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Natural normativity: The 'is' and 'ought' of animal behavior

Frans B.M. de Waal *

Living Links, Yerkes National Primate Research Center, Emory University, Atlanta, GA, USA

*Author's e-mail address: dewaal@emory.edu

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Abstract

The evolution of behavior is sometimes considered irrelevant to the issue of human morality, since it lacks the normative character of morality ('ought'), and consist entirely of descriptions of how things are or came about ('is'). Evolved behavior, including that of other animals, is not entirely devoid of normativity, however. Defining normativity as adherence to an ideal or standard, there is ample evidence that animals treat their social relationships in this manner. In other words, they pursue social values. Here I review evidence that nonhuman primates actively try to preserve harmony within their social network by, e.g., reconciling after conflict, protesting against unequal divisions, and breaking up fights amongst others. In doing so, they correct deviations from an ideal state. They further show emotional self-control and anticipatory conflict resolution in order to prevent such deviations. Recognition of the goal-orientation and normative character of animal social behavior permits us to partially bridge the is/ought divide erected in relation to human moral behavior.

Keywords

morality, normativity, conflict resolution, community concern, fairness, inequity aversion, emotional control.

1. Introduction

One of the most vexing problems facing attempts to ground morality in biology is the so-called is/ought divide. Whether it is a real divide, or not, depends partly on how we phrase the question. Its initial formulator, David Hume (1739), did not in fact see it as a sharp divide. Almost three centuries ago, he asked us to be careful not to assume that we can derive 'ought' from 'is', adding that we should give a reason for trying. Having noticed how often

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authors move from descriptions of how things are to statements about how things ought to be, he added:

> "*This change is imperceptible; but is however, of the last consequence. For as this ought, or ought not, expresses some new relation or affirmation, 'tis necessary that it should be observed and explained; and at the same time that a reason should be given; for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it*" (Hume, 1739, p. 335).

In other words, the way we feel humans ought to behave is not simply a reflection of human nature. Just as one cannot infer traffic rules from the description of a car, one cannot infer moral codes from knowing who or what we are. Hume's point is well taken, but a far cry from the expansion by some later philosophers, who turned his appeal for caution into "Hume's guillotine", claiming an unbridgeable chasm between 'is' and 'ought' (Black, 1970). There exists by no means agreement on this topic, which is why it remains a perennial of philosophical debate, but some have gone so far as to wield this guillotine to kill off any and all attempts, even the most cautious ones, to apply evolutionary logic or neuroscience to human morality. Science cannot tell us how to construe morality, they argue. This may well be true, but science does help explain why certain outcomes are favored over others, hence why morality is the way it is. For one thing, there would be no point in designing moral rules that are impossible to follow, just as there would be no point in making traffic rules that cars cannot obey. This is known as the 'ought implies can' argument. Morality needs to suit the species it is intended for.

'Is' and 'ought' are like the yin and yang of morality. We have both, we need both, they are not the same, yet they cannot be completely disentangled. They complement each other (see also Kitcher, 2014, this issue). Hume (1739) himself ignored the 'guillotine' named after him by stressing how much human nature matters: he saw morality as a product of the emotions, placing empathy (which he called sympathy) at the top of his list. This opinion represented no contradiction on his part, since all that he urged was caution in moving from how we are to how we ought to behave (Baier, 1991). He never said that such a move was prohibited, although he might not have

agreed with Singer (1973) for whom the debate about the is/ought divide is a 'triviality' entirely dependent on the definition of morality.

While I concur with many philosophers that it is hard, perhaps impossible, to reason from the level of how things are to how things ought to be, here I will explore whether the divide is equally wide if we leave the conceptual domain and enter that of actual behavioral tendencies and motivations. What if morality is not rationally constructed, but grounded in emotional values, as Hume thought? What if biology is not just on the 'is' side of the equation, but informs us also about the 'ought' side, such as by explaining which values we pursue and for what evolutionary reason? Every organism strives for certain outcomes. Survival is one, reproduction is another, but many organisms also pursue social outcomes that come close to those supported by human morality.

That animal behavior is not free of normativity (defined as the adherence to an ideal or standard) is hardly in need of argument. Take the spider's reaction to a damaged web. If the damage is extensive she will abandon her web, but most of the time she will go into repair mode, bringing the web back to its previous functional state by filling holes or tightening damaged threads by laying new ones (Eberhard, 1972). Similarly, disturbing an ant nest or termite hill leads to immediate repair as does damage to a beaver dam or bird nest. Nature is full of physical structures built by animals guided by a template of how the structure ought to look. This template motivates repair or adjustment as soon as the structure deviates from the ideal. In other words, animals treat these structures in a normative fashion. I am not necessarily thinking here of normative judgment. It is unclear if the animals themselves feel an obligation to behave in a particular way, nor do I assume that every single individual of a large colony has a conception of the whole nest, but it is undeniable that animals collectively or individually pursue goal states.

The question here is whether they do the same with regards to social relations and society at large. Do they seek certain social outcomes and correct or discourage deviations from expectations? Do they take a normative approach to social relationships, and if so, is it guided by the same kind of emotions and values that underlie human morality? Churchland (2011, p. 175) hints at a move from the social emotions to moral values, writing that "basic emotions are Mother Nature's way of orienting us to do what we prudently ought". The question here is whether the same move is recognizable in other species.

2. Social hierarchy and impulse control

The opposite of morality is that we just do 'what we want', the underlying assumption being that what we want is not morally good. This remains a common religious argument against naturalized ethics (Gallagher, 2004). In this view, morality rests on the uniquely human ability to inhibit natural tendencies (Huxley, 1894). For example, Kitcher (2006) labeled chimpanzees 'wantons', defined as creatures vulnerable to whichever impulse strikes them. Somewhere in our evolution we overcame this wantonness, which is what made us human. According to Kitcher (2006, p. 136), this process started with the "awareness that certain forms of projected behavior might have troublesome results".

Myriad animals live with similar knowledge, though, not only when they try to avoid detection by predators or prey through the suppression of sound and movement, but also in the social domain. A dominance hierarchy is one giant system of social inhibitions, which is no doubt what paved the way for human morality, which is also such a system. Impulse control is key to avoid 'troublesome results'. In macaques and other primates low-ranking males vary their behavior dependent on the presence or absence of the alpha male. As soon as alpha turns his back, other males approach females. Putting this principle to the test, low-ranking males refused to approach females so long as the dominant looked on from inside a transparent box, yet as soon as this male was removed, the same males freely copulated with females. These males also took the occasion to perform the typical bouncing displays of high-status males. After such episodes, however, they were excessively nervous upon reunion with the alpha male, greeting him with such wide submissive teeth-baring that the experimenters interpreted their behavior as an implicit recognition that they had violated a social code (Coe & Rosenblum, 1984). Perhaps social rules are not simply obeyed in the presence of dominants and forgotten in their absence, but internalized to some degree. However, when scientists have tried to measure the degree of internalization of human-imposed rules in dogs, by studying their guilty-looking demeanor after violations, they have not found much beyond a direct effect of the owner's behavior on the dog (Vollmer, 1977; Horowitz, 2009).

Not only low-ranking individuals, but also high-ranking ones benefit from impulse control. For example, an alpha male chimpanzee (*Pan troglodytes*) may receive a pointed challenge from a younger male, who throws rocks in his direction or makes an impressive charging display, with all his hair on

end. This is a way of testing alpha's nerves. Experienced dominant males totally ignore the din, however, as if they barely notice, thus forcing their challenger to either give up or escalate (de Waal, 1982).

Inhibitions associated with the hierarchy ultimately come about through punishment. After having deprived a large troop of rhesus monkeys (*Macaca mulatta*) of water for three hours, a single water-filled basin was made available. All adults came to drink in hierarchical order, but infants and juveniles drank with the highest-ranking males and mingled with the top matriline, thus ignoring the social hierarchy. Only in the third year of life, through increasing exclusions and punishments, did juveniles begin to learn their place in the overall rank-order and converge with their mother's rank (de Waal, 1993).

Since apes develop more slowly than monkeys, youngsters go virtually unpunished for the first four years of life. They can do nothing wrong, such as using the back of a dominant male as a trampoline, stealing food out of the hands of others, or hitting an older juvenile as hard as they can. One can imagine the shock when a youngster is rejected or punished for the first time. The most dramatic punishments are those of young males who have ventured too closely to a sexually attractive female (de Waal, 1982; Figure 1). Young males need only one or two such lessons. From then on, every adult male can make them jump away from a female by a mere glance or step forward. Youngsters thus learn to control their sexual urges, or at least become more circumspect about acting upon them.

The capacity for impulse control can be experimentally tested in the same way that delayed gratification is being tested in children (Mischel et al., 1972; Logue, 1988). Children are given a marshmallow with the promise that if they do not eat it there will be another one coming. Many children have the capacity to wait for minutes. Similarly, both apes (Beran et al., 1999) and monkeys (Amici et al., 2008) will pass up an immediate reward in favor of a better, delayed one. It has further been shown that chimpanzees, like children, play more with toys in the presence of accumulating rewards suggesting attempts at self-distraction in the face of temptation, allowing the apes to delay gratification for up to 18 min (Evans & Beran, 2007). Other studies have shown that apes can override an immediate drive in favor of future needs, an essential aspect of successful action planning (Osvath & Osvath, 2008). The same intertwinement between emotion and cognition known of humans seems to apply to our close relatives, therefore, including

Figure 1. A young male, about 4 years old, has shown too much interest in one of the estrus females, and is now being punished by an adult male, who has taken his foot in his mouth and swings him around. This will serve as a lesson for the rest of the young male's life about the competitiveness of males around sexually attractive females. Photograph by Frans de Waal.

the deliberate control of emotions. Insofar as such control is mediated by the frontal lobes, it should be pointed out that the popular view that this part of the brain is exceptionally developed in our species is erroneous. The human brain is essentially a linearly scaled-up monkey brain (Herculano-Houzel, 2009; Barton & Venditti, 2013).

3. One-on-one normativity

Morality is defined here as a system of rules that revolves around the two H's of Helping or at least not Hurting fellow human beings. It addresses the well-being of others and often puts community interests before those of the individual. It does not deny self-interest, yet curbs its pursuit so as to promote a cooperative society (de Waal, 1996, 2006). This functional definition sets morality apart from customs and habits, such as eating with knife and fork versus with chopsticks or bare hands. The distinction between moral rules and conventions is already clear in young children (Killen & Rizzo, 2014: this issue). Previously, I have distinguished two levels of moral rules: (a) rules at the one-on-one (dyadic) level of social relationships, and (b) rules at the community level (de Waal, 2013). Table 1 summarizes examples at the one-on-one level.

3.1. Reconciliation

The one-on-one level revolves around the preservation of valuable relationships. One of its most common expressions is conflict resolution, first reported by de Waal & van Roosmalen (1979). A typical example concerns two male chimpanzees who have been chasing each other, barking and screaming, and afterwards rest in a tree (Figure 2). Ten minutes later, one male holds out his hand, begging the other for an embrace. Within seconds, they hug and kiss, and climb down to the ground together to groom. Termed a reconciliation, this process is defined as a friendly contact not long after a conflict between two parties. A kiss is the most typical way for chimpanzees

Table 1.
When individuals seek to preserve harmonious social relationships, they apply one-on-one normativity. Their behavior reflects the value attached to good relations. This table offers four examples: restoration of the dominance hierarchy, relationship repair, negative reactions to inequity, and play resumption. In all cases, primates and other animals actively bring a social relationship back to its original state.

Ideal	Deviation	Repair or correct	Restored
Hierarchy	Disobedience or rank challenge	Punish or reassert dominance	Harmony
Close relationship	Conflict	Reconciliation	Harmony
Cooperation	Unequal rewards	Protest or sharing	Harmony
Relaxed play	Hurt partner	Remedial signals	Harmony

Figure 2. The situation after a protracted, noisy conflict between two adult males at a zoo. The challenged male (left) had fled into the tree, but 10 min later his opponent stretched out a hand. Within seconds, the two males had a physical reunion. Photograph by Frans de Waal.

to reconcile, but bonobos do it with sexual behavior (de Waal, 1987), and stumptail macaques wait until the subordinate presents, then hold its hips in a so-called hold-bottom ritual (de Waal & Ren, 1988). Each species has its own way, yet the basic principle remains the same, which is that former opponents reunite following a fight.

Primatology has long been interested in social relationships so that the idea of relationship repair, implied by the reconciliation label, quickly garnered attention. We now know that about thirty different primate species reconcile after fights, and that reconciliation is not limited to the primates. There is evidence for this mechanism in hyenas, dolphins, wolves, domestic goats, and so on. The reason for reconciliation being so widespread is that it restores relationships that have been damaged by aggression but are nonetheless essential for survival. Since many animals establish cooperative relationships within which conflict occasionally arises, mechanisms of repair are essential. The growing field of animal conflict resolution has been reviewed by de Waal (2000) and Aureli & de Waal (2000).

Most of these studies support the Valuable Relationship Hypothesis, which can be formulated thus: "Reconciliation will occur especially between individuals who stand much to lose if their relationship deteriorates". This hypothesis has also been supported by an elegant experiment that manipulated relationship value by promoting cooperation among monkeys, thus increasing their willingness to reconcile after fights (Cords & Thurnheer, 1993). The above ideas have been formalized in the Relational Model, which places conflict in a social context. Aggression is viewed as one of several options for the resolution of conflicts of interest. Other options are avoidance of the adversary (common in hierarchical and territorial species), and the sharing of resources (common in tolerant species). Weighing the costs and benefits of each option, conflict may escalate to the point of aggression after which there still is the option of undoing its damage by means of reconciliation, which option is favored by parties with overlapping interests (de Waal, 2000; Figure 3). Applying the same standardized methodology as primatol-

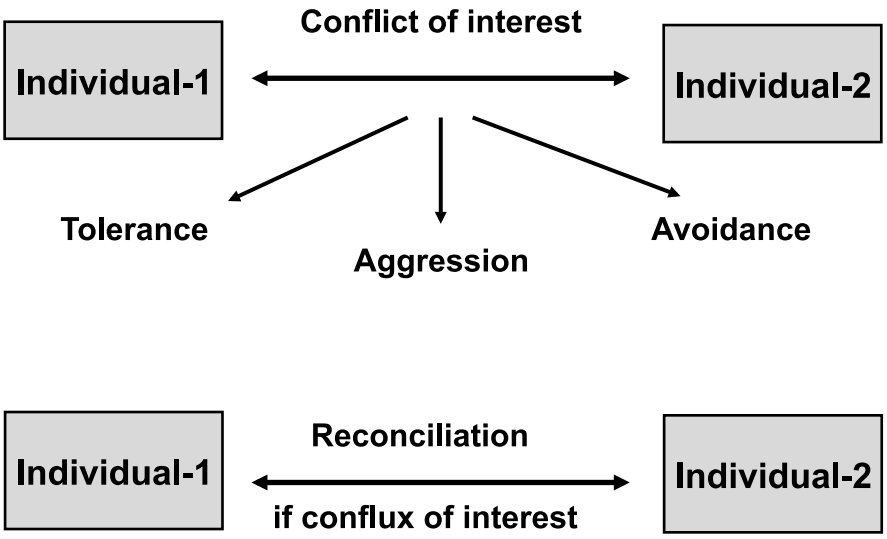

Figure 3. According to the Relational Model, aggressive behavior is one of several ways in which conflicts of interest can be settled. Other possible ways are tolerance (e.g., sharing of resources) and avoidance of confrontation (e.g., by subordinates to dominants). If aggression does occur, it depends on the nature of the social relationship whether or not repair attempts will be made. If there is a strong mutual interest in maintenance of the relationship, reconciliation is likely. Parties negotiate the terms of their relationship by going through cycles of conflict and reconciliation. From de Waal (2000).

ogists to human children, very similar results have been obtained (Verbeek et al., 2000).

3.2. Preventive conflict resolution

That primates guard against the undermining effects of conflict and distress is visible during play. When youngsters are far apart in age, games often get too rough for the younger partner, as when its leg gets twisted or a gnaw turns into a bite. At the slightest peep of distress, its mother will break up the game. Normally, play is entirely silent except for the hoarse panting laughs of apes that resemble human laughter (van Hooff, 1972). Recording hundreds of wrestling bouts, we found that juvenile chimpanzees emit this vocalization especially when the mother of a younger playmate is watching, doing more so in her presence than while alone with the same infant. The vocalizations may function to stave off maternal intervention by reassuring her of the benign nature of the interaction (Flack et al., 2004).

Bekoff (2001) analyzed videotapes of play among dogs, wolves and coyotes. He concluded that canid play is subject to rules, builds trust, requires consideration of the other, and teaches the young how to behave. The highly stereotypical 'play bow' (an animal crouches deep on her forelimbs while lifting up her behind) helps to set play apart from sex or conflict, with which it may be confused. Play ceases abruptly, however, as soon as one partner hurts another. The transgressor may need to perform a new play bow, after which the partner may continue the play. Bekoff draws a parallel with morality:

> "*During social play, while individuals are having fun in a relatively safe environment, they learn ground rules that are acceptable to others — how hard they can bite, how roughly they can interact — and how to resolve conflicts. There is a premium on playing fairly and trusting others to do so as well. There are codes of social conduct that regulate what is permissible and what is not permissible, and the existence of these codes might have something to say about the evolution of morality*" (Bekoff, 2001, p. 85).

Behavior aimed at the preservation of good relations hints at the great value attached to social harmony. Kummer (1995) offers striking observations of the way hamadryas baboon (*Papio hamadryas*) harem leaders,

finding themselves in a fruit tree too small to feed both of their families, will break off their inevitable confrontation by literally running away from each other followed by their respective females and offspring. Chimpanzee males face a similar dilemma. Several of them may sit near a female advertising her fertility with swollen genitals. Rather than competing, the males are actively keeping the peace. Frequently glancing at the female, they spend their day grooming each other. Only when all of them are sufficiently relaxed will one of them try to mate (de Waal, 1982).

The above descriptions are qualitative, but conflict prevention techniques have also been quantified. After an initial suggestion by de Waal (1987) of a grooming peak among captive bonobos right before feeding time, thus preceding potential competition and tension, studies have aimed to measure behavior around food arrival, which at most zoos and institutions occurs at a predictable time of day. Chimpanzees groom more while expecting food, and engage in 'celebrations' marked by high levels of appeasing body contact upon food arrival (de Waal, 1992a; Koyama & Dunbar, 1996). Bonobos, on the other hand, show increased play behavior before food is expected, and high amounts of socio-sexual contact upon its arrival (de Waal, 1987; Palagi et al., 2006). Primates thus anticipate food competition, and actively work to reduce it.

3.3. Striving for fair reward divisions

Negative reactions to skewed reward distributions, also known as inequity aversion (IA), are another part of dyadic relationship maintenance. Cooperative animals need to watch what benefits they obtain relative to their cooperation partners so as not to be taken advantage of. In the absence of equal distribution, mutualistic cooperation might easily become a form of altruism on the part of those who earn less. This outcome problem has been recognized in humans (Fehr & Schmidt, 1999), and is increasingly a theme in animal research (Brosnan, 2011).

Capuchin monkeys are so sensitive to inequity that clumped rewards, which are monopolizable by dominant parties, reduce cooperative tendencies compared to dispersed ones (de Waal & Davis, 2003). Brosnan & de Waal (2003) tested IA in a simple experiment in which two monkeys received either equal rewards for the same task or unequal rewards, such as one monkey receiving cucumber slices and the other grapes, which are far preferred. The authors found that individuals receiving the lesser reward were

unaffected if both received the same, yet often refused to perform or accept the reward if their partner received a better deal. Similar results were found in chimpanzees (Brosnan et al., 2005). Experimental replications that did not require a task, however, failed to produce the same results (Braüer et al., 2006; Roma et al., 2006) even in a study on the same monkeys as in the original study (Dindo & de Waal, 2006). Thus, as predicted by an evolutionary account focusing on task performance and cooperation, unequal rewards cause negative reactions only in the context of an effortful task. Finally, van Wolkenten et al. (2007) demonstrated that responses to inequity are truly social in that they cannot be explained as negative reactions to poor rewards while superior ones are visible. Mere visibility had little effect: negative reactions occurred only if the better rewards were actually consumed by a partner.

Similar IA responses have been observed in other species, both primates and nonprimates (Brosnan, 2011; Price & Brosnan, 2012; Range et al., 2012). One restriction, however, is that thus far most studies only concern IA by the individual that receives less. This is known as disadvantageous IA, whereas in advantageous IA subjects respond negatively to receiving a more valuable outcome. Humans show the latter response as well as the former. Brosnan & de Waal (2012) speculate that advantageous IA, which marks a full sense of fairness, occurs when individuals anticipate the negative implications of disadvantageous IA in others. In order to protect the relationship against the eroding effects of tensions when one individual receives less than the other, the one who receives more tries to prevent this by equalizing the outcome. The authors label this a second-order sense of fairness: "In order to prevent conflict within close or beneficial relationships, the advantaged individual will benefit from either protesting or rectifying the situation" (Brosnan & de Waal, 2012, p. 341).

Thus far, there are no signs of second-order fairness in monkeys, such as the capuchin monkeys of the original study. In apes, however, evidence is mounting. The first sign came from a study by Brosnan et al. (2010) on chimpanzees, in which not only partners receiving the lesser reward regularly refused to perform or accept their rewards, but also partners receiving the better reward. In other words, any inequity, not just the disadvantageous kind, was aversive. It made sense, therefore, to test chimpanzees on the Ultimatum Game (UG), which is the gold standard of the human sense of fairness. In

the UG, one individual (the Proposer) can split money with another individual (the Respondent). If the Respondent accepts the offer, both players are rewarded, using the proposed split. If the Respondent rejects the offer, however, then neither player is rewarded. People in Western cultures typically offer around 50% of the available amount (Guth, 1995; Camerer & Lowenstein, 2004) as do most other cultures (Henrich et al., 2001). In contrast, a UG study on chimpanzees found them to share the smallest possible amount with the other (Jensen et al., 2006). The methodology of this experiment deviated substantially from the typical human UG, however, and it was unclear if the apes fully understood the task.

To overcome these objections, Proctor et al. (2013) designed a more intuitive UG procedure for both chimpanzees and 3–5-year-old human children. Proposers were presented with a choice of two differently colored tokens that could be exchanged with a human experimenter for food. One color represented an equal reward distribution (3 vs. 3 banana slices), whereas the other represented an unequal distribution favoring the Proposer (5 vs. 1 banana slices). The Proposer would need to hand the token to its partner, the Respondent, sitting behind a mesh panel. Respondents could either accept the token, and return it to the experimenter, or reject it by not returning the token. As in the typical human UG, Proposers thus needed the Respondent's collaboration.

Token choices were compared with choices in the presence of passive Respondents, who lacked any influence. Chimpanzees were sensitive to the contingencies of the game in the same way as humans. If their partner had control, they more often split the rewards equally. In the absence of partner influence, however, they preferred the option that gave themselves the largest proportion of rewards. Since the children behaved similarly, the study suggests that humans and chimpanzees share patterns of proactive decision-making in relation to fair outcomes (Proctor et al., 2013).

4. Community concern

Compared to one-on-one normativity, there are far fewer signs for normativity in nonhuman primates at the community level. This is the level at which human morality may be unique in that we routinely extend our moral reasoning to the society as a whole, speculating what would happen to our community if everyone acted in a particular way. We even extend our value system

to interactions that we are not directly involved in. One way in which the moral emotions differ from ordinary ones is "by their disinterestedness, apparent impartiality, and flavor of generality", as Westermarck (1917, p. 238) put it. Typical emotions concern only our personal interests — how we have been treated or how we want to be treated — whereas moral emotions go beyond this. They deal with right and wrong at a more abstract level. It is only when we make judgments of how *anyone* under the circumstances ought to be treated that we speak of moral judgment. To get the same point across, Smith (1759) asked us to imagine how an 'impartial spectator' would judge human behavior.

This is not to say that this level is entirely absent from the behavior of our close relatives. I have previously labeled this level 'community concern' (de Waal, 1996). There exist many examples of impartial policing and mediation that appear to reflect community values. In some species, interventions by the highest-ranking members of the group end fights or at least reduce the severity of aggression. High-ranking male chimpanzees often play this role in fights between females and/or juveniles in their group (de Waal, 1982). For example, if two juveniles are playing and a fight erupts, the alpha male may approach the area of the conflict to stop the fight. By doing so, he reduces the levels of aggression within the group, and also prevents the juvenile fight from escalating by stopping it before the juveniles' mothers intervene and may start fighting amongst themselves.

This pattern of behavior is referred to as the 'control role' (cf. Bernstein & Sharpe, 1966). Detailed descriptions and analyses have been provided by de Waal (1982), together with data showing that males ignore their social ties with the conflict participants while adopting this role. Whereas most individuals support friends and kin, controlling males intervene independently of their usual social preferences (de Waal, 1992b). The ability to put such preferences aside suggests a rudimentary form of justice in the social systems of nonhuman primates. Impartial policing is also known from wild chimpanzees (Boehm, 1994), and a recent study comparing this behavior across various captive groups concluded that it stabilizes social dynamics (von Rohr et al., 2012). An experimental study by Flack et al. (2005), in which key policing individuals were temporarily removed, showed their importance for the maintenance of grooming, play, and other signs of a harmonious society.

One other important method of conflict resolution that has been identified in primate groups is mediation. Mediation occurs when a third party to a conflict becomes the bridge between two former opponents unable to reconcile

without external help. It is characterized in the following example (de Waal & van Roosmalen, 1979, p. 62):

> "*Especially after serious conflicts between two adult males, the two opponents sometimes were brought together by an adult female. The female approached one of the males, kissed or touched him or presented towards him and then slowly walked towards the other male if the male followed, he did so very close behind her (often inspecting her genitals) and without looking at the other male. On a few occasions the female looked behind at her follower, and sometimes returned to a male that stayed behind to pull at his arm to make him follow. When the female sat down close to the other male, both males started to groom her and they simply continued when she went off*".

Calling such behavior an expression of community concern by no means implies that there are no benefits for the performer. In socially living animals, there exists a great deal of overlap between community-wide and individual interests, and each individual surely has an interest that its community reaches a certain level of harmony and cooperation. The term community concern implies no sacrifice, therefore, and even less selection at the group level. It just states that individuals may advance the interests of their community as a whole, which may well be to their own advantage at the same time that it benefits others.

Finally, prestige and reputation are a critical part of why humans often act on behalf of the community even when they do not directly gain from it. Glimmers of reputation can be seen in the apes. For example, if a major fight gets out of control, bystanders may wake up the alpha male, poking him in the side. Known as the most effective arbitrator, he is urged to step in. Apes also pay attention to how one individual treats another, as in experiments in which they prefer to interact with a human who has displayed a positive attitude to others, such as by sharing food with other apes (Russell et al., 2008; Subiaul et al., 2008; Herrmann et al., 2013). In our own studies, we found that if we let the colony watch two chimpanzees who demonstrate different but equally simple tricks to get rewards, they prefer to follow the higher-status model. Showing a so-called prestige effect, they preferentially imitated prominent members of their community (Horner et al., 2010).

These pieces of evidence suggest that chimpanzees perform actions that benefit the community as a whole and that they may have individual reputations regarding how they treat others or how worthy of imitation they are. This is still a far cry, however, from the human pre-occupation with community standards and the welfare of the whole. It is especially at the level of community concern and reputation building that human moral systems deviate from the normativity found in other primates.

5. Conclusion

In light of the above, the position that biology, including animal behavior, resides entirely on the 'is' side of the is/ought divide is hard to maintain. Obviously, we can describe animal behavior by leaving out any and all references to goals, intentions, and values — just as we can describe human behavior this way — but such descriptions miss an essential aspect. Nonhuman primates, as well as many other animals, strive for specific outcomes. They do so both in relation to physical structures, such as nests and webs, and in relation to social relationships. They actively try to preserve harmony within their social network. They frequently correct deviations from this ideal by, e.g., reconciling after conflict, protesting against unequal divisions, and breaking up fights amongst others. They behave normatively in the sense of correcting, or trying to correct, deviations from an ideal state. They also show emotional self-control and anticipatory conflict resolution in order to prevent such deviations. This makes moving from primate behavior to human moral norms less of a leap than commonly thought.

Differences likely remain, however. Other primates do not seem to extend norms beyond their immediate social environment, and appear unworried about social relationships or situations that they do not directly participate in. They also may not, like humans, feel any obligation to be good, or experience guilt and shame whenever they fail. We do not know if other animals experience such 'ought' feelings. One could argue that their behavior is normative in that it seeks certain outcomes, but that animals manage to do so without normative judgment. They may evaluate social behavior as successful or unsuccessful in furthering their goals, but not in terms of right or wrong. On the other hand, their behavior sometimes suggests a kind of evaluation of past actions, such as when one bonobo bites another and soon thereafter approaches, remembering the exact location of the bite, only to spend half an

hour licking the inflicted injury (de Waal, 1989). Given the inaccessibility of animal experience, however, the presence of an internalized normativity remains highly speculative. For the moment, this paper makes the weaker claim, that insofar as the 'ought' of human morality reflects a preference for certain social outcomes over others, similar preferences seem to guide other animals without necessarily implying that they are guided by the same sense of obligation of how they ought to behave as humans.

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