

# The **etoc** package

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## Abstract

The **etoc** package gives to 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<sup>A</sup>T<sub>E</sub>X 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.<sup>1</sup> 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 be for example `\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.

---

<sup>1</sup>I got started about this through reading this question on the T<sub>E</sub>X Stackexchange site: [tex.stackexchange.com/questions/79682](https://tex.stackexchange.com/questions/79682)

### 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 in a manner compatible to 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 L<sup>A</sup>T<sub>E</sub>X 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 as will be described below).

### 1.2.2 Instructing `etoc` about sectioning command names

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

## 1.3 Global style: multiple columns, ruled heading, framed table of contents

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 tables of contents

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

## 1.5 Displaying tables of contents defined elsewhere in the document

A L<sup>A</sup>T<sub>E</sub>X counter is associated with the successive tables of contents. To set a reference point (which will become an anchor if package `hyperref` is loaded) one just uses the `\label` command as usual. For example:

```
\tableofcontents* \label{my_nice_toc}
```

Then, elsewhere in the document, doing:

```
\tableofcontents \ref{my_nice_toc}
```

will display again the same contents. However, the line styles and global style (including the title) will be the current one and the current value of the `tocdepth` counter is obeyed. As an example here is the table of contents of Part IV:

I am from far away		
<b>6</b>	<b>Customizing the <code>etoc</code> line styles</b>	<b>22</b>
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We actually did something like:

```
\tableofcontents \label{toc:d}\ref{toc:c}
```

Hence the present location can itself now be referred to via `\ref{toc:d}`: this gives the number of this TOC (*i.e* 3) in the sequence of document TOCs, will be a link if package `hyperref` is used, and can be used elsewhere as `\tableofcontents \ref{toc:d}` (which now has exactly the same effect as `\tableofcontents \ref{toc:c}`).

For info, the `toc` with label `toc:c` is the one which has number 10...

The `\label` command should come before the reference via `\ref` to the other TOC. A `\label` detected by `etoc` immediately (skipping spaces) after the command `\tableofcontents` will be activated right after the update to the `toc` counter. A `\label` after the `\ref` will not be treated by `etoc` itself and will refer to the latest reference point (possibly to some counter updated in the title of the TOC or, although this would require the user to have done a suitable set-up in the line styles, even inside the TOC).

As another example let us now display a table of contents for this first part of the document. Indeed, immediately after the line in the source file starting with the first `\part` we wrote:

```
\setcounter{tocdepth}{-2}
\tableofcontents* \label{toc:partone}
\setcounter{tocdepth}{3}
```

The `tocdepth` being -2, nothing at all was inserted in the page, but now that `tocdepth` has been reset to 3, we can display the TOC with the simple command:

```
\tableofcontents \ref{toc:partone}
```

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The actual design is not pre-built in `etoc`: it combines the `etoc` ‘framed’ style (with a dummy empty title, the actual title having been put inside the frame as part of the `{\start}` code of the section ‘line style’). The frame borders have been set to have the same color as the one which serves as background for the entire thing. This design (with other colors) is used also for [this other toc](#) (the coding used is reproduced there).

## Part II

# Package commands for line styles

## Contents of this second part

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*This is a (pale) red subsubsection for illustrative purposes.*

### 3 Am I also in red? (page 11)

An unnumbered section (page 11)

## 2 The `\etocsetstyle` command

### 2.1 An example

Let us explain how `etoc` was used to produce the table of contents displayed at the beginning of this second part (this is a local table of contents, we used the command `\tableofcontents*`).

We shall distinguish between the *line styles* and the *global style*. First we describe how to set-up the line styles. Essentially they were obtained in the following manner<sup>2 3</sup>

```
\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}
{\unskip\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*).

---

<sup>2</sup>the 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.

<sup>3</sup>`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 two mysterious `\unskip` in the subsubsection style.

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` as synonyms for the name, respectively the page number of the current entry. Temporarily, we relied on the automatic numbering of the `enumerate` environments but there is also a command `\etocnumber` to get the real thing from the `.toc` file.

### 2.1.2 The `\etocskipfirstprefix` command

The chosen subsection style specifies to list the names of the subsections from a given subsection in an in-line 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 would have 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 package line styles!

### 2.1.3 `secnumdepth` and `tocdepth`

The  $\LaTeX$  counter `secnumdepth` decides (from part down to subparagraph) which levels are numbered and automatically written to the `.toc` file. Its functioning is completely independent from the `etoc` package. The counter `tocdepth` decides the finest level displayed in the table of contents: it is obeyed by `etoc`, and as `\tableofcontents` can now be used arbitrarily times, this is an important customization lever.

## 2.2 The `\etocsetlevel` command

If your document uses other sectioning names, such as, for example *molecule*, or *atom*, it should inform `etoc` of this in the following way:

```
\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>}{<B>}` command executes `<A>` if the number exists, and `<B>` 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
\fbbox{\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 fixed this: `{... (page \etocpage)\par}`.

## 2.4 The `\etocfontxxx...` commands

The package predefines for use in its default line styles:

```

\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 only impacts the package default line styles and does nothing under the `\etocstandardlines` regime. And, let us recall, levels four (paragraph) and five (subparagraphs) are not displayed by the package default line styles.

### 2.4.1 This is a (pale) red subsubsection for illustrative purposes

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

```

\color{red!50}
\addtocontents{toc}{\string\color{red!50}}

```

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 solution<sup>4</sup> to this, but it will probably concern only a minority of cases. Again, the line styles defined by **etoc** do not use groups.

## 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 shall illustrate the package functionalities through comparing here various line styles: the standard formatting as provided by the `article` class, the custom line styles we defined above using enumerate environments, and the package line styles.

---

<sup>4</sup>one can insert by hand the language changes in each concerned sectioning command.

```
\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 using enumerate environments for part, section and subsection, and an in-line italic style for sub-subsections.*

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

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## IV Customizing `etoc`

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

```
\etocstandardlines
\tableofcontents
```

*This is the table of contents with standard entries (on 2 columns!).  
Contrarily to [the previous TOC](#) it displays the paragraph entries.*

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			7.3	All subsections of this document . . . . .	25
			7.4	Compatibility with other packages . . . . .	26
			7.5	TeXnical matters . . .	26

For the third example, we will use the starred variant `\tableofcontents*` to restrict its contents to this document part. Furthermore we opt for a “framed” style, and specify some colors (including a background color). We modify various things from the package defaults.

*This is a table of contents à la **etoc**, but just for the sections and subsections in this part. As it is put in a frame, it has to be small enough to fit on the current page. It has the label `toc:b`.*

<b>Specifying the global style</b>	<b>Summary of the main local and global style commands</b>
. . . . . 4, p. 16	. . . . . 5, p. 18
The command <code>\etocruledstyle</code>	Setting up local styles 5.1, p. 18
. . . . . 4.1, p. 16	Setting up global styles . . .
The command <code>\etocmulticolstyle</code>	. . . . . 5.2, p. 19
. . . . . 4.2, p. 17	Displaying Tables of Contents .
A point of some importance.	. . . . . 5.3, p. 19
The command <code>\etocruledstyle</code>	Labels and references . . . .
(cont.) . . . . . 4.3, p. 17	. . . . . 5.4, p. 19
The command <code>\etocframedstyle</code>	Example of a cloned local TOC
. . . . . 4.4, p. 18	. . . . . 5.5, p. 20
The command <code>\etocsettocstyle</code>	
. . . . . 4.5, p. 18	

```

\etocetoclines
\begingroup % we use a group to limit the scope of the next commands
\renewcommand{\etocinnerleftsep}{2ex}
\renewcommand{\etocinnerrightsep}{2ex}
% specify a background color for the toc contents
\renewcommand{\etocbkgcolorcmd}{\color{yellow!10}}
% set up the top and bottom rules
\renewcommand{\etoctoprule}{\hrule height 1pt}
\renewcommand{\etocbottomrule}{\hrule height 1pt}
\renewcommand{\etocbottomrulecolorcmd}{\color{red!25}}
% set up the left and right rules
\renewcommand{\etoclefttrule}{\vrule width 5pt}
\renewcommand{\etocrighttrule}{\vrule width 5pt}
\renewcommand{\etoclefttrulecolorcmd}{\color{red!25}}
\renewcommand{\etocrighttrulecolorcmd}{\color{red!25}}
% use \fcolorbox to set up a colored frame for the title

```

```

\fbxrule1pt
\etocframedstyle{\normalsize\rmfamily\itshape
  \fcolorbox{red}{white}{\parbox{.8\linewidth}{\centering
    This is a table of contents \‘a la \etoc, but just for
    the sections and subsections in this part. As it is put
    in a frame, it has to be small enough to fit on the
    current page. It has the label |toc:b|.}}}}
% set up a label for future (or earlier...) reference
\tableofcontents* \label{toc:b}
\endgroup

```

## 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]{Title}
\tableofcontents (or \tableofcontents*)
or the shortcuts:
  \etocruled[1]{Title} or \etocruled*[1]{Title}

```

### 4.1 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 `\fbboxes` 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 heading of the [table of contents at the start of the second part of this document](#) was obtained with:

```

\etocruledstyle[1]{\etocfontminusone\color{green}
  \fbxrule1pt\fbxseplex
  \framebox[\linewidth]
    {\normalcolor\hss Contents of this second part\hss}}

```



## 4.2 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*[ $\langle number\_of\_columns \rangle$ ]{ $\langle heading \rangle$ }`.

### 4.2.1 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, but will choke on things such as `\par`.

#### 4.2.1.1 Do we really want paragraph entries in the TOC?

#### 4.2.1.2 really?

## 4.3 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*`.

## 4.4 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. Note that the title itself is not framed, if one wants a frame one should use the commands inside the argument to `\etocframedstyle` or `\etocframed`. The starred variant for the shortcut again begins with `\etocframed*`.

## 4.5 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.<sup>5</sup> 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.<sup>6</sup>

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

# 5 Summary of the main local and global style commands

## 5.1 Setting up local styles

```
\etocsetstyle{⟨levelname⟩}{⟨start⟩}{⟨prefix⟩}{⟨contents⟩}{⟨finish⟩}
\etocname, \etocnumber, \etocpage, \etocifnumbered{⟨A⟩}{⟨B⟩}
```

<sup>5</sup>`etoc` provides the command `\etocmarkboth[⟨optional_name⟩]`, with an optional argument which defaults to `\contentsname`.

<sup>6</sup>In 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.

## 5.2 Setting up global styles

```
\etocmulticolstyle[⟨number_of_columns⟩]{⟨heading⟩}  
\etocruledstyle[⟨number_of_columns⟩]{⟨title⟩}  
\etocframedstyle[⟨number_of_columns⟩]{⟨title⟩}  
\etocsettocstyle{⟨before_toc⟩}{⟨after_toc⟩}
```

## 5.3 Displaying Tables of Contents

```
\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⟩}
```

## 5.4 Labels and references

The commands to actually display the table of contents can be followed with optional labels or references:

```
\tableofcontents  
\tableofcontents \label{toc:here}  
\tableofcontents \ref{toc:far}  
\tableofcontents \label{toc:here} \ref{toc:far}  
\tableofcontents*  
\tableofcontents* \label{toc:here}
```

The starred form displaying a local table of contents, it will not react to a `\ref` following it. When re-displaying another toc, only its contents are transferred: both the line styles and the global style are the ones currently defined, not the ones from the cloned toc.

The shortcuts for setting up and using in one go the multicol, ruled, and framed global styles can be followed in the similar manner by a label and/or a reference.

## 5.5 Example of a cloned local TOC

We try out `\tableofcontents \ref{toc:b}`. First we have to specify the design. I got motivated by a question<sup>7</sup> I saw on the T<sub>E</sub>X StackExchange site. I copied the color RGB specifications from an answer which had been provided to the question. The `\etocframedstyle` puts the title on the top rule in a centered position. This is not very convenient for this example so we included the title as part of the `<start>` code at section level, to get it *inside* the frame.

```
\setcounter{tocdepth}{3}
\begingroup
\definecolor{subsecnum}{RGB}{13,151,225}
\definecolor{secbackground}{RGB}{0,177,235}
\definecolor{tocbackground}{RGB}{212,237,252}

\renewcommand{\etocbkgcolorcmd}{\color{tocbackground}}
\renewcommand{\etocleftrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etocrightrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etocbottomrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etocoprerulecolorcmd}{\color{tocbackground}}

\renewcommand{\etocleftrule}{\vrule width 1.5cm}
\renewcommand{\etocrightrule}{\vrule width .5cm}
\renewcommand{\etocbottomrule}{\hrule height 12pt}
\renewcommand{\etocoprerule}{\hrule height 12pt}

\renewcommand{\etocinnertopsep}{0pt}
\renewcommand{\etocinnerbottomsep}{0pt}
\renewcommand{\etocinnerleftsep}{0pt}
\renewcommand{\etocinnerrightsep}{0pt}

\newcommand\shiftedwhiterule[1]{%
\hbox to \linewidth{\color{white}%
\hskip\leftskip\leaders\vrule height1pt\hfil}\nointerlineskip
\vskip#1}

\etocsetstyle{subsubsection}{%
{\shiftedwhiterule{6pt}}
{\sffamily\footnotesize
\leftskip2.5cm\noindent
\hbox to 1cm{\color{subsecnum}\etocnumber\hskip.2cm}%
\color{black}\etocname\hfill\hbox{\etocpage\hskip.2cm}\par
\nointerlineskip\vskip3pt}
}

\etocsetstyle{subsection}{\etocskipfirstprefix}
{\shiftedwhiterule{6pt}}
{\sffamily\small
\leftskip1.5cm\noindent
\hbox to 1cm{\color{subsecnum}\etocnumber\hskip.2cm}%
```

---

<sup>7</sup>[tex.stackexchange.com/questions/83184](https://tex.stackexchange.com/questions/83184)

```

\color{black}\etocname\hfill\hbox{\etocpage\hskip.2cm}\par
\nointerlineskip\vskip3pt}
{}

\newcommand{\coloredstuff}[2]{%
    \leftskip0pt\rightskip0pt\parskip0pt
    \fboxsep0pt % \colorbox uses \fboxsep!
    \noindent\colorbox{secbackground}
        {\parbox{\linewidth}{%
            \vskip5pt
            {\noindent\color{#1}#2\par\nointerlineskip}
            \vskip3pt}}%
    \par\nointerlineskip}

\etocsetstyle{section}{\coloredstuff{white}
    {\hfil \hyperref[toc:b]{\bfseries\large I am a clone of
        that other TOC (click me!)}\hfil}}
{\vskip3pt\sffamily\small}
{\coloredstuff{white}{\hbox to 1.5cm{\hss\etocnumber\hskip.2cm}%
    \etocname\hfill\hbox{\etocpage\hskip.2cm}}}%
\vskip6pt}
{}
\etocframedstyle[1]{} % title is not there!
\tableofcontents \label{toc:clone} \ref{toc:b}
\endgroup

```

I am a clone of that other TOC (click me!)		
4	Specifying the global style	16
4.1	The command <code>\etocruledstyle</code>	16
4.2	The command <code>\etocmulticolstyle</code>	17
4.2.1	A point of some importance	17
4.3	The command <code>\etocruledstyle</code> (cont.)	17
4.4	The command <code>\etocframedstyle</code>	18
4.5	The command <code>\etocsettocstyle</code>	18
5	Summary of the main local and global style commands	18
5.1	Setting up local styles	18
5.2	Setting up global styles	19
5.3	Displaying Tables of Contents	19
5.4	Labels and references	19
5.5	Example of a cloned local TOC	20

The coding is a bit involved as it does not use any additional package. The framed style allowed us to specify a background color. Generally speaking all color commands inside **etoc** are initially defined to do nothing, so the choice to use or not color packages is left to the user.

## Part IV

# Customizing **etoc**

This is a table of contents for the sections and subsections in this part. It carries the label `toc:c`

<b>Customizing the <b>etoc</b> line styles</b>	All subsections of this document . . . . .
. . . . . 6, p. 22	. . . . . 7.3, p. 25
<b>Customizing the global styles</b> . . . . .	Compatibility with other packages . . . . .
. . . . . 7, p. 23	. . . . . 7.4, p. 26
Hacking framed parboxes . . . . .	T <sub>E</sub> Xnical matters . . . . .
. . . . . 7.1, p. 24	. . . . . 7.5, p. 26
Intervverting the levels . . . . .	Errors and catastrophes . . . . .
. . . . . 7.2, p. 25	. . . . . 7.6, p. 26

## 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\etocminusonelmargins{1em}

```

```

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

\newcommand\etocetoclineleaders
{\hbox{\normalfont\normalsize\hbox to 2ex {\hss.\hss}}}}

\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<sup>A</sup>T<sub>E</sub>X 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\etoctoprule{\hrule}
\newcommand\etoctoprulecolorcmd{\relax}

% for the framed style only:
\newcommand\etocinnerleftsep{2em}
\newcommand\etocinnerrightsep{2em}
\newcommand\etocinnerbottomsep{3.5ex}

```

```

\newcommand\etoclefttrule{\vrule}
\newcommand\etocrightrule{\vrule}
\newcommand\etocbottomrule{\hrule}

\newcommand\etoclefttrulecolorcmd{\relax}
\newcommand\etocrightrulecolorcmd{\relax}
\newcommand\etocbottomrulecolorcmd{\relax}

\newcommand\etocbkgcolorcmd{\relax}

\newcommand\etocframedmphook{\relax}

```

This last command is a hook, it is positioned immediately after the beginning of a minipage environment where the contents of the framed TOC are typeset.

The `\...colorcmd` things are initially set to be `\relax`, so there is no need to do `\usepackage{color}` if the document does not use colors. Note that they should evaluate to something like `\color{green}` and not just `green`. If the scope of a change to the background color command `\etocbkgcolorcmd` has not been limited to a group and one then wishes to let it again be `\relax` one must use a `\renewcommand` and not `\let\etocbkgcolorcmd\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 manner 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`. Of course also the other rule commands can have their dimensions in font relative units, but their values are decided on the basis of the font in effect just before the table of contents.

The top and bottom rules do not have to be rules and can be horizontal *leaders* (of a specified height) in the general T<sub>E</sub>X sense. However the left and right rules are not used as (horizontal) leaders but as objects of a given specified width. Note that *only* the Plain T<sub>E</sub>X syntax for rules is accepted here.

## 7.1 Hacking framed parboxes

```

\renewcommand\etoc_toprule{\hrule height 2pt depth 2pt}
\etocruled{\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.}}}}
\ref{toc:b}

```



This text is perfectly centered vertically with respect to the surrounding horizontal rules.

<b>Specifying the global style</b> . . .	The command <code>\etocsettocstyle</code>
. . . . . 4, p. 16	. . . . . 4.5, p. 18
The command <code>\etocruledstyle</code>	<b>Summary of the main local and global style commands</b> . 5, p. 18
. . . . . 4.1, p. 16	Setting up local styles . 5.1, p. 18
The command <code>\etocmulticolstyle</code>	Setting up global styles 5.2, p. 19
. . . . . 4.2, p. 17	Displaying Tables of Contents . .
A point of some importance.	. . . . . 5.3, p. 19
The command <code>\etocruledstyle</code>	Labels and references . 5.4, p. 19
(cont.) . . . . . 4.3, p. 17	Example of a cloned local TOC .
The command <code>\etocframedstyle</code>	. . . . . 5.5, p. 20
. . . . . 4.4, p. 18	

## 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.\sim\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. 3)	heading, framed table of contents (1.3, p. 4)	elsewhere in the doc- ument (1.5, p. 4)
ii. Line styles (1.2, p. 3)	iv. Local tables of contents (1.4, p. 4)	vi. An example (2.1, p. 7)
iii. Global style: mul- tiple columns, ruled	v. Displaying tables of contents defined	vii. The <code>\etocset-</code> <code>level</code> command (2.2,

p. 8)	<b>xiii.</b> The command <code>\etocframedstyle</code> (4.4, p. 18)	p. 20)
<b>viii.</b> Further informations and let's make this a very long title to see how it will look like (2.3, p. 9)	<b>xiv.</b> The command <code>\etocsettocstyle</code> (4.5, p. 18)	<b>xx.</b> Hacking framed parboxes (7.1, p. 24)
<b>ix.</b> The <code>\etocfontxxx...</code> commands (2.4, p. 10)	<b>xv.</b> Setting up local styles (5.1, p. 18)	<b>xxi.</b> Interverting the levels (7.2, p. 25)
<b>x.</b> The command <code>\etocruledstyle</code> (4.1, p. 16)	<b>xvi.</b> Setting up global styles (5.2, p. 19)	<b>xxii.</b> All subsections of this document (7.3, p. 25)
<b>xi.</b> The command <code>\etocmulticolstyle</code> (4.2, p. 17)	<b>xvii.</b> Displaying Tables of Contents (5.3, p. 19)	<b>xxiii.</b> Compatibility with other packages (7.4, p. 26)
<b>xii.</b> The command <code>\etocruledstyle</code> (cont.) (4.3, p. 17)	<b>xviii.</b> Labels and references (5.4, p. 19)	<b>xxiv.</b> T <sub>E</sub> Xnical matters (7.5, p. 26)
	<b>xix.</b> Example of a cloned local TOC (5.5,	<b>xxv.</b> Errors and catastrophes (7.6, p. 26)

## 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<sub>E</sub>Xnical 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<sup>A</sup>T<sub>E</sub>X's groups.

## 7.6 Errors and catastrophes

As is usual with toc and labels, after each change, one has to run latex a certain number of times to let the produced document get its final appearance (at least twice). In certain extreme cases (*i.e.* after having removed the use of package `hyperref` from the document), one must trash the previous `.aux` and `.toc` files.

## Part V

# The code

This source file `etoc.dtx` produces the package file `etoc.sty` when one does `latex etoc.dtx` or `pdflatex etoc.dtx` (an `etoc.ins` file is also produced, for distributions expecting it for installation). Two more runs are necessary to finish producing the documentation. The `etoc.sty` file should be moved to a suitable location within the  $\text{\TeX}$  distribution.

## 8 Implementation

Writing-up source code comments is hopefully for a future release.

```
1 \ProvidesPackage{etoc}
2 [2012/11/24 v1.04 easily customizable TOCs (jfb)]
3 \NeedsTeXFormat{LaTeX2e}
4 \RequirePackage{multicol}
5 \RequirePackage{xspace}
6 \DeclareOption*{\PackageWarning{etoc}{Option ‘\CurrentOption’ is un-
   known.}}
7 \ProcessOptions\relax

placeholder for comments

8 \newtoks\Etoc@toctoks
9 \newif\ifEtoc@j    % part
10 \newif\ifEtoc@    % chapter
11 \newif\ifEtoc@i    % section
12 \newif\ifEtoc@ii   % subsection
13 \newif\ifEtoc@iii  % subsubsection
14 \newif\ifEtoc@iv   % paragraph
15 \newif\ifEtoc@v    % subparagraph
16 \newif\ifEtoc@number
17 \newif\ifEtoc@hyperref
18 \newif\ifEtoc@star
19 \newif\ifEtoc@standard
20 \newif\ifEtoc@part

placeholder for comments

21 \newif\ifEtoc@localtoc
22 \newif\ifEtoc@skipthisone
23 \newif\ifEtoc@stoptoc
24 \newif\ifEtoc@notactive
25 \newcounter{etoc@tocid}
26 \newif\ifEtoc@mustclosegroup
```

placeholder for comments

```
27 \let\Etoc@@minusone@@\m@ne
28 \chardef\Etoc@@zero@@\z@
29 \chardef\Etoc@@one@@\@ne
30 \chardef\Etoc@@two@@\tw@
31 \chardef\Etoc@@three@@\thr@@
32 \chardef\Etoc@@four@@\relax
33 \chardef\Etoc@@five@@\relax
34 \chardef\Etoc@@six@@\relax
35 \let\Etoc@localtop\m@ne
36 \def\Etoc@@minusone@{minusone}
37 \def\Etoc@@zero@{zero}
38 \def\Etoc@@one@{one}
39 \def\Etoc@@two@{two}
40 \def\Etoc@@three@{three}
41 \def\Etoc@@four@{four}
42 \def\Etoc@@five@{five}
```

placeholder for comments

```
43 \def\Etoc@Lazarus{%
44 \def\Etoc@Lazarus@elta##1\Etoc@Lazarus@eltb##2{\let##1##2}%
45 \Etoc@Lazaruslist}
46 \def\Etoc@Lazaruslist{}
```

placeholder for comments

```
47 \def\Etoc@newdisciple#1#2{%
48   \def\Etoc@Lazarus@elta{\noexpand\Etoc@Lazarus@elta\noexpand}%
49   \def\Etoc@Lazarus@eltb{\noexpand\Etoc@Lazarus@eltb\noexpand}%
50   \edef\Etoc@Lazaruslist{\Etoc@Lazaruslist
51                               \Etoc@Lazarus@elta#1
52                               \Etoc@Lazarus@eltb#2}}
53 \def\etocsetlevel#1#2{%
54   \let\Etoc@next\@firstofone
55   \ifcase#2\or\or\or\or\or\else\ifnum#2=\m@ne\else
56     \PackageWarning{etoc}
57     {unexpected value ‘#2’ in \string\etocsetlevel.^^J%
58     Should be -1, 0, 1, 2, 3, 4 or 5. Set to -1}%
59     \expandafter\def\csname Etoc@#1@\endcsname{minusone}%
60     \expandafter\let\csname Etoc@#1@@\endcsname\m@ne
61   \let\Etoc@next\@gobble\fi\fi
62   \if@noskipsec
63   \else
64     \expandafter\expandafter\expandafter
65     \let\expandafter\expandafter\csname Etoc@savedl@#1\endcsname
66         \csname l@#1\endcsname
67     \expandafter\let \csname l@#1\endcsname\Etoc@lxyz
68   \fi
```

```

69 \expandafter\expandafter\expandafter\Etoc@newdisciple
70 \expandafter\expandafter
71 \csname l@#1\endcsname\csname Etoc@saveldl@#1\endcsname
72 \Etoc@next
73 {\ifcase#2\relax
74 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@zero@@
75 \expandafter\def \csname Etoc@#1@\endcsname{zero}%
76 \or
77 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@one@@
78 \expandafter\def \csname Etoc@#1@\endcsname{one}%
79 \or
80 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@two@@
81 \expandafter\def \csname Etoc@#1@\endcsname{two}%
82 \or
83 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@three@@
84 \expandafter\def \csname Etoc@#1@\endcsname{three}%
85 \or
86 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@four@@
87 \expandafter\def \csname Etoc@#1@\endcsname{four}%
88 \or
89 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@five@@
90 \expandafter\def \csname Etoc@#1@\endcsname{five}%
91 \else
92 \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@minusone@@
93 \expandafter\def \csname Etoc@#1@\endcsname{minusone}%
94 \fi}}
95 \etocsetlevel{part}{-1}
96 \etocsetlevel{chapter}{0}
97 \etocsetlevel{section}{1}
98 \etocsetlevel{subsection}{2}
99 \etocsetlevel{subsubsection}{3}
100 \etocsetlevel{paragraph}{4}
101 \etocsetlevel{subparagraph}{5}

placeholder for comments
102 \AtBeginDocument{%
103 \def\Etoc@Lazarus@elta#1\Etoc@Lazarus@eltb#2{\let#2#1\let#1\Etoc@lxyz}%
104 \Etoc@Lazaruslist
105 \let\Etoc@saveditcontentsline\contentsline
106 \let\contentsline\Etoc@etoccontentsline
107 \@ifpackageloaded{hyperref}
108 {\Etoc@hyperreftrue
109 \def\Etoc@et@hop#1#2#3#4#5{#1{#3}{#4}{#5}#2}}
110 {\Etoc@hyperreffalse
111 \def\Etoc@et@hop#1#2#3#4{#1{#3}{#4}#2}}

placeholder for comments

```

```

112 \def\Etoc@swa#1{%
113     \Etoc@et@hop
114     {\Etoc@savedcontentsline{#1}}
115     {\Etoc@prefix\Etoc@contents}}
116 \def\Etoc@swb#1{%
117     \Etoc@et@hop
118     {\Etoc@savedcontentsline{#1}}
119     {\Etoc@contents}}
120 \let\etocskipfirstprefix\@thirdofthree
placeholder for comments
121 \def\Etoc@setflags #1{%
122     \ifcase #1\relax
123         \global\Etoc@vfalse
124         \global\Etoc@ivfalse
125         \global\Etoc@iiifalse
126         \global\Etoc@iifalse
127         \global\Etoc@ifalse
128         \global\Etoc@true
129     \or
130         \global\Etoc@vfalse
131         \global\Etoc@ivfalse
132         \global\Etoc@iiifalse
133         \global\Etoc@iifalse
134         \global\Etoc@itrue
135     \or
136         \global\Etoc@vfalse
137         \global\Etoc@ivfalse
138         \global\Etoc@iiifalse
139         \global\Etoc@iiitrue
140     \or
141         \global\Etoc@vfalse
142         \global\Etoc@ivfalse
143         \global\Etoc@iiitrue
144     \or
145         \global\Etoc@vfalse
146         \global\Etoc@ivtrue
147     \or
148         \global\Etoc@vtrue
149     \else
150         \global\Etoc@vfalse
151         \global\Etoc@ivfalse
152         \global\Etoc@iiifalse
153         \global\Etoc@iifalse
154         \global\Etoc@ifalse
155         \global\Etoc@false
156         \global\Etoc@jtrue

```

```

157 \fi}
placeholder for comments
158 \def\Etoc@etoccontentsline#1{%
159 \global\expandafter\let\expandafter\Etoc@tmp\csname Etoc@#1@\endcsname
160 \global\Etoc@partfalse
161 \Etoc@skipthisonefalse
162 \ifEtoc@hyperref
163 \def\Etoc@next{\expandafter\@gobbletwo\@gobblefour}%
164 \else
165 \def\Etoc@next{\expandafter\@gobble\@gobblefour}%
166 \fi
167 \ifEtoc@localtoc
168 \let\Etoc@prenext\relax
169 \ifEtoc@stoptoc
170 \Etoc@skipthisonetrue
171 \fi
172 \ifnum\Etoc@tmp<\Etoc@localtop
173 \def\Etoc@prenext{\global\Etoc@stoptoctrue}%
174 \Etoc@skipthisonetrue
175 \fi
176 \ifEtoc@notactive
177 \def\Etoc@prenext{\Etoc@setflags{\Etoc@tmp}}%
178 \Etoc@skipthisonetrue
179 \fi
180 \Etoc@prenext
181 \fi
182 \ifnum\c@tocdepth<\Etoc@tmp\relax\else
183 \ifEtoc@skipthisone\else
184 \global\let\Etoc@next\relax
185 \ifcase\Etoc@tmp
186 \ifEtoc@v \Etoc@end@five\fi
187 \ifEtoc@iv \Etoc@end@four\fi
188 \ifEtoc@iii \Etoc@end@three\fi
189 \ifEtoc@ii \Etoc@end@two\fi
190 \ifEtoc@i \Etoc@end@one\fi
191 \ifEtoc@ \else \def\Etoc@next{\Etoc@begin@zero}\fi
192 \gdef\Etoc@contents{\Etoc@contents@zero}%
193 \gdef\Etoc@prefix{\Etoc@prefix@zero}%
194 \or
195 \ifEtoc@v \Etoc@end@five\fi
196 \ifEtoc@iv \Etoc@end@four\fi
197 \ifEtoc@iii \Etoc@end@three\fi
198 \ifEtoc@ii \Etoc@end@two\fi
199 \ifEtoc@i \else \def\Etoc@next{\Etoc@begin@one}\fi
200 \gdef\Etoc@contents{\Etoc@contents@one}%
201 \gdef\Etoc@prefix{\Etoc@prefix@one}%

```

```

202 \or
203     \ifEtoc@v \Etoc@end@five\fi
204     \ifEtoc@iv \Etoc@end@four\fi
205     \ifEtoc@iii \Etoc@end@three\fi
206     \ifEtoc@ii \else \def\Etoc@next{\Etoc@begin@two}\fi
207     \gdef\Etoc@contents{\Etoc@contents@two}%
208     \gdef\Etoc@prefix{\Etoc@prefix@two}%
209 \or
210     \ifEtoc@v \Etoc@end@five\fi
211     \ifEtoc@iv \Etoc@end@four\fi
212     \ifEtoc@iii \else \def\Etoc@next{\Etoc@begin@three}\fi
213     \gdef\Etoc@contents{\Etoc@contents@three}%
214     \gdef\Etoc@prefix{\Etoc@prefix@three}%
215 \or
216     \ifEtoc@v \Etoc@end@five\fi
217     \ifEtoc@iv \else \def\Etoc@next{\Etoc@begin@four}\fi
218     \gdef\Etoc@contents{\Etoc@contents@four}%
219     \gdef\Etoc@prefix{\Etoc@prefix@four}%
220 \or
221     \ifEtoc@v \else \def\Etoc@next{\Etoc@begin@five}\fi
222     \gdef\Etoc@contents{\Etoc@contents@five}%
223     \gdef\Etoc@prefix{\Etoc@prefix@five}%
224 \else
225     \ifEtoc@v \Etoc@end@five\fi
226     \ifEtoc@iv \Etoc@end@four\fi
227     \ifEtoc@iii \Etoc@end@three\fi
228     \ifEtoc@ii \Etoc@end@two\fi
229     \ifEtoc@i \Etoc@end@one\fi
230     \ifEtoc@ \Etoc@end@zero\fi
231     \ifEtoc@j \else \def\Etoc@next{\Etoc@begin@minusone}\fi
232     \global\Etoc@parttrue
233     \gdef\Etoc@contents{\Etoc@contents@minusone}%
234     \gdef\Etoc@prefix{\Etoc@prefix@minusone}%
235 \fi
236 \Etoc@setflags{\Etoc@tmp}%
237 \fi\fi
238 \Etoc@next
239 \@firstoftwo{\Etoc@swa{#1}}{\Etoc@swb{#1}}
placeholder for comments
240 \def\Etoc@lxyz #1#2{\global\@namedef{etocname }{\leavevmode #1\hspace}%
241             \global\@namedef{etocpage }{\leavevmode #2\hspace}%
242     \Etoc@getnb #1\relax\relax\etoc@
243     \ifEtoc@number\else\ifEtoc@part
244     \Etoc@getit #1\hspace\relax\etoc@\fi\fi}
placeholder for comments

```



```

245 \def\Etoc@getnb #1{\let\Etoc@next\Etoc@getnb@nohyp
246 \ifEtoc@hyperref\ifx #1\hyper@linkstart
247   \let\Etoc@next\Etoc@getnb@hyp\fi\fi\Etoc@next #1}
248 \def\Etoc@getit #1{\let\Etoc@next\Etoc@getit@nohyp
249 \ifEtoc@hyperref\ifx #1\hyper@linkstart
250   \let\Etoc@next\Etoc@getit@hyp\fi\fi\Etoc@next #1}
placeholder for comments
251 \def\Etoc@getnb@nohyp #1#2#3\etoc@{%
252 \ifx #1\numberline
253 \global\@namedef{etocnumber }{\leavevmode #2\space}\global\Etoc@numbertrue
254 \else
255 \global\@namedef{etocnumber }{\leavevmode\space}\global\Etoc@numberfalse
256 \fi}
placeholder for comments
257 \def\Etoc@getnb@hyp #1#2#3#4#5#6\etoc@{%
258   \def\Etoc@getnbr ##1##2##3\etoc@{%
259     \ifx ##1\numberline
260       \global\@namedef{etocnumber }{\leavevmode #1{#2}{#3}{##2}#5\space}
261       \global\Etoc@numbertrue
262     \else
263       \global\@namedef{etocnumber }{\leavevmode\space}%
264       \global\Etoc@numberfalse
265     \fi}%
266   \Etoc@getnbr #4\relax\relax\etoc@}
placeholder for comments
267 \def\Etoc@getit@nohyp #1\hspace#2#3\etoc@{%
268   \def\Etoc@getname ##1\hspace\relax\etoc@{%
269     \global\@namedef{etocname }{\leavevmode ##1\space}}%
270   \ifx \relax#2\else
271     \global\@namedef{etocnumber }{\leavevmode #1\space}%
272     \global\Etoc@numbertrue
273     \Etoc@getname #3\etoc@\fi}
placeholder for comments
274 \def\Etoc@getit@hyp #1#2#3#4#5#6\etoc@{%
275   \def\Etoc@getname ##1\hspace\relax\etoc@{%
276     \global\@namedef{etocname }{\leavevmode #1{#2}{#3}{##1}#5\space}%
277   \def\Etoc@getnbr ##1\hspace##2##3\etoc@{%
278     \ifx \relax##2\else
279       \global\@namedef{etocnumber }{\leavevmode #1{#2}{#3}{##1}#5\space}%
280       \global\Etoc@numbertrue
281       \Etoc@getname ##3\etoc@\fi}%
282   \Etoc@getnbr #4\hspace\relax\etoc@}
placeholder for comments

```

```

283 \edef\etocpage{\noexpand\protect\expandafter\noexpand
284             \csname etocpage \endcsname}
285 \edef\etocname{\noexpand\protect\expandafter\noexpand
286             \csname etocname \endcsname}
287 \edef\etocnumber{\noexpand\protect\expandafter\noexpand
288             \csname etocnumber \endcsname}
placeholder for comments
289 \@namedef{etocifnumbered }{\ifEtoc@number
290 \expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi}
placeholder for comments
291 \edef\etocifnumbered{\noexpand\protect\expandafter\noexpand
292             \csname etocifnumbered \endcsname}
placeholder for comments
293 \def\Etoc@readtoc#1{%
294     \ifeof #1
295         \let\Etoc@nextread\@gobble
296     \else
297         \let\Etoc@nextread\Etoc@readtoc
298         \read #1 to \Etoc@buffer
299         \global\Etoc@toctoks=\expandafter\expandafter\expandafter
300             {\expandafter\the\expandafter\Etoc@toctoks\Etoc@buffer}%
301     \fi
302     \Etoc@nextread{#1}%
303 }
placeholder for comments
304 \def\Etoc@starttoc{%
305 \begingroup
306 \makeatletter
307 \chardef\ET@endline\endlinechar
308 \@ifpackageloaded{hyperref}
309     {\ifx\hyper@last\@undefined
310         \ltx@ifpackageloaded {parskip}{\parskip \z@ }{}%
311         \IfFileExists {\jobname .toc}{\Hy@WarningNoLine {old toc file
312             detected, not used; run LaTeX again (cheers from etoc)}}{}%
313         \expandafter\@gobble\fi}{}%
314 {\IfFileExists{\jobname .toc}
315     {\endlinechar=-1\relax
316         \newread\Etoc@tf
317         \openin\Etoc@tf\@filef@und
318         \Etoc@readtoc\Etoc@tf
319         \closein\Etoc@tf}
320     {\typeout{No file \jobname .toc.}}}{}%
321 \endlinechar\ET@endline
322 \if@filesw \newwrite \tf@toc \immediate
323 \openout \tf@toc \jobname .toc\relax \fi

```

```

324 \endgroup}
placeholder for comments
325 \AtBeginDocument{\Etoc@starttoc}
326 \def\Etoc@toctoc{%
327   \global\Etoc@vfalse
328   \global\Etoc@ivfalse
329   \global\Etoc@iiifalse
330   \global\Etoc@iifalse
331   \global\Etoc@ifalse
332   \global\Etoc@false
333   \global\Etoc@jfalse
334 \ifEtoc@standard
335 \Etoc@Lazarus
336 \etocsetstyle{@minusone}{}{}{}{}{}%
337 \etocsetstyle{@zero}{}{}{}{}{}%
338 \etocsetstyle{@one}{}{}{}{}{}%
339 \etocsetstyle{@two}{}{}{}{}{}%
340 \etocsetstyle{@three}{}{}{}{}{}%
341 \etocsetstyle{@four}{}{}{}{}{}%
342 \etocsetstyle{@five}{}{}{}{}{}%
343 \else
344 \let\numberline\@gobble
345 \fi
346 \the\Etoc@toctoks
347 \ifEtoc@notactive\else
348   \ifEtoc@v   \Etoc@end@five\fi
349   \ifEtoc@iv  \Etoc@end@four\fi
350   \ifEtoc@iii \Etoc@end@three\fi
351   \ifEtoc@ii  \Etoc@end@two\fi
352   \ifEtoc@i   \Etoc@end@one\fi
353   \ifEtoc@    \Etoc@end@zero\fi
354   \ifEtoc@j   \Etoc@end@minusone\fi
355 \fi}
placeholder for comments
356 \def\etoc@@startlocaltoc#1#2{%
357 \let\Etoc@next\relax
358   \ifEtoc@localtoc
359   \ifEtoc@notactive
360     \ifnum #1=#2\relax
361       \ifEtoc@j   \global\let\Etoc@localtop\Etoc@@zero@@ \fi
362       \ifEtoc@    \global\let\Etoc@localtop\Etoc@@one@@   \fi
363       \ifEtoc@i   \global\let\Etoc@localtop\Etoc@@two@@   \fi
364       \ifEtoc@ii  \global\let\Etoc@localtop\Etoc@@three@@  \fi
365       \ifEtoc@iii \global\let\Etoc@localtop\Etoc@@four@@   \fi
366       \ifEtoc@iv  \global\let\Etoc@localtop\Etoc@@five@@   \fi

```

```

367         \ifEtoc@v    \global\let\Etoc@localtop\Etoc@@six@@    \fi
368         \def\Etoc@next{\global\Etoc@notactivefalse
369             \global\Etoc@vfalse
370             \global\Etoc@ivfalse
371             \global\Etoc@iiifalse
372             \global\Etoc@iifalse
373             \global\Etoc@ifalse
374             \global\Etoc@false
375             \global\Etoc@jfalse}%
376     \fi
377 \fi\fi
378 \Etoc@next}
379 \def\etoc@startlocaltoc#1{\etoc@@startlocaltoc{#1}{\c@etoc@tocid}}
    placeholder for comments
380 \def\Etoc@getrefno #1#2\etoc@{#1}
381 \def\Etoc@getref #1{\@ifundefined{r@#1}{0}{\expandafter\expandafter\expandafter
382     \Etoc@getrefno\csize r@#1\endcsize\relax\etoc@}}
383 \def\Etoc@ref#1{\Etoc@localtableofcontents{\Etoc@getref{#1}}}
384 \def\Etoc@label#1{\label{#1}\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
385 {\def\l1{\Etoc@again}\expandafter
386 \gdef\l1 {\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}}
    placeholder for comments
387 \long\def\Etoc@localtableofcontents#1{%
388     \edef\Etoc@tmp{#1}%
389     \ifnum\Etoc@tmp<\@ne
390     \PackageWarning{etoc}
391         {Unknown toc id: run LaTeX to get references right}%
392     \leavevmode --unknown etoc ref: run latex again--\par
393     \let\Etoc@next\@gobble\else\let\Etoc@next\@firstofone\fi
394     \Etoc@next
395     {\begingroup
396     \edef\etoc@startlocaltoc##1{%
397         \noexpand\etoc@@startlocaltoc{##1}{#1}}
398     \Etoc@localtoctrue
399     \let\Etoc@localtop\m@ne
400     \Etoc@stoptocfalse
401     \global\Etoc@notactivetrue
402     \Etoc@tableofcontents
403     \endgroup}%
404     \ifEtoc@mustclosegroup\expandafter\endgroup\fi}
    placeholder for comments
405 \def\Etoc@t@bleofcontents{%
406     \ifx\Etoc@nexttoken\label
407     \def\Etoc@next{\expandafter\Etoc@label\@gobble}\else
408     \ifx\Etoc@nexttoken\@sptoken

```

```

409 \let\Etoc@next\Etoc@again\else
410 \ifEtoc@star
411 \def\Etoc@next{\Etoc@localtableofcontents{\c@etoc@tocid}}%
412 \else
413 \ifx\Etoc@nexttoken\ref
414 \def\Etoc@next{\expandafter\Etoc@ref\@gobble}%
415 \else
416 \def\Etoc@next{\Etoc@localtocfalse
417 \global\Etoc@notactivefalse
418 \begingroup\Etoc@tableofcontents
419 \ifEtoc@mustclosegroup\expandafter\endgroup\fi
420 \endgroup}%
421 \fi
422 \fi\fi\fi\Etoc@next}
placeholder for comments
423 \def\tableofcontents{\par
424 \refstepcounter{etoc@tocid}%
425 \@ifstar {\addtocontents{toc}
426 {\string\etoc@startlocaltoc\string{\arabic{etoc@tocid}\string}}}%
427 \Etoc@startrue
428 \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
429 {\Etoc@starfalse
430 \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}}
placeholder for comments
431 \newcommand\etocsettocstyle[2]{%
432 \long\def\Etoc@tableofcontents
433 {\ifnum\c@tocdepth>-2\let\Etoc@@next\@firstofone\else
434 \let\Etoc@@next\@gobble\fi
435 \Etoc@@next{#1\Etoc@toctoc\let\Etoc@n@xt\relax
436 \ifEtoc@star\else
437 \ifEtoc@localtoc
438 \ifEtoc@notactive
439 \def\Etoc@n@xt{\Etoc@localtocfalse
440 \global\Etoc@notactivefalse
441 \Etoc@toctoc}%
442 \fi\fi\fi\Etoc@n@xt
443 #2}}
placeholder for comments
444 \newcommand\etocsetstyle[5]{%
445 \long\expandafter\def
446 \csname Etoc@begin@\csname Etoc@#1@\endcsname\endcsname {#2}%
447 \long\expandafter\def
448 \csname Etoc@prefix@\csname Etoc@#1@\endcsname\endcsname {#3}%
449 \long\expandafter\def
450 \csname Etoc@contents@\csname Etoc@#1@\endcsname\endcsname {#4}%

```

```

451 \long\expandafter\def
452     \csname Etoc@end@\csname Etoc@#1@\endcsname\endcsname {#5}}
placeholder for comments
453 \def\etocstandardlines{\Etoc@standardtrue}
placeholder for comments
454 \newcommand\etocfontminusone{\normalfont \large \bfseries}
455 \newcommand\etocfontzero{\normalfont \normalsize \bfseries}
456 \newcommand\etocfontone{\normalfont \normalsize \bfseries}
457 \newcommand\etocfonttwo{\normalfont \normalsize}
458 \newcommand\etocfontthree{\normalfont \footnotesize}
459 \newcommand\etocfontfour{\normalfont \footnotesize}
460 \newcommand\etocfontfive{\normalfont \footnotesize}
placeholder for comments
461 \newcommand\etocsepminusone{4ex \@plus .5ex \@minus .5ex}
462 \newcommand\etocsepzero{2.5ex \@plus .4ex \@minus .4ex}
463 \newcommand\etocsepone{1.5ex \@plus .3ex \@minus .3ex}
464 \newcommand\etocseptwo{1ex \@plus .15ex \@minus .15ex}
465 \newcommand\etocsepthree{.25ex \@plus .05ex \@minus .05ex}
placeholder for comments
466 \newcommand\etocbaselinespreadminusone{1}
467 \newcommand\etocbaselinespreadzero{1}
468 \newcommand\etocbaselinespreadone{1}
469 \newcommand\etocbaselinespreadtwo{1}
470 \newcommand\etocbaselinespreadthree{.9}
placeholder for comments
471 \newcommand\etocminusonelrmargins{1em}
472 \newcommand\etococlineleaders
473 {\hbox{\normalfont\normalsize\hbox to 2ex {\hss.\hss}}}}
474 \newcommand\etocabbrevpagename{p.~}
placeholder for comments
475 \def\etocetoclines{\Etoc@standardfalse}
placeholder for comments
476 \etocsetstyle{@minusone}{\addpenalty\@highpenalty}{}
477 {\begingroup \etocfontminusone
478   \addvspace{\etocsepminusone}%
479   \parindent \z@
480   \leftskip \etocminusonelrmargins
481   \rightskip \etocminusonelrmargins
482   \parfillskip \@flushglue
483   \vbox{\etocifnumbered{\etocnumber.~}{}\etocname
484     \baselineskip\etocbaselinespreadminusone\baselineskip\par}%
485   \addvspace{\etocsepzero}\nobreak
486 \endgroup}

```

```

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

```

```

530 {}
531 {\begingroup\etocfonttwo
532 \addvspace{\etocseptwo}%
533 \parindent \z@ \parfillskip \z@
534 \setbox\z@\vbox{\parfillskip\@flushglue
535 \etocname\par\setbox\tw@\lastbox
536 \global\setbox\@ne\hbox{\unhbox\tw@}}%
537 \dimen\z@=\wd\@ne
538 \setbox\z@=\etoclineleaders
539 \advance\dimen\z@\wd\z@
540 \etocifnumbered
541 {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage}}
542 {\setbox\tw@\hbox{\etocabbrevpagename\etocpage}}%
543 \advance\dimen\z@\wd\tw@
544 \ifdim\dimen\z@ < \linewidth
545     \vbox{\etocname\nobreak
546     \leaders\box\z@\hfil\box\tw@
547     \baselineskip\etocbaselinespreadtwo\baselineskip\par}
548 \else
549     \vbox{\etocname\nobreak
550     \ifdim\wd\@ne<\linewidth\leaders\copy\z@\hfil\break\fi
551     \hbox{}}\leaders\box\z@\hfil\box\tw@
552     \baselineskip\etocbaselinespreadtwo\baselineskip\par}
553 \fi
554 \addvspace{\etocseptthree}\addpenalty\@itempenalty
555 \endgroup}
556 {\addpenalty\@secpenalty}%
    placeholder for comments
557 \etocsetstyle{@three}
558 {\nobreak
559 \etocfontthree
560 \addvspace{\etocseptthree}%
561 \nointerlineskip\noindent
562 \etocskipfirstprefix}
563 {\allowbreak\,--\,}
564 {\etocname}
565 {\unskip.\hfil\begingroup
566 \baselineskip\etocbaselinespreadthree\baselineskip
567 \par\endgroup
568 \addpenalty{-\@highpenalty}}%
    placeholder for comments
569 \etocsetstyle{@four}{}{}{}{}{}%
    placeholder for comments
570 \etocsetstyle{@five}{}{}{}{}{}%
571 }

```



placeholder for comments

```
572 \newcommand\etocmarkboth[1][\contentsname]{%
573     \@mkboth {\MakeUppercase #1}
574             {\MakeUppercase #1}}
575 \def\etoc@article@tohead#1{\section *{#1\@mkboth
576     {\MakeUppercase{#1}}
577     {\MakeUppercase{#1}}}}
578 \def\etoc@article@tohead@nomarks#1{\section *{#1}}
579 \def\etoc@book@tohead#1{\chapter *{#1\@mkboth
580     {\MakeUppercase{#1}}
581     {\MakeUppercase{#1}}}}
582 \def\etoc@book@tohead@nomarks#1{\chapter *{#1}}
583 \let\etoc@standard@tohead\etoc@article@tohead
584 \let\etoc@standard@tohead@nomarks\etoc@article@tohead@nomarks
585 \@ifclassloaded{book}{%
586 \let\etoc@standard@tohead\etoc@book@tohead
587 \let\etoc@standard@tohead@nomarks\etoc@book@tohead@nomarks}{%
588 \@ifclassloaded{report}{%
589 \let\etoc@standard@tohead\etoc@book@tohead
590 \let\etoc@standard@tohead@nomarks\etoc@book@tohead@nomarks}}}
```

placeholder for comments

```
591 \newcommand\etocstandardheading[1]{%
592 \etoc@standard@tohead{#1}}
593 \newcommand\etocstandardheadingnomarks[1]{%
594 \etoc@standard@tohead@nomarks{#1}}
595 %
596 \newcommand\etocabovetocskip{3.5ex \@plus 1ex \@minus .2ex}
597 \newcommand\etocbelowtocskip{3.5ex \@plus 1ex \@minus .2ex}
598 \newcommand\etoccolumnsep{2em}
599 \newcommand\etocmulticolsep{0ex}
600 \newcommand\etocmulticolpretolerance{-1}
601 \newcommand\etocmulticoltolerance{200}
```

placeholder for comments

```
602 \newcommand\etocmulticolstyle[2][2]{%
603 \etocsettocstyle
604     {\addvspace{\etocabovetocskip}}%
605     \ifnum #1>\@ne\let\Etoc@next\@firstoftwo
606     \else \let\Etoc@next\@secondoftwo\fi
607     \Etoc@next{%
608     \multicolpretolerance\etocmulticolpretolerance
609     \multicoltolerance\etocmulticoltolerance
610     \setlength{\columnsep}{\etoccolumnsep}%
611     \setlength{\multicolsep}{\etocmulticolsep}%
612     \begin{multicols}{#1}[#2\addvspace{\etocsepminusone}]}
613     {#2\addvspace{\etocsepminusone}\pretolerance\etocmulticolpretolerance}
```

```

614         \tolerance\etocmulticoltolerance}}
615 {\ifnum #1>\@ne\let\Etoc@next\@firstofone
616         \else \let\Etoc@next\@gobble\fi
617         \Etoc@next{\end{multicols}}}%
618         \addvspace{\etocbelowtocskip}}}

placeholder for comments

619 \newcommand\etocinnertopsep{2ex}
620 \newcommand\etocinnerbottomsep{3.5ex}
621 \newcommand\etocinnerleftsep{2em}
622 \newcommand\etocinnerrightsep{2em}
623 \newcommand\etoctoprule{\hrule}
624 \newcommand\etocleftrule{\vrule}
625 \newcommand\etocrightrule{\vrule}
626 \newcommand\etocbottomrule{\hrule}
627 \newcommand\etoctoprulecolorcmd{\relax}
628 \newcommand\etocbottomrulecolorcmd{\relax}
629 \newcommand\etocleftrulecolorcmd{\relax}
630 \newcommand\etocrightrulecolorcmd{\relax}

placeholder for comments

631 \newcommand\etoc@ruledheading[1]{%
632     \hbox to \linewidth{\color@begingroup
633         \hss #1\hss\hskip-\linewidth
634         \etoctoprulecolorcmd\leaders\etoctoprule\hfil
635         \phantom{#1}%
636         \leaders\etocbottomrule\hss\color@endgroup}%
637     \nointerlineskip\vskip\etocinnertopsep}

placeholder for comments

638 \newcommand\etocruledstyle[2][2]{%
639 \etocsettocstyle
640     {\addvspace{\etocabovetocskip}}%
641     {\ifnum #1>\@ne\let\Etoc@next\@firstoftwo
642         \else \let\Etoc@next\@secondoftwo\fi
643     \Etoc@next
644         {\multicolpretolerance\etocmulticolpretolerance
645         \multicoltolerance\etocmulticoltolerance
646         \setlength{\columnsep}{\etoccolumnsep}%
647         \setlength{\multicolsep}{\etocmulticolsep}%
648         \begin{multicols}{#1}[\etoc@ruledheading{#2}]}
649         {\etoc@ruledheading{#2}\nobreak
650         \pretolerance\etocmulticolpretolerance
651         \tolerance\etocmulticoltolerance}}
652 {\ifnum #1>\@ne\let\Etoc@next\@firstofone
653     \else \let\Etoc@next\@gobble\fi
654     \Etoc@next{\end{multicols}}}%
655     \addvspace{\etocbelowtocskip}}}

```

placeholder for comments

```
656 \newcommand\etocframedmphook{\relax}
657 \newcommand\etocbkgcolorcmd{\relax}
658 \newcommand\Etoc@relax{\relax}
659 \newbox\etoc@framed@titlebox
660 \newbox\etoc@framed@contentsbox
661 \newcommand\etocframedstyle[2][2]{%
662 \etocsettocstyle{%
663     \addvspace{\etocabovetocskip}%
664     \setbox\z@\hbox{\#2}%
665     \dimen\z@\dp\z@
666     \ifdim\wd\z@<\linewidth \dp\z@\z@ \else \dimen\z@\z@ \fi
667     \setbox\etoc@framed@titlebox=\hbox to \linewidth{\color@begingroup
668         \hss
669         \ifx\etocbkgcolorcmd\Etoc@relax\else
670             \sbox\tw@{\color{white}%
671                 \vrule\@width\wd\z@\@height\ht\z@\@depth\dimen\z@}%
672                 \ifdim\wd\z@<\linewidth \dp\tw@\z@\fi
673                 \box\tw@
674                 \hskip-\wd\z@
675             \fi
676             \copy\z@
677             \hss
678             \hskip-\linewidth
679             \etocoprulecolorcmd\leaders\etocoprule\hss%
680             \hskip\wd\z@
681             \etocoprulecolorcmd\leaders\etocoprule\hss\color@endgroup}%
682     \setbox\z@\hbox{\etocleftrule\etocrightrule}%
683     \dimen\tw@\linewidth\advance\dimen\tw@-\wd\z@
684     \advance\dimen\tw@-\etocinnerleftsep
685     \advance\dimen\tw@-\etocinnerrightsep
686     \setbox\etoc@framed@contentsbox=\vbox\bgroup
687         \hsize\dimen\tw@
688         \kern\dimen\z@
689         \vskip\etocinnertopsep
690         \hbox\bgroup
691         \begin{minipage}{\hsize}%
692         \etocframedmphook
693         \ifnum #1>\@ne\let\Etoc@next\@firstoftwo
694         \else \let\Etoc@next\@secondoftwo\fi
695         \Etoc@next
696         {\multicolpretolerance\etocmulticolpretolerance
697         \multicoltolerance\etocmulticoltolerance
698         \setlength{\columnsep}{\etoccolumnsep}%
699         \setlength{\multicolsep}{\etocmulticolsep}%
700         \begin{multicols}{#1}}
```

```

701      {\pretolerance\etocmulticolpretolerance
702       \tolerance\etocmulticoltolerance}}
703      {\ifnum #1>\@ne\let\Etoc@next\@firstofone
704       \else \let\Etoc@next\@gobble\fi
705      \Etoc@next{\end{multicols}\unskip}%
706      \end{minipage}%<- indispensable (horizontal mode here)
707      \egroup
708      \vskip\etocinnerbottomsep
709      \egroup
710      \ifx\etocbkgcolorcmd\Etoc@relax\else
711      \vskip\ht\etoc@framed@titlebox
712      \vskip\dp\etoc@framed@titlebox
713      \hbox to \linewidth{\color@begingroup
714       \etocleftrulecolorcmd\etocleftrule
715       \etocbkgcolorcmd
716       \leaders\vrule
717         \@height\ht\etoc@framed@contentsbox
718         \@depth\dp\etoc@framed@contentsbox
719       \hss
720       \etocrightrulecolorcmd\etocrightrule
721       \color@endgroup}
722      \nointerlineskip
723      \vskip-\dp\etoc@framed@contentsbox
724      \vskip-\ht\etoc@framed@contentsbox
725      \vskip-\dp\etoc@framed@titlebox
726      \vskip-\ht\etoc@framed@titlebox
727      \fi
728      \box\etoc@framed@titlebox\nointerlineskip
729      \hbox to \linewidth{\color@begingroup
730      {\etocleftrulecolorcmd\etocleftrule}%
731      \hss\box\etoc@framed@contentsbox\hss
732      \etocrightrulecolorcmd\etocrightrule\color@endgroup}
733      \nointerlineskip
734      \vskip\ht\etoc@framed@contentsbox
735      \vskip\dp\etoc@framed@contentsbox
736      \hbox to \linewidth{\color@begingroup\etocbottomrulecolorcmd
737       \leaders\etocbottomrule\hss\color@endgroup}
738      \addvspace{\etocbelowntocskip}}
placeholder for comments
739 \newcommand\etoc@multicoltoc[2][2]{%
740 \begingroup
741 \etocmulticolstyle[#1]{#2}%
742 \ifEtoc@star
743   \def\Etoc@next{\tableofcontents*}%
744   \else
745   \def\Etoc@next{\tableofcontents}%

```

```

746 \fi
747 \Etoc@mustclosegrouptrue
748 \Etoc@next}
placeholder for comments
749 \newcommand\etoc@ruledtoc[2][2]{%
750 \beginingroup
751 \etocruledstyle[#1]{#2}%
752   \ifEtoc@star
753     \def\Etoc@next{\tableofcontents*}%
754   \else
755     \def\Etoc@next{\tableofcontents}%
756   \fi
757 \Etoc@mustclosegrouptrue
758 \Etoc@next}
placeholder for comments
759 \newcommand\etoc@framedtoc[2][2]{%
760 \beginingroup
761 \etocframedstyle[#1]{#2}%
762   \ifEtoc@star
763     \def\Etoc@next{\tableofcontents*}%
764   \else
765     \def\Etoc@next{\tableofcontents}%
766   \fi
767 \Etoc@mustclosegrouptrue
768 \Etoc@next}
placeholder for comments
769 \def\etocmulticol{\@ifstar{\Etoc@startrue\etoc@multicoltoc}
770 {\Etoc@starfalse\etoc@multicoltoc}}
771 \def\etocruled{\@ifstar{\Etoc@startrue\etoc@ruledtoc}
772 {\Etoc@starfalse\etoc@ruledtoc}}
773 \def\etocframed{\@ifstar{\Etoc@startrue\etoc@framedtoc}
774 {\Etoc@starfalse\etoc@framedtoc}}
placeholder for comments
775 \etocetoclines
776 \etocmulticolstyle{\etocstandardheading\contentsname}
777 \endinput

```