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Simplicity and Probability in Human Judgment

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Abstract

Children and adults prefer simpler to more complex explanations, a penchant they share with scientists and philosophers. While the preference has been widely remarked, its mechanisms and justification remain contested (Kitcher1987, Lombrozo 2007, Lombrozo2015). Explanations for the simplicity preference have included over-hypotheses, resource rationality, pragmatic justifications, and quirks of the hypothesis generation process. We present a model of key results from Pacer and Lombrozo (Pacer2017) and show that one form of the simplicity bias can be explained on probabilistic grounds alone. This modeling work provides an explanation for one manifestation of the simplicity bias, and allows us to formalize questions within the 'Explanation for Best Inference' Framework (Lombrozo2015), asking explicitly what makes the best explanation 'best.'