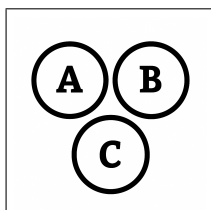


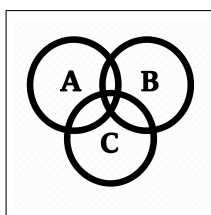
# O

## Posterior Probabilities

# O



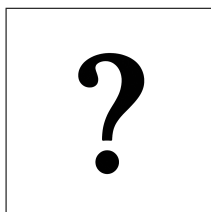
$$\begin{aligned}P(H) &= 0.30 \\P(L) &= 0.70 \\P(A|H) &= 0.40 \\P(A|L) &= 0.20\end{aligned}$$



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

---

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

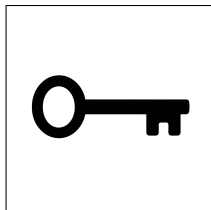


$$\begin{aligned}P(A) &= 0.60 \\P(S) &= 0.30 \\P(N) &= 0.10 \\P(X|A) &= 0.80 \\P(X|S) &= 0.60 \\P(X|N) &= 0.40 \\P(A|X) &= ?\end{aligned}$$

# O

## Posterior Probabilities

# O



$$P(A) = 0.60$$

$$P(S) = 0.30$$

$$P(N) = 0.10$$

$$P(X|A) = 0.80$$

$$P(X|S) = 0.60$$

$$P(X|N) = 0.40$$

$$P(A|X) = ?$$

---

$$\begin{aligned} P(X) &= P(X|A)P(A) + P(X|S)P(S) + P(X|N)P(N) \\ &= (0.80)(0.60) + (0.60)(0.30) + (0.40)(0.10) \\ &= 0.70 \end{aligned}$$

---

$$P(A|X) = \frac{P(X|A)P(A)}{P(X)} = \frac{(0.80)(0.60)}{0.70} = 0.69$$