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10. Complete the following assignments prior to Meeting #30:

A. Study our notes from Meeting #29.

B. From Canvas study the sample response to Quiz #29's prompts

C*. Comprehend the following case:

An educational psychologist conducted a study to assess the relationship between the vocabulary acquisition of pre-school children and their inclination to think divergently. She administered a vocabulary test as well as a divergent-thinking test to a single pseudo-random sample of 150 four-year olds. The resulting string of bivariate data X is of the following form:

$$X = ((v_1, d_1), (v_2, d_2), (v_3, d_3), ..., (v_{150}, d_{150}))$$

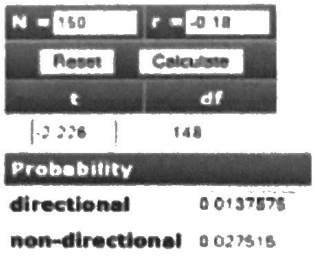
The resulting sample statistics are as follows:

$$n = 150 \wedge r = -0.10$$

She tested the following null hypothesis via a t-test for correlations:

$$H_o : \rho_x = 0$$

The calculation from http://vassarstats.net/textbook/ch4apx.html provided the following results:



Because the *t* value was such that $p < 0.05$, the researcher rejected H_o.

Examine each of the following propositions to determine its truth value; indicate your choice by circling either "T" or "F" and then write a paragraph defending your choice (upload the resulting document to the indicated assignment section of *Canvas*) :

i. The results of the *t*-test indicated that the correlation coefficient is statistically significant.

(T) F

This is true. The small probability value means there was enough statistical evidence to make the correlation coefficient statistically significant.

ii. The results of the *t*-test indicated that there is a causal effect between vocabulary acquisition and inclination for divergent thinking among four-year old children represented by the study sample.

T (F)

This is false because correlation ≠ causation. You can't generalize these results to conclude a cause and effect relationship

iii. The results of the *t*-test indicated that $|r|$ is so deviant from 0, that H_o should be rejected.

(T) F

Because the probability value was so small, H_0 should be rejected. That means that there is other factors contributing to the correlation.

iv. Based on the results of the study, a Type I error is possible but it is impossible to have a Type II error.

(T) F

Because the researcher rejected the null hypothisis, Type I could be possible. But that also means type II error is impossible