Package development

eRum 2018

Forwards Teaching Team

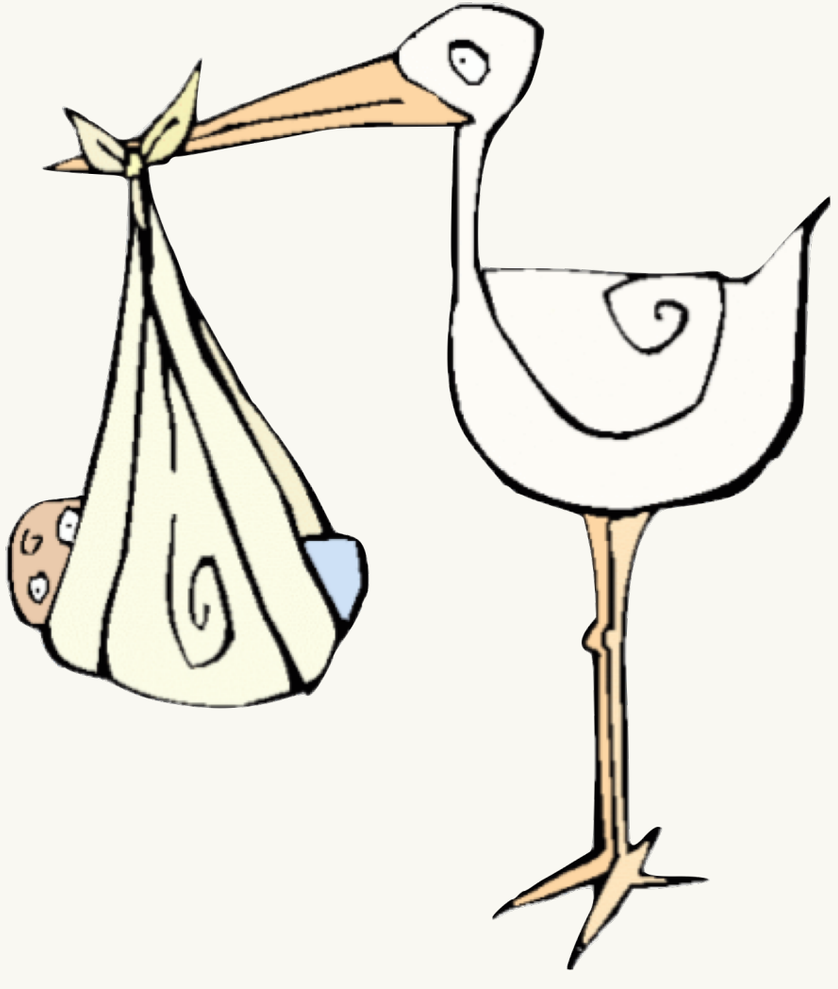
Get to know your R installation

```
R.home()

list.files(R.home())
```

```
R.version
```

Where do R packages come from?



CRAN and GitHub, mostly

```
install.packages("foo")

library(devtools)
install_github("jane/foo")
```

Where do R packages live on your computer?

R packages live in a library

Get to know your R library(ies?)

```
.Library
```

The default library

```
.libPaths()
```

All the libraries R knows about

```
.Library ?= .libPaths()
```

For many useRs, these are same

Other useRs maintain multiple libraries

E.g., You can put add-on packages in a user-level library:

`/Users/jenny/resources/R/library`

`installed.packages()`

- How many packages do you have installed?

- If you have multiple libraries, how many packages in each?

- How do the packages break down by `Priority` (and what does that mean, anyway)?
  Do the breakdown for multiple libraries, if applicable.

Startup files

`.Rprofile`

Code that runs at startup

Load workflow packages

Set options

Use in moderation!

`.Renviron`

Set lib paths

Set env vars

Make sure you have recent versions of these packages

```
old.packages()
packageVersion()
```

```
install.packages("devtools")
install.packages("pkgdown")
install.packages("roxygen2")
install.packages("testthat")
install.packages("tidyverse")
install.packages("usethis")
```

How is developing a

package

same / different

from developing a script?

How same?

Iterate early and often!

Change it, try it, change it, try it, ***ad nauseum***

How different?

Write functions, not “top-level” code.

Dependencies are different,

no `library()` calls.

Install & Restart (or simulate that),

don’t `source()`.

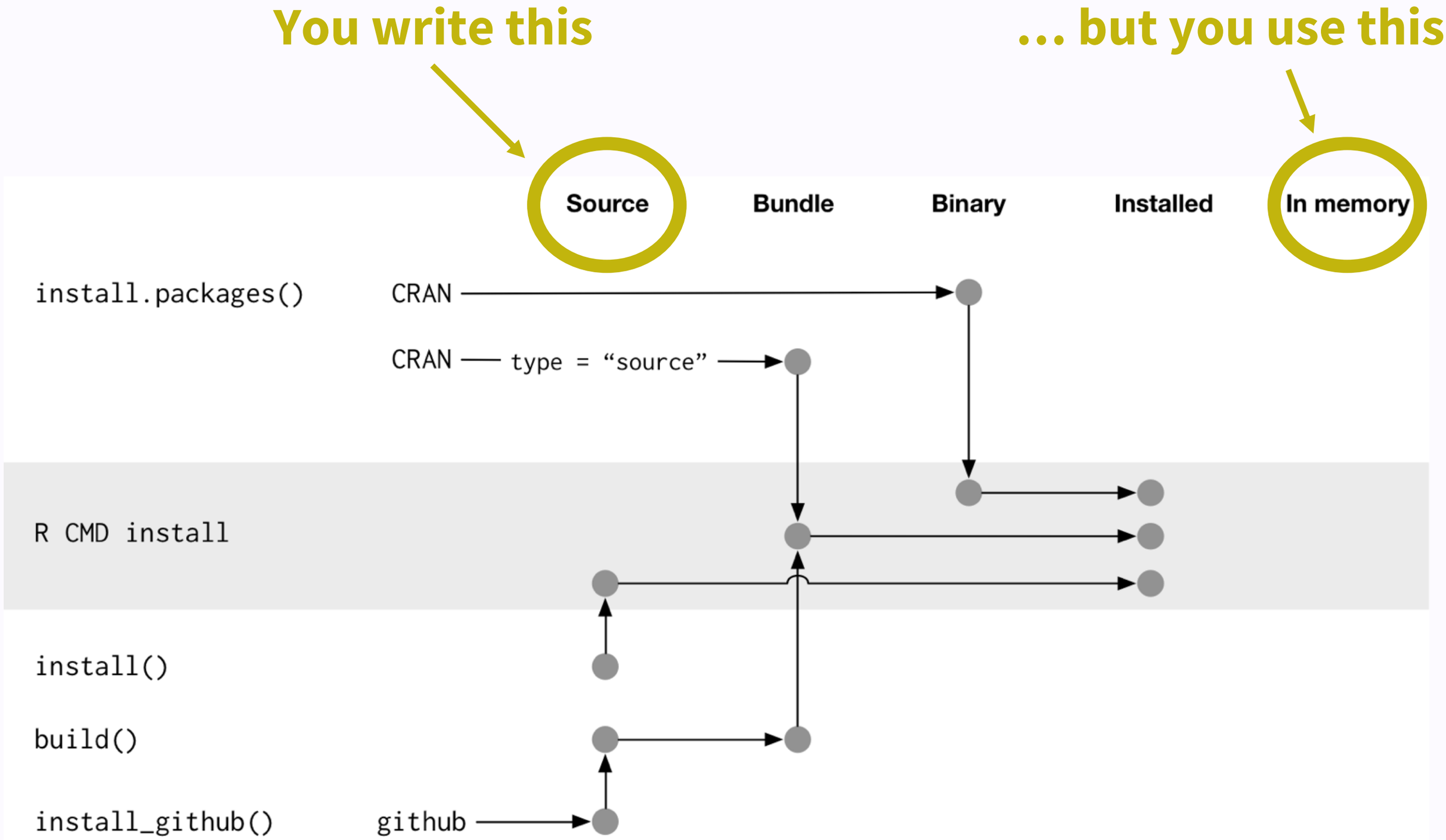


Figure from Hadley Wickham’s book, R packages

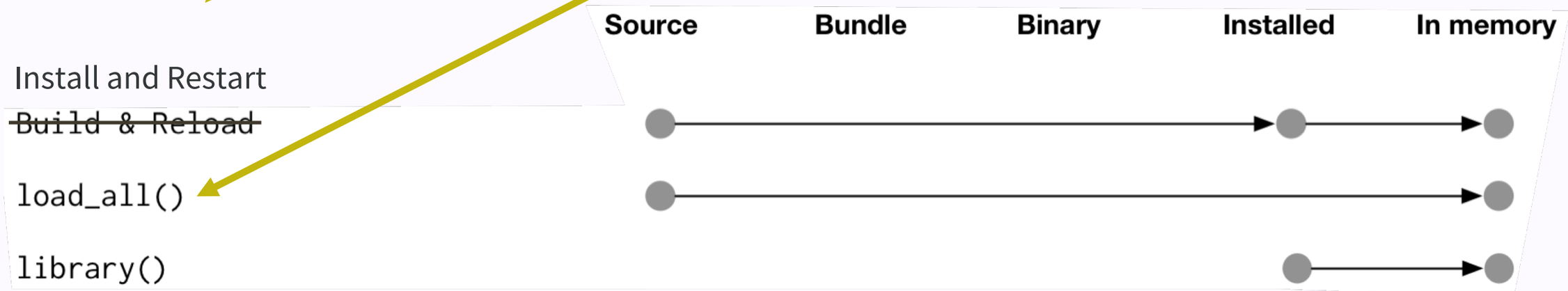
http://r-pkgs.had.co.nz

https://github.com/hadley/r-pkgs/blob/master/diagrams/installation.png

How do packages get into memory?

Development: every couple hours or days?

Development: Every 2 minutes

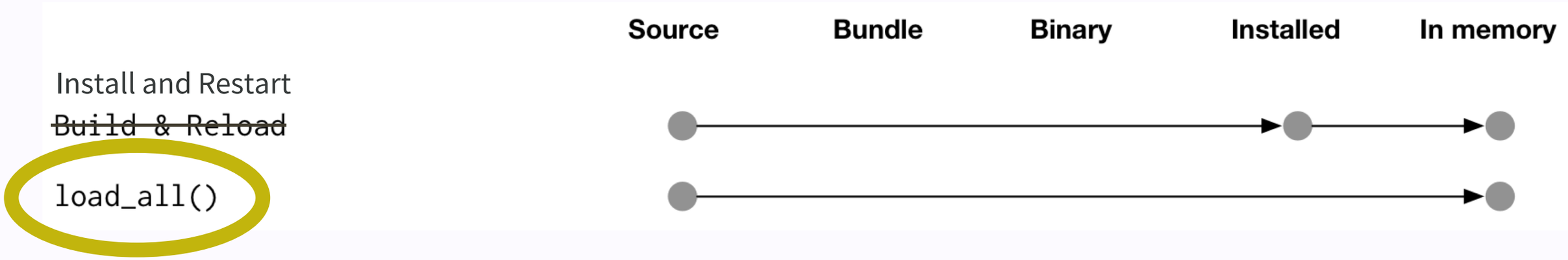


Normal day-to-day usage

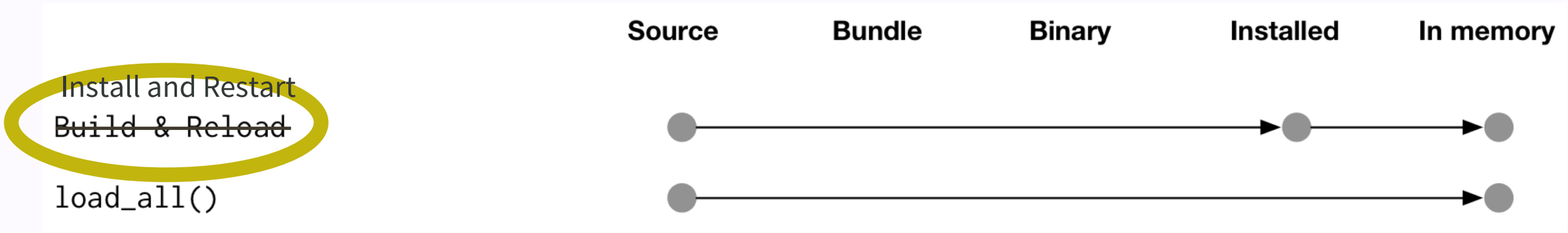
Figure from Hadley Wickham's book, R packages

http://r-pkgs.had.co.nz

https://github.com/hadley/r-pkgs/blob/master/diagrams/loading.png



`devtools::load_all()` is to package development as interactive "stepping through" code is to script development



RStudio's Install & Restart is to package development as `source()` or RStudio's "Source" or Rscript `foo.R` is to script development

Let’s do this!