

# 1 Introduction

The Rev Thomas Bayes was an 18th century cleric who was also a mathematician. His theorem, known as Bayes' Theorem and described in Section 2, was published posthumously, and it is only thanks to LaPlace that it is so well known, as many other academics at the time failed to take the theorem seriously.

## 2 Bayes' Theorem

Bayes' Theorem is given in Equation 1, and simply states that the posterior of an event B given that event A has occurred is proportional to the prior for event B.

$$P(B|A) = \frac{P(A|B)P(B)}{P(A)} \tag{1}$$

[Equation 1](#) is fundamental to the whole study and implementation of Bayesian belief networks.