

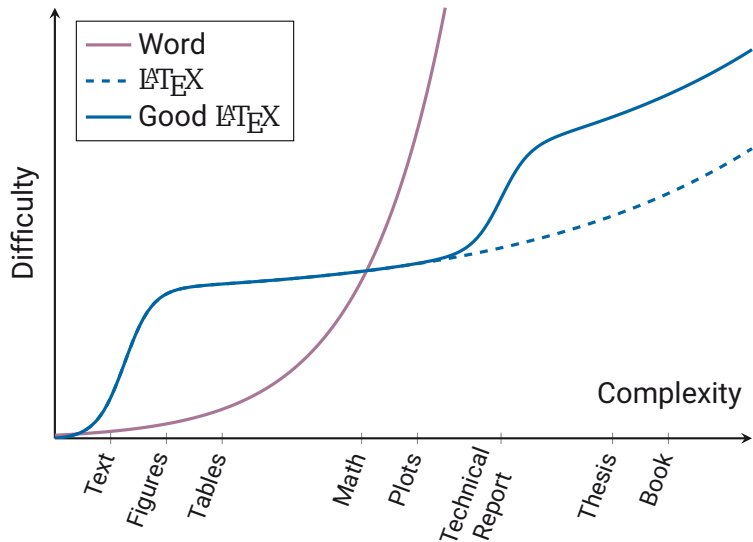
Advanced L^AT_EX 2_ε Workshop

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I lied to you ^{sorry}



Goals for today

- Organize your $\text{\LaTeX 2}_{\epsilon}$ code because the last one was an *absolute fucking mess*
- Understand *why the hell* the compiler is complaining
- Consume your precariously short existence trying to learn to draw pictures with a terrible programming language called *TikZ*

About this presentation

Content

- \LaTeX is *learn by doing*
- Will be mostly examples
- Sorry for the crowded slides

Example

Things in green boxes are examples

Tip

Things in red boxes are tips or extras

Do yourself a favor

Use the International US Keyboard Layout

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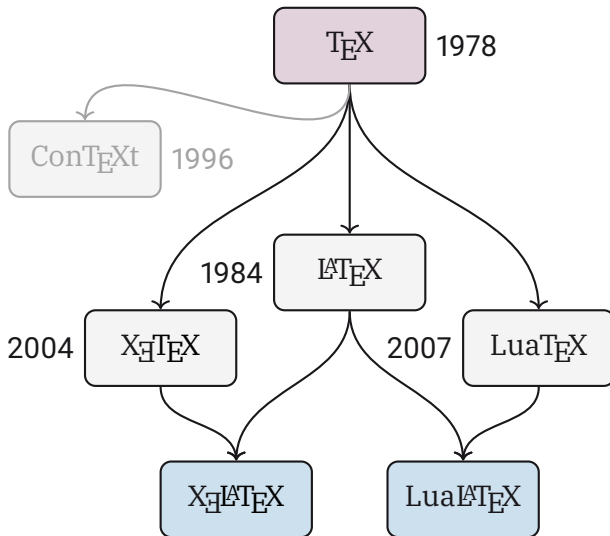
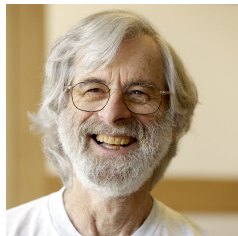
Table of Contents

1 Absolute Basics to not ruin the typesetting

2 Packages and classes

3 TikZ ist kein Zeichenprogramm

Please enter the 21th century



A: Use X_EL^AT_EX, it has UTF-8 support! (ä, ü, ô, ...)

Typesetting (aka “compilation”)

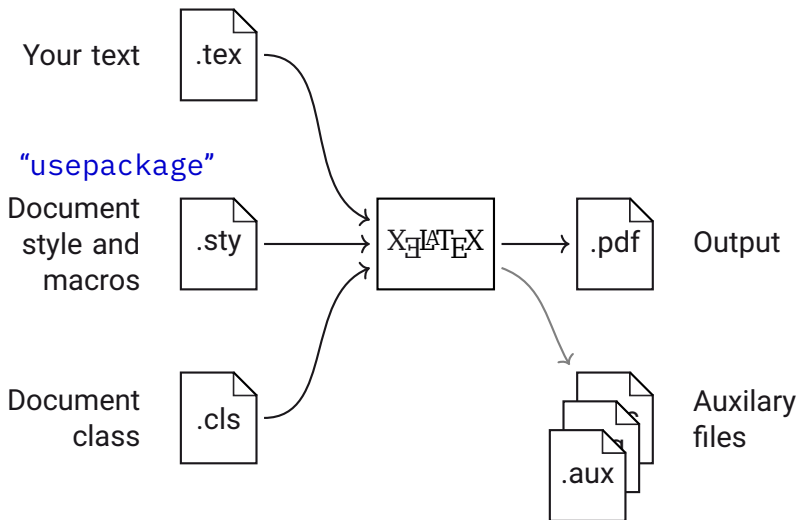


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- 1 Absolute Basics to not ruin the typesetting
- 2 Packages and classes**
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TikZ = TikZ ist kein Zeichenprogramm

```
\usepackage{tikz}  
\usetikzlibrary{calc, positioning, ...}
```

```
\begin{figure}  
  \centering  
  \begin{tikzpicture}[  
    % global settings / styles  
  ]  
  
    % drawing commands  
  
  \end{tikzpicture}  
  \caption{... \label{fig:...}}  
\end{figure}
```

Basics

- `\coordinate (name)at (x,y);`
- `\node[options] (name)at (x,y){label};`
- `\draw[options] commands;`
- `\fill[options] commands;`

Drawing commands

- Line (A) -- (B)
- Horiz. then vert. line (A) -| (B)
- Vert. then horiz. line (A) |- (B)
- Quadratic Bézier (A).. controls (P)and (Q).. (B)
- Advanced curve (A) to[options] (B)
- Nodes `node[options] (name){label}`
- Shapes (A)rectangle (B), (A)circle (2cm)

Basic example

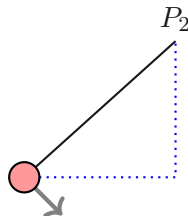
```
\begin{tikzpicture}
  \coordinate (O) at (0,0);
  \coordinate (A) at (2cm,18mm);
  % no units = cm

  \draw[thick] (O) -- (A);
  \draw[thick, dotted, blue]
    (O) -| (A);

  \draw[ultra thick, ->, gray]
    (O) -- ++(5mm, -5mm);

  \fill[thick, draw = black,
    fill = red!40] (O) circle (2mm);

  \node[above] at (A) {\(P_2\)};
\end{tikzpicture}
```



Example with nodes

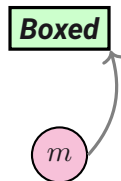
```
\node (A) at (0,0) {A node};

\node[
  rectangle, very thick,
  draw = black, fill = green!20,
  font = \bfseries\slshape,
  % positioning library
  below = 5mm of A,
] (B) {Boxed};

\node[
  circle, thick,
  draw = black, fill = magenta!20,
  below = 1cm of B,
] (C) {\(m\)};

\draw[very thick, gray, ->]
  (C.east) to[bend right] (B.south east)
  ;
```

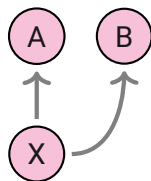
A node



TikZ V: Matrix and scope

```
\matrix (M) [ % node with table of nodes
  row sep = 8mm,
  column sep = 4mm,
  nodes = {
    circle, thick,
    draw = black,
    fill = magenta!30,
    outer sep = 1mm,
  },
] {
  \node (A) {A}; & \node (B) {B}; \\
  \node (X) {X}; \\
};

\begin{scope}[ultra thick, gray, ->]
  \draw (X) -- (A);
  \draw (X) to[out = 0, in = -90] (B);
\end{scope}
```



THE END

It wasn't worth the time I know, but hey,
at least now you know how to draw pretty pictures