Citations with PDF tooltips

Mikica Kocic

This paper describes package `xcpdftips`
version 1.1 from 2019/03/18

1 Introduction

This package allows one to be able to do `natbib` citations with PDF tooltips.

2 Invoking the Package

The macros in this package are included in the main document with the `\usepackage` command of LaTeX 2_ε,

```
\documentclass[..]{...}
\usepackage{xcpdftips}
```

To replace `natbib`'s `\cite`,

```
\usepackage[redefcite]{xcpdftips}
```

To put tooltips on the PDF layers (OCG),

```
\usepackage[redefcite,useocg]{xcpdftips}
```

3 Usage

This package must be used with BibTeX and `natbib`, not with a hand-written `thebibliography` environment. More precisely, there must be a `.bbl` file external to the LaTeX file; whether this is written by hand or by BibTeX is unimportant.

`\xpdfcite`   A replacement for `natbib`'s `\cite` macro.

Similarly to `\cite`, the command `\xpdfcite` may take one or two optional arguments to add some text before and after the citation:

```
\xpdfcite{⟨key(s)⟩}
\xpdfcite[post]{⟨key(s)⟩}
\xpdfcite[pre][post]{⟨key(s)⟩}
```

4 Caveats

The `xcpdftips` package will work with `natbib` with its native `\bibitem` format, and with standard LaTeX. It will also work with `url` package.

The OCG support requires `ocgbase` and `pdfbase` versions $\geq$ 2018/04/06

Nothing else can be guaranteed.

5 Options with `docstrip`

The source `.dtx` file is meant to be processed with `docstrip`, for which a number of options are available:

`package` to produce a `.sty` package file with most comments removed;

`driver` to produce a driver `.drv` file that will print out the documentation under LaTeX 2_ε. The documentation cannot be printed under LaTeX 2.09.

The source file `xcpdftips.dtx` is itself a driver file and can be processed directly by LaTeX 2_ε.

6 The Coding

This section presents and explains the actual coding of the macros. It is nested between `%<*package>` and `%</package>`, which are indicators to `docstrip` that this coding belongs to the package file.

`\DeclareOption`   Defined options: `redefcite`, `useocg`, `usetcolorbox`

```
1
2 \newif\if@useocg\@useocgfalse
3 \newif\if@usetcolorbox\@usetcolorboxfalse
4 \newif\if@redefcite\@redefcitefalse
5
6 \DeclareOption{useocg}{\@useocgtrue}
7 \DeclareOption{usetcolorbox}{\@usetcolorboxtrue}
8 \DeclareOption{redefcite}{\@redefcitetrue}
9
10 \ProcessOptions\relax
11
```

`\XCP@tooltipbox`   Command for creating a tooltip box on the OCG layer. The arguments are the same as for `\fcolorbox`.

```
12
13 \if@useocg
14 \if@usetcolorbox
15
16  \RequirePackage{tcolorbox}
17
18  \newcommand{\XCP@tooltipbox}[3]{%
19    \begin{tcolorbox}[colframe=#1, colback=#2,%
20        width=1.02\columnwidth, arc=2pt,%
21        boxsep=2pt, top=0ex, bottom=0ex, left=0.1em, right=0.1em%
```

```
22      ]\normalfont\small #3\end{tcolorbox}%
23    }
24
25  \else
26
27    \newcommand{\XCP@tooltipbox}[3]{%
28      \fcolorbox{#1}{#2}%
29        {\parbox[t]{\columnwidth}{\normalfont\small #3}}%
30    }
31
32  \fi
33 \fi
34
```

\XCP@ocgtooltip   Usage: \XCP@ocgtooltip{<link text>}[<tooltip box color>]{<tooltip text>}
Warning: Requires pdfbase and ocgbase >= 2018/04/06

```
35
36 \if@useocg %%% BEGIN use OCG %%%
37
38 \RequirePackage{pdfbase,ocgbase}
39
40 \RequirePackage{xparse}
41 \RequirePackage{expl3}
42 \RequirePackage{calc,linegoal}
43 \RequirePackage{xcolor}
44
45 % Check the required versions of pdfbase and ocgbase
46
47 \ExplSyntaxOn
48
49 \msg_set:nnnn{xcpdftips}{support~outdated}{
50    Support~package~'#1'~too~old.
51 }{
52    Get~an~up~to~date~version~of~'#1'.\\Aborting.
53 }
54 \@ifpackagelater{pdfbase}{2018/04/06}{}{
55    \msg_error:nnn{xcpdftips}{support~outdated}{pdfbase.sty}
56    \tex_endinput:D
57 }
58 \@ifpackagelater{ocgbase}{2018/04/06}{}{
59    \msg_error:nnn{xcpdftips}{support~outdated}{ocgbase.sty}
60    \tex_endinput:D
61 }
62
63 \let\XCP@pdfLink\pbs_pdflink:nn  % Alias for the pdflink from pdfbase
64
65 \ExplSyntaxOff
66
67 % Patch hyperref (make the PDF annotations OCG-aware)
68
69 \ifx\Hy@setpdfborder\undefined\else
70    \let\Hy@setpdfborderOrig\Hy@setpdfborder
71    \def\Hy@setpdfborder{\ocgbase@insert@oc\Hy@setpdfborderOrig}%
72 \fi
```

```
73
74 \newsavebox{\XCP@tipText} % Temporary savebox
75 \newlength{\XCP@hOffset} \setlength\XCP@hOffset{-0.1em}
76 \newlength{\XCP@vOffset} \setlength\XCP@vOffset{0.2ex}
77 \newlength{\XCP@lineGoal}
78
79 \NewDocumentCommand{\XCP@ocgtooltip}{%
80   m % link text
81   O{yellow!5} % tooltip box color
82   m % tooltip text
83 }{{%
84   \leavevmode%
85   % Create a new PDF layer
86   \ocgbase@new@ocg{ref [\XCP@keys]}{%
87     /Print<</PrintState/OFF>> %
88     /Export<</ExportState/OFF>> %
89     /View<</ViewState/OFF>> %
90   }{invisible}%
91   \edef\XCP@currentOcg{\ocgbase@last@ocg}%
92   % Insert the PDF layer into the order hierarchy (shown in the 'Layers' tab)
93   \ocgbase@tree@node@begin%
94   \XCP@currentOcg%
95   \ocgbase@tree@node@end%
96   % Disable the simultaneous visibility of multiple tooltips
97   \ocgbase@add@ocg@to@radiobtn@grp{tool@tips}{\ocgbase@last@ocg}%
98   % Emit the <link text> using \pbs_pdflink:nn
99   \XCP@pdfLink{%
100     /Subtype/Link/Border[0 0 0]/A %
101       <</S/SetOCGState/State [/Toggle \XCP@currentOcg]>> %
102   }{#1}%
103   % Create a savebox for the <tooltip text> on the PDF layer
104   \sbox\XCP@tipText{%
105     \ocgbase@oc@bdc{\XCP@currentOcg}%
106     \ocgbase@open@stack@push{\XCP@currentOcg}%
107       \XCP@tooltipbox{black!50}{#2}{#3}%
108     \ocgbase@oc@emc%
109     \ocgbase@open@stack@pop%
110     \null%
111   }%
112   % Emit the savebox (at this point we have dimensions to calc the offset)
113   \raisebox{%
114     \heightof{#1} + \the\dp\XCP@tipText + \XCP@vOffset%
115   }[0pt][0pt]{%
116     \makebox[0pt][l]{\relax%
117       \setlength\XCP@lineGoal{\linegoal}%
118       \hspace{\dimexpr\XCP@lineGoal - \linewidth + \XCP@hOffset \relax}%
119       \usebox{\XCP@tipText}%
120     }%
121   }%
122 }}
123
124 \fi %%% END use OCG %%%
125
```

\XCP@enumeratetips Gets `bibentry` for each key from the list of citations. The output is stored into
\XCP@tips, which can be directly used as a tooltip text in \pdftooltip.

```
126
127 \newsavebox{\XCP@keynum} % Temp box for getting citation numbers using \citenum
128
129 \ExplSyntaxOn
130
131 \NewDocumentCommand{ \XCP@enumeratetips }%
132 { > { \SplitList , } m }%
133 {%
134   \global\undef\XCP@tips%
135   \global\undef\XCP@keys%
136   \tl_map_inline:nn {#1}%
137   {%
138     \ifx\XCP@tips\undefined%
139       \global\def\XCP@keys{}%
140       \sbox\XCP@keynum{\citenum{##1}}%
141       \expandafter\xdef\csname XCP@k@##1\endcsname{\NAT@num}%
142       \xappto{\XCP@keys}{\NAT@num}%
143       \global\def\XCP@tips{}%
144       \gappto{\XCP@tips}{[\textbf{\@nameuse{XCP@k@##1}}]\ %
145         {\@nameuse{BR@r@##1\@extra@b@citeb}}}%
146     \else%
147       \sbox\XCP@keynum{\citenum{##1}}%
148       \expandafter\xdef\csname XCP@k@##1\@extra@b@citeb\endcsname{\NAT@num}%
149       \xappto{\XCP@keys}{,\NAT@num}%
150       \gappto{\XCP@tips}{,\textCR[\textbf{\@nameuse{XCP@k@##1}}]\ %
151         {\@nameuse{BR@r@##1\@extra@b@citeb}}}%
152     \fi%
153   }%
154 }
155
156 \ExplSyntaxOff
157
```

\xcsetauthor Set the author used for pdf comments (default:).

```
158
159 \gdef\XCP@opt@author{{}}
160 \newcommand{\xcsetauthor}[1]{\gdef\XCP@opt@author{#1}}
161
```

\xcsetmarkup Set the markup used for pdf comments (default: Underline).

```
162
163 \gdef\XCP@opt@markup{Underline}
164 \newcommand{\xcsetmarkup}[1]{\gdef\XCP@opt@markup{#1}}
165
```

\xcsetcolor Set the color used for pdf comments (default: yellow).

```
166
167 \gdef\XCP@opt@color{1 1 0}
168 \newcommand{\xcsetcolor}[1]{\gdef\XCP@opt@color{#1}}
169
```

\xcsetopacity Set the opacity used for pdf comments (default: 0).

```
170
171 \gdef\XCP@opt@opacity{0}
172 \newcommand{\xcsetopacity}[1]{\gdef\XCP@opt@opacity{#1}}
173
```

\XCP@citetp This macro is in fact \xpdfcite.
It is a wrapper for \XCP@@citetp to handle variable number of arguments.

```
174
175 \newcommand\XCP@citetp{\@ifnextchar[{\XCP@@citetp}{\XCP@@citetp[]}}
176
177 \newcommand\XCP@@citetp{}
178 \def\XCP@@citetp[#1]{\@ifnextchar[{\XCP@citex[#1]}{\XCP@citex[][#1]}}
179
```

\XCP@citex An internal macro that does the actual job for \xpdfcite.

```
180
181 \newcommand\XCP@citex{}
182 \gdef\XCP@citex[#1][#2]#3%
183   {%{\protect\NoHyper%
184     \if@useocg%
185       \let\textCR\par%
186       \XCP@enumeratetips{#3}%
187       \XCP@ocgtooltip%
188         {{{\protect\NoHyper\XCP@oldcite[#1][#2]{#3}\protect\endNoHyper}}}%
189         {\XCP@tips}%
190     \else%
191       \XCP@enumeratetips{#3}%
192       \pdftooltip{\XCP@oldcite[#1][#2]{#3}}{\XCP@tips}%
193       \pdfmarkupcomment[%
194         author=\XCP@opt@author,%
195         markup=\XCP@opt@markup,%
196         color=\XCP@opt@color,%
197         opacity=\XCP@opt@opacity,%
198       ]{\vphantom{.}}{\XCP@tips}%
199     \fi%
200   }%\protect\endNoHyper}}
201
202 \let\XCP@oldcite\citep  % Save \citep (in the case if it becomes redefined)
203
```

\xpdfcite A wrapper for \citep + \pdftooltip. It has the same syntax as \citep.

```
204
205 \let\xpdfcite\XCP@citetp
206 \robustify{\xpdfcite}
207
208 \AtBeginDocument{\nobibliography*} % Necessary to get bibentries.
209
210 \if@redefcite % Override \cite
211   \let\cite\xpdfcite
212   \robustify{\cite} % Required for, e.g., captions
213 \fi
214
```