

The **etoc** package

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Abstract

The **etoc** package gives the user complete control on how the entries of the table of contents should be constituted from the *name*, *number*, and *page number* of each sectioning unit. This goes via the definition of *line styles* for each sectioning level used in the document. The package provides its own custom line styles as an example, next to the standard formatting inherited from the L^AT_EX document classes. But the idea is to give the means to the user to delegate the details to packages dealing with list making environments (such as `enumitem`). Regarding the *global style*, **etoc** typesets by default tables of contents in a multi-column format, with either a standard heading, or a ruled title, optionally with a frame around the table of contents. The `\tableofcontents` command can be used arbitrarily many times in the same document, and comes with a starred variant which gives local table of contents.

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Part I

**Although this is a short document,
we are going to use many
sectioning commands**

1 Overview

Popular packages dealing with TOCs include `tocloft`, `titletoc` and `minitoc`. Why another one? well, I started `etoc` for my own use, and only later found out about the above mentioned packages . . . I realize (to some extent, as I still haven't read closely the documentations) that most if not all of the `etoc` functionality could

well be already available in the above mentioned packages.

1.1 Initial motivation

The specific initial impetus was to transform the ‘flat’ data contained in the `.toc` file into a nested structure which could be given to list making environments. For example, typesetting the line corresponding to the first sub-section in a given section would open a group which would be closed only when a section, chapter, or part line entry in the `.toc` file would be encountered. Package **etoc** allows to do this very easily and the opening and closing of the groups can for example be `\begin{enumerate}` and `\end{enumerate}` pairs, will all the customizing allowed by packages such as `enumitem`. Although there is a limitation to this method (the `.toc` file may contain other commands, such as language changing commands, which do not expect to see their scope limited in this way inside a group), I believe this procedure will be found the most convenient in many cases. However the own package custom line styles (illustrated by the main table of contents in this document) do not make use of environments to avoid that problem.

1.2 Line styles

To implement the above idea, the command `\etocsetstyle` will inform **etoc** of what it should do at each sectioning level, from `part` down to `subparagraph`. Other sectioning names can be used too, if present in the document.

1.2.1 `\etocetoclines` vs `\etocstandardlines`

The `\etocetoclines` command selects the package predefined line styles, and `\etocstandardlines` uses the standard default formatting from the `article`, `book`, `report`, or also `scrartcl` classes. For any document class proceeding (as does `scrartcl`) in a manner analogous as does the `article` class in its typesetting of the table of contents, the `\etocstandardlines` should be functional: indeed nothing is hard-coded into the package code; rather, when `\etocstandardlines` is issued by the user, the package cancels its own mechanism and gives back the leadership to the class layer. Note though that this means that **etoc** does not provide utilities to change this or that length from the \LaTeX default formatting of TOC entries. But if some other package has done it, then this should work correctly also when **etoc** is in use (for its other aspects described below).

1.2.2 Instructing **etoc** about sectioning command names

If the document class uses other names, such as *atom*, or *particle*, then the command `\etocsetlevel` is provided to instruct **etoc** about it.

1.3 Global style: multiple columns, ruled heading, framed TOC

At the global level, the default of `etoc` is to typeset the TOC on two columns, using the package `multicol`. Additionally, the heading can be formatted as in the default manner, or as a ruled heading, or the entire TOC can be encapsulated in a frame (if it fits on the current page). And the user can specify to use a single column output, or three columns, etc . . .

1.4 Local table of contents

With `etoc`, the `\tableofcontents` command can be used arbitrarily many times and it has a starred variant `\tableofcontents*` which prints a local table of contents (i.e. all subsections etc . . . inside a given section, or all subsubsections and lower inside a given subsection, etc . . .).

Part II

Package commands for line styles

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2 The `\etocsetstyle` command

2.1 An example

Let us explain how `etoc` was used to produce the (local) table of contents of this second part. We distinguish between the *line styles*, and the *global style*. The global style here is on one column, and has a heading of a certain sort, but first we describe the line styles. Essentially they were obtained via the following set-up:^{1 2}

```
\etocsetstyle{section}
{\begin{enumerate}}
{\normalsize\bfseries\rmfamily\item}
{\etocname (page \etocpage)}
{\end{enumerate}}

\etocsetstyle{subsection}
{\begin{enumerate}}
{\normalfont\item}
{\etocname (p.~\etocpage)}
{\end{enumerate}}

\etocsetstyle{subsubsection}
{\par\nobreak\begin{group}\normalfont\footnotesize\itshape\etocskipfirstprefix}
{\allowbreak\,--\,}
{\etocname}
{\unskip.\hfil\par\end{group}\pagebreak[3]}
```

Each `\etocsetstyle` command has five mandatory arguments:

```
\etocsetstyle{<levelname>}{<start>}{<prefix>}{<contents>}{<finish>}
```

The initially recognized `{<levelname>}`'s are the sectioning levels of the standard document classes (from *part* down to *subparagraph*).

The `{<start>}` code is executed when a toc entry of that level is encountered and the previous one was at a higher level. The `{<finish>}` code is executed when one again encounters a higher level toc entry. In the mean-time all entries for that level are typeset by executing first the `{<prefix>}` code and then the `{<contents>}` code.

2.1.1 `\etocname` and `\etocpage`

The line styles specifications use the commands `\etocname` and `\etocpage` to get the name, respectively the page number for each entry. The numbering here would

¹the present document has `\renewcommand{\familydefault}{\sfdefault}` in its preamble, hence `\normalfont` switches to the sans typeface; so in the section line-style, I wrote `\rmfamily` instead.

²`etoc` uses the `xspace` package, and there is no need to write `\etocname{}` text rather than just `\etocname` text for example. However, this forced us to add the mysterious `\unskip` before the dot in the subsubsection style.

be the one generated by the `enumerate` environment, we will shortly explain how we got the actual numbering from the data in the `.toc` file.

2.1.2 The `\etocskipfirstprefix` command

The subsubsection code specifies to list the names of the subsubsections from a given subsection in an inline manner, with – as a separator. The command `\etocskipfirstprefix`, which, if present, *must* be the very last one in the *start* code, instructs to not use that separator of the first item. With this style, one has to be imaginative to design something then for paragraph and subparagraph entries! perhaps as superscripts? Well, usually one does not need paragraphs and subparagraphs numbered and listed in the TOC, so our putative user here chose a design where no provision is made for them and added the definitive:

```
\etocsetstyle{paragraph}{}{}{}{}{}
\etocsetstyle{subparagraph}{}{}{}{}{}
```

This is also the situation with the default line styles from the package!

2.1.3 `secnumdepth` and `tocdepth`

Alternatively, the L^AT_EX counters `secnumdepth` (which decides down to which levels things are numbered and automatically written to the `.toc` file) or `tocdepth` (which decides the finest level displayed in the table of contents) could be used, as they are obeyed by `etoc`.

2.2 The `\etocsetlevel` command

If your document uses other sectioning names, such as, for example *molecule*, or *atom*, one informs `etoc` of this via:

```
\etocsetlevel{cell}{0}
\etocsetlevel{molecule}{1}
\etocsetlevel{atom}{2}
\etocsetlevel{nucleus}{3}
```

The accepted numbers range from -1 to 5 inclusive. The package code does:

```
\etocsetlevel{part}{-1}
\etocsetlevel{chapter}{0}
\etocsetlevel{section}{1}
\etocsetlevel{subsection}{2}
\etocsetlevel{subsubsection}{3}
\etocsetlevel{paragraph}{4}
\etocsetlevel{subparagraph}{5}
```

2.3 Further informations and let's make this a very long title to see how it will look like

2.3.1 The `\etocnumber` command

So far, our specifications would use the numbering generated by the `enumerate` environments, but it would be nicer to use the actual numbers as found in the `.toc` file. This is available via the `\etocnumber` command. To get the labels in the `enumerate` list to use it we can proceed with the syntax `label=` from the package `enumitem`:

```
\etocsetstyle{section}
{\begin{enumerate}[label=\etocnumber]}
{\normalsize\bfseries\rmfamily\item}
{\etocname (page \etocpage)}
{\end{enumerate}}
```

Rather than just `\etocnumber` we then used something like `\fbox{\etocnumber}`.

2.3.2 The `\etocifnumbered` switch

The `\fbox` would give an unaesthetic result in the case of an unnumbered section (which ended up in the table of contents via an `\addcontentsline` command). The `\etocifnumbered{<A>}{}` command executes `<A>` if the number exists, and `` if not. So our final code could be:

```
\etocsetstyle{section}
{\begin{enumerate}[label=\etocifnumbered{\etocnumber}{}]}
{\normalsize\bfseries\rmfamily\item}
{\etocname (page \etocpage)}
{\end{enumerate}}
```

We used, actually:

```
\etocsetstyle{section}
{\begin{enumerate}[leftmargin=0pt,label=]}
{\normalsize\bfseries\rmfamily\item}
{\etocifnumbered{\makebox[1cm][c]{\color{green}\fboxrule1pt
\color{black}\fbox{\protect\normalcolor\etocnumber}}}{\hspace{1cm}}}%
\etocname (page \etocpage)}
{\end{enumerate}}

\etocsetstyle{subsection}
{\begin{enumerate}[label=\etocnumber, leftmargin=1cm]}
{\normalfont \item}
{\etocname (p.~\etocpage)}
{\end{enumerate}}
```

If we had changed only the section level, and not the subsection level, an error on compilation would have occurred because the package style for subsections expects to start ‘in vertical mode’. An additional `\par` token in the `<contents>` part of the section level would have fixed this: `{... (page \etocpage)\par}`.

2.3.3 This is a red subsubsection for illustrative purposes

Just before this subsubsection we inserted in the `.tex` file:

```
\color{red}  
\addtocontents{toc}{\string\color{red}}
```

This entire subsubsection and its title is printed in red, as well as the title of the next section (we cancel the color change only after it). But what about its entry in the table of contents? well it is red in the main table of contents at the beginning of this document, which uses the package line styles, and it is not red in the table of contents at the beginning of this second document part. The reason is that the `<finish>` code for the subsubsection level closed a group, whereas the `<start>` and `<finish>` code of the package line styles do not contain group opening and closing instructions. So here the group was closed while reading the `.toc` file and this explains why the next entry in the local TOC was not typeset in red.

In the present case the group at the subsubsection level is there to confine the font changes, but this could be made superfluous via adding a `\normalsize` to the subsection specification. I take this opportunity to mention that **etoc** always typesets the entire table of contents inside a group, hence no font change therein can propagate to the outside.

3 Am I also in red?

```
\normalcolor  
\addtocontents{toc}{\string\normalcolor}
```

Back to black. Note that this scope problem arises in real life in a multi-lingual document, as the `babel` package writes to the `.toc` file the language changes occurring in the document. There is no easy general solution³ to this problem, which probably will concern only a minority of cases. Again, the line styles defined by **etoc** do not use groups.

³one can insert by hand the language changes in each concerned sectioning command.

An unnumbered section

I don't have much to say here. I just added an unnumbered section, and made it appear in the .toc file.

```
\section*{An unnumbered section}
\addcontentsline{toc}{section}{An unnumbered section}
```

Part III

Package commands for global styles

We compare here various line styles: the standard formatting provided by the document class, the package line styles, and the custom line styles we defined above which use enumerate environments. We added some paragraphs, which are not taken into account by the **etoc** style, nor by our enumerate styles.

```
\setcounter{secnumdepth}{4}
\setcounter{tocdepth}{4}
```

First let us use again our set-up from the previous part. We add to it

```
\etocsetstyle{part}
{\begin{enumerate}[label=\etocnumber,leftmargin=1em]}
{\etocfontminusone\item}
{\etocname}
{\end{enumerate}}
```

This is the table of contents defined with enumerate environments for the part, section and subsection levels, and an inline italic style for subsubsections.

I Although this is a short document, we are going to use many sectioning commands

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Then we switch to the standard formatting of entries, as provided by the document class, but here on two columns:

```
\etocstandardlines  
\tableofcontents
```

(let's clear the present page)

This is the table of contents with standard entries (on 2 columns!)

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Finally we use the package line styles, but restrict the table of contents to this third part, and as it is short we opted for a frame around it.

```
\etocetoclines
\tableofcontents*
```

How the frame and title were set up will be described later. Also, we reduced the package default left and right inner margins from 2em to 2ex.

*This is the table of contents à la **etoc**, but just for this part. As it is put in a frame, it has to be small enough to fit on one page.*

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4 Specifying the global style

The *global* style says whether the TOC appears with multiple columns or just one, whether the title is typeset as in the *article* or *book* class, or should be centered

above the entries, with rules on its sides, or if the entire TOC should be put in a frame. For example, to opt for a ruled heading and single column layout, one issues commands of the following type:

```
\etocruledstyle[1]{\etocfontminusone This is the table of contents}
\tableofcontents or \tableofcontents*
```

4.1 The `\etocfontxxx...` commands

The `\etocfontminusone` gives the font specification for the top (i.e. part) level. The package predefines:

```
\newcommand\etocfontminusone{\normalfont \large \bfseries}
\newcommand\etocfontzero{\normalfont \normalsize \bfseries}
\newcommand\etocfontone{\normalfont \normalsize \bfseries}
\newcommand\etocfonttwo{\normalfont \normalsize}
\newcommand\etocfontthree{\normalfont \footnotesize}
\newcommand\etocfontfour{\normalfont \footnotesize}
\newcommand\etocfontfive{\normalfont \footnotesize}
```

This has no impact under the `\etocstandardlines` regime. And, let us recall, levels four (paragraph) and five (subparagraphs) are not displayed in TOCs by the package default line styles.

4.2 The command `\etocruledstyle`

The general format of `\etocruledstyle` is:

```
\etocruledstyle[<number of columns>]{<title of the toc>}
```

Note that the title is horizontal material, if it does not fit on one line it can be put in a `\parbox` of a given width. We did this and even enclosed the parboxes in `\fboxes` to get frames around them. For the example with the standard formatting we did not use an `\fbox` and got rid of the horizontal rules via:

```
\renewcommand{\etocstoprule}{\hrule height 0pt}
```

The green frame for the table of contents heading at the start of the second part of this document was obtained with

```
\etocruledstyle[1]{\etocfontminusone\color{green}%
  \fboxrule1pt\fboxsep1ex%
  \framebox[\linewidth]
    {\normalcolor\hfil Contents of this second part\hfil}}
```

4.3 The command `\etocmulticolstyle`

This is also a command with one optional and one mandatory argument:

`\etocmulticolstyle[$\langle number_of_columns \rangle$]{ $\langle heading \rangle$ }`

The [$\langle number_of_columns \rangle$] can go from 1 to 10 (it defaults to 2, and from 2 on is passed to a `multicols` environment). The { $\langle heading \rangle$ } can be something like:

`\chapter*{ $\langle title \rangle$ },`
or
`\etocstandardheading{ $\langle title \rangle$ },`
or
`\etocstandardheadingnomarks{ $\langle title \rangle$ }.`

These last two commands do either `\section*` or `\chapter*` depending on the document class, and the first one puts the marks for the page headings. To emulate the standard formatting one can thus use:

`\etocmulticolstyle[1]{\etocstandardheading{\contentsname}}`

After such a command, future `\tableofcontents` will use the specified style. A shortcut for just one table of contents and not affecting the styles of later TOCs is:

`\etocmulticol[$\langle number_of_columns \rangle$]{ $\langle heading \rangle$ }`

And the starred form will be `\etocmulticol*[$\langle number_of_columns \rangle$]{ $\langle heading \rangle$ }`.

4.3.1 A point of some importance

There is an important difference between the `\etocmulticolstyle` and `\etocruledstyle` commands. The mandatory argument of the former can not be just some *naked text*. It should rather be something like `\hbox{naked text}` or `\vbox{naked text}`. More conveniently, one can use things such as:

`\section*{some not so naked text}`

Else, you will get an error:

ERROR: LaTeX Error: Something's wrong--perhaps a missing `\item`.
In the special case where the command was also given the optional argument [1], it is possible to feed it with `'naked text\par'`.

On the other hand, it is exactly the opposite for `\etocruledstyle` which expects things which fit inside a horizontal box, hence it will gladly accept a *naked text* as argument.

4.3.1.1 Do we really want paragraph entries in the TOC?

4.3.1.2 really?

4.4 The command `\etocruledstyle` (cont.)

As a shortcut to set the style with this command and then make a `\tableofcontents` or `\tableofcontents*` call (in a group, so that the style for future table

of contents is not affected) we have:

`\etocruled[⟨number_of_columns⟩]{⟨title⟩}`

And the starred form will be with `\etocruled*`.

4.5 The command `\etocframedstyle`

Same mechanism:

`\etocframedstyle[⟨number_of_columns⟩]{⟨title⟩}`

and the accompanying shortcut:

`\etocframed[⟨number_of_columns⟩]{⟨title⟩}`

Here the entire table of contents is framed, hence this can only work if it fits on a page. Again the starred variant starts with `\etocframed*`.

4.6 The command `\etocsettocstyle`

This is a command with two mandatory arguments:

`\etocsettocstyle{⟨before_toc⟩}{⟨after_toc⟩}`

The `{⟨before_toc⟩}` part is responsible for typesetting the heading, for example it can be something like `\section*{⟨contentsname⟩}`. It can also contain instructions to mark the page headings.⁴ Or it could check (book class) to see if two-column mode is on, and switch to one-column style, and the `⟨after_toc⟩` part would then reenact the two-column mode.⁵

The three commands `\etocmulticolstyle`, `\etocruledstyle`, and `\etocframedstyle` actually call `\etocsettocstyle` as a lower-level routine.

⁴`etoc` provides the command `\etocmarkboth[⟨optional_name⟩]`, with an optional argument which defaults to `\contentsname`.

⁵In our testing, we had some difficulties, when using the `multicol` package in a book class document with the two-column global option. So, as we use `multicol` by default we decided against trying to automatize a check for such a possible `twocolumn` class option. It is up to the user to decide (or not) to switch back and forth from two-column to one-column when typesetting table of contents.

5 Summary of the main local and global style commands

```
\etocsetstyle{<levelname>}{<start>}{<prefix>}{<contents>}{<finish>}
\etocname, \etocnumber, \etocpage, \etocifnumbered{<A>}{<B>}
\etocmulticolstyle[<number_of_columns>]{<heading>}
\etocruledstyle[<number_of_columns>]{<title>}
\etocframedstyle[<number_of_columns>]{<title>}
\etocsettocstyle{<before_toc>}{<after_toc>}
\tableofcontents
\tableofcontents*
\etocmulticol[<number_of_columns>]{<heading>}
\etocmulticol*[<number_of_columns>]{<heading>}
\etocruled[<number_of_columns>]{<title>}
\etocruled*[<number_of_columns>]{<title>}
\etocframed[<number_of_columns>]{<title>}
\etocframed*[<number_of_columns>]{<title>}
```

Part IV

Customizing **etoc**

6 Customizing the **etoc** line styles

We will simply list the relevant commands as defined in the package. Customizing them goes through suitable `\renewcommands`:

```
\newcommand\etocfontminusone{\normalfont \large \bfseries}
\newcommand\etocfontzero{\normalfont \normalsize \bfseries}
\newcommand\etocfontone{\normalfont \normalsize \bfseries}
\newcommand\etocfonttwo{\normalfont \normalsize}
\newcommand\etocfontthree{\normalfont \footnotesize}
\newcommand\etocfontfour{\normalfont \footnotesize}
\newcommand\etocfontfive{\normalfont \footnotesize}

\newcommand\etocsepminusone{4ex plus .5ex minus .5ex}
\newcommand\etocsepzero{2.5ex plus .4ex minus .4ex}
\newcommand\etocsepone{1.5ex plus .3ex minus .3ex}
\newcommand\etocseptwo{1ex plus .15ex minus .15ex}
\newcommand\etocsepthree{.25ex plus .05ex minus .05ex}
\newcommand\etocminusonelrmargins{1em}
```



```

\newcommand\etocbaselinespreadminusone{1}
\newcommand\etocbaselinespreadzero{1}
\newcommand\etocbaselinespreadone{1}
\newcommand\etocbaselinespreadtwo{1}
\newcommand\etocbaselinespreadthree{.9}

\newcommand\etoclineleaders
{\hbox{\normalfont\normalsize\hbox to 2ex {\hfil.\hfil}}}}

\newcommand\etocabbrevpagename{p.~}

```

No customizing of the standard line styles is possible from within **etoc**. As already explained, when `\etocstandardlines` has been issued, the package just makes itself very discrete and acts only at the global level, and the TOC entries are (hopefully) formatted as would have happened in the absence of **etoc**. In this mode the `\etocsetstyle` commands will have an effect only after the document encounters again an `\etocetoclines` command.

The `\etocstandardlines` mechanism will work also with sectioning commands made known to **etoc** via `\etocsetlevel`, under the condition of course that these sectioning commands are accompanied with all the relevant definitions for typesetting toc entries in the L^AT_EX default manner (existence of the macros `\l@something...`).

7 Customizing the global styles

Again we list the relevant macros, what they do should be legible from their names:

```

\newcommand\etocabovetocskip{3.5ex plus 1ex minus .2ex}
\newcommand\etocbelowtocskip{3.5ex plus 1ex minus .2ex}

\newcommand\etoccolumnsep{2em}
\newcommand\etocmulticolsep{0ex}
\newcommand\etocmulticolpretolerance{-1}
\newcommand\etocmulticoltolerance{200}

\newcommand\etocinnertopsep{2ex}
\newcommand\etocinnerbottomsep{3.5ex}
\newcommand\etocinnerleftsep{2em}
\newcommand\etocinnerrightsep{2em}

\newcommand\etoctoprule{\hrule}
\newcommand\etocleftrule{\vrule}
\newcommand\etocrightrule{\vrule}
\newcommand\etocbottomrule{\hrule}

```

```

\newcommand\etoc_toprulecolorcmd{\relax}
\newcommand\etoc_bottomrulecolorcmd{\relax}
\newcommand\etoc_leftftrulecolorcmd{\relax}
\newcommand\etoc_rightftrulecolorcmd{\relax}

```

Regarding the dimensions of the top rule they can be specified in ex's or em's as for example:

```
\renewcommand{\etoc_toprule}{\hrule height 1ex}
```

The package code is done in such a way that it is the font size in instance at the end of typesetting the title argument to `\etocruledtoc` or `\etocframedtoc` which will be used for the meaning of the '1ex'. However for the side rules and bottom rule in the framed case, their dimensions, if specified with such font relative units, are decided on the basis of the font in effect just before the table of contents.

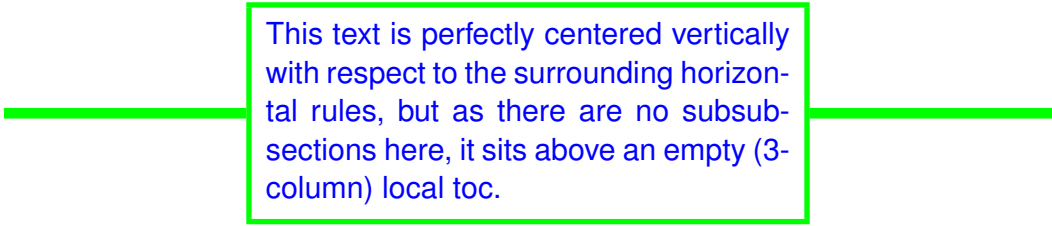
The top, bottom, left, right rules do not have to be rules: they can be *leaders* in the general T_EX sense.

7.1 Hacking framed parboxes

```

\renewcommand\etoc_toprule{\hrule height 2pt depth 2pt}
\etocruled*[3]{\color{green}\fboxrule2pt\fboxsep1ex%
  \fbox{\raisebox{-\fontdimen22\textfont2}
    {\color{blue}\parbox{.5\linewidth}
      {\normalfont This text is perfectly centered
        vertically with respect to the
        surrounding horizontal rules, but as
        there are no subsubsections here, it
        sits above an empty (3-column) local toc.}}}}

```



This text is perfectly centered vertically with respect to the surrounding horizontal rules, but as there are no subsubsections here, it sits above an empty (3-column) local toc.

7.2 Interverting the levels

Let us display and count all subsections occurring in this document.

```

\setcounter{tocdepth}{2}
\etocsetlevel{part}{3}

```

```

\etocsetlevel{section}{3}
\etocsetstyle{subsection}{\begin{enumerate}[itemsep=0pt,%
label=,leftmargin=0pt]}
{\normalfont\bfseries\item}
{\roman{enumi}. \normalfont\etocname (\etocnumber, p.\~\etocpage)}
{\end{enumerate}}
\renewcommand{\etoccolumnsep}{2.75em}
\renewcommand{\columnseprule}{1pt}
\etocmulticol[3]{\subsection{All subsections of this document}}

```

7.3 All subsections of this document

i. Initial motivation (1.1, p. 2)	tions and let's make this a very long title to see how it will look like (2.3, p. 5)	xiii. The command <code>\etocsettocstyle</code> (4.6, p. 11)
ii. Line styles (1.2, p. 2)		xiv. Hacking framed parboxes (7.1, p. 15)
iii. Global style: multiple columns, ruled heading, framed TOC (1.3, p. 3)	viii. The <code>\etocfontxxx...</code> commands (4.1, p. 9)	xv. Interverting the levels (7.2, p. 15)
iv. Local table of contents (1.4, p. 3)	ix. The command <code>\etocruledstyle</code> (4.2, p. 10)	xvi. All subsections of this document (7.3, p. 16)
v. An example (2.1, p. 3)	x. The command <code>\etocmulticolstyle</code> (4.3, p. 10)	xvii. Compatibility with other packages (7.4, p. 16)
vi. The <code>\etocsetlevel</code> command (2.2, p. 5)	xi. The command <code>\etocruledstyle</code> (cont.) (4.4, p. 11)	xviii. T _E Xnical matters (7.5, p. 16)
vii. Further informa-	xii. The command <code>\etocframedstyle</code> (4.5, p. 11)	

7.4 Compatibility with other packages

etoc uses the packages `multicol` and `xspace`. It is `hyperref` aware and hopefully `hyperref` compatible! The macros `\etocname`, `\etocnumber`, and `\etocpage` contain the `hyperref` links, if present (note that the `linktoc=all` option of `hyperref` tells it to put a link also in the page number corresponding to a given toc entry). The table of contents of the present document are fully linked.

etoc has not been tested with other packages than those cited. It has been tested to work as expected with the `article`, `book` and `scrartcl` document classes.

7.5 T_EXnical matters

The `\etocname`, `\etocnumber`, `\etocpage` and `\etocifnumbered` macros are protected against premature expansion. The macro `\etocsetstyle`, as well as `\etocsetlevel` and the global style commands `\etocmulticolstyle`, `\etocruledstyle` and `\etocframedstyle` obey L^AT_EX's groups.

Part V

The code

8 Implementation

Source code commenting is hopefully for a future release. Sorry.

```
1 <*package>
2 \NeedsTeXFormat{LaTeX2e}
3 %
4 \RequirePackage{multicol}
5 \RequirePackage{xspace}
6 \DeclareOption*{\PackageWarning{etoc}{Option ‘\CurrentOption’ is un-
  known.}}
7 \ProcessOptions\relax
8 %
9 \newtoks\Etoc@toctoks
10 \newif\ifEtoc@j    % part
11 \newif\ifEtoc@    % chapter
12 \newif\ifEtoc@i    % section
13 \newif\ifEtoc@ii   % subsection
14 \newif\ifEtoc@iii  % subsubsection
15 \newif\ifEtoc@iv   % paragraph
16 \newif\ifEtoc@v    % subparagraph
17 \newif\ifEtoc@number
18 \newif\ifEtoc@hyperref
19 \newif\ifEtoc@star
20 \newif\ifEtoc@standard
21 \newif\ifEtoc@part
22 %
23 \newif\ifEtoc@localtoc
24 \newif\ifEtoc@skipthisone
25 \newif\ifEtoc@stoptoc
26 \newif\ifEtoc@notactive
27 \newcounter{etoc@localtocid}
28 %
29 \let\Etoc@@minusone@@\m@ne
```

```

30 \chardef\Etoc@@zero@@\z@
31 \chardef\Etoc@@one@@\@ne
32 \chardef\Etoc@@two@@\tw@
33 \chardef\Etoc@@three@@\thr@@
34 \chardef\Etoc@@four@@\relax
35 \chardef\Etoc@@five@@\relax
36 \chardef\Etoc@@six@@\relax
37 \let\Etoc@localtop\m@ne
38 \def\Etoc@@minusone@{minusone}
39 \def\Etoc@@zero@{zero}
40 \def\Etoc@@one@{one}
41 \def\Etoc@@two@{two}
42 \def\Etoc@@three@{three}
43 \def\Etoc@@four@{four}
44 \def\Etoc@@five@{five}
45 %
46 \def\Etoc@Lazarus{%
47 \def\Etoc@Lazarus@elta##1\Etoc@Lazarus@elbt##2{\let##1##2}%
48 \Etoc@Lazaruslist}
49 \def\Etoc@Lazaruslist{}
50 %
51 \def\Etoc@newdisciple#1#2{%
52   \def\Etoc@Lazarus@elta{\noexpand\Etoc@Lazarus@elta\noexpand}%
53   \def\Etoc@Lazarus@elbt{\noexpand\Etoc@Lazarus@elbt\noexpand}%
54   \edef\Etoc@Lazaruslist{\Etoc@Lazaruslist
55                               \Etoc@Lazarus@elta#1
56                               \Etoc@Lazarus@elbt#2}}
57 \def\etocsetlevel#1#2{%
58   \let\Etoc@next\@firstofone
59   \ifcase#2\or\or\or\or\or\else\ifnum#2=\m@ne\else
60     \PackageWarning{etoc}
61     {unexpected value ‘#2’ in \string\etocsetlevel.^}%
62     Should be -1, 0, 1, 2, 3, 4 or 5. Set to -1}%
63     \expandafter\def\csname Etoc@#1\endcsname{minusone}%
64     \expandafter\let\csname Etoc@#1\endcsname\m@ne
65   \let\Etoc@next\gobble\fi\fi
66   \if@noskipsec
67   \else
68     \expandafter\expandafter\expandafter
69     \let\expandafter\expandafter\csname Etoc@savedl@#1\endcsname
70         \csname l@#1\endcsname
71     \expandafter\let\csname l@#1\endcsname\Etoc@lxyz
72   \fi
73   \expandafter\expandafter\expandafter\Etoc@newdisciple
74   \expandafter\expandafter
75     \csname l@#1\endcsname\csname Etoc@savedl@#1\endcsname

```

```

76 \Etoc@next
77 {\ifcase#2\relax
78     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@zero@@
79     \expandafter\def \csname Etoc@#1@\endcsname{zero}%
80 \or
81     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@one@@
82     \expandafter\def \csname Etoc@#1@\endcsname{one}%
83 \or
84     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@two@@
85     \expandafter\def \csname Etoc@#1@\endcsname{two}%
86 \or
87     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@three@@
88     \expandafter\def \csname Etoc@#1@\endcsname{three}%
89 \or
90     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@four@@
91     \expandafter\def \csname Etoc@#1@\endcsname{four}%
92 \or
93     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@five@@
94     \expandafter\def \csname Etoc@#1@\endcsname{five}%
95 \else
96     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@minusone@@
97     \expandafter\def \csname Etoc@#1@\endcsname{minusone}%
98 \fi}}
99 \etocsetlevel{part}{-1}
100 \etocsetlevel{chapter}{0}
101 \etocsetlevel{section}{1}
102 \etocsetlevel{subsection}{2}
103 \etocsetlevel{subsubsection}{3}
104 \etocsetlevel{paragraph}{4}
105 \etocsetlevel{subparagraph}{5}
106 %
107 \AtBeginDocument{%
108 \def\Etoc@Lazarus@elta#1\Etoc@Lazarus@eltb#2{\let#2#1\let#1\Etoc@lxyz}%
109 \Etoc@Lazaruslist
110 \let\Etoc@savedcontentsline\contentsline
111 \let\contentsline\Etoc@etoccontentsline
112 \@ifpackageloaded{hyperref}
113 {\Etoc@hyperreftrue
114 \def\Etoc@et@hop#1#2#3#4#5{#1{#3}{#4}{#5}#2}}
115 {\Etoc@hyperreffalse
116 \def\Etoc@et@hop#1#2#3#4{#1{#3}{#4}#2}}
117 %
118 \def\Etoc@swa#1{%
119     \Etoc@et@hop
120     {\Etoc@savedcontentsline{#1}}
121     {\Etoc@prefix\Etoc@contents}}

```

```

122 \def\Etoc@swb#1{%
123     \Etoc@et@hop
124     {\Etoc@savedcontentsline{#1}}
125     {\Etoc@contents}}
126 \let\etocskipfirstprefix\@thirdofthree
127 %
128 \def\etoc@startlocaltoc#1{%
129 \let\Etoc@next\relax
130     \ifEtoc@localtoc
131     \ifEtoc@notactive
132         \ifnum #1<\c@etoc@localtocid\relax
133             \else
134                 \ifEtoc@j \global\let\Etoc@localtop\Etoc@@zero@@ \fi
135                 \ifEtoc@ \global\let\Etoc@localtop\Etoc@@one@@ \fi
136                 \ifEtoc@i \global\let\Etoc@localtop\Etoc@@two@@ \fi
137                 \ifEtoc@ii \global\let\Etoc@localtop\Etoc@@three@@ \fi
138                 \ifEtoc@iii \global\let\Etoc@localtop\Etoc@@four@@ \fi
139                 \ifEtoc@iv \global\let\Etoc@localtop\Etoc@@five@@ \fi
140                 \ifEtoc@v \global\let\Etoc@localtop\Etoc@@six@@ \fi
141                 \def\Etoc@next{\global\Etoc@notactivefalse
142                     \global\Etoc@vfalse
143                     \global\Etoc@ivfalse
144                     \global\Etoc@iiifalse
145                     \global\Etoc@iifalse
146                     \global\Etoc@ifalse
147                     \global\Etoc@false
148                     \global\Etoc@jfalse}%
149             \fi
150         \fi\fi
151 \Etoc@next}
152 \def\Etoc@setflags #1{%
153     \ifcase #1\relax
154         \global\Etoc@vfalse
155         \global\Etoc@ivfalse
156         \global\Etoc@iiifalse
157         \global\Etoc@iifalse
158         \global\Etoc@ifalse
159         \global\Etoc@true
160     \or
161         \global\Etoc@vfalse
162         \global\Etoc@ivfalse
163         \global\Etoc@iiifalse
164         \global\Etoc@iifalse
165         \global\Etoc@ittrue
166     \or
167         \global\Etoc@vfalse

```

```

168     \global\Etoc@ivfalse
169     \global\Etoc@iiifalse
170     \global\Etoc@ii>true
171 \or
172     \global\Etoc@vfalse
173     \global\Etoc@ivfalse
174     \global\Etoc@ii>true
175 \or
176     \global\Etoc@vfalse
177     \global\Etoc@iv>true
178 \or
179     \global\Etoc@v>true
180 \else
181     \global\Etoc@vfalse
182     \global\Etoc@ivfalse
183     \global\Etoc@iiifalse
184     \global\Etoc@iifalse
185     \global\Etoc@ifalse
186     \global\Etoc@false
187     \global\Etoc@j>true
188 \fi}
189 \def\Etoc@etoccontentsline#1{%
190   \global\expandafter\let\expandafter\Etoc@tmp\csname Etoc@#1@@\endcsname
191   \global\Etoc@partfalse
192   \Etoc@skipthisonefalse
193   \ifEtoc@hyperref
194     \def\Etoc@next{\expandafter\@gobbletwo\@gobblefour}%
195   \else
196     \def\Etoc@next{\expandafter\@gobble\@gobblefour}%
197   \fi
198   \ifEtoc@localtoc
199     \let\Etoc@prenext\relax
200     \ifEtoc@stoptoc
201       \Etoc@skipthisonetrue
202     \fi
203     \ifnum\Etoc@tmp<\Etoc@localtop
204       \def\Etoc@prenext{\global\Etoc@stoptoctrue}%
205       \Etoc@skipthisonetrue
206     \fi
207     \ifEtoc@notactive
208       \def\Etoc@prenext{\Etoc@setflags{\Etoc@tmp}}%
209       \Etoc@skipthisonetrue
210     \fi
211     \Etoc@prenext
212   \fi
213   \ifnum\c@tocdepth<\Etoc@tmp\relax\else

```



```

214 \ifEtoc@skipthisone\else
215 \global\let\Etoc@next\relax
216 \ifcase\Etoc@tmp
217     \ifEtoc@v \Etoc@end@five\fi
218     \ifEtoc@iv \Etoc@end@four\fi
219     \ifEtoc@iii \Etoc@end@three\fi
220     \ifEtoc@ii \Etoc@end@two\fi
221     \ifEtoc@i \Etoc@end@one\fi
222     \ifEtoc@ \else \def\Etoc@next{\Etoc@begin@zero}\fi
223     \gdef\Etoc@contents{\Etoc@contents@zero}%
224     \gdef\Etoc@prefix{\Etoc@prefix@zero}%
225 \or
226     \ifEtoc@v \Etoc@end@five\fi
227     \ifEtoc@iv \Etoc@end@four\fi
228     \ifEtoc@iii \Etoc@end@three\fi
229     \ifEtoc@ii \Etoc@end@two\fi
230     \ifEtoc@i \else \def\Etoc@next{\Etoc@begin@one}\fi
231     \gdef\Etoc@contents{\Etoc@contents@one}%
232     \gdef\Etoc@prefix{\Etoc@prefix@one}%
233 \or
234     \ifEtoc@v \Etoc@end@five\fi
235     \ifEtoc@iv \Etoc@end@four\fi
236     \ifEtoc@iii \Etoc@end@three\fi
237     \ifEtoc@ii \else \def\Etoc@next{\Etoc@begin@two}\fi
238     \gdef\Etoc@contents{\Etoc@contents@two}%
239     \gdef\Etoc@prefix{\Etoc@prefix@two}%
240 \or
241     \ifEtoc@v \Etoc@end@five\fi
242     \ifEtoc@iv \Etoc@end@four\fi
243     \ifEtoc@iii \else \def\Etoc@next{\Etoc@begin@three}\fi
244     \gdef\Etoc@contents{\Etoc@contents@three}%
245     \gdef\Etoc@prefix{\Etoc@prefix@three}%
246 \or
247     \ifEtoc@v \Etoc@end@five\fi
248     \ifEtoc@iv \else \def\Etoc@next{\Etoc@begin@four}\fi
249     \gdef\Etoc@contents{\Etoc@contents@four}%
250     \gdef\Etoc@prefix{\Etoc@prefix@four}%
251 \or
252     \ifEtoc@v \else \def\Etoc@next{\Etoc@begin@five}\fi
253     \gdef\Etoc@contents{\Etoc@contents@five}%
254     \gdef\Etoc@prefix{\Etoc@prefix@five}%
255 \else
256     \ifEtoc@v \Etoc@end@five\fi
257     \ifEtoc@iv \Etoc@end@four\fi
258     \ifEtoc@iii \Etoc@end@three\fi
259     \ifEtoc@ii \Etoc@end@two\fi

```

```

260 \ifEtoc@i \Etoc@end@one\fi
261 \ifEtoc@ \Etoc@end@zero\fi
262 \ifEtoc@j \else \def\Etoc@next{\Etoc@begin@minusone}\fi
263 \global\Etoc@parttrue
264 \gdef\Etoc@contents{\Etoc@contents@minusone}%
265 \gdef\Etoc@prefix{\Etoc@prefix@minusone}%
266 \fi
267 \Etoc@setflags{\Etoc@tmp}%
268 \fi\fi
269 \Etoc@next
270 \@firstoftwo{\Etoc@swa{#1}}{\Etoc@swb{#1}}
271 %
272 \def\Etoc@lxyz #1#2{\global\@namedef{etocname }{\leavevmode #1\hspace}%
273 \global\@namedef{etocpage }{\leavevmode #2\hspace}%
274 \Etoc@getnb #1\relax\relax\etoc@
275 \ifEtoc@number\else\ifEtoc@part
276 \Etoc@getit #1\hspace\relax\etoc@\fi\fi}
277 %
278 \def\Etoc@getnb #1{\let\Etoc@next\Etoc@getnb@nohyp
279 \ifEtoc@hyperref\ifx #1\hyper@linkstart
280 \let\Etoc@next\Etoc@getnb@hyp\fi\fi\Etoc@next #1}
281 \def\Etoc@getit #1{\let\Etoc@next\Etoc@getit@nohyp
282 \ifEtoc@hyperref\ifx #1\hyper@linkstart
283 \let\Etoc@next\Etoc@getit@hyp\fi\fi\Etoc@next #1}
284 %
285 \def\Etoc@getnb@nohyp #1#2#3\etoc@{%
286 \ifx #1\numberline
287 \global\@namedef{etocnumber }{\leavevmode #2\hspace}\global\Etoc@numbertrue
288 \else
289 \global\@namedef{etocnumber }{\leavevmode\hspace}\global\Etoc@numberfalse
290 \fi}
291 %
292 \def\Etoc@getnb@hyp #1#2#3#4#5#6\etoc@{%
293 \def\Etoc@getnbr ##1##2##3\etoc@{%
294 \ifx ##1\numberline
295 \global\@namedef{etocnumber }{\leavevmode #1{#2}{#3}{##2}#5\hs-
pace}%
296 \global\Etoc@numbertrue
297 \else
298 \global\@namedef{etocnumber }{\leavevmode\hspace}%
299 \global\Etoc@numberfalse
300 \fi}%
301 \Etoc@getnbr #4\relax\relax\etoc@}
302 %
303 \def\Etoc@getit@nohyp #1\hspace#2#3\etoc@{%
304 \def\Etoc@getname ##1\hspace\relax\etoc@{%

```

```

305     \global\@namedef{etocname }{\leavevmode ##1\space}}%
306     \ifx \relax#2\else
307     \global\@namedef{etocnumber }{\leavevmode #1\space}%
308     \global\Etoc@numbertrue
309     \Etoc@getname #3\etoc@\fi}
310 %
311 \def\Etoc@getit@hyp #1#2#3#4#5#6\etoc@{%
312   \def\Etoc@getname ##1\hspace\relax\etoc@{%
313     \global\@namedef{etocname }{\leavevmode #1{#2}{#3}{##1}#5}\space}%
314   \def\Etoc@getnbr ##1\hspace##2##3\etoc@{%
315     \ifx\relax##2\else
316     \global\@namedef{etocnumber }{\leavevmode #1{#2}{#3}{##1}#5}\space}%
317     \global\Etoc@numbertrue
318     \Etoc@getname ##3\etoc@\fi}%
319   \Etoc@getnbr #4\hspace\relax\etoc@}
320 %
321 \edef\etocpage{\noexpand\protect\expandafter\noexpand
322               \csname etocpage \endcsname}
323 \edef\etocname{\noexpand\protect\expandafter\noexpand
324               \csname etocname \endcsname}
325 \edef\etocnumber{\noexpand\protect\expandafter\noexpand
326                 \csname etocnumber \endcsname}
327 %
328 \@namedef{etocifnumbered }{\ifEtoc@number
329 \expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi}
330 %
331 \edef\etocifnumbered{\noexpand\protect\expandafter\noexpand
332                     \csname etocifnumbered \endcsname}
333 %
334 \def\Etoc@readtoc#1{%
335   \ifeof #1
336   \let\Etoc@nextread\@gobble
337   \else
338   \let\Etoc@nextread\Etoc@readtoc
339   \read #1 to \Etoc@buffer
340   \global\Etoc@toctoks=\expandafter\expandafter\expandafter
341   {\expandafter\the\expandafter\Etoc@toctoks\Etoc@buffer}%
342   \fi
343   \Etoc@nextread{#1}%
344 }
345 %
346 \def\Etoc@starttoc{%
347 \begingroup
348 \makeatletter
349 \chardef\ET@endline\endlinechar
350 \@ifpackageloaded{hyperref}

```

```

351 {\ifx\hyper@last\@undefined
352 \ltx@ifpackageloaded {parskip}{\parskip \z@ }{}%
353 \IfFileExists {\jobname .toc}{\Hy@WarningNoLine {old toc file
354 detected, not used; run LaTeX again (cheers from etoc)}}{}%
355 \expandafter\@gobble\fi}{}%
356 {\IfFileExists{\jobname .toc}
357 {\endlinechar=-1\relax
358 \newread\Etoc@tf
359 \openin\Etoc@tf\@filef@und
360 \Etoc@readtoc\Etoc@tf
361 \closein\Etoc@tf}
362 {\typeout{No file \jobname .toc.}}}%
363 \endlinechar\ET@endline
364 \if@filesw \newwrite \tf@toc \immediate
365 \openout \tf@toc \jobname .toc\relax \fi
366 \endgroup}
367 %
368 \AtBeginDocument{\Etoc@starttoc}
369 \def\Etoc@toctoc{%
370 \ifEtoc@standard
371 \Etoc@Lazarus
372 \etocsetstyle{@minusone}{}{}{}{}{}%
373 \etocsetstyle{@zero}{}{}{}{}{}%
374 \etocsetstyle{@one}{}{}{}{}{}%
375 \etocsetstyle{@two}{}{}{}{}{}%
376 \etocsetstyle{@three}{}{}{}{}{}%
377 \etocsetstyle{@four}{}{}{}{}{}%
378 \etocsetstyle{@five}{}{}{}{}{}%
379 \else
380 \let\numberline\@gobble
381 \fi
382 \the\Etoc@toctoks
383 \ifEtoc@notactive\else
384 \ifEtoc@v \Etoc@end@five\fi
385 \ifEtoc@iv \Etoc@end@four\fi
386 \ifEtoc@iii \Etoc@end@three\fi
387 \ifEtoc@ii \Etoc@end@two\fi
388 \ifEtoc@i \Etoc@end@one\fi
389 \ifEtoc@ \Etoc@end@zero\fi
390 \ifEtoc@j \Etoc@end@minusone\fi
391 \fi
392 \global\Etoc@vfalse
393 \global\Etoc@ivfalse
394 \global\Etoc@iiifalse
395 \global\Etoc@iifalse
396 \global\Etoc@ifalse

```

```

397 \global\Etoc@false
398 \global\Etoc@jfalse}
399 %
400 \def\tableofcontents{\@ifstar{%
401 \stepcounter{etoc@localtocid}%
402 \global\Etoc@localtoctrue
403 \global\let\Etoc@localtop\m@ne
404 \global\Etoc@stoptocfalse
405 \global\Etoc@notactivetrue
406 \addtocontents{toc}{\string\etoc@startlocaltoc
407 \string{\arabic{etoc@localtocid}\string}}}%
408 \Etoc@tableofcontents
409 \global\Etoc@notactivefalse
410 \global\Etoc@stoptocfalse
411 \global\Etoc@localtocfalse}
412 {\Etoc@tableofcontents}}
413 %
414 \newcommand\etocsettocstyle[2]{%
415 \long\def\Etoc@tableofcontents
416 {\ifnum\c@tocdepth>-2\let\Etoc@@next\@firstofone\else
417 \let\Etoc@@next\@gobble\fi
418 \Etoc@@next{\begingroup #1\Etoc@toctoc #2\endgroup}}}
419 %
420 \newcommand\etocsetstyle[5]{%
421 \long\expandafter\def
422 \csname Etoc@begin@\csname Etoc@#1@\endcsname\endcsname {#2}%
423 \long\expandafter\def
424 \csname Etoc@prefix@\csname Etoc@#1@\endcsname\endcsname {#3}%
425 \long\expandafter\def
426 \csname Etoc@contents@\csname Etoc@#1@\endcsname\endcsname {#4}%
427 \long\expandafter\def
428 \csname Etoc@end@\csname Etoc@#1@\endcsname\endcsname {#5}}
429 %
430 \def\etocstandardlines{\Etoc@standardtrue}
431 %
432 \newcommand\etocfontminusone{\normalfont \large \bfseries}
433 \newcommand\etocfontzero{\normalfont \normalsize \bfseries}
434 \newcommand\etocfontone{\normalfont \normalsize \bfseries}
435 \newcommand\etocfonttwo{\normalfont \normalsize}
436 \newcommand\etocfontthree{\normalfont \footnotesize}
437 \newcommand\etocfontfour{\normalfont \footnotesize}
438 \newcommand\etocfontfive{\normalfont \footnotesize}
439 %
440 \newcommand\etocsepminusone{4ex \@plus .5ex \@minus .5ex}
441 \newcommand\etocsepzero{2.5ex \@plus .4ex \@minus .4ex}
442 \newcommand\etocsepone{1.5ex \@plus .3ex \@minus .3ex}

```

```

443 \newcommand\etocseptwo{1ex \@plus .15ex \@minus .15ex}
444 \newcommand\etocsepthree{.25ex \@plus .05ex \@minus .05ex}
445 %
446 \newcommand\etocbaselinespreadminusone{1}
447 \newcommand\etocbaselinespreadzero{1}
448 \newcommand\etocbaselinespreadone{1}
449 \newcommand\etocbaselinespreadtwo{1}
450 \newcommand\etocbaselinespreadthree{.9}
451 %
452 \newcommand\etocminusonelrmargins{1em}
453 \newcommand\etocclineleaders
454 {\hbox{\normalfont\normalsize\hbox to 2ex {\hfil.\hfil}}}%
455 \newcommand\etocabbrevpagename{p.~}
456 %
457 \def\etocetoclines{\Etoc@standardfalse}
458 %
459 \etocsetstyle{@minusone}{\addpenalty\@highpenalty}{%
460 {\begingroup \etocfontminusone
461 \addvspace{\etocsepminusone}%
462 \parindent \z@
463 \leftskip \etocminusonelrmargins
464 \rightskip \etocminusonelrmargins
465 \parfillskip \@flushglue
466 \vbox{\etocifnumbered{\etocnumber.~}{\etocname
467 \baselineskip\etocbaselinespreadminusone\baselineskip\par}%
468 \addvspace{\etocsepzero}\nobreak
469 \endgroup}
470 {\addpenalty\@secpenalty}%
471 \etocsetstyle{@zero}
472 {\addpenalty\@highpenalty}{%
473 {\begingroup
474 \etocfontzero
475 \addvspace{\etocsepzero}%
476 \parindent \z@ \parfillskip \@flushglue
477 \vbox{\etocifnumbered{\etocnumber\space}{\etocname
478 \baselineskip\etocbaselinespreadzero\baselineskip\par}%
479 \addvspace{\etocsepone}\addpenalty\@itempenalty
480 \endgroup}
481 {\addpenalty\@secpenalty}%
482 %
483 \etocsetstyle{@one}
484 {\addpenalty\@medpenalty}
485 {}
486 {\begingroup\etocfontone
487 \addvspace{\etocsepone}%
488 \parindent \z@ \parfillskip \z@

```

```

489 \setbox\z@\vbox{\parfillskip\@flushglue
490 \etocname\par\setbox\tw@\lastbox
491 \global\setbox\@ne\hbox{\unhbox\tw@}}}%
492 \dimen\z@=\wd\@ne
493 \setbox\z@=\etoclineleaders
494 \advance\dimen\z@\wd\z@
495 \etocifnumbered
496 {\setbox\tw@\hbox{\etocfonttwo\etocnumber, \etocabbrevpagename\etocpage}}
497 {\setbox\tw@\hbox{\etocfonttwo\etocabbrevpagename\etocpage}}}%
498 \advance\dimen\z@\wd\tw@
499 \ifdim\dimen\z@ < \linewidth
500     \vbox{\etocname\nobreak
501     \leaders\box\z@\hfil\box\tw@
502     \baselineskip\etocbaselinespreadone\baselineskip\par}
503 \else
504     \vbox{\etocname\nobreak
505     \ifdim\wd\@ne<\linewidth\leaders\copy\z@\hfil\break\fi
506     \hbox{}}\leaders\box\z@\hfil\box\tw@
507     \baselineskip\etocbaselinespreadone\baselineskip\par}
508 \fi
509 \addvspace{\etocseptwo}\addpenalty\@itempenalty
510 \endgroup}
511 {\addpenalty\@secpenalty}}%
512 %
513 \etocsetstyle{@two}
514 {\addpenalty\@medpenalty}
515 {}
516 {\begingroup\etocfonttwo
517 \addvspace{\etocseptwo}%
518 \parindent \z@ \parfillskip \z@
519 \setbox\z@\vbox{\parfillskip\@flushglue
520 \etocname\par\setbox\tw@\lastbox
521 \global\setbox\@ne\hbox{\unhbox\tw@}}}%
522 \dimen\z@=\wd\@ne
523 \setbox\z@=\etoclineleaders
524 \advance\dimen\z@\wd\z@
525 \etocifnumbered
526 {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage}}
527 {\setbox\tw@\hbox{\etocabbrevpagename\etocpage}}}%
528 \advance\dimen\z@\wd\tw@
529 \ifdim\dimen\z@ < \linewidth
530     \vbox{\etocname\nobreak
531     \leaders\box\z@\hfil\box\tw@
532     \baselineskip\etocbaselinespreadtwo\baselineskip\par}
533 \else
534     \vbox{\etocname\nobreak

```

```

535      \ifdim\wd\@ne<\linewidth\leaders\copy\z@\hfil\break\fi
536      \hbox{}\leaders\box\z@\hfil\box\tw@
537      \baselineskip\etocbaselinespreadtwo\baselineskip\par}
538 \fi
539 \addvspace{\etocsepthree}\addpenalty\@itempenalty
540 \endgroup}
541 {\addpenalty\@secpenalty}%
542 %
543 \etocsetstyle{@three}
544 {\nobreak
545 \etocfontthree
546 \addvspace{\etocsepthree}%
547 \nointerlineskip\noindent
548 \etocskipfirstprefix}
549 {\allowbreak\,--\,}
550 {\etocname}
551 {\unskip.\hfil\beginingroup
552 \baselineskip\etocbaselinespreadthree\baselineskip
553 \par\endgroup
554 \addpenalty{-\@highpenalty}}}%
555 %
556 \etocsetstyle{@four}{\}\}\}\}\}\}%
557 %
558 \etocsetstyle{@five}{\}\}\}\}\}\}%
559 }
560 %
561 \newcommand\etocmarkboth[1][\contentsname]{%
562   \@mkboth {\MakeUppercase #1}
563             {\MakeUppercase #1}}
564 \def\etoc@article@tohead#1{\section *{#1\@mkboth
565   {\MakeUppercase{#1}}
566   {\MakeUppercase{#1}}}}
567 \def\etoc@article@tohead@nomarks#1{\section *{#1}}
568 \def\etoc@book@tohead#1{\chapter *{#1\@mkboth
569   {\MakeUppercase{#1}}
570   {\MakeUppercase{#1}}}}
571 \def\etoc@book@tohead@nomarks#1{\chapter *{#1}}
572 \let\etoc@standard@tohead\etoc@article@tohead
573 \let\etoc@standard@tohead@nomarks\etoc@article@tohead@nomarks
574 \@ifclassloaded{book}{%
575 \let\etoc@standard@tohead\etoc@book@tohead
576 \let\etoc@standard@tohead@nomarks\etoc@book@tohead@nomarks}{%
577 \@ifclassloaded{report}{%
578 \let\etoc@standard@tohead\etoc@book@tohead
579 \let\etoc@standard@tohead@nomarks\etoc@book@tohead@nomarks}}}%
580 %

```



```

581 \newcommand\etocstandardheading[1]{%
582 \etoc@standard@tohead{#1}}
583 \newcommand\etocstandardheadingnomarks[1]{%
584 \etoc@standard@tohead@nomarks{#1}}
585 %
586 \newcommand\etocabovetocskip{3.5ex \@plus 1ex \@minus .2ex}
587 \newcommand\etocbelowtocskip{3.5ex \@plus 1ex \@minus .2ex}
588 \newcommand\etoccolumnsep{2em}
589 \newcommand\etocmulticolsep{0ex}
590 \newcommand\etocmulticolpretolerance{-1}
591 \newcommand\etocmulticoltolerance{200}
592 %
593 \newcommand\etocmulticolstyle[2][2]{%
594 \etocsettocstyle
595   {\addvspace{\etocabovetocskip}}%
596   \ifnum #1>\@ne\let\Etoc@next\@firstoftwo
597     \else \let\Etoc@next\@secondoftwo\fi
598   \Etoc@next{%
599     \multicolpretolerance\etocmulticolpretolerance
600     \multicoltolerance\etocmulticoltolerance
601     \setlength{\columnsep}{\etoccolumnsep}%
602     \setlength{\multicolsep}{\etocmulticolsep}%
603     \begin{multicols}{#1}[#2\addvspace{\etocsepminusone}]}
604     {#2\addvspace{\etocsepminusone}\pretolerance\etocmulticolpretolerance
605       \tolerance\etocmulticoltolerance}}
606   {\ifnum #1>\@ne\let\Etoc@next\@firstofone
607     \else \let\Etoc@next\@gobble\fi
608     \Etoc@next{\end{multicols}}}%
609   \addvspace{\etocbelowtocskip}}
610 %
611 \newcommand\etocinnertopsep{2ex}
612 \newcommand\etocinnerbottomsep{3.5ex}
613 \newcommand\etocinnerleftsep{2em}
614 \newcommand\etocinnerrightsep{2em}
615 \newcommand\etoctoprule{\hrule}
616 \newcommand\etocleftrule{\vrule}
617 \newcommand\etocrightrule{\vrule}
618 \newcommand\etocbottomrule{\hrule}
619 \newcommand\etoctoprulecolorcmd{\relax}
620 \newcommand\etocbottomrulecolorcmd{\relax}
621 \newcommand\etocleftrulecolorcmd{\relax}
622 \newcommand\etocrightrulecolorcmd{\relax}
623 %
624 \newcommand\etoc@ruledheading[1]{%
625   \hbox to \linewidth{%
626     \hfil #1\hfil\hskip-\linewidth

```

```

627         {\etocprulecolorcmd\leaders\etocprule\hfil}%
628         \phantom{#1}%
629         {\etocprulecolorcmd\leaders\etocprule\hfil}}%
630         \nointerlineskip\vskip\etocinnertopsep}
631 %
632 \newcommand\etocruledstyle[2][2]{%
633 \etocsettocstyle
634   {\addvspace{\etocabovetocskip}}%
635   \ifnum #1>\@ne\let\Etoc@next\@firstoftwo
636     \else \let\Etoc@next\@secondoftwo\fi
637   \Etoc@next
638     {\multicolpretolerance\etocmulticolpretolerance
639     \multicoltolerance\etocmulticoltolerance
640     \setlength{\columnsep}{\etoccolumnsep}%
641     \setlength{\multicolsep}{\etocmulticolsep}%
642     \begin{multicols}{#1}[\etoc@ruledheading{#2}]}
643     {\etoc@ruledheading{#2}\nobreak
644     \pretolerance\etocmulticolpretolerance
645     \tolerance\etocmulticoltolerance}}
646   {\ifnum #1>\@ne\let\Etoc@next\@firstofone
647     \else \let\Etoc@next\@gobble\fi
648     \Etoc@next{\end{multicols}}}%
649   \addvspace{\etocbelowtocskip}}
650 %
651 \newcommand\etocframedstyle[2][2]{%
652 \etocsettocstyle{%
653   \addvspace{\etocabovetocskip}%
654   \sbox\z@{#2}\dimen\z@{\dp\z@}
655   \ifdim\wd\z@<\linewidth\dp\z@\z@\else\dimen\z@\z@\fi
656   \hbox to \linewidth{%
657     \hfil\copy\z@\hfil\hskip-\linewidth
658     {\etocprulecolorcmd\leaders\etocprule\hfil}%
659     \phantom{\box\z@}%
660     {\etocprulecolorcmd\leaders\etocprule\hfil}}%
661   \nointerlineskip\nobreak
662   \hbox to \linewidth
663   \bgroup
664     {\etocleftrulecolorcmd\etocleftrule}%
665     \kern\etocinnerleftsep
666     \vbox\bgroup
667       \kern\dimen\z@
668       \vskip\etocinnertopsep
669       \hbox\bgroup
670         \setbox\z@\hbox{\etocleftrule\etocrightrule}%
671         \dimen\z@\linewidth\advance\dimen\z@-\wd\z@
672         \advance\dimen\z@-\etocinnerleftsep

```

```

673         \advance\dimen\z@-\etocinnerrightsep
674         \begin{minipage}{\dimen\z@}
675         \ifnum #1>\@ne\let\Etoc@next\@firstoftwo
676         \else \let\Etoc@next\@secondoftwo\fi
677         \Etoc@next
678         {\multicolpretolerance\etocmulticolpretolerance
679         \multicoltolerance\etocmulticoltolerance
680         \setlength{\columnsep}{\etoccolumnsep}%
681         \setlength{\multicolsep}{\etocmulticolsep}%
682         \begin{multicols}{#1}}
683         {\pretolerance\etocmulticolpretolerance
684         \tolerance\etocmulticoltolerance}}
685         {\ifnum #1>\@ne\let\Etoc@next\@firstofone
686         \else \let\Etoc@next\@gobble\fi
687         \Etoc@next{\end{multicols}\unskip}%
688         \end{minipage}\egroup
689         \vskip\etocinnerbottomsep
690         \egroup\kern\etocinnerrightsep
691         \etocrightrulecolorcmd\etocrightrule\egroup
692         \nointerlineskip\nobreak
693         \hbox to \linewidth{\etocbottomrulecolorcmd
694         \leaders\etocbottomrule\hfill}
695         \addvspace{\etocbelowtocskip}}
696 %
697 \newcommand\etoc@multicoltoc[2][2]{%
698 \begingroup
699 \ifnum\c@tocdepth>-2\relax
700 \etocmulticolstyle[#1]{#2}%
701 \ifEtoc@star
702     \def\Etoc@next{\tableofcontents*}%
703     \else\def\Etoc@next{\tableofcontents}%
704 \fi
705 \Etoc@next
706 \fi\endgroup}
707 %
708 \newcommand\etoc@ruledtoc[2][2]{%
709 \begingroup
710 \ifnum\c@tocdepth>-2\relax
711 \etocruledstyle[#1]{#2}%
712 \ifEtoc@star
713     \def\Etoc@next{\tableofcontents*}%
714 \else
715     \def\Etoc@next{\tableofcontents}%
716 \fi
717 \Etoc@next
718 \fi\endgroup}

```

```

719 %
720 \newcommand\etoc@framedtoc[2][2]{%
721 \begingroup
722 \ifnum\c@tocdepth>-2\relax
723 \etocframedstyle[#1]{#2}%
724 \ifEtoc@star
725 \def\Etoc@next{\tableofcontents*}%
726 \else
727 \def\Etoc@next{\tableofcontents}%
728 \fi
729 \Etoc@next
730 \fi\endgroup}
731 %
732 \def\etocmulticol{\@ifstar{\global\Etoc@startrue\etoc@multicoltoc}
733 {\global\Etoc@starfalse\etoc@multicoltoc}}
734 \def\etocruled{\@ifstar{\global\Etoc@startrue\etoc@ruledtoc}
735 {\global\Etoc@starfalse\etoc@ruledtoc}}
736 \def\etocframed{\@ifstar{\global\Etoc@startrue\etoc@framedtoc}
737 {\global\Etoc@starfalse\etoc@framedtoc}}
738 %
739 \etocetoclines
740 \etocmulticolstyle{\etocstandardheading\contentsname}
741 \endinput
742 \endpackage

```