

# The **etoc** package

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Starting with 1.08h, about 25 code samples (especially the longer ones) are incorporated into the PDF file (thanks to SCOTT PAKIN's `attachfile` package) as *file attachment annotations*. Each file is represented by an icon after the verbatim rendering of the corresponding code. Clicking suitably on the icon will open a dialog to open or save the file contents. This is much better than copy-paste which loses indentation. There is also in some viewer a *Comment pane* which can be opened on the right side of the main window and which provides a convenient clickable list of all these *attachments annotations*.

PDF viewers unable to make these attachments accessible to the user may replace the clickable icons by some blank space.

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## 1. Foreword

### 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. Simpler ones are given as examples in the documentation. The simplest usage will be to take advantage of the layout facilities of packages dealing with list environments.

Regarding the *global toc display*, **etoc** provides pre-defined styles based on a multi-column format, with, optionally, a ruled title or framed contents.

The `\tableofcontents` command may be used arbitrarily many times<sup>1</sup> and it has a variant `\localtableofcontents` which prints tables of contents ‘local’ to the current surrounding document unit. An extension of the `\label/\ref` syntax allows to reproduce (with another layout) a local table of contents defined somewhere else in the document.

Via “depth tags”, one gets an even finer control for each table of contents of which sectioning units it should, or not, display.

The formatting inherited (and possibly customized by other packages) from the document class will be used when in *compatibility mode*.

The assignment of levels to the sectioning units can be changed at any time, and **etoc** can thus be used in a quite general manner to create custom “lists of”, additionally to the tables of contents related to the document sectioning units. No auxiliary file is used additionally to the standard `.toc` file.

## 1. Foreword

Popular packages dealing with TOCs include `tocloft`, `titletoc` and `minitoc`. Why another one? I started **etoc** for my own use, and found out only later about these mentioned packages.

As is well explained in the `tocloft` package documentation, the standard L<sup>A</sup>T<sub>E</sub>X layout for the Table of Contents is buried in the class definitions. In particular, most of the lengths therein are hardcoded, and the only way for the user to change them is to recopy the class definitions into the document and then change them to obtain what is desired (within suitable `\makeatletter` and `\makeatother`). The more reasonable alternative is to use a dedicated package such as `tocloft` or to use another flexible document class.

However, although now things are hopefully not hard-coded, one still has to go through the package or class interface. This means one has to memorize a (possibly large) number of macros which will serve only to this task, and one will always be constrained to customizing one initially given layout.

The spirit of **etoc** is something else. The user will deal with the *name*, the *number* and the *page number* corresponding to each document sectional division (and found in a line of the `.toc` file) in a completely arbitrary manner: they are made available via the `\etocname`, `\etocnumber`, and `\etocpage` commands.

**etoc** appears to be (at least partially) compatible with the `article`, `book`, `report`, `scrartcl`, `scrbook`, `scrreprt` and `memoir` classes.

---

<sup>1</sup>Except if `\etockeeporiginaltableofcontents` (**New with 1.09d**) is issued in the preamble after package loading. Then the macro `\etoc\tableofcontents`, not `\tableofcontents`, must be used if the **etoc** features are to apply to the global TOC. This was added to fix a compatibility issue with `listings`'s `\lstlistoflistings`, as it needs the `\tableofcontents` macro to keep its original meaning.

## 2. License

```
% Package: etoc
% Version: 1.09e
% License: LPPL 1.3c
% Copyright (C) 2012-2021 Jean-Francois Burnol <jfbu at free dot fr>
% Copyright (C) 2014-2015 Christine Roemer and collaborators
%           <Christine_Roemer at t-online dot de>
%           (translation into German of the documentation)
%
% This Work may be distributed and/or modified under the
% conditions of the LaTeX Project Public License, in its
% version 1.3c. This version of this license is in
%   http://www.latex-project.org/lppl/lppl-1-3c.txt
% and the latest version of this license is in
%   http://www.latex-project.org/lppl.txt
% and version 1.3 or later is part of all distributions of
% LaTeX version 2005/12/01 or later.
%
% The Authors of this Work are:
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%   for the source code and English documentation, and
% Christine Roemer <Christine_Roemer at t-online dot de> and collaborators
%   for the translation into German of the documentation.
%
% This Work consists of the main source file etoc.dtx and the derived
% files etoc.sty, etoc.tex, etoc-DE.tex, etoc.pdf, etoc-DE.pdf,
% etoc.dvi, etoc-DE.dvi, README.md.
%
% Running etex (or latex or pdflatex) on etoc.dtx extracts etoc.sty,
% etoc.tex, etoc-DE.tex, and README.md. See README.md for
% further instructions.
```

### 3. Do I need to be a geek to use `etoc`?

## Part I. Overview

Here are some statistics for this part: it contains 6 sections and 4 subsections. The name of the first section is “Do I need to be a geek to use `etoc`?” and the corresponding number is “3”. The name of the last section is “Linked list of the main package commands” and its number is “8”. The name of the first subsection is “Limitations in the use of list environments for tables of contents” and the corresponding number is “3.1”. The name of the last subsection is “Compatibility mode” and its number is “4.3”.

### 3. Do I need to be a geek to use `etoc`?

Not quite. The simplest way is to use `enumerate` environments, with the customizing facilities of packages such as `enumitem`,<sup>2</sup> to display the data fetched by `etoc` from the `.toc` file. The data consists of the *name* (`\etocname`), *number* (`\etocnumber`), and *page number* (`\etocpage`) as extracted from the `.toc` file.

This is illustrated [at the start of Part V](#). More sophisticated examples would use more sophisticated `enumitem` options. One may say then that again the user has to memorize some customizing! indeed, but the syntax and option names to memorize are in no way related only to matters of tables of contents, hence an economy of use of the poor brain.

Next in ease of use, perhaps, is the method explained [later in this part \(section 5\)](#). For this some knowledge of `\leftskip`, `\rightskip`, etc... is necessary. And a slight elaboration of this method, whose code is to be found in [section 53](#), allows to mimick very well, if so desired, the standard looks. An even closer emulation of the book class design is now included in this documentation as [section 21](#).

As will be amply illustrated in this manual, `etoc` is quite versatile (especially as it allows to re-define at any point in the document the hierarchy of sectioning units) and one can achieve surprising effects with it: [Part IV](#) is devoted to this, and some more is to be found in [Part VIII](#).

A very important aspect of `etoc` is that it is geared towards making many TOCs in the same document, *using only one .toc file!* The present documentation contains 42 visible tables of contents (and a few invisible ones) and uses only one `.toc` file!<sup>3</sup> So one should think twice before adding manually extra commands to the `.toc` file (see [section 18](#)).

#### 3.1. Limitations in the use of list environments for tables of contents

There are some limitations to the use of list environments for typesetting TOCs. One of them is intrinsic to the scope limitations created by the groups associated to the environ-

<sup>2</sup><http://ctan.org/pkg/enumitem>

<sup>3</sup>and the counting itself has been achieved by a table of contents which was inserted in the framed paragraph! ... the technique for this kind of effect will be explained later.



ments: the `.toc` file may contain, besides the information to be typeset in the TOCs, some other commands, such as language changing commands, which do not expect to see their scope limited in this way inside a group ( $\LaTeX$ 's environments create groups).

Therefore the built-in “line styles” proposed by `etoc` as an example (and which are illustrated<sup>4</sup> by the [main table of contents](#) in this document) do not make use of environments. Actually, in this user manual, only the [table of contents](#) at the start of [Part V](#), the [subsection 51.1](#) (which is a TOC!) and examples from [section 38](#) have their line styles expressed in terms of `enumerate` or `itemize` environments.

## 4. Line styles and toc display style

A distinction shall be made between the *line styles*, *i.e.* the way the name, number and page numbers are used at each level, and the *toc display style* (for lack of a better name) which tells how the title should be set, whether an entry in the `.toc` file should be made, whether the contents should be typeset with multiple columns, etc... the latter is governed by the command `\etocsettocstyle` (or some higher-level commands) and the former by the command `\etocsetstyle`.

### 4.1. `\etocsetstyle` for the line styles

The command to inform `etoc` of what to do with `\etocname`, `\etocnumber`, and `\etocpage` is called `\etocsetstyle`. It has five mandatory arguments. The first one is the name of the sectional unit: a priori known names are `book`, `part`, `chapter`, `section`, `subsection`, `subsubsection`, `paragraph`, and `subparagraph`, and any other name can be declared and assigned to a (numeric) level via the `\etocsetlevel` command.<sup>5</sup>

The four other arguments of `\etocsetstyle` specify: 1) *what to do when this level is first encountered, down from a more general one*, then 2) & 3) (two arguments, a ‘prefix’ and a ‘contents’) *what to do when a new entry of that type is found*, and 4) *the last argument is the code to execute when a division unit of higher importance is again hit upon*.

### 4.2. `\etocsettocstyle` for the toc display

The `\etocsettocstyle` command allows to specify what should be done before and after the line entries of the TOC are typeset, and in particular how the title should be printed. It has two arguments, the first one is executed before the TOC contents (typically it will print “Contents” and define suitable marks for the page headings) and the second is executed after the TOC contents.

`etoc` provides four (customizable) higher level toc styles: `\etocmulticolstyle`, `\etocstyle`, `\etocruledstyle`, and `\etocframedstyle`. All use the `multicol` package with a default of two columns (single-column mode is obtained with the optional argument [1]).

These commands must be followed either by `\tableofcontents` or `\localtableofcontents`.

---

<sup>4</sup>with a twist, subsections having been downgraded to the subsubsection style...

<sup>5</sup>under the `memoir` class, `etoc` knows `appendix` as a sectioning name.

## 5. A first example

### 4.3. Compatibility mode

Both for the “line styles” and the “toc display style”, it is possible to switch into a compatibility mode which uses the defaults from the document class.<sup>6</sup> This is activated by:

```
\etocstandardlines      % ‘line entries’ as without \usepackage{etoc}
\etocstandarddisplaystyle % ‘toc display’ as without \usepackage{etoc}
```

If the command `\etocsetstyle` has *not been used in the preamble* the package will be at `\begin{document}` in this compatibility mode: hence just adding `\usepackage{etoc}` should hopefully not change anything to the look of a previously existing document, under the article, book, report, scrartcl, scrbook, scrreprt and memoir classes.

Any use of `\etocsetstyle` in the *preamble or body* of the document turns off from that point on the compatibility mode for line styles, but maintains the compatibility mode for the TOC title. One re-activates the compatibility mode for line styles with `\etocstandardlines`; and `\etococlines` will re-activate the line styles as defined with the help of `\etocsetstyle`, if their scope was not limited to a group or environment.

The command `\etocdefaultlines` resets the line styles as pre-defined internally by **etoc** and described in [section 46](#).

Even if `\etocsetstyle` has been used, the global display style remains initially as defined by the document class (or the `tocloft` package); one needs to use the command `\etocsettocstyle` or its variants to exit from this compatibility mode at the “toc display style” level. It will be re-activated if use if made of `\etocstandarddisplaystyle`.

See further [section 20](#).

## 5. A first example

Let us present a first example of specification for line styles. Immediately after the start of [Part I](#) we inserted in the source file:

```
\invisiblelocaltableofcontents \label{toc:overview}
```

This sets-up the label `toc:overview`, and we can use it at any location in the document:

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

And as we used `\invisible...`,<sup>7</sup> the local TOC will exist only through its clones elsewhere in the document.

---

### My first **etoc**: TOC of **Part I (Overview)**

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<sup>6</sup>for the “toc display style” **etoc** checks if it knows the class, and if not defaults to the article class layout. It will also check if `tocloft` has customized the TOC title.

<sup>7</sup>this is a shortcut for setting temporarily the `tocdepth` to `-3`, which has the effect to tell **etoc** not to print the TOC, and not even the heading.

## 7. A Beautiful Thesis example

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## 8. Linked list of the main package commands

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We could have used the line styles defined by `etoc`, with `\etocdefaultlines`, or the default document class styles with `\etocstandardlines`, but we were a bit more ambitious here and wanted to design our own. The technique is a simple one: each heading is in its own paragraph, which may extend on multiple lines; it is responsible for setting its own `\leftskip`.

This is a simple design which does not make provisions for page breaks which should be discouraged in-between a section and a subsection etc. . . as we only used it for the table of contents of this part, thus with sections as top levels, there was no need to specify a style for parts too (we defined a subsection line style but as it turns out there are no subsections in this part). The two commands used are `\etocsetstyle` for specifying the line styles, and `\etocruledstyle` for the TOC global style.

The `\rightskip` is shared by all, and creates space where the page numbers get printed. For an elaboration of this technique see the next [section 6](#) as well as [section 53](#) which provides a TOC with parts and paragraphs. Both allow multi-line headings and employ a technique for putting page numbers in the right margin which was inspired from what L<sup>A</sup>T<sub>E</sub>X2e's `\@dottedtocline` macro does.

Here is how it was produced:

```
\begingroup\parindent 0pt \parfillskip 0pt \leftskip 0cm \rightskip 1cm
\etocsetstyle {section}
  {}
  {\leavevmode\leftskip 0cm\relax}
  {\bfseries\normalsize\makebox[.5cm][l]{\etocnumber.}%
  \etocname\nobreak\hfill\nobreak
  \rlap{\makebox[1cm]{\mdseries\etocpage}}\par}
  {}
\etocsetstyle {subsection}
  {}
  {\leavevmode\leftskip .5cm\relax }
  {\mdseries\normalsize\makebox[1cm][l]{\etocnumber}%
  \etocname\nobreak\hfill\nobreak
  \rlap{\makebox[1cm]{\etocpage}}\par}
  {}
\etocsetstyle {subsubsection}
  {}
  {\leavevmode\leftskip 1.5cm\relax }
  {\mdseries\normalsize\makebox[1cm][l]{\etocnumber}%
  \etocname\nobreak\hfill\nobreak
  \rlap{\makebox[1cm]{\etocpage}}\par}
  {}
\etocruledstyle[1]{\bfseries \Large My first \etoc: TOC of
  \autoref{part:overview} (\nameref{part:overview})}
\tableofcontents \ref {toc:overview}
\endgroup
```

## 6. A second example

### 6. A second example

This second example displays only the contents from [Part V](#) and [Part VI](#). This selection is done via the technique of *depth tags*, described in [section 14](#) and [section 53](#). Its layout is a bit like the one of the [main document TOC](#), although the line styles are coded very differently.

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The code:

```
\begingroup
\newcommand*{\DotsAndPage}
{\nobreak\leaders\hbox{\bfseries\normalize\hbox to .75ex {\hss.\hss}}%
\hfill\nobreak
\makebox[\rightskip][r]{\bfseries\normalize\etocpage}\par}

\etocsetstyle {part}
{\parindent 0pt
\nobreak
\etocskipfirstprefix}
{\pagebreak[3]\bigskip}
```

```

{\large\rmfamily\bfseries\scshape\centering
\etocifnumbered{Part \etocnumber{} - }{}\etocname\par}
{}

\etocsetstyle {section}
{\leftskip 0pt \rightskip .75cm \parfillskip-\rightskip
\nobreak\medskip
\etocskipfirstprefix}
{\leftskip 0pt \rightskip .75cm \parfillskip-\rightskip
\pagebreak[1]\smallskip}
{\normalsize\rmfamily\bfseries\scshape
\etocnumber. \etocname\DotsAndPage }
{\parfillskip 0pt plus 1fil\relax }

\etocsetstyle {subsection}
{\leftskip1cm\rightskip .75cm \parfillskip 0pt plus 1fil\relax
\nobreak\smallskip}
{}
{\footnotesize\sffamily\mdseries\itshape
\etocname{} (\etocnumber, p. \etocpage). }
{\par\medskip}

\etocsettagdepth {preamble} {none}
%\etocsettagdepth {overview} {none}% not needed explicitly, keeps value
%\etocsettagdepth {arbitrarily}{none}
%\etocsettagdepth {examples} {none}
%\etocsettagdepth {surprising} {none}
\etocsettagdepth {linestyles} {subsection}
\etocsettagdepth {globalcmds} {subsection}
\etocsettagdepth {custom} {none}
%\etocsettagdepth {tips} {none}
%\etocsettagdepth {etocandworld}{none}
%\etocsettagdepth {code} {none}

\etocsettocstyle {\centering\LARGE\textsc{\contentsname}\par\nobreak\medskip}{}
\etocsetnexttocdepth {subsection}
\tableofcontents
\endgroup

```

## 7. A Beautiful Thesis example

Here is a relatively simple example of use of the package functionalities. Let us set up some line styles. We choose a style for sections and sub-sections which would be suitable for, respectively, sections and sub-sections in an average length memoir. The line style specifications have some redundancy for clarity, and do not care about what to do at possible page breaks. Also, they do not worry about potential multi-column use.

\_\_\_\_\_ *My Beautiful Thesis*

### Chapter 3 Do I need to be a geek to use

## 7. A Beautiful Thesis example

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```
\beginngroup % we start a group to keep the style changes local
\newlength{\tocleftmargin} \setlength{\tocleftmargin}{5cm}
\newlength{\tocrightmargin} \setlength{\tocrightmargin}{1cm}

\etocsetstyle{section} % will pretend to be a Chapter
{\addvspace{1ex}\parfillskip0pt
 \leftskip\tocleftmargin % (already done in title)
 \rightskip\the\tocrightmargin plus 1fil
 \parindent0pt\color{cyan}} % (already done)
{\bfseries\LARGE\upshape\addvspace{1ex}\leavevmode}
{\llap{Chapter\hspace{.5em}}{\etocnumber}\hspace{.75cm}}\etocname
 \hfill\makebox[-\tocrightmargin][l]{\makebox[0pt]{\etocpage}}\par}
{}

\etocsetstyle{subsection} % will pretend to be a Section
{}
{\mdseries\large\addvspace{.5ex}\leavevmode}
{\llap{\etocnumber\hspace{.75cm}}\textit{\etocname}%
 \hfill\makebox[-\tocrightmargin][l]{\makebox[0pt]{\etocpage}}\par}
{}

\def\tmptitle{My Beautiful Thesis}
\etocsettocstyle{\color{cyan}\parindent0pt \leftskip\tocleftmargin
 \leavevmode\leaders\hrule height 1pt\hfill\
 \huge\textit{\tmptitle}\par}{\bigskip}

\tableofcontents \ref{toc:overview}
\endgroup
```

## 8. Linked list of the main package commands

<code>\etocaftercontentshook</code>	<code>\etoclocalmulticol</code>	<code>\etocsettocstyle</code>
<code>\etocaftertitlehook</code>	<code>\etoclocalruled</code>	<code>\etocskipfirstprefix</code>
<code>\etocaftertohook</code>	<code>\etocmulticolstyle</code>	<code>\etocstandarddisplaystyle</code>
<code>\etocbeforetitlehook</code>	<code>\etocmulticol</code>	<code>\etocstandardlines</code>
<code>\etocdefaultlines</code>	<code>\etocname</code>	<code>\etocthelinkedname</code>
<code>\etocdepthtag.toc</code>	<code>\etocnumber</code>	<code>\etocthelinkednumber</code>
<code>\etocdisplay</code>	<code>\etocobeydepthtags</code>	<code>\etocthelinkedpage</code>
<code>\etocframedstyle</code>	<code>\etocobeytoctocdepth</code>	<code>\etocthelink</code>
<code>\etocframed</code>	<code>\etocpage</code>	<code>\etocthename</code>
<code>\etociffirst</code>	<code>\etocruledstyle</code>	<code>\etocthenumber</code>
<code>\etocifnumbered</code>	<code>\etocruled</code>	<code>\etocthepage</code>
<code>\etocignoredepthtags</code>	<code>\etocsetlevel</code>	<code>\etoc toc contents line</code>
<code>\etocignoretoctocdepth</code>	<code>\etocsetnexttocdepth</code>	<code>\etoc toc lines</code>
<code>\etocinline</code>	<code>\etocsetstyle</code>	<code>\localtableofcontents</code>
<code>\etoclink</code>	<code>\etocsettagdepth</code>	<code>\localtableofcontentswithrelativedepth</code>
<code>\etoclocalframed</code>	<code>\etocsettocdepth.toc</code>	<code>\tableofcontents</code>
<code>\etoclocaltop</code>	<code>\etocsettocdepth</code>	

## Part II.

# Arbitrarily many TOCs, and local ones too

Here are some statistics for this part: it contains 10 sections and 7 subsections. The name of the first section is “The `\tableofcontents`, `\localtableofcontents` and `\localtableofcontentswithrelativedepth` commands” and the corresponding number is “9”. The name of the last section is “Adding commands to the `.toc` file” and its number is “18”. The name of the first subsection is “The hyperref option `bookmarksdepth`” and the corresponding number is “12.1”. The name of the last subsection is “The hyperref option `hidelinks`” and its number is “18.1”.

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## 9. The `\tableofcontents`, `\localtableofcontents` and `\localtableofcontentswithrelativedepth` commands

`\tableofcontents` can be used arbitrarily many times in the document. Styling either globally the TOC or its individual entries is customizable at any time in the document.

`\localtableofcontents` will print local tables of contents: *i.e.* all sections and subunits inside a given chapter, or all subsections and lower inside a given subsection, etc... (see also `\etocsetnexttocdepth`).<sup>8,9</sup>

`\localtableofcontentswithrelativedepth{<number>}` can be used to override the document or current `tocdepth` setting (see [section 11](#) for a discussion of `tocdepth`) to become relative to where the local TOC originates. For example, assuming the default numeric level assignments to standard sectioning units

```
\section{This is a section}
\localtableofcontentswithrelativedepth{+2}
```

will create a local table of contents taking into account the subsections and subsubsections inside this section, independently of what is the value of the `tocdepth` counter at this position in the document. If the numeric argument had been 3, the local TOC would have displayed also paragraphs. If the section had been a chapter, and again for a relative `tocdepth` of 2, the taken into account levels would have been sections and subsections.<sup>10</sup>

The macro `\localtableofcontentswithrelativedepth` is **new with 1.09**.<sup>11</sup>

## 10. Labeling and reusing elsewhere

`etoc` allows the labeling of a TOC with (for example) `\label{toc:A}` and will redisplay it elsewhere when told `\tableofcontents\ref{toc:A}`. The actual layout (title inclusive) used for the cloned TOC will be decided locally. The line styles and `toc` display style (including the title) will be the current ones and the current value of the `tocdepth` counter is obeyed. As an example the table of contents of [Part VII](#) is in a `float` which appears on the following page.

We used this:

```
\begin{figure}[ht!]
\centering
\begingroup
\etocstandardlines
```

---

<sup>8</sup>As is explained in [section 10](#) the syntax allows to create somewhere a local table of contents and to display it at some other location either before or after its origin.

<sup>9</sup>As is explained in [section 11](#) `etoc` allows at anytime to locally redefine the numeric levels associated to named ones, which brings great flexibility to achieve special effects, all done using only a single auxiliary file, the standard `.toc` file.

<sup>10</sup>The situation may be more complex, as the `.toc` file itself may well contain `\setcounter{tocdepth}{...}` commands. This is not recommended practice with `etoc`. See the discussion of `\etocsettocdepth.toc` and `\etocdepthtag.toc` for more on this.

<sup>11</sup>Thanks to Tony ROBERTS for feature request.

11. A powerful functionality of **etoc**: the re-assignment of levels with `\etocsetlevel`

I am from far away

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```

\renewcommand{\etocbkgcolorcmd}{\color{green!5}}
\renewcommand{\etocbelowtocskip}{0pt\relax}
\fbxsep1ex
\etocframedstyle [1]{\fbx{\makebox[.5\linewidth]{\etocfontminusone
\hyperref[toc:c]{I am from far away}}}}
\tableofcontents \label{toc:d} \ref{toc:c}
\endgroup
\end{figure}

```

Important: one should not use elsewhere `\tableofcontents \ref{toc:d}`. To clone again, one must use a reference to the original label: `\tableofcontents \ref{toc:c}`.

## 11. A powerful functionality of **etoc**: the re-assignment of levels with `\etocsetlevel`

The intrinsic levels manipulated by **etoc** are numeric: from -2 (which corresponds to book in the memoir class) down (from the big to the small) to 5 (subparagraph). But the assignment of a numeric level to a given name can be modified at any time with the command `\etocsetlevel{\langle level_name \rangle}{\langle number \rangle}`. In conjunction with the use of the  $\LaTeX$  `tocdepth` counter, this has powerful applications: `\langle level_name \rangle` does not have to coincide with an actual document sectioning command, and **etoc** can be used to print arbitrary “lists of things”, using no other auxiliary file than the `.toc` file. This is explained further in [Part IV](#).

It is often said that in the standard classes, the sectioning level of `\part` is 0 in the classes not having a `\chapter` command, and -1 in classes having a `\chapter` command. This is *correct* for what regards the *automatic numbering*, as is governed by the value of the `secnumdepth` counter; but it is *wrong* for what regards the effect

of the `tocdepth` counter: setting the `tocdepth` to `-1` in the `article` class just before `\tableofcontents` does *not* prevent Parts from appearing in the Table of Contents. One has to set it to `-2` for that, whether in the `article` or in the `book` class.

The canonical levels, a priori known to `etoc`, are those of relevance to the `tocdepth` counter in the standard classes and are recapitulated in this table:

(memoir class) book	-2
part	-1
chapter	0
section	1
subsection	2
subsubsection	3
paragraph	4
subparagraph	5

With `etoc`, the user can easily print a local table of contents inside a given subsection, where subsubsections will be printed in the style of sections, paragraphs in the style of subsections, and subparagraphs in the style of subsubsections, if so desired. One can also decide to set everything to be at the level 6 (never displayed by `etoc`), except for example paragraphs, promoted to be at level 1, and then one obtains a nice table of contents of all the paragraphs from the document! (`tocdepth` at least 1)<sup>12</sup>

## 12. The `\etocsettocdepth` and `\etocsetnexttocdepth` commands

The `tocdepth` counter has no bearing on what gets written to the `.toc` file; its action is only on the actual typesetting of the table of contents.<sup>13</sup> In the standard classes there is only one `\tableofcontents` possible, whereas with `etoc`, arbitrarily many are allowed, so one may change `tocdepth` to the appropriate value (which decides the finest sectioning level displayed) again and again each time a table of contents needs to be typeset.

`etoc` provides `\etocsettocdepth{<level>}` whose mandatory argument is either numeric (from `-3` to `5`) or a division name such as `subsection` or `subsubsection` or any name previously declared to `etoc` with `\etocsetlevel` (the keywords `all` and `none` are recognized, although not corresponding to a document division). This does the appropriate `\setcounter{tocdepth}{numeric_level}`.

As is explained in the next subsection, `tocdepth` is used by `hyperref`, and one must take steps to prevent its changes from influencing the bookmarks, too. So, `etoc` has `\etocsetnexttocdepth{<level>}` whose influence ceases immediately after the next table of contents. Thus, `\invisibletableofcontents` is essentially `\etocsetnexttocdepth{none}\tableofcontents`.

<sup>12</sup>and one should naturally not print this TOC of paragraphs in compatibility mode, which would insist on inserting a gigantic left margin.

<sup>13</sup>In the standard classes (at least), it also influences the `\listoftables` and `\listoffigures`, via `\@dottedtocline`.

### 13. The command `\etocsettocdepth.toc`

The simplest course is thus to have after `\begin{document}` and before the first `\tableofcontents` a single instance of the `\etocsettocdepth` command, with argument the deepest level (or most commonly used deepest level) among the tables of contents of the document, and to use locally, where needed, `\etocsetnexttocdepth` before `\tableofcontents` or `\localtableofcontents`.

It is possible to use `\etocsettocdepth` inside the first argument of `\etocsettocstyle` (possibly in conjunction with checking the `\etoclocaltop` value, *which however will be up-to-date there only if `\etoccheckemptiness` was executed*). There is no worry then about possible impact on hyperref bookmarks later on, because `etoc` always resets the `tocdepth` counter after typesetting a TOC to the value it had before it.

Since 1.09 the macro `\etocsetnexttocdepth` works also if located in first argument of `\etocsettocstyle`, but there is no reason to use it there as `\etocsettocdepth` has no durable effect on the `tocdepth` counter if executed there.

Check `\localtableofcontentswithrelativedepth` for a simpler way to control the depth of local tables of contents. This has the advantage of working reliably whether or not the `\etoccheckemptiness` is used.

#### 12.1. The hyperref option `bookmarksdepth`

When modifying the counter `tocdepth` for the purposes of multiple uses of `\tableofcontents` or `\localtableofcontents`, one should be aware that package `hyperref` by default takes into account the *current* value of the `tocdepth` counter to decide whether the pdf file will contain a bookmark corresponding to sectioning commands encountered in the source file. Thus, one typically needs to reset `tocdepth` to its previous value after having temporarily modified it for a given table of contents.

Or, there is the `bookmarksdepth=n` option of package `hyperref`, with  $n$  the desired document bookmarks maximal depth, which can be numeric or the name of a level known to `hyperref`. This documentation previously passed `bookmarksdepth=3` as option to `hyperref`, so even if `tocdepth` was left to 1 by inadvertance after printing a certain table of contents this did not modify the bookmark tree of the pdf file. Now that `\etocsetnexttocdepth` has been added to the package, we have used it systematically and there was no need for `bookmarksdepth=3` anymore.

### 13. The command `\etocsettocdepth.toc`

This command `\etocsettocdepth.toc` implements some functionality of `tocvsec2`<sup>14</sup>, a package which however was incompatible with `etoc` (it can still be used for its `secnumdepth`-related commands, but its `toc`-related activities will get canceled by `etoc`) and more-or-less designed for a single table of contents.

<sup>14</sup><http://ctan.org/pkg/tocvsec2>. I thank Denis Brouzé for drawing my attention to the incompatibility of this package with `etoc`.

### 13.1. The commands `\etocbeyondtocdepth` and `\etocignoretocdepth`

The action of `\etocsettocdepth.toc` is totally different than the one of `\etocsettocdepth`. Rather than modifying the `tocdepth` counter immediately, it adds a line to the `.toc` file which, when executed inside a table of contents will enact this change.

The command `\etocsettocdepth.toc`, like `\etocsettocdepth`, accepts both numeric and named arguments. In the case of a named argument, the actual numeric value to be used is not yet decided at the time the `.toc` file is created; it will be the value currently specified for the named level at the time each table of contents (not having done `\etocignoretocdepth`) is typeset.

The `tocdepth` counter will never be set to a value finer than its initial value at the start of the table of contents: so adding commands `\etocsettocdepth.toc` in the document is a way to *restrict* locally the depth of the table of contents. For example to prevent inclusion in the tables of contents of the sub-sub-sections of a given chapter.

This gets executed in ALL tables of contents.

### 13.1. The commands `\etocbeyondtocdepth` and `\etocignoretocdepth`

So `\etocignoretocdepth` is provided to cancel the `\etocsettocdepth.toc` mechanism when needed; and `\etocbeyondtocdepth` will re-activate it. The package does initially `\etocbeyondtocdepth`.

## 14. The commands `\etocdepthtag.toc` and `\etocsettagdepth`

As mentioned above, when the argument to `\etocsettocdepth.toc` isn't numeric but a named level the actual numeric level used is decided at the time the TOC gets typeset, thus with the *shuffling abilities of etoc*, one may obtain a very flexible control in the following way: one first declares with `\etocsetlevel` some dummy named level, say `partIII`, assigning it the invisible numeric level 6. Then before the actual third `\part` command in the source one inserts `\etocsettocdepth.toc{partIII}`. At the location where the effect should cease one inserts in the source `\etocsettocdepth.toc{all}`. It is now possible to specify, each time one wants to typeset a TOC, what will be the finest level for the entries originating in the third part: one just has to do `\etocsetlevel{partIII}{1}` for example. This will limit to sections (if `tocdepth` was at least at that level at the time `\tableofcontents` is encountered).

This method has some limitations: (i) the second argument to `\etocsetlevel` must be numeric, (ii) it can not be set to `-3` (which would be necessary if one wanted to exclude an entire Book from a TOC in a memoir document with multiple such Books ... admittedly a possibly rare case!), (iii) it is a bit of a hack as `partIII` is not a real division unit, but just a *tag*.

Release 1.07h has a command `\etocdepthtag.toc` which makes it easier to achieve this variable local control of the `tocdepth` at the time of typesetting TOCs.

It is used as `\etocdepthtag.toc{<tag_name>}`, where the `<tag_name>` is anything, and this will put the tag in the `.toc` file. When typesetting a TOC, one issues a series of commands `\etocsettagdepth{<tag_name>}{<level>}` where the `<level>` may be either numeric (from `-3` to `5`) or the name of a division unit known to *etoc*, or `none` or `all`. The effect of

## 16. Not displayed empty TOCs

the tag inside the `.toc` file will then be to set the `tocdepth` counter to the desired value, in real time (as mentioned already, this can not get finer than the initial value of `tocdepth` at the start of the TOC).

The added flexibility is thus that `\etocsetlevel` has not been used in a kind of hacky way, that one may use named level depths, and the keywords `none` and `all`.

As usual, once the tag depths have been set, they remain in effect until getting redefined or seeing their scope expire via the closing of a group or of a surrounding environment. For an example, see [section 53](#).

### 14.1. The commands `\etocobeydepthtags` and `\etocignoredepthtags`

After `\etocignoredepthtags`, the `.toc` depth tags are ignored (but `\etocdepthtag.toc` still works). The package does initially `\etocobeydepthtags` which makes `etoc` react to the found tags in the `.toc` file.

## 15. The commands `\etocglobaldefs` and `\etoclocaldefs`

In  $\LaTeX$  the meaning of a command defined via `\newcommand\foo{...}` inside an environment (or group) vanishes from  $\TeX$ 's memory on exit from this environment (or group). At times however it is needed to make definitions with global scope, for this  $\TeX$  has the primitive prefix `\global`.

By default `etoc`'s definitions of `\etocname` etc... are local. This causes problems in certain contexts such as TOC as tables ([section 30](#), [section 54](#)) and also with `enumitem inline` variants of its standard environments, because the command `\item` then closes a group (see [section 38](#)).

After `\etocglobaldefs`, `etoc` will make its definitions of `\etocname` etc... have global scope. For normal use this is not necessary. It does not hurt either to activate it systematically.

To return to the default, use `\etoclocaldefs`. Note that both `\etocglobaldefs` and `\etoclocaldefs` actions are local to the environment or group where they are used.

## 16. Not displayed empty TOCs

### 16.1. The `\etoccheckemptiness` command

The user needs to issue `\etoccheckemptiness` to tell `etoc` to check whether local tables of contents are empty and in case of emptiness to print nothing at all.<sup>15</sup> This can be useful to authors of  $\LaTeX$  classes who for example wish to have a `\chapter` command doing systematically a `\localtableofcontents`, or for people producing files via automatic conversions and some of those might have sectioning commands and others not.

«Emptiness» means that no `\contentsline` command would get executed within the scope of the local table of contents — empty line styles by themselves do not make the TOC empty. `etoc` always executes the `\etocaftertochook` command; and the test for emptiness itself executes everything else found in the `.toc` file. See [section 18](#) in this context.

---

<sup>15</sup>Thanks to Paul Gaborit who asked for such a feature.

1. the `\etocifwasempty` command discussed below can be used from inside `\etoc-aftertochook`, and even from inside `\etocbeforetitlehook`.
2. there is also `\etocdoesnotcheckemptiness` (since 1.08i.)

The suppression of the heading (more precisely of the toc display style elements) may be effective only for the final  $\LaTeX$  runs. For example in the situation of a `\tableofcontents\ref{foo}` where the label `foo` is not yet recognized, the heading (but not the contents) is printed and the TOC is declared non-empty. Or, if one adds a `\localtableofcontents` to a document, on the next run, the test for emptiness will in fact apply to the next one, and the last local TOC of the document will have its contents temporarily unknown to `etoc`, hence will be declared non empty, and the heading will be printed.

For a finalized document compiled with initially no auxiliary files, the first  $\LaTeX$  run will declare all local TOCs non empty and print for each of them a heading (and no contents naturally). The second  $\LaTeX$  run will then correctly decide which local TOC is empty or not.

## 16.2. The `\etocnotocifnotoc` command

The user can then extend the emptiness-checking to the global TOCs with `\etocnotocifnotoc`. May I respectfully give the advice then to rather do none of `\usepackage{etoc}` nor `\tableofcontents? ; -)`. Well, there is always the case of batch conversions of documents having or not sectioning units.

## 16.3. The `\etocifwasempty` command

The command `\etocifwasempty{<YES>}{<NO>}` executes `<YES>` if the previous TOC was found to be empty and `<NO>` if it was not so. This may serve to act appropriately after a truly empty TOC. If `\etocchecksempiness` has not been issued, this conditional always executes the `<NO>` branch.

This command is robust, and `\etocxifwasempty` is its expandable version.

Do not forget the second argument: at least an empty pair of braces must be present.

This conditional may wrongly say that the local TOC is empty or not empty until  $\LaTeX$  compilations stabilize. But if it says that a local TOC is empty, this does mean that `etoc` considered the just encountered local table of contents to be empty (for that run) and thus printed nothing (not even a `\par`).

## 17. The `\etoclocaltop` command

**New with 1.09 (2019/03/09).**

Within either the TOC style (`\etocsettocstyle`) or the local title styles (`\etocsetstyle`), the control sequence `\etoclocaltop` is made equivalent for the duration of `\localtableofcontents` to a numeric (self-delimiting) denotation of the current top level.

Thus: it will in numeric contexts (`\ifnum`, `\ifcase`, ...) represent zero for a local TOC corresponding to chapter, or one if in a section, or two if in a subsection, etc..., assuming of course here that the default levels are obeyed (see [section 11](#)).

## 18. Adding commands to the .toc file

`\etoclocaltop` from inside the TOC heading (first argument of `\etocsettocstyle`) has the correct value *only under `\etoccheckemptiness` regime*. Special circumstances correspond to some special values:

**-3** (`-\thr@@`)

signals that **etoc** considers the local TOC to be “unknown”; this happens at the last local TOC, for the first L<sup>A</sup>T<sub>E</sub>X run after adding a new `\localtableofcontents` to the document. In doubt, **etoc** assumes the TOC will prove non empty, hence it prints (independently of whether the check for emptiness was activated or not) the heading as specified by `\etocsettocstyle`. Thus, check if `\etoclocaltop` gives -3 as a *number* to detect that situation from within the first argument of `\etocsettocstyle`, if desired.

**-1000** (`-\@m`)

is in case of a `\localtableofcontents` being considered “known” (although it may still refer to the data in the .toc file from the previous run) but without the check for emptiness having been executed.

**-10000** (`-\@M`)

is the value when accessed from the title of a global TOCs.

When executed from within a local table of contents **line styles** (`\etocsetstyle`), `\etoclocaltop` always will hold the correct value, whether or not the emptiness check was executed.

For a global table of contents however, it will always keep the value -3.

Attention! `\etoclocaltop` is only to be queried; modifying it is strictly forbidden and falls under the most rigorous prosecution allowed by federal law.

## 18. Adding commands to the .toc file

We described above `\etocsettocdepth.toc` and `\etocdepthtag.toc` which both insert commands inside the .toc file. An even more general mechanism of adding “action tags” to the .toc file could be envisioned, but this would just be a wrapper for direct use of `\addtocontents{toc}{\something}`.

One should be cautious when adding in this way things to the .toc file. For example, inserting `\addtocontents{toc}{\string\clearpage}` just before a `\part` to fix the problem when some part entry (in the table of contents) is isolated at the bottom of one page, will cause problems with multiple TOCs: this `\clearpage` will be executed by **etoc** each time a `\tableofcontents` or `\localtableofcontents` command is encountered! The more prudent thing is to do rather: `\addtocontents{toc}{\string\myclearpage}`, to have a `\let\myclearpage\relax` at the top level of the document and to use where needed something like:

```
\let\myclearpage\clearpage
\tableofcontents
\let\myclearpage\relax
```



The memoir class has the command `\settocdepth` which writes a `\changetocdepth` command inside the `.toc` file. This will impact the typesetting by `etoc` of *all* tables of contents, with (possibly) unexpected results: imagine the document has `\settocdepth{chapter}` at some point to avoid having the sections from subsequent chapters be listed in the main table of contents. Then a local table of contents in one of these chapters will print a title but will be without any entry.

As the memoir class by itself allows multiple `\tableofcontents` these issues already arise there, independently of `etoc`, see page 170 of the memoir manual.

For this specific issue, the commands `\etocsettocdepth.toc`, `\etocignoretocdepth` and `\etocobeytoctocdepth` are the way to go; or their variants `\etocdepth-tag.toc` and `\etocsettagdepth`.

As an aside, any `\setcounter{tocdepth}{n}` command added directly to the `.toc` file sees its effect (since release 1.07g) canceled at the end of each table of contents, which automatically does a `\setcounter{tocdepth}{previous_value}` with the value active on entering the table of contents.

### 18.1. The hyperref option *hidelinks*

The colored links (and also the rectangle links) are a bit annoying when used in tables of contents, especially when the document uses `etoc` and has plenty of them! One may wish for having colored links, *except* for those within table of contents! Indeed, why would things in TOCs need to be either framed in rectangles or colored, when the user *already expects them to be links*?

I use the following trick: either in the preamble using `\AtBeginDocument`, or right after `\begin{document}`, I have the command

```
\addtocontents{toc}{\protect\hypersetup{hidelinks}}
```

All TOCs typeset by `etoc` have their contents done within a group (as if enclosed in an environment). So the command `\hypersetup{hidelinks}` will be executed by *each* TOC, but its effect will be limited to that TOC.

I found out experimentally that the option `hidelinks` could indeed be set many times with `\hypersetup` (this is not the case of all hyperref options).

## Part III.

# Examples

Here are some statistics for this part: it contains 6 sections and 0 subsection. The name of the first section is “Testing the compatibility mode” and the corresponding number is “19”. The name of the last section is “A (crazy) inline display” and its number is “24”.

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We present some additional examples. To understand all code snippets in detail, one will possibly need to have first browsed through [Part V](#) and [Part VI](#).

### 19. Testing the compatibility mode

As a further example we now print the local table of contents of [Part VI](#). First we will test the compatibility mode.<sup>16</sup> The original was invisibly defined with a label at the beginning of [Part VI](#).

```
\begingroup % to keep in particular toc=left with local effect
\KOMAOptions{toc=left}
\etocstandarddisplaystyle % necessary for the display to obey toc=left
\etocstandardlines
\tableofcontents \ref{toc:globalcmds}
\endgroup
```

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---

<sup>16</sup>the present document uses the `scrartcl` class, and we check here that the `etoc` compatibility mode does respect the customizing done via the class commands.

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## 20. Another compatibility mode

As explained in [subsection 4.3](#), the commands `\etocstandardlines` and `\etocstandarddisplaystyle` tell `etoc` to, essentially, act as an observer. The document class layout for the table of contents is then perfectly obeyed. There is no way to customize this standard layout (change fonts, margins, vertical spacings, etc...) from within the package. For this, use some package dedicated to this task; because `etoc` either is (temporarily perhaps) in compatibility mode with no customization on its part possible, or the user has specified the layout in `\etocsetstyle` commands (and `\etocsettocstyle`) and is (supposedly...) in complete control.

Well, there is actually an alternative. It is possible to use the `\etocsetstyle` commands to recreate an artificial compatibility mode, in order to achieve effects like the following, all things being otherwise equal to the document class defaults:

1. get the hyperref link to encapsulate only the names, but not the numbers of each entry of the table of contents,
2. use the document class style for chapters and sections, but modify it only for subsections,
3. do either of the above only for some portions of the table of contents.

Here is how to proceed.

This has become easier since release 1.08k as now `etoc` preserves automatically in `\etocsavedsectiontocline`, `\etocsavedchaptertocline` etc... the meaning of the  $\LaTeX$  `\l@section`, `\l@chapter`, etc... macros as they were at the time the TOC is typeset.

```

\makeatletter
\newcommand{\MyStandardTOC}{%
  \begingroup
  % for the book or article classes:
  %\etocsetstyle{part}{}{}
  % {\etocsavedparttocline{\etocnumber\hspace{1em}\etocname}{\etocpage}}{}%
  % for the scrbook or scrartcl classes:
  \etocsetstyle{part}{}{}
  {\etocsavedparttocline{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  % following is identical in book/article/scrbook/scrartcl classes:
  \etocsetstyle{chapter}{}{} %% only for book and scrbook
  {\etocsavedchaptertocline{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  \etocsetstyle{section}{}{}
  {\etocsavedsectiontocline{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  \etocsetstyle{subsection}{}{}
  {\etocsavedsubsectiontocline{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  % etc... if further sectioning units are used
  \etocstandarddisplaystyle % this is for the title, page-marks, etc...
  \tableofcontents
  \endgroup}
\makeatother

```

One can add to the above arbitrary text formatting commands, for example replace `\etocpage` by `\textcolor{blue}{\etocpage}`.

If the document has only one table of contents then there is no need to put the commands inside a macro, or even inside a group.<sup>17</sup> With these commands `etoc` will construct a TOC completely identical to what would have been done by one of the document class: `article`, `book`, `scrartcl`, `scrbook`.<sup>18</sup> The number and the name of each entry are each separately an `hyperref` link, as is always the case with `etoc`, when not in compatibility mode. Replacing `\etocnumber` with `\etocthenumber` will give a TOC where the numbers are not links anymore, but the names still are. Or one may decide to use `\etocthename` and keep an hyperlinked number with `\etocnumber`.

Here is a subtler example where one only marginally modifies the sections (adding color to the number and removing the `hyperref` link) and keeps the subsections as in the default, *except* for those of one specific section, for which the layout is completely modified:

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This example only has sections and subsections, and the code used in `\MyStandardTOC` was:

```
\etocsetstyle{section}{}
  {\ifnum\etocthenumber=4
    \etocsetstyle{subsection}
      {\par\nopagebreak\begingroup
        \leftskip1.5em \rightskip\@tocrmarg \parfillskip\@flushglue
        \parindent 0pt \normalfont\normalsize\rmfamily\itshape
        % \columnseplem
```

<sup>17</sup>and if moreover one just wants to keep the same layout as in the default, one may question why using `etoc`... there is *one* good reason: numbers and names are separately `hyperref` links, whereas normally there is only one link holding both the number and the name corresponding to one toc entry.

<sup>18</sup>For the `memoir` class, one needed prior to `etoc 1.08k` a bit more: each of the command `\booknumberline`, `\partnumberline` and `\chapternumberline` had to be saved. They can now be used directly in the line styles, because their meanings are not modified anymore by `etoc` during its TOC typesetting.

```

% \begin{minipage}{\dimexpr\linewidth-\leftskip-\rightskip\relax}%
% \begin{multicols}{2}%
\etocskipfirstprefix
{\allowbreak\-,-\,}
{\etocname\ \textup{(\etocnumber)}}
{.\par\endgroup}%
% {.\par\end{multicols}\end{minipage}\par\endgroup}%
\else
\etocsetstyle{subsection}
{}{}
{\etocsavedsubsectiontocline{\numberline{\etocnumber}\etocname}{\etocpage}}
{}%
\fi}
{\etocsavedsectiontocline{\numberline{{\color{cyan}\etocthenumber}}\etocname}{\etocpage}}
{}%

```

Notice the page head-mark added by this standard TOC. Sections and subsections are printed exactly as in the default (except for the subsections of one specific user-chosen section and except for the color of the section numbers), with no need to specify explicitly any length, font or other formatting instructions. But we had to examine the `scrartcl` sources to determine what to use for `\leftskip` and `\rightskip` for our customized section entries.

## 21. Emulating the book class

As explained in [subsection 4.3](#): without explicit use of an `\etocsetstyle` command the package will leave to the document class the hand regarding the “toc line styles”. It is sometimes asked by users (for example those using `etoc` for its `\localtableofcontents`) how to stay close to but not completely identical with the design implemented by the standard classes, such as `book`. I can recommend package `tocloft` for this, as it is compatible with `etoc` (see [subsection 55.6](#)) and thus `etoc` will obey the `tocloft` customizations (as long as no use has been made of `\etocsetstyle`). It is also possible to modify only the style for, say, sections and leave the parts, chapters, subsections as in the document class, via the technique from [section 20](#).

But for complete control, here is a translation of the `book` class code into `etoc` lingua. It is then easy to modify the relevant lengths or adjust the used fonts. I thank DENIS BROUZE for prompting me to include this in the `etoc` manual, as it resulted from some conversation we had about this. The code is not 100% faithful to the `book` class, and particularly its rendering of (multi-line) non-numbered units differs (... I think, as I copied pasted as is the code from where I had stored it and did not do much thinking about it again). Some proficiency in low-level `TEX` and `LATEX` macros is needed to understand what the code says, but for modifying fonts or some lengths such in-depth understanding is not needed.

With some extra code one can *automatically adjust the widths* assigned to typesetting sectioning numbers in order to prevent overflows, even with for example `XXXVIII`; but this is a more advanced feature which I have moved to [section 31](#).

First we set up some lengths. I use macro registers, not real `LATEX` lengths. When using `em`’s however, this means that one must pay attention to when the actual dimension assignment is made, as this will then depend upon the current font settings. In the code below, at the location where the `\TOCnumwidthB` and `\TOCnumwidthC` will be used, the `1em` from

## 21. Emulating the book class

their specification will be matched to the normal medium series font, not the bold font; this is deliberate so that one can compare more readily with the other dimensions; besides, with the `\TOCcomputenumwidths` from [section 31](#) these macros will actually hold a dimension using pt as dimensional unit.

```
% it will be easy to globally shift the TOC horizontally if needed
\def\TOCleftmargin    {0pt}
\def\TOCrightmargin  {2.55em}% like LaTeX's \@tocmarg

% this is for dotted leaders
\newbox\TOCleaderbox
\def\TOCleaderboxwidth {0.7777em}% about like what standard classes do

% vertical spacing
\def\TOCverysmallvskip {0pt plus .2pt}
\def\TOCmedvskip       {1em plus 1pt}
\def\TOCbigvskip       {2.25em plus 1pt}

% the "numwidths" for typesetting the numbering of division units.
% I don't recall exactly how (and for which fonts) these figures were chosen.
% They quickly prove too small if using Roman numerals (as do too the book
% class defaults even though they are a bit larger).
\def\TOCnumwidthB {1.5em} % chapter
\def\TOCnumwidthC {2.278em}% section, I think default is 2.3em
\def\TOCnumwidthD {3.056em}% analog in standard class is 3.2em
\def\TOCnumwidthE {3.833em}% analog in standard class is 4.1em
\def\TOCnumwidthF {4.611em}% analog in standard class is 5em
\def\TOCnumwidthG {5.389em}% analog in standard class is 6em

% The code for the "global toc style".

\newcommand*\TOCglobalstyle {%
\etocsettocstyle
  {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
  \parindent\z@ \leftskip\z@skip \rightskip \z@skip
  \setbox\TOCleaderbox\hbox to \TOCleaderboxwidth{\hss.\hss}%
  \chapter *{\noindent\kern\TOCleftmargin\relax % uses "pt"...
  \contentsname
  \@mkboth {\MakeUppercase \contentsname}{\MakeUppercase \contentsname}}%
  \rightskip \TOCrightmargin\relax
  \parfillskip -\rightskip % or a smaller value if desired
  \leftskip \TOCleftmargin \relax }
  {\if@restonecol \twocolumn \fi\cleardoublepage}%
%
\etocsetstyle{part}
{}
{\addpenalty {-\@highpenalty}%
\addvspace \TOCbigvskip
\leavevmode
{\large \bfseries % use a group to limit font change
\interlinepenalty\@M
\etocifnumbered{\etocnumber\hspace{1em}}{}}%
\etocname
\nobreak\hfil\makebox[-\parfillskip][r]{\etocpage}}\par
\nobreak
}
}
```

```

    {}%
%
\etocsetstyle{chapter}
{\advance\leftskip\TOCnumwidthB\relax}
{\addpenalty {-\@highpenalty }%
\vskip \TOCmedvskip\relax
\leavevmode
{\interlinepenalty\@M
\etocifnumbered
{\llap{\makebox[\TOCnumwidthB][l]{\bfseries\etocnumber}}}
{\advance\leftskip-\TOCnumwidthB\relax}%
\bfseries\etocname
\nobreak\hfil\makebox[-\parfillskip][r]{\etocpage}\par }%
\penalty \@highpenalty
}
}
{\advance\leftskip-\TOCnumwidthB\relax}%
%
\TOCsetlinestyle {section}      {\TOCnumwidthC}%
\TOCsetlinestyle {subsection}   {\TOCnumwidthD}%
\TOCsetlinestyle {subsubsection}{\TOCnumwidthE}%
\TOCsetlinestyle {paragraph}    {\TOCnumwidthF}%
\TOCsetlinestyle {subparagraph} {\TOCnumwidthG}%
}% end of \TOCglobalstyle

%The common code for line styles is abstracted into a macro:

\newcommand\TOCsetlinestyle [2]{% #1= unit, #2= numwidth as macro
\etocsetstyle{#1}
{\advance\leftskip#2\relax}
{\vskip \TOCverysmallvskip\relax
\leavevmode
{\interlinepenalty\@M
\etocifnumbered
{\llap{\makebox[#2][l]{\etocnumber}}}{\advance\leftskip-#2\relax}%
\etocname
\nobreak\leaders \copy\TOCleaderbox
\hfil\makebox[-\parfillskip][r]{\etocpage}%
\par }%
}
}
{\advance\leftskip-#2\relax}%
}
\makeatother

```

Nota Bene: the code deliberately handles the non-numbered sectioning units unlike the way of the standard document classes (particularly regarding the alignment of multi-line headings.)

The whole thing was encapsulated in `\TOCglobalstyle`, because we also want a `\TOClocalstyle` for local tables of contents which typically will want to use `\section*` rather than `\chapter*` and not insert page marks in the headers. The `\TOClocalstyle` is to be issued once, after the main document TOC, or rather before using `\localtableofcontents`. If one wants a full TOC at end of document one will naturally have to issue again `\TOCglobalstyle` there.

## 21. Emulating the book class

```
\makeatletter
\newcommand*\TOClocalstyle {%
\etocsettocstyle
  {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
  \setbox\TOCleaderbox\hbox to \TOCleaderboxwidth{\hss.\hss}%
  \parindent\z@
  \dimen@ 2.25em % for left indenting
  \section *{\kern\dimen@ % use of \dimen@ works here by sheer luck
  \contentsname
  % un-comment this if marks are wanted:
  %\@mkboth {\MakeUppercase \contentsname}{\MakeUppercase \contentsname}%
  }% end of \section
  \parskip \z@skip
  \vspace{-1.25\baselineskip}% somewhat ad hoc
  \leftskip 2.25em
  \rightskip 4.5em
  \advance\rightskip-\TOCrightmargin\relax
  \leavevmode\leaders\hrule\@height\p@\hfill\kern\z@\par
  \rightskip 4.5em
  \parfillskip -\TOCrightmargin\relax }
{\nobreak\vskip-.5\baselineskip
\leavevmode\leaders\hrule\@height\p@\hfill\kern\z@\par
\bigskip
\if@restonecol \twocolumn \fi }%
%
\etocsetstyle{section}
{\advance\leftskip\TOCnumwidthC\relax}
{\addpenalty \@secpenalty
\etociffirst}{\addvspace{\TOCmedvskip}}%
\leavevmode
{\interlinepenalty\@M
\bfseries\etocifnumbered
  {\llap{\makebox[\TOCnumwidthC][l]{\etocnumber}}}
  {\advance\leftskip-\TOCnumwidthC}%
  \etocname\nobreak\hfil\makebox[-\parfillskip][r]{\etocpage}\par }%
\penalty \@highpenalty }
{}
{\advance\leftskip-\TOCnumwidthC\relax}%
% the rest is identical with code for global tocs:
\TOCsetlinestyle {subsection} {\TOCnumwidthD}%
\TOCsetlinestyle {subsubsection}{\TOCnumwidthE}%
\TOCsetlinestyle {paragraph} {\TOCnumwidthF}%
\TOCsetlinestyle {subparagraph} {\TOCnumwidthG}%
}% end of \TOClocalstyle
\makeatother
```

As mentioned previously, this handles non-numbered (multi-line) sectioning units somewhat differently from what happens in the standard document classes.

For some reason this code has some hard-coded 2.25em and 4.5em which were not abstracted into macros or lengths. The code inserts horizontal rules above and below the TOC contents in a non-separable by pagebreak way.

See [section 31](#) for more.



## 22. A framed display

We now opt for a “framed” style, using the package default line styles and some colors added (it has been put in a float which appears on the next page).

```
\etocdefaultlines
\begingroup
\renewcommand{\etoccolumnsep}{2em}
\renewcommand{\etocinnerleftsep}{1.5em}
\renewcommand{\etocinnerrightsep}{1.5em}
% specify a background color for the toc contents
\renewcommand{\etocbkgcolorcmd}{\color{yellow!10}}
% set up the top and bottom rules
\renewcommand{\etocoprerule}{\hrule height 1pt}
\renewcommand{\etocoprerulecolorcmd}{\color{red!25}}
\renewcommand{\etocbottomrule}{\hrule height 1pt}
\renewcommand{\etocbottomrulecolorcmd}{\color{red!25}}
% set up the left and right rules
\renewcommand{\etocleftrule}{\vrule width 5pt}
\renewcommand{\etocrightrule}{\vrule width 5pt}
\renewcommand{\etocleftrulecolorcmd}{\color{red!25}}
\renewcommand{\etocrightrulecolorcmd}{\color{red!25}}
% use \fcolorbox to set up a colored frame for the title
\fbboxrule1pt
\renewcommand{\etocbelowtocskip}{0pt\relax}
\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
    one page. It has the label |toc:b|.}}}}
\begin{figure}[ht!]
  \centering
  \tableofcontents \label{toc:b} \ref{toc:globalcmds}
\end{figure}
\endgroup
```

## 23. Another TOC with a background color

Let us now try out some more sophisticated line styles. The display will use the `\etocframedstyle` package command, which requires that the produced table of contents fits on a single page. We wrap it up in a [figure environment](#) showing up on page 36.

This design uses the `etoc` ‘framed’ style with a background color. The frame borders have been set to have the same color as the one serving as background for the entire thing. It would be advantageous to use rather inside `\etocsettocstyle` commands from a package like `tcolorbox` as this allows sophisticated breakable boxes (with `TikZ/pgf` for decoration.)

The details of the line styles used here are a bit involved, they were written by the author at some early stage of this documentation and have only been slightly revised to use more  $\LaTeX$ -commands and less  $\TeX$ -primitives. Similar code is used also for [this other toc](#).

### 23. Another TOC with a background color

*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 one page. It has the label `toc:b`.*

<b>Specifying the toc display style</b>	
<ul style="list-style-type: none"> <li>. . . . . <b>43, p. 65</b></li> <li>The command <code>\etocsettocstyle</code></li> <li>. . . . . 43.1, p. 65</li> <li>The commands <code>\etocmulticolstyle</code>, <code>\etocmulticol</code>, and <code>\etoclocalmulticol</code> . . . . . 43.2, p. 66</li> <li>The command <code>\etocstocstyle</code> . . . . . 43.3, p. 67</li> <li>The commands <code>\etocruledstyle</code>, <code>\etocruled</code> and <code>\etoclocalruled</code> . . . . . 43.4, p. 67</li> </ul>	<ul style="list-style-type: none"> <li>The commands <code>\etocframedstyle</code>, <code>\etocframed</code>, and <code>\etoclocalframed</code> . . . . . 43.5, p. 67</li> <li>Headings, titles, <code>\etocoldpar</code>, <code>\etocinnertopsep</code> . . . . . 43.6, p. 68</li> <li>The compatibility mode <code>\etocstandarddisplaystyle</code> . . . . . 43.7, p. 68</li> <li>The command <code>\etocinline</code> . . . . . 43.8, p. 69</li> <li><b>Starred variants and hooks</b> . . . . . <b>44, p. 69</b></li> </ul>

```

\begin{figure} [htbp!]\centering
\colorlet{subsecnum}{black}
\colorlet{secbackground}{green!30}
\colorlet{tocbackground}{red!20!green!20}

\renewcommand{\etocbkgcolorcmd}{\color{tocbackground}}
\renewcommand{\etoclefttrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etocrightrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etocbottomrulecolorcmd}{\color{tocbackground}}
\renewcommand{\etoctoprulecolorcmd}{\color{tocbackground}}

\renewcommand{\etoclefttrule}{\vrule width 3cm}
\renewcommand{\etocrightrule}{\vrule width 1cm}
\renewcommand{\etocbottomrule}{\hrule height 12pt}
\renewcommand{\etoctoprule}{\hrule height 12pt}

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

\newcommand\shiftedwhiterule[2]{%
  \hbox to \linewidth{\color{white}%
    \hskip#1\leaders\vrule height1pt\hfil}\nointerlineskip
    \vskip#2}

\etocsetstyle{subsubsection}
{\etocskipfirstprefix}
{\shiftedwhiterule{\leftskip}{6pt}}
{\sffamily\footnotesize
  \leftskip2.3cm\hangindent1cm\rightskip.5cm\relax
  \makebox[1cm][l]{\color{subsecnum}\etocnumber}%
  \color{black}\etocname
  \nobreak\leaders\hbox to.2cm{\hss.}\hfill

```

```

\rlap{\makebox[.5cm][r]{\etocpage\hspace{.1cm}}}\par
\nointerlineskip\vskip3pt}
{}

\etocsetstyle{subsection}
{\etocskipfirstprefix}
{\shiftedwhiterule{1.5cm}{6pt}}
{\sffamily\small
\leftskip1.5cm\hangindent.8cm\rightskip.5cm\relax
\makebox[.75cm][l]{\color{subsecnum}\etocnumber}%
\color{black}\etocname
\nobreak\leaders\hbox to.2cm{\hss.}\hfill
\rlap{\makebox[.5cm][r]{\etocpage\hspace{.1cm}}}\par
\nointerlineskip\vskip3pt}
{}

\newcommand{\coloredstuff}[2]{%
\leftskip0pt\rightskip0pt\parskip0pt
\fbboxsep0pt % \colorbox uses \fbboxsep also when no frame!
\noindent\colorbox{secbackground}
{\parbox{\linewidth}{%
\vskip5pt
{\noindent\color{#1}#2\par}\nointerlineskip
\vskip3pt}}%
\par\nointerlineskip}

\etocsetstyle{section}
{\coloredstuff{blue}{\hfil \bfseries\large Contents of Part One\hfil}}
{\vskip3pt\sffamily\small}
{\coloredstuff{blue}
{\leftskip1.5cm\rightskip.5cm\parfillskip-\rightskip
\makebox[0pt][r]{\makebox[.5cm][l]{\etocnumber}}%
\etocname\nobreak\hfill\makebox[.5cm][r]{\etocpage\hspace{.1cm}}}%
\vskip6pt}
{}

\etocframedstyle[1]{}
\tableofcontents \label{toc:floating} \ref{toc:overview}
\vspace{-\baselineskip}
\centeredline{|\tableofcontents \ref{toc:overview}|
(\emph{cf.} \hyperref[toc:clone]{this other toc})}
\end{figure}

```

## 24. A (crazy) inline display

Let us finally make some crazy inline display of the table of contents of this entire document. We will typeset the subsections as footnotes... This kind of style is suitable for a hyperlinked document, probably not for print! (although I like it, but my personal tastes in many matters do not seem to be widely shared).

Here is the inline table of contents. *Abstract, Foreword, License. **Overview:** Do I need*

Contents of Part One		
3	Do I need to be a geek to use <code>etoc</code> ?	8
3.1	Limitations in the use of list environments for tables of contents	8
4	Line styles and toc display style	9
4.1	<code>\etocsetstyle</code> for the line styles	9
4.2	<code>\etocsettocstyle</code> for the toc display	9
4.3	Compatibility mode	10
5	A first example	10
6	A second example	12
7	A Beautiful Thesis example	13
8	Linked list of the main package commands	15

`\tableofcontents \ref{toc:overview}` (cf. [this other toc](#))

to be a geek to use `etoc`?<sup>19</sup>, Line styles and toc display style<sup>20</sup>, A first example, A second example, A Beautiful Thesis example, Linked list of the main package commands. **Arbitrarily many TOCs, and local ones too:** The `\tableofcontents`, `\localtableofcontents` and `\localtableofcontentswithrelativedepth` commands, Labeling and reusing elsewhere, A powerful functionality of `etoc`: the re-assignment of levels with `\etocsetlevel`, The `\etocsettocdepth` and `\etocsetnexttocdepth` commands<sup>21</sup>, The command `\etocsettocdepth.toc`<sup>22</sup>, The commands `\etocdepthtag.toc` and `\etocsettagdepth`<sup>23</sup>, The commands `\etocglobaldefs` and `\etoclocaldefs`, Not displayed empty TOCs<sup>24</sup>, The `\etoclocaltop` command, Adding commands to the `.toc` file<sup>25</sup>. **Examples:** Testing the compatibility mode, Another compatibility mode, Emulating the book class, A framed display, Another TOC with a background color, A (crazy) inline display. **Surprising uses of `etoc`:** The TOC of TOCs, Arbitrary “Lists Of...”, `\etoccontentsline`, The TOC as a tree, The TOC as a molecule, The TOC as a TikZ mind map, The TOC as a table, A TOC self-adjusting widths for its typesetting. **Commands for the toc line styles:** The `\etocsetstyle`, `\etocname` and `\etocpage` commands, The `\etocskipfirstprefix` and `\etociffirst` commands, The `\etocnumber` command, The `\etocif-`

<sup>19</sup>Limitations in the use of list environments for tables of contents.

<sup>20</sup>`\etocsetstyle` for the line styles; `\etocsettocstyle` for the toc display; Compatibility mode.

<sup>21</sup>The hyperref option `bookmarksdepth`.

<sup>22</sup>The commands `\etocobeytocdepth` and `\etocignoretocdepth`.

<sup>23</sup>The commands `\etocobeydepthtags` and `\etocignoredepthtags`.

<sup>24</sup>The `\etocchecksempiness` command; The `\etocnotocifnotoc` command; The `\etocifwasempty` command.

<sup>25</sup>The hyperref option `hidelinks`.

numbered switch, The `\etocthenname`, `\etocthenumber`, and `\etocthepage` commands, The `\etoclink` command, The `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` and `\etocthelink` commands, The `\etocsavedsectiontocline`, etc... commands., The `\etocsetlevel` command, Scope of commands added to the `.toc` file<sup>26</sup>, Am I also red?. **Commands for the toc display style:** Specifying the toc display style<sup>27</sup>, Starred variants and hooks. **Using and customizing the `etoc` own styles:** Summary of the main style commands<sup>28</sup>, The package default line styles: `\etocdefaultlines`, Customizing `etoc`<sup>29</sup>, One more example of colored TOC layout. **Tips:** The `\etocsetlocal-top.toc` command, Hacking framed parboxes, Inverting the levels<sup>30</sup>, Displaying statistics, Using depth tags, Typesetting the TOC as a table (the old way). **`etoc` and the outside world:** Compatibility with other packages<sup>31</sup>, T<sub>E</sub>Xnical matters, Errors and catastrophes. **The code:** Timestamp, Change history, Implementation.

The code used:

```
\begingroup
\newsavebox{\forsubsections}
\etocsetstyle{part}{\upshape.\etocskipfirstprefix}
    {. \upshape}
    {\bfseries\etocname:~~}
    {}
\etocsetstyle{section}{\itshape\etocskipfirstprefix}
    {, }
    {\mdseries\etocname}
    {}
\etocsetstyle{subsection}
    {\begin{lrbox}{\forsubsections}\upshape\etocskipfirstprefix}
    {; }
    {\etocname}
    {\end{lrbox}\footnote{\unhbox\forsubsections.}}
\etocsetstyle{subsubsection}
    { (\itshape\etocskipfirstprefix}
    {, }
    {\etocname}
    {\/\upshape)}
\etocsettocstyle{Here is the inline table of contents. }{.\par}
\tableofcontents \label{toc:crazyinline}
\endgroup
```

<sup>26</sup>Testing the scope; This is a (pale) red subsection for illustrative purposes.

<sup>27</sup>The command `\etocsettocstyle`; The commands `\etocmulticolstyle`, `\etocmulticol`, and `\etoclocalmulticol`; The command `\etoclocalmulticol`; The command `\etoclocalruled`; The commands `\etocruledstyle`, `\etocruled` and `\etoclocalruled`; The commands `\etocframedstyle`, `\etocframed`, and `\etoclocalframed`; Headings, titles, `\etocoldpar`, `\etocinnertopsep`; The compatibility mode `\etocstandarddisplaystyle`; The command `\etocinline`.

<sup>28</sup>Setting up local styles; Setting up toc display styles; Displaying tables of contents; Labels and references.

<sup>29</sup>Customizing the `etoc` pre-defined line styles; Customizing the toc display styles.

<sup>30</sup>All subsections of this document.

<sup>31</sup>Generalities; Compatibility with beamer; Compatibility with Babel; Compatibility with hyperref; Compatibility with multicol; Compatibility with tocloft; Compatibility with the memoir class; Compatibility with package tocvsec2; Compatibility with package tableof; Compatibility with package tocstyle.

## Part IV.

# Surprising uses of **etoc**

Here are some statistics for this part: it contains 7 sections and 0 subsection. The name of the first section is “The TOC of TOCs” and the corresponding number is “25”. The name of the last section is “A TOC self-adjusting widths for its typesetting” and its number is “31”.

<b>25. The TOC of TOCs</b>	<b>38</b>
<b>26. Arbitrary “Lists Of...”, <code>\etoccontentsline</code></b>	<b>40</b>
<b>27. The TOC as a tree</b>	<b>41</b>
<b>28. The TOC as a molecule</b>	<b>44</b>
<b>29. The TOC as a TikZ mind map</b>	<b>46</b>
<b>30. The TOC as a table</b>	<b>50</b>
<b>31. A TOC self-adjusting widths for its typesetting</b>	<b>55</b>

## 25. The TOC of TOCs

Here is the numbered and linked list of all tables of contents which are displayed within this document:<sup>32</sup> [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#), [8](#), [9](#), [10](#), [11](#), [12](#), [13](#), [14](#), [15](#), [17](#), [16](#), [18](#), [19](#), [20](#), [21](#), [22](#), [23](#), [24](#), [25](#), [26](#), [27](#), [28](#), [29](#), [30](#), [31](#), [32](#), [33](#), [34](#), [35](#), [36](#), [37](#), [38](#), [39](#), [40](#), [41](#), [42](#). And to obtain it here we just wrote:

```
Here is the numbered and linked list of all tables of contents
which are displayed within this document: \tableofcontents.
```

The preparatory work was the following. First, we defined a counter `visibletoc` whose vocation is to get incremented at each displayed toc. **etoc** has its own private counter but it counts all TOCs, even those not displayed because the `tocdepth` value was `-2` or `-3`.

We could have added manually `\refstepcounter{visibletoc}` and `\label` commands at all suitable locations in the document source, and we would then have used here `\ref` commands, but this imposes heavy manual editing of the source.

There is a much better way: there is a hook `\etocaftertitlehook` and we told it to increment the `visibletoc` counter and to write a line to the `.toc` file, in a manner analogous to what sectioning commands such as `chapter`, `section`, or `subsection` do. As **etoc** increments its own private counter even before typesetting the title of a table of contents, this provides (most of the time) a better link destination than any counter manipulated from inside `\etocaftertitlehook` (for which the link would target the area just

<sup>32</sup>The TOCs put in floats may change the order: the numbers are listed in the order the TOCs are typeset in the document; but the numbering itself is from the order of the TOCs in the *source* of this document...

after the title). So, rather than including `\refstepcounter{visibletoc}` inside `\etoc-aftertitlehook`, we just put there `\stepcounter{visibletoc}` followed by the command `\etoccontentsline{visibletoc}{\thevisibletoc}`. This `etoc` command `\etoccontentsline{<level_name>}{<name>}` has the same effect as:

```
\addcontentsline{toc}{<level_name>}{<name>}
```

but its usefulness is to circumvent<sup>33</sup> the patching for automatic creation of bookmarks done to `\addcontentsline` by the `hyperref` package, as pdf bookmarks don't make much sense here (and would elicit a complaint of `hyperref` that the bookmark level is 'unknown').<sup>34</sup>

Finally, the preamble of the document did `\etocsetlevel{visibletoc}{6}`. The level 6 (or anything with a higher number) is ignored, even if `tocdepth` has value 10 for example; this is independently of whether `etoc` uses the document class default line styles or its own line styles, or the ones defined by the user with the `\etocsetstyle` command. So there is no need to worry that something could go wrong.

Then, only here we have set `\etocsetlevel{visibletoc}{0}`. And to display only this kind of entries we assign temporarily to `part` and `chapter` level 1 (or anything higher than zero) and set `tocdepth` to the value 0. We also did `\etocsetstyle{visibletoc}{\etocskipfirstprefix}{, }{\etocname}{}` which defines an inline display with the comma as separator. Finally, as `etoc` issues `\par` automatically by default just before typesetting a table of contents, we used the command `\etocinline` (also known as `\etocnopar`) which turns off this behavior.

Here are the implementation details:

```
< in the preamble >
\newcounter{visibletoc}
\renewcommand{\etocaftertitlehook}
  {\stepcounter{visibletoc}\etoccontentsline{visibletoc}{\thevisibletoc}}
\etocsetlevel{visibletoc}{6}
\begin{document}
  < document body >
\subsection{Surprising uses of etoc}
\begingroup
  \etocinline
  \etocsetlevel{part}{1}
  % \etocsetlevel{chapter}{1} % (no chapters in scrartcl class)
  \etocsetlevel{visibletoc}{0}
  \etocsetstyle{visibletoc}
    {\etocskipfirstprefix}{, }{\color{niceone}\etocname}{}
  \etocsettocstyle{}{} % don't set any title, rules or frame or multicol!
  \etocsetnexttocdepth{visibletoc} % display only the 'visibletoc' entries from .toc
```

Here is the numbered and linked list of all tables of contents which are displayed within this document: `\tableofcontents`.

```
\endgroup
```

<sup>33</sup>using `\addtocontents` rather than `\addcontentsline`

<sup>34</sup>The package provides a starred variant `\etoccontentsline*`, which does allow the creation of bookmarks and has a third mandatory argument which is the Level to be used by these bookmarks; depending on the context the starred as well as the non-starred variants may be profitably preceded by `\phantomsection`.

## 26. Arbitrary “Lists Of...”, `\etoccontentsline`

After `\etocsetstyle{visibletoc}{.}{.}{.}{.}`, all future TOCs (not in compatibility mode) will use the defined style for level 0 (which is normally the level for chapters). To keep these changes strictly local the simplest manner is to put everything inside a group.

The [section 51](#) gives another use of the shuffling of levels.

## 26. Arbitrary “Lists Of...”, `\etoccontentsline`

This idea of interverting the levels is very powerful and allows to let `etoc` display lists of arbitrary things contained in the document. All of that still using nothing else than the `.toc` file! Example: imagine a document with dozens of exercises, perhaps defined as `\newtheorem{exercise}{}[section]`. Let us explain how to instruct `etoc` to display an hyperlinked list of all these exercises. For this we put in the preamble:

```
\newtheorem{exerci}{}[section]
% the exercise number will be recoverable via \etocname: v--here--v
\newcommand*\exercisetotoc{\etoccontentsline{exercise}{\theexerci}}
\newenvironment{exercise}{\begin{exerci}\exercisetotoc}\end{exerci}}
\etocsetlevel{exercise}{6}
```

In this way, `\etocname` will give the exercise number (but `\etocnumber` will be empty). Had we used instead

```
\newcommand*\exercisetotoc
{\etoccontentsline{exercise}{\protect\numberline{\theexerci}}}
```

the exercise number would then have been available via `\etocnumber`, and `\etocname` would have been empty. It doesn't matter which one of the two methods is used. The `etoc` command `\etoccontentsline{.}{.}` is provided as a substitute to `\addcontentsline{toc}{.}{.}`: this is to avoid the patching which is done by `hyperref` to `\addcontentsline` in its process of creation of bookmarks. If one wants to authorize `hyperref` to create bookmarks at a specific level  $\langle n \rangle$ , one can use (here with  $\langle n \rangle = 2$ ) the starred variant `\etoccontentsline*` which has an additional argument:

```
\newcommand{\exercisetotoc}{\etoccontentsline*{exercise}{\theexerci}{2}}
```

The counter `exerci` is already incremented by the `exerci` theorem environment, and provides the correct destination for the link added by package `hyperref`. The command `\exercisetotoc` adds for each exercise a line to the `.toc` file, corresponding to a fictitious document unit with name ‘exercise’. A four-column list, including the sections, can then be typeset with the following code:

```
\etocsetnexttocdepth{2} % sections are at level 1 and will show up
\begingroup
\etocsetlevel{exercise}{2} % but:
\etocsetlevel{chapter}{3} % no chapters
\etocsetlevel{subsection}{3} % no subsections
\etocsetlevel{part}{3} % no parts
\etocsetstyle{exercise}{} % \etocname = exercise number
{\noindent\etocname\strut\leaders\etoclineleaders\hfill\etocpage\par}
{\pagebreak[2]\vskip\baselineskip}
\etocsetstyle{section}{}{}
```



```

    {\noindent\strut{\bfseries\large\etocnumber\hskip.5em\etocname}\par
    \nopagebreak[3]}}
\etocruledstyle[4]{\Large\bfseries List of the exercises}
\setlength{\columnseprule}{.4pt}
\tableofcontents
\endgroup

```

## 27. The TOC as a tree

Using `tikz`<sup>35</sup> and the package `forest`<sup>36</sup> we shall display the table of contents of this part as a tree. The technique is to use the `etoc` modified command `\tableofcontents` not for typesetting, but to prepare a macro, or rather here a *token list* variable, with all the instructions to be executed later. LESLIE LAMPOR’s book has no mention whatsoever of token lists, and L<sup>A</sup>T<sub>E</sub>X gives the impression to not really expect the general user to ever hear about them (or delimited macros); this whole section and the next are thus for advanced users.

Putting the `\etocnumber` and `\etocname` commands in `\treetok` would be of no use: to which number or name would they then refer to, in a delayed execution?

We need to store, not the macro names, but the macro contents. And also we wish to maintain the correct `hyperref` hyperlinks.<sup>37</sup> The commands `\etocname`, etc. . . , are robust, it is easier to work with `\etocthelinkednumber`, `\etocthelinkedname`, and `\etocthelinkedpage` which contain the same information in an easier accessible form.

For this `forest` tree we have designed very special `etoc` styles for sections and subsections. They use a token list register called `\treetok` and a macro `\appendtotok` whose rôle is to append to a given token list variable the contents of a macro given as second argument. All this will happen in reaction to a `\tableofcontents` command, but *nothing* has yet been printed in the process.<sup>38</sup> This is the later job of a `forest` environment which will be given the contents of `\treetok`.

The resulting tree has been put in a `float`, which appears on the next page. Here is the code used for its production:

```

% \newtoks\treetok % put this (uncommented) preferably in the preamble
% \newtoks\tmptok % (idem)

\newcommand*\appendtotok[2]{% #1=toks variable, #2=macro, expands once #2
  #1\expandafter\expandafter\expandafter
  {\expandafter\the\expandafter #1#2}}

\newcommand*\PrepareSectionNode{%
  \tmptok {\centering\bfseries}%
  \appendtotok\tmptok\etocthelinkedname

```

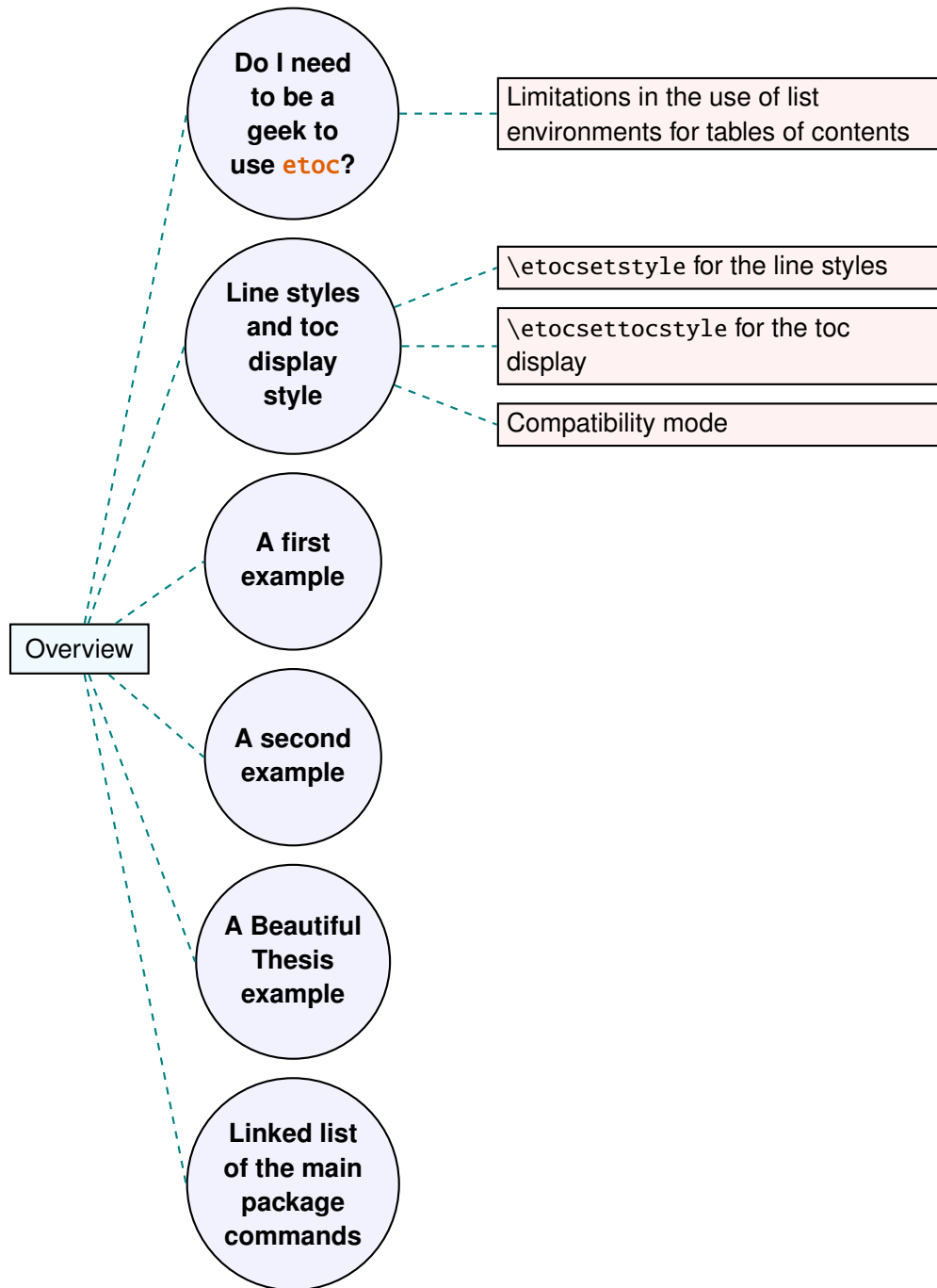
<sup>35</sup><http://ctan.org/pkg/pgf>

<sup>36</sup><http://ctan.org/pkg/forest>

<sup>37</sup>This manual up to the version of May 14, 2013 used package `tikz-qtree` but there were problems with hyperlinks. No such problem arises either when using `forest` or the native `tikz` syntax for trees (which will be illustrated in the next section).

<sup>38</sup>There is always a `\par`, which here is not a problem, but can be suppressed if need be via the command `\etocinline` or its synonym `\etocnopar`.

27. The TOC as a tree



```

\edef\foresttreenode{ [{\noexpand\parbox{2cm}{\the\tmptok}}}%
}

\newcommand*\PrepareSubsectionNode{%
\tmptok {\raggedright}%
\appendtotok\tmptok\etocthelinkedname
\edef\foresttreenode{ [{\noexpand\parbox{6cm}{\the\tmptok}}}%
}

```

```

\etocsetstyle{section}
  {\etocskipfirstprefix}
  {\appendtotok\treetok{ }}
  {\PrepareSectionNode \appendtotok\treetok\foresttreenode}
  {\appendtotok\treetok{ }}

\etocsetstyle{subsection}
  {\etocskipfirstprefix}
  {\appendtotok\treetok{ }}
  {\PrepareSubsectionNode \appendtotok\treetok\foresttreenode}
  {\appendtotok\treetok{ }}

\etocsettocstyle
  {\treetok{[\hyperref[part:overview]{Overview}]}}
  {\global\appendtotok\treetok{ }}

% forest does not like @\the\treetok if \treetok is empty. On first latex
% run, this will be the case because the TOC style defined above will not
% have been executed, as the label {toc:overview} does not refer to a valid
% TOC yet. So we must give a safe default value to \treetok
\treetok{[run latex again]}

\begin{figure}[th!]\centering
  \etocsetnexttocdepth{subsection}
  \tableofcontents \label{toc:forest}\ref{toc:overview}
  \hypersetup{hidelinks}%
  \bracketset{action character=@}
  \begin{forest}
    for tree={anchor=center,child anchor=west,
              grow'=east,draw,thick,
              edge={draw,thick,dashed,color=teal}},
    where={level()==1}{circle,thick,fill=blue!5,
                      before computing xy={l=3cm}}{ },
    where={level()==2}{fill=red!5,
                      before computing xy={l=6cm}}{ },
    rectangle, thick, fill=cyan!5, inner sep=6pt,
    @\the\treetok
  \end{forest}
\end{figure}

```

Why `\hypersetup{hidelinks}`? as explained in [subsection 18.1](#), I prefer the links in TOCs not to be colorized, nor framed, so this document inserts a command `\hypersetup{hidelinks}` in the `.toc` file. But at the time the `\treetok` contents are unpacked the `\hyperlink` commands originating in `\etocthelinkedname`, etc... will be executed in the normal environment for links (which, in this document, is to colorize them). Rather than having `etoc`'s code try to guess what the current “style” for links is (a concept not really provided by `hyperref` it seems) and store it in `\etocthelinkedname`, etc..., I opted for the simpler solution to leave it up to the user to recreate whatever conditions are desired. So here it is necessary to re-issue `\hypersetup{hidelinks}` in the `figure` environment.

There are some other examples in this documentation where `\tableofcontents` is used to prepare material for later typesetting:

- printing the statistics at the start of each Part (see [section 52](#)) is done using `save boxes` (so the problem of the appearance of the links does not arise then).

## 28. The TOC as a molecule

- the typesetting of the TOC as a table in the pre-1.08 way (see [section 54](#)); there we also have to issue `\hypersetup{hidelinks}` after having collected the names, numbers and page numbers in a token list register.
- and the two additional tree examples in the next section.

## 28. The TOC as a molecule

It is also possible to construct a TOC tree obeying the TikZ syntax for trees: but this is a more complicated task for the `etoc` line styles for reasons related to the way braces are handled by  $\TeX$  (they need, when filling up the token list to be always balanced at each step, else complicated tricks must be employed.)

The simplest strategy is to allocate a token list (or use a macro) for each level used: we may need a `\parttok`, a `\chaptertok`, a `\sectiontok` and a `\subsectiontok`, to help in the task of filling up the total `\treetok`. As we are interested here in the table of contents of this (or another) document part, only a `\sectiontok` and a `\subsectiontok` will be needed.

```
% \newtoks\treetok % put this (uncommented) preferably in the preamble
% \newtoks\sectiontok
% \newtoks\subsectiontok
\newcommand*{\treenode}{}

\newcommand*{\appendchildtree}[2]{% token list t1 becomes: t1 child {t2}
  \edef\tmp{\the#1 child {\the#2}}%
  #1\expandafter{\tmp}%
}
\newcommand*{\preparetreenode}{%
  \tmptok\expandafter{\etocthelinkednumber}% expanded one time (mandatory)
  \edef\treenode{node {\the\tmptok}}%
}

\etocsetstyle{section}
  {\etocskipfirstprefix}
  {\appendchildtree\treetok\sectiontok}
  {\preparetreenode \sectiontok\expandafter{\treenode}}
  {\appendchildtree\treetok\sectiontok}

\etocsetstyle{subsection}
  {\etocskipfirstprefix}
  {\appendchildtree\sectiontok\subsectiontok}
  {\preparetreenode \subsectiontok\expandafter{\treenode}}
  {\appendchildtree\sectiontok\subsectiontok}

\etocsettocstyle
  {\treetok{node {\hyperref[part:overview]{Overview}}}}
  {\global\appendtotok\treetok{ ;}}

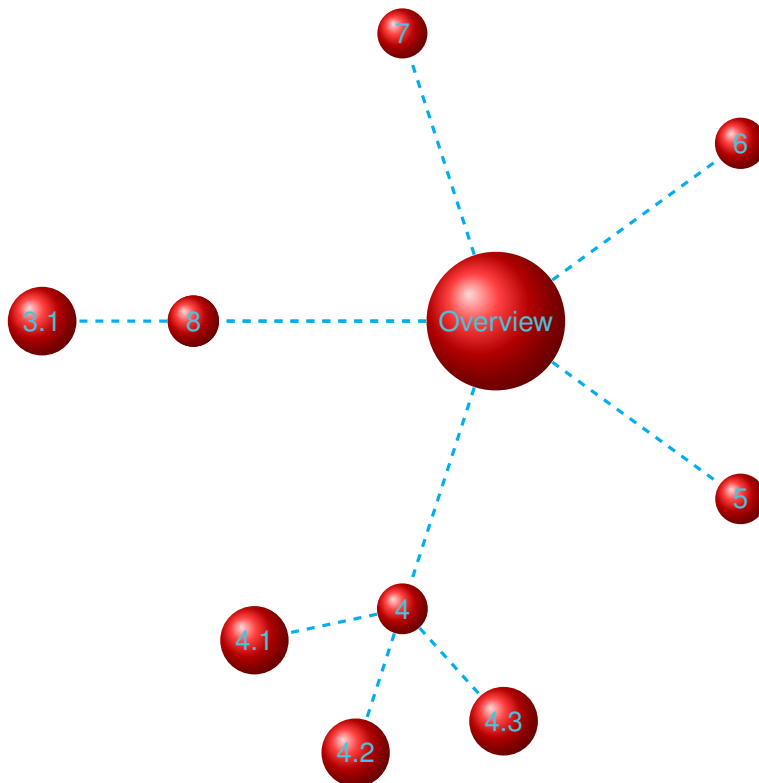
\begin{figure}[thbp!]\centering
  \etocsetnexttocdepth{subsection}
  \tableofcontents \label{toc:molecule} \ref{toc:overview}
  \hypersetup{hidelinks}%
  \begin{tikzpicture}
```

```

[grow cyclic,
 level 1/.style={level distance=4cm,sibling angle=72},
 level 2/.style={level distance=2cm,sibling angle=60},
 every node/.style={ball color=red,circle,text=SkyBlue},
 edge from parent path={[dashed,very thick,color=cyan]
 (\tikzparentnode) -(\tikzchildnode)}]

\the\treetok
\end{tikzpicture}
\end{figure}

```

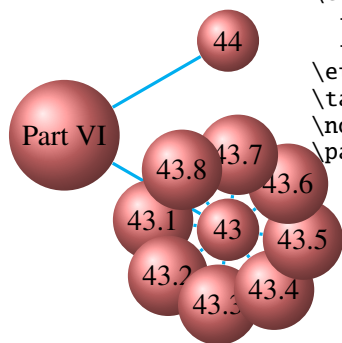


The `\tableofcontents` command appears just above the `tikzpicture` environment in a figure float (to make sure that the label of the table of contents refers to the same page as the one where the picture will actually be printed). We thus get the table of contents as a “[molecule](#)”, which appears above.

This [TikZ TOC](#) is fully hyperlinked, like the previous [Forest TOC](#).

## 29. The TOC as a TikZ mind map

On the side, the (fully hyperlinked) table of contents of [Part VI](#).



```
\etocsettocstyle
  {\treetok{\node {\autoref{part:globalcmds}}}}
  {\global\appendtotok\treetok{ ;}}
\etocsetnexttocdepth {subsection}
\tableofcontents \ref{toc:globalcmds}
\noindent
\parbox{4cm}{\hypersetup{hidelinks}%
  \begin{tikzpicture}
    [grow cyclic,
     level 1/.style={level distance=2.5cm,sibling angle=60},
     level 2/.style={level distance=1cm,sibling angle=45},
     every node/.style={ball color=red!50,circle,text=black},
     edge from parent path={[,very thick,color=cyan]
       (\tikzparentnode) --(\tikzchildnode)}]}
  \the\treetok
  \end{tikzpicture}}%
...
```

## 29. The TOC as a TikZ mind map

This is in the same spirit as the “molecule” example. The use of the  $\epsilon$ -TeX primitive `\unexpanded` will simplify the code.<sup>39</sup>

It is difficult to get everything to fit on one page. However `\resizebox` comes to the rescue. And it preserves hyperlinks. Nevertheless for this example I excluded some sections from the display, using the technique of the `etoc` [depth tags](#). The fully hyperlinked TOC appears on the next page.

```
\begingroup
% \newtoks\treetok % done in preamble
% \newtoks\parttok

\newcommand*\partnode {} % just to check we don't overwrite something
\newcommand*\childnode {}

\newcommand*\tmprotate {} % just to check we don't overwrite something
\newcommand*\tmpoption {} % just to check we don't overwrite something
\newcommand*\tmpstuff {} % just to check we don't overwrite something

\newcommand*\appendtotok[2]{% #1=toks variable, #2=macro, expands once #2
  #1\expandafter\expandafter\expandafter{\expandafter\the\expandafter #1#2}}

\newcommand*\appendchildtree[3]{%
% this is to construct "t1 child [#3]{t2}" from #1=t1 and #2=t2
% t1 and t2 are two toks variable (not macros)
% #3 = for example teal!60
  \edef\tmpstuff {\the#1 child [#3]{\the#2}}%
  #1\expandafter {\tmpstuff }%
}

\newcounter{partco}
```

<sup>39</sup>The “molecule” example was added to this documentation on 2013/03/03. The “mindmap” example was motivated on 2015/03/11 by <http://tex.stackexchange.com/a/232584/4686>. Further help was then obtained via <http://tex.stackexchange.com/q/232816/4686> and this led to the [title page](#) which is a further example.



## 29. The TOC as a TikZ mind map

```

% 1,2,3,4,5,... -> 1,2,3,1,2,3,1,2,3
\def\pseudomodthree #1{\numexpr #1 + 3 - 3*((#1+1)/3)\relax}

\etocsetstyle{part}
  {\etocskipfirstprefix}
% This updates the global tree with the data from the previous
% part and all its children sections. Moved here because for some parts the
% sections are not displayed due to depth tags.
  {\ifnum\value{partco}=3
    \appendchildtree\treetok\parttok {branch color= green!50,level distance=10cm}%
  \else
\ifcase\pseudomodthree{\value{partco}}%
  \or \appendchildtree\treetok\parttok {branch color= teal!60}% first
  \or \appendchildtree\treetok\parttok {branch color= yellow!80}% second
  \else\appendchildtree\treetok\parttok {branch color= green!50}% third and next ...
  \fi\fi
  }
  {\stepcounter{partco}%
% customize manually some TikZ set-up (should be done inside the TikZ thing I guess)
  \def\tmpoption {}%
  \def\tmprotate {}% first
  %\ifnum\value{partco}=5 \def\tmprotate {[counterclockwise from =-40]}\fi
  %\ifnum\value{partco}=8 \def\tmprotate {[counterclockwise from =-50]}\fi
% define the part node
  \edef\partnode{node \tmpoption
    {\unexpanded\expandafter{\etocthelinkednumber}.
    \unexpanded\expandafter{\etocthelinkedname}}\tmprotate }%
% this is a starting point which will be filled it by the section children
  \parttok\expandafter{\partnode}}
  {\ifcase\pseudomodthree{\value{partco}}%
    \or \appendchildtree\treetok\parttok {branch color= teal!60}% first
    \or \appendchildtree\treetok\parttok {branch color= yellow!80}% second
    \else\appendchildtree\treetok\parttok {branch color= green!50}% third and next ...
    \fi
  }
}

\etocsetstyle{section}
  {}
  {}
  {% define the section node
  \edef\childnode{child {node {\unexpanded\expandafter{\etocthelinkednumber}
    \unexpanded\expandafter{\etocthelinkedname}}}}%
  % append it to the current \parttok
  \appendtotok\parttok\childnode
  }
  {}

\etocsettocstyle
  {\setcounter{partco}{0}%
  \treetok{\node [root concept]{\textbf{The \etoc documentation}}}}
  {\global\appendtotok\treetok{ ;}}
% The \global above is mandatory because etoc always typesets TOC inside a group

\etocsetnexttocdepth{section}
% use of depth tags to cut out some sections.
\etocsettagdepth {preamble} {none}

```



```

\etocsettagdepth {overview} {part}
\etocsettagdepth {arbitrarily}{part}
\etocsettagdepth {examples} {section}
\etocsettagdepth {surprising} {part}
\etocsettagdepth {linestyles} {part}
\etocsettagdepth {globalcmds} {part}
\etocsettagdepth {custom} {section}
\etocsettagdepth {tips} {part}
\etocsettagdepth {etocandworld}{part}
\etocsettagdepth {code} {section}

\tikzset{
  branch color/.style={
    concept color=#1!white,
    every child/.append style={concept color=#1!white!30!white, font=\normalsize},
  }
}%

\begin{figure}[thp!]
\tableofcontents\label{toc:mindmap}%
\centeredline{\resizebox{.85\paperwidth}{!}%
{\begin{tikzpicture}[mindmap,
  grow cyclic,
  text width=2cm,
  align=flush center,
  nodes={concept},
  concept color=orange!60,
  root concept/.append style={text width=4cm, font=\Large},
  level 1/.append style={level distance=5cm,sibling angle=40, text width=3cm},
  level 2/.append style={level distance=7cm,sibling angle=30, text width=3cm},
  level 1 concept/.append style={font=\normalsize},
  ]
\the\treetok
\end{tikzpicture}}}}
\end{figure}
\endgroup

```

An interesting alternative is to use **etoc** rather to convert the entire TOC into a TikZ tree (perhaps excluding some parts) and print it out to a file from which it can be recovered and manipulated directly by the author of the document. Things written to the .log file get broken into lines. Here is a technique to get non-broken output. Once the `\treetok` has been computed by **etoc** (as in the **molecule** example, or the current example), this code snippet will write it out to file with extension `.toctree`:

```

\newwrite\TOCasTree
\immediate\openout\TOCasTree=\jobname.toctree
\immediate\write\TOCasTree{\the\treetok}%

```

The author can then copy it from there and customize it manually to get a suitable tikz picture. See also

<http://tex.stackexchange.com/a/232792>  
for an elaboration of this.

## 30. The TOC as a table

With release 1.08 it is easier to typeset a TOC as a table. It is possible to open a tabular in the title part of the TOC (first argument to `\etocsettocstyle`) and then close it after the contents (second argument to `\etocsettocstyle`), and specify in the line styles how to use the tabulation & and tabular end of row `\\`. There are some conditions and a few caveats:

1. it is mandatory to issue `\etocglobaldefs` for `etoc`'s definitions to have global scope,
2. it is impossible to start one of the  $\langle start \rangle$ ,  $\langle prefix \rangle$ ,  $\langle contents \rangle$  or  $\langle finish \rangle$  specification with a sole `\hline`, *i.e.* one not preceded by a `\\` (it is however possible to put `\\` at the end of  $\langle prefix \rangle$  and the `\hline` at the start of  $\langle contents \rangle$ ).
3. as is explained next, it is recommended to put the `\\` at the start of the  $\langle prefix \rangle$  or  $\langle contents \rangle$  specifications in order to close the *previous* row, rather than at the end with the idea to close the *current* row; and when the TOC is a partial one (a `\local-tableofcontents`) this is (in almost all situations) mandatory.

Here is an example of a TOC as a longtable, as is possible relatively simply now with 1.08. The code follows.

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### 30. The TOC as a table

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```

\begingroup
\etocglobaldefs % necessary for \etocname etc... to survive &

% observe the locations of the \\
\etocsetstyle{part}
  {}
  {\hline}
  {\strut\etocnumber &\bfseries\etocname&\etocpage }
  {}

\etocsetstyle{section}
  {}
  {\etociffirst{\etocifnumbered{\hline}{\hline\hline}}{\}}
  {\etocnumber&\etocname &\etocpage }
  {}

\etocsetstyle{subsection}
  {}
  {}
  {\&\makebox[1cm][c]{\etocnumber}%
   \parbox[t]{\dimexpr6cm-\tabcolsep\relax}{\sloppy\itshape\etocname\strut}%
   &\itshape\etocpage }

```

### 30. The TOC as a table

```
{  
  
\etocsettocstyle  
  {\hypersetup{hidelinks}%  
   \begin{longtable}{|>{\bfseries}c|p{7cm}|r|}  
   \hline  
   \multicolumn{3}{|c|}{\Large\bfseries\strut\strut TABLE OF CONTENTS}%  
   }  
  {\hline\end{longtable}}  
  
\etocsetnexttocdepth {subsection}  
  
\tableofcontents  
\endgroup
```

Examining the code above the reader will wonder why the `\\` are always given first in  $\langle prefix+contents \rangle$  and not, as is more intuitive, rather last. In some favorable cases (but almost never for local tables of contents) one may indeed construct TOC-as-tables with the `\\` located at the end of the style specifications. The problem in the previous example was with the positioning of the `\hline`'s.

Due to technical aspects of how  $\TeX$  constructs alignments any definition or assignment done after an `\\` starts a new row, and thus makes `\hline` an illegal token (this shows as a misplaced `\noalign` error.) Not only does `etoc` have to do such definitions to construct `\etocname` etc..., it is furthermore the case that some packages put things in the `.toc` file and as a result there is never any guarantee that between two `\contentsline` there will not be such a token like `\relax` which in the contexts of alignments forces  $\TeX$  to start a cell and thus makes it impossible then to insert an `\hline`.

The safest way is thus to start with an `\\` each line style specification in order to close the *previous* table row. We had a little problem with the fact that we wanted parts not only to have a rule above them (easy, they do `\\hline`) but also below them: after each part there is a section, and it is these sections which are used to insert the missing `\hline` (this is done with the help of the `\etociffirst` conditional).

The attentive reader will notice one last subtlety: the title was supposed to be followed not by one, but by two `\hline`'s. To solve this we could have used a one-time macro redefining itself, but we noticed that the title was followed by the unnumbered Abstract, thus the `\etocifnumbered` switch came to the rescue.

Last technical note: because we put the `\\` inside the branches, there was no need to employ the expandable variants `\etocxiffirst` and `\etocxifnumbered`.

For the hardliner's old way of obtaining the exact same result, see [section 54](#).

Here is also a much simpler example. It is a local table of contents.

Section	number	page
Do I need to be a geek to use <b>etoc</b> ?	3	8
Line styles and toc display style	4	9
A first example	5	10
A second example	6	12
A Beautiful Thesis example	7	13
Linked list of the main package commands	8	15

```

\begin{center}
\etocsetstyle{section}
  {}
  {\etociffirst{\hline\hline}{\hline}}
  {\etocname & \etocnumber & \etocpage }
  {}

\etocsettocstyle
  {\hypersetup{hidelinks}\begin{tabular}{|p{4cm}|c|c|}\hline
  \multicolumn{1}{|c|}{\bfseries Section}&
  \bfseries number&
  \bfseries page}
  {\hline\end{tabular}}

\etocglobaldefs % MANDATORY !!
\etocsetnexttocdepth{1}

\tableofcontents\ref{toc:overview}
\end{center}

```

## 31. A TOC self-adjusting widths for its typesetting

This is a continuation of [section 21](#). The goal is to adjust automatically the “numwidths” used for typesetting the unit numbers in the (local) tables of contents.

```

\makeatletter
\newcommand*{\TOCcompute@numwidths [2]{% #1=empty/"local", #2=minimal indent
  \begingroup
  \def\TOCnumwidthB {0pt}%
  \def\TOCnumwidthC {0pt}%
  \def\TOCnumwidthD {0pt}%
  \def\TOCnumwidthE {0pt}%
  \def\TOCnumwidthF {0pt}%
  \def\TOCnumwidthG {0pt}%
  \etocsetstyle{part}{}{}{}{}{}%
  \etocsetstyle{chapter}{}
  {\setbox0\hbox{\bfseries\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthB\edef\TOCnumwidthB{\the\wd0}\fi}}%

```

### 31. A TOC self-adjusting widths for its typesetting

```

\etocsetstyle{section}{}
  {\setbox0\hbox{\bfseries\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthC\edef\TOCnumwidthC{\the\wd0}\fi}{}%
\etocsetstyle{subsection}{}
  {\setbox0\hbox{\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthD\edef\TOCnumwidthD{\the\wd0}\fi}{}%
\etocsetstyle{subsubsection}{}
  {\setbox0\hbox{\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthE\edef\TOCnumwidthE{\the\wd0}\fi}{}%
\etocsetstyle{paragraph}{}
  {\setbox0\hbox{\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthF\edef\TOCnumwidthF{\the\wd0}\fi}{}%
\etocsetstyle{subparagraph}{}
  {\setbox0\hbox{\etocthenumber\kern#2}}
  {\ifdim\wd0>\TOCnumwidthG\edef\TOCnumwidthG{\the\wd0}\fi}{}%
%
\etocsettocstyle{}
  {\global\let\TOCnumwidthB\TOCnumwidthB
  \global\let\TOCnumwidthC\TOCnumwidthC
  \global\let\TOCnumwidthD\TOCnumwidthD
  \global\let\TOCnumwidthE\TOCnumwidthE
  \global\let\TOCnumwidthF\TOCnumwidthF
  \global\let\TOCnumwidthG\TOCnumwidthG}%
\etocnopar
\csname #1tableofcontents\endcsname
\typeout{Next TOCs will use \TOCnumwidthB\space for chapter number width}%
\typeout{Next TOCs will use \TOCnumwidthC\space for section number width}%
\typeout{Next TOCs will use \TOCnumwidthD\space for subsection number width}%
\typeout{Next TOCs will use \TOCnumwidthE\space for subsubsection number width}%
\typeout{Next TOCs will use \TOCnumwidthF\space for paragraph number width}%
\typeout{Next TOCs will use \TOCnumwidthG\space for subparagraph number width}%
\endgroup
}%
\newcommand*\TOCcomputenumwidths [1][0.5em]{%
  \TOCcompute@numwidths {}{#1}%
}%
\newcommand*\TOCcomputelocalnumwidths [1][0.5em]{%
  \TOCcompute@numwidths {local}{#1}%
}%
\makeatother

```

The optional parameter to `\TOCcomputenumwidths` specifies the minimal indent. In case nothing is numbered you may wish a higher value than `0.5em`. For each local table of contents to have its own width computations, the macro `\TOCcomputelocalnumwidths` is provided. As the code makes global assignments, either use (once) `\TOCcomputenumwidths` or do `\TOCcomputelocalnumwidths` for each local table of contents.

```

\TOCcomputelocalnumwidths % may use optional argument to replace 0.5em
\localtableofcontents

```

Notes:

1. naturally these are only suggestions. For example one could put everything in single macros `\TOCtoc` and `\TOClocaltoc` to simultaneously compute the numwidths and then typeset the (local) table of contents.



2. if you want to adjust the `tocdepth` recall from [subsection 12.1](#) that it influences `hyperref` hence you may need to use a group `\begingroup... \endgroup`. Or, one can use `\etocsetnexttocdepth{<level>}` but (with the code as here) this must then be issued twice, once for `\TOCcompute@localnumwidths`, once for `\localtable-ofcontents`.
3. the bold font serves above for both chapter and section `numwidth` computations, but the code from [section 21](#) uses `\bfseries` only in local TOCs. Thus the `\TOC-computenumwidth` will set the parameter `\TOCnumwidthC` to a value slightly larger than needed in the main TOC. Hence the section style in `\TOCcompute@numwidths` should possibly insert the `\bfseries` in the box only after testing for the optional parameter `local`.

## Part V.

# Commands for the toc line styles

Here are some statistics for this part: it contains 11 sections and 2 subsections. The name of the first section is “The `\etocsetstyle`, `\etocname` and `\etocpage` commands” and the corresponding number is “32”. The name of the last section is “**Am I also red?**” and its number is “42”. The name of the first subsection is “Testing the scope” and the corresponding number is “41.1”. The name of the last subsection is “**This is a (pale) red subsection for illustrative purposes**” and its number is “41.2”.

### Contents of [Part V](#)

- 32** The `\etocsetstyle`, `\etocname` and `\etocpage` commands (page 58)
- 33** The `\etocskipfirstprefix` and `\etociffirst` commands (page 60)
- 34** The `\etocnumber` command (page 60)
- 35** The `\etocifnumbered` switch (page 60)
- 36** The `\etocthename`, `\etocthenumber`, and `\etocthepage` commands (page 61)
- 37** The `\etoclink` command (page 61)
- 38** The `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` and `\etocthelink` commands (page 61)
- 39** The `\etocsavedsectiontocline`, etc... commands. (page 62)
- 40** The `\etocsetlevel` command (page 63)
- 41** Scope of commands added to the `.toc` file (page 64)
  - 41.1 Testing the scope (p. 64)
  - 41.2 **This is a (pale) red subsection for illustrative purposes** (p. 64)
- 42** **Am I also red?** (page 64)

## 32. The `\etocsetstyle`, `\etocname` and `\etocpage` commands

Let us explain how `etoc` was used to produce the table of contents displayed at the beginning of this [Part V](#). This is a local table of contents, and we used the command `\local-tableofcontents`.

We shall distinguish between the *line styles* and the *toc display style*. The line styles were (essentially) obtained in the following manner:<sup>40</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\begingroup\normalfont
\footnotesize\itshape\etocskipfirstprefix}
{\allowbreak\-,-\,}
{\etocname}
{.\hfil\par\endgroup\pagebreak[3]}
```

These provisory style definitions rely on the automatic numbering generated by the `enumerate` environments but it is much better to use the further command `\etocnumber` inside the item label, which gives the real thing. The improved definitions will thus be explained later.

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!

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* (or *book* which is used by the `memoir` class) 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.

The (robust) commands `\etocname`, `\etocnumber` and `\etocpage` are provided for use inside the *<prefix>* and *<contents>* parts of the `\etocsetstyle` specification. They represent of course, the name, number, and page number of the corresponding toc entry. If package `hyperref` is active in the document and has added hyperlinks to the TOC data, then these links are kept in the commands `\etocname`, `\etocnumber` and `\etocpage` (this last one will have a link only if `hyperref` was passed option *linktoc=all*.)

---

<sup>40</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.

### 33. The `\etocskipfirstprefix` and `\etociffirst` commands

The chosen subsection style made use of the command `\etocskipfirstprefix`, which instructs `etoc` to *not* use for the first item the specified `<prefix>` code.<sup>41</sup>

The command `\etociffirst{<YES CODE>}{<NO CODE>}` (new with 1.08) is a more flexible way to customize the `<prefix>` (and `<contents>`) specifications. It executes the `<YES CODE>` branch if this is the first unit at that level (inside a lower level) and the `<NO CODE>` if not. This is a robust command which survives to expansion (for example in an `enumitem` label).

The variant `\etociffirst` does the same, but is expandable.

### 34. The `\etocnumber` command

So far, our specifications would use the numbering generated by the `enumerate` environments, but of course we generally want 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}`. Note that `\etocnumber` is a robust command which explains why it can be used inside the label specification without needing an added `\protect`.

### 35. 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).<sup>42</sup>

The `\etocifnumbered{<A>}{<B>}` command executes `<A>` if the number exists, and `<B>` if not. So we use it in the code which was finally chosen for the section level:

```
\etocsetstyle{section}
{\begin{enumerate}[leftmargin=.75cm, label=\etocifnumbered
  {\fboxrule1pt\fclockbox{green}{white}{\etocnumber}}}]
{\normalsize\bfseries\rmfamily\item}
{\etocname{} (page \etocpage)}
{\end{enumerate}}
```

```
\etocsetstyle{subsection}
{\begin{enumerate}[leftmargin=0cm, label=\etocnumber]}
{\normalfont \item}
```

<sup>41</sup>With versions earlier than 1.08 it had to be the very last token in the `<start>` code. It may now appear anywhere therein.

<sup>42</sup>as seen we use `\fclockbox` rather than `\fbox`. Due to some redefinition made by package `xcolor`, had we used `\fbox` (and not used `hyperref`) we would have needed `\protect\fbox`.

```
{\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}`.

The command `\etocifnumbered` is robust; `\etocxifnumbered` (new with 1.08) has the same effect but is expandable.

## 36. The `\etocthename`, `\etocthenumber`, and `\etocthepage` commands

It is sometimes desirable to have access to the name, number and page number without the hyperref link data: something similar to the starred variant of the `\ref` command, when package `hyperref` is used. For example one may wish to use the unit or page number in some kind of numeric context, or change its formatting. This is provided by `\etocthename`, `\etocthenumber`, and `\etocthepage`.

These commands are not protected, so in moving argument contexts (for example in a label specification) they should be preceded by `\protect`.

## 37. The `\etoclink` command

The command `\etoclink{<linkname>}` can be used in the line style specifications in a manner analogous to the argument-less commands `\etocname`, `\etocnumber` and `\etocpage`. It creates a link (if such a link was added by `hyperref` to the `.toc` file entry) whose destination is the corresponding document unit and whose name is the given argument. Hence `\etoclink{\etocthename}` is like the original `\etocname`. Notice that if `hyperref` was not instructed to put a link in the page number (via its option `linktoc=all`) then `etoc`’s `\etocpage` contains no link either, but `\etoclink{\etocthepage}` does.

The command `\etoclink` is robust. Since `etoc 1.08j` it contains the link destination in an already expanded form, so for example can be used even after a `&` in a tabular construction, if `\etocglobaldefs` was issued.

## 38. The `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` and `\etocthelink` commands

These macros are fragile and contain the link destination in already expanded form. So their meaning can be stored for delayed usage. For example this is done here when doing the [examples with trees](#).

Notice though that for example `\etocthelinkednumber` is really a link only if `hyperref` was configured to let the numbered heading be linked (which is the default). Similarly for the others.

### 39. The `\etocsavedsectiontocline`, etc... commands.

`\etocthelink` will fetch the link destination if available from name or page number and allows via `\etocthelink{foo}` to link an arbitrary text to the same destination inside the produced PDF.

All these commands are fragile. The `\etocname`, `\etocnumber`, `\etocpage` and `\etoclink` are simply their robust variants. They too contain the hyperlink destination in already expanded form since 1.08a for the first three, since 1.08j for `\etoclink`.

Obsolete example of a table of contents done as an inline `enumitem` environment: **43**. Specifying the toc display style (p. 65), and **44**. Starred variants and hooks (p. 69).

```
Obsolete example of \begingroup
\etocsetstyle {section}
  {\begin{itemize*}[itemjoin={; }, itemjoin*={{, and }}]}
  {\global\let\TmpEtocNumber\etocthelinkednumber
   \global\let\TmpEtocName\etocthelinkedname
   \global\let\TmpEtocPage\etocthelinkedpage }
% (the above needed as \item closes a group in enumitem inline environments)
  {\item [{"\bfseries\TmpEtocNumber.}]\TmpEtocName\
    (\emph{p. \TmpEtocPage})}
  {\end{itemize*}.}%
\etocsetnexttocdepth {section}%
\etocsettocstyle {a table of contents done as an inline
  \texttt{enumitem} environment: }{}%
\etocinline\tableofcontents \ref{toc:globalcmds}
\endgroup
```

**etoc** 1.08a offers a simpler way to the same result: thanks to `\etocglobaldefs` there is no need anymore here for `\etocthelinkedname`, as `\etocname` works.

```
Example of
\begingroup\etocglobaldefs % <-- NEW mit etoc 1.08.
\etocsetstyle {section}
  {\begin{itemize*}[itemjoin={; }, itemjoin*={{, und }}]}
  {}
  {\item [{"\bfseries\etocnumber.}]\etocname\ (\emph{p. \etocpage }}}
  {\end{itemize*}.}%
\etocsetnexttocdepth {section}%
\etocsettocstyle {a table of contents done as an inline
  \texttt{enumitem} environment: }{}%
\etocinline\tableofcontents \ref{toc:globalcmds}
\endgroup
```

Example of a table of contents done as an inline `enumitem` environment: **43**. Specifying the toc display style (p. 65), and **44**. Starred variants and hooks (p. 69).

## 39. The `\etocsavedsectiontocline`, etc... commands.

Since 1.08k **etoc** preserves automatically in `\etocsavedsectiontocline`, `\etocsavedchaptertocline` etc... the meaning of the L<sup>A</sup>T<sub>E</sub>X `\l@section`, `\l@chapter`, etc... in force at the time each `\tableofcontents` or `\localtableofcontents` macro is executed.

See [section 20](#) for usage.

## 40. The `\etocsetlevel` command

As already explained in [Part IV](#), one can inform `etoc` of a level to associate to a given sectioning command with `\etocsetlevel`. For example:

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

In compatibility mode, it will be assumed that the macros `\l@cell`, `\l@molecule`, ..., have been defined somewhere either by the user or a class: doing only `\etocsetlevel` is not enough for the corresponding level to work out-of-the-box in compatibility mode.

However, if no table of contents is typeset in compatibility mode, then all that matters is that the various line styles have been set. If, for example section is at level 1, then there is no need to do some `\etocsetstyle{molecule}{.}{.}{.}{.}` after `\etocsetlevel{molecule}{1}` if `\etocsetstyle{section}{.}{.}{.}{.}` has already been done (and it has been done by the package itself in its definition of its own line styles).

The accepted levels run from -2 to 6 inclusive. Anything else is mapped to 6, which is a dummy level, never displayed. The package does:

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

`etoc` own custom styles are activated by `\etocdefaultlines`. They are illustrated by the main table of contents of this document.

These level assignments can be modified at anytime: see [Part IV](#) for various applications of this technique. As one further example, let's mention here that the [main table of contents](#) of this document was typeset following these instructions:

```
\etocsettocdepth {subsubsection} % set the initial tocdepth
\etocdefaultlines % use the package default line styles. At this early stage in
                  % the document they had not yet been modified by \etocsetstyle
                  % commands, so \etoclines could have been used, too.
\etocmarkboth\contentsname
\etocmulticolstyle[1] % one-column display
  {\pdfbookmark[1]{Table of contents}{MAINTOC}% create a bookmark in the pdf
   \noindent\bfseries\Large
   \leaders\hrule height1pt\hfill
   \MakeUppercase{Table of Contents}}
\begingroup % use a group to limit the scope of the
  \etocsetlevel{subsection}{3} % subsection level change.
  \etocsetlevel{subsubsection}{4} % anything > tocdepth=3.
  \tableofcontents \label{toc:main}
\endgroup
```

## 42. Am I also red?

In this way, the subsections used the style originally designed for subsections, the subsections were not printed. Without this modification, the appearance would have been very different: the package line styles were targeted to be employed in documents with many many sub-sub-sections, in a two-column layout, giving thus a more compact output than what is achieved by the default L<sup>A</sup>T<sub>E</sub>X table of contents. But here, we have few sub-sub-sections and it is more interesting to drop them and print in a visually different manner sections and subsections.

## 41. Scope of commands added to the .toc file

### 41.1. Testing the scope

Let us switch to the color red, and also add this command to the .toc file:

```
\color{red!50} % changing text color
\addtocontents{toc}{\string\color{red!50}} % and also in the .toc file
```

### 41.2. This is a (pale) red subsection for illustrative purposes

Actually, this title here was printed black, due to the way the `scrartcl` class works (it would have been red in the `article` class), but we are more interested in how it looks in the tables of contents: it does appear red in the main table of contents at the beginning of this document, and also in the table of contents for this part. Both entries obey as expected the `\color{red!50}` command inserted in the .toc file.

But let us now close this subsection and start a section.

## 42. Am I also red?

The question is about how it appears in the tables of contents: the answer is that, yes it is red in the main TOC, and no it is not red in the local TOC for this part. The reason is that the `<finish>` code for the subsection level closed a group, as it used `\end{enumerate}`.

This illustrates the discussion from subsection 3.1.

The default package line styles do not contain group opening and closing instructions: the influence of a command added to the .toc file will propagate until cancelled by another explicit such command inserted in the .toc file.

```
\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.



# Part VI.

## Commands for the toc display style

Here are some statistics for this part: it contains 2 sections and 8 subsections. The name of the first section is “Specifying the toc display style” and the corresponding number is “43”. The name of the last section is “Starred variants and hooks” and its number is “44”. The name of the first subsection is “The command `\etocsettocstyle`” and the corresponding number is “43.1”. The name of the last subsection is “The command `\etocinline`” and its number is “43.8”.

<b>43. Specifying the toc display style</b>	<b>65</b>
43.1. The command <code>\etocsettocstyle</code> . . . . .	65
43.2. The commands <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> . . . . .	66
43.3. The command <code>\etocstocstyle</code> . . . . .	67
43.4. The commands <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocalruled</code> . . . . .	67
43.5. The commands <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> . . . . .	67
43.6. Headings, titles, <code>\etocoldpar</code> , <code>\etocinnertopsep</code> . . . . .	68
43.7. The compatibility mode <code>\etocstandarddisplaystyle</code> . . . . .	68
43.8. The command <code>\etocinline</code> . . . . .	69
<b>44. Starred variants and hooks</b>	<b>69</b>

### 43. Specifying the toc display style

The *toc display* 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 \localtableofcontents)
shortcuts:      \etocruled[1]{Title} (or \etoclocalruled[1]{Title})
```

#### 43.1. 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}`.

Generally speaking this heading should leave  $\TeX$  in “vertical mode” when the actual typesetting of the contents will start: the line styles (either from the standard classes or the package default line styles) all expect to get started in ‘vertical mode’.

### 43. Specifying the toc display style

The first argument to `\etocsettocstyle` can also contain instructions to mark the page headings. 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.

**T<sub>E</sub>X hacker note:** We have seen in the previous chapter some examples of using `\begin{enumerate}` and `\end{enumerate}` within TOC line styles. There is a real difficulty with doing however something like this:

```
\etocsettocstyle{\begin{enumerate}}{\end{enumerate}}
\etocsetstyle{section}{{\item \sectionname}}{}}
```

Indeed for example on first compilation of a document, the `.toc` file is empty and there will be the typical “Something’s wrong—perhaps a missing `\item`”. Using `\etoccheckemptiness` does not help, because as is explained there, on first encountering a new TOC added at end of a document, `etoc` considers it non-empty, hence querying `\etocifwaseempty` serves nothing. No, one must do something like this:

```
\makeatletter
\etocsettocstyle
  {\begin{enumerate}}
  {\if@newlist\item Please run \LaTeX\ again\fi
  \end{enumerate}}
\makeatother
\etocsetstyle{section}{{\item \sectionname}}{}}
```

The commands to be described next `\etocmulticolstyle`, `\etocruledstyle`, and `\etocframedstyle` all call `\etocsettocstyle` as a lower-level routine, to start a `multicols` environment in `{\before_toc}` and close it in `{\after_toc}`.

#### 43.2. The commands `\etocmulticolstyle`, `\etocmulticol`, and `\etoclocalmulticol`

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

```
\etocmulticolstyle[number_of_columns]{heading}
```

The `number_of_columns` can go from 1 to 10 (it defaults to 2; if its value is 1, naturally no `multicols` environment is then created). The `heading` will typically be some ‘vertical’ material like: `heading = \section*{title}` but one may also have horizontal material like `\fbox{Hello World}` (`etoc` adds automatically a `\par` at the end of this “heading” argument to `\etocmulticolstyle`). Here is for example how the main table of contents of this document was configured:

```
\etocmulticolstyle{\noindent\bfseries\Large
  \leaders\hrule height1pt\hfill
  \MakeUppercase{Table of Contents}}
```

After `\etocmulticolstyle` all future `\tableofcontents` will use the specified style, if it does not get changed in-between. A shortcut for just one table of contents and no impact on the styles of later TOCs is:

```
\etocmulticol[number_of_columns]{heading}
```

And there is also `\etoclocalmulticol[number_of_columns]{heading}`.

### 43.3. The command `\etocstyle`

```
\etocstyle[⟨kind⟩]{⟨number_of_columns⟩}{⟨title⟩}
= \etocmulticolstyle[⟨number_of_columns⟩]{\kind*⟨title⟩}
```

where `kind` is one of `chapter`, `section`, ... and defaults to `chapter` or `section` depending on the document class.

#### 43.3.1. The command `\etocstylewithmarks`

```
\etocstylewithmarks[⟨kind⟩]{⟨number_of_columns⟩}{⟨title⟩}{⟨mark⟩}
= \etocmulticolstyle[⟨number_of_columns⟩]{\kind*⟨title \markboth{\MakeUppercase{mark}}}}
```

where `kind` is one of `chapter`, `section`, ... The actual display of the marks depends on the settings of the page style. There is variant `\etocstylewithmarksnouc` which does not uppercase.

##### 43.3.1.1. Do we really want paragraph entries in the TOC?

##### 43.3.1.2. really?

### 43.4. The commands `\etocruledstyle`, `\etocruled` and `\etoclocalruled`

The general format of `\etocruledstyle` is:

```
\etocruledstyle[⟨number of columns⟩]{⟨title of the toc⟩}
```

The title is horizontal material (the LR mode of *TeX*, a document preparation system): if it does not fit on one line it should be put in a `\parbox` of a given width. 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}%
  \fboxrule1pt\fboxseplex
  \framebox[\linewidth]
    {\normalcolor\hss Contents of this part\hss}}
```

As a shortcut to set the style with `\etocruledstyle` and then issue a `\tableofcontents`, all inside a group so that future table of contents will not be affected, there is:

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

And the local form will be `\etoclocalruled`.

### 43.5. The commands `\etocframedstyle`, `\etocframed`, and `\etoclocalframed`

Same mechanism:

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

and the accompanying shortcut:

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

The shortcut is used if one does not want to modify the style of the next TOCs (the other way is to put the whole thing inside braces or a `\begingroup... \endgroup`; there is also `\etoclocalframed` for a local table of contents).

### 43. Specifying the toc display style

The entire table of contents is framed. The title itself is not framed: if one wants a frame one should set it up inside the *title* argument to `\etocframedstyle` or `\etocframed`. The colors for the background and for the components (top, left, right, bottom) of the border are specified via suitable `\renewcommand`'s (see [subsection 47.2](#)).

A minipage is used, hence the produced table of contents isn't compatible with a page break. For allowing page breaks, use of the commands of `mdframed`<sup>43</sup> or `tcolorbox`<sup>44</sup> in the arguments of `\etocsettocstyle` is recommended.

Examples in this document are on pages [18](#), [36](#), [34](#), and [79](#).

#### 43.6. Headings, titles, `\etocoldpar`, `\etocinnertopsep`

For `\etocmulticolstyle` the mandatory *heading* argument can be either vertical mode material like `\section*{\emph{Table of Contents}}` or horizontal mode material like in the simple `\etocmulticolstyle{Hello World}`.

No explicit `\par` or empty line can be inserted in the mandatory argument of `\etocmulticolstyle`, but `etoc` provides `\etocoldpar` as a substitute: it does `\let\etocoldpar\par` before the `multicols` environment and inserts this `\etocoldpar`<sup>45</sup> at the end of the heading, then does a vertical skip of value `\etocinnertopsep`. The command `\etocoldpar` can also be used explicitly if needed in the mandatory argument to `\etocmulticolstyle` (it is not allowed to insert an empty line in this argument).

On the other hand the commands `\etocruledstyle` and `\etocframedstyle` expect an argument “in LR mode” (to use the terminology from *LaTeX, a document preparation system*). This means that multiline titles are only possible if enclosing them inside something like a `\parbox`.

An important dimension used by all three of `\etocmulticolstyle`, `\etocruledstyle` and `\etocframedstyle` is `\etocinnertopsep`. It gives the amount of separation between the heading and the start of the contents. Its default value is `2ex` and it is changed with `\renewcommand*{\etocinnertopsep}{<new_value>}`, not with `\setlength`.

#### 43.7. The compatibility mode `\etocstandarddisplaystyle`

`etoc` will then emulate what the document class would have done regarding the global display style of the table of contents, in its absence. All customizing from inside the class should be obeyed, too.

##### 43.7.1. The commands `\etocarticlestyle`, `\etocbookstyle`, ...

These are the commands used internally by `etoc` in compatibility mode depending on the document class. For example `\etocarticlestyle` instructs `etoc` to use `\section*{\contentsname}` (with marks on the page) and `\etocbookstyle` says to use `\chapter*{\contentsname}`. It can prove useful to issue `\etocarticlestyle` for a `\localtableofcontents` inside a chapter, in book class and compatibility mode for the global TOC display style.

---

<sup>43</sup><http://ctan.org/pkg/mdframed>

<sup>44</sup><http://ctan.org/pkg/tcolorbox>

<sup>45</sup>this command `\etocoldpar` (= working `\par` in the argument to `\etocmulticolstyle`) is not related to the switch `\etocinline` whose purpose is to tell `etoc` not to do a `\par` before the table of contents.

### 43.8. The command `\etocinline`

With `\etocinline`, or its synonym `\etocnopar`, the `\tableofcontents` command and its variants do *not* first issue a `\par` to close the previous paragraph. Hence, the table of contents can be printed in an inline style; or, if used only for preparing some token list or macro, it will leave nothing in the token stream on execution.

Issue `\etocdisplay` to return to the default situation that `\tableofcontents` and variants issue a `\par` to switch to vertical mode before typesetting the TOC title and contents.

## 44. Starred variants and hooks

The `\tableofcontents`, `\localtableofcontents`, `\etocmulticol`, and all their cousins have starred variants (the star must be before the other arguments). The non-starred variants execute the `\etocaftertitlehook`, whose default definition is to do nothing. The starred variants do not execute this hook.

For example, imagine you are using `book` class and want `\localtableofcontents` to use a section-like title, but unnumbered. Assuming the main `\tableofcontents` comes first in the document, you can insert this after it:

```
\etocarticlestyle
\renewcommand{\etocaftertitlehook}{\addcontentsline{toc}{section}{\contentsname}}
```

This configures the way `\localtableofcontents` will behave (or `\tableofcontents`) from now on in the document.

The first line tells essentially to use `\section*{\contentsname}`, and the second line says to insert the title in the `.toc` file itself (thus to be displayed by the main table of contents). Notice that `hyperref` package will then automatically create suitable anchor and one should *not* use explicitly `\phantomsection` here (it would let the anchor be located below not above the title).

With this set-up issuing `\localtableofcontents *` will ignore the `\etocaftertitlehook` hence not send the local toc title to the `.toc` file. This mimicks the `memoir` class behavior, and can also be used with it. For more on `memoir` class with `etoc`, see [subsection 55.7](#).

There are further hook macros: `\etocaftercontentshook`, `\etocbeforetitlehook` and `\etocaftertochook` which are initially defined to do nothing and can be used for some special effects. They are executed whether or not the table of contents command was starred.<sup>46</sup>

---

<sup>46</sup>Hackers can test within these hooks if the context is starred or not via an `\ifx\Etoc@aftertitlehook\empty` conditional. Perhaps a future release will provide `\etociftocisstarred` wrapper.

## Part VII.

# Using and customizing the **etoc** own styles

Here are some statistics for this part: it contains 4 sections and 6 subsections. The name of the first section is “Summary of the main style commands” and the corresponding number is “45”. The name of the last section is “One more example of colored TOC layout” and its number is “48”. The name of the first subsection is “Setting up local styles” and the corresponding number is “45.1”. The name of the last subsection is “Customizing the toc display styles” and its number is “47.2”.

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

<b>Summary of the main style commands</b> . . . . . <b>45, p. 70</b>	<b>The package default line styles: <code>\etoc-defaultlines</code></b> . . . . . <b>46, p. 71</b>
Setting up local styles . . . 45.1, p. 70	<b>Customizing <b>etoc</b></b> . . . . . <b>47, p. 76</b>
Setting up toc display styles . . . . . . . . . . 45.2, p. 71	Customizing the <b>etoc</b> pre-defined line styles . . . . . 47.1, p. 76
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Labels and references . . . 45.4, p. 71	<b>One more example of colored TOC layout</b> . . . . . <b>48, p. 78</b>

## 45. Summary of the main style commands

### 45.1. Setting up local styles

```
\etocsetstyle{<levelname>}{<start>}{<prefix>}{<contents>}{<finish>}
\etocname, \etocnumber, \etocpage, \etocifnumbered{<A>}{<B>}
\etocthename, \etocthenumber, \etocthepage, \etoclink{<linkname>}
```

## 45.2. Setting up toc display styles

```
\etocmulticolstyle[⟨number_of_columns⟩]{⟨heading⟩}
\etocstyle[⟨kind⟩]{⟨number_of_columns⟩}{⟨title⟩}
\etocstylewithmarks[⟨kind⟩]{⟨number_of_columns⟩}{⟨title⟩}{⟨mark⟩}
\etocstylewithmarksnoc[⟨kind⟩]{⟨number_of_columns⟩}{⟨title⟩}{⟨mark⟩}
\etocruledstyle[⟨number_of_columns⟩]{⟨title⟩}
\etocframedstyle[⟨number_of_columns⟩]{⟨title⟩}
\etocsettocstyle{⟨before_toc⟩}{⟨after_toc⟩}
```

## 45.3. Displaying tables of contents

```
\tableofcontents
\localtableofcontents
\etocmulticol[⟨number_of_columns⟩]{⟨heading⟩}
\etoclocalmulticol[⟨number_of_columns⟩]{⟨heading⟩}
\etocruled[⟨number_of_columns⟩]{⟨title⟩}
\etoclocalruled[⟨number_of_columns⟩]{⟨title⟩}
\etocframed[⟨number_of_columns⟩]{⟨title⟩}
\etoclocalframed[⟨number_of_columns⟩]{⟨title⟩}
and their starred variants
```

## 45.4. Labels and references

The commands (starred or not) to actually display the table of contents can be followed with optional labels or references:

```
\tableofcontents \label{toc:here}
\tableofcontents \ref{toc:far}
\tableofcontents \label{toc:here} \ref{toc:far}
\localtableofcontents \label{toc:here}
\localtableofcontents \ref{toc:far}
\localtableofcontents \label{toc:here} \ref{toc:far}
similarly with \etocmulticol etc . . .
```

New with 1.08e: `\localtableofcontents \ref{toc:far}` as synonym for `\tableofcontents \ref{toc:far}`.

When re-displaying another toc, only its contents are transferred: both the line styles and the toc display style are the ones currently defined, not the ones from the cloned toc.

## 46. The package default line styles: `\etocdefaultlines`

These line styles were written at an early stage in the development of the package; although the next section explains how to customize the font choiceness or vertical spaces, etc. . . . , used

#### 46. The package default line styles: `\etocdefaultlines`

by these line styles, most other changes would require copying them from the sources and modify them directly. Admittedly they have been written at a rather scary low- $\TeX$  level, and will not serve as a very friendly starting point.

Activating their use is done via `\etocdefaultlines`, or `\etococlines` if the line styles have not been modified with `\etocsetstyle`. Sections and sub-sections are printed in essentially the same manner, except that the leading for sub-sections is a bit smaller (with document classes lacking a `\chapter` command, the sections are printed in bold typeface; this is the case in the present document). Sub-sub-sections are printed inline, in one paragraph, with no numbers or page numbers. This style was designed and tested with documents having lots of sub-sub-sections, and should be used on a two-column layout: it provides (only in that situation with many sub-sub-sections) a more compact presentation than what is achieved by the  $\LaTeX$  default.<sup>47</sup> On the other hand, used with a one-column layout, and with few sub-sub-sections, the style is a bit more spread out vertically than the  $\LaTeX$  default, sub-sections are not visually much different from sections (especially for document classes with a `\chapter` command), so the result is less hierarchical in appearance than in the  $\LaTeX$  default.

In this document, for the [main table of contents](#), we did `\etocsetlevel{subsection}{3}` hence the sub-sections were printed with the sub-sub-section inline style.

Let us, to the contrary, typeset now this main table of contents as if the document had been done with a class having the `\chapter` command: we will print sections as chapters, and subsections as sections. We use `\etocsetlevel` for that, and also we need to change the font style of “sections” (which in truth are our subsections) to use not the bold but the medium series; we modify the `\etocfontone` command for that. Also we use dot leaders which are less spread out than in the package default.

```
\etocruledstyle[2]{\normalfont\normalsize\rmfamily\itshape
  \fbox{\parbox{.6\linewidth}{
    \leftskip 0pt plus .5fil
    \rightskip 0pt plus -.5fil
    \parfillskip 0pt plus 1fil This is the global table of
    contents on two columns, using \etoc default line styles, but with
    sections as chapters, and subsections as sections.
  }}}
\etocdefaultlines
\etocsetnexttocdepth{1}
\begingroup
\etocsetlevel{section}{0}
\etocsetlevel{subsection}{1}
\renewcommand*{\etocfontone}{\normalfont \normalsize}
\renewcommand*{\etococlineleaders}
  {\hbox{\normalfont\normalsize\hbox to 1ex {\hss.\hss}}}
\sloppy
\tableofcontents
\endgroup
```

---

<sup>47</sup>and there will never be a Part or Chapter entry alone at the bottom of a column or page (except if it has no sub-unit).



This is the global table of contents on two columns, using *etoc* default line styles, but with sections as chapters, and subsections as sections.

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## 47. Customizing *etoc*

### 47.1. Customizing the *etoc* pre-defined line styles

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

```

\newcommand* \etocfontminustwo{\normalfont \LARGE \bfseries}
\newcommand* \etocfontminusone{\normalfont \large \bfseries}
\newcommand* \etocfontzero{\normalfont \large \bfseries}
\newcommand* \etocfontone{\normalfont \normalsize \bfseries}
% (in classes with chapter, \etocfontone does not do \bfseries)
\newcommand* \etocfonttwo{\normalfont \normalsize}
\newcommand* \etocfontthree{\normalfont \footnotesize}

\newcommand* \etocsepminustwo{4ex plus .5ex minus .5ex}
\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{.5ex plus .1ex minus .1ex}
\newcommand* \etocsepthree{.25ex plus .05ex minus .05ex}

\newcommand* \etocminustwoleftmargin{1.5em plus 0.5fil}
\newcommand* \etocminustworightmargin{1.5em plus -0.5fil}
\newcommand* \etocminusoneleftmargin{1em}
\newcommand* \etocminusonerightmargin{1em}

\newcommand* \etocbaselinespreadminustwo{1}
\newcommand* \etocbaselinespreadminusone{1}
\newcommand* \etocbaselinespreadzero{1}
\newcommand* \etocbaselinespreadone{1}
\newcommand* \etocbaselinespreadtwo{1}
\newcommand* \etocbaselinespreadthree{.9}
\newcommand* \etocclineleaders
  {\hbox{\normalfont\normalsize\hbox to 2ex {\hss.\hss}}}
\newcommand* \etocabbrevpagename{p.~} % initial of "page"
\newcommand* \etocpartname{Part} % prior to v1.08b, was \partname
% but this didn't make sense e.g. with babel+frenchb whose \frenchpartname
% takes into account the value of the part counter.
\newcommand* \etocbookname{Book} % to be modified according to language

```

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*.<sup>48</sup>

The `\etocstandardlines` compatibility mode 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 . . .`).

Using the command `\etocsetstyle`, be it in the preamble or in the body of the document, has the secondary effect of switching off the compatibility mode.

<sup>48</sup>with the KOMA-script classes, we noticed that `\etocstandarddisplaystyle` was apparently needed for the KOMA options `toc=left` to be active at the level of the line entries.

## 47.2. Customizing the toc display styles

Again we list the relevant macros, what they do should be legible from their names. Note that `\renewcommand`'s and not `\setlength`'s have to be used for what appear to be lengths, and that color commands are not just color specifications, they must include `\color`, and are canceled by re-defining them to do `\relax`.

```
\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*\etocdefaultnbcol{2}
\newcommand*\etocinnertopsep{2ex}
\newcommand*\etoctoprule{\hrule}
\newcommand*\etocbottomrulecolorcmd{\relax}
```

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

```
\newcommand*\etocleftrule{\vrule}
\newcommand*\etocrightrule{\vrule}
\newcommand*\etocbottomrule{\hrule}
\newcommand*\etocleftrulecolorcmd{\relax}
\newcommand*\etocrightrulecolorcmd{\relax}
\newcommand*\etocbottomrulecolorcmd{\relax}
```

```
\newcommand*\etocbkgcolorcmd{\relax}
```

```
% hooks
\newcommand\etocframedmhook{\relax}
```

The `\etocframedmhook` is positioned immediately after the beginning of a minipage environment where the contents of the framed TOC are typeset.

The `\dotscolorcmd` commands are initially set to expand to `\relax` (hence do not require package `color` or `xcolor` to be loaded). If one has modified a command such as `\etocbkgcolorcmd` to expand to a color command and wants to reset it to do nothing, one *must* use `\renewcommand{\etocbkgcolorcmd}{\relax}` and not `\let\etocbkgcolorcmd\relax`.

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

```
\renewcommand{\etocbottomrule}{\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  $\TeX$  sense. However the left and right rules are not used as

#### 48. One more example of colored TOC layout

(horizontal) leaders but as objects of a given specified width. Note that *only* the Plain TeX syntax for rules is accepted here.

### 48. One more example of colored TOC layout

The command `\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.

```
\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 1cm}
\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[2]{%
  \hbox to \linewidth{\color{white}%
    \hskip#1\leaders\vrule height1pt\hfil}\nointerlineskip\vskip#2}

\etocsetstyle{subsubsection}{\etocskipfirstprefix}
{\shiftedwhiterule{\leftskip}{6pt}}
{\sffamily\footnotesize
  \leftskip2.5cm\hangindent1cm\rightskip1cm\noindent
  \hbox to 1cm{\color{subsecnum}\etocnumber\hss}%
  \color{black}\etocname\leaders\hbox to .2cm{\hss.}\hfill
  \rlap{\hbox to 1cm{\hss\etocpage\hskip.2cm}}\par
  \nointerlineskip\vskip3pt}
{}}

\etocsetstyle{subsection}{\etocskipfirstprefix}
{\shiftedwhiterule{1.5cm}{6pt}}
{\sffamily\small
  \leftskip1.5cm\hangindent1cm\rightskip1cm\noindent
  \hbox to 1cm{\color{subsecnum}\etocnumber\hss}%
  \color{black}\etocname\leaders\hbox to .2cm{\hss.}\hfill
  \rlap{\hbox to 1cm{\hss\etocpage\hskip.2cm}}\par
  \nointerlineskip\vskip6pt}
{}}

\newcommand{\coloredstuff}[2]{%
```

```

\leftskip0pt\rightskip0pt\parskip0pt
\fbboxsep0pt % \colorbox uses \fbboxsep also when no frame!
\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 twin of
  that other TOC (click me!)}\hfil}}
{\vskip3pt\sffamily\small}
{\coloredstuff{white}
  {\leftskip1.5cm\rightskip.5cm\parfillskip-\rightskip
  \makebox[0pt][r]{\makebox[.5cm][r]{\etocnumber\hspace{.2cm}}}}%
  \etocname\hfill\makebox[.5cm][r]{\etocpage\hspace{.2cm}}}%
\vskip6pt }
{}}

\etocframedstyle[1]{}
\tableofcontents \label{toc:clone} \ref{toc:globalcmds}
\endgroup

```

I am a twin of that other TOC (click me!)		
43	Specifying the toc display style	65
43.1	The command \etocsettocstyle .....	65
43.2	The commands \etocmulticolstyle, \etocmulticol, and \etoclocalmulticol .....	66
43.3	The command \etoclocalmulticol .....	67
43.4	The commands \etocruledstyle, \etocruled and \etoclocalruled .....	67
43.5	The commands \etocframedstyle, \etocframed, and \etoclocalframed .....	67
43.6	Headings, titles, \etocoldpar, \etocinnertopsep .....	68
43.7	The compatibility mode \etocstandarddisplaystyle ...	68
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44	Starred variants and hooks	69

The TOC has been put in a `float` which appears on this page. The coding is a bit in-

#### 48. *One more example of colored TOC layout*

volved<sup>49</sup> as it does not use any additional package. Also, it was written at some early stage and I have not revised it since.

A better solution would be to use some package to set up a background color possibly extending accross pages, as the framed style (which we used to get this background color) can only deal with material short enough to fit on one page.

Regarding colors, generally speaking all color commands inside **etoc** are initially defined to do nothing, and the choice to use or not colors is left to the user.

---

<sup>49</sup>and reveals the author's preference for the T<sub>E</sub>X syntax...



# Part VIII.

## Tips

Here are some statistics for this part: it contains 6 sections and 1 subsection. The name of the first section is “The `\etocsetlocaltop.toc` command” and the corresponding number is “49”. The name of the last section is “Typesetting the TOC as a table (the old way)” and its number is “54”. The name of the first subsection is “All subsections of this document” and the corresponding number is “51.1”. The name of the last subsection is “All subsections of this document” and its number is “51.1”.

<b>49. The <code>\etocsetlocaltop.toc</code> command</b>	<b>81</b>
<b>50. Hacking framed parboxes</b>	<b>82</b>
<b>51. Interverting the levels</b>	<b>83</b>
51.1. All subsections of this document . . . . .	83
<b>52. Displaying statistics</b>	<b>84</b>
<b>53. Using depth tags</b>	<b>86</b>
<b>54. Typesetting the TOC as a table (the old way)</b>	<b>88</b>

### 49. The `\etocsetlocaltop.toc` command

It is important to understand that `\localtableofcontents` works entirely from data *in the .toc file*. If the document, say with `article` class, contains starred sectioning commands, which are not accompanied by suitable `\addcontentsline`, then these units are completely transparent to `\localtableofcontents`:

- If it is issued before `\section*{Foo}`, say locally to a `\section`, then the local TOC will include not only the subsections between the `\section` and the `\section*{Foo}` but also those following, and be stopped uniquely by a later `\section` or `\part` from the document’s body.
- If the command is issued right after `\section*{Foo}` and the later was itself subsequent to a (numbered) `\subsection`, then `etoc` will think it must display a TOC local to that *subsection* level.

Before concluding that `etoc` is buggy, imagine how the global TOC of the document would look like in such circumstances: the `\localtableofcontents` does exactly the job of extracting from that global TOC various local TOCs; it works only from material in that (virtual) global TOC.

Since release 1.08k, `etoc` provides the one-argument command `\etocsetlocaltop.toc` to insert into the `.toc` file a kind of “ghost” of a given sectioning unit. Here is an example:

## 50. Hacking framed parboxes

```
\part*{Extra unnumbered part}
\etocsetlocaltop.toc{part}
\localtableofcontents
```

Then in this example, `\localtableofcontents` will be stopped by the next `\part` (naturally a numbered one or a `\part*` followed by suitable `\addcontentsline`) or also by a later `\etocsetlocaltop.toc{part}`.

This is all fine but keep in mind again that `\localtableofcontents` can only display units which have been pushed to the `.toc` file, so that `\part*` must be followed by numbered sections or `\section*/\addcontentsline` pairs if `\localtableofcontents` is to display anything useful. One can not use `etoc` to typeset data not actually there in the `.toc` file!

Thus, in the situation above, one may wonder why the document does not use `\addcontentsline` after the `\part*` as it must do so for sub-sectioning units if they are to appear in the local TOC.

One may imagine some document where all Parts are non-numbered but nevertheless the user wants its `\localtableofcontents` for each one: then indeed `\etocsetlocaltop.toc` will help in that case.

There are at least two more methods to handle this situation:

- the first one is simply to use the `\addcontentsline{toc}{part}{. .}` commands, and to set the part style to do nothing, so that the main TOC will not display them,
- the second one does not add the `\addcontentsline{toc}{part}{. . .}` but uses “depth tags” (section 53) and multiple `\tableofcontents` (not `\localtableofcontents`), one for each desired local TOC.

There is a variant of the first method which would set the level of part temporarily to 6 for the typesetting of the main TOC. But then the chapter toc line style will execute inside the main TOC only once its *start* and *finish* parts (see section 32). This is actually also a problem of the second method.

But not of the first method which uses

```
\etocsetstyle{part}{}{}{}{}
```

nor of the approach with `\etocsetlocaltop.toc`: the *start* and *finish* portions of the chapter toc line style will get executed at the appropriate times in the main, global, TOC.

Be aware however that this use of `\etocsetlocaltop.toc{part}` will also cause the main global TOC to execute (once) the *start* and *finish* portions of the part toc line style (assuming here again it is not typeset in compatibility mode).

Final remark: usage of `\etocsetlocaltop.toc` interferes with `\etoccheckemptiness` only to the extent that it modifies (as explained in this section) the selection made by `\localtableofcontents`, hence the decision whether the local TOC is empty or not.

## 50. Hacking framed parboxes

```
\etocdefaultlines
\renewcommand\etocoprulrule{\hrule height 2pt depth 2pt}
\etocruled{\color{green}\fboxrule2pt\fboxseplex
\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:globalcmds}
```

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

<b>Specifying the toc display style</b> . . . . .	The commands <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> . . . . .
43, p. 65	43.5, p. 67
The command <code>\etocsettocstyle</code> . . . . .	Headings, titles, <code>\etocoldpar</code> , <code>\etocin-</code>
43.1, p. 65	<code>nertopsep</code> . . . . .
The commands <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> . . . . .	43.6, p. 68
43.2, p. 66	The compatibility mode <code>\etocstandard-</code>
The command <code>\etocdisplaystyle</code> . . . . .	<code>displaystyle</code> . . . . .
43.3, p. 67	43.7, p. 68
The commands <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocalruled</code> . . . . .	The command <code>\etocinline</code> . . . . .
43.4, p. 67	43.8, p. 69
	<b>Starred variants and hooks</b> . . . . .
	44, p. 69

## 51. Interverting the levels

Let us display and count all subsections occurring in this document (see [Part IV](#) for other uses of this technique):

```
\etocsetnexttocdepth{2}
\begingroup
\etocsetlevel{part}{3}
\etocsetlevel{section}{3}
\etocsetstyle{subsection}
  {\small\begin{enumerate}[itemsep=0pt,label=,leftmargin=0pt]}
  {\normalfont\bfseries\item}
  {\roman{enumi}. \mdseries\etocname{ } (\etocnumber, p.~\etocpage)}
  {\end{enumerate}}
\renewcommand{\etoccolumnsep}{2.75em}
\renewcommand{\columnseprule}{1pt}
\etocmulticol[3]{\subsection{All subsections of this document}}
\endgroup
```

### 51.1. All subsections of this document

i. Limitations in the use of list environments for tables of contents (3.1, p. 8)	iv. Compatibility mode (4.3, p. 10)	cignoretoctocdepth (13.1, p. 21)
ii. <code>\etocsetstyle</code> for the line styles (4.1, p. 9)	v. The <code>hyperref</code> option <code>bookmarksdepth</code> (12.1, p. 20)	vii. The commands <code>\etocobeydepthtags</code> and <code>\etocignoredepthtags</code> (14.1, p. 22)
iii. <code>\etocsettocstyle</code> for the toc display (4.2, p. 9)	vi. The commands <code>\etocobeytoctocdepth</code> and <code>\eto-</code>	viii. The <code>\etocchecks-</code>

## 52. Displaying statistics

emptiness command (16.1, p. 22)	<b>xviii.</b> The commands <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> (43.5, p. 67)	<b>xxix.</b> Generalities (55.1, p. 90)
<b>ix.</b> The <code>\etocnotocifnotoc</code> command (16.2, p. 23)	<b>xix.</b> Headings, titles, <code>\etocoldpar</code> , <code>\etocinnertopsep</code> (43.6, p. 68)	<b>xxx.</b> Compatibility with beamer (55.2, p. 91)
<b>x.</b> The <code>\etocifwasempty</code> command (16.3, p. 23)	<b>xx.</b> The compatibility mode <code>\etocstandarddisplaystyle</code> (43.7, p. 68)	<b>xxx.i.</b> Compatibility with Babel (55.3, p. 91)
<b>xi.</b> The <code>hyperref</code> option <code>hidelinks</code> (18.1, p. 25)	<b>xxi.</b> The command <code>\etocinline</code> (43.8, p. 69)	<b>xxx.ii.</b> Compatibility with <code>hyperref</code> (55.4, p. 91)
<b>xii.</b> Testing the scope (41.1, p. 64)	<b>xxii.</b> Setting up local styles (45.1, p. 70)	<b>xxx.iii.</b> Compatibility with <code>multicol</code> (55.5, p. 91)
<b>xiii.</b> This is a (pale) red subsection for illustrative purposes (41.2, p. 64)	<b>xxiii.</b> Setting up toc display styles (45.2, p. 71)	<b>xxx.iv.</b> Compatibility with <code>tocloft</code> (55.6, p. 91)
<b>xiv.</b> The command <code>\etocsettocstyle</code> (43.1, p. 65)	<b>xxiv.</b> Displaying tables of contents (45.3, p. 71)	<b>xxx.v.</b> Compatibility with the memoir class (55.7, p. 92)
<b>xv.</b> The commands <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> (43.2, p. 66)	<b>xxv.</b> Labels and references (45.4, p. 71)	<b>xxx.vi.</b> Compatibility with package <code>tocvsec2</code> (55.8, p. 93)
<b>xvi.</b> The command <code>\etoc tocstyle</code> (43.3, p. 67)	<b>xxvi.</b> Customizing the <code>etoc</code> pre-defined line styles (47.1, p. 76)	<b>xxx.vii.</b> Compatibility with package <code>tableof</code> (55.9, p. 93)
<b>xvii.</b> The commands <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocalruled</code> (43.4, p. 67)	<b>xxvii.</b> Customizing the toc display styles (47.2, p. 77)	<b>xxx.viii.</b> Compatibility with package <code>tocstyle</code> (55.10, p. 93)
	<b>xxviii.</b> All subsections of this document (51.1, p. 83)	

## 52. Displaying statistics

Each part of this document starts with a paragraph telling how many sections and subsections it has. Well, each one of this paragraph is a table of contents! We designed a macro `\thispartstats` to do that. It uses “storage” boxes to keep the information about the first and last section or subsection. Using boxes is the simplest manner to encapsulate the `hyperref` link for later use (whether there is one or none). However, one cannot modify then the font or the color. If such a need arises, one must switch from using boxes to using macros, and store the `hyperref` data for later use as was done in the code presented in [section 28](#). We present also this second method.

But first, the code of `\thispartstats`:

```
\newsavebox\firstnamei \newsavebox\firstnumberi
\newsavebox\lastnamei \newsavebox\lastnumberi
\newsavebox\firstnameii \newsavebox\firstnumberii
\newsavebox\lastnameii \newsavebox\lastnumberii
\newcounter{mycounti} \newcounter{mycountii}
\newcommand*{\thispartstatsauxi}{} \newcommand*{\thispartstatsauxii}{}
\newcommand*{\oldtocdepth}{}
\newcommand*{\thispartstats}{%
  \setcounter{mycounti}{0}%
  \setcounter{mycountii}{0}%
```

```

\def\thispartstatsauxi{%
  \sbox{\firstnamei}{\etocname}%
  \sbox{\firstnumberi}{\etocnumber}%
  \def\thispartstatsauxi{}}%
\def\thispartstatsauxii{%
  \sbox{\firstnameii}{\etocname}%
  \sbox{\firstnumberii}{\etocnumber}%
  \def\thispartstatsauxii{}}%
\begingroup
\etocsetstyle{subsection} {} {}
  {\thispartstatsauxii
  \stepcounter{mycountii}%
  \sbox{\lastnameii}{\etocname}%
  \sbox{\lastnumberii}{\etocnumber}} {}%
\etocsetstyle{section} {} {}
  {\thispartstatsauxi
  \stepcounter{mycounti}%
  \sbox{\lastnamei}{\etocname}%
  \sbox{\lastnumberi}{\etocnumber}}
  {Here are some statistics for this part: it contains \arabic{mycounti}
  section\ifnum\value{mycounti}>1 s\fi{} and \arabic{mycountii}
  subsection\ifnum\value{mycountii}>1 s\fi{}. The name of the first section is
  \unhbox\firstnamei{} and the corresponding number is \unhbox\firstnumberi.
  The name of the last section is \unhbox\lastnamei{} and its number is
  \unhbox\lastnumberi. The name of the first subsection is \unhbox\firstnameii{}
  and the corresponding number is \unhbox\firstnumberii. The name of the last
  subsection is \unhbox\lastnameii{} and its number is \unhbox\lastnumberii.}%
\etocinline % cancels the automatic \par automatically before the TOC
\etocsettocstyle {}{}
\etocsetnexttocdepth{2}%
\localtableofcontents % to be used at the top level of a Part.
\endgroup
}

```

And now, the variant with macros rather than boxes (this variant as it stands here is for using within a section).

```

\makeatletter
\newcommand*\firstsubname {} \newcommand*\lastsubname {}
\newcommand*\firstsubnumber {} \newcommand*\lastsubnumber {}
\newcommand*\thisspecialstatsaux{}
\newcommand*{\thisspecialstats}{%
  \setcounter{mycounti}{0}%
  \def\thisspecialstatsaux{%
    \let\firstsubname\etocthelinkedname
    \let\firstsubnumber\etocthelinkednumber
    \def\thisspecialstatsaux{}}
\begingroup
\etocsetstyle{subsection} {} {}
  {\thisspecialstatsaux
  \stepcounter{mycounti}%
  \let\lastsubname\etocthelinkedname
  \let\lastsubnumber\etocthelinkednumber }
  {Here are some statistics for this section. It contains \arabic{mycounti}
  subsections. The name of its first is \emph{\firstsubname{}} and the
  corresponding number is {\firstsubnumber}. The name of the last

```

## 53. Using depth tags

```
subsection is \emph{\lastsubname{}} and its number is {\lastsubnumber}.}%
\etocsettocstyle {}{}
\etocinline
\etocsetnexttocdepth {1}%
\localtableofcontents % to be used within a section
\endgroup
}
\makeatother
```

## 53. Using depth tags

We want a TOC which will have a heading for each `\part` (except the last part with the code source, which we decide not to include), and will additionally open up [Part VI](#) up to paragraphs. To achieve this we added to this source various `\etocdepthtag.toc` commands, and it remains now to set the levels for each tag using `\etocsettagdepth` (this was used earlier in this document, in [section 6](#), within a group hence it did not affect the other tables of contents).

However, the package line styles do not display paragraphs, and the standard line styles of the document class give too much vertical spacing (in this context) when displaying a Part heading in the TOC. So we cook up our own, quickly designed line styles, in the style of [section 5](#) (but with a way to put page numbers on the right which is more like the method used by L<sup>A</sup>T<sub>E</sub>X2e's `\@dottedtocline`; and multi-line headings now leave empty the area underneath the numbers contrarily to the code from [section 5](#)). And after a few minutes for choosing lengths (now that this has been done once, it can be recycled easily) we get:

---

### A TOC using depth tags

---

<b>I Overview</b>	8
<b>II Arbitrarily many TOCs, and local ones too</b>	16
<b>III Examples</b>	26
<b>IV Surprising uses of <code>etoc</code></b>	38
<b>V Commands for the toc line styles</b>	58
<b>VI Commands for the toc display style</b>	65
<b>43 Specifying the toc display style</b> .....	65
43.1 The command <code>\etocsettocstyle</code> .....	65
43.2 The commands <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> .....	66
43.3 The command <code>\etocstyle</code> .....	67
43.3.1 The command <code>\etocstylewithmarks</code> .....	67
43.3.1.1 Do we really want paragraph entries in the TOC?	67
43.3.1.2 really? .....	67
43.4 The commands <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocal-</code> <code>ruled</code> .....	67

43.5	The commands <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> .....	67
43.6	Headings, titles, <code>\etocoldpar</code> , <code>\etocinnertopsep</code> .....	68
43.7	The compatibility mode <code>\etocstandarddisplaystyle</code> .....	68
43.7.1	The commands <code>\etocarticlestyle</code> , <code>\etocbookstyle</code> , ... .....	68
43.8	The command <code>\etocinline</code> .....	69
<b>44</b>	<b>Starred variants and hooks</b> .....	69
<b>VII</b>	<b>Using and customizing the <code>etoc</code> own styles</b>	70
<b>VIII</b>	<b>Tips</b>	81
<b>IX</b>	<b><code>etoc</code> and the outside world</b>	90

---

```

\etocsetnexttodepth {all}
\begingroup
\parindent 0pt \leftskip 0cm \rightskip .75cm \parfillskip -\rightskip
\newcommand*{\EndParWithPagenoInMargin}
  {\nobreak\hfill
   \makebox[0.75cm][r]{\mdseries\normalsize\etocpage}%
   \par}
\renewcommand*\etococlineleaders
  {\hbox{\normalfont\normalsize\hbox to .75ex {\hss.\hss}}}
\newcommand*{\EndParWithPagenoInMarginAndLeaders}
  {\nobreak\leaders\etococlineleaders\hfill
   \makebox[0.75cm][r]{\mdseries\normalsize\etocpage}%
   \par }
\etocsetstyle {part}
  {}
  {\leavevmode\leftskip 1cm\relax}
  {\bfseries\large\llap{\makebox[1cm][r]{\etocnumber\ \ }}%
   \etocname\EndParWithPagenoInMargin\smallskip}
  {}
\etocsetstyle {section}
  {}
  {\leavevmode\leftskip 1.75cm\relax}
  {\bfseries\normalsize\llap{\makebox[.75cm][l]{\etocnumber}}%
   \etocname\EndParWithPagenoInMarginAndLeaders}
  {}
\etocsetstyle {subsection}
  {}
  {\leavevmode\leftskip 2.75cm\relax }
  {\mdseries\normalsize\llap{\makebox[1cm][l]{\etocnumber}}%
   \etocname\EndParWithPagenoInMarginAndLeaders}
  {}
\etocsetstyle {subsubsection}
  {}
  {\leavevmode\leftskip 4cm\relax }
  {\mdseries\normalsize\llap{\makebox[1.25cm][l]{\etocnumber}}%
   \etocname\EndParWithPagenoInMarginAndLeaders}
  {}
\etocsetstyle {paragraph}
  {}
  {\leavevmode\leftskip 5.5cm\relax }

```

## 54. Typesetting the TOC as a table (the old way)

```
{\mdseries\normalsize\llap{\makebox[1.5cm][l]{\etocnumber}}%
\etocname\EndParWithPageNoInMarginAndLeaders}
{}
\etocsettagdepth {preamble} {none}
\etocsettagdepth {overview} {part}
%\etocsettagdepth {arbitrarily}{part}% not needed explicetely, keeps value
%\etocsettagdepth {examples} {part}
%\etocsettagdepth {surprising} {part}
%\etocsettagdepth {linestyles} {part}
\etocsettagdepth {globalcmds} {paragraph}
\etocsettagdepth {custom} {part}
%\etocsettagdepth {tips} {part}
%\etocsettagdepth {etocandworld}{part}
\etocsettagdepth {code} {none}
\renewcommand\etocnoproline {\hrule height 3pt\relax }
\renewcommand\etocnoprolinecolorcmd {\color{blue}}
\renewcommand\etocaftercontentshook
  {\medskip\begingroup \color{blue}\hrule height 3pt \endgroup }
\etocruledstyle [1]{\Large\bfseries
  \fbox{\makebox[8cm]{A TOC using depth tags}}}
\sloppy
\tableofcontents
\endgroup
```

## 54. Typesetting the TOC as a table (the old way)

Due to, among other things, the fact that alignment cells create and close groups, and that by default definitions of `\etocname`, `\etocnumber`, `\etocpage` made by `etoc` are local, it was not easy to typeset a TOC as table with `etoc`, prior to release 1.08.

Not only `\etocname` etc... caused a problem, but also the basic redefinition of `\contentsline` was made by `etoc` only after the first argument to `\etocsettocstyle` had been executed, hence if this argument were to open a tabular, the `etoc` redefinition of `\contentsline` would be done in the first cell of the first row and get lost thereafter.

Thus one had to resort to the technique explained in [section 27](#) of using the execution of `\tableofcontents` as a way to store data which was then displayed later.

For the record, here is how the TOC from [section 30](#) was coded in the old days. We don't have here the problems with the positioning of `\hline`'s we face with the newer method; on the other hand we must manipulate token registers which are not familiar to most  $\LaTeX$  users (macros could be used, but would be more cumbersome, except perhaps if using the  $\varepsilon\text{-TeX}$  `\unexpanded`).

The method here is the most powerful because it filters out of the `.toc` file only the data we want (the other things are not ignored, they are executed but hopefully do not create havoc; typically they are language changing instructions, etc...), and we are less susceptible to fall potential victims of various external macros inserted in the `.toc` file by other packages.

Note: rather than `\toks` registers it would be easier here to use  $\varepsilon\text{-TeX}$  `\unexpanded` primitive. See for example [section 29](#).



```

\newtoks\toctabletok
\newcommand*\appendtotok[2]{% #1=toks variable, #2=macro, expands once #2
  #1\expandafter\expandafter\expandafter {\expandafter\the\expandafter #1#2}}

\newcommand*\PreparePart{%
  \toks0 \expandafter{\etocthelinkednumber}%
  \toks2 \expandafter{\etocthelinkedname}%
  \toks4 \expandafter{\etocthelinkedpage}%
  \edef\toctablepiece {\noexpand\hline
    \noexpand\strut\the\toks0 &\noexpand\bfseries\the\toks2
    &\the\toks4 \noexpand\\ \noexpand\hline}%
}
\newcommand*\PrepareSection{%
  \toks0 \expandafter{\etocthelinkednumber}%
  \toks2 \expandafter{\etocthelinkedname}%
  \toks4 \expandafter{\etocthelinkedpage}%
  \edef\toctablepiece {\the\toks0 &\the\toks2 &\the\toks4 \noexpand\\}%
}
% new version for 1.07k, 2014/03/06
\newcommand*\PrepareSubsection{%
  \toks0 \expandafter{\etocthelinkednumber}%
  \toks2 \expandafter{\expandafter\itshape\etocthelinkedname\strut}%
  \toks4 \expandafter{\expandafter\itshape\etocthelinkedpage}%
  \edef\toctablepiece{\&\noexpand\makebox[1cm][c]{\the\toks0}%
    \noexpand\parbox[t]{\dimexpr6cm-\tabcolsep\relax}
    {\noexpand\sloppy\the\toks2}%
    &\the\toks4 \noexpand\\}%
}

\begingroup
\etocsetstyle{part}{}{}{\PreparePart \appendtotok\toctabletok\toctablepiece}{}
\etocsetstyle{section}{}{}{\PrepareSection \appendtotok\toctabletok\toctablepiece}{}
\etocsetstyle{subsection}{}{}{\PrepareSubsection\appendtotok\toctabletok\toctablepiece}{}

\etocsettocstyle
  {\toctabletok{\hypersetup{hidelinks}%
    \begin{longtable}{|>{\bfseries}c|p{7cm}|r|}\hline
    \multicolumn{3}{|c|}{\Large\bfseries\strut TABLE OF CONTENTS}%
    \\ \hline \hline}}
  {\global\toctabletok\expandafter{\the\toctabletok\hline\end{longtable}}}
\etocsettocdepth {subsection}
\tableofcontents
\the\toctabletok
\endgroup

```

## Part IX.

# etoc and the outside world

## 55. Compatibility with other packages

### 55.1. Generalities

The contents of the `.toc` file (if it already exists) are read into memory by `etoc` once, at the time of `\begin{document}`.<sup>50</sup>

The `.toc` file remains available to other packages for read operations until the location of the first table of contents at which time a write stream is opened by `etoc` and from that point the file is erased until its contents are again written to the disk by `LATEX` at the end of the compilation.

Don't use `\if<condition> stuff \tableofcontents\fi`, but:

```
\if<condition> stuff \expandafter\tableofcontents\fi
```

Also a `\else` immediately following `\tableofcontents` or `\localtableofcontents` requires a previous `\expandafter`.

`etoc` can not really cohabit with packages modifying the `\tableofcontents` command: some sort of truce can be achieved if `etoc` is loaded last, hence is the winner.

Do not modify the `\tableofcontents` command like this:

```
\let\oldtableofcontents\tableofcontents
```

```
\renewcommand\tableofcontents{\oldtableofcontents foo}
```

as this will make the `\label/\ref` mechanism impossible.

Rather use

```
\renewcommand\etocaftertochook{foo}
```

and there is also `\etocaftercontentshook` which is executed a bit earlier<sup>51</sup> just before the closing part of the toc display style (and thus still within a group.)

Prepending is less of a problem (and anyhow there is also `\etocbeforetitlehook` available to the user).

Under certain circumstances `etoc` imposes its views on `\tableofcontents` at the time of `\begin{document}`. You may thus have to use `\AtBeginDocument` to delay your (necessarily ugly and non-recommendable) patches. Patching after `\begin{document}` is naturally possible but I feel almost a rebel to mention this to `LATEX` users!

`etoc` requires the `.toc` file to use the `\contentsline` macro. It **can not** work if there is no `.toc` file or if the `.toc` file does not contain the relevant data or if the `.toc` file does not use the `\contentsline` macro or if the `\contentsline` macro does not invoke the `\l@<divisionunit>` macros.

<sup>50</sup>New with 1.07m. Earlier versions read the `.toc` file at the time of `\usepackage{etoc}`. Thanks to Denis Bitouzé who signaled a Babel related problem, which turned out to be caused by this.

<sup>51</sup>contrarily to `\etocaftertochook`, `\etocaftercontentshook` is not executed if the `tocdepth` did not allow the printing of the TOC.

## 55.2. Compatibility with beamer

For the very reasons mentioned right before, **etoc** is incompatible with the beamer class. However, if beamer is used in an article mode, i.e., with the article class in conjunction with the beamerarticle package, then **etoc** should work.

## 55.3. Compatibility with Babel

One must load **etoc** *after* babel. This is in order for babel's shorthands to be active at the time when **etoc** loads the .toc file.

## 55.4. Compatibility with hyperref

Please inform the author in case of issues: **etoc** was from the start designed to be 100% compatible with package hyperref.

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). For example, the tables of contents of the present document are all fully linked. It doesn't matter whether **etoc** or hyperref is loaded first.

## 55.5. Compatibility with multicol

**etoc** loads the package multicol.

## 55.6. Compatibility with tocloft

Release 1.07k added compatibility with package tocloft:<sup>52</sup> steps are taken to prevent the redefinition of `\tableofcontents` done by tocloft at `\begin{document}`. As long as **etoc** is left in compatibility mode the customization done by tocloft will be obeyed, for both the line styles and the TOC title. One may still benefit from the *depth tags* management by **etoc**, from its `\localtableofcontents`, from its `\label+\ref` mechanism. One may use `\etocsetstyle` to define via **etoc** the layout for one TOC and then use rather tocloft for another one, if `\tableofcontents` follows `\etocstandardlines` and `\etocstandarddisplaystyle`. In this compatibility mode `\etocsetlevel{division unit}{6}` will render invisible the chosen division level, but exchanging levels is otherwise not possible.

One should load **etoc** *after* tocloft. A warning is issued if otherwise, because if **etoc** is loaded before it will realize that at the time of `\begin{document}` and trick tocloft into believing having been loaded with the `titles` option.

It is possible to customize (using package tocloft for example) throughout the document the macros `\l@section`, `\l@subsection` ... and the effect will be seen in the next table of contents typeset by **etoc** in compatibility mode.

<sup>52</sup><http://ctan.org/pkg/tocloft>

### 55.7. Compatibility with the memoir class

Release 1.071 has also improved the compatibility with the memoir class: its appendix level has been made known to **etoc**. It is at the same level as chapter, thus the chapter line style should possibly do a test for some user defined boolean whose activation may be added to the .toc file at the suitable location via `\addtocontents{toc}{.}`, if one needs to distinguish the two kinds of divisions.

The memoir mechanism relative to `\tableofcontents` versus `\tableofcontents*` is obeyed automatically, and applies with `\localtableofcontents` too.

A weird situation arises under when one has two successive `\localtableofcontents` (obviously this is not a truly real life situation), just after a `\part` for example. The first one creates (if the default has not been modified) a chapter heading which is written to the .toc (because **etoc** by default obeys memoir class behaviour). Then the second one thinks to be local to this chapter . . . and as a result it displays nothing. The fix is to define the second one to be a clone of the first one.

Actually, that `\localtableofcontents` by default uses like `\tableofcontents` a chapter style is often inconvenient. One can use the memoir macros to modify this: according to memoir documentation, `\toheadstart` and `\printtoctitle` seem to be the most relevant. If you do that you will probably want the added line in .toc file to use `{section}` not `{chapter}`. **etoc** provides to this effect `\etocmemoirtocformat{<kind>}{<name>}` whose first argument *<kind>* is chapter, section, subsection, etc... and the second argument stands for the title and thus `\contentsname` is appropriate. Hence

```
\etocmemoirtocformat{section}{\contentsname}
```

seems the natural choice in this context as an addition to the customizing the memoir toc related macros to achieve a section like rendering (for more details on the latter, please refer to memoir manual).

A completely different approach, arguably simpler, is to overrule the **etoc** default under memoir (after the main document `\tableofcontents` which should still use a chapter styling) via these simple commands:

```
\etocarticlestyle % means to use \section*{\contentsname} (and marks)
\renewcommand{\etocaftertitlehook}{\addcontentsline{toc}{section}{\contentsname}}
```

exactly as one would do with book class for example. Don't use any `\phantomsection` in there, `hyperref` hyperlinks will work just fine (and the anchor will be slightly above toc title, not below).

Notice that prior to **etoc** 1.09b, the `\etocaftertitlehook` macro was used by **etoc** itself under the memoir class. Hence `\localtableofcontents` obeyed the memoir mechanism relative to starred or not starred, even after issuing `\etocarticlestyle`, as long as the user did not redefine `\etocaftertitlehook`. Starting with 1.09b (which syncs with a memoir change at v3.7i) it is needed in a case like here where the user issues `\etocarticlestyle` to also configure explicitly the `\etocaftertitlehook` to achieve the “insert title in .toc” effect (if so wished), because **etoc** uses another mechanism and does not pre-empt usage of this user macro anymore.

To recover the **etoc** default under memoir class one can issue `\etocmemoirstyle` and then `\etocmemoirtocformat{chapter}{\contentsname}` (but attention that a custom `\etocaftertitlehook` will still be obeyed; for info: it will get executed before the `\cft-tocbeforelisthook`).

## 55.8. Compatibility with package `tocvsec2`

`etoc` used to be incompatible with package `tocvsec2`<sup>53</sup>; it now cohabits, sort of, as it deactivates `tocvsec2`'s modification of `\tableofcontents` (done in the style above) and also cancels its other `toc`-related macros, but reimplements partially their functionality with `\etocsettocdepth.toc`. By the way, at least two latex runs are necessary for new uses of this command in a document to have an effect in tables of contents.

## 55.9. Compatibility with package `tableof`

It is possible to use simultaneously `etoc` and `tableof`<sup>54</sup>. Release 1.08 of `etoc` requires at least version 1.4a of `tableof`. If `\etocglobaldefs` is put in the preamble, this must be after the loading of package `tableof`. `tableof` command `\nexttocwithtags` should work as expected.

`tableof` commands `\tableof`, `\tablenotof`, ... will typeset the (a priori global) table of contents according to the document class defaults, obeying the `etoc` depth tags; as explained in the `tableof` documentation they do not typeset a TOC title. They should *not* be used in case `\etocglobaldefs` was issued before, except if its scope has been terminated since then, or `\etoclocaldefs` has cancelled its influence.

## 55.10. Compatibility with package `tocstyle`

Unknown. (not tested a.t.t.o.w).

## 56. T<sub>E</sub>Xnical matters

The `\etocname`, `\etocnumber`, `\etocpage` commands are protected against premature expansion. They contain suitable `hyperref` links if package `hyperref` is loaded and active for the TOC. The commands `\etoclink` and `\etocifnumbered` are also protected against premature expansion. Also `\etociffirst` and `\etoccontentsline`.

On the other hand `\etocthename`, `\etocthenumber`, `\etocthepage` are *not* protected against expansion. And neither are `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage`. The latter contain hyperlink data, if present in the `.toc` file.

The commands such as `\etocsetstyle`, `\etocsetlevel`, `\etocsettocstyle`, `\etocmulticolstyle`, `\etocruledstyle`, `\etocframedstyle` obey L<sup>A</sup>T<sub>E</sub>X's groups. All TOCs are typeset inside groups.

When a `\localtableofcontents` is inserted by the user in the document, a line containing an `etoc` inner command and an identification number is added to the `.toc` file. The correct local table of contents will be displayed only on the next latex run.

## 57. Errors and catastrophes

After using `\etocsetstyle` for one level, the remaining uncustomized levels use the `etoc` default styles (those which are activated by `\etocdefaultlines`). One has to make sure

<sup>53</sup><http://ctan.org/pkg/tocvsec2>

<sup>54</sup><http://ctan.org/pkg/tableof>

## 57. Errors and catastrophes

that all levels needed for the next table of contents are mutually compatible: in particular the **etoc** default line styles expect each to be started in “vertical mode”.

When using multiple `\tableofcontents` commands in a document, one should beware from adding typesetting instructions directly in the `.toc` file, as they will be executed by **etoc** for all TOCs: even for a `\localtableofcontents` it doesn't matter if that instruction seems to concern material outside of its scope, it will get executed nevertheless. If absolutely necessary (but this should never be) these instructions should be done in such a way that they can be activated or deactivated easily from the document source, as need be.

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).

# Part X.

## The code

<b>Timestamp</b> . . . . .	<b>58, p. 95</b>
<b>Change history</b> . . . . .	<b>59, p. 95</b>
<b>Implementation</b> . . . . .	<b>60, p. 98</b>

### 58. Timestamp

This is the documentation as of 2021/09/23, printed from the source file with the time stamp `Time-stamp: <23-09-2021 at 19:28:24 CEST>`. The package version is `v1.09e`, of 2021/09/23.

### 59. Change history

v1.09e [2021/09/23]

Needed (if `etoc` is used without `hyperref`) updates to internal macros to prepare for the upcoming LaTeX November 2021 change to `\contentsline`.

Related updates to the user macro `\etococcontentsline`.

v1.09d [2021/07/13]

Some minor synching with `tableof 1.4c`.

Add `\etockeeporiginaltableofcontents` to provide a work-around to a compatibility issue with `listings`'s `\lstlistoflistings`, which abuses `\tableofcontents` for doing something unrelated to the actual contents. Thanks to Denis Bitouzé for report.

Usage: `\usepackage{etoc}\etockeeporiginaltableofcontents`, then however you must employ `\etoc\tableofcontents`, not `\tableofcontents`.

v1.09c [2020/05/15]

Syncs with KOMA-script deprecation of `\iftocfeature`.

v1.09a, v1.09b [2019/11/17]

Sync with `memoir v3.7i` which has a better location of the TOC `hyperref` anchor. The `\etoc\aftertitlehook` can now freely be used also with `memoir` class (formerly its usage in case of `memoir` class was preempted by `etoc` itself). For more details refer to the section "Compatibility with the `memoir` class".

v1.09 [2019/03/09]

New features: `\etoclocaltop`, `\localtableofcontentswithrelativedepth`. Thanks to Tony Roberts for feature request.

Note to hackers: internal control sequence `\Etoc@localtop` is gone.

`etoc` now requires e-TeX (`\numexpr`, `\unless`).

v1.08p [2018/07/04]

Fixed bug surfacing in case of `linktoc=page` option of `hyperref`. Thanks to Denis Bitouzé for report (cf. <https://github.com/ho-tex/hyperref/issues/65>, <https://github.com/dbitouze/yathesis/issues/61>).

v1.08o [2018/06/15]

Fixed bug showing up if an unnumbered TOC entry starts with a brace, and document uses `hyperref`. Caused by a typo in a macro name at previous release.

v1.08n [2018/02/23]

Refactoring of core macros detecting `\numberline` and its variants.

v1.08m [2018/02/07]

Fix to 1.08k's introduced incompatibility with KOMA-script and `tocbasic`'s `\nonumberline`.

v1.08l [2017/10/23]

Workaround an issue with Emacs/AUCTeX wrongly reporting about actually non-existent LaTeX errors, which was triggered by some

## 59. Change history

strings written (indirectly) to log file by `etoc` under some circumstances.

v1.08k [2017/09/28]

Adds `\etocsetlocaltop.toc`. See corresponding manual section for details.

Adds `\etocsavedparttocline`, `\etocsavedchaptertocline`, `\etocsavedsectiontocline`, ... They can be used in the context of the technique explained in section "Another compatibility mode".

Formerly, `etoc` redefined for the duration of the TOC the memoir macro `\chapternumberline` and its likes to have same meaning as `\numberline` (of course, not when executed in compatibility mode), for the sake of extraction of `\etocnumber`.

New method detects presence of any `\<foo>numberline` macro without any change to originals; they can thus be used as is when applying the approach of "Another compatibility mode" section from manual.

v1.08j [2017/09/21]

Since 1.08a-2015/03/13 `\etocname`, `\etocnumber`, `\etocpage` contain, if `hyperref` is present and configured for using hyperlinks in the TOC, the link destination in already expanded form. This means one can use them even if the style closes a group (for example from a `&` in a tabular), if `\etocglobaldefs` was issued; also one can save their meaning for delayed usage (with for example `\LetLtxMacro` as they are robust).

But for some legacy reason `\etoclink`, contrarily to `\etocthelink`, was handled differently. Now, `\etoclink` also contains the link destination in already expanded form, and can thus be used even if the line style issues a `&`, as long as `\etocglobaldefs` is issued.

Also, bugs dating back to the early days of the package, but surfacing only under relatively rare conditions such as usage of `hyperref` with its option "linktoc=page" got fixed.

v1.08i [2016/09/29]

This fixes an issue dating back to 1.08e-2015/04/17: under `\etoccheckemptiness` regime, some circumstances (such as adding to an already compiled document a `\localtableofcontents` before the main `\tableofcontents`) created an "Undefined control sequence `\Etoc@localtop`" error. Thanks to Denis Bitouzé for reporting the problem.

On this occasion, `\etocdoesnotcheckemptiness` has been added to unset the flag.

A rather more exotic issue was fixed: the emptiness check for local tocs could get confused if the `tocdepth` counter was varying in some specific ways from inside the toc file.

After adding to a document a `\localtableofcontents`, two LaTeX passes are needed for `etoc` to get a chance to print the correct local contents. Formerly, `etoc` issued a Warning on the first pass; it now also induces LaTeX into announcing "There were undefined references", as this is nearer to the end of the log file and console output.

v1.08h [2016/09/25]

New functioning of `\etocsetnexttocdepth`: the `tocdepth` counter is modified only at the time of the table of contents, not before. This fixes an issue which arose when `\etocsetnexttocdepth` was used multiple times with no intervening table of contents. Thanks to Denis Bitouzé for reporting the problem.

The PDF documentation includes about 25 LaTeX code snippets also as file attachment annotations, additionally to their verbatim typesetting. The ordering of the documentation contents has been slightly re-organized.

A previous documentation-only update on 2016/09/09 added a new section with the (approximate) translation into `etoc` lingua of the book class `toc` style, for easy customizability.

v1.08g [2015/08/29]

Downgraded to a mere info message the `etoc`-issued warning (relative to `\settocdepth/\maxtocdepth`) under class memoir.

v1.08f [2015/04/28]

Minor changes to the documentation. `\etocsetlevel` more economical.

v1.08e [2015/04/17]

The command `\etocchecksemtiness` tells `etoc` to not print, from that point on, the headings of the local tables of contents if they have empty contents. This is mainly for class authors who might want to have their `\section` or `\chapter` automatically do a `\localtableofcontents`. Could prove also useful for batch conversions of documents. Thanks to Paul Gaborit who asked for such a feature.

The command `\etocnotocifnotoc` extends this behaviour to global TOCs: indeed why should documents with no sectioning units take this as an excuse not to use package `etoc` ?

The command `\etocifwasempty{yes}{no}` can be used for suitable extra action.

A `\tableofcontents\ref{foo}` now expects `foo` to be a label to a `_local_` TOC. The use with `foo` a label to a `_global_` TOC is not supported anymore as it had no utility and made the code more complex.

The syntax `\localtableofcontents\ref{foo}` is now accepted as a synonym to the earlier syntax `\tableofcontents\ref{foo}`.



v1.08d [2015/04/09]

Translation into German of the additions made to the documentation for the 1.08x series of releases.

Thanks to Christine Römer!

v1.08c [2015/03/30]

- removed a few unneeded `\long` from the code.  
- removed use of `\arabic` at one location of the code, as it may get redefined by some language modules for babel or polyglossia.

v1.08b [2015/03/18]

Bug fixes:

- extra space token removed from ‘`\localtableofcontents`’ (showed only for inline TOCs.)  
- `\etocpartname` (a macro used by the package own default line styles) was defined to be `\partname`, but this is not compatible at least with babel+french context. Now simply expands to Part.  
- some problems fixed in the German documentation.  
- [2015/03/28] some more problems fixed in the documentation. Added mention of `\etocarticlestyle` and `\etocbookstyle`.

v1.08a [2015/03/13]

`\etocname`, `\etocnumber` and `\etocpage` are now the robust variants of `\etocthelinkedname`, `\etocthelinkednumber` and `\etocthelinkedpage`. This should arguably have been done since the addition of the latter to etoc with v1.07f [2013/03/07]. The earlier robust commands `\etocname` etc... contained the hyperlink destination only in an unexpanded form.

The documentation has a brand new title page and a new section The TOC as a TikZ mind map both illustrating further uses of etoc to display tables of contents as trees in an automatic manner.

v1.08 [2015/03/10]

`\etocskipfirstprefix` may now appear anywhere in the `<start>` part of a level style.

New commands `\etociffirst`, `\etocxiffirst`, `\etocxifnumbered`, `\etocglobaldefs` and `\etoclocaldefs`.

It is now possible to issue line style specifications directly with `&` and `\\` tokens, in order to typeset a TOC as a tabular or longtable with the opening for example in the first argument of `\etocsettocstyle` and the closing in its second argument.

It is mandatory for such uses to issue `\etocglobaldefs` which tells etoc to proceed globally for certain definitions. This is also useful in the context of the inline environments of package enumitem.

On this occasion, various old parts of the code have been improved.

v1.07n [2015/03/05]

No more use of `\toks@` when etoc constructs `\etocthelinkedname` etc... Thus `\toks@` can be put in the line styles in order to accumulate information. Only useful if it is certain nothing else will change `\toks@` either.

In the documentation: list of main commands now in alphabetic order.

v1.07m [2015/01/23]

Reading of `.toc` file is delayed to `\begin{document}` to account for possible Babel active characters used therein. Thanks to Denis Bitouzé who reported a Babel related problem.

Improved global toc display emulation under KOMA-script classes.

New command `\etocbeforetitlehook`. New command `\etocdisplay`.

v1.07l [doc of 2014/04/29]

Added to the documentation an example of use of `\etocthelinkedname` together with an `enumitem` inline `itemize*` environment; moved main TOC to immediately after the title, and license to the first pages.

Incorporation of the translation into German done on the initiative of Christine Römer by Felix Baral-Weber, Jenny Rothkrämer-Vogt, Daniel Büttner, Claudia Dahl, Christian Otto and Christine Römer (FSU Jena). My grateful thanks to all!

v1.07i [2014/04/22]

Fixes a bug with the 1.07k compatibility layer with `tocloft` which had broken the 1.07k (sic) compatibility with memoir (yes, memoir class 1.07k testing had been done before adding the `tocloft` thing to the source code . . .). Also, etoc when detecting `tocvsec2` now checks if this is under the memoir class, as then nothing special needs to be done to rescue `\tableofcontents`, contrarily to the situation with the native `tocvsec2`.

v1.07k [2014/03/06]

Compatibility with package `tocloft`; and improved compatibility with class memoir. Novel TOC example in Overview.

v1.07j [2013/12/03]

Some issues with the documentation formatting (now two-sided) have been addressed, and a novel documentation section “Typesetting the TOC as a table” has been added. Very minor code change (`\Etoc@readtoc`).

## 60. Implementation

v1.07i [2013/10/21]

Changes to the `\etocmulticolstyle` and `\etocruledstyle` codes to lessen the risk of a page break after the title (in the one-column case).

v1.07h [2013/10/16]

New commands `\etocdepthtag.toc`, `\etocsettagdepth`, `\etocobeydepthtags`, `\etocignoredepthtags`.

v1.07g [2013/10/13]

New commands `\etocsettocdepth`, `\etocsettocdepth.toc`, `\etocobeytoctocdepth`, `\etocignoretoctocdepth` which emulate part of `tocvsec2` functionality ; measures to make `tocvsec2` partially compatible with `etoc`.

New commands `\etocsetnexttocdepth`, `\invisibletableofcontents`, `\invisiblelocaltableofcontents`.

Switched from `tikz-qtrees` to `forest` for the first ‘toc as tree’ example.

Command names are linked to their descriptions, and many other changes in the documentation.

Removed printing of temporary message when the local toc id is not yet stabilized; indeed `\localtableofcontents` can have many uses, such as filling up some token list register and one may wish to not have anything typeset, even in an intermediate run.

All of `tex etoc.dtx`, `etex etoc.dtx`, `xetex etoc.dtx`, `latex etoc.dtx`, `pdflatex etoc.dtx` are now possible, and the extracted file `etoc.tex` allows easy customization of compilation options for the documentation (default is via `dvipdfmx` which produces the smallest file).

v1.07f [2013/03/07]

New macros `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage`, and `\etocthelink`.

v1.07e [2013/03/01]

Improvements in the package own line styles with regards to penalties and vertical spaces.

Addition to the documentation of an example of a tree-like table of contents (uses `tikz`).

More such examples added 2013/03/03.

v1.07d [2013/02/24]

Minor code improvements and new documentation section “Another compatibility mode”.

v1.07b [2013/02/02]

Removal of the `\xspace` from the macros `\etocname`, `\etocnumber`, `\etocpage`.

Additional examples in the documentation.

v1.07 [2013/01/29]

New commands:

`\etocthename`, `\etocthenumber`, `\etocthepage`, `\etoclink`,

`\etococcontentsline`, `\etococcontentsline*`

`\etocnopar`, `\etocaftercontentshook`

Modified command: `\etocmulticolstyle`

New documentation section “Surprising uses of `etoc`” which explains how to do “Lists of arbitrary things”, in addition to the tables of contents.

v1.06 [2012/12/07]

The standard macros `\@section` etc... are modified only during the calls to `\tableofcontents`; they can thus be customized as will by the user (with the help of a package like `tocloft`) and this will be taken into account by `etoc` for the TOCs typeset in compatibility mode.

v1.05 [2012/12/01]

`\localtableofcontents` replaces `\tableofcontents*` (for compatibility with the memoir class).

Compatibility with KOMA-script and memoir document classes.

v1.04 [2012/11/24]

A (possibly local) table of contents can be labeled:

```
\tableofcontents \label{toc:1}
```

and reproduced elsewhere in the document (with a possibly completely different layout):

```
\tableofcontents \ref{toc:1}
```

v1.02 [2012/11/18]

Initial version.

## 60. Implementation

```
1 \NeedsTeXFormat{LaTeX2e}
2 \ProvidesPackage{etoc}
3 [2021/09/23 v1.09e Completely customisable TOCs (JFB)]
4 \RequirePackage{multicol}
5 \DeclareOption*{\PackageWarning{etoc}{Option ‘\CurrentOption’ is unknown.}}
6 \ProcessOptions\relax
```

1.08 suppresses `\ifEtoc@part` and defines `\ifEtoc@skipprefix`. It also defines `\etocglobaldefs`, `\etoclocaldefs` and `\Etoc@global`.

```
7 \newtoks\Etoc@toctoks
8 \def\Etoc@par{\par}
9 \def\etocinline{\def\Etoc@par{}}
10 \let\etocnopar\etocinline
11 \def\etocdisplay{\def\Etoc@par{\par}}% 1.07m 2015/01/23
```

`\etocglobaldefs` should be used only for special things such as TOC as a table; it should be put in a group to limit its scope. If used in the preamble, it must come *after* `tableof` if the latter is loaded too.

```
12 \let\Etoc@global\@empty % 1.08 2015/03/10
13 \def\etocglobaldefs{\let\Etoc@global\global\let\tof@global\global}
14 \def\etoclocaldefs {\let\Etoc@global\@empty\let\tof@global\@empty}
15 \newif\ifEtoc@jj % book
16 \newif\ifEtoc@j % part
17 \newif\ifEtoc@ % chapter
18 \newif\ifEtoc@i % section
19 \newif\ifEtoc@ii % subsection
20 \newif\ifEtoc@iii % subsubsection
21 \newif\ifEtoc@iv % paragraph
22 \newif\ifEtoc@v % subparagraph
23 \newif\ifEtoc@number
24 \newif\ifEtoc@hyperref
25 \newif\ifEtoc@parskip % 1.07d
26 \newif\ifEtoc@tocwithid
27 \newif\ifEtoc@standard
28 \newif\ifEtoc@skipprefix % 1.08
29 \newif\ifEtoc@isfirst % 1.08
30 \newif\ifEtoc@localtoc
31 \newif\ifEtoc@skipthisone
32 \newif\ifEtoc@stoptoc
33 \newif\ifEtoc@notactive
34 \newif\ifEtoc@mustclosegroup
35 \newif\ifEtoc@emptytoc % 1.08e
36 \newif\ifEtoc@checkemptiness % 1.08e. Default is 'no checks'.
37 \def\etoccheckemptiness {\Etoc@checkemptinesstrue }
38 \def\etocdoesnotcheckemptiness {\Etoc@checkemptinessfalse }% 1.08i
39 \newif\ifEtoc@notocifnotoc % 1.08e
40 \def\etocnotocifnotoc {\Etoc@checkemptinesstrue\Etoc@notocifnotoctrue }
41 \def\etoc@{\etoc@}
42 \newif\ifEtoc@bracedname % 1.08p
```

1.07g uses a second counter; this could be avoided, but ok, let's not be that strict.

```
43 \newcounter{etoc@tocid}
44 \newcounter{etoc@tocdepth}% 1.07g
```

2015/03/08 Why do I use `jj` in the flags and `minustwo` here? and is there an entity full of forgiveness out there to save my soul even if taking into consideration my use of single and doubled `@`'s ? Although I desperately need to waste time I miraculously decided not to change everything today and thus the somewhat dispendious set-up below is maintained.

```
45 \@ifclassloaded{memoir}{\def\Etoc@minf{-\thr@@}}{\def\Etoc@minf{-\tw@}}
46 \def\Etoc@@@minustwo@@{-\tw@}
47 \let\Etoc@@@minusone@@\m@ne
48 \let\Etoc@@@zero@@ \z@
49 \let\Etoc@@@one@@ \@ne
50 \let\Etoc@@@two@@ \tw@
51 \let\Etoc@@@three@@ \thr@@
```

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```
52 \chardef\Etoc@@four@@ 4
53 \chardef\Etoc@@five@@ 5
54 \chardef\Etoc@@six@@ 6
55 \def\Etoc@@minustwo@{minustwo}
56 \def\Etoc@@minusone@{minusone}
57 \def\Etoc@@zero@ {zero}
58 \def\Etoc@@one@ {one}
59 \def\Etoc@@two@ {two}
60 \def\Etoc@@three@ {three}
61 \def\Etoc@@four@ {four}
62 \def\Etoc@@five@ {five}
```

1.07g.

```
63 \expandafter\def\csname Etoc@-3@@\endcsname {-\thr@@}
64 \expandafter\let\csname Etoc@-2@@\endcsname \Etoc@@minustwo@@
65 \expandafter\let\csname Etoc@-1@@\endcsname \Etoc@@minusone@@
66 \expandafter\let\csname Etoc@0@@\endcsname \Etoc@@zero@@
67 \expandafter\let\csname Etoc@1@@\endcsname \Etoc@@one@@
68 \expandafter\let\csname Etoc@2@@\endcsname \Etoc@@two@@
69 \expandafter\let\csname Etoc@3@@\endcsname \Etoc@@three@@
70 \expandafter\let\csname Etoc@4@@\endcsname \Etoc@@four@@
71 \expandafter\let\csname Etoc@5@@\endcsname \Etoc@@five@@
72 \expandafter\let\csname Etoc@6@@\endcsname \Etoc@@six@@
73 \let\Etoc@all@@ \Etoc@@five@@
74 \let\Etoc@none@@ \Etoc@minf
```

Versions earlier than 1.08 did `\Etoc@newlevel` in a quite embarrassing way with an `\edef`.

1.08f's `\etocsetlevel` avoids multiple insertions of the same level in the `\Etoc@levellist` list.

1.08k modified `\Etoc@newlevel`: formerly a token `\l@#1` was stored in place of braced name `{#1}`. This changed is to facilitate creation of the `\etocsavedsectiontocline` etc... macros later on, at each TOC. But the stored `#1` is not expanded immediately, although it is in other parts of `\etocsetlevel`, which may cause timing problems if `#1` is a macro.

```
75 \let\Etoc@levellist@empty
76 \def\Etoc@newlevel #1{\expandafter\def\expandafter\Etoc@levellist\expandafter
77   {\Etoc@levellist\Etoc@levellist@elt{#1}}}
78 \def\etocsetlevel#1#2{%
79   \@ifundefined{Etoc@#1@@}{\Etoc@newlevel{#1}}{}}%
80   \ifcase#2\relax
81     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@zero@@
82     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@zero@
83   \or
84     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@one@@
85     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@one@
86   \or
87     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@two@@
88     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@two@
89   \or
90     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@three@@
91     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@three@
92   \or
93     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@four@@
94     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@four@
95   \or
96     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@five@@
97     \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@five@
98   \or
99     \expandafter\let \csname Etoc@#1@@\endcsname\Etoc@@six@@
```

```

100 \else
101 \ifnum#2=\m@ne
102 \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@minusone@@
103 \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@minusone@
104 \else
105 \ifnum#2=-\tw@
106 \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@minustwo@@
107 \expandafter\let \csname Etoc@#1@\endcsname\Etoc@@minustwo@
108 \else
109 \PackageWarning{etoc}
110 {unexpected value ‘#2’ in \string\etocsetlevel.^^}%
111 Should be -2,-1, 0, 1, 2, 3, 4, 5, or 6. Set to 6 (=ignored)}%
112 \expandafter\let\csname Etoc@#1@\endcsname\Etoc@@six@@
113 \fi
114 \fi
115 \fi
116 }
117 \etocsetlevel{book}{-2}
118 \etocsetlevel{part}{-1}
119 \etocsetlevel{chapter}{0}
120 \etocsetlevel{section}{1}
121 \etocsetlevel{subsection}{2}
122 \etocsetlevel{subsubsection}{3}
123 \etocsetlevel{paragraph}{4}
124 \etocsetlevel{subparagraph}{5}

```

The first two parameters of `\Etoc@et@hop` are exchanged in 1.08 compared to earlier versions; this is in relation to changes done in `\Etoc@etoccontentsline`.

1.08i as a fourorthree rather than as formerly a sixorfive.

L<sup>A</sup>T<sub>E</sub>X of November 2021 will have its `\contentsline` always grab four arguments. So we must adjust `\Etoc@et@hop` et al., else usage of **etoc** without hyperref will be broken. Done at 1.09e 2021/09/23.

Side note to myself: I see there is now a `\@gobblethree` in `latex.ltx` and I wonder since when. No time to lose on checking that.

```

125 \AtBeginDocument{%
126 \ifpackageloaded{parskip}{\Etoc@parskiptrue}{}%
127 \ifpackageloaded{hyperref}{\Etoc@hyperreftrue
128 \def\Etoc@et@hop#1#2#3#4#5{#2{#3}{#4}{#5}#1}%
129 \long\def\Etoc@gobblefourorthree#1#2#3#4{}}
130 {\def\Etoc@et@hop#1#2#3#4{#2{#3}{#4}#1}%
131 \long\def\Etoc@gobblefourorthree#1#2#3{}}%
132 \ifl@t@r\fmtversion{2021/11/15}{%
133 \def\Etoc@et@hop#1#2#3#4#5{#2{#3}{#4}{#5}#1}%
134 \let\Etoc@gobblefourorthree\@gobblefour
135 }{}%
136 }

```

2015/03/08 One has to be careful about the `\Etoc@end@<level>` user defined macros which may close groups. This has always been the reason for the `\global`'s here and elsewhere.

1.08 uses `\Etoc@level` rather than a `#1` which used to be anyhow always the `\Etoc@tmp`. Now `\Etoc@level` is what was called formerly `\Etoc@tmp` in `\Etoc@etoccontentsline`.

Attention that `\Etoc@setflags` must not modify `\Etoc@next`!

```

137 \def\Etoc@setflags {%
138 \ifcase \Etoc@level
139 \global\Etoc@vfalse
140 \global\Etoc@ivfalse
141 \global\Etoc@iiifalse

```

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```
142     \global\Etoc@iifalse
143     \global\Etoc@ifalse
144     \global\Etoc@true
145   \or
146     \global\Etoc@vfalse
147     \global\Etoc@ivfalse
148     \global\Etoc@iiifalse
149     \global\Etoc@iifalse
150     \global\Etoc@itru
151   \or
152     \global\Etoc@vfalse
153     \global\Etoc@ivfalse
154     \global\Etoc@iiifalse
155     \global\Etoc@iitru
156   \or
157     \global\Etoc@vfalse
158     \global\Etoc@ivfalse
159     \global\Etoc@iiitru
160   \or
161     \global\Etoc@vfalse
162     \global\Etoc@ivtrue
163   \or
164     \global\Etoc@vtrue
165   \else
166     \global\Etoc@vfalse
167     \global\Etoc@ivfalse
168     \global\Etoc@iiifalse
169     \global\Etoc@iifalse
170     \global\Etoc@ifalse
171     \global\Etoc@false
172     \ifnum\Etoc@level=\m@ne
173       \global\Etoc@jtrue
174     \else
175       \global\Etoc@jfalse
176       \global\Etoc@jjtrue
177     \fi
178   \fi
179 }
```

1.08 This was originally in `\Etoc@etoccontentsline`, intermixed with the definitions of `\Etoc@contents` and `\Etoc@prefix`. Separated here for clarity of code. One has to be careful that this may close groups. The conditionals are all global. The `\Etoc@level` has been `\global\let` to a `\chardef` variable. The final `\else` of the `\ifcase` assumes none of the `\Etoc@end@...` routines modify it, naturally.

```
180 \def\Etoc@doends {%
181   \ifcase \Etoc@level
182     \ifEtoc@v \Etoc@end@five \fi
183     \ifEtoc@iv \Etoc@end@four \fi
184     \ifEtoc@iii\Etoc@end@three\fi
185     \ifEtoc@ii \Etoc@end@two \fi
186     \ifEtoc@i \Etoc@end@one \fi
187   \or
188     \ifEtoc@v \Etoc@end@five \fi
189     \ifEtoc@iv \Etoc@end@four \fi
190     \ifEtoc@iii\Etoc@end@three\fi
191     \ifEtoc@ii \Etoc@end@two \fi
192   \or
```

```

193     \ifEtoc@v \Etoc@end@five \fi
194     \ifEtoc@iv \Etoc@end@four \fi
195     \ifEtoc@iii\Etoc@end@three\fi
196   \or
197     \ifEtoc@v \Etoc@end@five \fi
198     \ifEtoc@iv \Etoc@end@four \fi
199   \or
200     \ifEtoc@v \Etoc@end@five \fi
201   \or
202   \else
203     \ifEtoc@v \Etoc@end@five \fi
204     \ifEtoc@iv \Etoc@end@four \fi
205     \ifEtoc@iii\Etoc@end@three\fi
206     \ifEtoc@ii \Etoc@end@two \fi
207     \ifEtoc@i \Etoc@end@one \fi
208     \ifEtoc@ \Etoc@end@zero \fi
209     \ifnum \Etoc@level =-\tw@
210       \ifEtoc@j \Etoc@end@minusone\fi
211     \fi
212   \fi
213 }

```

1.08 the `\Etoc@next` will (possibly) execute the `begin` code, *before* `\Etoc@contents` and `\Etoc@prefix` get defined, contrarily to what I did in earlier versions. I still reset the flags before execution of the `begin` codes (although the flags are not supposed to be used therein anyhow).

Also the `<begin>` code does `\Etoc@isfirsttrue`.

1.08k This was originally in `\Etoc@etoccontentsline`. Extracted for re-use by `\etocsetlocaltop.toc`. Calls `\Etoc@setflags` which must not modify `\Etoc@next`.

```

214 \def\Etoc@dobegins{%
215   \let\Etoc@next@empty
216   \Etoc@global\Etoc@isfirstfalse
2015/03/08 If my naming scheme had not been so baroque, I could easily do things in a more
concise way here...
217   \ifcase\Etoc@level
218     \ifEtoc@
219     \else
220       \def\Etoc@next{\Etoc@begin@zero}%
221     \fi
222   \or
223     \ifEtoc@i
224     \else
225       \def\Etoc@next{\Etoc@begin@one}%
226     \fi
227   \or
228     \ifEtoc@ii
229     \else
230       \def\Etoc@next{\Etoc@begin@two}%
231     \fi
232   \or
233     \ifEtoc@iii
234     \else
235       \def\Etoc@next{\Etoc@begin@three}%
236     \fi
237   \or
238     \ifEtoc@iv
239     \else
240       \def\Etoc@next{\Etoc@begin@four}%

```

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```

241     \fi
242   \or
243     \ifEtoc@v
244     \else
245       \def\Etoc@next{\Etoc@begin@five}%
246     \fi
247   \else
248     \ifnum\Etoc@level=\m@ne
249       \ifEtoc@j
250       \else
251         \def\Etoc@next{\Etoc@begin@minusone}%
252       \fi
253     \else
254       \ifEtoc@jj
255       \else
256         \def\Etoc@next{\Etoc@begin@minustwo}%
257       \fi
258     \fi
259   \fi
260   \Etoc@setflags
261   \Etoc@next
262 }

```

Heart of **etoc** hack into execution of .toc file. The .toc file must contain (at least indirectly via expansion) `\contentsline {<unit>}. . .` instructions, with the standard meaning of executing `\l@unit` (the `hyperref` modifications are taken into account). It is the various `\l@unit`'s which are (locally) `\let` to `\Etoc@lxyz` and it is `\Etoc@lxyz` which does the parsing of the arguments in order to extract name, number and page number. Once they are obtained, via the execution of this indirectly hacked `\contentsline`, the code executes the `\Etoc@prefix` and `\Etoc@contents` corresponding to that unit level, according to the user `\etocsetstyle` declarations. Before that the `begin` part is executed when **etoc** first encounters that level coming from a higher one and the end part will be executed when hitting a more important level.

`\etocskipfirstprefix` was already part of the very first release of **etoc**. Up to 1.07n it was just an elegant `\@thirdofthree` possibly executed just before a `\@firstoftwo{\Etoc@swa{#1}}{\Etoc@swb{#1}}` line. But this made it impossible for me to execute things after the `begin` parts.

Executing stuff before `begin` is now a potential problem because the user can close some group in the `begin` code (this was in fact impossible in versions <1.08 because this would have erased the definitions of `\Etoc@contents` and `\Etoc@prefix`). Thus I am not so free now to define things before execution of `begin`, if I allow people to close a group therein, except if I make them global.

The mechanism of `\etocskipfirstprefix` made it impossible to add anything at the end of the `begin` codes. Thus I changed it in 1.08 to simply work with a (global) boolean flag. This gives user the freedom to use `\etocskipfirstprefix` anywhere in the `begin` code and it made room for a delimited macro I called `\etoconlyonfirst`. But then I dropped it in favor of definition of the `\etociffirst` conditional.

Macros `\Etoc@swa` and `\Etoc@swb` which did the `\Etoc@et@hop` thing have been suppressed, their effect is incorporated to the end of `\Etoc@etoccontentsline`.

```

263 \def\etocskipfirstprefix {\global\Etoc@skipprefixtrue }

```

2015/03/08 let's record that `\Etoc@level` used to be called `\Etoc@tmp` in versions earlier than 1.08 (and `\Etoc@tmp` is used in the completely different ulterior `\Etoc@lxyz` context). The code sets it for example to be `\Etoc@section@@` which has been let by `\etocsetlevel` to `\@ne`, thus is always self-terminating in `\ifnum. . \fi` contexts.

1.08i-2016/09/29 makes some changes in the organization of the conditionals. It could happen in certain special circumstances (created by that part in `\Etoc@localtableofcontents` which is executed after the test of emptiness) that `\Etoc@localtop` was still undefined. Earlier version of the code was a bit lazy and did not avoid some unneeded `\ifnum` with `\Etoc@localtop` in context



where the flag `\ifEtoc@stoptoc` was `\iftrue`; this was not an issue when code was first written, `\Etoc@localtop` was always initialized back then. But the code in `\Etoc@localtableofcontents` handling local TOCs with unrecognized ids would call execution of the `.toc` file under some special context with flag `\ifEtoc@stoptoc` artificially set to true. If `\Etoc@localtop` had not been initialized an undefined control sequence error would occur. Furthermore as `\ifEtoc@notactive` was also set to true, the case of no error leads then to unneededly expand `\Etoc@setflags` code slowing down compilation.

Also 1.08i splits the macro into two, with accompanying slight refactoring. I had such problems with the behaviour of TeX booleans in 2011/12 that I got excessively cautious then, and was using an `\Etoc@next` for the `\Etoc@setflags` rather than leaving it like here deep inside conditional branches.

Attention! 1.09's `\etoclocaltop` is the former `\Etoc@localtop` *minus one*. Hence some slight change in conditional here.

```

264 \def\Etoc@etoccontentsline #1{%
265   \global\expandafter\let\expandafter\Etoc@level\cename Etoc@#1@\endcename
266   \Etoc@skipthisonefalse
267   \ifnum\Etoc@level=\Etoc@@six@@
268     \Etoc@skipthisonetrue
269   \else
270     \ifEtoc@localtoc
271       \ifEtoc@stoptoc
272         \Etoc@skipthisonetrue
273       \else
274         \ifEtoc@notactive\Etoc@setflags
275           \Etoc@skipthisonetrue
276         \else
277           \unless\ifnum\Etoc@level>\etoclocaltop
278             \Etoc@skipthisonetrue
279           \global\Etoc@stoptoctrue
280         \fi
281       \fi
282     \fi
283   \fi
284 \fi
285 \let\Etoc@next\Etoc@gobblefourorthree
286 \ifEtoc@skipthisone
287 \else
288 \unless\ifnum\c@tocdepth<\Etoc@level
289 \ifEtoc@standard
290   \let\Etoc@next\Etoc@savedcontentsline
291 \else
292   \let\Etoc@next\Etoc@etoccontentsline@
293 \fi
294 \fi
295 \fi
296 \Etoc@next{#1}%
297 }

```

1.08 New way to handle the compatibility mode. One has to worry only for the local tables of contents (in inactive state, which still must be parsed for global level flags) but in this case `\Etoc@setflags` was done above already. Earlier method proceeded with dummy empty line styles.

2015/03/08 Ever since the first release of **etoc**, the code has to be careful that the `\Etoc@end@<level>` user defined macros may close groups. This is the reason why some assignments have to be done globally. The `\let\Etoc@next\Etoc@gobblesixorfive` above could be local, because it is used only in case the stuff below is skipped, inclusive of `\Etoc@doends` which may close groups. (code

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has changed since, slightly).

1.08 extracts to a separate macro `\Etoc@doends`. Earlier code did `\global\let\Etoc@next\relax` but we can now give a default `\relax` value to `\Etoc@next` with no need of a `\global` prefix.

1.08k extracts `\Etoc@dobegins`.

```
298 \def\Etoc@etoccontentsline@ #1{%
299   \Etoc@doends % separated since 1.08
300   \Etoc@dobegins % separated since 1.08k. Does \Etoc@setflags.
```

1.08:

1. separates the definition of `\Etoc@prefix` and `\Etoc@contents` from the execution of the end parts. And it does the definition with some `\csname`'s.
2. implements `\etocskipfirstprefix` with a boolean, this is less slick but more flexible than the earlier method.
3. defines the `\etociffirst` conditional.
4. has `\Etoc@level` rather than `\Etoc@tmp` and thus we can dispense with the `\ifEtoc@part` switch as we will be able to test the equality `\Etoc@level=-1` inside of `\Etoc@lxyz`.
5. adds the `\Etoc@global` prefix.

1.08i uses an `\edef` rather than `\def` with a chain of `\expandafter`.

```
301   \Etoc@global\edef\Etoc@prefix {\expandafter\noexpand
302     \csname Etoc@prefix@\csname Etoc@#1@\endcsname\endcsname }%
303   \Etoc@global\edef\Etoc@contents{\expandafter\noexpand
304     \csname Etoc@contents@\csname Etoc@#1@\endcsname\endcsname }%
305   \ifEtoc@skipprefix \Etoc@global\let\Etoc@prefix\@empty\fi
306   \global\Etoc@skipprefixfalse
```

1.08 modifies the ending to not use the `\Etoc@swa` and `\Etoc@swb` things. With this version, the `\Etoc@next` here is only to gobble everything if it has to (or gobble only the **etoc** things, when in compatibility mode).

For the record we don't do `\csname l@#1\endcsname` mainly because `hyperref` patches `\contentsline`.

The location where `\Etoc@savedcontentsline` is `\let` to `\contentsline` has been moved with release 1.08 to before the title as set by `\etocsettoctyle`, thus it is now possible to open a tabular in this part. And with the `\Etoc@global` prefix the user may opt for global definitions of `\etocname` and the like, thus use freely `&` and other group closing things. Also, some care has been put into doing only expandable things after expansion of the `<prefix>` and `<contents>` parts of a sectioning unit style.

1.09e prepares for LaTeX November 2021 upcoming release whose `\contentsline` will always grab four arguments whether or not `hyperref` is loaded. The `\Etoc@et@hop` definition done at begin document must now swap the same number of arguments whether or not `hyperref` is loaded (else **etoc** would be broken in absence of `hyperref`).

```
307   \Etoc@et@hop{\Etoc@prefix\Etoc@contents}{\Etoc@savedcontentsline{#1}}%
308 }
```

### START OF MAINLY OBSOLETE COMMENTS

2013/03/07: up to 1.06 **etoc** defined only `\etocname`, `\etocnumber` and `\etocpage`. The `hyperref` added data is recycled in the simplest manner, prefixing it with `\leavevmode`. The included `\Hy@tocdestname` is (was, see below 1.07f and 1.08a) left unexpanded. We have to spend some time with delimited macros to dis-entangle the `.toc` data, and reconstruct the possible `hyperref` data. If the page number is not hyperlinked, `\etocpage` does *not* add the link found possibly in the name.

1.07 adds `\etocthename`, `\etocthenumber`, `\etocthepage` which are left fragile and do not have the links data, and `\etoclink{<linkname>}` which is robust and reconstructs an arbitrarily named link.

A need (for things like building up a token list to be used in a tikzpicture) arose later to have some form of the link which could be saved by a simple command like one can do `\global\let\lastname\etocthename`, and avoid having to manipulate `\Hy@tocdestname`. So 1.07f adds `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage`, `\etocthelink`: they use `\hyperlink` with an expanded `\Hy@tocdestname`.

1.07f also adds `\leavevmode` to `\etoclink` which should have been done earlier, as it was included in `\etocname` etc... attention, `\@namedef{A}{B}` and not `\@namedef{A} {B}` !! on the other hand this gives a simple way to insert a space as the first token in the paramaters. For `\Etoc@again` (which appears later in the code), a `\@firstofone` construct is however the simplest of all.

END OF MAINLY OBSOLETE COMMENTS

1.08 adds `\Etoc@global` prefix (2015/03/09).

1.08a drops the original constructions of `\etocname` etc... The obvious decision to convert `\etocname`, etc ... to be the robust versions of `\etocthelinkedname`, etc ... was delayed two years (from 1.07f 2013/03/07 to 1.08a 2015/03/13) for sentimental reason. But the original versions contained the hyperref destination only in unexpanded form, this forced to use `\etocthelinkedname`, etc... in cases when the thing had to be stored for delayed use. Now the user can do this directly with `\etocname`, `\etocnumber`, `\etocpage` (taking into account though that these are robust macros, thus perhaps using something like `\LetLtxMacro`.)

1.08j turns `\etoclink` into the robust version of `\etocthelink`. Indeed so far only `\etocthelink` contained `\Hy@tocdestname` expanded. But `\etoclink` did not, and thus it could not be used after a group was closed for example by a `&` from the sectioning style, even if having used `\etocglobaldefs`.

1.08n adds `\futurelet`-based methods to avoid unbracing things.

1.08p uses `\Etoc@@getnb` (and `\Etoc@@getit`) to intercept cases when `\numberline` is hidden behind braces (<https://github.com/ho-tex/hyperref/issues/65>).

```
309 \def\Etoc@lxyz #1#2{%
310   \Etoc@global\let\etocthelink\@firstofone % fall-back, was let \@empty up to 1.08i (inc.)
311   \Etoc@global\def\etocthename      {#1}% (if linked, will be removed later)
312   \Etoc@global\def\etocthelinkedname {#1}% (probably redefined later)
313   \futurelet\Etoc@getthepage@token
314     \Etoc@getthepage #2\etoc@ % defines \etocthelinkedpage
315   \futurelet\Etoc@getnb@token
316     \Etoc@@getnb #1\relax\relax\etoc@ % sets number, name, and \etocthelink
link
317   \ifEtoc@number
318   \else
319     \ifnum\Etoc@level=\m@ne
320       \futurelet\Etoc@getit@token
321         \Etoc@@getit #1\hspace\relax\etoc@ % additional job for parts
322       \fi
323     \fi
324     \Etoc@global\expandafter\let\csname etoclink \endcsname\etocthelink
325     \Etoc@global\expandafter\let\csname etocname \endcsname\etocthelinkedname
326     \Etoc@global\expandafter\let\csname etocnumber \endcsname\etocthelinkednumber
327     \Etoc@global\expandafter\let\csname etocpage \endcsname\etocthelinkedpage
328   }
```

1.08 adds the `\Etoc@global`'s.

1.08j fixes an old `\ifx #1\hyperlink@start` bug.

Potential (but rather exotic) brace removal problems wiped away at 1.08n.

```
329 \def\Etoc@getthepage {%
330   \if1\ifEtoc@hyperref
331     \ifx\hyper@linkstart\Etoc@getthepage@token1\else0\fi
332     \else0\fi
333     \expandafter\Etoc@getthepage@hyp
```

## 60. Implementation

```
334 \else
335 \expandafter\Etoc@getthepage@nohyp
336 \fi
337 }
338 \def\Etoc@getthepage@nohyp #1\etoc@ {%
339 \Etoc@global\def\etocthepage {#1}%
340 \Etoc@global\def\etocthelinkedpage {#1}%
341 }
```

1.07k corrects a bug here with an extra space before ##1 in \@namedef{etoclink } ##1. In 99.99% of use cases however, the macro gets redefined at a later stage, thus the bug did not show.

1.07n replaces use of \toks@ by macro \Etoc@tmp. Thus, the user has the (not so recommended) possibility to use \toks@ in the styles, even to store information whose scope extends beyond the execution of each \contentsline.

1.08 adds the \Etoc@global's.

1.08j does not define \etoclink<space> anymore, only \etocthelink which contains the \Hy@tocdestname already expanded.

```
342 \def\Etoc@getthepage@hyp #1#2#3#4#5\etoc@ {%
343 \Etoc@global\def\etocthepage {#4}%
344 \edef\Etoc@tmp {{#3}}%
345 \Etoc@global\expandafter\def\expandafter\etocthelinkedpage\expandafter
346 {\expandafter\hyperlink \Etoc@tmp{#4}}%
347 \Etoc@global\edef\etocthelink##1{\noexpand\hyperlink\Etoc@tmp{##1}}%
348 }
```

1.08j fixes an old buggy \ifx #1\hyper@linkstart. This could show if hyperref was present with linktoc=page option for example, because in that case #1 could be some tokens within braces. As this is rare case though, no bug was reported.

Anyway I refactored the whole thing at 1.08n.

1.08p adds workaround for an extra brace pair inserted by hyperref in case of linktoc=page option

<https://github.com/ho-tex/hyperref/issues/65>

```
349 \def\Etoc@@getnb {%
350 \Etoc@bracednamefalse
351 \ifx\Etoc@getnb@token\bgroup
352 \expandafter\Etoc@getnb@checkifbraced
353 \else
354 \expandafter\Etoc@getnb
355 \fi
356 }
357 \def\Etoc@tworelax{\relax\relax}
358 \def\Etoc@getnb@checkifbraced #1#2\etoc@ {%
359 \def\Etoc@tmp{#2}%
360 \ifx\Etoc@tmp\Etoc@tworelax
361 \expandafter\expandafter\expandafter\Etoc@getnb@nameisbraced
362 \expandafter\@firstofone
363 \else
364 \expandafter\Etoc@getnb
365 \fi {#1}#2\etoc@
366 }
367 \def\Etoc@getnb@nameisbraced {%
368 \Etoc@bracednametrue
369 \futurelet\Etoc@getnb@token\Etoc@getnb
370 }
371 \def\Etoc@getnb {%
372 \ifx\Etoc@getnb@token\bgroup
373 \expandafter\Etoc@getnb@nohyp@nonbr
```

```

374 \else
375 \if1\ifEtoc@hyperref
376 \ifx\hyper@linkstart\Etoc@getnb@token1\else0\fi
377 \else0\fi
378 \expandafter\expandafter\expandafter\Etoc@getnb@hyp
379 \else
380 \expandafter\expandafter\expandafter\Etoc@getnb@nohyp
381 \fi
382 \fi
383 }

```

1.08 adds the `\Etoc@global's`.

1.08j corrects an old `\ifx#1\numberline` into `\ifx\numberline#1`.

1.08k uses a delimited macro to identify `\numberline`, `\chapternumberline` etc... in one go, avoiding the `\let\chapternumberline\numberline` etc... which were done formerly in `\Etoc@tableofcontents`. Currently **etoc** does not yet use  $\varepsilon$ -TeX.

1.08m fixes incompatibility of 1.08k's delimited macro method with KOMA's `\nonumberline`.

Both 1.08k and 1.08m actually would have needed some `\detokenize` for complete safety and so far **etoc** does not use  $\varepsilon$ -TeX. So here at 1.08n I refactored the whole thing. And I added a `\futurelet`-based brace detection in `\Etoc@getnb` so here #1 is guaranteed not braced now.

1.08n tries to handle reasonably the `\nonumberline` of KOMA-script. If it expands to `\numberline{}`, **etoc** will thus consider the line numbered with an empty number.

```

384 \def\Etoc@getnb@nohyp #1{%
385 \in@{#1}{\numberline\chapternumberline\partnumberline\booknumberline}%
386 \ifin@
387 \let\Etoc@next\Etoc@getnb@nohyp@nmbrd
388 \else
389 \let\Etoc@next\Etoc@getnb@nohyp@nonbr
390 \in@{#1}{\nonumberline}%
391 \ifin@
392 \ifx\nonumberline\empty\else\let\Etoc@next\Etoc@getnb@nohyp@nmbrd\fi
393 \expandafter\expandafter\expandafter\expandafter
394 \fi
395 \fi
396 \Etoc@next #1%
397 }
398 \def\Etoc@getnb@nohyp@nmbrd #1#2#3\relax\relax\etoc@ {%
399 \Etoc@global\Etoc@numbertrue
400 \Etoc@global\def\etocthenumber {#2}%
401 \Etoc@global\def\etocthelinkednumber {#2}%
402 \ifEtoc@bracedname
403 \Etoc@global\def\etocthename {#{3}}%
404 \Etoc@global\def\etocthelinkedname {#{3}}%
405 \else
406 \Etoc@global\def\etocthename {#3}%
407 \Etoc@global\def\etocthelinkedname {#3}%
408 \fi
409 }
410 \def\Etoc@getnb@nohyp@nonbr #1\etoc@ {%
411 % \etocthename and \etocthelinkedname already defined in \Etoc@lxyz
412 \Etoc@global\Etoc@numberfalse
413 \Etoc@global\let\etocthenumber \@empty
414 \Etoc@global\let\etocthelinkednumber \@empty
415 }

```

1.07n replaces use of `\toks@` by macro `\Etoc@tmp`. 1.08 adds the `\Etoc@global's`.

1.08j corrects the old `\ifx#1\numberline` into `\ifx\numberline#1`.

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1.08k uses a delimited macro to identify `\numberline`, `\chapternumberline` etc... in one go.

But anyway this was completely refactored at 1.08n. Unfortunately bad macro naming scheme caused a typo in a macro name, and it was left undefined. Fixed at 1.08o.

At 1.08p which fixed an hyperref problem in case of `linktoc=page` we are lazy because the problem with extra braces should not happen in this branch (hyperref does not brace the hyperlink). So we ignore the `\ifEtoc@bracedname` setting.

```
416 \def\Etoc@getnb@hyp #1#2#3#4#5#6\etoc@ {%
417   \edef\Etoc@tmp {{#3}}%
418   \Etoc@global\edef\etocthelink ##1{\noexpand\hyperlink {#3}{##1}}%
419   \Etoc@global\def\etocthename {#4}% temporary definition
420   \Etoc@global\expandafter\def\expandafter\etocthelinkedname
421     \expandafter {\expandafter\hyperlink \Etoc@tmp{#4}}%
422   \futurelet\Etoc@hyp@getnb@token\Etoc@getnb@hyp@a #4\relax\relax\etoc@
423 }
424 \def\Etoc@getnb@hyp@a {%
425   \ifx\Etoc@hyp@getnb@token\bgroup
426     \expandafter\Etoc@getnb@hyp@nonbr
427   \else
428     \expandafter\Etoc@getnb@hyp@b
429   \fi
430 }
431 \def\Etoc@getnb@hyp@b #1{%
432   \in@{#1}{\numberline\chapternumberline\partnumberline\booknumberline}%
433   \ifin@
434     \let\Etoc@next\Etoc@getnb@hyp@nmbrd
435   \else
436     \let\Etoc@next\Etoc@getnb@hyp@nonbr
437     \in@{#1}{\nonumberline}%
438     \ifin@
439       \ifx\nonumberline\empty\else\let\Etoc@next\Etoc@getnb@hyp@nmbrd\fi
440       \expandafter\expandafter\expandafter\expandafter
441     \fi
442   \fi
443   \Etoc@next #1%
444 }
445 \def\Etoc@getnb@hyp@nmbrd #1#2#3\relax\relax\etoc@ {%
446   \Etoc@global\Etoc@numbertrue
447   \Etoc@global\def\etocthenumber {#2}%
448   \Etoc@global\expandafter\def\expandafter\etocthelinkednumber
449     \expandafter{\expandafter\hyperlink \Etoc@tmp{#2}}%
450   \Etoc@global\def\etocthename {#3}%
451   \Etoc@global\expandafter\def\expandafter\etocthelinkedname
452     \expandafter{\expandafter\hyperlink \Etoc@tmp{#3}}%
453 }
454 \let\Etoc@getnb@hyp@nonbr\Etoc@getnb@nohyp@nonbr
```

1.08 adds the `\Etoc@global's`.

1.08n refactors this but it is still not extremely robust.

1.08p completes the fix of `linktoc=page` problematic hyperref. If the name was found to be braced, keep the brace pair on extracted name. But not for extracted number... don't ask why, I did not want spending ages on working around hyperref's bug.

```
455 \def\Etoc@@getit{%
456   \ifEtoc@bracedname
457     \expandafter\expandafter\expandafter\Etoc@getit@nameisbraced
458     \expandafter\@firstofone
459   \else
460     \expandafter\Etoc@getit
```

```

461 \fi
462 }
463 \def\Etoc@getit@nameisbraced {\futurelet\Etoc@getit@token\Etoc@getit }
464 \def\Etoc@getit {%
465 \if1\ifEtoc@hyperref
466 \ifx\hyper@linkstart\Etoc@getit@token1\else0\fi
467 \else0\fi
468 \expandafter\Etoc@getit@hyp
469 \else
470 \expandafter\Etoc@getit@nohyp
471 \fi
472 }
473 \def\Etoc@getit@nohyp #1\hspace#2#3\etoc@ {%
474 \ifx\relax#2%
475 \else
476 \Etoc@global\def\etocthenumber {#1}%
477 \Etoc@global\def\etocthelinkednumber {#1}%
478 \Etoc@global\Etoc@numbertrue
479 \Etoc@getit@nohyp@getname #3\etoc@
480 \fi
481 }
482 \def\Etoc@getit@nohyp@getname #1\hspace\relax\etoc@ {%
483 \ifEtoc@bracedname
484 \Etoc@global\def\etocthename {{#1}}%
485 \Etoc@global\def\etocthelinkedname {{#1}}%
486 \else
487 \Etoc@global\def\etocthename {#1}%
488 \Etoc@global\def\etocthelinkedname {#1}%
489 \fi
490 }

```

1.07n replaces use of \toks@ by macro \Etoc@tmp. 1.08 adds the \Etoc@global's.

1.08j adds \etocthelink definition here which was missing. This bug showed in case hyperref was used with option linktoc=page, for part styles: the \etocthelink would not create a link if used therein. But the linktoc=page condition could easily however trigger the more serious \ifx bug in \Etoc@getnb also fixed at 1.08j, and this would have overshadowed this one by a real compilation error rather than a missing link in the produced PDF.

1.08n refactors the whole thing. 1.08o chooses better names for macros.

For 1.08p fix of hyperref's extra brace (see \Etoc@@getnb, \Etoc@@getit), this branch should not suffer the issue, hence I don't bother checking \ifEtoc@bracedname status.

```

491 \def\Etoc@getit@hyp #1#2#3#4#5#6\etoc@ {%
492 \edef\Etoc@tmp {{#3}}%
493 \Etoc@global\edef\etocthelink ##1{\noexpand\hyperlink \Etoc@tmp{##1}}%
494 \Etoc@global\def\etocthename {#4}% temporary definition
495 \Etoc@global\expandafter\def\expandafter\etocthelinkedname
496 \expandafter{\expandafter\hyperlink \Etoc@tmp{#4}}%
497 \Etoc@getit@hyp@a #4\hspace\relax\etoc@
498 }
499 \def\Etoc@getit@hyp@a #1\hspace#2#3\etoc@ {%
500 \ifx\relax#2% not extremely safe
501 \else
502 \Etoc@global\Etoc@numbertrue
503 \Etoc@global\def\etocthenumber {#1}%
504 \Etoc@global\expandafter\def\expandafter\etocthelinkednumber
505 \expandafter{\expandafter\hyperlink \Etoc@tmp{#1}}%
506 \Etoc@getit@hyp@getname #3\etoc@
507 \fi

```

## 60. Implementation

```
508 }
509 \def\Etoc@getit@hyp@getname #1\hspace\relax\etoc@ {%
510   \Etoc@global\def\etocthename {#1}%
511   \Etoc@global\expandafter\def\expandafter\etocthelinkedname
512     \expandafter{\expandafter\hyperlink \Etoc@tmp{#1}}%
513 }%

1.08a of 2015/03/12 does the long-postponed thing to let \etocname etc.. be simply the robust
variant of \etocthelinkedname etc...

514 \let\etocthename   \@empty
515 \let\etocthenumber \@empty
516 \let\etocthepage   \@empty
517 \let\etocthelinkedname \@empty
518 \let\etocthelinkednumber \@empty
519 \let\etocthelinkedpage \@empty
520 \let\etocthelink   \@firstofone % prior to 1.08j its was \let to \@empty
521 \DeclareRobustCommand*\etocname { }
522 \DeclareRobustCommand*\etocnumber { }
523 \DeclareRobustCommand*\etocpage { }
524 \DeclareRobustCommand*\etoclink { \@firstofone }
525 \DeclareRobustCommand*\etocifnumbered
526   { \ifEtoc@number\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi }
527 \expandafter\let\expandafter\etocxifnumbered\csname etocifnumbered \endcsname

1.08 defines \etociffirst

528 \DeclareRobustCommand*\etociffirst
529   { \ifEtoc@isfirst\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi }
530 \expandafter\let\expandafter\etocxiffirst\csname etociffirst \endcsname

1.07j modifies \Etoc@readtoc.

531 \def\Etoc@readtoc {%
532   \ifeof \Etoc@tf
533   \else
534     \read \Etoc@tf to \Etoc@buffer
535     \Etoc@toctoks=\expandafter\expandafter\expandafter
536       {\expandafter\the\expandafter\Etoc@toctoks\Etoc@buffer}%
537     \expandafter\Etoc@readtoc
538   \fi
539 }

1.07m moves the reading of the toc file At Begin Document. Needed for Babel activated characters.

540 \Etoc@toctoks {}% (superfluous, but for clarity)
541 \AtBeginDocument{\IfFileExists{\jobname.toc}
542   {{\endlinechar=\m@ne
543     \makeatletter
544     \newread\Etoc@tf
545     \openin\Etoc@tf\@filef@und
546     \Etoc@readtoc
547     \global\Etoc@toctoks=\expandafter{\the\Etoc@toctoks}%
548     \closein\Etoc@tf}}
549   {\typeout{No file \jobname.toc.}}}

1.07d: parskip and \@nobreakfalse stuff moved to \Etoc@tableofcontents

550 \def\Etoc@openouttoc{%
551   \ifEtoc@hyperref
552   \ifx\hyper@last\@undefined
553   \IfFileExists{\jobname .toc}
554     {\Hy@WarningNoLine
555       {old toc file detected, not used; run LaTeX again (cheers from etoc)}}%
```



```

556     \global\Etoc@toctoks={}%
557     }
558     {}%
559     \fi
560     \fi
561     \if@filesw
562     \newwrite \tf@toc
563     \immediate \openout \tf@toc \jobname .toc\relax
564     \fi
565     \global\let\Etoc@openouttoc\empty
566 }

```

1.08 has a new way to handle `\Etoc@standardtrue`.

Also the expansion of `\Etoc@levelist` is moved to inside `\Etoc@tableofcontents` as set-up by `\etocsettocstyle`. This opens up the possibility for the user to open a group in the title (for example start a tabular) which would be closed (by the first `&`) sometime later. In combination with `\etocglobaldefs` it will be now much easier to typeset TOC as tables with **etoc!**

```

567 \def\Etoc@toctoc{%
568   \global\Etoc@vfalse
569   \global\Etoc@ivfalse
570   \global\Etoc@iiifalse
571   \global\Etoc@iifalse
572   \global\Etoc@ifalse
573   \global\Etoc@false
574   \global\Etoc@jfalse
575   \global\Etoc@jjfalse
576   \the\Etoc@toctoks
577   \ifEtoc@notactive
578   \else
579     \ifEtoc@v   \Etoc@end@five\fi
580     \ifEtoc@iv  \Etoc@end@four\fi
581     \ifEtoc@iii \Etoc@end@three\fi
582     \ifEtoc@ii  \Etoc@end@two\fi
583     \ifEtoc@i   \Etoc@end@one\fi
584     \ifEtoc@    \Etoc@end@zero\fi
585     \ifEtoc@j   \Etoc@end@minusone\fi
586     \ifEtoc@jj  \Etoc@end@minustwo\fi
587   \fi
588 }

```

Slightly better coded in 1.08b. Had some bad experiences with TeX conditionals back in 2011/2012 when I started LaTeX programming, and the code was a remnant of extra cautious attitude. Also, now `\etoc@@startlocaltoc` is expandable if it does nothing.

2015/04/16: 1.08e removes a `\ifEtoc@notactive` test as `\ifnum` can be positive only once anyhow; although the `\ifEtoc@notactive` boolean could be faster than an `\ifnum`, it adds to it as long as the local toc id is not yet found.

I replace (1.08e) the `\Etoc@global's` for `\Etoc@localtop` by `\global's`. The `\relax` is needed because #2 may sometimes be a count, sometimes tokens.

Attention! 1.09 defines a public `\etoclocaltop` in replacement of old `\Etoc@localtop minus one`. Memo: `\etoclocaltop` has only meaningful meaning when the local toc has its "active" flag set. Except that I used a "notactive" flag to torture myself, so: has the "notactive" flag off.

Also attention 1.09 now sets the `\c@tocdepth` there in relation to implementation of `\local-tableofcontentswithrelativedepth`. This is needed for line styles in compatibility mode as the code from standard classes checks the `tocdepth` counter.

```

589 \def\etoc@@startlocaltoc#1#2{%
590   \ifEtoc@localtoc
591     \ifnum #1=#2\relax

```

## 60. Implementation

```

592     \ifEtoc@jj \global\let\etoclocaltop\Etoc@@minustwo@\fi
593     \ifEtoc@j  \global\let\etoclocaltop\Etoc@@minusone@\fi
594     \ifEtoc@   \global\let\etoclocaltop\Etoc@@zero@@ \fi
595     \ifEtoc@i  \global\let\etoclocaltop\Etoc@@one@@ \fi
596     \ifEtoc@ii \global\let\etoclocaltop\Etoc@@two@@ \fi
597     \ifEtoc@iii \global\let\etoclocaltop\Etoc@@three@@ \fi
598     \ifEtoc@iv \global\let\etoclocaltop\Etoc@@four@@ \fi
599     \ifEtoc@v  \global\let\etoclocaltop\Etoc@@five@@ \fi
600     \global\c@tocdepth\Etoc@localtocdepth
601     \global\Etoc@notactivefalse
602     \global\Etoc@vfalse
603     \global\Etoc@ivfalse
604     \global\Etoc@iiifalse
605     \global\Etoc@iifalse
606     \global\Etoc@ifalse
607     \global\Etoc@jfalse
608     \global\Etoc@jfalse
609     \global\Etoc@jjfalse
610     \fi
611   \fi
612 }
613 \let\etoc@startlocaltoc\@gobble

```

2015/03/16: 1.08e tests if a local table of contents turns out empty. The `\Etoc@localtop` there does not have the same meaning as when set-up by the regular `\etoc@@startlocaltoc`. It is off by 1 (in general). THIS IS OBSOLETE since 1.09: a `\etoclocaltop` is used with same meaning in all code branches.

After some hesitation I opted for making and obeying the test always (\*) for local tables of contents, and do it also for global tables of contents but for the latter the user must issue `\etocnotocifnotoc` for the emptiness test to be obeyed. The emptiness tests are to be trusted only when the compilations have stabilized.

(\*) finally the user must issue `\etocchecksempiness` once.

`\Etoc@tocid` is the number of the toc (possibly gotten via a `\ref` following a `\tableofcontents`), or it is `\z@` if the emptiness test is from a global toc. Until the compilations stabilize, some local TOCs can get printed at wrong locations naturally and emptiness tests can not be trusted either. Releases earlier than 1.08e authorized `\tableofcontents\ref{foo}` with `foo` the label of a *global* toc. But as it was impossible (without much complications) to discriminate, until auxiliary files have stabilized, between a `\ref` to a local toc whose id is not yet in the `.toc` file and a `\ref` to a global toc whose id will in the end definitely not be in the `.toc` file, I decided that this silly possibility should not be supported anymore. This allowed to remove a few tokens from `\Etoc@tableofcontents` as well. And it also allowed improvements to `\Etoc@localtableofcontents`.

Note: (1.08i 2016/09/29) the code has to handle both local and total toc. Hence the flag `\ifEtoc@notactive` has to be set prior to it. For a global toc, the `\Etoc@tocid` was set to `\z@`, and the `\ifnum` in `\etoc@startlocaltoc` did always fail, but I now prefer to simply nullify the `\etoc@startlocaltoc`. As its default fallback is `\@gobble` I simply test here for the `localtoc` flag. The `\Etoc@tocid` will be undefined for a global toc but it is not tested anymore.

Note: the mechanism for recognizing the level when a local toc is encountered is different from the one in `\etoc@@startlocaltoc` which uses the level flags. Here we just record in `\Etoc@level` where we last stood. The initialization `\global\let\Etoc@level\Etoc@minf` is thus needed in case the `.toc` file contains an `\etoc@startlocaltoc` before any `\contentsline`.

1.08i has two `testingcontentsline` macros, one for local, one for global.

1.09 renames the `\Etoc@localtop` which was used here to a public `\etoclocaltop` to make it usable in `\etocsettocstyle`.

```

614 \def\Etoc@setemptytocbool {%

```

```

615 \global\Etoc@emptytoctrue
616 \global\Etoc@stoptocfalse
617 \global\let\Etoc@level\Etoc@minf
618 \begingroup
619 \ifEtoc@localtoc
620 \def\etoc@startlocaltoc##1{%
621 \ifnum##1=\Etoc@tocid\relax
622 \global\let\etoclocaltop\Etoc@level
623 \global\Etoc@notactivefalse
624 \fi }%
625 \let\contentsline\Etoc@testingcontentslinelocal
626 \else
627 \let\contentsline\Etoc@testingcontentsline
628 \fi
629 \Etoc@storetocdepth
630 \the\Etoc@toctoks
631 \Etoc@restoretocdepth
632 \endgroup
633 }
634 \DeclareRobustCommand*\etocifwasempty
635 {\ifEtoc@emptytoc\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi }
636 \expandafter
637 \let\expandafter\etocxifwasempty\csname etocifwasempty \endcsname
638 \def\Etoc@testingcontentslinelocal #1{%
639 \ifEtoc@stoptoc
640 \else
641 \ifnum\csname Etoc@#1@\endcsname=\Etoc@@six@@
642 \else
643 \global\expandafter\let\expandafter\Etoc@level\csname Etoc@#1@\endcsname

\ifEtoc@notactive set to False by \etoc@startlocaltoc with right id. It that happened, check
level of hit against unit. Will decide if empty or not. Set stoptoc flag afterwards in all cases.
\Etoc@localtop will have been initialized by \etoc@@startlocaltoc as \ifEtoc@notactive
flag can be false only then.

1.09 renamed the \Etoc@localtop as formerly here to \etoclocaltop and adds support for
\localtableofcontentswithrelativedepth.

644 \ifEtoc@notactive
645 \else
646 \ifnum\Etoc@level>\etoclocaltop
647 \unless\ifnum\Etoc@level>\Etoc@localtocdepth
648 \global\Etoc@emptytoctrue
649 \global\Etoc@stoptoctrue
650 \fi
651 \else
652 \global\Etoc@stoptoctrue
653 \fi
654 \fi
655 \fi
656 \fi
657 \Etoc@gobblefourorthree\relax
658 }
659 \def\Etoc@testingcontentsline #1{%
660 \ifEtoc@stoptoc
661 \else
662 \ifnum\csname Etoc@#1@\endcsname=\Etoc@@six@@
663 \else
664 \unless\ifnum\csname Etoc@#1@\endcsname>\c@tocdepth

```

## 60. Implementation

```
665     \global\Etoc@emptytocfalse
666     \global\Etoc@stoptoctrue
667     \fi
668     \fi
669     \fi
670     \Etoc@gobblefourorthree\relax
671 }
```

1.07g suppresses the printing of `--unknown etoc ref: run latex again--` as sometimes one uses `\localtableofcontents` to prepare something else, and one does not want any text output even in intermediate runs.

Also 1.07g adds `\etocaftertochook` to help with `\invisiblelocaltableofcontents` (and then I did `\etocsetnexttocdepth`). 1.07h makes the hook used by `\etocsetnexttocdepth` private.

2015/03/14: 1.08b suppresses a space token from an unprotected end of line at the end after the replacement text of `\etoc@startlocaltoc` (bug dating back to 1.03 2012/11/23). I didn't see it due to the originally badly formatted source of `\Etoc@next`.

2015/03/16: 1.08e lets `\localtableofcontents` do a first scan of the `.toc` file (as stored in `\Etoc@toctoks`) to determine if the table of contents will in fact end up empty. In that case, nothing is typeset. The command `\etocaftertochook` is still executed though. Other ways were envisioned (like delimited macros) to determine this potential emptiness, but in the end I opted for execution of the `.toc` file with suitable definitions for `\contentsline` and `\etoc@startlocaltoc`. Notice though that if emptiness would result from empty line styles, this can not be detected. Emptiness means “no executed `\contentsline`”.

For this detection of emptiness, assignments (here and in `\Etoc@testingcontentsline`) are made globally, I think this is the best (just in case some portions of the `.toc` file turn out to be inside some groups — perhaps for some silly color assignments, etc... — whose boundaries do not necessarily respect unit levels).

The flag `\Etoc@tocwithid` discriminates between a `\localtableofcontents` and a `\tableofcontents \ref{foo}`; the latter could so far possibly refer to a local or also to a global table of contents but release 1.08e has deprecated the latter use as it complicated the code, for something truly silly. Thus `\ref{foo}` must now be with `foo` a label of a local TOC. As a result `\Etoc@tocwithid` is less used now.

In the case of a `\refed-to toc` whose label was just added hence is not yet in the `.aux` file, `\Etoc@tocid` is 0. **etoc** used to issue a warning to run latex again and did no printing at all. Release 1.08e in such cases prints the heading (this may gain one compilation step). Emptiness test is not executed as it would necessarily turn out positive and can not be trusted anyhow. The TOC is declared non empty, which it probably is...

Emptiness detection for local tables of contents (either from a `\localtableofcontents` or from a `\tableofcontents \ref{localtoc}`) can be trusted only when the `.toc` file has stabilized. The emptiness status of a local TOC whose `Id` is not yet in the `.toc` is by necessity undecided yet (and not to be trusted really as the numbering may have changed; only when compilation runs settle is the emptiness status to be trusted). The code declares the TOC non empty, as it will be in 95% of use cases.

Dropping support for `\tableofcontents \ref{globaltoc}` means here that when a TOC `id` is not found in the `.toc` file we can assume it definitely has to be a local TOC needing more compilations. The emptiness status is undecided, the code declares the TOC non empty.

1.08i-2016/09/29 now does `\Etoc@localtoctrue` right at the start (the earlier code could have to handle table of contents which were actually global, via the `\label/\ref` mechanism.) It does not rely on the `\ifnum` automatically false in `\etoc@startlocaltoc` due to the special values 0 or `\z@` for `\Etoc@tocid`, but simply leaves `\etoc@startlocaltoc` to its default `\@gobble`. The `\Etoc@emptytocfalse` flag is upfront in case some code using `\etocifwasempty` is in user hooks. The default is to assume the TOC non-empty as its contents are actually still unknown. Under the `stoptoc` flag, the `\Etoc@etoccontentsline` is more efficient now.

The `\Etoc@notactive` flag needs to be set before calling `\Etoc@setemptytocbool`.

I hesitated with 1.08i to write something to aux file in order to let L<sup>A</sup>T<sub>E</sub>X prompt the user for extra pass, after insertion of some new `\localtableofcontents`, but finally I prefer to only trick L<sup>A</sup>T<sub>E</sub>X into telling about undefined references.

The `\PackageWarning` approach has the advantage that at least in Emacs/AUCTeX the C-c-c will propose LaTeX, not View. But perhaps some automated scripts checking aux file will not like the extra line which is then removed in next pass, and could possibly do one extra unneeded compilation to check aux file remains identical. Hence the second approach. (edit 2017/10/23: good thing I documented that! I had completely forgotten that rationale, but I wonder if it is correct.)

Also the `\PackageWarning` does not trigger a visible message near the end of the log file or console output, contrarily to a

```
LaTeX Warning: There were undefined references.
```

followed by a

```
LaTeX Warning: Label(s) may have changed. Rerun to get cross-references right.
```

Method used here seems to work fine also with latexmk: it does not seem to induce it into making too many runs.

```
672 \def\Etoc@localtableofcontents#1{%
673   \gdef\etoclocaltop{-\@m}%
674   \Etoc@localtoctrue
675   \global\Etoc@emptytocfalse
676   \edef\Etoc@tocid{#1}%
677   \ifnum\Etoc@tocid<\@ne
678     %\PackageWarning{etoc}{Unknown toc reference \@secondoftwo#1. Run LaTeX again}%
679     \setbox0\hbox{\ref{Unknown toc ref \@secondoftwo#1. Rerun LaTeX}}%
680     %\if@files\immediate\write\@mainaux{\noexpand\@tempwattrue}\fi
681     \global\Etoc@stoptoctrue % do only heading
682     \gdef\etoclocaltop{-\thr@@}%
683     \Etoc@tableofcontents
684     \expandafter\Etoc@gobbletoetoc@ % skip all the rest
685   \fi
686   \global\Etoc@notactivetrue
```

1.08i's `\Etoc@setemptytocbool` now checks `localtoc` flag.

```
687   \ifEtoc@checksemtiness
688     \Etoc@setemptytocbool
689   \fi
690   \ifEtoc@emptytoc
691     \ifEtoc@notactive
692       %\PackageWarning{etoc}{Unknown toc ID \number\Etoc@tocid. Run LaTeX again}%
693       \setbox0\hbox{\ref{Unknown toc ID \number\Etoc@tocid. Rerun LaTeX}}%
694       %\if@files\immediate\write\@mainaux{\noexpand\@tempwattrue}\fi
695       \global\Etoc@emptytocfalse % assume real one will be non-empty
696       \global\Etoc@stoptoctrue % and print only heading for this pass
697       \gdef\etoclocaltop{-\thr@@}%
698       \Etoc@tableofcontents
699       \expandafter\expandafter\expandafter\Etoc@gobbletoetoc@
700     \else
701       %% \PackageWarning{etoc}{This toc is apparently empty}%
702     \fi
703   \else
704     \global\Etoc@stoptocfalse
705     \global\Etoc@notactivetrue
```

Prior to 1.09 a `\Etoc@localtop` was reset here. This has now been moved to `\Etoc@tableofcontents` and `\Etoc@localtop` replaced by a public `\etoclocaltop` usable in line styles, and in `\etocset-tocstyle` (under `checksemtinesstrue` regime).

## 60. Implementation

We can end up here either if the emptiness check was done and turned negative (then `\etoclocaltop` has the correct level for usage in first argument of `\etocsettocstyle`), or if the emptiness check was not done. For the latter case `\etoclocaltop` has setting `-\@m`.

```
706 \edef\etoc@startlocaltoc##1%
707     {\noexpand\etoc@startlocaltoc{##1}{\Etoc@tocid}}%
708 \Etoc@tableofcontents
709 \fi
710 \@gobble\etoc@
711 \endgroup\ifEtoc@mustclosegroup\endgroup\fi
712 \Etoc@tocdepthreset % 1.07h, renamed 1.08h
713 \etocaftertohook % 1.07g
```

1.09 hesitates about putting this before of after the `\etocaftertohook`. The information of the used `tocdepth` is lost if putting it first. The usage of `\etocaftertohook` may be broken if unexpected tokens follows.

```
714 \let\Etoc@localtocdepth\c@tocdepth % 1.09
715}% \Etoc@localtableofcontents
```

2013/03/07: I discover a `\@namedef` trick to construct the `\Etoc@again` space delimited macro:

```
\@namedef {Etoc@again} {...stuff...}
```

Original version was (copied from analogous stuff in source2e):

```
{\def\1{\Etoc@again}\expandafter\gdef\1 {...stuff...}}
```

and in the end (now that I think about it) I simply use `\@firstofone`.

```
716 \def\Etoc@getrefno #1#2\etoc@ {#1}
717 \def\Etoc@getref #1{\@ifundefined{r@#1}{0}{\expandafter\expandafter\expandafter
718     \Etoc@getrefno\csname r@#1\endcsname\relax\etoc@}}
719 \def\Etoc@ref#1{\Etoc@localtableofcontents{\Etoc@getref{#1}}}
720 \def\Etoc@label#1{\label{#1}\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
721 \@firstofone{\def\Etoc@again} {\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
```

1.08e adds test for emptiness. And uses another coding style for conditional branching. Easier to read. Not tested for efficiency.

Also, `\ref{foo}` expects `foo` to be a label to a *local* TOC. Earlier versions accepted a reference to a global TOC, I have removed the support from `\Etoc@tableofcontents`.

The syntax `\localtableofcontents\ref{foo}` is now accepted.

```
722 \def\Etoc@dothis #1#2\etoc@ {\fi #1}
723 \def\Etoc@t@bleofcontents{%
724     \gdef\etoclocaltop{~\@M}%
725     \ifx\Etoc@nexttoken\label\Etoc@dothis{\expandafter\Etoc@label\@gobble}\fi
726     \ifx\Etoc@nexttoken@sptoken\Etoc@dothis{\Etoc@again}\fi
```

`\Etoc@ref` will hand over directly to `\Etoc@localtableofcontents`. Argument will be (or rather expand to) zero if the reference is non-existent yet. There was an `\Etoc@tocwithidfalse` flag which 1.08i suppresses as it is not used afterwards (since 1.08e I think.)

```
727     \ifx\Etoc@nexttoken\ref\Etoc@dothis{\expandafter\Etoc@ref\@gobble}\fi
```

Flag to check if we were called from a `\localtableofcontents`.

```
728     \ifEtoc@tocwithid\Etoc@dothis{\Etoc@localtableofcontents{\c@etoc@tocid}}\fi
```

From now on we are handling a global TOC. Earlier, I used the trick of setting `\Etoc@tocid` to `\z@` for compatibility with expansion of `\etoc@startlocaltoc`. But since 1.08i `\etoc@startlocaltoc` is left to be `\@gobble`, and `\Etoc@tocid` is never tested. We don't need to set the `notactive` flag as now `\Etoc@testingcontentsline` tests first the `localtoc` flag (was already the case of `\Etoc@etoccontentsline`). I change a bit the style of conditionals here for clarity of code.

```
729     \global\Etoc@emptytocfalse\ifEtoc@checkemptiness\Etoc@setemptytocbool\fi
730     \ifEtoc@emptytoc
731     \ifEtoc@notocifnotoc
```

```

732     \expandafter\expandafter\expandafter\@gobble
733     \fi
734     \fi
735     \Etoc@tableofcontents
736     \endgroup\ifEtoc@mustclosegroup\endgroup\fi
737     \Etoc@tocdepthreset % 1.07h, renamed 1.08h
738     \etocaftertochook % 1.07g
739     \@gobble\etoc@
740     }% \Etoc@t@bleofcontents

```

1.07g for consistency Etoc@ prefix added.

1.08c does not use `\arabic` in the `\addtocontents` since I have seen that in some circumstances (for some right to left languages with polyglossia or babel), one can not rely on `\arabic` having its default definition. As the number written here will be used later in an `\ifnum`, I should not have used it in the first place (done 2015/03/30).

1.08i moves elsewhere definition of `\etoc@startlocaltoc`. In `\Etoc@table@fcontents` case it remains to be seen if a `\ref` follows which could turn the TOC into a local one. Handled by `\Etoc@t@bleofcontents`.

```

741 \def\Etoc@table@fcontents{%
742     \refstepcounter{etoc@tocid}%
743     \Etoc@tocwithidfalse
744     \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
745 \def\Etoc@localtable@fcontents{%
746     \refstepcounter{etoc@tocid}%
747     \addtocontents{toc}{\string\etoc@startlocaltoc{\the\c@etoc@tocid}}%
748     \Etoc@tocwithidtrue
749     \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}

```

1.07g defines `\etoc@tableofcontents` to be able to undo the evil and brutal doings of some packages with `\tableofcontents`.

1.08 patches `tableof`'s influence. Version 1.4a or later of `tableof` is needed.

```

750 \let\etocaftertitlehook \@empty
751 \let\etocaftercontentshook \@empty

```

Attention that there could be a `\ref` following, thus we don't yet know whether this is a local or global table of contents.

The `\Etoc@tocdepthset` is for `\etocsetnexttocdepth` mechanism.

```

752 \def\etoc@tableofcontents{%
753     \Etoc@openouttoc
754     \Etoc@tocdepthset % new with 1.08h (\etocsetnexttocdepth)
755     \beginngroup % closed in \Etoc@t@bleofcontents or \Etoc@localtableofcontents

```

Prior to its release 1.4c, `tableof` added a group pair via `\tof@begin` and `\tof@finish`. This was removed at 1.4c. So no need to do anything now here about silencing `\tof@beginngroup` and `\tof@endgroup`: they are inserted only in the `tableof` private copy of the `.toc` file which is used by its own table of contents typesetting command.

1.08i removes definition of `\etoc@startlocaltoc` from here. It is done in `\Etoc@localtableofcontents` or uses its default of `\@gobble`.

1.09b uses a `\def` in non-starred variant for allowing tricks to recognize later on if we are in a starred or non-starred case, whatever the user definition of `\etocaftertitlehook` may be.

```

756     \ifstar
757     {\let\Etoc@aftertitlehook\@empty\Etoc@table@fcontents}
758     {\def\Etoc@aftertitlehook{\etocaftertitlehook}\Etoc@table@fcontents}%
759 }% \etoc@tableofcontents

```

See at end of this file for the explanation of this 1.09d added saving of original meaning at package loading time.

## 60. Implementation

```
760 \let\etocoriginaltableofcontents\tableofcontents
761 \let\tableofcontents\etoc\tableofcontents
762 \newcommand*\localtableofcontents{%
763   \Etoc@openouttoc
764   \Etoc@tocdepthset % new with 1.08h (\etocsetnexttocdepth)
765   \begingroup % closed in \Etoc@tableofcontents or \Etoc@localtableofcontents
```

Same comment relative to tableof. No need to do anything here.

```
766   \@ifstar
767   {\let\Etoc@aftertitlehook\@empty\Etoc@localtable@fcontents}
768   {\def\Etoc@aftertitlehook{\etoc\aftertitlehook}\Etoc@localtable@fcontents}%
769 }% \localtableofcontents
```

1.09 adds `\localtableofcontentswithrelativedepth`. The motivation is that it is impossible to set in a completely satisfactory way the `tocdepth` from the first argument of `\etocsettocstyle` because the emptiness check does not execute that argument. If one does not care about emptiness check, one can of course set the `tocdepth` from the first argument of `\etocsettocstyle`. One can even use `\etocsetnexttocdepth` for that since 1.09 but anyway direct usage of `\etocsettocdepth` (or `\setcounter{tocdepth}{...}`) is easier as its effect when executed there is automatically limited to duration of the TOC.

```
770 \newcommand*\localtableofcontentswithrelativedepth[1]{%
771   \edef\Etoc@localtocdepth
772     {\numexpr\noexpand\etoclocaltop+\the\numexpr#1\relax\relax}%
773   \localtableofcontents
774 }% \localtableofcontentswithrelativedepth
775 \let\Etoc@localtocdepth\c@tocdepth
```

1.08 moves earlier the definitions of `\Etoc@savedcontentsline` as well as `\Etoc@levellist`. It will thus not be operative to do `\etocsetlevel` from inside the title now. But perhaps it will be easier to deal with tables.

Also I remove a big `\@firstofone`, and use rather `\Etoc@gobbletoetoc@` for the gobbling case.

Also, 1.08 modifies the code to do only expandable things after `\Etoc@toctoc`, in order to allow opening of an alignment in the first argument and closing in the second. Earlier versions had an `\Etoc@@next` initially set to relax after the first `\Etoc@toctoc`. I was in 2012/2013 quite uneasy with the TeX conditionals hence wanted for safety to move the things for the second invocation of `\Etoc@toctoc` after the `\fi\fi\fi`. I could define an `\afterfififi` macro, but it should be ok as it is done here.

1.08e moved the `\Etoc@par` to `\Etoc@tableofcontents`. This was needed for the implementation of the emptiness test. It might have some impact in fringe cases as the `\refstepcounter` is now done before the `\par` is issued.

1.08e suppresses the possibility to do a `\tableofcontents\ref{foo}` with `foo` the label of a global TOC: issuing `\tableofcontents` alone suffices. Allowed to simplify some code.

1.08g moves `\Etoc@par` to before `\etocbeforetitlehook`, not after.

```
776 \long\def\Etoc@gobbletoetoc@ #1\etoc@ {}
777 \newcommand\etocsettocstyle[2]{%
778 \def\Etoc@tableofcontents
779 {%
780   \ifnum\c@tocdepth>\Etoc@minf
781   \else
782     \expandafter\Etoc@gobbletoetoc@
783     \fi
784   \Etoc@par
785   \etocbeforetitlehook % 1.07m
786   \Etoc@storetocdepth % 1.07g
787   \let\Etoc@savedcontentsline\contentsline % moved up here 1.08
```



```

788 \let\contentsline\Etoc@etoccontentsline
789 \ifEtoc@standard
790 \else % moved here from \Etoc@toctoc (1.08)

```

Prior to 1.08, this was done in \Etoc@toctoc

1.08k defines here \etocsavedchaptertocline, \etocsavedsectiontocline, and so on for all declared level names, again at each TOC and for the duration of it.

```

791 \def\Etoc@levellist@elt####1{%
792 \expandafter\let\csname etocsaved####1tocline\expandafter\endcsname
793 \csname l@####1\endcsname
794 \expandafter\let\csname l@####1\endcsname\Etoc@lxyz}%
795 \Etoc@levellist

```

1.08k removes \let\chapternumberline\numberline etc... done formerly here

```
796 \fi
```

1.09 makes \etocsetnexttocdepth usable in #1 (but this is not 100% compatible with the emptiness check).

1.09 makes an \etoclocaltop usable in #1 if under checksemptiness regime.

```

797 #1%
798 \Etoc@tocdepthset
799 \ifEtoc@parskip\parskip\z@skip\fi %1.07d
800 \Etoc@aftertitlehook

```

1.09 has replaced former \Etoc@localtop (*minus one*) by \etoclocaltop. Under checksemptinesstrue regime its value is already known, but it will be obtained again from the toc file execution. As it is used only if TOC is active, resetting it here this way is decorative and could be removed.

```

801 \gdef\etoclocaltop{-\thr@@}%
802 \Etoc@toctoc
803 \etocaftercontentshook
804 #2\@nbreakfalse % 1.07d: \@nbreakfalse moved here
805 \Etoc@restoretocdepth % 1.07g. moved here from before #2 by 1.08

```

\contentsline was set to \Etoc@etoccontentsline by a non-global \let, and it will recover its normal value from exiting a scope limiting group. But tableof (since 1.4a) under \etocglobaldefstrue does a global redefinition of \contentsline. Its \tof@finish then does a global restore of \contentsline, but it will be to the **etoc** set value. \tof@finish is active only if either the table of contents was typeset using \tableof, \tablenotof, \tableoftaggedcontents, or \nextocwithtags was used. If not active it is either undefined (no package tableof) or \@empty. Prior to tableof 1.4c, the \tof@finish closed a group and could be undefined as well, but not if \etocglobaldefstrue.

**etoc** 1.09c tested here only equality to \@empty to decide if it is needed to globally restore \contentsline but this meant the global restore was done systematically in case of absence of package tableof.

If rather than \@empty the \tof@finish fall-back was \relax we could use here \@ifundefined to check in one go (matters of speaking because expansion of \@ifundefined is not in "one-go"). Maybe I should update tableof, but for time being I will simply add an extra test. All this is probably lots of time on irrelevant issue.

```

806 \ifx\Etoc@global\global
807 \@ifundefined{tof@finish}
808 {}
809 {\ifx\tof@finish\@empty
810 \else
811 \global\let\contentsline\Etoc@savdcontentsline
812 \fi
813 }%
814 \fi

```

## 60. Implementation

```
815 \@gobble\etoc@
816 }% end of \Etoc@tableofcontents definition by \etocsettocstyle
817 }

1.08 hacks the begin parts to update therein the \ifEtoc@isfirst flag (2015/03/09).
1.08c removes unneeded \long from the \def's inside \etoc@setstyle (2015/03/29).

818 \def\etocsetstyle{\Etoc@standardfalse\etoc@setstyle}
819 \long\def\etoc@setstyle#1#2#3#4#5{%
820 \expandafter\def
821 \csname Etoc@begin@\csname Etoc@#1@\endcsname\endcsname
822 {#2\Etoc@global\Etoc@isfirsttrue}%
823 \expandafter\def
824 \csname Etoc@prefix@\csname Etoc@#1@\endcsname\endcsname {#3}%
825 \expandafter\def
826 \csname Etoc@contents@\csname Etoc@#1@\endcsname\endcsname {#4}%
827 \expandafter\def
828 \csname Etoc@end@\csname Etoc@#1@\endcsname\endcsname {#5}%
829 }

placeholder for comments

830 \def\etocfontminustwo {\normalfont \LARGE \bfseries}
831 \def\etocfontminusone {\normalfont \large \bfseries}
832 \def\etocfontzero {\normalfont \large \bfseries}
833 \def\etocfontone {\normalfont \normalsize \bfseries}
834 \def\etocfonttwo {\normalfont \normalsize}
835 \def\etocfontthree {\normalfont \footnotesize}

placeholder for comments

836 \def\etocsepminustwo {4ex \@plus .5ex \@minus .5ex}
837 \def\etocsepminusone {4ex \@plus .5ex \@minus .5ex}
838 \def\etocsepzero {2.5ex \@plus .4ex \@minus .4ex}
839 \def\etocseppone {1.5ex \@plus .3ex \@minus .3ex}
840 \def\etocseptwo {.5ex \@plus .1ex \@minus .1ex}
841 \def\etocsepthree {.25ex \@plus .05ex \@minus .05ex}

placeholder for comments

842 \def\etocbaselinespreadminustwo {1}
843 \def\etocbaselinespreadminusone {1}
844 \def\etocbaselinespreadzero {1}
845 \def\etocbaselinespreadone {1}
846 \def\etocbaselinespreadtwo {1}
847 \def\etocbaselinespreadthree {.9}

placeholder for comments

848 \def\etocminustwoleftmargin {1.5em plus 0.5fil}
849 \def\etocminustworightmargin {1.5em plus -0.5fil}
850 \def\etocminusoneleftmargin {1em}
851 \def\etocminusonerightmargin {1em}
852 \def\etocclineleaders
853 {\hbox{\normalfont\normalsize\hb@xt@2ex {\hss.\hss}}}
854 \def\etocabbrevpagename {p.~}
```

Versions earlier than 1.08b (and since v1.05 2012/12/01) defined `\etocpartname` (for use by **etoc**'s own line styles) to expand to `\partname`. But this didn't make sense in the context for example of `babel` and `frenchb`, because `\frenchpartname` does things depending on the current value of the counter part. The code in recent `frenchb` (but not yet v2.5a when `\etocpartname` was introduced) constructs control sequences `\ordinali`, etc... If the part counter is zero, this gives `\ordinal`. Usually this is not defined, hence no error happens (as it is constructed via `\csname`),

but under class memoir the bug showed up. All this to explain that I found out about this long lasting problem only on 2015/03/14. Probably a sign that `etoc`'s own line styles are rarely used...

```
855 \def\etocpartname      {Part}% modified 1.08b
856 \def\etocbookname     {Book}
```

placeholder for comments The macro `\etocdefaultlines` was initially called `\etoclines`. Now `\etoclines` just does `\Etoc@standardfalse`. Version 1.07e has rewritten entirely the stuff related to penalties and `\addvspace`, as this was not satisfactory in the earlier versions, which were written at a early stage in the development of the package. Actually I am not fully satisfied with these line styles.

```
857 \def\etocdefaultlines{\Etoc@standardfalse %
858 %% 'book':
859 \etoc@setstyle{@minustwo}
860   {\addpenalty\@M\etocskipfirstprefix}
861   {\addpenalty\@secpenalty}
862   {\beginngroup
863     \etocfontminustwo
864     \addvspace{\etocsepminustwo}%
865     \parindent \z@
866     \leftskip \etocminustwoleftmargin
867     \rightskip \etocminustworightmargin
868     \parfillskip \@flushglue
869     \vbox{\etocifnumbered{\etocbookname\enspace\etocnumber:\quad}}{\etocname
870       \baselineskip\etocbaselinespreadminustwo\baselineskip
871       \par}%
872     \addpenalty\@M\addvspace{\etocsepminusone}%
873     \endgroup}
874   }%
875 %% 'part':
876 \etoc@setstyle{@minusone}
877   {\addpenalty\@M\etocskipfirstprefix}
878   {\addpenalty\@secpenalty}
879   {\beginngroup
880     \etocfontminusone
881     \addvspace{\etocsepminusone}%
882     \parindent \z@
883     \leftskip \etocminusoneleftmargin
884     \rightskip \etocminusonerightmargin
885     \parfillskip \@flushglue
886     \vbox{\etocifnumbered{\etocpartname\enspace\etocnumber.\quad}}{\etocname
887       \baselineskip\etocbaselinespreadminusone\baselineskip
888       \par}%
889     \addpenalty\@M\addvspace{\etocsepzero}%
890     \endgroup}
891   }%
892 %% 'chapter':
893 \etoc@setstyle{@zero}
894   {\addpenalty\@M\etocskipfirstprefix}
895   {\addpenalty\@itempenalty}
896   {\beginngroup
897     \etocfontzero
898     \addvspace{\etocsepzero}%
899     \parindent \z@ \parfillskip \@flushglue
900     \vbox{\etocifnumbered{\etocnumber.\enspace}}{\etocname
901       \baselineskip\etocbaselinespreadzero\baselineskip
902       \par}%
903     \endgroup}
```

## 60. Implementation

```
904 {\addpenalty{-\@highpenalty}\addvspace{\etocsepminusone}}%
905%% 'section':
906 \etoc@setstyle{@one}
907 {\addpenalty\@M\etocskipfirstprefix}
908 {\addpenalty\@itempenalty}
909 {\beginingroup
910  \etocfontone
911  \addvspace{\etocseppone}%
912  \parindent \z@ \parfillskip \z@
913  \setbox\z@\vbox{\parfillskip\@flushglue
914                  \etocname\par
915                  \setbox\tw@\lastbox
916                  \global\setbox\@ne\hbox{\unhbox\tw@ } }%
917  \dimen\z@=\wd\@ne
918  \setbox\z@=\etocclineleaders
919  \advance\dimen\z@\wd\z@
920  \etocifnumbered
921    {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage}}
922    {\setbox\tw@\hbox{\etocabbrevpagename\etocpage}}%
923  \advance\dimen\z@\wd\tw@
924  \ifdim\dimen\z@ < \linewidth
925    \vbox{\etocname~%
926          \leaders\box\z@\hfil\box\tw@
927          \baselineskip\etocbaselinespreadone\baselineskip
928          \par}% 1.08b adds the % here
929  \else
930    \vbox{\etocname~%
931          \leaders\copy\z@\hfil\break
932          \hbox{\leaders\box\z@\hfil\box\tw@
933          \baselineskip\etocbaselinespreadone\baselineskip
934          \par}%
935  \fi
936  \endgroup}
937 {\addpenalty\@secpenalty\addvspace{\etocsepzero}}%
938%% 'subsection':
939 \etoc@setstyle{@two}
940 {\addpenalty\@medpenalty\etocskipfirstprefix}
941 {\addpenalty\@itempenalty}
942 {\beginingroup
943  \etocfonttwo
944  \addvspace{\etocseptwo}%
945  \parindent \z@ \parfillskip \z@
946  \setbox\z@\vbox{\parfillskip\@flushglue
947                  \etocname\par\setbox\tw@\lastbox
948                  \global\setbox\@ne\hbox{\unhbox\tw@}}%
949  \dimen\z@=\wd\@ne
950  \setbox\z@=\etocclineleaders
951  \advance\dimen\z@\wd\z@
952  \etocifnumbered
953    {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage}}
954    {\setbox\tw@\hbox{\etocabbrevpagename\etocpage}}%
955  \advance\dimen\z@\wd\tw@
956  \ifdim\dimen\z@ < \linewidth
957    \vbox{\etocname~%
958          \leaders\box\z@\hfil\box\tw@
959          \baselineskip\etocbaselinespreadtwo\baselineskip
960          \par}%
```

```

961 \else
962     \vbox{\etocname~%
963         \leaders\copy\z@\hfil\break
964         \hbox{}}\leaders\box\z@\hfil\box\tw@
965         \baselineskip\etocbaselinespreadtwo\baselineskip
966         \par}%
967 \fi
968 \endgroup}
969 {\addpenalty\@secpenalty\addvspace{\etocsepone}}%
970 %% 'subsubsection':
971 \etoc@setstyle{@three}
972 {\addpenalty\@M
973 \etocfontthree
974 \vspace{\etocsepthree}%
975 \noindent
976 \etocskipfirstprefix}
977 {\allowbreak\,--\,}
978 {\etocname}
979 {\.\hfil
980 \beginingroup
981 \baselineskip\etocbaselinespreadthree\baselineskip
982 \par
983 \endgroup
984 \addpenalty{-\@highpenalty}}%

```

placeholder for comments

```

985 \etoc@setstyle{@four}{}{}{}{}%
986 \etoc@setstyle{@five}{}{}{}{}%
987 } % end of \etocdefaultlines!

```

The `\etocinnertopsep` default value is too big as well as `\etocbelowtocskip` and `\etocabovetocskip`, I guess, but if I am remember correctly I chose them to mimick the standard TOC spacings in article class.

```

988 \def\etocabovetocskip{3.5ex \@plus 1ex \@minus .2ex}
989 \def\etocbelowtocskip{3.5ex \@plus 1ex \@minus .2ex}
990 \def\etoccolumnsep{2em}
991 \def\etocmulticolsep{0ex}
992 \def\etocmulticolpretolerance{-1}
993 \def\etocmulticoltolerance{200}
994 \def\etocdefaultnbcoll{2}
995 \def\etocinnertopsep{2ex}

```

1.07i adds a `\nobreak` before the `\etocinnertopsep` and a test of vertical mode to see if truly adding a `\par` is a reasonable idea, in the case of single-column mode.

1.08b revisits this old code written perhaps at a time I didn't know about `\expandafter` !

```

996 \newcommand\etocmulticolstyle[2][\etocdefaultnbcoll]{%
997 \etocsettocstyle
998   {\let\etocoldpar\par
999   \addvspace{\etocabovetocskip}}%
1000   \ifnum #1>\@ne
1001     \expandafter\@firstoftwo
1002   \else \expandafter\@secondoftwo
1003   \fi
1004   {\multicolpretolerance\etocmulticolpretolerance
1005   \multicoltolerance\etocmulticoltolerance
1006   \setlength{\columnsep}{\etoccolumnsep}}%
1007   \setlength{\multicolsep}{\etocmulticolsep}}%
1008   \begin{multicols}{#1}[#2\etocoldpar\addvspace{\etocinnertopsep}]

```

## 60. Implementation

```
1009     {#2\ifvmode\else\beginngroup\interlinepenalty\@M\parskip\z@skip
1010         \@@par\endgroup
1011     \fi
1012     \nobreak\addvspace{\etocinnertopsep}%
1013     \pretolerance\etocmulticolpretolerance
1014     \tolerance\etocmulticoltolerance}%
1015 }%
1016 {\ifnum #1>\@ne
1017     \expandafter\@firstofone
1018 \else \expandafter\@gobble
1019 \fi
1020 {\end{multicols}}}%
1021 \addvspace{\etocbelowtocskip}}%
1022 }
```

placeholder for comments

```
1023 \def\etocinnerbottomsep{3.5ex}
1024 \def\etocinnerleftsep{2em}
1025 \def\etocinnerrightsep{2em}
1026 \def\etocoprulerule{\hrule}
1027 \def\etocleftrulerule{\vrulerule}
1028 \def\etocrightrulerule{\vrulerule}
1029 \def\etocbottomrulerule{\hrule}
1030 \def\etocoprulerulecolorcmd{\relax}
1031 \def\etocbottomrulerulecolorcmd{\relax}
1032 \def\etocleftrulerulecolorcmd{\relax}
1033 \def\etocrightrulerulecolorcmd{\relax}
```

1.07i moves the `\nobreak` to before the `\vskip\etocinnertopsep` (especially important for the single column case).

```
1034 \def\etoc@ruledheading #1{%
1035     \hb@xt@\linewidth{\color@beginngroup
1036         \hss #1\hss\hskip-\linewidth
1037         \etocoprulerulecolorcmd\leaders\etocoprulerule\hss
1038         \phantom{#1}}%
1039     \leaders\etocoprulerule\hss\color@endgroup}%
1040     \nointerlineskip\nobreak\vskip\etocinnertopsep}
1041 \newcommand*\etocruledstyle[2][\etocdefaultnbcoll]{%
1042 \etocsettocstyle
1043     {\addvspace{\etocabovetocskip}}%
1044     \ifnum #1>\@ne
1045         \expandafter\@firstoftwo
1046     \else \expandafter\@secondoftwo
1047     \fi
1048     {\multicolpretolerance\etocmulticolpretolerance
1049     \multicoltolerance\etocmulticoltolerance
1050     \setlength{\columnsep}{\etoccolumnsep}%
1051     \setlength{\multicolsep}{\etocmulticolsep}%
1052     \begin{multicols}{#1}[\etoc@ruledheading{#2}]}
1053     {\etoc@ruledheading{#2}%
1054     \pretolerance\etocmulticolpretolerance
1055     \tolerance\etocmulticoltolerance}}
1056     {\ifnum #1>\@ne\expandafter\@firstofone
1057     \else \expandafter\@gobble
1058     \fi
1059     {\end{multicols}}}%
1060     \addvspace{\etocbelowtocskip}}}
```

1.07k defines `\Etoc@relax` and `\etocbkgcolorcmd` as `\long`: the user manual says to use

\renewcommand\etocbkgcolorcmd, and an \ifx test is used in the framed style. It was thus a bug to have non-long definitions before. Or I could have said in the user manual to use \renewcommand\*, or in \etocframedstyle I should test for the two, or I should pause to try to remember about this code and think about it.

```

1061 \def\etocframedmhook{\relax}
1062 \long\def\etocbkgcolorcmd{\relax}
1063 \long\def\Etoc@relax{\relax}

placeholder for comments

1064 \newbox\etoc@framed@titlebox
1065 \newbox\etoc@framed@contentsbox
1066 \newcommand*{\etocframedstyle[2][\etocdefaultnbcoll]}{%
1067 \etocsettocstyle{%
1068   \addvspace{\etocabovetocskip}%
1069   \sbox\z@{\#2}%
1070   \dimen\z@\dp\z@
1071   \ifdim\wd\z@<\linewidth \dp\z@\z@ \else \dimen\z@\z@ \fi
1072   \setbox\etoc@framed@titlebox=\hb@xt@\linewidth{\color@begingroup
1073     \hss
1074     \ifx\etocbkgcolorcmd\Etoc@relax
1075     \else
1076       \sbox\tw@{\color{white}%
1077         \vrule\@width\wd\z@\@height\ht\z@\@depth\dimen\z@}%
1078         \ifdim\wd\z@<\linewidth \dp\tw@\z@\fi
1079         \box\tw@
1080         \hskip-\wd\z@
1081       \fi
1082       \copy\z@
1083       \hss
1084       \hskip-\linewidth
1085       \etocoprulerulecolorcmd\leaders\etocoprulerule\hss
1086       \hskip\wd\z@
1087       \etocoprulerulecolorcmd\leaders\etocoprulerule\hss\color@endgroup}%
1088   \setbox\z@\hbox{\etocleftrule\etocrightrule}%
1089   \dimen\tw@\linewidth\advance\dimen\tw@-\wd\z@
1090   \advance\dimen\tw@-\etocinnerleftsep
1091   \advance\dimen\tw@-\etocinnerrightsep
1092   \setbox\etoc@framed@contentsbox=\vbox\bgroup
1093     \hsize\dimen\tw@
1094     \kern\dimen\z@
1095     \vskip\etocinnertopsep
1096     \hbox\bgroup
1097     \begin{minipage}{\hsize}%
1098     \etocframedmhook
1099     \ifnum #1>\@ne
1100       \expandafter\@firstoftwo
1101     \else \expandafter\@secondoftwo
1102     \fi
1103     {\multicolpretolerance\etocmulticolpretolerance
1104     \multicoltolerance\etocmulticoltolerance
1105     \setlength{\columnsep}{\etoccolumnsep}%
1106     \setlength{\multicolsep}{\etocmulticolsep}%
1107     \begin{multicols}{#1}}
1108     {\pretolerance\etocmulticolpretolerance
1109     \tolerance\etocmulticoltolerance}}
1110   \ifnum #1>\@ne\expandafter\@firstofone
1111   \else \expandafter\@gobble

```

## 60. Implementation

```
1112     \fi
1113     {\end{multicols}\unskip }%
1114 \end{minipage}%
1115 \egroup
1116 \vskip\etocinnerbottomsep
1117 \egroup
1118 \vbox{\hsize\linewidth
1119     \ifx\etocbkgcolorcmd\Etoc@relax
1120     \else
1121         \kern\ht\etoc@framed@titlebox
1122         \kern\dp\etoc@framed@titlebox
1123         \hb@xt@\linewidth{\color@begingroup
1124         \etocleftrulecolorcmd\etocleftrule
1125         \etocbkgcolorcmd
1126         \leaders\vrule
1127             \@height\ht\etoc@framed@contentsbox
1128             \@depth\dp\etoc@framed@contentsbox
1129         \hss
1130         \etocrightrulecolorcmd\etocrightrule
1131         \color@endgroup}\nointerlineskip
1132         \vskip-\dp\etoc@framed@contentsbox
1133         \vskip-\ht\etoc@framed@contentsbox
1134         \vskip-\dp\etoc@framed@titlebox
1135         \vskip-\ht\etoc@framed@titlebox
1136     \fi
1137     \box\etoc@framed@titlebox\nointerlineskip
1138     \hb@xt@\linewidth{\color@begingroup
1139     {\etocleftrulecolorcmd\etocleftrule}}%
1140     \hss\box\etoc@framed@contentsbox\hss
1141     \etocrightrulecolorcmd\etocrightrule\color@endgroup}
1142     \nointerlineskip
1143     \vskip\ht\etoc@framed@contentsbox
1144     \vskip\dp\etoc@framed@contentsbox
1145     \hb@xt@\linewidth{\color@begingroup\etocbottomrulecolorcmd
1146     \leaders\etocbottomrule\hss\color@endgroup}}
1147     \addvspace{\etocbelowtocskip}}

placeholder for comments

1148 \newcommand\etoc@multicoltoc[2][\etocdefaultnbcol]{%
1149     \etocmulticolstyle[#1]{#2}%
1150     \tableofcontents}
1151 \newcommand\etoc@multicoltoctoci[2][\etocdefaultnbcol]{%
1152     \etocmulticolstyle[#1]{#2}%
1153     \tableofcontents*}
1154 \newcommand\etoc@local@multicoltoc[2][\etocdefaultnbcol]{%
1155     \etocmulticolstyle[#1]{#2}%
1156     \localtableofcontents}
1157 \newcommand\etoc@local@multicoltoctoci[2][\etocdefaultnbcol]{%
1158     \etocmulticolstyle[#1]{#2}%
1159     \localtableofcontents*}

placeholder for comments

1160 \newcommand*\etoc@ruledtoc[2][\etocdefaultnbcol]{%
1161     \etocruledstyle[#1]{#2}%
1162     \tableofcontents}
1163 \newcommand*\etoc@ruledtoctoci[2][\etocdefaultnbcol]{%
1164     \etocruledstyle[#1]{#2}%
1165     \tableofcontents*}
```



```

1166 \newcommand*\etoc@local@ruledtoc[2][\etocdefaultnbcoll]{%
1167   \etocruledstyle[#1]{#2}%
1168   \localtableofcontents}
1169 \newcommand*\etoc@local@ruledtoci[2][\etocdefaultnbcoll]{%
1170   \etocruledstyle[#1]{#2}%
1171   \localtableofcontents*}
  placeholder for comments
1172 \newcommand*\etoc@framedtoc[2][\etocdefaultnbcoll]{%
1173   \etocframedstyle[#1]{#2}%
1174   \tableofcontents}
1175 \newcommand*\etoc@framedtoci[2][\etocdefaultnbcoll]{%
1176   \etocframedstyle[#1]{#2}%
1177   \tableofcontents*}
1178 \newcommand*\etoc@local@framedtoc[2][\etocdefaultnbcoll]{%
1179   \etocframedstyle[#1]{#2}%
1180   \localtableofcontents}
1181 \newcommand*\etoc@local@framedtoci[2][\etocdefaultnbcoll]{%
1182   \etocframedstyle[#1]{#2}%
1183   \localtableofcontents*}
  placeholder for comments
1184 \def\etocmulticol{\begingroup
1185   \Etoc@mustclosegrouptrue
1186   \@ifstar
1187   {\etoc@multicoltooci}
1188   {\etoc@multicoltooc}}
1189 \def\etocruled{\begingroup
1190   \Etoc@mustclosegrouptrue
1191   \@ifstar
1192   {\etoc@ruledtoci}
1193   {\etoc@ruledtoc}}
1194 \def\etocframed{\begingroup
1195   \Etoc@mustclosegrouptrue
1196   \@ifstar
1197   {\etoc@framedtoci}
1198   {\etoc@framedtoc}}
1199 \def\etoclocalmulticol{\begingroup
1200   \Etoc@mustclosegrouptrue
1201   \@ifstar
1202   {\etoc@local@multicoltooci}
1203   {\etoc@local@multicoltooc}}
1204 \def\etoclocalruled{\begingroup
1205   \Etoc@mustclosegrouptrue
1206   \@ifstar
1207   {\etoc@local@ruledtoci}
1208   {\etoc@local@ruledtoc}}
1209 \def\etoclocalframed{\begingroup
1210   \Etoc@mustclosegrouptrue
1211   \@ifstar
1212   {\etoc@local@framedtoci}
1213   {\etoc@local@framedtoc}}
  placeholder for comments
1214 \def\etocarticlestyle{%
1215   \etocsettocstyle
1216   {\section *{\contentsname}
1217     \@mkboth {\MakeUppercase \contentsname}
1218     {\MakeUppercase \contentsname}}

```

## 60. Implementation

```
1219   {}
1220 \def\etocarticlestylenomarks{%
1221   \etocsettocstyle
1222   {\section *{\contentsname}}
1223   {}}
    placeholder for comments
1224 \def\etocbookstyle{%
1225   \etocsettocstyle
1226   {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
1227    \chapter *{\contentsname
1228              \@mkboth {\MakeUppercase \contentsname}
1229                       {\MakeUppercase \contentsname}}}
1230   {\if@restonecol \twocolumn \fi}}
1231 \def\etocbookstylenomarks{%
1232   \etocsettocstyle
1233   {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
1234    \chapter *{\contentsname}}
1235   {\if@restonecol \twocolumn \fi}}
1236 \let\etocreportstyle\etocbookstyle
1237 \let\etocreportstylenomarks\etocbookstylenomarks
```

v3.7i of memoir has moved the `\phantomsection` to a better location, before typesetting the title and we follow suit at 1.09a, and less rashly at 1.09b. Formerly `etoc` used `\etocaftertitlehook` to mimick the memoir code but as its name indicate, it is supposedly executed after the title... and this also had the defect of making `\etocaftertitlehook` not anymore a user command. Thus we here use some refactoring of the `\Etoc@aftertitlehook` internal mechanism to help recognize if we are in the starred case or not.

`\phantomsection` is always defined by memoir, empty if hyperref absent.

```
1238 \def\etocmemoirtocformat #1#2{%
1239   \def\Etoc@addsuitablecontentsline{\addcontentsline {toc}{#1}{#2}}%
1240 }
1241 \def\etocmemoirstyle{%
1242   \etocsettocstyle
1243   {\ensureonecol \par \begingroup \phantomsection
1244    \ifx\Etoc@aftertitlehook\@empty
1245    \else
1246     % non-starred variant
1247     \ifmem@em@starred@listof
1248     \else
1249     \Etoc@addsuitablecontentsline
1250     \fi
1251    \fi
1252    \@nameuse {@tocmaketitle} %<< space token here from memoir code
1253    \ifx\Etoc@aftertitlehook\@empty
1254    \else
```

Execute etoc hook before the `\cfttocbeforelisthook` and keep distinction between starred and non-starred contexts for other hooks. Notice that the memoir class way of implementing `\tableofcontents` leaves no way for code executed by the TOC code to know if it is executed in starred or non-starred context.

```
1255     \Etoc@aftertitlehook \let \Etoc@aftertitlehook \relax
1256     \fi
1257     \parskip \cftparskip \@nameuse {cfttocbeforelisthook}}
1258     {\@nameuse {cfttocafterlisthook}\endgroup\restorefromonecol}}
```

1.09c (2020/05/15) does an update as KOMA-script has deprecated `\iftocfeature`. Thanks to Bilel Omrani for report. I did not check if cloning of KOMA code required some further updates.

```

1259 \ifdefined\Iftocfeature\def\etoc@Iftocfeature{\Iftocfeature}\else\def\etoc@Iftocfeature{\iftocfeature
1260 \def\etocscartclstyle{%
1261   \etocsettocstyle
1262     {\let\if@dynlist\if@tocleft
1263     \def\@current{toc}% added 1.07m 2015/01/23
1264     \etoc@Iftocfeature {toc}{onecolumn}
1265       {\etoc@Iftocfeature {toc}{leveldown}
1266       {}
1267       {\if@twocolumn \aftergroup \twocolumn \onecolumn \fi }}
1268     }{%
1.07k: next line to do as within current scrartcl 2013/12/19 v3.12 KOMA-Script article class.
1269     \etoc@Iftocfeature {toc}{numberline}{\def \nonumberline {\numberline {}}}{}%
1270     \tocbasic@listhead {\listoftocname}%
1271     \begingroup \expandafter \expandafter \expandafter
1272     \endgroup \expandafter
1273     \ifx
1274       \csname microtypesetup\endcsname \relax
1275     \else
1276       \etoc@Iftocfeature {toc}{noprotrusion}{%
1277         {\microtypesetup {protrusion=false}%
1278         \PackageInfo {tocbasic}%
1279         {character protrusion at toc deactivated}}}%
1280     \fi
1281     \setlength {\parskip }{\z@ }%
1282     \setlength {\parindent }{\z@ }%
1283     \setlength {\parfillskip }{\z@ \@plus 1fil}%
1284     \csname tobasic@@before@hook\endcsname
1285     \csname tb@toc@before@hook\endcsname}
1286     {\csname tb@toc@after@hook\endcsname
1287     \csname tobasic@@after@hook\endcsname}}
1288 \let\etocscrbookstyle\etocscartclstyle
1289 \let\etocscrreprtstyle\etocscartclstyle
placeholder for comments
1290 \def\etocstandarddisplaystyle{\etocarticlestyle}
1291 \newcommand*\etocmarkboth[1]{%
1292   \@mkboth{MakeUppercase{#1}}{MakeUppercase{#1}}}
1293 \newcommand*\etocmarkbothnouc[1]{\@mkboth{#1}{#1}}
1294 \newcommand\etocstyle[3][section]{\etocmulticolstyle[#2]%
1295   {\csname #1\endcsname *{#3}}}
1296 \newcommand\etocstylewithmarks[4][section]{\etocmulticolstyle[#2]%
1297   {\csname #1\endcsname *{#3\etocmarkboth{#4}}}}
1298 \newcommand\etocstylewithmarksnouc[4][section]{\etocmulticolstyle[#2]%
1299   {\csname #1\endcsname *{#3\etocmarkbothnouc{#4}}}}
placeholder for comments
1300 \def\Etoc@redefetocstyle#1{%
1301   \renewcommand\etocstylewithmarks[4][#1]
1302   {\etocmulticolstyle[##2]%
1303     {\csname ##1\endcsname *{##3\etocmarkboth{##4}}}}
1304   \renewcommand\etocstylewithmarksnouc[4][#1]
1305   {\etocmulticolstyle[##2]%
1306     {\csname ##1\endcsname *{##3\etocmarkbothnouc{##4}}}}
1307   \renewcommand\etocstyle[3][#1]{%
1308     \etocmulticolstyle[##2]{\csname ##1\endcsname *{##3}}}}
1309 \@ifclassloaded{scrartcl}
1310   {\renewcommand*\etocstandarddisplaystyle{\etocscartclstyle}}{}
1311 \@ifclassloaded{book}

```

## 60. Implementation

```
1312   {\renewcommand*\etocfontone{\normalfont\normalsize}
1313   \renewcommand*\etocstandarddisplaystyle{\etocbookstyle}
1314   \Etoc@redefetocstyle{chapter}}{}
1315 \@ifclassloaded{report}
1316   {\renewcommand*\etocfontone{\normalfont\normalsize}
1317   \renewcommand*\etocstandarddisplaystyle{\etocreportstyle}
1318   \Etoc@redefetocstyle{chapter}}{}
1319 \@ifclassloaded{scrbook}
1320   {\renewcommand*\etocfontone{\normalfont\normalsize}
1321   \renewcommand*\etocstandarddisplaystyle{\etocscrbookstyle}
1322   \Etoc@redefetocstyle{chapter}}{}
1323 \@ifclassloaded{scrreprt}
1324   {\renewcommand*\etocfontone{\normalfont\normalsize}
1325   \renewcommand*\etocstandarddisplaystyle{\etocscrreprtstyle}
1326   \Etoc@redefetocstyle{chapter}}{}

```

1.07k (2014/03/06) adds the appendix to the list of known levels if class memoir is detected.

```
1327 \@ifclassloaded{memoir}
1328   {\etocsetlevel{appendix}{0}%
1329   \renewcommand*\etocfontone{\normalfont\normalsize}
1330   \etocmemoirtotocfmt{chapter}{\contentsname}%
1331   \renewcommand*\etocstandarddisplaystyle{\etocmemoirstyle}
1332   \Etoc@redefetocstyle{chapter}}{}

```

1.07k (2014/03/06) adds the compatibility with the tocloft package; in compatibility mode etoc will obey the tocloft customisation for the division headings as well as for the toc title.

1.07l (2014/04/02) fixes the bug from the tocloft compatibility layer which was memoir incompatible: memoir has its version of tocloft which doesn't have the \if@cftnctoc boolean.

```
1333 \def\etocloftstyle {%
1334   \etocsettocstyle
1335   {\@cfttocstart\par\begingroup
1336     \parindent\z@ \parskip\cftparskip \@cftmaketoctitle
1337     \if@cfttocbibind\@cftdobibtoc\fi }%
1338   {\endgroup\@cfttocfinish }%
1339 }
1340 \@ifclassloaded{memoir}{}
1341 {\@ifpackageloaded{tocloft}
1342   {\if@cftnctoc\else
1343     \renewcommand*\etocstandarddisplaystyle{\etocloftstyle}
1344     \AtBeginDocument{\let\tableofcontents\etoc\tableofcontents}
1345     \fi }
1346   {\AtBeginDocument
1347     {\@ifpackageloaded{tocloft}
1348     {\if@cftnctoc\else
1349       \PackageWarning {etoc}
1350       {Package 'tocloft' was loaded after 'etoc'!^^}%
1351       **** to prevent it from overwriting \protect\tableofcontents, it will be tricked^^}%
1352       **** into believing to have been loaded with option 'titles'. For better^^}%
1353       **** compatibility, please load 'tocloft' before 'etoc'}%
1354       \AtEndDocument{\PackageWarning{etoc}
1355         {Please load 'tocloft' /before/ 'etoc'!}}\fi
1356       \@cftnctoctrue }%
1357     {}%
1358   }%
1359 }%
1360 }

```

L<sup>A</sup>T<sub>E</sub>X 2021 fall release lets \contentsline always grab four arguments, so with 1.09e 2021/09/23 we make sure our \addtocontents will always provide \contentsline with four arguments. This

extra {} is done without checking LaTeX's version by laziness, as an impact on documents compiled with former LaTeX could be visible only with very special contexts that only the author himself would ever consider.

Let's also add `\protected@file@percent` at 1.09e although this is a priori of no relevance as `etoc` reads the toc file with `\endlinechar=-1` regime.

When using `\addcontentsline` nothing needs to be done as both things are handled by L<sup>A</sup>T<sub>E</sub>X upstream.

```

1361 \def\Etoc@addtocontents #1#2%
1362   {\ifEtoc@hyperref
1363     \addtocontents {toc}{\protect\contentsline
1364       {#1}{#2}%
1365       {\thepage }{\@currentHref }%
1366       \ifdefined\protected@file@percent\protected@file@percent\fi
1367     }%
1368   \else
1369     \addtocontents {toc}{\protect\contentsline
1370       {#1}{#2}{\thepage }}}%
1371     \ifdefined\protected@file@percent\protected@file@percent\fi
1372   }%
1373   \fi}
1374 \def\Etoc@addcontentsline@ #1#2#3%
1375   {\@namedef{toclevel@#1}{#3}%
1376   \addcontentsline {toc}{#1}{#2}}
1377 \DeclareRobustCommand*\etoccontentsline}
1378   {\@ifstar{\Etoc@addcontentsline@}{\Etoc@addtocontents}}

```

All the following added for version 1.07g [2013/10/13]. Motivated by a demand about `tovsec2`. But it is impossible to make `tocvsec2` compatible, if not re-doing all 'toc' macros in `tocvsec2` (v1.3, 2011/08/07). I do not retain the stack idea, which does not convince me as useful. The empty line in the `.toc` file is put there by `tocvsec2` (see its code line 143).

I take this opportunity to add to the start of the toc file `\let\etoc@startlocaltoc\@gobble` in case `etoc` is not detected, I should possibly have done that long ago (like I did in `tableof`).

In 1.07h I decide that I should not have used `\Etoc@` but `\etoc@` for `\Etoc@settocdepth`. So I now use lowercase and add a temporary line for transition in the very improbable situation that someone actually did already use the just released 1.07g.

In 1.07i the deactivation of `\etoc@settocdepth` done at the start of the `.toc` file (for the case this file is used after having removed `etoc` from the document, or imported in another document) is done via letting it to `\@gobble` rather than `\count@` (which would not be ok, as what follows would be undefined too). The reason for the `\count@` also used originally in `\etocignoretoctocdepth` is that when I first worked on 1.07g I possibly had more than one token after `\etoc@settocdepth`, but I changed that later.

1.09 renames `\Etoc@resettocdepth` to `\Etoc@restoretocdepth`.

```

1379 \def\Etoc@storetocdepth {\global\c@etoc@tocdepth\c@tocdepth }
1380 \def\Etoc@restoretocdepth {\global\c@tocdepth\c@etoc@tocdepth }
1381 \def\etocobeytoctocdepth {\def\etoc@settocdepth
1382   {\afterassignment\Etoc@@nottoodeep \global\c@tocdepth}}
1383 \def\Etoc@@nottoodeep {\ifnum\c@tocdepth>\c@etoc@tocdepth
1384   \global\c@tocdepth\c@etoc@tocdepth\fi }
1385 \def\etocignoretoctocdepth {\let\etoc@settocdepth\@gobble }
1386 \def\etocsettocdepth {\futurelet\Etoc@nexttoken\Etoc@set@tocdepth }
1387 \def\Etoc@set@tocdepth {\ifx\Etoc@nexttoken\bgroup
1388   \expandafter\Etoc@set@tocdepth@
1389   \else\expandafter\Etoc@set@toctocdepth
1390   \fi }
1391 \def\Etoc@set@tocdepth@ #1{\ifundefined {Etoc@#1@@}

```

## 60. Implementation

```

1392     {\PackageWarning{etoc}
1393       {Unknown sectioning unit #1, \protect\etocsettocdepth\space ignored}}
1394     {\global\c@tocdepth\csname Etoc@#1@@\endcsname}%
1395 }
1396 \def\Etoc@set@toctocdepth #1#{\Etoc@set@toctocdepth@ }
1397 \def\Etoc@set@toctocdepth@ #1{%
1398   \@ifundefined{Etoc@#1@@}%
1399   {\PackageWarning{etoc}
1400     {Unknown sectioning depth #1, \protect\etocsettocdepth.toc ignored}}%
1401   {\addtocontents {toc}
1402     {\protect\etocsettocdepth\expandafter\protect\csname Etoc@#1@@\endcsname}}%
1403 }

```

1.07h adds the depth tags, and an even more general mechanism could be added at some point: we could insert ‘action’ tags and have the user map them to arbitrary commands. For the time being we just provide `\etocdepthtag.toc {name}` and `\etocsettagdepth {tag_name}{level}` where level is numeric or alphabetical. The numeric level -3 is now again not accepted by `\etocsetlevel`, it can be used with `\etocsettagdepth` (which accepts equivalently none).

```

1404 \def\etocdepthtag #1#{\Etoc@depthtag } % \etocdepthtag.toc {name}
1405 \def\Etoc@depthtag #1{\addtocontents {toc}{\protect\etoc@depthtag {#1}}}
1406 \def\etocignoredepthtags {\let\etoc@depthtag \@gobble }
1407 \def\etocobeydepthtags {\let\etoc@depthtag \Etoc@depthtag@ }
1408 \def\Etoc@depthtag@ #1{\@ifundefined{Etoc@depthof@#1}%
1409   {}}% ignore in silence if tag has no associated depth
1410   {\afterassignment\Etoc@@nottodeep
1411     \global\c@tocdepth\csname Etoc@depthof@#1\endcsname}%
1412 }
1413 \def\etocsettagdepth #1#2{\@ifundefined{Etoc@#2@@}%
1414   {\PackageWarning{etoc}
1415     {Unknown sectioning depth #2, \protect\etocsettagdepth\space ignored}}%
1416   {\@namedef{Etoc@depthof@#1}{\@nameuse{Etoc@#2@@}}}%
1417 }

```

We must cancel all `tocvsec2` toc-related actions. But a check must be done for the memoir class, as its `tocvsec2` emulation does not have the incompatible things `etoc` needs to revert. This extra check added with `etoc 1.071`. Release 1.08g modifies the info message under class memoir (and downgrades it from warning to info).

```

1418 \def\Etoc@tocvsec@err #1{\PackageError {etoc}
1419   {the command \protect#1\space is incompatible with etoc}
1420   {use \protect\etocsettocdepth.toc as replacement (see etoc manual)}}%
1421 }%
1422 \AtBeginDocument {%
1423   \@ifclassloaded{memoir}
1424   {\PackageInfo {etoc}
1425     {Regarding memoir class command \protect\settocdepth, consider^^J
1426     \protect\etocsettocdepth.toc as a drop-in replacement with
1427     more capabilities^^J (see etoc manual). Similarly
1428     \protect\etocsettocdepth\space and
1429     \protect\etocsetnexttocdepth^^J should replace
1430     use of memoir’s \protect\maxtocdepth\space command.}}
1431   {\@ifpackageloaded {tocvsec2}
1432     {\def\maxtocdepth #1{\Etoc@tocvsec@err \maxtocdepth }%
1433     \def\settocdepth #1{\Etoc@tocvsec@err \settocdepth }%
1434     \def\resettocdepth {\@ifstar {\Etoc@tocvsec@err \resettocdepth }%
1435     {\Etoc@tocvsec@err \resettocdepth }%
1436     }%
1437     \def\save@tocdepth #1#2#3{}% % if etoc is added to file previously
1438     \let\reset@tocdepth\relax % using tocvsec2

```

```

1439     \let\remax@tocdepth\relax
1440     \let\tableofcontents\etoc\tableofcontents
1441     \PackageWarning {etoc}
1442     {package tocvsec2 detected and its modification of^^J
1443     \protect\tableofcontents\space reverted. Use
1444     \protect\etocsettocdepth.toc as a replacement^^J
1445     for the tocvsec2 toc-related commands}}{}%
1446   }%
1447 }%

1.07g. Initial version of \etocsetnexttocdepth.
1.08h: avoid after-effect of consecutive uses of \etocsetnexttocdepth with no intervening
TOC, due to the fact that the command did an immediate modification of the tocdepth counter.
This is now delayed until the actual TOC typesetting.
1.09: slight refactoring of \etocsetnexttocdepth to let it be usable from first argument of
\etocsettocstyle although it is even simpler to use \etocsettocdepth there, because the setting
is automatically undone at end of TOC.

Recall that etoc allows to change all numeric levels assigned to sectioning names, and the one
used by \etocsetnexttocdepth is determined at time of next toc only, when \Etoc@tocdepthset
will expand.

1448 \def\invisibletableofcontents {\etocsetnexttocdepth {-3}\tableofcontents }%
1449 \def\invisiblelocaltableofcontents
1450     {\etocsetnexttocdepth {-3}\localtableofcontents }%
1451 \def\etocsetnexttocdepth #1{%
1452     \@ifundefined{Etoc@#1@@}
1453     {\PackageWarning{etoc}
1454     {Unknown sectioning unit #1, \protect\etocsetnexttocdepth\space ignored}}
1455     {\Etoc@setnexttocdepth{\csname Etoc@#1@@\endcsname}}%
1456 }%
1457 \def\Etoc@setnexttocdepth#1{%
1458     \def\Etoc@tocdepthset{%
1459         \Etoc@tocdepthreset
1460         \edef\Etoc@tocdepthreset {%
1461             \global\c@tocdepth\the\c@tocdepth\space
1462             \global\let\noexpand\Etoc@tocdepthreset\noexpand\@empty
1463         }%
1464         \global\c@tocdepth#1%
1465         \global\let\Etoc@tocdepthset\@empty
1466     }%
1467 }%
1468 \let\Etoc@tocdepthreset\@empty % new 1.08h functioning of \etocsetnexttocdepth
1469 \let\Etoc@tocdepthset \@empty %

1.08k. Serves to make local TOCs even after headings which were not added to the .toc file; but
of course the local TOCs can only display sub-headings which made their way into the .toc file...

1470 \def\etocsetlocaltop #1#{\Etoc@set@localtop}%
1471 \def\Etoc@set@localtop #1{%
1472     \@ifundefined{Etoc@#1@@}%
1473     {\PackageWarning{etoc}
1474     {Unknown sectioning depth #1, \protect\etocsetlocaltop.toc ignored}}%
1475     {\addtocontents {toc}
1476     {\protect\etoc@setlocaltop\expandafter\protect\csname Etoc@#1@@\endcsname}}%
1477 }%
1478 \def\etoc@setlocaltop #1{%
1479     \global\let\Etoc@level #1%
1480     \Etoc@skipthisonefalse
1481     \ifnum\Etoc@level=\Etoc@@six@@

```

## 60. Implementation

```
1482 \Etoc@skipthisonetrue
1483 \else
1484 \ifEtoc@localtoc
1485 \ifEtoc@stoptoc\Etoc@skipthisonetrue
1486 \else
1487 \ifEtoc@notactive
1488 \Etoc@setflags
1489 \Etoc@skipthisonetrue
1490 \else
```

Attention, 1.09 has `\etoclocaltop` which is former `\Etoc@localtop` *minus one*. Hence the shape of the conditional. Memo: it makes sense only for code executed under "active" status of the TOC.

```
1491 \unless\ifnum\Etoc@level>\etoclocaltop
1492 \Etoc@skipthisonetrue
1493 \global\Etoc@stoptoctrue
1494 \fi
1495 \fi
1496 \fi
1497 \fi
1498 \fi
1499 \let\Etoc@next\@gobble
1500 \ifEtoc@skipthisone
1501 \else
1502 \ifnum\c@tocdepth<\Etoc@level
1503 \else
1504 \ifEtoc@standard
1505 \else
1506 \let\Etoc@next\@firstofone
1507 \fi
1508 \fi
1509 \fi
1510 \Etoc@next{\Etoc@doends\Etoc@dobegins}%
1511 }%
```

1.07h. In order for the `.toc` file to be usable without error even without `etoc`. In 1.07i use of `\@gobble` for `\etoc@settocdepth`.

```
1512 \addtocontents {toc}{\protect\@ifundefined{etocstyle}%
1513 \let\protect\etoc@startlocaltoc\protect\@gobble
1514 \let\protect\etoc@settocdepth\protect\@gobble
1515 \let\protect\etoc@depthtag\protect\@gobble
1516 \let\protect\etoc@setlocaltop\protect\@gobble}}%
```

Initializations.

```
1517 \def\etocstandardlines {\Etoc@standardtrue}
1518 \def\etococlines {\Etoc@standardfalse}
1519 \etocdefaultlines
1520 \etocstandardlines
1521 \etocstandarddisplaystyle
1522 \etocobeytocdepth
1523 \etocobeydepthtags
1524 \let\etocafertocook \@empty % public for end user.
1525 \let\etocbeforetitlehook \@empty % new with 1.07m
```

`listings` abuses `\tableofcontents` for its `\lstlistoflistings`. It doesn't seem worth to let my version of `\tableofcontents` have to check for this special circumstance. So at 1.09d, simply add this (and induced annoying updates to documentation at at least two locations):

```
1526 \def\etockeeporiginaltableofcontents
1527 {\let\tableofcontents\etocoriginaltableofcontents}%
1528 \endinput
```