Journal of Pragmatics 9 (1985) 527–546
North-Holland

THE MEANING OF CHILDREN'S FIRST WORDS

Evidence from the Input

Anat NINIO *

This study is an investigation into the meaning of the first words children acquire, through an examination of the input to the semantic learning device. An analysis of the way word meanings might be learned shows that (a) the set of words potentially learnable at the very onset of language acquisition is the set of words addressed to the child as single-word utterances, and (b) that the most likely description of the meaning children attribute to one-word utterances is in terms of the intentional communicative acts speakers perform in uttering these utterances. One-word utterances of 8 mothers to preverbal infants were analyzed for their communicative function. It was found that words appearing as one-word utterances in the input possess a high degree of function-specificity and even unifunctionality. The results imply that the first word meanings children learn are probably rules for the lexicalization of specific communicative acts.

1. Introduction

The subject-matter of this investigation is the question: what is the meaning of the first words children acquire? Meaning is a mental phenomenon, and since young children cannot introspect for us, it is unamenable to direct investigation.

The usual strategy for attacking this question has been to examine the *output* of the 'black box', namely, children's production of words and their comprehension responses (cf. Bowerman (1976)). The study of children's early productions has resulted in a multitude of conflicting opinions, not only about what word meanings are for children but also about what children mean *by* their one-word utterances (cf. De Laguna (1927), Braine (1974), Greenfield and Smith (1976), Bloom (1973), Bloom and Lahey (1978), Halliday (1975), Schlesinger (1982), Dore (1975), Bates (1976), Bruner (1975)). Far from being an easy way into the child's unobservable semantic system, research into the meaning of early utterances complicates the issue, because it is not at all clear whether it is necessary to distinguish between what words mean to the child (i.e., their sense) and what children mean by them (cf. Greenfield and Smith (1976)). The basic problem with this approach is that a correct interpretation

* Author's address: A. Ninio, Dept. of Psychology, The Hebrew University of Jerusalem, Jerusalem 91905, Israel.

of what a child meant by an utterance is logically dependent on prior knowledge of what words mean to the child, and not *vice versa*.

Comprehension studies suffer from another kind of shortcoming as a source of information about what words mean to a child. The universal criterion for attributing word knowledge to a child is if he or she complies with (or sometimes refuses) a command which includes the target word (cf. Benedict (1978,1979), Huttenlocher (1974)). By definition, the only kind of meaning demonstrable by this procedure is the meaning of words as components of a complex multi-word utterance with the pragmatic force of a command. In other words, this procedure biases the kind of meanings imputable to a child. If Nigel, Halliday's subject (Halliday (1975)) indeed had a word *bø* meaning 'Give me my bird', no comprehension test of the above kind would ever reveal it. Similarly for the meaning of *kju* (thank you) as a marker for the act of handing over an object (Bruner (1975)), or of *no* as a refusal or a denial (Bloom (1973)).

Although examination of children's output (i.e., production and comprehension responses) is undoubtedly an important, albeit problematic, strategy in the studying of their early semantic system, it is not the only possible strategy. Another approach would be to capitalize on the fact that word meanings are to be learned; the strategy would consist of examining the *input* to the learning device. Spelled out, this strategy requires three steps: first, to see how word meanings are learned; second, to identify a set of words potentially learnable, and third, to examine the meaning of these words in the learning situation.

There is a general consensus that the meaning of words is learned as an association between the phonetic string which is the vocal embodiment of a word, and some mental content external to the sounds themselves, which is the word's meaning.

Two conditions of learnability follow from this. First, the word should be available for the learner as a discrete phonetic string. Second, it should be possible to map a meaning to the word.

The first set of words potentially learnable will be those which fulfill the conditions of learnability in an optimal way. It is possible to show that the set of optimally learnable words at the onset of acquisition are the set of words uttered as single-word utterances.

In the first place, single-word utterances provide the best and maybe the only exemplars of discrete phonetic strings. The word as a phonetic unit rarely exists a multi-word utterances, since word-boundaries are not clearly marked, and the utterances are not segmentable on a purely auditory basis. The isolation of familiar strings from the larger phonetic unit of the utterance is a later process than the registering of isolated utterances of words, since the former is logically dependent on the latter.

In the second place, single-word utterances afford the simplest and most straightforward mapping of meaning to words. In the case of multiword

utterances, the mapping problem is of incomparably greater complexity and thus it is less likely that such mapping will be the process by which the first word-meanings are acquired.

Learnability considerations thus lead us to identify the set of words uttered as single-word utterances in the input as the set of words potentially learnable at the onset of acquisition. It is possible that the set should be expanded to include the stressed content-words of multi-word utterances. It is well known that input speech, in the case of young children, is slower than speech adressed to adults (cf. Broen (1972), Drach (1969), Remick (1976)), and content words are markedly stressed or elongated (cf. Garnica (1977)). Moreover, there is reason to believe that young children selectively attend only to the stressed content-words of multi-word utterances (cf. Gleitman and Wanner (1982)) and thus treat at least some of these as functionally single-word ones. Without further verification of this claim, however, and assuming a high degree of overlap between the set of stressed content-words and the set of words uttered as single-word utterances, the best strategy is to consider one-word utterances as the primary input for the learning of the meaning of early words.

The next question is how to describe the meanings that children might attribute to a single-word utterance they hear, prior to their having any language at all.

It would be easier to answer this question if we had a good idea where meanings come from, to serve as input to a meaning-learning device. Had we been talking about second-language learners, the meaning of new words could be provided by translation, i.e., by a matching of the unknown word to a known one in another language. Similarly, to a learner who already knows some words in a language, the meaning of a new word can be given by a synonym or even by a verbal definition. By contrast, a young child learning his or her first stock of words has to rely exclusively on his/her own interpretation of the meaning of the words he/she hears.

Since this sounds like a logically impossible task, we should stop and consider what kind of phenomenon we are talking about. It appears that the behavior to be interpreted by the child is a human being's emission of a string of sounds, in the presence of another human being. This immediately classifies the behavior to be interpreted as a type of social action. Fortunately, we know that young children are rather precocious in their ability to interpret the significance of social actions, signals, and events in their environment (cf. Trevarthen (1977), Bruner (1975), Snow, Dubber, and DeBlauw (1981)). It is thus *not*, on the face of it, an impossible task for a child to guess at the significance of social acts consisting of the emission of vocalizations. This implies that young children interpret one-word utterances in the same way as they interpret any other piece of human behavior they observe: as an action having a certain social significance. Thus, what they guess is the *social meaning* of the event, '*the speaker uttered such-and-such a vocal string*'.

This has several implications. First, the interpretation of speech-events proceeds through the child's existing schemas for the interpretation of social events. Consequently, the interpretations children give to speech events are similar in kind to interpretations of related non-speech events, e.g., of non-verbal communicative acts and other child-oriented actions of others. I.e., the meaning attributed to speech events will primarily be in terms of the *the kind of social act* performed in uttering the utterance. Thus, word meanings for young children cannot be described without mentioning the pragmatic force of the utterance. It follows that whatever the meanings attributed to words, they will be of a kind we tend to think of as the meaning of uttered *sentences*.

Moreover, the meanings young children will read into words will always be speaker's meanings, i.e., what the speaker meant in uttering a string of sounds (cf. Grice (1957)), rather than what the words mean as part of a linguistic system. Since, at this stage, words have no other possible significance than their significance as utterances, there is no logical distinction possible between meaning and use, or in other words, between *langue* and *parole*; both collapse to *parole*.

We have arrived at the conclusion that the most likely description of the meanings children initially attribute to one-word utterances is in terms of the intentional communicative acts speakers perform in uttering an utterance. By a description, I mean a "full description" (Holdcroft (1968: 173)) of the communicative act, i.e., with full specification of the act's propositional content as well as its force. This, however, does not imply that word meanings by necessity remain function-specific for longer than their initial phase of acquisition. Whether or not function-independent meanings can be learned on the basis of the one-word input depends very much on the degree of form–function correspondence in the input data. If the same words appear in the execution of many different communicative acts, children might be able to abstract their stable referential meaning. If, however, words appear coupled with one or at most a few specific communicative acts, the input will not allow any other learning but of function-specific meaning.

2. Sample

Eight mother–infant dyads comprised the sample. All mothers were Jewish, middle-class, and highly educated. The age of the infants ranged between 9;0 and 11;9 (Mean: 10.4 months, S.D. 0.9). Half of the infants were female, half male. Five infants were first-born, three second-born. All mothers spoke only in Hebrew to the infants. None of the infants were producing meaningful words yet, but all produced phonetically wordlike sounds out of context, and/or could imitate some words on request.

3. Procedure

The mother–infant dyads were videotaped in their homes for 30 minutes. Mothers were asked to behave as they usually do at that time of the day, but were asked to stay as much as possible in the same room with the infant. They were told we wished to obtain a naturalistic sample of infants' interaction with their mothers, but were not told that the mothers' speech was a focus of the investigation. Within a week of the videotaping, mothers were invited to the lab and asked to describe in detail what had happened in the videotaped interaction period. They were shown the tape and were directed to provide a running commentary on short stretches of it at a time. They were prompted to give action descriptions by questions such as 'What are you doing here?' or 'What is happening?' A more detailed description of the elicitation procedure can be found in Ninio and Wheeler (1983).

4. Data analysis

Maternal speech was transcribed and divided into utterances. An utterance was defined as a stream of speech which has a sentence intonation contour and which is separated by perceptible pauses from other locutations of the same speaker. Next, one-word maternal utterances were identified. To minimize arbitrary decisions on what constitutes a word, a grammatical definition was adopted. This excluded from the data-base multiword stock expressions such as the Hebrew equivalents of 'Good night' or 'What's that?'. In addition, not-quite-lexical exclamations such as 'hopps', 'oy' or 'hey!' were excluded from analysis.

One-word utterances were coded for the type of social-communicative act mothers intended to perform in uttering the utterance. The coding categories utilized are listed in the Appendix. The full coding system (Ninio and Wheeler (1982)) is obtainable from the author. A description of the construction of the coding system is given in Ninio and Wheeler (1983).

In coding for communicative intent for the analysis presented here, two related simplifications were introduced. First, no distinctions were made between utterances with falling and with rising intonation, if they served to discuss a recent event or a joint focus of attention (e.g., a picture). Second, statements and yes-no questions which functioned as demands for clarification or confirmation, were coded for the communicative intent they attempted to clarify or to confirm, rather than as questions. Thus, if a child brushed a proffered toy aside, and the mother asked 'No?' to confirm that the child refused the offer, 'No' was coded as a refusal. This procedure is justified on the grounds that to understand a request for confirmation is to know that it is an expression of the child's presumed communicative intent. Inferences of the communicative intent of maternal utterances were made on the basis of the mothers' own descriptions of their intentions in uttering the utterances.

Table 1
One-word utterances by eight mothers of 9- to 11 months-olds, by communicative act: common nouns.

Utterance	English translation	Communicative act	Mothers
Buba	Doll	Discuss joint focus attention = doll	(1,4,6)
Ayin	Eye	Discuss joint focus attention = eye	(4)
Ha-enayim	The eyes	Discuss joint focus attention = eyes	(1)
Sefer	Book	Discuss joint focus attention = book	(1)
Tzipor	Bird	Discuss joint focus attention = picture of bird	(8)
Tziporim	Birds	Discuss joint focus attention = birds	(2)
Matzlema	Camera	Discuss joint focus attention = camera	(2)
Zvuv	Fly	Discuss joint focus attention = fly	(2)
Xashmal	Electricity	Discuss joint focus attention = electrical cord	(2)
Paamon	Bell	Discuss joint focus attention = bell	(3,4)
Even	Stone	Discuss joint focus attention = stone	(4)
Regel	Leg	Discuss joint focus attention = leg	(4)
Or	Light	Discuss joint focus attention = light fixture	(4,5)
Migdal	Tower	Discuss joint focus attention = tower	(4)
Xol	Sand	Discuss joint focus attention = sand	(5)
Tzaftzefa	Whistle	Discuss joint focus attention = whistle	(5)
Tarnegol	Rooster	Discuss joint focus attention = picture of rooster	(6)
Arnav	Rabbit	Discuss joint focus attention = picture of rabbit	(6)
Arnevet	Rabbit	Discuss joint focus attention = picture of rabbit	(8)
Etzim	Trees	Discuss joint focus attention = trees	(6)
Doda	Woman	Discuss joint focus attention = woman	(6)
Lego	Lego	Discuss joint focus attention = lego	(7)
Barbur	Swan	Discuss joint focus attention = picture of swan	(7)
Dani	Buttermilk	Discuss joint focus attention = buttermilk	(7)
Hadelet	The door	Discuss joint focus attention = door	(8)
Syax	Foal	Discuss joint focus attention = picture of foal	(8)
Kelev	Dog	Discuss joint focus attention = picture of dog	(8)
Xatul	Cat	Discuss joint focus attention = picture of cat	(8)
Hanarkis	The narcissus	Discuss joint focus attention = narcissus	(6)
Yeled	Child	Call hearer's = Assa's attention to speaker	(7)
Balon	Balloon	Direct hearer's attention to objects = balloon	(5)
Naalayim	Shoes	Ask for help = request to be given shoes	(1)
Bapartzuf	In the face	Answer question about location = of hurt	(5)

5. Results

Tables 1–4 present all one-word utterances produced by 8 mothers in the 30-minute observational periods. An English translation is provided in the tables, which, because of differences of morphology and semantics between Hebrew and English, is sometimes more than one word long. Some morphological characteristics of the Hebrew word which are not given by the English equivalent are provided in parentheses, e.g., that a particular verb is in the imperative.

Communicative intent is given in as much specific detail as space permits. The general terms appearing in the type definitions such as 'joint focus of attention', 'object', 'hearer', 'action', and the like are in most cases followed by equal-signs (=) introducing the specific objects, actions, etc., talked about. Tables 1–4 also present the identification number of the mothers who uttered the relevant word with the specific communicative intent at least once.

As tables 1–4 demonstrate, there was a considerable overlap between the one-word lexicons of the different mothers of this sample. Excluding proper names, 55 of the 125 different word types comprising the combined corpus were uttered by more than one mother. Even more impressively, the communicative use to which the same words were put by different mothers was almost perfectly identical. By any criterion, mothers' one-word utterances comprise a specific linguistic subsystem shared by this linguistic community. The immediate consequence of this finding is that it is possible to consider utterances made by different mothers as random samples from the same dialect, that is, to pool the eight separate corpora for further analysis.

Single-word utterances showed a high degree of function-specificity. Table 5

Table 2
One-word utterances by eight mothers of 9- to 11-months olds, by communicative act: proper nouns.

Utterance	English translation	Communicative act	Mothers
Yael	Yael	Call hearer's = Yael's attention to speaker	(1)
Carmeli	Carmeli	Call hearer's = Carmeli's attention to speaker	(2)
Pitzik	Pitzik	Call hearer's = Pitzik's attention to speaker	(3)
Arieli	Arieli	1. Call hearer's = Arieli's attention to speaker	(5)
		2. Forbid ongoing activity of hearer's = Arieli's	(5)
Renana	Renana	1. Forbid ongoing activity of hearer's = Renana's	(6)
		2. Call hearer's = Renana's attention to speaker	(6)
Assa	Assa	1. Call hearer's = Assa's attention to speaker	(7)
		2. Forbid ongoing activity of hearer's = Assa's	(7)
Tali	Tali	1. Call hearer's = Tali's attention to speaker	(8)
		2. Discuss joint focus of attention = picture of Tali	(8)

Table 3
One-word utterances by eight mothers of 9- to 11-months olds, by communicative act: verbs.

Utterance	English translation	Communicative act		Mothers
Lashevet	To sit down	Request/ propose to hearer to act	= sit down.	(1)
Sev/tisvi [a]	Sit down (imp.)	Request propose to hearer to act	= sit down.	(7,8)
Medabrim	Talk (subject-less pl.)	Request/ propose to hearer to act	= talk on phone	(1)
Kax/kxi [a]	Take (imp.)	Request/ propose to hearer to act	= take object = spoon, doll, etc.	(1,2,3,4,5,6,7)
Taxnis/ Taxnisi [a]	Put in (imp.)	Request/ propose to hearer to act	= put object (= keys, etc.) into container (= bowl)	(3,4)
Timsor	Hand over (imp.)	Request/ propose to hearer to act	= hand ball over to speaker	(4)
Totzi	Take out (imp.)	Request/ propose to hearer to act	= take ball out of his mouth	(4)
Tirkod	Dance (imp.)	Request/ propose to hearer to act	= dance	(4)
Kum	Get up (imp.)	Request/ propose to hearer to act	= get up	(4)
Lex	Go (imp.)	Request/ propose to hearer to act	= go to destination = to a ball, a balloon	(4,5)
Tizrok	Throw (imp.)	Request/ propose to hearer to act	= throw ball to speaker	(4)
Tegalgel	Roll (imp.)	Request/ propose to hearer to act	= roll ball to speaker	(4)
Tefarek	Take apart (imp.)	Request/ propose to hearer to act	= take apart a tower	(4)
Tesader	Put in order (imp.)	Request/ propose to hearer to act	= put toys in order	(4)
Tova	Nice (i.e., 'make nice')	Request/ propose to hearer to act	= stroke doll	(4,6)

Taase	Do (imp.)	Request/ propose to hearer to act	= make bowel movement, put on record	(5,7)
Tiskav	Lay down (imp.)	Request/ propose to hearer to act	= lay down	(5)
Tanuax	Rest (imp.)	Request/ propose to hearer to act	= take a rest	(5)
Toxli	Eat (imp.)	Request/ propose to hearer to act	= eat	(6)
Tarixi	Smell (imp.)	Request/ propose to hearer to act	= smell a flower	(6)
Titami	Taste (imp.)	Request/ propose to hearer to act	= taste a flower	(6)
Sim/tasim [b]	Put (imp.)	Request/ propose to hearer to act	= put object = record, bowl, on = record-player, table	(7)
Take	Hit (imp.)	Request/ propose to hearer to act	= hit with object on table	(7)
Tagid	Say (imp.)	Request/ propose to hearer to act	= say previously modeled word	(7)
Amod	Stand up (imp.)	Request/ propose to hearer to act	= stand up	(7)
Tire/tiri [a]	Look (imp.)	Direct hearer's attention to objects = ball, bird, etc.		(2,4,6)
Tistakel/ tistakli [a]	Look (imp.)	Direct hearer's attention to objects = clowns, mothers face etc.		(6,7)
Bo/boy [a]	Come (imp.)	1. Request/ propose to hearer to act = come to speaker		(1,2,3,4,5,6,7,8)
	Come on (imp.)	2. Request/ propose to hearer to start acting = eat, lay down for diapering, etc.		(1,5,6,7)
	Let's (imp.)	3. Request/ propose to set up a new activity = eat, play ball, etc.		(1,2,3,4,5,6,7,8)

Table 3 (continued)

Utterance	English translation	Communicative act		Mothers
Noxal	(We) shall eat	Request/ propose to set up a new activity = eating		(1)
Lalexet	To walk	Request/ propose to set up a new activity = walking		(5)
Letayel	To stroll	Request/ propose to set up a new activity = walking		(6)
Nadned	Swing (imp.)	1. Request/ propose to set up a new activity = swinging		(1,2)
Rotze	Want	2. Perform verbal move in activity = swinging		(1)
		Request/ propose to continue activity = peak-a-boo		(5)
Tizaher/ tizahari [a]	Be careful	Warn hearer of danger = sharp edge: table top		(3,7)
Mistovev	Is spinning	Discuss joint focus of attention = a spinning record, tape		(2,7)
Nafalt	(You) fell down	Discuss recent event	= hearer fell down	(1)
Nafal	(It) fell down	Discuss recent event	= object = spoon, tower, etc. fell down	(2,3,7,8)
Nixnas	Got in	Discuss recent event	= ball got put into container	(4)
Hitpotzetz	Blew up	Discuss recent event	= balloon blew up	(5)
Hitzlaxnu	(We) succeeded	Discuss recent event	= successfully fitting forms	(2)
Barxu	(They) run away	Discuss recent event	= birds have run away	(2)
Afu	(They) have flown	Discuss recent event	= birds have flown away	(2)

[a] Masculine and feminine forms of the same imperative, varying according to the sex of the addressee.
[b] Alternative imperative forms.

Table 4
One-word utterances by eight mothers of 9 to 11-months olds, by communicative act: other word classes.

Utterance	English translation	Communicative act	Mothers
Shalom	Hi	Greet hearer on meeting	(6,8)
Ahalan	Hi	Great hearer on meeting	(1)
Toda	Thanks	Thank hearer for handing over object = cookies, etc.	(4,5,6)
Labriut	Bless you	1. Bless hearer on sneezing	(6)
		2. Bless hearer on burping	(8)
Motek	Sweety	Commiserate with hearer on her getting angry	(3)
Od	More	Request/	
		propose to hearer to continue activity = peak-a-boo, etc.	(4,5,6)
Rega	A minute	Request/	
		propose to hearer to pause in action	(2,3,6,7)
Kaxa	Like this	Request/	
		propose to hearer to act = walk, put on record, as demonstrated	(3,5,7)
Levad	Alone	Request/	
		propose to hearer to act = walk by herself	(3)
Xazak	Strongly	Request/	
		propose to hearer to act = throw stone strongly	(6)
Lo	No	1. Refuse to act as requested = to look, etc.	(6,8)
		2. Forbid ongoing activity = climbing stairs, etc. of hearer	(1,3,5,6,7)
Asur	Forbidden	Forbid ongoing activity = touch the camera, of hearer	(5)
Beemet	Really	Express disapproval of hearer's action = spit food	(1)
Bifnim	Inside	Discuss recent event = form got put in formball	(2)
Taim	Tasty	Discuss speaker's unobservable feelings = object is tasty	(5,7)
Nehedar	Wonderful	Discuss speaker's unobservable feelings = object is tasty	(7)
Meanyen	Interesting	Discuss speaker's unobservable feelings = view is interesting	(2)
Tzmea	Thirsty	Discuss speaker's unobservable feelings = thirst	(6)
Ketanchik	Tiny	Discuss joint focus of attention = a tiny fly	(2)
Xamud	Sweet	Discuss joint focus of attention = picture of baby	(8)
Eyn	There's none	1. Discuss joint focus of attention = nonexistence of	
		object = balloon, buttermilk in its place	(2,4,7,8)

Table 4 (continued)

Utterance	English translation	Communicative act	Mothers
		2. Answer in the negative a yes/no question = Is there any there?	(2)
Zehu	That's it	Mark completion of action = playing with used napkins, etc.	(1,7,8)
Maspik	Enough	1. Mark completion of action = drinking, etc.	(1,5)
		2. Request/	
		propose to end activity = eating	(7)
Okay	Okay	Mark completion of action = diapering, etc.	(3,7)
Nigmar	Ended	Mark completion of action = eating bowl of buttermilk	(7)
Day	All done	1. Mark completion of action = music playing, etc.	(4,7)
	Enough	2. Request/	
		propose to end an activity = searching for ball etc.	(4,5)
Ken	Yes	1. Mark completion of action = put bib on child	(1)
		2. Demonstrate attentiveness to hearer	(1,2,7,8)
		3. Answer call	(7)
		4. Answer in the affirmative a yes/no question	(1,2,5,7)
		5. Express approval of hearer's behavior = came to mother, etc.	(1,5,7)
		6. Praise hearer's performance of motor act = pulling string etc. as correct	(2,5,6,7)
		7. Agree with hearer's previously uttered assertion	(1,3,4,7,8)
		8. Permit hearer to carry out act = roll ball	(4)
Yoffi	Nice	1. Express approval of hearer's behavior = sat down, etc.	(1,7,8)
		2. Praise hearer's performance of motor act as correct	(1,2,3,4,5,6,7,8)
Naxon	True	1. Praise hearer's performance of motor act as correct	(3)
		2. Agree with hearer's previously uttered assertion	(6,7,8)
		3. Demonstrate attentiveness to hearer	(1,7)
Yalla	Come on	Request/	
		propose to hearer to start acting = take a walk	(2)
Nu	Come on	1. Request/	
		propose to hearer to start acting = eat, etc.	(1,2)
		2. Request/	
		propose to hearer to continue activity = give and take	(3,5)

Hallo	Hallo	1. Request/ propose to hearer to start acting = eat, etc.	(1,7)
		2. Greet hearer on meeting	(8)
		3. Perform verbal move in pretend-telephone game	(1)
Kuku	Peak-a-boo	Perform verbal move in peak-a-boo	(1,2,3,5,6,7,8)
Meximexi	Pat-a-cake	Perform verbal move in clapping game	(1)
Efo?	Where?	Ask about location of object, etc.	(5,7)
Hine	Here	1. Answer question about location of object = ball, etc.	(4,5,6,8)
		2. Direct hearer's attention to an object = doll, etc.	(6,7,8)
		3. Mark transfer of object to hearer = balloon, etc.	(2,3,5,7,8)
		4. Mark completion of action = diapering, etc.	(4,5,7)
Hena	Here	Request/propose to come to speaker	(8)
Kan	Here	Request/ propose to place object at certain location	(7)
Po	Here	1. Request/ propose to place object at certain location	(2,7)
		2. Direct hearer's attention to a location	(2)
Lepo	Here	Answer question about location (direction)	(7)
Ma?	What?	1. Respond to calls	(1)
		2. Ask a clarification question about hearer's previous utterance	(1,2,3,5,7,8)
		3. Ask a clarification question about hearer's previous nonverbal communication	(1,3,6,7,8)
Tov	Good	1. Discuss speaker's unobservable feelings = satisfaction	(5,6)
		2. Praise hearer's performance of motor act as correct	(7)
		3. Permit hearer to carry out act = return photo album to shelf	(8)
Betax	Sure	Agree to carry out act = put on record	(7)
Mi?	Who?	1. Express endearment	(7)
		2. Express disapproval of hearer's action = throwing record	(7)
Lean?	Where to?	Express dissaproval of hearer's action = going away	(7)
Nudnik	Nudnik	Express dissaproval of hearer's action = grabbing food	(7)
Shovava	Naughty	Express dissaproval of hearer's action = going away	(8)
Exad	One	1. Give marching orders	(3)
		2. Discuss joint focus of attention = count objects	(7)
Shnayim	Two	Discuss joint focus of attention = count objects	(7)
Shalosh	Three	Discuss joint focus of attention = count objects	(7)

Table 5
Number of different communicative acts performed in uttering a word, by word-class.

Word-class	Total number of different words	Number of different communicative acts				
		1	2	3	4	8
Common nouns	33	33	0	0	0	0
Proper nouns	7	3	4	0	0	0
Verbs	42	40	1	1	0	0
Others	50	34	10	4	1	1
Total	132	110	15	5	1	1
%		83.3	11.4	3.8	0.7	0.7

presents the number of different communicative acts performed in uttering different words, for words belonging to various word-classes.

Common nouns and verbs were invariably uni-functional, whereas words classified as 'others', consisting of adjectives, adverbs, and members of the grammatical 'closed class', were to a greater extent multi-functional.

There were interesting regularities of use within different word-classes. Common nouns were invariably used for discussing an object or picture under current focus of attention. Only in a small minority of cases was the noun used to direct the hearer's action or attention.

By contrast, verbs were in the majority of cases used as requests to carry out some action or to set up a new activity. Not only were descriptive uses of verbs uncommon, but no action of a human agent was ever described by a verb, although, as we saw, most verbs requested such an action. Descriptive uses of verbs were restricted to noting perceptually very salient transformations in the state of objects, such as a tower having collapsed, a spoon having fallen to the floor, a balloon having blown up, and so forth.

Proper nouns were almost never used for descriptions, either. They served to call the hearer's attention, either simply to resume focused interaction or, when uttered in an emphatic manner, to get the hearer to stop some objectionable action.

Very few adjectives appear in the corpora, and where used, they are always used descriptively. The rarity of adjectives replicates a previous finding (Ninio (1980)) that mothers avoid ostensive naming of attributes.

Words falling into other word-classes than the above were in all cases specific forms for the performance of specific communicative acts. For instance, there were words for greeting, thanking, blessing on sneezing, marking transfer of objects, performing verbal moves in games, marking completion of actions, and the like. There were special forms for special cases of requesting actions: forms for requesting continuation of an activity, for starting to carry out actions, for ending or stopping activities, and so forth.

Several words are multi-functional rather than unifunctional, e.g., *bo* 'come',

hine 'here' or *ken* 'yes'. In most cases there is a shared functional core in the different meanings of these words. For example, *bo* 'come' in all its usages shares the core 'request for hearer to join speaker in interaction'; *ken* 'yes' gives a positive evaluation of motor acts, behaviors, utterances' truth; *hine* 'here' in all its different functions contains an attention-directing request; *lo* 'no' serves as a negative commitment in refusals and prohibitions. In none of the cases of multiple function is there any evidence of a wide-range, function-independent usage.

6. Discussion

The results of the functional analysis of one-word utterances in speech addressed to infants showed conclusively that the meaning of words used in this subsystem of input language cannot be described except in terms of the (usually single) communicative act which is performed by uttering the words.

If our analysis of the acquisition of word meanings is correct, and single-word utterances provide the major source of input for the initial learning of word meanings, it follows that the meaning of words first acquired by young children is that of the complete communicative act which can be carried out in uttering the words.

If indeed early word meanings have the characteristics of rules for speaking out in specific communicative situations, it is expected that children's early production of words will demonstrate this. Actually, there is suggestive evidence (cf. Bates, Camaioni and Volterra (1975), Benedict (1979), Bruner (1975), Greenfield and Smith (1976), Halliday (1975), Ninio and Snow (in preparation), Shvachkin (1973)) that children's early one-word productions are function-specific. Definitive evidence is hard to come by, since most published corpora of child language are neither analyzed for pragmatic function nor contain sufficient contextual information for such an analysis to be carried out.

Closer examination of the meanings of one-word utterances in the input should reveal something about the processes by which such meanings are acquired. The basic fact seems to be that one-word utterances are lexical realizations of complex communicative acts. The meaning of a word is the specification of the communicative situation in which the word might be felicitously uttered.

It is evident that the learning of the communicative specifications of the words which appeared in the speech of the present sample of mothers requires not only the correct interpretation of the communicative act performed by the utterances in the specific occasion they were uttered, but also a process of abstraction by which the lexical item is attached to the relevant meaning-elements of the communicative situation. Thus, *od* 'more' is used to request or

propose the continuation of a recursive activity when a cycle of it is completed. In the present sample it was used in the context of, e.g., a game of peek-a-boo, putting small objects into a container, and drinking orange-juice. Obviously the specific identity of the activity to be continued is irrelevant to the correct use of 'more'. By contrast, *kax* 'take' is used to request only the action of taking an object; here, the word should be used only for requesting that action and no other. On the other hand, 'take' is used for requesting the taking of many different objects, e.g., a spoon, a ball, a balloon, etc. The identity of the object is irrelevant for the correct use of the word. In general, different words selectively disregard different aspects of the total communicative situation and selectively encode others.

The cognitive task involved in identifying the correct rule of abstraction for each different word would probably be beyond young children's capacities, if not for a clear correlation between the kind of communicative act performed and the kind of abstraction involved. E.g., in discussions of a *static* joint focus of attention, the element encoded is invariably the object attended to, not its attributes or state. In *dynamic* events attended to and discussed, the element encoded is the perceptually salient transformation by an object or person, as in 'fell down', 'blew up' or 'spinning'. In requests for *new* acts or the setting up of *new* activities, the element encoded is the act or the activity, not the objects on which the action is performed. In marking the *completion* of an action or an activity, its identity is not encoded, only the fact of its completion. Since there are fewer different communicative acts than words, and since the communicative act is what gets interpreted in the first place, this kind of lawfulness is not only helpful in reducing the cognitive load, but makes possible the eventual productivity of the system.

The abstracting process, together with the initial interpretation of the communicative act performed in uttering the utterance, are the error-prone components of the learning procedure. It is expected that children will some of the time misinterpret the communicative intent of an utterance. Anecdotal evidence abounds in the literature: for instance, Ferrier (1978) reported that her daughter misinterpreted 'Phew', uttered every morning on the mother's entering her room as an evaluative comment on the odor of her diapers, as a greeting. Children have also been reported to mis-identify the meaning-elements encoded by a word, or to demonstrate that they assume that several different elements of the same situation can be, e.g., discussed by the same word (see Bowerman (1978) for examples).

Although errors of interpretation and abstraction provide important information about the acquisition process, correct utterances are even more informative. It is possible to test the hypothesis that children produce one-word utterances from a pragmatic deep structure by predicting that they follow the lexicalization rules modeled in the input. That is, when the communicative intent of a child's utterance is clear from the context, the words actually

uttered should be predictable on the basis of the one-word lexicalization rule for the same communicative act in the input language.

The concept of early word meanings as rules for the lexicalization of communicative acts is in conflict with the often-heard claim that early meanings are, by and large, internal representations of the objects, actions, and events which the words refer to (cf. Schlesinger (1982:110)). By our analysis, the insight that words can be used flexibly for the expression of many different communicative needs is a later development, probably arising from the segmentation of multi-word utterances in the input and the realization that words can be used meaningfully as components of utterances rather than complete utterances by themselves. Although we are accustomed of thinking of word meaning in the combinatory sense, it is important to remember that the communicative-rule kind of word meaning is a legitimate part of the full-blown adult linguistic system as well. It can be claimed that one kind of entry in the internal lexicon is the specification of the communicative situations in which the relevant word may be used as a one-word utterance. Moreover, for some words that is the only kind of entry there is in the lexicon, e.g., for 'yes' or 'hello'. In any case, the one-word input does not offer any evidence for function-independent meaning of words, except maybe in the case of common nouns. The first semantic system which is learnable is clearly function-specific.

References

Bates, E., 1976. Language and context. New York: Academic Press.

Bates, E., L. Camaioni and V. Volterra, 1975. The acquisition of performatives prior to speech. Merrill-Palmer Quarterly 21: 205–226.

Benedict, H., 1978. 'Language comprehension in 9–15 month old infants'. In: R. Campbell and P.T. Smith, eds., Recent advances in the psychology of language, Vol. 4a. New York: Plenum. pp. 57–69.

Benedict, H., 1979. Early lexical development: comprehension and production. Journal of Child Language 6: 183–200.

Bloom, L., 1973. One word at a time. The Hague: Mouton.

Bloom, L. and M. Lahey, 1978. Language development and language disorders. New York: Wiley.

Bowerman, M., 1976. 'Semantic factors in the acquisition of rules for word use and sentence construction'. In: D. Morehead and A. Morehead, eds., Normal and deficient child language. Baltimore, MD: University Park Press. pp. 99–179.

Bowerman, M., 1978. 'The acquisition of word meaning: an investigation into some current conflicts'. In: N. Waterson and C. Snow, eds., 1978: pp. 263–287.

Braine, M.D.S., 1974. Children's first word combinations. Monographs of the Society for Research in Child Development 41.

Broen, P.A., 1972. The verbal environment of language-learning children. American Speech and Hearing Association Monograph 17.

Bruner, J., 1975. The ontogenesis of speech acts. Journal of Child Language 2: 1–19.

De Laguna, G., 1927. Speech: its function and development. New Haven, CT: Yale University Press.

Dore, J., 1975. Holophrases, speech acts and language universals. Journal of Child Language 2: 21–40.
Drach, K., 1969. The language of the parent: a pilot study. Working Paper 14, Language Behavior Research Laboratory, Berkeley, CA: University of California.
Ferrier, L., 1978. 'Some observations of error in context'. In: N. Waterson and C. Snow, eds., 1978: pp. 301–309.
Garnica, O., 1977. 'Some prosodic and paralinguistic features of speech directed to young children'. In: C. Snow and C. Ferguson, eds., Talking to children: language input and acquisition. Cambridge: Cambridge University Press. pp. 63–88.
Gleitman, L. and E. Wanner, 1982. Language acquisition: the state of the state of the art. In: E. Wanner and L. Gleitman, eds., Language acquisition: the state of the art. Cambridge: Cambridge University Press. pp. 3–48.
Greenfield, P. and J. Smith, 1976. The structure of communication in early language development. New York: Academic Press.
Grice, H.P., 1957. Meaning. Philosophical Review 66: 377–388.
Halliday, M., 1975. Learning how to mean: explorations in the development of language. London: Edward Arnold.
Holdcroft, D., 1968. 'Meaning and illocutionary acts'. In: G. Parkinson, ed., The theory of meaning. Oxford: Oxford University Press. pp. 166–181.
Huttenlocher, J., 1974. 'The origins of language comprehension'. In: R.L. Solso, ed., Theories in cognitive psychology. Hillsdale, NJ: Erlbaum. pp. 331–368.
Ninio, A., 1980. Ostensive definition in vocabulary teaching. Journal of Child Language 7: 563–573.
Ninio, A. and C. Snow, in preparation. Language acquisition through language use: the functional sources of children's early utterances.
Ninio, A. and P. Wheeler, 1982. A coding system for classifying verbal communicative acts in mother-infant interaction. Unpublished paper. The Hebrew University of Jerusalem.
Ninio, A. and P. Wheeler, 1983. 'Functions of speech in mother–infant interaction'. In: L. Feagans, C. Garvey and R. Golinkoff, eds., The development of communicative competence. Norwood, NJ: Ablex. pp. 196–207.
Remick, H., 1976. 'Maternal speech to children during language acquisition'. In: W. von Raffler-Engel and Y. Lebrun, eds., Baby talk and infant speech. Lisse: Swets and Zeitlinger. pp. 223–233.
Schlesinger, I.M., 1982. Steps to language. Hillsdale, NJ: Erlbaum.
Shvachkin, N., (1973). 'The development of phonemic speech perception in early childhood'. In: C. Ferguson and D.I. Slobin, eds., Studies of child language development. New York: Holt, Rinehart, and Winston. pp. 91–127.
Snow, C., C. Dubber and A. DeBlauw, 1981. 'Routines in parent-child interaction'. In: L. Feagans and D. Farran, eds., The language of children reared in poverty: implications for evaluation and intervention. New York: Academic Press.
Trevarthen, C., 1977. 'Descriptive analyses of infant communicative behaviour'. In: H.R. Schaffer, ed., Studies in mother–infant interaction. London: Academic Press. pp. 227–270.
Waterson, N. and C. Snow, eds., 1978. The development of communication. Cambridge: Cambridge University Press.

Appendix

Coding categories of communicative acts actually occurring in the analyzed corpora

(A) *Management of transition between separation and co-presence*
Greet hearer on meeting.

(B) *Establishing mutual attentiveness and proximity*
Call hearer's attention to speaker.
Answer a call.
Demonstrate attentiveness to hearer (in absence of previous bid for attention.)

(C) *Management of joint attention*
Direct hearer's attention to objects, persons, and locations.
Ask to be directed to the location of objects.
Answer a question about the location of objects.
Discuss a joint focus of attention.
Answer in the affirmative a yes/no question about a joint focus of attention.
Answer in the negative a yes/no question about a joint focus of attention.
Agree with hearer's previously uttered assertion.
Mark the transfer of objects to hearer.
Mark the completion of an act or an activity.
Discuss an immediately recent event.

(D) *Holding conversations on topics other than under joint focus of attention*
Discuss speaker's and hearer's unobservable thoughts and feelings.
Express love (endearment).
Commiserate with hearer.

(E) *The management and verbal performance of joint activities*
Request/propose to set up a new joint activity.
Request/propose to hearer to start acting in a new activity.
Request/propose to continue an activity.
Perform a verbal move in a game.
Request/propose to end an activity.

(F) *Regulating the hearer's and speaker's actions*
Request/propose to hearer to perform an act.
Ask for help: request hearer to perform an act for speaker's sake.
Agree to perform an act as directed.
Refuse to perform an act as directed.
Permit hearer to perform an act.
Give marching orders (e.g., request to walk according to timing).
Request/propose that hearer pause in his/her action.
Forbid ongoing activity of hearer's.
Warn hearer of danger.

(G) *Evaluating the hearer's actions*
Praise hearer's performance of motor act as correct.
Express approval of hearer's action as appropriate.
Express disapproval of hearer's action as inappropriate.

(H) *Marking the occurrence of special events according to politeness rules*
Thanking hearer (for handing over an object).
Blessing hearer on sneezing.
Blessing hearer on burping.

(I) *Metacommunication: demanding clarification or confirmation of hearer's meaning*
Ask a clarification question about hearer's previous verbal communication.
Ask a clarification question about hearer's nonverbal communication.