Considering the Null

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Abstract: While still the dominant method of statistical inference, the null hypothesis significance test (NHST) is controversial. Recently, it has been suggested to replace the traditional NHST with a Bayesian alternative using Bayes factors. While Bayesian tests resolve many of the problems that plague the traditional NHST, they still suffer from the issue that in rejecting the null hypothesis, one effectively rejects full knowledge in favour of (near) complete ignorance. Determining whether a parameter is likely to have a particular (null) value may be better served by Bayesian estimation and credibility intervals. Hypothesis testing may be more valuable after reformulating of the null hypothesis. This work explores a Bayesian hypothesis testing procedure in which the null hypothesis reflects a state of complete ignorance or lack of knowledge. The procedure has some useful properties, amongst which the imperative to develop informative hypotheses and an associated drive towards cumulative theory development.