

Package development

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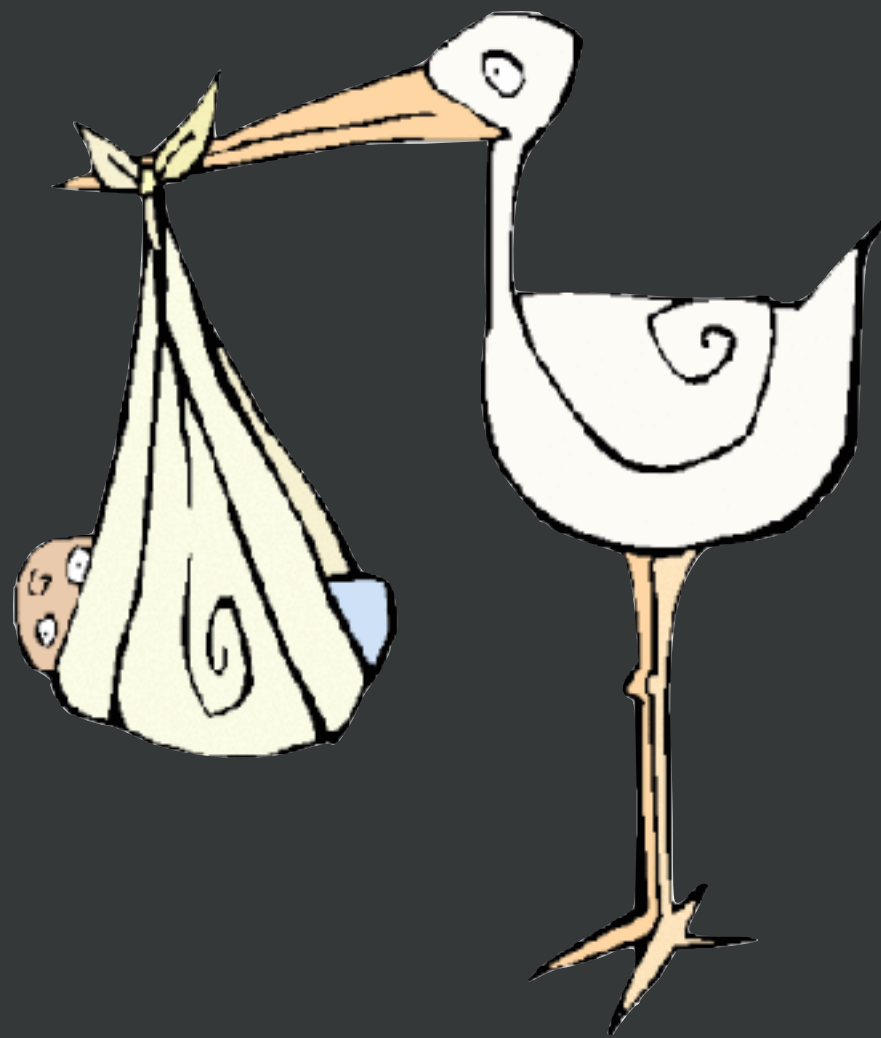
Get to know your R
installation

```
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., I 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.

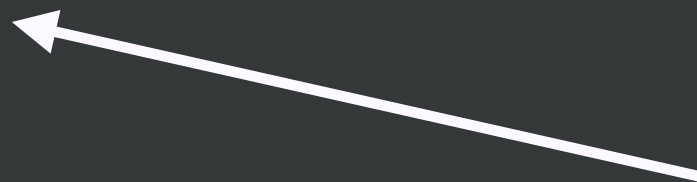
Startup files

.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

```
packageVersion()
```

```
install.packages("devtools")
```

```
install.packages("testthat")
```

```
install.packages("usethis")
```

```
install.packages("roxygen2")
```


Oops, Hadley messed up!
(see next slide for lab computer fix)

```
devtools::install_github(  
  "r-lib/useethis"  
)
```

```
packageVersion("useethis")  
# Should be 1.1.0.9000
```

Oops, Hadley messed up!

(see prev slide for your own computer)

```
install.packages("usethis", dep = F)
t <- system.file("templates",
  package = "usethis")
download.file("http://bit.ly/2B8ebyf",
  file.path(t, "template.Rproj"))
```

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()`.

You write this

... but you use this

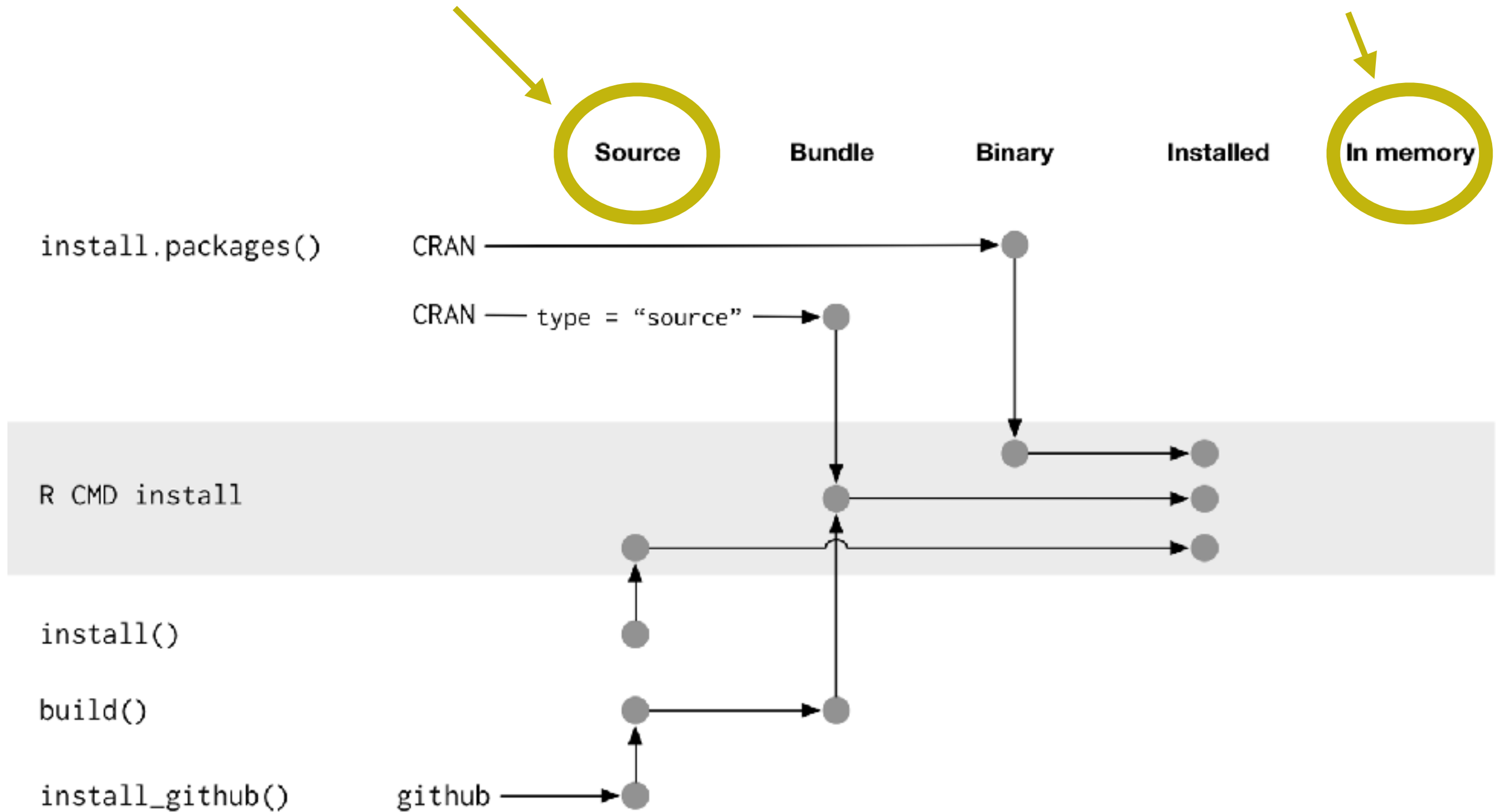


Figure from Hadley Wickham's book, R packages

<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

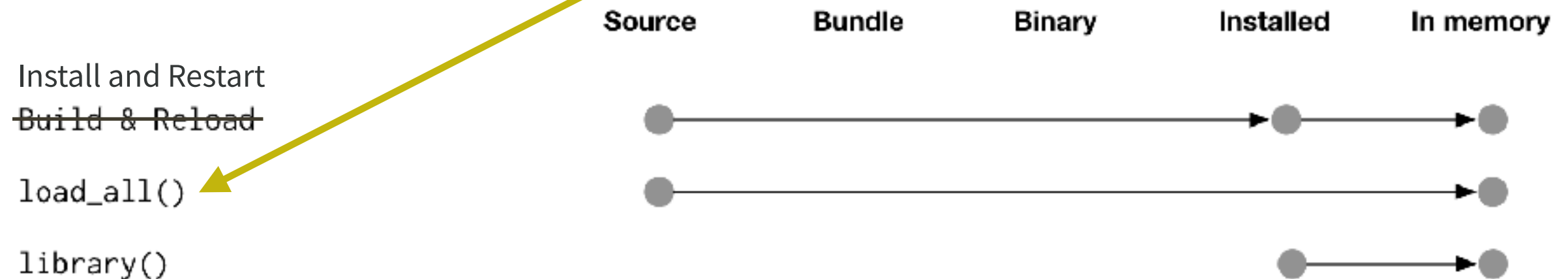
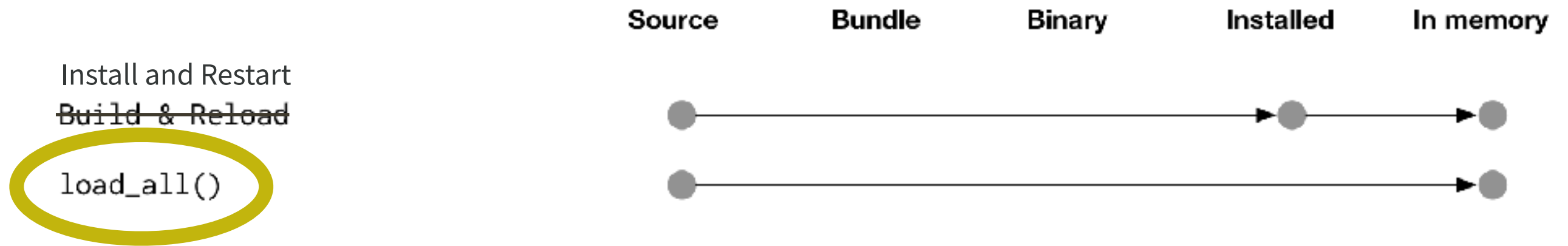


Figure from Hadley Wickham's book, R packages

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

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



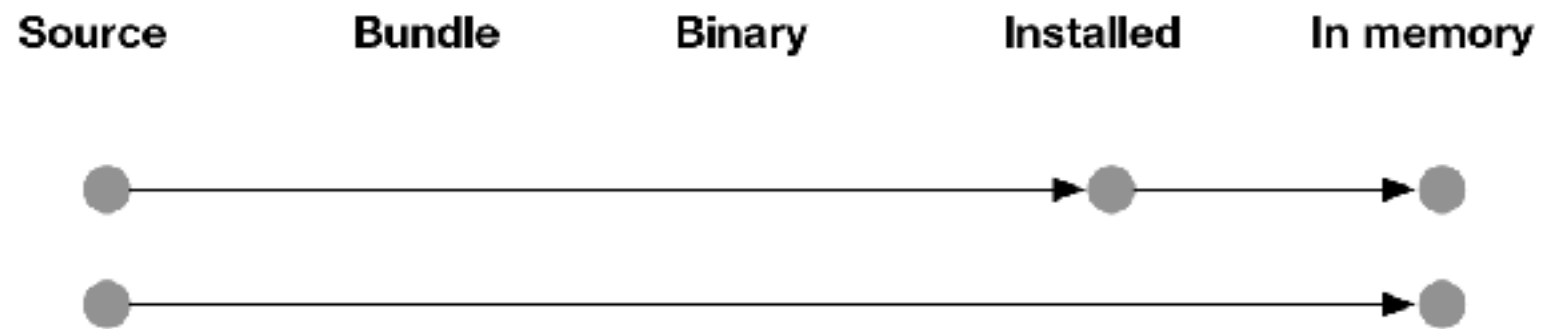
devtools::load_all() is to package development

as

is to script development

interactive “stepping through” code

Install and Restart
~~Build & Reload~~
load_all()



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!