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Sensitivity to time discrepancy: A computational model of human response to expectancy disconfirmation

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Abstract

Traditional expectancy disconfirmation theories have focused on the discrepancy between expectations and perceptions. Here, we propose a new Bayesian framework model that takes into account human responses triggered by disconfirmation. It aims to explain, for example, the differences of responses to waiting time at a hospital reception, where the wait time discrepancy is ideally expected to be zero, by introducing the sensitivity of individuals which corresponds to the decision threshold for responses when coping with disconfirmation. The model was applied to a real-world clinical appointment dataset. The dataset contains multiple appointments with expected and actual times and individual response patterns depending on the disconfirmation. Individual sensitivity was estimated from the dataset. The sensitivity was correlated with the response patterns such as sticking to expectation. In addition, with agent-based simulations, results suggest that the introduction of sensitivity contributes to identifying different groups of responses and predicting negative responses such as "No-Show".