

Independence

- Two variables are *independent* if:

$$\forall x, y : P(x, y) = P(x)P(y)$$

- This says that their joint distribution *factors* into a product two simpler distributions
- Another form: $\forall x, y : P(x|y) = P(x)$
- We write: $X \perp\!\!\!\perp Y$

- Independence is a simplifying *modeling assumption*
 - What could we assume for {Weather, Traffic, Cavity, Toothache}?

