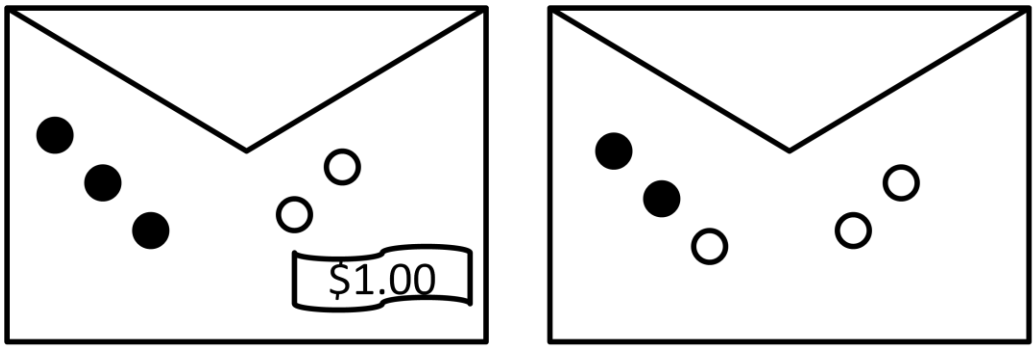
Quiz 5. Bayesian reasoning



WIN envelope LOSE envelope

Someone draws an envelope at random and offers to sell it to you. Before deciding, you are allowed to see one bead drawn from the envelope.

Suppose it's black: How much should you pay?

Suppose it's white: How much should you pay?

$P(win|b)=\alpha P(b|win)P(win)= \alpha *3/5 *1/2=\alpha *3/10$

$P(\neg win|b)= \alpha P(b|\neg win)P(\neg win)= \alpha*2/5*1/2= \alpha *2/10$

If b then pay \$3/5 =60 cents

$P(win|w)=\alpha P(w|win)P(win)= \alpha *2/5 *1/2=\alpha *2/10$

$P(\neg win|w)= \alpha P(w|\neg win)P(\neg win)= \alpha*3/5*1/2= \alpha *3/10$

If w then pay \$2/5=40 cents