

# Becoming a reporting ninja with Rmarkdown

Devin Pastoor  
Center for Translational Medicine  
University of Maryland, School of Pharmacy

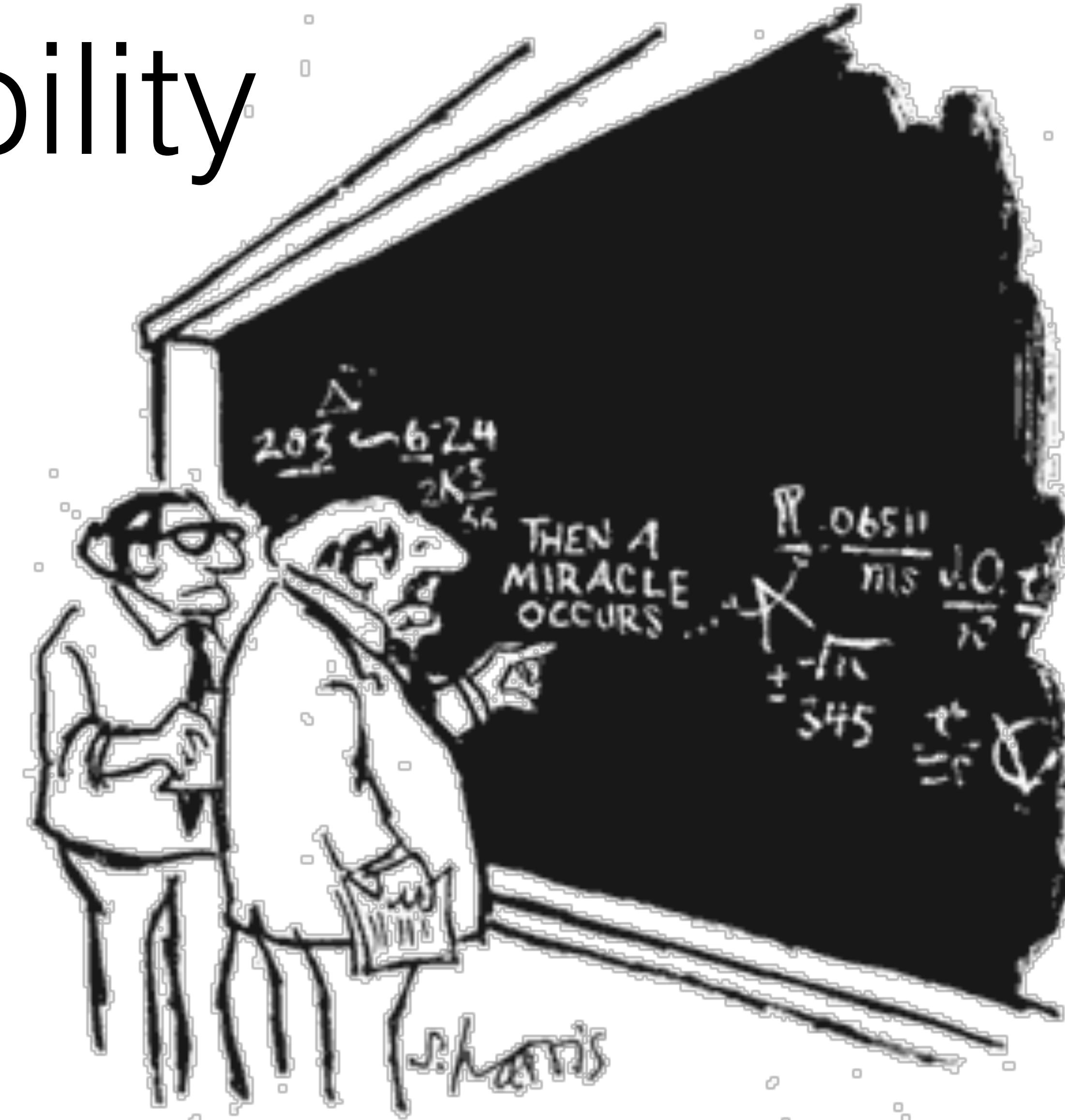




# Efficiency



# Accountability



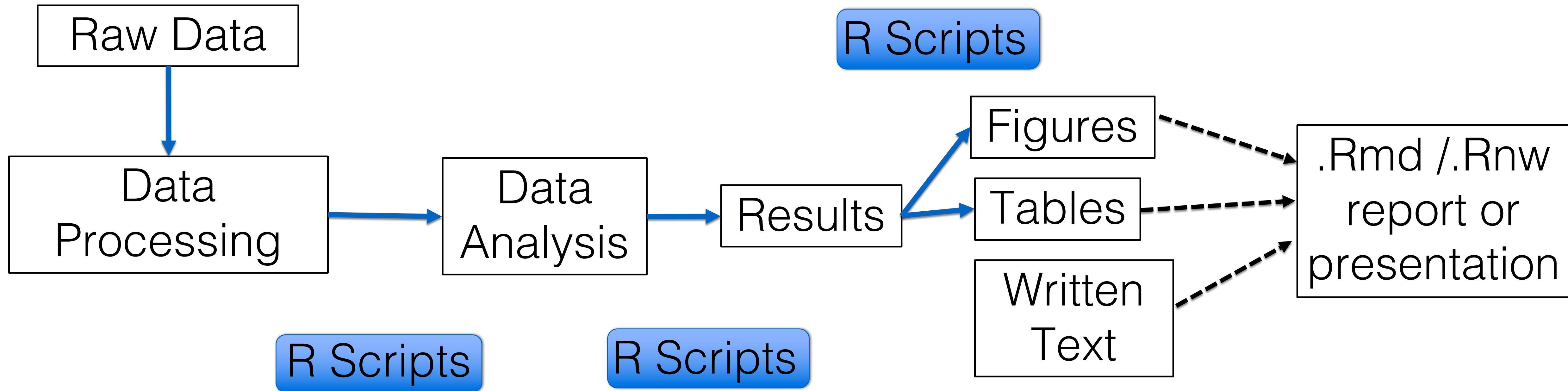
"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

# Errors

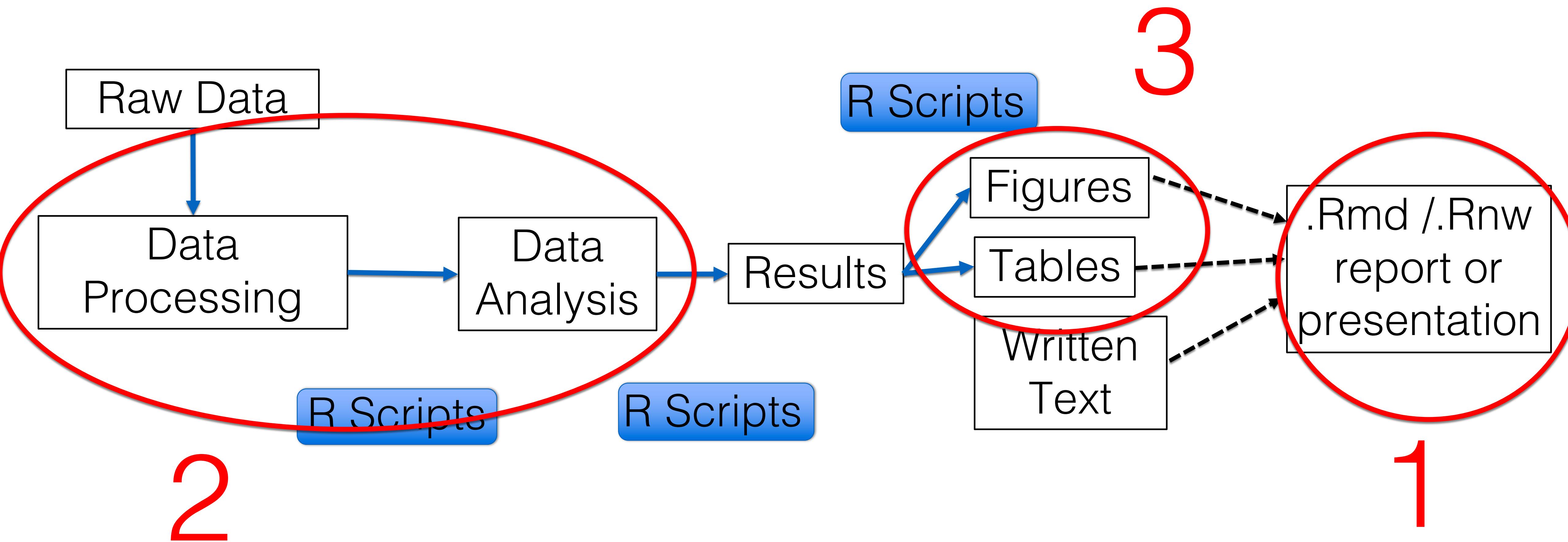




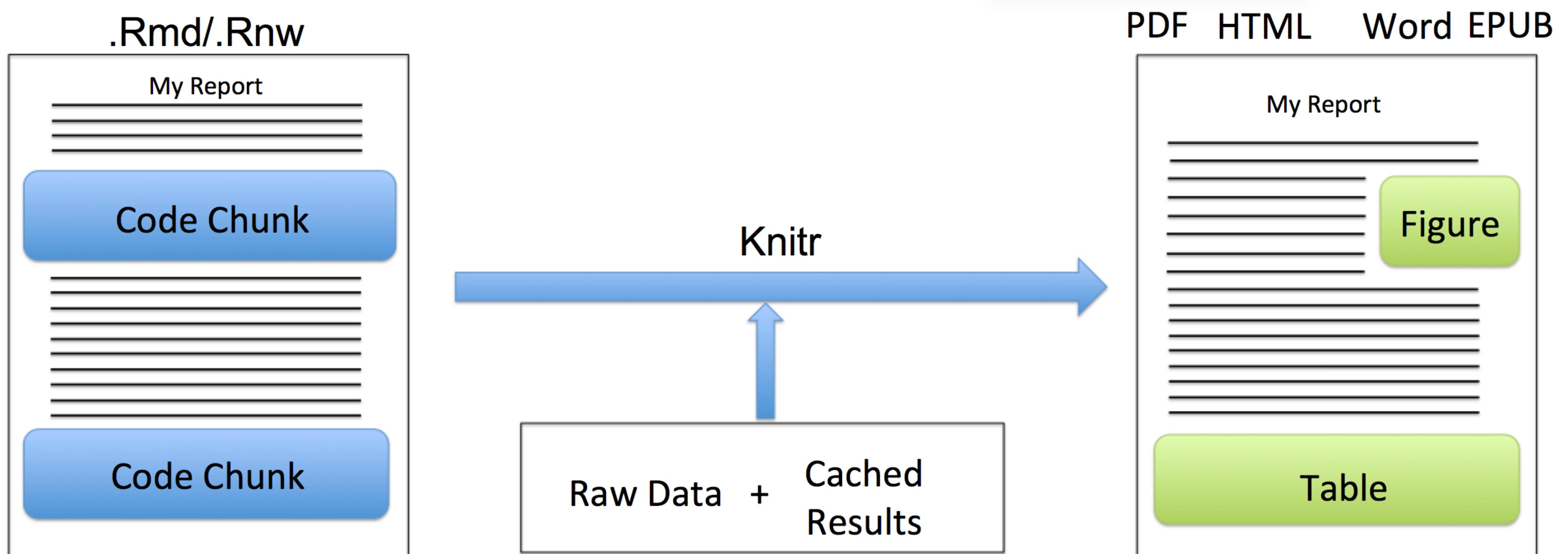
# A Roadmap to Reproducibility



# A Roadmap for Today



# Rmarkdown and Knitr





```
1 ---  
2 title: "Assignment 2: Degarelix PKPD Analysis"  
3 author: "Devin"  
4 date: "Friday, March 21, 2014"  
5 output:  
6   word_document: default  
7   pdf_document:  
8     fig_caption: yes  
9     number_sections: yes  
10    toc: yes  
11  html_document:  
12    fig_caption: yes  
13    theme: united  
14    toc: yes  
15 ---  
16  
17 # Practice Problem 2  
18  
19 ## Objectives  
20  
21 1. Please develop a sequential kaka model for the degarelix data.  
22  
23 2. Explore if one or two cmt disposition model is appropriate for degarelix.  
24  
25 ## Exploratory Analysis  
26 ```{r ct_zoom, fig.cap="Absorption Phase", echo = FALSE}  
27 pct <- ggplot(data = filter(PP2dat, !is.na(COBS)),  
28   aes(x = TIME, y = COBS, group = GROUP))  
29 pct + geom_line(aes(color = GROUP), size = 2) +  
30   geom_point(size = 2) +  
31   base_theme() +  
32   xlab("Time (hrs)") +  
33   ylab("Concentration (ug/L)") +  
34   scale_x_continuous(limits = c(0, 24))  
35 ````  
36  
37 Looks to have a dual absorption process - an initial fast component to  
approximately 2 hours then transitions to a slower rate of absorption. The  
higher dose seems to have a longer and more pronounced secondary absorption  
phase to around 13 hours, compared to cmax of approximately 6 hours for the  
lower dose.  
38  
39  
40  
41 Prep data for analysis  
42  
43 * add AMT column  
44 * rename Concentration to COBS  
45 * capitalize all columns for easier recall  
46 * recreate DOSE column as a factor value in every row  
47
```

Knitr

FILE HOME INSERT DESIGN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW ADD-INS devin pas...  
Cambria (Body) 12  
B I U abc x x A  
A ab A Aa A A  
Clipboard Font Paragraph Styles  
AaBbCcI AaBbCcI AaBbCcI  
Authors Compact Date  
Editing

## Assignment 2: Degarelix PKPD Analysis

Devin Pastoor

Friday, March 21, 2014

### Practice Problem 2

#### Objectives

1. Please develop a sequential kaka model for the degarelix data.
2. Explore if one or two cmt disposition model is appropriate for degarelix.

#### Exploratory Analysis

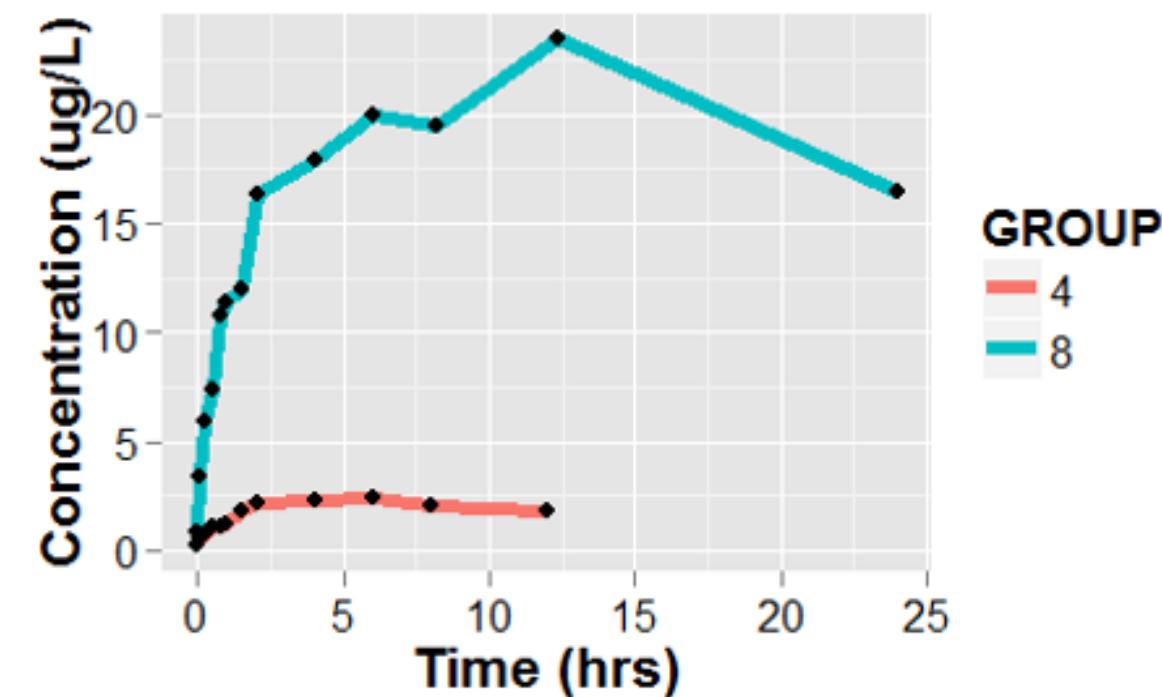


Figure 1: Absorption Phase

Looks to have a dual absorption process - an initial fast component to approximately 2 hours then transitions to a slower rate of absorption. The higher dose seems to have a longer and more pronounced secondary absorption phase to around 13 hours, compared to cmax of approximately 6 hours for the lower dose.

Prep data for analysis

- add AMT column
- rename Concentration to COBS
- capitalize all columns for easier recall



The screenshot shows the RStudio interface with a script file open. The code is a mix of YAML header information, R code, and R Markdown text. Blue arrows point from the right side of the slide towards the code, indicating the flow from text to code.

```
1 ---  
2 title: "Assignment 2: Degarelix PKPD Analysis"  
3 author: "Devin"  
4 date: "Friday, March 21, 2014"  
5 output:  
6   word_document: default  
7   pdf_document:  
8     fig_caption: yes  
9     number_sections: yes  
10    toc: yes  
11  html_document:  
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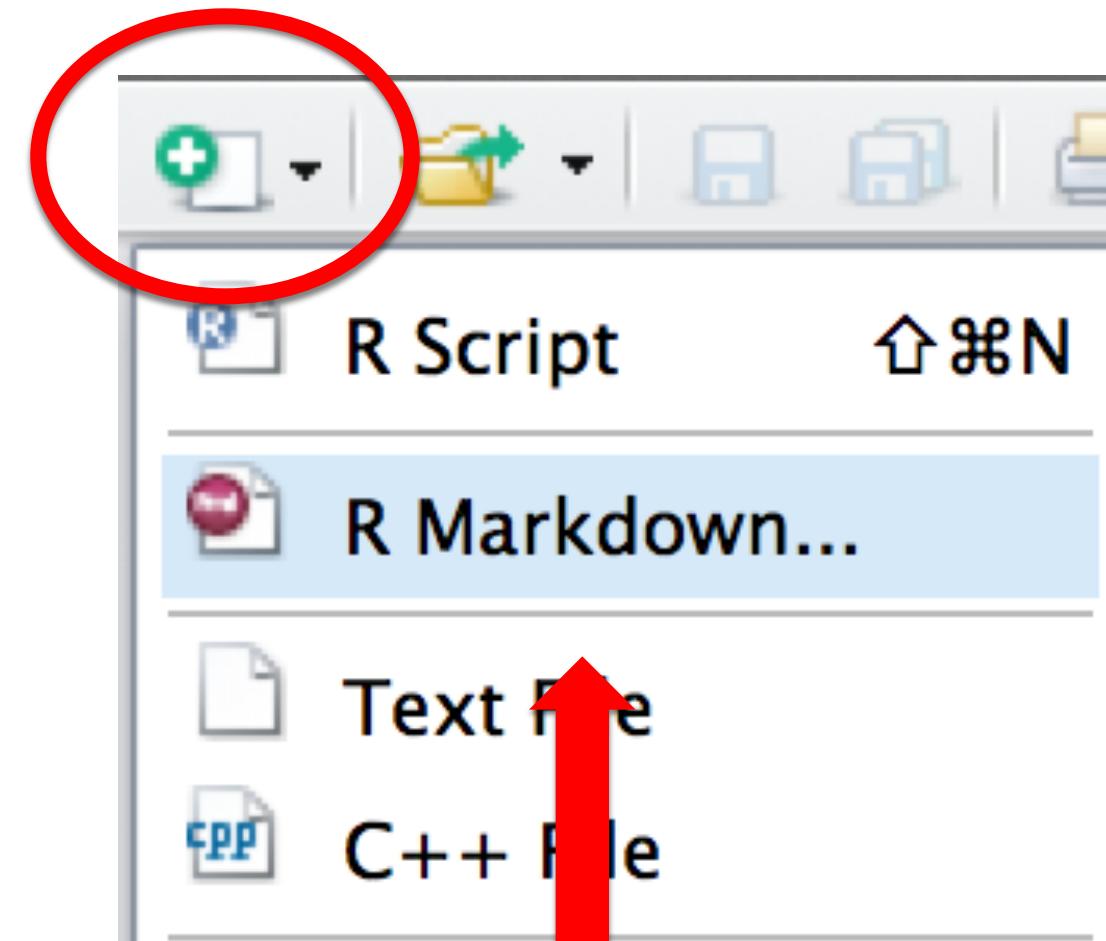
# Header

# Markdown

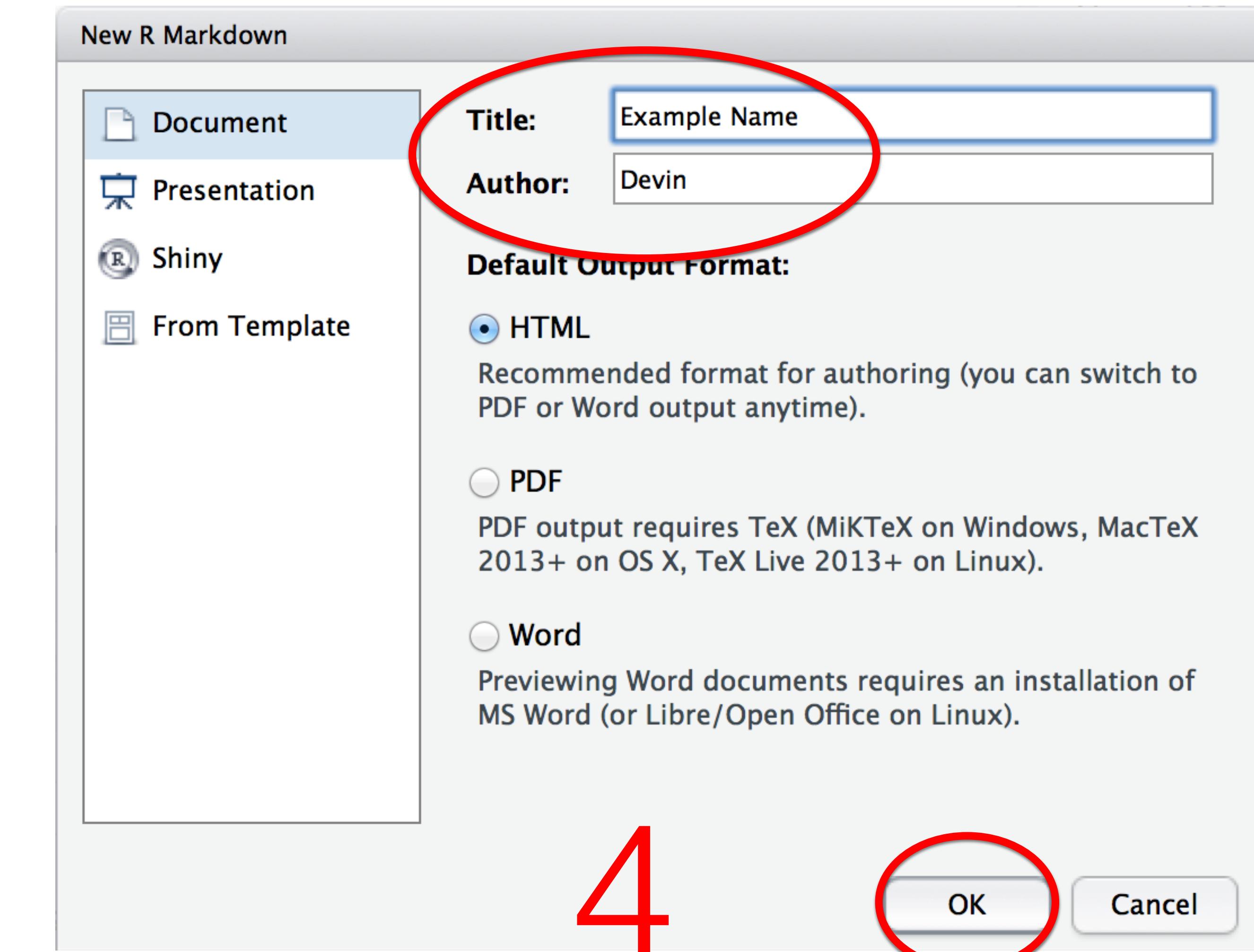
# Code Chunk

# Markdown

1



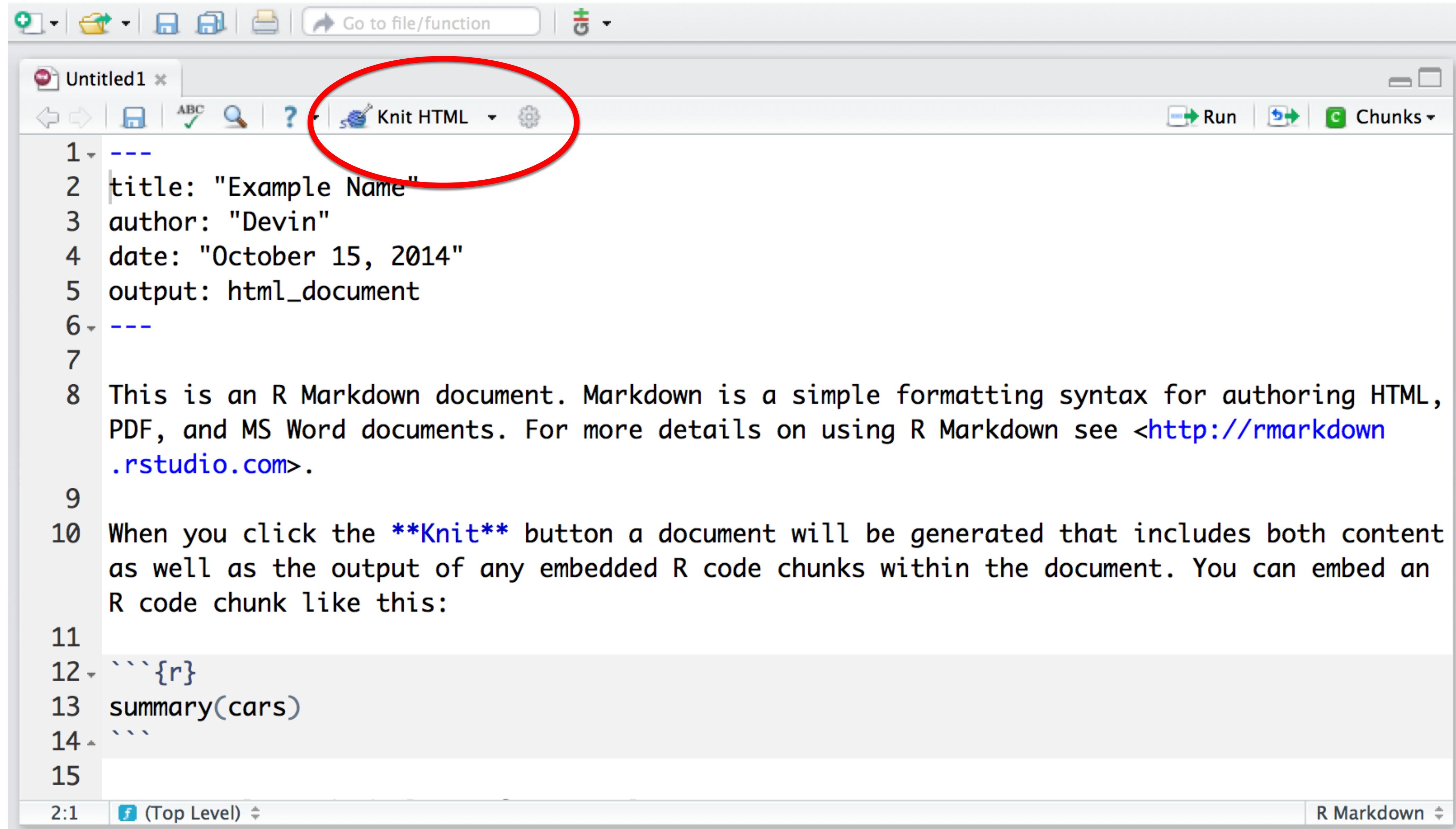
2



3

OK

Cancel



The screenshot shows the RStudio interface with an R Markdown document open. The title bar says "Untitled1". The toolbar includes standard file operations (New, Open, Save, Print) and navigation (Go to file/function). A red oval highlights the "Knit HTML" button, which is part of a dropdown menu. Other buttons in the toolbar include ABC (Auto-Completion), Run, and Chunks. The main pane displays the R Markdown code:

```
1 ---  
2 title: "Example Name"  
3 author: "Devin"  
4 date: "October 15, 2014"  
5 output: html_document  
6 ---  
7  
8 This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML,  
9 PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.  
10 When you click the **Knit** button a document will be generated that includes both content  
11 as well as the output of any embedded R code chunks within the document. You can embed an  
12 R code chunk like this:  
13  
14 summary(cars)  
15
```

The status bar at the bottom shows "2:1" and "f (Top Level)" on the left, and "R Markdown" on the right.

