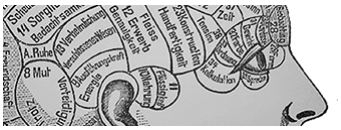

METAPSYCHOLOGY ONLINE REVIEWS

A NATURAL HISTORY OF HUMAN THINKING

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Early in his lectures on 'genetic epistemology' delivered in 1968 at the University of Columbia, Jean Piaget described the basic tenet of this version of epistemology modeled after natural scientific research as follows:

The fundamental hypothesis of genetic epistemology is that there is a parallelism between the progress made in the logical and rational organization of knowledge and the corresponding formative psychological processes. Well now, if that is our hypothesis, what will be our field of study? Of course, the most fruitful, most obvious field of study would be reconstituting human history — the history of human thinking in prehistoric man. (…) Since this filed of biogenesis is not available to us, we shall do as biologists do and turn to ontogenesis. (1971, p. 13)

What Michael Tomasello attempts in his new book is precisely what Piaget deemed improbable — a reconstruction of the prehistory of thought. As there is a natural history of the beaks of Darwin's finches, there is a natural history of the human mind, and putting it, or a version thereof, on paper should illuminate, by tracking parentage, the nature of thinking. This departure from the Piagetian cannon is in fact the current culmination of a very Piagetian project indeed. *A Natural History of Human Thinking* branches out from the considerable

collection of research and theory professor Tomasello and his colleagues at the Max Planck Institute in Leipzig have produced over the last decade or so. This corpus has so far been focused on what Piaget did recommend: ontogenesis, i.e. the characteristics of early childhood. Their investigations have aimed, specifically, at capturing the emergence at ever smaller ages of the rudiments of communication and cooperation. It is probably thought that this research has by now condensed into a thick enough foundation to allow for speculative projections into the distant past.

While the present book, as in the case of previous volumes and articles, is an extensively researched and informative, if jargonized, academic effort (therefore probably tedious for lay readers), the soundness of its basic argument is questionable. There is an abundance of solid developmental and animal research referred to in this volume, and some of the speculative moves seem reasonable, but it remains unclear whether Tomasello has actually written anything close to a *history* of thinking. This is not primarily because his narrative raises questions of plausibility and evidence, but because *what such questions would amount to* in this context remains moot. This seems to be an inherited weakness. It is not primarily — or at least not solely — the intrinsically hypothetical nature of phylogenetic reconstruction which weakens the current book, but its use of an unconvincing theory already deployed by Tomasello and colleagues in the less equivocal case of ontogenesis. In this volume, that theory is introduced as 'the shared intentionality hypothesis'.

The core of the book — chapters 3 and 4 — consists of an application of the said shared intentionality theory which results in a story about how some human psychological traits and abilities (essentially those supporting human sociality) might have emerged via Darwinian processes — adaptation driven by competitive advantages and selection forces. As for the remaining chapters, the first presents the shared intentionality hypothesis, the second sketches a proximate ancestry for human thinking based on research on ape mentality, while the last chapter summarizes the account and compares it with suggestions about 'what makes human thinking unique' made by other authors. In the following I will focus on the central argument of the book.

Leaving aside, for this review, obvious antecedents in the history of the social sciences, talk of shared, joint, collective, or we-intentionality has its origins in a number of recent attempts in philosophy to propose a theory of cooperative action. More to the point, the philosophers were interested in demystifying the apparent 'merging' of minds involved in such impressive coordination as that exhibited by a symphonic orchestra, but also in more prosaic events such as jumpstarting a car by dividing labor between pushing the vehicle and working its clutch. In philosophy, this was perceived as a problem only in the context of a more general challenge, that of linking intention, supposedly an instance of the 'inner', and action, which is overt. The problem of collective action seemed harder, since it involved a certain 'meshing' (as one of the philosophers in question, Michael Bratman, has put it — see e.g. 1999) of intentions in separate individuals. If I act alone, my intentions control, or are reflected by, my actions; but when we act together there seems to be a need for my intentions to inform your actions and vice versa. How could that be, since presumably I can only intend what I myself could attempt? The sovereignty of intention seems to naturally overlap with that of *self*-control.

One answer is to introduce a distinct type of intention — call it 'shared intention' — which plays, *across* the individuals involved in collective acting, the role that good old intention plays when a person is acting alone. The problem thus becomes one of giving an account of this kind of intention. And if there are such peculiar intentions, the investigation can extend to cover other items of our mental endowment, for example the sharing of epistemic states, like beliefs. The general concept which covers all these putative states is shared *intentionality* (as opposed to shared intention, which is but an instance of shared intentionality).

This may be a badly formulated problem to begin with, but let us assume that is not the case. In the developmental psychology of Tomasello and colleagues, this somewhat marginal philosophical conundrum made an impression because, in one of its guises, it seemed to suggest a solution to a traditional difficulty in ontogenesis. From early on, human children are quite different from the progeny of even closely-related animals, like chimps. They are, for example, much more inclined to cooperate (manifesting the rudiments of 'prosocial' behavior), and seem driven to understand what goes on in others' minds way before they could master anything like the mature repertoire of concepts applicable to a thinking being. What makes human babies and infants unique in this way? It should be evident why a theory of mind-merging as the underlying force in acting in concert, even if initially designed for socially competent adults, seemed relevant to the psychologists. Importing the concept of shared intention to psychological research has not, however, proceeded without difficulties, and this continues to be the case in the current volume.

In philosophy, the idea of adjusting the concept of intention so as to make it applicable to synchronized groups has resulted in at least two basic formulations. One, due mainly to Michael Bratman, suggests that such shared intentions are in fact aggregates — structures of *regular* mental states in *individuals*. What cements them together allowing for cooperation is their *content*, i.e. what they are about. We act together smoothly because each of us believes and wants the right things. There can be no question of sharing if there aren't more of us present and acting appropriately.

The second way to think about the matter, of which John Searle has been the main supporter, is to postulate shared intention — and similarly for other shared mental states (beliefs, desires, hopes, fears, etc.) — as a distinct *kind* of intending, literally. Shared intention, in other words, is not defined by what is intended (its content), but by the manner in which one intends (the way in which the content is entertained in one's mind). Even an isolated (but perhaps deluded) individual can, in this view, entertain shared intentions.

If the former account is relatively benign in the sense that it doesn't introduce unheard of psychological entities, the latter comes at a considerable cost. It postulates novel mental gears, assuming that our cooperative and communicative achievements cannot be explained without them. This is, in Kim Sterelny's words, 'the supposition that social competence depends on psychological competence' (2003, p.51). Searle's successive takes at the matter have not so far clarified or justified the inherent oddity of having *my* intention range over what *you* might do. And despite the fact that Tomasello has been critical of the opacity of Searle's proposal (Rakoczy & Tomasello, 2007), Searle's treatment of the problem has remained a source of inspiration for

Tomasello's own theorizing. *A Natural History of Human Thinking* is to a significant degree hostage to this legacy, even when it nominally uses a conceptual apparatus similar to Bratman's.

The central argument of the book is that humans underwent two ecologically driven adaptive transformations which eventually resulted in their present abilities and dispositions to cooperate. Tomasello describes these phases as, first, the step from individual intentionality to joint intentionality ('cooperative turn'), and, second, the step from joint- to collective intentionality. The first demarcation contrasts a hypothetical protohuman much like current apes — having some understanding of others, but manifesting little interest in their inner life outside competitive interactions — with possible closer ancestors more inclined to cooperate. The subsequent distinction between joint and collective intentionality is Searlean in origin, and it is meant to capture the increasing conventionalization of human social life. It should point to the difference between more or less spontaneous coordination in small groups, and stable, impersonal institutions built around norms. Tomasello suggests an evolutionary psychological rather than, say, historical reading of this latter distinction. It is an unsurprising construal, given the context of this book, but one which perhaps unnecessarily pushes the author to speculate about normativity as yet another mental gear acquired via adaptation — a fashionable (if curiously elusive) subject in current psychology.

The first adaptation Tomasello speculates about marks the dawn of specifically human thinking. According to the interpretation Tomasello offers for a number of experimental studies in apes, the basic elements of thinking had already been present in the common ancestor of humans and apes. This admittedly 'somewhat generous account of great ape thinking' (p.27) is focused on three psychological abilities. First, as modern humans — and as our common ancestor — apes are able to *represent* features of their world. Second, they can draw *inferences* from what they represent. Third, they are capable of*monitoring* what they themselves do, but also, in some sense, what they think (know, remember).

It is dubitable whether one should construe ape abilities as Tomasello does. The discussion of 'inference', for example, is not helped by the vacuous attribution to apes of the capacity to operate with structures approximating logical operations which are dependent on symbolization. Whatever the obviously intelligent decisions taken by apes approximate, the notion of 'a kind of proto-*modus ponens*' (pp.16 – 19) is empty, and no continuity is thereby proven. This is an instance of a larger problem. It is curious that Tomasello essentially equates thinking with the three classes of psychological abilities or functions mentioned above — and then looks for (dis)continuity along *those* lines. This is never properly justified in the book, and it does not seem justifiable. For the sake of argument, however, I propose to leave that as it is. Now, since apes, in Tomasello's view, already possess something structurally quite like human thinking, but almost nothing comparable to human language and culture, then what explains this tremendous difference?

The answer is partly conventional, and refers to a drastic change of environmental conditions. Apes' intelligence seems an excellent tool in a context where success depends on the ability of the individual to *outcompete* others. It is 'Machiavellian'. Tomasello is by no means alone in proposing that early humans

diverged from the ape lineage because they found themselves at some point in an ecology quite unlike the typical ape environment. Tomasello stresses that this must have been an ecology which made cooperation necessary for survival. This rewarded seeing the members of one's group as potential partners rather than primarily as competitors, and this processes resulted in a 'radically new form of thinking' (p.33). It is the characterization of this new form of thinking as thinking-for-cooperation which sets Tomasello's proposal aside.

In the scenario suggested in this *Natural History*, all three processes which are stipulated to constitute thinking underwent changes as early humans diverged from apes. These changes are described, as in previous works by the Max Planck group, on the lines of the criteria suggested by Michael Bratman for 'joint cooperative action' — this is the basis for what Tomasello calls 'joint intentionality'. However, while Bratman was asking what defines genuine cooperation, Tomasello reifies the defining criteria and reads them as specific adaptations. Thus, the ability to cooperate meant that early humans needed to*represent* what others knew and wanted, and to let those others know what they themselves knew and wanted, thus forming 'joint goals' and engaging in 'joint attention'. Managing dynamic roles in cooperative interactions also meant that early humans had to *infer* what others thought, including what others thought about their own thoughts, thus maintaining 'common ground'. *Monitoring* this fluid psychological landscape would have had obvious advantages – e.g. for one's reputation as a trusted partner ('my survival depends on how you judge me.' p.47). These emerging abilities also triggered, according to the author, a revolution in communication, pointing and pantomime being increasingly regimented and restructured so as to work quasi-linguistically. And even if the new way of thinking was initially restricted to dyadic (two people, second-personal) interactions, it laid the foundations for an expanding social universe:

The cognitive model of this second-personal, dual-level social engagement laid the foundation for almost everything that was uniquely human. It provided the joint intentionality infrastructure for uniquely human forms of cooperative communication involving intentions and inferences about perspectives […] and, ultimately, it provided the foundation for the cultural conventions, norms, and institutions that brought the human species into the modern human world (p.48)

In this view, then, thinking becomes recognizably human when it orients itself primarily towards deciphering other minds. Cooperation is the outer expression of inner synchrony ('joint intentionality'), and the latter is initially happening without the support of language or culture — indeed, it is supposed to explain how language and culture eventually became possible.

The attempt to offer a naturalistic picture of the emergence of the modern human mind is a merit of Tomasello's account. However, the heavily psychologized theory of early cooperation it is based on — effectively forcing Bratman's functional description of familiar interactions of competent contemporary adults into the role of evolutionary psychological speculation about (at best) protolinguistic hominids — remains a weakness. One can hardly begin to ask questions of plausibility regarding the emergence of 'joint intentionality' if this very concept is ill-suited for describing adaptive transformations driven by natural selection. As things stand, this seems to be

the case. Any intelligible notion of sharing thoughts already requires such a sophisticated understanding of mental life that to posit it as the root of human thinking — and not as its culmination — begs the question. It is not by accident that Tomasello starts with a 'generous' account of pre- and protohuman thought — much needs to be in place to even get his model going: complex concepts before language, recursive inferences before symbolization, common ground before culture.

The second evolutionary step described by Tomasello is meant to capture the transition from small scale cooperation involving few individuals, to human societies with language and institutions. Inter-group competition (humans, it turns out, can be quite Machiavellian, too) and larger populations are identified as the key factors driving this evolution. Here, the book offers a more amalgamated picture and it generally seems to be on firmer ground. Some of the topics Tomasello has already discussed at length — e.g. cumulative cultural evolution (human communities actively tend to their collective memory, new generations don't have to reinvent the wheel) — or have been the subject of intense debate in the field — e.g. the idea of 'natural pedagogy' (humans, including human infants, have specific skills of teaching/learning triggered by natural signals such as pointing or eye contact). The discussion of such topics is, predictably, substantive and well-argued. There are, however, less convincing bits of theorizing in this part of the book, too.

One of them, as mentioned before, is the idea that (cultural) norms can be fitted in an evolutionary scenario which has objectivity and a 'view from nowhere' emerge via successive generalizations of smaller scale experiences. This misses the nature of norms and normative language. This is not because norms do not have a history, but because that is essentially cultural history. The fact that we live normative lives is not a *psychological* achievement. A similar point can be made about Tomasello's discussion of reason giving. The fact that offering reasons might help with convincing — and even manipulating — others, or that it is a part of collective decision making says little about the quality of a reason as a reason — that is, whether it is a *good* reason, whether it complies with norms of rationality. It is ironic that Tomasello refers in this context to Sellars's point that I should do my best to think 'what anyone *ought* to think' (p.111 — emphasis added). Finally, the insistence on the Searlean analysis of institutional reality in terms of collective intentionality, and on using the represent-infer-monitor triad does little to support and clarify the valid points made in this latter part of the book.

Tomasello argues, toward the end of this volume, that theories which don't require sophisticated understanding of other minds to explain early social abilities (early in the history of our species, and in the history of each of us) are implausible. But 'leaner' models could in fact fare better if we are to arrive at a non-arbitrary theory, and a non-trivial understanding of mind, even if they seem to explain less. If one starts with something like *modus ponens* and something close to understanding what one's neighbor might be up to, then it will seem less striking that there is *modus ponens* proper, and that one's neighbor can be understood. And one will likely miss the possibility that such achievements may very well be only partly within the scope of a natural history of our species (the story of how our bio-psychological traits have been sculpted in distant times), as they are also the substance of our history.

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