MockingTest-adapted

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1. Stroop test

1.1 Import the data and plot them in a useful way

```
stroop = read.csv("stroop_test.csv")
stroop$Time = as.factor(stroop$Time)
g1.1 = ggplot(data = stroop,
              mapping = aes(x = Time, y = Score)) +
  geom_boxplot(mapping = aes(color = Time)) +
  geom_point(mapping = aes(color = Time)) +
  scale_color_manual(values = c("orange", "purple")) +
  geom_jitter(width = 0.2,
              mapping = aes(color = Time)) +
  guides(color = guide_legend(override.aes = list(size = 2, alpha = 0.5))) +
  theme(
    axis.text.y = element_text(size = 12),
    axis.text.x = element_text(size = 12),
    axis.title.x = element_text(size = 12),
    axis.title.y = element_text(size = 12)
  )

g1.1
```

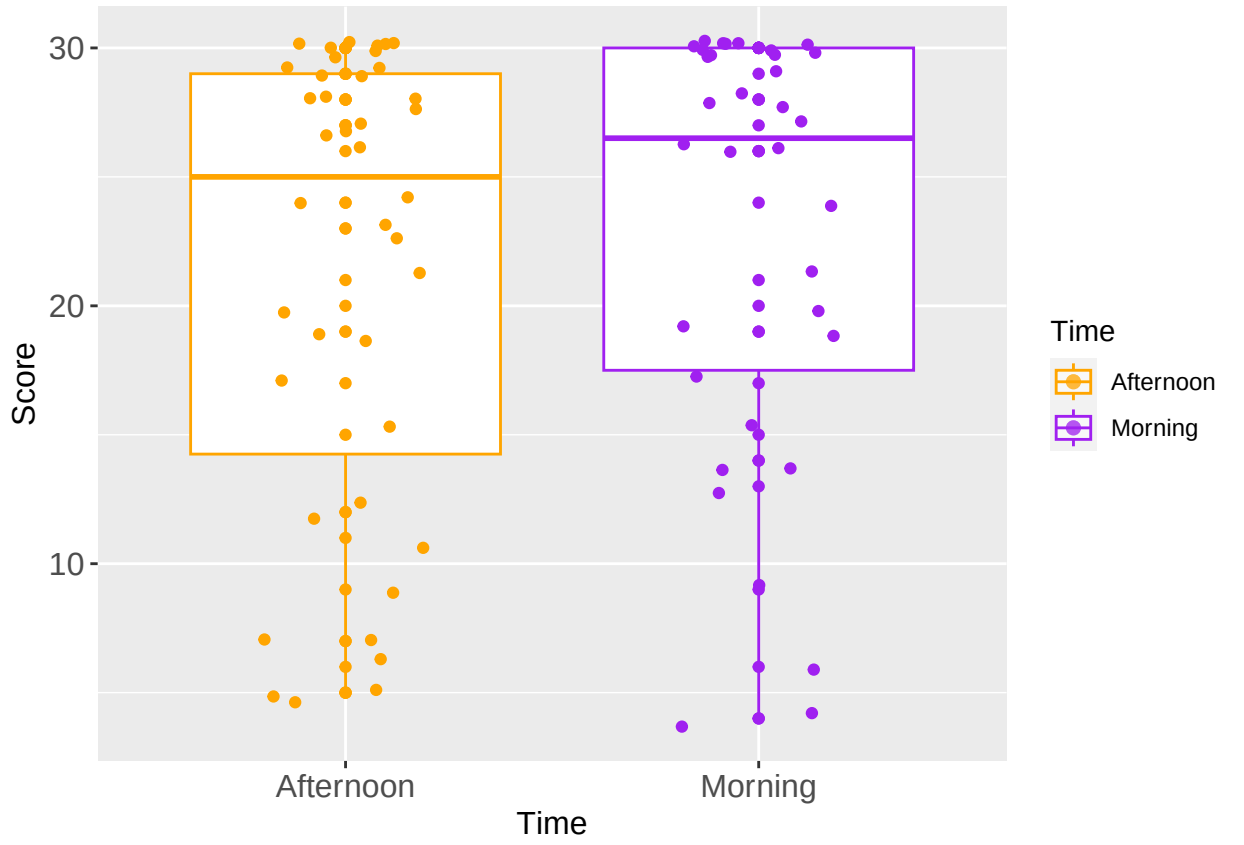

Figure 1. Score of the morning and the afternoon group.

1.2 Is there a difference in performance on the Stroop task between the morning and afternoon group?

T-test analysis of permance difference

```
t.test(stroop$Score ~ stroop$Time, alternative = "two.sided")
```

```
##
##  Welch Two Sample t-test
##
## data:  stroop$Score by stroop$Time
## t = -0.68147, df = 71.123, p-value = 0.4978
## alternative hypothesis: true difference in means between group Afternoon and group Morning is not equ
## 95 percent confidence interval:
##  -5.409583  2.653701
## sample estimates:
## mean in group Afternoon   mean in group Morning
##                21.47500                22.85294
```

Interpretation of t-test results

- H0: There is no difference in means between group Afternoon and group Morning.

- HA: There is difference in means between group Afternoon and group Morning.
- p-value=0.4978 $>$ 0.05
- We cannot reject H0.
- There is insufficient evidence that there is difference in means between group Afternoon and group Morning.

1.3 Name one way in which the study could be improved or followed up on.

1. For one subject in the subject, test his or her score both in the morning and the afternoon.
2. Then, use paired t-test to test whether there is performance difference.