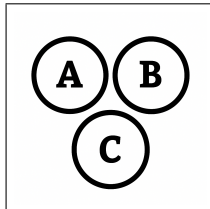


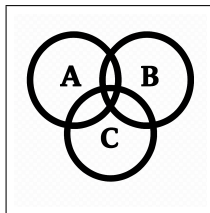
# E

## Posterior Probabilities

# E



$$\begin{aligned}P(H) &= 0.30 \\P(L) &= 0.70 \\P(A|H) &= 0.40 \\P(A|L) &= 0.20\end{aligned}$$



$$\begin{aligned}P(A) &= P(A|H)P(H) + P(A|L)P(L) \\P(A) &= (0.4)(0.3) + (0.2)(0.7) = 0.12 + 0.14 = 0.26\end{aligned}$$

---

$$P(H|A) = \frac{P(A|H)P(H)}{P(A)} = \frac{(0.4)(0.3)}{0.26} = \frac{0.12}{0.26} = \frac{6}{13} \approx 0.4615$$

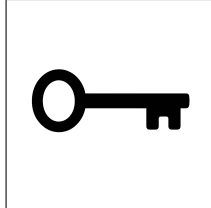


$$\begin{aligned}P(T) &= 0.08 \\P(Y) &= 0.16 \\P(M) &= 0.45 \\P(S) &= 0.31 \\P(C|T) &= 0.15 \\P(C|Y) &= 0.08 \\P(C|M) &= 0.04 \\P(C|S) &= 0.05 \\P(Y|C) &= ?\end{aligned}$$

# E

## Posterior Probabilities

# E



$$P(T) = 0.08$$

$$P(Y) = 0.16$$

$$P(M) = 0.45$$

$$P(S) = 0.31$$

$$P(C|T) = 0.15$$

$$P(C|Y) = 0.08$$

$$P(C|M) = 0.04$$

$$P(C|S) = 0.05$$

$$P(Y|C) = ?$$

---

$$P(C) = P(C|T)P(T) + P(C|Y)P(Y) + P(C|M)P(M) + P(C|S)P(S)$$

$$P(C) = (0.15)(0.08) + (0.08)(0.16) + (0.04)(0.45) + (0.05)(0.31)$$

$$P(C) = 0.012 + 0.0128 + 0.018 + 0.0155$$

$$P(C) = 0.0583$$

---

$$P(Y|C) = \frac{P(D|H) \times P(H)}{P(D)} = \frac{(0.08)(0.16)}{0.0583} = \frac{0.0128}{0.0583} \approx 0.22$$