Beam Me Up!
\LaTeX(-Beamer) For Those Who Already Know

Daniel Borchmann    Sascha Wunderlich

2013-11-19
DISCLAIMER
Warning

Most things in this talk are rather subjective
Warning

Most things in this talk are rather subjective (but (hopefully) still useful)
Warning

Most things in this talk are rather subjective (but (hopefully) still useful)

No *right* and *wrong* in giving presentations or using \LaTeX, but there are some simple principles which make life easier.
Warning

Most things in this talk are rather subjective (but (hopefully) still useful)

No *right* and *wrong* in giving presentations or using \LaTeX, but there are some simple principles which make life easier

If you disagree, feel free to yell at us (in a productive way)
Warning

Most things in this talk are rather subjective (but (hopefully) still useful)

No right and wrong in giving presentations or using \LaTeX, but there are some simple principles which make life easier

If you disagree, feel free to yell at us (in a productive way)

If you agree, there will be cookies in the end!
Every rule can be broken, but no rule may be ignored.

- The Beamer User Guide
Presentation Caveats
DON'T...make overfull slides.
DON’T . . .

make overfull slides.
Presentation Caveats

Overfull Slides

An Overfull Slide With A Long Title Nobody Is Going To Read In Time Anyway

Well, see, overfull slides are a distraction from the talk itself, and do not help ANYONE. The time you need to read this slide you cannot use to listen to the speaker, who is going to tell you something else (because, well, the other things are on the slide, aren’t they?) So, you miss stuff, and maybe important stuff. On the other hand, if you listen to the speaker, you miss the stuff from the slides, which will not be repeated, because ... I think you get the point.

To maximize confusion, do not use overlays, because this would actually help reading the slide. Just put everything on one slide, talk while the slide is on screen (but not too long!) and then go on. Nobody will ask questions about your talk then, that’s guaranteed.
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen
- Better make slides with too few words than with too many.
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments.
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
  - Which may be relevant!
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
  - Which may be relevant!
  - But nobody is listening anyway!
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
  - Which may be relevant!
    - But nobody is listening anyway!
- But instead is checking emails . . .
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
    - Which may be relevant!
    - But nobody is listening anyway!
- But instead is checking emails . . .
- Or is surfing the web
Using Itemize to Decrease the Auditorium’s Attention

- If you have to use itemize, make sure it does fit on the screen.
- Better make slides with too few words than with too many.
- Don’t make long entries in the itemize environment, this will just confuse anybody who wants to read what you have on your slide. Anyway, presentations should not be summaries of your papers, should they? Well, then! And of course, long sentences on your slides are always a bad idea.
- Don’t use nested itemize environments
  - They won’t help!
    - And won’t clarify stuff
    - Important stuff
  - Which may be relevant!
  - But nobody is listening anyway!
- But instead is checking emails . . .
- Or is surfing the web
- Or is doing other (not so important) stuff
A Lot of Math - A Lot of Fun!

S. Ramanujan

It is easy to see

\[
\frac{1}{\pi} = \frac{2\sqrt{2}}{9801} \sum_{k=0}^{\infty} \frac{(4k)!(1103 + 26390k)}{(k!)^4396^{4k}}
\]
A Lot of Math - A Lot of Fun!

S. Ramanujan

It is easy to see

\[
\frac{1}{\pi} = \frac{2\sqrt{2}}{9801} \sum_{k=0}^{\infty} \frac{(4k)! (1103 + 26390k)}{(k!)^4 396^{4k}}
\]

Folklore

\[
0 \leq \left| \frac{1}{10^{10}} \left( \sum_{n=-\infty}^{\infty} e^{\frac{n^2}{10^{10}}} \right)^2 - \pi \right| \leq 10^{-42 \cdot 10^9}
\]
- Use spare slides, with not too much text
- Use spare slides, with not too much text
- No or short sentences
- Use spare slides, with not too much text
- No or short sentences
- If possible, omit details in formulae
- Use spare slides, with not too much text
- No or short sentences
- If possible, omit details in formulae
- Use overlays to guide readers through the slides
Use spare slides, with not too much text
No or short sentences
If possible, omit details in formulae
Use overlays to guide readers through the slides
Make pauses to let people read your slides
DON'T . . . mess around with fonts.
DON’T . . .

mess around with fonts.
- Getting fonts rights is very difficult
- Getting fonts rights is very difficult
- Defaults in \TeX are most often good enough
- Getting fonts rights is very difficult
- Defaults in \TeX are most often good enough
- Use sans-serif fonts for slides!
- Getting fonts rights is very difficult
- Defaults in TeX are most often good enough
- Use sans-serif fonts for slides!

Tip

Don’t Change Your Font!
Serif Fonts May Be Hard To Read
Serif Fonts May Be Hard To Read
Because they tend to be rather thin
Serif Fonts May Be Hard To Read
Because they tend to be rather thin (especially if you set things in small fonts)
Serif Fonts May Be Hard To Read
Because they tend to be rather thin (especially if you set things in small fonts)

Changing Fonts May Make Things Inconsistent
Serif Fonts May Be Hard To Read
Because they tend to be rather thin (especially if you set things in small fonts)

Changing Fonts May Make Things Inconsistent
Because \( \sum \) should actually look more like \( \sum \) now.
<table>
<thead>
<tr>
<th>Presentation Caveats</th>
<th>Messing With Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>DON'T . . .</td>
<td>mess around with colors (or at least be careful).</td>
</tr>
</tbody>
</table>
DON’T . . .

mess around with colors (or at least be careful).
Can be dangerous (and may look ugly)

Especially if you don't do it the right way

At least you can see some bullet points, can you?
Can be dangerous (and may look ugly)
- Can be dangerous (and may look ugly)
- Especially if you don’t do it the right way
Can be dangerous (and may look ugly)
Especially if you don’t do it the right way
At least you can see some bullet points, can you?
But you don't have to mess with background colors to make things unreadable!

Because there is a plethora of bad colors you can use in presentations.

And apart from that, it may just look ugly ...

...or be hard to tell apart (depending on your presentation device)

Presentation Caveats

Messing With Colors
But you don’t have to mess with background colors to make things unreadable!
- But you don’t have to mess with background colors to make things unreadable!
- Because there is a plethora of bad colors you can use in presentations
But you don’t have to mess with background colors to make things unreadable!

Because there is a plethora of bad colors you can use in presentations

And apart from that, it may just look ugly . . .
But you don’t have to mess with background colors to make things unreadable!

Because there is a plethora of bad colors you can use in presentations

And apart from that, it may just look ugly...

...or be hard to tell apart (depending on your presentation device)
Presentation Caveats

Messing With Colors

▶ Colors may help to clarify things, but use with care
▶ Few colors only
▶ Use high contrasts
▶ Use predefined color schemes when necessary
▶ Test your scheme on bad beamers and reuse it
Colors may help to clarify things, but *use with care*
Colors may help to clarify things, but use with care

Few colors only
- Colors may help to clarify things, but use with care
- Few colors only
- Use high contrasts
- Colors may help to clarify things, but use with care
- Few colors only
- Use high contrasts
- Use predefined color schemes when necessary
- Colors may help to clarify things, but use with care
- Few colors only
- Use high contrasts
- Use predefined color schemes when necessary
- Test your scheme on bad beamers and reuse it
DON’T . . .

make pictures or text jump.
Jump!
Jump!

And run!
More Jumps!

Sometimes you want to have additional stuff on your slides
More Jumps!

Sometimes you want to have additional stuff on your slides that explains intermediate things, but goes away
More Jumps!

Sometimes you want to have additional stuff on your slides and then you have stuff that should remain on your slide forever.
More Jumps!

Sometimes you want to have additional stuff on your slides and then you have stuff that should remain on your slide forever.

Enough With The Jumps Already!

Jumps make it hard to see the differences between animation steps.
More Jumps!

Sometimes you want to have additional stuff on your slides and then you have stuff that should remain on your slide forever.

Enough With The Jumps Already!

Jumps make it hard to see the differences between animation steps. Especially if you are still reading.
Jumps

But jumps may sometimes be hard to avoid

Mostly due to the use of \only

In TikZ, don't only do \path<+->[draw] ...

but instead do something like \onslide<+->{\path[draw] ...}
or use \visible

Use overlayarea and overprint for dynamically changing slides

Last resort: a table is stable!
But jumps may sometimes be hard to avoid
But jumps may sometimes be hard to avoid
Mostly due to the use of `\only`
- But jumps may sometimes be hard to avoid
- Mostly due to the use of `\only`
- In TikZ, don’t *only* do

```
\path<+->[draw] ... 
```
But jumps may sometimes be hard to avoid
Mostly due to the use of \only
In TikZ, don’t only do
\path<+->[draw] ...

but instead do something like
\onslide<+->{
  \path[draw] ...
}
or use \visible
- But jumps may sometimes be hard to avoid
- Mostly due to the use of `\only`
- In TikZ, don’t only do
  
  ```latex
  \path<+->[draw] ...
  ```

  but instead do something like
  
  ```latex
  \onslide<+->{
    \path[draw] ...
  }
  ```

  or use `\visible`

- Use `overlayarea` and `overprint` for dynamically changing slides
But jumps may sometimes be hard to avoid
Mostly due to the use of \only
In TikZ, don’t only do

\texttt{\path<+->[draw] ...}

but instead do something like

\texttt{\onslide<+->{}
  \path[draw] ...
}\}

or use \texttt{\visible}

Use overlayarea and overprint for dynamically changing slides
Last resort: a table is stable!
### Presentation Caveats

#### Bad Pictures

- DO NOT make bad pictures.
DON’T . . .

make bad pictures.
cs will make each day a quest to find a missing close-paren.
CS WILL MAKE EACH DAY A QUEST TO FIND A MISSING CLOSE-PAREN.

If you include pictures, make sure they look good
<table>
<thead>
<tr>
<th>Presentation Caveats</th>
<th>Bad Pictures</th>
</tr>
</thead>
</table>

If you draw pictures, make sure they look good.
If you draw pictures, make sure they look good.
If you draw pictures, make sure they look good
If you draw pictures, make sure they look good
If you draw pictures, make sure they look good
If you draw pictures, make sure they look good
If you draw pictures, make sure they look good
If you draw pictures, make sure they look good
Make Clear What You Have Done!
DO . . .

make clear what you have done!
Theorem
If it rains, the street gets wet.

Theorem
If it rains, you can see clouds. (Folklore)

The street gets wet. [Borchmann and Wunderlich 2013]
Theorem

*If it rains, the street gets wet.*
Theorem

*If it rains, the street gets wet.*

Theorem (BW13)

*If it rains, the street gets wet.*
Theorem

If it rains, the street gets wet.

Theorem (Borchmann and Wunderlich 2013)

If it rains, the street gets wet.
Theorem

If it rains, the street gets wet.

Theorem (Borchmann and Wunderlich 2013)

If it rains, the street gets wet.

Theorem

If it rains,
Theorem

If it rains, the street gets wet.

Theorem (Borchmann and Wunderlich 2013)

If it rains, the street gets wet.

Theorem

If it rains,

- you can see clouds.  \textit{(Folklore)}
Theorem

If it rains, the street gets wet.

Theorem (Borchmann and Wunderlich 2013)

If it rains, the street gets wet.

Theorem

If it rains,

- you can see clouds. *(Folklore)*
- the street gets wet. *[Borchmann and Wunderlich 2013]*
\LaTeX\ Do’s and Don’ts (some ... )
Some Recommended Packages

Here is a wild list
Some Recommended Packages

Here is a wild list

- array
- booktabs
- enumerate
- etex
- fixltx2e
- graphicx
- hyperref
- listings
- mathtools
- microtype
- ntheorem
- tabularx
- tikz
- verbatim
\begin{equation*}
\{ x \mid x \in \mathbb{N} \text{ prime} \}
\end{equation*}
\begin{equation*}
\{ x \mid x \in \mathbb{N} \text{ prime} \}
\end{equation*}
\begin{equation*}
\{ x \mid x \in \mathbb{N} \text{ prime} \}
\end{equation*}

\begin{equation*}
\{ x \mid x \in \mathbb{N} \text{prime} \}
\end{equation*}
\textbf{\LaTeX\ Do’s and Don’ts (some . . . )}

\begin{equation*}
\langle\langle \Sigma \rangle \rangle
\end{equation*}

\begin{equation*}
\langle\langle \Sigma \rangle \rangle
\end{equation*}

\begin{equation*}
\langle\langle \Sigma \rangle \rangle
\end{equation*}
\begin{equation*}
<<\Sigma>>
\end{equation*}
\begin{equation*}
<<\Sigma>>
\end{equation*}

\begin{equation*}
\langle\langle\Sigma\rangle\rangle
\end{equation*}

\begin{equation*}
\langle\langle\Sigma\rangle\rangle
\end{equation*}
\begin{equation*}
\langle\langle \Sigma \rangle\rangle
\end{equation*}

\begin{equation*}
\langle \langle \Sigma \rangle \rangle
\end{equation*}

\begin{equation*}
\langle \langle \Sigma \rangle \rangle
\end{equation*}
\begin{align*}
f(x) &= g(x) + 1 \\
g(y) &= f\left(\lfloor \frac{y}{2} \rfloor \right)
\end{align*}
\begin{eqnarray*}
    f(x) &=& g(x) + 1
    \\
    g(y) &=& f\left(\lfloor \frac{y}{2} \rfloor \right)
\end{eqnarray*}

\begin{align*}
    f(x) &= g(x) + 1 \\
    g(y) &= f\left(\lfloor \frac{y}{2} \rfloor \right)
\end{align*}
\begin{align*}
  f(x) &= g(x) + 1 \\
  g(y) &= f\left(\left\lfloor \frac{y}{2} \right\rfloor \right)
\end{align*}
$|\text{Aut}(\Gamma)| < 10$
\begin{equation*}
| \mathsf{Aut}(\Gamma) | < 10
\end{equation*}

\mid Aut(\Gamma) \mid < 10
\begin{equation*}
| \mathop{\mathsf{Aut}}(\Gamma) | < 10
\end{equation*}

\begin{equation*}
| \mathop{\operatorname{Aut}}(\Gamma) | < 10
\end{equation*}

\begin{equation*}
| \mathop{\operatorname{Aut}}(\Gamma) | < 10
\end{equation*}
\begin{equation*}
| \mathop{\mathsf{Aut}}(\Gamma) | < 10
\end{equation*}

\begin{equation*}
| \mathop{\operatorname{Aut}}(\Gamma) | < 10
\end{equation*}

% \texttt{\textbackslash DeclareMathOperator{\textbackslash Aut}{Aut} in the preamble}
\begin{equation*}
\abs{\mathop{\Aut}(\Gamma)} < 10
\end{equation*}
\begin{equation*}
    x \in C : \iff \gamma(x) = 5
\end{equation*}
\begin{equation*}
x \in C : \iff \gamma(x) = 5
\end{equation*}

\[
x \in C : \iff \gamma(x) = 5
\]
\begin{equation*}
x \in C : \iff \gamma(x) = 5
\end{equation*}

\[ x \in C : \iff \gamma(x) = 5 \]

From \texttt{fontmath.ltx}

\begin{verbatim}
\DeclareRobustCommand\iff{\Longleftarrow}
\end{verbatim}
\begin{equation*}
x \in C : \iff \gamma(x) = 5
\end{equation*}

\[ x \in C : \iff \gamma(x) = 5 \]

From fontmath.ltx

\texttt{\textbackslash DeclareRobustCommand}
\texttt{\textbackslash iff\{\;\textbackslash Longleftrightarrow\;\}}

\begin{equation*}
x \in C \;:\Longleftrightarrow \; \gamma(x) = 5
\end{equation*}

\[ x \in C : \Longleftrightarrow \gamma(x) = 5 \]
\textbf{LATEX Do’s and Don’ts (some . . . )}

\begin{equation*}
\text{We denote the powerset by } \mathcal{P}(\prod_{i \in I}\mathcal{X}_i)
\end{equation*}

...just kidding.
Very Important!

Use the right notation
Very Important!

Use the *right* notation

\begin{equation*}
\text{We denote the powerset by} \quad 2^{\prod\{i \in I\}\mathcal{X}_i}
\end{equation*}

We denote the powerset by $2^{\prod_{i \in I} \mathcal{X}_i}$
Very Important!

Use the right notation

\begin{equation*}
\text{We denote the powerset by } 2^{\prod_{i \in I} \mathcal{X}_i}
\end{equation*}

We denote the powerset by \(2^{\prod_{i \in I} \mathcal{X}_i}\)

\begin{equation*}
\text{We denote the powerset by } \mathfrak{P}(\prod_{i \in I} \mathcal{X}_i)
\end{equation*}

We denote the powerset by \(\mathfrak{P}(\prod_{i \in I} \mathcal{X}_i)\)
Very Important!

Use the right notation

\begin{equation*}
\text{We denote the powerset by} \quad 2^{\prod_{i \in I} \mathcal{X}_i}
\end{equation*}

We denote the powerset by $2^{\prod_{i \in I} \mathcal{X}_i}$

\begin{equation*}
\text{We denote the powerset by} \quad \mathfrak{P}(\prod_{i \in I} \mathcal{X}_i)
\end{equation*}

We denote the powerset by $\mathfrak{P}(\prod_{i \in I} \mathcal{X}_i)$

...just kidding.
Tips and Tricks
I Want To get rid of the navigation bar.

Then Do \setbeamertemplate{navigation symbols}{}
I Want To
get rid of the navigation bar.
I Want To
get rid of the navigation bar.

Then Do
\setbeamertemplate{navigation symbols}{}
I want to have some backup slides but don’t want them to show up in the slide counter.

Then do:
\newcounter{totalframenumber}
% right after last slide
\setcounter{totalframenumber}{\value{framenumber}}
% at the very end
\setcounter{framenumber}{\value{totalframenumber}}
I Want To

have some backup slides but don’t want them to show up in the slide counter.
I Want To
have some backup slides but don’t want them to show up in the slide counter.

Then Do

% in the preamble
\newcounter{totalframenumber}

% right after last slide
\setcounter{totalframenumber}\{\value{framenumber}\}

% at the very end
\setcounter{framenumber}\{\value{totalframenumber}\}
I Want To test a small change without typesetting my whole presentation every time.

Then Do

\% in the preamble
\includeonlyframes{current}
\begin{frame}[label=current]
I Want To

test a small change without typesetting my whole presentation every time.
I Want To

test a small change without typesetting my whole presentation every time.

Then Do

% in the preamble
\includeonlyframes{current}

% tag your frames
\begin{frame}[label=current]
Further Reading
Further Reading

- \LaTeX\ Sündenregister (l2tabu.pdf)
Further Reading

- \LaTeX{} Sündenregister (l2tabu.pdf)
- Section 5 of the Beamer User Guide, entitled *Guidelines for Creating Presentations*
Further Reading

- \LaTeX \ Sündenregister (l2tabu.pdf)
- Section 5 of the Beamer User Guide, entitled *Guidelines for Creating Presentations*
- Package documentaries
Further Reading

- `\LaTeX` Sündenregister (l2tabu.pdf)
- Section 5 of the Beamer User Guide, entitled *Guidelines for Creating Presentations*
- Package documentations
- symbols-a4.pdf
Further Reading

- \LaTeX Sündenregister (l2tabu.pdf)
- Section 5 of the Beamer User Guide, entitled *Guidelines for Creating Presentations*
- Package documentations
- symbols-a4.pdf
- Detexify
Further Reading

- \LaTeX{} Sündenregister (l2tabu.pdf)
- Section 5 of the Beamer User Guide, entitled *Guidelines for Creating Presentations*
- Package documentations
- symbols-a4.pdf
- Detexify
- The \TeX{}book
DO . . .

have a thank-you slide!
Thanks!

Questions? Comments? Ideas?