

# L<sup>A</sup>T<sub>E</sub>X Study Group 3

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## 1 Floats

### 1.1 Tables

LaTeX has two parts to its table-drawing code, implemented as environments. The outer one is concerned with positioning the table in the document. LaTeX has an algorithm for deciding what looks “pretty” on a page. It tries to align so-called “floating elements” to accord with these guidelines. (The two main types of floating elements we will deal with are tables and figures.) Things it considers:

- floats look best at the top or bottom of a page (so they don’t break up the flow of the text)
- there shouldn’t be more than a certain percentage of the page devoted to floats
- if a lot of floats pile up, such that it is impossible to satisfy the requirement immediately above, it is better to make a page of all floats than try to squeeze a little text onto a page with some floats as well

It is possible to tweak this algorithm if you don’t like it, but in general trying to get a particular float into a particular place in the document is a fool’s errand. If you are going to publish a book or important journal article, the publishing company has editors to do this for you.

There is one useful command for dealing with floats: `\clearpage`. This command forces a page break, and forces LaTeX to print out any floats it was saving up. This is useful at the end of a section in a longer paper, for example, to make sure that any tables in that section are printed before the next section begins.

The other half of the LaTeX table-drawing facility is for drawing the table itself. Let’s see an example, and then discuss its parts.

Pets		
	Yes	No
Own a dog	0.65	0.35
Own a cat	0.40	0.60

Table 1: A fictitious table

The outermost environment, `table`, is responsible for positioning. It takes an optional argument indicating where the float should be placed. Possible values are “Here,” “Top of page,” “Bottom of page,” or “on a Page of all floats,” indicated by the capital letters in their names. You can specify any combination of these options. Their order indicates the order of your preference. These should be interpreted as gentle hints to the placement algorithm – LaTeX will do what it wants. Inside the environment, we use the command `\centering`, for the purpose of making the table centered on the page.

The `tabular` environment is responsible for laying out the table itself. It takes an obligatory argument specifying the columns the table is to have. These can be right, left, or center aligned, indicated by the first letter of each of these words. (There are more complex ways of doing this, but I shan’t address them now.) Inside the environment, each row of the table is specified. The ampersand character signals the end of a cell, and a double backslash the end of a row. Table rows can span multiple lines, as the first row in this table does. The built-in LaTeX command for making a line across a table is `\hline`, but it looks ugly. Far better to use `\midrule` from the `booktabs` package. If you want to put a table into a document without worrying about LaTeX moving it around, you can just use a `tabular` environment.

Next come two commands that make referring to this table easy. The first is the caption, which will be printed below the table with an automatically generated number. The second is a label, which makes referring to the table by number possible: Table 1. It is also possible to refer to the page the table is on: 2. (Hyperref will make both of these links.)

For a more comprehensive intro to tables in LaTeX, see <http://en.wikibooks.org/wiki/LaTeX/Tables>.

## 1.2 Figures

The `figure` environment is quite similar to the `table` one.

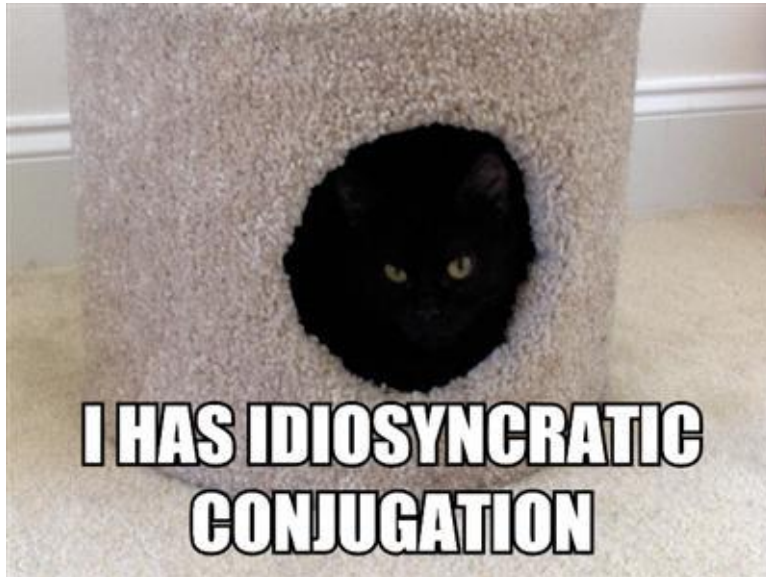


Figure 1: Morphologists beware!

### 1.3 Managing floats

There are two packages for managing float positioning in a document. The first is **float**. After `usepackage`'ing this package, put the commands `\restylefloat{table}` and `\restylefloat{figure}` in your document's preamble. This will allow you to use "H" in addition to "t", "b", "p", and "h" as a position specification for floats. This communicates a stronger desire for the float to be placed *right here* (you can tell from the fact that it is a capital letter!).

The second package is **flafter**, which forces floats to appear after the point at which they are defined in a source file.

## 2 Bibliography

The LaTeX facility for creating bibliographies is called BibTeX. There are several pieces to this puzzle. The first is a bibliography database, which is stored in a file with the extension "bib". This is a plain text file, but you certainly don't want to edit it by hand. Instead, some programs exist:

- <http://jabref.sourceforge.net/> – this is a cross platform Java application. It works, but is ugly.
- <http://bibdesk.sourceforge.net/> – Mac OS X only. Beautiful and

has a web import function.

The second step is to include the `natbib` package in your document, and issue a `bibliographystyle` command. There are many bibliography styles out there – I’ll send you a pdf that compares many of them. It is also possible to customize the punctuation used around the in-text citations. For this, the `bibpunct` command is used: `\bibpunct[, ]{({})}{;}{a}{},` This command is described in the documentation for the `natbib` package. The third step is to cite things in your document. Each work in your database has a cite key, which can be used in a `citet` or `citep` command, for textual or parenthetical citations respectively. These commands take up to two optional arguments. If there is one optional arg, this specifies text to go after the citation; if there are 2 the first goes before and the second after.

Chomsky et al. (2000)

Ellegård (1953, p. 12)

(see also Kroch 1989, p. 94)

Finally, the command `bibliography` places the bibliography in the document. This takes as an argument the name of your bib file (in the same directory as the LaTeX source file) without suffix. You will need to run the typesetting command, then select “BibTeX” from the command menu. Run this, then switch back to the typesetting command (XeLaTeX) and run twice more. Voilà.

## References

- N. Chomsky et al. Minimalist inquiries. *Step by step: Essays on minimalism in honor of Howard Lasnik*, pages 89–155, 2000.
- A. Ellegård. *The auxiliary do: The establishment and regulation of its use in English*. Engelska språket, 1953.
- A.S. Kroch. Reflexes of grammar in patterns of language change. *Language Variation and Change*, 1(3):199–244, 1989. ISSN 0954-3945.

## 3 Tools and assistance

### 3.1 Spell checking in TeXworks

The spell checking files for the Texworks program can be downloaded at this link:

[http://ftp.services.openoffice.org/pub/OpenOffice.org/contrib/dictionaries/en\\_US.zip](http://ftp.services.openoffice.org/pub/OpenOffice.org/contrib/dictionaries/en_US.zip)

(If you want more languages, there is a large list of such packages at this link: <http://wiki.services.openoffice.org/wiki/Dictionaryes>. Latin and Esperanto are among the many options on offer.)

Instructions to install the files, for both Mac and Windows, are here:

<http://code.google.com/p/texworks/wiki/SpellingDictionaryes>

Note that you'll have to set the spelling language in the TeXworks preferences dialog and quit/reopen for the files to take effect.

## 3.2 Documentation

### 3.2.1 Passive

Almost all LaTeX packages come with exhaustive documentation (a side effect of working with a program that is for preparing documents!) This can be found at the following file path:

```
<platform-specific prefix>/texlive/2010/texmf-dist/doc
```

Where the prefix is `/usr/local` on Mac/Linux and `C:\Program Files` on Windows (I think). Inside this folder there are subfolders for every different “flavor” of TeX there is. 99.9% of what you want will be found in the `latex` subfolder.

### 3.2.2 Active

I recommend the following website for any questions you may have about TeX (in addition of course to getting live help from me or other colleagues):

<http://tex.stackexchange.com/>

For various social reasons I'll explain in study group, it is a resource of unparalleled value.

/input/	*SOMETHING	MAX-IO	DEP-IO
a. foo	*!		
b. <del>foo</del> bar		*(!)	

Table 2: An example of OT

## 4 Bonus!

### 4.1 OT

### 4.2 Game theory

