

# Using L<sup>A</sup>T<sub>E</sub>X

## A Primer for Linguists

6 October 2009

Denise Wood  
d.n.wood@sms.ed.ac.uk

# What Will This Talk Cover?

- 1 Introduction
- 2 L<sup>A</sup>T<sub>E</sub>X Commands
- 3 Time-Savers
- 4 L<sup>A</sup>T<sub>E</sub>X Frontends
- 5 Compiling L<sup>A</sup>T<sub>E</sub>X
- 6 Conclusion

# What is L<sup>A</sup>T<sub>E</sub>X ?

L<sup>A</sup>T<sub>E</sub>X is a markup language used for typesetting documents.

- 1 Write up your document in plain text
- 2 Add short commands to tell the computer how to format the document
- 3 When you're finished, the document is compiled and output as a PDF

# How does the output look?

L<sup>A</sup>T<sub>E</sub>X follows rules to writing nice-looking documents, including:

- Wide Margins
- Indentation
- Image placement
- Ligatures and kerning

L<sup>A</sup>T<sub>E</sub>X knows everything in the Style Guide!

# Typesetting of L<sup>A</sup>T<sub>E</sub>X - Ligatures

A white rectangular box containing the text "fire flower fjörd" in a serif font. The words "fire" and "fjörd" are in red, while "flower" is in black. The spacing between the words is irregular, with "fire" and "flower" being closer together than "flower" and "fjörd".

Figure: Microsoft Word

A white rectangular box containing the text "fire flower fjörd" in a serif font. The words "fire" and "fjörd" are in red, while "flower" is in black. The spacing between the words is uniform and consistent with standard typesetting.

Figure: L<sup>A</sup>T<sub>E</sub>X

(images taken from <http://nitens.org/taraborelli/latex>)

Things I don't like about Word

- Sometimes the bullets print funny when converting the document
- I can't write in IPA easily and have it match the rest of my text
  - ɛkspləneɪən
  - ai wɪt nat dʒʊdʒ yu

Figure: Microsoft Word

Things I don't like about Word

- sometimes the bullets print funny when converting the document
- I can't write in IPA easily and have it match the rest of my text
  - ɛkspləneɪən
  - ai wɪt nat dʒʊdʒ yu

Figure: L<sup>A</sup>T<sub>E</sub>X

# Writing L<sup>A</sup>T<sub>E</sub>X commands

L<sup>A</sup>T<sub>E</sub>X commands are not difficult. Primarily, they consist of:

Short Commands Perform this command over a few words

```
\command{some text}
```

Section Commands Perform this command over a small bit of text

```
\begin{command}
```

```
block of text
```

```
\end{command}
```

Document-wide Commands Perform this command throughout the document unless I later tell you to stop

```
\command document of text
```

# Sample Commands

*Emphasized Text* `\emph{Emphasized Text}`

**Bold Text** `\textbf{Bold Text}`

Long Quote `\begin{quote}`

Double-spacing `\doublespacing`

Centering `\centering`

But before we get carried away...



# Creating a new L<sup>A</sup>T<sub>E</sub>X document

Any L<sup>A</sup>T<sub>E</sub>X document will need a header and a body.

The Header tells the document what it is.

The Body is where your content goes.

# Headers

For my linguistics projects, my headers generally look like this:

```
\documentclass[a4paper,12pt]{report}
\usepackage{tipa,graphicx,setspace,mircotype}
\usepackage[left=2in,right=1in]{geometry}

\usepackage{fancyhdr}
    \pagestyle{fancy}
    \rhead{s0675940}
    \lhead{shortened project name here}
    \cfoot{\thepage}

\title{project name here}
\author{Denise Wood \and s0675940}
\date{date that the project is due}
```

# Headers

Setting the margins is also in the header.

The default of L<sup>A</sup>T<sub>E</sub>X is roughly 1-inch-wide margins.

Narrow Margins `\usepackage{fullpage}`

Specific Margin Widths

```
\usepackage[left=2in,right=1in]{geometry}
```

# Body

After the headers, all of the content of the document goes between document tags.

```
\begin{document}
```

```
All of the content of your document goes here
```

```
\end{document}
```

## Example L<sup>A</sup>T<sub>E</sub>X Body — Markup

```
\section*{The use of -ing versus -in'?'}  
This section covers variations in realisations  
of word-final $\langle -ing \rangle$ in English.
```

```
Recent studies in varieties of English  
show that there is a strong correlation between  
the use of the \textipa{/In/} variant in the  
lower classes, such as in Norwich, England and  
Chicago, USA \cite[168]{Meyerhoff}.
```

# Example L<sup>A</sup>T<sub>E</sub>X Document — Output

## The use of -ing versus -in' ?

This section covers variations in realisations of word-final  $\langle -ing \rangle$  in English.

Recent studies in varieties of English show that there is a strong correlation between the use of the /in/ variant in the lower classes, such as in Norwich, England and Chicago, USA [Meyerhoff, 2006, 168].

# Images

Include in the header:

```
\usepackage{graphicx}
```

Include in the document:

```
\begin{figure}[htbp]
  \includegraphics{UoE_crest.png}
  \caption{University of Edinburgh Crest}
  \label{edcrest}
\end{figure}
```

To later cite this image:

```
See figure: \ref{edcrest}
```

# Images



Figure 16: University of Edinburgh Crest

See figure: 16



# Time-Savers

Reason #1 for using L<sup>A</sup>T<sub>E</sub>X is:

# IT'LL SAVE YOU TIME!

(And look more professional when you've finished)

# Lists

```
\begin{enumerate}  
  \item Enumerated List  
\end{enumerate}
```

```
\begin{itemize}  
  \item Itemized List  
    \subitem Subcategory  
\end{itemize}
```

```
\begin{description}  
  \item[Word] Explanation  
\end{description}
```

## 1. Enumerated List

- Itemized List

Subcategory

**Word** Explanation

# International Phonetic Alphabet

Requires the tipa package: `\usepackage{tipa}`

---

- Orthography: Explaining Phonetics
  - Orthography: `Explaining Phonetics`
- Citation Form: `/,ɛkspl'ɛɪnɪŋ fɹ'nɛtɪks/`
  - Citation Form: `\textipa{/"/"Eksp1"ElInINf2"nEtIks/}`
- Connected Speech: `[ɛksplɛɪnənfnɛrɪks]`
  - Connected Speech: `\textipa{[Eksp1ElIn@nfnERIkS]}`

# Glosses

Requires the linguex package: `\usepackage{linguex}`

---

<code>\ex. Hola, mi amigo\\</code>	(1)	Hola, mi amigo
<code>    Hello my friend \\</code>		Hello my friend
<code>\ex. Bonjour, mon ami\\</code>	(2)	Bonjour, mon ami
<code>    Hello my friend\\</code>		Hello my friend

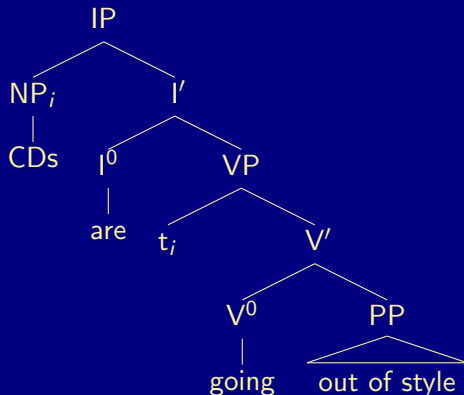
# Tree diagrams

Requires the qtree package

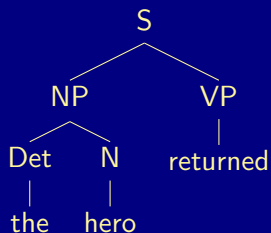
```
\usepackage{qtree}
```

---

```
\Tree [.IP
 [ CDs ].NP_i[.I\1
 [ are ].I^0 [.VP t_i [
 [ going ].V^0
 \qroof{out of style}
 .PP ].V\1 ].VP ].I\1 ]
```



# Tree diagrams - a simpler example



Standard bracket notation:  $[S[NP[Det\ the][N\ hero]][VP\ returned]]$

```
\Tree [.S [.NP [ the ].Det [ hero ].N ] [ returned ].VP ]
```

# Tables

	/in/	/iŋ/	TOTAL
Adjective	7	5	12
Expletive	3	0	3
Noun	6	4	10
Verb	69	35	104
TOTAL	85	44	129

Table: Usage if /in/ or /iŋ/  
by Part of speech

- Tables in L<sup>A</sup>T<sub>E</sub>X are automatically adjusted to fit the contents of the table
- Tables will also centre themselves on the page rather than be inline

# Tables

```

\begin{table}
\begin{tabular}{l|ccr}
& \textit{In} & \textit{IN} & TOTAL \\
\hline
Adjective & 7 & 5 & 12 \\
Expletive & 3 & 0 & 3 \\
Noun & 6 & 4 & 10 \\
Verb & 69 & 35 & 104 \\
TOTAL & 85 & 44 & 129 \\
\end{tabular}
\caption{Usage of \textit{In} or
\textit{IN} by Part of speech}
\label{POS}
\end{table}

```



# Automatic Reference Pages

L<sup>A</sup>T<sub>E</sub>X can create Reference pages with simple commands

Title page `\maketitle`

Tables of Contents `\tableofcontents`

Bibliography `\bibliography{mybibliography.bib}`

Bibliography Style `\bibliographystyle{jmb}`

# Automatic Reference Pages - Title Pages

## Variations in Realisations of Word-Final ⟨*-ing*⟩ in Scots English

Denise Wood      s0675940

20 March 2008

The realisations of the morpheme ⟨*ing*⟩ is one of the more widely studied linguistic segments in the English Language The two common forms Present Day English forms are /ɪŋ/ and /ɪŋ/. Quite often, with the use of /ɪŋ/

# Automatic Reference Pages - Bibliography

## Bibliography

[Daly, 2007] Daly, M. (2007). *Nottingham Modern Languages Publications Archive*, .

[Hazen, 2006] Hazen, K. (2006). *Encyclopedia of Language and Linguistics* chapter IN/ING Variable. Oxford: Elsevier.

[Labov, 1989] Labov, W. (1989). *Language Variation and Change*, chapter The Child as Linguistic Historian. Cambridge University Press.

[Meyerhoff, 2006] Meyerhoff, M. (2006). *Introducing Sociolinguistics*. Routledge.

[Trudgill, 2000] Trudgill, P. (2000). *Sociolinguistics: An introduction to language and society*. Penguin Books, fourth edition.

# Including Other Documents

In the main document:

```
\input{filename}
```

In the document to be included:

```
Document Contents
```

# Including Other Documents

```
\section{Results}
\input{results.tex}
```

```
\appendix
\section{Transcription}
I have taken the extra steps of transcribing the
dialogue for ease of reference. The transcription
follows below:
```

```
\input{transcription.tex}
```

# L<sup>A</sup>T<sub>E</sub>X frontends

For writing L<sup>A</sup>T<sub>E</sub>X, any text editor will do with some form of L<sup>A</sup>T<sub>E</sub>X compiler is necessary to compile it.

There are many frontends and compilers available:

- LyX (any OS)
- MikT<sub>E</sub>X with WinEdt (Windows XP, Vista)
- TeXShop (Mac OSX)
- Kile (Linux, KDE)
- And Many Others!

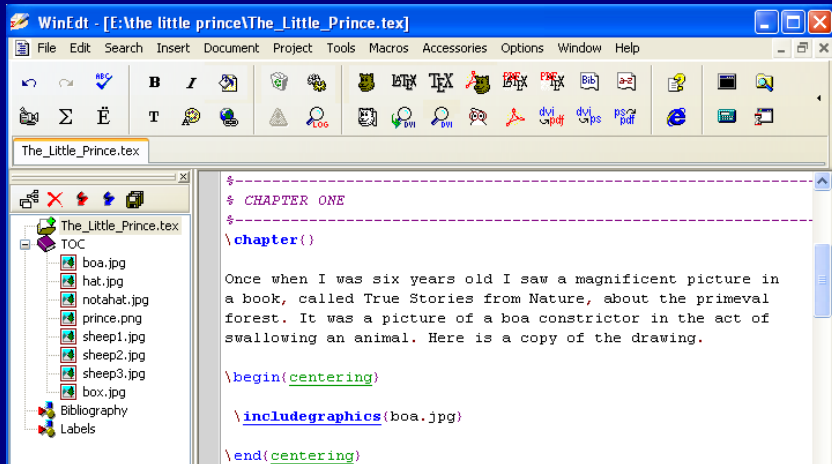
# MikT<sub>E</sub>X with WinEdt (Windows)

MikT<sub>E</sub>X and WinEdt are available on the University computers.

For a how-to guide on using WinEdt, check their website at  
[www.winedt.com](http://www.winedt.com)

Click on Winedt and TeX for a step-by-step guide

# WinEdt for Windows



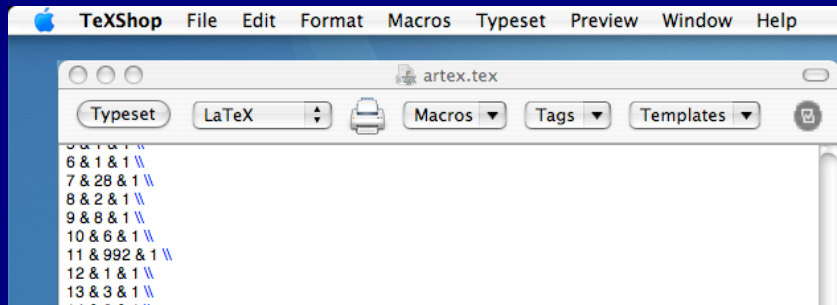


# TeXShop

T<sub>E</sub>XShop is available for Mac users

For a how-to guide on using T<sub>E</sub>XShop, check their website at  
**[www.uoregon.edu/ koch/texshop](http://www.uoregon.edu/~koch/texshop)**

# TeXShop for Mac



# Compiling L<sup>A</sup>T<sub>E</sub>X

Some notes about compiling:

- You must compile the L<sup>A</sup>T<sub>E</sub>X code twice to match up references
- Different frontends have different ways of compiling - use PDF LaTeX
- Don't worry about problems compiling - there IS a solution

## Run PDF LaTeX

```

writel [t:More little prince,the_little_prince.tex]
PDFLaTeX ...
[
(C:\Program Files\MiKTeX 2.6\tex\latex\graphics\trig.sty)
(C:\Program Files\MiKTeX 2.6\tex\latex\font\fontspec\fontspec.cfg)
(C:\Program Files\MiKTeX 2.6\tex\latex\graphics\pdfTeX.def)
No file the_Little_Prince.aux.
(C:\Program Files\MiKTeX 2.6\tex\context\base\supp-pdf.tex)
>Loading HPS to PDF converter (version 2.6.09.02).
]
] {l{pfonts.map}} {2}
Chapter 1.
<boa.jpg, id=11, 302.12075pt x 103.68625pt> <use boa.jpg>
<hat.jpg, id=12, 241.90375pt x 80.3pt> <use hat.jpg> [3 <boa.jpg> <hat.jpg>]
<notahat.jpg, id=16, 242.9075pt x 92.345pt> <use notahat.jpg> [4 <notahat.jpg>]
Chapter 2.
<prince.png, id=21, 281.05pt x 290.09376pt> <use prince.png> [5]
<sheep1.jpg, id=25, 120.48pt x 119.42375pt> <use sheep1.jpg>
Underfull \vbox (badness 10000) has occurred while \output is active [6 <prince
.png>] <sheep2.jpg, id=30, 126.4725pt x 119.44624pt> <use sheep2.jpg>
<sheep3.jpg, id=31, 113.42375pt x 78.3875pt> <use sheep3.jpg>
<box.jpg, id=32, 200.75pt x 103.38625pt> <use box.jpg>
Underfull \vbox (badness 10000) has occurred while \output is active [7 <sheep
1.jpg> <sheep2.jpg> <sheep3.jpg>] [8 <box.jpg>]
Chapter 3.
[9] [10] [11] [12] <The_Little_Prince.aux>
(see the transcript file for additional information)(C:\Program Files\MiKTeX 2.
6\fonts\type1\bluesky/cm/cmbs12.mf)
by Katherine Woods

\bigskip

\textbf{(TO LEON WERTH)}

I ask the indulgence of the children who may read this book for dedicating it to a grown-up. I have a serious
reason: he is the best friend I have in the world. I have another reason: this grown-up understands everything, even
books about children. I have a third reason: he lives in France where he is hungry and cold. He needs cheering up.
If all these reasons are not enough, I will dedicate the book to the child from whom this grown-up grew. All
grown-ups were once children--although few of them remember it. And so I correct my dedication:

\textbf{(TO LEON WERTH)\ WHEN HE WAS A LITTLE BOY)}

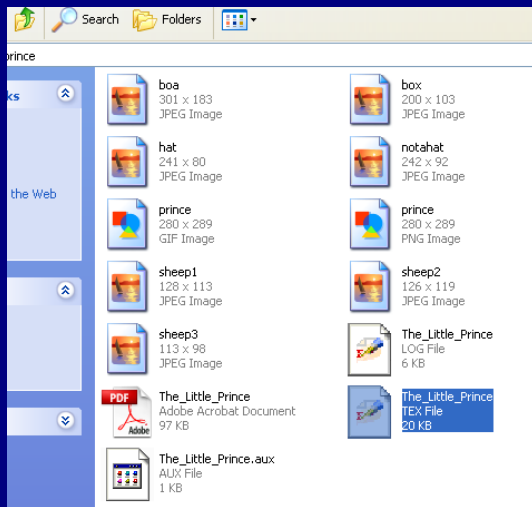
-----
$ CHAPTER ONE
-----
\chapter{}

Once when I was six years old I saw a magnificent picture in a book, called True Stories from Nature, about the primeval
forest. It was a picture of a boa constrictor in the act of swallowing an animal. Here is a copy of the drawing.

\begin{centering}
\includegraphics{boa.jpg}
\end{centering}

```

# Files Created



# L<sup>A</sup>T<sub>E</sub>X errors

There are 3 different types of problems that L<sup>A</sup>T<sub>E</sub>X will notify you about:

- 1 Errors - L<sup>A</sup>T<sub>E</sub>X will not compile
- 2 Warnings - L<sup>A</sup>T<sub>E</sub>X will compile - maybe ignore
- 3 Badboxes - L<sup>A</sup>T<sub>E</sub>X will compile - can be ignored

When in doubt - query “LaTeX (problem)”. The internet is your friend.

# Resources

LaTeX cheat-sheet: <http://stdout.org/winston/latex/latexsheet-a4.pdf>

TIPA chart: [www.ling.ohio-state.edu/events/lcc/tutorials/tipachart/tipachart.pdf](http://www.ling.ohio-state.edu/events/lcc/tutorials/tipachart/tipachart.pdf)

Tipa Manual: <http://home.uchicago.edu/jkirby/latex/tipaman.pdf>

Trees tutorial: [www.ling.upenn.edu/advice/latex/qtrees/qtreenotes.pdf](http://www.ling.upenn.edu/advice/latex/qtrees/qtreenotes.pdf)

Linguex Manual: <http://mirror.cps.cmich.edu/ctan/macros/latex/contrib/linguex/linguex-doc.pdf>

# Conclusion

If you have any questions about L<sup>A</sup>T<sub>E</sub>X or this presentation, feel free to ask now or e-mail me at:

[d.n.wood@sms.ed.ac.uk](mailto:d.n.wood@sms.ed.ac.uk)

If you'd like a copy of these slides, just send me an e-mail.



Thanks for listening!