

# Methodological individualism in experimental games: Not so easily dismissed

Joachim I. Krueger \*

*Department of Psychology, Brown University, Box 1853, 89 Waterman Street, Providence, RI 02912, United States*

Received 18 September 2007; received in revised form 18 December 2007; accepted 21 December 2007

Available online 5 February 2008

## Abstract

Orthodox game theory and social preference models cannot explain why people cooperate in many experimental games or how they manage to coordinate their choices. The theory of evidential decision making provides a solution, based on the idea that people tend to project their own choices onto others, whatever these choices might be. Evidential decision making preserves methodological individualism, and it works without recourse to social preferences. Rejecting methodological individualism, team reasoning is a thinly disguised resurgence of the group mind fallacy, and the experiments reported by Colman et al. [Colman, A. M., Pulford, B. D., & Rose, J. (this issue). Collective rationality in interactive decisions: Evidence for team reasoning. *Acta Psychologica*, doi:10.1016/j.actpsy.2007.08.003.] do not offer evidence that uniquely supports team reasoning.

© 2007 Elsevier B.V. All rights reserved.

*PsycINFO classification:* 2340; 3020; 3040

*Keywords:* Social projection; Team reasoning; Game theory; Methodological individualism

## 0. Introduction

Game theory has trouble explaining how individually rational people contribute to a collective good. In many experimental games, the collectively desirable outcome is not obtained if everyone acts out of self-interest. Yet, many people cooperate in a prisoner's dilemma and manage to coordinate with one another in matching games. If orthodox game theory is descriptively wrong, a psychological game theory is needed to account for the empirical data (Colman, 2003).

In search of a solution to the collective action problem, Colman, Pulford, & Rose (this issue) suggest team reasoning as a radical departure from methodological individualism. Before exploring the merits of this approach, it is important to be clear about what team reasoning is not. Colman et al. are careful to establish that team reasoning has nothing to

do with currently popular social preference theories, which continue to treat decision makers as individual utility maximizers. Granted, some people care about the welfare of others in addition to their own, and some care about the fairness of the payoff distribution. Using Van Lange (1999) weighted-average utility model, Colman et al. show that the transformations of objective payoffs into subjective utilities do not alter the structure of the Hi-Lo matching game. They only make the values larger. Value transformations are also unlikely to transform a prisoner's dilemma into a game in which cooperation is the dominating choice. Although such structural changes are possible, other-regarding preferences would have to be stronger than self-regarding preferences (Krueger, 2007).

## 1. Evidential reasoning as a solution of the collective action problem

In a comment on Colman (2003), I suggested that the theory of evidential decision making (Grafstein, 1991;

\* Tel.: +1 401 863 2503; fax: +1 401 863 1300.

E-mail address: [Joachim\\_Krueger@Brown.edu](mailto:Joachim_Krueger@Brown.edu)

URL: <http://research.brown.edu/research/profile.php?id=10378>

Grafstein, 2002; Jeffrey, 1983) can be useful for the development of a psychological game theory (Krueger, 2003; see also Monterosso & Ainslee, 2003; Rapoport, 2003). In several articles, Acevedo and I have explored the intersection of social cognition and evidential decision making (Acevedo & Krueger, 2004; Acevedo & Krueger, 2005, 2007; Krueger, 2007; Krueger & Acevedo, 2005). The central social-cognitive idea is that people project their own preferences and intentions onto others inasmuch as the social distance between themselves and these others is small. For example, most people have a strong expectation that members of their own groups will act as they themselves do, whereas they remain relatively agnostic about the behavior of outgroup members (Robbins & Krueger, 2005).

In a prisoner's dilemma – or in many other games in which outcomes depend jointly on the choices of two or more players – people are initially uncertain about what others will do. In such a situation, their own choices have diagnostic significance. Realizing that they ultimately will be likely to do what most others do, they can generate two distinct predictions. They can predict that others are likely to cooperate if they themselves cooperate, and they can predict defection if they themselves defect. Using these two conditional probabilities of others' cooperation, they cooperate if the expected value of cooperation is greater than the expected value of defection. The argument is a purely diagnostic one; the theory does not claim that individuals do assume or should assume that they can make others to cooperate by cooperating themselves.

Consider the Hi-Lo matching game in Colman et al. (this issue); Fig. 1. As long as players believe that the probability of others choosing as they themselves do is not zero, they find that the expected value of Left is greater than the expected value of Right. As social projection is strong and robust across people, most players choose Left, and thereby successfully coordinate. This account of game behavior is consistent with methodological individualism, and it does not require other-regarding preferences. People can satisfy their self-regarding preferences and attain the collective good at the same time. They need not be motivated by a desire to do what is best for the group.

Colman et al. (this issue) do not entertain the possibility of evidential decision making, and they make no attempt to refute it. Hurley (2005, p. 395), whom they cite, only notes that the theory has been “discredited.” Elster (1985), whom they do not cite, believes that evidential thinking is magical (in the negative sense) because “the tail believes it can wag the dog” (p. 366). I disagree with these assessments, but this is not the place to review all the points of the debate. For a review of objections and rebuttals, see Krueger (2007) or Krueger and Acevedo (2005).

## 2. Team reasoning scrutinized

The case for team reasoning is ambitious because it is presented as a radical departure from individualist ortho-

doxy. For a radical paradigm to succeed, the theoretical arguments must be novel and distinctive and the evidence must be resistant to alternative interpretations. I believe that these standards have not been met.

### 2.1. Theory

The theoretical arguments offered by Colman et al. (this issue) are hazy and contradictory. The authors suggest that people may prefer “to maximize the *collective* utility of the group” (emphasis in the original). To guard against the reduction of collective preferences to individual ones, they suggest that the group may be treated as a “singleton”. This is a remarkable set of ideas. The first idea acknowledges that individuals are the carriers of preferences and that they make choices in light of these preferences. Only the second idea cleanly breaks with methodological individualism. Team reasoning assumes that the group, not the individual, is the vessel for preferences and “the unit of agency” (Hurley, 1989). Individual group members are demoted to being mere carriers of group preferences. They do not make decisions; the group does. Once this implication is stated clearly, the authors' effort to overcome problems of infinite regress begins to make sense. In an individualist framework, players make predictions about others who in turn make predictions about those making predictions, and so on. Once the locus of decision making has shifted to the group, the reading of other minds is no longer an issue.

A less charitable interpretation of this theory is that it is a throwback to the group mind (Elwood, 1920; Le Bon, 1895). A hundred years ago, many social scientists believed that groups acted in ways that were not reducible to the decisions of individual group members. Instead, they viewed some groups as psychological organisms that had feelings, thoughts, and intentions much like individual organisms. In time, the group mind was discarded as a false idea because no one could figure out how a group could possess unique psychological states (Allport, 1924; Hofstadter, 1957; Krueger, Acevedo, & Robbins, 2006; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). With regard to team reasoning, Colman et al. (this issue) themselves concede that “neither preferences nor modes of reasoning can be observed directly.” Arguably, some groups have emergent properties that cannot be identified by aggregating the properties of individuals. Yet, this does not mean that they are independent of those individual properties (Hofstadter, 1979).

Even for Colman et al. (this issue), individuals continue to play a role. Although they are not presumed to ask themselves “What do I want, and what should I do to achieve it?”, they are presumed to ask “What do we want, and what should I do to help achieve it? In other words, the individual re-emerges as a decision maker. Besides blurring again the distinction between the group and the individual as the locus of decision, this framing does not help to disambiguate the Hi-Lo matching game because the collective value is perfectly confounded with the individual value.

Whatever is best for the group, is also best for the group member.

## 2.2. Data

The goal stated by Colman et al. (this issue) is to pit “predictions of team reasoning directly against predictions of game theory.” Experiment 1 consists of two vignettes priming collective preferences (raising money for a charity) and two vignettes priming individual preferences (winning money). Unlike the Hi-Lo matching game, the design of this study unconfounds individual and collective payoffs. A person who chooses [5, 6] over [6, 4] appears to value collective payoffs more highly than individual payoffs (see Fig. 2, Colman et al., this issue). As predicted, the option with payoffs [5, 6] is preferred over the option with payoffs [6, 4] only when collective preferences are primed. Whereas the Hi-Lo matching game cannot be used to test the prediction of social preference theories, this study can. If people care as much about the other’s payoff as about their own, they will make the choice predicted by team reasoning (van Lange, 1999). Experiment 1 thus fails to provide unique evidence for team reasoning.

In Experiment 2, participants make choices in a context of interdependence. Each of the five payoff matrices involves nine possible outcomes resulting from the combinations of three choice options for each player. The outcome of CC is always the most efficient (i.e., maximizing the collective payoff) and the outcome EE is a Nash equilibrium and thus the outcome predicted by game theory. Yet, E is not a dominating strategy except in Game 5. Thus, the deck is stacked against game theory. Finding that most participants choose option C appears to show that they do so to maximize collective utilities. As noted above, however, the theory of evidential decision making predicts the same outcome. Inasmuch as other people can be expected to choose as participants themselves do, taking option C is diagnostic of the CC outcome, which again is desirable for the individual and the collective. Experiment 2 cannot carry the burden that is placed on it. It cannot yield evidence for team reasoning because the process is neither tested nor observed. The payoff matrices combine elements of the prisoner’s dilemma and the matching game. It is already known that many participants cooperate in these games. For a test of a new theory to be conclusive, it is necessary to go beyond a mere replication of the phenomenon.

## 3. Creeping evidentialism

My argument is that if team reasoning is to survive as an alternative to orthodox game theory, it must find a way to differentiate itself from other individualist theories as well, most notably from the theory of evidential decision making. A strict version of team reasoning would require that the processes deemed critical to evidential decision making be removed. Colman et al. (this issue) try to do this with infinite-regress arguments. Their conclusions are uncon-

vincing, however. Evidential decision makers only need to recognize that their final decision will be, by definition, more likely be the choice of the majority than the choice of the minority *regardless of how they themselves or others make their choices*. In other words, an evidential decision maker need not assume that others are evidential decision makers too (although they might if they use evidential decision making as a meta-heuristic).

Colman et al. (this issue) grant in passing that people make predictions about others and that they use these predictions to make their own decisions. Referring to Bacharach’s (1999) work, they concede that “players’ decisions to choose team-reasoning strategies depend partly on the subjective probability that they assign to the other player(s) doing the same.” This is actually the logic of evidential decision making. Likewise, Sugden (2005, p. 193) states that “team reasoning does not generate reasons for choice unless each member of a team has reason to believe that there is common reason to believe that each member of the team endorses and acts on team reasoning.” The theory of evidential decision making comes to the same conclusion, only more quickly.

If one were to eliminate predictions about others altogether and merely assume that team reasoners want “to play their part in that collective activity” (Hurley, 2005, p. 598), one would end up with a nonconsequentialist theory that looks very much like an appeal to the categorical imperative. This is fine, and perhaps it is true for some individuals, but the idea is 250 years old.

## References

- Acevedo, M., & Krueger, J. I. (2004). Two egocentric sources of the decision to vote: The voter’s illusion and the belief in personal relevance. *Political Psychology*, 25, 115–134.
- Acevedo, M., & Krueger, J. I. (2005). Evidential reasoning in the prisoner’s dilemma game. *American Journal of Psychology*, 118, 431–457.
- Allport, F. H. (1924). *Social psychology*. New York, NY: Houghton Mifflin.
- Bacharach, M. (1999). Interactive team reasoning: A contribution to the theory of cooperation. *Research in Economics*, 53, 117–147.
- Colman, A. M. (2003). Cooperation, psychological game theory, and limitations of rationality in social interaction. *Behavioral and Brain Sciences*, 26, 13–153.
- Colman, A. M., Pulford, B. D., & Rose, J. (this issue). Collective rationality in interactive decisions: Evidence for team reasoning. *Acta Psychologica*, doi:10.1016/j.actpsy.2007.08.003.
- Elster, J. (1985). *Making sense of marx*. Cambridge, England: Cambridge University Press.
- Elwood, C. A. (1920). *An introduction to social psychology*. New York: Appleton and Co.
- Grafstein, R. (1991). An evidential decision theory of turnout. *American Journal of Political Science*, 35, 989–1010.
- Grafstein, R. (2002). What rational political actors can expect. *Journal of Theoretical Politics*, 14, 139–165.
- Hofstadter, D. R. (1979). *Gödel, Escher, Bach: An eternal golden braid*. New York, NY: Basic Books.
- Hofstädter, P. R. (1957). *Gruppendynamik: Kritik der Massenpsychologie [Group dynamics: A critique of crowd psychology]*. Hamburg, Germany: Rowohlt.

- Hurley, S. L. (1989). *Natural reasons*. Oxford, England: Oxford University Press.
- Hurley, S. L. (2005). Social heuristics that make us smarter. *Philosophical Psychology*, 18, 585–611.
- Jeffrey, R. (1983). *The logic of decision* (2nd ed.). Chicago, IL: University of Chicago Press.
- Krueger, J. I. (2003). Wanted: A reconciliation of rationality with determinism. *Behavioral and Brain Sciences*, 26, 168–169.
- Krueger, J. I. (2007). From social projection to social behaviour. *European Review of Social Psychology*, 18, 1–35.
- Krueger, J. I., & Acevedo, M. (2005). Social projection and the psychology of choice. In M. D. Alicke, D. Dunning, & J. I. Krueger (Eds.), *The self in social perception* (pp. 17–41). New York: Psychology Press.
- Krueger, J. I., & Acevedo, M. (2007). Perceptions of self and other in the prisoner's dilemma: Outcome bias and evidential reasoning. *American Journal of Psychology*, 120, 593–618.
- Krueger, J. I., Acevedo, M., & Robbins, J. M. (2006). Self as sample. In K. Fiedler & P. Juslin (Eds.), *Information sampling and adaptive cognition* (pp. 353–377). New York: Cambridge University Press.
- Le Bon, G. (1895). *Psychologie des foules*. Paris: Alcan.
- Monterosso, J., & Ainslee, G. (2003). Game theory need not abandon individual maximization. *Behavioral and Brain Sciences*, 26, 17.
- Rapoport, A. (2003). Chance, utility, rationality, equilibrium. *Behavioral and Brain Sciences*, 26, 172–173.
- Robbins, J. M., & Krueger, J. I. (2005). Social projection to ingroups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review*, 9, 32–47.
- Sugden, R. (2005). The logic of team reasoning. In N. Gold (Ed.), *Teamwork: Multi-disciplinary perspectives* (pp. 181–199). Basingstoke: Palgrave Macmillan.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Blackwell.
- Van Lange, P. A. M. (1999). The pursuit of joint outcomes and equality in outcomes: An integrative model of social value orientation. *Journal of Personality and Social Psychology*, 77, 337–349.