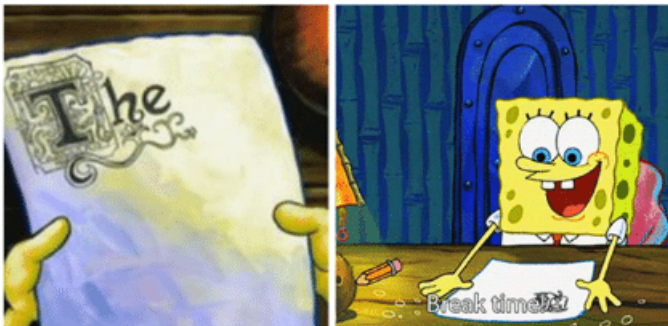


Using L^AT_EX and Overleaf for Writing in the Arts, Humanities, and Social Sciences

Ellen Roberts

Writing.

Me trying to write an essay



Writing?

Outline of Workshop

What is \LaTeX ?

Why use \LaTeX ?

Uses of \LaTeX

Hands On:
Overleaf

What is L^AT_EX?

- L^AT_EX or 'Lay-tech'
- Document preparation system
- NOT a word processor (WYSISYG)



What is L^AT_EX (continued)?

- Text with commands:

Beware the `\textbf{Jabberwock}`, my son!

Beware the **Jabberwock**, my son!

Why use L^AT_EX?



L^AT_EX

- Focus on content
- Easy to use (once you learn!)
- Professional looking formatting
- Style changes
- Journal templates

Why use L^AT_EX?

- Integration* with reference managers
- Coding gateway (?!)
- Large community - T_EX Users Group (TUG)

* integration ease can vary



Why use L^AT_EX (continued)?



Examples of L^AT_EX documents (1)



Title of your thesis

First (Middle) Last name, BSc (Hons), MRes
School of Computing and Communications
Lancaster University

A thesis submitted for the degree of
Doctor of Philosophy

August, 2020

Lancaster templates

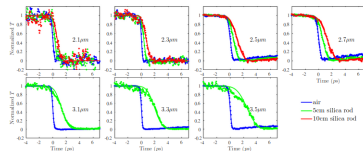


Figure 3. Normalised intensity of the transmitted signal at wavelengths ranging from 2.1 to 3.5 μm . The dots represent the raw measurements and the solid lines show their smoothing. Blue colour represents the result of the signal passing through free space without a silica rod; green - with a 5 cm rod; red - with a 10 cm rod.

$$\tau(\omega) = \tau_0 \sqrt{1 + \frac{8a(\omega)L\text{Im}2}{\tau_0^2}} \quad (2)$$

where $\tau_0 = 100$ fs is the duration of the pulse before entering the rod; L is the rod's length; $a(\omega) \equiv \frac{d^2k}{d\omega^2}$ is a frequency-dependent parameter related to GVD of the silica rod, where a wave-vector, k , depends on a frequency, ω , according to a dispersion relation of silica. In the following we show that the parameter $a(\omega)$ can be reconstructed from the ToF measurement shown in Fig. 3.

The signal recorded by the MCT detector can be presented as a convolution of the system response function $g(\omega; t - t')$ with the signal pulse after the rod $f(\omega; t')$:¹⁷

$$(f(\omega) * g(\omega))(t) = \int_0^\infty f(\omega; t')g(\omega; t - t')dt'. \quad (3)$$

Because the response function, $g(\omega; t)$, is known (shown as the blue line in Figs. 3), the signal pulse emerging from the rod, $f(\omega; t)$, can be reconstructed using a deconvolution procedure.¹⁸ For the deconvolution we used the smoothed results, shown as the solid lines, to avoid problems related to the noise present in the input functions. The reconstructed pulse is shown in Figs. 4 for different signal frequencies and rod lengths. It can be seen clearly by comparison of Fig. 4(a) and (b) that the pulse duration increases as the length of the rod was doubled. As well, the pulse broadens as the wavelength increases as expected for silica, a material with negative chromatic dispersion at this wavelength range.¹⁹

Furthermore, using Eq. 2 we calculated the GVD parameter, a , which is shown in Fig. 5(b) besides the corresponding pulse duration (Fig. 5(a)). To confirm the validity of our result it is informative to compare them to the literature. However, the published data has very limited information on GVD in the SWIR/MWIR range measured by the ultrafast pulses. Thus, we were restricted to judge our results against those made with a Continuous Wave (CW) source published elsewhere.^{19–21} It can be seen that our ToF measurements using the ultrafast light laser reproduce well qualitatively the GVD which tends to increase as a function of the wavelength. However, the values obtained by us are greater by a factor of ~ 2.5 in comparison to the CW results. At this stage, it is not clear whether the discrepancy arises from significantly different light sources or dissimilarity of

Research gate

Examples of L^AT_EX documents (2)

152987

3.3 Processing the Dataset

by all those working with historical texts.

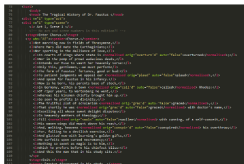


Figure 6: Example of VARD2 standardisation carried out on *Doctor Faustus* (Baron 2018). Usefully, the software leaves the original spelling within an `span` tag so as not to lose textual richness. (Note: text is here to be XML encoded in order to be processed by VARD).

VARD is not the only approach to processing historical texts. In their paper, Yang and Eisenstein (2016) discuss other options available: these include spelling standardisers such as VARD but also natural language processing methods such as unsupervised domain adaptation. Importantly, they argue that spelling normalisation ‘fails to account for changes in usage and vocabulary’, which the unsupervised domain adaptation does consider (Yang and Eisenstein 2016). Briefly, unsupervised domain adaptation involves the identification of ‘pivot features’ which ‘occur frequently in the two domains and behave similarly in both’ (Blitzer et al. 2006). By observing ‘good mappings’ between the source and target domains, the features can then be used to estimate occurrences and consequently train the algorithm (Blitzer et al. 2006). Notably, this type of standardisation falls under ‘machine learning’ and involves complex coding and processing: something that may make this technique less accessible to scholars than VARD.

In summary, any project that deals with early modern texts should be prepared to undergo textual processing to ensure that the text is readable in modern software. There are a wide variety of options and tools available to complete these processing tasks, many of which are not discussed here. Yet, it is through using these tools that we are left with a ‘clean’ and machine-readable text ready for research.

3.3.3 Possible Methods and Variables

The final section of this chapter deals with the larger question of research methods, and our last

4

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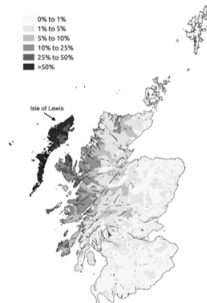


Fig. 7. Map showing the concentration of Gaelic speakers in Scotland according to the 2011 National Census. Attribution: by Shalimar / Open work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=11989322>. Original figure in colour, converted to grayscale here.

2.2. Data recording and stimuli

Simultaneous acoustic and ultrasound tongue imaging data were recorded in a community centre or at the speaker’s workplace. The acoustic signal was recorded using a BeyerDynamic Opus 50 headset microphone, which was preamplified and digitised using a Sound Devices USBPre2 audio interface at 44.1 kHz with 16 bit quantisation. Simultaneous ultrasound data were recorded using a Tolkened MiroUS system, with a 64 element probe of 20 mm radius. We used a 2 MHz probe frequency, 80 mm depth, 90% field of view and 5.7 scan lines, which resulted in a frame rate of ~102 Hz. The probe was stabilised using an Articulate Instruments metal headrest (Articulate Instruments, 2008). The occluded plane for each speaker was imaged by them biting on a bite plate placed

behind the upper incisors and pushing their tongue up against it. Synchronisation between audio and ultrasound data was achieved using the frame-level TTL pulses emitted by the ultrasound scanner. Data presentation and recording was handled using the Articulate Assistant Advanced software (Articulate Instruments, 2018).

The stimuli used for this study are shown in the Appendix (Tables 6–10). We aimed to capture laterals, nasals and rhotics in word-initial and word-final position in three vowel contexts where possible: /a u i/. This was not always possible due to the historical development of palatalisation in high front vowels. For example, there are no velarised nasals in the context of /i/ in readily known words. The plain nasals developed from contexts of historical /i/, and in word-initial position they still occur in contemporary lexicon contexts. For an over-

Examples of L^AT_EX documents (4)

The image shows a PG Tips presentation slide titled "Examples of L^AT_EX documents (4)". The slide is split into two main sections: a source code editor on the left and a preview window on the right.

Source Code (Left):

```
129 \begin{frame}
130 \frametitle{Examples of {\fontfamily{qta}\selectfont LATEX} documents (3)}
131 \centering
132 \begin{columns}
133 \column{0.5\textwidth}
134 \includegraphics[scale=0.16]{bible_2.png}
135 \\\tiny\hrule[https://github.com/raphink/geneve_3564/blob/master/geneve_3564.tex]{GitHub: Raphinik}}
136 \column{0.5\textwidth}
137 \includegraphics[scale=0.2]{dictionary_2.png}
138 \\\tiny\hrule[https://github.com/chejnik/LaTeX-ICSS]{GitHub: chejnik}}
139 \end{columns}
140 \end{frame}
141
142 \begin{frame}
143 \frametitle{Examples of {\fontfamily{qta}\selectfont LATEX} documents (4)}
144 \centering
145 \includegraphics[scale=0.4]{This_presentation.png}
146 \text{This presentation!}
147 \end{frame}
148
149 \section{Uses of {\fontfamily{qta}\selectfont LATEX}}
150 \begin{frame}
151 \frametitle{Ways to use {\fontfamily{qta}\selectfont LATEX}}
152 \begin{columns}
153 \column{0.5\textwidth}
154 \begin{itemize}
155 \item Online editors
156 \begin{itemize}
157 \item Overleaf
158 \item ShareLaTeX
159 \end{itemize}
160 \end{itemize}
161 \column{0.5\textwidth}
162 \begin{itemize}
163 \item Offline editors -
164 \begin{itemize}
165 \item System dependent:
166 \begin{itemize}
167 \item Windows:
168 \begin{itemize}
169 \item Mac:
170 \item Linux:
171 \end{itemize}
172 \end{itemize}
173 \item Both have benefits and drawbacks:
174 \begin{itemize}
175 \item e.g. access, updates, packages
176 \end{itemize}
177 \end{itemize}
178 \end{itemize}
179 \end{columns}
180 \end{frame}
```

Preview Window (Right):

The preview window shows the rendered presentation slide. It has the same title "Examples of L^AT_EX documents (4)" and the same content as the source code. The slide is titled "This presentation!" and lists the following:

- Online editors
 - Overleaf
 - (ShareLaTeX)
- Offline editors - System dependent:
 - Windows:
 - Mac:
 - Linux:

The preview window also shows a sidebar with a search bar and a list of slides, including "What is L^AT_EX?", "Why use L^AT_EX?", and "Ways to use L^AT_EX".

This presentation!

Ways to use L^AT_EX



- Online editors
 - Overleaf
 - (ShareLaTeX)
- Offline editors - System dependent:
 - Windows
 - Mac
 - Linux
- All have benefits and drawbacks:
e.g. access, updates, packages

Overleaf

- Online \LaTeX editor
- Combined with ShareLaTeX to become Overleaf v2
- Access anywhere
- Can link to Zotero (and Mendeley) (pro/institutional feature but can work-around!)
- Make sure to save offline too



Overleaf: one word of warning!

- As a server-based service it can go down (albeit rarely: 99.82% up time in last 90 days - <https://status.overleaf.com>)
- Recommendation: download your work regularly/back up to a cloud service



SUBSCRIBE TO UPDATES

Site down Subscribe

Update - Our team is still actively working to identify the source of the issue
May 14, 2025 - 09:35 UTC

Update - Our team is continuing to work on identifying the source of the issue
May 14, 2025 - 09:01 UTC

Update - Our team is still working to identify the source of the issue.
May 14, 2025 - 08:34 UTC

Investigating - The site is currently down. Engineers are investigating. We will update as soon as possible.
May 14, 2025 - 06:40 UTC



Hands On!

1. Create an Overleaf account: www.overleaf.com.
2. Creating our first document.

L^AT_EX Syntax: VERY IMPORTANT

1. Commands and arguments: e.g.

`\textbf{}`

2. Environments: e.g.

`\begin{list}`

`\item`

`\end{list}`

3. Packages: e.g.

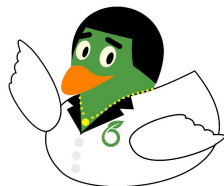
`\usepackage{comment}`

4. Special characters:

`‘ ’ ‘ ‘ ’ ’` – quotation marks (use of backtick)

`\%` – percentage signs

`%` – comments



Basic formatting...

1. **bold**: `\textbf{}`
2. *italics*: `\textit{}`
3. *emphasis*: `\emph{}`
4. centering: `\centering{}`
5. paragraphs: `\par`
6. new lines: `\\`
7. underline: `\underline{}`



Basic formatting...

lists: e.g.

- item1
- item2

```
\begin{itemize}  
  \item item1  
  \item item2  
\end{itemize}
```

numbered lists: e.g.

1. item1
2. item2

```
\begin{enumerate}  
  \item item1  
  \item item2  
\end{enumerate}
```



Small challenge...

Create the following in your \LaTeX document:

A numbered list containing the three words describing your research area.

The first item is in bold.

The second item is underlined.

The third item is in italics.

Beneath the list, write a sentence to outline your current research project.

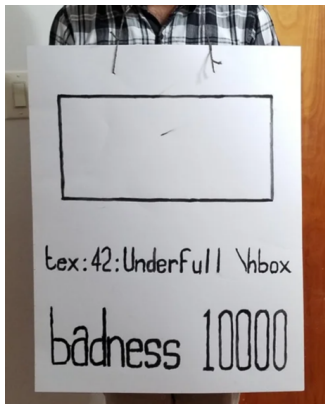
Small challenge... an example

1. **computational**
2. quantitative
3. *historic*

My research is on the linguistic variation between Shakespeare's genres.

```
\begin{enumerate}
  \item \textbf{computational}
  \item \underline{quantitative}
  \item \textit{historic}
\end{enumerate}
My research is on the linguistic \\\
variation between Shakespeare's \\\
genres.
```

Errors



Reddit

- Errors will happen!
- DON'T PANIC!
- Options for troubleshooting:
 1. Check your syntax
 2. Brackets?
 3. error or warning?
 4. comment out lines
 5. StackExchange
 6. Copy and paste error into google

Research-specific features in \LaTeX

We want to create a beautiful looking thesis/journal article...

What do we need to include?



Document styles in L^AT_EX

- Document types:

```
\documentclass[a4paper]{report}
```

OR

```
\documentclass[a4paper]{book}
```

OR

```
\documentclass[a4paper]{article}
```

- Templates from the journal?

<https://www.overleaf.com/latex/templates/tagged/academic-journal>

Document Structure

- Title page:
`\begin{titlepage} ... \end{titlepage}`
- Abstract:
`\begin{abstract} ... \end{abstract}`
- Chapters and sections:
`\chapter{}`
`\section{}`
- Subsections:
`\subsection{}`
`\subsubsection{}`
`\paragraph{}`

Content

- Text!
- Images
- Tables
- Equations
- Diagrams
- Acronyms
- Discipline specific things e.g. phonetics symbols, etc

Putting it all together...



Activity: Let's re-create a word document in \LaTeX
www.github.com/AllenRoberts

Adding graphics and tables



Add graphics using *graphicx* package

```
\usepackage{graphicx}
```

```
\begin{figure}
```

```
\centering
```

```
\includegraphics{cat.jpg}
```

```
\caption{Felix Catus}
```

```
\label{fig:felixcatus}
```

```
\end{figure}
```

Adding graphics and tables

```
\begin{table}[]  
\centering  
  \begin{tabular}{|c|c|}  
    \hline  
    1 & nose \\  
    2 & eyes \\  
    \hline  
  \end{tabular}  
\caption{Human body parts.}  
\label{tab:types_cats}  
\end{table}
```

1	nose
2	eyes

Activity: adding a graphic
and table

Bibliographies in \LaTeX



- Easy to produce in \LaTeX
- Check with department guides for style
- Easy to change style in \LaTeX
- Overleaf has integration into Zotero (and Mendeley) with the pro version, but can still include refs on free version

How to make a L^AT_EX Bibliography

- Create/generate a .bib file
- Options: bibtex, biblatex or natbib (natbib no longer being developed, so most use biblatex)
- Bibliography style: different options (e.g. APA7)
- Bibliography 'stuff' goes into the preamble:

```
\usepackage[style=apa, backend=biber]{biblatex}  
\addbibresource{references.bib}  
  
...  
\begin{document}
```


Using a bibliography in your document

- When using biblatex:
- References in-text but **not** quoted (not integrated):
`\autocite[]{}{}`
- References in-text **and** directly quoted (integrated):
`\textcite[]{}{}`
- Add bibliography by:
`\printbibliography`

Activity: Adding a bibliography and references

Conclusion

- Understand more about L^AT_EX and what it can be used for
- Hands-on intro to getting started with L^AT_EX and Overleaf
- Understand the different L^AT_EX syntax types
- Understand how L^AT_EX can be linked to reference managers to make referencing in-text and producing bibliography easy
- Some of the possibilities of L^AT_EX for social sciences
- Inspired to try L^AT_EX for yourself?

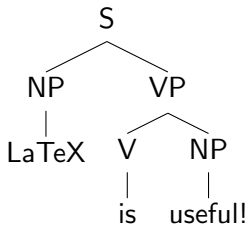
Thank you to the Linguistics and English Language Department for funding this session.

Useful links:

- Document types and creating documents in \LaTeX :
https://www.overleaf.com/learn/latex/Creating_a_document_in_LaTeX
- IPA documentation:
<https://www.tug.org/TUGboat/tb17-2/tb51rei.pdf>
- Different \LaTeX software available:
<http://www.tug.org/interest.html#freeTUG>
- Linguistic-specific things in \LaTeX :
<https://en.wikibooks.org/wiki/LaTeX/Linguistics>
- Bibliography types explanations: <https://tex.stackexchange.com/questions/25701/bibtex-vs-biber-and-biblatex-vs-natbib>

Linguistic 'Stuff' you can do in L^AT_EX

-Grammar Trees pt. 1

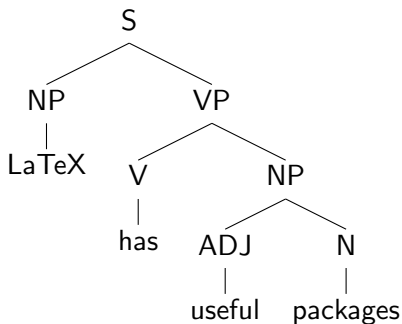


'qtree' package is needed to produce these - syntax is tricky!

```
\Tree [.S [.NP LaTeX ] [.VP [.V is ] [.NP useful! ] ] ]
```

Linguistic ‘Stuff’ you can do in L^AT_EX

-Grammar Trees pt. 2



```
\Tree [.S [ LaTeX ].NP [.VP [ has ].V [.NP [ useful ].ADJ  
[ packages ].N ] ] ]
```

Linguistic ‘Stuff’ you can do in L^AT_EX

-Phonetics

You can type fənɛtiks symbols.

You can type `\textipa{f@nEtIks}` symbols.

