Cells Means Model to Design Balanced Factorials with Factors Nested and Mixed

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The present article outlines a mathematical model that allows analyzing factorial designs balanced with nested factors and mixed (where the levels of the random factors are those that are nested under the levels of the fixed factors). The proposed pattern outlines the use of the mixed general lineal pattern of Searle (1971) and the cell means model, since this model's use allows to have bigger clarity on the hypotheses that think about on the stockings of cells for the fixed factors, in such a way that you potential the benefits that are obtained individually by each one of them. Likewise, the development of the predictors of the parameters associated to the fixed and random factors of the pattern is exposed. Finally an example of the pattern is presented proposed on an experiment applied in the industrial field. With the proposed theoretical developments wants to offer to the investigators in the area an alternative method for the analysis of mixed designs with nesting, being these of great relevance in the design of experiments, the engineering, the industrial sector and environmental health statistics. It is implementing under SAS the proposed model to estimate the parameters of the model and the respective components of variance, under models to n-ways of classification with the imposed restrictions.

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