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Beyond means: Hierarchical Bayesian analysis of order constraints in psychological science

Abstract:
Most theories in the psychological science are verbal and provide ordinal-level predictions for data. For example, a theory might predict that performance is better in one condition than another, but not the size of the effect. One way of gaining additional precision is to posit many ordinal constraints simultaneously. For example, a theory might predict an effect in the same direction for all people, or across many studies in meta-analysis. To assess whether multiple ordinal constraints hold in data, I adopt a Bayesian model comparison approach. I will illustrate how the consideration of ordinal constraints can improve inference when assessing individual differences in cognitive tasks, and when assessing generalizability in meta-analysis.