Lab 9

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Contents

Problem 1

Your task is to obtain the data from the following paper and conduct a reproducible analysis of their results. Rosenbaum, D., Mama, Y., & Algom, D. (2017). Stand by Your Stroop: Standing Up Enhances Selective Attention and Cognitive Control. Psychological science, 28(12), 1864-1867.

The re-analysis should focus only on Experiment 3. There are three main goals

Reproduce as much of the analysis as possible using only paired-sample t-tests. Note, the authors reported a 2x2 repeated measures ANOVA, but consider how the same questions could be answered by t-tests (2 points)

```
data <- read.csv("open_data/stroop_stand.csv")
```

Stand Stroop effect

```
stand_stroop <- t.test(data$incongruent_stand,
                       data$congruent_stand,
                       paired = TRUE)
```

Sit Stroop effect

```
sit_stroop <- t.test(data$incongruent_sit,
                     data$congruent_sit,
                     paired = TRUE)
```

The authors wrote:

The Stroop effects in both the sitting condition, M = 118.9 ms, t(49) = 16.52, p < .01, d = 2.376, and the standing condition, M = 95.9 ms, t(49) = 14.327, p < .01, d = 2.034, were highly reliable…

Our reproduction of the analysis found:

The Stroop effects in both the sitting condition, M_d = 118.86, 95% CI [104.40, 133.33], $t(49)$ = 16.52, $p < .001$, and the standing condition, M_d = 95.95, 95% CI [82.49, 109.41], $t(49)$ = 14.33, $p < .001$, were highly reliable.

Problem 2

Reproduce a graph of the means, like shown in the paper (2 points)

Problem 3

Present a power-curve analysis for the design. (2 points)