David J. Stanley

Psychology 6060

To my son,

without whom I should have finished this book two years earlier

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Preface

Hi there, this is my great book.

Why read this book

It is very important...

Structure of the book

Chapters 1 introduces a new topic, and ...

Software information and conventions

I used the **knitr** package (Xie, 2015) and the **bookdown** package (Xie, 2020) to compile my book. My R session information is shown below:

```
xfun::session_info()
```

```
## R version 4.0.0 (2020-04-24)
## Platform: x86_64-apple-darwin17.0 (64-bit)
## Running under: macOS Catalina 10.15.5, RStudio 1.3.959
##
## Locale: en_CA.UTF-8 / en_CA.UTF-8 / en_CA.UTF-8 / C / en_CA.UTF-8 / en_CA.UTF-8
##
## Package version:
```

```
##   askpass_1.1         assertthat_0.2.1
##   backports_1.1.7     base64enc_0.1.3
##   BH_1.72.0.3         bookdown_0.19.1
##   broom_0.7.0.9000    callr_3.4.3
##   cellranger_1.1.0    cli_2.0.2
##   clipr_0.7.0         colorspace_1.4-1
##   compiler_4.0.0      crayon_1.3.4
##   curl_4.3            DBI_1.1.0
##   dbplyr_1.4.3        desc_1.2.0
##   digest_0.6.25       dplyr_1.0.0
##   ellipsis_0.3.1      evaluate_0.14
##   fansi_0.4.1         farver_2.0.3
##   forcats_0.5.0       fs_1.4.1
##   generics_0.0.2      ggplot2_3.3.0
##   glue_1.4.1          graphics_4.0.0
##   grDevices_4.0.0     grid_4.0.0
##   gtable_0.3.0        haven_2.2.0
##   highr_0.8           hms_0.5.3
##   htmltools_0.4.0     httr_1.4.1
##   isoband_0.2.1       jsonlite_1.6.1
##   kableExtra_1.1.0    knitr_1.28
##   labeling_0.3        lattice_0.20.41
##   lifecycle_0.2.0     lubridate_1.7.8
##   magrittr_1.5        markdown_1.1
##   MASS_7.3.51.5       Matrix_1.2.18
##   methods_4.0.0       mgcv_1.8.31
##   mime_0.9            modelr_0.1.8
##   munsell_0.5.0       nlme_3.1.147
##   openssl_1.4.1       packrat_0.5.0
##   pillar_1.4.4        pkgbuild_1.0.8
##   pkgconfig_2.0.3     pkgload_1.0.2
##   praise_1.0.0        prettyunits_1.1.1
##   processx_3.4.2      progress_1.2.2
##   ps_1.3.3            purrr_0.3.4
##   R6_2.4.1            RColorBrewer_1.1.2
##   Rcpp_1.0.4.6        readr_1.3.1
##   readxl_1.3.1        rematch_1.0.1
##   reprex_0.3.0        rlang_0.4.6
##   rmarkdown_2.2       rprojroot_1.3.2
##   rstudioapi_0.11     rvest_0.3.5
##   scales_1.1.1        selectr_0.4.2
##   splines_4.0.0       stats_4.0.0
##   stringi_1.4.6       stringr_1.4.0
##   sys_3.3             testthat_2.3.2
##   tibble_3.0.1        tidyr_1.1.0
```

```
##   tidyselect_1.1.0   tidyverse_1.3.0
##   tinytex_0.23       tools_4.0.0
##   utf8_1.1.4         utils_4.0.0
##   vctrs_0.3.0        viridisLite_0.3.0
##   webshot_0.5.2      whisker_0.4
##   withr_2.2.0        xfun_0.14
##   xml2_1.3.2         yaml_2.2.1
```

Package names are in bold text (e.g., **rmarkdown**), and inline code and filenames are formatted in a typewriter font (e.g., `knitr::knit('foo.Rmd')`). Function names are followed by parentheses (e.g., `bookdown::render_book()`).

Acknowledgments

A lot of people helped me when I was writing the book.

Frida Gomam
on the Mars

About the Author

David J. Stanley is an Associate Professor of Industrial and Organizational Psychology at the University of Guelph in Canada. He obtained his PhD from Western University in London, Ontario. David has published articles in Advances in Methods and Practices in Psychological Science, Organizational Research Methods, Journal of Applied Psychology, Perspectives in Psychological Science, Journal of Business and Psychology, Journal of Vocational Behaviour, Journal of Personality and Social Psychology, Behavior Research Methods, Industrial and Organizational Psychology, and Emotion among journals. David also created the apaTables R package.

1

Introduction

We will use the statistical analysis software R in this course with the interface provided by R Studio. We can access R Studio using the website R Studio Cloud[1].

1.1 A focus on workflow and the tidyverse

A key focus on this course is training you in a workflow that will avoid a large number of problms than can occur when using R. As well, the R code used through this text will focus primarily on a workflow using the contemporary tidyverse packages rather than the older base R approach. We'll further discuss the distinction between the tidyverse and base R later in this chapter.

1.2 R works with plug-in / add-ons

R is a statistical language with many plug-ins called **packages** that you will use to do analyses. You can think of R as being like your smartphone. To do things with your phone you need **an App** (R equivalent is a *package*). Before you can use the App you need to **download** it (R equivalent is to *install.packages*) from the **App Store** (R equivalent is the *CRAN*). To use the app you need **Open** it (R equivalent is the *library command*). These similarities are illustrated in Table @ref(tab:app_store).

\begin{table}

\caption{(#tab:app_store)R packages can be conceptualized using smart phone terminology (Kim, 2018).}

[1] http://www.rstudio.cloud

R Terminology	Smart Phone Terminology
CRAN	App Store
package	App
install.packages(”apaTables”, dependencies = TRUE)	Download App from App Store
library(”apaTables”)	Open App

\end{table}

2

The FOO Method

We talk about the *FOO* method in this chapter.

A

More to Say

Yeah! I have finished my book, but I have more to say about some topics. Let me explain them in this appendix.

To know more about **bookdown**, see https://bookdown.org.

Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2020). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.19.1.

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