On the Procrustean analogue of individual differences scaling (INDSCAL)

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Individual Differences Scaling (INDSCAL) is concerned with analysing and
comparing the difference between multidimensional scaling solutions pertai-
ning to the same n stimuli observed for K individuals. Originally developed
in the psychometric literature to explain the relationship between subjects'
differential cognition of a set of stimuli, INDSCAL has found applications
in various disciplines, ranging from the social sciences to chemometrics. In
this talk, INDSCAL is revisited, considering INDSCAL as being embedded
within a hierarchy of individual difference scaling models. We explore the
members of this family, distinguishing (i) models, (ii) the role of identifi-
cation and substantive constraints, (iii) criteria for fitting models and (iv)
algorithms to optimise the criteria. Model formulations may be based either
on data that are in the form of proximities or on configurational matrices. In
its configuration version, individual difference scaling may be formulated as a
form of generalized Procrustes analysis. Algorithms are introduced for fitting
the reformulated models. An application from sensory science illustrates the
performance of the methods and their solutions.