

Stat 902/Math 902 (Fall 2008)

An Introduction to T_EX and L^AT_EX
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What is this stuff?

T_EX is a typesetting system that was written by Donald E. Knuth. He began work on T_EX in 1977, and says in the preface to the *T_EX Book*, that it is “*intended for the creation of beautiful books-and especially for books that contain a lot of mathematics*”.

T_EX is a text processing system and not a WYSIWYG text editor. This is both an advantage and a disadvantage. The user has complete control over all aspects of the production of the work and with only a little effort can create professional looking documents. In fact, many publishers now publish books from “camera-ready copies” produced by the author. All the author does is send the final printed version to the publisher. Unfortunately, this can lead to much aggravation for a new or inexperienced user.

L^AT_EX is an advancement of Knuth’s original T_EX (but relies on T_EX as the underlying formatting engine). It was written by Leslie Lamport in 1985 and the current release, L^AT_EX2 ϵ , is the most widely used form of T_EX.

How do I pronounce T_EX?

In proper parlance, T_EX is pronounced “tech” to rhyme with “blech”. In 1977, Donald Knuth called his new program Tau Epsilon Chi which accounts for the lowered “E”. It is definitely not pronounced “ks” to rhyme with “hex”.

L^AT_EX was written by Lesle Lamport and in his book, he mentions that it can be pronounced either “lay-tech” or “lah-tech”.

You should type TeX or LaTeX if you need to include these words in, say, an e-mail or a web page.

How do I make a T_EX file?

The first step is to type the file that T_EX reads. This can be done using any text editor (such as **vi** or **emacs**). You write the T_EX file which typically ends with the extension `.tex`. This file contains all the information that the T_EX formatting engine needs to create your document.

T_EX then outputs a *device independent file* (`.dvi`) which can be transported across platforms. This file was originally not readable and had to be converted into one that was. Fortunately, there are now programs that can read `.dvi` files

but can't print them (such as **xdvi**).

Given the .dvi file you then have a device driver read it and produce “readable” output.

For example,

- **dvips** creates *postscript* files (.ps)
- **dvipdf** creates *portable document format* files (.pdf)

How do I view my masterpiece?

Once you have T_EXed your document you can view the .dvi file with **xdvi**.

Run **dvips** on the .dvi file to create a postscript file. The command `dvips -o filename.ps filename.dvi` will take your .dvi file (*filename.dvi*) and make a postscript file (*filename.ps*).

You can use Ghostview to view .ps files. The command `ghostview filename.ps` will display your file. You can also use **ggv**.

Run **dvipdf** on the .dvi file to create a portable document format file. The command `dvipdf filename`, where *filename* is the name of your .dvi file, will create *filename.pdf*.

You can view .pdf files with either Ghostview or Adobe Acrobat Reader. The command `acroread filename.pdf` will display your file.

An alternative approach to creating .pdf files directly is to run **pdflatex** on the .tex file.