

# Naive Bayes Classifier

## Statistical Dependence

In statistics, two events are *dependent* if the occurrence of one of the events causes the probability of the other event occurring to change in a predictable way.

## Bayes Theorem

*Bayes Theorem* calculates the probability of  $A$  given  $B$  as the probability of  $B$  given  $A$  multiplied by the probability of  $A$  divided by the probability of  $B$  :

$$P(A|B) = \{P(B|A) * P(A)\} / \{P(B)\}$$

This theory describes the probability of an event ( $A$ ), based on prior knowledge of conditions ( $P(B|A)$ ) that might be related to the event.

## Statistical Independence

In statistics, two events are *independent* if the probability of one event occurring does not affect the probability of the second event occurring.

