

European Bibliography Styles and MIB_BT_EX

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Abstract

We explain why MIB_BT_EX has evolved and why the last version (1.3) provides a new language — close to XSLT — for bibliography styles. We also show that this evolution has been influenced by an investigation regarding bibliography styles used throughout European countries.

KEYWORDS: bibliographies, multilingual features, European bibliography styles, B_BT_EX, MIB_BT_EX, bst, nbst, XML, XSLT.

Résumé

Nous présentons les raisons de la récente évolution de MIB_BT_EX, la dernière version (1.3) adoptant un nouveau langage — proche de XSLT — pour les styles bibliographiques. Nous montrons aussi en quoi une enquête à propos des divers styles bibliographiques en usage dans les pays d'Europe a influencé cette évolution.

MOTS-CLÉS : bibliographies, multilinguisme, styles bibliographiques européens, B_BT_EX, MIB_BT_EX, bst, nbst, XML, XSLT.

Zusammenfassung

Für die bibliographischen Styles benutzt MIB_BT_EX seit der Version 1.3 eine neue Sprache, die mit XSLT nahe verwandt ist. Die Hintergründe dieser Entwicklung werden im folgenden dargestellt. Dazu werden die bibliographischen Styles, die in Europa benutzt werden, ausführlich untersucht, um den Einfluss dieser Analyse auf die neue Version von MIB_BT_EX zu zeigen.

STICHTWÖRTER: Bibliographien, mehrsprachigen Funktionen, europäischen bibliographischen Styles, B_BT_EX, MIB_BT_EX, bst, nbst, XML, XSLT.

Introduction

Although end-users of L^AT_EX [27] can directly manage a bibliography for each document by means of the `thebibliography` environment, this text processor is often used with the B_BT_EX bibliography program [30]. B_BT_EX allows its users to group *bibliographical entries* in `.bib` files comparable to data bases. An example of such an entry is:

```
@BOOK{zelazny1969,  
  AUTHOR = {Roger~Joseph Zelazny},  
  TITLE = {Damnation Alley},  
  PUBLISHER = {Putnam},  
  YEAR = 1969}
```

Let us assume that this entry for `zelazny1969` is cited within a document. If we run L^AT_EX, such citations are stored in the auxiliary `.aux` file. Then this information is used by B_BT_EX to generate a file containing items

cited throughout the document. If we run L^AT_EX again, this generated file (`.bbl` file) is processed as part of the whole document, and *references* will look like:

[1] Roger Joseph Zelazny. *Damnation Alley*. Putnam, 1969.

In this reference and the bibliography of this article, we have used the plain bibliography style, that is, references are labelled with numbers. There exist many other bibliography styles, most of them described in [9, § 13.2]. The `bst` language, used to put bibliography styles into action, is based on handling a stack, using postfix syntax. It is described in [29] and an example is given in Figure 1: the function used within bibliography styles of B_BT_EX to format the date of a reference.

In the last decade, L^AT_EX's multilingual features have been considerably extended. Some packages suitable for one particular language — for example, french

```

FUNCTION {format.date}
{ year empty$
  { month empty$
    { "" }
    { "there's a month but no year in "
      cite$ * warning$
      month
    }
  }
  if$
}
{ month empty$
  'year
  { month " " * year * }
  if$
}
if$
}

```

(The '*' operator denotes the concatenation of strings within the bst language.)

FIG. 1: Formatting dates in the .bst language.

[7], german [32], ... — have been developed. More generally, the babel package [2] can process all the languages it knows without giving any privilege to a particular one.

Since B_IB_TE_X does not provide as many multilingual features as L_AT_EX does — even if the insertion of some slight multilingual features have been put into action [9, § 13.8.2 & 13.9] — we started a new implementation, so-called MIB_IB_TE_X (for 'Multilingual B_IB_TE_X') [14]. Let us recall that this new bibliography program is in practice compatible with 'old' B_IB_TE_X and extends its syntax by using square brackets as syntactic delimiters.¹

In particular, this reimplementaion allows end-users to specify language-dependent optional parts: for example, let us look at the entry zelazny1969 given in Figure 2. The string given by the syntax [...] ! french' — '!' meaning 'only' — will appear only if the corresponding reference is processed in French, that is, within a 'References' section for a document written in French, as far as possible. The syntax [...] : english' is for a language change: even if zelazny2000 concerns a French translation of a book (see the value of the LANGUAGE field), some parts — the author's name and the original title — are to be processed in English. This information about 'foreign words' could be useful if L_AT_EX hyphenates words belonging to such parts. Putting this information into the generated file does not cause errors, in the sense that switches to another language occur within the text produced by MIB_IB_TE_X only if this language is available, either by means of a specific package

1. In fact, 100%-compatible if 'old' .bib files do not include any occurrence of square brackets: see [14] for more details.

or by means of a suitable option of the babel package.

Last, let us notice the use of an abbreviation for the month name: see the value of the MONTH field. It can be processed in English and yield the string 'April'. Likewise, it can be processed in French (resp. German) in which case the result will be 'avril' (resp. 'April').

In addition, MIB_IB_TE_X allows users to control the use of languages precisely: each entry cited can be processed according to its own language (*language-dependent* approach) or all the entries can be processed w.r.t. the document's language (*document-dependent* approach). See [16, 22] for more details about these approaches.

Between Versions 1.1 and 1.3, MIB_IB_TE_X's implementation has deeply changed and now we are using a new language for bibliography styles [19]. This new language — so-called nbst for 'new bst' — is close to XSLT² [36], the language used to process and build XML³ documents. Here we are going to explain why. From a 'philosophical' point of view, this article completes [22], which describes all the features of MIB_IB_TE_X Version 1.3, and [23], where we show how to make MIB_IB_TE_X fit for a particular language.

In the first section, 'A gulp of history', we show that MIB_IB_TE_X's first version could meet the requirements for a multilingual bibliography program, but it would result in a heavy program, in complicated bibliography styles, and the whole would be hard to maintain. Furthermore, we were able to get in touch with people originating from different countries, especially at EuroT_EX conferences. So, we started an investigation about bibliographies in practice, and the second section 'Questions and answers' describes it and sums up its results. In the third section, we show why we think that the new version — which will be ready in July 2003 [21] — should be suitable at least for European bibliography styles. Besides, this new version using some features borrowed from XML opens new directions which we sketch in the last section.

Reading this article requires only a basic knowledge of L_AT_EX and B_IB_TE_X. It also requires some knowledge about XML. Good introductions to this meta-language are [8, 33] and [5] as a pocket guide. A more 'official' reference issued by the W₃C⁴ is [38].

A gulp of history

When we started the first version of MIB_IB_TE_X in October 2000, we already knew that natural languages were an open question.⁵ But we thought that making 'Ref-

2. E_Xtensible Stylesheet Language Transformations.

3. E_Xtensible Markup Language.

4. World Wide Web Consortium.

5. In particular, we confess that reading [28] greatly impressed us about the diversity and relationships among natural languages.

```

@BOOK{zelazny1969,
  AUTHOR = {Roger~Joseph Zelazny},
  TITLE = {Damnation Alley},
  PUBLISHER = {Putnam},
  YEAR = 1969,
  NOTE = {[Titre de la premi\‘{e}re traduction fran\c{c}aise : ‘‘Les culbuteurs de l’enfer’’] !
    french},
  LANGUAGE = english}

@BOOK{zelazny2000,
  AUTHOR = {[Roger~Joseph Zelazny] : english},
  TITLE = {Route~666},
  PUBLISHER = {Deno\“{e}l},
  NUMBER = 666,
  SERIES = {Pr\‘{e}sence du futur},
  YEAR = 2000,
  MONTH = apr,
  NOTE = {Nouvelle traduction de “[Damnation Alley] : english” par Thomas Bauduret}
  LANGUAGE = french}

```

FIG. 2: Examples of multilingual features in MIB₁B₁TEX.

ferences’ sections for a word processor was a narrow domain with quite simple rules, so we were able to build such references by means of substitutions applied to keywords such as *and*, *chapter*, *editor*, ... and substitutions applied to delimiters for quotations: “‘...’” in British English, ‘«... »’ in French, ‘„...“’ in German, and so on. Anyway, we thought that European languages were sufficiently close each to others to put this solution into action. So, the first version (1.1) of MIB₁B₁TEX [14, 15] was designed this way. Even though this first version worked for several languages, we quickly realised that using only substitutions was incorrect. The simplest example is given by dates: in French, English and German, the month name within a date is put first, before the year. In Hungarian, the year comes first:⁶

```

September 2003 (English & German)
septembre 2003 (French)
2003 szeptember (Hungarian)

```

We were able to fix this problem by extending the `format.date` function within bibliography styles. Specifically, we were able to add a test about the language used when we are building a reference. But let us recall that the `bst` language is not modular: several bibliography styles cannot share the definition of a single function put in one file. At this time we decided to enrich our implementation of the `bst` language by adding an ‘INCLUDE’ directive. This statement would look for a file and get access to the `bst` definitions included in it.

6. In fact, we wrongly put a date in Hungarian in [16]. We thank Gyöngyi Bujdosó, Peter Szabó and Ferenc Wettl, who informed us of this mistake and the correct way to put a date in Hungarian.

But adding this directive was like applying a patch. Besides, although we were able to provide a correct multilingual implementation of the `format.date` function for most languages including Hungarian, at least no one but Hungarians signalled an error, we could see that we might have to rewrite it if there existed a language with a special way to put dates. The *truly* modular and progressive solution to this problem was to be able to define a *standard* way to put dates:

```

<function name="format.date">
  ...
</function>

```

and a *specific* function for languages putting dates in another way:

```

<function name="format.date"
  language="hungarian">
  ...
</function>

```

We wrote skeletons using an XML-like syntax as above, but at this stage, we had not decided yet to use a XML-like language for bibliography styles. Our idea was just to improve the `bst` language. To be able to perform experiments for this goal, we developed an interpreter of `bst` using Scheme. In particular, this functional language being interactive, this prototype would help users learn the `bst` language in an incremental and interactive way [17].

But when we demonstrated this prototype at the DANTE⁷ conference in the fall of 2002, we were told

7. *Deutschsprachige Anwendervereinigung TEX e.V.*, TEX group of German-speaking users.

what we already knew: the `bst` language has difficult syntax, it is not user-friendly, and its variables are global only — it is wholly related to handling a stack. As a practical matter, it is easy to introduce small changes in an existing bibliography style (as shown in [9, § 13.8]), but programming the whole of a new bibliography style is tedious. Thus, why shall we enrich such a language? To make programming in it more difficult? In addition, there were already attempts to replace it: a new bibliographic module [13] suitable for `ConTeXt`, Hans Hagen's format [11], a reimplement of `BibTeX` in Common Lisp [26], an interpreter of the `bst` language in Java [25], and works based on converting bibliographical (`.bib`) files to XML files [10].

For the rest of 2002, we explored three directions. First, an extended syntax for person and organisation names within fields such as `AUTHOR` and `EDITOR`, was tried in `MIBibTeX`'s Version 1.2⁸ [18]. Second, a project done by two graduate students extended `BibTeX` so that it could process bibliography files in Unicode [34]. Our goal was not to write a new program which would be practically usable, but only to sum up all the problems related to using Unicode. The results of this project are given in [24].

Third, we again considered the DTD⁹ given in [16]. Originally, we designed this DTD in order to compare `MIBibTeX`'s expressive power to a specification of multilingual bibliographical entries designed from scratch with tools originating from XML. We tried to use XSLT as a new language for bibliography styles, and XSL-FO¹⁰ [40] to build printable outputs for bibliographies. In both cases, we took advantage of the pattern-matching XSLT provides via the `match` attribute of the `xsl:template` tag. Also, XPath expressions [35] were very suitable when we were moving within an XML tree for an entry. Still, it was difficult to implement multilinguism, even if XML knows an `xml:lang` attribute whose value is the code of a language. In particular, it was difficult to implement a refinement for a particular language, as shown above for the `format.date` function. Using modes (by means of the `mode` attribute of the `xsl:template` tag) provided by XSLT was not very convenient, and incorporating tests about the language used would have complicated our templates just like the same kind of tests in `bst` programs.

In addition, there were other drawbacks: for example, the problems caused by text nodes with whitespace characters [36, § 3.4], although this only affected the readability of generated files. As a second example, some operations were difficult by using the functions pro-

vided by XPath: abbreviating a first name, implementing the `change.case$` function of `BibTeX`, that converts a string to lowercase characters only or uppercase characters only. On the other hand, XML is becoming standard, and we thought that developing a new version close to XML was interesting.

That is why we decided to define a new language, close to XSLT, but not equal to XSLT. This new language is very close to XSLT, so we think that learning it should be easy for people knowing XSLT. Besides, work on defining further versions of XSLT is still in progress, as is defining interfaces between XML trees and programming languages. Likewise, we hope that the development of `nbst` is not finished yet. Thus we can think that in a future version, `nbst` will become equal to a new version of XSLT. Likewise, we are conformant to the paths specified in XPath, but defined our specific functions: for example, the `abbreviate` function for abbreviating a first name.¹¹ Dealing with strings should be eased in Version 2.0 of XPath [42], so a future implementation of `MIBibTeX` may be fully conformant to the XPath library. Anyway, before joining `MIBibTeX` and XSLT, our work shows what is needed — and not provided by XPath and XSLT — to put a multilingual bibliography program into action nicely.

Within this new framework, the result of parsing a `.bib` file is a tree built according to DOM,¹² the model issued by the W3C to represent an XML document as a tree (cf. [33, p. 306–308] or [37]). As an example, Figure 3 shows the representation w.r.t. DOM of the entry `zelazny1969` given in Figure 2. Let us notice that this choice allows us to avoid the problems caused by blank text nodes, because our parser rules out whitespace characters between two fields' specifications.

Questions and answers

Readers interested in typographical conventions regarding the typesetting of bibliographies can consult [4, § 15.54–15.76] or [12, p. 53–54]: these books are good references for the English language and give some information about bibliographies in languages other than English. But this information is not comparable to what can be found in a book specific to a particular language. Nevertheless, we do not know every language, no more than anyone else. On another point, we got some experience after developing the first version of `MIBibTeX`. To learn more about bibliographies, we wrote a questionnaire about keywords and usages in bibliographies. An abridged version is given in Figure 4. The answers we have received do not cover all the European languages, but we think that the range is representative.

8. This version was only a prototype. It has not been distributed publicly.

9. Document Type Definition.

10. *EXtensible Stylesheet Language — Formatting Objects*.

11. All these functions are documented in [22].

12. *Document Object Model*.

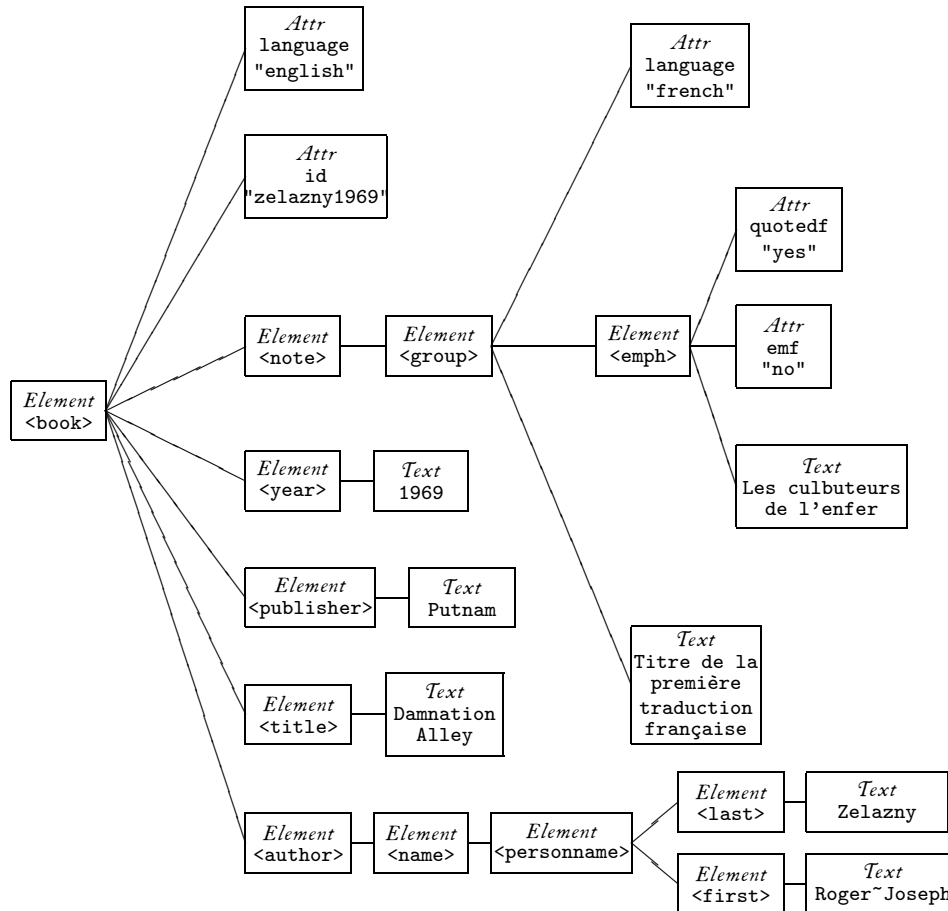


FIG. 3: A bibliographical entry as a tree according to DOM.

First of all, the notion of required and optional field is not the same in every language: for example, the publisher of a book is not required within a bibliography in Hungarian, but in contrast, the address where this book came out should be given, just before the year.

Usually, the translation of keywords does not cause problems — once we know the right word, of course. It can be solved by using *LaTeX* commands, for example:

```
\def\bbland{and} (English)
\def\bbland{et} (French)
\def\bbland{und} (German)
\def\bbland{i} (Polish)
...
```

The commands `\addto` and `\extras(language-name)`, provided by the `babel` package [2, § 6] are very suitable for implementing this kind of multilinguism:

```
\addto{\extrasfrench}{...
\def\bbland{et}%
...
}
```

Likewise, the delimiters for quotations depend on languages and may be different from those used in English, but we can adapt the `bblquotedtitle` environment, already used in MIB₁TeX. We show in [23] how to use this environment for first-level quotations as well as second-level ones, like:

```
\begin{bblquotedtitle}
Symphony no.~3
\begin{bblquotedtitle}
Symphony of Sorrowful Songs
\end{bblquotedtitle}, op.~36
\end{bblquotedtitle}
```

which yields:

“Symphony no. 3 ‘Symphony of Sorrowful Songs’, op. 36”

in English. Let us notice that opening and closing this environment may do nothing: for example, the Russian language does not use quotation marks in bibliographies.

The only keyword that sometimes has no equivalent is ‘of’, as in:

No. 8 of *Doc Savage* Series

This quiz aims to help me put down the part of MIBIB_{TEX}'s styles related to your language. [...]

Please translate the following expressions (you can give an abbreviation, provided that it is well-known):

and	edition	numero	technical report
and others	editor	of	translated by
before Christi	editors	(one) page	volume
chapter	in (<i>see below</i>)	(several) pages	with
edited by	Master's thesis	PhD thesis	

The 'in' keyword introduces the title of a general work when you cite only a part. For example:

Greg Egan. 'Oracle'. In *the Mammoth Book of Best New SF* 14, edited by Gardner Dozois, p. 465–504. Robinson, London, 2001.

As you can see in the example above, the 'enclosing' work's title is italicised in an English-speaking bibliography, whereas the 'enclosed' work is given between quotation marks. How do you put titles of works extracted from a more general work in your language?

How are ordinal numbers abbreviated in your language? For example, in English, the abbreviations are '...st' for '...1', '...nd' for '...2', '...rd' for '...3', '...th' otherwise.

Make precise how dates—as they should appear within a bibliographical reference—are put down in your language. Give some examples:

- a complete date, e.g., 26th June 2002: ...
- a date with only a month name and a year, e.g., June 2002: ...
- a date with only a year, e.g., 2002: ...

How quotations are put in your language? This question is about top-level quotations as well as enclosed quotations. In other words, how would you write the following quotation in your language?

'Symphony no. 3 "Symphony of Sorrowful Songs", op. 36'

How should the following entries be arranged? That is, which fields are viewed as quotations? which are italicised? etc. Hereafter we give some examples: entries for a manual, an article in a journal, a book, a technical report issued by an institution. [...]

Do you think that other fields could be added, in connection with your language? If yes, describe them shortly.

How are your letters alphabeticised? By 'letters', we mean letters with or without accents. [...]

FIG. 4: Our questionnaire.

because some languages use *declensions*¹³ and do not need

¹³. A language uses *declensions* when a word's function is directly expressed within this word, most often by a suffix. Originally, it seems that declensions existed in all languages, and they have disappeared in some modern languages: for example, in English, French and Portuguese. Other languages such as Estonian, Czech, German, Greek, Hungarian, Russian, Polish, Slovak ... still have declensions. To illustrate this with some examples in German:

- 'mein Freund' is for 'my friend' as the subject of a sentence:
Mein Freund wohnt in Brest.
(my friend lives at Brest)
- when 'my friend' is used as a direct object:
Ich besuche meinen Freund.
(I am visiting my friend)
- when 'my friend' is for a person who receives something:
Ich gebe meinem Freund ein Geschenk.
(I am giving a gift to my friend)

this preposition. Often a sign is used in this case: for example, the dash character ('—') in Russian bibliographies. As another example, the order is reversed in German and Hungarian bibliographies:

Perry Rhodan 5

We can observe the same in French, even though the 'of' word is translatable in this language.

Declensions may appear in a subtle form within dates: for example, 'September 2003' is translated by 'сентябрь 2003' in Russian, but '1st September 2003' is said '1st of September 2003',¹⁴ and a different case is

- when 'my friend' is the owner of something:
Der Wagen meines Freundes.
(the car of my friend).

¹⁴. Let us remark that we can observe the same in Portuguese: '1 de Setembro de 2003'.

used for the month name: ‘1 сентября 2003’. The Polish language presents the same feature: ‘wrzesień 2003’ but ‘1 września 2003’; so does the Greek language. This is not a problem for ‘usual’ references in scientific texts where the precise day is usually not given, but let us assume that we are citing articles in a daily newspaper: in such a case, writing the day number down is important and a new field should be added for that. To implement this feature, we need two L^AT_EX commands per month name. Focusing on the Polish language, that can be done by a mode attribute, which behaves as in XSLT:

```
<nbst:template match="sep"
    language="polish">
  wrzesie\'{n}
</nbst:template>
<nbst:template match="sep"
    language="polish"
    mode="genitive">
  wrze\'{s}nia
</nbst:template>
```

Some expressions may depend on a *gender*: in Romanian, ordinal numbers end with ‘ul’ in the masculine or ‘a’ in the feminine. The same feature holds in Greek and Portuguese. Here too, the problem is easily solved because ordinal numbers are usually given for an edition number, so we can know the grammatical gender of this word. On the contrary, the Polish form for ‘translated by’ is ‘przetłóżył’ for a masculine translator and ‘przetłóżyła’ for a feminine one, so we cannot know the right expression *a priori*. We confess that we have not found yet a satisfactory solution to this problem.

On another point, the English language uses several suffixes for ordinal numbers: ‘st’, ‘nd’, ‘rd’, ‘th’. The French language uses* ‘*e*’ and ‘*re*’ within ‘1^e’ and ‘1^{re}’ in the masculine and feminine, ‘...^e’ for all the other cases. Other languages systematically put a period ... after the number (‘1.’, ‘2.’): this is the case in Czech, Estonian, German, Hungarian, Slovak, Polish. In fact, we could consider that adding a period is the general method and refine it for English and French.

Let us consider the alphabetical order among words: there are two distinct points of view about diacritical signs.¹⁵ In some languages — French, German, Greek, Hungarian, Italian, Irish, Spanish, Portuguese, ... — a letter with an accent or other diacritical mark is regarded as a variant of the same letter without any mark. So, this letter and its variants are alphabeticised at the same place, except that the ‘bare’ letter takes precedence over an accented letter. Other languages — Czech, Estonian, Pol-

15. The English language does not have this problem: only the grave accent is sometimes used in poetry and the diaeresis in some old texts.

ish, Romanian, Slovak, Swedish, ... — take letters with diacritical marks as distinct from ‘bare’ letters. This convention is the only common point among these languages: in Polish, ‘a’ is placed just after ‘a’, whereas ‘ä’ is placed at the end of the alphabet in Estonian. In fact, each of these languages has its own order.¹⁶

In addition, some groups of letters may be regarded as one, and words beginning with such groups are listed separately in a dictionary, which complicates the algorithm for the alphabetic order. The ‘ch’ and ‘ll’ groups in Spanish are well-known examples. This is also the case for ‘cs’, ‘dz’, ‘dzs’, ‘gy’, ‘ly’, ‘ny’, ‘sz’, ‘ty’, ‘zs’ in Hungarian. In fact, the main problem is not the adaptation of the alphabetical order for a particular language, which is not difficult once this order is known, but the definition of a universal order when references originating from several countries have to coexist. This last point appears to be impossible.

MIB₁TeX's new version

As mentioned in the section ‘A gulp of history’, parsing a .bib file results in a tree built according the DOM model within MIB₁TeX's Version 1.3. For the sake of compatibility with previous .bib files, the delimiters for a quotation are those used in American English. For example, let us once again consider the entry zelazny1969 in Figure 2. The first French title is surrounded by double quotes (“...”) and this quotation is implemented by an element in the DOM tree, as we saw in Figure 3. Some L^AT_EX commands used within .bib files — \emph, \textbf, etc. — are processed in an analogous way.

We implemented the nbst language by getting some experience with public implementations of XSLT. We also implemented our version of XPath with our specific functions. An example of a template formatting dates is given in Figure 5. The effect of the nbst tags can easily be guessed from the corresponding tags in XSLT. This template has to be completed by pattern-matching on month names, for example:

```
<nbst:template match="jan">
  \bbljan{} <!-- This LATEX command should
    be defined for the current
    language. -->
</nbst:template>
```

and can be redefined for the Hungarian language — or for any language — by using a language attribute as shown below:

16. Among all the answers to our questionnaire, the language that seemed to us to be the most unusual example about letter ordering is Estonian, where ‘z’ and ‘ž’ are alphabeticised before ‘t’, ‘u’, ‘v’, ‘w’.

```

<nbst:template name="format.date">
  <nbst:choose>
    <nbst:when test="year">
      <nbst:choose>
        <nbst:when test="month">
          <nbst:apply-templates
            select="month"/>
          <nbst:text> </nbst:text>
          <nbst:value-of select="year"/>
        </nbst:when>
        <nbst:otherwise>
          <nbst:value-of select="year"/>
        </nbst:otherwise>
      </nbst:choose>
    </nbst:when>
    <nbst:otherwise>
      <nbst:if test="month">
        <nbst:warning>
          There's a month but no year in
          <nbst:value-of select="@id"/>
        </nbst:warning>
        <nbst:apply-templates select="month"/>
      </nbst:if>
    </nbst:otherwise>
  </nbst:choose>
</nbst:template>

```

FIG. 5: Putting a date with nbst.

```

<nbst:template name="format.date"
  language="hungarian">
  ...
</nbst:template>

```

As we discussed above, in the section ‘Questions and answers’, European bibliographies use a common framework, but we have to be able to use a special method for a particular language. To do that, a template with the language attribute has higher priority than a template without. This feature can also be useful to implement stylistic differences, that is, titles to be written using italicised characters instead of quotations or *vice versa*.

The implementation of the difference between language- and document-dependent approaches uses an attribute, too. Let us assume that the entries to be put in the bibliography of a document are the children of a tree. In ‘classical’ XSLT, such children can be processed recursively by means of the `xsl:apply-templates` tag. The same behaviour holds within nbst, but it is ruled by a so-called `use-language` attribute.

- The following statement:

```

<nbst:apply-templates
  use-language="$document-language"/>

```

means that the language used to process all the children — that is, the entries — is given by the

`document-language` variable,

- whereas assigning the default `*self*` value to this variable:

```

<nbst:apply-templates
  use-language="*self*"/>

```

means that each reference is to be written according to the language of the corresponding entry.

For the sake of compatibility with MIB₁B₁T₁E₁X’s previous versions, the language identifiers used as values of the `language` and `use-language` attributes are unambiguous prefixes of a multilingual package or an option of the babel package.¹⁷

As far as we know, there is no complete implementation of the `xsl:sort` tag in XSLT, according to the orders used in natural languages for strings. nbst provides partial support by means of the corresponding element, `nbst:sort`, but if this element is used to sort strings including letters outside the current language, the result is unspecified. This should be fixed in later versions.

In order to ease the transition between ‘old’ bst and nbst, bibliography style designers can call functions written using bst within nbst functions. See [20] for more details.

Future

The distribution of MIB₁B₁T₁E₁X’s Version 1.3 [21] will include support for Czech, Danish, Dutch, English, Estonian, French, German, Greek, Hungarian, Irish, Italian, Norwegian, Polish, Portuguese, Romanian, Russian and Slovak. In addition, we explain in [23] how to add the support for a new language.

As for future directions, we think that MIB₁B₁T₁E₁X should be usable to generate bibliographies for other formats than L₁T₁E₁X, and now we are investigating this for ConT₁E₁Xt [11]. In particular, this will cause an adaptation regarding language identifiers, since ConT₁E₁Xt deals with ISO codes for languages and countries (`en`, `fr`, `de`, ...) [1]. Another possible word processor is Texinfo [3], used for the documentation of GNU¹⁸ software. Likewise, using a language close to XSLT for bibliography styles should ease building bibliographies for the DocBook format [43]. We are also interested in experiencing with Ω [31], as we could fully use this last program when we are able to deal with .bib files using Unicode.

Bibliographical entries can be organised into a data base, so we plan to rewrite the XML specification of MIB₁B₁T₁E₁X entries with XML Schema [33, p. 189–193],

¹⁷. This choice of a non-ambiguous prefix allows a language identifier to get access to several ways to process a language. For example, a language identifier set to `french` works with the `french` option of the babel package [2, 6] as well as the `french` package [7].

¹⁸. GNU’s *Not Unix*.

which offers more expressive power than DTDs, especially for data bases.

Another improvement, useful when several bibliographical data bases are shared by several people, would be the addition of *namespaces*, already present in XML [41]. To do that, we plan to use DOM Level 2 [39], and we will have to extend the syntax of .bib files.

Conclusion

We think that an important step has been made: replacing the bst language by a new language close to a standard, and allowing multilinguism within bibliography styles. This transition should be graceful for end-users since they can reuse their .bib files. Obviously, the present program has to be extended and improved: anyway, in order to reach ‘actual’ multilinguism, we have to include non-European languages. But the present version is ready for use, so we now expect constructive feedback.

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Progressively, other bibliography styles have been released, working as follows: BibTeX's output is marked up with LATEX commands. This function is used when the decision of beginning a new sentence within a reference depends on the presence of two elds within an entry. Functionalities related to typesetting are performed by commands built into TEX, whereas other functions are implemented by means of the Lua language [26]. So TEX is used as the wonderful typesetting engine that it is, and functionalities difficult to implement with TEX's language are delegated to a more traditional programming language. BibTeX is still a powerful bibliography processor, but the main way to extend it easily concerns the layout of the bibliographies. K: bibliographies, multilingual features, European bibliography styles, BTEX, MIBTEX, bst, nbst, XML, XSLT. Nous présentons les raisons de la récente évolution de MIBTEX, la dernière version (1.3) adoptant un nouveau langage "proche de XSLT" pour les styles bibliographiques. Nous montrons aussi en quoi une enquête propos des divers styles bibliographiques en usage dans les pays d'Europe a influencé cette évolution. In this reference and the bibliography of this article, we have used the plain bibliography style, that is, references are labelled with numbers. There exist many other bibliography styles, most of them described in [9, § 13.2]. The bst language, used to put bibliography styles into action, is based on handling a stack, using postx syntax. Bibliography styles are files recognized by BibTeX that tell it how to format the information stored in the .bib file when processed for output. And so the first command listed above is declaring which style file to use. The style file in this instance is plain.bst (which comes as standard with BibTeX). You do not need to add the .bst extension when using this command, as it is assumed. Below you can see three styles available with LaTeX: LaTeX/Bibliography Management.