

A Bayesian approach for one-way ANOVA under unequal variances. F.J. Girón González-Torre, C. del Castillo Vázquez

Ponente: *Carmen del Castillo Vázquez*, carmelina@uma.es

In this report a Bayesian solution to the problem of testing the equality of the means of k independent normal populations with unknown and arbitrary variances is provided. An important issue in the solution of this problem is the determination of groups with equal means, often solved by multiple comparisons, which can lead to results that are difficult to interpret. In order to avoid this drawback, we propose to treat all possible alternatives existing in the alternative hypothesis by considering the set of all possible configurations of the set of k means. This idea is closely related to the statistical problem of cluster analysis. This allows us to reformulate the testing problem in terms of model selection. A hierarchical model is proposed to compute the Bayes factor of all models, as well as the posterior probability of all the possible configurations. Some illustrative examples of the goodness of the proposed solution are presented.

Palabras clave: Bayes factor, configuration, hierarchical model, model selection, cluster analysis.