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Opposing Views on the Nature and Origin of the Human Language Faculty: Focus on the Chomskyan and Anti-Chomskyan Positions

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Abstract

Modern linguistics has been heavily influenced by the theories of Noam Chomsky, which fit within the philosophical tradition of idealism or rationalism; namely, that as a biological endowment language is a property of the mind, the product of Universal Grammar, and essentially for thought. This is in contrast to the materialist or empiricist position that language is a social phenomenon, primarily for communication. In recent years, the question of the evolution of the language faculty has received much attention. For Chomskyans, the language faculty is a recent evolutionary development that emerged suddenly as the result of a minor mutation. For materialists/empiricists, it evolved gradually through natural selection, as a product of culture and the need to make communication more efficient.

Key words: language faculty, Chomskyan idealism/rationalism, biolinguistic, I-language, natural selection

In a well-known textbook on language and linguistics, Fromkin et al. (2011) maintain that “a number of facts pertaining to all languages can be stated” (p. 34). Among these is that “the ability of human beings to acquire, know, and use language is a biologically based ability rooted in the structure of the human brain, and expressed in different modalities (spoken or signed)” (p. 35). Although this is a generally accepted fact about language, it is subject to finely nuanced interpretations that can lead to very different conclusions about the nature of language and its origin.

The idea that the human language faculty is biologically based and rooted in the structure of the human brain is a well-known aspect of Noam Chomsky’s theory of language. Chomsky refers to “substantial progress” in the study of language since the 1950s that “(often implicitly) takes for granted some version of the thesis on mind/brain” that “things mental, indeed minds, are emergent properties of brains” (2000, p. 1).

For 60 years—since the 1956 publication of “Three Models for the Description of Language,” followed by his seminal work on generative grammar, *Syntactic Structures*, in 1957 and his review of B. F. Skinner’s *Verbal Behavior* in 1959 that helped shift linguistics away from behaviorism, and continuing to the present (Berwick & Chomsky, 2016; Chomsky, 2016) — Chomsky and his ideas about the nature as well as the origin of the human language faculty have influenced generations of linguists. At the same time that his ideas have attracted a devoted following, they have also generated vehement criticism. As the criticism has become more vociferous, there has been a “gradual decline of the Chomskian paradigm as a unifying framework” in language studies (Dor et al., 2014, p. 1), leading to more fragmentation among theorists of the origin and nature of the human language faculty. This paper will examine the Chomskyan and anti-Chomskyan positions on this subject in an attempt to clarify some of the major differences in thinking about this important issue.

1. Formal and Functional Linguistics: Idealism/Rationalism vs. Materialism/Empiricism

Labov (1987) points out that although linguistics is “a relatively unified field of study, compared to many others,” there is “a profound division in the foundations of our discipline, that corresponds quite closely to the traditional philosophical opposition of idealism and materialism.” He further notes that these two approaches “differ sharply in their approaches to the foundations of the field: definition of language itself, the methods for gathering data and analyzing it, and the goals of linguistic activity” (“1. Fundamental agreements and disagreements in linguistics”). Labov explains these contrasting definitions of language as follows:

The idealist conception is that language is a property of the individual, a species-specific and genetically inherited capacity to form rules of a particular type, relatively isolated from other activities of the human intelligence. The materialistic conception is that language is a property of the speech community, an instrument of social communication that evolves gradually and continuously throughout human history, in response to a variety of human needs and activities. (“2. The definition of the field”)

The idealist conception, also referred to as rationalism, corresponds to the emphasis formal linguistics places on language as a biological endowment, while the materialistic conception, also

known as empiricism, corresponds to the emphasis functional linguistics places on language as communication and as a social phenomenon (Everaert and Huybregts, 2013, p. 20).

1.1 Chomskyan Linguistics: Universals and the Interface between Language and Thought

Chomsky's ideas reflect the idealist/rationalist approach and are most closely associated with generative linguistics. While the core of his approach to language may be thought of as syntactic theory, Chomsky's approach encompasses more than syntactic theory per se. For Chomsky, syntactic theory leads to the philosophical question of what language is, which as he has recently stated (Chomsky, 2016, p. 2), has not been clearly answered despite 2,500 years of intensive and productive study.

The question of what language is then leads to the question of how the faculty of human language evolved. Chomsky refers to his approach as "biolinguistic" and as attempting to "unearth" the nature and properties of "linguistic states" and "their basis in innate biological endowment," which "appears to determine a 'faculty of language' that is a distinctive component of higher mental faculties" shared among humans. This conception of human language as a "particular object of the biological world" (Berwick & Chomsky, 2016, p. 53) has come to be known as the biolinguistic perspective (p. 53) or the biolinguistic program (p. 90). Further, Chomsky argues that "the faculty of language is a very recent evolutionary development and, as far as is known, is biologically isolated in crucial respects" (2000, p. 2). Berwick and Chomsky (2016) have further argued, "The simplest assumption ... is that the generative procedure emerged suddenly as the result of a minor mutation" (p. 70). These are some of the key differences between the Chomskyan approach, which has been called the "emergence" view (Everaert and Huybregts, 2013, p. 20), and that of his critics. In short, the disagreement centers on whether the human language faculty could have emerged through a sudden and "radical phenotypic change," as Chomsky argues, or through a series of small changes involving natural selection, as a number of his critics argue.

However, before going into more detail on this important disagreement, it may be helpful to consider how Chomsky's ideas have changed over the past 60 years. As stated above, Chomskyan syntactic theory leads invariably to the question of what language is, which then leads to the question of language evolution. As Chomsky has dealt more and more with the question of the evolution of the human capacity for language¹, his formulation of syntactic structure has undergone progressive simplification. From the complex rules of transformational-generative grammar in the earliest formulation of Chomsky's syntactic theory to attempts to

account for crosslinguistic variation with Universal Grammar (UG) and the Principles and Parameters model, there was an effort in the 1990s to simplify UG so as to “formulate an ideal case and ask how closely language approximates the ideal, then seeking to overcome the many apparent discrepancies” (Berwick & Chomsky, 2016, p. 94), and this became known as the Minimalist Program. The Strong Minimalist Thesis (SMT) is that “UG reduces to the simplest computational principles², which operate in accord with conditions of computational efficiency” (p. 94). Emphasizing the continuity of his theory despite its many modifications, Berwick and Chomsky call the Minimalist Program “a seamless continuation of the study of generative grammar from its origins” (p. 94).

Perhaps Chomsky’s central insight about language, and one of the most controversial, is that language is “essentially an instrument of thought” (2016, p. 16). Berwick and Chomsky (2011) go so far as to dismiss the conventional view of language as “a system whose function is communication.” They argue that “any aspect of what we do: style of dress, gesture, and so on” (p. 25) can also be used for communication, not only language. Instead, they argue that “statistically speaking ... the overwhelming use of language is internal—for thought” (pp. 25–26). They bolster their argument by quoting the neurologist Harry Jerison, who in 1973 wrote that “language did not evolve as a communication system ... the initial evolution of language is more likely to have been ... for the construction of a real world’, as a ‘tool for thought” (p. 26). Furthermore, Berwick and Chomsky (2016, p. 102) claim that this is, indeed, “the traditional view” of language, citing the fact that “nineteenth-century Indo-Europeanists did often consider language in internalist terms, as a biological property of an individual” (p. 94). Berwick and Chomsky state unequivocally that “... if language is not regarded [as an internal biological object], its evolution cannot be seriously discussed” (p. 94). They caution that “any approach to the ‘evolution of language’ that focuses on communication, or the sensorimotor system, or statistical properties of spoken language and the like, may be seriously misguided” (p. 84).

In an influential paper, Hauser, Chomsky, and Fitch (2002) point out that “many acrimonious debates” in the field of language evolution have been the result of failing to distinguish between “questions concerning language as a communicative system and questions concerning the computations underlying this system, such as those underlying recursion³.” They further argue that questions concerning communication are aimed at “the interface between abstract computation and both sensory-motor and conceptual-intentional interfaces” (p. 1569). Abstract computation is termed “faculty of language—narrow sense (FLN)” and is “independent of the other systems with which it interacts and interfaces” (p. 1570). It equates to the syntax “that

generates internal representations and maps them into the sensory-motor interface by the phonological system, and into the conceptual-intentional interface by the (formal) semantic system” (p. 1571). In other words, because of the FLN, we are able to produce “a potentially infinite array of discrete expressions,” which are then processed and vocalized or signed by the sensory-motor and conceptual-intentional systems. These sensory-motor and conceptual-intentional interfaces are “organism-internal” and are termed “faculty of language—broad sense (FLB)” (p. 1571), which also includes the abstract computation of FLN. In this conception of language, communication is the product of the FLB but is not at the heart of what language is.

This is essentially the same as Chomsky’s conception of language that places internal or “I-language” at its core. This is the heart of Chomsky’s original formulation of generative grammar and its latest instantiation, the minimalist program, in which I-language is defined as “a computational system that generates infinitely many hierarchically structured internal expressions” (p. 52). In fact, Chomsky describes I-language as the meaning of the term “language” (2010, p. 45) reflecting the Chomskyan view that I-language, “the internal language of thought” (Corballis, 2011, p. 23), is what *language* means, not E-language, the external form of language (spoken or signed) that we actually use for communicative purposes. Thus, what Chomsky is interested in is uncovering the internal processes involved in the human linguistic capacity—language universals—not their external manifestations; ie., language used for communication. Thus, “language evolved for thought and interpretation: it is fundamentally a system of meaning Language is meaning with sound (or some other externalization, or none)” (Berwick & Chomsky, 2016, p. 101).

Chomskyan syntactic theory has led to the insight that one of the key properties of the syntactic structure of human language is that it is hierarchical and “is blind to considerations of linear order, with linear ordering constraints reserved for externalization” (Berwick & Chomsky, 2016, p. 8). For example, in the sentence *Instinctively birds that fly swim*, *instinctively* modifies *swim*, not *fly*, although it is closer to *fly* in terms of linear order. As Berwick & Chomsky explain, “*Instinctively* is associated with *swim* because it is closer to *swim* in terms of structural distance: *swim* is embedded one level down from *instinctively*, but *fly* is embedded two levels down from *instinctively*” (p. 117). Therefore, what matters in human syntax is not linear distance (external, E-language) but structural distance (internal, I-language).

The simplification of Chomskyan syntactic theory in the Minimalist Program crucially involves the key concept Merge. According to Berwick and Chomsky (2016), “In the best case, there remains a single operation for building the hierarchical structure required for human

language syntax, Merge. This operation takes any two syntactic elements and combines them into a new, larger hierarchically structured expression” (p. 10). For example, Merge takes any two syntactic objects *X* and *Y* that are already formed (for example, *read* and *books*) and makes a new syntactic object *Z* from them without changing the original syntactic objects (*read books*). “In particular, it will leave them unordered ... Merge is therefore just set formation: Merge of *X* and *Y* yields the set [*X*, *Y*]” (p. 98). It “can then apply recursively to this new hierarchically structured syntactic object, yielding, for example *the guy read books*. In this way Merge recursively builds an infinite array of hierarchically structured representations” (p. 112).

2. Criticisms of the Chomskyan Approach

The materialist/empiricist approach minimizes universals and emphasizes the social and cultural dimensions of language—language used for communication. For example, Corballis (2011, p. 33) asserts that “language does not appear fully formed in different cultures as a product of universal grammar, but comes about gradually as a product of culture and accumulated experience, and a practical concern to make communication more efficient.” He continues: “It remains something of an open question just how much of language depends on innate components specific to language itself, and how much on more general aspects of the human mind.” His understanding of universals is that “any universal principles underlying language can be regarded as principles of human thought, and not specific to language” (p. 34). Thus, unlike Chomsky, Corballis separates thought and language per se.

Dor et al. (2014) are critical of the influence Chomsky’s claim for the “human genetic endowment for language” had on the direction of the field, such that the role “social dynamics must have played ... in the evolutionary process ... was taken to be secondary, peripheral to the drama of the genes.” They argue that “much evidence from different disciplines ... has accumulated to show that changes in society and culture must have played a central role in the entire process” and that “the gene-centred approach to language’s evolutionary emergence relies on an outdated conception of evolution⁴” because “current research in evolutionary biology highlights the fact that major changes in behaviour and cognition can take place without any changes in the genes This understanding opens up the possibility that linguistic capacities may have preceded genetic accommodation for language” (p. 2).

2.1 Criticisms of I-language and Universal Grammar

Corballis (2011, pp. 24–25) reviews Chomsky’s view of language and concludes that I-language is the basis of his concept of Universal Grammar. Corballis argues that criticisms of Universal Grammar “challenge the view that the universal principles of language can be derived from a single language” and that “the sheer variety of human languages may threaten the view that I-language can be said to exist in anything like the form proposed by Chomsky.” Critics of Chomsky’s I-language and Universal Grammar point out, for instance, the possibility that even some syntactic categories, particularly the distinction between noun and verb, may not be present in all languages.

While perhaps not speaking directly to Corballis’ claim, Berwick and Chomsky (2016) contend that it is E-language that changes and produces the great variety of human languages. They argue that confusion could be overcome “by replacing the metaphorical notions ‘evolution of language’ and ‘language change’ by their more exact counterparts: evolution of the organisms that use language, and change in the ways they do so.” Thus, “emergence of the language faculty involved evolution, while historical change (which continues constantly) does not” (p. 83).

On the other hand, Corballis (2011) questions whether the linguistic diversity we see could have arisen in as short a time as the Chomskyans claim. He concludes: “What seems more likely is that grammar itself evolved gradually rather than as a singular event within the past 100,000 years” (p. 29).

Corballis and others in the materialist/empiricist camp consider E-language—the role of communication—to be more fundamental than I-language in driving language evolution:

The story that is beginning to emerge ... is that language does not appear fully formed in different cultures as a product of universal grammar, but comes about gradually as a product of culture and accumulated experience, and a practical concern to make communication more efficient. (p. 33)

Dor et al. (2014) likewise approach the issue from a materialist/rationalist perspective and differ from Chomsky “in insisting that language ... presupposes engagement with other minds. To be ‘language-ready’ ..., the brain must be social to an unusual degree; and for the human brain to be that social, human society must have gone through an unusual evolutionary dynamic” (p. 3). Dor and Jablonka (2014) differ from Chomsky in arguing “we are born with minds that evolved *for* language” rather than “we have innate knowledge of language” (p. 28).

This is a subtle difference but key to the materialist/rationalist position.

3. Language Evolution: “Miraculous” Event or a Product of Natural Selection?

As we have seen, Chomsky argues that the study of language since the 1950s has taken for granted that minds are emergent properties of brains. He argues that this thesis

revives eighteenth-century proposals ... in particular, the conclusion that Newton appeared to have established, to his considerable dismay, that ‘a purely materialistic or mechanistic physics’ is ‘impossible’; and the implications of ‘Locke’s suggestion’ that God might have chosen to ‘superadd to matter *a faculty of thinking* [italics in original]’ just as he ‘annexed effects to motion which we can in no way conceive motion able to produce’. (2000, p. 1)

Thus, the question of the nature of the human language capacity becomes intertwined with the question of how humans acquired language in the first place. In claiming that his ideas are in the physical and philosophical tradition of Newton and Locke, Chomsky here and in other places (Chomsky, 2016; Berwick & Chomsky, 2016) acknowledges the important role of mystery in the universe while never explicitly endorsing the theological stance taken by Newton and Locke:

Inquiry reveals as well, I think, that the reach of human thought is itself bounded by the ‘limits on admissible hypotheses’ that yield its richness and depth, leaving mysteries that will resist the kind of understanding to which creators of the early modern scientific revolution aspired, as was recognized in various ways by the great figures of seventeenth- and eighteenth-century thought. (Chomsky, 2016, p. 59)

Thus, Chomsky (2010) is able to argue the following: “... we can suggest what seems to be the simplest speculation about the evolution of language”; namely, “within some small group from which we are all descended, a rewiring of the brain took place in some individual, call him *Prometheus*” (p. 59). Chomsky goes on to claim “Prometheus had many advantages: capacities for complex thought ... and so on. The capacity would then be transmitted to offspring, coming to predominate,” although he acknowledges that this transmission to offspring is “no trivial matter, it appears, but let us put that aside” (p. 59).

Corballis (2011) is among those who are highly critical of Chomsky's stance on the evolution of the language faculty. He asserts that Chomsky's claim, with its reference to the Greek deity Prometheus, "smacks of the miraculous" (p. 24), and elsewhere implicitly links Chomsky's view of language to the nineteenth century view that "language was a gift from God" since it "also leads to a somewhat miraculous view of how language evolved" (p. 55). Chomsky's counterargument might be that Corballis is confusing miracle and mystery.

Similarly, Diller and Cann (2013) accuse Chomsky and his followers of ignorance—indeed, "magical thinking"—about genetics. They mince no words: "To clear the way for a biological perspective on the evolution of language, the Chomskian approach to Universal Grammar must be rejected. Universal Grammar is not what is innate for language" (p. 246). They contend, "Universal Grammar requires magical thinking about genes and genetics" (p. 244). Indeed, "from a biological point of view, one sees a surprising amount of magical thinking among linguists and palaeoanthropologists, ... couched in the vocabulary of genes and genetics" (p. 245).

Chomsky does, in fact, use the vocabulary of genetics when he refers to the event that he claims led to the evolution of the language faculty as a "mutation" (2010, p. 59, 61), "some genetic event [that] rewired the brain, providing the mechanisms for language" (p. 58). He references the paleoanthropologist Ian Tattersall (1998) in support of this claim:

'... something occurred that set the stage for language acquisition ... a chance combination of preexisting elements result[ed] in something totally unexpected' presumably 'a neural change ... in some population of the human lineage ... rather minor in genetic terms, [which] probably had nothing whatever to do with adaptation ... We have to conclude that the appearance of language and its anatomical correlates was not driven by natural selection ...' Perhaps it was a side effect of increased brain size ... or perhaps some chance mutation. (p. 59).

Concerning the latter speculation, Berwick and Chomsky (2011) confidently assert: "It appears that human brain size reached its current level recently, perhaps about 100,000 years ago, which suggests to some specialists [Georg Striedter, 2004] that 'human language probably evolved at least in part, as an automatic but adaptive consequence of increased absolute brain size'" (p. 26). Berwick and Chomsky (2016) then offer their "best estimate" for when and where language evolved as "likely before 80,000 years ago" in Africa between the appearance of the first anatomically modern humans about 200,000 years ago and the last exodus from Africa about

60,000 years ago.

Diller and Cann (2013) not only argue for the co-evolution of language and the brain but also differ sharply with Chomsky and his allies on the timeline for the evolution of the language faculty. They go so far as to claim that the earliest anatomically modern *Homo sapiens* more than 200,000 years ago had “the full capacity for language” (p. 246), and that “the first spoken words were used at least by the time of the emergence of the genus *Homo* more than two million years ago” (p. 257). Szamado and Szathmary (2012) concur that the evidence suggests co-evolution “is not just feasible but in our opinion it is the likeliest explanation behind the current complexity of human brain, language, and culture” (p. 165).

Returning to the role of natural selection in the evolution of the language faculty, Berwick and Chomsky (2011) reprise Tattersall’s quote above and maintain that his conclusion concerning the lack of a role for natural selection in the appearance of language “raises no problems for standard evolutionary biology, contrary to illusions in popular literature” (p. 26). Elsewhere (Berwick & Chomsky, 2016), they quote Darwin (1859) himself: “Furthermore, I am convinced that Natural Selection has been the main but not the exclusive means of modification’.”

Berwick and Chomsky (2016, p. 33) trace the focus on natural selection to the publication of *Genetical Theory of Natural Selection* by R. A. Fisher in 1930 in which he argues that “all adaptive evolutionary change is micromutational—consisting of infinitesimally small changes whose phenotypic effects approach zero” (p. 34). This in turn led to the thinking that natural selection is the “sole source of creativity in evolution ... [and that] mutation on its own provides little or no phenotypic form’.” which Berwick and Chomsky claim is simply wrong.

As we have seen, Berwick and Chomsky (2016) offer their “best estimate” for when and where language evolved as “likely before 80,000 years ago” in Africa between the appearance of the first anatomically modern humans about 200,000 years ago and the last exodus from Africa about 60,000 years ago. “That leaves us with about 130,000 years, or approximately 5,000–6,000 generations of time for evolutionary change. This is not ‘overnight in one generation’ as some have (incorrectly) inferred—but neither is it on the scale of geological eons.” On the other hand, it is, for example, “what Nilsson and Pelger (1994) estimated as the time required for the full evolution of a vertebrate eye from a single cell” (p. 157).

Further bolstering their point, Berwick and Chomsky (2016, pp. 159–164) point out that diffusion tensor imaging has provided information about the fiber tracts that link language-related dorsal (upper) regions of the adult human brain to the language-related ventral (lower) regions. “The idea is that these dorsal and ventral fiber tracts together form a complete ‘ring’

that moves information from the lexicon to the areas on the dorsal side where it is used by Merge. The key idea is that this fiber-tract ‘ring’ must be in place in order that syntactic processing work” (p. 161). At birth, the fiber connections to Broca’s area are missing, “as if the brain is not properly ‘wired up’ at birth to do syntax processing.” However, these fiber tracts become linked and functional by about ages two to three, when syntactic development in the child becomes apparent. On the other hand, the fiber tracts responsible for auditory processing are functional from birth, making it possible for a human child to acquire the sound system for their language(s) during the first year of life. The corresponding fiber tract connections in the brains of macaque and the chimpanzee are not connected, like those of a human newborn. Berwick and Chomsky (2016) speculate:

While we cannot be certain, if it is indeed the case that human syntax requires a fully wired ‘ring’, then the notion that some ‘small rewiring of the brain’ resulted in a fully working syntax system with Merge might not be so far off the mark. A small genomic change in a growth factor for one of the fibers, along with proper fiber tract guidance, might suffice, and there’s certainly enough time for it a small neural change of this type could lead to large phenotypic consequences—without much evolution required, and not all that much time. (p. 164)

Chomsky (2016) refers to this as providing “the basis for unbounded and creative thought, the ‘great leap forward’ revealed in the archaeological record, and the remarkable differences separating modern humans from their predecessors and the rest of the animal kingdom” (p. 25).

Nevertheless, in the debate over the evolution of the human language capacity, Chomsky’s, as well as Berwick and Chomsky’s, definitive conclusion against a role for natural selection is particularly controversial. Even Anderson (2013), who accepts such fundamental Chomskyan ideas as Universal Grammar and I-language, nevertheless asserts that the language faculty “probably arose through natural selection” (p. 32) and cites Pinker and Bloom (1990) in support of this conclusion (p. 21). Indeed, in a series of responses to Hauser, Chomsky, and Fitch (2002) and counter-responses, Pinker and Jackendoff (2005) are critical of hypotheses that question “a more conventional evolutionary vision of language”; namely, that “the language faculty evolved gradually in response to the adaptive value of more precise and efficient communication in a knowledge-using, socially interdependent lifestyle” (223). They reinforce their argument by citing recent findings concerning the FOXP2 gene that “support the notion that language

evolved piecemeal in the human lineage under the influence of natural selection, with the selected genes having pleiotropic effects that incrementally improved multiple components” (p. 218). Fitch, Hauser, and Chomsky (2005) respond by dismissing the data on FOXP2 as “irrelevant” (p. 190) to their hypothesis that FLB (faculty of language—broad sense) is shared with nonhuman animals and what is unique to humans is FLN (faculty of language—narrow sense), which consists of the computational mechanism of recursion and “is recently evolved” (Hauser et al., 2002, p. 1573). Fitch et al. (2005) point out that the FOXP2 gene is found in all mammals and is, therefore, “a candidate for inclusion in FLB but *not* in FLN” (p. 190). Jackendoff and Pinker (2005) respond to this claim by countering, “This is one feature which we *know* is uniquely human ... the gene belongs to a *family* [italics in original] of similar genes found in other mammals, but its exact sequence is uniquely human” (p. 215). They concede “we can not [*sic*] be certain whether the human version of the gene was selected for language per se or for orofacial praxis. But the alternatives are empirically distinguishable, and the former seems far more likely” (pp. 215–16). While Pinker and Jackendoff and Jackendoff and Pinker accept the utility of the FLB/FLN distinction, they differ in important respects from Chomsky and his colleagues on the details, as the controversy over the FOXP2 gene illustrates.

Thus, while Chomsky and his critics both emphasize the biological basis of the language capacity, they markedly differ in particulars, another being the role of evolution through natural selection and our inability to understand the entirety of the universe. The Chomskyan view questions the role of natural selection rather than evolution itself. Berwick and Chomsky (2016) refer to “the confusion between evolution and natural selection—a factor in evolution, as Darwin stressed, but not *the* factor” (p. 105). Chomsky has recently (2016) referred to “dropping the untenable recourse to natural selection.” By doing so “we are left with a serious and challenging scientific inquiry: to determine the innate components of our cognitive nature in language, perception, concept formation, theory construction, artistic creation, and all other domains of life” (p. 56). Returning to the important role of mystery, he admits, “What is inconceivable to me is no criterion for what can exist” (p. 33), and argues that “far from bewailing the existence of mysteries-for-humans, we should be extremely grateful for it” (p. 56). He goes on to suggest that an additional task is “to determine the scope and limits of human understanding, while recognizing that some differently structured intelligence might regard human mysteries as simple problems and wonder that we cannot find the answers, much as we can observe the inability of rats to run prime number mazes because of the very design of their cognitive nature.” Furthermore, “... the theory of evolution places humans firmly within the natural world,

taking humans to be biological organisms much like others, hence the capacities that have scope and limits, including the cognitive domain. Those who accept modern biology should therefore be mysterians” (p. 56).

Conclusion

Viewing the evolution of the human language faculty from a broad perspective, Hauser et al. (2002) “firmly believe that a broad diversity of methods and perspectives will ultimately provide the richest answers to the problem of language evolution” (p. 1574). They emphasize the benefits of comparative studies of humans and other animals to get at what is shared with other animals in terms of adaptations for speech, communication, perception, and a number of other cognitive areas and what is truly unique about the human faculty for language.

Addressing the disagreements between the Chomskyan biological approach and the social/communication approach, Sinha (2014) argues that “social and biological explanatory frames” (p. 31) do not have to remain opposed to each other. He sees a possible role in the evolution of language for both positions: “Succinctly stated, neither genes nor culture, singly, can account for what, if anything, makes humans different from other species What is needed, it seems, is a theoretical apparatus capable of integrating culture and biology” (p. 32).

Nevertheless, Sinha’s is a social origins approach to language. He implicitly rejects Chomsky’s approach when he claims that human culture is distinguished from non-human species “by the predominant place occupied in it by language as a biocultural niche” (p 37) and this biocultural niche treatment of language no longer requires “the organism to possess an innate Universal Grammar to account for language acquisition” (p. 38).

Indeed, considering the lack of evidence and the thousands, perhaps millions of years of the existence of language, rather than any definitive answers on its nature and its origins, speculation seems to be the best that can be hoped for at present. As with any number of other scientific inquiries, speculation about the nature and origin of language is undertaken from a multiplicity of theoretical and philosophical perspectives. By emphasizing I-language, Chomsky’s sphere for speculation is the human mind, about which as little is known for certain as about the nature and origins of language. By downplaying E-language, about which much more can be and is known, Chomsky’s concept of language appears to be incomplete to his critics. On the other hand, it could also be argued that by downplaying the role of the mind in language, in the sense Chomsky conceives of it, his critics also fail to see language in its totality. As we have

seen, some of his critics decisively dismiss central concepts of Chomskyan linguistics, such as Universal Grammar. On the other hand, by acknowledging that there is also E-language (the social and communicative aspect of language) Chomsky seems far more generous than his critics.

Perhaps the human language capacity is simply too large an entity to conceptualize in its totality. Yet, both the idealist/rationalist and materialist/empiricist approaches have strengths and weaknesses. As Sinha (2014) proposes, a true synthesis of these often opposing positions would go a long way towards increasing our understanding of this vital human ability and of who we are as humans. However, the dismissal of the Chomskyan approach from the discourse on a “theoretical apparatus capable of integrating culture and biology” (Sinha, 2014, p. 32) misses the mark and impoverishes the search for the nature and evolution of the human language faculty. As Chomsky (2016) reminds us: “Willingness to be puzzled is a valuable trait to cultivate, from childhood to advanced inquiry” (p. 10).

Notes

1. Chomsky cautions that “we should first be clear about what it is that has evolved. It is, of course, not languages but rather the capacity for language—that is, UG. Languages change, but they do not evolve” (Berwick & Chomsky, 2016, pp. 91–92). While himself using “the conventional term ‘evolution of language,’” Chomsky warns that it “can be and sometimes is misleading” (p. 92).
2. Hauser et al. (2002) clarify: “Roughly speaking, we can think of a particular human language as consisting of words and computational procedures (‘rules’) for constructing expressions from them. The computational system has the recursive property ... to recombine meaningful units into an unlimited variety of larger structures, each differing systematically in meaning” (p. 1576).
3. Larson et al. (2010) explain that “a recursive rule is one that yields self-embedded structures” (p. 7). Berwick and Chomsky (2016) further explain that “language is therefore based on a recursive generative procedure that takes elementary word-like elements from some store, call it the lexicon, and applies repeatedly to yield structured expressions without bound” (p. 66) and that “optimally, recursion can be reduced to Merge” (p. 71).
4. For their part, Berwick and Chomsky (2016, pp. 33–34) counter that Dor and his allies rely on an outdated conception of evolution.

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言語機能の本質と起源に関する対立見解 ——チョムスキーと反チョムスキーの見解に焦点に合わせて——

バーガー・デービッド

抄 録

近代言語学はノーム・チョムスキーの唯心論や合理主義という哲学的伝統に沿った言語理論の強い影響を受けている。つまり、言語は生物的資質であり、普遍文法の産物で心の所有物として本質的には思考のためのものである。一方、唯物論や経験主義見解では言語は社会現象で主にコミュニケーションのためのものである。近年は言語機能の進化という問題が多く注目を集めてきた。チョムスキーの見解では、言語機能は最近の進化的発生で、小さな突然変異の結果として出現したとされている。唯物論や経験主義見解では、言語機能は文化の産物として、またコミュニケーションをより効果的にするために自然淘汰によって徐々に進化してきた。

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