



**POWER OF FOUR ADDITIVITY TESTS IN MIXED
EFFECT MODELS FOR UNREPLICATED
TWO-WAY ANOVA MODELS**

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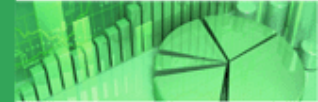
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Abstract

This article presents tests for the hypothesis that there is no interaction between the fixed and the random factor (mixed model). The four additivity tests proposed by Tusell [F. Tusell, Testing for interaction in two-way ANOVA tables with no replication, Computational Statistics and Data Analysis 10 (1990), 29-45], Boik [R. J. Boik, Testing additivity in two-way classifications with no replications: the locally best invariant test, Journal Applied Statistics 20(1) (1993a), 41-55], Piepho [H. P. Piepho, On the tests for interaction in a nonreplicated two-way layout, Austral. J. Statist. 36(3) (1994), 363-369], Kharrati-Kopaei and Sadooghi-Alvandi [M. Kharrati-Kopaei and S. M. Sadooghi-Alvandi, A new method for testing interaction in unreplicated two-way analysis of variance, Communications in Statistics-Theory and Methods 36 (2007), 2787-2803] for fixed effect models are given. I want to acknowledge whether these tests work also in the case of the mixed model. For this, type-I-error rates and the power of these tests for mixed models by means of simulation is discussed.

Keywords and phrases: two-way analysis of variances, non-additivity, no replication, mixed model, type-I-error, power.

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