

HUMBOLDT-UNIVERSITÄT ZU BERLIN



L^AT_EX for Linguists

L^AT_EX 2: Math mode & new commands

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Math mode 1

- L^AT_EX has a special mode for **formulae**.
- Text is in **italics**, **blanks** and **line breaks** are **ignored**.
- With the command `\textrm{ }` inside the math mode, text in upright mode with blanks can be used.

```
$You shouldn't use text in math mode.$
```

```
$You shouldn't use \textrm{ text in math } mode.$
```

You shouldn't use text in math mode.

You shouldn't use text in math mode.

Math environments

Two different math environments can be used for the math mode:

- for **inline** formulae: `$ test test $`

If $2^2 + \sqrt{2} = c^4$, what is the value of c ?

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- **display** style (*math environment* in narrow sense): `\[... \]`

If $2^2 + \sqrt{2} = c^4$, what is the value of c ?

If

$$2^2 + \sqrt{2} = c^4$$

, what is the value of c ?

Equation environment

For **numbered equations**: `equation` environment

```
\begin{equation}
\label{eq:FirstEq}
\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{k^2}
= \frac{\pi^2}{6}
\end{equation}
```

$$\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{k^2} = \frac{\pi^2}{6} \quad (1)$$

For **cross references** to numbered equations `\eqref{ }` can be used.

```
see \eqref{eq:FirstEq}
```

see (1)

```
see \ref{eq:FirstEq}
```

see 1

Math packages

Some symbols can be used only when specific math packages are loaded.

Math packages from the American Mathematical Society (AMS)

```
\usepackage{amsmath}  
\usepackage{amsfonts}  
\usepackage{amssymb}  
\usepackage{amstext}  
\usepackage{mathrsfs}
```

- 1 Math mode 1
- 2 Customizing your commands

Customizing your commands

You can create your own commands!

```
$\langle e, t \rangle \rangle$
```

 $\langle e, t \rangle$

```
$\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle$
```

 $\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle$

Defining a command with **one argument** (for semantic types):

```
\newcommand{\type}[1]{\langle #1 \rangle}
```

The argument of the new command will be in angled brackets:

```
$\type{e,t}$
```

 $\langle e, t \rangle$

```
$\type{\type{e,t},\type{\type{e,t},t}}$
```

 $\langle \langle e, t \rangle, \langle \langle e, t \rangle, t \rangle \rangle$

`\typem{ }` can be embedded in further `\typem{ }` commands!

Defining a command with **one argument** (for graphemes):

```
\newcommand{\ab}[1]{${\langle$#1$\rangle$}
```

The argument of the new command will be in angled brackets, but not in math mode:

```
\ab{buying a house}
```

- | | | | |
|-----|----|---|-------------|
| (2) | a. | $\langle \text{buying a house} \rangle$ | [mit ab] |
| | b. | $\langle \textit{buying a house} \rangle$ | [mit typem] |

$\backslash\text{ab}\{ \}$ cannot embed further $\backslash\text{ab}\{ \}$ commands!

Defining a command **without arguments** (for abbreviations):

```
\newcommand{\ra}{\rightarrow}
```

$P \rightarrow Q$

```
P \ra Q
```

Defining a command with **more than one argument**:

```
\newcommand{\citegen}[3]{#1's #2 (#3)}
```

```
\citegen{Abney}{dissertation}{1987} is considered a milestone in NP Syntax.
```

Abney's dissertation (1987) is considered a milestone in NP Syntax.

Exercise

Go to

<https://github.com/langsci/latex4linguists/blob/master/1-2.md>
and follow the instructions of the **five blocks** in your .tex file.

Internet sources I

- Link: Akzente und Sonderzeichen in L^AT_EX.
https://de.wikibooks.org/wiki/LaTeX/_Akzente_und_Sonderzeichen
 [Access: 10/10/2017]
- Link: L^AT_EX/Special Characters.
https://en.wikibooks.org/wiki/LaTeX/Special_Characters
 [Access: 02/01/2019]

Literature I

- Freitag, Constantin & Antonio Machicao y Priemer. 2015. LaTeX-Einführung für Linguisten. Manuscript. <https://www.linguistik.hu-berlin.de/de/staff/amp/latex-einfuehrung>.
- Knuth, Donald E. 1986. *The TeX book*. Boston: Addison-Wesley.
- Kopka, Helmut. 1994. *LaTeX: Einführung*, vol. 1. Bonn: Addison-Wesley.