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The acquisition of Quantifier Dialects by children
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Guy Carden (1970, 1973) has argued the existence of so-called quantifier dialects, based on different interpretations of sentences like: "All the kids aren't asleep". The Neg-V dialect interpretation is that not a single kid is asleep; i.e., the scope of negation is the Verb (=Predicate) '(be) asleep': [all the kids] [NEG be asleep]. The Neg-Q dialect interpretation is that some are asleep but some are not; i.e., the scope of negation is the quantifier 'all': [NEG all the kids] [be asleep]. Wm. Labov (1972:193-199) has countered that quantifier dialects are merely artifacts of the fragile nature and manipulability of linguistic intuitions--even to the extent of being mere "artifacts of a [linguistic] theoretical position" (199). Both Carden and Labov have somewhat obscured the issues by not taking serious account of the characteristic intonation patterns associated with this type of syntactic structure. Carden (1973:178) makes brief vague reference to "stress and intonation patterns known to enforce one reading or the other", but the matter is very remote from his basic arguments. Despite their different conclusions, both Labov's and Carden's arguments hinge on variability in the hearer's interpretations of such sentences; however, my own observations of normal speech usage and comprehension surveys with numerous people indicate that if intonation is carefully controlled for in natural ways, that variability can be virtually eradicated. What I find is that there is one particular intonation pattern which is characteristic of this type of syntactic construction and, further, unambiguously yields Neg-Q interpretations in adults. That intonation involves high-rising pitch on the quantifier (which is normally stressed), then falling to level, often rising slightly at sentence end; e.g.:

- 1) All the kids aren't asleep.

There are, of course, variations on this basic pattern, but the defining variable seems to be the high pitch rise (and concomitant vowel lengthening) on the stressed quantifier (wherever it occurs). Out of context, one can utter these sentences with intonations that are ambiguous, but this is extremely rare in normal speech. One can also utter them with unambiguous Neg-V intonation (and stress)--usually a very deliberate monotone, enhanced greatly by a pause after the NP--but this is also quite rare in normal speech settings. In fact, if we want to get across the Neg-V alternative of the above, we are far more likely to say something like: "None of the kids are asleep". Carden himself observes (1973:175, and 179 fn. 4) that the overall responses of his informants did tend to favor the Neg-Q readings, in a variety of ways, and my guess is that this phenomenon

occurring in an experimental setting may well be caused by the fact that these sentences in normal speech settings are overwhelmingly Neg-Q in their interpretation.

It is interesting to note that, whereas superficial negation of the Verb, of the type dealt with here, is at least potentially ambiguous, superficial negation of the quantifier itself is categorically interpreted as semantically Neg-Q (e.g., "Not all the dogs bite."). The strength of the bond between superficial quantifier negation and Neg-Q meaning is even reflected in quantifier floating. Consider the following sentences, where (3) and (4) represent different degrees of quantifier floating from the more basic structure in (2):

- (2) All the dogs don't bite.
- (3) The dogs all don't bite.
- (4) The dogs don't all bite.

The characteristic Neg-Q intonation is compatible with all three of the above (be sure to keep the quantifier stressed and move the pitch-rise point with the floating quantifier). If, however, we try to impose Neg-V intonation on these sentences, we discover that it is compatible with (2) and (3) but not (4). I suggest that the above-mentioned bond between superficial quantifier negation and Neg-Q meaning may well be in a sense 'extended' to the accidental surface proximity (... 'nt all...) of the negative element and the quantifier, caused by quantifier floating in (4). In any case, superficial negation of quantifiers (proximity of NEG to the quantifier) seems to provide none of the problems of superficial negation of verbal constituents.

With all of the above in mind, now consider what the child faces in the acquisition of quantifier negation as it occurs in the kind of sentences under consideration here. If I am correct, when he hears such sentences in his environment, their meanings are overwhelmingly Neg-Q and they are almost always accompanied by some variant of the intonation pattern I have suggested to be characteristic of the construction type. The clear marking of the Neg-Q interpretation by intonation, further, is no trivial matter with regard to consideration of child language acquisition, since we know that children normally latch onto intonation at the very earliest stages of grammatical development. The question now is: how do children handle these quantifier sentences?

My initial observations of how very young children handle these sentences indicated that they were interpreting them quite differently from adults. I have now systematically observed the linguistic development of one child in this regard over a period of 2 2/3 years--from age 3 yrs. 4 mo. to age 6. After the first year of observation, I added several other (roughly) same-aged children (none of their ages differed by more than 8 months), thus observing the additional children over a period of 1 2/3 yrs. The children were checked at four-month intervals to determine the nature and progress of their acquisition of the given

syntactic structure. Although a total of six children were involved, only four were observed at each test interval, due to my changing accessibility to particular children.

The procedure was essentially as follows. The child would hear a sentence of the type under discussion as he was shown two pictures--one that clearly represented a Neg-Q interpretation of the sentence and one that was clearly Neg-V. His task was to choose the picture that best fit what the sentence was about. For example:

("All the faces aren't happy")

The children heard the target sentences with Neg-Q intonation about 75% of the time (frequently very exaggerated). Very deliberate Neg-V intonation was also used to try to manipulate responses, about 25% of the time. After the child made his choice, he was asked to explain why he did so and sometimes even to explain what the target sentence meant. The pictures and sentences were, of course, geared to the interest and level of children at these ages, e.g.: "All the dishes aren't broken", "All the kids aren't running", "All the doors aren't open", "All the monsters aren't mean", "All the clocks aren't round", "All the dogs don't bite", "All the monkeys aren't in the cage", and the like.

The results are best reported not in terms of statistical numbers derived from the children's performance on the comprehension tests, since test success was always interpreted in terms of their subsequent explanations of why they chose a particular picture and (occasionally) what the sentence meant. The possibility of merely tabulating numerical indices of comprehension here is sabotaged by a variety of strategies sometimes taken by the children, which tended to defeat the purpose of the tests--varying from attention span problems to the "am-I-getting-this-right?" syndrome to behavior not unrelated to the "pop-go-weasel" phenomenon reported by Brown and Bellugi (1964:135). The post test-item interview procedure was so revealing that I think it justifies the somewhat impressionistic nature of the interpretation of results.

At the earlier stages--three to (esp. early) four years old--the children, unlike Labov's and Carden's adults, were simply unmanipulable in their interpretations of the sentences--no matter

what the intonation. Further, unlike the adult model characterized above, they were categorical adherents to Neg-V interpretation (even in the presence of exaggerated Neg-Q intonation). Their own explanations of the choice of pictures were typically paraphrases or brief (invented) narratives describing what was going on in the pictures--both of which were quite revealing as to how they had comprehended the target sentence. As a typical example, the child hears: "All the doors aren't open" with heavy Neg-Q intonation. He sees two pictures--one with three doors open and two closed (Neg-Q), and the other with no doors open (Neg-V). He picks the Neg-V alternative and is asked why he did so. His response: "Because you just said that the doors were all closed". The paraphrase, switching from 'not open' to 'closed', thus removing even the potential for syntactic ambiguity, seems to nicely indicate the clarity of the child's Neg-V interpretation (and such unambiguous paraphrases are fairly frequent in the data). Another child in the same setting, after the same choice, began to construct a little story explaining how the doors all got closed, and at one point even incorporated the original test sentence into his categorically Neg-V narrative. Still another child was confronted with one picture containing two instances of a child shaking hands with and smiling at a little boy, plus a third child punching the same little boy, with a scowl on his face. The other picture had all three children scowling and punching the little boy. The target sentence was: "All the kids don't like JJ". I just happened to use the name JJ because the child I was testing has a friend with that name. Upon hearing the sentence, she promptly ignored the pictures and blurted out: "That's not true--I like JJ". To which I responded: "I didn't say you don't like him; I only said: 'All the kids don't like him' (heavy Neg-Q intonation)". To which she responded: "I don't want to play this game--you won't tell the truth".

As the children progressed beyond four years of age, cracks began to appear in their dogged adherence to Neg-V interpretation. The more they picked up on the possibility of Neg-Q interpretation, the more confusing the tests became. Two children, at approx. five years old, were quite confused by the tests but could give perfect (Neg-Q) explanations of the sentences in isolation (Q: "What does it mean to say 'All of the clocks aren't round'?" A: "Some of them are round, and the rest are square".) By the age of six or so, all but one of the children had made considerable progress toward the adult model, especially with regard to the disambiguating effect of intonation. The question now remains: why do children at early stages adhere so strongly to Neg-V interpretations, in the face of contradictory data in their adult models?

The answer lies in what Slobin (1973) has called universal operating principles--strategies that children seem to use in confronting the task of first language learning. In discussing the tendency of children to preserve underlying structure by doing such things as avoiding interruption and rearrangement of

linguistic units (199), he seems to have his finger on a principle of broader generality than is implied by the organization of the essay. That principle could be stated as follows: KEEP THE GAP BETWEEN SURFACE AND UNDERLYING STRUCTURES AS NARROW AS POSSIBLE. Put another way: INTERPRET SURFACE STRUCTURES AS IF THEY WERE ONLY MINIMALLY REMOTE FROM UNDERLYING STRUCTURES. Unfortunately, the syntax of natural languages doesn't always cooperate with children's acquisition strategies, and the strategy just cited is certainly no exception. For example, tough movement in English creates a rather radical gap between surface and underlying structures and ought thus to be tough for young children to handle (e.g., [for Sm to see John] is easy → John is easy [to see]). Carol Chomsky (1969) and Richard Cromer (1970) have demonstrated that this is precisely the case and that children typically misinterpret such sentences until 7-8 years old. For example, a sentence like "This doll is easy to see" was often misinterpreted by the children in their studies as if it were "It's easy for this doll to see", thus confusing underlying subject/object relations. My own informal observations indicate that tough movement sentences also cause confusion regarding adjective attribution; e.g., "This game is hard to lose" is interpreted by 3-4 year olds as if the game were hard (games that are hard to lose, of course, are easy games). Slobin (1973:199) explains Chomsky's and Cromer's results by a principle involving the interpretation of deviant word-order as if it were standard--a principle apparently independent of the one causing the avoidance of interruption and rearrangement.

The more general operating principle I have suggested above also explains the child's early Neg-V responses to our quantifier sentences. These sentences superficially negate a verbal element, even though the semantic scope of negation is normally the quantifier (which can be quite sequentially remote from its negator). The adult can attach a Neg-V interpretation, given the proper intonation, but he rarely does. The young child insists on a better surface-to-underlying 'match' and rules out the Neg-Q interpretation in favor of Neg-V, regardless of the normally disambiguating intonation, thus keeping the aforementioned syntactic gap more narrow. But only temporarily so, since any uncooperative syntactic rules of his language must ultimately wear down acquisition strategies as the child's speech approaches the adult's; and he ultimately learns, in this case, that the surface negation of the Verb really has the quantifier in its scope.

We might conclude then that children at these early acquisition stages may well be the only true representatives of a quantifier dialect and, further, they are natural representatives of the one type to which they adhere, given the existence of acquisition strategies of the type discussed here.

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