

Towards Understanding the Meaning of Affectionate Verbal Behavior; Towards Creating Romantic Loving

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Here I outline answers to four questions: What are the possible meanings of various forms of affectionate verbal behavior including "I love X" and "I'm in love with X"? What contingencies might produce corresponding romantic love, in natural settings, between two particular persons? What resources are needed to put these contingencies into effect? What are some of the issues and concerns regarding implementing these contingencies?

Key words: affectionate behavior, attachment, close relationships, dependency, interpretation, love, loving, romantic love, social behavior, verbal behavior .

Behavior analysts, like other scientists, have extended their philosophy, principles, and methods from laboratory settings to settings where experimental control is impractical or phenomena are complex (Palmer, 1991, 2003; Palmer & Donahoe, 1991; Skinner, 1974, pp. 228-232). These inductive efforts are called interpretations. The many interpretations presented in *Science and Human Behavior* (Skinner, 1953) regarding, for example, "the self," emotions, intelligence, knowledge, and economic control have been followed by interpretations of, for example, language (Skinner, 1957); psychotherapy and depression (Dougher, 1994; Ferster, 1972, 1973; Kohlenberg & Tsai, 1991); grief (Brasted & Callahan, 1984); competition (Schmitt, 1986); memory (Palmer, 1991); vicarious learning (Masia & Chase, 1997); life, personhood, and dying (Fraleay, 1998); religion (Gurein, 1998); and intimacy (Cordova & Scott, 2001). Here I interpret love, particularly romantic love.

For four reasons, I suspect the interpretations reviewed here will enhance readers' ability to promote love. First, behavior analytic interpretations are down to earth. As you may already know, or will soon see, behavior analysts focus on real physical events rather than explanatory fictions such as motives, attitudes and even love, as commonly understood (see MacCorquodale & Meehl's [1948] discussion of hypothetical constructs). Second, we focus on relations between manipulable aspects of the environment and behavior rather than on correlations between various behavior-defined constructs. In other words, most of our empirical research utilizes experimental rather than correlational methods. Third, we seek to understand and control the behavior of individuals rather than aggregates. As you will see, understanding what characterizes "the aggregate person" is helpful but we need to know more if we are to understand how we can induce a particular person to fall in love. Finally, our approach has considerable success in producing large, important changes in the behavior of the individual organism (Meehl, 1978). One of our most notable, recent achievements has been helping autistic children acquire verbal and social behavior, one child at a time (e.g., Ghezzi, Williams, & Carr, 1999).

Surely, some portion of our success is due to the terminology we have developed. I fear, however, that if I extensively use this terminology, I would limit my readership. So, I have minimized terminology, though readers who have studied an introductory behavior analytic text should be well prepared (e.g., Catania, 1998; Grant & Evans, 1994; Miltenberger, 2004; Sulzer-Azaroff & Mayer, 1991).

There is one terminological issue, however, that we must face. Although I focus on "romantic love," I will often use the verb "loving" rather than the noun "love" because "love," as commonly used, suggests that within each of us resides an invisible, fictional "love goddess" that causes loving behavior (e.g., Himeline, 1980). People who so conceive love often speak of loving behavior indexing, reflecting, or being an expression of the status of this "love goddess." I, instead, as previously suggested, will avoid such explanatory fictions and focus on manipulable aspects of the world that may control loving behavior

(Skinner, 1953, Chap. 10; Woodworth, 1924, pp. 5-6). Furthermore, I will consider the organism that engages in this behavior to not be a cause but a place where genetic, historical, and contemporaneous variables come together (Hineline, 1980. Watts, 1940). Finally, I will assume that some loving behaviors like fantasizing and dreaming are not occurring in some non-physical mind but beneath the skin of an actual body (Palmer, 2003; Skinner, 1953, Chap. 17; 1974).

Having provided a context, let me outline the manuscript's four sections. The first section discusses the meanings of various affectionate verbal behaviors, including "I'm in love with X." Much as blueprints depict a home, these meanings specify the behavior to be conditioned or strengthened in creating romantic loving. Because romantic loving or being *in* love is most often a necessary condition for marriage (Hatfield & Rapson, 1996, Chap. 2), the second section discusses what a person might do to create romantic loving. I will suppose that a particular "Jack" desires a particular "Jill" to fall in love with him. The third section discusses whether Jack has the resources to put these and other contingencies in place. The fourth section discusses various issues and concerns about what I have presented.

The Meanings of Various Forms of Affectionate Verbal Behavior

We may specify the meaning of some entity by specifying the *network of relations* in which the entity is embedded. For example, the meaning of a person's life resides in the antecedents that produced the person's body and behavior and the consequences that follow. Similarly, the meaning of the verbal operants "I love X," and "I'm in love with X," reside in the antecedents that produce these responses and their consequences.

How might these antecedents be identified? The most rigorous method involves manipulating antecedents to see whether and how they change such verbal behavior. I know of only one study that approximates such an experimental or functional analysis (Miltenberger, 2004, Chap. 13). Leigland (1989) asked students to observe and explain the behavior of a pigeon responding on several schedules of food reinforcement. He then related each student's verbal behavior, particularly explanations that appealed to explanatory fictions, to the pigeon's schedule-based behavior (also see Skinner, 1954, pp. 90-91).

The resources to conduct such an experimental analysis of saying "love X," where X names a person, would be enormous. The analysis would be particularly difficult because the stimuli that occasion "love X," unlike those for saying "triangle" or "square," are widely distributed over time and place (see Baum, 1994, pp. 36-41; Rachlin, 1985). The most practical means for such an analysis requires creating videos of two persons interacting in various contexts, and systematically manipulating the contexts and behaviors to identify the stimuli that occasion a viewer's saying one person loves another.

Skinner, however, apparently without such experimental analyses interpreted verbal behavior:

The properties of a stimulus which are relevant in evoking a response, either in the individual speaker or according to the practices of a given community, can be discovered only by considering a series of occasions upon which the properties are systematically varied and the presence or absence of the response noted. (1957, p. 117).

To be sure, *considering*, as used above, could refer to experimental analyses but it also can refer to Skinner imagining or recalling, at his desk, the antecedents that control his verbal behavior. In so doing, he would have approximated what contemporary applied behaviorists call the behavioral interview (Miltenberger, 2004, Chap. 13). He may then have more directly explored antecedent control by observing if the presence/absence of these antecedents covaries with his or others' verbal behavior. In observing these covariations, he would have approximated a more direct functional assessment method,

the ABC analysis which examines behavior as a function of immediate antecedents and consequences (Miltenberger, 2004, Chap. 13).

Although affectionate verbal behavior is controlled by antecedents and consequences (e.g., Guerin, 1994, pp. 159-160), I will primarily focus on antecedents. I will not, however, assume the antecedents are precisely the same for each person. Nevertheless, to the extent we belong to the same verbal community knowing what controls one person's verbal behavior can help us specify what controls another's. Surely, we cannot ordinarily specify the early training procedures that produced stimulus control over a particular person's behavior¹, "the problem of historicity," but we often can describe the stimulus control because, within a community, various contingencies support the same control over the behavior of many persons (Homans, 1974, pp. 40-42). This control is quite powerful. For example, in my immediate family, no one says "love X" where X is an inanimate object, yet I often hear people saying "I love that cake," "I love that dress on you," etc. Though such use distresses me, neither I nor my family can modify the contingencies of the larger verbal community.

Interpretations of Affectionate Verbal Behavior Where X is Inanimate

In this section, I assume that X is inanimate and consider antecedents controlling saying "I like X" because many of these antecedents may control "I love X" and "I'm in love with X." Later, I consider antecedents that may control other forms of affectionate verbal behavior.

"I Like X," "I love X," and "I'm in love with X"

Consider Skinner's interpretation of the verbal operant "liking" and other verbal responses under similar stimulus control:

The expressions "I like Brahms," . . . "I enjoy Brahms," and "Brahms pleases me" may easily be taken to refer to feelings, but they can be regarded as statements that the music of Brahms is reinforcing. A person of whom the expressions are true will listen to the radio when it plays Brahms rather than turn it off, buy and play records of Brahms, and go to concerts where Brahms is played. (1974, p. 48)

Clearly, Skinner interprets such verbal behavior to be, in part, a function of other behavior such as listening, buying, and playing. I shall call such other behavior "primary behavior." The other determinants of the above expressions are, of course, the conditions that control the primary behavior. For example, by definition, establishing operations such as food deprivation, not only render food reinforcing, but increase the frequency of the primary behavior that has produced food (e.g., Michael, 2000).

Various verbal quantifiers may be controlled by the rates of one or more primary behaviors. As rates of primary behavior increase that produce X or permit consuming X, a person may say "like X somewhat," "like X very much," or "really like X." Such primary behavior is often incompatible with alternative primary behavior that has produced other kinds of reinforcers. In such choice situations, the more reinforcing the forgone reinforcers the more likely one may say "very much like X."

Verbal quantifiers may also be a function of schedules of reinforcement and punishment that control primary behavior. Frequent primary behavior, for long temporal periods, controlled by intermittent presentations of X may evoke saying "like X very much." Such utterances also are likely when the rate of responding maintained by reinforcement is insensitive to variations in punishment. Consider, for example, the cigarette smoker who continues buying cigarettes given punishing cigarette taxes.

Most interesting is when primary behaviors that differ widely in form are emitted over extended temporal intervals until X occurs. As Skinner noted "expressions [of liking] do not refer to instances of reinforcement but rather a general susceptibility" (1974, p. 48). For example, drinking a delicious wine, received as a gift, may lead the recipient to visit shops, telephone shops, read magazines, send e-mail messages, and browse the World Wide Web for weeks, until she can drink more of the same. Most importantly, these behavioral patterns may evoke saying "likes X very much," or "loves X." The wine lover may emit behavior that not only has produced the wine but accompanying stimuli, for example, printed and aural stimuli related to the producer and the region of origin. These stimuli may have become reinforcing through *direct* correlation with the reinforcing aspects of drinking.

Generalized reinforcers may also support primary behavior of varying forms, at high rates, across many situations. Generalized reinforcers are stimuli that have come before and have been *directly* correlated with many kinds of reinforcement and, consequently, their reinforcing function does not depend on a particular establishing operation, such as food deprivation, being in effect. One may, for example, "very much like money" because money has been exchanged for various forms of reinforcement. "Loving X" and "being passionate about X" may be evoked by the control of generalized reinforcers over primary behavior.

Other Affectionate Verbal Behavior Related to Reinforcement

Other forms of verbal responding may be controlled by the extent X is reinforcing. "Enjoy" and "please" were interpreted by Skinner, above, but more antecedents and behaviors may be noted. Establishing operations that render X strongly reinforcing may evoke saying "enjoy X" rather than "like X." Consider, for example, drinking cold water after running a considerable distance on a hot summer day. Another establishing operation is response deprivation. Though most people would probably not say they "enjoy brushing their teeth," they may after having been deprived of brushing or otherwise cleaning their teeth for weeks (Timberlake & Allison, 1974).

Some forms of verbal responding may be controlled by events occurring beneath our skins. For example, saying X "makes me feel good," "makes me relaxed," or "gives me warm feelings" may be controlled by the effects of reinforcers on our bodies (see Skinner's [1989, Chap. 1] discussion of proprioceptive feedback). The private stimuli produced by often imagining X and privately talking to oneself about X (commonly called thinking) may evoke "I care for X," provided aspects of X have been or are reinforcing (Fraley, 1998, p. 26; Skinner, 1974, p. 48). It should be noted, however, that "I care for X" can also be evoked by public primary behavior that enhance X's reinforcing functions as, for example, in refilling a car's gas tank.

Obviously, I cannot interpret all forms of affectionate verbal behavior. Here I note some "residual" forms. The stimuli that evoke saying "I love X" and "I'm in love with X" may also evoke "obsessed," "devoted," "fascinated," "absorbed" or "passionate." Such stimuli may also evoke saying "X is important." There are also responses such as "want X," "miss X," and "yearn for X" that occur when establishing operations are in effect that render X reinforcing but X is unavailable. Finally, there is "I am satisfied with X" which may be jointly controlled by X functioning as a reinforcer and the speaker neither disposed to enhance X's reinforcing functions nor supplant X.

Interpretations of Affectionate Verbal Behavior Where X is Human

In the section above, I assumed X was inanimate; here I assume X is human. For example, Fehr (1988) had people list features of love and rate each feature's centrality. The resulting list of verbal responses is long and interesting. The five features rated most central include: "trust," "caring," "honesty," "friendship," and "respect." These empirical efforts are helpful. Though they do not directly specify the

antecedents that control saying “love X,” they do specify related verbal behaviors that may be controlled by the antecedents controlling “love X.”

Davis and Todd (Davis 1985; Davis & Todd, 1982, 1985), used Ossorio’s Paradigm Case Formulation (1981) to specify features of human friendship and love. These features were organized to describe “full-blown” or complete instances of love and friendship.

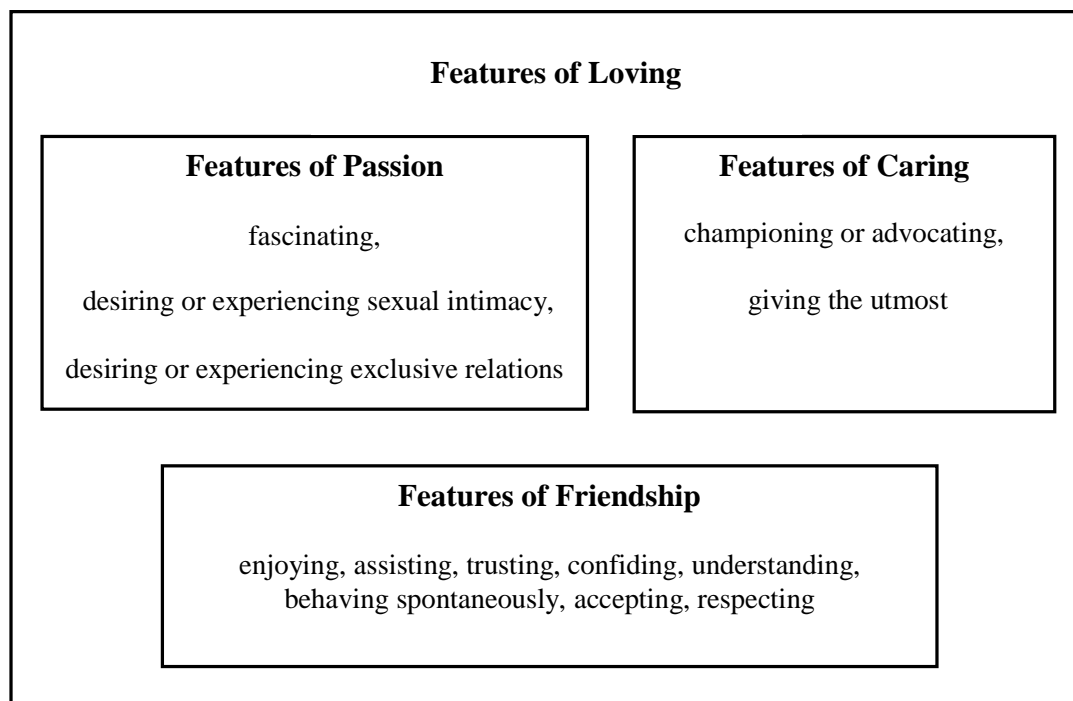


Figure 1. Three clusters of feature names that may jointly characterize loving (based on Davis, 1985, p. 24). Note that the figure presents names (verbal responses) and not actual features.

The “full-blown” or archetypal cases of loving and friendship are illustrated in Figure 1. Note well that the figure does not specify controlling stimuli but only verbal responses, feature names, presumably controlled by such stimuli. Just as one ought not confuse water with its name “water,” one ought not to confuse, for example, sexual behavior with a name for such behavior “sexual intimacy.” The archetypal case of loving is characterized by antecedent stimuli that evoke *all* the listed feature-names and assumes that the relationship between two persons is mutual and that both can behave similarly (equal eligibility) but are constrained by sexual anatomy.

Davis and Todd (1985, p. 20) review how an archetype can describe an actual relationship. Basically, if an archetype is sufficiently complex then an actual relationship can be described by transforming the archetype. Such transformations involve: deleting a feature, varying a feature’s aggregate level (over settings and times), or more subtly restricting a feature’s occurrence to particular settings and times. So, for example, an actual friendship might be described by the Features of Friendship sans “behaving spontaneously.” Spontaneous behavior might be absent, because one person often punishes the other’s behavior. The relationship might still be described as a friendship but one marked by one person’s lack of spontaneity. How many features could further be removed before the relationship would not be described as a friendship? It all depends on the verbal community. Unlike mathematics where conventions are taught regarding, for example, the necessary and sufficient conditions for

geometric forms, there are no formal conventions about the stimulus conditions that evoke affectionate verbal behavior.

To explore the validity of their archetypes, Davis and Todd (1982, 1985) asked participants, usually college students, to complete the Relationship Rating Form (RRF, Davis, 1996) regarding, for example, their relations with their spouse/lover, best friend, and close friend of the opposite sex. Participants complete the RRF by answering feature-related questions. For example, relevant to “fascinating” is the question: “Does it give you pleasure just to watch or look at this person (Davis, 1996, p. 5)?” Davis and Todd present data, averaged across participants, that indicate their archetypes well characterize and differentiate such actual relations.

Let’s review David and Todd’s discussions of these features (Davis, 1985; Davis & Todd, 1982, 1985) and the RRF to consider how reinforcement and punishment may be related to love and friendship. First consider the Features of Friendship (Davis & Todd, 1985):

1. A recipient’s “enjoying” a source’s company, the source’s “assisting” in times of need, and the recipient’s “trusting” the source to behave in ways benefiting the recipient appear controlled by receiving or providing reinforcers. Related to “enjoying” the source’s company but not listed is “doing things together” (Davis, 1996) which may be controlled by mutually reinforcing activities such as both persons playing tennis together. To the extent it takes two persons to engage in such activities each may mediate reinforcement. Also, doing things together can promote reinforcing discussions as in both persons discussing tennis. Another possibility is that doing things together promotes propinquity which facilitates exchanging reinforcers.
2. The recipient’s “confiding” in the source, may be controlled by the recipient self-disclosing to the source because the source listens and disclosure has permitted the source to respond appropriately to the recipient.
3. The source’s “understanding” the basis for the recipient’s behavior may be controlled by the source describing determinants of the recipient’s behavior as well as responding appropriately to the recipient’s behavior.
4. The recipient’s “behaving spontaneously” and the source’s “accepting” the recipient as he or she is may be controlled by the source not using punishment to change the recipient’s behavior.
5. Finally, the source’s “respecting” the recipient’s good judgment regarding life choices may be controlled by the source reinforcing rather than punishing the recipient’s verbal and nonverbal behavior because the recipient has generally behaved effectively.

Next, consider Davis’s (1985) discussion of the Features of Caring:

1. The source’s “giving the utmost” sometimes to the point of self-sacrifice when the recipient is in need, may refer to the source forgoing reinforcement and providing reinforcers when establishing operations are in effect for the recipient.
2. The source’s “championing/advocating for the recipient” so the recipient will succeed suggests social reinforcement.

Finally, consider Davis's (1985) discussion of the Features of Passion:

1. The recipient's "fascinating" about the source, as in often thinking about and imagining the source even when the source is absent (Davis, 1996), suggests the recipient's private perceptual and verbal behaviors are controlled by the source exclusively providing classes of reinforcement (as outlined below) and that relevant establishing operations are in effect.
2. The recipient's "desiring/experiencing sexual intimacy" with the source may be controlled by the source's body and behavior being sources of sexual establishing operations which, by definition, establish sexual behavior as reinforcing and evoke behavior that has produced sexual contact. For example, the source's cologne may, for the recipient, establish intercourse as a reinforcer and evoke behavior that has previously produced intercourse.
3. Finally, "desiring/experiencing exclusive relations" in the sense of the recipient only engaging in certain activities with the source or having unique feelings about the source (Davis, 1996) may again be due to the source exclusively providing classes of reinforcement as detailed below.

And what about the features that characterize romantic loving? Davis graphically compared "spouse/lovers" (who I presume were *in love*) and "close friends" in terms of their RRF profiles (1985, pp. 26-27). The features characterizing relations with one's "spouse/lover" were much like those characterizing "close friends" except the Features of Passion were much more frequent. Berscheid has reviewed her own work and that of others and reached a similar conclusion: being *in love* or romantic loving is characterized by features that characterize friendship plus sexual desire (Berscheid, 2006).

Caveats Regarding the Meanings of Various Forms of Affectionate Verbal Behavior

The interpretations I have offered revolve around the concept of reinforcement. By definition, reinforcers are response contingent events that increase the rate of future responding. This is a functional definition and we should not assume that the verbal operants used in everyday speech like "like X," "enjoy X," and "X is a reward" are controlled by exactly the same stimuli that control a behaviorist saying "reinforcer" (Catania, 1998, Table 5-1, p. 69; pp. 78-79).

Also, although we can often identify reinforcers without benefit of a functional analysis, we can be wrong. Falling from high places, physically restraining behavior, and groaning can be reinforcers according to the functional definition though most persons would probably not immediately think so (Catania, 1998, pp. 78-79). Such varying forms of reinforcement may help explain the "mystery of love" as suggested by "What does she see in him?"

Creating Romantic Loving

In the sections above, I discussed the meaning of various forms of affectionate verbal behavior by primarily considering reinforcement-related antecedents. In this section, I will outline how a fictional character, Jack, could induce a particular Jill to accordingly fall romantically in love (also see Skinner, 1953, pp. 164-167). Most importantly, I will advise Jack to consequate Jill's orienting, approach, and other appropriate behavior with a variety of reinforcers, particularly reinforcers that are scarce and idiosyncratic to Jill (Gewirtz, 1972a). Before providing the details, there are several issues I must address. These include using laboratory-based procedures to create romantic loving, assuming human behavior is

determined and controllable, and behaving ethically. Also, I want to tell you more about our fictional characters and describe some of the procedures that could produce their initially orienting towards and affiliating with each other.

Using Laboratory-Based Procedures to Ethically Create Romantic Loving

My objective is not to describe how love ordinarily develops in natural settings. That appears to be a goal of social psychologists and other students of close relationships (e.g., Berscheid & Reis, 1998, pp. 222-226; Hatfield & Rapson, 1996; Vangelisti & Perlman, 2006). My objective is to outline how one could use behavior analytic philosophy and laboratory procedures to understand and create loving between two particular persons in natural settings. It is easy to confuse these objectives because extending laboratory procedures to natural settings requires discussing behavior in natural settings. Also I present behavioral interpretations of how loving may change in natural settings but, unless explicitly noted, I am not describing how loving ordinarily changes in natural settings.

Because many of my "ideas" come from the laboratory I will describe procedures that are atypical of natural settings. To be sure, there is much to learn from naturalistic observation but consider, for example, how poorly autistic children functioned in their natural settings until they received extensive, laboratory-based training, atypical of those settings (Lovaas, 1993).

Also, much of my discussion will focus on control. A successful experimental science implies behaviors' lawfulness and controllability (see e.g. Baum, 1994, pp. 10-16). From a behavior analytic standpoint the issue is not whether behavior is determined but how obvious are its determinants and, of course, the appropriateness of manipulation (see Skinner, 1974, Chap. 12). A technology of loving can be abused as, for example, by a swindler. But this technology can also enhance relationships. Consider, for example, Maurice's (1993) comments about her daughter who was diagnosed as autistic and was benefiting from applied behavior analytic procedures:

How do we make her love us? That was the question to which I had no clear answer. It was a source of continuing sadness for me that she seemed so uninterested in those who loved her. She still almost never approached or greeted anyone spontaneously. Just because she had said "Hi Daddy" once did not mean that we could count on her to do it again. (p. 146)

A final concern is ethical. I will be advising Jack on disposing Jill to fall in love with him. For example, using the inductive approach characteristic of applied behavior analysis, Jack might informally conduct functional assessments to discover controlling variables (Miltenberger, 2004, Chap. 13) and then tinker with various environmental variables until Jill's behavior is appropriate (see e.g., Dermer & Hoch, 1999, pp. 58-59; Sulzer-Azaroff & Mayer, 1991, Sec. I). Using such procedures raises many ethical issues, most notably our not initially seeking Jill's informed consent. I will assume, however, that Jill is "in the market" for a partner and that Jill's falling in love may, therefore, be in her immediate interest. Ethical issues, of course, are less troublesome if Jack used such an approach because of his life experiences. Suppose, for example, that Jack had been raised by loving parents who implicitly used an inductive/experimental approach or he had completed a course in applied behavior analysis.

Our Characters, Their Lives, and Their Initial Orienting and Affiliating Behavior

Let me tell you a bit more about our characters and their lives, and discuss laboratory procedures that could produce Jack and Jill's initial orienting towards and affiliating with each other.

First, I will assume that Jack and Jill do not represent average or modal persons but rather persons living in a modern Western culture who work near each other. Furthermore, I will assume that they manage their lives well, are sexually attracted to each other, and are disposed to affiliate with each other.

In assuming that both are disposed towards mutual affiliation, I have finessed discussing a host of important biological and environmental determinants of initial orienting and affiliating behavior (see Berscheid & Reis, 1998). Below, however, I note the relevance of some basic laboratory procedures to understanding such affiliation and I anticipate our using these procedures to create romantic loving.

Jack's orienting towards and affiliating with Jill can most usefully be considered operant behavior, behavior controlled by consequences. Operant behavior can be brought under the control of antecedent stimuli through discrimination training. During such training, affiliation is reinforced in the presence of one stimulus but not in the presence of another stimulus. Subsequently the former (discriminative) stimulus may occasion affiliation if the establishing operations are in effect for the reinforcers used during training. Moreover, the schedule of reinforcement may later be thinned so the affiliation appears to be a function of antecedents and not consequences.

Let's consider some examples of such discriminative stimulus control. Hill's (1968) discussion of how evaluative statements and opinions may function as reinforcers assumes they have functioned as antecedents in discrimination training procedures. For example, Jack might have interacted with people who said they enjoyed Mozart and who more often reinforced Jack's affiliation than people who did not make such statements. So, Jill's stating that she enjoys Mozart might occasion Jack's affiliation. Even if Jill never spoke, the way Jill looks, walks, dresses, etc. may be *formally similar* to the discriminative stimuli that others have presented when Jack's affiliation to these others was reinforced. So, Jack's subsequent orienting and approaching Jill may be described as the generalization of discriminative stimulus control. Indeed, such generalization might explain "love at first sight" (Keller & Schoenfeld 1950, pp. 375-376).

Other procedures may explain Jack's initial affiliation. Relational framing procedures render stimuli capable of evoking affiliation although the stimuli are formally unlike discriminative stimuli that occasion Jack's affiliation (Fields & Reeve 2001; Hayes, Barnes-Holmes, & Roche, 2001). Instructions also could evoke affiliation as in someone advising Jack to affiliate with Jill (O'Hara & Barnes-Holmes, 2004). There is also the possibility of delayed imitation: Jack may affiliate with Jill not because Jack has ever been reinforced for affiliating with Jill but because Jack has seen Jill reinforce others' affiliation (Deguchi 1984; Masia & Chase, 1997).

Many of the forms of control noted above may summate to strongly evoke Jack's affiliation or at least Jack's orienting towards and yearning to affiliate with Jill. (See e.g., Tennov's [1979] discussion of limerence.) Of course, for most Jacks and Jills the implied training procedures/contingencies are hypothetical, that is, we again face "the problem of historicity." All we usually know are the effects of these presumed contingencies. As for our Jack, I will assume that he yearns for Jill's love, wants to know how to win it, and has noble intentions. So, I shall advise him accordingly.

Identifying Reinforcers through Functional Assessment

Most romantic behavior, like affiliation, can best be understood as operant behavior. It is, therefore, important to consider how Jack might identify reinforcers.

Early in a relationship, Jack might use ABC analyses (Miltenberger, 2004, Chap. 13). For example, suppose that Jack and Jill ate lunch at about the same time and often stood in line at a delicatessen where they occasionally briefly chatted. If Jack sometimes stood behind Jill, he could

observe her scanning the overheard menu (a description of antecedents), ordering a tuna salad sandwich (behavior), and later receiving it (consequence). Later Jack might observe Jill with her tuna sandwich on her plate (antecedent), bringing the sandwich to her mouth (behavior), and eating it (consequence). Patterns like these suggest that a tuna sandwich and eating it are reinforcers.

It would be most helpful, however, if Jack could identify other reinforcers. Perhaps he could identify reinforcers by listening to what Jill say's. Jill might, for example, say "I like Miller High Life[®] ." As discussed earlier, saying "I like X" may be controlled by the extent X has been a reinforcer. But I would not advise Jack, therefore, indiscriminately to use beer even Miller High Life[®] as a reinforcer. Besides the possibility of lying (see Skinner, 1957), such "expressions do not refer to instances of reinforcement but rather to a general susceptibility or lack of it" (Skinner, 1974, p. 48). That is, Jill may say "I like Miller High Life[®]" because the beer has functioned as a reinforcer in some settings (e.g., during a picnic or evening party) and for some behavior (looking, approaching, and drinking) but not in every setting and for every behavior. Everyday language is often imprecise. Contrariwise, if Jack overheard Jill saying "I like drinking Miller High Life[®] at parties." Jack might behave more effectively.

Later in a relationship, scatter-plots of the frequency or duration of behavior as a function of days of the week, time of day, and setting may further help Jack identify reinforcers (Miltenberger, 2004, Chap. 13; also see "ecobehavioral assessment," Sulzer-Azaroff & Mayer, 1991). Also helpful is the response deprivation hypothesis which suggests that behavior will function as a reinforcer to the extent its current frequency or duration is below typical levels (Timberlake & Farmer-Dougan, 1991).

Of course functional analyses most rigorously test whether an event is reinforcing. To conduct these analyses Jack must manipulate establishing operations and consequences to examine when and if the consequences control Jill's operant behavior. Jill, of course, is likely to much resent such manipulation and I would advise Jack, therefore, to use the correlational procedures outlined above. These procedures will permit Jack to identify many reinforcers. When he provides them, Jill may call him a "mind reader" though he was just carefully observing Jill's behavior and identifying potential controlling variables.

*Creating Discriminative Stimuli that Occasion Affiliation
by Using Generic, Abundant Reinforcers and Idiosyncratic Scarce Reinforcers*

Now that Jack can begin to identify reinforcers, I would advise Jack to initially make them available contingent on Jill's orienting, approach, and other appropriate behavior (Gewirtz, 1972a, 1972b). In so doing Jack would be establishing his body and behavior as discriminative stimuli. If implemented correctly Jack could increase his "appeal" as suggested by the affectionate verbal responses "wanting to be with the other" (Fehr, 1988, Table 2), and "enjoying the other's company" (Davis, 1996). Let us consider two classes of reinforcers: (a) generic, in the sense that they can be effective for nearly everyone and are often abundant in a culture; and (b) idiosyncratic, in the sense that they can be effective for only one or a few other persons and are scarce relative to the recipient's repertoire and social milieu.

Reinforcing Affiliation with Generic, Abundant Reinforcers

Let's assume that one Friday, Jack watched Jill order her usual tuna salad sandwich and heard the clerk report, "Sorry but we're sold out." At this point, Jack stepped in and said, "I've got an extra sandwich. Would you like to try it?" Let's assume that Jill accepted the offer and dined with Jack.

In principle, Jill's having eaten the sandwich may increase affiliation given comparable operations are in effect. When food next functions as a reinforcer at lunch, Jill might be inclined to affiliate with Jack. The greater the functional equivalence of establishing operations and stimuli to the original conditions, the more likely the affiliation.

One kind of reinforcer such as a tuna salad sandwich, however, will not maintain Jill's affiliating with Jack because the establishing operations will not always be in effect that make tuna salad sandwiches reinforcing and that activate behavior that has previously produced such sandwiches. Moreover, Jack will probably not be excited to discover that Jill only approaches him when tuna salad sandwiches are reinforcing. Indeed, Jack may complain about being used and assert that Jill is interested in tuna salad sandwiches and not him (Seligman, Fazio, & Zanna, 1980)!

To broaden the classes of establishing operations that may come to control Jill's behavior, Jack should contingently provide other classes of reinforcers when Jill affiliates. In this way, the discriminative function of the stimuli he presents will persist because they do not depend on a single establishing operation. Jack could, for example, provide sex, good drinks, or his warm body, contingent on Jill's affiliation. Given such a history, Jill may more frequently affiliate than if Jack had only provided tuna salad sandwiches.

Jack should also reinforce affiliation at just about any time or place (provided neither Jill nor others are offended). In this way, the discriminative stimuli from Jack's body and behavior will additionally be freed from control by various temporal and spatial variables. Interestingly, under these contingencies Jack's physical features should become reinforcing independent of any *particular* establishing operation. Jill, consequently, might view photographs of Jack when he is unavailable even though a photograph cannot provide the reinforcers Jack provides. Indeed, Jill might assert that there is something intrinsically attractive about Jack and he may stop complaining about being used. In principle though, Jack's physical features have become generalized reinforcers because they have antedated and been correlated with various classes of reinforcement.

Similar procedures were described by Miller and Siegel (1972) for creating loving. The strategy of rendering one's body and behavior sources of discriminative stimuli occasioning affiliation and generalized reinforcers follows from a number of learning approaches (also see Blau, 1964). Jack may become the most captivating person that "ever walked into Jill's life," if Jill is socially unskilled or, for other reasons, Jill cannot readily affiliate with others who provide comparable reinforcers. Jack's stimulus control over Jill's primary behavior may evoke much affectionate verbal behavior related to reinforcement including "I'm in love with Jack."

But if Jill is skilled and can access alternative sources of comparable reinforcers this strategy may fail. The wheels of industry critically depend on people captivating others by providing goods that roll off assembly lines or services that do not critically depend on idiosyncrasies. If Jack almost exclusively consequates Jill's affiliation with abundant reinforcers, then she may eventually affiliate with others who can provide them more immediately or in greater quantity than can Jack. This may happen if Jill's social skills improve or she comes to live in a different social milieu.

Reinforcing Affiliation with Scarce and Idiosyncratic Reinforcers

Critical to whether Jack is 'just another guy' or the object of Jill's passion are the kinds of reinforcers Jack provides. Although I would advise Jack to provide a variety of generic, abundant reinforcers, I would also advise him to provide other kinds of reinforcers as suggested by Gewirtz's analysis of a child's behavior regarding a primary care taker (1972a). The implications of Gewirtz's analysis are quite clear: Jack should bring Jill's orienting, approach, and other appropriate behavior under the control of discriminative and reinforcers that only he can readily provide. That is, Jack can best reduce Jill's affiliation with others by consequating her affiliation with him, with a wide variety of scarce reinforcers. Because many of these reinforcers are "tailored" to Jill, I call them idiosyncratic reinforcers.

Although other theorists, besides Gewirtz, have made related observations, their discussions are brief (Altman & Taylor, 1973, p. 130-131; Berscheid, 1985, pp. 439-440; Blau, 1964, p. 80; Borowitz, 1969; Foa & Foa, 1980; Homans, 1974, pp. 65-66; Rachlin, 1980, p. 46; Rosenblatt, 1977, p. 79). Yet, specifying scarce and idiosyncratic reinforcers may be the most interesting aspect of a behavior analytic approach to creating romantic loving.

The widespread control that Jack may exert over Jill's behavior, called "falling in love," may occur across repeated affiliative sequences (see e.g., Altman & Taylor, 1973; Laurenceau & Kleinman, 2006; Levinger, 1974). During these sequences, Jack should prompt and reinforce Jill's descriptions and evaluations of her current circumstances, family, childhood, and eventually herself. Jill's self-disclosures may best be prompted and reinforced by Jack self-disclosing (Greene, Derlega, & Mathews, 2006). As before, during these affiliative sequences, Jack should also observe current variables controlling Jill's behavior. Consequently, Jack's actions may be controlled by whether Jill "is sensitive to certain kinds of stimuli, whether [she] responds to certain kinds of reinforcement, whether at the moment [she] exhibits certain states of deprivation, and so on" (Skinner, 1953, p. 314). In short, Jack ought to know or understand Jill as no one else (see Gottman & Silver, 2001, Chap. 3)!

Below, I discuss various potential scarce and idiosyncratic reinforcers. These are the reinforcers that may produce "fascinating" and "desiring exclusive relations" (Davis, 1985; Davis & Todd, 1982) and evoke verbal responses such as "miss other when apart," "attachment" (Fehr, 1988, Table 2), "If I were lonely, my first thought would be to seek [Jack] out" (Rubin, 1970), and "I would feel deep despair if [Jack] left me" (Hatfield & Sprecher, 1986).

Listening. Jill may be disposed to talk but often there is no audience or only a punitive audience. Jack should listen to Jill. Jack's behavior ought to be appropriate to Jill's in being, for example, "sincere," "understanding," and "caring" (see the discussion of "responsiveness" in Laurenceau & Kleinman, 2006). To be sure Jill speech may reveal important controlling variables, but the major point here is for Jack to support Jill's speaking. If Jack refrains from punishing Jill's verbal behavior, then Jack may be one of the few people with whom Jill can speak freely.

Respecting. I've already depicted Jack as sensitive to the variables that control Jill's behavior, at least in the sense of being capable of describing them. I would advise Jack to take these controlling variables into account before behaving in ways that affect Jill. For example, if Jill exercises daily at 7 PM he should refrain, without Jill's prompting, from scheduling conflicting activities at that time.

There are, of course, other ways of respecting. Jill will explicitly describe her wishes, feelings, wants, or values. Such verbal behavior may describe reinforcing contingencies, potentially idiosyncratic to Jill. To the extent Jack provides the described reinforcement he will be "influenced by," "considerate of," or "respecting" Jill (see Gottman & Silver, 2001, Chap. 6). Also, he will be reinforcing her descriptions of reinforcing contingencies which may further enhance his doing "the right thing" in the future.

Solving Personal Problems. If a complicated problem arises in Jill's life that she cannot solve, Jack may be one of a few people who can, when told the problem, readily offer helpful advice or even specify behavior that will terminate the problem (see Skinner's interpretation of "having a problem," 1953, pp. 246-252). Problems are aversive; Jack's advice can become reinforcing because it has been correlated with terminating aversive stimuli (Baron & Galizio, 1983). Worth noting, is that Jack again will have been reinforcing Jill's descriptions but now descriptions of problems. Jack ought to prompt and carefully listen to Jill's daily descriptions of her life so he can continue to help her.

Predicting Personal Outcomes. At times Jill may be unsure of what to do in personal situations. She may, for example, be unable to decide whether a note written to a friend will be effective. If Jill has spoken to Jack about this friend or Jack has interacted with this person, Jack's confirmation (Skinner, 1957, p. 425) may reliably precede the note's effectiveness and his dissent may precede its failure. Jack's predictions may acquire a reinforcing function under this circumstance (Perone & Baron, 1980). If Jill's behavior is changed as a result of Jack's comments and the problem is solved, then this is merely an instance of helping solve personal problems.

Changing the Topic. If Jill has a problem that remains insolvable and she publicly talks about the difficulty (so called "thinking out loud"), Jack may provide distracting stimuli. Of all people, Jack can best do this because he can specify when and what stimuli evoke behavior incompatible with Jill's public (or private) problem-related behavior. Compulsively thinking about an insolvable problem is aversive; stimuli from Jack can acquire a reinforcing function by being correlated with the termination of such aversive behavior.

Sometimes, of course, Jill may not at all publicly discuss a problem because of a history of punishment. But Jill need not tell Jack that she feels embarrassed or guilty; changes in her public behavior may suffice. Stimuli that ordinarily produce Jill's talking, eating, or playing may be ineffective. The reduced frequency of such behavior may again evoke Jack's presenting stimuli that produce incompatible behavior. Jill might again describe Jack as a "mind reader."

Administering Behavior Therapy. Here, I can only note or outline a few behavior therapies and techniques. Interested readers can access the details by consulting my sources.

If Jack has reinforced Jill's discussing minor problems and Jack generally has not punished Jill's blunders then Jack may shape disclosure about more intimate problems. Intimacy may be interpreted, in part, to include verbal operants that describe behavior vulnerable to interpersonal punishment (Cordova & Scott, 2001).

Jill may feel anxious because she had engaged in punishable behavior and some aspect of the environment now elicits aversive respondents (Skinner, 1953, Chaps. 11 & 12). For example, Jill may have long ago stolen money from her mother's purse and current stimulation evokes her visualizing her stealing or covertly describing it. Jill may be reluctant to publicly describe such vulnerable behavior. But changes in Jill's public behavior and Jack's inability to describe events that changed Jill's public behavior may evoke his asking, "What's wrong?" Of course, it is possible that Jill may be experiencing a free-floating anxiety and be incapable of visualizing or describing the causes (see Skinner's interpretation of repression, 1953).

Jack may administer probes, supplementary stimuli that evoke responses that Jack could not describe beforehand, in helping Jill visualize and describe punishable behavior (Skinner, 1957, pp. 258-268). If Jill's punishable behavior and descriptions of this behavior had been followed by stimuli that elicited aversive respondents (such as being reprimanded or even physically assaulted) then respondent conditioning may account for why her later visualizing and describing this behavior makes her anxious (produces aversive respondents). In principle, if Jack can evoke Jill's visualizing and describing the behavior while functioning as a "nonpunishing audience" (Skinner, 1953, p. 370) then a respondent extinction procedure is in effect (see Dougher, 1994; Skinner, 1953, pp. 370-371; Stampfl, 1975). In greater detail, her covertly visualizing and publicly describing the punished behavior to Jack produces private aversive stimulation but this stimulation *now is not* correlated with public stimuli that elicit aversive respondents. So the private stimuli may become less aversive. Worth noting is that much the same effect might be achieved, via the same behavioral mechanism, should Jill visualize and describe her punishable behavior while praying.

Because a person or "self" is not merely a body but is also characterized by certain behavioral patterns (Fraleigh, 1998; Keller & Schoenfeld, 1950, p. 369), Jill may report "feeling like a new person" or having "a new self" because personally aversive behavior such as muscle tension and pain have diminished or disappeared (also see, Maslow, 1970, p. 185). Because verbal intimacy with Jack eliminated such non-verbal behavior (Cordova & Scott, 2001), she may describe herself as "feeling relaxed with Jack" and "feeling free to talk about anything" with him (Fehr, 1988, Table 2). Jack's status as a reinforcer may be enhanced because his presence has again been correlated with the termination of aversive stimuli.

If Jill currently lives among people who repeatedly speak of sin, sinners, and punishment, however, this might counteract Jack's work. In this case, Jack might instead attempt Mowrer's "integrity therapy." For Mowrer (1964):

Guilt is the fear a person feels after having committed an act which is disapproved by the significant others in his life, before the act is detected or confessed. Guilt, in short, is the fear of being found out and punished And it persists (i.e., does not extinguish) for precisely the reason that in human society the mere passage of time does not reduce culpability. Under the circumstances specified, the original act, is moreover, compounded by deception, which becomes an ongoing "sin" which was not merely committed then but is still being practiced and perpetuated, here and now. (p. 226)

As an integrity therapist Jack might not only support Jill's visualizing and describing her theft but also advise her to confess to other significant people in her life, make restitution, and behave better. If, however, in the past these behaviors had not produced acceptance then integrity therapy may fail. Sadly, the significant others in Jill's life may have continued to discuss her transgressions and condemn Jill. If Jill were raised this way then perhaps Jack should only prompt her confession and her promise to do better. Indeed, in discussing restitution Jack might mention that Jill has paid sufficiently in guilty behavior. Jack should not again discuss Jill's inappropriate behavior. Jill may come to no longer respond guiltily, at least in Jack's presence.

In the above example, I assumed that the controlling variables for Jill's anxious responding could be identified but identification may be impossible. In this circumstance, Jack may focus on the undesirable behavior and related behaviors. For example, suppose Jill is concerned about her excessive negative thinking about a family member and she seeks Jack's help. Regarding this person, Jack might ask her to covertly count daily, for just one min, loving thoughts and feelings. She might, for example, think about the holidays and celebrations she shared with this person, joy this person has evoked, and her concern for this person's well being. From session-to-session Jill could plot her counts of positive thoughts and attempt to beat her "personal best." What might nine such 1-min sessions do? Given such problem behavior, Cooper (1991) counted his positive and negative thoughts *throughout the day* and found the 1-min sessions increased his daily counts of positive thoughts and decreased his daily counts of negative thoughts. Moreover, this effect persisted for four months after he terminated the sessions. Although others might advise Jill to "count her blessings" regarding such a family member, Jack might recommend she count them as fast as she can for 1-min daily!

Above, Cooper (1991) reduced the frequency of an undesirable behavior, negative thinking, by increasing the frequency of a desirable behavior, positive thinking.. His work illustrates an important and valuable strategy, the constructional approach (Goldiamond, 1974). It can be further illustrated by supposing that Jill repeatedly shows up late or misses appointments. Others might focus on her tardiness and contingently "lecture" her. Jack, instead, should focus on increasing the frequency of alternative useful behavior. For example, he might ask Jill if she considers her tardiness serious. If so, they might schedule a series of *virtual* appointments, one per day, at agreed upon times. At these times, Jill could

leave a message on the answering machine until she kept, say, ten successive virtual appointments. Jack, of course, could agree to reinforce each kept virtual appointment; he could, for example, comply with a modest request that Jill had recorded on the machine or offer praise. Will this work? Such "positive practice" (Sulzer-Azaroff & Mayer, 1991) enhanced my poor appointment keeping. Interestingly, I had often failed to keep appointments because I had been talking to others. Nevertheless, this constructional procedure worked although the opportunity to talk remained.

The approaches above may reduce Jill's troublesome behavior, but behavior cannot always be changed. For example, it may be difficult to eliminate aversive private behavior as suggested by relational frame theory (Friman, Hayes, & Wilson, 1998). Though that theory is too complicated to summarize here (see Hayes, Barnes-Holmes, & Roche, 2001), Jack (without attending graduate school) could use aspects of the related Acceptance and Commitment Therapy (ACT, Hayes & Strosahl, 2004). For example, Jack might help Jill differentiate between some aversive event and related, unwanted, uncontrollable, aversive private behavior. Despite such private behavior Jack could support Jill's working to attain her valuable goals.

Eliciting and Conditioning Sexual Behavior. As noted earlier being *in love* or romantic loving is characterized by the features that characterize friendship plus sexual desire (Berscheid, 2006; Meyers & Berscheid, 1997), so we must address sexual desire if Jill is to romantically love Jack. Above, we assumed that Jack and Jill were initially sexually attracted to each other but Jack may further enhance his sex appeal.

Although various stimuli--such as tactile stimulation of the genitalia--are sexual eliciting stimuli, Jack should discover what works best for Jill as well as the requisite establishing operations. Most helpful would be Jill prompting and reinforcing Jack's appropriate behavior before and during sexual episodes (see "sensate focus," Masters & Johnson, 1970; Sarwer & Durlak, 1997).

Certain features of Jack's body (e.g., his hairy chest) and behavior will come just before unconditioned sexual eliciting stimuli (e.g., genital stimulation). These antecedents will become eliciting stimuli if it is additionally true that: stimulation of Jill's genitalia is more likely given the presence of Jack's hairy chest than is stimulation given the absence of Jack's hairy chest.

Unfortunately, for Jack, to the extent other people share Jack's physical features or use Jack's brand of cologne these stimuli may also elicit sexual respondents. Jack should, therefore, attempt to produce unique, sexual, eliciting stimuli. Jack and Jill may, for example, develop a secret erotic language. Most naturally, certain idiosyncratic features of Jack's body and behavior will be correlated with sexual stimulation.

As in the case of reinforcing affiliation, I would recommend that Jack administer the conditioned and most effective unconditioned sexual eliciting stimuli at just about any time or place (provided Jill is not offended). In this way, the conditioned stimuli's control will be independent of various temporal and spatial variables.

Worth noting, is that although Jill may have enjoyed sex with others who she merely liked, Jack may "turn her on like no one else" (see Maslow, 1970, p. 182) because he has provided many idiosyncratic, scarce reinforcers that have enhanced her efficacy and has not used punishment (see Branden, 1980, p. 85-87).

Creating Shared Meaning. Shared meaning can refer to the same stimulus or operation functioning equivalently for two or more persons. For example, above, I suggested that Jack and Jill develop a secret erotic language. Its words could function as conditioned reinforcers and elicit sexual respondents for Jack and Jill.

Couples may create other forms of shared meaning (Gottman & Silver, 2001, Chap. 11). For example, Jack and Jill may use reinforcers to establish time-correlated events as stimuli for mutual affiliation. They may, for example, regularly celebrate the anniversary of their first meeting, or even call each other daily, at the same time. Others may forget or not even know that such times have such meaning, but not Jack and Jill. Objects and places offer other forms of stimulation which can be conditioned to function equivalently only for Jack and Jill.

If Jack and Jill come to share their lives for decades, then contingencies under which they have both lived will produce shared meaning. Later, they may reminisce by providing each other with scarce, verbal stimuli that function as reinforcers as well as evoke behavior related to their past. Only Jack, for example, may know that mentioning "Mr. and Mrs. B's apartment" elicits warm, reinforcing responses down Jill's spine as well as evokes her imagining the apartment. Moreover, as time passes Jill's ability to describe the apartment without additional prompting may diminish. Jack's providing such scarce and idiosyncratic prompts may be particularly reinforcing. Dorothy Ogrizovich remarried after her first marriage had ended in divorce. She noted:

Memories are the scrapbook of a life. Without them, you have given up a piece of yourself. I make this point only to stress that when couples are considering divorce, they should also be aware of this subtle loss, which can be as painful as those that are so often publicized. . . .The wages of divorce or an untimely death of one's partner are, unfortunately, the same. They represent the loss of an intangible treasure: shared memories. (1986, p. 9E)

Resources

In the last section, I specified how Jack could arrange matters, particularly using reinforcers, so that his body and behavior could occasion Jill's affiliation and her falling in love as well as her emitting various forms of affectionate verbal behavior. Here I discuss whether Jack has the capabilities and time to put my advice into effect, as well as social support beyond his relationship with Jill.

Capabilities

Capabilities are usually conceptualized as hypothetical constructs but they often simply name behavior that has occurred for extended durations in various settings but is not presently occurring. We say, for example, that people are capable of speaking English when we've heard them speak English for weeks while in Menomonie and Milwaukee but they are not presently speaking English. If Jack were fortunate, he acquired many of the capabilities described in this section while interacting with members of his immediate family and friends.

We may ask whether Jack can behave in ways, characteristic of friendship, that reinforce Jill's behavior. If Jill enjoys tennis, can Jack play tennis? If Jill enjoys political discussion, can Jack appropriately discuss politics? Many of the repertoires that Jack may need may be complex. If Jack is without the appropriate repertoires then they may be difficult to acquire. Even if Jack works hard practicing appropriate behavior, his new behavior may be disfluent and he may feel that he is not true to his "real self": his characteristic, rapid, automatic, effortless, context and stimulus-appropriate behavior (Fraley, 1998; Johnson & Layng, 1996).

Also important is "patience" which may be interpreted as persistently responding though reinforcement is absent. Persistent responding may be due to a history of intermittent reinforcement. Such responding is particularly important because Jill may neither immediately nor regularly reciprocate Jack's romantic behavior. Also important are "trust" which may be interpreted as permitting others to control reinforcers or punishers, and conflict resolution skills (Jacobsen & Margolin, 1979). Forgiveness may

also be important (Enright, Gassin, & Wu, 1992), though unnecessary if Jack responds to Jill not as a cause apart from the universe but as part of the universe (Watts, 1940; Skinner, 1971). If for example, Jill's behavior is occasionally aversive then Jack will look to the environment and not inside Jill in considering whether to jointly develop and implement constructive procedures that may produce mutually acceptable behavior.

Of course, as previously noted, not all behavior can be changed (see Hayes, Jacobsen, Follette, & Dougher, 1994). It may often be best just to accept behavior. For Christensen and Jacobsen acceptance means to ". . . tolerate what you regard as unpleasant behavior in your partner, probably to [a.] understand the deeper meaning of that behavior, certainly to [b.] see it in a larger context, and perhaps even to [c.] appreciate its value and importance in your relationship" (2000, p. 124). This description of acceptance can be explicated through behavior analytic interpretation. For example, Jack may be accepting to the extent he can [a.] describe the immediate and past variables controlling Jill's behavior, [b.] describe how the behavior now mediates reinforcing consequence for Jill in various contexts, and [c.] describe how the behavior or its consequences sustain Jack and Jill's interactions. Such acceptance is important for surely if Jack and Jill are to have a long-term relationship the value of Jill's behavior or aspects of her behavior will vary with context. For example, Jack might admire Jill's steely determination in negotiating the best price for his new car but despair at Jill's steely determination in negotiating where they will be vacationing.

Time

Jack may be incapable of quickly winning Jill's love, and so may wonder given all the recommended listening, observing, and providing where is he to find time? But the basic issue is rarely insufficient time. The basic issue is better described as a matter of "choice." Unfortunately, though, as conventionally understood, "choice" usually refers to an invisible, internal process, a "free will" that determines which of two or more incompatible operants occur. More complex accounts of choice may assume that such operant behavior is determined by expectancies, subjective probabilities of future outcomes, and other hypothetical constructs. We can, however, understand choice behavior in terms of past and current environmental events such as instructional and discriminative stimuli that control the incompatible operants, the establishing operations in effect, the schedules of reinforcement and, of course, the reinforcers.

To further discuss choice behavior, let's assume Jack is momentarily concerned about his investing so much time and other resources winning Jill's love. As he considers my advice he may note that if he alternatively mastered the stock market he might earn so much money that he could attract many desirable women. He also might note that if he followed my advice and produced all sorts of stimuli that functioned as reinforcers exclusively for Jill, who else would appreciate his highly specialized knowledge and skills should Jill reject him, sicken, or die? Jack faces a choice endemic to mass culture.

I might address Jack's concerns by indicating that Jill is unlikely immediately to find someone better. This is because Jack provides a variety of idiosyncratic, scarce reinforcers contingent on Jill's affiliation. Although Jack might attract a number of woman with "all the things that money can buy," money cannot maintain their continuing affiliation (unless they are socially unskilled) as effectively as can providing a variety of idiosyncratic, scarce reinforcers. In other words, Jack's monopoly over some classes of reinforcers can promote Jill's "commitment." For the lay person, commitment's central feature-names include "loyalty," "faithfulness," "devotion," and "perseverance" (Fehr, 1988, Table 2). For theorists of love "commitment" refers to verbal statements regarding "staying in a relationship" (Fehr, 1988, p. 577).

Of course, if Jill were to eventually consequte Jack's affiliation with a wide variety of reinforcers, particularly idiosyncratic, scarce ones, then Jack might fall in love with Jill. This outcome will most easily be attained if Jill's capabilities and behavioral dispositions are appropriate to Jack's. In this circumstance, the major issue would be coordinating their reinforcing behaviors (see Kelley, 1979; Kelley & Thibaut, 1978) rather than the often more troublesome issue of what reinforcers each provides.

If Jill can induce Jack to fall in love, Jack may come to see ". . . in his own particular Jill charms and perfections to the enchantment of which we stolid onlookers are stone-cold" (James, 1914, p. 266). Jack's caring for Jill may become a "labor of love." His loving behavior may become automatically reinforcing by having been correlated with Jill's providing reinforcers and he may no longer be concerned about all the effort and time he has devoted to Jill.

Social Support Beyond the Dyad

Besides support from work associates, friends, family, and mutual support, what else can Jack and Jill do to maintain their loving behavior? One possibility is mastering and practicing animal training procedures that use positive reinforcement and the constructional approach (e.g., Pryor 1999).

This suggestion might appear fanciful but consider Sutherland's "What Shamu Taught Me About a Happy Marriage" (2006): "The central lesson I learned from exotic animal trainers is that I should reward behavior I like and ignore behavior I don't. After all, you don't get a sea lion to balance a ball on the end of its nose by nagging. The same goes for the American husband"(p. 1). In addressing her husband's undesirable behavior Sutherland reports conducting functional analyses, reinforcing incompatible desirable behavior, extinguishing undesirable behavior, assuming his behavior is determined, and even acceptance:

I adopted the trainers' motto: "It's never the animal's fault." When my training attempts failed, I didn't blame Scott. Rather, I brainstormed new strategies, thought up more incompatible behaviors and used smaller approximations. I dissected my own behavior, considered how my actions might inadvertently fuel his. I also accepted that some behaviors were too entrenched, too instinctive to train away. You can't stop a badger from digging, and you can't stop my husband from losing his wallet and keys. (p.2)

Jack and Jill training troublesome dogs at the local humane society or animals at the local zoo could help maintain the kinds of skills that Sutherland nicely summarized. In this case, animal behavior would be supporting their loving behavior.²

Caveats Regarding "Creating Romantic Loving"

Here, I address criticisms of the interpretations above.

Isn't There Too Much Calculation and Control?

In describing natural instances of loving, Skinner noted that ". . . we act to please and not to hurt, to be nice and not to be mean—but we do not act to change behavior" (1980, p. 132). Intentional manipulation, however, may occur even during natural instances of loving where one person *intentionally* withholds their love when the person discovers that loving is supporting another's harmful behavior. About this Skinner asked, "Would that not simply be a slightly more farsighted form of doing good to someone—i.e., of loving?" (1980, p. 132). Of course, I have portrayed Jack as often intentionally attempting to change behavior because my primary objective has not been to describe how loving evolves

in natural settings but how loving can be created from the standpoint of behavior analytic philosophy and laboratory procedures.

Nevertheless as I noted in discussing ethics, Jack might behave more spontaneously if he were raised in a loving family. Jack's spontaneity might also derive from extensively practicing applied behavior analysis. As a consequence, his many fluent behavior analytic skills might allow him to win Jill's love without much apparent calculation (see e.g., Johnson & Layng, 1996).

As for Jack's control, it may rather inconspicuous to Jill if it is based on reinforcement. Surely, Jack should avoid putting into effect most relevant establishing operations. That is, it is others who, for example, force Jill to work late so that she misses dinner, depict wrinkles and fat as unattractive, or spread rumors that her company is downsizing. The one exception to Jack's not putting into effect establishing operations are those related to sexual reinforcement (Dermer & Pyszczynski, 1978).

What About Jill's Interpretations of Jack's Behavior?

What about how Jill's *perceives* Jack's behavior? What about the *meanings she ascribes* to Jack's behavior? Can something be reinforcing if Jill doesn't *find* it reinforcing?

Let's examine these questions from the standpoint of my having advised Jack to help Jill solve various problems. Sarason and Sarason remind us that Jill might ascribe negative meanings to such support if the relation is highly conflictual (2006, pp. 432-433). Although Jack and Jill's relationship is not likely to be conflictual, Jill may have had such relations with others. In these relations, support may have been correlated with the supporters or others commenting negatively on her acceptance of such support. For example, they may have said, "Can't you do anything right? Let me show you." "Would you believe, yesterday Jill couldn't figure out . . . !" As a result, receiving support may function as a conditioned punisher and a conditioned eliciting stimulus producing aversive respondents. So when support is next offered, Jill might avoid or escape it as well as behave anxiously. Moreover she may *say* "I dislike support," and "I consider it threatening."

Because support does not so function for everyone, it is tempting to attribute these individual differences to differing *perceptions and meanings*. Instead, however, behavior analysts would assume that the functions of support vary from person-to-person or from setting-to-setting because the controlling variables vary (Skinner, 1974, pp. 77, 90-93, 174).

*What About Fantasy?*³

From the standpoint of behaviorism, fantasy, hearing, smelling, etc., are private behaviors occurring beneath an organism's skin (Palmer, 2003; Skinner, 1953, pp. 257-282). Jill's physical presence may be interpreted as evoking Jack's privately seeing Jill. Privately seeing Jill may acquire a reinforcing function because seeing has been correlated with Jill's providing reinforcement and may, consequently, occur when relevant establishing operations are in effect:

It is characteristic of men under strong sexual deprivation, not only that they indulge in sexual behavior as soon as an occasion presents itself or concern themselves with the production or enjoyment of sexual art or engage in sexual self-stimulation, but that they also see sexual objects or activities in the absence of relevant stimuli . . . A . . . response which can be made when the appropriate stimulus is absent has certain advantages. It does not require the sometimes troublesome precurrent behavior which generates an external stimulus, and it can occur when such behavior is impossible—as when we daydream of a lost love or an opportunity which is wholly out of the question. (Skinner, 1953, p. 272.

If Loving Primarily Involves Positive Reinforcement, How Can Emotional Ambivalence be Explained?

First, assume that Jack and Jill are mutually in love due to the behavioral procedures outlined above. Emotional ambivalence may characterize Jack's behavior with respect to Jill because Jill may administer tremendous punishment by threatening or actually rapidly withdrawing the idiosyncratic, scarce reinforcers she uniquely provides. Usually if the addition of a stimulus is reinforcing, its withdrawal is punishing. Also, if Jack has revealed punishable behavior, Jill may threaten to reveal his transgressions. Clearly the social interaction that produces loving potentially can produce ambivalence (Davis, 1985, pp. 26-27) or even hating.

Moreover, if Jill can more effectively control Jack's behavior than Jack does Jill's, Jill may force Jack to engage in punishing behavior. It has been noted that "in any sentimental relation the one who cares less can exploit the one who cares more" (Ross, 1920, p. 136). Jack may continue to affiliate with Jill, for example, because of the schedules of reinforced affiliation and the unavailability of alternative sources of reinforcement (see Homans' [1974] discussion of power).

How Can Romantic Loving Fade Over Time Though Reinforcement is Forthcoming?

Here I address the apparent paradox of fading romantic love given continuing reinforcement. Put another way, despite Jack's initial success in disposing Jill to fall in love, she may later only describe herself as loving him (see Myers & Berscheid, 1997, p. 360) and behave accordingly.

Reductions in: Joy and the Quality and Quantity of Reinforcement

"Joy" may be considered a verbal response controlled, not by a particular level of reinforcement, but by rapid increases in level (Rachlin, 1980, Chap. 3). Therefore, Jack and Jill's describing each other as sources of joy depends on their perpetually providing positive transitions in mutual levels of reinforcement. This, in turn, depends on various establishing operations being in effect and each person initially being incapable of responding effectively.

Suppose that Jill had never before fallen in love and faces a variety of unresolved personal problems that have accumulated over time. Once Jack helps solve or eliminate such problems, powerful bases of reinforcement are eliminated. For example, if Jill not only felt guilty about previous inappropriate behavior but additionally described herself to be sexually unappealing, Jack's prompting Jill's confession might reduce her guilty behavior, and her body functioning as an erotic eliciting stimulus would likely terminate her disparaging remarks about her sex appeal. Jill might occasionally feel guilty about her misdeeds or anxious about her sex appeal, but the aversiveness of these problems should be far less than had Jill never interacted with Jack.

But as Jack and Jill continue interacting they may reach a point at which they cannot reinforce affiliation at ever increasing rates particularly with idiosyncratic, scarce reinforcers. Their tendency to think about and fantasize about each other as well as affiliate with each other may, therefore, decrease as they use reinforcers readily available from others.

Indeed, even such common reinforcers may less frequently be forthcoming. For example, if Jack and Jill marry there will be less competition for each other's affection. The complex pattern of social stimulation called "low competition" may evoke less reinforcement of affiliation. Moreover, Jack and Jill will likely come to share the same "home sweet home." Consequently there will be less need to reinforce certain forms of affiliation than when they lived separately because each will, to some extent, affiliate with the other when accessing their reinforcers at home.

Conditioned reinforcement may also reduce using common reinforcers. The conditioned properties of stimuli presumably do not change as rapidly as the contingencies of reinforcement; behavior that is automatically reinforcing may persist for some time without exogenous reinforcement. For example, Jill may have frequently reinforced Jack's preparing lunches, but the frequency declined after Jack's behavior became automatically reinforcing. Jill may, consequently, come to reinforce lunch preparation less frequently. Subsequently preparing lunches may no longer be automatically reinforcing, in other words, "a labor of love" for Jack.

Weakening Sexual Stimulation from Jack

Aspects of Jack's body or behavior may have initially been reinforcing and sexually arousing for Jill. It is likely, for example, that during the early stages of their romance, the probability of immediate sexual stimulation given the presence of Jack's hairy chest was high whereas the probability of sexual stimulation given its absence was low. Indeed, if Jack sexually stimulated Jill at various times and in various settings, then the conditioned reinforcing and eliciting functions of Jack's hairy chest should hold over time and place.

Contrariwise, as Jill increasingly affiliates with Jack the covariation between his hairy chest and more effective sexual stimulation, such as tactile stimulation of her genitalia, will likely diminish. This will easily happen if Jack and Jill share the same bedroom where Jack's hairy chest will be exposed but tactile genital stimulation will less often occur than during the early stages of their romance. This change, according to the contingency account of conditioning (Rescorla, 1988), will weaken the conditioned reinforcing and eliciting functions of Jack's hairy chest.

Moreover, sexual behavior may eventually be confined to a particular time (before going to sleep) and place (the bedroom, particularly if there are children) which should further diminish Jack's hairy chest functioning as a conditioned stimulus over time and place. Also, after Jill's working hard all day, Jack's tactile sexual stimulation of Jill may be less effective (see Tennov, 1979, pp. 171-175) than when they first dated.

Summary and Conclusion

In these interpretations, I discussed the meaning of various affectionate verbal behaviors by identifying their antecedents. Next, I used these antecedents, as blueprints, to specify the behaviors that ought to be established or strengthened in creating romantic loving. Accordingly, I advised Jack to consequate Jill's orienting, approach, and other appropriate behavior with a variety of reinforcers, particularly reinforcers that are scarce and idiosyncratic to Jill. Moreover, I advised Jack not to punish Jill's behavior. If in certain settings Jill's behavior were undesirable, I advised Jack to use the constructional approach to strengthen alternative behavior that can benefit Jill. If this strategy failed to reduce Jill's undesirable behavior then I suggested that Jack consider accepting this behavior. Jill's undesirable behavior, at the very least, may mediate reinforcement for Jill and perhaps even Jack in other settings. I further noted that it may be difficult for Jack to put the recommended contingencies into effect or maintain them. Not only must Jack possess the requisite behavior but without reinforcement from Jill his behavior may weaken. If, however, Jack maintains appropriate contingencies, then Jill may fall *for* and be *in* love with Jack, her empowering friend and sexual intimate.

The interpretations I have offered and reviewed as well as the procedures I have suggested are rooted in behavior analytic philosophy and research. Although there are experimental analyses of infant and children's orienting, approach and affiliative behavior (e.g., Allen, Hart, Buell, Harris, & Wolf, 1964; Gewirtz & Peláez-Nogueras, 2000) and adult human dyadic behavior (see reviews by Hake & Olvera, 1978; Schmitt, 1998), there are no experimental analyses of creating romantic loving between

adult humans. Nevertheless, the interpretations offered here outline how these important human behaviors might be parsimoniously understood from the standpoint of a philosophy and experimental science whose application has been quite successful (Palmer, 2003).

That science, the experimental analysis of behavior, fundamentally differs from traditional approaches regarding what constitutes an explanation, what is explained, and what is controlled: *the behavior of an individual organism or dyad*. That science requires Jack to focus on environmental variables in best establishing and maintaining Jill's loving. In fact, I have suggested that Jack's behavior might approximate that of an applied behavior analyst. Indeed, advances in applied behavior analysis will likely further help real Jacks and Jills become better lovers. Nevertheless, no matter how much they might master such advances they will be faced with the problem of generalizing from abstract descriptions of procedures and behavior to their own lives. They can best do this by selecting and implementing mutually acceptable procedures, monitoring their behavior, and tinkering with procedures for their mutual benefit.

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Footnotes

¹ For autistic children who have received applied behavior analytic interventions, we can describe some of the contingencies used when establishing their affective verbal behavior. For example with the program “Answers “Why . . . ? and “If . . . ? Questions” a child is asked “Why do you smile?” and earns a reinforcer for responding “because I’m happy” (Taylor & McDonough, 1996, pp. 165-166).

² I could, of course, write more about creating romantic loving. For example, behavioral momentum theory (Nevin & Grace, 2004) suggests how Jack’s non-contingent presentation of reinforcers may reduce the effects of disrupters on Jill’s operant behavior in his presence, and relational frame theory (Hayes, Barnes-Holmes, & Roche, 2001) suggests how Jill might fall in love with Jack based only on the exchange of e-mail.

³ The following concerns were suggested by Berscheid and Walster [Hatfield]’s questions regarding whether then contemporary reinforcement approaches could explain various aspects of romantic love (1978, pp. 153-156). I use related questions to explicate the interpretations I’ve reviewed and offered.

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