Citations with PDF tooltips

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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$_\varepsilon$,

```
\documentclass[..]{...}
\usepackage[⟨options⟩]{xcpdftips}
```

where [⟨*options*⟩] is one of: `redefcite`, `ocg`, or `tcolorbox`.

The option `redefcite` replaces `natbib`'s `\cite` with `\xcpdfcite`.

The option `ocg` puts tooltips on PDF layers using OCG.

If `ocg` is used and `tcolorbox` is enabled, the package will use `\tcolorbox` instead of `\fcolorbox`.

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.

Package options   `redefcite`, `ocg`, `tcolorbox`

```
1 \newif\ifXCP@redefcite\XCP@redefcitefalse
2 \newif\ifXCP@useocg\XCP@useocgfalse
3 \newif\ifXCP@usetcolorbox\XCP@usetcolorboxfalse
4
5 \DeclareOption{redefcite}{\XCP@redefcitetrue}
6 \DeclareOption{ocg}{\XCP@useocgtrue}
7 \DeclareOption{tcolorbox}{\XCP@usetcolorboxtrue}
8
9 \ProcessOptions\relax
```

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

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

```
22 \newcommand{\XCP@tooltipbox}[3]{%
23   \fcolorbox{#1}{#2}%
24     {\parbox[t]{\columnwidth}{\normalfont\small #3}}%
25 }
26 \fi
27 \fi
```

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

```
28 \ifXCP@useocg
29
30 \RequirePackage{pdfbase,ocgbase}
31
32 \RequirePackage{expl3}
33 \RequirePackage{calc,linegoal}
34 \RequirePackage{xcolor}
35
36 % Check the required versions of pdfbase and ocgbase
37
38 \ExplSyntaxOn
39
40 \msg_set:nnnn{xcpdftips}{support~outdated}{
41   Support~package~'#1'~too~old.
42 }{
43   Get~an~up~to~date~version~of~'#1'.\\Aborting.
44 }
45 \@ifpackagelater{pdfbase}{2018/04/06}{}{
46   \msg_error:nnn{xcpdftips}{support~outdated}{pdfbase.sty}
47   \tex_endinput:D
48 }
49 \@ifpackagelater{ocgbase}{2018/04/06}{}{
50   \msg_error:nnn{xcpdftips}{support~outdated}{ocgbase.sty}
51   \tex_endinput:D
52 }
53
54 \let\XCP@pdfLink\pbs_pdflink:nn  % Alias for the pdflink from pdfbase
55
56 \ExplSyntaxOff
57
58 % Patch hyperref (make the PDF annotations OCG-aware)
59
60 \ifx\Hy@setpdfborder\undefined\else
61   \let\Hy@setpdfborderOrig\Hy@setpdfborder
62   \def\Hy@setpdfborder{\ocgbase@insert@oc\Hy@setpdfborderOrig}%
63 \fi
64
65 \newsavebox{\XCP@tipText} % Temporary savebox
66 \newlength{\XCP@hOffset} \setlength\XCP@hOffset{-0.1em}
67 \newlength{\XCP@vOffset} \setlength\XCP@vOffset{0.2ex}
68 \newlength{\XCP@lineGoal}
69
70 \NewDocumentCommand{\XCP@ocgtooltip}{%
71   m % link text
72   O{yellow!5} % tooltip box color
```

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

\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.

```
116 \newsavebox{\XCP@keynum} % Temp box for getting citation numbers using \citenum
117
118 \ExplSyntaxOn
119
120 \NewDocumentCommand{ \XCP@enumeratetips }%
121 { > { \SplitList , } m }%
122 {%
123   \global\undef\XCP@tips%
```

```
124    \global\undef\XCP@keys%
125    \tl_map_inline:nn {#1}%
126    {%
127      \ifx\XCP@tips\undefined%
128        \global\def\XCP@keys{}%
129        \sbox\XCP@keynum{\citenum{##1}}%
130        \expandafter\xdef\csname XCP@k@##1\endcsname{\NAT@num}%
131        \xappto{\XCP@keys}{\NAT@num}%
132        \global\def\XCP@tips{}%
133        \gappto{\XCP@tips}{[\textbf{\@nameuse{XCP@k@##1}}]\ %
134          {\@nameuse{BR@r@##1\@extra@b@citeb}}}%
135      \else%
136        \sbox\XCP@keynum{\citenum{##1}}%
137        \expandafter\xdef\csname XCP@k@##1\endcsname{\NAT@num}%
138        \xappto{\XCP@keys}{,\NAT@num}%
139        \gappto{\XCP@tips}{,\textCR[\textbf{\@nameuse{XCP@k@##1}}]\ %
140          {\@nameuse{BR@r@##1}}}%
141      \fi%
142    }%
143  }
144
145  \ExplSyntaxOff
```

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

```
146  \gdef\XCP@opt@author{{}}
147  \newcommand{\xcsetauthor}[1]{\gdef\XCP@opt@author{#1}}
```

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

```
148  \gdef\XCP@opt@markup{Underline}
149  \newcommand{\xcsetmarkup}[1]{\gdef\XCP@opt@markup{#1}}
```

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

```
150  \gdef\XCP@opt@color{1 1 0}
151  \newcommand{\xcsetcolor}[1]{\gdef\XCP@opt@color{#1}}
```

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

```
152  \gdef\XCP@opt@opacity{0}
153  \newcommand{\xcsetopacity}[1]{\gdef\XCP@opt@opacity{#1}}
```

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

```
154  \newcommand\XCP@citetp{\@ifnextchar[{\XCP@@citetp}{\XCP@@citetp[]}}
155
156  \newcommand\XCP@@citetp{}
157  \def\XCP@@citetp[#1]{\@ifnextchar[{\XCP@citex[#1]}{\XCP@citex[][#1]}}
```

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

```
158  \newcommand\XCP@citex{}
159  \gdef\XCP@citex[#1][#2]#3%
160    {%{\protect\NoHyper%
161      \ifXCP@useocg%
162        \let\textCR\par%
```

```
163       \XCP@enumeratetips{#3}%
164       \XCP@ocgtooltip%
165         {{{\protect\NoHyper\XCP@oldcite[#1][#2]{#3}\protect\endNoHyper}}}%
166         {\XCP@tips}%
167     \else%
168       \XCP@enumeratetips{#3}%
169       \pdftooltip{\XCP@oldcite[#1][#2]{#3}}{\XCP@tips}%
170       \pdfmarkupcomment[%
171         author=\XCP@opt@author,%
172         markup=\XCP@opt@markup,%
173         color=\XCP@opt@color,%
174         opacity=\XCP@opt@opacity,%
175       ]{\vphantom{.}}{\XCP@tips}%
176     \fi%
177   }%\protect\endNoHyper}}
178
179 \let\XCP@oldcite\citep  % Save \citep (in the case if it becomes redefined)
```

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

```
180 \let\xpdfcite\XCP@citetp
181 \robustify{\xpdfcite}
182
183 \AtBeginDocument{\nobibliography*} % Necessary to get bibentries.
184
185 \ifXCP@redefcite % Override \cite
186   \let\cite\xpdfcite
187   \robustify{\cite} % Required for, e.g., captions
188 \fi
```