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The Generation of Original and Known Explanations: How the presence or absence of relevant information influences sense-making and information foraging

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Abstract

Explanation generation is ubiquitous, and is shaped by our individual and collective knowledge about a phenomenon. Some phenomena are not easily explained by known explanations and require the creation of original or unknown explanations (How does scientific knowledge grow?), while others are strongly associated with known explanations (What caused the Battle of Dunkirk?). The processes underlying explanation generation when known/unknown have different characterizations, and broad implications for learning and innovation. However, this distinction is not studied in prior work. We hypothesize that unknown (compared to known) explanations will: require relatively more sense-making––manipulation of acquired information; exhibit self-directed information search not captured by simple information foraging models; and result in looser knowledge networks containing semantically dissimilar foraged-for information. We embed these hypotheses into a model framework, and show that it captures the behavior of participants asked to generate explanations in unknown/known conditions using information they forage for on Wikipedia.

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