PROJECT

->1. Independent variable is word whether it is congruent or incongruent.

Dependent variable is time taken to read the ink/color of the word.

->2. Null Hypothesis (H0): Time taken to read ink of congruent words is same to the time taken to read color of incongruent words.

Alternate Hypothesis (Ha): Time taken to read ink of incongruent words is not same as time taken to read color of incongruent words.

H0: Uc = UI

Ha: Uc ≠ UI

Uc = Time taken to read ink of congruent words.

UI = Time taken to read color of incongruent words.

Statistics to perform: A two tailed T-test comparing the difference between time taken to read color of incongruent words and congruent words. With this test we check whether we have evidence to prove that that congruent word's color is easy to read and takes same time as that of incongruent words.

To test the hypothesis, I use two-tailed paired t-test because one the test is non-direction, so the p-value is the two-tailed probability; two we need compare the means of two groups (comparing two dependent samples of data); thus each participant is involved under both conditions.

The assumptions made here are:

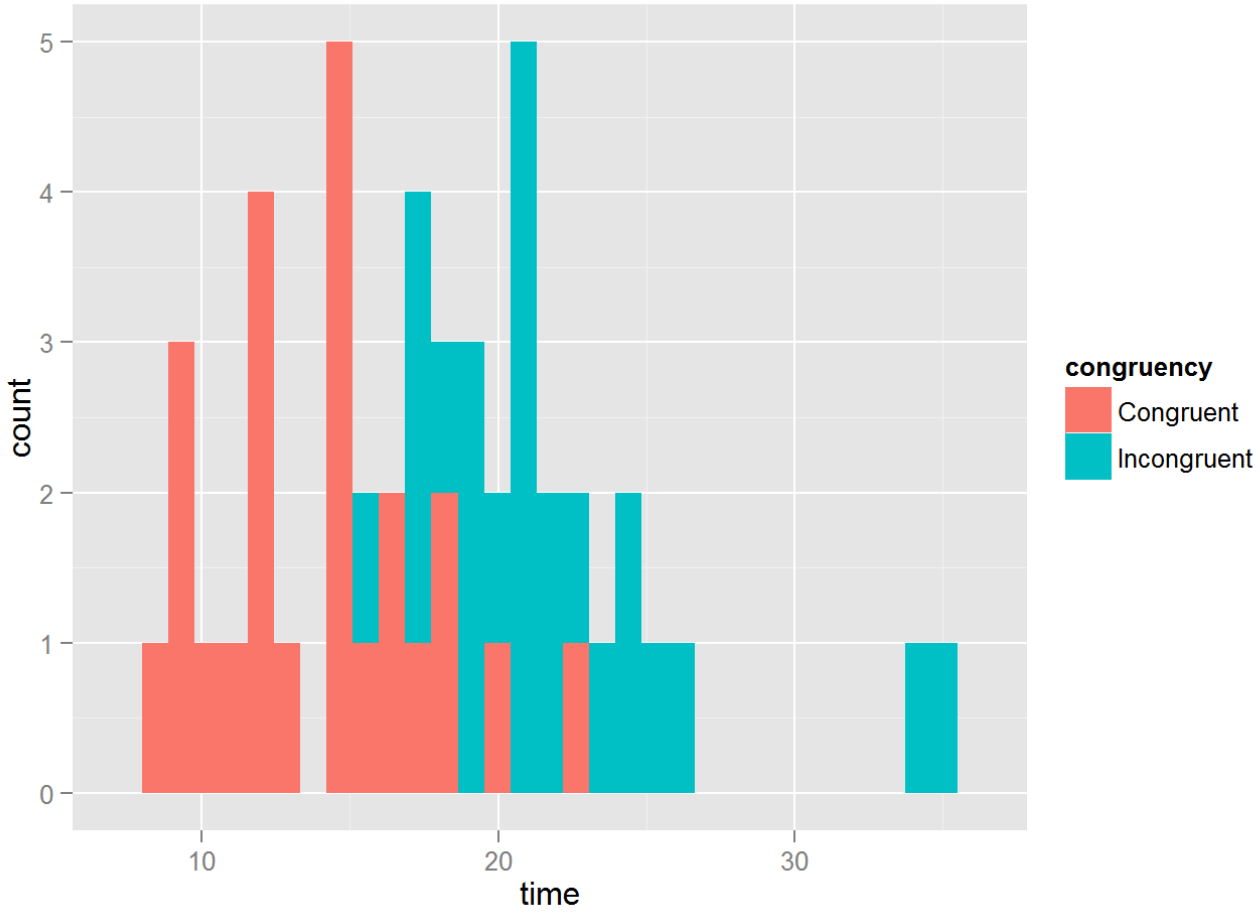
- the sample is less than 30
- The population standard deviation is unknown (estimated from your sample data). So we cannot use Z-test.

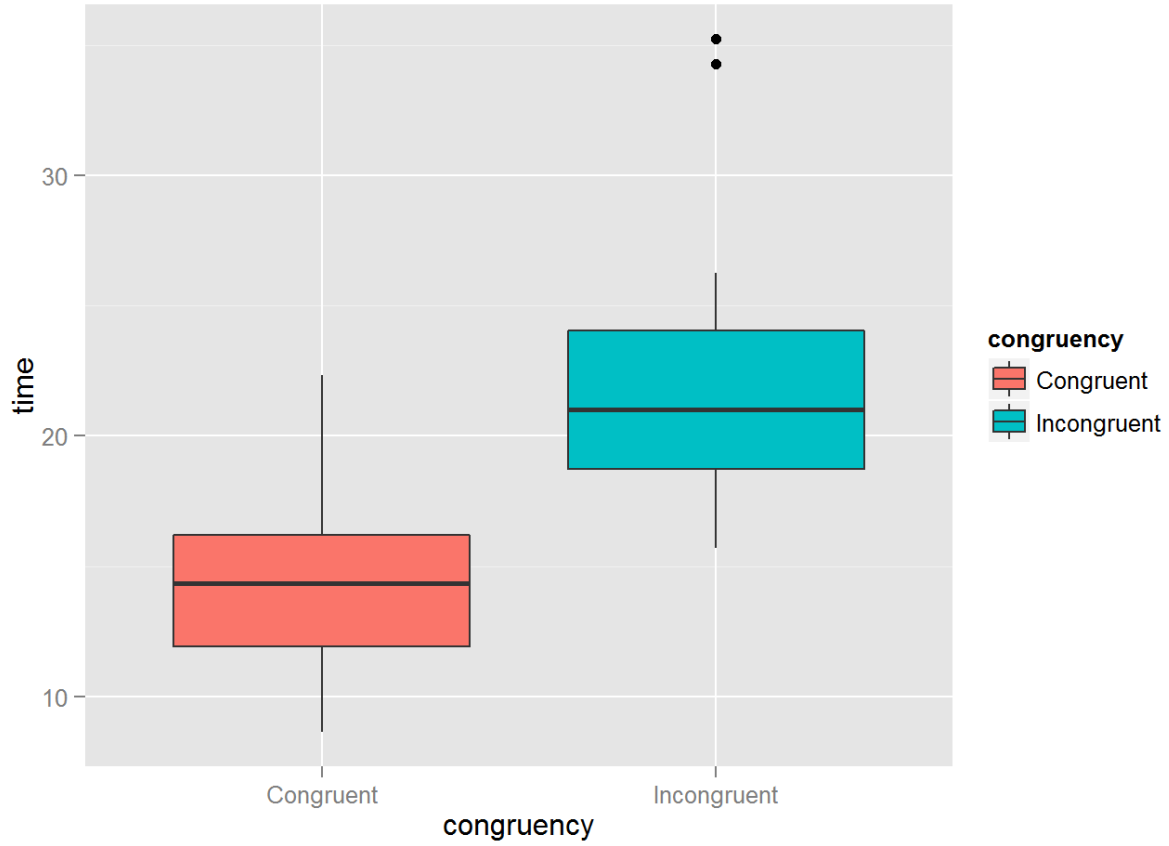
->3.

Statistics	Congruent Dataset	Incongruent Dataset
Mean	14.05	22.01
Standard Deviation	3.55	4.79

Median	14.35	21.01
S.E	0.72	0.97

->4.





From this we can infer that incongruent reading takes always more time in the sample than congruent reading. The box plot shows that median of incongruent words is much higher than congruent and also the range. So we expect to reject null hypothesis from the inference of graph.

->5.

α = .05

df = 23

tcrit = -2.068

t-stat = -8.02070

At 95% CI: (-25.352,9.42314)

p-value = .4103E-08

There is sufficient evidence at the $\alpha = .05$ level of significance to support the claim that the time taken to recognize the color of words with the congruent condition is different compared to words with the incongruent condition. I reject null hypothesis.

->6. My hypothesis for the effects observed is that we humans focus more on reading first than recognizing the color of the word.