Reproducible paper writing
Some practical recommendations[1]

Sebastian Sauer (FOM)   Christoph Kurz (Helmholtz)

DGPs conference 2016 in Leipzig

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[1]Slides on Github, http://bit.ly/29N7YH0

Is science broken?

Echo in academia press
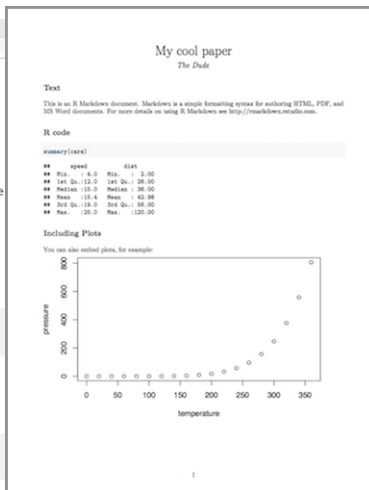
Echo in non-academia press

What is reproducible writing?

Write plain text with computer code included

Reproducible
paper writing

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(FOM), Christoph
Kurz (Helmholtz)

Is science broken?

What is
reproducible
writing?

Why should I write
my paper in a
reproducible
manner?

How to do it?

Style sheets

```
1   ---
2   title: "My cool paper"
3   author: "The Dude"
4   output: pdf_document
5   ---
6
7   ## Text
8
9   This is an R Markdown document. Markdown is a simple
10  formatting syntax for authoring HTML,
11  PDF, and MS Word documents.
12  For more details on using R Markdown
13  see <http://rmarkdown.rstudio.com>.
14
15  ## R code
16
17  ```{r cars}
18  summary(cars)
19  ```
20
21  ## Including Plots
22
23  You can also embed plots, for example:
24
25  ```{r pressure, echo=FALSE}
26  plot(pressure)
27  ```
28
```

Why should I write my paper in a reproducible manner?

Re-do analysis with no pain

Dude,
I sent you the wrong data. Find attached new dataset. You must re-do all analyses. Did I mention we submit tommorow?
Regards,

C. Kirk

Match R code to results in paper easily

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Paper with ~1,000 lines of wild R code.
In results section:
"After some wild computation, we found accuracy to be **78%**. . ."

How to do it?

Process of repro paper writing

R package "knitr"   pandoc

Text+R		Text		PDF/html
plain text	→	plain text	→	formatted text
code for data analysis		*results* of data analysis		numbers, figures, tables
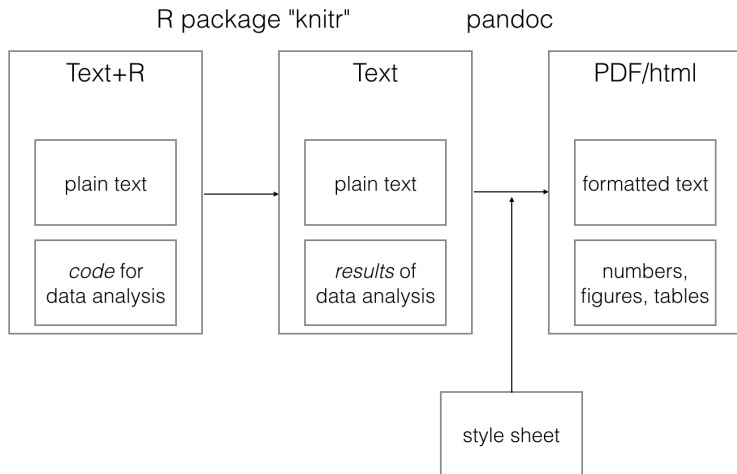
style sheet

Style sheets

Style sheet for thesis/assignment

```
1  ---
2  title: "Titel der Arbeit:mit Doppelpunkt"
3  subtitle: Ein schöner Subtitel
4  referee: Prof. Dr. I. Weiß-Ois
5  course: Seminararbeit im Fach Raketenwissenschaft
6  field: Studiengang Sophismus
7  author: Max Mustermann
8  ID: "Matrikelnummer: 12345679"
9  street: Meine Straße 1
10 zipcity: 12345 Hausenhausen
11 date: 13\. Mai 2016
12 graphics:
13 toc: true
14 lof: true
15 lot: true
16 lang: de-De
17 bibliography: Literatur.bib
18 logo: logo.png
19 documentclass: scrartcl
20 highlight-style: kate
21 output:
22   pdf_document:
23     number_sections: true
```

TITEL DER ARBEIT:MIT DOPPELPUNKT

EIN SCHÖNER SUBTITEL

Seminararbeit im Fach Raketenwissenschaft

Studiengang Sophismus

vorgelegt von
Max Mustermann
Matrikelnummer: 12345679
Meine Straße 1
12345 Hausenhausen

Style sheet for APA papers

Install PAPAJA and open new APA template in RStudio

```
---
title: "How to use papaja: An Example Manuscript Including Basic Instructions"
shorttitle: "How to use papaja"
author:
  - name:  Frederik Aust
    affiliation: 1
    corresponding: yes      # Define only one corresponding author
    department:
    address: "Department Psychology, University of Cologne, Herbert-Lewin-Str. 2, 50931
Köln, Germany"
    email: "frederik.aust@uni-koeln.de"
affiliation:
  - id: 1
    institution: "University of Cologne"

abstract: |
  This manuscript demonstrates how to use R Markdown and papaja to
  create an APA conform manuscript. papaja builds on R Markdown, which
  uses pandoc to turn Markdown into PDF or Word documents. The conversion
  to Word documents currently supports only a limited set of features.

autor_note: |
  `papaja` has not yet been submitted to CRAN; a development version is available at
https://github.com/crsh/papaja.

keywords: "APA style, knitr, R, R markdown, papaja"
```

Acknowledgments/ more infos

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Thank you. That's it.

- ▶ **Get this talk here**: https://github.com/
  sebastiansauer/talk_repro_writing_DGPs_2016
- ▶ Contact:
  Mail: sebastian.sauer@fom.de
  Twitter: sauer_sebastian