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Do we use all cues? Validation of a continuous measure of compensatory and non-compensatory cue weighting

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Abstract

People differ in whether they rely mainly on the most valid cue or integrate multiple cues when making probabilistic inferences. Traditional accounts explain the former behavior as the result of prematurely terminated evidence accumulation or heuristics that ignore information, but these views are challenged by evidence for parallel, bidirectional, effortless cue integration as formalized in Parallel Constraint Satisfaction (PCS) models. This project evaluates the PCS sensitivity parameter P , which captures non-compensatory decision-making by quantifying how strongly highly valid cues are overweighted relative to less valid cues. Simulations show that P can be reliably recovered from choices, response times, and confidence ratings. Reanalyses of three datasets (688 participants, 94,792 decisions) reveal higher P values in individuals classified as using non-compensatory heuristics. An empirical validation study further confirms that P reflects experimentally manipulated changes in non-compensatory versus compensatory strategies, supporting its value as a unifying, continuous account of differences in cue integration.