

# New Multibibliography Package\*

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## Abstract

The `nmbib` package is a rewrite of `multibibliography` package providing multiple bibliographies with different sorting. The new version offers a number of citation commands, streamlines the creation of bibliographies, ensures compatibility with the `natbib` package, and provides other improvements.

## Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>User Guide</b>	<b>3</b>
2.1	Usage Summary . . . . .	3
2.2	Options . . . . .	3
2.3	Setting up . . . . .	3
2.4	Citation commands . . . . .	4
2.5	Printing the bibliographies . . . . .	5
2.6	Hyperlinks . . . . .	5
2.7	Advanced customization . . . . .	5
2.8	Auxillary script . . . . .	7
<b>3</b>	<b>Implementation</b>	<b>8</b>
3.1	Declarations . . . . .	8
3.2	Loading packages . . . . .	8
3.3	Preliminary Definitions and opening aux files . . . . .	8
3.4	Citation commands . . . . .	9
3.5	Processing bibliography . . . . .	16
3.6	Ending the Style . . . . .	18

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# 1 Introduction

The list of cited works accompanying a scholarly work is not just a technical appendix or a subtle way to avoid accusations of plagiarism. Rather, it is an organic part of the work, telling the user a story about the field of study and showing why the given work is an organic part of it. There are several ways to tell the story, and accordingly there are several ways to organize the list of references. One can tell it accordingly to logical development of ideas, so the order of citations follows the order they are mentioned in the paper. This leads to the “unsorted” style of references, usual in physics and mathematics papers and books. Alternatively, one can choose to tell the story as the story of people behind the ideas, ordering the citations alphabetically by author names. This is the order used in humanities and other fields. Yet another possibility is to tell the story in the chronological order. The chronological order of citations is not widely used, with the important exception of resumes and CVs, but it has its own advantages.

In the times BC (Before Computers), difficulties in manual creation of reference lists discouraged presentation of more than one such list. Now we can easily have as many lists as we want. Accordingly we can have not one, but several lists of references, each telling a different story. The package `multibibliography` (Cohen et al., 2013a,b) provided just this: multiple bibliographies with the same references arranged in different orders, with hyperlinks between entries. However, this package had various limitations, including: the fixed format of typesetting citations in text, the limitation on the possible BibTeX styles. Also, it requires post-processing by a Perl script.

This package tries to lift these limitations. It provides the following improvements over the original `multibibliography`:

1. A Perl postprocessing is no longer needed: all processing is done by BibTeX.
2. The user can work with familiar `natbib` (Daly, 2009) commands `\citep`, `\citet`, `\citeauthor`, `\citeyear`, `\citenum`.
3. Any `natbib`-compatible `.bst` file can be used for formatting the bibliography provided that it has the right sorting of entries (note that the provided style gives `natbib`-compatible chronological ordering).
4. The style is much more customizable than that produced by `multibibliography`.
5. Hyperlinks between the entries are improved.

Note about the name. The letter  $n$  in the package name can be interpreted as

1. New multibibliography style, or
2. Natbib-compatible multibibliography style, or even
3.  $N$ -ordering multibibliography style, with  $N$  being a usual mathematical moniker for “many”.

## 2 User Guide

### 2.1 Usage Summary

The simplest way to use the package is the following:

1. Add to the preamble of your `.tex` file

```
\usepackage{nmbib}  
\multibibliography{FILE1, FILE2, ...}  
\multibibliographystyle{timeline}{STYLE1}  
\multibibliographystyle{sequence}{STYLE2}  
\multibibliographystyle{authors}{STYLE3}
```

2. Use `natbib` commands such as `\cite`, `\citep`, `\citet`, `\citeauthor`, `\citeyear`, and `\citenum`. The command `\citeall` creates a “full citation”, showing the author, year, and number of the citation.
3. Put in your document at the places where you want the bibliography the commands `\printbibliography{timeline}`, `\printbibliography{sequence}`, and `\printbibliography{authors}`.
4. Run `latex` on the `tex` file. This will create, besides the standard auxiliary file `FILE.aux`, three new files: `FILE-timeline.aux`, `FILE-sequence.aux` and `FILE-authors.aux`.
5. Run `bibtex` on each of the three auxiliary files mentioned above:

```
bibtex FILE-timeline  
bibtex FILE-sequence  
bibtex FILE-authors
```

6. Run `latex` on the `tex` file at least twice (this is a `natbib` requirement).

Below we discuss these commands in more detail as well as customization commands.

### 2.2 Options

The `nmbib` package internally uses `natbib` (Daly, 2009) for citation formatting. The options used for `nmbib` are sent to `natbib`.

### 2.3 Setting up

`\multibibliography` The list of  $\text{\LaTeX}$  databases to be used for references is set by the command `\multibibliography{<bibfile1, bibfile2, ...>}`. Note that the similar command `\bibliography` in standard  $\text{\LaTeX}$  performs *two* functions: it sets up the databases

and prints the bibliography. The command `\multibibliography`, on the other hand, performs only one function: the setting up of the databases. The bibliographies themselves are printed by the command `\printbibliography`, discussed below. Therefore the `\multibibliography` command can be issued anywhere in the file, including the preamble.

`\multibibliographystyle`

The standard `\bibliographystyle` command sets the bibliography style of the reference list. Since `nmbib` generates several bibliographies, the corresponding command is more versatile: `\multibibliographystyle{<type>}{<style>}`, where `type` is the type of the bibliography

**timeline:** Chronologically ordered list.

**sequence:** Sequentially ordered list.

**authors:** Alphabetic list, ordered according to authors' names.

and `{<style>}` is the corresponding BIB<sub>T</sub>E<sub>X</sub> style. The style, of course, must sort the entries in the proper order.

The package can accommodate any `natbib` BIB<sub>T</sub>E<sub>X</sub> style, including `unsrtnat`, `plainnat`, and `abbrvnat`. It may work with other styles, but success is not guaranteed. The BIB<sub>T</sub>E<sub>X</sub> styles supplied with the package offer additional hyperlink features; if you do not use `hyperref` or do not care for the links between the different reference lists, you probably do not need these features.

There are three citation styles provided with the package:

**chronoplainmm:** Similar to `plainnat`, but sorting entries in chronological order (using year, month and day if the latter two are available) and providing links to other lists from the body of the entries.

**plainmm:** Similar to `plainnat`, but providing links to other lists from the body of the entries. The sorting is alphabetical by authors' names, as in `plainnat`.

**unsrtnm:** Similar to `unsrtnat`, but providing links to other lists from the body of the entries. The order of entries is the order of citations, as in `unsrtnat`.

## 2.4 Citation commands

All citations commands defined in `natbib` can be used: `\cite`, `\citenum`, `\citealt`, `\citet`, `\Citet`, etc. The `nmbib` package adds a couple of new commands, described here.

`\citealn` The commands `\citealn{<keys>}` is the alternative `\citenum` command: it puts square brackets around its argument.

`\citeall` The command `\citeall{<keys>}` produces citations with authors' names, years, and sequence numbers, similar to that produced by the `\cite` command in the `multibibliography` package. To reproduce the behavior of that package, just put in the preamble of your document

```
\let\cite\citeall
```

The starred command `\citeall*` is similar to `\citeall` with the following difference: if `\citeall` prints the shortened author list for papers with multiple authors (“Jones et. al.”), `\citeall*` prints the full list (“Jones, Smith, and Brown”).

## 2.5 Printing the bibliographies

`\printbibliography` The command `\printbibliography{<type>}` prints the bibliography. The argument is the type of bibliography— `timeline`, `sequence`, or `authors` (see the explanation above).

You can put this command anywhere in your file; the corresponding bibliography will be printed in this place. You can use all three possible lists, any two, or even one. The only limitation is that the “base type” list must be included. (See Section 2.7 for the discussion of base type.)

## 2.6 Hyperlinks

The `nmbib` package tries to fully exploit features of `hyperref` package (Rahtz and Oberdiek, 2012). Links from and between citations should work “smartly”: links from authors’ names go into the alphabetic list, links from the publication years go into the chronological list, and links from the citation numbers go into the sequential list.

`\nmbibRedirectLinks` Of course, the user might include only some of the three possible lists. In this case some links become “dangling.” The command `\nmbibRedirectLinks{<source_type>}{<target_type>}` redirects the links that otherwise go to the list `{<source_type>}` to the list `{<target_type>}`. For example, if a chronological list is not included, the command `\nmbibRedirectLinks{timeline}{authors}` makes the links from the publication year go into the alphabetical list of publications.

`\nmbibLink` The clickable links themselves are created with the help of the command `\nmbibLink{<citation>}{<type>}{<text>}`. This command is available to the user, which enables constructions like

The idea was proposed by `\citet{Thor10}`. Note the assumption of differentiability in `\nmbibLink{Thor10}{authors}{his paper}`.

In this example “his paper” becomes a hyperlink to the paper in the alphabetical list.

The links created with `\nmbibLink` respect the redirections set by the command `\nmbibRedirectLinks`.

## 2.7 Advanced customization

`\timelinerefname` The commands `\refname` (for article-like classes) and `\bibname` (for book-like classes) retain the names of the bibliography. The `nmbib` package defines `\sequencerefname` three macros `\TYPErefname` and three commands `\TYPEbibname`, `TYPE` being `\timelinebibname` `\sequencebibname` `\authorsbibname`

`timeline`, `sequence`, or `authors`. These macros can be redefined with the usual `\renewcommand`. For example, for a German article, one might use

```
\renewcommand{\timelinerefname}{Chronologische Referenzliste}
\renewcommand{\sequencerefname}{Sequenzielle Referenzliste}
\renewcommand{\authorsrefname}{Alphabetische Referenzliste}
```

`\multibibliographyfilename`

By default the package creates three auxillary files with the following file names: `FILE-timeline.aux`, `FILE-sequence.aux`, and `FILE-authors.aux`. The command `\multibibliographyfilename{<type>}{<name>}` changes this default. Here `{<type>}` is `timeline`, `sequence`, or `authors`, and `{<name>}` is the file name. The default setting is equivalent to

```
\multibibliographyfilename{timeline}{\jobname-timeline}
\multibibliographyfilename{sequence}{\jobname-sequence}
\multibibliographyfilename{authors}{\jobname-authors}
```

This command may be present only in the preamble of a document.

`\nmbibBasetype`

Suppose an author published several works in the same year. They need to be distinguished in the text and bibliography. In the standard author-year styles this is done by adding a suffix after the year: if we want to cite three works by A. U. Thor published in 2013, they are respectively cited as Thor (2013a), Thor (2013b), and Thor (2013c). When we have only one reference list, the choice of suffixes is simple: the first work becomes 2013a, the second 2013b, etc. But how should we deal with the situation of several subbibliographies? The order of these references in different lists could be different, so the same work could get different labels in different lists.

To prevent this confusion, only one reference list is used to construct the labels. We call the corresponding list type the *base type*. By default it is `sequence`, but this might be changed (and should be changed if the user does not include sequential list) with the command `\nmbibBasetype{<type>}`, with `{<type>}` being `timeline`, `sequence`, or `authors`. The list chosen as a base type must be included with the `\printbibliography` macro.

Package `natbib` defines citation aliases: you can use “Paper I” or “Paper II” as aliases for some papers. Normally hyperlinks from aliases go into the alphabetic list; however, you can change it with the special type `alias` in `\nmbibRedirectLinks`, for example,

```
\nmbibRedirectLinks{alias}{timeline}
```

`\nmbibSetCiteall`

The format of the `\citeall` and `\citeall*` macros can be changed by the command `\nmbibSetCiteall{<pattern>}`, where `{<pattern>}` sets the citation format. The pattern can use any punctuation, `\nmbibLink` command and the special tokens `\nmbibKEY`, `\nmbibNAME`, `\nmbibDATE` and `\nmbibNUM`, which are substituted by the citation information. For example, the default format is established by the command

```
\nmbibSetCiteall{\nmbibLink{\nmbibKEY}{authors}{\nmbibNAME}
(\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE})}
[\nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}
```

which produces the following result: [Daly \(2009\) \[3\]](#).

`\nmbibSetBiblabeled` The command `\nmbibSetBiblabeled{<type>}{pattern}` is used to set the format of the label in the reference list of the given type. The `{<pattern>}` parameter uses the same tokens as `\nmbibSetCiteall`. The default is

```
\nmbibSetBiblabeled{timeline}{[\nmbibDATE:
\nmbibLink{\nmbibKEY}{authors}{\nmbibNAME};
\nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}
\nmbibSetBiblabeled{authors}{[\nmbibNAME\
(\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE})};
\nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}
\nmbibSetBiblabeled{sequence}{[\nmbibNUM:
\nmbibLink{\nmbibKEY}{authors}{\nmbibNAME}
(\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE})]}
```

To suppress the label for any type, use an empty pattern: `\nmbibSetBiblabeled{authors}{}`.

To use numerical labels only for a sequential list, issue `\nmbibSetBiblabeled{sequence}{[\nmbibNUM]}` etc.

`nmbibYearSuffixOff` If there are several works with the same authors and year, the package adds  
`nmbibYearSuffixOn` suffixes to the year numbers, like 2003a and 2003b. By default these suffixes are printed both in the labels *and* in the bibliographic entries themselves. The command `\nmbibYearSuffixOff` deletes these suffixes from the bibliography entries (but not from labels). The command `\nmbibYearSuffixOff` restores them.

## 2.8 Auxillary script

To integrate the package with IDEs like T<sub>E</sub>XShop, we provide a simple script `nmbibtex` which compiles all bibliographies. Its usage is very simple:

```
nmbibtex FILE
```

where `FILE` is the file name without prefixes.

## 3 Implementation

### 3.1 Declarations

We start with declaration, who we are:

```
1 \NeedsTeXFormat{LaTeX2e}
2 \gobble
3 \ProvidesFile{nmbib.dtx}
4 \gobble
5 \style\ProvidesPackage{nmbib}
6 \style
7 [2015/07/25 v1.03 Multibibliography support for LaTeX]
```

### 3.2 Loading packages

We send all options to `natbib`

```
8 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{natbib}}
9 \ProcessOptions\relax
```

and call `natbib`

```
10 \RequirePackage{natbib}
```

### 3.3 Preliminary Definitions and opening aux files

`\NMBIB@types` The comma-separated collection of types: right now we have three of them.

```
11 \def\NMBIB@types{timeline,sequence,authors}
```

`\multibibliographyfilename` Defining the names for bibliography files

```
12 \def\multibibliographyfilename#1#2{%
13   \expandafter\edef\csname NMBIB@#1@filename\endcsname{#2}}
14 \onlypreamble{\multibibliographyfilename}
```

`\NMBIB@@timeline@filename` The file names for aux files (without `.aux` extension)

```
\NMBIB@@sequence@filename 15 \@for\@tempa:=\NMBIB@types\do{%
\NMBIB@@authors@filename 16   \expandafter\multibibliographyfilename{\@tempa}{\jobname-\@tempa}}
```

`\NMBIB@timeline@aux` We introduce the output streams

```
\NMBIB@sequence@aux 17 \@for\@tempa:=\NMBIB@types\do{%
\NMBIB@authors@aux 18   \expandafter\newwrite\csname NMBIB@\@tempa @aux\endcsname}
```

We open and close them at the beginning and end of the document

```
19 \AtBeginDocument{%
20   \if@files
21   \@for\@tempa:=\NMBIB@types\do{%
22     \immediate\openout\csname NMBIB@\@tempa @aux\endcsname
23     \csname NMBIB@\@tempa @filename\endcsname.aux
24     \immediate\write\csname NMBIB@\@tempa @aux\endcsname{\relax}}%
25   \fi}
26 \AtEndDocument{%
```



```

27 \if@filesw
28 \@for\@tempa:=\NMBIB@types\do{%
29 \immediate\closeout\csname NMBIB@\@tempa @aux\endcsname}%
30 \fi}

```

`\multibibliographystyle` Define the bibliographystyle for the corresponding list. Note the trick with `\@begindocumenthook`, which allows us to write the files only after the files are opened.

```

31 \def\multibibliographystyle#1#2{%
32 \ifx\@begindocumenthook\@undefined\else
33 \expandafter\AtBeginDocument
34 \fi
35 {\if@filesw
36 \immediate\write\csname NMBIB@#1@aux\endcsname{%
37 \string\bibstyle{#2}}%
38 \fi}}

```

`\multibibliography` Writing bibliography data to the aux files

```

39 \def\multibibliography#1{%
40 \ifx\@begindocumenthook\@undefined\else
41 \expandafter\AtBeginDocument
42 \fi
43 {\if@filesw
44 \@for\@tempa:=\NMBIB@types\do{%
45 \immediate\write\csname NMBIB@\@tempa @aux\endcsname
46 {\string\bibdata{#1}}}%
47 \fi}}

```

`\nmbibBasetype` The macro `\nmbibBasetype` sets the type that is used for the citation command:

```

\NMBIB@bibcite@type 48 \def\nmbibBasetype#1{\gdef\NMBIB@bibcite@type{#1}}
49 \nmbibBasetype{sequence}

```

`\NMBIB@timeline@cite@suffix` The macro `\NMBIB@TYPE@cite@suffix` keeps the suffix added to the hyperlink  
`\NMBIB@sequence@cite@suffix` cite:

```

\NMBIB@authors@cite@suffix 50 \@for\@tempa:=\NMBIB@types\do{%
\NMBIB@alias@cite@suffix 51 \expandafter\edef\csname NMBIB@\@tempa
52 @cite@suffix\endcsname{\@tempa}
53 \def\NMBIB@alias@cite@suffix{authors}

```

`\nmbibRedirectLinks` The macro `\nmbibRedirectLinks{<from>}{<to>}` redefines the suffix:

```

54 \def\nmbibRedirectLinks#1#2{%
55 \expandafter\edef\csname NMBIB@#1@cite@suffix\endcsname{#2}}

```

### 3.4 Citation commands

`\NAT@set@cites` The command `\NAT@set@cites` is used by `natbib` to set up citation styles. It is added to the `begindocument` hook, so we need to disable it here:

```

56 \def\NAT@set@cites{}

```

```

57 \let\@cite\NAT@cite
58 \let\@citex\NAT@citex
59 \let\@biblabel\NAT@biblabel
60 \let\@bibsetup\NAT@bibsetup
61 \let\NAT@space\NAT@spacechar
62 \let\NAT@penalty\@empty
63 \renewcommand\NAT@idxtxt{\NAT@name\NAT@spacechar\NAT@open\NAT@date\NAT@close}
64 \def\natexlab#1{#1}

\ifNMBIB@printyearsuffix Whether to print the year suffix
65 \newif\ifNMBIB@printyearsuffix
66 \NMBIB@printyearsuffixtrue

\nmbibYearSuffixOn Switching on the suffixes
67 \def\nmbibYearSuffixOn{\NMBIB@printyearsuffixtrue}

\nmbibYearSuffixOff Switching off the suffixes
68 \def\nmbibYearSuffixOff{\NMBIB@printyearsuffixfalse}

\NAT@sort@cites The command \NAT@sort@cites sorts the citations and writes them to the aux
file. We want to write them to another file instead.
69 \renewcommand\NAT@sort@cites[1]{%
70   \let\NAT@cite@list\@empty
71   \@for\@citeb:=#1\do{\expandafter\NAT@star@cite\@citeb\@@}%
72   \if@files
73     \@for\@tempa:=\NMBIB@types\do{%
74       \expandafter\immediate\expandafter\write\expandafter
75       \csname NMBIB@\@tempa @aux\endcsname
76       \expandafter{\expandafter\string\expandafter\citation\expandafter{\NAT@cite@list}}}%
77   \fi
78   \@ifnum{\NAT@sort>\z@}{%
79     \expandafter\NAT@sort@cites@\expandafter{\NAT@cite@list}%
80   }{}%
81 }%

\nmbibcitenumber This command is written to the main aux file and contains the number of the cita-
tion (since different lists may produce different numbers). We store the number in
the macro \nmbib@num@KEY\@extra@binfo. We also use natbib warnings about
multiple citations.
82 \def\nmbibcitenumber#1#2{%
83   \@ifundefined{nmbib@num@#1\@extra@binfo}{\relax}{%
84     \NAT@citemultiple
85     \PackageWarningNoLine{natbib}{Citation ‘#1’ multiply defined}%
86   }%
87   \global\@namedef{nmbib@num@#1\@extra@binfo}{#2}}
88 \AtEndDocument{\let\nmbibcitenumber\NMBIB@testnum}

\NMBIB@testnum Testing whether citation number have been changed.
89 \newcommand\NMBIB@testnum[2]{%

```

```

90 \def\NAT@temp{#2}%
91 \expandafter \ifx \csname nmbib@num@#1\@extra@binfo\endcsname\NAT@temp
92 \else
93 \ifNAT@swa \NAT@swafalse
94 \PackageWarningNoLine{natbib}{%
95 Citation(s) may have changed.\MessageBreak
96 Rerun to get citations correct%
97 }%
98 \fi
99 \fi
100 }%

```

**\NAT@parse** The `natbib` command `\NAT@parse` parses the `\bibcite` arguments and stores them in the corresponding macros. However, the citation number may be wrong since it might be taken from a wrong list. Therefore we use the number from `\nmbibcitenum` instead.

```

101 \let\NAT@parse@orig=\NAT@parse\relax
102 \renewcommand\NAT@parse[1]{\NAT@parse@orig{#1}%
103 \ifundefined{nmbib@num@#1\@extra@binfo}{\def\NAT@num{0}}{%
104 \edef\NAT@num{\csname nmbib@num@#1\@extra@binfo\endcsname}}}

```

**\nmbibLink** The command `\nmbibLink{<key>}{<type>}{<text>}` is like `\NAT@hyper@`, but on the user level:

```

105 \def\nmbibLink#1#2#3{%
106 \hyper@natlinkstart{#1\@extra@b@citeb-\csname
107 NMBIB@#2@cite@suffix\endcsname}#3\hyper@natlinkend}

```

**\NAT@citexnum** We use `\NAT@citexnum` to cite numbers:

```

108 \def\NAT@citexnum[#1][#2]#3{%
109 \NAT@reset@parser
110 \NAT@sort@cites{#3}%
111 \NAT@reset@citea
112 \@cite{\def\NAT@num{-1}\let\NAT@last@yr\relax\let\NAT@nm\@empty
113 \@for\@citeb:=\NAT@cite@list\do
114 {\@safe@activetrue
115 \edef\@citeb{\expandafter\@firstofone\@citeb\@empty}%
116 \@safe@activesfalse
117 \@ifundefined{b@\@citeb\@extra@b@citeb}{%
118 {\reset@font\bfseries?}
119 \NAT@citeundefined\PackageWarning{natbib}{%
120 {Citation ‘\@citeb’ on page \thepage \space undefined}}%
121 {\let\NAT@last@num\NAT@num\let\NAT@last@nm\NAT@nm
122 \NAT@parse{\@citeb}%
123 \ifNAT@longnames\ifundefined{bv@\@citeb\@extra@b@citeb}{%
124 \let\NAT@name=\NAT@all@names
125 \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}}%
126 \fi
127 \ifNAT@full\let\NAT@nm\NAT@all@names\else
128 \let\NAT@nm\NAT@name\fi

```

```

129 \ifNAT@swa
130 \@ifnum{\NAT@ctype>\@ne}{%
131 \citea
132 \NMBIB@hyper@{alias}{\@ifnum{\NAT@ctype=\tw@}{\NAT@test{\NAT@ctype}}{\NAT@alias}}%
133 }{%
134 \@ifnum{\NAT@cmprs>\z@}{%
135 \NAT@ifcat@num\NAT@num
136 {\let\NAT@nm=\NAT@num}%
137 {\def\NAT@nm{-2}}%
138 \NAT@ifcat@num\NAT@last@num
139 {\@tempcnta=\NAT@last@num\relax}%
140 {\@tempcnta\m@ne}%
141 \@ifnum{\NAT@nm=\@tempcnta}{%
142 \@ifnum{\NAT@merge>\@ne}{\NAT@last@yr@mbox}%
143 }{%
144 \advance\@tempcnta by\@ne
145 \@ifnum{\NAT@nm=\@tempcnta}{%
146 \ifx\NAT@last@yr\relax
147 \def\NAT@last@yr{\citea}%
148 \else
149 \def\NAT@last@yr{--\NAT@penalty}%
150 \fi
151 }{%
152 \NAT@last@yr@mbox
153 }%
154 }%
155 }{%
156 \@tempswatrue
157 \@ifnum{\NAT@merge>\@ne}{\@ifnum{\NAT@last@num=\NAT@num\relax}{\@tempswafalse}{}}{%
158 \if@tempswa\NAT@citea@mbox\fi
159 }%
160 }%
161 \NAT@def@citea
162 \else
163 \ifcase\NAT@ctype
164 \ifx\NAT@last@nm\NAT@nm \NAT@yrsep\NAT@penalty\NAT@space\else
165 \citea \NAT@test{\@ne}\NAT@spacechar\NAT@mbox{\NAT@super{kern}\NAT@@open}%
166 \fi
167 \if*#1*\else#1\NAT@spacechar\fi
168 \NAT@mbox{\NMBIB@hyper@{sequence}{\citenumfont{\NAT@num}}}%
169 \NAT@def@citea@box
170 \or
171 \NMBIB@hyper@citea@space{sequence}{\NAT@test{\NAT@ctype}}%
172 \or
173 \NAT@hyper@citea@space{sequence}{\NAT@test{\NAT@ctype}}%
174 \or
175 \NAT@hyper@citea@space{alias}{\NAT@alias}%
176 \fi
177 \fi
178 }%

```

```

179 }%
180 \ifnum{\NAT@cmprs>\z@}{\NAT@last@yr}{}%
181 \ifNAT@swa\else
182 \ifnum{\NAT@ctype=\z@}{%
183 \if*#2*\else\NAT@cmt#2\fi
184 }{}%
185 \NAT@mbox{\NAT@@close}%
186 \fi
187 }{#1}{#2}%
188 }%

\NMBIB@hyper@ This is the replacement for \NAT@hyper@
189 \def\NMBIB@hyper@#1#2{%
190 \nmbibLink{\@citeb}{#1}{#2}}

\NMBIB@hyper@citea This is the replacement for \NAT@hyper@citea:
191 \def\NMBIB@hyper@citea#1#2{%
192 \@citea
193 \NMBIB@hyper@{#1}{#2}%
194 \NAT@def@citea
195 }%

\NMBIB@hyper@citea@space The replacement for \NAT@hyper@citea@space
196 \def\NMBIB@hyper@citea@space#1#2{%
197 \@citea
198 \NMBIB@hyper@{#1}{#2}%
199 \NAT@def@citea@space
200 }%

\def\NAT@last@yr Another natbib macro to redefine
201 \def\def\NAT@last@yr#1{%
202 \protected@edef\NAT@last@yr{%
203 #1%
204 \noexpand\mbox{%
205 \noexpand\hyper@natlinkstart{\@citeb\@extra@b@citeb-\NMBIB@sequence@cite@suffix}%
206 {\noexpand\citenumfont{\NAT@num}}}%
207 \noexpand\hyper@natlinkend
208 }%
209 }%
210 }%

\NAT@citea@mbox This is used in numerical citations
211 \def\NAT@citea@mbox{%
212 \@citea\mbox{\NMBIB@hyper@{sequence}{\citenumfont{\NAT@num}}}%
213 }%

\NMBIB@citex And now the heart of natbib...
214 \def\NMBIB@citex%
215 [#1][#2]#3{%

```

```

216 \NAT@reset@parser
217 \NAT@sort@cites{#3}%
218 \NAT@reset@citea
219 \@cite{\let\NAT@nm\@empty\let\NAT@year\@empty
220 \for\@citeb:=\NAT@cite@list\do
221 {\@safe@activestrue
222 \edef\@citeb{\expandafter\@firstofone\@citeb\@empty}%
223 \@safe@activesfalse
224 \ifundefined{b@\@citeb\@extra@b@citeb}{\@citea%
225 {\reset@font\bfseries ?}\NAT@citeundefined
226 \PackageWarning{natbib}%
227 {Citation ‘\@citeb’ on page \thepage \space undefined}\def\NAT@date{}}%
228 {\let\NAT@last@nm=\NAT@nm\let\NAT@last@yr=\NAT@year
229 \NAT@parse{\@citeb}%
230 \ifNAT@longnames\ifundefined{bv@\@citeb\@extra@b@citeb}{%
231 \let\NAT@name=\NAT@all@names
232 \global\@namedef{bv@\@citeb\@extra@b@citeb}{}}{}%
233 \fi
234 \ifNAT@full\let\NAT@nm\NAT@all@names\else
235 \let\NAT@nm\NAT@name\fi
236 \ifNAT@swa\ifcase\NAT@ctype
237 \if\relax\NAT@date\relax
238 \@citea\NMBIB@hyper@{authors}{\NAT@nmfmt{\NAT@nm}}%
239 \NMBIB@hyper@{timeline}{\NAT@date}%
240 \else
241 \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
242 \ifx\NAT@last@yr\NAT@year
243 \def\NAT@temp{?}%
244 \ifx\NAT@temp\NAT@exlab\PackageWarningNoLine{natbib}%
245 {Multiple citation on page \thepage: same authors and
246 year\MessageBreak without distinguishing extra
247 letter,\MessageBreak appears as question mark}\fi
248 \NMBIB@hyper@{timeline}{\NAT@exlab}%
249 \else\unskip\NAT@spacechar
250 \NMBIB@hyper@{timeline}{\NAT@date}%
251 \fi
252 \else
253 \@citea\NMBIB@hyper@{authors}{%
254 \NAT@nmfmt{\NAT@nm}%
255 \hyper@natlinkbreak{%
256 \NAT@aysep\NAT@spacechar}{\@citeb\@extra@b@citeb
257 }}%
258 \NMBIB@hyper@{timeline}{\NAT@date
259 }%
260 \fi
261 \fi
262 \or\@citea\NMBIB@hyper@{authors}{\NAT@nmfmt{\NAT@nm}}%
263 \or\@citea\NMBIB@hyper@{timeline}{\NAT@date}%
264 \or\@citea\NMBIB@hyper@{alias}{\NAT@alias}%
265 \fi \NAT@def@citea

```

```

266 \else
267 \ifcase\NAT@ctype
268 \if\relax\NAT@date\relax
269 \@citea\NMBIB@hyper@{authors}{\NAT@nmfmt{\NAT@nm}}%
270 \else
271 \ifx\NAT@last@nm\NAT@nm\NAT@yrsep
272 \ifx\NAT@last@yr\NAT@year
273 \def\NAT@temp{{?}}%
274 \ifx\NAT@temp\NAT@exlab\PackageWarningNoLine{natbib}%
275 {Multiple citation on page \thepage: same authors and
276 year\MessageBreak without distinguishing extra
277 letter,\MessageBreak appears as question mark}\fi
278 \NMBIB@hyper@{timeline}{\NAT@exlab}%
279 \else
280 \unskip\NAT@spacechar
281 \NMBIB@hyper@{timeline}{\NAT@date}%
282 \fi
283 \else
284 \@citea\NMBIB@hyper@{authors}{%
285 \NAT@nmfmt{\NAT@nm}}%
286 \hyper@natlinkbreak{\NAT@spacechar\NAT@@open@if*#1*\else#1\NAT@spacechar\fi}%
287 {\@citeb\@extra@b@citeb}}%
288 \NMBIB@hyper@{timeline}{\NAT@date
289 }%
290 \fi
291 \fi
292 \or\@citea\NMBIB@hyper@{authors}{\NAT@nmfmt{\NAT@nm}}%
293 \or\@citea\NMBIB@hyper@{timeline}{\NAT@date}%
294 \or\@citea\NMBIB@hyper@{alias}{\NAT@alias}%
295 \fi
296 \if\relax\NAT@date\relax
297 \NAT@def@citea
298 \else
299 \NAT@def@citea@close
300 \fi
301 \fi
302 }}\ifNAT@swa\else\if*#2*\else\NAT@cmt#2\fi
303 \if\relax\NAT@date\relax\else\NAT@@close\fi\fi}{#1}{#2}}
304 \let\@citex\NMBIB@citex

```

`\citealn` Alternative numerical citation command:

```

305 \newcommand\citealn[1]{[\citenum{#1}]}

```

`\nmbibSetCiteall` Setting the format of `\citeall`

```

306 \def\nmbibSetCiteall#1{\def\NMBIB@citeallformat{#1}}
307 \nmbibSetCiteall{\nmbibLink{\nmbibKEY}{authors}{\nmbibNAME} %
308 (\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE}) %
309 [\nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}

```

`\citeall` The full cite command

```

310 \DeclareRobustCommand\citeall
311 {\begingroup\@ifnextchar*\NAT@fulltrue\@citeall}{\NAT@fullfalse\@citeall*}}
312 \def\@citeall#1{\@ifnextchar[{\@@citeall}{\@@citeall[]}}
313 \def\@@citeall[#1]{\@ifnextchar[{\@@@citeall[#1]}{\@@@citeall[][#1]}}
314 \def\@@@citeall[#1][#2]#3{%
315   \NAT@reset@parser
316   \NAT@sort@cites{#3}%
317   \NAT@reset@citea
318   \@cite{%
319     \@for\@citeb:=\NAT@cite@list\do
320     {\@safe@activestrue
321      \edef\@citeb{\expandafter\@firstofone\@citeb\@empty}%
322      \@safe@activesfalse
323      \ifundefined{b\@citeb\@extra\@b\@citeb}{\@citea%
324        {\reset@font\bfseries ?}\NAT@citeundefined
325         \PackageWarning{natbib}%
326         {Citation ‘\@citeb’ on page \thepage \space undefined}}\def\NAT@date{}}}%
327     {\NAT@parse{\@citeb}}%
328     \ifNAT@full\let\NAT@nm\NAT@all@names\else
329       \let\NAT@nm\NAT@name\fi
330     \edef\nmbibKEY{\@citeb}%
331     \edef\nmbibDATE{\NAT@date}%
332     \edef\nmbibNAME{\NAT@nm}%
333     \edef\nmbibNUM{\NAT@num}%
334     \@citea\NMBIB@citeallformat
335     \def\@citea{; }%
336   }}\if*#2*\else\NAT@cmt#2\fi}{#1}{#2}}

```

### 3.5 Processing bibliography

<code>\timelinerefname</code>	Reference list for chrono ordering 337 \providecommand{\timelinerefname}{Chronological List of References}
<code>\timelinebibname</code>	Reference list for chrono ordering 338 \providecommand{\timelinebibname}{Chrolonlogical Bibliography}
<code>\sequencerefname</code>	Reference list for sequential ordering 339 \providecommand{\sequencerefname}{Sequential List of References}
<code>\sequencebibname</code>	Reference list for sequential ordering 340 \providecommand{\sequencebibname}{Sequential Bibliography}
<code>\authorsrefname</code>	Reference list for alph ordering 341 \providecommand{\authorsrefname}{Alphabetic List of References}
<code>\authorsbibname</code>	Reference list for alph ordering 342 \providecommand{\authorsbibname}{Alphabetic Bibliography}



`\ifNMBIB@writenumber` The switch whether to write the citation number to the `aux` file. Should be true for sequence, false otherwise.

```

343 \newif\ifNMBIB@writenumber
344 \NMBIB@writenumberfalse

```

`\NMBIB@setup@authors` Set up alphabetical-style reference list

```

345 \def\NMBIB@setup@authors{%
346   \NMBIB@writenumberfalse}

```

`\NMBIB@setup@timeline` Timeline reference list looks like alphabetical

```

347 \let\NMBIB@setup@timeline\NMBIB@setup@authors

```

`\NMBIB@setup@sequence` Sequential citations are numerical

```

348 \def\NMBIB@setup@sequence{%
349   \NMBIB@writenumbertrue}

```

`\printbibliography` The actual printing of the bibliography of the given type. Note that we need to reset `\natexlab` afterwards—just in case it is used outside the bibliography.

```

350 \def\printbibliography#1{%
351   \def\NMBIB@current@type{#1}%
352   \def\@biblabel{\csname NMBIB@#1@biblabel\endcsname}%
353   \edef\NMBIB@current@cite@suffix{\csname NMBIB@#1@cite@suffix\endcsname}%
354   \csname NMBIB@setup@#1\endcsname
355   \ifx\NMBIB@current@type\NMBIB@bibtocite@type
356     \def\natexlab@real##1{##1}%
357   \else
358     \def\natexlab@real##1{\NAT@exlab}%
359   \fi
360   \edef\refname{\csname #1refname\endcsname}%
361   \edef\bibname{\csname #1bibname\endcsname}%
362   \@input{\csname NMBIB@#1@filename\endcsname.bbl}%
363   \def\natexlab##1{##1}}

```

`\bibitem` Normally `\bibitem` is defined as `\@lbibitem`. We want first to calculate the `biblabel`

```

364 \def\bibitem{\@ifnextchar{\@lbibitem}{\@lbibitem[]}}%

```

`\@lbibitem` The macro `\@lbibitem` calculates `\NAT@exlab` and calls `\@lbibitem`:

```

365 \def\@lbibitem[#1]#2{%
366   \let\natexlab\natexlab@real
367   \NAT@parse{#2}%
368   \def\nmbibKEY{#2}%
369   \edef\nmbibDATE{\NAT@date}%
370   \edef\nmbibNAME{\NAT@name}%
371   \edef\nmbibNUM{\NAT@num}%
372   \@lbibitem[#1]{#2}%
373   \ifNMBIB@printyearsuffix\else\def\natexlab##1{\fi}

```

`\NAT@exlab` Before the package is loaded, `\NAT@exlab` should not give an error:

```
374 \providecommand\NAT@exlab{}
```

`\NAT@wrout` The original `\NAT@wrout` writes to aux file the information from the bbl file. Here we check whether we need to do this and whether to write the number:

```
375 \renewcommand\NAT@wrout[5]{%
376 \if@files
377   \ifx\NMBIB@current@type\NMBIB@bibcite@type
378     {\let\protect\noexpand\let~\relax
379      \immediate
380      \write\@auxout{\string\ibcite{#5}{#1}{#2}{#3}{#4}}}\fi
381   \ifNMBIB@writenumber
382     {\let\protect\noexpand\let~\relax
383      \immediate
384      \write\@auxout{\string\nmbibcitenumber{#5}{#1}}}\fi
385 \fi
386 \ignorespaces}
```

`\NAT@anchor` The command `\NAT@anchor{<KEY>}{<text>}` creates a hyperlink if the package `hyperref` is loaded. Here we redefine it to create cites in the style KEY-TYPE:

```
387 \def\NAT@anchor#1#2{%
388   \hyper@natanchorstart{#1\@extra@b@citeb-\NMBIB@current@cite@suffix}%
389   \def\@tempa{#2}\@ifx{\@tempa\@empty}{\@biblabel{#2}}%
390   \hyper@natanchorend
391 }%
```

`\nmbibSetBiblabel` Setting biblabel for the list

```
392 \def\nmbibSetBiblabel#1#2{%
393   \expandafter\def\csname NMBIB@#1@biblabel\endcsname##1{#2}}
```

`\NMBIB@timeline@biblabel` The default labels

`\NMBIB@sequence@biblabel`

`\NMBIB@authors@biblabel`

```
394 \nmbibSetBiblabel{timeline}{[\nmbibDATE:
395   \nmbibLink{\nmbibKEY}{authors}{\nmbibNAME};
396   \nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}
397 \nmbibSetBiblabel{authors}{[\nmbibNAME\
398   (\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE});
399   \nmbibLink{\nmbibKEY}{sequence}{\nmbibNUM}]}
400 \nmbibSetBiblabel{sequence}{[\nmbibNUM:
401   \nmbibLink{\nmbibKEY}{authors}{\nmbibNAME}
402   (\nmbibLink{\nmbibKEY}{timeline}{\nmbibDATE})]}
```

### 3.6 Ending the Style

```
403 </style>
```

## Sequential List of References

- [1: Cohen et al. (2013a)] Michael Cohen, Yannis Haralambous, and Boris Veytsman. *The Multibibliography package*, March 2013. <http://www.ctan.org/pkg/multibibliography>.
- [2: Cohen et al. (2013b)] Michael Cohen, Yannis Haralambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. <https://www.tug.org/members/TUGboat/tb34-3/tb108cohen.pdf>.
- [3: Daly (2009)] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, February 2009. <http://mirrors.ctan.org/macros/latex/contrib/natbib>.
- [4: Rahtz and Oberdiek (2012)] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in L<sup>A</sup>T<sub>E</sub>X: a Manual for Hyperref*, November 2012. <http://mirrors.ctan.org/macros/latex/contrib/hyperref>.

## Alphabetic List of References

- [Cohen et al. (2013a); 1] Michael Cohen, Yannis Haralambous, and Boris Veytsman. *The Multibibliography package*, March 2013. <http://www.ctan.org/pkg/multibibliography>.
- [Cohen et al. (2013b); 2] Michael Cohen, Yannis Haralambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. <https://www.tug.org/members/TUGboat/tb34-3/tb108cohen.pdf>.
- [Daly (2009); 3] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, February 2009. <http://mirrors.ctan.org/macros/latex/contrib/natbib>.
- [Rahtz and Oberdiek (2012); 4] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in L<sup>A</sup>T<sub>E</sub>X: a Manual for Hyperref*, November 2012. <http://mirrors.ctan.org/macros/latex/contrib/hyperref>.

## Chronological List of References

- [2009: Daly; 3] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, February 2009. <http://mirrors.ctan.org/macros/latex/contrib/natbib>.
- [2012: Rahtz and Oberdiek; 4] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in L<sup>A</sup>T<sub>E</sub>X: a Manual for Hyperref*, November 2012. <http://mirrors.ctan.org/macros/latex/contrib/hyperref>.

- [2013b: Cohen et al.; 2] Michael Cohen, Yannis Haralambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. <https://www.tug.org/members/TUGboat/tb34-3/tb108cohen.pdf>.
- [2013a: Cohen et al.; 1] Michael Cohen, Yannis Haralambous, and Boris Veytsman. *The Multibibliography package*, March 2013. <http://www.ctan.org/pkg/multibibliography>.

## Change History

v1.00		\ifNMBIB@printyearsuffix:	
General: Preliminary release . . . . .	1	Added macro . . . . .	10
v1.01		\nmbibYearSuffixOff: Added	
\NMBIB@sequence@biblabel: Punc-		macro . . . . .	10
tuation changed . . . . .	18	\nmbibYearSuffixOn: Added	
\timelinerefname: Typo cor-		macro . . . . .	10
rected . . . . .	16	\printbibliography: Added sup-	
		pression of suffixes . . . . .	17
v1.02		v1.03	
\@@lbibitem: Added suppression of		General: Added day field in the	
suffixes . . . . .	17	chrono bst . . . . .	1

# Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

<b>Symbols</b>	<code>\@ifnextchar</code> . . . . .	<code>\bibcite</code> . . . . . 380
<code>\@@</code> . . . . . 71	. 311, 312, 313, 364	<code>\bibdata</code> . . . . . 46
<code>\@@@citeall</code> . . . 313, 314	<code>\@ifnum</code> 78, 130, 132,	<code>\bibitem</code> . . . . . 364
<code>\@@citeall</code> . . . 312, 313	134, 141, 142,	<code>\bibname</code> . . . . . 361
<code>\@lbibitem</code> . . . 364, 365	145, 157, 180, 182	<code>\bibstyle</code> . . . . . 37
<code>\@auxout</code> . . . . . 380, 384	<code>\@ifundefined</code> . . . . .	
<code>\@begindocumenthook</code>	. . 83, 103, 117,	<b>C</b>
. . . . . 32, 40	123, 224, 230, 323	<code>\citation</code> . . . . . 76
<code>\@biblabel</code> 59, 352, 389	<code>\@ifx</code> . . . . . 389	<code>\citeall</code> . . . . . 4, 310
<code>\@bibsetup</code> . . . . . 60	<code>\@input@</code> . . . . . 362	<code>\citealn</code> . . . . . 4, 305
<code>\@cite</code> . 57, 112, 219, 318	<code>\@lbibitem</code> . . . . . 372	<code>\citenum</code> . . . . . 305
<code>\@citea</code> . . . . . 131,	<code>\@namedef</code> . 87, 125, 232	<code>\citenumfont</code> . . . . .
147, 165, 192,	<code>\@ne</code> . . . . . 130,	. . . . . 168, 206, 212
197, 212, 224,	142, 144, 157, 165	<code>\closeout</code> . . . . . 29
238, 253, 262,	<code>\@onlypreamble</code> . . . . 14	<code>\csname</code> . . . . . 13, 18,
263, 264, 269,	<code>\@safe@activesfalse</code>	22, 23, 24, 29,
284, 292, 293,	. . . . . 116, 223, 322	36, 45, 51, 55,
294, 323, 334, 335	<code>\@safe@activestrue</code> .	75, 91, 104, 106,
<code>\@citeall</code> . . . . 311, 312	. . . . . 114, 221, 320	352, 353, 354,
<code>\@citeb</code> 71, 113, 115,	<code>\@tempa</code> . . . . . 15,	360, 361, 362, 393
117, 120, 122,	16, 17, 18, 21,	<code>\CurrentOption</code> . . . . . 8
123, 125, 190,	22, 23, 24, 28,	
205, 220, 222,	29, 44, 45, 50,	<b>D</b>
224, 227, 229,	51, 52, 73, 75, 389	<code>\DeclareOption</code> . . . . . 8
230, 232, 256,	<code>\@tempcnta</code> . . . 139,	<code>\DeclareRobustCommand</code>
287, 319, 321,	140, 141, 144, 145	. . . . . 310
323, 326, 327, 330	<code>\@tempswafalse</code> . . . . 157	<code>\def</code> . . . . . 11, 12, 31,
<code>\@citex</code> . . . . . 58, 304	<code>\@tempswatrue</code> . . . . . 156	39, 48, 53, 54,
<code>\@empty</code> . . . . .	<code>\@undefined</code> . . . . . 32, 40	56, 64, 67, 68,
62, 70, 112, 115,	<code>\_</code> . . . . . 397	82, 90, 103, 105,
219, 222, 321, 389		108, 112, 137,
<code>\@extra@b@citeb</code> . . .	<b>A</b>	189, 191, 196,
. . . . . 106, 117,	<code>\advance</code> . . . . . 144	201, 211, 214,
123, 125, 205,	<code>\AtBeginDocument</code> . .	227, 243, 273,
224, 230, 232,	. . . . . 19, 33, 41	306, 312, 313,
256, 287, 323, 388	<code>\AtEndDocument</code> . . 26, 88	314, 326, 335,
<code>\@extra@binfo</code> . . . . .	<code>\authorsbibname</code> . 5, 342	345, 348, 350,
83, 87, 91, 103, 104	<code>\authorsrefname</code> . 5, 341	351, 352, 356,
<code>\@firstofone</code> . . . . .		358, 363, 364,
. . . . . 115, 222, 321	<b>B</b>	365, 368, 373,
<code>\@for</code> . . . . . 15, 17,	<code>\begingroup</code> . . . . . 311	387, 389, 392, 393
21, 28, 44, 50,	<code>\bfseries</code> . 118, 225, 324	<code>\def@NAT@last@yr</code> . .
71, 73, 113, 220, 319		. . . . . 147, 149, 201

<code>\do</code> . . . . .	15, 17, 21, 28, 44, 50, 71, 73, 113, 220, 319	<code>\hyper@natanchorstart</code> . . . . .	388	<code>\MessageBreak</code> . .	95, 246, 247, 276, 277
		<code>\hyper@natlinkbreak</code> . . . . .	255, 286	<code>\multibibliography</code>	3, 39
		<code>\hyper@natlinkend</code> . . . . .	107, 207	<code>\multibibliographyfilename</code> . . . . .	6, 12, 16
		<code>\hyper@natlinkstart</code> . . . . .	106, 205	<code>\multibibliographystyle</code> . . . . .	4, 31
<b>E</b>					
<code>\edef</code>	13, 51, 55, 104, 115, 222, 321, 330, 331, 332, 333, 353, 360, 361, 369, 370, 371				
<code>\else</code>	32, 40, 92, 127, 148, 162, 164, 167, 181, 183, 234, 240, 249, 252, 266, 270, 279, 283, 286, 298, 302, 303, 328, 336, 357, 373				
<code>\endcsname</code> . .	13, 18, 22, 23, 24, 29, 36, 45, 52, 55, 75, 91, 104, 107, 352, 353, 354, 360, 361, 362, 393				
<code>\expandafter</code> . . . . .	. 13, 16, 18, 33, 41, 51, 55, 71, 74, 76, 79, 91, 115, 222, 321, 393				
<b>F</b>					
<code>\fi</code>	25, 30, 34, 38, 42, 47, 77, 98, 99, 126, 128, 150, 158, 166, 167, 176, 177, 183, 186, 233, 235, 247, 251, 260, 261, 265, 277, 282, 286, 290, 291, 295, 300, 301, 302, 303, 329, 336, 359, 373, 380, 384, 385				
<b>G</b>					
<code>\gdef</code> . . . . .	48				
<code>\global</code> . . .	87, 125, 232				
<b>H</b>					
<code>\hyper@natanchorend</code>	390	<code>\m@ne</code> . . . . .	140	<code>\NAT@close</code> . . .	185, 303
		<code>\mbox</code> . . . . .	204, 212	<code>\NAT@open</code> . . .	165, 286
				<code>\NAT@alias</code> . . . . .	. 132, 175, 264, 294
				<code>\NAT@all@names</code>	124, 127, 231, 234, 328
				<code>\NAT@anchor</code> . . . . .	387
				<code>\NAT@aysep</code> . . . . .	256
				<code>\NAT@biblabel</code> . . . . .	59
				<code>\NAT@bibsetup</code> . . . . .	60
				<code>\NAT@cite</code> . . . . .	57
				<code>\NAT@cite@list</code> .	70, 76, 79, 113, 220, 319
				<code>\NAT@citea@mbox</code>	158, 211
				<code>\NAT@citemultiple</code> .	84
				<code>\NAT@citeundefined</code> .	. . . . 119, 225, 324
				<code>\NAT@citex</code> . . . . .	58
				<code>\NAT@citexnum</code> . . . . .	108
				<code>\NAT@close</code> . . . . .	63
				<code>\NAT@cmprs</code> . . .	134, 180
				<code>\NAT@cmt</code> . .	183, 302, 336
				<code>\NAT@cotype</code> . . .	130, 132, 163, 171, 173, 182, 236, 267
				<code>\NAT@date</code>	63, 227, 237, 239, 250, 258, 263, 268, 281, 288, 293, 296, 303, 326, 331, 369
				<code>\NAT@def@citea</code> . . . .	. 161, 194, 265, 297
				<code>\NAT@def@citea@box</code> .	169
				<code>\NAT@def@citea@close</code> . . . . .	299
				<code>\NAT@def@citea@space</code> . . . . .	199
				<code>\NAT@exlab</code>	244, 248, 274, 278, 358, 374
				<code>\NAT@fullfalse</code> . . . .	311
				<code>\NAT@fulltrue</code> . . . .	311
<b>I</b>					
<code>\if</code> . . . . .	167, 183, 237, 268, 286, 296, 302, 303, 336				
<code>\if@filesw</code> . . . .	20, 27, 35, 43, 72, 376				
<code>\if@tempswa</code> . . . . .	158				
<code>\ifcase</code> . . .	163, 236, 267				
<code>\ifNAT@full</code>	127, 234, 328				
<code>\ifNAT@longnames</code> . .	. . . . . 123, 230				
<code>\ifNAT@swa</code> . . . .	93, 129, 181, 236, 302				
<code>\ifNMBIB@printyearsuffix</code> . . . . .	65, 373				
<code>\ifNMBIB@writenumber</code> . . . . .	343, 381				
<code>\ifx</code> . . . . .	32, 40, 91, 146, 164, 241, 242, 244, 271, 272, 274, 355, 377				
<code>\ignorespaces</code> . . . . .	386				
<code>\immediate</code>	22, 24, 29, 36, 45, 74, 379, 383				
<b>J</b>					
<code>\jobname</code> . . . . .	16				
<b>L</b>					
<code>\let</code> . .	57, 58, 59, 60, 61, 62, 70, 88, 101, 112, 121, 124, 127, 128, 136, 219, 228, 231, 234, 235, 304, 328, 329, 347, 366, 378, 382				
<b>M</b>					

\NAT@hyper@citea@space	\NAT@super@kern . . . 165	\NMBIB@hyper@citea@space
..... 173, 175	\NAT@swafalse . . . . 93	..... 171, 196
\NAT@idtxt . . . . . 63	\NAT@temp . . . 90, 91,	\NMBIB@printyearsuffixfalse
\NAT@ifcat@num 135, 138	243, 244, 273, 274	..... 68
\NAT@last@nm . . 121,	\NAT@test . . . . .	\NMBIB@printyearsuffixtrue
164, 228, 241, 271	. 132, 165, 171, 173	..... 66, 67
\NAT@last@num . . . .	\NAT@wrou . . . . . 375	\NMBIB@sequence@aux 17
. 121, 138, 139, 157	\NAT@year . . . . .	\NMBIB@sequence@biblabel
\NAT@last@yr . . . . .	. 219, 228, 242, 272	..... 394
. 112, 146, 180,	\NAT@yrsep 164, 241, 271	\NMBIB@sequence@cite@suffix
202, 228, 242, 272	\natexlab . . . . .	..... 50, 205
\NAT@last@yr@mbx .	. 64, 363, 366, 373	\NMBIB@setup@authors
..... 142, 152	\natexlab@real . . . .	..... 345, 347
\NAT@mbx . 165, 168, 185	. . . . 356, 358, 366	\NMBIB@setup@sequence
\NAT@merge . . . 142, 157	\NeedsTeXFormat . . . . 1	..... 348
\NAT@name 63, 124, 128,	\newcommand . . . . 89, 305	\NMBIB@setup@timeline
231, 235, 329, 370	\newif . . . . . 65, 343	..... 347
\NAT@nm . . . 112, 121,	\newwrite . . . . . 18	\NMBIB@testnum . . 88, 89
127, 128, 136,	\NMBIB@authors@filename	\NMBIB@timeline@aux 17
137, 141, 145,	..... 15	\NMBIB@timeline@biblabel
164, 219, 228,	\NMBIB@sequence@filename	..... 394
234, 235, 238,	..... 15	\NMBIB@timeline@cite@suffix
241, 254, 262,	\NMBIB@@timeline@filename	..... 50
269, 271, 285,	..... 15	\NMBIB@types . . . . .
292, 328, 329, 332	\NMBIB@alias@cite@suffix	. . . 11, 15, 17,
\NAT@nmfmt 238, 254,	..... 50	21, 28, 44, 50, 73
262, 269, 285, 292	\NMBIB@authors@aux . 17	\NMBIB@writenumberfalse
\NAT@num . . 103, 104,	\NMBIB@authors@biblabel	..... 344, 346
112, 121, 135,	..... 394	\NMBIB@writenumbertrue
136, 157, 168,	\NMBIB@authors@cite@suffix	..... 349
206, 212, 333, 371	..... 50	\nmbibBasetype . . . 6, 48
\NAT@open . . . . . 63	\NMBIB@bibcite@type	\nmbibcitenum 82, 384
\NAT@parse . . . 101,	..... 48, 355, 377	\nmbibDATE 308, 331,
122, 229, 327, 367	\NMBIB@citeallformat	369, 394, 398, 402
\NAT@parse@orig 101, 102	..... 306, 334	\nmbibKEY . . . . 307,
\NAT@penalty 62, 149, 164	\NMBIB@citex . . . . . 214	308, 309, 330,
\NAT@reset@citea . .	\NMBIB@current@cite@suffix	368, 395, 396,
. . . . 111, 218, 317	..... 353, 388	398, 399, 401, 402
\NAT@reset@parser .	\NMBIB@current@type	\nmbibLink . . 5, 105,
. . . . 109, 216, 315	. . . . 351, 355, 377	190, 307, 308,
\NAT@set@cites . . . . 56	\NMBIB@hyper@ . 132,	309, 395, 396,
\NAT@sort . . . . . 78	168, 189, 193,	398, 399, 401, 402
\NAT@sort@cites . . .	198, 212, 238,	\nmbibNAME 307, 332,
. 69, 110, 217, 316	239, 248, 250,	370, 395, 397, 401
\NAT@sort@cites@ . . 79	253, 258, 262,	\nmbibNUM . 309, 333,
\NAT@space . . . . 61, 164	263, 264, 269,	371, 396, 399, 400
\NAT@spacechar . . . .	278, 281, 284,	\nmbibRedirectLinks
61, 63, 165, 167,	288, 292, 293, 294	..... 5, 54
249, 256, 280, 286	\NMBIB@hyper@citea . 191	\nmbibSetBiblabel 7,
\NAT@star@cite . . . . 71		392, 394, 397, 400



<code>\nmbibSetCiteall</code> <a href="#">6</a> , <a href="#">306</a>	<code>\ProcessOptions</code> . . . . . <a href="#">9</a>	<code>\sequencerefname</code> <a href="#">5</a> , <a href="#">339</a>
<code>\nmbibYearSuffixOff</code>	<code>\protect</code> . . . . . <a href="#">378</a> , <a href="#">382</a>	<code>\space</code> . . . . . <a href="#">120</a> , <a href="#">227</a> , <a href="#">326</a>
. . . . . <a href="#">7</a> , <a href="#">68</a>	<code>\protected@edef</code> . . . . . <a href="#">202</a>	<code>\string</code> . . . . .
<code>\nmbibYearSuffixOn</code> <a href="#">7</a> , <a href="#">67</a>	<code>\providecommand</code> . . . . .	<a href="#">37</a> , <a href="#">46</a> , <a href="#">76</a> , <a href="#">380</a> , <a href="#">384</a>
<code>\noexpand</code> . . . . . <a href="#">204</a> , <a href="#">205</a> ,	. . . . . <a href="#">337</a> , <a href="#">338</a> , <a href="#">339</a> ,	
<a href="#">206</a> , <a href="#">207</a> , <a href="#">378</a> , <a href="#">382</a>	<a href="#">340</a> , <a href="#">341</a> , <a href="#">342</a> , <a href="#">374</a>	
		<b>T</b>
<b>O</b>	<code>\ProvidesFile</code> . . . . . <a href="#">3</a>	<code>\thepage</code> . . . . . <a href="#">120</a> ,
<code>\openout</code> . . . . . <a href="#">22</a>	<code>\ProvidesPackage</code> . . . . . <a href="#">5</a>	<a href="#">227</a> , <a href="#">245</a> , <a href="#">275</a> , <a href="#">326</a>
<code>\or</code> . . . . . <a href="#">170</a> , <a href="#">172</a> ,		<code>\timelinebibname</code> <a href="#">5</a> , <a href="#">338</a>
<a href="#">174</a> , <a href="#">262</a> , <a href="#">263</a> ,	<b>R</b>	<code>\timelinerefname</code> <a href="#">5</a> , <a href="#">337</a>
<a href="#">264</a> , <a href="#">292</a> , <a href="#">293</a> , <a href="#">294</a>	<code>\refname</code> . . . . . <a href="#">360</a>	<code>\tw@</code> . . . . . <a href="#">132</a>
	<code>\relax</code> <a href="#">9</a> , <a href="#">24</a> , <a href="#">83</a> , <a href="#">101</a> ,	
<b>P</b>	<a href="#">112</a> , <a href="#">139</a> , <a href="#">146</a> ,	<b>U</b>
<code>\PackageWarning</code> . . . . .	<a href="#">157</a> , <a href="#">237</a> , <a href="#">268</a> ,	<code>\unskip</code> . . . . . <a href="#">249</a> , <a href="#">280</a>
. . . . . <a href="#">119</a> , <a href="#">226</a> , <a href="#">325</a>	<a href="#">296</a> , <a href="#">303</a> , <a href="#">378</a> , <a href="#">382</a>	
<code>\PackageWarningNoLine</code>	<code>\renewcommand</code> . . . . .	<b>W</b>
. . . . . <a href="#">85</a> , <a href="#">94</a> , <a href="#">244</a> , <a href="#">274</a>	. . . . . <a href="#">63</a> , <a href="#">69</a> , <a href="#">102</a> , <a href="#">375</a>	<code>\write</code> . . . . . <a href="#">24</a> ,
<code>\PassOptionsToPackage</code>	<code>\RequirePackage</code> . . . . . <a href="#">10</a>	<a href="#">36</a> , <a href="#">45</a> , <a href="#">74</a> , <a href="#">380</a> , <a href="#">384</a>
. . . . . <a href="#">8</a>	<code>\reset@font</code> <a href="#">118</a> , <a href="#">225</a> , <a href="#">324</a>	
<code>\printbibliography</code> . . . . .		<b>Z</b>
. . . . . <a href="#">5</a> , <a href="#">350</a>	<b>S</b>	<code>\z@</code> . . . . . <a href="#">78</a> , <a href="#">134</a> , <a href="#">180</a> , <a href="#">182</a>
	<code>\sequencebibname</code> <a href="#">5</a> , <a href="#">340</a>	