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# Cross-Disciplinary Conversations: A Psychological Perspective on Justice Research with Non-human Animals

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**Abstract** *Social Justice Research* has devoted two recent issues to the topic of inequity responses in non-human animals. The goal of this paper is to provide some commentary from the perspective of psychological theory and research on justice and fairness in humans. In an attempt to build greater cross-disciplinary sharing of ideas and insights, I briefly review the major insights from (a) contemporary research on questions of fairness and justice with non-human primates and how this corpus of knowledge can inform the on-going study of these issues in psychology and related disciplines, and (b) 50-plus years of research on justice and fairness in psychology and related disciplines, and how it can inform contemporary research efforts with non-human animals going forward. The spotlight behavioral economists and justice research with non-human animals places on the primary role of distributive justice is suggestive that it may be time for a renaissance of interest in this topic in psychology and related disciplines. The focus of psychological research on topics such as boundary conditions on equity as key justice concern (e.g., alternative distributive norms such as equality and need), as well as attention given to procedural, interactional, retributive, and restorative justice, is suggestive that research with non-human animals should broaden its horizons to study alternative conceptions of justice and fairness.

**Keywords** Distributive justice · Equity · Inequity aversion

The experimental study of justice and fairness<sup>1</sup> in non-human species is a relatively new area of inquiry, and one that caught fire a few years after behavioral economists started studying the boundaries of rational self-interest by using of a number of

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<sup>1</sup> Although some make distinctions between these constructs, I am using the terms justice and fairness interchangeably and broadly.

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experimental games, such as the dictator and ultimatum games (e.g., Fehr & Schmidt, 1999). These economic studies found that people are generally “inequity averse,” that is, they exhibit a preference for fairness and a resistance to incidental inequality. Moreover, the economic games employed turned out to be reasonably adaptable ones that could also be used to experimentally study whether inequity aversion emerges in samples of non-human primates (e.g., Brosnan & de Waal, 2003; see the reviews provided by Bräuer & Hanus, 2012, this issue; Price & Brosnan, 2012, previous issue) and, later, other species (Range, Horn, Virányi, & Huber, 2008; Raihani, McAuliffe, Brosnan, & Bshary, in press). Interest soon expanded from simply demonstrating the effect to the exploration of whether non-primates are also capable of recognizing and responding to variations in equity and inequity (e.g., Raihani & McAuliffe, 2012, previous issue; Range, Lietner, & Virányi, 2012, previous issue), and how these reactions are impacted by context, including both social and environmental factors, development, and personality (e.g., Brosnan, Newton-Fisher, & Vugt, 2009; Brosnan, Talbot, Ahlgren, Lambeth, & Schapiro, 2010; Bräuer, Call, & Tomasello, 2009; Hopper, Lambeth, Schapiro, Bernacky, & Brosnan, under review).

### Some Historical Context: A Brief Review of Psychological Perspectives on Equity and Distributive Justice

As this special issue reveals, there is emerging evidence that at least sometimes, and in some contexts, various non-human animals show evidence of responding to inequity (Bräuer & Hanus, 2012, this issue; Range et al., 2012, previous issue). This research complements and extends a long history of research in psychology and closely related disciplines on questions of distributive justice in general, and equity theory in particular (e.g., Adams, 1963, 1965; Folger, 1984, 1986; Homans, 1958, 1961; Stouffer, Suchman, Devinney, Star, & Williams, 1949; Thibaut & Kelley, 1959; Walster, Berscheid, & Walster, 1976). Equity theory extended a central thesis of Aristotelian ethics that fair outcomes are those that are divided into parts consistent with the merits of those participating in an exchange. Equity theorists argue that people expect that a balance should be maintained between the ratio of outcomes to contributions, and the outcome/contribution ratios of those with whom they interact. In other words, equity theory posits that people perceive that they have been treated fairly when the two proportions presented below are equal:

$$\frac{\text{Outcomes}_{\text{Self}}}{\text{Inputs}_{\text{Self}}} = \frac{\text{Outcomes}_{\text{Other}}}{\text{Inputs}_{\text{Other}}}$$

Consistent with this core idea, even though people respond more strongly to under- than over-benefit (Greenberg, 1982), they do not respond to over-benefit with pleasure, but with distress instead (e.g., Austin & Walster, 1974). For example, husbands and wives who feel either under- or over-benefited relative to their spouses report higher levels of depression and other forms of distress than those who report more equitable and balanced relationships (e.g., Shafer & Keith, 1980; Sprecher, 1986). People also experience elevated levels of cardiovascular activity

(Vermunt & Steensma, 2003) and serum lipids (Richards, Hof, & Alvarenga, 2000) when treated unfairly, variables that could ultimately affect people's health outcomes (Greenberg, 2011).

One of the most important findings of this program of research is that receiving more or less than is deserved leads people to attempt to restore equity by subsequently increasing or decreasing their contributions to an exchange relationship (e.g., the exchange of work for pay in an employee/employer relationship, Adams, 1963; Adams & Freedman, 1976; Adams & Jacobson, 1964; Adams & Rosenbaum, 1962; Greenberg, 1982; Pritchard, Dunnette & Jorgenson, 1972). People also react negatively to a mismatch between valence of contributions and outcomes (such as cheating to win a race), much as they do to an imbalance of their input/output ratios relative to other's input/output ratios. In short, it is particularly unfair for negative inputs to yield positive outcomes or vice versa (Feather, 1994, 1999, 2008).

### Learning from Each Other

Emerging evidence that non-human animals similarly respond negatively to violations of equity provides important validation of the importance of a concern with justice in facilitating social cooperation. Moreover, it has the potential to inform debates about the relative primacy and importance of distributive justice across species, given that concerns with distributive fairness potentially emerged earlier in the collective ancestral past than, for example, concerns about procedural fairness (such as the value of voice in decision-making processes and factors that facilitate adherence to the formal rules of law, e.g., Folger, 1977; Lind, Kanfer, & Earley, 1990; MacCoun, 2005; Van den Bos, 2005). That said, the exclusive focus on equity considerations in studying the ways that non-human animals may have developed a sense of justice is a potential limitation of the non-human justice and fairness research program (see also Pierce & Bekoff, 2012, previous issue). Although concerns with equity are one way to think about distributive justice, there is also a range of other possible distributive principles that non-human animals may be taking into account in their social relationships, such as equality or need.

Some of these alternative conceptions of justice became apparent in research with human subjects when researchers discovered a number of boundary conditions and moderators on human reactions to and degree of emphasis on inequity as a sole criterion for defining what is just. For example, there are robust sex differences in both how people allocate resources and what kind of allocations they perceive as fair. Human females are more likely to allocate rewards equally rather than equitably, and rate equal allocations as more fair than equitable ones, whereas males tend to show the reverse pattern of results (e.g., Major & Adams, 1983; Major, Bylsma & Cozzarelli, 1989; Watts, Messé, & Vallacher, 1982). Gender differences in allocation preferences are largely explained by related differences in interaction goals. Men tend to interpret allocation situations competitively, whereas women interpret the same situations as opportunities for cooperation and affiliation, and these differences in interaction goals largely explain gender differences in allocation

preferences (Callahan-Levy & Messé, 1979; Messé & Callahan-Levy, 1979; Messé, & Watts, 1980; Watts, Messé, & Vallacher, 1982).

Other research further supports the importance of people's interaction goals and variations in the relationship between exchange partners on people's conceptions of justice. Increased interpersonal contact, for example, leads to "compromise" allocations, that is, patterns of distribution that are somewhere in between what would be predicted if people were using strict equity or equality norms in distributing a joint pool of rewards (Boldero & Rosenthal, 1984). Equitable distributions are preferred and seen as more fair than need or equality when participants are focused on productivity (e.g., Deutsch, 1975, 1985). Equal allocations are preferred over equitable ones in contexts that emphasize partnerships (Lerner, 1977), when working to help out a friend (Leung & Park, 1986), and when instructions motivate allocators to have the goal of enhancing group solidarity and harmony (Leventhal, Michaels, & Sanford, 1972; Mikula, 1974). Need emerges as a stronger distributive norm than either equity or equality in contexts that emphasize the minimization of suffering (e.g., Lerner, Miller, & Holmes, 1976; Leventhal, 1976; Schwartz, 1975), and in more intimate than distant relationships (e.g., Lamm & Schwinger, 1980; Schwinger, 1980). Taken together, this research suggests a number of possible boundary conditions or moderators that could explain some of the inconsistencies observed in studies of non-human animals (see Price & Brosnan, 2012, previous issue).

What we have learned about the effects of people's use of equity concerns in fairness reasoning is suggestive of other ways equity considerations can be tested and explored in non-human animals. But even more importantly, research with humans suggests that equity and inequity aversion are not the only ways humans—and possibly also non-human animals—think about and incorporate concerns about fairness and unfairness into their social lives. It seems to be especially promising for future research with non-human animals to test hypotheses about how characteristics of relationships as well as individual and collective goals shape the fairness norms that govern interpersonal and intergroup conduct. Alan Fiske's relational systems theory, for example, might be particularly helpful in providing some guidance for future research. Based on extensive anthropological review of human cultures, Fiske (1991, 1992; for a recent review, see Fiske & Haslam, 2005) proposed that almost all human interaction could be described in terms of four relational systems, that in turn, have implications for how people think about fairness and unfairness (Fiske & Tetlock, 1997). In communal sharing relationships or contexts, people treat all members of a category as equivalent, and equally entitled to collective resources. Communal sharing relationships are also especially likely to take into account considerations of not only "want," but also "need." Authority ranking relationships and contexts are characterized by hierarchies, in which those higher in rank have prerogatives and privileges those lower in rank do not, which also has implications for the fairness of how resources or access to resources are distributed. The benefits of authority, however, come balanced with responsibilities. The powerful typically owe their subordinates protection and security in exchange for their deference.

Equality matching relationships and contexts are characterized by one-to-one reciprocity, such as turn-taking, tit-for-tat retaliation, or compensation in terms of equal replacement. People in these relationships or contexts keep rigid accounts of what is owed to whom to maintain a very strict form of equality in “accounts.” Finally, relationships and contexts defined in terms of market pricing focus on proportionality in social relationships and exchange. In short, in these contexts, people primarily pay attention to equity and inequity.

Each of these relational systems involves criteria for defining fairness in social cooperation and exchange, which vary to some degree in the complexity involved in fairness calculations. Defining fair relational systems only in terms of market pricing seems much too narrow way of thinking about either human or non-human animals' capacity to consider and use fairness as a way to socially coordinate their behavior. The relative emphasis cultures place on these different relational systems varies, just as the relative emphasis on these relational systems may vary across species or across the reportorial range of a given species. Regardless, it seems likely that market pricing—and therefore justice defined only in terms of reactions to equity or inequity—represents only a very narrow slice of how animals may use justice as a key solution to the adaptive problem of social coordination.

Justice theory and research in psychology was very much focused on equity considerations and distributive justice from the mid-1960s through the early 1980s. The recent growth of interest in questions of distributive justice in behavioral economics as well as fields that study non-human animals has been happening largely without reference to the existing, albeit older, research tradition on these questions in psychology. Although this commentary clearly provides only a brief overview and summary of some relevant research, researchers in these newly emerging areas of inquiry might find it useful to visit the research literature in psychology to find ideas and findings that may relate in interesting ways to their work.

### **Moving Beyond Distributive Concerns**

Although equity theory was initially thought to be a general theory that could describe much of human social interaction, increasing recognition of a host of boundary conditions and alternative distributive criteria (e.g., need, equality) led psychologists to move beyond a narrow definition of justice in terms of proportionality. Moreover, justice research from the 1980s to present in psychology broadened its area of inquiry beyond distributive justice to also study retributive justice, procedural and interactional justice, as well as a range of other topics that might also be of interest in the study of justice concerns in non-human animals (for recent reviews, see Cropanzano, Goldman, & Benson, 2004; Hegtvedt, 2005; Greenberg, 2011; Jost & Kay, 2010; Skitka & Wisneski, in press). That said, the growing interest in studying inequity aversion and other questions relating to distributive justice in behavioral economics and animal studies might reawaken an interest in questions relating to distributive justice in psychology. Evidence in support of the importance people attach to various other conceptions of fairness

(e.g., procedural justice) does not persuasively diminish the importance people also place on concerns about distributive justice, something justice scholars in psychology seem to sometimes overlook (Greenberg, 1990; Skitka, Winquist, & Hutchinson, 2003; Skitka & Wisneski, in press; see also relevant research demonstrating the importance of the outcomes of distributions, rather than the importance of treatment or process in recent research with chimpanzees, Brosnan, 2009; Brosnan et al., 2010).

## Conclusion

The growth of interest in studying questions relating to justice in general, and distributive justice in particular, across species is a fascinating development. Special issues like this one facilitate cross-disciplinary conversations and information sharing, and taken together, have the possibility of revolutionizing our basic understanding of justice both within and across species. Discovering when and where different concerns with fairness emerge in the ancestral past may provide insights into which forms of justice may be the most enduring and important to solving the adaptive challenges of social coordination, regardless of species.

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