MODEL COMBINING IN FACTORIAL DATA ANALYSIS

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ABSTRACT

ANOVA is a statistical tool commonly used to study factor effects. Usually a model is selected through hypothesis testing or according to some model selection criteria. Both approaches have difficulties in finding the best model. When the goal is to estimate the cell means rather than to select a model, we proposed an algorithm, ARM, to convexly combine the candidate models. Simulation and data examples demonstrate the advantage of combining over selection when there is high instability in model selection. A theoretical risk bound on the combined estimator is also obtained.