Adaptive and Maladaptive Dynamics of Reward Learning and Mood

Abstract: It has proved surprisingly hard to generalize from the rapid advances in our understanding of fundamental cognitive mechanisms to people’s real-life behavior. This is in part because the impact such mechanisms have in real life depends on how they dynamically interact with other aspects of our mental state and environmental circumstances. I will present recent work uncovering one such dynamical interaction, involving reward learning and mood: unexpected rewards affect mood and mood in turn affects responses to subsequent rewards. I will show that this two-way interaction can have both adaptive and maladaptive consequences. On one hand, it can ‘correct’ learning to account for global changes in the availability of reward in the environment; on the other hand, it might give rise to unstable oscillatory dynamics that result in emotional instability. I will introduce a novel smartphone-based experimental approach that allows directly studying how such real-life cognitive processes unfold over time.