BECOMING HUMAN

A THEORY *of* ONTOGENY

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Collaboration

Uniquely human cognition originates, as we have seen, in the nine-month revolution when infants begin to interact with others in joint intentional activities. The phrase *joint attention* emphasizes the unique cognitive dimension of these activities as a kind of "meshing of minds," which naturally includes the partners' differing perspectives on their joint attentional focus. But joint intentional activities also have a unique social-motivational dimension, as a kind of "meshing of goals or intentions." Children create with a partner a joint agent "we" that pursues a joint goal, which naturally includes that each partner has her own individual role to play. Whereas the group actions of apes are all about individuals achieving their individual ends in group contexts—they are using one another as social tools—in their early joint intentional activities, children and their partners decide to do something together. In forming this partnership, each individual voluntarily makes herself cooperatively dependent on the other.

These early joint intentional activities—first with adults, who scaffold the collaboration, and later with peers—spawn some new dimensions of social relatedness. If we as collaborative partners are equally necessary for our joint success, and if we could switch roles and still be successful, and if we both adhere to the same criteria in playing a role, then we must be somehow equivalent or equal as partners. This recognition of self-other equivalence generates a mutual respect and sense of equality among (potential) collaborative partners. Further, when it is necessary to assure my partner before we begin that he can trust me—and to get a similar assurance from him in return—the two of us can make a joint commitment to collaborate. In a simple exchange such as "Let's *X*" followed by "OK," we both openly pledge to play our role in accordance with the role standards that we both know in common ground are necessary for joint

success; moreover, we each entitle the other to call us to account if we do not. We thus enter into a web of normative relations in which each collaborative partner is accountable to the other for treating her with appropriate respect by responsibly following mutually understood (and implicitly agreed to) normative standards.

Following the lead of contractualist moral philosophers, then, our working hypothesis is that the evolutionary and ontogenetic roots of human morality lie in cooperative activities for mutual benefit: "The primal scene of morality is not one in which I do something to you or you do something to me, but one in which we do something together" (Korsgaard 1996, 275). Participation in joint intentional activities results in individuals who treat their partners as equals, with mutual respect, because joint intentional activities are structured by the joint agent "we," which creates a new kind of social relationship between "I" and "you" (perspectivally defined) as constituents of that "we." That is to say, participation in joint intentional activities creates the conditions for what moral philosophers call second-personal relationships, based on respect, commitment, accountability/responsibility, and fairness (Darwall 2006). Second-personal agents, and only second-personal agents (so not, for example, beloved pets or six-month-old infants), have the standing to enter into the kinds of joint commitments that make each partner responsible for the fate of the other. These new second-personal relationships in collaborative activities set children up to construct, later in ontogeny, senses of respect, commitment, and fairness to all in the cultural group or moral community (see Chapter 9).

Once again in this case we find age three as a kind of watershed. Although infants sometimes "collaborate" with adults (in a sense that may differ significantly across cultures), it is only after the second birthday that toddlers begin to collaborate meaningfully with peers so that by age three they have begun to understand them as second-personal agents. Then, after age three, children begin collaborating with peers in some new ways, especially by making joint commitments to collaborate and by protesting when their partner does not honor that commitment. The relationship between partners has now become normative; each feels obligated to honor her commitment by responsibly playing her role and by accepting her partner's criticism as legitimate if she does not.

Our goal in this chapter is thus to describe and explain the species-unique ways in which young children come to work together collabora-

tively with others, both adults and peers, in pursuit of mutual benefits and as accompanied by the various sociomoral emotions and attitudes that, in a Darwinian world, make cooperation of this kind possible.

From Apes: Acting in Parallel with Others

Great apes' social lives are most immediately and urgently structured by competition for food, mates, and other resources, which engenders a dominance structure within the group. Great apes sometimes collaborate with one another as well, but, tellingly, the most common context is for purposes of competition, as they form coalitions with one another to win fights and other dominance contests. Their "friends" are those with whom they groom and sometimes even share food, with the strategic goal of cultivating an ally with whom they can team up to defeat others. As Mueller and Mitani (2005) have said, "Competition . . . frequently represents the driving force behind chimpanzee cooperation" (278). Chimpanzees and other apes thus live their lives embedded in more or less constant competition: they are constantly attempting to outcompete others by outfighting them, outsmarting them, or outfriending them. But beyond this cooperation for competition, the most interesting context for current purposes is chimpanzees' group hunting because it could be seen, conceivably, as a cooperative activity for mutual benefit.

Chimpanzee Group Hunting

As described in Chapter 2 and Chapter 6, in many but not all chimpanzee and bonobo populations individuals hunt together in a small group for monkeys or other small mammals (the vast majority of both field and experimental data are with chimpanzees). The basic idea is that because monkeys are so quick and agile in the trees, the apes must surround one to capture it. In formulating its plan of action, each individual hunter takes into account not only the actions of the monkey but also the actions, and even intentions, of the other hunters. The process is thus similar to that which occurs in social carnivores such as lions and wolves, but it may have some special qualities as well.

Experiments have shown that chimpanzees facing collaborative problems understand that they need a partner to be successful; indeed, they will even open a door to enable a needed partner to join them in a task

(Melis et al. 2006b). Chimpanzees will also give tools to individuals who need those tools to perform an action necessary for them both to access a reward (Melis and Tomasello 2013). Melis et al. (2006b) also found that after a small amount of experience with one another, chimpanzees knew which individuals were good partners for them—those with whom they had had past collaborative success—and they chose those partners in preference to others. (It is unlikely that partner choice of this type happens in the wild, however; hunting in the wild is mostly opportunistic as effected by preconstituted traveling parties. There is thus no partner choice in the wild and thus little chance for cheaters to be socially excluded.) But all these observations are still consistent with an interpretation in which great ape collaborators are basically using their partners, in sophisticated ways, as social tools. The data to be reviewed in the sections that follow, in the form of studies comparing apes and children in collaborative tasks, will make this interpretation the most likely one: chimpanzee group hunting is not best conceived as a cooperative activity for mutual benefit, if we are focused on how the chimpanzees themselves view it. They act in parallel when their individual motives happen to coincide.

The question thus arises: how do chimpanzee collaborators relate to one another? In both the wild and some experiments, choosing to collaborate involves at least some risks (as there are individual alternatives that could be pursued instead), so one might then think that some kind of trust among partners is required. In my analysis, chimpanzees acting in groups to acquire food are working with a kind of strategic trust (Tomasello 2016). The notion of strategic trust is something like reliance on the laws of nature: we trust that a bridge will not collapse as we traverse it or that our dog will swim to shore if he jumps into the lake. The chimpanzees and bonobos acting in groups to acquire food understand that each of the others is attempting to capture the monkey, and they trust that they will continue doing this. They rely on the fact that the others will continue pursuing their own self-interest (see Engelmann et al. 2015). The point is thus that although chimpanzee collaboration appears on the surface to be similar to the human version, in reality—in terms of the psychological processes involved—it is less like working together mutualistically and more like individuals using one another to achieve their individual ends. Overall, perhaps with some exceptions, we may say that chimpanzees view others mostly instrumentally: as social obstacles in competition, or as social instruments in collaboration.

We know little to nothing about the age at which chimpanzees become capable of collaborating with others in complex tasks such as group hunting. In the wild, adults dominate the group hunting, and it takes some time for juveniles to get into the game. In experiments, because the basic requirements of the collaborative tasks have been challenging, chimpanzees have seldom been tested below about four years of age. The two exceptions, as noted in Chapter 6, are two studies in which chimpanzee youngsters faced a relatively simple parallel pulling problem with a peer (Crawford 1937; Hirata 2007). In these studies, youngsters of around three to seven years of age failed completely on their own and had to be trained by humans. Chimpanzees thus do not seem capable of collaborating effectively with a peer, even on fairly simple problems, until the juvenile period.

Human Children

Human toddlers clearly do not have the cognitive abilities to act in groups strategically in the complex ways that adult chimpanzees do. But they do begin to collaborate in some simple yet unique ways from early in development; indeed, they do so at a younger age than chimpanzees. In Chapter 6 we looked at the ways in which young children collaborate with a peer to solve a simple problem, and the finding was that they do so effectively and consistently from around two to three years of age. This is in contrast to the chimpanzee youngsters that have been tested up to seven years of age (as noted earlier), all of whom failed to coordinate with a peer partner to solve a problem. We thus have, once again, human capacities and skills—in this case for peer collaboration—that seem to emerge earlier in human than in ape ontogeny by several years.

Dual-Level Collaboration

When chimpanzees surround and capture a monkey, the individuals are operating in what we have called, after Tuomela (2007), "group behavior in I-mode": they are using one another as social tools. When one- to three-year-old infants and toddlers interact collaboratively with an adult, they are doing something different. They act together as a joint agent toward a joint goal, which means, in this context, that they each have their own individual role. Because toddler and adult both take the perspective of the

other, and can reverse roles as needed, a new social relationship emerges. "I" relate to "you," with these designations being understood deictically—that is, depending on which perspective is being adopted. The reciprocally defined I-you relation is the foundation for so-called second-personal social relationships, involving two second-personal agents who relate to one another cooperatively, with mutual respect, as equals.

One- and two-year-old toddlers are not yet second-personal agents, nor do they perceive or treat others in that way. But they are working on it. One- and two-year-old toddlers are in the process of constructing with adult partners a sense of I-you-we, a sense of other individuals as equally deserving cooperative partners (who see me the same way). By three to six years of age children have, to a large extent, completed the process. They relate to collaborative peer partners as second-personal agents with whom one may make normatively binding joint commitments and to whom one may normatively protest in case of a breach.

A Sense of "We"

A basic fact is that human children are more motivated to interact with others in collaborative activities than are great apes. Melis et al. (2006b) found that chimpanzees would open a door for a needed collaborative partner, but when no partner was needed (because the food could be retrieved by the subject alone) they almost never opened the door; they only collaborated when they were forced to by instrumental considerations. In an explicitly comparative experiment, Rekers et al. (2011) gave chimpanzees and human children the option to obtain food for themselves by pulling the rope alone or to obtain food for both themselves and a peer partner by pulling together with that partner (the rewards for the subject and the partner were the same in both cases). Whereas the chimpanzees were indifferent to these options (because the food was the same in both), thirty-six-month-old children were much more likely to prefer the collaborative option over the solo option. When Bullinger et al. (2011a) doubled the amount of food for the collaborative option, the chimpanzees choose that option almost all the time, thus confirming that their sole motivation was indeed the food.

In another comparative experiment, Warneken et al. (2006) tested both young human-raised chimpanzees and eighteen-month-old human infants in a series of four collaborative tasks (for a similar study with fourteen-month-old infants, see Warneken and Tomasello 2007). Two of the tasks

were instrumental toward goals, and two were simply collaborative games. Whereas the chimpanzees only engaged with the instrumental tasks, the children engaged with both types of tasks equally enthusiastically. Moreover, when the activity was completed—whether it was instrumental or a game—the children often attempted to set the task up to do it again, just for fun, but the chimpanzees never did that. It is also noteworthy that children are so trusting of a cooperative motive in others that they engage collaboratively with almost any adult, familiar or novel (as demonstrated in many experimental settings); further, just the thought that they are collaborating (when they are fooled into thinking they are) makes children work harder and persist longer in a task (Butler and Walton 2013). In contrast, to induce chimpanzees to collaborate with one another in experiments it is necessary to prescreen for partners who are generally tolerant of one another and who actively avoid aggression in close quarters (Melis et al. 2006c).

But beyond simply preferring collaborative interactions, young children collaborate with others in some qualitatively unique ways as well. Most especially, they form with their partner a joint agent "we" in order to pursue a joint goal, and maintaining this "we" is part of their continuing motivation. Thus, when eighteen-month-olds were collaborating with an adult in the Warneken et al. (2006) study, if the adult simply stopped interacting (experimentally controlled), the infants made active attempts to re-engage him by doing such things as beckoning and pointing. In contrast, the human-raised chimpanzees never—not once—attempted to re-engage their partner; instead they strived to solve the problem alone. One possibility is that the children, but not the chimpanzees, had created with their partner a joint agent "we" whose breakdown they sought to repair.

Support for this interpretation comes from three other findings. First, in the social games (which the chimpanzees mostly ignored), the children attempted to re-engage their recalcitrant partner just as often as in the instrumental tasks. Their re-engagement attempts were not aimed at reactivating a social tool toward an instrumental end but at reinstating the cooperative engagement. Second, in a follow-up study, Warneken et al. (2012) found that when there was a reason for the adult disengagement (for example, he was called away), twenty-four-month-old toddlers waited patiently for his return. In contrast, if the adult ceased cooperating for no discernable reason, toddlers continued attempts at re-engagement. Toddlers were thus sensitive to the adult's intentional state: if he was

called away, he likely retained the joint goal; if he quit for no reason, he had likely lost it. And third, in this same experiment, toddlers attempted to re-engage their partner even when the activity was one they knew they could perform successfully on their own. Again, the toddlers viewed their partner as more than a social tool; they waited for him or attempted to re-engage him not to enlist his help in attaining an instrumental goal but to try to reconstitute their lost "we."

The nature of the communicative acts that children used to re-engage their partner in both Warneken et al. experiments is telling as well. The toddlers were not *demanding* that the adult return to the joint activity—in which case they would have whined or vocalized insistently—but rather they were *inviting* the adult back into the activity by doing such gentle things as beckoning or pointing. As noted in Chapter 4, requests of this type are fundamentally cooperative in that they recognize that the recipient has a free choice in the matter; they simply suggest or offer one choice. Indeed, attempting to force re-engagement would be inconsistent with the goal of reconstituting their mutually cooperative "we."

"I" and "You"

As young children interact collaboratively with others as a "we," they come to understand and relate to them differently. Most importantly, collaboration implies a certain level of equality among partners. If you are coercing me, then it is not collaboration but domination or enslavement. If I am pretending to fully participate but really letting you do all of the work, then it is not collaboration but exploitation. Collaboration does not mean doing exactly the same work or same amount of work; collaboration means working together, *ceteris paribus,* on a more or less equal footing. As they collaborate with others in their daily activities and games, one- and two-year-old toddlers gradually come to appreciate this equality in the situation, and indeed they come to appreciate others as equivalent to themselves in general.

There are three aspects of children's developing collaborative interactions that foster an understanding of self-other equivalence. First is the fact that in interdependent collaboration both partners are necessary agentive forces in producing the jointly desired outcome—and either could just as easily derail the process. Thus, during the one- to three-year-age period toddlers begin to recognize that not only do they need their collaborative partner for success (which chimpanzees already recognize) but

their partner also needs them. This transforms an asymmetrical social tool understanding of the process into something more symmetrical and mutual. There are no directly relevant studies, to my knowledge, to demonstrate toddlers' understanding of this symmetry. But several children in the study by Warneken et al. (2006) teased the adult on several occasions by starting to play their role and then withdrawing and smiling or laughing coyly; they seemed to understand their partner's need for their contribution. Chimpanzees were never observed doing this. The idea is thus that as young children are learning to collaborate, they are beginning to view collaborative partners in general, including themselves, as agents with equal causal and agentive power in the interaction.

The second aspect of early collaborative interactions that foster an understanding of self-other equivalence is children's growing recognition that the roles in a joint intentional activity are reversible—indeed, they are agent independent. In principle, either partner could perform either role; they are interchangeable. Thus, as noted in Chapter 5, Carpenter et al. (2005) found that when an adult tapped on the arm of an eighteen-month-old infant, quite often the infant responded by tapping the adult's arm in return (not her own arm, which would be exact copying); they reversed roles. Similarly, if the adult held out a plate on which the child could place a toy, quite often a few moments later the infant held out the plate for the adult, looking to her expectantly—again they exchanged roles, in this case with mediating objects. When Tomasello and Carpenter (2005a) gave similar tasks to young human-raised chimpanzees, they did not reverse roles in this same way. The cognitive basis for this role reversal is the ability of young children to simulate the role and perspectives of the partner during collaboration (Fletcher et al. 2012). Young children from one to three years of age are gradually coming to cognitively construct a bird's-eye view of the collaborative interaction in which the roles are interchangeable among partners; thus, in a straightforward sense, the partners are equivalent in the process.

Third, when young children engage with a partner repeatedly in a particular collaborative activity structured by joint intentionality—as they are wont to do—they come to construct with that partner a common-ground understanding of the ideal way that each role must be played for joint success. That is, as they begin a familiar joint activity, the child and her partner implicitly construct subgoals for each of them based on their past experience together, the ideal way that "we" want "me" to play my role

and "you" to play your role. For instance, if we are going to build a tower together, then we both know in our personal common ground that you need to hand me the blocks and hold the base steady while I place the blocks (or perhaps the reverse). Thus, in one study eighteen-month-old children collaborated with a puppet in placing blocks into boxes in a particular way; when another puppet came along later and placed the blocks a different way, the toddlers intervened to help her play her role the right way (Schmidt et al., forthcoming). These mutually understood role ideals, as we may call them, are thus impartial in the sense that they apply to whoever plays a particular role: whether it is my mother, my peer, or a puppet, to build a block tower one of us must do *X,* and the other must do *Y.* Impartiality in the application of role ideals assumes partners of equal status. Plausibly, role ideals in collaborative activities are precursors to the more general normative standards of the cultural group at large, which will so thoroughly structure older children's lives.

Here, then, is the claim: participation in joint intentional collaboration leads young children to understand others as, in some sense, equivalent or equal to themselves. "You and I" represents the *relationship* of coequal partners. The effects of this way of viewing things on children's interpersonal relations are momentous. Nagel (1970) argues that the recognition of others as agents or persons equivalent to oneself—so that the self is seen as just one agent or person among many—provides a reason for considering the concerns of others as equivalent to one's own; it is thus the cognitive basis for a sense of fairness. He describes the bird's-eye view and the reversibility of roles as, "You see the present situation as a specimen of a more general scheme, in which the characters can be exchanged" (83). His description of the most basic moral argument a victim can present to a perpetrator is, "How would you like it if someone did that to you?" (82)—that is, if the roles were reversed. So I would argue that the reason that great apes do not treat others "fairly" (see Chapter 8) is that they do not participate in joint intentional collaboration, so they do not form a "we" comprising "I" and "you," and they do not exchange roles or understand impartial role ideals. As a result, they do not construct a sense self-other equivalence with a partner.

Second-Personal Agency and Mutual Respect

In terms of ontogeny, the claim is that young children's understanding of self-other equivalence comes into being through their participation in joint

intentional activities, mainly during this early period between one and three years of age. But, importantly, the recognition of self-other equivalence is not by itself a moral motivation or act; it is simply the recognition of an inescapable fact that characterizes the human condition. We might ignore this insight in our actual behavioral decision-making, and indeed we might even wish it were not true. It does not matter—a fact is a fact. The recognition of self-other equivalence is thus not in any way sufficient for making a fair or just decision in one's interpersonal relations with others; it is simply the structure of the way that humans understand the social world in which they live.

But the understanding of self-other equivalence is a critical cognitive component structuring young children's species-unique forms of sociomoral interaction with others—and this has decisive effects, in its own way, on moral decision-making. Most basically, an understanding of self-other equivalence is a necessary precondition for individuals to bestow upon one another the standing of second-personal agents. For individuals to relate to one another as second-personal agents they must have a basically cooperative relationship and, at least in the ongoing interactive context, respect one another as equals. Two men engaged in a fistfight are not engaged with one another second-personally, whereas two men engaged in a boxing match—in which they agree to certain cooperative rules and to treat one another with respect—are. I have argued that second-personal relationships arose in human evolution as part and parcel of joint intentional collaboration: individuals forming a joint agent "we" are *ipso facto* in a cooperative spirit and respect their partner as equivalent to the self (Tomasello 2016). Ontogenetically, as we have just established, children construct a sense of self-other equivalence in their collaborative interactions with others in the one- to three-year age period, which enables them to treat others as second-personal agents.

Because of this equivalence, second-personal agents are entitled to make normative claims on their partner—you must play your part as we both know you should—and are at the same time obligated to respond to the normative claims that their partner makes on them. Making a promise or commitment is a prototypical second-personal act. Second-personal agents understand and respect that a promise or commitment creates on the part of the promisor an obligation to do what she has promised. The promisee, for his part, is now entitled to expect the promisor to do what she promised or committed to, and he is consequently entitled to protest

legitimately if she does not. The promisor herself will agree that the protest is legitimate because she agrees that she has broken the agreement on which the partner was depending. All this assumes an attitude of mutual respect. Second-personal agents thus recognize one another as having the requisite competence and knowledge to, for example, enter into a promissory relationship, and they recognize one another as equal in this respect; either could be the promisor or promisee, and the normative implications would be the same in either case. Second-personal agents—which, obviously, would not include other animal species or young human infants—do not just respect the power of the other individual (the way that a child might respect a bully's size and strength) but accord her "recognition respect" (Darwall 1977), meaning that they recognize her as an individual with the competence and status to enter into second-personal interactions and relationships.

One- to three-year-old toddlers are not yet second-personal agents in this sense, nor are they capable of recognizing others as such. But they have started down that path. By three years of age young children already recognize that other individuals are cooperative agents with whom one can form a "we" and create a coequal partnership of "I" and "you." This partnership is second-personal in the sense that it involves a kind of mutual respect for the cooperative partner as equivalent to the self. What is missing is the normative dimension, comprising an understanding of the ways that second-personal agents should treat and expect to be treated by one another. That will come only after three years of age when children are first able to make a joint commitment with a partner, as we shall see in the upcoming section. Indeed, at the outset this joint commitment will be more or less implicit. The normative dimension will become more and more elaborate and explicit, and more and more sensitive to culture-specific norms in the several years that follow.

Individual and Cultural Variation

There have been few studies of the collaborative skills and motivations of children with autism spectrum disorder, although researchers have reported in this group a diminished motivation for peer interaction and play in general. In addition, in the only experimental study, when preschool children with autism were induced to collaborate with an adult partner (in the four tasks of Warneken et al. 2006), their ability to do so was diminished relative to that of typically developing control children, and they

attempted to re-engage a recalcitrant partner less often (Liebal et al. 2008). And so, although the data are sparse, there is reason to suspect that autism has a significant effect on children's collaborative skills and motivations, suggesting a significant maturational component.

There are also few studies of infants' and toddlers' collaborative skills and motivations across cultures. Callaghan et al. (2011) had twenty- to twenty-five-month-old toddlers from three very different cultural contexts (two of them small-scale and nonliterate) interact with an adult in several of Warneken et al.'s (2006) collaboration tasks. When the adult stopped interacting for no reason, infants in all three cultures attempted to reengage the recalcitrant partner in the same basic ways, at the same basic frequency, and at the same basic ages. Schäfer et al. (in preparation) also found basic similarities in five- and eight-year-old children from two different cultural contexts (one of them a Baaka pygmy cultural group of hunter-gatherers) in the ways they operated an apparatus together to gain mutual rewards (though the two groups shared the rewards differently).

Nevertheless, it is a common observation among ethnographers that young children in many small-scale cultures spend much more time in peer groups, often involving a mix of ages, than do children from Western, industrialized societies. As a possible effect of this different form of peer interaction and socialization, Mejia-Arauz et al. (2007) found that triads of school-age children from different cultural backgrounds (Mexican Mayan and European American) collaborated in a construction task differently. In particular, the Mayan children worked together as an ensemble of three much more frequently than did the American children, who more often acted as individuals or in dyads. We do not know if there are differences among children in these different cultures in the preschool years, but one can imagine that more unsupervised peer interaction at early ages might lead to enhanced collaborative skills and motivations in school-age children. In that regard, Endedijk et al. (2015) found that Dutch preschoolers who had had more peer experience earlier in their lives were more skillful collaborators with peers in a variety of collaboration tasks.

A related point is that in Western, industrialized cultures, there would seem to be much more collaboration between toddlers and adults than in most traditional cultures—especially in play and games—as adults in these cultures get down on the floor and play with children in a way that adults in many traditional cultures do not (Gaskins 2006). Adults are clearly not "equal" partners, but in the context of the collaborative

activity they act as equals. That is to say, when rolling a ball back and forth partners are on an essentially equal footing with respect to the game—even if not in other ways—so it is still a kind of equal partnership in a context-bracketed sort of way. An interesting question for future research is whether Western adults scaffolding collaboration with young children—even if they are not coequal partners outside the collaboration—facilitates the children's development of collaborative skills and motivations more or less than extensive peer interactions with coequal partners, as in traditional societies, even if these interactions are less adult-like and sophisticated.

Joint Commitment

If joint agency toward a joint goal—as enacted even by toddlers (with adult partners)—is a kind of implicit agreement, a joint commitment is a more-or-less explicit agreement. Making such an explicit agreement requires a certain level of cooperative communication and social-cognitive sophistication as well as a sense of second-personal agency, so in ontogeny we do not often see explicit joint commitments among peers until close to school age. It might also be that joint commitments are most appropriate when one or both partners' participation or appropriate performance is uncertain or risky, and three-year-olds do not typically perceive the situation in this way. In any case, as we shall now see, even three-year-olds comprehend a joint commitment when an adult proposes one to which the child agrees or an adult orchestrates one between children, and they treat such commitments with appropriate respect.

Joint Commitment

When one has other things one could be doing, deciding to collaborate with others may be risky. But once one has decided to collaborate, one wants to be chosen by a partner, possibly with some assurances. As noted in Chapter 6, in an experimentally constructed stag hunt game, virtually all pairs of chimpanzees began their collaboration with a leader-follower strategy, in which one individual just bolted for the "stag"—thereby taking on all the risk—and just hoped that the partner would follow (Bullinger et al. 2011b). In contrast, four-year-old children sometimes did the same thing, but when the risks were increased the children started communi-

cating, typically with attention-getting gestures and informative verbal utterances announcing the arrival of the stag (Duguid et al. 2014). Even better for both partners would have been a communicative response from the partner, perhaps even a commitment, in return. Because the best option for each partner would be to obtain such a commitment from the other at the outset, the result would be a joint commitment to collaborate.

For social theorists focused on normativity, joint commitments represent nothing less than the "social atoms" of uniquely human social interaction (Gilbert 2003, 2014). Joint commitments are basic and essential because they explicitly acknowledge our mutual interdependence in the upcoming collaborative activity and seek to manage it. They assume that each party is a second-personal agent who can be trusted both to do her part conscientiously and to treat her partner with appropriate respect. We may call this "normative trust" because a breach represents betrayal of the partner and their agreement. Joint commitments are created when one individual makes some kind of explicit communicative offer to another that "we" do *X* together, and that other accepts. Joint commitments are initiated and accepted via second-personal address—in essence, addressing the partner as an agent who knows what it means to accept responsibility—with each partner explicitly inviting the other to make plans, even risky plans, around the fact that he will do *X,* and to trust that he will persist in pursuing *X* until both of them are satisfied with the result (Friedrich and Southwood 2011). Crucially, joint commitments can only be terminated by some kind of joint agreement as well: one partner cannot unilaterally decide she is no longer committed; rather, she must ask permission of the other to end the commitment, and the other must accept (Gilbert 2011). Joint commitments are joint all the way down.

With linguistic creatures, joint commitments are typically initiated by something like, "Let's *X,*" and accepted with "OK." (They are ended with something like, "Sorry, I have to *Y* now. OK?" with the acknowledgment: "OK.") In a study with very young children, Gräfenhain et al. (2009, study 1) had an adult begin a collaborative activity with two- and three-year-olds in one of two ways. For some children, the adult established a joint commitment by suggesting "Let's *X,*" and only proceeded to collaborate if the child explicitly accepted (typically with "OK"). For others, the collaborative interaction was begun by the adult waiting for the child to begin doing something and then joining in unbidden. In both cases, at some point the

adult abruptly stopped interacting. Three-year-olds who were party to the joint commitment were much more likely than the other children to try to reengage the recalcitrant partner. These children seemingly reasoned that if "we" have a joint commitment, then "you" ought to continue as long as needed. The two-year-olds, in contrast, did not behave any differently when there was or was not a joint commitment.

And three-year-olds know what a joint commitment means for their own behavior as well. Thus, Hamann et al. (2012) had two- and three-year-olds commit with a peer to a joint task, but then, unexpectedly, one child got access to her reward early. For her partner to benefit as well, this child had to continue to collaborate even though there was no further reward possible for her. Nevertheless, most three-year-olds (but again not two-year-olds) eagerly assisted their unlucky partner so that both ended up with a reward—and more often than if the partner just asked for help in a similar situation without any prior collaboration or commitment. In stark contrast, when pairs of chimpanzees were tested in this same experimental situation, as soon as the first one got her reward she abandoned the other and went off on her own to consume it (Greenberg et al. 2010). The three-year-olds were therefore fulfilling what Tuomela (2007) calls the "commitment condition" that committed partners persist until both have received their just deserts.

Joint commitments thus make partners responsible to one another. Each of them feels that each is responsible for the other's fate in the situation. In this spirit, Gräfenhain et al. (2013) helped pairs of three-year-old peers make a joint commitment to work on a puzzle together. (The adult got them to agree with each other that they would collaborate.) Having done so, they then responded to experimentally induced perturbations in that context with such behaviors as waiting for their partner when she was delayed, repairing damage done by their partner, refraining from tattling on their partner, or performing their partner's role for her when she was unable to do it herself. (That is, they did these things more often than did pairs of children who simply played in parallel for the same amount of time.) When young children make a joint commitment with a peer, they help and support that peer much more strongly, and in a wider variety of ways, than when they are merely playing side by side.

In the same vein but offering even stronger evidence, Gräfenhain et al. (2009, study 2) had a child and an adult make a joint commitment to play

a game together. Then another adult enticed the child away to a new, more attractive game. In response, two-year-olds simply dropped everything and took off for the new game. But three-year-olds understood their joint commitment; before switching to the new game (if they did in fact switch), they hesitated, looked to the adult, and often did something overt to "take leave" such as handing over the tool used in the game or even verbally apologizing—much more than they did in the exact same situation with no prior joint commitment. The children recognized that they had a joint commitment; because breaking it would harm and disrespect their partner, they had a responsibility to her to acknowledge that they were breaking it and that they regretted it.

Three-year-olds, but again not two-year-olds, recognize that a joint commitment can be broken only if both parties agree. Kachel et al. (forthcoming) had three-year-olds make a joint commitment with a puppet to collaborate, and then, after a brief time, the puppet left. Later the child reaped the spoils, and the puppet then returned and asked to join in again and share. If the puppet had asked permission to break the joint commitment before leaving, children were happy to share. But if the puppet had not asked permission to break the joint commitment (but had simply abandoned the collaboration), children shared less. Taking leave preserved the puppet's identity as a collaborative partner whereas simply abandoning the cooperation branded her as a defector.

It is noteworthy that the youngest age at which anyone has found an effect of joint commitments on children's behavior is three years; using identical methods several studies have found no effect of joint commitments in two-year-olds. Before three years of age, toddlers will encourage recalcitrant partners to rejoin a collaborative activity, but there is not necessarily any recognition of a normative commitment in either direction. Toddlers may want and expect their partner to continue the cooperation, but for three-year-olds a joint commitment normatively binds both partners to perform the actions to which they have committed unless they agree to terminate the commitment. We can think of joint commitments, then, as representing a kind of second-personal normativity. As their capacity for collective intentionality matures, children at around three years of age are able to think of the partnership created by a joint commitment as a shared agency, capable not only of collaborating but also of self-regulating the collaboration.

Second-Personal Protest

The content of the joint commitment is that each partner play her collaborative role diligently and in the mutually understood ideal way until both have benefited. But what happens if one partner does not? The answer is that she gets sanctioned, and, of crucial importance, it comes from "us." The essence of joint commitments is that "we" agree not only to act together but also to sanction together whichever of us does not fulfill her role-specific ideal because a defector is showing a lack of respect for her partner and their partnership. This gives the sanctioning legitimacy: we agree that defection by either of us *deserves* sanctions. Such second-personal protest thus carries a socially normative force, coming from "us" and our agreement, and so acts as a self-regulatory device to keep the joint activity on track despite individual temptations to defect. The normative force is both the positive force of equal respect that each partner feels for the other—my respected partner deserves my diligence—but also the negative force of legitimate sanctions, deserved sanctions, for reneging. To reduce their risk, then, each partner to a joint commitment gives to the other the "representative authority" of "us" to initiate sanctioning when, by the common-ground standards implicit in the joint commitment, it is deserved.

In a recent experiment, Kachel et al. (2017) orchestrated a joint commitment to collaborate between two three-year-olds (an adult got them to agree with each other that they would collaborate). Then, in one condition, one of them seemed to intentionally not play her role in the mutually known way (her deviant behavior was experimentally induced). The other child then objected. Importantly, she did not object by physically confronting the partner or demanding compliance, but rather by simply pointing out the deviance, often resentfully, and leaving it up to the wayward partner to voluntarily self-correct. The language the aggrieved child used was often normative: "It doesn't work like that!" Children did not protest if the partner was seemingly ignorant of how the apparatus worked (in which case they often taught her) or if the apparatus accidentally broke. Similar protesting was seen by Warneken et al. (2011), who set up a situation in which two individuals collaborated to pull in a board with one pile of food in the middle. In a previous study it had been found that chimpanzees dealt with this situation based primarily on dominance: if the subordinate attempted to take the food, the dominant attacked her, and if the dominant attempted to take the food,

the subordinate just let her (Melis et al. 2006a, 2006b). But the three-year-olds in this study did neither of these things. Rather, if a greedy child attempted to take more than half the sweets, she was met with protest. The aggrieved child expressed resentment toward the greedy child's actions, for example, by squawking "Hey!" or "Katie!"

The children in these studies are not just protesting that the partner is not doing what they want her to do; they are protesting that she is not doing what they both know she should do. Their common-ground understanding of what they jointly committed to do hangs in the air above them, as it were, as an impartial arbiter to which either of them, by second-personal protest, may refer the other. Failure to live up to the commitment demonstrates that the violator takes her own interests to be more important than her partner's, and failure to recognize the legitimacy of the protest demonstrates that she does not value their joint commitment or their partnership going forward. Adam Smith (1759) says that the aim of second-personal protest is "to make [one's partner] sensible, that the person whom he injured did not deserve to be treated in that manner" (95–96). Second-personal protest is thus a cooperative and respectful response to the offender's disrespectful actions; it does not seek to punish the partner directly, only to inform him of the injury and her resentment ("Hey!"), assuming him to be someone who knows better than to do this (that is, to treat others as less than equals) and assuming that he is competent and motivated to rectify the situation appropriately. The offended partner is making a second-personal demand for respect, and the partner, if he wishes to remain in the cooperative fold, must respond respectfully by recognizing its legitimacy.

Second-personal protest may thus be seen as an explicit expression of a cooperative partner's demand to be treated as an equally deserving individual, a second-personal agent who is party to a joint commitment. It is typically performed by the partner who is aggrieved, but it assumes that the offender will, of her own free will, recognize the validity of the claim and ameliorate the situation because, ultimately, it is coming from "us." I protest directly to you—with resentful second-personal address demanding respect—but it is coming from our "we." Recognizing the legitimacy of the protest, the derelict partner does not try to avoid sanctioning but rather joins her partner in judging herself as deserving of it, perhaps even feeling guilty (see Chapter 10). Joint commitments thus create a sense of responsibility to a second-personal

partner. "We" collaborate to self-regulate each of us as individual partners.

Promising

There is no clear-cut distinction between commitments and promises, but the studies of children's joint commitments all take place within the context of a collaborative activity. Indeed, in some cases there is no verbal agreement at all. It is thus possible that a good part of the sense of obligation in these studies is generated by the children's understanding of the interdependence of the collaborative activity and the "harm" that defection would cause the partner. In contrast, promises are commitments that are made to individuals but in the context of larger societal interests in people keeping their commitments. The commitment one makes when promising is more of a "public" act in which one puts on the line one's cooperative identity with the group at large. (For example, consider wedding vows publically performed in front of all one's friends and relatives.)

Although there are a number of studies of older children's understanding of promising, there are few studies with preschoolers. Kanngiesser et al. (2017) engaged three- and five-year-olds in two experiments. In the first experiment, children were the recipient of a promise from a partner. When the partner failed to perform the promised action, five-year-old children (and to a lesser degree three-year-old children) protested normatively—not just that they did not like it but that one should not do that—often referring to the promise in their objection. In a second experiment, children were induced to promise to keep doing something boring after an adult had left the room (that is, the adult asked them to promise, and they agreed), and they were then tempted to break their promise. Again, both three- and five-year-old children showed some understanding of promising, in this case by continuing at the boring task longer if they had promised to do so (again, especially the five-year-olds). Even outside of collaborative interactions, then, by the end of the preschool period young children feel a normative obligation to keep their promises, and they expect others to keep theirs as well.

Individual and Cultural Variation

There has been very little cross-cultural research on young children's joint commitments, second-personal protest, or promising. What little research there has been in non-Western cultures (for example, Heyman et al. 2015,

with Chinese children) has also found an understanding of promising in the late preschool period. But there are almost no cross-cultural studies of different cultures with a single methodology that would allow detailed comparisons.

Becoming Second-Personal

Chimpanzees can accomplish some things by acting in parallel with others; for example, they can prevail in a conflict by fighting side by side with conspecifics, or they can acquire meat by chasing a monkey side by side with conspecifics. But human children, from a fairly young age, are able to form with others a joint goal to act together cooperatively, each with her own role, and with the joint expectation that they will share the spoils in the end.

As children are collaborating with others during ontogeny, they are at the same time coming to relate to them in new ways. To describe these species-unique ways in a single term, we have borrowed the philosophical concept of the second-personal (for example, Darwall 2006): individuals relate to one another face to face in a cooperative spirit, treating and expecting to be treated with respect as equally deserving partners. Children develop as second-personal agents—and recognize others as such—during the two- to three-year age period, at which point they and their partners now have the standing to form with one another joint commitments in which "we" normatively self-regulate both "you" and "I," entitling either of us to call the other out for noncooperation. As compared with great ape social relations, which are based mainly on dominance with just a sprinkle of cooperation, human children's development of social relations based on equality, respect, and collaborative self-regulation represents a momentous transformation, culminating in a normative sense of joint commitment with collaborative partners at around three years of age. They are gradually becoming moral creatures.

Theoretical Explanations

The central theoretical issue in the ontogeny of children's skills and motivations for collaboration is, most basically, the respective roles of maturation and experience in the developmental pathway. My view is that

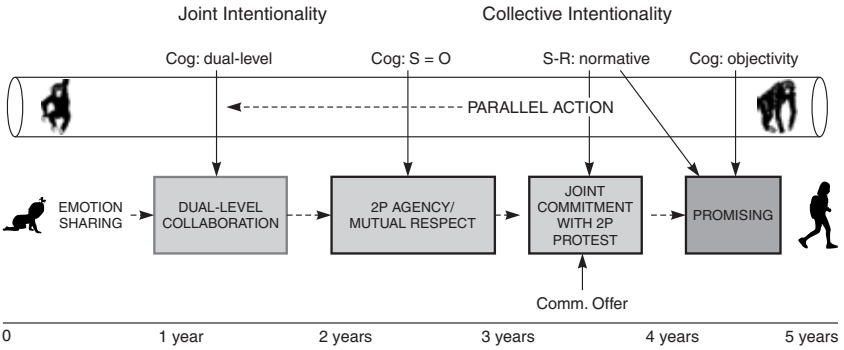

Figure 7.1 The ontogenetic emergence of young children's uniquely human collaboration. Abbreviations: Cog = cognitive; Comm. Offer = communicative offer; S=O = self-other equivalence; S-R = executive self-regulation; 2P = second-personal.

maturation and experience play somewhat different roles at different steps in the process. Figure 7.1 provides a graphical summary.

As with joint attention, the development of uniquely human collaboration begins with infants' emotion sharing with others (the first box in Figure 7.1). The explanation for this uniquely human form of emotional engagement is, presumably, as close to pure maturation as it gets; it is difficult to even imagine how such a motivation would be taught or learned. We have hypothesized that emotion sharing evolved in the context of cooperative childcare (as something over and above general mammalian attachment) as a way for infants to affiliate and bond in especially strong ways with those whose care they need. One could still imagine, however, that individual infants and their caregivers might work out their own special interactive routines, and these might lead to individual differences in the particular ways they might share emotions (for example, more vocal or visual).

From there, maturation of the capacity for dual-level engagement structures young children's collaborative interactions with others (the second box in Figure 7.1), such that they now understand that the two of them are aimed together at a joint goal, with each having her own individual role. It is again difficult to imagine that children's unique motivation and ability to collaborate by forming a joint goal are things they are taught or learn in any significant way. These are almost certainly natural developments based on the maturation of their capacities for joint inten-

tionality. Children with autism have deficits in collaboration: they do not attempt to re-engage recalcitrant partners in the manner of typically developing children. Moreover, eighteen-month-old toddlers from small-scale, traditional cultures collaborate with adults in the same way as toddlers from Western, industrialized cultures, including inviting recalcitrant partners to reengage, despite the fact that ethnographic observations suggest that these children have had little experience collaborating with adults. The plasticity of the early phases of the developmental pathway for uniquely human collaboration would seem to be limited.

But if we focus on the new kinds of social relationships that collaborative activities open up for young children, their individual experiences are crucial. Infants and toddlers must actually interact with a partner as a "we" before they can construct the basic second-personal relation between "I" and "you." On the basis of those interactions, by three years of age children have come to appreciate others, including peers, as equally deserving second-personal agents (third box in Figure 7.1). Informal evidence for this proposal is that at the end of this age period young children are collaborating with peers on a daily basis and in more adult-like ways. Moreover, at the end of this age period, young children initiate collaborative interactions with others (both adults and peers) via second-personal address in a communicative offer (bottom of the figure) that does not demand collaboration or even request it directly, but rather invites others to agree to collaborate. This is respectful address, offering cooperation to a coequal partner.

As we shall see in Chapter 8, at three years of age young children also start dividing the spoils of a collaborative effort with their partner fairly and mostly equally (whereas they do not do this outside of collaboration). In all these aspects of their engagement with others, young children approaching their third birthdays seem to be thinking in terms of a self-other equivalence (S=O at top of Figure 7.1), so they naturally show respect for their partners as equally deserving second-personal agents. Presumably, a child developing on a desert island with no social interactions with others whatsoever would not automatically, at three years of age, view others as equally deserving second-personal agents.

Although they do not often form joint commitments with peers spontaneously, three-year-old children do recognize the effects of a joint commitment when someone (such as in an experiment) orchestrates one for them (fourth box in Figure 7.1). Thus, three-year-olds—and, importantly,

not two-year-olds—show various signs of joint commitment such as persisting until the partner gets her goal, inviting a partner back even when she is not needed for reaching a goal, "taking leave" when desiring to break a joint commitment, and sharing more fairly with a returning partner who previously took leave. Further, three years of age is the youngest age at which children have been observed to engage in second-personal protest when someone breaks a joint commitment. Second-personal protest not only is respectful toward a second-personal partner but is normative—in the sense that it is not expressing my personal dislike of your behavior, but rather my resentment that you are not doing what we agreed you should be doing (if you consider me an equally deserving partner). Such behavior marks a watershed in the ontogeny of human sociality because this is when, for the first time, children's interactions with others take on a markedly normative character—what we have referred to, at this level, as second-personal normativity.

Again, although it is difficult to imagine that this kind of relating to others is trained, or taught, or socialized by adults in any direct way, it is nevertheless likely that the child must actually engage in collaborative interactions with others to develop these special sociomoral motivations and attitudes. The metaphor is thus once again one of construction or co-construction. Children's emerging normative orientation at three years of age—which we will again see in the next two chapters with regard to fairness in sharing resources and in a tendency to enforce social norms—is made possible, first of all, by the maturation of children's capacities for collective intentionality. These capacities manifest themselves in children's respect for the supraindividual social structures in which they participate, including joint commitments with other individuals and (as we shall see in Chapter 9) collective commitments to the social norms of the group. Three-year-olds understand that their joint commitments obligate them normatively to behave in certain ways, and when they do not, they (but not two-year-olds; see Chapter 10) feel guilty. In this hypothesis, the sense of obligation is basically the internalization of an interpersonal commitment (given an agent who already has a sense of instrumental pressure to do what is needed to attain goals), and guilt is likewise the internalization of an interpersonal process of second-personal protest (given an agent who already engages in executive regulation). The child growing up on a desert island would not develop this sense of obligation or guilt because she would have none of the requisite social interactions to internalize.

As already noted in Chapter 2, all these normative phenomena evidence a species-unique form of social self-regulation: we > me self-regulation. We > me self-regulation gives the normative force of second-personal protest legitimacy in the child's own eyes, and thus transforms their relations with others from merely cooperative into genuinely moral. As compared with other apes, this is something totally new. Young children not only engage with others in collaborative activities, they, in a sense, *collaborate with others to self-regulate those very activities*—a kind of second-order collaboration. Internalized, the individual on her own can then normatively self-regulate her interactions and relationships to others through feelings of obligation and responsibility to her partner (and guilt). This "cooperativization of self-regulation" is of the essence of humans' normative sociality and morality. Given the maturation of capacities for collective intentionality, the crucial role of social experience (as structured by those capacities) is clear. A child who never had the chance to form a "we" with a partner, and never experienced any kind of second-personal protest from a partner, would not all of a sudden normatively self-regulate. They must participate in collaboration and experience second-personal protest in order to internalize it. Nevertheless, it is important that even in this case we are not talking about explicit adult instruction but the individual's experience and internalization of uniquely human social interactions.

With regard to the role of different types of experience in the development of uniquely human collaboration and its attendant sociomoral motivations and attitudes (and resulting social relationships), we might formulate three relatively specific hypotheses.

The first hypothesis would be that adult teaching and scaffolding are critical to the process. However, for all the reasons discussed previously, I do not believe that this hypothesis is true at any step in this developmental pathway. Rather, the process is more a natural one (maturationally guided learning) than a cultural one (adult socialization and instruction). But given that it is a natural process, it is still possible that certain types of social interaction facilitate children in constructing the necessary skills and attitudes.

A second hypothesis would be that it is interaction and collaboration with coequal peers that is of critical importance because (following Piaget) to become an autonomous moral agent children need interactions with others of equal competence, knowledge, and status, with whom they

work out cooperative arrangements on their own. However, in many of the studies reviewed in this chapter, children at three years of age are collaborating in sophisticated ways with peers in experimental situations, despite the fact that they have had little experience in peer collaboration before this age. I thus do not believe that this hypothesis is especially plausible before three years of age, although it likely does apply to development at later ages, as we will discuss later.

The third hypothesis might be a more plausible claim that young children's maturational preparedness for collaborating with others structures their early social interactions with adults. Thus, when an infant is playing a game together with an adult, the adult's greater powers and competence are not especially relevant to the game itself. Of course, the adult can turn authoritative at any time, but within the context of the game, the child perceives them as equals. Later, after three years of age, children's interactions with peers become crucial because they are no longer collaborating only in the safe environs of a game but are working out collaborative arrangements in real-life interactive situations with real-life consequences. Perhaps collaborating with adults before three years of age—not being taught by them, but collaborating with them naturally—is a kind of zone of proximal development for later collaborative interactions with peers.

The best test of these hypotheses would come from cross-cultural comparisons. As alluded to earlier, although there are few quantitative data available, ethnographic observations suggest that one- to three-year-old children in Western, industrialized societies engage in more collaborative activities with adults than do children in more traditional societies, whereas children in more traditional societies have more and more varied experiences with peers at these early ages. The test would be to measure all kinds of social-interactive and collaborative activities, with various kinds of social partners in the one- to three-year age range across multiple cultural contexts. The outcome of interest would be children's collaborative skills—and their various sociomoral motivations and attitudes, from joint commitments to second-personal protests—in the three- to six-year age range. One could, of course, use the same basic design to measure children's experiences at three to six years and outcomes at six years of age and older.

My overall hypothesis is thus that the process is one of construction or social co-construction. As capacities for joint intentionality mature,

young children's engagement with others takes on a new structure, the dual-level structure. As they interact with others in dual-level collaboration, they naturally come to relate to them in some new ways with some new sociomoral attitudes, especially a sense of self-other equivalence, leading to a sense of mutual respect between partners. As their capacities for collective intentionality mature, young children become normative creatures. They now are capable of forming with other second-personal agents a joint commitment (and engaging in its associated processes of second-personal protest), leading to still other uniquely human sociomoral attitudes, especially a sense of commitment or responsibility to partners, and resentment for partners who do not treat them in this same way. A child deprived of social experience would not develop these sociomoral attitudes at either of these levels. The developmental pathway is structured and innervated by the maturation of capacities for shared intentionality, but the most immediate causal factors are the child's social experiences as structured by these capacities and her attempts to executively self-regulate her interactions with others normatively through the internalization of these unique social experiences.

Social and Moral Implications

In all human societies, collaborative activities for mutual benefit are ubiquitous. And most of humans' most impressive cognitive achievements—from complex technologies to formal symbol systems to societal institutions—are only possible because individuals are both capable and motivated to coordinate their thoughts and actions with others collaboratively.

But beyond these cognitive consequences, collaborative activities for mutual benefit are also the birthplace of uniquely human sociality and morality. Mutualistic collaborative activities have within them the seeds of all the sociomoral motivations and attitudes that most clearly distinguish human sociality from that of other apes. In collaborating with other individuals—initially adults and later peers—young children create a new social order in which "we" is constituted by the two second-personal agents "I" and "you," reciprocally defined. As compared with the great ape social order based mainly on competition and dominance, this new social order represents a radically new way of relating to others—namely, with mutual trust, respect, and commitment. Traversing

the developmental pathway from dual-level collaboration to joint commitment is thus foundational for basically all uniquely human sociality and morality.

I would argue that these new ways of relating to others are not just strategic—aimed at burnishing one's reputation in ways that bring benefits—but genuinely moral (Tomasello 2016). Of course, human individuals are concerned with their reputations and with not being taken advantage of by others, and these strategic motives are definitely a part of the picture, especially for adult human beings. But what we have considered here are only children up to age three or so, who have just begun interacting with others as independent sociomoral agents and who, by all accounts, are not yet worrying about what others think of them (see Chapter 10). And yet from age three they are making and keeping joint commitments with others and engaging in respectful second-personal protest to normatively self-regulate those joint commitments. Children at three years of age are starting to become genuinely moral beings.