

L^AT_EX: More Than Just Academic Papers and Theses

(FIRST PRESENTED AT MOSC2011)



Dr LianTze Lim

liantze@gmail.com

<http://liantze.penguinattack.org/>

(Yes, you can reuse this deck 😊)



Illustration by Duane Bibby

Contents

- 1 What are T_EX, L^AT_EX and Friends?
- 2 Document Types
- 3 Special Material
- 4 Wrapping Up

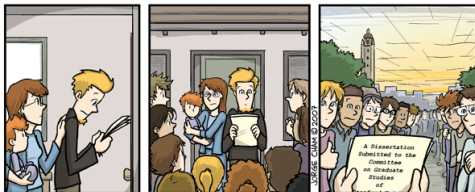
Contents

1 What are TeX, LaTeX and Friends?

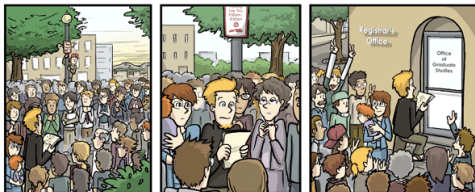
2 Document Types

3 Special Material

4 Wrapping Up



WWW.PHDCOMICS.COM



WWW.PHDCOMICS.COM



WWW.PHDCOMICS.COM

PHD Comics By Jorge Cham

Ever Worried about These?

- Is my literature survey strong enough?
- My bibliography/citation formatting got inconsistent.
- My citation and bibliography aren't synchronised!
- My math equations don't display/print correctly.
- Should this discussion go under this section or that?
- What formatting did I use for my subsection headings again?
- Didn't I set that heading to bold and italic 5 minutes ago?
- My section/figure/page numbering's gone all wrong!
- Does this subsection go together with this section?
- Oops, I forgot to update the TOC.
- What results should I put in this table?
- My figure jumped off the page again!
- The application crashed!
- **MY FILE GOT CORRUPTED!!!**

What are T_EX and L^AT_EX, and Friends?

T_EX

- From Greek τεχ
- ASCII TeX, /tex/, /tek/
- A **computer typesetting system** created by Donald Knuth
- for ‘the creation of beautiful books’

L^AT_EX

- ASCII LaTeX, /l^atex/, /l^atek/, /l^a:tex/, /l^a:tek/
- A **document preparation system** by Leslie Lamport

Binaries

- ϵ -T_EX: additional primitives to T_EX
- pdfT_EX: additional PDF-related primitives
- XeT_EX: native UTF-8 input; can access system fonts
- LuaT_EX: includes the Lua scripting engine

Friends

- BibT_EX, MakeIndex, METAFONT, METAPOST, ...
- http://www.ctan.org/what_is_tex.html

Why?

From http://www.ctan.org/what_is_tex.html

Output Quality

- It has the best output.
- It knows typesetting.

Freedom

- It's free.
- It runs anywhere.

Superior Engineering

- It's fast.
- It's stable.
- It's not rigid (extensible).
- Plain text input.
- Many output types.

Popularity

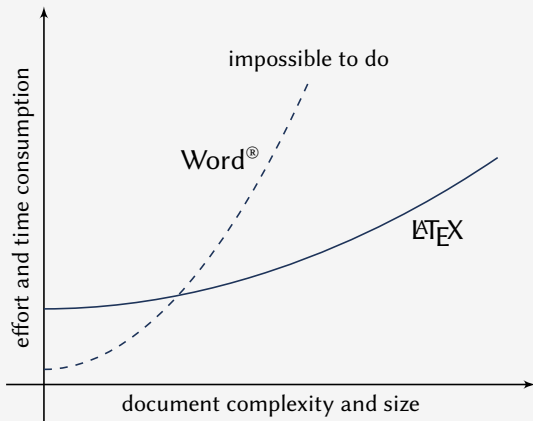
- It's the standard (in academia and science).

Typesetting and Word Processing

Apples and Oranges

- Word processors
 - Replacement of mechanical typewriters
 - Word, OpenOffice, AbiWord, ...
- Typesetting and Desktop publishing
 - For publication and printing
 - InDesign, QuarkXPress, Scribus...

Scalability



Scalability of LaTeX and Microsoft Word® against document size and complexity (redrawn from Marko Pinteric's original at <http://www.pinteric.com/miktex.html>)

Professional Typesetting Quality Output

- Typesetting quality and legibility
 - good kerning hinting and correct ligatures
 - inter-word, line and paragraph spacing
 - context-sensitive hyphenation

Table fiery fluffy

This paper outlines an approach to produce a prototype WordNet system for Malay semi-automatically, by using bilingual dictionary data and resources provided by the original English WordNet system. Senses from an English-Malay bilingual dictionary were first aligned to English WordNet senses, and a set of Malay synsets were then derived. Semantic relations between the English WordNet synsets were extracted and re-applied to the Malay synsets, using the aligned synsets as a guide. A small Malay WordNet prototype with 12429 noun synsets and 5805 verb synsets was thus produced. This prototype is a first step towards building a full-fledged Malay WordNet.

Table fiery fluffy

This paper outlines an approach to produce a prototype WordNet system for Malay semi-automatically, by using bilingual dictionary data and resources provided by the original English WordNet system. Senses from an English-Malay bilingual dictionary were first aligned to English WordNet senses, and a set of Malay synsets were then derived. Semantic relations between the English WordNet synsets were extracted and re-applied to the Malay synsets, using the aligned synsets as a guide. A small Malay WordNet prototype with 12429 noun synsets and 5805 verb synsets was thus produced. This prototype is a first step towards building a full-fledged Malay WordNet.

- Correct mathematical typesetting (spacing etc)

$$W_{\psi}(f)(a, b) = \frac{1}{\sqrt{a}} \int_{-\infty}^{\infty} f(t) \psi\left(\frac{t-b}{a}\right) dt$$

$$W_{\psi}(f)(a, b) = \frac{1}{\sqrt{a}} \int_{-\infty}^{\infty} f(t) \psi\left(\frac{t-b}{a}\right) dt$$

Where Would I Want to Use L^AT_EX?

- Beautiful typographic output (OK not everyone cares that much...)
- Documents with complex structures
- Lots of mathematics (or other specific needs)
- When publishers **require** them
- Batch processing of data into reports, etc.
- Back-end of other applications

This is not a Word Processors vs L^AT_EX debate.

- It's a 'teaser' preview of an alternative tool.
- Some word processors also provide mechanisms to handle same routine tasks (with varying degrees of ease, consistency and stability)
- Use the best tool for the task at hand.
- **You** are the best judge to decide for yourself.

How Do I Use It?

- 1 Write a plain text L^AT_EX file (.tex)
- 2 Run it through `pdflatex` or `xelatex` → PDF output
(or `latex` + `dvips` + `ps2pdf` for DVI + PS + PDF)
- 3 Run `bibtex` and/or `makeindex` to process bibliographies, indices
- 4 Re-run `pdflatex` to resolve references and pointers

Example .tex File

```

\documentclass[a4paper,11pt]{article}
\author{Lim Lian Tze}
\title{An Introductory Paper}
\date{\today}
\usepackage[english]{babel}

\begin{document}
\maketitle
\tableofcontents

\begin{abstract}
This paper introduces\ldots
\end{abstract}

\section{Introduction}
We consider\ldots

\section{State of the Art}
We look at\ldots

\subsection{Document Formats}
There are many\ldots
\end{document}

```

pdflatex

An Introductory Paper

Lim Lian Tze
June 7, 2011

Contents

1	Introduction	1
2	State of the Art	1
	2.1 Document Formats	1

Abstract

This paper introduces...

1 Introduction

We consider...

2 State of the Art

We look at...

2.1 Document Formats

There are many...

1

Where Do I Get It?

Online Overleaf (www.overleaf.com)

Windows MikT_EX, T_EXLive

Un*x, GNU/Linux T_EXLive

Mac OS X MacT_EX (based on T_EXLive)

Installation Use your OS' package manager
(or download manually)

Editors vi, emacs, Texmaker, TeXworks, Texstudio, TeXshop...

L^AT_EX Packages Use MikT_EX or T_EXLive's package manager

Documentation (Online) <http://texdoc.net/pkg/<packagename>>
(T_EXLive) \$ texdoc <package name>
(MikT_EX) \$ mthelp <package name>

Easy to Learn, Hard to Master

- Customising may not be straightforward (vs word processors)
- Intentionally so: Style guidelines should be followed strictly
 - Publisher/organisation provides **document class** or **style** files
 - Use these to take care of formatting and styling, focus on the **content**

So, What Can L^AT_EX Do?

Contents

1 What are T_EX, L^AT_EX and Friends?

2 Document Types

3 Special Material

4 Wrapping Up

Basic Types

Books

```

\documentclass{book}
\author{...}
\title{...}

\begin{document}
\maketitle
\chapter{...}
\section{...}
...
\subsection{...}
\end{document}

```

A Wonderful Book

A. Dumas
3rd June 2011

CHAPTER 1: HEADING ON LEVEL 0 (CHAPTER)

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface this text and some text without the (Dumas) authorface. Right? There need a third text like this give you information about the selected font, how the letters are written and the impression of the book. This text should contain all letters of the alphabet and it should be written in all of the original language. There is no need for a special content, but the length of words should match to the language.

Heading on level 1 (section)

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface this text and some text without the (Dumas) authorface. Right? There need a third text like this give you information about the selected font, how the letters are written and the impression of the book. This text should contain all letters of the alphabet and it should be written in all of the original language. There is no need for a special content, but the length of words should match to the language.

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface this text and some text without the (Dumas) authorface. Right? There need a third text like this give you information about the selected font, how the letters are written and the impression of the book. This text should contain all letters of the alphabet and it should be written in all of the original language. There is no need for a special content, but the length of words should match to the language.

1.2 Lists

1.2.1 Example for list (summary)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

Chapter 1

Heading on level 0 (chapter)

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface this text and some text without the (Dumas) authorface. Right? There need a third text like this give you information about the selected font, how the letters are written and the impression of the book. This text should contain all letters of the alphabet and it should be written in all of the original language. There is no need for a special content, but the length of words should match to the language.

1.1 Heading on level 1 (section)

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface this text and some text without the (Dumas) authorface. Right? There need a third text like this give you information about the selected font, how the letters are written and the impression of the book. This text should contain all letters of the alphabet and it should be written in all of the original language. There is no need for a special content, but the length of words should match to the language.

1.1.1 Heading on level 2 (subsection)

This text and some text without a meaning. This text should show how a general font will look like in this place. If you read this text, you will get an information. Really? In here an information? In here a different fontface

1

1.2 Lists

Example for list (summary)

- First item in a list
 1. First item in a list
 2. Second item in a list
 3. Third item in a list
 4. Fourth item in a list
 5. Fifth item in a list
- Second item in a list

1.2.2 Example for list (summary)

- 1. First item in a list
 - (a) First item in a list
 - (b) Second item in a list
 - (c) Third item in a list
 - (d) Fourth item in a list
 - (e) Fifth item in a list
- 2. Second item in a list

Example for list (summary)

- 1. First item in a list
 - (a) First item in a list
 - (b) First item in a list
 - (c) Second item in a list
 - (d) Second item in a list
- 2. Second item in a list

Basic Types (cont'd)

Articles

```
\documentclass{article}
```

```
\author{...}
```

```
\title{...}
```

```
\begin{document}
```

```
\maketitle
```

```
\section{...}
```

```
...
```

```
\subsection{...}
```

```
\end{document}
```

A Wonderful Read

A. Dimsay

2nd June 2011

1. Heading on level 1 (section)

Hi, here is some text without a section. This text should have a general text will look like at this place. If you read this text, you will get an information. Really? Is there an information? Is there a difference between the text and some content like (theoretical problems). Right. There is! A link text like this gives you information about the selected text, how the letters are written and the appearance of the link. This text should contain all letters of the alphabet and it should be written in the original language. There is a word for a special content, but the length of words should match to the language.

1.1. Heading on level 2 (subsection)

Hi, here is some text without a section. This text should have a general text will look like at this place. If you read this text, you will get an information. Really? Is there an information? Is there a difference between the text and some content like (theoretical problems). Right. There is! A link text like this gives you information about the selected text, how the letters are written and the appearance of the link. This text should contain all letters of the alphabet and it should be written in the original language. There is a word for a special content, but the length of words should match to the language.

1.1.1. Heading on level 3 (subsubsection)

Hi, here is some text without a section. This text should have a general text will look like at this place. If you read this text, you will get an information. Really? Is there an information? Is there a difference between the text and some content like (theoretical problems). Right. There is!

1

A link text like this gives you information about the selected text, how the letters are written and the appearance of the link. This text should contain all letters of the alphabet and it should be written in the original language. There is a word for a special content, but the length of words should match to the language.

Heading on level 4 (paragraph) Hi, here is some text without a section. This text should have a general text will look like at this place. If you read this text, you will get an information. Really? Is there an information? Is there a difference between the text and some content like (theoretical problems). Right. There is! A link text like this gives you information about the selected text, how the letters are written and the appearance of the link. This text should contain all letters of the alphabet and it should be written in the original language. There is a word for a special content, but the length of words should match to the language.

2. Lists

2.1. Example for list (enumeration)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

2.1.1. Example for list (P/Enumeration)

- First item in a list
 - First item in a list
 - First item in a list
 - Second item in a list
 - Second item in a list
- Second item in a list
- Second item in a list

2

- Second item in a list
- Second item in a list
- Second item in a list

2.2. Example for list (enumeration)

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list

2.2.1. Example for list (P/Enumeration)

1. First item in a list
 - (a) First item in a list
 - (b) First item in a list
 - (c) Second item in a list
 - (d) Second item in a list
2. Second item in a list

2.3. Example for list (description)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

2.3.1. Example for list (P/Description)

- First item in a list
- First item in a list
 - First item in a list
 - Second item in a list

3

Journal and Conference Proceedings Articles

IEEE

```
\documentclass{IEEEtran}
```

ACM

```
\documentclass{sig-alternate}
```

LLNCS

```
\documentclass{llncs}
```

A Wonderful Read

A. Dummy

Abstract—Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1) **Heading on level 3 (subsection):** Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1. HEADING ON LEVEL 1 (SECTION)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

A. Heading on level 2 (subsection)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

II. LISTS

A. Example for lists (items)

- First item in a list
 - Second item in a list
 - Third item in a list
 - Fourth item in a list
 - Fifth item in a list
- 1) **Example for list (4*Items):**
- First item in a list
 - First item in a list
 - First item in a list

A Wonderful Read

A. Dummy

ABSTRACT

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1. Heading on level 1 (SECTION)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1.1 Heading on level 2 (subsection)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1.1.1 Heading on level 3 (subsection)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

Here, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

Heading on level 4 (paragraph)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

2. Lists

2.1 Example for list (items)

- First item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list
- Fifth item in a list

2.1.1 Example for list (4*Items)

- First item in a list
 - First item in a list
 - First item in a list
- Second item in a list
- Third item in a list

A Wonderful Read

A. Dummy

No. Drunken

1 Heading on level 1 (section)

Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.

1.1 Heading on level 2 (subsection)

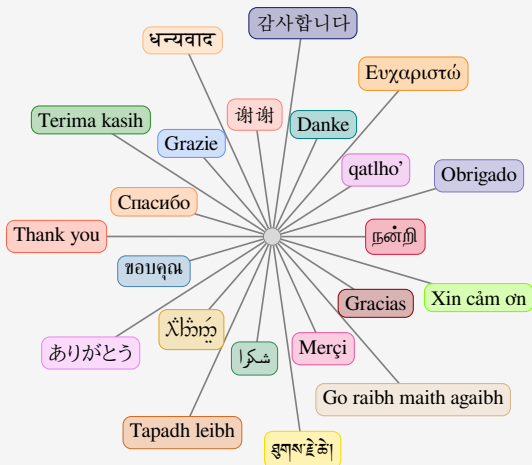
Hello, here is some text without a meaning. This text should show, here a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like «Hundred golfers». KJH — Never mind! A blind text like this gives you information about the selected font, how the letters are written and the impression of the look. This text should contain all letters of the alphabet and it should be written in a special context, but the length of words should match to the language.



Some Goodies

- Quick **language-switching** with `babel`
- Automatic generation of **cross-referencing labels**:
`\section{Introduction}\label{sec:intro}`
 ... We saw in section `\ref{sec:intro}`...
- Automatic generation of **lists**:
`\tableofcontents, \listoffigures, \listoftables`
- Automatic generation of **bibliographies** and **indices**:
`\cite{Knuth:1976}... \bibliography{references.bib}`
 ...the Linux kernel `\index{Linux!kernel}`... `\printindex`
- Fully **hyperlinked** PDF with bookmarks: `\usepackage{hyperref}`
- Inclusion of selected pages from other PDFs
 (while inserting new page headers/footers!)
`\usepackage{pdfpages}`
`\includepdf[pages={1,3-5,8},pagecommand=\thispagestyle{plain}]{file.pdf}`

Multilingual LaTeX



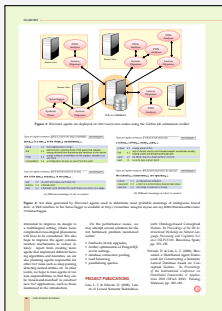
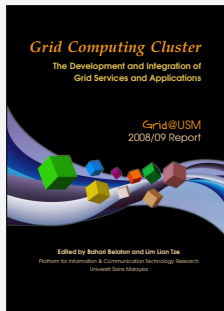
X_YLaTeX, LuaLaTeX Unicode input

LaTeX Various packages (sometimes with transcriptions: nan[^]ri, saLaM)

Highly Configurable Documents

memoir and KOMA-Script Classes

- Sectional headings
- Running headers and footers
- Good font, colour and illustration choices
- <http://latex-my.blogspot.com/search/label/bookdesign>



Presentation Slides

- This presentation was made with L^AT_EX!
- Many possible classes: powerdot, **beamer**

```

\documentclass{beamer}
\usetheme{Warsaw}

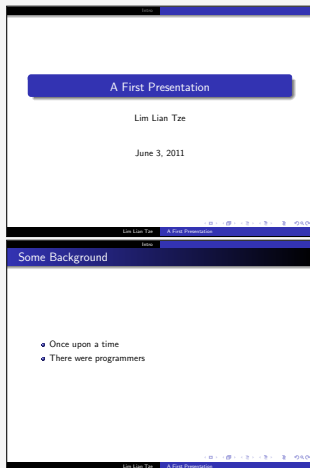
\author ...

\begin{document}
\titleframe

\section{Intro}

\begin{frame}
\frametitle{Some Background}
...
\end{frame}
\end{document}

```



Oversized Posters

- Many possible solutions: sciposter, flowfram, **beamerposter**

```

\documentclass{beamer}
\usepackage[orientation=portrait,
↔ size=a0]{beamerposter}
\usetheme{...}
\author ... % Meta-information

\begin{document}
\begin{frame}
... % Poster contents goes here
\end{frame}
\end{document}

```

Low-Cost Construction of a Multilingual Lexicon from Bilingual Lists

Introduction

- Bilingual MDRs are good resources for building multilingual lexicons, but heterogeneous structures
- Lowest common denominator: list of source language item → target language item(s)
- Proposal: Multilingual lexicon construction using only simple bilingual lists

One-time Inverse Consultation [1]

- Generates a bilingual lexicon for new language pair from existing bilingual lists
- JP-EN, EN-MS, MS-EN lexicons → JP-MS

score('bars') = $2 \times \frac{|E_c \cap J_c|}{|E_c| + |J_c|} = 2 \times \frac{2}{3+4} = 0.57$
 ∴ "JP" ↔ "bars" most likely valid

Merging Translation Triples into Sets

- (Example: Malay-English-Chinese)
- Retain OTC 'middle' language links
- For each 'head' language L_1 , discard triples with score $< \alpha X$ or score' $< \beta X$, where $X = \text{max score of all triples containing that } L_1$

- Merge all triples with common bilingual pairs

Adding a New Language

- (Example: Malay-English-Chinese + French)
- Construct also French-English-Malay triples
- Add French members to existing M-E-C clusters with common English & Malay members

Precision of 100 Random Translation Sets

Precision generally around 0.70-0.82; max 0.86

F₁ and Rand Index of Selected Translation Sets

- Evaluating accuracy of sets with polysemous 'middle' language members, e.g. 0.8rand@0.8rand

Test	Rand Index	F ₁	Rec	Prec	acc	acc'
0.8rand	0.617	0.611	0.588	0.632	0.6	0.4
0.8rand'	0.818	0.527	0.800	0.513	0.6	0.2
0.8rand@0.8	0.821	1.000	0.980	1.000	0.4	0.2
0.8rand'	0.708	0.813	0.728	0.792	0.8	0.2

Discussion and Conclusion

- Low thresholds (α, β): more coverage, low precision
- High thresholds: good precision, low coverage
- $\alpha = 0.6, \beta = 0.2$ given good trade-off between coverage, precision and recall
- Results are encouraging for such simple input data!
- Future plan: integrate lexicon into an MT system with WSD

References

[1] Bond and K. Ogura. "Combining linguistic resources to create a machine-traceable Japanese-Malay dictionary". In: *Language Resources and Evaluation 42* (2008), pp. 527-536.

Lian Tze Lim | Bali RANAIVU-MALANÇON | Enya Kong TANG
 l1iantr@pmk1.com | ranaivu_malyakong@ums.edu.my
 Faculty of Information Technology, Multimedia University, Malaysia

Leaflets

- leaflet: arrange contents into 6 pages on a foldable double-sided sheet

```

\documentclass[foldmark,a4paper]
{leaflet}
\author ... % Meta-information

\begin{document}
\maketitle
\section ...
... % Leaflet contents
\end{document}
    
```

References

- 1. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 2. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 3. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 4. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)

Meta-Information

- 1. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 2. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 3. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 4. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)

References

- 1. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 2. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 3. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 4. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)

Meta-Information

- 1. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 2. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 3. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)
- 4. Lee, H. (2010). *Leaflet: a new way to present your content*. Retrieved from [http://www.ctan.org/tex-archive/latex/leaflet](#)

Low-Cost Construction of a Multilingual Lesson from Bilingual Lists

Lin Tian Liu
Bil. & Asian Studies
Raja Rong Liao

MFL-800 Faculty of Education Technology
Multimedia University, Malaysia

Introduction

- 1. Bilingual lists are good resources for building multilingual lessons.
- 2. The lists have been constructed and students can use them to learn multilingual lessons.
- 3. The lists have been constructed and students can use them to learn multilingual lessons.
- 4. The lists have been constructed and students can use them to learn multilingual lessons.

How the Lesson Construction Works

- 1. The lists have been constructed and students can use them to learn multilingual lessons.
- 2. The lists have been constructed and students can use them to learn multilingual lessons.
- 3. The lists have been constructed and students can use them to learn multilingual lessons.
- 4. The lists have been constructed and students can use them to learn multilingual lessons.

Adding Translation Tables into Sets

- 1. Add translation tables into sets.
- 2. Add translation tables into sets.
- 3. Add translation tables into sets.
- 4. Add translation tables into sets.

Adding More Languages

- 1. Add more languages to the sets.
- 2. Add more languages to the sets.
- 3. Add more languages to the sets.
- 4. Add more languages to the sets.

Adding More Languages

- 1. Add more languages to the sets.
- 2. Add more languages to the sets.
- 3. Add more languages to the sets.
- 4. Add more languages to the sets.

Adding More Languages

- 1. Add more languages to the sets.
- 2. Add more languages to the sets.
- 3. Add more languages to the sets.
- 4. Add more languages to the sets.

Adding More Languages

- 1. Add more languages to the sets.
- 2. Add more languages to the sets.
- 3. Add more languages to the sets.
- 4. Add more languages to the sets.

Adding More Languages

- 1. Add more languages to the sets.
- 2. Add more languages to the sets.
- 3. Add more languages to the sets.
- 4. Add more languages to the sets.

Fillable PDF Forms

```

\usepackage{hyperref}
... % various settings skipped
\TextField{Name:}
\TextField{Affiliation:}
\ChoiceMenu[radio=true]
{Are you a:}{Student, Academic}
Interest:
\CheckBox{Security}
\CheckBox{Systems}
\CheckBox{User space}
\TextField[multiline=true]
{Comments:}

```

The screenshot shows a PDF viewer window titled "HelloFormus - PDF-XChange Viewer". The form content is as follows:

Feedback Form

Name:

Affiliation:

Are you a: Student Academic

Interests: Security Systems User space

Comments:

The viewer interface includes a menu bar (File, Edit, View, Document, Comments, Tools, Window, Help), a toolbar with icons for Open, Save, Print, etc., and a status bar at the bottom showing "6.50 x 11.00 in" and "1 of 1" pages.

Fillable PDF Forms (cont'd)

Use with caution!

- poppler-based viewers (evince, xpdf, okular)
 - Problem displaying and saving radio/check boxes correctly
 - Saved forms can't be opened by other viewers
- Adobe Reader
 - Cannot save filled form as PDF unless Acrobat is installed
 - Only as field-and-value text file
 - Can provide “Submit” button for submission to a URL
 - Or print hard copy of filled form!
- PDF XChange Viewer
 - Best freeware for filling and saving L^AT_EX-created forms
 - Windows only
 - Not OSS

Flash Cards

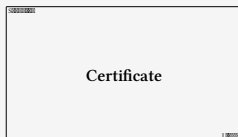
```

\documentclass[avery5388,frame]
{flashcards}
\cardfrontstyle{headings}
\cardfrontfoot{Linux}

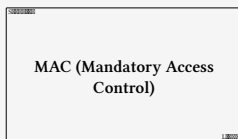
\begin{document}
\begin{flashcard}[Security]
{Certificate}
...
\end{flashcard}

\begin{flashcard}[Security]
{MAC ...}
...
\end{flashcard}
\end{document}

```



A digital representation of information that identifies you and is issued by Cas, which are often a trusted third party (TTP).



Access to an object is restricted based on the sensitivity of the object (defined by the label that is assigned), and granted through authorization (Clearance) to access that level of data.

Examination Paper

```

\documentclass{exam}
...
\begin{questions}\printanswers
\question[5]
What is Paul McCartney's middle name?
\begin{oneparchoices}
\choice John \CorrectChoice Paul
\choice Ringo \choice James
\end{oneparchoices}

\question[10] What was the Beatles' first
↪ single in 1962?
\begin{solution}Love Me Do\end{solution}

\question
\begin{parts}
\part[5] What was George's inspiration for
↪ `While My Guitar Gently Weeps'?
\begin{solution}
He opened a random book and saw the words
↪ ``gently weep''.
\end{solution}
...
\end{questions}

```

1. What is Paul McCartney's middle name? (5)
A. John **B. Paul** C. Ringo D. James
2. What was the Beatles' first single in 1962? (10)

Solution: Love Me Do

3. (a) What was George's inspiration for 'While My Guitar Gently Weeps'? (5)
- (b) Who guest-performed for the song and why? (5)

Solution: He opened a random book and saw the words "gently weep".

Solution: Eric Clapton; he wanted a spiffy guitar solo.

Contents

1 What are TeX, LaTeX and Friends?

2 Document Types

3 Special Material

4 Wrapping Up

Mathematics

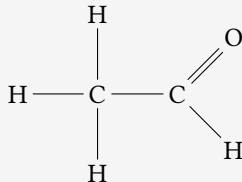
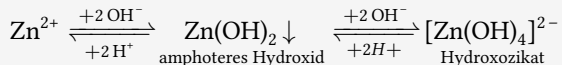
(1) relates the golden ratio and the Fibonacci series.
Recall that the golden ratio, $\varphi = \frac{1}{2}(1 + \sqrt{5})$.

$$\varphi = 1 + \sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{F_n F_{n+1}} \quad (1)$$

`\eqref{eq:gratio}` relates the golden ratio and the Fibonacci series.
Recall that the golden ratio, `\$ \phi = \frac{1}{2} (1 + \sqrt{5}) \$`.

```
\begin{equation}\label{eq:gratio}
\phi = 1 + \sum^{\infty} _{n=1}
\frac{ (-1)^{n+1} }{ F_n F_{n+1} }
\end{equation}
```

Chemical Equations and Molecules



```
\usepackage[version=3]{mhchem}    % sufficient for chemical equations
```

```
\usepackage{chemfig}            % for 2-D molecule drawings
```

```
...
```

```
\ce{Zn^2+ <=> [\ce{+ 2OH-}][\ce{+ 2H+}]}
```

```
\underset{\text{amphoterer Hydroxid}}{\ce{Zn(OH)2 v}}$
```

```
<=> C[+2OH-][+ 2H+]
```

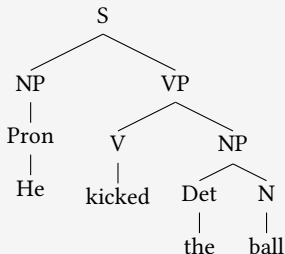
```
\underset{\text{Hydroxozikat}}{\ce{[Zn(OH)4]^2-}}$ }
```

```
\chemfig{H-C(-[2]H)(-[6]H)-C(-[7]H)=[1]O}
```

Linguistics

- (1) %*Wen liebt seine Mutter?
 Whom loves his mother
 'Who does his mother

```
\usepackage{linguex,qtrees}
...
\ex
\beginl
\gla \%*Wen liebt seine Mutter?//
\glb Whom loves his mother//
\glc `Who does his mother love?'//
\endgl
\xe
```



```
\usepackage{qtrees}
...
\Tree [ .S [ .NP [ .Pron He ] ] [ .VP
↪ [ .V kicked ] [ .NP [ .Det the ] [ .
↪ N ball ] ] ] ] ]
```

Program Listings

```

\usepackage{listings,xcolor}
...
\begin{lstlisting}
[language=C,columns=fullflexible,
basicstyle=\ttfamily,
keywordstyle=\bfseries\color{red},
commentstyle=\sffamily\color{green},
stringstyle=\rmfamily\color{orange}]
#include <stdio.h>
/*
 | Prints "hello world"
*/
int main(void)
{
    printf("hello, world\n");
    return 0;
}
\end{lstlisting}

```

```

#include <stdio.h>

/*
 | Prints "hello world"
*/
int main(void)
{
    printf("hello, world\n");
    return 0;
}

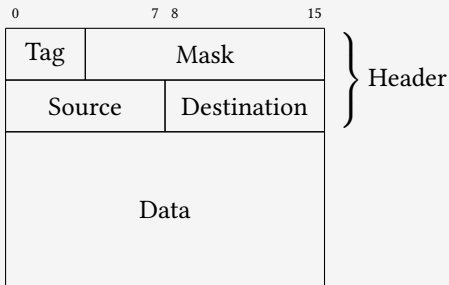
```

Network Protocols

```

\usepackage{bytefield}
...
\begin{bytefield}{16}
\bitheader{0,7,8,15} \\
\begin{rightwordgroup}{Header}
\bitbox{4}{Tag} & \bitbox{12}{Mask} \\
\bitbox{8}{Source} &
\bitbox{8}{Destination}
\end{rightwordgroup} \\
\wordbox{3}{Data}
\end{bytefield}

```



Life Sciences

first case (see text)

AQP1.PRO	TLGLL	LSQ	ISILRAVMYI	IAQ	CVGAI	VASAIL	112
AQP2.PRO	TVA	CLVGCH	VSFLRAAFYV	AAQL	LGAV	AGAIL	104
AQP3.PRO	TFAM	CFLAREPW	IKLPIY	TLAQT	LGAF	LGAGIV	112
AQP4.PRO	TVAMV	CTRK	ISIAKSVFYI	TAQC	LGAI	IGAGIL	133
AQP5.PRO	TLALLI	IGNQ	ISLLRAVFYV	AAQL	VGAI	AGAGIL	105

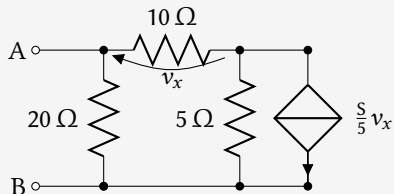
second case (see text)

```

\usepackage{texshade} % for nucleotide and peptide alignments
...
\begin{texshade}{AQPpro.MSF.txt}
\shadingmode{similar}
\threshold[80]{50}
\setends{1}{80..112}
\hideconsensus
\feature{top}{1}{93..93}{fill:\downarrow}{first case (see text)}
\feature{bottom}{1}{98..98}{fill:\uparrow}{second case (see text)}
\end{texshade}

```

Circuits and SI Units



- $3.45 \times 10^4 \text{ V}^2 \text{ lm}^3 \text{ F}^{-1}$
- 40 km/h, 85 km/h and 103 km/h

```

\usepackage{siunitx}
\usepackage[siunitx]{circuitikz}
...
\begin{circuitikz}
\draw (0,0) node[anchor=east] {B}
  to[short, o-*] (1,0)   to[R=20<\ohm>, *-*) (1,2)
  to[R=10<\ohm>, v=$v_x$] (3,2) -- (4,2)
  to[ cI=$\frac{\si{\siemens}}{5} v_x$, *-*) (4,0) -- (3,0)
  to[R=5<\ohm>, *-*) (3,2)
  (3,0) -- (1,0)   (1,2) to[short, -o] (0,2) node[anchor=east]{A}
;\end{circuitikz}

\SI{3.45d4}{\square\volt\cubic\lumen\per\farad}
\SIlist[per-mode=symbol]{40;85;103}{\kilo\metre\per\hour}
    
```


Meh, What Good is That? Can't Use it Anywhere Else.

Actually, you can.

```
\usepackage[active,tightpage]{preview}
\PreviewEnvironment{texshade}
...
\begin{texshade}
...
\end{texshade}
```

- Run `pdflatex` → cropped PDF containing *only* contents of `texshade`
- ImageMagick: `convert -depth 150 texshade.pdf texshade.png`
- Multiple environments → multi-page PDF and multiple PNGs

Bar Codes

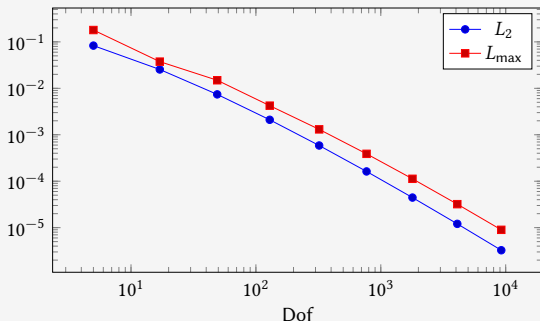


```

\usepackage{auto-pst-pdf} % Needed if running pdflatex; must use option -shell-escape
\usepackage{pstricks,psbarcode}
...
\begin{pspicture}
\psbarcode{MECARD:N:Malaysia Open Source Conference...}{eclevel=L}{qrbarcode}
\psbarcode{9781860742712}{includetext guardwhitespace}{ean13}
\psbarcode{978-3-86541-114}{includetext guardwhitespace}{isbn}
\psbarcode{LE28HS9Z}{includetext}{royalmail}
\psbarcode{^453^178^121^239}{columns=2 rows=10}{pdf417}
\end{pspicture}

```

Graph Plots



```

\usepackage{pgfplots}
...
\begin{tikzpicture}
\begin{loglogaxis}[xlabel=Dof]
\addplot table[x=dof,y=L2]{datafile.dat}; \addlegendentry{$L_2$};
\addplot table[x=dof,y=Lmax]{datafile.dat}; \addlegendentry{$L_{\text{max}}$};
\end{loglogaxis}
\end{tikzpicture}

```

Spreadsheets

(Seriously, use a proper spreadsheet application for complex stuff.)

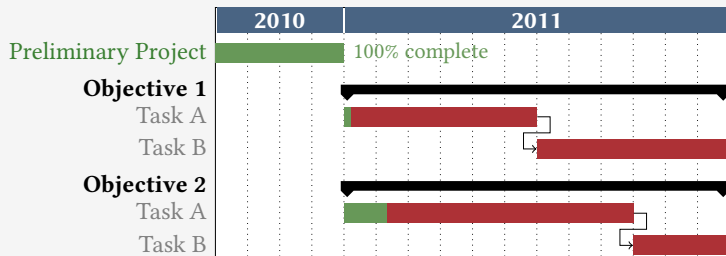
Year ending Mar 31	2009	2008	2007
Revenue	14580.20	11900.40	8290.30
Cost of sales	6740.20	5650.10	4524.20
<i>Gross profit</i>	7840.00	6250.30	3766.10

```

\STautoround*{2}
\begin{spreadtab}{{tabular}{l rrr}}
@Year ending Mar 31 & @2009 & @2008 & @2007\\ \hline
@Revenue & 14580.2 & 11900.4 & 8290.3\\
@Cost of sales & 6740.2 & 5650.1 & 4524.2\\ \cline{2-4}
@\emph{Gross profit} & \STcopy{>}{b2-b3} & & \\ \cline{2-4}
\end{spreadtab}

```

Gantt Charts

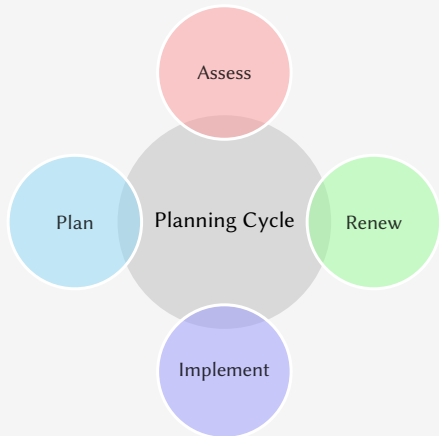


```

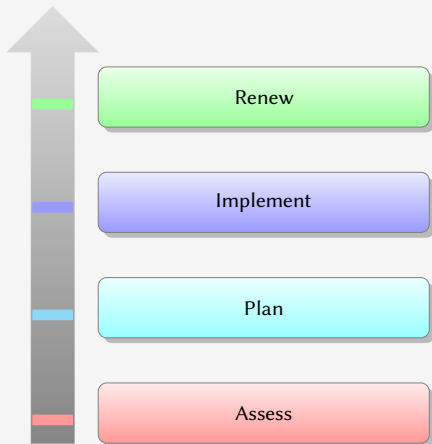
\usepackage{pgfgantt}
...
\begin{ganttchart}[...settings...]{1}{16}
\gantttitle{2010}{4} \gantttitle{2011}{12} \\
\ganttbar[progress=100]{Preliminary Project}{1}{4} \\
\ganttgroup{Objective 1}{5}{16} \\
\ganttbar[progress=4, name=T1A]{Task A}{5}{10} \\
\ganttlinkedbar[progress=0]{Task B}{11}{16} \\
...
\end{ganttchart}

```

'Smart Diagrams'



```
\usepackage{smartdiagram}
\smartdiagram[bubble diagram]{
  Planning Cycle,Assess,Plan,
  Implement,Renew}
```



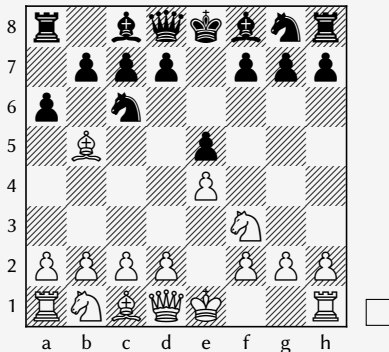
```
\usepackage{smartdiagram}
\smartdiagram
[priority descriptive diagram]{
  Assess,Plan,Implement,Renew}
```

Chess games

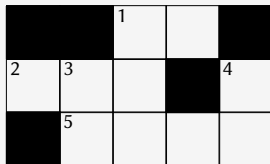
```

\usepackage[skaknew]%
{skak, chessboard}
...
\newgame
\mainline{1. e4 e5 2. Nf3 Nc6 3.
↪Bb5 a6}
\chessboard[smallboard]
    
```

1 e4 e5 2 ♞f3 ♞c6 3 ♝b5 a6



Crossword Puzzles



Across: 1 unit of measure
2 * 5 sectioning unit

Down: 1 η 3 unit of measure
4 nonproportional font

```

\usepackage{cwpuzzle}
...
\begin{Puzzle}{5}{3}
|* |* |[1]E|X |* |.
|[2]A|[3]S|T |* |[4]T|.
|* |[5]P|A |R |T |.
\end{Puzzle}
\begin{PuzzleClues}{
\textbf{Across:} }
\Clue{1}{EX}{unit of measure}
\Clue{2}{AST}{\(\ast\)}
\Clue{5}{PART}{sectioning unit}
\end{PuzzleClues}
\begin{PuzzleClues}{
\textbf{Down:} }
\Clue{1}{ETA}{\(\eta\)}
\Clue{3}{SP}{unit of measure}
\Clue{4}{TT}{nonproportional font}
\end{PuzzleClues}

```


Song Books with Guitar Tabs



C



G



Am



F

Country road, take me home, to the place I belong.



C



G



F



C

West Virginia, mountain momma, take me home, country road.

```
\usepackage{gchords,guitar}
```

```
...
```

```
\begin{guitar}
```

```
\newcommand{\CMaj}{\chord{t}{n,p3,p2,n,p1,n}{C}}
```

```
\newcommand{\Amin}...
```

```
Country [\CMaj]road, take me [\GMaj]home, ...
```

```
\end{guitar}
```

Contents

1 What are T_EX, L^AT_EX and Friends?

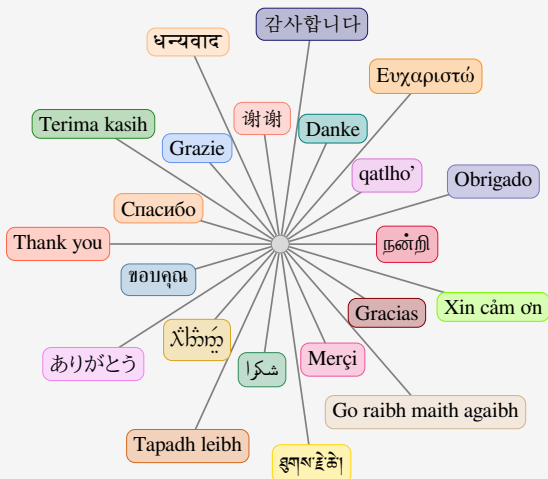
2 Document Types

3 Special Material

4 Wrapping Up

Summary

- L^AT_EX
 - a document preparation system
 - professional quality typesetting output
- Output artefacts
 - Academic: papers, theses, books
 - Dedicated document types
 - Domain-specific material
- Usage scenario
 - Direct authoring
 - Automatic generation (via scripts etc)
 - As back-end of other applications



Questions?

liantze@gmail.com, support@overleaf.com
<http://tex.stackexchange.com>