

1 Bayesian Statistics

Probability theory is concerned with predicting $p(D|\theta)$ however statistics is concerned with the inverse problem $p(\theta|D)$. In a bayesian approach the parameters θ are unknown and the data D as fixed and known. We compute a posterior distribution (the certainty of prediction) using Bayes rule.

$$p(\theta|D) = \frac{p(\theta)p(D|\theta)}{\int p(\theta')p(D|\theta') d\theta'}$$

$$\frac{\sqrt{10}}{5}$$