

# Basic reproducibility

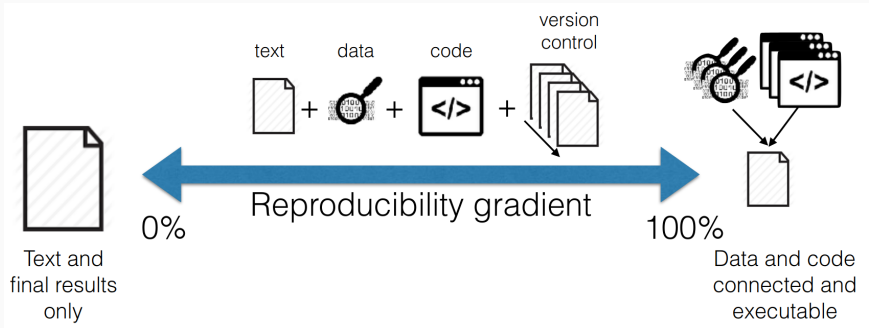
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# Reproducibility is a gradient



Rodríguez-Sánchez et al. 2016 (modif. Peng 2011)

## Basic reproducibility

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# Basic reproducibility

- **MANUSCRIPT** (Text + Tables + Figures)
- **DATA** in permanent archive (see [Tierney & Ram 2020](#))
- **CODE** in permanent archive (see [Eglen et al 2016](#))

*Permanent archive:*

- Zenodo, Dryad, OSF, Figshare, Data Paper...
- NOT GitHub, website...

# How to share data

- **Open** format (csv, txt)
- **README** (who, what, when, where, why, how)
- **Describe variables**
- **Licence** (CC0, CC-BY, ODbL)
- **Citation** (DOI)
- **Metadata** standardised (JSON, XML)

Tierney & Ram 2020

## Document your data

```
library("dataspice")  
create_spice()    # create CSV templates for metadata  
  
edit_creators()  # open Shiny apps to edit the CSVs  
prep_access()  
edit_access()  
prep_attributes()  
edit_attributes()  
edit_biblio()  
  
write_spice()    # write machine-readable metadata  
  
build_site()     # build human-readable metadata report
```

# How to share code

- Scripts: **plain text** (.R)
- **Permanent archive** (eg. Zenodo) with **DOI** (citable)
- [Licence](#)
- **README**
- Computational **environment** (session info)

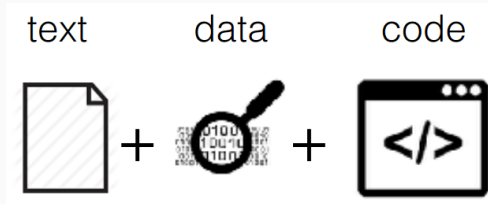
# sessionInfo records OS & used packages

```
## R version 4.2.0 (2022-04-22)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 20.04.5 LTS
##
## Matrix products: default
## BLAS: /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.9.0
## LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.9.0
##
## locale:
##  [1] LC_CTYPE=en_GB.UTF-8      LC_NUMERIC=C
##  [3] LC_TIME=es_ES.UTF-8      LC_COLLATE=en_GB.UTF-8
##  [5] LC_MONETARY=es_ES.UTF-8  LC_MESSAGES=en_GB.UTF-8
##  [7] LC_PAPER=es_ES.UTF-8     LC_NAME=C
##  [9] LC_ADDRESS=C             LC_TELEPHONE=C
## [11] LC_MEASUREMENT=es_ES.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
## [1] knitr_1.40
##
## loaded via a namespace (and not attached):
##  [1] compiler_4.2.0  magrittr_2.0.3  fastmap_1.1.0   cli_3.3.0
##  [5] htmltools_0.5.3 tools_4.2.0     rstudioapi_0.14 yaml_2.3.5
##  [9] stringi_1.7.8   rmarkdown_2.16  binb_0.0.6      stringr_1.4.1
## [13] xfun_0.32       digest_0.6.29   rlang_1.0.5     evaluate_0.16
```



renv also records packages used

# Basic reproducibility



## DATA + CODE

- analysis fully **traceable**
- results can be **regenerated**