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1.1

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 $1.2 \qquad - \quad \cdot \quad 574 - 648$

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6 CHAPTER 1.

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"" "" 8 CHAPTER 1.

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1.5

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1.5.4

Hello bookdown

All chapters start with a first-level heading followed by your chapter title, like the line above. There should be only one first-level heading (#) per .Rmd file.

2.1 A section

All chapter sections start with a second-level (##) or higher heading followed by your section title, like the sections above and below here. You can have as many as you want within a chapter.

An unnumbered section

Chapters and sections are numbered by default. To un-number a heading, add a {.unnumbered} or the shorter {-} at the end of the heading, like in this section.

"

2.1.1

Parts

You can add parts to organize one or more book chapters together. Parts can be inserted at the top of an .Rmd file, before the first-level chapter heading in that same file.

Add a numbered part: # (PART) Act one {-} (followed by # A chapter)

Add an unnumbered part: # (PART*) Act one {-} (followed by # A chapter)

Add an appendix as a special kind of un-numbered part: # (APPENDIX) Other stuff {-} (followed by # A chapter). Chapters in an appendix are prepended with letters instead of numbers.

Footnotes and citations

4.1 Footnotes

Footnotes are put inside the square brackets after a caret ^[]. Like this one ¹.

4.2 Citations

Reference items in your bibliography file(s) using @key.

For example, we are using the **bookdown** package (Xie, 2021) (check out the last code chunk in index.Rmd to see how this citation key was added) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015) (this citation was added manually in an external file book.bib). Note that the .bib files need to be listed in the index.Rmd with the YAML bibliography key.

The bs4_book theme makes footnotes appear inline when you click on them. In this example book, we added csl: chicago-fullnote-bibliography.csl to the index.Rmd YAML, and include the .csl file. To download a new style, we recommend: https://www.zotero.org/styles/

The RStudio Visual Markdown Editor can also make it easier to insert citations: https://rstudio.github.io/visual-markdown-editing/#/citations

¹This is a footnote.

Blocks

5.1 Equations

Here is an equation.

$$f\left(k\right) = \binom{n}{k} p^{k} \left(1 - p\right)^{n - k} \tag{5.1}$$

You may refer to using \@ref(eq:binom), like see Equation (5.1).

5.2 Theorems and proofs

Labeled theorems can be referenced in text using \@ref(thm:tri), for example, check out this smart theorem 5.1.

Theorem 5.1. For a right triangle, if c denotes the length of the hypotenuse and a and b denote the lengths of the **other** two sides, we have

$$a^2 + b^2 = c^2$$

 $Read\ more\ here\ https://bookdown.org/yihui/bookdown/markdown-extensions-by-bookdown.html.$

5.3 Callout blocks

The bs4_book theme also includes special callout blocks, like this .rmdnote.

You can use markdown inside a block.

```
head(beaver1, n = 5)

#> day time temp activ

#> 1 346 840 36.33 0

#> 2 346 850 36.34 0

#> 3 346 900 36.35 0

#> 4 346 910 36.42 0

#> 5 346 920 36.55 0
```

It is up to the user to define the appearance of these blocks for LaTeX output.

You may also use: .rmdcaution, .rmdimportant, .rmdtip, or .rmdwarning as the block name.

The R Markdown Cookbook provides more help on how to use custom blocks to design your own callouts: https://bookdown.org/yihui/rmarkdown-cookbook/custom-blocks.html

Sharing your book

6.1 Publishing

HTML books can be published online, see: https://bookdown.org/yihui/bookdown/publishing.html

6.2 404 pages

By default, users will be directed to a 404 page if they try to access a webpage that cannot be found. If you'd like to customize your 404 page instead of using the default, you may add either a _404.Rmd or _404.md file to your project root and use code and/or Markdown syntax.

6.3 Metadata for sharing

Bookdown HTML books will provide HTML metadata for social sharing on platforms like Twitter, Facebook, and LinkedIn, using information you provide in the index.Rmd YAML. To setup, set the url for your book and the path to your cover-image file. Your book's title and description are also used.

This bs4_book provides enhanced metadata for social sharing, so that each chapter shared will have a unique description, auto-generated based on the content.

Specify your book's source repository on GitHub as the repo in the _output.yml file, which allows users to view each chapter's source file or suggest an edit. Read more about the features of this output format here:

 $https://pkgs.rstudio.com/bookdown/reference/bs4_book.html$

Or use:

?bookdown::bs4_book

Bibliography

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

Xie, Y. (2021). bookdown: Authoring Books and Technical Documents with R Markdown. R package version 0.24.