Probability, Confirmation, and the Conjunction Fallacy

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Abstract

The conjunction fallacy has been a key topic in debates on the rationality of human reasoning and its limitations. Despite extensive inquiry, however, the attempt of providing a satisfactory account of the phenomenon has proven challenging. Here, we elaborate the suggestion (first discussed by Sides et al., 2001) that in standard conjunction problems the fallacious probability judgments experimentally observed are typically guided by sound assessments of confirmation relations, meant in terms of contemporary Bayesian confirmation theory. Our main formal result is a confirmation-theoretic account of the conjunction fallacy which is proven robust (i.e., not depending on various alternative ways of measuring degrees of confirmation). The proposed analysis is shown distinct from contentions that the conjunction effect is in fact not a fallacy and is compared with major competing explanations of the phenomenon, including earlier references to a confirmation-theoretic account.

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