Cookbook

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Table of contents

# Title page

# Author’s declaration

# List of abbreviations

# Executive summary

More corporate name for ‘Abstract’. A hefty chunk of stakeholders won’t read anything else. Example of referencing a later compiled figure.

This is my report template in Quarto beefed up a bit. It has most Rmd features and can generate .docx. PDF can be generated via Word (save as..). The auto-generated .html is nice too. Computationally intensive stuff should be referenced. None of this Vignette precompile nonsense I’ve been working so hard to implement :( Computationally intensive stuff should be referenced externally.

Links can be given in this format (for html versions): [link](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6852019/)

If you’re feeling cocky, spruce up your report with model descriptions in Latex, eg.:

$$log(Cool variable\\_{i,j}) = \alpha\_0 + \alpha\_1\times Independent\ variable\_1 + \alpha\_2\times Independent\ variable\_{2,i,j} \\+ \alpha\_3\times Sex\_i + \alpha\_4\times Independent\ variable\_{3,i,j} \\+ \delta\_{0,i}+\delta\_{1,i}+ + \epsilon\_{i,j}$$

where,

* **i** is the subject number,
* **j** is the time point,
* **k** is the treatment,
* is the residual error, and
* represents the random effects.

|  |
| --- |
| Note |
| You can do boxes, tips and warnings like this |

# Introduction

# Description of the study

# Data extraction

# Missing data

# Cyclic child Rmd call

With regards to my teacher ATZS whose work is plagiarized within. It is kind of horrible cross-referencing all that stuff within; recommend using only if there are 10+ variables to go through. Alternatively you can put tables/graphs in functions and call them with *get(varname)* after you set *varname<-““*.

### cyl

#### Table

|  |  |
| --- | --- |
|  | **N = 32** |
| **cyl** |  |
| *4* | 11 (34) |
| *6* | 7 (22) |
| *8* | 14 (44) |

#### Figures

|  |
| --- |
| Figure 1 from the cyclic call No.1 |

|  |
| --- |
| Figure 2 from the cyclic call No.1 |

### gear

#### Table

|  |  |
| --- | --- |
|  | **N = 32** |
| **gear** |  |
| *3* | 15 (47) |
| *4* | 12 (38) |
| *5* | 5 (16) |

#### Figures

|  |
| --- |
| Figure 1 from the cyclic call No.2 |

|  |
| --- |
| Figure 2 from the cyclic call No.2 |

### carb

#### Table

|  |  |
| --- | --- |
|  | **N = 32** |
| **carb** |  |
| *1* | 7 (22) |
| *2* | 10 (31) |
| *3* | 3 (9.4) |
| *4* | 10 (31) |
| *6* | 1 (3.1) |
| *8* | 1 (3.1) |

#### Figures

|  |
| --- |
| Figure 1 from the cyclic call No.3 |

|  |
| --- |
| Figure 2 from the cyclic call No.3 |

# Plot compilation to be referenced

|  |
| --- |
| Executive graph for executive thoughts |

## Tables

Tables may be in a huxtable object for “seamless” word processing. The resulting table is ugly.

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **Setosa**, N = 50 | **Verginica**, N = 50 | **Versicolor**, N = 50 |
| These are the width of the petals | 0.20 (0.20 – 0.30) | 2.00 (1.80 – 2.30) | 1.30 (1.20 – 1.50) |
| These are the length of the petals | 1.50 (1.40 – 1.58) | 5.55 (5.10 – 5.88) | 4.35 (4.00 – 4.60) |
| These are the width of the sepals | 3.40 (3.20 – 3.68) | 3.00 (2.80 – 3.18) | 2.80 (2.53 – 3.00) |
| These are the length of the sepals | 5.00 (4.80 – 5.20) | 6.50 (6.23 – 6.90) | 5.90 (5.60 – 6.30) |
| This is a date column to illustrate transformations | 2022-01-01 to 2022-02-19 | 2022-04-11 to 2022-05-30 | 2022-02-20 to 2022-04-10 |
| Median (IQR); Range | | | |

Having a custom ref. docx file, I played around with the formatting and cooked up something passable. Its not modifiable however.

Example table

| Characteristic | Setosa, N = 50 | Verginica, N = 50 | Versicolor, N = 50 |
| --- | --- | --- | --- |
| These are the width of the petals | 0.20 (0.20 – 0.30) | 2.00 (1.80 – 2.30) | 1.30 (1.20 – 1.50) |
| These are the length of the petals | 1.50 (1.40 – 1.58) | 5.55 (5.10 – 5.88) | 4.35 (4.00 – 4.60) |
| These are the width of the sepals | 3.40 (3.20 – 3.68) | 3.00 (2.80 – 3.18) | 2.80 (2.53 – 3.00) |
| These are the length of the sepals | 5.00 (4.80 – 5.20) | 6.50 (6.23 – 6.90) | 5.90 (5.60 – 6.30) |
| This is a date column to illustrate transformations | 2022-01-01 to 2022-02-19 | 2022-04-11 to 2022-05-30 | 2022-02-20 to 2022-04-10 |
| 1 Median (IQR); Range |  |  |  |

You *will* face an issue where a package outputs a “marvellously formatted” html table which would be horrible for your use case. That is a promise, but don’t know how to handle it.

|  |  |  |  |
| --- | --- | --- | --- |
|  | These are the width of the petals | | |
| Predictors | Estimates | CI | p |
| (Intercept) | -0.09 | -0.20 – 0.02 | 0.109 |
| Character representation of the species: Verginica | 0.84 | 0.55 – 1.12 | **<0.001** |
| Character representation of the species: Versicolor | 0.44 | 0.23 – 0.64 | **<0.001** |
| These are the length of the petals | 0.23 | 0.16 – 0.30 | **<0.001** |
| Observations | 150 | | |
| R2 / R2 adjusted | 0.946 / 0.944 | | |

## Plots

Plots are nothing fancy.

|  |
| --- |
|  |

Text outputs; prints computationally intensive output loaded at the beginning.

3.14

# Remarks

### MD5 checksum of the database used

C:/OneDrive\_DKM/-/Dinamikus Kiválóság Menedzsment - General/Stats\_R/R/MartysCookbook/inst/extdata/Iris.xls “1ed4b9d5418675e017479de339aff352”

### Other information regarding the document’s compilation

Analyses were conducted using the R Statistical language (version 4.3.1; R Core Team, 2023) on Windows 10 x64 (build 19045), using the packages rmarkdown (version 2.25; Allaire J et al., 2023), lubridate (version 1.9.3; Grolemund G, Wickham H, 2011), huxtable (version 5.5.2; Hugh-Jones D, 2022), gtsummary (version 1.7.2; Sjoberg D et al., 2021), ggplot2 (version 3.4.4; Wickham H, 2016), roxygen2 (version 7.2.3; Wickham H et al., 2022), dplyr (version 1.1.3; Wickham H et al., 2023), knitr (version 1.45; Xie Y, 2023), pagedown (version 0.20; Xie Y et al., 2022) and kableExtra (version 1.3.4.9000; Zhu H, 2023).

## References

* Allaire J, Xie Y, Dervieux C, McPherson J, Luraschi J, Ushey K, Atkins A, Wickham H, Cheng J, Chang W, Iannone R (2023). *rmarkdown: Dynamic Documents for R*. R package version 2.25, <https://github.com/rstudio/rmarkdown>.
* Grolemund G, Wickham H (2011). “Dates and Times Made Easy with lubridate.” *Journal of Statistical Software*, *40*(3), 1-25. <https://www.jstatsoft.org/v40/i03/>.
* Hugh-Jones D (2022). *huxtable: Easily Create and Style Tables for LaTeX, HTML and Other Formats*. R package version 5.5.2, <https://CRAN.R-project.org/package=huxtable>.
* R Core Team (2023). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria. <https://www.R-project.org/>.
* Sjoberg D, Whiting K, Curry M, Lavery J, Larmarange J (2021). “Reproducible Summary Tables with the gtsummary Package.” *The R Journal*, *13*, 570-580. , <https://doi.org/10.32614/RJ-2021-053>.
* Wickham H (2016). *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. ISBN 978-3-319-24277-4, <https://ggplot2.tidyverse.org>.
* Wickham H, Danenberg P, Csárdi G, Eugster M (2022). *roxygen2: In-Line Documentation for R*. R package version 7.2.3, <https://CRAN.R-project.org/package=roxygen2>.
* Wickham H, François R, Henry L, Müller K, Vaughan D (2023). *dplyr: A Grammar of Data Manipulation*. R package version 1.1.3, <https://CRAN.R-project.org/package=dplyr>.
* Xie Y (2023). *knitr: A General-Purpose Package for Dynamic Report Generation in R*. R package version 1.45, <https://yihui.org/knitr/>.
* Xie Y, Lesur R, Thorne B, Tan X (2022). *pagedown: Paginate the HTML Output of R Markdown with CSS for Print*. R package version 0.20, <https://CRAN.R-project.org/package=pagedown>.
* Zhu H (2023). *kableExtra: Construct Complex Table with ‘kable’ and Pipe Syntax*. http://haozhu233.github.io/kableExtra/, https://github.com/haozhu233/kableExtra.

### Time of compilation

2023-12-09 18:01:34.943621

# Appendix

This is how put all your code into an appendix.

fil <- here::here("inst","extdata","Iris.xls")  
  
source( here::here( "inst", "example\_cookbook", "functions", "load\_stuff.r"))  
source( here::here( "inst", "example\_cookbook", "functions", "wrangling.r"))  
  
# source\_all\_files(here::here("inst","example\_quarto","backend")) # Run slow stuff;   
##recommend running separately  
  
load\_all\_Rdata(directory=here::here("inst","example\_cookbook","backend")) # Load slow suff's output  
  
tools::md5sum(fil) # %>% as.character # Uncomment reporting path is not desirable  
sessionInfo() %>% report::report() %>% cat()  
Sys.time() %>% as.character %>% cat  
save.image(file = here::here("inst","example\_quarto","end\_state.rdata"))  
  
plot(x,y)  
  
valtozok <- c("cyl", "gear", "carb")  
  
fig\_directory <- paste0(  
 #here::here("inst","example\_cookbook"),   
 "/figures/")  
  
# Get the current value  
current\_fig\_path <- knitr::opts\_chunk$get('fig.path')  
  
out <- NULL  
for (i in 1:length(valtozok)) {  
 out <- c(out, paste0("\n### ", valtozok[i], "\n")) # Defining "title"  
   
 # Set the fig.path for each iteration  
 fig\_path <- #knitr::current\_input() %>%   
 #dirname() %>%  
 paste0("/figure\_cycl/")  
   
 params <- list(x = valtozok[i],  
 top\_level = 4,  
 figname\_prefix = valtozok[i])  
 out <- c(out,  
 knitr::knit\_child(here::here("inst","example\_cookbook",'\_cyclic\_chap2.Rmd'),  
 quiet = T,  
 options = opts\_chunk$get()   
 #envir = globalenv()  
 ))  
}  
out <- paste(out, collapse = "\n")  
  
# Reset fig.path to its default value  
knitr::opts\_chunk$set(fig.path = current\_fig\_path)  
  
  
set.seed(12345)  
  
x <- rnorm(100)  
y <- 0.5 \* x + rnorm(100)  
  
plot(x,y, main = "Important plot to reference before its compiled")  
  
  
# generating the table which is comp.expensive for some reason  
tab <- data %>%  
 dplyr::select(!(species\_no)) %>%  
 gtsummary::tbl\_summary(  
 by = species\_char  
 )  
  
tab %>%  
 as\_hux\_table()  
  
tab %>%  
 gtsummary::as\_kable\_extra(table.attr = 'data-quarto-disable-processing="true"',  
 caption = "Example table")   
  
  
  
mod <- lm(petal\_width ~ species\_char + petal\_length, data)  
  
sjPlot::tab\_model(mod)  
  
  
  
ggstatsplot::ggbetweenstats(data,   
 species\_char,  
 petal\_width,  
 results.subtitle = FALSE) +  
 theme\_bw()  
  
  
cat(pi\_estimate)  
  
  
# Defining stuff, including the renaming scheme, and the structure of the output  
  
if(!exists("child\_counter")) {  
 child\_counter <- 1  
} else {  
 child\_counter <- child\_counter + 1  
}  
  
if(!exists("params")) {  
 params <- list(x = "cyl",  
 top\_level = 2,  
 figname\_prefix = "cyl"  
 )  
}  
  
knitr::opts\_chunk$set(fig.process = function(x) {  
 x2 <- knitr::opts\_current$get("label") %>%  
 paste0(., '-') %>%  
 sub(., '', x, fixed = T) %>%  
 paste0(fig\_directory,"/",.)  
 if (file.rename(x, x2)) x2 else x  
})  
  
  
  
mtcars[[params$x]] %>%  
 as.data.frame %>%  
 `colnames<-`(params$x) %>%  
 tbl\_summary() %>%  
 martys\_table\_style(caption. = paste0("Frequency of ",params$x," categories"))  
  
# fig.path=paste0(fig\_directory, params$figname\_prefix, '-fig1-')  
  
mtcars %>%  
 ggplot( aes(x = mpg,  
 y = .data[[params$x]])) +  
 theme\_default\_ggplot +  
 geom\_point()  
  
  
  
# fig.path=paste0(fig\_directory, params$figname\_prefix, '-fig1-')  
  
  
mtcars %>%  
 ggplot( aes(x = qsec,  
 y = .data[[params$x]])) +  
 theme\_default\_ggplot +  
 geom\_point()  
  
  
  
# resetting stuff  
knitr::opts\_chunk$set(  
 fig.process = NULL # Critical, leads to nasty complications if removed  
 # This auto-renames output figs and is called afterwards if not reset  
  
 )  
  
  
# Defining stuff, including the renaming scheme, and the structure of the output  
  
if(!exists("child\_counter")) {  
 child\_counter <- 1  
} else {  
 child\_counter <- child\_counter + 1  
}  
  
if(!exists("params")) {  
 params <- list(x = "cyl",  
 top\_level = 2,  
 figname\_prefix = "cyl"  
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 y = .data[[params$x]])) +  
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 geom\_point()  
  
  
  
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 # This auto-renames output figs and is called afterwards if not reset  
  
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if(!exists("child\_counter")) {  
 child\_counter <- 1  
} else {  
 child\_counter <- child\_counter + 1  
}  
  
if(!exists("params")) {  
 params <- list(x = "cyl",  
 top\_level = 2,  
 figname\_prefix = "cyl"  
 )  
}  
  
knitr::opts\_chunk$set(fig.process = function(x) {  
 x2 <- knitr::opts\_current$get("label") %>%  
 paste0(., '-') %>%  
 sub(., '', x, fixed = T) %>%  
 paste0(fig\_directory,"/",.)  
 if (file.rename(x, x2)) x2 else x  
})  
  
  
  
mtcars[[params$x]] %>%  
 as.data.frame %>%  
 `colnames<-`(params$x) %>%  
 tbl\_summary() %>%  
 martys\_table\_style(caption. = paste0("Frequency of ",params$x," categories"))  
  
# fig.path=paste0(fig\_directory, params$figname\_prefix, '-fig1-')  
  
mtcars %>%  
 ggplot( aes(x = mpg,  
 y = .data[[params$x]])) +  
 theme\_default\_ggplot +  
 geom\_point()  
  
  
  
# fig.path=paste0(fig\_directory, params$figname\_prefix, '-fig1-')  
  
  
mtcars %>%  
 ggplot( aes(x = qsec,  
 y = .data[[params$x]])) +  
 theme\_default\_ggplot +  
 geom\_point()  
  
  
  
# resetting stuff  
knitr::opts\_chunk$set(  
 fig.process = NULL # Critical, leads to nasty complications if removed  
 # This auto-renames output figs and is called afterwards if not reset  
  
 )