Prosper

*A slide class for LATEX*

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This talk ...

will

- introduce prosper
- show *some* of the possibilities with prosper
- give examples which can be useful later

will not

- teach you \LaTeX
- teach you how to write a good talk
- require any mathematical knowledge
What is Prosper?

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- aims at offering an environment for easily creating slides for both presentations with an overhead projector and a video projector
What is Prosper?

- a \LaTeX{} class for writing transparencies
- written on top of the \textit{seminar} class
- uses the \textit{PSTricks} class to generate graphics
- aims at offering an environment for easily creating slides for both presentations with an overhead projector and a video projector
- slides prepared for a presentation with a computer and a video projector may integrate animation effects and incremental display
Why use Prosper?

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Why use Prosper?

- Using LaTeX makes sense when you want to reuse some material of an article written in LaTeX for your slides.
- Benefits from the quality of LaTeX formatting at no extra work.
- Possibility to easily write slides with or without animation effects.
- Choose visual appearance among many predefined styles (or write your own).
Why use Prosper?

- using \LaTeX makes sense when you want to reuse some material of an article written in \LaTeX for your slides
- benefits from the quality of \LaTeX formatting at no extra work
- possibility to easily write slides with or without animation effects
- choose visual appearance among many predefined styles (or write your own)
- free to prepare and to present slides on any platform where \LaTeX and a PDF viewer are available
A minimal prosper document

\documentclass{prosper}
\author{Trond Varslot}
\title{Prosper}
\date{December 2002}
\subtitle{A slide class for \LaTeX}
\institution{Norwegian University of Science and Technology}
\email{varslot@math.ntnu.no}

\begin{document}
\maketitle
\begin{slide}{Title}
... content ...
\end{slide}
\end{document}
A minimal result
A simple slide

\begin{slide}[Dissolve]\label{anatomyslide}\text{The anatomy of a slide}\end{slide}
\begin{itemize}
\item We may use different transitions between slides:
  \texttt{Split, Blinds, Box, Wipe, Dissolve, Glitter, Replace}
\item References to slide number \ref{anatomyslide} is done in the standard \LaTeX{} way.
\item Content must fit on one slide.
\end{itemize}
\end{slide}
The anatomy of a slide

- We may use different transitions between slides: Split, Blinds, Box, Wipe, Dissolve, Glitter, Replace
- References to slide number 9 is done in the standard LaTeX way.
- Content must fit on one slide.
Incremental display

A slide may be displayed incrementally using overlays.
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- We need to determine how many steps we want to use.
- The content on each step may be specified using \texttt{fromSlide}, \texttt{untilSlide} and \texttt{onlySlide} commands.
- Stared versions exist.
Incremental display

A slide may be displayed incrementally using overlays.

- We need to determine how many steps we want to use.
- The content on each step may be specified using `fromSlide`, `untilSlide` and `onlySlide` commands.
- Stared versions of the commands exist.
- Remember that at each step the relevant \LaTeX code must be complete.
Overlay example

\overlays{3}\
\begin{slide}{Title}

Some \onlySlide{2}{more}\onlySlide*{3}{good} content

\begin{itemize}
  \item First item
  \fromSlide*{2}{\item Second item}
  \fromSlide*{3}{\item Third item}
\end{itemize}

Text here aswell.

\end{slide}
Some content goes here

- First item

Text here aswell.
Title

Some more content goes here

- First item
- Second item

Text here aswell.
Title

Some good content goes here

- First item
- Second item
- Third item

Text here aswell.
\begin{align*}
\text{from Slide 5}\{&\lim_{N \uparrow \infty}\}\}
1
\text{from Slide 2}\{&+\frac{1}{4}\}
\text{from Slide 3}\{&+\frac{1}{9}\}
\text{from Slide 4}\{&\hdots +\frac{1}{N^2}\}
\text{from Slide 5}\{&=\sum_{k=1}^{\infty}\frac{1}{n^2}\}
\text{from Slide 6}\{&=\frac{\pi^2}{6}\}
\end{align*}
Example

Normal version:

\[ 1 \]

Stared version:

\[ \star 1 \]
Example

Normal version:

\[ 1 + \frac{1}{4} \]

Stared version:

\[ 1 \star \frac{1}{4} \]
Example

Normal version:

\[ 1 + \frac{1}{4} + \frac{1}{9} \]

Stared version:

\[ 1 + \frac{1}{4} + \frac{1}{9} \]
Example

Normal version:

\[ 1 + \frac{1}{4} + \frac{1}{9} \ldots + \frac{1}{N^2} \]

Stared version:

\[ 1 + \frac{1}{4} + \frac{1}{9} \ldots + \frac{1}{N^2} \]
Example

Normal version:

\[ \lim_{N \to \infty} \left( 1 + \frac{1}{4} + \frac{1}{9} + \ldots + \frac{1}{N^2} \right) = \sum_{k=1}^{\infty} \frac{1}{k^2} \]

Stared version:

\[ \lim_{N \to \infty} \left( 1 + \frac{1}{4} + \frac{1}{9} + \ldots + \frac{1}{N^2} \right) = \sum_{k=1}^{\infty} \frac{1}{k^2} \]
Example

Normal version:

\[
\lim_{N \uparrow \infty} 1 + \frac{1}{4} + \frac{1}{9} \ldots + \frac{1}{N^2} = \sum_{k=1}^{\infty} \frac{1}{k^2} = \frac{\pi^2}{6}
\]

Stared version:

\[
\lim_{N \uparrow \infty} 1 + \frac{1}{4} + \frac{1}{9} \ldots + \frac{1}{N^2} = \sum_{k=1}^{\infty} \frac{1}{k^2} = \frac{\pi^2}{6}
\]
Nodes, lines and arrows

The package `pstrnode` contain lots of useful things:

**Define a node:** \( \rnode{\text{label}}{\text{text}} \)

**Define a connection:** \( \ncarc{\text{label1}}{\text{label2}} \)

**Example:**

\begin{align*}
\rnode{A}{1} \neq \rnode{B}{2}
\end{align*}

One may point out the \rnode{C}{first} number and the \rnode{D}{last} number by two simple commands:

\begin{verbatim}
\ncarc[linecolor=red,linestyle=solid,arrows=->]{C}{A}
\ncarc[linecolor=green,linestyle=dashed,arrows=\(\leftarrow\rightarrow\)]{D}{B}
\end{verbatim}

\end{slide}
One may point out the first number and the last number by two simple commands

\[ 1 \neq 2 \]
Acoustic wave propagation

Forward propagation of *acoustic pressure* in soft tissue may be modelled by the equation

$$\frac{\partial p}{\partial z} = \frac{c}{2} \int_0^t \nabla^2_\perp p \, d\tau + \epsilon \frac{\beta_n \sqrt{\kappa}}{c^2} p \frac{\partial p}{\partial t} + \epsilon \frac{1}{2c} \frac{\partial}{\partial t} L(p)$$

Diffraction

$$c : \text{speed of sound}$$
Acoustic wave propagation

Forward propagation of *acoustic pressure* in soft tissue may be modelled by the equation

\[
\frac{\partial p}{\partial z} = \frac{c}{2} \int_0^t \nabla^2 p d\tau + \epsilon \frac{\beta_n \sqrt{\kappa}}{c^2} p \frac{\partial p}{\partial t} + \epsilon \frac{1}{2c} \frac{\partial}{\partial t} L(p)
\]

Non-linear effects

\[\beta_n : \text{tissue nonlinearity factor}\]
\[\kappa : \text{compressibility}\]
\[c : \text{speed of sound}\]
\[\epsilon : \text{scaling constant}\]
Acoustic wave propagation

Forward propagation of *acoustic pressure* in soft tissue may be modelled by the equation

\[
\frac{\partial p}{\partial z} = \frac{c}{2} \int_0^t \nabla^2_{\perp} pd\tau + \epsilon \frac{\beta_n \sqrt{\kappa}}{c^2} p \frac{\partial p}{\partial t} + \frac{1}{2c} \frac{\partial}{\partial t} L(p)
\]

Energy loss

- \( L(\cdot) \) : convolution operator
- \( c \) : speed of sound
- \( \epsilon \) : scaling constant
Acoustic wave propagation

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\[
\frac{\partial p}{\partial z} = \frac{c}{2} \int_0^t \nabla^2 p \, d\tau + \epsilon \frac{\beta_n \sqrt{\kappa}}{c^2} \frac{\partial p}{\partial t} + \epsilon \frac{1}{2c} \frac{\partial}{\partial t} L(p)
\]

The approximation

\[
\nabla^2 \approx \nabla^2_{\perp} = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}
\]

is only good for weakly focused sound beams.
You may automatically advance to the next slide using
\hypersetup{pdfpageduration=n}
where $n$ is the number of seconds before going to the
next slide. You go to the next slide.
This requires you to instruct AcroRead to allow
automatic advancement.

Edit → Preferences → Full Screen

Tick ’Advance Every’, and set it to a fairly large number
(1000).
Example of pdfpageduration

- Item 1
Example of pdfpageduration

- Item 1
- Item 2
Example of pdfpageduration

- Item 1
- Item 2
- Item 9
Example of pdfpageduration

- Item 1
- Item 2
  - Item 4
- Item 9
Example of pdfpageduration

- Item 1
- Item 2
  - Item 4
  - Item 5
- Item 9
Example of pdfpageduration

- Item 1
- Item 2
- Item 3
  - Item 4
  - Item 5
- Item 9
Example of pdfpageduration

- Item 1
- Item 2
- Item 3
  - Item 4
  - Item 5
- Item 9
- Item 7
Example of pdfpageduration

- Item 1
- Item 2
- Item 3
  - Item 4
  - Item 5
  - Item 6
- Item 9
Example of pdfpageduration

- Item 1
- Item 2
- Item 3
  - Item 4
  - Item 5
  - Item 6
  - Item 7
- Item 9
The package \texttt{hyperref} is useful for other things as well

- **Making a hyperlink to an external page:** \texttt{NTNU}

  \texttt{\href{http://www.ntnu.no}{NTNU}}

- **Running an external command:** \texttt{xclock}

  \texttt{\href{run:/store/bin/xclock}{xclock}}

- **Making a reference to other places in your document:** \texttt{next slide} using a combination of

  \texttt{\hyperlink{MULTIMEDIA}{next slide}}

  \texttt{\hypertarget{MULTIMEDIA}{Using}}
Multimedia

This may also be used to open sound and video clips in external programs:

\href{run:bethov.wav}{sound}
\href{run:phantom_circles.mpg}{video}

Default programs are used. Unix users need to have this defined in a .mailcap:

audio/wav;sox %s
video/mpg;mpeg_play %s
video/mpeg;mpeg_play %s
video/avi;mplayer %s
As far as I know, this only works on Windows and Macintosh versions of Acroread. You also need Quicktime or MS Video installed.
Compilation

- Lots of this is accomplished using PSTricks.
  
  \texttt{latex file.tex --> dvips -o file.ps fil --> ps2pdf fil.ps}
  
  Other converters from ps to pdf also work.

- Prosper is designed for A4 paper. Make sure to instruct dvips to create an A4 size document. On Unix:

  \texttt{GS\_OPTIONS="-sPAPERSIZE=a4"}

- Make sure you use Type1 fonts.

  \texttt{dvips -Pcmz -Pamz -o fil.ps fil}

  usually fixes this. You need Type1 fonts installed.
Finally ...

- Use the CVS-version of prosper. ([SourceForge homepage](https://sourceforge.net))
- Be aware of the *background bug* in AcroRead 5
- Choose a style before writing the presentation
- Yes, the \LaTeX source for this presentation will be available at [my homepage](http://www.example.com).