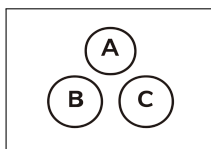


7

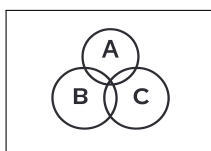
Discrete Distribution
Complementary Event

J



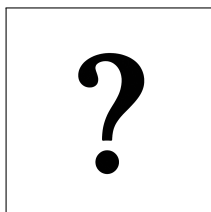
$$S = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

$$A = \{1, 2\}$$



$$P(A) = |A|/|S| = 2/8 = 0.25$$

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



$$P(A \cup B) = 0.70$$

$$P(A \cup B^C) = 0.90$$

$$P(A) = ?$$

7

Discrete Distribution
Complementary Event

J



$$\begin{aligned}P(A \cup B) &= 0.70 \\P(A \cup B^c) &= 0.90 \\P(A) &= ?\end{aligned}$$

$$\begin{aligned}P(A \cup B) &= 1 - P(A^c \cap B^c) = 1 - 0.70 = 0.30 \\P(A \cup B^c) &= 1 - P(A^c \cap B) = 1 - 0.90 = 0.10\end{aligned}$$

$$\begin{aligned}A^c &= (A^c \cap B) \cup (A^c \cap B^c) \\P(A^c) &= 0.1 + 0.3 = 0.4. \\P(A) &= 1 - P(A^c) = 1 - 0.40 = 0.60\end{aligned}$$