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Noam Chomsky vs. B. F. Skinner: Cartesians in Collision

Bryce Christensen

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few books have received rougher treatment at the hands of a reviewer than B.F. Skinner's Verbal Behavior receives at the hands of Noam Chomsky in his much-noted review of 1959. "Skinner's work," writes Chomsky, "is the most extensive attempt to accommodate human behavior involving higher faculties within a strict behaviorist schema ..." 1 However, Chomsky concludes that Skinner's work is a failure. "The book," Chomsky asserts, "covers almost no aspect of linguistic behavior." 2 "The magnitude of the failure of [Skinner's] attempt to account for verbal behavior," does, however, serve a purpose for Chomsky. It serves, Chomsky believes, "as a kind of measure of the importance of the factors omitted from consideration ..." 3 To fully understand what important factors Chomsky feels Skinner has omitted from his analysis, we must, as Chomsky notes in his review, see his book, "in terms of the general framework that Skinner has developed for the description of behavior." 4

Skinner's framework for explaining behavior rests upon the premise of complete environmental determinism. Human behavior, verbal and non-verbal, is not excepted. "Personal [human] exemption from a complete determinism," writes Skinner, "is revoked as scientific analysis progresses ..." 5 To achieve a scientific analysis of behavior," Skinner believes that we must "follow the path taken by physics and biology by turning directly to the relation between behavior and environment and neglecting supposed mediating states of mind, ... personalities, ... feeling, traits of character, plans, purposes, [and] intuitions . . ." 6 For Skinner, the "self" is defined simply as a "repertoire of behavior appropriate to a given set of contingencies." 7 Skinner's man is animated by neither mind nor spirit.

Mind for Skinner is an "explanatory fiction" and idea is "simply an imagined precursor of behavior." Using such terms may be convenient, but, for Skinner, such use is comparable to "the astronomer's ... say[ing] that the sun rises or that the stars come out at night." 8 (We might quite accurately, if somewhat whimsically, characterize Skinner's philosophy as mindless.)

Further, by denying any qualitative difference between what goes on within man and what goes on in the material world, Skinner exercises man's spirit: "It is ... foolish to assert that because it [the internal experience of man] is private it is of a different nature from the world outside." 9 Skinner attempts to make this exorcism more acceptable by claiming that "in shifting control from ... man to the observable environment we do not leave an empty organism." However, his next sentence pronounces this exorcism complete: "A great deal goes on inside the skin, and physiology [not philosophy or religion] will eventually tell us more about it." 10

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Accordingly, the belief in a responsible, freely thinking, autonomous inner man is "prescientific" and therefore unacceptable to Skinner. "A scientific analysis," writes Skinner, "shifts the credit as well as the blame [for all human behavior] to the environment . . . ."11 For Skinner, the term "autonomous . . . so far as science is concerned . . . means miraculous,"12 and Skinner attaches no credence to the miracle of autonomous man. "Autonomous man," explains Skinner, "is a device used to explain what we cannot explain in any other way. He has been constructed from our ignorance and as our understanding increases, the very stuff of which he is composed vanishes."13 "The autonomous inner man," Skinner proclaims, ". . . is abolished, and that is a step forward."14

Consequently, when Skinner considers the nature and use of language, he is considering the environmentally determined productions of a conditioned organism, not the free expressions of an autonomous man. For this reason, he questions the traditional "doctrine of the expression of ideas," the assumption that "one must attribute it [verbal behavior] to events taking place inside the organism,"15 and argues that the appearance, maintenance, and extinction of any particular verbal behavior is best explained by reference to environmental reinforcement.16 Indeed, because the consequences of verbal behavior are "mediated by a train of events no less physical or inevitable than direct mechanical action," Skinner posits that "the extent to which we understand verbal behavior . . . is to be assessed from the extent to which we can predict the occurrence of specific instances and, eventually, to the extent to which we can produce or control such behavior by altering the conditions under which it occurs."17

Chomsky's evaluation of what he describes as Skinner's attempt "to provide a way to predict and control verbal behavior by observing and manipulating the physical environment of the speaker"18 casts doubt on both Skinner's accomplishment and the premises which guide Skinner's approach. The autonomous man is not nearly so dispensable for Chomsky as he is for Skinner.

Chomsky posits that Skinner's book explains human speech only in "the most gross and superficial way," primarily, in his view, because it assigns "external factors . . . overwhelming importance" and assumes that "the contribution of the speaker is quite trivial and elementary."19 Specifically, Chomsky points out that because of Skinner's "refusal to study the contribution of the child to language," he must assign "a vast unanalyzed contribution . . . to a step called 'generalization' which in fact includes just about everything of interest in this process."20 For instance, Chomsky notes that Skinner has completely failed to account for the creative use of language, for the child's ability "to form utterances which are quite new, and are, at the same time, acceptable sentences in his language."21

Further, Chomsky believes Skinner's failure to explain verbal behavior derives from his refusal to distinguish between human and non-human
behavior. Skinner's attempt to make "the general principles revealed in laboratory studies [of animals] . . . the basis for understanding of verbal behavior," in Chomsky's view, "omit[s] from consideration factors of fundamental importance."22 "Pavlovian and operant conditioning," argues Chomsky, "are processes about which psychologists have developed real understanding. Instruction of human beings is not."23 Indeed, Chomsky asserts that Skinner's attempt to establish "analogies to laboratory study of lower organisms" is merely verbal.24 Chomsky finds that Skinner's use of such words as reinforcement, response, stimulus, and deprivation, with "favorable connotations of objectivity" are no more than "cover term[s] to paraphrase such low-status words as interest, intention, belief, and the like."25 "Naturally," Chomsky bitingly observes, "the terminological revision adds no objectivity to the familiar 'mentalistic' mode of description."26 Indeed, Chomsky strongly implies that no matter how hard Skinner tries to ignore or obfuscate the fact, mentalistic terms like interest, intention, and belief represent real, if poorly-defined aspects of human behavior which can never be reduced to environmental or laboratory-animal terms. In fact, when Chomsky asserts that "we must attribute an overwhelming influence on actual behavior to ill-defined factors of attention, set, volition and caprice,"27 he seems to be making a defense for the very autonomous man Skinner seeks to abolish.

Not surprisingly, elsewhere in his writings Chomsky argues much more explicitly that language is uniquely the product of the very autonomous man Skinner wants to abolish. In his Language and Mind Chomsky contends that every normal human being, "free from the control of detectable stimuli, either external or internal," speaks "in a way that is innovative . . . and also appropriate and coherent."28 Chomsky labels the free, innovative, coherent use of language "the creative aspect of language use," and in a direct attack on Skinnerian behaviorism, insists that its reality "is a serious problem that the psychologist and biologist must ultimately face and that cannot be talked out of existence by invoking habit or conditioning or natural selection."29

In answer to Skinner, who wishes to explain man and his language by following "the path taken by physics and biology," Chomsky argues that language reveals the operation of processes which are qualitatively different from those observable in the material or animal world. Quoting the Spanish physician Juan Huarte for what he believes is an insight which is "quite substantial," Chomsky notes: "'One may discern two generative powers in man, one common with the beast and the plants and the other participating of spiritual substance. Wit (Ingenio) is a generative power. The understanding is a generative faculty.'"30 Accordingly, Chomsky argues that language reveals "properties of human thought" which are "beyond the bounds of any well-understood kind of physical explanation." "Neither physics nor biology nor psychology gives us any clue as to how to deal with these matters,"31 Chomsky writes. Chomsky further asserts that there is "no substance to the view that human language is simply a more complex instance of something found elsewhere in the animal world."32
Consequently, though the concept of mind may lie beyond the pale of empirical science, Chomsky will not dismiss it from his explanation of verbal behavior as a mere "explanatory fiction." Though he concedes that verbal phenomena are "not explained satisfactorily by attributing them to an 'active principle' called 'mind,'" Chomsky labels as "quite without warrant" the "empiricist assumptions" which have turned attention away from the speaker's mind to the speaker's environment. Chomsky calls for the development of a new "theory of universal grammar" based on "the classical rationalist doctrine" of "innate ideas." Such a grammar, Chomsky points out, cannot be constructed by using only the empirical data observable by the outer man, but must also employ the data of intuition, the kind of data recoverable only by the inner man.

Seen in the context of Skinner's and Chomsky's radically different attitudes towards the role of the autonomous inner man in determining human behavior, Chomsky's negative review of Skinner's book is hardly surprising. What is surprising, as well as ironic, however, is that both Chomsky and Skinner derive their respective attitudes toward the autonomous man from the same source, Rene Descartes.

The identification of Chomsky as Cartesian will startle no one: Chomsky identifies himself as a Cartesian, with good reason. Like Chomsky, Descartes saw man's innovative use of language as strong evidence that processes obtain in man not found in the mechanical or animal world. "Now it seems to me very remarkable," Descartes wrote to the Marquis of Newcastle, "that language ... belongs to man alone; . . . there has never yet been found a brute so perfect that it has made use of a sign to inform other animals of something which had no relation to their passions, while there is no man so imperfect as not to use such signs; so that the deaf and dumb invent particular signs by which they express their thoughts, which seems to me a very strong argument to prove that the reason why brutes do not talk as we do is that they have no faculty of thought, and not at all that the organs for it are wanting." In the same letter, Descartes pointed to man's use of "words, or other signs . . . without reference to any passion" as evidence that an autonomous mind is at work and not merely "a machine which moves of itself." Similarly, in a letter of 1647 to Henry More, quoted with approbation by Chomsky, Descartes asserted that "the word is the sole sign and the only certain mark of the presence of thought hidden and wrapped up in a body; now all men . . . make use of signs, whereas the brutes never do anything of the kind; which may be taken for the true distinction between man and brute." 36

Though Chomsky admits that "Descartes himself devoted little attention to language," he credits him with the recognition of language as "a species-specific capacity" and of the "creative aspect of ordinary language use." More important, Chomsky identifies Descartes as a founder of the rationalist tradition, a tradition embodying "quite important doctrines regarding the nature of language."
Perhaps the most important of these doctrines is the Cartesian belief in innate ideas. For Descartes, innate ideas give the rational soul "understanding of what a thing [is], what truth [is], what thought is." Indeed, it is through the examination of innate ideas that Descartes established both the existence and freedom of the rational soul. For Descartes the conclusion "'I think therefore I am,' [was] the most certain of all that occurs to one who philosophizes in an orderly way." Further Descartes found it "so evident that we are possessed of a free will that can give or withhold its assent, that [it is] . . . one of the first and most ordinary notions found innately in us."

For Chomsky, the concept of innate ideas provides an explanation for "the underlying structure of grammatical relations and categories." Though Chomsky concedes that his approach will be "'repugnant' to one who accepts empiricist doctrine and regards it as immune to question or challenge," he proposes that a theory of idealized linguistic competence, built on the premise of innate ideas and constructed by exploring the intuitions as well as the productions of native speakers, will be more fruitful than mere tabulations based on empirically measured linguistic performance.

However, as Ralph Eaton notes, "Cartesianism . . . harbors under a single roof the elements of . . . [two] widely different philosophies, . . . materialism and idealism." Basil Willey concurs: "The Cartesian scheme seems to have made inevitable both the materialist and the idealist solutions." And just as legitimately as Chomsky's rational linguistics, premised on the free use of innate rules by the autonomous mind, represents the idealist strand, Skinner's behaviorist linguistics, premised on the environmentally-determined, empirically-measurable responses of the human organism, represents the materialist strand of Cartesian thought. Indeed, just as Chomsky identifies Descartes as a founder of the rationalist linguistic doctrine, Skinner applaudingly points to "Descartes who first suggested that the environment might play an active role in the determination of behavior."

Like Skinner, Descartes believed in a rigidly deterministic material universe, a universe in which all behavior, all animal behavior at least, can be explained without recourse to mind, spirit, or any other unobservable element. "All the phenomena of nature," thought Descartes, can be explained without recourse to "any other principle in Physics than in Geometry or abstract Mathematics." Descartes, in fact, reduced animals to automata whose actions were as amenable to mathematical treatment as the actions of a machine. In a letter to Henry More in 1649 Descartes asserted that "it is more reasonable to make earthworms, flies, caterpillars, and the rest of the animals, move as machines do, than to endow them with immortal souls." Though Skinner faults Descartes for giving scientific analysis of behavior a "false scent" by focusing attention on the environmental stimulus which mechanically elicits animal behavior while ignoring the effect of environmental reinforcement, he heartily endorses Descartes' exclusion of mental and eschatological elements from his science.
Indeed, though Descartes posited the existence and freedom of man's rational soul, he explained virtually all of the functions of man's body in a strictly mechanical fashion. "The body," wrote Descartes, "is nothing else than a statue or machine of clay." Further, Descartes explained "the digestion of food, the beating of the heart and arteries, the nourishment and growth of the members, respiration, waking, and sleeping; the impression of light, sounds, odours, tastes, heat, and other such qualities on the organs of the external senses; the impression of their ideas on the common sense ...; ... the interior motions of the appetites and passions; and, finally, the external movements of all the members" as effects proceeding "simply from the arrangement of its [the body's] parts, no more nor less than do the movements of a clock ...; so that it is not at all necessary for their explanation to conceive ... any ... soul, vegetative or sensitive ...."54 Seen in this context, the assertion in 1666 by the Danish anatomist Niels Stensen that "Descartes ... was the first who dared to explain all the functions of man ... in a mechanical manner" seems completely justified. "Other men," wrote Stensen, "describe man; Descartes puts before us nearly a machine ...."55

Man, however, was more than a machine for Descartes. Autonomous man, the free, rational soul, controlled his body, according to Descartes, by regulating the direction, but not the speed, of the body's "animal spirits" through "a certain small gland situated nearly at the middle of the substance of the brain." This free-will gland mechanism, however, was, as Bertrand Russell notes, "contrary to the spirit of the system ... [and] was therefore dropped" by Descartes' disciples. "The consequence," Russell observes, "was that all movements of matter were determined by physical laws, and, owing to parallelism, mental events must be equally determined." The result, of course, was that the rational soul, so important to Descartes' epistemology, was denied influence in the world of physical events. The autonomous man was abolished.

Thus Thomas Hobbes (whose philosophy was seen as but an extension of Descartes'58), with his famous "that which is not Body, is no part of the Universe" criticism of Descartes' rational soul59, abolished autonomous man. In Hobbes' strictly mechanical philosophy, human speech, as well as all other phenomena, was explained in terms of matter and motion only.60 Similarly, Julien de La Mettrie, who praised Descartes for "regard[ing] animals as machines,"61 faulted him for positing "two distinct substances in man,"62 and abolished the substance of the rational soul, thus making man, like Descartes' animals, a mere machine. B. F. Skinner, though he prides himself on his modernity, clearly fits in the Descartes-Hobbes-La Mettrie tradition, and his reduction of autonomous man to an environmentally-conditioned organism is the natural conclusion of a three-hundred year-old philosophy.

Most observers view the conflict between Noam Chomsky and B. F. Skinner as the collision of two very different twentieth-century viewpoints.
Actually, their conflict is an expression of the contradictions inherent in a single seventeenth-century mind. Whether that mind was autonomous or not is open to debate.

NOTES

18Chomsky, "Review of Verbal Behavior," p. 27.
29Chomsky, Language and Mind, pp. 10-11.
30Chomsky, Language and Mind, p. 8.
31Chomsky, Language and Mind, p. 11.
32Chomsky, Language and Mind, p. 62.
33Chomsky, Language and Mind, p. 12.
34Chomsky, Language and Mind, p. 70.
35Chomsky, Language and Mind, pp. 73-77.
39Chomsky, Cartesian Linguistics, pp. 4-5.
40Chomsky, Cartesian Linguistics, p. 59.


As Danny D. Steinberg notes, however, Chomsky is not a thoroughgoing idealist. "Chomsky did not go all the way with mentalism," Steinberg notes, pointing out that because Chomsky has carried with him many of the formalisms acquired during his early training as an empiricist-structuralist, his idealist-mentalist positions are sometimes "inconsistent." "Chomsky: From Formalism to Mentalism and Psychological Invalidity," Glossa, 9(1975), p. 246.


62 La Mettrie, p. 86.