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On the fringes of the system: children's acquisition of syntactically isolated forms at the onset of speech*

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ABSTRACT

Analysis of the utterances of 16 beginning speakers revealed that the great majority of linguistic forms they had acquired consisted of forms lacking syntactic combinatorial properties in adult language. The results support the hypothesis that young children are unable to learn linguistic signs which are integrated into the linguistic system by a complex network of interrelationships. Rather, they are limited to such forms which are sustained by their own individual and discrete 'language games', such as interjections, vocatives, moves in rituals and in games, as well as unmarked general forms for the expression of specific communicative intents. This restriction is attributable to the nature of the learning task facing a beginner attempting to master a complex system, rather than to the characteristics of the learners themselves. Thus, it is unnecessary to search for an explanation for the character of early utterances in terms of some prior limitations of young children, such as lack of object concepts, lack of internal representation and the like.

INTRODUCTION

Given the cognitivist Zeitgeist of the last twenty years, it is not surprising that most theories attempting to account for children's initial language are couched in terms of young children's putative cognitive or

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conceptual limitations. The earliest recognizable and interpretable speech uses appear between 0;9 and 1;1 in most children; according to the Piagetian theory, at this age children are in the sensori-motor stage of their cognitive development, whose major characteristics are the absence of stable object concepts and an inability to represent reality in symbolic terms. The limitations of sensori-motor intelligence appear to explain well various phenomena associated with early speech such as the almost complete absence of object names from the first set of words acquired, or the preponderance of non-referential, playful or ritual speech uses (Harrison 1972, Corrigan 1978, Bates 1979, Lock 1980, McCune-Nicolich 1981, Dore 1985, Nelson 1985, Nelson & Lucariello 1985, Barrett 1986, Lucariello, Kyratzis & Engel 1986, Harris, Barrett, Jones & Brookes 1988).

However, theories built on the assumption that children at the onset of speech possess these cognitive or representational limitations are not fully successful in accounting for early speech phenomena. In the version closest to the Piagetian model, Bates claimed that the earliest words are used as procedures, or portions of complex action schemes, and that they accompany some routine action of the child (1979: 156-157). However, in her longitudinal study of 25 children between 9 and 13 months, there are a considerable number of speech uses documented, among them some of the earliest exemplars for individual subjects, that do not appear to fit this description, such as lamenting; expressing anger; requesting; refusing; commenting on novel things and so forth. In none of these cases is it possible to identify a complex action scheme which these behaviours were components of, nor a specific act of the child's which they invariably accompanied. These speech uses can be said to be actions only in the sense that all speech is action, and they do not seem to reflect a cognitive apparatus that is restricted to sensori-motor manipulation of concrete objects.

Another proposal has been made by Nelson (1983,1985, Nelson & Lucariello 1985), according to which children by the onset of speech do possess some internal representations of reality, but these consist of holistic representations of events in which actors, objects and actions are not yet differentiated. Thus, the earliest words are claimed to be holistic labels for undifferentiated event representations, acquired as inseparable parts of those events.

However, even the very earliest type of utterances such as *bye-bye* and *ta* (Greenfield & Smith's 'pure performatives', 1976), show no evidence of being embedded in unanalysed complete situations. From the very beginning, *bye-bye* is said to different persons in different physical circumstances, the communality being that these are persons

about to leave; and *ta* is said to mark the transfer of objects from hand to hand, involving different objects, persons and settings (Bates, Camaioni & Volterra 1975, Bruner 1975, Greenfield & Smith 1976, Lock, 1980, Barrett 1986). Apparently, children are able to isolate the relevant, invariant, feature of a series of situations that constitutes an utterance's condition of use, out of the totality of the event. Were events represented as unanalysable wholes, such abstractions would be impossible. The question why the abstracted-out component of events tends not to be the specific objects or actions involved, is a separate problem that cannot be solved by appealing to a general incapacity of young children to represent situations except in a holistic manner.

Barrett (1986, 1989) and Harris *et al.* (1988; and see also Harrison 1972, Lock 1980, McCune-Nicolich 1981) have made yet a third suggestion along Piagetian lines. In this version, early utterances are claimed to have the characteristics of sensori-motor action schemata or conditioned responses, triggered or elicited by specific configurations of extemal stimuli consisting of physical objects, settings and overt behaviours. Concepts underlying speech are thus thought to consist of representations of the stimulus conditions in which an utterance is to be emitted. Apart from the general question whether any early utterance is a behavioural reaction to external stimulus conditions, this theory fails to account for such obviously internally-driven early speech acts as requests, refusals, expressive exclamations or answers to questions, all well documented in the first period of speech use. (For a more detailed discussion of this theory see Ninio 1993).

In the present paper, a different type of explanation is proposed for the various characteristics of early speech. Rather than focusing on the learners and their cognitive or other capacities, this analysis starts off with an examination of the nature of linguistic signs, and attempts to identify a subcategory of such signs which may be accessible to a beginning learner. It is then proposed that the earliest speech uses of young children indeed consist of signs belonging to this category.

This shift in strategy is motivated not merely by the relative lack of success of cognitively-oriented models to account for the phenomena of early speech, but also by the need to respond to the growing dissatisfaction, among developmental psychologists, with the Piagetian characterization of young children's cognitive abilities (cf. Mussen, Conger, Kagan & Huston 1990). In particular, recent work has demonstrated that, considerably earlier than Piaget supposed, infants do have stable object concepts and can represent their experiences internally (Kellman & Spelke 1983, Hood & Willatts 1986, Baillargeon 1987, Harris 1989). If these revisionist claims are correct, it is

necessary to look for a new kind of explanation for the pattern of speech uses observed in beginning speakers.

Ever since Saussure (1922/1983) and Wittgenstein (1953, 1969, 1974), it has been generally acknowledged that the central characteristics of language is that it is a *system*. *The Concise Oxford Dictionary* (Fowler & Fowler 1964) defines 'system' as a 'complex whole, set of connected things or parts, organized material or immaterial things'. Wittgenstein, the philosopher, emphasized in his writings the existence of a 'complex whole' within which individual elements (i.e., particular words or sentences) are meaningful. Language, he pointed out, is similar to a game such as chess, where the existence of the complete game with its set of rules and options is what gives significance to individual moves or pieces. Saussure, the linguist, emphasized the types of connections existing among linguistic units, the interrelations that turn language into a system. He identified two kinds of relations: the associative one among words, namely, their property of belonging to semantic fields; and the syntagmatic one among units that systematically combine into longer structures. The meaning or value of linguistic signs, according to Saussure, is to be defined on the basis of their semantic contrast with other units and their potential to enter into syntagmatic relations with other elements.[1]

It is immediately obvious that it is logically impossible for children at the onset of language acquisition to acquire linguistic signs of such system-bound nature. A child cannot be expected to acquire signs whose meaning or value is defined by their relation to other signs which the child has not learned yet. There are no relations *in vacuo;* it is impossible to learn connections between elements before the elements themselves are mastered. In other words, children cannot learn signs whose meaning is determined by either semantic or syntagmatic relational properties.

From what is impossible for young children to learn, one may deduce the characteristics that linguistic signs must possess in order that they be within a beginner's capacity to learn. These signs must be meaningful on their own terms, rather than by contrast and difference; they must be discrete rather than part of a system; they must be inherently intransitive rather than relational; isolated rather than connected; independent and unrelated rather than part of dependency relations; self-sufficient rather than embedded in a larger unit. They

[1] As Harris (1988) pointed out, both authors employed the game metaphor for language and both wrote about the role of contrast and combinatorial properties in defining meaning in the linguistic system. The difference is only of emphasis.

should not belong to any set, class, network, field or hierarchy, nor constitute one of a set of alternatives. Above all, their significance should be given by an individual 'language game' of their own rather than by the 'total language game' which is the whole of language.

It is the hypothesis of this study, then, that children's earliest meaningful speech uses will have the characteristics of discrete and self-contained linguistic signs, whose meaningfulness is not given by their belonging to language, but rather by the signs being embedded in individual, complete 'language games' of their own.

More specifically, it is predicted that if there are in (endstate) language forms which are ill-integrated into the rest of the system, e.g., if they cannot be combined syntactically with other units, or do not belong to semantic fields, these linguistic signs will be among the first to be acquired. The fact that they cannot enter into relations and thus do not possess relational meaning demonstrates, even without further detailed analysis, that their significance must be sustained by a specific, discrete 'language game' of their own. According to our hypothesis, that is a necessary, even if not sufficient, condition for beginning speakers' acquiring these forms as meaningful linguistic signs.

The first candidates for acquisition, then, are individual linguistic signs that do not combine syntactically with other words within larger units. Linguistic signs suffering from such 'syntagmatic isolation' are, according to textbooks of grammar, interjections and vocatives. Interjections are exclamations or ejaculations of various kinds such as *hurray!, oy!, ah!* and the like, mostly expressive in nature. Vocatives are forms used for calling or getting the attention of a person, consisting either of interjection-like forms such as *hey!, there!,* or of proper names (e.g., *Johnny!).* Both types occur either as single-word utterances or else isolated in parentheses in longer sentences. To make things complicated, proper names are of course a subclass of nouns, and, in other uses, can combine syntactically with, e.g., verbs. But when they are used as vocatives, they are not integrated into a more complex syntactic unit. Thus, our hypothesis should refer to particular uses of certain linguistic signs, rather than to the signs in all their possible uses.

Another class of utterances similar in nature to interjections and vocatives are utterances forming part of social or religious rituals, such as *hi* as a salutation said on meeting, or *amen* said by the participants at the end of a verse of public prayer in church. Such forms cannot enter syntagmatic relations either (see Hudson 1990). Another type of non-combining forms are onomatopoeic, semi-conventional forms mimicking the sounds made by animals *(miau),* natural phenomena like flowing

water *(shhh)* or the wind *(hooo);* or by machines like cars, airplanes, tractors and the like (e.g., *brrr).* Although these forms can occur in sentences, they are always enclosed, as if it were, in quotation marks and do not combine syntactically with the other elements in the sentence.[2]

The last category of syntactically isolated signs are forms used as verbal moves in interactive games, for instance, *boo* said in a game of peek-a-boo. As the previous kinds, these forms cannot enter into syntagmatic relations with other linguistic signs.

Except for linguistic signs that are absolute syntagmatic nonjoiners in adult language, it is possible that other forms, which do possess relational meaning in adult language, would regardless *appear* to young children as if they were syntactically and semantically isolated, and thus be learnable by them as such. In particular, words that occur as single-word utterances in the linguistic input, namely, apparently lacking syntagmatic connections, are candidates for being acquired as if they were produced within their own discrete 'language game'. Even if adults use such utterances as elliptical or anaphoric expressions, referring back to a fuller sentence where they did combine with other elements, from the point of view of the young child who is unable to process complex expressions and may well ignore them, single-word utterances have all the characteristics of independent signs that function on their own without possessing relational meaning. Obviously, such forms must possess consistent and identifiable significance in the speech addressed to the child in order to be acquired as meaningful utterances. Less obviously, their meaning must not depend on semantic contrast, namely, on their consisting of one option out of a set of alternatives for that particular utterance. As we have seen, beginning speakers cannot be expected to learn forms whose significance depends on contrast with other forms, or on a choice among options. Nor can they be expected to acquire meanings hierarchically embedded within other meanings. These limitations rule out signs whose use on the whole depends on the linguistic sub-operation of reference, such as common nouns; as it has been pointed out (Strawson 1950, Searle

[2] An interesting apparent counter-example is provided by the English transitive verb *go* that lawfully combines with non-speech noises, as in the sentence, 'When Smith heard Johnson's explanation, he went (speaker does a raspberry).' However, it is obvious that even in this case, the sounds combining with *go* as its grammatical object are isolated by the functional equivalent of quotation marks, as there is absolutely no limitation on the sounds that can occur in these environments, and they are always taken as iconic re-presentations by the speaker of some unnameable sound (see also Hudson 1985, Jackendoff 1984).

1969), reference is not a full-blown primary speech use but a secondary procedure importing components into speech acts such as statements. Not unrelatedly, common nouns are also ruled out on the grounds that their typical role within speech acts is to point to some specific, marked alternative among a class of options connected with that act. Most other content-words, such as verbs, adjectives and adverbs are also ruled out on similar grounds.

It follows that additional good candidates for early acquisition are linguistic signs used by adults in single-word utterances that appear as general, unmarked forms for the expression of discrete social meanings, functions, or communicative intents. Examples are saying *no* when refusing a proposal; *yes,* when agreeing to one; *this* when proposing an object to act on; *here* when directing attention to a focus or when answering a *where*-question, and so forth. The individual 'language game' that gives significance to such forms is the communicative act itself; each is a self-contained, ordered social phenomenon resting on intersubjective agreement about what is happening in the interpersonal domain. Such utterances indeed occur in the speech of adults addressing young children (cf. Hart 1991, Ninio 1992), and they are expected to be among the first forms acquired.

In addition to general unmarked expressions of communicative intents, the single-word speech of adults also contains marked forms for the same kinds of meanings, namely, expressions that encode a specific rather than general case for a function, such as names for individual referents in attention directives, or for individual actions in requests and proposals (Ninio 1992). According to our analysis, beginning speakers would find these marked forms too difficult to interpret and acquire, as their meaning presupposes the existence of alternative and contrastive options for the same speech functions. Therefore, it is expected that even if a beginning speaker does acquire some expressions which in adults would be marked forms for communicative functions, these will not be used by them in a contrastive fashion. Namely, it is expected that a child will learn no more than one such expression per type of communicative intent, or at the most very few such forms, and ones that do not encode adjacent meanings and do not form semantic fields.

The theory proposed in this paper is congruent with previous findings about early speech. Bruner (1975), Greenfield & Smith (1976), Bates (1979), Nelson (1985), Camaioni & Laicardi (1985) and Barrett (1986) have pointed out that much of early speech is embedded in games, social routines, interaction formats, action schemas, events, scenarios and situations, apparently needing to be supported by, and

given significance by an interpretative framework that is complete and meaningful by itself. Halliday (1975) has pointed out that a child's initial language mainly consists of general, unmarked forms for the expression of discrete communicative functions or meanings (and see also Bloom 1973, Weisenberger 1976, Clark 1978, Greenfield & Smith 1976, Barrett 1981, Griffiths 1985). Similarly, Greenfield & Smith (1976) showed that early utterances tend to verbalize the general modality (i.e. illocutionary) element of a communicative intent, rather than the specific domain to which it applies. Benedict (1979) and Nelson (1973) found that there are few common nouns, verbs and other content words in early vocabularies. Dore (1985) pointed out that even if children do acquire some common nouns at the initial stages of speech, these (as well as other early words) are not used contrastively to designate a choice among items in a semantic domain.

According to the present proposal, all these disparate phenomena are explainable on the grounds of the beginning speaker's inability to acquire relational, system-bound meanings, and their selective acquisition of discrete, independent linguistic signs. To test the hypothesis that this is the characteristic of all early child utterances, the speech of a new sample of young children was analysed. Previous investigations employed a diverse set of criteria which speech uses to include in their data base[3] and to characterize types of uses. Rather than attempting a meta-analysis of published corpora of early utterances, it was therefore seen as preferable to check the validity of the proposed generalization on an independently collected and analysed data set.

METHOD

Sample

Sixteen infants acquiring Hebrew as their first language were observed and videotaped in a free interaction session with their mothers in their homes. These observations were part of a larger study of 48 infants, some of whom were studied longitudinally and some cross-sectionally.

[3] E.g., Halliday (1975) excluded labelling and all other 'language practice' from his corpora of early speech; Wells (1985) excluded from pragmatic analysis all self-addressed speech; Dale (1980) did not have, in his categories of pragmatic fnnction, calling, moves in games, imitation or expressive exclamations; Dore (1974), McShane (1980), Barrett (1981) and Griffiths (1985) apparently did not regard the production of verbal moves in games true language use; Hart (1991) excluded all proper names, 'private words' and onomatopoetic words from her dictionary of first words, and so forth.

The observations included in the data base of the present study were of 8 children of the cross-sectional sample, approximately 0;10, and of 8 children of the longitudinal sample who were approximately 1;0 at observation. The age range of the younger sample was 0;9.0 - 0;11.9, their mean age 0;10.5, S.D. = 0.89 days; the older subsample's ages ranged between 0;11.22 - 1;0.28, mean 1;0.9, S.D. = 0.43 days. The overall mean age of the children was 0;11.7, S.D. = 0.38 days.

The mothers of the cross-sectional sample had post high-school education, while the mothers of the longitudinal sample were half of a middle-class and half of a lower-middle-class background. The sex of the infants was counterbalanced in each subsample. All children were of normal health, of intact homes, and the longitudinal sample were all first-borns. The subjects were randomly selected from birth records and recruited through letters and home visits. Each mother was paid a fee for her participation.

Procedure

Children were videotaped in 30 minutes' unstructured home play with their mothers. 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 child. Mothers were told that we wished to obtain a naturalistic sample of infants' interaction with their mothers, but were not told before the end of the study that either maternal or child language was to be the special focus of analysis.

The mothers of the 10-months sample were invited within a week of the videotaping to the laboratory and asked to describe in detail what had happened in the videotaped interaction period. Their comments were tape-recorded and utilized in analysing the observational sessions. A detailed description of the elicitation procedure used with the mothers is to be found in Ninio & Wheeler (1984*a*).

Data analysis

Children's utterances were transcribed in standard orthography. A word which the child immediately repeated within the same speaking turn was only considered as a single token.

Utterances were analysed for the communicative intent expressed, using a detailed category system developed in the study (Ninio & Wheeler 1984*b*). Determination of the communicative intent underlying an utterance was done on the basis of the verbal and non-verbal interactive context of the utterance, as judged from the videotaped observations. Coding was aided by considerations of the participants' non-verbal behaviour, by further clarifications put on the utterance, and

by the future course of the conversation. The coding of the cross-sectional sample was assisted by the maternal descriptions of the observational session. All corpora were coded twice, by two, different, highly trained, coders. Intercoder reliability of this coding scheme for children's single word utterances is 83.6% (*kappa* value 79.8; see Ninio 1992).

In order for a particular child utterance to be considered an instance of meaningful language use, it had to satisfy two criteria simultaneously. First, the utterance had to be amenable to interpretation by its addressee as an intentional social or communicative act. Second, the expression used (or at least aimed at phonetically) had to be verbal rather than merely vocal: it had to consist of conventional or semi-conventional words, exclamations, onomatopoeic noises, nicknames and so forth. The final data base consisted of 144 coded utterances.

RESULTS

All meaningful utterances produced by the children of the sample are presented in the Appendix, by the type of communicative meaning expressed and the form of the expression. Subject numbers begin with the child who had the smallest number of form-meaning combinations, and proceed according to increasing repertoire size.

In order to test the hypothesis that the first linguistic signs acquired are syntactically isolated forms such as interjections, vocatives, moves in rituals and in games, as well as unmarked general forms for the expression of specific communicative intents, the distribution of children's utterances in these categories of speech use was determined. Table 1 presents the results of this analysis.

The overwhelming majority of meaningful utterances produced by the sample, about 90% of all unique form-meaning combinations and 93% of all tokens, were either syntactically isolated signs or unmarked general forms for the expression of various communicative intents. Only about 10% of all form-meaning combinations (7% of all tokens) were marked forms. A further check revealed, that, as expected, marked forms were 'semantic isolates'; in none of the cases did a child use more than a single marked form for the expression of a given type of communicative intent.

Among the syntactically isolated signs observed, there were relatively few *interjections*, and the only kind that occurred were exclamations of surprise like *oh!*.

Vocatives were more frequent and in most cases (12 out of 13 utterances), the children summoned an addressee by calling out his or

TABLE 1. *Distribution of children 's utterances according to type of speech use, by number of children, intent-form combinations, and tokens produced*

Type of speech use	No. children	Intent-form combinations		
		Types	Mean %[a]	Tokens
Interjections	4	5	7.1	8
Vocatives	6	7	11.7	13
Social rituals	2	2	1.8	3
Onomatopoeic	3	5	3.7	8
Moves in games	5	6	13.0	16
Imitation	10	10	21.4	38
(Elicited	6	6		23)
Unmarked forms[1]	12	27	32.8	48
Marked forms[2]	5	7	8.5	10
Total	16	69		144

[a] Per cent of intent-form combination types falling into each category, averaged over the sample.

[1] Used in communicative acts Direct attention to focus; Statement on joint focus of attention; Answer *where*-question; Answer affirmatively; Answer in the negative; Propose new activity; Propose new focus of activity; Propose object to act on; Agree to proposal; Refuse proposal to do; Forbid; Request further communication.

[2] Used in communicative acts Statement on joint focus of attention; Answer *what*-question; Statement on the non-present.

her name. One child used, in addition, a vocative interjection, *eh!* Vocatives were mostly used to get the addressee to pay attention to or approach the speaker, but in some cases these were appeals for help, e.g., when a child got stuck under some furniture.

Utterances embedded in *social rituals* or formats were almost non-existent, there occurring only two cases of children marking the transfer of objects by the expressions *ze* 'this' and *toda* 'thanks'.

Onomatopoeic forms mimicking animal sounds were also relatively infrequent. Only 3 of the children, those possessing the highest number of different form-content combinations, produced such utterances, among them *hau, miau,* and *gah,* for dog, cat and goose sounds. The production of such sounds was part of a question-and-answer game in which the parent asked, e.g., 'How does a dog do?' and the child was supposed to supply the correct sound.

Verbal moves in interactive games were among the two earliest forms acquired, judging from the fact that children who had very few form-content combinations, produced them. The earlier forms occurring were very simple and idiosyncratic games, apparently well

established in the dyad, like swinging the arms and saying *di-dah*. The game 'words' produced by the better-developed children in the dyads were moves in conventional children's games like the Hebrew version of ring-around-the-rosy *(uga-uga)*.

Imitations (namely, repeating an utterance merely for the sake of reproducing it) were included in the data base of this study as a type of meaningful language use[4] as they were in all cases amenable to interpretation by their addressee, either as a verbalization produced in compliance to a request to imitate, or, in the spontaneous case, as an intentional act of language practice. By contrast to other speech uses, however, all instances of imitation by a child were considered a single type of form-content combination, even if a child imitated several different words. These utterances are generated on the realization principle, 'Repeat previous utterance or part of it', and thus the form-meaning combination is of a repetition (form) interpreted as imitation (meaning). In other words, the children were not credited with the knowledge of the repeated words, merely with the mastery of the production principle of repeating.

Imitation, elicited as well as spontaneous, was among the two earliest acquired speech uses observed in the study, when the order of acquisition is measured by the repertoire size of the least-developed children producing such utterances. The circumstances in which children imitated spontaneously made it rather clear that this was a reaction to some linguistic problem they were having: they either imitated elements of questions they were apparently unable to answer, or else they repeated the answers their mothers gave to their own questions when the children failed to answer on their own. Requests for imitation by the mothers were made in very similar circumstances, as a reaction to children's inability to, e.g., label a referent, or to pronounce a word correctly. Some of the imitated words were also used by the same child in spontaneous productions.

Unmarked forms were used for all but two of the communicative intents expressed by these children which have not yet been discussed. They included attention directers or markers such as *ze* 'this' or *hine*

[4] There is no consensus among previous investigators of early child-language whether imitations are to be considered meaningful speech uses, whether in their spontaneous or elicited version. While Dore (1974), Wells (1985), and Camaioni & Laicardi (1985), for instance, have 'repeating' or 'imitating' as a type of speech act or interpersonal speech use, others studying the communicative or pragmatic meanings of early speech (e.g., Halliday 1975, Greenfield & Smith 1976, Dale 1980, Barrett 1981, Griffiths, 1985) excluded imitations from their data base.

'here'; generalized requests forms such as *et-ze* 'this-one' or *ima* 'mommy'; *ken* 'yes' as a positive answer and *lo* 'no' as a negative answer and as a form of refusal; *ma?* 'what?' as an answer to a call, requesting further communication, and the like. Maybe the most interesting of these is the use of 'here' or 'this' in the context of discussions of a joint focus of attention, namely, *after* the two participants have already established joint attention to some object or event. In other words, these fixed forms occurred at those points in joint labelling routines where, in older children, individual labels are produced. Uses like these were observed in 5 of the children.

The *marked forms* used by the sample were mostly object labels produced in discussions of a joint focus of attention, namely, in labelling routines. The words produced were *or* ('light'; a very popular target for language instruction among Hebrew-speaking mothers); *doda* 'auntie'; *buba* 'doll' and *kaftor* 'button'. In all cases, the referents were concrete objects attended to by the dyad. The child with the largest repertoire also produced a marked answer to a *what's-that* question, within the same type of routine. As mentioned before, in none of the cases did a child use more than a single marked form for the expression of a given type of communicative intent. There was no evidence that children used these expressions as yet contrastively; not only did they not produce any other labels, but even the production of these unique forms necessitated much scaffolding on the part of the mother. Apparently, these young children were observed on the verge of acquiring their very first common-noun vocabulary items, and the ones that they had learned to produce were isolated exemplars of this class in their repertoires.

In general, there were very few cases of children using more than one linguistic sign for the realization of a given communicative intent. One child (#9) used two different exclamations of surprise (*oy*, *eh);* another (#13) had two ways to call hearer's attention (by calling out her name, i.e. *ima* 'mommy', and by saying *eh);* and a third (#8) used two general forms *(ze* 'this' and *hine* 'here') and one specific form *(doda,* 'auntie') for discussing a joint focus of attention. Overall, out of 55 communicative intents expressed by the sample as a whole (excluding imitation), only for 3 (5.5%) were multiple realization rules used by the children. It appears that at this initial stage of acquisition, children's linguistic signs mostly function as unique expressions for some communicative intent or type of social meaning.

Even though intents tended to be expressed by a single and unique verbal form, the converse was not true. An average 25% of the children's vocabularies was used to express more than a single

communicative intent. Multiple uses for words were observed in 7 of the children; 6 were the children with the largest form-meaning repertoire, and 5 of these had the largest vocabulary size as well. That is, multiple uses for words are a relatively advanced phenomenon. Examples were using *ima* ('mommy') for proposing that the mother take over a role in an ongoing game as well as for summoning her; using *ze* ('this') or *hine* ('here') both for directing attention and for commenting on a scene already at the focus of joint attention; using *ken* ('yes') both for answering affirmatively a *yes/no* question on a past event and for agreeing to a request; using *lo* ('no') both for giving a negative answer to a *yes/no* question in the context of a discussion and for refusing a direct request; and so forth. Such multiply-used forms are either polysemous, or, possibly, the product of 'language games' which are general enough to encompass the various different speech uses.

However, even though the hypothesis was confirmed that children's earliest set of words are of the posited discrete nature, it still does not necessarily prove that it is the independent nature of these words rather than some other factor that accounts for their acquisition in favour of other types of words. In particular, it may be possible that children learn these words and not, for example, common nouns, because of the former being modelled with much higher frequency in the input. One study raising the possibility that it may be so is Hart's (1991), who has shown that the very first words acquired by children tend to be very frequently demonstrated by adults in the months prior to and up to their acquisition, relative to the diminished amount of modelling received by words that are acquired later. Unfortunately, Hart presented no frequency or other data on maternal words children did *not* acquire at a particular observation, making it impossible to determine on the basis of her study whether the frequency in the input of words children learned at the onset of speech was relatively higher than the frequency of the ones they did not learn. It is still possible that there were in the input equally frequent or more frequent words which the children did not learn, therefore demonstrating that input frequency is not a factor in determining the probability of a particular word being acquired among the first set.

In order to test the frequency hypothesis, the speech of the mothers of the present sample was analysed for the relative frequency of different words. Only single-word utterances were included in this analysis, as it is generally accepted that multiword utterances pose an unsolvable segmentation and many-to-many mapping problem for beginning speakers (cf. Chapman 1981). This decision *increases* the chances of the frequency hypothesis to be accepted, as syntactically

isolated forms appear with a higher relative frequency in single-word speech than otherwise.

Disregarding imitations, children produced 1-7 different words, a total of 46 by the whole sample (see Appendix). Of these, only *one* was among the 3 most frequent words of the child's mother.

The analysis was repeated with intent/form combinations instead of words. Excluding imitation, children produced 1-8 different intent/form combinations, a total of 59 by the whole sample (see Table 1). Only in 4 cases was one of these intent/form combinations among the 3 most frequently modelled by the child's mother. That is, besides the high-frequency speech uses children did adopt, there were available in the input very many equally high-frequency speech uses they did not adopt. It is evident that children select their first-acquired linguistic forms on a basis other than their high relative frequency in the input.

DISCUSSION

The results of this study confirm the hypothesis that at the onset of speech use, children's language consists of individually defined, mutually unrelated 'language games' that may be learned separately and do not depend on each other in any way. These are rudimentary 'language games', each providing for the meaningfulness of a single linguistic form. Being embedded in separate interpretative frameworks, children's initial set of linguistic signs do not relate to each other by either syntagmatic or paradigmatic relations. In a real sense, the earliest set of linguistic signs acquired by children is not a system of language but an unintegrated collection of discrete speech uses.

As far as re-analysis is possible, it seems that this theory is also successful in accounting for the communality among the early speech uses observed in other investigations (Dore 1974, Halliday 1975, Greenfield & Smith 1976, Bates 1979, Barrett 1981, Camaioni & Laicardi 1985, etc.). Contrary to what has sometimes been claimed, children do not seem to be limited to the expression of certain restricted types of meanings, as their early speech uses represent a great variety of communicative acts, some dealing with the establishment of mutual attentiveness, some with the establishment and management of joint attention, some with the setting up of, and performance of, joint activities. Rather, they appear to be able to learn the verbal expression of many types of communicative meanings as long as each speech use is an independent entity.

This finding supports the idea that the nature of the earliest speech uses is determined by the structural requirements of the learning task,

rather than by the characteristics of the learners. The problem facing a young child at the onset of language acquisition is shared by any beginner coming to master a complex system. To stay with the game analogy, the situation of the young child is similar to that of a person learning to play chess by observing others play. Undoubtedly, such a person will notice that the king piece moves one square each time (ignoring castling for the example) much sooner than he or she understands that the king is required to move away when threatened by an enemy piece. Analogously, children by necessity start acquisition by learning at first discrete or independent linguistic signs rather than signs whose meaning depends on their relation to other signs.

In consequence, it is unnecessary to search for an explanation for the character of early utterances in terms of some prior limitation of the learners, such as lack of object concepts, lack of internal representation, lack of categorization skills, a conceptual system limited to holistic event representations, and the like (cf. Bates 1979, Nelson 1985, Barrett 1986, Gopnik & Meltzoff 1986). Children may have a sophisticated concept of objects and a well developed representational system for events, actions, and other components of physical and social reality, yet they still may not understand how certain of these concepts map to verbal expressions. What they may lack is language-specific knowledge, namely, an understanding of the 'language games' within which linguistic signs expressing these concepts are used. For instance, given the recent findings regarding children's early possession of stable object concepts (Harris 1989), it seems very likely that the absence of object names from children's early vocabularies is solely due to the fact that common nouns invariably occur embedded in 'language games' which presuppose the existence of other linguistic signs and thus are beyond the capacities of the beginning learner to grasp.

In this study, the property of syntagmatic isolation was used to identify speech uses in the adult system which children were predicted to be able to acquire at the onset of speech. As we have seen, about 60%, on the average, of children's early speech uses involved forms inherently lacking syntactic combinatorial properties. The non-combining character of the relevant words was amply demonstrated in the speech of the mothers of the sample (Ninio 1985, 1992); without exception, these forms occurred in input speech as isolated single-word utterances. That some linguistic sign cannot be combined syntactically with other units is a powerful indicator that its significance can be defined in some way that does not depend on the rest of the system. It is easy to demonstrate that for each of these speech uses (interjections, vocatives, forms for social rituals, onomatopoeic sounds, forms for

moves in games, imitations) there exists a self-contained and complete interpretative framework that gives these utterances significance. What makes these signs learnable is the availability and transparency of the 'games' in which they are embedded. Thus, the profusion of playful or routine speech uses at the onset of speech, frequently commented on, is well explained on the grounds that interactive games and social rituals with verbal components are highly obvious exemplars of self-contained 'language games' in the child's environment. Such frames are largely extra-linguistic, and their mastery by the child can rely maximally on the child's non-linguistic social understanding.

A further category of speech uses expected on this model were words that can be, in principle, used in syntactic combinations but can also occur in the speech of adults in 'intransitive' versions without requiring a syntactic companion, as general, unmarked forms for the expression of discrete social meanings, functions, or communicative intents. About 33% of children's speech uses were of this kind, such as *hine* ('here') as a generalized attention-directer; *ze* ('this') as an elliptical object request; *ma?* ('what?') as a single-word response to calls; *lo* ('no'), a negative answer to *yes/no* questions, and so on. Such uses were well modelled by the mothers of the sample in their speech to the children (Ninio 1985, 1992). Evidently, a constant expression verbalizing the general idea of some communicative function constitutes a self-contained and independent 'language game' whose significance is transparent enough for the beginning learner to grasp.

By contrast, the children of the sample acquired very few marked forms for the same kinds of meanings, namely, expressions that encode a specific rather than general case for a function. Only about 8.5% of their speech uses, on the average, were of this kind, most of them object names used in some version of a labelling game. As in none of the cases did a child produce more than a single specific expression for a given communicative intent, it is even questionable whether these are indeed marked forms for a general function rather than unmarked forms for singular labelling games each defined on a unique object-referent. In any case, it is apparent that beginning speakers find it extremely difficult to deal with expressions which relate to a specific as opposed to the general case of a communicative situation. Formally, marked expressions are generated by a mapping principle by which a variable element of the communicative intent is selectively verbalized by an expression that specifies its current value. Examples of such 'variable'-type mapping are single-word utterances specifying the object to attend to in an attention directive, or specifying the activity proposed in suggestions for a new joint activity. This mapping principle

presupposes that there exists a class of alternative linguistic signs each naming a different specific value for the relevant component of the communicative intent, a presupposition invalid in the case a beginning speaker.

It is apparent that there is a circular relationship between mastering the 'variable' mapping principle and acquiring a vocabulary of terms which as a rule express specifics of communicative situations, such as common nouns, verbs and adjectives. Until this mapping principle is understood, children cannot learn expressions appearing in the input which encode specifics of situations. However, until children have the vocabulary for expressing alternative values of variable components of intents, they cannot grasp that there is a principle by which variable, rather than constant, elements of intents are verbalized in utterances. The way to break out of such an impasse is through a sudden enlightening or insight. According to one hypothesis, what children suddenly, at around the middle of the second year, realize, is that words can be used to name objects and that all objects have names. This hypothesis typically lumps together under the label of 'the naming insight' both the sudden grasp of the concept of reference and the mastery of the 'language game' consisting of the communicative act of object labelling (McShane 1979, Dore 1985, Gopnik & Meltzoff 1986, Kahmi 1986, Barrett 1989). According to another model, the 'naming insight' is a special case for a more general 'variable mapping insight', consisting of children's sudden understanding that in most kinds of communicative acts it is possible to express the intent in a marked expression verbalizing a variable component of the intent. Rather than acquiring a single 'language game' consisting of object labelling in which a variable component (namely, the identity of the object currently labelled) is expressed by a series of marked forms, children are claimed to grasp the general principle of 'marked forms', changing their conception of the nature of 'language games' in a fundamental way (Ninio 1990). Supporting this conception is the finding that the sudden increase in labelling behaviour and the use of common nouns in this context is not an isolated phenomenon but one accompanied by an abrupt increase in the use of 'variable mapping' for virtually all intents for which this is possible (Ninio 1990), and sometimes even for some (e.g., marking object transfer) for which 'constant mapping' to a routine expression is the norm (Ninio 1992). These novel verbalizations are not restricted to names of objects; the semantic entities involved also include acts, activities, events, locations, and so on. The generality of this change in children's word use is further evidence that the absence of object names from children's earliest speech uses is not due

to some specific cognitive problem involving object concepts, but to a broad linguistic limitation on the use of marked forms.

The mastery of 'variable mapping' sometimes between 1;4 and 1;10 and its accompanying development, the understanding that a communicative intent may be expressed in several different ways rather than by a single unique form, paves the way to the introduction of connectedness of various kinds to children's evolving linguistic system. Both associative and syntagmatic relations are between different forms expressing the same communicative intent; associative relations, namely, relations of synonymity, similarity and contrast, are created when different signs are alternatives for the same use slot, syntagmatic relations when they realize complementary elements of the same communicative intent. Whereas associative relations are immediately established with the onset of 'variable mapping', it is impossible to talk of true syntagmatic relations until children start to produce multiword utterances. However, potential members of syntagmatic pairs begin to appear in single-word speech several months before the onset of combinatorial speech (cf. Bloom 1973, Ingram 1979), representing the alternative mapping of different components of the same communicative intents to single word expressions. Thus, children's initial set of disparate signs grows into an integrated system of language even prior to the introduction of syntactic devices such as word order, due to the perfection of the techniques for expressing communicative intents in single words. On the fringes of this system there is a place preserved for the simple 'language games' with which children start their entry into language; and in spite of the immense complexity of the final linguistic system, these simplex forms survive as its legitimate members.

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APPENDIX

Communicative intents and their expression by children aged between 0;9 and 1;1 and the number of utterance tokens produced for each type of meaning-expression combination.

Subject	Age	Communicative intent	Expression	Tokens
1	0;9.0	Imitate utterance on demand	(repeats)	6
2	1;0.8	Perform move in game of swinging arms and saying *di-dah*	*dah*	1
3	0;10.22	Imitate utterance	(repeats)	1
		Perform move in game of crawling and barking	*hau*	1
4	1;0.8	Imitate utterance	(repeats)	1
		Statement on joint focus of attent.	*or* 'light'	2
5	0;11.9	Call addressee's attention	*aba* 'daddy'	1
		Answer *where*-question	*ze* 'this'	1
6	0;11.25	Imitate utterance on demand	(repeats)	3
		Call addressee's attention	*Michaela*	1
		Answer *where*-question	*hine* 'here'	1
7	0;10.9	Call addressee's attention	*ima* 'mommy'	1
		Direct attention to focus	*hine* 'here'	3
		Statement on joint focus of attention	*hine* 'here'	2
8	0;11.22	Statement on joint focus of attention	*ze* 'this'	2
		Statement on joint focus of attention	*hine* 'here'	2
		Statement on joint focus of attention	*doda* 'auntie'	3
		Exclaim in surprise or enthusiasm	*ai*	2
9	0;9.1	Imitate utterance	(repeats)	1
		Propose object to act on	*et-ze* 'this'	1
		Exclaim in surprise or enthusiasm	*ai*	1
		Exclaim in surprise or enthusiasm	*eh*	1
10	0;10.0	Imitate utterance on demand	(repeats)	7
		Answer affirmatively	*ze* 'this'	1
		Exclaim in surprise or enthusiasm	*aya*	1
		Call addressee's attention	*ima* 'mommy'	1
11	0;9.21	Imitate utterance on demand	(repeats)	3
		Propose object to act on	*et-ze* 'this'	2
		Direct attention to focus	*et-ze* 'this'	1
		Propose new activity	*et-ze* 'this'	2
		Answer affirmatively	*et-ze* 'this'	1
12	1;0.19	Imitate utterance on demand	(repeats)	8
		Call addressee's attention	*ima/mama* 'mommy'	2
		Perform move in Uga-uga game	*uga*	8
		Perform move in 'goodnight' game	*hayee*	4
		Refuse proposal to do	*ima* 'mommy'	3
		Statement on joint focus of attention	*buba* 'doll'	1
13	0;11.7	Mark object transfer	*ze* 'this'	2
		Perform moves in tickling game	*dag*	1
		Propose actor role for addressee	*ima* 'mommy'	1

Continued