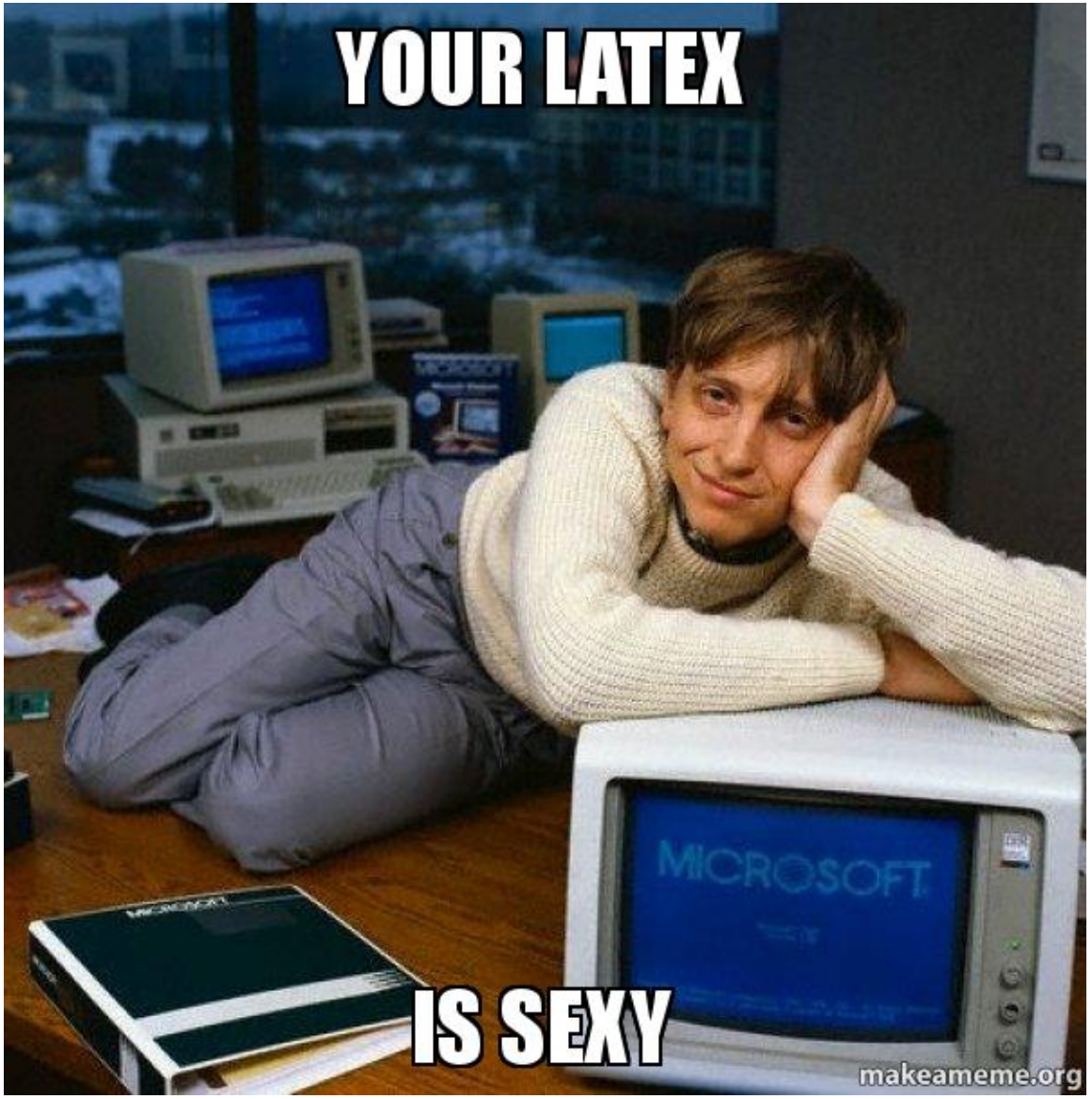

YOUR LATEX
MICROSOFT
IS SEXY
makeameme.org

Intro to LaTeX

1. Why use LaTeX?

2. What is LaTeX – History and Intro

3. Getting started: Commands, Special characters, Environments, Math, Document Structure, Figures, Tables, Cross-referencing, Bibliographies

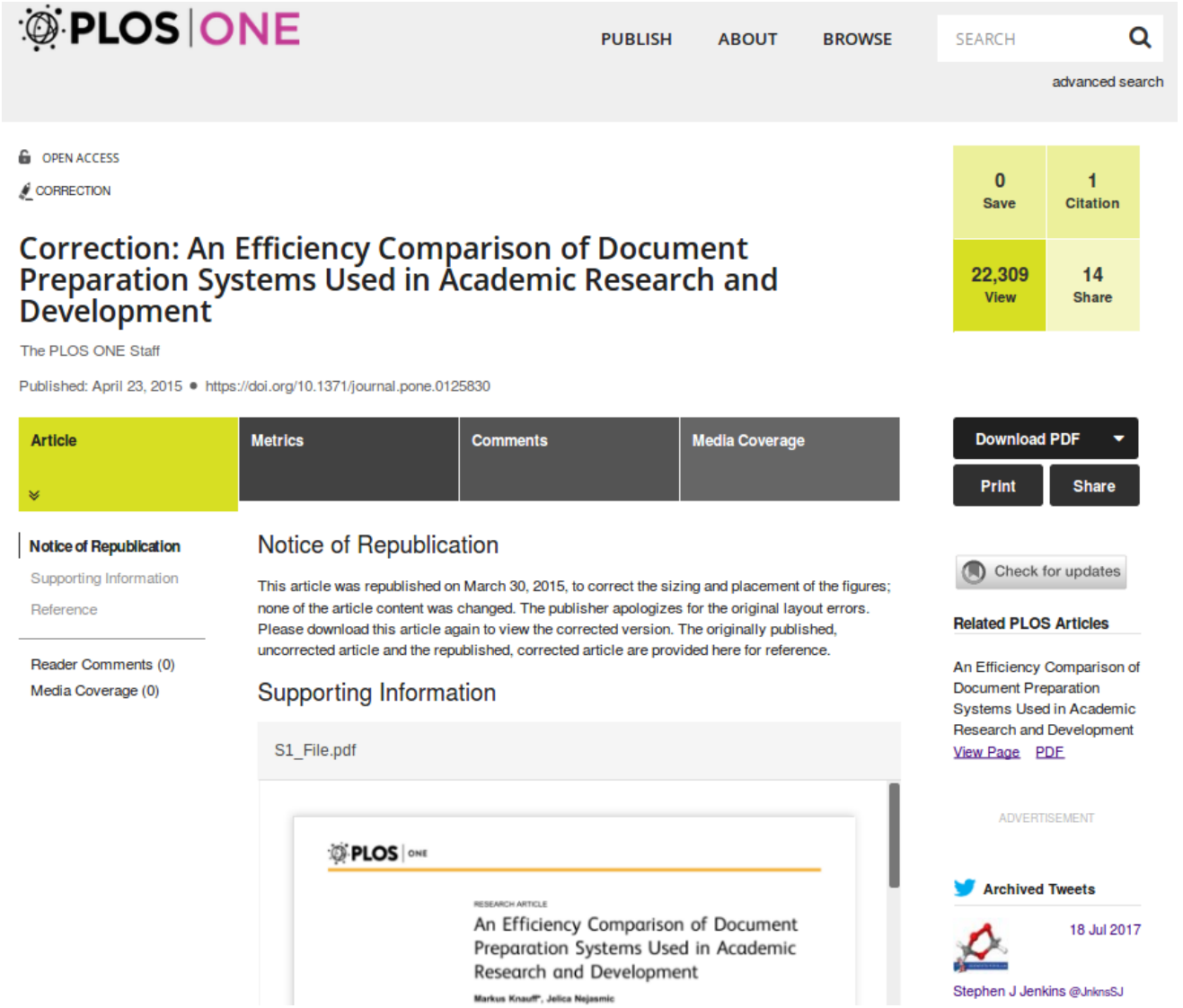
4. Project Structure: All the files, salfordthesis.cls

5. HELP!

1. Why LaTeX?

- It makes beautiful documents
  - Especially mathematics
- It was created by scientists, for scientists
  - A large and active community
- It is powerful & open — you can extend it
  - Packages for papers, presentations, spreadsheets, . . .
  - Ready made classes
- FREE!

1. Why LaTeX?



PLOS ONE | PUBLISH ABOUT BROWSE SEARCH advanced search

OPEN ACCESS

CORRECTION

Correction: An Efficiency Comparison of Document Preparation Systems Used in Academic Research and Development

The PLOS ONE Staff

Published: April 23, 2015 • https://doi.org/10.1371/journal.pone.0125830

Article | Metrics | Comments | Media Coverage

Notice of Republication
Supporting Information
Reference

Reader Comments (0)
Media Coverage (0)

Notice of Republication

This article was republished on March 30, 2015, to correct the sizing and placement of the figures; none of the article content was changed. The publisher apologizes for the original layout errors. Please download this article again to view the corrected version. The originally published, uncorrected article and the republished, corrected article are provided here for reference.

Supporting Information

S1_File.pdf

PLOS ONE

RESEARCH ARTICLE

An Efficiency Comparison of Document Preparation Systems Used in Academic Research and Development

Markus Knauff*, Jelica Nejasmic

0 Save | 1 Citation | 22,309 View | 14 Share

Download PDF | Print | Share

Check for updates

Related PLOS Articles

An Efficiency Comparison of Document Preparation Systems Used in Academic Research and Development
View Page PDF

ADVERTISEMENT

Archived Tweets

18 Jul 2017

Stephen J Jenkins @JnknsSJ

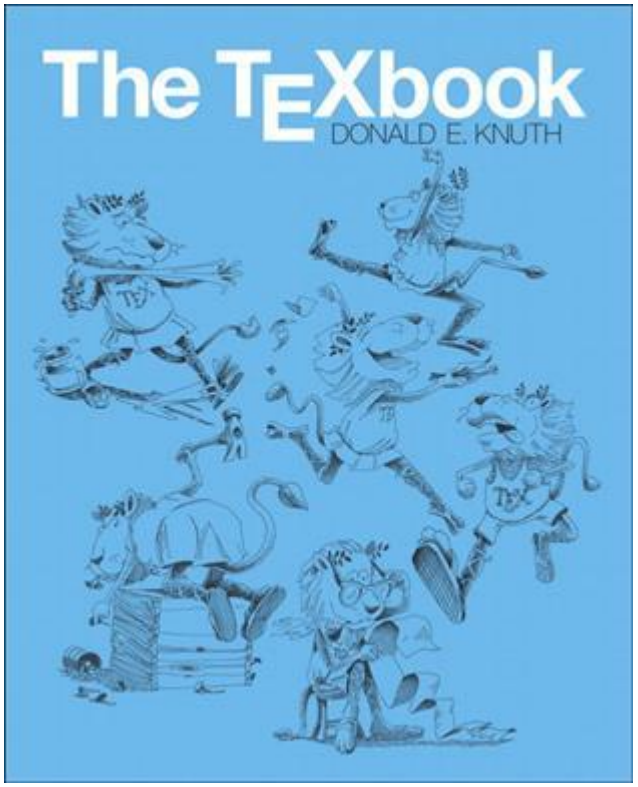
2. What is LaTeX?

English:
/ˈlɑːtɛx/ LAH-tekh or /ˈleɪtɛx/ LAY-tekh

Actually derived from Greek:
τέχνη (skill, art, technique)

2. What is LaTeX?

TeX written and developed by Donald Knuth in 1970's as a typesetting system



LaTeX extension by Lamport (and others) throughout the 1980s and 90s

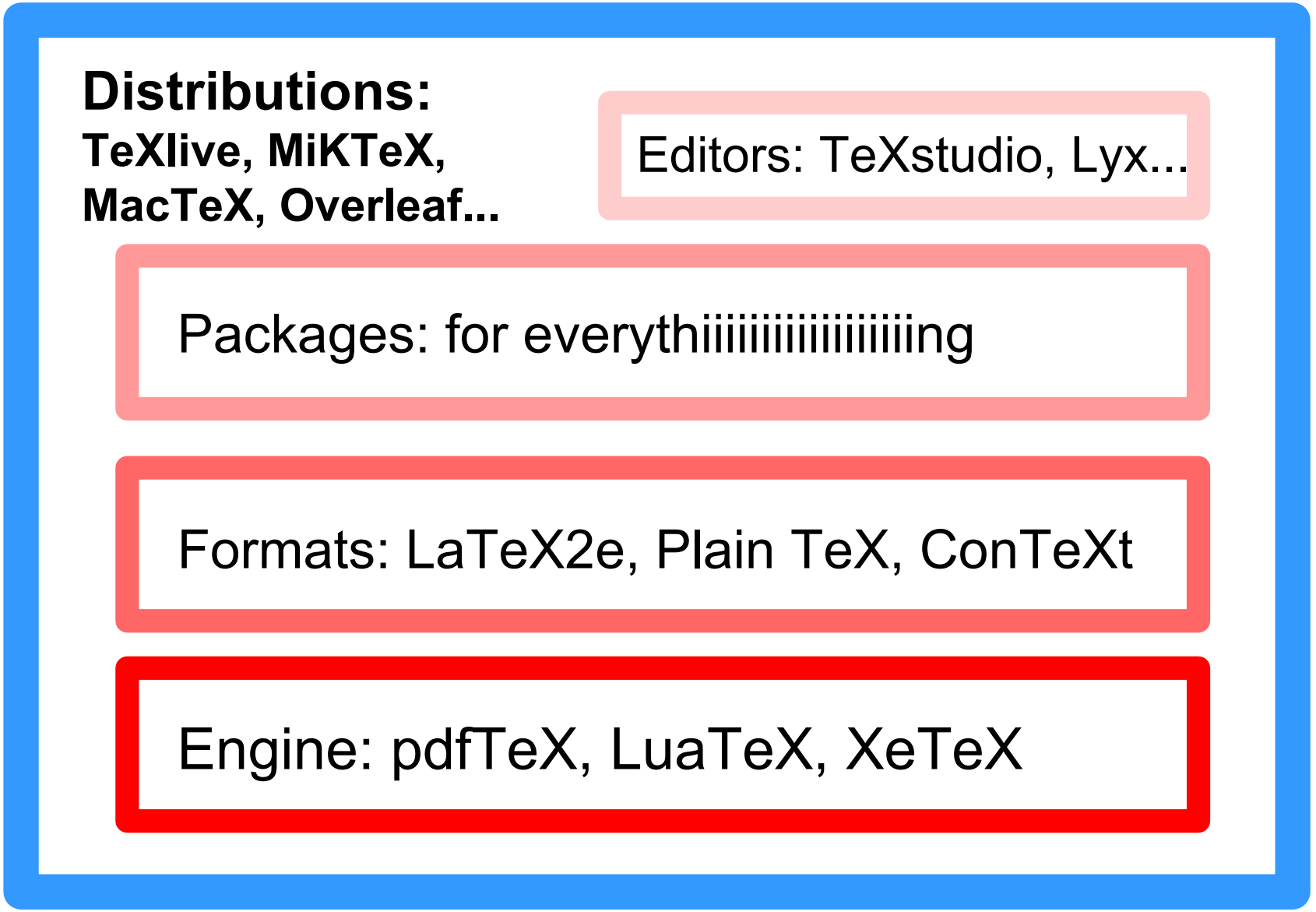
Current version (since 1994) known as LaTeX2e

2. What is LaTeX?

Separate presentation from content

- Use commands to describe ‘what it is’, not ‘how it looks’
  - WYSIWYG – MS Word, LibreWriter, Pages...
  - WYMIWYW – LaTeX, RMarkdown, HTML...
- Focus on your *content*
- Let LaTeX do its job

2. What is LaTeX?



2. What is LaTeX?

- Write documents in plain text with *commands* that describe its structure and meaning.
- LaTeX program processes text and commands to produce a formatted document.

```
The quick brown fox jumps over the \textit{lazy} dog
```

The quick brown fox jumps over the *lazy* dog

2. What is LaTeX?

```
Hello World.
\bye
```

```
$ pdftex hello.tex
```

```
\documentclass{article}
\begin{document}
Hello World.
\end{document}
```

```
$ pdflatex hello.tex
```

```
\starttext
Hello World.
\stoptext
```

```
$ context hello.tex
```

3. Getting started

- *Commands* start with a backslash \ .
- Every document starts with a \documentclass command.
- The *argument* in curly braces { } tells LaTeX what kind of
- document we are creating: an article.
- *Options* can be passed to *arguments* with square brackets []
- A percent sign % starts a comment

OL1_hello-world.tex

3. Getting started

- Type text between \begin{document} and \end{document}.
- Words are separated by one or more spaces
- Paragraphs are separated by one or more blank lines, or use \par.
- Quotations use back tick left, apostrophe right:

``text''	`text'
“text”	‘text’

3. Getting started

Special (or reserved) Characters:

% : comment
# : designate parameters for macros you create
& : array alignment (e.g. eqns. aligned on ‘=’)
$: mathematics

To write these *literally* we can use \ to *escape:*

\% \# \& \$

OL2_escape.tex

3. Getting started

Italics:
Your \LaTeX \textit{sexy}.

Bold:
Your latex \textbf{sexy}.

Underline:
Your latex \underline{sexy}.

Combine:
Your latex \textbf{\textit{sexy}}.

Emphasise:
\textit{Your latex \emph{sexy}}.
Your latex \emph{sexy}.

3. Getting started

```
\begin{itemize}
  \item One entry in the list
  \item Another entry in the list
\end{itemize}
```

```
\begin{enumerate}
  \item The labels consists of sequential numbers.
  \item The numbers start at 1 with every call to the enumerate
environment.
\end{enumerate}
```

Line breaks and spacing:

```
\\                    \newline                    \hfill \break
```

3. Getting started

LaTeX does not indent first paragraph by default:

```
\setlength{\parindent}{10ex} % an "ex" equals the length of the "x" in the current font
This is the text in first paragraph. This is the text in first paragraph. This is the text in first paragraph. \par
\noindent %The next paragraph is not indented
This is the text in second paragraph

\begin{flushleft}  % or centre or flushright
\LaTeX is a document preparation system and document markup language.
\end{flushleft}
```

3. Getting started

Environments

- Equation is an *environment* — a context.
- Command can produce different output in different contexts.
- `$ \Omega = \sum_{k=1}^{n} \omega_k $ % in line text`

- `\begin{equation}`
- `\Omega = \sum_{k=1}^{n} \omega_k % displayed`
- `\end{equation}`

- `\begin{math}...\end{math}`

3. Getting started

Mathematics

Let a and b be positive integers, and let $c = a - b + 1$.

Let $y = m x + b$ be \ldots

$y = C_2 x^2 + c_1 x + c_0$ % _ subscript and ^ superscript

$F_n = F_{n-1} + F_{n-2}$ % groups sub/superscripts with {}

```
\begin{equation}
x = \frac{-b \pm \sqrt{b^2 - 4ac}}
{2a}
\end{equation}
where $a$, $b$ and $c$ are \ldots
```

3. Getting started

Mathematics

Greek letters and other symbols:

_x005F_x0001_
http://www.rpi.edu/dept/arc/training/latex/LaTeX_symbols.pdf

https://www.overleaf.com/learn/latex/List_of_Greek_letters_and_math_symbols

OL3_math.tex

3. Getting started

Structuring a document

```
\begin{abstract}
Abstract goes here...
\end{abstract}

\section{Introduction}
\section{Method}
We investigate \ldots
\subsection{Sample Preparation}
\subsection*{Data Collection}
\section{Results}
\section{Conclusion}
```

OL4_structure.tex

3. Getting started

Figures

- Figures and Tables float in LaTeX
- htbp (here, top, bottom, page)
- Float package has an ‘exactly here’ method

```
\begin{figure}[htbp]\centering
    \includegraphics[width=0.8\linewidth]{figs/myimage.pdf}
    \caption[Caption as it appears in ToC]{Long caption
about my beautiful image.}
    \label{fig:myimage}
\end{figure}
```

3. Getting started

Figures

```
\usepackage{rotating}

\begin{sidewaysfigure}[htbp]\centering
    \includegraphics[width=0.8\linewidth]
{figs/myimage.pdf}
    \caption[Caption as it appears in ToC]{Long
caption about my beautiful image.}
    \label{fig:mysidewaysimage}
\end{sidewaysfigure}
```

3. Getting started

Tables
Basically, a nightmare in LaTeX. Use:

https://www.tablesgenerator.com/

3. Getting started

Cross-referencing

- Use \label and \ref for automatic numbering.
- The amsmath package provides \eqref for referencing equations.

```
\section{Method}
\label{sec:method}

In section \ref{sec:method} we defined \ldots
See Figure \ref{fig:bill} for a weird picture of Bill Gates.
```

3. Getting started

Bibliographies

- Most popular package is natbib
- Takes bibtex format - .bib files
  - Can be exported from most citation managers

```
@article{brant2000phylo,
	title={Phylogeny of species of the genus \textit{Litomosoides}
({N}ematatoda: {O}nchocercidae): evidence of rampant host switching},
	author={Brant, Sara V and Gardner, Scott L},
	journal={Journal of Parasitology},
	volume={86},
	number={3},
	pages={545--555},
	year={2000}
}
```

3. Getting started

Bibliographies

\citep{brant2000phylo}	(Brant & Gardner, 2000)
\citet{brant2000phylo}	Brant & Gardner (2000)
\citealt{brant2000phylo}	Brant & Gardner 2000
\cites{brant2000phylo}	Brant & Gardner’s (2000)
\citeay{brant2000phylo}	Brant & Gardner, 2000

3. Project structure

Handling a thesis

- School guidelines – salfordthesis.cls
  - Sans serif,
  - 12pt,
  - one-sided,
  - Minimum 1.5 line spacing
  -
- Files and directories
- Using a ‘main’ control file

I’m gonna practice my LaTeX… bye!