

Interpreting degenerate solutions in unfolding by use of the vector model and a signed distance model

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Keywords: unfolding, degeneracy, mixed plots, squared correlation, iterative majorization.

Abstract

We will reconsider the merits of unfolding solutions based on loss functions involving a normalization on the variance per subject; a classical example being Stress-2. In the literature, solutions based on Stress-2 are often diagnosed to be degenerate in the majority of cases. In this presentation, the focus lies on two frequently occurring types of degenerate solutions. A first type typically locates some subject points far away from a compact cluster of the other points. In a second type the object points lie on a circle. We argue that these degenerate solutions are well-fitting and informative. To reveal the information, we introduce mixtures of plots based on the ideal point model of unfolding, the vector model, and on the signed distance model. The degeneracies in this presentation are based on a new iterative majorization algorithm to optimize the average squared correlation between the distances in the configuration and the transformed data per individual. It can be shown that this approach is equivalent to minimizing Kruskal's Stress-2.