Goat a Feeling I Should Switch: A Study of Whether Switching Doors in the Monty Hall Problem Increases Your Chances of Winning

Spaeth Jr., George (School: Park Christian School)

The Monty Hall problem refers to a question that was asked in the television game, “Let’s Make a Deal”, whose host is Monty Hall. In this question a contestant chooses between three doors, only one of which has a prize. After Monty reveals a losing door, the contestant is given the option to switch from their original choice to the remaining unopened door. This project is to test whether switching doors increases the probability of choosing the correct door. Participants were presented with a hypothetical version of the Monty Hall problem. After choosing a door, one of the other two doors was opened, and the participants were given the option to switch to the remaining unopened door. Their final choice was recorded. Results show that participants who switched answered correctly 88.24% of the time, while those who did not switch answered correctly 34.88% of the time. These results indicate that switching doors increases the participants’ chance of answering correctly. These results can be described mathematically with conditional probability and Bayes’ theorem, which results in a 1/3 chance of answering correctly when staying and a 2/3 chance of answering correctly when switching. Intuitively, these probabilities become more apparent when increasing the number of doors in which the likelihood of the initial choice being correct is very low. Future experimentation may involve increasing the number of participants for more precise results.

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