Classification of higher-order data with separable covariance and structured multiplicative or additive mean models

Anuradha Roy[1] **and Ricardo Leiva**[2]

[1]*The University of Texas at San Antonio, USA*
[2]*National University of Cuyo, Mendoza, Argentina*

Abstract

Although devised in 1936 by Fisher [1], discriminant analysis is still rapidly evolving, as the complexity of contemporary data sets grows exponentially. Our classification rules explore these complexities by modeling various correlations in higher order data. Moreover, our classification rules are suitable to data sets where the number of response variables is comparable or larger than the number of observations. We assume that the higher-order observations have a separable covariance matrix and two different Kronecker product structures on the mean vector ([2], [3]). In this article we consider quadratic discrimination among g different populations where each individual has κth order ($\kappa \geq 2$) measurements.

Keywords

Higher-order data, Separable covariance structure, Structures on mean vector.

References

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