LaTeX Level 4
Creating Beamer presentations

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Current slide-making classes

Several slide-making environments exist.

prosper Based on seminar and includes the ability to produce dynamic effects. Now superceded largely by powerdot.

beamer Relatively powerful and easy to learn; creating dynamic effects is relatively straightforward.

talk Again, easy to learn. It doesn't impose a particular slide-style on you.

Beamer will produce output in PDF format which makes it very portable. PDF format presentations will "just work" on most systems.

What Beamer provides

Beamer extensions

There are several additional environments and commands that are specific to Beamer.

- New environments include *block*, *column* and *animate*.
- There are also several mathematical environments such as *theorem*, *proof* and *definitions*.
- Transitions, pauses and overlays are easily managed.

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beamercolorbox allows you to change both the background and foreground colour of a part of a slide.

A simple beamer file

```
\documentclass[pdf]{beamer}
\usetheme{Warsaw}
\title{My first slideshow}
\subtitle{I hope you like it}
\author{Susan Hutchinson}
\institute{University of Oxford}
\date
\begin{document}
\section{Introduction}
\begin{frame}
```

The contents of the slide go here.
```
\end{frame}
```
```
\end{document}
```

The components of a slide

1. a headline and a footline
2. a left and right sidebar
3. navigation bars
4. navigation symbols
5. a logo
6. a frametitle
7. a background
8. some frame contents

Not all slides have all these components. The first three are usually set up by the theme you choose. The contents are your problem!

Beamer themes and colours

The appearance of your slides depends on the theme you have chosen. There is a smaller range than with powerpoint but there is much scope for customisation. To change the theme and colour use

`\usetheme{PaloAlto}`
`\usecolortheme{albatross}`

Some popular themes are

AnnArbor	Berkeley	Berlin	Boadilla
CambridgeUS	Copenhagen	Darmstadt	Frankfurt
Hanover	Luebeck	Malmoe	PaloAlto
Pittsburgh	Rochester	Singapore	Warsaw

Some popular colours are

albatross	beaver	beetle	crane	dolphin	dove
fly	orchid	rose	seagull	seahorse	wolverine

I am using the `Luebeck` theme and `rose`.

The layout of a slide

Each slide has the format

```
\begin{frame}
\frametitle{}
    The contents of the slide go here.
\end{frame}
```

The contents of the slide can include LATEX commands, pictures, tables and so on.

Beamer restrictions

- The depths of `itemize`,`enumerate` and `description` environments are limited.
- Pictures and figures need careful handling.
- Using `bibtex` is rather fiddly.

The title page

Add the following to the preamble

```
\title[Short title]{My long title}
\subtitle[Short subtitle]{My long subtitle}
\author{My Name}
\date{November 2007}
\institute{My University}
```

and then include

```
\begin{frame}
\maketitle
\end{frame}
```

after `\begin{document}`. A short version of the text has been included between [and] which will appear at the foot of each slide.

Pauses

Effects can be included such a pauses and overlays. For example to pause between items like this:

- Mount Everest grows by 1cm a year

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use

```
\begin{itemize}
\item Mount Everest grows by 1cm a year
\pause
\item A new planet is discovered every day.
\end{itemize}
\pause
```

Creating overlays

Overlays allow you to determine in what order items appear. For example

Theorem

There is no largest prime number.

Proof.

1. Suppose p where the largest prime number.

4. Thus $q + 1$ is also prime and greater than p. □

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Proved using *reduction ad absurdum*.

The markup for overlays

```
\begin{theorem}
There is no largest prime number.
\end{theorem}
\begin{proof}
\begin{enumerate}
\item<1-> Suppose $p$ where the largest prime number.
\item<2-> Let $q$ be the product of the first $p$ numbers.
\item<3-> Then $q + 1$ is not divisible by any of them.
\item<1-> Thus $q + 1$ is also prime and greater than
 $p$. \qedhere
\end{enumerate}
\end{proof}
\uncover<4->{Proved using \textit{reduction ad absurdum}.}
```

Note the use of <1->, <2-> to determine the order in which information is revealed.

Adding some structure

The `\section` and `\subsection` commands are used to add structure to the slides. These are used outside frames. They can contain a long and short version. The long version appears in the table of contents, the short version in the header line.

`\section[Slide creation]{Creating slides using Beamer}`

Add a slide that contains

`\begin{frame}`
`\frametitle{Outline}`
`\tableofcontents`
`\end{frame}`

and a slide which includes all the section and subsections headings will be generated.

Navigation symbols can be added which allow you to find your way around the presentation when it is being given.

Link to different themes and colours

There is are several sites which show the range of Beamer themes, for example http://www.hartwork.org/beamer-theme-matrix/.