

LEEPS

The Monty Hall Problem

The following puzzle was recently sent to us by Harvey Rubinstein of Hudson County Community College in New Jersey.

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Suppose there are 3 doors (A,B,C) and 3 players (Tom, Dick, and Harry) all playing at the same time. But their games are independent of each other—they can each win or lose the car.

Tom picks A, Dick B, and Harry C.

Monty opens B (which he knows is a goat), so Dick is out.

Tom is offered the choice to switch to C. Harry is offered the choice to switch to A.

If there were just one player—no problem. But how can Tom's odds be improved to $2/3$ by taking C, while at the same time, Harry's odds are improved to $2/3$ by taking A?

How can the increased probability be simultaneously “inherited” by both A and C, adding up to $4/3$?

Is there something wrong with thinking this way about the problem?

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What is YOUR answer to Harvey's puzzle? Send your answer (or any new variant on the original Monty Hall puzzle) to Aadil Nakhoda: anakhoda@ucsc.edu.

We will post our solution next week, along with the most insightful comments sent to us.