

Open data and reproducibility: R Markdown, dashboards and Binder

The methods for disseminating research in cognitive linguistics, and other fields, are advancing. Papers now include more and more supplementary materials. This shift has been facilitated by burgeoning technologies and available training. Another major contributor was the replication crisis in psychology. Nowadays, researchers customarily examine the extra materials with new studies. These materials are available to non-academics, too. Newer tools are available, notably based on open-source software. Let's look at three tools around the R language.

Binder (20 min) — Did you know that you can enable public access to your data and analysis code in RStudio, on a simple internet browser? There are various options for this, and one of the most accessible ones is Binder (<https://mybinder.org>). We'll look at Binder's requirements and possibilities.

- RStudio environment example: <http://mybinder.org/v2/gh/binder-examples/r/master?urlpath=rstudio>
- Dashboard environment example: <https://mybinder.org/v2/gh/pablobernabeu/Modality-switch-effects-emerge-early-and-increase-throughout-conceptual-processing/eab65b392a8817454824f11c4efacea2e8a927f3?urlpath=shiny/Shiny-app/>

R Markdown (60 min) — Keep your input and output in check using R Markdown (<https://rmarkdown.rstudio.com/>).

- Examples: <https://bookdown.org/yihui/rmarkdown/journals.html>, <http://rpubs.com/>

Dashboards (90 min) — On a further step in reproducible, open data, we will learn how to publish dashboards online presenting data in the form of plots and tables. These all-reproducible dashboards are displayed as websites; thus, they can include hyperlinks and downloadable files. Some of the R packages used are 'rmarkdown,' 'knitr,' 'ggplot,' 'plotly,' 'flexdashboard,' and 'shiny.' The aim is to practise with different forms of dashboards (Flexdashboard, Shiny, Flexdashboard-Shiny) and the suitable hosting platforms (personal website, RPubs, Binder, Shinyapps, and custom servers).

- Examples: <https://shiny.rstudio.com/gallery/>, <https://rmarkdown.rstudio.com/flexdashboard/examples.html>

Real data and code of varying complexity will be used. Basic and advanced R users are welcome.

Please sign up to RStudio Cloud (<https://rstudio.cloud/>), which may become useful if you encounter any issues in your local R.

Also suggested:

- installing or updating R (<https://www.r-project.org/>) and RStudio (<https://rstudio.com/products/rstudio/download/>);
- perusing the links here;
- having some data and R code ready, preferably in a Github repository.