
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 manuscript 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 citations 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 citations primarily accordingly to publication year, thus showing the chronology of progress in the field.

One may ask, why not use the advantages of both the currently employed styles, generating 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 for-

matting, 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 of respective authors’ names and publication year. 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 citations. This idea was conceived by the first author and implemented partly by the second author and the third author.

Rather than choosing between citations as **index numbers**, corresponding to alphabetically sorted authors’ names, as in BibTeX’s “plain” style, and 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 in the sequential bibliography 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

Such a multibibliography currently comprises three separate orderings. A Perl script compiles the multibibliography source. Specifically, running “perl multibibliography.pl *<fn>*” instead of `bibtex` (after the 1st-pass “`latex <fn>`” and before the usual 2nd and 3rd passes), generates separate `.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.

The functionality of the multibibliography package¹ is different from both the `multibib` package,²

¹ www.ctan.org/pkg/multibibliography

² www.ctan.org/pkg/multibib

which facilitates having separate bibliographies for each chapter in a monograph, and the `multibbl` package,³ 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 standard “`thebibliography`” command is redefined and new commands called “`bibliographysequence`” and “`bibliographytimeline`” are 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` can be 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`, and adjustments to the Table of Contents as well as the `\clearpages` may be elided.)

This `multibibliography` system is copotentiated by the hypertextual `hyperref`⁴ 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 in 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 subbibliographies are also hyperlinked, although from the labels, and not the `bibitem` bodies of the citations. The “[`backref=page`]” `hyperref` extension⁵ is compatible, generating the familiar and useful back-references in all the subbibliographies: lists of clickable page number links associated with each entry in the bibliography pointing back to the respective citations (except 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.

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. However, as [Markey, 2009: 6, p. 13] observes, using 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.

We have not yet experimented with combining this package with other bibliographic packages [Patashnik, 1998: 4] such as `natbib`⁶ or `chapterbib`⁷ [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

³ www.ctan.org/pkg/multibbl

⁴ www.ctan.org/pkg/hyperref

⁵ www.tug.org/applications/hyperref/manual.html

⁶ www.ctan.org/pkg/natbib

⁷ www.ctan.org/pkg/chapterbib

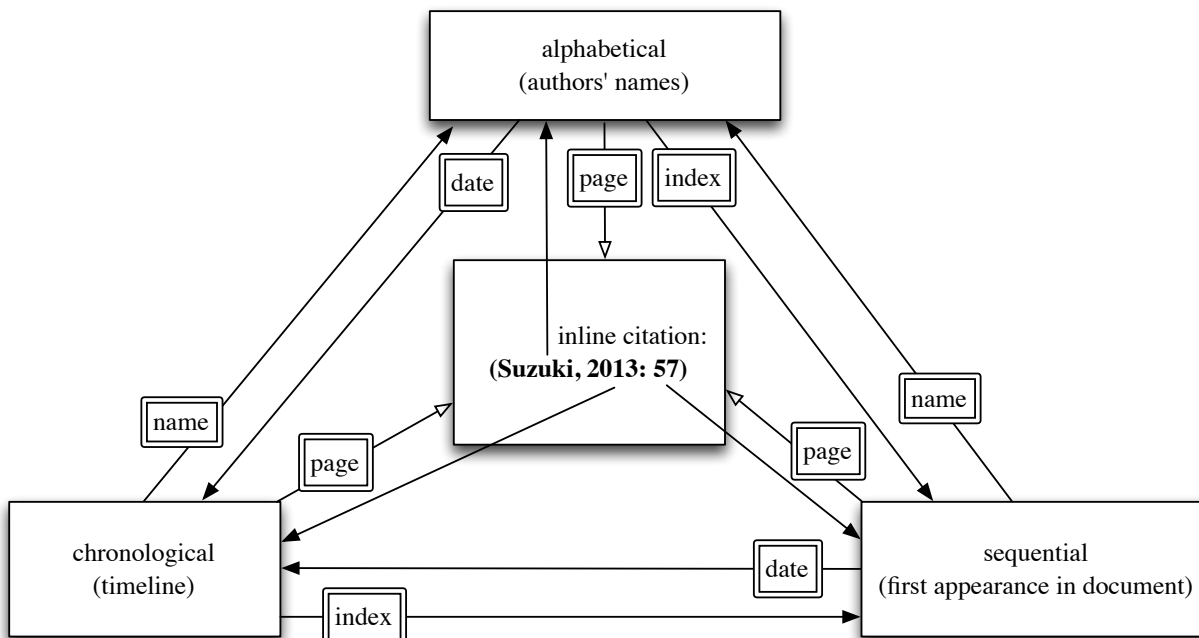


Figure 1: Hyperreferential links across document and among multibibliographies: Each inline citation, exemplified by the block in the center, is linked to references in sub-bibliographies, which are cross-linked to each other and can also be linked back to the inline callouts. Hollow arrowheads represent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

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.

Bibliographic subsections might be sorted by other ad-hoc keys. Maybe the three “slices” through the bibliographic database that we have organized suffice for most ordinary publishing, but even more styles of bibliographic lists could be crafted, corresponding to special purposes, sorted by attributes such as number of authors, number of pages, conference or journal, location, etc. For simple examples, a subbibliography near the end of an art book could be sorted by name of artist considered by each monograph, or music books could have bibliographies sorted by name of performing group or family or given name of artist. Of course all monographs about each artist would be grouped together in that subbibliography, and each citation would include page numbers for each call-out within the text.

These kinds of lists could be (and often are) explicitly compiled by authors, but only painstakingly. However, such concordances would lack the automatic back references to the call-outs. A mod-

ern, flexible scheme enables various presentations of bibliographic information, so that each references subsection acts as a kind of special index, but with granularity not at the topic level, but at the document level.

Such extended subbibliographies both represent and also re-present references, showing them in fresh and useful settings. There are two related activities encouraged by such recontextualization:

- looking up a particular entry (including page call-outs), and
- exploiting “locality of reference,” so that other related sources are likely to be nearby.

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).

It is our hope that old-fashioned conventions, established in the context of technological restrictions that have now been overcome, may be relaxed.

We anticipate that future schemes will allow dynamic reordering, as if the bibliography were a spreadsheet-like database, which of course it is. 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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