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The Vigor of Punishment: Control of Movement Vigor in Social Decision-Making

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Abstract

Individuals typically respond faster and with greater velocity when pursuing rewarding options. However, people sometimes forgo personal gain to punish unfair behavior. How vigorously do they engage in such costly punishment? We introduce a novel framework linking neuroeconomic decision-making to movement vigor. In Study 1, using a motor version of the Ultimatum Game, we found that movement vigor increased with offer value for accepted offers but decreased with offer value for rejected ones (costly punishments). In Study 2, we examined the factors driving this reversal. Using a social economic exchange task, we found that punishment vigor was not driven by either the self-incurred cost or the absolute cost inflicted on the other, but rather by the efficiency of the punishment, that is, the ratio of other-cost to self-cost. These findings suggest that when people incur personal costs to punish, movement vigor accurately tracks the weighting of other-inflicted costs against self-costs.