

Semantically-based Child Grammars; Some empirical  
Inadequacies

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There is a fairly wide consensus among researchers of child language that the grammatical system underlying the child's earliest multiword utterances is "semantically-based." Such "semantically-based" child grammars, proposed by Schlesinger (1971), Bowerman (1973) and others, argue that the early grammar is a direct mapping of semantic roles, for example, agent, action, object acted upon, etc., onto a surface expression. The rules of the grammar specify the linear order of the semantic categories relative to one another in a particular language. Thus in English, for example, agent is ordered before action, action before object, and so on. In short, children are credited with a set of semantic schemata roughly of the sort given in (1). (adapted from Brown, 1973)

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|--------------------|-----------------|
| (1) agent - action | 'Eric sing'     |
| action - theme     | 'hit ball'      |
| entity - location  | 'ball on table' |
| entity - attribute | 'baby pretty'   |

Although the various proposals for semantically-based grammars differ in detail, they share the basic assumption that early language can be adequately characterized by a system which does not make reference to syntactic categories and relations such as noun, verb, verb phrase, subject and so on, and which does not generate the constituent structures typically assumed for the adult language. Thus on a semantically-based approach the early grammar is qualitatively different from the adult grammar. The justification for semantically-based grammars, expressed most directly by Bowerman (1973), is that we do not need to postulate abstract syntactic categories and relations to describe child language insofar as the acquisition data, at least those data studied by Bowerman, lack the properties which typically provide evidence of syntactic rules in the adult language. In particular, Bowerman notes that her data do not show evidence of transformational operations or grammatical agreement. In this paper I will argue, however, that such semantically-based systems fail to provide an adequate description of even the earliest multiword utterances and that the most parsimonious account of the acquisition data must include reference to syntactic categories and relations. The data to be presented are from 11 monolingual

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Italian speaking children between the ages of 1;10 and 2;4.

In (2) I have listed several productive grammatical processes which exist in early language.



show that the subject is need not be agentive.) In short, agreement holds between what is traditionally referred to as 'subject' and 'verb'.

Consider now the data in (3) which illustrate 'agreement within NP.' Semantically-based systems typically distinguish a relation entity-attribute from a relation possessor-possessed. Hence, an empirical possibility allowed by such a system is that agreement could hold in the one case but not the other. Recall that the agreement in this case is for number and gender. Again, as shown by the examples in (3) agreement is not semantically restricted in this way. We find that agreement is productive both between both entity-attribute, as in (4h) in which the adjective little is marked feminine, singular in agreement with the head noun apple, and between possessor-possessed, as in the example in (4a) in which the pronoun my is feminine, singular in agreement with the head noun skirt. That this agreement pattern should exist is not surprising in that possessive pronouns, like the attributive expressions, are adjectives in Italian. However, in order to describe the phenomenon the grammar must make reference to the categories which are affected by the agreement rule, that is, adjective,

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determiner, Noun, and NP.

In the face of such data, we might ask why is it the case that we do not find productive agreement patterns in the language of English speaking children. A partial answer to this question is provided by the obvious fact that English simply does not have the rich morphological system of Italian and other languages. Moreover, the verbal agreement paradigm that does exist, namely, agreement for person in the present tense, is extremely defective, (i.e., consisting of only the 3rd person singular -s). However, English does have productive noun agreement for plurality. It is thus noteworthy that Cazden (1968) observed a significant difference in the amount of agreement inflection for plurality in 'simple NPs' vs. 'predicate nominatives' in early language. The figures given in (5) are from Cazden (1968).

(5)	<u>Simple NP</u> eg. two blocks	<u>Predicate Nominatives</u> eg. they blocks
Child A	.83	.54
Child B	.77	.43
Child C	.89	.30

Note that agreement is significantly higher between elements contained within a single NP than between elements in what are arguably separate constituents. While I have no explanation for the difference, it would seem that even an adequate statement of the facts requires a system which makes reference to a category NP since, as Brown (1973) notes "there is no semantic difference between the simple and complex predicates."

Leaving agreement behind, let us consider some of the other

processes observed in early language, for example, the absence of lexical subjects (cf. 2c). 'Subjectless sentences' of the sort illustrated in (6) are pervasive in the early stages of language acquisition and have been noted by many researchers of child language. (The English examples in (6a) are from Bloom, Lightbown and Hood, 1975.)

- (6) a. Want go get it  
 See under there  
 Read bear book  
 Bring Jeffrey book  
 Sit on piano  
 No have this  
 No like celery
- b. E attaccata '(It) is attached?'  
 E vola in alto 'And (it) flies high'  
 Cosa fa? 'What (he) does?'  
 No, non ti prendo in giro 'No, (I) not tease you'  
 Sono giù '(I) am downstairs'  
 Leggiamo il libro '(We) read the book'  
 Ha collo lungo lungo lungo '(It) has a long long long neck'

Such sentences are attested in the corpora of children acquiring a language which does not freely allow 'subjectless' sentences, for example English, and they are of course attested in the language of children acquiring Italian (cf. 6b), a language which freely allows the omission of lexical subjects. Such sentences may be analyzed in various ways. One may assume that the subject has been deleted, that the subject is a base-generated dummy symbol, or that such sentences lack a subject position. Regardless of the particular grammatical analysis of these sentences the omission of the lexical subject is a regular and productive process in early language and something which needs to be described by the early grammar. Once again we might ask if it is the case that the "missing" subjects belong to a unified semantic class, for example, agent or experiencer and again the answer is 'no.' Thus, the process responsible for the omission of lexical subjects is not semantically restricted. It applies across semantic types affecting a category which is typically referred to as 'subject.'

The same point can be made with respect to the occurrence of sentences containing post-verbal subjects. In adult Italian, the subject may appear in either pre-verbal position, as in English, or in post-verbal position. The grammar of Italian licenses both orders although the appearance of the subject in pre-verbal or post-verbal position in a particular token utterance is governed by various pragmatic considerations. As one might expect, young Italian speaking children use both orders although, as noted by Bates (1976), there appears to be an initial preference for post-verbal subjects. As in the case of "missing" subjects the precise grammatical analysis of the post-verbal subject phenomenon is unimportant. We may assume either that post-verbal subjects are the output of a transformational rule or

that both orders are directly generated by the phrase structure rules of Italian. Note again that a semantically-based grammar allows for the possibility that this phenomenon will be semantically-restricted, that is, we might expect to find only agents in postverbal position, for example. As illustrated by the data in (7), this is not the case. The post-verbal subject may be agentive as in the example 'Do it you'; the subject may be a theme as in 'Turns the balloon' or 'Is attached that one.'

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|-----|----------------------|---------------------------|
| (7) | Gira il pallone      | 'Turns the balloon'       |
|     | Dopo viene mia madre | 'After comes my mother'   |
|     | Fai te, fai te       | 'Do(it) you, do (it) you' |
|     | E attaccata quella   | 'Is attached that one'    |

Finally, we may consider the phenomenon noted in (2e), the 'clitic-NP distribution.' In Italian a direct object may be represented by a full lexical NP or by a pronominal clitic. The unmarked position for the lexical object is post-verbal, while the pronominal clitic must appear in the position immediately preceding the verb. This is schematized in (8a) below. Similarly, Italian has two subject clitics, ci meaning there as in 'There's a boy in the room,' and the impersonal clitic si meaning one as in 'One goes to the store.' Like direct object clitics, the subject clitics differ in their distribution from full lexical subjects. A full lexical subject appears before the negative marker, while the subject clitics must follow the negative marker. This is schematized in (8b).

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|--------|--------------------------|-----|---------------|
| (8) a. | NP V NP (lexical object) | vs. | NP CL-V       |
|        | b. NP non V              |     | vs. Non SCL-V |

It is important to note that the semantic relation which a clitic bears to the verb is the same relation which exists between a verb and lexical NP. That is to say, in the Italian equivalent of 'I hit the boy,' 'the boy' bears the semantic relation 'patient.' Similarly, in the sentence 'I him-hit' 'him' bears the relation 'patient'. Italian speaking children begin using pronominal clitics at around age 1;10. Examples from the acquisition data are given in (9). (The two sentences in (9a) are from the same transcript, as are those in (9b)).

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|--------|-------------------------|----------------------------|
| (9) a. | Li ho visto io          | 'them-saw I' (=I saw them) |
|        | Io, io vito li asinelli | 'I, I saw the donkeys'     |
|        | b. Io la mangio         | 'I it-eat'                 |
|        | Io mangio la pera       | 'I eat the pear'           |

Given that the pronominal clitic bears the same semantic relation to the verb as the lexical NP, these two sentence types are indistinguishable by semantic rules of the sort given in (1). Thus if there is a rule action-theme, then the theme should follow the action regardless of its syntactic category, that is, whether it is a clitic or a full NP. Alternatively, if the rule is theme-action, then theme should precede the verb in all instances. If the grammar makes reference only to semantic

relations, we expect Italian speaking children to make errors in which the direct object clitic follows the verb, or in which the lexical NP precedes the verb. No such errors are attested in the

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data. These distributional regularities can only be accounted for by an early grammar which distinguishes between the syntactic categories clitic and NP. That this distinction indeed exists at a very early age is further evidenced by the fact that children consistently place subject clitics after the negative marker, and lexical NPs before the negative marker (cf. 8b); that is, the order of elements is correct from the earliest stage. Examples are given in (10).

- (10) a. Chelo micino no è piccino 'That cat not is little'  
Io non vado via 'I not go away'  
Queto qua non va cosi 'This one here no goes like that'  
Io no la rompo 'I no it-break'
- b. Non si vede più gli occhi 'Not one-sees anymore the eyes'  
(=one doesn't see the eyes anymore)  
No si rompe la macchina 'No one-breaks the car'  
(=One doesn't break the car)  
Non c'è niente 'Not there is nothing'  
(=There's nothing)

In conclusion, we have considered five productive processes in early language. In each instance the empirical predictions which follow from a semantically-based system fail to be supported by the acquisition data. All of the evidence presented in this paper points to an early grammar which makes reference to various grammatical categories, rules and relations, that is a grammar which is not qualitatively different from an adult grammar. To say that the early grammar is not qualitatively different from the adult grammar means in effect that at each stage of development there is a syntactic component which specifies, among other things, the linear order of elements and their grammatical relations, and a semantic component which provides a specification of the semantic relation that each argument bears to the verb. In short, the acquisition data argue for a model of language acquisition in which separate, interacting subcomponents (or modules), i.e. syntax and semantics, develop in parallel. Parallel development is a plausible alternative to various "stage" models, for example, the "tadpole to frog hypothesis" (Gleitman, 1981), in which formal syntactic representations arise from metamorphic changes in an early semantically-based system.

## FOOTNOTES

1. The data are from a longitudinal study of the acquisition of Italian carried out by Massimo Moneglia of the Scuola Normale Superiore in Pisa, Emanuela Cresti of the University of Florence and the Collettivo di Educatori dell'Asilo Nido Rampari di San Paolo. The results of their study will be published in M. Moneglia & E. Cresti, L'Acquizione dell'Italiano, Il Mulino; Bologna, Italy. I wish to express my appreciation to these people for making their data available to me.
2. Note that the only grammatical person which is not represented by the data in (3) is the second person plural. This is most likely due to the fact that the interview situation consisted of one child and one adult and hence the opportunity for using the plural 'you' did not arise.
3. Where the subject is given in parentheses (as in (4j) it was not uttered by the child, but inferred from the agreement on the verb and the non-linguistic context. The omission of subject is permissible in Italian (as noted in the text).
4. It should be noted that noun-modifier agreement in Italian is extremely regular and phonologically transparent. With few exceptions, a noun ending in a is feminine singular; in o masculine singular; in e feminine plural; in i masculine plural. The modifier is correspondingly inflected with a, o, e or i. The regularity and transparency of this process undoubtedly contributes to its ease of acquisition.
5. In Italian while the position of the clitic is fixed in pre-verbal position, a lexical NP object may appear in pre-verbal position in left-dislocated sentences such as 'The ball, Ø saw,' where the subject is absent. In these instances the direct object is stressed and followed by a pause. When NP object-verb sentences occurred in the acquisition data, they were accompanied by the appropriate intonation pattern and hence do not constitute word order errors.

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