

How to Give a Good Short Math Talk Using \LaTeX and Beamer

Darci L. Kracht
darci@math.kent.edu

Department of Mathematical Sciences
Kent State University

KSU Math Club Meeting
February 12, 2015

What is beamer?

beamer

is a *document class* for

L^AT_EX,

which is document *mark-up language* based on

T_EX,

which is a typesetting language.

When beamer?: History

T_EX

- Donald Knuth, 1978
- *The Art of Computer Programming*
 - 1st ed. (1969): hot metal typesetting
 - 2nd ed.: cold type (phototypesetting): poor quality
- Turing-complete language
- very stable: current version: 3.14159265

L^AT_EX

- Leslie Lamport, 1984
- current version: L^AT_EX2e (L^AT_EX3 in development)

beamer

- Till Tantau, 2003
- still in active development

Why beamer?: Document Mark-up vs. WYSIWYG

Document Mark-up

- keeps *visual presentation* separate from *content*
- content with mark-up commands in (small) plain text *source file*
- compiled (“*latex*ed”) to produce *device-independent* output
- mark-up is *logical*
- hard to learn, but \LaTeX is publisher quality

WYSIWYG Word Processors

- (large) files contain content and invisible formatting code
- output is commonly *device dependent*
- WYSIWYG formatting is *visual*
- easy to be inconsistent
- easier, but not publisher quality

You can get \LaTeX for free!

Traditionalists: on Unix or Linux

- use text editor (e.g., emacs) to create file with .tex extension
- run pdflatex (for example)
- view results in Adobe Reader (for example)

Cutting edge young people: Frontends with editors and viewers

- Windows: MiK \TeX
- Mac: T \E XShop
- many others

What does a \LaTeX file look like?

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

This is the preamble

```
\begin{document}
```

This is the body: content with mark-up commands

```
\end{document}
```

What does a \LaTeX beamer file look like?

```
\documentclass{beamer}
\usetheme{Madrid} %This is a good theme for a short talk.
\begin{document}
```

```
\begin{frame}
\frametitle{This is an example}
\textbf{This is in boldface.} % obviously
\begin{itemize}
  \item first element an itemized list
\pause
  \item second element
\end{itemize}
\end{frame}
```

```
\end{document}
```

This is an example

This is in boldface.

- first element of an itemized list
- second element

Including mathematics.

```
\begin{align*}
f'(x) &= \lim_{h \to 0} \frac{f(x+h) - f(x)}{h} \\
&= \lim_{h \to 0} \frac{e^{x+h} - e^x}{h} \\
&\sim \dots \\
&= e^x.
\end{align*}
```

$$\begin{aligned} f'(x) &= \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} \\ &= \lim_{h \rightarrow 0} \frac{e^{x+h} - e^x}{h} \\ &\vdots \\ &= e^x. \end{aligned}$$

Creating your title page.

In the preamble:

```
\title[Beamer]{%  
  {How to Give a Good Short Math Talk Using \LaTeX\  
  and Beamer}  
\author[D.L. Kracht]{Darci L. Kracht \<\  
  \texttt{darci@math.kent.edu}}  
\institute[KSU Math Dept]{%  
  {Department of Mathematical Sciences\<\  
  Kent State University}  
\date[Math Club]{KSU Math Club Meeting\<\  
  \today}
```

Your first frame:

```
\titlepage
```

How to Give a Good Short Math Talk Using \LaTeX and Beamer

Darci L. Kracht
darci@math.kent.edu

Department of Mathematical Sciences
Kent State University

KSU Math Club Meeting
February 12, 2015

Guidelines for good short presentations.

- One or two main ideas
- Max 1 slide per minute
- Use sentence fragments
- Lists of key words, not paragraphs
- SIMPLE theme
- Skip the outline, table of contents
- Simple versions of definitions/theorems
- Give examples
- Skip proofs (maybe give main idea)