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Exercise: Independence of two events - I

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Exercise: Independence of two events - I

1/1 point (graded)

We have a peculiar coin. When tossed twice, the first toss results in Heads with probability $1/2$. However, the second toss always yields the same result as the first toss. Thus, the only possible outcomes for a sequence of 2 tosses are ***HH*** and ***TT***, and both have equal probabilities. Are the two events $A = \{\text{Heads in the first toss}\}$ and $B = \{\text{Heads in the second toss}\}$ independent?

No, they are dependent ▼

✔ Answer: No, they are dependent

Answer:

Intuitively, the occurrence of event A gives us information on whether event B will occur, and therefore the two events are dependent.

Mathematically, $P(A) = P(B) = P(A \cap B) = 1/2$, so that $P(A \cap B) \neq P(A)P(B)$.

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✔ Correct (1/1 point)

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