

AN INTRODUCTION TO RELATIONAL FRAME THEORY: BASICS AND APPLICATIONS

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Relational Frame Theory (RFT) has made a very respectable empirical and theoretical showing in the psychological literature during the past decade, but the theory still remains unknown or unappreciated by most cognitive and behavioral psychologists. This article highlights why this might be the case, and presents RFT in a simplified, systematic manner, in part by comparing it to a well-known cognitive model. Finally, the article outlines RFT's relatively unique contributions to psychological accounts of language and cognition, and addresses some of RFT's scientific and applied implications.

Relational Frame Theory (RFT) has had a notable presence in the psychology literature since its development over a decade ago. Well over 30 empirical RFT studies have been published in peer-reviewed psychology journals in the past 10 years, and an even larger number of theoretical and descriptive treatments of it have been published as well. Recently, a book length treatment of RFT has been made available (Hayes, Barnes-Holmes, & Roche, 2001), summarizing supporting data and extending RFT analyses to a variety of psychological phenomena. In addition, RFT principles form the theoretical background of Acceptance and Commitment Therapy (ACT; see, for example, Hayes, Strosahl, & Wilson, 1999).

Given the relatively frequent appearances of Relational Frame Theory in psychological literature, it is perhaps surprising that the theory remains virtually unknown outside behavioral circles, and even unrecognized or misunderstood by many academic behavioral psychologists. RFT has largely escaped notice and comprehension for at least three reasons. First, RFT intentionally makes use of technical, non-colloquial language to allow a scientific treatment of cognition. As such, published descriptions of RFT are undeniably technical, and not readily accessible to those who have not spent a considerable amount of time trying to understand the theory. Second, its significance and relevance to human psychopathology and language in general do not immediately seem obvious due to its non-traditional account of these phenomena. Finally, non-behavioral psychologists have long assumed that behaviorism has little or nothing to offer to the understanding of human language and cognition. Theories of these fundamentally

important human processes that arise from the behavioral tradition are thus easy to ignore.

The first purpose of this article is to convey the principles of Relational Frame Theory in relatively easy to understand fashion. In doing so, it is hoped that what RFT has to do with language, cognition, and psychopathology will become apparent. Since a vast amount of cognitive literature regarding these topic areas currently exists, RFT's relatively unique and important contributions to this literature will be outlined as well. To accomplish these goals, a popular and widely-known cognitive model of a "fear network" (Lang, 1985) will first be presented and briefly described. Lang's model contains some cosmetic similarities to RFT that will hopefully orient the reader to the analysis that follows. Following the description of this model, an RFT account of the same information presented in the model will be advanced, allowing a systematic introduction to the reader of the defining features of RFT. Finally, several reasons why RFT offers a unique and important approach to language, cognition, and human suffering will be described. Empirical evidence and more extensive arguments of technical points about RFT made throughout the article can be found, for example, in Hayes et al. (2001).

RELATIONAL FRAME THEORY: BASICS AND APPLICATIONS

Lang's Fear Network

Lang's (1985) exemplary model of a fear network is presented succinctly in Figure 1. Stimulus propositions (indicated in ovals in Figure 1) involve "information about prompting external stimuli and the context in which they occur," and response propositions refer to

“information about responding in this context, including expressive verbal behavior, overt acts, and the visceral and somatic events that mediate arousal and actions” (p. 194). Meaning propositions (shown in rectangles) refer to “information that defines the meaning of the stimulus and response data” (p. 194). Lang maintains that the network of stimuli shown in the figure exists as a schema in long-term memory, and states that the entire network is activated when any component stimulus is encountered. The model indicates that simply walking in a wooded area and seeing quick movement out of the corner of one’s eyes, for example, could be enough to accelerate one’s heart rate, feel afraid, and subsequently run away. The stimulus propositions provide the initial input, the implications of these stimuli are altered by the meaning propositions present in the network (e.g., seeing movement in a wooded

area implies danger and other unpredictable consequences). Responses like an accelerated heart rate, saying “I’m afraid,” and running away are the almost inevitable outcome of the cognitive processing specified by the model. The components of the network can be learned through direct experience (e.g., by being bitten by a snake), through instruction (learning about what snakes are, where they live, and how dangerous they can be), and through modeling (watching others respond in fear to snakes, or hearing others describe how afraid they are of snakes). As stated earlier, only a few of the stimuli specified in the model need be present for the entire network to be activated.

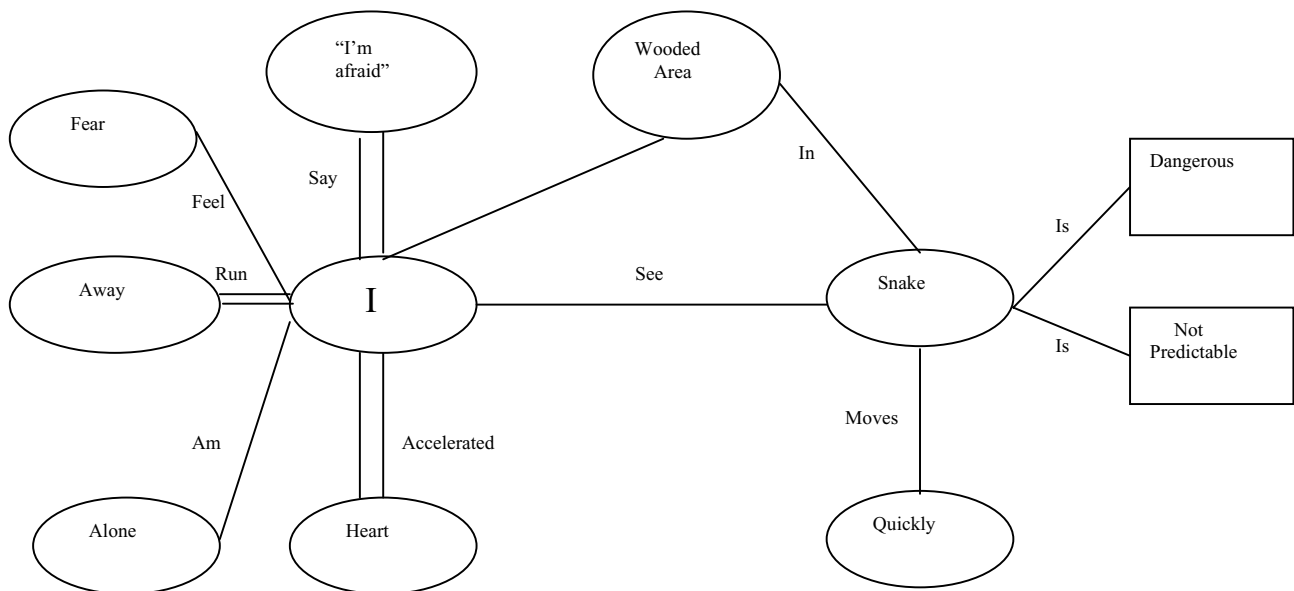


Figure 1. A modified version of Lang’s (1984) fear network. Stimulus propositions are designated in ovals, meaning propositions in rectangles, and response propositions by ovals connected with double lines.

An RFT Account of Lang’s Model

Three observations about Lang’s model will help prepare the reader for the discussion of RFT that follows. First, note that the schema in Figure 1 includes examples of thoughts, emotions, physiological sensations, and overt behaviors. As with Lang’s model, RFT incorporates all these classes of stimuli. Second, note that the figure specifies a number of

explicit and implicit *relationships* between its component stimuli. For example, the feeling of “fear” and the thought “I’m afraid” can be considered as *causes* for “running away,” a “snake” is considered *equivalent* to “danger” and “unpredictability,” and both the “snake” and “Me” are *in* a “wooded area.” In these examples, then, we can say that there are causal relationships between stimuli (such that the thought and feeling of fear are viewed as causes

for running), relationships of coordination or rough equivalence between stimuli (such that a “snake” is considered to be roughly the same thing as “danger,” for example), and hierarchical relationships between stimuli (where a “snake” is considered to be part of something larger—in this case, a “wooded area”). Third, notice that the different stimuli pictured in Figure 1 share some of the functions of the other stimuli in the network by virtue of their association. For example, being in a wooded area might lead to the same fear, accelerated heart rate, running away that seeing a snake slither toward me would. The wooded area thus can be said to serve some of the same functions as a snake simply because I know that snakes can be found *in* wooded areas. Similarly, quick movement in the underbrush seen peripherally might also have some of the same stimulus functions that actually seeing a snake would provide.

The notion of relationships between stimuli is one of the critical hallmarks of Relational Frame Theory. Look at the RFT version of Lang’s fear network pictured in Figure 2. As a starting point, notice that this relational frame specifies that a hierarchical relationship exists between “I/me” and “wooded area,” such that “I” am *in* a “wooded area” (and the wooded area correspondingly contains me).

A similar relationship exists between “snake” and “wooded area.” Note also that “snake” is related coordinately (i.e., as roughly equivalent) to “danger,” “not predictable,” and “quick movement,” and that these three stimuli are further related coordinately to “fear.” The presence of any one of these five stimuli, in this context, could thus ‘carry’ some important stimulus functions of the other stimuli by virtue of this relationship of coordination. Further, as many people do, “I” frame the experience of “fear” and thoughts like “I’m afraid” as causes for things like “running away.” Finally, “fear” is framed in coordination with an “accelerated heart rate,” being “alone,” and thinking things like “I’m afraid.” Any one of these stimuli, if experienced, could thus deliver some stimulus functions of their coordinated stimuli. For example, an accelerated heart rate could lead me to think that I am afraid, with a feeling of fear occurring simultaneously. Basically, then, the specified relationships between stimuli provide “me” with more information about those stimuli, and actually result in changing the stimulus functions of the stimuli involved.

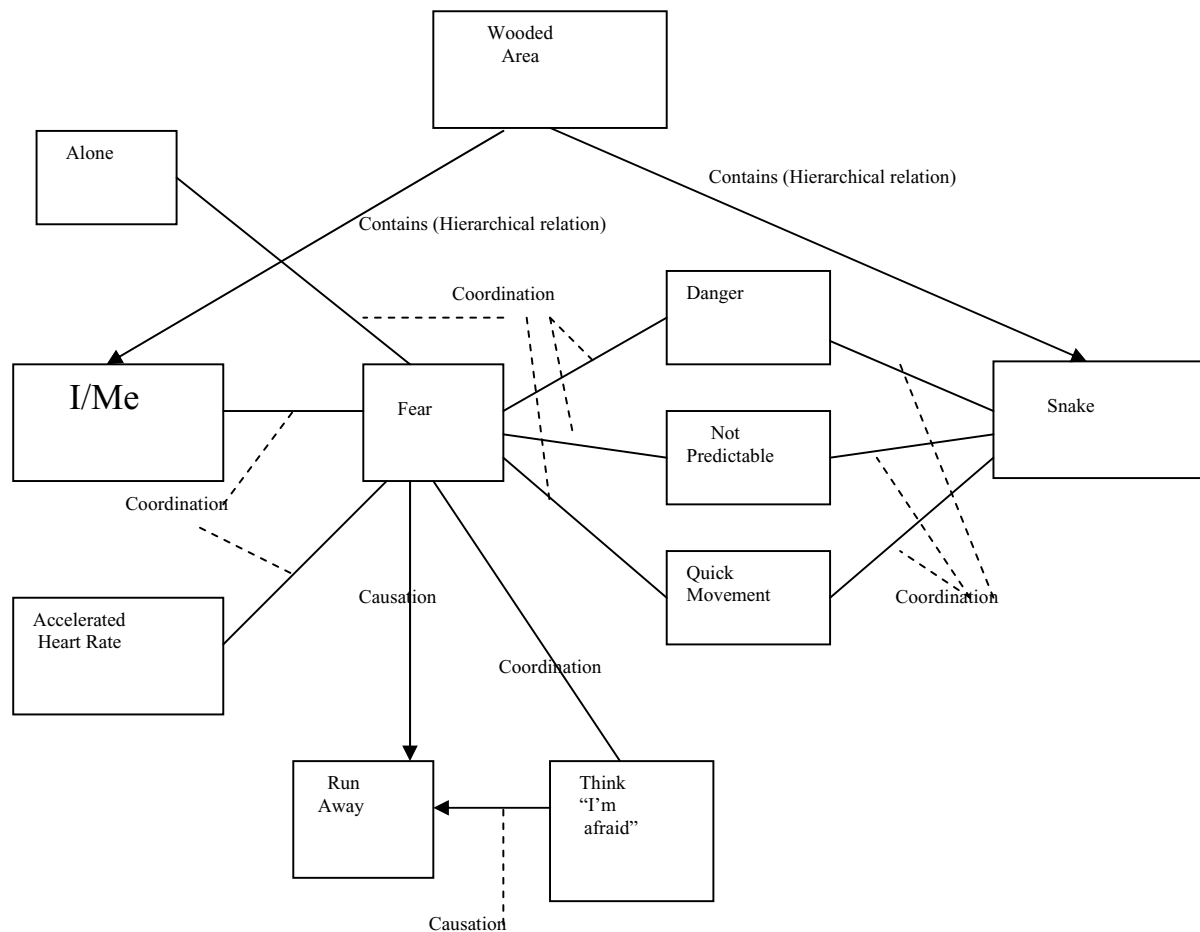


Figure 2. An RFT adaptation of Lang’s (1985) fear network.

Relational Responding

In behavioral circles, it is very common to talk about discriminating (i.e., detecting and responding to) specific stimuli. The RFT principle of *relational responding* refers to the process of discriminating relationships *between stimuli* such as those designated in Figure 2. The idea of discriminating relationships between stimuli is important, in part, because it allows more information to be gleaned from sets of stimuli than discrimination of each individual member of the set would allow. For example, being able to discriminate a wooded area, and being able to discriminate a snake, tells me nothing about the relationship between snakes and wooded areas. If I also knew that snakes are often in wooded areas because a friend told me, I would then know to be more careful when walking in the woods even if I had never once encountered a snake in the woods (and thus

never had the opportunity for wooded areas to become classically conditioned to snakes). If I was also told that “snakes are dangerous, unpredictable, and move quickly,” and I already knew that dangerous unpredictability and sudden movement were things to be justifiably afraid of, I would then know to be afraid of snakes even if I had never encountered one before. Knowing the relationships between wooded areas teeming with dangerous snakes that are a deadly threat to me by virtue of the fear they engender when I think about them could also engender other, even more complex behavior. For example, if I knew I was going on a camping trip to the woods, the relational frame depicted in Figure 2 might also cause me to pack a snake bite kit and wear tall leather boots, and to make sure my tent flap is tightly zipped at all times, all to avoid problems from a creature I have never even seen. While there are some obvious benefits to the ability to relate information like this, it is

also clearly obvious that this process can get out of control and lead to psychological problems like the snake phobia pictured in Figure 2.

It is possible that the stimuli shown in Figure 2 could all easily have come to be “related” according to standard behavioral principles like respondent conditioning, operant conditioning, and stimulus generalization. However, it should be remembered that traditional behavioral accounts of respondents and operants (with the exception of stimulus generalization) exclusively involve direct contingencies that have actually been encountered at some point(s) in one’s learning history. The principle of stimulus generalization requires that I have a history with respect to stimuli that are formally similar to the object of the generalization. Formal properties of stimuli are those properties that can be seen, heard, smelled, touched, or tasted. Assuming that I have never seen a snake, and did not regularly look at pictures of snakes while I learned second hand all the things about snakes designated in Figure 2, stimulus generalization could similarly not be responsible for my snake phobia. Carefully controlled empirical studies on RFT have consistently demonstrated that relational responses like the ones shown in Figure 2 can and do occur in manner consistent with RFT principles and inconsistent with direct contingency respondent, operant, and generalization processes (see Hayes et al., 2001, for a review of these studies and an elaboration on this argument).

Derived Relational Responding

The empirically demonstrated fact that specific types of relational responding occur even in specific situations where they have not been directly taught requires that such instances be referred to as *derived relational responding*. Derived relational responding involves the ability to relate stimuli in a variety of ways even though one has never been reinforced (i.e., directly trained) for relating those stimuli in those specific ways. Look at the relationships between “fear,” “danger,” “not predictable,” “quick movement,” and “snake” in Figure 2, for example. Assume that no one has ever directly told me that I should be afraid of snakes, or reinforced my fear in the presence of a snake. Assume also that I learned from someone that

snakes can be dangerous, unpredictable, and often move quickly, and that I had learned previously that danger, unpredictability, and quick movement were fearsome events. Even though no one had ever told me that I should be afraid of snakes, I would then know that they are indeed something to be afraid of. Note that these exact relationships between these stimuli are specified in the model. “Snake” is related coordinately with “danger,” “not predictable” and “quick movement,” and these last three stimuli are coordinately related to “fear.” A connection between “fear” and “snake” has thus never been directly learned. Rather, the relationship between “fear” and “snake” has been derived.

There are two specific types of derived relational responding, and both are given technical names so that they can be used with precision. The first type of derived relational responding is called *mutual entailment*. Mutual entailment simply means that if stimulus A is related in a specific way to stimulus B, then B is related in a complementary way to A. Look at the bottom two rectangles in Figure 2. If I have been taught that the cognition “I’m afraid” is a *cause* for “running away,” I would be able to derive that “running away” is an *effect* of thinking “I’m afraid.” Similarly, if I have been taught that “wooded areas” *contain* “snakes,” I would be able to derive that snakes *are contained in* wooded areas. As a final example, if I know that “snakes” “move quickly,” I am able to derive that “quick movement” (in certain contexts) is indicative of “snakes.” Such simple derivations may appear so obvious to the reader that they seem not to warrant any attention. To those first learning language, however, mutual entailment is anything but simple. A study by Lipkens, Hayes, & Hayes (1993) provided evidence that very young children (about 1 ½ years) do not derive mutually entailed relations. Also, a study currently under way with autistic children (Blackledge, Blackledge, Cummings, & Hayes, in progress) has indicated that autistic children must be directly trained to mutually entail relations before they can do so with spontaneity. Additionally, with the possible exception of a single sea lion (Schusterman & Kastak, 1998), no non-human animal has ever demonstrated mutual entailment when relating stimuli on non-formal dimensions. Deriving mutually entailed relations seems simple to us

because we have been doing it extensively for almost our entire lives.

The second type of derived relational responding is called *combinatorial entailment*. To understand this principle, the relationship between at least three stimuli must be considered. Look again at Figure 2, and consider again the relation it describes between “fear” and “snake.” Mutual entailment is demonstrated in the reciprocal relationships that exist between “fear” and “danger,” “not predictable,” and “quick movement,” and also in the reciprocal relationships between “snake” and “danger,” “not predictable,” and “quick movement.” “Fear” and “snake” have never been directly related to one another in the figure, and thus any relations between them cannot be accounted for by the process of mutual entailment. The relationship between “fear” and “snake” requires that the relationship between “fear” and the three intermediary stimuli shown in Figure 2, and the relationship between those three intermediary stimuli and “snake,” be combined to form a small network of interrelated stimuli. Thus, the derived relationship between “snake” and “fear” in this case is called *combinatorial entailment*. Combinatorial entailment refers to the reciprocal relationships that exist between two stimuli by virtue of how those stimuli are related to other, intermediary stimuli. Combinatorially entailed relations, by definition, occur between two stimuli that have not been directly related to one another. In this example, the nature of the reciprocal relations between the combinatorially entailed stimuli “fear” and “snake” are rather simple, because only relationships of coordination exist between all elements of their five-stimulus network. Thus, “snake” is combinatorially coordinated with “fear” just as “fear” is combinatorially coordinated with “snake”.

Figure 2 provides other examples that better illustrate the reciprocal nature of combinatorially entailed relations. Look at the relationship between “I/Me,” “Wooded area,” and “Snake,” for example, and suppose that I am currently standing in a wooded area. The figure specifies that there is no direct relationship between “me” and the “snake” by virtue of the fact that “I/Me” and “Snake” are not directly connected to one another. Given this

information alone, I would not be able to know that there may be a snake somewhere around me. But since both stimuli are related to “Wooded area,” I am able to derive a combinatorial relation between them. In this case, I know that snakes are contained in wooded areas, and I also know that I am currently contained in a wooded area. When I combine these two relations, I derive that there is a snake somewhere in the wooded area I am now in.

A different example will more clearly describe the reciprocal nature of combinatorial entailment. Look at the relationships between “accelerated heart rate,” “fear,” and “run away” in Figure 2. “Accelerated heart rate” is related coordinately to “fear,” and “fear” stands in a causal relation with “run away.” No direct relation is specified between “accelerated heart rate” and “run away,” but combinatorial entailment tells us that a causal relationship between “accelerated heart rate” and “run away” may be derived because increased heart rate is coordinated with fear, and fear is framed as a cause for running away. Thus, I may “run away” in a wooded area after I notice my “accelerated heart rate,” perhaps even before I actually interpret that physical sensation as being indicative of fear. The combinatorially entailed causal relationship between “accelerated heart rate” and “run away” is reciprocal in nature. “Running away” is an *effect* of “accelerated heart rate,” which is a *cause* of “running away”. The reciprocal nature of the relationship is further circumscribed by the context designated by Figure 2, such that “accelerated heart rate” is not framed as an *effect* of “running away” from a dangerous and feared situation, but rather part of the cause. Of course, once out of the wooded area, a new context would likely support framing “accelerated heart rate” as a direct effect of “running.” As with mutual entailment, empirical evidence indicates that combinatorial entailment does not occur automatically when learning language, but rather develops as a function of learning language (Blackledge et al., in progress; Lipkens et al., 1993).

Coordination: A Common Relation

Before continuing to describe the primary features of RFT, a brief digression is

warranted to explain a specific type of relation that is often confusing to readers (perhaps because of its unusual name). Probably the most basic and widespread relational response occurring to stimuli involves coordinative relations. If two stimuli are related coordinately, then that means that they are the same or nearly the same. The term coordination is used because it accounts both for things that are identical to one another, and things that are similar in many respects. As with perhaps every relational response, young children first learn how to coordinately relate stimuli based on formal stimulus properties. For example, a child first learning language may quickly learn that 'this Coke' is the same as 'that Coke,' or that 'this hot dog' is the same as the hot dog she ate last week. With a little more practice, she learns that in an important sense, the spoken word "Coke" is the same as actual Coke, and that the written word "Coke" is roughly the same as actual Coke and the spoken word Coke. Here is an example of how this might occur. Suppose a child who has learned that the spoken word "Coke" refers to actual Coke is told that Pepsi is the same as Coke, and that she will receive a glass of Pepsi if she puts away her toys. Even though the child has never tasted or seen Pepsi, relating it coordinately with Coke may make pertinent stimulus functions of actual Coke (e.g., its taste and refreshing quality) psychologically present. Given that the child enjoys Coke and will do almost anything to get some, framing it coordinately to Pepsi leads the child to put away her toys. Even though the stimulus properties of Pepsi have never been directly contacted, framing it coordinately with a familiar stimulus allows the child to 'understand' what Pepsi is.

Transformation of Stimulus Functions

This discussion alludes to another defining characteristic of RFT that has now been alluded to several times. Making relational responses between stimuli results in *transformation of stimulus functions* for all of the stimuli involved. Said more simply, when two stimuli are related, some of the functions of each stimulus change according to what stimulus it is related to, and how it is related to that stimulus. Suppose mom is drinking a 7-Up, and the increasingly verbally sophisticated child (expecting it to be good because she usually likes what mom is drinking) asks for a drink.

Unfortunately, mom doesn't want to share her last 7-Up, so she says, "7-Up is bad. RC is better. RC is just like Coke. Wouldn't you rather have some RC?" The child has never had 7-Up or RC, but the comparative and coordinative relations the mother specified between them and Coke transform the previously neutral stimulus functions of 7-Up and RC. RC now becomes "good" because it's the "same" as Coke, and 7-Up becomes "bad" because it's worse than Coke. The child would now be expected to want RC rather than 7-Up, and evaluate the former as "good" and the latter as "bad", even though she had never tried either one.

Refer again to Figure 2. Suppose the same girl, later in life, is told that "These woods contain snakes." She has had enough experience with snakes, either directly or indirectly, to know that she is afraid of them, although she has never encountered one in the woods. Prior to being told that wooded areas contain snakes, she liked playing in the woods, and found the woods to be very pleasant. The hierarchical relationship just established between wooded areas and snakes, however, results in a transformation of the wooded area's functions. Where before, the woods were "beautiful," "relaxing," and "fun," they are now "dangerous," "unpredictable," and an object of "fear" by virtue of their relationship to snakes and the events and experiences she usually frames in coordination to snakes.

With a vast amount of training, using multiple relations across many, many stimuli, words come to share the functions of a wide variety of experiences and events. At first, this occurs through direct training, and along formal stimulus dimensions. After repeated experiences of doing so across multiple exemplars, we learn to bring relational responding to bear on non-formal, or arbitrary, relations between stimuli. Once we do so, our verbally constructed worlds become increasingly complex as we derive more and more relations between virtually every stimulus we discriminate. To conduct a thought experiment that illustrates the degree to which we can relate any two stimuli, try the following: Randomly pick any two nouns (and make an effort to pick two apparently unrelated nouns), and ask yourself, "How is X like Y?" You might end up

with a question like “How is a dog like a hat?” It is most likely that you have never been directly taught how a dog is like a hat. In short order, however, you could come up with several derived relational responses (they would be *derived* if you had never been directly taught to relate dogs and hats before). For example, you might quickly decide that both dogs and hats are “always there when you need them,” “both keep you warm,” are “both a regular part of your day,” and are both “a little dirty.” As a result of this specific question, you might now be a little more fond of your hat, be more likely to think of your dog when you go to put your hat on, and be more likely to wash it. By simply relating your hat coordinately to your dog, you have actually transformed the stimulus functions of the hat. You have done so, in part, by deriving relationships between your hat and stimuli that previously were only framed coordinately to your dog. In fact, by comparing your dog to your hat for the first time, you have brought aspects of an entire network of stimulus relations regarding your dog into a frame of coordination with the network of stimulus relations about your hat.

Arbitrarily Applicable Derived Relational Responding

It is not just the ability to derive relational responses between stimuli that is the hallmark of RFT, but rather the ability to do so using arbitrary (or non-formal) properties of stimuli. An animal such as a seal can be taught, for example, to always pick the physically larger object when directed to “pick the bigger one,” even when presented with objects of varying size that it has never seen before. Derived relational responding can thus occur in response to formal stimulus dimensions such as size in organisms that don’t ‘speak a language’ in the colloquial sense. The same seal would not be able to correctly respond, however, to the directive “pick the bigger one” when presented with the President of the United States, a retail clerk, and a hobo. The seal would pick the physically largest of the three men, but a highly verbal person would likely discriminate that “bigger,” in this context, refers to the importance of the man, not his physical size. Importance is not a formal stimulus property that can be directly seen, tasted, smelled, touched, or tasted, but is rather a stimulus property that has been

given arbitrary significance by the socio-verbal community. Given its arbitrary (or non-formal) nature, a seal could not discriminate the relational dimension of importance. A somewhat verbally sophisticated person, however, would pick the President given the directive, “pick the bigger one.”

Thus, the essence of RFT is *arbitrarily applicable derived relational responding that is non-arbitrarily applied*. The term appears difficult and is definitely technical, but most of the components of the term have already been described. *Relational responding* refers to the ability to respond to relations between stimuli rather than just responding to each stimulus separately. Relations between stimuli can be *derived* (from the processes of mutual and combinatorial entailment), meaning that relations between stimuli need not be directly learned. And the process of *derived relational responding* can occur with respect to *arbitrary* (as opposed to just formal) stimulus properties. The process of *arbitrarily applicable derived relational responding* results in the *transformation of stimulus functions* of the stimuli that are correspondingly related (such that the specific relations between the stimuli, and the broader context they are encountered in, determine precisely how the stimulus functions of each stimulus are transformed). Finally, *arbitrarily applicable derived relational responding* is said to be *non-arbitrarily applied*, meaning that the socio-verbal community only reinforces relational responses to certain arbitrary stimulus properties in given contexts, but not others. For example, the socio-verbal community would support the arbitrarily applicable derived relational response that one driver is *smarter than* a second driver, but would not support the response that the first car is *smarter than* the second car. The second relational response just doesn’t ‘make sense,’ but the first one does. When a relational response does ‘make sense,’ it usually means that it has been *non-arbitrarily applied*—that the language community ‘approves’ of that way of relating specific things.

The Operant Nature of RFT’s Component Processes

All the examples provided in this section point to a key feature of derived relational responding. Such responding is

actually operant behavior. That is, RFT specifies that language-able organisms learn to respond to specific relations between stimuli through differential reinforcement much as they are shaped to respond to individual stimuli in specific ways. After an extensive history of reinforcement for relating a variety of stimuli in a variety of different ways, it then becomes possible to relate other, novel stimuli in a variety of ways even though relating those specific stimuli in those specific ways has never been directly taught.

The process begins when relationships between stimuli along formal dimensions are taught. For instance, comparative relations between stimuli might be initially taught along a formal dimension of size. Over a period of time, a very young child might be reinforced for bringing the physically larger ball (but not a smaller ball) when asked to bring the “big ball,” for referring to his physically larger, older sister as his “big sister” (rather than his little sister), and referring to his toy car as his “little car,” as opposed to the “big car” that dad drives. After using the comparative relation of big—little numerous times across numerous formally related stimuli, he is then taught to comparatively relate stimuli according to non-formal properties. He might then be able to refer to his friend Tim’s older sister as “Tim’s big sister” even though Tim is physically larger than his sister. The temporal relation of older—younger between Tim and his sister is based on *arbitrary* properties of the stimuli (Tim and his sister) because the passage of time is not a stimulus that can be tasted, touched, smelled, heard, or seen, and is thus not a formal stimulus property.

In fact, all of the four cornerstones of RFT are considered to arise according to operant processes. Responding to relations between stimuli rather than simply to separate stimuli might be one of the first pieces learned by verbal children. Learning to mutually entail relations between stimuli (i.e., derive a reciprocal relationship given a directly trained relationship) is likely also directly shaped through differential reinforcement, as is combinatorial entailment. Transformation of stimulus functions is also likely an operant process. People learning language are essentially reinforced for responding to specific verbal stimuli as though

they had the stimulus functions of other, related stimuli. The operant process of transformation of function is shaped along with the processes of relational responding, mutual entailment, and combinatorial entailment, until all four processes come under increasingly complex and specific contextual control.

Even though language may not usually be *explicitly* taught and thought about in relational terms, it has been argued elsewhere that empirical data and subsequent theoretical implications indicate that thinking about language in this way has important consequences for predicting human behavior and changing it for the better (see, for example, Hayes et al., 2001; see also Hayes et al., 1999). Language defined as arbitrarily derived relational responding has important practical implications for clinical psychologists, and even psychologists from other sub-disciplines (see, for example, Hayes et al., 2001).

Relational Framing as Process, Not Structure

Relational framing is a short-hand term for the process of *arbitrarily applicable derived relational responding that is non-arbitrarily applied*. The term *relational frame* is often used instead of *relational framing* because the former term is less awkward to use, and because it is sometimes useful to ‘freeze frame’ the process of relational framing (as has been done with the relational frame in Figure 2) so that it can be more easily analyzed and talked about. Referring to *relational framing* as *relational frames* and using the kind of images shown in Figure 2 may likely give the impression that relational frames exist, somewhere, as static structures. In fact, the act of relational framing is thought of as a process, an ongoing way of responding to stimuli as they are presented. People *frame events relationally* in the moment as an active process that is a function of their extensive learning history and stimulation in the present environment. “Storage” of these frames as structures is not implied and not required. The processes of mutual entailment, combinatorial entailment, and transformation of stimulus function can be directly observed (and has been in over 30 empirical studies) without any inference required. The ongoing process of relational framing can be directly observed outside the laboratory as well, albeit with an

inevitable sacrifice in reliability due to lack of experimental control.

Why RFT is Important: Theoretical Merits and Applications

Given that a vast empirical cognitive literature on language, cognition, and the role they play in psychopathology already exists, readers subscribing to cognitive theory may rightfully ask why a new theory of these phenomena is necessary. Similarly, given existing and long-standing behavioral accounts of verbal behavior (i.e., Sidman, 1994; Skinner, 1957), behaviorally-oriented readers may also question the necessity of yet another account. In this section, a brief outline of why an RFT account of language is an important addition to the psychological literature will be introduced. Some of the points made here are self-explanatory and thus require no elaboration. Elaboration of a few points is beyond the scope of this article, and the reader is thus referred elsewhere for evidence of the claim. The final point will be briefly elaborated to illustrate the utility of RFT in the stated domains.

1. RFT is parsimonious, requiring only the concepts of relational responding, mutual entailment, combinatorial entailment, and transformation of function to explain the process of *arbitrarily applicable derived relational responding that is non-arbitrarily applied* (the RFT definition for the colloquial term language).
2. RFT processes are directly observable, especially under laboratory conditions. Thus, no tenuous inferences about the existence of directly unobservable structures or processes are required.
3. RFT is firmly based on empirical research that has without exception supported its tenets. In addition to the over 30 published empirical treatments of RFT, the theory also accounts for the data observed in hundreds of empirical studies on the concept of stimulus equivalence that have been published since 1971.
4. RFT allows study of human language to be conducted with great precision, in accordance with the carefully specified definitions of its component processes.
5. RFT has broad scope. Theoretical extrapolations of the theory have given plausible explanations of a wide variety of human behavior (see, for example, Hayes et al., 2001, and Hayes et al., 1999, for detailed RFT accounts of psychopathology). RFT accounts exist, for example, for spirituality (Barnes-Holmes, Hayes, & Gregg, 2001), values (Hayes et al., 1999), and rule-governed behavior (Hayes & Hayes, 1989; Hayes et al., 2001).
6. RFT has depth, meaning that it allows analysis of varying degrees of complexity of its subject matter (language-based phenomena). For example, Hayes (1994) and Hayes et al. (1999), among others, have presented detailed cases regarding how RFT processes may be at the heart of human suffering in general. In addition, they play a role in more specific cases of human suffering such as anxiety (Friman, Hayes, & Wilson, 1998), sexual abuse (Pistorello, Follette, & Hayes, 2000), and trauma (Walser & Hayes, 1998)
7. RFT does not require the use of mentalistic terms or structures. It avoids problematic behavior-behavior relations (see, for example, Hayes & Brownstein, 1986). It properly casts verbal behavior as a dependant variable rather than an independent variable. That is, the theory does not violate the observation that thoughts cannot serve as independent variables by virtue of the fact that they cannot be directly manipulated (changes in the environment supporting different thoughts must first occur). This means that RFT specifies the kinds of environmental operations that must occur before changes in thinking and overt behavior will result.

8. RFT accounts for 30 years of empirical stimulus equivalence findings, and 10 years of empirical RFT findings, that Skinner's (1957) treatment of language clearly cannot predict or explain. In addition, RFT does so in a manner requiring only that the principle of operant responding be expanded to include the concepts of relational responding, derived responding, and relational responding to arbitrary stimulus dimensions (Hayes et al., 2001 have presented detailed accounts of how these concepts have ample precedents in the behavioral literature).
9. RFT has direct clinical implications that are not apparent in other psychological models of human psychopathology.

As an example of this final point, consider the cognitive defusion techniques designed to disrupt the context of literalness in Acceptance and Commitment Therapy (Hayes et al., 1999). The context of literalness refers to the ongoing support, in the form of differential reinforcement provided by the socio-verbal community, for transformations of stimulus functions occurring during arbitrarily applicable derived relational responding. In a non-technical sense, this context supports the "literal belief in one's thoughts" that active responding to transformed stimulus functions entails. The stimuli in the interrelated set of relational responding shown in Figure 2 can take on harmful stimulus functions by virtue of the stimulus transformations mediated by these relational responses. It follows logically, then, that disrupting this context of literalness might be a useful way to treat the designated phobia. If treatment is structured such that the context supporting transformations of function within these relational responses (i.e., the "literal belief") is undermined, then the transformations of function in the pictured relationships would be expected to attenuate or fall away during these periods of disruption. Teaching the client to create similar contextual conditions outside of the therapy session could be expected to allow repetition of this contextual disruption. For example, I might no longer run away when I feel fear in a wooded area if the causal relationship between fear and running away is disrupted. I

might still have the thought that I 'should' run away, and definitely feel like doing so, but disruption of the context of literalness will have shown me that such relationships between stimuli are 'just talk' rather than prescribed realities. Acceptance & Commitment Therapy (e.g., Hayes et al., 1999) is an example of an explicitly RFT-based treatment that essentially involves systematic efforts to dissolve the context of literalness in problematic domains of clients' lives.

Other interventions are suggested by RFT, although they have not yet been developed and implemented. For example, some recent empirical RFT literature suggests that direct attempts to challenge cognitions (i.e., restructure existing relations between stimuli) may be ineffective or counterproductive (Pilgrim & Galizio, 1995; Wilson, 1998; Wilson & Hayes, 1996). Hayes et al. (2001) have suggested that adding more 'constructive' relations to problematic relational networks might thus be more effective than trying to eliminate existing relations. For example, Clayton (1995) found that employees who had remarked how chaotic their workplace was reacted more favorably when chaotic workplaces were framed as being more conducive to creativity. Those workers who were subjected to challenges of their appraisal of the workplace as chaotic did not develop more favorable attitudes toward the workplace. Another example of an intervention analyzed from an RFT perspective is presented in Blackledge & Hayes (in preparation). Briefly, that manuscript suggests that interpersonally focused brief psychodynamic treatments (e.g., Levenson, 1995) are in part effective because they make use of client relational frames newly emerging around the client-therapist relationship to effect change, rather than involving direct challenges of the presumably entrenched ways the client frames pre-existing relationships. Thus, the "corrective emotional experience" (Levenson, p. 42) referred to in such treatments may involve first, an in-vivo shaping of a more adaptive way of framing interpersonal interactions, and second, allowing the client to spontaneously bring this idiosyncratic frame to bear on other relationships once its components exist at sufficient operant strength.

CONCLUSION

It is hoped that this treatment of Relational Frame Theory has not only made the theory itself more readily understood, but also that the reader now has a basic understanding of why the theory has important scientific and applied implications. It is openly acknowledged that even this treatment of RFT is perhaps unnecessarily complex. RFT essentially involves a very small and simple set of processes, but uses some complicated terminology to describe them. In addition, the processes themselves can seem foreign and even irrelevant to language because they (at first and even second glance) may not seem to match up well with the way we have been taught to think and talk about language. If we are to move beyond gross metaphorical analyses of language (where, for example, the brain is considered to be like a computer) to more precise technical accounts, however, we will have to abandon common sense for a sense that is a little less common (see, for example, Gentner & Jeziorski, 1993, for an account of the place of metaphor in science). Relational Frame Theory is an attempt to do just that. The extent to which it may correspondingly succeed in enhancing our ability to predict human behavior and change it for the better depends both on empirical data, and the degree to which the theory is utilized by the psychological community.

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