

The Multibibliography Package

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Abstract

Conventional standards for bibliography styles entail a forced choice between index and name-year citations and corresponding references. We reject this false dichotomy, and describe a multibibliography, comprising alphabetic, sequenced, and also chronological orderings of references. An extended inline citation format is presented which integrates such heterogeneous styles, and is useful even without separate bibliographies. Richly hyperlinked for electronic browsing, the citations are articulated to select particular bibliographies, and the bibliographies are cross-referenced through their labels, linking among them.

1 Introduction

One of the aims of the list of references in an academic paper or book is to show the reader the current state of the field. A good bibliography creates a narrative, showing the context of the current paper or book in the general picture of scientific inquiry — those proverbial “shoulders of giants” on which it stands.

There are two main ways to organize such a narrative: either around the ideas or around the authors. In the first case the order of citation follows the order of their mention in the main text. Thus the logic of the text is reflected in the bibliography list. In the second case the order of citations follows the authorship: we want alphabetic order by authors (with chronological subordering of works by the same authors). Accordingly, the inline citations in the first cases are usually numerical, whereas in the second case they are either numerical or, when possible, based on the authors’ names and publication years (perhaps abbreviated or contracted). This is the main difference between “numerical” and “named” bibliography styles [Daly, 2011: 1]. Both these styles have their own advantages and disadvantages. It is possible to imagine a third option: ordering the citation primarily accordingly to publication year, thus showing the chronology of the progress in the field.

One may ask, why not use the advantages of both the currently employed styles, generating down not one, but multiple lists of references? In the old days, when bibliographies were created and sorted manually, such a task was prohibitively expensive. This is no longer true.

Encouraged by the programmability of bibliographic styles and the flexibility of compiled formatting, we propose an extension of academic and scientific bibliographic styles. Conventional inline bibliographic citations, indicating full references in a separated bibliography, are either ordinal numbers generated according to first appearance in a document or a tag composed (perhaps abbreviated or contracted) of respective authors’ names and publication year. To reconcile desire to simultaneously deploy these heretofore mutually exclusive styles, we introduce a “multibibliography,” combining both “numerical” and “named” styles. We also add a chronological list, integrating all the information for the inline citation. This idea was conceived by the first author and implemented partly by the second author and the third author.

Rather than having to choose between citations generated as

index numbers,

- corresponding to alphabetically sorted authors names, as in BibTeXs “**plain**” style,
- in order of first appearance in the document, as in the “**unsrt**” style, or

author names and publication year (or some abbreviation thereof), as in the “**alpha**” style,

we use both, mixing the two styles, as in “(Suzuki, 2013: 57)”, or, in case of associated page numbers, “(Suzuki, 2013: 57, p. 45–67)”.

This is admittedly unorthodox, unusual and unique, but satisfies our desire to have an easily understood cross-reference (without ambiguity in the case of name collision) and an ordinal reference (the last entry also serving as a cardinal reference count), and also our preference to be able to see an inline reminder of the respective authors. As a bonus highlighting such usefulness, a “**timeline**” bibliography is also generated in chronological order.

2 Implementation and Invocation

The multibibliography comprises three separate orderings. A perl script compiles the multibibliography source. Running “**perl multibibliography.pl <fn>**,” instead of **bibtex** (after the 1st-pass “**latex <fn>**” and before the usual 2nd and 3rd passes), generates three .bbl files:

- “**apalike**” style, sorted alphabetically, by first author’s family name,
- “**unsrt**” style, in order of first appearance in the document, and with the label adjusted to lead with the sequence number, and also
- “**chronological**” style, sorted according to date of publication, as in a timeline.

This functionality is different from both the `multibib` package,¹ which facilitates having separate bibliographies for each chapter in a monograph, and the `multibbl` package,² which facilitates separating referenced sources by their language [Mori, 2009: 2].

In `multibibliography.sty`, which should be loaded at the top of any invoking document, the “`thebibliography`” command is redefined and the “`bibliographysequence`” and “`bibliographytimeline`” commands are newly defined, all of which respectively redefine the `bibitem` command accordingly to generate references in the appropriate format and order. The `chronological.bst` file in the package, made with the `makebst` [Daly, 2007: 3] and `docstrip` utilities and using the `merlin.mbs` generic bibliography [Daly, 2011: 1], augments the built-in `apalike` and `unsrt` styles.

At the end of the document, the `multibibliography` is rendered thusly:

```
\renewcommand{\bibname}{References
  sorted by name}
\markboth{References sorted by name}
  {References sorted by name}
\bibliographystyle{apalike}
\addcontentsline{toc}{chapter}{
  References sorted by name}
\bibliography{.bib files}

\clearpage
\renewcommand{\bibname}{References
  sorted by first appearance}
\markboth{References sorted by
  first appearance}{References
  sorted by first appearance}
\addcontentsline{toc}{chapter}{
  References sorted by appearance}
\bibliographysequence{.bib files}

\clearpage
\renewcommand{\bibname}{References
  sorted chronologically}
\markboth{References sorted
  chronologically}{References
  sorted chronologically}
\addcontentsline{toc}{chapter}{
  References sorted chronologically}
\bibliographytimeline{.bib files}
```

(For shorter document styles, such as this article, `\bibname` should be changed above to `\refname`,

¹ www.ctan.org/pkg/multibib

² www.ctan.org/pkg/multibbl

and adjustments to the Table of Contents as well as the `\clearpages` may be elided.)

This `multibibliography` system is copotentiated by the hypertextual `hyperref`³ package. When using them together with an appropriate viewer or browser (such as `xdvi`, `acrobat`, or Adobe Reader), clicking an inline citation jumps to the respective entry in one of the reference lists. As illustrated by Fig. 1, the `multibibliography` inline `hyperref` hotspot is articulated to allow clicking on

the name, which jumps to the corresponding entry in the alphabetical bibliography;

the index number, which jumps to the respective entry in the sequential bibliography; or

the date, which jumps to the matching entry in the chronological bibliography.

Similarly, cross-references among the respective sub-bibliographies are also hyperlinked, although from the labels, and not the `bibitem` bodies of the citations. The “[`backref=page`]” `hyperref` extension⁴ is also compatible, generating the familiar and useful back-references in all three subbibliographies: lists of clickable page number links associated with each entry in the bibliography pointing back to the respective citations (excepting those generated by `nocites`). The generation of these back-references, indicated by the hollow arrowheads in Fig. 1, represents “closing the loop” on the fully crossed relation set.

We have not yet experimented with combining this package with other bibliographic packages [Patashnik, 1998: 4] such as `natbib`⁵ or `chapterbib`⁶ [Kopka and Daly, 2003: 5, p. 217–221].

3 Implications

The extended inline citation style was designed for the `multibibliography`, but can be deployed and is useful even without it. The bibliographic dilation is perhaps more appropriate or at least more appealing for electronic dissemination, as traditional print-based publishers might resent the cost of extra pages. The fully crossed hyperreferential links are a convenient way of establishing the context of references, seamlessly expressing citations’ appearances in the document and in time.

Maybe the three “slices” through the bibliographic database that we have organized suffice for most ordinary publishing, but presumably someone could make even more styles of bibliographic lists,

³ www.ctan.org/pkg/hyperref

⁴ www.tug.org/applications/hyperref/manual.html

⁵ www.ctan.org/pkg/natbib

⁶ www.ctan.org/pkg/chapterbib

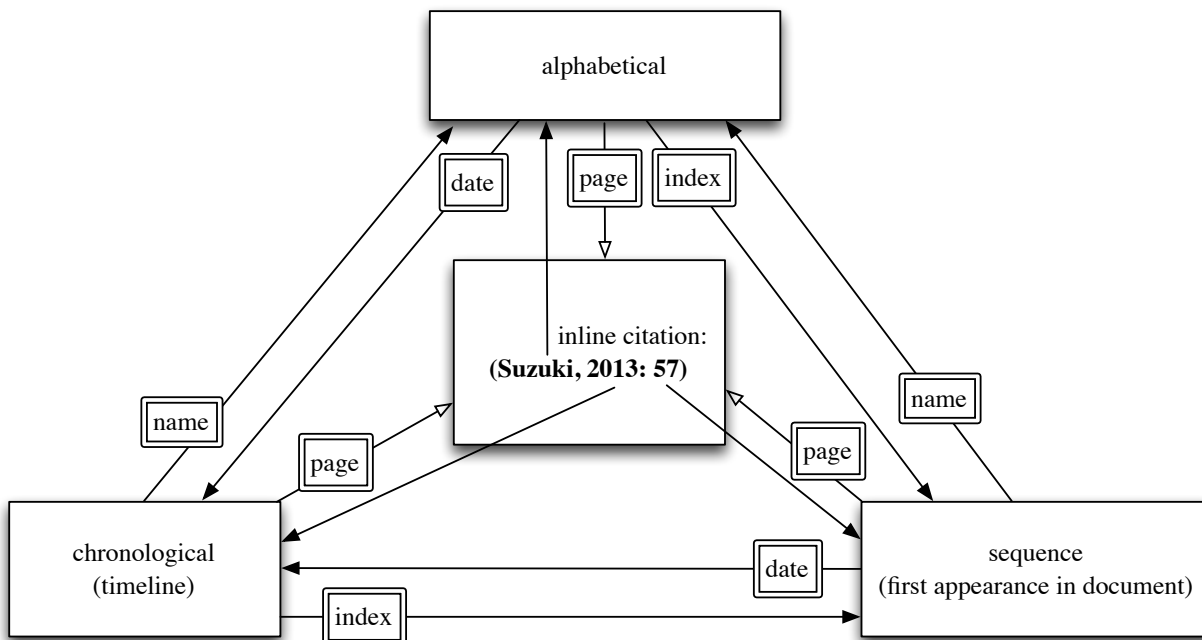


Figure 1: Hyperreferential links across document and among the multibibliographies: Each inline citation, exemplified by the block in the center, is linked to references in three subbibliographies, which are cross-linked to each other and can also be linked back to the inline callout. Hollow arrowheads represent links provided by **backref**; solid arrowheads represent links provided by the **multibibliography** package.

corresponding to special purposes, sorted by attributes such as number of authors, number of pages, conference or journal, location, etc. The philosophy is to leverage the power of hyperreferential idioms to augment reading by considering a document as a special kind of database that is indexed in appropriate dimensions, especially including the name–value pairs in its associated bibliographic information (such as that captured by **bibtex** files) plus derived information available after compilation (such as sequence number and appearance location).

In the future, the date should be articulated to add the month to the `sort.label` in the `presort FUNCTION` in the `chronological.bst` file, since it isn't one of the built-in keys of the `makebst` package [Markey, 2009: 6], as the `merlin` system didn't anticipate such fine-grained sortings. As [Markey, 2009: 6, p. 13] observes, the month is somewhat problematic, since it is indicated by a character string, but is really an ordinal. If built-in macros (“jan”, “feb”, etc.) are used, they can be easily mapped to months and used for sorting, but if, as is often the case, the field is reinterpreted to mean date (bimonthly publications indicated by something like `month = "March & April"`, quarterly dates as `month = "Autumn"`, etc.), this scheme will not easily generalize.

It is our hope that old-fashioned conventions, established in the context of technological restrictions that have now been overcome, may be relaxed. We find this multidimensional presentation useful, are adopting it at the first author's university as a recommended style for masters theses and doctoral dissertations, and hereby encourage other institutions to emulate this innovation, especially for extended works such as monographs and books.

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