

CONFIDENCE INTERVALS FOR LARGE NON-CENTRALITY PARAMETERS

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Abstract

We use asymptotic linearity to derive confidence intervals for large non-centrality parameters. These results enable us to measure relevance of effects and interactions in multifactors models when we get highly statistically significant the values of F tests statistics. We show how to use our approach by considering two sets of data as application examples.

Keywords: Asymptotic linearity, non-centrality parameters, highly significant F tests, measure relevance.

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REFERENCES

- [1] D. Ferreira, S.S. Ferreira, C. Nunes and S. Inácio, *Inducing pivot variables and non-centrality parameters in elliptical distributions*, AIP Conf. Proc. **1558** (2013) 833.
- [2] J.T. Mexia, *Asymptotic Chi-squared Tests, Design and Log-Linear Models* (Trabalhos de Investigação, 1. Departamento de Matemática, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, 1992).
- [3] J.T. Mexia and M.M. Oliveira, *Asymptotic linearity and limit distributions, approximations*, Journal of Statistical Planning and Inference **140** (2011) 353–357.
- [4] M.M. Oliveira and J.T. Mexia, *ANOVA like analysis of matched series of studies with a common structure*, Journal of Statistical Planning and Inference **137** (2007) 1862–1870.
- [5] C. Nunes, S.S. Ferreira and J.T. Mexia, *Fixed effects NOVA: an extension to samples with random size*, Journal of Statistical Computation and Simulation **84** (2014) 2316–2328.
- [6] H. Scheffé, *The Analysis of Variance* (New York-John Wiley & Sons, 1959).

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