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A note on scaling in the canonical variate analysis

Abstract:

Due to the relationships between variables, multivariate methods were used to analyzing group structure. Canonical variate coordinates are directions in multivariate space that maximally separate the pre-defined groups of interest specified in the dataset. In investigating the relationships between variables and groups, this method consists of linear transforming the date set matrix, maximizing between-groups variances, into a set of new variables, which carry similar information, but are distributed in a multivariate Euclidean space. With using the normalization to the identity matrix, the canonical variates are arranged to be uncorrelated and of equal variance within group.

On the other hand, canonical variate coordinates performed to determine the relationship between variables made it possible to present the position of selected groups and describing their values in the space of the canonical variates. In this case, the analysis is based on singular value decomposition of the data set matrix. When we apply the appropriate scaling get the same mean values for considered groups.