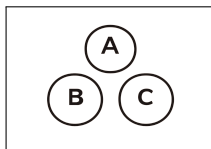


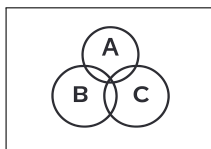
12 Discrete Distribution Odds and Probability

C



$$S = \{1, 2, 3, 4\}$$

$$T = \{1\}$$

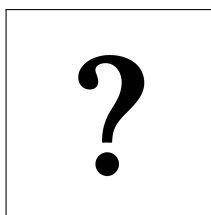


$$P(T) = \frac{|T|}{|S|} = \frac{1}{4} = 0.25$$

$$P(T^C) = 1 - P(T) = 0.75$$

$$\frac{|T|}{|T^C|} = \frac{|E|}{|S|} \times \frac{|S|}{|E^C|} = \frac{P(E)}{P(E^C)} = \frac{P(E)}{1 - P(E)}$$

$$a : b \rightarrow \frac{a}{a+b} = \frac{ak}{ak+bk} = \frac{|E|}{|E|+|E^C|} = \frac{|E|}{|S|} = P(E)$$



$$A = \{H, T\}$$

$$B = \bigoplus (A, 3) = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\} \rightarrow |B| = 8$$

$$C = \{HHT, HTH, THH, HHH\} \rightarrow |C| = 4$$

$$a : b(C) = ?$$

12 Discrete Distribution Odds and Probability

C



$$A = \{H, T\}$$

$$B = \bigoplus(A, 3) = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\} \rightarrow |B| = 8$$

$$C = \{HHT, HTH, THH, HHH\} \rightarrow |C| = 4$$

$$a : b(C) = \frac{|B| - |C|}{|C|} = \frac{8 - 4}{4} = 4 : 4 = 1 : 1$$