“A Natural history of Human Morality” is the fourth book in a series which includes “The Cultural Origins of Human Cognition” (1999), “Why We Cooperate” (2009), and “A Natural History of Human Thinking” (2014) in which Michael Tomasello focuses on the critical differences between human and great ape cognition and the evolution of these differences. This, his latest, is the work of a scholar who has been at the top of his game for at least two decades; it is original, lucid, and carefully conceived and constructed. It also includes helpful summaries and diagrams to facilitate access. Readers, both new to Tomasello’s work and those familiar with it, will find much to appreciate in this stand-alone text (although readers who fall into the latter category might be forgiven for feeling the faintest sense of déjà vu).

In this relatively short book (163 pages) which is jam-packed with empirical detail, Michael Tomasello tells the story of how ultra-social and ultra-cooperative moral human agents evolved from social but relatively uncooperative great apes in the space of some 1.6 million years (Homo heidelbergensis was thought to be fully cooperative some 400 thousand years ago). The details consist in empirical results from multiple comparative studies of great ape and human behaviour, in particular, the behaviour of 3-5 year old human children, who are considered closest to great apes in terms of cognitive capacity. Many of these studies are Tomasello’s own or those of his collaborating partners and the results inform his “plausible” theory of the evolution of human morality (p 3). In short, Tomasello identifies a number of moral psychological capacities which are unique to our species and then defends an empirical hypothesis that attempts to explain how and why these capacities evolved. Two of his main points are: (a) human morality develops through a 2-stage process involving sympathy and normative judgment and (b) that altruistic emotions and behaviour are beneficial to both individuals and groups; human beings develop genuinely altruistic behaviour intended to benefit the recipient rather than the giver. He concedes that the theory he constructs is somewhat speculative but, he claims, his research results support his theoretical
constructions. In my view, despite one or two concerns, his claims are largely justified.

Tomasello’s goal in writing this book (p 2) is to “provide an evolutionary account of the emergence of human morality, in terms of both sympathy and fairness” which emerged as humans adapted to novel and species unique forms of social interaction and organisation. Human morality emerged as a result of the evolution of species unique proximate mechanisms, that is, psychological processes of cognition, social interaction and self-regulation which increased the fitness of human individuals living in ultra-cooperative social arrangements. He defends what he terms an Interdependence Hypothesis, which, pace the Received View, suggests that it was interdependence, not altruistic reciprocity, which provided the evolutionary basis for the development of human morality. Interdependence enabled the progressive ratcheting up from primitive cooperation precursors of human psychological and social interaction capacities in response to environmental and demographic exigency.

Interdependence provided the basis for a 2-stage evolution: firstly, the evolution of cooperation involving dyadic interactions in small group contexts and secondly, once cooperation was established, the evolution of culture involving group minded interactions in cultural contexts. Human morality evolved from the limited morality of the sympathy of great apes (fuelled by the prosocial hormone oxytocin), through the second-person morality of obligate collaborative foragers (Homo heidelbergensis, 400 thousand years ago) and then to the unique and objectively rational morality of the modern human species (Homo sapiens sapiens, 100 thousand years ago). These moralities persist in the human species and become manifest under differing environmental pressures.

The entire process of the evolution of morality was kick-started by catastrophic climate change some 1.5 million years ago (MYA) which caused drying and heating of the planet. This resulted in the formation of open savannahs where early humans couldn’t compete, as individuals, with monkeys and other apes in hunting small mammals and gathering fruits and berries. Survival depended on the formation of foraging alliances with partners to hunt large game and protect foraging locations from competitors. Food collection required the cooperation of (almost) everyone; even one slacker could jeopardise the success of the hunt. Collaboration became an obligate necessity rather than the strategic desideratum it sometimes was for foraging apes and monkeys. Early humans became interdependent in ways which were previously unknown to great apes. It was because A’s survival depended on B doing X in activity S and B’s survival depended on A doing Y in the same joint activity, everyone benefitted from collaborative activity. Obligate collaboration required the development of joint
intentionality and commitment. Quite simply, ancient humans either cooperated when hunting or starved.

Each distinct type of morality which Tomasello hypothesizes was expressed in forms of social engagement underpinned by distinct sets of biological adaptations for coping with distinct forms of social life. These adaptations included, progressively, distinct prosocial attitudes (sympathy, concern, group loyalty), intentional expansion (individual intentionality, joint intentionality, collective intentionality), social interaction (dominance, second-personal agency, cultural agency), and self-regulation processes (behavioural self-regulation, joint commitment, moral self-governance). During this protracted and complex process, Homo sapiens learned not only to subjugate her personal and competitive urges for the greater good of her cultural group (including herself) but to believe that this was the morally proper thing to do. I return to this claim, below.

Great apes 1.5 MYA and, before them, the most recent common ancestor of humans and great apes (and great apes now) were built for competition and were equipped with the cognitive and emotional capacities to enable this: they could implement flexible strategies and even predict the mental states of conspecifics if only to out-compete them. They could also form long-term relationships for temporary fight or hunt purposes since competitive advantage followed forming alliances with kin or ‘friends’. These alliances were typified by fighting/hunting in parallel; there were no genuinely collaborative behaviours, each animal doing its own thing. Protomoral capacities, therefore, were already evolved in apes, organised around the oxytocin-fuelled morality of sympathy towards kin and collaborative partners. Great apes were moved by the plight of others and could even exercise self-interested restraint for the sake of maintaining social cohesion. They were capable of a primitive morality of sympathy. They shared hunting spoils with their collaborators but not on an equal basis. Collaborators were allowed a share, but an unequal one, just to keep them interested in collaborating again in future. The generosity of the givers was strategically driven for their own good by an individual intentionality.

More recently, some 400,000 years ago, Homo heidelbergensis (the common ancestor of Neanderthals and modern humans) still observed the morality of sympathy but had acquired new moral psychological capacities which allowed them to observe a more complex second personal morality. This was the result of a process of socially selected self-domestication which enabled, e.g., pair-bonding and collaborative child care. Collaborations between these more tolerant, less aggressive hominins became more numerous and, in order to collaborate effectively, early humans developed the psychological capacities of
joint intentionality and joint commitments, that is, they developed a sense of “we” as a plural agent. These capacities enabled humans to think of collaboration as intrinsically worthwhile; it was unlikely, therefore, that they would renge on partnerships even when reneging could bring greater rewards. Early humans developed abstract conceptions of what partners should do and be able to do and this informed partner selection (skills? attitudes? trustworthiness?) and ‘good’ partners were rewarded with joint success. Food and other spoils were equally divided and partners who failed to live up to expectations were punished with second-person protests. I return to this claim, too, below.

More recently again, some 100,000 years ago, Homo sapiens sapiens was forming and forging alliances with larger tribes to maximise access to resources in the face of inter-group competition. Once tribes became too large for everyone to know everyone else the need to identify and collaborate with members of one’s own tribe became pressing. Unique ways of communicating, of dressing and of ornamentation evolved as a means of distinguishing ‘them’ from ‘us’. The assumption of a shared common stock of cultural knowledge between members of the tribe allowed seamless cooperation with ‘strangers’ without explicit planning or communication. With the creation of cultural identity humans formed the idea of how people should be and how they should act in general and not just how temporary partners should be and act. According to Tomasello, then, justice is the result of joint intentionality that has been generalised into collective intentionality with the emergence of culture.

The basic moral capacities that enabled modern humans to form joint commitments with collaborative partners have generalised enabling us to form collective commitments with members of our cultural group. We maintain social identities, constituted by unique ways of doing things and a unique pool of background cultural knowledge that allows us to quickly and effectively collaborate with others, even unknown others of our culture. The morality of fairness (a la Tomasello) involves the observance and enforcement of social norms that transcend particular partnerships, applying to everyone in our community.

Finally, Tomasello concludes, in almost triumphant vein that “…it is a miracle that we are moral, and it did not have to be this way. It just so happens, on the whole, those who made mostly moral decisions most of the time had more babies…we should simply marvel and celebrate the fact…” (p 163-4). I also question this claim, below.
“A Natural History of Human Morality” tells the quite wonderful story of how our most sophisticated and uniquely human capacities evolved and it is told by a master story-teller. As I stated previously, however, I have some concerns with Tomasello’s theory. I have concerns which are due to/shared by other scholars and which relate mainly, but not exclusively to the inconsistency of some of Tomasello’s claims with what we know about evolution. I also have concerns which, to my knowledge, are not shared by (and not aired by) other scholars. I begin by just summarising the former concerns; for much fuller treatments of these, interested readers should consult the relevant reviews. I subsequently concentrate on the latter (unshared/unaired) concerns in rather more detail.

To begin with, and most obviously, Tomasello claims that the function of normative judgment (and, by implication, the development of the repertoire of sophisticated cognitive capacities which underpin it) is to strengthen trust and interpersonal bonds. He suggests that when two agents experience a non-instrumental obligation to perform their role in a collaborative task, to the required ideal standard, and when this is recognised by both collaborating partners, they will trust each other more completely than they ordinarily would. This allows them to take on more challenging but more profitable tasks. The claim, however, that natural selection responds to a functional requirement by developing a set of completely new skills is inconsistent with evolutionary theory.

Natural selection works on what is already available, this is commonly agreed. Given this, why would natural selection respond to the need for deeper trust by developing a suite of extra capacities de novo in a species already capable of trust? Why not simply increase the amounts of oxytocin released during cooperative activities (Churchland, 2011)? To strengthen his adaptationist case, Tomasello needs to explain why affect-based solutions to the trust problem were not available (Birch 2017).

An additional evolution-related concern is the claim that we are somehow lucky that natural selection equipped our species with what are, in fact, moral traits and dispositions. The implication that evolution has, in fact, made us moral is clearly mistaken. Evolution simply made us behave in ways that, given our changing environment and demography enhanced our fitness. We invented (and continue to invent) the language we use to describe behaviours, norms and values and this language includes terms which signal a certain type of approbation (or disapprobation). Had our evolutionary history been different, it is possible that the behaviours, norms and values which we consider to be moral or immoral would have been rather different.
Additional concerns relate to Tomasello’s apparent construals of interdependence and second-personal morality. According to Tomasello, interdependence requires mechanisms of partner choice and control and this also seems mistaken. Interdependence (surely) reduces the need for such mechanisms by allowing the cooperating partners to share in the benefits they collaboratively acquire. Thus, cooperating partners benefit from assisting each other even when they haven’t been carefully selected or controlled (Stanford, 2017). In terms of second personal morality, collaborative agents developed agent-neutral representations of their collaborative activities and of the norms of ideal performance which governed them, irrespective of who was involved. The recognition that the appropriate standards applied impartially to whoever occupied the role triggered the additional recognition that self and other were of equivalent status and importance in the collaborative enterprise which, in turn, ensured that “partners came to consider one another with mutual respect or equally deserving”.

This claim, however, positions the cart before the horse. Early human collaborators might well have recognised a functional equivalence between themselves and potential collaborators who might occupy the same functional role and be subject to the same standards of ideal performance without additionally ascribing mutual respect/deservingness to them. The ascription of mutual respect/deservingness hinges on some prior understanding of what entitles an agent to respect or equally deserving of common spoils. In short, and as Stanford (2017) observes, such ascription presupposes a distinctly moral sense of self-other equivalence.

I have two further and related concerns to address and these, to my knowledge, have not been articulated by other scholars. They relate to: (i) an implicit and somewhat anachronistic assumption which appears to underpin Tomasello’s theorising; and (ii) lack of any real explanation of the ‘proximate psychological mechanisms’, particularly his differing intentionalities, upon which so much depends. In addressing these concerns, I point to the sort of account of human ontogenesis that Tomasello himself recognises is required to complement his phylogenetic theory (p 154).

Firstly, although Tomasello challenges one Received View, that is, that human morality is underpinned by reciprocity he seems, even if not explicitly, to subscribe to another Received View. The Received View in question is that which previously typified the philosophy and psychology of emotion, that is, that biology and culture provide separate and consecutive influences on
ontogenesis; first biology lays down the hardware and then, subsequently, culture builds on this. Tomasello could be interpreted as construing the ontogenesis of human morality as a 2-stage process, not only as involving cooperation and then culture but as involving biology (great apes’ oxytocin-fuelled morality of sympathy, biological preadaptations) and then culture (modern humans’ moral norms and values). This interpretation, however, should be resisted.

My own work (Greenwood, 2015) demonstrates clearly that the uniquely human capacities of our species (and our systems of morality are species-unique if anything is) is a function of the continuous interaction of biology and culture. Progressive ratcheting up of capacity depends critically on neural and social prerequisites which, in my view, are developed only as required to enable such ratcheting up. Increasing complexity of cognitive processing presupposes the necessary neural wetware which underpins it and the progressively complex socio-cultural stimuli which trigger it. My account provides details of the mechanisms involved.

The development of our uniquely human emotional, linguistic and cognitive capacities is dependent upon the interaction of two exquisitely complementary repertoires of preadaptations, one neonatal and, the other, maternal (or primary caregiver). The human neonate is equipped with a very limited range of coarse-grained sensori-motor competencies (e.g. motor mimicry), species-typical behaviour patterns (e.g. ‘prespeech’, ‘punctuated’ suckling) and, crucially, referentially opaque affect expressions (e.g. unfocused crying). Complementary endowments in the caregiver include coarse-grained interpreter skills, exaggerated affect mirroring and ‘motherese’ (collectively termed intuitive parenting skills). I argue that the synchronised and mutual modulation of the relevant causal processes in caregiver and neonate provide the necessary and sufficient conditions for the development of full, uniquely human capacities from these coarse-grained precursors but only within a close, linguistically-mediated social relationship. Uniquely human emotionality, language and symbolic thought are progressively refined and elaborated concurrently and through the same developmental mechanisms. I describe in detail how a barely sentient and utterly dependent human neonate develops into an entirely autonomous agent, fully sapient, who emotes, thinks and communicates in ways typical of or unique to her species and culture. An implication of my analyses is that uniquely human emotionality and thought, including moral thought, are language-dependent.

The close, linguistically-mediated relationship of neonate and caregiver provides the fuel for the simple and otherwise numbingly repetitious interaction
upon which human development critically depends. The repetitious interactions
of cleansing, changing, feeding, playing, etc., which continue day-in, day-out in
infancy and childhood provide massive, socio-cultural epigenetic scaffolding
through auditory, visual, tactile and olfactory stimulation. This triggers the
release of endogenous opioids and prosocial neurochemicals, especially
oxytocin. These neurochemicals, in turn, trigger the release of intraneural
genetic products into neurogenesis and connection/maturation of neural circuits
as well as feelings of trust and intimacy. This process ensures that energy-
expensive neural circuits are constructed only as required to support
progressively sophisticated emotional, linguistic and cognitive capacity. It
continues throughout the life of the organism but is especially powerful in the
very early years. The theory I develop, therefore, explains in detail the
emergence of the proximate psychological capacities prerequisite to the
evolution of human cognition and morality, in terms both of neurogenesis and
socio-cultural stimulation, which Tomasello briefly describes but fails to
explain.

Considering the importance of the contribution of “A Natural History of Human
Morality” to developmental and comparative psychology, and evolutionary
anthropology, these concerns are relatively small fry. The book, overall, is a
delightful read and I hope I have made this clear. I recommend it to every
member of our species who is interested in how human morality evolved.

REFERENCES
morality. *British Journal for the Philosophy of Science* - Review of Books (ISSN
0007 0882.)


Greenwood, J. (2015). *Becoming Human: The Ontogenesis, Metaphysics and
Expression of Human Emotionality.* Camb, MA: MIT Press (Life and Mind
Philosophy Series).

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