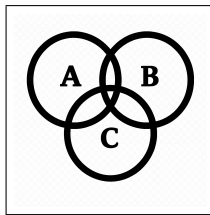




Posterior Probabilities



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



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

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



$$\begin{aligned}P(S) &= 0.10 \\P(N) &= 0.90 \\P(D|S) &= 0.05 \\P(D|N) &= 0.01 \\P(S|D) &= ?\end{aligned}$$



Posterior Probabilities



$$\begin{aligned}P(S) &= 0.10 \\P(N) &= 0.90 \\P(D|S) &= 0.05 \\P(D|N) &= 0.01 \\P(S|D) &= ?\end{aligned}$$

$$\begin{aligned}P(D) &= P(D|S)P(S) + P(D|N)P(N) \\&= (0.05)(0.10) + (0.01)(0.90) \\&= 0.01\end{aligned}$$

$$P(S|D) = \frac{P(D|S)P(S)}{P(D)} = \frac{(0.05)(0.10)}{0.01} = 0.5$$