} or \texttt{https://}. But we need to include
639 % the protocol if we are making live links, since a string like
640 % \texttt{tug.org/whatever} will be taken as a local filename by
641 % browsers and PDF readers. Since we need to check for
642 % \texttt{hyperref}, make the definition \cs{AtBeginDocument}. In the
643 % end, \cs{tbsurl}\tubbraced{foo} produces \texttt{https://foo} and
644 % \cs{tbhurl}\tubbraced{foo} produces \texttt{http://foo}.
645 \AtBeginDocument{%
646 \ifx\hyper@normalise\undefined
647 \ifx\url\undefined % make sure \url is defined
648 \def\url{\begingroup % might as well catch common special chars
649 \catcode'\#=12 \catcode'\$=12 \catcode'\%=12 \catcode'\^=12
650 \catcode'\&=12 \catcode'\_ =12 \catcode'\~=12
651 \finish@tub@url}
652 \def\finish@tub@url#1{\tt #1\endgroup}
653 \fi
654 \let\tburl\url % no hyperref, so just \url is fine;
655 \let\tbsurl\url % \let instead of \def so we can still
656 \let\tbhurl\url % use \def\url{\tbsurl} without infloop.
657 \else
658 % This hyperref hook-in is due to Ulrike Fischer.
659 % \url{https://github.com/latex3/hyperref/issues/125}.
660 % \tb[sh]url@ are defined next.
661 \DeclareRobustCommand*{\tburl}{\tbsurl}%
662 \DeclareRobustCommand*{\tbsurl}{\hyper@normalise\tbsurl@}%
663 \DeclareRobustCommand*{\tbhurl}{\hyper@normalise\tbhurl@}
664 \fi
665 }
666 %
667 % Outside \AtBeginDocument, back at the top level of the dtx, we
668 % turn on expl syntax for the main definitions of \tb[sh]url. We want
669 % to auto-remove an explicit protocol in case it
670 % was given.
671 %
672 % Only the correct protocol is removed; if \verb|http://| is
673 % given to \cs{tbsurl}, it is used (and printed) as-is. This is useful
674 % so we can do \verb|\let\url\tbsurl| when printing bibliographies.
675 %
676 % Giving \verb|https://| to \cs{tbhurl}, on the other hand, generates an
677 % invalid link; in practice there's no use for that so we don't bother
678 % to check for it.
679 %
680 \ExplSyntaxOn

```

```

681 \def\tbsurl@#1 % https
682 {
683   \str_set:Nn\l_tmpa_str{#1}
684   \str_if_in:NnTF \l_tmpa_str {http://}
685   {
686     \expandafter\hyper@linkurl
687     \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}{\l_tmpa_str}
688   }
689   {
690     \str_remove_once:Nn\l_tmpa_str{https://}
691     \expandafter\hyper@linkurl
692     \expandafter{\expandafter\Hurl\expandafter{\l_tmpa_str}}
693     {https://\l_tmpa_str}
694   }
695 }
696 \def\tbhurl@#1 % http
697 {
698   \str_set:Nn\l_tmpa_str{#1}
699   \str_remove_once:Nn\l_tmpa_str{http://}
700   \expandafter\hyper@linkurl\expandafter{\expandafter\Hurl\expandafter
701     {\l_tmpa_str}}{http://\l_tmpa_str}
702 }
703 \ExplSyntaxOff
704 %
705 % Now let's use those macros for putting a url into a simple
706 % ragged-right footnote.
707 \def\tburlfootnote{\tbsurlfootnote}
708 \def\tbsurlfootnote#1{\footnote{\raggedright\tbsurl{#1}}}
709 \def\tbhurlfootnote#1{\footnote{\raggedright\tbhurl{#1}}}
710 %
711 % Close up space between footnote mark and punctuation ("pre-punctuation").
712 \DeclareRobustCommand{\tbppkernfoot}{\tubthinnerospace}
713
714 % Make \! work in text mode.
715 \DeclareRobustCommand{\!}{\ifmmode\mskip-\thinmuskip \else\kern-0.16667em \fi}
716 %
717 % Half a thinspace, positive and negative. Should have named these
718 % \cs{tb} instead of \cs{tub}, but not worth changing now.
719 \DeclareRobustCommand{\tubthinnerospace}
720   {\ifmmode\mskip.5\thinmuskip \else\kern0.08333em \fi}
721 \DeclareRobustCommand{\tubthinnerospaceeneg}
722   {\ifmmode\mskip-.5\thinmuskip \else\kern-0.08333em \fi}
723 %
724 % Half a smallskip.
725 \DeclareRobustCommand{\tubsmallerskip}
726   {\vskip 1.5pt plus .75pt minus .75pt\relax}
727 %

```

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

```

728 \def\endash{--}
729 \def\emdash{\endash-}
730 \def\d@sh#1#2{\unskip#1\thinspace#2\thinspace\ignorespaces}
731 \def\dash{\d@sh\nobreak\endash}

```

```

732 \def\Dash{\d@sh\nobreak\emdash}
733 \def\ldash{\d@sh\empty{\hbox{\endash}\nobreak}}
734 \def\rdash{\d@sh\nobreak\endash}
735 \def\Ldash{\d@sh\empty{\hbox{\emdash}\nobreak}}
736 \def\Rdash{\d@sh\nobreak\emdash}

```

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

```

737 \def\hyph{-\penalty\z@\hskip\z@skip }
738 \def\slash{/\penalty\z@\hskip\z@skip }

```

Adapted from `comp.text.tex` posting by Donald Arseneau, 26 May 93. L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>-isation added by Robin Fairbairns. Destroys both the TestCounts.

```

739 \def\nth#1{%
740   \def\reserved@a##1##2\@nil{\ifcat##1n%
741     0%
742     \let\reserved@b\ensuremath
743   \else##1##2%
744     \let\reserved@b\relax
745   \fi}%
746 \TestCount=\reserved@a#1\@nil\relax
747 \ifnum\TestCount <0 \multiply\TestCount by\m@ne \fi % subdue negatives
748 \T@stCount=\TestCount
749 \divide\T@stCount by 100 \multiply\T@stCount by 100
750 \advance\TestCount by-\T@stCount % n mod 100
751 \ifnum\TestCount >20 \T@stCount=\TestCount
752 \divide\T@stCount by 10 \multiply\T@stCount by 10
753 \advance\TestCount by-\T@stCount % n mod 10
754 \fi
755 \reserved@b{#1}%
756 \textsuperscript{\ifcase\TestCount th%      0th
757                  \or st%                    1st
758                  \or nd%                    2nd
759                  \or rd%                    3rd
760                  \else th%                  nth
761                  \fi}%
762 }

```

### 3.9 Reviews

Format information on reviewed items for book review articles. For the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> version, we follow Fairbairns' maxim, and define something that can even look like a L<sup>A</sup>T<sub>E</sub>X macro...

```

763 \def\Review{\@ifnextchar:{\@Review}{\@Review:}}
764 \def\@Review:{\@ifnextchar[%]
765   {\@Rev}%
766   {\@Rev[Book review]}}
767 \def\@Rev[#1]#2{\@ignorespaces#1\unskip:\enspace\ignorespaces
768               \slshape\mdseries#2}}
769 \def\reviewitem{\advvspace{\BelowTitleSkip}}%
770 \def\revauth##1{\def\therevauth{##1, }\ignorespaces}%
771 \def\revtitle##1{\def\therevtitle{{\slshape##1}. }\ignorespaces}%
772 \def\revpubinfo##1{\def\therevpubinfo{##1.}\ignorespaces}%

```



```

773 }
774 \def\endreviewitem{{\noindent\interlinepenalty=10000
775 \therevauth\therevtitle\therevpubinfo\endgraf}%
776 \vskip\medskipamount
777 }
778 \def\titleref#1{{\slshape\frenchspacing#1\nocorr}}
779 \let\booktitle=\titleref % older name

```

### 3.10 Dates, volume and issue numbers, etc.

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

```
\vol 19, 1.
```

To use: `\issdate March 1998`.

```
\issueseqno=58
```

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

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

```

780 \newcount\issueseqno \issueseqno=-1
781 \def\v@lx{\gdef\volx{Volume~\volno~(\volyr), No.~\issno}}
782 \def\volyr{}
783 \def\volno{}
784 \def\vol#1, #2.{%
785     \gdef\volno{#1}%
786     \gdef\issno{#2}%
787     \setbox\TestBox=\hbox{\volyr}%
788     \ifdim \wd\TestBox > .2em \v@lx \fi }
789 \def\issyear#1.{%
790     \gdef\issdt{#1}\gdef\volyr{#1}%
791     \gdef\bigissdt{#1}%
792     \setbox\TestBox=\hbox{\volno}%
793     \ifdim \wd\TestBox > .2em \v@lx \fi }
794 \def\issdate#1#2 #3.{%
795     \gdef\issdt{#1#2 #3}\gdef\volyr{#3}%
796     \gdef\bigissdt{#1{\smc\uppercase{#2}} #3}%
797     \setbox\TestBox=\hbox{\volno}%
798     \ifdim \wd\TestBox > .2em \v@lx \fi }
799 % The \vol command must be invoked precisely like this, including spaces.
800 % Since we are the only ones who write it, we can be strict.
801 \vol 0, 0.
802 \issdate Thermidor, 9999.

```

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

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

```

803 <!\latex>\def\tubissue#1(#2)%
804 <*\latex>
805 \def\tubissue#1{\@ifnextchar(%
806   {\@tubissue@b{#1}}

```

```

807  {\@tubissue@a{#1}}
808  \def\@tubissue@b#1(#2){\@tubissue@a{#1}{#2}}
809  \def\@tubissue@a#1#2%
810  </latex>
811  {\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`

```

812  \def\infil@{\jobname}
813  \def\Input #1 {\ifnum\issueseqno<0
814    \def\infil@{#1}%
815    \else
816    \def\infil@{tb\number\issueseqno#1}
817    \fi
818  \edef\jobname{\infil@}\readFLN
819  \@input \infil@\relax
820  \if@RMKopen
821    \immediate\closeout\@TBremarkfile\@RMKopenfalse
822  \fi
823  }

```

`\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).

```

824  \newif\if@RMKopen      \@RMKopenfalse
825  \newwrite\@TBremarkfile
826  \def\@TBremark#1{%
827    \if@RMKopen
828    \else
829    \@RMKopentruer\immediate\openout\@TBremarkfile=\infil@.rmk
830    \fi
831    \toks@={#1}%
832    \immediate\write\@TBremarkfile{^^J\the\toks@}%
833    \immediate\write16{^^JTBremark:: \the\toks@^^J}%
834  }

```

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

```
835  \let\TBremark=\gobble
```

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

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

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

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

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

```

838 \def\TUBfilename#1#2{\expandafter\def\csname file@@#1\endcsname{#2}}
839 \newread\altfilenames
840 \def\@readFLN{\immediate\openin\@altfilenames=\jobname.fln
841 \ifeof\@altfilenames\let\@result\relax\else
842 \def\@result{\@input\jobname.fln }\fi
843 \immediate\closein\@altfilenames
844 \@result}
845 \@readFLN
846 \everyjob=\expandafter{\the\everyjob\@readFLN}
847 \InputIfFileExists{\jobname.fln}%
848 {\TBInfo{Reading alternative file \jobname.fln}}
849 {}

```

The following needs to work entirely in T<sub>E</sub>X's mouth

```

850 \def\@tubfilename#1{\expandafter\ifx\csname file@@#1\endcsname\relax
851 #1\else\csname file@@#1\endcsname\fi}
852 \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.

```

853 <!!latex>
854 \def\pagexrefON#1{%
855 \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
856 \write\ppoutfile{%
857 \def\expandafter\noexpand\csname#1\endcsname{\number\pageno}}%
858 }
859 \def\PageXrefON#1{%
860 \immediate\write-1{\def\expandafter
861 \noexpand\csname#1\endcsname{\number\pageno}}%
862 \immediate\write\ppoutfile{\def\expandafter
863 \noexpand\csname#1\endcsname{\number\pageno}}}}
864 </!!latex>
865 <*latex>
866 \def\pagexrefON#1{%
867 \write-1{\def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
868 \write\ppoutfile{%
869 \def\expandafter\noexpand\csname#1\endcsname{\number\c@page}}%
870 }
871 \def\PageXrefON#1{%
872 \immediate\write-1{\def\expandafter
873 \noexpand\csname#1\endcsname{\number\c@page}}%
874 \immediate\write\ppoutfile{\def\expandafter
875 \noexpand\csname#1\endcsname{\number\c@page}}}}
876 </latex>
877 \def\pagexrefOFF#1{}
878 \let\pagexref=\pagexrefOFF
879 \def\PageXrefOFF#1{}
880 \let\PageXref=\PageXrefOFF
881 \def\xreftoON#1{%
882 \ifundefined{#1}%
883 ???\TBremark{Need cross reference for #1.}%
884 \else\csname#1\endcsname\fi}

```

```

885 \def\xreftoOFF#1{???}
886 \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.

```

887 \let\TBdriver\gobble

```

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

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

```

888 \ifx\tubomithyphenations\@thisisundefined
889 \InputIfFileExists{ushyphex.tex}{\}{} % ok if it's missing
890 \hyphenation{Del-a-ware Dijk-stra Duane Eijk-hout
891 Flor-i-da Free-BSD Ghost-script
892 Hara-lam-bous Jac-kow-ski Ja-pa-nese Karls-ruhe Lua-Meta
893 Mac-OS Math-Sci-Net
894 Net-BSD Open-BSD Open-Office
895 Pak-i-stan Post-Script Rich-ard Skoup South-all
896 Vieth VM-ware Win-Edt
897 acro-nym acro-nyms analy-sis ap-pen-di-ces ap-pen-dix asyn-chro-nous
898 bib-lio-graph-i-cal bit-map bit-mapped bit-maps buf-fer buf-fers bool-ean
899 col-umns com-put-able com-put-abil-ity
900 data-base data-bases
901 de-allo-cate de-allo-cates de-allo-cated de-allo-ca-tion
902 de-riv-a-tive de-riv-a-tives de-riv-a-ble der-i-va-tion dis-trib-ut-able
903 es-sence
904 fall-ing
905 half-way
906 in-fra-struc-ture
907 key-note
908 long-est
909 ma-gyar man-u-script man-u-scripts meta-table meta-tables
910 mne-mon-ic mne-mon-ics mono-space mono-spaced
911 name-space name-spaces
912 off-line over-view
913 pal-ettes par-a-digm par-a-dig-matic par-a-digms
914 pipe-line pipe-lines
915 plug-in plug-ins pres-ent-ly pro-gram-mable
916 re-allo-cate re-allo-cates re-allo-cated re-printed
917 set-ups se-vere-ly spell-ing spell-ings stand-alone strong-est
918 sub-ex-pres-sion sub-tables sur-gery syn-chro-ni-city syn-chro-nous
919 text-height text-length text-width
920 time-stamp time-stamped time-stamps
921 vis-ual vis-ual-ly
922 which-ever white-space white-spaces wide-spread wrap-around
923 }
924 \fi
925 <!!latex>\restorecat\@
926 </common>
927 <*classtail>

```

928 \PrelimDrafttrue

### 3.11 Page dimensions, glue, penalties, etc.

```
929 \textheight 54pc      % 648pt = 645.58bp = 8.97in
930 \textwidth 39pc      % 468pt = 466.25bp = 6.48in
931 \columnsep 1.5pc     % 18pt = 17.93bp = .249in
932 \columnwidth 18.75pc % 225pt = 224.16bp = 3.11in
933 \hfuzz 1pt
934 \parindent \normalparindent % 20pt
935 \parskip \z@ % \@plus\p@
936 \leftmargini 2em
937 \leftmarginv .5em
938 \leftmarginvi .5em
939 \oddsidemargin \z@
940 \evensidemargin \z@
941 \topmargin -2.5pc    % 30pt = 29.89bp = .415in
942 \headheight 12\p@
943 \headsep 20\p@
944 \marginparwidth 48\p@
945 \marginparsep 10\p@
946 \partopsep=\z@
947 \topsep=3\p@\@plus\p@\@minus\p@
948 \parsep=3\p@\@plus\p@\@minus\p@
949 \itemsep=\parsep
950 %
951 % The width of one column plus gutter (=243pt =242.09bp) is useful sometimes.
952 \newdimen\tubcolwidthandgutter
953 \tubcolwidthandgutter=\columnwidth
954 \advance\tubcolwidthandgutter by \columnsep
955 %
956 % Ordinarily we typeset in two columns, but the onecolumn option
957 % goes to one. In which case we want to center the text block on an
958 % 8.5in width, given the default 72.27pt offset with margins of zero.
959 % We are always in LaTeX's twoside mode because of how we load article,
960 % and this is a good thing, since we want different headings.
961 \if@tubtwocolumn \twocolumn \else
962 \onecolumn
963 \textwidth=34pc
964 \oddsidemargin=30.8775pt
965 \evensidemargin=\oddsidemargin
966 \fi
967 %
968 \newdimen\pagewd      \pagewd=\textwidth
969 \newdimen\trimwd     \trimwd=\pagewd
970 \newdimen\trimlgt    \trimlgt=11in
971 \newdimen\headmargin \headmargin=3.5pc
```

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

```
972 \renewcommand{\topfraction}{.9} % don't go to a float page so soon
973 \renewcommand{\dbltopfraction}{.9}
974 \renewcommand{\bottomfraction}{.7}
975 \renewcommand{\textfraction}{.1}
```

```

976 \renewcommand{\floatpagefraction}{.8}
977 \renewcommand{\dblfloatpagefraction}{.8} % the most common one used

```

### 3.12 Messing about with the L<sup>A</sup>T<sub>E</sub>X logo

Barbara Beeton's pleas for L<sup>A</sup>T<sub>E</sub>X logos that look right in any font shape provoked me to generate the following stuff that is configurable.

Here's the command for the user to define a new version. The arguments are font family, series and shape, and then the two kern values used in placing the raised 'A' of L<sup>A</sup>T<sub>E</sub>X.

```

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

```

The default values are as used in the source of L<sup>A</sup>T<sub>E</sub>X itself:

```

980 \def\@LaTeX@default{.36}{.15}

```

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

```

981 \DeclareLaTeXLogo{cmss}{bx}{n}{.3}{.15}
982 \DeclareLaTeXLogo{lmss}{bx}{n}{.3}{.15}
983 %
984 \DeclareLaTeXLogo{cmr}{m}{it}{.29}{.2}
985 \DeclareLaTeXLogo{lmr}{m}{it}{.29}{.2}
986 %
987 \DeclareLaTeXLogo{cmr}{m}{sl}{.29}{.15}
988 \DeclareLaTeXLogo{lmr}{m}{sl}{.29}{.15}
989 %
990 \DeclareLaTeXLogo{cmr}{bx}{it}{.29}{.2}
991 \DeclareLaTeXLogo{lmr}{bx}{it}{.29}{.2}
992 %
993 \DeclareLaTeXLogo{cmr}{bx}{sl}{.29}{.2}
994 \DeclareLaTeXLogo{lmr}{bx}{sl}{.29}{.2}
995 %
996 \DeclareLaTeXLogo{bch}{m}{n}{.2}{.08}
997 \DeclareLaTeXLogo{bch}{m}{it}{.2}{.08}

```

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

```

998 \DeclareRobustCommand{\LaTeX}{\expandafter\let\expandafter\reserved@a
999 \csname @LaTeX@f@family/\f@series/\f@shape\endcsname
1000 \ifx\reserved@a\relax\let\reserved@a\@LaTeX@default\fi
1001 \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<sup>A</sup>T<sub>E</sub>X, and then bits stuck in on the side.

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

```

1002 \newcommand{\@LaTeX}[2]{%
1003 %\wlog{latex logo family=\f@family/\f@series/\f@shape -> #1, #2.}%
1004 L\kern-#1em
1005 {\sbox\z@ T%
1006 \vbox to\ht0{\hbox{$\m@th$%

```

```

1007             \csname S@f@size\endcsname
1008             \fontsize\sf@size\z@
1009             \math@fontsfalse\selectfont
1010             A}%
1011         \vss}%
1012     }%
1013     \kern-#2em%
1014     \TeX}

```

### 3.13 Authors, contributors, addresses, signatures

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

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

```

1015 \def\theauthor#1{\csname theauthor#1\endcsname}
1016 \def\theaddress#1{\csname theaddress#1\endcsname}
1017 \def\thenetaddress#1{\csname thenetaddress#1\endcsname}
1018 \def\thePersonalURL#1{\csname thePersonalURL#1\endcsname}
1019 \def\theORCID#1{\csname theORCID#1\endcsname}

```

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

```

1020 <!!latex> \newcount \@tempcnta
1021 \def \@defaultauthorlist{%
1022     \@getauthorlist \@firstofone
1023 }

```

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

```

1024 \def \@getauthorlist#1{%
1025     \count@\authornumber
1026     \advance\count@ by -2
1027     \@tempcnta0

```

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

```

1028     \loop
1029         \ifnum\count@>0
1030             \advance\@tempcnta by \@ne
1031             #1{\ignorespaces\theauthor{\number\@tempcnta}\unskip, }%
1032             \advance\count@ by \m@ne
1033     \repeat
1034     \count@\authornumber
1035     \advance\count@ by -\@tempcnta
1036     \ifnum\authornumber>0

```

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

```

1037   \ifnum\count@>1
1038     \count@\authornumber
1039     \advance\count@ by \m@ne
1040     #1{\ignorespaces\theauthor{\number\count@}\unskip\@tubauthorlastsep}%
1041   \fi

```

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

```

1042   #1{\ignorespaces\theauthor{\number\authornumber}\unskip}
1043   \fi
1044 }
1045 %
1046 \def\@tubauthorlastsep{, }% until 2018, was: "\ and "

```

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

```

1047 \def\signature#1{\def\@signature{#1}}
1048 \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`

```

1049 \def\@defaultsignature{%
1050   \let\thanks\@gobble
1051   \frenchspacing
1052   %
1053   \ifnum\authornumber<0

```

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

```

1054     \medskip
1055     \signaturemark
1056     \theauthor{\number\authornumber}\\
1057     \theaddress{\number\authornumber}\\
1058     \allowhyphens
1059     \thenetaddress{\number\authornumber}\\
1060     \thePersonalURL{\number\authornumber}\\
1061     \theORCID{\number\authornumber}\\
1062   \else

```

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

```

1063     \count@=0
1064     \loop
1065       \ifnum\count@<\authornumber
1066         \medskip
1067         \advance\count@ by \@ne
1068         \signaturemark
1069         \theauthor{\number\count@}\\
1070         \theaddress{\number\count@}\\
1071         {%
1072           \allowhyphens
1073           \thenetaddress{\number\count@}\\

```



```

1074         \thePersonalURL{\number\count@}\
1075         \theORCID{\number\count@}\
1076     }%
1077     \repeat
1078     \fi
1079 }%
1080 }
1081 \newdimen\signaturewidth \signaturewidth=12pc

```

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

```

1082 \newcommand{\makesignature}[1][\medskipamount]{%

```

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

```

1083 \@tempdima\signaturewidth
1084 \advance\@tempdima 1.5pc
1085 \ifdim \@tempdima>\columnwidth
1086     \signaturewidth \columnwidth
1087     \advance\signaturewidth -1.5pc
1088 \fi
1089 \par
1090 \penalty9000
1091 \vspace{#1}%
1092 \rightline{%
1093     \vbox{\hsize\signaturewidth \ninepoint \raggedright
1094         \parindent \z@ \everypar={\hangindent 1pc }%
1095         \parskip \z@skip
1096         \def\|{\unskip\hfil\break}%
1097         \def\{\{\endgraf}%
1098         \def\phone{\rm Phone: }%
1099         \def\tubmultipleaffilauthor{\unskip,\\\hspace*{1em}}%
1100         \rm\@signature}%
1101 }%
1102 \ifnum\authornumber<0 \endgroup\fi
1103 }
1104 \def\signaturemark{\leavevmode\llap{${\diamond}$\enspace}}

```

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

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

```

1105 \def\tubmultipleaffilauthor{\unskip,\ \ignorespaces}%
1106 \def\tubmultipleaffilnet{\unskip\textrm{\,,\ \ignorespaces}}

```

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

```

1107 \newcount\authornumber
1108 \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`).

```
1109 \def\author{%
1110   \global\advance\authornumber\@ne
1111   \TB@author
1112 }
```

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

```
1113 \def\contributor{%
1114   \begingroup
1115   \authornumber\m@ne
1116   \TB@author
1117 }
```

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

```
1118 \def\TB@author#1{%
1119   \expandafter\def\csname theauthor\number\authornumber\endcsname
1120     {\ignorespaces#1\unskip}%
1121   \expandafter\def\csname theaddress\number\authornumber\endcsname
1122     {\TBWarningNL{Address for #1\space missing}\@gobble}%
1123   \expandafter\def\csname thenetaddress\number\authornumber\endcsname
1124     {\TBWarningNL{Net address for #1\space missing}\@gobble}%
1125   \expandafter\let\csname thePersonalURL\number\authornumber\endcsname
1126     \@gobble
1127   \expandafter\let\csname theORCID\number\authornumber\endcsname
1128     \@gobble
1129   }
1130 \def\EDITORnoaddress{%
1131   \expandafter\let\csname theaddress\number\authornumber\endcsname
1132     \@gobble
1133 }
1134 \def\EDITORnonetaddress{%
1135   \expandafter\let\csname thenetaddress\number\authornumber\endcsname
1136     \@gobble
1137 }
```

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

```
1138 \def\address#1{%
1139   \expandafter\def\csname theaddress\number\authornumber\endcsname
1140     {\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!*

```
1141 \def\network#1{\def\@network{#1: }}}
```

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

```
1142 \newcommand{\netaddress}[1][\relax]{%
1143   \begingroup
1144   \def\@network{}}%
```

Unfortunately, because of the catcode hackery, we have still to do one stage of relaying within our own code, even if we're using L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>.

```
1145 #1\@sanitize\makespace\ \makeactive\@%
1146 \makeescape! \makebgroup[ \makeegroup]% seems more useful than literals
1147 \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?!*)

```
1148 \def\@relay@netaddress#1{%
1149   \ProtectNetChars
1150   \expandafter\protected@xdef
1151     \csname thenetaddress\number\authornumber\endcsname
1152     {\protect\leavevmode\textrm{\@network}}%
1153     {\protect\NetAddrChars\net
1154       \ignorespaces#1\unskip}}%
1155 \endgroup
1156 }
```

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

For general URLs, `url.sty` (with or without `hyperref`) suffices and is recommended.

```
1157 \def\personalURL{\begingroup
1158   \@sanitize\makespace\ \makeactive\@
1159   \makeactive\.\makeactive%\makeactive\/\@personalURL}%
1160 \def\@personalURL#1{%
1161   \ProtectNetChars
1162   \expandafter\protected@xdef
1163     \csname thePersonalURL\number\authornumber\endcsname{%
1164     \protect\leavevmode
1165     {%
1166       \protect\URLchars\net
1167       \ignorespaces#1\unskip
1168     }}%
1169   }%
1170 \endgroup
1171 }
```

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...

```
1172 {%
```

```

1173 \makecomment\*
1174 \makeactive\@
1175 \gdef\netaddrat{\makeactive\@*
1176   \def@{\discretionary{\char"40}{\char"40}}
1177 \makeactive\%
1178 \gdef\netaddrpercent{\makeactive\%*
1179   \def%{\discretionary{\char"25}{\char"25}}
1180 \makeactive\.
1181 \gdef\netaddrdot{\makeactive\.*
1182   \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`.

```

1183 \gdef\NetAddrChars{\netaddrat \netaddrpercent \netaddrdot}
1184 \makeactive\/
1185 \gdef\URLchars{*
1186   \NetAddrChars
1187   \makeactive\/*
1188   \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.

```

1189 \gdef\ProtectNetChars{*
1190   \def@{\protect@}*
1191   \def%{\protect%}*
1192   \def.{\protect.}*
1193   \def/{\protect/}*
1194   }
1195 }

```

$\LaTeX$  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  $\LaTeX$  2 $\epsilon$  defines for the job).

```

1196 \if@compatibility
1197   \DeclareRobustCommand{\net}{\normalfont\ttfamily\mathgroup\symtypewriter}
1198 \else
1199   \DeclareOldFontCommand{\net}{\ttfamily\upshape\mdseries}{\mathtt}
1200 \fi
1201 \def\authorlist#1{\def\@author{#1}}
1202 \def\@author{\@defaultauthorlist}

```

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

```

1203 \def\ORCID#1{%
1204   \expandafter\def\csname theORCID\number\authornumber\endcsname
1205     {\leavevmode \ignorespaces {\SMC ORCID} #1\unskip}}

```

For the online re-publication (as of 2009) by Mathematical Sciences Publishers <http://mathscipub.org>, lots and lots of metadata is needed, much of it redundant with things we already do. They are flexible enough to allow us to specify it in any reasonable way, so let's make one command `\mspmetavar` which takes two

arguments. Example: `\mspmetavar{volumenumber}{30}`. For our purposes, it is just a no-op. And this initiative never came to anything, so it is not used at all.

```
\mspmetavar
1206 \def\mspmetavar#1#2{}
```

### 3.14 Article title

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

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

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

```
1207 \newif\ifarticletitle
1208 \def\maketitle{\@ifstar
1209   {\@articletitlefalse\@r@maketitle}%
1210   {\@articletitletrue\@r@maketitle}%
1211 }
1212 \def\@r@maketitle{\par
1213 \iftubsecondcolstart \null\newpage\tubsecondcolstartextra \fi
1214 \ifdim\PreTitleDrop > \z@
1215   \loop
1216   \ifdim \PreTitleDrop > \textheight
1217     \vbox{\vfil\@eject
1218     \advance\PreTitleDrop by -\textheight
1219     \repeat
1220   \vbox to \PreTitleDrop{\vfil}%
1221   \global\PreTitleDrop=\z@
1222 \fi
1223 \begingroup
1224 \setcounter{footnote}{0}
1225 \global\@topnum\z@ % disallow floats above the title
1226 \def\thefootnote{\fnsymbol{footnote}}
1227 \@maketitle
1228 \@thanks
1229 \endgroup
1230 \setcounter{footnote}{0}
1231 \gdef\@thanks{}
1232 }
```

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

```
1233 \def\rhTitle{}% avoid error if no author or title
1234 \renewcommand{\title}{\@dblarg\TB@title}
1235 \def\TB@title[#1]#2{\gdef\@title{#2}%
1236 \bgroup
```

```

1237 \let\thanks\@gobble
1238 \def\{\unskip\space\ignorespaces}%
1239 \protected@xdef\rhTitle{#1}%
1240 \egroup
1241 }

```

`\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.

```

1242 \def\shortTitle #1{\def\rhTitle{#1}}
1243 \newif\ifshortAuthor
1244 \def\shortAuthor #1{\def\rhAuthor{#1}\shortAuthortrue}

```

### 3.15 Section titles

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

Define the distance between articles which are run together:

```

1245 \def\secsep{\vskip 5\baselineskip}

```

Note that `\stbaselineskip` is used in the definition of `\sectitlefont`, in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, so that it has (at least) to be defined before `\sectitlefont` is used (we do the whole job).

```

1246 \newdimen\stbaselineskip \stbaselineskip=18\p@
1247 \newdimen\stfontheight
1248 \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.

```

1249 \newif\ifWideSecTitle
1250 \newif\iftubtitlerulefullwidth
1251 \newif\ifSecTitle \SecTitlefalse
1252 \newcommand{\sectitle}{%
1253 \SecTitletrue
1254 \@ifstar
1255 {\WideSecTitletrue\def\s@ctitle}%
1256 {\WideSecTitlefalse\def\s@ctitle}%
1257 }

```

`\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.

```

1258 \newdimen\PreTitleDrop \PreTitleDrop=\z@

```

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

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

```
1259 \newskip\AboveTitleSkip \AboveTitleSkip=12\p@
1260 \newskip\BelowTitleSkip \BelowTitleSkip=8\p@
1261 \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<sup>A</sup>T<sub>E</sub>X's `\framebox` command, on the grounds that one doesn't keep a dog and bark for oneself...

```
1262 \def\@sectitle #1{%
1263   \par
1264   \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.

```
1265   \ifWideSecTitle\else\secsep\fi
1266   {%
1267     \fboxrule\strulethickness
1268     \fboxsep\z@
1269     \noindent\framebox[\hsize]{%
1270       \vbox{%
1271         \raggedcenter
1272         \let\\\@sectitle@newline
1273         \sectitlefont
1274         \makestrut[2\stfontheight;\z@]%
1275         #1%
1276         \makestrut[\z@;\stfontheight]\endgraf
1277       }%
1278     }%
1279   }%
1280   \nobreak
1281   \vskip\baselineskip
1282 }
```

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

```
1283 \newcommand{\@sectitle@newline}[1][\z@]{%
1284   \ifdim#1>\z@
1285     \makestrut[\z@;#1]%
1286   \fi
1287   \unskip\break
1288 }
```

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).

```
1289 \def\@makesectitle{\ifSecTitle
1290   \global\SecTitlefalse
1291   \ifWideSecTitle
1292     \twocolumn[\@sectitle{\s@ctitle}]%
```

```

1293     \global\WideSecTitlefalse
1294     \else
1295       \@sectitle{\s@ctitle}%
1296     \fi
1297   \else
1298     \vskip\AboveTitleSkip
1299     \kern\topskip
1300     \hrule \@height\z@ \@depth\z@ \@width 10\p@
1301     \kern-\topskip
1302     \kern-\strulethickness
1303     \iftubtitlerulefullwidth
1304       \hrule \@height\strulethickness \@depth\z@ width\textwidth
1305     \else
1306       \hrule \@height\strulethickness \@depth\z@
1307     \fi
1308     \kern\medskipamount
1309     \nobreak
1310   \fi
1311 }

```

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

```

1312 \def\@maketitle{%
1313   \@makesectitle
1314   \if@articletitle{%
1315     \nohyphens \interlinepenalty\@M
1316     \setbox0=\hbox{%
1317       \let\thanks\@gobble
1318       \let\=\quad
1319       \let\and=\quad
1320       \ignorespaces\@author}%
1321     {%
1322       \noindent\bf\raggedright\ignorespaces\frenchspacing
1323       \let\BibTeX=\bfBibTeX % else LaTeX Font Warning:
1324                           %      Font shape 'OT1/cmr/bx/sc' undefined
1325       \@title\endgraf
1326     }%
1327     \ifdim \wd0 < 5\p@           % omit if author is null
1328     \else

```

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

```

1329     \nobreak \vskip 4\p@
1330     {%
1331       \leftskip=\normalparindent
1332       \raggedright
1333       \def\and{\unskip\}%
1334       \noindent\@author\endgraf
1335     }%
1336     \fi
1337     \nobreak
1338     \vskip\BelowTitleSkip
1339   }\fi%
1340   \global\@afterindentfalse
1341   \aftergroup\@afterheading
1342 }

```



Dedications are ragged right, in italics.

```
1343 \newenvironment{dedication}%
1344   {\raggedright\noindent\itshape\ignorespaces}%
1345   {\endgraf\medskip}
```

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

```
1346 \def\@tubonecolumnabstractstart{%
1347   \list{}{\listparindent\normalparindent
1348     \itemindent\z@ \leftmargin\@tubfullpageindent
1349     \rightmargin\leftmargin \parsep \z@}\item[]\ignorespaces
1350 }
1351 \def\@tubonecolumnabstractfinish{%
1352   \endlist
1353 }
1354 \renewenvironment{abstract}%
1355   {\begin{SafeSection}%
1356     \section*{%
1357       \if@tubtwocolumn\else \hspace*\@tubfullpageindent\fi
1358       Abstract}%
1359   \if@tubtwocolumn\else \@tubonecolumnabstractstart \fi
1360 }%
1361 {\if@tubtwocolumn\else \@tubonecolumnabstractfinish \fi
1362  \end{SafeSection}}
1363 \newenvironment{longabstract}%
1364   {\begin{SafeSection}%
1365     \section*{Abstract}%
1366     \bgroup\small
1367   }%
1368   {\endgraf\egroup
1369    \end{SafeSection}%
1370   \vspace{.25\baselineskip}
1371   \begin{center}
1372     {$--*--$}
1373   \end{center}
1374   \vspace{.5\baselineskip}}
```

### 3.16 Section headings

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

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

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

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

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

```

1375 \def\tubsechook{}
1376 \def\tubsecfmt{\normalsize\bf\raggedright\frenchspacing\nohyphens\tubsechook}
1377 %
1378 \if@numbersec
1379   \def\section{\TB@startsection{section}%
1380     1%
1381     \z@
1382     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1383     {4\p@}%
1384     {\tubsecfmt}}
1385   \def\subsection{\TB@startsection{subsection}%
1386     2%
1387     \z@
1388     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1389     {4\p@}%
1390     {\tubsecfmt}}
1391   \def\subsubsection{\TB@startsection{subsubsection}%
1392     3%
1393     \z@
1394     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1395     {4\p@}%
1396     {\tubsecfmt}}
1397   \def\paragraph{\TB@startsection{paragraph}%
1398     4%
1399     \z@
1400     {4\p@ \@plus1\p@ \@minus1\p@}%
1401     {-1em}%
1402     {\normalsize\bf\tubsechook}}

```

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

```

1403 \else
1404   \setcounter{secnumdepth}{0}
1405   \def\section{\TB@nolimelabel
1406     \TB@startsection{section}%
1407     1%
1408     \z@
1409     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1410     {4\p@}%
1411     {\tubsecfmt}}
1412   \def\subsection{\TB@nolimelabel
1413     \TB@startsection{subsection}%
1414     2%
1415     \z@
1416     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1417     {-0.5em\@plus-\fontdimen3\font}%
1418     {\tubsecfmt}}
1419   \def\subsubsection{\TB@nolimelabel
1420     \TB@startsection{subsubsection}%
1421     3%
1422     \parindent
1423     {-8\p@ \@plus-2\p@ \@minus-2\p@}%
1424     {-0.5em\@plus-\fontdimen3\font}%
1425     {\tubsecfmt}}

```

1426 \fi

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

```
1427 \def\TB@startsection#1{\@startsection#1}%
```

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

```
1428 \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.

```
1429 \newenvironment{SafeSection}%
```

```
1430   {\let\TB@startsection\TB@safe@startsection}%
```

```
1431   {}}
```

And now for the exciting sectioning commands that L<sup>A</sup>T<sub>E</sub>X 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'<sup>1</sup>).

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.

```
1432 \if@numbersec
```

```
1433   \def\subparagraph{\TB@nosection\subparagraph\paragraph}
```

```
1434 \else
```

```
1435   \def\paragraph{\TB@nosection\paragraph\subsubsection}
```

```
1436   \def\subparagraph{\TB@nosection\subparagraph\subsubsection}
```

```
1437 \fi
```

```
1438 \def\chapter{\TB@nosection\chapter\section}
```

```
1439 \def\part{\TB@nosection\part\section}
```

```
1440 \def\TB@nosection#1#2{\TBwarning{class does not support \string#1,
```

```
1441   \string#2\space used instead}#2}
```

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

## Contents

, or leaders get messed up.

```
1442 \def\TBtocsectionfont{\normalfont}
```

```
1443 \newskip\TBtocsectionspace \TBtocsectionspace=1.0ex\@plus\p@
```

---

<sup>1</sup>Thurber, *The Wonderful O*

```

1444 % |#1| is both the section number and title; |#2| is the page number.
1445 % Per Ulrike, the hook calls are for tagging, introduced with the
1446 % June 2023 \LaTeX.
1447 % qqq need to also do subsections like tb137carlisle to avoid hyphenation
1448 \def\l@section#1#2{%
1449   \addpenalty{\@secpenalty}%
1450   \addvspace{\TBtocsectionspace}%
1451   \@tempdima 1.5em
1452   \begingroup
1453     \parindent\z@
1454     \rightskip=0pt plus2em
1455     \parfillskip\z@
1456     \hyphenpenalty=10000
1457     \TBtocsectionfont
1458     \leavevmode
1459     \advance\leftskip\@tempdima
1460     \hskip-\leftskip
1461     \ifx\UseHookWithArguments\undefined\else
1462       \UseHookWithArguments{contentsline/text/before}{4}
1463       {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1464     \fi
1465     % don't worry if this cs is not defined, hence the \csname.
1466     \csname contentsline@text@1@format\endcsname{#1}% number and title
1467     \ifx\UseHookWithArguments\undefined\else
1468       \UseHookWithArguments{contentsline/text/after}{4}
1469       {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1470     \fi
1471     \nobreak
1472     \hfil
1473     \nobreak
1474     % page number
1475     \hb@xt@\@pnumwidth{\hss
1476       \ifx\UseHookWithArguments\undefined\else
1477         \UseHookWithArguments{contentsline/page/before}{4}
1478         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1479       \fi
1480       \tubtypesetpageno{#2}%
1481       \ifx\UseHookWithArguments\undefined\else
1482         \UseHookWithArguments{contentsline/page/after}{4}
1483         {\toclevel@part}{#1}{#2}{\@contentsline@destination}%
1484       \fi
1485     }\par
1486 \endgroup}

```

### 3.17 Appendices

Appendices (which are really just another sort of section heading) raise a problem: if the sections are unnumbered, we plainly need to restore the section numbering, which in turn allows labelling of section numbers again (`\TBnolimelabel` happens before the `\refstepcounter`, so its effects get lost ... what a clever piece of design that was). So here we go:

```

1487 \renewcommand{\appendix}{\par
1488   \renewcommand{\thesection}{\@Alph@c@section}%

```

```

1489 \setcounter{section}{0}%
1490 \if@numbersec
1491 \else
1492   \setcounter{secnumdepth}{1}%
1493 \fi

```

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

```

1494 \def\@tempa{appendix}
1495 \ifx\@tempa\@currentenv
1496   \expandafter\@appendix@env
1497 \fi
1498 }

```

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

```

1499 \newcommand{\app@prefix@section}{-}
1500 \newcommand{\@appendix@env}[1][Appendix]{%
1501   \renewcommand{\@secntformat}[1]{\csname app@prefix@##1\endcsname
1502     \csname the##1\endcsname\quad}%
1503   \renewcommand{\app@prefix@section}{#1 }%
1504 }

```

Ending an appendix environment is pretty trivial...

```

1505 \let\endappendix\relax

```

### 3.18 References

If the sections aren't numbered, the natural tendency of the author to cross-reference (which, after all, is one of the things *L<sup>A</sup>T<sub>E</sub>X* is for ever being advertised as being good at) can cause headaches.

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

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

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

```

1506 \def\TB@nolimelabel{%
1507   \def\@currentlabel{%
1508     \protect\TBWarning{%
1509       Invalid reference to numbered label on page \thepage
1510       \MessageBreak made%
1511     }%
1512     \textbf{?!?}%
1513   }%
1514 }

```

### 3.19 Title references

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

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

As of the June 2023 L<sup>A</sup>T<sub>E</sub>X (or somewhat earlier, but this is good enough), there are hooks that allow us to avoid redefining `\@sect` and `\@ssect`.

```
1515 \@ifl@t@r\fmtversion{2023-06-01}{-}{%
1516 \let\TB@sect\@sect
1517 \let\TB@ssect\@ssect
1518 \def\@sect#1#2#3#4#5#6[#7]#8{%
1519   \def\@currentlabelname{#7}%
1520   \TB@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
1521 }
1522 \def\@ssect#1#2#3#4#5{%
1523   \def\@currentlabelname{#5}%
1524   \TB@ssect{#1}{#2}{#3}{#4}{#5}%
1525 }
1526 } % LaTeX earlier than June 2023
```

We output the name label as a second `\newlabel` command in the `.aux` file. That way, packages such as `varioref` which also read the `.aux` information can still work. So we redefine `\label` to first call the standard L<sup>A</sup>T<sub>E</sub>X `\label` and then write our named label as `nr<label>`.

Similarly, we only need this with pre-June 2023 L<sup>A</sup>T<sub>E</sub>X. With more recent LaTeX, define `currentlabelname` via hooks.

```
1527 \@ifl@t@r\fmtversion{2023-06-01}{-}{%
1528   \RequirePackage{getttitlestring}
1529   \AddToHookWithArguments{cmd/@sect/before}{%
1530     \GetTitleString{#7}%
1531     \let\@currentlabelname\GetTitleStringResult}%
1532   \AddToHookWithArguments{cmd/@ssect/before}{%
1533     \GetTitleString{#5}%
1534     \let\@currentlabelname\GetTitleStringResult}%
1535 }{% else older latex:
1536   \let\@savelatexlabel=\label % so save original LaTeX command
1537   %
1538   \def\label#1{%
1539     \@savelatexlabel{#1}%
1540     \@bsphack
1541     \if@filesw
1542       \protected@write\@auxout{%
1543         {\string\newlabel{nr@#1}{\@currentlabel}{\@currentlabelname}}}%
1544     \fi
1545     \@esphack}
1546   % in case there are no sectioning commands:
1547   \let\@currentlabelname\@empty
1548 }
```

Getting named references is then just like getting page references in the L<sup>A</sup>T<sub>E</sub>X kernel (see `ltxref.dtx`).

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

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

```

1549 \AtBeginDocument{%
1550   \@ifl@t@r\fmtversion{2023-06-01}%
1551   { % after June 2023, LaTeX stores the label name; use that.
1552     \long\def\@thirdoffive#1#2#3#4#5{#3}
1553     \providecommand\nameref[1]{%
1554       \expandafter\@setref
1555       \csname r@#1\endcsname\@thirdoffive{#1}}%
1556   }
1557   { % for earlier versions, still avoid overwriting \nameref per above.
1558     % but if not otherwise defined, use the "nr" label defined by our \label.
1559     \providecommand\nameref[1]{%
1560       \expandafter\@setref
1561       \csname r@nr@#1\endcsname\@secondoftwo{#1}}%
1562   }%
1563 }

```

### 3.20 Float captions

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

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

`\@tubfullpageindent`

```

1564 \newdimen\@tubfullpageindent
1565 \@tubfullpageindent = \if@tubtwocolumn 4.875pc \else 3.875pc \fi

```

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

`\tubcaptionleftglue`

```

1566 \let\tubcaptionleftglue=\hfil

```

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

```

1567 \def\tubcaptionfonts{\small}%

```

Ok, here is `\@makecaption`.

```

1568 \long\def\@makecaption#1#2{%
1569   \vskip\abovcaptionskip
1570   % try in an hbox:
1571   \sbox\@tempboxa{\tubcaptionfonts \frenchspacing \tubmakecaptionbox{#1}{#2}}%
1572   \ifdim \wd\@tempboxa > \hsize

```

```

1573   {% caption doesn't fit on one line; set as a paragraph.
1574   \tubcaptionfonts \raggedright \hyphenpenalty=\@M \parindent=1em
1575   % indent full-width captions {figure*}, but not single-column {figure}.
1576   \ifdim\hsize = \textwidth
1577     \leftskip=\@tubfullpageindent \rightskip=\leftskip
1578     \advance\rightskip by 0pt plus2em % increase acceptable raggedness
1579     \fi
1580     \noindent \tubmakecaptionbox{#1}{#2}\par}%
1581 \else
1582   % fits on one line; use the hbox, usually centered. Do not reset its glue.
1583   \global\@minipagefalse
1584   \hb@xt@\hsize{\tubcaptionleftglue\box\@tempboxa\hfil}%
1585   \fi
1586   \vskip\belowcaptionskip}
1587 %
1588 \def\tubmakecaptionbox#1#2{#1:\ #2}% allow overriding for a paper

```

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

```

1589 \def\fnun@figure{\tubcaptionfonts \bf \figurename\nobreakspace\thefigure}}
1590 \def\fnun@table{\tubcaptionfonts \bf \tablename\nobreakspace\thetable}}
1591 \def\lstlistingnamestyle{\bfseries}

```

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

```

1592 \setlength\abovecaptionskip{3pt plus2pt minus1pt}

```

### 3.21 Size changing commands

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

```

1593 \renewcommand{\normalsize}{%
1594   \@setfontsize\normalsize\@xpt\@xipt
1595   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1596   \belowdisplayskip=\abovedisplayskip
1597   \abovedisplayshortskip=\z@\@plus 3\p@
1598   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@
1599 }
1600
1601 \renewcommand{\small}{%
1602   \@setfontsize\small\@ixpt{11}%
1603   \abovedisplayskip=2.5\p@\@plus 2.5\p@\@minus\p@
1604   \belowdisplayskip=\abovedisplayskip
1605   \abovedisplayshortskip=\z@\@plus 2\p@
1606   \belowdisplayshortskip=\p@\@plus 2\p@\@minus\p@
1607 }
1608
1609 \renewcommand{\footnotesize}{%
1610   \@setfontsize\footnotesize\@viipt{9.5}%
1611   \abovedisplayskip=3\p@\@plus 3\p@\@minus\p@
1612   \belowdisplayskip=\abovedisplayskip
1613   \abovedisplayshortskip=\z@\@plus 3\p@
1614   \belowdisplayshortskip=\p@\@plus 3\p@\@minus\p@

```



```
1615 }
```

### 3.22 Lists and other text inclusions

```
1616 \def\@listi{%
1617   \leftmargin\leftmargini\parsep=\p@\@plus\p@\@minus\p@
1618   \itemsep=\parsep
1619   \listparindent=1em
1620 }
1621
1622 \def\@listii{%
1623   \leftmargin\leftmarginii
1624   \labelwidth=\leftmarginii \advance\labelwidth-\labelsep
1625   \topsep=2\p@\@plus\p@\@minus\p@ % space between first item and preceding
1626   \parsep=\p@\@plus\p@\@minus\p@
1627   \itemsep=\parsep % space between successive items
1628   \listparindent=1em % indentation of subsequent paragraphs
1629 }
1630
1631 \def\@listiii{%
1632   \leftmargin=\leftmarginiii
1633   \labelwidth=\leftmarginiii \advance\labelwidth-\labelsep
1634   \topsep=\p@\@plus\p@\@minus\p@
1635   \parsep=\z@
1636   \itemsep=\topsep
1637   \listparindent=1em
1638 }
1639 \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.

```
1640 \renewcommand{\quotation}{\list{}{\listparindent 1.5em
1641   \rightmargin.5\leftmargin\parsep \z@\@plus\p@}\item[]}
```

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

```
1642 \newenvironment{compactitemize}%
1643   {\begin{itemize}%
1644     \setlength{\itemsep}{0pt}%
1645     \setlength{\parskip}{0pt}%
1646     \setlength{\parsep}{0pt}%
1647   }%
1648   {\end{itemize}}
1649 %
1650 \newenvironment{compactenumerate}%
1651   {\begin{enumerate}%
1652     \setlength{\itemsep}{0pt}%
1653     \setlength{\parskip}{0pt}%
1654     \setlength{\parsep}{0pt}%
1655   }%
1656   {\end{enumerate}}
1657 %
1658 \newenvironment{compactdescription}%
1659   {\begin{description}%
1660     \setlength{\itemsep}{0pt}%
```

```

1661     \setlength{\parskip}{0pt}%
1662     \setlength{\parsep}{0pt}%
1663   }%
1664   {\end{description}}
1665 %

```

### 3.23 Some fun with verbatim

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

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

```

1666 %\let\@TB@verbatim\verbatim
1667 \let\@TBverbatim\verbatim
1668 \let\@TBendverbatim\endverbatim

```

Impose an optional argument on the environment.

We start the macro with `\par` to avoid a common error: if the optional argument is `\small`, and the document has no blank line before the verbatim block, we don't want that preceding paragraph to be set with `\small`'s line spacing.

(`\obeylines` added to prevent the `\futurelet` from propagating into the body of the verbatim, thus causing lines that start with odd characters (like `#` or even `\`) to behave peculiarly.)

```

1669 \def\verbatim{\par\obeylines
1670   \futurelet\reserved@a\@switch@sqbverbatim}
1671 %
1672 \def\@switch@sqbverbatim{\ifx\reserved@a[%]
1673   \expandafter\@sqbverbatim\else
1674   \def\reserved@b{\@sqbverbatim[]}\expandafter\reserved@b\fi}
1675 %
1676 \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.

```

1677   \def\ruled{\let\if@ruled\iftrue}%

```

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

```

1678   \def\makevmeta{\makeescape\! \let\<\tubverb@meta \tubverb@clearliglist}
1679   \def\tubverb@meta##1>{\meta{##1}}

```

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

```

1680   \def\tubverb@clearliglist{%
1681     \def\verbatim@nolig@list{\do\‘\do\,\do\’\do\-\}%
1682   }

```

Then we execute the arguments we've got, and relay to a (hacked) copy of the L<sup>A</sup>T<sub>E</sub>X verbatim environment.

```
1683 #1\@TBverbatim}
```

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

```
1684 \def\@verbatim{%
```

First, we deal with `\ruled`:

```
1685 \if@ruled\trivlist\item\hrule\kern5\p@\nobreak\fi
```

Now, the code out of the original verbatim environment:

```
1686 \trivlist \item\relax
1687 \if@minipage\else\vskip\parskip\fi
1688 \leftskip\@totalleftmargin\rightskip\z@skip
1689 \parindent\z@\parfillskip\@flushglue\parskip\z@skip
1690 \@@par
1691 \@tempwafalse
1692 \def\par{%
1693 \if@tempwa
1694 \leavevmode \null \@@par\penalty\interlinepenalty
1695 \else
1696 \@tempwatrue
1697 \ifhmode\@@par\penalty\interlinepenalty\fi
1698 \fi}%
1699 \obeylines \verbatim@font \@noligs
1700 \let\do\@makeoother \dospecials
1701 \everypar \expandafter{\the\everypar \unpenalty}%
1702 }% end |\@sqbverbatim|
```

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

```
1703 \def\endverbatim{\@TBendverbatim
1704 \if@ruled\kern5\p@\hrule\endtrivlist\fi}
```

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

```
1705 \let\if@ruled\iffalse
```

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

```
1706 \AtBeginDocument{%
1707 \ifpackageloaded{microtype}
1708 {\g@addto@macro\@verbatim{\microtypesetup{activate=false}}}{}
```

### 3.24 Bibliography

This is more or less copied verbatim from Glenn Paulley's *chicago.sty* ([gnpaulle@bluebox.uwaterloo.ca](mailto:gnpaulle@bluebox.uwaterloo.ca)). It produces an author-year citation style bibliography, using output from the BIB<sub>T</sub>E<sub>X</sub> style file based on that by Patrick Daly. It needs

extra macros beyond those in standard L<sup>A</sup>T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X's default citation mechanism.

```
1710 \if@Harvardcite
1711 \let\@internalcite\cite
```

Normal forms.

```
1712 \def\cite{\def\@citeseppen{-1000}%
1713   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1714   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1715 \def\citeNP{\def\@citeseppen{-1000}%
1716   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1717   \def\citeauthoryear##1##2##3{##1, ##3}\@internalcite}
1718 \def\citeN{\def\@citeseppen{-1000}%
1719   \def\@cite##1##2{##1\if@tempswa , ##2\else{}}\fi}}%
1720   \def\citeauthoryear##1##2##3{##1 (##3)\@citedata}
1721 \def\citeA{\def\@citeseppen{-1000}%
1722   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1723   \def\citeauthoryear##1##2##3{##1}\@internalcite}
1724 \def\citeANP{\def\@citeseppen{-1000}%
1725   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1726   \def\citeauthoryear##1##2##3{##1}\@internalcite}
```

Abbreviated forms (using *et al.*)

```
1727 \def\shortcite{\def\@citeseppen{-1000}%
1728   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1729   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1730 \def\shortciteNP{\def\@citeseppen{-1000}%
1731   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1732   \def\citeauthoryear##1##2##3{##2, ##3}\@internalcite}
1733 \def\shortciteN{\def\@citeseppen{-1000}%
1734   \def\@cite##1##2{##1\if@tempswa , ##2\else{}}\fi}}%
1735   \def\citeauthoryear##1##2##3{##2 (##3)\@citedata}
1736 \def\shortciteA{\def\@citeseppen{-1000}%
1737   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1738   \def\citeauthoryear##1##2##3{##2}\@internalcite}
1739 \def\shortciteANP{\def\@citeseppen{-1000}%
1740   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1741   \def\citeauthoryear##1##2##3{##2}\@internalcite}
```

When just the year is needed:

```
1742 \def\citeyear{\def\@citesep{-1000}%
1743   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1744   \def\citeauthoryear##1##2##3{##3}\@citedata}
1745 \def\citeyearNP{\def\@citesep{-1000}%
1746   \def\@cite##1##2{##1\if@tempswa , ##2\fi}}%
1747   \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.

```
1748 \def\@citedata{%
1749   \ifnextchar [{\@tempwattrue\@citedatax}%
1750   {\@tempwafalse\@citedatax[]}%
1751 }
1752
1753 \def\@citedatax[#1]#2{%
1754 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1755 \def\@citea{\@cite{\@for\@citeb:=#2\do%
1756   {\@citea\def\@citea{, }\@ifundefined% by Young
1757     {b@\@citeb}{\bf ?}%
1758     \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}}%
1759 {\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.

```
1760 \def\@citex[#1]#2{%
1761 \if@filesw\immediate\write\@auxout{\string\citation{#2}}\fi%
1762 \def\@citea{\@cite{\@for\@citeb:=#2\do%
1763   {\@citea\def\@citea{; }\@ifundefined% by Young
1764     {b@\@citeb}{\bf ?}%
1765     \@warning{Citation ‘\@citeb’ on page \thepage \space undefined}}}%
1766 {\csname b@\@citeb\endcsname}}{#1}}%
```

No labels in the bibliography.

```
1767 \def\@biblabel#1{}
```

Set length of hanging indentation for bibliography entries.

```
1768 \newlength{\bibhang}
1769 \setlength{\bibhang}{2em}
```

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

```
1770 \newdimen\bibindent
1771 \bibindent=1.5em
1772 \@ifundefined{refname}%
1773   {\newcommand{\refname}{References}}%
1774   {}%
```

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

```
1775 \def\thebibliography#1{% for harvardcite
1776   \let\TB@startsection\TB@safe@startsection
1777   \section*{\refname
1778     \@mkboth{\uppercase{\refname}}{\uppercase{\refname}}}%
1779   \list{[\arabic{enumi}]}{%
```

```

1780 \labelwidth\z@ \labelsep\z@
1781 \leftmargin\bibindent
1782 \itemindent -\bibindent
1783 \listparindent \itemindent
1784 \parsep \z@
1785 \usecounter{enumi}}%
1786 \def\newblock{}%
1787 \BibJustification
1788 \frenchspacing % more than just period, see comments below
1789 }

```

etal Other bibliography odds and ends.

```

\bibentry 1790 \def\etal{et\,al.\@}
1791 \def\bibentry{%
1792 \smallskip
1793 \hangindent=\parindent
1794 \hangafter=1
1795 \noindent
1796 \sloppy
1797 \clubpenalty500 \widowpenalty500
1798 \frenchspacing
1799 }

```

\bibliography Changes made to accommodate TUB file naming conventions

```

\bibliographystyle 1800 \def\bibliography#1{%
1801 \if@filesw
1802 \immediate\write\@auxout{\string\bibdata{\@tubfilename{#1}}}%
1803 \fi
1804 \@input{\jobname.bbl}%
1805 }
1806 \def\bibliographystyle#1{%
1807 \if@filesw
1808 \immediate\write\@auxout{\string\bibstyle{\@tubfilename{#1}}}%
1809 \fi
1810 }

```

\thebibliography If the user's asked to use L<sup>A</sup>T<sub>E</sub>X's default citation mechanism (using the `rawcite` option), we still need to patch `\sloppy` to support justification of the body of the bibliography. We kludge in a call to `\frenchspacing` too, since there is no reason to change only period's `\sfcode`, as L<sup>A</sup>T<sub>E</sub>X's original `thebibliography` (in `classes.dtx`) does.

By the way, `amsgen.sty` changes `\frenchspacing` to set the `\sfcode` of punctuation character to successively decreasing integers ending at 1001 for comma. Thus its 1006 for period is overwritten to 1000 for `thebibliography`, making `amsgen's \@addpunct` ineffective. Don't know what that means in practice, if anything.

Back here, we also play with *The T<sub>E</sub>Xbook* since we always have, though that is no longer needed.

```

1811 \else % not harvardcite
1812 \let\TB@origthebibliography\thebibliography
1813 \def\thebibliography{%
1814 \let\TB@startsection\TB@safe@startsection
1815 \def\sloppy{\frenchspacing\BibJustification}%

```

```

1816 \TB@origthebibliography} % latex's thebibliography now reads args.
1817 \fi % not harvardcite

```

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

```

1818 \let\TB@sloppy\sloppy
1819 \let\BibJustification\TB@sloppy
1820 \newcommand{\SetBibJustification}[1]{%
1821   \renewcommand{\BibJustification}{#1}%
1822 }
1823 \ResetCommands\expandafter{\the\ResetCommands
1824   \let\BibJustification\TB@sloppy
1825 }

```

### 3.25 Registration marks

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

```

1826 \def\HorzR@gisterRule{\vrule \@height 0.2\p@ \@depth\z@ \@width 0.5in }
1827 \def\DownShortR@gisterRule{\vrule \@height 0.2\p@ \@depth 1pc \@width 0.2\p@ }
1828 \def\UpShortR@gisterRule{\vrule \@height 1pc \@depth\z@ \@width 0.2\p@ }

```

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

```

1829 \def\ttopregister{\dlap{%
1830   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1831     \HorzR@gisterRule \hfil \HorzR@gisterRule}%
1832   \hb@xt@\trimwd{\hfil \DownShortR@gisterRule \hfil}}%
1833 \def\tbotregister{\ulap{%
1834   \hb@xt@\trimwd{\hfil \UpShortR@gisterRule \hfil}%
1835   \hb@xt@\trimwd{\HorzR@gisterRule \hfil \HorzR@gisterRule
1836     \HorzR@gisterRule \hfil \HorzR@gisterRule}}%
1837 \def\topregister{\ttopregister}
1838 \def\botregister{\tbotregister}

```

### 3.26 Running headers and footers

```

1839 \def\rtitlex{\def\texttub##1{{\normalsize\textrm{##1}}}\TUB, \volx}

```

registration marks; these are temporarily inserted in the running head

```

1840 \def\MakeRegistrationMarks{}
1841 \def\UseTrimMarks{%
1842   \def\MakeRegistrationMarks{%
1843     \ulap{\rlap{%
1844       \vbox{\dlap{\vbox to\trimlgt{\vfil\botregister}}}%
1845       \topregister\vskip \headmargin \vskip 10\p@}}}%
1846   }

```

1847 % put issue identification and page number in header.

```

1848 \def\@oddhead{\MakeRegistrationMarks
1849   \frenchspacing
1850   \normalsize\csname normalshape\endcsname\rm \tubheadhook
1851   \rtitlex\quad \midrtitlex\hfil
1852   \rtitlenexttopage\quad\tubtypesetpageno{\thepage}}
1853 \def\@evenhead{\MakeRegistrationMarks

```

```

1854 \frenchspacing
1855 \normalsize\csname normalshape\endcsname\rm \tubheadhook
1856 \tubtypesetpageno{\thepage}\quad\rtitlenexttopage
1857 \hfil\midrttitle \quad\rtitlex}
1858
1859 % Put a ? into the page number in the headers in all but a final run, so
1860 % people aren't tempted to cite it.
1861 %
1862 \newcommand{\tubtypesetpageno}[1]{%
1863   \ifnum #1>900
1864     % in CM, numerals are exactly .5em.
1865     %
1866     % The \texorpdfstring avoids the usual hyperref warning:
1867     % Token not allowed in a PDF string ... removing '\@ifnextchar'
1868     \texorpdfstring{\makebox[.5em][l]{\small ?}}{?}%
1869     %
1870     \textsl{\@arabic{\numexpr#1-900\relax}}% assuming e-tex
1871   \else
1872     \@arabic{#1}%
1873   \fi
1874 }
1875 %
1876 % The above changes the page number in the headers and tocs. It does not
1877 % change the page number in cross-references, which will still show up
1878 % as '901' instead of '?1'. In order to do that, we'd have to redefine
1879 % |\thepage| (https://tex.stackexchange.com/questions/687258).
1880 %
1881 % The problem is that |\thepage| is not expected to contain typesetting
1882 % commands like |\makebox| and |\textsl|, but to expand to the simple
1883 % page number (in whatever form). For example, when redefining
1884 % |\thepage| to the above, terminal warnings then look like:
1885 % |LaTeX Warning: Citation 'foo' on page \makebox [.5em][l]{...|
1886 % losing the actual page number.
1887 %
1888 % So apparently there is no way to add the ? correctly in all contexts.
1889 %
1890 % BTW, such a custom page number format would also break makeindex,
1891 % etc., but for that we could provide the information. Per Ulrike:
1892 %\usepackage{index}
1893 %\newcommand\specialthepage{\interval{\value{page}-900}}
1894 %\newindex[specialthepage]*{default}{idx}{ind}{Index}
1895
1896 % can be used to reset the font, e.g., tb98kuester.
1897 \def\tubheadhook{}
1898
1899 % in case the official \author is too verbose for the footline.
1900 % (the \shortauthor / \rhAuthor stuff is only enabled for proceedings, fix!)
1901 \def\tubrunningauthor{\@author}
1902
1903 % put title and author in footer.
1904 \def@tubrunningfull{%
1905   \def@oddfoot{% make line break commands produce a normal space
1906     \def\{\unskip\ ignorespaces}%
1907     \let\newline=\%

```



```

1908   \tubtypesetdoi
1909   \frenchspacing\hfil\rhTitle}
1910 \def\@evenfoot{%
1911   \let\thanks\@gobble
1912   \tubtypesetdoi
1913   \frenchspacing\tubrunningauthor\hfil}
1914 }
1915
1916 % empty footer.
1917 \def\@tubrunningminimal{%
1918   \def\@oddfoot{\tubtypesetdoi\hfil}%
1919   \def\@evenfoot{\tubtypesetdoi\hfil}%
1920 }
1921
1922 % empty footer and header.
1923 \def\@tubrunningoff{%
1924   \@tubrunningminimal
1925   \def\@oddhead{\hfil}%
1926   \def\@evenhead{\hfil}%
1927 }
1928
1929 \def\ps@headings{}
1930 \pagestyle{headings}

```

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

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

If the article started in the second column (option `[secondcolstart]`), we manually move the doi over.

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

```

1931 %
1932 \def\tubdoiprefix{10.47397/tb} % the number crossref assigned us
1933 \def\tubabovedoi{}           % fudge spacing or whatever.
1934 %
1935 \def\tubtypesetdoi{%
1936   \iftubomitdoioption\else % do if not explicit omission ...
1937     \ifnum\volno>0         % and if being run for production ...
1938       \iftubfinaloption    % and if [final], even if pageno>900
1939         \vbox to 0pt{% don't impact normal layout
1940           \edef\thedoi{% but make url invalid if >900
1941             \ifnum\count0>900 example.org%
1942               \else doi.org\fi
1943             /\tubdoiprefix/\volno-\issno/\jobname}%
1944           \scriptsize
1945           \vskip\baselineskip
1946           \tubabovedoi
1947           \iftubsecondcolstart \moveright \tubcolwidthhandgutter \fi
1948           \rlap{\expandafter\tbsurl\expandafter{\thedoi}}}%
1949         \vss
1950       }%
1951     \fi % tubfinaloption
1952   \fi % volno>0

```

```

1953 \fi      % !tubomitdoioption
1954 \global\let\tubtypesetdoi\empty % only do it once, no matter what.
1955 }
1956 %
1957 %

```

### 3.27 Output routine

Modified to alter `\brokenpenalty` across columns

*Comment* We’re playing with fire here: for example, `\outputdblcol` has changed in L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> for 1995/06/01 (with the use of `\hb@xt@`). *This* time there’s no semantic change, but...

```

1958 \def\@outputdblcol{\if@firstcolumn \global\@firstcolumnfalse
1959   \global\setbox\@leftcolumn\box\@outputbox
1960   \global\brokenpenalty10000
1961   \else \global\@firstcolumntrue
1962     \global\brokenpenalty100
1963     \setbox\@outputbox\vbox{\hb@xt@\textwidth{\hb@xt@\columnwidth
1964       {\box\@leftcolumn \hss}\hfil \vrule \@width\columnseprule\hfil
1965       \hb@xt@\columnwidth{\box\@outputbox \hss}}}\@combinedblfloats
1966     \@outputpage \begingroup \@dblfloatplacement \@startdblcolumn
1967     \@whiles\if@fcolmade \fi{\@outputpage\@startdblcolumn}\endgroup
1968   \fi}

```

### 3.28 Font-related definitions and machinery

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

```

1969 \newif\ifFirstPar      \FirstParfalse
1970 \def\smc{\sc}
1971 \def\ninepoint{\small}
1972 </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 `resize.sty` by Donald Arseneau and Matt Swift. (The order of examination of `\@currsize` is to get the commonest cases out of the way first.)

```

1973 <*common>
1974 \DeclareRobustCommand{\SMC}{%
1975   \ifx\@currsize\normalsize\small\else
1976   \ifx\@currsize\small\footnotesize\else
1977   \ifx\@currsize\footnotesize\scriptsize\else
1978   \ifx\@currsize\large\normalsize\else
1979   \ifx\@currsize\Large\large\else
1980   \ifx\@currsize\LARGE\Large\else
1981   \ifx\@currsize\scriptsize\tiny\else
1982   \ifx\@currsize\tiny\tiny\else
1983   \ifx\@currsize\huge\LARGE\else
1984   \ifx\@currsize\Huge\huge\else
1985   \small\SMC@unknown@warning
1986 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
1987 }
1988 \newcommand{\SMC@unknown@warning}{\TBWarning{\string\SMC: nonstandard
1989   text font size command -- using \string\small}}
1990 \newcommand{\textSMC}[1]{\SMC #1}

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

1991 \DeclareRobustCommand{\acro}[1]{\textSMC{#1}\@}
1992 </common>

```

### 3.29 Editor's notes and other footnotes

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

```

1993 <*classtail>
1994 \def\xEdNote{\@EdNoteFont Editor's note:\enspace }
1995 \def\EdNote{\@ifnextchar[%]
1996   {%
1997     \ifvmode
1998       \smallskip\noindent\let\@EdNote@\@EdNote@v
1999     \else
2000       \unskip\quad\def\@EdNote@\{\unskip\quad}%
2001     \fi
2002     \@EdNote
2003   }%
2004 \xEdNote
2005 }
2006 \long\def\@EdNote[#1]{%
2007   [\thinspace\xEdNote\ignorespaces
2008   #1%
2009   \unskip\thinspace]%
2010 \@EdNote@
2011 }
2012 \def\@EdNote@v{\par\smallskip}

```

Macros for Mittelbach's self-documenting style

```

2013 \def\SelfDocumenting{%
2014   \setlength\textwidth{31pc}
2015   \onecolumn

```

```

2016 \parindent \z@
2017 \parskip 2\p@\@plus\p@\@minus\p@
2018 \oddsidemargin 8pc
2019 \evensidemargin 8pc
2020 \marginparwidth 8pc
2021 \toks@\expandafter{\@oddhead}%
2022 \xdef\@oddhead{\hss\hb@xt@\pagewd{\the\toks@}}%
2023 \toks@\expandafter{\@evenhead}%
2024 \xdef\@evenhead{\hss\hb@xt@\pagewd{\the\toks@}}%
2025 \def\ps@titlepage{%
2026 }
2027 \def\ps@titlepage{}
2028
2029 \long\def\@makefntext#1{\parindent 1em\noindent\hb@xt@2em{}}%
2030 \llap{\@makefnmark}\null$\mskip5mu$#1}
2031
2032 %% \long\def\@makefntext#1{\parindent 1em
2033 %% \noindent
2034 %% \hb@xt@2em{\hss\@makefnmark}%
2035 %% \hskip0.27778\fontdimen6\textfont\z@\relax
2036 %% #1%
2037 %% }

```

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

```
2038 \newcommand{\tubraggedfoot}{\rightskip=\raggedskip plus\raggedstretch\relax}
```

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

`\supportfootnote`

```
2039 \def\creditfootnote{\nomarkfootnote\xEdNote}
2040 \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.

```

2041 \gdef\nomarkfootnote#1#2{\begingroup
2042 \def\thefootnote{}%
2043 % no period, please, also no fnmark.
2044 \def\@makefntext##1{##1}%
2045 \def\Hy@Warning##1{}%
2046 \footnotetext{\noindent #1#2}%
2047 \endgroup
2048 }

```

### 3.30 Initialization

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

```

2049 \if@Harvardcite
2050 \AtBeginDocument{%
2051 \bibliographystyle{ltugbib}%
2052 }
2053 \fi
2054 \authornumber\z@
2055 \let\@signature\@defaultsignature
2056 \InputIfFileExists{ltugboat.cfg}

```

```

2057 {\TBInfo{Loading ltugboat.cfg configuration information}}
2058 {}
2059 </classtail>

```

## 4 L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> proceedings class (no longer used)

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

```

2060 <{*tugproccls}
2061 \def\@tugclass{ltugproc}

```

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

```

2062 \newif\if@proc@sober
2063 \newif\if@proc@numerable
2064 \DeclareOption{tug95}{%
2065   \@proc@soberfalse
2066   \@proc@numerablefalse
2067 }
2068 \DeclareOption{tug96}{%
2069   \@proc@sobertrue
2070   \@proc@numerablefalse
2071 }
2072 \DeclareOption{tug97}{%
2073   \@proc@sobertrue
2074   \@proc@numerabletrue
2075 }
2076 \DeclareOption{tug2002}{%
2077   \@proc@sobertrue
2078   \@proc@numerabletrue
2079 }
2080 \let\if@proc@numbersec\iftrue
2081 \PassOptionsToClass{numbersec}{ltugboat}%
2082 }

```

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

```

2082 \DeclareOption{numbersec}{\let\if@proc@numbersec\iftrue
2083   \PassOptionsToClass{numbersec}{ltugboat}%
2084 }
2085 \DeclareOption{nonumber}{\let\if@proc@numbersec\iffalse
2086   \PassOptionsToClass{nonumber}{ltugboat}%
2087 }

```

`\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`.

```

2088 \newif\ifTB@title
2089 \DeclareOption{title}{\TB@titletrue}
2090 \DeclareOption{notitle}{\TB@titlefalse}
2091 \AtBeginDocument{\stepcounter{page}}

```

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

```

2092 \DeclareOption{tugproc}{%
2093   \ClassWarning{\@tugclass}{Option \CurrentOption\space ignored}%
2094 }

```

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

```

2095 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{ltugboat}}

```

If there's a `tugproc defaults` file, input it now: it may tell us which year we're to perform for... (Note: this code *is* millenium-proof. It's not terribly classy for years beyond 2069, but then I'm not going to be around then—this will be an interesting task for a future `TEXie`...)

```

2096 \InputIfFileExists{\@tugclass.cfg}{\ClassInfo{ltugproc}%
2097   {Loading ltugproc.cfg configuration information}}{}
2098 \ifundefined{TUGprocExtraOptions}%
2099   {\let\TUGprocExtraOptions\empty}%
2100   {\edef\TUGprocExtraOptions{,\TUGprocExtraOptions}}

```

`\tugProcYear` Now work out what year it is

```

2101 \@tempcnta\year
2102 \ifnum\@tempcnta<2000
2103   \divide\@tempcnta by100
2104   \multiply\@tempcnta by100
2105   \advance\@tempcnta-\year
2106   \@tempcnta-\@tempcnta
2107 \fi

```

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

```

2108 \edef\@tempa{\noexpand\providecommand\noexpand\tugProcYear
2109   {\ifnum10>\@tempcnta0\fi\the\@tempcnta}}
2110 \@tempa
2111 \ClassInfo{ltugproc}{Class believes year is
2112   \expandafter\ifnum\tugProcYear<2000 19\fi\tugProcYear
2113   \@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.

```

2114 \expandafter\ifx\csname ds@tug\tugProcYear\endcsname\relax
2115   \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.

```

2116 \ExecuteOptions{tug\tugProcYear,title\TUGprocExtraOptions}
2117 \ProcessOptions
2118 \if@proc@numbersec
2119   \if@proc@numerable
2120   \else
2121     \ClassWarning{\@tugclass}{This year's proceedings may not have
2122       numbered sections}%
2123   \fi
2124 \fi

```

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

```

2125 \LoadClass[\if@proc@numbersec numbersec\else nonumber\fi]{ltugboat}

```

## 4.1 Proceedings titles

`\maketitle` There's no provision for 'section titles' in proceedings issues, as there are in *TUG-boat* proper. Note the tedious L<sup>A</sup>T<sub>E</sub>X bug-avoidance in the `\@TB@test@document` macro.

```

2126 \def\maketitle{%
2127   \begingroup
      first, a bit of flim-flam to generate an initial value for \rhAuthor (unless the
      user's already given one with a \shortAuthor comand).
2128   \ifshortAuthor\else
2129     \global\let\rhAuthor\@empty
2130     \def\g@addto@rhAuthor##1{%
2131       \begingroup
2132         \toks@\expandafter{\rhAuthor}%
2133         \let\thanks@gobble
2134         \protected@xdef\rhAuthor{\the\toks@##1}%
2135       \endgroup
2136     }%
2137     \@getauthorlist\g@addto@rhAuthor
2138   \fi
      now, the real business of setting the title
2139   \ifTB@title
2140     \setcounter{footnote}{0}%
2141     \renewcommand{\thefootnote}{\fnsymbol\c@footnote}%
2142     \if@tubtwocolumn
2143       \twocolumn[\@maketitle]%
2144     \else
2145       \onecolumn
2146       \global\@topnum\z@
2147       \@maketitle
2148     \fi
2149     \@thanks
2150     \thispagestyle{TBproctitle}
2151   \fi
2152 \endgroup
2153 \TB@madetitletrue
2154 }
2155 \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<sup>A</sup>T<sub>E</sub>X bug report latex/2212, submitted by Robin Fairbairns, for details.

```

2156 \def\@TB@test@document{%
2157   \edef\@tempa{\the\everypar}
2158   \def \@tempb{\@nodocument}
2159   \ifx \@tempa\@tempb
2160     \@nodocument
2161   \fi
2162 }

```

`\AUTHORfont` Define the fonts for titles and things

```

\TITLEfont 2163 \def\AUTHORfont {\large\rmfamily\mdseries\upshape}
\addressfont
\netaddrfont

```

```

2164 \def\TITLEfont {\Large\rmfamily\mdseries\upshape}
2165 \def\addressfont{\small\rmfamily\mdseries\upshape}
2166 \def\netaddrfont{\small\ttfamily\mdseries\upshape}

```

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

```

\belowauthorskip
\belowabstractskip 2167 \newskip\aboveauthorskip \aboveauthorskip=18\p@ \@plus4\p@
2168 \newskip\belowauthorskip \belowauthorskip=\aboveauthorskip
2169 \newskip\belowabstractskip \belowabstractskip=14\p@ \@plus3\p@ \@minus2\p@

```

\@maketitle The body of \@maketitle

```

2170 \def\@maketitle{%
2171   {\parskip\z@
2172    \frenchspacing
2173    \TITLEfont\raggedright\noindent\@title\par
2174     \count@=0
2175     \loop
2176     \ifnum\count@<\authornumber
2177       \vskip\aboveauthorskip
2178       \advance\count@\@ne
2179       {\AUTHORfont\theauthor{\number\count@}\endgraf}%
2180       \addressfont\theaddress{\number\count@}\endgraf
2181       {%
2182         \allowhyphens
2183         \hangindent1.5pc
2184         \netaddrfont\thenetaddress{\number\count@}\endgraf
2185         \hangindent1.5pc
2186         \thePersonalURL{\number\count@}\endgraf
2187       }%
2188     \repeat
2189   \vskip\belowauthorskip}%
2190 \if@abstract
2191   \centerline{\bfseries Abstract}%
2192   \vskip.5\baselineskip\rmfamily
2193   \@tubonecolumnabstractstart
2194   \the\abstract@toks
2195   \@tubonecolumnabstractfinish
2196   \global\@ignoretrue
2197 \fi
2198 \vskip\belowabstractskip
2199 \global\@afterindentfalse\aftergroup\@afterheading
2200 }

```

**abstract** (*env.*) Save the contents of the abstract environment in the token register \abstract@toks.

\if@abstract We need to do this, as otherwise it may get ‘typeset’ (previously, it got put in a box) before \begin{document}, and experiments prove that this means our shiny new \SMC doesn’t work in this situation.

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

```

2201 \newtoks\abstract@toks \abstract@toks{}
2202 \let\if@abstract\iffalse
2203 \def\abstract{%

```



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

```

2204 \ifTB@madetitle
2205   \TBWarning{abstract environment after \string\maketitle}
2206 \fi
2207 \def\@abstract@{abstract}%
2208 \ifx\@currenvir\@abstract@
2209 \else
2210   \TBEError{\string\abstract\space is illegal:%
2211     \MessageBreak
2212     use \string\begin{\@abstract@} instead}%
2213   {\@abstract@\space may only be used as an environment}
2214 \fi
2215 \global\let\if@abstract\iftrue
2216 {\ifnum0=} \fi
2217 \@abstract@getbody}
2218 \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}`

```

2219 \long\def\@abstract@getbody#1\end{%
2220 \global\abstract@toks\expandafter{\the\abstract@toks#1}%
2221 \@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.

```

2222 \def\@abstract@findend#1{%
2223 \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.

```

2224 \ifx\@tempa\@abstract@
2225   \expandafter\@abstract@end
2226 \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)

```

2227   \def\@tempb{document}%
2228   \ifx\@tempa\@tempb
2229     \TBEError{\string\begin{\@abstract@}
2230       ended by \string\end{\@tempb}}%
2231     {You've forgotten \string\end{\@abstract@}}
2232   \else
2233     \global\abstract@toks\expandafter{\the\abstract@toks\end{#1}}%
2234     \expandafter\expandafter\expandafter\@abstract@getbody
2235   \fi
2236 \fi}

```

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

```

2237 \def\@abstract@end{\ifnum0={\fi}%
2238 \expandafter\end\expandafter{\@abstract@}}

```

```

\makesignature \makesignature is improper in proceedings, so we replace it with a warning (and
                a no-op otherwise)
2239 \renewcommand{\makesignature}{\TBWarning
2240             {\string\makesignature\space is invalid in proceedings issues}}

\ps@TBproctitle Now we define the running heads in terms of the \rh* commands.
    \ps@TBproc 2241 \def\ps@TBproctitle{\let\@oddhead\MakeRegistrationMarks
\dopagecommands 2242 \let\@evenhead\MakeRegistrationMarks
\setpagecommands 2243 \TB@definefeet
\TB@definefeet 2244 }
    \pfoottext 2245 \def\ps@TBproc{%
    \rfoottext 2246 \def\@oddhead{\MakeRegistrationMarks
2247     {%
2248         \hfil
2249         \def\{\unskip\ \ignorespaces}%
2250         \rmfamily\rhTitle
2251     }%
2252 }%
2253 \def\@evenhead{\MakeRegistrationMarks
2254     {%
2255         \def\{\unskip\ \ignorespaces}%
2256         \rmfamily\rhAuthor
2257         \hfil
2258     }%
2259 }%
2260 \TB@definefeet
2261 }
2262
2263 \advance\footskip8\p@    % for deeper running feet
2264
2265 \def\dopagecommands{\csname @@pagecommands\number\c@page\endcsname}
2266 \def\setpagecommands#1#2{\expandafter\def\csname @@pagecommands#1\endcsname
2267     {#2}}
2268 \def\TB@definefeet{%
2269     \def\@oddfoot{\ifpreprint\pfoottext\hfil\Now\hfil\thepage
2270         \else\rfoottext\hfil\thepage\fi\dopagecommands}%
2271     \def\@evenfoot{\ifpreprint\thepage\hfil\Now\hfil\pfoottext
2272         \else\thepage\hfil\rfoottext\fi\dopagecommands}%
2273 }
2274
2275 \def\pfoottext{\smc Preprint}:
2276     Proceedings of the \volyr{} Annual Meeting}
2277 \def\rfoottext{\normalfont\TUB, \volx\Dash
2278     {Proceedings of the \volyr{} Annual Meeting}}
2279
2280 \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).

```

2281 \if@proc@numbersec
2282 \else
2283   \setcounter{secnumdepth}{0}
2284 \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.

```

2285 \if@proc@numbersec
2286 \else
2287   \if@proc@sober
2288     \def\section
2289       {\TB@nolimelabel
2290        \TB@startsection{section}%
2291          1%
2292          \z@%
2293          {-8\p@\@plus-2\p@\@minus-2\p@}%
2294          {6\p@}%
2295          {\normalsize\bfseries\raggedright}}
2296   \else
2297     \def\section
2298       {\TB@nolimelabel
2299        \TB@startsection{section}%
2300          1%
2301          \z@%
2302          {-8\p@\@plus-2\p@\@minus-2\p@}%
2303          {6\p@}%
2304          {\large\bfseries\raggedright}}
2305   \fi
2306   \def\subsection
2307     {\TB@nolimelabel
2308      \TB@startsection{subsection}%
2309        2%
2310        \z@%
2311        {6\p@\@plus 2\p@\@minus2\p@}%
2312        {-5\p@\@plus -\fontdimen3\the\font}%
2313        {\normalsize\bfseries}}
2314   \def\subsubsection
2315     {\TB@nolimelabel
2316      \TB@startsection{subsubsection}%
2317        3%
2318        \parindent%
2319        \z@%
2320        {-5\p@\@plus -\fontdimen3\the\font}%
2321        {\normalsize\bfseries}}
2322 \fi
2323 </ltugproccls>

```

## 5 Plain T<sub>E</sub>X styles

```

2324 <*tugboatsty>

```

```
2325 % err...
2326 </tugboatsty>
2327 <*tugprocsty>
2328 % err...
2329 </tugprocsty>
```

## 6 The L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> compatibility-mode style files

```
2330 <*ltugboatsty>
2331 \@obsoletefile{ltugboat.cls}{ltugboat.sty}
2332 \LoadClass{ltugboat}
2333 </ltugboatsty>
2334 <*ltugprocsty>
2335 \@obsoletefile{ltugproc.cls}{ltugproc.sty}
2336 \LoadClass{ltugproc}
2337 </ltugprocsty>
```