

Multidimensional Item Response Theory Models for Practical Application in Large Tests Designed to Measure Multiple Constructs

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Abstract : This work presents a statistical methodology for measuring and founding constructs in Latent Semantic Analysis. This approach uses the qualities of Factor Analysis in binary data with interpretations present on Item Response Theory. More precisely, we propose initially reducing dimensionality with specific use of Principal Component Analysis for the linguistic data and then, producing axes of groups made from a clustering analysis of the semantic data. This approach allows the user to give meaning to previous clusters and found the real latent structure presented by data. The methodology is applied in a set of real semantic data presenting impressive results for the coherence, speed and precision.

Keywords : semantic analysis, factorial analysis, dimension reduction, penalized logistic regression

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