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Review

Becoming Human: A Theory of Ontogeny

Michael Tomasello. Cambridge: Harvard University Press, 2019.
pp. 392.

Benjamin Gregg*

No philosophical question is older than *What are we, we humans?* Michael Tomasello contributes a splendid, empirically based answer to this hoary debate in *Becoming Human*, with a programmatic subtitle, *A Theory of Ontogeny*. We humans are an evolved organism with a capacity to create culture only by means of which we can realize aspects of our biological selves—and just as our biology can realize aspects of our cultural selves. That is, our biology evolved in ways that released in us capacities for “culture” that, in turn, released in us biologically relevant capacities, with “enormous and cascading phenotypic effects”—but effects “not encoded directly in the genes” (5).

By the term *biology* Tomasello refers to hereditary regularities of human mental development that have made human culture possible (and culture in turn has made possible

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certain biological developments, which I specify below). By *culture* he does not mean any particular culture or tradition; he refers to the evolved *biological* capacity for the *social* construction of our living communities in ways that form the individuals socialized within them. Hence the *unique ways* in which human individuals are capable of cooperatively coordinating with each other, of deploying our unparalleled cognitive and social capacities. That deployment displays tremendous diversity at the level of groups, from small bands to great civilizations.

On this account, human nature might be defined in terms of our participation in our own evolution—a participation earlier than, and independent of, the ways we have influenced our germline through consumption patterns based on artificially selected grains and meats (let alone the ways we may influence our germline in the future by means of genetic engineering). Tomasello suggests how our genes render us participants—by cultural means—in our own biological evolution, such that human culture is not something distinct from biology and evolution but rather something *internal* to them. In short, we invoke ourselves culturally from within our own “loop code,” our evolved genes *together with* the culture we have constructed over millennia. In this way our species resembles a kind of recursive loop. Ours is the only such species. Here we have “human nature” if by that term we mean: that which makes our species unique vis-à-vis even those species with whom ours is genetically closest: the chimpanzee and the bonobo.

Culture—as the evolved *biological* capacity for the *social* construction of communities in ways that form the individuals socialized within them—is a matter of cooperation among persons and over time. It is cooperation to a very high degree, within self-created social structures, in diverse and continuously new forms, in response to various adaptive challenges.

Culture in this sense coordinates participants synchronously. Socially constructed norms, conventions, and institutions often are able to generate participants’ commitment and trust and motivate their practice of fairness. Further, culture transmits, diachronically, “skills and knowledge to succeeding generations via cooperative processes” such as “active instruction and conformist learning, resulting in a kind of ‘ratchet effect’ in which cultural practices and products (including conventions, norms, and institutions) evolve, perhaps ‘improve,’ over historical time” (4).

Tomasello’s question is: “how do human individuals come to the species-unique cognitive and social abilities necessary for participating in cultural coordination and

transmission?” (ibid.). In other words, what is so unique about human psychology that it renders humans unique as a species? I described his answer with the metaphor of a “recursive loop”: cognition and sociality that emerge only in cultural life. Normal human ontogeny requires “*both* the maturation of species-unique cognitive and social capacities and also individual experience in such things as collaborative and communicative interactions with others, structured by cultural artifacts such as linguistic conventions and social norms” (7) and other aspects of a rich cultural ecology.

Tomasello traces these capacities to three developmental pathways. First, the “maturation of children’s capacities for shared intentionality,” with the emergence of joint intentionality at round nine months of age,” and then with the “emergence of collective intentionality at around three years of age” (8). Shared intentionality enables individuals to meet socioecological challenges through collective agency, thinking and acting as a collective agent, toward effecting monumental transformation—including the invention of culture—without losing individual agency. Acting together as a single agent, individuals “adopt a shared goal,” “adjust performance of their role to coordinate with their partner(s),” and “share the spoils of their efforts in mutually satisfactory ways” (342).

Second, individual participants learn to grasp and adopt the perspective of other individuals, leading to a shared perspective whereby different persons can identify the same (jointly identified or perceived) concern, focus on the same (jointly perceived or identified) idea (including things not real or not present) or object (including objects not present or out of sight). A shared perspective can move participants from personal subjectivity to group intersubjectivity, and to objectivity—as well as to the capacity to represent something to all participants. With respect to the focus of their attention, a shared perspective connects, along a horizontal dimension, persons on the same level of social hierarchy; and along a vertical dimension, persons on different levels of social hierarchy.

Third, “children attempt to executively self-regulate their thoughts and actions not just individually, as do many primates, but also socially, through their constant monitoring of the perspectives and evaluation of social partners on the self” (9). For example, in a voluntary submission of “me” to “we,” “when individuals make a joint commitment and one of them reneges, the other calls him out not just based on a personal preference but based on our shared understanding of our collective commitment to the group’s social norms” (342). Individuals self-regulate their collaborative activity collaboratively.

I find in this account the origins of the human capacity for morality and, ultimately, politics: the fact that “these ontogenetic transformations leading to uniquely human psychology” lead, in the child of six or seven years of age, to someone who “operates in her culture as a nascent person based on reason and responsibility” (343). Reason and responsibility are capacities for norming behavior and for meeting standards. The young child learns individual self-regulation and then, by entering into forms of joint agency, transforms it into social self-regulation. Here, our shared We self-regulates my Me and your You. At this stage of life, the child also starts to identify with a “cultural ‘we,’ which, upon internalization, executively self-regulates her and her compatriots’ beliefs and actions normatively in the direction of collectively accepted group standards of rationality (reason) and morality (responsibility)” (ibid.). With the question of what my Me and your You ought to do as co-constituents of our shared We, we have the foundations of what, through the ages, becomes moral and political force, in endless variety.

In sum, Tomasello locates in our organic nature the pre-history of our socio-cultural learning processes. These require social-cognitive conditions independently of genetic adaptation. Evidently humans cannot be “humans” without the culture that unlocks the potential of the biological human. Humans construct themselves culturally by drawing on their biology, and biologically by drawing on their culture. The ability to cooperate and collaborate—to create culture—confers an evolutionary adaptive advantage: “individuals who were both capable and motivated to put their heads together with others to collaborative or form a culture” were “at an adaptive advantage and so proliferated” (5).

But culture exceeds mere advantage: “virtually all of humans’ most remarkable achievements—from steam engines to higher mathematics—are based on the unique ways in which individuals are able to coordinate with one another cooperatively, both in the moment and over cultural-historical time” (4). And even as culture as a group-level learning process is not distinct from biology, it develops at a velocity much greater than that of biological evolution, indeed a velocity ever-increasing. No tool is more valuable to such coordination than language, itself preceded by non-linguistic communication, which develops from hand gestures. I conclude that the recursive loop that is our species—that defines our uniqueness, that constitutes human nature, that renders us political beings—begins with the index finger; *it* leads to our becoming human. Here I find a lucid and plausible proposal in response to the philosophical question: *What are we, we humans?*

And particularly compelling, I find, is the fact that Tomasello develops it in terms of ontogeny not ontology, of speculative science not speculative metaphysics.