The **latex-lab-title** package
Changes related to the tagging of the title

LaTeX Project[*]

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Abstract

1 Introduction

This module contains changes to improve the tagging (in the standard classes) of the title created with the `\maketitle` command. It also improves the setting of the metadata related to the title and the author.

For basic tagging of the printed title there are basically three things to do:

- The actual title should be tagged with the `Title` tag.

- The tabular used to format the author list should *not* be tagged as a tabular.

- `\maketitle` redefines footnote internals. These must be made tagging aware.

A second task related to title is to store the authors and the title text (or a shorter version) inside the XMP-metadata and (in PDF 1.7 or lower) in the Info dictionary. Currently this can only be set if hyperref is loaded and requires the use of the `pdftitle` and `pdfauthor` keys. The new code therefore extends the `\title` and `\author` commands: They stores their argument and use them at the end of the document for the PDF metadata if the data hasn't been given in another way. The code also gives `\title` and `\author` an optional argument where the PDF title or author can be given with in a key-value syntax. As with hyperref it is possible to store titles in more than one language:

```
\title
  [pdftitle =
    {[en]English Title,[de] Deutscher Titel,[fr]{titre français, avec comma}}]
  {Document title}
```

It is also possible to set a subtitle which is then stored in the XMP-metadata:

```
\title
  [pdfsubtitle =
    {[en]English Subtitle,[de] Deutscher Subtitel,[fr]{subtitre français, avec comma}
  {Document title}
```

---

[*]Initial implementation done by Ulrike Fischer

If using the `pdfauthor` key authors should be separated by commas, and to hide commas in a name inside braces if needed:

```
\author[pdfauthor = {Bär, Peter Anteater, {Riley, the sloth}}]{\ldots}
```

If hyperref is loaded there is no difference to the `pdftitle` and `pdfauthor` key used in `\hypersetup`. Both can be used (and the last key used will win).

1.1 Open questions and TODOs

- Writing into the Info dictionary needs to convert the input into a PDF string. This is here done with a simple version of hyperref's `\pdfstringdef`, similar code exist also in in the generic hyperref driver. This should be moved into a better place module.

- Is it sensible to enhance `\author` and `\title` with an optional argument as done here? An advantage is that it is rather light-weight and doesn't require to decide how this values should be set in `\DocumentMetadata` (and would also work without `\DocumentMetadata`. But a problem could be that various classes and packages already extend this commands with other optional arguments.

- Some of the definitions related to metadata should perhaps be moved into l3pdfmeta.

- Are the names `pdftitle` and `pdfauthor` ok?

- The patch for `\thanks` to get a rlap-footnotemarker looks wrong. This probably means that some configuration option is missing in the footnote code.

2 Implementation

```
1 ⟨∗package⟩
2 ⟨@@=tag⟩

3 \ProvidesExplPackage {latex-lab-testphase-title} {\ltlabtitledate} {\ltlabtitleversion}
4   {Changes related to the tagging of the title}
```

2.1 `\maketitle` in article class

```
5 \cs_new_protected:Npn \__tag_patch_thanks:n #1
6   {
7     \rlap{\footnotemark}
8     \protected@xdef\@thanks{\@thanks
9       \protect\footnotetext[\the\c@footnote]{#1}}
10  }
```

The no-titlepage version of article, report and book

```
11 \cs_new_protected:Npn \__tag_patch_maketitle:
12  {
13    \par
14    \begingroup
```

Disable table tagging

```
15      \cs_if_exist_use:N\__tag_tbl_disable:
16      \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
```

the original definition redefines `\@makefnmark` and `\@makefntext` to get an rlap-mark in the text without affecting the mark in the note (which gives by the way a wrong link area with hyperref). There seem to be currently no good way in the footnote to configure this, so we redefine `\thanks` instead

```
17        \cs_set_eq:NN \thanks \__tag_patch_thanks:n
18        \if@twocolumn
19          \ifnum \col@number=\@ne
20            \@maketitle
21          \else
22            \twocolumn[\@maketitle]%
23          \fi
24        \else
25          \newpage
26          \global\@topnum\z@   % Prevents figures from going at top of page.
27          \@maketitle
28        \fi
29        \thispagestyle{plain}\@thanks
30      \endgroup
31      \setcounter{footnote}{0}%
32      \global\let\thanks\relax
33      \global\let\maketitle\relax
34      \global\let\@maketitle\relax
35      \global\let\@thanks\@empty
36      \global\let\@author\@empty
37      \global\let\@date\@empty
38      \global\let\@title\@empty
39      \global\let\title\relax
40      \global\let\author\relax
41      \global\let\date\relax
42      \global\let\and\relax
43    }
```

We must also change `\@maketitle` to insert a Title tag

```
44 \cs_new_protected:Npn \__tag_patch_@maketitle:
45  {
46  \newpage
47  \null
48  \vskip 2em%
49  \begin{center}%
50  \let \footnote \thanks
```

use Title around the title. As in PDF 1.7 this is rolemapped to P we change the text-unit tag there.

```
51    \pdf_version_compare:NnTF > {1.7}
52      {{\LARGE \tag_struct_begin:n{tag=Title}\@title \par\tag_struct_end:}}
53      {{\LARGE \tagtool{paratag=Title}\@title \par}}%
54    \vskip 1.5em%
55    {\large
56      \lineskip .5em%
57      \begin{tabular}[t]{c}%
58        \@author
59      \end{tabular}\par}%
60    \vskip 1em%
61    {\large \@date}%
62  \end{center}%
```

```
63    \par
64    \vskip 1.5em
65    }
66
```

The titlepage variant

```
67  \cs_new_protected:Npn \__tag_patch_maketitle_page:
68    {\begin{titlepage}%
```

disable table tagging

```
69    \cs_if_exist_use:N\__tag_tbl_disable:
70    \let\footnotesize\small
71    \let\footnoterule\relax
72    \let \footnote \thanks
73    \null\vfil
74    \vskip 60\p@
```

use Title around the title. As in PDF 1.7 this is rolemapped to P we change the text-unit tag there.

```
75    \begin{center}%
76    \pdf_version_compare:NnTF > {1.7}
77      {{\LARGE \tag_struct_begin:n{tag=Title}\@title \par\tag_struct_end:}}
78      {{\LARGE \tagtool{paratag=Title}\@title \par}}%
79    \vskip 3em%
80    {\large
81     \lineskip .75em%
82      \begin{tabular}[t]{c}%
83        \@author
84      \end{tabular}\par}%
85      \vskip 1.5em%
86    {\large \@date \par}%        % Set date in \large size.
87    \end{center}\par
88    \@thanks
89    \vfil\null
90    \end{titlepage}%
91    \setcounter{footnote}{0}%
92    \global\let\thanks\relax
93    \global\let\maketitle\relax
94    \global\let\@thanks\@empty
95    \global\let\@author\@empty
96    \global\let\@date\@empty
97    \global\let\@title\@empty
98    \global\let\title\relax
99    \global\let\author\relax
100   \global\let\date\relax
101   \global\let\and\relax
102   }
103
```

Map the new commands onto \maketitle:

```
104 \AddToHook{class/article/after}
105   {
106     \if@titlepage
107     \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
108     \else
109     \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
110     \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
```

```
111     \fi
112   }
113 \AddToHook{class/report/after}
114   {
115     \if@titlepage
116      \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
117     \else
118     \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
119     \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
120     \fi
121   }
122 \AddToHook{class/book/after}
123   {
124     \if@titlepage
125      \cs_set_eq:NN \maketitle \__tag_patch_maketitle_page:
126     \else
127     \cs_set_eq:NN \maketitle \__tag_patch_maketitle:
128     \cs_set_eq:NN \@maketitle \__tag_patch_@maketitle:
129     \fi
130   }
```

2.2   Helper commands to set metadata

Some temp variables

```
131 \str_new:N \g__tag_title_tmpa_str
132 \str_new:N \l__tag_title_tmpa_str
133 \tl_new:N  \l__tag_title_tmpa_tl
134 \seq_new:N \l__tag_title_tmpa_seq
```

Support for \texorpdfstring

```
135 \providecommand\texorpdfstring[2]{#1}%
```

A helper command to convert the title into a pdfstring similar to \pdfstringdef. As we use \text_purify we must ensure that the default definitions of \@title and \@author are robust:

```
136 \protected\def\@title{\@latex@error{No \noexpand\title given}\@ehc}
137 \protected\def\@author{\@latex@warning@no@line{No \noexpand\author given}}
```

TODO: This should be improved and moved into the pdf module so that it is generally available.

```
138 \cs_new_protected:Npn \__tag_title_pdfstring:nnN #1 #2 #3 % #1 text, #2 e.g. utf16/hex
139   {
140     \group_begin:
```

TODO: we need probably a common boolean to handle \texorpdfstring also without hyperref.

```
141     \cs_set_eq:NN\texorpdfstring\use_ii:nn
142     \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { #1 } }
143     \pdf_string_from_unicode:nVN { #2 } \l__tag_title_tmpa_str \l__tag_title_tmpa_str
144     \str_gset_eq:NN \g__tag_title_tmpa_str\l__tag_title_tmpa_str
145     \group_end:
146     \str_set_eq:NN #3 \g__tag_title_tmpa_str
147   }
148 \cs_generate_variant:Nn\__tag_title_pdfstring:nnN {e}
```

5

2.3 Extend title to set metadata

At first a variable to store the title, as `\@title` is emptied by LaTeX.

```
149 \tl_new:N \g__tag_title_title_tl
```

Now we redefine `\title` so that it stores the title, and processes keys in the optional argument. We use `hyp` as module name for the key as this means that if hyperref is loaded its definition of `pdftitle` will be used – at some time probably this should be moved out of hyperref so that we have only one definition.

```
150 \RenewDocumentCommand\title{O{}m}
151 {
152   \gdef\@title{#2}
153   \tl_gset_eq:NN\g__tag_title_title_tl\@title
154   \keys_set:nn {hyp}{#1}
155 }
```

Now we define the `pdftitle` key. This is more or less the same definition as in the generic hyperref driver.

```
156 \regex_new:N\l__tag_title_optlang_regex
157 \regex_set:Nn\l__tag_title_optlang_regex {\A\[([A-Za-z\-]+)\](.*)}
158 \cs_generate_variant:Nn \regex_extract_once:NnN{NVN}
159 \cs_generate_variant:Nn \clist_item:nn {on}
```

and now the keys.

```
160 \keys_define:nn { hyp }
161   {
162     pdftitle  .code:n =
163       {
164         \tl_if_blank:nTF {#1}
165           {
166             \pdfmanagement_remove:nn {Info}{Title}
167           }
168           {
169             \tl_set:Ne\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
170             \regex_extract_once:NVN
171               \l__tag_title_optlang_regex
172               \l__tag_title_tmpa_tl
173               \l__tag_title_tmpa_seq
174           \seq_if_empty:NTF\l__tag_title_tmpa_seq
175            {
176              \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
177            }
178            {
179              \__tag_title_pdfstring:enN
180                {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
181            }
182          \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
183            {
184              \pdfmanagement_add:nne {Info}{Title}{\l__tag_title_tmpa_str}
185            }
186        }
187      \AddToDocumentProperties[hyperref]{pdftitle}{#1}
188    }
189  ,pdfsubtitle .code:n = { \AddToDocumentProperties[hyperref]{pdfsubtitle}{#1} }
190  }
```

2.4 Extend \author to set metadata

At first a variable to store the authors, as \@author is emptied by LATEX.

```
191 \tl_new:N \g__tag_title_author_tl
```

Now we redefine \author so that it stores the authors, and processes keys in the optional argument. We use hyp as module name for the key as this means that if hyperref is loaded its definition of pdfauthor will be used – at some time probably this should be moved out of hyperref so that we have only one definition.

```
192 \RenewDocumentCommand\author{O{}m}
193   {
194     \gdef\@author{#2}
195     \tl_gset_eq:NN\g__tag_title_author_tl\@author
196     \keys_set:nn {hyp}{#1}
197   }
```

Now we define the pdfauthor key. This is more or less the same definition as in the generic hyperref driver.

```
198 \keys_define:nn { hyp }
199    {
200      pdfauthor   .code:n =
201        {
202          \tl_if_blank:nTF {#1}
203            {
204              \pdfmanagement_remove:nn {Info}{Author}
205            }
206            {
207              \tl_set:Ne\l__tag_title_tmpa_tl {\clist_item:on{#1}{1}}
208              \regex_extract_once:NVN
209                \l__tag_title_optlang_regex
210                \l__tag_title_tmpa_tl
211                \l__tag_title_tmpa_seq
212              \seq_if_empty:NTF\l__tag_title_tmpa_seq
213               {
214                 \__tag_title_pdfstring:nnN {#1}{utf16/hex}\l__tag_title_tmpa_str
215               }
216               {
217                 \__tag_title_pdfstring:enN
218                   {\seq_item:Nn \l__tag_title_tmpa_seq{3}}{utf16/hex}\l__tag_title_tmpa_str
219               }
220              \str_if_eq:VnF\l__tag_title_tmpa_str{<FEFF>}
221                {
222                  \pdfmanagement_add:nne {Info}{Author}{\l__tag_title_tmpa_str}
223                }
224            }
225          \AddToDocumentProperties[hyperref]{pdfauthor}{#1}
226        }
227    }
```

2.5 Fallback for classes and packages that redefine \title or \author

If a class redefines \author and \title again, we try to retrieve at least the values.

```
228 \AddToHook{cmd/maketitle/before}
229   {
230     \tl_gset_eq:NN \g__tag_title_author_tl\@author
231     \tl_gset_eq:NN \g__tag_title_title_tl\@title
232   }
```

2.6   Finalize document

At last we set the title and the author at the end of document if that hasn't happened
yet:

```
233 \AddToHook{shipout/lastpage}
234  {
235    \tl_if_empty:eT{\GetDocumentProperties{hyperref/pdftitle}}
236       {
237         \group_begin:
238         \cs_set_eq:NN\thanks \use_none:n
239         \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_title_tl } }
240         \keys_set:ne{hyp}{pdftitle={\exp_not:V\l__tag_title_tmpa_str}}
241         \group_end:
242       }
243    \tl_if_empty:eT{\GetDocumentProperties{hyperref/pdfauthor}}
244       {
245         \group_begin:
246         \cs_set_eq:NN\thanks \use_none:n
247         \cs_set:Npn \and {,}
248         \str_set:Ne \l__tag_title_tmpa_str {\text_purify:n { \g__tag_title_author_tl } }
249         \keys_set:ne{hyp}{pdfauthor={\exp_not:V\l__tag_title_tmpa_str}}
250         \group_end:
251       }
```

force display title, if an UA-standard is detected.

```
252    \tl_if_empty:eF{\GetDocumentProperties{document/pdfstandard-UA}}
253      {
254        \pdfmanagement_add:nnn {Catalog / ViewerPreferences } { DisplayDocTitle } { true }
255      }
256  }
257 \DeclareHookRule{shipout/lastpage}{latex-lab-testphase-title}{before}{pdfmanagement-testphase
258 ⟨/package⟩

259 ⟨∗latex-lab⟩
260 \ProvidesFile{title-latex-lab-testphase.ltx}
261        [\ltlabtitledate\space v\ltlabtitleversion\space
262         Changes related to the tagging of the title]
263
264 \RequirePackage{latex-lab-testphase-title}
265
266 ⟨/latex-lab⟩
```