

# R/RStudio

Taylor Dunivin

EDAMAME

July 26, 2018

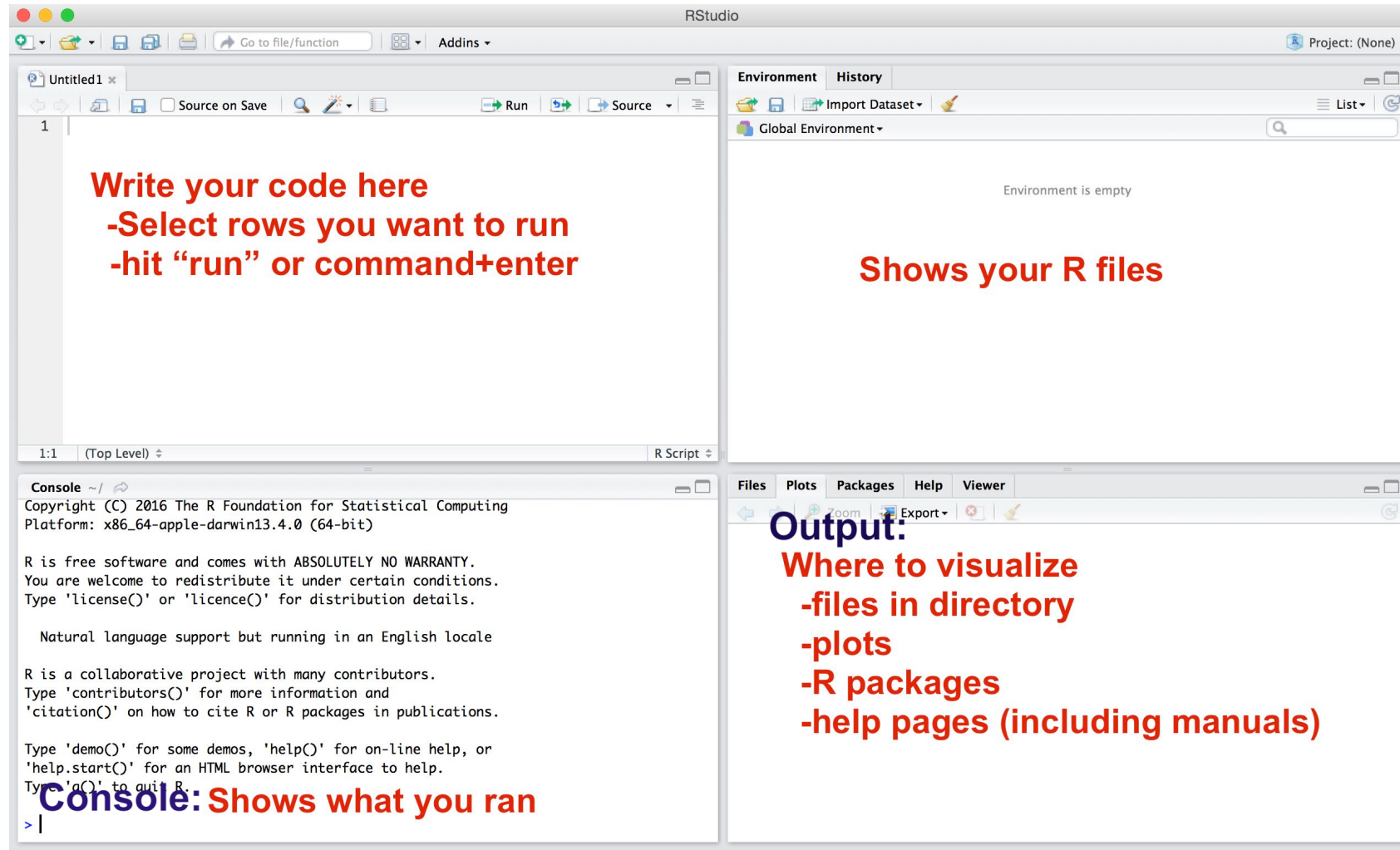
# Why R?

- free
- open-source
- designed for data analysis and statistics
- user-community
- highly extensible
- easy organization with RStudio

# R community

- [www.r-bloggers.com](http://www.r-bloggers.com)
- Twitter
  - [@hadleywickham](https://twitter.com/hadleywickham)
  - [@rstudiotips](https://twitter.com/rstudiotips)
- [support.rstudio.com](http://support.rstudio.com)

# RStudio



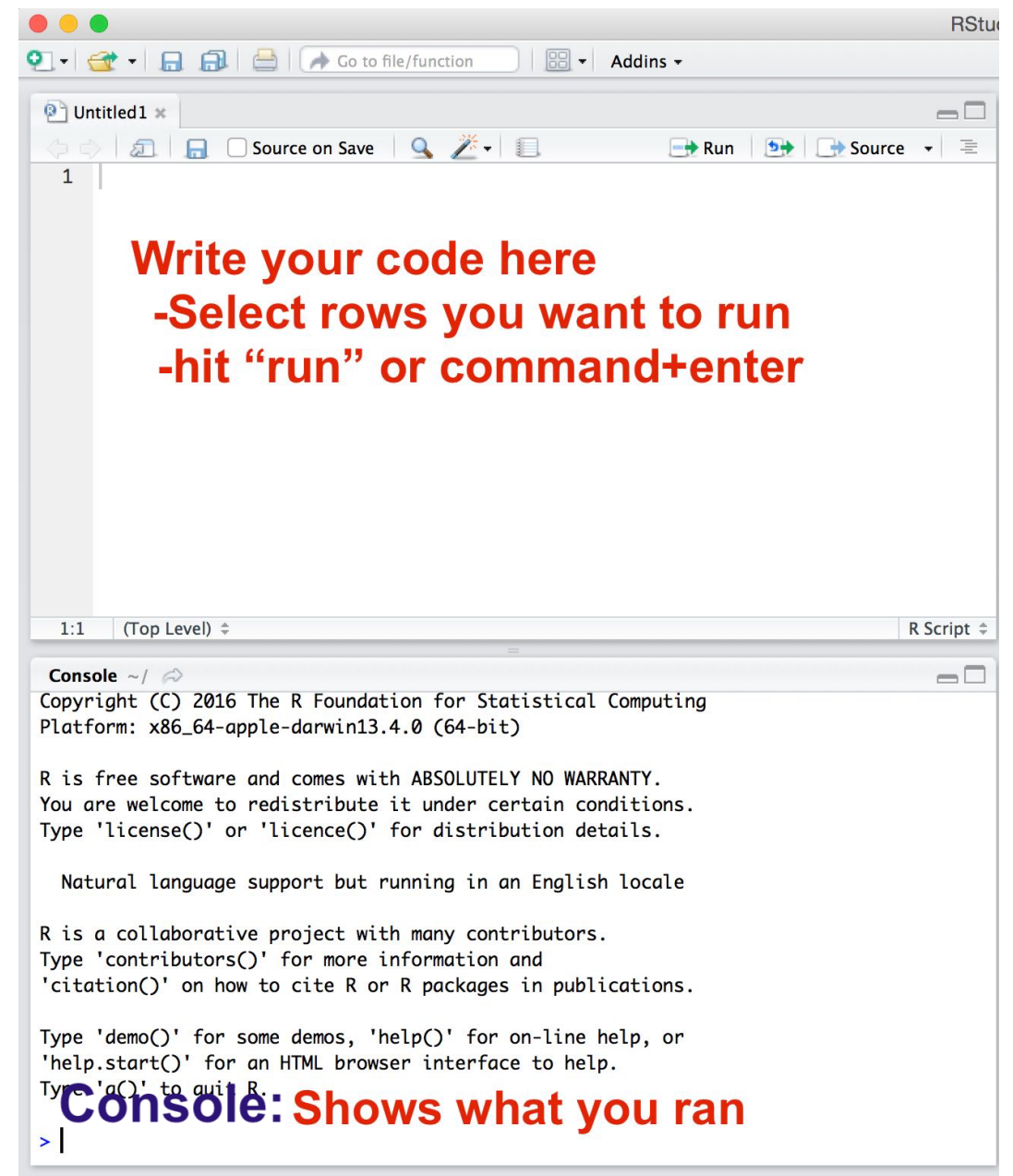
# Console vs. script

## SCRIPT

- Preserve work in a plain-text file (.R extension)
- Do your work here, and save this to be able to reproduce or edit it at a later date

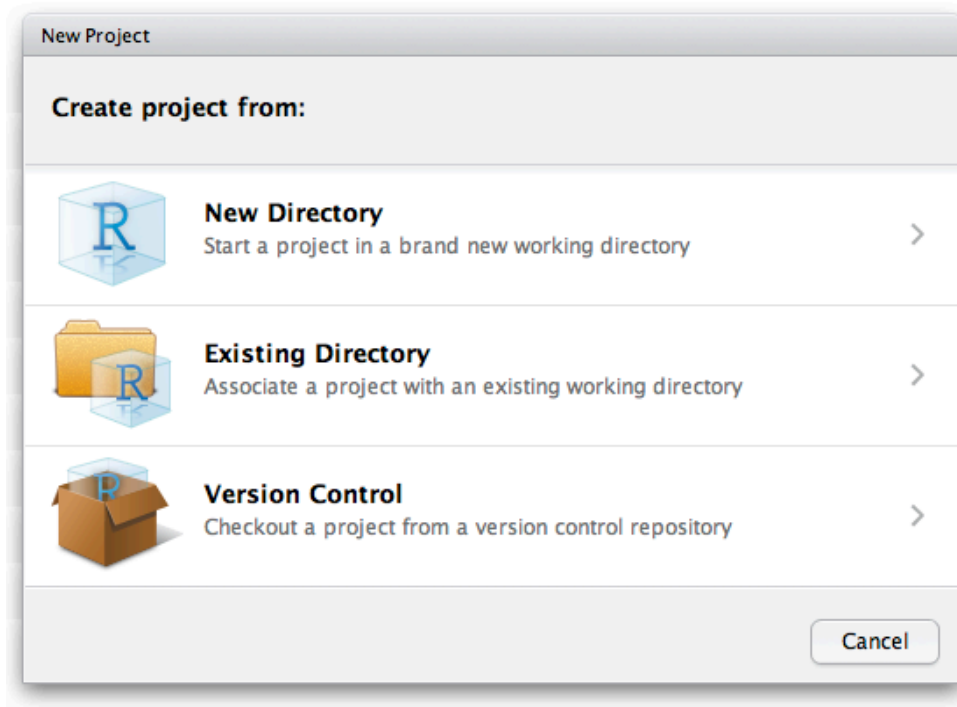
## CONSOLE

- Yame as typing R in your command line
  - You can type in commands and R will execute them and print the result
- **Pro tip:** cmd/ctrl-enter executes the line the cursor is on by copying that line and sending it to the Console



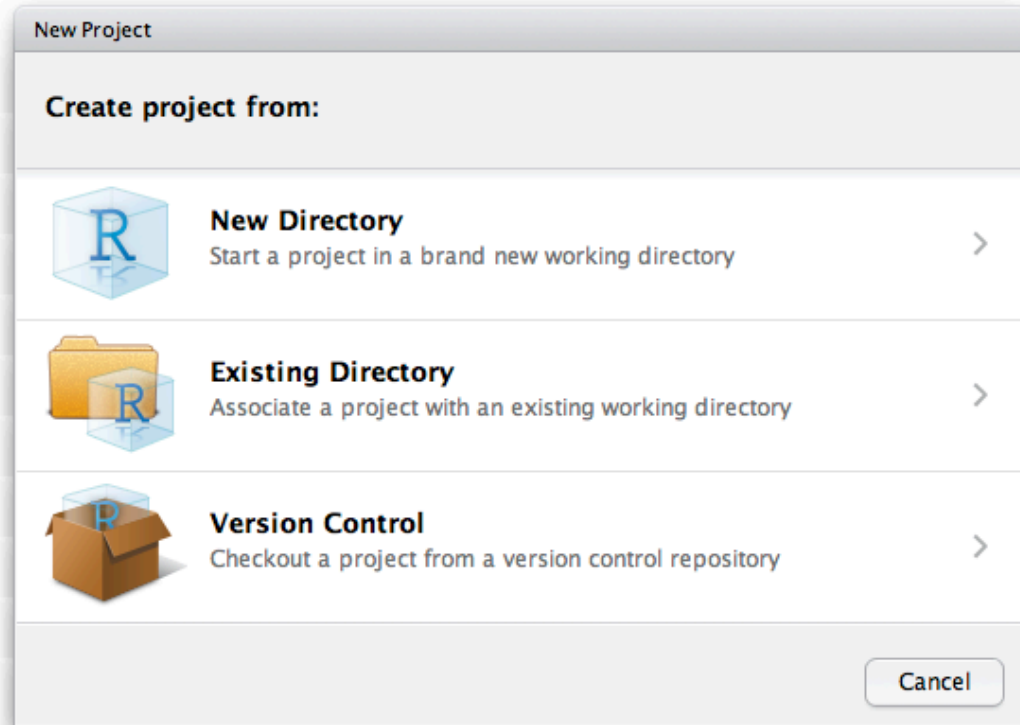
# Organization in Rstudio (Projects)

- File → New Project



# Organization in Rstudio (Projects)

## File → New Project



## What's included in an R Project?

- .Rproj extension
- Self-contained home for
  - code
  - data
  - output
  - figures
- .gitignore
- Working directory = project directory

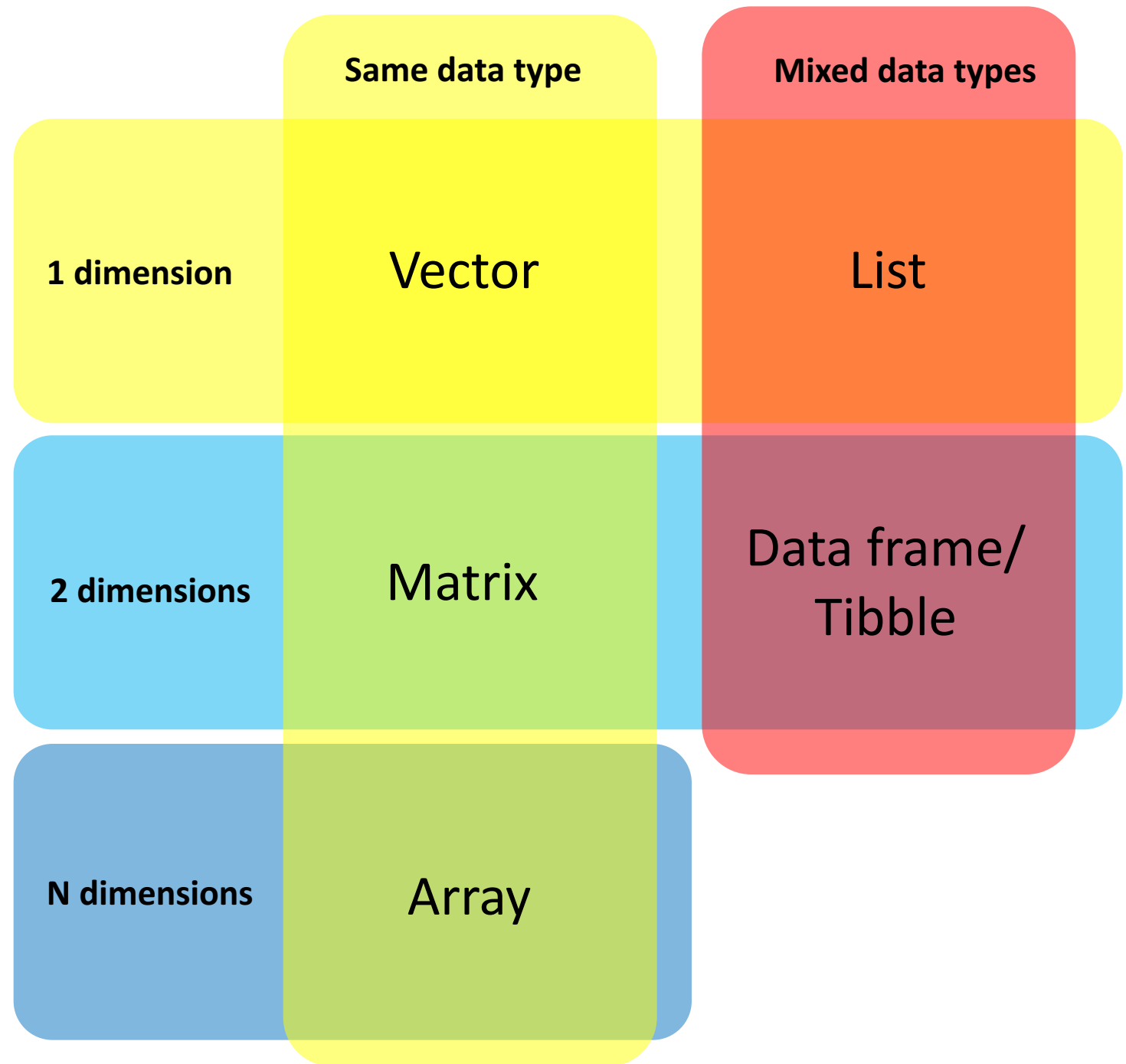
# Special features

- ignoring whitespace
- tab completion
  - objects
  - packages
  - assignment within a function
- Consistent documentation/ help files
  - ?function
  - ??anything
- R is chatty
  - error messages
  - warning messages



# Data types in R

- Numeric
- Logical
- Character
- Factor

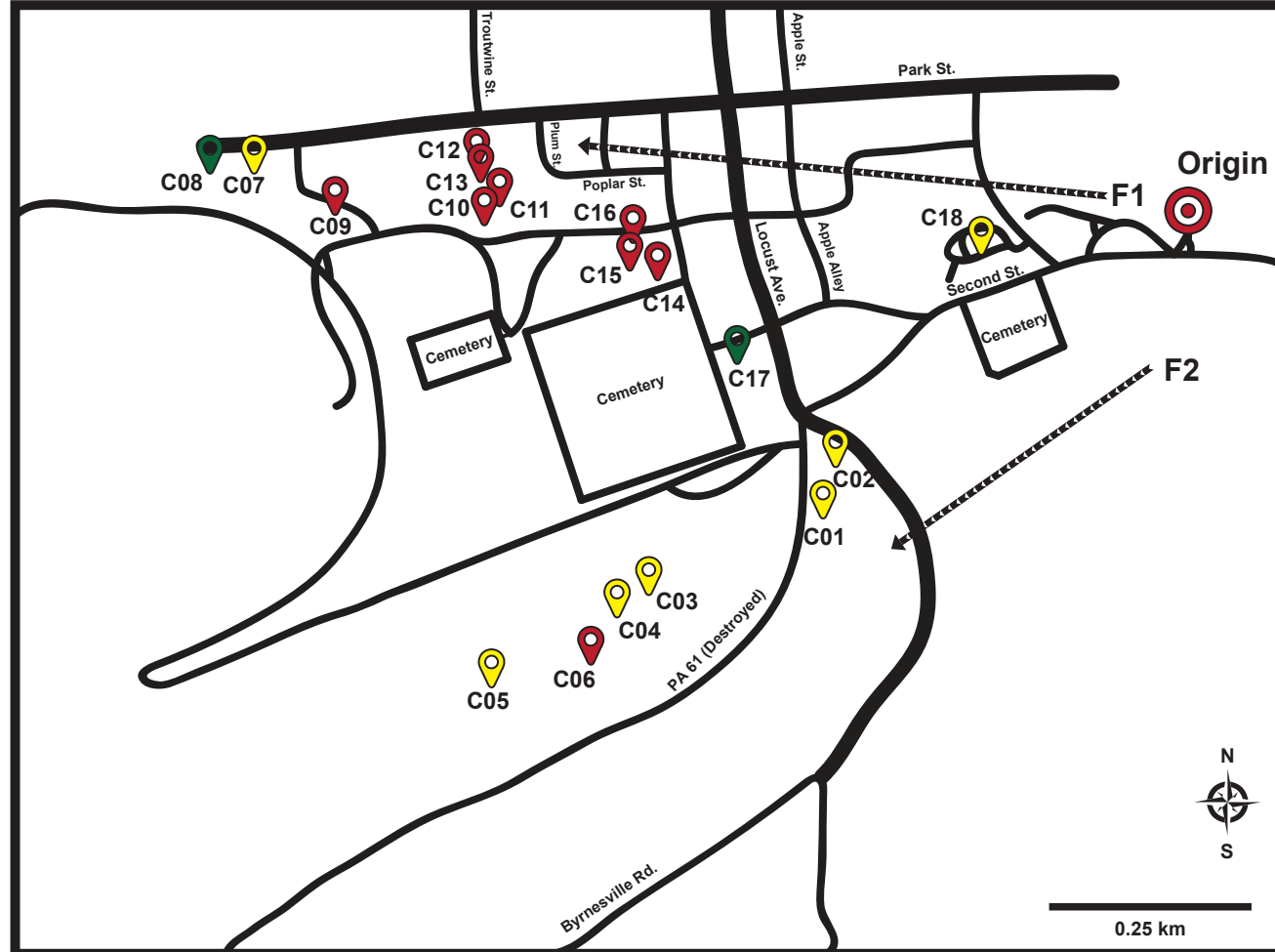


# Today's data: Centralia, PA

- Coal mine fire ignited in 1962
- Underground fire moves along coal seam
- Compounded stressors
  - Thermal disturbance
  - Coal combustion pollutants



# Sampling strategy



## Fire history

- Fire-affected
- Recovered
- Reference

Break!

# Data visualization

Taylor Dunivin

EDAMAME

July 26, 2018

# Grammar of graphics



# ggplot: for (almost) all of your plotting needs

- uses the grammar of graphics
- links layers with `+`
- first layer is an umbrella layer

