Managing Citations and Your Bibliography with BibTeX

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Abstract   This article gives a brief introduction to managing citations and to preparing a list of references with BibTeX.

No attempt is made to provide an introduction in-depth. Please refer to the literature recommended in section 6 on page 17 for further reading.

1   Introduction

No scientific paper or book is complete without a bibliography, i.e., a list of the sources referred to in your work. When scientific writing still was done with paper, pencil, and a typewriter, the table of contents and the bibliography were done last after completing the text as a whole because it was only at this point that you could say which sections were to be found on which pages and which of the references you worked with actually were cited in the text.[1] In the age of digital text processing and digital typography, however, we can generate both the table of contents (or, of course, other lists of tables, figures, etc.) and the bibliography (or even a glossary, or an index) at the same time while writing the text itself.

1.1   Arguments against Using BibTeX

Although there are some systems available for managing bibliographies in academic writing, both free and commercial, most people do not use these tools. Indeed, you don't have to use BibTeX just because you are writing your thesis with LaTeX. You can insert citations as you write.

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1.   By the way, this is why down to the present day different kinds of page counters are used for the work itself (arabic) and for the table of contents etc. (roman).

BIBTEX basically is a tool for automating your list of references. However, you might argue, not everything that *can* be automated *should* be automated. Perhaps you are sceptical about handing over control over your bibliography to some external tool. Or you just do not want to increase the complexity of your working environment any further. Also, although BIBTEX is a rather flexible solution, it does not meet all requirements you can ever think of. All techniques for citation management are made for standard requirements only, supporting the most common citation styles. Not all fields are supported equally well. Those working in the humanities complain constantly about incomplete solutions with BIBTEX. Finally, if you aim to convert your document later to HTML or RTF you should be aware that not all converters can handle external packages required for bibliography styles that are not supported by LATEX natively. So, if you need `natbib` or `jurabib` you will run into trouble with, e.g., latex2rtf because it does not load the style files you need.

However, if you have got used to a bibliography manager once, you probably want to continue using it. If you are sceptical about the whole idea presented here, this article would like to supply you with enough information to decide whether to keep it this way or whether to try out BIBTEX in practice.

1.2   Arguments for Using BIBTEX

The main advantage of managing your citations and your bibliography with tools like BIBTEX is

- automating of tedious tasks and
- applying generic markup to your bibliographic data.

As far as BIBTEX is concerned, one more point comes into play:

- Thanks to BIBTEX being a quite stable format, a number of rather helpful tools have been developed around it. There also is a lot of BIBTEX data available ready-to-use.

1.2.1   Automation of Sorting and Formatting

As we said above, BIBTEX takes care of sorting your bibliography entries either alphabetically or as they appear in your text. Each entry is formatted according

Content	*Style*
Document File(s) `*.tex`	Document Style File(s) `*.sty`
Bibliography File(s) `*.bib`	Bibliography Style File `*.bst`

Table 1: Separating content from style both in your paper and in your bibliography is represented by separate files

to the bibliography style you have chosen. E.g., the authors' names can be typeset in italics or in small caps throughout your text, depending on the bibliography style. Indeed, the same holds true for any item in a bibliography database.

In most cases, the style your bibliography is formatted to is required by your publisher or it is common to the field of research you work in. Anyway, not only the bibliography itself, but also the citations in continuous text are formatted automatically according to your bibliography style. All you have to do is insert a `\cite` command (or a variant of `\cite`, provided by additional packages such as `natbib` or `jurabib`) referring to the source. BibTeX and LaTeX together will do all the rest. This way you can better concentrate on content and leave the tedious part of writing to your computer. That's an important idea behind using LaTeX, anyway.

1.2.2 Logical Markup for Bibliographies

Since word processors such as Microsoft Word or OpenOffice.org also support logical markup, this is no more a mark of distinction between text processing with an office suite and LaTeX. However, most users do not know how to apply styles to a word processor because this can be rather complicated with graphical user interfaces. So, e.g., they mark a section heading to be typeset in "bold 14pt Palatino" instead of saying that it is a *Heading* on a particular level. LaTeX, on the other hand, encourages using logical markup because in the first place. It is easy to apply, e.g., sectioning levels to a text, marking headings as `\section`, `\subsection`, etc.

BibTeX brings logical markup to bibliographies because using an external bibliographic database containing only bibliographic data is the first step to separating content from style here [3, p. 90]. Table 1 shows how this is achieved. While the style applied to the document as a whole is supplied by your documentclass

(such as `article` or `scrbook`) and external style files loaded in the preamble, your bibliography style determines the way the bibliography and your citations are formatted.

This approach enables you to use the same bibliography with different citation styles without having to change anything about your document or the bibliography itself apart from the bibliography style when your paper is finally compiled for print. E.g., you can re-use a bibliography that was originally produced for a legal paper typeset with the `jurabib` package in a different paper on, say, licence matters on fonts for submission to a computer science journal that requires numerical citation of sources. This is why bibliography syles are the key to using LaTeX in different fields of research, applying different rules for citations.

1.2.3 Code Stability

One more point about BibTeX is code stability. The current version of BibTeX 0.99c has not been modified since 1988 [19, p. 27]. So, both BibTeX the program and the file format are quite stable. This is why a large number of free-software tools for processing files in BibTeX format could be developed (cf. section 3 on page 11). What's more, BibTeX has become a format for archiving bibliographic data for decades. By using BibTeX, you can draw on this data which in many cases is available for free over the internet (cf. section 4 on page 13). Many users, too, have created their private archive of bibliographic data they have worked with, often one big text file containing a large number of BibTeX entries. This way you can input your data once and use it for years in academic writing.

2 How to use BibTeX

2.1 A Bibliography Database

2.1.1 An Example File

The name of a bibliography file ends with `bib`, e.g., `example.bib`. It is simply a list of entries like the one shown below in listing 1 on the following page. By the way, the `bib` file may contain more entries than are actually cited in the text. In

this case, the redundant entries do not appear in the bibliography.[2]

Now, here's an example for an entry in your bibliography database. You probably already know this book, don't you?

```
@Book{mittelbach2004,
  author =  {Frank Mittelbach and Michel Goossens and Johannes
             Braams and David Carlisle and Chris Rowley and
             Christine Detig and Joachim Schrod},
  title =   {The {\LaTeX} Companion},
  edition = {Second},
  year =    {2004}
}
```

Listing 1: Example bibliography entry

An entry starts with the entry type (in this case: `@Book`), followed by a label or key the entry can be cited by (`mittelbach2004`) and a list of key-value pairs, some of which are required, while others are optional. It depends on the entry type, which fields must be included in an entry. The values can be enclosed either by brackets — {}, as shown here — or quotes (""). The latter does not make a difference, it's up to you which notation you prefer. Only with numbers both brackets and quotes are optional. So, numbers can stand alone without either brackets or quotes around them. We could also say `year = 2004` in the example entry. If there is more than one author their names are joined with an "`and`" in between.

There is an entry type for most kinds of publications you will come across, such as books, articles, conference proceedings, booklets, manuals, or doctoral theses. It depends on your bib style which entry types are available. For a list of the entry types available and which fields are required or optional, please refer to [16, section 13.2.1].

2.1.2 Preambles and Strings

As a LaTeX document itself, a bibliography file, also can have a preamble providing extra information that BibTeX applies to the whole list of entries that follows. The preamble may contain two types of commands, viz. `@preamble` and `@string`. Here is how to use these commands:

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2. If you want all entries that are in the `bib` file to be listed in your bibliography there is a trick to achieve this, though: Just put `\nocite{*}` before the `\bibliography` command.

`@preamble` defines any additional code that may be used in the rest of the bib file, that is, LaTeX commands, such as a command for typesetting URLs [16, section 13.2.4]:

```
@preamble{ "\providecommand\url[1]{\texttt{#1}}" }
```

The `@string` command saves a string that replaces a different string in the bibliography entries when these are used. Have a look at the journal field in the following entry:

Listing 2: Another example entry

```
@Article{fenn-dtk2006b,
  author =        {J{\"u}rgen Fenn},
  title =         {{\emph{Der {\LaTeX}-Begleiter} von Frank
                   Mittelbach, Michel Goossens u.\,a.}},
  journal =       dtk,
  issn =          {1434-5897},
  year =          2006,
  month =         jul,
  volume =        {3/06},
  pages =         {59--68}
}
```

It only contains the string "dtk". When you put this

```
@string { dtk = "Die {\TeX}nische Kom{\"o}die" }
```

in the bib file's preamble, "dtk" will be automatically replaced by the title of the German TeX users group's journal "Die TeXnische Komödie" when your bibliography is typeset, as will the short form "jul" for the month of July. The names of months are usually pre-defined in bibliography styles. So, the resulting entry will look like this:

References

[1] Jürgen Fenn. *Der LaTeX-Begleiter* von Frank Mittelbach und Michel Goossens u. a. *Die TeXnische Komödie*, 3/06:59–68, July 2006.

2.1.3 Coping with non-ASCII Encodings

As mentioned before (cf. section 1.2.3 on page 4), the current version of BibTeX has not been modified since 1988 [19, p. 27]. This is why BibTeX runs on 7-bit ASCII. There is also 8-bit BibTeX,[3] but not everyone uses it. Especially if you only process English-language sources you may not notice any problems about this. However, BibTeX at present is not capable of processing Unicode text (this was announced for BibTeX 1 [19, p. 28]). So, even if *you* use bibtex8, you cannot tell for sure whether someone else you exchange files with will be able to process files encoded to anything than plain ASCII correctly. Problems with text encoding can also occur when using a graphical user interface for editing a `bib` file (cf. section 3.2 on page 12). The only solution to this is to avoid non-ASCII characters in `bib` files, most notably characters that are used for typesetting European languages.

An example may be the entry in listing 2 on the previous page for a review I wrote recently on the German edition of [16]. As you can see, the German umlaut "ü" in my first name is escaped to the 7-bit character sequence "{\"u}". This may do harm to kerning [21], but it is the only way to make sure the accented characters in your `bib` file are processed correctly[18, p. 3 f.].

2.1.4 Preserve Capitalising in Titles

What's more, except for the author's name field, BibTeX does not bother about capital letters. In other words, BibTeX is not case-sensitive. Only capitals at the beginning of a field will appear like this in the bibliography, all others will be made lower case. The easiest way to preserve a capital letter in any field of an entry is to enclose it by two brackets.[4] Again, this problem may remain unnoticed to users who only process English-language sources, but it is rather annoying if you write texts in other languages.

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3. ftp://ftp.ctan.org/tex-archive/biblio/bibtex/8-bit . There are also versions of BibTeX compiled for 8-bit, as, e.g., in current MiKTeX.

4. Of course, you can also input the title in the example on page 6 with a pair of brackets around each capital letter, but two more brackets all around are probably easier to input.

2.2 Choose a Bibliography Style

> There is more than one way to do it.
>
> *Larry Wall*

As we said before (cf. section 1.2.2 on page 3), your bibliography style determines the way the bibliography and the citations are formatted. Today, you have a choice between several styles developed for all fields of research.

2.2.1 Standard Bibliography Styles

The LaTeX Companion [16, sections 12.1—12.5] goes into great detail describing the different schemes available for citing references in LaTeX, either by default or by loading additional packages. Here, we can only give a brief overview of the standard bibliography styles available for using BibTeX with LaTeX. Please have a look into the TeX Catalogue [8] for an overview of what's available on CTAN.

Basically, LaTeX supports by default a numerical scheme that was developed to resemble the bibliography scheme available in a program called Scribe which was rather popular in academic writing at the time *Leslie Lamport* developed LaTeX [19, p. 27]. This scheme is used mainly in mathematics, in computer science and in the natural sciences. It is also used in this paper. If you want to use a different style, you have to load additional external packages. E.g., the `cite` package by *Donald Arseneau* [2] provides enhanced support for numerical citations.

Most notably, the `natbib` package by *Patrick W. Daly* [7] supports the so-called author-date scheme suggested by the *Chicago Manual of Style* [9]. The package was originally developed for the natural sciences (hence its name), but it has since become popular in many fields, including, e.g., linguistics. With `natbib`, "[16]" could become something like "Mittelbach et. al. (2004)". The package is quite configurable, though, providing more than one variant of the `\cite` command.

Another major step towards bringing BibTeX to German-speaking jurisprudence and for making BibTeX fit for the social sciences and the humanities was *Jens Berger*'s quite comprehensive `jurabib` package [4] which supplies the so-called short-title scheme for citations. Thanks to `jurabib` you can cite all bibliographic data you would otherwise find only in the bibliography itself when

using other dynamically in a footnote, including marking repeated citations as "*ibid.*" and allowing for switching between short and full title.

2.2.2 Custom-Made Styles

If the standard styles mentioned above don't fit your purpose, you can create your personal bibliography style either by programming one yourself or by running *Patrick W. Daly*'s `custom-bib` package [6]. However, this is still a rather longish and complicated affair, so don't underestimate the effort you have to put into creating your own tailor-made bibliography style. If you are interested in hacking a BibTEX style, an introduction to the rather tricky BibTEX language can be found in [17, 16, 15, 20].

2.3 How to Cite References in Your Document

You refer to an entry from the `bib` database via the key of the said entry with the `\cite` command:

```
\documentclass{article}
\begin{document}

as shown in the \emph{\LaTeX{}
  Companion}~\cite[p.~41]{mittelbach2004}.

\bibliographystyle{plain}
\bibliography{example}
\end{document}
```

Listing 3: Citation in LATEX document file

`\cite` takes an optional argument for any additional information (here it refers to page 41 of the cited source). Packages such as `jurabib` modify `\cite` so that it can also handle two optional arguments.

As already mentioned (cf. section 1.2.2 on page 3), it depends on your bibliography style what the citation looks like when it is typeset. In *this* journal, the citation looks like this:

> as shown in the *LATEX Companion* [16, p. 41].

but if you use the same bibliography entry in a German text with the `jurabib` package — only adding a pair of brackets around the `\cite` command to the LaTeX source code — it may look like this:

> wie im *LaTeX Companion* dargestellt (*Frank Mittelbach* et. al., The LaTeX Companion. 2. Auflage. 2004, p. 41).

Please note that the term "edition" has been replaced with "Auflage" and the number "Second" has been transcribed to "2.". This is done by the different bibliography style alone. It draws on the different language setting. So the complete bibliographical data here already appears in the continuous text. If `jurabib` had not been developed by *Jens Berger* use of BibTeX would have remained restricted to mathematics and some technical fields only, because the numerical citation scheme in LaTeX generally cannot be used elsewhere.

2.4 Running LaTeX and BibTeX

As you will already know, you have to run LaTeX more than once in order to create a complete document because LaTeX needs several runs to collect the data for the table of contents and for cross-references. The keys of your references cited also have to be stored externally for further processing. In fact, this is done in the `aux` file produced in each LaTeX run.[5] Now, BibTeX takes an extra run in between. So when using BibTeX with an `example.tex` file you call

```
latex example
bibtex example
latex example
latex example
```

and this is what will happen [16, cf. the flow chart in figure 12.1][19, p. 25 f.]:

1. First, LaTeX will write a file called `example.aux`, wherein the labels of all cited references are collected.

2. `example.aux` subsequently is read by BibTeX, sorting the citations. Bibliographic data is taken from the bibliography file called in the document.

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5. The classic brief overview of TeX's "components" is [22]. Also cf. [16, table 1.1 and figures 1.1, 12.1]. — The exchange of data between LaTeX and BibTeX is depicted in figure 1 on the following page.

```
                                    bib, bst
                                       ↓
tex, sty   →   LATEX   ↔   aux   →   BIBTEX   →   blg
               ↓      ↘        ↙
              log        bbl
```
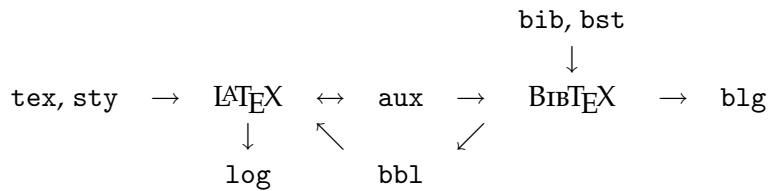
Figure 1: Exchange of data between LATEX and BIBTEX

Here, we assume for the sake of simplicity that the bibliography file is called `example.bib`. So, BIBTEX writes a file `example.bbl` which contains both a `thebibliography` environment for typesetting the bibliography and the formatting information for each citation in your text. The latter is included in the optional argument of `\bibentry` commands.[6]

3. LATEX then reads this `bbl` file as well as `example.tex` and inserts the code from `example.bbl` in the document where the `\bibliography` command is found. It then writes another `aux` file . . .

4. . . . which in turn is used in the last LATEX run for inserting both the sorted bibliography and the readily formatted citations in the continuous text.

And that's about it.

By the way, if you use the MiKTEX distribution, there is a program called texify which takes care of running LATEX, BIBTEX, and makeindex until all cross-references are resolved.

3   Editors and Tools to Help you Manage Your BIBTEX Files

In case you wonder whether editing a bibliography file is too complicated for you, be assured that this is not only your private worry. Of course, you can use

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6. Note that you can also create a bibliography by editing a `thebibliography` environment by hand. However, this being a quite inflexible approach, this is only recommended for bibliographies of no more than a handful of items. Some bibliography styles, such as `jurabib`, even require so complicated a `thebibliography` environment that it would be rather tricky indeed do create manually.

all plain-text editors for editing you `bib` files, but there are some excellent tools that can make it so much easier to manage a BibTeX file.

3.1 Emacs

First of all, of course, there is BibTeX mode in Emacs described in a recent article by *Nelson Beebe* [3, pp. 93 ff.]. The code examples presented in this article have been created with Emacs. Emacs also comes ready with RefTeX mode installed, providing support for managing cross-references including citations. Together with AUCTeX[7], this is by far the best-equipped editor for LaTeX at all. AUCTeX also automatically takes care of the order in which to run LaTeX and BibTeX.

BibTeX mode is not only an excellent tool for editing. It also provides a reliable and quick integrity checker for `bib` files, and it can sort the entries within the file as well.

3.2 Graphical User Interfaces

If you prefer to use a graphical user interface, there are also a few programs to choose from, depending on your favourite platform.

First, there is a Java program called Jabref [16, section 13.4.6] available from http://jabref.sourceforge.net/ . Due to its distribution format as a `jar` archive its use is not restricted to a particular platform which makes it fit perfectly with TeX and friends. You only need a recent Java installation to run it. Then, for Linux users there is a quite similar application called Pybliographer at http://pybliographer.org/ , described thouroughly in the LaTeX Companion [16, section 13.4.5]. And, finally, for the Apple Macintosh there is Bibdesk at http://bibdesk.sourceforge.net/ .

All these applications do very much the same as you can already see from the screenshots on their internet home pages. They provide an interface for inputting BibTeX entries and for viewing the content of a `bib` file. However, importing an existing `bib` file sometimes can fail in part or completely. Text encoding can also prove a problem because not all these editors can cope with Unicode or latin-1 encodings. So, this is another reason to keep your `bib` database strictly in ASCII (cf. also section 2.1.3 on page 7).

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7. http://www.gnu.org/software/auctex/ .

3.3 Command Line Utilities

Of course, there are rather many command line utilities that help you sort and pretty-print your bibliography files, or extract a subset of entries from these.

There are so many tools available we can only touch upon these here. Please refer to [3] and to the LATEX Companion [16, section 13.4] for more information. The TEX Catalogue [8] also gives you an overview of the material available on CTAN.

4 On-line Bibliographies

As mentioned above (cf. section 1.2.3 on page 4), there are some rather comprehensive bibliographies available on-line that supply a large number of ready-to-use BIBTEX entries for the public[16, section 13.3].

Most bibliographies that provide BIBTEX entries focus on mathematics and computer science. First of all, there is *Nelson Beebe*'s *TEX User Group Bibliography Archive* either at `http://www.math.utah.edu/pub/tex/bib/index-table.html` or on CTAN at `CTAN:info/biblio/` , providing bibliographies for all TEX-related literature in the widest sense of the term. This includes all books that were published on TEX and LATEX as well as the articles published in the journals of TEX users' groups. Some of these bibliographies may even be already installed on your system because they ship with most current TEX distributions. Eg., with MiKTEX 2.4 you can find them in `~\texmf\bibtex\bib\beebe` . If these files are installed there BIBTEX can access them and you can thus include these bibliographies easily by way of the `\bibliography` command.

Most notably, there is *Steve Lawrence*'s *Scientific Literature Digital Library (CiteSeer)* available at `http://citeseer.ist.psu.edu/` which currently provides more than 750 000 documents in all. The *DBLP Computer Science Bibliography* by *Michael Ley* of Trier University in Germany is of about the same magnitude. It can be found at `http://dblp.uni-trier.de/` . This project initially concentrated on data bases and logical programming, hence its name, but in the meanwhile it has gradually enlarged the fields of interest covered.

Probably the most comprehensive source of BIBTEX entries on the internet is the *Collection of Computer Science Bibliographies* by *Alf-Christian Achilles* at `http://liinwww.ira.uka.de/bibliography/index.html` , supplying at present more

than 2 million entries, including those by *Nelson Beebe*. You can either search them or browse the archive by subjects.

A site that is probably best known in German-speaking countries is called *Amatex* by *Sven Abels* [1] which can be found at http://www.2ndminute.org: 8080/amatex/pages/main.jsp . *Amatex* provides a graphical user interface for accessing the data available from on-line bookstore *Amazon*. That is, you can access all books listed at the American, the British, and the German web site of *Amazon* which means that you have access to all books in print that have been given an ISBN number and that are now available by book retail.

Last, but not least, the multilingual on-line encyclopaedia *Wikipedia* also provides BɪʙTᴇX data about their articles. For every article in *Wikipedia*, you can find a BɪʙTᴇX entry complete with URL and date under *Toolbox — Cite this article*. E.g., the BɪʙTᴇX entry for the article on "Natural Law" may look like this (I've removed the actual URL only because it does not wrap in verbatim mode here):

```
@misc{ wiki:xxx,
   author = "Wikipedia",
   title = "Natural law --- Wikipedia{,} The Free Encyclopedia",
   year = "2006",
   url = "\url{...}",
   note = "[Online; accessed 11-March-2006]"
 }
```

With all these beforementioned projects the BɪʙTᴇX entries are displayed in the browser window, and you can then copy and paste them into your BɪʙTᴇX file in your text editor. Only *Nelson Beebe* supplies "real" `bib` files as text files.

5   Outlook

If you have followed our article this far, chances are that we have stirred your interest in BɪʙTᴇX. Although we have described the basic way of how to use BɪʙTᴇX in practice—which is what most users will ever need to know about it— there is a lot that remains to be told about BɪʙTᴇX. However, this would exceed an article in The PracTᴇX Journal by far. Nevertheless, there are some points and also some trends that might be of interest to you if you want to get to know BɪʙTᴇX.

5.1 Sharing Your Bibliography with Others

If you want to share your bibliography with other users you can simply hand on you `bib` file. However, if you only want to hand on the entries from your bibliography file actually cited in your document you can also include the `bbl` file in your document because it includes a `thebibliography` environment LaTeX can process directly without BibTeX.[8] This may be useful, eg., for submitting an article to a journal or for compiling conference proceedings. Insert the complete `bbl` file as it is instead of the `\bibliography` command.

5.2 Multiple Bibliographies in one document

E.g., BibTeX was designed to produce only one bibliography in a document. In most cases this will be enough, but for some projects more than one bibliography is required, perhaps you would like to supply different lists for the collected works of an author and the "secondary literature" discussing it.

BibTeX alone cannot achieve this, you will need an additional package for that.

5.3 Multi-Language Bibliographies

Preparing bibliographies including literature in more than one language or containing a mixed bag of literature in many languages is another purpose you will need additional LaTeX macros for. *Harald Harders*' `babelbib` package is designed for this [10], [11].

5.4 BibTeX in ConTeXt

BibTeX is a universal tool that can be used not only for bibliographies with LaTeX, but also for lists of references in texts written with ConTeXt provided that the `bib` module is installed. It is already part of a current ConTeXt installation. A brief introduction to how to use BibTeX together with ConTeXt can be found in the ConTeXtgarden Wiki [5].

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8. Cf. pp. 10 ff.

5.5   Managing Bibliographies without BibTEX

Finally, there are two approaches for managing bibliographies in LATEX without BibTEX, viz. the `amsrefs` [12] package (which—despite its name—is not part of `amslatex`) and the brand-new `biblatex` package [13]. In fact, `biblatex` combines some of the abovementioned advanced features such as multi-lingual bibliographies and multiple bibliographies in one document along with features from bibliography styles such as `natbib` or `jurabib`. However, `biblatex` is still in development (beta), so absolute beginners in BibTEX or LATEX should beware of using it at present.

5.6   The Future of BibTEX

Oren Parashnik has recently elaborated on the future of BibTEX.[19] BibTEX version 1.0 has been said to be released some day, but the exact release date is still unknown.

On a somewhat critical note it remains to be said that BibTEX the file format has not made it into the professional world of libraries where XML formats are used storing bibliographic metadata and for data exchange. Although there are a number of on-line bibliographies available in BibTEX format,[9] BibTEX is only rarely offered for the export of bibliographic metadata from library catalogues. Most catalogues mostly provide `endnote` format or just unstructured plain text.

There are some free tools for converting BibTEX to some XML format for further processing. See, e.g., the `Bibutils` project using MODS as an intermediate file format between BibTEX and endnote or pubmed.[10] But this far there is no converter available for conversion from XML to BibTEX. It seems that everyone wants to get out of BibTEX and into XML, but not the other way round. This may be due to the vast amount of BibTEX data around. However, the lack of converters from XML formats to BibTEX is in a way surprising.

So, is BibTEX doomed to slowly fade away? The standard LATEX citation styles used in mathematics and computer science don't pose a problem because inserting something like "[1]", after all, is rather trivial. BibTEX's future probably depends on how flexible LATEX and BibTEX are (or will be) for the more compli-

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9. Cf. section 4 on page 13 above.
10. http://www.scripps.edu/~cdputnam/software/bibutils/bibutils.html .

cated tasks, that is, citations in social sciences and in the humanities in the first place. `jurabib` provides excellent support for the styles uses in these fields, but even `jurabib` is not flexible enough, as can be seen from the many complaints in newsgroups and mailing lists by `jurabib` users. The problem here is that most developers and most LaTeX users don't care much about these fields. The second edition of the LaTeX Companion[16] was the first book on LaTeX ever to cover `jurabib`. What's more, its developer *Jens Berger* has been looking quite some time already for a fellow developer—so far without success.

Apart from this, BibTeX will remain in use for quite some time to come, as it is *the* bibliographic format to go with LaTeX. So, its fate is mainly linked to that of LaTeX itself. BibTeX will remain for the time being an easy-to-use bibliographic format for PC users. And it will remain a quasi standard for bibliographic data to be processed with LaTeX or BibTeX. Apart from that, migration of larger BibTeX databases to XML will probably take place in future. This is, however, no reason to avoid BibTeX for writing, e.g., your thesis because this is a short-time project only and so far there is no replacement for BibTeX available.

6 Further Reading

You might like to have a closer look at other BibTeX-related literature for in-depth reference. Apart from the excellent chapters on BibTeX in the LaTeX Companion [16] there are some free manuals and guides available:

– Read *Oren Patashnik*'s original documentation first. [17, 18].

– If you are looking for a step-by-step tutorial to BibTeX, "Tame the BeaST" by *Nicolas Markey* could be of interest to you [15]. Also, *Bernd Raichle* has provided a tutorial in German held at a DANTE conference in 2002 which focuses on programming BibTeX styles [20].

– A new comprehensive introduction to BibTeX in Spanish is *Joaquín Ataz López*' "Guía *casi* completa de BibTeX" [14].

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