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The Logic of Bias: Using Cognitive Architecture to Explore Interactions Between Cognitive Abilities and Decision Error

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Abstract

The traditional view of biases being cognitive imperfection has been challenged by several strains of research, such as the PSI cognitive architecture. Here, biases are considered to be engineered by evolution, to prevent dissatisfaction and assist subsequent satisfaction of human needs. PSI's general assumption of higher skills and reasoning capacities alleviating biases has been recently called into question, as high numeracy was associated with an exacerbated effect of political bias. We conduct two studies, the results of which indicate that the basis for this effect 1) does not represent a general cognitive fallacy caused by modulations of perceptional and attentional processes, 2) nor is rooted in the long-term forming of habituated action patterns, associated with prior beliefs. This strengthens the evidence for it to be specific to group dynamics with strong affiliative bounds. Further, we propose a set of revisions to PSI, necessary to model this expert bias phenomenon.

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