

## Relational Responding as a Psychological Event

Mitch J. Fryling

*Department of Applied Behavior Analysis, The Chicago School of Professional Psychology, USA*

### ABSTRACT

Research and scholarship in the area of relational responding has had a large impact on the field of behavior analysis. While theoretical disagreement remains, all can agree that issues which have historically received relatively less attention in behavior analysis are now topics of frequent discussion. Through the lens of interbehavioral psychology this paper conceptualizes relational responding as a psychological event. In doing so it will be argued that workers in the area of relational responding might find the interbehavioral perspective to be relevant; and further, to be a thoroughly consistent and parsimonious foundation. The value of the interbehavioral position for workers in this area, particularly in their interpretive efforts, will be emphasized.

*Key words:* relational responding, interbehavioral psychology, stimulus substitution, verbal behavior.

While relational responding has long been of interest to workers in behavior analysis (e.g., Skinner, 1953, pp. 137-138) a substantial amount of research and scholarship has occurred within this area in recent years. Indeed, there are now deeply involved areas of research in the area of relational responding, many of which have examined and now empirically validated processes that elaborate upon the traditional operant model (e.g., Greer & Speckman, 2009; Hayes, Barnes-Holmes, & Roche, 2001; Horne & Lowe, 1996; Lowenkron, 1998; Sidman, 2000). Importantly, there are both similarities and differences among these approaches, particularly with respect to the extent to which they extend upon Skinnerian constructs. Although theoretical controversy surrounds these issues (see Dymond & Alonso-Álvarez, 2010; Gross & Fox, 2009; Hayes & Barnes-Holmes, 2004; Palmer, 2004a, 2004b; Schlinger, 2010), Relational Frame Theory (RFT; Hayes *et al.*, 2001) must be considered the most popular approach to relational responding, at least when one considers the sheer number and range of studies which have been based upon it (Dymond, May, Munnely, & Hoon, 2010).

Interestingly, while interbehaviorism is understood by few, workers in RFT have seemingly dismissed interbehaviorism and interbehavioral psychology (see Hayes *et al.*, 2001, pp. 7-9), characterizing it as a mere “descriptive contextualism” (also see Hayes, 1993; Vilardaga, Hayes, Levin, & Muto, 2009). Further, it is suggested that interbehaviorism relies on “formal similarity and a loose form of associationism” (Hayes *et al.*, 2001, p.8). These arguments appear to be made by workers who have

Address correspondence to: Mitch Fryling, Ph.D., BCBA-D, Department of Applied Behavior Analysis, The Chicago School of Professional Psychology, 617 W. 7th St., 8th Floor, Los Angeles, CA 90017. Email: mfryling@thechicagoschool.edu.  
Portions of this paper were presented at the 5th International Colloquium of Interbehavioral Psychology in Bogota, Colombia (2010) and the 2011 annual meeting of the California Association for Behavior Analysis, Burlingame, CA.

yet to fully appreciate the interbehavioral perspective, however. Worse, they represent fundamental confusions as to the aim and value of the philosophy of interbehaviorism and scientific system of interbehavioral psychology. Thus, my primary aim in this paper is to describe an interbehavioral approach to the topic of relational responding. I do not do so to undermine or critique any other approach, as all of these approaches represent some level of progress in the field of behavior analysis. Moreover, interbehavioral psychology, at its core, offers a fundamental process, stimulus substitution, which may serve as a useful shared foundation for the various theories in this growing area. As such, describing this aspect of interbehavioral psychology is particularly central to my aim. In accomplishing this I will also highlight why behavior analysis has found itself amidst such theoretical diversity and provide general recommendations for systemic improvement within the enterprise.

I will begin by characterizing some essential features of complex behavior which typically fall under the purview of relational responding. Next, I will provide an overview of J.R. Kantor's interbehavioral field construct, emphasizing participants in it which are particularly relevant to understanding relational responding, especially stimulus substitution. Finally, I will provide some reasons why the interbehavioral perspective might be a useful one for workers in the area of relational responding in particular, and behavior analysis in general to consider.

### RELATIONAL RESPONDING

Relational responding has excited the field of behavior analysis. Indeed, to the extent that behaviorism involves the assumption that all behavior occurs because of its history of reinforcement, the development of relational repertoires, especially in the absence of specific histories of reinforcement for such repertoires is particularly interesting. Moreover, this sort of activity seems to be central to some of the most critical and complex types of human behavior (e.g., meaning, understanding; see Hayes 1996; Parrott, 1984).

Workers in this area quickly confronted conceptual difficulties in their attempts to deal with these sorts of issues from a purely Skinnerian (1957) point of view. For example, Skinner specifically avoided notions of reference (Hayes, 1991), focused almost exclusively on acts of speaking, and struggled to deal with issues pertaining to implicit responding (e.g., Parrott, 1986; Skinner, 1974, pp. 91-92). Added to this, Skinner's (1957) definition of verbal behavior was not entirely functional, as it depended upon the reinforcement history of the behavior of the listener, whereby almost any response could be deemed verbal (i.e., what made a speaking response verbal or non-verbal depended upon a conditioning history for the listener's response). Finally, Skinner's (1969) analysis of rule-governed behavior seemed to be incomplete; specifically, it wasn't clear what it meant for a rule to govern behavior through the specification of contingencies (Hayes & Hayes, 1989). These and other shortcomings were the beginning of several necessary extensions to Skinnerian thinking.

Behavior analysis has made a great deal of progress with respect to many of these issues. As mentioned above, contemporary research and theory has explicitly focused on expanding our understanding of verbal behavior and complex psychological events more generally (e.g., Dymond *et al.*, 2010; Rehfeldt & Barnes-Holmes, 2009). Most prominently, RFT has provided a theoretical analysis and empirical support for new concepts which seem to explain the most complex sorts of human behavior. As RFT is perhaps the most widely disseminated and thoroughly researched approach to relational responding I will briefly provide an overview of it below.

### RELATIONAL FRAME THEORY

RFT rests on the assumption that relational responding is learned behavior, a higher-order, overarching operant, and one that involves three outcomes (Hayes *et al.*, 2001, p. 33). The first of these outcomes is mutual entailment. For example, if A is said to be better than B, the derived or emergent response of B being worse than A will be mutually entailed. In other words, the B<A relation will occur in the absence of direct training. The second outcome, combinatorial entailment, occurs when mutually entailed relations combine. For example, if A is said to be better than B, and B is better than C, then A>C and C<A relations will emerge. Lastly, transformation of stimulus function occurs when one stimulus function is altered, and as such, the stimulatory functions of the stimuli related to the stimulus changed also change. For instance, if A is now said to be bad (e.g., if it is determined that A is an unhealthy food), A will be worse than B, B better than A, B worse than C, and C better than both B and A. That is, the “entire network” will be changed (Hayes *et al.*, 2001). The fact that these relations involve more than “sameness”, as in stimulus equivalence, has been used to suggest the need for these new concepts (Hayes *et al.*, p. 29). Most importantly, these outcomes emerge in the absence of explicit training. That is, given an assumed history of responding with respect to relations, individuals may respond with respect to relatively new relations in the absence of specific training. These relations are often said to be “derived” or “emergent”.

The emphasis on additional aspects of psychological events has been fruitful for behavior analysis. Moreover, given the incompleteness of Skinner’s initial constructions (e.g., 1957, 1969), they have been necessary areas for further development. Surely, as scientific enterprises are cumulative in nature (Kantor, 1953; Skinner, 1953), continued development is to be hoped for. It is my perspective, however, that interbehaviorism has been inappropriately and prematurely overlooked, or at the very least not yet fully appreciated by workers in this exciting area of behavior analysis. Moreover, from an interbehavioral perspective the continued debate and theoretical diversity surrounding relational responding may be a product of a misconstrued subject-matter more generally (see Parrott, 1983). As I have mentioned, however, both interbehaviorism and interbehavioral psychology have yet to be appreciated by workers in psychology and behavior analysis. Therefore, in the following section I will provide an overview of the psychological event from an interbehavioral perspective, as it may prove to be a viable construct for workers in relational responding to consider.

### INTERBEHAVIORAL PSYCHOLOGY

Interbehavioral psychology (Kantor, 1958) is a scientific approach to the discipline of psychology, which rests upon a larger philosophy or logic of science, interbehaviorism (Kantor, 1953). Interbehaviorism involves an explicitly articulated philosophy, and thus, while behavior analysts might find it to be similar to other philosophies in some regards (e.g., Skinner's radical behaviorism), its explicit aim to articulate philosophical assumptions differs rather drastically from other philosophies, even within the behavioral tradition (see Clayton, Hayes, & Swain, 2005; Kantor, 1958; Kantor & Smith, 1975). Furthermore, radical behaviorists place heavy emphasis on investigation and application, and while these are aims of specific subsystems within interbehavioral psychology, they are never confused with the goals of the entire enterprise. For example, many workers in the area of relational responding have embraced a philosophy termed "functional contextualism", which has utility as its truth criteria (S. Hayes, 1993). While far beyond the scope of the current paper, science is never about truth from the perspective of interbehaviorism (L. Hayes, 1993). Rather, science involves activities aimed at "determining a) the existence or non-existence of certain things and events and b) the characteristics of such things when they do exist." (Kantor, 1953, p. 4). Moreover, philosophy is viewed as a scientific enterprise itself (Kantor, 1953, p. 26), and thus "successful working", a practical aim, seems inadequate as a comprehensive scientific philosophy (L. Hayes, 2010).

Pertinent to the topic of relational responding is interbehavioral psychology. Interbehavioral psychology emphasizes the interactional nature of stimulation and responding ( $sf \leftarrow \rightarrow rf$ ). That is, stimulation and responding are conceptualized as one, and only distinguished for analytical purposes (Kantor, 1958). As such, interbehaviorists avoid the over focus on a specific side of the  $sf \leftarrow \rightarrow rf$  interaction, such as when behavior analysts tend to overemphasize the response side of psychological events. It is for this reason that the focus is on interbehavior, rather than just behavior. Characterizing the subject-matter as interbehavior highlights the fact that it is always an interaction. Moreover, stimulation, as a psychological function, is explicitly distinguished from stimulus objects (Kantor, 1924, pp. 47-48; Parrott, 1983, 1984, 1986). For example, the physical properties of a picture, including its color and texture, are explicitly distinguished from the picture's psychological properties, such as its stimulating memorial interactions (e.g., seeing the person who gave you the picture, hearing their voice). Similarly, a piano might have a number of object properties, such as the way the wood looks, the color of the keys, and more, and these properties are again explicitly distinguished from its psychological properties (e.g., hearing an old song which was played in the past, even though the song is not currently being played).

The distinction between stimulus objects and stimulus functions is rather important as it permits the possibility that responding may occur with respect to objects which are not physically present, given their stimulatory properties inhering in present physical objects (also see Hayes, 1992b). This occurs when an individual has a history of interacting with spatio-temporal association conditions with both currently present and

absent objects (Kantor, 1921), with the outcome being stimulus substitution (Kantor, 1924, 1926). I will elaborate on this process below.

For example, an individual's interactional history might involve conditions whereby a mountain trail, friend, and conversational topic all occurred in spatio-temporal proximity to one another. In Kantor's terms, these factors were all associated in the environment. Given this interactional history, upon visiting the same mountain trail the individual may imagine the person and reminisce about the conversational topic, even in the physical absence of these stimuli themselves. In Kantor's terms, we would say that the mountain trail is substituting for the person and conversational topic, whereby both of these factors are psychologically present, while physically absent (see Hayes, 1992b). Of course, these sorts of association conditions can become rather elaborate and subtle. For example, the weather may also participate in these conditions. The subtlety and elaborate nature of association conditions may make substitute stimulus functions particularly difficult to detect in the absence of a thorough observational history, such as when you often know what a good friend is responding to, but are less aware of what new acquaintances are interacting with (see Hayes & Fryling, 2009a).

The distinction between stimulus objects and stimulus functions presents new and exciting opportunities for the type of events that can be conceptualized from a natural science perspective. For example, while we traditionally have difficulty addressing topics like dreaming and memory in a comprehensive and coherent manner, the notion of stimulus substitution seems to provide a rather straight forward and naturalistic conceptualization of them (e.g., Dixon & Hayes, 1999; Fryling & Hayes, 2010). Related to this, the interbehavioral perspective adds conceptual clarity to our consideration of verbal behavior and language more generally. Rather than giving verbal behavior any sort of special status, the interbehavioral approach conceptualizes it as a type of implicit responding (or "response substitution", Kantor, 1924, 1926). Indeed, implicit responding is a unique and important type of responding, as it is the only sort of responding that bears no relation to the physical properties of stimulus objects. Moreover, that it bears no relation to the physical properties of stimulus objects permits implicit responses to occur in virtually any spatio-temporal relationship, such that implicit responses might develop a range of complex substitutional stimulus functions (see Parrott, 1984). As much of what we call complex behavior involves responding with respect to historical factors which are not currently physically present, implicit responding with respect to substitute stimulation is a fundamental aspect of psychological phenomena.

Central to Interbehavioral Psychology is the interbehavioral field construct (Delprato & Smith, 2009; Kantor, 1958; Smith, 2006). Expanding upon the above, the  $sf \leftarrow rf$  interaction participates in a multi-factored, interbehavioral field. The interbehavioral field is a continuous stream, ongoing and interrelated in nature. Kantor's construction of the psychological event is an attempt to construct that field of interaction. The psychological event is conceptualized by the following formula:  $PE = C(k, sf, rf, st, hi, md)$ . Thus, in addition to the  $sf \leftarrow rf$  interaction, the psychological event is interrelated with setting factors ( $st$ ), interbehavioral history ( $hi$ ), and the medium of contact ( $md$ ). Each of these five factors are participatory ( $C$ ); that is, none have independent, dependent, or causal status. Moreover, changing one factor changes the entire event, such that each and

every event is exceptionally unique (*k*), as the organization of participating factors is always changing. Thus, each and every psychological event is specific; this is Kantor's specificity principle (e.g., Kantor, 1977, p. 38).

If we were to go back to our example involving the mountain trail we can examine how each of the participants in the interbehavioral field are relevant to psychological events. For example, should the setting be especially cold or rainy, this may impact the field, possibly reconfiguring the entire interaction. Therefore, the substitutional functions that may have occurred in certain weather conditions might not in others, whereas others may; in other words the weather might alter the entire field. Similarly, organismic conditions, such as sickness or fatigue (setting factors) may also alter the field. In addition, the medium of contact can also impact the psychological event. For example, darkness might alter the extent to which stimuli in the environment are contacted, impacting their operation. Of course, history plays a role in all psychological events as well. For example, if the individual had just had an argument about a certain topic prior to the hike it is possible that this would have altered the field as well. Again, *k* represents the unique configuration of each and every psychological event. Consistent with the above, weather conditions come and go, histories are always changing, and so forth; therefore each psychological event is unique and specific. Finally, *c* represents the fact that each and every psychological event is one integrated whole. Therefore, it is important to re-emphasize that when one of these factors are manipulated it is the entire field which is changed, whereby particular factors are never given independent, dependent, or causal status.

### UNDERSTANDING RELATIONAL RESPONDING

This section attempts to articulate the implications of the interbehavioral position described above to the conceptualization of phenomena typically referred to as relational responding. Let us return to our earlier example of better than/worse than relations. Again, suppose that A is said to be better than B, the interesting phenomena being that B would then "automatically" be said to be worse than A (RFT's mutual entailment). Of course, this couldn't happen if an individual had not responded with respect to an environment in which better than/worse than association conditions had occurred. In other words, for an individual to engage in such a response (to "derive" these relations), the individual must have interacted with spatio-temporal association conditions (relations) between "better than" and "worse than". Thus, when A is said to be better than B, the substitute stimulus function is that B is worse than A (i.e.,  $A > B = B < A$ ; or  $A > B(B < A)$ ). It is important to note that substitute stimulus functions do not emerge out of the organism; and there are never any explicit or implicit references to mentalism. The excitement of emergent relations is that they are examples of implicit responding with respect to substitute stimulation, and at the heart of understanding complex human behavior.

This sort of analysis can be extended to the process of combinatorial entailment as well. Again, assume A is better than B, and B is better than C, the excitement being

that A will “automatically” be better than C, and C will “automatically” be worse than A. As described above, if we assume  $A > B$  ( $B < A$ ), and  $B > C$  ( $C < B$ ), then it is no surprise that  $A > C$  and  $C < A$  relations will develop. In other words, C already has the substitute stimulus functions of being worse than B, and B already has the substitute stimulus functions of being worse than A, and so, it seems rather obvious that A would be better than C and C worse than A. Of course, conceptualizing these sorts of relations only seems clear when combinations of substitute stimulus functions are considered.

Finally, if A is suddenly said to be bad (e.g., “A is unhealthy”) it is likely that, given the existing substitutional functions, that a number of stimulus functions will be altered. In this sense, saying that “A is unhealthy” operates as an additional association condition, and alters all of the existing substitutional properties of stimuli which have occurred with respect to A in the past (i.e., B and C). In other words, all of the stimuli in the existing “network” may be changed. Such is the case when one food is thought to taste better than another, which is thought to taste better than another, and then later the least preferred food is said to be the healthiest; indeed, this may alter the manner in which one interacts with all of the previously preferred foods in some way. Moreover, substitute stimulus functions may generalize to objects which have similar physical features, and thus, based on physical similarity various novel foods may become preferred or non-preferred based on existing substitute stimulus functions (this is the process of generalization in behavior analytic thinking). In addition, the setting is often a strong participant in psychological events of these complex varieties, and various substitute stimulus functions are always actualized (or not) in unique contextual circumstances.

My goal was to briefly explain how interbehavioral psychology might be used to approach complex behavior, including that known as relational responding, in a relatively straightforward, comprehensive, and parsimonious manner. Kantor’s construction of the psychological event, in particular, the explicit distinction between stimulus objects and stimulus functions and the multi-factored nature of the subject-matter, is what permits the ease with which these important events might be conceptualized. In the following section I will briefly comment on why behavior analysis has needed new concepts and theories to handle complex behavior, and also explain why such theories are as diverse as they are.

## IMPLICATIONS

Skinner’s primary contribution to psychology is operant conditioning; the notion that behavior operates on, or changes the environment in some way, and moreover, that these changes select certain classes of behavior (1953, 1971, 1974). Traditionally, behavior was conceptualized by the three-term contingency, where the discriminative stimulus-response-consequence sequence represented the primary means by which behavior was analyzed. Behavior analysts also frequently include motivating operations in behavior analyses, whereby the contingency is assumed to be four-term (Michael, 1993; also see Schlinger & Blakely, 1987).

This analysis has resulted in a great deal of progress for behavior analysis. However, as I have mentioned, conceptual problems seemed to emerge when more complex sorts of behavior were considered. After considering Kantor's construction of the psychological event, it is easy to see how the explicit distinction between stimulus objects and stimulus functions is advantageous for the conceptualization of complex behavior (Parrott, 1983a, 1983b, 1984, 1986). Indeed, for those that do not embrace this explicit distinction, difficulties occur when complex behavior is considered. For example, when asked to describe how one might see something in the absence of the physical object seen (as in "imagining"), Skinner (1974, pp. 91-92) suggested that we may do so simply because seeing the object is reinforcing. In other words, because the stimulatory aspect of the psychological event is not made explicit, Skinner was left to speculate on how the response might also be a reinforcer. Difficulties related to this topic also arose when the areas of emergence and language were confronted (e.g., Hayes & Hayes, 1989, Parrott, 1984). While some may surely disagree (e.g., Schlinger, 2010), generally speaking, a number of important issues were unable to be dealt with given Skinner's initial constructs, at least when we acknowledge where and how progress has been made in the area of complex behavior. That is, a critical analysis of Skinner's work has been fruitful for behavior analysis.

Importantly, the above contentions are not merely personal opinions. As I have mentioned, workers in behavior analysis now have a menu of theories to choose from to overcome initial difficulties in Skinner's system. The failure to provide a solid philosophical foundation is precisely why such a range of theories have been put forth in the first place. As mentioned earlier, naming (Horne & Lowe, 1996), joint control (Lowenkron, 1998), stimulus equivalence (Sidman, 2000), relational frame theory (S. Hayes *et al.*, 2001), Greer's psychological development theory (Greer & Speckman, 2009) and more have all attempted to deal with the conceptual challenge of emergent relations. Again, given the importance of these topics this is a good sign. Furthermore, science is always developing, and as such, progress, elaboration, and change should be welcomed. At the same time, however, such theoretical diversity surrounding the topic is indicative of a need for further system building in behavior analysis.

Interestingly, it seems unlikely that exhaustive experimentation will ultimately resolve many of these issues. Confusion in this regard has an important result: experimentation may be pursued in the name of understanding absolute or ultimate truth. Unfortunately, experimental results can be interpreted in a number of ways; frankly, even in dualistic ways, and thus, it is unlikely that any amount of data will ever confirm that one theory is better or truer than others. Claiming the goal of "successful working" will do nothing to resolve this either, as all theories are likely to "work" for their own particular goals. Moreover, research aimed at proving one theory to be better or worse than another is not likely to be discovery oriented. In other words, this sort of research is less likely to result in understanding something new about the subject-matter. Kantor (1953, pp.110-114) has suggested that these are all signs of "experimentalism" and encourage ritualistic-like exercises in self-expression rather than discovery. What is worse, they are all signs of deeply rooted philosophical fallacies, namely absolutism and universalism. What is needed is a reconsideration of the subject-matter, and a firm

foundation based upon a thoroughly scientific philosophy (Kantor, 1953, 1958, 1969). As I have described in this paper, interbehaviorism and interbehavioral psychology seem to provide such a foundation for workers in the area of relational responding and behavior analysis in general.

### CONCLUSIONS

I have suggested that interbehavioral psychology provides a straightforward, consistent, comprehensive, and parsimonious means by which all psychological events may be conceptualized. That is, Kantor's construction of the psychological event does not require any additional concepts to explain complex behavior, nor are important issues left implicit. In fact, because assumptions are made explicit, the opportunity for misunderstanding and confusion along the way is much less likely. The implications of this are great; of particular relevance to this topic is the increased likelihood of disciplinary productivity, which might set the occasion for effective interdisciplinary relationships (see Hayes & Fryling, 2009b). In other words, there are both internal and external implications of adopting an interbehavioral foundation.

The theoretical diversity in behavior analysis should be considered an indication of development; a sign that we are "getting there" as a scientific enterprise. System building efforts are one way to speed up this process, to "get us there" faster, and to assure that our destination is indeed where we had intended to arrive. Moreover, employing interbehavioral psychology in system building efforts will protect behavior analysis from dualism, particularly subtle forms of it, which can be incredibly dangerous and commonplace in analyses of language and complex behavior more generally. As mentioned above, the implication of this is that disciplinary productivity may be improved sooner rather than later. Disciplinary productivity is assured by the precise definition of the subject-matter and system assumptions more generally. Of particular concern is that work conducted under the purview of one theory may or may not have anything to do with work conducted under the purview of another, stunting our overall progress as a scientific enterprise.

As I have described in this paper the issue everybody in the area of relational responding is trying to understand seems to be stimulus substitution, especially complex instances of it, all of which participate in multi-factored interbehavioral fields. Indeed, stimulus substitution is a process fundamental to relational responding. The interbehavioral approach brings clarity to what it is that everybody is interested in, in a manner which is internally consistent, scientifically significant, comprehensive, and parsimonious (Kantor, 1958). Indeed, such a foundation might promote more cooperative and integrative efforts within this area. If this were to happen we might understand more about the "it" that we are so interested in with respect to relational responding.

It is important to note that a wealth of investigation has come from the various perspectives on relational responding and verbal behavior more generally. To be clear, I am not suggesting that any of the work in the area of relational responding is bad or not useful. On the contrary, much of the research in the area of relational responding

has a rather large amount of applied value, and should be appreciated for improving our orientation to the subject-matter and understanding of the human condition in general. Further, the constructs developed in many of these theories seem to readily lend themselves to investigation. These research efforts typically involve various histories of an organism interacting with spatio-temporal association conditions (relations), under a variety of contextual circumstances, and examining the development of various substitute stimulus functions. In other words, they can all be easily conceptualized within the interbehavioral system. Moreover, perhaps this research should be conceptualized within the interbehavioral system, as it may help to sharpen and improve the various investigative constructs employed, and likewise, investigation might foster the refinement of both descriptive and interpretive constructs within the larger system (Fryling & Hayes, 2009; Kantor, 1957; Smith, 2007). In other words, should interbehaviorism and interbehavioral psychology be more clearly understood by workers in the area of relational responding they might find it to be rather complimentary to and even supportive of their work.

Finally, I believe interbehavioral psychology may offer some insight as to why we have found ourselves amidst such theoretical diversity and disgruntlement in the first place. It is my contention that the subject-matter of behavior analysis has not been articulated in an adequate manner, or at least not explicitly articulated in an adequate manner. As I have mentioned, should psychological stimulation be adequately distinguished from stimulus objects the need for additional theories and concepts might be removed. Moreover, if the entire event field were emphasized, rather than only parts of it, the tremendous influence of the context would have never been overlooked in the first place, and thus, its powerful participation would not require the quasi-paradigm shift that has occurred in behavior analysis. Again, none of this is offered in an effort to criticize our progress. I am merely suggesting that a) interbehaviorism not be improperly dismissed during system building efforts by workers in relational responding, and further, that it may possibly be integrated into work in this area, and b) that the comprehensiveness and simultaneous parsimony of the interbehavioral foundation be appreciated.

Kantor's system seems to have been ahead of its time. However, it seems like the time it was ahead of is now. That is, it seems like behavior analysis is beginning to catch up. The increased emphasis on bidirectionality, emergent relations, context, history, setting factors, and more suggests that behavior analysis may be ready for interbehaviorism, more than ever before at least. It is my hope that I have highlighted the relevance of interbehavioral psychology to complex behavior, and in particular, the area of relational responding. In doing so, I hope that workers in the area of relational responding might appreciate and perhaps even embrace the interbehavioral position.

## REFERENCES

- Clayton MC, Hayes LJ, & Swain MA (2005). The nature and value of scientific system building: The case of interbehaviorism. *The Psychological Record*, 55, 335-359.
- Delprato DJ & Smith NW (2009). Sketch of J. R. Kantor's psychological interbehavioral field theory. *The Psychological Record*, 59, 671-678.

- Dixon MR & Hayes LJ (1999). A behavioral analysis of dreaming. *The Psychological Record*, 49, 613-628.
- Dixon MR, Small SL, & 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, May RJ, Munnely A, & Hoon AE (2010). Evaluating the evidence base for relational frame theory: A citation analysis. *The Behavior Analyst*, 33, 97-117.
- 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.
- Fryling MJ & Hayes LJ (2009). Psychological events and constructs: An alliance with Smith. *The Psychological Record*, 59, 133-142.
- Fryling MJ & Hayes LJ (2010). An interbehavioral analysis of memory. *European Journal of Behavior Analysis*, 11, 53-65.
- Greer RD & Speckman JM (2009). The integration of speaker and listener responses: A theory of verbal development. *The Psychological Record*, 59, 449-488.
- Gross AC & Fox EJ (2009). Relational Frame Theory: An overview of the controversy. *The Analysis of Verbal Behavior*, 25, 87-98.
- Hayes LJ (1991). Substitution and reference. In L. J. Hayes & P. N. Chase (Eds.), *Dialogues on verbal behavior* (pp. 3-14). Reno, NV: Context Press.
- Hayes LJ (1992a). Equivalence as process. In SC Hayes & LJ Hayes (Eds.), *Understanding verbal relations* (pp. 97-108). Reno, NV: Context Press.
- Hayes LJ (1992b). The psychological present. *The Behavior Analyst*, 15, 139-145.
- Hayes LJ (1993). Reality and truth. In SC Hayes, LJ Hayes, HW Reese, & TR Sarbin (Eds.), *Varieties of Scientific Contextualism* (pp. 35-44). Reno, NV: Context Press.
- Hayes LJ (1996). Listening with understanding and speaking with meaning. *Journal of The Experimental Analysis of Behavior*, 65, 282-283.
- Hayes LJ (2010). *Descriptive contextualism*. Invited address presented at the 5<sup>th</sup> International Colloquium of Interbehavioral Psychology, Bogota, Colombia.
- Hayes LJ & Fryling, M. J. (2009a). Overcoming the pseudo-problem of private events in the analysis of behavior. *Behavior and Philosophy*, 37, 39-57.
- Hayes LJ & Fryling, M. J. (2009b). Toward an interdisciplinary science of culture. *The Psychological Record*, 59, 679-700.
- Hayes SC (1993). Analytic goals and the varieties of scientific contextualism. In SC Hayes, LJ Hayes, HW Reese & TR Sarbin (Eds.), *Varieties of scientific contextualism* (pp. 11-27). Reno, NV: Context Press.
- Hayes SC & Barnes-Holmes, D. (2004). Relational operants: Processes and implications: A response to Palmer's review of Relational Frame Theory. *Journal of the Experimental Analysis of Behavior*, 82, 213-224.
- Hayes SC, Barnes-Holmes D, & Roche B (2001). *Relational frame theory: A post-Skinnerian account of human language and cognition*. New York: Plenum Press.
- Hayes SC & Hayes L J (1989). The verbal action of the listener as a basis for rule-governance. In SC Hayes (Ed.), *Rule-governed behavior: Cognition, contingencies, and instructional control* (pp. 153-190). Reno, NV: Context Press.
- Hayes SC, Strosahl K, & Wilson KG (1999). *Acceptance and Commitment Therapy: An experiential approach to behavior change*. New York: Guilford Press.
- Horne PJ & Lowe CF (1996). On the origins of naming and other symbolic behavior. *Journal of the Experimental Analysis of Behavior*, 65, 185-241.
- Kantor JR (1921). Association as a fundamental process of objective psychology. *The Psychological*

- Review*, 28, 385-424.
- Kantor JR (1924, 1926). *Principles of Psychology*. (Vols. 1 & 2). Chicago: Principia Press.
- Kantor JR (1953). *The Logic of Modern Science*. Chicago: Principia Press.
- Kantor JR (1957). Events and constructs in the science of psychology: Philosophy-Banished and recalled. *The Psychological Record*, 7, 55-60.
- Kantor JR (1958). *Interbehavioral psychology*. Chicago: Principia Press.
- Kantor JR (1969). Spurious philosophy and specious psychology. *The Psychological Record*, 19, 15-27.
- Kantor JR (1977). *Psychological linguistics*. Chicago: Principia Press.
- Kantor JR & Smith NW (1975). *The science of psychology: An interbehavioral survey*. Chicago: The Principia Press.
- Lowenkron B (1998). Some logical functions of joint control. *Journal of the Experimental Analysis of Behavior*, 69, 327-354.
- Michael J (1993). Establishing operations. *The Behavior Analyst*, 16, 191-206.
- Palmer DC (2004a). Data in search of a *principle*: A review of Relational Frame Theory: A post-Skinnerian account of human language and cognition. *Journal of the Experimental Analysis of Behavior*, 81, 189-204.
- Palmer DC (2004b). Generic response classes and Relational Frame Theory: Response to Hayes and Barnes-Holmes. *Journal of the Experimental Analysis of Behavior*, 82, 225-234.
- Parrott LJ (1983a). Perspectives on knowing and knowledge. *The Psychological Record*, 33, 171-184.
- Parrott LJ (1983b). Similarities and differences between Skinner's Radical Behaviorism and Kantor's Interbehaviorism. *Mexican Journal of Behavior Analysis*, 9, 95-115.
- Parrott LJ (1984). Listening and understanding. *The Behavior Analyst*, 7, 29-39.
- Parrott LJ (1986). On the role of postulation in the analysis of inapparent events. In HW Reese & LJ Parrott (Eds.), *Behavior Science: Philosophical, methodological, and empirical advances* (pp. 35-60). Hillsdale, NJ: Erlbaum Associates.
- Rehfeldt RA & Barnes-Holmes Y (2009). *Derived relational responding: Applications for learners with autism and other developmental disabilities: A progressive guide to change*. Oakland, CA: New Harbinger.
- Schlinger HD (2010). The impact of Skinner's *Verbal Behavior*: A response to Dymond and Alonso-Álvarez. *The Psychological Record*, 60, 361-368.
- Schlinger H & Blakely E (1987). Function-altering effects of contingency-specifying stimuli. *The Behavior Analyst*, 10, 41-45.
- Sidman M (2000). Equivalence relations and the reinforcement contingency. *Journal of the Experimental Analysis of Behavior*, 74, 127-146.
- Skinner BF (1953). *Science and human behavior*. New York: The Free Press.
- Skinner BF (1957). *Verbal behavior*. New York: Appleton-Century-Crofts.
- Skinner BF (1969). *Contingencies of reinforcement: A theoretical analysis*. New York: Appleton-Century-Crofts.
- Skinner BF (1971). *Beyond freedom and dignity*. New York: Knopf.
- Skinner BF (1974). *About behaviorism*. New York: Knopf.
- Smith NW (2006). The interbehavioral field. In BD Midgley & EK Morris (Eds.), *Modern perspectives on J. R. Kantor and interbehaviorism* (pp. 87-110). Reno, NV: Context Press.
- Smith NW (2007). Events and constructs. *The Psychological Record*, 57, 169-186.
- Vilardaga R, Hayes SC, Levin ME, & Muto T (2009). Creating a strategy for progress: A contextual behavioral science approach. *The Behavior Analyst*, 32, 105-133.

Received, March 3, 2011

Final Acceptance, January 10, 2012