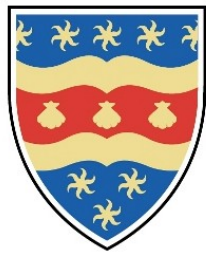# From SPSS to R
at Plymouth Psychology

Prof. Andy J. Wills

From SPSS to R

In **2018**, the School of Psychology at the University of Plymouth began **teaching R** to **all new undergraduates.**
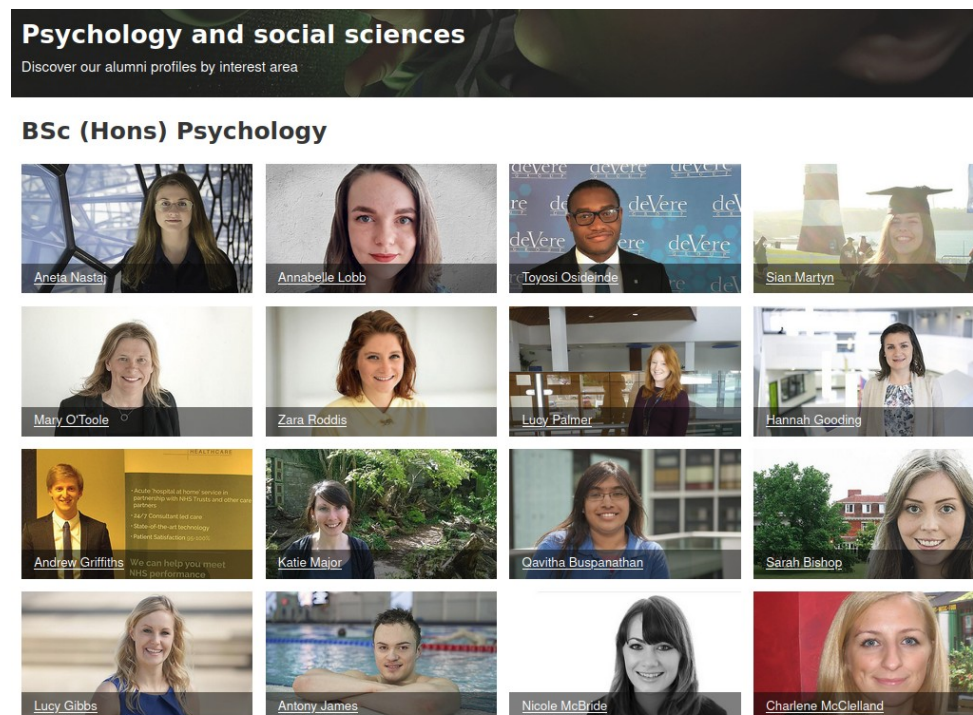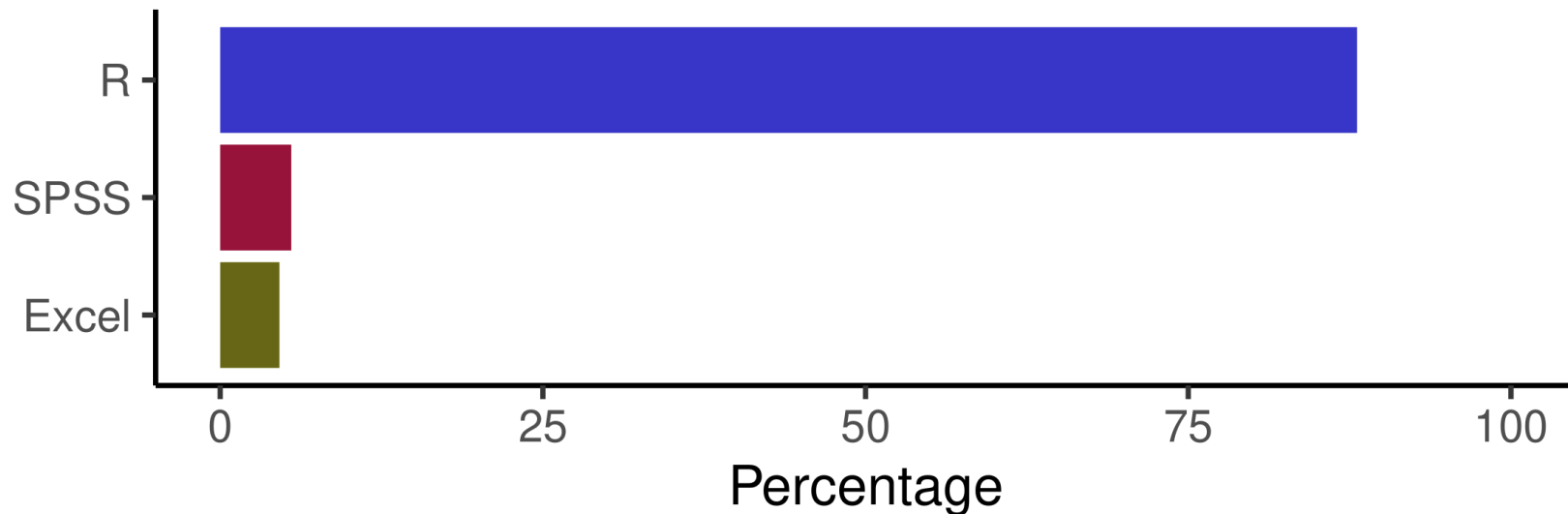
From SPSS to R

We're typical in terms of entry grades (65th of 115; Guardian 2021)
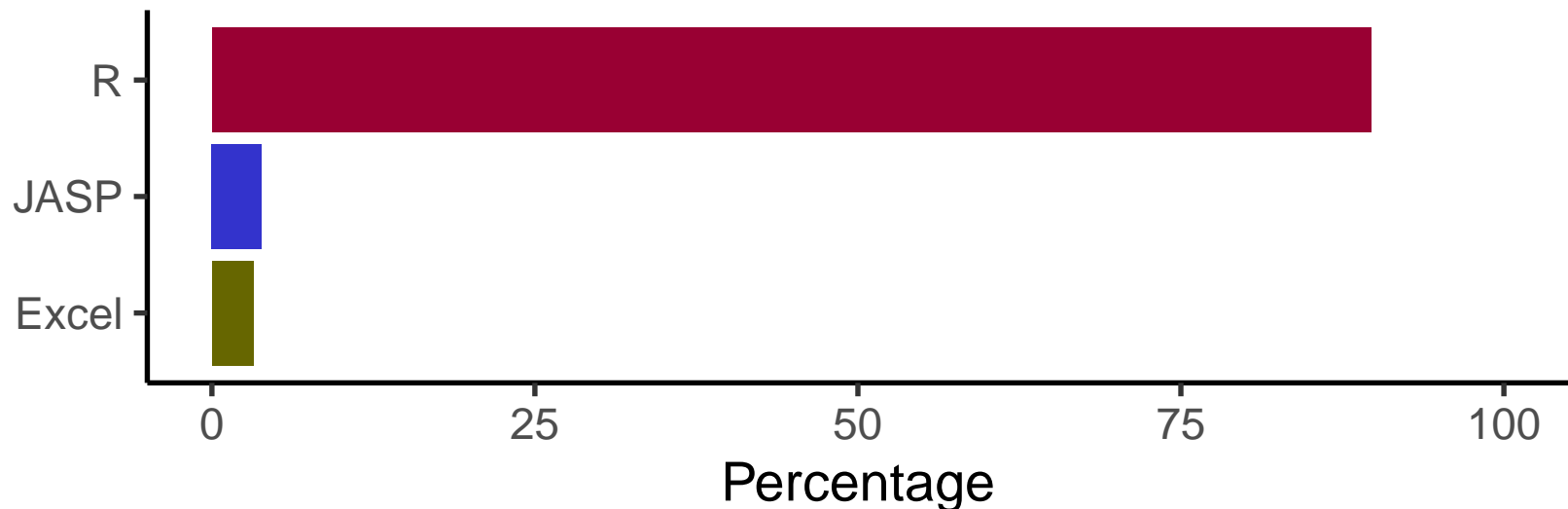
From SPSS to R

In 2021, our first R cohort graduated.
88% primarily used R in their final project.

Methodology: Data comprise 2020/21 PSYC605 dissertations submitted via the DLE before the referral period (N=133). Submissions containing no quantitative analysis were excluded (N=13), as were dissertations where the software used was not apparent (N=11). Where projects involved neuroscience (N=8), results indicate the software for behavioural analysis. The graph above does not represent two cases where idiosyncratic software was clearly used (JASP, and an online chi-square calculator).

From SPSS to R (2022 edition)

In 2022, our second R cohort graduated.
90% primarily used R in their final project.
SPSS didn't make the Top 3.

Methodology: Data comprise 2021/22 PSYC605 dissertations submitted via the DLE before the referral period (N=215). Submissions containing no quantitative behavioural analysis were excluded (N=26), as were dissertations where the software used was not apparent (N=33). The graph above represents the top 3 software choices, which overall account for 97% of choices. Both SPSS and Jamovi were chosen twice; Stata was chosen once.

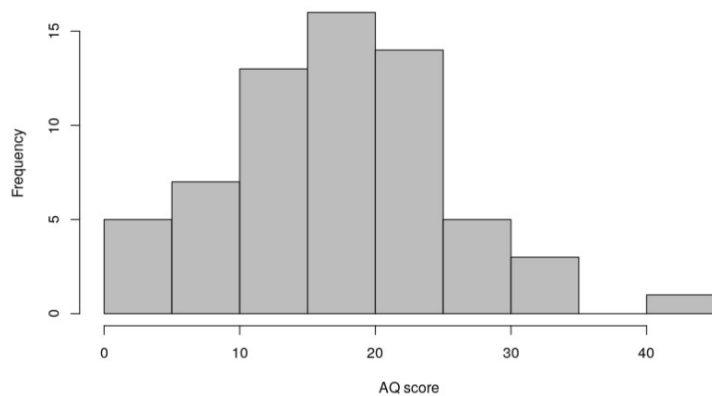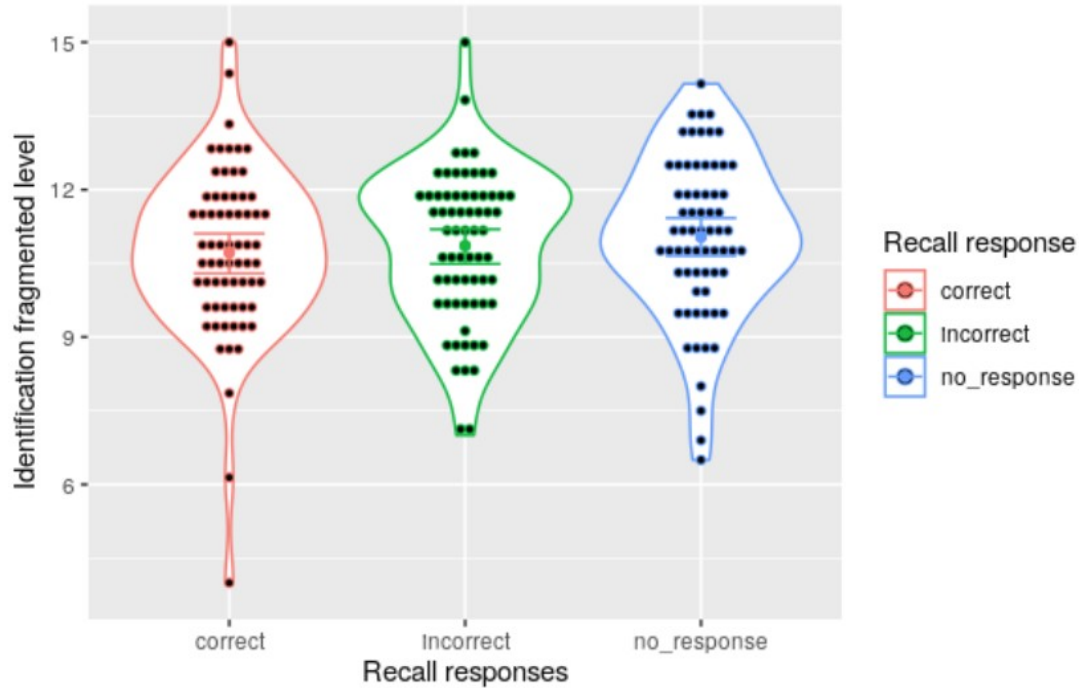# Majority Bayesian analysis

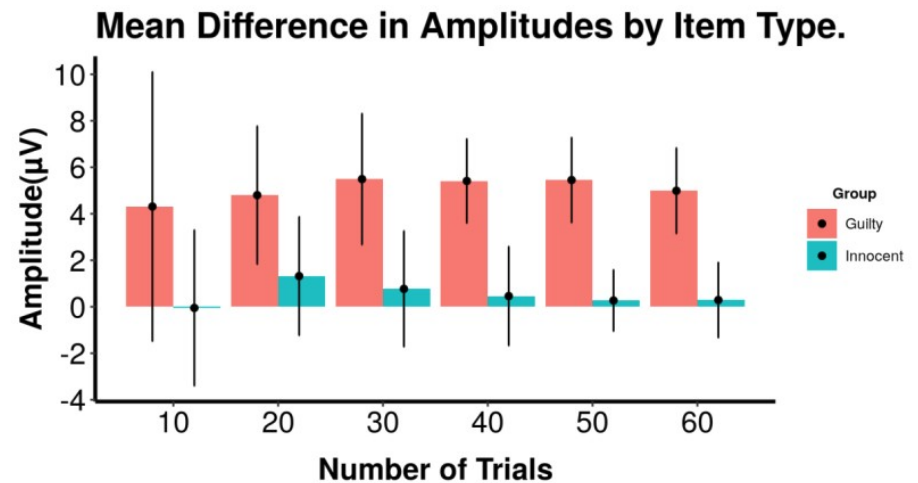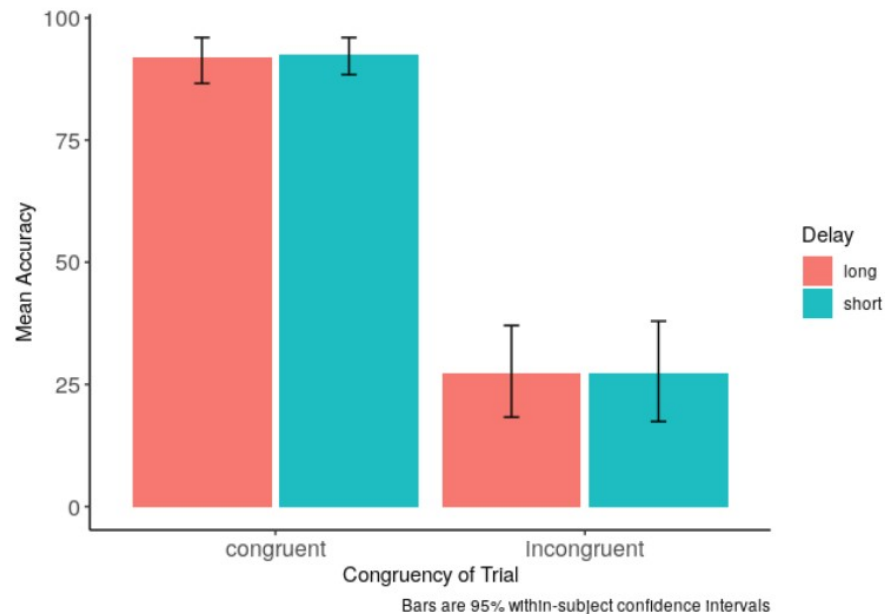In 2022, **two-thirds of students used Bayesian analysis** in their final project.
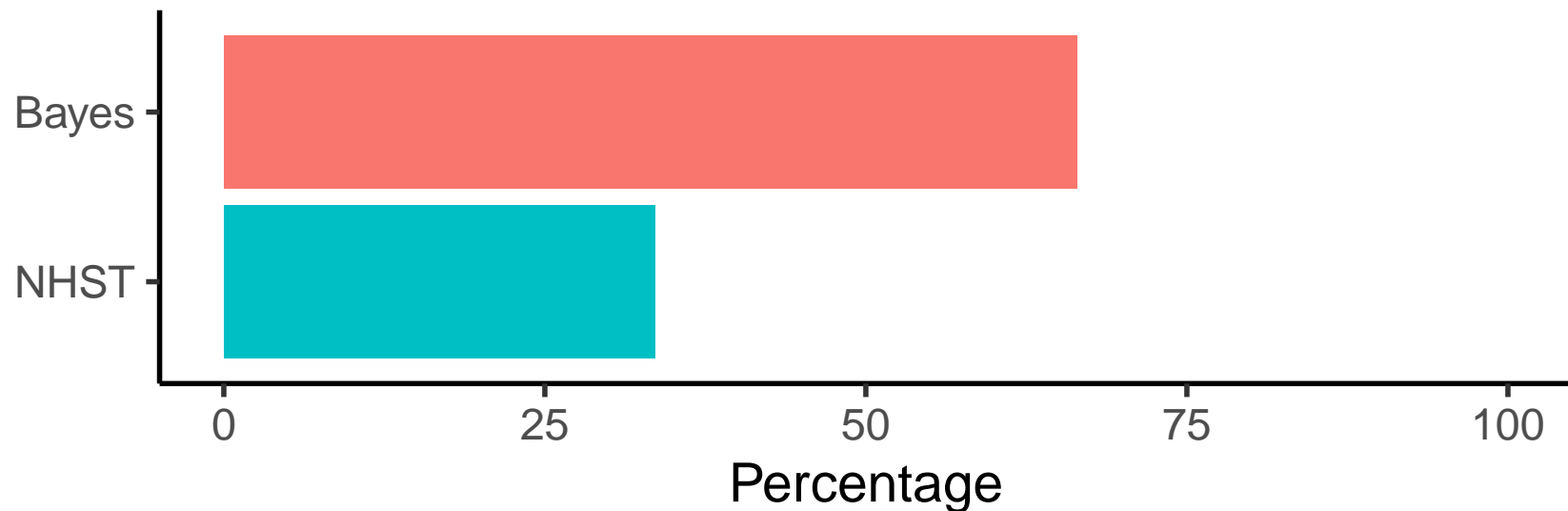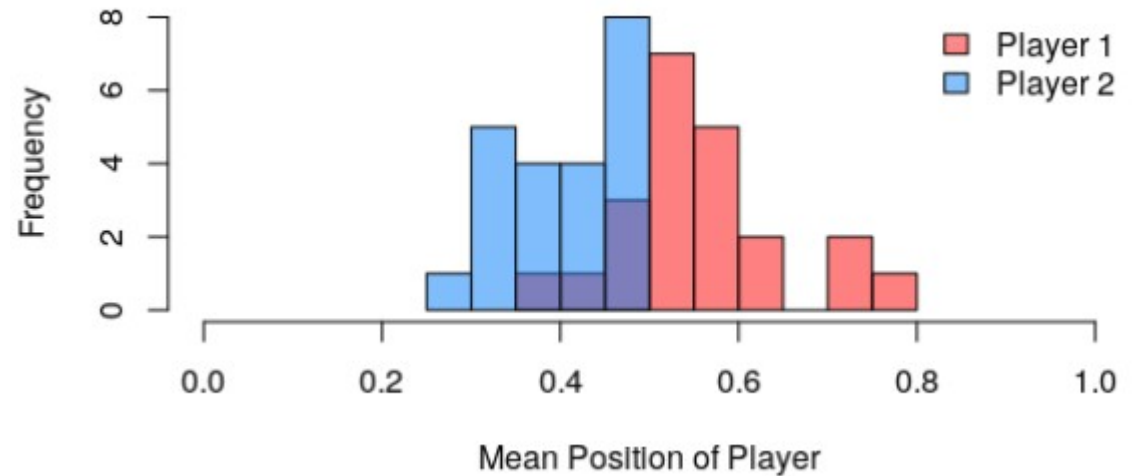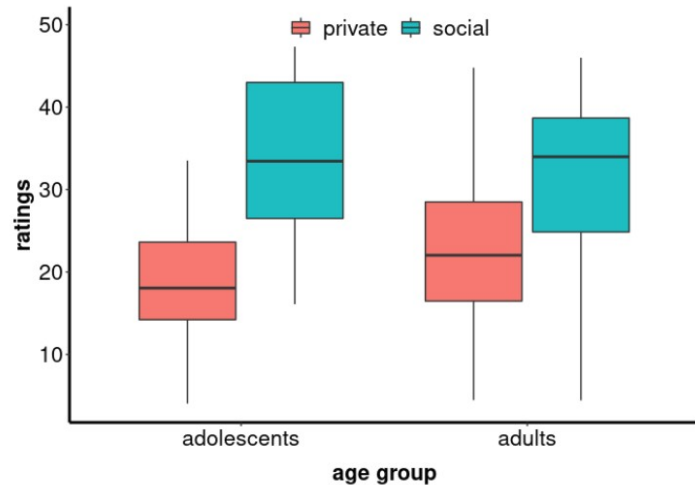

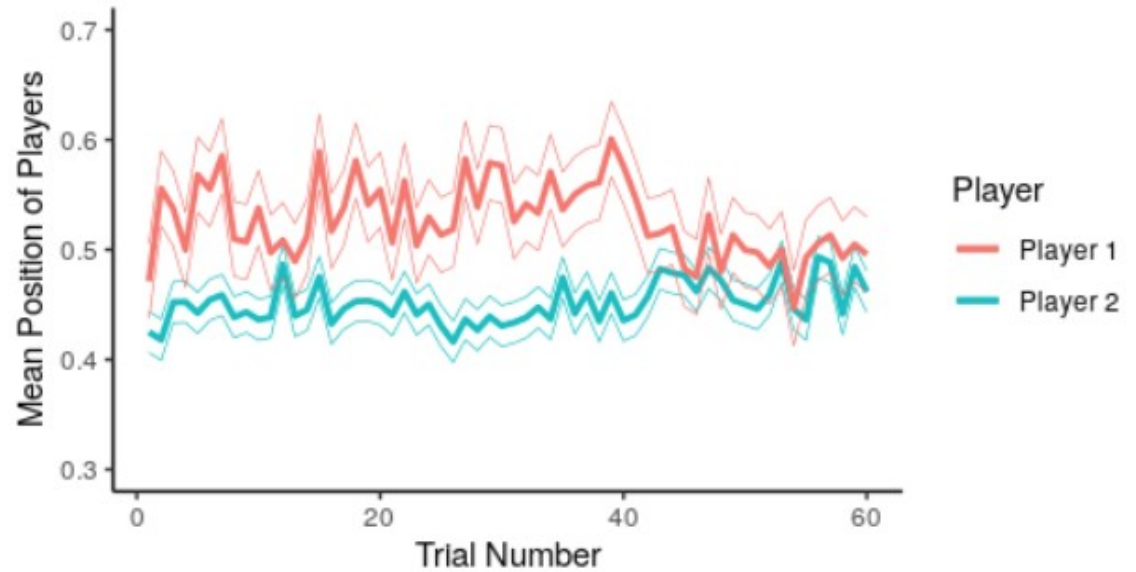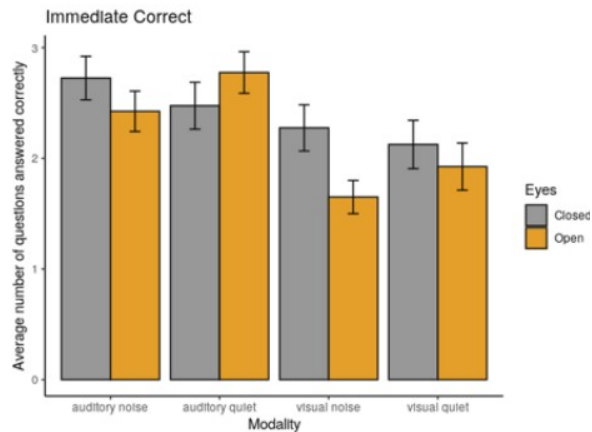Methodology: As previous graph

Beautiful graphs

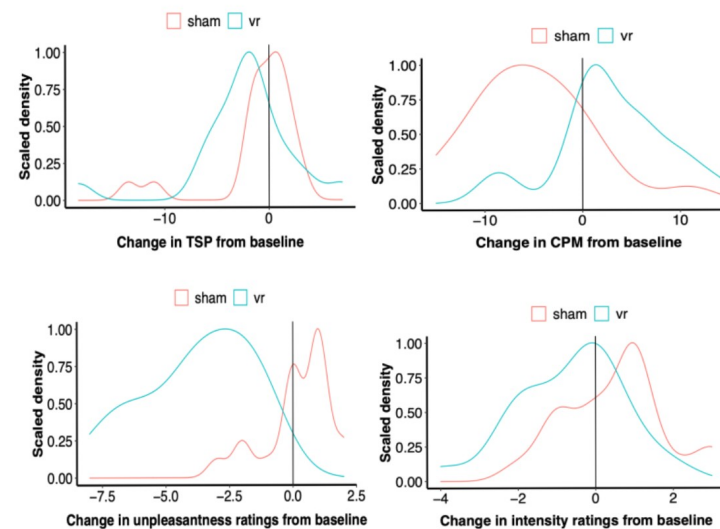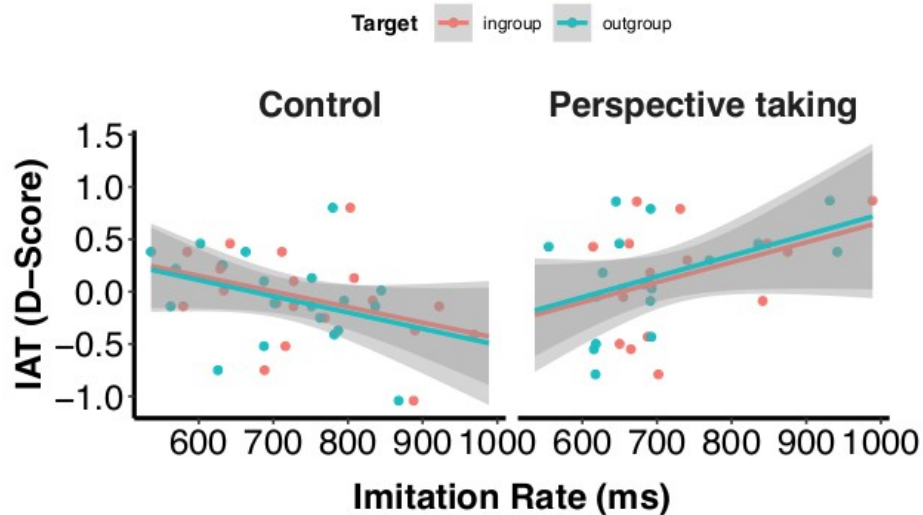*Here are some of the things they produced…*

R gallery (2021)
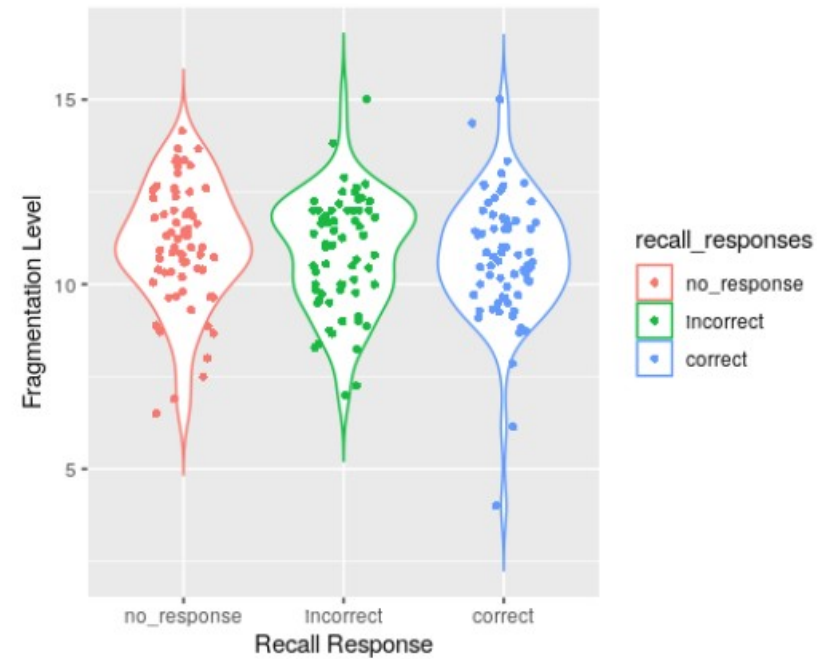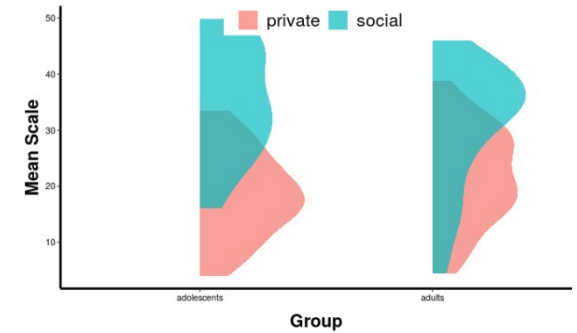
R gallery (2021)
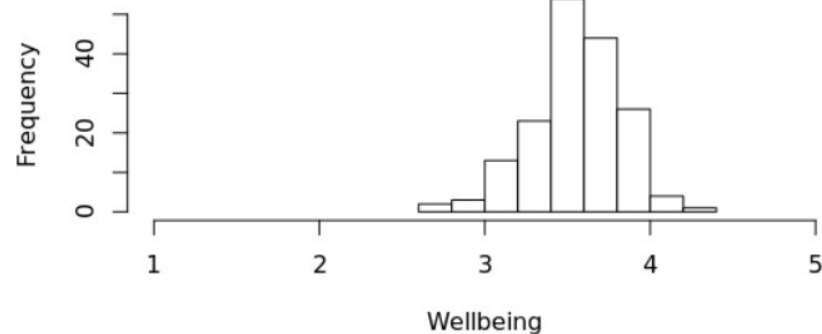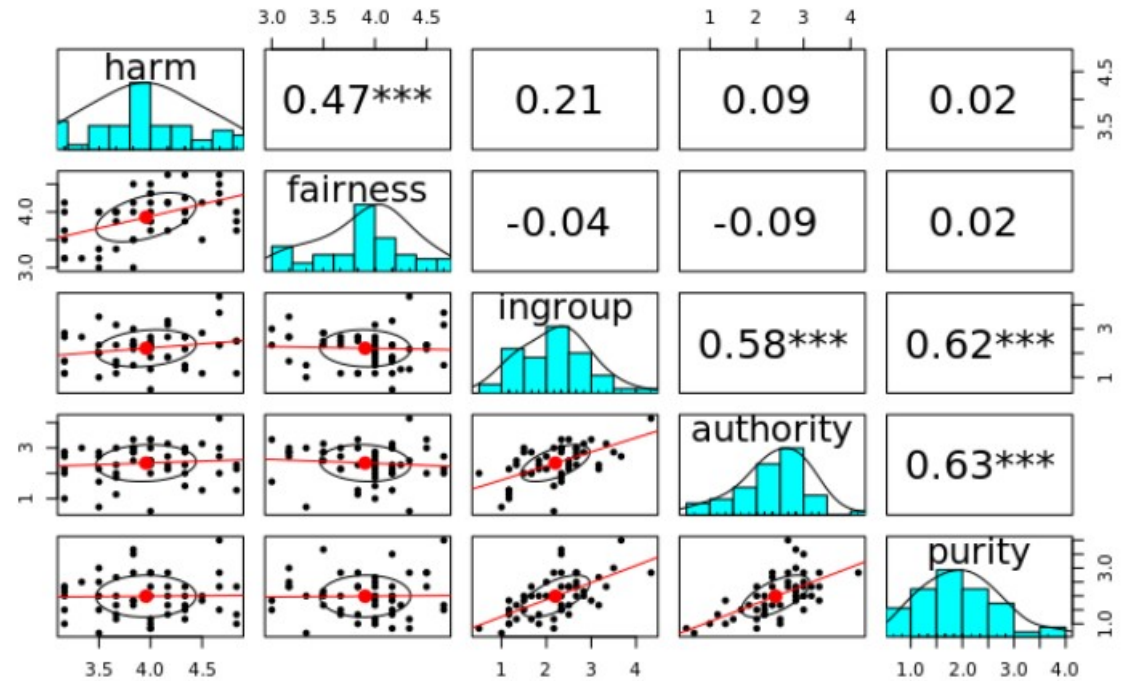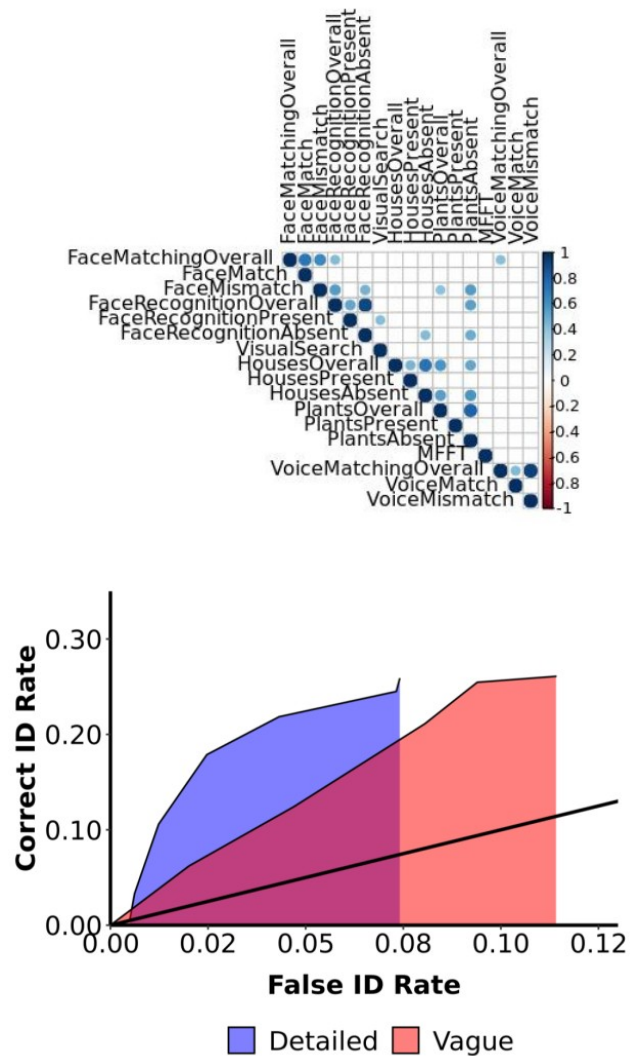
R gallery (2021)

R gallery (2022)

R gallery (2022)
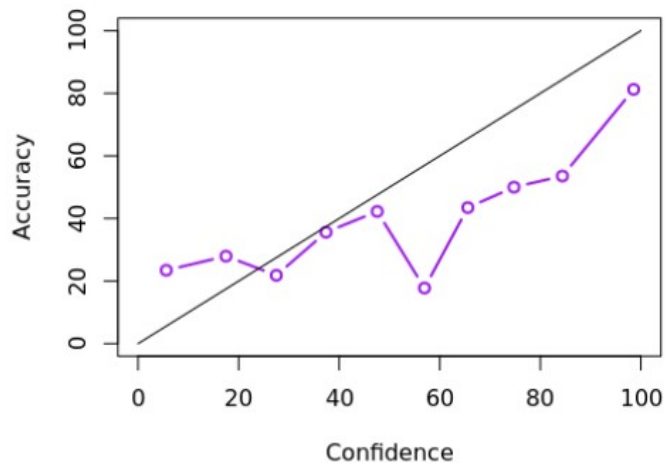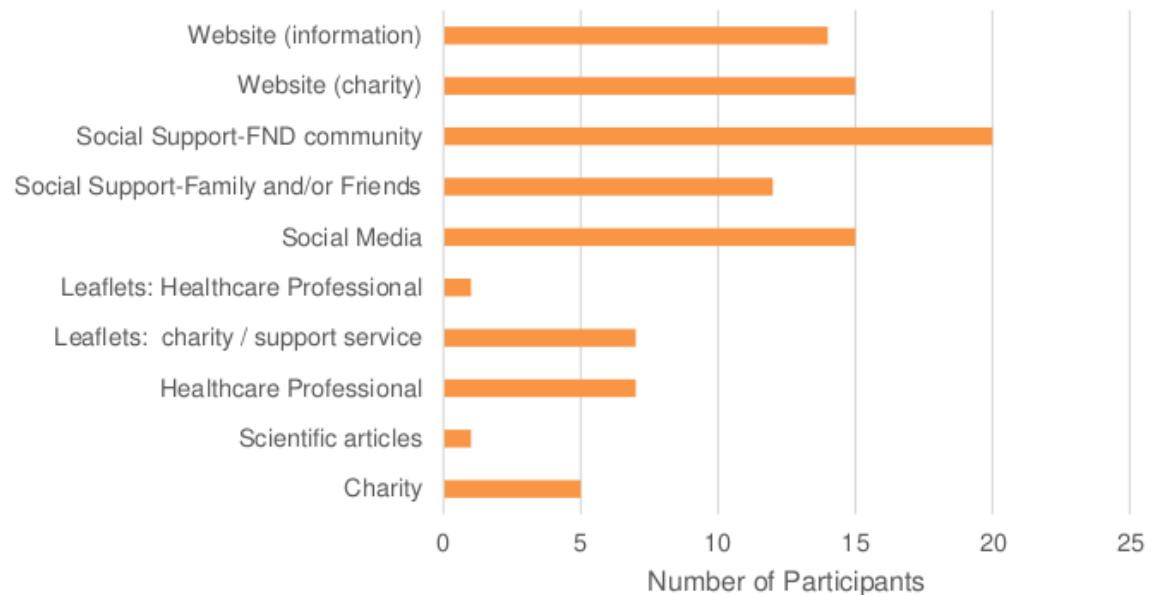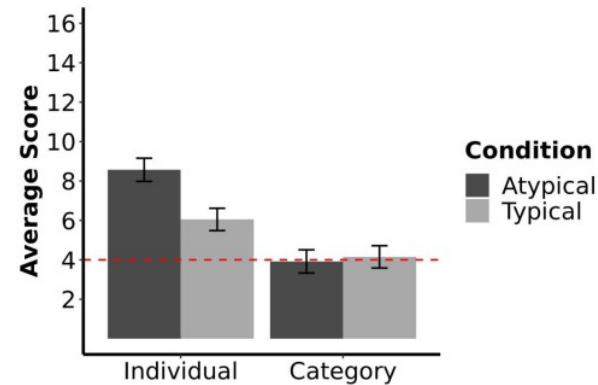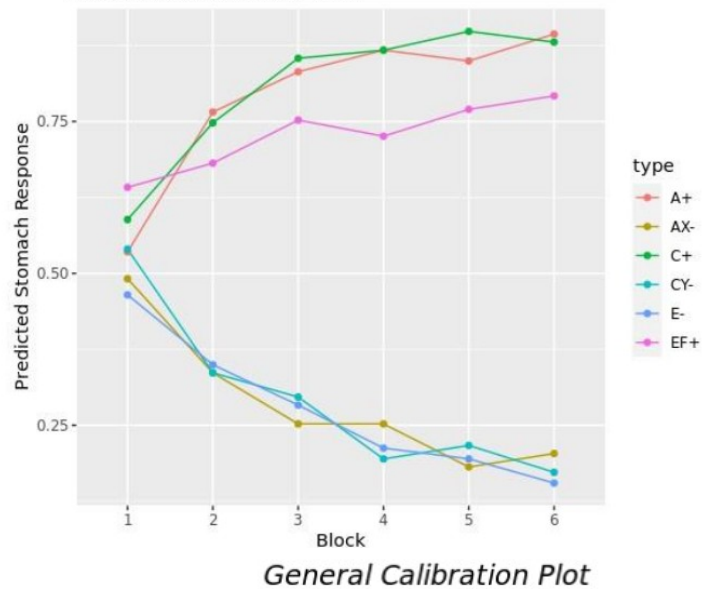
Outline

1st **Why teach R?** Nine reasons.

2nd **How to teach R.**

3rd **Organizational change.**

13

Why R?   Student experience
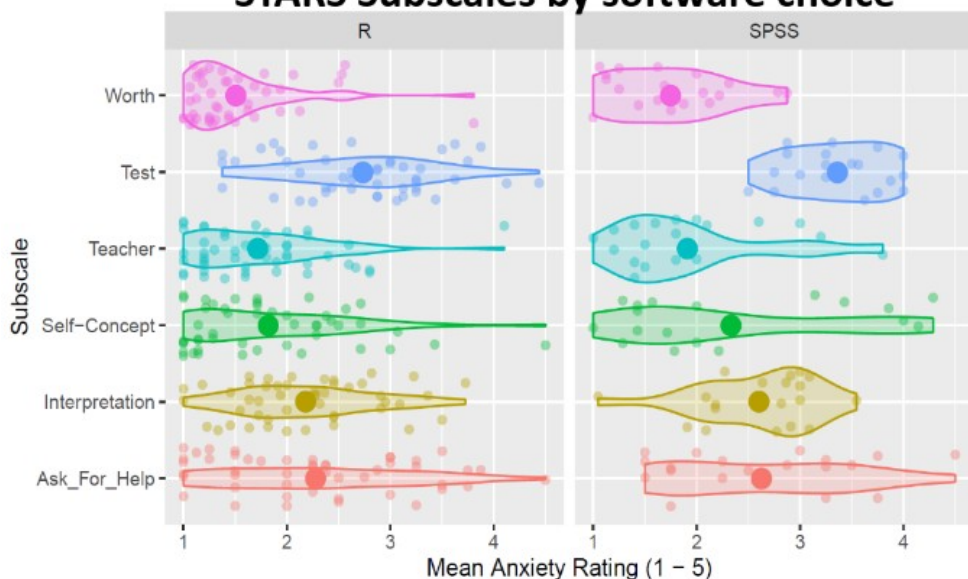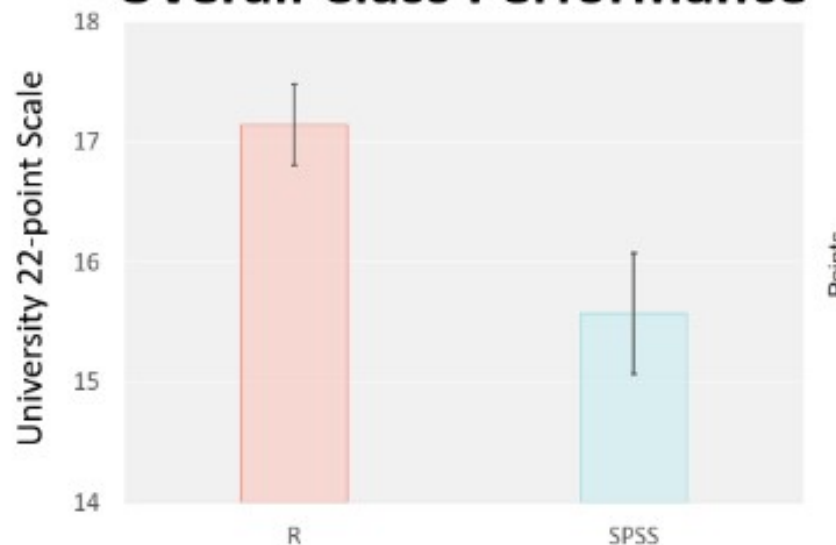
Why R? Employability

Why R? Free

SPSS

One year

One person

All features

$4032

Why R? Never out of date

Contributed Packages

Available Packages

Currently, the CRAN package repository features 18258 available packages.

≡ IBM | IBM Developer

Tutorial

Calling R from SPSS

An introduction to the R plug-in for SPSS

☆ Save   👍 Like

By Catherine Dalzell
Published October 31, 2013

IBM® SPSS® can talk to R. It's something of a well-kept secret,

Why R? Great at preprocessing
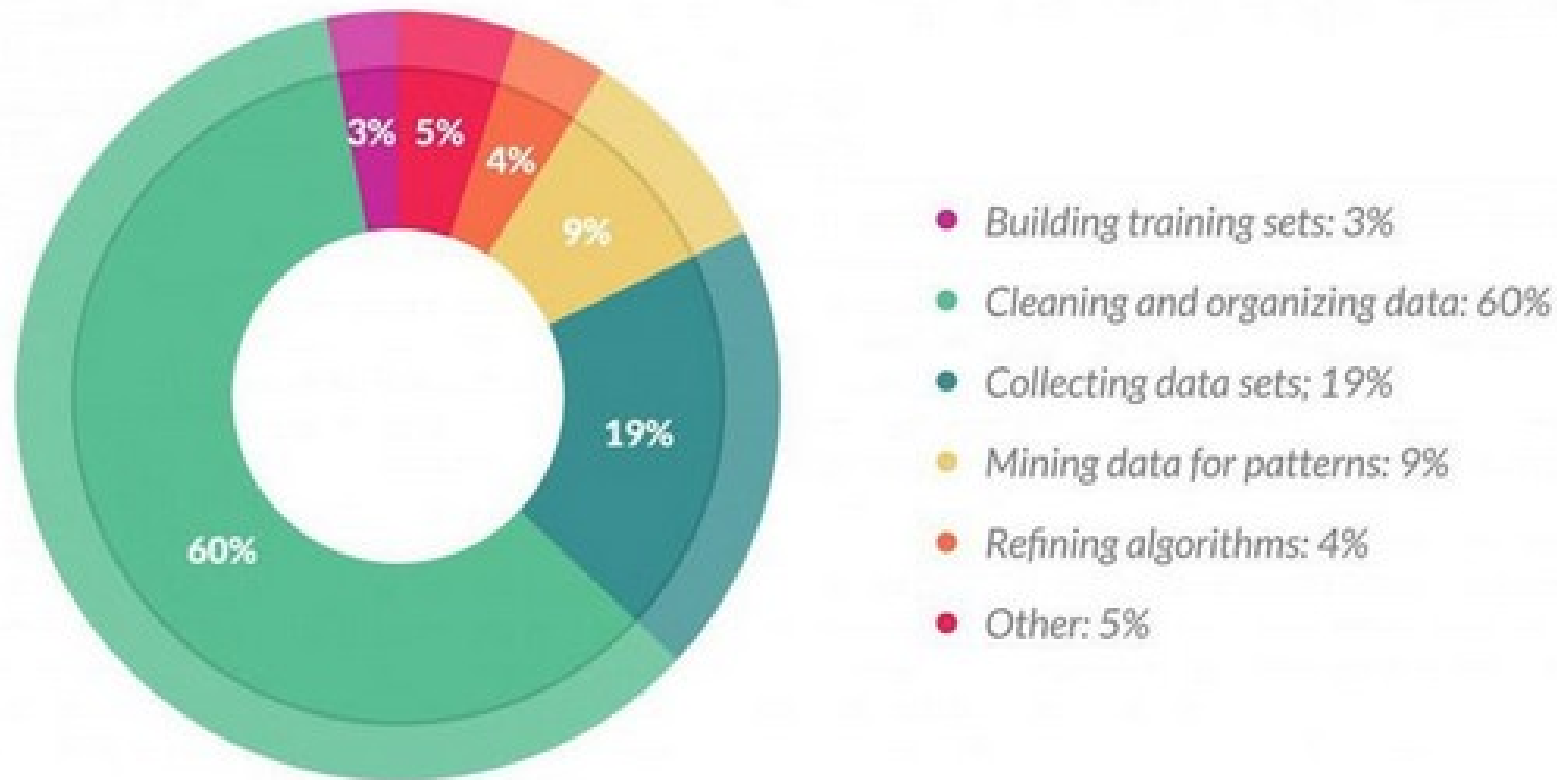
- Building training sets: 3%
- Cleaning and organizing data: 60%
- Collecting data sets: 19%
- Mining data for patterns: 9%
- Refining algorithms: 4%
- Other: 5%

Why R? Accurate

Microsoft Excel: The ruiner of global economies?

A paper used to justify austerity economics appears to contain an Excel error.

Why R? Reproducible


```
      A          B          C
1  ppt        staff      primary_soft
2  11294669   N▨▨▨▨      SPSS
3  11294836   ▨▨▨▨       R
```

```
## Analysis of 2020/21 dissertations

## Load
library(tidyverse)
dta  <- read_csv("outcomes.csv")

## Data is all PSYC605 dissertations submitted before referral

## Descriptives
nrow(dta) # N = 133
quant  <- dta %>% filter(primary_soft != "qual") # Remove qual projects
nrow(quant) # N = 120
quant  <- quant %>% filter(primary_soft != "unclear") # Remove unclear cases
N  <- nrow(quant) # 109
soft  <- quant %>% group_by(primary_soft) %>% summarise(N = n()) # Count softwares
soft$pc  <- soft$N * 100 / N
soft  <- soft %>% arrange(N)

## Graph
horbar  <- soft %>%
    ggplot(aes(x = reorder(primary_soft, N), y = pc, fill = primary_soft)) +
    ylim(0, 100) +
    geom_col() + coord_flip() + theme_classic() + ylab("Percentage") + xlab("") +
    theme(legend.position="none") +
    scale_fill_manual(values=c( "#666600", "#3333CC","#990033"))
horbar
ggsave(file = "horbar.pdf", plot = horbar, units = "cm", width = 12, height = 4)
```
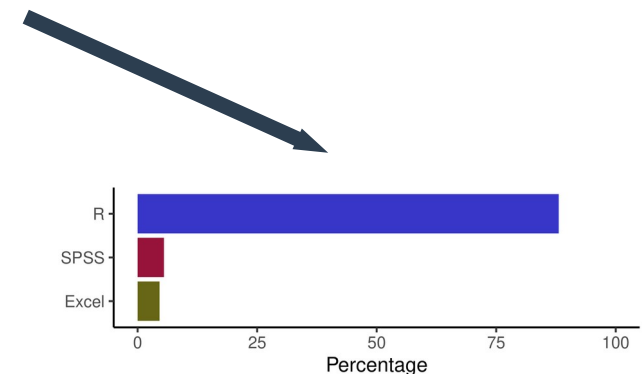
Why R? Open source

- **All software has bugs.** Making the source code available means it's more likely those bugs are found and fixed.

- **All software is abandoned by its creators.** Open source software only dies if no one in the world cares enough to maintain it.

Why R? Works inside a browser

How to teach R

- **Stats is a tool**
- **Training an apprentice**
  - Lots of practice on few techniques
  - Build competence by fading support
  - Breadth through optionality

- **Cohort roll-out**

  2017: Planning
  2018: Stage 1 R
  2019: Stage 1+2 R
  2020: Dissertation students only know R.

- **Support from Head of School**

- **Curriculum Review Group**

- **Applied social psychology**
  - Care more.
  - Work harder, longer, more persistently.
  - Have better arguments.
- **Communication**
  - Synchronous versus asynchronous
- **Staff training**

Newport, C. (2021)

- **Written materials**
  - andywills.info/rminr (Creative Commons)
  - Trial your materials
  - Systems for co-authorship
  - Maintaining oversight
- **Minimize tech support**
  - psyrstudio.plymouth.ac.uk
    - 1200 users, 100 simultaneous.
    - 16 core, 128GB – never exceeds 50% utilization.
    - Integrates with UoP single sign-on.

Questions?

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