WS #24 - Stopping Rules

Math 150, Jo Hardin

Friday, April 24, 2026

Your Name: _____

Names of people you worked with: _____

Among the group of you, how many people in class can you name? Try it.

Task: You flip a fair coin twice. You win (at stage 1) if you get 50% or more heads. If you don't get 50% or more heads, you flip the coin two more times and **combine the four flips**. You win (at stage 2) if, after 4 flips you have 50% or more heads.

- What is the overall probability that you win?
- What is the probability of winning if you only look at stage 2?

Hint: it might help to write out the 16 different combinations of four flips that can happen.

Solution: Here are the 16 different ways you can flip the coin 4 times:

HHHH	HHHT	HHTH	HTHH	THHH	HHTT	HTHT	HTTH
THTH	THHT	TTHH	TTTH	TTHT	THTT	HTTT	TTTT

- In 12 of those settings, you will win at the first stage.

In the remaining 4 settings, you win in 1 of them (TTHH) at the second stage.

P(winning) = 13/16 = 0.8125

- If you only look at stage 2, P(winning) = 11/16 = 0.6875