THE IMPACT OF SKINNER'S *VERBAL BEHAVIOR*: A RESPONSE TO DYMOND AND ALONSO-ÁLVAREZ

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In their reply to my recent article in this journal, "The Long Good-bye: Why B. F. Skinner's Verbal Behavior Is Alive and Well on the 50th Anniversary of Its Publication" (Schlinger, 2008a), Dymond and Alonso-Álvarez (2010) assert that I neglected to mention a controversial debate within behavior analysis about the consistency of Skinner's interpretation in Verbal Behavior (1957) and that I failed to acknowledge more recent accounts of verbal behavior, most notably, relational frame theory. Furthermore, these authors claim that Skinner's book has had very little impact on empirical research. In responding to their concerns, I reiterate that the interpretation in Verbal Behavior is consistent with the extant principles of behavior and that it has generated both practical applications and empirical research.

Key words: verbal behavior, Verbal Behavior, behavior analysis, B. F. Skinner

Dymond and Alonso-Álvarez (2010) make several charges in their reply to my recent article, "The Long Good-bye: Why B. F. Skinner's Verbal Behavior Is Alive and Well on the 50th Anniversary of Its Publication" (Schlinger, 2008a): (a) that I overstated the importance of the impact of *Verbal Behavior* (VB; Skinner, 1957) on empirical research; (b) that I was incorrect in my assessment that Skinner's interpretation was consistent with the principles established in the laboratory; (c) that I overlooked "the ongoing debate and controversy from within behavior analysis about the consistency of Skinner's interpretation" (p. 356); and (d) that I failed not only to "acknowledge the extensions and amendments to Skinner's account of verbal behavior that have emerged in the decades since the book was published" (p. 356), but also "to acknowledge the book's possible limitations" (p. 358). Dymond and Alonso-Álvarez imply what other relational frame theory (RFT) proponents (e.g., Hayes, Barnes-Holmes, & Roche, 2001) have stated explicitly, namely, that Skinner's book is ultimately inadequate to the task of explaining what is really interesting and important about human language, and that RFT is poised to take over where Skinner's analysis left off. In what follows, I address each of their charges and then comment briefly on Dymond and Alonso-Álvarez's stated and implied claims about the limitations of VB and the value of RFT.

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In organizing their commentary, Dymond and Alonso-Álvarez (2010) evaluated the three parts of my statement that "the value of . . . *Verbal Behavior* is ultimately determined . . . by *the consistency of the interpretation, its conformity to basic scientific principles*, and *its ability to generate empirical and practical applications* [emphasis added]" (Schlinger, 2008a, p. 331) and concluded that in each instance, *VB* comes up short.

Consistency of Interpretation

Dymond and Alonso-Álvarez (2010) apparently agree with my assessment when they write, "When considered solely as an exercise in extrapolation, Verbal Behavior is indeed consistent in its interpretation" (p. 356). But then they state that "this conclusion overlooks the ongoing debate and controversy from within behavior analysis about the consistency of Skinner's interpretation" (p. 356). Aside from the apparent contradiction in these two statements—that Skinner's (1957) book is "indeed consistent," but that there is a debate about its consistency—I would say that controversy is in the eye of the beholder. It is true that some within behavior analysis have criticized Skinner's book, but these criticisms have been limited largely to a specific group of individuals, namely, proponents of RFT. Unfortunately, not all RFT proponents have been as even-handed in assessing VB as Dymond and Alonso-Álvarez are in their commentary (see also Barnes-Holmes, Barnes-Homes, & Cullinan, 2000). For example, Hayes et al. (2001) wrote that, "the term 'post-Skinnerian' suggests that it is now time for behavior analysts to abandon many of the specific theoretical formulations of its historical leader in the domain of complex human behavior, on the grounds of the empirical and conceptual developments in that very field" and that RFT is "post-Skinnerian because if the account is correct, many of the most prominent Skinnerian ideas about human complexity must be put aside or modified virtually beyond recognition" (p. xii). Talk of abandoning or modifying beyond recognition many of Skinner's ideas about complex human behavior is tantamount to calling for a paradigm shift. But what should we abandon? Must we put aside the basic principles of reinforcement and stimulus control as mechanisms underlying complex behavior? And on what basis do RFT proponents call for a paradigm shift? Is it the case that RFT has rendered insignificant or irrelevant the basic principles of behavior or even Skinner's interpretation of verbal behavior? In the final analysis, we could, I suppose, debate the claim of a debate within the field, or the extent of such a debate, but that was not the purpose of my article.

What about the charge that Skinner's (1957) interpretation is not consistent with extant behavioral principles? In my article, I wrote, "The only question for Skinner, then, was whether the interpretation conformed to and was constrained by the principles on which it was based. For most behavior analysts, the answer has been in the affirmative (e.g., Palmer, 2006a)" (Schlinger, 2008a, p. 332). Dymond and Alonso-Álvarez (2010) have not, in my opinion, argued convincingly that Skinner's interpretation was inconsistent with the basic principles of behavior. In *VB*, Skinner classified verbal operants according to the type of antecedent control that determines the form of the response. So, for example, mands are evoked by motivational variables; echoics, textual behavior, intraverbals, and tacts are evoked primarily by verbal and nonverbal discriminative stimuli (S^Ds); and all of them

come under the control of an audience as an S^D. This functional classification system seems perfectly consistent. It has certainly been shown that the reinforcement of some verbal operants (mands) brings them under the control of motivational variables, that the differential reinforcement of other verbal operants (tacts) brings them under the control of classes of objects in the environment, and that multiple variables converge to strengthen responses of a given form. As Skinner (1957) wrote, "Verbal Behavior is an interpretation of the behavior of the speaker, given the contingencies of reinforcement maintained by the community. It uses principles drawn from the experimental analysis of nonverbal behavior—and nothing else" (p. 11). I believe that Skinner's interpretation conforms to this assessment.

Perhaps the perceived inconsistency arises from Skinner's definition of verbal behavior as "behavior reinforced through the mediation of other persons" (1957, p. 2). Some RFT proponents have charged that the definition is not functional because it is based on the source of reinforcement for the speaker's behavior (i.e., other persons) rather than on the behavior itself (e.g., Hayes, 1994; Hayes et al., 2001). The implication is that Skinner's definition does not appropriately distinguish verbal from nonverbal or typical social behavior (Parrott, 1986), despite Skinner's refinement to include the "provision that the 'listener' must be responding in ways which have been conditioned precisely in order to reinforce the behavior of the speaker" (1957, p. 225). As I suggested elsewhere (Schlinger, 2008b), I do not believe that Skinner would have objected to Chase and Danforth's (1991) amendment to his definition—"the explicit conditioning of . . . arbitrary stimulus relations . . . such as those found in relational classes" (p. 206)—that RFT proponents seem to champion. Although there is not sufficient space here, let me just add that I believe that the criticisms of Skinner's definition of verbal behavior have been more than adequately addressed (e.g., Leigland, 1997; Normand, 2009; Palmer, 2008; Schlinger, 2008b).

Conformity to Scientific Principles

Dymond and Alonso-Álvarez (2010) state that "the interpretation presented in *Verbal Behavior* does indeed conform to basic scientific principles, but only with those scientific principles available up to 1957" (p. 356) and that some have "raised the intriguing empirical question of whether 'behavioral principles different from those already discovered in research with nonhumans may be needed to explain complex human behavior, most notably in the experimental analysis of verbal behavior' (Dymond et al., 2003, p. 334)" (p. 357).

But, with the possible exception of stimulus equivalence (see Sidman, 2000), I am not aware of any new principles, although the basic principles (e.g., reinforcement, discrimination) have been significantly amended over the past 50 years. We cannot simply claim new principles by fiat. They must be induced from experimental analyses. In fact, Dymond and Alonso-Álvarez (2010) acknowledge that the claim of new principles cannot be evaluated at the present time because "the research needed to address it has only just begun" (p. 357). Nevertheless, they believe that we should ascertain whether the "current behavioral principles such as those proposed by Skinner adequately account for all human verbal behavior" (p. 357). First, Skinner did not propose behavioral principles; they were induced from decades of

experimental analysis. And second, I am not aware of anyone, including Skinner, who has claimed that the extant behavioral principles "account for all human verbal behavior." We simply do not know the extent to which the basic principles are capable of accounting for any behavior. But until we carry out the necessary analyses, it would be premature to claim otherwise. Finally, we can agree with Dymond and Alonso-Álvarez that behavior analysts should ascertain whether "current behavioral principles" are able to account for human verbal behavior, but this more parsimonious strategy needs to be fully exhausted before positing new principles or paradigms.

Ability to Generate Empirical Research and Practical Applications

Dymond and Alonso-Álvarez (2010) commend me for suggesting that "the 50th anniversary of *Verbal Behavior* provides an important milestone to evaluate the current status of the field of behavior analysis and the impact that Skinner's taxonomy has had on research" (p. 355). The problem is that I did not claim that Skinner's (1957) interpretation has had more than a minor impact on research. What I did say was that we can assess the durability of VB, in part, by how often it is cited, and I presented data from two citation analyses (Dymond, O'Hora, Whelan, & O'Donovan, 2006; McPherson, Bonem, Green, & Osborne, 1984) supporting that claim. I concentrated mostly on the Dymond et al. analysis, which demonstrated that citations of VB have increased steadily between 1984 and 2004. I acknowledged that most of the citations were from nonempirical articles, even though Dymond et al. did note a slow but steady increase in the rate of empirical studies. It was not my intention to analyze in greater detail what those citations meant either in absolute or relative terms, but only to point out that citations continue to increase. Nowhere did I state that the book has had a major impact on empirical research, nor do I believe that empirical research is necessary to confirm Skinner's interpretation. Newton's law of gravity explained the effects of the moon on tidal fluctuations, but no empirical research was necessary to confirm it. The interpretation, based on other empirical data, was sufficient. Moreover, I do not believe that the relative paucity of empirical studies generated by VB in any way suggests that the interpretation is inadequate. Skinner's book was not a theory to be tested but "an orderly arrangement of well-known facts, in accordance with a formulation of behavior derived from an experimental analysis of a more rigorous sort" (Skinner, 1957, p. 11).

On the other hand, I did write that, in part, "the value of . . . *Verbal Behavior* is ultimately determined . . . by . . . its ability to generate empirical and practical applications" (Schlinger, 2008a, p. 331), and I cited a number of references supporting that claim, including the two citation analyses of VB mentioned above. But the key phrase in my statement is "ultimately determined." Although it is true that 50 years have passed since the publication of VB, a period during which some might have expected the empirical and practical applications to have been fully realized, it is also true that other revolutionary scientific theories and treatises were not immediately appreciated by more than a small group of like-minded scientists and, therefore, their ultimate value took a considerable amount of time to realize. Darwin's theory of evolution by natural selection and the theory of continental drift, among others, come to mind as notable examples. Nevertheless, let me revisit my claim.

Applied Applications

First, has *Verbal Behavior* (Skinner, 1957) generated practical applications? I do not think that there is any question that the analysis in *VB* has immediate applications for teaching children with severe language deficits (see Sundberg & Michael, 2001, for an in-depth description of such a program) and that there is a growing trend of using the concepts in *VB* in language programs for such individuals. Consider, for example, that in the 2008–2009 school year, the Pennsylvania Verbal Behavior project served approximately 550 children in 96 sites in the state of Pennsylvania (http://www.pattan.k12.pa.us/teachlead/SpecialProjects2.aspx).

One of the stated goals in *VB* was that the formulation be "inherently practical" and suggest "immediate technological applications" (Skinner, 1957, p. 12). Thus, for Skinner, the analysis presented in *VB* should be able to facilitate the engineering task of those whose job it is to generate appropriate verbal behavior in learners. Consequently, the concepts presented in *VB* have made their way, albeit relatively recently, into assessment tools and language training programs (e.g., Barbera, 2007; Greer & Ross, 2008; Sundberg, 2008; Sundberg & Partington, 1998). Although these programs serve mostly individuals with autism and related disorders, we may agree with Dixon, Small, and Rosales (2007; also quoted by Dymond & Alonso-Álvarez, 2010) that "there is a need to expand basic research on verbal behavior to typically developing individuals and to more advanced forms of language" (Dixon et al., 2007, p. 204). But such a concession does not mean that the research involving individuals with autism and related disorders can be dismissed.

Empirical Research

It is true, as Dymond and Alonso-Álvarez (2010) repeatedly aver, that VB(Skinner, 1957) has had a comparatively limited impact on empirical research, but, as I stated previously, this does not in any way render the interpretation in the book deficient. Dymond and Alonso-Álvarez also note the unfortunate fact that the journal primarily responsible for publishing empirical work on verbal behavior, often based on concepts in VB, The Analysis of Verbal Behavior (TAVB), is not listed in the ISI Web of Knowledge and has only recently become available at *PubMed Central* (although it is also indexed in *PsycINFO*), thus making it difficult for readers to access and severely limiting its impact factor. The estimated impact of TAVB on behavioral journals (e.g., Journal of Applied Behavior Analysis, Journal of the Experimental Analysis of Behavior), however, is higher than on nonbehavioral journals, though still relatively low. There are several possible explanations for the low citation rates, including citation delay, inaccessibility of the journal, and its highly specialized nature, which may reflect a problem with behavior analysis as a whole (Petursdottir & Peterson, 2009). On a positive note, there has been an increase in the number and percentage of experimental studies published in TAVB from 1999–2008 (Marcon-Dawson, Vicars, & Miguel, 2009).

However, notwithstanding the limited impact on empirical research, I would like to reiterate a point I have made before (see Schlinger, 2008b), that *VB* (Skinner, 1957) has directly influenced at least two distinct lines of programmatic research and theory, excluding RFT (see below)—the

joint control account (see Lowenkron, 1984, 1988, 1992, 1995, 1998, 2006) and the naming account (see Horne & Lowe, 1996; Horne, Lowe, & Randle, 2004)—both of which, incidentally, have significant implications for understanding much of the research on RFT. Moreover, studies from both of these lines of inquiry have frequently used typically developing individuals as participants.

Concluding Comments

Dymond and Alonso-Álvarez (2010) conclude their reply by writing that "it would be equally rash to fail to use the occasion of the 50th anniversary of the publication of *Verbal Behavior* to acknowledge the book's possible limitations, the extensions and amendments that have been proposed, and its current, selective impact on empirical research" (p. 358). But, once again, that was not the point of my article. And I am not sure what *VB*'s limitations are. Do the verbal operants suggested by Skinner (1957) not map onto natural verbal behavior? That is, do we not mand, tact, echo, and engage in intraverbal and textual behavior as well as verbal behavior that modifies other verbal behavior? Or is the book's only limitation that it has generated relatively little empirical investigation so far?

As far as extensions or amendments that have been proposed, as I indicated previously, such extensions have come primarily from the RFT camp. Space does not permit me to comment on various claims about RFT or statements by RF theorists. So, let me just offer one observation.

Even if we allow for the possibility that RFT might have been conceived independently from VB, the former can still be considered an outgrowth of the latter. For example, as I have argued elsewhere (e.g., Schlinger, 2008b, 2008c), Skinner set the stage for the concept of relational framing in a section of VB titled "Relational Autoclitics," in the chapter titled "Grammar and Syntax as Autoclitic Processes." As Skinner (1957) explained,

Something less than full-fledged relational autoclitic behavior is involved when partially conditioned autoclitic "frames" combine with responses appropriate to a specific situation. Having responded to many pairs of objects with behavior such as the hat and the shoe and the gun and the hat, the speaker may make the response the boy and the bicycle on a novel occasion. If he has acquired a series of responses such as the boy's gun, the boy's shoe, and the boy's hat, we may suppose that the partial frame the boy's _____ is available for recombination with other responses. The first time the boy acquires a bicycle, the speaker can compose a new unit the boy's bicycle. This is not simply the emission of two responses separately acquired . . . The relational [emphais added] aspects of the situation strengthen a frame [emphasis added], and specific features of the situation strengthen the responses fitted into it. (p. 336)

Moreover, Skinner (1957) alluded to the concept of multiple exemplar training when he wrote that autoclitic frames "cannot occur until such clauses have become effective in the verbal behavior of the listener, as the result of a long and difficult process" (p. 361), which he described in several

scenarios, including in the quotation above. The point is that at the very least, RFT may be considered an extension of Skinner's analysis, as Dymond and Alonso-Álvarez (2010) also seem to suggest.

There is not sufficient space here nor is it the proper occasion to address other questions about RFT or claims by RFT proponents (e.g., that Skinner's 1957 definition of verbal behavior is flawed and that this somehow weakens the interpretation in *VB*; whether RFT is more relevant to verbal behavior or to behaviors we might call problem solving; how RFT might contribute to our understanding of verbal behavior; and, conversely, whether the concepts presented in *VB* can elucidate performance on RFT tasks). What is clear is that Skinner's *Verbal Behavior* has had and continues to have an impact on both research and application. And based on recent trends, I predict that this impact, as well as the impact of behavior analysis in general, will only broaden. What role other approaches will play remains to be seen.

References

- BARBERA, M. L. (2007). The verbal behavior approach: How to teach children with autism and related disorders. Philadelphia: Jessica Kingsley Publishers.
- BARNES-HOLMES, D., BARNES-HOLMES, Y., & CULLINAN, V. (2000). Relational frame theory and Skinner's *Verbal Behavior*: A possible synthesis. *The Behavior Analyst*, *23*, 69–84.
- CHASE, P. N., & DANFORTH, J. S. (1991). The role of rules in concept formation. In L. J. Hayes & P. N. Chase (Eds.), *Dialogues on verbal behavior* (pp. 205–225). Reno, NV: Context Press.
- DIXON, M. R., SMALL, S. L., & ROSALES, R. (2007). Extended analysis of empirical citations with Skinner's *Verbal Behavior*: 1984–2004. *The Behavior Analyst*, *30*, 197–209.
- DYMOND, S., & ALONSO-ÁLVAREZ, B. (2010). The selective impact of Skinner's *Verbal Behavior* on empirical research: A reply to Schlinger (2008). *The Psychological Record, 60,* 355–360.
- DYMOND, S., O'HORA, D., WHELAN, R., & O'DONOVAN, A. (2006). Citation analysis of Skinner's *Verbal Behavior*: 1984–2004. *The Behavior Analyst*, 29, 75–88.
- GREER, R. D., & ROSS, D. E. (2008). Verbal behavior analysis: Inducing and expanding new verbal capabilities in children with language delays. New York: Pearson.
- HAYES, S. C. (1994). Relational frame theory: A functional approach to verbal events. In S. C. Hayes, L. J. Hayes, M. Sato, & K. Ono (Eds.), *Behavior analysis of language and cognition* (pp. 9–30). Reno, NV: Context Press.
- HAYES, S. C., BARNES-HOLMES, D., & ROCHE, B. (2001). *Relational frame theory: A post-Skinnerian account of human language and cognition.* New York: Kluwer Academic/Plenum.
- HORNE, P. J., & LOWE, C. F. (1996). On the origins of naming and other symbolic behavior. *Journal of the Experimental Analysis of Behavior, 65,* 185–241.
- HORNE, P. J., LOWE, C. F., & RANDLE, V. R. L. (2004). Naming and categorization in young children: II. Listener behavior training. *Journal of the Experimental Analysis of Behavior*, 81, 267–288.
- LEIGLAND, S. (1997). Is a new definition of verbal behavior necessary in light of derived relational responding? *The Behavior Analyst*, 20, 3–9.

- LOWENKRON, B. (1984). Coding responses and the generalization of matching to sample in children. *Journal of the Experimental Analysis of Behavior*, 42, 1–18.
- LOWENKRON, B. (1988). Generalization of delayed identity matching in retarded children. *Journal of the Experimental Analysis of Behavior, 50,* 163–172.
- LOWENKRON, B. (1992). Joint control and generalized nonidentity matching: Saying when something is not. *The Analysis of Verbal Behavior*, 10, 1–10.
- LOWENKRON, B. (1995). Generalized instructional control and the production of broadly applicable relational responding. *The Analysis of Verbal Behavior*, *12*, 13–29.
- LOWENKRON, B. (1998). Some logical functions of joint control. *Journal of the Experimental Analysis of Behavior*, 69, 327–354.
- LOWENKRON, B. (2006). An introduction to joint control. *The Analysis of Verbal Behavior, 22,* 123–127.
- MCPHERSON, A., BONEM, M., GREEN, G., & OSBORNE, J. G. (1984). A citation analysis of the influence on research of Skinner's *Verbal Behavior. The Behavior Analyst*, *7*, 157–167.
- MARCON-DAWSON, A., VICARS, S. M., & MIGUEL, C. F. (2009). Publication trends in *The Analysis of Verbal Behavior*: 1999–2008. *The Analysis of Verbal Behavior*, 25, 123–132.
- NORMAND, M. P. (2009). Much ado about nothing? Some comments on B. F. Skinner's definition of verbal behavior. *The Behavior Analyst*, *32*, 185–190.
- PALMER, D. C. (2008). On Skinner's definition of verbal behavior. *International Journal of Psychology and Psychological Therapy*, 8, 295–307.
- PARROTT, L. J. (1986). On the differences between verbal and social behavior. In P. N. Chase & L. J. Parrott (Eds.), *Psychological aspects of language: The West Virginia Lectures.* Springfield, IL: Thomas.
- PETURSDOTTIR, A. I., & PETERSON, S. P. (2009). A quarter century of *The Analysis of Verbal Behavior*: An analysis of impact. *The Analysis of Verbal Behavior*, 25, 109-121.
- SCHLINGER, H. D. (2008a). The long goodbye: Why B. F. Skinner's *Verbal Behavior* is alive and well on the 50th anniversary of its publication. *The Psychological Record*, *58*, 329–337.
- SCHLINGER, H. D. (2008b). Listening is behaving verbally. *The Behavior Analyst*, *31*, 145–161.
- SCHLINGER, H. D. (2008c). Conditioning the behavior of the listener. *International Journal of Psychology and Psychological Therapy, 8*, 309–322.
- SIDMAN, M. (2000). Equivalence relations and the reinforcement contingency. *Journal of the Experimental Analysis of Behavior, 74,* 127–146.
- SKINNER, B. F. (1957). *Verbal behavior*. New York: Appleton-Century-Crofts.
- SUNDBERG, M. L. (2008). VB-MAPP: Verbal behavior milestones assessment and placement program. Concord, CA: AVB Press.
- SUNDBERG, M. L., & MICHAEL, J. (2001). The benefits of Skinner's analysis of verbal behavior for children with autism. *Behavior Modification*, *25*, 698–724.
- SUNDBERG, M. L., & PARTINGTON, J. W. (1998). Teaching language to children with autism or other developmental disabilities. Pleasant Hill, CA: Behavior Analysts.