

Hare or stag...?

Intuition and reasoning in social dilemmas

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Abstract

Dual process theories of human decision-making have nowadays become quite popular in social and cognitive psychology (Evans, 2003). Such theories provide accounts of how a decision by an individual can be the result of two different cognitive processes, which are typically called System 1 and System 2. Kahneman (2003) refers to System 1 (S1) and System 2 (S2) as, respectively, intuition and reasoning. Recent neurological research (Goel et al., 2000) suggests that different parts of our brain are actually activated when using System 1 and System 2, respectively. Dual process theories have been applied to explain human behaviors in different setups (Gawronski and Creighton, 2013): persuasion, attitude-behavior relations, prejudice and stereotyping, impression formation, dispositional attribution. Experimental economists have also very recently started to emphasize the separate roles of intuition and reasoning in solving social dilemmas (e.g. Alos-Ferrer and Strack, 2014; Achtziger and Alos-Ferrer, 2013; Achtziger et al. 2014; Achtziger et al. 2015). Rand et al. (2012) face the question of whether humans are intrinsically only interested in their own return and willing to cooperate as a deliberate choice on reflection or they are intuitively cooperative and behave selfishly after rational calculation. Their results obtained from a series of one-shot public goods games suggest that cooperation tends to be the outcome of intuitive decision-making and spontaneous cooperative behaviors are weakened by the rational reasoning. Butler et al. (2014) show that individuals that more strongly rely on S1 tolerate risk and ambiguity better than individuals that make more intensive use of S2. Butler et al. (2013), find that inhibiting rational calculus lessens ambiguity aversion and heighten the risk tolerance. Our project is closely related with these two lines of research. We will manipulate participants' predisposition to intuitive deliberation to see if rational reasoning either favors or hinders cooperation in the presence of a trade-off between risk and return.

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The kind of social and economic interactions that will be considered in our study involve the problem of coordinating over the same behavior. Conventions such as the product share or the driving side, and standards such as hardware or software platforms are common examples among the many possible. Such kinds of interactions are inherently strategic and give rise to coordination games where a multiplicity of Nash equilibria exists. The typical social dilemma that emerges in such settings is one between a payoff-dominant action, which pays a higher payoff if all players actually play according to the equilibrium profile, and a risk-dominant action, which performs better if out-of-equilibrium play happens. The stag hunt game embodies a stylized version of the situation described above, where hunting the stag is understood as the payoff-dominant outcome, while hunting the hare is understood as the risk-dominant one (for the literature on stag hunt games, see, e.g., Battalio et al., 2001; Devetag and Ortman, 2007; Schmidt et al., 2003).

If we look at social dilemmas represented by a stag-hunt game from the perspective of dual-process theories, at least a couple of questions arise: which cognitive process - either intuition or reasoning - favors a larger degree of coordination between agents? Is there any relationship between the cognitive process employed for the decision and coordination occurring on the payoff-dominant/risk-dominant action? We try to answer these questions by means of experimental evidence.

The experimental strategy that we adopt consists of treating agents to favor the adoption of one cognitive process over the other, and then comparing the results obtained with those of an untreated control group. Since in the literature different treatments have been used to induce the choice of the cognitive route, and a consensus on the best way has not been reached yet, we make use of three different treatments: *time constraint*, where subjects under time pressure or time delay are more likely to rely on intuition or reasoning; *priming*, where subjects are stimulated to rely on a cognitive process by letting them remember situations in which such a cognitive process has yielded good results (or the other cognitive process has yielded bad results); *ego depletion*, where subjects who are assigned a cognitive load are more prone to the use of intuition.

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