More on the Kronecker structured covariance matrix

Martin Ohlson[1] **and Dietrich von Rosen**[1,2]

[1] *Linköping University, Sweden*
[2] *Swedish University of Agricultural Sciences, Uppsala, Sweden*

Abstract

The Kronecker structured covariance matrix in multivariate normal distribution will be studied. Particularly, the mapping and parametrization which are induced by the Kronecker product are considered.

Furthermore, estimation and the uniqueness of the estimators will be discussed in the case of a covariance matrix which is a Kronecker product of several matrices.

Keywords

Kronecker product structure, Separable covariance, Maximum likelihood estimators.

References

Dutilleul, P. (1999). The MLE algorithm for the matrix normal distribution. *J. Stat. Comput. Simul. 64(2)*, 105–123.

Lu, N. and Zimmerman, D.L. (2005). The likelihood ratio test for a separable covariance matrix. *Statist. Probab. Lett. 73*, 449–457.

Naik, D.N. and Rao, S. (2001). Analysis of multivariate repeated measures data with a Kronecker product structured covariance matrix. *J. Appl. Stat. 28*, 91–105.

Roy, A. and Khattree, R. (2005). On implementation of a test for Kronecker product covariance structure for multivariate repeated measures data. *Stat. Methodol. 2*, 297–306.

Srivastava , M.S., Nahtman, T., and von Rosen, D. (2008). Models with a Kronecker product covariance structure: Estimation and testing. *Math. Meth. Statist. 17*, 357–370.

Srivastava, M.S., von Rosen, T., von Rosen, D. (2009). Estimation in general multivariate linear models with Kronecker product covariance structure. *Sankyā*. Accepted.