# Introducing Bayes factors

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Statistical inference is traditionally taught exclusively from a frequentist perspective. If Bayesian approaches are discussed, then Bayesian parameter estimation is described only, perhaps showing the formal equivalence of a Bayesian reference analysis and the frequentist approach. However, the Bayesian approach to hypothesis testing and model selection is intrinsically different from a classical approach and offers key insights into the nature of statistical evidence.

In this talk I will give an elementary introduction to Bayesian model selection with Bayes factors. I will then summarize important results on the relationship between P-values and Bayes factors. A universal finding is that the evidence against a simple null hypothesis is by far not as strong as the P-value might suggest. If time permits, I will also describe more recent work on Bayesian model selection in generalized additive models using hyper-g priors.