

*The Recursive Mind: The Origins of Human Language, Thought and Civilization*

Michael Corballis

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Michael Corballis has written a delightful book that makes an important contribution to our understanding of the emergence of our unique capacity to communicate using a verbal generative language. His central theme is that our thought processes are recursive, and that this has led to the recursive nature of our verbal language, and hence its generative nature as first identified by Noam Chomsky. To his credit, Corballis does not buy into the entire Chomsky narrative – namely the notion that language suddenly appeared in *homo sapiens* due to a ‘somewhat miraculous’ and ‘singular event’ in one individual, whom Chomsky named Prometheus. Rather, Corballis suggests that language arose through natural selection, evolving into its present form through many twists and turns. He also has much to say about the evolution of our species.

At the core of Corballis’ model of the origin of language is his argument that thought determined the nature of language, not the other way around. He next argues that human language is unlike that of any other animal because our thought processes are unique. We think recursively, as evidenced by two distinctive mental capabilities: we possess a theory of mind, and we are capable of time travel. The former is simply our ability to understand that other humans think the way we do, and so to realise that they will understand us. The latter is our ability to deal with things that are not immediately available to us in either space or time, to conceptualise that there is a past, a present and a future, and to act accordingly. Time travel is absolutely essential for planning for the future. Non-human animals live totally in the present and actions in which they prepare for future events (burying nuts, building nests or dams, and so on) are all done instinctively and in unchanging patterns. Human preparations for the future, on the other hand, constantly change depending on what is needed.

Corballis argues that both time travel and a theory of mind involve recursive thinking. He claims that we humans reason as follows: if I think along certain lines then another person who behaves as I do must also think along the same lines. A theory of mind is absolutely essential for communication, social cooperation and the building of community in which altruism flourishes. Corballis demonstrates that this capability is unique to humans. The pattern of time travel in humans arises because of the following line of thought: if action A has led to my successfully achieving goal B, then organising things so that I can take action A again will once more lead to B. Theories of mind and time travel, then, entail recursive thinking and therefore demonstrate its presence. When this conclusion is coupled to his premise that thinking determines the nature of language and not the other way around, Corballis arrives at the conclusion that our language is recursive and hence is generative, as claimed by Chomsky.

In addition to the main theme of the book, Corballis also provides new arguments for his long-held position that human language began through gesture and hand signals rather than through vocalisation. Although he provides some fascinating new evidence here, this is mainly a sidebar to his central thesis. He also summarises the latest findings in the evolutionary chain that led to the emergence of our species, adding his own spin on the data. Beyond biological evolution, his treatment of human development also incorporates cultural and linguistic adaptation. Corballis also applies his notion of recursive thinking to explain the evolution of technology, which I consider an important new addition.

So far I have tried to summarise what the reader will encounter in reading Corballis' fascinating new book. As a reviewer I am also obliged to provide a critique, however. Let me begin with a personal note and a caveat as to my objectivity. I felt honoured to be asked to review this book, a request I attribute to the fact that I am the author of another book that deals with the origin and nature of language – *The Extended Mind: The Emergence of Language, the Human Mind and Culture* – in which I develop the thesis that language is an emergent phenomenon that arose as a form of conceptualisation needed to deal with the complexity of hominid life as we developed tools and learned to control fire. Being given this assignment, however, did create in my

‘recursive mind’ a concern that I might have a conflict of interest, since my narrative differs from that of Corballis. I could not pass up the opportunity, however, because of the great respect I have for someone whose work I became acquainted with by reading his many texts and by listening to his many presentations at the Evolang Conferences. McLuhan’s figure/ground notion teaches us that a figure can only be understood in terms of the ground in which it operates. I cannot escape the ground of my own thinking on the nature and origin of language. But having warned the reader of my bias I now feel free to juxtapose my thoughts with those of Corballis.

As noted, Corballis argues that language is a product of our thinking – not the reverse, as the Sapir-Whorf hypothesis would have it. I do not find a conflict between these two positions, because I see the relationship between thought and language as a non-linear one – together they form a complex adaptive system in which language emerges in terms of words acting as and representing concepts. These concepts give rise to thoughts, which, in turn, lead to new words: language and thought thus bootstrap each other into existence in a recursive manner. Here I am employing the author’s notion of recursiveness to refine my own ideas about the relationship of language and thought. Corballis’ introduction of recursiveness into the conversation is a major contribution; it rivals those of Chomsky, Deacon, Christiansen, Tomasello and Jackendoff, my heroes in the field. I do believe, however, that his project would benefit from the inclusion of the ideas coming from emergence theory as developed at the Santa Fe Institute and elsewhere.

Corballis begins his book with a rather mathematical description of recursion and gives one the impression that he is dropping the idea into the discussion of language and the human mind in some *deus ex machina* fashion. It seems somewhat arbitrary at first, but as one reads further its importance becomes apparent. His writing style is lucid, well-researched, makes numerous references to the scientific literature – and is also entertaining, with literary allusions ranging from nursery rhymes to Shakespeare. I particularly enjoyed the way in which Corballis makes use of sports metaphors. While concerned to explain his ideas to a broad audience, he also addresses the needs of scholars in the field.

Corballis argues, as I do, that the emergence of language is not a strictly biological phenomenon: it is also ‘deeply bound to culture’ (p. 82). I find it curious, therefore, that he later writes that ‘tools are of course important to the human story but there is little evidence that they were decisive in creating the human mind’ (p. 206). Given that tools are part of culture, and given that culture played an important part in creating language which arose as a result of human thought, it would seem to follow that tools do play a role in the creation of the human mind.

Although I do not agree entirely with all of Corballis’ positions, I do subscribe to most of them. More importantly I admire the way in which he formulates issues worth thinking about, which alone makes his contribution very valuable. I am happy to recommend this book to both lay readers and experts in the field.

**REVIEWER**

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