

Notes on Recent Natural History of Normativity

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Abstract: Notes on Recent Natural History of Normativity

Recent scientific studies provide new bases for understanding the origin of norms in features that make our species unique. A main line, by M. Tomasello, traces evolution's departure from great apes via 'group intentionality': 'we'-consciousness, by contrast with apes' basically competitive one. This appears in children's roles in games, whence develop senses of equality and fairness. Another, by C. Trevarthen, finds advantage for this mentality in newborns' interest in close 'attachment' relationships to mothers, as shown in 'proto-conversation' mutual miming, and outward-looking interests in attracting others as companions in activities—explained by Sarah Hrdy's 'mothers and others' hypothesis.

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1. Norms and Developmental Sciences

Plato, Aquinas, Hobbes, Spinoza, Locke, Leibniz, Berkeley, Hume, Kant, Bentham, Schopenhauer, Mill, Kierkegaard, Nietzsche: it has not escaped the notice of philosophers that none of these famous ones of them had (legitimate) children or minded them, and that, of their number only Berkeley, a minister, was even married. Perhaps few people, especially not those who have extensively looked after children up to seven—the age of schooling, or of 'reason' according to Jean Piaget—will wonder why.

Yet, mentioning Piaget, we might consider what these thinkers might have noticed about humans had they, as he, attended closely to the riches of these early years of child development. In recent decades, like Piaget's work on child cognitive development, that of his exact contemporary Lev Vygotsky has been advanced by greatly extended research programs, notably regarding the social attitudes and

capacities that, as the saying goes, ‘make us human’¹. This has been called “a unique form of sociality”², where we find the roots and rapid growth of several kinds of normativity. Since a main part of this research has been cross-specific, involving comparison with other great apes, it provides evidence that was inaccessible to our historical philosophers. For example, a strong scientific case has been built that—contrary to common impressions, as well, perhaps, to such as Aquinas and Kant—following norms appears to be part of human nature, distinct from other animals, and with children does not arise simply from one-way interactions such as commands, although they have a place. Rather, they arise as naturally negotiated out of affectionate bonds, by a species-specific overriding interest in joint activities.

As a foundation for developmental studies in norms, biologist Colwyn Trevarthen has argued over decades that (at least) from birth “[h]uman relationships are motivated by innate emotions of affection or of disaffection that display and evaluate shared purposes and interests”³. Thus, after forming close, ‘intersubjective’, bonds with their mothers, even in utero⁴, babies seek among other people ‘attachments for companionship’, “for testing the opportunity and value of shared activity and experience, [which] are as important for mental health as the emotions of ‘attachment for care’ with their mothers”, he states, adding that “furthermore that meaning is discovered in playful collaborative friendships, and [...] its discovery is motivated by pleasure in dynamically responsive company.” Typical of Trevarthen is the idea that “the young child seeks a place in a community of ‘common sense,’ not just security in attachments.”

Accordingly, he takes babies to be born socially outlooking, curious about and attracted to humans as to nothing else—making eye contact, smiling and being playful with complete strangers—also in play that typically “includes being sensitive to funny companions, jokey companions”: thus “[o]ther young children, toddlers, are attractive to babies because they’re so comical in their behavior.” The feeling, we know, tends to be mutual—but why? According to the independent ‘Mothers and Others’ thesis of psychologist Sarah Blaffer Hrdy, human babies’ successfully seeking to attract even strangers is an evolved capacity, one for helping

¹ Not entirely but notably here, those directed by Michael Tomasello for two decades at the Leipzig Max Planck Institute for Evolutionary Anthropology’s Department of Developmental and Comparative Psychology. To simplify references to potentially many of his publications, most citations from that author here are from his latest treatise. Cfr. Michael Tomasello, *Becoming Human*, Harvard University Press, Cambridge, Mass., 2019.

² See H. Moll, E. Pueschel, Q. Ni, A. Little, “Sharing Experiences in Infancy: From Primary Intersubjectivity to Shared Intentionality”, in *Frontiers in Psychology*, 2021, 12.

³ C. Trevarthen, “Stepping Away From the Mirror: Pride and Shame in Adventures of Companionship”, in C.S Carter, L. Ahnert, K.E Grossmann, S.B. Hrdy, M.E Lamb, S.W Porges, N. Sachser (eds.), *Attachment and Bonding: A New Synthesis*, MIT Press, Cambridge, Mass., 2005, p. 55.

⁴ See *ibid.*, p. 56.

distribute their extraordinarily long period of care among others, beyond relatives ('it takes a village'), enabling human mothers to have more children⁵.

Particularly important for our topic of norms is Trevarthen's emphasis here on *reciprocity*. This exists, he argues, even between fetus and mother, and markedly after birth, when babies' responses to others are often not well characterized as to 'stimuli', since they actively prompt the other in turn, especially in playful forms. Thus Trevarthen remarks on a film that

shows how a 5-month-old baby born totally blind conducts with her left hand her [...] mother's singing of a baby song [...]. The baby moves with the delicate gestures of a professional conductor, and anticipates important moments in the drama by a fraction of a second, moving just before her mother's note changes. [He adds:] Each of her imitative movements occurs a third of a second before the mother's voice moves correspondingly up or down. They move with an elastic coupling, exactly like two dancers or improvising musicians, and from time to time the baby leads, as if she were causing her mother's song. She shows her pleasure in sharing these favourite songs by laughing as soon as she hears the first notes of the second song⁶.

While this discovery was revelatory for Trevarthen's further theses about our innate musicality, it is of a piece with passages where he thinks contemporary science takes us more generally: to accept that humans are innately social in active ways—truly social, beyond close family ties. Whether as part of musicality or play, it is also with the theses that—with instructive exceptions such as kinds of autism—such sociality tends to be affectionate, playful and markedly reciprocal—and universal.

2. Play and the Crucial Role of Roles

To see how such findings connect with other current research on the roots of normativity, since Trevarthen stresses babies' play, let us focus not on rules but rather on roles. After the earliest games, which we will call 'proto-conversation' with the mother or carers—that continue into the kind cited by Trevarthen—babies are often introduced by carers to more standardized ones like 'peek-a-boo'—and, as toddlers, 'hide-and-seek', which is actually already a pretend game since, despite shrieks of joy on 'finding', there is little doubt where the hiders are. Both games are at least sometimes played not only as games for two, but in a back and forth

⁵ See S. Blaffer Hrdy, *Mothers and Others: The Evolutionary Origins of Mutual Understanding*, Harvard Univ. Press, Cambridge (Mass.), 2009.

⁶ C. Trevarthen, "The Musical Art of Infant Conversation: Narrating in the Time of Sympathetic Experience, without Rational Interpretation, Before Words", in *Musicae Scientiae*, 12, pp. 15-46.

manner—as we say, ‘playing along’ with one another, as they take turns. Here philosophers may look for favorite cognitive topics regarding doubt, belief, knowledge, together with—from the ‘Kantian’ Piaget—metaphysical ones of constancy in ‘object permanence’, by about three months of age. Remarkably, no attention would then be given to the game: that is, to the playing of it, which is what actually excites the child. Young children do not play such games on their own. Furthermore, in playing them with others a great social—maybe even metaphysical—topic arises: that of roles. Several points proceed from this.

First, that these games are structured reciprocally suggests that they are extensions of those earliest babies’ ‘games’ of back-and-forth imitation, which may consist only in making faces, gestures or sounds—again with glee. Those warm, happy games of what is called, following Mary Bateson, ‘proto-conversation’⁷, have received a great amount of study in the last few decades, particularly with regard to the background of human speech learning. That such games are important to babies is demonstrated by Edward Tronick’s modern classic ‘still-face’ tests, in which the adult stops engaging with the baby with appropriate facial expressions, sounds, bodily gestures, which—following considerable efforts by the baby to spark reengagement—leads to considerable distress and aversive behavior in the child⁸.

Such *reciprocity* entails several things. An interesting feature of the earliest, most intimate, games is that, beyond crucially featuring roles, these roles are exchanged. More precisely, they not only require roles, they require recognition of them *as* roles⁹. The young child is upset when the mother ceases to play, recovers a role and presents it. This is a matter of developmental importance, according to psychologists. Thus Michael Tomasello finds in it several layers of significance,

⁷ See M. C. Bateson, “Mother-Infant Exchanges: The Epigenesis of Conversational Interaction”, in *Annals of the New York Academy of Sciences*, 1975, 263, pp. 101-113; repr. in M. Bullowa (ed.), *Before Speech: The Beginning of Interpersonal Communication*, Cambridge Univ. Press, Cambridge, 1979, pp. 63-78, where we find that Bateson made these observations through care of her own child. Of ‘proto-conversations’ she wrote: “These interactions were characterized by a sort of delighted, ritualized courtesy, and more or less sustained attention and mutual gaze” (pp. 64f). For an early, useful survey of such research, see further essays in *Before Speech*. A later collection is J. Zlatev, C. Sinha, (eds.), *The Shared Mind: Perspectives on Intersubjectivity*, John Benjamins Pub. Co, Amsterdam & Philadelphia, 2008.

⁸ See E. Tronick, “Affectivity and Sharing”, in E. Tronick (ed.), *Social Interchange in Infancy*, University Park Press, Baltimore, MD, 1982, pp. 1-6. Lest it seem that the babies’ reactions are mainly due to a feeling of abandonment, Colwyn Trevarthen’s experiments (using video face-to-face links) have disruptive, negative results while not using still-face but rather 30-second desynchronized—therefore, natural, animated but inappropriate—expressive responses. For discussion, cfr. P. Hobson, *Autism and the Development of Mind*, Laurence Earlbaum, Hillsdale, N.J., 1993, pp. 36f.

⁹ I suggest that the play aspect might be further investigated, partly to distinguish such reciprocal interactions from mutual *grooming* practices (“you scratch my back...”) that, despite not being mentioned by Tomasello, spread throughout the mammalian world: including bats, lions, monkeys—and especially his most-studied great apes.

beginning with what he terms their ‘role-reversal imitation’, which, he states, already “is a deeply important dimension of human collaborations”: as “a dual-level process comprising both a joint [therefore shared] goal and individual roles¹⁰”. More than a change of roles, that entails a change of *perspectives*.

For example, other young animals with object-permanence perception do not perform such role-reversals in play. ‘Monkey-see, monkey-do’ does not entail one ape’s seeing another’s act and repeating it by imagining from taking the other’s perspective. Have a chimp witness you paint your nose, give it the brush and it may give yours a second coat, but is unlikely to paint its own¹¹. A human child able to use a brush will, however, usually assume your *perspective*, and paint its own nose—with autism again a control exception. Lacking in other species is what might be termed a general human ability to ‘recognize, detach and transfer’ actions, in this case with the recognition being of a ‘perspective’ other than one’s own, followed by the reversal of perspectives. As we shall further see, contained in this seemingly minor act are several highly significant advances in mental evolution, both onto- and phylogenetically.

At this point we perhaps need to note more explicitly in this research the special nature of role *reversal* play. Lest we go too fast, as preliminary, there seem to be important distinctions to make about infant games, regarding roles and normativity, that do not require such reversals. Although it is an important point that babies begin with proto-conversational reciprocal ‘play’ with mothers, not all their games—especially not their later games—will be reciprocal. For example, neither ‘peek-a-boo’ nor ‘hide-and-seek’ need be. To consider older shared play, among so-called ‘organized games’, a toddler-group might stand spaced around, with each child gripping, the periphery of a circular fabric ‘parachute’ with a toy in its midst, and together bounce it up and down. This is a common exercise in collaborative play, expanding from the intimate sorts we considered to include an increasingly wide and important sense of ‘we’: what we are doing together.

Such games however do not require the perspective sense of role that do reciprocal games, for while the former’s roles are different but interchangeable, the latter’s, as we saw, require reversal of perspectives through the sense of a role: a thing that stays the same while its occupants change¹². Role-reversal games further stress this difference as, typically, their roles are experienced as *opposites*.

¹⁰ M. Tomasello, *Becoming Human*, cit., pp. 156f.

¹¹ See e.g. M. Tomasello, “Do Apes Ape?”, in C. Heyes, B. Galef, Jr. (eds.), *Social Learning in Animals: The Roots of Culture*, Academic Press, New York, 1996, pp. 319-346. A linguistic sign of difficulty with perspective changing in autism is difficulty with pronoun cases that express it.

¹² It seems worth observing that politics provides a familiar phenomenon of clinging to power, which is a tendency among adults to slide away, in this crucial regard, literally from even infantile understanding and practice. That consists in all too familiar weakening of a crucial distinction between agents and their roles in democratic organizations. So far as those in office identify themselves with those roles, they attack the crucial sense of the offices’ roles prescribing their own norms, norms which guide performance and against which anyone’s performance may be matched, in the same way.

Tomasello's next point is more important for our topic of norms. This is that game roles of either sort produce *standards*, as they make demands as to how they are 'supposed to be' done. Thus children's *self*-regulation is required for them to fit themselves to roles—even more, to perform them better. The child is then able to apply the same *norm*, equally, to others who occupy that role. Thereby, a sense of normative generality is developed smoothly out of our innate sociability. Besides everyday observations, all this is confirmed by many experiments in the past few decades' developmental sciences.

As we focus more on norms, let us not forget the earliest, most intimate, reversal forms of play, in mother-child interactions. In them we find expressed and exercised our earliest tendencies to assimilate to another, thus actively to seek to *align* ourselves and our actions with another for its own sake, its own appreciation. 'Still-face' brings out that what rewards enthusiastic participation for babies is the game itself. It also reminds us that this crucially involves feelings such as anticipation, excitement and warm emotions, which drive the whole sequence.

3. First Norms

For somewhat older children, according to these studies, the ability to separate roles from agents has large developmental effects, including for their understanding of norms generally. From standards, a first important effect is the perception of a kind of *equality* among agents in the activity, since any player might assume a given role. This is essential to the introduction of norms, since roles, having natures, come with invariant requirements for performance. From this emerges what may be called a "self-other equivalence", again along with a sense of 'we', containing self and others in their roles, as standards must be understood independently of those who fill them¹³. Further to pursue these implications, at this point our science shifts from onto- to phylogenetic. It becomes partly evolutionary, as we consider how experiments show infants to differ from other apes, in the remarkably early development of a sense of *fairness*, unknown to other creatures, and a key normative conception.

At this point scientific attention to child development becomes not so focused on childhood itself, as with Piaget, Bateson, Hobson and Trevarthen, but rather, with Tomasello and associates, on longitudinal comparison of our species with our closest genetic relatives, the great apes—notably two African, chimpanzees and gorillas—to find what likely path made ours unique. Here recent, close and extended, comparative studies in primatology, together with other sciences, is essential. Again, none of this was accessible to earlier theorists. In short, such study of our very closest relatives, chimpanzees, recently reveals environmental and 'mind-reading' intelligence far in advance of what had been thought only a few

¹³ M. Tomasello, *Becoming Human*, cit., p. 316.

decades ago. Yet, for such great apes, that decidedly tends to be employed by a competitive, rather than collaborative, social mindset, setting them sharply off from us.

The former—the nonsocial—aspect of ape intelligence refutes an adage of a founder of primatology, Wolfgang Köhler, that, despite the power of what he termed ‘insight thinking’, an ape is “the slave of its own visual field¹⁴”. To the contrary, recent studies show that, for example, a chimp assessing a practical problem situation will go to an out-of-sight storage place, select an appropriate tool, return to the site, and use it effectively, keeping problem and tool in mind the whole while. In addition, it turns out that—now metaphorically speaking of ‘views’ or ‘perspectives’—some apes are adept at understanding, predicting, influencing ape (also human!) actions in terms of imputed mental processes—according to researchers such as Tomasello, even by imagining them.

That might begin with their gaze following—which is also a crucial stage in human baby development—but, beyond that, according to Tomasello, “studies clearly demonstrate that [adult] chimpanzees can imagine the actual psychological content of what others are seeing, hearing, knowing, and inferring, and what this means for their future actions¹⁵”. Furthermore, some great apes show observational interest in others’ ‘inner’ workings, based on expression and action. Accordingly, they seek to manipulate these states for their own purposes. However, that they can imagine another’s mental states does not mean that they, like humans, can imagine *being* the other: being at those states themselves¹⁶.

The term ‘Machiavellian’ expresses that humans are of course very active in the same ways, likely as a great-ape genetic legacy comes forward. However Tomasello adds that in this regard the telling difference between apes and humans lies in apes’ typically selfish motive in so ‘mentalising’¹⁷. Great apes seem basically although not entirely ‘Machiavellian’ in motivation. They are certainly capable of family affection and kinds of fellowship, and, after all (something Tomasello does not stress), they devote much of their time to bonding by mutual grooming—even if perhaps, with females, this is to offset rivalrous motives¹⁸. But, beyond that, primatologists report, they are competitive. Although great apes insight into ‘other minds’ can be sharp, it is instrumental.

Thus what contemporary epigenetic reasoning supposes is that the developmental course of these accomplished sensitivities derived from a common ancestry, and evolved for ulterior use, was, with our separation from the main ape

¹⁴ W. Köhler, *The Mentality of Apes*, Harcourt, Brace, New York, 1925—cited by Lev Vygotsky in several places.

¹⁵ Tomasello, *Becoming Human*, *op. cit.*, p. 49.

¹⁶ But see P. Hobson, *The Cradle of Thought: Exploring the Origins of Thinking*, London, Pan Books, 2002, pp. 269-271, who, disagreeing with Tomasello here, argues that apes do not empathize.

¹⁷ See Tomasello, *Becoming Human*, *cit.*, p. 193.

¹⁸ According to very recent studies, apes as well as monkeys bond by mutual grooming partly in order to have constant physical companions, for protection. See R. Dunbar, *Friends: Understanding the Power of Our Most Important Relationships*, Little, Brown, London, 2021, pp. 136f.

branch, ‘transformed’ by the close, affectionately bonded and back-and-forth ‘alignment’ of our species’ mother-child relationships that we traced—along with what Trevarthen stresses as our early eagerness to find ‘companions’ for activities. As noted, each tendency likely had its own selective advantages, which, early, epigenetically reshaped the extended developmental course of our ape-based mentalising powers in individuals. If so, typical of evolution’s make-shift ‘tinkering’ with resources, an existing process derived a partially novel function, on being combined with others¹⁹. But in this case the new function was in reverse to the former, and has had, as we well know, to contend with them.

Still, this is the opposite of competitive motivation, making us strange apes, indeed. Whereas chimps may bond effectively with others in *alliances* for defense or hunting, humans seem—as at least one of our philosophers, Hume, with his theory of ‘sympathy’ (along with his friend Adam Smith), pointed out—naturally, broadly friendly. Many everyday activities, such as smiling to and greeting passing strangers, show this. A common greeting is not to ask, “Now, what news on the Rialto?”, but ‘how’ the other personally is. Again, I suggest, be added that our intense interest in ‘mentalising’ for its own sake—out of an intrinsic fascination with others’ mental lives, not just their actions—shows in our devotion to fictional narrations, across time and through cultures.

Regarding games again, to skeptics remarking on our also well-known personal and tribal rivalries, we may at least point out that it takes some years for young children even to understand, much less partake in, competitive games at all. Indeed, when young children are first grouped, as unrelated or so-called ‘parallel play’ wanes in childhood, the strong tendency is for them to help one another with their projects. As Tomasello observes, “An interesting question [...] is why preschool children do not seem to get the point of competitive games such as most sports and board games²⁰”. Remarkably, they have to be taught this, and we will all recall how from early school sports are designed to do so.

4. Triangulating

Emphasizing now Tomasello’s kind of research, let us go back to the time of ‘proto-conversation’ and follow out a closely related line of research. A main conclusion of Tomasello’s species-comparative studies is that the evolutionary advantage for *Homo sapiens* divergence from the great-ape competitive motive is clear, in the

¹⁹ See the classic, F. Jacob, “Evolution as a Tinkerer”, in *The Possible and the Actual*, Pantheon, New York, 1982, pp. 33-35.

²⁰ Tomasello, *Becoming Human*, cit., p. 168. He adds: “which typically come with instructions like ‘for age five and above’.” Regarding games, not just competition, this may be partly owing to another complexity of games: understanding psychologically the double normative levels of cooperating in playing a game in which the roles are competitive. Then there are two norms, two levels of standards: playing fairly and playing well.

efficiency of *joint-intentional* action, exploiting what seems to be a defining ‘dual-level’ human mentality—one that preserves a sense of individual selves along with the wider ‘we’, in cooperative actions. It is that, beyond intelligence, that has enabled us (for better or worse) to have such a great impact on the natural world and to understand it. Let us consider the natural history of the development of norms in terms of ‘joint intentionality’.

Going back to human ontogeny, beyond the topic of the play that initiates it, as we noted, Trevarthen had greatly emphasized babies’ outgoing interest in companions—that is, he states, collaborators in *joint activities*. This contrasts sharply with primatology research that shows more than 20% of time spent mutually grooming, as a way to keep primates together in small, close groups, largely for protection. Typical of what we might call Tomasello’s ‘Pragmatist’ or environmental emphasis is his point of contrast here with great apes (chimps), of whom he states: “there is no evidence that they engage with others triadically toward external objects”²¹. Indeed, Tomasello’s approach might be contrasted with other scientists’ for fixing a rather dramatic developmental turning point in ontogeny as early as his so-called ‘nine-month revolution’, when, with striking predictably, human babies, alone among creatures, spontaneously understand pointing: notably pointing—typically in an excited matter—out of mere interest in *sharing* the excitement. Seeking to share more of outgoing experience, while still preserving the bilateral intimacy of proto-conversation, the infant thereby constructs for the first time a *triad*, by drawing in a referent²². Although not tied to game roles, pointing emerges as a reversible joint-intentional activity, since babies begin pointing soon after they begin following it, as invitation to join in a mental activity with another agent. And perspectives—different ones—is at the essence of the practice.

Putting these lines of research together, it appears that our innate interpersonal impulse toward close personal alignment—traced here from babies’ back-and-forth games of glee, which already included some recognition of perspectives—is further transformed, by what Tomasello terms ‘negotiation’. (One might add that this is rather as our ape-inherited stereopsis carried us past a simply wider visual field of two eyes, as each eye accommodates to the other.) Some philosophers agree that it is this resolved tension of ‘triangulation’ that then provides us with the sense of an ‘objective world’—for which we again have norms²³. And, although predicting

²¹ Tomasello, *Becoming Human*, *op. cit.*, p. 57.

²² See Tomasello, *Becoming Human*, pp. 308f, for a particularly succinct statement of this view. On the Trevarthen ‘gradualist’ side, Vasudevi Reddy argues that the ‘primary intersubjectivity’ of mother and baby already involves joint intentionality in keeping the games going. See V. Reddy, *How Children Know Minds*, Cambridge, Mass., Harvard Univ. Press, 2008. For recent exposition and judgment of the differences between them and Tomasello’s approach, see former Tomasello researcher, H. Moll, E. Pueschel, Q. Ni, A. Little, *op. cit.*

²³ For the most influential philosophical argument of this approach, see D. Davidson, “Rational Animals”, in *Dialectica*, 36, pp. 318–27; repr. in D. Davidson, *Subjective, Intersubjective, Objective*,

also thereby some tension entering our so far collaborative account of small humans, we sense in this negotiation, born of babies' affectionate impulse to *align*, a different kind of normativity entering the natural history of our species: that of the 'objective', as what is seated in no particular perspective. This, by school age, requires a high degree of the self-regulation earlier mentioned: the so-called 'age of reason', at least because it is the age of reason-giving, when children provide reasons, to themselves, as well as to others. For Tomasello, this represents true entry into a *cultural* world.

5. Sharing and Joint Agency

According to Tomasello, the joint attention of the nine month-old pointing triad "represents nothing less than the birth of shared intentionality"²⁴, from which a life-long cascade of triangles of joint-intentional actions ensues, constituting a unique form of life on the planet. Thereby, humans put their backs—more significantly, their heads—together, not only to affect the natural world, but also to create cultural ones, in which to produce far faster evolutionary advances than could occur in the natural²⁵. Thus the invention of that great artifact of artifacts, culture, which entails many norms, explicit or not.

6. Intentionality Levels

Not thereby to minimize joint-intentional efforts in the physical world, it is there, I have argued, that another extension of ape mentalising, *levels of intentionality*, obviously appears²⁶. What is termed by some great apes' 'mentalising', 'mind-reading' (least felicitously 'Theory of Mind'), likely involves at least three such levels. For example—having mentioned grooming—if a female member of a male gorilla's harem mentalises intentionally to keep head and shoulder visible to the dominant male, while surreptitiously grooming a young male screened from him by

Clarendon Press, Oxford, 2001. Among psychologists, see Peter Hobson and Tomasello as here cited.

²⁴ See Tomasello, *Becoming Human*, cit., p. 56, followed by evidence (p. 57) that chimps and other great apes show no motive for this kind of sharing, not even for joint attending.

²⁵ Still mindful of J. J. Gibson's reminder that "*it is a mistake to separate the cultural environment from the natural environment [...]. There is only one world, however diverse, and all animals live in it, although we human animals have altered it to suit ourselves* [to be sure, "wastefully, thoughtlessly", he added: perhaps "fatally"]". See J. J. Gibson, "The Theory of Affordances", in Robert Shaw & John Bransford (ed.), *Perceiving, Acting, and Knowing: Toward an Ecological Psychology*, John Wiley & Sons, New York, 1977, pp. 67-82. We might fancy that evolution, impatient with its slow course, produced an accelerated version of itself.

²⁶ See, for example, P. Maynard, "Rules: A Toy Box", in *Phenomenology and Mind*, 2019, pp. 94-111.

a tree, she 1) supposes that the dominant ape, 2) while seeing her, will not realize that she 3) is grooming a rival—and perhaps even that 4) the other is enjoying it.

Given our innate social impulses, the use our species made of this kind of perspectival intelligence was mainly the opposite: for cooperative—even collective—action. For example, it is very common to find with humans something one does not with other apes: converging on a bulky object and shifting it together. This requires, besides cooperative motivation, negotiation for physical alignment. To accomplish that, each agent must act physically with intent, while assuming that others are doing so, as well. Moreover, each will be 1) expecting that the others 2) are doing so on an understanding not only of what each other 3) is currently doing, but that that this doing is guided by assuming the others' reciprocal 4) understanding of 5) that. '*Gung ho*' derives from *gōnghé*, meaning 'work together', which requires awareness of the *perspectives* of the different roles being enacted—typically with ongoing adjustments—under mutual understandings of it. In short, collaboration entails *coordination* as action proceeds, and coordination requires grasp of levels of intentionality: reflexive perspectives on perspectives. Back to roles: at this stage of social experience norms appear at two levels. There are first norms of adequate performance relative to a given role; second, there are 'team' norms to enable sharing, thereby coordinating, different roles, by use of five orders of intentionality 'mentalising'. Strength and intelligence are insufficient for that. Here evolution needed a dramatic turn in intentionality perception.

Aside from our so-far reported research, I suggest that intentionality levels would repay further study, as we research the nature and natural bases of normativity. Absent levels of intentionality—maybe even the first level—machines and some insects may work well at complicated tasks in unison. However, I would argue, norms of all human kinds, in common with communication, require at least five intentionality orders—although I would hasten to add that this does not make them sorts of communication. Consider, for example, what occurs when travelers obey posted signs. There may be many reasons to stop *at* a stop-sign, but to stop *for* a stop-sign is to follow a norm, which involves the recursive sequence: 1) assuming that the sign was 2) made and positioned for the purpose of getting one 3) to stop, because one perceives that it 4) was so produced in order to get one 5) to stop²⁷.

7. Artifacts and Norms

Let us however hold back a while more from the 'deontic' contexts of law and ethics, to consider a most important example of such norms, for the artifacts, physical or not, that largely constitute cultures. Regarding these the Greek root,

²⁷ To emphasize the point, physical traffic barriers have, besides normative functions, what are termed "forcing functions". See D. Norman, *The Design of Everyday Things*, MIT Press, Boston, Mass., 2013, Ch. Four.

‘δεῖν’, which means ‘bind’, is misleading, since they are closer to guides. Regarding children, they are among the first to be learned. In work earlier than that so far cited, Tomasello, alluding to our perspectival mental abilities, coined the phrase ‘intentional affordances’ for artifacts. Of these he wrote:

As human children observe other people using cultural tools and artifacts, they often engage in the process of imitative learning in which they attempt to place themselves in the “intentional space” of the user—discerning the user’s goal, what she is using the artifact “for”. [T]he child joins the other person in affirming what “we” use this object “for”: we use hammers for hammering and pencils for writing. After she has engaged in such a process the child comes to see some [...] artifacts as having, in addition to their natural sensory-motor affordances, another set of what we might call intentional affordances based on her understanding of the intentional relations that other persons have with that object or artifact [and] the world through the artifact²⁸.

Thus, taking something as an artifact is taking it as prepared or positioned on purpose, for purposes (often plural)²⁹. This may go beyond taking it to be a ‘tool’ since, on the present five-level intentionality idea, it requires a sense of what it is (‘supposed to be’) used *for*, expressed by Tomasello in terms of a sense of ‘we’: ‘for us’. That seems to involve norms rather less deontic (binding) than those usually considered, yet stronger than simple *normality*, whereby people often follow paths that most others appear to do.

8. Thinking in ‘We’

Bringing together several of our topics so far, the distinctively human sense of identity, ‘we’, constitutes another frontier of research regarding norms. In review, beginning with mother-baby reciprocal closeness, extending through attentional triangles, into generally intentional ones of joint efforts, then rules, it is a powerful force in human nature and the source of culture. But here we must confess to an on-going problem made by Philosophy: how this ‘we’ of joint activity can be

²⁸ M. Tomasello, *The Cultural Origins of Human Cognition*, Harvard Univ. Press, Cambridge, Mass., 1999, pp. 84f.

²⁹ A broad, important research area here is the human proclivity for improvisatory, including make-shift, employment of artifacts for other purposes (see ref. to F. Jacob in previous note). This is sometimes approached from its opposite, called ‘functional fixedness’, a highly unusual difficulty with using artifacts for other than what they are ‘for’. Perhaps this is an area for research with norms that are not altogether binding. Without them humans would have lacked not only inventiveness, but much ability with simple artifacts. For brief discussion, see T. P. German and M. A. Defeyter, “Immunity to Functional Fixedness in Young Children”, in *Psychonomic Bulletin & Reviews*, 2000, 7, pp. 707-712.

characterized without contradiction, given that it seems that intentions belong only to singular individuals, whereas joint actions must be plural³⁰.

Various approaches to this simple-seeming, very basic problem—addressing part of what is termed ‘the meaning of life’—have been proposed in a large philosophical literature. Whatever its logical coherence, senses of ‘we’ undeniably hold powerful psychological places in human life and affairs. Significantly, people generally consider themselves in terms of many ‘we’s to which they simultaneously belong, and whose relative dynamics are classic and ongoing. Indeed, it may seem puzzling that the singular ‘individuals’, persons, about which a paradox of group agency arises, should crucially depend for identity upon many plurals in their own senses of identity.

Regarding empirical research, one sort of investigation continues in psychology on the relative absence of a sense of ‘we’ in autism³¹.

9. Fairness

Rather than pursuing these tangled questions here, having suggested a distinction between deontic and lesser norms, it is high time to turn to the former, through the earlier mentioned topic of fairness. Along the ontogenetic path, we can reach it from a cross-cutting distinction due to Tomasello. As we saw, his cultural account proper begins at a later age than the ‘nine-month revolution’ of triangulation, although still very early on: at the end of toddlerhood’s age three, with a sense of right and wrong—if not yet of reasons—when, through increasing collaboration with peers, children expand their sense of ‘we’ beyond that of family. This would be the basis for, in a few years, their becoming truly moral agents³².

If our account of very early childhood has seemed so far rather Edenic, strictly speaking, it has not been, having touched on neither commands nor authority. Yet the period from the ‘nine-month revolution’ to three years not only requires a stream of commands, it features a notoriously willful impulse to violate them, also to test ordinary cultural norms. Most of the curious, mischievous practice of this period is not socially directed, however. Havoc is more likely raised in the physical—notably, domestic—environment. Thus our opening paragraph.

Yet, notable to this period is how it leads into a new social sense, which features the maturing of what Tomasello calls the “dual-level structure” conception

³⁰ For a convenient introduction to the topic, see D. P. Schweikard, H. B. Schmid, “Collective Intentionality”, in *The Stanford Encyclopedia of Philosophy* (Summer 2013), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/sum2013/entries/collective-intentionality/>>. [Consulted December 2022.]

³¹ See, for notable examples, Peter Hobson’s *Autism and the Development of Mind*, Lawrence Earlbaum Associates, Hove, 1993, and P. Hobson, *The Cradle of Thought*, Macmillan Education, London, 2002.

³² The source for this and the next following expositions is M. Tomasello, *Becoming Human*, *op. cit.*, pp. 217f.

of equality first encountered in proto-conversational games. Kant presumably would approve of this approach, which contrasts with our list's several contract philosophers' rather ape-like 'alliance' approaches. Tomasello holds that, through practice with the uniquely-evolved human trait of joint-intentional collaborations, children soon derive a basic attitude of "self-other equivalence, leading to a sense of mutual respect", from which "young children become normative creatures." This is a very significant thesis for our topic. Tomasello explains the development of this broadening of normative attitudes as arising from practice as joint-agents, as follows: "They now are capable of forming with other second-personal agents a joint commitment [...] leading to still other [...] attitudes, especially a sense of commitment or responsibility to partners [i.e. 'trust'], and resentment for partners who do not treat them in this same way"—adding a seemingly epigenetic comment that "[a] child deprived of social experience would not develop these sociomoral attitudes at either of these levels." Being attitudes—self-generated ones—they are far more inclusive than what a command approach could represent³³.

Crucial for our naturalistic approach is the emergence from this of a sense of *fairness*, lacking in other apes as well as in younger children. At what might be called another 'revolution', age three, children's behavior exhibits this new motive, when it begins to express a motivation based on a sense of equality—different from affection or sympathy—by reluctance to participate in unequal divisions of rewards, at least among shared-activity group members. Remarkably, from about three, children commonly derive a sense of mutual entitlement³⁴. This shows notably regarding distributive justice, where the amount of a reward is compared with the amount of cooperative activity in gaining it. Tomasello (amusingly) states that three year-olds "will actually sacrifice resources in order to balance things with a collaborative partner; in the vernacular, they are averse in this situation even to advantageous inequity"³⁵.

Indeed, touching is his observation that, at least third party experiments show that children entering school are so "dismayed" by unequal distribution that "they threw away the extra resource"³⁶. Striking in Tomasello's conclusions here is his emphasis on this motivation's basis being respect: *mutual respect*, derived from the sense of second-person equality we have traced, from roles in infant games into the great evolutionary advantages of joint activities generally.

On that basis, collective attitudes of the *normal* as normative might develop in subcultures, via predictability—better to correlate joint-intentional activities. Supervening on small collaborations, Tomasello states, is a sense of "the collaborative activity of group life" itself (p. 239)—to which we might further add:

³³ Returning to our great philosophers, this is a point Plato first argued, in *Republic*, where he was also the first to identify and to criticize tribalism ("helping friends and harming enemies") as a basis for ethics.

³⁴ See M. Tomasello, *Becoming Human*, cit., pp. 235-41.

³⁵ *Ibid.*, p. 237.

³⁶ *Ibid.*, p. 239.

‘which constitutes a culture’. From that ensue further deontic practices and attitudes, strengthening the fourth and fifth orders of intentionality, which carry our species past the first three provided by our primate background. Thus, beyond our group-minded impulse ‘to follow the crowd’, is that to do things just because they are mandated—because that is what we are ‘supposed to do’. With this comes feelings of guilt and indignation regarding violations, especially regarding sharing—that is, comes an internalized consciousness of distributive justice, beyond that of sympathy.

‘Fairness research’ in child behavior continues a recent path for normative studies. Crucial is its extension beyond own-group situations—that is, in the direction of modern ideas of universality: the third-party situations mentioned. Citing a variety of studies, Tomasello reports that age-three is not so likely to be quite even-handed there, for “when the child herself is involved [...] it seems that only [seven to eight] school-age children reliably sacrifice to equalize outside [...] a collaborative context”³⁷, although other tendencies toward even-handed distributive justice do appear earlier. Also as a research frontier, cross-cultural studies continue to address the extent to which this might be owing to increased socialization³⁸. Yet an epigenetic process seems to be at work as “collaborative interactions”—increasingly involving perspective-taking—develop from toddler age onward.

10. Social Norms

Regarding development, we noted Tomasello’s emphasis—not entirely shared by more gradualist researchers such as Trevarthen, Reddy or Moll—on nine-months and three years as turning-points in human social consciousness, aside from their more widely studied cognitive developments. Indeed, regarding norms, both Tomasello’s phylo- and ontogenetic accounts are of what philosopher of paleontology Kim Sterelny terms a “double pulse model”³⁹.

Here Tomasello detects the distinct factor of what he terms ‘social norms’ arising phylogenetically when among modern humans—presumably as populations increased, due to joint-activities—developed an abstracted sense of ‘we’-consciousness, regarding “in-group versus out-group” (p. 249) conspecifics—that is, whether or not personally known to one another. If we may put it one way, that involves a broadening from joint actions regarding particular goals to those that maintain what was just termed ‘group life’ per se. From that point, Tomasello holds, a particular kind of norms—and norm motivation—appeared, ‘social norms’.

³⁷ *Ibid.*, p. 239.

³⁸ For a brief introduction to this, see Tomasello, *Becoming Human*, pp. 337-9.

³⁹ For his brief review of Tomasello’s *A Natural History of Human Thinking*, Harvard Univ. Press, Cambridge, Mass, 2014, see K. Sterelny, “Tomasello, Michael. *A Natural History of Human Thinking*”, in *Review of Metaphysics*, 2015, 69, p. 156.

as the first-person plural ‘we’ assumed an even greater presence (as mentioned above) within the singular “I”—within our species-specific ‘dual-nature’ conception. Among children, this motivation, although also arising by about age three, would appear to be distinct from that of fairness, which seems mainly generated by peer interactions⁴⁰. It would be interesting to learn how the naturally derived sense of norms on which this account has focused fares when it meets not only command norms but the broad, varying tides of the social.

11. Some Present Frontiers of This Science

At this point, verging on the realms of justice and of moral identity in later child development, rather than continue exposition of this general line of research, we should consider some questions about the research itself. For example, two ongoing research matters are comparative: cross-cultural and cross-species studies. To be sure, all the empirical hypotheses sketched above require cross-cultural confirmation, which will likely reveal their extent of universality and the kinds and intensities of their phenomena, particularly regarding children’s early environments.

Interspecific questions will by now seem pressing also. We must beware a simple but egregious fallacy of ambiguity regarding questions of ‘what makes humans different’ with respect to other species. The most relevant sense of that question here is strictly phylogenetic: about identifying the evolutionary traits and epochs by which our species definitively separated from its ‘last common ancestor’ (LCA) with other members of the hominid line. But by now many (particularly dog owners) will have been questioning how different canids are from humans regarding the particular traits that so set us apart from chimps. Dogs are in certain ways much closer to us: notably, in intentional communication. They read us well for cues as to intentions and feelings, and are very sensitive to our facial expressions—especially, our eyes, for expression and gaze—in such regards. Crucially, unlike apes, dogs follow pointing and like signs. This, science tells us, is not only finely developed in herding and hunting dogs, but common in dogs, without training—even in puppies⁴¹. The present account of that intelligence is ‘convergent evolution’ for communicative traits of humans and dogs domesticated from wolves, thus by human selection.

Although that may appear unsurprising, as this is science, it does not stop there. It presses on, first, to seek the selective presuppositions of such social

⁴⁰ While not a distinction Tomasello draws emphatically, it appears e.g. in *Becoming Human*, cit., p. 251. In yet another lesson from children’s games, on pp. 256-262 Tomasello presents evidence that by age five children have enough experience, from their invented games, making up their own group norms, to be able to distinguish social (‘conventional’) norms as such.

⁴¹ The most cited work on that topic is B. Hare, M. Tomasello, “Human-like Social Skills in Dogs?”, in *Trends in Cognitive Science*, 2005, 9, p. 441, and from which this canine account is taken.

intelligence in dogs. This, through comparison with other mammals, is conjectured to be human selection for something else: the non-cognitive, hormone-controlled, traits of lacking fear of and aggression toward humans. Thereafter the social-cognitive traits under study would have emerged from natural selection's typical 'tinkering' with existing traits, to make up for what was 'lacking' in relating to humans. That proved to be through transfer and modification of dogs' inherited social *cognitive* powers with other canines—which was once again selected for in them by humans. A next research question arises, of what might be learned from that about how humans evolved similar traits, away from great apes, but by natural selection.

Still, there seems a gap in this research concerning the possibility of 'triangulation' mentalising in dogs, with its presupposed levels of intentionality. Dogs certainly do appear to 'mentalise' to three levels, but is that sufficient for communication? Again, by the previous arguments, dogs truly triangulating, in order to experience the 'we' of true joint activity lacked by apes, would require five levels. But there seems to be a lack of testing to find whether interpretation of their responses here are confounded by stimulus-response that does not require mentalising.

12. Conclusion

A question likely most pressing for the naturalistic account of human norms, is what is it that goes so badly wrong there with humans, phylogenetically, historically and ontogenetically? That is notably regarding, as Sterelny observes, "conflict and competition": the very places in social evolution where Tomasello argues we departed most decidedly from the rest of the great ape line, by at least 400kya (perhaps with *Homo heidelbergensis*), when that ancestor began to hunt big game, and so perforce to need physical help and was sharing rewards with larger groups of conspecifics. On this account, not so much empathy as the practical implications of our species being increasing efficient by combining its great-ape intelligence with joint action, trust and fairness became prime virtues.

Ontogenetically, should we understand our sadly common falling away from these as due to another natural 'pulse' after childhood? Apes, after all, seem to be at their most aggressive regarding food and breeding competition. Partly overlapping that, with the development of culture, we have just brought up another great source of our strong tendencies to 'conflict and competition'—which was termed 'in-group and out-group' based norms—which come with the 'we' collective consciousness of larger communities: in other words, *tribalism*, with its social norms.

Even if we did not know this from life experience, including others' accounts, enormous modern industries of fiction, news and history continuously provide instances and explanations of how human nature fails, despite vivid displays of norms at all spheres and levels of its activities. Remarkably, besides allowing us to

practice mentalising, our fiction nearly always concerns people treating each other deceitfully and unfairly.

Although it is too much to ask of our current child-development based research to continue into older ages, there remains at least the challenge of seeking earlier roots of discord within this interesting, convincing, new, naturalistic account of what makes humans so different from their closest species, discord that works against the great advantages evolution gained from our continuing warmth toward each other and our species' ingenious, enthusiastic joint-activity projects. Current scientific research may strengthen the basis on which we can encourage this in education, less dependent on social norms and more on a natural sense fairness. Who would have guessed that it begins with child's play?