

bath-bst: Harvard referencing style as recommended by the University of Bath Library

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Package v1.0 – 24 October 2016

1 Introduction

This package provides a **BibTeX** style to format reference lists in the **Harvard style** recommended by the University of Bath Library. It should be used in conjunction with **natbib** for citations.

1.1 Installation

1.1.1 Automated way

A makefile is provided which you can use with the Make utility on UNIX-like systems:

- Running `make source` generates the derived files
 - README.md
 - bath.bst
 - bath-bst.bib
 - bath-bst.ins
- Running `make` generates the above files and also bath-bst.pdf.
- Running `make inst` installs the files in the user's TeX tree. You can undo this with `make uninst`.
- Running `make install` installs the files in the local TeX tree. You can undo this with `make uninstall`.

1.1.2 Manual way

You only need to follow the first two steps if you have made your own changes to the .dtx file. The compiled files you need are included in the zip archive.

1. Run `tex bath-bst.dtx` to generate the source files.
2. Compile bath-bst.dtx with **LuaLaTeX** and BibTeX to generate the documentation. You will need, among other things, the **luatexja**, **adobemapping** and **ipaex** packages installed; this is just for the documentation, not for the BibTeX style itself.
3. Move the files to your TeX tree as follows:
 - `source/bibtex/bath-bst`: bath-bst.dtx, (bath-bst.ins)
 - `bibtex/bst/bath-bst`: bath.bst
 - `doc/bibtex/bath-bst`: bath-bst.pdf, README.md
4. You may then have to update your installation's file name database before TeX and friends can see the files.

*To contact the maintainer about this package, please visit the repository where the code is hosted: <https://github.bath.ac.uk/ab318/bathbib>.

2 Using the style

To use the style, add these lines to your preamble:

```
\usepackage{natbib}
\newcommand*{\urlprefix}{Available from: }
\newcommand*{\urldateprefix}{Accessed }
\bibliographystyle{bath}
```

Remember also to specify your .bib file at the end of the document:

```
\bibliography{file}
```



To make a citation in the text, use the key that corresponds to the entry in your .bib file:

While collections can be supplemented by other means \citep{williams1997edd}, the absence of an invisible collection amongst historians is noted by \citete[p.556]{stieg1981inh}. It may be, as \citete{burchard1965hhl} points out, that they have no assistants or are reluctant to delegate\dots

While collections can be supplemented by other means (Williams, 1997), the absence of an invisible collection amongst historians is noted by Stieg (1981b, p.556). It may be, as Burchard (1965) points out, that they have no assistants or are reluctant to delegate...


Please refer to the documentation for **natbib** for the full range of commands available for in-text citations.


3 Examples

The examples below are shown in three parts. The first, marked with , shows an extract from the Harvard (Bath) referencing style sheet. The second, marked with , shows the reference as formatted by BibTeX. The last shows how the reference was entered in the .bib file.

Some examples are highlighted in orange. This indicates that some fields have been ‘abused’ to achieve the right effect; in other words, they contain information that does not conform with their intended use. Some others make use of the `note` and `titleaddon` fields to achieve the right effect, where other styles might need the information placed differently. Particular care should be taken with such items when switching between different styles, though of course any item might need adjustment to take account of differing conventions.

3.1 Book with author(s)

 Rang, H.P., Dale, M.M., Ritter, J.M., Flower, R.J. and Henderson, G., 2012. *Rang and Dale’s pharmacology*. 7th ed. Edinburgh: Elsevier Churchill Livingstone.

 Rang, H.P., Dale, M.M., Ritter, J.M., Flower, R.J. and Henderson, G., 2012. *Rang and Dale’s pharmacology*. 7th ed. Edinburgh: Elsevier Churchill Livingstone.

```
@book{rang.etal2012rdp,
  author = {Rang, H. P. and Dale, M. M. and Ritter, J. M. and Flower, R. J. and Henderson, G.},
  year = {2012},
  title = {Rang and {Dale's} Pharmacology},
  edition = {7},
  address = {Edinburgh},
  publisher = {Elsevier Churchill Livingstone}}
```

- 📖 Open University, 1972. *Electricity and magnetism*. Bletchley: Open University Press.
- ⚙️ Open University, 1972. *Electricity and magnetism*. Bletchley: Open University Press.

```
@book{ou1972em,
  author = {{Open University}},
  year = {1972},
  title = {Electricity and Magnetism},
  address = {Bletchley},
  publisher = {Open University Press}}
```

3.2 Book with editor(s) instead of author(s)

- 📖 Rothman, K.J., Greenland, S. and Lash, T.L., eds., 2008. *Modern epidemiology*. 3rd ed. Philadelphia, Pa.: Lippincott Williams & Wilkins.
- ⚙️ Rothman, K.J., Greenland, S. and Lash, T.L., eds., 2008. *Modern epidemiology*. 3rd ed. Philadelphia, Pa.: Lippincott Williams & Wilkins.

```
@book{rothman.etal2008me,
  editor = {Kenneth J. Rothman and Sander Greenland and Timothy L. Lash},
  year = {2008},
  title = {Modern Epidemiology},
  edition = {3},
  address = {Philadelphia, Pa.},
  publisher = {Lippincott Williams & Wilkins}}
```

3.3 Book usually known by its title

- 📖 *Oxford English dictionary*, 1989. 2nd ed. Oxford: Clarendon Press.
- ⚙️ *Oxford English dictionary*, 1989. 2nd ed. Oxford: Clarendon Press.

```
@book{oed1989,
  year = {1989},
  title = {Oxford {English} Dictionary},
  edition = {2},
  address = {Oxford},
  publisher = {Clarendon Press}}
```

- 📖 *The Merck index online* [Online]. London: RSC Publishing. Available from: <http://www.rsc.org/Merck-Index> [Accessed 16/06/2016].
- ⚙️ *The Merck index online* [Online]. London: RSC Publishing. Available from: <http://www.rsc.org/Merck-Index> [Accessed 16/06/2016].

```
@book{merckNDidx,
  title = {The {Merck} Index Online},
  titleaddon = {[Online]},
  address = {London},
  publisher = {RSC Publishing},
  url = {http://www.rsc.org/Merck-Index},
  urldate = {16/06/2016}}
```

3.4 One chapter/paper from a collection in a book

📖 Burchard, J.E., 1965. How humanists use a library. In: C.F.J. Overhage and J.R. Harman, eds. *Intrex: report on a planning conference and information transfer experiments*. Cambridge, Mass.: MIT Press, pp.41–87.

⚙️ Burchard, J.E., 1965. How humanists use a library. In: C.F.J. Overhage and J.R. Harman, eds. *Intrex: report on a planning conference and information transfer experiments*, Cambridge, Mass.: MIT Press, pp.41–87.

```
@incollection{burchard1965hhl,  
  author = {Burchard, J. E.},  
  year = {1965},  
  title = {How Humanists use a Library},  
  editor = {C. F. J. Overhage and J. R. Harman},  
  booktitle = {Intrex: report on a planning conference and information transfer experiments},  
  address = {Cambridge, Mass.},  
  publisher = {MIT Press},  
  pages = {41-87}}
```

📖 Reid, D.R., 1967. Physical testing of polymer films. In: S.H. Pinner, ed. *Modern packaging films*. London: Butterworths, pp.143–183.

⚙️ Reid, D.R., 1967. Physical testing of polymer films. In: S.H. Pinner, ed. *Modern packaging films*, London: Butterworths, pp.143–183.

```
@incollection{reid1967ptp,  
  author = {D. R. Reid},  
  year = {1967},  
  title = {Physical Testing of Polymer Films},  
  editor = {S. H. Pinner},  
  booktitle = {Modern Packaging Films},  
  address = {London},  
  publisher = {Butterworths},  
  pages = {143-183}}
```

3.5 Electronic book

📖 Haynes, W.M., ed., 2014. *CRC handbook of chemistry and physics* [Online]. 94th ed. Boca Raton, Fla.: CRC Press/Taylor and Francis. Available from: <http://www.hbcnetbase.com> [Accessed 16/06/2016].

⚙️ Haynes, W.M., ed., 2014. *CRC handbook of chemistry and physics* [Online]. 94th ed. Boca Raton, Fla.: CRC Press/Taylor and Francis. Available from: <http://www.hbcnetbase.com> [Accessed 16/06/2016].

```
@book{haynes2014crc,  
  editor = {Haynes, W. M.},  
  year = {2014},  
  title = {{CRC} Handbook of Chemistry and Physics},  
  titleaddon = {[Online]},  
  edition = {94},  
  address = {Boca Raton, Fla.},  
  publisher = {CRC Press/Taylor and Francis},  
  url = {http://www.hbcnetbase.com},  
  urldate = {16/06/2016}}
```

3.6 Journal article

📖 Stieg, M.F., 1981a. Continuing education and the reference librarian in the academic and research library. *Library Journal*, 105(22), pp.2547–2551.

⚙️ Stieg, M.F., 1981a. Continuing education and the reference librarian in the academic and research library. *Library Journal*, 105(22), pp.2547–2551.

```
@article{stieg1981cer,  
  author = {Stieg, M. F.},  
  year = {1981},  
  title = {Continuing Education and the Reference Librarian in the Academic and Research Library},  
  journal = {Library Journal},  
  volume = {105},  
  number = {22},  
  pages = {2547-2551}}
```

📖 Stieg, M.F., 1981b. The information needs of historians. *College and research libraries*, 42(6), pp.549–560.

⚙️ Stieg, M.F., 1981b. The information needs of historians. *College and Research Libraries*, 42(6), pp.549–560.

```
@article{stieg1981inh,  
  author = {Stieg, M. F.},  
  year = {1981},  
  title = {The Information Needs of Historians},  
  journal = {College and Research Libraries},  
  volume = {42},  
  number = {6},  
  pages = {549-560}}
```

📖 Newman, R., 2010. Malaria control beyond 2010. *Brit. Med. J.*, 341(7765), pp.157–208.

⚙️ Newman, R., 2010. Malaria control beyond 2010. *Brit. Med. J.*, 341(7765), pp.157–208.

```
@article{newman2010mcb,  
  author = {Newman, R.},  
  year = {2010},  
  title = {Malaria control beyond 2010},  
  journal = {Brit.\@ Med.\@ J.},  
  volume = {341},  
  number = {7765},  
  pages = {157-208}}
```

3.7 E-journal article



📖 Williams, F., 1997. Electronic document delivery: a trial in an academic library. *Ariadne* [Online], 10. Available from: <http://www.ariadne.ac.uk/issue10/edd/> [Accessed 05/12/1997].

⚙️ Williams, F., 1997. Electronic document delivery: a trial in an academic library. *Ariadne* [Online], 10. Available from: <http://www.ariadne.ac.uk/issue10/edd/> [Accessed 05/12/1997].

```
@article{williams1997edd,  
  author = {Williams, F.},  
  year = {1997},  
  title = {Electronic Document Delivery: a Trial in an Academic Library},  
  journal = {Ariadne \textup{[Online]}},  
  volume = {10},  
  url = {http://www.ariadne.ac.uk/issue10/edd/},  
  urldate = {05/12/1997}}
```

3.8 Websites

While it is normal when using BibTeX to use `misc` for websites, with this style you should use `electronic`, `online` or `www` instead. Internally these are all aliases for `manual`.



-  Holland, M., 2002. *Guide to citing internet sources* [Online]. Poole: Bournemouth University. Available from: http://www.bournemouth.ac.uk/library/using/guide_to_citing_internet_sourc.html [Accessed 04/11/2002].
-  Holland, M., 2002. *Guide to citing internet sources* [Online]. Poole: Bournemouth University. Available from: http://www.bournemouth.ac.uk/library/using/guide_to_citing_internet_sourc.html [Accessed 04/11/2002].

```
@online{holland2002gci,  
  author = {Holland, M.},  
  year = {2002},  
  title = {Guide to Citing Internet Sources},  
  titleaddon = {[Online]},  
  address = {Poole},  
  organization = {Bournemouth University},  
  url = {http://www.bournemouth.ac.uk/library/using/guide_to_citing_internet_sourc.html},  
  urldate = {04/11/2002}}
```

-  Wiltshire Council, 2015. *Get Wiltshire walking* [Online]. Trowbridge: Wiltshire Council. Available from: <http://www.wiltshire.gov.uk/leisureandrecreation/sportphysicalactivity/getwiltshirewalking.html> [Accessed 19/08/2015].
-  Wiltshire Council, 2015. *Get Wiltshire walking* [Online]. Trowbridge: Wiltshire Council. Available from: <http://www.wiltshire.gov.uk/leisureandrecreation/sportphysicalactivity/getwiltshirewalking.html> [Accessed 19/08/2015].

```
@online{wiltshire2015gww,  
  author = {{Wiltshire Council}},  
  year = {2015},  
  title = {Get {Wiltshire} walking},  
  titleaddon = {[Online]},  
  address = {Trowbridge},  
  organization = {Wiltshire Council},  
  url = {http://www.wiltshire.gov.uk/leisureandrecreation/sportphysicalactivity/getwiltshirewalking.html},  
  urldate = {19/08/2015}}
```

3.9 Conference paper (when proceedings have a named editor)

-  Crawford, G.I., 1965. Oxygen in metals. In: J.M.A. Lenihan AND S.J. Thompson, eds. *Activation analysis: proceedings of a NATO Advanced Study Institute*, 2–4 August 1964 Glasgow. London: Academic Press, pp.113–118.
-  Crawford, G.I., 1965. Oxygen in metals. In: J.M.A. Lenihan and S.J. Thompson, eds. *Activation analysis: Proceedings of a NATO Advanced Study Institute*, 2–4 August 1964 Glasgow. London: Academic Press, pp.113–118.

```
@inproceedings{crawford1965oim,  
  author = {Crawford, G. I.},  
  year = {1965},  
  title = {Oxygen in Metals},  
  editor = {J. M. A. Lenihan and S. J. Thompson},  
  booktitle = {Activation Analysis: Proceedings of a {NATO} {Advanced} {Study} {Institute}},  
  venue = {2--4 August 1964 Glasgow},  
  address = {London},  
  publisher = {Academic Press},  
  pages = {113-118}}
```

3.10 Conference paper (when proceedings have no named editor or are part of a major series)

- 📖 Soper, D., 1972. Review of bracken control experiments with asulam. *Proceedings of the 11th British Weed Control Conference*, 15–17 November 1972 Brighton. Brighton: University of Sussex, pp.24–31.
- ⚙️ Soper, D., 1972. Review of bracken control experiments with asulam. *Proceedings of the 11th British Weed Control Conference*, 15–17 November 1972 Brighton. Brighton: University of Sussex, pp.24–31.

```
@inproceedings{soper1972rbc,  
  author = {Soper, D.},  
  year = {1972},  
  title = {Review of Bracken Control Experiments with Asulam},  
  booktitle = {Proceedings of the 11th {British} {Weed} {Control} {Conference}},  
  venue = {15--17 November 1972 Brighton},  
  address = {Brighton},  
  publisher = {University of Sussex},  
  pages = {24-31}}
```

3.11 Newspaper article

- 📖 Haurant, S., 2004. Britain's borrowing hits £1 trillion. *The Guardian*, 29 July, p.16c.
- ⚙️ Haurant, S., 2004. Britain's borrowing hits £1 trillion. *The Guardian*, 29 July, p.16c.

```
@article{haurant2004bbh,  
  author = {Haurant, S.},  
  year = {2004},  
  title = {Britain's Borrowing Hits \pounds 1 Trillion},  
  journal = {The Guardian},  
  volume = {29 July},  
  pages = {16c}}
```

- 📖 The Independent, 1992. Picking up the bills. *The Independent*, 4 June, p.28a.
- ⚙️ The Independent, 1992. Picking up the bills. *The Independent*, 4 June, p.28a.

```
@article{independent1992pub,  
  author = {{The Independent}},  
  year = {1992},  
  title = {Picking Up the Bills},  
  journal = {The Independent},  
  volume = {4 June},  
  pages = {28a}}
```

3.12 Thesis/dissertation

- 📖 Burrell, J.G., 1973. *The importance of school tours in education*. Thesis (M.A.). Queen's University, Belfast.
- ⚙️ Burrell, J.G., 1973. *The importance of school tours in education*. Thesis (M.A.). Queen's University, Belfast.

```
@mastersthesis{burrell1973ist,  
  author = {Burrell, J. G.},  
  year = {1973},  
  title = {The Importance of School Tours in Education},  
  type = {Thesis ({M.A.})},  
  school = {Queen's University, Belfast}}
```

3.13 Report

- 📖 UNESCO, 1993. *General information programme and UNISIST*. Paris: UNESCO, (PGI-93/WS/22).
- ⚙️ UNESCO, 1993. *General information programme and UNISIST*. Paris: UNESCO, (PGI-93/WS/22).

```
@techreport{unesco1993gip,  
  author = {{UNESCO}},  
  year = {1993},  
  title = {General Information Programme and {UNISIST}},  
  address = {Paris},  
  institution = {UNESCO},  
  number = {PGI-93/WS/22}}
```

3.14 Standard

- 📖 BS 5605:1990. *Recommendations for citing and referencing published material*. BSI.
- ⚙️ BS 5605:1990. *Recommendations for citing and referencing published material*. BSI.

```
@manual{bs5605:1990,  
  author = {{BS 5605:1990}},  
  title = {Recommendations for citing and referencing published material},  
  organization = {BSI}}
```

You can also use `standard` as an alias for `manual`.

3.15 Patent

- 📖 Phillipp Morris Inc., 1981. *Optical perforating apparatus and system*. European patent application 0021165A1. 1981-01-07.
- ⚙️ Phillipp Morris Inc., 1981. *Optical perforating apparatus and system*. European patent application 0021165A1. 1981-01-07.

```
@manual{pm1981opa,  
  author = {{Phillipp Morris Inc.}},  
  year = {1981},  
  title = {Optical perforating apparatus and system},  
  series = {European patent application},  
  number = {0021165A1. 1981-01-07}}
```

You can also use `patent` as an alias for `manual`.

3.16 Map

- 📖 Andrews, J. and Dury, A., 1773. *Map of Wiltshire*, 1 inch to 2 miles. Devizes: Wiltshire Record Society.
- ⚙️ Andrews, J. and Dury, A., 1773. *Map of Wiltshire*, 1 inch to 2 miles. Devizes: Wiltshire Record Society.

```
@book{andrews.dury1773wilts,  
  author = {Andrews, J. and Dury, A.},  
  year = {1773},  
  title = {Map of {Wiltshire}},  
  series = {1 inch to 2 miles},  
  address = {Devizes},  
  publisher = {Wiltshire Record Society}}
```


3.17 Film, video or DVD

- 📺 *Macbeth*, 1948. Film. Directed by Orson Welles. USA: Republic Pictures.
- ⚙️ *Macbeth*, 1948. Film. Directed by Orson Welles. USA: Republic Pictures.

```
@booklet{macbeth1948,
  year = {1948},
  title = {Macbeth},
  howpublished = {Film. Directed by Orson Welles},
  address = {USA},
  publisher = {Republic Pictures}}
```

You can also use `movie` or `video` as an alias for `booklet`.

3.18 Streamed video

- 📺 Moran, C., 2016. *Save Our Libraries* [Online]. Available from: <https://www.youtube.com/watch?v=gKTfCz4JtVE&feature=youtu.be> [Accessed 29/04/2016]
- ⚙️ Moran, C., 2016. *Save our libraries* [Online]. Available from: <https://www.youtube.com/watch?v=gKTfCz4JtVE&feature=youtu.be> [Accessed 29/04/2016].

```
@online{moran2016sol,
  author = {Moran, C.},
  year = {2016},
  title = {Save Our Libraries},
  titleaddon = {[Online]},
  url = {https://www.youtube.com/watch?v=gKTfCz4JtVE&feature=youtu.be},
  urldate = {29/04/2016}}
```

3.19 Television or radio broadcast

- 📺 *Rick Stein's French Odyssey: Episode 5*, 2006. TV. BBC2, 23 August. 20.30 hrs.
- ⚙️ *Rick Stein's French Odyssey: Episode 5*, 2006. TV. BBC2, 23 August. 20.30 hrs.

```
@booklet{rsfo2006ep5,
  year = {2006},
  title = {Rick {Stein's} {French} {Odyssey}: Episode 5},
  howpublished = {TV. BBC2, 23 August. 20.30 hrs}}
```

- 📺 *The Archers*, 2006. Radio. BBC Radio 4, 23 August. 19.02 hrs.
- ⚙️ *The Archers*, 2006. Radio. BBC Radio 4, 23 August. 19.02 hrs.

```
@booklet{archers20060823,
  year = {2006},
  title = {The {Archers}},
  howpublished = {Radio. BBC Radio 4, 23 August. 19.02 hrs}}
```

You can also use `audio` or `music` as an alias for `booklet`.

3.20 Music score

- 📖 Beethoven, L. Van, 1950. *Symphony no.1 in C, Op.21*. Harmondsworth: Penguin.
- ⚙️ Beethoven, L. van, 1950. *Symphony no.1 in C, Op.21*. Harmondsworth: Penguin.

```
@book{beethoven1950symp1,  
  author = {Ludwig van Beethoven},  
  year = {1950},  
  title = {Symphony no.1 in {C,} {Op.21}},  
  address = {Harmondsworth},  
  publisher = {Penguin}}
```

3.21 Email discussion lists (jiscmail/listserv etc)

- 📖 Clark, T., 5 July 2004. A European UK Libraries Plus? *Lis-link* [Online]. Available from: lis-link@jiscmail.ac.uk [Accessed 30 July 2004].
- ⚙️ Clark, T., 05/07/2004. A European UK Libraries Plus? *Lis-link* [Online]. Available from: lis-link@jiscmail.ac.uk [Accessed 30/07/2004].

```
@article{clark2004euk,  
  author = {Clark, T.},  
  year = {05/07/2004},  
  title = {A {European} {UK} {Libraries} {Plus}?},  
  journal = {Lis-link \textup{[Online]}},  
  url = {lis-link@jiscmail.ac.uk},  
  urldate = {30/07/2004}}
```

3.22 Personal emails

- 📖 Alston, S., 19/07/2004. *Society of Architectural Historians of GB*. Email to K.M. Jordan.
- ⚙️ Alston, S., 19/07/2004. *Society of Architectural Historians of GB*. Email to K.M. Jordan.

```
@unpublished{alston2004sah,  
  author = {Alston, S.},  
  year = {19/07/2004},  
  title = {Society of {Architectural} {Historians} of {GB}},  
  note = {Email to K.M. Jordan}}
```

3.23 Preprint

- 📖 Shah, I. and Corrick, I. 2016. *How should central banks respond to non-neutral inflation expectations?* Bath: University of Bath. *OPUS* [Online]. Available from: <http://opus.bath.ac.uk> [Accessed 04/05/2016].
- ⚙️ Shah, I. and Corrick, I., 2016. *How should central banks respond to non-neutral inflation expectations?* Bath: University of Bath. *OPUS* [Online]. Available from: <http://opus.bath.ac.uk> [Accessed 04/05/2016].

```
@techreport{shah.corrick2016hsc,  
  author = {Shah, I. and Corrick, I.},  
  year = {2016},  
  title = {How should central banks respond to non-neutral inflation expectations?},  
  address = {Bath},  
  institution = {University of Bath},  
  note = {\emph{OPUS} [Online]},  
  url = {http://opus.bath.ac.uk},  
  urldate = {04/05/2016}}
```

3.24 Work in translation

- 📖 Aristotle, 2007. *Nicomachean ethics* (W.D. Ross. Trans.) South Dakota: NuVisions.
⚙ Aristotle, 2007. *Nicomachean ethics* (W.D. Ross. Trans.). South Dakota: NuVisions.

```
@book{aristotle2007ne,  
  author = {Aristotle},  
  year = {2007},  
  title = {Nicomachean Ethics},  
  titleaddon = {(W.D. Ross. Trans.)},  
  address = {South Dakota},  
  publisher = {NuVisions}}
```

3.25 Non-English work in the Roman alphabet

- 📖 Esquivel, L., 2003. *Como agua para chocolate* [Like water for chocolate]. Barcelona: Debolsillo.
⚙ Esquivel, L., 2003. *Como agua para chocolate* [Like water for chocolate]. Barcelona: Debolsillo.

```
@book{esquivel2003cap,  
  author = {Esquivel, L.},  
  year = {2003},  
  title = {Como Agua para Chocolate},  
  titleaddon = {[Like water for chocolate]},  
  address = {Barcelona},  
  publisher = {Debolsillo}}
```

- 📖 Thurfjell, W., 1975. Vart har vårän doktor tagit vägen? [Where has our doctor gone?] *Läkartidningen* 72, p.789.
⚙ Thurfjell, W., 1975. Vart har vårän doktor tagit vägen? [Where has our doctor gone?]. *Läkartidningen*, 72, p.789.

```
@article{thurfjell1975vhv,  
  author = {Thurfjell, W.},  
  year = {1975},  
  title = {Vart har vårän doktor tagit vägen?},  
  titleaddon = {[Where has our doctor gone?]},  
  journal = {Läkartidningen},  
  volume = {72},  
  pages = {789}}
```

3.26 Non-English works in non-Roman alphabets

The following example tricks BibTeX into treating the original rendering of the author's name as the 'von' part of a Roman-alphabet name. This requires the use of a command that simply gobbles its argument, which you have to define yourself:

```
\newcommand*{\noop}[1]{}
```

For the trick to work, the argument you give to `\noop` must be lowercase, but otherwise it can be anything you like.

- 📖 Hua, L. 華林甫, 1999. Qingdai yilai Sanxia diqu shuihan zaihai de chubu yanjiu 清代以來三峽地區水旱災害的初步研 [A preliminary study of floods and droughts in the Three Gorges region since the Qing dynasty], *Zhongguo shehui kexue* 中國社會科學, 1, pp.168–79.
- ⚙️ Hua, L. 華林甫, 1999. Qingdai yilai Sanxia diqu shuihan zaihai de chubu yanjiu 清代以來三峽地區水旱災害的初步研 [A preliminary study of floods and droughts in the Three Gorges region since the Qing dynasty]. *Zhongguo shehui kexue* 中國社會科學, 1, pp.168–79.

```
@article{hua1999qys1,
  author = {Linfu \noop{h}華林甫 Hua},
  year = {1999},
  title = {Qingdai yilai {Sanxia} diqu shuihan zaihai de chubu yanjiu
    {清代以來三峽地區水旱災害的初步研}},
  titleaddon = {[A preliminary study of floods and droughts in the {Three} {Gorges} region since
    the {Qing} dynasty]},
  journal = {Zhongguo shehui kexue \textup{中國社會科學}},
  volume = {1},
  pages = {168-79}}
```

If the name is due to appear initial first (e.g. after ‘In:’), you can append the non-Roman characters to the author’s surname; to do this, use inverted name order as you would for English double-barrelled names without hyphens, e.g. Hua 華林甫, Linfu.

- 📖 Hua, L., 1999. Qingdai yilai Sanxia diqu shuihan zaihai de chubu yanjiu [A preliminary study of floods and droughts in the Three Gorges region since the Qing dynasty], *Zhongguo shehui kexue*, 1, pp.168–79.
- ⚙️ Hua, L., 1999. Qingdai yilai Sanxia diqu shuihan zaihai de chubu yanjiu [A preliminary study of floods and droughts in the Three Gorges region since the Qing dynasty]. *Zhongguo shehui kexue*, 1, pp.168–79.

```
@article{hua1999qys2,
  author = {Hua, Linfu},
  year = {1999},
  title = {Qingdai yilai {Sanxia} diqu shuihan zaihai de chubu yanjiu},
  titleaddon = {[A preliminary study of floods and droughts in the {Three} {Gorges} region since
    the {Qing} dynasty]},
  journal = {Zhongguo shehui kexue},
  volume = {1},
  pages = {168-79}}
```

3.27 House of Commons paper

- 📖 Great Britain. Parliament. House of Commons, 2004. *National Savings investment deposits: account 2002–2003*. London: National Audit Office (HC 200 3/04, 30).
- ⚙️ Great Britain. Parliament. House of Commons, 2004. *National Savings investment deposits: account 2002–2003*. London: National Audit Office, (HC 2003/04, 30).

```
@techreport{gb.hc2003/04-30,
  author = {{Great Britain. Parliament. House of Commons}},
  year = {2004},
  title = {National {Savings} Investment Deposits: account 2002--2003},
  address = {London},
  publisher = {National Audit Office},
  type = {{HC}},
  number = {2003/04, 30}}
```

3.28 House of Lords paper

📖 Great Britain. Parliament. House of Lords. 1987. *Social fund (Maternity and Funeral Expenses) Bill*. London: HMSO (HL 1986/87, (66)).

⚙️ Great Britain. Parliament. House of Lords, 1987. *Social fund (Maternity and Funeral Expenses) bill*. London: HMSO, (HL 1986/87, (66)).

```
@techreport{gb.hl1986/87-66,  
  author = {{Great Britain. Parliament. House of Lords}},  
  year = {1987},  
  title = {Social Fund ({Maternity} and {Funeral} {Expenses}) Bill},  
  address = {London},  
  publisher = {HMSO},  
  type = {{HL}},  
  number = {1986/87, (66)}}
```

3.29 House of Commons/House of Lords bill

📖 Great Britain. Parliament. House of Commons, 1988. *Local government finance bill*. London: HMSO (Bills | 1987/88, 66).

⚙️ Great Britain. Parliament. House of Commons, 1988. *Local government finance bill*. London: HMSO, (Bills | 1987/88, 66).

```
@techreport{gb.bill1987/88-66,  
  author = {{Great Britain. Parliament. House of Commons}},  
  year = {1988},  
  title = {Local Government Finance Bill},  
  address = {London},  
  publisher = {HMSO},  
  type = {{Bills |}},  
  number = {1987/88, 66}}
```

3.30 Act of Parliament (UK Statutes) before 1963

📖 *Witchcraft Act 1735* (9 Geo.2, c.5).

⚙️ *Witchcraft Act 1735* (9 Geo.2, c.5).

```
@book{gb.wa1735,  
  key = {Witchcraft Act 1735},  
  title = {Witchcraft {Act} 1735},  
  titleaddon = {(9 Geo.2, c.5)}}
```

3.31 Act of Parliament (UK Statues) 1963 onwards

📖 *Pensions Act 2014*, c.19. London: TSO.

⚙️ *Pensions Act 2014*, c.19. London: TSO.

```
@book{gb.pa2014,  
  key = {Pensions Act 2014},  
  title = {Pensions {Act} 2014},  
  number = {c.19},  
  address = {London},  
  publisher = {TSO}}
```

3.32 Command paper

- 📖 Great Britain. Ministry of Defence, 2004. *Delivering security in a changing world: defence white paper*. London: TSO (Cm. 6041).
- ⚙️ Great Britain. Ministry of Defence, 2004. *Delivering security in a changing world: defence white paper*. London: TSO, (Cm. 6041).

```
@techreport{gb.cm6041,
  author = {{Great Britain. Ministry of Defence}},
  year = {2004},
  title = {Delivering Security in a Changing World: defence White Paper},
  address = {London},
  publisher = {TSO},
  type = {{Cm.}},
  number = {6041}}
```

3.33 Statutory instrument

- 📖 *The Human Medicines Regulations 2012* [Online], No.1916, United Kingdom: HMSO. Available from: http://www.legislation.gov.uk/ukxi/2012/1916/pdfs/ukxi_20121916_en.pdf [Accessed 17/04/2016]
- ⚙️ *The Human Medicines Regulations 2012* [Online], No.1916. United Kingdom: HMSO. Available from: http://www.legislation.gov.uk/ukxi/2012/1916/pdfs/ukxi_20121916_en.pdf [Accessed 17/04/2016].

```
@book{gb.hmr2012,
  title = {The {Human} {Medicines} {Regulations} 2012},
  titleaddon = {[Online]},
  number = {No.1916},
  address = {United Kingdom},
  publisher = {HMSO},
  url = {http://www.legislation.gov.uk/ukxi/2012/1916/pdfs/ukxi_20121916_en.pdf},
  urldate = {17/04/2016}}
```

3.34 Legal case study

- 📖 *Seldon v Clarkson Wright & Jakes*. [2012]. UKSC 16.
- ⚙️ *Seldon v Clarkson Wright & Jakes*. [2012]. UKSC 16.


```
@unpublished{seldon-v-c.w.j2012,
  title = {Seldon v {Clarkson} {Wright} \& {Jakes}},
  note = {[2012]. UKSC 16}}
```

3.35 EU publication

- 📖 European Commission, 2015. *General report on the activities of the European Union 2014*. Luxembourg: Publications Office of the European Union.
- ⚙️ European Commission, 2015. *General report on the activities of the European Union 2014*. Luxembourg: Publications Office of the European Union.

```
@techreport{ec2015gra,
  author = {{European Commission}},
  year = {2015},
  title = {General Report on the Activities of the {European} {Union} 2014},
  address = {Luxembourg},
  publisher = {Publications Office of the European Union}}
```

3.36 EU regulation or directive, decision, recommendation or opinion

 Directive (EU) 2015/413 of the European Parliament and of the Council of 11th March 2015 facilitating cross-border exchange of information on road-safety-related traffic offences [2015] *OJ* L68/9.

⚙ Directive (EU) 2015/413 of the European Parliament and of the Council of 11th March 2015 facilitating cross-border exchange of information on road-safety-related traffic offences [2015] *OJ* L68/9.

```
@misc{eu.dir2015/413,
  title = {Directive ({EU}) 2015/413 of the {European} {Parliament} and of the {Council} of
    11th {March} 2015 Facilitating Cross-Border Exchange of Information on Road-Safety-Related
    Traffic Offences},
  titleaddon = {[2015] \emph{OJ} L68/9}}
```

3.37 Judgment of the European Court of Justice

 *Alessandrini Srl and others v. Commission* (C-295/03 P) [2005] ECR I-5700.

⚙ *Alessandrini Srl and others v. Commission* (C-295/03 P) [2005] ECR I-5700.

```
@unpublished{srl.etal-v-comm2005,
  title = {Alessandrini {Srl} and others v.~{Commission}},
  titleaddon = {(C-295/03 P) [2005] ECR I-5700}}
```


3.38 Database


 Bureau van Dijk, 2008. *BT Group plc company report. FAME* [Online]. London: Bureau van Dijk. Available from: <http://www.portal.euromonitor.com> [Accessed 6/11/2014].

⚙ Bureau van Dijk, 2008. *BT Group plc company report. FAME* [Online]. London: Bureau van Dijk. Available from: <http://www.portal.euromonitor.com> [Accessed 06/11/2014].

```
@online{bvd2008bt,
  author = {{Bureau van Dijk}},
  year = {2008},
  title = {{BT} {Group} PLC Company Report},
  series = {\emph{FAME} [Online]},
  address = {London},
  organization = {Bureau van Dijk},
  url = {http://www.portal.euromonitor.com},
  urldate = {06/11/2014}}
```

3.39 Dataset


 Wilson, D., 2013. *Real geometry and connectedness via triangular description: CAD example bank* [Online]. Bath: University of Bath. Available from: <http://doi.org/10.15125/BATH-00069> [Accessed 20/04/2016].


 Wilson, D., 2013. *Real geometry and connectedness via triangular description: CAD example bank* [Online]. Bath: University of Bath. Available from: <http://doi.org/10.15125/BATH-00069> [Accessed 20/04/2016].

```
@online{wilson2013rgc,  
  author = {Wilson, D.},  
  year = {2013},  
  title = {Real Geometry and Connectedness via Triangular Description: {CAD} Example Bank},  
  titleaddon = {[Online]},  
  address = {Bath},  
  organization = {University of Bath},  
  doi = {10.15125/BATH-00069},  
  urldate = {20/04/2016}}
```

You can also use `dataset` as an alternative alias for `manual`.

3.40 Computer program

 @screencasto. *Screencast-O-Matic* (v.2) [computer program]. <https://screencast-o-matic.com/> [Accessed 16/05/2016].

 @screencasto. *Screencast-O-Matic* (v.2) [computer program]. Available from: <https://screencast-o-matic.com/> [Accessed 16/05/2016].

```
@online{screencasto,  
  author = {@screencasto},  
  title = {{Screencast-O-Matic}},  
  titleaddon = {(v.2) [computer program]},  
  url = {https://screencast-o-matic.com/},  
  urldate = {16/05/2016}}
```

You can also use `software` as an alternative alias for `manual`.

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This work consists of the documented LaTeX file bath-bst.dtx and a Makefile.

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This work is ‘maintained’ (as per LPPL maintenance status) by [Alex Ball](#).

4 Implementation

4.1 Preliminaries

We begin by listing the entry types that we will recognize.

```
16 ENTRY
17 { address
18   archive
19   author
20   booktitle
21   chapter
22   doi
23   edition
24   editor
25   eid
26   eprint
27   howpublished
28   institution
29   journal
30   key
31   language
32   month
33   note
34   number
35   organization
36   pages
37   publisher
38   school
39   series
40   title
41   titleaddon
42   type
43   url
44   urldate
45   venue
46   volume
47   year
48 }
49 {}
50 { label extra.label sort.label short.list }
```

Next, we define some standard integer variables, representing where we are in a bibliography entry, and some utility string variables.

```
51 INTEGERS { output.state before.all mid.sentence after.sentence after.block }
52 FUNCTION {init.state.consts}
53 { #0 'before.all :=
54   #1 'mid.sentence :=
55   #2 'after.sentence :=
56   #3 'after.block :=
57 }
58 STRINGS { s t}
```

4.2 General formatting

The following functions provide the general mechanism for printing out the formatted references.

```
59 FUNCTION {output.nonnull}
60 { 's :=
61   output.state mid.sentence =
62   { " " * write$ }
63   { output.state after.block =
64     { add.period$ write$
65       newline$
66       "\newblock " write$
67     }
68     { output.state before.all =
69       'write$
70       { add.period$ " " * write$ }
71     if$
```

```

72     }
73     if$
74     mid.sentence 'output.state :=
75     }
76     if$
77     s
78 }
79 FUNCTION {output}
80 { duplicate$ empty$
81   'pop$
82   'output.nonnull
83   if$
84 }
85 FUNCTION {output.check}
86 { 't :=
87   duplicate$ empty$
88   { pop$ "empty " t * " in " * cite$ * warning$ }
89   'output.nonnull
90   if$
91 }
92 FUNCTION {fin.entry}
93 { add.period$
94   write$
95   newline$
96 }
97
98 FUNCTION {new.block}
99 { output.state before.all =
100   'skip$
101   { after.block 'output.state := }
102   if$
103 }
104 FUNCTION {new.sentence}
105 { output.state after.block =
106   'skip$
107   { output.state before.all =
108     'skip$
109     { after.sentence 'output.state := }
110     if$
111   }
112   if$
113 }
114 FUNCTION {add.blank}
115 { " " * before.all 'output.state :=
116 }
117
118 FUNCTION {date.block}
119 {
120   new.block
121 }

```

We define some useful logical operations.

```

123 FUNCTION {not}
124 { { #0 }
125   { #1 }
126   if$
127 }
128 FUNCTION {and}
129 { 'skip$
130   { pop$ #0 }
131   if$
132 }
133 FUNCTION {or}
134 { { pop$ #1 }
135   'skip$
136   if$
137 }

```

We define some useful tests.

```

138 FUNCTION {new.block.checkb}
139 { empty$

```

```

140 swap$ empty$
141 and
142 'skip$
143 'new.block
144 if$
145 }
146 FUNCTION {field.or.null}
147 { duplicate$ empty$
148   { pop$ "" }
149   'skip$
150   if$
151 }

```

The `emphasize` function applies emphasis. The `tie.or.space.prefix` function prefixes a string with a non-breaking space if it is up to three characters long, or a normal space otherwise. The `capitalize` function makes putting strings into sentence case a little more robust. The `space.word` function puts space either side of a word.

```

152 FUNCTION {emphasize}
153 { duplicate$ empty$
154   { pop$ "" }
155   { "\emph{" swap$ * "}" * }
156   if$
157 }
158 FUNCTION {tie.or.space.prefix}
159 { duplicate$ text.length$ #3 <
160   { "~" }
161   { " " }
162   if$
163   swap$
164 }
165
166 FUNCTION {capitalize}
167 { "u" change.case$ "t" change.case$ }
168
169 FUNCTION {space.word}
170 { " " swap$ * " " * }

```

4.3 Bibliography strings

Instead of dropping literal English words into the text of references, we will use these functions instead. This makes it easier to translate the style into other languages.

```

171 FUNCTION {bbl.and}
172 { "and" }
173
174 FUNCTION {bbl.etal}
175 { "et~al." }
176
177 FUNCTION {bbl.editors}
178 { "eds." }
179
180 FUNCTION {bbl.editor}
181 { "ed." }
182
183 FUNCTION {bbl.edby}
184 { "edited by" }
185
186 FUNCTION {bbl.edition}
187 { "ed." }
188
189 FUNCTION {bbl.volume}
190 { "vol." }
191
192 FUNCTION {bbl.of}
193 { "of" }
194
195 FUNCTION {bbl.number}
196 { "no." }
197
198 FUNCTION {bbl.nr}

```

```

199 { "no." }
200
201 FUNCTION {bbl.in}
202 { "in" }
203
204 FUNCTION {bbl.pages}
205 { "pp." }
206
207 FUNCTION {bbl.page}
208 { "p." }
209
210 FUNCTION {bbl.chapter}
211 { "chap." }
212
213 FUNCTION {bbl.techrep}
214 { "Tech. Rep." }
215
216 FUNCTION {bbl.mthesis}
217 { "Master's thesis" }
218
219 FUNCTION {bbl.phdthesis}
220 { "Ph.D. thesis" }
221
222 FUNCTION {bbl.first}
223 { "1st" }
224
225 FUNCTION {bbl.second}
226 { "2nd" }
227
228 FUNCTION {bbl.third}
229 { "3rd" }
230
231 FUNCTION {bbl.fourth}
232 { "4th" }
233
234 FUNCTION {bbl.fifth}
235 { "5th" }
236
237 FUNCTION {bbl.st}
238 { "st" }
239
240 FUNCTION {bbl.nd}
241 { "nd" }
242
243 FUNCTION {bbl.rd}
244 { "rd" }
245
246 FUNCTION {bbl.th}
247 { "th" }
248
249 MACRO {jan} {"January"}
250
251 MACRO {feb} {"February"}
252
253 MACRO {mar} {"March"}
254
255 MACRO {apr} {"April"}
256
257 MACRO {may} {"May"}
258
259 MACRO {jun} {"June"}
260
261 MACRO {jul} {"July"}
262
263 MACRO {aug} {"August"}
264
265 MACRO {sep} {"September"}
266
267 MACRO {oct} {"October"}
268
269 MACRO {nov} {"November"}
270
271 MACRO {dec} {"December"}

```

This function allows us to convert cardinal numbers to English ordinals.

```

273 FUNCTION {eng.ord}
274 { duplicate$ "1" swap$ *
275   #-2 #1 substring$ "1" =
276   { bbl.th * }
277   { duplicate$ #-1 #1 substring$
278     duplicate$ "1" =
279     { pop$ bbl.st * }
280     { duplicate$ "2" =
281       { pop$ bbl.nd * }
282       { "3" =
283         { bbl.rd * }
284         { bbl.th * }
285         if$
286       }
287     if$
288   }
289 if$
290 }
291 if$
292 }

```

4.4 Field-specific formatting

These functions check if the .bib entry contains the information we expect. The second one writes a warning to the log if not.

```

294 FUNCTION {bibinfo.check}
295 { swap$
296   duplicate$ missing$
297   {
298     pop$ pop$
299     ""
300   }
301   { duplicate$ empty$
302     {
303       swap$ pop$
304     }
305     { swap$
306       "\bibinfo{" swap$ * "}-{ " * swap$ * "}" *
307     }
308     if$
309   }
310 if$
311 }
312 FUNCTION {bibinfo.warn}
313 { swap$
314   duplicate$ missing$
315   {
316     swap$ "missing " swap$ * " in " * cite$ * warning$ pop$
317     ""
318   }
319   { duplicate$ empty$
320     {
321       swap$ "empty " swap$ * " in " * cite$ * warning$
322     }
323     { swap$
324       "\bibinfo{" swap$ * "}-{ " * swap$ * "}" *
325     }
326     if$
327   }
328 if$
329 }

```

These functions provide the formatting instructions for different elements of a reference entry, mostly corresponding to fields in .bib entries but with some specialization.

```

330 FUNCTION {format.eprint}
331 { eprint duplicate$ empty$
332   'skip$

```

```

333 { "\eprint"
334   archive empty$
335   'skip$
336   { "[" * archive * "]" * }
337   if$
338   "{" * swap$ * "}" *
339 }
340 if$
341 }
342 FUNCTION {format.url}
343 {
344   doi empty$
345   { url }
346   { "http://doi.org/" doi * }
347   if$
348   duplicate$ empty$
349   { pop$ "" }
350   { "\urlprefix\url{" swap$ * "}" * }
351   if$
352   urldate empty$
353   'skip$
354   { " [\urldateprefix{" * urldate * "]" * }
355   if$
356 }
357
358 INTEGERS { nameptr namesleft numnames }
359
360
361 STRINGS { bibinfo}
362
363 FUNCTION {format.names}
364 { 'bibinfo :=
365   duplicate$ empty$ 'skip$ {
366     's :=
367     "" 't :=
368     #1 'nameptr :=
369     s num.names$ 'numnames :=
370     numnames 'namesleft :=
371     { namesleft #0 > }
372     { s nameptr
373       "{ll}{, jj}{, f{.}.}{-vv}"
374       format.name$
375       bibinfo bibinfo.check
376       't :=
377       nameptr #1 >
378       {
379         namesleft #1 >
380         { ", " * t * }
381         {
382           s nameptr "{ll}" format.name$ duplicate$ "others" =
383           { 't := }
384           { pop$ }
385           if$
386           t "others" =
387           {
388             " " * bbl.etal *
389           }
390           {
391             bbl.and
392             space.word * t *
393           }
394           if$
395         }
396         if$
397       }
398       't
399       if$
400       nameptr #1 + 'nameptr :=
401       namesleft #1 - 'namesleft :=
402     }
403     while$
404   } if$
405 }

```



```

406 FUNCTION {format.names.ed}
407 {
408   'bibinfo :=
409   duplicate$ empty$ 'skip$ {
410     's :=
411     "" 't :=
412     #1 'nameptr :=
413     s num.names$ 'numnames :=
414     numnames 'namesleft :=
415     { namesleft #0 > }
416     { s nameptr
417       "{f{.}.~}{vv~}{ll}{ jj}"
418       format.name$
419       bibinfo bibinfo.check
420       't :=
421       nameptr #1 >
422       {
423         namesleft #1 >
424         { ", " * t * }
425         {
426           s nameptr "{ll}" format.name$ duplicate$ "others" =
427           { 't := }
428           { pop$ }
429           if$
430           t "others" =
431           {
432             " " * bbl.etal *
433           }
434           {
435             bbl.and
436             space.word * t *
437           }
438           if$
439         }
440         if$
441       }
442       't
443       if$
444       nameptr #1 + 'nameptr :=
445       namesleft #1 - 'namesleft :=
446     }
447     while$
448   } if$
449 }
450
451 FUNCTION {format.key}
452 { empty$
453   { key field.or.null }
454   { "" }
455   if$
456 }
457
458 FUNCTION {format.authors}
459 { author "author" format.names
460 }
461
462 FUNCTION {get.bbl.editor}
463 { editor num.names$ #1 > 'bbl.editors 'bbl.editor if$ }
464
465 FUNCTION {format.editors}
466 { editor "editor" format.names duplicate$ empty$ 'skip$
467   {
468     ", " *
469     " " *
470     get.bbl.editor
471     *
472   }
473   if$
474 }
475
476 FUNCTION {select.language}
477 { duplicate$ empty$
478   'pop$
479   { language empty$
480     'skip$

```

```

479     { "{\selectlanguage{" language * "}" * swap$ * "}" * }
480     if$
481   }
482   if$
483 }
484
485 FUNCTION {format.note}
486 {
487   note empty$
488   { "" }
489   { note #1 #1 substring$
490     duplicate$ "{" =
491       'skip$
492       { output.state mid.sentence =
493         { "l" }
494         { "u" }
495         if$
496         change.case$
497       }
498       if$
499       note #2 global.max$ substring$ * "note" bibinfo.check
500     }
501     if$
502   }
503
504 FUNCTION {format.title}
505 { title
506   duplicate$ empty$ 'skip$
507   { "t" change.case$ }
508   if$
509   "title" bibinfo.check
510   duplicate$ empty$ 'skip$
511   {
512     select.language
513   }
514   if$
515   titleaddon
516   duplicate$ empty$ 'pop$
517   { tie.or.space.prefix
518     "titleaddon" bibinfo.check * *
519   }
520   if$
521 }
522 FUNCTION {format.full.names}
523 {'s :=
524 "" 't :=
525 #1 'nameptr :=
526 s num.names$ 'numnames :=
527 numnames 'namesleft :=
528 { namesleft #0 > }
529 { s nameptr
530   "{vv~}{ll}" format.name$
531   't :=
532   nameptr #1 >
533   {
534     namesleft #1 >
535     { ", " * t * }
536     {
537       s nameptr "{ll}" format.name$ duplicate$ "others" =
538       { 't := }
539       { pop$ }
540       if$
541       t "others" =
542       {
543         " " * bbl.etal *
544       }
545       {
546         bbl.and
547         space.word * t *
548       }
549       if$
550     }
551     if$

```

```

552     }
553     't
554     if$
555     nameptr #1 + 'nameptr :=
556     namesleft #1 - 'namesleft :=
557   }
558   while$
559 }
560
561 FUNCTION {author.editor.key.full}
562 { author empty$
563   { editor empty$
564     { key empty$
565       { cite$ #1 #3 substring$ }
566       'key
567       if$
568     }
569     { editor format.full.names }
570     if$
571   }
572   { author format.full.names }
573   if$
574 }
575
576 FUNCTION {author.key.full}
577 { author empty$
578   { key empty$
579     { cite$ #1 #3 substring$ }
580     'key
581     if$
582   }
583   { author format.full.names }
584   if$
585 }
586
587 FUNCTION {editor.key.full}
588 { editor empty$
589   { key empty$
590     { cite$ #1 #3 substring$ }
591     'key
592     if$
593   }
594   { editor format.full.names }
595   if$
596 }
597
598 FUNCTION {make.full.names}
599 { type$ "book" =
600   type$ "inbook" =
601   or
602   'author.editor.key.full
603   { type$ "proceedings" =
604     'editor.key.full
605     'author.key.full
606     if$
607   }
608   if$
609 }
610
611 FUNCTION {output.bibitem}
612 { newline$
613   "\bibitem{" write$
614   label write$
615   ")" make.full.names duplicate$ short.list =
616   { pop$ }
617   { * }
618   if$
619   "]}{" * write$
620   cite$ write$
621   "]" write$
622   newline$
623   ""
624   before.all 'output.state :=

```

```

625 }
626
627 FUNCTION {n.dashify}
628 {
629   't :=
630   ""
631   { t empty$ not }
632   { t #1 #1 substring$ "-" =
633     { t #1 #2 substring$ "--" = not
634       { "--" *
635         t #2 global.max$ substring$ 't :=
636       }
637       { t #1 #1 substring$ "-" = }
638       { "-" *
639         t #2 global.max$ substring$ 't :=
640       }
641       while$
642     }
643     if$
644   }
645   { t #1 #1 substring$ *
646     t #2 global.max$ substring$ 't :=
647   }
648   if$
649 }
650 while$
651 }
652
653 FUNCTION {word.in}
654 { bbl.in capitalize
655   ":" *
656   " " * }
657
658 FUNCTION {format.date}
659 { year "year" bibinfo.check duplicate$ empty$
660   {
661   }
662   'skip$
663   if$
664   extra.label *
665 }
666 FUNCTION {format.btitle}
667 { title
668   duplicate$ empty$ 'skip$
669   { "t" change.case$ }
670   if$
671   "title" bibinfo.check
672   duplicate$ empty$ 'skip$
673   {
674     emphasize
675     select.language
676   }
677   if$
678   titleaddon
679   duplicate$ empty$ 'pop$
680   { tie.or.space.prefix
681     "titleaddon" bibinfo.check * *
682   }
683   if$
684 }
685 FUNCTION {either.or.check}
686 { empty$
687   'pop$
688   { "can't use both " swap$ * " fields in " * cite$ * warning$ }
689   if$
690 }
691 FUNCTION {format.bvolume}
692 { volume empty$
693   { "" }
694   { bbl.volume volume tie.or.space.prefix
695     "volume" bibinfo.check * *
696     series "series" bibinfo.check
697     duplicate$ empty$ 'pop$

```

```

698     { emphasize ", " * swap$ * }
699     if$
700     "volume and number" number either.or.check
701   }
702   if$
703 }
704 FUNCTION {format.number.series}
705 { volume empty$
706   { number empty$
707     { series field.or.null }
708     { series empty$
709       { number "number" bibinfo.check }
710       { series "series" bibinfo.check
711         number tie.or.space.prefix "number" bibinfo.check * *
712       }
713     }
714   }
715   if$
716 }
717 { "" }
718 if$
719 }
720 FUNCTION {is.num}
721 { chr.to.int$
722   duplicate$ "0" chr.to.int$ < not
723   swap$ "9" chr.to.int$ > not and
724 }
725
726 FUNCTION {extract.num}
727 { duplicate$ 't :=
728   "" 's :=
729   { t empty$ not }
730   { t #1 #1 substring$
731     t #2 global.max$ substring$ 't :=
732     duplicate$ is.num
733     { s swap$ * 's := }
734     { pop$ "" 't := }
735   }
736   if$
737   while$
738   s empty$
739   'skip$
740   { pop$ s }
741   if$
742 }
743
744 FUNCTION {convert.edition}
745 { extract.num "1" change.case$ 's :=
746   s "first" = s "1" = or
747   { bbl.first 't := }
748   { s "second" = s "2" = or
749     { bbl.second 't := }
750     { s "third" = s "3" = or
751       { bbl.third 't := }
752       { s "fourth" = s "4" = or
753         { bbl.fourth 't := }
754         { s "fifth" = s "5" = or
755           { bbl.fifth 't := }
756           { s #1 #1 substring$ is.num
757             { s eng.ord 't := }
758             { edition 't := }
759           }
760         }
761       }
762     }
763   }
764   if$
765   if$
766   }
767   if$
768 }
769 if$
770 t

```

```

771 }
772
773 FUNCTION {format.edition}
774 { edition duplicate$ empty$ 'skip$
775   {
776     convert.edition
777     output.state mid.sentence =
778     { "l" }
779     { "t" }
780     if$ change.case$
781     "edition" bibinfo.check
782     " " * bbl.edition *
783   }
784   if$
785 }
786 INTEGERS { multiresult }
787 FUNCTION {multi.page.check}
788 { 't :=
789   #0 'multiresult :=
790   { multiresult not
791     t empty$ not
792     and
793   }
794   { t #1 #1 substring$
795     duplicate$ "-" =
796     swap$ duplicate$ "," =
797     swap$ "+" =
798     or or
799     { #1 'multiresult := }
800     { t #2 global.max$ substring$ 't := }
801     if$
802   }
803   while$
804   multiresult
805 }
806 FUNCTION {format.pages}
807 { pages duplicate$ empty$ 'skip$
808   { duplicate$ multi.page.check
809     {
810       bbl.pages swap$
811       n.dashify
812     }
813     {
814       bbl.page swap$
815     }
816     if$
817     "pages" bibinfo.check
818     *
819   }
820   if$
821 }
822 FUNCTION {format.journal.pages}
823 { pages duplicate$ empty$ 'pop$
824   { swap$ duplicate$ empty$
825     { pop$ pop$ format.pages }
826     {
827       ", " *
828       swap$
829       n.dashify
830       pages multi.page.check
831       'bbl.pages
832       'bbl.page
833       if$
834       swap$
835       "pages" bibinfo.check
836       * *
837     }
838     if$
839   }
840   if$
841 }
842 FUNCTION {format.journal.eid}
843 { eid "eid" bibinfo.check

```

```

844 duplicate$ empty$ 'pop$
845 { swap$ duplicate$ empty$ 'skip$
846 {
847     ", " *
848 }
849 if$
850 swap$ *
851 }
852 if$
853 }
854 FUNCTION {format.vol.num.pages}
855 { volume field.or.null
856   duplicate$ empty$ 'skip$
857   {
858     "volume" bibinfo.check
859   }
860   if$
861   number "number" bibinfo.check duplicate$ empty$ 'skip$
862   {
863     swap$ duplicate$ empty$
864     { "there's a number but no volume in " cite$ * warning$ }
865     'skip$
866     if$
867     swap$
868     "(" swap$ * ")" *
869   }
870   if$ *
871   eid empty$
872   { format.journal.pages }
873   { format.journal.eid }
874   if$
875 }
876
877 FUNCTION {format.chapter.pages}
878 { chapter empty$
879   'format.pages
880   { type empty$
881     { bbl.chapter }
882     { type "1" change.case$
883       "type" bibinfo.check
884     }
885     if$
886     chapter tie.or.space.prefix
887     "chapter" bibinfo.check
888     * *
889     pages empty$
890     'skip$
891     { ", " * format.pages * }
892     if$
893   }
894   if$
895 }
896
897 FUNCTION {format.booktitle}
898 { booktitle
899   duplicate$ empty$ 'skip$
900   { "t" change.case$ }
901   if$
902   "booktitle" bibinfo.check
903   emphasize
904 }
905 FUNCTION {format.in.ed.booktitle}
906 { format.booktitle duplicate$ empty$ 'skip$
907   {
908     editor "editor" format.names.ed duplicate$ empty$ 'pop$
909     {
910       ", " *
911       " " *
912       get.bbl.editor
913       " " *
914       * swap$
915       *
916       word.in swap$ *

```

```

917     }
918     if$
919   }
920   if$
921 }
922 FUNCTION {format.thesis.type}
923 { type duplicate$ empty$
924   'pop$
925   { swap$ pop$
926     "t" change.case$ "type" bibinfo.check
927   }
928   if$
929 }
930 FUNCTION {format.tr.number}
931 { type duplicate$ empty$
932   { pop$
933     number duplicate$ empty$
934     { pop$ ""
935     }
936     { "(" swap$
937       "number" bibinfo.check
938       * ")" *
939     }
940     if$
941   }
942   { "(" swap$
943     "t" change.case$ "type" bibinfo.check
944     *
945     number duplicate$ empty$
946     'pop$
947     { tie.or.space.prefix
948       "number" bibinfo.check
949       * *
950     }
951     if$
952     ")" *
953   }
954   if$
955 }
956 FUNCTION {format.article.crossref}
957 {
958   word.in
959   " \cite{" * crossref * "}" *
960 }
961 FUNCTION {format.book.crossref}
962 { volume duplicate$ empty$
963   { "empty volume in " cite$ * "'s crossref of " * crossref * warning$
964     pop$ word.in
965   }
966   { bbl.volume
967     capitalize
968     swap$ tie.or.space.prefix "volume" bibinfo.check * * bbl.of space.word *
969   }
970   if$
971   " \cite{" * crossref * "}" *
972 }
973 FUNCTION {format.incoll.inproc.crossref}
974 {
975   word.in
976   " \cite{" * crossref * "}" *
977 }
978 FUNCTION {format.org.or.pub}
979 { 't :=
980   ""
981   address empty$ t empty$ and
982   'skip$
983   {
984     address "address" bibinfo.check *
985     t empty$
986     'skip$
987     { address empty$
988       'skip$
989       { ":" * }

```



```

990         if$
991         t *
992     }
993     if$
994 }
995 if$
996 }
997 FUNCTION {format.publisher.address}
998 { publisher "publisher" bibinfo.warn format.org.or.pub
999 }
1000 FUNCTION {format.organization.address}
1001 { organization "organization" bibinfo.check format.org.or.pub
1002 }
1003 FUNCTION {format.institution.address}
1004 { institution "institution" bibinfo.check format.org.or.pub
1005 }

```

4.5 Formatting drivers for specific entry types

These functions are called when an entry of the given type is being formatted.

```

1007 FUNCTION {article}
1008 { output.bibitem
1009   format.authors "author" output.check
1010   author format.key output
1011   format.date "year" output.check
1012   date.block
1013   format.title "title" output.check
1014   new.block
1015   crossref missing$
1016   {
1017     journal
1018     "journal" bibinfo.check
1019     emphasize
1020     "journal" output.check
1021     format.vol.num.pages output
1022   }
1023   { format.article.crossref output.nonnull
1024     format.pages output
1025   }
1026   if$
1027   new.block
1028   format.note output
1029   new.block
1030   format.eprint output
1031   format.url output
1032   fin.entry
1033 }
1034 FUNCTION {book}
1035 { output.bibitem
1036   author empty$
1037   { editor empty$
1038     { format.btitle "title" output.check
1039       format.date "year" output.check
1040       year empty$ 'skip$ { date.block } if$
1041     }
1042     { format.editors "author and editor" output.check
1043       editor format.key output
1044       format.date "year" output.check
1045       date.block
1046       format.btitle "title" output.check
1047     }
1048   } if$
1049 }
1050 { format.authors output.nonnull
1051   crossref missing$
1052   { "author and editor" editor either.or.check }
1053   'skip$
1054 } if$
1055   format.date "year" output.check
1056   date.block

```

```

1057     format.btitle "title" output.check
1058 }
1059 if$
1060 format.bvolume output
1061 format.number.series output
1062 new.block
1063 format.edition output
1064 crossref missing$
1065 { new.sentence
1066     format.publisher.address output
1067 }
1068 {
1069     new.block
1070     format.book.crossref output.nonnull
1071 }
1072 if$
1073 new.block
1074 format.note output
1075 new.block
1076 format.eprint output
1077 format.url output
1078 fin.entry
1079 }
1080 FUNCTION {booklet}
1081 { output.bibitem
1082     author empty$
1083     { format.btitle "title" output.check
1084       format.date "year" output.check
1085       year empty$ 'skip$ { date.block } if$
1086     }
1087     { format.authors output
1088       author format.key output
1089       format.date "year" output.check
1090       date.block
1091       format.btitle "title" output.check
1092     }
1093     if$
1094     new.block
1095     howpublished "howpublished" bibinfo.check output
1096     publisher empty$ 'skip$
1097     { new.block}
1098     if$
1099     format.publisher.address output
1100     new.block
1101     format.note output
1102     new.block
1103     format.eprint output
1104     format.url output
1105     fin.entry
1106 }
1107
1108 FUNCTION {inbook}
1109 { output.bibitem
1110     author empty$
1111     { format.editors "author and editor" output.check
1112       editor format.key output
1113     }
1114     { format.authors output.nonnull
1115       crossref missing$
1116       { "author and editor" editor either.or.check }
1117       'skip$
1118       if$
1119     }
1120     if$
1121     format.date "year" output.check
1122     date.block
1123     format.btitle "title" output.check
1124     crossref missing$
1125     {
1126         format.publisher.address output
1127         format.bvolume output
1128         format.chapter.pages "chapter and pages" output.check
1129         new.block

```

```

1130     format.number.series output
1131     new.sentence
1132 }
1133 {
1134     format.chapter.pages "chapter and pages" output.check
1135     new.block
1136     format.book.crossref output.nonnull
1137 }
1138 if$
1139 format.edition output
1140 new.block
1141 format.note output
1142 new.block
1143 format.eprint output
1144 format.url output
1145 fin.entry
1146 }
1147
1148 FUNCTION {incollection}
1149 { output.bibitem
1150   format.authors "author" output.check
1151   author format.key output
1152   format.date "year" output.check
1153   date.block
1154   format.title "title" output.check
1155   new.block
1156   crossref missing$
1157   { format.in.ed.booktitle "booktitle" output.check
1158     format.publisher.address output
1159     format.bvolume output
1160     format.number.series output
1161     format.chapter.pages output
1162     new.sentence
1163     format.edition output
1164   }
1165   { format.incoll.inproc.crossref output.nonnull
1166     format.chapter.pages output
1167   }
1168   if$
1169   new.block
1170   format.note output
1171   new.block
1172   format.eprint output
1173   format.url output
1174   fin.entry
1175 }
1176 FUNCTION {inproceedings}
1177 { output.bibitem
1178   format.authors "author" output.check
1179   author format.key output
1180   format.date "year" output.check
1181   date.block
1182   format.title "title" output.check
1183   new.block
1184   crossref missing$
1185   { format.in.ed.booktitle "booktitle" output.check
1186     venue "venue" output.check
1187     new.sentence
1188     publisher empty$
1189     { format.organization.address output }
1190     { organization "organization" bibinfo.check output
1191       format.publisher.address output
1192     }
1193     if$
1194     format.bvolume output
1195     format.number.series output
1196     format.pages output
1197   }
1198   { format.incoll.inproc.crossref output.nonnull
1199     format.pages output
1200   }
1201   if$
1202   new.block

```

```

1203     format.note output
1204     new.block
1205     format.eprint output
1206     format.url output
1207     fin.entry
1208 }
1209 FUNCTION {conference} { inproceedings }
1210 FUNCTION {manual}
1211 { output.bibitem
1212   author empty$
1213   { format.btitle "title" output.check
1214     format.date "year" output.check
1215     year empty$ 'skip$ { date.block } if$
1216   }
1217   { format.authors output
1218     author format.key output
1219     format.date "year" output.check
1220     date.block
1221     format.btitle "title" output.check
1222   }
1223   if$
1224   new.block
1225   format.number.series output
1226   organization address new.block.checkb
1227   format.organization.address output
1228   format.edition output
1229   new.block
1230   format.note output
1231   new.block
1232   format.eprint output
1233   format.url output
1234   fin.entry
1235 }
1236
1237 FUNCTION {mastersthesis}
1238 { output.bibitem
1239   format.authors "author" output.check
1240   author format.key output
1241   format.date "year" output.check
1242   date.block
1243   format.btitle "title" output.check
1244   new.block
1245   bbl.mthesis format.thesis.type output.nonnull
1246   new.block
1247   school "school" bibinfo.warn output
1248   address "address" bibinfo.check output
1249   new.block
1250   format.note output
1251   new.block
1252   format.eprint output
1253   format.url output
1254   fin.entry
1255 }
1256
1257 FUNCTION {misc}
1258 { output.bibitem
1259   author empty$
1260   { format.title "title" output.check
1261     format.date "year" output.check
1262     year empty$ 'skip$ { date.block } if$
1263   }
1264   { format.authors output
1265     author format.key output
1266     format.date "year" output.check
1267     date.block
1268     format.title "title" output.check
1269   }
1270   if$
1271   new.block
1272   howpublished "howpublished" bibinfo.check output
1273   new.block
1274   format.note output
1275   new.block

```

```

1276     format.eprint output
1277     format.url output
1278     fin.entry
1279 }
1280 FUNCTION {phdthesis}
1281 { output.bibitem
1282   format.authors "author" output.check
1283   author format.key output
1284   format.date "year" output.check
1285   date.block
1286   format.btitle "title" output.check
1287   new.block
1288   bbl.phdthesis format.thesis.type output.nonnull
1289   new.block
1290   school "school" bibinfo.warn output
1291   address "address" bibinfo.check output
1292   new.block
1293   format.note output
1294   new.block
1295   format.eprint output
1296   format.url output
1297   fin.entry
1298 }
1299
1300 FUNCTION {proceedings}
1301 { output.bibitem
1302   editor empty$
1303   { format.btitle "title" output.check
1304     format.date "year" output.check
1305     year empty$ 'skip$ { date.block } if$
1306   }
1307   { format.editors output
1308     editor format.key output
1309     format.date "year" output.check
1310     date.block
1311     format.btitle "title" output.check
1312   }
1313   if$
1314   format.bvolume output
1315   format.number.series output
1316   new.sentence
1317   publisher empty$
1318   { format.organization.address output }
1319   { organization "organization" bibinfo.check output
1320     format.publisher.address output
1321   }
1322   if$
1323   new.block
1324   format.note output
1325   new.block
1326   format.eprint output
1327   format.url output
1328   fin.entry
1329 }
1330
1331 FUNCTION {techreport}
1332 { output.bibitem
1333   author empty$
1334   { format.btitle "title" output.check
1335     format.date "year" output.check
1336     year empty$ 'skip$ { date.block } if$
1337   }
1338   { format.authors output
1339     author format.key output
1340     format.date "year" output.check
1341     date.block
1342     format.btitle "title" output.check
1343   }
1344   if$
1345   new.block
1346   publisher empty$
1347   { format.institution.address output }
1348   { institution "institution" bibinfo.check output

```

```

1349     format.publisher.address output
1350   }
1351   if$
1352   format.tr.number output
1353   new.block
1354   format.note output
1355   new.block
1356   format.eprint output
1357   format.url output
1358   fin.entry
1359 }
1360
1361 FUNCTION {unpublished}
1362 { output.bibitem
1363   author empty$
1364   { format.btitle "title" output.check
1365     format.date "year" output.check
1366     year empty$ 'skip$ { date.block } if$
1367   }
1368   { format.authors output
1369     author format.key output
1370     format.date "year" output.check
1371     date.block
1372     format.btitle "title" output.check
1373   }
1374   if$
1375   new.block
1376   format.note "note" output.check
1377   new.block
1378   format.eprint output
1379   format.url output
1380   fin.entry
1381 }

```

Here are a list of aliases supported by this style.

```

1383 FUNCTION {audio} { booklet }
1384 FUNCTION {movie} { booklet }
1385 FUNCTION {music} { booklet }
1386 FUNCTION {video} { booklet }
1387 FUNCTION {dataset} { manual }
1388 FUNCTION {electronic} { manual }
1389 FUNCTION {online} { manual }
1390 FUNCTION {patent} { manual }
1391 FUNCTION {software} { manual }
1392 FUNCTION {standard} { manual }
1393 FUNCTION {www} { manual }

```

The fallback driver is misc, as with most styles.

```

1394 FUNCTION {default.type} { misc }

```

4.6 Bibliography processing

We are now ready for Bib_T_EX to read in the .bib file.

```

1396 READ

```

These functions are used to generate a sort key for each entry in the .bib file.

```

1397 FUNCTION {sortify}
1398 { purify$
1399   "1" change.case$
1400 }
1401 INTEGERS { len }
1402 FUNCTION {chop.word}
1403 { 's :=
1404   'len :=
1405   s #1 len substring$ =
1406   { s len #1 + global.max$ substring$ }
1407   's
1408   if$

```

```

1409 }
1410 FUNCTION {format.lab.names}
1411 {'s :=
1412 "" 't :=
1413 #1 'nameptr :=
1414 s num.names$ 'numnames :=
1415 numnames 'namesleft :=
1416 { namesleft #0 > }
1417 { s nameptr
1418 "{vv~}{ll}" format.name$
1419 't :=
1420 nameptr #1 >
1421 {
1422 nameptr #2 =
1423 numnames #3 > and
1424 { "others" 't :=
1425 #1 'namesleft := }
1426 'skip$
1427 if$
1428 namesleft #1 >
1429 { ", " * t * }
1430 {
1431 s nameptr "{ll}" format.name$ duplicate$ "others" =
1432 { 't := }
1433 { pop$ }
1434 if$
1435 t "others" =
1436 {
1437 " " * bbl.etal *
1438 }
1439 {
1440 bbl.and
1441 space.word * t *
1442 }
1443 if$
1444 }
1445 }
1446 }
1447 't
1448 if$
1449 nameptr #1 + 'nameptr :=
1450 namesleft #1 - 'namesleft :=
1451 }
1452 while$
1453 }
1454
1455 FUNCTION {author.key.label}
1456 { author empty$
1457 { key empty$
1458 { cite$ #1 #3 substring$ }
1459 'key
1460 if$
1461 }
1462 { author format.lab.names }
1463 if$
1464 }
1465
1466 FUNCTION {author.editor.key.label}
1467 { author empty$
1468 { editor empty$
1469 { key empty$
1470 { cite$ #1 #3 substring$ }
1471 'key
1472 if$
1473 }
1474 { editor format.lab.names }
1475 if$
1476 }
1477 { author format.lab.names }
1478 if$
1479 }
1480
1481 FUNCTION {editor.key.label}

```

```

1482 { editor empty$
1483   { key empty$
1484     { cite$ #1 #3 substring$ }
1485     'key
1486     if$
1487   }
1488   { editor format.lab.names }
1489   if$
1490 }
1491
1492 FUNCTION {calc.short.authors}
1493 { type$ "book" =
1494   type$ "inbook" =
1495   or
1496   'author.editor.key.label
1497   { type$ "proceedings" =
1498     'editor.key.label
1499     'author.key.label
1500     if$
1501   }
1502   if$
1503   'short.list :=
1504 }
1505
1506 FUNCTION {calc.label}
1507 { calc.short.authors
1508   short.list
1509   "("
1510   *
1511   year duplicates$ empty$
1512   { pop$ "" }
1513   'skip$
1514   if$
1515   *
1516   'label :=
1517 }
1518
1519 FUNCTION {sort.format.names}
1520 { 's :=
1521   #1 'nameptr :=
1522   ""
1523   s num.names$ 'numnames :=
1524   numnames 'namesleft :=
1525   { namesleft #0 > }
1526   { s nameptr
1527     "{ll{ }}{ f{ }}{ jj{ }}{ vv{ }}"
1528     format.name$ 't :=
1529     nameptr #1 >
1530     {
1531       " " *
1532       namesleft #1 = t "others" = and
1533       { "zzzzz" 't := }
1534       'skip$
1535       if$
1536       t sortify *
1537     }
1538     { t sortify * }
1539     if$
1540     nameptr #1 + 'nameptr :=
1541     namesleft #1 - 'namesleft :=
1542   }
1543   while$
1544 }
1545
1546 FUNCTION {sort.format.title}
1547 { 't :=
1548   "A " #2
1549   "An " #3
1550   "The " #4 t chop.word
1551   chop.word
1552   chop.word
1553   sortify
1554   #1 global.max$ substring$

```



```

1555 }
1556 FUNCTION {author.sort}
1557 { author empty$
1558   { title empty$
1559     { key empty$
1560       { "to sort, need author, title, or key in " cite$ * warning$
1561         ""
1562       }
1563       { key sortify }
1564       if$
1565     }
1566     { title sort.format.title }
1567     if$
1568   }
1569   { author sort.format.names }
1570   if$
1571 }
1572 FUNCTION {author.editor.sort}
1573 { author empty$
1574   { editor empty$
1575     { title empty$
1576       { key empty$
1577         { "to sort, need author, editor, title, or key in " cite$ * warning$
1578           ""
1579         }
1580         { key sortify }
1581         if$
1582       }
1583       { title sort.format.title }
1584       if$
1585     }
1586     { editor sort.format.names }
1587     if$
1588   }
1589   { author sort.format.names }
1590   if$
1591 }
1592 FUNCTION {editor.sort}
1593 { editor empty$
1594   { title empty$
1595     { key empty$
1596       { "to sort, need editor, title, or key in " cite$ * warning$
1597         ""
1598       }
1599       { key sortify }
1600       if$
1601     }
1602     { title sort.format.title }
1603     if$
1604   }
1605   { editor sort.format.names }
1606   if$
1607 }

```

The presort function applies the above functions to a given entry to generate its sort key and save it to the `sort.key$` variable.

```

1609 FUNCTION {presort}
1610 { calc.label
1611   label sortify
1612   " "
1613   *
1614   type$ "book" =
1615   type$ "inbook" =
1616   or
1617   'author.editor.sort
1618   { type$ "proceedings" =
1619     'editor.sort
1620     'author.sort
1621     if$
1622   }
1623   if$
1624   #1 entry.max$ substring$

```

```

1625 'sort.label :=
1626 sort.label
1627 *
1628 " "
1629 *
1630 title field.or.null
1631 sort.format.title
1632 *
1633 #1 entry.max$ substring$
1634 'sort.key$ :=
1635 }

```

We now tell Bib_T_EX to go through each entry in turn and apply the `presort` function, then use the resultant sort keys to put the entries in order.

```

1637 ITERATE {presort}
1638 SORT

```

If there are any duplicate author–year combinations, these functions detect them and disambiguate them by adding a letter to the year.

```

1639 STRINGS { last.label next.extra }
1640 INTEGERS { last.extra.num last.extra.num.extended last.extra.num.blank number.label }
1641 FUNCTION {initialize.extra.label.stuff}
1642 { #0 int.to.chr$ 'last.label :=
1643   "" 'next.extra :=
1644   #0 'last.extra.num :=
1645   "a" chr.to.int$ #1 - 'last.extra.num.blank :=
1646   last.extra.num.blank 'last.extra.num.extended :=
1647   #0 'number.label :=
1648 }
1649 FUNCTION {forward.pass}
1650 { last.label label =
1651   { last.extra.num #1 + 'last.extra.num :=
1652     last.extra.num "z" chr.to.int$ >
1653     { "a" chr.to.int$ 'last.extra.num :=
1654       last.extra.num.extended #1 + 'last.extra.num.extended :=
1655     }
1656     'skip$
1657   if$
1658   last.extra.num.extended last.extra.num.blank >
1659   { last.extra.num.extended int.to.chr$
1660     last.extra.num int.to.chr$
1661     * 'extra.label := }
1662   { last.extra.num int.to.chr$ 'extra.label := }
1663   if$
1664 }
1665 { "a" chr.to.int$ 'last.extra.num :=
1666   "" 'extra.label :=
1667   label 'last.label :=
1668 }
1669 if$
1670 number.label #1 + 'number.label :=
1671 }
1672 FUNCTION {reverse.pass}
1673 { next.extra "b" =
1674   { "a" 'extra.label := }
1675   'skip$
1676 if$
1677 extra.label 'next.extra :=
1678 extra.label
1679 duplicate$ empty$
1680 'skip$
1681 { "{\natexlab{" swap$ * "}" * }
1682 if$
1683 'extra.label :=
1684 label extra.label * 'label :=
1685 }

```

Applying these functions is a bit more tricky, but once we have done that, we re-sort the entries to make absolutely sure they in the right order.

```

1686 EXECUTE {initialize.extra.label.stuff}
1687 ITERATE {forward.pass}
1688 REVERSE {reverse.pass}
1689 FUNCTION {bib.sort.order}
1690 { sort.label
1691   "   "
1692   *
1693   year field.or.null sortify
1694   *
1695   "   "
1696   *
1697   title field.or.null
1698   sort.format.title
1699   *
1700   #1 entry.max$ substring$
1701   'sort.key$ :=
1702 }
1703 ITERATE {bib.sort.order}
1704 SORT

```

We now write out the beginning of the bibliography to a .bbl file. This includes opening a \LaTeX environment, `thebibliography`, and some user-redefinable strings.

```

1705 FUNCTION {begin.bib}
1706 { preamble$ empty$
1707   'skip$
1708   { preamble$ write$ newline$ }
1709   if$
1710   "\begin{thebibliography}{ " number.label int.to.str$ * "}" *
1711   write$ newline$
1712   "\providecommand{\natexlab}[1]{#1}"
1713   write$ newline$
1714   "\providecommand{\url}[1]{\texttt{#1}}"
1715   write$ newline$
1716   "\providecommand{\urlprefix}{Available from: }"
1717   write$ newline$
1718   "\providecommand{\urldateprefix}{Accessed }"
1719   write$ newline$
1720   "\providecommand{\selectlanguage}[1]{\relax}"
1721   write$ newline$
1722   "\providecommand{\bibinfo}[2]{#2}"
1723   write$ newline$
1724   "\providecommand{\eprint}[2][ ]{\url{#2}}"
1725   write$ newline$
1726 }
1727 EXECUTE {begin.bib}
1728 EXECUTE {init.state.consts}

```

We go through each entry in turn, in the right order, and write the formatted text out to the file.

```

1729 ITERATE {call.type$}

```

After the last entry, we close the \LaTeX environment and stop writing to the .bbl file.

```

1730 FUNCTION {end.bib}
1731 { newline$
1732   "\end{thebibliography}" write$ newline$
1733 }
1734 EXECUTE {end.bib}

```