

# Principal Component Analysis and Singular Multivariate Regression

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## Abstract

Data reduction is important. Multivariate linear models (MANOVA) and bilinear models (Growth Curve model) are treated when the dispersion matrix is unknown but assumed to be singular. This can be used as a tool for reducing the size of the observed vectors. The approach leads to a basic model for principal component analysis. Estimators will be presented and some comments on the importance of working with observed data belonging to appropriate subspaces is discussed. If data do not belong to these subspaces data have to be preprocessed by applying certain projections.

## Keywords

Multivariate linear models; principal component analysis; singular dispersion matrix