

## Understanding Cognitive Language: The Mental Idioms in Children's Talk

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Considerable debate has occurred among behavior analysts about the value of cognitive language for labels or descriptions of phenomena in the analysis of behavior. That value is difficult to assess, however, until a clearer understanding of the definitions of those terms is obtained. To begin that process, this article demonstrates through a series of examples what children mean when they use typical cognitive expressions. One conclusion possible from the results of such an analysis is that cognitive terms describe nothing more than behavior in context, a very behavioral idea. Cognitive expressions may be more suitable to a behavioral analysis than to one derived from the current computer metaphor of cognitive science. The usefulness of these more accurately defined cognitive expressions for the scientific language of behavior analysis is discussed.

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The debate over the place and value of cognitive terms in the language of behavior analysis is intensive and exciting. Many behavior analysts object to any inclusion of these kinds of terms (Branch, 1977; Branch & Malagodi, 1980; Hine-line, 1984; Skinner, 1977); others welcome them (Honig, 1978; Shimp, 1976). Of those who welcome them, some advocate the descriptions of cognitive terms imbedded in the computer metaphors of cognitive science (Premack, 1977; Wasserman, 1982, 1983), while others support a redefinition of these terms so that they mean something more like other descriptions in behavior analysis (Harzem & Miles, 1978; Marr, 1983; Sidman, 1978).

These arguments have been discussed in several forums, from which two major issues have evolved. First, there is the concern about where cognitive terms "fit" in the technical language of behavior analysis. Since the terms are said to be derived from ordinary language, their usefulness may be limited to discussions with laypersons about behavioral efforts. It is unclear whether or not cognitive expressions have a place in the scientific language and, if so, where that place may

be. This is an important question and one which has stirred much of the disagreement among authors. Some, such as Hine-line (1980), have even suggested that Western languages restrict the behavioristic use of cognitive expressions.

Although, in this article, I will suggest a clear place where I think cognitive terms can fit in the language of behavior analysis, it is premature to address that question in detail. This first question cannot be properly answered until an analysis of the second major issue derived from the debates has been completed. As some participants in the discussions have tried to show (Deitz & Arrington, 1983, 1984; Lee, 1983, 1986), we first need to try to determine what cognitive terms actually mean. Do cognitive terms mean what cognitive scientists say they mean? Or, do they mean something else, perhaps even that which would make behavior analysts more comfortable? In behavior analysis, these are difficult and often underappreciated questions. How do you find out what a term really means? One useful way to begin is to examine closely how these cognitive terms are used in ordinary language.

Many scholars question the adequacy of ordinary language, especially for use in a science. With some minor qualifications, Einstein and Infeld (1938), however, disagreed: "Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in a

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I must make apologies to my youngest son, Jacob. When I wrote this, he was too young to teach me about language. Requests for reprints can be sent to the author, Educational Foundations Department, Georgia State University, Atlanta, GA 30303.

language comprehensible to everyone" (p. 27). If ordinary language is sufficient, "as a rule," for a science as exact as physics, let us begin by assuming that it might also be sufficient, "as a rule," for the science of human behavior.

We need to ask, however, "What is the ordinary language of cognition? What do cognitive expressions mean in ordinary use?" Most behavior analysts would agree with Skinner (1974, 1977) and Himeline (1980) that the language of cognition is filled with mentalistic expressions unsuitable to their efforts. As such, they are arguing that cognitive expressions mean what cognitive psychologists would like them to mean. Cognitive scientists (Dennett, 1981; Fodor, 1981) are pleased to agree: The ordinary language of cognition legitimately follows the current computer metaphors of cognitive science.

But what if this is not what the ordinary language of the mind denotes? What if, as Wittgenstein (1953), Ryle (1949), and others so doggedly tried to show, ordinary mental expressions can be shown to be describing behavior in context and nothing else? This would mean that behavior analysts, in an odd sort of way, have the support of ordinary language. The problem might be located in the redefinitions of these terms by cognitive scientists, and by some behavior analysts, as well, to meet the inappropriate requirements of the computer metaphor.

### COGNITIVE IDIOMS

A close examination of the actual use of cognitive terms almost immediately illustrates a major barrier to understanding them. A large number of these terms are shown to be representative of an unusual aspect of language. Most cognitive terms are members of the class of words or phrases commonly called idioms. An idiom is "an expression in the usage of a language that is peculiar to itself either grammatically or in having a meaning that cannot be derived from the conjoined meanings of its elements" (*Webster's New Collegiate Dictionary*, 1977, p. 568).

Idioms, then, must be approached very carefully; they are either grammatically odd or they do not mean what they appear to mean. I will call idioms that are grammatically odd, *grammatical idioms*; I will call those idioms that do not mean what they appear to mean, *definitional idioms*. In either case, the meaning of any particular idiom is not readily apparent. This does *not* mean that idioms have unclear meanings. It only means that the definitions of idioms cannot be determined from their "face value." Idiomatic expressions must be carefully examined in their "original home" (Wittgenstein, 1953, p. 48); after all, as Skinner (1974) explained, these terms are of "social origin" (p. 30). They need to be studied within the verbal community which governs their use (Skinner, 1957). Wittgenstein (1953, 1958) provided a method for such examination and Deitz and Arrington (1983, 1984) discussed the use of that method for certain problems in the language of behavior analysis. I will not repeat those conceptual arguments; rather, I will use the suggested methods to show examples of what ordinary, cognitive expressions mean.

It is most easy to begin this analysis with definitional idioms. These are expressions in our language whose literal translation provides an incorrect meaning. These idioms are often noticeable to us in humor. My father used to relay to others the method through which he had stopped smoking by saying, "I quit smoking cold turkey." If you did not know your idioms, this would be very surprising—very few people smoke cold turkey. If you knew this particular idiom, you could reply, "What do you smoke now, warm ham?" All such idioms need to be appreciated for what they are—and in some cases for what they are not. In any case, they can be misleading until their definitions have been clarified.

Recently, I was at the barber shop with my son, Joshua. There were quite a few people ahead of us and we were sitting and waiting patiently. He was being very quiet but soon turned to me and said, "Sometimes you can't hear me talk."

“Huh?” I answered. He continued, “Sometimes I talk in my head and no one knows what I’m saying except me.” This was an interesting comment on thinking (and one with which J. B. Watson would probably agree). “Thinking” is used, in its ordinary way, as a description of behavior. Behavior analysts who are not careful, however, may inadvertently agree with the cognitive scientists who do not view thinking as action but as some technical form of processing. The ordinary use of the term is quite behavioral. Thinking, at least in the language of children, is used as just such a definitional idiom.

Whereas behavior analysts may confront some difficulties with definitional idioms, most ordinary cognitive expressions do not fall into that category; rather, they are grammatical idioms. Grammatical idioms can mislead us because they fit into sentences in ways which are both correct and misleading. The most difficult grammatical idioms are nouns. Ordinarily, nouns denote names of people, places, or things; most *cognitive* nouns, however, rarely do so.

Skinner (1980) commented on this problem: “The great fault is the invention of nouns—finding, or seeming to find, things when there are only actions” (p. 330). Wittgenstein’s (1958) analysis is similar:

The questions “What is length?”, “What is meaning?”, “What is the number one?”, etc., produce in us a mental cramp. We feel that we can’t point to anything in reply to them and yet we ought to point to something. (We are up against one of the greatest sources of philosophical bewilderment: a substantive makes us look for a thing that corresponds to it.) (p. 1)

Wittgenstein went on to say, however, that the nouns are not the problem; instead, it is the failure to realize that these types of nouns confuse us because they are grammatically odd. They are what I am calling grammatical idioms. To understand that is to see that their actual meanings are not the same as their apparent meanings.

Much of what I am trying to explain can be best illustrated by further exam-

ining the language of children. For example, a group of children went to visit the Lost and Found department of a store. One by one they went up to the clerk and complained:

“I lost my youthful idealism.”

“I lost my optimism.”

“I lost my patience.”

“I lost my temper.”

“I lost my marbles.”

This is funny because it uses the normally hidden meaning of grammatical idioms. Obviously, idealism, optimism, patience, temper, and marbles are nouns. They can only be “lost,” however, in a grammatically odd way. They cannot be “found” (including “marbles” in this context), so they must not refer directly to people, places, or things. The grammar of these expressions is unusual and that is why their meanings are different than more obvious nouns. That is not to say their meanings, once analyzed, are obscure; if they were, there would be nothing funny in the above sequence.

Even when reared by behaviorists, children use idiomatic, “mentalist” expressions quite early. Joshua says, “I changed my mind.” What does he mean? Could it be the same kind of expression as “I changed my shirt.”? The grammar is the same, but the meaning is not. The former is a grammatical idiom; the latter is not. Saying “I changed my mind” is more like saying “I’m not going to do what I was going to do (or what I said I was going to do)” than it is like saying “I changed my shirt.” He will also say, “My mind is made up!” How similar is that to saying, “My bed is made up!”? This expression, too, is grammatically odd and means nothing more than “I am still going to do what I was going to do!” When such expressions are recognized as idioms, we can more easily see that they have very clear, precise, and behavioral meanings. They are shortcut ways of saying something about actions or changes in actions. They are not expressions about some peculiar mentalistic concept but clearly expressions about behavior in context.

Celia, my daughter, has stated, “I have an idea! Uh . . . Uh . . . Uh . . . What do

you want to do, Daddy?" Does she really have something? The grammar of the expression makes it appear so, but it would be difficult to argue that she does. She is, in this case, asking for something (a mand disguised as a tact; Skinner [1957, 1974] has described this potential trap but behavior analysts too often ignore this lesson when discussing cognitive terms). If I say in the morning, "Do you want a waffle?" She might answer, "That's a good idea!" Is she commenting that there is something other than the waffle, or the thought of having a waffle, that is good? The grammar may appear so, but of course she is not.

These are common "mentalistic" nouns. Do they refer to anything other than behavior in context? It appears they do not. The grammar of these expressions is odd. At first glance, they seem to refer to what ordinary nouns refer to, but even this brief analysis shows them to be grammatical idioms. They confuse us into thinking that some "thing" actually exists only if we do not recognize that important distinction. If behavior analysts do not learn to appreciate that distinction, much of this potentially very clear language of behavior can be lost (see Deitz & Arrington, 1984).

### REASONS AND CAUSES

There is another class of difficult expressions that is made up of grammatical idioms. These are statements that are apparently about "causes," but when closely examined turn out to be statements about "reasons." Since so many are statements about cognitive causes, scientists (behavioral and cognitive, alike) are very susceptible to believing that the statements really are about causes.

When Joshua was 2½ years old, Celia was 6 months old and just beginning to sit up. She would occasionally lose her balance and slowly roll over. Every once in awhile Joshua would lightly push her so that she would slowly roll over. I would of course say, "NO!" After this occurred several times on a given day, I lost my behavioral objectivity, sat Joshua down

on the couch, and firmly asked, "Why do you keep pushing your sister down?" After asking him two or three more times, he finally looked up and said, "I don't know."

Of course he did not know. He had not yet been taught what reasons to give for his actions. The reasons parents teach, however, are often phrased as causes. We teach them to say, I did it because of such and such; for example, "I did it because I was angry." The grammar of this expression is causal. Still, unless the statement is accepted literally, it is not a statement of a cause. Parents rarely, if ever, teach, or are even able to teach, "scientific" causes to their children. When behavior analysts (or cognitive scientists) get confused and accept these statements as "true" causal ones, they have not realized that these statements of apparent cause are only another type of grammatical idiom which misleads us when taken literally.

Joshua, Celia, and I were outside one sunny day playing a game while sitting on the ground; at least Joshua and I were sitting on the ground. Celia was up and about wandering and looking. Joshua said, "Celia, come sit and play with us." Celia kept wandering and since I didn't want Joshua to get upset, I explained, "She doesn't want to join us right now." Within two seconds, she sat down and joined us. I said, "Well, I guess she does want to join us." My description of her "wants" was not causal. I was not saying that she sat down or did not sit down because she wanted to or did not want to, although the grammar of the expression would appear so. Rather, I was making a descriptive statement; her behavior led me, not to infer some actual "want," but to describe the situation in a particular way.

These kinds of apparently causal statements are difficult to identify as grammatical idioms. If I said, "He dislikes science because he believes in God," this might be accepted as a "true" causal statement. The grammar of the expression, however, shows the "because" to be more like an "and." The statement,

"He pushed his sister down because of sibling rivalry," may also seem like a "true" causal statement. In this case, the "because" is more like an "is." Most often, however, the grammar of the expression shows that these kinds of statements do not mean what we might think. They are grammatical idioms—they are causal statements only in unanalyzed appearance.

### CONCLUSIONS

Analyzing the idiomatic nature of cognitive expressions shows that the ordinary uses of cognitive terms are quite behavioral. I have not redefined these terms; rather, I have tried to give some indications of what these terms mean when used in ordinary discourse. Redefinitions, where they exist, have been constructed by cognitive and behavioral scientists who failed to note that ordinary use of cognitive language is very often idiomatic. In most cases, these expressions, once analyzed, appear to refer to nothing more than behavior in context. Scientists are mistaken because they have taken these terms literally; behavior analysts, at least, should be able to profit by avoiding that error.

If we consider that behavior analysts can approach these cognitive terms with fewer problems, we must once again address the first question from the beginning of this article. That is, in what way should cognitive expressions be incorporated in the language of behavior analysis? To best answer this, I will refer again to Einstein and Infeld (1938). Earlier I mentioned their quote suggesting that ordinary language may be sufficient for a precise science. However, they also stated:

But science must create its own language, its own concepts, for its own use. Scientific concepts often begin with those used in ordinary language for the affairs of everyday life, but they develop quite differently. They are transformed and lose the ambiguity associated with them in ordinary language, gaining in rigorousness so that they may be applied to scientific thought. (p. 13)

Based on this quote, many behavior an-

alysts might disagree with the usefulness of much of the above commentary.

A clear understanding of the relationship of the above quote to the field of behavior analysis, however, requires commentary on the language of the science and the language of the subject matter of that science. In other words, I think a distinction needs to be drawn, in terms of the place for ordinary language, between the language of independent variables and the language of dependent variables. The field of behavior analysis has clearly established a precise technical language and that language is, as it should be, about independent variables. To continue to use "reward," for example, instead of positive reinforcement only because reward is a term existing in ordinary language would be a step backward for the field. In many other cases of independent variables, such as in the area of schedules of reinforcement, it is even difficult to find comparable, ordinary terms. In this part of the scientific language, behavior analysts have transformed old terms (although this has been shown to be a questionable practice; e.g., extinction [Deitz & Arrington, 1983], punishment [Harzem & Miles, 1978]) and have created new terms (a more defensible practice). It would be difficult to discuss progress in behavior analysis without referring to such changes in the scientific language of independent variables.

With respect to dependent variables, however, behavior analysis does not have the luxury of avoiding or ignoring the "affairs of everyday life." As Lee (1986) has explained, "Psychology can do nothing other than accept these categories that ordinary knowledge identifies as psychological" (p. 170). The subject matter of behavior analysis consists of such affairs (see Deitz, 1986; Deitz & Arrington, 1984). Behavior analysis exists, at least at some level, to help explain and, if possible, correct the problems of everyday life. If the field should lose contact with those problems by creating a new language to describe and label behavior, part of its purpose would be lost as well.

By including the cognitive concepts of

ordinary language in the descriptions of dependent variables, behavior analysts can maintain contact with the problems from which psychology began. To lose that is to lose very much, I think. If behavior analysts can be sure that the terms denoting those problems do not, as Skinner (1974, 1977) has suggested, include dualisms, awkward causes, inner worlds, and the like, they should encounter rare difficulties in incorporating cognitive terms into the language of behavior. Given the above analysis of the cognitive language of children and the commentaries of Deitz and Arrington (1983, 1984) and Lee (1983, 1986), such assurances seem possible.

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