

## **A Bayesian hypothesis test**

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A Bayesian hypothesis test is proposed which can assign a posterior probability to a default model or null hypothesis without the need for a previously existing alternative model. The main requirement is that the data-set being used to test the hypothesis be separable, in the sense that the data can be split into two independent subsets. The first is used to generate an alternative model, which can then be compared to the null hypothesis by using Bayesian model comparison on the second part of the data. The resultant hypothesis test has, as might be expected, very different properties conventional hypothesis tests based on p-values. The two approaches are compared here, and it is argued that conventional hypothesis are overly sensitive to deviations from the norm.

**Key Words:** Bayesian methods; hypothesis testing