BAYESIAN MODEL SELECTION USING THE SPARSE EFFECTS, HIERARCHY AND HEREDITY PRINCIPLES

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- ABSTRACT: In experimental planning for adjustment of polynomials models involving *k* main factors and their interactions, it is frequent to adopt the 2^k, 3^k designs or its fractions. Furthermore, it is not unusual, when analysing the results of such experiments, to consider the heredity principle. In other words, once detected a significant interaction between factors, the factors that appear in this interaction and respective interactions should also be present in the model. In this work, this principle is incorporated directly in the prior, following the ideas proposed by Chipman et al. (1997), but changing some of the hyperparameters. What improves considerably the original methodology. Finally the methodology is illustrated by the analysis of the results of an experiment for the elaboration of pea starch biofilms.

- KEYWORDS: Bayesian analysis; heredity principle; sparse effects principle; hierarchy principle; factorial design.

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