
Context-Dependent Valuation and Choice Biases in Humans and Rats

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Résumé

Choices between distinct behavioural options are not always driven by their objective value. Extensive research in humans shows we often make decisions based on subjective values that are shaped by the context. Such context-dependencies can lead to choice biases if previously learned subjective values interfere with optimal choices in new contexts. While this effect is well-documented in humans, little is known about its prevalence in other important animal model species, such as rats. Using a reinforcement learning (RL) paradigm that maintained identical reinforcement rates and visual stimuli in human and rat experiments, we compared how each species handles choices between options with conflicting objective (absolute) and subjective (relative) values based on reward probabilities. Our results show that both species preferred options that were highly ranked relative to other options in their learning context, even if at test these choices were objectively irrational (suboptimal). Our RL modelling findings indicate that rats and humans share many of the cognitive mechanisms behind context-dependent decision biases, while also illustrating the importance of integrating RL protocols when making cross-species comparisons.

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