

Bibliography formatting with citation-style-language

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2022-03-21 v0.1.1

1 Introduction

The Citation Style Language¹ (CSL) is an XML-based language that defines the formats of citations and bibliography. There are currently thousands of styles in CSL including the most widely used APA, Chicago, Vancouver, etc. The `citation-style-language` package is aimed to provide another reference formatting method for LaTeX that utilizes the CSL styles. It contains a citation processor implemented in pure Lua (`citeproc-lua`) which reads bibliographic metadata and performs sorting and formatting on both citations and bibliography according to the selected CSL style. A LaTeX package (`citation-style-language.sty`) is provided to communicate with the processor.

Note that this project is in early development stage and some features of CSL are not implemented yet (especially collapsing and disambiguation). Comments, suggestions, and bug reports are welcome.

2 Getting started

An example of using `citation-style-language` package is as follows.

```
\documentclass{...}
\usepackage{citation-style-language}
\cslsetup{
  style = ...,
  ...
}
\addbibresource{bibfile.json}
\begin{document}
\cite{...}
...
\printbibliography
\end{document}
```

The procedure to compile the document is different across engines.

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¹<https://citationstyles.org/>

LuaTeX The CSL processor is written in Lua and it can be run directly in LuaTeX without the need of running external programs. For LuaTeX, the compiling procedure is simply running `latex` twice, which is the same as documents with cross references.

Other engines For engines other than LuaTeX, the `citeproc` executable is required to run on the `.aux` file to generate the citations and bibliography. The general procedure is similar to the traditional BibTeX workflow.

1. Run `latex` on `example.tex`.
2. Run `citeproc` on `example.aux`. The engine reads the `.cs1` style, CSL locale files, and `.bib` database and then writes the processed citations and bibliography to `example.bbl`.
3. Run `latex` on `example.tex`. The `.bbl` file is loaded and all the citations and bibliography are printed.

3 Package commands

`\cslsetup` `\cslsetup{<options>}`

The behavior of the `citation-style-language` package is controlled by several key-value options which can be set with the `\cslsetup` command. For example,

```
\cslsetup{
  style = apa,
  locale = zh-CN,
}
```

`style` The `style=<style-id>` option selects the style file `<style-id>.cs1` for both citations and bibliography. The implemented CSL style files are available in the official GitHub repository² as well as the Zotero style repository³. The user may search and download the `.cs1` file to the working directory. The following styles are distributed within the package and each of them can be directly loaded without downloading.

`american-chemical-society` American Chemical Society

`american-medical-association` American Medical Association 11th edition

`american-political-science-association` American Political Science Association

`american-sociological-association` American Sociological Association 6th edition

`apa` American Psychological Association 7th edition

`chicago-author-date` Chicago Manual of Style 17th edition (author-date)

`chicago-fullnote-bibliography` Chicago Manual of Style 17th edition (full note)

`chicago-note-bibliography` Chicago Manual of Style 17th edition (note)

²<https://github.com/citation-style-language/styles>

³<https://www.zotero.org/styles>

`elsevier-harvard` Elsevier - Harvard (with titles)

`harvard-cite-them-right` Cite Them Right 11th edition - Harvard

`ieee` IEEE

`modern-humanities-research-association` Modern Humanities Research Association 3rd edition (note with bibliography)

`modern-language-association` Modern Language Association 9th edition

`nature` Nature

`vancouver` Vancouver

`locale` The `locale` option receives an ISO 639-1 two-letter language code (e.g., “en”, “zh”), optionally with a two-letter locale code (e.g., “de-DE”, “de-AT”). This option affects sorting of the entries and the output of dates, numbers, and terms (e.g., “et al.”). It may also be set `auto` (default) and the `default-locale` attribute in the CSL style file will be used. The locale falls back to “en” (English) if the attribute is not set. When `babel` package is loaded, the selected main language is implicitly set as the `locale` for `citation-style-language`.

`bib-font` Usually, the list of references is printed in the same font style and size as the main text. The `bib-font` option is used to set different formats in the `thebibliography` environment. It may override the `line-spacing` attribute configured in the CSL style. For example, to force double-spacing in the bibliography:

```
\cslsetup{bib-font = \linespread{2}\selectfont}
```

`bib-item-sep` The vertical space between entries in the bibliography is configured in the CSL style. It can be overridden by this `bib-item-sep` option. It is recommended to set `bib-item-sep` to a stretchable glue rather than a fixed length to help reducing page breaks in the middle of an entry.

```
\cslsetup{bib-item-sep = 8 pt plus 4 pt minus 2 pt}
```

`bib-hang` The `bib-hang` option sets the hanging indentation length which is usually used for author-date style references. By default, it is 1 em (with respect to the `bib-font` size if set).

`\addbibresource` `\addbibresource[options]{resource}`

The `\addbibresource` command adds the contents of `<resource>` into the bibliographic metadata. The `<resource>` may be a CSL-JSON file or the Bib(La)TeX `.bib` file. CSL-JSON⁴ is the default data model defined by CSL. Its contents are usually exported from Zotero. The traditional `.bib` file is converted to CSL-JSON internally for further processing. The mapping of entry-types and fields between them is detailed in the GitHub wiki page⁵. Note that only UTF-8 encoding is supported in the `<resource>` file.

```
\addbibresource{data-file.json}
\addbibresource{bib-file.bib}
```

⁴<https://github.com/citation-style-language/schema#cs1-json-schema>

⁵<https://github.com/zepinglee/citeproc-lua/wiki/Bib-CSL-mapping>

Table 1: The locators supported in CSL v1.0.2.

act	folio	section
appendix	issue	sub-verbo
article-locator	line	supplement
book	note	table
canon	opus	timestamp
chapter	page	title-locator
column	paragraph	verse
elocation	part	version
equation	rule	volume
figure	scene	

`\cite` `\cite[<options>]{<keys>}`

The citation command is similar to the one in standard LaTeX except that the prefix *<options>* is in key-value style. The *<options>* can be prefix, suffix or one of locators like page or figure. The full list of supported locators is detailed in Table 1. An example is as follows.

prefix
suffix
page
figure

```
\cite[prefix = {See }, page = 42]{ITEM-1}
```

The traditional form `\cite[<prenote>][<postnote>]{<keys>}` introduced in `natbib` and `biblatex` is also supported but not recommended. If only one optional argument is provided, it is treated as *<postnote>*. The *<postnote>* is used as a page locator if it consists of only digits.

In other packages, several commands are provided for producing citations in different styles such as `\citet`, `\citep`, `\parencite`, and `\footnotecite`. In `citation-style-language` package, however, the format of citations is fixed as defined in CSL style and it is impossible to select another format without modifying the `.cs1` style file. Note that narrative citation (like “Doe (2018)”) will be supported in CSL 1.1.

`\cites` `\cites[<options>]{<key>}...[<options>]{<key>}`

The `\cites` accepts multiple cite items in a single citation. This command scans greedily for arguments and a following bracket may be mistakenly recognized as a delimiter. To prevent this, an explicit `\relax` command is required to terminate the scanning process. The following example illustrates its usage.

```
\cites[prefix = {See }, page = 6]{key1}[section = 2.3]{key2}\relax [Text]
```

`\printbibliography` `\printbibliography[<options>]`

This command prints the reference list. Currently no options are available.

4 Compatibility with other packages

babel The main language set by `babel` is used as the locale for `citation-style-language`. In general, `babel` is supposed to be loaded before `citation-style-language`.

hyperref When `hyperref` is loaded, the DOIs, PMIDs, and PMCIDs are correctly rendered as hyperlinks. But the citations are not linked to the entries in bibliography.

Incompatible packages The following packages are not compatible with `citation-style-language`. An error will be triggered if any of them is loaded together with `citation-style-language`.

- `babelbib`
- `backref`
- `biblatex`
- `bibtopic`
- `bibunits`
- `chapterbib`
- `cite`
- `citeref`
- `inlinebib`
- `jurabib`
- `mcite`
- `mciteplus`
- `multibib`
- `natbib`
- `splitbib`

5 Known issues

The `citation-style-language` package is in early development stage and there are some issues with it.

- The `citeproc-lua` has not implemented all the features of CSL, especially disambiguation and collapsing. For detailed information of the coverage on the CSL standard test suite⁶, see [citeproc-test.log](https://github.com/citation-style-language/test-suite) in the GitHub repository.
- The processor is much slower than expected compared to other reference engines. This is because little care has been taken in the development so far. Optimization is needed in the future.
- When used with `hyperref`, the citations are not correctly rendered as hyperlinks.
- The Unicode sorting method is provided by `lua-uca` package and CJK scripts are not supported so far.

⁶<https://github.com/citation-style-language/test-suite>