

# Bibliography formatting with citation-style-language

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## 1 Introduction

The Citation Style Language<sup>1</sup> (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. Comments, suggestions, and bug reports are welcome.

## 2 Installation

This package is available from TeX Live 2022 or later versions. For most users, the easiest way is to install it via `tlmgr`. If you want to install the GitHub develop version of this package, you may follow the steps below.

The `citation-style-language` requires the following packages: `filehook`, `l3kernel`, `l3packages`, `lua-uca`, `lua-libs`, `luatex`, `luaxml`, and `url`. `l3build` is also required for actually performing the installation. Make sure they are already installed in the TeX distribution.

```
git clone https://github.com/zepinglee/citeproc-lua # Clone the repository
cd citeproc-lua
git submodule update --init --remote                # Fetch submodules
l3build install
```

These commands install the package files to `TEXMFHOME` which is usually `~/texmf` on Linux or `~/Library/texmf` on macOS. Besides, the `citeproc-lua` executable needs to be copied to some directory in the `PATH` environmental variable so that it can be called directly in the shell. For example provided `~/bin` is in `PATH`:

```
cp citeproc/citeproc-lua.lua "~/bin/citeproc-lua"
```

To uninstall the package from `TEXMFHOME`, just run `l3build uninstall`.

---

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<sup>1</sup><https://citationstyles.org/>

### 3 Getting started

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

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

The procedure to compile the document is different across engines.

**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-lua 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-lua 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.

### 4 Package setup

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

Package options may be set when the package is loaded or at any later stage with the `\cslsetup` command. These two methods are equivalent.

```
\usepackage[style=apa]{citation-style-language}
% OR
\usepackage{citation-style-language}
\cslsetup{style = apa}
```

`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 repository<sup>2</sup> as well as the Zotero style repository<sup>3</sup>. 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.

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

<sup>3</sup><https://www.zotero.org/styles>

`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)

`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`.

`ref-section` This option automatically starts a new reference section at the given document heading such as a chapter or a section. This is equivalent to the `\newrefsection` command. The following choices are available:

`none` Disable this feature (default).

`part` Start a reference section at every `\part` command.

`chapter` Start a reference section at every `\chapter` command.

`chapter+` Start a reference section at every `\chapter` and every higher level of sectioning, i.e. `\part`.

`section` Start a reference section at every `\section` command.

`section+` Start a reference section at every `\section` and every higher level of sectioning, i.e. `\part` and `\chapter`.

`subsection` Start a reference section at every `\subsection` command.

**subsection+** Start a reference section at every `\subsection` and every higher level of sectioning, i.e. `\part`, `\chapter` and `\section`.

**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-label-sep** The horizontal space between labels and entry contents in the bibliography. This default length is the value of `\labelsep` at load-time.

**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-name-sep** Vertical space to be inserted between two name groups in a per-author reference list. The default value is zero. Note that this option only takes effect when its value is larger than `bib-item-sep` because it's used with `\addvspace`.

**bib-after-name-sep** Vertical space to be inserted between the author block and the following entries in a per-author reference list. The default value is zero. Note that this option only takes effect when its value is larger than `bib-item-sep` because it's used with `\addvspace`.

**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).

**bib-par-indent** The paragraph indentation of references if they are in normal paragraph style rather than labelled or hanging indented. By default, it is the `\parindent` at when printed out.

---

**\addbibresource** `\addbibresource{⟨resource⟩}`

The `\addbibresource` command loads bibliographic data from `⟨resource⟩` file. CSL-JSON is the preferred format especially when the data are exported from a reference manager like Zotero. Other formats like CSL-YAML and Bib(La)TeX (for compatibility) are also supported but they need to be converted to CSL-JSON for internal processing. Note that the files must be specified with their extension names and the content should be encoded in UTF-8.

```
\addbibresource{file1.json}
\addbibresource[journal-abbreviation = false]{file2.bib}
```

**journal-abbreviation** The `journal-abbreviation` option is used to control whether to search for abbreviations of journal titles when a `.bib` file is converted to CSL-JSON. It is because journal fields in traditional BibTeX database can be either full titles or abbreviations but a CSL style assumes that both forms are given. For example, `journal = "Aquacult. Eng."` is an abbreviation but a CSL style like `apa.csl` may use a full title. With `journal-abbreviation` enabled (by default), the CSL engine tries to find the full title "Aquacultural Engineering" from the data of <https://github.com/JabRef/abbrv.jabref.org>. This can be disabled by setting it to `false`. Note that this option is only valid for `.bib` files.

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

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

## 5 Citation commands

---

`\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.

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

unsorted Some styles specify the order of items in the citations (e.g., alphabetical or chronological) and the `unsorted` option can be used to disable this behavior. This is useful in cases like citing secondary sources. The following example produces “(Rabitt, 1982, as cited in Lyon 2014)”.

`\cites{rabitt1982}[prefix={, as cited in}, unsorted = true]{lyon2014}`

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.

---

`\parencite` `\parencite[<options>]{<keys>}`  
`\citep`

---

The `\parencite` and `\citep` command are aliases of `\cite`. They are added for compatibility with `biblatex` and `natbib` packages. If the citation format defined in the CSL style does not have affixes, these commands in `citation-style-language` do not enclose the output with brackets, which is different from other packages.

---

`\textcite` `\textcite[<options>]{<keys>}`  
`\citet`

---

These commands produce narrative in-text citation where the author name is part of the running text followed by the year in parentheses. These commands only work with author-date styles.

`infix` An extra option `infix` can be given to specify the text inserted between the author and year parts. For example, “Kesey’s early work (1962)” can be produced by `\textcite[infix={’s early work}]{ITEM-1}`. By default the infix is a space.

---

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

This command is similar to `\cite`. It is for compatibility with `biblatex`.

---

`\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]`

---

`\citeauthor` `\citeauthor{<key>}`

This command prints the author name. If the original citation does not contain the author name (e.g., a numeric style), an optional `<intext>` element can be supplied as a sibling to the `<citation>` and `<bibliography>` elements in the CSL style (see [citeproc-js’s documentation](#) for details).

---

`\citeyear` `\citeyear{<key>}`

This command prints the issued year of the citation.

---

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

This command suppresses the author names in the citation. It is equivalent to `\cite` with `suppress-author` option enabled.

---

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

This command prints a full citation similar to the bibliographic entry. The contents are generated from the `<bibliography>` element in the CSL style rather than the `<citation>` element.

---

`\nocite` `\nocite{<keys>}`

This command produces no output but makes the entries included in the bibliography, which is the same in standard  $\text{\LaTeX}$ . If the special key `*` is given (`\nocite{*}`), all the entries in the database are included.

## 6 Bibliography commands

---

`\printbibliography` `\printbibliography`  
`\printbibliography[ $\langle options \rangle$ ]`

This command prints the reference list. It also accepts an optional argument in square brackets which is a list of key-value options. The following options are available.

---

`heading` `heading =  $\langle name \rangle$`

This option selects the section heading style defined with `\defbibheading`. The default heading for `\printbibliography` is `bibliography`.

---

`title` `title =  $\langle text \rangle$`

This option sets the title in the heading.

---

`label` `label =  $\langle label \rangle$`

This option is equivalent to `\label{ $\langle label \rangle$ }` after the heading so that it can be `\refed` from other parts in the document.

---

`prenote` `prenote =  $\langle name \rangle$`   
`postnote` `postnote =  $\langle name \rangle$`

---

`type` `type =  $\langle entrytype \rangle$`

Print only the entries of the given  $\langle entrytype \rangle$ . Note that the  $\langle entrytype \rangle$  should be the name of a CSL entry type rather than BibTeX entry type (e.g., use `article-journal` rather than `article`).

---

`notttype` `notttype =  $\langle entrytype \rangle$`

Print only the entries that are not  $\langle entrycategory \rangle$ . This option may be used multiple times.

---

`keyword` `keyword =  $\langle keyword \rangle$`

Print only the entries whose keyword field includes the given  $\langle keyword \rangle$ . This option may be used multiple times.

---

`notkeyword` `notkeyword =  $\langle keyword \rangle$`

Print only the entries whose keyword field does not include the given  $\langle keyword \rangle$ . This option may be used multiple times.

---

`category` `category =  $\langle category \rangle$`

Print only the entries assigned to the given category. This option may be used multiple times.

---

<code>\notcategory</code>	<code>\notcategory = &lt;category&gt;</code>
---------------------------	--

---

Print only the entries assigned to the given category. This option may be used multiple times.

## 6.1 Bibliography Sections

The `refsection` environment is used in the document body to mark a reference section. This environment is useful if you want separate, independent bibliographies and bibliography lists in each chapter, section, or any other part of a document. Within a reference section, all cited works are assigned labels which are local to the environment. Technically, reference sections are completely independent from document divisions such as `\chapter` and `\section` even though they will most likely be used per chapter or section. See the `refsection` package option in § 3.1.2.1 for a way to automate this. Also see § 3.14.3 for usage examples.

---

<code>\begin{refsection}</code>	<code>\begin{refsection}</code>
<code>\end{refsection}</code>	<code>\begin{refsection}[style = &lt;style-id&gt;, bib-resource = &lt;datafile&gt;, ...]</code>

---

All citations given outside a `refsection` environment are assigned to the global section. If `\printbibliography` is used within a `refsection`, it will automatically select the current section. Note that `refsection` environments may not be nested. Beginning a new reference section automatically ends the active reference context (see § 3.8.10). The optional argument is a list of key-value configurations. That following options are available.

- |                           |  |
|---------------------------|--|
| <code>style</code>        | The <code>style</code> option specifies the CSL style used in this reference section. If this is not given, the global style will be used by default which is defined via package options or <code>\cslsetup</code> .  |
| <code>bib-resource</code> | The bibliographic data files are specified with this option. In case of multiple data files, remember to enclose the file with curly brackets so that the key-values are correctly parsed (e.g., <code>bib-resource = {foo.json, bar.bib}</code> ). By default the global bib resources are used if no <code>bib-resource</code> is given. |
| <code>locale</code>       | This option sets the locale used in this reference section. By default the global locale is used.  |

---

<code>\newrefsection</code>	<code>\newrefsection[style = &lt;style-id&gt;, bib-resource = &lt;datafile&gt;, ...]</code>
<code>\endrefsection</code>	<code>\endrefsection</code>

---

The `\newrefsection` command is similar to the `refsection` environment except that it is a standalone command rather than an environment. It automatically ends the previous reference section (if any) and immediately starts a new one. The `\endrefsection` can terminate the current reference section and restore to the global section.



## 6.2 Bibliography Headings

---

`\defbibheading` `\defbibheading{<name>}[<title>]{<code>}`

---

This command defines a bibliographic heading which can be used with the `bibheading` option of `\printbibliography`. The `<name>` is an identifier assigned to the defined style. If a `title` option is given in the `\printbibliography`, it is passed to the code as `#1`. Otherwise the value `<title>` in the optional argument is used by default. The following is the definition of the default heading when used in a `book` class.

```
\defbibheading{bibliography}{\bibname}{%
  \chapter*{#1}%
  \markboth{\MakeUppercase{#1}}{\MakeUppercase{#1}}%
}
```

The following are predefined headings which can be used directly.

**bibliography** The default heading used by `\printbibliography`.

**subbibliography** Similar to `bibliography` but one sectioning level lower.

**bibintoc** Similar to `bibliography` but adds an entry to the table of contents.

**subbibintoc** Similar to `subbibliography` but adds an entry to the table of contents.

**bibnumbered** Similar to `bibliography` but uses `\chapter` or `\section` to create a numbered heading which is also added to the table of contents.

**subbibnumbered** Similar to `subbibliography` but uses `\chapter` or `\section` to create a numbered heading which is also added to the table of contents.

**none** An empty heading.

## 7 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`.

**beamer** Most of this package's features work fine with `beamer` except the `backref` option. At the moment this can be addressed with `hyperref`'s `backref` option.

**hyperref** When `hyperref` is loaded, the DOIs, PMIDs, and PMCIDs are correctly rendered as hyperlinks.

**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

## 8 License

- The LaTeX package and Lua library are released under MIT license.
- The CSL styles and locale files are redistributed under the [Creative Commons Attribution-ShareAlike 3.0 Unported](#) license.
- The journal abbreviation data are generated from <https://github.com/JabRef/abbrev.jabref.org> and are redistributed under the [CC0 1.0](#) license.