

to be untied. Number of dimensions was set to be one. The Euclidean model was assumed.

Three procedural steps were needed for EMDU analysis. First, for transforming rectangular data into symmetric proximity data, Euclidean distances between all possible pairs of items were computed as the sum (over subjects) of the squared differences between the paired scores. Second, the symmetric proximity data were submitted to the ALSCAL program and analyzed by the classical non-metric MDS model. The data were considered to be ordinal and matrix-conditional. Tied data were set to be untied. Number of dimensions was set to be one. The Euclidean model was assumed. Third, the IMDU procedure described in the last paragraph was again employed except that item coordinates estimated from the second step were read in and fixed for estimating subject coordinates. Note that the FIX option fixed the relative positions of items but fixed neither the origin of the stimulus space nor the lengths of dimensions (Young & Lewyckyj, 1979).