Probabilities of Multiple Random Experiments: Takeaways

Concepts

- Two events are independent if the occurrence of one does not affect the probability of the other happening. Mathematically speaking, we describe this as $P(A \cap B) = P(A) \times P(B)$.
- Two events are dependent if they do affect the others' probability of happening, denoted as $P(A \cap B) \neq P(A) \times P(B)$.
- The **complement** of an event represents all of the outcomes that don't satisfy the event condition.
- For any random experiment and event E, you can calculate the probability of the complement E^C as:

$$P(E^C) = 1 - P(E)$$

- The **multiplication rule** says that for two independent events A and B, the probability that both events A **and** E_2 happen can be found by:

$$P(E_1 \cap E_2) = P(E_1) \times P(E_2)$$

Resources

- A nice tutorial on independent events
- A brief tutorial that covers types of events