**3.2.8. Beware of Monty Hall**

1. Given: 3 doors, 1 w/ prize, 2 w/ dud
2. Pick one door. Probability of guessing prize is 1/3. Probability that the prize is behind either of the other doors is 2/3.
3. New information! Monty Hall opens one door to reveal dud. Two doors now remain.
4. Stick with initial pick or change doors? If you stick with initial guess, chance of winning the prize remains 1/3. Chance that the prize is behind the other doors is still 2/3. Except now there’s only one other door.
5. Change doors! Probability of prize behind that door is now 2/3.

Bayes’ Theorem applies because we are given additional information with the opening of one door. That new piece of information changes our understanding of the situation and allows for a more accurate calculation about the probability of what’s behind the remaining door.