Interaction of bottom-up and top-down attentional influences on the processing of contingency information

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Abstract: How do individuals determine what information to attend to when making causal inferences on the basis of contingency information? Although much research has focused on the role of top-down attentional influences on this process (e.g., effects of prior beliefs and motivation), little work has addressed the role of bottom-up attentional influences, which may be driven by low-level perceptual and motor processes. In prior work, the current authors demonstrated a distinct bottom-up rightward bias in overt attention during contingency acquisition that was associated with subsequent causal judgments (Goedert & Eiter, 2008). Here we recorded eye movements of participants while they acquired information about two candidate causes whose spatial locations varied over the course of learning. We found that the bottom-up rightward bias in gaze direction persisted in spite of the varied spatial locations of the causes. Additionally, the bias interacted with top-down, knowledge-based contingency acquisition processes to influence participants' gaze patterns.