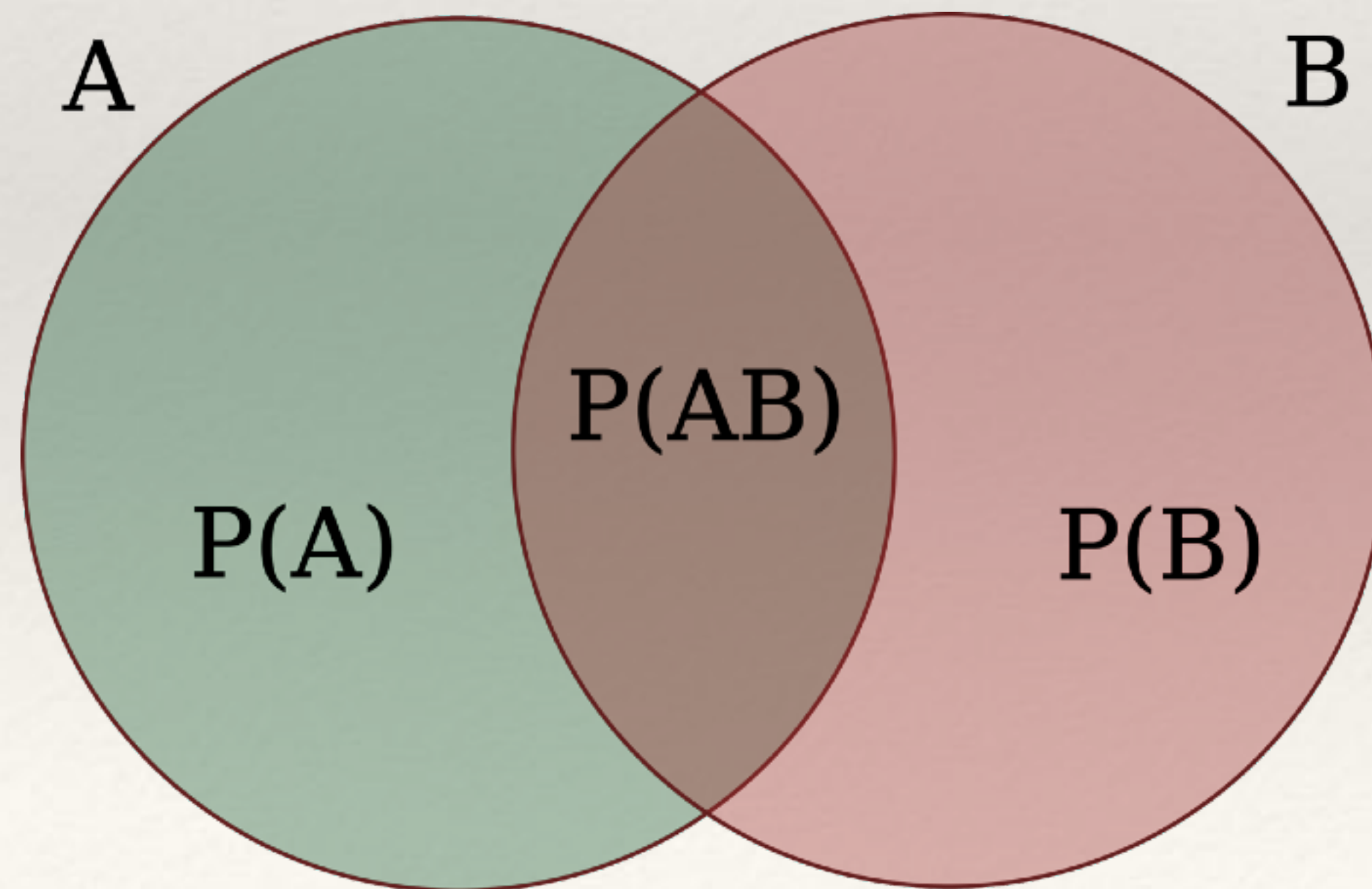# REV THOMAS BAYES (1701 – 1761)

Product rule (or Bayes Theorem)

$$P(AB) = P(A \mid B)P(B) = P(B \mid A)P(A)$$

WHAT IS BAYESIAN STATISTICS?

We can think of Bayesian Statistics as an extension of ML

ML: What is the parameter value that maximizes the probability of having generated the data:

$$\underset{\theta}{\mathrm{argmax}} \left[P(y \,|\, \theta) \right]$$

Bayesian: What is the probability distribution of parameter values given the data:

$$P(\theta \,|\, y) \propto P(\theta) P(y \,|\, \theta)$$