

L^AT_EX for linguists

Sylvia Blaho & Patrik Bye

The logo for the Center for Advanced Study in Theoretical Linguistics (CASTL) features the letters C, A, S, T, and L in a white, serif font, spaced out across a dark green rectangular background.

CASTL

Center for Advanced Study
in Theoretical Linguistics

University of Tromsø

Spring 2005

Aims for today

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1. Some $\text{T}_\text{E}\text{X}$ and $\text{L}^\text{A}\text{T}_\text{E}\text{X}$ background.

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1. Some T_EX and L^AT_EX background.
2. Editing and compiling your first document.

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1. Some T_EX and L^AT_EX background.
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4. Basic layout.
5. Typesetting special symbols.

1. What is L^AT_EX?

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1.1. And how do I pronounce it?

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- *Do* say: [ˈleɪtɛk]

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1.1. And how do I pronounce it?

- *Do* say: [ˈleɪ, tɛk]
- *Don't* say: [ˈleɪ, tɛks]

1.2. Where does $\text{\LaTeX}$ come from?

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2. $\text{\LaTeX}$ is a **format**, or collection of $\text{\TeX}$ macros designed by **Leslie Lamport** which make the powerful capabilities of $\text{\TeX}$ easier to access for ordinary mortals. To be able to produce simple documents in $\text{\TeX}$, there are many things the user has to learn and master. With $\text{\LaTeX}$, the user can get down to preparing beautifully typeset documents within minutes.

1.3. Where's L^AT_EX going?

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2. There are now **UNICODE** versions of both $\text{\TeX}$ and $\text{\LaTeX}$ which can in principle access the full range of glyphs used in all languages — assuming there's a suitable font available. These multilingual versions are known respectively as Ω and Λ and are included automatically in the most recent $\text{\TeX}$ distros. $\text{\XeTeX}$ is another recent multilingual application of $\text{\TeX}$, although being tied to Mac OS X, it is not platform independent.

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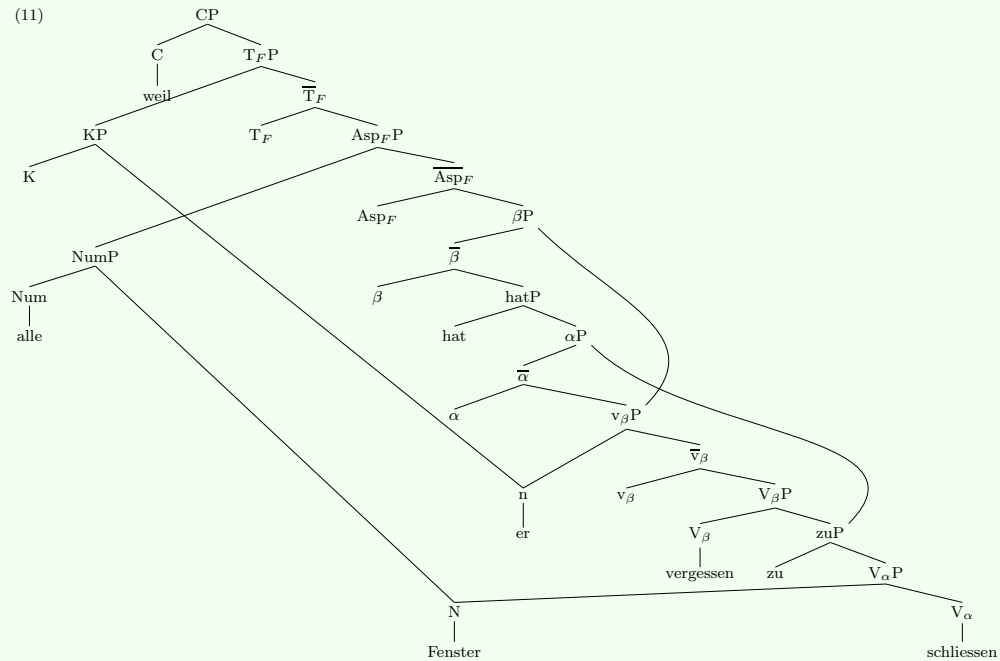
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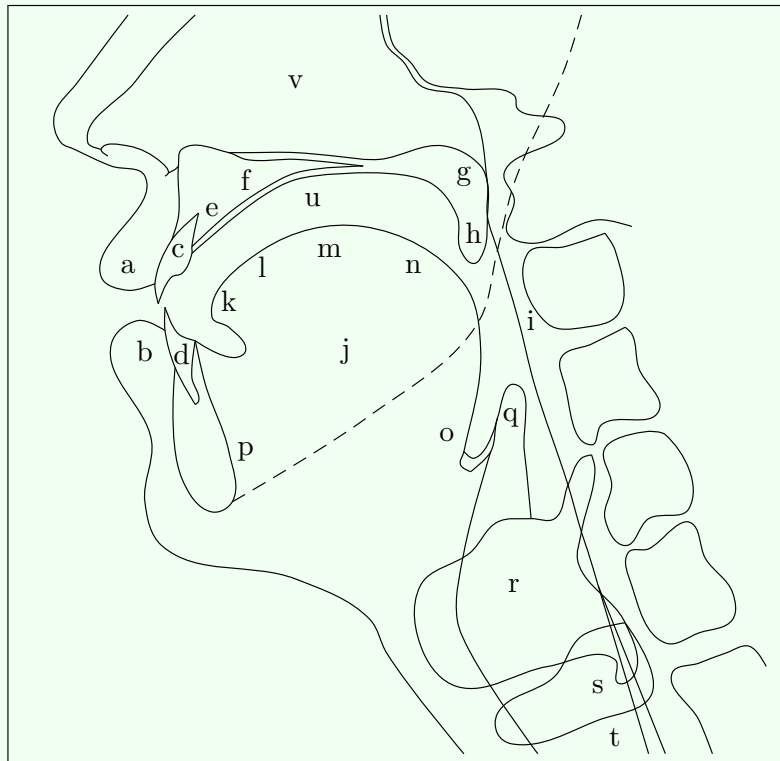
Disclaimer! Neither of us are experts in L^AT_EX, let alone T_EX. We'll do the best we can, but there are limits to what we can do . . .

Opaque progressive devoicing of /j/

/kɒpj/		SONSEQ _ϕ	* _ς /j ^λ	OBSPAN ^λ	OBSPAN _ϕ	OBSPANHD-R ^λ	SpHD ^λ -Id[voi] ^λ _ϕ	OBSPANHD-R _ϕ	SpHD _ϕ -Id[voi] ^λ _ϕ	Pronunciation
a.	⊘	kɒ[(p̄)J ^{λ,j} _{ϕ;ς}]							*	[kɒpς]
b.		kɒ[(b̄)J ^{λ,j} _{ϕ;j}]					*!			[kɒbj]
c.		kɒ[(p̄)J ^{λ,j} _{ϕ;j}]			*!					[kɒpj]
d.		kɒ[(p̄)(J ^{λ,j} _{ϕ;ς})]	*!	*			*		*	[kɒpς]
e.		kɒ[(b)J ^{λ,j} _{ϕ;j}]	*!				*			[kɒbj]
f.		kɒ[(p̄)J ^{λ,j} _{ϕ;j}]	*!	*	*					[kɒpj]
g.		kɒ[(p)J ^{λ,ς} _{ϕ;ς}]	*!				*		*	[kɒpς]
h.		kɒ[(b)J ^{λ,j} _{ϕ;j}]	*!				*			[kɒbj]
i.		kɒ[(p̄)J ^{λ,j} _{ϕ;j}]	*!							[kɒpj]
j.		kɒ[(p̄)J ^{λ,ς} _{ϕ;ς}]		*!		*		*		[kɒpς]

(11)





1.5. Logical vs. visual design

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- If you use another operating system, such as Mac OS 9 or Windows, you will find instructions for installing $\text{\LaTeX}$ on the $\text{\LaTeX}$ for Linguists website at <http://uit.no/castl>.

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- Successful compilation of the source **.tex** file with $\text{\TeX}$ Shop will yield a **.pdf** file, which you can view and print.

2. Your first document

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- Every L^AT_EX document consists of a preamble and a body.

Preamble: $\left\{ \begin{array}{l} \texttt{\backslash documentclass\{article\}} \\ \texttt{\backslash usepackage\{qtree\}} \\ \vdots \\ \textit{other packages} \\ \vdots \end{array} \right.$

Body: $\left\{ \begin{array}{l} \texttt{\backslash begin\{document\}} \\ \vdots \\ \textit{your text} \\ \vdots \\ \texttt{\backslash end\{document\}} \end{array} \right.$

- Type in the following text in the T_EXShop text-editor window:

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```
\documentclass{article}
```

```
\usepackage{qtree}
```

```
\begin{document}
```

Look! My first tree:

```
\Tree[.S[.NP[.I] ][.VP[.V[love] ][.DP[\LaTeX{}] ] ] ]
```

```
\end{document}
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- Now L^AT_EX it. Under the **Typeset** menu, first select **TeX and Ghostscript**. You need this setting to typeset documents with graphics. Next, press the **Typeset** button on the top lefthand corner of the text editor window.

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- `\documentclass{ }`, `\begin{document}` and `\end{document}` are obligatory. If you don't include them, T_EX will complain. (Try it!)

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- * `executivepaper` ($10.5 \times 7.25\text{in}$)

- * `a4paper` ($29.7 \times 21\text{cm}$)

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- Syntax: `\documentclass[a4paper]{article}`

3. Control sequences: environments, commands and declarations

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 - Try this:

```
\begin{enumerate}  
\item Mares eat oats  
\item And does eat oats  
\item And little lambs eat ivy  
\end{enumerate}
```

3.2. Commands

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- `\textsf{struldbugg}` $\rightarrow$ struldbugg

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- These examples illustrate the use of *mandatory* arguments. Mandatory arguments are enclosed in `{ }`.

- Commands may also take *optional* arguments in []. In this case, the syntax is generally *command*[options]{arg₁}(...{arg_i}). An example is

```
\documentclass[a4paper,12pt]{article}
```

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This is an example to illustrate the effect of using a declaration in some text.

Look what happens.

Here's another example to illustrate the effect of using a declaration limited by braces. **Look** what happens.

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This is an example to illustrate the effect of using a declaration in some text. `\bfseries` Look what happens.

Here's another example to illustrate the effect of using a declaration limited by braces. `{\bfseries` Look what happens.

- Declarations made with some commands have immediate effect, and remain in force until a new command of the same type is encountered.

4. Typesetting symbols

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- By and large, $\text{\LaTeX}$ will interpret the text in your source file literally, but a few characters must be typeset with special commands.

4.1. Hyphens and dashes

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NAME	CHARACTER	TYPESET AS
hyphen	-	-
en dash	—	--
em dash	—	---
minus sign	—	\$-\$

4.2. Command characters

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- The following characters have a special meaning in $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}/$ control sequences. $\backslash$ is the **escape** character which tells $\text{T}_{\text{E}}\text{X}/\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ to interpret whatever follows it as a **control sequence**, e.g. a command.

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CHARACTER	TYPESET AS
$\backslash$	$\text{\textbackslashbackslash}$
$\{$	$\text{\textbackslash{}}$
$\}$	$\text{\textbackslash{}}$
$\$$	$\text{\textbackslash\$}$
$\&$	$\text{\textbackslash\&}$
$\#$	$\text{\textbackslash\#}$
$-$	$\text{\textbackslash_}$
$\sim$	$\text{\textbackslashsim}$
$\%$	$\text{\textbackslash\%}$
$\{$	$\text{\textbackslash{}}$

4.3. Special characters

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CHARACTER	TYPESET AS
§	<code>\S</code>
†	<code>\dag</code>
‡	<code>\ddag</code>
¶	<code>\P</code>
©	<code>\copyright</code>
£	<code>\pounds</code>

4.4. Diacritics

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CHARACTER	TYPESET AS
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4.4. Diacritics

<i>Diacritic</i>	CHARACTER	TYPESET AS
accute	á	\'a
grave	à	\'a
umlaut (diaeresis)	ä	\"a
circumflex	â	\^a
tilde	ã	\~a
overdot	ȧ	\.a
macron	ā	\=a
double acute	ǎ	\H{a} or \H a or \H{}a
haček	ǎ	\v{a}
brève	ă	\u{a}
cedilla	ç	\c{a}
underdot	ȧ	\d{a}
underbar	ȧ	\b{a}
tie	áo	\t{ao}

4.5. Punctuation marks

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SYMBOL	TYPESET AS
'	'
,	,
“	“
”	”
!	!
?	?
...	\ldots

4.6. Special letters

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SYMBOL	TYPESET AS
æ	<code>\ae</code>
œ	<code>\oe</code>
å	<code>\aa</code>
ø	<code>\o</code>
ł	<code>\l</code>
ß	<code>\ss</code>

SYMBOL	TYPESET AS
Æ	<code>\AE</code>
Œ	<code>\OE</code>
Å	<code>\AA</code>
Ø	<code>\O</code>
Ł	<code>\L</code>
SS	<code>\SS</code>

4.6. Special letters

SYMBOL	TYPESET AS	SYMBOL	TYPESET AS
æ	<code>\ae</code>	Æ	<code>\AE</code>
œ	<code>\oe</code>	Œ	<code>\OE</code>
å	<code>\aa</code>	Å	<code>\AA</code>
ø	<code>\o</code>	Ø	<code>\O</code>
ı	<code>\l</code>	Ł	<code>\L</code>
ß	<code>\ss</code>	Š	<code>\SS</code>

SYMBOL	TYPESET AS
ı	<code>\i</code>
Ј	<code>\j</code>

5. Font commands

5. Font commands

5.1. Family, series, shape

5. Font commands

5.1. Family, series, shape

COMMAND	DECLARATION	
<code>\textnormal{ }</code>	<code>{\normalfont }</code>	class default
<code>\emph{ }</code>	<code>{\em }</code>	<i>emphasis</i>
<i>Family commands</i>		
<code>\textrm{ }</code>	<code>{\rmfamily }</code>	roman family (default)
<code>\textsf{ }</code>	<code>{\sffamily }</code>	sans serif family
<code>\texttt{ }</code>	<code>{\ttfamily }</code>	typewriter family
<i>Series commands</i>		
<code>\textmd{ }</code>	<code>{\mdseries }</code>	medium series (default)
<code>\textbf{ }</code>	<code>{\bfseries }</code>	boldface series
<i>Shape commands</i>		
<code>\textup{ }</code>	<code>{\upshape }</code>	upright shape (default)
<code>\textit{ }</code>	<code>{\itshape }</code>	<i>italic shape</i>
<code>\textsl{ }</code>	<code>{\slshape }</code>	<i>slanted shape</i>
<code>\textsc{ }</code>	<code>{\scshape }</code>	SMALL CAPS SHAPE

5.2. Emphasis

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- Realization of emphasis is context-sensitive

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How `\emph{dare}` you?

`\textit{How \emph{dare} you?}`

`\emph{How \emph{dare} you?}`

`\textbf{How \emph{dare} you?}`

How *dare* you?

How dare you?

How dare you?

How *dare* you?

normal span

italic span

emph span

boldface span

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<code>How \emph{dare} you?</code>	How <i>dare</i> you?	normal span
<code>\textit{How \emph{dare} you?}</code>	<i>How dare you?</i>	italic span
<code>\emph{How \emph{dare} you?}</code>	<i>How dare you?</i>	emph span
<code>\textbf{How \emph{dare} you?}</code>	How <i>dare</i> you?	boldface span

- Italic correction is automatic with `\textit{ }`, `\textsl{ }` and `\emph{ }`, but not `{\em }`.

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<code>How \emph{dare} you?</code>	How <i>dare</i> you?	normal span
<code>\textit{How \emph{dare} you?}</code>	<i>How dare you?</i>	italic span
<code>\emph{How \emph{dare} you?}</code>	<i>How dare you?</i>	emph span
<code>\textbf{How \emph{dare} you?}</code>	How <i>dare</i> you?	boldface span

- Italic correction is automatic with `\textit{ }`, `\textsl{ }` and `\emph{ }`, but not `{\em }`.

<code>(\emph{leaf})</code>	<i>(leaf)</i>	with italic correction
<code>({\em leaf})</code>	<i>(leaf)</i>	no italic correction

5.3. Font size declarations

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<code>{\tiny }</code>	tiny
<code>{\scriptsize }</code>	scriptsize
<code>{\footnotesize }</code>	footnotesize
<code>{\small }</code>	small
<code>{\normalsize }</code>	normalsize
<code>{\large }</code>	large
<code>{\Large }</code>	Large
<code>{\LARGE }</code>	LARGE
<code>{\huge }</code>	huge
<code>{\Huge }</code>	Huge

6. Layout and sectioning

6. Layout and sectioning

L^AT_EX rocks!

Johnny Latex
December 5, 2003

Contents

1	The first section	1
1.1	A subsection	1
2	The second section	1

Abstract

In this paper, I propose that L^AT_EX rocks!

1 The first section

In recent years a consensus has emerged that L^AT_EX rocks!

1.1 A subsection

I'm not kidding!

2 The second section

```

\documentclass[11pt,a4paper]{article}

\begin{document}

\title{\LaTeX{} rocks!}
\author{Johnny Latex}
\date{\today}

\maketitle

\tableofcontents

\begin{abstract}
In this paper, I propose that
\LaTeX{} rocks!
\end{abstract}

\section{The first section}
In recent years a consensus has
emerged that \LaTeX{} rocks!

\subsection{A subsection}
I'm not kidding!

\section{The second section}

\end{document}

```

6.1. Section levels

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- There are five section levels

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1. `\section`

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1. `\section`
2. `\subsection`
3. `\subsubsection`
4. `\paragraph`
5. `\subparagraph`

By default, only `\section`, `\subsection` and `\subsubsection` can be used. (It is not advisable you change defaults, at least to begin with.)

- Where the section title is long it is useful to have an alternative short title in the **running head**. Invoke this with the option below:

```
\section[short title]{title}
```

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- Sometimes it's useful to include unnumbered sections in your document which won't appear in table of contents.

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```
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```

- Sometimes it's useful to include unnumbered sections in your document which won't appear in table of contents.

```
\section*{title}
```

```
\subsection*{title}
```

```
\subsubsection*{title}
```

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```
\section[short title]{title}
```

- Sometimes it's useful to include unnumbered sections in your document which won't appear in table of contents.

```
\section*{title}
```

```
\subsection*{title}
```

```
\subsubsection*{title}
```

- This is adequate to be able to section most articles. Later we'll address how to section books and dissertations to include chapters and appendices.

6.2. Table of contents (TOC)

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- lists of tables and figures

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6.3. Title, author, date and abstract

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- Titles in articles are specified in the *body* by entering

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\title{ }
```

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- Assuming you don't want to remain anonymous, you can typeset your name and affiliation using

```
\author{ Name \\
        (Affiliation) \\
        (Address) \\
        ...
}
```

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```
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- Assuming you don't want to remain anonymous, you can typeset your name and affiliation using

```
\author{ Name \\
        (Affiliation) \\
        (Address) \\
        ...
}
```

- As you can see, new lines are typeset using the double backslash 'newline' command `\\`.

- `\author{ }` also makes it possible to specify multiple authors using the `\and` command. Acknowledgments are given using the `\thanks` command.

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```
\author{ Name \\
        (Affiliation) \\
        ...
        \and
        Name \thanks{...}
        ...
}
```

- L^AT_EX will automatically provide your article with today's date. Dates may be specified in the following ways:

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`\date{\today}` *or*

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`\date{\today}` *or*
`\date{ 2nd February, 2004 }`

- Alternatively, if you don't want a date line at all,

`\date{}`

- Typeset the title, author and date in the actual body of the document by issuing

`\maketitle`

at an appropriate place in the document — generally the beginning ☺. If you do not issue this command, L^AT_EX will not typeset the title.

- After `\maketitle`, you can include an abstract in the `abstract` environment.

```
\begin{abstract}
```

```
abstract text
```

```
\end{abstract}
```

6.4. Page numbering

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- Suppress *first* page number

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```
\thispagestyle{empty}
```

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- Suppress *first* page number

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- Suppress *first* page number

`\thispagestyle{empty}`

- Suppress *all* page numbers

`\pagestyle{empty}`

- Page numbering

- `\pagenumbering{arabic}`: 1, 2, 3, ...
- `\pagenumbering{roman}`: i, ii, iii, ...
- `\pagenumbering{Roman}`: I, II, III, ...
- `\pagenumbering{alpha}`: a, b, c, ...
- `\pagenumbering{Alpha}`: A, B, C, ...

7. Header, footer and footnotes

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- Footnote are got by typing `\footnote{This is a footnote.}`.¹
- Footnotes cannot be used boxes, tables or in math mode.

¹This is a footnote. See how easy that was?

7.2. Centring, flushing and indenting text

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```
\begin{flushleft}
```

⋮

text

⋮

```
\end{flushleft}
```

```
\begin{center}
```

⋮

text

⋮

```
\end{center}
```

```
\begin{flushright}
```

⋮

text

⋮

```
\end{flushright}
```

Twas brillig, and the
slithy toves
Did gyre and gimble
in the wabe.
All mimsy were the
borogroves
And the mome raths
outgrabe.

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This is a quote. Notice how it is indented with respect to the left and right margins. If you want to provide a reference to the quote, you can do it using the command `\begin{flushright} ... \end{flushright}`, like this.

(Bye 2003)

```
\begin{quote}
```

```
This is a quote. Notice how it is indented with respect  
to the left and right margins. If you want to provide a  
reference to the quote, you can do it using the command  
\verb=\raggedright=, like this.
```

```
\begin{flushright}
```

```
(Bye 2003)
```

```
\end{flushright}
```

```
\end{quote}
```

8. Literature

- Kopka, Helmut & Patrick W. Daly. 2003. *A Guide to L^AT_EX*. 4th Edition. Addison-Wesley. The popular standard reference for beginners, with a brand new edition for 2003. If you buy just one of these books, go for this one.
- Diller, Antoni. 1998. *L^AT_EX Line by Line: Tips and Techniques for Document Processing*. John Wiley and Sons. Extremely readable and practical introduction.
- Goossens, Michel, Frank Mittelbach and Alexander Samarin. 1994. *The L^AT_EX Companion*. Addison-Wesley. Better treatment of some topics than Kopka & Daly but less organized.
- Lamport, Leslie. 1994. *L^AT_EX: A Document Preparation System*. Addison-Wesley. Not at all organized or pedagogical, but nevertheless the most complete guide to L^AT_EX. Worth investing in for more seasoned users.

9. Homework

1. Reproduce the source of the text below.
 - (a) ¿But aren't Kafka's *Schloß* and Æsops Œuvres often naïve *vis-à-vis* the **dæmonic** phoenix's official rôle in fluffy soufflés?
 - (b) Dvořák was born in Łódź.
 - (c) Ça coûte \$5 — dit van Dÿk.
 - (d) #4 is 50% of #8, &c.
 - (e) 1991–1994: 13, 1995–98: −4
2. Write a small ‘article’ containing sections, subsections and subsubsections. Include a title, your name and affiliation, acknowledgments, an abstract and a table of contents.