

VON001F: Thesis Skills

Hands-On Exercises:

6.3 Management of Bibliographical References with LaTeX

Helmut Neukirchen

helmut@hi.is

<https://uni.hi.is/helmut>

Chapter Objectives

- Getting hands-on experience in using bibliographical references with LaTeX and BibLaTeX.

- Note: Assumption that you attended two previous classes on LaTeX (or read the slides).

General idea

- One file that contains your bibliography as “raw” data.
- `\cite` your bibliography entries inside your text.
- LaTeX takes care of the rest, i.e. formatting the bibliography section that contains only the actually cited literature.
 - Possible to change appearance of bibliography.
 - Just use a different parameter.
 - No need to change the bibliography file.
 - No need to change your text.
- Tools from the LaTeX family to achieve it:
 - BibTeX or BibLaTeX.

There is also third option: natbib
(used in the SENS thesis template –
we are going to delete it there.)

BibTeX vs. BibLaTeX

- All can automatically generate references to bibliography and generate the Bibliography/References section.
- All use a *.bib file (with the same syntax, typically called “BibTeX format”) for storing the bibliographic information.
- **BibTeX** is older:
 - does not need a `\usepackage`
 - needs to escape `þ`, `ö`, `á` etc. in strings (e.g. author name) in *.bib file
- **BibLaTeX** is newer:
 - needs a `\usepackage`
 - Supports UTF-8 Unicode, i.e. no need to escape `þ`, `ö`, `á` in *.bib file.
 - BibLaTeX is slower than BibTeX.
- The commands to specify the citation style to be used are different.
- The command to generate the Bibliography section is different.
- Referring to literature using `\cite` is the same!

We are going to use BibLaTeX

Format of a *.bib file

- Syntax is different than LaTeX code:

Entry type to be used for journal articles

```
@article{einstein,  
  author = "Albert Einstein",  
  title = "{Zur Elektrodynamik bewegter K{\\"o}rper}",  
  journal = "Annalen der Physik",  
  volume = "322",  
  number = "10",  
  pages = "891--921",  
  year = "1905",  
  DOI = "http://dx.doi.org/10.1002/andp.19053221004",  
  keywords = "physics"  
}
```

Some fields are mandatory, some optional.

You are going to use these internal labels in your LaTeX source code:

```
\cite{einstein} or  
\cite{einstein,dirac}
```

Escapes needed for BibTeX, not for BibLaTeX

Entry type to be used for books

```
@book{dirac,  
  title={The Principles of Quantum Mechanics},  
  author={Paul Adrien Maurice Dirac},  
  isbn={9780198520115},  
  series={International series of monographs on physics},  
  year={1981},  
  publisher={Clarendon Press},  
  keywords = {physics}  
}
```

May also use curly brackets instead of double quotes.

More on *.bib format:

Entry types

- Different entry types (e.g. book vs. journals) have different fields,
 - e.g. journal articles have a volume – books not.
- What types (journal, book, conference paper (= @INPROCEEDINGS) etc.) are available?
 - which fields are required?
 - which fields are optional?
- Examples in the middle of <https://www.overleaf.com/blog/532-creating-and-managing-bibliographies-with-bibtex-on-overleaf>
- Overviews on:
 - <https://nwalsh.com/tex/texhelp/bibtex-7.html>
 - <http://bib-it.sourceforge.net/help/fieldsAndEntryTypes.php>

More on *.bib format:

Web pages generating *.bib format

- In addition to writing entries manually, you can get entries from, e.g.
 - Google Scholar and many other bibliographic web pages:
 - Just copy paste them into your *.bib file.

☆ 99 Cited by 85 Related articles All 2 vers

[PDF] Writing Scientific Papers in LATEX
D Arnold -edu/instruct/darnold/linalg/latex/proj

We assume that our readers 1 have a working TEX
the case, see Section 4, Getting and Installing a Te
that work well with TEX, but Microsoft Word is not c

☆ 99 Cited by 10 Related articles All 3 vers

Scientific Publications. in *European Semantic web
Conference* (pp. 518-532). Springer, Berlin, Heidelberg.

Vancouver Groza T, Handschuh S, Möller K, Decker S. SALT-Semantically
Annotated $\{\LaTeX\}$ for Scientific Publications.
In *European Semantic Web Conference 2007 Jun 3* (pp.
518-532). Springer, Berlin, Heidelberg.

BibTeX EndNote RefMan RefWorks

- But: Google Scholar often guesses the type wrong,
e.g. it thinks, a book is a journal article, thus uses `@article` entry type.
 - Need to modify manually.
- DOI to BibTeX: <https://www.doi2bib.org/>
- Fill in BibTeX fields online: <https://truben.no/latex/bibtex/>

Learn BibLaTeX in 10 minutes

- Create your *.bib file
- Use BibLaTeX and let it know about the name of your *.bib file (in `preamble`):
 - `\usepackage{biblatex}`
 - `\addbibresource{sample.bib}`
- Use inside your text:
 - `\cite{label used inside *.bib file}`
- Where you want to have the list of all cited references:
 - `\printbibliography`
- Do this tutorial now:
https://www.overleaf.com/learn/latex/Bibliography_management_in_LaTeX

BibLaTeX

Citation and bibliography styles

- Change appearance of
 - how the generated bibliography list looks like/is sorted (=bibliography style),
 - how citations inside your text (i.e. `\cite` =citation style)

via optional `style` and `citestyle` parameters, e.g.:

- `\usepackage[style=alphabetic, citestyle=authoryear]{biblatex}`

- Available bibliography styles, e.g.:

- https://www.overleaf.com/learn/latex/Biblatex_bibliography_styles

Items are cited: *The L^AT_EX Companion* book [2], the Einstein journal paper [1], and The L^AT_EX related items are [2, 3].

References **style=numeric**

[1] Albert Einstein. “Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]”. In: *Annalen der Physik* 322.10 (1905), pp. 891–921. DOI: <http://dx.doi.org/10.1002/andp.19053221004>.

[2] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The L^AT_EX Companion*. Reading, Massachusetts: Addison-Wesley, 1993.

Items are cited: *The L^AT_EX Companion* book [GMS93], the Einstein journal paper [Ein05], and The L^AT_EX related items are [GMS93; Knu].

References **style=alphabetic**

[Ein05] Albert Einstein. “Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]”. In: *Annalen der Physik* 322.10 (1905), pp. 891–921. DOI: <http://dx.doi.org/10.1002/andp.19053221004>.

[GMS93] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The L^AT_EX Companion*. Reading, Massachusetts: Addison-Wesley, 1993.

- Each bibliography comes with a matching citation style,
 - but you can override the citation style as well. Available citation styles, e.g.:
 - https://www.overleaf.com/learn/latex/Biblatex_citation_styles

Format of a *.bib file: Multiple authors

- Author names are separated by keyword "and" (not by a comma!):

```
@inproceedings{lesk:1977,  
  title={Computer Typesetting of Technical Journals on {UNIX}},  
  author={Michael Lesk and Brian Kernighan},  
  booktitle={Proceedings of American Federation of  
             Information Processing Societies: 1977  
             National Computer Conference},  
  pages={879--888},  
  year={1977},  
  address={Dallas, Texas}  
}
```

Have "and" here.

- Comma is rather used when writing the last name first (e.g. because you copy/paste it in that order – BibTeX will format it automatically in the right order):
 author={Lesk, Michael and Kernighan, Brian},
- In practise, you are lazy and may abbreviate the first names:
 author={M. Lesk and B. Kernighan}, or
 author={Lesk, M. and Kernighan, B.},
- If you have 6 or more authors, you can let BibTeX create "et al." by writing in your *.bib file "and others": author={ 6 authors here and others }

Format of a *.bib file:

Capitalisation of title field

- Most BibTeX/BibLaTeX bibliography styles turn the contents of the title field into lowercases.
 - To create a unified appearance. (Some papers use capitalisation of words, others not.)
 - (But a few styles leave the title field as it is.)
- But sometimes, you want to have capital letters, e.g. for acronyms.
- To be sure that capitalisation in title field is preserved, use extra curly brackets:
 - `title={Computer Typesetting of Technical Journals on {UNIX}},`
 - Will typically turn into: "Computer typesetting of technical journals on UNIX".

School of Engineering and Natural Sciences

Thesis template: Add BibLaTeX

- Add some *.bib file to your project
 - E.g. from tutorial or from Google Scholar.
- In preamble:
 - Delete line 20 `\usepackage[sort&compress,authoryear]{natbib}`
 - Natbib would be a third alternative to BibTeX and BibLaTeX
 - delete line 5 `\usepackage{ucs}`
 - Was once needed for Greek letters, but nowadays not needed anymore and incompatible with many other packages.
 - add
 - `\usepackage{biblatex}`
 - `\addbibresource{mybib.bib}`
 - Name of your *.bib file
- In last chapter References, replace `\chapter{References}` by
`\printbibliography[heading=bibintoc, title={Bibliography}]`
 - Chapter heading with that name
- Add `\cite{labelname}` to your text.
 - `\cite{label1,label2}` possible as well.
 - Adds bibliography to table of contents ("toc")
- You may experiment with bibliography style:
 - `\usepackage[style=alphabetic]{biblatex}`
 - But often, the default style (=numeric) is used in theses.

Conclusion

- The *.bib format is somewhat awkward.
 - Let tools (e.g. bibliographic web pages) generate them.
 - Fine tune the generated entries manually.
- But once you have your *.bib file, using it is easy.
 - Just \cite in your text.
 - Easy to change citations and bibliography style afterwards.