

The latex-lab-toc-kernel-changes package

Changes and additions to the kernel related to tagging and links in toc entries

L^AT_EX Project*

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Abstract

1 Introduction

The followings contains various changes to kernel commands needed for the tagging of table of contents and similar lists.

2 General kernel and class changes

Some of the changes can probably could go into the kernel. This are marked with [kernel?], the other are marked with [latex-lab]. A few changes must be done in the classes. They are marked as [class]. They are inserted with hooks here: this will break if a non-standard class is used.

2.1 Providing the counter representation \theHxx generally

[kernel?]

The \theHxx representation allows to create a unique representation of a counter that is for example used to create destination names. It will also be needed to add /Ref keys to various tagging structures. It makes therefore sense to provide it by default as soon as a counter is created. The \@addtoreset change (taken also from hyperref) tries to ensure the counter stays unique if it is reset.

At first we suppress the patches from hyperref:

```
1 <*kernelchange>
2 \def\hyper@nopatch@counter{}
3 \def\@definecounter#1{\expandafter\newcount\csname c@#1\endcsname
4   \setcounter{#1}\z@
5   \global\expandafter\let\csname cl@#1\endcsname\@empty
6   \@addtoreset{#1}{@ckpt}%
7   \global\expandafter\let\csname p@#1\endcsname\@empty
8   \expandafter\gdef\csname theH#1\endcsname{\the\value{#1}}%new
```

*Initial implementation done by Ulrike Fischer

```

9      \expandafter
10     \gdef\csname the#1\expandafter\endcsname\expandafter
11         {\expandafter\@arabic\csname c@#1\endcsname}}
12 \def\@addtoreset#1#2{\expandafter\@cons\csname cl@#2\endcsname {{#1}}}%
13 \expandafter\gdef\csname theH#1\endcsname{\csname theH#2\endcsname.\the\value{#1}}%
14 }

```

The following counters are defined in the kernel

```

15 \gdef\theHenumi{\the\value{enumi}}
16 \gdef\theHenumii{\the\value{enumii}}
17 \gdef\theHenumiii{\the\value{enumiii}}
18 \gdef\theHenumiv{\the\value{enumiv}}
19 \gdef\theHequation{\the\value{equation}}
20 \gdef\theHfootnote{\the\value{footnote}}
21 \gdef\theHmpfootnote{\the\value{mpfootnote}}

```

2.2 Providing and updating \@currentHref

[kernel?]

\@currentHref contains the current unique representation of a counter. It is useful also without hyperref as it allows to connect with a /Ref key a toc entry with the heading it refers too. So \refstepcounter is extended to update the command. This is done at the begin so that the hyperref code can still adapt it later (using the cmd/refstepcounter/after hook would be too late, and could also break with cleverref.)

We also provide a kernel version that hyperref doesn't touch and so will never set a target.

```

22 \def\@currentHref{}
23 \def\refstepcounter#1{\stepcounter{#1}%
24     \edef\@currentcounter{#1}%
25     \xdef\@currentHref {#1.\csname theH#1\endcsname}%
26     \protected@edef\@currentlabel
27         {\csname p@#1\expandafter\endcsname\csname the#1\endcsname}%
28 }
29 \let\@kernel@refstepcounter\refstepcounter

```

2.3 Assigning the headings level numbers

[kernel?]

The code for the toc must be able to compare the level of subsection against section. So some numbers are needed. It uses for now the commands used by hyperref for the bookmark levels. While headings are more a class thing, it could make sense to provide a standard set already in the kernel. The numbers are a bit different to the one in hyperref, but imho sensible.

Note for the future: once that heading stuff is turned into template instances the template should set that number.

```

30 \def\toclevel@document{-10}
31 \def\toclevel@part{-1}
32 \def\toclevel@chapter{0}
33 \def\toclevel@section{1}
34 \def\toclevel@subsection{2}
35 \def\toclevel@subsubsection{3}
36 \def\toclevel@paragraph{4}

```

```

37 \def\toclevel@subparagraph{5}
38 \def\toclevel@figure{1}
39 \def\toclevel@table{1}
40 \kernelchange

```

2.4 load kernel changes

```

41 \*package
42 \RequirePackage{latex-lab-kernel-changes}

```

2.5 \contentsline extension

[latex-lab] The tagging code must add code at the begin and end of `\contentsline`. This code must have access to the arguments. We set it up as config point for now.

```

43 \def\@contentsline@cfgpoint@before#1#2#3#4{}
44 \def\@contentsline@cfgpoint@after#1#2#3#4{}
45 \def\@contentsline@arg@one{}%level
46 \def\@contentsline@arg@two{}%text
47 \def\@contentsline@arg@three{}%page
48 \def\@contentsline@arg@four{}%destination
49 \def\contentsline#1#2#3#4%
50 {%
51   \def\@contentsline@arg@one{#1}%level
52   \def\@contentsline@arg@two{#2}%text
53   \def\@contentsline@arg@three{#3}%page
54   \def\@contentsline@arg@four{#4}%destination
55   \@contentsline@cfgpoint@before{#1}{#2}{#3}{#4}%
56   %\gdef\@contentsline@destination{#4}%
57   \csname l@#1\endcsname{#2}{#3}%
58   \@contentsline@cfgpoint@after{#1}{#2}{#3}{#4}%
59 }

```

2.6 \addcontentsline changes

[latex-lab]

`\addcontentsline` should always write the unique counter representation `\@currentHref` so that we can create the `/Ref` key. At the same time we need a hook, so that `hyperref` can add its bookmarks code. The generic hook would be ok, but we need the arguments, so we store them first.

```

60 \NewHook{cmd/addcontentsline/before}
61 \def\addcontentsline#1#2#3{% toc extension, type, tag
62   \def\addcontentsline@arg@one{#1}% name??
63   \def\addcontentsline@arg@two{#2}%
64   \def\addcontentsline@arg@three{#3}%
65   \UseHook{cmd/addcontentsline/before}%
66   \addtocontents{#1}{%
67     \protect\contentsline{#2}{#3}{\thepage}{\@currentHref}\protected@file@percent
68   }}

```

2.7 \@starttoc

[kernel?]

We add a configuration point before and after reading the file for the tagging.

```

69 \def\@starttoc@cfgpoint@before#1{}
70 \def\@starttoc@cfgpoint@after#1{}
71 \def\@starttoc#1{%
72   \begingroup
73     \makeatletter
74     \@starttoc@cfgpoint@before{#1}%
75     \@input{\jobname.#1}%
76     \@starttoc@cfgpoint@after{#1}
77   \if@filesw
78     \expandafter\newwrite\csname tf@#1\endcsname
79     \immediate\openout \csname tf@#1\endcsname \jobname.#1\relax
80   \fi
81   \@nobreakfalse
82 \endgroup}

```

2.8 Formatting of the toc entries

2.8.1 Kernel commands

[latex-lab] or [kernel?]?

We need hooks before and after the content and before and after the page number. The number needs some thing so that it can be tagged as label. The text and the page hooks are used in manual \l@xx commands and in \l@xx defined by \@dottedtocline or by other means.

```

83 \NewMirroredHookPair{contentsline/number/before}{contentsline/number/after}%
84 \NewMirroredHookPair{contentsline/text/before}{contentsline/text/after}%
85 \NewMirroredHookPair{contentsline/page/before}{contentsline/page/after}%

```

The dot in the leader must be set as artifact. But luatex requires that the mc are set outside the leaders. So we need a config point.

\@dottedtocline needs hooks and formatting commands.

```

86 \def\@dottedtocline@cfgpoint@leaders#1{#1}
87
88 \def\@dottedtocline#1#2#3#4#5{%
89   \ifnum #1>\c@tocdepth \else
90     \vskip \z@ \@plus.2\p@
91     {\leftskip #2\relax \rightskip \@tocrmarg \parfillskip -\rightskip
92     \parindent #2\relax\@afterindenttrue
93     \interlinepenalty\@M
94     \leavevmode
95     \@tempdima #3\relax
96     \advance\leftskip \@tempdima \null\nobreak\hskip -\leftskip
97     \UseHook{contentsline/text/before}%
98     \csname contentsline@text@#1\format\endcsname{#4}%
99     \UseHook{contentsline/text/after}%
100    \nobreak
101    \@dottedtocline@cfgpoint@leaders{%
102      \leaders\hbox{$\m@th
103        \mkern \dotsep mu\hbox{.}\mkern \dotsep
104        mu$}\hfill}%
105    \nobreak
106    \hb@xt@\@pnumwidth{\hfil\normalfont \normalcolor

```

```

107 \UseHook{contentsline/page/before}%
108 #5%
109 \UseHook{contentsline/page/after}%
110 \kern-\p@\kern\p@}%
111 \par}%
112 \fi}

```

2.8.2 \numberline

[kernel?] Inside or outside the box?

```

113 \def\numberline#1{\hb@xt@\@tempdima{%
114 \UseHook{contentsline/number/before}%
115 #1\hfil
116 \UseHook{contentsline/number/after}%
117 }}

```

2.8.3 \l@xx in the classes

Depending on the class we have to redefine also more commands For other classes it should be documented what is needed.

```

118 \AddToHook{class/article/after}
119 {
120 \renewcommand*\l@part[2]{%
121 \ifnum \c@tocdepth >-2\relax
122 \addpenalty\@secpenalty
123 \addvspace{2.25em \@plus\p@}%
124 \setlength\@tempdima{3em}%
125 \begingroup
126 \parindent \z@ \rightskip \@pnumwidth
127 \parfillskip -\@pnumwidth
128 {\leavevmode
129 \large \bfseries
130 \UseHook{contentsline/text/before}%
131 \csname contentsline@text@-1@format\endcsname{#1}%
132 \UseHook{contentsline/text/after}%
133 \hfil
134 \hb@xt@\@pnumwidth{\hss
135 \UseHook{contentsline/page/before}%
136 #2%
137 \UseHook{contentsline/page/after}%
138 \kern-\p@\kern\p@}}\par
139 \nobreak
140 \endgroup
141 \fi}
142 \renewcommand*\l@section[2]{%
143 \ifnum \c@tocdepth >\z@
144 \addpenalty\@secpenalty
145 \addvspace{1.0em \@plus\p@}%
146 \setlength\@tempdima{1.5em}%
147 \begingroup
148 \parindent \z@ \rightskip \@pnumwidth
149 \parfillskip -\@pnumwidth
150 \leavevmode \bfseries

```

```

151 \advance\leftskip\@tempdima
152 \hskip -\leftskip
153 \UseHook{contentsline/text/before}%
154 \csname contentsline@text@1@format\endcsname{#1}%
155 \UseHook{contentsline/text/after}%
156 \nobreak\hfil
157 \nobreak\hb@xt@\@pnumwidth{\hss
158 \UseHook{contentsline/page/before}%
159 #2%
160 \UseHook{contentsline/page/after}%
161 \kern-\p@\kern\p@}\par
162 \endgroup
163 \fi}
164 }
165 \AddToHook{class/report/after}
166 {
167 \renewcommand*\l@part[2]{%
168 \ifnum \c@tocdepth >-2\relax
169 \addpenalty{-\@highpenalty}%
170 \advspace{2.25em \@plus\p@}%
171 \setlength\@tempdima{3em}%
172 \begingroup
173 \parindent \z@ \rightskip \@pnumwidth
174 \parfillskip -\@pnumwidth
175 {\leavevmode
176 \large \bfseries
177 \UseHook{contentsline/text/before}%
178 \csname contentsline@text@-1@format\endcsname{#1}%
179 \UseHook{contentsline/text/after}%
180 \hfil
181 \hb@xt@\@pnumwidth{\hss
182 \UseHook{contentsline/page/before}%
183 #2%
184 \UseHook{contentsline/page/after}%
185 \kern-\p@\kern\p@}}\par
186 \nobreak
187 \endgroup
188 \fi}
189 \renewcommand*\l@chapter[2]{%
190 \ifnum \c@tocdepth >\m@ne
191 \addpenalty{-\@highpenalty}%
192 \vskip 1.0em \@plus\p@
193 \setlength\@tempdima{1.5em}%
194 \begingroup
195 \parindent \z@ \rightskip \@pnumwidth
196 \parfillskip -\@pnumwidth
197 \leavevmode \bfseries
198 \advance\leftskip\@tempdima
199 \hskip -\leftskip
200 \UseHook{contentsline/text/before}%
201 \csname contentsline@text@0@format\endcsname
202 {#1}%
203 \UseHook{contentsline/text/after}%
204 \nobreak\hfil

```

```

205         \nobreak\hb@xt@\@pnumwidth{\hss
206         \UseHook{contentsline/page/before}%
207         #2%
208         \UseHook{contentsline/page/after}%
209         \kern-\p@\kern\p@}\par
210     \penalty\@highpenalty
211 \endgroup
212 \fi}
213 }
214 \AddToHook{class/book/after}
215 {
216     \renewcommand*\l@part[2]{%
217     \ifnum \c@tocdepth >-2\relax
218     \addpenalty{-\@highpenalty}%
219     \addvspace{2.25em \@plus\p@}%
220     \setlength\@tempdima{3em}%
221     \begingroup
222     \parindent \z@ \rightskip \@pnumwidth
223     \parfillskip -\@pnumwidth
224     {\leavevmode
225     \large \bfseries
226     \UseHook{contentsline/text/before}%
227     \csname contentsline@text@-1@format\endcsname{#1}%
228     \UseHook{contentsline/text/after}%
229     \hfil
230     \hb@xt@\@pnumwidth{\hss
231     \UseHook{contentsline/page/before}%
232     #2%
233     \UseHook{contentsline/page/after}%
234     \kern-\p@\kern\p@}}\par
235     \nobreak
236     \endgroup
237     \fi}
238 \renewcommand*\l@chapter[2]{%
239 \ifnum \c@tocdepth >\m@ne
240 \addpenalty{-\@highpenalty}%
241 \vskip 1.0em \@plus\p@
242 \setlength\@tempdima{1.5em}%
243 \begingroup
244 \parindent \z@ \rightskip \@pnumwidth
245 \parfillskip -\@pnumwidth
246 \leavevmode \bfseries
247 \advance\leftskip\@tempdima
248 \hskip -\leftskip
249 \UseHook{contentsline/text/before}%
250 \csname contentsline@text@0@format\endcsname
251 {#1}%
252 \UseHook{contentsline/text/after}%
253 \nobreak\hfil
254 \nobreak\hb@xt@\@pnumwidth{\hss
255 \UseHook{contentsline/page/before}%
256 #2%
257 \UseHook{contentsline/page/after}%
258 \kern-\p@\kern\p@}\par

```

```

259         \penalty\@highpenalty
260     \endgroup
261     \fi}
262 }
263 \</package>
264 \<*latex-lab>
265 \ProvidesFile{toc-tagging-latex-lab-testphase.ltx}
266     [2023-05-20 v0.81 code related to the tagging of toc and similar lists]
267
268 \RequirePackage{latex-lab-testphase-toc}
269
270 \</latex-lab>

```