

Mind in the Mirror of Language (Bloomsbury,  
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## Preface

The dominant conception of mind in the philosophy of mind and the cognitive sciences assumes mind to be an assortment of processes and capacities that range from muscle movement and insect navigation to vision, language, thinking, etc. In general, researchers use the notion of mind to loosely cover what is taken to be ‘mental’ aspects of organisms, with no further interest in specifying the boundary of the mental.

In sharp contrast, in this work I have proposed and developed the idea that the human mind is *nothing* but a computational principle that combines symbols from a variety of human-specific domains to generate complex structures without limit. In this conception, the human mind *does not* cover familiar cognitive processes such as consciousness, attention, perception, emotions, drives, dreams, and the like. The conception of narrow mind is developed as follows.

In the classical rationalist tradition in philosophy, language was viewed as the ‘mirror of mind’. It was a rather specific conception of mind that was closely tied to the phenomenon of language. In this book, the basic idea is to examine how far the rationalist conception of human mind can be understood in terms of human-

specific capacities such as language and other kindred systems. The idea applies most prominently to the principles of language itself because language is 'one of the few domains of cognitive psychology where there are rather far-reaching results' giving rise to a genuine 'feel of scientific inquiry' (Chomsky 1991). With so much detailed knowledge on human language in hand, it may be possible to examine its mental part with adequate abstraction. So, I basically examine the principles of language to see how mind looks like. Assuming that language is specific to humans, we cannot look for mind in this form of inquiry where there is no language.

Following the proposed inquiry, it appears that, in a delightfully narrow sense, human mind can be identified as the basic structuring principle that constitutes the computational core of language and related systems such as arithmetic and music. Please note that the conclusion concerns human mind itself, not just human language or arithmetic or human music. Human mind is just that, a set of structuring principles, probably a unit set, that lies at the core of these human systems. Call it, *Principle C*, 'C' for 'combinatorial'. So the basic conceptual thesis of this work is that Principle C is human mind; human mind is a combinatorial mind. In my view, this part of the work is pretty definitive. I reach this thesis by the end of Chapter Five. The rest of the work is an attempt to give more theoretical shape to the thesis.

In the discipline of biolinguistics, the basic structuring principle of language is known as Merge. Thus, a prominent line of inquiry in

this work is to see if Merge carries the weight of Principle C that constitutes human mind. We will see that Merge does satisfy some of the major conditions that constitute the rationale for Principle C. For example, it turns out on closer inspection that the operation of Merge is not domain-specific. Furthermore, Merge defines the relevant notion of computation such that the computational conception of mind essentially constitutes of Merge. In that way, viewing Merge as the empirical—perhaps, even the evolutionary—manifestation of Principle C is an attractive theoretical inquiry.

Yet, Merge is after all a product of linguistic inquiry; furthermore, even in linguistic inquiry, Merge is a fairly recent invention (Chomsky 1995a) that continues to attract a variety of alternative formulations (Chomsky 2020). It is not prudent to place the conceptual weight of human mind entirely on the shifting fortunes of a new science. Principle C then is best viewed as an adequacy condition for Merge; in other words, the proposal is to so formulate Merge-like operations in a variety of kindred domains as to meet the conceptual requirement of Principle C. In that sense, the conception of the combinatorial mind in terms of Merge-like operation is work in progress. This part of the work is thus more tentative than the earlier conceptual part.

Keeping to Principle C, I think there is a strong intuition that all there is to the conception of mind is that mind is the source of unbounded generativity: mind is distinguished in the organic world for its ability to combine cognitive material available elsewhere in

nature for humans to put the resulting products to novel use. We can witness this unique feature of human mind in almost everything humans do: the arts, sciences, religions, music, philosophy, politics, cooking, tailoring, knitting, weaving, inventing games including nearly impossible yoga postures, even innovative sexual practices; only humans have been able to think of the *Kamasutra* and compose the exquisite erotic sculptures in the temples of *Khajuraho*. The examples suggest that, even if human language is the dominant cultural mode for the noted creativity, human generativity extends much beyond the domain of language; in many cases, such as music, cave painting and cooking, it may be meaningless to think of the creativity as a product of human language. That is the idea behind the notion of kindred systems.

Given the large number of human-specific generative abilities just listed, the massive explanatory problem is that we need to reach some evolutionary account of how these abilities came about. Since they were not available in pre-human systems, it is difficult to view them as quantitative modifications of pre-existing functions. Therefore, each of them seems to require *saltational* explanations at some point of their origin: a saltation is a sudden and large mutational change from one generation to the next, potentially causing single-step speciation. Although saltations do occur in nature for emergence of new biological forms such as polyploid plants, it is an uncomfortable form of explanation for higher-order cognitive abilities, where the required biological explanations are

hardly available. The discomfort is enhanced when many saltational steps are needed to account for a large number of cognitive functions of a single species.

In any case, a saltational explanation seems unavoidable for the unbounded generativity of human language. Emergence of Merge appears to require a saltational explanation; there are no half-Merges or demi-Merges in nature. Given the discomfort with saltational explanations, Occam's razor suggests that the entire range of astounding abilities be pinned down to a single saltational principle, if at all. Hence, it is interesting to examine if all human-specific generative principles may have a single Merge-like explanation.

The strict restriction of the concept of mind to humans also suggests a sharp distinction between mind and cognition since there is no doubt that nonhuman organic systems are endowed with a variety of cognitive capacities. Thus, mind is to be distinguished from the rest of the cognitive architecture of organisms consisting of perceptual systems and resulting images, consciousness and subjective awareness, intentionality, representations of distal stimuli, memory, feelings and emotions, depressions, drives, dreams, and the like. The list is obviously incomplete and I am unsure if all of these things coherently fall under the single label cognition; but I am sure that none of them belong to mind unless there is a strong presence of human language or kindred systems in them.

The distinction between mind and cognition places severe restrictions on the conception of mind. Consider the ‘five aggregates’ doctrine of mind proposed in some versions of Buddhism: material form, feelings, perception, volition, and sensory consciousness. According to the narrow conception of mind I am proposing, the Buddhist doctrine is not a doctrine of mind at all; it is at best a doctrine of cognition. A very similar remark applies to much of what is called philosophy of mind insofar as the primary focus of the discipline is on perception, attention, consciousness, feelings, desires and the like. The study of mind is also disengaged from what may be broadly called the cognitive sciences insofar as these sciences cover cognition as understood above. For now, prior to unification with the rest of human inquiry, the study of mind stands as a separate discipline of its own in active collaboration with biolinguistic inquiry.

This idea was first discussed in a very preliminary and rather incomplete way in Mukherji 2000. After abandoning several attempts to update that work for a new edition, and losing much time in the process, I decided to redesign the entire work. Hence, this book represents a very different direction. For instance, I had discussed phenomenal and structural similarities between language and music in Mukherji 2000 and Mukherji 2010, but the focus here is on a specific concept of human mind. As such, unlike the earlier volumes, this work is not primarily about language, not to mention music, stone-tool making and abstract art. It is about

mind and it stands on its own.

In that sense, if I may say so, this work resembles the philosophical and methodological goals of Gilbert Ryle's influential work on the concept of mind (Ryle 1949), but from an exactly opposite direction. Ryle wished to exonerate the 'ghost in the machine' allegedly promoted by the 17<sup>th</sup> century French philosopher Rene Descartes in his 'official doctrine'. In contrast, I wish to show, among other things, that the first real philosophical and scientific advance on the concept of mind proposed in this book indeed goes back to the classic work of Descartes, as the informed reader might have already detected.

Noam Chomsky has often characterised Cartesian ideas on language and mind as the 'first cognitive revolution'. Chomsky has also characterised the influential developments due to the work of Alan Turing, Gestalt psychologists and others in the 20<sup>th</sup> century as the 'second cognitive revolution'; Chomsky didn't mention his own ground-breaking work probably out of unwarranted modesty. After acknowledging some of the significant contributions of the second cognitive revolution in our times, this work is compelled to revisit the first cognitive revolution, occurring nearly half a millennium ago, in search of its pedigree.

Specifically, I intend to show that human mind consists of systems, such as language, music and others, which are paradigmatic examples of what Descartes called *signs*, which are 'the only marks of thoughts hidden and wrapped up in the body.' It

is important to emphasize that although we eventually focus on the Cartesian conception of 'signs', the basic goal is to develop a concept of human mind 'hidden' in the body. The human mind is distinguished in the organic world in its ability to entertain thoughts entrenched in a variety of symbol systems. This seems to be the central message of Cartesian philosophy, notwithstanding its problematic forays into consciousness, innate ideas and divine guidance.

Human language is certainly the most prominent of these symbol systems in which a specific category of symbols, informally called *word*, are woven in an unbounded fashion to generate a variety of linguistic thoughts. Nevertheless, this work argues that the Cartesian message is far more general; there are symbol systems that generate other variety of thoughts such as arithmetical thought, musical thought, artistic thought and the like. Each of them is generative in character and none of them are found outside the species. So, the claim is that all these thoughts are governed by a single generative principle, Principle C. That is the human mind. The project thus comprises the following three broad steps.

(A) The evolution of cognitive abilities of organisms suggests a unique place for humans. It is plausible that the concept of mind specifically refers to this aspect of uniqueness. The current state of philosophy of mind and the cognitive sciences do not promise conceptual progress in that direction. This is because they are generally unconcerned about the crucial distinction between mind



and cognition. In the received literature, mind is a catch-all term for a collection of processes, events and states without any unifying principle. In contrast, I suggest a narrow, substantive, and human-specific concept of mind that is postulated primarily to distinguish between human and nonhuman cognitive effects. These themes are discussed in Chapters One to Three.

(B) The classical Cartesian philosophy, when suitably reconstructed, aimed for such a unified focused concept of mind. It is thus interesting to see if the (relevant) conditions of Cartesian philosophy can be aligned to some aspects of the contemporary research on human mind. It is of much interest that, in one of its many variants, the Cartesian tradition postulated human mind as a repository of cognoscitive powers that arise from human language. My feeling is that somehow this startling proposal was buried under the more familiar and obscure mind-body problem.

This work may thus be viewed as a rescue operation of the specific proposal from sundry other Cartesian proposals. This part of the discussion leads to the result that from the Cartesian perspective, strictly speaking, mind is best understood as a combinatorial device, Principle C. Mind in the form of Principle C perhaps originated prior to language and gave rise to language and other cognoscitive powers that distinguish humans from nonhuman animals. These themes are discussed in Chapters Four and Five.

(C) In a series of bold and abstract steps, biolinguistic inquiry has proposed that the combinatorial principal Merge is the basic

operating mechanism in human language; Merge takes the information contained in the human lexicon and generates the complex structures of human language. The last two chapters explore the idea whether Merge satisfies the required conceptual conditions enshrined in Principle C. Merge is discussed at length to show that it is not necessarily restricted to the domain of language. The basic idea guiding this result is that there is a strict theoretical separation between the human lexicon and the computational system even if we assume that human language essentially consists of a single lexicon. Given the separation, language could be viewed as just one of the effects of Merge, there could be others. In other words, the study of the universal structure of human languages leads to a deeper and wider notion of cognoscitive powers beyond language.

Once Merge is identified as the basic structuring principle of human language, it seems empirically implausible that some of the impressive structured behaviour of nonhuman organisms such as insects, birds and primates are also covered by the same principle. In contrast, it appears that a range of human-specific systems such as arithmetic, music, tool-making, kinship and the like, are basically organized with Merge-like operations. The unifying principle so uncovered for human languages thus promises to satisfy the Cartesian conception of mind in the right joints. Although much more research in various directions is needed, it is plausible to entertain the view that the core structuring principle of

language, Merge, satisfies the conceptual conditions mooted for Principle C.

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This volume was scheduled for publication in 2018. Unfortunately, a series of unforeseen events, including long spells of serious illness in the family, delayed the publication by several years. I am indebted to my editors at Bloomsbury for their patience and empathy during this turbulent period. As I look back, there is very little resemblance between what was planned four years ago and the final version. I hope the intervening years added more structure to the otherwise elusive search for the human mind.

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