

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

Florian I Seitz

University of Basel, Basel, Switzerland

Rebecca Albrecht

Faculty of Psychology, University of Basel, Basel, Switzerland

Bettina von Helversen

University of Bremen, Bremen, Germany

Jörg Rieskamp

Faculty of Psychology, University of Basel, Basel, Switzerland

Agnes Rosner

Institute of Psychology, Leibniz University Hannover, Hannover, Germany

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.