

Chapter 7 – Probability and inductive reasoning

Getting familiar with... types of probability.

a. For each probability statement, identify whether it is referring to objective, epistemic, or subjective probabilities.

1. I can feel that it's about to rain.
2. The evidence tells us that Iran's new missile program will likely fail.
3. In a jar of 1,203 M&Ms, the probability of choosing a green one is 10%.
4. Twenty-five percent of cards in a deck are spades.
5. They are so incompatible; I know they'll break up within the week.
6. I'm going to win this next hand; I can feel it.
7. Given that there are 38 slots on a roulette wheel, and 18 of them are black, your chances of winning by betting black are about 47%.
8. All of the studies suggest that your chances of getting cancer are lower if you stop smoking.
9. My dog gets this look in her eye just before she bites, and she has it now, so she is probably about to bite.
10. The chances of rolling a prime number on a twenty-sided die are $\frac{8}{20}$.

b. For each probability statement, identify whether it is referring to a *dependent* or *independent* probability.

1. The probability of rolling an odd number on a twenty-sided die.
2. The probability of rolling an odd number on a twenty-sided die given that you just rolled an even number.
3. The probability that you rolled an odd number on a twenty-sided die given that the number you rolled is a prime number.
4. The probability of drawing an ace from a deck of 52 cards given that you just drew an ace you didn't replace.
5. The probability that you just drew an ace from a deck of 52 cards given that the card you drew was a spade.