

# The `amsldoc` and `amsdtx` document classes

American Mathematical Society

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## 1 Introduction

This file is the source for two documentclasses, `amsldoc` (used for the  $\mathcal{AMS}$ - $\text{\LaTeX}$  user's guide) and `amsdtx` (used for printing AMS `.dtx` files). The generic `book` class is used as a base, but the `amsdtx` class is modified to serve as an article-type class. This affects the form of documentation files mainly in the use of `\maketitle` and `\chapter`.

Standard starting pieces. (Note: the reason each `\ProvidesClass` command is placed on a line by itself, with separate begin and end guards for docstripping, is to make automatic update of file date and version slightly easier and more robust.)

```
1 \NeedsTeXFormat{LaTeX2e}% LaTeX 2.09 can't be used (nor non-LaTeX)
2 [1995/06/01]% LaTeX date must be June 1995 or later
3 <*amsldoc>
4 \ProvidesClass{amsldoc}[2004/08/06 v2.06]
5 </amsldoc>
6 <*amsdtx>
7 \ProvidesClass{amsdtx}[2004/08/06 v2.06]
8 </amsdtx>
```

## 2 Implementation

Start with the generic `book` class as a base.

```
9 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}
10 \ProcessOptions
11 \LoadClass{book}

12 \IfFileExists{url.sty}{%
13   \RequirePackage{url}\relax
14   \@gobble
15 }{%
16   \@firstofone
17 }
18 {
19   \DeclareRobustCommand{\url}[1]{%
20     \def\@tempa{#1}%
```

**Table 1.** Features of the `amsl doc` and `amsdtx` classes

Command Name	Purpose
<code>\cn</code>	To print a user command name: <code>\cn{title}</code> ; leading backslash can be optionally included for control symbols: <code>\cn{\%}</code> . The <code>\cn</code> command works properly even in macro arguments (compare to, e.g., <code>\verb'\newif'</code> ). But beware of a fragile control symbol (are there any?) in a moving argument.
<code>\cs</code>	‘Control sequence’: to print an internal command name, not intended for the end user
<code>\env</code>	To print an environment name: <code>\env{table}</code>
<code>\pkg</code>	To print a package name: <code>\pkg{eufrak}</code>
<code>\cls</code>	To print a class name: <code>\cls{book}</code>
<code>\opt</code>	To print the name of a class or package option: <code>\opt{twocolumn}</code>
<code>\bst</code>	To print the name of a Bib <sub>T</sub> <sub>E</sub> X style <code>\bst{amsalpha}</code>
<code>\fn</code>	To print a file name or font name: <code>\fn{Tlenc.def}</code> , <code>\fn{cmsy10}</code>
<code>\fnt</code>	To print a font name: <code>\fn{cmsy10}</code>
<code>\cnt</code>	To print a counter name: <code>\fn{topnumber}</code>
<code>\qc</code>	To quote a single character: <code>\qc{\%}</code> ; this works properly for special characters, even in macro arguments, unlike e.g., <code>\verb'%'</code>
<code>\latex/</code> etc.	Convenient forms of <code>\LaTeX</code> , <code>\TeX</code> , <code>\BibTeX</code> , etc. that are easier to type and have a trailing slash to eliminate the following-space problem (without needing different markup in different contexts)

```

21      \texttt{\urlsetup $\expandafter\strip@prefix\meaning\@tempa$}%
22    }%
23    \def\urlsetup{%
24      \check@mathfonts \textfont\@ne\the\font \textfont\z@\the\font
25      \urlfix +\urlfix\=\urlfix\:\urlfix\-\urlfix\.\urlfix\,\urlfix\;%
26      \urlbreak&\urlbreak\/\urlbreak?%
27    }%
28    \def\urlbreak#1{%
29      \mathcode'#1="8000
30      \begingroup \lccode'\~='#1 \lowercase{\endgroup \edef~}%
31      {\mathchar\number'#1\penalty\hyphenpenalty}%
32    }%
33    \def\urlfix#1{%
34      \mathcode'#1='#1\relax
35    }%
36  }

37 \providecommand{\qq}[1]{\textquotedblleft#1\textquotedblright}
38 \providecommand{\mdash}{\textendash\penalty\exhyphenpenalty}
39 \providecommand{\ndash}{\textendash\penalty\exhyphenpenalty}
40 \let\@xp\expandafter

```

### 3 Indexing primitives

Unlike `amsdtx`, `amsl doc` doesn't load the `doc` package, so we need to provide the following logical names. The values are consistent with `makeindex`'s default

conventions.

```
41 ⟨*amsl doc⟩
42 \def\actualchar{@}
43 \def\quotechar{"}
44 \def\levelchar{!}
45 \def\encapchar{||}
46 \def\verbatimchar{+}
```

We also need the `\ifcodeline@index` switch.

```
47 \newif\ifcodeline@index
48 ⟨/amsl doc⟩
```

`\autoindex` When generating a codeline index, this encapsulates the page number in italics.

```
49 \newcommand*{\autoindex}[1]{%
50   \index{#1\ifcodeline@index\encapchar usage\fi}%
51 }
```

`\ntt` To avoid font substitution warnings we make the `tt` font always print in the normal weight and shape.

```
52 \newcommand{\ntt}{\normalfont\ttfamily}
```

`\indexcs` Index a control sequence without printing it. Note non-long. The `\@nobs slash` strips off an optional leading backslash before passing the control sequence name to `\@indexcs`. This means that `\indexcs{\cs}` and `\indexcs{cs}` produce the same index entry.

```
53 \newcommand*{\indexcs}[1]{%
54   \xp\@xp\@xp\@indexcs\@xp\@nobs slash\string#1\@nil
55 }
```

`\@indexcs` Given `cs` as an argument, this writes something like `cs@\verb"*\cs+` to the `.idx` file (or `cs=\verb!*\cs+` if using `doc.sty`).

```
56 \def\@indexcs#1\@nil{%
57   \autoindex{#1\actualchar
58     \string\verb\quotechar*\verbatimchar
59     \@xp\@bothoftwo\string\ #1\@empty
60     \verbatimchar
61   }%
62 }
```

`\@bothoftwo` This has the effect of removing spaces before each of the arguments. In particular, it removes the space generated by `\string\` above.

```
63 \def\@bothoftwo#1#2{#1#2}
```

`\category@index`

```
64 \def\category@index#1#2{%
65   {\ntt#2}%
66   \@category@index{#1}{#2}%
67 }
```

`\@category@index`

```
68 \def\@category@index#1#2{%
69   \autoindex{%
70     #2\actualchar\string\texttt{#2}%
71     \ifx\@nil#1\@nil\else\space#1\fi
72   }%
73 }
```

Some functions to support `\cn` etc. For most of these commands we don't really want them to be `\long`! But in some early releases of  $\text{\LaTeX}$  2 $\epsilon$  the `*` form of `\newcommand` was not yet available.

We use the name `\bslchar` instead of `\bslash` to avoid potential conflict with the `doc` package `\bslash` command. Unlike `\bslash`, `\bslchar` survives unlimited writing/expansion because it is a `chardef`.

```
74 \chardef\bslchar='\\ % p. 424, TeXbook
75 \newcommand{\addbslash}{\expandafter\@addbslash\string}
76 \def\@addbslash#1{\bslchar\@nobslash#1}
77 \newcommand{\nobslash}{\expandafter\@nobslash\string}
78 \def\@nobslash#1{\ifnum'#1=\bslchar\else#1\fi}
```

`\@boxorbreak` Start up for a `\cs` or `\cn` command, adds an `\hbox` if in math, or an allowbreak penalty if the preceding item is not a space. (In case two such commands are used side-by-side.)

```
79 \def\@boxorbreak{%
80     \leavevmode
81     \ifmmode\hbox\else\ifdim\lastskip=\z@\penalty9999 \fi\fi
82 }
```

Control sequence. The function `\addbslash` makes this command also usable for some special control sequences like `\% \}` `\{`: instead of writing `\cs{%` which doesn't work, you can write `\cs{%`.

```
83 \DeclareRobustCommand{\cs}[1]{%
84     \@boxorbreak{%
85         \ntt
86         \addbslash#1\@empty
87         \@xp\@xp\@xp\@indexcs\@xp\@nobslash\string#1\@nil
88     }%
89 }
```

Allow distinguishing non-private 'command names' that will be visible to the user from internal (mostly private) 'control sequences'.

```
90 \let\cn\cs
```

The following items should not normally appear in math mode so they don't need to call `\@boxorbreak`.

$\text{\LaTeX}$  documentclass name.

```
91 \DeclareRobustCommand{\cls}{\category@index{class}}
```

$\text{\LaTeX}$  package name.

```
92 \DeclareRobustCommand{\pkg}{\category@index{package}}
```

$\text{\LaTeX}$  option name.

```
93 \DeclareRobustCommand{\opt}{\category@index{option}}
```

Environment name.

```
94 (amstdx)\DeclareRobustCommand{\env}[1]{\ntt#1\SpecialEnvIndex{#1}}
95 (amsl doc)\DeclareRobustCommand{\env}{\category@index{environment}}
```

File name.

```
96 \DeclareRobustCommand{\fn}{\category@index{}}
```

Bib $\text{\TeX}$  style.

```
97 \DeclareRobustCommand{\bst}{\category@index{\string\BibTeX{ } style}}
```

```
98 \DeclareRobustCommand{\cnt}{\category@index{counter}}
```

```
99 \DeclareRobustCommand{\fnt}{\category@index{font}}
```

With long command names or file names we sometimes prefer to allow hyphenation in the tt font (in combination with suitable `\hyphenation` statements for individual documents). To make this work we must turn off the feature of L<sup>A</sup>T<sub>E</sub>X that disables the hyphenchar of the tt fonts.

The method shown here depends on the assumption that OT1 encoding will be used for the tt fonts. An encoding-independent method would be more awkward: You'd have to explicitly load the relevant fonts, let's say by using `\AtBeginDocument`, and undo the hyphenchar change individually for each font.

Instead we force loading, or possibly reloading (depending on the preload options used locally for creating the L<sup>A</sup>T<sub>E</sub>X format file), of the OT1/cmtt fd file, and then clear the macro `\OT1+cmtt` which contains code to execute whenever a font of this family is first loaded. The default value is to turn off the hyphenchar, and that's what we don't want.

This method is not especially palatable but other methods that don't involve loading the fd file are significantly less reliable.

```
100 \def\allowtthypens{\begingroup
101   \fontencoding{OT1}\fontfamily{cmtt}%
```

Undefine the csname that `\try@load@fontshape` tests to determine whether the fd file needs loading. Then call `\try@load@fontshape`. Then we can remove the 'turn off hyphenation' code, which as it happens resides in the same csname that was tested.

```
102   \expandafter\let\csname OT1+cmtt\endcsname\relax
103   \try@load@fontshape
104   \endgroup
105   \expandafter\let\csname OT1+cmtt\endcsname\@empty
106 }
```

We allow some slop at the right margin because we have some long control sequence names and verbatim text to deal with. Also ignore underfull hboxes and vboxes unless they are really bad.

```
107 \hfuzz2pc
108 \vbadness9999 \hbadness5000

109 \def\AmS{{\protect\usefont{OMS}{cmsy}{m}{n}%
110   A\kern-.1667em\lower.5ex\hbox{M}\kern-.125emS}}

111 \def\latex/{\protect\LaTeX}
112 \def\amslatex/{\protect\AmS-\protect\LaTeX}
113 \def\tex/{\protect\TeX}
114 \def\amstex/{\protect\AmS-\protect\TeX}
115 \def\bibtex/{\Bib\protect\TeX}
```

`\makeindex` command is already used for other purposes.

```
116 \def\makeindx/{MakeIndex}
```

Don't allow a break after the hyphen:

```
117 \def\xypic/{XY\mbox{-}pic}
118 \newcommand{\Textures}{\textit{Textures}}
```

'Meta' macro.

```
119 \def<#1>{\textit{${\langle$#1}/${\rangle$}}}
```

Reduce itemsep in lists.

```
120 \def\@listi{%
121   \leftmargin\leftmarginI
122   \topsep 3\p@ \@plus2\p@ \@minus\p@
123   \parsep \p@ \@plus\p@ \itemsep\parsep
124 }
125 \let\@listI\@listi
```

```

126 \@listi
127 \def\@listii{%
128   \leftmargin\leftmarginii
129   \labelwidth\leftmarginii \advance\labelwidth-\labelsep
130   \topsep\p@\@plus\p@ \@minus\p@
131   \parsep\z@skip \itemsep\z@skip
132 }
133 \def\@listiii{%
134   \leftmargin\leftmarginiii
135   \labelwidth\leftmarginiii \advance\labelwidth-\labelsep
136   \topsep\z@skip \parsep\z@skip \itemsep\z@skip
137 }

```

An environment to encapsulate remarks relevant to old versions but not essential for the current version.

```

138 \newenvironment{histnote}{%
139   \trivlist\item[\hspace{\labelsep}\bfseries Historical Note:]}%
140 }{%
141   \endtrivlist
142 }

```

Turn off \autoindex during \tableofcontents or similar.

```

143 \def\@starttoc#1{\begingroup
144   \let\autoindex\@gobble
145   \makeatletter
146   \@input{\jobname.#1}\if@filesw
147   \expandafter\newwrite\csname tf@#1\endcsname
148   \immediate\openout
149   \csname tf@#1\endcsname \jobname.#1\relax
150   \fi \global\@nobreakfalse \endgroup}

```

Make glossary commands a no-op for the moment. [mjd,1994/10/03] Provide a \secref command for section references.

```

151 (*amsl doc)
152 \newcommand{\gloss}[1]{}
153 (/amsl doc)
154 \newcommand*{\secref}[1]{\S\ref{#1}}

```

We can write \qc{\%} to quote a single character in situations where \verb"%" would not work, mainly when text is read as a macro argument (e.g., footnotes).

```

155 \newcommand{\qc}[1]{}% check for prior definition
156 \edef\qc#1{\noexpand\protect\expandafter\noexpand\csname qc \endcsname
157   \noexpand\protect#1}

```

For this function the first argument is \protect and just needs to be discarded. The method for removing a leading backslash is to turn off \escapechar; this is more forgiving of variations like \qc{§}. If the argument is ‘\ ’ we print a cmtt visible-space character, `\_`.

```

158 \@namedef{qc }#1#2{\begingroup\ntt
159   \ifx\ #2\char‘\ \else\escapechar\m@ne\string#2\fi\endgroup}

```

Declare a few character names to avoid e.g., indexing difficulties.

```

160 \DeclareRobustCommand{\qcat}{\qc\@}%
161 \DeclareRobustCommand{\qcamp}{\qc\&}%
162 \DeclareRobustCommand{\qcbang}{\qc\!}%

```

\arg Change \arg to print a macro argument number:

```

163 \DeclareRobustCommand{\arg}[1]{\ntt\##1}

```

We need to emulate the `amsthm \qedsymbol` for the  $\mathcal{A}\mathcal{M}\mathcal{S}$ - $\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$  user's guide.

```
164 <*amsl doc>
165 \newcommand{\openbox}{\leavevmode
166   \hbox to.77778em{%
167     \hfil\vrule
168     \vbox to.675em{\hrule width.6em\vfil\hrule}%
169     \vrule\hfil}}
170 \newcommand{\qedsymbol}{\openbox}
171 </amsl doc>
```

Logical markup for e-mail address:

```
172 <amsl doc>\def\mail{\texttt{}
```

Shorthand for indexing:

```
173 <*amsl doc>
174 \def\*#1{\def\@tempa{#1}\def\@tempb{#1}%
175   \ifx\@tempa\@tempb \expandafter\index
176   \else #1\index{#1}\fi}
177 </amsl doc>
```

Non-indexed `\cn` (maybe call this `\cn*`?)

```
178 \def\ncn#1{\let\index@gobble\cn{#1}}
```

Indexing difficulties with `!`, `@`.

```
179
180 \DeclareRobustCommand{\cnbang}{%
181   \ncn{\!}\index{"!\@{\ntt\bslchar\qcbang}}}
182 \DeclareRobustCommand{\cnat}{%
183   \ncn{\!}\index{"@\@{\ntt\bslchar\qcat}}}
```

Shorthand for a discouraged, but not forbidden, line break:

```
184 \def\5{\penalty500 }
```

Environment for error message examples. Use `\meaning` to allow reading the error message text as an ordinary brace-delimited arg but still be able to print embedded braces; and first change the backslash catcode to prevent extra spaces after control words.

```
185 <*amsl doc>
186 \newenvironment{error}{%
187   \begingroup\catcode'\=12 \expandafter\endgroup\errora
188 }{%
189   \endtrivlist
190 }

191 \newcommand{\errora}[1]{%
192   \trivlist
193   \item[\hskip\labelsep\errorbullet\enspace
194     \ntt\frechspacing\def\@tempa{#1}%
195     \expandafter\strip@prefix\meaning\@tempa]\leavevmode\par
196 }
```

`\errorbullet` is just an attempt at a simple graphic device that doesn't require any special fonts.

```
197 \newcommand{\errorbullet}{\rule[-.5pt]{2.5pt}{7.5pt}%
198   \rule[-.5pt]{5pt}{2.5pt}\kern-2.5pt%
199   \rule[4.5pt]{2.5pt}{2.5pt}}
200 </amsl doc>
```

A couple of subheading commands:

```
201 \newcommand{\errex}{\par\noindent\textit{Example}:\ }
202 \newcommand{\errexpl}{\par\noindent\textit{Explanation}:\ }
```

## 4 amsldoc style modifications for sectioning commands

The following section deals with book commands (part, chapter, frontmatter, ...).

203 (\*amsldoc)

Modifications of sectioning commands from book.cls, mostly reducing font sizes and vertical spacing.

```

204 \renewcommand\frontmatter{\clearpage
205         \@mainmatterfalse\pagenumbering{roman}}
206 \renewcommand\mainmatter{\clearpage
207         \@mainmattertrue\pagenumbering{arabic}}
208 \renewcommand\backmatter{\clearpage \@mainmatterfalse}

209 \renewcommand\part{\clearpage
210         \thispagestyle{plain}%
211         \if@twocolumn
212             \onecolumn
213             \@tempwatrue
214         \else
215             \@tempwafalse
216         \fi
217         \hbox{}\vfil
218         \secdef\@part\@spart}

219 \def\@part[#1]#2{%
220     \ifnum \c@secnumdepth >-2\relax
221         \refstepcounter{part}%
222         \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%
223     \else
224         \addcontentsline{toc}{part}{#1}%
225     \fi
226     \markboth{}{}%
227     {\centering
228     \interlinepenalty \@M
229     \reset@font
230     \ifnum \c@secnumdepth >-2\relax
231         \Large\bfseries \partname~\thepart
232         \par
233         \vskip 20\p@
234     \fi
235     \Large \bfseries #2\par}%
236     \@endpart}

237 \def\@spart#1{%
238     {\centering
239     \interlinepenalty \@M
240     \reset@font
241     \Large \bfseries #1\par}%
242     \@endpart}

243 \def\@endpart{\vfil\newpage
244         \if@twoside
245             \hbox{}%
246             \thispagestyle{empty}%
247             \newpage
248         \fi
249         \if@tempwa
250             \twocolumn
251         \fi}
252 (/amsldoc)

```



```

253 \renewcommand\chapter{\par \@afterindentfalse
254         \secdef\@chapter\@schapter}
255 \def\@chapter[#1]#2{\ifnum \c@secnumdepth >\m@ne
256         \if@mainmatter
257             \refstepcounter{chapter}%
258             \typeout{\@chapapp\space\thechapter.}%
259             \addcontentsline{toc}{chapter}%
260                 {\protect\numberline{\thechapter}#1}%
261         \else
262             \addcontentsline{toc}{chapter}{#1}\fi
263     \else
264         \addcontentsline{toc}{chapter}{#1}
265     \fi
266     \chaptermark{#1}%
267     \addtocontents{lof}{\protect\addvspace{10\p@}}%
268     \addtocontents{lot}{\protect\addvspace{10\p@}}%
269     \if@twocolumn
270         \topnewpage[\@makechapterhead{#2}]%
271     \else
272         \@makechapterhead{#2}%
273         \@afterheading
274     \fi}
275 \def\@makechapterhead#1{%
276     \vspace{1.5\baselineskip}%
277     {\parindent \z@ \raggedright \reset@font
278     \ifnum \c@secnumdepth >\m@ne
279         \large\bfseries \@chapapp\space\thechapter
280         \par\nobreak
281         \vskip.5\baselineskip\relax
282     \fi
283     #1\par\nobreak
284     \vskip\baselineskip
285 }}
286 \def\@schapter#1{\if@twocolumn
287     \topnewpage[\@makeschapterhead{#1}]%
288 \else
289     \@makeschapterhead{#1}%
290     \@afterheading
291 \fi}
292 \def\@makeschapterhead#1{%
293     \vspace*{1.5\baselineskip}%
294     {\parindent \z@ \raggedright
295     \reset@font
296     \large \bfseries #1\par\nobreak
297     \vskip\baselineskip
298 }}

```

Add Donald Arseneau's `\@removefromreset`; used to decouple the footnote counter from `\chapter`, since chapters here do not automatically start on a new page. [bnb, 1999/09/27]

`\@removefromreset{FOO}{BAR}` : Removes counter FOO from the list of counters `\cl@BAR` to be reset when counter BAR is stepped. The opposite of `\@addtoreset`.

```

299 \def\@removefromreset#1#2{\let\@tempb\@elt
300     \expandafter\let\expandafter\@tempa\csname c@#1\endcsname
301     \def\@elt##1{\expandafter\ifx\csname c@##1\endcsname\@tempa\else
302         \noexpand\@elt{##1}\fi}%
303     \expandafter\edef\csname cl@#2\endcsname{\csname cl@#2\endcsname}%

```

```

304 \let\@elt\@tempb}
305 \@removefromreset{footnote}{chapter}

Change running head font to \footnotesize, nonslanted.
306 \def\ps@headings{%
307 \let\@oddfoot\@empty\let\@evenfoot\@empty
308 \def\@evenhead{\thepage\hfil{\footnotesize\leftmark}{}}}%
309 \def\@oddhead{\footnotesize\rightmark}{}}\hfil\thepage}%
310 \let\@mkboth\markboth
311 \def\chaptermark##1{%
312 \markboth {\uppercase{\ifnum \c@secnumdepth >\m@ne
313 \if@mainmatter
314 \chapapp\ thechapter. \ \fi
315 \fi
316 ##1}}}%
317 \def\sectionmark##1{%
318 \markright {\uppercase{\ifnum \c@secnumdepth >\z@
319 \thesection. \ \fi
320 ##1}}}%

```

## 5 amsdtx style modifications for sectioning commands

These definitions for \maketitle are from article.cls.

```

321 (*amsdtx)
322 \renewcommand\maketitle{\par
323 \begingroup
324 \renewcommand\thefootnote{\fnsymbol{footnote}}%
325 \def\@makefnmark{\hbox to\z@{\$ \m@th^{\@thefnmark}$ \hss}}%
326 \long\def\@makefntext##1{\parindent 1em\noindent
327 \hbox to1.8em{\hss\$ \m@th^{\@thefnmark}$}##1}%
328 \if@twocolumn
329 \ifnum \col@number=\@ne
330 \maketitle
331 \else
332 \twocolumn[\maketitle]%
333 \fi
334 \else
335 \newpage
336 \global\@topnum\z@ % Prevents figures from going at top of page.
337 \maketitle
338 \fi
339 \thispagestyle{plain}\@thanks
340 \endgroup
341 \setcounter{footnote}{0}%
342 \let\thanks\relax
343 \let\maketitle\relax\let\@maketitle\relax
344 \gdef\@thanks{}\gdef\@author{}\gdef\@title{}}
345 %
346 \def\@maketitle{%
347 \newpage
348 \null
349 \vskip 2em%
350 \begin{center}%
351 {\LARGE \@title \par}%
352 \vskip 1.5em%
353 {\large
354 \lineskip .5em%
355 \begin{tabular}[t]{c}%

```

```

356      \@author
357      \end{tabular}\par}%
358      \vskip 1em%
359      {\large \@date}%
360      \end{center}%
361      \par

```

Put the title into both running heads.

```

362      \uppercase\expandafter{\expandafter\toks@\expandafter{\@title}}%
363      \edef\@tempa{\noexpand\markboth{\the\toks@}{\the\toks@}}%
364      \@tempa
365      \vskip 1.5em}
366 \end{amsdtx}

```

Edit the table of contents.

```

367 (*amsdtx)
368 \renewcommand\tableofcontents{%
369     \if@twocolumn
370         \@restonecoltrue\onecolumn
371     \else
372         \@restonecolfalse
373     \fi
374     \subsection*{\contentsname}%
375     \@starttoc{toc}%
376     \if@restonecol\twocolumn\fi
377 }
378 \end{amsdtx}

```

Edit the sectioning commands.

```

379 \renewcommand\section{\@startsection {section}{1}{\z@}%
380                                     {- .6\baselineskip \@plus -3\p@}%
381                                     {.4\baselineskip}
382 \amsdtx{\reset@font\Large\bfseries}}
383 \amsldoc{\reset@font\normalsize\bfseries}}
384 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
385                                     {- .3\baselineskip \@plus -2\p@}%
386                                     {.2\baselineskip}%
387 \amsdtx{\reset@font\large\bfseries}}
388 \amsldoc{\reset@font\normalsize\bfseries}}
389 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
390                                     {- .2\baselineskip \@plus -2\p@}%
391                                     {.2\baselineskip}%
392                                     {\reset@font\normalsize\bfseries}}

```

Change index environment to turn off \autoindex.

```

393 \renewenvironment{theindex}{%
394     \if@twocolumn \@restonecolfalse \else \@restonecoltrue \fi
395     \columnseprule \z@ \columnsep 35\p@
396     \let\autoindex\@gobble
397 \amsdtx{\twocolumn[\section*{\indexname}]}%
398 \amsldoc{\twocolumn[\@makeschapterhead{\indexname}]}%
399     \addcontentsline{toc}{chapter}{\indexname}%
400     \mkboth{\uppercase{\indexname}}{\uppercase{\indexname}}%
401     \thispagestyle{plain}\parindent\z@
402     \parskip\z@ \@plus .3\p@\relax
403     \let\item\@idxitem
404 }{%
405     \if@restonecol\onecolumn\else\clearpage\fi
406 }

```

Take out \thechapter from \thesection.

```

407 \amsdtx{\renewcommand{\thesection}{\arabic{section}}}

```

Change the style of captions slightly. Also incorporate some caption improvements from Donald Arseneau (`comp.text.tex`, 11 Oct 1994).

```

408 \long\def\@makecaption#1#2{%
409   \addvspace\abovecaptionskip
410   \begingroup
411     \countdef\@parcycles=8 % local count register
412     \@parcycles\z@
413     \setpar{\advance\@parcycles\@ne \ifnum\@parcycles>999
414       \@par\@parcycles\z@\fi
415       \ifhmode \unskip\hskip\parfillskip\penalty-\@M\fi}%
416     \hangfrom{\textbf{#1.} }\vadjust{\penalty\m@ne\#2}%
417   \endgroup
418   \ifhmode\unpenalty\fi\par
419   \ifnum\lastpenalty=\m@ne % only one line in the caption
420     \unpenalty \setbox\@tempboxa\lastbox
421     \nointerlineskip
422     \hbox to\hsize{\hfill\unhbox\@tempboxa\unskip\hfill}%
423   \fi
424   \nobreak\vskip\belowcaptionskip
425 }
```

For table captions, assume top captions and so put space below the caption rather than above:

```

426 \renewenvironment{table}{%
427   \belowcaptionskip\abovecaptionskip \abovecaptionskip\z@skip
428   \@float{table}%
429 }{%
430   \end@float
431 }
432 \renewenvironment{table*}{%
433   \belowcaptionskip\abovecaptionskip \abovecaptionskip\z@skip
434   \@dblfloat{table}%
435 }{%
436   \end@dblfloat
437 }
```

## 6 Float placement parameters

These control the placing of floating objects like tables and figures. The values here, which are much more tolerant than the L<sup>A</sup>T<sub>E</sub>X defaults, are more or less copied from `amsclass.dtx`.

```

438 \setcounter{topnumber}{4}\setcounter{bottomnumber}{4}
439 \setcounter{totalnumber}{4}\setcounter{dbltopnumber}{4}
440 \renewcommand{\topfraction}{.97}\renewcommand{\bottomfraction}{.97}
441 \renewcommand{\textfraction}{.03}\renewcommand{\floatpagefraction}{.9}
442 \renewcommand{\dbltopfraction}{.97}
443 \renewcommand{\dblfloatpagefraction}{.9}
444 \setlength{\floatsep}{8pt plus6pt}
445 \setlength{\textfloatsep}{10pt plus8pt}
446 \setlength{\intextsep}{8pt plus6pt}
447 \setlength{\dblfloatsep}{8pt plus6pt}
448 \setlength{\dbltextfloatsep}{10pt plus8pt}
449 \setlength{\@fptop}{0pt}\setlength{\@fpsep}{8pt}%
450 \setlength{\@fpbot}{0pt plus 1fil}
451 \setlength{\@dblftop}{0pt}\setlength{\@dblfpsep}{8pt}%
452 \setlength{\@dblfpbot}{0pt plus 1fil}

453 \pagestyle{headings}
```

Make `|...|` shorthand for verbatim fragments. In the case of the `amslatex` class, we avoid requiring an extra package (`doc` or `shortvrb`), to reduce the possibility of package files not being found at run time.

```

454 <*amslatex>
455 \AtBeginDocument{\catcode'\|=\active }
456 \def\activevert{\verb|}
457 \expandafter\gdef\expandafter\dospecials\expandafter
458   {\dospecials \do|}%
459 \expandafter\gdef\expandafter\@sanitize\expandafter
460   {\@sanitize \@makeother|}%
461 \begingroup\catcode'\|=\active \gdef|{\protect\activevert{}}\endgroup
462 </amslatex>

```

`\arrayargpatch` If the column-specs arg of `array` or `tabular` contains a vert bar character, and we have made vert bars active, it will cause trouble. The following command, used in the `ctab` environment, prevents the trouble.

```

463 \newcommand{\arrayargpatch}{%
464   \let\@oldarray\@array
465   \edef\@array[##1]##2{\catcode\number'\|=\number\catcode'\|
466     \catcode\number'\@=\number\catcode'\@ \relax
467     \let\noexpand\@array\noexpand\@oldarray
468     \noexpand\@array[##1]{##2}}%
469   \catcode'\|=12 \catcode'\@=12 \relax
470 }

```

`ctab` An environment for centered tables.

```

471 \newenvironment{ctab}{%
472   \par\topsep\medskipamount
473   \trivlist\centering
474   \item[]%
475   \arrayargpatch
476   \begin{tabular}%
477 }{%
478   \end{tabular}%
479   \endtrivlist
480 }

```

Load `doc` package, reset `\AltMacroFont` to be the same as `\MacroFont` (when there are large sections of conditional code I think it looks better not to have it all slanted).

```

481 <*amstex>
482 \RequirePackage{doc}
483 \def\AltMacroFont{\MacroFont}

```

`SpecialMainEnvIndex` Override `doc.sty`'s main environment indexing to get rid of the parens around "environment", for compatibility with our `\env` command.

```

484 \def\SpecialMainEnvIndex#1{%
485   \@bsphack
486   \special@index{%
487     #1\actualchar\string\texttt{#1} environment\encapchar main%
488   }%
489   \special@index{%
490     environments:\levelchar#1%
491     \actualchar\string\texttt{#1}%
492     \encapchar main}%
493   \@esphack
494 }

```

`\SpecialEnvIndex`

```

495 \def\SpecialEnvIndex#1{%
496   \@bsphack
497   \index{#1\actualchar\string\texttt{#1} environment\encapchar usage}%
498   \index{%
499     environments:\levelchar#1%
500     \actualchar\string\texttt{#1}%
501     \encapchar usage}%
502   \@esphack
503 }

```

`\DescribeOption`

```

504 \def\DescribeOption{%
505   \leavevmode
506   \@bsphack
507   \begingroup
508     \MakePrivateLetters
509   \Describe@Option
510 }

```

`\Describe@Option`

```

511 \def\Describe@Option#1{%
512   \endgroup
513   \marginpar{\raggedleft\PrintDescribeOption{#1}}%
514   \SpecialOptionIndex{#1}%
515   \@esphack
516   \ignorespaces
517 }

```

`\PrintDescribeOption`

```

518 \def\PrintDescribeOption#1{\strut \MacroFont #1\ }

```

`\option`

```

519 \def\option{%
520   \let\SpecialMainEnvIndex\SpecialMainOptionIndex
521 \begingroup
522   \catcode'\12
523   \MakePrivateLetters \m@cro@ \iffalse}

```

`\SpecialMainOptionIndex`

```

524 \def\SpecialMainOptionIndex#1{%
525   \@bsphack
526   \special@index{#1\actualchar\string\texttt{#1} option\encapchar main}%
527   \@esphack
528 }

```

`\SpecialOptionIndex`

```

529 \def\SpecialOptionIndex{\@category@index{option}}

```

Ordinary `\DocInput` doesn't handle standardized file headers unless you enclose them in `\iffalse ... \fi` which I don't care to do. So instead here's an alternate version of `\DocInput`, called `\hDocInput`.

```

530 \def\hDocInput#1{\MakePercentIgnore
531   \begingroup

```

Define active @ which should be the first non-percent, non-equal-sign character when a file header is present. (If a file header is not present, \hDocInput should not be used.)

```

532 \begingroup \lccode'\~=' \@
533 \lowercase{\endgroup\long\def ~}##1##{%
534   \catcode'\==12 \skipfileheader{##1}}%
535 \catcode'\@=\active \catcode'\==14 % comment
536 \def\filename{#1}%
537 \@input#1 \MakePercentComment}

538 \def\skipfileheader#1#2 {\endgroup
539   \hGetFileInfo#2 version = "?? " date = "?? "\@nil
540   \begingroup\catcode'\==9 \catcode'\ =9 \futurelet\0\endgroup
541 }

542 \long\def\hGetFileInfo#1 version = "#2"#3 date = "#4"#5\@nil{%
543   \def\fileversion{#2}\def\filedate{#4}}
544 \</amsdtx>

```

A bunch of stuff we don't want in code indexes:

```

545 \<amsdtx>
546 \DoNotIndex{\@exp,\@nx,\@empty,\newcommand,\renewcommand}
547 \DoNotIndex{\newenvironment,\renewenvironment,\providecommand}
548 \DoNotIndex{\if,\fi,\ifnum,\fi,\@let@token,\futurelet,\fsa@n}
549 \DoNotIndex{\ignorespaces,\@tempcnta,\@tempcntb,\count@}
550 \DoNotIndex{\toks@,\@ne,\advance}
551 \DoNotIndex{\!,\/, \?, \@, \^, \_}
552 \DoNotIndex{\@par,\@M,\@auxout,\@bsphack,\@esphack,\@depth,\@ehc}
553 \DoNotIndex{\@for,\@flushglue,\@gobble,\@gobbletwo,\@height,\@idxtitem}
554 \DoNotIndex{\@ifnextchar,\@ifstar,\@ifundefined,\@input,\@latexerr}
555 \DoNotIndex{\@makeschapterhead,\@namedef,\@nameuse,\@nil}
556 \DoNotIndex{\@nobreakfalse,\@restonecolfalse,\@restonecoltrue}
557 \DoNotIndex{\@tempa,\@tempb,\@tempc,\@tempf,\@temptokena,\@themark,\@width}
558 \DoNotIndex{\active,\aindex,\baselineskip,\begin,\begingroup,\box}
559 \DoNotIndex{\c@page,\catcode,\chapter,\char,\chardef,\closeout}
560 \DoNotIndex{\CodelineIndex,\sp,\sb,\label,\leavevmode,\mark}
561 \DoNotIndex{\mark,\newinsert,\newwrite,\newtoks,\xdef}
562 \DoNotIndex{\columnsep,\columnseprule,\columnwidth,\csname,\def}
563 \DoNotIndex{\dimen,\do,\DocInput,\documentstyle,\edef,\em}
564 \DoNotIndex{\EnableCrossrefs,\end,\endcsname,\endgroup,\endinput}
565 \DoNotIndex{\everypar,\expandafter,\filedate,\fileversion}
566 \DoNotIndex{\footnotesize,\gdef,\global,\glossary,\hangindent}
567 \DoNotIndex{\if@filesw,\else,\fi}
568 \DoNotIndex{\if@nobreak,\if@twocolumn,\if@twoside,\fi,\fi,\fi}
569 \DoNotIndex{\hsize,\hskip}
570 \DoNotIndex{\ifhmode,\ifmmode,\ifodd,\ifvmode,\ifx,\fi,\fi,\fi,\fi,\fi}
571 \DoNotIndex{\ifcase,\ifdim,\ifeof,\iffalse,\iftrue,\fi,\fi,\fi,\fi,\fi}
572 \DoNotIndex{\ifcat,\fi}
573 \DoNotIndex{\immediate,\insert,\item,\jobname,\long}
574 \DoNotIndex{\let,\lineskip,\marginparsep,\marginparwidth,\maxdimen}
575 \DoNotIndex{\makeatletter,\noexpand,\openout,\protect,\rlap}
576 \DoNotIndex{\min,\newpage,\nobreak,\normalbaselineskip}
577 \DoNotIndex{\normallineskip,\p@,\par,\parfillskip,\parindent,\parskip}
578 \DoNotIndex{\penalty,\relax,\section,\sin,\sloppy,\space,\string}
579 \DoNotIndex{\tableofcontents,\the,\thepage,\thispagestyle,\toks,\tt}
580 \DoNotIndex{\twocolumn,\uppercase,\vbox,\vrule,\vskip,\vss}
581 \DoNotIndex{\write,\z@,\z@skip}
582 \</amsdtx>

```

The usual \endinput to ensure that random garbage at the end of the file doesn't get copied by docstrip.

583 `\endinput`

## Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

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