

# Scientific Markdown

Publications using Markdown and Pandoc

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# Outline

L<sup>A</sup>T<sub>E</sub>X and Beamer are Great

Why L<sup>A</sup>T<sub>E</sub>X Sucks

The (Common) Markdown Tool Chain

Demo Time

Practice and Limitations

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L<sup>A</sup>T<sub>E</sub>X and Beamer are Great

# Why $\text{\LaTeX}$ Sucks

## Counting Braces [2]

```
! Too many }'s.  
1.6 \date December 2004}
```

# Not in Mathematics Mode [2]

```
! Missing $ inserted
```

## Counting Braces, ctd. [2]

```
Runaway argument?  
{December 2004 \maketitle  
! Paragraph ended before \date was complete.  
<to be read again>  
\par  
1.8
```

# Reading L<sup>A</sup>T<sub>E</sub>X Documents is a Mess

```
\section{Markdown}\label{markdown}

\href{http://daringfireball.net/projects/markdown/}{
  Markdown}
syntax is \emph{much} easier to read, but powerful enough
for
\((95\%\) of your document.

\begin{figure}[htbp]
\centering
\includegraphics{images/markdown.png}
\caption{Markdown Logo}
\end{figure}

\section{Pandoc}\label{pandoc}

\href{http://johnmacfarlane.net/pandoc/}{Pandoc} is a
great
tool for converting Markdown (and lots of other documents)
to
different output formats.
```



# Reading Markdown Documents is Easy and Fun

```
# Markdown
```

```
[Markdown] syntax is _much_ easier to read, but powerful  
    enough  
for $95%$ of your document.
```

```
![Markdown Logo]
```

```
# Pandoc
```

```
[Pandoc] is a great tool for converting Markdown (and lots  
    of  
other documents) to different output formats.
```

```
[Markdown]:      http://daringfireball.net/projects/  
    markdown/
```

```
[Markdown Logo]: images/markdown.png
```

```
[Pandoc]:        http://johnmacfarlane.net/pandoc/
```

# The (Common) Markdown Tool Chain

# Disclaimer

- ▶ no GUI
- ▶ command line
- ▶ we will still see  $\text{\LaTeX}$ , sometimes

# Overview

- ▶ **Pandoc**: convert from enhanced Markdown syntax to  $\text{\LaTeX}$
- ▶  $\text{\LaTeX}$  and the **Beamer** package: typeset great-looking documents
- ▶ **latexmk**: run  $\text{\LaTeX}$
- ▶ **make**: put everything together

# Pandoc

*If you need to convert files from one markup format into another, pandoc is your swiss-army knife. [1]*

- ▶ convert Markdown documents to either plain  $\text{\LaTeX}$  or Beamer format
- ▶ uses templates
- ▶ arbitrary  $\text{\TeX}$  commands allowed in-between!

## Output Format

- ▶ could also directly create PDF files
- ▶ intermediate  $\text{\LaTeX}$  makes finding problems easier

# Including $\text{\LaTeX}$ Files

Using enforced templates, title pages, content slides, footers and similar often require falling back to plain  $\text{\LaTeX}$ .

Including files [4]:

```
-H FILE, --include-in-header=FILE  
-B FILE, --include-before-body=FILE  
-A FILE, --include-after-body=FILE
```

Use  $\text{\LaTeX}$  where necessary, but fall back to Markdown for most of the document.

# latexmk

- ▶ `latexmk` helps at compiling  $\text{\LaTeX}$  files
- ▶ repeatedly compiles until no further changes
  - ▶ table of contents
  - ▶ bibliography
  - ▶ ...
- ▶ helps cleaning up
- ▶ result: PDF files

# make

- ▶ originally used for compiling software
- ▶ run several commands, one after the other
- ▶ `make presentation` and `make report` instead of complicated, long command lines
- ▶ could be easily replaced by Windows batch files, ...



Demo Time

## Practice and Limitations

# Markdown and Pandoc

- ▶ you're allowed to use  $\text{T}_{\text{E}}\text{X}$  everywhere

```
Have a look at figure \ref{example}.
```

```
![Some nice figure \label{example}](images/figure.png)
```

- ▶ finish Markdown files with an empty line
  - ▶ otherwise, weird things might happen when using multiple files
- ▶ use an editor with Markdown support and preview
- ▶ always use the newest Pandoc release<sup>1</sup>

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<sup>1</sup><http://johnmacfarlane.net/pandoc/installing.html>

# Structuring Slides

- ▶ Pauses using “horizontal lines”

```
. . .
```

- ▶ Break apart lists with comments or protected whitespace

```
- item 1  
- item 2  
  
\  
<!-- -->  
  
- item 1  
- item 2
```

- ▶ Protected whitespace also helpful for images not wrapped in figures

```
![Inline image](example.png)\
```

# Multi-Column Frames

- ▶ not supported by Pandoc
- ▶ really needed?
- ▶ extending pandoc with a filter<sup>2</sup>

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<sup>2</sup><http://stackoverflow.com/a/24040087/695343>

# Source Code Highlighting

- ▶ use fenced code blocks to declare the language used

```
```java
public static void foo(String bar) {
    return "batz";
}
```
```

- ▶ setting up highlighting in your header include (see `listings` reference [3])

# Tables

- ▶ a mess in both  $\text{\LaTeX}$  and Markdown
- ▶ **Markdown tables** are automatically put into figures
  - ▶ online editors<sup>3</sup>
  - ▶ clean up by “converting from markdown to markdown”

```
pandoc --to markdown table.md
```

- ▶ different syntax possibilities
- ▶  **$\text{\LaTeX}$  tables** (ie. for large, complicated tables)

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<sup>3</sup>eg. [http://www.tablesgenerator.com/markdown\\_tables](http://www.tablesgenerator.com/markdown_tables) 

# References

- ▶ Use pseudo classes for changing frame/section properties
  - ▶ `{.allowframebreaks}` to allow splitting long reference lists to multiple frames
  - ▶ `{.unnumbered}` to have an unnumbered section title
- ▶ Beamer example:

```
# References

## References {.allowframebreaks}
```



# Bibliography

- ▶ ingredients:
  - ▶ bibliography file (typically BibTex, other formats supported)
  - ▶ citation style (.cs1 file)
  - ▶ references in document (`[@bibtex:reference]`)
- ▶ handled by pandoc: also works with HTML export

A presentation is a paper is a presentation.

# On GitHub. Tomorrow.

All files will be uploaded to GitHub.

**`https://github.com/JensErat/scientific-markdown`**

(and linked on the Fachschaft's web page)



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# References

# References

- [1] About pandoc: *<http://johnmacfarlane.net/pandoc/>*. Accessed: 2015-02-03.
- [2] LaTeX/Errors and Warnings — Wikibooks, The Free Textbook Project: 2014. *[http://en.wikibooks.org/w/index.php?title=LaTeX/Errors\\_and\\_Warnings&oldid=2739496](http://en.wikibooks.org/w/index.php?title=LaTeX/Errors_and_Warnings&oldid=2739496)*.
- [3] listings – Typeset source code listings using LaTeX:  
*<http://www.ctan.org/pkg/listings>*. Accessed: 2015-02-03.
- [4] Pandoc User's Guide:  
*<http://johnmacfarlane.net/pandoc/README.html>*. Accessed: 2015-02-03.