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# Book review

*The Human Mind through the Lens of Language*. Edited By Nirmalangshu Mukherji. [Bloomsbury, 2022. Pp. ix + 266. Price $108.00 (hardback), $35.95 (paperback).]

In this bold new book, Mukherji tests the logical limits of a quasi-Chomskyan picture of language to put forward a novel linguistically inspired re-engineering of the concept of the human mind. In this review, I will outline the broad components of the view, where Mukherji expands on Chomsky's account and eventually where he departs from it to produce his own conception of the 'Generative Mind'.

The book starts with a number of controversial declarations. Firstly, the author isolates 'the mental' from 'the cognitive', guided by an assumption of species-specificity (and so-called 'Galilean style' which privileges abstract mathematical purity over empirical imperfection, p. 5). Specifically, he demarcates language, music, and arithmetic abilities as the sine qua non of the human mental realm. Each of these capacities is argued to be beyond the reach other animals. He does not consider analogues or proto-versions of these capacities to be serious possibilities. Given this, he naturally endorses an equally controversial saltation story of their evolution while acknowledging that such accounts are 'uncomfortable' for higher-order capacities. His innovative move is to reduce them to one core generative principle, what he calls 'Principle G' (for 'generative'). The human mind is exhaustively characterized by this core computational principle (sometimes called an 'operation' in the book) or rather set of structuring principles (enough for the author to identify it with the mind).

In Chapter 1, Mukherji resurrects a version of Descartes' substance dualism, which he calls 'doctrinal dualism'. The idea is that the mind offers an autonomous explanatory avenue unavailable to other doctrines (such as the mechanistic philosophy of the time). Specifically, Descartes' emphasis on the human use of signs, as expressions of hidden thoughts, was out of sync with the rest of his theory, according to Mukherji. Here, Mukherji deviates from Chomsky's Cartesian focus, which was invested in unearthing the roots of

internalist philosophy of mind and language. Mukherji is more interested in whether or not non-linguistic animals possess structured thoughts. To determine an answer, he explores some light Descartes exegesis, primatology, and theory of mind. If I must offer a criticism, I would say that a number of the references, although classical, are rather dated and the discussion not very deep as a result (for instance, in many fields, 12-year old articles are not considered 'recent'). The chapter ends with a tendentious claim concerning Descartes' motivations for dualism, i.e., that 'the godly picture arose in Descartes' mind exactly because mind is endowed with the mysterious phenomenon of language' (p. 50). He establishes this point less with exegetical flourish and more by reading between the lines.

Chapter 2 pits this new form of dualism against contemporary cognitive science, which Mukherji argues is at initial odds with dualism and the mind-body problem in general. Doctrinal dualism aims at 'unification of mind', a movement Mukherji claims has been abandoned by the heterogeneous concept of mind he attributes to modern cognitive science. The culprit, according to him, is the range of technological tools used in theory. What follows is an opinionated overview of the history and nature of cognitive science and cognitive neuroscience. Mukherji argues that when it comes to the language faculty, there exists an as-yet-unbridged explanatory gap. Lastly, he identifies cognitive modularity as the chief challenge to his unifying agenda. His strategy is to claim that Principle G attaches to certain modules (which we might share with non-human animals) transforming them into species-specific adaptations.

Part 2 delves into saltation accounts of language evolution, comparative primatology, and minimalism in linguistics. The subsequent chapters offer fascinating insights and conjectures. Although speculative, Mukherji provides a compelling argument for a novel conception of the relationship between language and thought. Basically, with a sufficiently circumscribed notion of language (or 'narrow language') and a similarly minimized concept of mind (excluding most of what cognitive science studies), he arrives at his Principle G or the principle responsible for the generation of the human mind.

Along the way, Mukherji invents *Proto*, a pre-linguistic hominid a step of evolutionary complexity below modern humans. Through this conceptual tool, he travels the tough terrain of language evolution and comparative thought experiments of Darwin and Chomsky, basically populating the sinews and bones of this fictitious theoretical device. For this reason, Chapter 4 is especially strong. It seamlessly weaves together paleontological resources with philosophical acumen and sharp analysis to produce a compelling narrative. Chapter 5 is more standard thoroughfare of various aspects of generative linguistics. The unique move, however, is to extend the central posit of Merge (and the 'narrow faculty of language') to ground a broader concept of mind or Principle G. The central idea is that Principle G is 'domain-free' in that it

(like an abstract logical calculus) receives interpretation in specific domains, such as language, but remains content neutral.

After showing that Merge applies beyond the linguistic domain, it remains to be shown that Merge does not apply to non-human animals. This is the job of Chapter 6. Nevertheless, Chapter 7 is where the magic happens. Merge is shown to characterize both music and arithmetic. For the former, no strong identity relation between music and language is claimed. Rather, Mukherji's point is more structural. He identifies the issue of finding the representational content of musical cognition or more simply the missing lexical items, which Merge is meant to manipulate. However, unlike other accounts of musical Merge, which assume strong cognitive associations, Mukherji's view avoids this problem by assuming nothing linguistic in music.

This is a point at which Mukherji's view confronts mainstream generative grammar and the centrality of syntax with what he calls the 'language bias'. Merge is argued to be domain free and yet circumscribed to Principle G, the generative engine behind language, music, and arithmetic. Furthermore, Merge is 'just a blind generator of discrete infinity independently of other special features of language' (p. 188). This is why music (which can be hierarchically organized) and arithmetic are natural extensions. One issue is that discrete infinity is a tendentious postulate of generative grammar. It is often unclear in what sense language is infinite (even if a grammar might generate an infinite set technically). The same holds for music, which might resemble phonology more than syntax since hierarchy by itself does not necessarily result in infinity. These kinds of philosophical challenges would have been useful to explore in a work that relies so heavily on the postulate.

What stands out in this book is the tone of certainty that often accompanies the ambitious, controversial claims. There is an air of 'if you follow the logic, there is no alternative conclusion'. Mukherji takes the architecture of Chomsky's minimalism as basically true (of language) and attempts an extension of that picture to include a few other systems. At no point does he discuss competing views in linguistics or cognitive science with much rigour. Given his assumptions, he states there is 'no other option' (p. 105) or 'this leaves Principle G as the only candidate for mind' (p. 102) and similar contentions. But there are many other options if we reject any (or all) of the Chomskyan assumptions, such as Galilean abstraction, Merge as the sole mechanism behind syntactic complexity, saltation accounts of the emergence of language, the narrow concept of mind (which excludes most other cognitive faculties) and so on. This should take nothing away from the quality of the thought or the boldness of the exposition, which is meritorious in many ways, but it does cast doubt on the certainty of the conclusions and the independence of the overall project. I see the fecundity of Mukherji's book in terms of a *What if* story. *What if* generative linguistics had adopted similar but slightly distinct assumptions? *What if* Merge was not unique to human language? Mukherji provides a thought

provoking internal critique of generative linguistics with the persistent goal of understanding the human mind through the lens of language.

My sense is that this book is likely to resonate more with those already sympathetic to a general Chomskyan picture of language and mind but not wedded to it. For those scholars (by no means a small group), it is an incisive and expansive exploration of some of the most influential sets of ideas in the 20th and 21st century language sciences. Mukherji engages critically with the philosophies of mind and language to produce a fascinating neo-Cartesian account of what the mind could be given certain assumptions about what language is and how it evolved. I recommend this book to anyone interested in the philosophical implications the study of generative grammar might have for the study of the human mind.

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