On testing linear hypotheses in general mixed models

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Abstract

Testing linear hypotheses about parameters of the mean (fixed effects) in linear mixed models has been studied extensively for decades. The methodology developed for linear mixed models can be adapted to nonlinear mixed models. Here we look into existing tests and discuss adjustment of a test based on a correction (approximation) of the estimated covariance matrix of fixed effects estimators. The correction takes into account the estimates of variance-covariance components, and the development is similar to the one done by Kackar-Harville and Kenward-Roger. The Satterthwaite approximation is used for calculation of degrees of freedom. The approach via first order approximation and via two-stage estimation for a nonlinear random-coefficient regression model is investigated.

Keywords

Nonlinear mixed model, ML and REML estimation, Adjusted F-test.

References

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