*CRITICISM AND RESPONSE IN THE SKINNER
CONTROVERSIES*

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Twentieth-century historians and philosophers of science generally agree that controversy is integral to scientific method and development (see Kuhn, 1962; Toulmin, 1972). Psychologists, too, have recognized the role of controversy in scientific progress. Edwin G. Boring, for instance, wrote in 1929, "The history of science, like Hegel's view of the history of thought, is one long series of theses, set off by ardently advocated antitheses, with ultimate syntheses terminating controversy and marking a step forward. This picture, it seems to me, holds, not only for speculative, philosophical psychology, but also for the most rigorously observational work. Controversy has always been part of the method of science" (Boring, 1929/1963, p. 68).

Discipline-wide controversies among scientists most frequently develop when strategic intellectual agreements in a discipline are questioned or when these strategic agreements have significant implications for social policy. In the sciences, strategic agreements concern elements in what historian of science Thomas Kuhn calls the dominant "paradigm" or "matrix" of a discipline. Disagreements about metaphysical or cosmological assumptions, research methodologies and explanatory models, and values and goals are at the heart of major scientific debates. Because permanent theoretical plurality characterizes science (see Hesse, 1980), disagreements about these issues cannot be resolved through appeal to formal logic or empirical evidence. Instead, choice between these options requires judgment on the basis of both scientific and nonscientific values and purposes. Philosopher of science Stephen Toulmin writes, for instance, "A dispute over intellectual strategies is thus a dispute for which no established decision pro-

cedure exists. In 'clear' cases, the agreed aims of a science determine also agreed procedures of judgement; but, in cases that are intrinsically 'cloudy,' scientists are obliged to reappraise the goals of the whole theoretical game and, along with them, their standards of judgement" (Toulmin, 1972, p. 236).

One consequence of the fact that formal logic and empirical evidence cannot determine which position in a strategic scientific controversy is "true" or "the best" is that participants in these debates must rely upon nonformal reasoning and argumentation to support their claims (see Kuhn, 1970; Toulmin, 1972). Nonformal reasoning is not deductively rigorous. Instead, its rational patterns are empirically based and therefore its conclusions are always open to refutation by new evidence (Perelman & Olbrechts-Tyteca, 1969). Nonformal scientific argumentation often has an historical character because it relies on appeal to disciplinary precedents and traditions, goals, and ideals (Toulmin, 1972, p. 237).

Precisely because there is no indisputable evidence or formal proof available that will convince all disputants that one or another presumption, theoretical model, or research strategy is best, advocates embroiled in a strategic scientific controversy develop probabilistic arguments about the intellectual merits of their positions. These probabilistic arguments, if they are to be persuasive, must be couched in terms of the values, standards of reasoning, and forms of evidence recognized as authoritative by the leaders in the scientific discipline. Says Toulmin, "A new concept, theory, or strategy, for example, becomes an effective 'possibility' in a scientific discipline, only when it is taken seriously by influential members of the relevant profession, and it becomes fully 'established' only when it wins their positive endorsement" (p. 266). Conversely, Toulmin notes, the innovative ideas of scientists who fail to gain the attention

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and agreement of their colleagues are, "for the time being, as good as dead" (p. 266).

Scientists embroiled in controversies over fundamental intellectual presumptions and programs frequently assume an adversarial argumentation stance. This is not surprising, for this aggressively assertive stance is calculated to gain attention for one's claims and to make the claims of one's opponents look inadequate. The central motive of adversarial advocates is defense of their own ideas and criticism of the ideas of their opponents. Typical adversarial advocates advance only those arguments favorable to their cases and consider their opponents' arguments only in order to refute them or render them less damaging to their own. Whatever are their private attitudes toward self, dialogue, and opponent, publicly they appear confident about the value of their opinions. At an extreme, they may be dogmatic about the issues and condescending toward their opponents. Frequently the adversarial advocate ceases even to regard the opponent as one to be persuaded and concentrates instead on addressing and influencing the decision of the judging audience.

One 20th-century strategic scientific controversy that has evoked adversarial stances from many participants is that surrounding the work and writing of behaviorist B. F. Skinner (relevant here are his books *Verbal Behavior* and *Beyond Freedom and Dignity*). Skinner's theses challenge fundamental beliefs and values of Western culture, and his claims for behavioral technology are of immediate public concern. For these reasons, the ensuing debate has been prolonged, often bitter, and has involved many voices. Two deeply committed voices in this debate are those of Noam Chomsky in his review of *Verbal Behavior*, and Max Black in his criticism of *Beyond Freedom and Dignity*. Chomsky and Black assumed adversarial stances in their critical responses to Skinner; this choice of stance unified the purposes, styles, strategies, and effects of their communications. The academic advocate who responds to the merciless criticism of opponents frequently assumes a corresponding adversarial posture. Thus, Skinner's responses to Black and Chomsky were similarly defensive-aggressive. The controversy surrounding Skinner's *Verbal Behavior* and *Beyond Freedom and Dignity* illustrates some typical argumentation strategies and

persuasion ploys academics use in their efforts to convince colleagues to accept their ideas.

CHOMSKY'S REVIEW OF *VERBAL BEHAVIOR*

One hallmark of the 20th-century academic community is its recognition of the importance of language to the development of human identity, the evolution and maintenance of society, and the transfer of human culture. Many 20th-century philosophers and social scientists have, as a consequence, studied language. The year 1957 stands out, however, as the year in which Noam Chomsky published *Syntactic Structures* and B. F. Skinner published *Verbal Behavior*. These two books introduced new research paradigms for the study of language. In the years immediately following, Chomsky's work led to a new school in linguistics whereas Skinner's work was largely ignored by his behaviorist colleagues (partly, it seems, because behaviorists were not sure how to turn *Verbal Behavior* into an empirical research program). Nonetheless, Chomsky regarded Skinner's research program as rival to his own and therefore chose to criticize it publicly.

Skinner's *Verbal Behavior* advocates a functional research program for the study of verbal behavior. In chapter 1, "A Functional Analysis of Verbal Behavior," Skinner defines the research domain of verbal behavior and identifies inadequacies in traditional language research programs. Once need for a better research program is established, he presents his own program. In the last section of chapter 1, "A New Formulation," and in chapter 2, he outlines his plan, beginning with careful definition of the scope and key concepts of his analytic framework and description of the elements of an operant analysis. In particular, Skinner proposes to account for verbal behavior in terms of the three-term contingency of operant analysis. To do so, he presents a new system of classification of verbal responses in terms of their antecedent controlling variables.

The functional research program is feasible and operant methodology adequate to the task, Skinner argues, because, first, recent advances in behavior analysis make it a precise analytic framework; second, the basic processes and relations characteristic of verbal behavior are

now "fairly well understood"; and, finally, the experimental methods used in behaviorist animal research may be extended to research on humans "without serious modification" (Skinner, 1957, p. 3).

Within 2 years of the publication of *Verbal Behavior*, Noam Chomsky had, first, personally criticized Skinner's ideas at a Harvard symposium of behaviorists and, then, published a formal criticism of the book in *Language* (see Chomsky, 1959; the page references inserted in the text below refer to this essay). Chomsky seems to have recognized almost immediately both the intellectually strategic and practical implications of the disagreement between him and Skinner. At issue strategically were the proper goals and theoretical framework for language research. At issue practically was whose research paradigm, Skinner's or Chomsky's, would appear more appealing to language researchers. Chomsky also recognized that theoretical and methodological disagreements are special and so explained, "Summarizing this brief discussion, it seems that there is neither empirical evidence nor any known argument to support [conclusively] any *specific* claim about the relative importance of 'feedback' from the environment and the 'independent contribution of the organism' in the process of language acquisition" (p. 44). Chomsky resorted, as a consequence, to familiar argumentation strategies.

In contrast to Skinner's hypothesis that human speech is a function of environmental factors, Chomsky hypothesized that language ability is the result of complex interactions between external stimuli and the "internal structure of the organism" (p. 27). The internal structure of the organism is a "complicated product of inborn structure, the genetically determined course of maturation, and past experience" (p. 27). For Chomsky natural language sentences have a "deep structure" that cannot be captured by descriptions of verbal behavior. Thus, whereas Skinner preferred to ignore the genetic, neurophysiological, and formal components underlying human linguistic ability, Chomsky assumed that internal processes are crucially involved in language production and took as his task formal description of the deep structure of language. These programs are clearly distinct and seemed to require that scientists interested in the study of human language choose be-

tween them. This set the stage for Chomsky's scientific advocacy.

Chomsky's review of *Verbal Behavior* is a formal declaration of war at the level of the paradigm of a research area. Because no empirical evidence or formal proofs conclusively support either his or Skinner's basic assumptions about language acquisition, Chomsky resorts to familiar strategies of argumentation in an effort to convince the academic audience of linguists, philosophers, and psychologists that Skinner's behaviorist program for the study of language is seriously inadequate whereas his formal program is promising. The academic form and the adversarial tone and style of his review, as well as his aggressive and oppositional argument strategy, are consistent with this professional purpose.

Chomsky's review is a classic academic piece. Appearing in a major academic journal, it is 32 pages long and accompanied by 48 lengthy footnotes. Organized into 11 sections, it culminates by turning in the last section from direct criticism of Skinner's program to defense of Chomsky's structural research program.

In the absence of conclusive empirical evidence for or against the behaviorist approach to language study, Chomsky offers a "detailed documentation" (p. 28) and conceptual analysis of the inadequacies of Skinner's behaviorist program. He writes, "The force of Skinner's argument lies in the enormous wealth and range of examples for which he proposes a functional analysis. The only way to evaluate the success of his program and the correctness of his basic assumptions about verbal behavior is to review these examples in detail and to determine the precise character of the concepts in terms of which the functional analysis is presented" (p. 28). His detailed study of Skinner's assumptions, concepts, and evidence leads him to conclude that, with a literal reading, *Verbal Behavior* "covers almost no aspect of linguistic behavior" and, with a metaphoric reading, "it is no more scientific than the traditional approaches to this subject matter, and rarely as clear and careful" (p. 31).

Chomsky assumes the tone and posture of an adversarial debater toward his opponent. Though he begins with perfunctory professional respect, his tone soon becomes cate-

gorically critical. He insists, for instance, "Since we cannot control the property of a physical object to which an individual will respond, except in highly artificial cases, Skinner's claim that his system, as opposed to the traditional one, permits the practical control of verbal behavior is quite false" (p. 32). Skinner's claim is not simply "false," it is "quite false." This same tone is revealed when Chomsky argues, "A mere terminological revision, in which a term borrowed from the laboratory is used with the full vagueness of the ordinary vocabulary, is of no conceivable interest" (p. 38). His conclusions about Skinner's project are unconditional: Skinner has achieved a "mere terminological revision . . . of no conceivable interest" (emphasis mine). This characteristic tone reveals itself in Chomsky's choice of verbs and adjectives. Skinner is seldom simply "in error," but "grossly in error," (p. 46); he "retreats" to mentalistic psychology (p. 32); reminiscent of magic, he "invokes" the term "reinforcement"; the term "reinforcement" is not just "useless," it is "perfectly useless" (p. 38); things are not just "wrong" but "obviously wrong" (p. 47).

The central critical theme developed by Chomsky is presented in section 2. According to him, Skinner "utilizes the experimental results as evidence for the scientific character of his system of behavior, and analogic guesses (formulated in terms of a metaphoric extension of the technical vocabulary of the laboratory) as evidence for its scope. This creates the illusion of a rigorous scientific theory with a very broad scope, although in fact the terms used in the description of real-life and of laboratory behavior may be mere homonyms, with at most a vague similarity of meaning" (p. 30). Chomsky's argument strategy in defense of this theme is aggressively critical. He argues that basic assumptions and concepts of behaviorism are either meaningless or useless; that the terminology used in *Verbal Behavior* is no more accurate than traditional terms; and that Skinner's competence and expertise in the area of language research are suspect.

In the context of this argument, Chomsky attacks Skinner's scientific persona in two ways. First, he insists that Skinner's behavioral analysis has merely the appearance of rigorous science. For instance, "Skinner's account of grammar and syntax as autoclitic processes (chapter 13) differs from a familiar

traditional account mainly in the use of the *pseudoscientific* terms 'control' or 'evoke' in place of the traditional 'refer'" (p. 53, emphasis mine). And, "To speak of 'conditioning' or 'bringing previously available behavior under control of a new stimulus' in such a case is just a kind of *play-acting* at science" (p. 39, emphasis mine). Second, he argues that Skinner's competence in the area of language study is questionable on the grounds that Skinner's "notions" (Chomsky does not acknowledge that Skinner's ideas have the status of legitimate scientific "concepts") show ignorance about the complexity of language and are simple-minded. For instance, while criticizing Skinner's concept of "mand," he writes, "In short, the *entire* classification is beside the point. *A moment's thought* is sufficient to demonstrate the impossibility of distinguishing between requests, commands, advice, etc., on the basis of the behavior or disposition of the particular listener" (p. 47, emphasis mine). Apparently Skinner did not take that moment of thought. In the end Chomsky writes off Skinner's "evident satisfaction" with his scheme as "extremely puzzling" (p. 47).

Throughout his essay, Chomsky systematically cites examples from *Verbal Behavior*. In addition, he uses weighted words, such as "vague," "subjective," "arbitrary," "misleading," and "speculative," to convey his negative intellectual evaluation of Skinner and his work. The sheer number of the concrete examples tends to impress the reader that Chomsky is very careful and thorough, whereas the use of weighted words causes the argument to move from criticism of ideas to criticism of the individual.

Chomsky's intent to gain professional attention and ascendancy is realized, then, in his aggressive proof and academic style. Recognizing Skinner's professional stature and power, he assumed an adversarial posture toward him and responded with a detailed critical argument aimed at discrediting both Skinner's scientific image and his ideas.

Oddly, in the face of Chomsky's attack, Skinner remained ambiguously silent. For some, his silence implied speechlessness and defeat. Skinner acknowledges this interpretation of his silence in a rare printed comment on the Chomsky review in *The Saturday Review of Books*: "In his review of *Beyond Freedom and Dignity* in the *New York Times* last

September, Christopher Lehmann-Haupt . . . writes, 'what about the most serious (and best advertised) attack that has been leveled against behaviorism in recent years—namely, Noam Chomsky's attempts to demonstrate man's innate linguistic powers, which began with Chomsky's famous review of Skinner's book *Verbal Behavior*? Skinner says nothing explicit on the matter in *Beyond Freedom and Dignity*. Indeed, Chomsky's name is never brought up (which seems disingenuous on Skinner's part). Have we got him there?'" (Skinner, 1972b, p. 32).

Skinner's official silence was certainly puzzling. Although it could be and frequently was read as a sign of weakness and defeat, it may also be interpreted as a sign of his own aloofness and indifference to criticism, and as a sign of his lack of respect for Chomsky. An aloof, careless tone comes through in his whimsical comments on the controversy in *The Saturday Review of Books*. Here he explains why he did not respond to the review (although, he tells us, Chomsky sent him a copy of it prior to its publication): "My reasons, I am afraid, show a lack of character. In the first place I should have had to read the review, and I found its tone distasteful. It was not really a review of my book but of what Chomsky took, erroneously, to be my position. I should also have had to bone up on generative grammar, which was not my field, and to do a good job I should have had to go into structuralism" (p. 32).

With this explanation made, Skinner goes on the offensive by satirizing what happened subsequent to the publication of the review:

Let me tell you about Chomsky. I published *Verbal Behavior* in 1957. In 1958 I received a 55 page type-written review by someone I had never heard of named Noam Chomsky. I read half a dozen pages, saw that it missed the point of my book, and went no further. . . . But then, of course, Chomsky's star began to rise. Generative grammar became the thing—and a very big thing it seemed to be. Linguists have always managed to make their discoveries earthshaking. In one decade everything seems to hinge on semantics, in another decade on the analysis of the phoneme. In the Sixties it was grammar and syntax, and Chomsky's review began to be widely cited and reprinted and became, in fact, much better known than my book. (p. 32)

Here, Skinner sounds a different, more ironic

tone than does Chomsky. The amusing paradox for him, of course, is that the review of a relatively unknown scholar managed to discredit the research of a well-known social scientist. Although Chomsky's adversarial stance provoked a satirical response from Skinner, it is interesting that his satirical and anecdotal remarks are published in a non-academic periodical. *The Saturday Review of Books*, needless to say, is not the place for a systematic refutation of Chomsky's review. In fact, Skinner has never published such a refutation.

The academic community was, as Skinner acknowledged, impressed with Chomsky's review. Kenneth MacCorquodale, a behaviorist advocate, wrote in 1970, "Skinner's book, *Verbal Behavior*, was published in 1957. Chomsky's review of it appeared in 1959. By the criterion of seminal influence in generating controversy and stimulating publication, both must be counted major successes, although the reputation and influence of the review are more widely acknowledged" (MacCorquodale, 1970, p. 83). MacCorquodale also noted that because the review was never systematically replied to, it has been widely concluded in academia that the review is "in fact unanswerable, and that its criticisms are therefore essentially valid" (MacCorquodale, 1970, p. 83). (See MacCorquodale, 1970, for his well-known response to Chomsky. Also see Czubaroff, in press, for a discussion of the role MacCorquodale's response played in the Skinner-Chomsky debates.) Although Chomsky's arguments could not by their nature be conclusive, his review doubtless shifted the burden of proof in the debate about language research programs onto Skinner and other behaviorists. In turn, Skinner's silence indicated an aloofness and unwillingness to engage his critics that in the end may have cost the behaviorists dearly, for, MacCorquodale acknowledged, over the intervening 10 years the review "had an enormous influence in psychology. Nearly every aspect of currently popular psycholinguistic dogma was adumbrated in it" (MacCorquodale, 1970, p. 98).

MAX BLACK'S RESPONSE TO *BEYOND FREEDOM AND DIGNITY*

Chomsky's review of *Verbal Behavior* is a classical critical essay in the technical scientific

debate over behavioral explanation of language. Max Black's commissioned contribution, "Some Aversive Responses to a Would-Be Reinforcer" (1973), to the Center for Democratic Studies symposium on Skinner's theory of operant conditioning is a terse, nine-page essay intended for a broadly academic audience. This symposium was held soon after Skinner's publication of *Beyond Freedom and Dignity* and, according to Harvey Wheeler (1973), editor of the proceedings, its purpose was to consider the merits, limitations, and social implications of operant theory. In addition to Black, such notable scholars as Arnold Toynbee, Chaïm Perelman, Arthur Jensen, Lord Ritchie-Calder, and Michael Novak made contributions. Because the radical behaviorist position taken by Skinner in *Beyond Freedom and Dignity* challenged long-standing Western values about human personality, freedom, and moral responsibility, Skinner inevitably carried the burden of proof in this round of the debate about his work, and presumption lay with those individuals who, like Max Black, represented traditional Western metaphysics and values.

In keeping with the Center's social policy concerns, that is, to assess the merits, limitations, and social implications of operant theory, Black's essay has a predominantly political and moral purpose. He perceives the central issue to be evaluation of and choice between central Western values and metaphysical commitments and incoherent behaviorist values and technologies. Recognizing that the credentials of advocates are especially relevant in value debate, Black minces no words in declaring Skinner an incompetent intellectual charlatan. On the basis of these assessments of the issues and his opponent, he takes a dramatically adversarial stance in his critical essay.

That Black prefers to belittle Skinner rather than to understand or systematically refute his position is clear from the very beginning of his essay. He opens with direct mockery: "The spectacle of a convinced determinist urging his readers to save the human race is bound to be somewhat comic" (Black, 1973, p. 125; the page references inserted in the text below refer to this essay). Black's mockery rests on the theme that behaviorist theories and commitments are not only diabolical and

radically at odds with Western values, but are internally inconsistent and, as such, unintentionally comical. Says Black, "It reminds one of the old joke about one pigeon boasting to another of how it had conditioned Skinner to provide food whenever it pecked a button" (p. 127).

Black summarizes his case unsparingly, "incoherence can be found throughout the book. Skinner's arbitrary identification of science with the procedures of operant conditioning, his unsupported and dogmatic rejection of the notion of human responsibility, and, hence, of human agency, his extravagant testimonials to a 'behavioral technology' . . . all this mélange of amateurish metaphysics, self-advertising 'technology,' and illiberal social policy adds up to a document that is a disservice to scientists, technologists, and to all who are seriously trying to improve the human condition" (pp. 133-134). The adjectives in this passage, for instance, "arbitrary," "unsupported," "dogmatic," "extravagant," "amateurish," "self-advertising," and "illiberal," indicate the sarcastic and vituperative quality of Black's criticisms.

Behind the sarcasm are four arguments, namely, that (a) Skinner's concepts and theories are incoherent; (b) his brand of science is idiosyncratic and arbitrary; (c) his dismissal of Western notions of "human responsibility" is morally reprehensible; and, (d) behavioral technology is illiberal. The first and second arguments are conceptual and logical whereas the last two are evaluative. They raise important questions not only about Skinner's theoretical constructs but also about the moral consequences of his social philosophy and technology. A number of Black's arguments are worth looking at for what they reveal about his argument style.

As befits a philosopher in the tradition of American analytic philosophy, Black argues that Skinner's use of key terms such as "control," "environment," and "reinforcement" is "loose and obfuscating" (p. 126); that Skinner's writing in *Beyond Freedom and Dignity* is "marred by endemic ambiguity" (p. 126). He insists, in learned and evaluative vocabulary, that Skinner's use of the key term "control" is, in particular, "reckless," "vacuously inflated," and "somewhat fatuous" (pp. 126-127).

Black's discussion of behaviorist translations of the vocabulary of ordinary experience illustrates the satirical way he approaches refutation in his essay. He notes that Skinner paraphrases "he experiences an identity crisis" as "he does not recognize the person he once called I" (p. 131). Finding this paraphrase preposterous, Black sarcastically remarks, "One wonders what this unfortunate man (like the old woman in the nursery rhyme who complained 'This is none of I') now calls the person he once called 'I.' Does he perhaps refer to himself as 'He'—or even as 'K'? Skinner disarmingly says that the 'paraphrases are too brief to be precise' [p. 147]. Well, some of them don't even have the charm of brevity" (p. 131). Allusion to nonsensical or inhuman literary figures (e.g., the old woman in the nursery rhyme and "K") is characteristic of this essay; each allusion implicitly supports Black's value judgments.

Black also introduces moral arguments rooted in a Western metaphysical tradition that values individual freedom and dignity. He insists that by "control," Skinner means "manipulation": "Skinner's true doctrine, barely veiled by his habitual equivocation, calls for the wholesale manipulation of human beings, willy-nilly, for their own good, or, rather, for the survival of the species. Skinner will retort that men are controlled anyhow, whether by propaganda, the threat of force, education, indoctrination, or love. Well, all these things affect us, to be sure, but that hardly amounts to control, in the sense of manipulation" (p. 128). This remark is replete with pejorative adjectives and nouns, such as "doctrine" (not "hypothesis"), "barely veiled," "habitual equivocation," "wholesale manipulation." What stands out, however, is the tone (conveyed by phrases like "or, rather," "anyhow," "to be sure," "hardly amounts"), which is impatiently sarcastic and belittling.

Throughout his essay Black attacks Skinner's scholarship and intellectual competence. He describes Skinner's "doctrines" as "barely veiled by his habitual equivocation" (p. 128), suggesting inveterate intellectual dishonesty or incompetence; he argues that Skinner "repeatedly dodges" (p. 128) central questions like, "Who is to choose the Grand Manip-

ulator of all of us" (p. 128), suggesting intellectual irresponsibility; he characterizes Skinner's "promise that 'acceptable translations [of mentalistic expressions] are not out of reach'" as "merely a bluff" (p. 127), suggesting Skinner is promising more than he can scientifically deliver. Contrary to Skinner's denial of individual responsibility, he squarely holds him responsible for his ideas: "The blunder of humanism, according to him, is to hold men to account for their deeds. It would be interesting to hear a good, or even a persuasive, argument that absolved Skinner from responsibility for the book under discussion" (p. 132). Although the tone of this remark is grim and categorical, the argument is ironic and powerful.

The critic who reads Black's essay is immediately struck by its sweeping and anecdotally supported argument. There is a striking lack of careful, systematic analysis and refutation of the particular issues. Instead of persuasive analysis, the argument expresses moral and intellectual irritation with and protest against the "incoherence" of behaviorist theory. It certainly seems couched to provoke behaviorists rather than to persuade them.

Acquaintance with other carefully constructed critical essays by Black leads one to conclude, however, that the argumentation in this essay reflects his perception of the communication forum, his assessment of the nature and significance of the debate about behaviorism, and his assessment of Skinner's competence. In fact, as the following remark shows, Black does not take Skinner or his book seriously: "If the book has here received more attention than it deserves on its merits, the excuse may be that it has received wide circulation. In this, there is little cause for alarm: few of those who buy the book will read it, fewer still will understand, and even fewer will change their actions in consequence" (p. 134). Black's critical judgment of behaviorism and his accompanying refusal to take Skinner seriously determine the length and character of his argument, his sarcastic critical style, and his general impatience with Skinner's book. In this case, severe negative assessment of his opponent leads Black to dismiss rather than further the debate. One might argue that Skinner's similarly brief,

ironic, anecdotal response to Chomsky's review of *Verbal Behavior* reflects a similar assessment of his opponent's position and competence. (In other professional contexts Skinner has more willingly joined issue with his critics; see, e.g., Catania & Harnad, 1984.)

The severe criticisms expressed in Black's essay left Skinner publicly bemused and on the defensive. He writes in response to his critics at the Center symposium, "*Beyond Freedom and Dignity* is based on nearly forty years of research on the behavior of organisms. I have long been concerned with its implications, and my first paper on that theme was published seventeen years ago. I spent three years on the present version. It comes as something of a surprise, therefore, to have the book described as a 'mélange of amateurish metaphysics, self-advertising technology, and illiberal social policy.' I feel that there must be some mistake" (Skinner, 1973, p. 256). This response is understandable, for extreme sarcasm tends to place one on the defensive; this is one reason why vituperative controversy ends up at cross-purposes.

As a participant at the Center's symposium, Skinner could not simply remain silent. He could and did, however, avoid direct confrontation with his critics and their arguments. In the 10 pages of chapter 19, "Answers for My Critics," at the end of Harvey Wheeler's proceedings from the Center's symposium, Skinner gives a familiar explanation for his critics' vehemence: "Most of my critics have shown a surprising misunderstanding of the science on which the book is based and of the nature of my treatment of the subject" (Skinner, 1973, pp. 256-257). Although he acknowledges that, "For many of my readers, I have obviously not developed my position logically or presented it clearly," he also excuses himself by noting that "the easiest way to find something wrong is to misunderstand it. Paraphrase certain premises inaccurately, draw some absurd conclusions, and you may then rush on to call what I am saying nonsense or gibberish. This headlong dash to dismiss the book without dealing with its arguments is fortunately not conspicuous in the present papers. Nevertheless, there are misunderstandings which call for comment" (Skinner, 1973, p. 257). Skinner's assessment, then, is that misunderstanding, sometimes willful mis-

understanding, rather than substantive disagreement is the crucial factor in his opponents' vehement criticisms.

We might expect Skinner to take on his Center critics one by one. He does nothing of the kind, however. Rather than grapple with the fundamental conceptual, metaphysical, and methodological differences that motivate his critics, Skinner focuses on their misunderstandings. When an interviewer at the Center tries to pin him down by asking, "What do you consider to be the most formidable criticism of your position?" (Skinner, 1972a, p. 64), he sidesteps the question and begins restatement of his own purposes and theses. As far as he is concerned, he "can argue only with those who want to discuss the actual behavioral processes and see whether I am right in my analysis of the behavior of people who have struggled for freedom" (Skinner, 1972a, p. 64). Skinner's insistence on being taken on his own intellectual terms gives the impression that he does not recognize that some critics may question the very framework of his behaviorist program.

Skinner's apparent decision not to respond directly and individually to his critics stands out. The decision seems to rest on his assessment of the nature of the controversy and the motives and merits of his critics. When an interviewer at the Center asks about the published reviews of *Beyond Freedom and Dignity*, he opines that "more like eighty percent are unfavorable" and acknowledges, "I just do not bother to read critics who clearly misunderstand what I am saying and who then engage in vituperation" (Skinner, 1972a, p. 63). When asked by his interviewer whether he attempts to reply to *any* of his critics, Skinner unapologetically says, "No. I have not replied to any, and tend not to. I have considered making replies, particularly when a violent review such as that by Noam Chomsky in *The New York Review* appears. I read only the first paragraph of that, but my friends have told me about it and they cannot understand why a man of Chomsky's distinction would write that way. I will not answer that. I did not, as a matter of fact, answer his famous review of my book *Verbal Behavior* and for the same reason: he doesn't know what I am talking about and for some reason is unable to understand it" (Skinner, 1972a,

p. 63). This statement sums up Skinner's attitude and response to his most vehement critics at the Center for Democratic Studies.

These are two critical voices in the historic social science controversy surrounding B. F. Skinner's science and technology of behavior. Both critics disagree with Skinner at the level of paradigm issues—Chomsky about the proper theoretical framework for study of language, Black about Skinner's metaphysical and ideological commitments. Although both critics assume adversarial argumentation stances, they have different intellectual purposes and communication forums—Chomsky's intention is professional, to discredit Skinner's approach to language study and thereby advance his own approach; Black's intent is moral, to show the intellectual and moral inadequacy and dangers of behaviorism and to discredit its proponent, B. F. Skinner. Differing communication forums and purposes and contrary assessments of the strength of their opponent led these two critics to make distinctive choices. Chomsky's essay remains a decisive voice in the debate over research programs in the area of language study. Although Black's essay is too general intellectually to contribute decisively to the debate about behaviorism's merits, it continues to sound powerful chords in those who agree with his assessments. In part because of the stature of these critics and in part because of their adversarial tone and relentlessly aggressive criticism, both essays provoked brief comments from Skinner. In neither case, however, did he acknowledge the significance of either critic's points through a systematic and detailed response.

The controversy over Skinner's *Verbal Behavior* and *Beyond Freedom and Dignity* illustrates well how scholarly discussions of strategic issues rely upon nonformal argumentation and persuasion strategies. It also illustrates the way the adversarial stance can lead to the breakdown of communication among scientists. Whether through genuine or willful misunderstanding or because of dogmatic commitment to substantively different positions, scholars engaged in strategic scientific debates frequently refuse to take each other seriously

and as a consequence their discussions degenerate into fruitless cross-purpose exchanges.

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