

9

Discrete Distribution
Conditional Probabilities

F



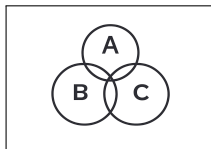
$$H = 60$$

$$U = 100$$

$$P(M \cap H) = 0.10$$

$$P(H) = 60/100 = 0.60$$

$$P(M|H) = ?$$



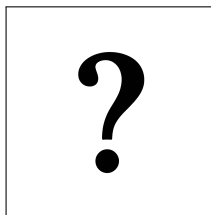
$$H = 60$$

$$U = 100$$

$$P(M \cap H) = 0.10$$

$$P(H) = 60/100 = 0.60$$

$$P(M|H) = P(M \cap H)/P(H) = 0.10/0.60 = 1/6 \approx 0.17$$



$$P(L) = 0.40$$

$$P(C) = 0.60$$

$$P(S|L) = 0.30$$

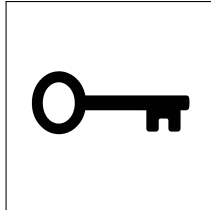
$$P(S|C) = 0.75$$

$$P(S) = ?$$

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$$P(L) = 0.40$$

$$P(C) = 0.60$$

$$P(S|L) = 0.30$$

$$P(S|C) = 0.75$$

$$P(S) = P(S|L)P(L) + P(S|C)P(C)$$

$$P(S) = (0.30)(0.40) + (0.75)(0.60)$$

$$P(S) = 0.12 + 0.45 = 0.57$$