it is especially so in comparative research, whether across species or societies. Henrich et al. assume, based on data gathered chiefly from industrial societies, that their games tap into the psychology of such important constructs as fairness and equity, but even in such societies, what psychological phenomena these games tap into is controversial (Camerer & Thaler 1995) and capable of surprises (e.g., DeBruine 2002). So how can we be sure we are even studying the "same" thing when different peoples play the "same" games? People do not necessarily construe even the simplest economic games as one might initially suppose (e.g., Kiyonari et al. 2000), and Henrich et al. themselves argue convincingly that culture affects how people construe the games. But where does that leave the goal of drawing inferences from cross-cultural economic games research about human cooperativeness, taste for fairness, other-regarding sentiments, and so forth?

Henrich et al. have brilliantly documented cross-cultural diversity in economic game play, and have provided strong evidence that other aspects of these societies predict much of that diversity. To clarify how players perceive these tasks and how their decisions are made, we think future research will require experiments that are more explicitly psychological in their approach, and if they are to illuminate the evolutionary origins of our species' remarkable capacity for cooperation, such experiments should test hypotheses derived from a conceptual model of social evolution built on an appreciation of the qualities of information (e.g., reliability and regularity) available to our ancestors for use in cooperative ventures.

Born selfish? Rationality, altruism, and the initial state

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Abstract: Henrich et al. propose that humans are genetically equipped with learning mechanisms that enable them to acquire the preferences and beliefs related to economic prosocial behaviors. In addition to their cross-cultural data, they cite developmental evidence in support of this theory. We challenge Henrich et al.'s interpretation of the developmental data in a discussion of recent work which suggests that preferences for altruism and fairness may have an innate basis.

> *Be warned that if you wish, as I do, to build a society in which individuals cooperate generously and selflessly towards a common good, you can expect little help from biological nature. Let us try to teach generosity and altruism because we are born selfish.*
> —Richard Dawkins (1990, *The Selfish Gene*)

In Henrich et al.'s model of economic game performance, people have preferences, beliefs, and constraints that vary across cultures and are the product of culture-gene co-evolution; only the general facility for learning the preferences and beliefs of one's culture is genetically programmed. From this model it follows that Dawkins's view, expressed in the quote above, is correct: particular preferences for generosity and altruism must be acquired through cultural learning. Henrich et al. present an impressive body of research showing wide cultural variation in performance on economic games. They also cite developmental research showing that children can imitate altruism or selfishness with equal facility. Moreover, they cite one of the few studies investigating young children's performance on bargaining games: Harbaugh et al. (2004) found that children playing ultimatum games were more selfish than adults. Henrich et al. argue that these developmental data indicate that "preferences related to altruism, conditional cooperation, and equity are acquired slowly over the first two decades of life" (sect. 9, para. 8). They conclude that preferences for fairness, altruism, and reciprocity result from the influence of economic, social, and cultural environments rather than from universal (and possibly evolved) preferences for cooperative and altruistic behaviors. We challenge Henrich et al.'s interpretation of the developmental data.

The developmental work that Henrich et al. cite involves school-age children, but research on younger children and infants suggests a possible role for innate biases regarding altruism. As the authors note, Harbaugh et al. (2004) have indeed found that children as young as seven have more selfish preferences than adults in ultimatum games. However, Hill and Sally (2004) found that six-year-olds were as generous as adults in dictator and ultimatum games. Moreover, using an even younger sample, Chow et al. (2005) found that four-year-olds demonstrated preferences for fairness and altruism in dictator and ultimatum games similar to those of American adults. These results seem inconsistent with Harbaugh et al.'s finding, but there were methodological differences among the studies that might account for the discrepancies. Notably, Harbaugh et al. used money instead of goods. Children at that age, however, may not understand the value of coins or currency, and instead treat money more like tokens in a game than like commodities in a social exchange (indeed, the initial exchanges were with tokens which were only later traded for cash). Both Chow et al. and Hill and Sally used stickers which are of obvious and immediate value to young children. The results showing adult-like sharing in children as young as four suggest that core values of generosity and fairness are in place earlier in development than had been thought. Although these studies by themselves do not show that altruistic preferences have an innate basis, they prompt a revision of the assumption that young children are naturally more selfish than adults.

More support for the notion that humans are biologically predisposed towards altruism and generosity comes from work with infants. Martin and Clark (1982) found that 1- and 2-day-old infants exhibit signs of empathy by crying when another infant cries. In a controlled experiment, Bischof-Kohler (1994) found that, when confronted with a person in need, 14–24 month-olds engaged in prosocial interventions. Warneken and Tomasello (2005) also found that in an experiment on helping behavior, 18-month-olds spontaneously performed actions whose goal could only be to help a strange adult with a problem (e.g., retrieving a dropped object). These data are problematic for a view which holds that preferences for altruism and cooperation must be slowly learned over the course of decades. Instead, they suggest an initial state already biased towards prosocial behavior. Such an initial state makes sense evolutionarily, given the advantages conveyed by reciprocal altruism on organisms with large enough brains to remember past favors. This supposition is consistent with work showing that apes and monkeys exhibit reciprocal altruism (de Waal 2000; Hauser et al. 2003).

It is hard to argue with the impressive data collected by Henrich et al., showing the role of environment and learning in acquiring specific preferences for selfish or altruistic behaviors. The data indicate that humans may well be genetically programmed for ease of acquisition of cultural norms for cooperation and altruism. But this position does not rule out the possibility that humans also have instincts for altruism. An analogy with language acquisition might be helpful. Acquiring a specific language requires substantial learning and exposure to a particular language environment. But this fact is not inconsistent with a role for innate linguistic universals that constrain the kinds of languages that can be learned. Similarly, the range of possible norms for sharing and social exchange that can be learned may be constrained by specific innate preferences for altruism. Consider the work on imitation cited by Henrich et al. (e.g., Bryan 1971; Grusec 1971; Presbie & Coiteux 1971). Those studies involved a form of the dictator game in which children were allowed to split winnings from a bowling game with an anonymous individual or a charity. The results showed that children were influenced by an adult model's previous generosity or stinginess. Although this and other work has

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demonstrated the positive effect of modeling on children's sharing, it is notable that even in the "stingiest" modeling conditions, children always contributed something and contributed more than the selfish adult model did (Presbie & Coiteux 1971). The Henrich et al. study provides converging cross-cultural evidence for boundary conditions on selfishness by showing that, although there are differences among cultures regarding preferences in bargaining games, there is also one very striking similarity: in no culture is the average behavior described by the canonical model of pure self-interest. Rather than being "born selfish," humans may well have instincts for altruism and generosity that are differentially expressed, depending on learning, environment, and situation.

Moral realism and cross-cultural normative diversity

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Abstract: We discuss the implications of the findings reported in the target article for moral theory, and argue that they represent a clear and genuine case of fundamental moral disagreement. As such, the findings support a moderate form of moral anti-realism – the position that, for some moral issues, there is no fact of the matter about what is right and wrong.

Whereas previous evidence suggested that fairness norms vary little across cultures (Cameron 1999), Henrich et al.'s important article summarizes a large body of evidence that in small-scale societies, fairness norms vary tremendously (see also Henrich et al. 2004). Certainly, neither the evidence nor its interpretation are completely beyond dispute. However, rather than quibbling about specific details of Henrich et al.'s work, we will draw out the implications of their findings for moral theory: we believe that these findings support a traditional argument against moral realism, namely *the argument from disagreement*.

Moral realism is, roughly, the view that there is a fact of the matter about what is right and what is wrong, about what ought morally to be done and what ought not to be done, and so on. *Moral anti-realism* denies moral realism. We focus on a *moderate version* of moral anti-realism, that is, roughly, on the view that for at least *some* moral issues, there is no fact of the matter about what is right and what is wrong (Brink 1989; for an introduction, see Smith 1993).

One of the strongest reasons to reject moral realism comes from the *existence and resilience of moral disagreements*. For almost any moral issue, it is possible to find people who hold opposing moral views. By itself, of course, this does not entail that in such cases, there is no fact of the matter. After all, for almost any nonmoral issue, it is possible to find people who hold opposing views. Though most agree that the earth is round, some believe that it is flat. This disagreement, however, does not entail – nor even suggest – that there is no fact of the matter about the shape of the earth. For, once provided with all the relevant empirical evidence, rational people will end up agreeing that the earth is not flat.

According to moderate moral anti-realism, however, some moral disagreements are different: They may persist even after all the relevant facts have been agreed upon and taken into account, and all errors in reasoning have been corrected. Such moral disagreements are *fundamental* rather than superficial. Now, if there exist some moral disagreements that persist in the face of both correct reasoning and agreement on the relevant facts, then there seems to be no rational way to resolve such disagreements. The existence of such abiding standoffs supports moderate moral anti-realism, which holds there are no rational solutions to these moral disagreements because for these moral issues, *there are no moral facts* (e.g., Brandt 1959; Harman 1977; Mackie 1977).

We are sympathetic to this argument. However, it has been attacked on various fronts. Since space is limited, we focus on what is perhaps the most common reply. Moral realists often claim that moral disagreements are not truly fundamental, but instead rest ultimately on disagreements about nonmoral facts. Were this the case, all rational people should ultimately agree about moral issues once agreement is reached on all relevant nonmoral facts. Thus, one leading moral realist, the philosopher Richard Boyd, writes: "careful philosophical examination will reveal, I believe, that agreement on nonmoral issues would eliminate *almost all* disagreement about the sorts of moral issues which arise in ordinary moral practice" (Boyd 1988, p. 213). Indeed, we concede that clear examples of genuine fundamental moral disagreements – that is, moral disagreements that do not rest on factual disagreements – are difficult to come by. However, in our view, Henrich et al.'s findings constitute *just such* a clear and genuine example. They provide clear cases of cross-cultural moral differences, specifically about *fairness*, that are difficult to account for in terms of differences in beliefs about nonmoral facts.

Henrich et al. have gathered an impressive body of evidence to show that behaviors in one-shot ultimatum games (UG), dictator games (DG), and public good games (PGG) vary substantially across small-scale societies (sect. 4.1, Figs. 2 and 3, and Table 3; cf. Henrich et al. 2004). Decisions in UG, DG, and PGG are influenced by various factors, including personal interest, strategic considerations, risk aversion, and fairness norms. Analysis can sometimes pull these factors apart. Thus, Henrich et al. show (sect. 4.2, Fig. 4) that the cross-cultural diversity in behavior cannot be entirely explained in terms of strategic considerations (beliefs about how to maximize one's personal interest, given one's beliefs about others' expectations) or culturally variable risk aversion. Rather, across these 15 small-scale societies, subjects distribute windfall gains differently because they hold different views about fairness, specifically about how to fairly distribute such windfall gains. Henrich et al. note that this conclusion is consistent with ethnographic evidence (sect. 8). Thus, differences in attitudes about fairness – a core element of morality (e.g., Rawls 1971) – underlie the cross-cultural behavioral differences described by Henrich et al.

In response, moral realists like Boyd might contend that members of the cultural groups under consideration believe that different distributions in the UG, the DG, or the PGG are fair, because they have different factual beliefs about the nature of the situation. If they shared the same beliefs about the nature of the situation, they would also agree on which distributions are fair. This reply is unconvincing, however. UG, DG, and PGG are simple experimental situations, much simpler than real-life decision-making situations. In the 15 small-scale societies studied, the principles of these experiments are explained to subjects and subjects are also given ample practice in playing the games. Finally, their understanding of the experiments is probed (sect. 6). Across cultures, then, subjects are provided with the same relevant, simple facts. It is therefore unclear which factual disagreement could explain the cross-cultural moral disagreement in these simplified situations.

The upshot for the debate between moral anti-realists and moral realists, at the very least, is that moral realists can no longer simply assert or assume that moral disagreements always rest on disagreements about nonmoral facts (for further considerations, see Doris & Stich, forthcoming, sect. 4). Henrich et al.'s findings lend substantial support to the moderate anti-realist claim that, at least in some cases, moral disagreement is indeed fundamental.

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