

# Introduction to L<sup>A</sup>T<sub>E</sub>X

Christopher DeSante, Ph.D.\*

August 25, 2018

## Why should I use L<sup>A</sup>T<sub>E</sub>X?

There are three major reasons why I advocate using this instead of Word:

1. It's a signal of technical competence. Oh, if s/he is using R, and `ggplot2`, why use MS Word? One thing that signals incompetence, however, is backwards "quotation" marks, which is something everyone does at first, but quickly learns with "practice."
2. It's ridiculously pretty. Every single thing "weakly dominates" MS Word, and you rarely have to play with margins, etc. Graphics look better, tables look better, equations look exactly like they would out of a math textbook.
3. It interfaces with another free package called bib-tex to handle all your citations – you'll never have to write a bibliography again!

## Quick Guide to bib-tex:

- You don't have to download anything except "JabRef" to act as a citation manager, the distribution of MikTeX already has the package you need installed;
- To add citations to your master library, go to google scholar, and change the preferences to "show citations to export" and select bib-tex, then in JabRef, copy and paste your citation text into a new entry, and you're good to go.
- In the preamble of the document, specify the following package: "natbib"
- Google "natbib reference sheet" for instructions on how to cite, the two majors citations are citep and citet for parenthetical and in-text citations, respectively. Some other tricks appear below.

---

\*Assistant Professor of Political Science, Indiana University.

**This is a section:**

**This is a subsection:**

**This is a subsubsection:**

**This is a paragraph heading:** This is normal text in that paragraph... if you don't put asterisks (\*s) in the notation, all of those sections are numbered:

**1 This is a numbered section:**

**1.1 This is a numbered subsection:**

**1.1.1 This is a numbered subsubsection:**

**This is still just a paragraph heading:**

**Packages:**

In the preamble of our document, you'll see a variety of packages listed. Each package allows us to perform a certain function. For example, the `setspace` package allows us to quickly switch between single and double spacing by using the `\doublespacing` command. For example:

This would give us double spacing for the rest of the document until we switched back with an additional command. If we wanted to go back to single spacing, we would use:  
`\singlespace`.

**Adding equations:**

If you reference an equation, you can insert it as follows:

$$\begin{aligned} 2 + 2 &= 4 \\ \sin^2(\theta) + \cos^2(\theta) &= 1 \end{aligned}$$

**Fractions and symbols:**

Here's a more complex math formula, well from L<sup>A</sup>T<sub>E</sub>X's point of view (and a second time in Greek):

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ \chi &= \frac{-\beta \pm \sqrt{\beta^2 - 4\alpha\gamma}}{2\alpha} \end{aligned}$$

## Tables:

Here's a table we can create from the `excel2latex.xla` file I've included in the zip drive. Tables can also be made from R (`xtable`) or Stata (`outtex`) with appropriate packages or macros.

Table 1: The classic "Prisoner's Dilemma"

<b>Player I \ Player II</b>	Cooperate	Defect
Cooperate	(5,5)	(-10, 10)
Defect	(10,-10)	(-5,-5)

## Figures:

If you'd like to insert a graphic, just make sure the graphic file is in the same folder as your .tex file. Then insert it like this:

```
\begin{figure}[h!]  
  % Requires \usepackage{graphicx}  
  \centering  
  \includegraphics[width=2.5in]{"newspoll"}\  
  \caption{A bad graph?}  
\end{figure}
```

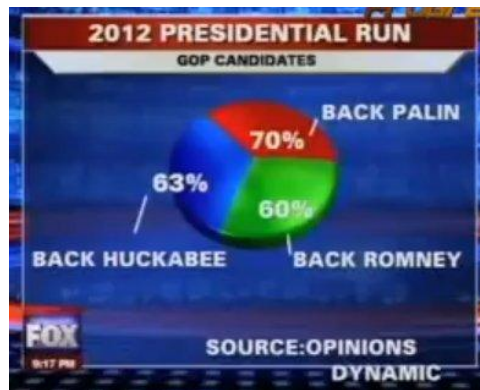


Figure 1: A bad graph?

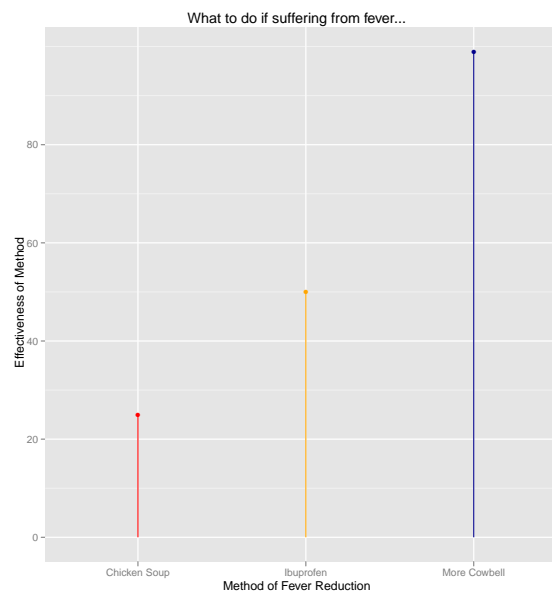


Figure 2: A *good* graph?

## Natbib Quick Reference:

If you want to show someone what you’ve done in R, for example, you can use the “verbatim” environment. In this environment, everything shows up exactly as you type it into L<sup>A</sup>T<sub>E</sub>X. Below are the commands for creating citations using the Natbib package. The lefthand commands show the citation with the key in braces { } and on the right side of the arrow, the resulting citation.

```
\citet{jon90}      -->    Jones et al. (1990)
\citet[chap. 2]{jon90}  -->    Jones et al. (1990, chap. 2)
\citep{jon90}      -->    (Jones et al., 1990)
\citep[chap. 2]{jon90}  -->    (Jones et al., 1990, chap. 2)
\citep[see][]{jon90}   -->    (see Jones et al., 1990)
\citep[see][chap. 2]{jon90}  -->    (see Jones et al., 1990, chap. 2)
\citet*{jon90}      -->    Jones, Baker, and Williams (1990)
\citep*{jon90}      -->    (Jones, Baker, and Williams, 1990)
```

## Adding citations to your master file:

1. Go to scholar.google.com ;
2. click on “scholar preferences” at the top of the page;
3. under the last option – bibliography manager – select *show links to import citations into BibTeX*
4. When you see the source, click the “import into BibTeX” link.
5. highlight and copy the text that appears;
6. in Jabref, select “new entry (ctrl + n)” from the BibTeX menu;
7. select the citation type;
8. paste what you’ve copied into the “BibTeX source” tab;
9. save the database.

Note: step 2 only needs to be done once, unless your browser clears cookies and preferences automatically. Now I will cite a book that I really like (Kuhn, 1962). If I wanted to talk about a book chapter that was unable to get published in a journal, I’d talk about Converse (1964). If you think the citations don’t look quite right, visit my web-tutorial: [here](#).

## References

Converse, Philip E. 1964. The Nature of Belief Systems in Mass Publics. In *Ideology and Discontent*, ed. David E. Apter. Ann Arbor: University of Michigan Press.

Kuhn, Thomas S. 1962. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.