

Special Symbols

➤ Special symbols are available over various commands:

<code>\&</code>	&	<code>_</code>	_	<code>\P</code>	¶	<code>\$_backslash\$</code>	\
<code>\#</code>	#	<code>\pounds</code>	£	<code>\dag</code>	†	<code>?`</code>	¿
<code>\{</code>	{	<code>\copyright</code>	©	<code>\ddag</code>	‡	<code>!`</code>	¡
<code>\}</code>	}	<code>\S</code>	§	<code>\i</code>	ı	<code>\dots</code>	...
<code>\%</code>	%	<code>\yen</code>	¥	<code>\j</code>	ĵ	<code>\ldots</code>	...

➤ Foreign Symbols:

<code>\AA</code>	Å	<code>\aa</code>	å	<code>\L</code>	Ł
<code>\O</code>	Ø	<code>\o</code>	ø	<code>\l</code>	ł

Accents

➤ Accents are generated by modifier commands on letters:

Example			Example		
Definition	Input	Output	Definition	Input	Output
<code>\' {object}</code>	<code>\'c</code>	ć	<code>\={object}</code>	<code>\=c</code>	ċ
<code>\' {object}</code>	<code>\'c</code>	ç	<code>\. {object}</code>	<code>\.c</code>	ċ
<code>\^ {object}</code>	<code>\^c</code>	ĉ	<code>\~ {object}</code>	<code>\~c</code>	č
<code>\" {object}</code>	<code>\"c</code>	č	<code>\v {object}</code>	<code>\v{c}</code>	č
<code>\u {object}</code>	<code>\u{c}</code>	č	<code>\H {object}</code>	<code>\H{c}</code>	č
<code>\t {object}</code>	<code>\t{cc}</code>	ĉĉ	<code>\c {object}</code>	<code>\c{c}</code>	ç
<code>\d {object}</code>	<code>\d{c}</code>	ç	<code>\b {object}</code>	<code>\b{c}</code>	ç

Ligatures

➤ Explicit ligatures

<code>\AE</code>	Æ	<code>\ae</code>	æ	<code>\OE</code>	Œ	<code>\oe</code>	œ
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➤ Implicit ligatures

<code>fi</code>	fi	<code>ffi</code>	ffi	<code>fl</code>	fl	<code>ffl</code>	ffl
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- Inserted automatically, when it can be detected:

`fluffier`

fluffier

- To avoid this split ligature with empty group:

`f{}luf{}f{}ier`

fluffier

A Simple Example: sample.tex

```
\documentclass{article}
\begin{document}
% From Winged Death, H.P. Lovecraft and H. Heald
Here, in essence, is the text which the doctor read
aloud in that sinister [\dots] room [\dots]:

\begin{center}
JOURNAL OF\THOMAS SLAUENWITE, M.D.
\end{center}

Touching {\em punishment} of Henry Sargent
Moore, Ph.D.\ of Brooklyn, New York, Professor
of Invertebrate Biology in Columbia University,
New York, N.Y\@. Prepared to be read after my
death---for the satisfaction of making public the
accomplishment of my revenge \dots
\end{document}
```



Compiling Documents

➤ To compile sources `sample.tex` on prev. page under UN*X:

```
> latex sample      # suffix .tex may be omitted
This is TeX Version 3.14159 (Web2C 7.3.7)
...
> xdvi sample      # view .dvi file under X11
> dvips sample     # generate standard ps file
> dvips -Ppdf -t a4 sample
                        # generate ps file for PDF / A4
> ps2pdf           # convert to pdf using
                        # ghostscript (Ver. 7 or later)
> pdflatex sample  # generate pdf file using
                        # pdflatex (recent version!)
```



Result of sample.tex

Here, in essence, is the text which the doctor read aloud in that sinister [...] room [...]:

JOURNAL OF
THOMAS SLAUENWITE, M.D.

Touching *punishment* of Henry Sargent Moore, Ph.D. of Brooklyn, New York, Professor of Invertebrate Biology in Columbia University, New York, N.Y. Prepared to be read after my death—for the satisfaction of making public the accomplishment of my revenge ...

Document Classes and Structure

Document Classes

- Document class determines the **overall structure** of the document
- Sets overall layout, formatting and basic behaviour of commands
- Standard classes: `article`, `report`, `book`, `letter`, `slides`, `(foils)`
- Classes usually provide similar commands, but typesetting results are different
- Special classes (for journals, special applications, etc.) exist
- Specify document class by:

```
\documentclass{article}
```

Common Class Options

- The class is **modified by options**
- Some common options:
 - **Font size:** 10pt (default), 11pt, 12pt
sets basic font size and adjusts all other sizes
 - **Paper size / orientation:** a4paper, letterpaper, ..., portrait (default), landscape, oneside (default), twoside
 - **Columns:** onecolumn (default), twocolumn
- E.g. begin a document with:

```
\documentclass[a4paper,12pt]{article}
```
- Options are class specific (see literature for details)



Packages

- New **special features** are added by **macro packages**
- Thousands of packages for all purposes available
- Include package in preamble by:

```
\usepackage [options] {package}
```
- Package options modify default package behaviour
- Class options are forwarded to packages
- Inclusion order can be important, though it usually is not
- Available packages and classes depend on L^AT_EX installation

Frontmatter

- Frontmatter (title) defined in preamble by:

```
\title{Document Title}  
\author{Author}  
\date{Date}
```

- Frontmatter created in body by:

```
\maketitle
```

- Multiple authors:

```
\author{Author1 \and Author2}
```

- Thanks in footnote:

```
\author{Author1 \thanks{Text}}
```

- Today's date:

```
\date{\today}
```

Abstract and Table of Contents

- Some classes such as article and report define an **abstract environment**:

```
\begin{abstract}
This is the body of the
abstract.
\end{abstract}
```

Abstract

This is the body of the abstract.

- **Table of contents** is generated automatically and inserted with `\tableofcontents`
- **Table of figures**, etc. is generated automatically and inserted with `\listoffigures`, `\listoftables`, ...

Sectioning commands

➤ Commands to **structure the document** defined by document class:

● article: `\part`, `\section`, `\subsection`, `\subsubsection`,
`\paragraph`, `\subparagraph`

● report, book: `\part`, `\chapter`, `\section`, `\subsection`,
`\subsubsection`, `\paragraph`, `\subparagraph`

➤ Commands take title as required argument and short title (for ToC, etc.) as optional argument, e.g.:

```
\chapter[Short Title]{Title}
```

➤ Add `*` to command to prevent numbering, e.g.:

```
\chapter*[Short Title]{Title}
```



Structure Example

```
\documentclass{article}
\title{My Work} \author{J.~Doe}
\begin{document}
\maketitle
\tableofcontents
\section*{Acknowledgements}
\section{Introduction}
\section[Literature review]{A very long literature
review}
  \subsection{Unsuitable approaches}
    \subsubsection{My comments}
\end{document}
```



Structure Example Result

My Work J. Doe

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ACKNOWLEDGEMENTS

1 INTRODUCTION

2 A VERY LONG LITERATURE REVIEW

2.1 Unsuitable approaches

2.1.1 My comments

Appendices

- To **start appendices**, use the command `\appendix`
- Continue to use sectioning commands (`\chapter`, `\section`, depending on class)
- Numbering, etc. will be adjusted automatically

```
\appendix  
\chapter{Background}  
\section{Groups}  
\section{Cohomology}  
\chapter*{Bibliography}
```

Appendix A. Background
A.1 Groups
A.2 Cohomology
Bibliography

- Note, bibliographies are usually done differently