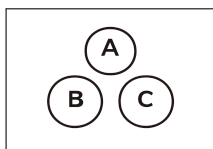


13

Discrete Distribution Random Variable

A



$$X(HHH) = 3$$

$$X(HHT) = 2$$

$$X(HTH) = 2$$

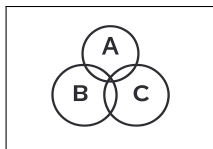
$$X(THH) = 2$$

$$X(HTT) = 1$$

$$X(THT) = 1$$

$$X(TTH) = 1$$

$$X(TTT) = 0$$



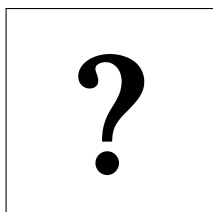
$$X : \Omega \rightarrow 0, 1, 2, 3$$

$$P(X = 0) = \frac{1}{8}$$

$$P(X = 1) = \frac{3}{8}$$

$$P(X = 2) = \frac{3}{8}$$

$$P(X = 3) = \frac{1}{8}$$



$$X = \{G, G, G, G, G, R, R, R\}$$

$$Y = \{G, G, G, G, G\}$$

$$Z = \{R, R, R\}$$

$$S = \{(G, G), (G, R), (R, G), (R, R)\}$$

$$\mathbb{P}(X, 2) = ?$$

$$P(G, G) = ?$$

$$P(G, R) = ?$$

$$P(R, G) = ?$$

$$P(R, R) = ?$$

13

Discrete Distribution
Random Variable

A



$$X = \{G, G, G, G, G, R, R, R\}$$

$$Y = \{G, G, G, G, G\}$$

$$Z = \{R, R, R\}$$

$$S = \{(G, G), (G, R), (R, G), (R, R)\}$$

$$\#(X, 2) = 8 \times 7 = 56$$

$$P(G, G) = \#(Y, 2) = \frac{5}{8} \times \frac{4}{7} = \frac{20}{56} \approx 0.36$$

$$P(G, R) = \#(Y, 1) + \#(Z, 1) = \frac{5}{8} \times \frac{3}{7} = \frac{15}{56} \approx 0.27$$

$$P(R, G) = \#(Z, 1) + \#(Y, 1) = \frac{3}{8} \times \frac{5}{7} = \frac{15}{56} \approx 0.27$$

$$P(R, R) = \#(Z, 2) = \frac{3}{8} \times \frac{2}{7} = \frac{6}{56} \approx 0.11$$