NAMES AS CONSTITUENTS OF SENTENCES:
AN OMISSION

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Horne and Lowe's achievement: Integrating speaker's and listener's behavior. Before turning to criticism, let me say that in my opinion this article makes a very significant contribution to our understanding of both the initial stages of the process of language development and the phenomena of stimulus equivalence as observed in the matching-to-sample experiment. It rightly identifies learning to name types of object and event as the fundamental linguistic skill that a child acquires from his or her early linguistic interactions with the caregiver and as an essential prerequisite for all subsequent linguistic development. It draws a clear distinction between learning to name and the type of conditional discrimination learning observed in the behavior of prelinguistic organisms. In so doing, it draws attention (in a way that Skinner, 1957, with his preoccupation with the behavior of the speaker, failed to do) to the interaction between learning as speaker to produce the name in the presence of stimulus to which it applies and learning as listener to pick out and point to an instance when presented with the name. I am also persuaded by their arguments and supporting evidence of the claim that it is the simultaneous deployment of these two skills, brought into play through assigning a name to the stimuli involved, that accounts for the formation of stimulus equivalence classes on the matching-to-sample task (Place, in press).

One of the weaknesses of traditional accounts of linguistic communication is that they treat the meaning of a word, phrase, or sentence as something that simply attaches to those linguistic units, regardless of whether they occur as responses emitted by a speaker or as stimuli controlling the behavior of the listener. It is an important virtue of Skinner's (1957) account that it recognizes that from a

behavioral perspective the verbal behavior of the speaker is a quite different phenomenon from the response of the listener to the stimulus that it provides. But because of his preoccupation with the former to the virtual exclusion of the latter, Skinner failed to appreciate what is right about the traditional view, namely, that at a very early stage in language development these two aspects of language, the speaker's verbal behavior and the listener's response to verbal stimuli, become interlocked in a way that gives to language and linguistically controlled behavior their distinctive properties. It is a major achievement of this article that it puts the record straight in this respect.

Their failure to acknowledge the sentence as the functional unit of language. I have two criticisms, both of which concern respects in which Horne and Lowe perpetuate defects in the account of language that Skinner expounds in *Verbal Behavior* (Skinner, 1957). The first is their failure to recognize that the functional units of language are sentences, typically, as Chomsky (1957, 1959) has repeatedly argued, sentences that are novel in the sense of never having been previously encountered by the listener or constructed by the speaker. As a result, they fail to follow their powerful account of how the child learns to connect names to the objects and events they "stand for" with an equally powerful account of how the child learns (a) to distinguish object names (nouns) from event names (verbs) and (b) then goes on to combine these categories in such a way as to generate simple sentences, such as the sentence "daddy push car," which they quote along with its self-directed counterpart "push . . . push." The latter, although it consists of the repeated utterance of a single event name (verb), conforms to exactly the same canons of sentence structure as does the former with its subject noun/transitive verb/object noun pattern. In the latter case, the verb is in the

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imperative, which means that it requires no separately specified subject term, because the subject of an imperative is always understood to be the listener who, in the case of a self-directed utterance such as this, is the same individual as the speaker. Likewise, no separately specified object term is required, because, as Horne and Lowe point out, "she is already looking at the car" (p. 212) and thus needs no prompting as to what it is that needs to be pushed. But lacking the concept of a sentence and its structure, Horne and Lowe lack the resources to enable them to distinguish between these simple sentences and what are, as far as the listener is concerned, functionless intraverbal concatenations, such as "fork knife" and "fork spoon," which they also quote.

Three senses of the word "tact." My second criticism, which is related to the first, is that Horne and Lowe have failed to take on board the thesis of my article (Place, 1985) in which I pointed out that in *Verbal Behavior*, Skinner uses the term *tact* in three different senses:

1. A tact in this sense is a verbal operant whose

emission by the speaker on that occasion is under the control of a nonverbal discriminative stimulus which the utterance can be said to "name" (in the case of a word) or "describe" (in the case of a phrase or sentence). Tacts in this sense contrast with intraverbals (and to some extent with echoics and textual responses). (Place, 1985, p. 64)

2. A tact in this sense is

a sentence-constituent, a part of a word, a word, or a descriptive phrase, considered in abstraction from the particular context of the utterance. The distinguishing mark of a tact in this sense is that it "names," "describes," or "refers to" an actual or possible feature of the common environment of the verbal community constituted by speakers of the natural language or code to which the word or words in question belong. Tacts in this sense contrast with autoclitics. (Place, 1985, p. 65)

3. A tact in this sense consists in the utterance of a declarative sentence or statement.

The function of a tact in this sense is to act in the interest of the listener by providing information about aspects of the environment which would otherwise be inaccessible. "Tacts" in this sense contrast with "mands" which likewise consist in a sentence or sen-

tence-utterance, typically, a sentence in the imperative or interrogative mood whose function is to direct the behavior of the listener in the interests of the speaker. (Place, 1985, p. 66)

Once the distinction is drawn between these three senses of the term, it is apparent that tacts in these three senses emerge at three different stages in the process of linguistic development. Tacts in Sense 1, the only sense that Horne and Lowe acknowledge, are acquired as a consequence of what they identify as the speaker's role in learning the names of things. Stimuli projected by instances of a kind evoke the emission of the response of uttering the name assigned in the language to that kind of thing. As such, they appear earliest in language acquisition. Tacts in Sense 2, because they are sentence constituents, emerge only later in language development, when the first sentences appear. As we have seen, such early sentences consist entirely of names (tacts in Sense 2). However, to have the structure that is essential to their constituting a sentence, there must be differentiation between object names (nouns) and event or behavior names (verbs). Because sentences are the functional units of language, it follows that the appearance of the first sentences, consisting entirely of names or tacts in Sense 2, coincide with the earliest functional occurrences of language outside the situation in which the child's producing and responding to names per se is reinforced. But because it is easier for the child to learn utterances that evoke reinforcing consequences for the child from the listener than it is to learn utterances whose function is to provide information to the listener, it also follows that these earliest sentences are, as Horne and Lowe's examples show, mands rather than tacts in Sense 3. The acquisition of the ability to respond to interrogative mands by producing tacts in this information-providing-sentence sense may be thought of as the final and crowning achievement of the child's basic linguistic development.

Only by drawing these distinctions can we explain why Horne and Lowe, relying on Skinner's initial definition of the tact (Skinner, 1957, p. 83) that assigns it firmly to Sense 1, see learning to tact as an integral part of the basic process of learning to name (p. 199) and insist that, "When manding comes

about it does so generally via naming, that is, names are first established and then are functionally extended to mand objects and events" (Horne & Lowe, p. 211). In contrast, Skinner, relying here on Sense 3, takes the

mand (1957, chap. 3) as the basic form of verbal operant and treats the tact (1957, chap. 5) as a later and more sophisticated development.

NAMING AND EQUIVALENCE RELATIONS

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Horne and Lowe argue that naming skills account for positive equivalence test results in the laboratory, making the construct of equivalence redundant. In its place, they identify naming as the basic unit of verbal behavior, and suggest that efforts be directed towards studying naming. To this end, they offer a definition and an elaborate theory of the development of naming, and then apply a naming analysis to existing studies of equivalence relations. In comparing Horne and Lowe's ideas to those of Sidman (1986, 1994) and Hayes (1991, 1994), we have been struck by many similarities. When stripped of their unobservable or untestable elements, the theories have a lot in common. Here, we compare the three major theories in several key areas.

Naming Relations: Where Do They Come From?

Like equivalence relations and relational frames, naming is a relational concept. The tests that Horne and Lowe propose are closely congruent with Sidman's tests for equivalence

relations. The congruence has greatly increased now that Sidman's (1994) definition is no longer restricted to matching-to-sample procedures. Moreover, some of the tests that Horne and Lowe described have been carried out by Lipkens, Hayes, and Hayes (1993).

Horne and Lowe's analysis of the specific case of naming is a valuable exercise. It makes clear the real-world importance of emergent performances, and may encourage ties to the language literature. Naming, as they have defined it, is an extremely important example of an equivalence relation.

Their efforts make clear that the naming relation involves more than just symmetry. When a child learns to act on an object upon hearing its name and subsequently tacts the object, an echoic relation is also a prerequisite. Figure 1 shows the essential observable events that define naming. Support for the importance of echoic relations is provided in the aforementioned study by Lipkens et al. (1993): When visual-vocal relations were trained, auditory-visual relations were shown, but the opposite did not occur *until echoic relations were trained*. The explicit emphasis on the echoic has not occurred in previous discussions of naming within the equivalence framework, although echoics are generally considered to be an important element of language training.

Horne and Lowe's analysis suggests that

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