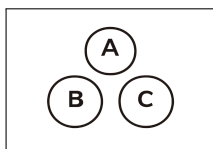


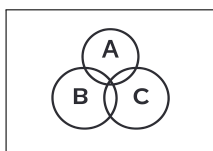
12 Discrete Distribution Odds and Probability

A



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

$$T = \{1\}$$



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

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

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

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



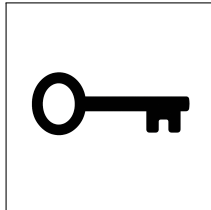
$$P(B) = \frac{1}{2}$$

$$\bigoplus(B, 4) = \left(\frac{1}{2}\right)^4 = \frac{1}{16}$$

$$a : b(B, 4) = ?$$

12 Discrete Distribution Odds and Probability

A



$$P(B) = \frac{1}{2}$$

$$\mathbb{P}(B, 4) = \left(\frac{1}{2}\right)^4 = \frac{1}{16}$$

$$a : b(B, 4) = \frac{1 - \frac{1}{16}}{\frac{1}{16}} = \frac{\frac{15}{16}}{\frac{1}{16}} = 15 : 1$$