

notes2bib — Integrating notes into the bibliography*

Joseph Wright[†]

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Abstract

The notes2bib package defines a new type of note, `\bibnote`, which will always be added to the bibliography. The package allows footnotes and endnotes to be moved into the bibliography in the same way. The package can be used with `natbib` and `biblatex` as well as plain L^AT_EX citations. Both sorted and unsorted bibliography styles are supported.

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1 Background

In most subject areas, bibliographic citations and notes are separate entities. However, in some parts of the physical sciences (chemistry and physics) it is usual for references to the literature and notes to be given together in a “References and Notes” section. By default, this requires that BIB^TE_X users create a notes database for each document that they write.

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[†]E-mail: joseph.wright@morningstar2.co.uk

The `endnotes` package allows the user to create endnotes rather than footnotes. However, this does not place the notes in the bibliography. The APS have developed the REV^TE_X document class, which allows footnotes and endnotes to be added to the bibliography. Notes can only be placed at the end of the bibliography using this system. Furthermore, the code to achieve this effect is not available as a package separate from REV^TE_X.

The aim of the `notes2bib` package is to make integration of notes into the bibliography easy. Notes can be written as normal in the L^AT_EX source, and are automatically moved to the bibliography. The package is compatible with sorted and unsorted bibliography styles. The package has been designed for use with numerical citations, although it will work with other systems.

2 Basic use

`\bibnote` In the most basic form, the package can be used simply by loading it in the preamble as normal. This adds a new type of note to the existing `\footnote` type: `\bibnote{<text>}`. This can be used in exactly the same way as a footnote, taking one mandatory argument `<text>`. The `<text>` will be made available as to the bibliography as a note (henceforth referred to as a bibnote).

A very simple example of a bibliography note [1]. A very simple example of a bibliography note `\bibnote{Note for the first example}`.

By default, each bibnote is given an automatically-generated label. However, `\bibnote` accepts an optional argument `<label>`, which can be used to over-ride this. This is particularly useful when a note will be referenced several times (The use of the `\citenote` command is covered in Section 2.3).

An example of a named note [2]. The text can then continue and reference the note again later [2].

An example of a named note `\bibnote[labelled-note]{Note for the second example}`. The text can then continue and reference the note again later `\citenote[labelled-note]`.

`\bibnotemark` In common with `\footnote`, the basic `\bibnote` macro has companion macros `\bibnotemark` and `\bibnotetext`. The text provided for each not is not “fragile,” and so it should not be necessary to use `\bibnotemark` directly. It is needed when replacing footnotes by bibnotes. Notice that there *are* places where bibnotes will be problematic, for example in section headings which also appear in the Table of Contents. In these contexts, use `\citenote` to reference the note, or use an optional argument to the `\section`, *etc.*

It is hard to write a good example for this [3]! The text continues here.

It is hard to write a good example for this `\bibnotemark!` The text continues here `\bibnotetext{Note for the third example}`.

2.1 Package control

`\niibsetup` The `notes2bib` package can be controlled using package options, and also dynamically using the `\niibsetup` macro. In both cases the same list of keyval options are recognised, in a similar manner to the `graphicx` or `hyperref` packages. Several

	of the package options are aimed at controlling the package internally, but by providing a single macro to control this, use is made easier. ¹
footnote	Some options control the general behaviour of notes2bib in the body of the L ^A T _E X source. The footnote and endnotes options control whether \footnote and \endnote macros are converted into bibnotes. Both are Boolean options, and are false by default. The citation command used by notes2bib to insert bibnotes. It should be the name of a L ^A T _E X command (a “csname”), and is set to cite on loading notes2bib; this means that \cite will be used as the citation command.
endnotes	
cite	
field	A number of options control the data added to the BIBT _E X database. The field and record options control the type of BIBT _E X entry created by notes2bib. On loading, record is set to Misc an field is set as note . Depending on the BIBT _E X style in use, better choices may exist for these settings. The name option is used to automatically generate citation names. The option starts with the value Bibnote , which may need to change for author–year styles in particular. The name of the database itself is controlled by the prefix option. This contains the “marker” used by notes2bib to attach to the job name when creating the storage database. The default is niib- .
name	
record	
prefix	
sort	Bibnotes can be created so that thy will be sorted before or after normal citations. A list of values are recognised: none (no control of sorting), head (notes appear before real citations) and tail (notes appear after real citations). The shortcut options head and tail are also available. A number of mechanisms are used to ensure correct sorting of bibnotes. For normal BIBT _E X users, the options keyhead, keynone and keytail are used to control sorting. These values are added to the start of the citation name in the key field, which controls sorting. The default values are aaa , nothing and zzz , respectively. For biblatex users, control is made using the presort system made available there. The notes2bib options presorthead, presortnone and presorttail set up the appropriate values; default values are m1 , mm and m1 , respectively.
head	
tail	
keyhead	
keynone	
keytail	
presorthead	
presortnone	
presorttail	
log	The amount of detail to add to the log; expects a value from the list debug (very detailed information), verbose (the same as debug), normal , errors (errors only), none (what it says). As a shortcut, the debug option is provided as an alias to log=debug. The package has a single load-time only option, etex. This is a Boolean switch, and determines whether ε-T _E X extensions are used if available. This is true by default; the intension here is for testing when sending to publishers, etc., where ε-T _E X may be an issue.
debug	
etex	
\printbibnotes	

2.2 Output of notes

Bibnotes are only printed when a bibliography is created. This means that at the very least a \bibliographystyle command must appear in the source.² Under most circumstances, the user will be citing literature, and so will also include a \bibliography command in their source. Bibliography notes are automatically added to the citations to be printed.

If bibnotes are being used without any other citations, then the user cannot place \bibliography in the source.³ The package therefore provides the macro

¹Users upgrading from earlier versions of notes2bib will note that the large number of control macros have all been removed from v1.3.

²For biblatex users, the package must be loaded!

³L^AT_EX will complain if the user puts \bibliography{}.

\printbibnotes, which will output only the notes. If the endnotes package has been loaded, the \theendnotes macro is redefined to achieve the same effect.

2.3 Cross-referencing notes

\citenote As explained above, each note is automatically assigned a label, or the user can provide one as an optional argument to the note. In either case, notes may then be cross-referenced. Notes are available to be cited directly using the \cite command. However, this can cause problems when using the sort=tail option. The \citenote command is therefore provided. This is aware of the options, and will act correctly in all circumstances.

Cross-references to the note labelled earlier using [2] and using [2].

Cross-references to the note labelled earlier using \cite{labelled-note} and using \citenote{labelled-note}.

2.4 Interaction with other packages

notes2bib is designed to work well with as many other packages as possible. It has been tested with cite, natbib, hyperref and mciteplus with no problems. The notes2bib package is compatible with the current release of biblatex (v0.7); older versions of biblatex may or may not work.⁴

3 Special effects

\flushnotestack When using the sort=tail option, citations are added to a stack as they are made. This stack is then flushed to the .aux file at the end of the document. If references are given by chapter (or other unit), this may not give the desired effect. The \flushnotestack macro will cause all saved citations to be written at that point, and will reset the stack for continued use. This can therefore be used to control when citation occurs.⁵

\thebibnote If a sorted bibliography style is in use, and more than nine notes are created, the sort order will be incorrect. This is because by default notes2bib does not pad the automatically-created labels with zeros. To get the correct sort order, \thebibnote should be redefined.

```
\makeatletter
\renewcommand*{\thebibnote}{%
  \niib@name%
  \ifnum\value{bibnote} < 9 0\fi%
  \the\value{bibnote}%
}
\makeatother
```

⁴As biblatex is experimental and is not currently added to TeX distributions, users have little excuse for not using the latest release.

⁵This macro was called \flushcitestack prior to v1.3.

4 Package requirements

The package has only one requirement, `xkeyval` version 2.5 or later. `e- \TeX` is used if available, but is not a requirement.

5 Known issues

From v1.1, the method for writing notes to the `BIB \TeX` database has been modified. This means that `bibnotes` cannot contain verbatim text.⁶ This is the same as for normal footnotes, and so the usual work-arounds are applicable.

The next note contains some awkward text [4].

The next note contains some awkward text
`\bibnote{Some \texttt{\textbackslash text\{textbackslash verb\}-like output}}.`

The package relies on `BIB \TeX` being able to open and process the temporary database containing the note text. The name of this file contains `\jobname`, the name of the main `L \TeX` file being processed. This must consist only of characters that `BIB \TeX` can handle. In particular, spaces in the file name will lead to problems.

6 The mechanism

The mechanism for positioning notes in the bibliography is somewhat involved. Rather than expect interested users to read all of the code that follows, a condensed overview is given here. The thinking behind the system used is explained first, by considering the `endnotes` package and `REV \TeX` class. Both of these provided inspiration for this package.

6.1 The `endnotes` approach

The `endnotes` package⁷ allows the user to generate endnotes in the same way as footnotes. In `endnotes`, the text of the note is written to a `.ent` file. This is achieved in an unexpanded form using the `\meaning` `\TeX` primitive. To produce the list of endnotes, this file is read back into `L \TeX` , with the extra information `\meaning` also writes being stripped off in the process.

This method is relatively simple in concept, but obviously does not integrate with `BIB \TeX` . The use of `\meaning` for unexpanded output also means that information requires further processing before it can be included in the bibliography.

6.2 The `REV \TeX` approach

`REV \TeX` takes a similar approach to creating endnotes, but also allows footnotes to be converted into endnotes. This results in a file containing all of the non-literature citations in a document in a single external file (in this case a `.end` file). `REV \TeX` also uses a different method to achieve unexpanded output, meaning that several macros are not “active” in notes.

⁶Actually, they can, but the spacing will go wrong. `L \TeX` will only complain if a note ends with verbatim text. However, verbatim text is not supported in `bibnotes`: don’t do it!

⁷<http://tug.ctan.org/macros/latex/contrib/misc/endnotes.sty>

The second part of the REV_TE_X approach is to (optionally) read the notes back into the document. This is achieved by modifying the \bibliography environment to output each note in the bibliography. This takes place *en masse*, after the normal citations.

REV_TE_X makes a number of modifications to L_AT_EX, and is dependent on using natbib. The method used is also not compatible with interspersing normal citations and notes.

6.3 The notes2bib approach

In notes2bib, notes are again written to an external file. However, in contrast to the methods those outlined above, notes2bib writes its output in the well-known BIB_TE_X database format. All of the note text is written almost completely unexpanded to the file, the only requirement being that the braces match within the argument.⁸

Each note results in a citation being placed by notes2bib in the .aux file. The \bibliography command is also modified so that the new database will be used by BIB_TE_X. After the BIB_TE_X run, the note text will appear in the .bb1 file, in the same way as any other citation. Using an unsorted BIB_TE_X style, this results in notes interspaced with the normal citations. For sorted styles, notes2bib allows various methods for controlling the placement of notes, based on writing appropriate fields in the BIB_TE_X database.

niibheadcite
The sort=head option works by adding an additional macro to the .aux file: \niibheadcite. On the next L_AT_EX run, this causes the relevant notes to be cited right at the beginning of the document, before any real citations.⁹ For sort=tail, the value of \if@files w is temporarily altered to prevent writing of a citation to the .aux file. The citation is added to a stack, and is written at the end of the document.

7 The package code

7.1 Package setup code

\niib@id
The package starts with the usual identification code and support loading.

```
1 \NeedsTeXFormat{LaTeX2e}
2 \def\niib@id$#1: #2.#3 #4 #5-#6-#7 #8 #9${%
3   #5/#6/#7\space v1.4\space}
4 \ProvidesPackage{notes2bib}
5  [\niib@id$Id: notes2bib.dtx 11 2008-06-21 16:00:05Z joseph $%
6  Integrating notes into the bibliography]
7 \RequirePackage{xkeyval}[2005/05/07]
```

\niib@tempa
\niib@tempb
Some private temporary macros are declared.

```
8 \newcommand*{\niib@tempa} {}
9 \newcommand*{\niib@tempb} {}
```

⁸Writing to the file uses the ε-T_EX \unexpanded primitive.

⁹Thanks to Michael Shell for the idea for this method.

7.2 Logging

\ifniib@debug
\ifniib@logmin
\ifniib@lognone

10 \newif\ifniib@debug
11 \newif\ifniib@logmin
12 \newif\ifniib@lognone

\niib@log@err
\niib@log@warn
\niib@log@inf

Some handy re-usable macros are defined here. These all take names beginning These pop up in various places. First errors, warnings and information are handled. Package options are used to control how much output is given.

13 \newcommand*{\niib@log@err}[2]{%
14 \ifniib@lognone\else
15 \ifniib@logmin
16 \PackageWarning{notes2bib}{#1}%
17 \else
18 \PackageError{notes2bib}{#1}{#2}%
19 \fi
20 \fi}
21 \newcommand*{\niib@log@warn}[1]{%
22 \ifniib@lognone\else
23 \ifniib@logmin\else
24 \PackageWarning{notes2bib}{#1}%
25 \fi
26 \fi}
27 \newcommand*{\niib@log@inf}[1]{%
28 \ifniib@lognone\else
29 \ifniib@logmin\else
30 \PackageInfo{notes2bib}{#1}%
31 \fi
32 \fi}

\niib@log@debug

The debug macro only gives output if the appropriate package option is set.

33 \newcommand*{\niib@log@debug}[1]{%
34 \ifniib@lognone\else
35 \ifniib@debug
36 \PackageInfo{notes2bib}{#1}%
37 \fi
38 \fi}

7.3 Package options

\niib@opt@boolkey

To aid maintenance, some shortcuts are defined for generating keys. These also allow the debugging messages to be added automatically to every key.

39 \newcommand*{\niib@opt@boolkey}[2][]{%
40 \define@boolkey[niib]{opt}[niib@]{#2}[true]
41 {#1\niib@log@debug{Option #2 set to ##1}}}

\niib@opt@choicekey

A “fill in the blanks” choice key. In all cases, \niib@tempa is used to hold the value given to the key, so that \ifx testing can occur.

42 \newcommand*{\niib@opt@choicekey}[5][]{%
43 \define@choicekey*+[niib]{opt}{#2}[\niib@tempa]{#3}{#1}
44 {#4\niib@log@debug{Option #2 set to ##1}}
45 {#5\niib@log@debug{Option #2 set to ##1}}}

\niib@opt@cmdkeys	A shortcut for <code>xkeyval</code> command keys.
	46 \newcommand* {\niib@opt@cmdkeys} [1] {% 47 \define@cmdkeys[niib]{opt}{niib@}{#1} }
\niibsetup	To allow modification of options at run time, a setup macro is provided. The run of strange tests are to prevent problems in arrays and the like.
	48 \newcommand* {\niibsetup}{\setkeys[niib]{opt}}
	The <code>xkeyval</code> package option for logging is declared. This is then processed to set the switches correctly.
	49 \niib@opt@choicekey[normal]{log} 50 {debug,verbose,normal,errors,none}
	A series of comparisons are made to assign the logging mode. The <code>normal</code> option is not tested, as executing the option sets the switches appropriately.
	51 {\niib@debugfalse 52 \niib@logminfalse 53 \niib@lognonefalse 54 \renewcommand* {\niib@tempb}{none}% 55 \ifx\niib@tempa\niib@tempb 56 \niib@lognonetrue 57 \fi 58 \renewcommand* {\niib@tempb}{minimal}% 59 \ifx\niib@tempa\niib@tempb 60 \niib@logmintrue 61 \fi 62 \renewcommand* {\niib@tempb}{debug}% 63 \ifx\niib@tempa\niib@tempb 64 \niib@debugtrue 65 \fi 66 \renewcommand* {\niib@tempb}{verbose}% 67 \ifx\niib@tempa\niib@tempb 68 \niib@debugtrue 69 \fi}
	The option has not been recognised: give a warning (if appropriate).
	70 {\niib@log@warn{Unrecognised value '#1' for option log}}
\niib@opt@debug	A quick method to set <code>log=debug</code> .
	71 \niib@opt@boolkey{debug}
\ifniib@footnotes	The <code>footnote</code> and <code>endnote</code> options are declared here.
\ifniib@endnotes	72 \niib@opt@boolkey[\niib@swapfoot]{footnotes} 73 \niib@opt@boolkey[\niib@swapend]{endnotes}
\ifniib@head	Switches are needed for placing notes before and after normal citations.
\ifniib@tail	74 \newif\ifniib@tail 75 \newif\ifniib@head
	This option controls the position of notes <i>versus</i> normal citations. The <code>xkeyval</code> option replaces the earlier <code>head</code> and <code>tail</code> options, which are retained for backward compatibility.
	76 \niib@opt@choicekey[none]{sort}{none,head,tail}

```

77  {\niib@headfalse
78  \niib@tailfalse
79  \renewcommand*{\niib@tempb}{head}%
80  \ifx\niib@tempa\niib@tempb
81      \niib@headtrue
82  \fi
83  \renewcommand*{\niib@tempb}{tail}%
84  \ifx\niib@tempa\niib@tempb
85      \niib@tailtrue
86  \fi}
87  {\niib@log@warn{Unrecognised value '#1' for option sort}}

```

The back-compatibility code; unlike earlier versions, this will take whatever the sort-type key is given.

```

88 \niib@opt@boolkey[%]
89  \ifniib@head
90      \ifniib@tail
91          \niib@tailfalse
92          \niib@log@inf{Option head cancels existing\MessageBreak
93              tail or sort=tail option}
94      \fi
95  \fi]{head}
96 \niib@opt@boolkey[%]
97  \ifniib@tail
98      \ifniib@head
99          \niib@headfalse
100         \niib@log@inf{Option tail cancels existing\MessageBreak
101             head or sort=head option}
102     \fi
103 \fi]{tail}

```

\niib@cite The various internal control values are set up as command keys.

```

104 \niib@opt@cmdkeys{%
105   cite,
106   name,
107   prefix,
108   record,
109   field,
110   presorthead,
111   presortnone,
112   presorttail,
113   keyhead,
114   keynone,
115   keytail}
116 \niibsetup{
117   cite=cite,
118   name=Bibnote,
119   prefix=niib-,
120   record=Misc,
121   field=note,
122   presorthead=ml,
123   presortnone=mm,
124   presorttail=mn,
125   keyhead=aaa,

```

```

126   keynone={ },
127   keytail=zzz}

\ifniib@etex The option to turn off e-TeX needs to ensure that the user does not ask for e-TeX
if it is not there. On the other hand, the default is to use e-TeX if it is available.

128 \niib@opt@boolkey{etex}
129 \begingroup
130   \@ifundefined{eTeXversion}
131   {}
132   {\global\niib@etextrue}
133 \endgroup
134 \ProcessOptionsX[niib]{opt}
135 \AtEndOfPackage{
136   \define@key[niib]{opt}{etex}
137   {\niib@log@warn{Option `etex' only available
138     \MessageBreak when loading notes2bib}}}
139 \begingroup
140   \@ifundefined{eTeXversion}
141   {\ifniib@etex
142     \niib@log@warn{e-TeX unavailable}%
143     \global\niib@etextfalse
144   \fi}
145   {\ifniib@etex\else
146     \niib@log@inf{Use of e-TeX disabled}%
147   \fi}
148 \endgroup

```

7.4 Footnote and endnote handling

```

\niib@org@footnote To allow dynamic handling of footnotes and endnotes, the original definitions
\niib@org@footnotemark are backed up.
\niib@org@footnotetext
149 \let\niib@org@footnote\footnote
150 \let\niib@org@footnotemark\footnotemark
151 \let\niib@org@footnotetext\footnotetext

\niib@org@endnote If endnotes is loaded, then \endnote and friends have to be saved.
\niib@org@endnotemark
\niib@org@endnotetext
\niib@org@theendnotes
152 \AtBeginDocument{
153   \@ifpackageloaded{endnotes}
154   {\let\niib@org@endnote\endnote
155   \let\niib@org@endnotemark\endnotemark
156   \let\niib@org@endnotetext\endnotetext
157   \let\niib@org@theendnotes\theendnotes}{}}

\thanks The \thanks macro is redefined.
158 \@ifundefined{thanks} {}
159   {\renewcommand*{\thanks}[1]{%
160     \niib@org@footnotemark
161     \protected@xdef\@thanks{\@thanks
162     \protect\niib@org@footnotetext[\the\c@footnote]{#1}}} }

\niib@swapfoot The swapping code can now be implemented.
\footnote
\niib@swapfoot
\niib@footnotemark
\niib@footnotetext
163 \newcommand*{\niib@swapfoot}{%
164   \ifniib@footnotes

```

```

165   \let\footnote\bibnote
166   \let\footnotemark\bibnotetext
167   \let\footnotetext\bibnotemark
168   \niib@log@debug{Converting footnotes to bibnotes}%
169 \else
170   \let\footnote\niib@org@footnote
171   \let\footnotemark\niib@org@footnotemark
172   \let\footnotetext\niib@org@footnotetext
173   \niib@log@debug{Using kernel definition of footnotes}%
174 \fi}
175 \AtBeginDocument{\niib@swapfoot}

```

\niib@swapend
 \endnote
 \endnotemark
 \endnotetext
 \theendnotes

For endnotes, the code needed depends on whether the `endnotes` package is available or not. If it is, then swapping the two definitions is set up.

```

176 \newcommand*{\niib@swapend} {}
177 \AtBeginDocument{
178   \@ifpackageloaded{endnotes}
179     {\renewcommand*{\niib@swapend}{%
180       \ifniib@endnotes
181         \let\endnote\bibnote
182         \let\endnotemark\bibnotemark
183         \let\endnotetext\bibnotetext
184         \let\theendnotes\printbibnotes
185         \niib@log@debug{Converting endnotes to bibnotes}%
186       \else
187         \let\endnote\niib@org@endnote
188         \let\endnotemark\niib@org@endnotemark
189         \let\endnotetext\niib@org@endnotetext
190         \let\theendnotes\niib@org@theendnotes
191         \niib@log@debug{Using endnotes package to handle
192           endnotes}%
193       \fi}
194   \niib@swapend}

```

`endnotes` is not loaded; once the `endnotes` option has been given, there is nothing to go back. Of course, if the user does not give the `endnotes` option, `\endnote` is not defined at all.

```

195   \ifniib@endnotes
196     \let\endnote\bibnote
197     \let\endnotemark\bibnotemark
198     \let\endnotetext\bibnotetext
199     \let\theendnotes\printbibnotes
200     \niib@log@debug{Converting endnotes to bibnotes}%
201   \fi
202   \renewcommand*{\niib@swapend}{%
203     \ifniib@endnotes
204       \let\endnote\bibnote
205       \let\endnotemark\bibnotemark
206       \let\endnotetext\bibnotetext
207       \let\theendnotes\printbibnotes
208       \niib@log@debug{Converting endnotes to bibnotes}%
209     \else
210       \niib@log@inf{endnotes package not loaded\MessageBreak
211         endnotes=false ignored}%

```

```
212     \fi} } }
```

7.5 User macros

\thebibnote	A counter is needed for the notes created. In analogy to other counters in L ^A T _E X, this is given a <code>\the...name</code> . The user should not really need to use this macro, but convention dictate that it has a user-space name. The L ^A T _E X <code>\newcounter</code> macro is used (rather than the T _E X <code>\newcount</code>) as the automatic system expects the numbers to be globally unique.
	<pre>213 \newcounter{bibnote} 214 \renewcommand*{\thebibnote}{\niib@name\the\value{bibnote}}</pre>
\bibnote	Each new bibnote increments the note counter, then checks for an optional label, before handing off to the internal macro <code>\niib@bibnote</code> .
	<pre>215 \DeclareRobustCommand*{\bibnote}{% 216 \stepcounter{bibnote}% 217 \@ifnextchar[%] 218 {\niib@bibnote} 219 {\niib@bibnote[\thebibnote]}}</pre>
\bibnotemark	The <code>\bibnotemark</code> macro works in the same way as <code>\bibnote</code> , but calls <code>\niib@mark</code> rather than <code>\niib@bibnote</code> .
	<pre>220 \DeclareRobustCommand*{\bibnotemark}{% 221 \stepcounter{bibnote}% 222 \@ifnextchar[%] 223 {\niib@mark} 224 {\niib@mark[\thebibnote]}}</pre>
\bibnotetext	The text companion to the mark macro above, with no increment of the counter. There is nothing special to do, so the L ^A T _E X kernel handling of optional arguments can be used.
	<pre>225 \DeclareRobustCommand*{\bibnotetext}[1][\thebibnote]{% 226 \let\niib@next\niib@gobble 227 \niib@text{#1}}</pre>
\printbibnotes	To allow for the possibility of there being no other notes, a command to print only notes is given. In the <code>biblatex</code> case, the best that can be done is to issue <code>\printbibliography</code> .
	<pre>228 \AtBeginDocument{ 229 \@ifpackageloaded{biblatex} 230 {\let\printbibnotes\printbibliography} 231 {\DeclareRobustCommand*{\printbibnotes} 232 {\niib@org@bib{\niib@prefix\jobname}}}}</pre>
\flushnotestack	In order to delay citations to the end of the bibliography (and thus force others to the start), a “stack” is created of citations which need to be written to the <code>.aux</code> file. This is done here, and the stack is cleared so collection can begin again.
	<pre>233 \DeclareRobustCommand*{\flushnotestack}{% 234 \let\niib@taillist\niib@stack 235 \ifniib@rerun\else 236 \niib@checkrerun{tail}% 237 \fi}</pre>

```

238 \ifx\@empty\niib@stack\@empty
239   \niib@log@debug{Citation stack empty: nothing for
240     \MessageBreak\noexpand\flushnotestack to do}%
241 \else%
242   \niib@log@debug{Flushing note citations to aux file}%
243   \if@files w
244     \immediate\write\auxout{%
245       \string\niibtailcite{\niib@stack}}%
246   \fi
247   \expandafter\nocite\expandafter{\niib@stack}%
248   \gdef\niib@stack{}%
249 \fi}

\citenote Problems arise with \cite and the sort=tail option. Rather than overload
\cite with all of the problems that can bring, a new command is provided that
can be guaranteed to work.

250 \DeclareRobustCommand*{\citenote}[1]{\niib@mark[#1]}

```

7.6 Internal macros

\niib@keyname If `biblatex` is in use, the key field in the `BIBTEX` database should be called “keysort,” whereas otherwise it should be “key.”

```

251 \AtBeginDocument{
252   \@ifpackageloaded{biblatex}{%
253     {\niib@log@debug{Using field 'keysort' for sorting key}%
254      \newcommand*{\niib@keyname}{keysort}%
255     {\niib@log@debug{Using field 'key' for sorting key}%
256      \newcommand*{\niib@keyname}{key}}}}

```

\niib@presort \niib@key The values taken by `\niib@presort` and `\niib@key` depend on the desired positioning of notes in the bibliography.

```

257 \newcommand*{\niib@presort}{%
258   \ifniib@head
259     \niib@presorthead
260   \else
261     \ifniib@tail
262       \niib@presorttail
263     \else
264       \niib@presortnone
265     \fi
266   \fi}
267 \newcommand*{\niib@key}{%
268   \ifniib@head
269     \niib@keyhead
270   \else
271     \ifniib@tail
272       \niib@keytail
273     \else
274       \niib@keynone
275     \fi
276   \fi}

```

\niib@msg	To inform the user, the automatically-created B<small>IB</small>T<small>E</small>X database needs to carry suitable information on its source.
	<pre> 277 \edef\niib@msg{% 278 This is an auxiliary file used by the 'notes2bib' 279 package.^{^^J} This file may safely be deleted. It 280 will be recreated as required.^{^^J}}</pre>
\niib@stack	This macro is needed to store any citations at the end of the bibliography. Initially, this is empty.
	<pre> 281 \newcommand*\niib@stack{}{}</pre>
\niib@addtostack	The various optional argument tricks above all use the same core code, which adds the mandatory argument of the citation to the stack. The stack is global (see also \flushnotestack).
	<pre> 282 \newcommand*\niib@addtostack[1]{% 283 \niib@log@debug{Adding citation #1\MessageBreak to 'tail' 284 stack}% 285 \edef\niib@tempa{\#1}% 286 \ifx\@empty\niib@stack\@empty 287 \xdef\niib@stack{\niib@tempa}% 288 \else 289 \xdef\niib@stack{\niib@stack,\niib@tempa}% 290 \fi}</pre>
\niib@bibnote	Two steps are needed here, writing the text of the note to file (handled by \niib@text, and marking the citation (using \niib@cite).
	<pre> 291 \long\def\niib@bibnote[#1]#2{% 292 \let\niib@next\niib@mark 293 \niib@text{\#1}{#2}}</pre>
\niib@headlist	To inform the user that a re-run of L<small>A</small>T<small>E</small>X is needed, tracking is needed of any "head" citations.
	<pre> 294 \newcommand*\niib@headlist{}{}</pre>
\niib@mark	Adding a citation to the L<small>A</small>T<small>E</small>X file is handled here. When using the <code>sort=head</code> option, the citation is written to the <code>.aux</code> file for sorting control. The normal citation command is then called.
	<pre> 295 \def\niib@mark[#1]{% 296 \ifniib@head 297 \edef\niib@tempa{\#1}% 298 \ifx\@empty\niib@headlist\@empty 299 \xdef\niib@headlist{\niib@tempa}% 300 \else 301 \xdef\niib@headlist{\niib@headlist,\niib@tempa}% 302 \fi 303 \if@filesw 304 \niib@log@debug{Adding citation #1 to list for next run}% 305 \immediate\write\auxout{\string\niibheadcite{\#1}}% 306 \fi 307 \fi}</pre>
	When the <code>sort=tail</code> option is active, citation is handled by another macro, so a switch is needed.

```

308 \ifniib@tail
309   \expandafter\niib@tailcite%
310 \else
311   \expandafter\niib@normcite%
312 \fi
313 {\#1}

\ifniib@files w A switch is used to back up \if@files w.
314 \newif\ifniib@files w

\niib@tailcite When using the sort=tail option, bibnote citation need to be stored for later.
With biblatex, the \AtEndCite macro is available to provide a hook for the
necessary switch. In other cases, the current value of \if@files w is then saved,
before turning it off and setting up the restore system.

315 \AtBeginDocument{
316   \@ifpackageloaded{biblatex}{%
317     \newcommand{\niib@tailcite}[1]{%
318       \niib@addtostack{\#1}%
319       \AtNextCite{\@files wfalse}%
320       \niib@normcite{\#1}}%
321     \newcommand{\niib@tailcite}[1]{%
322       \niib@addtostack{\#1}%
323       \let\ifniib@files w\if@files w
324       \@files wfalse
325       \let\niib@auxhook\niib@restorefiles w
326       \niib@tcite{\#1}}%
327   }

\niib@restorefiles w Restoring the switch is set up here. The reference to \niib@auxhook ensures
that the mechanism is turned off for the next real citation.

327 \newcommand*{\niib@restorefiles w}{%
328   \let\if@files w\ifniib@files w
329   \let\niib@auxhook\relax}

\niib@tcite Actually carrying out the citation, and restoring the value of \if@files w de-
pends on whether cite is loaded.

330 \AtBeginDocument{%
331   \@ifpackageloaded{cite}{%
332     \newcommand*{\niib@tcite}[1]{\niib@normcite{\#1}}%
333     \newcommand*{\niib@tcite}[1]{%
334       \niib@normcite{\#1}%
335       \niib@restorefiles w}}}

\niib@normcite The normal citation command.

336 \newcommand*{\niib@normcite}{\nameuse{\niib@cite}{}}

\niib@next \niib@gobble To allow correct detection of following punctuation by \niib@mark, it has to
follow \niib@text. However, to prevent category code issues, \niib@text
can only take one argument. Hence, a “follow-on” macro is needed; this is
provided here. The no-op here has to gobble a square-bracketed argument.

337 \newcommand*{\niib@next}{}%
338 \def\niib@gobble[#1]{}%
339 \let\niib@next\niib@gobble

```

```

\niib@text
\niib@out
\niib@stream
340 \newcommand*{\niib@text}{%
341   \@bsphack
342   \@ifundefined{niib@out}
343     {\if@filesw
344       \newwrite\niib@out
345       \gdef\niib@stream{\niib@prefix\jobname.bib}%
346       \niib@log@debug{Creating BibTeX database file
347         \MessageBreak\niib@stream\space to contain bibnotes}%
348       \immediate\openout\niib@out\niib@stream\relax
349       \immediate\write\niib@out{\niib@msg}%
350     \fi}
351   {}%
352   \if@filesw
353     \expandafter\niib@write
354   \fi}

\niib@write
The \niib@write macro deals with writing data verbatim to the BibTeX file.
When  $\varepsilon$ -TeX is available, this is easy; the macro absorbs the note text and uses
\unexpanded.

355 \ifniib@etex
356   \newcommand*{\niib@write}[2]{%
357     \niib@log@debug{Writing bibnote #1 contents
358       \MessageBreak---\MessageBreak#2\MessageBreak
359       ---\MessageBreak to BibTeX database}%
360     \immediate\write\niib@out{%
361       @\niib@record\string{\#1,^^J%
362       presort = \string{\niib@presort\string},^^J%
363       \niib@keyname\space= \string{\niib@key#1\string},^^J%
364       \niib@field\space= \string{\unexpanded{\#2}\string}^^J%
365       \string}^^J}%
366     \@esphack
367     \niib@next[\#1]}

Life is more awkward when  $\varepsilon$ -TeX is unavailable. The code here is based on a
suggestion by Ulrich Diez, with alterations to the specifics needed here.

368 \else
369   \newcommand*{\niib@write}[1]{%
370     \begingroup
371       \let\do\@makeother
372       \dospecials
373       \catcode`\{=1\relax
374       \catcode`\}=2\relax
375       \niib@write@{\#1}}
376 \fi

\niib@write@
Two support macros are needed if  $\varepsilon$ -TeX is not available. \niib@write@ works
with the category codes altered as above, which means that text is written
(essentially) verbatim to the BibTeX file.

377 \newcommand\niib@write@[1]{%
378   \long\def\niib@tempa##1{%
379     \def\niib@tempa##1{%
380       \onelevel@sanitize\niib@tempa\expandafter\endgroup

```

```

381      \expandafter\def\expandafter\expandafter\niib@tempa\expandafter{%
382          \niib@tempa}%
383      \niib@write@@{\#1}%
384  \catcode`\^^M=10\relax
385  \niib@tempa}

\niib@write@@ Writing to the file is a very slightly altered version of the  $\varepsilon$ - $\text{\TeX}$  version. In this case, the debugging data is given here, after category code changes.

386 \newcommand*\niib@write@@[1]{%
387   \niib@log@debug{Writing bibnote #1 contents
388     \MessageBreak---\MessageBreak\niib@tempa\MessageBreak
389     ---\MessageBreak to BibTeX database}%
390   \immediate\write\niib@out{%
391     @\niib@record\string{\#1,^^J%
392     presort = \string{\niib@presort\string},^^J%
393     \niib@keyname\space= \string{\niib@key#1\string},^^J%
394     \niib@field\space= \string{\niib@tempa\string}^^J%
395     \string}^^J}%
396   \esphack
397   \niib@next[\#1]}

\niib@headcitelist To inform the user that a re-run of  $\text{\LaTeX}$  is needed, tracking is needed of any citations that have been moved to the start of the .aux file. This needs an initially-empty macro.

398 \newcommand*\niib@headcitelist{}}

\niib@dochook \document
\niibheadcite When using the sort=head option, bibnotes need to appear in the .aux file before other citations. Other approaches cause all sorts of problems, so the suggestion of Michael Shell is implemented here. When head is active, \niibheadcite is added to the .aux file. At the next  $\text{\LaTeX}$  run, this will add a citation to the beginning of the .aux file. To get the \nocite to work, a hook has to be added to \document. The reason is that \AtBeginDocument cannot be used here: it is not available once the old .aux file has been read.

399 \g@addto@macro{\document}{\niib@dochook}
400 \newcommand*\niibheadcite[1]{%
401   \edef\niib@tempa{\#1}%
402   \ifx\@empty\niib@headcitelist\@empty
403     \xdef\niib@headcitelist{\niib@tempa}%
404   \else
405     \xdef\niib@headcitelist{\niib@headcitelist,\niib@tempa}%
406   \fi
407   \if@filesw
408     \niib@log@debug{Adding citation #1 to start of .aux file}%
409   \fi
410   \g@addto@macro{\niib@dochook}{\nocite{\#1}}}

\niib@tailcitelist \niibtailcite To enable proper logging of citations when sort=tail, a similar system to the above is employed without the \nocite part.

411 \newcommand*\niib@tailcitelist{}}
412 \newcommand*\niibtailcite[1]{%
413   \edef\niib@tempa{\#1}%
414   \ifx\@empty\niib@tailcitelist\@empty
415     \xdef\niib@tailcitelist{\niib@tempa}%

```

```

416   \else
417     \xdef\@name{tailcitelist}{\@name@tailcitelist,\@name@tempa}%
418   \fi}

\niib@auxhook
\niib@dochook
\@restore@auxhandle

To allow the automatic punctuation-searching of cite to work, some code has to
be added to the hook available there. However, as that is intended for multibib,
care is needed to get the desired result. \niib@dochook is defined here, even
though it is needed above, as the code here will always be executed.

419 \newcommand*{\niib@dochook}{%
420   \@ifundefined{@restore@auxhandle}
421     {\newcommand*{\@restore@auxhandle}{\niib@auxhook}}
422     {\ifx\relax\@restore@auxhandle\relax
423       \newcommand*{\@restore@auxhandle}{\niib@auxhook}%
424     \else
425       \g@addto@macro{\@restore@auxhandle}{\niib@auxhook}%
426     \fi}
427 \newcommand*{\niib@auxhook}{}
428 \let\niib@auxhook\relax

\blx@bibfiles The \bibliography macro is patched to ensure that when it is executed the
note file is also processed. biblatex does things very differently, but this actually
makes it much easier to patch for.

429 \AtBeginDocument{
430   \@ifpackageloaded{biblatex}
431     {\expandafter\gappto\expandafter\expandafter\blx@bibfiles\expandafter
432      {,\niib@prefix\jobname}
433     \niib@log@debug{Added bibnotes database to biblatex file
434     list}}}

\niib@org@bib
\bibliography Without biblatex, the bibliography command is patched so that it will run on the
automatically-generated BIBTEX database. If no notes have been added, then the
macro doesn't actually do anything.

435   {\let\niib@org@bib\bibliography
436     \renewcommand*{\bibliography}[1]{%
437       \ifnum\the\value{bibnote} > \z@
438         \niib@org@bib{\niib@prefix\jobname,\#1}%
439       \else
440         \niib@org@bib{\#1}%
441       \fi
442     \niib@log@debug{Added bibnote database to
443     \noexpand\bibliography}}}

```

7.7 Finalisation

```

\ifniib@rerun A switch is needed for the re-run test.
444 \newif\ifniib@rerun

\niib@checkrerun Any “head” notes may mean a second LATEX run is needed.
445 \newcommand*{\niib@checkrerun}[1]{%
446   \niib@rerunfalse
447   \expandafter\ifx\expandafter\@empty
448     \csname niib@#1list\endcsname\@empty

```

```

449  \expandafter\ifx\expandafter\@empty
450    \csname niib@#1citelist\endcsname\@empty
451    \niib@log@debug{No '#1' notes detected}%
452  \else
453    \niib@reruntrue
454    \niib@log@debug{No '#1' notes found this run\MessageBreak
455      but .aux files contained the '#1' requests:
456      \MessageBreak\csname niib@#1citelist\endcsname}%
457    \fi
458  \else
459    \expandafter\ifx\expandafter\@empty
460      \csname niib@#1citelist\endcsname\@empty
461      \niib@reruntrue
462      \niib@log@debug{No '#1' requests in .aux file
463        \MessageBreak but '#1' notes in this run:
464        \MessageBreak\csname niib@#1list\endcsname}%
465    \else

```

If the package gets here, then there are some notes and some requests in the aux file. The two lists are now compared.

```

466      \niib@checklists{\#1}%
467      \fi
468  \fi
469  \ifniib@rerun

```

Both human-readable requests for new runs, and biblatex-style automated requests are made. The package does not know if BibTeX8 is in use, so just asks for BibTeX.

```

470      \niib@log@warn{Rerun LaTeX to get correct \MessageBreak
471        '#1' notes}%
472      \niib@log@warn{Please (re)run BibTeX on the file(s):
473        \MessageBreak\jobname.aux
474        \MessageBreak and rerun LaTeX afterwards.}%
475  \ifniib@lognone\else
476    \typeout{%
477      REQ:3:latex:REQ^^J%
478      REQ:2:bibtex:REQ^^J%
479      REQ:1:latex:REQ}%
480  \fi
481  \fi}

```

\niib@checklists The business end of comparing the two lists. Two sweeps are made, to check that the lists match entirely.

```
482 \newcommand*{\niib@checklists}[1]{%
```

\niib@list To allow \niib@checklists to handle both sort=head and sort=tail citations, the expanded list is needed for the \for loops.

```

483  \expandafter\edef\expandafter\niib@list\expandafter
484    {\csname niib@#1list\endcsname}%
485  \expandafter\edef\expandafter\niib@citelist\expandafter
486    {\csname niib@#1citelist\endcsname}%

```

The loops can now begin.

```
487  \for\niib@tempa:=\niib@list\do{%
```

```

488 \niib@reruntrue
489 \@for\niib@tempb:=\niib@citelist\do{%
490   \ifx\niib@tempa\niib@tempb
491     \niib@rerunfalse
492   \fi}
493 \ifniib@rerun
494   \niib@log@debug{Note \niib@tempa\space is a '#1' note
495   \MessageBreak but request not in .aux file}%
496 \fi}
497 \ifniib@rerun\else
498   \@for\niib@tempa:=\niib@citelist\do{%
499     \niib@reruntrue
500     \@for\niib@tempb:=\niib@list\do{%
501       \ifx\niib@tempa\niib@tempb
502         \niib@rerunfalse
503       \fi}
504     \ifniib@rerun
505       \niib@log@debug{Note \niib@tempa\space is set to '#1'
506       in .aux\MessageBreak file but is not a '#1' note}%
507     \fi}
508   \fi}

```

\niib@taillist At the end of the document, any delayed citations are written to the .aux file, and the database file is closed cleanly. A check is also made for the need for an additional L^AT_EX run for “head” notes.

```

509 \AtEndDocument{%
510   \niib@rerunfalse
511   \niib@checkrerun{head}%
512   \flushnotestack
513   \@ifundefined{\niib@out}{}
514     {\immediate\closeout\niib@out
515      \niib@log@debug{Closed BibTeX database file\MessageBreak
516      \niib@stream}}}

```

8 Notes

- [1] Note for the first example.
- [2] Note for the second example.
- [3] Note for the third example.
- [4] Some \verb-like output.

9 Change History

v1.0	v1.1	
General: Initial public release	1	General: \Percent macro re-
		moved
v1.0a		1
\citenote: New macro	13	Documentation improvements ..
		1
		Improvements to documentation

and dtx file	<i>1</i>	\niib@auxhook: New macro	<i>17</i>
License changed from GPL to LPPL	<i>1</i>	\niib@bibnote: Use \niib@mark for citation	<i>14</i>
Several code sections re-factored	<i>1</i>	\niib@dochook: New macro	<i>17</i>
\bibnote: Macro made robust	<i>12</i>	\niib@key: Dynamic rather than static definition	<i>13</i>
\bibnotemark: Macro made ro- bust	<i>12</i>	\niib@keyname: Moved to \AtBeginDocument	<i>13</i>
\bibnotetext: Macro made ro- bust	<i>12</i>	\niib@presort: Dynamic rather than static definition	<i>13</i>
\citenote: Macro made robust	<i>13</i>	\niibheadcite: New macro	<i>17</i>
\flushnotestack: Macro made robust	<i>12</i>	\niibsetup: New macro	<i>7</i>
\niib@id: Removed use of xspace	<i>6</i>	v1.3b	
\printbibnotes: Macro made ro- bust	<i>12</i>	\flushnotestack: Added check for correct tail citations in .aux file	<i>12</i>
v1.2		Writes stack to .aux file	<i>12</i>
General: Altered implementation of head and tail options to allow moving of superscript citations	<i>1</i>	\niib@checkrerun: Added abil- ity to check for both head and tail re-runs	<i>18</i>
\blx@bibfiles: Fixed bug with biblatex support	<i>18</i>	Bug fix with logging for debug logging	<i>18</i>
v1.3		\niib@citelist: New macro	<i>19</i>
General: Added xkeyval option inter- face	<i>1</i>	\niib@list: New macro	<i>19</i>
All options now work anywhere in input	<i>1</i>	\niib@tailcitelist: New macro	<i>17</i>
Fixed serious errors with head and tail implementation	<i>1</i>	\niib@taillist: New macro	<i>20</i>
\bibliography: Modification now at beginning of document	<i>18</i>	\niibtailcite: New macro	<i>17</i>
\blx@bibfiles: Modification now at beginning of document	<i>18</i>	\printbibnotes: Definition moved to beginning of docu- ment	<i>12</i>
Updated for biblatex v0.7: moved to end of preamble, switch from \bib@gadd to \gappto	<i>18</i>	v1.3c	
\citenote: Now a wrapper for \niib@mark	<i>13</i>	\niib@org@footnote: Saved in package	<i>10</i>
\document: Added hook after .aux files has been read but be- fore document begins	<i>17</i>	\niib@org@footnotemark: Saved in package	<i>10</i>
\flushnotestack: Fixed bug with empty stack	<i>12</i>	\niib@org@footnotetext: Saved in package	<i>10</i>
Renamed from \flushcitetstack	<i>12</i>	\niib@swapfoot: Simplified code	<i>10</i>
\niib@addtostack: Macro re- named from \niib@stackup	<i>14</i>	\thanks: Altered redefinition method	<i>10</i>
		Redefinition in preamble	<i>10</i>
v1.4		General: ϵ -TeX made optional (again), with control option to turn off use even if available	<i>1</i>

10 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.

Symbols

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-------------------------------	--------------------------

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