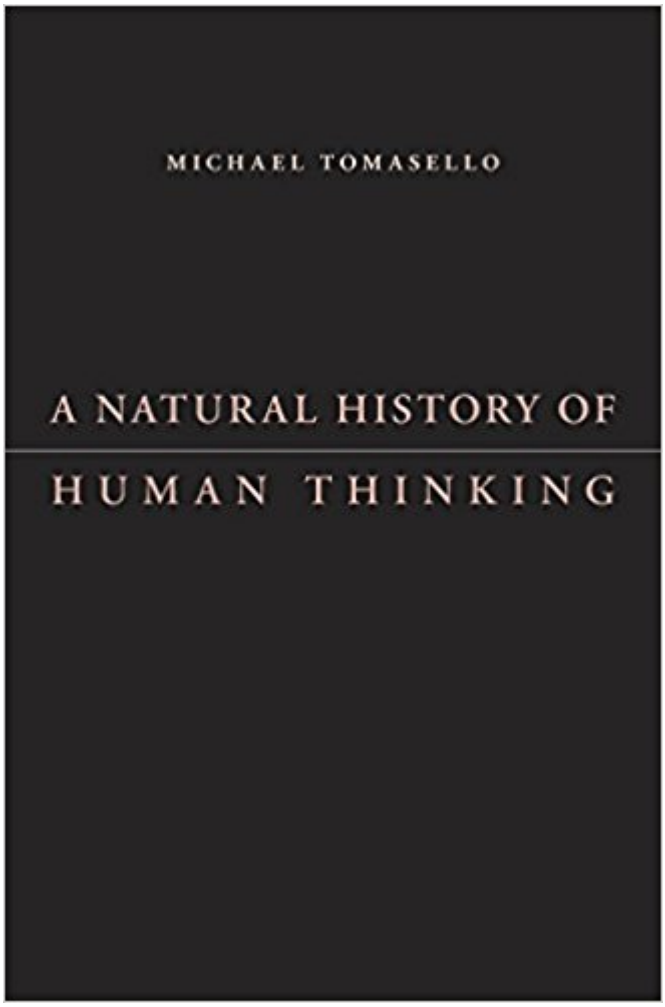
A Natural History Of Human Thinking



Synopsis

Tool-making or culture, language or religious belief: ever since Darwin, thinkers have struggled to identify what fundamentally differentiates human beings from other animals. In this much-anticipated book, Michael Tomasello weaves his twenty years of comparative studies of humans and great apes into a compelling argument that cooperative social interaction is the key to our cognitive uniqueness. Once our ancestors learned to put their heads together with others to pursue shared goals, humankind was on an evolutionary path all its own.Tomasello argues that our prehuman ancestors, like today’s great apes, were social beings who could solve problems by thinking. But they were almost entirely competitive, aiming only at their individual goals. As ecological changes forced them into more cooperative living arrangements, early humans had to coordinate their actions and communicate their thoughts with collaborative partners. Tomasello’s "shared intentionality hypothesis" captures how these more socially complex forms of life led to more conceptually complex forms of thinking. In order to survive, humans had to learn to see the world from multiple social perspectives, to draw socially recursive inferences, and to monitor their own thinking via the normative standards of the group. Even language and culture arose from the preexisting need to work together. What differentiates us most from other great apes, Tomasello proposes, are the new forms of thinking engendered by our new forms of collaborative and communicative interaction.A Natural History of Human Thinking is the most detailed scientific analysis to date of the connection between human sociality and cognition.

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Customer Reviews

What makes human thinking unique? Michael Tomasello’s clear and elegant new book demonstrates once more his ability to draw on his experimental work with apes and children to offer major new insights into the evolutionary origins of human cognition. (Dan Sperber, Centre National de la Recherche Scientifique, Paris)Human thought, in Tomaselloâ ™s conception, is different from that of all other organisms because humans alone have the capacity to think about the thoughts of others, and do so collectively. Tomaselloâ ™s greatest strength is his insistence on relying on data to support his hypotheses, particularly the fascinating studies he summarizes comparing preâ • linguistic children to our great ape relatives. (Publishers Weekly 2013-12-02)What is it that differentiates humans from other animals? Itâ ™s the question that keeps evolutionary anthropologists like Michael Tomasello up nights. But after 20-plus years wrestling with the thorny subject, he puts forward his â ˆshared intentionality hypothesis,â ™ designed to account for how early humans learned to coordinate their actions and communicate their thoughts with collaborators. (New Scientist 2014-01-04)Tomasello has spent a lifetime conductingâ |tests on both great apes such as chimpanzees and on humans of different ages, in order to pin down exactly where our capacities differ. In this difficult but rewarding book, he attempts to place these results into a grand theory of how and why these differences evolvedâ |Tomaselloâ ™s account of how co-operation drove the development of our distinctive intellect is controversialâ |It is also highly speculative: a trait such as co-operation leaves few traces in the fossil record. But it is speculation by a thinker at the top of his field, based on the latest research, and as such is likely to be the definitive statement of human uniqueness for some time to come. (Stephen Cave Financial Times 2014-02-07)Tomasello argues that human thinking is unique because it is cooperative. He posits that environmental upheavals forced early humans to channel their thinking towards collective aims through two evolutionary innovations: collaboration while foraging, and the rise of culture as population and competition burgeoned. Tomasello convincingly sets out how â ˆshared intentionality,â ™ in which social complexity spawned conceptual complexities, sets us apart. (Nature 2014-02-06)Michael Tomasello is one of the few psychologists to have conducted intensive research on both human children and chimpanzees, and A Natural History of Human Thinking reflects not only the insights enabled by such cross-species comparisons but also the wisdom of a researcher who appreciates the need for asking questions whose answers generate biological insight. His book helps us to understand the differences, as well as the similarities, between human brains and other brains. (David P. Barash Wall Street Journal 2014-03-28)Compelling readingâ |In a reassessment of his earlier work, Tomasello argues that apes are cognitively much closer to humans than had been

thought only a decade agoâ |The bookâ ™s great virtue is its conceptual analysis of the cumulative steps in cognition required to get us from ape to humanâ |Highly stimulating. (Stephen Levinson Science 2014-06-27)

Michael Tomasello is Co-Director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.

Michael Tomasello is academicaly known for his sharp, insightful mind & in this volume, he keeps complex explanations simple & clear. A book with an gigantic amount of highly sophisticated scientific knowledge, explicated in a cogent fashion. Any modereritly educated person could & can understand his discussions without in-depth prior knowledge. Written for the intelligent non-scientist from any professional domain.

Well written speculations. Brings advances in interdisciplinary research together to explain how human thinking emerged from prior forms. Page turner.

Tomasello’s "Cultural Origins of Human Cognition" benefits from clear prose and clear organization. This book continues the clear organization, but not the prose--which can get obscure and technical in ways the earlier book avoided. This difficulty aside, Tomasello makes his complex argument about the differences between non-human primate "thinking" and human cognition effectively and comprehensively. Of course, many people are straightforwardly skeptical about the field of evolutionary psychology, but Tomasello makes the best possible case.

Tomasello makes a convincing case for the intrinsically social character of uniquely human thought. He could hardly be better qualified to do so, having articulated and refined his thinking over the course of several previous books in conjunction with having developed expertise in several key domains of knowledge: primate evolution, child development, language, social cognition, and cultural evolution. While great apes and humans are sophisticated thinkers (and social problem solvers), Tomasello argues that a major dividing line is apes’ relative competitiveness as contrasted with humans’ relative cooperativeness. Thus apes are capable of grasping intentional thought, but they do not share mental common ground with others: they do not form joint intentions (with partners), much less collective intentions (with groups)--the latter constituting the basis of language and culture. Much of this book elucidates human communication, which includes the reasoning

capacity associated with cooperative argumentation. Tomasello practices what he preaches: he is a master teacher who provides his readers with a highly systematic and explicitly constructed argument for his thesis that shared intentionality is the basis of our uniquely human capacity for thinking. Thus his book is not only exceptionally thought provoking but also a pleasure to read.

Michael Tomasello is a behavioral and evolutionary anthropologist who heads the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. His major contributions deals with the ways in which human thinking goes beyond that of other primates not simply quantitatively (we have bigger brains that can do more computations faster) but especially qualitatively (we can think in ways that are not available at all even to the great apes).Tomasello derives his conclusions from careful and close study in the laboratory of differences in behavior of adult and child humans on the one hand, and non-human primates, especially the great apes, on the other. He shows that there are three types of human cognition, only one of which, individual rationality (Ã¢Â Âœme-thinkingÃ¢Â Â•) is shared with the great apes (and a fortiori with other animal species).Individual rationality is exemplified by the economistÃ¢Â Â™s utility maximizer. Individual rationality can be purely selfish, in which individuals are sociopaths who care about others only as objects that may help satisfy their personal needs, but can also include elements of empathy in which individuals care about the suffering of others, and also elements of negative hostility in which individuals gain pleasure from hurting and punishing others who have displeased them..A second kind of human cognition is what Tomasello calls Ã¢Â Âœcollective intentionality,Ã¢Â Â• Tomasello writes: Ã¢Â ÂœModern humans became cultural beingsÃ¢Â Â|by creatingÃ¢Â Â|cultural conventions, norms, and institutions built not on personal but on cultural common ground. They thus became thoroughly group-minded individuals.Ã¢Â Â• (p. 80) This sort of human cognition is extremely well-known, as developed in sociology by Emile Durkheim, George Herbert Mead, Talcott Parsons and many others. Tomasello offers the reader an informative overview of this aspect of human cognition. He stresses that humans obey social norms altruistically when they are considered legitimate, even at personal cost, and humans spontaneously punish others who are observed violating social norms for selfish gain (for a more expansive treatment, see my paper with sociologist Dirk Helbing, Ã¢Â ÂœHomo SocialisÃ¢Â Â• available from my web site). He adds to the standard repertoire of arguments the contention that this sort of cognition is absent even in the great apes. He writes: Ã¢Â ÂœAlthough great apes retaliate for harm done to them, they do not punish other individual for acts toward third parties. In contrast, three-year-old children enforce social norms on others even when they are not personally involvedÃ¢Â Â|Ã¢Â Â• (p.

87)TomaselloÃ¢Â Â™s unique and quite stunning contribution is his analysis of what he calls Ã¢Â Âœjoint intentionality.Ã¢Â Â• The idea here is that two or more humans can Ã¢Â Âœcollaborate Ã¢Â Â• in accomplishing a goal. Collaboration is more complex than cooperation, which merely involves all participants in a task carrying out their part the process of achieving some end. For instance, chimpanzees cooperate in catching monkeys, but they do not collaborate. Each chimpanzee wants to catch the monkey and eat as much as he can before the other swarm him demanding a share. Each chimpanzee does better in catching monkeys when surrounded by other chimpanzees equally intent on catching the monkey because when a number of hunters chase their prey at the same time, there are fewer avenues of escape for the monkey. But this form of cooperative hunting is pure Ã¢Â Âœmutualism:Ã¢Â Â• the chimps are each out form himself, and each chimp is oblivious to what is going on in other chimpsÃ¢Â Â™ minds and does not modulate his activity strategically by anticipating what the other chimps are about to do. Such cooperative hunting is pure individual rationality me-thinking Ã¢Â Âœparallel play,Ã¢Â Â• as is observed in very young children in a sandbox.Collaboration goes way beyond cooperation by linking the minds of the collaborators together in a form of networked minds with consciousness and intentionality distributed across the minds of the participants. Joint intentionality is Ã¢Â Âœwe-thinking,Ã¢Â Â• a form of cognition that even children understand, and is quite unavailable to other animals. TomaselloÃ¢Â Â™s analysis of we-thinking is, to my mind, completely convincing, and quite new in the literature on human cooperation.The notion of joint intentionality can be dramatically illustrated by reference to a very simple example from game theory (Tomasello does not use this example). Consider a game in which Bob and Alice each receive 100 when both say Ã¢Â ÂœUp,Ã¢Â Â• and 1 when they both say Ã¢Â ÂœDown.Ã¢Â Â• If they say different things, they both get 0. The joint intentionality solution is that both say Ã¢Â ÂœUp.Ã¢Â Â• However, pure individual rationality cannot predict what Bob and Alice will do. The game has two Nash equilibria in pure strategies, and either player will choose Ã¢Â ÂœDownÃ¢Â Â• if he or she believes that is what the other will do. It take social rationality for Bob to reason as follows: Ã¢Â ÂœAlice is socially rational and therefore she understands what a collaborative effort is. Alice will see that we are involved in a collaborative effort in which we have a common payoff and by considering the rationality involved in joint intentionality, Alice will know that I expect her to choose Up, and therefore she will choose Up. Therefore my best play is Up.Ã¢Â Â• Alice will analyze the situation in the same way, and both will choose the high-payoff strategy Up.Note that in this example, both Bob and Alice have perfectly selfish preferences and their behavior is completely amoral. All they share is a common social rationality that allows them to predict what each other is thinking, and therefore

what each other will do.I first came across the notion of collective intentionality in the works of such philosophers as John Searle, Michael Bacharach, Margaret Gilbert, Raimo Tuomela and Nathalie Gold, and the economist Robert Sugden. However, I was quite unpersuaded by their arguments.Consider John SearleÃ¢Â Â™s contribution Ã¢Â Âœ Collective Intentions and Actions,Ã¢Â Â• in a volume entitled Intentions in Communication. Searle argues (a) collective intentionality obviously exists, and (b) it cannot be explained as an aggregation of individual intentionalities, but rather "is a primitive phenomenon." His argument for (a) is that "It seems obvious that there really is a collective intentional behavior as distinct from individual intentional behavior. You can see this by watching a football team execute a pass play or hear it by listening to an orchestra." (p. 401) However, this is not only not obvious, it is plainly wrong. What is experienced in this and similar cases is highly coordinated cooperative behavior. In both cases, the role of each participant has been carefully marked out by a single agent, whom I will call the "choreographer," or perhaps a few interacting agents using a collective decision process to adjudicate differences among them in the content of the choreography, and conveyed to the members of the "team." A "pass play" in football is diagrammed, memorized by the players, and carried out on precise cue under objectively given conditions. A similar analysis holds for the interpretation of a musical score and its execution by the musicians.Searle argues that we can see the collective intentionality in the idea that there is a collective goal to the group---winning the football match, and producing beautiful music. However, individual group members may place some value on this "goal," but are unlikely to be motivated thereby unless they are properly rewarded in other, usually more material, ways. Moreover, some group members may actually have the intention of out-performing other members, thereby gaining personally at the expense of the "collective intention" of the group. Similarly, group members may be performing solely for the pay, or for the chance to get a better job, or even to get a date with another group member. Perhaps Searle can introspect and discover that he has performed in a group with "collective intentional" behavior, but I have not. I am certain that I am not alone. Therefore, even should some people like Searle exist, it would be a miracle if they more than rarely constituted any real collectively interacting cooperative group.TomaselloÃ¢Â Â™s contribution is the reposition the concept of joint intentionality from the realm of collective behavior to that of social epistemology. Although Tomasello calls this form of cognition Ã¢Â Âœjoint intentionality,Ã¢Â Â• it is really a high level cognitive representation in each participant of the mind of the other participants that can be used to predict their behavior in the face of the various contingencies involved in carrying out their collaboration. This way of thinking about the cognitive basis of collaboration might better be called Ã¢Â Âœjoint representationÃ¢Â Â• of a task, which is

an aspect of a larger capacity of social cognition in humans, who have evolved in groups as networked minds with cognition distributed over this network. It is this aspect of the human mind that permits the forms of collaboration that has rendered our species so successful.I have only one quibble with TomaselloÃ¢Â Â™s analysis: his attempt at a game-theoretic formulation of joint intentionality. A game has payoffs, strategies and information structure (see my book Game Theory Evolving, Princeton University Press, 2009). Game theory is based on pure individual rationality, although it can be extended to collective rationality by drawing upon other-regarding preferences and treating social norms as correlated equilibria (see my book, The Bounds of Reason, Princeton University Press, 2009, and with Samuel Bowles, A Cooperative Species, Princeton University Press 2011). Collaboration, by contrast, is a non-strategic coordination process closer to engineering that to strategic interaction. Tomasello tries to conceptualize joint intentionality in terms of the famous Stag Hunt game, in which hunters can gain a small reward by hunting hares individuals, but a large reward by hunting stag collectively. But this is a poor formulation. Collaboration is an instance of returns to scale through a complex division of labor, as first outlines by Adam Smith in his famous book The Wealth of Nations. It has little to do with the Stag Hunt Game.Indeed, the most serious task facing collaborating individuals is that of dealing with Ã¢Â Âœfree ridersÃ¢Â Â• who shirk in cooperating, but still demand a share of the product of collaboration. There is a huge literature on how this problem is handled, and it is quite unpersuasive to argue that the Stag Hunt scenario is an alternative, to this analysis, which is traditionally, and correctly, I believe, rooted in the analysis of social dilemmas, of which the Public Goods Game is the most well known example.

This book is cogently written and refutes the philosophy of Objectivism. The evolutionary evidence for human's to have survived and have developed our current state of knowledge is highly dependent on our ability to interact with other humans and be cognizant and respect their interpretation of our actions. Human happiness does not depend upon what is best for our own self-interest. But it does depend on our interactions with others, how others view our actions and reflections of the individual upon how others respond to our actions. This book makes the case for why selfish self-interest represents a dead-end for human evolution.

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