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

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

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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.

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

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  - They won't help!

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    - And won't clarify stuff

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    - And won't clarify stuff
    - Important stuff

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  - Which may be relevant!

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  - But nobody is listening anyway!

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  - Which may be relevant!
  - But nobody is listening anyway!
- But instead is checking emails . . .

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- Or is surfing the web

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    - 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

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

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Folklore

$$0 \lneq \left| \frac{1}{10^{10}} \left(\sum_{n=-\infty}^{\infty} e^{\frac{n^2}{10^{10}}} \right)^2 - \pi \right| \leq 10^{-42 \cdot 10^9}$$

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- 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.

- Getting fonts rights is very difficult

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- Defaults in TEX are most often good enough

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- Use sans-serif fonts for slides!

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Tip

Don't Change Your Font!

Serif Fonts May Be Hard To Read

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Changing Fonts May Make Things Inconsistent

Because Σ should actually look more like $\sum$ now.

DON'T . . .

mess around with colors (or at least be careful).

- Can be dangerous (and may look ugly)

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- Especially if you don't do it the right way

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- 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!

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

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- 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)

- Colors may help to clarify things, but use with care

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- Few colors only

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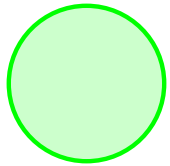
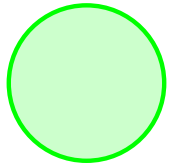
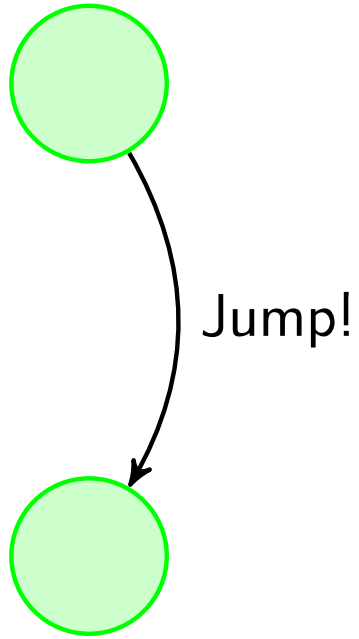
- Few colors only
- Use high contrasts
- Use predefined color schemes when necessary
- Test your scheme on bad beamers and reuse it

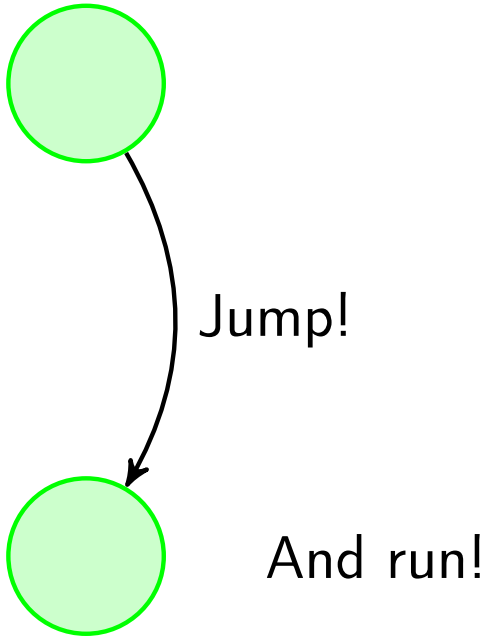
DON'T . . .

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.

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Enough With The Jumps Already!

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

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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.

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- Mostly due to the use of `\only`

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

```
\path<+->[draw] ...
```

but instead do something like

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

or use `\visible`

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- Use `overlayarea` and `overprint` for dynamically changing slides

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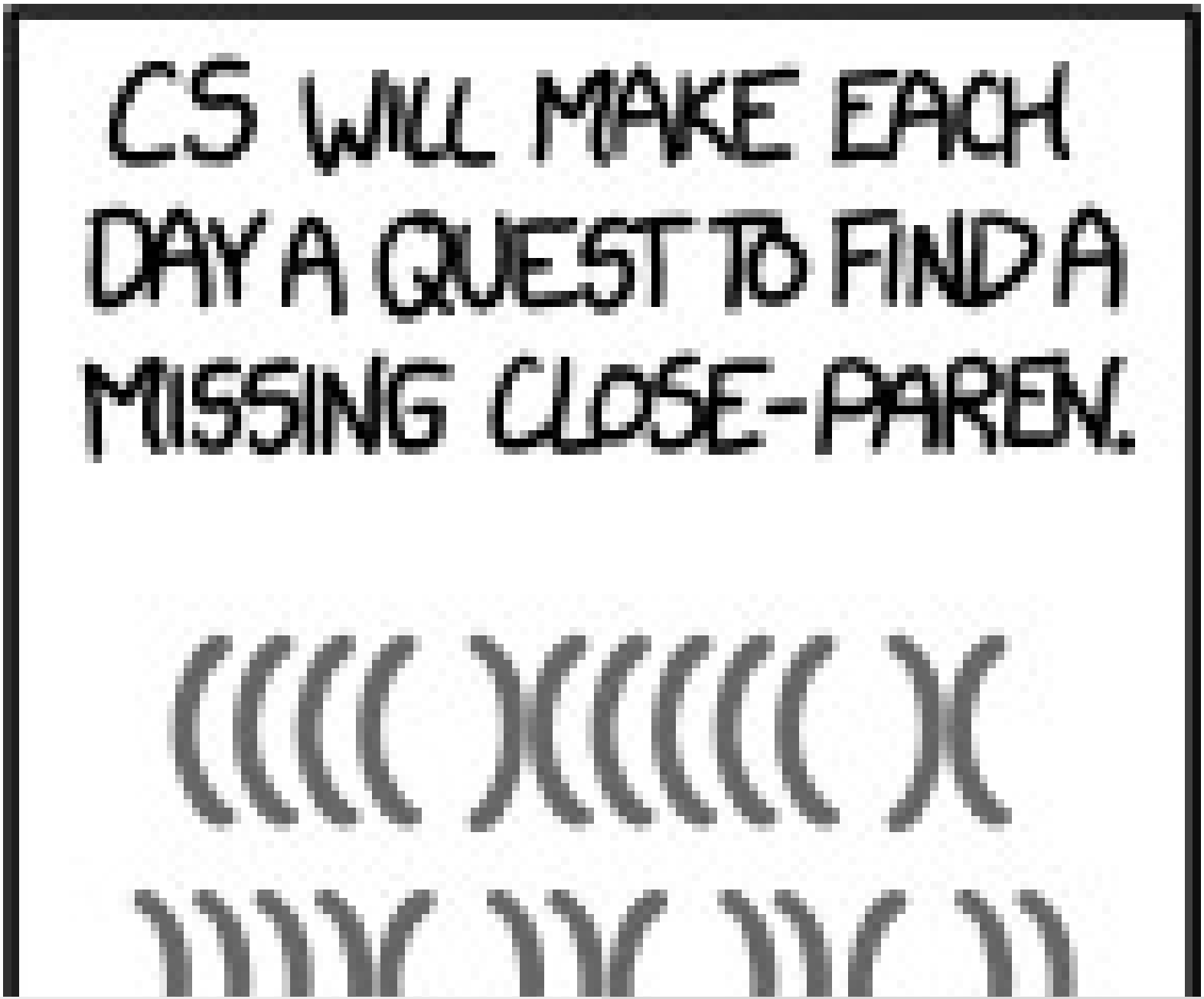
\onslide<+->{
  \path[draw] ...
}
```

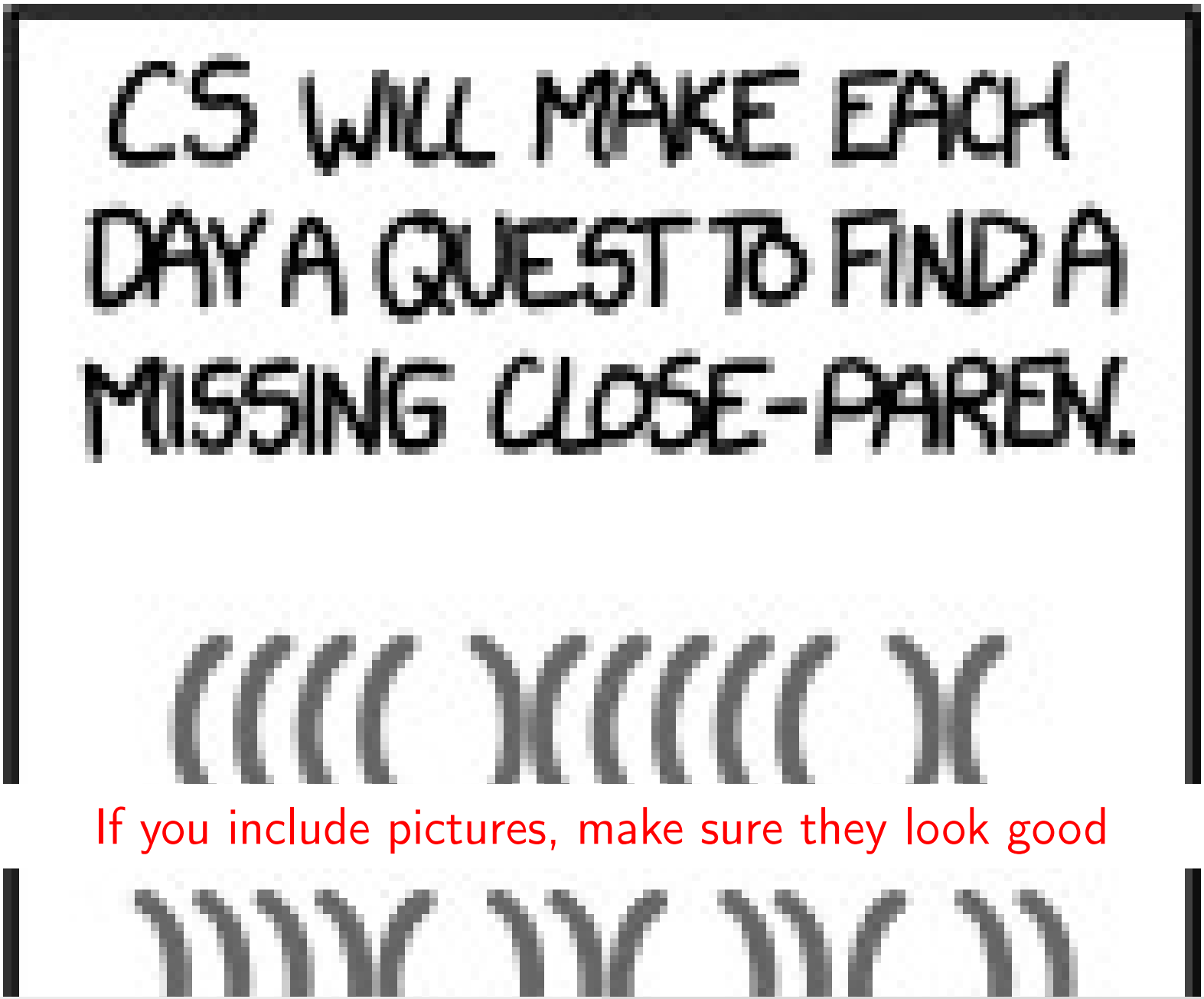
or use `\visible`

- Use `overlayarea` and `overprint` for dynamically changing slides
- Last resort: a table is stable!

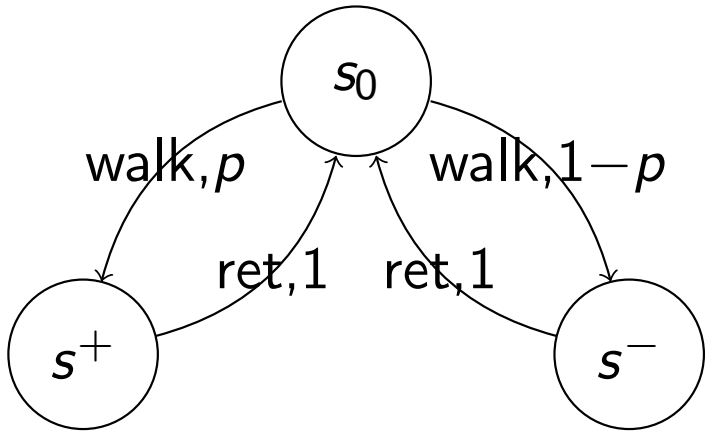
DON'T . . .

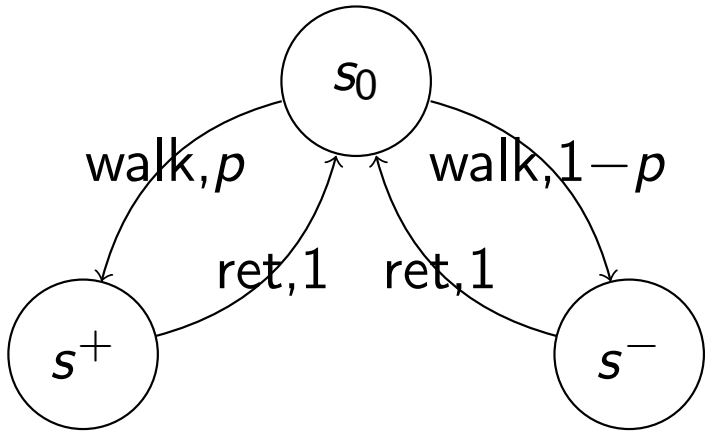
make bad pictures.


CS WILL MAKE EACH DAY A QUEST TO FIND A MISSING CLOSE-PAREN.

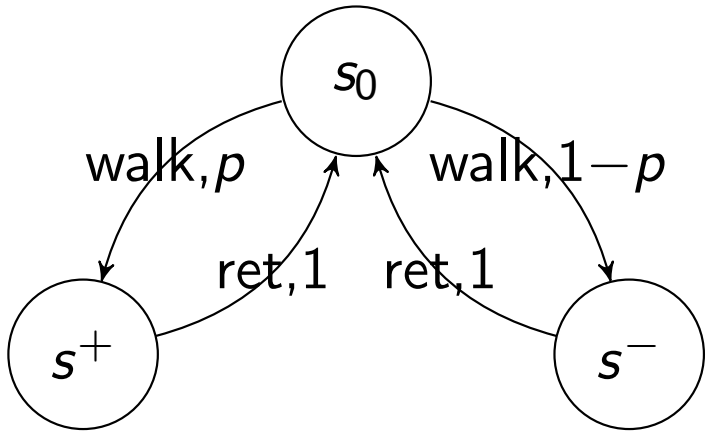


If you include pictures, make sure they look good


s_0
walk, p
walk, $1-p$
ret, 1
ret, 1
s^+
s^-



If you draw pictures, make sure they look good



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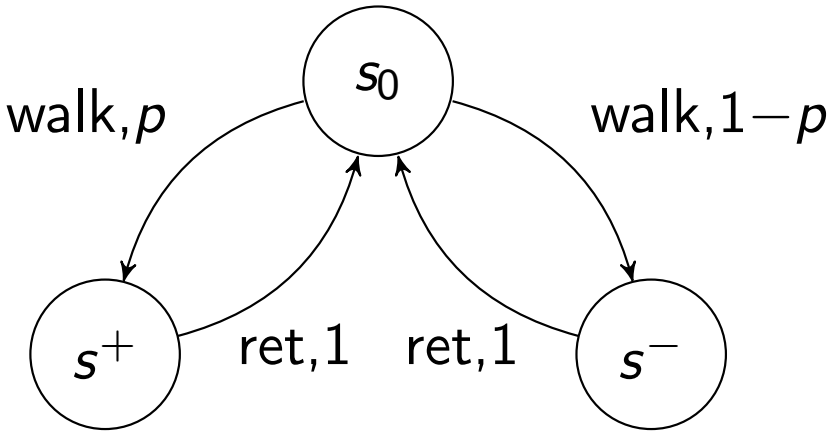

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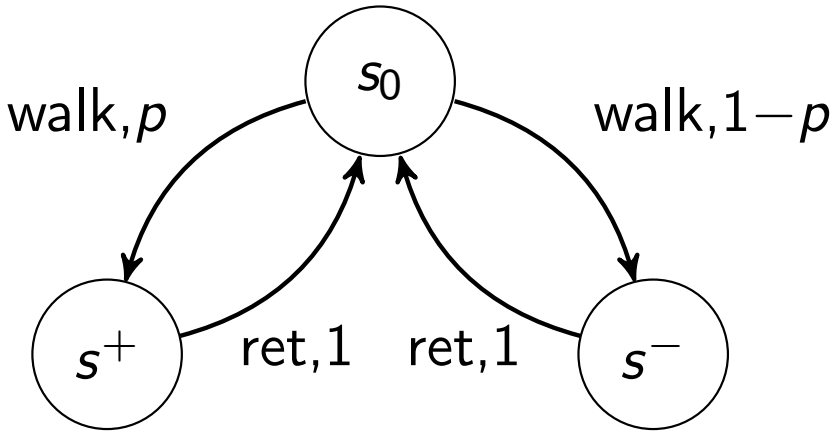

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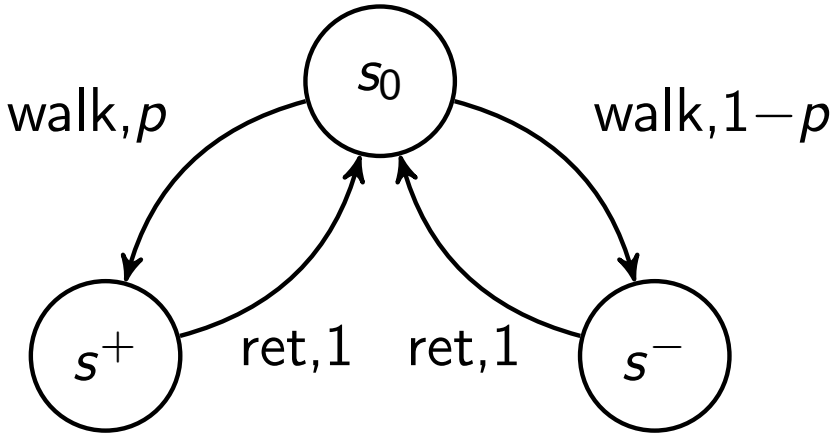

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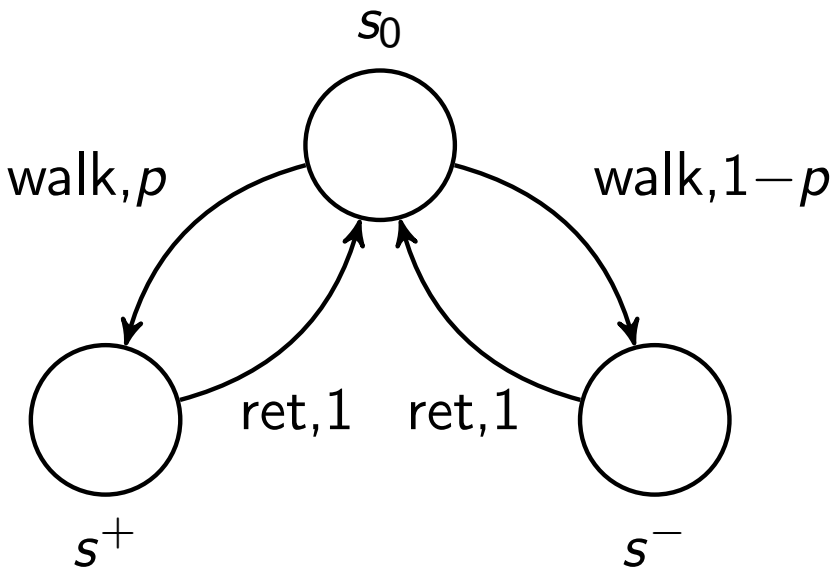

If you draw pictures, make sure they look good

DO . . .

make clear what *you* have done!

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)

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Theorem

If it rains,

- *you can see clouds.* ***(Folklore)***

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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

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- array
- booktabs
- enumerate
- etex
- fixltx2e
- graphicx
- hyperref
- listings
- mathtools
- microtype
- ntheorem
- tabularx
- tikz
- verbatim

```
\begin{equation*}
  \{\, x \mid x \in \mathbb N prime \,\}
\end{equation*}
```

$$\{\, x \mid x \in \mathbb{N} prime \,\}$$

```
\begin{equation*}
  \{\, x \mid x \in \mathbb N prime \,\}
\end{equation*}
```

$$\{\, x \mid x \in \mathbb{N} prime \,\}$$

```
\begin{equation*}
  \{\, x \mid x \in \mathbb N \ \text{prime} \,\}
\end{equation*}
```

$$\{\, x \mid x \in \mathbb{N} \text{ prime} \,\}$$

```
\begin{equation*}
  <<\Sigma>>
\end{equation*}
```

$$<< \Sigma >>$$

```
\begin{equation*}
  <<\Sigma>>
\end{equation*}
```

$$<< \Sigma >>$$

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

$$\langle\langle\Sigma\rangle\rangle$$

```
\begin{equation*}
  <<\Sigma>>
\end{equation*}
```

$$<< \Sigma >>$$

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

$$\langle\langle\Sigma\rangle\rangle$$

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

$$\langle\!\langle\Sigma\rangle\!\rangle$$

```
\begin{eqnarray*}
  f(x) &=& g(x) + 1 \\
  g(y) &=& f(\lfloor\frac{y}{2}\rfloor)
\end{eqnarray*}
```

$$\begin{aligned} f(x) &= g(x) + 1 \\ g(y) &= f(\lfloor \frac{y}{2} \rfloor) \end{aligned}$$

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  f(x) &=& g(x) + 1 \\
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$$\begin{aligned} f(x) &= g(x) + 1 \\ g(y) &= f(\lfloor\frac{y}{2}\rfloor) \end{aligned}$$

```
\begin{align*}
  f(x) &= g(x) + 1\\
  g(y) &= f\Bigl(\Bigl\lfloor\frac{y}{2}\Bigr\rfloor\Bigr)
\end{align*}
```

$$\begin{aligned} f(x) &= g(x) + 1 \\ g(y) &= f\left(\left\lfloor\frac{y}{2}\right\rfloor\right) \end{aligned}$$

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

$$|\operatorname{Aut}(\Gamma)| < 10$$

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

$$| \operatorname{Aut}(\Gamma) | < 10$$

```
\begin{equation*}
  \lvert \mathop{\operatorname{Aut}}(\Gamma) \rvert < 10
\end{equation*}
```

$$\lvert \operatorname{Aut}(\Gamma) \rvert < 10$$

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

$$| \operatorname{Aut}(\Gamma)| < 10$$

```
\begin{equation*}
  \lvert \mathop{\operatorname{Aut}}(\Gamma) \rvert < 10
\end{equation*}
```

$$|\operatorname{Aut}(\Gamma)| < 10$$

```
% \DeclareMathOperator{\Aut}{Aut} in the preamble
\begin{equation*}
  \abs{\Aut(\Gamma)} < 10
\end{equation*}
```

$$|\operatorname{Aut}(\Gamma)| < 10$$

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

$$x \in C :\iff \gamma(x) = 5$$

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

$$x \in C :\iff \gamma(x) = 5$$

From `fontmath.ltx`

```
\DeclareRobustCommand
  \iff{\;\Longleftrightarrow\;}
```

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

$$x \in C :\iff \gamma(x) = 5$$

From `fontmath.ltx`

```
\DeclareRobustCommand
  \iff{\;\Longleftrightarrow\;}
```

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

$$x \in C \;:\Longleftrightarrow\; \gamma(x) = 5$$

Very Important!

Use the right notation

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

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

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\begin{equation*}
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\end{equation*}
```

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

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

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

Very Important!

Use the right notation

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

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

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

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

. . . just kidding.

Tips and Tricks

I Want To

get rid of the navigation bar.

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.

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.

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

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DO . . .

have a thank-you slide!

Thanks!

Questions? Comments? Ideas?