DOCUMENT RESUME

ED 072 483 CS 500 130

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TITLE On Empirical Evidence for the Existence of Rules Governing Speech-Using Behavior.
PUB DATE Dec 72
NOTE 8p.; Paper presented at the Annual Meeting of the Speech Communication Assn. (58th, Chicago, December 27-30, 1972)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Behavioral Science Research; Language Development; Language Learning Levels; Language Patterns; *Language Research; *Linguistic Competence; *Linguistic Theory; *Oral Communication; Research Methodology; *Verbal Communication

ABSTRACT

Departing from Baconian science which focuses on explanation of the occurrence of events, Chomsky's linguistics involves a different orientation--namely the explanation of form to account for linguistic behavior. The "knowledge" upon which linguistic judgements are based involves the premise of innate mechanisms. The assumption that speakers and listeners are able to acquire linguistic competence because they are biologically equipped to do so gives rise to an empirical question--whether or not the acquisition of communicative behavior reflects innate mechanisms. To clarify the issue, the authors discuss some of their own research designed to determine developmental sequences in speech-using behaviors. They view their study as support for further extended and refined research in the area of speech-using behavior. Serious study of communicative behavior requires certainty as to whether Baconian or Chomskyan methodology best explains communicative competence. (Author/LG)

On Empirical Evidence for the Existence of Rules Governing Speech-Using Behavior

Robert E. Sanders and Michael Schneider

The term "communicative competence" has been cropping up in literature related to communication research with increasing frequency. The problem with this is that the term "communicative competence" commits us to a major departure from Baconian science, the same departure which has been taken by Chomsky's linguistics. Baconian science, the science of causation, focuses on explaining the occurrence of events, but Chomsky's linguistics has a very different orientation--namely, explaining the form, not the occurrence, of linguistic events. The necessity of accounting for the form of linguistic events is obvious as soon as we consider linguistic behavior. Linguistic behavior does not just consist of constructing and interpreting sentences. Linguistic behavior is creative, in that speakers and hearers can deal with sentences which are wholly new to them, and it entails making perceptual judgments about sentences including those which are new--sentences may be perceived as nonsense, as ambiguous, as synonymous with other sentences, as contradictory. No explanation of the occurrence of linguistic events can explain how such judgments are possible. They can be accounted for only if there is an order, an inherent form, in linguistic events which speakers and hearers "know" (in some sense) and base such judgments on. The linguistic behavior of speakers and hearers must, at least in part, be accounted for in terms of the form, not the occurrence, of linguistic events. It is such an account that Chomsky's linguistics is working toward.

Now, Chomsky's linguistics entails the premise that speakers and hearers "know" the forms inherent in their language--such "knowledge" is called linguistic competence. Use of the term "communicative competence"--ostensibly coined from the jargon of Chomsky's linguistics--implies a very strong claim: that we consider communicative behavior to permit creativity and to reflect inherent forms which communicators "know" and base perceptual judgments on. If we do not intend such a claim then our use of the term is misleading, if not vacuous.

Whether or not we intend such a claim, the fact is that at present we have absolutely no basis for making it. However, there is also no reason at present to deny that an explanation of communicative behavior requires us to account for communicative form. The status of the term "communicative competence" is, in other words, unclear: we have no basis for deciding whether it is a fraud.

But the present value of the term is that what it compels us to be uncertain about is of great importance. Our uncertainty reflects the fact that we now have two distinct sciences to choose between in studying communicative behavior. On the one hand there is Baconian science, until recently the only science. On the other hand there is the science represented by Chomsky's linguistics, which differs from Baconian science in the kinds of explanations sought, in methodology (concerning both the formulation and verification of hypotheses) and in the relationship between theory and empirical data. When we ask whether the term "communicative competence" is legitimate we are asking whether we can explain communicative behavior in terms of the conditions for its occurrence

(science$_1$) or whether we must account for the forms of communicative behavior (science$_2$). This is a new kind of quandry: how to make a well-motivated choice between competing sciences.

Fortunately the choice between these competing sciences does not depend on metaphysical speculation. There are empirical differences between phenomena which can be explained within Baconian science, and phenomena which require us to account for their form. First, and most obvious, it would be absurd for us to depart from Baconian science if there is no inherent form in communicative behavior. Or to put this another way, we cannot justify a departure from Baconian science unless forms of communicative behavior are perceptually real. Do communicators make judgments about communicative events which must be based on the form of those events? Clearly, this is a question of empirical fact.

Another point of empirical comparison has to do with the question of innate mechanisms. Linguists assume--and it is a controversial assumption--that speakers and hearers are able to acquire linguistic competence because they are biologically equipped to do so. This would explain why language is acquired at a particular stage of development, why the process of acquisition entails a particular set of stages across children and across languages, and why all of this takes place regardless of intelligence or parental input. Since the notion of "competence" is so closely tied to the presumption of innate mechanisms, we cannot use the term legitimately unless the development of communicative behavior also reflects the existence of such innate mechanisms.

Whether the acquisition of communicative behavior reflects innate mechanisms is an empirical question. Some research we undertook this past summer is relevant at this point because it focused on the acquisition of communicative behavior and was intended as an initial treatment of the question of innate mechanisms. We decided to introduce this work here not because we feel it is conclusive but because it suggests some of the problems this kind of research is likely to encounter.

If communicative behavior is acquired at a particular period of development--as it would have to be to support the presumption of innate mechanisms--then it should be possible to locate a particular age at which communicative behavior emerges, regardless of parental input. To determine whether there is such an age, we observed children between the ages of two and five at play in a pre-school, and also questioned their parents about the ages at which the children had undergone relevant behavioral change. Further, to determine the extent to which observed behaviors might have been caused, we questioned the parents about the kinds of input they had given their children.

Before we began our observations, we hypothesized that only after children had acquired communicative behavior would they be able to make judgments about communicative acts. So our intention was to observe the children for signs of such judgments, and then to determine the age of those children who had (in this sense) acquired communicative behavior. While there are a number of problems with this procedure we abandoned it mainly because it quickly became apparent that children under five

years old do not sustain mature communicative behavior.

Yet it was clear from observing the children that there were behavioral differences among them, and that the differences were related to age.. The younger children consistently made little or no effort to alter the actions or attitudes of others, whereas such efforts were common among the older children. Two anecdotes will illustrate this:

> Two of the younger boys--they will be called A and B--agreed to "play trucks" with each other. Each of them had a truck and they sat near each other on the floor. The game consisted of each boy moving his truck around, and ignoring the other unless the trucks were on a collision course. Then each would independently decide how to proceed: sometimes they both pulled their trucks away, sometimes they both sought a collision, sometimes one started to pull away while the other sought a collision. There was no discussion--the other truck was always a sudden addition to the environment to be dealt with as such. After A and B had continued in this way for a few minutes, a third boy, C, came over with a larger truck and began smashing A's and B's trucks. Without a word to each other or to C, A and B moved their game. C followed. A and B moved again. C followed. A and B then abandoned their game and each other and went on to other things.

This behavior is very unlike that of some of the other children.

> Three of the older boys--M, N, and P--were on the swings together. M and N knew how to propel their swings, while P did not, so M and N began vigorously swinging leaving P dangling on a motionless swing. As M and N were swinging they discussed the violence of their motion, their heights with respect to each other and with respect to objects around them. P suddenly interrupted this to announce that his older brother would attend the school the next day and that the brother could beat everybody up. M and N began talking to P about his brother, and sought reassurances that whoever the brother beat up it would not be them. Then M asked whether the brother could swing higher than he had, and M and N then resumed their original conversation. Almost immediately P announced that the engine mounted on back of a nearby parked truck was used to operate carnival rides. He explained that he had seem such engines

> at other carnivals. And then he announced there would be a carnival there the next day. Within seconds, M and N left off swinging and the three boys went to get a better look at the truck.

Since everyone has a "best definition" of communication, there might be skepticism about calling P's behavior communicative. While we think it was, it will save controversy if we say that P exhibited speech-using behavior whereas A and B did not. That is, P deliberately used speech to achieve certain goals. What is important here is not that the older children had acquired social motivations which call for speech-using behavior--they had also acquired some ability to act on these motivations by engaging in speech-using behavior, since their strategems would have been unrecognizable otherwise. It turned out that all of the children over 4-6 and none of the children under 3-6 engaged in speech-using behavior, while children close to their fourth birthdays varied in this respect. We concluded that there is a particular point when speech-using behavior emerges, a few months on either side of the fourth birthday.

To obtain further support for this we submitted questions to the parents about the ages when behaviors we considered relevant had emerged. (We sent out 17 questionnaires and of those 11 were returned; 5 of the 6 parents of children over 3-6 returned questionnaires.) The parents' responses somewhat undercut our conclusions. Though the children over 3-6 had similar behavioral patterns, these occurred among some of the younger children also. All of the children over 3-6 had "best friends," but so did 60% of the younger children; each of the six children over 3-6 had shown interest in adult conversations, but so had 60% of the younger children; and continuing this pattern, five of the six children over 3-6 had

exhibited preferences for particular people, but so did half of the younger children. In short, there was enough evidence of behavior among the younger children which we had associated with speech-using behavior to raise doubts about the existence of a specific age when such behavior emerges.

Of course, the evidence supplied by the parents is not highly reliable, if only because we have no guarantee that the behaviors we questioned them about really do have any connection with speech-using behavior. The behavioral differences we observed are, as far as we are concerned, indisputable, but there is no gainsaying that there is good reason for skepticism and further research.

We also questioned the parents about environmental factors which might have been responsible for the speech-using behaviors we had observed. Our interest here was only in responses concerning those older children who had acquired speech-using behavior. We found only three environmental factors these children had in common: their parents' religion, their parents' occupations, and the kinds of television programming watched. On the other hand, there were a number of differences between the children: the amount of television watched, the extent of the parents' educations, and the time enrolled in pre-school all varied greatly across the older children.

The most significant difference in the children's environments, however, was in the ways that the parents helped their children out of difficulties with playmates. In some cases the parents discussed

problem situations with the child, trying to explain what had happened. Other parents tried to distract the child by offering new activities. Still other parents utilized both approaches. One would expect that if there had been parental input responsible for speech-using behavior, it would have been from those parents who had tried to explain situations to their children, and that the children who were consistently distracted from problem situations would be relatively slow to acquire speech-using behavior. But given our observations, these differences in input were irrelevant to the acquisition of speech-using behavior.

Certainly this research must be extended, and refined. But despite the problems inherent in it, we obtained enough evidence to support our confidence that the question of innate mechanisms can be empirically resolved. And so, certainly, can the question of the perceptual reality of communicative forms, and several other points of empirical comparison between the two sciences which we have not discussed here.

Of course, a program of empirical study that will serve to determine which science can explain communicative behavior is a limited one. The number of hypotheses to be tested is rather small, and the task can be concluded quickly. But however limited the task, it is an important one. We cannot undertake a serious study of communicative behavior, one which has a well-motivated direction, unless we are certain about which science is adequate to explain it.