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Investigating Exemplar-Based Processes in Quantitative Judgments: A Multi-Method Approach

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Abstract

People judge an object's criterion value by relying on its similarity to previously experienced objects, the so-called exemplars. This work investigates exemplar-based processes in quantitative judgments by applying cognitive modeling to data from an eye-tracking experiment. Participants ($N = 49$) first learned the criterion value and location on the screen of each of four exemplars. Then, they assessed the criterion value of briefly presented test stimuli, and eye-tracking measured the gaze proportion to the now blank exemplar locations (looking-at-nothing). Participants who showed more looking-at-nothing also relied more on exemplars according to cognitive modeling of the test phase responses in the RuEx-J framework. Furthermore, looking-at-nothing was directed in particular at locations of exemplars similar to the test stimulus. Our multi-method approach thus suggests tight links between eye-tracking and cognitive modeling. The insights from process-tracing methods might be particularly valuable, when cognitive modeling cannot distinguish between alternative processes to perform quantitative judgments.