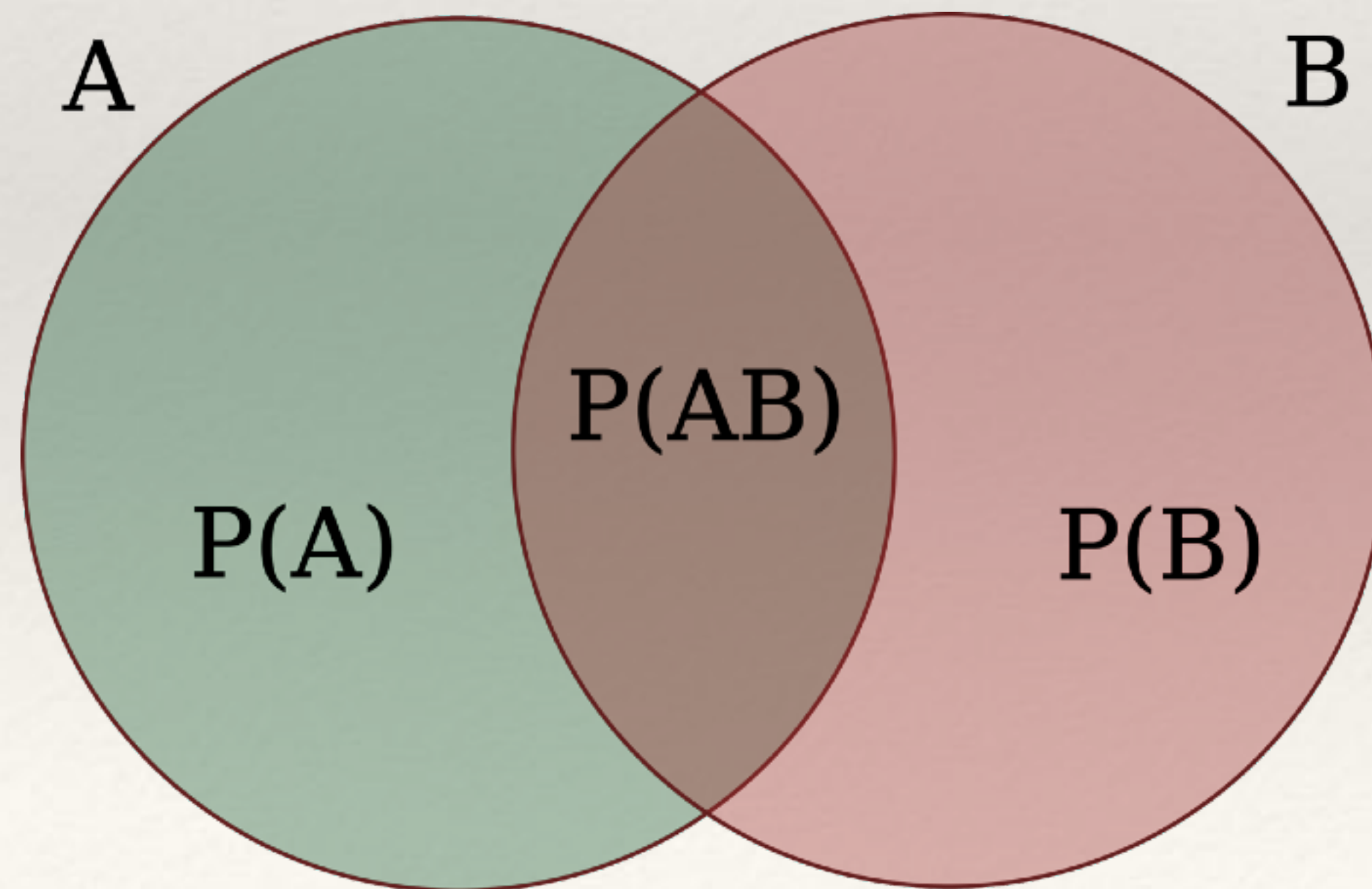


# REV THOMAS BAYES (1701 – 1761)

## Product rule (or Bayes Theorem)

$$P(AB) = P(A | B)P(B) = P(B | A)P(A)$$





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# WHAT IS BAYESIAN STATISTICS?

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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:

$$\operatorname{argmax}_{\theta} [P(y | \theta)]$$

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

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