New multibibliography package *nmbib*

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Abstract

Two years ago we presented a *multibibliography* package that provides multiple lists of citations with alternate orderings. The *nmbib* package is a complete refactoring of that program. It offers a broader variety of citation commands, streamlines the creation of bibliographies, ensures compatibility with the *natbib* package, and provides other improvements.

1 Introduction

In scientific books and papers, the bibliography is traditionally relegated to "back matter". One might think of it as less important than the main text, being added almost as an afterthought. However, this is not correct. Actually the bibliography tells an important story about the field of study and the place of the given work within it.

Correspondingly, different orderings of the bibliography list tell different stories. A sequential ordering shows the logic of the current work, while an alphabetical ordering shows the contributions of different people to the field. Another possibility, a chronological ordering, is much less common. It shows the history of the field, and thus can also be important and interesting.

Which story should authors choose for their work? We argue that they may have all of them, providing several differently ordered lists instead of just one. Indeed, computers make creation and shuffling of bibliographies very simple, and electronic publishing eliminates the problem of dead trees needed to print additional pages (Cohen, 2014).

Accordingly, some time ago we proposed a way to produce several differently ordered bibliographies (Cohen et al., 2013a), and released the package *multibibliography* (Cohen et al., 2013b), implementing it for LaTeX and BibTeX. This package was a proof of concept for the ideas of the work [2]. It allowed creation of three bibliography lists with different styles: alphabetical by authors, chronological by date, and ordered by the appearance in the text. Each `\cite` command produced entries for all three lists. There were clickable links among the lists and from articulated citations to the lists.

This prototype implementation, while showing the usefulness of the idea, had a number of limitations. First, the only format of the citation allowed was the following: "[Cohen et al., 2013a: 2]". A user wanting purely author-year or numeric style would be frustrated. Second, the BibTeX styles for the reference lists were fixed. If a journal or a book required different punctuation or capitalization than that provided, there was no way to adjust the format of the references. Third, the Perl script used to manage the lists was a rather *ad hoc* solution and needed some refactoring.

In this paper we describe the new package *nmbib* (Veytsman and Cohen, 2015), including many new features.

2 Features of the *nmbib* package

Like our previous package *multibibliography* [3], the *nmbib* package can create three bibliography lists: timeline, sequential, and alphabetical. However, unlike *multibibliography*, it allows the user to easily omit any of these lists.

The main feature of *nmbib* is full compatibility with the famous *natbib* package by Daly (2010). (In fact, `nmbib.sty` loads `natbib.sty`.) Compatibility means two things. First, any citation command of *natbib*, such as `\citet`, `\citep`, `\citeauthor`, `\citeyear`, etc., works directly. Second, any *natbib* `bst` style can be used for the respective bibliography. This includes customized styles created with the *makebst* package (Daly, 2003). Thus a user can easily create a bibliography style according to any specification.

The package is also compatible with *hyperref* (Rahtz and Oberdiek, 2012). If the latter is loaded, all citations have hyperlinks with evident properties: clicking on authors' names lands the user on the alphabetical list, clicking on a date lands her on the chronological list, and clicking on a number goes to the sequential list. There are hyperlinks among the labels of the bibliography items with the same meaning. Moreover, if one uses the styles supplied with the package, there are additional links among the *bodies* of the bibitems: for example, clicking on authors' names in the chronological list will bring the user to the relevant entry in the alphabetical list.

The package can be extended to new types of sorting. For example, if the bibliography entries have a field with the number of citations for the given paper, we can imagine a list ordered according to the influence of the publications.[1]

3 User interface

The full manual [4] for the package is available on CTAN. Here we discuss just the main features of the program.

To produce a standard BibTeX-based bibliography, one uses three types of commands:

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[1] We are grateful for this suggestion to the audience of TUG 2015.

1. Citation command: `\cite` (and, for *natbib*, a number of extensions such as `\citeauthor`, `\citenum`, etc.).

2. Command for setting up the bibliography style: `\bibliographystyle`.

3. Command for setting the bibliography databases and printing the bibliography: `\bibliography`.

Our interface is designed following the same pattern. First, it uses the same `\cite` commands. Our package allows one to intermix author-year and numerical citations, as in this paper. The command `\citefull` may be used to get the full citation in the *multibibliography* package style.

Next, our command `\multibibliographystyle` is similar to the command `\bibliographystyle`, with the following important difference: the user must separately set styles for the three major kinds of bibliography: `timeline`, `sequence`, and `authors`. For example:

```
\multibibliographystyle{timeline}%
    {chronoplainnm}
\multibibliographystyle{sequence}{unsrtnm}
\multibibliographystyle{authors}{plainnm}
```

The three BibTeX styles referenced here are supplied with the package. As discussed above, one can use any *natbib*-compatible style for alphabetical and sequential lists.

Finally, the command `\bibliography` in standard BibTeX use has two functions: setting the databases *and* also printing the bibliography. Our package separates these functions: the command `\multibibliography` only sets the databases, while the list of references is printed with the command `\printbibliography`. The latter has one argument, which sets the type of the list, as in

```
\printbibliography{sequence}
\printbibliography{authors}
\printbibliography{timeline}
```

In the standard BibTeX-based workflow, after a `latex` run, a file `\jobname.aux` is processed by the `bibtex` program, creating the file `\jobname.bbl`. In the *nmbib* workflow, three files are generated: `\jobname-timeline.aux`, `\jobname-sequence.aux`, and `\jobname-author.aux`. Each of them should be processed with `bibtex`. The script `nmbibtex`, supplied with the package *nmbib*, can automate this processing, but is not required.

The package *nmbib* is highly customizable: it is easy to change bibliography labels, names of the individual lists, and other features. See the manual for a full description.

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4   Conclusions

We have developed and released a completely new implementation of the *multibibliography* package. The new program has a flexible and highly customizable interface.

Sequential bibliography

[1: Cohen (2014)] Michael Cohen. From Killing Trees to Executing Bits: A Survey of Computer-Enabled Reading Enhancements for Evolving Literacy. In *VSMM: Proc. Int. Conf. on Virtual Systems and Multimedia*, Hong Kong, December 2014. `http://www.vsmm2014.org`, ISBN 978-1-4799-7227-2, `https://www.researchgate.net/publication/277006068_From_Killing_Trees_to_Executing_Bits_A_Survey_of_Computer-Enabled_Reading_Enhancements_for_Evolving_Literacy`.

[2: Cohen et al. (2013a)] Michael Cohen, Yannis Haralambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. `http://tug.org/TUGboat/tb34-3/tb108cohen.pdf`.

[3: Cohen et al. (2013b)] Michael Cohen, Yannis Haralambous, and Boris Veytsman. *The Multibibliography package*, March 2013. `http://ctan.org/pkg/multibibliography`.

[4: Veytsman and Cohen (2015)] Boris Veytsman and Michael Cohen. *New Multibibliography Package nmbib*, July 2015. `http://ctan.org/pkg/nmbib`.

[5: Daly (2010)] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, September 2010. `http://ctan.org/pkg/natbib`.

[6: Daly (2003)] Patrick W. Daly. *Customizing Bibliographic Style Files*, September 2003. `http://ctan.org/pkg/custom-bib`.

[7: Rahtz and Oberdiek (2012)] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in LaTeX: A Manual for Hyperref*, November 2012. `http://ctan.org/pkg/hyperref`.

Alphabetic bibliography

[Cohen (2014); 1] Michael Cohen. From Killing Trees to Executing Bits: A Survey of Computer-Enabled Reading Enhancements for Evolving Literacy. In *VSMM: Proc. Int. Conf. on Virtual Systems and Multimedia*, Hong Kong, December 2014. `http://www.vsmm2014.org`, ISBN 978-1-4799-7227-2, `https://www.researchgate.net/publication/277006068_From_Killing_Trees_to_Executing_Bits_A_Survey_of_Computer-Enabled_Reading_Enhancements_for_Evolving_Literacy`.

[Cohen et al. (2013b); 3] Michael Cohen, Yannis Haralambous, and Boris Veytsman. *The Multibibliography package*, March 2013. `http://ctan.org/pkg/multibibliography`.

[Cohen et al. (2013a); 2] Michael Cohen, Yannis Hara-lambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. `http://tug.org/TUGboat/tb34-3/tb108cohen.pdf`.

[Daly (2003); 6] Patrick W. Daly. *Customizing Bibliographic Style Files*, September 2003. `http://ctan.org/pkg/custom-bib`.

[Daly (2010); 5] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, September 2010. `http://ctan.org/pkg/natbib`.

[Rahtz and Oberdiek (2012); 7] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in LATEX: A Manual for Hyperref*, November 2012. `http://ctan.org/pkg/hyperref`.

[Veytsman and Cohen (2015); 4] Boris Veytsman and Michael Cohen. *New Multibibliography Package nmbib*, July 2015. `http://ctan.org/pkg/nmbib`.

Chronological bibliography

[2003: Daly; 6] Patrick W. Daly. *Customizing Bibliographic Style Files*, September 2003. `http://ctan.org/pkg/custom-bib`.

[2010: Daly; 5] Patrick W. Daly. *Natural Sciences Citations and References (Author-Year and Numerical Schemes)*, September 2010. `http://ctan.org/pkg/natbib`.

[2012: Rahtz and Oberdiek; 7] Sebastian Rahtz and Heiko Oberdiek. *Hypertext Marks in LATEX: A Manual for Hyperref*, November 2012. `http://ctan.org/pkg/hyperref`.

[2013a: Cohen et al.; 2] Michael Cohen, Yannis Hara-lambous, and Boris Veytsman. The multibibliography package. *TUGboat*, 34(3):340–343, 2013. `http://tug.org/TUGboat/tb34-3/tb108cohen.pdf`.

[2013b: Cohen et al.; 3] Michael Cohen, Yannis Hara-lambous, and Boris Veytsman. *The Multibibliography package*, March 2013. `http://ctan.org/pkg/multibibliography`.

[2014: Cohen; 1] Michael Cohen. From Killing Trees to Executing Bits: A Survey of Computer-Enabled Reading Enhancements for Evolving Literacy. In *VSMM: Proc. Int. Conf. on Virtual Systems and Multimedia*, Hong Kong, December 2014. `http://www.vsmm2014.org`, ISBN 978-1-4799-7227-2, `https://www.researchgate.net/publication/277006068_From_Killing_Trees_to_Executing_Bits_A_Survey_of_Computer-Enabled_Reading_Enhancements_for_Evolving_Literacy`.

[2015: Veytsman and Cohen; 4] Boris Veytsman and Michael Cohen. *New Multibibliography Package nmbib*, July 2015. `http://ctan.org/pkg/nmbib`.

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