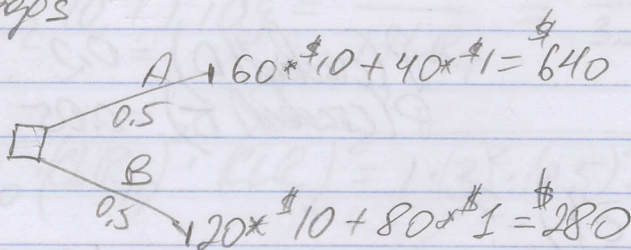


15.1

## Money Bags

Prior:  
EV = \$460



Assuming fair game:

$$P(A) = P(B) = 0.5$$

	\$10	\$1	Total
Bag-A #'s	60	40	100
Bag-B #'s	20	80	100
Total:	80	120	200

(a) Pull \$10  $\Rightarrow$

$$P(A | \$10) = P(A) \cdot \frac{P(\$10|A)}{P(\$10)}$$

$$P(\$10|A) = \frac{60}{100}$$

$$P(\$10) = \frac{80}{200} = 0.4$$

$$P(\$10|B) = \frac{20}{100}$$

$$= 0.5 \cdot \frac{0.6}{0.4} = 0.75 \Rightarrow \text{pick the bag that had \$10}$$

(b) Pull:  $\{\$10, \$1, \$1\} = P(A | \{\$10, \$1, \$1\}) = 0.429$

$$\Rightarrow \frac{LR_3}{1 + LR_3} = \frac{0.75}{1.75} =$$

$\uparrow$   
pick the other bag!

$$LR_3 = LR_0 \cdot (CLR_{10})^1 \cdot (CLR_1)^2 = 1 \cdot 3 \cdot (0.5)^2 = 0.75$$

$$LR_0 = \frac{P(A)}{P(\bar{A})} = \frac{0.5}{0.5} = 1$$

$$CLR_{10} = \frac{P(\$10|A)}{P(\$10|\bar{A})} = \frac{0.6}{0.2} = 3$$

$$CLR_1 = \frac{P(\$1|A)}{P(\$1|B)} = \frac{0.4}{0.8} = 0.5$$