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Old and new forms, old and new meanings: the form-function hypotheses revisited*

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ABSTRACT

The spontaneous speech of fifteen children was examined in order to test two hypotheses: (1) newly acquired forms are first used to express previously acquired meanings; (2) newly acquired meanings are first expressed by previously acquired forms. The data provide support for these hypotheses, but also demonstrate other relations between the acquisition of linguistic forms and meanings. The implications of the findings for theories of language development are briefly considered.

Two complementary hypotheses have been suggested concerning the relationship between the acquisition of grammatical forms and the meanings initially expressed by these forms (Cassirer 1955, Cromer 1968, 1974, Slobin 1973, Werner & Kaplan 1963). If we let the term *form* refer to the linguistic vehicles with which one expresses meaning, and the term *function* refer to the meanings themselves, the two hypotheses may be phrased as follows: (1) newly acquired forms are first used to express previously acquired functions (new forms express old meanings); (2) newly acquired functions are first expressed by previously acquired forms (new meanings are first expressed by old forms).

These hypotheses are appealing in two respects. First, they depict development as a relatively orderly affair in which children use previously acquired knowledge and skills to facilitate the development of additional knowledge and skills (cf. Flavell 1971, 1972). Second, each of the hypotheses coincides with the general notion that some sort of

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cognitive prerequisites are necessary for language acquisition, in the sense that both hypotheses are consonant with the notion that the acquisition of new linguistic forms does *not* introduce new meanings to the child. Rather the acquisition of new meanings precedes and may even lead to the acquisition of new linguistic forms (Cromer 1974, Slobin 1973). Support for the two hypotheses is found in the literature on early language acquisition (Bloom 1970, Brown 1973, Greenfield & Smith 1976, Schlesinger 1975), particularly since children make implicit reference to many meanings before coming to use explicit forms to express these meanings. However, little systematic work has been done in regard to the two hypotheses insofar as later periods of language acquisition are concerned, a notable exception being Cromer's 1968 dissertation on the development of temporal referencing in which some support for the two hypotheses was obtained. The present study is an attempt to add to the information provided by Cromer's work.

The spontaneous speech of fifteen children was sampled in their home environment. Fourteen of the children formed a cross-sectional sample (two children at six-month intervals from age 2 ; 6 to age 5 ; 6). Each of these children's speech was recorded for one hour per week for six consecutive weeks. The speech of the remaining child (the investigator's oldest son Abe), was recorded for one hour per week from age 2 ; 5 to age 4 ; 0, and for one-half hour per week from 4 ; 1 to 5 ; 0.

The form-function hypotheses were tested by examining the linguistic forms which were used (or should have been used) to express the following meanings in the speech samples of Abe and each of the children in the cross-sectional sample: (FI) future of present intent (e.g., *I will draw a dog*), (FC) future of present cause (e.g., *It will fall*), (FP) future of prediction (e.g., *Daddy's gonna bring me a surprise*), (AB) ability (e.g., *I can ride a bike*), (PE) permission (e.g., *you can have one*), (PO) possibility (e.g., *it might fall*), (WI) willingness (e.g., *I'll brush my hair*), (ON) obligation-necessity (e.g., *you should clean that up*), and (HY) hypothetical (e.g., *that would hurt me*). The primary concern was the use of modal auxiliaries and related forms (e.g., *hafta, is uh be, maybe, know how*) to express these meanings.

In order to assess scoring reliability, two other raters scored two hundred of Abe's utterances which expressed (implicitly or explicitly) a target meaning, one hundred utterances being taken from speech transcripts obtained at age 2 ; 8, the other hundred being taken from samples obtained at age 4 ; 10. Each of the rater's categorizations were compared with the other's categorizations and with mine. In each case, the percentage of agreement was above ninety percent.

The results are influenced by at least one characteristic of the sample. At the time the sampling of his speech began, Abe was already using the following forms to express the following meanings: *gonna* (FP, FI), *can* (AB, PE), *can't* (AB), and *don't* (PE). Thus, it is not possible to draw conclusions about the initial acquisition of these forms and meanings in Abe's speech. The ages at which the target forms and functions were first observed in Abe's speech are given in Table 1.

TABLE 1. *Ages at which target forms and functions were first observed in Abe's speech. The age at which a given function was first observed is noted in parentheses on the left of each row. The forms used to express a function (and ages at which they first appeared in this context) are found to the left of the row heading.*

FP (2;5)	– gonna (2;5), is uh be (2;6), will (2;7), 'll (2;7), won't (2;9), can't (2;10), would (2;11), wouldn't (3;2)
FI (2;5)	– gonna (2;5), will (2;6), 'll (2;6), wouldn't (2;7), won't (2;8), is uh be (2;8), would (2;9)
FC (2;11)	– gonna (2;11), don't (3;0), wouldn't (3;3), will (3;5), won't (4;2), would (4;6), 'll (5;0)
AB (2;5)	– can (2;5), can't (2;5), know how (2;10), don't know how to (3;0), couldn't (3;0), could (3;1), won't (3;1), would (3;2)
PE (2;5)	– don't (2;5), can (2;5), can't (2;6), won't (2;11), may (3;0), could (3;1), should (4;10)
PO (2;6)	– can (2;6), can't (2;9), maybe (2;11), might (3;1), could (3;1), won't (3;2), couldn't (4;0)
WI (2;6)	– will (2;10), can (2;11), could (3;2), won't (3;3), 'll (3;5), would (3;5), can't (3;7), gonna (3;9)
ON (2;6)	– hafta (2;6), have to (2;6), gotta (2;7), should (2;9), need to (2;9), oughta (3;1), could (3;2), must (3;4)*
HY (2;9)	– can't (2;9), would (2;9), will (2;10), gonna (2;10), could (3;1), wouldn't (3;4), won't (3;7), couldn't (3;8), can (3;8), 'll (4;0), should (4;11)

* *must* used in a 'conclusion on the basis of evidence' sense

Consonant with one of the hypotheses of concern here, Abe did use some old forms to initially express some new meanings, this being observed on four occasions. He also commonly used new forms to express old functions, this being observed in seventeen cases. However, Abe also exhibited the simultaneous acquisition of a new meaning and a new form with which to express this meaning on three separate occasions. The most frequently observed category was that in which Abe attached an old function (previously expressed with some other form) to an old form (previously used to express some other function), this being observed on 37 occasions.

These findings provide some support for the two form-function hypotheses, though it appears that some simultaneous acquisition of new forms and functions consists of expanding the number of meanings a form is used to express, these meanings sometimes being newly acquired meanings and sometimes being previously acquired meanings already expressed by some other form.

The developmental relations between forms and functions become a bit clearer upon consideration of some additional questions. First, when a form is first acquired, how many functions is it used to express? Are these old functions or new functions? If we exclude *gonna, can, can't,* and *don't* from consideration, since they appeared in the earliest speech samples, the following picture emerges: when a form is first acquired (defined here as the one month period following its first appearance in the speech samples), it is most likely to be used to express a single old function, this being the case for eleven of the fifteen forms under consideration. One new form (*could*) was used to express three old functions when it was first acquired, two other forms (*hafta, must*)

were used to express only a new function (a different function for each form), and the remaining form (*would*) was initially used to express a new function and an old function. Moreover, when a new function first appeared, it was usually first expressed by one old form, this being the case for three of the six instances in Abe's speech. In two of the remaining cases, a new function was expressed by a new form (ON-*hafta*; ON-*must,* see Table 1). In the other case a new function (HY) was expressed by an old form (*can't*) and a new form (*would*).

The above indicates that Abe's initial use of most forms is rather limited. However, it is possible that at some point during the acquisition process an 'explosion' occurs such that a large number of functions suddenly come to be expressed by a form. Similarly, it is possible that an 'explosion' occurs in the opposite direction – a large number of forms suddenly are used to express a particular meaning. Both types of 'explosion' are possible, but are not apparent in the data of this investigation. Instead, Abe's attempts to use different forms to express the same meaning is best represented as a gradual continuous process in which a form is used to express a meaning, another form then comes to be used to express this meaning, and then another form is added to those which are used to express the meaning, and so on. For example, in his FP referencing, Abe used *gonna* at 2 ; 5, began to use *is uh be* (a form he created) at 2 ; 6, *will* and *'ll* at 2 ; 7, *won't* at 2 ; 9, *can't* at 2 ; 10, *would* at 2 ; 11, and *wouldn't* at 3 ; 2. Similarly, Abe's expansions of the meaning expressed by an individual form also seem to be best characterized as a gradual continuous process in which 'explosions' are rare.

Two other findings are also of interest. First, similar old forms (e.g., *'ll, will,*) sometimes acquire new meanings simultaneously though this does not always occur. Such simultaneous acquisition suggests that the child has related the forms. Second, the acquisition of form-function relations does not consist solely of the addition of new forms and new functions. Some of the acquisition consists of the replacement of inappropriate forms with appropriate forms insofar as a particular function is concerned, this replacement occurring gradually. In other words, both an expansion and a subsequent narrowing of referencing occurs for most forms. Initially a form is used to express a single meaning. With time, the form comes to be used to express more and more meanings. Later the child ceases to use the form to express one or more of these meanings if s/he has ascertained that the form is inappropriate for this use or if s/he has decided that another form is more appropriate. Table 2 lists those forms which Abe used to express a function for a period of time, but then ceased to do so.

The above picture of development is based on the longitudinal speech samples of one child. If it is accurate, we might expect the speech samples obtained from the fourteen children in the cross-sectional sample to show that the less advanced children (as measured by MLU) expressed fewer functions and had fewer forms with which to express these functions than their more advanced counterparts. Children who are somehwere between these two groups (least advanced, most advanced) should possess many functions and forms and express functions with a larger number of forms

TABLE 2. *Forms which were used to express a function for only a subperiod of time in Abe's speech. Note that neither the form nor the function disappears (unless otherwise noted). Rather particular forms cease to be used to express particular functions.*

Form	Function	Age at which reference to function ceased
gonna	HY	2;10
gonna	WI	4;5
*is uh be	FI	2;11
*is uh be	FP	3;0
will	HY	4;8
'll	WI	3;5
'll	HY	4;6
would	AB	3;2
would	FC	4;6
won't	PE	2;11
won't	AB	3;1
won't	PO	3;2
won't	WI	3;4
won't	FL	4;7
wouldn't	FC	4;4
don't	PE	2;5
don't	FC	3;0
don't	AB	3;9
*may	PE	3;0
can	HY	4;5
can	WI	4;8
could	WI	4;7
could	ON	4;7
can't	FP	2;10
can't	WI	3;7
couldn't	PO	4;0

*form disappears at this age

than their more advanced counterparts, who will have restricted their use of the forms to those most appropriate functions.

There is no support, however, for the notion that the least advanced children express fewer of the target meanings in their speech. This finding is related, no doubt, to the linguistic and cognitive sophistication of the least advanced children. There is some support for the notion that the number of forms used to express a given function increases and then decreases with development. By counting the number of forms used to express each of the target meanings by each child, and dividing this by the number of meanings expressed by the child, one gets a form/function ratio which allows a rough estimation to be made of the average number of forms used to express a function by a child.

TABLE 3. *The MLUs and 'forms per function' ratio for each of the children in the cross-sectional sample.*

S	MLU	Forms/Functions ratio
N.E.	3.62	2.25
M.Z.	2.94	3.0
I.B.	4.64	3.56
D.N.	3.05	2.5
H.K.	4.03	3.6
V.Q.	4.23	3.56
G.D.	4.24	3.75
K.M.	5.02	3.11
F.Y.	4.66	2.86
L.R.	4.53	1.99
A.B.	4.08	2.67
H.L.	4.95	2.37
J.W.	5.13	2.77
C.P.	4.97	3.17

Although the children with the lower MLUs also had low form/function ratios, the children with the highest MLUs did not have the highest form/function ratios (see Table 3). This suggests, in conjunction with the data obtained from Abe, that the general acquisition pattern is one in which initially a limited number of forms is used to express a limited number of functions, this being followed by an increase in the number of functions and the number of forms used to express the functions (this period is probably best viewed as a period of experimentation on the part of children). Next, children come to narrow their referential use of forms, so that forms come to be restricted to appropriate functions. Of course, these acquisition events are not mutually exclusive but rather overlapping in nature, since children are continually acquiring new forms and functions and relating these new acquisitions to old acquisitions. As we have seen here, new forms are often used to express old functions, and new functions are often first expressed by old forms, but other relations between forms and functions are apparent as well.

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