Bookdown Deployment Experiments

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1 Prerequisites

This is a sample book written in **Markdown**. You can use anything that Pandoc's Markdown supports, e.g., a math equation $a^2 + b^2 = c^2$.

The **bookdown** package can be installed from CRAN or Github:

```
install.packages("bookdown")
# or the development version
# devtools::install_github("rstudio/bookdown")
```

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading `#`.

To compile this example to PDF, you need XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): https://yihui.org/tinytex/.

2 Introduction

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 2. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter 4.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

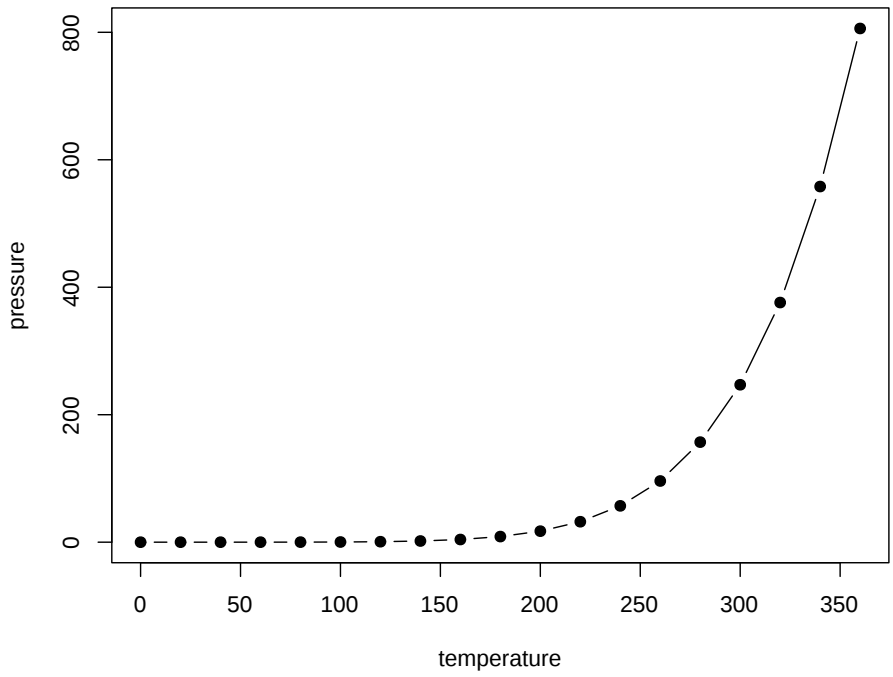

Abbildung 1: Here is a nice figure!

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2020) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

Tabelle 1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

3 Literature

Here is a review of existing methods.

4 Methods

4.1 Plotting

With FONTS!

```
library(extrafont) # For fontstuff
```

```
## Registering fonts with R
```

```
# for PDF output
loadfonts()
fonttable()
```

```
## data frame with 0 columns and 0 rows
```

```
# using ragg for png
# loading just for renv to pick it up
library(ragg)
```

```
library(ggplot2)

p <- ggplot(iris, aes(x = Species, y = Sepal.Length, color = Species, fill = Species)) +
   geom_boxplot(alpha = .75, show.legend = FALSE) +
   scale_color_brewer(palette = "Dark2", aesthetics = c("color", "fill")) +
   labs(
      title = "Yet another iris plot",
      x = "I should google those species",
      y = "*Googleing 'Sepal'*",
      caption = "Hi!"
   )

p + theme_minimal() +
   labs(subtitle = "Whatever this default font is")
```

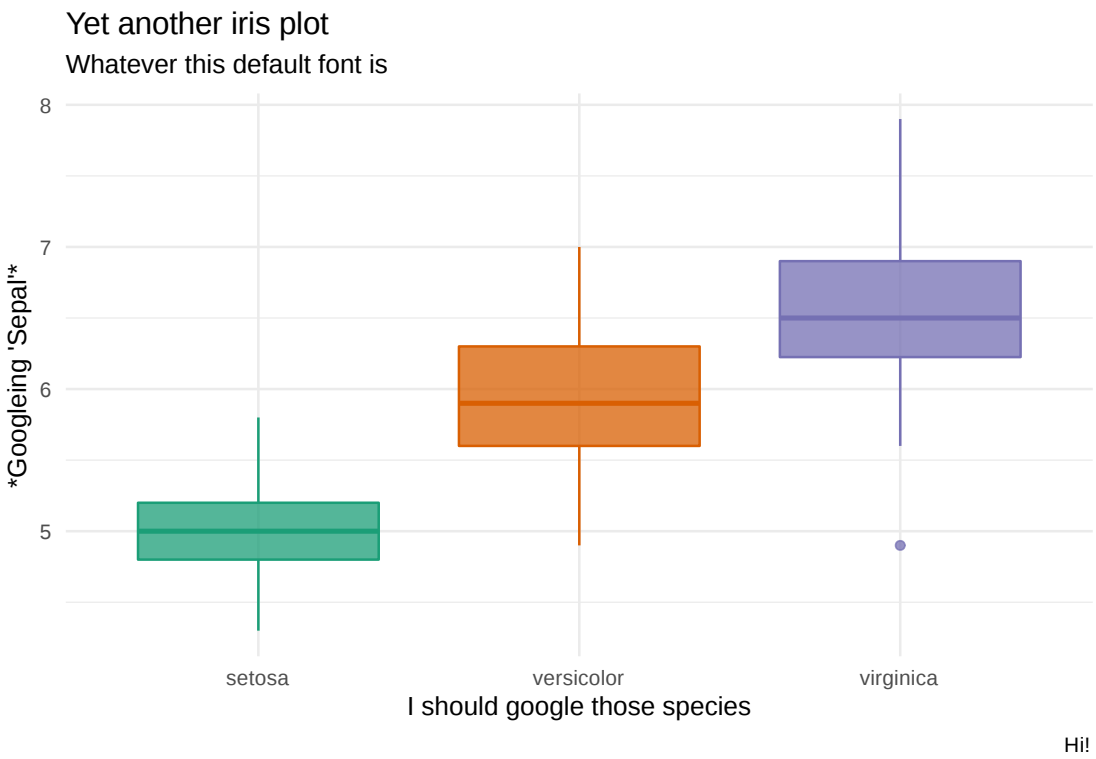

Abbildung 2: A plot.

```
p + theme_minimal(base_family = "Source Sans Pro") +
   labs(subtitle = "Using Source Sans Pro")
```

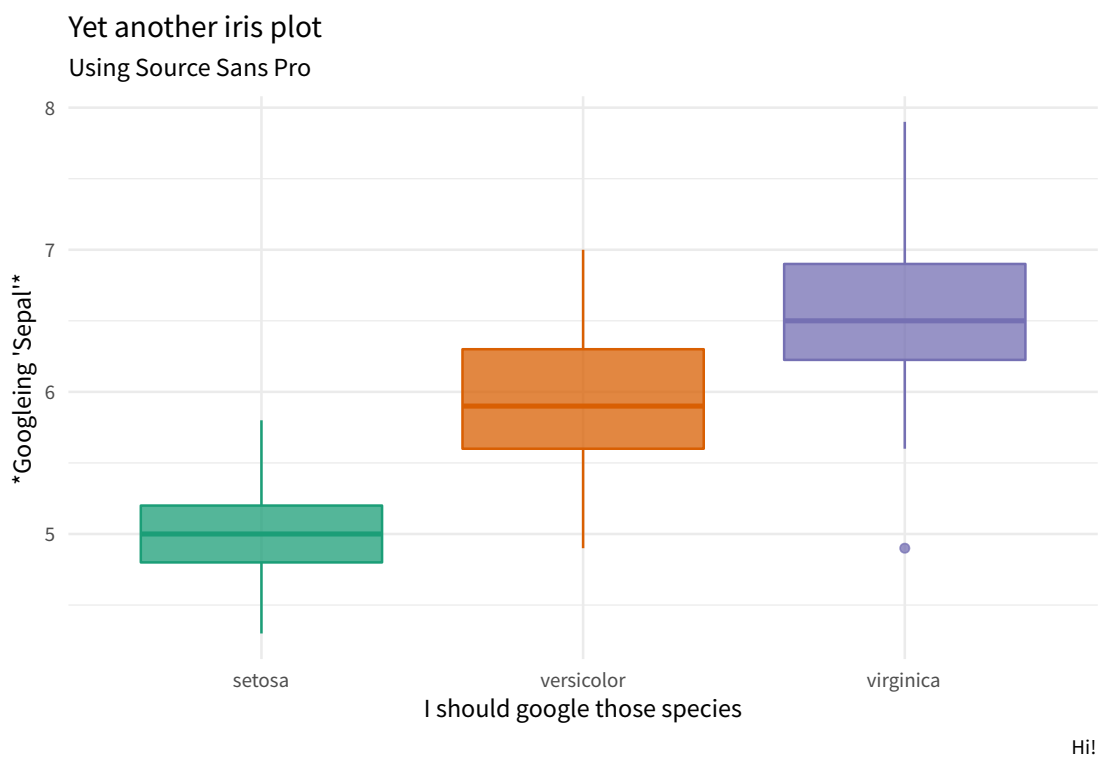

Abbildung 3: A plot.

```
p + theme_minimal(base_family = "Roboto Condensed") +
   labs(subtitle = "Using Roboto Condense")
```

```
library(hrbrthemes)
```

```
## NOTE: Either Arial Narrow or Roboto Condensed fonts are required to use these themes.

##      Please use hrbrthemes::import_roboto_condensed() to install Roboto Condensed and

##      if Arial Narrow is not on your system, please see https://bit.ly/arialnarrow
```

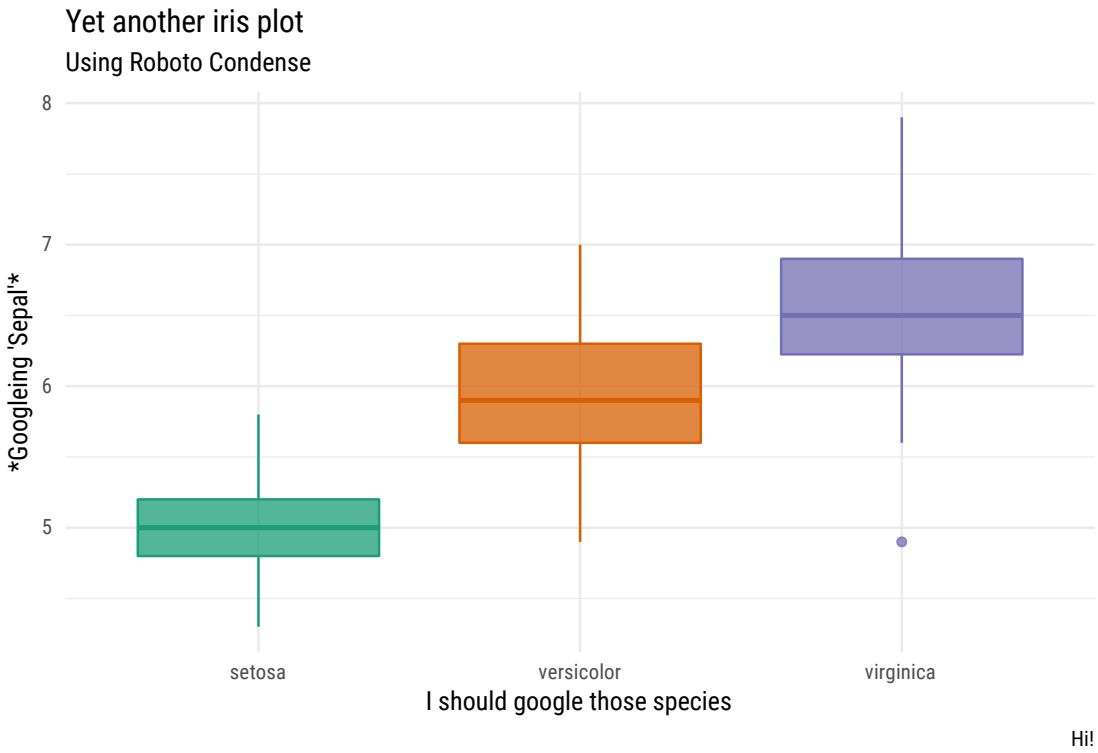

Abbildung 4: A plot.

```
p + theme_ipsum_rc() +
   labs(subtitle = "Using hrbrthemes::theme_ipsum_rc()")
```

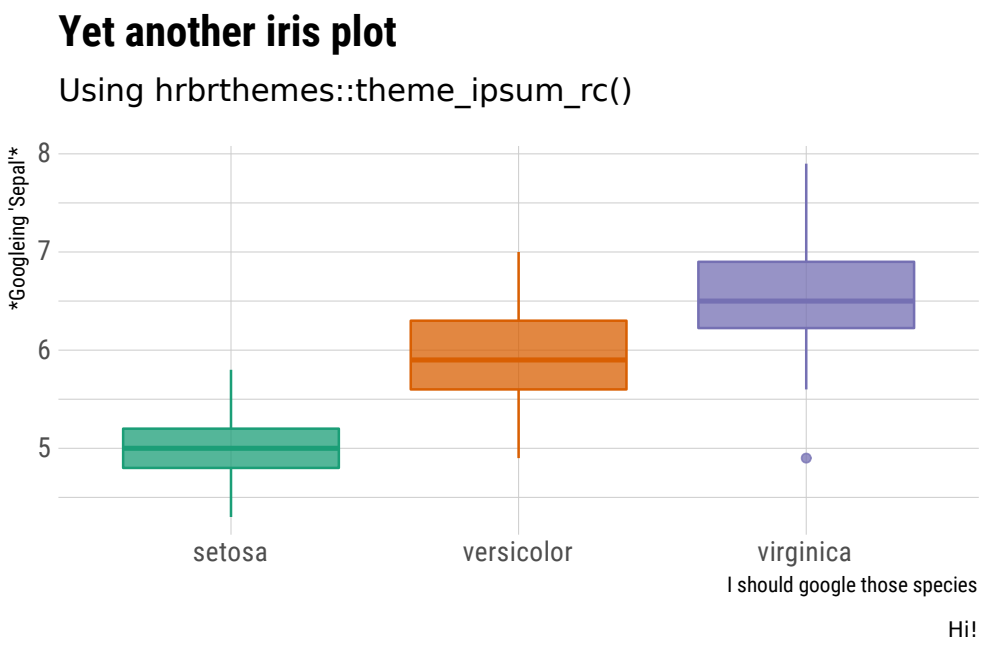

Abbildung 5: A plot.

4.2 Math

Using one dollar sign: $\beta = (X^T X)^{-1} X^T Y$

Display style with two dollar signs:

$$\beta = (X^T X)^{-1} X^T Y$$

4.2.1 Using environments

Below should be a set of equations using an `align` environment. If not, I still don't understand MathJax.

$$
\begin{aligned}
\mathbb{E}(\widehat{\beta}) &= \mathbb{E}\left(\left(X^T X\right)^{-1} X^T Y\right) && (1)\\
&= \mathbb{E}\left(\left(X^T X\right)^{-1} X^T \left(X\beta + \varepsilon\right)\right) && (2)\\
&= \mathbb{E}\left(\left(X^T X\right)^{-1} X^T X\beta + \left(X^T X\right)^{-1} X^T \varepsilon\right) && (3)\\
&= \underbrace{\left(X^T X\right)^{-1} X^T X\,\beta}_{=I} + \underbrace{\left(X^T X\right)^{-1} X^T \mathbb{E}(\varepsilon)}_{=0} \quad \Big| \; \mathbb{E}(\varepsilon) = 0 && (4)\\
&= \beta \qquad \square && (5)
\end{aligned}
$$

`equation` from bookdown book:

$$
f\left(k\right) = \binom{n}{k} p^k \left(1-p\right)^{n-k} \tag{6}
$$

5 Applications

Some significant applications are demonstrated in this chapter.

5.1 Example one

5.2 Example two

6 Session info

```
sessioninfo::session_info()
```

```
## - Session info -------------------------------------------------------------
--
##  setting  value
##  version  R version 4.0.0 (2020-04-24)
##  os       Ubuntu 16.04.6 LTS
##  system   x86_64, linux-gnu
##  ui       X11
##  language en_US.UTF-8
##  collate  en_US.UTF-8
##  ctype    en_US.UTF-8
```

```
##  tz       UTC
##  date     2020-05-07
##
## - Packages -------------------------------------------------------------------
--
##  ! package      * version date       lib source
##  P assertthat     0.2.1   2019-03-21 [?] CRAN (R 4.0.0)
##  P bookdown       0.18    2020-03-05 [?] CRAN (R 4.0.0)
##  P cli            2.0.2   2020-02-28 [?] CRAN (R 4.0.0)
##  P colorspace     1.4-1   2019-03-18 [?] CRAN (R 4.0.0)
##  P crayon         1.3.4   2017-09-16 [?] CRAN (R 4.0.0)
##  P digest         0.6.25  2020-02-23 [?] CRAN (R 4.0.0)
##  P ellipsis       0.3.0   2019-09-20 [?] CRAN (R 4.0.0)
##  P evaluate       0.14    2019-05-28 [?] CRAN (R 4.0.0)
##  P extrafont    * 0.17    2014-12-08 [?] CRAN (R 4.0.0)
##  P extrafontdb    1.0     2012-06-11 [?] CRAN (R 4.0.0)
##  P fansi          0.4.1   2020-01-08 [?] CRAN (R 4.0.0)
##  P farver         2.0.3   2020-01-16 [?] CRAN (R 4.0.0)
##  P gdtools        0.2.2   2020-04-03 [?] CRAN (R 4.0.0)
##  P ggplot2      * 3.3.0   2020-03-05 [?] CRAN (R 4.0.0)
##    glue           1.4.0   2020-04-03 [1] CRAN (R 4.0.0)
##  P gtable         0.3.0   2019-03-25 [?] CRAN (R 4.0.0)
##  P highr          0.8     2019-03-20 [?] CRAN (R 4.0.0)
##  P hrbrthemes   * 0.8.0   2020-03-06 [?] CRAN (R 4.0.0)
##  P htmltools      0.4.0   2019-10-04 [?] CRAN (R 4.0.0)
##  P knitr          1.28.7  2020-05-07 [?] Github (yihui/knitr@6907b42)
##  P labeling       0.3     2014-08-23 [?] CRAN (R 4.0.0)
##  P lifecycle      0.2.0   2020-03-06 [?] CRAN (R 4.0.0)
##  P magrittr       1.5     2014-11-22 [?] CRAN (R 4.0.0)
##  P munsell        0.5.0   2018-06-12 [?] CRAN (R 4.0.0)
##  P pillar         1.4.4   2020-05-05 [?] CRAN (R 4.0.0)
##  P pkgconfig      2.0.3   2019-09-22 [?] CRAN (R 4.0.0)
##  P R6             2.4.1   2019-11-12 [?] CRAN (R 4.0.0)
##  P ragg         * 0.1.5   2020-03-04 [?] CRAN (R 4.0.0)
##  P RColorBrewer   1.1-2   2014-12-07 [?] CRAN (R 4.0.0)
##    Rcpp           1.0.4.6 2020-04-09 [1] CRAN (R 4.0.0)
##    renv           0.10.0  2020-05-06 [1] CRAN (R 4.0.0)
##    rlang          0.4.6   2020-05-02 [1] CRAN (R 4.0.0)
##  P rmarkdown      2.1     2020-01-20 [?] CRAN (R 4.0.0)
##  P rstudioapi     0.11    2020-02-07 [?] CRAN (R 4.0.0)
##  P Rttf2pt1       1.3.8   2020-01-10 [?] CRAN (R 4.0.0)
##  P scales         1.1.0   2019-11-18 [?] CRAN (R 4.0.0)
##  P sessioninfo    1.1.1   2018-11-05 [?] CRAN (R 4.0.0)
##  P stringi        1.4.6   2020-02-17 [?] CRAN (R 4.0.0)
```

```
##  P stringr        1.4.0   2019-02-10 [?] CRAN (R 4.0.0)
##  P systemfonts    0.2.1   2020-04-29 [?] CRAN (R 4.0.0)
##  P tibble         3.0.1   2020-04-20 [?] CRAN (R 4.0.0)
##  P vctrs          0.2.4   2020-03-10 [?] CRAN (R 4.0.0)
##  P withr          2.2.0   2020-04-20 [?] CRAN (R 4.0.0)
##    xfun           0.13    2020-04-13 [1] CRAN (R 4.0.0)
##  P yaml           2.2.1   2020-02-01 [?] CRAN (R 4.0.0)
##
## [1] /home/travis/build/jemus42/bookdown-debugging/renv/library/R-4.0/x86_64-
pc-linux-gnu
## [2] /tmp/RtmpEq6tsh/renv-system-library
##
##  P -- Loaded and on-disk path mismatch.
```

Literatur

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 0.18.