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Estimating and testing a structured covariance matrix for three-level multivariate data.
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Summary: This article considers an approach to estimating and testing a new Kronecker product covariance structure for three-level (multiple time points (p), multiple sites (u), and multiple response variables (q)) multivariate data. Testing of such covariance structure is potentially important for high dimensional multi-level multivariate data. The hypothesis testing procedure developed in this article can not only test the hypothesis for three-level multivariate data, but also can test many different hypotheses, such as blocked compound symmetry, for two-level multivariate data as special cases. The tests are implemented with two real data sets.

MSC:

- [62H15](#) Hypothesis testing in multivariate analysis
- [62H12](#) Estimation in multivariate analysis
- [15A99](#) Basic linear algebra
- [65C60](#) Computational problems in statistics (MSC2010)

Cited in **20** Documents

Keywords:

[blocked compound symmetry](#); [Kronecker product covariance structure](#); [maximum likelihood estimates](#); [three-level multivariate data](#)

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