Back referencing from bibliographical citations*

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†https://github.com/LaTeX-Package-Repositories/backref

1 Introduction

2 Usage

2.1 Options

The supported options are given as package options. Few options (e.g. `verbose`, `enable`, `disable`) can be changed after the package is loaded by the macro `\backrefsetup`, e.g.:

```
\usepackage[verbose]{backref}
\backrefsetup{verbose=false}
```

This macro is available since version 2012/07/24 v1.37.

2.1.1 Options for type of back references

In short the following options set the type of back references. Default is option `pageref`.

`ref`	section number
`pageref`	page number
`hyperref`	section number as hyper link
`hyperpageref`	page number as hyper link

The options that start with `hyper` are intended for the use with package `hyperref`. In this case package `backref` will be loaded automatically if the `hyperref` options `backref` or `pagebackref` are given. Package `hyperref` then loads package `backref` with the appropriate option:

`hyperref` option	`backref` option set by `hyperref`
`backref`	`hyperref`
`backref=section`	`hyperref`
`backref=slide`	`hyperref`
`backref=page`	`hyperpageref`
`pagebackref`	`hyperpageref`

2.1.2 Language options

Currently supported options are `english` (`american`, `australian`, `british`, `canadian`, `newzealand`, `UKenglish`, `USenglish`), `german` (`ngerman`, `austrian`, `naustrian`), `french` (`acadian`, `canadien`, `frenchb`, `francais`), `spanish`, and `brazil` (`brazilian`). Default is `english`.

2.1.3 Other options

`verbose`: A message is written into the `.aux` file for each reference that is found for back citing.

`enable`, `disable`: If a citation should not be back cited, then the recording can be turned off by option `disable` and enabled again afterwards, e.g.:

```
\backrefsetup{disable}\cite{...}\backrefsetup{enable}
```

or

```
\backrefsetup{disable}\listoffigures \backrefsetup{enable}
```

Both options are added in version 2012/07/24 v1.37.

2.2 Detecting the end of a bibliography entry

Package `backref` has to be able to detect the end of an entry in the bibliography, therefore each `\bibitem` entry must be ended by an empty line (or a `\par` token).

Example:

```
\begin{thebibliography}{9}
\bibitem[bib:abc] First entry.

\bibitem[bib:foo] Second entry.

\end{thebibliography}
```

Then package `backref` can automatically add hooks for the back references list at the end of the entries.

`\backrefparscanfalse` `\backrefparscantrue` Sometimes it is not appropriate if the entry is read as argument. For example, catcode changes for verbatim stuff do not have the desired effect. Therefore the scan for the `\par` token can be disabled by `\backrefparscanfalse` before `\bibitem` and enabled by `\backrefparscantrue` afterwards.

`\backrefprint` If the scan for the end of the entry is disabled, then package `backref` does not know where to put the back references list. The list is printed by the macro `\backrefprint`, thus just call it at the right place. Example:

```
\backrefparscanfalse % disable scan for entry ending
\bibitem[...]{...}
  ... \verb|...| ... % potentially dangerous stuff
  ... \url{...} ...
  \backrefprint      % print back reference list here
\backrefparscantrue  % enable scan again
```

2.3 Formatting of the back references list

The back references list is separated from the entry by `\newblock`, if the used bibliography package supports this. The package options control the kind of back references (page numbers, sections numbers), whereas the hooks control the formatting.

There are two hooks `\backref` and a new hook `\backrefalt`, available since version 1.21 of package `backref`. The former one is enabled by default.

2.3.1 Formatting hook `\backref`

Macro `\backref` has a a comma separated list of backref references as first and only argument. With hyperref options only this list will be printed. Without hyperref there is an introductory text, controlled by macros `\backrefpagesname` or `\backrefsectionsname`.

2.3.2 Formatting hook `\backrefalt`

`\backrefalt` is a new interface since version 1.21 of package `backref`. It takes four arguments:

1. Number of citations without dupes.
2. Back references list without dupes.
3. Number of all citations (with dupes).
4. Back reference list with all entries (with dupes).

The latter options consider equal entries as one entry. Now `\backrefalt` can easily be defined with text that depends on the number of citations, for example:

```
\usepackage[backref]{backref}
\renewcommand*{\backref}[1]{}% for backref < 1.33 necessary
\renewcommand*{\backrefalt}[4]{%
  \ifcase #1 %
    No citations.%
  \or
    One citation in section #2.%
  \else
    #1 citations in sections #2.%
  \fi
}
```

The separation between the list entries are controlled by the following macros:

- `\backrefsep`: inserted between entries except for the next cases, default is "`,␣`".
- `\backreftwosep`: inserted between entries in a list of two entries, default is "`␣and~`".
- `\backreflastsep`: inserted between the last two entries of a list with more than two entries, default is "`,␣and~`".

Examples:

⟨*entry1*⟩
⟨*entry1*⟩ `\backreftwosep` ⟨*entry2*⟩
⟨*entry1*⟩ `\backrefsep` ⟨*entry2*⟩ `\backreflastsep` ⟨*entry3*⟩

Since version 1.33 it is not necessary to redefine pages , it is automatically disabled if defined.

2.3.3 Refinement `\backrefentrycount`

Since version 1.33 the entries of the distinct list of interface `\backrefalt` are wrapped in `\backrefentrycount`. The macro is called with two arguments. The first is the backref entry and the second one the citation count of this entry. As default the macro passes the first argument through and ignores the count argument. But it can be redefined, e.g.

```
\renewcommand*{\backrefalt}[4]{...}% see above
\renewcommand*{\backrefentrycount}[2]{%
  #1%
  \ifnum#2>1 %
    ~(#2)%
  \fi
}
```

In case of duplicates, the distinct entry is appended by the number of citations in parentheses.

3 The macros

Internal command names of this package start with `\BR@`, commands, that store the original meaning of commands, which will be redefined, are prefixed with `\BRorg@`.

3.1 Package identification

```
1 ⟨*package⟩
```

3.2 Options

```
2 \RequirePackage{kvoptions}[2011/06/30]
3 \RequirePackage{kvsetkeys}[2009/07/30]
4 \SetupKeyvalOptions{%
5   family=backref,%
6   prefix=BR@,%
7 }
```

`\backrefsetup`

```
8 \newcommand*{\backrefsetup}{\kvsetkeys{backref}}
```

3.2.1 Option verbose

If package hyperref is loaded, then its setting is used as default for the verbose switch.

```
9 \DeclareBoolOption[%
10   \@ifundefined{ifHy@verbose}{%
11     false%
12   }{%
13     \ifx\ifHy@verbose\iftrue true\else false\fi
14   }%
15 ]{verbose}
```

3.2.2 Options for way of working

What is printed depends on how the 3 available items of information are used (page number, section number, label).

```
16 \long\def\page@backref#1#2#3{#1}
17 \long\def\section@backref#1#2#3{#2}
18 \long\def\hyper@section@backref#1#2#3{\hyperlink{#3}{#2}}
19 \long\def\hyper@page@backref#1#2#3{\hyperlink{page.#1}{#1}}
```

Now the options follows, that can be used without package hyperref.

```
\DeclareVoidOption{pageref}{%
  \def\backref{\backrefpagesname\ }%
  \let\backrefxxx\page@backref
}
\DeclareVoidOption{ref}{%
  \def\backref{\backrefsectionsname\ }%
  \let\backrefxxx\section@backref
}
```

Set up back-referencing to be hyper links, by page or section.

```
\DeclareVoidOption{hyperref}{%
  \def\backref{}\let\backrefxxx\hyper@section@backref
}
\DeclareVoidOption{hyperpageref}{%
  \def\backref{}\let\backrefxxx\hyper@page@backref
}
```

Recording the back references in the auxiliary file can be enabled and disabled by the following options.

```
\DeclareBoolOption[true]{enable}
\DeclareComplementaryOption{disable}{enable}
```

3.2.3 Language options

```
\def\backrefenglish{%
  \def\backrefpagesname{pages}%
  \def\backrefsectionsname{sections}%
  \def\backrefsep{, }%
  \def\backreftwosep{ and~}%
  \def\backreflastsep{, and~}%
}
\def\backrefgerman{%
  \def\backrefpagesname{Seiten}%
  \def\backrefsectionsname{Abschnitte}%
  \def\backrefsep{, }%
  \def\backreftwosep{ und~}%
  \def\backreflastsep{ und~}%
}
\def\backreffrench{%
  \def\backrefpagesname{pages}%
  \def\backrefsectionsname{sections}%
  \def\backrefsep{, }%
  \def\backreftwosep{ et~}%
  \def\backreflastsep{ et~}%
}
\def\backrefspanish{%
  \def\backrefpagesname{p\'aginas}%
  \def\backrefsectionsname{secciones}%
  \def\backrefsep{, }%
  \def\backreftwosep{ y~}%
  \def\backreflastsep{ y~}%
}
\def\backrefbrazil{%
  \def\backrefpagesname{p\'aginas}%
```

```
  \def\backrefsectionsname{se\c c\~oes}%
  \def\backrefsep{, }%
  \def\backreftwosep{ e~}%
  \def\backreflastsep{ e~}%
}
\def\backrefafrikaans{%
  \def\backrefpagesname{bladsye}%
  \def\backrefsectionsname{afdelings}%
  \def\backrefsep{, }%
  \def\backreftwosep{ en~}%
  \def\backreflastsep{ en~}%
}
\def\backrefitalian{%
  \def\backrefpagesname{pagine}%
  \def\backrefsectionsname{sezioni}%
  \def\backrefsep{, }%
  \def\backreftwosep{ e~}%
  \def\backreflastsep{ e~}%
}%
```

Instead of package babel's definition of `\addto` the implementation of package varioref is used. Additionally argument `#1` is checked for `\relax`.

```
\def\BR@addto#1#2{%
  #2%
  \@temptokena{#2}%
  \ifx#1\relax
    \let#1\@empty
  \fi
  \ifx#1\@undefined
     \edef#1{\the\@temptokena}%
  \else
     \toks@\expandafter{#1}%
     \edef#1{\the\toks@\the\@temptokena}%
  \fi
  \@temptokena{}\toks@\@temptokena
}
\def\BR@DeclareLang#1#2{%
  \begingroup
    \edef\x##1##2{%
      \noexpand\ifx##2\relax
        \errmessage{No definitions for language `#2' found!}%
      \noexpand\fi
      \endgroup
      \noexpand\DeclareVoidOption{#1}{%
        \noexpand\BR@addto{\noexpand##1}{\noexpand##2}%
      }%
    }%
  \expandafter\x\csname extras#1\expandafter\endcsname
                 \csname backref#2\expandafter\endcsname
}
\BR@DeclareLang{english}{english}
\BR@DeclareLang{american}{english}
\BR@DeclareLang{australian}{english}
\BR@DeclareLang{british}{english}
```

```
\BR@DeclareLang{canadian}{english}
\BR@DeclareLang{newzealand}{english}
\BR@DeclareLang{UKenglish}{english}
\BR@DeclareLang{USenglish}{english}
\BR@DeclareLang{german}{german}
\BR@DeclareLang{ngerman}{german}
\BR@DeclareLang{austrian}{german}
\BR@DeclareLang{naustrian}{german}
\BR@DeclareLang{french}{french}
\BR@DeclareLang{acadian}{french}
\BR@DeclareLang{canadien}{french}
\BR@DeclareLang{frenchb}{french}
\BR@DeclareLang{francais}{french}
\BR@DeclareLang{spanish}{spanish}
\BR@DeclareLang{brazil}{brazil}
\BR@DeclareLang{brazilian}{brazil}
\BR@DeclareLang{afrikaans}{afrikaans}
\BR@DeclareLang{italian}{italian}
```

Default is the english version:

```
\backrefenglish
```

3.2.4 Process options

```
\backrefsetup{pageref}
\ProcessKeyvalOptions*
```

`\BR@DisableOption`

```
\def\BR@DisableOption#1{%
  \DisableKeyvalOption[%
    action=warning,%
    package=backref,%
  ]{backref}{#1}%
}

\BR@DisableOption{ref}
\BR@DisableOption{pageref}
\BR@DisableOption{hyperref}
\BR@DisableOption{hyperpageref}
```

3.3 The bibliography

`\ifbackrefparscan`

```
\newif\ifbackrefparscan
\backrefparscantrue
```

`\ifBR@BackrefAlt`

```
\newif\ifBR@BackrefAlt
```

`\BR@bibitem`

```
\def\BR@bibitem{%
  \ifbackrefparscan
    \expandafter\@ifnextchar\expandafter[\expandafter
    \BR@@lbibitem\expandafter\BR@@bibitem
  \else
```

```
    \expandafter\@ifnextchar\expandafter[\expandafter
    \BR@@@lbibitem\expandafter\BR@@@bibitem
  \fi
}

\def\BR@@lbibitem[#1]#2#3\par{%
  \let\backrefprint\BR@backrefprint
  \BRorg@bibitem[{#1}]{#2}#3%
  \BR@backref{#2}%
}%
\def\BR@@bibitem#1#2\par{%
  \let\backrefprint\BR@backrefprint
  \BRorg@bibitem{#1}#2%
  \BR@backref{#1}%
}
\def\BR@@@lbibitem[#1]#2{%
  \def\backrefprint{\BR@backref{#2}}%
  \BRorg@bibitem[{#1}]{#2}%
}
\def\BR@@@bibitem#1{%
  \def\backrefprint{\BR@backref{#1}}%
  \BRorg@bibitem{#1}%
}
\def\BR@backrefprint{%
    \PackageError{backref}{%
      \string\backrefprint\space is only available after \string\bibitem
      \MessageBreak
      with setting \string\backrefparscanfalse
    }\@ehc
}
\let\backrefprint\BR@backrefprint
\def\BR@backref#1{%
  \newblock
  \begingroup
    \csname @safe@activestrue\endcsname
    \expandafter\providecommand\csname brc@#1\endcsname{0}%
    \expandafter\providecommand\csname brcd@#1\endcsname{0}%
    \csname @safe@activesfalse\expandafter\endcsname
    \ifBR@BackrefAlt
      \ifx\backrefentrycount\BR@BackrefEntryCountUnused
      \else
        \BR@PopulateEntryCount{#1}%
      \fi
      \expandafter\backrefalt\csname brc@#1\expandafter\endcsname
                             \csname brl@#1\expandafter\endcsname
                             \csname brcd@#1\expandafter\endcsname
                             \csname brld@#1\endcsname
    \else
      \expandafter\backref\csname br@#1\expandafter\endcsname
    \fi
  \endgroup
  \par
}
\@ifundefined{newblock}{\def\newblock{\par}}{}
```

```
\let\BR@Unused\@empty
\def\BR@BackrefAltUnused#1#2#3#4{\BR@Unused}
\@ifundefined{backrefalt}{%
  \let\backrefalt\BR@BackrefAltUnused
}{}
\def\BR@BackrefEntryCountUnused#1#2{\BR@Unused#1}
\@ifundefined{backrefentrycount}{%
  \let\backrefentrycount\BR@BackrefEntryCountUnused
}{}
```

3.4 Reading .brf file

`\backcite` The file `\jobname.brf` collects the back cite information as calls of `\backcite` with the information in the arguments.

The first argument of macro `\backcite` is the citation label, the second parameter contains the page number (`\thepage`), the current label of the citation (`\@currentlabel`), and the current anchor name (`\@currentHref`). Example for a citation at the first page in second section:

```
\backcite {bib:abc}{{1}{2}{section.2}}
```

While the file `\jobname.brf` is read, the information are collected and stored in macros whose names are built by the citation label ⟨*label*⟩:

`\br@`⟨*label*⟩	list, entries separated by comma without dupes
`\brc@`⟨*label*⟩	number of citations without dupes
`\brl@`⟨*label*⟩	backref list without dupes
`\brcd@`⟨*label*⟩	number of all citations (with dupes)
`\brld@`⟨*label*⟩	backref list with all entries (with dupes)

What are "dupes"? An instance: you have three references to an entry in the bibliography on the first page:

```
\backcite {bib:abc}{{1}{1}{section.1}}
\backcite {bib:abc}{{1}{1}{section.1}}
\backcite {bib:abc}{{1}{2}{section.2}}
```

Then the whole backref list with option `pageref` would print, e.g.:

> Entry for `bib:abc`. Cited on pages 1, 1, 1.

Without dupes the entries with the same page number would be removed, e.g.:

> Entry for `bib:abc`. Cited on page 1.

Also the third entry is removed, because it has the same page number. For the comparison only these pieces of information are considered that will be used later by `\backrefxxx`. With option `pageref` macro `\backrefxxx` becomes `\page@backref` that throws away the second and third argument and only uses the first argument with the page number. To be more precise, the first expansion of `\backrefxxx` is used in comparison. If some arguments are used here, but later omitted, then this will not be detected.

\backrefxxxdupe With option `hyperref` you will get two entries in the following example because the second entry differs in the link information, so the result will be the same section number, but as different links.

```
\backref {bib:abc}{{1}{1}{section.1}}
\backref {bib:abc}{{1}{1}{equation.1}}
```

Macro `\backrefxxxdupe` will be used in the comparison test if it is defined. Thus you can provide a definition in this case as follows:

```
\newcommand*{\backrefxxxdupe}[3]{#2}
```

Then only the section number is interpreted, but not the anchor name.

To avoid same entries, it is checked before, whether the entry already exists. Only the information needed by `\backrefxxx` is compared.

```
\def\backcite#1#2{%
  \@for\x:=#1\do{%
    \begingroup
      \csname @safe@activestrue\endcsname
      \edef\x{\endgroup
        \def\noexpand\x{\expandafter\@firstofone\x\@empty}%
      }%
    \x
```

Now macro `\x` contains the citation label name.

```
    \expandafter\ifx\csname br@\x\endcsname\relax
```

Initialization, fill in the first entry.

```
      \expandafter\protected@xdef\csname br@\x\endcsname{%
        \protect\backrefxxx#2%
      }%
      \ifBR@BackrefAlt
        \global\expandafter\let\csname brl@\x\expandafter\endcsname
                        \csname br@\x\endcsname
        \global\expandafter\let\csname brld@\x\expandafter\endcsname
                        \csname br@\x\endcsname
        \expandafter\gdef\csname brc@\x\endcsname{1}%
        \expandafter\gdef\csname brcd@\x\endcsname{1}%
      \fi
    \else
```

Fill in further entry. But check for dupe first.

```
      \begingroup
        \@ifundefined{backrefxxxdupe}{}{\let\backrefxxx\backrefxxxdupe}%
        \expandafter\def\expandafter\reserved@a\expandafter{%
          \backrefxxx#2%
        }%
        \let\BRorg@backrefxxx\backrefxxx
        \global\let\BR@found=N%
        \long\def\backrefxxx##1##2##3{%
          \expandafter\def\expandafter\reserved@b\expandafter{%
            \BRorg@backrefxxx{##1}{##2}{##3}%
          }%
          \ifx\reserved@a\reserved@b
            \global\let\BR@found=Y%
```

```
          \fi
        }%
        \setbox\@tempboxa\hbox{\csname br@\x\endcsname}%
      \endgroup
      \let\backrefsep\relax
      \def\backreftwosep{\backrefsep}%
      \def\backreflastsep{\backrefsep}%
      \if N\BR@found
        \expandafter\protected@xdef\csname br@\x\endcsname{%
          \csname br@\x\endcsname, %
          \protect\backrefxxx#2%
        }%
        \ifBR@BackrefAlt
          \expandafter\protected@xdef\csname brl@\x\endcsname{%
            \csname brl@\x\endcsname
            \ifnum\@nameuse{brc@\x}=1 %
              \noexpand\backreftwosep
            \else
              \noexpand\backreflastsep
            \fi
            \protect\backrefxxx#2%
          }%
          \count@=\@nameuse{brc@\x}\relax
          \advance\count@ by 1 %
          \expandafter\xdef\csname brc@\x\endcsname{\the\count@}%
        \fi
      \fi
      \ifBR@BackrefAlt
        \expandafter\protected@xdef\csname brld@\x\endcsname{%
          \csname brld@\x\endcsname
          \ifnum\@nameuse{brcd@\x}=1 %
            \noexpand\backreftwosep
          \else
            \noexpand\backreflastsep
          \fi
          \protect\backrefxxx#2%
        }%
        \count@=\@nameuse{brcd@\x}\relax
        \advance\count@ by 1 %
        \expandafter\xdef\csname brcd@\x\endcsname{\the\count@}%
      \fi
    \fi
  }%
}
```

\BR@PopulateEntryCount

```
\def\BR@PopulateEntryCount#1{%
  \begingroup
    \toks@{}%
    \def\backrefsep{%
      \toks@\expandafter{\the\toks@\backrefsep}%
    }%
    \def\backreftwosep{%
      \toks@\expandafter{\the\toks@\backreftwosep}%
```

```
    }%
    \def\backreflastsep{%
      \toks@\expandafter{\the\toks@\backreflastsep}%
    }%
    \def\protect{}%
    \let\BR@backrefxxx\backrefxxx
    \let\backrefxxx\BR@PopulateBackrefxxx
    \def\BR@name{#1}%
    \csname brl@#1\endcsname
    \expandafter\xdef\csname brl@#1\endcsname{\the\toks@}%
  \endgroup
}
```

\BR@PopulateBackrefxxx

```
\def\BR@PopulateBackrefxxx#1#2#3{%
  \expandafter\def\expandafter\BR@tempa\expandafter{%
    \BR@backrefxxx{#1}{#2}{#3}%
  }%
  \begingroup
    \count@=\z@
    \def\backrefsep{}%
    \def\backreftwosep{}%
    \def\backreflastsep{}%
    \let\backrefxxx\BR@@PopulateBackrefxxx
    \csname brld@\BR@name\endcsname
    \toks\tw@={\backrefxxx{#1}{#2}{#3}}%
    \edef\x{\endgroup
      \toks@{%
        \the\toks@
        \noexpand\backrefentrycount{%
          \the\toks\tw@
        }{\the\count@}%
      }%
    }%
  \x
}
```

\BR@@PopulateBackrefxxx

```
\def\BR@@PopulateBackrefxxx#1#2#3{%
  \expandafter\def\expandafter\BR@tempb\expandafter{%
    \BR@backrefxxx{#1}{#2}{#3}%
  }%
  \ifx\BR@tempa\BR@tempb
    \advance\count@\@ne
  \fi
}
```

3.5 Initialization

```
\def\@currentHref{}
\AtBeginDocument{%
  \let\BRorg@bibitem\bibitem
  \let\bibitem\BR@bibitem
  \let\BRorg@thebibliography\thebibliography
```

```
  \def\thebibliography{%
    \BR@starttoc
    \BRorg@thebibliography
  }%
  \@ifundefined{NAT@parse}{%
    \global\let\BRorg@citex\@citex
    \global\let\@citex\BR@citex
  }{%
    \@ifpackageloaded{hyperref}{}{%
      \def\hyper@natlinkstart#1{\Hy@backout{#1}}%
    }%
    \PackageInfo{backref}{** backref set up for natbib **}%
  }%
}
```

\BR@starttoc

```
\def\BR@starttoc{%
  \ifx\backrefalt\BR@BackrefAltUnused
    \global\BR@BackrefAltfalse
  \else
    \global\BR@BackrefAlttrue
  \fi
  \begingroup
    \makeatletter
    \@input{\jobname.brf}%
    \if@filesw
      \@ifundefined{tf@brf}{%
        \expandafter\newwrite\csname tf@brf\endcsname
      }{}%
      \@ifundefined{tf@brf@open}{%
        \BR@RerunFileCheck
        \immediate\openout\csname tf@brf\endcsname\jobname.brf\relax
        \gdef\tf@brf@open{}%
      }{}%
    \fi
    \@nobreakfalse
  \endgroup
}
```

3.6 Collecting back cite information

\BR@citex

```
\def\BR@citex[#1]#2{%
  \BRorg@citex[{#1}]{#2}%
  \Hy@backout{#2}%
}
```

Grr. for chicago.sty

```
\@ifpackageloaded{chicago}{%
  \let\BRorg@citedatax\@citedatax
  \def\@citedatax[#1]#2{%
    \BRorg@citedatax[{#1}]{#2}%
    \Hy@backout{#2}%
  }%
```

```
}{}
```

`\Hy@backout`

```
\def\Hy@backout#1{%
  \@bsphack
  \ifBR@enable
    \ifBR@verbose
      \PackageInfo{backref}{Back cite \string`#1\string'}%
    \fi
    \ifx\@empty\@currentlabel
      \protected@write\@auxout{}{%
        \string\@writefile{brf}{%
          \string\backcite{#1}{{\thepage}{(document)}{Doc-Start}}%
        }%
      }%
    \else
     \protected@write\@auxout{}{%
       \string\@writefile{brf}{%
         \string\backcite{#1}{{\thepage}{\@currentlabel}{\@currentHref}}%
       }%
     }%
    \fi
  \else
    \ifBR@verbose
      \PackageInfo{backref}{Disabled back cite \string`#1\string'}%
    \fi
  \fi
  \@esphack
}
```

3.7 Rerun warning

`\BR@RerunFileCheck` The following code computes a MD5 sum and the file size of the `.brf` file at the begin and the end of the document and compares them. A rerun warning is given, if they do not match. This method requires pdfTEX or LuaTEX. The method fails, if the MD5 sum and the file size are the same for a changed `.brf` file (it's probably very seldom).

```
\RequirePackage{rerunfilecheck}[2009/12/10]
\def\BR@RerunFileCheck{%
  \RerunFileCheck{\jobname.brf}{%
    \@ifundefined{tf@brf@open}{%
    }{%
      \immediate\closeout\tf@brf
    }%
  }{%
    Rerun to get bibliographical references right%
  }%
}
```

⟨/package⟩

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