

# 1 What are all these \*TeX things?

Up until now I've been talking purely about the TeX. What is this latex thing?  
Some resources: 1 2 3.

As we have seen so far, TeX takes a file and outputs a dvi (which can be converted to a pdf). LaTeX appears to be (I still haven't found a clear description of exactly what it is) a language on top of TeX (note, not a superset of TeX) that uses TeX to typeset. There are then extensions to LaTeX that allow output to something other than a dvi (e.g. pdf<sub>l</sub>atex – pdf).

We write in LaTeX because it adds a bunch of useful things to TeX – using LaTeX is much less manual.

## 2 Structure of a Latex Document

The basic LaTeX doc requires a documentclass and a begin and end document.

```
Anything here is an error
\documentclass[options]{some class}
Preamble
\begin{document}
Top matter
Content
\end{document}
Anything here will not be typeset
```

### 2.1 Document Class

See here for a list of some document classes.

The document class affects which macros are defined and what they do. For example, in articles the main divisions are sections and then subsections. In a book they are chapters, sections, subsections. In a letter none of those are defined!

### 2.2 Preamble

This contains commands that affect the document as a whole. It is a place to define things, import packages and give L<sup>A</sup>T<sub>E</sub>X commands.

#### 2.2.1 Pacakges

LaTeX by default can't do everything. In the same way that programming languages have libraries, L<sup>A</sup>T<sub>E</sub>X has packages. Some packages come with the LaTeX distribution (e.g. I use TexLive), others can be manually downloaded and installed. Including a package with \usepackage will make whatever macros are provided in that package available.

Theoretically you can get documentation with `texdoc <package>` but this breaks for me so just go to CTAN.

Some examples:

- Color: **Hi!**

## 2.3 Document

We need this to separate what is preamble and what is content!

## 2.4 Top Matter

You can define things about the article, e.g. who the author is, when it was written. This can easily be typeset – at any location – with `\maketitle`. It is just convention that these commands go at the top.

## 3 Latex files

Until now we have just had single `.tex` files. However, with packages and compilation there are many file types to know about.

- `.tex`: The main file.
- `.sty`: A package. Load into the main file with `\usepackage`
- `.cls`: A class. Loaded with `\documentclass` (e.g. `article.cls`)

## 4 Compiling Latex

This

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