New Extensions of Two-Mode Clustering Procedures

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In this paper, we proposed two new extensions for single target two-mode clustering procedures. Twomode clustering models have been developed for simultaneously classifying both rows and columns of a given data matrix. Among them, the deterministic direct partition problem seeks a non-empty and nonoverlapping two-mode clusters for data approximation. Traditional two-mode clustering model is rather formulated in a multiplicative way, that is to say, it assumes that the given data set is constructed by the interactions of two types of groups. In this paper, we propose a more comprehensive model for jointly estimating the averages of separated clusters and the interactions between object- and variable-clusters. This procedure can be related with analysis of variance. Our second extension is about multiple-group analysis. Generally speaking, estimating structures from multiple data sets may provide some brand new insights for researchers, yet the existing two-mode clustering procedures only focus on a single target. We propose a new model for dealing with multiple-group cases, which guarantee a data-driven linear structure detection. It can be related with common reduced rank approximations. Both of the procedures are assessed through simulation studies and illustrated with real data example. (Behavioral statistics)