

7 Using ASCII-10 with Tomas Rokicki's DVIPS

Using any PostScript font is extremely easy with DVIPS, and ASCII-10 is no exception. Simply copy the COUR.AFM, COUR.PFB and ASCII.ENC files to DVIPS's header directory. Then add the following line to the end of PSFONTS.MAP.

```
ascii-10 Courier <cour.pfb
" asciiEncoding ReEncodeFont "
<ascii.enc
```

Don't use the line generated by AFM2TFM as it will not work!

Once DVIPS has been configured in this way, it will automatically use the PostScript outline instead of using a bitmap. This gives much better output quality and is resolution independent.

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Book Reviews

Book review: *The L^AT_EX Companion*

David M. Jones and David E. Wald

*In darkness languishes the precious stone.
When will its excellence enchant the world?*

– Barry Hugart

Michel Goossens, Frank Mittelbach and Alexander Samarin, *The L^AT_EX Companion*. Addison-Wesley, 1993. xxx + 492 pp. + index (36 pp.) ISBN 0-201-54199-8.

Without question, this book is absolutely necessary for all who use, support, modify, or rue the day that they first heard of L^AT_EX. You should all run right out and get a copy. We'll wait.

All set? Good. Now we'll tell you what you've just acquired.

In recent years there has been an explosion of books about T_EX and L^AT_EX, and the majority of L^AT_EX users have probably gone from gnashing their teeth over the lack of supplemental documentation to gnashing their teeth over which of the numerous books on the market are the best investment for their time and money. Let there be no confusion about the *L^AT_EX Companion*: the *Companion* belongs next to the *T_EXbook* and the L^AT_EX manual as a book that every L^AT_EX user should have available.

Since its introduction in the early 80's, L^AT_EX has been the center of a flurry of grassroots development, with contributors world-wide producing a variety of style files and support packages, many of which have become basic necessities to any well-dressed L^AT_EX installation. In recent years, this development has reached a minor crisis point, with several slightly incompatible variants of L^AT_EX coming into common use.

As anyone who has been following the recent development of L^AT_EX knows, the L^AT_EX3 team, spearheaded by Frank Mittelbach, Chris Rowley, and Rainer Schöpf, has taken over the development of L^AT_EX, and is in the process of producing a completely rewritten L^AT_EX3 [1–3]. Recently, the L^AT_EX3 team, in an attempt to head off the aforementioned crisis, announced the imminent release of a single “state of the art” version of L^AT_EX, to be designated L^AT_EX2_ε.

Along with the “crisis of infinite formats”, there has been a corresponding crisis in documentation. Beyond Lamport’s manual presenting the original core of L^AT_EX, there has been no central source that systematically presented the most useful style files, the most necessary support programs and, frankly, the best-known tricks for convincing L^AT_EX to behave itself. Even when documentation exists, it has tended to circulate in the form of electronic folklore, or unpublished documents distributed with individual macro packages, supplemented by the occasional TUGboat article. The unfortunate result is that many worthy packages have languished in darkness for lack of widely-available documentation.

In other words, there exists a gap between the numerous L^AT_EX primers now available on the market and the various comprehensive lists and archives of L^AT_EX styles now available electronically. The authors of this book have taken it upon themselves to fill this gap. They are in a particularly good position to do so, as one of them is a member of the core L^AT_EX3 team, and all three have extensive experience in supporting L^AT_EX and initiating novices into its deeper mysteries.

The *Companion* is designed to be used alongside Lamport’s L^AT_EX manual; as such, it assumes that the reader is familiar with the core system as documented in Lamport’s book, and gives frequent cross-references to the L^AT_EX manual. Each chapter focuses on a different aspect of document preparation and presents a carefully-chosen combination of packages, utilities, and less well-known features, which allow the user to transcend the boundaries of Lamport’s book.

Since Chapter 2 is in many ways typical of the rest of the book, we will give an extended description of it to illustrate the flavor of documentation provided by the *Companion*. Chapter 2 covers the physical and logical structure of a L^AT_EX document. The first section covers the package and class interface to L^AT_EX2_ε, which replaces the `\documentstyle` interface of L^AT_EX 2.09. Succeeding sections cover sectioning commands, tables of contents, and cross-referencing.

The discussion of sectioning commands begins with a brief summary of their syntax and use, covering roughly the material presented in Section 2.2.3 and Appendix C.3 of the L^AT_EX manual. The authors don’t stop here, however; they also present a wealth of information on modifying the behavior of sectioning commands and on defining new ones. (As anyone who has supported L^AT_EX — or who has read any newsgroup or mailing list where L^AT_EX is discussed — well knows, this is exactly the sort of question that is asked repeatedly by L^AT_EX users,

and which the determined user has usually had to delve into the L^AT_EX source code to answer.)

The discussion of tables of contents follows similar lines, and is supplemented by a description of the nonstandard `minitoc` package, which can be used to create a separate table of contents at the beginning of each chapter of a book or report.

The chapter concludes with a description of L^AT_EX’s cross-referencing features, together with descriptions of the `varioref` and `xr` packages, which support alternate styles of referencing and cross-references between documents.

Moving along, Chapter 3 covers the formatting of paragraphs, lists, and other structures; Chapter 4 discusses page layout; and Chapters 5 and 6 cover tables and floats in depth.

Chapter 7 presents the first of several major extensions to L^AT_EX, the L^AT_EX2_ε font selection scheme. Since the New Font Selection Scheme is the single largest difference between L^AT_EX 2.09 and L^AT_EX2_ε, this chapter is perhaps the most important in the book. The scheme is indeed described well, with the first sections providing a detailed introduction to the basic vocabulary and features of font selection, and the latter sections providing full details for those wishing to install new fonts.

Chapter 8, entitled “Higher Mathematics”, will be welcome reading to anyone to whom mathematical typesetting is of more than passing interest. It has long been a source of amusement — and occasional chagrin — that although T_EX’s *raison d’être* has always been its superb support for mathematical typesetting, L^AT_EX hardly represents an advantage over plain T_EX in this regard, and has been lagging behind $\mathcal{A}\mathcal{M}\mathcal{S}$ -T_EX for some years. Thus, we were delighted when $\mathcal{A}\mathcal{M}\mathcal{S}$ -L^AT_EX was released a few years ago, and are now pleased that $\mathcal{A}\mathcal{M}\mathcal{S}$ -L^AT_EX has been fully legitimized by Chapter 8, which provides a detailed introduction to and description of the various features of this excellent package. Armed with the *L^AT_EX Companion*, we will now continue with renewed vigor our campaign to see that every L^AT_EX site installs the $\mathcal{A}\mathcal{M}\mathcal{S}$ -L^AT_EX package and brings L^AT_EX out of the dark ages of mathematical typesetting.¹

Chapter 9 addresses another issue that has been of burning interest in the L^AT_EX community for several years — support for typesetting in languages other than American English. The authors briefly

¹ While approving of the sentiment, one of the authors of this review would like to distance himself from the evangelical tone of this paragraph, and wishes to remind the other author that there are several full-flavored decaffeinated coffees on the market.

discuss the handling of alternate character sets and encodings such as the Cork standard, and then discuss the Babel package of Johannes Braams, as well as an alternate package for French typography.

Chapter 10 discusses several extensions to L^AT_EX's picture environment, a subject which leads naturally to Chapter 11, which tackles the complex issues surrounding the use of PostScript in L^AT_EX documents. This chapter covers such diverse topics as choice of DVI device driver, use of PostScript graphics, installation of PostScript fonts, and various PostScript `\special` effects.

Chapters 12 and 13 discuss two auxiliary programs that, although they are an essential part of any L^AT_EX installation, have long suffered from a dearth of documentation. Chapter 12 describes `makeindex` in detail, bringing into print for essentially the first time a comprehensive discussion not only of the L^AT_EX interface for creating indexes and the use of the `makeindex` program itself, but also of `makeindex` style files and packages for producing documents with multiple indexes. Chapter 13 is a similarly detailed description of B_IB_TE_X. This chapter, in fact, seems capable of replacing not only Appendix B of Lamport's book, but also much of the documentation supplied with B_IB_TE_X itself, since it not only subsumes them, but also offers an extensive list of non-standard B_IB_TE_X style files.

Chapter 14 describes the `doc` system for writing self-documenting L^AT_EX code and perhaps should have been merged with Appendix A, which is an overview of L^AT_EX for writers of packages and classes. Appendix B rounds the book out with a brief introduction to the major resources for T_EX users. The first part of this appendix describes the major electronic sites that serve as sources for T_EX software (which will surely be appreciated by those whose curiosity has been piqued by the rest of the book), and the second gives a list of T_EX user groups throughout the world. Regrettably missing is a separate list of the major mailing lists and newsgroups devoted to T_EX.

The book ends with a well-annotated bibliography that should serve as a valuable introduction to the literature, a well-constructed — though occasionally incomplete — index, and a combination colophon and empirical software study that should prove enlightening to anyone who has used or is contemplating using L^AT_EX to produce a book-length document.

Although we recommend the *Companion* without hesitation, there are a few caveats worth mentioning. The major one is that this book, like L^AT_EX_{2 ϵ} , is a snapshot of a rapidly changing system. As such, there are aspects of the book that are sure

to be confusing to anyone who has not been following the development of L^AT_EX over the past several years, and there are other aspects that are likely to become obsolete in the near future. For example, although the discussion of B_IB_TE_X in Chapter 13 is comprehensive as of this writing, this may cease to be true with the eventual release of B_IB_TE_X 1.0. Similarly, all of the cross-references to the L^AT_EX manual refer to the first edition of the book, which will soon be superseded.²

Another problem is that the very thoroughness of the book may occasionally present obstacles for readers who merely want to use the new features documented in the book without becoming intimately acquainted with all aspects of the new system. For example, although the description of the font system in Chapter 7 is very detailed, this means that the reader is ten pages into the chapter before being told the now-preferred method for changing to an italic font. Similarly, there is no place where the reader can turn to find a brief summary of the most important differences between L^AT_EX 2.09 and L^AT_EX_{2 ϵ} .³ We hope that with the release of a new edition of Lamport's L^AT_EX manual, beginners will be able to find the answers to their questions with less difficulty.

A final difficulty with the book results from L^AT_EX itself. Experience with L^AT_EX has taught us that there are many perfectly reasonable things a user wishes to do that are impossible in L^AT_EX with the published interface. Such tasks often require a use of L^AT_EX's internal commands, and the *Companion* has to deal with this. To their credit, the authors have handled this delicate situation with tact, presenting a careful selection of internals without requiring the user to understand the entire composition of the program. Naturally, it is our hope that with the eventual release of L^AT_EX₃, this last difficulty (and, dare we hope, the need for two separate manuals) will disappear.

² A related problem is that L^AT_EX_{2 ϵ} itself is still under development. Although a stable distribution version of L^AT_EX_{2 ϵ} is expected soon, many of the packages described in the *Companion* have not yet been converted into L^AT_EX_{2 ϵ} packages, which is likely to cause discrepancies between the actual behavior of some packages and the behavior described in the *Companion*.

³ Most likely, this reflects the history of the book: When the book was begun, there were no plans to release a new version of L^AT_EX, and indeed, production of the book was well underway before the necessity of L^AT_EX_{2 ϵ} became evident.

References

- [1] Frank Mittelbach and Chris Rowley. \LaTeX 2.09 \leftrightarrow \LaTeX 3. *TUGboat*, 13(1):96–101, April 1992.
- [2] Frank Mittelbach and Rainer Schöpf. With \LaTeX into the Nineties. *TUGboat*, 10(4):681–690, December 1989.
- [3] Frank Mittelbach and Rainer Schöpf. Towards \LaTeX 3.0. *TUGboat*, 12(1):74–79, March 1991.

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Book review: *Making \TeX Work*, by Norman Walsh

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Norman Walsh, *Making \TeX Work*. O'Reilly & Associates, Inc., 1994, 483 pages, ISBN 1-56592-051-1.

Most \TeX books limit themselves to the \TeX language proper, and when the subject of actually printing something comes up, mumble something about a mythical object called the *Local Guide*. Not so *Making \TeX Work*. Arguing that the \TeX environment is mature and stable enough to warrant a 'global guide', this book sets out to be such a document. It lists many macro collections, utilities, and matters related to fonts.

The book is divided into three parts and a couple of appendices. Part 1, 'An Introduction to \TeX ', has chapters on \TeX itself, editing, running \TeX , and macro packages. Part 2, 'Elements of a Complex Document', is the most interesting. Its chapters concern themselves with fonts, pictures and figures, international considerations, printing, previewing, on-line documentation, Metafont, and Bibliographies, Indexes, and Glossaries. Part 3, 'A Tools Overview', concerns itself with commercial and non-commercial \TeX environments, \TeX on the Macintosh, and \TeX utilities. The appendices are on filename exten-

sions, font samples, resources, and longer examples (mostly shell scripts).

Some of the topics discussed in this book are by definition system-dependent. Therefore this book will be of most use to you if your platform is Unix, MSDOS, OS/2, or the Apple Macintosh. Otherwise, the chapters on editing or previewing will not be particularly relevant in your case. On the other hand, if you have Gnu Emacs, \emTeX , or a PostScript printer, you will find a lot of detailed information here. There is a slight bias in the book towards these common tools, but not to an extent that it would be de facto an MSDOS book or a Unix book.

This book is concerned largely with those aspects of \TeX that are system-dependent, with the exception of a chapter on macro packages and a token chapter on the workings of \TeX . Thus, there is no mention of the various \LaTeX styles written by third parties, and the list of literature does not mention books such as the *\LaTeX Companion* which does mention these, nor any books (other than *The \TeX book*) that discuss \TeX programming.

On the other hand, there is extensive discussion of drawing packages, \BibTeX and related utilities, editors, previewers, and matters pertaining to fonts. In particular, this last topic is treated in great detail, covering such aspects as encoding vectors which I have never seen discussed before.

The amount of detail in which resources are discussed varies. Several pages are devoted to \emTeX and how to install it, while simple \BibTeX -related utilities are given just a few lines. While this is justified, I find that some of the shorter entries are too short: often nothing is mentioned on what platform they run, or in what scripting language they are written. I suspect a Unix bias.

The discussion of various \TeX implementations can be of use to someone just piecing together a \TeX system, but I think the main value of the book is to alert existing \TeX users to various utilities and tools that can make life easier. From this point of view the book contains a mass of information on things you may never have suspected existed.

One of the reasons a book like this can exist is that many \TeX resources are reachable by a large segment of the \TeX users community: there are well-established archive sites, in particular those of the Comprehensive \TeX Archive Network, and many people can ftp to them directly, or use ftp-mail (the book contains an explanation of ftp and ftp-mail, as well as, several hundred pages later, a brief mention of the World Wide Web). Still, not everyone is electronically connected, and I consider it an omission that the book does not mention the archives that