Review of *Becoming Human: A Theory of Ontogeny* by Michael Tomasello

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Michael Tomasello's *Becoming Human* (2019) builds upon and synthesizes an impressive body of work, including his books *A Natural History of Human Thinking* (2014) and *A Natural Theory of Human Morality* (2016). The book offers what it says on the cover: a theory of ontogeny; that is to say, an account, based upon a reconstruction of human evolution, of key achievements in human psychological development. Tomasello's focus is on social abilities and social engagements, and this in itself represents an enormous change in the discipline of developmental psychology from its exclusive focus on cognition 30 years ago, a change which Tomasello himself has helped to bring about.

Rich in its details, *Becoming Human* lays out Tomasello's "shared intentionality theory," an account of human ontogenesis in both its unique aspects and the aspects that it shares with great ape relatives. A specifically human evolved biological preparedness is the "enabling cause" of the achievements of ontogenesis, while children's sociocultural experience, which this preparedness makes possible, is the "proximate (efficient) cause."

The strategy of the earlier books was to compare research with primates (assumed to resemble humans' first hominin ancestors) with what research on humans tells us in order to infer how one could have turned into the other, and at the same time explain how it is that humans and other apes are so different. The aim was to reconstruct an intermediate evolutionary step, a missing link, between primates and contemporary humans. Now this intermediate step receives less detailed discussion, and Tomasello focuses on exploring how twin processes of maturation and experience give shape to human ontogenesis, tracing eight interrelated ontogenetic pathways.

Tomasello's program of investigation has been strongly influenced by the work of analytical philosopher John Searle (via Margaret Gilbert), who laid out in his books *The Construction of Social Reality* (1995) and *Making the Social World: The Structure of Human Civilization* (2009) an account of human social reality as composed of "institutional facts" to which are assigned "deontic powers." For example, as James F. Bonk Professor at Duke University, Tomasello himself has rights and responsibilities that reflect his involvement in the institution. Searle argued that such institutional

facts are based upon what he called “collective intentionality”: shared intentional states such as beliefs, desires, and intentions.

Tomasello’s principal argument in *Becoming Human* is that evolution has provided the human newborn with the basis for the cognitive and social abilities that enable, first, “joint intentionality” at around 9 months of age and, second, “collective intentionality” at around 3 years. His argument implies that both biology and culture are important to human ontogenesis, and he draws a basic distinction between skills and abilities that develop naturally and those that develop culturally. The former arise “through maturationally structured individual learning” while the latter are consequences of “imitative learning from others in the culture or via adult instruction” (p. 34). Maturation and experience are capped by an ability for “executive self-regulation” of actions and beliefs that emerges by around the age of 6 or 7 years. It is interesting to note that Tomasello’s conception of culture has changed, from viewing it as a process of transmission, which “ratchets up” in humans, to thinking of it as a process of social coordination.

Among the differences between chimpanzees and humans one of the more important is the lack of ability of chimps to achieve joint intentionality. Although they are capable of gaze following, and of imagining what others perceive and know, they are predisposed to compete rather than cooperate. Children, on the other hand, are capable of joint intentionality because they have inherited this way of interacting with others from their ancestors, who were obliged to collaborate with each other to forage and to hunt and kill large mammals. In a manner of speaking, humans *are* those great apes that were able to respond to environmental changes by collaborating. On this basis, “infants become able to form with others a joint agent comprising two partners who act and experience things together as a ‘we’” (p. 87). They become capable of joint attention and perspective taking.

Chicken or egg dilemmas are hard to avoid in evolutionary reconstructions, and it is somewhat unclear whether Tomasello is proposing that evolution drives ontogenesis, or vice versa. Did joint intentionality evolve first in ontogenesis, “to elicit care and attention from parents and other adults” (p. 35), and then prove a useful skill for adults? Or did it evolve “for obligate collaborative foraging” in early humans (p. 18) and so put selection pressure on offspring?

The emergence of collective intentionality, at around 3 years of age, is certainly a “watershed” (p. 77). It is marked by the appearance of self-evaluation in terms of group norms, and sociodramatic play: “the creation of shared worlds with individual perspectives” (p. 85). This involves a new kind of “dual-level collaboration” in which children can now form “joint commitments” and affiliate with the group and care about its norms. In short, they can now form a group “we.”

Tomasello’s view, then, is that humans are prepared biologically not only to learn and make inferences, but also to engage in cooperative interactions and to coordinate mentally with other people. This is the biological preparation that hominin evolution has provided. Other developmental scientists, he argues, have not troubled to explain human-chimp differences, and so have ignored the ways in which humans have become adapted for culture and cultural learning. Without a description, and explanation, of what has become unique to human biology we would be unable to explain how children can engage in the kinds of interaction with other people that provide them with experiences that will then lead to further social and intellectual development. Humans follow an ontogenetic pathway that is fundamentally similar to that

of great apes, but which becomes transformed by the maturation of the uniquely human abilities for joint and collective intentionality.

Like any extensive and ambitious work of synthesis, *Becoming Human* leaves the reader with questions. Does it, for example, avoid the criticisms that have been raised about Searle's notion of collective intentionality? Does the distinction between enabling and proximate causes (which resembles Ernst Mayr's notions of ultimate and proximate causes) do justice to the complexities of ontogenesis? Specifically, the possibility exists that the biological preparedness of humans is general rather than specific. Rather than possessing the potential for species-specific social-cognitive skills whose proximate cause in ontogeny is maturation, the rapid growth of the human brain after birth, in contrast with chimpanzees, in whom rapid brain growth occurs prenatally, may grant the child the flexibility to respond in unique ways to its unique environment (Packer & Cole, 2019).

References

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