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How do you interpret a confidence interval?

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Suppose you calculate a 95% confidence interval for some unknown parameter μ (the true price all UNL students spent on books).

IT IS INCORRECT TO SAY:

"There is a 95% probability that μ (the average price all UNL students spent on books) is within this interval"

Why is it Incorrect?

The confidence interval you compute is NOT a random interval and μ is a constant (unfortunately unknown to us), thus there is no randomness. In fact, μ either falls in that interval or it does not.

What is the Correct Interpretation?

"We are 95% confident that if μ (the average price all UNL students spent on books) were known, this interval would cover/contain it"

Note: The probability refers to the interval containing μ, not on μ being in the interval

Why is this?

A 95% confidence interval is not so much a statement about any particular interval, such as (79.3, 80.7), but pertains to what would happen if a very large number of like intervals were to be constructed. That is, from a practical point of view, the 95% gives the fraction of the time, in repeated sampling, that the intervals constructed will contain the target parameter μ.