Template demonstrating the quantum bibstyle

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1 Overview

We use the opportunity of talking about bibtex entries to give an overview of the available reference classes:

- article (Section 2)
- book (Section 3)
- repository (Section 4)
- website (Section 5)
- misc (Section 6)

Other classes:

- booklet (Section 7.1)
- inbook (Section 7.2)
- incollection (Section 7.3)
- inproceedings (Section 7.4)
- conference (Section 7.5)
- manual (Section 7.6)
- mastersthesis & phdthesis (Section 7.7)
- proceedings (Section 7.8)
- techreport (Section 7.9)
- unpublished (Section 7.10)

All of these reference classes are available in standard bibtex style files as well, with the exception of repository and website. Of course there may be other style files supporting reference classes with the same name, but the implementation in quantum.bst will not be based on any of those. In Sec. 8 we describe a few minimal options for customization of the quantum bibstyle.

2 Reference class article

For the article class, the title is printed in quotation marks. The journal is not reformatted, the volume printed in bold font. We also include the pages if present and the year in round brackets (). doi links are always included if given, the same holds for eprint. Only if neither of these two fields is given do we use the url to provide a hyperlink to the article. If the custom field shorturl is provided, it is used to manually pretty-print the URL. This can be useful if a URL contains long character strings, particularly if they are not human-readable. The url field is used as linked URL, that is shorturl only changes the printed appearance and not the function of the hyperlink. Code repositories are linked whenever provided via the code field, which is a non-standard field in quantum.bst.

Examples:

<table>
<thead>
<tr>
<th>doi</th>
<th>eprint</th>
<th>url</th>
<th>code</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓/×</td>
<td>✓</td>
<td>[1]</td>
</tr>
<tr>
<td>✓</td>
<td>✓</td>
<td>✓/×</td>
<td>×</td>
<td>[2]</td>
</tr>
<tr>
<td>×</td>
<td>✓</td>
<td>✓/×</td>
<td>✓</td>
<td>[3]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>✓/×</td>
<td>×</td>
<td>[4]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
<td>[5]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
<td>[6]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>✓/×</td>
<td>✓</td>
<td>[7]</td>
</tr>
</tbody>
</table>

Note that in particular article citations via a URL alone are not recommended. If you want to cite a website or code repository, please use the respective reference classes website or repository (see below).

If an article citation only has an arXiv id but no journal reference, the journal title is skipped accordingly [8].

article references

3 Reference class book

For the reference class book, the title, the year, the publisher as well as either the author or the editor field must be given. The volume, number and series, the (publisher) address, the edition as well as links in the fields doi, eprint and url are optional. The order in which links are printed is the same as for article, see Sec. 2. Some example book references are [1, 2, 3, 4].

book references


4 Reference class repository

For the custom repository reference class, the author field is used if given but is not required (in contrast to the article class). If the repository address is given via code (strongly recommended), a properly formatted repository name is printed and links to the given address, including potentially version-, branch- or even commit-specific links. If no code entry is given, url is used as address instead, without any formatting of the printed text; Either code or url have to be provided.

<table>
<thead>
<tr>
<th>code</th>
<th>url</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓/×</td>
<td>[1]</td>
</tr>
<tr>
<td>×</td>
<td>✓</td>
<td>[2]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>invalid</td>
</tr>
</tbody>
</table>

Providing a year is optional, a title is not considered even if given [3]. Note that if you want both a url and a code link to be displayed, you can use the website reference class presented below for that.

To specify the version of a software repository, use the new version field, see [4]. Even more specifically, the commit hash can be given via the commit field, like in [5]. Note, however, that no check is performed between the provided code url and the commit or version fields, so that users have to assert consistency between these fields.

repository references


5 Reference class website

For the new custom reference class website, we require a title and a url which are both printed always. author is optional and printed if given, the same holds for code, which is formatted as repository link like for repository. If you want to provide code but not url, the reference class repository (see above) is made for you.
<table>
<thead>
<tr>
<th>author</th>
<th>code</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>✓</td>
<td>[1]</td>
</tr>
<tr>
<td>×</td>
<td>✓</td>
<td>[2]</td>
</tr>
<tr>
<td>✓</td>
<td>×</td>
<td>[3]</td>
</tr>
<tr>
<td>×</td>
<td>×</td>
<td>[4]</td>
</tr>
</tbody>
</table>

An access date can be given via either `date` or `urldate`, as in [5], with `urldate` taking precedence over `date`.

### Website references


### 6 Reference class misc

The reference class `misc` is meant to be used for miscellaneous entries that do not fall into any of the provided categories. As such, `misc` entries display the generic properties `author`, `title`, `howpublished`, `date`, `eprint` and `note`, the only requirement being at least one of these fields to be provided and non-empty. As the reference class `article` covers the case of preprint articles, the `misc` class was modified to refer back to `article` if `archivePrefix` is set to “arxiv” or an anyhow capitalized version thereof and `primaryClass` is provided.

We provide some examples, not covering all cases, because `misc` is very flexible and there are many possibilities.

- A citation that actually is an article on the arXiv: [1]
- A footnote-like reference only containing a note: [2]
- A reference to a private correspondence: [3]

#### misc references

[2] Indeed, only a note was provided for this reference.

### 7 Other reference classes

#### 7.1 Reference class booklet

The reference class `booklet` allows for rather flexible references, focusing on information of publishing: The only required field is the `title`, optional fields are `author`, `howpublished`, `date`, `eprint` reference, and finally a custom `note` [1].

#### 7.2 Reference class inbook

The reference class `inbook` is an alias for `book` and will produce the same output. The only difference is that that `chapter`, `pages`, or both are `required` for `inbook`. Examples would be Refs. [2, 3, 4].

#### 7.3 Reference class incollection

The reference class `incollection` requires the fields `author`, `title`, `booktitle`, `publisher` and `year`. Optional entries are `doi`, `editor`, `volume`, `chapter`, `pages`, `number`, `series`, `address`, `edition`, and `eprint`. This class mostly behaves like `book` but references a collection of which the referenced item is part. [5]

#### 7.4 Reference class inproceedings

The reference class `inproceedings` requires the fields `author`, `title`, `booktitle`, `publisher` and `year`. Optional entries are `doi`, `editor`, `volume`, `chapter`, `pages`, `number`, `series`, `address`, `edition`, and `eprint`. This class mostly behaves like `book` but references a collection of which the referenced item is part. [6, 7, 8]

#### 7.5 Reference class conference

This class is an alias for `inproceedings`. 
7.6 Reference class manual

The reference class manual only requires a title. It uses the optional fields author, organization, address, edition, year, and eprint [9].

7.7 Reference classes mastersthesis and phdthesis

Both thesis reference classes are identical up to the note that remarks the type of thesis. They require the fields author, title, school, year and allow optionally for address and eprint as well as a doi. [10, 11]

7.8 Reference class proceedings

The reference class proceedings can be used to cite full proceedings instead of a single contribution therein. Required fields are title and year and the class makes use of editor, organization, volume, number, series, address, publisher, organization, doi, and eprint [12].

7.9 Reference class techreport

The reference class techreport requires the fields author, title, institution, and year. In addition, the fields address, eprint, doi, number, and type (to specify the kind of technical report further) may be provided [13].

7.10 Reference class unpublished

The reference class unpublished requires the author, title, and note fields. Optionally, a year/date as well as an eprint reference may be provided. [14]

Other references


8 Customization

Warnings raise Errors  By default, the quantum bibstyle tries to catch as many bibtex warnings and raises a proper compiling error if any warnings are found. This is to avoid silent bibtex warnings that yield partial reference outputs while hiding the warnings raised by bibtex in the .blg file. Note that not all warnings are caught, though. In particular, syntax errors like a missing comma in a \texttt{bibitem}, which cause bibtex to interrupt for that item alone, are only caught if they lead to required fields being missing.

An example for a caught mistake is

\begin{verbatim}
@article{article_missing_comma,
  author={Matthew McKague},
  doi={10.1017/cbo9780511976667},
  year={2017},
  journal={Quantum},
  volume={1},
  title={Self-testing in parallel with {CHSH}}
}
\end{verbatim}

Here, the missing comma after \texttt{volume=1} would make bibtex abort the processing of the item, leading to the \texttt{title} field, which is required, being missed. In contrast, the following would not be caught:

\begin{verbatim}
@article{article_trailing_comma,
  author={Matthew McKague},
  doi={10.1017/cbo9780511976667},
  year={2017},
  journal={Quantum},
  volume={1},
  title={Self-testing in parallel with {CHSH}},
  \texttt{title=Self-testing in parallel with \{CHSH\}}
}
\end{verbatim}

The additional comma in the \texttt{title} line raises an internal bibtex warning, which the bibstyle file cannot catch. While in this case no harm is done, there are errors that are not caught but simultaneously lead to incomplete output.

If you want to turn off these errors raised from bibtex warnings, include the entry

\begin{verbatim}
@preamble{"\DoNotMakeWarningsErrors"}
\end{verbatim}

anywhere in the \texttt{bibliography} (i.e. the .bib file) like one would include a reference.

Note: Commenting the above \texttt{@preamble} entry out via % will not deactivate it as bibtex does not attribute commenting functionality to %. Instead, you can simply remove the leading @, as is currently done in the .bib file accompanying this document (quantum_bst_demo.bib).

Explicit DOI links  By default, and if the entry \texttt{doi} is provided for a \texttt{bibitem}, the quantum bibstyle will link to the DOI via the \texttt{journal/volume/issue} part of the citation for articles and via the a) \texttt{volume/chapter/pages} or b) \texttt{number/series} or c) \texttt{publisher} part for books, with a) taking precedence if provided over b) taking precedence if provided over c). This behaviour can be changed to output explicit DOI links instead. To do so, include the entry

\begin{verbatim}
@preamble{"\MakeDoiLinksExplicit"}
\end{verbatim}

to anywhere in the \texttt{bibliography} (i.e. the .bib file) like one would include a reference.

Compression  By default, the quantum bibstyle prints the numbers for all references separately and does not compress a range of citations, like so: [1, 6, 7, 8, 11, 12, 13, 14]. This has the advantage of making all references explicitly accessible from the citation position and enables readers to find all occurrences of a given reference. If you prefer to compress citations (like so: [1, 6-8, 11-14]), simply add

\begin{verbatim}
\PassOptionsToPackage{compress}{natbib}
\end{verbatim}

to the preamble \texttt{before} including

\begin{verbatim}
\usepackage[numbers]{natbib}
\end{verbatim}

where the option \texttt{numbers} is required to make the bibliography style work.