1. True or False

(a)

1/2 points (graded)

Suppose that according to a fixed statistical model, a pair of hypotheses, and a test ψ_α, we observe a sample and compute the $p$value to be $p = 0.01$. For each of the following groups of statements, select the one that is necessarily true. If there is none, select "None of the above."

Which of the following is necessarily true?

- Any test ψ_α that rejects H_0 for this observation will have a Type 1 error of at most 0.01.
- Any test ψ_α that rejects H_0 for this observation will have a Type 2 error of at most 0.01.
- Any test ψ_α that does not reject H_0 for this observation will have a Type 1 error of at most 0.01.
- Any test ψ_α that does not reject H_0 for this observation will have a Type 2 error of at most 0.01.
- None of the above.

Generating Speech Output

Which of the following is necessarily true?

- There is exactly a 0.99 chance for the null hypothesis to be true.
- There is exactly a 0.99 chance for the null hypothesis to be false.
- There is exactly a 0.01 chance for the alternative hypothesis to be true.
- There is exactly a 0.01 chance for the alternative hypothesis to be false.
- None of the above ✔

Submit You have used 2 of 2 attempts

✱ Partially correct (1/2 points)

(b)

1/1 point (graded)

Consider a statistical experiment $X_1, \dots, X_n \overset{iid}{\sim} P_{\theta^*}$ with an associated statistical model $(E, \{P_\theta\}_{\theta \in \Theta})$. You perform a hypothesis test on the true parameter θ^* via a statistical test ψ.

Which of the following is true about the p-value associated to this statistical experiment?
(Choose all that apply.)

- The set of all possible values that the p-value can take varies depending on the distribution P_θ. For example, one distribution may have p-values in $(0, \infty)$, while another may be constrained to a discrete set like $\mathbb{Z}_{\geq 0}$.

Generating Speech Output

☑ Regardless of the distribution of $X_1, \ldots, X_n$, the p-value lies in the interval $[0, 1]$.

☑ The p-value will vary from one statistical experiment to another (*i.e.*, it varies depending on the particular sample), but it will always take values between 0 and 1.

✔

Submit You have used 1 of 2 attempts

Discussion

Hide Discussion

Topic: Unit 2 Foundation of Inference:Homework 3: Introduction to Hypothesis Testing / 1. True or False

Add a Post

Show all posts ▼ by recent activity ▼

? Extension due to Rosh Hashanah — 3 new
I haven't previously asked about an extension, although I'm grateful they happened, but this week in particular, I'm sure many of us will be with family celebrating Rosh Hasha...

? second part of question (a) — 2
What is the meaning of "probability of a hypothesis to be true"?

? First part of question (a) seems way too general.... — 3
I mean...**any** model, **any** pair of hypothesis and **any** test? really? I can't discuss further without giving at least a partial answer, so I'll wait until after the deadline, ...

? Where are the lectures? — 3
I can see homeworks but I missed lecture 6/7, problems with upload? I have checked up the scheduled and lessons should have been released yesterday night

Learn About Verified Certificates

Generating Speech Output