

Introduction to “*T_EX Unbound: L^AT_EX & T_EX Strategies Fonts, Graphics, and More*”

Alan Hoenig *

The reader contemplating this book has a right to know what the author’s goals are—or are not—for this volume. The non-goals are easy—this book will *not* discuss the various typesetting commands supported by T_EX and L^AT_EX (except casually or in passing). It’s much better to consult the canonical works by Knuth or Lamport, or any of the several excellent books this canon has inspired, for that kind of information.

Anyone who knows the slightest bit about typesetting with L^AT_EX or T_EX knows there is more to fine typesetting than the commands of the T_EX language. It’s important to know this material well, but there are other issues concerning document production that the canon barely touches upon. For instance:

- How can I make full use of the many commercial, digital fonts? And how may I use them to typeset technical texts in a fully professional manner? And if I use these fonts, can I also typeset mathematics in a visually compatible way?
- What about graphics—how may I prepare and include images and graphic material for my T_EX document?
- Do the Internet, multimedia, and hypertext have any relevance to T_EX (and vice versa)?
- Can T_EX be made to fit into the suite of general office and educational software that is so ubiquitous, or is T_EX *sui generis*?
- Low level query: what is T_EX and why should I care? What is L^AT_EX, and how does it differ from T_EX? Where did T_EX come from? How do I best bring myself up to speed as a T_EX user?

It is my intention to provide discussions to these and similar queries in the pages that follow.

These are disparate issues, though, linked only by their absence in a standard ‘T_EXtbook’. Some of this material is elementary, while other bits are quite advanced. As a result, it’s hard to fix a single label on this book as to level—it is neither elementary, nor intermediate, nor advanced, but all three at once.

The three parts of the book attempt dealing with these issues. In the first part, we present surveys of useful areas—what computer typesetting and T_EX involve exactly; what

Internet resources there are for the T_EX-aware author; introductions to Metafont and METAPOST, T_EX’s graphic siblings; logical document structure (including SGML) and L^AT_EX; and some tips and suggestions for using T_EX alongside standard office and academic software (but a discussion of HyperT_EXt also appears here).

The lengthy second part is a discussion of virtual fonts, but it begins with a discussion of font installation and selection for both plain T_EX and L^AT_EX, so authors will be able to use non-Computer Modern fonts in their T_EX documents. After an extensive examination of the virtual font concept, several chapters present instructions for carrying out many virtual font projects:

- simple DC font creation;
- installing outline fonts for use by T_EX and L^AT_EX;
- creating real small caps fonts;
- oblique (slanted) and unslanted italic fonts;
- old style figures in fonts;
- better footnote numbers with expert fonts;
- introduction to foreign language typesetting;
- underlining and striking-out of extensive passages of text;
- bold fonts when no bold font exists;
- f-words (words that end in f);
- alternate fonts containing special characters and exotic ligatures;
- kern tracking and letterspacing;
- previewing output using that contains PostScript fonts;
- hints and suggestions for properly scaling fonts at different sizes; and
- creating and installing new math packages, so authors can properly typeset mathematics using MathTime, Lucida, Euler, or Mathematica math fonts, plus sans serif, typewriter, fraktur, calligraphic, and blackboard bold fonts.

The ‘new math’ section contains an extensive “rogues’ gallery” showing how combining various roman faces with math fonts leads to different visual effects.

The final portion of the book addresses some fun questions—how do you create and place graphic images in a document? There are many excellent tools to accomplish this, but even with the limited discussion we’re restricted

*This book will be published by Oxford University Press in early 1997. Contact the author at a.jh.jj@cunyvm.cuny.edu for further information.

to, there’s lots to say. After some general discussion, we focus on four very special approaches:

- the L^AT_EX picture environment (part of L^AT_EX) and extensions thereto;
- Metafont and METAPOST; and
- two packages powered by T_EX front-ends, PSTricks (a T_EX front-end to the PostScript language), and MFPic (a T_EX front-end to Metafont).

Two appendices present whirlwind introductions of T_EX and L^AT_EX, and one discusses the techniques used to produce this book (which was produced entirely by T_EX or its siblings and friends).

What’s the best way to use this book? The author hopes that everyone will find the time to sit back, relax, and read everything from cover to cover, but this is not practical for most readers. Please do, though, take time to riffle through this volume. Note that several chapters conclude with compendia or list of commands which just may prove useful. Note too that the entries in the bibliography have back references, so it’s possible to find out where in the book a citation received discussion. Finally, ignore the index at your peril! Every effort has been made to make the

index complete and consistent. Who would guess that discussion of underlining appears in a virtual font chapter—but the index points you to the proper page.

One principle silently informs much of the book’s discussion. I call this “Hayes’s Principle of Software.”

No matter how many palettes of buttons and how many menu options are offered, users of a program will always want to do something the author has not foreseen. Adding still more buttons and menus is not the answer.

This is why T_EX (or a comparable descendent program) will endure in the face of huge advertising efforts by software giants. But there’s another result of Hayes’s Principle—authors of T_EX documents tend to be on their own private cutting edge in their inadvertant approach to the unforeseen. One final purpose of this book is to enhance the insight of a T_EX user, who, while now conscious of ever more things to do within T_EX, will now know ever more ways to carry them out.