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SITUATED BOUNDED
RATIONALITY:
LINKING
INSTITUTIONAL
ANALYSIS TO
COGNITIVE,
PROCESSUAL, AND
PHENOMENOLOGICAL
APPROACHES IN
ANTHROPOLOGY

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Situated Bounded Rationality: linking institutional analysis to cognitive, processual, and phenomenological approaches in anthropology¹

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Abstract

This paper is an attempt to further develop anthropological applications of institutional analysis by integrating it with approaches coming out of cognitive sciences. Institutional analysis has been successfully used to study changes in *property rights* and the negotiation of the collective-action problem inherent in managing common-pool resources under a variety of property regimes. It is particularly well-suited to the analysis of socio-ecological systems, and is compatible with theories coming out of ecological and economic anthropology. Yet despite the pioneering work of James Acheson and Jean Ensminger, institutional analysis remains unfamiliar to most anthropologists, primarily because of its theoretical foundations in rational choice and game theory, which many anthropologists see as irreconcilable with anthropology's humanistic, reflexive, and relativistic biases. Institutional analysts circumvent the problems inherent in strict definitions of rationality through the concept of *bounded rationality*. This is a necessary first step, but still assumes the existence of an abstract Rationality as the underlying motivation behind human behavior, and as the normative baseline from which to measure "deviations" in human behavior. This paper is a step toward elaborating a more nuanced understanding of *situated bounded rationality*, based on situated cognition, humans' evolved reliance on heuristics, and the predominance of preferences over *actions* (means) as opposed to preferences over *outcomes* (ends). This approach combines the strengths of two dominant types of actor-based models – the microeconomic and the psychological (behavioral) – and integrates them with the analysis of social structure. In this way, the approach proposed here reconciles institutional analysis with processual, cognitive, practice-based, and perhaps most surprisingly, phenomenological approaches in anthropology.

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Introduction

The very broad and eclectic nature of the anthropological enterprise has allowed the generation and simultaneous co-existence of a far greater array of theoretical and methodological approaches than exists in any other social science. This state of affairs makes possible the rich diversity of projects and approaches, but also threatens to rive the intellectual integrity of the discipline (indeed, many would say we have long passed that point). The inability to agree on basic terms, theoretical approaches, a common canon of knowledge, or a common methodological foundation has led to the splintering of the discipline into irreconcilable factions and rendered anthropology virtually irrelevant insofar as its impact beyond the discipline goes, especially in comparison to other, more prominent social sciences such as economics, political science, psychology, and sociology. This paper suggests one possible step toward rectifying this situation by pointing out the common ground among certain powerful theoretical approaches that are often seen as irreconcilable and mutually exclusive, and engaging in a dialogue with other disciplines in such a way that we can see the common ground and yet also highlight the unique and indeed indispensable contribution anthropology can make. The key to that reconciliation lies in a critical refinement of a central concept of the new institutionalism, that of *bounded rationality*. This refinement, which I am calling *situated bounded rationality*, is informed by such related concepts as “ecological rationality” (Gigerenzer, Todd and the ABC Research Group 1999), “embodied cognition” (Clark 1997, 1999; Lakoff and Johnson 1999), and “cultural cognition” (Hutchins 1995). It recognizes the importance of emotion-triggered intuitions and heuristics, and a preference function that emphasizes *actions* (means) over economic ends, in motivating and directing human behavior.

Such a modified version of bounded rationality can be seen as a common thread between institutional approaches coming out of economics, political science, and sociology, psychological approaches, and processual, cognitive, practice-based, and perhaps most surprisingly, phenomenological approaches in anthropology. Once that link is established and accepted, the next – and more difficult – step will be to design rigorous, cross-culturally comparable fieldwork methodologies for observing and analyzing bounded rationality “in the wild.”

Institutional Analysis and Development

A bit of my personal intellectual history will help provide some necessary background for this paper. I was first introduced to anthropological applications of institutional economics while a PhD student at Indiana University, where Elinor Ostrom and her colleagues have been refining an “institutional analysis and development” (IAD) framework for the last three decades. I found the IAD a compelling framework for my specific research project among the Tozhu and Tofa, two closely related groups of reindeer herders and hunters in southern Siberia, because it is conceptually very precise and detailed, thus provides an unambiguous analytical language and a very concrete and practicable approach. For the purposes of my research, I define *institutions* as regularized and repeated patterns of human behavior informed by rules, norms, and strategies, that

then feed back into and recreate rules, norms, and strategies.³ Humans are assumed to devise institutions on the basis of repeated interaction and reiterated behavior that occur in a social space called an *action arena*, which is the fundamental unit of analysis in the IAD framework. The *action arena* is composed of an *action situation* and *actors*, each of which is in turn characterized by a defined cluster of variables and the dialectic relationships among them (Ostrom, Gardner and Walker 1994: chapter 2; Ostrom 1999: 41-46). I find the *action arena* as defined in the IAD framework to be a more concrete and methodologically operationalizable unit of analysis than any that I have come across in anthropological studies to grasp the dynamic by which individual human actions aggregate into larger social “structures,” and to help analyze and explain what occurs at the interstices of human agency and social structure. Secondly, while IAD comes out of economics and political science, it has built into it plenty of room for ethnographic data and anthropological analysis. As such it is inherently interdisciplinary, and is compatible with a variety of theories employed in anthropology, particularly ecological and economic anthropology. The IAD framework employs a language that speaks to policy makers, development planners, and other non-anthropologists in a way that some of the more esoteric jargon coming out of anthropology simply does not.⁴ This makes institutional analysis particularly appropriate for those interested in applied anthropology.⁵ Finally, institutional analysis has frequently been used to study changes in *property rights*, which some scholars see as the single most important institutional complex (Eggertsson 1993, cited in Acheson 1994: 2). It has proven particularly effective in illuminating the process of negotiating the collective-action problem inherent in managing a certain type of resource system – common-pool resources (CPRs) – under a variety of property regimes (Ensminger 1996[1992]; see also case studies in Agrawal and Gibson 2001; Ostrom 1990; Ostrom, Gardner, and Walker 1994; Ostrom, Dietz et al. 2002). Of particular concern in my research is access to a variety of CPRs such as reindeer pasturage, wood for fuel and tent frames, non-timber forest resources such as mushrooms, berries, pine-nuts, and medicinal plants, and most importantly, wild animals and fish. These resources were the basis of subsistence for south-Siberian reindeer herding peoples in pre-Soviet times, and have since the collapse of the Soviet Union once again become of paramount importance. In CPR systems, the decisions people make regarding management of common-pool resources is critical both for their economic security and for the sustainability of the resource base.

Because of its more flexible assumptions of human behavior (built into the IAD via the concept of *bounded rationality* – see below), the IAD framework invites anthropological perspectives and systematizes the ethnographic process by providing a consistent and coherent structure for identifying and discerning the relationships among the hard-to-define, unquantifiable cultural values and social norms that form the basis of local-level institutions. In this way, IAD is amenable to current anthropological approaches, especially processual approaches (e.g., *processual ethnography* [Moore 1987] and *processual ecological anthropology* [Orlove 1980]). In particular, the *action arena* as a conceptual unit maps very neatly onto what Sally Falk Moore has termed

³ *Institution* defies easy definition. Even within the “new institutional economics” literature there is a great deal of ambiguity and contestation over the definition of the term “institution” (see Mäki 1993). As Thrainn Eggertsson has observed, “the new economics of institutions is a Tower of Babel, a field in search of a common language” (cited in Acheson 1994: 6). In the IAD framework, the term *institution* refers to “shared concepts used by humans in repetitive situations organized by rules, norms, and strategies” (Ostrom 1999: 37). My definition is a composite that draws on this definition of Ostrom’s, as well as on Douglass North’s (North 1990: 3), and Leach, Mearns and Scoones’ (1999: 237).

⁴ Of course, policy makers and development planners have their own esoteric jargon, of which institutional analysis is a part, which is why the language of institutional analysis is more acceptable to them.

⁵ See Ostrom, Gibson et al. (2002) for an excellent example of institutional analysis applied to development programs.

diagnostic events in her call for a more “processual” ethnography (Moore 1987: 730)⁶. Like institutional analysis, such processual approaches are actor-based, with a focus on the individual as a decision maker, and they are diachronic in that they examine the mechanisms of adaptation and change over time.

Yet despite what appears to be clear compatibility in these approaches, institutional analysis as a theoretical and methodological framework remains unfamiliar to most anthropologists.⁷ Jean Ensminger’s *Making a Market: The Institutional Transformation of an African Society* (1996, first published 1992) and James Acheson’s edited volume *Anthropology and Institutional Economics* (1994) were important first steps toward introducing the new institutional economics into anthropology. Both of these authors have continued to push institutional analysis (Acheson 2003; Acheson and Gardner 2004; Ensminger 1998, 2002). John McCarthy’s *The Fourth Circle: A Political Ecology of Sumatra’s Rainforest Frontier* (2006) is another excellent anthropological application of institutional analysis. But these are still isolated efforts that have not had much impact within anthropology generally.

I suggest that the main reason institutional analysis has not found greater acceptance within anthropology is because of its theoretical foundations in rational choice and game theory, concepts that tend to cause severe acid reflux in many anthropologists. Let me review some of the main objections anthropologists have to the way they perceive rational choice theory to be used:

1. The reduction of all motivation in human behavior and decision-making to self-interest;
2. The mechanistic application of the self-interest assumption, which (somewhat paradoxically) denies human agency by making the model overly deterministic;
3. The assumption that human behavior is goal- and outcome-oriented (rather than process-oriented), with the goal being the maximization of a “utility function,” which is often (although not always) measured in material terms;
4. The teleological approach of neoclassical economics, best exemplified by the concept of “revealed preferences,” a process of backward induction from results to motivations, which results in an irrefutable, tautological proof of self-interest as the basis of decision-making behavior;
5. The assumption that humans actually calculate and weigh costs and benefits consciously and deliberately prior to making a decision;
6. The assumption that humans have access to all necessary information to make an informed choice;
7. The assumption that humans are in a position (socially, politically, economically) to make a free choice, unconstrained by power differentials and inequalities;
8. The failure to incorporate processes of social and cultural influence.

Basically, institutional analysis’s theoretical foundations in rational choice theory and game theory are anathema to many cultural anthropologists. In many cases this is a misguided anathema based on a very narrow and caricatured understanding of rational choice and its applications (i.e., that of

⁶ Moore’s concept of diagnostic event, however, is left rather vague and imprecise in comparison to the IAD’s action arena.

⁷ Within anthropology there are a few precedents for analyzing institutions (Malinowski 1944; Steward 1955; Polanyi 1971 [1957]; Firth 1961; Barth 1966, 1981). These are analyzed in Donahoe 2004. Barth 1966 was an early attempt to use game theory to construct a generative model of social structures on the basis of human transactions.

strict neoclassical models) that most economists have moved beyond, and on a conflation of two very different understandings of rationality: a) rationality as a metaphor for a variety of mechanisms and processes; and b) rationality as an actual human cognitive process with behavioral consequences. Examples of rationality as metaphor include the way evolutionary biologists refer to rational choice at the genetic level when explaining efficiency and adaptive fitness in natural selection, and the way cooperation and other prosocial behaviors have generally been made to fit rational choice models in terms of Hamiltonian kin selection (Hamilton 1964; cf. Dawkins 1976). But even the most refined rational choice models of human decision-making behavior are metaphorical and heuristic. This is what many anthropologists do not realize (the degree to which experimental economists recognize the metaphorical and heuristic nature of their use of the rationality concept is an open question). Nevertheless, there are certainly good objections to the uncritical application of the rationality concept, and the resistance to institutional analysis that I have encountered from anthropologists has forced me to think more critically and constructively about institutional analysis and how it can be reconciled to anthropological approaches to the human-environment interface. In particular, I have come to realize that *bounded rationality* – the concept that institutional analysts use to circumvent the problems inherent in strict definitions of rationality and to try to reach a more genuinely *behavioral* understanding of human decision-making – needs to be rethought and refined.

Simon's Scissors and the Missing Blade

The concept of bounded rationality was pioneered by Herbert Simon, who saw the rationality assumed in the neoclassical economic theory of subjective expected utility (SEU) as having no foundation in empirical evidence and therefore not a valid explanation of human behavior (Simon 1982). When he initially developed the concept, Simon used the image of a pair of scissors to describe bounded rationality, with one blade of the scissors human cognitive capacity, the other the structure of the environment (physical and social) within which decisions are being made (Simon 1956, discussed in Gigerenzer and Selten 2002: 4). To understand decision-making behavior, both blades of the scissors must be studied. However, as noted by Gigerenzer and Selten, after introducing the concept, Simon appears to have forgotten the “structure of the environment” blade of his scissors in his subsequent applications of bounded rationality, and focused exclusively on the limitations of human cognitive capability (see also Hanoch 2002). Thus, in a later work, Simon defines bounded rationality as “the limits of human capability to calculate, the severe deficiencies of human knowledge about the consequences of choice, and the limits of human ability to adjudicate among multiple goals” (Simon 1982: 270). Nevertheless, Simon never breaks with his insistence that rationality must be defined by the *processes* used in reaching decisions, which are influenced by actors’ perceptions of a given context. According to Simon, actors will be particularly influenced by “contemporary social beliefs,” which undergo change over the course of time. Thus Simon’s bounded rationality is a *procedural*, as opposed to a *substantive*, rationality, and can only be determined on the basis of empirical observation of decision making in context (Simon 1982).

The concept of bounded rationality has become very popular, especially in the “new institutional economics” and experimental economics. Unfortunately, Simon’s overemphasis on the cognitive limitations and neglect of the structure of the environment has carried over to his followers. Most

recent applications of bounded rationality have tended to focus on the “boundedness” of human cognitive abilities, to the neglect of contextual factors and the *interaction* between context and cognition. This emphasis on the limitations of human information-processing capabilities has led analysts to define and discuss the “boundedness” of human rationality in negative terms: as limitations, constraints, deficiencies, imperfections, and biases in human information-processing capabilities.⁸ These deficiencies are presumed to be the result of our inherited cognitive architecture, which reached its present state of evolution in the Pleistocene era under conditions very different from those we face in today’s modern world. Times have changed, but our cognitive wiring is stuck in the Stone Age. Thus there is a mismatch between our inherited cognitive architectures and the tasks we face today, leading to inefficient and maladaptive decision-making behavior (see Jones 2001, chapter 1 for a statement of this).

Another, related class of applications of bounded rationality assumes that when making decisions people go through a cost-benefit calculation, albeit imperfect given our flawed cognitive abilities and limited information (the *optimization under constraints* school of thought – see Gigerenzer and Selten 2002 for a critique of this), and if you can only identify the biases people bring to the calculation and work them into the cost-benefit calculus in the decision-making model, you can predict the behavior (and, presumably, you are more accurately describing the actual cognitive processes). In both of these cases, our decision-making behavior is determined to be faulty and maladaptive insofar as it deviates from a presumed ideal, optimal decision-making behavior, and that ideal, optimal decision-making behavior is still defined in terms of the predicted behavior based on an assumption of pure Rationality in the old neoclassical sense. And when that predicted behavior is posited as the norm, as the ideal, as the benchmark, and all other behavior (i.e., all real-world behavior) is measured in terms of its *deviation* from that ideal, then there is an underlying assumption that we would all be better off if we could achieve that mythical ideal, purely Rational, proper, optimal decision. This then becomes the goal for policy makers – to design institutions in such a way that they can somehow compensate for humans’ cognitive limitations and help us come as close as possible to that ideal (see Jones 2001 for one example of this approach). So at the most fundamental level, such uses of bounded rationality are still not questioning Rationality with a big “R” as the ideal toward which we should all strive. They are simply taking what was originally assumed to be in fact the universal motivating force of human behavior – maximization of utility – and turning it into the desired norm for human behavior. This is the switch that has occurred in rational choice theory, and even many approaches positing a form of bounded rationality still adhere to the presumed normative desirability of Rationality with a big R. In a similar manner, experimental economists are refining their rational choice models with ever-increasing precision and getting better and better at figuring out ways to incorporate non-material goods (including “culture” broadly speaking) into the utility functions of individuals.⁹ But these are not *behavioral* models; they are “as if” models that do not accurately represent real human motivations or actual cognitive processes. This is even the case with anthropological applications of institutional analysis and bounded rationality. Thus there is still an unrealistic understanding of the actual cognitive processes humans are going through when making decisions. Even Acheson and Ensminger, both

⁸ This approach characterizes the “heuristics and biases” school of thought, associated with Daniel Kahneman and Amos Tversky (see e.g., Kahneman, Slovic and Tversky 1982). For good reviews of this literature, see Conlisk (1996) and Rabin (1998).

⁹ So, for example, Messick and Sentis 1985 introduced “social utility function” (see also Loewenstein et al. 1989). See Falk et al. 2002 for a discussion of incorporating preferences for reciprocity and equity.

excellent anthropologists who have championed the use of institutional analysis in anthropology, are still working within a tradition of institutional analysis that is not questioning some of the fundamental assumptions behind the concept of bounded rationality. They still assume too much active and conscious reasoning (to the neglect of emotions), too much intentionality, that human behavior is predominantly goal-oriented (leading to an overemphasis on preferences over outcomes rather than preferences over actions), and that, as a consequence of all of the above, human behavior is much more predictable than it is.

I am interested in working toward elaborating a more behavioral approach to bounded rationality that will be more consistent with findings coming out of cognitive sciences and evolutionary psychology. In fact, this is what Elinor Ostrom, the doyenne of institutional analysis, called for in her 1997 presidential address to the American Political Science Association (Ostrom 1998): “We have not yet developed a *behavioral theory of collective action* based on models of the individual consistent with empirical evidence about how individuals make decisions in social-dilemma situations. (...) We need to formulate a behavioral theory of boundedly rational and moral behavior” (Ostrom 1998: 1–2, italics in original).

“Simple Heuristics that Make Us Smart”¹⁰

What then is a more realistic depiction of humans’ actual cognitive processes? In my dissertation I outlined the very insecure and uncertain circumstances that the reindeer herders and hunters I worked with found themselves in following the break-up of the Soviet Union and the collapse of the state farm system (Donahoe 2004). After generations of state support, these peoples were suddenly forced to rely on their own resources and to search for the combination of activities that best satisfies their needs and enhances their chances for survival. In such situations of uncertainty, I suggested, it is not a systematic calculation of costs and benefits that prevails, but rather a process of “muddling through” (Lindblom 1959), a slow, incremental, experiential approach to change. As Bonnie McCay has put it:

The value of muddling through processes, through which initial changes are small, relatively cheap, and not necessarily informed by consideration of larger values and goals, is similar to an argument made by Bateson (1963, 1972) and Slobodkin (Slobodkin and Rapoport, 1974; Slobodkin, 1968) concerning the ‘economics of flexibility’ in evolution and adaptation. (McCay 2002: 375)

This is in fact exactly the situation in which our cognitive architectures have evolved, and for which we are exquisitely adapted. “Muddling through” is the process through which the evolved flexibility and adaptability of the human cognitive architecture become manifest. We are designed by evolution to deal with situations of uncertainty through flexible adaptation, i.e., muddling through. We are also designed by evolution to be social animals, so we muddle through together. However, muddling through together assumes an ability to share certain representations or mental models. Shared mental models can also be called institutions (see Denzau and North 1994), and the process of sharing mental models is a process of institution building. So when we are discussing situations of risk and uncertainty, uncertainty and freedom, and how people deal with these, we are

¹⁰ This is the title of a 1999 volume edited by Gerd Gigerenzer, Peter Todd, and the ABC Research Group.

also talking about how humans operate to alleviate uncertainty, and one of the main ways humans do this is through institutions.

This idea of the muddling through process and the emergence of institutions that can result from it has parallels in some of the recent literature coming out of experimental economics and psychology. This literature addresses human cognitive capabilities NOT in negative terms of limitations and constraints, but rather in more positive terms of creating possibilities, of necessary and evolutionarily selected-for versatility; as the very strengths of our cognitive architecture that have allowed the species to flourish and thrive under all sorts of different conditions – in fact, as “better than rational,” as Cosmides and Tooby (1994) have put it. The human brain in interaction with the environment has developed certain domain-specific tools that aid decision making. These have been termed “fast and frugal heuristic for environmentally bounded minds” (Todd 2002), and “simple heuristics that make us smart” (Gigerenzer and Todd 1999). Gigerenzer promotes the notion of an “adaptive toolbox full of specialized devices”:

It invokes the more modest abilities of a “backwoods mechanic and used part dealer,” as Wimsatt (1999) describes nature. The backwoods mechanic has no general-purpose tool nor are all spare parts available to him. He must fiddle with various imperfect and short-range tools, a process known as vicarious functioning (Brunswik 1955). He will have to try one thing, and if it does not work, another one, and with step-by-step adjustments will produce serviceable solutions to almost any problem with just the things at hand. (Gigerenzer 2002: 43)

Gigerenzer and Selten illustrate the advantages of using heuristics over complex calculations with a thought experiment in which two teams of engineers have a contest to see which can develop a better robot to catch a ball. One team, the “optimizing team,” programs into the robot a family of parabolas that describe possible flight trajectories of balls, as well as instruments to measure wind speed and direction, spin of the ball, etc. The other team, the “boundedly rational” team, observes what players actually do (take a moment to decide whether the ball will land in front of or behind them, then fixate on the ball, maintaining a constant angle between the eye and the ball). Using this single cue – the simple gaze heuristic – the robot will catch the ball on the run, without ever having calculated where it would land. This thought experiment illustrates several points:

First, contrary to conventional wisdom, limitations of knowledge and computational capability need *not* be a disadvantage. The heuristic tools of humans, animals, and institutions can be simple, but nevertheless effective in a given environment. The optimizing robot that needs a complete representation of the environment (...) and bets on massive computation, may never finish its analysis before the ball has hit the ground. Simplicity (...) can enable fast, frugal, and accurate decisions. Second, a simple heuristic can exploit a regularity in the environment. In the present case, the regularity is that a constant angle of gaze will cause a collision between the ball and the player. Third, boundedly rational heuristics are, to some degree, domain-specific rather than universal strategies. These heuristics are middle-ranged, that is, they work in a class of situations (...), but they are not general-purpose tools such as the ideal of an all-purpose optimization calculus. What we call the “adaptive toolbox” contains a number of these middle-range tools, not a single hammer for all purposes. (Gigerenzer and Selten 2002: 7)¹¹

¹¹ See also Gigerenzer, Todd, and the ABC Research Group (1999), Todd and Gigerenzer (2003), and Hutchins (1995). Also in this vein and of interest to anthropologists should be recent work on emotions as positive aids to good decision making (as opposed to emotions as *irrational* and thereby necessarily detracting from decision-making efficiency). See Hanoch 2002; Jones 2001.

The most significant difference between this heuristics-based vision of bounded rationality and the “heuristics and bias” and “optimization under constraints” approaches critiqued above is that the simple heuristics model is based on “ecological rationality,” in which the criterion for rationality is adaptive success via fit with the environment, whereas in the other applications of bounded rationality, the criterion defining rationality is still some assumed “true” or “pure” or “real” disembodied and decontextualized pure form of economic rationality. Gigerenzer notes that “the ‘rationality’ of domain-specific heuristics is not in optimization, omniscience, or consistency. Their success (and failure) is in their degree of adaptation to the structure of environments, both physical and social. The study of the match between heuristics and environmental structures is the study of ecological rationality” (Gigerenzer 2002: 38). Among the domain-specific tools for bounded rationality, Gigerenzer includes emotions, social norms,¹² institutions, and even “culture” more generally (Gigerenzer and Selten 2002: 9-10; Gigerenzer 2002: 42)¹³ – an open invitation for collaboration between institutional analysts and anthropologists.

Experimental Games

But how can we methodically observe the interaction between cognition and the environment? How can the micro-processes of “muddling through,” the fast and frugal heuristics, be observed and studied rigorously and systematically enough that the data can be compared across cultures? Experimental economists have developed ever more sophisticated and nuanced experimental games that are designed to force players to choose from a limited and controlled number of possible choices. The choices players make are then analyzed in order to try to determine what factors went into the choice; in other words, what went on inside the players’ heads. But most sociocultural anthropologists react to game theory much in the same way they react to rational choice theory, and for many of the same reasons. Experimental games have generally been conducted among very homogenous groups of people (usually university students in Western countries), so anthropologists assume that the results will not be applicable in most of the diverse, non-Western, often small-scale societies in which we work. Moreover, to meet the scientific demands for replicability and falsifiability, researchers construct a controlled environment by removing as many of the presumably extraneous variables as possible from the game environment. In this way, such games decontextualize the task environment to the point where it resembles nothing in real life.¹⁴ This, of course, is the point of experimental games. But anthropologists are interested in real behavior under real-life circumstances. They tend to find more explanatory power in precisely those “extraneous” contextual elements that have been purged from the experimental environment, and generally do not see the point of decontextualizing behavior in the way experimental games do.

In an effort to address some of these objections yet still maintain some of the methodological rigor of experimental games, a group of researchers – mainly anthropologists – led by Joe Henrich

¹² I am inclined to want to make a further refinement and say that emotions and norms are not heuristics in and of themselves, but are rather input or cues that trigger heuristics. Institutions, I would suggest, can be conceived of as a type of collective heuristics. But these are distinctions that need further refinement.

¹³ Both Gigerenzer and Todd 1999 and Gigerenzer and Selten 2002 get much more specific about types of heuristics, but it is not necessary for me to go into the specifics for the purposes of this introductory paper.

¹⁴ I will note here that experimental economists are getting ever more sophisticated with their models and games, figuring out ways to incorporate many cultural variables that anthropologists have generally accused economists of ignoring. See for examples papers presented at the conference *Rational Choice and the Limits of Individual Agency*, held at MPI for Social Anthropology in 2004.

conducted experimental games in 15 small-scale societies. The volume that has come out of these experiments (Henrich et al. 2004; see also Henrich et al. 2005) represents a bold attempt to bridge the disciplines of anthropology and experimental economics.¹⁵ According to Henrich et al., experimental games allow researchers to separate out human motives from other more instrumental forms of behavior: “[A]nonymous one-shot experiments allow us to distinguish clearly between behaviors that are instrumental towards achieving other goals (reputations, long term reciprocity, and conformance with social rules for expediency sake) and behaviors that are valued for their own sake” (Henrich et al. 2004: 9–10). The premise is that in the highly artificial game setting, “behaviors that are valued for their own sake” will be revealed. These, then, can be compared to game results from other cultures to see if there are human universals in decision-making behavior (e.g., if people from all cultures follow the selfishness axiom or, on the contrary, if there is a universal impulse toward cooperation). However, for a number of reasons, the volume ultimately fails to fulfill its stated goal. In the first place, even a cursory glance at the methodologies employed in the different cases presented in the volume show how differently and inconsistently the games were organized and played in the different contexts, rendering the comparisons on the basis of the experimental game data highly questionable.¹⁶

My larger objection to the way the game data were collected and analyzed is that the authors assume they have created a formal game setting, when in fact it appears they have not. The idea of the formal game setting is to free the players of cultural, social, and other contextual constraints and longer-term motivations on their calculations, to lay bare their immediate preferences. Whether this is even possible is highly doubtful; nevertheless, Henrich et al. attempt to create such a situation mainly by making the games one-shot and anonymous. Since the players know they are playing a game that will have no future consequences, their strategies will reflect their unmediated motives (preferences, utility functions), devoid of other socially or culturally influenced motivations.¹⁷ But a careful reading of the experiments in Henrich et al. (2004) indicates that the experimenters for the most part have failed to abstract out all the cultural factors that would influence people’s decision-making processes (i.e., have failed to create a situation in which the players know they are playing a game), and in fact in several cases made explicit analogies to real-life situations, so that the players would understand the game better. So the observed strategies are still an undifferentiated mix of culturally influenced decision-making strategies. In other words, the experiments assume that players view the games as game interactions rather than as real-world interactions, and leave their culturally influenced strategies outside, when in fact it appears that in most cases the players are still very much framing the games in terms of real-life interactions. Finally, the entire project still rests on the assumption of the existence of some mythical Rationality with a capital R, against which “deviations” are to be measured and explained. This is the same fallacy I critiqued above with regards to some of the institutional and bounded rationality approaches.

¹⁵ I must thank my colleague, Christophe Heintz, for pointing out many of the weaknesses in Henrich et al. 2004. See Heintz 2005 for a trenchant critique of this project.

¹⁶ To be fair to Henrich et al., they are highly aware of these problems and discuss them at length.

¹⁷ This raises the further objection that perhaps all games can measure is how people behave in games. The very unreal conditions in the framing of a game (e.g., one-shot, anonymous) in no way correspond to reality in the lives of most people, especially in small-scale societies. The unreality of a game set-up throws the game out of the realm of real behavior and into the realm of the artificial. This of course is the point of experimental games, but the results can only be considered to have validity if you operate under the assumption that people’s game behavior reveals something genuine about their underlying motivations in actual interactional situations. The validity of that assumption is questionable.

The Henrich et al. experiments do not tell us anything that we could not get from good ethnography. In fact, for us as anthropologists, the way to verify the findings from experimental games is simply to see if they are consistent with what we already know from our ethnography. Henrich et al. declare that one of their main findings is that “in many cases experimental play appears to reflect the common interactional patterns of everyday life” (Henrich et al. 2004). But what if the game data had not reflected these patterns? When confronted with an inconsistency between game data and ethnographic data, we anthropologists will certainly put our faith in the ethnographic data. What then is the advantage of conducting experimental games? Where the game data “reflect the common interactional patterns of everyday life,” they can lend support to already existing ethnographic data. If the game results do not reflect these patterns, then at best they may call attention to areas of social life where culture intervenes and predominates over our (presumed) pan-human inclination toward self-interest, which should then be studied ethnographically. On the other hand, there is potential danger in using experimental games in ethnographic settings: researchers could come to put too much faith in them and begin to rely on games as an adequate substitute for good ethnographic fieldwork.

Games “in the Wild”

The above criticisms and caveats are not intended to dismiss experimental games, their results, or even to deny the possibility of using them in ethnographic settings. I greatly appreciate the efforts of Henrich et al. I find them intriguing and stimulating, and see them as important and necessary first steps in a commendable effort to bring together anthropology and experimental economics. In fact, one question I would like to pursue is exactly how, when, and to what purpose experimental games might be put to use in ethnographic settings. At a minimum, I would like to search for a common language between anthropology and experimental economics so that anthropologists could use some findings from game theory and perhaps even contribute to the analysis of game data and the design of experimental games. This is part of a broader objective of figuring out a methodology for studying bounded rationality and the “simple heuristics that make us smart” (Gigerenzer, Todd, and the ABC Research Group 1999), but not in experimental settings.

According to Gigerenzer, the idea of ecological rationality “suggests looking outside the mind, at the structure of environments, to understand what is inside the mind” (Gigerenzer 2002: 39). One possibility I would like to explore is that of taking *events* as the unit of analysis, which could be analyzed using concepts and findings from game theory – so something akin to “games in the wild” (cf. Hutchins’s [1995] concept of *Cognition in the Wild*). *Event analysis* has emerged within processual approaches in anthropology as a method of examining processes of change (Lees 1983; Lees and Bates 1990; Vayda and McCay 1975; Vayda, McCay and Eghenter 1991). Lees and Bates note that an event-focused approach “offers a convenient ‘point of entry’ for the description of complex and changing relationships,” and that it forces the data into a diachronic perspective (Lees and Bates 1990: 255).

But what kind of events should one study? Vayda and McCay have written about “environmental hazards” as the appropriate type of event to study, because environmental hazards “carry the risk of morbidity or mortality, the risk of losing an ‘existential game’ in which success consists simply in staying in the game” (Vayda and McCay 1975: 293). Studying the human responses to environmental hazards can help to illuminate processes of cooperation, group formation and

dissolution, and the role of “such features of human social life as loyalty, solidarity, friendliness, and sanctity” (Vayda and McCay 1975: 300-302). Lees and Bates recognize the value of the hazard approach, but suggest a broader “event-focused approach to human-environmental interaction,” which would include “events generated by the human (social, economic, or political) environment that have environmental components and/or repercussions. Such events might include a change in the market price of a cash crop, or a land-reform law which alters land tenure, or a relatively large-scale migration into or out of a locality, or establishment of a quota on certain types of livestock” (Lees and Bates 1990: 266). Moore suggests privileging what she calls “diagnostic events,” which are events that carry a “burden of historical meaning” by revealing “ongoing contexts and conflicts and competitions and the efforts to prevent, suppress, or repress these” (Moore 1987: 730). Such events – whether Moore’s “diagnostic events” or Vayda’s “ecological hazards” – alter the physical and/or social environment and put people in a position where they must actively adapt. I suggest that in such situations, the heuristics people normally rely upon may prove to be maladaptive, and will come under conscious scrutiny, making them more accessible to both actors and researchers alike.

I suggest that it is possible to use the IAD framework to analyze such *events* as if they were “games in the wild.” Concepts from the IAD framework facilitate the analysis of such events in two main ways. First, the principal unit of analysis in the IAD framework, the *action arena*, is analogous to an event in event analysis, but the IAD framework is methodologically more refined and explicit than anthropological treatments of event analysis. The *action arena* is composed of an *action situation* and *actors*. An *action situation* is minimally composed of seven clusters of variables: “(1) participants, (2) positions, (3) actions, (4) potential outcomes, (5) a function that maps actions into realized outcomes, (6) information, and (7) the costs and benefits assigned to actions and outcomes.” The participants, or *actors*, in an action arena are characterized by their “preferences, information-processing capabilities, selection criteria, and resources” (Ostrom, Gardner, and Walker 1994: 29; see also Ostrom 1999: 41–46).

Secondly, as actors do not act in a vacuum, neither environmentally nor socially, *attributes of the physical world* and *attributes of the community* must also be taken into consideration in the analysis. In this way, the approach I am suggesting here is very much in line with the concept of ecological rationality. In the case of the Siberian reindeer herding communities, for example, key attributes of the physical world that must be taken into consideration include the *excludability* of the resources; the *subtractability* of the resource flow; the *mobility* or *stationarity* of resources; the availability of *storage*; and the renewability, size, productivity, predictability, and patchiness of resources (cf. Ostrom 1999: 56). Among the attributes of the community that come into play in the Tozhu and Tofa contexts are their relationship to rights of access to land, resources, wild animals, and domesticated reindeer; cultural proscriptions against certain extractive activities; overall lack of experience in management; their legal status as officially recognized indigenous peoples; and lack of effective political representation. IAD provides analytical tools to address these attributes, allowing for a more nuanced analysis of the *interaction* between human behavior and the social and physical environment (see Crawford and Ostrom 1995; Ostrom, Gardner, and Walker 1994, especially chapter 2; Ostrom 1999 for very complete and detailed outlines of the framework and its concepts).

I would suggest that to actually observe decision-making behavior “in the wild,” we should not simply go into the “wild” and set up controlled, experimental games there (à la Henrich et al.), but

actually observe the games in the wild – uncontrolled, actually-occurring interactions with real-life stakes. Certain *events*, or “action arenas” to use Ostrom’s term, can be analyzed as games (without losing sight of the ethnographic richness) by using a descriptive framework along the lines of Ostrom’s IAD to describe the players and their attributes (including positions, relative power, etc.), the rules of the game (including social norms, expectations, values, sanctions, monitoring and enforcement), the environment within which the game is being played (attributes of the physical world and attributes of the community), the possible actions that can be taken, and their potential outcomes. This would not only help reconcile game theory with ethnography, but also create a powerful and productive approach in which ethnography is a methodological tool to gather data, and game theory is a constructive analytical tool for making cross-cultural comparisons possible.

The ecological rationality and the situatedness of cognition are based on the recognition that human behavior emerges out of and can only be understood in the context of an individual with evolved predispositions that are culturally mediated, in interaction with his/her social, cultural, and physical environment. This is very much in line with processual and practice-based approaches in anthropology. Moreover, the recognition of the importance of emotions (which after all have their bases in evolved somatic reactions to certain environmental stimuli) forms the bridge between institutional approaches and more practice-based and phenomenological approaches.

Conclusion

The anthropological project can be broken down into two different types of endeavors, often (incorrectly) assumed to be mutually exclusive and irreconcilable. One is the impulse toward exposing the diversity of the human species, and the other is the impulse toward exposing the unity of the human species. The diversity approach is associated with reifying “culture” and viewing it as an independent variable (see Atran et al. 2005) and with emphasizing fundamental differences between different groups of humans. Extreme forms of this approach (extreme relativism) undermine the entire anthropological project by asserting that cultures are so incommensurable that it is impossible for an outside observer ever to truly understand another culture, let alone translate and convey with confidence that culture to an audience from another culture, so the best we can hope to do is “interpret” other cultures (Geertz 1973; Clifford and Marcus 1986, esp. Tyler 1986).

The unity approach tends to be more “positivist,” seeks to arrive at generalizations about human nature, and emphasizes the fundamental sameness of all humans (Brown 1991; Barkow, Tooby and Cosmides 1992). This tends to be the approach of economists and psychologists as well. This approach believes in an underlying universal cognitive structure that is ultimately the source of all human behavior, much as Chomsky has posited a universal grammar underlying all human languages.

The relativists might accuse the universalists of “‘familiarizing’ otherness,” while universalists might accuse relativists of “exoticizing sameness” (Restrepo and Escobar 2005: 105). But, as Leda Cosmides and John Tooby have so convincingly demonstrated, the unity and diversity of humanity are not only *not* incompatible, but the universal human nature is in fact a necessary prerequisite for the development of diverse cultural expressions. The “content-specific, evolved psychologies” that we all share as part of our evolved heritage

constitute the building blocks out of which cultures themselves are manufactured. These psychologies evolved to process information about ancient and important adaptive problems, such as social exchange, sexual jealousy, kin recognition, language acquisition, emotion recognition, and parenting. (...) Because every human being will develop the same basic set of social contract algorithms, cultural forms that require their presence can emerge: traditions, rituals, institutions, linguistic conventions, symbols, and so forth can develop that rely on the stable features of this psychology, and that simply supply the specifics that activate and deploy it in each new situation. (Cosmides and Tooby 1992: 208)

By applying a model of human cognition that is consistent with the most recent findings coming out of cognitive sciences, we are not only entering into dialogue with other sciences. We are asserting our relevance as a discipline, and we are zeroing in, in an ever-more fine-grained way, on that elusively thin membrane where agency meets structure. With our extended fieldwork and participant observation, we are well positioned to observe games in the wild, and to understand the relationship between culturally specific shared mental models that shape our evolved emotional responses, which in turn trigger the heuristics that ultimately affect decision-making behavior. “The various sets of decision rules governing social exchange will be universal, but which sets are activated will differ from situation to situation within a culture, as well as between cultures” (Cosmides and Tooby 1992: 218). So rather than leaving off our analysis with vague explanations of customs, norms, and values, let us dig down to the next level of analysis and try to see where those customs, norms, and values come from, and how they are generated by individuals sharing the mental models that are the product of our common evolved cognitive structures in interaction with diverse environments.

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