

# This is a Beamer presentation made using $\text{\LaTeX}$

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- 1 Basics
- 2 Clean syntax
- 3 Appearance
- 4 Animation

# Setting up the YAML

## R Markdown YAML

```
output: beamer_presentation
```

Also check out the binb R-package.

## Example: Writing mathematics is as usual

Consider a general linear mixed models:

$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \mathbf{Z}\mathbf{u} + \mathbf{e}$  where

- $\mathbf{y}$  is a  $n \times 1$  vector of observations,
- $\mathbf{X}$  is a  $n \times p$  design matrix for fixed effects  $\boldsymbol{\beta}$ ,
- $\mathbf{Z}$  is a  $n \times q$  design matrix for fixed effects  $\mathbf{u}$ , and
- $\mathbf{e}$  is a  $n \times 1$  vector of random error.

# Simplified content writing: itemized list

## Plain $\text{\LaTeX}$

```
\begin{itemize}
\item
   $\boldsymbol{y}$  is a
   $n \times 1$  vector of
  observations,
\item
   $\mathbf{X}$  is a  $n \times p$ 
  design matrix for fixed effects
   $\boldsymbol{\beta}$ ,
\item
   $\mathbf{Z}$  is a  $n \times q$ 
  design matrix for fixed effects
   $\mathbf{u}$ , and
\item
   $\mathbf{e}$  is a  $n \times 1$ 
```

## Markdown syntax

- \*  $\boldsymbol{y}$  is a  $n \times 1$  vector of observations,
- \*  $\mathbf{X}$  is a  $n \times p$  design matrix for fixed effects  $\boldsymbol{\beta}$ ,
- \*  $\mathbf{Z}$  is a  $n \times q$  design matrix for fixed effects  $\mathbf{u}$ , and
- \*  $\mathbf{e}$  is a  $n \times 1$  vector of random error.

# Make new frame

Instead of

**L<sup>A</sup>T<sub>E</sub>X**

```
\begin{frame}{Title}
Content
\end{frame}
```

do

**markdown**

```
## Title
Content
```

In the **R Markdown YAML** set:

output:

```
beamer_presentation:
  slide_level: 2
```

- then a heading at slide level starts a new frame; or
- a horizontal line, like ---, starts a new frame.

# Multi-column output

Stick with  $\text{\LaTeX}$  or Pandoc syntax (both will work)

## Plain $\text{\LaTeX}$

```
\begin{columns}
\begin{column}{0.5\textwidth}
Column 1 content
\end{column}
\begin{column}{0.5\textwidth}
Column 2 content
\end{column}
\end{columns}
```

## Pandoc syntax

```
:::: columns
::: column
Column 1 content
:::
::: column
Column 2 content
:::
::::
```

# Pandoc options

- See Pandoc manual for all the variables available to modify in the YAML.
  - E.g. `aspectratio`: 43 for 4:3 ratio.
- See also Producing slide shows with pandoc
  - E.g. Speaker notes



# Beamer frame attributes

## Beamer frame attributes `{.shrink}`

- The frame attributes in Section 8.1 of the Beamer User's Guide can be used if inserted after header level as `{.attribute}` where attribute replaced with
  - `allowdisplaybreaks`
  - `allowframebreaks`
  - `b`
  - `c`
  - `t`
  - `environment`
  - `label`
  - `plain`
  - `shrink`
  - `standout`
  - `noframenumbering`

# Animation

- First step

# Animation

- First step
- Second step

# Animation

- First step
- Second step
- Third step

# Animation

- First step
- Second step
- Third step

# Animation

- First step
- Second step
- Third step

You can also include pauses with . . .