Week 2: Changing Probabilities into Conditional Probabilities

Describe a situation where you see probabilities or might see probabilities. Then present this probability as a conditional probability. In response, other students can make assumptions about the conditional probability table that could accompany such a situation and pose a question for a specific probability. Finally, a third student can show the work of solving the probability. Your first post should start a new probability discussion only!

This topic was locked Jan 16 at 11:59pm.

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Jan 8, 2022Jan 8 at 11:35pm

Manage Discussion Entry

Dear students,

Welcome to Week 2 discussion.
Please answer the following questions:

Describe a situation where you see probabilities or might see probabilities. Then present this probability as a conditional probability. In response, other students can make assumptions about the conditional probability table that could accompany such a situation and pose a question for a specific probability. Finally, a third student can show the work of solving the probability. Your first post should start a new probability discussion only!

I look forward to reading your posts.
Please, do not forget to participate at least three different days during our week.

Conversational posts are allowed and encouraged, but they **will not count for grading purposes!**

Make sure that **THREE** of your posts for the week are Statistical in nature **AND** a direct response to the problems given above. Remember:

EACH STUDENT NEEDS TO POST A MINIMUM OF 3 TIMES PER WEEK ON 3 DIFFERENT DAYS WITH THE FIRST POST NO LATER THAN WEDNESDAY!

Best,
PM
Edited by Penka Marinova on Jan 8 at 11:38pm
Read More

- Collapse SubdiscussionKevin Prego

Kevin Prego

Jan 9, 2022Jan 9 at 9:05am
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Hi Class & Professor,

Suppose there are three boxes where a prize is hidden in one of them. At this point, you have a 1 /3 probability of picking the prize if you randomly select one of the three boxes (e.g, P(winning)=1 /3).

Now, if you selected a box (but have yet to open it) and are told that one of the remaining boxes is empty, you are asked whether you would like to change your choice of selection. You can easily verify using Bayes' Rule that P(winning I change selection)=2/3, so it is in fact a better decision for you to change your selection.

Thanks,

Kevin
Edited by Kevin Prego on Jan 9 at 9:07am
(1 like)

- Weitang Shao

Weitang Shao

Jan 14, 2022Jan 14 at 8:58am
Manage Discussion Entry

Kevin, I like it when you using Bayes' Rule

Bayes rule provides us with a way to update our **beliefs** based on the arrival of new, relevant pieces of **evidence**.

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

The rule has a very simple derivation that directly leads from the relationship between joint and conditional probabilities. First, note that P(A,B) = P(A|B)P(B) = P(B,A) = P(B|A)P(A). Next, we can set the two terms involving conditional probabilities equal to each other, so P(A|B)P(B) = P(B|A)P(A), and finally, divide both sides by P(B) to arrive at Bayes rule.

Collapse SubdiscussionPenka Marinova

Penka Marinova

Jan 11, 2022Jan 11 at 7:44pm

Manage Discussion Entry

Let's try one question from your HW this week:

"A student randomly guesses the answers to a five-question **true/false** test. If there is a 50% chance of guessing correctly on each question, what is the probability that the student misses **exactly 1** question?"

I look forward to checking your answers,

Best,

PM

Collapse SubdiscussionAshley Tuchfarber

Ashley Tuchfarber

Jan 12, 2022Jan 12 at 9:30am

Manage Discussion Entry

"A student randomly guesses the answers to a five-question **true/false** test. If there is a 50% chance of guessing correctly on each question, what is the probability that the student misses **exactly 1** question?"