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Bayes factors, p values, and the replication crisis

The so-called “replication crisis” in the sciences has spawned a number of calls for statistical reforms. Some of these reforms share broad agreement, such as data and code sharing; others, such as the abolition of p values and their replacement with confidence intervals, Bayesian credible intervals, or Bayes factors, have garnered less agreement. Bayes factors, in particular – comparative measures of statistical evidence arising from Bayes’ theorem - are controversial even among Bayesians. I will give a broad overview of Bayes factors: what they are, why they are advocated, and whether they can fill the role that classical significance tests currently occupy.