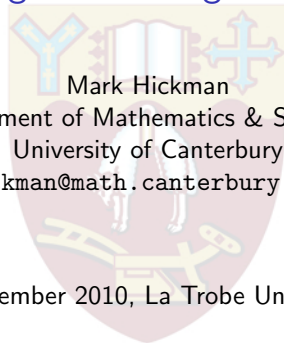


\LaTeX circa 2010

Teaching an Old Dog New Tricks



Mark Hickman

Department of Mathematics & Statistics

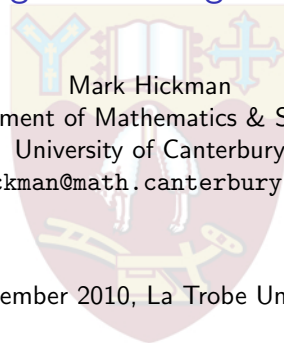
University of Canterbury

`M.Hickman@math.canterbury.ac.nz`

3 December 2010, La Trobe University

\LaTeX circa 2010

Teaching an Old Dog New Tricks



Mark Hickman

Department of Mathematics & Statistics

University of Canterbury

`M.Hickman@math.canterbury.ac.nz`

3 December 2010, La Trobe University

```

1 \title{{\huge \LaTeX\ {\em circa} 2010}\}[3mm]
2 Teaching an Old Dog New Tricks}
3 \author{Mark Hickman\
4   Department of Mathematics \& Statistics\
5   University of Canterbury\
6   \texttt{M.Hickman@math.canterbury.ac.nz}}
7
8 \date{3 December 2010, La Trobe University}
9
10 \setbeamertemplate{background}{
11   \includegraphics{shield-colour1.pdf}}
12
13 \frame[typeset second,c]{\titlepage}
14
15 \setbeamertemplate{background}{}

```

L^AT_EX *circa* 2010

Teaching an Old Dog New Tricks



Mark Hickman
 Department of Mathematics & Statistics
 University of Canterbury
 M.Hickman@math.canterbury.ac.nz

3 December 2010, La Trobe University

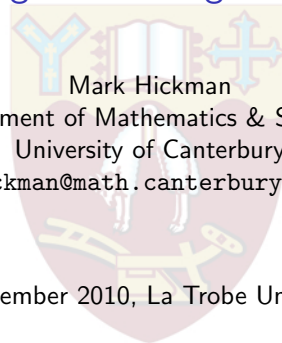
```

1 \title{{\huge \LaTeX\ {\em circa} 2010}\}[3mm]
2 Teaching an Old Dog New Tricks}
3 \author{Mark Hickman\
4   Department of Mathematics \& Statistics\
5   University of Canterbury\
6   \texttt{M.Hickman@math.canterbury.ac.nz}}
7
8 \date{3 December 2010, La Trobe University}
9
10 \setbeamertemplate{background}{
11   \includegraphics{shield-colour1.pdf}}
12
13 \frame[typeset second,c]{\titlepage}
14
15 \setbeamertemplate{background}{}

```

L^AT_EX *circa* 2010

Teaching an Old Dog New Tricks

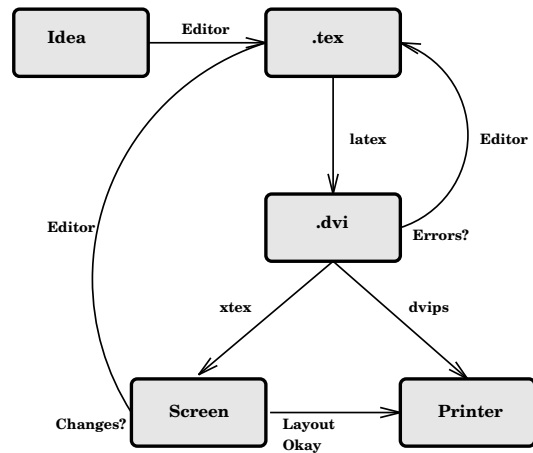


Mark Hickman
 Department of Mathematics & Statistics
 University of Canterbury
 M.Hickman@math.canterbury.ac.nz

3 December 2010, La Trobe University

L^AT_EX Workflow *circa* 1993

L^AT_EX Workflow *circa* 1993

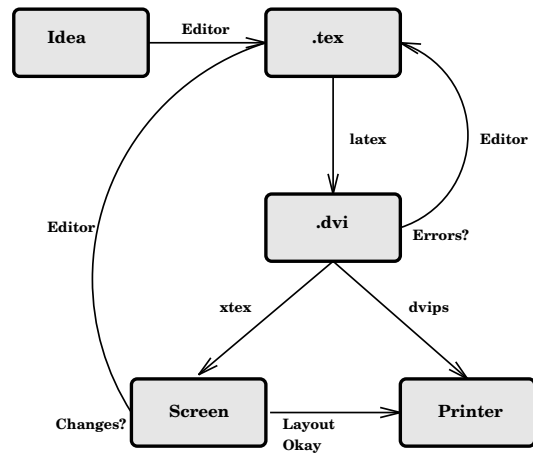


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in XFIG.

L^AT_EX Workflow *circa* 1993

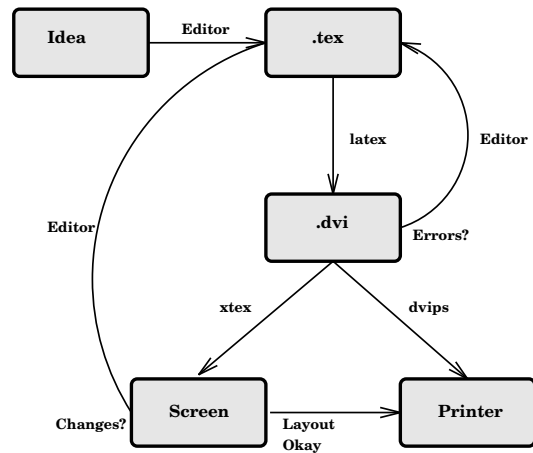


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in **XFIG**.
- Converted to encapsulated postscript.

L^AT_EX Workflow *circa* 1993

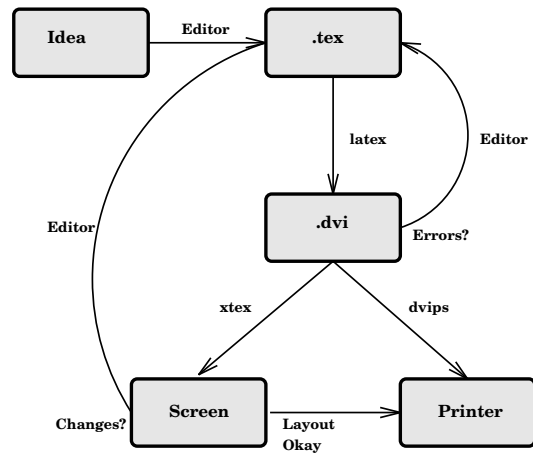


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in **XFIG**.
- Converted to encapsulated postscript.
- Inserted in a L^AT_EX document via `\epsfig`.

L^AT_EX Workflow *circa* 1993

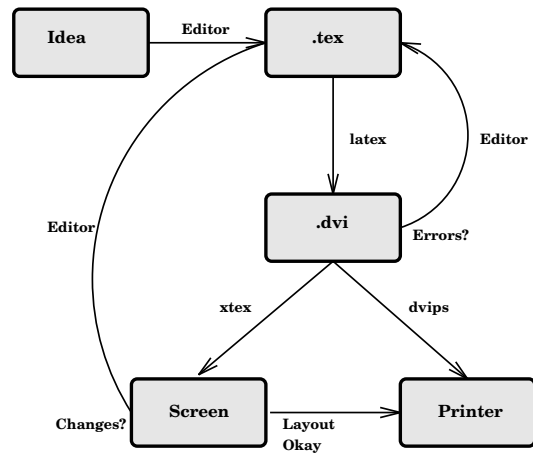


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in **XFIG**.
- Converted to encapsulated postscript.
- Inserted in a L^AT_EX document via `\epsfig`.
- Processed with L^AT_EX to give a dvi file.

L^AT_EX Workflow *circa* 1993

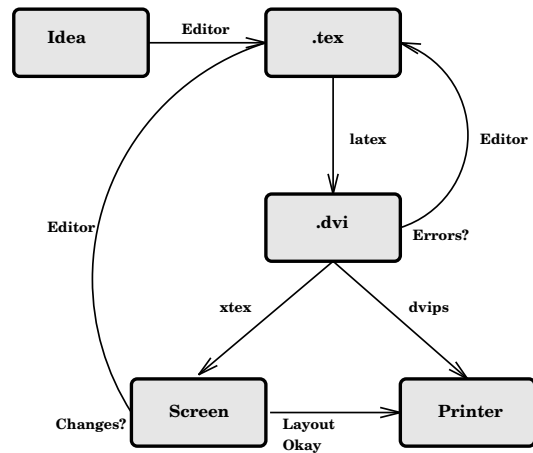


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in **XFIG**.
- Converted to encapsulated postscript.
- Inserted in a L^AT_EX document via `\epsfig`.
- Processed with L^AT_EX to give a dvi file.
- Viewed on screen with **XTEX**.

L^AT_EX Workflow *circa* 1993

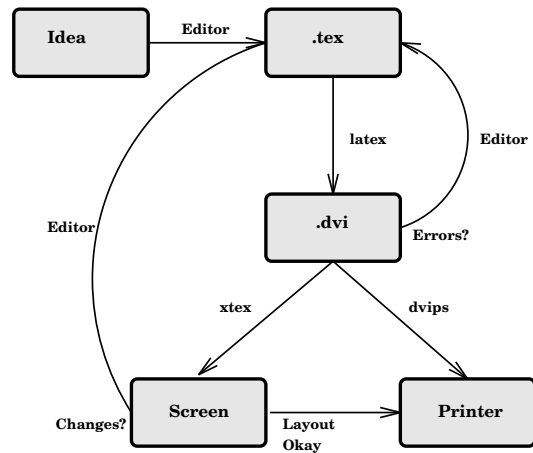


The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 1993

- Diagram drawn in **XFIG**.
- Converted to encapsulated postscript.
- Inserted in a L^AT_EX document via `\epsfig`.
- Processed with L^AT_EX to give a dvi file.
- Viewed on screen with **XTEX**.
- Converted to ps file with **DVIPS** and subsequently printed!

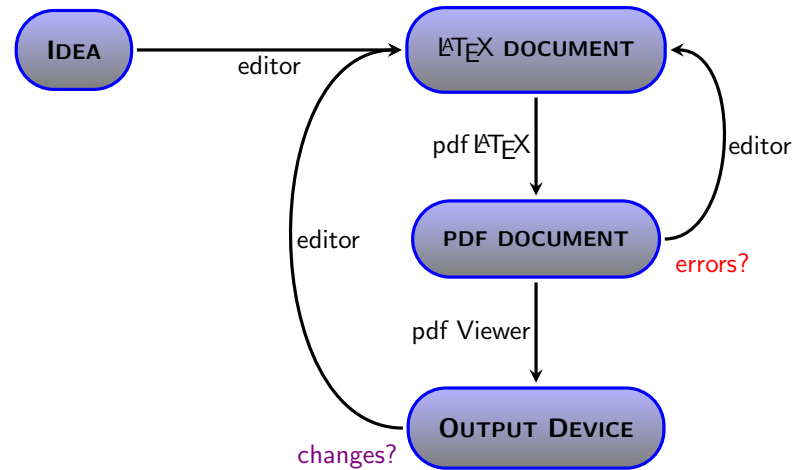
L^AT_EX Workflow *circa* 1993



The lifecycle of a LaTeX document

L^AT_EX Workflow *circa* 2010

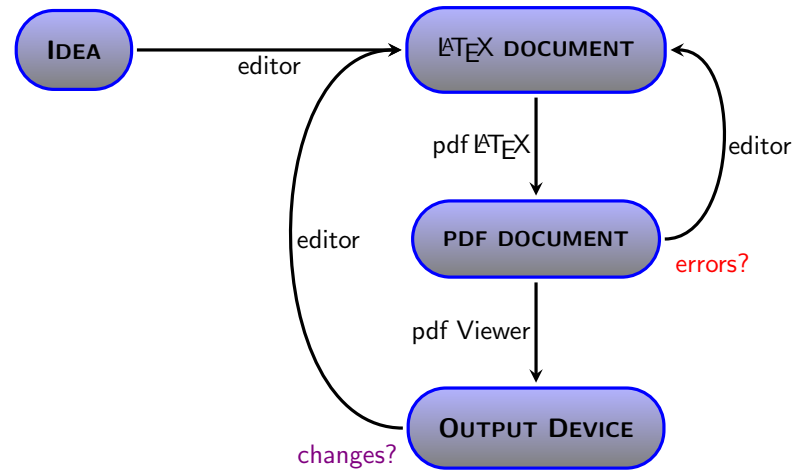
L^AT_EX Workflow *circa* 2010



\LaTeX Workflow *circa* 2010

- Diagram drawn in \LaTeX using $TikZ$ package.

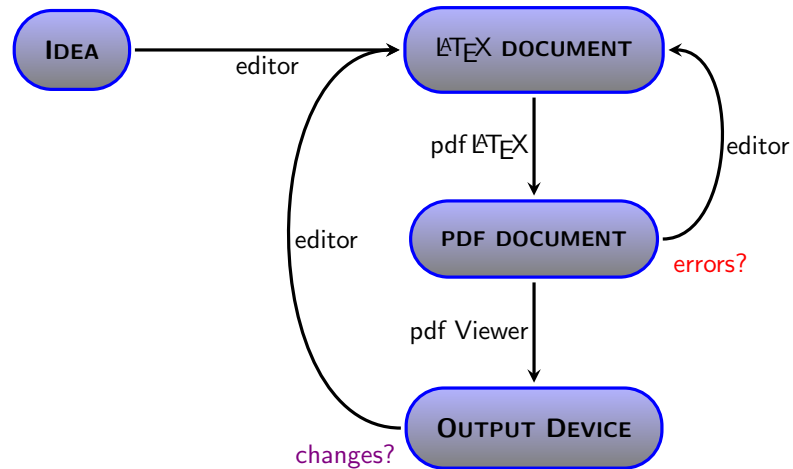
\LaTeX Workflow *circa* 2010



\LaTeX Workflow *circa* 2010

- Diagram drawn in \LaTeX using `TikZ` package.
- Processed with `pdf \LaTeX` to give a pdf file.

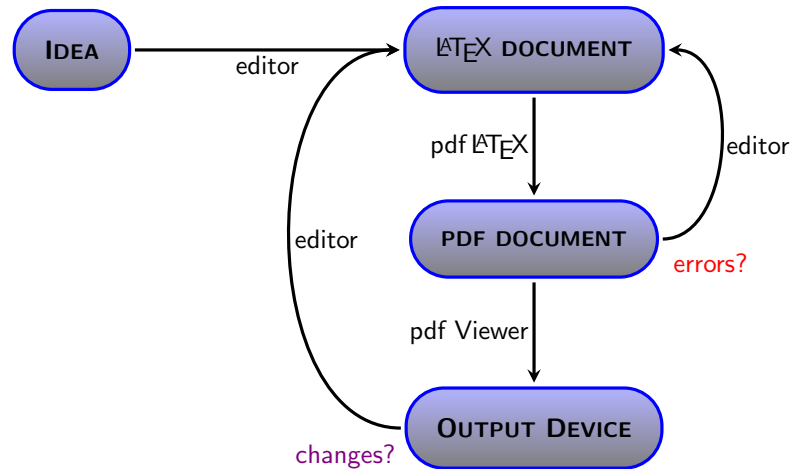
\LaTeX Workflow *circa* 2010



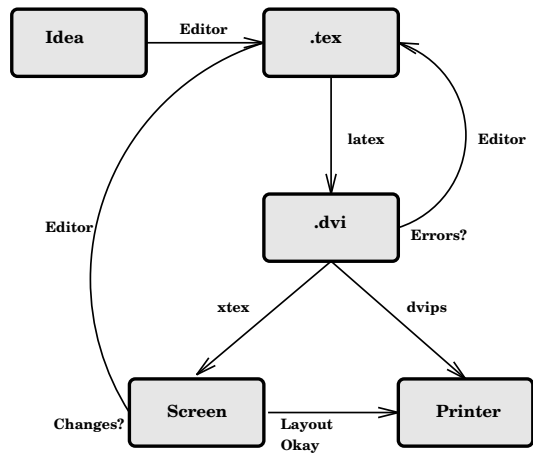
\LaTeX Workflow *circa* 2010

- Diagram drawn in \LaTeX using $TikZ$ package.
- Processed with pdf \LaTeX to give a pdf file.
- Rendered on screen or printer with a pdf viewer (such as **ACROBAT**).

\LaTeX Workflow *circa* 2010

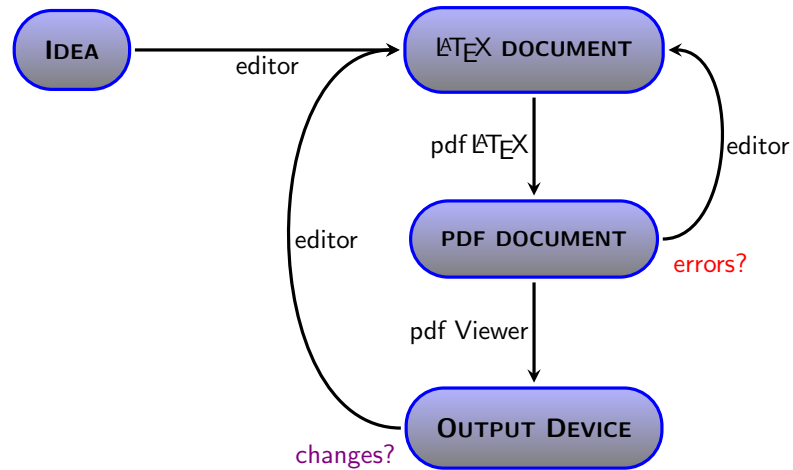


LaTeX Workflow circa 1993



The lifecycle of a LaTeX document

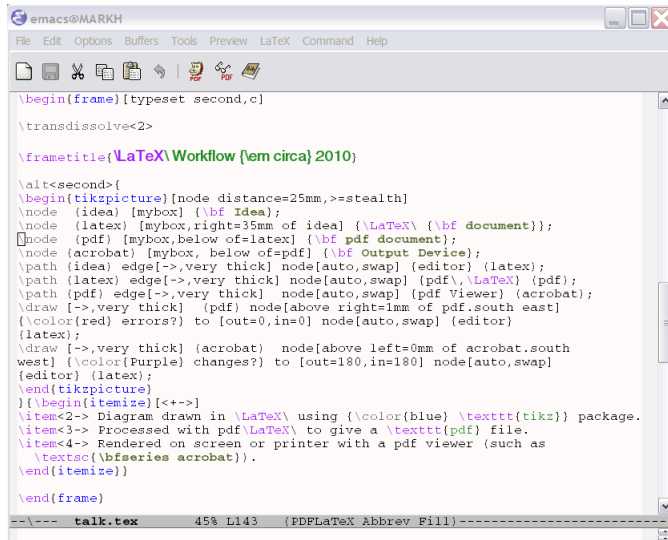
LaTeX Workflow circa 2010



Editors

- **EMACS** with **AUCTEX**.

Editors



The screenshot shows the Emacs editor window titled "emacs@MARKH". The menu bar includes "File", "Edit", "Options", "Buffers", "Tools", "Preview", "LaTeX", "Command", and "Help". The toolbar contains icons for file operations and LaTeX-specific actions. The main text area displays LaTeX code for a diagram. The code defines a frame with a title "LaTeX Workflow (em circa) 2010" and a TikZ diagram. The diagram shows a flow from "Idea" to "Latex" to "Pdf" to "Acrobat", with "Editor" positioned between "Latex" and "Pdf". The diagram uses thick arrows and color-coded text (red for "errors?", purple for "changes?"). Below the diagram, there are four items explaining the workflow steps. The status bar at the bottom shows "--\--- talk.tex 45% L143 (PDFLaTeX Abbrev Fill)-----".

```
\begin{frame}[typeset second,c]

\transdissolve<2>

\frametitle{\LaTeX\ Workflow (em circa) 2010}

\alt<second>{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX\ {\bf document}};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox, below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf\, \LaTeX) (pdf);
\path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
{\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor)
{latex};
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}{\begin{itemize}[<+>]
\item<2-> Diagram drawn in \LaTeX\ using {\color{blue} \texttt{tikz}} package.
\item<3-> Processed with pdf\LaTeX\ to give a \texttt{pdf} file.
\item<4-> Rendered on screen or printer with a pdf viewer (such as
\textsc{\bfseries acrobat}).
\end{itemize}}

\end{frame}

--\--- talk.tex 45% L143 (PDFLaTeX Abbrev Fill)-----
```


Editors

- **EMACS** with **AU T E X** .
- **TEXWORKS**.

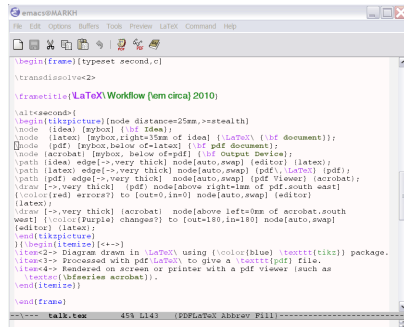
Editors

```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help
pdfLaTeX
133 \begin{frame}[typeset second,c]
134
135 \transdissolve<2>
136
137 \frametitle{\LaTeX\ Workflow (\em circa) 2010}
138
139 \alt<second>{
140 \begin{tikzpicture}[node distance=25mm,>=stealth]
141 \node (idea) [mybox] {\bf Idea};
142 \node (latex) [mybox,right=35mm of idea] {\LaTeX\ (\bf document)};
143 \node (pdf) [mybox,below of=latex] {\bf pdf document};
144 \node (acrobat) [mybox, below of=pdf] {\bf Output Device};
145 \path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
146 \path (latex) edge[->,very thick] node[auto,swap] (pdf, \LaTeX) (pdf);
147 \path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
148 \draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
149 {\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor)
150 (latex);
151 \draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
152 west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
153 {editor} (latex);
154 \end{tikzpicture}
155 }{\begin{itemize}[<+>]
156 \item<2-> Diagram drawn in \LaTeX\ using {\color{blue} \texttt{tikz}} package.
157 \item<3-> Processed with pdf\LaTeX\ to give a \texttt{pdf} file.
158 \item<4-> Rendered on screen or printer with a pdf viewer (such as
159 \textsc{\bfseries acrobat}).
160 \end{itemize}}
161
162 \end{frame}
< | 11 | >
Line 180 of 245; col 40
```

Choosing an Editor

- Bracket matching

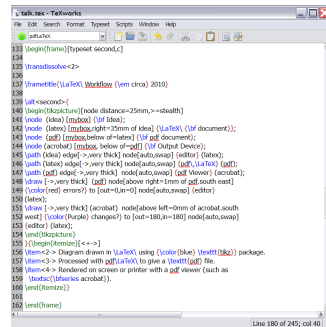
Choosing an Editor



The screenshot shows the Emacs editor window titled "emacs@MARKH". The code in the buffer is as follows:

```
\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt<second>{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX\ {\bf document}};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX\ (pdf));
\path (pdf) edge[->,very thick] node[auto,swap] (pdf viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
{\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}\begin{itemize}[<->]
\item<2>-> Diagram drawn in \LaTeX using {\color{blue} \texttt{tikz}} package.
\item<3>-> Processed with pdf{\LaTeX} to give a {\texttt{pdf}} file.
\item<4>-> Rendered on screen or printer with a pdf viewer (such as
\textseries{acrobat}).
\end{itemize}
\end{frame}
```

The status bar at the bottom shows: "talk.tex 45% L143 (PDFLaTeX Abbrev Fill)".



The screenshot shows the TeXworks editor window titled "talk.tex - TeXworks". The code in the buffer is as follows:

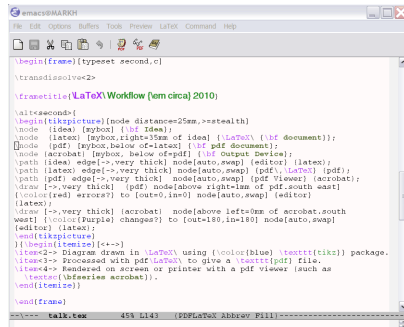
```
\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt<second>{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX\ {\bf document}};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX\ (pdf));
\path (pdf) edge[->,very thick] node[auto,swap] (pdf viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
{\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}\begin{itemize}[<->]
\item<2>-> Diagram drawn in \LaTeX using {\color{blue} \texttt{tikz}} package.
\item<3>-> Processed with pdf{\LaTeX} to give a {\texttt{pdf}} file.
\item<4>-> Rendered on screen or printer with a pdf viewer (such as
\textseries{acrobat}).
\end{itemize}
\end{frame}
```

The status bar at the bottom shows: "Line 180 of 245; col 40".

Choosing an Editor

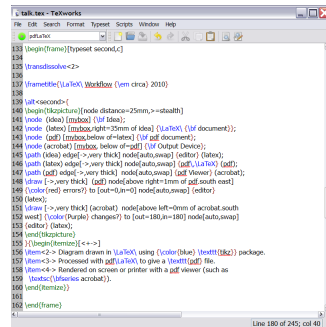
- Bracket matching
- Line numbering

Choosing an Editor



```
emacsv@MARKH
File Edit Options Buffers Tools Preview LaTeX Command Help

\begin{frame}[typeset second,c]
\transdissolve<2>
\transdissolve<2>
\frame{title[LaTeX Workflow (em circa) 2010]}
\alt{second}{
\begin{tikzpicture}[node distance=25mm, >=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox, right=35mm of idea] {\LaTeX\ (\bf document)};
\node (pdf) [mybox, below of=latex] {\bf pdf document};
\node (acrobat) [mybox, below of=pdf] {\bf Output Device};
\path (idea) edge[->, very thick] node[auto, swap] (editor) (latex);
\path (latex) edge[->, very thick] node[auto, swap] (pdf) (\LaTeX\ pdf);
\path (pdf) edge[->, very thick] node[auto, swap] (acrobat);
\draw [->, very thick] (pdf) node[above right=1mm of pdf, south east]
\color{red} errors? to [out=0, in=0] node[auto, swap] (editor);
\latex;
\draw [->, very thick] (acrobat) node[above left=0mm of acrobat, south
west] \color{Purple} changes? to [out=180, in=180] node[auto, swap]
(editor) (latex);
\end{tikzpicture}
}\begin{itemize}[<->]
\item<2> Diagram drawn in \LaTeX\ using \color{blue} \texttt{tikz} package.
\item<3> Processed with pdf\LaTeX\ to give a \color{magenta} pdf file.
\item<4> Rendered on screen or printer with a pdf viewer (such as
\textseries acrobat).
\end{itemize}
\end{frame}
----- talk.tex 455 L143 (PDFLaTeX Abbrev Fill) -----
```



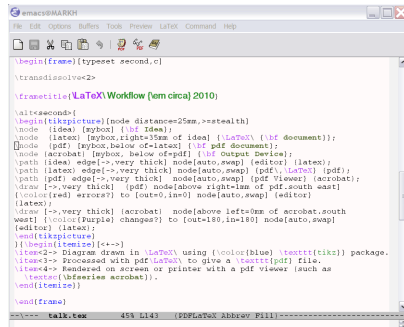
```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help
pdfLaTeX

133 \begin{frame}[typeset second,c]
134
135 \transdissolve<2>
136
137 \frame{title[LaTeX Workflow (em circa) 2010]}
138
139 \alt{second}{
140 \begin{tikzpicture}[node distance=25mm, >=stealth]
141 \node (idea) [mybox] {\bf Idea};
142 \node (latex) [mybox, right=35mm of idea] {\LaTeX\ (\bf document)};
143 \node (pdf) [mybox, below of=latex] {\bf pdf document};
144 \node (acrobat) [mybox, below of=pdf] {\bf Output Device};
145 \path (idea) edge[->, very thick] node[auto, swap] (editor) (latex);
146 \path (latex) edge[->, very thick] node[auto, swap] (pdf) (\LaTeX\ pdf);
147 \path (pdf) edge[->, very thick] node[auto, swap] (acrobat);
148 \draw [->, very thick] (pdf) node[above right=1mm of pdf, south east]
149 \color{red} errors? to [out=0, in=0] node[auto, swap] (editor);
150 \latex;
151 \draw [->, very thick] (acrobat) node[above left=0mm of acrobat, south
152 west] \color{Purple} changes? to [out=180, in=180] node[auto, swap]
153 (editor) (latex);
154 \end{tikzpicture}
155 }\begin{itemize}[<->]
156 \item<2> Diagram drawn in \LaTeX\ using \color{blue} \texttt{tikz} package.
157 \item<3> Processed with pdf\LaTeX\ to give a \color{magenta} pdf file.
158 \item<4> Rendered on screen or printer with a pdf viewer (such as
159 \textseries acrobat).
160 \end{itemize}
161
162 \end{frame}
----- Line 180 of 245; col 40 -----
```

Choosing an Editor

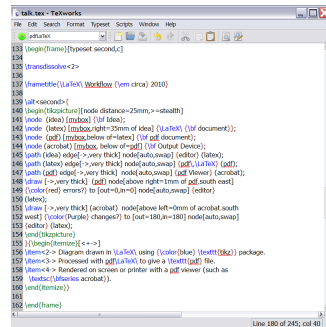
- Bracket matching
- Line numbering
- Coloured L^AT_EX commands

Choosing an Editor



```
emacs@MARKH
File Edit Options Buffers Tools Preview LaTeX Command Help

\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt{second}{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [xybox] {\bf Idea};
\node (latex) [xybox,right=35mm of idea] {\LaTeX {\bf document}};
\node (pdf) [xybox,below of=latex] {\bf pdf document};
\node (acrobat) [xybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX) (pdf);
\path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
\color{red} errors? to [out=0,in=0] node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] \color{Purple} changes? to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}){\begin{itemize}[<->]
\item<2> Diagram drawn in \LaTeX using \color{blue} \texttt{tikz} package.
\item<3> Processed with pdf\LaTeX to give a \texttt{pdf} file.
\item<4> Rendered on screen or printer with a pdf viewer (such as
\textseries acrobat).
\end{itemize}}
\end{frame}
----- talk.tex 455 L143 (PDFLaTeX Abbrev Fill)
```



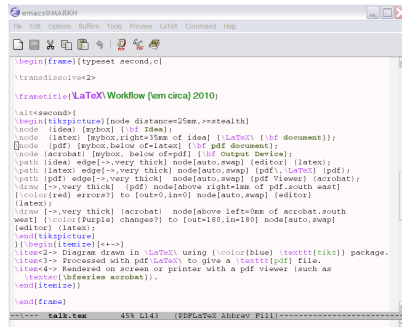
```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help
pdfLaTeX

133 \begin{frame}[typeset second,c]
134
135 \transdissolve<2>
136
137 \frametitle{\LaTeX Workflow (em circa) 2010}
138
139 \alt{second}{
140 \begin{tikzpicture}[node distance=25mm,>=stealth]
141 \node (idea) [xybox] {\bf Idea};
142 \node (latex) [xybox,right=35mm of idea] {\LaTeX {\bf document}};
143 \node (pdf) [xybox,below of=latex] {\bf pdf document};
144 \node (acrobat) [xybox,below of=pdf] {\bf Output Device};
145 \path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
146 \path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX) (pdf);
147 \path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
148 \draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
149 \color{red} errors? to [out=0,in=0] node[auto,swap] (editor);
150 \latex;
151 \draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
152 west] \color{Purple} changes? to [out=180,in=180] node[auto,swap]
153 (editor) (latex);
154 \end{tikzpicture}
155 }){\begin{itemize}[<->]
156 \item<2> Diagram drawn in \LaTeX using \color{blue} \texttt{tikz} package.
157 \item<3> Processed with pdf\LaTeX to give a \texttt{pdf} file.
158 \item<4> Rendered on screen or printer with a pdf viewer (such as
159 \textseries acrobat).
160 \end{itemize}}
161
162 \end{frame}
Line 180 of 245; col 40
```

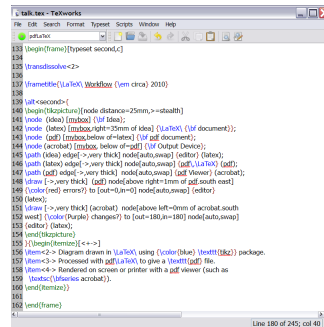
Choosing an Editor

- Bracket matching
- Line numbering
- Coloured L^AT_EX commands
- SyncT_EX

Choosing an Editor



```
emacs@MARKH
File Edit Options Buffers Tools Preview LaTeX Command Help
\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt{second}{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [xybox] {\bf Idea};
\node (latex) [xybox,right=35mm of idea] {\LaTeX {\bf document}};
\node (pdf) [xybox,below of=latex] {\bf pdf document};
\node (acrobat) [xybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX (pdf));
\path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
{\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}){\begin{itemize}[<->]
\item<2> Diagram drawn in \LaTeX using {\color{blue} \texttt{tikz}} package.
\item<3> Processed with pdf\LaTeX to give a {\texttt{pdf}} file.
\item<4> Rendered on screen or printer with a pdf viewer (such as
\text{\bfseries acrobat}).
\end{itemize}
}\end{frame}
--- talk.tex 455 L143 (PDFLaTeX Abbrev Fill)
```

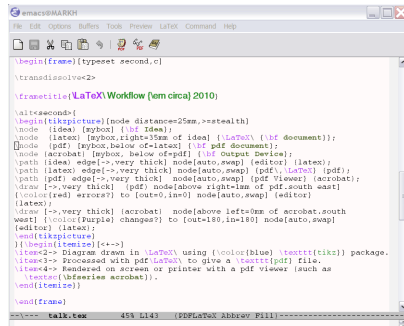


```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help
pdftex
133 \begin{frame}[typeset second,c]
134
135 \transdissolve<2>
136
137 \frametitle{\LaTeX Workflow (em circa) 2010}
138
139 \alt{second}{
140 \begin{tikzpicture}[node distance=25mm,>=stealth]
141 \node (idea) [xybox] {\bf Idea};
142 \node (latex) [xybox,right=35mm of idea] {\LaTeX {\bf document}};
143 \node (pdf) [xybox,below of=latex] {\bf pdf document};
144 \node (acrobat) [xybox,below of=pdf] {\bf Output Device};
145 \path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
146 \path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX (pdf));
147 \path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
148 \draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
149 {\color{red} errors?} to [out=0,in=0] node[auto,swap] (editor);
150 \latex;
151 \draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
152 west] {\color{Purple} changes?} to [out=180,in=180] node[auto,swap]
153 (editor) (latex);
154 \end{tikzpicture}
155 }){\begin{itemize}[<->]
156 \item<2> Diagram drawn in \LaTeX using {\color{blue} \texttt{tikz}} package.
157 \item<3> Processed with pdf\LaTeX to give a {\texttt{pdf}} file.
158 \item<4> Rendered on screen or printer with a pdf viewer (such as
159 \text{\bfseries acrobat}).
160 \end{itemize}
161 }\end{frame}
Line 180 of 245; col 40
```

Choosing an Editor

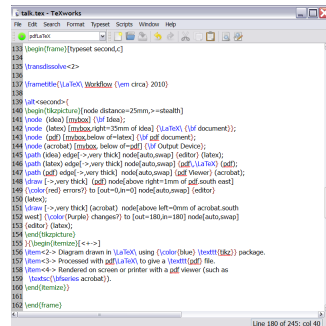
- Bracket matching
- Line numbering
- Coloured L^AT_EX commands
- SyncT_EX
- Multi-platform support (Windows, Linux, Mac OS)

Choosing an Editor



```
emacsv@MARKH
File Edit Options Buffers Tools Preview LaTeX Command Help

\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt{second}{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX (\bf document)};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX (pdf));
\path (pdf) edge[->,very thick] node[auto,swap] (pdf viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
[<color=red> errors?] to (out=0,in=0) node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] [<color=Purple> changes?] to (out=180,in=180) node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}){\begin{itemize}[<+>]
\item<2>-> Diagram drawn in \LaTeX using (<color=blue> \texttt{tikz}) package.
\item<3>-> Processed with pdf(\LaTeX) to give a \texttt{pdf} file.
\item<4>-> Rendered on screen or printer with a pdf viewer (such as
\texttt{\bfseries acrobat}).
\end{itemize}}
\end{frame}
----- talk.tex 45% L143 (PDFLaTeX Abbrev Fill)
```



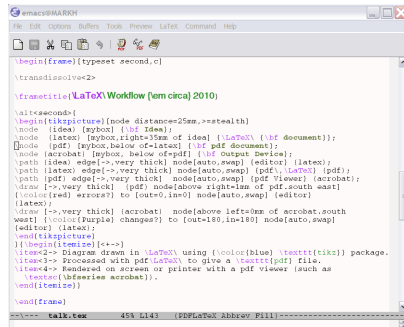
```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help

\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt{second}{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX (\bf document)};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) (\LaTeX (pdf));
\path (pdf) edge[->,very thick] node[auto,swap] (pdf viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
[<color=red> errors?] to (out=0,in=0) node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] [<color=Purple> changes?] to (out=180,in=180) node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}){\begin{itemize}[<+>]
\item<2>-> Diagram drawn in \LaTeX using (<color=blue> \texttt{tikz}) package.
\item<3>-> Processed with pdf(\LaTeX) to give a \texttt{pdf} file.
\item<4>-> Rendered on screen or printer with a pdf viewer (such as
\texttt{\bfseries acrobat}).
\end{itemize}}
\end{frame}
----- Line 180 of 245; col 40
```

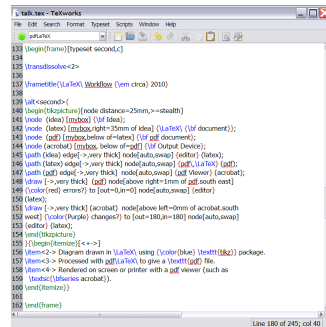
Choosing an Editor

- Bracket matching
- Line numbering
- Coloured L^AT_EX commands
- SyncT_EX
- Multi-platform support (Windows, Linux, Mac OS)
- Free

Choosing an Editor



```
emacs@MARKH
File Edit Options Buffers Tools Preview LaTeX Command Help
\begin{frame}[typeset second,c]
\transdissolve<2>
\frametitle{\LaTeX Workflow (em circa) 2010}
\alt{second}{
\begin{tikzpicture}[node distance=25mm,>=stealth]
\node (idea) [mybox] {\bf Idea};
\node (latex) [mybox,right=35mm of idea] {\LaTeX {\bf document}};
\node (pdf) [mybox,below of=latex] {\bf pdf document};
\node (acrobat) [mybox,below of=pdf] {\bf Output Device};
\path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
\path (latex) edge[->,very thick] node[auto,swap] (pdf) {\LaTeX (pdf)};
\path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
\draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
\color{red} errors? to [out=0,in=0] node[auto,swap] (editor);
\latex;
\draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
west] \color{Purple} changes? to [out=180,in=180] node[auto,swap]
(editor) (latex);
\end{tikzpicture}
}){\begin{itemize}[<->]
\item<2> Diagram drawn in \LaTeX using \color{blue} \texttt{tikz} package.
\item<3> Processed with pdf\LaTeX to give a \color{green} pdf file.
\item<4> Rendered on screen or printer with a pdf viewer (such as
\texttt{\bfseries acrobat}).
\end{itemize}}
\end{frame}
--- talk.tex 45% L143 (PDFLaTeX Abbrev Fill)
```



```
talk.tex - TeXworks
File Edit Search Format Typeset Scripts Window Help
pdftex
133 \begin{frame}[typeset second,c]
134
135 \transdissolve<2>
136
137 \frametitle{\LaTeX Workflow (em circa) 2010}
138
139 \alt{second}{
140 \begin{tikzpicture}[node distance=25mm,>=stealth]
141 \node (idea) [mybox] {\bf Idea};
142 \node (latex) [mybox,right=35mm of idea] {\LaTeX {\bf document}};
143 \node (pdf) [mybox,below of=latex] {\bf pdf document};
144 \node (acrobat) [mybox,below of=pdf] {\bf Output Device};
145 \path (idea) edge[->,very thick] node[auto,swap] (editor) (latex);
146 \path (latex) edge[->,very thick] node[auto,swap] (pdf) {\LaTeX (pdf)};
147 \path (pdf) edge[->,very thick] node[auto,swap] (pdf Viewer) (acrobat);
148 \draw [->,very thick] (pdf) node[above right=1mm of pdf.south east]
149 \color{red} errors? to [out=0,in=0] node[auto,swap] (editor);
150 \latex;
151 \draw [->,very thick] (acrobat) node[above left=0mm of acrobat.south
152 west] \color{Purple} changes? to [out=180,in=180] node[auto,swap]
153 (editor) (latex);
154 \end{tikzpicture}
155 }){\begin{itemize}[<->]
156 \item<2> Diagram drawn in \LaTeX using \color{blue} \texttt{tikz} package.
157 \item<3> Processed with pdf\LaTeX to give a \color{green} pdf file.
158 \item<4> Rendered on screen or printer with a pdf viewer (such as
159 \texttt{\bfseries acrobat}).
160 \end{itemize}}
161
162 \end{frame}
Line 180 of 245; col 40
```

- T_EX flavour

MiKTeX Package Manager

File Edit View Task Repository Help

Name: Keywords: File Filter Reset

Name	Category	Size	Packaged on	Installed on	Title
12many	\Formats\LaTeX\LaTeX contrib	37920	2005-04-10		
a0poster	\Formats\LaTeX\LaTeX contrib	218999	2004-02-13	2009-09-07	Provides fonts in sizes of 12pt up to 107pt
a4wide	\Formats\LaTeX\LaTeX contrib	142619	2010-02-22		"Wide" a4 layout
a5comb	\Formats\LaTeX\LaTeX contrib	100272	2010-02-22		Support for a5 paper sizes
aastex	\Formats\LaTeX\LaTeX contrib	2358834	2005-06-25	2009-09-07	Macros for Manuscript Preparation for AAS Journals
abc	\Formats\LaTeX\LaTeX contrib	53765	2008-03-13		Support ABC music notation in LaTeX
abstract	\Formats\LaTeX\LaTeX contrib	185342	2009-09-03		Control the typesetting of the abstract environment
abstyles	\Uncategorized	114809	2001-05-14		
accfonts	\Uncategorized	191416	2009-04-21		Font manipulation utilities (mkt1font and vpl2vp1)
achemso	\Formats\LaTeX\LaTeX contrib	479778	2010-04-27		LaTeX and BibTeX style for American Chemical Society
acmconf	\Formats\LaTeX\LaTeX contrib	285750	2001-05-31		Association for Computing Machinery conference proceedings
acmtrans	\Uncategorized	280685	2004-07-13		
acromake	\Formats\LaTeX\LaTeX contrib	171881	2010-02-22		Make commands for acronyms
acromemory	\Formats\LaTeX\LaTeX contrib	9416911	2007-03-17		Memory games in LaTeX
acronym	\Formats\LaTeX\LaTeX contrib	194473	2009-12-12		Expand acronyms at least once
acrosort	\Formats\LaTeX\LaTeX contrib	4871938	2007-03-17		Sort sliced image into order
acrotex	\Formats\LaTeX\LaTeX contrib	6519517	2007-05-17		The AcroTeX education bundle
active-conf	\Formats\LaTeX\LaTeX contrib	394772	2008-05-23		Class for typesetting ACTIVE conference papers
addlines	\Formats\LaTeX\LaTeX contrib	19025	2008-08-19		A user-friendly wrapper around \enlargethispage
adfathesis	\Formats\LaTeX\LaTeX contrib	248427	2004-04-24		
adrconv	\Uncategorized	497160	2010-04-13		BibTeX styles to implement an address database
adrist	\Formats\LaTeX\LaTeX contrib	24097	2001-05-14		Using address lists in LaTeX
advdate	\Formats\LaTeX\LaTeX contrib	158287	2010-02-22		Print a date relative to "today"
ae	\Fonts\Font Support	506513	2007-07-05	2009-09-07	Virtual fonts with T1 encoded CMR-fonts
aeb-tilebg	\Formats\LaTeX\LaTeX contrib	6686554	2007-06-09		AeB Tiling Backgrounds
aeb_pro	\Formats\LaTeX\LaTeX contrib	6134785	2007-05-15		Items from the AeB Pro Family of Software
aebenvelope	\Formats\LaTeX\LaTeX contrib	1835254	2007-05-19		The AeB Pro eEnvelope System
aebslcing	\Uncategorized	84978	2007-03-23		An image slicer
aebxmp	\Formats\LaTeX\LaTeX contrib	84144	2007-03-17		Add advanced metadata to PDF files
aegull	\Language Support\French	48411	2009-05-05		Add several kinds of guillemets to the ae fonts
afthesis	\Formats\LaTeX\LaTeX contrib	112156	2008-07-30		Air Force Institute of Technology thesis class

Total: 1882

- T_EX flavour
 - T_EX, L^AT_EX, PDFL^AT_EX, LuaT_EX, XeT_EX, ConT_EXt, ...

The screenshot shows the MiKTeX Package Manager interface. It features a menu bar (File, Edit, View, Task, Repository, Help) and search filters (Name, Keywords, File). Below the filters is a table listing various LaTeX packages with their names, categories, sizes, and installation dates. The table is scrollable, and the total number of packages is shown as 1882 at the bottom right.

Name	Category	Size	Packaged on	Installed on	Title
12many	\Formats\LaTeX\LaTeX contrib	37920	2005-04-10		
a0poster	\Formats\LaTeX\LaTeX contrib	218999	2004-02-13	2009-09-07	Provides fonts in sizes of 12pt up to 107pt
a4wide	\Formats\LaTeX\LaTeX contrib	142619	2010-02-22		"Wide" a4 layout
a5comb	\Formats\LaTeX\LaTeX contrib	100272	2010-02-22		Support for a5 paper sizes
aastex	\Formats\LaTeX\LaTeX contrib	2358834	2005-06-25	2009-09-07	Macros for Manuscript Preparation for AAS Journals
abc	\Formats\LaTeX\LaTeX contrib	53765	2008-03-13		Support ABC music notation in LaTeX
abstract	\Formats\LaTeX\LaTeX contrib	185342	2009-09-03		Control the typesetting of the abstract environment
abstyles	\Uncategorized	114809	2001-05-14		
accfonts	\Uncategorized	191416	2009-04-21		Font manipulation utilities (mkt1font and vpl2vp1)
achemso	\Formats\LaTeX\LaTeX contrib	479778	2010-04-27		LaTeX and BibTeX style for American Chemical Society
acmconf	\Formats\LaTeX\LaTeX contrib	285750	2001-05-31		Association for Computing Machinery conference proceedings
acmtrans	\Uncategorized	280685	2004-07-13		
acromake	\Formats\LaTeX\LaTeX contrib	171881	2010-02-22		Make commands for acronyms
acromemory	\Formats\LaTeX\LaTeX contrib	9416911	2007-03-17		Memory games in LaTeX
acronym	\Formats\LaTeX\LaTeX contrib	194473	2009-12-12		Expand acronyms at least once
acrosort	\Formats\LaTeX\LaTeX contrib	4871938	2007-03-17		Sort sliced image into order
acrotex	\Formats\LaTeX\LaTeX contrib	6519517	2007-05-17		The AcroTeX education bundle
active-conf	\Formats\LaTeX\LaTeX contrib	394772	2008-05-23		Class for typesetting ACTIVE conference papers
addlines	\Formats\LaTeX\LaTeX contrib	19025	2008-08-19		A user-friendly wrapper around \enlargethispage
adfathesis	\Formats\LaTeX\LaTeX contrib	248427	2004-04-24		
adrconv	\Uncategorized	497160	2010-04-13		
adrist	\Formats\LaTeX\LaTeX contrib	24097	2001-05-14		BibTeX styles to implement an address database
advdate	\Formats\LaTeX\LaTeX contrib	158287	2010-02-22		Using address lists in LaTeX
ae	\Fonts\Font Support	506513	2007-07-05	2009-09-07	Print a date relative to "today"
aeb-tilebg	\Formats\LaTeX\LaTeX contrib	6686554	2007-06-09		Virtual fonts with T1 encoded CMR-fonts
aeb_pro	\Formats\LaTeX\LaTeX contrib	6134785	2007-05-15		AeB Tiling Backgrounds
aebenvelope	\Formats\LaTeX\LaTeX contrib	1835254	2007-05-19		Items from the AeB Pro Family of Software
aebslcing	\Uncategorized	84978	2007-03-23		The AeB Pro eEnvelope System
aebxmp	\Formats\LaTeX\LaTeX contrib	84144	2007-03-17		An image slicer
aegull	\Language Support\French	48411	2009-05-05		Add advanced metadata to PDF files
afthesis	\Formats\LaTeX\LaTeX contrib	112156	2008-07-30		Add several kinds of guillemets to the ae fonts

Total: 1882

- T_EX flavour
 - T_EX, L^AT_EX, PDFL^AT_EX, LuaT_EX, XeT_EX, ConT_EXt, ...

MiKTeX Package Manager

File Edit View Task Repository Help

Name: Keywords: File Filter Reset

Name	Category	Size	Packaged on	Installed on	Title
12many	\Formats\LaTeX\LaTeX contrib	37920	2005-04-10		
a0poster	\Formats\LaTeX\LaTeX contrib	218999	2004-02-13	2009-09-07	Provides fonts in sizes of 12pt up to 107pt
a4wide	\Formats\LaTeX\LaTeX contrib	142619	2010-02-22		"Wide" a4 layout
a5comb	\Formats\LaTeX\LaTeX contrib	100272	2010-02-22		Support for a5 paper sizes
aastex	\Formats\LaTeX\LaTeX contrib	2358834	2005-06-25	2009-09-07	Macros for Manuscript Preparation for AAS Journals
abc	\Formats\LaTeX\LaTeX contrib	53765	2008-03-13		Support ABC music notation in LaTeX
abstract	\Formats\LaTeX\LaTeX contrib	185342	2009-09-03		Control the typesetting of the abstract environment
abstyles	\Uncategorized	114809	2001-05-14		
accfonts	\Uncategorized	191416	2009-04-21		Font manipulation utilities (mkt1font and vpl2vp1)
achemso	\Formats\LaTeX\LaTeX contrib	479778	2010-04-27		LaTeX and BibTeX style for American Chemical Society
acmconf	\Formats\LaTeX\LaTeX contrib	285750	2001-05-31		Association for Computing Machinery conference proceedings
acmtrans	\Uncategorized	280685	2004-07-13		
acromake	\Formats\LaTeX\LaTeX contrib	171881	2010-02-22		Make commands for acronyms
acromemory	\Formats\LaTeX\LaTeX contrib	9416911	2007-03-17		Memory games in LaTeX
acronym	\Formats\LaTeX\LaTeX contrib	194473	2009-12-12		Expand acronyms at least once
acrosort	\Formats\LaTeX\LaTeX contrib	4871938	2007-03-17		Sort sliced image into order
acrotex	\Formats\LaTeX\LaTeX contrib	6519517	2007-05-17		The AcroTeX education bundle
active-conf	\Formats\LaTeX\LaTeX contrib	394772	2008-05-23		Class for typesetting ACTIVE conference papers
addlines	\Formats\LaTeX\LaTeX contrib	19025	2008-08-19		A user-friendly wrapper around \enlargethispage
adfathesis	\Formats\LaTeX\LaTeX contrib	248427	2004-04-24		
adrconv	\Uncategorized	497160	2010-04-13		
adrist	\Formats\LaTeX\LaTeX contrib	24097	2001-05-14		BibTeX styles to implement an address database
advdate	\Formats\LaTeX\LaTeX contrib	158287	2010-02-22		Using address lists in LaTeX
ae	\Fonts\Font Support	506513	2007-07-05	2009-09-07	Print a date relative to "today"
aeb-tilbg	\Formats\LaTeX\LaTeX contrib	6686554	2007-06-09		Virtual fonts for PDF-files with T1 encoded CMR-fonts
aeb_pro	\Formats\LaTeX\LaTeX contrib	6134785	2007-05-15		AeB Tiling Backgrounds
aebenvelope	\Formats\LaTeX\LaTeX contrib	1835254	2007-05-19		Items from the AeB Pro Family of Software
aebslcing	\Uncategorized	84978	2007-03-23		The AeB Pro eEnvelope System
aebxmp	\Formats\LaTeX\LaTeX contrib	84144	2007-03-17		An image slicer
aegull	\Language Support\French	48411	2009-05-05		Add advanced metadata to PDF files
afthesis	\Formats\LaTeX\LaTeX contrib	112156	2008-07-30		Add several kinds of guillemets to the ae fonts
					Air Force Institute of Technology thesis class

Total: 1882

- T_EX flavour
 - T_EX, L^AT_EX, PDFL^AT_EX, LuaT_EX, XeT_EX, ConT_EXt, ...
- T_EX distribution

The screenshot shows the MiKTeX Package Manager interface. It features a menu bar (File, Edit, View, Task, Repository, Help) and search filters (Name, Keywords, File). Below the filters is a table listing various LaTeX packages with columns for Name, Category, Size, Packaged on, Installed on, and Title. The table is scrollable, and the total number of packages is shown as 1882 at the bottom right.

Name	Category	Size	Packaged on	Installed on	Title
12many	\Formats\LaTeX\LaTeX contrib	37920	2005-04-10		
a0poster	\Formats\LaTeX\LaTeX contrib	218999	2004-02-13	2009-09-07	Provides fonts in sizes of 12pt up to 107pt
a4wide	\Formats\LaTeX\LaTeX contrib	142619	2010-02-22		"Wide" a4 layout
a5comb	\Formats\LaTeX\LaTeX contrib	100272	2010-02-22		Support for a5 paper sizes
aastex	\Formats\LaTeX\LaTeX contrib	2358834	2005-06-25	2009-09-07	Macros for Manuscript Preparation for AAS Journals
abc	\Formats\LaTeX\LaTeX contrib	53765	2008-03-13		Support ABC music notation in LaTeX
abstract	\Formats\LaTeX\LaTeX contrib	185342	2009-09-03		Control the typesetting of the abstract environment
abstyles	\Uncategorized	114809	2001-05-14		
accfonts	\Uncategorized	191416	2009-04-21		Font manipulation utilities (mkt1font and vpl2vp)
achemso	\Formats\LaTeX\LaTeX contrib	479778	2010-04-27		LaTeX and BibTeX style for American Chemical Society
acmconf	\Formats\LaTeX\LaTeX contrib	285750	2001-05-31		Association for Computing Machinery conference proceedings
acmtrans	\Uncategorized	280685	2004-07-13		
acromake	\Formats\LaTeX\LaTeX contrib	171881	2010-02-22		Make commands for acronyms
acromemory	\Formats\LaTeX\LaTeX contrib	9416911	2007-03-17		Memory games in LaTeX
acronym	\Formats\LaTeX\LaTeX contrib	194473	2009-12-12		Expand acronyms at least once
acrosort	\Formats\LaTeX\LaTeX contrib	4871938	2007-03-17		Sort sliced image into order
acrotex	\Formats\LaTeX\LaTeX contrib	6519517	2007-05-17		The AcroTeX education bundle
active-conf	\Formats\LaTeX\LaTeX contrib	394772	2008-05-23		Class for typesetting ACTIVE conference papers
addlines	\Formats\LaTeX\LaTeX contrib	19025	2008-08-19		A user-friendly wrapper around \enlargethispage
adfathesis	\Formats\LaTeX\LaTeX contrib	248427	2004-04-24		
adrconv	\Uncategorized	497160	2010-04-13		
adrist	\Formats\LaTeX\LaTeX contrib	24097	2001-05-14		BibTeX styles to implement an address database
advdate	\Formats\LaTeX\LaTeX contrib	158287	2010-02-22		Using address lists in LaTeX
ae	\Fonts\Font Support	506513	2007-07-05	2009-09-07	Print a date relative to "today"
aeb-tilebg	\Formats\LaTeX\LaTeX contrib	6686554	2007-06-09		Virtual fonts for PDF-files with T1 encoded CMR-fonts
aeb_pro	\Formats\LaTeX\LaTeX contrib	6134785	2007-05-15		AeB Tiling Backgrounds
aebenvelope	\Formats\LaTeX\LaTeX contrib	1835254	2007-05-19		Items from the AeB Pro Family of Software
aebslcing	\Uncategorized	84978	2007-03-23		The AeB Pro eEnvelope System
aebxmp	\Formats\LaTeX\LaTeX contrib	84144	2007-03-17		An image slicer
aegull	\Language Support\French	48411	2009-05-05		Add advanced metadata to PDF files
afthesis	\Formats\LaTeX\LaTeX contrib	112156	2008-07-30		Add several kinds of guillemets to the ae fonts

Total: 1882

- T_EX flavour
 - T_EX, L^AT_EX, PDFL^AT_EX, LuaT_EX, XeT_EX, ConT_EXt, ...
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The screenshot shows the MiKTeX Package Manager interface. It features a menu bar (File, Edit, View, Task, Repository, Help) and search filters (Name, Keywords, File). Below is a table listing various LaTeX packages with their categories, sizes, and installation dates.

Name	Category	Size	Packaged on	Installed on	Title
12many	\Formats\LaTeX\LaTeX contrib	37920	2005-04-10		
a0poster	\Formats\LaTeX\LaTeX contrib	218999	2004-02-13	2009-09-07	Provides fonts in sizes of 12pt up to 107pt
a4wide	\Formats\LaTeX\LaTeX contrib	142619	2010-02-22		"Wide" a4 layout
a5comb	\Formats\LaTeX\LaTeX contrib	100272	2010-02-22		Support for a5 paper sizes
aastex	\Formats\LaTeX\LaTeX contrib	2358834	2005-06-25	2009-09-07	Macros for Manuscript Preparation for AAS Journals
abc	\Formats\LaTeX\LaTeX contrib	53765	2008-03-13		Support ABC music notation in LaTeX
abstract	\Formats\LaTeX\LaTeX contrib	185342	2009-09-03		Control the typesetting of the abstract environment
abstyles	\Uncategorized	114809	2001-05-14		
accfonts	\Uncategorized	191416	2009-04-21		Font manipulation utilities (mkt1font and vpl2vpl)
achemso	\Formats\LaTeX\LaTeX contrib	479778	2010-04-27		LaTeX and BibTeX style for American Chemical Society
acmconf	\Formats\LaTeX\LaTeX contrib	285750	2001-05-31		Association for Computing Machinery conference proceedings
acmtrans	\Uncategorized	280685	2004-07-13		
acromake	\Formats\LaTeX\LaTeX contrib	171881	2010-02-22		Make commands for acronyms
acromemory	\Formats\LaTeX\LaTeX contrib	9416911	2007-03-17		Memory games in LaTeX
acronym	\Formats\LaTeX\LaTeX contrib	194473	2009-12-12		Expand acronyms at least once
acrosort	\Formats\LaTeX\LaTeX contrib	4871938	2007-03-17		Sort sliced image into order
acrotex	\Formats\LaTeX\LaTeX contrib	6519517	2007-05-17		The AcroTeX education bundle
active-conf	\Formats\LaTeX\LaTeX contrib	394772	2008-05-23		Class for typesetting ACTIVE conference papers
addlines	\Formats\LaTeX\LaTeX contrib	19025	2008-08-19		A user-friendly wrapper around \enlargethispage
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					Air Force Institute of Technology thesis class

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The screenshot shows the MiKTeX Package Manager interface. It features a menu bar (File, Edit, View, Task, Repository, Help), search fields for Name, Keywords, and File, and Filter/Reset buttons. Below is a table listing various LaTeX packages with their categories, sizes, and dates.

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 - Package Manager
- Packages
 - Over 4000 packages to choose from!

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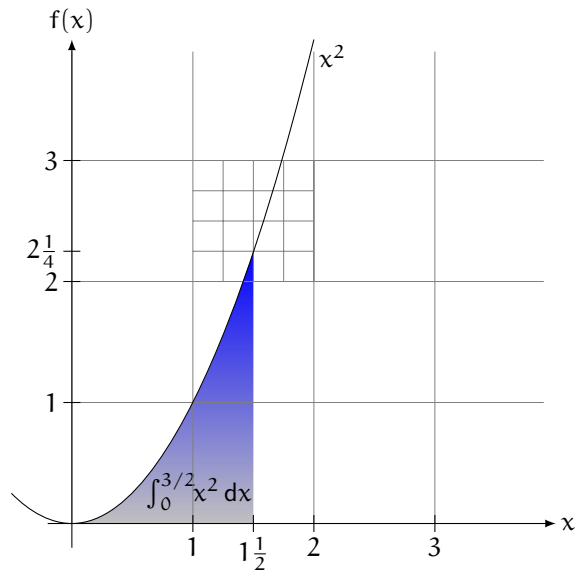
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Diagrams in L^AT_EX

- External application

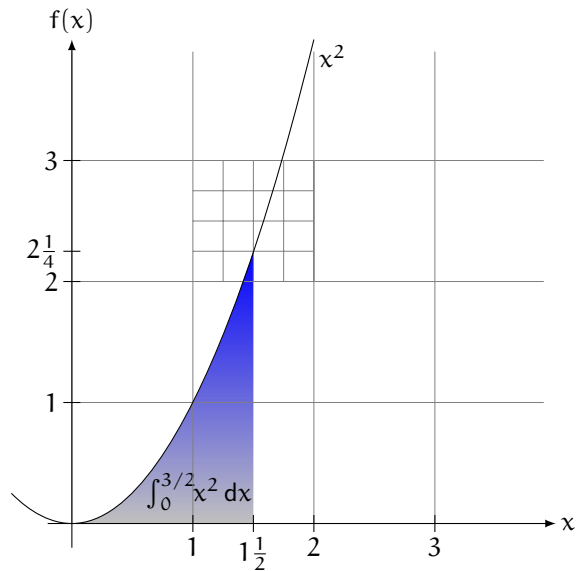
Diagrams in L^AT_EX



Diagrams in \LaTeX

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 - ADOBE ILLUSTRATOR, XFIG, ...

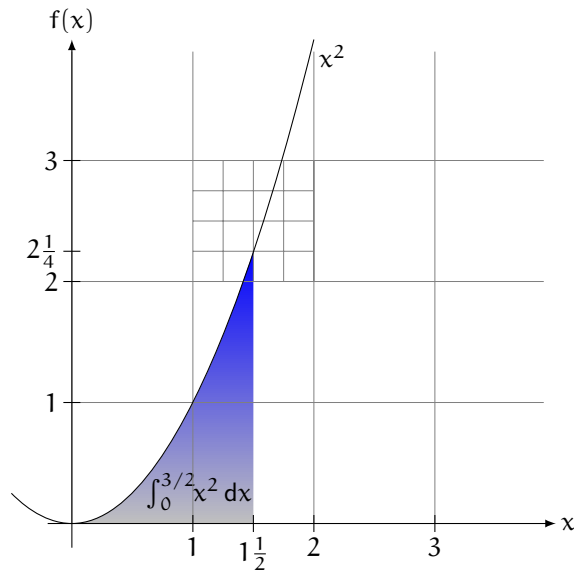
Diagrams in \LaTeX



Diagrams in L^AT_EX

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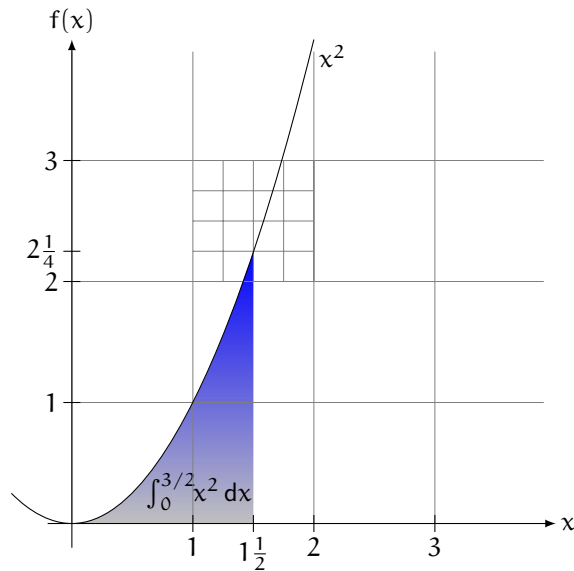
Diagrams in L^AT_EX



Diagrams in \LaTeX

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 - Issues with fonts

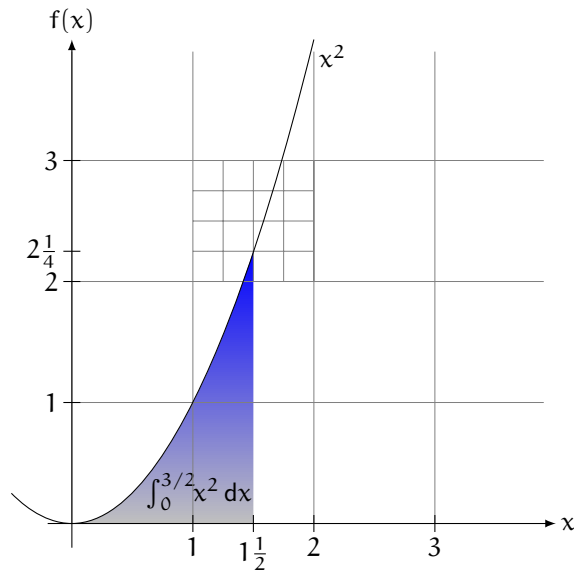
Diagrams in \LaTeX



Diagrams in \LaTeX

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- **picture environment**

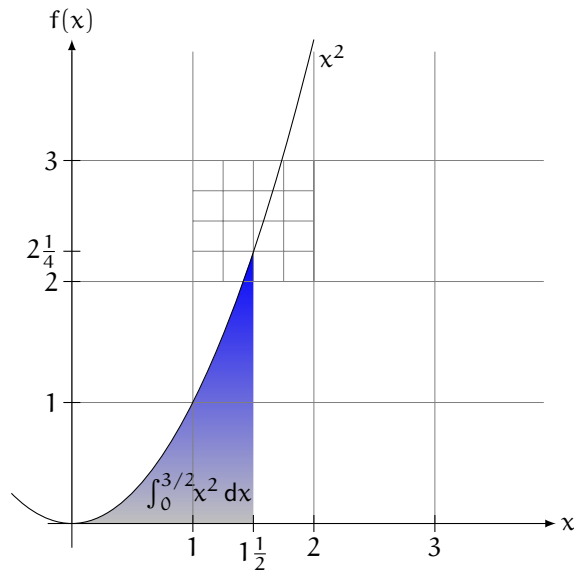
Diagrams in \LaTeX



Diagrams in L^AT_EX

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- picture environment
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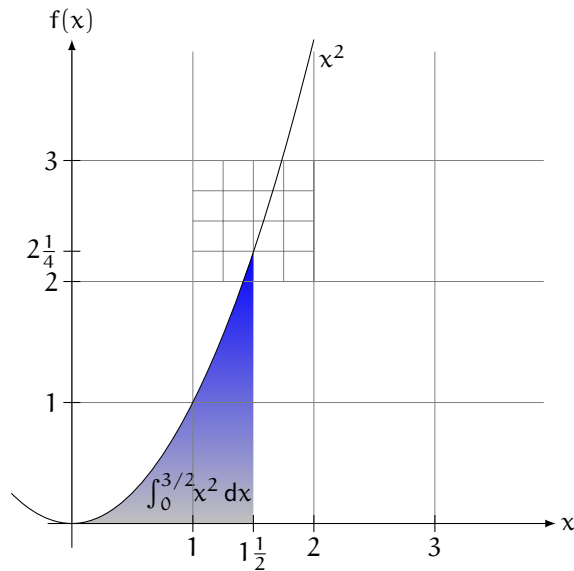
Diagrams in L^AT_EX



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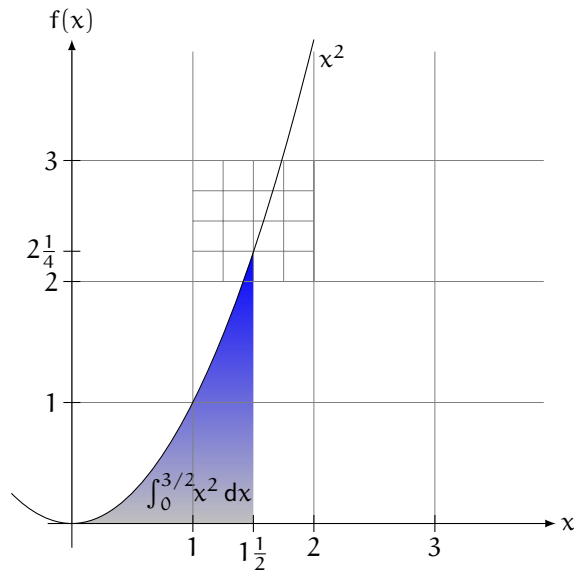
Diagrams in L^AT_EX



Diagrams in \LaTeX

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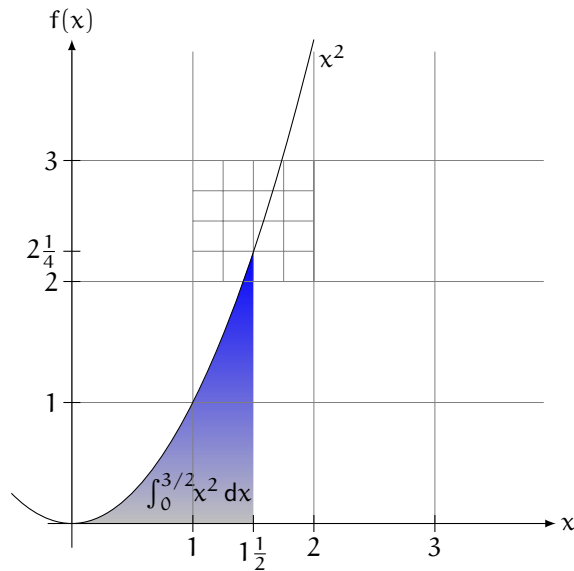
Diagrams in \LaTeX



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- `picture` environment
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 - Limiting
- **TikZ**

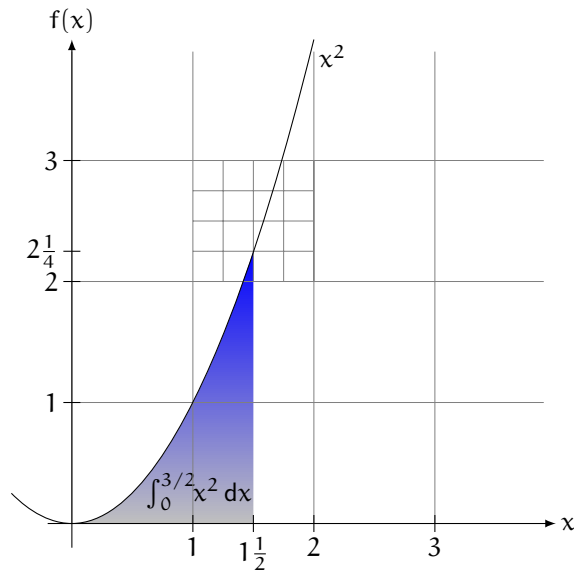
Diagrams in \LaTeX



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 - Issues with fonts
- `picture` environment
 - Very limiting
- PS(PDF)TRICKS
 - Limiting
- `TikZ`
 - Uses mathematical primitives

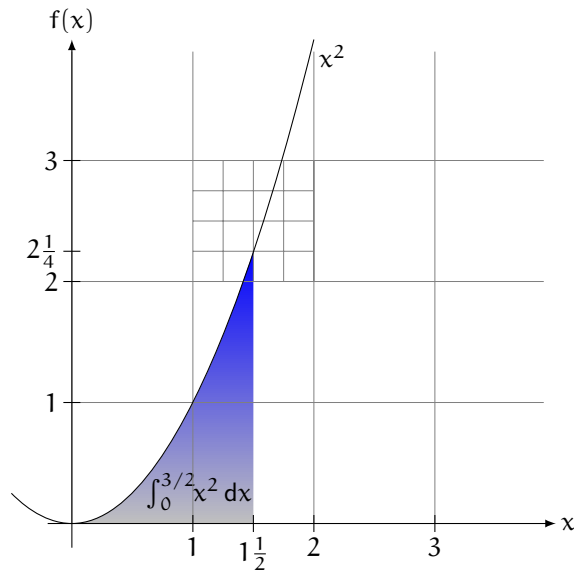
Diagrams in L^AT_EX



Diagrams in L^AT_EX

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 - Issues with fonts
- picture environment
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- PS(PDF)TRICKS
 - Limiting
- TikZ
 - Uses mathematical primitives
 - Uses same fonts as tex document

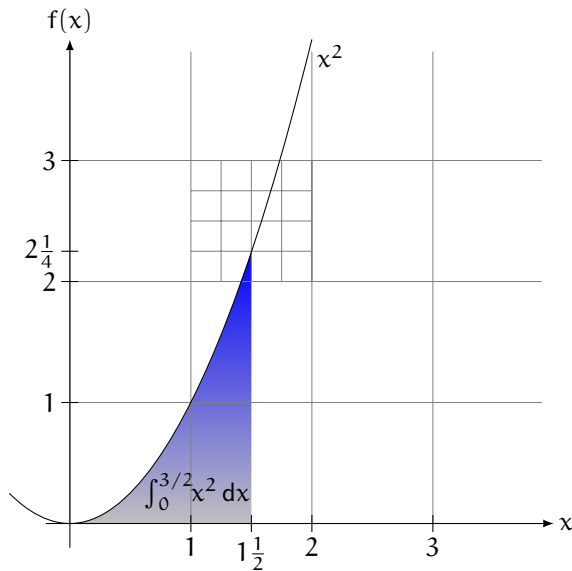
Diagrams in L^AT_EX

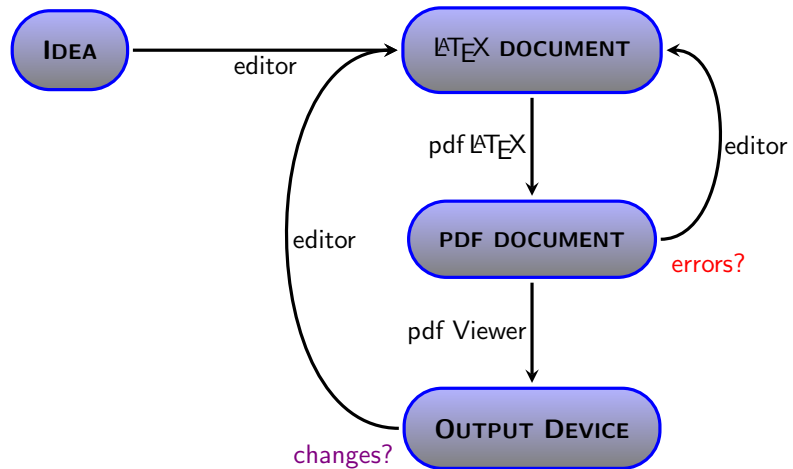


Diagrams in \LaTeX

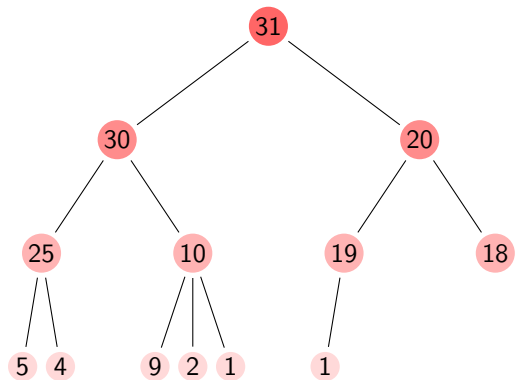
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- `picture` environment
 - Very limiting
- PS(PDF)TRICKS
 - Limiting
- `TikZ`
 - Uses mathematical primitives
 - Uses same fonts as `tex` document
 - Integrates with `BEAMER` class

Diagrams in \LaTeX

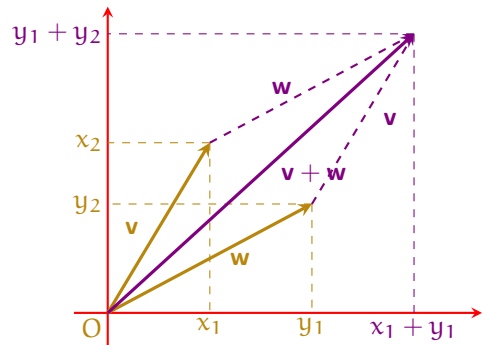




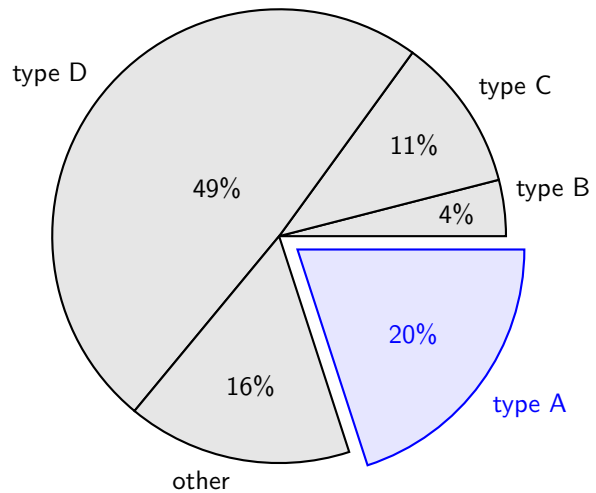
- Flowcharts



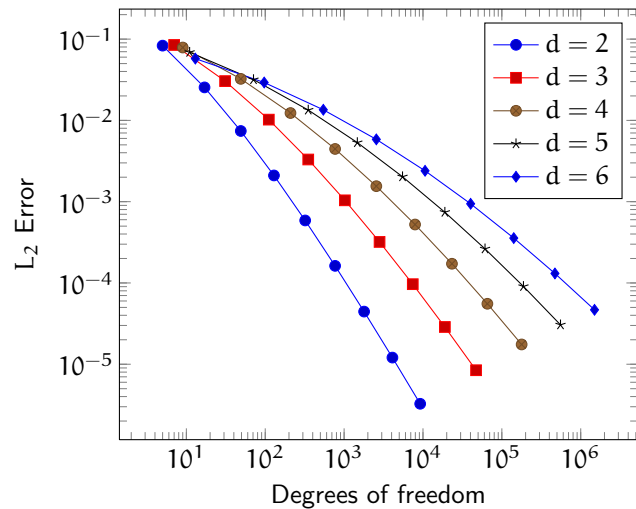
- Flowcharts
- Trees



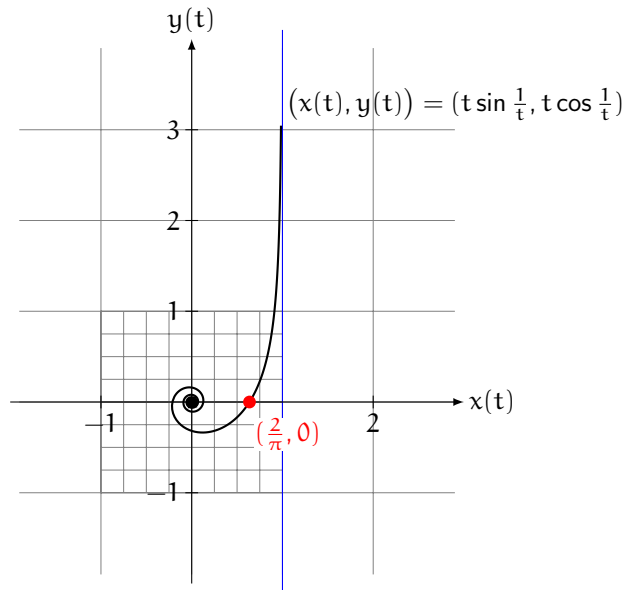
- Flowcharts
- Trees
- **Diagrams**



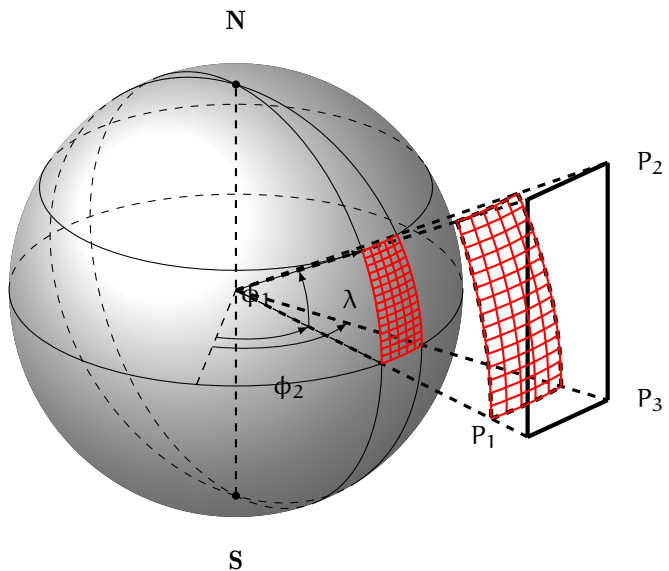
- Flowcharts
- Trees
- Diagrams
- Charts



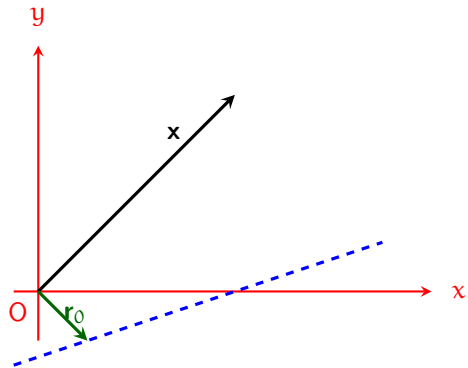
- Flowcharts
- Trees
- Diagrams
- Charts
- Data



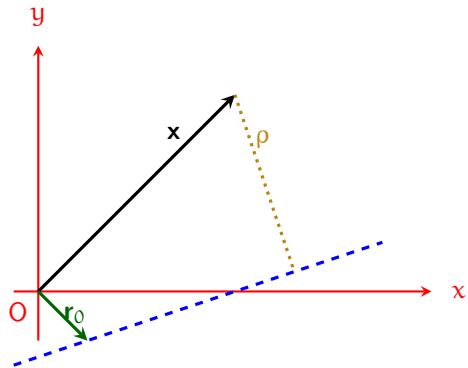
- Flowcharts
- Trees
- Diagrams
- Charts
- Data
- **Plots**



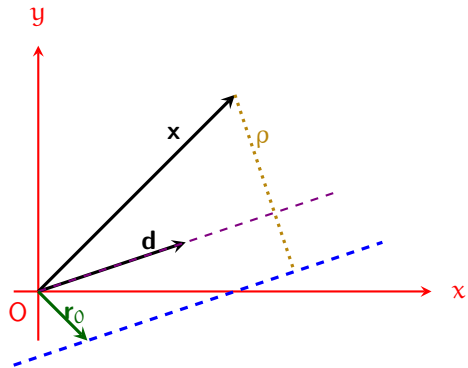
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- Diagrams
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- Plots
- 3-D diagrams



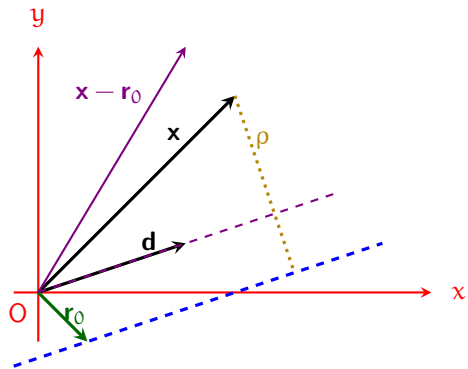
- Flowcharts
- Trees
- Diagrams
- Charts
- Data
- Plots
- 3-D diagrams
- With BEAMER



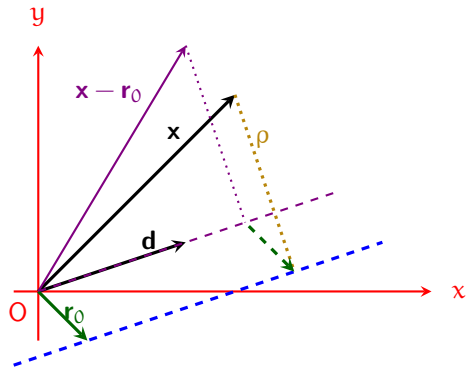
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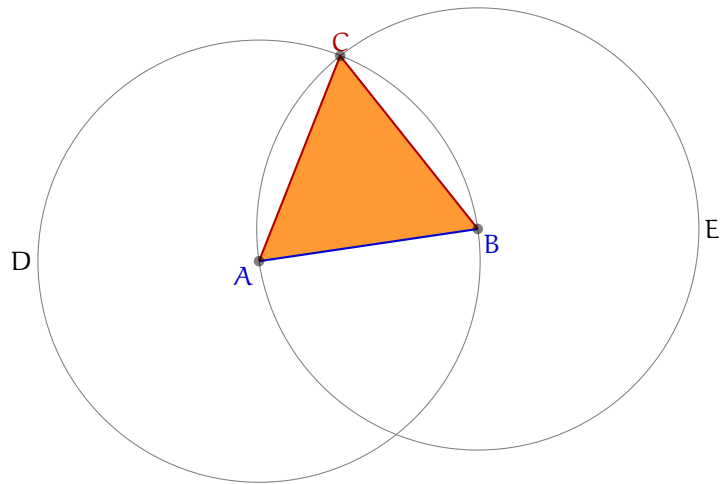


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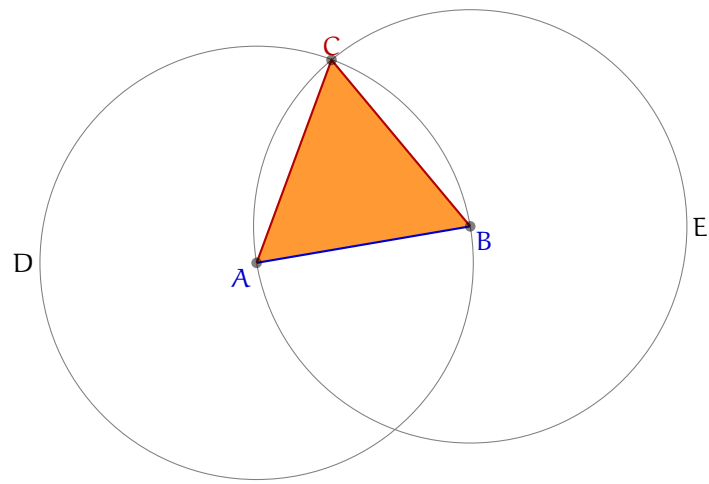


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Anatomy of a diagram

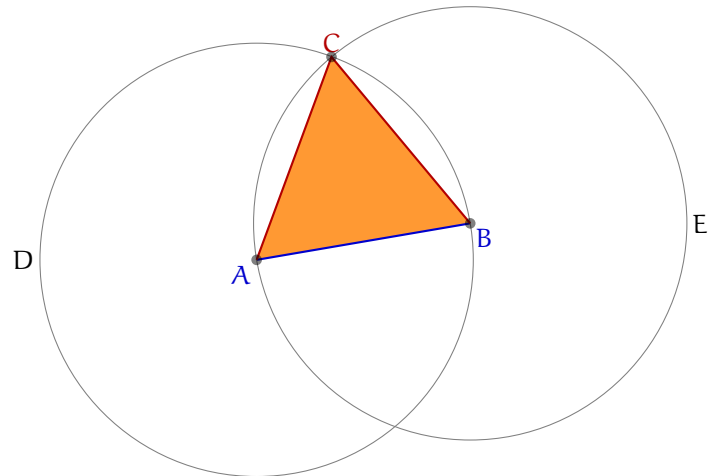


Anatomy of a diagram



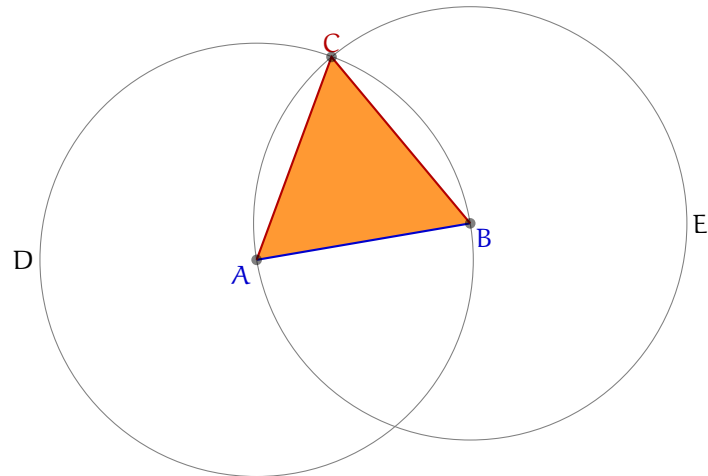
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```
1 \begin{tikzpicture}[thick,help lines/.style={thin,draw=black!50}]
2 \def\A{\textcolor{input}{$A$}} \def\B{\textcolor{input}{$B$}}
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4 \def\E{$E$}
5 \colorlet{input}{blue!80!black} \colorlet{output}{red!70!black}
6 \colorlet{triangle}{orange}
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13 \draw [output] (A) — (C) — (B);
14 \foreach \point in {A,B,C}
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Anatomy of a diagram

Anatomy of a diagram

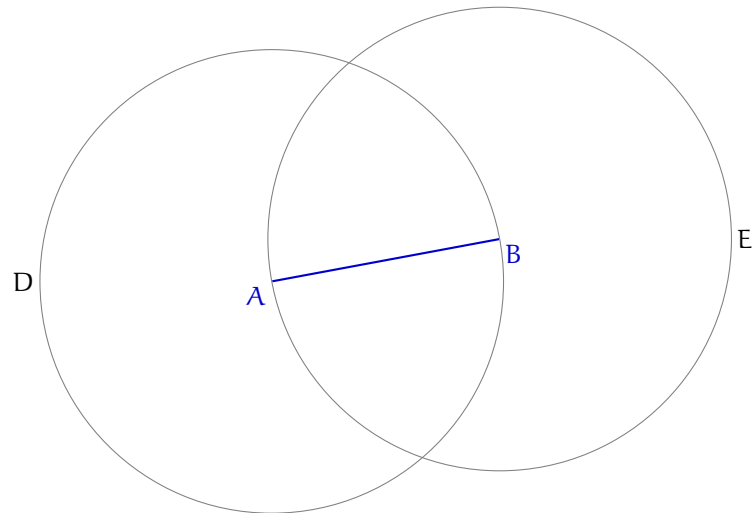
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Anatomy of a diagram



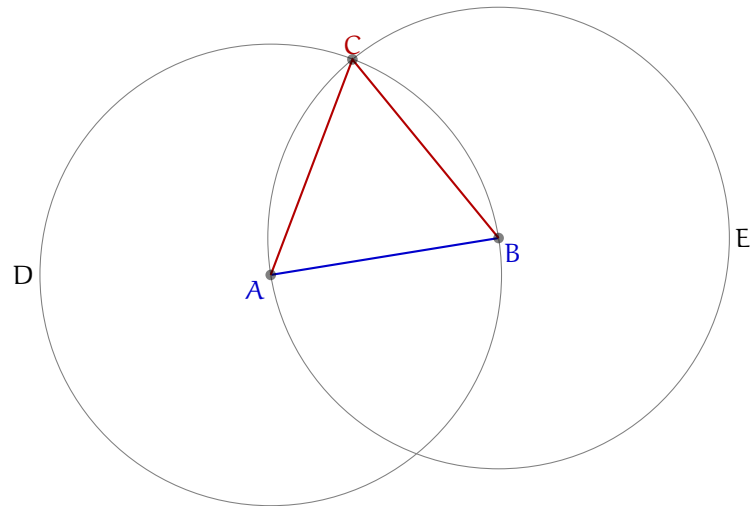
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Anatomy of a diagram

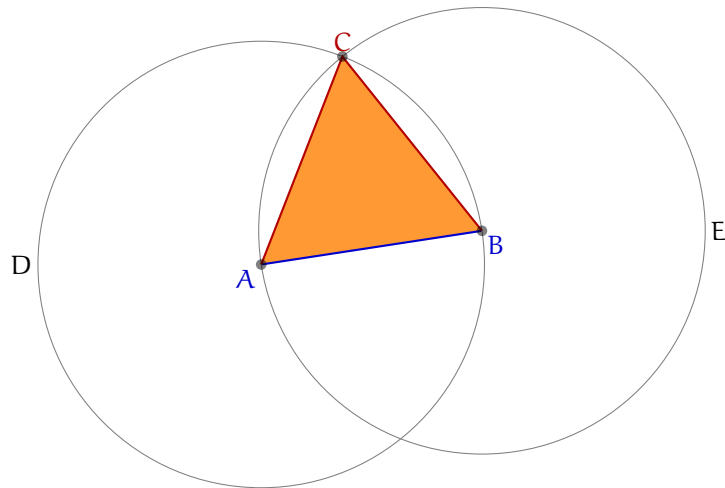
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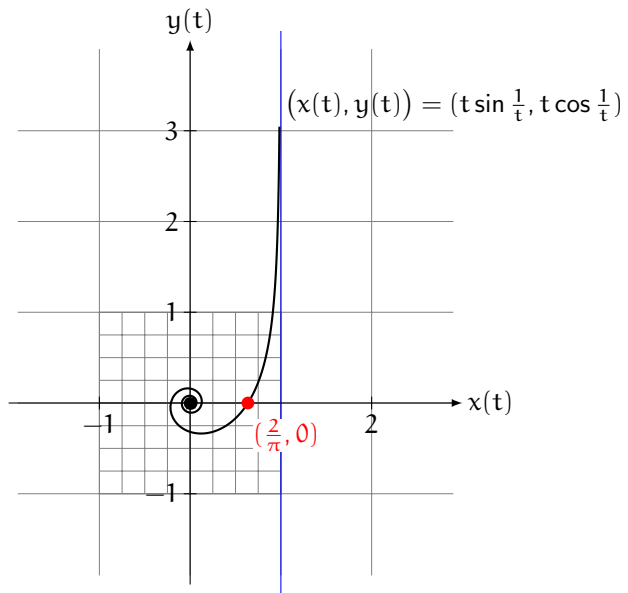
Anatomy of a diagram

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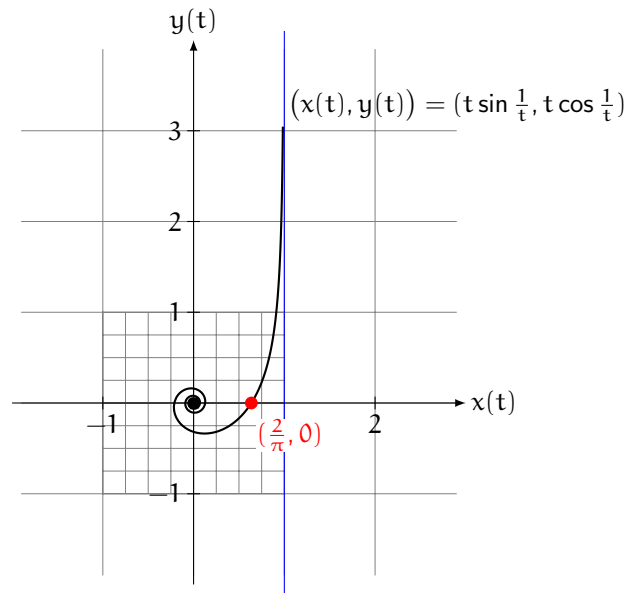
Anatomy of a diagram



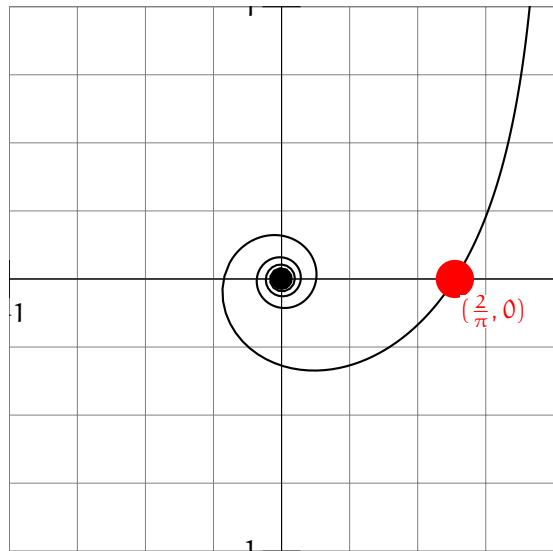
Plotting a function



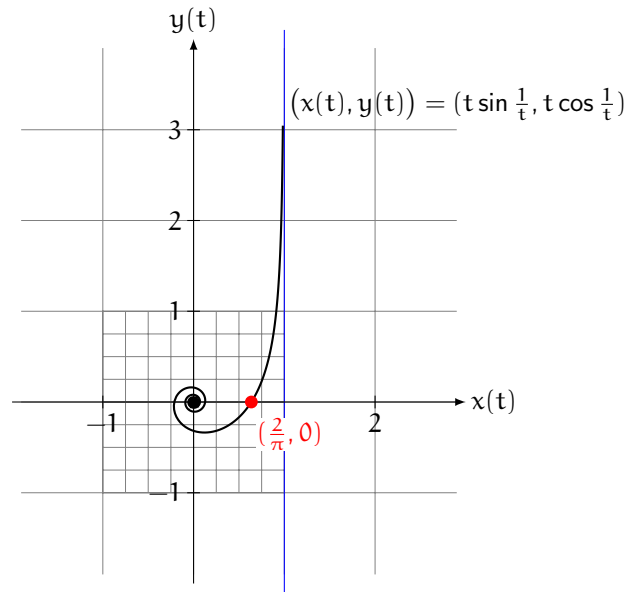
Plotting a function



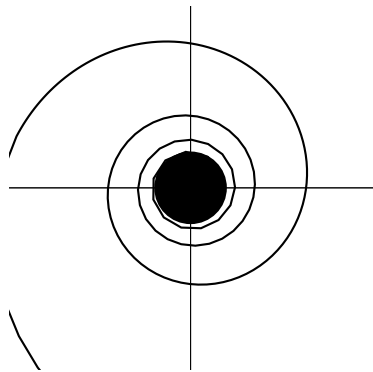
Plotting a function



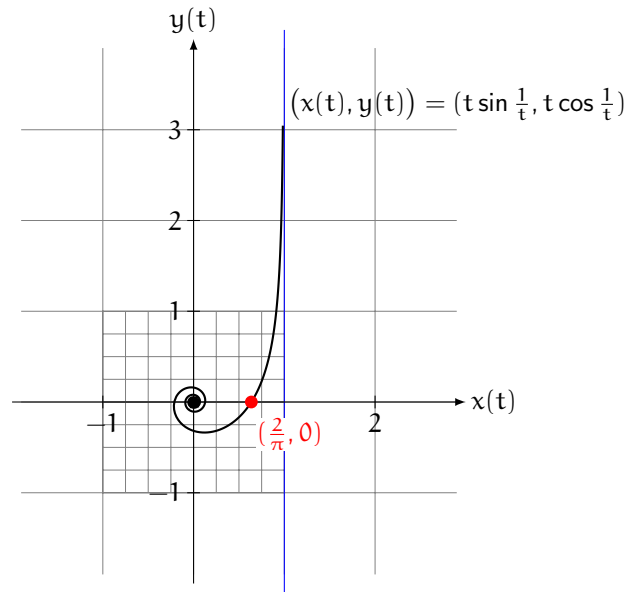
Plotting a function



Plotting a function



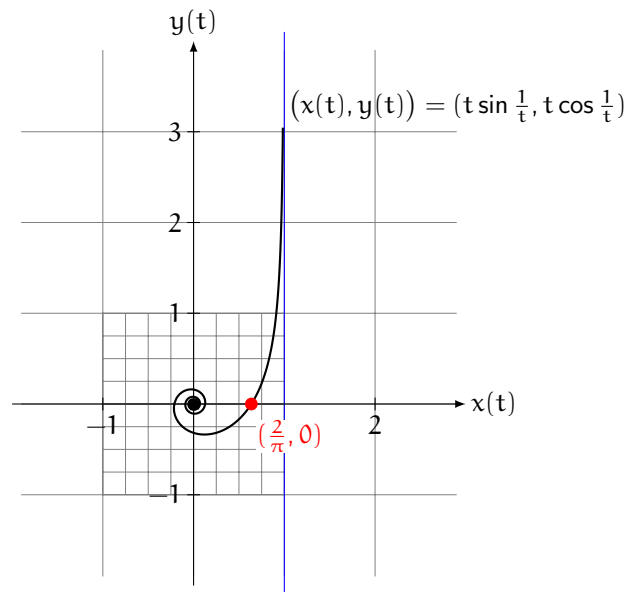
Plotting a function



Plotting a function

- \LaTeX can do floating point arithmetic

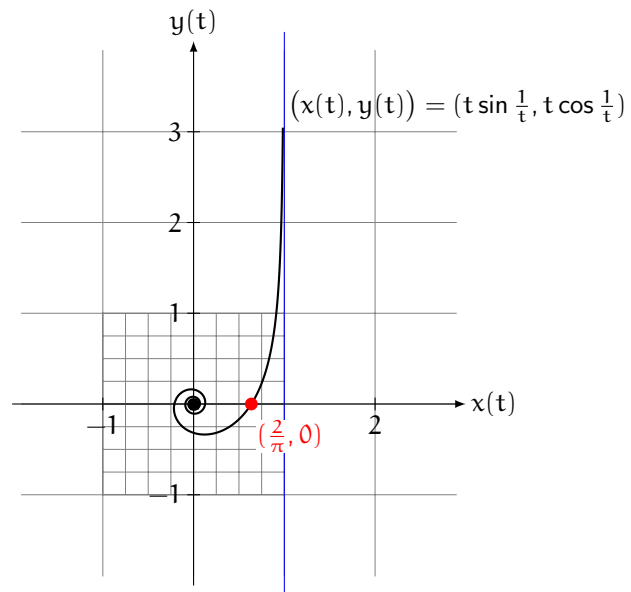
Plotting a function



Plotting a function

- \LaTeX can do floating point arithmetic
- However it is very very slow

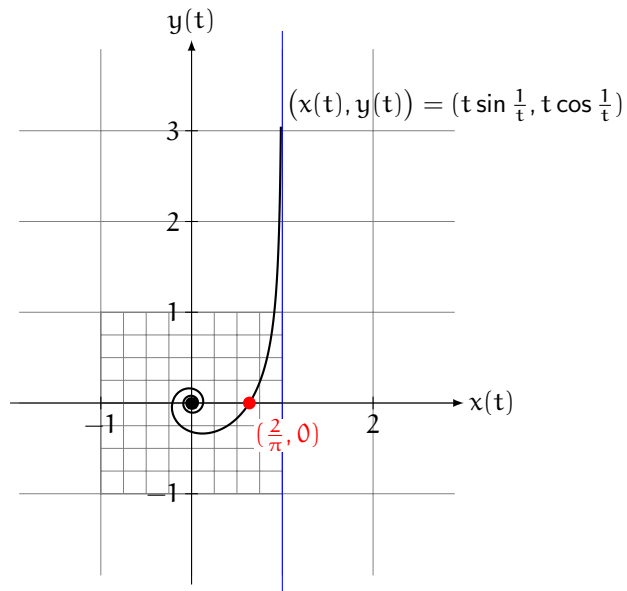
Plotting a function



Plotting a function

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- **Solution:** Use external program to *generate the data*

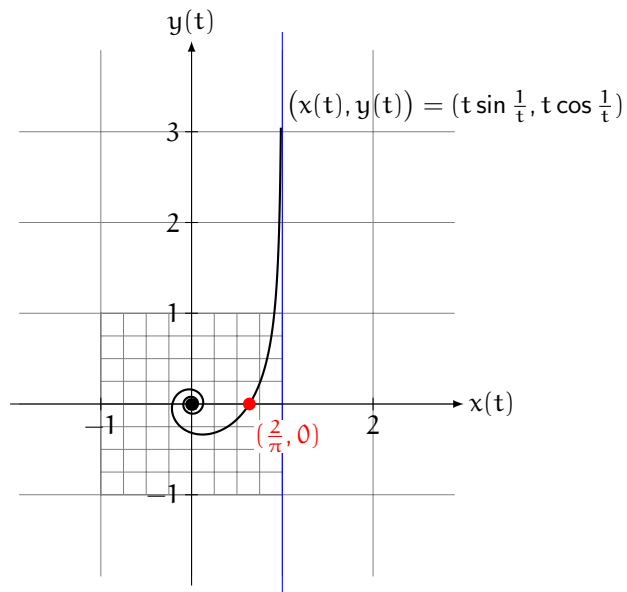
Plotting a function



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- **TikZ** has an inbuilt interface to **GNU PLOT**

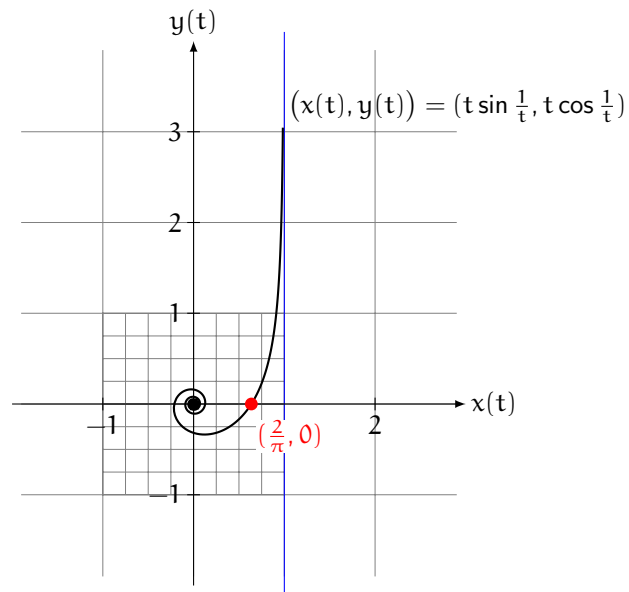
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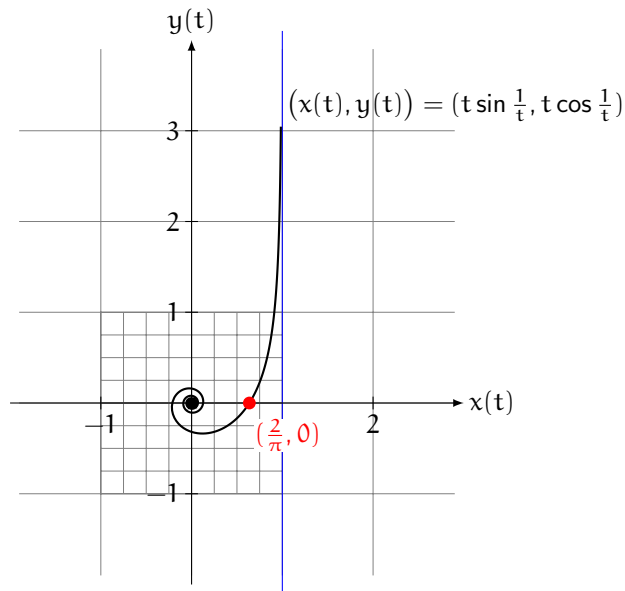
Plotting a function



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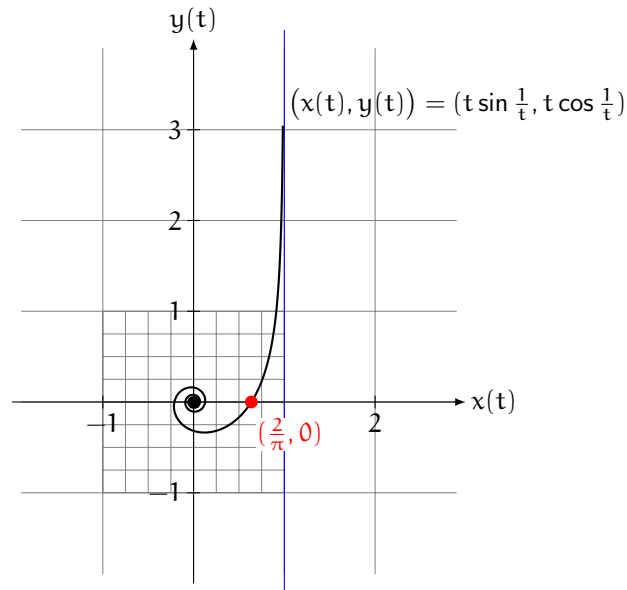
Plotting a function



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- Alternatively, use MAPLE, MATLAB, ... to generate a file of coordinates which `TikZ` with then plot

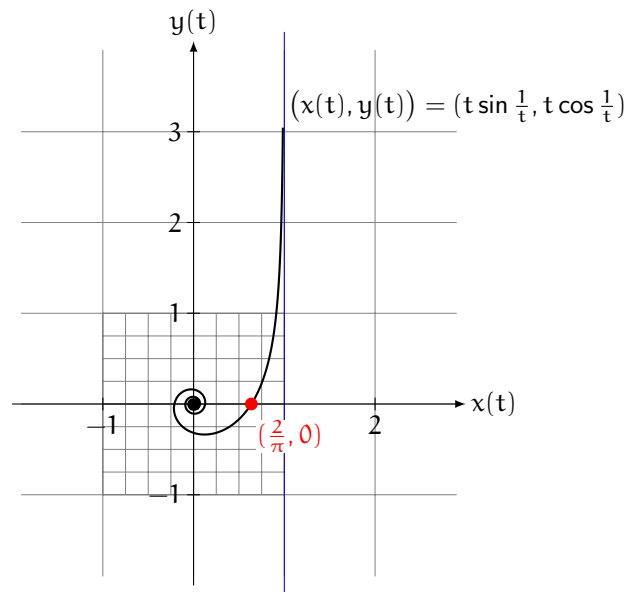
Plotting a function



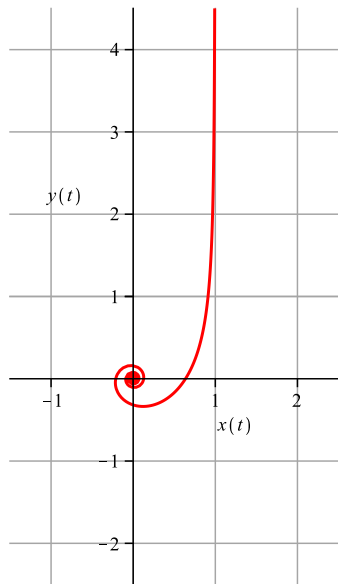
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- **Why? No font issues.**

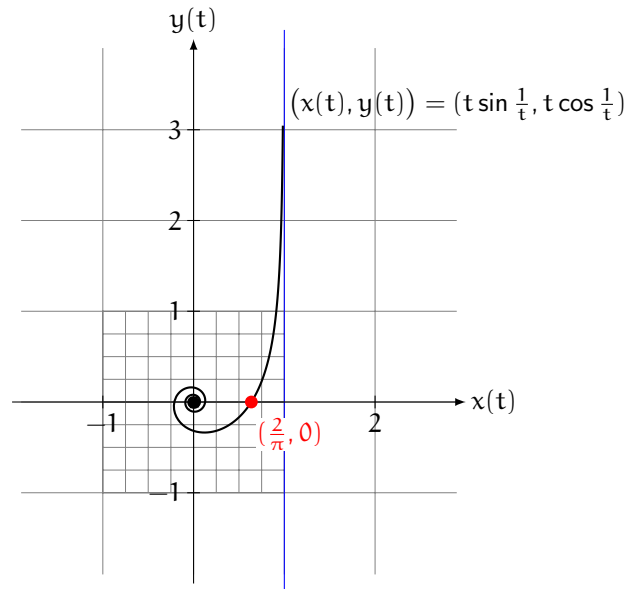
Plotting a function



MAPLE plot



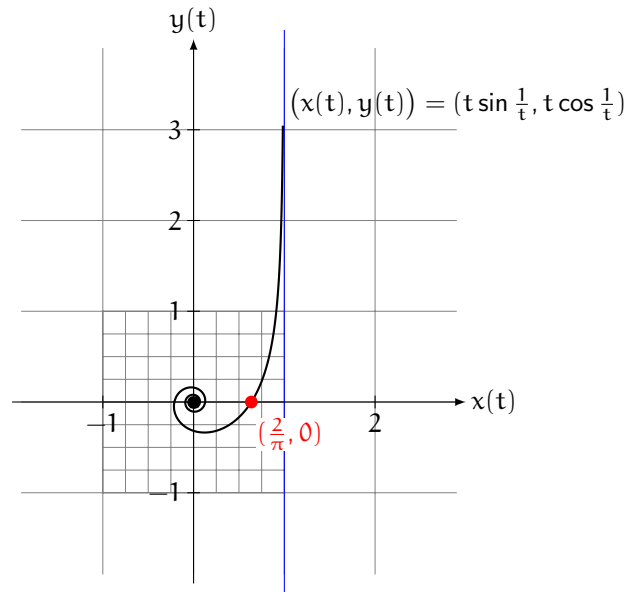
Plotting a function



Generating the data in MAPLE

```
1 currentdir("C:/tex/LaTeX/");
2 A:= [seq( evalf( [t*sin(1/t), t*cos(1/t)] ),
3         [seq(s/1000, s=1..200), seq(0.2+s/100, s=1..300)])];
4 fd:=fopen("talkplot.table",WRITE,TEXT);
5 writedata(fd,A,float);
6 fclose(fd);
```

Plotting a function

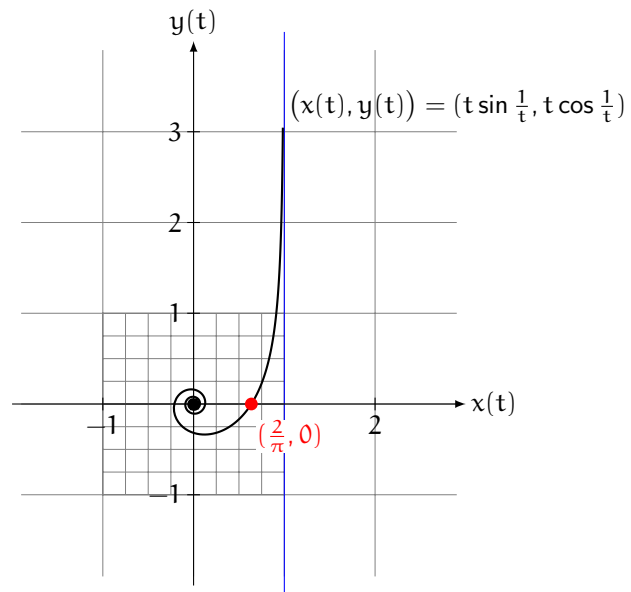


Plotting the data in TikZ

- To plot the data

```
1 \draw[thick,parametric,domain=0.0:1.5,samples=500]
2   plot file{talkplot.table}
```

Plotting a function



Plotting the data in TikZ

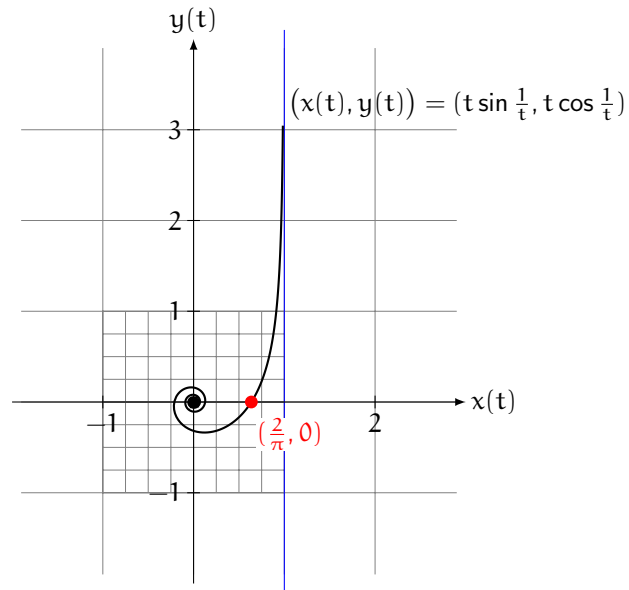
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```
1 \draw[thick,parametric,domain=0.0:1.5,samples=500]
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```

- To blow up the plot (note the use of BEAMER)

```
1 \only<2>{\pgftransformscale{3}}
2 \clip(-1,-1) rectangle (1,1);}
3 \only<3>{\pgftransformscale{10}}
4 \clip(-0.2,-0.2) rectangle (0.2,0.2);}
```

Plotting a function



An Algorithmic Example

- Consider n randomly placed points on a circle.

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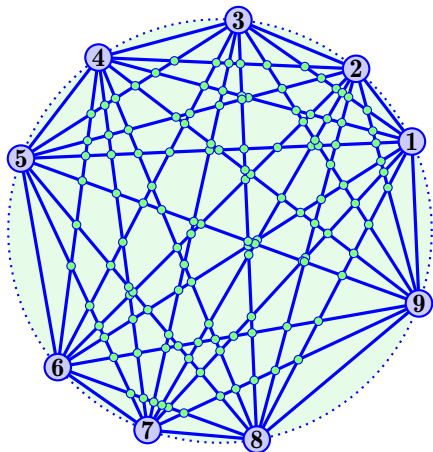
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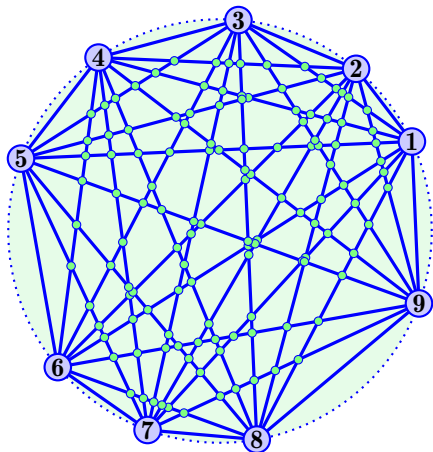


Number of generated intersection points : 126

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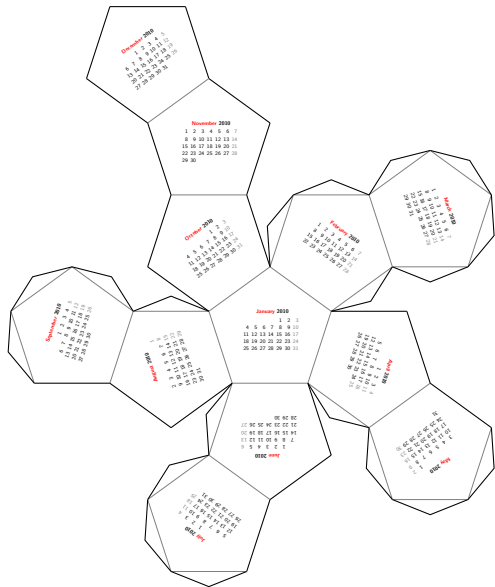
- TikZ has libraries to perform specialized tasks

```

January      1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
February 1  2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
March       1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
April        1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
May          1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
June        1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
July         1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
August      1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
September   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
October     1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
November    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
December    1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
    
```

- TikZ has libraries to perform specialized tasks
- CALENDAR library

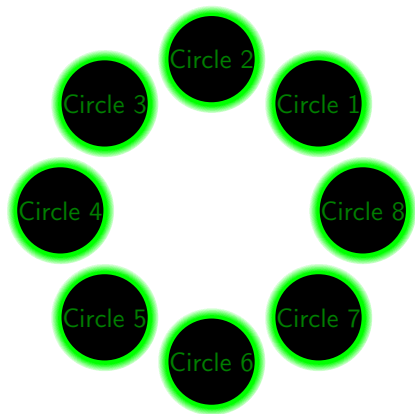
Fun with TikZ



Fun with TikZ

- TikZ has libraries to perform specialized tasks
- CALENDAR library
- FOLDING library

Fun with TikZ



- TikZ has libraries to perform specialized tasks
- CALENDAR library
- FOLDING library
- SHADOWS library

Fun with TikZ

Animations

Animations

- TikZ can be used with the animate package

Animations

Animations

- TikZ can be used with the animate package

Animations

```
1 \begin{animateinline}[controls ,
2   buttons=1.2em,
3   buttonbg=0.6:0.6:1, buttonfg=0.2:0.2:1,
4   begin={\begin{tikzpicture}[scale=1.85]\drawaxes},
5   end={\end{tikzpicture}}]{8}
6
7   \xdef\pos{-2}
8   \whiledo{\lengthtest{\pos pt < 2.1 pt}}{
9     \drawg{\pos}\newframe
10    \pgfmathsetmacro{\pos}{\pos + 0.1}
11    \xdef\pos{\pos}}
12
13   \drawg{\pos}
14 \end{animateinline}}
```

Animations

- TikZ can be used with the animate package

Credits

- beamer

Credits

- presentation package - overlays

Credits

- beamer
- pgfpages

Credits

- presentation package - overlays
- two screen management

Credits

- beamer
- pgfpages
- xcolor

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- verbatim listing of code

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- pgfplots

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- presentation package - overlays
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- verbatim listing of code
- graphics
- importation of plot data

Credits

- beamer
- pgfpages
- xcolor
- eulervm
- listings
- tikz
- pgfplots
- animate

Credits

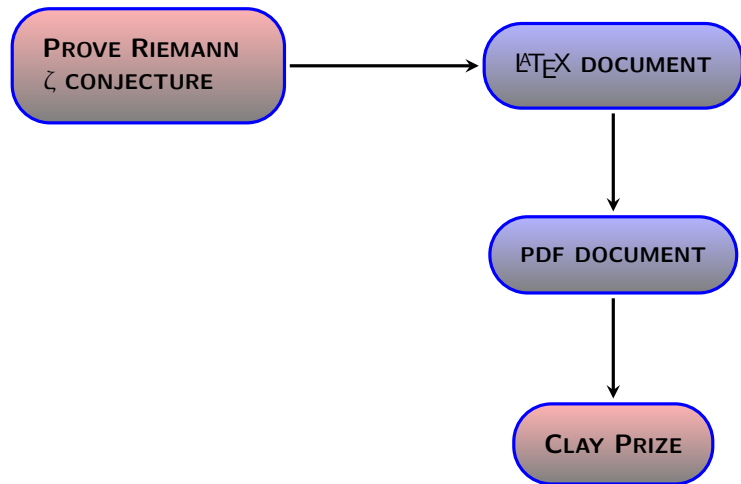
- presentation package - overlays
- two screen management
- colour support
- Euler math fonts
- verbatim listing of code
- graphics
- importation of plot data
- animations

PD & R 2011

```
1 \begin{tikzpicture}[node distance=25mm,>=stealth]
2 \node (idea) [redbox,text width=28mm]
3     {\textbf{Prove Riemann $\zeta$ conjecture}}};
4 \node (latex) [mybox,right=25mm of idea]
5     {\LaTeX\ \textbf{document}}};
6 \node (pdf) [mybox,below of=latex]
7     {\textbf{pdf document}}};
8 \node (prize) [redbox, below of=pdf] {\bf Clay Prize};
9 \path (idea) edge[->,very thick] (latex);
10 \path (latex) edge[->,very thick] (pdf);
11 \path (pdf) edge[->,very thick] (prize);
12 \end{tikzpicture}
```

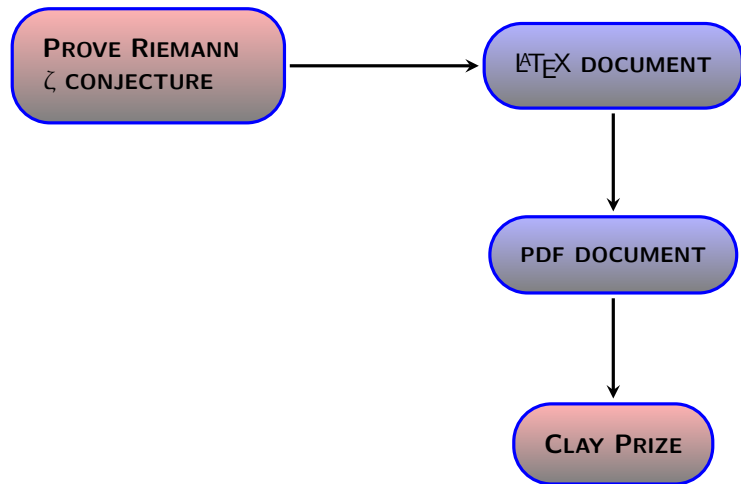
PD & R 2011

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```



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```