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Jessica C. Flack and Frans B.M. de Waal

# *Being Nice Is Not a Building Block of Morality*

## *Response to Commentary Discussion*

> [T]he question to be answered is not what emotions may prompt people to pronounce moral judgments — there are certainly many different emotions that may do that — but whether there are any specific emotions that have led to the formation of the concepts of right and wrong, good and bad, and all other moral concepts.
>
> Edward Westermarck (1932, p. 62)

### Behaviour *versus* Building Blocks

Ever since Aristotle, moral philosophers, including David Hume, Adam Smith, and Edward Westermarck, have argued that there are two distinct layers to human morality: (1) moral emotions or sentiments and (2) the capacity for moral judgment and reasoning. We tend to focus on this first layer when we compare humans with other animals because it is closer to direct behavioural expression, hence easier to measure. Investigating the extent to which primates are capable of moral judgement and reasoning is a much more challenging task, and as **Call** discusses, the lack of data in this area constrains what conclusions can be drawn. This explains why we have been reluctant to claim that any animals other than ourselves are moral beings even though some of our commentators seem to think we did.

Regardless of this limitation, moral sentiments are a necessary starting point for investigations of the origins of morality. These sentiments are the very building blocks of morality in that they reflect the tendencies and capacities (for example, the capacities for empathy and perspective taking) without which human morality as we know it would be unthinkable. The moral sentiments, and their underlying capacities, however, are not necessarily *objects* of morality. For example, we would, with Westermarck (1912), classify the tendency for retribution as a prerequisite for a rule-based, just society — hence as a critical building block of morality — whereas we may, at the same time, morally disapprove of many of its expressions. Furthermore, and as **Railton** points out, many important building blocks of morality, such as deliberation and learned adjustment, are 'all essential to morality without themselves being "dedicated" to moral tasks'.

Distinguishing between the behaviours that we judge and the capacities that make these behaviours and judgments possible seems to be a major source of confusion for

some of our commentators, such as **Kummer** and **Troyer** — and **Kagan**, who suggests that if we allow the use of anthropomorphic terms when describing animal behaviour, we may legitimately conclude that a 'hypersexed female rhesus monkey is a tart'. This confusion is not new, going back to Seton (1907) and several ethologists (for example, Wickler, 1981; Kummer, 1978, critically reviewed by Vogel, 1985) who have tried to determine natural analogues to the Ten Commandments. Even if such analogues exist, they tell us very little — as **Kummer** correctly points out with his example of monogamy in birds — about the origins of morality. Consequently, we need to sharply distinguish the moral evaluation of animal behaviour — which is indeed a naive and rather useless enterprise — from the search for moral abilities and tendencies in animals other than ourselves.

Recently, the important distinction between behaviour and capacity in the discussion of morality was emphasized by Arnhart (1998), who argues that biologically-based desires and cognitive capacities form the basis for the emergence of morality. He stresses that these natural capacities can not be realized except through social learning and moral habituation, thus distinguishing them from the social instincts. Furthermore, he argues that although the specific content of this learning is structured by the natural repertoire of desires and capacities, it is variable according to the social and physical circumstances of the society in question. Anyone who understands this argument quickly realizes that although, for example, the capacity for cognitive empathy often contributes to the production of behaviour that we judge moral (for example, sharing food), it also at times contributes to the production of behaviour that we judge immoral (for example, deception). The capacity itself is not subject to moral evaluation. It is also important to recognize, as Arnhart points out, that it is not correct to characterize these kinds of capacities as innate. Humans and other animals may indeed be predisposed to developing certain capacities but these capacities develop through learning and experience. Thus, we must resist the temptation to conclude, as do **Gruter and Gruter**, that a particular capacity, which is part of the human repertoire, is innate because it is also present in the repertoire of our primate relatives. We agree with **Güth and Güth,** and also **Thierry**, that such an assumption likely underestimates the complexity and frailty of the pathway from predisposition to behavioural expression.

It should by now be clear that instead of arguing that food-sharing is a building block of morality, our intention was to emphasize the capacities thought to *underlie* human food-sharing (for example, high levels of tolerance, sensitivity to others' needs, reciprocity), and to argue that the existence of food-sharing in some non-human primates suggests that they, too, are likely endowed with these capacities. It is these capacities that are the building blocks of morality, not the behaviour resulting from them. Food-sharing, and its counterpart, the punishment of stingy individuals, are important for other reasons as well. They suggest something that monogamy in birds cannot. The observation of these behaviours in non-human primates, although not directly evidence for the biological origins of morality, suggests that there may be room in their societies for an implicit system of conflict management that is based on shared values and expectations. It does not matter what these values are — only that they exist. We thus agree with **Railton** that we must be able to identify more than just a *modus vivendi* in primate societies if we are to suggest that within these societies there are building blocks of moral systems.

Let us therefore try to define what morality is, as requested by **Troyer, Bernstein** and **Moore**. This is not an easy task — nor is it a task to be taken lightly — as many definitions, conceptions, and versions of morality exist. In an effort not to detract from the significance of this variability, we prefer a broad characterization over a definition of morality and moral systems, one that should obviously be devoid of moral prescription. We understand morality as a sense of right and wrong that is born out of group-wide systems of conflict management based on shared values. This characterization of morality and moral systems is close to Boehm's (this issue), for whom morality is the product of shared values imposed on the individual by the group, and to Alexander's (1987), for whom moral systems are systems of indirect reciprocity. Moral systems thus provide a set of rules and incentives to resolve competition and conflicts within the group in the service of the 'greater good', that is, the benefits (to individuals) derived from resource distribution and collective action. Morality, by this definition, is closely related to prosocial behaviour.

Only superficial consideration combined with preconceptions about the 'morality' of prosocial behaviour could lead, however, to the conclusion that the definitions discussed here do little to distinguish morality from being nice, as **Moore** suggests. If prosocial behaviour is any behaviour that facilitates long-term, ultimately positive, iterated interaction between and among individuals, as we define it (for an alternative conception, see Batson,1998), then punishment of wrongdoers can be as prosocial as reconciliation and forgiveness. All moral behaviour is necessarily prosocial *on some level of analysis*; but by no means is all prosocial behaviour moral. In addition to producing moral outcomes, prosocial behaviour can produce immoral, and more importantly, amoral outcomes. For example, a day camp counsellor who remains friendly and tolerant with a child that is causing a lot of trouble for other children in the group may be called prosocial at one level even though he is failing to instill moral values. An even more poignant example of a prosocial behaviour pattern that may be evaluated as immoral (albeit sympathetically), is the reconciliation that often follows physical or verbal assault in abusive relationships. Prosocial behaviour that may produce an amoral outcome includes engaging in mutualism, which involves no obligation, and thus cannot be subject to shared values or expectations. To sum up, building blocks of morality are *not* behaviours that are 'good' and 'nice', but rather mental and social *capacities* that permit the construction of societies in which shared values constrain individual behaviour through a system of approval and disapproval. Animals, including chimpanzees, have not evolved moral systems anywhere near the level of ours, but they do show some of the behavioural capacities that are built into our moral systems.

## Support for the Project

We were pleased to see so much support for the basic premises of our project. None of the commentators tries to place morality fully outside the evolutionary realm as Huxley (1894) and his followers have done. This indicates that we are all on the same Darwinian line. Even **Kagan**, who otherwise is a critic, concludes at the end of his commentary that the human moral sense is an evolutionary product that is maintained because it is adaptive. He doesn't say, however, how and why morality is adaptive. We of course argue that as soon as one ponders this question, it becomes clear that

some of the tendencies involved must predate the arrival of our species. **Railton** recognizes the likelihood of this conclusion in his thoughtful and highly constructive commentary in that he agrees that the studies of primate behaviour 'enable us to see more clearly how evolutionary history might furnish us with many of the blocks needed to build morality without having to do the final or near-final assembly itself'. It is, however, the last component of this statement that reflects particularly important insight about how an emergent phenomenon like morality might result from evolutionary processes. Implicit in **Railton's** statement is the idea that natural selection shaped the building blocks of morality from raw materials, while some other process or mechanism (perhaps self-organization) made possible the transition from building blocks to a full-blown phenomenon (see below for more discussion on this).

Despite reservations that our approach may reflect an attempt to reduce the emergence of moral systems to the laws of biological evolution, **Thierry**, like **Kagan**, acknowledges a place for biology in the study of moral systems. He agrees that those motivational dispositions and cognitive abilities that contribute to the formation and maintenance of social relationships may also provide the raw material from which morality develops. He is unwilling, however, to extend the concept of morality in any sense beyond the human domain. To support this conclusion, **Thierry** suggests that morality is a product of the interaction of cultural and biological evolution. This process, he argues, does not occur in any animal societies for if it did, there would be evidence of cultural drift (or selection) and also for the social transmission of behaviour. **Thierry** is right to point out that (1) morality is a product of feedback between the social (perhaps cultural) and individual (perhaps biological) levels and that, (2) thus far the evidence for cultural drift and social transmission of behaviour in animal societies is sparse. As discussed earlier, we agree with Arnhart (1998), **Güth and Güth**, and **Troyer** that the developmental pathway between predisposition and behavioural expression is complex, influenced by learning, and mediated by the social environment. Research is sorely needed in this area, but contrary to what **Thierry** suggests, there is substantial variation among social systems in some animal societies, such as those of chimpanzees (de Waal, 1994).

**Thierry** makes another important contribution to the project through his observation that in our attempt to understand the degree to which moral systems have been influenced by our biological heritage, we in some sense appropriate from ideas about human morality the building blocks we seek in other animals (retrospect fallacy). In theory, the retrospect fallacy can be avoided if we use a top-down approach to outline (1) how a moral system should, from an evolutionary point of view, operate and function and, (2) what criteria are essential for the emergence of such a system. In practice, however, it is impossible to avoid entirely the retrospect fallacy because in order to study moral systems, we must have some idea of what they are, and this is necessarily influenced by our own experience with them (especially when we believe we have no other standard for comparison). **Moore** also identifies this problem when he writes, 'We need to be careful to avoid thinking we understand a trait because we've named it . . . and similarly be cautious of slipping from conceptually distinct punitive traits to discrete mental modules.'

In a manner quite different from that of the other commentators, **Gruter and Gruter** demonstrate agreement with our project's thesis in that they extend the approach to the study of legal systems. They suggest that some of the same building

blocks of morality (for example, capacities underlying moralistic aggression, sympathy, reciprocity, etc.) that are present in our non-human primate relatives, are also the building blocks of legal systems. In addition to bringing into our project a perspective from another field, **Gruter and Gruter's** commentary touches on an important problem. How is it that we distinguish within a *biological point of view* a moral system from a legal system? Furthermore, assuming that the two systems can be distinguished within a biological point of view, how is it that two different systems emerge from the same building blocks? Perhaps the major difference is that in moral systems, norms must be internalized, whereas in legal systems, individuals simply need to recognize the rules and the costs that may accrue from breaking them. Furthermore, because norms are not necessarily internalized in legal systems, third party monitoring of behaviour becomes a more important mechanism of control. In this sense, legal systems must be more public than moral systems, in that they require stated, explicit agreement among individuals. Until one considers this last point, it may seem that a legal system would be more likely than a moral system to emerge in animal societies.

### Two Different Principles of Parsimony

**Kagan, Kummer**, and **Bernstein** chide us for postulating similarities between humans and other primates that may not exist. At the same time they are perfectly willing to take the converse risk of denying similarities that are very well possible. **Kagan** even postulates unproven differences, such as when he assumes that chimpanzees share food only under pressure. This position is not borne out by the facts. For example, sharing through a mesh partition occurs even though the risk of aggression has been eliminated, the most generous sharers are often the most dominant individuals who have little to fear, and respect for possession is found in a variety of primates (de Waal, 1996, pp. 152–3). Furthermore, to support his view, **Kagan** capriciously claims that a chimpanzee will not jump into a cold lake to save another. It is unclear what we can learn from such highly specific comparisons, especially with a species that doesn't swim, but it may help to quote Goodall (1990, p. 213) on this issue:

> In some zoos, chimpanzees are kept on man-made islands, surrounded by water-filled moats . . . . Chimpanzees cannot swim and, unless they are rescued, will drown if they fall into deep water. Despite this, individuals have sometimes made heroic efforts to save companions from drowning — and were sometimes successful. One adult male lost his life as he tried to rescue a small infant whose incompetent mother had allowed it to fall into the water.

Both **Kummer** and **Kagan** mention negative test results as if such results carry much weight, whereas we all know that failure to demonstrate a presence is not the same as a demonstration of an absence. The ongoing debate about theory-of-mind in monkeys and apes is far from closed. Even as we write this reply, some researchers are obtaining positive results — which *are* interpretable. **Call's** commentary, in which he rightly speaks of a 'mixed bag' of results, provides a more careful phrasing of the possibilities as currently perceived by people in this field.

The bias betrayed in all of this, and in **Bernstein's** implicit call for parsimony, is that the burden of proof is placed on those who postulate fundamental mental and emotional similarities between humans and apes, rather than those who prefer to err on the other side. Is it really likely that similar behaviour in closely related species is

differently motivated and organized? If a person embraces a victim of attack, we assume empathy and perspective-taking to underlie her behaviour. On what grounds would we conclude otherwise when a chimpanzee embraces a victim of attack? To propose a different explanation in the case of these animals seems uneconomic, and from an evolutionary perspective, thoroughly puzzling because identical actions under functionally similar circumstances are unlikely to be produced through entirely different emotional and cognitive channels. Hence we join **Güth and Güth** in asking why those who claim that only humans have empathy feel no need to support their position.

Our willingness to err on the side of similarity rather than difference also implies that we don't shy away from what **Kummer** calls 'interpretative' terminology, or what we would rather call 'heuristic' terminology. We certainly don't assume that by choosing certain words we are relieved of our obligation to substantiate our hypothesis or its alternatives. When **Kummer** explains that as early as 1974 he suggested some form of relationship-repair after fights, which was unfortunately ignored in the literature, he hits precisely on the great advantage and stimulating power of an explicit, testable albeit speculative formulation of underlying processes.

**Kummer** was not the only one to have suggested relationship-repair before de Waal and van Roosmalen (1979) created a new field of enquiry by introducing the term reconciliation to the primatological literature. A recent review by de Waal (in press) documents several other such suggestions all the way back to Köhler (1925). However tantalizing these early one-line suggestions were, they did not demand the same attention as an explicit functional label accompanied by clear-cut predictions and systematic observational data. Cord's (1992) study tested in an elegant experiment a prediction derived from the 'reconciliation' label, namely that the process should restore baseline tolerance between former opponents. Conducted in Kummer's own laboratory, this study was clearly inspired by precisely the 'reconciliation' label and its corresponding implications.

Both **Kummer** and **Bernstein** seem to advocate a largely descriptive primatology in which the observer does not dwell beyond the immediately observable. Perception without expectation and interpretation is, however, an illusion. Commonly accepted terms, such as 'threat', 'courtship', 'play', and 'dominance', are heavily infused with intentionality and functional significance. Both commentators themselves have introduced to the primate literature or made extensive use of terms that make assumptions about underlying processes, such as 'respect for possession' (Kummer, 1978), 'control role' (Bernstein and Sharpe, 1966), and 'socialization' (for example, Bernstein and Ehardt, 1985). We have nothing against these terms for the same reason as that mentioned above — they help us organize reality in a testable way – but we do object to criticism that we use overly demanding interpretations by scientists who don't mind speaking of 'marriage' in baboons (Kummer, 1996).

The disagreement between **Kummer, Kagan**, and **Bernstein**, on the one hand, and us, on the other, seems to boil down to a difference in *assumptions* rather than a difference in the agreed-upon practice of empirical science. While we agree that similarities are as hard to demonstrate as differences, and that we need to keep working in this area, we adhere to the principle of evolutionary parsimony, and so urge scientists to avoid postulating differences between closely related species unless compelled by available evidence (de Waal, 1991; 1997). The primary point is that social complexity

and intelligence in monkeys, apes, and humans varies along a continuum and thus is distinguished by degree and not categorically. Depending on one's perspective, this may seem an elevation of the cognitive abilities of monkeys and apes to the human level, or by the same token it may seem a demotion of the cognitive abilities of humans to a lower level. Neither view of human and animal behaviour is much in line with our cultural heritage of human–animal dualism, but there is no point in trying to develop models of how and why we became cultural, political, and moral beings while maintaining a pre-Darwinian perspective.

Needless to say, the evolutionary parsimony principle has as long and distinguished a history as the cognitive parsimony principle advocated by behaviourists, and echoed by **Kagan**, **Kummer**, and **Bernstein**. It was most clearly expressed well before Darwin in the touchstone of David Hume (1739, p. 226):

> 'Tis from the resemblance of the external actions of animals to those we ourselves perform, that we judge their internal likewise to resemble ours; and the same principle of reasoning, carry'd one step farther, will make us conclude that since our internal actions resemble each other, the causes, from which they are deriv'd, must also be resembling. When any hypothesis, therefore, is advanc'd to explain a mental operation, which is common to men and beasts, we must apply the same hypothesis to both.

## Empirical Difficulties and Evolutionary Issues

**Railton** suggests that we conceive our inquiry into the building blocks of morality more broadly so as to avoid having to resort to unfortunate arguments, such as ascribing to our primate relatives a rudimentary sense of justice, to defend our position. **Railton** views such characterizations as an attempt by us to find in primates a 'proto-form' of the moral point of view, which he thinks may represent 'wishful over-interpretation'. At the same time he clearly agrees with us that one needs to look behind the behaviour at the capacities that produce it, writing that ' . . . perceptual, cognitive, and motivational capacities which, once joined to our representational, inferential, epistemic, and communicative capacities, *make attainable* something like a moral point of view' [emphasis added]. Thus, **Railton** asks us to build a house out of pine while forbidding us from using wood in its construction in that he wants these capacities to be studied but is unwilling to allow them to be studied in the only way they are presently accessible: By looking at their products.

It is unfortunate that these perceptual, cognitive, and motivational capacities cannot be studied by themselves. The only way we can tackle them is through behavioural experimentation and observation. In this sense we are in the same boat as Darwin, who also didn't stop at behaviour *per se* when he surmised that 'parental and filial affections' (what we would now called attachment and bonding) are essential ingredients of morality. Darwin faced the same dilemma that moral capacities are only accessible to the human observer by studying their products. As **Bernstein** points out, this confronts us with some serious empirical difficulties. We differ from **Bernstein**, however, in that we see these difficulties as a challenge rather than an obstacle. The explicit description of behaviour that appears to reflect a rudimentary sense of justice, for example, may stimulate further research. **Call** creatively suggests ways to tackle these issues because he recognizes that the potential gains from resolving methodological problems warrant the pursuit.

Some of **Railton's** motivation for suggesting that we conceive of our project more broadly appears to stem from concerns about whether it is accurate to describe morality and moral systems as products (although not solely) of natural selection. But something that is a product of selection need not also be, nor have ever been, an object of selection either directly or indirectly. Natural selection did not necessarily, as **Railton** worries we are suggesting, 'do itself the work of implanting within us a sense of justice, fairness, impartiality, etc. . . .' Morality and moral systems, like social systems in general, are emergent in that they arise out of the interactions of smaller parts yet are not necessarily reducible to those parts. Morality has few, if any, universal rules precisely because the specifics are not biologically dictated: It is an open-ended system that at the same time rests on species-typical tendencies and capacities.

## Future Research

There are two distinct research agendas the pursuit of which are bound to help us better understand how moral systems and morality evolved. The goal of one agenda should, as we see it, be to study how a moral system emerges from its component parts. The goal of the other agenda should be to replicate and extend the work that has been reviewed here, attending in particular to some questions about expectations, social rules, and transgressions, which have rarely been addressed. We have reviewed in this paper those studies that thus far have generated data relevant to the study of moral systems, and we have tentatively concluded — with support from several commentators — that some elements of moral systems are present in the societies of other animals. There remain, however, several research areas that demand attention. The most notable of these areas have been identified or addressed by commentators including **Call, Kummer, Thierry**, and **Bernstein**. **Bernstein**, for example, points to the importance of distinguishing motivation from function, a particularly precarious task when we study how conflicts among individuals in society are managed and negotiated. It is easy to forget that morality is just one mechanism by which this end may be achieved. Legal systems may have similar effects to moral systems in this regard, and although they are in many respects similar, how social stability is generated through the legal system may be quite different from how it is done through the moral system. For example, legal systems may be entirely contractual whereas moral systems have a more significant affective component.

**Bernstein** emphasizes that empirically assessing motivation is an extremely tricky issue, although an essential one to be addressed before we can expect to reach any conclusion about whether our moral sense is (or is not) unique. When a subordinate macaque takes a piece of fruit that is in proximity to a dominant individual, and then is attacked by the dominant, we need to ask if the motivation for the dominant animal's response arose out of frustration over losing the food, thus prompting a desire to get back the food, or whether the response arose from frustration that a *subordinate* dared to take a piece of fruit that was essentially in the dominant animal's possession, thus prompting the desire to 'teach' the subordinate a lesson about violating rules. It is possible that the dominant animal's attack may have been motivated by both desires (note that it can easily serve both functions without being motivated by both desires), for example, if the intensity of aggression of the attack was higher than that which was required to simply retrieve the fruit. An empirically clearer example of

punishment might be if the dominant attacked the subordinate, retrieved the food, ate or stored the food, and then, unprovoked, directed aggression at the subordinate again. Empirically demonstrating either case, however, is not easy because doing so requires the use of multiple controls to eliminate confounds and special attention to context and sequence of events.

**Call** discusses in his constructive commentary some of the finer theoretical and methodological issues that need to be distinguished in the study of social rules and norms, concepts that reflect the basis of human morality. He points out that social rules or norms may in animals rest on the capacity to use and perceive norms without full understanding or perception of intention, which he suggests is at the 'core of what humans consider right or wrong'. This suggests several complementary lines of inquiry: First, *do* animals use social rules because they perceive and are influenced by them, and if so, what are these rules, and what are the constraints on their application? Furthermore, how can prescriptive social rules be empirically distinguished from descriptive rules or inter-individual behavioural constancy? And how are social rules initially negotiated and socially transmitted? The last line of inquiry involves questions such as: Can animals perceive the intentions of others, and do they modify their response to a behaviour that deviates from their understanding of the actor's intentions?

**Call** suggests studying bystander reaction to social interactions as a promising method by which to extract some of this information. This is an approach on which we are currently working. In one set of studies on macaques, which will eventually be extended to chimpanzees, we are investigating the context and factors of dyadic and polyadic conflict that are associated with third-party interference in general, taking into account the type of intervention that occurs, the cost to the intervener, how the conflict changes after the intervention occurs, and most importantly, to whom in the original conflict the agonistic and non-agonistic components of the intervention were directed. This last aspect of our investigation is particularly important because after we have determined how an individual typically intervenes, we may ask in what contexts does this intervention pattern deviate. For example, let's say we observe that a particular male almost always intervenes on behalf of a favourite female when she is involved in a conflict with another female. This situation provides us with the opportunity to compare those interventions in which the male intervenes in favour of this favourite female (the base-line pattern) with those interventions in which the male sided with the female for whom he has no preference, asking if there is something about these particular conflicts that may have motivated the male to deviate from his regular pattern (for an example of this behaviour in chimpanzees, see de Waal, 1982, p. 171).

In addition to the more traditional observational and experimental studies that shed light on questions about the origins of moral systems, there are some recently developed experimental approaches that are promising. **Kummer** refers in his commentary to Dasser's (1988) work in which she demonstrated that macaques have a concept of the mother–child relationship using a paradigm in which the macaques are presented with slides in which different social relationships are recognizable. **Kummer** suggests that this paradigm may be useful for demonstrating empirically that non-human primates are capable of something such as community concern. Recent technological advances and methodological improvements by our team have made it possible to conduct similar experiments with both static and dynamic images presented on

computer screens (for example, Parr and de Waal, 1999; Parr *et al*., 2000). This may make it possible to 'ask' monkeys and apes 'questions' about their evaluation of or preferences for particular social situations, or to systematically study expectations by manipulating the outcome of a presented social interaction. These methodologies are especially important in light of recent results by Anderson *et al*. (1999) that suggest that one cause of defective social and moral reasoning in humans may be damage to the prefrontal cortex early in life that disrupts systems in the brain that may 'hold covert, emotionally related knowledge of social situations'.

Finally, in line with our claim that the building blocks of morality are not to be confused with 'nice' behaviour, we should also look at the other side of the coin. De Waal (1996) already pointed out that cruelty engages the same perspective-taking abilities as sympathy (i.e. in order to be intentionally cruel, one needs to understand the effects of one's behaviour on the other), and a recent study lends empirical support to *psychopathy* as a useful construct in the evaluation of chimpanzee personality (Lilienfeld *et al*., in press). Hence, an evolutionary perspective on morality automatically leads us to consider in other animals immoral as well as moral tendencies. Ironically, morality and immorality make use of the same capacities.

## Conclusion

The study of the biological basis of morality and moral systems is a blossoming field. Despite occasional methodological and theoretical disagreement, it is apparent to us that it is worthwhile to consider the origins, development, and operation of moral systems from an evolutionary perspective. At the very least, such consideration will continue to produce a lively debate that will stimulate and shape future research on the topic. The studies reviewed throughout this paper suggest that one of the most promising methods available for addressing the questions that arise from the topic has been and will continue to be the detailed comparison between humans and other social animals with respect to expressions of empathy, reciprocity, social rules, and conflict resolution.

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