

# *I like to move it, move it:* Keeping lemurs happy with R

**Data Crunch Magic Würzburg**

**Dr. Ludmilla Figueiredo**  
Ecosystem modeling group (CCTB)  
University of Würzburg

04.11.2021

# Outline

- Introduction to R and the Tidyverse
- Documenting code
- Business R
- Discussion
- Next steps

# Follow live!

You can follow the presentation  
with the notebook file (.Rmd)  
available at the git repository



<https://www.moms.com/save-lemurs-madagascar-literacy/>

**R & Tidyverse**

# R & R Studio

- R: free software for (statistics) computing
- R Studio: integrated development environment (IDE) for R
  - syntax highlighting
  - editor with direct code execution
  - access to plots, history, work space

# Tidyverse

Packages expand R basic capabilities



→ Collection of packages for data analysis

# Tidyverse



# Tidyverse



# Tidyverse



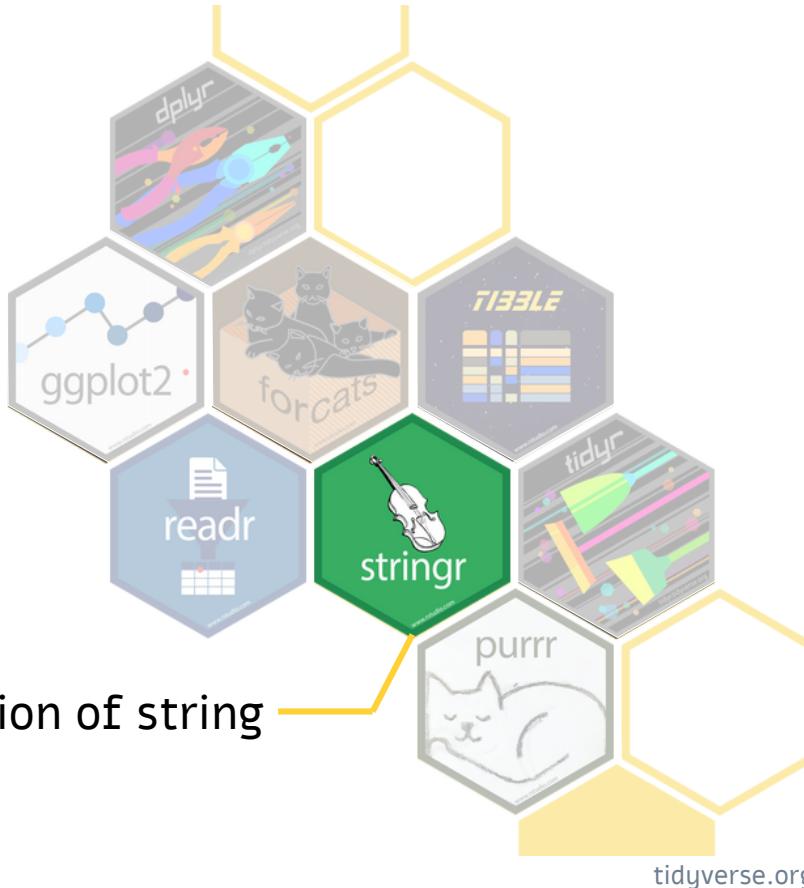
Create and manipulate  
“tidy” data

# Tidyverse

Data manipulation  
e.g.  
`filter()`  
`summarize()`  
`mutate()`

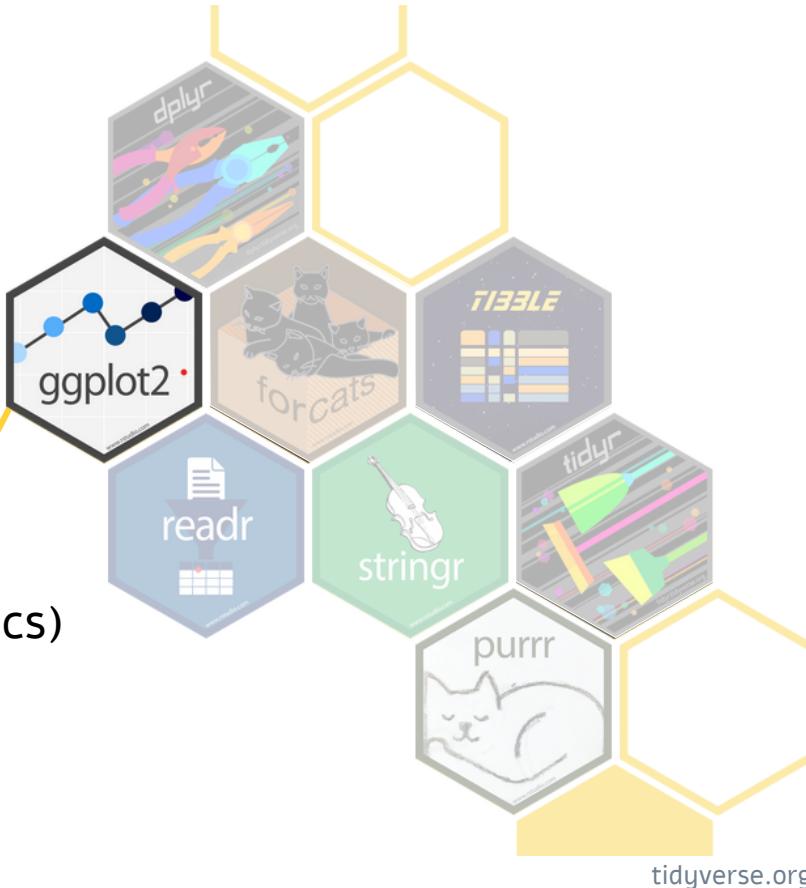


# Tidyverse



# Tidyverse

Scripted data  
visualization  
(Grammar of Graphics)

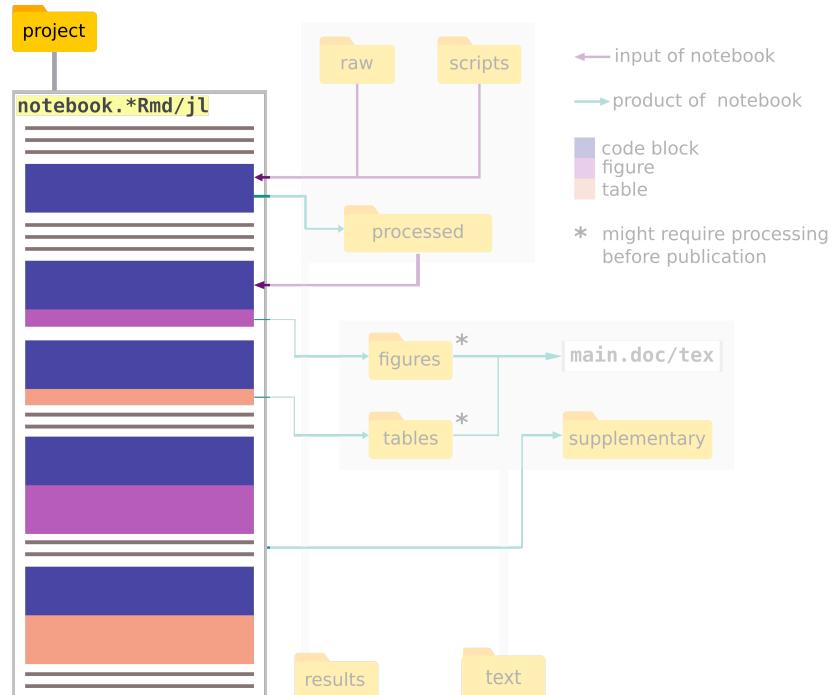


# **Documenting code**

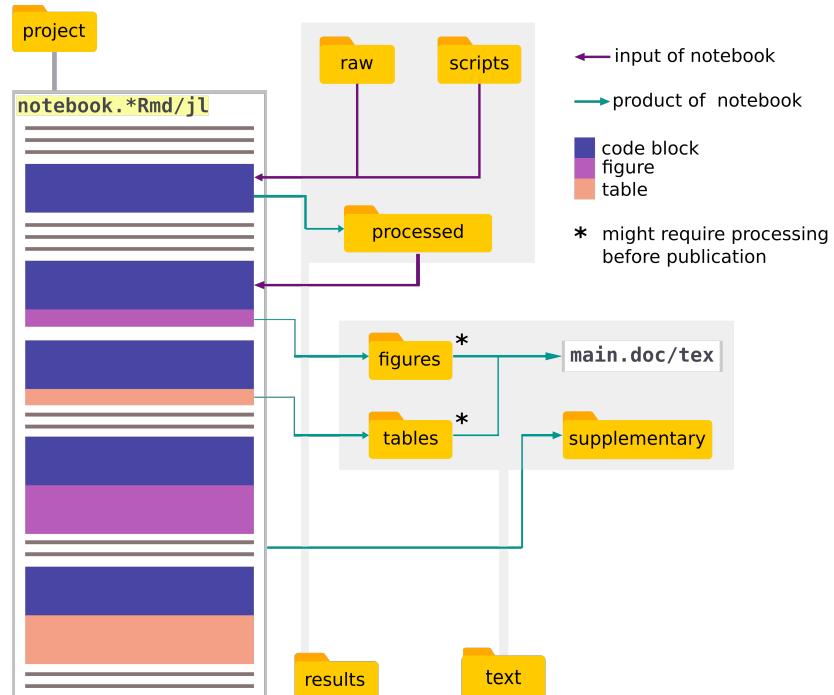
# Documenting code

- Time efficiency: re-usable
- Communication
- Scrutiny
- Reproducibility

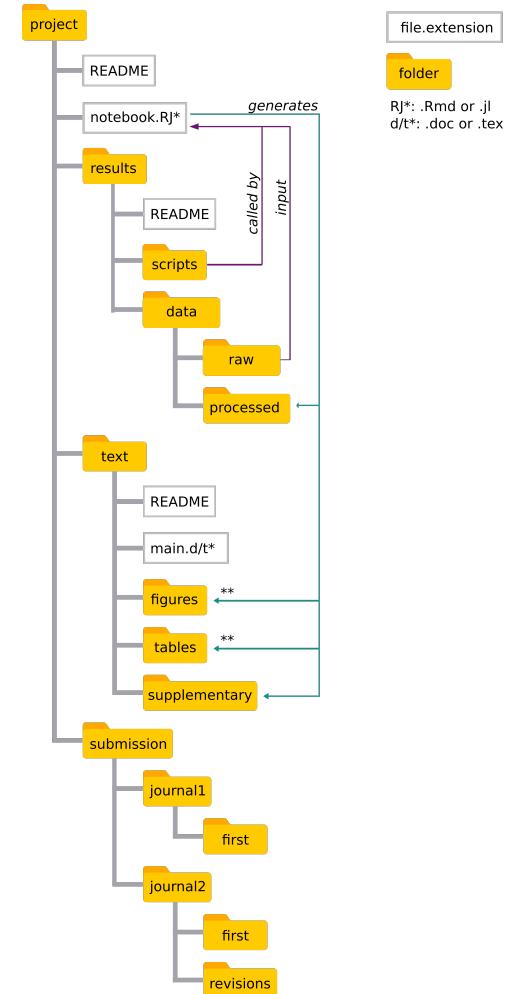
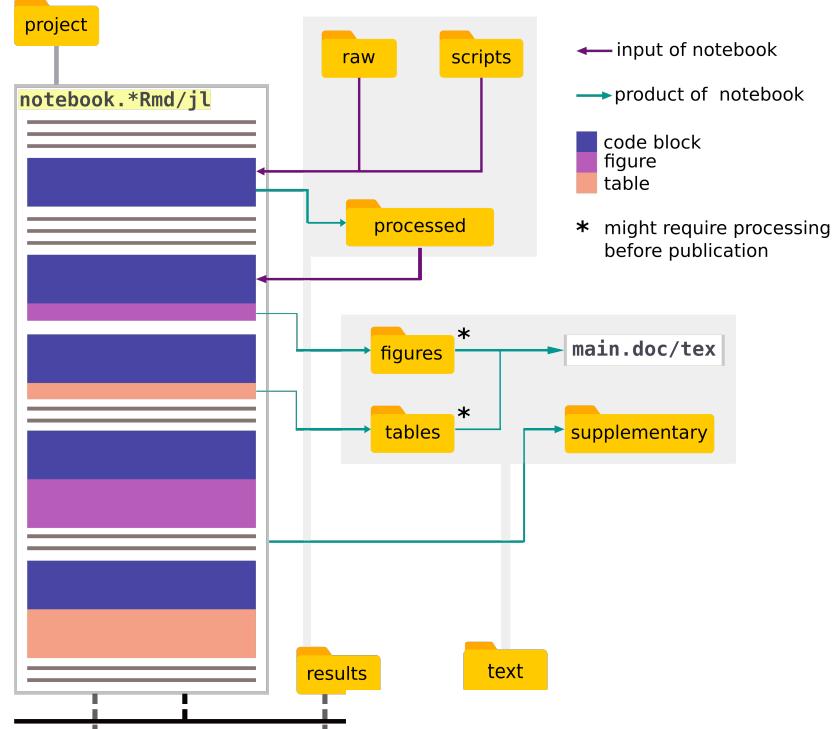
# Documenting code



# Documenting code



# Documenting code



# RMarkdown files

Show, don't tell

# The lemurs

# Who are they



TM & © Dreamworks Animation (2005)



Dorieo, Public domain, via Wikimedia Commons -  
[https://upload.wikimedia.org/wikipedia/commons/b/be/Ringtailed\\_lemur\\_46\\_-\\_Bioparc\\_-\\_Valencia%2C\\_Spain.JPG](https://upload.wikimedia.org/wikipedia/commons/b/be/Ringtailed_lemur_46_-_Bioparc_-_Valencia%2C_Spain.JPG)

# Who are they

- *Wet-nosed* primates
- Live in trees, active at night
- Eat insects and plants
- 30g – 9kg
- ~100 species



Katta család.jpg: Veszprémi ÁllatkertAye-aye at night in the wild in Madagascar.jpg: Frank VassenRed-tailed Sportive Lemur, Kirindy, Madagascar.jpg: Frank VassenDiademed ready to push off.jpg: C. Michael HoganArchaeoindris fontoynonti.jpg: SmokeybjbMicrocebus murinus -Artis Zoo, Amsterdam, Netherlands-8a.jpg: Arjan HaverkampJuvenile Black-and-White Ruffed Lemur, Mantadia, Madagascar.jpg: Frank VassenTwo Brown Lemur, Mantadia, Madagascar.jpg: Frank Vassenderivative work: Maky, CC BY-SA 3.0 <<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons

# Why do we need to keep them happy

- Only native to Madagascar
- World's most endangered animal (IUCN)
- Illegal logging and forest destruction

→ Duke Lemur Center:

Let's see what they have



IUCN Red List of Threatened Species,  
species assessors and the authors of  
the spatial data., CC BY-SA 3.0, via  
Wikimedia Commons

# **R Studio Pro for Business**

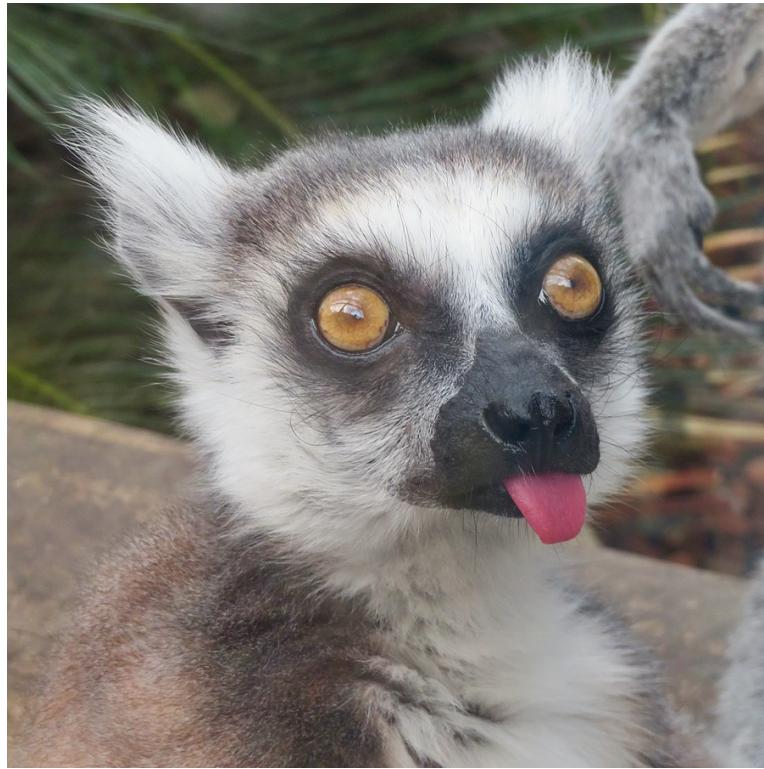
# R Studio Pro for Businesses

Enterprise products, “RStudio Team”:

- Rstudio Workbench: team server
- Rstudio connect: sharing
- ➔ R & Python

# **Discussion**

# Any questions?



KKPCW, CC BY-SA 4.0, via Wikimedia Commons  
[https://upload.wikimedia.org/wikipedia/commons/4/47/Lemur\\_catta\\_putting\\_out\\_tongue.jpg](https://upload.wikimedia.org/wikipedia/commons/4/47/Lemur_catta_putting_out_tongue.jpg)

- Curiosities?
- Inconveniences?
- Alternatives to R?
  - Coming up in the next Data Crunch Events
- Try out some data wrangling for yourself: check the notebook
  - Data Dojo Würzburg!