

L^AT_EX/_TE_X User: A Typist, or Typesetter?

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Abstract

The purpose of this paper is to point out that a L^AT_EX/_TE_X user who produces documents in camera-ready form is more than just a typist; he/she is a typesetter. These users need to go beyond learning the basics, but not to the point of frustration. There are several issues that should be considered when using L^AT_EX/_TE_X for publishing. This paper attempts to look at these issues and share strategies to help those who use L^AT_EX/_TE_X for camera-ready publishing.

Introduction

L^AT_EX/_TE_X user: A typist or typesetter? This question has recently become an interesting topic. Is the person who uses L^AT_EX and/or _TE_X more than just a typist? I think so! If a person is using L^AT_EX/_TE_X to publish a document, following a layout specified by a publisher, this person is more than just a typist. She or he is a typesetter.

From the preface of the *T_EXbook*,
... _TE_X, a new typesetting system intended for the creation of beautiful books — and especially for books that contain a lot of mathematics. By preparing a manuscript in _TE_X format, you will be telling a computer exactly how the manuscript is to be transformed into pages whose typographic quality is comparable to that of the world's finest printers. ...

In the past year, I have spent a large portion of my consulting duties helping graduate students, secretaries and professors at the University of Delaware put together documents that were published using L^AT_EX and/or _TE_X. There are two ways these documents can be produced.

1. User-Defined Macros

The user must define macros to set up the document to meet a publisher's specifications and then submit a final printed copy. This requires a lot more work for me and a lot more time before the final copy is completed.

2. Publisher-Defined Macros

The publisher supplies macros that meet the publication specifications. The user uses these macros to set up the document, and then

either submits a final printed copy or sends in the L^AT_EX/_TE_X file. This is a real advantage, as long as the publisher can provide good documentation on how to use the macros. If a lot of time is needed to interpret the use of the macro, then half of the advantage is lost.

Experience with User-Defined Macros

Thesis format. My first challenge was setting up macros in L^AT_EX/_TE_X to meet the requirements set by the University of Delaware's Office of Graduate Studies for theses, dissertations, and executive position papers. During this project I realized that many of the specifications had been based on typewritten documents. For example, the document is supposed to be double spaced. It took me three months to convince the Office of Graduate Studies to accept a L^AT_EX/_TE_X document that was spaced $1\frac{1}{2}$ times rather than 2.

Four important points came from this project:

1. Having the macros does not mean that the user does not have to pay attention to the original specifications or guidelines. It is important that the user check the document for correctness. Macros are developed with the intention of being correct, but errors do happen.
2. Users need to be reminded that the macros have been defined to meet certain specifications, and as a result the macros should not be changed. I hear complaints such as, "I don't like the way the document looks." The point is that it does not matter how they think it should look, and altering the macros means the document no longer conforms to the specifications.

3. There needs to be good documentation on how to use the macros. References to which macros fulfill which specifications are important.
4. Examples should be provided whenever possible. Example documents of the input and output are easy ways of showing the organization of the document, how to use the macros, and what they will produce.

Books. I have been involved with several publishers that have accepted L^AT_EX/T_EX as the final output for books, but that did not provide macros. Listed below are a few examples:

1. (T_EX-UNIX)
Karl W. Böer. *Advances in Solar Energy*, 6 volumes, Plenum Press, 1982–1990, ca. 500 pgs.
Karl W. Böer. *Survey of Semiconductor Physics*, Van Nostrand Reinhold, 1990, ca. 1400 pgs.
2. (L^AT_EX-PC)
Thomas K. Gaisser. *Cosmic Rays and Particle Physics*, Cambridge University Press, 1990, ca. 280 pgs.

All of the people doing the typing were familiar with L^AT_EX/T_EX, but were not familiar enough to modify and/or create macros to do what was necessary to meet the requirements of the publishers. As a result, most of this work was done by me. It is important to provide this level of support initially, because the pay-back on future books is invaluable with respect to time. Discoveries to share are:

- using the L^AT_EX book style required the least amount of work. This definitely depends on the publisher; and
- you need to have a large version of T_EX to produce books of this size. The main problems have been cross referencing, size of captions in figures and tables, and size of tables. Our local configuration of T_EX is listed below.

Parameter	Maximum
strings	4613
string characters	64042
words of memory	262141
multiletter control sequences	9500
words of font info	72000
fonts	255
hyphenation exceptions	607
stack positions	300i
	40n
	60p
	2000b
	4000s

With the above configuration I never run into a problem of T_EX's capacity being exceeded, except when an actual error occurs. (You all know the case of the infamous missing }.)

Experience with Publisher-Defined Macros

Most of my experience has been with users who were supplied macros for journal publications. Each of these journals provided incentives for users to submit papers using its L^AT_EX/T_EX macros.

1. American Geophysical Union, *Journal of Geophysical Research*
 - saves time;
 - final product looks better; and
 - saves money on page charges (\$40 vs. \$140).
2. SIAM (The Society for Industrial and Applied Mathematics)
 - provides greater control over the final appearance;
 - eliminates introduction of errors from re-typing;
 - eliminates one round of proofreading; and
 - the author receives 100 free reprints.

I suspect there are many other publishers who provide this service. It is my hope that more publishers will supply macros and documentation on how to meet their specifications and that this information will be published in *TUGboat* or some type of a newsletter to keep the T_EX community informed. Regardless, it is obvious to me that the users of these L^AT_EX/T_EX macros need to know more than just the basics. My concern is: How much more?

L^AT_EX/T_EX User as Typesetter?

Many users become frustrated because most of the time they don't need to be concerned with such details. They feel they get caught up in the details of learning L^AT_EX/T_EX rather than in the actual writing. This was my primary motivation for setting up the thesis macros. I thought that it would be easier in the long run to have L^AT_EX/T_EX users use my macros instead of designing new ones themselves. As a L^AT_EX/T_EX consultant, I try to provide as much help as possible in meeting specifications for situations such as journals, books, etc. I quickly found out that many questions had nothing specifically to do with L^AT_EX/T_EX, but in fact were questions about how to interpret publisher's specifications. These questions show that the users know

very little about the tools that exist to help ease the process of creating a document. As a result, I began to see that the following concepts can help most users ease their frustration.

1. Bridge the gap between the terminology used in L^AT_EX/TeX and that used by publishers.

Page Layout	{	Space between lines
		Space between paragraphs
		Size of characters
		Margins
		Headings

I think that many L^AT_EX/TeX users (myself included) would be grateful for a document that lists the common terminology used by publishers and the proper L^AT_EX/TeX macros that correspond to each. Again, having this information published in *TUGboat* or some type of a newsletter would be an invaluable reference for the TeX community.

2. Understand the macros.

How to	{	use
		modify
		create

One comment: Don't reinvent the wheel! I spend a considerable amount of time finding out whether or not what I need has already been created or is close enough that I can modify it to do what I want. This is especially important for the casual user. It is much easier for the casual user to learn how to use a macro or change it slightly than to start from scratch. Most users are more than willing to solve the problem using this strategy and only resort to my help if they can't find a macro to do what they want. In fact I encourage users to call me before they get too frustrated. I'm glad they try themselves and I am all for self-sufficiency, but I don't like anyone to become so frustrated they want to give up totally.

3. Know the tools that make L^AT_EX/TeX easier.

- utilities for matching { and }, and \begin... and \end...;
- spell checker (removing all control characters);
- screen previewing; and
- including graphics through PostScript

Many of these tools exist for different environments. Here are some that I find extremely helpful:

- Matching
 - `texmatch` is a program that checks matching in TeX and L^AT_EX documents.

It gives error messages if it detects unmatched delimiters. Delimiters are braces, brackets, parentheses, dollar signs (single and double), and L^AT_EX's \begin and \end. I know that this program is available on UNIX and PC systems.

- Spell check

`detex` is a filter that strips TeX and L^AT_EX commands from a file. This really helps in a UNIX environment before using a program like `spell` or `ispell`.

In our PC environment, most users prefer WordPerfect. Since WordPerfect contains a spell checker, all you need to do is to set-up the spell checker once to ignore the control sequences. This has a hidden advantage. Not only are all of the misspelled words caught, but also misspelled control sequences are found, thus avoiding a TeX error.

- Preview

The important point is not what package you are using, but that you have the capability to preview. In my opinion, one should not even consider creating a document that is going to be published without the ability to preview. So much time and paper is wasted without this tool.

- Graphics

Again, if something works for you, then more power to you! However, I have found that PostScript-capable printers are the most flexible and provide the best situation for incorporating graphics into a L^AT_EX/TeX document.

`dvips` is a program that converts a TeX .dvi file to a PostScript file.

`psfig` is a TeX macro package that facilitates the inclusion of arbitrary PostScript figures into TeX and L^AT_EX documents.

`macps` is a program that adds the appropriate Macintosh LaserPrep file to the beginning of a Macintosh PostScript file. This is very useful as a first step in printing a Macintosh PostScript file on a computer system other than a Macintosh. Other steps are required to include such a file into L^AT_EX/TeX documents. I know that this program is available for UNIX systems.

Once again, I hope a list of tools for L^AT_EX/TeX will be published with periodical updates in *TUGboat*, or some type of a newsletter that will contain all the information about what each tool can

do, what environment was the tool designed for and where can you find it. Right now, some very good information, such as “Frequently Asked Questions about T_EX” and “Supplementary T_EX Information (FTP sites)” is available. But is there more that I am not aware of?

Conclusion

How does all of this impact an organization?

1. The user must invest a considerable amount of time learning how to produce a document based on the publisher’s specifications. Here is where a considerable amount of time can be saved if the publisher supplies the necessary macros. It is also important that users who do this type of work be recognized for their skills as typesetters rather than as typists.
2. Efforts must be made to offer good support to users so the documents can be completed in a timely fashion. Support has been the key to users being willing to use T_EX and/or L^AT_EX for publishing documents. Many times I thought to myself, “Why did I ever suggest using T_EX or L^AT_EX?” My reason is obvious when the final document is printed: Nothing compares to the quality of T_EX.
3. Using T_EX can save dollars. The final cost of a book or the cost of publishing a paper is certainly going to save an organization money. However, there are hidden costs that should be kept in mind. The user now spends more time inputting the material and taking care to format the document correctly, and I spend more time helping people who need to follow a specific layout.

Update

During the TUG conference, there were a few very interesting points that surfaced and I feel they should be included in the paper.

1. There are many publishers who are interested in authors as composers. In talking to many of these publishers, I found that most of them are making efforts to provide style files for L^AT_EX and/or macros for T_EX. This was very encouraging to me. I believe that a list of publishers and the style files/macros they supply and/or accept should be published in *TUGboat* or some newsletter to the T_EX community.
2. There is a big difference between a graduate student writing a thesis/dissertation and an author of a book. A graduate student can be threatened with not graduating if he or she does

not follow the specifications, but what about authors? Can a publisher threaten to not publish the book? I don’t think so. It is important to both parties that the book is published, but compromise is essential. I feel that authors have to realize that publishers are the experts in designing books and the author is the expert about the content of the book. Comments:

- If an author is planning on using L^AT_EX/T_EX then choose a publisher that accepts this format or, more importantly, one that has experience using this format.
- An author should discuss design specifications with the publisher as early as possible and decide what is acceptable.
- The publisher needs to specify clearly what types of changes to the design specification are acceptable in order for authors to express themselves.

Lack of communication between the authors and publishers seems to be the number one problem. Speaking from a support point of view, making these issues as clear as possible up front will save everyone concerned time and energy.

3. There may be no savings, or an actual increase in cost can occur when using L^AT_EX/T_EX. I was very surprised to hear that this can happen. In many cases, costs stayed the same or increased because authors insisted on certain design changes. Here is a primary example of where my comments in 2. can help.

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