Review on

'The Attentional Learning Trap and How to Avoid It'

Motivation

The paper presents a study on a bias developing while learning. The main question raised is whether the hot stove effect can develop even in a deterministic environment if it is complex enough. This question is important for understanding how both people and machines learn and which biases they might develop. Understanding reasons for the biases may help us develop models that are better at learning and making choices.

Novelty and Significance

The attentional hot stove effect, as labeled by the authors, is a mechanism of bias development in category learning models studied in the paper. Older research, on the other hand, focused on the hot stove effect with a single stochastic prospect.

This paper introduces more complexity into the environment but makes it deterministic instead. The authors present a model simulation showing how attention in a contingent environment, where feedback is given only when interacting, hinders the learning process.

They also report on an experiment with 101 participants demonstrating how people in the contingent condition learned slower, approached good prospects less frequently, had less accuracy on the test, but scored significantly less points, compared to participants in the full-info condition.

Additionally, the authors calculated a "1-feature rule score" intended to show that people are making decisions based on a single rule, ignoring the other ones. Participants in the contingent condition score significantly higher, thus confirming the theory. These findings seem significant as they uncover more details about the hot stove effect: how this bias develops and hinders the learning process.

Limitations

The paper appears perfectly reasonable to me, I do not see any limitations or flaws.

Conclusions and Future Work

The authors suggest two interventions that might help correct for the attentional hot stove effect: individuation and feature occlusion. They provide results of their simulations, so the next step would be to test them in a real life experiment. Additionally, researching how the hot stove effect or another similar bias develops in other environments is an interesting question.

References

[1] Rich, A., & Gureckis, T. M. (2015). The attentional learning trap and how to avoid it. In R. Dale et al. (Eds.), *Proceedings of the 37th annual conference of the cognitive science society. Austin, TX*.