

Abstract

Coherent Attributions with Co-occurring and Interacting Causes

by

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Many processes within social and personality psychology require individuals to attribute the cause of an effect for which there are multiple potential causes. Whether people make these attributions correctly has been a topic of long-standing debate. This work introduces a Bayesian identity that can determine the coherence (internal consistency) of people's attributions regarding the presence of a candidate causal factor, given the occurrence of an effect and the presence of another causal factor. Letting U be the factor whose presence is uncertain, E be the effect that occurred, and C be the factor known to be present, then the attribution of interest, $P(U | E, C)$ is equal to $P(U) \cdot [P(C | U) / P(C)] \cdot [P(E | C, U) / P(E | C)]$, which are termed the prior probability, cause-cause co-occurrence, and relative effect likelihood, respectively. Intuitively, they express how likely the uncertain factor's presence is in general, whether the two factors tend to occur together, and how much more likely the effect is when it is known that the uncertain factor is present, as compared to when the uncertain factor's presence is unknown. This expression can be used to intuitively determine the coherent attribution in a particular scenario, or it can be applied quantitatively. Studies are conducted that assess attribution coherence relative to people's reported assumptions and perceptions. Two of the studies ask directly for the beliefs in the identity, one using a Likert scale to represent the log-ratio of terms in the model, the other asking for the individual probabilities. People are generally coherent, with little difference cross-culturally (East Asian vs. European-American). The approach can be made to directly match the inferences in trait and attitude attribution studies by using probability density functions over continuous variables, and letting the expected value of the posterior distribution be the normative attribution. When applied to the attitude attribution paradigm, it is shown both via postdiction and prospectively that people's attitude attributions are potentially coherent according to the model. Implications for discounting and augmenting, interactions between causes, the fundamental attribution error and correspondence bias, and cross-cultural attribution research are discussed, and recommendations are given for improving theory and research.