Habits without Values

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Submitter Kevin Miller

Affiliation Princeton University

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Presentation Abstract Summary Habits form a crucial component of behavior. In recent years, key computational accounts have modeled habits as behaviors arising from model-free reinforcement learning mechanisms, and therefore determined by the expected outcomes of each action. Traditionally, however, habits are understood as arising from mechanisms that are outcome-independent. Here, we develop a computational model instantiating this traditional view, in which habits are acquired through the direct strengthening of recently taken actions, regardless of outcome. We demonstrate that this model accounts for key behavioral manifestations of habits which cannot be captured by a model-free RL account. Our value-free account of habitual behaviors provides a parsimonious account of existing behavioral and neural findings.

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Co-author Information

* Presenting Author

First Name	Last Name	Affiliation	E-mail
Kevin *	Miller *	Princeton University	kjmiller@princeton.edu
Amitai	Shenhav	Brown University	amitai_shenhav@brown.edu
Elliot	Ludvig	University of Warwick	e.ludvig@warwick.ac.uk

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