gesis Leibniz Institute for the Social Sciences

R Markdown

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Experience

Who has used R and R Markdown?

R Markdown

- Simple Markup Language + R Code (+ LaTeX)
- To make it easier, we will also use RStudio (which is not necessary)

Writing in Rmd

- Easier than LaTeX
- Reproducible and commented R Code/Manuscript
- Less flexible than pure LaTeX

Markdown

```
# Header first order
## Header second order
### Header third order
normal text, *italic text*, **bold text**

- List element 1
- List element 2

1. List element 1
2. List element 2
```

for more see: `Help > Cheatsheets > R Markdown Reference Guide`.

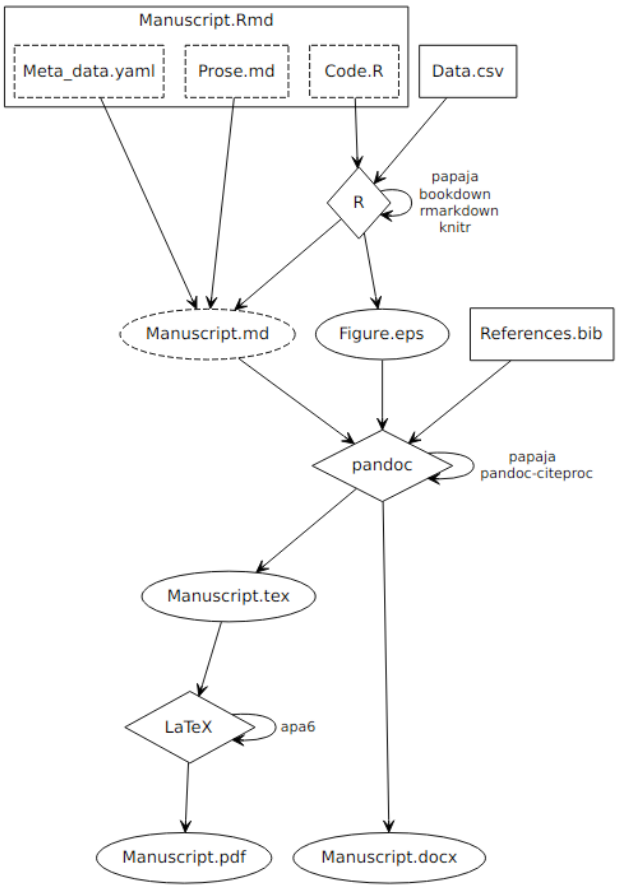
What can you do with R Markdown

- Presentations in PDF (this one)
- Presentations in html (z.B. ioslides)
- Analysis results in a Browser (bookdown)
- Scientific papers (PDF and MS Word)
- much much more. . . .

Let's take a look at papaja

- If you do not have a full MikTeX installation:
- Open MikTeX Console > Settings > Select "Always install missing packages on-the-fly"
- Run the installR.R code
- Go to File > NewFile > R Markdown > From template > APA Article
- Knit the file (2 times)
- How-to full MikTex installation: https://tobiasheycke.github.io/pages/fullmiktex

From Rmd to PDF



YAML header

```
---
title: "R Markdown"
author: "Tobias Heycke"
date: "07.02.2019"
output: pdf_document
---
```

R chunks

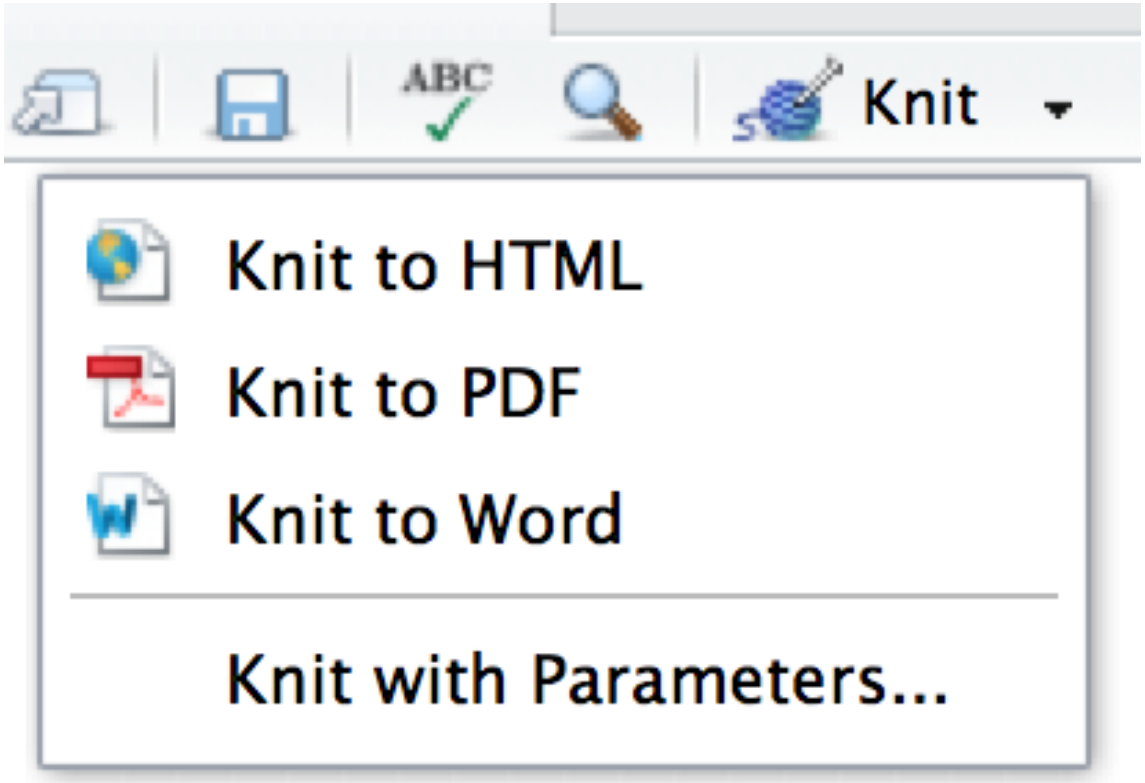
```
```{r message = FALSE, warning = FALSE}
library(viridis)
```
```

Demonstration

Writing manuscripts using R Markdown and papaja

R Markdown | Knit

You can knit Markdown documents by clicking on the knit button or pressing `Ctrl + Shift + k`.



Getting started with papaja

https://crsh.github.io/papaja_man/introduction.html#getting-started

Inline R Code

Within the text you can call any R code by writing

```
`r 2 + 2`
```

Citation

- You can save a library as a BibTeX file (e.g. in Zotero)
- I use the citr plug-in to insert citations from the BibTeX file
- Suggestions: Create a shortcut to open the citr plug-in:
- Tool > Modify Keyboard Shortcuts > Search for “Insert citation” > Set shortcut
- Citr will look for .bib files in the YAML header

Chunk options

- cache=TRUE
- dependson="PreviousChunkName"
- results="asis" #if you use apa_table()

For more options see: https://yihui.name/knitr/options/

LaTeX in Rmd

You can use any LaTeX code within a Markdown document.

For example:

- Greek symbols; as we saw yesterday with detexify
- \clearpage
- \bigskip
- \tableofcontents

LaTeX in the YAML header

```
header-includes:
  - \setcounter{tocdepth}{3}
  - \usepackage{setspace}
  - \interfootnotelinepenalty=10000
```

Documentclass in papaja

Papaja uses the LaTeX class apa6. You can adjust the options in the YAML header:

```
class: doc,12pt, a4paper, twoside
```

In the LaTeX file it will look like this:

```
\documentclass[english,doc,12pt, a4paper, twoside]{apa6}
```

Math Mode

You can enter Math Mode (and close it) with $:

```
$\int_0^\infty e^{-x^2} dx=\frac{\sqrt{\pi}}{2}$
```

$$\int_0^\infty e^{-x^2} dx = \frac{\sqrt{\pi}}{2}$$

Math mode II

R results in Math mode example:

```
BayesFactor <- 10.15
We found convincing evidence for an effect,
$\mathit{BF}_{10} = `r BayesFactor`$.
```

We found convincing evidence for an effect, $BF_{10} = 10.15$.

Other Markdown options

- bookdown (https://bookdown.org/yihui/bookdown/)
- ioslides
- Beamer slides in Rmd (GESIS Slides)

Task I

- add a citation in the HeyckeStahl2018.Rmd file using citr
- load a new library and look at the references section
- add an R chunk and refer to an object using in-line R code
- adjust YAML settings
- adjust chunk options

Task II

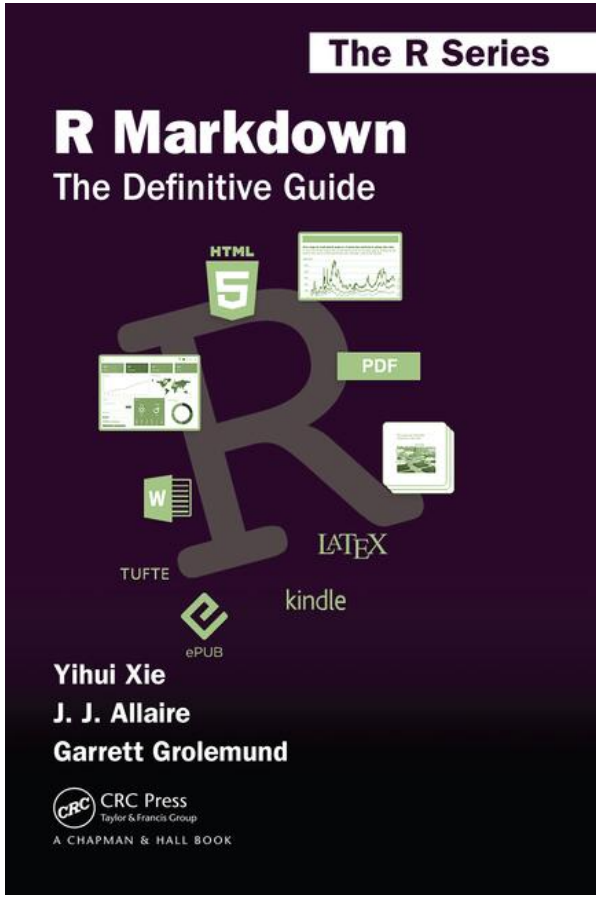
Add this table in the Rmd file:

```
#copied from ?apa_table

my_table <- t(apply(cars, 2, function(x)
             round(c(Mean = mean(x), SD = sd(x),
             Min = min(x), Max = max(x)), 2)
             ))

apa_table(
  my_table
  , align = c("l", rep("r", 3))
  , caption = "A summary table of the cars dataset."
  )
```

R Markdown Guide



https://bookdown.org/yihui/rmarkdown/