Understanding Speeded Categorizations and Similarity Judgments Using Computational Cognitive Modeling

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Abstract

This work tests three coping mechanisms for time pressure in similarity-based inferences from multiple features. Specifically, we test whether time pressure makes people attend to fewer object features, respond less precisely, or simplify the psychological similarity computation. We ran two preregistered time pressure experiments (Ns = 61 and 175), in which people classified objects or rated the similarity of object pairs. Inferential statistics and computational modeling in an exemplar-similarity framework indicate that time pressure mostly reduced participants' response precision, especially concerning their similarity judgments. Specifically, participants' categorizations were less deterministic and their similarity judgments became more variable as time pressure increased. In contrast, we do not find evidence that participants attend to fewer features or simplify the similarity computation. These results add to the evidence that time pressure and other cognitive load do not necessarily affect cognitive processes themselves but rather lower the precision of response selection.

In M. Goldwater, F. K. Anggoro, B. K. Hayes, & D. C. Ong (Eds.), *Proceedings of the 45th Annual Conference of the Cognitive Science Society.*