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Using measures of metacognition to assess the acquisition of implicit and explicit knowledge in artificial grammar learning tasks

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Abstract

Artificial grammar learning (AGL) experiments are commonly used to assess implicit learning. However, in these tasks participants may acquire explicit rather than implicit knowledge. We combined an AGL task with measures of metacognition to assess whether participants acquired explicit knowledge of the grammar. Participants were initially exposed to sequences of visual symbols generated by an artificial grammar, followed by a testing phase in which they classified sequences as either grammatical or ungrammatical. On a subset of trials (choice trials) participants were given the option to either take or skip this classification. If participants had explicit knowledge of the grammar, they should be more likely to take trials when they are confident and skip when they are not. Participants learned the grammar and reported explicit knowledge of the grammar. However, they performed similarly in forced and choice trials, suggesting that this metacognitive measure does not measure the explicitness of their knowledge of this grammar.