Adaptation for Optimal Learning in Conflict

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Given estimates of an insurgent group's organizational structure, we propose a simple method for testing whether this structure optimally adapts to dynamic conflict environments. We apply this method to the Taliban to assess their adaptation to the talk-and-fight environment of Afghanistan's emerging peace talks. To obtain estimates of the organizational structure of the Taliban, we analyze the distribution of casualties caused by Taliban attacks between 2004 and 2019. To understand whether the estimated organizational structure is optimal, we simulate its performance in a nonstationary multi-armed bandit environment, in which the Taliban are modeled as an adaptive ϵ-greedy agent, where the parameter ϵ tracks changes in the Taliban's organizational structure. Our results show that the organizational structure of the Taliban is able to outperform all other ϵ-greedy agent tested in the same environment. This allows us to conclude that changes in the organizational structure of the Taliban can be explained through reward-maximizing adaptation. The results add to the ongoing research on organizational learning of insurgents and how this learning can be exploited to develop best responses to insurgents across combat and negotiations.