

Modular versus Integrated Causal Learning

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Abstract: Many pieces of information are potentially important to causal inference. Determining whether vitamin C prevents colds may entail knowing the frequency with which colds occur without vitamin C, other cold inhibitors, and the frequency of vitamin C use. Do reasoners integrate all this information to create coherent beliefs? In contrast to models emphasizing modular causal learning (e.g., Cheng, 1997), McDonnell, Tsividis, & Rehder (2013) proposed an integrated model, positing that individuals simultaneously update their beliefs about all components of a causal network. We tested modular versus integrated learning in two experiments using a retrospective inhibition design. In both, participants learned about two causes of headaches sequentially across two phases. We manipulated the base rate of headaches in phase II to be either consistent or inconsistent with phase I learning. Across experiments, participants failed to use base rate information as predicted by the integrated model, supporting modular causal learning.