International LaTeX Is Ready To Use

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Abstract

International LaTeX (short ILaTeX) is a free, supported version of LaTeX which allows users to typeset non-English documents with the standard LaTeX-layout. Furthermore, a problem with the selection of math delimiter sizes is solved, and the solution may also be inserted directly into other macro packages which are based on plain TeX.

1 Why International LaTeX?

LaTeX [7] is a widespread document markup system which allows users to separate the structural markup of a document from its optical markup. It was written by LESLIE LAMPORT to support the creation of *American* documents. This aim is manifested twofold: (i) all markups produce text in American English (e.g., \today results in 3 Mar 1990, \chapter in *Chapter*, etc.); and (ii) the layout uses very American fashioned design principles. But because it was the first (and only) macro package widely available which allowed the logical handling of documents, it is now in use all over the world.

The American nature of LaTeX has led very often to modifications of LaTeX styles which substitute the fixed American texts with fixed texts in another language (e. g. German or even English). Subsequently some style options have floated around in which the texts are produced by macros; one of these is the german style option [10] of HUBERT PARTL in Vienna, which first resulted in an "Austrian LaTeX," later extended to a "German LaTeX," and now even may result in a "French LaTeX" and an "English LaTeX." But all these style options have a drawback: the small word *may*. They need a LaTeX version where the fixed texts in the style files are substituted by macro calls—they need "ILaTeX."

ILaTeX has *all* fixed strings within LaTeX and its standard styles replaced by macro calls. It takes care that it is fully input compatible with the original LaTeX. Only a few new command names have been reserved. It is a supported, but free, framework for those who want to use language specific style options like german not only with the article style but also with the other LaTeX styles and style options. Details about the usage, the realization, the distribution, the support, and about future work follow in the next sections.

ILaTeX does not solve the problem of the American layout. It is a shortcut—what we really need are special document styles for other countries with other typographic habits. It solves the problem of being able to exchange our documents now; but it works against the encouragement: "GO FORTH now and create *masterpieces of the publishing art!*" [6, p. 303]. (Perhaps this is just a personal point, but I am strongly influenced by traditional typography in the spirit of the late JAN TSCHICHOLD and I always get a headache when I look at those large boldface chapter headings...) But I don't know of any European book designer[1] who would be willing to share his knowledge for completely new document styles, besides the fact that new styles are not easy to write with the unspecified and often unmodular internal interface of LaTeX.

Besides the variability of fixed texts, ILaTeX provides two repairs for the typesetting of single characters. These repairs concern problems which have been addressed very often in TeXhax. They are done within lfonts.tex and are independent of the work of FRANK MITTELBACH and RAINER SCHÖPF who have written a new lfonts.tex.

- \pounds now produces £ instead of £. This was an often discussed theme in TeXhax. (Another point where you can see that LaTeX was not written by a person coming from Great Britain.)
- If a writer uses a document design size of 11 or 12 pt, the sizes of math delimiters are wrong if e[2] follows the hints of DONALD KNUTH about *"Fine Points of Mathematics Typing."* Consider the following example which is typeset as it would be in a 12 pt article:

$$f(n) = n_j \cdot \left(\sum_{i=0}^{n} m_i \right)$$

The parentheses have been produced with \biggl resp. \biggr according to [6, p. 149]. When we change the size of the \sum-symbol to fit with the larger variables, we have to change the resulting size of \biggl and \biggr, too. Have a look at

$$f(n) = n_j \cdot \left(\sum_{i=0}^{n} m_i \right)$$

In this example, the sizes fit the rest of the formula. This one is produced by ILaTeX.

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[1] A recent article in *TUGboat* [1] explores a first step in this direction. But it is not noted if a professional book designer was involved in this effort.

[2] I borrow the notation of "e" as a substitution for "he or she" from MICHAEL SPIVAK.

I think that this section has given you an overview about the functionality of I₂ᴛᴇX. In the following sections I will consider some of the above topics in greater detail. But first I want to emphasize that *the fact that so many discussions about LᴬTEX features and LᴬTEX problems have occurred in the last years is the best sign that LᴬTEX is what people need.* Many people grumbling means: many people are using LᴬTEX ... I did not and do not want II₂ᴛᴇX as competition to or even substitution for LᴬTEX where all the stuff which LESLIE LAMPORT does not incorporate into LᴬTEX gets fed. It's just a small (well, not in file sizes) supplement to standard LᴬTEX for those like me who live not in God's Own Country.

2　The Name of the Game

This version of LᴬTEX is called II₂ᴛᴇX because LESLIE LAMPORT holds a copyright on LᴬTEX and I don't want to confuse authors about what they are using. Both the version message of LᴬTEX and all version messages of style files have been changed, too. They now print out the original date of the style file and the date when the international adaption has taken place (this can be earlier, see section 5).

I would be happy if these changes or other changes based on them (cf. section 7) would be incorporated into the standard version of LᴬTEX. (This is especially true because then someone else will have to do the work of distribution and support.)

3　The User Interface

The author usually does not recognize the difference between LᴬTEX and II₂ᴛᴇX. E uses a *language* style option in er \documentstyle markup (there is no restriction about the sequence of this language style option and other style options). Or e uses no language style option at all, then e gets the standard American version.

That's all for the author. But there remain those who want to (or are forced to) write their own language style option. Or even worse, those poor souls who write style files for LᴬTEX and want that their styles can be used by foreign people, too. Well, let's start with the first ones. A language style option must define the macros of Table 1 which have the named default values. Of course, e may define several different notations so that the author can switch between them if e wishes. The names of the macros have been chosen according to the proposal of HUBERT PARTL [9].

The most commonly used language style options (e. g. those where national groups have decided

MACRO	DEFAULT VALUE
\contentsname	Contents
\listfigurename	List of Figures
\listtablename	List of Tables
\abstractname	Abstract
\partname	Part
\chaptername	Chapter
\appendixname	Appendix
\refname	References
\bibname	Bibliography
\indexname	Index
\figurename	Figure
\tablename	Table
\enclname	encl
\ccname	cc
\headtoname	To
\pagename	Page
\seename	see
\alsoname	see also
\today	*Date in American format*

Table 1: Adaptable macro names and default values

to prefer them) should be sent to me. I will incorporate them into the distribution. An example language style option, deutsch with German names, is part of the distribution.

A macro author who wants that er marvellous new style may be used by foreign people too, must use the macros above. E must provide an American default text and e must take care of redefinitions. I.e., e must not define the default value if the macro is already defined (this should be tested with \ifx\mac\undefined and neither with \@ifundefined\mac nor with \@ifdefinable\mac). If e needs a fixed text which is missing e should use a macro name ending in **name**. This name and its default value should be sent to me, and I will try to coordinate them. Please remember that no user-defined LᴬTEX macro may start with \end.

4　Documentation

The documentation seems to be the most important problem with LᴬTEX. LESLIE LAMPORT has written installation instructions (latex.ins) where he points out the things which have to be done during the installation of LᴬTEX, but there seem not to be many people reading them. I have seen commercial versions of TEX with an added LᴬTEX where they still deliver the Local Guide of DEC SRC, and local.gid still says

To print file `foo.dvi` on the Imagen printer, which is located on the third floor near Jane's desk, [...]

How many people know Jane?

By now, I have finished a "Generic Local Guide" in German language, and an English version will follow soon. Generic Local Guide means that at all places where system dependencies must be specified, a hint to these system dependencies is typeset in a frame. This is done with the markup `\todo` which can be easily searched for so that the process of producing a Local Guide is (I hope) less tedious. Furthermore, this has the advantage that a reader who gets a printout of the Generic Local Guide realizes that there is some special information missing.

5   Realization

The original LATEX files have not been changed. Instead for each LATEX file there exists one or more (WEB) changefiles where the necessary changes are specified. These changefiles are merged into the original LATEX files with TIE [3]. This process makes it easy to update IIATEX files when new LATEX files arrive: just run TIE again and in most cases the work is done.

Besides the mentioned changes, all form feeds are removed from the files. This has been done because they often result in unwanted garbage during the transfer over electronic networks, and the advantage of a more structured printout does not seem to be worth the trouble.

IIATEX is distributed with three different `lfonts.tex` files, and two others perhaps will be added in the near future:

1. The (almost) original `lfonts`, renamed to `lfonts.ori`. In this file the comments were adapted to the code which has been changed in the meantime. Furthermore the code has been updated according to a newer version of `plain.tex`.

2. The default `lfonts.tex`. In this file `\pounds` and the `\big` macros are redefined. `\pounds` is typeset in the upright italic typeface `\ui` which expands to cmu-fonts.

   Every font-size command sets up boxes with the proper height and depth for `\big` delimiters. The reference characters are the opening parentheses in the font `\textfont3` (i. e. cmex). This can be used afterwards for the construction with `\left` and `\right`. This is a general and precise solution which can be used in Plain TEX, too. JOHN HOBBY's solution [5] of computing the height and the depth out of the dimensions of a strut is not similarly general. H. KOPKA's solution (presented at the German TEX User Meeting 1989 in Eichstätt) of inserting the explicit dimensions in every size specific style file is not a solution but a patch.

   The above implies in particular that this `lfonts.tex` uses a few new fonts, namely cmu10 (loaded on demand) and cmex10 (preloaded) in scaled and unscaled versions. The tables in [12] have to be changed accordingly.

3. The third `lfonts` is named `lfonts.ful`. It has no unavailable fonts any more and uses reduced fonts for unavailable small fonts like cms17. Please note that it is not sufficient to remove the comments in the first part of `lfonts.tex`— the font-size commands must be changed, too!

4. JOHN SAUTER's `fonts.truesize` [11] will perhaps be added. It's the `lfonts`-version I like most.

5. The `lfonts`-version of FRANK MITTELBACH and RAINER SCHÖPF [8] may be added. But please note that their work is independent of mine: they modified the font selection scheme— I advanced `lfonts` at the level below, at the availability of fonts and the definition of characters.

The current date of IIATEX is December, 1989.

6   Distribution and Support

The support of IIATEX is done by me: as soon as new LATEX files arrive in Stanford they are checked to see if the changefiles still match and the derived IIATEX files are produced.

Distribution is a problem. First the good messages: IIATEX is or will be available over the Bitnet Listserver LISTSERV@DHDURZ1[3], the Clarkson server, the Aston TEX archive, and per anonymous ftp from Washington and Utah. It will be distributed by DANTE e.V., the TEX Users Group for the German-speaking part of the world. And it will be included in the VM/CMS and the BSD/UNIX-flavoured TEX distribution. Of course, it is delivered with our commercial STTEX system for the Atari ST as well. I want to thank Nelson Beebe, Michael deCorte, Joachim Lammarsch, Pierre MacKay, and Sebastian Rahtz for providing this service.

But now the bad message: I'm not able to e-mail it out individually. The complete system with original LATEX files, changefiles, derived IIATEX files,

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[3] I have been told that there will be a slave listserver in the States soon.

documentation, and TIE is about 2 MB [sic!]. I have it as a compressed archive on a PC floppy disk (still 850 KB) but the free distribution is too expensive for me (especially in terms of my working time). If you, dear reader, are someone who manages a TEX distribution please contact me. I will send it to you for free. But if you are "just" a user, you have to pay for it: the basic handling charge will be about 15 DM ($\approx$ 8 \$), postage and bank fees must be added (the more distant from the FR Germany, the more).

The changefiles and the English Generic Local Guide are free software, i. e. they are available under the conditions of the GNU General Public License. In short this means: if you give them away you may not hinder the receiver from distributing and using them freely. This restriction is transitive. For the sake of all TEX companies out there: "Mere aggregation of another independent work with the program (or its derivative) on a volume of a storage or distribution medium does not bring the other work under the scope of these terms." [2]

The legal state of the derived IIATEX files is unclear to me—LESLIE LAMPORT holds a copyright on the original IATEX files.

The German Generic Local Guide may be used freely for individual purposes (within companies, too) but a distribution with other TEX stuff—be it public domain or commercial—must not be done without my prior written permission.

7 Future Work

There still remain a few things to do: the English Generic Local Guide is not finished yet. CHRISTINE DETIG was so kind to start preparing an index for the Generic Local Guide which will enhance the usability in an enormous way.

Someone whose name I do not remember has pointed out in a message to the GUTenberg discussion-list that it would be convenient not only to make the fixed strings within IATEX adaptable but also to be able to rearrange the whole text (e. g. to print "1st Chapter" instead of "Chapter 1"). Since all places where such changes have to take place are isolated in the changefiles, this would be a straightforward task. Any contributors?

TIE—which is included in the distribution—was written in WEB and later rewritten in CWEB. But this is our CWEB [4], not SILVIO LEVY's, and the two versions are not compatible. It should be reworked so that it can be used with LEVY's CWEB and the Spider WEB, too.

References

[1] Johannes Braams, Victor Eijkhout, and Nico Poppelier. The development of national IATEX styles. *TUGboat*, 10(3):401–406, 1989.

[2] Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA. *GNU General Public License*, February 1989. Version 1.

[3] Klaus Guntermann and Wolfgang Rülling. Another approach to multiple changefiles. *TUGboat*, 7(3):134, 1986.

[4] Klaus Guntermann and Joachim Schrod. WEB adapted to C. *TUGboat*, 7(3):134–137, 1986.

[5] John Hobby. fixup.sty. IATEX style option, September 1988.

[6] Donald E. Knuth. *The TEXbook*, volume A of *Computers and Typesetting*. Addison-Wesley Publishing Company, Reading, Massachusetts, 1986.

[7] Leslie Lamport. *IATEX: A Document Preparation System*. Addison-Wesley Publishing Company, Reading, Massachusetts, 1986.

[8] Frank Mittelbach and Rainer Schöpf. A new font selection scheme for TEX macro packages — the basic macros. *TUGboat*, 10(2):222–238, 1989. This article contains an unreferenced hint to "The new font family selection—User Interface to standard IATEX".

[9] Huber Partl. German TEX. *TUGboat*, 9(1):70–72, 1988.

[10] Huber Partl. german.sty. IATEX style option, TU Wien, December 1989.

[11] John Sauter. Building computer modern fonts. *TUGboat*, 7(3):151–152, 1986.

[12] Joachim Schrod. IATEX fonts and suggested magnifications. *TUGboat*, 9(3):241–243, 1988.

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