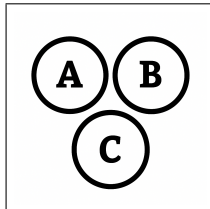


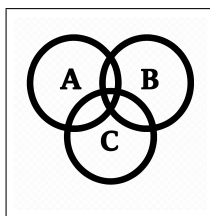
# K

## Posterior Probabilities

# K



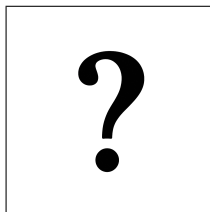
$$\begin{aligned}P(H) &= 0.30 \\P(L) &= 0.70 \\P(A|H) &= 0.40 \\P(A|L) &= 0.20\end{aligned}$$



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

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

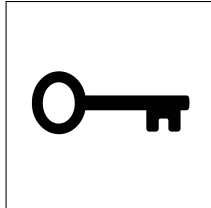


$$\begin{aligned}P(C) &= 0.80 \\P(C^C) &= 0.20 \\P(T|C) &= 0.90 \\P(T|C^C) &= 0.05 \\P(C|T) &= ?\end{aligned}$$

# K

## Posterior Probabilities

# K



$$\begin{aligned}P(C) &= 0.80 \\P(C^C) &= 0.20 \\P(T|C) &= 0.90 \\P(T|C^C) &= 0.05 \\P(C|T) &= ?\end{aligned}$$

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$$\begin{aligned}P(T) &= P(T|C)P(C) + P(T|C^C)P(C^C) \\&= (0.90)(0.80) + (0.05)(0.20) \\&= 0.73\end{aligned}$$

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$$P(C|T) = \frac{P(T|C)P(C)}{P(T)} = \frac{(0.73)(0.80)}{0.73} = 0.99$$