We already did this one on Monday!

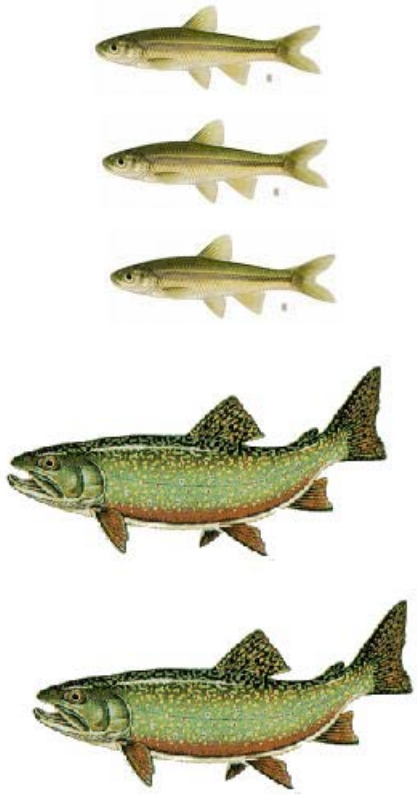
- You are an oracle that, when asked, says "yes“ with probability $P = 1/4$ and "no" with probability $1-P = 3/4$.
- How do you do this using only a fair, two-sided coin?
- Same problem with $P = 1/3$.
- Same problem with $P = 1/\pi$

In the programming language of your choice, how would you simulate flips of a fair, two-sided coin?

Do it. Simulate 10^6 flips. How many heads do you get?

Segment 1 asked: about how many draws do you need to distinguish between P=0.34 (probability that second fish is a trout) and P=1/3 (arbitrary nice number).

Answer this convincingly by a simulation.

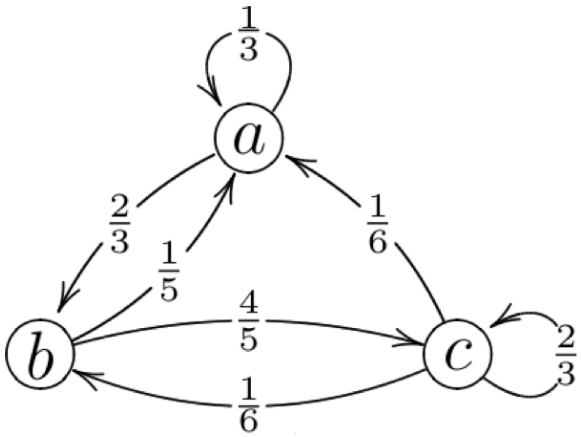


In the programming language of your choice, how would you simulate draws from two weird 7-sided dice whose faces (showing 1 through 7 spots) have probabilities proportional to: $1:e:\pi:4:5:6:e^{\pi}$ respectively?

– Do it. Simulate 10^6 throws of the dice. How many times is the sum of the two dice equal to 8?
– What should it be (in expectation) analytically?

For the trout/minnow problem, what if you want to know the probability that the Nth fish caught is a trout, for N=1,2,3,... ?

What is an efficient way to set up this calculation? (Hint: If you ever learned the word "Markov", this might be a good time to remember it!)



2nd hint: This picture is NOT the answer to this problem!