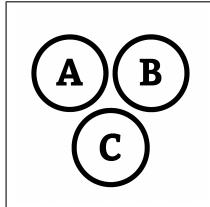


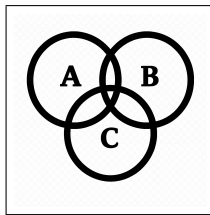
D

Posterior Probabilities

D

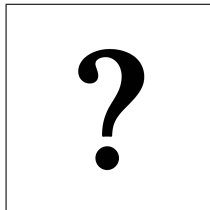


$$\begin{aligned}P(H) &= 0.30 \\P(L) &= 0.70 \\P(A|H) &= 0.40 \\P(A|L) &= 0.20\end{aligned}$$



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

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



$$\begin{aligned}P(H) &= 0.20 \\P(L) &= 0.30 \\P(N) &= 0.50 \\P(D|N) &= p \\P(D|L) &= 2p \\P(D|H) &= 4p \\P(H|D) &= ?\end{aligned}$$

D

Posterior Probabilities

D



$$P(H) = 0.20$$

$$P(L) = 0.30$$

$$P(N) = 0.50$$

$$P(D|N) = p$$

$$P(D|L) = 2p$$

$$P(D|H) = 4p$$

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

$$P(V) = P(D|H)P(H) + P(D|L)P(L) + P(D|N)P(N)$$

$$P(V) = (4p)(0.20) + (2p)(0.30) + (p)(0.50)$$

$$P(V) = 0.80p + 0.60p + 0.50p$$

$$P(V) = 1.90p$$

$$P(H|D) = \frac{P(D|H) \times P(H)}{P(D)} = \frac{(4p)(0.20)}{(1.90p)} = \frac{0.80}{1.90} \approx 0.42$$