

Using grade correspondence analysis to merge populations and detect latent orders

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Abstract:

The grade correspondence analysis (GCA) has been used to solve classification problems with a response variable and a vector of nonnegative explanatory variables. Still it can be used in various other areas as well. In this paper, so called sorting GCA algorithm is applied first to a data matrix. This algorithm results in a set of row and column permutations, corresponding to local maxima of Spearman's r^* . Usually the results are slight variations of the main order that can be found in the data, but some reflect minor orders. Applying the GCA algorithm again to the table of GCA results provides an opportunity to find clusters of results and therefore various prime orders of the data. Another problem considered in this paper concerns the comparing and merging of populations of data collected from different sources. GCA methods allow us to detect the differences and associations among populations and therefore provide insight relative to their being merged into one table.

Key words:

classification, correspondence analysis, grade parameters, latent structure, response variable, stochastic dependence, visual intelligent information system.