

## A Developmental-Behavioral Analysis of Lying

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### ABSTRACT

Lying is a common behavior in society and causes a number of problems in social relationships, the workplace, political affairs, and more. Most often, individuals who lie are considered to be liars and are therefore held responsible for their behavior. Unfortunately, the practice of assuming that the individual is responsible for engaging in lying behavior prevents an understanding of the context that supports the development and persistence of lying. As an alternative, the current paper considers contextual-behavioral factors that contribute to the development and maintenance of lying during both childhood and adulthood. In doing so, the unique features of lying as a target behavior are described, and specific targets for prevention and intervention are identified. The detection of lies is given specific attention, highlighting both conceptual and applied issues.

*Key words:* behavior analysis, honesty, lying, truth telling.

#### *Novelty and Significance*

*What is already known about the topic?*

- Relatively little has been said about the topic of lying within behavior analysis. What has been said has focused on Skinner's (1957) verbal operants, and elaborated on various types of lying.

*What this paper adds?*

- The current paper adds to the small amount of work on the topic by identifying the unique features of lying as a target behavior, considering factors that contribute to lying across the lifespan, pointing to targets for both prevention and intervention, and finally, commenting on conceptual issues related to the behavioral analysis of lying and in particular the detection of lies.

Lying is a behavior that seems common throughout various cultures, ages, settings, and more. Lying also seems to be associated with several societal problems; it often disrupts social relationships, causes problems in the workplace, and corrupts politics, for examples. Most often, however, individuals who engage in lying behavior are considered to be liars, whereby the problem of lying is considered to reside within the individual. Following from this, the individual is to be held responsible for their lying behavior. In this sense, a consideration of environmental factors that lead to the development and persistence of lying is bypassed, as the problem of lying is assumed to reside within the individual.

A behavior-analytic alternative to this conceptualization is to consider lying not as something that develops and occurs within an individual, but rather, as a behavior-environment relationship that develops as a function of factors in the environmental context. The behavioral approach to lying is supported by operant research on the topic, which has shown that both non-human (Lanza, Starr, & Skinner, 1982) and human (Sato & Sugiyama, 1994) animals will lie when the context supports this behavior. On a practical level the behavior analytic alternative permits an analysis of factors that might

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be manipulated to prevent the development of lying and reduce its persistence over time. Given the prevalence and importance of this behavior, this alternative approach seems well worth considering. Interestingly, however, relatively little behavior analytic work has been done in this area.

Skinner (1957) considered the topic of lying when he described distorted tacts. While distorted tacts pertain to some stretching of stimulus control, with respect to lying specifically Skinner (1957, p. 149) stated "In a still greater distortion a response is emitted under circumstances which normally control an incompatible response. We call the response a lie." Parsons (1989) elaborated on the behavior analytic approach to lying and considered the many circumstances in which verbal behavior might be considered a lie. For example, Parsons considered the multiple functions that lies may have, including the extent to which lies may be distorted tacts (as described above) or mands, as when one emits a threatening lie to manipulate the listener's behavior. Moreover, Parsons distinguished between the sort of lying that involves deliberate falsification as well as that which occurs unknowingly, as when the speaker makes a mistake. In addition, the difference between concealment (omitting something) and lying was also considered. Interestingly, Parsons also pointed to the ever-present role of lying in society, and how lies may even be necessary and not always harmful.

Given that lying can consist of a range of behaviors and situations (Parsons, 1989; Sato & Sugiyama, 1994, p. 165) it is important to be clear about the focus of the paper. The current paper focuses on the sort of lying that Parsons described as deliberate falsification, as when someone engages in a behavior that is not accurate, and does so knowingly (i.e., with some element of "intention"). Importantly, then, the current paper does not focus on lies that are considered appropriate or instances when someone lies accidentally. The specific aims of the current paper are to build upon the existing behavior analytic literature in this area by focusing on the unique features of lying as a target behavior, and to provide a more broad comprehensive consideration of lying across the lifespan. Moreover, the current paper will consider conceptual issues related to the behavior analysis of lying. As the paper considers contextual-behavioral factors that participate in lying during both childhood and adulthood, the analysis may be considered a developmental-behavioral analysis. Consistent with these developmental aims, lying during childhood will be considered first.

### LYING IN CHILDHOOD

It is perhaps not surprising that lying may develop very early in a child's life. Early in childhood, most behavior is reinforced by immediate, direct-acting contingencies. Children learn to grab food and this is reinforced with access to food, to steal toys from their peers when nobody is looking, and more, and these behaviors are immediately reinforced (e.g., with food and toys). In this sense, much of the young child's behavior may be considered impulsive. Indeed, as the past and future are both considered verbal constructs (Hayes, 1992), pre-verbal children may be especially likely to behave impulsively. However, as children develop a more sophisticated verbal repertoire (i.e., they begin to respond with respect to various derived stimulus relations), the potential

for lies to develop becomes more apparent. Indeed, as lying involves the participation of both the past and the future by way of derived stimulus relations, the potential for lying may correspond to the development of specific language skills.

The contingencies supporting the lying repertoire in childhood seem straightforward; children learn to lie to avoid aversive stimulation. Consistent with the previous example, a parent may see an empty cookie jar and ask their child “Did you take the cookies?” If the child says yes they may be punished, as when the parent responds by saying “I told you no cookies, you’re going to time-out!”. At a minimum, admitting the stealing may be met with further instruction; for example a parent might say “I told you not to take the cookies. They are for everyone, not just you.....” Alternatively, if the child lies (e.g., says “No”), the child may “get away with it.” In other words, lying about taking the cookies may be reinforced by avoiding punishment or aversive remediation. As can be seen from this brief example, lying in these sort of circumstances seems especially likely to develop without deliberate attention to prevent it.

### *Prevention of Lying*

There are at least a couple of areas of the behavior-analytic literature that seem relevant to the prevention of a lying repertoire. One of them is presented in Skinner’s (1971) text *Beyond Freedom and Dignity*. In this text, Skinner distinguishes between behavior that is for the good of the individual, behavior that is for the good of others, and, finally, behavior that is for the good of the group or culture. Skinner also emphasizes how much of the behavior that seems good for the individual is not good for others, and perhaps even less likely to be good for the culture. In this seminal text, where Skinner calls for the design of a culture, he argues that it is the cultures responsibility to design contingencies that support behavior for the good of others and the group. Skinner’s argument is that in the absence of specific design individuals would likely continue to behave for the good of themselves, whereby the wellness of others and the culture more generally would be in jeopardy.

Lying seems to be a type of behavior related to Skinner’s (1971) analysis. Indeed, lies often seem to be behavior that could be considered good for the individual, and at the same time harmful to others and the group more generally. For example, a child might lie about stealing something, and this might help the child access more positive reinforcers and avoid punishment, though the group may experience some loss or harm (the individual or group who had the item stolen from them loses the item, and, the culture has fewer resources and is at heightened risk for future instances of the behavior). More broadly, when an individual consumes too much of a particular resource the group’s access to that resource is lessened in some way. Consistent with Skinner’s analysis, then, it seems that it falls on the culture to develop practices that condition behaviors that are for the good of others and the group as reinforcers. A number of areas of the behavior analytic research literature, both basic and applied, might be related to the prevention of lies. For example, the topics of cooperation and sharing seem central to preventing the development of a lying repertoire (e.g., Hake, Olvera, & Bell, 1975; Marzullo-Kerth, Reeve, Reeve, & Townsend, 2011; Schmid &

Hake, 1983). These research literatures might inform strategies that can be developed and evaluated to prevent the development of lying.

An additional area of the behavior-analytic literature that seems related to the prevention of lies is correspondence training. A number of behavior analysts have studied interventions aimed at increasing correspondence between what one says they did and what they did, and likewise, between what they actually did and what they said they did. In general, this body of research has shown that individuals can learn to accurately describe their behavior when accurate descriptions are reinforced. Within the research literature these correspondence relations have been described as Say-Do, Do-Say, Say-Do-Say, and so on (e.g., Osnes, Guevremont, & Stokes, 1987; Risley & Hart, 1968). While perhaps not directly targeting lying per se, the correspondence training literature seems to be related to the development of truth-telling repertoires. In this sense, one way to prevent the development of lying might be to thoroughly condition correspondence relations, truth-telling, as a conditioned reinforcer during childhood.

While it is important to consider strategies that might be used to prevent the development of lying, it is also important to consider how to respond to lies, and the difficulty in doing so.

#### *Intervention for Lying*

As with all behavior, responding to any instance of lying requires the observation of the behavior. While this may seem obvious, this is mentioned because lying is a behavior that seems to present specific challenges regarding observation. While all behavior occurs in a context, lying requires the observation of a particular sequence of events over time. In other words, lying doesn't occur in moments. Indeed, whether or not a response might be categorized as a lie depends not only on the form of the response (e.g., "No, I did not"), but upon what happened before the response as well. For example, in considering the child who stole cookies from the cookie jar and later reported "no" when her mother asked her if she stole the cookies, the parent can only intervene upon this behavior with certainty if they have observed the entire sequence of events. In other words, without actually observing the entire sequence (e.g., the child stealing and later saying "no" upon being questioned about it), observing, and thus intervening upon this behavior may be difficult. By contrast, most other challenging behaviors are observed rather easily; they do not involve the observation of sequences of events. A parent can observe their child's aggression or swearing when it occurs, for example.

Thus, with lying it is not the behavior itself that is the problem, but rather, the behavior occurring with respect to particular contextual conditions (e.g., saying "no" when the child in fact did steal the cookies). To reiterate, the detection of lies depends upon observing a sequence of events. Given this, the failure to observe the details of a child's repertoire over time should be considered a risk factor for the development of a lying repertoire. That is, caregivers who do not observe their children may permit the development of a lying repertoire. Presumably, when lying is observed it can be responded to with common behavioral reduction procedures.

It is important to highlight that the analysis thus far is consistent with the assumption that it is not individuals who are liars; rather, it is the context that supports

the development of a lying repertoire. The consideration of lying in childhood from a behavior analytic perspective has led to the identification of some fairly straightforward intervention targets. Generally, a goal of childhood is to establish lying as aversive and truth telling as a reinforcer. Given what has been described above, this requires the observation of sequences of behavioral events. Indeed, children who are not supervised closely may learn to lie very quickly. Thus, preventing and responding to lying during childhood requires specific attention and planning on behalf of caregivers.

Of course, lying is not merely a childhood phenomena; some of the most socially troublesome lies occur in adulthood. Moreover, the context in which adults live becomes increasingly complicated relative to that of children. Therefore, the following section focuses on factors that contribute to the development and persistence of lying in adulthood.

### LYING IN ADULTHOOD

The context in which adults lie, while building upon experiences in childhood, is sufficiently distinct in its complexity that it warrants specific attention. Consistent with our analysis thus far, it seems most obvious that lying may occur in adulthood because it has not been sufficiently conditioned as an aversive stimulus condition. In lay terms, some adults may lie because they never learned that lying was “bad”. Then, in keeping with the definition of an aversive stimulus, lying is not a stimulus condition that is avoided. Following from this, if lying is not avoided the only remaining features of the lying context pertain to the positive and negative reinforcers available for lying; both direct and derived. This circumstance makes instances of lying seem rather likely. Similarly, not all child rearing environments value what Skinner (1971) called behaving for the good of others. That is, perhaps behaviors which were for the good of others, such as truth telling, were never thoroughly reinforced, and therefore truth telling was not established as a conditioned reinforcer. In this sense there is no experience of positive or negative reinforcers, either directly or indirectly, for telling the truth.

Beyond these general factors, it is also important to consider the fact that the stimuli avoided and reinforcers available seem to become related to more and more things in adulthood. More specifically, as stimuli avoided and reinforcers available participate in more and more derived stimulus relations, circumstances in general become increasingly substitutional (see Dymond & Rehfeldt, 2003; L. Hayes, 1992a; S. Hayes, Barnes-Holmes, & Roche, 2001; and Sidman, 2000 for accounts of this process) in adulthood. For example, adults lie to avoid losing their jobs, to maintain marriages, to continue affairs, to get promoted, and more. Indeed, these factors are related to other things as well, such as the loss of a home, financial status, retirement plans, and child rearing arrangements. Moreover, various factors may interact and conflict as when one is participating in an affair and keeping a job with their wife’s father, or having an affair with their spouses sibling. All of this makes lying especially complex in adulthood, supports its occurrence, and therefore makes truth telling less likely.

*Observing Lies in Adulthood*

As noted earlier, detecting lying requires the observation of a sequence of events. Interestingly, during childhood caregivers often surround children, and much of the child's response patterns are therefore observed. This situation changes drastically over time, as children grow older, and is particularly distinct by adulthood, as the adult's life is rarely observed so closely. To make things even more complicated, some adults may avoid having people around them at certain times, probably especially while doing things that would later require lying. Likewise, adults can inform others of events in their life selectively, withhold information, construct alternative stories, and more. In this sense, during adulthood in particular, lies seem likely to occur without anyone ever knowing. Indeed, some of the most "honest" people may actually just be very good liars, or they may seem to be very honest in the right audience contexts. The dynamics of these situations cannot be understated, and they highlight how complicated the lying context can become in adulthood.

In addition to the pervasive problems of observation in adulthood, the observer of the lie can also be asked to "prove it". In other words, even when lies are observed (i.e., the entire behavioral sequence is observed), the observer may be required to "prove" that the lie has happened. This can be difficult, of course. Moreover, accusing someone of lying may often be punished, and there can be other factors influencing the desire for one to see the presumed liar confronted (e.g., having someone lose a work promotion). In short, the accuser may be asked to prove that they are not lying themselves.

Finally, liars may learn to avoid observing their own behavior. As described by Skinner (1953, pp. 290-291) in a chapter on the self, individuals may fail to observe previously punished classes of behavior because observing such behavior is an aversive stimulus condition. Consistent with this, even if lying were to be conditioned as aversive, individuals may learn to escape and avoid the aversive stimulation associated with lying by failing to observe their own behavior. In this sense, lying might occur without the individual who is engaging in the lie themselves even knowing. (The term knowing as used here refers to describing one's own actions; also see Fryling, Johnston, & Hayes, 2011). This phenomenon may be involved with situations where a lie is obviously detected by an observer, and when the individual engaging in the lie really is not aware that the lie has happened. All of this combined with the large negative and positive reinforcers available for lying seem to make it an especially common and difficult behavior in adulthood.

The consideration of lying in adulthood points to the importance of the prevention of lying. This seems to be an important area for research in behavior analysis, especially if truth telling is valued by the culture (Skinner, 1971). In addition to emphasizing prevention in childhood, it is important to create contexts where lying is not made likely in adulthood. Along these lines social, educational, and vocational/cultural systems may be developed to prevent lying (Biglan, 1995, 2015; Glenn, 2004; Skinner, 1948, 1971). The growing body of experimental literature on the metacontingency may provide some methodological foundations for further exploration in this area (e.g., Borba, Tourinho, & Glenn, 2014).

Describing contextual-behavioral factors that participate in lying during both childhood and adulthood has been the focus of the paper thus far. The topic of lying is also related to several important conceptual issues, however, and the following section focuses on those issues specifically.

### CONCEPTUAL CONSIDERATIONS

While a number of conceptual issues have been alluded to throughout this paper, in this final section they are considered directly. First, as the topic of lying necessarily involves sequences of behavior, it is important to consider how one responds to both the past and the future in the present moment (Hayes, 1992, 1998). Moreover, in considering this issue it is important to highlight the role of verbal behavior; in particular derived stimulus relations (e.g., L. Hayes, 1992b; S. Hayes, Barnes-Holmes, & Roche, 2001) and rule-governed behavior (Hayes, 1989; Skinner, 1969). Second, the topic of lie detection is considered, highlighting alternatives to Skinner's analysis of private events (Fryling & Hayes, 2015) to conceptualize the detection of lies.

#### *Verbal Behavior*

Many of the factors that influence lying behavior, both in childhood and adulthood, do so by way of stimulus substitution (Kantor, 1924) or the more commonly used "transformation of stimulus function" (e.g., Dymond & Rehfeldt, 2003). While a consideration of the various interpretations of derived stimulus relations is far beyond the scope of the current paper, derived stimulus relations are indeed central to the conceptualization of lying. Individuals increasingly respond to what could be lost or could be gained as a result of lying, for example, and many of these events are not physically present in the current environment. Indeed, to the extent that much of what participates in the lying context is not physically present, it is psychologically present by way of derived stimulus relations (Hayes, 1992b). Moreover, derived stimulus relations participate in rule-governed behavior, and indeed, a large amount of rule-governed behavior likely participates in the lying context. Some of these rules are established early in one's life, presumably during childhood, and have a lasting impact (e.g., such as when one avoids telling lies because they have learned that this is sinful). Alternatively, observing others lying, especially if those lies are reinforced, probably contributes to the development of self-rules related to lying (see Fryling *et al.*, 2011).

The functional analysis of rule-following behavior described by Hayes, Zettle, and Rosenfarb (1989) may be helpful when considering how various rules might be established and followed, and subsequently targeted in socially important ways. For example, it may be helpful to establish a pliance repertoire early on, whereby children learn to tell the truth to avoid being "bad". Ideally, this rule-following behavior may evolve into more of a tracking repertoire, whereby the consequences of positive social relations, cooperation, and more, are experienced. Similarly, as mentioned above children may develop rules, either through observation or direct instruction, that lying is ok as long as you are sure you can avoid punishment. It is possible that these rules, once developed, may be followed well into adulthood.

### *Lie Detection*

A second conceptual issue relates to the topic of detecting lies. To start, it is important to reiterate that behavior analysts must agree that lying is something that someone does, it is obviously behavior. Following from this then, people are not liars, but rather, people engage in lying behavior. More generally, lies aren't events that happen inside individuals either. Indeed, it is well known that the alleged "lie detectors" don't actually detect lies, they measure physiological correlates that may be associated with lies, but also with a range of other things, like feeling anxiety or excitement more generally (American Psychological Association, 2004). In other words, as one's heart rate and other physiological responses change under various circumstances, there is no one particular physiological correlate of a lie. Importantly, this is not to say that physiological things are not happening while people lie, but rather, that such physiological things are not lies themselves.

Consistent with B. F. Skinner's (1953, 1974) description of private events, behavior analysts may consider lies to be difficult to detect because they involve private events. Not all behavior analysts agree with Skinner's notion of private events, though (e.g., Baum, 2011, 2013; Hayes & Fryling, 2009; Rachlin, 2003, 2013; see Fryling & Hayes, 2015 for a comparison and contrast of various positions). The perspectives of Baum and Rachlin focus on molar analyses, which emphasize conceptualizing behavior as extended in time. For example, in questioning the notion of private events, Rachlin commented that (2003) "If a single response is not apparently reinforced, the behaviorist should be looking for the reinforcer not deeply in the organism, but widely into the organism's temporally extended environment" (p. 191). Baum (2011, 2013) also advocates for a molar perspective, and for the reconceptualization of behavior not as occurring in moments, but over time. While molecular response patterns have been described in this paper, the observation of lies seems to require the consideration of molar factors (at least with observers who do not have particular histories with the target individual, see below). From this perspective, the difficulty in observing lies has nothing to do with them being private, but rather, with lies being distinct from many other behaviors in being extended over time. Molar analyses may be especially helpful when observers do not have a relational history with the target individual.

Finally, an additional conceptual issue pertains to observing lies when one has not observed the entire sequence, as when you can see someone lying in the moment they are lying. In this sense lying is conceptualized as both public and something that can be seen as it is happening. However, the extent to which an observer can observe such behavior depends upon a particular relational history with the target individual (i.e., "the liar"), the topic, and context more generally (DeBernardis, Hayes, & Fryling, 2014). Not all observers will observe instances of lying; again, this is not a matter of the behavior being public or private, but of the relational history. With specific relational histories among the observer, the target individual, and the context, however, events in the current context may develop the stimulus functions of events that are not in the current context by means of stimulus substitution (Kantor, 1924). Indeed, this alternative means by which events typically assumed to be private may be observed has been described

and elaborated upon over the years (Hayes, 1994; Hayes & Fryling, 2009; Fryling & Hayes, 2014, 2015).

Detecting the lies of a particular individual becomes easier and easier over time; as the shared history between the observer and the observed is more and more elaborate (DeBernardis *et al.*, 2014). To be clear, this requires a shared history. Thus, simply co-existing, or going through situations in parallel is not sufficient (i.e., as in when one is not paying attention to what the other person is doing). This phenomenon is often observed with couples who may often know when the other person is lying about something (e.g., “Are you upset?”; “No.”; “Yes, I can tell you are upset.”). Couples who are especially attentive and have had a long relationship and experienced many situations together are especially likely to observe instances of lying. By contrast, lies may be especially likely to persist with couples where one partner is especially avoidant or not attending. In this sense the relational history does not develop and detection becomes less possible.

### CONCLUSION

The current paper considered the topic of lying from a behavior analytic perspective. In doing so, the unique features of lying as a target behavior were considered, especially the difficulties in observing lying across the lifespan. In addition, contextual-behavioral factors influencing the development and persistence of lying during both childhood and adulthood were identified, and potential targets for prevention and intervention were highlighted. Furthermore, several conceptual issues related to lying were considered. When we consider the large and problematic impact of lying in the world and the topic of corruption more generally, we are reminded of how important it is to address this topic from a behavior analytic perspective.

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