

etoc

The command names throughout the user documentation which are displayed [with this colour](#) are doubly hyperlinked: the first two-thirds of the command name hyperlinks to the user documentation, and the remaining third part hyperlinks to the source code. You can try it out now: [\localtableofcontents](#). But read this first: if you get lost inside the source code, clicking on control sequences displayed [with this colour](#) brings you back to the part of the user manual discussing that specific command.

Abstract

With `etoc` loaded, `\tableofcontents` can be used multiple times and an added command `\localtableofcontents` allows to typeset “local” tables of contents, i.e. having their scope limited to the last sectioning command encountered.

No auxiliary file is used additionally to the standard `.toc` file. Release 1.2 provides EXPERIMENTAL additions `\locallistoffigures` and `\locallistoftables` which also use only the `.toc` file.

Such local TOCs or “Lists Of” typically need to adopt a “display style” (i.e. the way the title is rendered, whether it should add itself an entry in the `.toc` file, ...) somewhat distinct from the global TOC. The release 1.2 default adapts automatically the titles of local TOCs to their depths in the sectioning hierarchy. Should the need arise to customize such “display style”, full control is allowed by package commands.

Regarding how the individual “contents lines” are handled, here again complete control is given to the user to define from the ground-up how to use the *name*, *number*, and *page number* for each entry, according to their “levels” (i.e. part, chapter, section, subsection, ...). As this requires some \TeX fluency, many examples which can serve as starting points are attached to the PDF documentation as extractible files.

Loading `etoc` per itself modifies nothing to “contents lines” rendering from the class default or changes from other packages. But full usage of the package allows spectacular effects such as displaying TOCs as trees or mind maps.

License

```
% Package: etoc
% Version: 1.2b
% License: LPPL 1.3c
% Copyright (C) 2012-2023 Jean-Francois Burnol <jfbu at free dot fr>
%
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%      LaTeX version 2005/12/01 or later.
%
% The Author of this Work is:
% Jean-Francois Burnol <jfbu at free dot fr>
%
% This Work consists of the main source file etoc.dtx and the derived
% files etoc.sty, etoc.tex, etoc.pdf, etoc.dvi, README.md.
%
% Running etex (or latex or pdflatex) on etoc.dtx extracts etoc.sty,
% etoc.tex and README.md. See README.md for further instructions.
```

Part I.

Overview

Here are some statistics for this part: it contains 8 sections and no subsection. The name of the first section is “\(\code{local}\code{tableofcontents}” and the corresponding number is “1”. The name of the last section is “A partial list of the package commands” and its number is “8”.

<code>\(\code{local}\code{tableofcontents}</code>	1, p. 4
<code>\(\code{local}\code{listof}\code{(figures tables)}</code>	2, p. 6
The <code>\(\code{etoc}\code{settocstyle}</code> command	3, p. 8
The <code>\(\code{etoc}\code{setstyle}</code> command	4, p. 9
No auxiliary file is used beyond the TOC file	5, p. 9
Compatibility mode	6, p. 10
A list of the commands added at 1.2	7, p. 11
A partial list of the package commands	8, p. 14

1. The `\(\code{tableofcontents}`, `\(\code{local}\code{tableofcontents}` and other main package commands

`\(\code{tableofcontents}` can be used arbitrarily many times in the document,

`\(\code{local}\code{tableofcontents}` produces tables of contents which are limited in scope by the nearest preceding sectioning command,¹

`\(\code{etoc}\code{settocstyle}\langle\code{before_toc}\rangle\langle\code{after_toc}\rangle` defines (from the ground up, completely) the TOC titles, or more generally everything either before or after the actual TOC contents,

`\(\code{etoc}\code{setstyle}\langle\code{levelname}\rangle\langle\code{start}\rangle\langle\code{prefix}\rangle\langle\code{contents}\rangle\langle\code{finish}\rangle` defines (completely, from the ground up) arbitrarily the way the `\(\code{contentsline}` entries in the `.toc` file are rendered, depending on their first argument, which is a ‘level name’ such as part, chapter, section, subsection,...

It is possible to create new levels or re-assign the numerical level of a named one via `\(\code{etoc}\code{setlevel}\langle\code{levelname}\rangle\langle\code{number}\rangle`, thus opening the way for sophisticated (ab)-uses of the data stored in the `.toc` file.

¹After adding a `\(\code{local}\code{tableofcontents}` in-between existing ones, the first compilation will typeset at its location a pre-existing next one; only at second compilation will the contents match the location. Hence often a third compilation is needed for document to stabilize. And if the “to toc” mechanism is active (see the discussion of `\(\code{etoc}\code{setup}` option `\(\code{local}\code{toctotoc}` and similar options), only on second compilation is a new entry made in the `.toc` file so three compilations is always a minimum. If one starts compilations from a given source, and no auxiliary files, the first compilation prepares the `.toc` file, the second typesets the main and local TOCs, possibly changing page numbers due to added contents, and only at the third compilation will things perhaps stabilize, and this third step is surely needed in case of `\(\code{local}\code{toctotoc}`. `latexmk` is highly recommended.

`\etocname`, `\etocnumber`, `\etocpage` are free to use arbitrarily in the `\etocsetstyle` $\{\langle prefix \rangle\}$ and $\{\langle contents \rangle\}$ arguments for a given contents line level name, they stand for what will be extracted by `etoc` from the actual data which is stored in the `.toc` file and is a bit entangled there (for the first two).

Throughout this documentation “layout”, “display”, “TOC style” always are synonyms and refer roughly to how the TOC title is typeset. And “line styles” refer to how each individual entry in the TOC will be rendered according to its “level”. Whenever “TOC style” is mentioned it is for the title related things, else the documentation will say “line styles”.

`\etocsetstyle` is for line styles and it requires \TeX fluency. It is however absolutely not required to use it: by default `etoc` does not intervene at all into the rendering of the contents lines. For example, one can use packages such as `tocloft` to customize these contents lines as wished.

`\etocsettocstyle` is for styling the titles (and all things related to material before and after the actual TOC contents). It was originally conceived mainly for being used after the main document TOC (assuming it comes first). By default `etoc` renders the main TOC as specified by the class it knows about. But for example in a book-class document, one does not want to use a chapter-like heading for a local TOC in a section. Hence the need for `\etocsettocstyle`. But if used in the preamble it will apply to the main TOC too (if it comes first in the document body), hence its usage has to be delayed or stored into some command, else one has to insert branches in the original definition to query the kind of TOC it is applied to.

With 1.2 some utilities facilitate using `\etocsettocstyle` only once in the preamble and branch according to whether it is handling a main document TOC or a local one. But the macro was really initially conceived to be used for local TOCs once the main TOC was typeset (commands are provided to restore the default configuration in time for a main TOC at end of document). There is no command to customize the titles only for local TOCs from the preamble.

With 1.2 an effort has been made to make using `\etocsettocstyle` for local TOCs purely an option: by default the package adopts a style for local headings which takes into account the local top level. This corresponds to the command `\etocetoclocaltocstyle`, which is emitted by default by the package.

Furthermore 1.2 detects `tocbibind`² and executes a compatibility layer so that this package can be used with hopefully the same result as in the main document classes. Package options `maintoc`, `localtoc`, `localloftoc` and `locallottoc` trigger “to toc” mechanisms even without `tocbibind` if desired, directly at `etoc` level. The starred variants of the table of contents and “list of” commands will ignore the status of these options, as in the `memoir` class.

²Support for `tocloft` customization of contents lines was already in place for many years; the compatibility with `tocbibind` was added only at 1.2 and required to update the `tocloft` related code.

2. `\locallistof(figures/tables)`

2. The 1.2 `\locallistoffigures` and `\locallistoftables` commands

The major novelty with 1.2 is the addition of `\locallistoffigures` and `\locallistoftables`.

The following major problem is known with the current implementation: `\locallistoffigures` and `\locallistoftables` actually list the figures, respectively the tables, say in a given `\section` which are **TYPESET THEREIN**, which is not necessarily the same figures, tables, which in the \TeX source are located **“WITHIN” THAT SECTION**.

Recall that \TeX does not have a structured representation of the document (despite what many people like to think), so there is no pre-existing official way from inside a table to know in which section or subsection it is defined. And figures and tables are *floating*.

If a figure, for example, floats to next page, and the section were it was *defined* is followed on the initial page by another one, then a `\locallistoffigures` in the first section will NOT see the figure which has drifted to next page! That floating figure will be listed by a `\locallistoffigures` in the NEXT section!

Now, if all sections are equipped with `\locallistoffigures` this current “feature” of **etoc** means that all figures will be accounted for and one will be able to see in which section they physically reside after typesetting!

Which is nice but perhaps counter intuitive.

The source of this problem is well-understood by package author but addressing the issue is delayed probably for some months, by lack of time and resources; or may remain a permanent “feature” as the author does not intend to hack in any way into code for floats, or even captions.

Here is a non-**etoc** file you can play with and which illustrates the mechanism:

```
\documentclass{article}
\begin{document}
\tableofcontents % the table of contents will show the "table" entry
                  % as belonging to **second** section
\section{first}
\begin{table}[p]
  some tabular
  \makeatletter
  % add some entry in the toc file, like a subsection would do
  \write\@auxout{\string \@writefile {toc}
                {\protect \contentsline {subsec-
tion}{table}{\thepage }{}}}
  \caption{table}
\end{table}

\section{second}
\end{document}
```

- This is experimental code and the user interface as well as the output may change.

2. `\locallistof(figures/tables)`

- It is mandatory to load `etoc` with option `lof` for `\locallistoffigures` and `lot` for `\locallistoftables`.
- `etoc` does not interfere whatsoever with `\listoffigures` and `\listoftables`, and can not customize them in any way.
- `etoc` still uses no additional auxiliary file, it uses only the `.toc` file.
- This is experimental code and the user interface as well as the output may change.
- The new command `\etocsetup` allows to configure at any location in the preamble or in the document body the boolean options `maintoctotoc`, `localtoctotoc`, `localloftotoc`, `locallottotoc`, and `ouroboros` which can also be issued as package options. The first four default to `false`, except with the `memoir` class, in which case they are set to `true`, or when `tcbibind` is detected, in which case they are set to `true` depending on the setting of the `tcbibind` options.
- The `ouroboros` option defaults to `true`. When set to `false`, local TOCs which have been added to the `.toc` file due to `localtoctotoc` will *not* list themselves (they will still list entries from local TOCs at deeper levels in their scope, and the “lists of” at their same level, and are listed in the main TOC, the only thing is that they don’t show themselves in themselves).³ The default is that they *do* list themselves, hence the name `ouroboros`. It has no impact on the main TOCs, use their starred variant to inhibit the self-display, but then why have issued `maintoctotoc` in the first place?
- An effort has been made to facilitate as much as possible customization by the user, i.e. via commands without @ letter. However this documentation will only list their names with very brief comments at the appropriate place and the reader is expected to check in the source code to understand better what they are for.
- This is experimental code and the user interface as well as the output may change.
- For example, the actual figure entries or table entries use by default the code from the main LOF or LOT; but one may prefer to render them in a way taking into account the local “list of” scope: for example in a section, perhaps use the same style as subsections. This is possible and is explained briefly later.
- Although the default “`etoc`” choices for local titles should be hopefully satisfactory in most cases, it is also possible to tell `etoc` to try to use emulation from the document class via the command `\etocclasstocstyle`. An effort has been made to obtain something which works at one level deeper than the ones under `\part`. For example with `KOMA-script`, we use the option `leveldown`. However this will not really work for deeper local “lists of”.⁴ But for some document using local “lists of” only for chapters or for sections in classes

³It is complex to try to anticipate all scenarii, but in general, it is expected this behavior may cause the `.toc` file to need more time to stabilize when a new local TOC is added in the midst of a document having already a bunch of them.

⁴And with `KOMA-script` at version 3.30 or later the fact that unnumbered sections reset the subsection counter will cause bad problems in a `scrbook` document if a TOC, local to a `\subsection` uses a title which is an unnumbered section!

3. The `\etocsettocstyle` command

without chapters, this `\etocclasstocstyle` may be appropriate as it may allow the user to use the class interface for advanced control of the marks or other details.

- The `etoc` document class agnostic default, from `\etocetoclocaltocstyle` which is automatically issued at package loading time, is completely customizable.
- This is experimental code and the user interface as well as the output may change.
- If using for example all three of `\localtableofcontents`, `\locallistoffigures` and `\locallistoftables`, in the same location after a division heading, and if the “to toc” related options either from `etoc` or from `tocbibind` are used, then `\localtableofcontents` must be the first one in order to be able to list the other two (and itself). It can not see the “lists of” coming before itself at the same division level.
- Regarding the TOC title style, `etoc` knows the standard classes, the `KOMA-script` main classes and the `memoir` class. In an unknown class it will use the code from the `article` class emulation. For the local TOCs and local “lists of” it uses as with the known classes its own class-independent code from `\etocetoclocaltocstyle`.
- One can tell `etoc` to not replace the original `\tableofcontents` via `\etockeeporiginaltableofcontents` (it will still be possible to use `\etoc\tableofcontents`), but the non-`etoc` `\tableofcontents` is usable only if document does not use `\locallistoffigures` or `\locallistoftables` as the latter two insert entries for figures, resp. tables, in the main `.toc` file and only `etoc`’s `\tableofcontents` knows to ignore them.
- This is experimental code and the user interface as well as the output may change.

3. The `\etocsettocstyle` command

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}`. Here is an example of input:

```
\etocsettocstyle
  {\section*{Local table of contents}}%
  {}% don't do anything special after the toc contents
```

Once issued it will have an impact on all next usages of `\localtableofcontents` (or `\tableofcontents`) until it is used again (or some related command).

Generally speaking the `{<before_toc>}` part should leave \TeX in “vertical mode”: the line styles (either from the standard classes or the package default ones) all expect to get started in ‘vertical mode’.

For more documentation of this and related commands see first [section 5](#) then [section 9](#) for the more detailed pre-1.2 documentation.

Only daring people will continue reading documentation as it now starts telling how to truly activate `etoc` power.

4. The `\etocsetstyle` command

A distinction must be made between the *line styles*, i.e. the way the name, number and page numbers (aka `etoc`-provided `\etocname`, `\etocnumber`, and `\etocpage`) 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` (and related commands) which has already been mentioned, and the former by the command `\etocsetstyle` with is the core of `etoc` functionality.

It has five mandatory arguments.

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

The first one is the name of the sectional unit: a priori known names are book, part, chapter, section, subsection, subsubsection, paragraph, and subparagraph. Any other name can be declared and assigned to a (numeric) level via the `\etocsetlevel` command.⁵

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’) *how to use for this level the `\etocname`, `\etocnumber` and `\etocpage` parsed data*, and 4) *the last argument is the code to execute when a division unit of higher importance than the defined level style is encountered*.

Notice that this means that virtually `etoc` manages a kind of tree-like substratum which is abstracted from the ‘flat’ structure of the `.toc` data.

You should now read [section 11](#) for the detailed documentation.

5. No auxiliary file is used beyond the TOC file

An important characteristic of `etoc` is that it allows many different TOCs in the same document, *using only one .toc file!*

The present documentation contains 38 visible tables of contents (and a few invisible ones) and uses only one `.toc` file!⁶

However, each `\localtableofcontents` or `\tableofcontents` command will trigger the execution of the *full contents* from the `.toc` file. The effect of `\localtableofcontents` as well as the enforcement of the line styles as defined via `\etocsetstyle` are achieved via suitable redefinition of the `\contentsline` \TeX macro. But everything else present in the `.toc` file will be executed, as it is not possible for `etoc` to control in any way what is present in the `.toc` file beyond `\contentsline` entries.

So one should think twice before adding manually extra commands to the `.toc` file. See [section 20](#) for further discussion.

⁵`etoc` issues automatically `\etocsetlevel{appendix}{0}` (or with 1 if the document has no `\chapter` command), since [1.2](#). Formerly this was done only with class `memoir`.

⁶and the counting itself has been achieved by a table of contents which was inserted in this paragraph! See [section 34](#).

6. Compatibility mode

`etoc` starts in a “compatibility mode”, which means that it does not at all interfere with how the commands from the `.toc` file get executed as long as it has not been told explicitly to do so.⁷

This “compatibility mode” stops for matters of the “toc display style” as soon as `\etocsettocstyle` is made use of, and for matters of the “toc line styles” as soon as `\etocsetstyle` is used for *any* level (part, chapter, section, ...). Levels not receiving explicit configurations will use some pre-defined defaults which are in `etoc` source code.

`\etocclasstocstyle` sets the ‘main toc layout’ to be as without `\usepackage{etoc}`. Local TOCs will also obey the document class style but with an attempt to use a heading one level down. This tries to adapt to being in the top level below `\part` (i.e. in a `\chapter` or `\section`) but is not adapted to deeper local TOCs.

At 1.2, previously existing `\etocstandarddisplaystyle` was made into a deprecated synonym to this (the version from earlier releases made no attempt to adapt the style of the local TOCs to the level where it is located).

`\etocetoclocaltocstyle` (package default) Activates a heading style for local tables of contents (and “lists of”) which tries to adapt automatically to the surrounding level. It thus by-passes the configuration done by `\etocsettocstyle` which will then apply only to the main TOC. Using again `\etocsettocstyle` de-activates this behavior.

`\etocusertocstyle` means to obey the `\etocsettocstyle` configuration as previously in place, not only for the main TOC but also for local ones. If `\etocsettocstyle` has never been used, this means that we return to the situation from `\etocclasstocstyle`.

`\etocstandardlines` (package default) Sets the ‘content lines’ to be as without `\usepackage{etoc}`.

`\etococlines` sets the ‘content lines’ to match the last encountered `\etocsetstyle` specs.

`\etocdefaultlines` sets the ‘content lines’ to use `etoc` pre-defined ones. The denomination is a bit confusing as ‘default’ here means that these line styles are the ones defined by default, but not used by default... perhaps `\etocfallbacklines` would have been a better name.

Please be aware that by design the paragraph and subparagraph linestyles are configured by `\etocdefaultlines` to display nothing at all.

Naturally `\etocsettocstyle` and `\etocsetstyle` can be used arbitrarily many times in the document body (or already in the preamble but there one can not typeset a TOC; however one can prepare commands which will be activated later from inside the document body). And they obey the scope-limiting effect of \TeX environments.

⁷for the “toc display style”, by this we mean the aspects independant from the contents of the `.toc` file, `etoc` checks if it knows the class, and then uses emulation code which was added manually to its source, and if not it defaults to the `article` class layout. No automated way to recover the global toc display for arbitrary document classes is implemented. But `etoc` will detect if `tocloft` has customized the TOC title.

For an illustration of using `etoc` in compatibility mode see [section 27](#). And see [section 28](#) for some ways to let the line styles use the code from the document class but with some custom changes.

During expansion of `\locallistoffigures` or `\locallistoftables`, the macros `\etoclocallistoffigureshook` resp. `\etoclocallistoftableshook` are executed right before typesetting the entries. Their default definitions (refer to source code for more info):

```
\def\etoclocallistoffigureshook{\etocstandardlines}%
\def\etoclocallistoftableshook {\etocstandardlines}%
```

means compatibility mode, i.e. the macros `\l@figure` and `\l@table` will be the ones involved, as if we were in the global `\listoffigures` or `\listoftables`.

If you redefine these “hook”-macros to do nothing, the figure/table entries will use the style as appropriate for entries at numerical level one deeper than the “local top”: i.e. in a section they will be typeset as if being subsections. If you have both `\locallistoffigures` and a `\localtableofcontents`, this may align better vertically than the \TeX line style from the global “Lists Of”.

Note that “hook” is used here in a very naive meaning of some macro which is pre-located somewhere and that one can redefine to obtain various effects.

7. A list of the commands added at 1.2

One pre-existing command has been modified: `\etocstandarddisplaystyle` which is now deprecated and replaced by `\etocetoclocaltocstyle`. The former behavior was to set also local TOCs to apply the style from the main TOC, which basically never works really well. As explained already one can use `\etocclasstocstyle` to try to get for top local TOCs a suitable behavior, for example in the case of `KOMA-script` classes, a behavior using their `leveldown` option. But this will not be satisfactory for deeper local TOCs or “lists of”.

First there is `\etocsetup`:

`\etocsetup{\key[=true/false],...}` has already been mentioned earlier. It is usable with `maintoc`, `localtoctoc`, `localloftoc`, `locallottoc`, and `ouoroboros`, everywhere in the document after the package loading.

Then some utilities relative to the `\etocsetlevel` command:

- `\etoclevel{\levelname}` expands to a numeric quantity giving the level of a given string argument. For example `\etoclevel{section}` will usually produce a \TeX number denotation of value one. It is provided for matters of programming, as its output format is suitable for usage in `\ifnum` test. For typesetting, it should be prefixed by the \TeX primitive `\number`.
- `\etocthelevel{\levelname}` expands to a explicit digits (possibly prefixed by a minus sign), i.e. it is equivalent to `\number\etoclevel{\levelname}` and is provided as a convenience. (added at 1.2a)

7. A list of the commands added at 1.2

- `\etothemaxlevel` expands to either 12 or 6 (default) depending on whether the `deeplevels` option was used or not. See the documentation of `\etocsetlevel` for more. (added at 1.2a)
- `\etocifunknownlevelTF{<levelname>}{<True>}{<False>}` is a conditional to test if a level name has been declared to `etoc`.

Then two utilities to help store and restore toc line styles:

`\etocstorelinestylesinto{<control_sequence>}` This is a command with one mandatory argument which must be a control sequence such as `\foo`. The macro `\foo` is then overwritten with no check if it exists already. Its effect is to store inside `\foo` the current toc line styles configuration, for all levels at once. Then inserting `\foo` in the document will restore all line styles to the state they were in at time of usage of `\etocstorelinestylesinto`.

`\etocstorethislinestyleinto{<name or number>}{<control_sequence>}` Same principle but now `\foo` will store the line style for the specified level only. This argument can be numerical or a name. And thus executing `\foo` will then have the same effect as re-doing the `\etocsetstyle` for that level.

The more numerous additions are relative to usage of `\etocsettocstyle`, i.e. customizing the “display” style. This mainly means matters relative to the title of the local TOCs or Lists Of, inclusive of whether they should add an entry into the `.toc` file matching their titles. Indeed, please be aware that as soon as you use `\etocsettocstyle` you will have to handle yourself the support for such behavior. Of course, as you also control the options, you don’t have to use the provided command layer which tests the status of these options, but it is provided anyway as public interface. Indeed all of this is done via commands with no @ letter in their names, and the package itself uses this public interface in its implementation of the default behavior, adjusted to the document class. The documentation here is brief, check for more the source code to which the listed commands are hyperlinked (from the last third of their names).

Some of these commands are defined via batch processing done in loops in the code, and the hyperlinks only point to some initial dummy definitions, which were added only to provide such link targets, and one has to read the code further to discover the actual definitions.

- `\etocifislocal`, `\etocifislocaltoc`, `\etocifislocallof`, `\etocifislocallot` can be used from inside the `\etocsettocstyle` first or second argument to select either one of the `{<True>}` and `{<False>}` branches.
- `\etocifmaintoctotoc`, `\etociflocaltoctotoc`, `\etociflocalloftotoc`, `\etociflocallottotoc`, are conditionals matching the options and selecting one of the `{<True>}` or `{<False>}` branches.
- `\etocifisstarred{<True>}{<False>}` says from inside the `\etocsettocstyle` arguments if the toc or ‘list of’ command was in starred form.

The `\etocetoclocaltocstyle` and `\etocclasstocstyle` have been configured so that when a * follows a `\tableofcontents` or `\localtableofcontents` or local “lists of”, its

“to toc” behavior (if active from `tocbibind` or `etoc` own options) is canceled. They use `\etocifisstarred` to this effect.

- `\etoclocalheadtotoc{<levelname>}{<text>}` is a synonym for


```
\addcontentsline{toc}{<@levelname>}{<text>}
```

 Pay attention to automatically added @ character.⁸
 Use this for example in the second argument of `\etoclocalmulticol`.⁹
- `\etocglobalheadtotoc{<levelname>}{<text>}` is a synonym for


```
\addcontentsline{toc}{<levelname>}{<text>}
```

 We have so many commands we can define another useless one... for aesthetic reasons of coherent names...
- `\etocdivisionnameatlevel{<number>}` is an expandable construct which starts from a numerical level from -2 to 5 and produces one of book, part, ..., up to subparagraph as per the built-in \TeX (and standard classes) default assignments (and `memoir` for book).
 Under option `deeplevels` the numerical level can go up to 11 but as there is no standard default for documents with extra sectioning commands (e.g. is it using `\subsubsubpara-`
`graph?` or `\subsubsubsection?` or some `\subivsection?`), the user has probably to copy and redo with changes the package definition of `\etocdivisionnameatlevel` in that case.
- `\etocetoclocaltocmaketitle` is the command used by `\etocetoclocaltocstyle` which typesets a local “list of” title using an un-numbered sectioning appropriate to its scope. See the source code for how it looks.
- `\etocetoclistoffiguresmaketitle` and `\etocetoclistoftablesmaketitle` are similar, see the source code.
- `\localcontentsname`, `\locallistfigurename`, `\locallisttablename` are self-explanatory.
- `\etocclasslocaltocmaketitle`, `\etocclasslocallofmaketitle`, `\etocclasslocallotmaketitle`, `\etocclassmaintocaddtotoc`, `\etocclasslocaltocaddtotoc`, `\etocclasslocallofaddtotoc`, `\etocclasslocallotaddtotoc`, well again see source code.

Finally there is a command to help store/restore a given display style configuration.

`\etocstoretocstyleinto{<control_sequence>}` This is a command with one mandatory argument which must be a control sequence such as `\foo`. The macro `\foo` is then overwritten with no check if it exists already. Its effect is to store inside `\foo` the data configured by the last `\etocsettocstyle`. Then inserting `\foo` in the document will restore the saved toc style.¹⁰

⁸Without this syntax, it would not be possible to have all three of `\localtableofcontents`, `\locallistoffigures` and `\locallistoftables` one after the other following a given document heading, due to deep internals of the local TOC `etoc` mechanism. Notice that these internal details are susceptible to change with no advance notice and the actual implementation of `\etoclocalheadtotoc` may change.

⁹There is currently no analog of `\etoclocalmulticol` and similar commands which would be related to `\locallistoffigures` or `\locallistoftables` as `\etoclocalmulticol` is to `\localtableofcontents`.

¹⁰It is impossible to store the style used by the `\etocetoclocaltocstyle` for local TOCs. Only the one for main TOCs, which was configured by last usage of `\etocsettocstyle` is saved in `\foo`. After `\foo` is executed, one needs to again issue `\etocetoclocaltocstyle` if one wants the latter to be active.

8. A partial list of the package commands

<code>\etocbeforetitlehook</code>	<code>\etocsetstyle</code>
<code>\etocaftertitlehook</code>	<code>\etocskipfirstprefix</code>
<code>\etocaftercontentshook</code>	<code>\etocifnumbered</code>
<code>\etocaftertoohook</code>	<code>\etociffirst</code>
<code>\etocsettocstyle</code>	<code>\etoclink</code>
<code>\etocclasstocstyle</code>	<code>\etocthelink</code>
<code>\etocetoclocaltocstyle</code>	<code>\etocname</code>
<code>\etocmulticol</code>	<code>\etocnumber</code>
<code>\etocframed</code>	<code>\etocpage</code>
<code>\etocruled</code>	<code>\etocthename</code>
<code>\etocsettocdepth</code>	<code>\etocthenumber</code>
<code>\etocsettocdepth.toc</code>	<code>\etocthepage</code>
<code>\etocsetnexttocdepth</code>	<code>\etocthelinkedname</code>
<code>\etocdepthtag.toc</code>	<code>\etocthelinkednumber</code>
<code>\etocsettagdepth</code>	<code>\etocthelinkedpage</code>
<code>\etocobeydepthtags</code>	<code>\localtableofcontents</code>
<code>\etocdefaultlines</code>	<code>\localtableofcontentswithrelativedepth</code>
<code>\etocstandardlines</code>	<code>\locallistoffigures</code>
<code>\etococlines</code>	<code>\locallistoftables</code>
<code>\etocsetlevel</code>	<code>\tableofcontents</code>

The above is not an exhaustive list of all the package user commands. For example, it does not include most of those added at 1.2 and which were listed in the previous section.

Part II.

The **etoc** styling commands

Here are some statistics for this part: it contains 5 sections and 22 subsections. The name of the first section is “The `\etocsettocstyle` and related commands” and the corresponding number is “9”. The name of the last section is “Summary of the main styling commands” and its number is “13”. The name of the first subsection is “The `\etocsettocstyle` command” and the corresponding number is “9.1”. The name of the last subsection is “Labels and references” and its number is “13.4”.

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The two main commands `\etocsettocstyle` and `\etocsetstyle` can be used anywhere in the document. Typically one will render the main global TOC in one style and local tables of contents in another. So the commands to style the local tables of contents will be executed after the main `\tableofcontents` (if it is first in document) either by direct injection in the document source, or encapsulated in user commands defined in the preamble.

All commands obey the scope limiting effect induced by \TeX environments or the core \TeX `\begingroup/\endgroup` (or braces `{...}`) constructs.

9. The `\etocsettocstyle` and related commands

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9.1. The `\etocsettocstyle` command

The basics are explained in [section 3](#). Recall that the syntax is

```
\etocsettocstyle{\langle before_toc \rangle}{\langle after_toc \rangle}
```

and here is a typical example of use:

```
\etocsettocstyle
  {\section*{Local table of contents}}%
  {}% don't do anything special after the toc contents
```

The first argument to `\etocsettocstyle` can also contain instructions to mark the page headings. Or it could check to see if two-column mode is on, and switch to one-column style, and the `\langle after_toc \rangle` part would then reenact the two-column mode.

The commands to be described next `\etocmulticolstyle`, `\etocruledstyle`, and `\etocframedstyle` all call `\etocsettocstyle` as a lower-level routine, to initiate a multicol environment in `\langle before_toc \rangle` and close it in `\langle after_toc \rangle`.

9.1.1. The `\etocarticlestyle`, `\etocbookstyle`, and others commands

These are the commands used internally by `etoc` in compatibility mode depending on the document class. For example `\etocarticlestyle` instructs `etoc` to use `\section*{\contentname}`

(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.

Here is the current list:

- `\etocarticlestyle`
- `\etocarticlestylenomarks`
- `\etocreportstyle`
- `\etocreportstylenomarks`
- `\etocbookstyle`
- `\etocbookstylenomarks`
- `\etocmemoirstyle`
- `\etocscrartclstyle`
- `\etocscrreprtstyle`
- `\etocscrbookstyle`

The command `\etocclasstocstyle` will adapt to the document class. One can not use the *KOMA-script* related commands or the *memoir* one in standard classes.

9.1.2. The `\etocinline` and `\etocdisplay` commands

With `\etocinline`, or its synonym `\etocnopar`, the `\localtableofcontents` 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 `\localtableofcontents` and variants issue a `\par` to switch to vertical mode before typesetting the TOC title and contents.

Here is an example of an *inline* table of contents, which has only subsections and uses the `itemize*` environment from *enumitem* for them. The code used is

And the output is:

```
\begingroup
  \etocglobaldefs
  \etocsetstyle {subsection}
    {\begin{itemize*}[itemjoin={{; }}, itemjoin*={{, and }}}
    {}
    {\item [{\bfseries\etocnumber.}] \etocname\ (\emph{p. \etocpage })}
    {\end{itemize*}.}%
  \etocsetnexttocdepth {subsection}%
  \etocsettocstyle {a clone of a local table of contents, originally defined in
    \autoref{sec:tocstyle}, but here rendered completely
    differently via an inline \ctanpkg{enumitem} list: }{}%
  \etocinline\tableofcontents \ref{toc:tocstyle}
\endgroup
```

(observe that on executing the above there is no extra space after the colon beyond what is intended, and the current paragraph is simply continued) And the output is: a clone of a local table of contents, originally defined in [section 9](#), but here rendered completely differently via

9. The `\etocsettocstyle` and related commands

an inline `enumitem` list: **9.1.** The `\etocsettocstyle` command (p. 16); **9.2.** The `\etocmulticolstyle`, `\etocmulticol`, and `\etoclocalmulticol` commands (p. 18); **9.3.** The `\etoclocalmulticol` command (p. 18); **9.4.** The `\etocruledstyle`, `\etocruled` and `\etoclocalruled` commands (p. 19); **9.5.** The `\etocframedstyle`, `\etocframed`, and `\etoclocalframed` commands (p. 19); **9.6.** Customizing the pre-defined toc display styles (p. 20), and **9.7.** Headings, titles, `\etocoldpar`, `\etocinnertopsep` (p. 21).

It was needed to use `\etocglobaldefs` because the `\item` command, as modified by `enumitem` closes a group, hence the meaning of `\etocname`, `\etocnumber` and `\etocpage` would have been lost after it.

A more impressive example of an inline table of contents (containing the full contents of this document, which subsections rendered as page footnotes...) is to be found in [section 32](#).

9.2. The `\etocmulticolstyle`, `\etocmulticol`, and `\etoclocalmulticol` commands

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 multicol 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 an example:

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

After `\etocmulticolstyle` all future `\tableofcontents` will use the specified style until modified by renewed usage of `\etocsettocstyle` or variants.

A shortcut combining the style specification and the table of contents and not impacting the styles of later TOCs is:

```
\etoclocalmulticol[⟨number_of_columns⟩]{⟨heading⟩}
```

So the above example can be also obtained using:

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

It has the advantage that the TOC styling as specified applies only to this sole local TOC.

And there is also `\etocmulticol[⟨number_of_columns⟩]{⟨heading⟩}` for global TOC.

9.3. The `\etocstyle` command

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

is the exact equivalent of doing

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

9.5. The `\etocframedstyle`, `\etocframed`, and `\etoclocalframed` commands

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

As explained above one still has to issue `\localtableofcontents` to typeset the TOC. And the styling, if not enclosed in a scope-limiting group or environment, applies to subsequent local TOCs.

9.3.1. The `\etocstylewithmarks` command

```
\etocstylewithmarks[<kind>]{<number_of_columns>}{<title>}{<mark>}
```

is the exact equivalent of doing

```
\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.

9.3.1.1. Do we really want paragraph entries in the TOC?

9.3.1.2. really?

9.4. The `\etocruledstyle`, `\etocruled` and `\etoclocalruled` commands

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 [the start of this part](#) was obtained with:

```
\etocruledstyle[1]{\etocfontminusone\color{green}%  
  \fboxrule1pt\fboxseplex  
  \framebox[\linewidth]  
    {\normalcolor\hss Contents of this part\hss}}  
\localtableofcontents
```

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

```
\etoclocalruled[<number_of_columns>]{<title>}
```

And there is also `\etocruled` for the global TOC.

9.5. The `\etocframedstyle`, `\etocframed`, and `\etoclocalframed` commands

Same mechanism:

```
\etocframedstyle[<number_of_columns>]{<title>}
```

and the accompanying shortcut:

```
\etoclocalframed[<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

9. The `\etocsettocstyle` and related commands

to put the whole thing inside braces or a `\begingroup . . . \endgroup`; there is also `\etocframed` for a global table of contents).

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 9.6](#)).

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` or `tcolorbox` in the arguments of `\etocsettocstyle` is recommended.

Examples in this document are on pages [37](#), [64](#), [61](#), and [67](#).

9.6. Customizing the pre-defined toc display styles

We list the relevant macros, what they do should be legible from their names. Note that dimensions are stored in macros so are modified using `\renewcommand`'s and not `\setlength`'s. And color related commands are not color definitions, they execute `\color`, and their effect gets canceled by re-defining them to do `\relax` or `\empty`.

```
\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*\etocoprule{\hrule}
\newcommand*\etocoprulecolorcmd{\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\etocframedmphook{\relax}
```

The `\etocframedmphook` 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{\etocptoprule}{\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 `\etocruled` or `\etocframed` which will be used for the meaning of the '1ex'. Of course also the other rule commands can have their dimensions in font relative units, but their values are decided on the basis of the font in effect just before the table of contents.

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

9.7. 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`¹¹ 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`.

10. 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

¹¹this 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.

11. The `\etocsetstyle` and related commands

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 mimics the `memoir` class behavior, and can also be used with it. For more on `memoir` class with `etoc`, see [subsection 47.2](#).

There are further hook macros: `\etocaftercontentshook`, `\etocbeforetitlehook` and `\etocaftertochhook` 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.

For example, the present document executed

```
\renewcommand{\etocbeforetitlehook}{\setstretch{1}}
```

as it is globally using the `setspace` command `\onehalfspacing`. Not using `\singlespacing` in the hook as it does a systematic vertical skip of one baseline, which is unwanted in our usage.

In recent years, the \TeX kernel has added a general “hook” mechanism with a user interface of the type `\AddToHook{...}{...}`.

The `etoc` macros with ‘hook’ ending their names are much simpler things which are supposed to be manipulated only via `\renewcommand` or `\def` direct overwrites.

In future, and to the extent the author has time for that addition, with its costly documentation updates collaterals, and thoughts about backward compatibility, `etoc` should arguably tap into the general tools provided by recent \TeX kernels.

11. The `\etocsetstyle` and related commands

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

The line styles were (essentially) obtained in the following manner:¹²

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

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

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

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-01.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

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

¹²the 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.

11. The `\etocsetstyle` and related commands

toc entry. In the meantime 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 either option `linktoc=all` or option `linktoc=page`).¹³ In accordance with the `hyperref` native behavior, no link gets incorporated into `\etocpage` if the page number is empty.

11.1. 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.

The command `\etociffirst{<YES CODE>}{<NO CODE>}` 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 `\etocxiffirst` does the same, but is expandable.

11.2. 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`.

11.3. 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).¹⁴

¹³As expected, in case of `linktoc=page`, only `\etocpage` is an hyperlink, not `\etocname` nor `\etocnumber`. See `\etoclink` on how to create hyperlinks with the entry target.

¹⁴as seen we use `\fcolorbox` 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`.

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\fcolorbox{green}{white}{\etocnumber}}{}}]
{\normalsize\bfseries\rmfamily\item}
{\etocname{} (page \etocpage)}
{\end{enumerate}}

\etocsetstyle{subsection}
{\begin{enumerate}[leftmargin=0cm, label=\etocnumber]}
{\normalfont \item}
{\etocname{} (p.~\etocpage)}
{\end{enumerate}}
```

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

The command `\etocifnumbered` is robust; `\etocxifnumbered` has the same effect but is expandable.

11.4. 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 “robust”, in fact it is expected they will be often submitted to one expansion step so that their contents can easily be recovered and stored perhaps for delayed usage.

11.5. The `\etoclink` command

The command `\etoclink{⟨text⟩}` can be used in the line style specifications in a manner analogous to `\etocname`, `\etocnumber` and `\etocpage`. It creates a link (if `hyperref` is present¹⁵) whose target is the corresponding document unit and whose name is the given `⟨text⟩` mandatory argument.

Hence `\etoclink{\etocthename}` is under default conditions of `hyperref` like the original `\etocname`, because the latter is already hyperlinked. Under `linktoc=page` context `\etoclink{\etocthename}` adds the hyperlink which is missing from `\etocname`. Similarly under the default `hyperref` condition (i.e. `linktoc=section`) `\etocpage` is not an hyperlink, but one can use `\etoclink{\etocthepage}`.

The command `\etoclink` is robust.

¹⁵Prior to 1.1a, no such link was added if the `.toc` file entry was encountered with `hyperref`'s option `linktoc` set to `none`.

11.6. The `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` and `\etocthelink` commands

The meanings of these commands can be stored for delayed usage. For example this is done in the [examples with trees](#).

There has been a **breaking change** at 1.1a. Here is the behavior *prior* to this release:

- `\etocthelinkedname` and `\etocthelinkednumber` were hyperlinks only if `hyperref` was configured via `linktoc=all` or `linktoc=section` (the default),
- `\etocthelinkedpage` was an hyperlink only if `hyperref` was configured via `linktoc=all` or `linktoc=page` and the page number was not empty.

This behavior was coherent with the commands `\etocname`, `\etocnumber`, and `\etocpage` being the robust variants of `\etocthelinkedname`, `\etocthelinkednumber`, and `\etocthelinkedpage`.

At 1.1a it was decided that the commands should match their denominations.¹⁶ So they are now *always* hyperlinks independently of `linktoc` `hyperref` option (`\etocthelinkedpage` has no hyperlink if the page number is empty, to match `hyperref` behavior):

- `\etocthelinkedname` and `\etocthelinkednumber` and `\etocthelinkedpage` are always (in presence of `hyperref`) hyperlinks (for `\etocthelinkedpage` the page number must not be empty).

A further command is provided: `\etocthelink`, which wraps¹⁷ an hyperlink around its argument: `\etocthelink{<foo>}` hyperlinks an arbitrary text `<foo>` to the target sectioning unit in the document. The command `\etoclink` is its robust variant.

11.7. The `\etocsetlevel` command

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 commands `\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 table of contents are never using 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).

¹⁶To tell the whole truth, the author in refactoring the code completely at 1.1a was tricked by the names and forgot to read the old documentation so the new behavior was implemented and it was decided to keep the change.

¹⁷Prior to 1.1a, there was a link added only if `hyperref` option `linktoc` was not none.

The accepted levels (but see the frame below) run from -1 to 6 inclusive (also -2 with class `memoir`). Anything else is mapped to 6, which is a dummy level, never displayed. The package does:

```
\etocsetlevel{book}{-2}% (only with class memoir)
\etocsetlevel{part}{-1}
\etocsetlevel{chapter}{0}
\etocsetlevel{appendix}{0}% or 1 if document has no \chapter
\etocsetlevel{section}{1}
\etocsetlevel{subsection}{2}
\etocsetlevel{subsubsection}{3}
\etocsetlevel{paragraph}{4}
\etocsetlevel{subparagraph}{5}
```

`etoc` own custom styles are activated by `\etocdefaultlines`.

Boolean option `deeplevels` added at 1.2a has the effect of replacing 6 by 12 as the maximal numerical level (which, as has been said above, is never displayed). The value 6 (default) or 12 (if `deeplevels` is set to true) is held by `\etocthemaxlevel`. With `deeplevels` option one can for example do:

```
\etocsetlevel{subsubsubsection}{4}
\etocsetlevel{subsubsubsubsection}{5}
\etocsetlevel{subsubsubsubsubsection}{6}
\etocsetlevel{paragraph}{7}
\etocsetlevel{subparagraph}{8}
```

but it is up to user to actually define \TeX commands such as `\subsubsubsection`, and also to provide, if `etoc` is left in “compatibility mode”, the suitable `\l@subsubsubsection` et al. needed for TOC rendering. If you use `\etocsetstyle` (even only for one level name) though, which quits “compatibility mode”, it is not `\l@subsubsubsection` which needs definition, but `\etocsetstyle{subsubsubsection}{. . }{. . }{. . }{. . }` which has to have been used.

The numerical level assignments can be modified at anytime. See [Part V](#) for various applications of this technique.

11.8. Using enumerate or itemize environments for line styles

The code for the line styles of the `\localtableofcontents` of this part was already reproduced in [section 11](#). It is very simple and uses `enumerate` environments for sections and subsections, then an “inline” paragraph style for subsubsection titles.

Actually, the very first version of `etoc` from 2012 was originally motivated by the aim to do exactly this kind of things, which necessitates to be aware of when for example after a series of subsections, a section line appears in the `.toc` file.¹⁸ Indeed, this should trigger the emission of an `\end{enumerate}`.

¹⁸At the source code level, the legacy method dating back to the origins in 2012 was replaced by a completely new one at release 1.2.

12. The `etoc` fall-back line styles

With the `{<start>}` and `{<finish>}` arguments of `\etocsetstyle`, `etoc` provides an easy systematic interface to accomplish this kind of task.

But 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 environments: the `.toc` file may contain, besides the information to be typeset in the TOCs, some other commands, such as language changing commands from `babel`, and some such commands do not expect to see their scope limited in this way by the presence of an environment (which will not be visible in the `.toc` file itself but enacted dynamically by the user-specified line styles).

The built-in “default line styles” provided with `etoc` (see [section 12](#)) do not make use of environments. Actually, in this user manual, only the [table of contents](#) at the start of this [Part II](#), the [subsection 41.1](#) (which is a TOC!) and examples from [subsection 11.6](#) have their line styles expressed in terms of `enumerate` or `itemize` environments.

11.9. The `\etocglobaldefs` and `\etoclocaldefs` commands

In \TeX 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 39](#), [section 45](#)) and also with `enumitem` *inline* variants of its standard environments, because the command `\item` then closes a group (see [subsection 11.6](#)).

After `\etocglobaldefs` has been issued, the `\etocname`, `\etocnumber` and `\etocpage` will be defined during execution of `\tableofcontents` and `\localtableofcontents` with global scope. For normal use this is not necessary. It does not hurt either to activate it systematically.

To return to the default, which lets `etoc` only define them locally to the context in place where the `\contentsline` is encountered, execute `\etoclocaldefs`. Both `\etocglobaldefs` and `\etoclocaldefs` have an effect only locally to the environment or group where they are used.

12. The `etoc` fall-back line styles

This is a table of contents for the (few) subsections of this section. It carries the label `toc:c`

A demo of a TOC using <code>\etocdefaultlines</code>	Customizing the <code>etoc</code> pre-defined line styles
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12.1. A demo of a TOC using `\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 choicess or vertical spaces, etc..., used 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 \TeX default.¹⁹ 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 \TeX 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 \TeX default.

Let us typeset the global table of contents of the present document as if it 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
```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-02.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

¹⁹and 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.

`etoc` (read this first)

License

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12.2. 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*{\etocseptthree{.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*{\etoclineleaders
  {\hbox{\normalfont\normalsize\hbox to 2ex {\hss.\hss}}}
\newcommand*{\etocabbrevpagename{p.~} % initial of "page"
\newcommand*{\etocpartname{Part} % prior to 1.08b, 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`.²⁰

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 \TeX 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.

13. Summary of the main styling commands

13.1. Setting up local styles

```

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

```

13.2. Setting up toc display styles

```

\etocmulticolstyle[<number_of_columns>]{<heading>}
\etocstyle[<kind>]{<number_of_columns>}{<title>}
\etocstylewithmarks[<kind>]{<number_of_columns>}{<title>}{<mark>}
\etocstylewithmarksnouc[<kind>]{<number_of_columns>}{<title>}{<mark>}
\etocruledstyle[<number_of_columns>]{<title>}
\etocframedstyle[<number_of_columns>]{<title>}
\etocsettocstyle{<before_toc>}{<after_toc>}

```

²⁰with the `KOMA-script` classes, we noticed that `\etocclasstocstyle` was apparently needed for the KOMA options `toc=left` to be active at the level of the line entries.

13. Summary of the main styling commands

13.3. 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
```

13.4. 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 . . .
```

`\localtableofcontents \ref{toc:far}` acts the same as `\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.

Part III.

Control of contents

Here are some statistics for this part: it contains 10 sections and 8 subsections. The name of the first section is “The `\tableofcontents` et al. commands” and the corresponding number is “14”. The name of the last section is “Checking TOCs for emptiness” and its number is “23”. The name of the first subsection is “The `hyperref` option `bookmarksdepth`” and the corresponding number is “17.1”. The name of the last subsection is “The `\etocifwasempty` command” and its number is “23.3”.

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14. The `\tableofcontents`, `\localtableofcontents` and `\localtableofcontentswithrelativedepths` 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.

`\etoc\tableofcontents` is a synonym to `etoc`’s `\tableofcontents`. The `\tableofcontents` command reverts to its non-`etoc` definition if `\etockeeporiginaltableofcontents` is issued after loading the package. ²¹

²¹This was added to fix a compatibility issue with `listings`’s `\lstlistoflistings`, as it needs the `\tableofcontents` macro to keep its original meaning.

15. Labeling and reusing elsewhere

`\localtableofcontents` will print local tables of contents: *i.e.* all sections and sub-units inside a given chapter, or all subsections and lower inside a given subsection, etc... (see also `\etocsetnexttocdepth`).^{22,23}

`\localtableofcontentswithrelativedepth{<number>}`²⁴ can be used to override the document or current `tocdepth` setting (see [section 16](#) 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 subsections 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.

15. Labeling and reusing elsewhere

`etoc` allows to typeset at some location a local table of contents which is defined elsewhere. For this, two simple steps:

1. insert `\localtableofcontents` at the distant place, and follow it by some `\label{foo}`.
2. insert `\tableofcontents \ref{foo}` (or `\localtableofcontents \ref{foo}`, it does the same) at the place where you want this distant table of contents to appear.
3. in step 1, if you use `\invisiblelocaltableofcontents` in place of `\localtableofcontents`, there will be no typesetting at its place of definition.

At the place of use of `\tableofcontents \ref{foo}`, the layout and looks is entirely configurable locally. It may be completely different from how the same contents are rendered elsewhere by another `\tableofcontents \ref{foo}` or by the original label-decorated `\localtableofcontents \label{foo}`. The current value of the `tocdepth` counter is obeyed.

As an example the table of contents corresponding to [Part II](#) has been cloned here in a `float` which appears on the facing page. We used this:

```
\begin{figure}[ht!]
  \centering
  \begingroup
  % this is a KOMA-script specific customization
  \DeclareTOCStyleEntry[numwidth=2em,indent=0pt]{tocline}{section}
  \DeclareTOCStyleEntry[numwidth=3.2em,indent=2em]{tocline}{subsection}
```

²²As is explained in [section 15](#) 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.

²³As is explained in [section 16](#) `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.

²⁴Thanks to Tony ROBERTS for feature request.

I am from far away

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```

\etocstandardlines % <-- use the defaults from the document class
\renewcommand{\etocbkgcolorcmd}{\color{green!5}}
\renewcommand{\etocbelowtocskip}{\opt\relax}
\fbboxsep1ex
\etocframedstyle [1]{\fbbox{\makebox[.5\linewidth]{\etocfontminusone
  I am from \hyperref[toc:part:styling]{far away}}}}
\etocsetnexttocdepth{subsection}
\tableofcontents \label{toc:d} \ref{toc:part:styling}
\endgroup
\end{figure}

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-03.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

In the above example, not only did we use `\ref{toc:part:styling}` to print here the distant

16. `\etocsetlevel`

(local) table of contents which has been labeled `toc:part:styling` but we added a (possibly confusing) `\label{toc:d}`. This is done for the down-to-earth reason of being able to use, as we did in the previous paragraph, `\vpageref{toc:d}`. But if one wants to clone again the original local table of contents, one must reference its original label: `\tableofcontents \ref{toc:part:styling}`.²⁵ This original local table of contents is to be found on page 15.

16. 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{<level_name>}{<number>}`. In conjunction with the use of the \TeX `tocdepth` counter, this has powerful applications: `<level_name>` 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 V](#).

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:

(<code>memoir</code> 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

²⁵Why does this author always give complicated examples rather than down-to-earth ones?

the paragraphs from the document! (tocdepth at least 1)²⁶

17. 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.²⁷ 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. The package defines `\invisibletableofcontents` essentially as

```
\etocsetnexttocdepth{none}\tableofcontents
```

The simplest organization is probably 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.

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

²⁶and one should naturally not print this TOC of paragraphs in compatibility mode, which would insist on inserting a gigantic left margin.

²⁷In the standard classes (at least), it also influences the `\listoftables` and `\listoffigures`, via `\@dotstocline`.

18. The `\etocsettocdepth.toc` command

the `\etoccheckemptiness` is used.

17.1. 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.

18. The `\etocsettocdepth.toc` and `\etocimmediatesettocdepth.toc` and commands

This command `\etocsettocdepth.toc` implements some functionality of `tocvsec2`²⁸, 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.

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 `\etocignoretoctocdepth`) 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 `\etocsettocdepth.toc` gets executed in ALL tables of contents.

Also `\etocimmediatesettocdepth.toc` is provided. For explanations, refer to the discussion of `\etocimmediatedepthtag.toc` in the next section.

²⁸I thank Denis Brouzé for drawing my attention to the incompatibility of this package with `etoc`.

18.1. The `\etocobeytoctocdepth` and `\etocignoretoctocdepth` commands

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

19. The `\etocdepthtag.toc`, `\etocimmediatedepthtag.toc` and `\etocsettagdepth` commands

The command `\etocdepthtag.toc` allows to control dynamically the which contents end up included in the displayed TOCs (this documentation also described formerly a way using `\etocsettoctocdepth.toc` with some dummy level name, which got then set via `\etocsetlevel` according to what was locally needed, but it was too hacky and I am not sure if it was understandable).

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 the tag inside the `.toc` file will then be to set the `tocdepth` counter to the desired value, in real time (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 43](#).

When using `\etocdepthtag.toc` in combination with \TeX 's `\include`, data may not end up in the `.toc` file in the correct order. For example in this situation:

```
\clearpage % or anything ending up causing its presence here right before
           % the \etocdepthtag.toc
\etocdepthtag.toc{sometag}
\include{some file containing sections}
```

The tag will end up in the `.toc` file *after* all section headings from the included file. The cause is that \TeX inserts immediately in the main auxiliary file a command to input the auxiliary file of the included file (which in turn, contains instructions to add data to the `.toc` file). But `\etocdepthtag.toc` does not internally use such immediateness, as it uses the same interface as `\section` and alike commands when they want to write extra data to the `.toc` file.

So²⁹ there is `\etocimmediatedepthtag.toc` which will force the tag to be written immediately to the `.toc` file (well, rather immediately to the `.aux` file, so before the inclusion of the auxiliary file of the included file).

One should not use this variant systematically. For example if your document looks like:

```
\clearpage
```

²⁹Thanks to Norman RAMSEY who reported this problem, together with a fix, in July...2016. Sorry for long delay before updating `etoc` six years later...

20. Adding commands to the .toc file

```
\section{bbbb}  
  
Some text  
  
\etocdepthtag.toc{sometag}  
\etocimmediatedepthtag.toc{someimmediatetag}  
\section{cccc}  
  
Some text  
  
\end{document}
```

then the `someimmediatetag` will end up being inserted in `.toc` file *before* the `bbbb` section. This is because \TeX 's `\section` uses a *delayed* write, not an *immediate* one. And `\etocdepthtag.toc` wisely uses a *delayed* write.

As it seems very hard programmatically to identify automatically if the *immediate* variant of `\etocdepthtag.toc` should be used, the package provides two separate commands and it is up to user to make the correct choice.

19.1. The `\etocobeydepthtags` and `\etocignoredepthtags` commands

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.

20. 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`, `\etocignoretoctocdepth` and `\etocobeytoctocdepth` are the way to go; or their variants `\etocdepthtag.toc` and `\etocsettagdepth`.

As an aside, any `\setcounter{tocdepth}{n}` command added directly to the `.toc` file will see its effect cease when the end of a table of contents is reached, as `etoc` executes a `\setcounter{tocdepth}{previous_value}` there, to reset the `tocdepth` counter to the value it had on entering the table of contents.

20.1. 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).

20.2. Disabling protrusion in all TOCs

If using `microtype` it looks like a generally advisable counsel to disable protrusion in particular for all TOCs (see however [subsection 48.3](#) for further information if you don't want to do that). To achieve this simply add

```
\addtocontents{toc}{\protect\microtypesetup{protrusion=false}}
```

immediately after `\begin{document}` (or use `\AtBeginDocument`). We ended up doing this for the present document after checking for a few of our TOCs that it improved their looks. As `etoc` always encloses the typesetting of tables of contents inside scope limiting groups, the effect will be limited to tables of contents only. Notice that adding the above command to an existing document will have an effect only on second compilation.

21. The `\etocsetlocaltop.toc` and `\etocimmediatesetlocaltop.toc` commands

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 `\localtableofcontents` 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 it will stop only at encountering 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 the *subsection*.

There is the command `\etocsetlocaltop.toc` to insert into the `.toc` file a kind of “ghost” of a given sectioning unit. Here is an example:

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

So with no `\part` heading inserted into the table of contents via an `\addcontentsline`, still `\localtableofcontents` will know it is local to a part. In this example the local contents will be delimited by the next numbered `\part`, or `\part*` with `\addcontentsline`, or also by a later, second, `\etocsetlocaltop.toc{part}`.

As a (counter)-example consider this document:

```
\documentclass{article}
\usepackage{etoc}
\begin{document}
\tableofcontents

\part*{A}
\etocsetlocaltop.toc{part}
\localtableofcontents

\section{I}

\section{II}

\part*{B}

\section{III}

\part*{C}

\section{IV}
\end{document}
```

It uses only `\part*`. Thanks to the `\etocsetlocaltop.toc` the `\localtableofcontents` knows it should report only sections. But the other `\part*` are invisible to it as nothing is recorded in the `.toc` file. So the local table of contents in this example will list *all* sections not only I and II. To fix this one may e.g. insert another `\etocsetlocaltop.toc{part}`, this time after `\part*{B}` (or make this a numbered part, or use `\addcontentsline` for it).

The above document amended with added `\etocsetlocaltop.toc{part}` after each unnumbered part will thus have its main TOC without any Part heading, but each `\part` can show a correct `\localtableofcontents`. The simpler approach would be to use `\addcontentsline` with each unnumbered `\part` so that it ends up in the `.toc` file, but `etoc` is kept on allowing the most diverse point of views.

It should be stressed that the various `\etocsetlocaltop.toc{<sect. unit>}` do impact the global `\tableofcontents`: they really act like actual sectioning units, except for not inducing any typesetting. In usual document classes, this would appear to mean that they are completely transparent to the global `\tableofcontents`. Not the case with `etoc`, which adds a virtual assembly of levels: the `.toc` data originating in `\etocsetlocaltop.toc{<sect. unit>}` will trigger the execution of the `{<finish>}` parts of the line styles of finer sectioning units encountered before (either in the global `\tableofcontents` or in an active `\localtableofcontents`); and it triggers the `{<start>}` parts of the line styles of finer units encountered after it (again in the global `\tableofcontents`, but also in any `\localtableofcontents` which is already activated at a coarser level).

Depending on how the toc line styles are configured this may translate into some visual effect; for example with the `etoc` own line styles the `{<start>}` and `{<finish>}` mostly insert penalties or vertical spaces.

It is a matter of debate if this is good design; a variant serving purely to influence boundaries of local table of contents with no collateral effects could be provided. And the name of the macro was perhaps not so well chosen as it suggests it acts as would such an hypothetical variant. In absence of feature requests we leave the matter standing for now.

Usage of `\etocsetlocaltop.toc` interacts with `\etoccheckemptiness` in the expected way: it modifies (as explained above) the selection made by `\localtableofcontents`, hence the decision whether this local TOC will end up empty or not.

There is also `\etocimmediatesetlocaltop.toc`. This may be useful in some very special circumstances involving `\include`. For related discussion see the documentation of `\etocimmediatedepthtag.toc`.

22. The `\etoclocaltop` command

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 16](#)).

23. Checking TOCs for emptiness

`\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 \TeX 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 $\langle number \rangle$ 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 not set.

23. Checking TOCs for emptiness

23.1. 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.³⁰ This can be useful to authors of \TeX 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 20](#) in this context.

1. the `\etocifwasempty` command discussed below can be used from inside `\etocaftertochook`, and even from inside `\etocbeforetitlehook`.
2. there is also `\etocdoesnotcheckemptiness`.

The suppression of the heading (more precisely of the toc display style elements) may be effective only for the final \TeX 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

³⁰Thanks to Paul Gaborit who asked for such a feature.

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.

23.2. 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.

23.3. The `\etocifwasempty` command

The command `\etocifwasempty{<YES>}{<NO>}` executes `<YES>` if the previous TOC was found to be empty and `<NO>` if its was not so. This may serve to act appropriately after a truly empty TOC. If `\etoccheckemptiness` 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`).

Part IV.

Examples

Here are some statistics for this part: it contains 10 sections and no subsection. The name of the first section is “A first example” and the corresponding number is “24”. The name of the last section is “One more example of colored TOC layout” and its number is “33”.

A first example	24, p. 48
A second example	25, p. 50
A Beautiful Thesis example	26, p. 52
Testing the compatibility mode	27, p. 54
Another compatibility mode	28, p. 54
Emulating the book class	29, p. 57
A framed display	30, p. 60
Another TOC with background color	31, p. 62
A (crazy) inline display	32, p. 63
One more example of colored TOC layout	33, p. 66

To understand all code snippets in detail, one will need to have first browsed through [section 11](#) and [section 9](#).

24. A first example

This section is called “a first example” due to legacy reasons of the various defects of this documentation...

Let us present a “first example” (sort of) of specification for line styles:

```
\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][r]{\mdseries\etocpage}}\par}
  {}
\etocruledstyle[1]{\bfseries \Large My first \etoc: TOC of
  \autoref{part:overview} (\nameref{part:overview})}
\tableofcontents \ref{toc:overview}
\endgroup
```

In the above verbatim there is a mysterious

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

which will be commented upon later. But let us first see what this code produces (of course its

output depends on the contents of the present document, as applies to all other examples in this documentation).

My first etoc: TOC of Part I (Overview)

1.	<code>\(local)tableofcontents</code>	4
2.	<code>\locallistof(figures tables)</code>	6
3.	The <code>\etocsettocstyle</code> command	8
4.	The <code>\etocsetstyle</code> command	9
5.	No auxiliary file is used beyond the TOC file	9
6.	Compatibility mode	10
7.	A list of the commands added at 1.2	11
8.	A partial list of the package commands	14

This author always complicates things, so the above example had one additional twist I now have to explain. The mysterious

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

means that the contents which are displayed are those of a local table of contents located somewhere else and labeled there via a

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

Turns out that this was done via a `\localtableofcontents` located at the start of [Part I](#), here is how the code looked like overthere:

```
\part{Overview}
\etocdefaultlines
\etocsettocstyle{}{}
\localtableofcontents \label{toc:overview}
```

For more explanations refer to [section 15](#). Notice in particular that there is no relation whatsoever between the line styles used for the original `\localtableofcontents` and those applying here to the cloned one. Actually the original one could even have been made invisible via usage of `\invisiblelocaltableofcontents`!

Regarding the line styles, we could have used those defined by `etoc`, which are activated via `\etocdefaultlines`, or the default document class styles which are activated by `\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`.

Here is again the code used (now displayed more fully). Notice that we defined styles for sections, subsections, and subsubsections, but actually that [Part I](#) only has sections!

```
\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][r]{\mdseries\etocpage}}\par}
  {}
\etocsetstyle {subsection}
```

25. A second example

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

[etocsnippet-04.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

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 25](#) as well as [section 43](#) 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 \TeX ’s `\@dottedtocline` macro does.

25. A second example

This second example:

1. illustrates displaying subsections of a given section “horizontally” in one single paragraph,
2. does a selection of contents via the technique of *depth tags*, described in [section 19](#).

Again the qualities of the author innovative pedagogy skills are well illustrated by the simplicity of the example.

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The code looks like this. For more explanations relative to depth tags, and especially how they were incorporated into the present document, see also [section 43](#).

```

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

\etocsetstyle {part}
{\parindent 0pt
  \nobreak
  \etocskipfirstprefix}
{\pagebreak[3]\bigskip}
{\large\rmfamily\bfseries\centering %\scshape
  \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

```

26. A Beautiful Thesis example

```
\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}
\etocsettagdepth {styling} {subsection}
\etocsettagdepth {control} {none}
\etocsettagdepth {examples} {none}
\etocsettagdepth {advanced} {none}
\etocsettagdepth {etocandworld}{subsection}
\etocsettagdepth {code} {none}

\etocsettocstyle {\centering\LARGE\textsc{\contentsname}\par\nobreak\medskip}{}
\etocsetnexttocdepth {all} % but depth tags will control the actual contents
\etocobeydepthtags % this is default anyhow, but may have been turned off
\tableofcontents
\endgroup
```

[etocsnippet-05.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

One last remark: the code above uses `\etocsetstyle` only for parts, sections and subsections. Non-styled levels would be displayed using fall-back defaults which are incorporated into the package code. Those fall-back defaults for paragraph and subparagraph display nothing at all (deliberately). So even if the tocdepth counter setting allowed it, and even if we had used

```
\etocsettagdepth {code}{paragraph}
```

(as that [Part VII](#) does contain `\paragraph's`), no paragraph entry would have been displayed here.

26. 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 1 `\(local)tableofcontents`

4

Chapter 2	<code>\locallistof(figures tables)</code>	6
Chapter 3	The <code>\etocsettocstyle</code> command	8
Chapter 4	The <code>\etocsetstyle</code> command	9
Chapter 5	No auxiliary file is used beyond the TOC file	9
Chapter 6	Compatibility mode	10
Chapter 7	A list of the commands added at 1.2	11
Chapter 8	A partial list of the package commands	14

```

\begingroup % we start a group to keep the style changes local
\newlength{\tocleftmargin}   \setlength{\tocleftmargin}{4cm}
\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
 \nobreak\hfill\kern1em\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

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-06.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

27. Testing the compatibility mode

As a further example we now print the local table of contents of [section 9](#). First we will test the compatibility mode.³¹ The original is the local table of contents of [section 9](#), to which we allocated the label `toc:tocstyle`.

```
\begingroup % to keep in particular toc=left with local effect
\KOMAOptions{toc=left}
\etocclasstocstyle % necessary for the display to obey toc=left
\etocstandardlines % use the document class built-in TOC line styles
\tableofcontents \ref{toc:tocstyle}
\endgroup
```

Contents

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28. Another compatibility mode

As explained in [section 6](#), the commands `\etocstandardlines` and `\etocetoclocaltocstyle` tell `etoc` to, essentially, act as an observer. And it starts in this state initially. The document class layout for the table of contents is then perfectly obeyed (well, hopefully). There is no way *if remaining in this compatibility mode* to customize this standard layout (change fonts, margins, vertical spacings, etc...) from within the package.

For customizing *while remaining in the compatibility mode*, 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.

³¹the present document uses the `scartcl` class, and we check here that the `etoc` compatibility mode does respect the customizing done via the class commands.

One only needs to use within the arguments of `\etocsetstyle` the \TeX standard `\l@chapter`, `\l@section`, etc... re-constituting their arguments using `\etocname`, `\etocnumber`, `\etocpage` as one wishes. Here is an example. Include in the preamble:

```
\makeatletter
\newcommand{\MyLocalTOC}[1][section]{%
  \begingroup
  \etocsetstyle{section}{}{}
    {\l@section{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  \etocsetstyle{subsection}{}{}
    {\l@subsection{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  \etocsetstyle{subsubsection}{}{}
    {\l@subsubsection{\numberline{\etocnumber}\etocname}{\etocpage}}{}%
  % etc... if further sectioning units are needed
  %      (i.e. not excluded by tocdepth and actually there in document)
  % Here #1 defaults to section, meaning this is appropriate
  % for local TOC in a chapter
  \etocsettocstyle{\@nameuse{#1}*{Local contents}}
    {}
  %
  \localtableofcontents
  \endgroup}
\makeatother
```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-07.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

Then use `\MyLocalTOC` in the document body. It is prepared for being local to a `\chapter`’s as it typesets the heading of the TOC by default as an unnumbered section.³²

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

Only pay attention to using `\makeatletter`/`\makeatother` as we are handling \TeX macros with the dangerous sign `@` in their names.

To give another example, one sees in `article.cls` the following definition:

```
\newcommand*\l@subsection{\@dottedtocline{2}{1.5em}{2.3em}}
```

The first argument is the level, the second the indent, and the third the numwidth (see the `tocloft` documentation). So if we issue in a document using the `article` class:

```
\makeatletter
\etocsetstyle{subsection}
  {}
  {}
  {\@dottedtocline{2}{1.5em}{2.3em}{\numberline{\etocnumber}\etocname}{\etocpage}}
  {}
\makeatother
```

we then basically reconstitute the default rendering. Here is more careful code:

³²Parts are handled somewhat differently according to whether one uses the standard or other classes; please check the source of these classes for what is to emulate here.

28. Another compatibility mode

```
\makeatletter
\etocsetstyle{subsection}
  {}
  {}
  {\@dottedtocline{2}{1.5em}{2.3em}{\etocifnumbered{\numberline{\etocnumber}}{}}%
   \etocname}{\etocpage}}
  {}
\makeatother
```

Hence one can very easily without any (additional...) package modify the hard-coded indent 1.5em and numwidth 2.3em. But in general one has to do this in a synchronized way also for subsections, and for sections. The definition of `\l@section` in the `article` class source is a bit more complex.

Nevertheless this technique is probably the fastest (but see the example at start of [section 11](#)) to get going with `etoc` even if one is primarily interested only in its `\localtableofcontents`, as typesetting local tables of contents exactly as global tables of contents is not ideal. For example for a local TOC in a section, it looks appropriate to modify the above into

```
\makeatletter
\etocsetstyle{subsection}
  {}
  {}
  {\@dottedtocline{2}{0}{2.3em}{\etocifnumbered{\numberline{\etocnumber}}{}}%
   \etocname}{\etocpage}}
  {}
\makeatother
```

to cancel the indentation. One will have to keep the indents and numwidths in sync with similar changes to other line styles, if `\contentsline`'s of various levels are to be executed.

The number and the name of each entry are each separately an [hyperref](#) links, 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`.

For a more sophisticated example see [section 44](#).

Attention Please! The \TeX kernel is moving towards adding tagging to the PDF, in a way mostly automated and transparent to user. `etoc` will in due time accompany that evolution but this may mean that it will use for its own the hooks that \TeX will place for example in `\@dottedtocline`. So, if the user explicitly also requires usage of `\@dottedtocline`, this may mean that some tagging code would be executed twice, possibly causing some havoc.

My remark is purely hypothetical, as a.t.t.o.w. (2023/02/22) I have only started looking in the matter, and the \TeX and [hyperref](#) TOC related changes have started being visible to developers only a few days ago.

It may be however, that activating tagging could mean that the simple-minded recycling techniques described in this section will not work. I guess `etoc` will always have the possibility to let the user specify that `etoc` should not take care itself of the tagging (which it has to do in general, because the \TeX hooks are located in places such as `\@dottedtocline` which `etoc` does not execute, except if asked to do so as in the example above), so perhaps the techniques here will still work but require some `\etocnotagging` or some `\noetoc tagging` option to the `\localtableofcontents` or `\tableofcontents` commands.

29. Emulating the book class

As explained in [section 6](#): 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 48.7](#)) 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 28](#).

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 Bitouzé 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 40](#).

First we set up some lengths. I use macro registers, not real \TeX 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 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 40](#) 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 \@tocrmarg

% 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
```

29. Emulating the book class

```
\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

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-08.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

Nota Bene: the code deliberately handles the non-numbered sectioning units differently from what the standard document classes article, report, book do, 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.

```

\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

```

30. A framed display

```
\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
```

[etocsnippet-09.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

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 40](#) for more.

30. 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 facing 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{\etocbottomrule}{\hrule height 1pt}
\renewcommand{\etocbottomrulecolorcmd}{\color{red!25}}
\renewcommand{\etocbottomrule}{\hrule height 1pt}
\renewcommand{\etocbottomrulecolorcmd}{\color{red!25}}
% set up the left and right rules
\renewcommand{\etoclefttrule}{\vrule width 5pt}
\renewcommand{\etocrighttrule}{\vrule width 5pt}
\renewcommand{\etoclefttrulecolorcmd}{\color{red!25}}
\renewcommand{\etocrighttrulecolorcmd}{\color{red!25}}
% use \fcolorbox to set up a colored frame for the title
\fbxrule1pt
\renewcommand{\etocbelowtocskip}{0pt\relax}
\etocframedstyle {\normalsize\rmfamily\itshape
  \fcolorbox{red}{white}{\parbox{.8\linewidth}{\centering
    This is a table of contents à la \etoc, but for
    the subsections and subsubsections of \autoref{sec:tocstyle}.
    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:tocstyle}
\end{figure}
\endgroup

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-10.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

*This is a table of contents à la **etoc**, but for the subsections and subsubsections of [section 9](#). As it is put in a frame, it has to be small enough to fit on one page. It has the label `toc:b`.*

The <code>\etocsettocstyle</code> command . . .	The <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocalruled</code> commands . . .
. 9.1, p. 16	9.4, p. 19
The <code>\etocarticlestyle</code> , <code>\etocbookstyle</code> , and others commands – The <code>\etocinline</code> and <code>\etocdisplay</code> commands.	The <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> commands . . .
The <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> commands 9.5, p. 19
9.2, p. 18	Customizing the pre-defined toc display styles
The <code>\etocdisplay</code> command	9.6, p. 20
. 9.3, p. 18	Headings, titles, <code>\etocoldpar</code> , <code>\etocinnertopsep</code>
The <code>\etocdisplaywithmarks</code> command.	9.7, p. 21

31. Another TOC with background color

Let us now try out some more sophisticated line styles. The display will use the `\etoc-framedstyle` 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 64.

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 \TeX -commands and less \TeX -primitives. Similar code is used also for [this other toc](#).

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

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

\renewcommand{\etocleftrule}{\vrule width 3cm}
\renewcommand{\etocrightrule}{\vrule width 1cm}
\renewcommand{\etocbottomrule}{\hrule height 12pt}
\renewcommand{\etocoprurule}{\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
  \fboxsep0pt % \colorbox uses \fboxsep 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:part:styling}
\vspace{-\baselineskip}
\centeredline{|\tableofcontents \ref{toc:part:styling}|}
(\emph{cf.} \hyperref[toc:clone]{this other toc})}
\end{figure}

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-11.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

The table of contents produced by this code appears on on the following page.

32. A (crazy) inline display

Let us construct 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).

Contents of Part One	
9	The <code>\etocsettocstyle</code> and related commands 16
9.1	The <code>\etocsettocstyle</code> command 16
9.1.1	The <code>\etocarticlestyle</code> , <code>\etocbookstyle</code> , and others commands 16
9.1.2	The <code>\etocinline</code> and <code>\etocdisplay</code> commands . . 17
9.2	The <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulticol</code> commands 18
9.3	The <code>\etocstocstyle</code> command 18
9.3.1	The <code>\etocstocstylewithmarks</code> command 19
9.4	The <code>\etocruledstyle</code> , <code>\etocruled</code> and <code>\etoclocalruled</code> commands 19
9.5	The <code>\etocframedstyle</code> , <code>\etocframed</code> , and <code>\etoclocalframed</code> commands 19
9.6	Customizing the pre-defined toc display styles 20
9.7	Headings, titles, <code>\etocoldpar</code> , <code>\etocinnertopsep</code> . . 21
10	Starred variants and hooks 21
11	The <code>\etocsetstyle</code> and related commands 22
11.1	The <code>\etocskipfirstprefix</code> and <code>\etociffirst</code> commands 24
11.2	The <code>\etocnumber</code> command 24
11.3	The <code>\etocifnumbered</code> switch 24
11.4	The <code>\etocthename</code> , <code>\etocthenumber</code> , and <code>\etocthepage</code> commands 25
11.5	The <code>\etoclink</code> command 25
11.6	The <code>\etocthelinkedname</code> , <code>\etocthelinkednumber</code> , <code>\etocthelinkedpage</code> and <code>\etocthelink</code> commands 26
11.7	The <code>\etocsetlevel</code> command 26
11.8	Using <code>enumerate</code> or <code>itemize</code> environments for line styles 27
11.9	The <code>\etocglobaldefs</code> and <code>\etoclocaldefs</code> commands 28
12	The <code>etoc</code> fall-back line styles 28
12.1	A demo of a TOC using <code>\etocdefaultlines</code> 28
12.2	Customizing the <code>etoc</code> pre-defined line styles 32
13	Summary of the main styling commands 33
13.1	Setting up local styles 33
13.2	Setting up toc display styles 33
13.3	Displaying tables of contents 34
13.4	Labels and references 34

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

Here is the inline table of contents. . **etoc** (read this first): License. **Overview:** `\(local)-tableofcontents`, `\locallistof(figures|tables)`, The `\etocsettocstyle` command, The `\etocsetstyle` command, No auxiliary file is used beyond the TOC file, Compatibility mode, A list of the commands added at 1.2, A partial list of the package commands. **The etoc styling commands:** The `\etocsettocstyle` and related commands³³, Starred variants and hooks, The `\etocsetstyle` and related commands³⁴, The **etoc** fall-back line styles³⁵, Summary of the main styling commands³⁶. **Control of contents:** The `\tableofcontents` et al. commands, Labeling and reusing elsewhere, `\etocsetlevel`, The `\etocsettocdepth` and `\etocsetnexttocdepth` commands³⁷, The `\etocsettocdepth.toc` command³⁸, The `\etocdepthtag.toc` and `\etocsettagdepth` commands³⁹, Adding commands to the `.toc` file⁴⁰, The `\etocsetlocaltop.toc` command, The `\etoclocaltop` command, Checking TOCs for emptiness⁴¹. **Examples:** A first example, A second example, A Beautiful Thesis example, Testing the compatibility mode, Another compatibility mode, Emulating the book class, A framed display, Another TOC with background color, A (crazy) inline display, One more example of colored TOC layout. **Advanced examples:** The TOC of TOCs, Arbitrary “Lists Of...”, `\etococcontentsline`, The TOC as a tree, The TOC as a molecule, The TOC as a TikZ mind map, The TOC as a (long) table, A TOC self-adjusting widths for its typesetting, Interverting the levels⁴², Displaying statistics, Using depth tags, Sections styling subsections, The TOC as a (long) table (alternative). **etoc and the world:** Constraints on the `.toc` file constitution, Compatibility with document classes⁴³, Compatibility with other packages⁴⁴, T_EXnical matters. **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}\footnotesize\upshape\etocskipfirstprefix}
    { ; }
```

³³The `\etocsettocstyle` command (The `\etocarticlestyle`, `\etocbookstyle`, and others commands, The `\etoc-inline` and `\etocdisplay` commands); The `\etocmulticolstyle`, `\etocmulticol`, and `\etoclocalmulticol` commands; The `\etococstyle` command (The `\etococstylewithmarks` command); The `\etocruledstyle`, `\etocruled` and `\etoclocalruled` commands; The `\etocframedstyle`, `\etocframed`, and `\etoclocalframed` commands; Customizing the pre-defined toc display styles; Headings, titles, `\etocoldpar`, `\etocinnertopsep`.

³⁴The `\etocskipfirstprefix` and `\etociffirst` commands; The `\etocnumber` command; The `\etocifnumbered` switch; The `\etocthename`, `\etocthenumber`, and `\etocthepage` commands; The `\etoclink` command; The `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` and `\etocthelink` commands; The `\etocsetlevel` command; Using `enumerate` or `itemize` environments for line styles; The `\etocglobaldefs` and `\etoclocaldefs` commands.

³⁵A demo of a TOC using `\etocdefaultlines`; Customizing the **etoc** pre-defined line styles.

³⁶Setting up local styles; Setting up toc display styles; Displaying tables of contents; Labels and references.

³⁷The `hyperref` option `bookmarksdepth`.

³⁸The `\etocobeytocdepth` and `\etocignoretocdepth` commands.

³⁹The `\etocobeydepthtags` and `\etocignoredepthtags` commands.

⁴⁰The `hyperref` option `hidelinks`; Disabling protrusion in all TOCs.

⁴¹The `\etoccheckemptiness` command; The `\etocnotocifnotoc` command; The `\etocifwasempty` command.

⁴²All subsections of this document.

⁴³Compatibility with the KOMA-script classes; Compatibility with the memoir class; Compatibility with beamer.

⁴⁴Compatibility with `babel`; Compatibility with `hyperref`; Compatibility with `microtype`; Compatibility with `multicol`; Compatibility with `tableof`; Compatibility with `tocbasic`; Compatibility with `tocloft`; Compatibility with `tocbibind`; Compatibility with `tocvsec2`.

33. One more example of colored TOC layout

```
{\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
```

[etocsnippet-12.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

33. 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{\etocoprurulecolorcmd}{\color{tocbackground}}

\renewcommand{\etocleftrule}{\vrule width 1cm}
\renewcommand{\etocrightrule}{\vrule width .5cm}
\renewcommand{\etocbottomrule}{\hrule height 12pt}
\renewcommand{\etocoprurule}{\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:tocstyle}
\endgroup

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-13.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

33. One more example of colored TOC layout

9.1	The <code>\etocsettocstyle</code> command	16
9.1.1	The <code>\etocarticlestyle</code> , <code>\etocbookstyle</code> , and others commands	16
9.1.2	The <code>\etocinline</code> and <code>\etocdisplay</code> commands	17
9.2	The <code>\etocmulticolstyle</code> , <code>\etocmulticol</code> , and <code>\etoclocalmulti-</code> <code>col</code> commands	18
9.3	The <code>\etoclocstyle</code> command	18
9.3.1	The <code>\etoclocstylewithmarks</code> command	19
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9.6	Customizing the pre-defined toc display styles	20
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The TOC has been put in a `float` which appears on the previous page. The coding is a bit involved⁴⁵ 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.

⁴⁵and reveals the author's preference for the \TeX syntax...

Part V.

Advanced examples

Here are some statistics for this part: it contains 12 sections and no subsection. The name of the first section is “The TOC of TOCs” and the corresponding number is “34”. The name of the last section is “The TOC as a (long) table (alternative)” and its number is “45”. The name of the first subsection is “All subsections of this document” and the corresponding number is “41.1”. The name of the last subsection is “All subsections of this document” and its number is “41.1”.

The TOC of TOCs	34, p. 69
Arbitrary “Lists Of...”, <code>\etoccontentsline</code>	35, p. 71
The TOC as a tree	36, p. 72
The TOC as a molecule	37, p. 75
The TOC as a TikZ mind map	38, p. 78
The TOC as a (long) table	39, p. 81
A TOC self-adjusting widths for its typesetting	40, p. 87
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Displaying statistics	42, p. 90
Using depth tags	43, p. 91
Sections styling subsections	44, p. 95
The TOC as a (long) table (alternative)	45, p. 97

34. The TOC of TOCs

Here is the numbered and linked list of all tables of contents which are displayed within this document:⁴⁶ [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#), [8](#), [9](#), [10](#), [11](#), [12](#), [13](#), [14](#), [15](#), [16](#), [17](#), [18](#), [19](#), [20](#), [21](#), [22](#), [23](#), [24](#), [25](#), [26](#), [27](#), [28](#), [29](#), [30](#), [31](#), [32](#), [33](#), [34](#), [35](#), [36](#), [37](#), [38](#). 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

⁴⁶The 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...

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 after the title). So, rather than including `\refstepcounter{visibletoc}` inside `\etocaftertitlehook`, 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 circumvent⁴⁷ 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').⁴⁸

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.

The example actually uses `\etocthemaxlevel`, see the 1.2a change log entry.

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 (plus space) 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}{\etocthemaxlevel}
\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
```

⁴⁷using `\addtocontents` rather than `\addcontentsline`

⁴⁸The 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`.

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

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-14.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

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 41](#) gives another use of the shuffling of levels.

35. Arbitrary “Lists Of...”, `\etoccontentsline` and `\etocimmediatetoccontentsline`

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: (but see [1.2a](#) change log entry)

```
\newtheorem{exerci}{}[section]
% the exercice 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

36. The TOC as a tree

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
```

[etocsnippet-15.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

A related command `\etocimmediatetoccontentsline` (and its starred version) is also provided. For discussion and the meaning of “immediate”, refer to the analogous case of `\etocimmediatedepthtag.toc`.

36. The TOC as a tree

Using `tikz` and the package `forest` we shall display the table of contents of [Part II](#) 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 `\toks` variable, with all the instructions to be executed later. Leslie Lamport’s book has no mention whatsoever of such token lists registers, and `TeX` 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. 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.

At 1.1a the commands `\etocthelinkedname`, etc..., are always providing an hyperlink, so it is not true that `\etocname`, etc..., are always simply their robust variants.

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.⁴⁹ This is the later job of a forest environment which will be given the contents of

⁴⁹There 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`.

`\treetok`.

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

```
% \newtoks\treetok % put this (uncommented) preferably in the preamble
% \newtoks\tmptok % (idem)
\begingroup
\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
  \edef\foresttreenode{ [{\noexpand\parbox{2cm}{\the\tmptok}}]}%
}

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

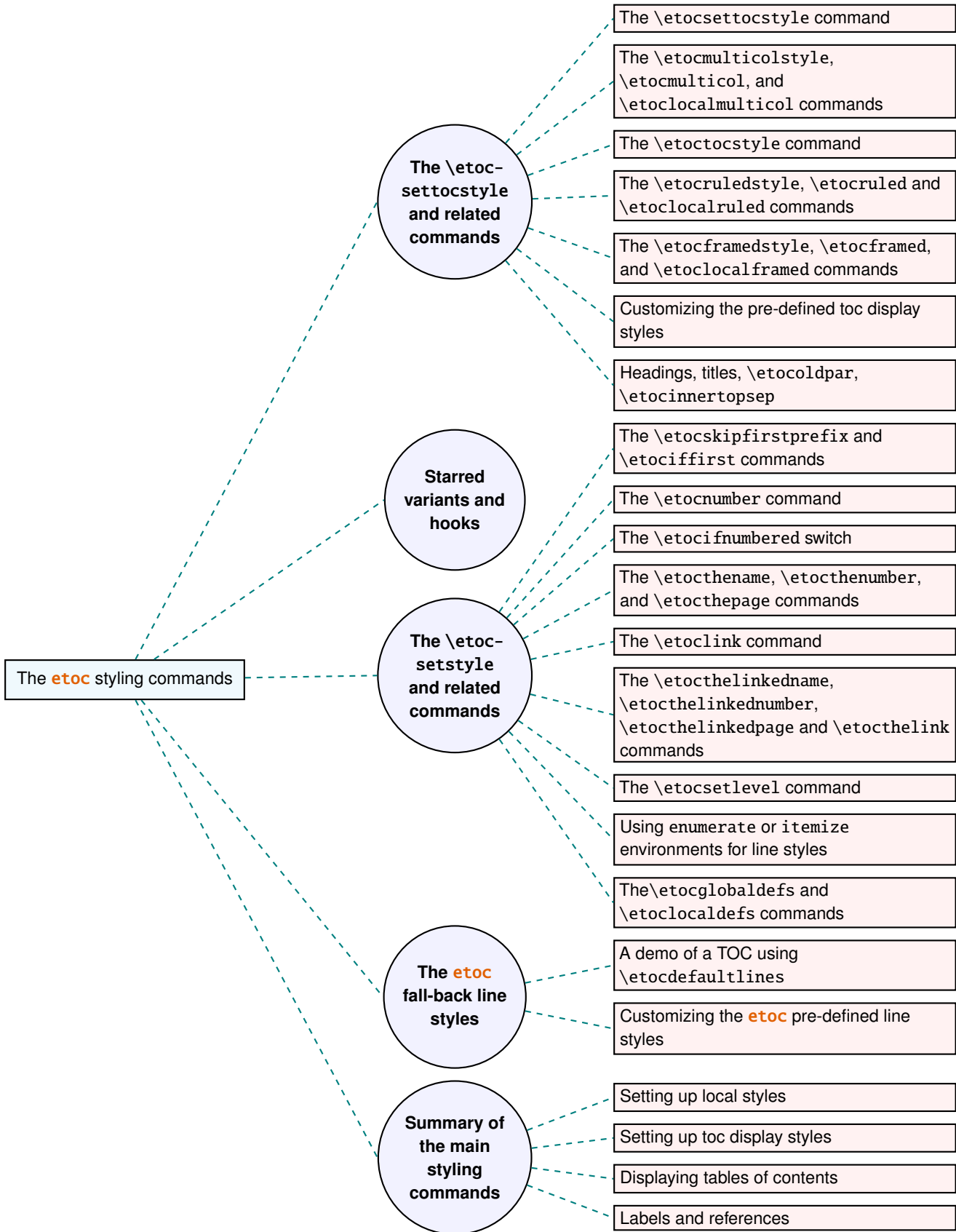
\etocsetstyle{section}
  {\etocskipfirstprefix}
  {\appendtotok\treetok{ ]}}
  {\PrepareSectionNode \appendtotok\treetok\foresttreenode}
  {\appendtotok\treetok{ ]}}

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

\etocsettocstyle
  {\treetok[{\hyperref[part:styling]{The \etoc styling commands}}]}
  {\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}[htbp!]
\centering
  \etocsetnexttocdepth{subsection}
  \tableofcontents \label{toc:forest}\ref{toc:part:styling}
  \hypersetup{hidelinks}%
  \bracketset{action character=@}
% manual adjustments to fit the printed page
% \kern-1cm
```



```

\noindent\kern-3cm
  \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=6cm}}{ },
    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}
\endgroup

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-16.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

Why `\hypersetup{hidelinks}`? as explained in [subsection 20.1](#), I prefer the links in TOCs not to be colored, 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 42](#)) is done using save boxes (so the problem of the appearance of the links does not arise then).
- typesetting of the TOC as a table without benefiting from `\etocglobaldefs` (see [section 45](#)).
- and the examples in the next section.

37. 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.

37. The TOC as a molecule

```
% \newtoks\treetok % put this (uncommented) preferably in the preamble
% \newtoks\subsectiontok
% \newtoks\subsubsectiontok
% Attention: this code has been prepared only for subsections
% and subsubsections.

\newcommand*{\treenode}{}% only to make sure our \edef's do not overwrite
% an existing command

% expands 2nd argument (macro) and appends it to 1st argument (toks)
\newcommand*\appendtotok[2]{% #1=toks variable, #2=macro, expands once #2
#1\expandafter\expandafter\expandafter
{\expandafter\the\expandafter #1#2}}

% appends 2nd argument contents (toks) as child of first argument (toks)
\newcommand*\appendchildtree[2]{% token list t1 becomes: t1 child {t2}
\edef\tmp{\the#1 child {\the#2}}%
#1\expandafter{\tmp}%
}
% prepare the (hyperlinked) number in the "node (number)" shape
\newcommand*\prepareretreenode{%
\tmptok\expandafter{\etocthelinkednumber}% expanded once (needed)
\edef\treenode{node {\the\tmptok}}%
}

\etocsetstyle{subsection}
{\etocskipfirstprefix}
{\appendchildtree\treetok\subsectiontok}
{\prepareretreenode
\subsectiontok\expandafter{\treenode}}
{\appendchildtree\treetok\subsectiontok}

\etocsetstyle{subsubsection}
{\etocskipfirstprefix}
{\appendchildtree\subsectiontok\subsubsectiontok}
{\prepareretreenode
\subsubsectiontok\expandafter{\treenode}}
{\appendchildtree\subsectiontok\subsubsectiontok}

\etocsettocstyle
{\treetok{\node {\hyperref[sec:linestyles]{Line styles}}}}
{\global\appendtotok\treetok{ ;}}

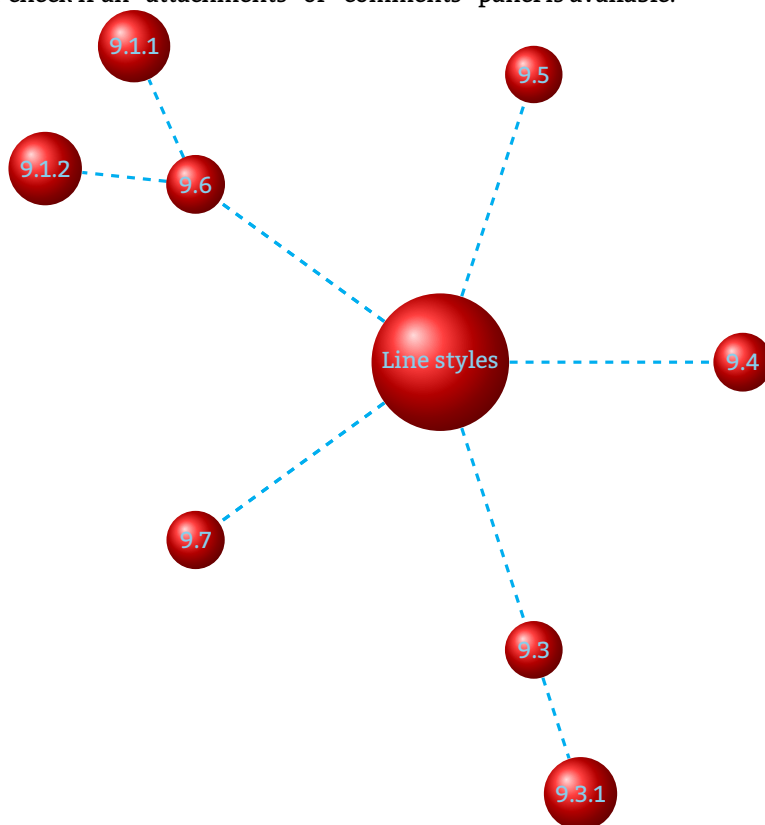
\centeredline{% from package centeredline (limits scope of \hypersetup)
\etocsetnexttocdepth{subsubsection}
\etocinline\tableofcontents \label{toc:molecule} \ref{toc:tocstyle}
\hypersetup{hidelinks}%
\begin{tikzpicture}
[grow cyclic,
level 1/.style={level distance=4cm,sibling angle=72},
level 2/.style={level 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}%
}

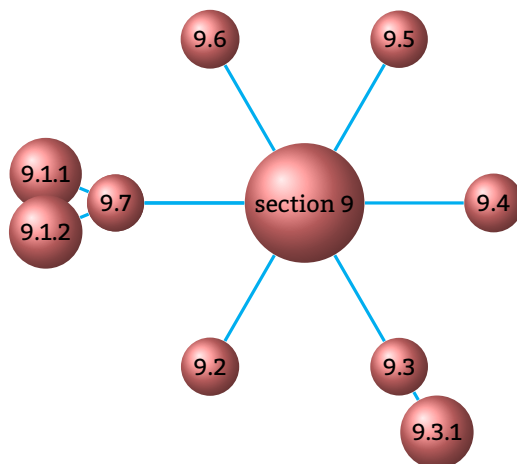
```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-17.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.



The `\tableofcontents` command is executed prior to the `tikzpicture` environment which will actually typeset it via insertion of the accumulated data in the `\toks` register `\treetok`. This [TikZ TOC](#) is fully hyperlinked, like the previous [Forest TOC](#).

Another example:



The above is the fully hyperlinked table of contents of [section 9](#).

38. The TOC as a TikZ mind map

This is in the same spirit as the “molecule” example. The use of the ϵ -TeX primitive `\unexpanded` will simplify the code.



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.

```

% \newtoks\treetok % done in preamble
% \newtoks\parttok
\newcommand*\partnode {} % check with \newcommand we will not overwrite something
\newcommand*\childnode {}

\newcommand*\tmprotate {} % (idem)
\newcommand*\tmpoption {} %
\newcommand*\tmpstuff {} %

\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}

% 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!30}% 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}}

```

38. The TOC as a TikZ mind map

```

{\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 sections for most parts, the sections
% are too numerous to fit well with the circular growth
\etocsettagdepth {preamble} {part}
\etocsettagdepth {overview} {part}
\etocsettagdepth {styling} {part}
\etocsettagdepth {control} {part}
\etocsettagdepth {examples} {part}
\etocsettagdepth {advanced} {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}[htbp!]
\etocobeydepthtags % obey the depth tags restrictions (which is default anyhow)
\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=45, 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}

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-18.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

The fully hyperlinked TOC appears on page 78.

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 demo will write it out to file with extension `.toctree`:

```

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

```

39. The TOC as a (long) table

It is possible to open a tabular (or `longtable`) 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 `\\`.

But there are some conditions and a few caveats:

1. it is **mandatory** to issue `\etocglobaldefs` for `etoc`'s definitions of `\etocname` et al. to have global scope, i.e. not be extinguished on encountering a `&`,
2. it is impossible to start one of the `<start>`, `<prefix>`, `<contents>` or `<finish>` specification with a sole `\hline`, i.e. one not preceded by a `\\`,
3. as is explained next, it is recommended to put the `\\` at the start of the `<prefix>` or `<contents>` 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 `\localtableofcontents`) this is (in almost all situations) mandatory.

Here is an example of a TOC as a `longtable`. Yes this is only *one* table! The code follows.

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etoc (read this first)

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--	---------	---

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```

\begingroup
\etocglobaldefs % necessary for \etocname etc... to survive &
\makeatletter
% hack into longtable \hline to avoid annoying (here) stray lines at top
\def\LT@hline{%
  \ifx\@let@token\hline
    \global\let\@gtempa\@gobble
    \global\let\@gtempb\@firstofone %%% ADDED
    \gdef\LT@sep{\penalty-\@medpenalty\vskip\doublerulesep}%
  \else
    \global\let\@gtempa\@empty
    \global\let\@gtempb\@gobble %%% ADDED
  \fi
}

```

```

\gdef\LT@sep{\penalty-\@lowpenalty\vskip-\arrayrulewidth}%
\fi
\ifnum0='{\fi}%
\multispan\LT@cols
  \unskip\leaders\hrule\@height\arrayrulewidth\hfill\cr
\@gtempb{%
          %% ADDED
\noalign{\LT@sep}%
\multispan\LT@cols
  \unskip\leaders\hrule\@height\arrayrulewidth\hfill\cr
\noalign{\penalty\@M}%
}%
          %% ADDED
\@gtempa}
\makeatother

% observe the locations of the \
\etocsetstyle{part}
{}
{}
{\hline\multicolumn{3}{c}{\bfseries\vrule height6ex depth3ex width0pt
\makebox[0pt]{\etocifnumbered{\etocnumber. }}{\etocname}}}}
{}

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

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

\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

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-19.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

Examining the code above the reader will wonder why the `\` are always given first in

39. The TOC as a (long) table

`<prefix+contents>` 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).

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

For the hardliner's old way see [section 45](#).

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

Section title	number	page
<code>\(local)tableofcontents</code>	1	4
<code>\locallistof(figures tables)</code>	2	6
The <code>\etocsettocstyle</code> command	3	8
The <code>\etocsetstyle</code> command	4	9
No auxiliary file is used beyond the TOC file	5	9
Compatibility mode	6	10
A list of the commands added at 1.2	7	11
A partial list of the package commands	8	14

```

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

\etocsettocstyle
  {\hypersetup{hidelinks}\begin{tabular}{|>{\RaggedRight}p{4.5cm}|c|c|}\hline
   \multicolumn{1}{|c|}{\bfseries Section title}&
   \bfseries number&
   \bfseries page}

```

```
{\\hline\end{tabular}}
```

```
\etocglobaldefs % MANDATORY !!
\etocsetnexttocdepth{1}
```

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

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-20.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

40. A TOC self-adjusting widths for its typesetting

This is a continuation of [section 29](#). 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}}%
\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
```

40. A TOC self-adjusting widths for its typesetting

```
\global\let\TOCnumwidthF\TOCnumwidthF
\global\let\TOCnumwidthG\TOCnumwidthG
}% make the found maximal widths have global scope
\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 % matches \begingroup at start of definition
}%
\newcommand*\TOCcomputenumwidths [1][0.5em]{%
  \TOCcompute@numwidths {#1}%
}%
\newcommand*\TOCcomputelocalnumwidths [1][0.5em]{%
  \TOCcompute@numwidths {local}{#1}%
}%
\makeatother
```

[etocsnippet-21.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

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 17.1](#) 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 `\TOCcomputelocalnumwidths`, once for `\localtableofcontents`.
3. the bold font serves above for both chapter and section numwidth computations, but the code from [section 29](#) uses `\bfseries` only in local TOCs. Thus the `\TOCcomputenumwidth` 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`.

41. Interverting the levels

Let us display and count all subsections occurring in this document (see [Part V](#) 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
```

41.1. All subsections of this document

- | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>i. The <code>\etocsettocstyle</code> command (9.1, p. 16)</p> <p>ii. The <code>\etocmulticolstyle</code>, <code>\etocmulticol</code>, and <code>\etoclocalmulticol</code> commands (9.2, p. 18)</p> <p>iii. The <code>\etocstocstyle</code> command (9.3, p. 18)</p> <p>iv. The <code>\etocruledstyle</code>, <code>\etocruled</code> and <code>\etoclocalruled</code> commands (9.4, p. 19)</p> <p>v. The <code>\etocframedstyle</code>, <code>\etocframed</code>, and <code>\etoclocalframed</code> commands (9.5, p. 19)</p> <p>vi. Customizing the pre-defined toc display styles (9.6, p. 20)</p> <p>vii. Headings, titles, <code>\etocoldpar</code>, <code>\etocinnertopsep</code> (9.7, p. 21)</p> <p>viii. The <code>\etocskipfirstprefix</code> and <code>\etociffirst</code> commands (11.1, p. 24)</p> <p>ix. The <code>\etocnumber</code> command (11.2, p. 24)</p> <p>x. The <code>\etocifnumbered</code> switch (11.3, p. 24)</p> <p>xi. The <code>\etocthename</code>, <code>\etocthenumber</code>, and <code>\etocthepage</code> commands (11.4, p. 25)</p> <p>xii. The <code>\etoclink</code> command (11.5, p. 25)</p> | <p>xiii. The <code>\etocthelinkedname</code>, <code>\etocthelinkednumber</code>, <code>\etocthelinkedpage</code> and <code>\etocthelink</code> commands (11.6, p. 26)</p> <p>xiv. The <code>\etocsetlevel</code> command (11.7, p. 26)</p> <p>xv. Using <code>enumerate</code> or <code>itemize</code> environments for line styles (11.8, p. 27)</p> <p>xvi. The <code>\etocglobaldefs</code> and <code>\etoclocaldefs</code> commands (11.9, p. 28)</p> <p>xvii. A demo of a TOC using <code>\etocdefaultlines</code> (12.1, p. 28)</p> <p>xviii. Customizing the <code>etoc</code> pre-defined line styles (12.2, p. 32)</p> <p>xix. Setting up local styles (13.1, p. 33)</p> <p>xx. Setting up toc display styles (13.2, p. 33)</p> <p>xxi. Displaying tables of contents (13.3, p. 34)</p> <p>xxii. Labels and references (13.4, p. 34)</p> <p>xxiii. The hyperref option <code>bookmarksdepth</code> (17.1, p. 40)</p> <p>xxiv. The <code>\etocobeytoctocdepth</code> and <code>\etocignoretocdepth</code> commands (18.1, p. 41)</p> | <p>xxv. The <code>\etocobeydepthtags</code> and <code>\etocignoredepthtags</code> commands (19.1, p. 42)</p> <p>xxvi. The hyperref option <code>hidelinks</code> (20.1, p. 43)</p> <p>xxvii. Disabling protrusion in all TOCs (20.2, p. 43)</p> <p>xxviii. The <code>\etocchecksemptiness</code> command (23.1, p. 46)</p> <p>xxix. The <code>\etocnotocifnotoc</code> command (23.2, p. 47)</p> <p>xxx. The <code>\etocifwasempty</code> command (23.3, p. 47)</p> <p>xxxi. All subsections of this document (41.1, p. 89)</p> <p>xxxii. Compatibility with the KOMA-script classes (47.1, p. 100)</p> <p>xxxiii. Compatibility with the memoir class (47.2, p. 101)</p> <p>xxxiv. Compatibility with beamer (47.3, p. 101)</p> <p>xxxv. Compatibility with babel (48.1, p. 101)</p> <p>xxxvi. Compatibility with hyperref (48.2, p. 101)</p> <p>xxxvii. Compatibility with microtype (48.3, p. 101)</p> <p>xxxviii. Compatibility with multicol (48.4, p. 103)</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

xxxix. Compatibility with tableof (48.5, p. 103)	xli. Compatibility with tocloft (48.7, p. 104)	xliii. Compatibility with tocvsec2 (48.9, p. 104)
xi. Compatibility with tocbasic (48.6, p. 103)	xlii. Compatibility with tocbibind (48.8, p. 104)	

42. 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 37](#). 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}{\footnotesize\etocname}%
    \sbox{\firstnumberi}{\footnotesize\etocnumber}%
    \def\thispartstatsauxi{}}%
  \def\thispartstatsauxii{%
    \sbox{\firstnameii}{\footnotesize\etocname}%
    \sbox{\firstnumberii}{\footnotesize\etocnumber}%
    \def\thispartstatsauxii{}}%
  \begingroup
  \etocsetstyle{subsection} {} {}
  {\thispartstatsauxii
   \stepcounter{mycountii}%
   \sbox{\lastnameii}{\footnotesize\etocname}%
   \sbox{\lastnumberii}{\footnotesize\etocnumber}} {}%
  \etocsetstyle{section} {} {}
  {\thispartstatsauxi
   \stepcounter{mycounti}%
   \sbox{\lastnamei}{\footnotesize\etocname}%
   \sbox{\lastnumberi}{\footnotesize\etocnumber}}
  {{\footnotesize\itshape
  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\firstnamei{}
and the corresponding number is \unhbox\firstnumberii. The name of the last
subsection is \unhbox\lastnameii{} and its number is \unhbox\lastnumberii.\par}}%
\etocinline % cancels the automatic \par automatically before the TOC
\etocsettocstyle {}{}
\etocsetnexttocdepth{2}%
\localtableofcontents % to be used at the top level of a Part.
\endgroup
}

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-22.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

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

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-23.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

43. Using depth tags

etoc provides via the concept of *depth tags* the possibility to decide that, for example, a table of contents will display sections and subsections in a given chapter or part, but only sections, or

43. Using depth tags

nothing at all, for the other chapters (or parts) included in the given table of contents. You will find more explanations at [section 19](#)

For this the user adds to the source usage in the document body of `\etocdepthtag.toc` commands, located right before the `\part`, or `\chapter`, or whatever division headings whose control is desired, for example

```
\etocdepthtag.toc{specialchapter}
```

and then when using `\tableofcontents` or `\localtableofcontents`, user will add some command such as

```
\etocsettagdepth{specialchapter}{section}
```

which will have the effect that only sections but no subsections of that chapter get displayed in that (possibly local, here to a Part) table of contents. Actually, one also has to add a depth tag at end of the desired scope of first one, something such as

```
\etocdepthtag.toc{endofspecialchapter}
```

and one will then issue

```
\etocsettagdepth{endofspecialchapter}{all}
```

to left further chapters again include in the so-configured table of contents all of their sub-units (as limited by current `tocdepth`). The simplest way thus is, if one decides to add a depth tag for one part or chapter to also add depth tags to all other parts, respectively chapters, and configure them appropriately.

Think of this as a way to add *inside* the `.toc` file some changes to the `tocdepth` counter, except that those changes are dynamically configurable, and also the whole thing can be ignored if `\etocignoredepthtags` is used.

As an example, one can imagine a document with various Parts, each part displaying a table of contents of the *complete* document, but which shows regarding other parts only their title and no finer division, whereas for the Part where it is located it will show all levels allowed by `tocdepth`. This is a variant of a “local” table of contents, which does display things external to the Part where it is located, but in a more limited way than regarding that Part itself.

The commands `\etocobeydepthtags` (which is default behavior) and `\etocignoredepthtags` can be used to control which TOC obey depth tags. If generally they should not, issue once `\etocignoredepthtags` in preamble, and then use `\etocobeydepthtags` for specific TOCs, either inside a scope-limiting group, or re-issue `\etocignoredepthtags` after each such (local or not) table of contents.

Here is a demonstration using the contents of this documentation. We want a TOC which will have a heading for each `\part`, with two Parts being handle especially: the [Part III](#) will show all its divisions down to subsubsection (if present) and the [Part VII](#) will even show paragraphs (turns out that this document used there some `\paragraph` mark-up). To achieve this we added various `\etocdepthtag.toc` commands inside the source of this document prior to each `\part` command. It only remains now to set appropriately the depth of each such depth tag, which will be done like this:

```
\etocsettagdepth {preamble}      {part}
\etocsettagdepth {overview}      {part}
\etocsettagdepth {styling}       {part}
\etocsettagdepth {control}       {subsubsection}
```

```

\etocsettagdepth {examples}    {part}
\etocsettagdepth {advanced}    {part}
\etocsettagdepth {etocandworld}{part}
\etocsettagdepth {code}       {paragraph}

```

As said, we want here to display even paragraph entries in a specific part. The standard document class paragraph TOC line styles give too much vertical spacing in this context. So we cook up our own, quickly designed, line styles, a bit like what we did for [section 24](#), but with a way (see the command `\EndParWithPageNumberInMarginAndLeaders`) to put page numbers on the right which is more like the method used by L^AT_EX₂ε's `\@dotstocline`; headings occupying more than one line will now wrap in a way achieving some hanging indentation relative to the entry number (but there is no such long heading in this example).

A TOC using depth tags

etoc (read this first)	2
I Overview	4
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III Control of contents	35
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15 Labeling and reusing elsewhere	36
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About etoc and the processing of <code>.toc</code> file data: ...	111

43. Using depth tags

```
\etocsetnexttocdepth {all}
\begingroup
\parindent 0pt \leftskip 0cm \rightskip .75cm \parfillskip -\rightskip
\newcommand*{\EndParWithPageNumberInMargin}
  {\nobreak\hfill
   % I initially added \etocnoptrusion after \etocpage, but
   % finally switched to using monospace font for page number,
   % and it seems to have deactivated the protrusion anyhow.
   \makebox[0.75cm][r]{\mdseries\normalsize\ttfamily\etocpage}%
  \par}
\renewcommand*\etoclineleaders
  {\hbox{\normalfont\normalsize\hbox to .75ex {\hss.\hss}}}
\newcommand*{\EndParWithPageNumberInMarginAndLeaders}
  {\nobreak\leaders\etoclineleaders\hfill
   \makebox[0.75cm][r]{\mdseries\normalsize\ttfamily\etocpage}%
  \par }
\etocsetstyle {part}
  {}
  {\leavevmode\leftskip 1cm\relax}
  {\bfseries\large\llap{\makebox[1cm][r]{\etocnumber\ \ }}%
   \etocname\EndParWithPageNumberInMargin\smallskip}
  {}
\etocsetstyle {section}
  {}
  {\leavevmode\leftskip 1.75cm\relax}
  {\bfseries\normalsize\llap{\makebox[.75cm][l]{\etocnumber}}%
   \etocname\EndParWithPageNumberInMarginAndLeaders}
  {}
\etocsetstyle {subsection}
  {}
  {\leavevmode\leftskip 2.75cm\relax }
  {\mdseries\normalsize\llap{\makebox[1cm][l]{\etocnumber}}%
   \etocname\EndParWithPageNumberInMarginAndLeaders}
  {}
\etocsetstyle {subsubsection}
  {}
  {\leavevmode\leftskip 4cm\relax }
  {\mdseries\normalsize\llap{\makebox[1.25cm][l]{\etocnumber}}%
   \etocname\EndParWithPageNumberInMarginAndLeaders}
  {}
\etocsetstyle {paragraph}
  {}
  {\leavevmode\leftskip 5.5cm\relax }
  {\mdseries\normalsize\llap{\makebox[1.5cm][l]{\etocnumber}}%
   \etocname\EndParWithPageNumberInMarginAndLeaders}
  {}
\etocsettagdepth {preamble}    {part}
\etocsettagdepth {overview}    {part}
\etocsettagdepth {styling}     {part}
\etocsettagdepth {control}     {subsubsection}
\etocsettagdepth {examples}    {part}
\etocsettagdepth {advanced}    {part}
```

```

\etocsettagdepth {etocandworld}{part}
\etocsettagdepth {code}      {paragraph}
\renewcommand\etocoprul {\hrule height 3pt\relax }
\renewcommand\etocoprulcolorcmd {\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
\etocobeydepthtags % let's not forget to activate this (default anyhow)
\tableofcontents
\endgroup

```

Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to [etocsnippet-24.tex](#) extract it. Or check if an “attachments” or “comments” panel is available.

44. Sections styling subsections

Here is a subtler example where one only marginally modifies the sections (adding color to the number, removing the `hyperref` link, changing the color for one specific section) but let them decide almost one by one of the style which will be followed by their subsections. Furthermore one configures some sections to decide they will not display subsections at all or only count how many there are!

```

\makeatletter
\newcommand*{\MyQuasiStandardTOC}[2][ ]{%
  % #1 is an optional "\ref{somelabeltoanother toc}"
  % #2 is the number of some exceptional section
  \begingroup
  \etocsetstyle{section}
  {}
  {\etociffirst{% Suppress display of subsections for the first section!
    \etocsetlevel{subsection}{\etocthemaxlevel}}
    {\etocsetlevel{subsection}{2}}}%
  \ifnum\etocthenumber=#2 % Handle especially section number #2 !
  \etocsetstyle{subsection}
  {\def\foo{}\par\nopagebreak\begingroup
  \leftskip2em \rightskip\@tocrmarg
  \parfillskip \@flushglue
  \parindent 0pt
  \normalfont\normalsize\rmfamily\itshape
  \etocskipfirstprefix}
  {\allowbreak\-, -\,}
  {\edef\foo{the\numexpr\foo+1}\etocname\ \textup{(\etocnumber)}}}
  {\.\par \upshape My AI counted circa \foo\space subsections,
    was it right?\par\endgroup}%
  \else
  \ifnum\etocthenumber>#2 % Only count subsections in those sections !
  \etocsetstyle{subsection}
  {\def\foo{}}}%

```

44. Sections styling subsections

```

        {\edef\foo{\the\numexpr\foo+1}}%
        {}%
        {\leftskip2em \emph{There are \foo\space subsections here,
            but I will need payment to display them.}\par}%
    \else
        \etocsetstyle{subsection}
        {}%
        {}%
        {\l@section{\numberline{\etocnumber}\etocname}{\etocpage}}%
        {}%
    \fi
\fi
}%
{% Display in a special color the number of the special section!
\l@section{\numberline{{\ifnum\etocthenumber=#2
    \color{red}\else\color{cyan}\fi\etocthenumber}}%
    \etociffirst{\etocname\space (SUBSECTIONS SKIPPED)}{\etocname}}
{\etocpage}}%
}%
\etocclasstocstyle % will use the ambient document class
% special KOMA-script customization as this document uses scrartcl
% and we need to enlarge numwidth for some subsections
\DeclareTOCStyleEntry[numwidth=2em,indent=0pt]{tocline}{section}
\DeclareTOCStyleEntry[numwidth=2.5em,indent=2em]{tocline}{subsection}
\etocsetnexttocdepth {subsection}%
\tableofcontents #1
\endgroup
}
\makeatother

```

[etocsnippet-25.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

The optional argument stands for a suitable `\ref`, see [section 15](#). Here is what

```
\MyQuasiStandardTOC[\ref{toc:part:styling}]{11}% treat especially section 11
gives:
```

Contents

9.	The <code>\etocsettocstyle</code> and related commands (SUBSECTIONS SKIPPED)	16
10.	Starred variants and hooks	21
11.	The <code>\etocsetstyle</code> and related commands	22
	<i>The <code>\etocskipfirstprefix</code> and <code>\etociffirst</code> commands (11.1)–The <code>\etocnumber</code> command (11.2)–The <code>\etocifnumbered</code> switch (11.3)–The <code>\etocthename</code>, <code>\etocthenumber</code>, and <code>\etocthepage</code> commands (11.4)–The <code>\etoclink</code> command (11.5)–The <code>\etocthelinkedname</code>, <code>\etocthelinkednumber</code>, <code>\etocthelinkedpage</code> and <code>\etocthelink</code> commands (11.6)–The <code>\etocsetlevel</code> command (11.7)–Using <code>enumerate</code> or <code>itemize</code> environments for line styles (11.8)–The <code>\etocglobaldefs</code> and <code>\etoclocaldefs</code> commands (11.9).</i>	

My AI counted circa 9 subsections, was it right?

- | | |
|-------------------------------------------------------------------------------|-----------|
| 12. The <code>etoc</code> fall-back line styles | 28 |
| <i>There are 2 subsections here, but I will need payment to display them.</i> | |
| 13. Summary of the main styling commands | 33 |
| <i>There are 4 subsections here, but I will need payment to display them.</i> | |

The page heading (on the page where this TOC appears) may have been modified as is expected from usage of `\etocclasstocstyle` in the code.

Sections are printed exactly as in the default, *except* that a special section number is displayed especially and that its subsections are then displayed inline! And other sections may only count subsections or ignore them altogether!

Note: for this code to work the macro `\thesection` *must* not have been modified from its default which produces simply arabic digits. In other terms it must be usable as TeX number denotation. Typically this would fail if we were handling subsections as their number in the `.toc` file will be typically something like `3.7` which does not work in a TeX integer-only context. But it is possible to use a counter and configure the line styles to increment it, and use its value.

45. The TOC as a (long) table (alternative)

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 to the addition of `\etocglobaldefs` at 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 36](#) 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 39](#) was coded in the old days.⁵⁰ 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 TeX users (macros could be used, but would be more cumbersome, except perhaps if using the ε -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 ε -TeX `\unexpanded` primitive. See for example [section 38](#).

```
\newtoks\toctabletok
```

⁵⁰At release 1.09f the design and contents of the TOC from [section 39](#) were modified; the code here, if executed, which will not, reproduces the former looks.

45. The TOC as a (long) table (alternative)

```

\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\\}%
}
%
\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

```

[etocsnippet-26.tex](#) Depending on the PDF viewer, a click (or CTRL-click) on the filename in the margin may allow to extract it. Or check if an “attachments” or “comments” panel is available.

Part VI.

etoc and the world

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46. Constraints on the .toc file constitution

The contents of the .toc file (if it already exists) are read into memory by **etoc** once, at the time of `\begin{document}`.⁵¹

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 **T_EX** 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
```

⁵¹Versions earlier than 1.07m 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.

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

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

Rather, redefine `\etocaftertoohook`

```
\renewcommand\etocaftertoohook{foo}
```

and there is also `\etocaftercontentshook` which is executed a bit earlier⁵² 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 \TeX 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 use the `\contentsline` macro or if the `\contentsline` macro second argument mixes number and name in a manner unexpected by `etoc`.⁵³

47. Compatibility with document classes

`etoc` has mainly been tested with the `article` and `book` standard classes. Some compatibility layer with the `KOMA-script` and `memoir` classes was added at 1.05 of 2012/12/01.⁵⁴ A compatibility layer is required for what this document designates as the “global display style”: `etoc` tries to emulate the default behaviour of the document class when `\etocsettocstyle` has not been used, so that it is still in “compatibility mode”. There does not seem to be an easy way to extract this in an automated manner dynamically, so it is basically some manual work which the author initiated in 2012 and which got sporadically updated since.

47.1. Compatibility with the `KOMA-script` classes

Not really tested... well, tested by this document with its dozens of `etoc` TOCs and which uses `scrartcl`! The package code contains

```
\@ifclassloaded{scrartcl}
  {\renewcommand*\etocclasstocstyle{\etocscrartclstyle}}}
```

with `\etocscrartclstyle` trying to emulate the global display style of the `\tableofcontents` within the class `scrartcl`. Thus `etoc` is ready for basic usage in compatibility mode. See further [subsection 48.6](#).

⁵²Contrarily to `\etocaftertoohook`, `\etocaftercontentshook` is not executed if the `tocdepth` did not allow the printing of the TOC.

⁵³Prior to 1.1a, `etoc` required the `\contentsline` macro expansion to invoke `\l@section` et al. It now does not expand `\contentsline` hence is immune to whatever would happen during this expansion, and does not use nor modify the `\l@section` et al. macros.

⁵⁴That this is still in the doc on 2023/02/22 shows the frequency of `etoc` syncing with upstream changes... but let me reassure the reader there has been indeed some occasional, although admittedly rare, internal updates in the more than ten years elapsed since.

47.2. 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.

With release 1.2 some issues which were previously described here when the “to toc” feature of **memoir** was left acting on local TOCs have been resolved, as an after-effect of the support for **localtoctotoc** etc..., see `\etocsetup`.

47.3. Compatibility with **beamer**

For the reasons mentioned already regarding the constraints on the .toc file constitution, **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.

48. Compatibility with other packages

48.1. 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.

48.2. 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.

48.3. Compatibility with **microtype**

(this doc added at 1.2b)

microtype patches the \LaTeX `\numberline` command (which is used in .toc file) to execute `\leftprotrusion`. The reason **microtype** does this patch to `\numberline` is that the default \LaTeX contents line styles do some `\hskip` which inhibit left protrusion of the (explicit digits or letters of the) argument of `\numberline`, which is the first typeset material on the contents line.

48. Compatibility with other packages

Some other contexts than a previous `\hskip` inhibit left protrusion, in particular a non-zero paragraph indentation.

One could imagine that `etoc` user only has to add `\leftprotrusion` if so desired at start of the defined line styles. But usage of the `\leftprotrusion` command is delicate, it must be followed with an explicit character or with a very limited set of \TeX commands. In particular, and imagining here that the defined line style starts a paragraph with `\etocnumber`, and that this paragraph is indented so that automatic left protrusion does not apply, an attempt to force reactivation of left protrusion via:

```
\leftprotrusion\etocnumber
```

fails. One has to resort to use:

```
\expandafter\leftprotrusion\etocthenumber
```

This would not work with `\etocthelinkednumber`, so to get the protruding number to also be hyperlinked one has to use

```
\etoclink{\expandafter\leftprotrusion\etocthenumber}
```

The package does not provide yet (nor is it planned in near future in absence of user requests) extra support such as an option to insert internally `\leftprotrusion` *inside* `\etocnumber` which would avoid such gymnastics. But the user can easily add a definition such as

```
\newcommand\leftprotrudingetocnumber{\etoclink{\expandafter\leftprotrusion\etocthenumber}}
```

to the preamble, and use the defined wrapper or a variant built upon `\etocthename` in custom `\etocsetstyle` line style definitions.

If on the contrary you want to avoid left protrusion, it is coherent to load `microtype` this way:

```
\usepackage[nopatch=toc]{microtype}
```

This avoids the `\leftprotrusion` addition done by `microtype` to `\numberline`; but this is of relevance only if you use `etoc` in compatibility mode, because user-defined `etoc` line styles will not execute `\numberline` except if explicitly added to the line style, and even if they do, as explained above something such as

```
\numberline{\etocnumber}
```

will inject a `\leftprotrusion` which will remain without effect.

`etoc` provides since 1.2b a macro `\etocnoptrusion` which is a copy of the \TeX `\noptrusion` command available since its 2018/12/01 release, and is used since by \TeX default TOC code with page numbers. You can use this if a style definition, perhaps modeled on the standard \TeX layout from `@dottedtocline`, also locates `\etocpage` at right margin preceded on the line by some dot leaders. Indeed protrusion may cause an extra dot, compared to other lines, which is really ugly visually. Use `\noptrusion` in the style after `\etocpage` (or whatever is at end of the line style contents) if you can assume that \TeX is recent enough, or use `\etocnoptrusion` which will work with all \TeX versions, even old ones.

You may also consider turning protrusion off completely for tables of contents. For this, see [subsection 20.2](#).

Notice that some problem with page number alignment look like protrusion-related ones but may simply be caused by the fact that the font used does not assign the same width to all digits, and the line style pushes these digits to the right end of the line (to confirm this in case of suspicion, temporarily make package `microtype` inactive or remove it from your document). If

for example 20 is, in the used font, wider than 27, the latter will look shifted a bit to the right compared to the former. Centering the page number in a fixed width box (itself flushed-right to end of line) is one solution, but it may not be to everyone's taste due to single-digit page number; in that case the line style code could make a test on the page number (or its width, if it is not assumed it is purely numerical) and make appropriate decisions. I will leave the matter to your \TeX coding skills. Using a font with tabular lining figures fixes such problem.

48.4. Compatibility with *multicol*

etoc loads the package *multicol*.

48.5. Compatibility with *tableof*

It is possible to use simultaneously *etoc* and *tableof*. 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.

48.6. Compatibility with *tocbasic*

(doc last updated for 1.2)

This has only been tested to the extent of production of this PDF file (which does have dozens of TOCs, among them a few in compatibility mode). I noticed that some things required the global display style to also be set to compatibility mode for some *KOMA-script* user interface to produce the desired effect. As an example, the local table of contents of [section 27](#) uses `\KOMAoptions{toc=left}` and `\etocstandardlines` but it had to use also `\etocclasstocstyle`:

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

On the other hand I could use some other interface without having to activate the compatibility for the global display style. See [the example](#) from [section 15](#) or the one from the [Part III](#) which uses

```
\begingroup
\etocsettocstyle{ }
\DeclareTOCStyleEntry[numwidth=2em,indent=0pt]{tocline}{section}
\DeclareTOCStyleEntry[numwidth=2.5em,indent=2em]{tocline}{subsection}
\DeclareTOCStyleEntry[numwidth=3em,indent=4.5em]{tocline}{subsubsection}
```

48. Compatibility with other packages

```
\etocstandardlines  
\localtableofcontents  
\endgroup
```

and demonstrates that this interface works also when not using the compatibility mode from `\etocclasstocstyle`. Of course, here the display style is a bit plain... but the [example of section 15](#) less so; it uses about the same TOCStyleEntry lines as above with some more width for the numbers of subsections.

48.7. Compatibility with `tocloft`

Release 1.07k added compatibility with package `tocloft`: 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 `\etocclasstocstyle`. In this compatibility mode `\etocsetlevel{<division unit>}{<etocthemaxlevel>}` 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.

Sadly, 1.2 and 1.2a had a bug and loading `tocloft` before `etoc` caused `\tableofcontents` to not be the `etoc` one. One had to use explicitly `\etoc\tableofcontents` (there was no issue with `\localtableofcontents`). The regression was fixed at 1.2b.

It is possible to modify midway in the document the macros `\l@section`, `\l@subsection` ... but the effect will be seen only in table of contents typeset by `etoc` in compatibility mode (and of course after those customizations). It will have no effect on true `etoc` TOCs.

48.8. Compatibility with `tocbibind`

Added at 1.2. See also `\etocsetup` for a discussion of the package options which are all related to this (they will achieve the `tocbibind` “to toc” features without requiring the package).

Thanks to Denis Bitouzé for feature request.

48.9. Compatibility with `tocvsec2`

`etoc` used to be incompatible with package `tocvsec2`; it now cohabits, sort of, as it deactivates `tocvsec2`'s modification of `\tableofcontents` 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.

49. T_EXnical matters

The `\etocname`, `\etocnumber`, `\etocpage` commands are protected against premature expansion. They are hyperlinks if package `hyperref` is loaded and depending on its option `linktoc` value; under the default `linktoc=section`, only name and number are hyperlinked, not the page number.

On the other hand `\etocthename`, `\etocthenumber`, `\etocthepage` are *not* protected against expansion. And neither are `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage`. They were modified at 1.1a and now are always hyperlinks (except for the latter if the page number is empty), if `hyperref` is present, independently of `linktoc` status.

The commands `\etoclink` and `\etocifnumbered` are also protected against premature expansion. Also `\etociffirst` and `\etococcontentsline`.

Commands such as `\etocsetstyle`, `\etocsetlevel`, `\etocsettocstyle`, `\etocmulticolstyle`, `\etocruledstyle`, `\etocframedstyle` obey T_EX'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 on first subsequent compilation. The correct local table of contents will be displayed only on the second compilation.

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 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 to add extra commands to the `.toc` file, make it in such a way that they can be activated or deactivated easily from the document source, e.g. via some booleans.

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 VII.

The code

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50. Timestamp

This is the documentation as of 2023/07/01, printed from the source file with the time stamp Time-stamp: <04-07-2023 at 22:33:21 CEST>. The package version is 1.2b, of 2023/07/01.

51. Change history

1.2b [2023/07/01]

bugfix: a refactoring at 1.2 accidentally removed a needed `\AtBeginDocument` and as a result the `tocloft` redefinition of `\tableofcontents` was not undone, if `etoc` got loaded after `tocloft`, as is advised by the documentation. Thanks to user691586 for report.

Add section documenting compatibility aspects with usage of package `microtype`. Add `\etocnoprotrusion` an alias to LaTeX 2018/12/01 `\noprotrusion` and use it after `\etocpage` inside the package built-in fallback section and subsection `toc` line styles.

Fix some of the documentation (in particular the sections "A first example" and "A second example") as some of its highly pedagogical comments had lost sync with other changes. Don't hesitate getting in touch with the author to obtain further improvements.

1.2a [2023/05/01]

The requirements (added respectively at 1.1a and 1.2) of a LaTeX kernel at least as recent as 2020-10-01 and of availability of `\expanded` engine primitive have been lifted. Due to lack of time and resources, `etoc` is not retro-tested on old LaTeX installations, though.

Boolean option `'deeplevels'` extends the maximal allowed numerical level from 6 to 12. Adapted from a patch courtesy of Matthew Trescott. See

<https://github.com/doxygen/doxygen/pull/9936>

for context.

Using this option does not change anything to `tocdepth` and `secnumdepth` LaTeX counters, nor does it do any of the needed extras to let a sectioning level be known to LaTeX (if `etoc` is used in "compatibility mode", the suitable `\@<levelname>` macros must have been declared to LaTeX for TOC rendering). Whether or not using `etoc` in compatibility mode (i.e. whether or not using `\etocsetstyle<levelname>{...}{...}{...}{...}`), recall that all new

levels must be declared to `etoc` at least once via `\etocsetlevel<levelname>{<number>}`.

The macro `\etocthemaxlevel` expands accordingly to either 6 (default) or 12 (if option `'deeplevels'`). So `\etocsetlevel{foo}{\etocthemaxlevel}` should now be used in place of `\etocsetlevel{foo}{6}` when one wants to make `foo` entries invisible in a document context which may have used, or not, the `'deeplevels'` option.

The auto-selection-of-heading-by-local-tocs from 1.2 uses a macro `\etocdivisionnameatlevel` which will need most probably user adaptation with `'deeplevels'`, as `etoc` can not know what are the standard names chosen by user, and how many deep levels were actually added. So it opted to the choices done by the Doxygen project. Check the `etoc` source code for this macro and redefine it appropriately. Note though that this only matters if your documents has local TOCs located under division units at least as deep as subsection.

Fix a 1.2 bug: using `'six'` as first argument of `\etocsetlevel` caused an internal control sequence to be redefined, with various strange potential aftereffects.

1.2 [2023/03/01]

`\locallistoffigures` and `\locallistoftables`.

MAKE SURE TO READ THE FRAMED TEXT IN THE DOCUMENTATION AT START OF SECTION 2 WHICH DESCRIBES THESE NEW COMMANDS.

It is for time being required to pass options `'lof'`, resp. `'lot'` at package loading time to activate these features. Whether or not these features are enabled, `etoc` interferes in absolutely no way with `\listoffigures` and `\listoftables` and their respective auxiliary files.

Boolean options (and utility `\etocsetup`) `'maintocotoc'`, `'localtocotoc'`, `'localloftotoc'`, `'locallottotoc'`, and `'ouoroboros'`. For above reasons, no `'mainloftotoc'` or `'mainlottotoc'`. With `'ouoroboros=false'` local TOCs whose heading has

been added to the `.toc` file due to `\localtoctoc` will show deeper ones and the local `\lists of` from their own level, but not themselves.

Compatibility layer with `\tocbind`. Thanks to Denis Bitouzé for feature request many years ago. Sorry for the delay!

New feature (and breaking change): local tables of contents in the default package configuration auto-adapt their titles to use the appropriate unnumbered division heading (for example a `\subsection*` if inside a `\section`).

Formerly, it was intended one would use `\etocsettocstyle` (or higher level commands), else local TOCs were rendered using the same emulation of the document class as for the main TOC. One can still require this document class emulation but then `etoc` tries at least to adapt to the division unit one level below `\part` (i.e. `\chapter` or `\section`). E.g., for KOMA-script the option `\leveldown` is used. But this is not appropriate for deeper levels in general.

Ultimate control of toc titling can still be achieved via `\etocsettocstyle`. Many commands have been added to ease its usage. It is also possible to customize the default behavior without `\etocsettocstyle`.

Details of the user interface and produced output from these novel commands and options are susceptible to change. Use at own risk.

Bugfix: the emptiness check could fail for `\localtableofcontentswithrelativedepth` as it ignored `tocdepth` changes originating from inside the `.toc` file, contrarily to the actual typesetting (and behavior with other local tocs)

Bugfix: the `\tableofcontents\ref{foo}` syntax caused a “Missing number” after `\vpageref{foo}` from package `varioref` in certain circumstances due to `\r@foo` having then acquired a value with an unexpected non-numerical first chunk.

Breaking change: the `\etocsavedsectiontocline` et al. macros which raised a deprecation warning since 1.1a now use an error message.

`\expanded primitive` is required. [reverted at 1.2a]

1.1d (not released, part of 1.2)

Complete internal refactoring of the legacy core code behind the concept of “start” and “finish” parts for line styles.

`\etocifunknownlevelTF` and `\etoclevel` abstract away some internals and may be useful for class or package authors.

`\etocsetlevel` filters out forbidden keywords ‘all’, ‘none’ and others. Its second argument can be an expression.

`\etocsetstyle` checks and warns appropriately if the level is unknown to `etoc` or has a non-accepted numerical value.

Extensive refactoring of the documentation.

1.1c [2023/01/20]

Fix a brace removal bug in the construction of `\etocname`. It remained without visible effects in documents using `hyperref` and default settings, thanks to the `hyperlink wrapper`, but e.g. `\section{{\color{blue}Blue}}` in a document

not using `hyperref`, and not using `etoc` only in “compatibility mode”, could cause a color leak in the table of contents.

With the KOMA-script numberline toc feature, unnumbered entries in TOCs typeset via `etoc` user-defined or package provided line styles but using compatibility mode for the global display style were (knowingly) considered to be numbered with an empty number. They are now considered by `\etocifnumbered` to be not numbered and the empty `\etocnumber` will carry no hyperlink.

Fix a 1.1a regression in the context of KOMA-script unnumbered TOC entries: `\etocthelinkedname` could lose its hyperlink.

Continue internal trimming of old code branches which became un-needed after the 1.1a refactoring. Add relatively decent code comments to accompany the 1.1a-c refactoring. Update warning messages to use more consistently LaTeX’s templates.

1.1b [2023/01/15]

Documentation fix, 1.1a forgot to mention the following change: `\etocthelinkedname`, `\etocthelinkednumber`, `\etocthelinkedpage` are now always hyperlinks independently of `linktoc` status.

1.1a [2023/01/14]

This version brings no new functionality, despite the number bump. It implements a complete rewrite of old legacy core internals. Formerly, `etoc` waited for `hyperref` (if present) to have added hyperlinks via its patch to LaTeX’s `\contentsline`. `etoc` examined the arguments of `\@section` and other commands to extract hyperlinking information, if any. With this release `etoc` decides earlier according to `hyperref` `linktoc` status whether section names and page numbers should be hyperlinked, and adds links itself via `\hyperlink`. `etoc` is thus now immune to the details of how `hyperref` patches the `\contentsline` command, which is not executed anymore. Overall, the code is greatly simplified.

`\etoclink` now wraps its argument in an hyperlink even if `hyperref` is configured via `linktoc=none`. Formerly no `hyperlink` was added then.

Deprecation of `\etocsavedsectiontocline` and similarly named commands. They are not needed as `\@section` et al. are with this release left unmodified during the table of contents typesetting.

LaTeX kernel from 2020-10-01 or later is required (to allow assuming the `\contentsline` entries in the TOC file always have four arguments). [reverted at 1.2a]

1.09i [2022/11/21]

Fix bug showing when a document uses both `\etocchecksemptiness` and `\etocsetlocaltop.toc`: the start and finish parts of some levels were executed possibly causing extra printed output.

More hyperlinking in the implementation part of the documentation.

- 1.09h [2022/11/20]
Documentation improvements. In particular, attached code snippets are now visible via their filenames in the page margins. Also, command names are doubly hyperlinked: first half links to the devoted part of the user manual, second half links to the implementation part.
- 1.09g [2022/11/17]
Compatibility hotfix with recent hyperref 7.00u of 2022-11-13. Thanks to Denis Bitouzé for signaling the breakage to the author.
- 1.09f [2022/08/30]
No more shipping of a German translation of the documentation, as it was last updated in April 2015.
(etoc.pdf) User level commands hyperlink from their code source definitions to their descriptions in the documentation part. Macros used in the code source hyperlink to where they first got defined there.
Wrap the `\etocpartname` (from etoc's package provided toc line style) together with the part number in a potential common hyperlink.
Try to sync the emulation of the global display style with KOMA-script v3.37 (in particular regarding the noparskip-fake KOMA toc feature).
Improve documentation of some aspects under memoir class.
Remove the `\nonumberline` token, even though empty, from the meaning of `\etocthename` (KOMA-script classes).
Add `\etocimmediatedepthtag.toc` to work around problems related to `\include` (see user doc). Thanks to Norman Ramsey who reported the problem and proposed a workaround in July 2016. Apologies for the somewhat longish delay in incorporating it...
Also add `\etocimmediatesettoctocdepth.toc`.
Also add `\etocimmediatetoccontentsline` and its starred variant.
Also add `\etocimmediatesetlocaltop.toc`.
Fix an obscure bug (see source code comments) in the `\etocsetlocaltop.toc` mechanism.
- 1.09e [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`.
- 1.09d [2021/07/13]
Some minor synching with tableof 1.4c.
Add `\etockeeporiginaltableofcontents` to provide a workaround 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`.
- 1.09c [2020/05/15]
Syncs with KOMA-script deprecation of `\iftocfeature`.
- 1.09b [2019/11/17]
1.09a
Sync with memoir v3.7i which has a better location of the TOC hyperref anchor. The `\etocaftertitlehook` 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".
- 1.09 [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`).
- 1.08p [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>
- 1.08o [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.
- 1.08n [2018/02/23]
Refactoring of core macros detecting `\numberline` and its variants.
- 1.08m [2018/02/07]
Fix to 1.08k's introduced incompatibility with KOMA-script and tocbasic's `\nonumberline`.
- 1.08l [2017/10/23]
Workaround an issue with Emacs/AUCTeX wrongly reporting about actually non-existent LaTeX errors, which was triggered by some strings written (indirectly) to log file by etoc under some circumstances.
- 1.08k [2017/09/28]
Adds `\etocsetlocaltop.toc`. See corresponding manual section for details.
Adds `\etocsavedparttoctocline`, `\etocsavedchaptertoctocline`, `\etocsavedsectiontoctocline`, ... 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.
- 1.08j [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.
- 1.08i [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.
- 1.08h [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.
- 1.08g [2015/08/29]
 Downgraded to a mere info message the `etoc`-issued warning (relative to `\settocdepth/\maxtocdepth`) under class memoir.
- 1.08f [2015/04/28]
 Minor changes to the documentation. `\etocsetlevel` more economical.
- 1.08e [2015/04/17]
 The command `\etoccheckemptiness` 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}`.
- 1.08d [2015/04/09]
 Translation into German of the additions made to the documentation for the 1.08x series of releases.
 Thanks to Christine Römer!
- 1.08c [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`.
- 1.08b [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`.
- 1.08a [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 1.07f [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.

1.08 [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.

1.07n [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.

1.07m [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`.

1.07l [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!

1.07i [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`.

1.07k [2014/03/06]

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

1.07j [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`).

1.07i [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).

1.07h [2013/10/16]

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

1.07g [2013/10/13]

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

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

Switched from `tikz-qtree` 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).

1.07f [2013/03/07]

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

1.07e [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.

1.07d [2013/02/24]

Minor code improvements and new documentation section "Another compatibility mode".

<p>1.07b [2013/02/02] Removal of the <code>\xspace</code> from the macros <code>\etocname</code>, <code>\etocnumber</code>, <code>\etocpage</code>. Additional examples in the documentation.</p> <p>1.07 [2013/01/29] New commands: <code>\etocthename</code>, <code>\etocthenumber</code>, <code>\etocthe page</code>, <code>\etoclink</code>, <code>\etoccontentline</code>, <code>\etoccontentline*</code> <code>\etocnopar</code>, <code>\etocaftercontentshook</code> Modified command: <code>\etocmulticolstyle</code> New documentation section “Surprising uses of etoc” which explains how to do “Lists of arbitrary things”, in addition to the tables of contents.</p> <p>1.06 [2012/12/07] The standard macros <code>\@section</code> etc... are modified only during the calls to <code>\tableofcontents</code>; they can thus be customized as will by the user (with the help of a package like</p>	<p><code>tocloft</code>) and this will be taken into account by <code>etoc</code> for the TOCs typeset in compatibility mode.</p> <p>1.05 [2012/12/01] <code>\localtableofcontents</code> replaces <code>\tableofcontents*</code> (for compatibility with the memoir class). Compatibility with KOMA-script and memoir document classes.</p> <p>1.04 [2012/11/24] A (possibly local) table of contents can be labeled: <code>\tableofcontents \label{toc:1}</code> and reproduced elsewhere in the document (with a possibly completely different layout): <code>\tableofcontents \ref{toc:1}</code></p> <p>1.02 [2012/11/18] Initial version.</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

52. Implementation

About the syntax highlighting of the code: Control sequences are mostly hyperlinks. When a user level command gets defined it hyperlinks to the user documentation with bold face and **using this colour**. Further instances if they occur will use **this colour** to link to their place of first definition inside the code lines. Package macros with no user level documentation hyperlink to their first place of definition in the code. And such non-user level macros, at the location of their first definitions will have their names displayed using bold face and **this colour** (it is not an hyperlink then). Comments located *inside* the code source (very little are left at 1.1a) have been configured to be rendered in their own colour, and **non commented-out and non-control sequences tokens use this colour**. Other tokens use the fall-back normal colour. A package macro mentioned in code comments also hyperlinks to the location of its first definition using **this colour**.

The “syntax highlighting” was added at release 1.09f of 2022/08/30.

Known limitations:

1. The location of first definition may be disappointing as it may be a provisory definition.
2. Macros such as `\Etoc@next` are there for matters of code branching only, and the first encountered definition has no relevant significance.
3. Macros defined using `\csname . . . \endcsname` or alike constructs are not detected by the syntax highlighting automatization. Apart from manual intervention, this appears complex to solve as moreover the macro name may be there indirectly as an argument such as #1.

An apology: the code comments served mainly as a record for the author’s benefit of the historical evolution of the package and rarely as a description of what the macros do. At 1.1a I have removed almost all code comments which had accumulated as in a palimpsest. As a result, very few comments actually remain. 1.1c re-added comments to those parts of the code which got refactored at and since 1.1a, reinvigorating the palimpsest stratification.

About etoc and the processing of .toc file data: `etoc`, when not left in compatibility mode, hijacks the `\contentsline` expansion so as to not execute `\l@chapter`, `\l@section` etc..., but rather to parse the data and extract from it the *name*, *number*, and *page number*. The \TeX .toc data is *not structured*, but contains already typesetting mark-up. The `etoc` maneuvers to disentangle *name* and *number* are somewhat fragile as they expect the .toc file to contain the `\contentsline` arguments to be arranged in a certain manner. Of course `etoc` can be easily broken if changes happen to how data is stored there. Things would have been much easier for `etoc` in 2012 if the `\contentsline` arguments had considered the section titles (aka *name* for `etoc`) and their numbers (which are not numbers in the sense of things with which \TeX can compute, in general) separately, each providing an argument to `\contentsline`. But some mix is prepared,

This paragraph and the next were added very late in the history of the package, at 1.09h and later.

Prior to 1.1a, `etoc` aliased `\l@chapter`, `\l@section`, etc... (at the time of TOC typesetting only) to its own `\Etoc@lxyz` in order to leave time to `hyperref` to add its mark-up. Thus the disentangling of name from number was more complex than it is now. With 1.1a, `etoc` leaves `\l@chapter` etc... unmodified (and unused) and only hijacks `\contentsline`.

which may depend on the document class also, and besides usually handles `\part` levels very differently. Fortunately upstream changes happen rarely.

The other core part of `etoc` present from day one of the package is that it creates a tree-like structure of the sectioning levels present in the `.toc` file. But this is purely virtual, and handled via a notion of “level” and TeX conditionals. It could be fun to implement officially such a tree (where the children of a sectioning title are the sectioning levels at a greater depth such as subsections versus a section). Let us recall that TeX provides zero means to know from a subsection for example, what is the title of the section containing it, or chapter, or part. To do this one has to create a really structured document which neither core TeX nor the main document classes do. This remark was given for document body, but it also applies to the `.toc` data. But `etoc` adds at least some kind of follow-up to the successive encountered sectioning titles, and is thus able, to “on-the-fly” add some kind of structure and follow the chaining of levels. Ultimately this is why the `\etocsetstyle` offers `{\start}` and `{\finish}` parts in additions to `{\contents}` (which I divided into a `{\prefix}` and a `{\contents}`). At some point one could imagine that a really structured document (in opposition to what core TeX from thirty years ago up to nowadays realizes) would store in the `.toc` data directly a tree structure, where each node would have attributes name, number, page number, completely separated from any typesetting. Once this exists then basically `etoc` disappears. In brief, once `etoc` ideas will have permeated the society, it will disappear as its was born only to palliate the absence of real structure in the `.toc` file (which is sort of inherited from the absence of real structure in a TeX document body).

1.1a implements a radical change to legacy core internals for compatibility with some (future) `hyperref` changes. In order to facilitate this overhaul, it required TeX 2020-10-01 for the fourth argument to `\contentsline` lines in the `.toc` file to be always present.

At 1.2a, this requirement has been lifted so that we re-incorporated compatibility with old `\contentsline` fetching 4 or only 3 arguments depending on presence or not of `hyperref`. Fortunately the code refactoring completed at 1.2 made this easier. Testing on “old” TeX was limited to one single check on a TL2019 install.

Also 1.2 use `\expanded`, we now test for its existence and provide alternative code if it is not provided by the engine.

TeXLive started producing TeX format incorporating by default the ε -TeX extensions I think twenty years ago with TL2003, so let’s require at least the TeX of December of 2003 (but its is no guarantee that it will actually be with engine providing `\ifdefined`, `\unless`, `\numexpr` or `\unexpanded` or maybe others yet that we use).

```

1 \NeedsTeXFormat{LaTeX2e}[2003/12/01]
2 \ProvidesPackage{etoc}[2023/07/01 v1.2b Completely customisable TOCs (JFB)]
   Gentle Info message in the log to mention no testing is done of current etoc on old TeX installations.
3 \newif\ifEtoc@oldLaTeX
4 \@ifl@t@r\fmtversion{2020/10/01}
5 {}
6 {\Etoc@oldLaTeXtrue
7  \PackageInfo{etoc}{Old LaTeX (\fmtversion) detected!\MessageBreak
8  Since 1.1a (2023/01/14), etoc prefers LaTeX at least\MessageBreak
9  as recent as 2020-10-01, for reasons of the .toc file,\MessageBreak
10  and used to require it (from 1.1a to 1.2).\MessageBreak
11  This etoc (1.2b) does not *require* it, but has not been\MessageBreak
12  tested thoroughly on old LaTeX (especially if document\MessageBreak
13  does not use hyperref) and retrofitting was done only\MessageBreak
14  on basis of author partial remembrances of old context.\MessageBreak
15  Reported}}
```

1.2 adds experimental support (only tested with standard classes and few packages) for `\locallistoffigures` and `\locallistoftables`. Did I say this is experimental? When TeX will have added official hook to `\addcontentsline`, I will probably revise the way `etoc` hacks into it for this *experimental* functionality.

As it is **experimental**, I think we can all agree I don’t have to spend too much space documenting it in user manual. So I shall be brief when I will get to it. And I will remain brief here too.

Now that `etoc` uses package options, I will use `kvoptions` as I am familiar with it. I understand upstream TeX now has support for key-value input, but I simply have had no time to read the interface. Besides not sure it was there for the 2020-10-01 required release.


```

16 \RequirePackage{kvoptions}
17 \SetupKeyvalOptions{prefix=Etoc@}
18 \newif\ifEtoc@lof
19 \DeclareVoidOption{lof}{\Etoc@loftrue}
20 \PackageInfo{etoc}{Experimental support for \string\locallistoffigures.\MessageBreak
21     Barely tested, use at own risk}%
22 }
23 \newif\ifEtoc@lot
24 \DeclareVoidOption{lot}{\Etoc@lottrue}
25 \PackageInfo{etoc}{Experimental support for \string\locallistoftables.\MessageBreak
26     Barely tested, use at own risk}%
27 }
28 \@ifclassloaded{memoir}{
29 \PackageInfo{etoc}
30 {As this is with memoir class, all `...totoc' options\MessageBreak
31     are set true by default. Reported}
32 \DeclareBoolOption[true]{maintoctotoc}
33 \DeclareBoolOption[true]{localtoctotoc}
34 \DeclareBoolOption[true]{localloftotoc}
35 \DeclareBoolOption[true]{locallottotoc}
36 }{
37 \DeclareBoolOption[false]{maintoctotoc}
38 \DeclareBoolOption[false]{localtoctotoc}
39 \DeclareBoolOption[false]{localloftotoc}
40 \DeclareBoolOption[false]{locallottotoc}
41 }
42 \DeclareBoolOption[true]{ouroboros}

```

The `deeplevels` option added at 1.2a. Adapted from an initial patch contributed by Matthew Trescott in the context of the `Doxygen` project. It sets the maximum level usable with `\etocsetlevel` (and never displayed) at 12 rather than 6.

Such an extension of the number of levels handled by `etoc` would have been much more cumbersome to achieve prior to the 1.2 refactoring which replaced usage of a booleans by a stack storage of the succession of levels seen in the `.toc` file (from which `etoc` creates virtual nesting structure), which actually is completely scalable and can handle unlimited number of levels. Basically we only needed to replace the formerly used `\Etoc@@six@@` by a `\Etoc@maxlevel` set to have value 12 but this simple change caused also many modification to messages involved in `etoc`-user interactions, and a disproportionate quantity of time passed on updating the documentation, even though in a minimal way, and of course a minimal amount of testing but `etoc` is lacking a strong regression test suite which for lack of time has not yet been put into place. As it is so simple we could do some option `maxlevel=<number>` but well, there is no real need, because the extra potential levels do not cause any overhead to the actual `etoc` handling of tables of contents, so it is even tempting to adopt 12 (which is way beyond any realistic needs of a real document) as default, but this would break the documents in the wild which have used the advanced techniques based on hiding one or more levels via setting it at numerical depth 6.

```

43 \DeclareBoolOption[false]{deeplevels}
44 \DeclareDefaultOption{\PackageWarning{etoc}{Option `CurrentOption' is unknown.}}
45 \ProcessKeyvalOptions*
46 \DisableKeyvalOption[action=error,package=etoc]{etoc}{lof}
47 \DisableKeyvalOption[action=error,package=etoc]{etoc}{lot}
48 \DisableKeyvalOption[action=error,package=etoc]{etoc}{deeplevels}

```

The real verbosity problem of \TeX is not so much the log, which should actually be as detailed as possible (and the default `\errorcontextlines` setting of \TeX is to my view misguided), but the humongous output to console, most of it being perfectly useless in 99% of cases. Despite `\PackageInfo` adding stuff to the log only, I finally decided not to use this next hunk.

```

49 % \PackageInfo{etoc}{Status of options at loading time:\MessageBreak
50 %   lof = \ifEtoc@lof true\else false\fi\MessageBreak
51 %   lot = \ifEtoc@lot true\else false\fi\MessageBreak

```

```

52 % maintototoc = \ifEtoc@maintototoc true\else false\fi\MessageBreak
53 % localtoctotoc = \ifEtoc@localtoctotoc true\else false\fi\MessageBreak
54 % localloftotoc = \ifEtoc@localloftotoc true\else false\fi\MessageBreak
55 % locallottotoc = \ifEtoc@locallottotoc true\else false\fi\MessageBreak
56 % ouroboros = \ifEtoc@ouroboros true\else false\fi\MessageBreak
57 % deeplevels = \ifEtoc@deeplevels true\else false\fi@gobble
58 % }

```

For many many years `etoc` had no options. Let's be modern and provide an `\etocsetup`.

```

59 \def\etocsetup#1{\setkeys{etoc}{#1}}
60 \def\etocifmaintototoc{\ifEtoc@maintototoc
61     \expandafter\@firstoftwo
62     \else
63     \expandafter\@secondoftwo
64     \fi}
65 \def\etociflocaltoctotoc{\ifEtoc@localtoctotoc
66     \expandafter\@firstoftwo
67     \else
68     \expandafter\@secondoftwo
69     \fi}
70 \def\etociflocalloftotoc{\ifEtoc@localloftotoc
71     \expandafter\@firstoftwo
72     \else
73     \expandafter\@secondoftwo
74     \fi}
75 \def\etociflocallottotoc{\ifEtoc@locallottotoc
76     \expandafter\@firstoftwo
77     \else
78     \expandafter\@secondoftwo
79     \fi}
80 \RequirePackage{multicol}
81 \def\etoc@{\etoc@}
82 \long\def\Etoc@gobtoetoc@ #1\etoc@{}
83 \newtoks\Etoc@toctoks
84 \def\Etoc@par{\par}
85 \def\etocinline{\def\Etoc@par{}}
86 \let\etocnopar\etocinline
87 \def\etocdisplay{\def\Etoc@par{\par}}

```

`\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.

```

88 \let\Etoc@global\@empty
89 \def\etocglobaldefs{\let\Etoc@global\global\let\tof@global\global}
90 \def\etoclocaldefs {\let\Etoc@global\@empty\let\tof@global\@empty}

```

Some have been renamed at 1.2.

```

91 \newif\ifEtoc@numbered
92 \newif\ifEtoc@hyperref
93 \newif\ifEtoc@parskip
94 \newif\ifEtoc@tocwithid
95 \newif\ifEtoc@standardlines

```

These next three added at 1.2. The latter two for handling compatibility layer with `tocloft` and `tocbibind`.

```

96 \newif\ifEtoc@etocstyle
97 \newif\ifEtoc@classstyle
98 \newif\ifEtoc@keeporiginaltoc
99 \newif\ifEtoc@skipprefix
100 \newif\ifEtoc@isfirst
101 \newif\ifEtoc@localtoc

```

```

102 \newif\ifEtoc@skipthisone
103 \newif\ifEtoc@stoptoc
104 \newif\ifEtoc@notactive
105 \newif\ifEtoc@mustclosegroup
106 \newif\ifEtoc@isemptytoc
107 \newif\ifEtoc@checksemtiness
108 \def\etocchecksemtiness {\Etoc@checksemtinesstrue }
109 \def\etocdoesnotchecksemtiness {\Etoc@checksemtinessfalse }
110 \newif\ifEtoc@notocifnotoc
111 \def\etocnotocifnotoc {\Etoc@checksemtinesstrue\Etoc@notocifnotoctrue }
112 \newcounter{etoc@tocid}
113 \def\Etoc@tocext{toc}
114 \def\Etoc@lofext{lof}
115 \def\Etoc@lotext{lot}
116 \let\Etoc@current\Etoc@tocext
117 \def\etocifislocal{\ifEtoc@localtoc\expandafter\@firstoftwo\else
118 \expandafter\@secondoftwo\fi
119 }
120 \def\etocifislocaltoc{\etocifislocal{\ifx\Etoc@current\Etoc@tocext
121 \expandafter\@firstoftwo\else
122 \expandafter\@secondoftwo\fi}%
123 {\@secondoftwo}%
124 }
125 \def\etocifislocallof{\etocifislocal{\ifx\Etoc@current\Etoc@lofext
126 \expandafter\@firstoftwo\else
127 \expandafter\@secondoftwo\fi}%
128 {\@secondoftwo}%
129 }
130 \def\etocifislocallot{\etocifislocal{\ifx\Etoc@current\Etoc@lotext
131 \expandafter\@firstoftwo\else
132 \expandafter\@secondoftwo\fi}%
133 {\@secondoftwo}%
134 }

```

Formerly a \TeX counter `etoc@tocdepth` was declared here but at 1.2 it has been replaced by macro storage.

```

135 \expandafter\def\csname Etoc@-3@@\endcsname {-\thr@@}
136 \expandafter\def\csname Etoc@-2@@\endcsname {-\tw@}
137 \expandafter\let\csname Etoc@-1@@\endcsname \m@ne
138 \expandafter\let\csname Etoc@0@@\endcsname \z@
139 \expandafter\let\csname Etoc@1@@\endcsname \@ne
140 \expandafter\let\csname Etoc@2@@\endcsname \tw@
141 \expandafter\let\csname Etoc@3@@\endcsname \thr@@
142 \expandafter\chardef\csname Etoc@4@@\endcsname 4
143 \expandafter\chardef\csname Etoc@5@@\endcsname 5
144 \expandafter\chardef\csname Etoc@6@@\endcsname 6

```

`deeplevels` option needs a few extra declarations.

```

145 \ifEtoc@deeplevels
146 \expandafter\chardef\csname Etoc@7@@\endcsname 7
147 \expandafter\chardef\csname Etoc@8@@\endcsname 8
148 \expandafter\chardef\csname Etoc@9@@\endcsname 9
149 \expandafter\chardef\csname Etoc@10@@\endcsname 10
150 \expandafter\chardef\csname Etoc@11@@\endcsname 11
151 \expandafter\chardef\csname Etoc@12@@\endcsname 12
152 \fi

```

1.2a adds `\Etoc@maxlevel` which replaces formerly used `\Etoc@@six@@`. It adds also `\etothemaxlevel` as user interface to its explicit numerical value.

```

153 \expandafter\let\expandafter\Etoc@maxlevel

```

```

154 \csname Etoc@ifEtoc@deeplevels12\else6\fi @@\endcsname
155 \edef\etocthemaxlevel{\number\Etoc@maxlevel}

```

For `\etocsetlevel`, 1.2a uses a comparison with `\Etoc@minf` so that only levels suitable for the document class can be used. So `etoc` now will not define unneeded ‘book’ levelname with numerical level -2 except if with `memoir`.

```

156 \ifclassloaded{memoir}{\def\Etoc@minf{-\thr@@}}{\def\Etoc@minf{-\tw@}}
157 \let\Etoc@none@@ \Etoc@minf
158 \expandafter\let\expandafter\Etoc@all@@
159 \csname Etoc@ifEtoc@deeplevels11\else5\fi @@\endcsname

```

`\Etoc@dolevels` will hold the names of all declared levels (independently of their numerical levels), in a traditional \TeX \do separated manner, except that for some reason I used `\Etoc@do`. TODO: maybe use `\do`.

```

160 \let\Etoc@dolevels\@empty
161 \def\Etoc@newlevel #1{\expandafter\def\expandafter\Etoc@dolevels\expandafter
162   {\Etoc@dolevels\Etoc@do{#1}}}

```

1.2 has done some refactoring here (and above), reducing the number of definitions. Formerly each defined sectioning level got two macros assigned to it: one holding the numerical level (as `chardef` or `count`, or even tokens for `-\tw@`), the other in a textual representation such as `minusone`. The latter do not get defined anymore.

MEMO: the legacy name space here is rather poor as anything can happen after `\Etoc@` with the sole and only characteristic that it terminates with `@@`. So this means no package control sequence is allowed to end in `@@` else it is in risk of being overwritten, were it not for the special filtering done by `\etocsetlevel`. For matters of `\etocsetnexttocdepth` allowing both name and numerical arguments, we employed the cheap device to define ourselves special levels named by explicit integers for internal usage, hence we need to filter them out here from being redefined. We also filter out names starting with `@` for other reasons, but still it was not true at 1.2 that the package could safely use `\Etoc@. . .@@` macros, as `\etocsetlevel` creates since then also a `\Etoc@@(name)@@`. There was in particular a `chardef \Etoc@@six@@` hence if user chose “six” as level name `\Etoc@@six@@` acquired a new meaning and this could cause strange symptoms, the main one being the disappearance from TOCs of levels at same numerical depth than the one now given by the modified `\Etoc@@six@@`. (There was no `\Etoc@six@@` so the bug was really only one of 1.2 not of earlier releases).

1.2 adds here `\etocifunknowlevelTF` and `\etoclevel` for a higher level interface, which may be used by third parties such as the `yathesis` class and will allow `etoc` at some point to modify its internal naming conventions.

The `-\tw@` case needed for `\Etoc@minf` (or for `memoir`) means that two expansions of `\etoclevel` do not always deliver a single token, it is at any rate always self-delimiting in assignments and `\ifnum` tests. I hesitated using only explicit digit tokens by the way.

The dummy sectioning levels “all” and “none” play a special role and will be declared by `\etocifunknowlevelTF` as “known”.

TODO: is it worthwhile to still allow “7” to “12” as level “names”? This is done here for perfect backward compatibility but they have to be excluded under `deeplevels` option, and it would be better to do something not depending on whether that option is used or not.

```

163 \ifdefined\expanded
164   \def\etocsetlevel#1#2{\expanded{\noexpand\etoc@setlevel{#1}{#2}}}%
165 \else
166   \def\etocsetlevel#1#2{{\edef\Etoc@tmp{\noexpand\etoc@setlevel{#1}{#2}}\expandafter}\Etoc@tmp}%
167 \fi
168 \def\etoc@setlevel#1#2{%
169   \edef\Etoc@tmp{\the\numexpr#2}%
170   \if1\ifnum\Etoc@tmp>\Etoc@maxlevel0\fi\unless\ifnum\Etoc@minf<\Etoc@tmp;\fi1%
171     \ifEtoc@deeplevels
172       \in@{.#1,}{.none,.all,.figure,.table,-3,-2,-1,.0,.1,.2,.3,.4,.5,.6,%
173         .7,.8,.9,.10,.11,.12,}%
174     \else
175       \in@{.#1,}{.none,.all,.figure,.table,-3,-2,-1,.0,.1,.2,.3,.4,.5,.6,}%
176     \fi

```

Letter or other agnostic test. First time I ever use \@car as I never paid attention to its existence and in more macro-coding intensive context such as `xint` I use my own.

```

177     \ifin@else\if\@car#1\@nil @\in@true\fi\fi
178     \ifin@
179     \PackageWarning{etoc}
180     {Sorry, but `#1' is forbidden as level name.\MessageBreak
181     \if\@car#1\@nil @%
182     (because of the @ as first character)\MessageBreak\fi
183     Reported}%
184 \else
185 \etocifunknownlevelTF{#1}{\Etoc@newlevel{#1}}{}%
186 \expandafter\let\csname Etoc@#1@@\expandafter\endcsname
187     \csname Etoc@\Etoc@tmp @@\endcsname

```

This is to allow “to toc” entries to not break the core mechanism used to let local tables of contents (now also lists of) know their scope, in case for example we have one after the other `\localtableofcontents`, `\locallistoffigures`, `\locallistoftables` and each has created its “to toc” entry: main TOC will handle the `@<division>` as aliases to `<division>` and local TOCs and Lists Of will ignore them.

So we create `@<levelname>` as aliases to `<levelname>`. This is really needed only for the level names actually involved by “to toc” thing, but let’s do it systematically to avoid implementation complications.

```

188     \expandafter\edef\csname Etoc@@#1@@\endcsname
189     {\expandafter\noexpand\csname Etoc@#1@@\endcsname}%

```

As “to toc” will use some `\addcontentsline`, we must make `hyperref` happy and also define the suitable `toclevel@` prefixed extra macros.

```

190     \expandafter\edef\csname toclevel@@#1\endcsname
191     {\expandafter\noexpand\csname toclevel@#1\endcsname}%

```

But we don’t set `hyperref`’s `\toclevel@#1` to be numerically `\Etoc@tmp`, with some hesitation. The level defined by `\etocsetlevel` should only be for interpretation by `etoc` for the contents of the `.toc` file. If it also influences how `hyperref` hooks into `\section` and like commands influence the PDF bookmarks, unexpected results could follow. It is up to user to set-up by themselves possibly needed extra `hyperref` configuration in this regard.

```

192     \fi
193 \else
194 \PackageWarning{etoc}
195 {Argument `#2' of \string\etocsetlevel\space should
196 represent one of\MessageBreak
197 \ifnum\Etoc@minf=-\thr@@-2, \fi-1, 0, 1, 2, \ifEtoc@deeplevels ... \else3, 4\fi,
198 \the\numexpr\Etoc@maxlevel-1, or \number\Etoc@maxlevel\space
199 but evaluates to \Etoc@tmp.\MessageBreak
200 The level of `#1' will be set to \number\Etoc@maxlevel.\MessageBreak
201 Tables of contents will ignore `#1' as long\MessageBreak
202 as its level is \number\Etoc@maxlevel\space (= \string\etocthemaxlevel).%
203 \MessageBreak
204 Reported}%
205 \etocifunknownlevelTF{#1}{\Etoc@newlevel{#1}}{}%
206 \expandafter\let\csname Etoc@#1@@\endcsname\Etoc@maxlevel
207 \fi
208 }

```

Maybe let it first use `\etocifunknownlevelTF` and raise in the “unknown” branch a suitable expandable error message (and return say `-3`)?

I may also need for internal usage a variant for only numerical `#1` which be submitted to a `\the\numexpr`. Not so far.

Unfortunately the name “level” here does not convey to user the fact that the argument of `\etocifunknownlevelTF` is a “name” not a numerical thing.

```

209 \def\etoclevel#1{\csname Etoc@#1@@\endcsname}
210 \def\etocthelevel#1{\number\csname Etoc@#1@@\endcsname}

```

```

211 \def\etocifunknownlevelTF#1{\@ifundefined{Etoc@#1@@}}
212 \@ifclassloaded{memoir}{\etocsetlevel{book}{-2}}{
213 \etocsetlevel{part}{-1}
214 \etocsetlevel{chapter}{0}
215 \etocsetlevel{section}{1}
216 \etocsetlevel{subsection}{2}
217 \etocsetlevel{subsubsection}{3}
218 \etocsetlevel{paragraph}{4}
219 \etocsetlevel{subparagraph}{5}

```

Prior to 1.2, only under class `memoir` was `\etocsetlevel` used with appendix. It does not seem to hurt to do it generally, with a check whether document class provides chapters.

```

220 \ifdefined\c@chapter
221 \etocsetlevel{appendix}{0}
222 \else
223 \etocsetlevel{appendix}{1}
224 \fi

```

The “to toc” mechanism will add to the `.toc` file `\contentsline` entries with first argument such as `@section` or `@subsection`. They will generally behave as section, resp. subsection, etc... This special mark-up is needed for “to toc” inclusions to not break the `etoc` mechanism for delimiting the scope of local tables of contents.

```

225 \def\Etoc@do#1{\@namedef{l@#1}{\csname l@#1\endcsname}}
226 \Etoc@dolevels

```

We do not issue `\etocsetlevel{figure}{6}` (or `{12}`) as anyhow the `\etocsetlevel` interface forbids figure and table as first argument.

```

227 \let\Etoc@figure@@\Etoc@maxlevel
228 \let\Etoc@table@@ \Etoc@maxlevel

```

1.09g adapts to `hyperref` depending on whether the latter is at 7.00u or earlier. Indeed internal changes to `hyperref` at 7.00u broke `etoc`. Thanks to Denis Bitouzé for reporting the issue.

1.1a radically simplifies matters at `etoc` core, and if these changes had been in place earlier there would have been no incompatibility with the `hyperref` 7.00u release.

At 1.2a we drop the 1.1a requirement of \TeX from 2020-10-01 and must cater for `\contentsline` with 3 or 4 arguments. Fortunately, the code refactorings engaged at 1.1a and completed at 1.2 made such a retro-fit relatively simple. Let’s hope nothing was overlooked, though.

But we can not assume anymore `\gobblethree` exists... hesitation here whether to use a `\Etoc@gobblethree` or directly name it `\gobblethree`.

```

229 \let\Etoc@gobblethreeorfour\@gobblefour
230 \ifdefined\@gobblethree
231 \let\Etoc@gobblethree\@gobblethree
232 \else
233 \long\def\Etoc@gobblethree#1#2#3{%
234 \fi
235 \AtBeginDocument{%
236 \@ifpackageloaded{parskip}{\Etoc@parskiptrue}{}%
237 \@ifpackageloaded{hyperref}
238 {\Etoc@hyperreftrue}
239 {\ifEtoc@oldLaTeX
240 \let\Etoc@gobblethreeorfour\Etoc@gobblethree
241 \let\Etoc@etoccontentsline@fourargs\Etoc@etoccontentsline@
242 \long\def\Etoc@etoccontentsline@#1#2#3{%
243 \Etoc@etoccontentsline@fourargs{#1}{#2}{#3}}%
244 }%
245 \fi
246 }%
247 }
248 \def\etocskipfirstprefix {\global\Etoc@skipprefixtrue }

```

Start of heart of `etoc`'s hacks into the execution of the `.toc` file commands. It goes via a redefinition of `\contentsline` which will launch an extraction process leading to the construction of `\etocname`, `\etocnumber`, and `\etocpage`, then the styles as defined by user via `\etocsetstyle` get executed in accordance to the levels.

In passing `etoc` is witness to the linear succession of sectioning levels and executes the `{\start}` and `{\finish}` parts of each used level at the right time (they are rather called “begin” and “end” in the code though).

1.2 did a complete rewrite of how `etoc` creates virtually a nesting structure out of the flat succession of the `\contentsline`'s for various levels. Ever since the first release this was based on using boolean flags, one for each level. The flag was on if the level had been seen, hence its “begin” macro executed, but not yet its “end” macro. This is now replaced by a stack storage `\Etoc@stackofends` which is simply, e.g. `{2}{0}{-3}{}`, to mean that first a chapter (0) was seen then a subsection (2). The `{-3}{}` trail is for matters of avoiding brace removal in the implementation next (I could have replaced it by a single token being numerically -3). This structure made implementing the `deeplevels` painless (but time-consumingly documented) at 1.2a.

When a new level is encountered and set in `\Etoc@level`, it is compared to the left most entry in the stack. If higher, the “begin” macro is executed and the `\Etoc@level` is pushed (as a digit with possibly a minus sign) to the left of the stack to record that the “end” macro is now on the queue for execution (sic). If equal, nothing has to be done, if lower, the “end” macro of the left-most stored level is executed then this level is removed, and one proceeds with the next one, etc... legacy code was using a bunch of TeX conditionals rather, and I recall how in 2012 I was unfamiliar with its strange syntax and had lots of troubles; once I got something working it got frozen and basically did not change since then. The 1.2 implementation has replaced all of this by maintenance of a single “stack”, which is more economical in terms of used macros and potentially more scalable too.

About `\Etoc@level` I have hesitated using only digit and sign tokens, but it is currently let to some `\chardef` (in exceptional `memoir` case of book level it can expand to `-\tw@`, and there is also the `\m@ne` count). 1.2 thus keeps defining such `\chardef`'s but has at least dropped auxiliary macros (see the definitions prior to `\etocsetlevel`) which held some alphabetical denotations such as “minusone” or “zero”, and the `begin`, `prefix`, `content` and `end` macros associated with each level now use a digit (and sign perhaps) (see `\etocsetstyle`). With `\Etoc@level` already storing directly such a digit, one would avoid a `\number` or `\the\numexpr` at some places, but would have to be more careful in the various `\ifnum`.

This (always globally defined) `\Etoc@level` must now never be set to the numerical value 6 (or 12 if option `deeplevels`): it is legal to add to the `.toc` file dummy sectioning levels associated to the maximal numerical level `\etothemaxlevel` (such dummy sectioning will be ignored but can be assigned locally a non-ignored level for special effects) and if `\Etoc@level` was, as prior to 1.2, systematically set to the numerical level of the last seen `\contentsline`, this could cause `\Etoc@@startlocaltoc` to fail to correctly set the “local top”. Indeed it now only has `\Etoc@level` at his disposal, the legacy boolean flags being gone.

The `\Etoc@isfirsttrue` was formally incorporated as last token of the “begin” macros as defined by `\etocsetstyle`, but has been displaced by 1.2 to the code below.

```
249 \def\Etoc@updatestackofends#1\etoc@{\gdef\Etoc@stackofends{#1}}
250 \def\Etoc@stackofends{{-3}{}}
251 \def\Etoc@doendsandbegin{%
252   \expandafter\Etoc@traversestackofends\Etoc@stackofends\etoc@
253 }
```

We compare the new level with those for which the `{\start}` parts of the `\etocsetstyle` declarations have been executed to decide if it is time to execute their `{\finish}` parts. In passing we set the boolean `\ifEtoc@isfirst` which is needed for `\etociffirst` and `\etocxiffirst`.

```
254 \def\Etoc@traversestackofends#1{%
255   \ifnum#1>\Etoc@level
256     \csname Etoc@end@#1\endcsname
257     \expandafter\Etoc@traversestackofends
258   \else
259     \Etoc@traversestackofends@done{#1}%
260   \fi
261 }
262 \def\Etoc@traversestackofends@done#1#2{#2%
263   \ifnum#1<\Etoc@level
```

```

264 \csname Etoc@begin@\the\numexpr\Etoc@level\endcsname
265 \Etoc@global\Etoc@isfirsttrue
266 \edef\Etoc@tmp{\the\numexpr\Etoc@level}%
267 \else
268 \Etoc@global\Etoc@isfirstfalse
269 \let\Etoc@tmp@empty
270 \fi
271 \expandafter\Etoc@updatestackofends\Etoc@tmp{#1}%
272 }

```

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 (2015/03/08).

1.1a of 2023/01/14 implements a radical change to legacy core internals for compatibility with (atow future) `hyperref`. Formerly `\Etoc@etoccontentsline@` fetched only the first argument. It now also fetches all four (the fourth argument of `\contentsline` is always present since \TeX 2020-10-01). The `\Etoc@lxyz` used to receive only the two arguments (possibly hacked by `hyperref`) of `\l@chapter`, `\l@section`, etc..., (these macros had been `\let` to `\Etoc@lxyz`), and examined them to see if they were carrying hyperlinking data. The 1.1a and later version receives as third argument the fourth one of `\contentsline`, i.e. the hyperlinking target, and adds the hyperlinking according to the status of `hyperref`'s `\Hy@linktoc`.

This is a breaking change if a user hacked `\contentsline` to do some specific pre-processing of the data, as this extra will now be ignored. The kind of hack one can think of is perhaps to pre-process the section title to turn it into uppercase, this kind of things, but why do such things when one is using `etoc` which precisely provides a general interface for such customization? Besides as the \TeX legacy set-up already mixes up in various ways name and number in the second argument of `\contentsline`, doing such hacks in a non-breaking way was not easy, and could have broken `etoc` easily anyhow.

The major hacker was `hyperref`... Indeed in 2012 when I started work on `etoc`, it was not clear to me how `hyperref` would end up using the fourth argument of `\contentsline` and I did not want to spend too much time tracing `hyperref` code. So I simply let `hyperref` do its stuff, and added specific post-processing branches to unravel it. It looks quite dumb in retrospect (at this time the `.toc` file lines with `\contentsline` had either three or four arguments which contributed for the design decisions back then).

All `hyperref` specific branches are now gone, replaced by extra code added depending on the status of the `\ifEtoc@hyperref` boolean. We also check the `\Hy@linktoc \chardef` status and, imitating `hyperref`, do not hyperlink the page number argument if it turns out empty. This maintains backwards-compatibility with earlier releases of `etoc`.

TODO: should this code ensure #1 is actually a legit level name and if not issue some nice error message? This would add system-level overhead only for careless people who do not read docs...

```

273 \def\Etoc@etoccontentsline #1{%
274 \let\Etoc@next\Etoc@gobblethreeorfour
275 \ifnum\csname Etoc@#1@@\endcsname=\Etoc@maxlevel
276 \else
277 \Etoc@skipthisonefalse

```

MEMO: the mechanism added to make added toc entries from “list of” titles invisible to the local tocs, goes via such a #1 starting with an @. In that case `\Etoc@#1@@` is not a `\chardef` but expands to one (or to a count or `-tw@` perhaps, or a `\numexpr... \relax`).

```

278 \global\expandafter\let\expandafter\Etoc@level\csname Etoc@#1@@\endcsname

```

The trick goes through a slight overhead here to filter out such special “@“-level names and not make them update what will serve as top level for local tocs or listsof. Formerly this was managed by booleans, then for 1.1d (released as 1.2) it got replaced by sole usage of `\Etoc@level`, and finally a specific `\Etoc@virtualtop` which gets its updates here.

```

279 \if @\car#1\@nil\else\global\let\Etoc@virtualtop\Etoc@level\fi
280 \ifEtoc@localtoc
281 \ifEtoc@stoptoc
282 \Etoc@skipthisonetrue
283 \else
284 \ifEtoc@notactive
285 \Etoc@skipthisonetrue
286 \else

```



```

287     \unless\ifnum\Etoc@level>\etoclocaltop
288     \Etoc@skipthisonetrue
289     \global\Etoc@stoptoctrue
290     \fi
291     \fi
292     \fi
293     \fi
294     \ifEtoc@skipthisone
295     \else
296     \unless\ifnum\Etoc@level>\c@tocdepth
297     \ifEtoc@standardlines
298     \let\Etoc@next\Etoc@savedcontentsline
299     \else
300     \let\Etoc@next\Etoc@etoccontentsline@
301     \fi
302     \fi
303     \fi
304     \fi
305     \Etoc@next{#1}%
306 }

```

Hesitation at 1.2 about having `\Etoc@level` being always explicit digit and perhaps negative sign. For now is a `\chardef` or `\m@ne` `\count` (perhaps `-\tw@` also).

```

307 \def\Etoc@etoccontentsline@ #1#2#3#4{%
308     \Etoc@doendsandbegin
309     \Etoc@global\edef\Etoc@prefix {\expandafter\noexpand
310         \csname Etoc@prefix@\the\numexpr\Etoc@level\endcsname }%
311     \Etoc@global\edef\Etoc@contents{\expandafter\noexpand
312         \csname Etoc@contents@\the\numexpr\Etoc@level\endcsname }%
313     \ifEtoc@skipprefix \Etoc@global\def\Etoc@prefix{\@empty}\fi
314     \global\Etoc@skipprefixfalse
315     \Etoc@lxyz{#2}{#3}{#4}%
316     \Etoc@prefix
317     \Etoc@contents
318 }

```

A **breaking change** is made at 1.1a: `\etoclink` will always create an hyperlink, even in case of `hyperref` being (possibly locally) configured to obey `linktoc=none`. Formerly, in such case, `\etoclink` added no hyperlink because `etoc` identified the hyperlink target from the `hyperref` hacked arguments of `\l@section` et al, rather than picking it from the fourth argument of `\contentsline`.

Another **breaking change** (documented only at 1.1b): all three of `\etocthelinkedname`, `\etocthelinkednumber`, and `\etocthelinkedpage` are always hyperlinks (for the latter, only if page number is not empty to match `hyperref` ways). Formerly they obeyed the `linktoc` status, somewhat counterintuitively, but this meant that `\etocname` etc... were their robust variants, which meant one could store easily for later usage (see the documentation examples with “treetoks”) their precise meaning. The breaking change happened in part because I was fooled myself by the macro names, and refactored the code in two steps separated by months so in second step I forgot I had only provisory code. And I decided finally to keep the breaking change.

Under `linktoc=page` option, `hyperref` has a “feature” to add one level of bracing to first argument of the `\l@section` etc macros. So for `etoc < 1.1a` this meant some extra work to dig into such a possible brace pair to check if the entry was numbered. At 1.1a, the `hyperref` modified `\contentsline` is not executed, hence there is no such complication. But the trimming of the now unneeded branches was not yet done at 1.1a, 1.1b, and got completed only at 1.1c, together with some renamings and refactoring.

```

319 \def\Etoc@lxyz #1#2#3{%
320     \ifEtoc@hyperref
321     \Etoc@global\def\etocthelink##1{\hyperlink{#3}{##1}}%
322     \else
323     \Etoc@global\let\etocthelink\@firstofone

```

```

324 \fi
325 \Etoc@global\def\etocthepage {#2}%

```

Prior to 1.1a an hyperlink was incorporated into `\etocthelinkedpage` only if `hyperref` added an hyperlink to the page number, i.e. under `linktoc=page` or `linktoc=all` (and a non empty page number). With 1.1a, the hyperlink is always added (if a non empty page number).

```

326 \ifEtoc@hyperref
327 \ifx\etocthepage\@empty
328 \Etoc@global\let\etocthelinkedpage\@empty
329 \else
330 \Etoc@global\def\etocthelinkedpage{\hyperlink {#3}{#2}}%
331 \fi
332 \else
333 \Etoc@global\let\etocthelinkedpage\etocthepage
334 \fi

```

Define `\etocthename` but this will perhaps be adjusted later if it is found out that the entry was numbered.

```

335 \Etoc@global\def\etocthename{#1}%

```

Now we check if the entry is numbered and disentangle the number from the name to define correctly `\etocthename` and `\etocthenumber`. The delimiter tokens were modified at 1.1c for a slight optimization. And secondary macros have less to do since the 1.1a initiated refactoring.

```

336 \futurelet\Etoc@getnb@token\Etoc@@getnb #1\hspace\etoc@

```

Even if `\etocthenumber` was let to `\@empty`, it may happen in special circumstances (related to KOMA-script, see below) that `\etocthename` got redefined. We will thus use its current contents to define appropriately `\etocthelinkedname`.

In presence of `hyperref` we let always `\etocthelinkedname` and `\etocthelinkednumber` (for a numbered entry) carry an hyperlink. This is a **breaking change** at 1.1a: formerly if the TOC (or the specific entry in the .toc file, as it is always possibly to inject `\hypersetup`) was typeset under `linktoc=none` or `linktoc=page` status, then no hyperlinks were incorporated. This is how `\etocthename` and `\etocthenumber` are configured, but `\etocthelinkedname` and `\etocthelinkednumber` will since 1.1a always be hyperlinked in presence of `hyperref`.

```

337 \ifEtoc@hyperref
338 \def\Etoc@tmp##1##2{\Etoc@global\def##2{\hyperlink{#3}{##1}}}%
339 \expandafter\Etoc@tmp\expandafter{\etocthename}\etocthelinkedname
340 \ifEtoc@numbered
341 \expandafter\Etoc@tmp\expandafter{\etocthenumber}\etocthelinkednumber
342 \else
343 \Etoc@global\let\etocthelinkednumber\@empty
344 \fi
345 \else
346 \Etoc@global\let\etocthelinkedname \etocthename
347 \Etoc@global\let\etocthelinkednumber\etocthenumber
348 \fi

```

Defaults in absence of `hyperref`. We externalize to another macro the `hyperref` case switch.

```

349 \Etoc@global\expandafter\let\csname etoclink \endcsname \etocthelink
350 \Etoc@global\expandafter\let\csname etocname \endcsname \etocthename
351 \Etoc@global\expandafter\let\csname etocnumber \endcsname\etocthenumber
352 \Etoc@global\expandafter\let\csname etocpage \endcsname \etocthepage
353 \ifEtoc@hyperref
354 \Etoc@lxyz@linktoc
355 \fi
356 }

```

In presence of `hyperref`, `etoc 1.1a` imports the `hyperref` own logic and tests `\Hy@linktoc` to decide if `name`, `number` and `page` get hyperlinks. This adds a dependency that `\Hy@linktoc` should exist and have the expected interpretation.

MEMO: Matters of tagging will have to wait for \LaTeX itself to show me what it does in `\l@section` etc... so that I can imitate.

Updated 2023/02/26: this is now partly available and gave me an idea of what will be needed here. As the `etoc` way goes through none of the \LaTeX hook points, I will have to add the suitable `\UseHook` at various places, after having stored the `\contentsline` original arguments in the same macros as the \LaTeX new kernel code will do.

Some difficulties though in perspective as `etoc` separates name and number and has no concept akin to `\@dottedtocline`. Also if the user employs `\etocsetstyle` with `\l@section`, hooks may be executed twice if I put them not in `\etocname` but in the `{<prefix>}` and `{<content>}` parts for each level.

```

357 \def\Etoc@lxyz@linktoc{%
358   \ifcase\Hy@linktoc
      none: nothing to do
359   \or
      section (aka name for etoc): link name and number
360   \Etoc@global\expandafter\let\csname etocname \endcsname\etocthelinkedname
361   \Etoc@global\expandafter\let\csname etocnumber \endcsname\etocthelinkednumber
362   \or % page
363   \Etoc@global\expandafter\let\csname etocpage \endcsname\etocthelinkedpage
364   \else % all
365   \Etoc@global\expandafter\let\csname etocname \endcsname\etocthelinkedname
366   \Etoc@global\expandafter\let\csname etocnumber \endcsname\etocthelinkednumber
367   \Etoc@global\expandafter\let\csname etocpage \endcsname\etocthelinkedpage
368   \fi
369 }

```

Now for the disentangling of the “number” from the “name”.

At some point we will pick up the first token and check if it is `\numberline` or like token to identify a numbered entry. But this step can cause brace removal so we `\futurelet` to peek ahead.

Prior to 1.1a it could be possible that the first token following `\Etoc@@getnb` was an opening brace and nevertheless the entry was numbered, because of a `hyperref` “feature” in case of `linktoc=page` option. But at 1.1a, `etoc` handles directly the argument of `\contentsline` so the presence of an opening brace implies the entry is not numbered. For some reason 1.1a kept the extra code to check in case the next token was an opening brace whether the whole entry was braced, which would have been indicative in the past (but not at 1.1a) of a `linktoc=page` context (`etoc` prior to 1.1a never tested the value of `\Hy@linktoc` as it did not want to be dependent on details of `hyperref` handling of options). This legacy, now superfluous, code branch is removed at 1.1c, bringing some simplification here, in particular the removal of an `\ifEtoc@bracedname` boolean. Also, when branching from here to the `\Etoc@getnb@nonbr`, we won’t need to check if the entry had a special “Part” syntax, which is another simplification.

The `@nonbr` means “no number”, and is not to be misinterpreted as “non braced”... (this was more confusing to the author on return to `etoc` code, when it still had branches handling issues described above with an extra brace pair).

```

370 \def\Etoc@@getnb {%
371   \let\Etoc@next\Etoc@getnb
372   \ifx\Etoc@getnb@token@sptoken\let\Etoc@next\Etoc@getnb@nonbr\fi
373   \ifx\Etoc@getnb@token\bgroup \let\Etoc@next\Etoc@getnb@nonbr\fi
374   \Etoc@next
375 }

```

1.08n tries to handle reasonably the `\nonumberline` of `KOMA-script`. If it expands to `\numberline{}`, `etoc` will consider the line numbered with an empty number (afaict, the meaning of `\nonumberline` is either empty or `\numberline{}`). This got modified at 1.1c (see below).

At 1.09f we get rid of the `\nonumberline` from inside `\etocthename` when it has empty meaning, so the expansion of the latter can safely be delayed by custom section styles (for example if the build up some token list to be executed later not immediately). 1.1c fixes a regression committed at 1.1a: for a `\nonumberline` with empty meaning the `\etocthelinkedname` did not end up hyperlinked.

A change, almost a bug fix, but the former behavior was actually deliberate, at 1.1c regarding the KOMA-script `\nonumberline` token: formerly, when it expanded to `\numberline{}` (this can happen only when the TOC is typeset in compatibility mode for the global display) then `\ifEtoc@numbered` was set to true. But this is only a KOMA-script typesetting thing, and should not have influenced `etoc`'s decisions when its (user or package) own line styles are used: at 1.1c it is thus decided that in such circumstances the `\etocifnumbered` will pick the false branch, and the empty `\etocthelinkednumber` will not be hyperlinked.

No brace removal of the #1 here a priori possible because we took care to check that `\Etoc@getnb` was not followed by either a space or an opening brace.

The `\Etoc@@getit` branch for "Parts" used to be executed from inside `\Etoc@lxyz`. At 1.1c we jump directly to it from here.

```

376 \def\Etoc@getnb #1{%
377   \in@{#1}{\numberline\chapternumberline\partnumberline\booknumberline}%
378   \ifin@
379     \let\Etoc@next\Etoc@getnb@nmbrd
380   \else
381     \ifnum\Etoc@level=\m@ne
382       \let\Etoc@next\Etoc@@getit
383     \else
384       \let\Etoc@next\Etoc@getnb@nonbr
385     \fi

```

Remove a KOMA-script `\nonumberline` token if present and process the entry always as not numbered (see above comments). Prior to 1.1c, the code branched according to the meaning of the `\nonumberline` token, which was a bit silly.

```

386   \in@{#1}{\nonumberline}%
387   \ifin@
388     \let\Etoc@next\Etoc@getnb@nonumberline
389   \fi
390 \fi
391 \Etoc@next #1%
392 }

```

Prior to 1.1a, `\etocthelinkedname` and `\etocthelinkednumber` (for a numberd entry) were defined to carry links only if an hyperlink was actually found, now they are defined in `\Etoc@lxyz` to always provide the hyperlinking to the target title in the document.

1.1a and 1.1b still had here some superfluous code which was trimmed at 1.1c.

Also, 1.1c fixes here a brace removal bug (which had always been there I guess): if the numbered heading title was braced one level of bracing was removed. The bug had no effect in a document using `hyperref` (and its default `linktoc` setting) as the `\hyperlink` wrapper limited the scope. But in a document without `hyperref` it would have been seen with input such as `\section{\color{blue}Stuff}`.

```

393 \def\Etoc@getnb@nmbrd #1#2{%
394   \Etoc@global\Etoc@numberedtrue
395   \Etoc@global\def\etocthenumber {#2}%
396   \Etoc@getnb@nmbrd@getname\@empty
397 }%

```

We added an `\@empty` token to prevent brace removal.

```

398 \def\Etoc@getnb@nmbrd@getname #1\hspace\etoc@ {%
399   \Etoc@global\expandafter\def\expandafter\etocthename\expandafter{#1}%
400 }

```

Not numbered entry.

```

401 \def\Etoc@getnb@nonbr #1\etoc@ {%
402   \Etoc@global\Etoc@numberedfalse
403   \Etoc@global\let\etocthenumber \@empty
404 }

```

Special KOMA branch: #1 starts with `\nonumberline` (prior to 1.1c the #1 would have already lost this token, and this branch was executed only in case `\nonumberline` had empty meaning). We need to remove this token from #1 and redefine `\etocthename`.

1.1a code still had here some complications with a “braced name” branch which was in fact never executed at 1.1a, as the `hyperref` hacks into the expansion of `\contentsline` were not executed. These now unneeded complications got removed at 1.1c.

1.1c also fixes a regression caused by 1.1a in this branch: the `\etocthelinkedname` had lost its hyper-link.

The `\nonumberline` extra token guarantees no brace stripping here.

```
405 \def\Etoc@getnb@nonumberline #1\hspace\etoc@ {%
406   \Etoc@global\Etoc@numberedfalse
407   \Etoc@global\let\etocthenumber \@empty
408   \Etoc@global\expandafter\def\expandafter\etocthename\expandafter{\@gobble#1}%
409 }
```

This branch handles the peculiar “Part” syntax. No brace stripping possible here when grabbing #1, due to previous checks that it does not start by a space token or an opening brace.

1.1c handles this as a sub-branch from `\Etoc@getnb` which brings simplifications. Also the code has been somewhat strengthened so as to avoid in later processing a brace removal issue on the name (which was a bug of legacy earlier code), when it turns out we are handling a numbered Part indeed.

The whole thing is anyhow quite fragile due to \TeX 's handling by standard classes of .toc file entries for parts being even more already pre-formatted for typesetting than for other levels.

```
410 \def\Etoc@@getit #1\hspace#2{%
411   \ifx\etoc@#2%
412     \Etoc@global\Etoc@numberedfalse
413     \Etoc@global\let\etocthenumber \@empty
414   \else
415     \Etoc@global\Etoc@numberedtrue
416     \Etoc@global\def\etocthenumber {#1}%
417     \expandafter\Etoc@getit@getname \expandafter\@empty
418   \fi
419 }
```

Chain of `\expandafter`'s to get rid of the added `\@empty` token to avoid a brace removal. And this is the end of the 1.1a refactoring, completed at 1.1c.

```
420 \def\Etoc@getit@getname #1\hspace\etoc@ {%
421   \Etoc@global\expandafter\def\expandafter\etocthename\expandafter{#1}%
422 }
```

place-holder

```
423 \let\etocthename \@empty
424 \let\etocthenumber \@empty
425 \let\etocthepage \@empty
426 \let\etocthelinkedname \@empty
427 \let\etocthelinkednumber \@empty
428 \let\etocthelinkedpage \@empty
429 \let\etocthelink \@firstofone
430 \DeclareRobustCommand*\etocname {}
431 \DeclareRobustCommand*\etocnumber {}
432 \DeclareRobustCommand*\etocpage {}
433 \DeclareRobustCommand*\etoclink {\@firstofone}
434 \DeclareRobustCommand*\etocifnumbered}
435   {\ifEtoc@numbered\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi}
436 \expandafter\let\expandafter\etocxifnumbered\csname etocifnumbered \endcsname
437 \DeclareRobustCommand*\etociffirst}
438   {\ifEtoc@isfirst\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi}
439 \expandafter\let\expandafter\etocxiffirst\csname etociffirst \endcsname
440 \def\Etoc@readtoc {%
441   \ifeof \Etoc@tf
442   \else
443     \read \Etoc@tf to \Etoc@buffer
444     \Etoc@toctoks=\expandafter\expandafter\expandafter
```

```

445     {\expandafter\the\expandafter\Etoc@toctoks\Etoc@buffer}%
446   \expandafter\Etoc@readtoc
447   \fi
448 }

```

1.07m moves the reading of the toc file At Begin Document. Needed for Babel activated characters.

```

449 \Etoc@toctoks {}% (superfluous, but for clarity)
450 \AtBeginDocument{\IfFileExists{\jobname.toc}
451   {\endlinechar=\m@ne
452   \makeatletter
453   \newread\Etoc@tf
454   \openin\Etoc@tf\filef@und
455   \Etoc@readtoc
456   \global\Etoc@toctoks=\expandafter{\the\Etoc@toctoks}%
457   \closein\Etoc@tf}}
458   {\typeout{No file \jobname.toc.}}}}
459 \def\Etoc@openouttoc{%
460   \ifEtoc@hyperref
461   \ifx\hyper@last\@undefined
462   \IfFileExists{\jobname .toc}
463     {\Hy@WarningNoLine
464     {old toc file detected; run LaTeX again (cheers from `etoc')}}%
465     \global\Etoc@toctoks={}%
466   }
467   {}%
468   \fi
469   \fi
470   \if@filesw
471   \newwrite \tf@toc
472   \immediate \openout \tf@toc \jobname .toc\relax
473   \fi
474   \global\let\Etoc@openouttoc\empty
475 }

```

The `\gdef\Etoc@stackofends{{-3}}}` is in theory superfluous as normally this stack should always have been restored on exit to its initial state, but...

It would perhaps be better to issue here `\Etoc@notactivetrue`, prior to `\the\Etoc@toctoks` but it is up to the caller macros to do it. `\Etoc@minf` is a level which is lower (i.e. more encompassing than all others), so numerically -2 for standard classes and -3 for `memoir` class.

The `\Etoc@doendsandbegin` will not try to execute a (non-existing) “begin” macro for the level -3.

```

476 \def\Etoc@toctoc{%
477   \gdef\Etoc@stackofends{{-3}}}%
478   \global\let\Etoc@level\Etoc@minf
479   \global\let\Etoc@virtualtop\Etoc@minf
480   \the\Etoc@toctoks
481   \ifEtoc@notactive
482   \else
483   \gdef\Etoc@level{-\thr@@}%
484   \Etoc@doendsandbegin
485   \fi
486 }

```

Memo: `\etoclocaltop` has only meaningful meaning when the toc is local and is “active”. Except that I used a “notactive” flag to torture myself, so: has the `\ifEtoc@notactive` flag set to false.

The 1.2 removal of usage of boolean flags associated to the levels has made the next definition more succinct. Their former rôle is picked up by `\Etoc@level`.

MEMO: the `\etoclocaltableofcontentshook` has been added during development 1.2 probably for reasons of symmetry with handling of the local “lists of” code, but at time of release I can’t remember clearly. Hesitation where to put it exactly.

1.2 adds a `\Etoc@startlocaltohook` for a refactoring of `\localtableofcontentswithrelative-depth`. It also serves to make the emptiness check with local “lists of”, as will be seen further down.

```
487 \def\Etoc@startlocaltoc#1#2{%
488   \ifEtoc@localtoc
489     \ifnum #1=#2\relax
490     \global\let\etoclocaltop\Etoc@virtualtop
491     \Etoc@startlocaltohook
492     \etoclocaltableofcontentshook
```

The `\ifEtoc@etocstyle` boolean is true when `etoc` is left in its default mode (no usage of `\etocsettocstyle` or `\etocclasstocstyle`). It inhibits `\Etoc@tableofcontents` from using the specified `{<before_toc>}` and `{<after_toc>}` from usage of `\etocsettocstyle`. And here we can insert the code we wish to do the title.

MEMO: for legacy reason `etoc` shares a lot of code between global TOC and local TOCs. But it would probably have been better to separate the two and provide an `\etocsetlocaltocstyle` that the user can use in preamble. As it stands `\etocsettocstyle` if used in preamble also influences the global TOC, so basically one has to use it again after it (if it comes first in the document).

The `\ifEtoc@ouroboros` mechanism when it is set to false appears rather audacious.

```
493   \ifEtoc@etocstyle
494     \etocetoclocaltocmaketitle
495   \fi
496   \ifx\Etoc@aftertitlehook\@empty
497   \else
498     \ifEtoc@localtoctotoc
499     \ifEtoc@ouroboros
500     \else
501       \let\Etoc@tmp\contentsline
502       \def\contentsline{\let\contentsline\Etoc@tmp\Etoc@gobblethreeorfour}%
503     \fi
504   \fi
505 \fi
506 \global\Etoc@notactivefalse
507 \fi
508 \fi
509 }
510 \let\etoc@startlocaltoc\@gobble
511 \let\Etoc@@startlocaltoc@toc\Etoc@@startlocaltoc
512 \let\Etoc@@startlocaltohook\@empty
513 \unless\ifEtoc@deeplevels
```

This only hard-codes the built-in \TeX defaults.

```
514 \def\etocdivisionnameatlevel#1{%
515   \ifcase\numexpr#1\relax
516     \ifdefined\c@chapter chapter\else section\fi%
517   \or section%
518   \or subsection%
519   \or subsubsection%
520   \or paragraph%
521   \or subparagraph%
522   \or empty%
523   \else\ifnum\numexpr#1<\m@ne
524     book%
525   \else
526     part%
527   \fi
```

```

528   \fi
529 }
530 \else
    The definition given to \etocdivisionnameatlevel in the deeplevels branch is only needed if one wants
    to locate a local table of contents at a deep place, and one has not made use of \etocsettocstyle to
    configure the heading by oneself. I have used in the default definition the headings as in the Doxygen  $\LaTeX$ 
    templates originating in the Doxygen#9936 PR.
531   \def\etocdivisionnameatlevel#1{%
532     \ifcase\numexpr#1\relax
533       \ifdefined\c@chapter chapter\else section\fi%
534       \or section%
535       \or subsection%
536       \or subsubsection%
537       \or subsubsubsection%
538       \or subsubsubsubsection%
539       \or subsubsubsubsubsection%
540       \or subsubsubsubsubsubsection%
541       \or paragraph%
542       \or subparagraph%
543     \else\ifnum\numexpr#1>\z@
544       empty%
545     \else\ifnum\numexpr#1=\m@ne
546       part%
547     \else
548       book%
549     \fi\fi
550   \fi
551 }
552 \fi
553 \def\etoclocalheadtotoc#1#2{\addcontentsline{toc}{@#1}{#2}}
554 \def\etocglobalheadtotoc{\addcontentsline{toc}}

```

I have coded this so that it can be copied pasted to a user document and customized at will. 1.2a uses a better test for knowing if the starred command of previous line created an inline heading with `\everypar`: 1.2 simply tested if `\etoclocaltop` was at least 3 but this does not scale well with `deeplevels`. Only worry here is whether the `\if@noskipsec` thing really works with all document classes. At least it is in \LaTeX kernel.

```

555 \providecommand*\UseName{\@nameuse}
556 \def\etocetoclocaltocmaketitle{%
557   \UseName{\etocdivisionnameatlevel{\etoclocaltop+1}}*\{\localcontentsname}%
558   \if@noskipsec\leavevmode\par\fi
559   \etociflocaltotoc
560     {\etocifisstarred
561       {}% star variant, do not add to toc
562       {\etoclocalheadtotoc
563         {\etocdivisionnameatlevel{\etoclocaltop+1}}%
564         {\localcontentsname}%
565       }%
566     }%
567     {}%
568 }%

```

In dev, I used `\etoc` prefix for the next two, but I decided to drop it for release.

```

569 \def\localcontentsname {\contentsname}%
570 \let\etoclocaltableofcontentshook\@empty

```

The big thing at 1.2: experimental support code for `\locallistoffigures` and `\locallistoftables`! There were two possibilities to implement the 'localtoc' mechanism: either add some extra things to the `.lof` and `.lot` files, or get their data duplicated in the `.toc` file. I have chosen for time being the latter path, hence this goes via hacking into `\addcontentsline` and it must be the case that the document class

uses it (from `\caption`). If some package has modified the implementation of captions of figures and tables and inserts data in the `.lof` or `.lot` files directly via `\addtocontents` for example and not via `\addcontentsline`, then the `etoc` mechanism will fail.

```
571 \if1\ifEtoc@lof0\fi\ifEtoc@lot0\fi1%
572 \else
573 \AtBeginDocument{%
574   \let\Etoc@originaladdcontentsline\addcontentsline
575   \def\addcontentsline{\Etoc@hackedaddcontentsline}%
576 }%
577 \fi
```

For optimization of execution speed we define the macro conditionally on the option status (which is frozen). In the first case, `#1=lof`, `.lot` would work but this is not realistic.

```
578 \ifEtoc@lof
579   \ifEtoc@lot
580     \def\Etoc@hackedaddcontentsline#1{%
581       \expanded{\noexpand\in@{.#1,}}{.lof,.lot,}%
582       \ifin@expandafter\Etoc@hackedaddcontentsline@i
583       \else\expandafter\Etoc@originaladdcontentsline
584       \fi {#1}}
585   \else
586     \def\Etoc@hackedaddcontentsline#1{%
587       \expanded{\noexpand\in@{.#1,}}{.lof,}%
588       \ifin@expandafter\Etoc@hackedaddcontentsline@i
589       \else\expandafter\Etoc@originaladdcontentsline
590       \fi {#1}}
591   \fi
592 \else
593   \def\Etoc@hackedaddcontentsline#1{%
594     \expanded{\noexpand\in@{.#1,}}{.lot,}%
595     \ifin@expandafter\Etoc@hackedaddcontentsline@i
596     \else\expandafter\Etoc@originaladdcontentsline
597     \fi {#1}}
598 \fi
```

This business of `\protected@file@percent` is not really needed as anyhow `etoc` reads the `.toc` file with no space token from end of lines.

```
599 \def\Etoc@hackedaddcontentsline@i#1#2#3{%
600   \expanded{\noexpand\in@{.#1;#2,}}{.lof;figure,.lot;table,}%
601   \ifin@
602   \addtocontents {toc}{%
603     \protect\contentsline{#2}{#3}{\thepage}{\ifEtoc@hyperref\@currentHref\fi}%
604     \ifdefined\protected@file@percent\protected@file@percent\fi
605   }%
606   \fi
607   \Etoc@originaladdcontentsline{#1}{#2}{#3}%
608 }
```

The two macros need to be redefined if `\expanded` is not provided by the engine. Here we leave some tests done at execution time although they could have been done (as above) here at definition time.

```
609 \unless\ifdefined\expanded
610   \def\Etoc@hackedaddcontentsline#1{%
611     {\edef\Etoc@tmp{\noexpand\in@{.#1,}}{\ifEtoc@lof.lof,\fi\ifEtoc@lot.lot,\fi}}\expandafter}%
612     \Etoc@tmp
613     \ifin@expandafter\Etoc@hackedaddcontentsline@i
614     \else\expandafter\Etoc@originaladdcontentsline
615     \fi {#1}%
616   }
617   \def\Etoc@hackedaddcontentsline@i#1#2#3{%
```

```

618   {\edef\Etoc@tmp{\noexpand\in@{.#1;#2,}}\expandafter}%
619   \Etoc@tmp{.lof;figure,.lot;table,}%
620   \ifin@
621   \addtocontents {toc}{%
622     \protect\contentsline{#2}{#3}{\thepage}{\ifEtoc@hyperref\@currentHref\fi}%
623     \ifdefined\protected@file@percent\protected@file@percent\fi
624   }%
625   \fi
626   \Etoc@originaladdcontentsline{#1}{#2}{#3}%
627 }
628 \fi

```

We will simply let `\locallistoffigures` and `\locallistoftables` use `\localtableofcontents`. We need some dedicated variant of `\Etoc@startlocaltoc`. Hesitation where to put `\Etoc@startlocaltohook` which has multiple usages.

```

629 \def\Etoc@startlocallistof#1#2#3{%
630   \ifEtoc@localtoc
631     \ifnum #2=#3\relax
632       \global\let\etoclocaltop\Etoc@virtualtop
633       \global\Etoc@notactivefalse
634       \Etoc@startlocaltohook
635       \csname etoclocallistof#1shook\endcsname
636       \ifEtoc@etocstyle
637         \csname etocetoclistof#1smaketitle\endcsname
638       \fi
639     \fi
640   \fi
641 }
642 \def\Etoc@startlocallistof@setlevels#1{%

```

#1 is figure or table.

`\etoclocaltop` represents the level which will stop the local “list of” contents. I hesitated whether local “lists of” should obey the `tocdepth`, especially a varying one. Finally at last minute I opted for “Yes”, so in the end no alteration of `tocdepth` will be done here. We will set the level to have value

$$\min(1, \text{\etoclocaltop}+1)$$

At least 1, because it really would not make sense to show figure entries as chapter entries for a local list of figures in a Part (if the user has for example set the `\etoclocallistoffigureshook` to do nothing, so that the line styles as configured via `\etocsetstyle` are not avoided). And it must be greater than `\etoclocaltop` else such an entry would terminate the scope of the local contents.

In the default context which has issued via `\etoclocallistoffigureshook` a local `\etocstandardlines`, the actual value of the level only has a “all or nothing” meaning: if it is greater than `tocdepth` then the `\Etoc@etoccontentsline` will not call `\contentsline`, else it will and then the code from document class will kick in. The article class defines `\l@figure` as

```
\@dottedtocline {1}{1.5em}{2.3em}
```

And we are here in a context where necessarily `tocdepth` is at least 1 (if it was 0 or less, as the level has been set to at least 1, the entry would have been filtered out earlier by `\Etoc@etoccontentsline`), so the line will show. And if `\etoclocallistoffigureshook` was modified and did not issue `\etocstandardlines` and we are in this situation that the `tocdepth` comparison did not inhibit the entry, then it will show too, at least if the line style does not say to do nothing (notice that the `etoc` fall-back line styles are configured to do nothing for paragraph and subparagraph entries).

On the other hand if the `tocdepth` inhibits entries of level `\etoclocaltop+1`, then a `\localtableofcontents` at this level would display no contents, so why should it not also mute `\locallistoffigures`?

This change to the level `\Etoc@figure@@` or `\Etoc@table@@` is done only locally, no need to worry about collaterals after the “List of”.

```

643   \ifnum\etoclocaltop<\z@
644     \expandafter\let\csname Etoc@#1@@\endcsname\@ne
645   \else
646     \expandafter\let\csname Etoc@#1@@\endcsname\expandafter\endcsname

```

```

647 \csname Etoc@\the\numexpr\etoclocaltop+\@ne @@\endcsname
648 \fi

```

We now make invisible all level names whose numerical level would have allowed them to show in these contents. figure and table are never included in the `\Etoc@dolevels` no danger to cancel them out. The special level names @section etc... which are inserted by headings of local “lists of” or local TOCs under `lalloftotoc` and other options have been made invisible by `\Etoc@listofhook`, no need to do anything about them here.

```

649 \def\Etoc@do##1{%
650 \ifnum\etoclevel{##1}>\etoclocaltop
651 \expandafter\let\csname Etoc@##1@\endcsname\Etoc@maxlevel
652 \fi}%
653 \Etoc@dolevels
654 }

```

Let’s for time being configure the figure and table lines to be rendered as in class default.

Ah, I remember why I added `\etoclocaltableofcontentshook` above. It is by symmetry as I had defined those next two already.

```

655 \def\etoclocallistoffigureshook{\etocstandardlines}
656 \def\etoclocallistoftableshook {\etocstandardlines}

```

Here is some info about usage of `\etoclocallistoffigureshook`, for those who end up here from having clicked on the name from the user manual. Its default as above means to use the class default for lines in `\listoffigures`. If you redefine it to be empty, the effect is that (except of course if `\etocstandardlines` has been issued globally) the figure lines will adopt the style configured for level `\etoclocaltop+1` (or more precisely the minimum of that and of 1). You can definitely put into the hook some

```
\etocsetstyle{\number\etoclevel{figure}}{. . .}
```

where the dots represent some code with `\etocnumber`, `\etocname`, `\etocpage`, itself possibly querying `\etoclevel{figure}`, or perhaps `\etoclocaltop` to know the actual depth (which may be the one of a Part which can thus be distinguished from being in a Chapter, whereas `\number\etoclevel{figure}` will give 1 in both cases).

There is variant which is to maintain the default `\etocstandardlines` in the hook and then re-define the kernel macro `\l@figure` to do the desired thing. For example the default with article is for `\l@figure` to do `\@dottedtocline {1}{1.5em}{2.3em}` so you can do some variant where the second and third argument (indent and numwidth) are set according to `\etoclocaltop`.

I hope the above explanations help, they appear too advanced for inclusion in the user manual so I give them here.

In dev, I used `\etoc` prefix here, but I decided to drop it for release.

```

657 \def\locallistfigurename{\listfigurename}
658 \def\locallisttablename {\listtablename}

```

Same observations as for `\etocetoclocaltocmaketitle`.

```

659 \def\etocetoclistoffiguresmaketitle{%
660 \UseName{\etocdivisionnameatlevel{\etoclocaltop+1}}*\locallistfigurename}%
661 \ifnum\etoclocaltop>\tw@\mbox{\par\fi
662 \etociflalloftotoc
663 {\etocifisstarred
664 {}}% star variant, do not add to toc
665 {\etoclocalheadtotoc
666 {\etocdivisionnameatlevel{\etoclocaltop+1}}%
667 {\locallistfigurename}%
668 }%
669 }%
670 {}%
671 }%
672 \def\etocetoclistoftablesmaketitle{%
673 \UseName{\etocdivisionnameatlevel{\etoclocaltop+1}}*\locallisttablename}%
674 \ifnum\etoclocaltop>\tw@\mbox{\par\fi
675 \etociflallottotoc

```

```

676     {\etocifisstarred
677       {}% star variant, do not add to toc
678       {\etoclocalheadtotoc
679         {\etocdivisionnameatlevel{\etoclocaltop+1}}%
680         {\locallisttablename}%
681       }%
682     }%
683   {}%
684 }%

```

The local lists of do support the `\label/\ref` syntax as we are careful here to position `\localtableofcontents` as last token.

The reset to `\@empty` of the `\Etoc@listofreset` is not strictly needed as the other things can always be done with no harm.

```
685 \let\Etoc@listofreset\@empty
```

Memo: `\ext@toc` defined in KOMA and memoir but not in the standard classes.

```

686 \ifEtoc@lof
687   \def\locallistoffigures{%
688     \def\Etoc@listofreset{%
689       \let\Etoc@current\Etoc@tocext
690       \let\Etoc@@startlocaltoc\Etoc@@startlocaltoc@toc
691       \let\Etoc@@startlocaltohook\@empty
692       \let\Etoc@listofreset\@empty

```

The `\Etoc@listofhook` is executed by `\localtableofcontents`. It will be used here to let local “lists of” ignore all the special `.toc` entries whose level names start with a `@`. This is to avoid the scope limiting detection of the local list of figures or tables from being influenced by another list of, such as a list of tables following a list of figures which has put its title inside the `.toc` due to `locallottotoc` option of `etoc`.

```

693     \let\Etoc@listofhook\@empty
694     }%
695     \let\Etoc@current\Etoc@lofext
696     \def\Etoc@@startlocaltoc{\Etoc@@startlocallistof{figure}}%
697     \def\Etoc@@startlocaltohook{\Etoc@@startlocallistof@setlevels{figure}}%
698     \def\Etoc@listofhook{%
699       \def\Etoc@do####1{%
700         \expandafter\let\csname Etoc@#####1@\endcsname\Etoc@maxlevel
701       }%
702       \Etoc@dolevels
703     }%
704     \localtableofcontents
705   }
706 \else
707   \def\locallistoffigures{%
708     \PackageError{etoc}{%
709       \string\locallistoffigures \on@line\space but\MessageBreak
710       package was loaded without `lof' option}%
711     {Try again with \string\usepackage[lof]{etoc}}%
712   }
713 \fi
714 \ifEtoc@lot
715   \def\locallistoftables{%
716     \def\Etoc@listofreset{%
717       \let\Etoc@current\Etoc@tocext
718       \let\Etoc@@startlocaltoc\Etoc@@startlocaltoc@toc
719       \let\Etoc@@startlocaltohook\@empty
720       \let\Etoc@listofreset\@empty
721       \let\Etoc@listofhook\@empty
722     }%

```

```

723   \let\Etoc@current\Etoc@lotext
724   \def\Etoc@@startlocaltoc{\Etoc@@startlocallistof{table}}%
725   \def\Etoc@@startlocaltochook{\Etoc@@startlocallistof{setlevels}{table}}%
726   \def\Etoc@listofhook{%
727     \def\Etoc@do###1{%
728       \expandafter\let\csname Etoc@@###1@\endcsname\Etoc@maxlevel
729     }%
730     \Etoc@dolevels
731   }%
732   \localtableofcontents
733 }
734 \else
735 \def\locallistoftables{%
736   \PackageError{etoc}{%
737     \string\locallistoftable \on@line\space but\MessageBreak
738     package was loaded without `lot' option}%
739   {Try again with \string\usepackage[lot]{etoc}}%
740 }
741 \fi

```

`\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.

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 `\ifEtoc@localtoc` flag. The `\Etoc@tocid` will be undefined for a global toc but it is not tested anymore.

The initialization such as `\global\let\Etoc@level\Etoc@minf` is needed in case the `.toc` file contains an `\etoc@startlocaltoc` before any `\contentsline`.

Local list of figures and tables set especially the tocdepth and a hook is added here for emptiness check to work correctly with them.

MEMO: Should I also execute `\etoclocaltableofcontentshook`? Then I would need to set `\etoclocal-listoffigureshook` to redefine it, rather than be inserted as itself.

```

742 \def\Etoc@checkifempty {%
743   \global\Etoc@isemptytoctrue
744   \global\Etoc@stoptocfalse
745   \global\let\Etoc@level\Etoc@minf
746   \global\let\Etoc@virtualtop\Etoc@minf
747   \gdef\Etoc@stackofends{{-3}}}%
748   \begingroup
749   \ifEtoc@localtoc
750     \def\etoc@startlocaltoc##1{%
751       \ifnum##1=\Etoc@tocid\relax
752         \global\let\etoclocaltop\Etoc@virtualtop
753         \Etoc@@startlocaltochook
754         \global\Etoc@notactivefalse
755       \fi
756     }%

```

The mechanism is to check if any `\contentsline` triggers execution. For this we replace the `etoc` replacement by another replacement.

```

757   \let\contentsline\Etoc@testingcontentsline\local
758   \else
759     \let\contentsline\Etoc@testingcontentsline
760   \fi
761   \Etoc@storetocdepth

```

This here is a 1.09i added work-around to avoid usage of `\etocsetlocaltop.toc` which could cause the test of emptiness of a global TOC to actually execute some start and finish parts in some cases.

```

762     \let\Etoc@setlocaltop@doendsandbegin\@empty
763     \the\Etoc@toctoks
764     \Etoc@restoretocdepth
765   \endgroup
766 }
767 \DeclareRobustCommand*\etocifwasempty
768   {\ifEtoc@isemptytoc\expandafter\@firstoftwo\else\expandafter\@secondoftwo\fi }
769 \expandafter\let\expandafter\etocxifwasempty\csname etocifwasempty \endcsname
770 \def\Etoc@testingcontentsline@local #1{%
771   \ifEtoc@stoptoc
772   \else
773     \ifnum\csname Etoc@#1@\endcsname=\Etoc@maxlevel
774     \else
775       \global\expandafter\let\expandafter\Etoc@level\csname Etoc@#1@\endcsname
776       \if @\@car#1\@nil\else\global\let\Etoc@virtualtop\Etoc@level\fi
777       \ifEtoc@notactive
778       \else

```

`\ifEtoc@notactive` is `\iffalse` in case of a local TOC once it has encountered the `\etoc@startlocaltoc` with matching id. So here `\etoclocaltop` has been set by `\Etoc@@startlocaltoc` and we compare to the new level encountered. If the latter is at most equal to `\etoclocaltop` this means the local TOC ends there and is empty, so we set the `\ifEtoc@stoptoc` to true, which will cause the subsequent parsing to abort immediately. If it is greater we check how it compares to the local required toc depth. If lower or equal we conclude the toc is not empty, and toggle the flag to stop the parsing; if greater, we are still in doubt and must continue.

```

779     \ifnum\Etoc@level>\etoclocaltop
780     \unless\ifnum\Etoc@level>\c@tocdepth
781       \global\Etoc@isemptytocfalse
782       \global\Etoc@stoptoctrue
783     \fi
784   \else
785     \global\Etoc@stoptoctrue
786   \fi
787 \fi
788 \fi
789 \fi

```

The `\@gobblethree` was added to the \TeX kernel for its 2020-02-02 PL 5 release and we require 2020-10-01 since 1.1a.

```

790   \Etoc@gobblethreeorfour{}%
791 }

```

Test of emptiness of the global TOC (according to current setting of the levels and a possibly evolving `tocdepth`).

```

792 \def\Etoc@testingcontentsline #1{%
793   \ifEtoc@stoptoc
794   \else
795     \ifnum\csname Etoc@#1@\endcsname=\Etoc@maxlevel
796     \else
797       \unless\ifnum\csname Etoc@#1@\endcsname>\c@tocdepth
798         \global\Etoc@isemptytocfalse
799         \global\Etoc@stoptoctrue
800       \fi
801     \fi
802   \fi
803   \Etoc@gobblethreeorfour{}%
804 }

```

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. Only, however if user has added `\etoccheckemptiness` to document.

If this optional emptiness check is positive, 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 `\contentsline` under the TOC scope”.

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 `\ifEtoc@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 `\ifEtoc@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@isemptytocfalse` 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 `\Etoc@stoptoctrue` flag, the `\Etoc@etoccontentsline` is more efficient now.

The `\ifEtoc@notactive` flag needs to be set before calling `\Etoc@checkifempty`.

I hesitated with 1.08i to write something to aux file in order to let \TeX prompt the user for extra pass, after insertion of some new `\localtableofcontents`, but finally I prefer to only trick \TeX 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.

```
805 \def\Etoc@localtableofcontents#1{%
806   \gdef\etoclocaltop{-\@m}%
807   \Etoc@localtoctrue
808   \global\Etoc@isemptytocfalse
809   \edef\Etoc@tocid{#1}%
```

```

810 \iffnum\Etoc@tocid<\@ne
811 \setbox0\hbox{\ref{Unknown toc ref \@secondoftwo#1. \space Rerun LaTeX}}%
Do only heading, skip all the rest.
812 \global\Etoc@stoptoctrue
813 \gdef\etoclocaltop{-\thr@@}%
814 \Etoc@tableofcontents
815 \expandafter\Etoc@gobtoetoc@
816 \fi
817 \global\Etoc@notactivetrue
818 \ifEtoc@checksemtiness
819 \Etoc@checkifempty
820 \fi
821 \ifEtoc@isemptytoc
822 \ifEtoc@notactive
823 \setbox0\hbox{\ref{Unknown toc ID \number\Etoc@tocid. \space Rerun LaTeX}}%
Assume real one will be non-empty and print only heading for this pass.
824 \global\Etoc@isemptytocfalse
825 \global\Etoc@stoptoctrue
826 \gdef\etoclocaltop{-\thr@@}%
827 \Etoc@tableofcontents
828 \expandafter\expandafter\expandafter\Etoc@gobtoetoc@
829 \fi
830 \else
831 \global\Etoc@stoptocfalse
832 \global\Etoc@notactivetrue

```

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`.

```

833 \edef\etoc@startlocaltoc##1%
834 {\noexpand\Etoc@@startlocaltoc{##1}{\Etoc@tocid}}%
835 \Etoc@tableofcontents
836 \fi
837 \@gobble\etoc@
838 \endgroup\ifEtoc@mustclosegroup\endgroup\fi
839 \Etoc@tocdepthreset
840 \Etoc@listofreset
841 \etocafertochook
842 }% \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`.

1.2 has a removed a `\Etoc@getrefno` as the author now knows about `\@car` so need to define a similar utility here!

Much more importantly (and embarrassingly) 1.2 fixes a bug which had been here for ever. The code in its innocence 2012 birth year assumed that the first entry of `\r@foo`, if the latter is defined, is always numerical! But this is broken by `varioref` if one used for example `\vpageref{foo}` before! The first brace pair will then be `{??}`... causing in `etoc` a “Missing number” error.

About the current fixed code, there is no strong reason that `\Etoc@getref` should work expandably. Later `\Etoc@localtableofcontents` does

```
\edef\Etoc@tocid{#1}\iffnum\Etoc@tocid<\@ne
```

but I certainly could organize things differently.

Maybe I should investigate more on what nasty things can be in first argument. Or submit it to an `\expanded?`


```

843 \def\Etoc@getref #1{%
844   \@ifundefined{r@#1}
845     {0}
846     {\expandafter\Etoc@getref@i\romannumeral-`0%
847     \expandafter\expandafter\expandafter
848     \@car\csize r@#1\endcsname0\@nil\@etoc
849     }%
850 }
851 \def\Etoc@getref@i#1#2\@etoc{\ifnum9<1\string#1 #1#2\else 0\fi}
852 \def\Etoc@ref#1{\Etoc@localtableofcontents{\Etoc@getref{#1}}}
853 \def\Etoc@label#1{\label{#1}\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}
854 \@firstofone{\def\Etoc@again} {\futurelet\Etoc@nexttoken\Etoc@t@bleofcontents}

\ref{foo} expects foo to be a label to a local TOC.
The syntax \localtableofcontents\ref{foo} is supported.

855 \def\Etoc@dothis #1#2\etoc@ {\fi #1}
856 \def\Etoc@t@bleofcontents{%
857   \gdef\etoclocaltop{-\@M}%
858   \ifx\Etoc@nexttoken\label\Etoc@dothis{\expandafter\Etoc@label\@gobble}\fi
859   \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.

860   \ifx\Etoc@nexttoken\ref\Etoc@dothis{\expandafter\Etoc@ref\@gobble}\fi

Flag to check if we were called from a \localtableofcontents.

861   \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 \ifEtoc@notactive
flag as now \Etoc@testingcontentsline tests first the \ifEtoc@localtoc flag (was already the case of
\Etoc@etoccontentsline). I change a bit the style of conditionals here for clarity of code.

862   \global\Etoc@isemptytocfalse
863   \ifEtoc@checkemptiness\Etoc@checkifempty\fi
864   \ifEtoc@isemptytoc
865     \ifEtoc@notocifnoc
866     \expandafter\expandafter\expandafter\@gobble
867     \fi
868   \fi
869   \Etoc@tableofcontents
870   \endgroup
871   \ifEtoc@mustclosegroup\endgroup\fi
872   \Etoc@tocdepthreset
873   \Etoc@listofreset
874   \etocaftertochook
875   \@gobble\etoc@
876   }% \Etoc@t@bleofcontents

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).

877 \def\Etoc@table@fcontents{%
878   \refstepcounter{etoc@tocid}%
879   \Etoc@tocwithidfalse
880   \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents
881 }
882 \def\Etoc@localtable@fcontents{%
883   \refstepcounter{etoc@tocid}%

```

```

884 \addtocontents{toc}{\string\etocstartlocaltoc{\the\c@etoc@tocid}}%
885 \Etoc@tocwithidtrue
886 \futurelet\Etoc@nexttoken\Etoc@t@bleofcontents
887 }

```

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.

```

888 \def\etoctableofcontents{%
889 \Etoc@openouttoc
890 \Etoc@tocdepthset
891 \begingroup

```

This group will be 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`. It was removed at 1.4c, so no need to do anything now here about silencing `\tof@begingroup` 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.

1.09b 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.

```

892 \ifstar
893 {\let\Etoc@aftertitlehook\@empty\Etoc@table@fcontents}
894 {\def\Etoc@aftertitlehook{\etocaftertitlehook}\Etoc@table@fcontents}%
895 }% \etoctableofcontents
896 \def\etocifisstarred{\ifx\Etoc@aftertitlehook\@empty
897 \expandafter\@firstoftwo\else
898 \expandafter\@secondoftwo
899 \fi}
900 \let\etocoriginaltableofcontents\tableofcontents
901 \let\tableofcontents\etoctableofcontents

```

The `\Etoc@listofhook` is configured by `\locallistoffigures` and `\locallistoftables`. The latter two use hooks rather than `\begingroup`...`\endgroup` to manage local configuration, in part because they want to support the `\label/\ref` special `etoc` mechanism, so need to issue `\localtableofcontents` last for it to be able to pick up a following `\label` or `\ref`.

```

902 \let\Etoc@listofhook\@empty
903 \newcommand*\localtableofcontents{%
904 \Etoc@openouttoc
905 \Etoc@tocdepthset

```

This group closed in `\Etoc@t@bleofcontents` or `\Etoc@localtableofcontents`. Same comment relative to `tableof`. No need to do anything here.

```

906 \begingroup
907 \Etoc@listofhook
908 \ifstar
909 {\let\Etoc@aftertitlehook\@empty\Etoc@localtable@fcontents}
910 {\def\Etoc@aftertitlehook{\etocaftertitlehook}\Etoc@localtable@fcontents}%
911 }% \localtableofcontents

```

1.09 adds `\localtableofcontentswithrelativedepth`. Note that changes to the `tocdepth` from inside the `.toc` file during duration of local toc will remain without effect as a substitute is used which gets a frozen non-dynamical value.

It seems 1.09 actually forgot a change to `\Etoc@etoccontentsline` and the previous sentence was false and described only what happened during the emptiness check which thus could give false positives or false negatives. But if I had done the needed change in `\Etoc@etoccontentsline` to keep the two in sync, even if `tocdepth` evolves from the `.toc` file, I would have created a divergence between local TOCs (not only the `\localtableofcontentswithrelativedepth` ones) under `\etocstandardlines` and those not with standard lines.

Redoing the whole thing at 1.2. I needed to insert a suitable hook in `\Etoc@@startlocaltoc` (and also in the version used by `\Etoc@checkifempty`). And I have now at my disposal `\Etoc@listofreset` to reset it

(it will be expanded after both the emptiness check and the typesetting are completed, and at same grouping level as the trigger command defined here). I do not want to add tokens after `\localtableofcontents` to not break the `\label/\ref` thing, which is one reason for this way of proceeding.

```

912 \newcommand*\localtableofcontentswithrelativedepth[1]{%
913   \def\Etoc@startlocaltohook{%
914     \global\c@tocdepth\numexpr\etoclocaltop+#1\relax
915   }%
916   \def\Etoc@listofreset{\let\Etoc@startlocaltohook\@empty
917     \let\Etoc@listofreset\@empty}%
918   \localtableofcontents
919 }% \localtableofcontentswithrelativedepth

```

Prior to 1.2, `\Etoc@tableofcontents` was constructed by `\etocsettocstyle` as one big macro where #1 and #2 had been inserted. It now simply stores #1 and #2 each in a macro and `\Etoc@tableofcontents` is defined once and for all. Also the boolean `\ifEtoc@etocstyle` is added which helps keeping the emulation of the document class only for the global document TOC but use a better choice for local tables of contents (especially those in deeper sub-levels), which is activated via `\etocetoclocaltocstyle` (near end of code).

`\etocstoretocstyleinto` added at 1.2. Too lazy to check if #1 pre-exists. Well, rather, too annoying to do this check as one may want to redefine #1 without further ado.

```

920 \newcommand\etocsettocstyle[2]{%
921   \Etoc@etocstylefalse
922   \Etoc@classstylefalse
923   \def\Etoc@tableofcontents@user@before{#1}%
924   \def\Etoc@tableofcontents@user@after {#2}%
925 }%
926 \def\etocstoretocstyleinto#1{%
927 %%   \ifdefinable#1{%
928   \edef#1{\noexpand\Etoc@etocstylefalse\noexpand\Etoc@classstylefalse
929     \def\noexpand\Etoc@tableofcontents@user@before{%
930       \unexpanded\expandafter{\Etoc@tableofcontents@user@before}%
931     }%
932     \def\noexpand\Etoc@tableofcontents@user@after{%
933       \unexpanded\expandafter{\Etoc@tableofcontents@user@after}%
934     }%
935   }%
936 %%   }%
937 }%

```

The macro names added here at 1.2 are provisory. Next release will probably do a complete renaming of various internals because this is currently a complete mess with some names differing only by an @ versus a vowel, but not necessarily being at a deeper level of expansion the more @'s they have... the deepest one being this `\Etoc@tableofcontents...`

```

938 \def\Etoc@tableofcontents {%
939   \Etoc@tableofcontents@etoc@before
940   \ifEtoc@localtoc\ifEtoc@etocstyle\expandafter\expandafter\expandafter\@gobble\fi\fi
941   \Etoc@tableofcontents@user@before
942   \Etoc@tableofcontents@contents
943   \ifEtoc@localtoc\ifEtoc@etocstyle\expandafter\expandafter\expandafter\@gobble\fi\fi
944   \Etoc@tableofcontents@user@after
945   \Etoc@tableofcontents@etoc@after
946   \@gobble\etoc@
947 }
948 \def\Etoc@tableofcontents@etoc@before{%
949   \ifnum\c@tocdepth>\Etoc@minf
950   \else
951     \expandafter\Etoc@gobtoetoc@
952   \fi
953   \Etoc@par

```

```

954 \Etoc@beforetitlehook
955 \etocbeforetitlehook
956 \Etoc@storetocdepth
957 \let\Etoc@savetocdepth\contentsline
958 \let\contentsline\Etoc@etoccontentsline
959 \ifEtoc@standardlines
960 \else

```

1.1a's `\Etoc@lxyz` now fetches 3 not 2 arguments and the `\l@section` etc... are not `\let` to it anymore, as they used to be here formerly.

For backwards compatibility the `\etocsavedchaptertocline` etc... are still defined but issue a warning since 1.1a and an error since 1.2.

```

961 \def\Etoc@do##1{%
962 \expandafter\def\csname etocsaved##1tocline\endcsname
963 {\PackageError{etoc}{%
964 \expandafter\string\csname etocsaved##1tocline\endcsname\space
965 has been deprecated\MessageBreak
966 at 1.1a and is removed at 1.2.\MessageBreak
967 Use \expandafter\string\csname l@##1\endcsname\space directly.\MessageBreak
968 Reported \on@line}%
969 {I will use \expandafter\string
970 \csname l@##1\endcsname\space myself for this time.%
971 }%
972 \csname l@##1\endcsname
973 }%
974 }%
975 \Etoc@dolevels
976 \fi
977 }%

```

1.09 makes `\etocsetnexttocdepth` usable in #1 (but this is not 100% compatible with the emptiness check). It makes an `\etoclocaltop` usable in #1 if under `checksemtiness` regime.

(#1 above now means `\Etoc@tableofcontents@user@before` since 1.2)

```

978 \def\Etoc@tableofcontents@contents{%
979 \Etoc@tocdepthset
980 \ifEtoc@parskip\parskip\z@skip\fi
981 \Etoc@aftertitlehook

```

1.09 has replaced former `\Etoc@localtop` (*minus one*) by `\etoclocaltop`. Under `checksemtinesstrue` 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.

```

982 \gdef\etoclocaltop{-\thr@@}%
983 \Etoc@toctoc
984 \etocaftercontentshook
985 }%
986 \def\Etoc@tableofcontents@etoc@after{%
987 \@nobreakfalse
988 \Etoc@restoretocdepth

```

`\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 `\etocglobaldefs` 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 `\etocglobaldefs`.

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.

```

989 \ifx\Etoc@global\global
990 \@ifundefined{tof@finish}
991 {}
992 {\ifx\tof@finish\@empty
993 \else
994 \global\let\contentsline\Etoc@savedcontentsline
995 \fi
996 }%
997 \fi
998 }

```

Refactored at 1.2 to check if the style is actually known and its level is from -1 (-2 in memoir class) to 5 inclusive. If not raise a warning.

```

999 \def\etocsetstyle#1{\ifcsname Etoc@#1@\endcsname
1000 \expandafter\Etoc@setstyle@a
1001 \else
1002 \expandafter\Etoc@setstyle@error
1003 \fi {#1}%
1004 }
1005 \def\Etoc@setstyle@error #1{%
1006 \PackageWarning{etoc}{`#1' is unknown to etoc. \space Did you\MessageBreak
1007 forget some \string\etocsetlevel{#1}<level>?\MessageBreak
1008 Reported}%
1009 \@gobblefour
1010 }
1011 \def\Etoc@setstyle@a #1{%
1012 \edef\Etoc@tmp{\the\numexpr\csname Etoc@#1@\endcsname}%
1013 \if1\unless\ifnum\Etoc@tmp<\Etoc@maxlevel 0\fi
1014 \unless\ifnum\Etoc@tmp>\Etoc@minf 0\fi1%
1015 \Etoc@standardlinesfalse
1016 \expandafter\Etoc@setstyle@b\expandafter\Etoc@tmp
1017 \else
1018 \ifnum\Etoc@tmp=\Etoc@maxlevel
1019 \in@{.#1,}{.figure,.table,}%
1020 \ifin@
1021 \PackageWarning{etoc}
1022 {You can not use \string\etocsetstyle\space with `#1'.\MessageBreak
1023 Check the package documentation (in particular about\MessageBreak
1024 \string\etoclocallistoffigureshook/\string\etoclocallistoftableshook)%
1025 \MessageBreak on how to customize
1026 figure and table entries in local\MessageBreak lists. Reported}%
1027 \else
1028 \PackageInfo{etoc}
1029 {Attempt to set the style of `#1',\MessageBreak
1030 whose level is currently the maximal one \etothemaxlevel,\MessageBreak
1031 which is never displayed. \space This will be ignored\MessageBreak
1032 but note that we do quit compatibility mode.\MessageBreak
1033 Reported}%
1034 \Etoc@standardlinesfalse
1035 \fi
1036 \else
1037 \PackageWarning{etoc}{This should not happen. Reported}%
1038 \fi
1039 \expandafter\@gobblefour
1040 \fi

```

This branch was actually in the end only for the case of a level equal to -2, with a document class not memoir, but 1.2a prevents \etocsetlevel to use numerical level -2 in such case.

1041 }

Prior to 1.2 the #1 here was some alphabetical string such as minusone. We now use digit tokens (and minus sign) in the macro names. The “begin” macros formerly incorporated `\Etoc@global\Etoc@isfirsttrue`. They are now located in `\Etoc@traversestackofends`.

1.2 adds `\etocstorelinestylesinto`. And `\etocstorethislinestyleinto`. No error check on the level.

```

1042 \long\def\Etoc@setstyle@b#1#2#3#4#5{%
1043   \expandafter\def\csname Etoc@begin@#1\endcsname   {#2}%
1044   \expandafter\def\csname Etoc@prefix@#1\endcsname  {#3}%
1045   \expandafter\def\csname Etoc@contents@#1\endcsname {#4}%
1046   \expandafter\def\csname Etoc@end@#1\endcsname     {#5}%
1047 }
1048 \def\Etoc@setstyle@e#1{%
1049   \expandafter\let\csname Etoc@begin@#1\endcsname   \@empty
1050   \expandafter\let\csname Etoc@prefix@#1\endcsname  \@empty
1051   \expandafter\let\csname Etoc@contents@#1\endcsname \@empty
1052   \expandafter\let\csname Etoc@end@#1\endcsname     \@empty
1053 }
1054 \def\Etoc@storelines@a#1{%
1055   \noexpand\Etoc@setstyle@b{#1}%
1056   {\expandafter\Etoc@expandonce\csname Etoc@begin@#1\endcsname}%
1057   {\expandafter\Etoc@expandonce\csname Etoc@prefix@#1\endcsname}%
1058   {\expandafter\Etoc@expandonce\csname Etoc@contents@#1\endcsname}%
1059   {\expandafter\Etoc@expandonce\csname Etoc@end@#1\endcsname}%
1060 }
1061 \def\Etoc@expandonce#1{\unexpanded\expandafter{#1}}
1062 \def\etocstorelinestylesinto#1{%
1063   \edef#1{\Etoc@storelines@a{-2}\Etoc@storelines@a{-1}\Etoc@storelines@a{0}%
1064     \Etoc@storelines@a {1}\Etoc@storelines@a {2}\Etoc@storelines@a{3}%
1065     \Etoc@storelines@a {4}\Etoc@storelines@a {5}%
1066     \ifEtoc@deeplevels
1067       \Etoc@storelines@a{6}\Etoc@storelines@a{7}\Etoc@storelines@a{8}%
1068       \Etoc@storelines@a{9}\Etoc@storelines@a{10}\Etoc@storelines@a{11}%
1069     \fi
1070   }%
1071 }
1072 \def\etocstorethislinestyleinto#1#2{%
1073   \edef#2{\expandafter\Etoc@storelines@a\expandafter{\number\etoclevel{#1}}}%
1074 }%

```

Customization macros of the package default line styles.

```

1075 \def\etocfontminustwo {\normalfont \LARGE \bfseries}
1076 \def\etocfontminusone {\normalfont \large \bfseries}
1077 \def\etocfontzero     {\normalfont \large \bfseries}
1078 \def\etocfontone      {\normalfont \normalsize \bfseries}
1079 \def\etocfonttwo      {\normalfont \normalsize}
1080 \def\etocfontthree    {\normalfont \footnotesize}

placeholder for comments

1081 \def\etocsepminustwo {4ex \@plus .5ex \@minus .5ex}
1082 \def\etocsepminusone {4ex \@plus .5ex \@minus .5ex}
1083 \def\etocsepzero     {2.5ex \@plus .4ex \@minus .4ex}
1084 \def\etocsepone     {1.5ex \@plus .3ex \@minus .3ex}
1085 \def\etocseptwo     {.5ex \@plus .1ex \@minus .1ex}
1086 \def\etocsepthree   {.25ex \@plus .05ex \@minus .05ex}

placeholder for comments

1087 \def\etocbaselinespreadminustwo {1}

```

```

1088 \def\etocbaselinespreadminusone {1}
1089 \def\etocbaselinespreadzero {1}
1090 \def\etocbaselinespreadone {1}
1091 \def\etocbaselinespreadtwo {1}
1092 \def\etocbaselinespreadthree {.9}

placeholder for comments

1093 \def\etocminustwoleftmargin {1.5em plus 0.5fil}
1094 \def\etocminustworightmargin {1.5em plus -0.5fil}
1095 \def\etocminusoneleftmargin {1em}
1096 \def\etocminusonerightmargin {1em}
1097 \def\etococlineleaders
1098     {\hbox{\normalfont\normalsize\hb@xt@2ex {\hss.\hss}}}
1099 \def\etocabbrevpagename {p.~}

```

Versions earlier than 1.08b (and since 1.05 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 `babel-french`, because `\frenchpartname` does things depending on the current value of the counter `part`. The code in recent `babel-french` (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...

```

1100 \def\etocpartname {Part}
1101 \def\etocbookname {Book}

```

The macro `\etocdefaultlines` was initially called `\etococlines`. Now `\etococlines` just does `\Etoc@standardlinesfalse`.

Version 1.09f wraps `\etocbookname`, respectively `\etocpartname`, in the book, resp. part, line styles inside a (potential) hyperlink together with the number.

1.2a does not define a 'book' style if not with `memoir` class as the numerical level -2 is made available only with that class.

Unfortunately `\@ifclassloaded` was preamble-only until the 2021-11-15 LaTeX release (and also `\@ifpackageloaded`). Anyway let's refactor this `\etocdefaultlines` at 1.2a to use encapsulating macros rather than be a single one with gigantic contents.

```

1102 \def\etocdefaultlines{%
1103     \Etoc@standardlinesfalse
1104     \etocdefaultlines@setbook
1105     \etocdefaultlines@setpart
1106     \etocdefaultlines@setchapter
1107     \etocdefaultlines@setsection
1108     \etocdefaultlines@setsubsection
1109     \etocdefaultlines@setsubsubsection
1110     \etocdefaultlines@setdeeperones
1111 }

```

1.2b adds `\etocnoprotrusion` as an alias to the \TeX kernel 2018/12/01 command `\noprotrusion` which is used since that release in `\dottedtocline` after the page number. And it uses it in its own default line styles for section and subsection.

```

1112 \def\etocnoprotrusion{\leavevmode\kern-\p@\kern\p@}
1113 \@ifclassloaded{memoir}{%
1114     \def\etocdefaultlines@setbook{%
1115         \Etoc@setstyle@b
1116         {-2}%
1117         {\addpenalty\@M\etocskipfirstprefix}
1118         {\addpenalty\@secpenalty}
1119         {\begingroup
1120             \etocfontminustwo
1121             \addvspace{\etocsepminustwo}%

```

```

1122 \parindent \z@
1123 \leftskip \etocminustwoleftmargin
1124 \rightskip \etocminustworightmargin
1125 \parfillskip \@flushglue
1126 \vbox{\etocifnumbered{\etoclink{\etocbookname\enspace\etocthenumber:\quad}}{}}%
1127 \etocname
1128 \baselineskip\etocbaselinespreadminustwo\baselineskip
1129 \par}%
1130 \addpenalty\@M\addvspace{\etocsepminusone}%
1131 \endgroup}
1132 {}%
1133 }
1134 }{\let\etocdefaultlines@setbook\@empty}
1135 \def\etocdefaultlines@setpart{%
1136 \Etoc@setstyle@b
1137 {-1}%
1138 {\addpenalty\@M\etocskipfirstprefix}
1139 {\addpenalty\@secpenalty}
1140 {\begingroup
1141 \etocfontminusone
1142 \addvspace{\etocsepminusone}%
1143 \parindent \z@
1144 \leftskip \etocminusoneleftmargin
1145 \rightskip \etocminusonerightmargin
1146 \parfillskip \@flushglue
1147 \vbox{\etocifnumbered{\etoclink{\etocpartname\enspace\etocthenumber.\quad}}{}}%
1148 \etocname
1149 \baselineskip\etocbaselinespreadminusone\baselineskip
1150 \par}%
1151 \addpenalty\@M\addvspace{\etocsepzero}%
1152 \endgroup}
1153 {}%
1154 }

```

No need to worry about left protrusion activation and the delicacies of `\leftprotrusion` from `microtype`, as the paragraph indentation here is nil. So, no changes at 1.2b.

```

1155 \def\etocdefaultlines@setchapter{%
1156 \Etoc@setstyle@b
1157 {0}%
1158 {\addpenalty\@M\etocskipfirstprefix}
1159 {\addpenalty\@itempenalty}
1160 {\begingroup
1161 \etocfontzero
1162 \addvspace{\etocsepzero}%
1163 \parindent \z@ \parfillskip \@flushglue
1164 \vbox{\etocifnumbered{\etocnumber.\enspace}{}\etocname
1165 \baselineskip\etocbaselinespreadzero\baselineskip
1166 \par}%
1167 \endgroup}
1168 {\addpenalty{-\@highpenalty}\addvspace{\etocsepminusone}}%
1169 }

```

This is now very old code, dating back to earliest releases, and looks a bit too convoluted. There was probably a better way with suitable `\nobreak` and `\null` trick. But I am too old to revisit these things now. And, by the way, as paragraph indentation is zeroed, no need to worry about perhaps activating explicitly protrusion on the left.

```

1170 \def\etocdefaultlines@setsection{%
1171 \Etoc@setstyle@b

```



```

1172 {1}%
1173 {\addpenalty\@M\etocskipfirstprefix}
1174 {\addpenalty\@itempenalty}
1175 {\beginingroup
1176   \etocfontone
1177   \addvspace{\etocsepone}%
1178   \parindent \z@ \parfillskip \z@
1179   \setbox\z@\vbox{\parfillskip\@flushglue
1180     \etocname\par
1181     \setbox\tw@\lastbox
1182     \global\setbox\@ne\hbox{\unhbox\tw@ } }%
1183   \dimen\z@=\wd\@ne
1184   \setbox\z@=\etoclineleaders
1185   \advance\dimen\z@\wd\z@
1186   \etocifnumbered
1187     {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage\etocno protrusion}}
1188     {\setbox\tw@\hbox{\etocabbrevpagename\etocpage\etocno protrusion}}%
1189   \advance\dimen\z@\wd\tw@
1190   \ifdim\dimen\z@ < \linewidth
1191     \vbox{\etocname~%
1192       \leaders\box\z@\hfil\box\tw@
1193       \baselineskip\etocbaselinespreadone\baselineskip
1194       \par}%
1195   \else
1196     \vbox{\etocname~%
1197       \leaders\copy\z@\hfil\break
1198       \hbox{ }\leaders\box\z@\hfil\box\tw@
1199       \baselineskip\etocbaselinespreadone\baselineskip
1200       \par}%
1201   \fi
1202   \endgroup}
1203 {\addpenalty\@secpenalty\addvspace{\etocsezero}}%
1204 }
1205 \def\etocdefaultlines@setsubsection{%
1206 \Etoc@setstyle@b
1207 {2}%
1208 {\addpenalty\@medpenalty\etocskipfirstprefix}
1209 {\addpenalty\@itempenalty}
1210 {\beginingroup
1211   \etocfonttwo
1212   \addvspace{\etocseptwo}%
1213   \parindent \z@ \parfillskip \z@
1214   \setbox\z@\vbox{\parfillskip\@flushglue
1215     \etocname\par\setbox\tw@\lastbox
1216     \global\setbox\@ne\hbox{\unhbox\tw@ } }%
1217   \dimen\z@=\wd\@ne
1218   \setbox\z@=\etoclineleaders
1219   \advance\dimen\z@\wd\z@
1220   \etocifnumbered
1221     {\setbox\tw@\hbox{\etocnumber, \etocabbrevpagename\etocpage\etocno protrusion}}
1222     {\setbox\tw@\hbox{\etocabbrevpagename\etocpage\etocno protrusion}}%
1223   \advance\dimen\z@\wd\tw@
1224   \ifdim\dimen\z@ < \linewidth
1225     \vbox{\etocname~%
1226       \leaders\box\z@\hfil\box\tw@
1227       \baselineskip\etocbaselinespreadtwo\baselineskip
1228       \par}%

```

```

1229 \else
1230     \vbox{\etocname~%
1231         \leaders\copy\z@\hfil\break
1232         \hbox{} \leaders\box\z@\hfil\box\tw@
1233         \baselineskip\etocbaselinespreadtwo\baselineskip
1234         \par}%
1235 \fi
1236 \endgroup}
1237 {\addpenalty\@secpenalty\addvspace{\etocseppone}}%
1238 }
1239 \def\etocdefaultlines@setsubsubsection{%
1240 \Etoc@setstyle@b
1241 {3}%
1242 {\addpenalty\@M
1243 \etocfontthree
1244 \vspace{\etocsepthree}%
1245 \noindent
1246 \etocskipfirstprefix}
1247 {\allowbreak\,--\,}
1248 {\etocname}
1249 {\.\hfil
1250 \beginngroup
1251 \baselineskip\etocbaselinespreadthree\baselineskip
1252 \par
1253 \endgroup
1254 \addpenalty{-\@highpenalty}}
1255 }
1256 \def\etocdefaultlines@setdeeperones{%
1257 \Etoc@setstyle@e{4}%
1258 \Etoc@setstyle@e{5}%
1259 \ifEtoc@deeplevels
1260 \Etoc@setstyle@e{6}%
1261 \Etoc@setstyle@e{7}%
1262 \Etoc@setstyle@e{8}%
1263 \Etoc@setstyle@e{9}%
1264 \Etoc@setstyle@e{10}%
1265 \Etoc@setstyle@e{11}%
1266 \fi
1267 }

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 mimic the standard TOC spacings in article class.

1268 \def\etocabovetocskip{3.5ex \@plus 1ex \@minus .2ex}
1269 \def\etocbelowtocskip{3.5ex \@plus 1ex \@minus .2ex}
1270 \def\etoccolumnsep{2em}
1271 \def\etocmulticolsep{0ex}
1272 \def\etocmulticolpretolerance{-1}
1273 \def\etocmulticoltolerance{200}
1274 \def\etocdefaultnbc col{2}
1275 \def\etocinnertopsep{2ex}
1276 \newcommand\etocmulticolstyle[2][\etocdefaultnbc col]{%
1277 \etocsettocstyle
1278 {\let\etocoldpar\par
1279 \addvspace{\etocabovetocskip}%
1280 \ifnum #1>\@ne
1281 \expandafter\@firstoftwo
1282 \else \expandafter\@secondoftwo
1283 \fi

```

```

1284     {\multicolpretolerance\etocmulticolpretolerance
1285     \multicoltolerance\etocmulticoltolerance
1286     \setlength{\columnsep}{\etoccolumnsep}%
1287     \setlength{\multicolsep}{\etocmulticolsep}%
1288     \begin{multicols}{#1}[#2\etocoldpar\addvspace{\etocinnertopsep}]}
1289     {#2\ifvmode\else\begin{group}\interlinepenalty\@M\parskip\z@skip
1290         \@@par\end{group}
1291         \fi
1292         \nobreak\addvspace{\etocinnertopsep}%
1293         \pretolerance\etocmulticolpretolerance
1294         \tolerance\etocmulticoltolerance}%
1295     }%
1296     {\ifnum #1>\@ne
1297         \expandafter\@firstofone
1298     \else \expandafter\@gobble
1299     \fi
1300     {\end{multicols}}}%
1301     \addvspace{\etocbelowtocskip}}%
1302 }

placeholder for comments

1303 \def\etocinnerbottomsep{3.5ex}
1304 \def\etocinnerleftsep{2em}
1305 \def\etocinnerrightsep{2em}
1306 \def\etoctoprule{\hrule}
1307 \def\etocleftrule{\vrule}
1308 \def\etocrightrule{\vrule}
1309 \def\etocbottomrule{\hrule}
1310 \def\etoctoprulecolorcmd{\relax}
1311 \def\etocbottomrulecolorcmd{\relax}
1312 \def\etocleftrulecolorcmd{\relax}
1313 \def\etocrightrulecolorcmd{\relax}

placeholder

1314 \def\etoc@ruledheading #1{%
1315     \hb@xt@\linewidth{\color@begin{group}
1316         \hss #1\hss\hskip-\linewidth
1317         \etoctoprulecolorcmd\leaders\etoctoprule\hss
1318         \phantom{#1}}%
1319     \leaders\etoctoprule\hss\color@end{group}}%
1320     \nointerlineskip\nobreak\vskip\etocinnertopsep}
1321 \newcommand*\etocruledstyle[2][\etocdefaultnbcoll]{%
1322 \etocsettocstyle
1323     {\addvspace{\etocabovetocskip}}%
1324     {\ifnum #1>\@ne
1325         \expandafter\@firstoftwo
1326     \else \expandafter\@secondoftwo
1327     \fi
1328     {\multicolpretolerance\etocmulticolpretolerance
1329     \multicoltolerance\etocmulticoltolerance
1330     \setlength{\columnsep}{\etoccolumnsep}%
1331     \setlength{\multicolsep}{\etocmulticolsep}%
1332     \begin{multicols}{#1}[\etoc@ruledheading{#2}]}
1333     {\etoc@ruledheading{#2}}%
1334     \pretolerance\etocmulticolpretolerance
1335     \tolerance\etocmulticoltolerance}}
1336     {\ifnum #1>\@ne\expandafter\@firstofone
1337     \else \expandafter\@gobble

```

```

1338 \fi
1339 {\end{multicols}}%
1340 \addvspace{\etocbelowtocskip}}
placeholder
1341 \def\etocframedmhook{\relax}
1342 \long\def\etocbkgcolorcmd{\relax}
1343 \long\def\Etoc@relax{\relax}
placeholder for comments
1344 \newbox\etoc@framed@titlebox
1345 \newbox\etoc@framed@contentsbox
1346 \newcommand*{\etocframedstyle[2][\etocdefaultnbcoll]}%
1347 \etocsettocstyle{%
1348 \addvspace{\etocabovetocskip}%
1349 \sbox\z@{#2}%
1350 \dimen\z@\dp\z@
1351 \ifdim\wd\z@<\linewidth \dp\z@\z@ \else \dimen\z@\z@ \fi
1352 \setbox\etoc@framed@titlebox=\hb@xt@\linewidth{\color@begingroup
1353 \hss
1354 \ifx\etocbkgcolorcmd\Etoc@relax
1355 \else
1356 \sbox\tw@{\color{white}%
1357 \vrule\@width\wd\z@\@height\ht\z@\@depth\dimen\z@}%
1358 \ifdim\wd\z@<\linewidth \dp\tw@\z@\fi
1359 \box\tw@
1360 \hskip-\wd\z@
1361 \fi
1362 \copy\z@
1363 \hss
1364 \hskip-\linewidth
1365 \etoctoprulecolorcmd\leaders\etoctoprule\hss
1366 \hskip\wd\z@
1367 \etoctoprulecolorcmd\leaders\etoctoprule\hss\color@endgroup}%
1368 \setbox\z@\hbox{\etoclefrule\etocrightrule}%
1369 \dimen\tw@\linewidth\advance\dimen\tw@-\wd\z@
1370 \advance\dimen\tw@-\etocinnerleftsep
1371 \advance\dimen\tw@-\etocinnerrightsep
1372 \setbox\etoc@framed@contentsbox=\vbox\bgroup
1373 \hsize\dimen\tw@
1374 \kern\dimen\z@
1375 \vskip\etocinnertopsep
1376 \hbox\bgroup
1377 \begin{minipage}{\hsize}%
1378 \etocframedmhook
1379 \ifnum #1>\@ne
1380 \expandafter\@firstoftwo
1381 \else \expandafter\@secondoftwo
1382 \fi
1383 {\multicolpretolerance\etocmulticolpretolerance
1384 \multicoltolerance\etocmulticoltolerance
1385 \setlength{\columnsep}{\etoccolumnsep}%
1386 \setlength{\multicolsep}{\etocmulticolsep}%
1387 \begin{multicols}{#1}}
1388 {\pretolerance\etocmulticolpretolerance
1389 \tolerance\etocmulticoltolerance}}
1390 {\ifnum #1>\@ne\expandafter\@firstofone
1391 \else \expandafter\@gobble

```

```

1392     \fi
1393     {\end{multicols}\unskip }%
1394 \end{minipage}%
1395 \egroup
1396 \vskip\etocinnerbottomsep
1397 \egroup
1398 \vbox{\hsize\linewidth
1399     \ifx\etocbkgcolorcmd\Etoc@relax
1400     \else
1401         \kern\ht\etoc@framed@titlebox
1402         \kern\dp\etoc@framed@titlebox
1403         \hb@xt@\linewidth{\color@begingroup
1404             \etocleftrulecolorcmd\etocleftrule
1405             \etocbkgcolorcmd
1406             \leaders\vrule
1407                 \@height\ht\etoc@framed@contentsbox
1408                 \@depth\dp\etoc@framed@contentsbox
1409             \hss
1410             \etocrightrulecolorcmd\etocrightrule
1411             \color@endgroup}\nointerlineskip
1412             \vskip-\dp\etoc@framed@contentsbox
1413             \vskip-\ht\etoc@framed@contentsbox
1414             \vskip-\dp\etoc@framed@titlebox
1415             \vskip-\ht\etoc@framed@titlebox
1416         \fi
1417         \box\etoc@framed@titlebox\nointerlineskip
1418         \hb@xt@\linewidth{\color@begingroup
1419             {\etocleftrulecolorcmd\etocleftrule}}%
1420         \hss\box\etoc@framed@contentsbox\hss
1421         \etocrightrulecolorcmd\etocrightrule\color@endgroup}
1422         \nointerlineskip
1423         \vskip\ht\etoc@framed@contentsbox
1424         \vskip\dp\etoc@framed@contentsbox
1425         \hb@xt@\linewidth{\color@begingroup\etocbottomrulecolorcmd
1426             \leaders\etocbottomrule\hss\color@endgroup}}
1427         \addvspace{\etocbelowtocskip}}

```

For time being I will not however add the versions for “lists of”, as anyhow probably nobody apart myself ever uses these things.

It is impossible to know what kind of division heading #2 uses, so there is not much I can do here at 1.2 apart from providing a user interface for adding the suitable thing to the .toc file. And I discover at time of writing (finishing the 1.2 documentation) that I already have `\etoclocalheadtotoc`. I only need to add `\etocglobalheadtotoc`.

```

1428 \newcommand\etoc@multicoltoc[2][\etocdefaultnbcol]{%
1429     \etocmulticolstyle[#1]{#2}%
1430     \tableofcontents}
1431 \newcommand\etoc@multicoltoCi[2][\etocdefaultnbcol]{%
1432     \etocmulticolstyle[#1]{#2}%
1433     \tableofcontents*}
1434 \newcommand\etoc@local@multicoltoc[2][\etocdefaultnbcol]{%
1435     \etocmulticolstyle[#1]{#2}%
1436     \localtableofcontents}
1437 \newcommand\etoc@local@multicoltoCi[2][\etocdefaultnbcol]{%
1438     \etocmulticolstyle[#1]{#2}%
1439     \localtableofcontents*}

```

placeholder for comments

```

1440 \newcommand*\etoc@ruledtoc[2][\etocdefaultnbcol]{%

```

```

1441 \etocruledstyle[#1]{#2}%
1442 \tableofcontents}
1443 \newcommand*\etoc@ruledtoci[2][\etocdefaultnbcoll]{%
1444 \etocruledstyle[#1]{#2}%
1445 \tableofcontents*}
1446 \newcommand*\etoc@local@ruledtoc[2][\etocdefaultnbcoll]{%
1447 \etocruledstyle[#1]{#2}%
1448 \localtableofcontents}
1449 \newcommand*\etoc@local@ruledtoci[2][\etocdefaultnbcoll]{%
1450 \etocruledstyle[#1]{#2}%
1451 \localtableofcontents*}

placeholder for comments

1452 \newcommand*\etoc@framedtoc[2][\etocdefaultnbcoll]{%
1453 \etocframedstyle[#1]{#2}%
1454 \tableofcontents}
1455 \newcommand*\etoc@framedtoci[2][\etocdefaultnbcoll]{%
1456 \etocframedstyle[#1]{#2}%
1457 \tableofcontents*}
1458 \newcommand*\etoc@local@framedtoc[2][\etocdefaultnbcoll]{%
1459 \etocframedstyle[#1]{#2}%
1460 \localtableofcontents}
1461 \newcommand*\etoc@local@framedtoci[2][\etocdefaultnbcoll]{%
1462 \etocframedstyle[#1]{#2}%
1463 \localtableofcontents*}

placeholder for comments

1464 \def\etocmulticol{\begingroup
1465 \Etoc@mustclosegrouptrue
1466 \@ifstar
1467 {\etoc@multicoltoctoci}
1468 {\etoc@multicoltoctoc}}
1469 \def\etocruled{\begingroup
1470 \Etoc@mustclosegrouptrue
1471 \@ifstar
1472 {\etoc@ruledtoci}
1473 {\etoc@ruledtoc}}
1474 \def\etocframed{\begingroup
1475 \Etoc@mustclosegrouptrue
1476 \@ifstar
1477 {\etoc@framedtoci}
1478 {\etoc@framedtoc}}
1479 \def\etoclocalmulticol{\begingroup
1480 \Etoc@mustclosegrouptrue
1481 \@ifstar
1482 {\etoc@local@multicoltoctoci}
1483 {\etoc@local@multicoltoctoc}}
1484 \def\etoclocalruled{\begingroup
1485 \Etoc@mustclosegrouptrue
1486 \@ifstar
1487 {\etoc@local@ruledtoci}
1488 {\etoc@local@ruledtoc}}
1489 \def\etoclocalframed{\begingroup
1490 \Etoc@mustclosegrouptrue
1491 \@ifstar
1492 {\etoc@local@framedtoci}
1493 {\etoc@local@framedtoc}}

```

1.2 makes local TOCs in compatibility display style use `\subsection*` rather than `\section*`. This is

not good for local TOCs to a `\part` but anyhow the default is via `\etocetoclocaltocstyle` which will do the right thing and the change here is irrelevant. More comments below about handling `memoir` and `KOMA-script`.

The macros next will be modified if under `book` or `memoir` class. The `KOMA-script` case uses rather the `leveldown` mechanism. These local TOCs things are used only under `\etocclasstocstyle`. With `\etocetoclocaltocstyle`, they are not used.

```

1494 \def\etocmemoirtocformat #1#2{%
1495   \PackageWarning{etoc}
1496     {\string\etocmemoirtocformat\space is deprecated.\MessageBreak
1497     Use in its place \string\etocsettoctoclineforclasstoc,\MessageBreak
1498     and \string\etocsettoctoclineforclasslistof{toc} (or {lof}, {lot}).
1499     I will do this now.\MessageBreak
1500     Reported}%
1501   \etocsettoctoclineforclasstoc{#1}{#2}%
1502   \etocsettoctoclineforclasslistof{toc}{#1}{#2}%
1503 }
1504 \def\etocsettoctoclineforclasstoc #1#2{%
1505   \def\etocclassmaintocaddtotoc{\etocglobalheadtotoc{#1}{#2}}%
1506 }
1507 \def\etocsettoctoclineforclasslistof #1#2#3{%
1508   \@namedef{etocclasslocal#1addtotoc}{\etoclocalheadtotoc{#2}{#3}}%
1509 }
1510 \let\etocclasslocaltocaddtotoc\@empty
1511 \let\etocclasslocallofaddtotoc\@empty
1512 \let\etocclasslocallotaddtotoc\@empty
1513 \ifdefined\c@chapter
1514   \def\etocclasslocaltocmaketitle{\section*{\localcontentsname}}
1515   \def\etocclasslocallofmaketitle{\section*{\locallistfigurename}}
1516   \def\etocclasslocallotmaketitle{\section*{\locallisttablename}}
1517   \etocsettoctoclineforclasstoc {chapter}{\contentsname}
1518   \etocsettoctoclineforclasslistof{toc}{section}{\localcontentsname}
1519   \etocsettoctoclineforclasslistof{lof}{section}{\locallistfigurename}
1520   \etocsettoctoclineforclasslistof{lot}{section}{\locallisttablename}
1521 \else
1522   \def\etocclasslocaltocmaketitle{\subsection*{\localcontentsname}}%
1523   \def\etocclasslocallofmaketitle{\subsection*{\locallistfigurename}}%
1524   \def\etocclasslocallotmaketitle{\subsection*{\locallisttablename}}%
1525   \etocsettoctoclineforclasstoc {section}{\contentsname}
1526   \etocsettoctoclineforclasslistof{toc}{subsection}{\localcontentsname}
1527   \etocsettoctoclineforclasslistof{lof}{subsection}{\locallistfigurename}
1528   \etocsettoctoclineforclasslistof{lot}{subsection}{\locallisttablename}
1529 \fi

```

This is moved to a macro to localize complications with conditionals.

```

1530 \def\etocclasslocalperhapsaddtotoc #1{%
1531   \etocifisstarred
1532   {}
1533   {\csname ifEtoc@local#1totoc\endcsname
1534   \csname etocclasslocal#1addtotoc\endcsname
1535   \fi
1536   }%
1537 }

```

No need for a `\phantomsection` if the `\addcontentsline` is after `\section*`. For the standard classes, I make no effort to adjust level used for the local heading if it is local to a `\part`, not a `\section`. Anyhow this code will not be used by default for local TOCs due to `\etocetoclocaltocstyle`.

```

1538 \def\etocarticlestyle{%
1539   \etocsettocstyle

```

```

1540   {\ifEtoc@localtoc
1541     \@nameuse{etocclasslocal\Etoc@current maketitle}%
1542     \etocclasslocalperhapsaddtotoc\Etoc@current
1543   \else
1544     \section *{\contentsname
1545               \@mkboth {\MakeUppercase \contentsname}
1546                       {\MakeUppercase \contentsname}}%
1547     \etocifisstarred{\etocifmaintoctotoc{\etocclassmaintocaddtotoc}}}%
1548   \fi
1549 }
1550 {}%
1551 }
1552 \def\etocarticlestylenomarks{%
1553   \etocsettocstyle
1554   {\ifEtoc@localtoc
1555     \@nameuse{etocclasslocal\Etoc@current maketitle}%
1556     \etocclasslocalperhapsaddtotoc\Etoc@current
1557   \else
1558     \section *{\contentsname}%
1559     \etocifisstarred{\etocifmaintoctotoc{\etocclassmaintocaddtotoc}}}%
1560   \fi
1561 }
1562 {}%
1563 }

```

Make definitions with book in the macro names or redefine them for book? Chose the latter.

```

1564 \def\etocbookstyle{%
1565   \etocsettocstyle
1566   {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
1567   \ifEtoc@localtoc
1568     \@nameuse{etocclasslocal\Etoc@current maketitle}%
1569     \etocclasslocalperhapsaddtotoc\Etoc@current
1570   \else
1571     \chapter *{\contentsname
1572               \@mkboth {\MakeUppercase \contentsname}
1573                       {\MakeUppercase \contentsname}}%
1574     \etocifisstarred{\etocifmaintoctotoc{\etocclassmaintocaddtotoc}}}%
1575   \fi
1576 }%
1577 {\if@restonecol \twocolumn \fi}%
1578 }
1579 \def\etocbookstylenomarks{%
1580   \etocsettocstyle
1581   {\if@twocolumn \@restonecoltrue \onecolumn \else \@restonecolfalse \fi
1582   \ifEtoc@localtoc
1583     \@nameuse{etocclasslocal\Etoc@current maketitle}%
1584     \etocclasslocalperhapsaddtotoc\Etoc@current
1585   \else
1586     \chapter *{\contentsname}%
1587     \etocifisstarred{\etocifmaintoctotoc{\etocclassmaintocaddtotoc}}}%
1588   \fi
1589 }%
1590 {\if@restonecol \twocolumn \fi}%
1591 }
1592 \let\etocreportstyle\etocbookstyle
1593 \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 at 1.09b. Formerly `etoc` used `\etocaftertitlehook` to mimic 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.

Updates at 1.2 for the standard display style inherited from the class to actually be usable with local table of contents. Unfortunately the printing of the title rigidly hard-codes a `\thispagestyle{chapter}`:

```
\@lofmaketitle ->\@nameuse {lofheadstart} {\parindent \z@ \parskip \z@ \interli
nepenalty \@M \@nameuse {printlofnonum}\@nameuse {printloftitle}{\listfigurenam
e }\@nameuse {lofmark}\thispagestyle {chapter}\@nameuse {afterloftitle} } \@aft
erheading
```

Oh well I discover there is a `\chapterheadstart` but not `\sectionheadstart`...

Actually now `etoc` will by default not use the class inherited style for the local TOC titles, so maybe I should have not wasted time on this. From the `\etocsettocstyle` arguments one can know if this is for a local TOC, but one can not know the level, which is inferred from the actual execution of the TOC data. There is a problem though that the `memoir` default would be usable for a local TOC in a `\part`. Although one can argue if it makes sense to display a TOC as prominently as a chapter anyway. Again, the default with `etoc` will anyhow not use this as `\etocetoclocaltocstyle` deactivates the `\etocsettocstyle` for local TOCs.

MEMO: would it make sense to have an `\etocsetlocaltocstyle`? As explained above this would however induced dramatic internal `etoc` changes as one would have to wait for title insertion until the time one knows the local level. Which is exactly what `\etocetoclocaltocstyle` via the `\ifEtoc@etocstyle` does.

Update at 1.2 to account for `\locallistoffigures` and `\locallistoftables`.

```
1594 \def\etocmemoirstyle{%
1595   \etocsettocstyle
1596   {\ensureonecol \par \begingroup \phantomsection
1597    \ifx\Etoc@aftertitlehook\@empty
1598    \else
```

This branch executed for the non-starred variant

```
1599     \ifmem@em@starred@listof
1600     \else
```

Global case is only for `\tableofcontents` as `etoc` does not hack into `\listoffigures` and `\listoftables`.

Local case will not be executed in default configurations (cf `\etocetoclocaltocstyle`).

`\etocclasslocalperhhapsaddtotoc` is to avoid worries with conditionals.

```
1601     \ifEtoc@localtoc
1602     \etocclasslocalperhhapsaddtotoc\Etoc@current
1603     \else
1604     \ifEtoc@maintoc
1605     \etocclassmaintocaddtotoc
1606     \fi
1607   \fi
1608 \fi
1609 \fi
1610 \ifEtoc@localtoc
```

Trying to mimic a section title but there is no `\sectionheadstart` there is no `\printsectiontitle` etc...

Oh well I will be more radical then.

```
1611     \@namedef{@\Etoc@current maketitle}{%
1612     \@nameuse{etocclasslocal\Etoc@current maketitle}%
1613     }%
1614   \fi
1615   \@nameuse {@\Etoc@current maketitle} %<< space token here from memoir code
1616   \ifx\Etoc@aftertitlehook\@empty
1617   \else
```

Execute `etoc` hook before the `\cfttocbeforelisthook` and keep distinction between starred and non-starred contexts for other hooks (by testing if `\Etoc@aftertitlehook` is empty or not). 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.

```

1618     \Etoc@aftertitlehook \let \Etoc@aftertitlehook \relax
1619     \fi
1620     \parskip \cftparskip \@nameuse {cft\Etoc@current beforelisthook}%
1621     }%
1622     {\@nameuse {cft\Etoc@current afterlisthook}%
1623     \endgroup\restorefromonecol
1624     }%
1625 }

```

Compatibility layer for the KOMA-script classes:

1.09c (2020/05/15) did an update as KOMA-script deprecated `\iftocfeature`. Thanks to Bilel Omrani for report. I did not check if cloning of KOMA code required some further updates. 1.09f added more updates.

At 1.2 this is further updated to be usable also for list of figures and tables. However, this update is somewhat theoretical because `etoc` does not interfere at all with `\listoffigures` and `\listoftables`: the update is useful only to make `etoc`'s `\locallistoffigures` and `\locallistoftables` usable in display style compatibility mode.

But during development on this I became aware that KOMA-script since its 3.30 release has the feature that an unnumbered section resets the counters of subsections. This creates a problem (whose description I have moved to the user manual) which can be alleviated for local TOCs at the highest level below global one by using KOMA's `\setuptoc{toc}{leveldown}`. So I decided to do this systematically, as in the code next via a new private hook, but the problem will remain for local TOCs at lower levels, and there does not seem to be any way to tell KOMA to use say `\subsubsection*`, barring, from what I understand from the manual, usage of its `\defptocheading`. So in a second stage I decided that per default `etoc` would rather use for local TOCs, and not only for KOMA classes but all classes, an adaptive heading fitted to the "local top". As this "local top" can only be determined from inside the expansion of `\Etoc@toctoc` which contains the `.toc` file data, the boolean `\ifEtoc@etocstyle` was added which will make `\etocsettocstyle` configuration ignored. In this way, with `\etocetoclocaltocstyle`, the document class emulation will apply to the global TOC whereas local TOCs will use the adaptive scheme. To avoid duplication other relevant info is moved to the user manual.

We put the trigger of `leveldown` for KOMA classes in `\Etoc@beforetitlehook`. So there will be no test with `\ifEtoc@localtoc` here contrarily to the case of standard classes and memoir. Again, all of this normally is not relevant as by default `etoc 1.2` will use its `\etocetoclocaltocstyle` which for local TOCs ignores the emulation code of the main TOC.

```

1626 \let\Etoc@beforetitlehook\empty
1627 \if1\@ifclassloaded{scrartcl}0{\@ifclassloaded{scrbook}0{\@ifclassloaded{scrreprt}0}}%
1628 \expandafter\@gobble
1629 \else

```

Surely paranoid here but I don't have time to go through KOMA documentation (I am not really familiar with these classes).

MEMO: I do not know if KOMA-script's `\setuptoc` sets options locally or globally. If globally the code below must be modified to unset the `totoc` option depending on at time of use status of the `etoc` own `totoc` options.

```

1630     \ifdefined\setuptoc
1631     \def\Etoc@beforetitlehook{%
1632         \ifEtoc@localtoc
1633             \etocclasslocalperhhapsaddtotoc\Etoc@current
1634             \setuptoc{\Etoc@current}{leveldown}%
1635         \else
1636             \etocifisstarred{\etocifmaintoc\toc{\setuptoc{toc}{totoc}}}%
1637         \fi
1638     }%
1639     \fi

```

```

1640 \expandafter\@firstofone
1641 \fi
1642 {\def\etocclasslocalperhabsaddtotoc #1{%
1643   \etocifisstarred
1644   }%
1645   {\csname ifEtoc@local#1totoc\endcsname
1646     \setuptoc{\Etoc@currentx}{\totoc}%
1647     \fi
1648   }%
1649 }%
1650 }
1651 \ifdefined\Iftocfeature
1652 \def\etoc@Iftocfeature{\Iftocfeature}%
1653 \else
1654 \def\etoc@Iftocfeature{\iftocfeature}%
1655 \fi

```

Peut-être en fait je devrais toujours faire `\let\if@dynlist\if@tocleft`? Mais je ne l'ai pas vu dans le code de KOMA pour les LOF et LOT (globales, évidemment). Mais cela m'obligerait à lire vraiment le code source de KOMA. Pas le temps.

```

1656 \def\etocscartclstyle{%
1657   \etocsettocstyle
1658     {\ifx\Etoc@currentx\Etoc@tocext
1659       \expandafter\@firstofone
1660       \else
1661         \expandafter\@gobble
1662       \fi
1663     {\let\if@dynlist\if@tocleft}%
1664     \edef\@currentx{\Etoc@currentx}%
1665     \@ifundefined{listof\@currentx name}%
1666       {\def\list@fname{\listofname~\@currentx}}%
1667       {\expandafter\let\expandafter\list@fname
1668         \csname listof\@currentx name\endcsname}%
1669     \etoc@Iftocfeature {\@currentx}{onecolumn}
1670     {\etoc@Iftocfeature {\@currentx}{leveldown}
1671     {}
1672     {\if@twocolumn \aftergroup \twocolumn \onecolumn \fi }}
1673     }%
1674     \etoc@Iftocfeature {\@currentx}{numberline}%
1675     {\def \nonumberline {\numberline {}}}}%
1676 \expandafter\tocbasic@listhead\expandafter {\list@fname}%
1677 \begingroup \expandafter \expandafter \expandafter
1678 \endgroup \expandafter
1679 \ifx
1680   \csname microtypesetup\endcsname \relax
1681 \else
1682   \etoc@Iftocfeature {\@currentx}{noptrusion}}
1683   {\microtypesetup {protrusion=false}%
1684   \PackageInfo {tocbasic}%
1685   {character protrusion at \@currentx\space deactivated}}%
1686 \fi
1687 \etoc@Iftocfeature{\@currentx}{noparskipfake}}}%
1688 \ifvmode \@tempskipa\lastskip \vskip-\lastskip
1689 \addtolength{\@tempskipa}{\parskip}\vskip\@tempskipa\fi
1690 }%
1691 \setlength {\parskip }{\z@ }%
1692 \setlength {\parindent }{\z@ }%
1693 \setlength {\parfillskip }{\z@ \@plus 1fil}%

```

```

1694     \csname tocbasic@@before@hook\endcsname
1695     \csname tb@{@currentx @before@hook\endcsname
1696   }% end of before_toc
1697   {% start of after_toc

```

(This next discussion has not been revised at 1.2 so let's hope it is fine).

At 1.09f I considered adding this `\BeforeClosingMainAux` hunk to the second argument of `\etocsettocstyle`-emulation of *KOMA-script*. But:

- there seems to be no interface to `\tocbasic@end@toc@file`,
- it defaults to issuing a `\par`, but we want `etoc` to still be able to produce other TOCs, possibly inline, and they should not be influenced by it and I don't want at this stage to add an interface to enable/disable and have to document it,
- the whole thing appears to me to be ill-conceived in so far as it sort of implies the `\tableofcontents` is used only once, as each instance will again add this `\tocbasic@end@toc@file` to end of toc file, which may thus end up being executed multiple times.

So rather than putting the thing in the `.toc` file, we will execute it here. This way it will not impact other TOCs typeset via `etoc` design facilities in the document.

```

1698 %     \BeforeClosingMainAux
1699 %     {\addtocontents
1700 %       {toc}{\string\providecommand\string\tocbasic@end@toc@file}%
1701 %       \string\tocbasic@end@toc@file}%
1702 %     }%
1703     \providecommand\tocbasic@end@toc@file{\tocbasic@end@toc@file
1704     \edef{@currentx}{\Etoc@currentx}%
1705     \csname tb@{@currentx @after@hook\endcsname
1706     \csname tocbasic@@after@hook\endcsname
1707   }% end of after_toc
1708 }
1709 \let\etocscrbookstyle\etocscrtclstyle
1710 \let\etocscrreprtstyle\etocscrtclstyle

```

The `\etocclasstocstyle` will be redefined according to document class. Then, later, it will be extended with an `\Etoc@classstyletrue`.

```

1711 \def\etocclasstocstyle{\etocarticlestyle}
1712 \newcommand*\etocmarkboth[1]{%
1713   \@mkboth{\MakeUppercase{#1}}{\MakeUppercase{#1}}}
1714 \newcommand*\etocmarkbothnouc[1]{\@mkboth{#1}{#1}}
1715 \newcommand\etocetocstyle[3][section]{\etocmulticolstyle[#2]%
1716   {\csname #1\endcsname *{#3}}}
1717 \newcommand\etocetocstylewithmarks[4][section]{\etocmulticolstyle[#2]%
1718   {\csname #1\endcsname *{#3\etocmarkboth{#4}}}}
1719 \newcommand\etocetocstylewithmarksnouc[4][section]{\etocmulticolstyle[#2]%
1720   {\csname #1\endcsname *{#3\etocmarkbothnouc{#4}}}}
1721 \def\Etoc@redefetocstylesforchapters{%
1722   \renewcommand\etocetocstylewithmarks[4][chapter]{%
1723     \etocmulticolstyle[##2]{\csname ##1\endcsname *{##3\etocmarkboth{##4}}}%
1724   }
1725   \renewcommand\etocetocstylewithmarksnouc[4][chapter]{%
1726     \etocmulticolstyle[##2]{\csname ##1\endcsname *{##3\etocmarkbothnouc{##4}}}%
1727   }
1728   \renewcommand\etocetocstyle[3][chapter]{%
1729     \etocmulticolstyle[##2]{\csname ##1\endcsname *{##3}}
1730   }
1731 }
1732 \@ifclassloaded{scrartcl}
1733   {\renewcommand*\etocclasstocstyle{\etocscrtclstyle}}{}
1734 \@ifclassloaded{book}

```

```

1735     {\renewcommand*\etocfontone{\normalfont\normalsize}
1736     \renewcommand*\etocclasstocstyle{\etocbookstyle}
1737     \Etoc@redefetocstylesforchapters}{}
1738 \@ifclassloaded{report}
1739     {\renewcommand*\etocfontone{\normalfont\normalsize}
1740     \renewcommand*\etocclasstocstyle{\etocreportstyle}
1741     \Etoc@redefetocstylesforchapters}{}
1742 \@ifclassloaded{scrbook}
1743     {\renewcommand*\etocfontone{\normalfont\normalsize}
1744     \renewcommand*\etocclasstocstyle{\etocscrbookstyle}
1745     \Etoc@redefetocstylesforchapters}{}
1746 \@ifclassloaded{scrreprt}
1747     {\renewcommand*\etocfontone{\normalfont\normalsize}
1748     \renewcommand*\etocclasstocstyle{\etocscrreprtstyle}
1749     \Etoc@redefetocstylesforchapters}{}
1750 \@ifclassloaded{memoir}
1751     {\renewcommand*\etocfontone{\normalfont\normalsize}
1752     \renewcommand*\etocclasstocstyle{\etocmemoirstyle}
1753     \Etoc@redefetocstylesforchapters}{}
1754 \def\etocloftstyle {%
1755     \etocsettocstyle{%
1756         \@cfttocstart
1757         \par
1758         \begingroup
1759         \parindent\z@ \parskip\cftparskip

```

I don't feel like redefining \@cftmaketoc title etc to apply "level down". Up to the user to use the tocloft interface after the main TOC to do appropriate actions. I consider emitting a warning, but then if the user has customize \@cftmaketoc title or variant, how to know? (apart from numerous ifx tests).

```

1760     \@nameuse{@cftmake\Etoc@current title}%

```

But for adding an appropriate entry to the toc file I can intervene silently. I can remove the test \if@cfttocbibind here as anyhow I have to test status of `etoc` 'to toc' options.

```

1761     \ifEtoc@localtoc
1762     \etocloftlocalperhhapsaddtotoc\Etoc@current
1763     \else
1764     \etocifisstarred {}{\ifEtoc@maintoc\toc\@cftdobibtoc\fi}%
1765     \fi
1766 }%
1767 {%
1768     \endgroup
1769     \@cfttocfinish
1770 }%
1771 }
1772 \def\etocloftlocalperhhapsaddtotoc#1{%
1773     \etocifisstarred
1774     {}%
1775     {\csname ifEtoc@local#1totoc\endcsname
1776     \ifdefined\c@chapter\def\@tocextra{@section}\else\def\@tocextra{@subsection}\fi
1777     \csname @cftdobib#1\endcsname
1778     \fi
1779     }%
1780 }

```

This is active only if `tocbibind` boolean `\if@dotoc` is found true at begin document and there was no use of `\etocsettocstyle` in the preamble. The part on local TOC also applies to local LOF and LOT but is executed only if `\etocclasstocstyle` was present in the preamble. Under the default `\etocetoclocaltocstyle`, only the global TOC is under influence of this (assuming thus that `tocbibind` was loaded without its `notoc` or `none` option).

```

1781 \def\etoctocbibindstyle {%
1782   \etocsettocstyle {%
1783     \toc@start
1784     \ifEtoc@localtoc
1785       \@nameuse{\etocclasslocal\Etoc@current maketitle}%
1786       \etocclasslocalperhhapsaddtotoc\Etoc@current
1787     \else
1788       \etoc@tocbibind@dotoctitle
1789     \fi
1790   }%
1791   {\toc@finish}%
1792 }
1793 \def\etoc@tocbibind@dotoctitle {%

  If tocbibind is loaded but later between \begin{document} and \tableofcontents the user does \etoc-
  setup{maintoc=toc=false} we have to catch this.

1794   \if@bibchapter
1795     \etocifisstarred
1796     {\chapter*{\contentsname}\prw@mkboth{\contentsname} % id.
1797     }%
1798     {\ifEtoc@maintoc=toc
1799       \toc@chapter{\contentsname} %<-space from original
1800     \else
1801       \chapter*{\contentsname}\prw@mkboth{\contentsname} % id.
1802     \fi
1803     }%
1804   \else
1805     \etocifisstarred
1806     {\@nameuse{\@tocextra}*{\contentsname}\prw@mkboth{\contentsname}} %<-space
1807     }
1808     {\ifEtoc@maintoc=toc
1809       \toc@section{\@tocextra}{\contentsname} %<-space from original
1810     \else
1811       \@nameuse{\@tocextra}*{\contentsname}\prw@mkboth{\contentsname}} % id.
1812     \fi
1813     }%
1814   \fi
1815 }%

  The 1.2 added a bug here in the non-memoir tocloft branch, the needed \AtBeginDocument was removed
  by accident and as a result the overwriting by tocloft of \tableofcontents was not undone.

1816 \@ifclassloaded{memoir}
1817 {}
1818 {% memoir not loaded
1819 \ifpackageloaded{tocloft}
1820   {\if@cftnctoc\else
1821     \ifEtoc@keeporiginaltoc
1822     \else
1823     \AtBeginDocument{\let\tableofcontents\etoctableofcontents}%
1824     \fi
1825   \fi }
1826 {\AtBeginDocument
1827   {\@ifpackageloaded{tocloft}
1828     {\if@cftnctoc\else
1829     \PackageWarningNoLine {etoc}
1830     {Package `tocloft' was loaded after `etoc'.\MessageBreak
1831     To prevent it from overwriting \protect\tableofcontents, it will\MessageBreak
1832     be tricked into believing to have been loaded with its\MessageBreak

```

```

1833     option `titles'. \space But this will cause the `tocloft'\MessageBreak
1834     customization of the titles of the main list of figures\MessageBreak
1835     and list of tables to not apply either.\MessageBreak
1836     You should load `tocloft' before `etoc'.}%
1837     \AtEndDocument{\PackageWarning{etoc}
1838         {Please load `tocloft' before `etoc'!\@gobbletwo}}%
1839     \fi
1840     \@cftnctoctrue }%
1841     {}%
1842     }%
1843     }%
1844 }
1845 \@ifclassloaded{memoir}
1846 {}
1847 {% memoir not loaded
1848 \AtBeginDocument{%
1849 \ifpackageloaded{tocloft}
1850 {%
1851 \def\etocclasstocstyle{%
1852 \etocloftstyle
1853 \Etoc@classstyletrue
1854 }%
1855 \ifEtoc@etocstyle
1856 \ifEtoc@classstyle
1857 \etocclasstocstyle
1858 \Etoc@etocstyletrue
1859 \fi
1860 \else
1861 \ifEtoc@classstyle
1862 \etocclasstocstyle
1863 \fi
1864 \fi
1865 }%
1866 {% no tocloft
1867 \ifpackageloaded {tcbibind}
1868 {\if@dotoc
1869 \def\etocclasstocstyle{%
1870 \etocbibindstyle
1871 \Etoc@classstyletrue
1872 }%
1873 \ifEtoc@etocstyle
1874 \ifEtoc@classstyle
1875 \etocclasstocstyle
1876 \Etoc@etocstyletrue
1877 \fi
1878 \else
1879 \ifEtoc@classstyle
1880 \etocclasstocstyle
1881 \fi
1882 \fi

```

Not clear if I should interpret `\Etoc@keeporiginaltoc` in this sense to not modify `tcbibind` overwrite of `\tableofcontents`. But let's obey this interpretation.

```

1883     \ifEtoc@keeporiginaltoc
1884     \else
1885     \let\tableofcontents\etoc\tableofcontents
1886     \fi
1887     }%

```

```

1888     {}%
1889   }%

Maybe I should check if the options were already set. I will simply make the message more generic.

1890   \ifpackageloaded{tocbibind}
1891   {% tocbibind, perhaps with tocloft
1892     \if@dotoc
1893       \ifEtoc@keeporiginaltoc
1894       \else
1895       \let\tableofcontents\etoc\tableofcontents
1896       \fi
1897     \etocsetup{maintoc\tableofcontents,local\tableofcontents}%
1898     \PackageInfo{etoc}{%
1899       Setting (or re-setting) the options `maintoc\tableofcontents' and\MessageBreak
1900       `local\tableofcontents' to true as tocbibind was detected and\MessageBreak
1901       found to be configured for `TOC to toc'.\MessageBreak
1902       Reported at begin document}%
1903     \fi
1904   \if@dotocloft
1905     \ifEtoc@loft
1906     \etocsetup{local\loftoc}%
1907     \PackageInfo{etoc}{%
1908       Setting (or re-setting) `local\loftoc=true' as the\MessageBreak
1909       package tocbibind was detected and is configured for\MessageBreak
1910       `LOF to toc'. Reported at begin document}%
1911     \fi
1912   \fi
1913   \if@dotoclot
1914     \ifEtoc@lot
1915     \etocsetup{local\lottoc}%
1916     \PackageInfo{etoc}{%
1917       Setting (or re-setting) `local\lottoc=true' as the\MessageBreak
1918       package tocbibind was detected and is configured for\MessageBreak
1919       `LOT to toc'. Reported at begin document}%
1920     \fi
1921   \fi
1922   }% end of tocbibind branch
1923   {}%
1924   }% end of at begin document
1925 }% end of not with memoir branch

```

TeX 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 TeX upstream.

1.2 executes the `\ifEtoc@hyperref` test inside the fourth argument, rather than using one `\addtocontents` in each branch.

```

1926 \def\Etoc@addtocontents #1#2{%
1927   \addtocontents {toc}{%
1928     \protect\contentsline{#1}{#2}{\thepage}{\ifEtoc@hyperref@currentHref\fi}%
1929     \ifdefined\protected@file@percent\protected@file@percent\fi
1930   }%
1931 }
1932 \def\Etoc@addcontentsline@ #1#2#3{%
1933   \@namedef{toclevel@#1}{#3}\addcontentsline {toc}{#1}{#2}%

```



```

1934 }
1935 \DeclareRobustCommand*{\etoccontentsline}
1936   {\@ifstar{\Etoc@addcontentsline@}{\Etoc@addtocontents}}
1937 \def\Etoc@addtocontents@immediately#1#2{%
1938   \begingroup
1939     \let\Etoc@originalwrite\write
1940     \def\write{\immediate\Etoc@originalwrite}%
1941     \Etoc@addtocontents{#1}{#2}%
1942   \endgroup
1943 }
1944 \def\Etoc@addcontentsline@@immediately#1#2#3{%
1945   \begingroup
1946     \let\Etoc@originalwrite\write
1947     \def\write{\immediate\Etoc@originalwrite}%
1948     \Etoc@addcontentsline@{#1}{#2}{#3}%
1949   \endgroup
1950 }
1951 \DeclareRobustCommand*{\etocimmediatetoccontentsline}
1952   {\@ifstar{\Etoc@addcontentsline@@immediately}{\Etoc@addtocontents@immediately}}

Formerly a  $\TeX$  counter etoc@tocdepth was used but at 1.2 it has been replaced by macro-storage.

1953 \def\Etoc@storetocdepth   {\xdef\Etoc@savetocdepth{\number\c@tocdepth}}
1954 \def\Etoc@restoretocdepth {\global\c@tocdepth\Etoc@savetocdepth\relax}
1955 \def\etocobeytocdepth   {\def\etoc@settocdepth
1956   {\afterassignment\Etoc@@nottoodeep \global\c@tocdepth}}
1957 \def\Etoc@@nottoodeep   {\ifnum\Etoc@savetocdepth<\c@tocdepth
1958   \global\c@tocdepth\Etoc@savetocdepth\relax\fi }
1959 \def\etocignoretocdepth {\let\etoc@settocdepth@gobble }
1960 \def\etocsettocdepth     {\futurelet\Etoc@nexttoken\Etoc@set@tocdepth }
1961 \def\Etoc@set@tocdepth   {\ifx\Etoc@nexttoken\bgroup
1962   \expandafter\Etoc@set@tocdepth@
1963   \else\expandafter\Etoc@set@toctocdepth
1964   \fi }
1965 \def\Etoc@set@tocdepth@ #1{\@ifundefined {Etoc@#1@@}
1966   {\PackageWarning{etoc}
1967     {Unknown sectioning unit #1, \protect\etocsettocdepth\space ignored}}
1968   {\global\c@tocdepth\c@name Etoc@#1@@\endcsname}%
1969 }
1970 \def\Etoc@set@toctocdepth #1#1{\Etoc@set@toctocdepth@ }
1971 \def\Etoc@set@toctocdepth@ #1{%
1972   \@ifundefined{Etoc@#1@@}%
1973   {\PackageWarning{etoc}
1974     {Unknown sectioning depth #1, \protect\etocsettocdepth.toc ignored}}%
1975   {\addtocontents {toc}
1976     {\protect\etoc@settocdepth\expandafter\protect\c@name Etoc@#1@@\endcsname}}%
1977 }

placeholder

1978 \def\etocimmediatesettocdepth #1#1{\Etoc@set@toctocdepth@immediately}
1979 \def\Etoc@set@toctocdepth@immediately #1{%
1980   \@ifundefined{Etoc@#1@@}%
1981   {\PackageWarning{etoc}
1982     {Unknown sectioning depth #1, \protect\etocimmediatesettocdepth.toc ignored}}%
1983   {\begingroup
1984     \let\Etoc@originalwrite\write
1985     \def\write{\immediate\Etoc@originalwrite}%
1986     \addtocontents {toc}
1987     {\protect\etoc@settocdepth\expandafter\protect

```

```

1988     \csname Etoc@#1@@\endcsname}%
1989     \endgroup
1990 }%
1991 }

placeholder

1992 \def\etocdepthtag #1#{\Etoc@depthtag }
1993 \def\Etoc@depthtag #1{\addtocontents {toc}{\protect\etoc@depthtag {#1}}}

1.09f adds \etocimmediatedepthtag.toc. This can serve in some circumstances, see user documentation.
Apologies for long delay to Norman Ramsey who reported problem and his fix in July... 2016!

1994 \def\etocimmediatedepthtag #1#{\Etoc@depthtag@immediately }
1995 \def\Etoc@depthtag@immediately #1{%
1996     \begingroup
1997     \let\Etoc@originalwrite\write
1998     \def\write{\immediate\Etoc@originalwrite}%
1999     \addtocontents {toc}{\protect\etoc@depthtag {#1}}%
2000     \endgroup
2001 }

2002 \def\etocignoredepthtags {\let\etoc@depthtag \@gobble }
2003 \def\etocobeydepthtags {\let\etoc@depthtag \Etoc@depthtag@ }
2004 \def\Etoc@depthtag@ #1{\ifundefined{Etoc@depthof@#1}%
2005     {}% ignore in silence if tag has no associated depth
2006     {\afterassignment\Etoc@@nottoodeep
2007         \global\c@tocdepth\csname Etoc@depthof@#1\endcsname}%
2008 }

2009 \def\etocsettagdepth #1#2{\ifundefined{Etoc@#2@@}%
2010     {\PackageWarning{etoc}
2011         {Unknown sectioning depth #2, \protect\etocsettagdepth\space ignored}}%
2012     {\@namedef{Etoc@depthof@#1}{\@nameuse{Etoc@#2@@}}}%
2013 }

```

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.

```

2014 \def\Etoc@tocvsec@err #1{\PackageError {etoc}
2015     {The command \protect#1\space is incompatible with `etoc'}
2016     {Use \protect\etocsettocdepth.toc as replacement}}%
2017 }%

2018 \AtBeginDocument {%
2019     \ifclassloaded{memoir}
2020     {\PackageInfo {etoc}
2021         {Regarding `memoir' class command \protect\settocdepth, consider\MessageBreak
2022         \protect\etocsettocdepth.toc as a drop-in replacement with more\MessageBreak
2023         capabilities (see `etoc' manual). \space
2024         Also, \protect\etocsettocdepth\MessageBreak
2025         and \protect\etocsetnexttocdepth\space should be used in place of\MessageBreak
2026         `memoir' command \protect\maxtocdepth\@gobble}%
2027     }%
2028     {\@ifpackageloaded {tocvsec2}{%
2029         \def\maxtocdepth #1{\Etoc@tocvsec@err \maxtocdepth }%
2030         \def\settocdepth #1{\Etoc@tocvsec@err \settocdepth }%
2031         \def\resettocdepth {\ifstar {\Etoc@tocvsec@err \resettocdepth }%
2032             {\Etoc@tocvsec@err \resettocdepth }%
2033         }%

```

If `etoc` is added to a \LaTeX document using already `tocvsec2`.

```

2034     \def\save@tocdepth #1#2#3{%
2035     \let\reset@tocdepth\relax
2036     \let\remax@tocdepth\relax

```

```

2037 \let\tableofcontents\etoc\tableofcontents
2038 \PackageWarningNoLine {etoc}
2039 {Package `tocvsec2' detected and its modification of\MessageBreak
2040 \protect\tableofcontents\space reverted. \space Use
2041 \protect\etocsettocdepth.toc\MessageBreak as a replacement
2042 for `tocvsec2' toc-related commands}%
2043 }% tocvsec2 loaded
2044 {}% tocvsec2 not loaded
2045 }%
2046 }%

placeholder

2047 \def\invisibletableofcontents {\etocsetnexttocdepth {-3}\tableofcontents }%
2048 \def\invisiblelocaltableofcontents
2049 {\etocsetnexttocdepth {-3}\localtableofcontents }%
2050 \def\etocsetnexttocdepth #1{%
2051 \ifundefined{Etoc@#1@@}
2052 {\PackageWarning{etoc}
2053 {Unknown sectioning unit #1, \protect\etocsetnexttocdepth\space ignored}}
2054 {\Etoc@setnexttocdepth{\csname Etoc@#1@@\endcsname}}%
2055 }%
2056 \def\Etoc@setnexttocdepth#1{%
2057 \def\Etoc@tocdepthset{%
2058 \Etoc@tocdepthreset
2059 \edef\Etoc@tocdepthreset {%
2060 \global\c@tocdepth\the\c@tocdepth\space
2061 \global\let\noexpand\Etoc@tocdepthreset\noexpand\@empty
2062 }%
2063 \global\c@tocdepth#1%
2064 \global\let\Etoc@tocdepthset\@empty
2065 }%
2066 }%
2067 \let\Etoc@tocdepthreset\@empty
2068 \let\Etoc@tocdepthset \@empty
2069 \def\etocsetlocaltop #1#{\Etoc@set@localtop}%
2070 \def\Etoc@set@localtop #1{%
2071 \ifundefined{Etoc@#1@@}%
2072 {\PackageWarning{etoc}
2073 {Unknown sectioning depth #1, \protect\etocsetlocaltop.toc ignored}}%
2074 {\addtocontents {toc}
2075 {\protect\etoc@setlocaltop\expandafter\protect\csname Etoc@#1@@\endcsname}}%
2076 }%

placeholder

2077 \def\etocimmediatesetlocaltop #1#{\Etoc@set@localtop@immediately}%
2078 \def\Etoc@set@localtop@immediately #1{%
2079 \ifundefined{Etoc@#1@@}%
2080 {\PackageWarning{etoc}
2081 {Unknown sectioning depth #1, \protect\etocimmediatesetlocaltop.toc ignored}}%
2082 {\begingroup
2083 \let\Etoc@originalwrite\write
2084 \def\write{\immediate\Etoc@originalwrite}%
2085 \addtocontents {toc}
2086 {\protect\etoc@setlocaltop\expandafter\protect
2087 \csname Etoc@#1@@\endcsname}%
2088 \endgroup
2089 }%
2090 }%

```

1.09i would like to rename this to `\Etoc@setlocaltop`, for consistency with internal macros, but too late it is already in user `.toc` files.

```
2091 \def\etoc@setlocaltop #1{%
2092   \ifnum#1=\Etoc@maxlevel
2093     \Etoc@skipthisonetrue
2094   \else
2095     \Etoc@skipthisonefalse
```

MEMO: the `\Etoc@level` thus continues receiving updates from various `\etoc@setlocaltop` present in the `.toc` file even once the local toc is already done, but this has no importance, as the code in `\Etoc@toctoc` after executing the code contents is not influenced by this but only by the final status of `\Etoc@stackofends` remains the same. And this gets updated via `\Etoc@setlocaltop@doendsandbegin` (see below).

I should check if not worthwhile to move the `\ifEtoc@stoptoc` test earlier.

There should be two notions of local top. One for a potential barrier, stopping a toc, the other for setting a local top. These two should be distinct. Or at least additional to this one which does both. But then I would have to document. And test. And implement first.

```
2096   \global\let\Etoc@level #1%
2097   \global\let\Etoc@virtualtop #1%
2098   \ifEtoc@localtoc
2099     \ifEtoc@stoptoc
2100       \Etoc@skipthisonetrue
2101     \else
2102       \ifEtoc@notactive
2103         \Etoc@skipthisonetrue
2104       \else
2105         \unless\ifnum\Etoc@level>\etoclocaltop
2106           \Etoc@skipthisonetrue
2107         \global\Etoc@stoptoctrue
2108       \fi
2109     \fi
2110   \fi
2111 \fi
2112 \fi
2113 \let\Etoc@next\@empty
2114 \ifEtoc@skipthisone
2115 \else
2116   \ifnum\Etoc@level>\c@tocdepth
2117   \else
2118     \ifEtoc@standardlines
2119   \else
```

So here the `\etocsetlocaltop`.toc will cause various starts and finish parts to get executed, even for the somewhat fictitious levels. But this may cause collaterals, in particular we have to be careful about the `\ifEtoc@skipprefix` Boolean, which may be set to `\iftrue` in the `{<start>}` part of the level style and thus needs to be reset to `\iffalse`. This is done automatically in `\Etoc@etoccontentsline@` but here we are not executing it so we need to add somewhere a `\global\Etoc@skipprefixfalse` (else we may impact rendering of subsequent level). So we put it together with `\Etoc@doendsandbegin` in a wrapper. This wrapper is also there to avoid a problem when the TOC is checked for emptiness, as we need then to be able to tell `\etoc@setlocaltop` to not execute anything.

This also stresses that the name of the macro is a bit of a misnomer, yes it serves to delimit local table of contents, but really it is implemented as a ghost of a sectioning unit which does have an impact (on the global TOC or local TOCs from encompassing levels), as it triggers when encountered the `{<finish>}` portions of previous finer levels (and the `{<finish>}` code of its own level will be executed sooner or later), and the `{<start>}` code of subsequent finer levels (as well as its own `{<start>}` code at least once, depending on how levels are nested).

```
2120   \let\Etoc@next\Etoc@setlocaltop@doendsandbegin
2121   \fi
2122 \fi
```

```

2123 \fi
2124 \Etoc@next
2125 }%
    It is important to reset the \ifEtoc@skiprefix boolean, as is done in \Etoc@etoccontentsline@.
2126 \def\Etoc@setlocaltop@doendsandbegin{%
2127     \Etoc@doendsandbegin
2128     \global\Etoc@skiprefixfalse
2129 }
2130 \addtocontents {toc}{\protect\@ifundefined{etocstyle}%
2131     {\let\protect\etoc@startlocaltoc\protect\@gobble
2132     \let\protect\etoc@settocdepth\protect\@gobble
2133     \let\protect\etoc@depthtag\protect\@gobble
2134     \let\protect\etoc@setlocaltop\protect\@gobble}}}%

    Initializations.
2135 \def\etocstandardlines {\Etoc@standardlinestrue}
2136 \def\etococlines      {\Etoc@standardlinesfalse}
2137 \etocdefaultlines
2138 \etocstandardlines
2139 \def\etocstandarddisplaystyle{%
2140     \PackageWarningNoLine{etoc}{%
2141         \string\etocstandarddisplaystyle \on@line\MessageBreak
2142         is deprecated. \space Please use \string\etocclasstocstyle}%
2143 }
2144 \expandafter\def\expandafter\etocclasstocstyle\expandafter{%
2145     \etocclasstocstyle
2146     \Etoc@classtyletrue
2147 }
2148 \def\etocetoclocaltocstyle{\Etoc@etocstyletrue}
2149 \def\etocusertocstyle{\Etoc@etocstylefalse}
2150 \etocclasstocstyle
2151 \etocetoclocaltocstyle
2152 \etocobeytocdepth
2153 \etocobeydepthtags
2154 \let\etocbeforetitlehook \@empty
2155 \let\etocaftertitlehook \@empty
2156 \let\etocaftercontentshook \@empty
2157 \let\etocaftertochook \@empty

    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 (the boolean
    was added at 1.2):
2158 \def\etockeeporiginaltableofcontents
2159     {\Etoc@keeporiginaltoctrue\let\tableofcontents\etocoriginaltableofcontents}%
2160 \endinput

```