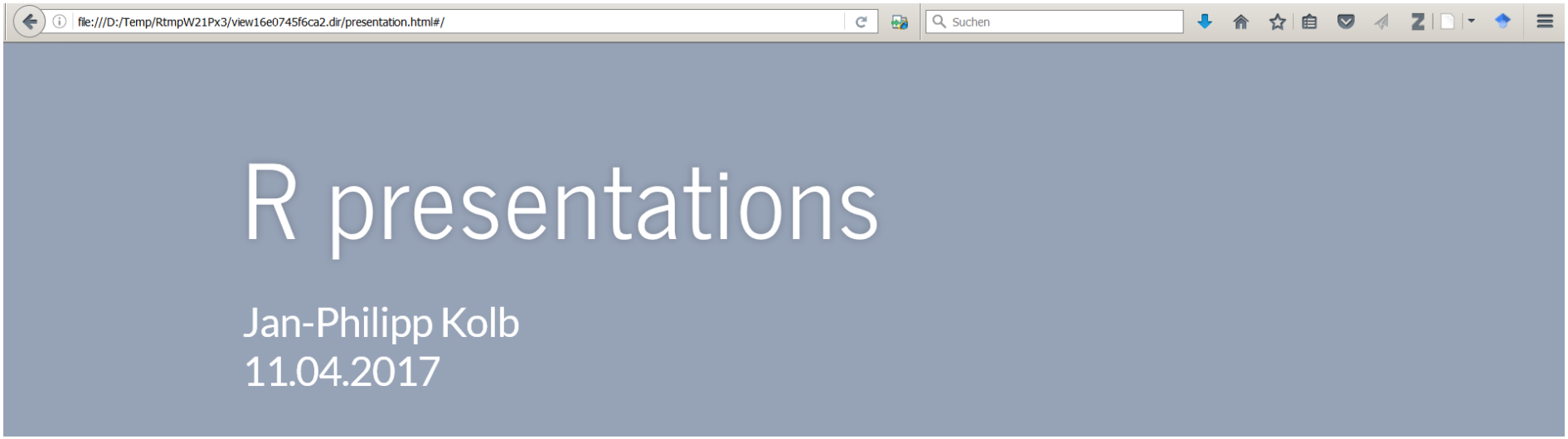
B5 Rmarkdown und Co

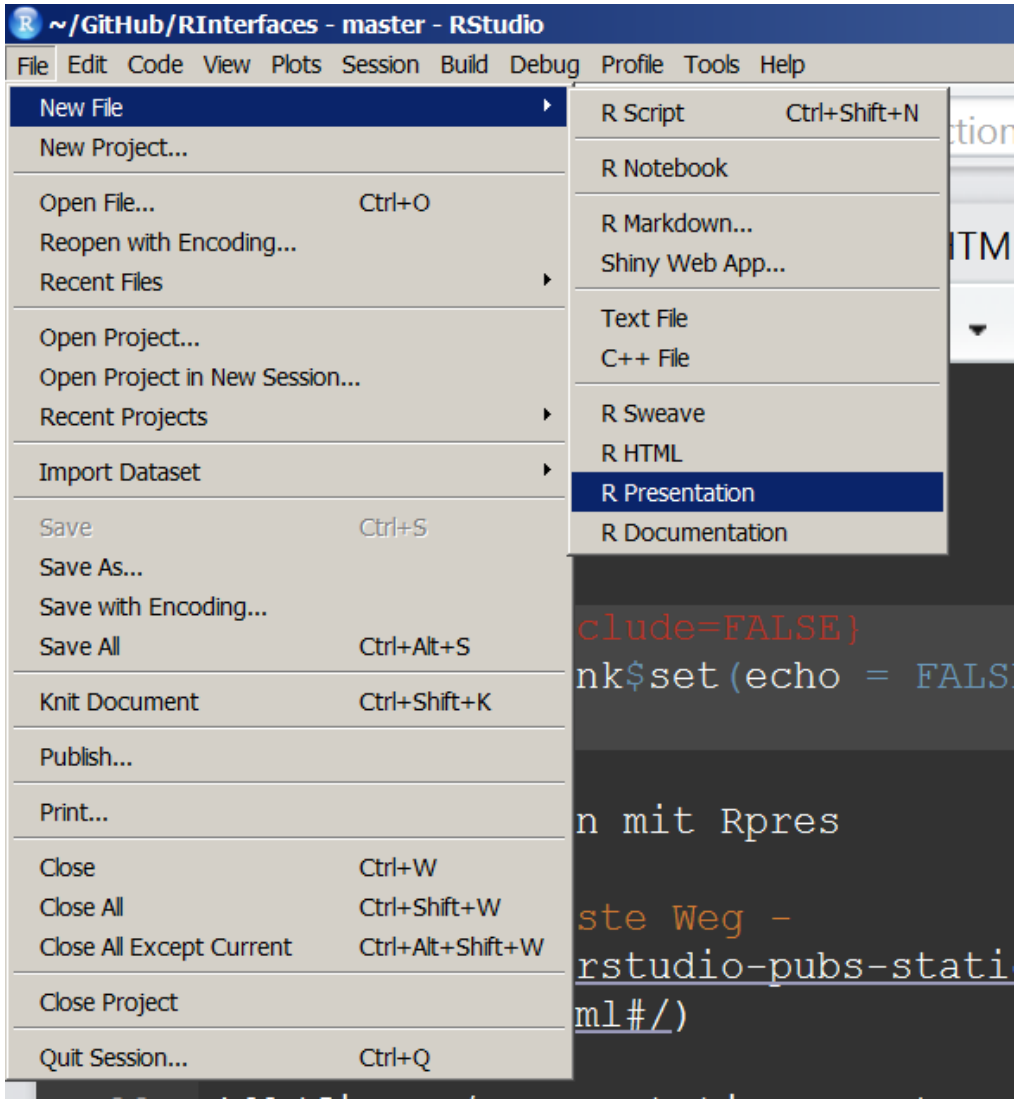
Jan-Philipp Kolb

16 Oktober 2018

Präsentationen - Rpres der einfachste Weg



Eine erste Präsentation



Erste Daten eintragen

- Für Vergessliche:

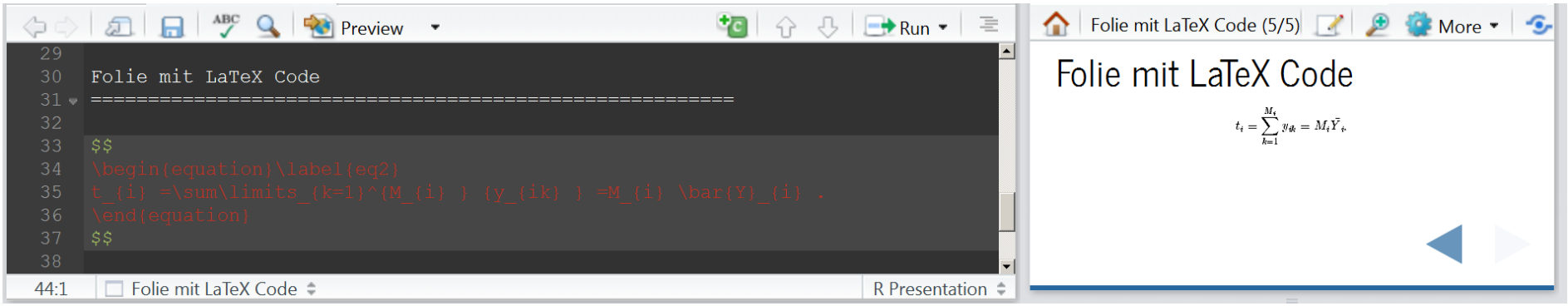
```
date()
```

```
## [1] "Thu Oct 04 15:27:33 2018"
```

Eine Folie mit Formel

- Die Formel kann wie in LaTeX eingegeben werden

```
$$
\begin{equation}\label{eq2}
t_{i}=\sum\limits_{k=1}^{M_{i}}{y_{ik}}=M_{i}\bar{Y}_{i}.
\end{equation}
$$
```



Zwei Spalten

```
Folie mit zwei Spalten
======================================
Erste Spalte
***
Zweite Spalte
```

Folienübergänge

`transition: rotate`

```
Meine Erste Präsentation mit Markdown
=====================================================
author: Jan-Philipp Kolb
date: Thu Apr 20 09:06:19 2017
autosize: true
transition: rotate

```

Weitere mögliche Folienübergänge

- none
- linear
- rotate
- fade
- zoom
- concave

Folientypen

```
Ein neues Kapitel einfügen
==========================================
type: section

Anderer Folientyp
==========================================
type: prompt

Noch ein anderer Folientyp
==========================================
type: alert
```

Die Schriftart wechseln

- Die **CSS Schrifttypen** können verwendet werden

```
Meine Präsentation
==========================================
author: Jan-Philipp Kolb
font-family: 'Impact'
```

Schrifttypen können auch importiert werden

```
Meine Präsentation
==========================================
author: Jan-Philipp Kolb
font-import: http://fonts.googleapis.com/css?family=Risque
font-family: 'Risque'
```

Kleineren Text

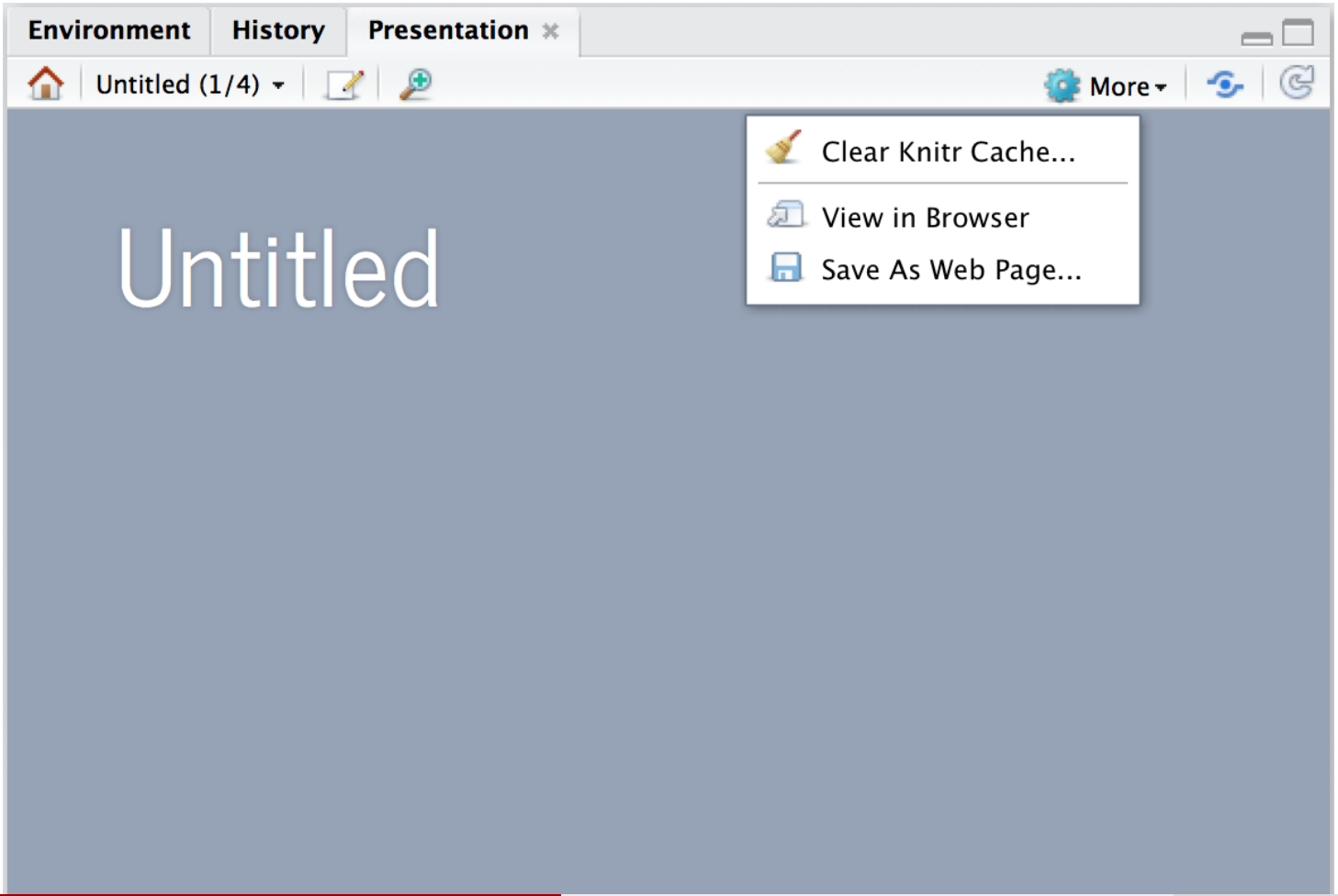
Normale Schriftgröße

```
<small>This sentence will appear smaller.</small>
```

Die Präsentation anschauen

- Das Ergebnis ist hier zu sehen:

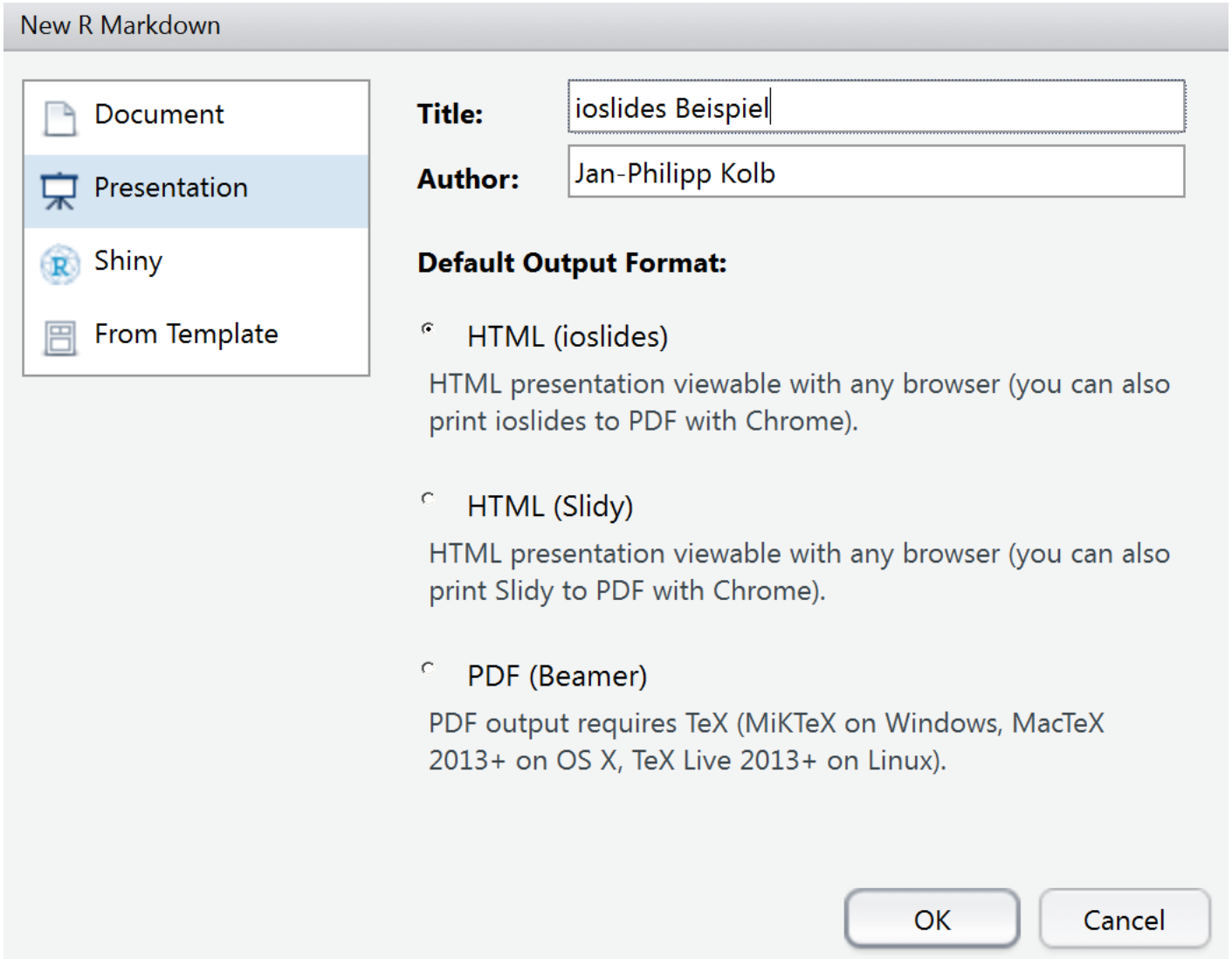
http://rpubs.com/Japhilko82/FirstRpubs



Eine ioslides Präsentation

Eine ioslides Präsentation

ioslides - Der Start



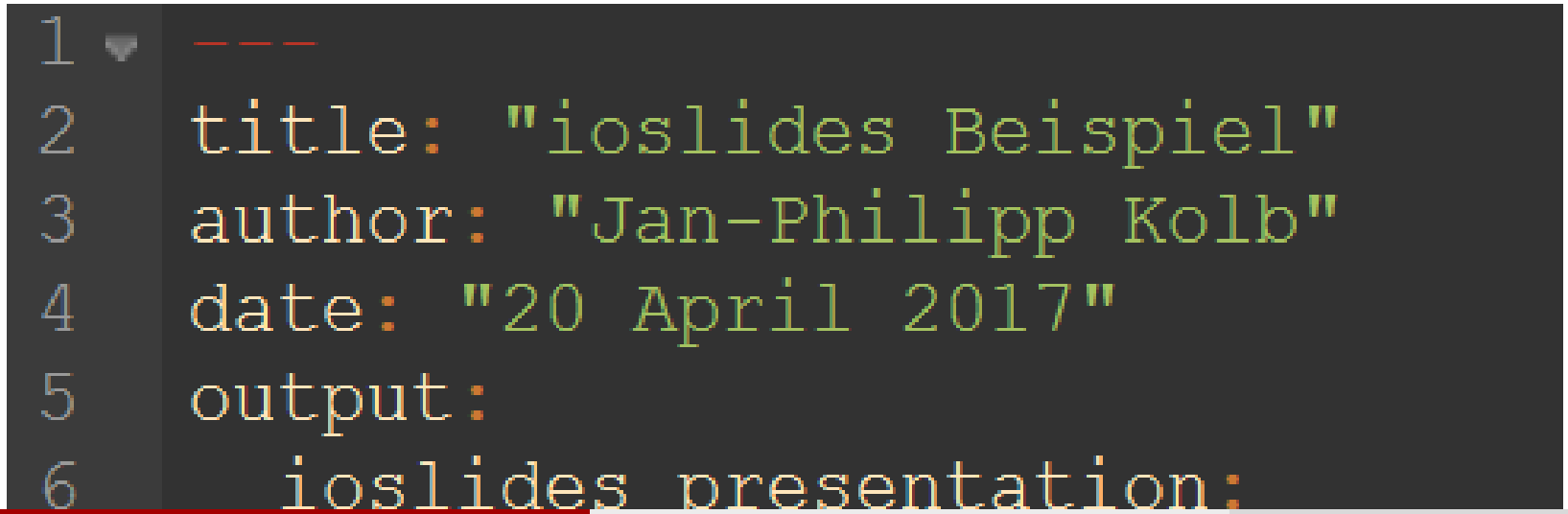
Weitere Dinge tun

- Ein Bild einbinden

```
![picture of spaghetti](images/spaghetti.jpg)
```

Ein Logo hinzu

```
---
title: "ioslides Beispiel"
author: "Jan-Philipp Kolb"
date: "20 April 2017"
output:
  ioslides_presentation:
    logo: figure/Rlogo.png
---
```



Tabellen

- Quelle: **R Studio, and Presentations, and Git! Oh my!**

```
library(knitr)
a <- data.frame(a=1:10,b=10:1)
kable(table(a))
```

1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	1	0	0	0	0
0	0	0	0	1	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0

knitr - was steckt dahinter?

Sprachen mit knitr

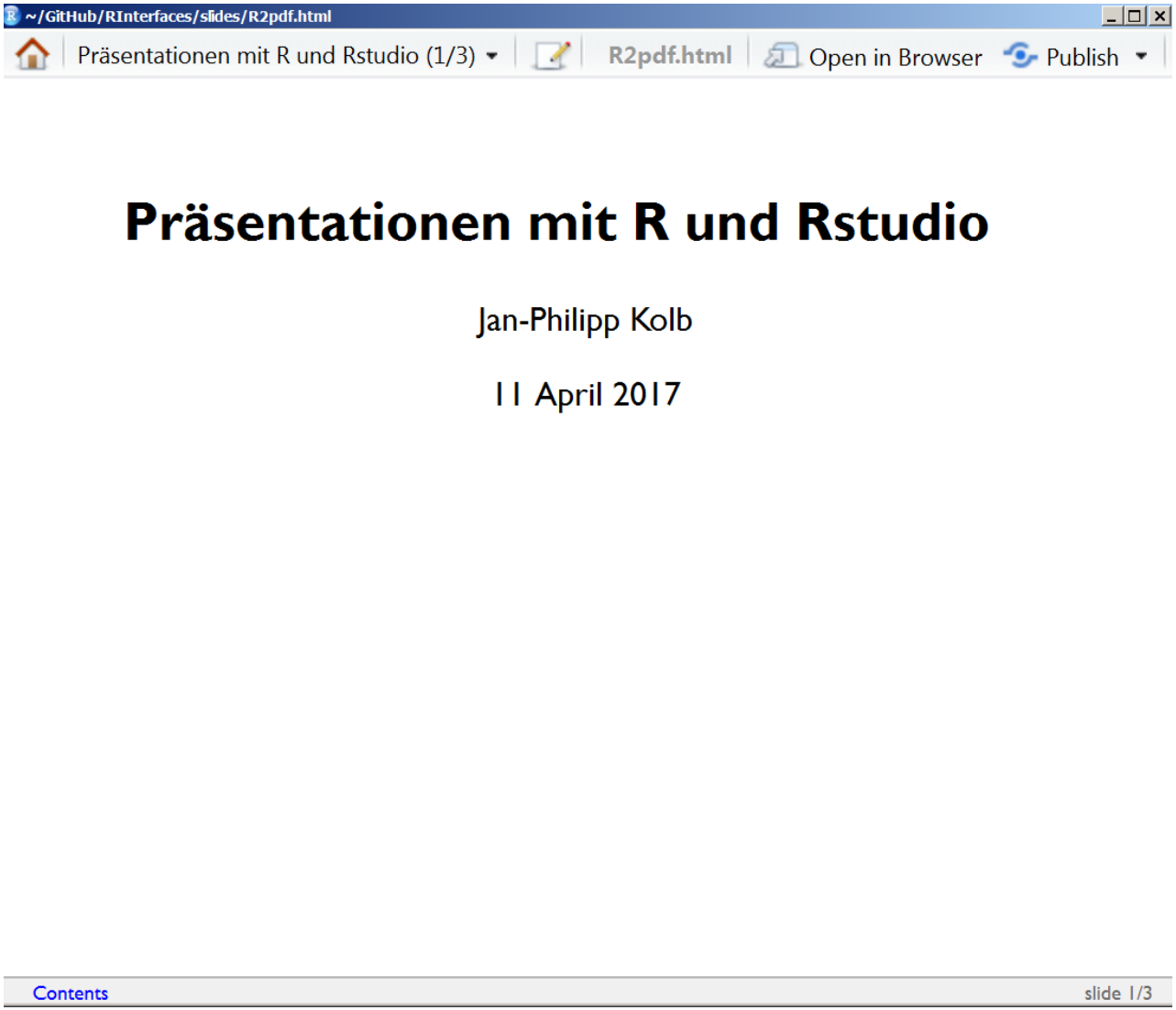
```
names(knitr::knit_engines$get())
```

```
##  [1] "awk"        "bash"       "coffee"     "gawk"       "groov
##  [6] "haskell"    "lein"       "mysql"      "node"       "octav
## [11] "perl"       "psql"       "Rscript"    "ruby"       "sas"
## [16] "scala"      "sed"        "sh"         "stata"      "zsh"
## [21] "highlight"  "Rcpp"       "tikz"       "dot"        "c"
## [26] "fortran"    "fortran95"  "asy"        "cat"        "asis"
## [31] "stan"       "block"      "block2"     "js"         "css"
## [36] "sql"        "go"         "python"     "julia"
```

```
x = 'hello, python world!'
print(x.split(' '))
```

Eine slidy Präsentation

slidy Präsentationen



Was sind Cascading Style Files (CSS))

- Stylesheet-Sprache für elektronische Dokumente
- eine der Kernsprachen des World Wide Webs.
- CSS wurde entworfen, um Darstellungsvorgaben weitgehend von den Inhalten zu trennen

CSS und R

- **Custom CSS**
- **CSS pro tipps**

Beispiel CSS

```css
body, td {
    font-family: Lucida Console;
    background-color: transparent;
    font-size: 20px;
}
```

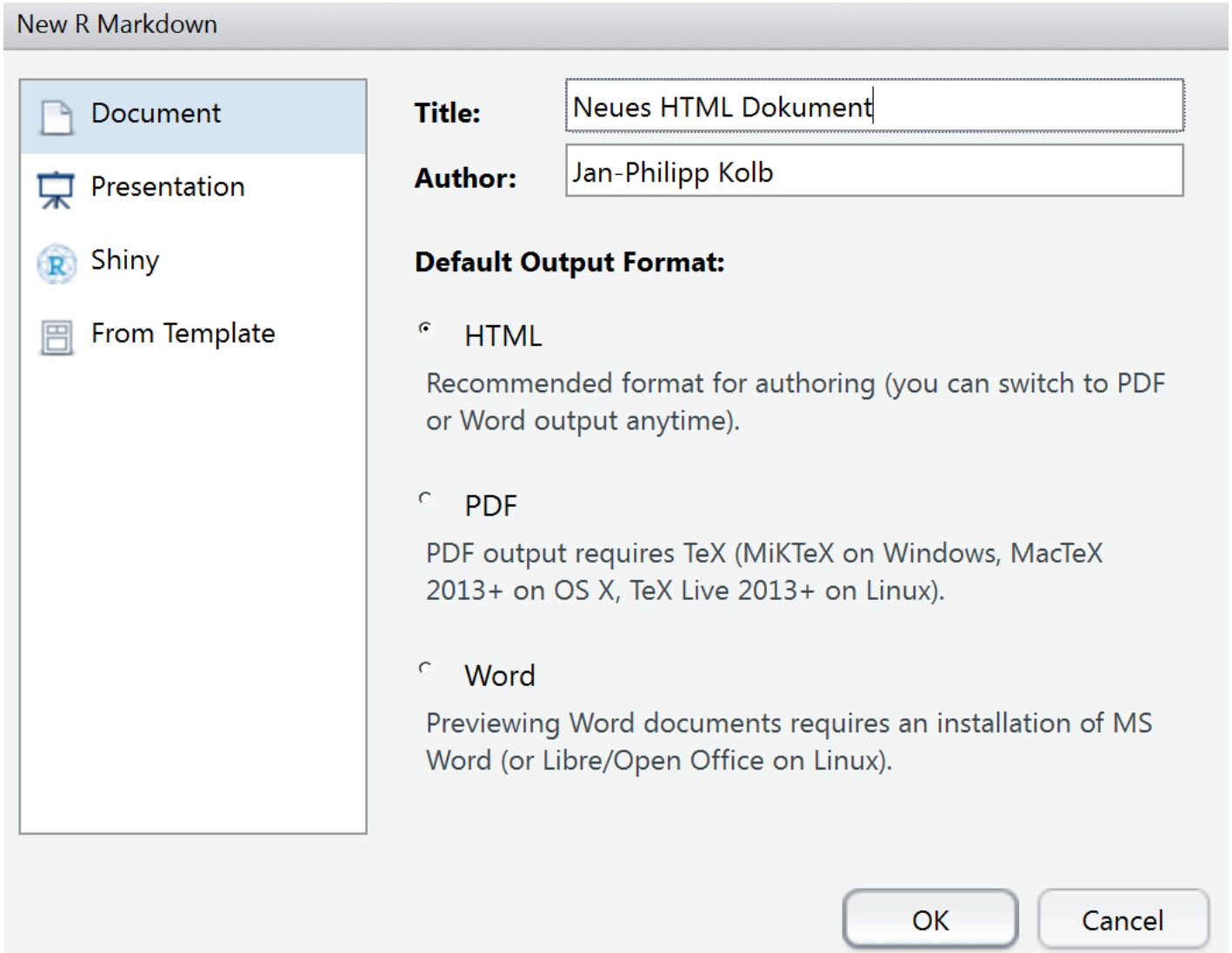
Das CSS ändern

Um den Präsentationstyp zu ändern kann man das CSS verändern

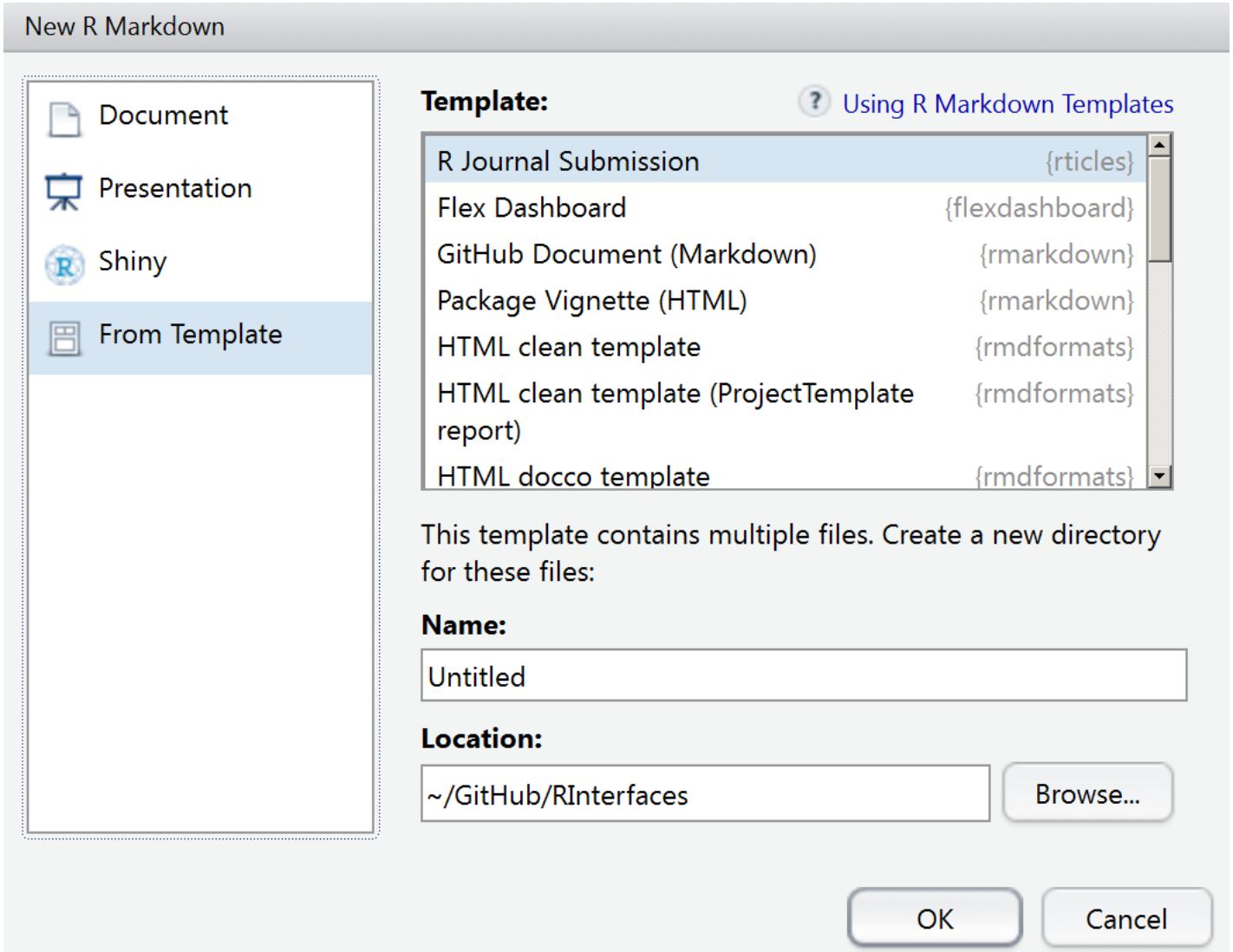
- **Cascading Style Sheets** (CSS)
- Bspw. lässt sich die **Farbe (HTML)** ändern.
- **Man kann eine andere Schriftart wählen**
- **Es gibt zahlreiche Möglichkeiten der Schriftformatierung**
- **Daneben gibt es viele weitere Dinge, die sich mit dem CSS steuern lassen**

HTML Dokumente

Ein HTML Dokument erzeugen



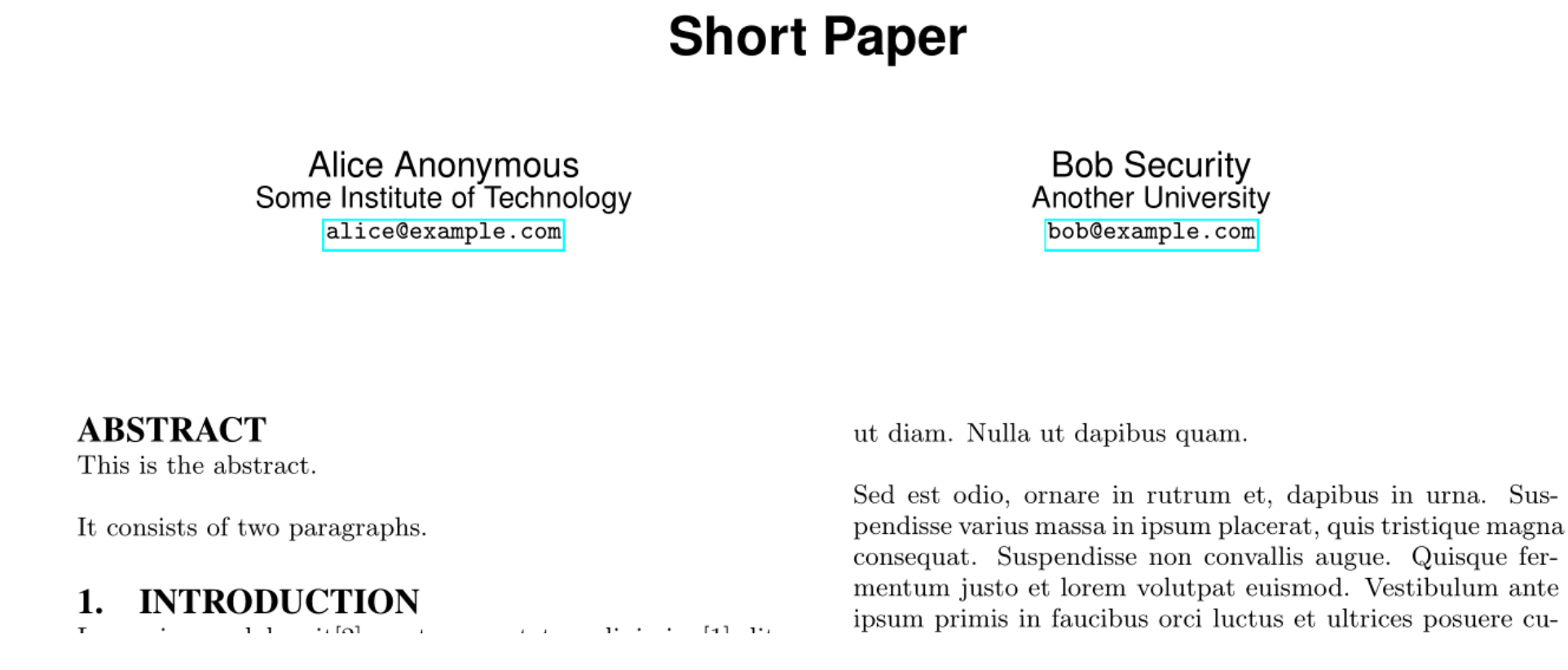
Ein Template verwenden



Weitere Vorlagen nutzen

- Es gibt viele Formate - **manche müssen erst aktiviert werden**:

```
install.packages("rticles")
```



Short Paper

Alice Anonymous
Some Institute of Technology
alice@example.com

Bob Security
Another University
bob@example.com

ABSTRACT

This is the abstract.

It consists of two paragraphs.

1. INTRODUCTION

ut diam. Nulla ut dapibus quam.

Sed est odio, ornare in rutrum et, dapibus in urna. Suspendisse varius massa in ipsum placerat, quis tristique magna consequat. Suspendisse non convallis augue. Quisque fermentum justo et lorem volutpat euismod. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cu-

Vorlagen für Markdown

Das Paket `rmdformats` - HTML Output Formats and Templates for 'rmarkdown'

```
install.packages("rmdformats")
```

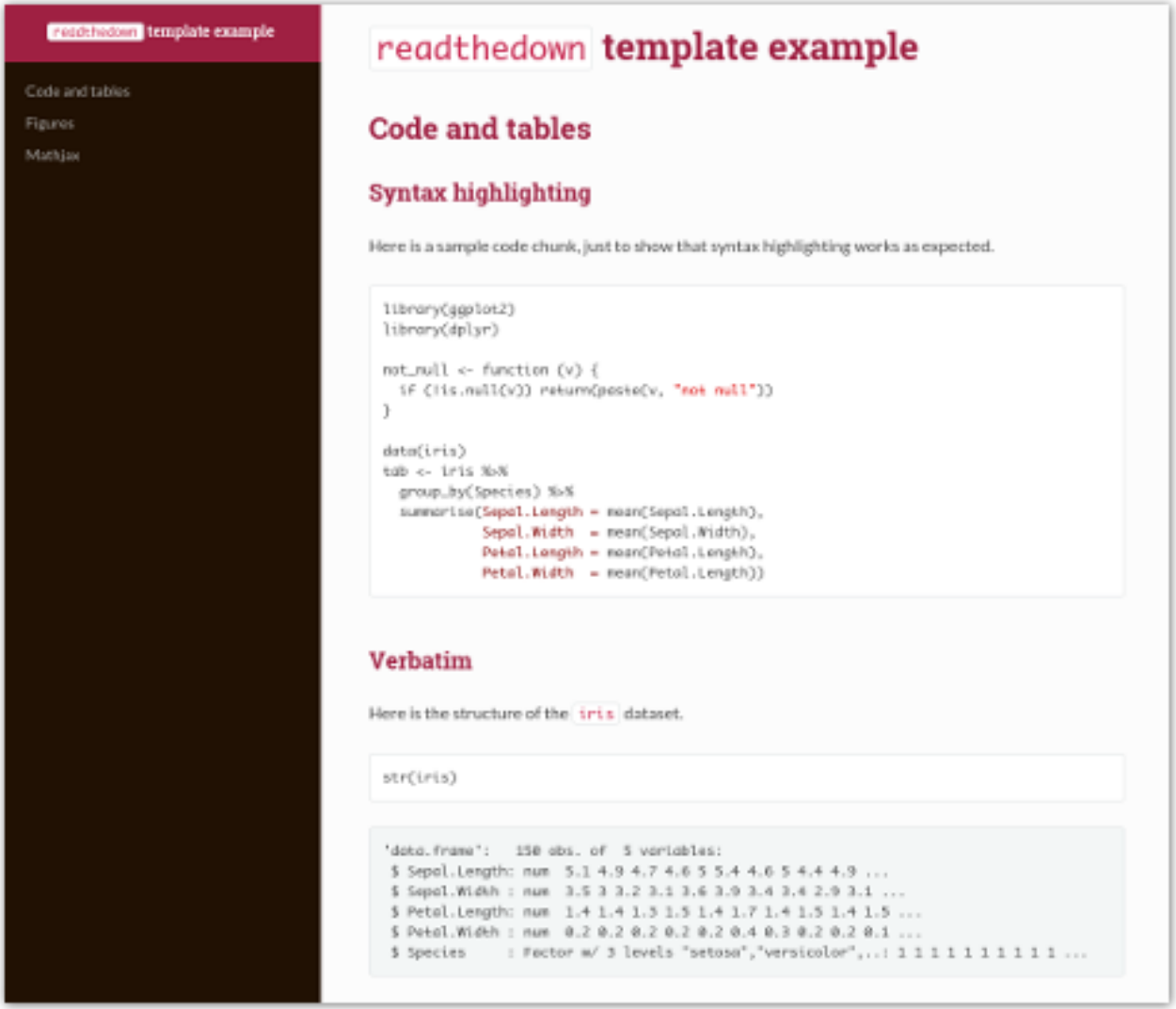
- `ProjectTemplate` - Automates the Creation of New Statistical Analysis

```
install.packages("ProjectTemplate")
```

- `tufte` - Tufte's Styles for R Markdown Documents

```
install.packages("tufte")
```

Beispiele für Templates



readthedown template example

Code and tables

Figures

Mathjax

readthedown template example

Code and tables

Syntax highlighting

Here is a sample code chunk, just to show that syntax highlighting works as expected.

```
library(ggplot2)
library(dplyr)

not_null <- function (v) {
  if (!is.null(v)) return(paste(v, "not null"))
}

data(iris)
tab <- iris %>%
  group_by(Species) %>%
  summarise(Sepal.Length = mean(Sepal.Length),
            Sepal.Width  = mean(Sepal.Width),
            Petal.Length = mean(Petal.Length),
            Petal.Width  = mean(Petal.Length))
```

Verbatim

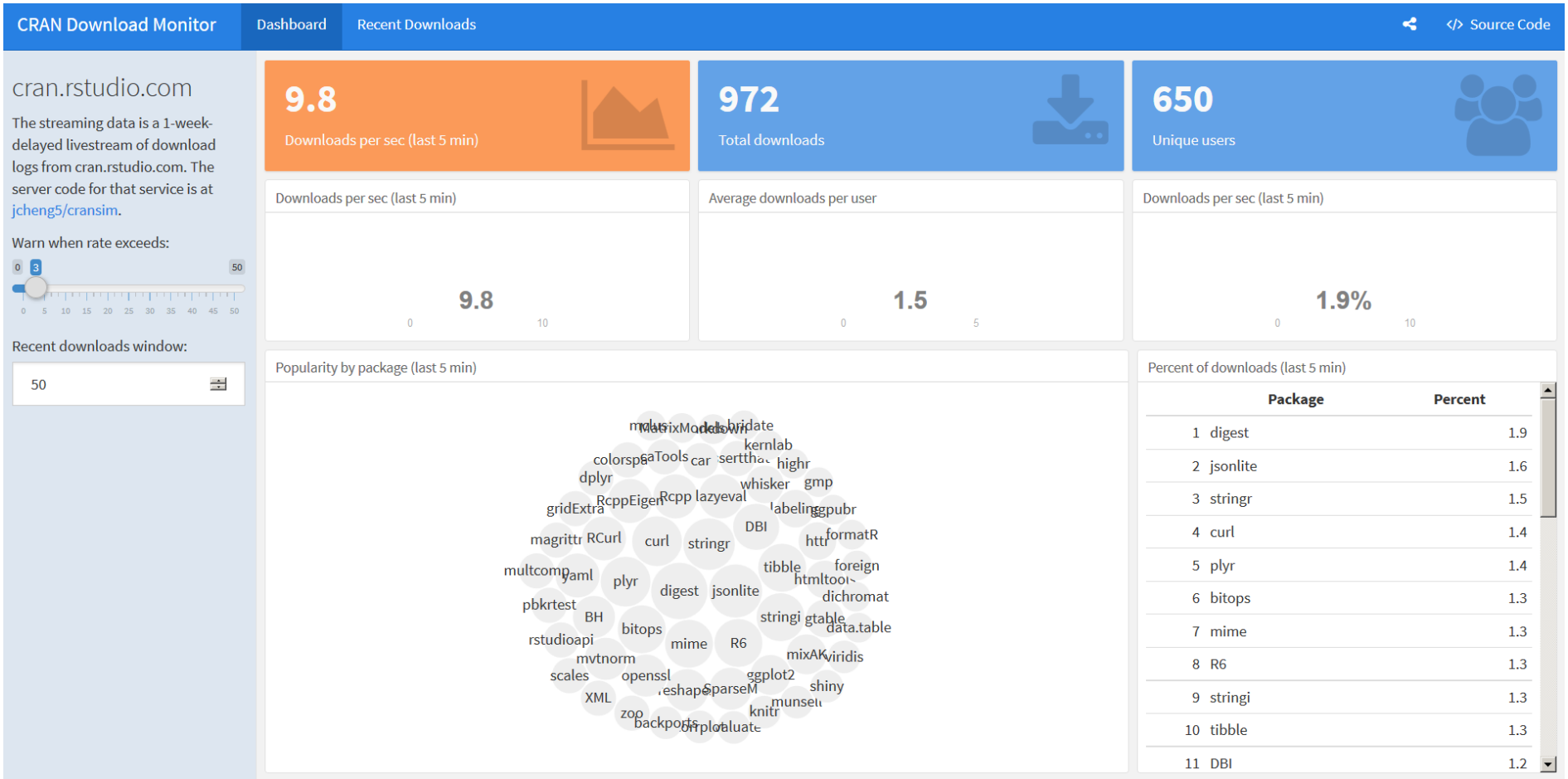
Here is the structure of the `iris` dataset.

```
str(iris)
```

```
'data.frame':   150 obs. of  5 variables:
 $ Sepal.Length: num  5.1 4.9 4.7 4.6 5 5.4 4.6 5 4.4 4.9 ...
 $ Sepal.Width : num  3.5 3 3.2 3.1 3.6 3.9 3.4 3.4 2.9 3.1 ...
 $ Petal.Length: num  1.4 1.4 1.3 1.5 1.4 1.7 1.4 1.5 1.4 1.5 ...
 $ Petal.Width : num  0.2 0.2 0.2 0.2 0.2 0.4 0.3 0.2 0.2 0.1 ...
 $ Species     : Factor w/ 3 levels "setosa","versicolor",..: 1 1 1 1 1 1 1 1 1 1 ...
```

Dashboards

Beispiel R-Pakete

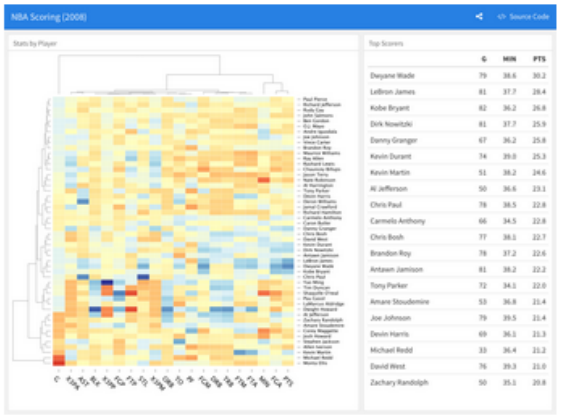


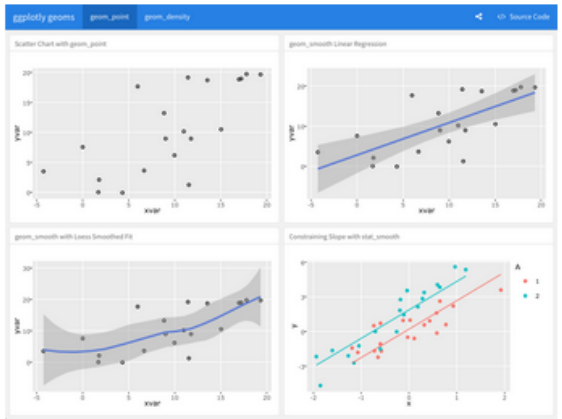
Paket installieren

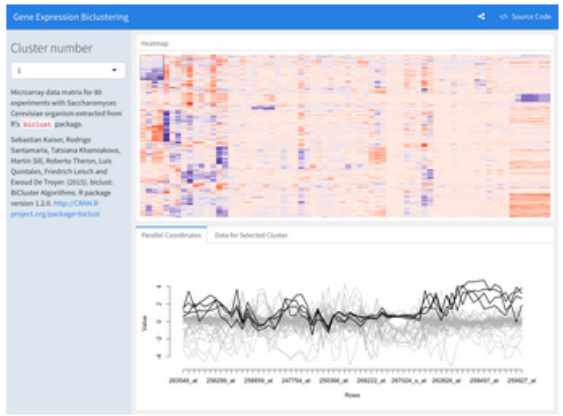
```
install.packages("flexdashboard", type = "source")
```

flexdashboard: Easy interactive dashboards for R

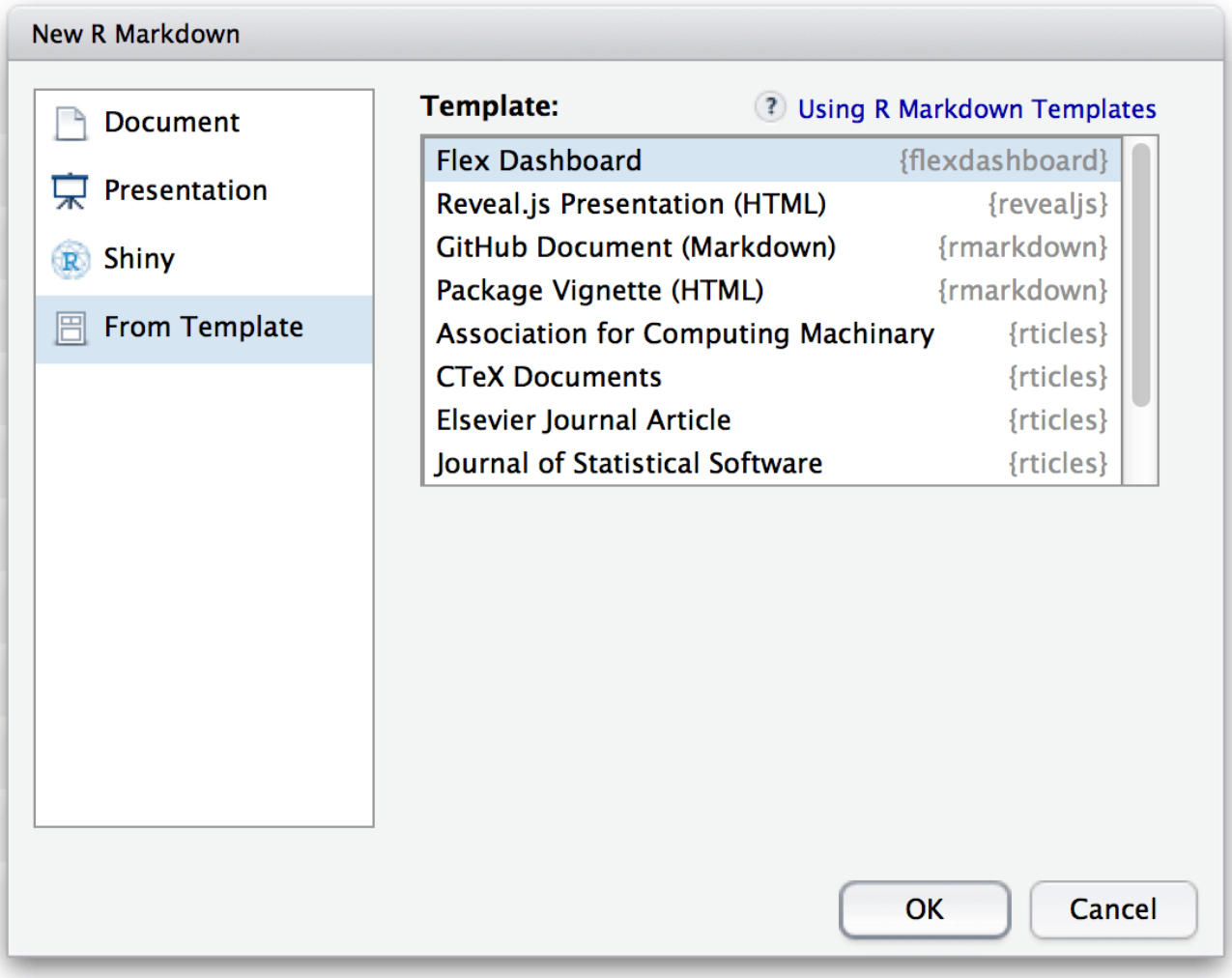
- Use R Markdown to publish a group of related data visualizations as a dashboard.
- Support for a wide variety of components including htmlwidgets; base, lattice, and grid graphics; tabular data; gauges and value boxes; and text annotations.
- Flexible and easy to specify row and column-based layouts. Components are intelligently re-sized to fill the browser and adapted for display on mobile devices.
- Storyboard layouts for presenting sequences of visualizations and related commentary.
- Optionally use Shiny to drive visualizations dynamically.







Ein Dashboard erstellen mit Rstudio



Mein erstes Dashboard

RPubs brought to you by RStudio

Japhilko82

Mein erstes Dashboard

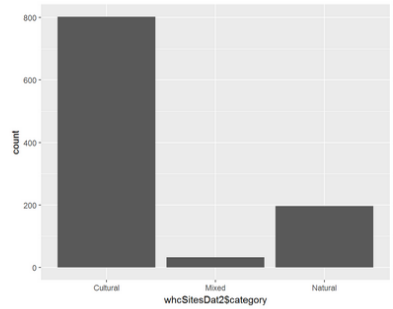
Eine interaktive Datentabelle mit `DT`

Show 10 entries Search:

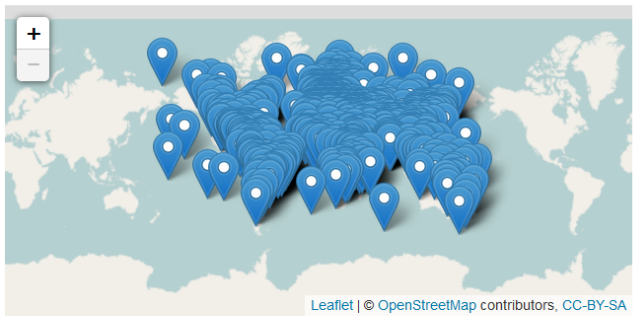
	name_en	category	longitude	latitude	date_inscribed	area_hectares	danger_list
1	Cultural Landscape and Archaeological Remains of the Bamiyan Valley	Cultural	67.82525	34.84694	2003	158.9265	Y 2003
2	Minaret and Archaeological Remains of Jam	Cultural	64.51605556	34.39655556	2002	70	Y 2002
3	Historic Centres of Berat and Gjirokastra	Cultural	20.13333333	40.06944444	2005	58.9	
4	Butrint	Cultural	20.02611111	39.75111111	1992		
5	Al Qal'a of Beni Hammad	Cultural	4.78684	35.81844	1980	150	
6	M'Zab Valley	Cultural	3.68333	32.48333	1982	665.03	
7	DjÃ©mila	Cultural	5.73667	36.32056	1982	30.6	
8	Timgad	Cultural	6.63333	35.45	1982	90.54	
9	Kasbah of Algiers	Cultural	3.06028	36.78333	1992	60	

Showing 1 to 10 of 1,031 entries Previous 1 2 3 4 5 ... 104 Next

Eine einfache `ggplot2` Graphik



Eine Karte mit `leaflet`



Edit Details Delete Mein erstes Dashboard by Jan-Philipp Kolb Last updated 1 minute ago Comments (–) Share Hide Toolbars

Gallerie

Documents

With R Markdown, you write a single .Rmd file and then use it to render finished output in a variety of formats.

HTML

HTML documents for web publishing.

PDF

PDF documents for printing. Example Code

Microsoft Word

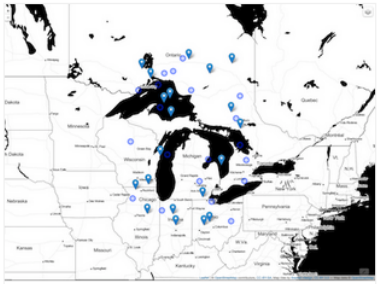
Microsoft Word documents for Office workflows.

Handouts

Tufte styled documents for handouts. Example Code

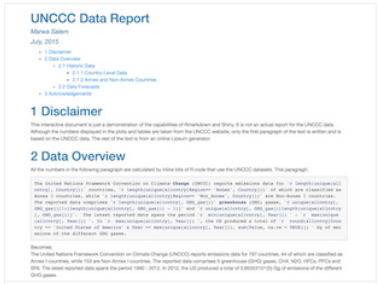
Interactive Documents

Combine R Markdown with htmlwidgets or the shiny package to make interactive documents.



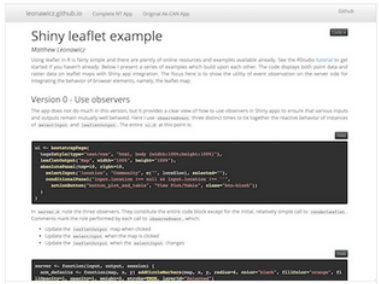
HTML Widgets

Add interactive graphics with htmlwidgets, such as the leaflet map widget.



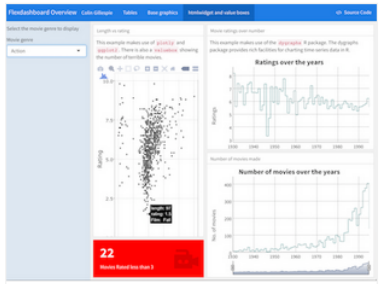
HTML Widgets

Embed htmlwidgets such as dygraphs and datatables directly into your reports.



Shiny

Add interactive analysis with shiny, which lets your user rerun the actual analysis within your report.



Shiny

Shiny components and htmlwidgets will work in any HTML based output, such as a file, slide show or dashboard.

Links

- Rmarkdown **Formate**
- **Verschiedene Markdown Dokumente zusammen fügen

55

I'm not sure this is exactly what you're looking for, but when I want to break a large report into separate Rmd, I usually create a parent Rmd and include the chapters as children. This approach is also easy for new users to understand. It doesn't create a nice title for each chapter, but as long as you include a toc, it is easy to navigate between chapters. One pitfall doing this is that all chunk names between all parent/children need to be unique.

report.Rmd

```
---
title: My Report
output:
  pdf_document:
    toc: yes
---

```{r child = 'chapter1.Rmd'}
```

```{r child = 'chapter2.Rmd'}
```
```