Objective Bayesian Comparison of

Constrained Analysis of Variance Models

Supplementary material

To implement the proposed method, authors have developed code in `Fortran` 90 using Intel Visual Fortran Compiler 6.0A for Windows and the library package IMSL.

The primitives of the two codes are:

1. ObjConstrANOVA_simul.f
2. ObjConstrANOVA_statsuff.f

Each of them is composed by a main and five subroutines.

1. The first code (`ObjConstrANOVA_simul.f`) is used to obtain the results of Tables 2, 4 and 5 of the paper.
   Inputs are:
   a) *n_runs*=number of runs
   b) *J*=numbers of groups (max 10)
   c) *ng*= vector of group sample sizes
   d) *mi*=vector of group means used in simulations
   e) *sqm*=vector of group standard deviations used in simulations

   In output three txt files are generated:
   a) `BF.txt:` contains the Objective Bayes Factor for each model against the null model for all the *n_runs* simulations
   b) `PMP.txt:` contains the Posterior Model Probability (PMP) for each model for all the *n_runs* simulations
   c) `PMP-med.txt:` contains the median value of the PMPs for the correct model across the *n_run* simulations

2. The second code (`ObjConstrANOVA_statsuff.f`) is used to obtain the results of Lucas' data (Table 6 in the paper). In this case only the sufficient statistics, i.e. the sample group means and standard deviations (not the raw data), are available. The scheme is the same as that of code 1, the only difference is that the formulas are those reported in the Appendix of the paper for the case in which the data are the sufficient statistics. The code works for a single run (not iteratively for *n_runs* as in the first code). The inputs *mi* and *sqm* are the sample group means and standard deviations.
   The outputs are files `BF.txt` and `PMP.txt,` each having only one row containing the Objective Bayes Factors of the competing models and their Posterior Model Probabilities.