Prosociality and Morality in Children and Chimpanzees

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Abstract

Both chimpanzees and young children sometimes act prosocially towards others, for example, by helping them. However, young children, but not chimpanzees, at some point turn into moral beings and help others not only out of sympathy, but because they feel that they ought to and because it would be wrong not to. Here we argue and present evidence that the transition from the prosociality of chimpanzees and young children to the morality of older children takes place in two key ontogenetic steps: one focused on individual social relationships and the other focused on more agent-independent or "objective" norms.

The modern study of moral development began with Piaget's (1932) *The Moral Judgment of the Child*, which although originally published in the 1930s only became internationally known in the 1960s through its influence on Kohlberg's theory (e.g., 1981). Piaget and Kohlberg were both explicit that they were not studying children's moral motivations or behavior, but only their judgments, indeed typically judgments about other people's interactions from a third-party perspective. Much of the work in social domain theory championed by Turiel (1983), though coming from a somewhat different theoretical perspective, also focused on children's judgments about third parties' interactions.

In a contemporary perspective, there are two issues with this general research paradigm, one methodological and one theoretical. The methodological issue is that in almost all of the classic research moral judgment means verbally expressed moral judgment. In the preface to his book, Piaget stresses that verbal judgments might not reflect children's true understanding or attitudes, as they might be influenced by many factors, including judgments overheard or taught to them by parents or other adults. Piaget and others in this paradigm therefore employed "clinical interview" techniques, probing children to reveal the rationale underlying their answers. This method has yielded many important insights into children's moral development upon which subsequent research has been built. But it is important to emphasize that making judgments is one thing and verbally expressing them is another. It is clear that two-year-olds make some social judgments, but they are mostly not able to formally articulate them; their judgments are manifest only in their decision-making and action.

The theoretical issue is related. Over the past few decades research on moral development has become ever more influenced by an evolutionary perspective. The claim is that the nature of human morality and its development is at least partially the result of processes of natural selection as they have shaped the nature of human sociality in general (Tomasello, 2016). The methodological focus has thus shifted from children's verbalizations to their decisions and actions because in evolution it is action, and only action, that matters in the end. An organism's cognition

and thinking, as well as its motivations and emotion, are subject to natural selection only indirectly through their influence on adaptive action. Knowing that a predator is coming and being motivated to flee it are of crucial importance - but only if one is actually capable of fleeing. In this way of looking at things, children's moral judgments are still of primary importance, but mainly in the context of how these judgments influence their decision-making and actions, which are also influenced by other factors. It is possible, for example, that children's verbally expressed moral judgments about third parties are only one among many factors determining how they behave when facing a problem of resource sharing.

The most obvious consequence of this methodological choice to focus on moral decisions and actions has been greater attention to younger children, whose limited verbal abilities make them poor candidates for clinical interviews. One such approach has focused on preverbal or just-verbal infants using methods such as violation of expectation or partner preference (e.g., choosing to touch or play with a puppet who has done good things rather than bad things). The approach is evolutionary in the sense that the major theoretical claim is that moral development does not originate in adult socialisation or child learning; it is simply the way that humans have evolved to be, as manifest already in infancy. Research from this approach has revealed many heretofore unsuspected abilities of infants to make social, perhaps even moral, evaluations of the actions of others, yielding new insights on a regular basis (see, e.g. Bloom, 2013; Hamlin, Wynn, & Bloom, 2007). But one may argue whether a simple expectation or preference reflects a moral judgment per se. I may be surprised when others do not share fairly, but this may just be a statistical generalisation. And I may prefer to interact with those who do share fairly, but this may just be prudence on my part to interact with cooperative partners. However, beyond simple expectations and preferences, when I give up resources myself in order to distribute them fairly among partners - or when I am resentful that I have not been treated fairly by others - there is a good chance that my decisions and reactions are coming from a sense of what is the right and the wrong thing to do.

In the current chapter we review some recent research based in a somewhat different evolution-inspired approach. In this approach we begin with humans' nearest primate relatives to see whether and to what degree they engage in morally relevant social behavior. The focus is then on young children of different ages and how they move from this general primate mode of social interaction to a more specifically human mode of social, perhaps moral, interaction. Methodologically, in this research the focus is primarily on children's decision-making, and this is not only in third-person situations as observers, but also in second-personal situations in which they are participating. We organize our review around three modes of social engagement and their related social expectations. First are children's sympathy-based social expectations - often leading to acts of helping - which are unidirectional (the helpee need not even know she is being helped) and which are shared to some degree with other great apes. Second are children's species-unique fairness-based social expectations, which are "second-personal" in the sense that they are grounded ultimately in the way that individuals relate to one another (the notion of fair requires at least two individuals and a social comparison between them). And third are children's species-unique justice-based social expectations, which are agent-independent or impersonal in the sense that they emanate from more universal judgments about social norms and principles that apply to all moral beings equally.

Sympathy-based Prosociality in Chimpanzees and Children.

Chimpanzees

Our nearest primate relatives live in large, multi-male, multi-female social groups and as a consequence display a variety of highly complex social behaviors. Most relevant for current purposes, in response to deeply hierarchical social structures, chimpanzees form long-term and stable cooperative social relationships, which are aimed at outcompeting conspecific rivals. Within these relationships, chimpanzees display and engage in a series of morally-relevant behaviors, such as mutual grooming and food sharing. Observational evidence from the wild indicates that chimpanzees' prosocial behaviors are heavily skewed toward cooperative partners: male

chimpanzees extend as much as 66-81% of their grooming toward their top three partners, and the sharing of food follows a similar pattern (reviewed in Muller & Mitani, 2005, see also Engelmann & Herrmann, 2016a). The crucial question is whether these behaviors qualify as altruistic in the sense that they proximately enhance partner welfare and at the same time entail nothing but costs for the donor.

While natural observations alone cannot answer this question, as benefits for the partner cannot be systematically manipulated (e.g. grooming might prove to be beneficial not only to the groomee but also to the groomer who might gain access to fleas in the process), carefully controlled experiments can distinguish between different motivations underlying the same behavior. In fact, a number of recent studies provide evidence that chimpanzee helping is indeed the real thing, and not motivated by hidden benefits to donors. Specifically, in a series of experiments, captive chimpanzees have been shown to help a conspecific by fetching an out-of-reach tool, opening a door, and making food available (Melis et al., 2010; Warneken, Hare, Melis, Hanus, & Tomasello, 2007; Yamamoto, Humle, & Tanaka, 2012). All of these studies involve control conditions, ruling out the possibility that chimpanzees act only for personal or self-serving goals. Furthermore, chimpanzees' behavior cannot be interpreted in terms of immediate strategic goals, like the improvement of their reputation as cooperators. Recent work suggests that chimpanzees do not show concern for reputation, and do not selectively help more when they are observed by a conspecific compared to when they are alone (Engelmann, Herrmann, & Tomasello, 2012; Engelmann, Herrmann, & Tomasello, 2016b).

One hypothesis is that chimpanzee behavior in helping contexts is motivated by the underlying emotion of sympathy. And indeed, recent work on the mammalian bonding hormone oxytocin and its facilitation of instances of bonding and cooperation in chimpanzees provides support for this explanation. Crockford et al (2013) as well as Wittig et al (2014) found that oxytocin is involved in grooming and food sharing in wild chimpanzees and that that the individual

initiating these behaviors (as well as the recipient) experiences an increase in this social bonding hormone.

Close social relationships are defined in terms of attitudes and intentions to trust, help, support, and share preferentially with friends. A second, no less important part of interpersonal relationships consists of forming and holding each other to certain expectations (Scanlon, 2008; Wallace, 2013). That is to say, morality is not only expressed in what I do for others, but also in what I expect them to do for me. Thus, one further source of evidence for chimpanzees' moral sense comes from their reactions to these social expectations being unmet.

Little work has directly addressed the question of whether great apes form and hold special expectations of their friends and experience reactive attitudes when such expectations are disappointed. But a re-interpretation of two studies by Brosnan and colleagues (Brosnan, Schiff, & deWaal, 2005 and Brosnan, Talbot, Ahlgren, Lambeth & Schapiro, 2010) using the inequity aversion task suggests that they do indeed. The basic result is that chimpanzees reject food given to them by a human experimenter (food they would otherwise readily accept) if a conspecific gets better food for the same or even less effort. The authors interpret this finding in terms of social comparison, and thus ultimately as a burgeoning sense of fairness. However, a different interpretation, suggested by Roughley (2015) and Tomasello (2016), is that chimpanzees' reaction in those studies is not based on a comparison of how they have been treated compared to a conspecific, but rather based on how they are being treated by the human experimenter with whom they share a cooperative relationship. A recent study lends support to this alternative interpretation. Engelmann, Clift, Herrmann, & Tomasello (submitted) contrasted two conditions in which food is either distributed by a machine or a cooperative partner and found that chimpanzees indeed react negatively only in the latter context. Furthermore, chimpanzees show negative emotional reactions to their food-distributing partner independent of whether a conspecific was present or not, further supporting the hypothesis that the inequity aversion task reveals special expectations of cooperative partners and not fairness considerations. The social anger displayed by chimpanzees in the inequity

aversion task is thus distinctively interpersonal, and, in Tomasello's (2016) words, might take the form of: "I am angry that you are treating me without sympathy".

As a whole, multiple lines of evidence suggest that chimpanzee prosociality toward their friends is the real thing in that it is, proximately speaking, driven by genuine altruistic motivations. Chimpanzee helping is flexibly tailored to their friends' needs and connected to the prosocial emotion of sympathy. The flip-side of such prosociality is that chimpanzees form special expectations that their friends will treat them with sympathy in turn. We have reviewed evidence suggesting that chimpanzees respond to failures to meet these expectations with a distinct reactive attitude, social anger.

Children

Whether they encounter an adult needing a door to be opened, or reaching for an out-of-reach object, or missing an object needed to continue an activity, human infants from as young as 14 months of age reliably react to these situations by helping (Svetlova, Nichols, & Brownell, 2010; Warneken & Tomasello, 2006, 2007). Several experimental paradigms confirm that children's helping behavior at this age emerges spontaneously and naturally, with no need for external incentives. Having their mother watch passively or even actively encourage them to help does not increase helping levels (Warneken & Tomasello, 2012), and children will even help adults in situations in which the helpee doesn't know that he needs help (Warneken, 2013). Perhaps most convincingly, rewarding a child for helping actually decreases levels of helping over time once the reward is taken away (Warneken & Tomasello, 2008). Indeed, children's sensitivity to potential external rewards for cooperative behavior does not seem to emerge until 5 years of age, when they show the first signs of more strategic forms of helping and sharing, for example, to improve their reputation (Engelmann et al., 2012; Engelmann, Over, Herrmann, & Tomasello, 2013) or to benefit from acts of reciprocity (Warneken & Sebastián-Enesco, 2015).

Children's early forms of helping are rooted in sympathetic concern for the plight of others. Support for this view comes from studies suggesting that children preferentially help, even at a high

cost to themselves, individuals displaying signs of justified emotional distress (Hepach, Vaish, & Tomasello, 2012a; Nichols, Svetlova, & Brownell, 2009) and that children's own level of distress in response to a harmed individual is positively correlated with subsequent helping behavior (Vaish, Carpenter, & Tomasello, 2009). Moreover, using direct physiological measures of emotional arousal, pupil dilation and body posture, Hepach et al. (Hepach, Vaish, & Tomasello, 2012b, in press) found that young children are equally satisfied both when they help someone in need and when they see that person being helped by a third party – and more satisfied in both of these cases than when the person is not being helped at all - suggesting that their motivation is not to provide help but only to see that the other person is helped.

Unlike their great ape cousins, by around their second birthday young children show an expanded sympathetic concern that includes nonkin and nonfriends in the circle of recipients. It is only around 3 years of age that children begin selectively to help their friends more than their non-friends, similar to chimpanzees (Engelmann, Haux, & Herrmann, submitted). To our knowledge, no previous study has specifically addressed whether, and to what extent, young children this age form special expectations of their peers and caretakers. However, our analysis of chimpanzees' emotional reaction to being treated without sympathy by closely bonded individuals suggests that this form of social anger is a familiar experience for young children also.

Second-personal Morality

As we have seen in the previous section, chimpanzees and infants show morally-relevant behaviors like helping and sharing and even expect their conspecifics to treat them with sympathy. But are chimpanzees and infants moral agents? The sympathy-based prosocial intentions and expectations that we have discussed are not sufficient (Korsgaard, 1996, 2010; Tomasello, 2016). A moral agent helps you not only because she feels sympathy for you, but also because she feels that she owes it to you, that you have a claim on her treating you in a certain way. In other words, she knows that it would be wrong for her not to help you. The moral agent furthermore knows that if she fails to act in this way you will blame her for it and hold her responsible. Finally, and most importantly, the

moral agent will agree with you, will know that you are right when you reproach her for not treating you like you deserve to be treated and as a consequence engage in a form of self-punishment, by experiencing guilt. The key point that distinguishes prosocial intentions and expectations from moral intentions and expectations is that the latter involve normative concepts such as 'ought', 'owe', and 'blame'. The key question concerns the source of these feelings of ought. In other words, what is the most likely birthplace of the capacity to be motivated to do something by the thought that you ought to do it?

The natural home for the development of this obligation-based morality, according to Tomasello (2016), is cooperative activity for mutual benefit. "The primal scene of morality" says Korsgaard (1996, p.275) "is not one in which I do something to you or you do something to me, but one in which we do something together." What is so special about doing something together? The key point is that activities undertaken together, if structured in certain ways, can give rise to a "we-over-me" psychology that represents the beginning of all things moral. Tomasello (2016), drawing on the work of social theorist Jean-Jacques Rousseau (1762/1968), argues that the source of feelings of obligation lies in my identification with and deference to a larger (even idealized) social body of which I myself am a part. The classic example is self-government, which requires "consent of the governed". In joining this supraindividual entity, I freely grant authority (note: legitimate authority) to a body that is larger than myself – but still includes me – and agree to align my interests with its interests (at least to some extent). Significantly, the resulting motivational structure does not amount to normative pressure from outside, but instead, since I am a part of the very entity that creates these pressures, they come simultaneously from outside and from within. This explains why, in case I fail to live up to common standards, I don't consider others' rebuke only as external reprimand, but I join others' reproach through feelings of guilt.

No one would claim, of course, that chimpanzees, or young children, regulate their behavior with respect to anything like large-scale institutionalized entities such as government. But there are more basic forms of supraindividual entities to consider such as a joint commitment by a

collaborating dyad (Gilbert, 2014; Tomasello, 2016). The leading question for the next section is thus whether the cooperative activities of chimpanzees and children are structured by anything like a joint commitment.

Chimpanzees

The main collaborative activity of chimpanzees is their group hunting for small mammals, mostly monkeys. In some, but not all chimpanzee groups, male chimpanzees come together to hunt for monkeys which they could not capture individually. As has been outlined elsewhere in detail (e.g., Tomasello, 2014), while chimpanzees coordinate their actions to those of their fellow hunters during the pursuit, this most likely represents a form of individualist coordination: each chimpanzee attempts to capture the prey for himself, and in the process adapts his movements to the behavior of the others. Most important for current purposes is how the collaborative hunting of monkeys is started in chimpanzees. The most common strategy by far is a so-called 'leader-follower-strategy'. This means that one individual typically begins the chase with the hope (but no guarantee) that others will follow suit. Given the inherent risk of starting a collaborative activity in this way, it is perhaps not surprising that it is mostly risk-prone and impulsive youngsters who start hunts (Boesch, 1994). The main way to reduce such risk would be some sort of communicative signal between hunters to get the chase off the ground, and thereby reduce the likelihood that they end up chasing the monkey on their own, but there are few reports of such communicative acts.

Experimental studies support this interpretation of chimpanzee hunts. In experimentally constructed stag hunt games modeling the choices faced by chimpanzees in real-world hunting situations, two hunters may each safely pursue their own low-value prey (hare) or they may coordinate to pursue a higher value prey (stag). The payoff matrix is usually defined in a way that each agent individually prefers to abandon the hare and collaboratively pursue the stag (the agents' interests are aligned), but this is not sufficient for cooperation, given the possible uncertainty about the other's likelihood of joining in. Going for the stag involves giving up the hare, and so agents have to find a way to coordinate their individual interests and form a joint goal. To investigate

chimpanzees' behavior in this coordinative dilemma, Duguid, Wymann, Bullinger, and Tomasello (2014) presented pairs of chimpanzees with two options. An individual option, the "hare" (low-quality food), which consisted of drinking bottles with a weak mixture of fruit syrup and water. Second, a collaborative option, the "stag" (high-quality food), which consisted of pieces of banana. Importantly, the second option required chimpanzees to coordinate: subjects had to pull a rope in a coordinated fashion in order to retrieve the high-quality food. In solving this coordination game, virtually all pairs of chimpanzees adopt a leader-follower strategy, without any communicative attempts toward their partners (Duguid, Wyman, Bullinger, & Tomasello, 2014). This line of evidence suggests that chimpanzees' collaborative hunting of monkeys is not based on anything like a joint commitment. One further sign of having formed a joint goal based on joint commitment is an individual's attempt to reengage their partner in the task if she has suddenly stopped playing her part. However, chimpanzees do nothing of this sort. In an experimental context, Warneken, Chen, and Tomasello (2006) have shown that chimpanzees do not produce any communicative attempts to reengage a partner who has suddenly stopped participating in a joint activity – they simply try to reach the goal on their own. Even more tellingly, when chimpanzees are engaged in a collaborative activity with a partner, and then surprisingly get access to their rewards earlier, they do not continue the activity until their partner gets her rewards as well (Greenberg, Hamann, Warneken, & Tomasello, 2010).

These observations and experimental studies suggest that chimpanzees are not committed to their partner during a collaborative activity like hunting. It seems, then, that chimpanzees do not form any of the normative motivations and intentions that are usually associated with joint commitments. What about a chimpanzee's expectations in collaborative contexts? Do chimpanzees resent their conspecifics or even punish them for being bad partners? Much in the same way as we saw in Section 1 that sympathy-based prosociality is expressed both in intentions and expectations, obligations based on joint commitments create not only intentions (e.g. I follow through with the cooperative activity until my partner has also received her rewards), but also specific expectations

(e.g. I also expect my partner to follow through until I have received my rewards). Thus, how do chimpanzees react when a hunting partner fails to go through with the collaboration, slacks off during the activity itself, or takes more than his fair share at the end? While little research has directly investigated chimpanzee reactions to free riders in the context of collaborative activities, observations from the wild and one experimental study suggest that even chimpanzees who have not collaborated during the hunt receive a fair amount of meat. In other words, as reported for example by Boesch (1994), participants do not attempt to control who gets meat and who doesn't – even passive bystanders are allowed a share of the spoils. And Melis, Schneider, and Tomasello (2011) showed that chimpanzees who collaborated together in accessing a resource do not share the spoils preferentially with one another, and so don't distinguish between contributors and noncontributors. Finally, in the study by Greenberg et al (2010) discussed above, the authors do not report any signs of protest directed at the partner chimpanzee who did not follow through with the cooperative activity until both subjects received their rewards.

As a whole, observations and data that we have reviewed provide strong evidence that collaborative activities in chimpanzees are not grounded in anything like a joint commitment. In particular, chimpanzees do not seem to develop and show any of the intentions that prototypically accompany a joint commitment (such as following through with the activity until the end, trying to reengage a recalcitrant partner, etc.), and likewise do not show any signs of expecting their partners to behave in ways that are consistent with a joint commitment either.

Children

From a very young age onwards, children's collaborative activities contrast markedly with the pattern observed in their nearest great ape relatives. Crucially, when children begin a collaborative activity in which they have to count on their partner's support – like the stag hunt game – they reliably communicate before doing so by using attention-getting gestures and informative verbal utterances (Duguid et al., 2014). The ultimate goal of such communicative acts is obvious: children aim to reduce the risk associated with forsaking their "hare" by publicly committing themselves to

the collaborative option (the stag), and at the same time, expect their partner to do the same. And once children have publicly committed themselves to a joint collaborative activity, they follow through with it even when they have already reached their own individual goal. In the same situation described above for chimpanzees, where one subject involved in a joint activity suddenly gets access to her rewards early, children at the age of 3.5 years continue to collaborate until their partner gets her rewards as well (Hamann, Warneken, & Tomasello, 2012). This study provides fairly specific support for the hypothesis that children as young as three understand joint activities as underpinned by joint commitments and as a consequence stick to a collaborative activity until the collaborator's overarching, joint goal has been attained. Furthermore, Warneken et al (2006) had infants as young as fourteen- to eighteen-months of age engage with an experimenter in a cooperative activity, such as playing a social game that required both partners to play their role at the same time. At a predefined point, the experimenter suddenly retreated from the joint activity, for example, by putting his hands on the floor and stopping his part. Children even at this young age produced communicative attempts to reengage the experimenter, potentially showing an awareness of a shared, joint goal.

It thus seems that, at least from the age of 3 years onwards, young children form joint goals based on joint commitments with select others and that this development gives rise to a new kind of motivation in children's decision making, i.e. a second-personal moral motivation. Note that this does not simply amount to a novel motivation in terms of *content*. Young children throughout their development add various new specific norms to their moral motivation (e.g. to share fairly, to respect others, etc.). But this development runs deeper, for it represents a new *form* of moral motivation, one that goes beyond the prosocial motivation young children share with their great ape cousins. Children from this age onward seem to be motivated to behave in a certain way by the thought that they ought to do it (e.g. to follow through with the activity until its end). Even if continuing the collaborative activity is not what they want, they do so anyway because they feel that they owe it to their collaborative partner. The fact that this novel second-personal moral motivation

is distinct from and goes beyond sympathy-based prosociality can be most clearly seen in the aforementioned study by Hamann et al (2012). In a noncollaborative control condition, children reliably helped a peer to access her rewards, presumably due to a sympathy-based motivation to help. However, children's helping of the peer was significantly higher when it took place within their collaborative activity, suggesting that the joint commitment provided children with an additional motivation to help. This is, we would argue, because children understand a joint commitment as a supraindividual entity that regulates their behavior independently of their personal wants and desires (at least to some extent), and makes them feel that they ought to follow through on the collaborative effort.

The content of the joint commitment is thus that each collaborative partner follows through with her collaborative role until both have benefited. How do young children react when their collaborative partner fails to act according to their overarching joint goal? Do they show signs of second-personal protest? Following the structure of the previous sections, we will now turn to evidence for children's expectations in the context of joint commitments to see whether they also show signs of this new, second-personal morality. Warneken, Lohse, Melis, and Tomasello (2011) observed pairs of three-year-old children in an experimental situation in which two individuals had to collaborate in order to pull in a board with one pile of sweets in the middle. When one child attempted to take all the sweets, without sharing the behavior was reliably met with second-personal protest by the disadvantaged party: "Hey!" or "Katie!" Children do not simply protest because they want more sweets, otherwise they would be equally likely to express their dissatisfaction in situations in which they received an equal share. Rather, by expressing protest through (referentially empty) communicative acts such as "Hey!", children assume that their collaborative partners know that equal collaborative effort should result in an equal share of the spoils. Since children know that their collaborative partners expect them to follow through with the collaborative activity, when they need to break away from a joint commitment, 3-year-old children do not simply walk away but ask their partner to be excused (Gräfenhain, Behne, Carpenter, & Tomasello, 2009). Furthermore, in a

study by Melis, Altrichter, and Tomasello (2013), children showed behavioral second-personal protest against free-riders. Specifically, children actively excluded free-riders who had not participated in a collaborative effort but then attempted to grab part of the spoils. It is not that children don't like partners who don't collaborate, or do not have sympathy for them, but that they judge them as not deserving of the spoils in the same way as the collaborators.

The second-personal morality of young children is not yet collective in the sense of an agent-independent morality that applies to everyone all the time. Nevertheless, these initial second-personal joint commitments between young children around their third birthdays are moral in the sense that they give rise to feelings of deservingness (e.g. young children understand that they have a claim on a fair share of the spoils and protest if they are not treated accordingly), and also to responsibilities toward their collaborative partner (e.g. young children feel that – even if they don't want to – they ought to continue with the collaborative activity until their partner has also benefited). In other words, before children understand others as having general and universal claims on them, and before they form so-called agent-independent normative expectations of those around them, the first instantiation of morality in development is in a second-personal form: a dyadic morality of face-to-face interaction between the second-personal agents 'I' and 'you' collaborating together, and feeling responsible to one another, as a jointly committed 'we'.

Collective Morality

Developing a collective morality, in addition to a second-personal morality, requires a scaling up from dyadic and local to universal and objective. This scaling up of moral judgments results in the articulation of social norms – mutual expectations about how we ought to behave in particular situations – that are truly impersonal, agent-independent, and objective (Tomasello, 2016). Thus, while the specifications of the joint commitments underpinning second-personal morality are only known to 'You' and 'I', social norms express objective standards of behavior that are known by everyone in the group. Moreover, while second-personal moral judgments are created (and so may

be dissolved) by ‘You’ and ‘I’, social norms emanate from the moral community and are based on collective, not individual commitments that precede the individual.

The clearest behavioral signal that agents understand social norms as something that extends beyond individuals, including beyond themselves, comes from situations in which they enforce norms even when they are not directly affected. In other words, an understanding of social norms emerges most clearly in reactions to their violation, as when individuals enforce social norms on others or even engage in costly punishment of freeriders, cheaters, and social loafers – especially when it comes from a third-party position as an unaffected observer. In the next section, we will review the evidence for chimpanzees’ and children’s enforcement of social norms.

Chimpanzees

In some cases, chimpanzees (mostly dominant individuals) show so-called policing behaviors, that is, interventions in the conflicts of others (de Waal, 1982; von Rohr et al., 2012). Such interventions are different from the frequently occurring selective agonistic support of one of the contestants, as the immediate goal seems to be to break up the fight and not to support either party. In a prototypical situation, if two individuals gang up on a third individual, dominant chimpanzees will intervene not by supporting either of the two parties but by trying to physically separate the conflicting parties. One interpretation of such behavior is that chimpanzees show “community concern” to increase group stability (von Rohr et al., 2012). According to this interpretation, bystander policing by dominant chimpanzees amounts to a genuinely impartial third-party intervention. Alternatively, a chimpanzee might have a personal interest in stopping the conflict either because escalated aggression might spill over and threaten the policer, or because they fear that coalitions may form that later challenge their position. The fact that polyadic conflicts, involving several chimpanzees, are broken off more often than purely dyadic conflicts provides support for this latter hypothesis (von Rohr et al., 2012).

A recent experimental study attempted to tease apart these two potential interpretations. Riedl, Jensen, Call, and Tomasello (2012) created an experimental situation in which chimpanzees were either directly affected by a conspecific's negative behavior or only observed as a second party was affected by that same negative behavior. Specifically, in a second-party theft condition, a 'thief' stole food directly from the subject chimpanzee. In a third-party theft condition, the subject chimpanzee observed how the same 'thief' stole food from a conspecific. Subject chimpanzees could punish by pulling a rope, thereby removing the food from the thief. The results were clear-cut: chimpanzees only punished the transgressor and showed concomitant negative emotional reactions when they were directly affected (see also Jensen, Call, & Tomasello, 2007), but not when they observed the interaction from the perspective of an impartial bystander.

Although more research is needed, the existing data suggests that chimpanzee groups are not glued together by objective standards of behavior that apply to everyone, i.e. social norms. One important piece of evidence for this is that chimpanzees only seem to intervene in third-party situations when they have something to gain, but not when they are unaffected by the interaction.

Children

Just like chimpanzees, young children from about three years of age onwards begin to actively intervene in situations, sometimes physically, sometimes verbally. Most crucially, and in contrast to chimpanzees, they do so from a third-party stance, even when they are not directly involved or affected by the norm violation. In addition, children's verbal statements in such situations – often involving normative language – reveal their understanding of the generality and agent-independence of norms.

Consider the experimental situation created by Vaish, Missana, and Tomasello (2011). Three-year-old children and two puppets each created a drawing or a sculpture. Then one of the puppets left the room and the second puppet started destroying the absent puppet's creation (e.g. tear apart her drawing). Spontaneously and without previous training, children actively protested against the mean puppet's actions, sometimes using normative language such as "You may not do

that". Once the harmed puppet returned, young children additionally tattled about the mean puppet's behavior, providing further evidence that they conceptualized the situation not only as one that they personally did not like, but as one that others would also disapprove of (see also Engelmann, Herrmann, & Tomasello, 2016c). Furthermore, Riedl, Jensen, Call, and Tomasello (2015), as well as Rossano, Rakoczy, and Tomasello (2011) studied young children's active intervention in the same two situations that Riedl and colleagues had investigated in chimpanzees (see above): a second-party condition in which children were directly affected, and a third-party condition in which children observed as a third-party was harmed. Two-year-old children showed a similar pattern of results as chimpanzees: they only protested when their own rights were violated, for example when an actor tried to take away their possession, but not when the actor took away someone else's property (Rossano et al., 2011). Three-year-old children also protested in such situations, but additionally, they also objected when a third party's interests were harmed (Riedl et al., 2015; Rossano et al., 2011). It seems that from about the age of three onwards, young children pass the test case for the possession of agent-independent moral norms and actively enforce norms even from the perspective of a disinterested observer.

Beyond protest against violations of moral norms, young children also intervene and object to failures to conform to conventional norms, even when there is no harm involved. Rakoczy, Warneken, and Tomasello (2008) first introduced children to the activity of 'daxing'. When a puppet later on announced that she would 'dax' now, but then performed a different activity, children again intervened, often using normative language like "No, it does not go like that!", even though playing the activity in the wrong way did not harm or hurt anyone.

As a whole, this body of research suggests that children, at least from the age of three onwards, recognize social norms as general (everyone knows about them), agent-independent (they apply to everyone equally), and legitimately forceful (they do not represent someone's individual preferences, but the group's consensus about the right and wrong way to do things).

Conclusion: Two Key Steps

In studying the prosociality and morality of chimpanzees and children, we have described two key steps (see also Tomasello, Melis, Tennie, Wyman, & Herrmann, 2012). The starting point is the sympathy-based prosocial intentions and expectations of chimpanzees and human children before and around their second birthday. Both chimpanzees and young children help peers spontaneously and naturally, and we have argued that the motivations underlying such behaviors cannot be reduced to strategic and calculated considerations. However, on their own, these prosocial motivations are not moral. Chimpanzees and young children do not help because they feel that they ought to, and because it would be wrong not to, but due to sympathetic concern for the plight of others.

Setting them on a moral pathway, in a first developmental step, young children, but not chimpanzees, acquire an additional motivation for helping: a second-personal moral motivation. Based on joint commitments in the context of collaborative activities, young children develop a dyadic morality that constrains and regulates actions in face-to-face interaction between second-personal peers. As a consequence of a jointly committed 'we', young children feel responsible for one another and, for the first time, they are motivated to do certain things (help their collaborative partner, not slack off during the collaborative activity, etc.) by the thought that they *ought* to do them.

However, this first moral ought is restricted toward specific peers and dissolves as soon as the collaborative project has come to an end. In a second key step, young children generalize and universalize these first normative judgments and begin to participate in the social norms of their culture. The most convincing evidence for young children's burgeoning collective and agent-neutral morality is their behavior in third-party situations in which they are not directly affected. The fact that they actively intervene in such situations, often using normative language, provides convincing evidence that they expect others to treat one another with respect to some mutually known and impartial normative standards and thus show an understanding of the essence of a moral relationship.

An evolution-inspired analysis of young children's early prosocial and moral decisions and actions – as revealed in a plethora of experimental studies – suggests that while human morality has deep roots in nonhuman primate sociality, it is a distinctive mode of social interaction. It begins in young children's dyadic collaborative activities with others, and culminates at around school age in group-minded, even objective, judgments about the right and wrong way to treat others, that is, how one *ought* to treat others.

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