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Authors

Guerrini, Janek

Sablé-Meyer, Mathias

Mascarenhas, Salvador

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An explanation of representativeness: contrastive confirmation-theoretical reasoning motivated by question-answering dynamics

Janek Guerrini

Ecole Normale Supérieure, Paris, France

Mathias Sablé-Meyer

NeuroSpin center, CEA DRF/I2BM, INSERM, Université Paris-Sud, Université Paris-Saclay, 91191 Gif-Sur-Yvette, France

Salvador Mascarenhas

Ecole Normale Supérieure, Paris, France

Abstract

Although there are several representativeness-based models of the Lawyer-Engineer task, it remains unclear just why people rely on representativeness-based heuristics rather than on posterior probabilities. This is especially striking because subjects have access to the rational answer: irrational answers decrease dramatically in frequency formats (Gigerenzer&Hoffrage,1995). We argue that the availability of representativeness is explained by the fact that subjects (1) engage in question-answering behavior, as predicted by theories of linguistic semantics, and (2) recursively reason on each other's mental states, as predicted by the Rational Speech Act Theory (Frank&Goodman,2012). To test this, in a norming study, we asked participants for frequency judgments on the components of Bayes' law, using pairs of real-world professions and related descriptions. In the main experiment, an independent group gave probability judgments on lawyers-engineers problems. We compared different models built from the normed values, and found that those incorporating (1) and (2) best predicted main-experiment responses.