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The role of joint control in teaching listener responding to children with autism and other developmental disabilities[☆]



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ABSTRACT

This study evaluated the effectiveness of a teaching procedure derived from the analysis of joint control in increasing listener responses for three children with autism using a multiple probe design across participants. One nonvocal and two vocal children with autism were taught to select multiple pictures of items from a large array in the order in which they were requested (e.g., “Give me the ball, cup, and spoon”) using the joint control teaching procedure. The effect of these procedures on the emission of accurate selection responses to both trained and novel stimulus sets was measured. The results indicated that listener responses to trained stimuli increased following the implementation of the independent variable and untrained responses across novel stimulus sets also emerged. Implications for designing language training programs for children with autism based on an analysis of joint control are discussed.

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Skinner's (1957) analysis of verbal behavior offered an alternative to the prevailing structural conceptions of language in which words and sentences (i.e., formal properties of language) were considered the important units of analysis. Whereas structural accounts emphasized the topography of language (e.g., syntax, grammar, morphemes, mean length of utterance), Skinner's behavior analytic account identified the functional relation between a response and its controlling variables, or the verbal operant, as the important unit of analysis. This behavior analytic account of language suggests important implications for the treatment of children with autism and other developmental disabilities (Sundberg & Michael, 2001) and a growing body of clinical work and research has documented the value of including this taxonomy in language training programs (see Sautter & LeBlanc, 2006 for a review). Much of this literature, however, has focused on the application of Skinner's analysis to teaching speaker behavior, with less work dedicated to a thorough analysis of the contingencies operating on the behavior of the listener (Schlinger, 2008).

1. Listener behavior

Listener behavior did not receive extensive coverage in Skinner's (1957) work mainly because much of listener behavior is not distinguished from other behavior under discriminative control. Possibly due to this lack of attention, cognitive explanations that describe the listener as a “passive receptacle” (Schlinger, 2008, p. 149), “recipient” (Lowenkron, 1998, p. 339), or “processor” (Sidener, 2006, p. 119) of information have persisted. Although Skinner's (1957) analysis emphasized

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speaker behavior, he did not ignore the listener. Skinner suggested that the control exerted by verbal stimuli was at least partially dependent upon the listener having an existing verbal repertoire of speaker behavior. He stated, "...some of the behavior of listening resembles the behavior of speaking, particularly when the listener understands what is said" (Skinner, 1957, p. 10). Schlinger (2008) extended Skinner's analysis of listener behavior and refined the difference between listener behavior as a repertoire of discriminated operants (i.e., mediation of reinforcement for a speaker) and *listening*. Schlinger asserted that listening is behaving verbally. He stated, "...the behavior of listeners and speakers may be inseparable, especially when we say the listener *listens*, *pays attention to*, or *understands* the speaker" (p. 148). Schlinger argued that, in fact, listening and speaking may not be functionally different and said, "In other words, the listener also behaves verbally when he or she is said to be listening" (Schlinger, 2008, p. 150). All of this suggests that listening may be predicated upon a complex verbal repertoire that mediates listener responses.

2. Joint control

Consistent with Schlinger's (2008) analysis of verbally mediated listener responding, Lowenkron (1991, 1998, 2004, 2006a) has offered joint control as a conceptually systematic explanation of various complex human behaviors, including listener behavior. Lowenkron (1998) defined joint control as "the effect of two [discriminative stimuli] S^D s acting jointly to exert stimulus control over a common response topography" (pp. 328–329). Lowenkron (1998) stated:

Joint control occurs when the currently rehearsed topography of a verbal operant, as evoked by one stimulus, is simultaneously evoked by another stimulus. This event, the onset of joint stimulus control by two stimuli over a common response topography, then sets the occasion for a response appropriate to this special relation between the stimuli. (p. 327)

In other words, one verbal response is simultaneously emitted under two distinct sources of stimulus control. For example, two possible sources of control are: (1) a verbal stimulus that evokes an echoic (vocal imitation) or self-echoic (imitation of the speaker's own verbal behavior) and (2) a nonverbal antecedent S^D that evokes a tact (label). The emission of a single verbal response under two joint sources of stimulus control is a unique event that then exerts control over a third response, typically a selection response or listener response (Lowenkron, 1998). According to this analysis the selection response is mediated by the verbal responses.

An illustrative example of joint control clarifies the nature of this type of event (see Fig. 1). A speaker presents a listener with the task of locating a particular arrangement of stimuli from an array containing various configurations of the same stimuli. The listener is told to find the arrangement that shows an "oval over arrow over rectangle." In order to preserve the stimulus while searching for the correct configuration, the listener, becoming a speaker, emits the response, "oval over arrow over rectangle," first as an echoic (vocal imitation) of the vocal verbal stimulus produced by the speaker and then as a self-echoic (vocal imitation) of the verbal stimulus produced by the listener's own verbal behavior. When shown the comparison stimuli, the listener then directly tests the properties of each comparison encountered relative to the sample provided. Upon the occasion in which the listener emits, "oval over arrow over rectangle," not only as a self-echoic (vocal imitation), but also as a tact (label) of the specified stimulus configuration, a unique form of stimulus control, joint control, occurs. The effect of this single response topography occurring under two sources of stimulus control then sets the occasion for a selection or listener response.

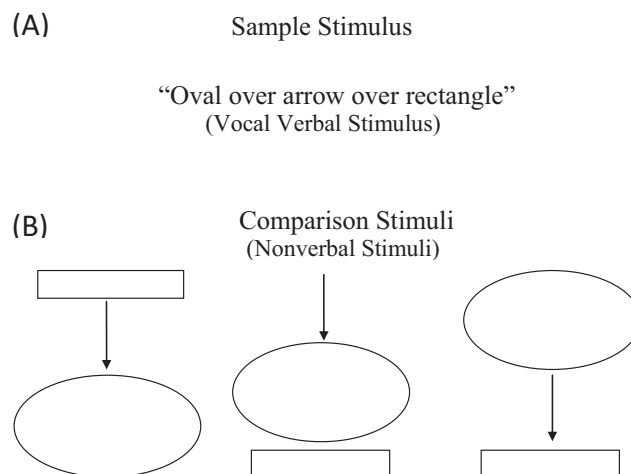


Fig. 1. Example of sample stimulus and comparison stimuli for a joint control listener task. (A) Sample stimulus presented as a vocal verbal stimulus. (B) Comparison nonverbal stimuli.

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