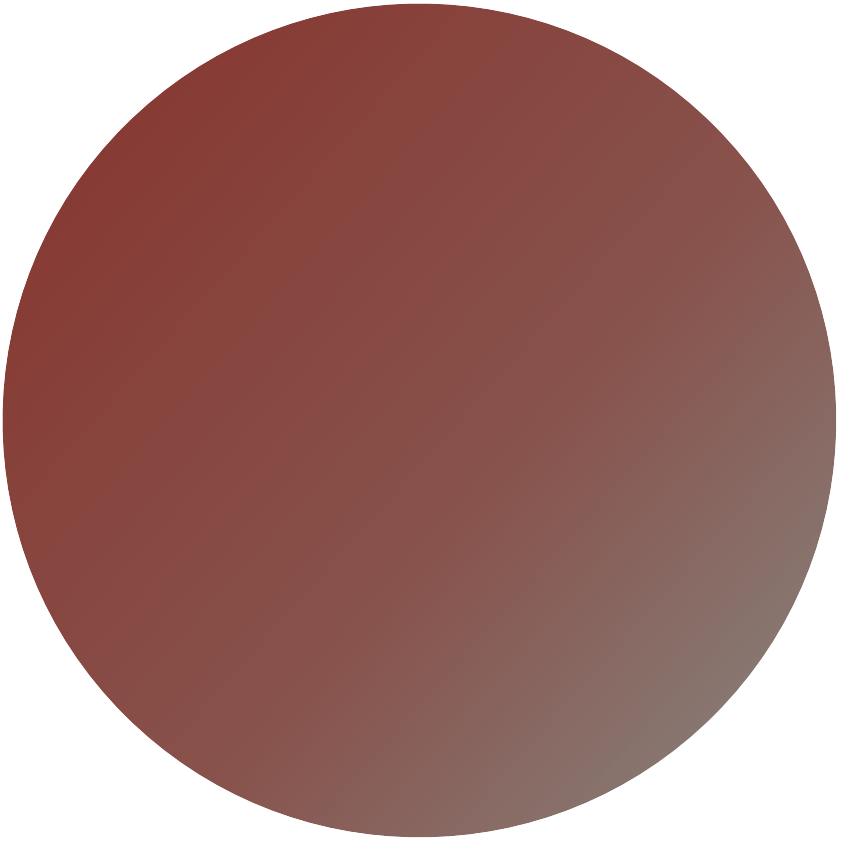
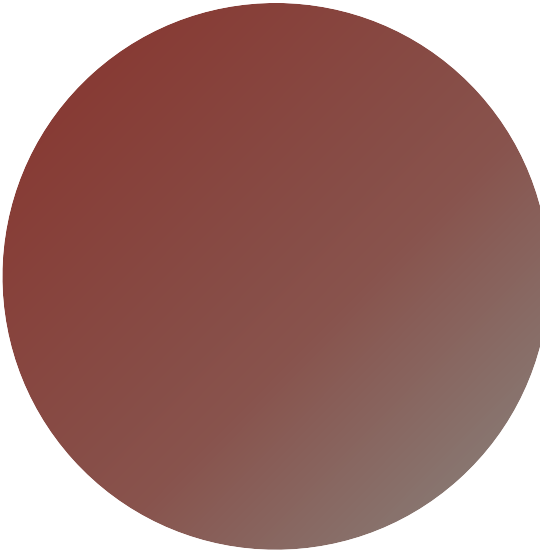
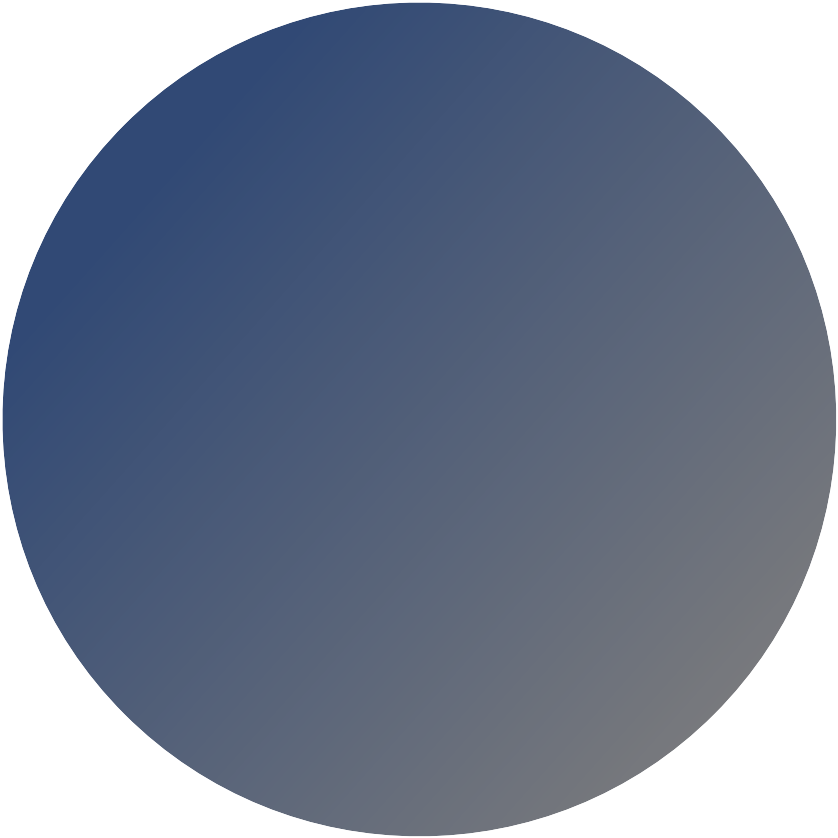
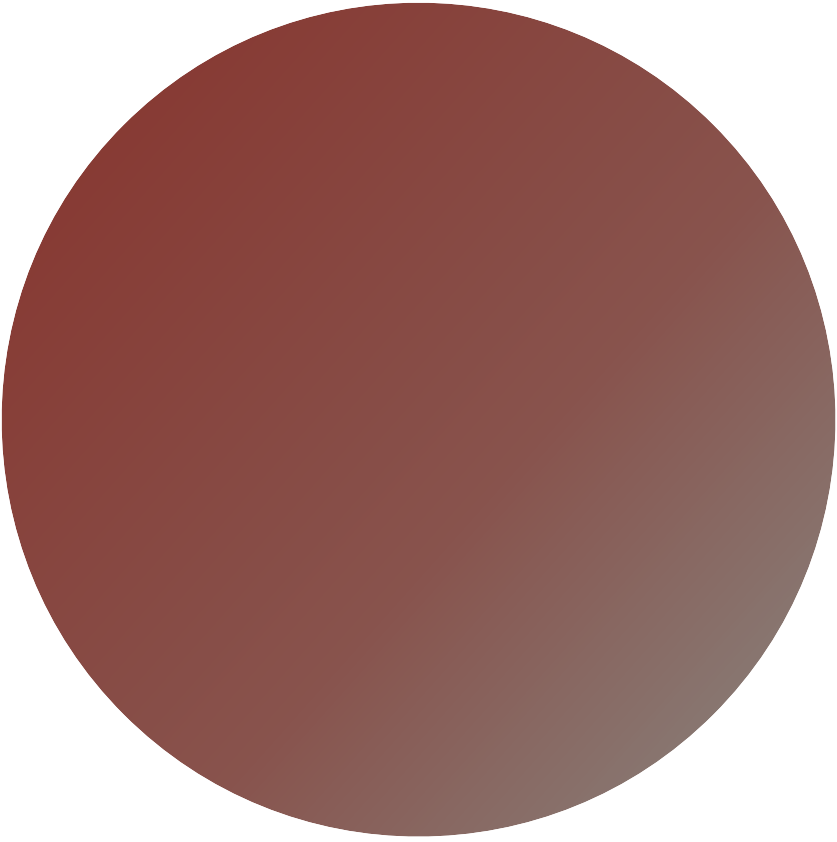
ESTIMATING THE PROPORTION OF RED BALLS

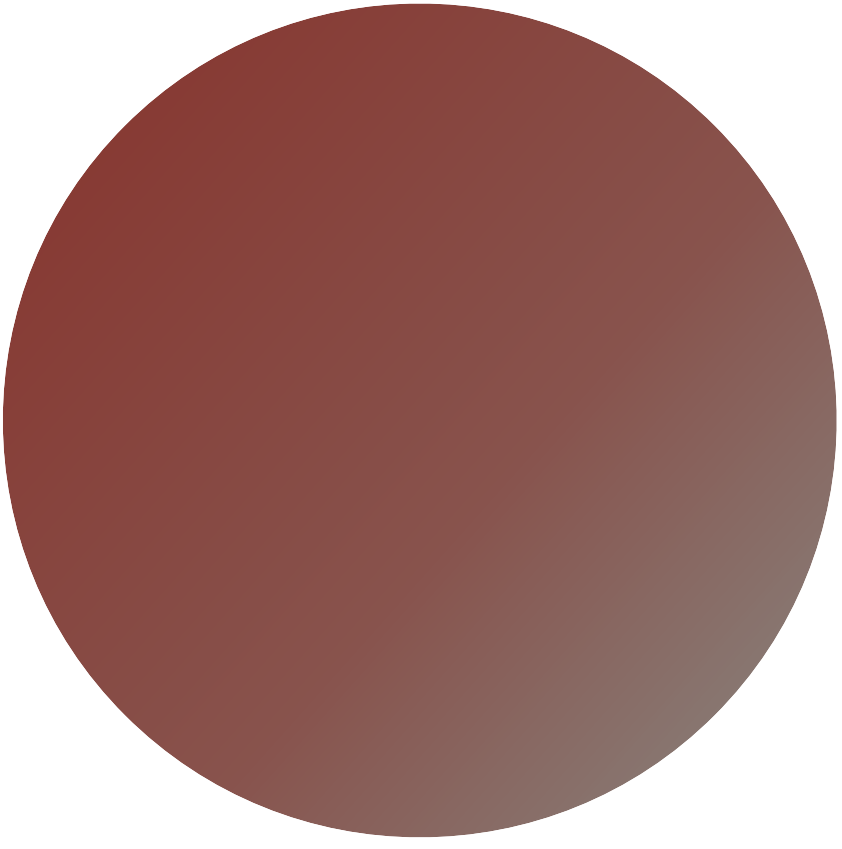


$p = P(\quad) =$ proportion of red balls









Experiment:

N draws

Data:

y = # red balls

y = 2

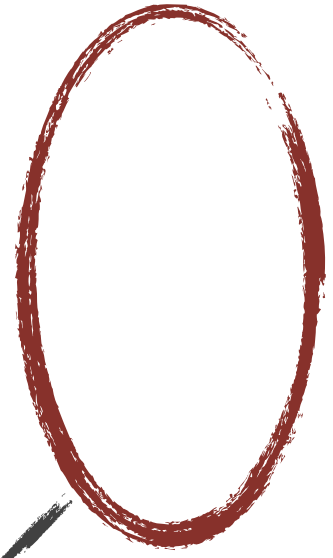
ML estimator:

$$p = \frac{y}{N} = \frac{2}{2} = 1$$

Prior information:
There are at least one of each color ball

Laplace estimator:

$$p = \frac{y+1}{N+2} = \frac{2+1}{2+2} = \frac{3}{4}$$



"Before the experiment, I observed one of each color ball"

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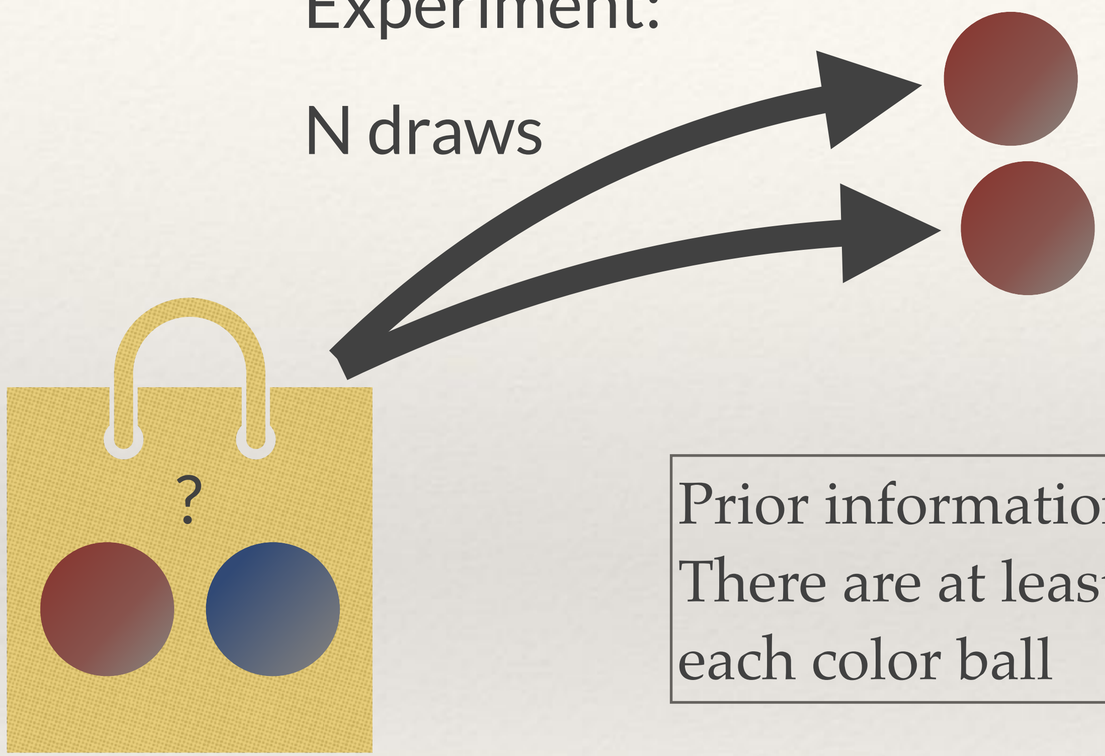
N draws



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WHY USE THE POSTERIOR?