Abstract

This article develops a Bayesian test for equality of scale parameters of several exponential distributions. The null distribution of the test statistic is approximated by the chi-square distribution using heuristic reasoning in conjunction with the Wilson-Hilferty transfomation for the chi-square random variable. The accuracy of the chi-square approximation of the test statistic and the modified likelihood ratio statistic is examined and their powers compared using Monte Carlo simulation. The proposed test is found to be comparable to Bartlett's modified likelihood ratio test in terms of accuracy and power. A numerical example is included to illustrate the applications of these tests