5-3-1977

The Acquisition of Locatives in Estonian

Helgi Kasak Osterreich

ACQUISITION OF LOCATIVES IN ESTONIAN

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DOCTOR OF PHILOSOPHY

The Acquisition of Locatives in Estonian

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THE ACQUISITION OF LOCATIVES IN ESTONIAN

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Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy in Anthropology
in the Graduate School of
The University of New Mexico
Albuquerque, New Mexico
May, 1977

ACKNOWLEDGMENTS

The help I have received from many people during this study is incalculable. My most grateful appreciation is due Professor Bernard Spolsky, who has always encouraged and helped me in every way, despite a multitude of other responsibilities. His patience and encouragement are what really enabled me to complete the study. My special thanks also go to Professor Ellen Kaufman, who provided much-needed assistance in the area of syntactic theory and the intricacies of relating results to theory.

Throughout my graduate career in the Department of Anthropology, several people provided the kind of stimulation and assistance without which graduate work is not possible. Dr. Stanley Newman originally undertook to be my committee chairman, and always showed great interest in the progress of the study. Professor Philip Bock has always supported me and provided many helpful suggestions. Professor Bruce Rigsby worked with me on Estonian phonology and provided intellectual guidance for all of my graduate work. Professor Harry Basehart always encouraged all my endeavors, and helped me to obtain the grant that made this study possible.

Many years ago, when I became familiar with the work of Courtney Cazden, I decided that I would specialize in child language. Her work was thus the original inspiration for the study, for which I thank her sincerely. Since that time, she has always shown a friendly interest in my work, has encouraged me and helped me to clarify my own ideas. My dear friend and colleague Vera John-Steiner has for many years provided me with encouragement and intellectual example, and has always

supported me in every way. I thank her from my heart for her friendship.

Sincere thanks are due to the people who have sent me unpublished and published materials throughout the years. Dan Slobin always shared with me the research that he and his group were carrying out at the University of California at Berkeley. Ilse Lehiste sent me material on Estonian that I could not have obtained any other way. My friends Eero and Marilyn Vihman also sent me valuable materials on Estonian, including their own works. Melissa Bowerman sent me her dissertation and her research papers before they were published. Oswald Werner lent me part of the recording equipment I used in the field. My friend Koidu Vasila helped to find children of the appropriate age to work with.

A most grateful thank you goes to the families of all the children I worked with and to the children themselves. My intrusion into their homes was gracefully accepted, and they always helped to provide the best recording conditions possible. Although the children included in this study are from six families, I actually worked with nine other children, some of whom were older and some younger than the ones included in this work. I thank the families of all the children very much.

My own family has in various ways contributed to the completion of the study. My father has always encouraged my intellectual endeavors. My mother found children for me to work with, helped to transcribe some of the tapes, and spent several visits in Albuquerque looking after my house and children so that I could work on the study. My daughter Elva has also patiently undertaken these kinds of duties.

My daughter Jennifer has tried her best to understand her mother's preoccupation with her dissertation. And Michael has quietly and patiently encouraged me to complete this work. My heartfelt thanks go to my family for their encouragement and understanding.

This research was in part supported by Fellowship # 1-F1-MH-37,559-01 and Research Grant # 1-T01-MH-11301-01 from the National Institute of Mental Health.

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The University of New Mexico, 1977

The study and explanation of language acquisition has been approached from four major theoretical viewpoints. 1) The syntactic: what a child is mainly learning is grammatical structures, and the syntactic complexity of the language he is learning determines the sequence of acquisition; 2) The semantic: the child is really learning the meaning structures of language, and the semantic complexity of the adult language determines the sequence of acquisition; 3) The cognitive: as the child gains knowledge about the world around him, he tries to express it through language; the child's cognitive structures are therefore the major determinants of what he will express in language; 4) The social or pragmatic: since language communication is the major method of human interaction, the child learns language through social interaction with others; therefore the functions that language serves for the child in actual situations determine his language development. When the many studies already done are examined together, it becomes clear that no one of these explanation types is adequate by itself. All four are claimed to be necessary to a theory of language acquisition. Therefore the role of each needs to be determined, so that progress can be made toward a complete theoretical framework for language acquisition.

The language of six two-year-old children learning Estonian was recorded in natural settings. The data were analyzed by extracting all utterances with locative meaning. The language of older siblings and parents addressed to the child was also analyzed for locatives.

Piagetian sensorimotor spatial schemata were used to predict what

locatives would be expressed by children who were at the beginning of two-word utterances; children learning Finnish and English were included for comparison. The children were found to express only the language predicted, but not all of that; moreover, children learning different languages differed in the locative meanings that they expressed. Various structural characteristics of the languages and social and customary usage characteristics were postulated as explanation for which locatives received expression.

The language of slightly more mature two-year-olds (MUL 1.50-4.00) was analyzed for categories of Estonian locatives and possessives expressed. A definite sequence of locative expressions was found; in addition, the children's use of language in the expression of locatives correlated in various ways with that of older siblings and parents. The analysis of possessives was included because of their close relationship to locatives both in cognitive-semantic structure and Estonian syntactic structure.

All four factors--the syntactic complexity of the adult language, the semantic complexity of the adult language, the child's cognitive structures and the pragmatics or social context of language--were found necessary in the explanation of locatives expressed. These four factors are not all equally important at all stages of language acquisition. The cognitive structure that the child has at any stage is the basis for linguistic expression. At all stages of language development, moreover, pragmatic factors, or the social context, act in various ways in the determination of what the child will express. Semantic complexity of the adult language enters only after the appropriate cognitive structures have been developed. But sometimes what is cognitively salient

yet semantically complex can quite easily be expressed by the young child. Conversely, semantically simple but non-salient features may not be expressed until late in language development. Syntactic complexity determines linguistic expression to some degree from the beginning; however, it probably becomes much more important after the child has developed basic understandings about the world--after the age of about two and a half years. Much more research is necessary, especially with regard to cognitive development, before a complete theory of language acquisition can be developed.

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CHAPTER 1

Linguistic Structure, Cognitive Structure, Pragmatics and Language Acquisition

1.1 The Problem

In the past ten years, language acquisition research has grown from being the domain of a few into a legitimate subfield of linguistics and of psychology, and has even invaded the field of education. Throughout this period, there has been an emphasis on explanatory theory: what it is that a child is really doing when he learns to talk; how it comes about that all children in the world, with very few exceptions, learn to talk with such apparent ease.

Four major types of explanation are readily discernible in the research on child language development. One might be called syntactic--the idea that what a child is learning is grammatical structures, and therefore we need to analyze the child's grammar at different stages and the grammar of the language he is learning in order to understand how the child learns to talk. One hypothesis often connected with syntactic studies is that the child will learn the simplest structures first, and subsequently learn increasingly more complex structures until the adult language is achieved.

Another explanation type is the semantic--the idea that the child is really learning the meaning structures of language; since grammar by itself is 'empty', what the child is doing is learning how to express conventional meanings through language. Therefore, we must analyze the semantic structures of both the child's and the

adults' language. Again, the accompanying hypothesis often is that the simple semantic structures are learned first.

The third explanation type is the cognitive--the idea that as the child learns about the world around him, he tries to express what he has learned through language; therefore, to understand how the child does this, we need to examine both what the child knows about the world (his cognitive structures) and his language expression of it.

The fourth explanation might be called social or pragmatic--the idea that the child's primary aim is to interact with other people, and since in human culture language communication is the major method of interaction, the child necessarily begins to learn language very early in life. Therefore, we need to look at the various functions that language serves for the child in his interaction with others in actual situations, or we cannot understand language development.

All of these explanations have served as theoretical bases for child language research, singly and in various combinations. The studies I have carried out on Estonian child language have led me to believe that all four explanation types are essential in a theory of child language development. Hence, in this work I endeavor to show that 1) each type of explanation is necessary but not sufficient and 2) each of these four aspects of language plays a different role at different stages of language development.

There are a multitude of different approaches to the study of child language, approaches based on differing interests and assumptions. I want to set out first my own assumptions, many of

which actually developed during the course of this study, and to outline to some extent a tentative framework within which I want to discuss the data on Estonian children that I have gathered.

First of all, learning to talk is not equatable with learning to use a structured system of symbols or meanings, in the sense that the data is out there in the world and the child uses the data to construct a grammar. Learning to talk is only part of learning to live in the world and understand it, and is intricately enmeshed with other kinds of learning. Learning a grammar which is in some sense equivalent to that of other users of the language is certainly a part of learning to talk; however, in the course of this learning the child is enough of an active participant so that his grammar will be both his own creation and novel to some degree. In addition, his use of language will be particular to himself and therefore different, again to some degree, from that of others around him. I believe it is essential to keep this idiosyncratic aspect in mind, especially when analysis of language development depends on data from only a few children.[1] Thus, much of the time I will in fact be talking about the grammar and use of language exhibited by one child; at other times I will be attempting to combine data from children so that more general statements about language acquisition in Estonian can be made.

Of primary importance is my conviction that language learning cannot be equated with grammatical acquisition, and that the context of utterances must be taken into account. "...a healthy <u>general</u> theory of developmental psycholinguistics must provide an account both of the acquisition of linguistic structures and of the speech-

acts that the child can perform by using them." (Marshall 1970:45) Even though I am not here developing a full-fledged general theory, I believe my data and analysis can best help evaluate the general theory if linguistic structures are not decontextualized, but are considered within the speech-act as much of the time as possible.

It should also be understood that in my view, a linguist's grammar is not a mental grammar in either the competence or performance sense.[2] That is, what a linguist describes as a grammar of a language is not the grammar used by speakers of that language, but is a logical construct dependent on the linguist's and the informants' metalinguistic abilities. Since small children have limited metalinguistic abilities and adults cannot often 'see' into the minds of children, we can only hope to construct grammars or parts of grammars purely as a heuristic exercise. That is, I agree with Bowerman's (1970, 1975) position that flexibility in grammatical analysis of child language is desirable; it should serve only to illuminate and tie together data, but cannot pretend to be in any sense equivalent to what is in the mind of the child.

I have come to the conclusion that the younger the child, the more inextricably is language development linked with other aspects of the child's development. This is emphasized in Halliday's (1973a, 1975) model. Thus, Sinclair (1974) lists three necessary antecedents for language learning: cognitive schemata such as object permanence, representational behavior and communicative needs. The child has to have meanings which can serve as a clue to language (Edwards 1973, Ervin-Tripp 1971, Kernan 1970 and Macnamara 1971), meanings which are presumably built up during the sensorimotor period.

As for communicative needs, whether these are innate or built up during early infancy is irrelevant to language learning--that they are necessary on the other hand is obvious, since autistic children do not learn language for seemingly that very reason.

In 1969, Sinclair-de-Zwart stated:

> ...a theory of the acquisition of language would have to be based on a theory of the developmental changes in the knower-symbolization-known relationship: in other words, on genetic epistemology. On the other hand, it would also have to be based on a theory of the formal properties of language, in other words, on linguistic theory. To understand <u>how</u> something is acquired, we first have to know <u>what</u> is acquired. (326)

Yet, in 1974, she agrees with Piaget that "it's not possible to understand any kind of behavior unless one knows how it has been built up during development." (taped speech) I believe that the seeming contradiction and certainly the difference of focus between the two statements is due to the fact that at the time of the first, Sinclair-de-Zwart had worked mostly with older children's language (cf. 1967), while in her 1974 speech, she is talking about very young, 'pre-linguistic' children. Similarly, I plan to ask different questions at different developmental stages. At the very early stage, it makes more sense to ask: What is the child doing when he uses language? rather than simply: What is the structure of this child's linguistic productions? Despite the limitations of my data-gathering procedures (tape recording of natural conversation), I think this is a more productive approach at first.

On the other hand, at some time, every child begins to deal with the more abstract aspects of language learning, namely syntactic structure, some of which has no relation to meaning whatsoever (Bowerman 1973, Ervin-Tripp 1971 and Slobin 1973). It is

at this point that it begins to make sense to demand some exposition of the adult system, or the 'what' that the child is learning. Needless to say, the child continues to struggle with language use and the context of utterances; but his syntactic knowledge grows quickly, often even ahead of his knowledge of appropriate use.

For various reasons, I have decided to focus on locatives in the language of the Estonian children I worked with. One reason is that this enables me to stay closer to what I find most interesting about language learning--the cognitive and social basis--than an exposition of all of the grammar at any one stage would. Another reason is that the expression of location in Estonian is intriguing from both structural and psycholinguistic points of view; it is also quite different from English. My main approach is one in which the focus "is on particular perceptual and cognitive events where language is more of a dependent variable. The questions to be answered...refer to the relation of some cognitive processes to linguistic performance..." (Flores 1970:247), in this case how spatial relationships are described in language by children. However, I will also discuss the situational context of language acquisition, since this may have various types of impact on language development among different children and in different cultures.

In the remainder of the first chapter, I will review the studies of child language development which are most relevant to my work. These include studies which are primarily syntactic in focus, that is, syntactic complexity is regarded as a powerful explanatory device for child language acquisition theory. Next, I will discuss studies which focus on semantic complexity as explanation for

language acquisition. While cognitive structure as the basis for language development is not always clearly separated from the semantic type of focus, I will attempt to discuss those studies which are most clearly cognitively based separately. Finally, I will review those studies which have a primarily pragmatic focus.

1.2 Syntactic Studies and Syntactic Complexity as Explanation

It is logical to assume that the learning of syntactic structure is at the core of language learning, since learning only the sounds of a language and the meanings of words will never result in an ability to speak that language. Moreover, it is fairly obvious, after a brief, systematic examination of children's early speech, that the most dramatic differences between child and adult language are in the realm of sentence structure. From this finding the obvious next step is to try to discover exactly how children's simple sentences develop into the syntactically complex adult language. Further, dissatisfaction with the simplistic descriptive nature of such studies leads logically to various hypotheses about why a particular developmental sequence exists, or how children can possibly learn rules which are never manifested in actual language that they hear. The syntactic complexity hypothesis--that children will learn the simplest structures first--is a hypothesis about the sequence of syntactic acquisition. The LAD (Language Acquisition Device) hypothesis--that children are born with an innate ability specific to language learning--is a hypothesis about the learning of underlying rules.

The studies which deal with these kinds of concerns are extremely important, since they were the first really systematic studies of children's language development and lead to the present widespread interest in child language. These studies, which began in the early 1960's, coincided with, and probably depended upon developments in linguistics which had to do with, on the one hand, emphasis on grammar rather than phonology, and on the other hand, renewed interest in linguistic structures as these relate to the human mind.

Four very important types of studies (or arguments) that were characteristic of this era can be distinguished. Two had to do with the description of child speech--one of them the by now much-discussed pivot-open type of description, and the other a description based on adult grammar, with emphasis on the child's successive approximations to it. The third type of study has to do with the discovery of linguistic universals through child language. The fourth type was really a controversy between psychologists and linguists: mostly psychologists tried to explain the learning of language through use of learning theories, and mostly linguists tried to argue that no known learning theory could explain what is learned when the child learns his native language. All of these studies focused primarily on the formal structural aspects of language--on syntax and morphology, disregarding for the most part semantics and also language use (language as communication) and function.

The first type of study, the pivot-open descriptive approach, was done simultaneously by three separate groups of researchers. In each case, there was a desire to look at child language on its

own terms--as a system in its own right, with regularities not necessarily related directly to or similar to the adult system. Thus, Braine (1963a) characterized children's earliest word-combinations as consisting of two syntactic classes: pivots, or P, to which a few frequently occurring words belonged, and a class of X words, to which belonged a large number of words, few of which recurred in more than one or two different combinations. Brown and Bellugi's (1964) description of noun phrases is very closely related to Braine's characterization--they called their classes 'modifier' and 'noun'. Miller and Ervin (1964) similarly made a basic division into two classes--'operators' and 'non-operators'. All these investigators postulate pivots (modifiers, operators) to be precursors of adult function words, while X-words (nouns, non-operators) seem to be precursors of lexical words. In another description, Brown and Fraser (1964) attempted to write a generative grammar for the corpus of one of the children in the study. Essentially, they divided occurring words into four classes, and wrote their rules in such a way that most of the child's actual one-word, two-word and three-word utterances (plus numerous non-occurring ones) could be generated. While possibly descriptively adequate, these types of analyses of early child language have no explanatory power. Furthermore, there is no possible direct outgrowth which could be explanatorily adequate.

For somewhat later stages of child speech (approximately when four- and five-word combinations begin to occur) therefore, most of these researchers found it more profitable to base their descriptions of child utterances much more directly on adult grammar.

Thus, Miller and Ervin (1964) state: "At this time it is convenient to describe the child's grammatical system as a simplified grammar of the model, along with added grammatical rules to account for constructions that have no counterpart in the model language." (26) One can then discuss the types of deviations from the model (adult grammar). Brown and Fraser (1964) and Menyuk (1963, 1964) also make extensive use of adult grammar and deviations from it in the language of children. Perhaps the most thorough work of this type has been done by Bellugi (1965) and Klima and Bellugi (1966), who examined the development of sub-systems of grammar, specifically the interrrogative and negation systems of English.

The work of Chomsky (1965) was primarily responsible for the interest in universals on the part of child language specialists. If there are in fact structural universals in grammar, then they are there because of the nature of the human mind. Human beings may be born with abilities specific to language, with 'innate ideas' as to the nature of language. They then use these innate ideas to learn the specific language they hear around them. What better way to discover that which is truly universal in language than by studying the language of children around the world? This relationship between the capacity for language and linguistic universals, as well as some of the specific forms that innate capacity might take were discussed rather extensively by Fodor (1966), McNeill (1966) and Slobin (1966). McNeill's position was that the child is born with the entire set of linguistic universals which he then uses to filter out the specific structure of the particular language he happens to be learning. He suggested that formal universals (specifying the form that rules have

to take) and the basic grammatical relations (subject-predicate, verb-object, modifier-head) are part of this innate capacity.

One of the problems with McNeill's and others' attempts to find linguistic universals in the language of children was that such postulated entities as 'basic grammatical relations' could equally be called 'semantic relations' and thus become part of a more general cognitive capacity.

More recently, McNeill (1970, 1971) discusses at length the existence of specifically linguistic universals. He distinguishes 'weak linguistic universals'--those which have as a necessary and sufficient cause one or more universals of cognition or perception, and 'strong linguistic universals'--those which have universals of cognition or perception as a necessary cause, but not sufficient (an example of the latter being 'noun'). In the meantime, his own empirical work has rested heavily on cognition and semantics, as in the discussion of what a Japanese child means when she says no (McNeill and McNeill 1968).

Slobin (1973) as well focuses his main efforts on the discovery of 'language-definitional' universals, or what McNeill calls strong linguistic universals, believing with McNeill that such universals reflect specific linguistic capacity. Thus, his suggested universals and operating principles focus directly on linguistic data (e.g. "Operating Principle A: Pay attention to the ends of words." [191]). The latter seem to be cognitive operations which the child applies to specifically linguistic data. Both McNeill's and Slobin's recent work can be viewed as an evolution from their original interest in universals.

A few words on the controversy between psychologists and linguists about the nature of language acquisition is necessary, since the irreconcilability of the differences between the two groups at that time contrasts with the present much more successful attempts to fuse psychology and linguistics in child language study. The basic differences were due to the fact that the psychologists believed that there are certain processes used by all higher animals in learning--including by humans in learning language. The linguists, however, claimed that certain processes were specific to learning language, and even more extreme, that certain innate ideas existed which were, in effect, language. Thus, Jenkins and Palermo (1964) used mediational paradigms as a base for the study of language acquisition. Braine (1963b) sought to provide the psychological mechanism to account for the phrase structure of sequences, in his 'place contingency theory'.

Those psychologists who had been closer to linguistics for a longer time contented themselves with pointing out some of the inadequacies in current learning theory when it came to the learning of language, without attempting to extend such theory. Miller (1964) held that the notion of productivity, when encountered in simple situations, could be dealt with in terms of stimulus and response generalizations, but that there is good reason to believe that the kind of productive generalization that goes on in language use is of a completely different order of complexity. Brown and Bellugi (1964), after their description of the evolution of the noun phrase, came to the following conclusion:

> ...the induction of latent structure is by far the most complex [of the three processes described]. It looks as if this last process will put a serious strain on any learning theory thus far conceived by psychology. The very intricate simultaneous differentiation and integration that constitutes the evolution of the noun phrase is more reminiscent of the biological development of an embryo than it is of the acquisition of a conditioned reflex. (161)

And Brown and Dulaney (1965) state:

> Linguistic structure poses no problems for conditioning theory so long as it simply requires that responses be learned to complex sign processes which are different from the responses learned to the component signs. These effects have been demonstrated and conceptualized. They are learned in accordance with familiar principles of selective reinforcement and extinction. The fact is, however, that linguistic syntax is more than simple contextual variation or stimulus patterning. (91)

Linguists' arguments were contingent on the notions of deep structure versus surface structure of language. There are some aspects of deep structure which are never manifested in surface structure: hence, no amount of refinement of learning theory can account for language learning, since what is not heard cannot be learned, in any ordinary sense of that term. Consequently, some aspects of deep structure must be innate. They essentially concluded that as yet there was no known evidence to support any specific claim about the relative importance of environment versus biological propensity in the acquisition of language (Chomsky 1964, Ervin-Tripp and Slobin 1966, Lenneberg 1964 and Weksel 1965).

The principal arguments against the above types of studies centered in the fact that children are not just learning abstract structures when they learn language--they learn to say something. As regards pivot grammar, on closer examination even the structural description does not hold up (Bowerman 1970 and Brown 1973). After

close examination of the original and additional data, Bowerman (1970) concludes:

> The pivot-open model does not accurately represent the data from early speech samples of American, Finnish and Samoan children. Words in the children's utterances do not conform to the distributional privileges of occurrence specified by the rules of a pivot grammar. All of the children used a small number of words in a relatively large proportion of constructions, but these words rarely incorporated simultaneously all the properties attributed to pivots: fixed position, potential combination with all non-pivot words, not occurring alone, and not occurring in combination with each other. Moreover, none of the children had an undifferentiated open class. (98)

Bloom (1970, 1971) sees pivot grammar as a superficial characterization of the form and distribution of linguistic elements in two-word utterances. "When utterances were examined along with context and behavior in speech events in which they occurred, certain underlying conceptual relations could be identified." (Bloom 1971:40)

Klima and Bellugi (1966) in their work specifically disclaimed being concerned with either the expression of semantic concepts or with basic grammatical notions like subject function and transitivity--rather, they said, they were interested in the way the child "handles lower-level syntactic phenomena like position, permutability, and the like." (191; see also Klima 1968 and Bellugi 1968) Bever (1970) was probably including this kind of work in his criticism when he argued that the claim that languages are learned via a series of subgrammars of the adult language remains to be demonstrated. "...there are certain non-grammatical behavioral variables that we know to affect the learning of language, even though we do not yet understand the learning process itself." (350) Klima (1968) himself seemed to be acknowledging the limitations

of this kind of analysis in statements about the fact that the structure of and the errors in children's sentences do not always conform to expectations.

McNeill's and Slobin's discussions of universals were also based on essentially structural analysis of children's sentences. Braine (1971a) later added to this type of work. Bowerman (1973) once again re-examined original and additional data, and concluded that there is not enough justification for the characterization arrived at by McNeill, Slobin and Braine. She states:

> ...arguments about constituent structure which are based upon the relative frequency of production of different types of strings or upon characteristics of replacement sequences are not conclusive...In short, we still do not know whether children produce their early subject-verb-object and subject-verb-locative constructions with the particular understanding of constituent structure which has been ascribed to them... (204-205)
> ...the structural phenomena which require the concept of subject in adult speech are evidently missing in early child speech. To credit children with an understanding of the concept is an act of faith based only on our knowledge of the characteristics of adult language. (207)

The last sentence quoted is of particular interest to me, since I have essentially the same criticism to make about some of the analysis done in terms of 'semantic relations', as we shall see in Chapter 3.

The entire argument about how deep structures cannot be learned, and about the inadequacies of learning theory was rather shortly and neatly dismissed by Schlesinger (1971a). He argued that utterances are produced directly from 'I-markers' which represent the intentions of the child in a given situation--therefore there is no mysterious 'deep structure' which has to be learned or is innate. I-markers represent the way the child views the world, and are

determined by innate cognitive capacity. Aside from this cognitive capacity which is the basis of I-markers, language learning involves only processes that appear to be amenable to an explanation within a learning theory framework. It should be noted that this work by Schlesinger was part of a symposium which began in 1965--it is not clear exactly when Schlesinger made his contribution. I am not implying that Schlesinger's argument should have or did put a definitive stop to the controversy; it was however influential in changing the direction and focus of child language acquisition studies, as was Bloom's dissertation (1968) on which her book (1970) is based.

Bloom's (1970) work has been heralded as pioneering in the area of taking meaning into account in the analysis of child language acquisition. The impetus for Bloom's work was her dissatisfaction with the analyses of children's syntax carried out in the early 1960's. She characterizes them as 'taxonomic', even though they proposed generative rules of grammar. "They relied exclusively on distributional analyses...There was no attention to linguistic function--to what the utterances seemed to be saying." (1-2) She believes that children have an underlying sentence structure unrealized in their speech. Specifically, they demonstrate early "an awareness of some of the possibilities for combining lexical items with different relationships between them to correspond with different semantic experiences." (7) Bloom's goal is essentially the same as that of the earlier researchers--to construct grammars for different stages of language acquisition. She states the necessity for taking semantic information into account in this endeavor in the following way:

> Generative transformational grammar could be used in a more powerful way to account for children's language than it has been if semantic information were available in order to make inferences about underlying structure. However, to obtain such evidence for constructing grammars for children's language it appears to be necessary to depend on the intuition of a native speaker of the mature language for interpreting the semantic intention of what the child says... (9)

Bloom's aim, then, is to recover the child's 'underlying structure' by semantic interpretation of utterances in context--a procedure she claims to be parallel to the use of native linguistic intuition on the part of the linguist when constructing the grammar of a language. She relies heavily on generative tranformational grammar as outlined by Chomsky (1965) for most of her analysis, using semantic interpretation as a tool in postulating the deep structure of children's sentences. Thus, she talks about the frequency of noun forms in the children's utterances, and about the determination of "the categorical, contextual features of lexical items" (29) in terms of their co-occurrence with noun forms. Lexical items are essentially categorized according to their structural relationship to noun forms, with some attention to the semantic intent of the utterance in which they occur. For instance:

> Lexical items were included in a category of <u>adjectives</u> if they occurred previous to a noun with an attributive, <u>specifying</u> relationship to the noun in context (indicating that both terms were dominated by the same node, NP). Several noun forms were included in this category--for example, a <u>bear</u> book, specifying a book about bears; a <u>girl</u> book, specifying a book with a picture of a girl on its cover; a <u>party</u> hat, specifying a hat for parties. (31)

In Bloom's analysis, the deep structure, or phrase-marker component of the grammar is not semantically based; its nature is however only accessible if semantic information is included in the analysis of children's utterances. In addition, the surface structure of

children's utterances combined with semantic information leads her to postulate a multitude of unrealized constituents (deletions, reductions, unspecified constituents). The problems with both of these views will be discussed later in this section.

Bloom's later work (1973a) is still essentially syntactic and structural, although she relies more on 'semantic relations' worked out by others. I am here referring to Bloom's work with children who are at the two-word stage and beyond. Her theoretical position with respect to children at the one-word stage (1973b) is more compatible with the position I take in this work, and will be discussed later.

Bloom (1973a) claims that the fact that the same semantic relations can have two alternative and consistent representations in the speech of different children is evidence that children are learning grammar first. The child learns syntax first, and then he can learn situational, social and cognitive concomitants of usage.

> It seems to be that...at the beginning of the third year, before 30 months of age...function begins to follow form. That is, children begin to learn aspects of the adult system that they cannot have full control over based on what they already know. But the system itself seems to have a certain integrity such that learning one aspect of the system will entail knowing other aspects of the system. And once the child knows such other aspects of the system he needs to learn the interpersonal, the social, the functional, the cognitive constraints on how such aspects of the system are [used]. (my transcription of tape)

The semantic relations that Bloom talks about have mostly been worked out by Bowerman (1975) and Brown (1973). One of the problems with their use is that they are categories imposed by an adult interpreter. (For further discussion, see the analysis of Bowerman's

and Brown's work in Chapter 3.) In Bloom's case, she is assuming that consistent use of expressions such as fix it versus fix car is different only structurally, not semantically. Furthermore, there is not enough evidence, in my mind, that the use of pronominal rather than nominal reference or vice versa is any more syntactic rather than situational or social at this age than it is in adult language.

Although in her later work Bowerman (1973, 1975) does not attempt to write grammars, in her dissertation (Bowerman 1970) she wrote three types of grammars for both her Finnish and English subjects: pivot grammar, generative transformational grammar and case grammar. She found the pivot grammars extremely inadequate. She felt that in writing a generative transformational grammar for children one makes some assumptions which are difficult to justify. An example is that the predicate has psychological unity for the child as it does for the adult. In general, she feels that

> ...the constituent structure assigned to children's utterances by a generative transformational grammar is gratuitous. It seems plausible that at an early stage of grammatical development, children are able to produce combinations of words without having the same implicit understanding of their constituent structure as an adult speaker has. (321-322)

In addition, the deep structure consituents of transformational grammar, such as 'subject', are too abstract and powerful, certainly much more than is needed to represent children's early utterances.

Bowerman concludes her dissertation with suggestions about what an optimal grammar for child language should incorporate.

Essentially, categories in the grammar should be flexible and based on evidence from data that children do in fact in some way understand a category. Flexibility is necessary since the child's speech changes rapidly--for example, what at one point may be best described by the use of a semantic category might very soon better be described through the use of a syntactic one. Bowerman seems to be advocating grammatical description of child language which is based on what is psychologically real to the child; whether the description corresponds systematically to any linguistic grammar written for adult language or not is unimportant.

Roger Brown (1973), although very much concerned with semantic analysis, feels that grammatical analysis of children's language is also important. He states:

> ...in arguing for the virtue of semantic analysis of multi-morphemic utterances it has never been my intention to deny the...importance of analysis of form, of the means of expression. Indeed certain generalizations and problems emerge from this sort of analysis that the semantic analysis did not catch. (201)

Brown attempts writing grammars for the subjects in his study who are at a very early stage of multi-word utterances (his Stage I), using various theoretical approaches: Schlesinger's (1971a), Fillmore's (1968) and Chomsky's (1965). He finds certain advantages in each, but many disadvantages as well. In general, his analysis indicates that children's grammar simply cannot be analyzed the same way that adults' can.

One problem looms large in the writing of grammars, whether Chomsky-type transformational or case grammars, for early stages of children's speech. This is the problem of embedded constructions and deletion rules. In both cases, the base structure of utterances

is more complex than the surface structure. Kramer (1973) discusses this type of formulation as being awkward, as it implies that "the child knows the rules, but chooses to omit the expression of them in his/her speech." (7) Bloom (1970), whose work Kramer is primarily discussing, does not even consider such difficulties in her discussion. Bowerman and Brown, on the other hand, both express their reservations about these types of analyses, including their own.

Bowerman (1970) feels that Fillmore's case grammar formulation for noun modification (an S embedded in an NP) does not accord with children's formulations, and thus does not derive genitive-noun and adjective-noun combinations in this way. On the other hand, in both her Chomskian and case grammar analyses, she derives agent-object (or subject-object) structures by specifying an underlying verb which is then transformationally deleted. Brown (1973) discusses the derivation of both possessives and adjectives, and feels that the account in formal grammars does not accord with the fact that children use the simple surface forms long before they can express the more complex forms which supposedly underlie the simpler ones. He discusses the virtues of using optionality in the base versus reduction transformations, and finds both inadequate.

There is no question that the necessity of dealing with embeddings and deletions leads to much more fundamental questions about grammar in general. On what basis can we assume that the child 'really has' these underlying forms in his grammar? The basis for making these assumptions in adult grammar is usually the linguist's intuition; we don't have access to the child's

(that is, a linguist cannot think like a child). What is the relationship between child grammar and adult grammar? How can we tell where they converge and where they diverge? Assuming that the grammar a linguist writes for adults in some way underlies actual performance, can we assume the same thing for children, and if not, at what point in their language development is this a valid assumption?

Thus, it is obvious that syntactic analysis of child speech by itself is inadequate. The syntactic complexity hypothesis as originally stated is not supported by data, and the many difficulties encountered in such analyses point to the possibility that the nature of language acquisition is more complex than the learning of syntactic rules.

1.3 Semantic Studies and Semantic Complexity

The various difficulties with syntactic analyses of children's language resulted in a search for a different approach. Several investigators pointed out that children do not talk 'empty structures', that they are trying to say something--that is, child utterances have a meaning content. Therefore, an analysis of semantic structures should prove more illuminating than merely syntactic analysis.

McNeill's and Slobin's 'grammatical relations' (as discussed in the previous section) were felt to be too abstract to attribute to children's early utterances. Many researchers felt that the true nature of language universals was semantic, that certain basic semantic structures were being expressed in early child utterances.

Generally, the argument took the following form. The child, when he first puts words together, is not just conjoining lexical items, nor is he using e.g. noun-verb constructions because he in some way knows that subject comes first and then predicate. He is expressing instead relations that he has identified as existing between two entities--in this case, an 'agent' who 'acts'. Similarly, an expression like daddy car is not just 'modifier-head', it is a possessor plus the object possessed. The child thus has certain cognitive schemata about relations among entities in the world, and he learns to express these in language.

When a child acquires language, then, he is learning the grammatical expression in the language spoken around him of semantic relations which exist in the real world. Therefore to understand how children learn grammar, we have to understand what semantic relations they are trying to express. Moreover, since cognitive development is similar around the world, all children will at first try to express the same semantic relations--we may be able to understand more about language acquisition if we can determine at what point grammatical differences among languages help or hinder the expression of universal semantic relations. But first, we need to establish what these very early semantic relations are.[3]

The strategy in studies dealing with semantic relations has been to analyze children's early utterances in terms of their meanings and structure, and on the basis of the two, decide what semantic relations the child is trying to express, and sometimes also what his grammar must be. The major studies along this line (those of Bowerman 1975, Brown 1973 and Kernan 1970) will be dis-

cussed in Chapter 3. It will be seen that most of such semantic relations are derived from what we know about adult grammar, and cannot usually be fully justified for the child's. Moreover, it will be shown that upon close examination, none of the so-called universal semantic relations are universal.

Here I want to discuss mainly the work of Schlesinger (1971a, b, 1973), which has already been mentioned in the previous section, and the work of Antinucci and Parisi (1973).

I.M. Schlesinger was one of the first to suggest that relations underlying child speech are semantic in nature and reflect the way the child perceives the world (1971a, b). Schlesinger was dissatisfied with the analysis of language learning through attributing deep structures which never appear on the surface to children's language, and in turn attributing the presence of these to innate ideas about the structure of language. He suggested that instead of attributing deep structure P-markers to the child, the child's language be analyzed in terms of I-markers (Input markers), which represent that part of the child's intentions which are realized in his speech. I-markers, in Schlesinger's view, consist of 'concepts' together with the relations between them (1971a). But the child is not by any means expressing all the concepts and relations that are present in his cognitive structure--some reasons for this are complexity of linguistic expression, communicative needs and saliency to the child (Schlesinger 1973).

> ...cognitive structures must be distinguished from the deep structures which underlie the production and comprehension of sentences. We are capable of organizing the world around us in innumerable ways, perceiving any number of relations between objects, attributes, states,

> actions, etc. We are also capable, in principle, of talking about any one of these perceived aspects. But many of them are not linguistically relevant, i.e., the grammar provides no rules for tying them to surface structures of sentences. (Schlesinger 1973:22)

The question of what parts of a situation that a child is trying to communicate can be realistically attributed to being in his 'underlying structure' (or in anyone's) has been discussed also by Bloom (1970:10), Brown (1973) and Macnamara (1971). Macnamara puts it this way:

> ...many ideas are conveyed without the use of any explicit linguistic device. For example, the directive, close the door, does not carry any explicit indication that you has been deleted and is understood. The problem is even more deeprooted than this example implies. The command, put on your shoes, does not express the you, but neither does it specify where the shoes are to be put (on the feet, not on the hands), nor even on whose feet (yours rather than mine). So rich and powerful is the human interpretative system that much can be left unsaid. To express everything one intends is to be a bore--it may even be impossible in principle. (473-474)

Schlesinger (1973) refers to Brown's discussion of relational concepts, with respect to the criteria for categorizing these relations--ultimately, each utterance expresses a distinct relation.

> As far as cognitive structures are concerned this question certainly stands: these may contain infinitely many relations, and at present there even seems to be no evidence for the psychological reality of any classification of these relations. But if the question is asked about I-markers, the answer may be suggested that there should be as many relations as are necessary to account for the rules which map them into surface structures. In other words, a relation in an I-marker is one which makes a difference, linguistically. (23-24)

As an example, Bloom's (1970) work contains an analysis of negation, in terms of three different kinds of negation: non-existence, rejection, and denial. But if the child uses the same structure

to express all negation, then there is no basis for attributing three different kinds to his linguistic system. According to Schlesinger, here cognitive structures mature before I-markers. Presumably, Schlesinger's attribution of different types of negation to the cognitive structures of the child is based on other than linguistic evidence, although he does not say what it is. However, I will have occasion to discuss whether Schlesinger may be using linguistic, but not structural, evidence.

In contrast to Schlesinger, Antinucci and Parisi (1973) attribute much to the child's underlying semantic structure which does not appear in surface structure. They claim to be presenting a model of linguistic competence based on generative semantics. "According to this model, the grammar of a language specifies the set of well-formed semantic representations and provides the means for mapping these representations onto surface structures." (607) Antinucci and Parisi use both production and comprehension data in their analysis of child language. As an example of this type of analysis, they posit the verb <u>to give</u> (Italian <u>dare</u>) to be a three-place predicate (one that takes three NP's) in the underlying semantic structure of the child's grammar. At an MUL (mean utterance length) of approximately 1.3, only one NP ever occurs with <u>dare</u> on the surface; but the occurrence is about evenly distributed among what would be termed the subject, object or indirect object in adult language. Therefore, Antinucci and Parisi postulate that all three arguments are present in underlying structure, but the child's limitations of expression necessitate a rule which says: any one of the arguments, but only one, can be represented in sur-

face structure.

Schlesinger (1973) views Antinucci and Parisi's analysis as being 'afflicted' with two fallacies which he considers impede and confuse the analysis of language acquisition. First, it is a fallacy to attribute relations "presumably existing in a child's cognitive structures to his I-markers without independent confirmation from the child's speech. Related to this is what one might call the anachronistic fallacy, namely that of viewing the child's linguistic development from the vantage point of adult grammar." (27) Schlesinger argues that there is no basis for attributing such a complex underlying semantic structure to the child. With respect to the three-place verb, for instance, it could simply be that the child attends only to one or two aspects of the situation at a time, and these are what he tries to realize verbally--there are no other underlying NP's. Antinucci and Parisi do not distinguish between I-markers and cognitive structures, and thus are led into such distortions. He also argues that the distinction between obligatory and optional structures is justifiable only in adult grammar--there is no reason why the child should be credited with this distinction, before he has learned it as part of the rules of grammar.

> Therefore, AP's [Antinucci and Parisi] approach of not distinguishing between I-markers and cognitive structures, if followed consistently, would require that everything the child notices be included in the semantic representation. Consequently their semantic representations would have to be indefinitely large and be dependent on a host of motivational factors, and hence they would be almost useless for describing child language. This shows once again that the only meaningful way of representing the child's underlying structures must be based on what he actually utters, not what he knows to be the case. (Schlesinger 1973:31)

Clearly, Schlesinger on the one hand, and Antinucci and Parisi on the other are trying to accomplish different things. Schlesinger wants to write a strictly performance grammar for the young child--one that is actually used by the child in the production of utterances. Antinucci and Parisi conversely want to write as full a competence grammar as possible, relating it to performance by rules such as mentioned above: "only one NP can be realized." Both endeavors have their peculiar difficulties. I suspect that in trying to use the Schlesinger model, many utterances will be problematic, although intuitively they should fit into the child's grammar. It is also difficult to see where and how Schlesinger would make a transition to adult-type grammar. Antinucci and Parisi's model, on the other hand, does suffer from attribution of adult categories to child grammar--many of the categories they use are a result of their own linguistic intuitions, not of the child's. Parisi (1974) in a reply to Schlesinger's criticism, outlines the types of evidence that he and Antinucci use in constructing a model of the child's grammar. Some of this is linguistic evidence, including vertical construction in Scollon's (1973) sense, but also other evidence, such as the child's knowledge of the world as demonstrated through his actions, and the mother's interpretation of what the child says (Parisi 1974).

Although Schlesinger, when talking about cognitive structures, uses such other evidence, it seems that he could also be using linguistic evidence, such as comprehension and intonation patterns. But he uses only structural evidence to write his grammar. Thus he uses the heuristic device of drawing the line between cognitive

structure and language structure the way that he does in order to produce a performance grammar. But what should be the subject matter? Should it be the child's knowledge of language, his production of language, or his learning of it? Perhaps it should be expanded to something like the child's learning to use language in communication. If it is narrowed to performance grammar, many insights might be lost--for instance, insights into the whole process of learning, which must include (at the very least) interactions among cognitive structures, comprehension of language, and production of language.

We can see from these semantically oriented studies that they immediately point to the necessity of looking at children's cognitive development. Cognition is mentioned as the basis for semantic relations; a distinction between cognitive structure and semantic structure is attempted by some investigators. But it is very difficult to justify calling some semantic relations more basic than others, or simpler in some sense, without examining the nature of children's cognitive development.

1.4 Cognitive Development and Language

One of the more interesting and reasonable arguments as to the priority of cognitive development to language development comes from Sinclair-de-Zwart (1969), who works closely with Jean Piaget. She points out that the main difficulties with postulating innate linguistic structures are: 1) one cannot explain the lag between the first manifestations of practical intelligence and the first verbal productions and 2) the nature of the first verbal productions (one-

word utterances) does not fit in with the types of innate structures postulated. In her view, therefore, language does not begin as a separate system but as an integral part of the child's total cognitive development, and is moreover dependent on this cognitive development. She states:

> It seems more in accordance with the facts, though less simple, to suppose that the coordination of sensorimotor schemes, which are actively built up during the first 18 months of life, starting from hereditary reflexes, is a necessary condition for language acquisition to become possible, which, like all manifestations of the symbolic function, takes place withing a context of imitation. (332-333)

Similarly, Donaldson and Wales (1970) relate children's early utterances to their cognitive capacities--at least in the sense that no major discrepancies can be discerned between children's known cognitive skills and their linguistic utterances.

> The child seems to be expressing relations in space... or else to be describing actions directly concerning physical objects. Now it is known that by this age the child has a considerable ability to manage spatial relations on the level of action--to make detours, to look for objects behind or under other objects, and so on. He also, and by the same token, has a rich repertoire of types of action available for the manipulation of objects... (236)

If universals in language are indeed cognitive rather than linguistic, then it makes sense to study universals in language acquisition not only at the very earliest stages of two-word utterances but also before these stages and after. All sorts of biological, social, emotional and intellectual changes are known to take place from birth to the age of twelve or thirteen, at which time they slow down considerably. "Is it possible, then, to trace out a universal course of linguistic development on the basis of what we know about the universal course of cognitive development? (Can

one take Piaget as a handbook of psycholinguistic development?)" (Slobin 1973:180) Slobin himself seems to come to the conclusion that to an extent, perhaps one can, but there are certain purely syntactic differences in languages which are responsible for earlier versus later learning of structures, depending on their difficulty, and that he is interested most in the cognitive strategies used in dealing with purely structural matters. Hence his 'operating principles', as discussed above in Section 1.2.

Others have carried out different types of studies on the relationship between cognitive development and linguistic development--some related directly to Piagetian notions, some not. Most closely related to the psychology of Piaget are the studies carried out by Sinclair-de-Zwart (1967), Donaldson and Wales (1970) and Wales and Campbell (1970), all of whom conducted deliberately manipulative experiments with children three and a half years of age and older. In general, the findings from these and other such studies indicate that though some direct relationships can be found between cognitive schemata and linguistic expression (e.g. between the achievement of conservation and the type of language used in the experimental situation), both specifically linguistic factors and contextual variables (such as the nature of the experimental situation and its interpretation by the child) are operative in ways not quite understood. E. Clark (1970a) examined the development of temporal descriptions in children's speech, and found great consistency of data both across children and within each child's protocol. She concludes:

> This suggests that the functions and semantic properties of temporal descriptions in children's speech are a reflection of some more general cognitive capacities underlying the acquisition of such concepts as the relations

of events to each other in time. (284)

Bever (1970) is interested in more global types of cognitive functioning and their relationship to language acquisition. Unlike Slobin (1973), who does not attempt to apply the cognitive strategies he discusses to other than linguistic data, Bever tries to show, for example, that the same types of cognitive strategies are used by children in dealing with numerical data and in linguistic behavior, and how these strategies differ at different ages. His views in a way intersect McNeill's and Slobin's (as discussed in Section 1.2) about adult grammar being what it is because children are born that way, except that Bever states the same hypothesis on a cognitive basis:

> Many aspects of adult language derive from the interaction of grammar with the child's processes of learning and using language. Certain ostensibly grammatical structures may develop out of other behavioral systems rather than being inherent in grammar. That is, linguistic structure is itself partially determined by the learning and behavioral processes that are involved in acquiring and implementing that structure. (280)

Most of the studies I have discussing in this section rest on very sophisticated notions in the psychology of cognitive development; moreover, perhaps because of this, they deal with children who already have a great deal of language and with experimental rather than natural language data. This is admittedly a necessary direction to take in the accumulation of data on language acquisition. But there has not been much work done on the relationship between cognitive structure and language in the very early stages of language development. This is one of the areas that this study is therefore concerned with. In Chapters 2 and 3 I will present some data in this area and discuss additional studies dealing

with the relationship between cognitive and linguistic development.

1.5 Language in Context: Pragmatics

The ability to learn and use language is deemed by many to be the most significant human trait which differentiates man from other animals. There seems to be indeed an extremely strong instinct in human beings to communicate symbolically with each other. All but very seriously defective individuals learn language; even deaf children in schools where sign language is actively discouraged learn to use it before and along with verbal language, simply because they must communicate. Contrary to previous opinion, there is evidence that even human beings who have been isolated until puberty can learn language. The recent account of a young girl's attempts to learn language are most striking in her struggles to use language for the purpose of relating to others--for communicating (Curtiss et al. 1973).

When linguists speak about language, they generally are talking about structure. This accounts for the large number of structural accounts of child language described in the preceding sections. But language is not just structure--using language for communication involves much more than simple knowledge of the symbolic code. It involves meaning and cognitive schemata as already discussed; it involves knowing the uses or functions of language and it involves knowing how to integrate language and the situation in which it is being used. A human infant is born into a world which includes all these things. In studies of child language development,

a multitude of such factors has been neglected. Halliday (1973a) puts it this way:

> We tend to underestimate both the total extent and the functional diversity of the part played by language in the life of the child. His interaction with others, which begins at birth, is gradually given form by language, through the process whereby at a very early age language already begins to mediate in every aspect of his experience. It is not only as the child comes to act on and to learn about his environment that language comes in; it is there from the start in his achievement of intimacy and in the expression of his individuality. (11)

We have seen that Hermine Sinclair (1967, 1969, 1971) is deeply concerned with the relationship between the child's cognitive development and language development. "The human communication system is not, as is the case for certain animal communication systems, immediately present, but it will be slowly built up to fulfil its function, that is, to represent and communicate events and thoughts in the language of the community." (Sinclair 1971:126) She does point out that the child's first use of language is not communication about events and thoughts, but rather communication about affective states linked to the child's acts. Yet, due to her Piagetian background, she concentrates on the learning of language as a semiotic system which represents external, physical reality, without consideration of the fact that affective functions of language (or language in its role of dealing with social reality, perhaps) continue developing also, with unknown effects on the total system.

M.A.K. Halliday has developed the most comprehensive model of language functions as applied to children (and adults for that matter). He believes that especially for the child, "...all language is doing

something: in other words, it has meaning. It has meaning in a very broad sense, including here a range of functions which the adult does not normally think of as meaningful..." (1973a:18) Halliday contends further that because of the child's conception of language, it is essential that we do not restrict the notion of meaning to the narrow limits of representational meaning, but include all the functions "that language has as purposive, non-random, contextualized activity." (18)

The functions that comprise Halliday's model are the following.

Instrumental:	used for the satisfaction of material needs; the 'I want' function.
Regulatory:	language in the control of behavior; the 'do as I tell you' function.
Interactional:	getting along with others; the 'me and you' function.
Personal:	the expression of identity, of the self, which develops largely through linguistic interaction; the 'here I come' function.
Imaginative:	reality is created, and what is being explored is the child's own mind, including language itself; the 'let's pretend' function.
Informative: (Representational)	the communication of content; 'I've got something to tell you' function. (After Halliday 1973a:17)

Halliday applies this model to the communication system of his own son in several publications (1972, 1973a, 1973c, 1975). He shows how the system of the child, where one expression = one function, and use = function (Phase I), changes and develops toward the adult system, where every expression is multifunctional. Thus,

in Phase II the instrumental, regulatory and interactional functions combine to form the pragmatic function, and the personal and heuristic combine into the mathetic function. For a time, all of the child's utterances are either pragmatic or mathetic, but not both at the same time. The gradual entry into Phase III occurs when the pragmatic and mathetic functions co-occur in utterances more and more. In functional terms, this is the adult system, where every expression has an ideational and and interpersonal function. Not until Phase III does the informative function appear. This is the only function arising directly out of language itself, since it is the only one which serves to communicate content which is unknown to the addressee.

Halliday's phases of development are mainly defined in terms of functions. To enable some comparison with the work described previously, Phase I begins when a first meaningful sound (interpretable by close adults as having meaning) is uttered (with Halliday's son Nigel, 9 months) and Phase II begins when two functions are generalized into one, there occurs a 'lexical explosion', and true dialogue is possible (with Nigel at the age of 16½ months). In terms of structure, Phase I is entirely holophrastic; two-word utterances begin at early Phase II. In the material I have access to at present, there is no characterization of the beginning of Phase III except as the 'adult system', which is multistratal (content, form, expression) and multifunctional (ideational, interpersonal, textual). From the examples given in Halliday (1975), toward the end of Phase II the child is already making use of some subordinate clauses, why questions, and the like (Nigel's age was

about 23 months).[4] Halliday says further that

> ...his entry into what we are calling Phase III... does not mean that he has mastered the English language. It means that he has constructed for himself a three-level semiotic system which is organized the way the adult language is. It is English and not any other language, just as a tulip bud is a tulip and not a chrysanthemum or a rose. But it still has a long way to go before it comes into full flower. (1975:115)

I have described Halliday's model at length because it is the only comprehensive one of language development in all its aspects, of 'learning how to mean.' Cognitive schemata play a relatively small role in the model--they enter into the personal and heuristic, and therefore mathetic functions, and of course into the informative, but are by no means the only determinants of expression. Moreover, syntactic structure plays a most minor role in this model. Hopefully with Halliday's model in mind it will be more difficult to overlook affective and social determinants in language development, even if the primary interest is in the relationship between cognition and language or in structure.

It is interesting to note that others have taken language functions into account when describing child language. Thus, Gruber (1973) shows that the child's first multi-word utterances are <u>performative</u>, while <u>reportative</u> utterances are added a little later. Similarly, Antinucci and Parisi (1973) postulate two functions for the child's sentences (each sentence only has one of the two): <u>describing</u> and <u>requesting</u>. These researchers incorporate these functions directly into the underlying semantic structure, as part of the child's meaning-intention, and into the syntactic structure. Halliday on the other hand sees language functions as resulting in

the form that grammatical structure takes (e.g. pragmatic functions result in mood, modality, person etc., while mathetic functions provide the context for transitivity, time and place, etc.)

Bever (1970) also feels that a view of language structure and its development which ignores the rest of development has been too narrow.

> Many aspects of adult language derive from the interaction of grammar with the child's processes of learning and using language. Certain ostensibly grammatical structures may develop out of other behavioral systems rather than being inherent in grammar. That is, linguistic structure is itself partially determined by the learning and behavioral processes that are involved in acquiring and implementing that structure. (280)

Bever's own work has to do with the effect of perceptual strategies in the child and adult on linguistic structure. We have seen that Halliday's work is in the realm of affective development: in the process of asserting himself in the world, and defining himself versus others, the child makes use of language in certain ways which in turn affect language structure. "The child must simultaneously acquire 'concrete' <u>behavioral</u> systems for actually talking and listening as well as an 'abstract' appreciation of linguistic structure itself." (Bever 1970:281) At some point the child must begin to learn social rules of language use. Very probably the first such learning occurs when a child learns to carry on real dialogue, as Halliday (1972) describes. The child at first is very limited in this respect. He can respond to Wh questions, respond to statements, respond to responses and initiate dialogue, but initiate only by using <u>what's that</u>? From this point, the child is continuously engaged in learning to use language appropriately in real situations

as well as learning language structure.

We don't yet know very much about the learning of social rules, nor their possible impact on language structure itself. It is probable that the two-year-old child is incapable of comprehending much of the social situation, and as a result, of learning social rules of language use. On the other hand, there is evidence that some types of rules are learned very early, depending on their emphasis in the culture. Ervin-Tripp (1973) has shown that two-year-olds use different forms in making requests, depending on who they are addressing. Sachs and Devin (1976) show that by the time a child is three, he differentiates among addressees according to age, and can even appropriately role-play the part of younger children. In some cultures, children may not learn dialogue quite as early as American or British children: Blount (1972), in describing adult-child interaction in both Samoa and among the Luo in Africa, demonstrates that small children do not reply to declarative statements which to adults usually initiate dialogue; in addition, children initiate dialogue less frequently than American children. He concludes that both among the Luo and Samoans, children are not considered conversational peers, and thus both the nature of speech to them and their speech to adults differs considerably from that among English-speaking populations.

Christian (1971) has probably done more work than most others with respect to the learning of dialectical and stylistic differences by children. Working in a Hindi-Bhojpuri speaking area of India, she demonstrates that children begin to learn respect forms and other stylistic variations early; by the age of five they are

competent in all stylistic variations of the colloquial Bhojpuri. Very soon after that, children learn standard Hindi and also Śuddh Hindi (religious dialect), so that by age ten or eleven many children have attained adult competence in all dialects and styles used in the region.

There are other aspects of language in context that children need to learn that could be called more cognitive than social perhaps. These have to do with the perception of the situation and the prior knowledge of the participants in a conversation.

> The mapping between messages and signals is context-dependent--e.g. whether one encodes a particular message as Martha's here, Martha's there or Martha's in the bathroom depends on one's conception of the situation of utterance, including presuppositions about what one's addressee knows, etc.--so that, for a linguistic description to be amenable to testing against language acquisition data, it must make claims not only about the semantic representation of sentences but also about which properties of a context are relevant in determining the appropriate use of the sentences it describes. (Griffiths, Atkinson and Huxley 1974:157)

It is a well known fact that many difficulties of comprehension between children and adults have to do with the inability of the child to 'take the role of the other'--i.e., to take into consideration exactly what the other person knows. Halliday (1975) describes an incident between Nigel and his mother in which Nigel asks her where 'the green ones' are, without specifying what 'ones' refers to. The entire realm of anaphoric reference is one that takes children a long time to learn--who has not tried to follow the narrative of an eight or nine-year-old, with its multitude of he's and she's and finally given up in exasperation? Even teenagers have to be stopped and asked 'who is he?' Furthermore, social class differences have

been demonstrated in the use of deictic reference (Bernstein 1972 and Hess and Shipman 1966); cultural differences most likely exist also. Merlan (1974) had difficulty following conversations just in this respect, while this difficulty did not seem to be shared by the Pawnee people present.

It is reasonable to speculate that many social variables have an effect on language structure. To take an example, could stylistic differences result in structural differences? Let us postulate that in Estonian, it is not too important to specify location by using a nominal--i.e., deixis is more acceptable even in formal speech than it is in English. Could this account for differences in acceptability of double adverbials in the two languages? In English *It's there inside is unacceptable at worst, awkward at best, while the equivalent expression in Estonian is not only correct, but very common.[5] Such a difference between languages would lead one to expect also differences in child language development. Specifically in this case, nominal locative expressions should be rarer in Estonian children than in English children (see Chapter 4, Section 4.4).

The study of social, affective and even cognitive factors in language development is in its infancy; however, such factors cannot be ignored even in a largely structurally oriented description, once they have been demonstrated to make even the slightest difference in language structure and how it is learned. It is for these reasons that I am attempting some analysis of these types of factors in this study.

1.6 Problems of Methodology

The analysis in this work, based on intended meaning and therefore including one-word as well as multi-morpheme utterances is similar to some other recent studies, such as those of Wells (1974) and Greenfield and Smith (1976). This procedure arose out of the interest in a particular semantic/cognitive domain.

Much analysis in child language has hitherto been focused on syntactic development, and therefore confined to the analysis of multi-morpheme utterances; or, when one-word utterances are discussed, it is their theoretical status as 'sentence' or 'not sentence' in children who have not yet reached the multi-morpheme utterance stage which has been the focus (Dore 1975). One-word utterances of children who are already producing multi-morpheme utterances have generally been ignored, even by researchers concerned with semantic structure (Bowerman 1975, Brown 1973, Kernan 1970 and Schlesinger 1973). In reading some of these studies, one gets the impression that a large part of the child's language has been left out. Consequently, a more important reason for my procedure is that language development takes place in the total context of communicative situations, and that therefore each utterance is relevant to the analysis of a child's language development.

Attempting to confine child language analysis to a particular semantic domain, the expression of location, is problematic--first, because ambiguities occur fairly regularly. The child's utterance, for example, is understood as being a reference to two objects in juxtaposition, which is all the child may actually intend--or he could intend to mean more than that. An example is the utterance man car--

an adult could interpret this as 'the man drives the car', 'the man is in the car' or 'it's the man's car.' On the other hand, it is obviously possible for the adult to recognize that the utterance may simply mean 'there is a relationship between the man and the car', even though this type of statement is not part of what we might call the pragmatic structure of informal speech.[6] Moreover, ambiguities occur in adult speech as well. An episode in the Allison IV speech sample (this is one of the samples I later use for comparative purposes) illustrates this:

Situational notes and adult	Child
(A taking horse out of truck and picking up doll)	baby doll ride/
(A trying to put doll in truck; can't get doll to sit in truck.)	baby doll ride/ truck/ baby doll ride truck/
Baby doll ride truck?	

(Bloom 1973b:244)

Here Bloom is echoing the child's sentence structure--a construction clearly not acceptable in standard English. She continues to use the same pattern on several subsequent occasions. I did not include these sequences in my analysis, although an argument could be made for them being locative constructions.

I consistently try to stress meaning as it emerges in the context of the situation as being the most useful basis for analysis of child language for my particular purposes. Yet, I seem to contradict myself by dividing all locative and possessive utterances into 'types' according to syntactic structure and function in the full-fledged adult language (see Chapter 4). Therefore I will try to justify this procedure. First, there are no detailed cognitive

data on spatial development after the age of 18-20 months; thus I cannot use cognitive structures as the basis for analysis, as I do for the very youngest children in Chapter 2. Second, I cannot use semantic structure as the base either, because such analysis has not been done for Estonian.[7] Third, the seemingly syntactic utterance types reflect both the semantic structure (sometimes in a one-to-one correspondence) of Estonian and pragmatics--that is, the relationship between utterance type and usage in an actual situation--both of which are of major interest to me.

In Estonian, case endings on all locative and possessive expressions (and the lack of case endings on some postpositions and adverbs) directly reflect semantic structure. For instance, simple location, 'motion towards' and 'motion away from'--all being clearly semantic notions--are always reflected in surface syntax in a regular manner, so that simple locative, cislocative and translocative case endings always correspond in meaning with these notions. The semantic notions 'internal' and 'external' always receive the corresponding syntactic case endings; however, in some Estonian constructions, 'internal' and 'external' case endings are obligatory for a particular word, even though the corresponding semantic notions may not even be applicable. There are numerous Estonian nouns, especially names of places, which take an obligatory type of ending--e.g. Inglismaal 'in England' uses the external ending, but Rootsis 'in Sweden' uses the internal ending. Similarly, some adverbs are inconsistent in the use of external/internal endings in the three forms in which they usually occur: Üleval 'up' has an external ending; Üles 'to up' has an internal ending; and Ülevalt 'from up'

again has an external ending. In these examples, the notion internal/external is irrelevant semantically,[8] so that in any case no contradiction occurs between semantic and syntactic structure.

The classificatory 'types' themselves--i.e., whether an utterance contains a noun + postposition or an adverb--reflect pragmatic structure. For instance, it is my claim that the demonstratives, or deictic adverbs, reflect the semantic notion of 'general location', yet are entirely dependent on the external situation for their use--that is, they cannot be used unless the location they refer to is actually present. (I leave aside for the moment anaphoric usage.) On the continuum from general to specific, adverbs come next. Locative adverbs generally specify approximate location. There are really two distinct types--deictic and non-deictic. In Estonian at least, the deictic adverbs are the ones which can also be used as postpositions. Thus, although they for instance specify 'on top', or 'into', they fail to note on top of what, or into what, and thus cannot be used nor understood apart from the external situation. The other group of adverbs, for example, ones such as <u>up</u>, <u>outside</u>, do not require knowledge of the speech-external situation to be understood. There are also a few in Estonian which can be used both ways--for instance, <u>all</u> meaning 'down', 'downstairs' or 'under'.

Finally, noun + case constructions, postpositions, and 'idioms' usually indicate specific location. These types of constructions include most of the information about the external situation necessary for understanding the utterance even outside the context--e.g. in a recording. They do specify on top of what, inside what.

The unit of analysis will be something like 'intended locative

meaning' rather than 'locative utterance'. That is, two or more locatives within the same utterance were counted as two or more. In most cases where two or more locatives are used, the meaning of each is the same as it would be if only one were used. (See Chapter 4, Section 4.4.) This method of counting locatives is compatible with the semantic/pragmatic focus of the study, in that it results in a count of meaning units rather than syntactic constructions.

I have used 'intended locative meaning' as the basis for inclusion/exclusion of utterances; I have found it necessary to extend this to include also 'intended possessive meaning';[9] and I have made use of adult syntactic structure and syntactic function to categorize locatives and possessives for analysis. I have thus followed some of Bowerman's suggestions (1970, 1973) for child language analysis: namely, staying close to actual data and using flexible analysis procedures. I believe I have used procedures which yield the most information for my major area of interest: how children learn to express location and possession and how they use these in speech situations.

1.7 Conclusion

In this chapter, I have reviewed different kinds of child language studies, outlined some of my biases and indicated some of the claims I will make as well as some directions this study will attempt to take. With respect to the relationship between cognitive development and language development, I have repeatedly indicated that more could be done in this area, especially concerning very early stages of lan-

guage acquisition. My hypothesis is that it is exactly at the stage of beginning two-word utterances that cognitive schemata of the young child are most closely related to his language learning, and therefore serve as the most powerful explanatory basis at this stage.

The major problem with relating cognition and language has always been the temptation to infer cognitive structure from language data (the most obvious example being the Sapir-Whorf hypothesis). In child language study as well, although several attempts are being made to connect Piagetian cognitive schemata with language expression, no one has yet analyzed the logically prior (Piagetian schemata) in order to try to predict the logically subsequent (language expression). This, then, is the first type of analysis I will carry out with respect to locatives in Estonian child language.

NOTES

1. Analysis of idiosyncratic aspects of child language is emphasized by Bloom 1970, 1973a,b and by Nelson 1973.

2. See Watt 1970 for a long and involved discussion; see also Bloom 1973b.

3. In this type of argument, cognitive schemata are regarded as given, and the focus is on language itself, that is, on semantic structure.

4. In truth, Phase I fades into Phase II fades into Phase III; and Phase II is itself really a transitional stage between the two very different systems of Phases I versus III.

5. The argument is that if deixis is more acceptable in general, then it is also more acceptable in double adverbials. In English, then, one would have to use one adverbial and one nominal to obtain a grammatical utterance, while in Estonian two or more adverbials are perfectly grammatical.

6. Howe 1976 discusses children's meanings versus adults' interpretations of them, with reference to ambiguous utterances.

7. Contrary to Herbert Clark's (1973) claim, his analysis of the semantics of space is not universal, but tied to a significant degree to the semantics of English. This will be discussed further in a later section.

8. Place names refer to expanses of space on the surface of the earth; a surface has no external/internal dimensions. By the same token, 'up' is the vertical dimension itself and can have no internal/external dimensions.

9. The necessity for including possessives will be discussed in Chapter 3.

CHAPTER 2

The Language of Space: The Beginning Stages

2.1 Introduction

In attempting to study the dependency of language on cognitive development, it is obviously necessary to have as complete a theory as possible of that cognitive development. Specifically, in the case of this study, a theory and description of spatial notions as they develop in young children is essential. The most comprehensive study of this kind is Jean Piaget's The Construction of Reality in the Child (1954). In this work, Piaget deals with the intellectual development of infants up to the age of approximately eighteen months. Since this is very close to the age where children first begin to combine words into sentences, Piaget's model can serve as the basis for examining the relationship between cognitive and language development in very young children. Moreover, his model of this stage of development is based on meticulous observation of children's behavior, without reliance on any language data whatsoever. Thus it meets the criterion of using cognitive structure arrived at independently of language data to probe the relationship between them.

Several studies have been done which are concerned with the relationship between cognitive development and language development. Roger Brown (1973) talks about the relationship between Piaget's sensorimotor developmental stage and the beginning stages of language acquisition, but does not relate the two in any systematic or detailed way. Lois Bloom (1973b) carries out a very careful and systematic

simultaneous analysis of sensorimotor schemata and language expression at the one-word stage; she concentrates mostly on object permanence as described in Piaget (1954) and its relationship to what is expressed in child language.

Edwards (1973) relates linguistic case theory, Piagetian sensorimotor schemata and child language. He discusses most notions that Piaget advances for sensorimotor development, and considers the cognitive world of the child at this stage as providing the basis for language expression:

> The semantic relations expressed in two-word speech are essentially similar to the conceptual relations used in the adult contextualized speech addressed to the child and which are comprehensible to him via his knowledge structures as statements or requests relating to the world as he understands it to work. (431)

Edwards concentrates on attributives, possessives and experientials, but does not present data on locatives, even though in his discussion of linguistic theory, he considers possessives to be a type of locative. Wells (1974) sees the child's language learning task as being one of matching "the organization of language with the cognitive organization that he has already imposed upon his experience." (243) Wells' analysis of child language deals with its cognitive content--states or relationships in cognition are represented in language by clause types. These clause types Wells derives from Fillmore's case grammar analysis. He then analyzes the language of several children to discover the order of development of clause types; this order of development can then be related to cognitive development in terms of Piagetian schemata. However, since the clause types Wells is concerned with (and the children's ages) go well beyond anything likely to develop during the sensorimotor stage or even shortly thereafter,

his attempt to link language development and Piaget is abortive. For instance, although he mentions the prevalence of locative expressions, and even the priority of language about changing situations before static situations of a similar kind, in his analysis he sometimes places these together into one clause type.

These studies, then (except for Bloom's), are simply concerned with showing that there is a relationship between cognitive schemata and language structure, rather than trying to discover to what extent language really is dependent on cognitive development.

Section 2.2 of this chapter is a discussion of Piaget's sensorimotor schemata pertaining to space, and the location of objects in space. Using this as a base, in Section 2.3 I will hypothesize what language expression can be expected when the child first begins to utter two-word sentences. The assumption is that it is then, or just before this stage, that children first use words in a truly referential function (Halliday 1972 and Sinclair 1974). I will next, in Section 2.4, examine some corpora for locative meanings and/or expressions, those that are used referentially or at least partially with a referential function. I will discuss and attempt to explain differences between expected and actual expressions, as well as differences among children. Finally, in Section 2.5, I will discuss to what extent cognitive schemata can serve as explanation, at this stage, of children's language expression.

2.2 Sensorimotor Spatial Schemata

Jean Piaget has done more work than anyone else in the area of cognitive-intellectual development. It is not surprising, then, that

his account of the development of the understanding of space from infancy to about 18 months is just about the only one available. Piaget (1954) made very careful and detailed observations, and 'experiments', with his own three children during this sensorimotor developmental period. As a result, he describes the construction of the child's environment by the child in fascinating detail. The main components of this environment are the concept of the object and concepts of spatial relationships. In all of his detailed observations, Piaget never mentions language (with one exception, to be described later). It is unlikely that during all the episodes described, the children never said anything; Piaget's primary interest was in how the child saw the world, and he was convinced that at this stage what language might be present could not add to the understanding of the child's view of reality.

I would like to first summarize Piaget's stages of the development of spatial organization, and then briefly discuss what we might expect to find in the language of very young children pertaining to space, as a result of this spatial organization.

Piaget makes much use of the term <u>group</u> in his discussion of the stages of spatial organization, so I will try to explain this idea as I understand it. A group consists of a specified set of elements and specified operations performed on these elements (Flavell 1963); an essential characteristic of the group to Piaget is the <u>return to the point of origin</u> (I believe of both the elements and the operations, but it is difficult to tell). "A group is a closed circle of operations that return to the point of departure through an operation of the group as a whole." (Piaget 1954:105)

> As for the specific problem of spatial organization, Piaget finds it useful to analyze the successive steps by describing the kind of spatial group predominant at each level. Each of the three types of spatial groups discriminated--practical, subjective, and objective--naturally has reference to the dimension in which object development was cast: namely, the extent to which, in cognition, self and actions are dissociated from the externals with which they interact. (Flavell 1963:137)

Although Flavell does not include it, to Piaget another type of group is also crucial--namely, the representative group.

The practical group refers to an organization of sensorimotor actions with respect to objects in space which, to an observer, has all the characteristics of a group, but the infant himself "is aware of neither action nor object as separate domains and therefore cannot perceive these grouplike regularities, either among objects themselves or between action and objects." (Flavell 1963:137) The subjective group refers to an organization wherein

> ...the child can perceive his own acts with respect to objects in space (arm and hand movements mainly). But... the actions which he perceives are still not dissociated from the objects upon which they bear. He does not yet apprehend the interrelations among objects per se; what are 'grouped' are the action-object amalgams. Most simply, the subjective group can be described as a practical group in which the subject is in part aware of the role of his own actions in the various outcomes. (Flavell 1963:137-138)

In the objective group, objects in space are seen as related to each other directly, and the child himself, moreover, becomes another object in space. "In short, there is now an organized space, distinct from the subject but including him, which consists of an orderly and coherent array of positions and potential displacements between positions." (Flavell 1963:137) But, and this is very important both to Piaget and for any discussion of language, the objects in space must be visible to the subject. In the representative group, on the

other hand, some of the elements are not visible. The subject can now take into account non-present elements, can anticipate actions not yet performed. Thus, the representative group is really an objective group with the addition of invisible elements.

Piaget postulates six stages for the development of spatial organization, the last of which consists of the formation of representative groups. I want to quote from the beginning of Piaget's chapter on the spatial field, for his own overview of this development.

> The conclusion to which the analysis of object concept has led us is that in the course of his first twelve to eighteen months the child proceeds from a sort of initial practical solipsism to the construction of a universe which includes himself as an element. At first the object is nothing more, in effect, than the sensory image at the disposal of acts; it merely extends the activity of the subject and, without being conceived as created by the action itself (since the subject knows nothing of himself at this level of his perception of the world), it is only felt and perceived as linked with the most immediate and subjective data of sensorimotor activity. During the first months the object does not, therefore, exist apart from the action, and the action alone confers upon it the quality of constancy. At the other extreme, on the contrary, the object is envisaged as a permanent substance independent of the activity of the self, which the action rediscovers provided it submits to certain external laws. Furthermore, the subject no longer occupies the center of the world, a center all the more limited because the child is unaware of this perspective; he places himself as an object among other objects and so becomes an integral part of the universe he has constructed by freeing himself of his personal perspective.
>
> The history of the elaboration of spatial relations and of the formation of the principal groups exactly parallels the foregoing. At first there exists only a practical space, or more precisely, as many practical spaces as are predicated by the various activities of the subject, while the subject remains outside of space to the precise extent that he does not know himself; thus space is only a property of action developed as action becomes coordinated. At the other extreme, space is a property of things, the framework of a universe in which all displacements are located, including those which determine the actions of the subject as such; therefore the subject includes himself in space and puts his own displace-

> ments into relation with all the others, counting them as elements among those of the groups which he succeeds in representing to himself. (97-98)

The first two stages contain only practical groups, and last to age three to six months. The child's action of the moment creates space--for the moment. Moreover, there are many different 'spaces', according to which of the child's actions is involved--buccal space, visual space, auditory space, tactile space, postural space, etc. Some of these 'spaces' are beginning to be coordinated--for instance, the child looks toward a noise, and thus auditory and visual space show some coordination. But no total and abstract space encompasses all of them. "Hence the child perceives neither the spatial relations of things to one another nor his own displacements in relation to things." (Piaget 1954:113)

The third stage lasts to about age nine months to a year. It is characterized by the coordination of different spaces, especially vision with prehension. The child, in learning to use his hands to act on things, begins to make use of the relationship of things to each other; and he begins to watch himself act. The spatial organization now is in terms of subjective groups. But:

> ...if, during this third stage, space begins to be objectified to the extent that it is externalized, it is not yet in any way an immobile environment in which the body evolves, an environment presupposed by the objective group of displacements constitutive of geometric space. If the child locates objects in relation to his body and as a function of his acts of prehension, he does not locate them in relation to each other and does not postulate their permanence outside his field of action. He has, therefore, no criterion at his disposal for differentiating the displacements of his own body from those of external bodies. (151)

The fourth stage is one of transition between subjective groups and objective groups. It only lasts about two months (ages up to ten

months to perhaps thirteen months), but is replete with deliberate actions (hiding object behind screen; moving objects close to face and away again; moving head to see objects from different positions; moving objects around seemingly just to watch the result of such action, actions which seem directed toward trying to understand the relationship of objects in space. However, the child

> ...does not yet recognize positions and displacements as being relative to one another, but only as relative to himself. He therefore still does not locate his whole body in a stationary field that includes other bodies as well as his own. He locates everything correctly in relation to himself but does not locate himself in a space common to himself and everything else." (183)

"The fifth stage marks an essential advance in the construction of the spatial field: it is the acquisition of the concept of the relative displacement of objects, in other words, the elaboration of objective groups of displacements in the midst of a homogeneous environment." (183) Stage five lasts up to age fifteen to eighteen months. The child at last succeeds in placing himself as an object into the spatial field. Again, this stage is replete with activities involving displacement of objects and investigating the results.

> First, there is the heightened study of visual displacements of all kinds...the child moves objects from A to B and then back to A, slides them up and down inclines, and in general investigates the position-filling and displacement properties of objects. The critical feature of all these patterns is that it seems to be not the child's <u>action</u> itself but the <u>objects</u> themselves which are studied--how they behave and relate to each other in space. Similarly indicating an interest in the spatial relations among objects are such new behaviors as: stacking a series of objects on top of each other; putting objects into containers and then removing them; rotating and reversing objects, no longer simply in relation to the self and its perspective, but in relation to other objects; and finally, organizing his own perambulations through space into grouplike structures. (Flavell 1963:141)

However, this elaboration of spatial schemata does not yet transcend perception itself--that is, the child cannot take into account displacements which occur outside his visual field, and he cannot take into account his own total movements outside his direct perception of them.

The sixth stage is marked by two factors: "representation of spatial interrelations and representation of displacements of the body itself." (Piaget 1954:204) Whatever the mode of representation (Piaget does not concern himself with this here), that it is present is evidenced by such actions as going around a sofa to retrieve a ball which rolled under it, without looking first, and walking around a wall to the other side of a gate in order to be able to push it open. The child can now form representative groups.

2.3 Expected Language Expression of Spatial Schemata

How could this complex development of sensorimotor spatial schemata relate to language development? First, we should note that Sinclair-de-Zwart (see Chapter 1) considers as one of the conditions for language development the capacity for representation. Thus, for her, real language could only develop once the child has reached this sixth stage described above. Moreover, Halliday speaks of the representational function of language, one of the later developments. We could postulate that true referential spatial terms will not be found until the child reaches the sixth stage of cognitive sensorimotor development in spatial organization.

However, we know that some of the earliest one-word utterances of children are spatial terms. We might speculate on the nature of

these and of the later referential terms in view of both Halliday's and Piaget's. From both, we should get the idea that spatial terms would be closely tied to action, and from Piaget the idea that they would have to do with movement. Throughout the development of spatial organization in the small child as Piaget describes it, movement and action are crucially involved. Not only that, but during the first four stages of this development, space and objects within it do not exist without action on the part of the child. It seems therefore clear that spatial language involving action and movement should be more prominent than that involving states. Indeed, it is difficult to conceive of any use of stative spatial terms before the representational stage. Thus, by the time such terms come into use, action-oriented and directional terms should already be well established.

Let me try to be a little more specific, and relate the types of actions the child performs and the understandings he seems to have to his potential language; I will be talking mostly about Piaget's stages four, five and six, approximate ages nine to eighteen months. (I am assuming that the period soon after the beginning of stage six coincides with rapid growth of two-word and longer utterances.)

One of the actions salient in terms of both object permanence and spatial displacements has to do with the disappearance and reappearance of objects and also of people. The child delights in games of peek-a-boo, and never loses interest in having objects hidden and finding them again. So the ideas of disappearance or 'gone' and reappearance or 'here again' are prime candidates for verbal expression. Similarly, children of this age deliberately drop objects; they also spend much time falling down themselves in learning to walk. Hence,

the idea of 'fall down' should be salient. The opposite of this, the vertically upward direction, would be most salient in terms of being lifted by adults; perhaps also in terms of others picking things up and handing them to the child. There is not much to indicate that actions of the child himself in picking things up are salient for the idea of 'up' (for one thing, there can't be that much vertical movement!).

A type of action or movement that the child pays attention to from very early on is regular back and forth motion, up and down motion, rotation and side to side motion. In fact, many children move their heads and bodies in various rhythmic movements.

Other spatially salient ideas would be those of 'into' and 'out of' and 'onto' and 'off', in view of the many activities the child undertakes involving putting objects into things and onto things. One activity constantly recurring is dressing and undressing; however, even though the English terms 'on' and 'off' are used for this, it is not likely that to the child this is in any way related to putting blocks on top of each other, or taking something off a table. Clothing seems more likely to be related to the object concept rather than space--perhaps clothing becomes separate from the self, to the child, at the point which we recognize when he appears around the corner without his clothes. In Estonian, for instance, when you have your shoes on, you have them 'in the foot' (jalas), the inessive case ending used with the base 'foot'. The same is true of 'in the back' (seljas), i.e., your clothes are on, and 'in the head' (peas).

One last type of directional action should be mentioned. Some of the child's experience with objects involves people handing them to

him and related motions, such as when dropping an object on purpose, the child clearly expects it to be handed back to him. Similarly, most babies at some age will automatically hand over an object they're holding if a hand is held out to them with the palm up. At certain stages of development, it seems to be the movement of the object through space and its subsequent cessation of motion that is salient, rather than the ultimate destination itself. More pertinently, at this point the child does not seem to have any notion of possession at all. Quite possibly, however, these types of actions lay the groundwork for ideas of 'possession'. Again, it seems plausible that it is only when the child places the self into the world as an object (Piaget's stage five) and especially when he is able to anticipate the possible removal of an object, say from his hand (stage six), the idea of possession enters. Thus, at the stage where the baby readily hands over whatever is in his hand, he may truly not realize that when the other person takes it, he himself will no longer have it. I don't know of any detailed documentation of this type of behavior--Piaget's work does not include all that much. However, I believe one could make a good case for the ontogenetic relationship between location and possession by observing such behavior.[1]

Spatial expressions involving true location--i.e., static rather than directional expressions--become possible only when the child begins to understand relationships among objects apart from his own action on them; they are not likely to be salient really until he can represent to himself such relationships, even when he cannot directly perceive them. For instance, Piaget's only examples of children's behavior involving language are used to show that the child has

achieved representative groups. These incidents involved asking the child 'Where's our house?' and the child would point towards it, even when it was not visible. Or asking him, 'Where's your sister?' and the child would point towards where he knew his sisters usually played (Piaget 1954).

From the child's habitual activities at stages five and six, we could postulate that he would be familiar with ideas of 'inside', 'outside', 'on top' and 'high'. Two other expressions which might be expected in terms of the child's behavior are 'behind' and 'under'. However, the ideas underlying these expressions are usually considered to belong to the realm of projective space rather than topological space, a realm which is not learned by children until considerably later (ages three and a half and older, see Parisi and Antinucci 1970, Piaget and Inhelder 1967 and Sauvy and Sauvy 1974). Thus, when the child puts objects behind and under other objects, presumably from the child's point of view this is something other than the adult's 'behind' or 'under'. It may be simple disappearance.

Some sort of expressions of holding in the hand, or carrying, and probably of possession could be expected. But in addition, since Piaget considers the sixth stage the final achievement of sensorimotor spatial schemata in the sense that space is now a unitary concept, we should expect the generalized expression of location, namely 'here' and 'there'. Because the static meanings/expressions of these deictic locatives are not expected to occur until this stage, the directional meanings/expressions should occur at the same time or even later, reversing the usual expectations.

These notions, it must be remembered, are what the child should

be cognitively capable of representing symbolically, and more specifically in this case, representing in language. Thus, the cognitive capacity of the child is a necessary but not sufficient condition for specific language expression. Two other factors are hypothesized to play a major role in what actually gets expressed: 1) the semantic-syntactic-pragmatic[2] structure of the language being learned--what is easily and/or habitually expressed in the language, for example; and 2) the child's communicative needs--the social functions of his language. In the next sections, I will compare the above expected expressions to those actually occurring, and discuss the influence of the first factor.

2.4 Actual Language Expression of Spatial Ideas

I will use here primarily data from Alan, who was the only child in my sample[3] who advanced from the one-word stage to two and three word utterances during the course of the study; from Koidu, whose first sample showed an MUL of 1.40[4] (all the other two-year-olds in my sample had higher MUL's at the first taping); from Bowerman's (1970) Seppo at his first session (MUL 1.43); from Lois Bloom's (1970) Gia I; and Bloom's own daughter Allison (1973b). The choice of subjects was based on two criteria: 1) the child had to be at the one-word stage, on the verge of two-word utterances, or at the very beginning of two-word utterances and 2) there had to be contextual information along with continuous text, or at least an exhaustive presentation of all of the child's utterances in the sample, even if the format wasn't the continuous text itself. This last criterion definitely limited the sample, since presentations of the complete text

with contextual information are rare in printed materials.

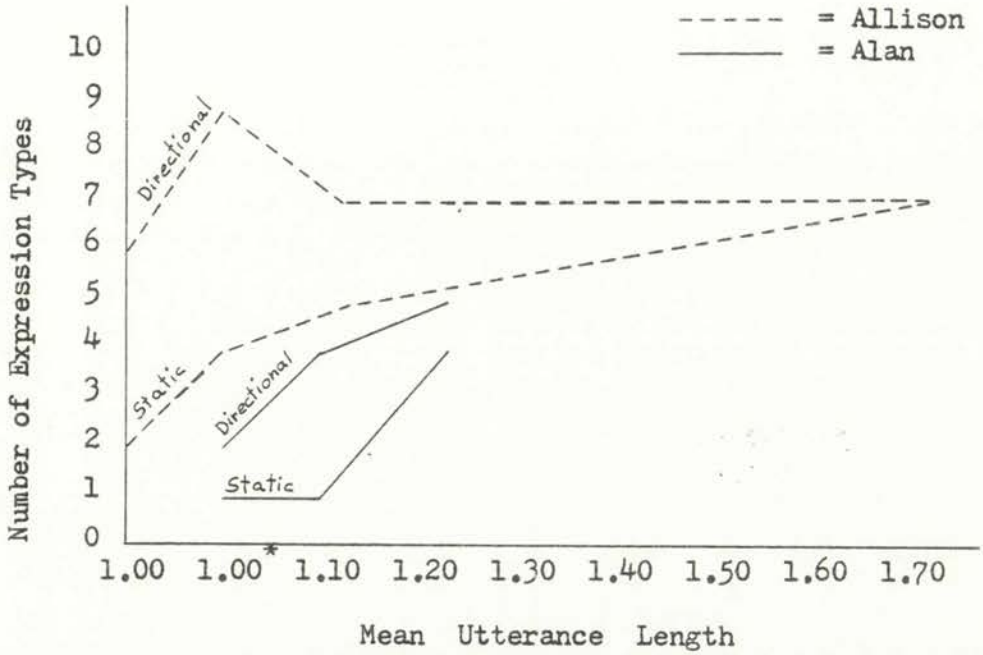
My procedure was as follows: I examined the texts for all expressions where the meaning of the child's expression fit one of the spatial ideas discussed in Section 2.3 (or any other definitely spatial idea). Thus, intended spatial meaning was crucial, not just spatial expressions corresponding to adult terms. Table 1 therefore shows which of the spatial ideas present in the sensorimotor child's cognitive schemata were expressed in some way in language by these five children, i.e., were talked about at all.

2.4.1 Directional Versus Static Expressions

The first result I want to discuss is the expected one of the predominance of directional expressions versus static ones. As expected, directional spatial expressions were more common or as common as static ones for each child at each stage. Moreover, for the two children who are represented at more than one stage, static expressions tend to increase over time, while directional ones increase at lesser rates or even decrease (Figure 1). Thus, the result is one that would be expected in terms of Piaget's cognitive developmental framework: during sensorimotor development, motion and therefore directional spatial notions are more salient, with static locative notions appearing only at and after stage six. Unfortunately, we don't know for lack of data whether the two children were actually at stage six or beyond at time I, although in the case of Alan I am assuming he was beyond stage six because of his age.[5] Let me restate these results somewhat. Table 1 and Figure 1 confirm that at the end of the one-word stage and the beginning of the stage of two-

Table 1. Language Expression of Spatial Ideas Present at or After Stage Six of Sensorimotor Development, for Five Children Learning Estonian, Finnish and English.

Spatial Ideas \ Child MUL Age	Alan I 1.00 30 m	Alan II 1.10 32 m	Alan III 1.23 34 m	Koidu I 1.40 28 m	Seppo I 1.42 22 m	Gia I 1.10 19 m	Allison I 1.00 16 m	Allis. II 1.00 19 m	Allis. III 1.13 20 m	Allis. IV 1.73 22 m
DIRECTIONAL										
Disappeared, gone		ø (ema)	kadua		pois	away	gone away	gone	away all gone	gone
Reappearance, return						back		back	back	
Down, fall down	alla	maha	kukkus kuku maha alla	kuku maha			down	down tumble	down tumble lie down	down tumble
Up							up	up	up	stand up
Oscillation side to side										
Up and down			alla				up, up, up			
Rotation	ringi	ringi round	ringi							
Into					N + N (auto talli)	N + N (block bag)		N (cup) (truck)	N (truck)	step in
Out of								out		N + out V + out
Outside					ulos	out + N				N + outside
Onto				pÄÄle N + V (too, istu)		N + N (fly block)	N (chair)	N (chair)	on N (baby)	on N + on V (dump)
Off					pois	off		off		
Hither/hence				siia						
Thither/thence							there	there over there		
Give/take		ka + N (ka ema) (ka jÄnku)	N + N (ema kompu)	anna kätte					get + N + N (get Mommy cookie)	
General direction					N + N (ankka puu)					
STATIC										
Inside			N + N N + K		N + N			N	N	N in + N
Outside			õues							
On, on top of						N + N	N	N	N N + on on	N + on on + N
High				kõrge	korkea					
Here	sÄÄl siin	siin siit	siin	siin					here	here
There					tuossa tuolla		there	there over there	there	there
Where?				N + V						
Hold, carry										
Possession			N + N minu	N + N N + K N + oma	N + N on + N	N + N				N + N
General location								N (office)	N (home)	N (school)
Other										next + N



*In Allison's case there were two language samples prior to her attainment of the two-word stage.

Figure 1. Comparison of the Total Number of Directional Spatial Expression Types and the Total Number of Static Spatial Expression Types Over Time in Two Children Learning Estonian and English.

word utterances, directional spatial expressions are more salient (occur more frequently) than static spatial ones, as would be expected according to the child's sensorimotor schemata at this stage. This result agrees with that obtained by Bloom (1973a) in her analysis of four children's data (MUL 1.0 - 2.0) in terms of semantic-syntactic relations. She notes that the relations of action and locative action always precede the notions of simple state and locative state in the sequence of development. Her comment on this finding is that she cannot explain it--reasonably so, since her interest and focus are on other results than these.

The situation is reversed in the case of the deictic here/there, as predicted. All the children except Gia use either here or there in the static sense, neither Alan nor Seppo (nor Gia) use it in the directional sense at all, while Koidu and Allison use it a few times. (The table does not reflect the frequency of occurrence of each expression; in this case, Koidu used siia as a true directional only two times, while there were eleven occurrences of siin; similarly, the directional meaning of there in Allison's corpora was much less frequent than the static.)

The meanings in the table can be divided into four groups in terms of occurrence in the language of the five children: 1) those that do not occur at all; 2) those that are rare or do not occur in one language while common in another; 3) those that are common for most or all the children; and 4) those that occur rarely for any of the children. In this discussion, I will take into account also the frequency of each expression, not just its occurrence/non-occurrence. I will try to delineate factors which may be responsible for the

occurrences and frequencies found, and also to point out the kinds of data needed for a more thorough explanation.

2.4.2 Non-occurring Locative Meanings

The first group, that is, meanings which were expected according to Piagetian spatial schemata but which did not occur in the language of the children, contains only two members. This in itself points to the thoroughness of Piaget's work and to the saliency of spatial cognitive schemata for children's early language learning. The first meaning that does not occur is the idea of oscillation, or side to side movement. Its non-occurrence can easily be explained by the absence of any situations which included such movement during the ten recording sessions that I'm considering. However, in addition it is difficult to conceive of very many opportunities for children in general to learn to talk about such movement, both because the contexts are rarely occurring, and because the language used does not relate to other, simple spatial expressions in either Estonian or English. In Estonian, the most common adult expression would be edasi tagasi 'forward backward', just as in English one has the closely related back and forth. One might expect it to occur in English perhaps on the basis of back for recurrence (see Table 1), if the situation were more common. This is the kind of meaning that one would expect expression for only in specific idiosyncratic cases, as for example, if a particular child has a favorite toy that exhibits this kind of movement, or a favorite activity which includes it, so that both situation and adult language for it occur frequently.

The other meaning which is not expressed at all exhibits a

different configuration: it is very common situationally, but is simply not part of the language that adults would be likely to use to children. This is the idea of holding or carrying something. Adults are more likely to focus on the object itself, or perhaps its destination, or intended action with the object, rather than the act of carrying or position of the object while it is being carried. For instance, if a child is carrying his teddy bear, compare the likelihood of an adult saying: Oh, there's your teddy, or Are you gonna put your teddy to bed?, or Oh, you brought your teddy with You're holding teddy, or You're carrying your teddy. Admittedly, adults can and probably do say to two-year-olds things like: Hold this or You carry this, but the occurrence of such expressions is surely rare compared to all others which occur in the situations where the child is holding or carrying objects. It is this type of situation that Wells (1974) is talking about when he says: "...it will frequently happen that the child hears several different linguistic expressions in relation to the particular situation that he is engaged in, each focusing on different aspects of the situation." (267)

The corresponding expressions in Estonian are equally unlikely, and mean exactly the same as in English (i.e., there's a verb hoidma 'to hold', and one kandma 'to carry'). However, in Estonian there is an idiomatic expression standing for the position of an object being held or carried which has no comparable expression in English, and that is käes 'in the hand'. This is more likely to occur in the situation we are discussing than the other expressions in Estonian, or anything in English. Nevertheless, the likelihood of Estonian adults focusing on other aspects of the situation as outlined for English

is greater. I might point out that very few of my two-year-old subjects (up to MUL 3.90) used the expression käes even once; but most of them did use the directional form of it (kätte 'into the hand'), which I have entered in the table as an expression of the idea of giving/taking, of handing objects from one person to another, or simply transferring objects from somewhere to a person.[6] Thus, however salient the idea of holding/carrying may be in a child's sensorimotor schemata, in the culture and/or language of Estonian and English homes at least, the idea is not central in the focus of adults, and children do not learn to express it early in language. It is quite conceivable that in other cultures/languages it could be much more central.

2.4.3 Locative Expressions Differing in Frequency Across Languages

The second group comprises those expressions which, according to Table 1, are rare or do not occur in one language while common in another. I am here taking into account also the frequencies of occurrence, as will be seen in the discussion; I will focus mostly on Estonian and English, although Finnish is included in the discussion.[7] Table 2 shows the spatial meanings which fall into this group, and how the frequencies are distributed among the languages.

Disappearance

Beginning with the first meaning in Table 2, one of the first facts about the data on Estonian children that I noticed is that expressions for the notion of disappearance are curiously absent. This is one of the very first notions in most other languages studied which receives language expression--i.e., all children at the two-word stage

Table 2. Spatial Meanings Which Show Different Frequencies of Expression in Estonian, Finnish and English Data From Two-Year-Old Children.

Spatial Idea	Estonian	Finnish	English
Disappearance	rare*	X	X
Up	-	-	X
Rotation	X	-	-
Into	-	X	X
Onto	rare	-	X
Give/take	X	-	rare
On, on top of	-	-	X
Here	X	-	rare
There	-	X	X
General location	-	-	X

*rare = three or fewer total occurrences

X = frequent; four or more total occurrences and at least one occurrence in 80% of the sessions in that language

- = absent

supposedly talk about disappearance (Bloom 1970, Brown 1973 and many others). In English, it is commonly expressed as gone, all gone, or away, as in Table 1; in Finnish the word pois 'away' is equally common, and used much as in English (Bowerman 1970). In my Estonian data that I'm discussing here, there is one occurrence in Alan II where he is obviously expressing the notion: his mother is playing with him; she gets up and leaves the room; Alan looks after her and says ema 'mother' and then looks at me. Similarly, in Alan III: Alan is playing with a set of barrels, the kind that are graduated in size to fit inside each other. His sister is watching him, and when he has put them all inside each other, she says: Seal oli veel üks. 'There was another one.' I say: Kadus võibolla ära, Kadus ära, Alan? 'Maybe it was lost/disappeared. Was it lost, Alan?' Alan says: Kadus. 'Lost/disappeared'. I say: Kus ta läi? 'Where did it go?' Alan looks around and says: Kadus.

These are the only occurrences in Alan I, II and III, and in Koidu I, and the second case is moreover one of repetition, even though it seems clear that the child understands the word he's using. The first case, as described, does not include any particular word for the notion at all. Since the situation of disappearance is just as common in Estonian homes as any other, and since it is fairly certain that adults do focus on it just as they do in other languages,[8] there must be something about its expression in Estonian which makes it more difficult to learn.

There are three situations in which the notion of disappearance is common. The first is food: the milk's all gone, or the cereal is. The second is hiding or losing toys: the teddy bear disappeared/is

gone. The third is a person leaving: Mommy went away, Mommy's gone. In English, the word gone is easily extended to all these situations, and this is probably very commonly done. Also things can be put away as well as people going away. In Estonian as well there is a term which can be used for all three situations--the word ära 'away'. For food, one can say: Söödud ära 'Eaten up'; or Ei ole enam 'There's no more'; or otsas 'gone, ended'. For objects, one can say: Kadus ära 'disappeared, was lost'. For people one says: Läks ära 'Went away'. Just as in English one doesn't necessarily have to use the word away in these situations, so in Estonian one doesn't need to use ära. One can say: On kadunud 'It's disappeared, gone'; On läinud 'He/she is gone, has left'.

In English children who are not yet at the two-word stage begin using both gone and away. In Estonian, the children I was working with began using ära after they had reached an MUL of 1.80, and then they all used it. M. Vihman's (1971) Estonian subject began using ära at MUL 1.40, although I have no data as to the possible expression of disappearance before that stage in this case.

The most probable explanation for the non-occurrence of expressions for the notion of disappearance in the early language of Estonian children is the phonetic difficulty of the word ära, which in other ways is the ideal expression for the notion. (M. Vihman 1971 also speculates about the relationship between acquisition order of common words and phonetic difficulty.) Estonian children's most common difficulty is the Estonian /r/, which is a trilled r.[9] In fact, many children as old as four and five years have not yet mastered it. Thus, M. Vihman's (1971) subject had not produced any kind of r at

the age of two years; moreover, the low front vowel /ä/ was produced as the central vowel /a/ about half of the time. Since the word ära contains two sounds which are either of medium difficulty or very difficult, it is likely that it will not be among the earliest attempted.

Up

The second meaning in Table 2 is 'up'. Surprisingly, neither the Estonian nor Finnish corpora include any expression of this, while Allison uses it very frequently. Ames and Learned (1948) report up, along with down, to be the most frequently used spatial word in the spontaneous utterances of nursery school children aged eighteen months and older. But M.Vihman's (1971) corpus at MUL 1.82 does not include it either; neither does Bowerman's (1970) corpus of Seppo II at MUL 1.81.

In Estonian at least, there is not single, unitary expression for all situations that have to do with upward movement and that would be salient for a small child. For instance, while in English one says up while lifting a child, the much more likely expression in Estonian would be sülle 'into the lap', even if the adult who is doing the lifting is standing up. The Estonian word for 'up' is üles--this would be used in situations where objects are picked up, or put up, or when talking about upstairs. The Finnish word is ylös (Finnish orthography uses y where Estonian has ü; in both languages the sound is the high front rounded vowel), although I have no data on its usage. Again, this could represent another instance of phonological difficulty. In M. Vihman's (1971) data, the vowel /ü/ occurs most frequently as /u/ or as /i/. Moreover, in her data the mid front

rounded vowel /ö/ does not occur at all before MUL 1.82 (although generalizing this finding to Finnish is probably not legitimate, since while common words that exhibit this vowel are rare in Estonian, they are not so rare in Finnish). From this we could speculate that these two sounds are difficult for both Estonian and Finnish children, and therefore they do not attempt the words üles and ylös early.

Rotation

The pattern is reversed for the next spatial idea in Table 2. That is, my Estonian subject Alan used the word ringi 'around' frequently in all three sessions, while none of the other children had any expression of the idea of rotation. I think the most likely explanation is that the situation did not occur during the sessions with the other children. Alan happened to be especially fascinated by the tape recorder (a reel-to-reel one), and spent some of his time staring at it going around; this accounts for most of the occurrences of the expression. Most children do pay some attention to the recording equipment: thus, Allison talks about the microphone and points to the TV monitor during her sessions (Bloom 1973b). Most of my subjects talked about the tape recorder at some time or other: in Koidu's case, it happened that she wasn't particularly interested in the machine once it was started up, although she would watch me set it up. Again, with Alan, the English round was used while the family's English-speaking boarder was playing with Alan, describing circles with her finger on the sole of his foot. The Estonian ringi also occurred in this context. In view of the fact that both in English and Estonian, the idea of rotation can be expressed with one word and is one likely to be focused on by both the child and by

adults, its non-occurrence in many sessions is probably due to lack of opportunity.

Into

The next idea in Table 2 is 'into'--putting something inside something else. Although the expression of this is not exactly frequent for Seppo, Gia or Allison, it occurs often enough so that I would call it established in these children's language. Certainly the situation occurred during all sessions reported in Table 1, although Alan and Koidu never talked about it. Both children and adults focus on this type of action; it can be expressed in different ways, among them by focusing attention on the container and/or the contained, and just saying the name of the object or both objects. Allison, for instance, focuses on the container; Gia and Seppo express both the container and the contained. The idea in adult language is of course expressed by a preposition in English, or an adverbial, as in Allison IV (step in). In Estonian and Finnish, the idea in adult language is expressed by a postposition or the illative case ending, or an adverbial, if the construction is of the type V + Loc. In all the instances of these children's N or N + N utterances, they fail to use the obligatory grammatical devices; nevertheless, they manage to communicate the idea of 'into' adequately. The explanation, if there is one, of Alan's and Koidu's non-expression of the idea must lie elsewhere than in either lack of opportunity for the situation to occur, or adult focus, or language structure. (But see the discussion of 'on' and 'onto' below.)

Onto and On

Two meanings which pattern exactly the same way--they are rare or non-occurring in Estonian and Finnish while common in English--are 'onto' and 'on'. The English children talk fairly frequently about putting something onto something, or an object being on another. The directional version occurs only twice in Koidu's speech, and it takes quite different forms, so it is not possible to tell whether it is in any way established in her speech. One occurrence is the word pällle (adverb meaning 'onto', with the allative case ending). The other is a N + V construction, tool istu 'chair sit', which Koidu said to her sister, indicating that she wanted her to sit on a particular chair. The static version does not occur in her speech. Neither meaning occurs in either Alan's or Seppo's speech at all. As for the English speaking children, they use several devices to express both ideas. Gia used N + N, that is, the object placed plus the object on which it is placed. Allison, in her first two sessions, used simply N, to stand for the object on which another is placed. In her third and fourth sessions, Allison begins to use the word on, either alone, or with N. When her construction is N + on, the N stands for the object placed; when it is on + N, the N stands for the object on which something is placed. Thus, not only does Allison express both these ideas, but she is already using syntactic structure to distinguish between the two objects involved in such a situation.

In Estonian, the two meanings in question are expressed much the same way as the meaning for 'into'. For the directional, one uses the allative case ending, or a postposition, or an adverbial. For the static 'on', one uses the adessive case ending, or a postposition, or

an adverbial. (It should be mentioned that all postpositions and adverbs also take case endings--so that one would use a postposition or adverbial with the allative or the adessive case ending in the above situations.)

I will speculate on two possible reasons why Estonian children do not express 'onto' and 'on' as early as English children; both have to do with the structure of Estonian. The greater prominence of expression of 'into' and 'in' on the part of English children may also relate to the first reason. It is simply that, even though adults focus on all these situations and talk about them, in English there exist single, unitary expressions for both: namely the words on and in. In English the distinction between directional and static meanings is not even customarily made. Estonian makes distinctions between these meanings; not only that, there are also several ways of expressing each. To the child learning Estonian, adults may not seem to be focusing on these meanings, at first. That is, it takes Estonian children longer to realize which particular language structures have to do with one particular meaning, even though the idea or meaning is well-integrated into their cognitive schemata about space.

However, in the data presented in Table 1, in M. Vihman's (1971) data and in data from my Estonian subjects that I will present in Chapter 4, the meanings 'onto' and 'on' are very obviously later to emerge in language expression than the meanings 'into' and 'in'. For example, Vihman's subject at MUL 1.82 was using quite freely the illative and inessive case endings, those expressing 'into' and 'in', while there wasn't a single example of either allative or adessive endings, those expressing 'onto' and 'on'. Both of Bowerman's (1970)

Finnish children lacked case endings for locative expressions altogether, even at MUL 1.81 (Seppo) and 1.83 (Riina). (Bowerman's data for Seppo II and Riina are not presented in such a way that I can tabulate meanings, however.) I believe the reason for the later expression of 'onto' and 'on' has to do with the fact that in both Estonian and Finnish, the allative and adessive case endings are also used for indirect object and possession, respectively, further confusing the child as to the application of these linguistic devices. There is some evidence, as we will see in Chapter 4, that children first begin to use these case endings for the latter two functions, and only after this do they use them for locatives. For Bowerman's subject Riina, for instance, the very first case endings she uses, at MUL 1.83, are exactly the allative for indirect object and the adessive for possession (Bowerman 1970:211).

Give/Take

I will go on to consider the next meaning in Table 2, namely the idea of handing an object from one person to another, or transferring an object from somewhere to a person. Estonian children express this idea early, while in Finnish it doesn't occur at all, and in English there's only one example from Allison. (Bloom 1973b comments specifically on the absence of this idea in early child speech.) Additionally, data from one Italian child (Antinucci and Parisi 1973) during the period when her MUL was 1.30 to 1.60 contain numerous examples of utterances which express this notion.

My Estonian subjects, while they talked about the idea, certainly didn't exhibit consistent expression of it, and the expression was far from the adult form. Thus, in Alan II we find the form ka

'too' + N. Alan was playing at drinking tea, and he pretended to pour tea into a cup, and offered it to his mother, saying ka ema 'too mother'. A few minutes later, he did the same with his toy rabbit: he offered the cup to the rabbit and said ka jänku 'too bunny'. In Alan III, on the other hand, we find the N + N construction: ema kompu 'mother candy', meaning 'candy for mother'. Koidu uses anna 'give' in its imperative form, and she uses kätte 'into the hand' when she wants her sister to throw her the ball. Allison's only example is get Mommy cookie, when she suggests that her mother should get herself a cookie. In Italian, Antinucci and Parisi's (1973) subject uses every possible lexicalization (as the authors call it) of the idea 'someone gives/takes to/from someone'. That is, she uses N alone, or V alone, or V + N, or N + V, and in a subsequent session even V + N + N. In some of her utterances she even includes the preposition a 'to', although sometimes this is misplaced before the direct object. Thus, we find in this data expression of this idea ranging from very frequent (Italian) through frequent (Estonian) through rare (English) to non-existent (Finnish). No immediate explanation occurs to me; however, it is quite possible that through examination of adult speech to children, and the social context of this speech, one could find differences in both language expression and social context which would help to explain it.

General Location

Finally, Allison expresses the idea of location somewhere, it being irrelevant whether it's inside, outside, or on top of anything; this is commonly expressed in English with the preposition at. Probably English children express this idea early just because its expression

is consistent and common in English. Estonian children begin somewhat later (after MUL 1.60 or so); in Estonian, one uses either illative or allative case endings; there seems to be no consistent semantic logic as to which one it is. Thus, 'at work' is tööl (lit. 'on work'); 'at home' is kodus (lit. 'in home').

2.4.4 Locative Meanings Expressed by All Subjects

The third group from Table 1 that I want to discuss is the one which includes those meanings that all or most of the children express in language. These are the ideas of 'down, fall down', 'inside' and here/there.[10] These, in effect, follow the predicted pattern: children focus on these ideas, so do adults, and the language expression in both Estonian and English is relatively straightforward. In Estonian, the expression of 'down, fall down' is not as consistent as in English: for situations involving 'downstairs', for example, one uses alla; for situations involving putting a child down, or reaching something down from a high shelf one can use either alla or maha (lit. 'into the ground'); for 'fall down' one uses kukkus maha (kukkus = 'fell'). Most English children use down, fall down and fall; Allison happens to use the somewhat unusual tumble instead of fall. For 'inside', Alan uses N + N and N + K (case), and this is the inessive case, used several times, so that one can say that it is at least beginning to be learned (it is the only case inflection ever used by Alan). Seppo uses N + N, and Allison N (standing for the containing object) and also the preposition in + N in her last session.

Here/There

At this age here and there are expressions of general location: that is, the child does not really distinguish between them, he is not aware of the full deictic contrasts. As can be noted in Table 2, here is used by Estonian children (siin), while in Finnish it doesn't occur, and in English it is much rarer than there. There patterns in the opposite way. In actual fact, there is no real reason to differentiate between these in Table 1, as the idea being expressed is really a notion of general location: that is, children of this age are incapable of differentiating in the same way as adults between proximal and distal, and of dealing with the fact that context often determines whether one says here or there. The adult patterning of these terms is not learned until after the age of four (Clark and Sengul 1974). Most of the situations where the children use these expressions are actually ambiguous--either term would be acceptable to adults. There is some beginning of differentiation with Allison, probably only with respect to proximal to herself and distal from herself.

In Estonian, siin is extended as a demonstrative. In pointing out things in picture books, for instance, one says: siin on _____ 'here's _____'. In English, on the other hand, there is used; moreover, in existential sentences, the form is also there (e.g. There's a book on the table). Thus, Estonian children hear siin 'here' more often than sääl 'there'; English children hear there much more often than here.[11] This seems to me the most satisfactory explanation of why Estonian children use siin 'here' but English ones there for the expression of general location.

I believe that the predicted expression of general location is

fulfilled by the occurrence of both here/there and what I have actually termed 'general location'--namely, Allison's office, home and school. Possibly the form that expression of general location takes at this age depends on the presence/absence and actual distance of the object in question. Thus, if the object is present, here/there is used; if not visible, but relatively close, as in Piaget's examples mentioned in Section 2.3, pointing is used (although pointing in conjunction with there is also easy to visualize); if really distant, some name of a place has to be utilized (like office). A study of the development of the expression of here/there in Finnish children could be illuminating, since in Finnish the system is extremely complex; factors such as closeness to speaker and addressee, and size of area being referred to are taken into account, as well as movement toward and away from, resulting in eighteen different forms (Lehtinen 1963).

2.4.5 Locative Meanings Rarely Expressed

The last category from Table 1 that I will discuss is the one encompassing ideas that are rarely expressed by any children. For the most part, the same types of reasons as I have already discussed before probably can account for their rarity. A more thorough investigation of these categories would require more language data and more observation of children's behavior. The ideas of 'reappearance', 'outside' (both directional and static) and 'high' I won't discuss any further. I'd like to make a few comments about the others.

It is interesting to note that the notion 'up and down' is expressed by Alan as alla ('down' with an allative case ending), and by Allison as up, even though the expressions are directly equivalent in

Estonian and English--Üles alla : up and down. Alan of course does not express the idea of 'up' at all, but Allison uses both up and down. Apparently the up part in the bouncing motion she is describing when she uses the word in this case is more salient.

The notion 'out of' is expressed only by Allison. In general, in the Estonian data of slightly older children (see Chapter 4), expression of motion away from is later in appearance than expression of static location or motion toward (see also Bowerman 1970). It is possible that in such motion, it is no lonber the place that is salient, but the person or object itself--i.e., the very young child does not express the idea of place from which something has moved simply because he's already focusing on the person or object which has moved. The idea of 'off' is also of this type; although Seppo, Gia and Allison all use the word, it is always in connection with clothing being removed, never as in off the table. (The Finnish pois is a very general term, meaning 'away', and is also used by Seppo for other things disappearing, or going away.)

The rarity of the ideas of hither/thither and hence/thence was predicted on the basis that children couldn't use these before they developed the ability to express general location through the use of here and there. Notably also, none of the expressions actually used by the children refer to the situations expressed by hence or thence.

The only expression for general direction (motion toward or away from, which would be the forms actually used in English) noted is for Seppo, who says ankka puu 'duck tree' while looking at a duck which is walking toward a tree. In this situation, it is relatively reasonable to interpret this as general direction toward the tree; it is quite

probable that other expressions which have been interpreted more specifically (for instance, fly block as meaning 'fly onto block') could be expressions of more general motion toward. Again, the ambiguity in much child language which results from the absence of obligatory items prevents more detailed analysis.

Only one child asks a where question--Koidu uses intonation and gestures along with autu on 'car is'. Her intonation is what in English is termed yes/no question intonation, and she looks around, rummaging with her hands among her toys. Children as young as this rarely ask any questions at all; however, most children's first Wh questions are where ones, confirming the saliency of space and location for young children.

There is only one spatial idea expressed in Table 1 which was not predicted by Piagetian sensorimotor development, and this is Allison's use of next. She is indicating a toy as being next to another. This locative involves ideas about space more advanced than those of the child at the end of the sensorimotor period (Parisi and Antinucci 1970, Piaget and Inhelder 1967). It is very likely that Allison is beginning to develop such ideas, since in Session IV she has an MUL of 1.73 and is thus the most advanced in language of any of the children discussed in this chapter.

2.5 Cognitive Structure and Language Expression

So far in this chapter I have outlined Piaget's cognitive spatial schemata as present at the end of the sensorimotor period; I have postulated that such schemata underlie language expression; I have shown that not all of the expected language expression occurs in all

children; I have formulated certain hypotheses about the differential occurrence of spatial ideas in the language of young children. There are eight such hypotheses (perhaps better termed postulates) which I will now summarize.

1. The context for the idea does not occur during recording sessions; most probably the context is rare in general, and thus does not give the child much opportunity to learn to express the idea in language. Such is the case with oscillation, or side-to-side motion for all the children discussed, and for the idea of rotation in English.

2. Adults do not focus on the idea in their customary language to children, although the context may be very common, and common expressions may exist for it in the language; as a result, children do not learn the language expression early. The notion of 'hold, carry' is such an idea; in this case English adults probably focus less on it than Estonian adults.

3. The language being learned has two or three terms (lexical items, customary expressions) for an idea that is likely to be unitary cognitively at first for the young child. As a result, the child does not express the idea until his cognitive schemata can encompass the differentiations made in the language. Thus, Estonian children do not express the idea of 'up'. Conversely, the language being learned has a simple term for the idea, and children learn it very early. Such is the case with the ideas of 'up', of general location, and even of 'on' and 'in' in English.

4. Phonological difficulty of customary term in the language prevents children from attempting it. The Estonian expressions for disappearance (<u>ära</u>) and for 'up' (<u>üles</u>) are illustrations.

5. The language being learned has several ways of expressing the idea which differ structurally; or, the same syntactic device is used for what to the child are cognitively quite different ideas. In both situations, early expression of the idea does not occur. The ideas of 'into', 'onto' and 'on' in Estonian fall into this category. Moreover, the expression of the ideas of 'onto' and 'on' in Estonian exhibits both of these conditions.[12]

A brief review of Slobin's (1973) discussion of the acquisition of inflections and the development of semantic notions is relevant at this point, in order to clarify the hypothesis emerging from the above summary, but especially from number 2 above. Slobin gives an example of children bilingual in Serbo-Croatian and Hungarian, who learned to use appropriately a variety of locative case endings in Hungarian well before they learned the correct forms in Serbo-Croatian, which requires a preposition plus a case inflection on the noun. He sees this situation as follows:

> The child must find linguistic means to express his intentions. The means can be easily accessible (as, for example, the Hungarian locative), or quite unaccessible (as, for example, the Finnish yes-no question or the Arabic noun plural). The problem is: What makes a given linguistic means of expression more or less accessible to the child? (183)

I agree that this is certainly worth investigating. However, Slobin, on the basis of his consideration of a considerable amount of data, goes on to postulate what he calls a very strong developmental psycholinguistic universal: "<u>The rate and order of development of the semantic notions expressed by language are fairly constant across languages, regardless of the formal means of expression employed.</u>" (1973:187, italics author's). He goes on to emphasize that this "proposition applies

to semantic intentions, rather than the formal marking of intentions." (187) In contrast to this view, my claim is that while the rate and order of development of semantic notions (meanings, intentions) may be constant for all children, their expression in language can be slowed or not emerge at all as a result of the formal means of expression (or lack of it) employed by a particular language. I believe that the data on the expression of the notion hold/carry for Estonian, Finnish and English children provides some support for such a claim. One of the difficulties with using naturalistic data is of course the non-comparability of situations across children but especially across investigators. A better test of this hypothesis would be the collection of data in several constrasting languages by the same investigator in very similar situations.

6. The child rarely focuses on the idea. That is, even though sensorimotor data indicate that the idea shold be salient for children, the situations of occurrence are always such that the child is more likely to focus on some other idea.[13] Such is the case with the ideas encompassed by 'motion away from', i.e., off, out of, hence, thence. In such situations, attention may immediately be directed away from place to object, or to action with object, etc. Language expression of these ideas is thus rare for all the children. (But see also Chapter 4.)

7. The impossibility of knowing exactly what is in a child's mind may consistently lead to the incorrect interpretations on the part of adults. That is, some ideas very likely to be present and expressed in the language of young children may be under-represented in our analysis. Such could be the case with the notion of 'general direction',

the expression of which we may interpret more specifically. The analysis of cognitive development and language thus draws our attention to the presence of these kinds of phenomena in children's language expression.

8. Social, affective and cultural factors may influence in various complex ways the language expression of cognitive schemata. Such factors are postulated in the case of 'possession' (see Chapter 3), and are probably relevant to 'give/take' also, as well as to all of the other ideas discussed. I would include here also Bloom's (1973a,b) 'strategies', which could be viewed as affective/personal/cognitive differences in language learning strategies. Thus, when Bloom (1973b) says: "It is also the case that the sequence in which particular words are observed in a child's speech may not necessarily reflect the sequence in which he has come to realize the notions underlying the words." (140), she is implying that at least one of the reasons for this is the use of different strategies by different children.

The analysis done in this chapter has illuminated child language development in the following ways. First, I have shown that cognitive structure determines what can be said by young children, in that no expressions were present except for those predicted. Second, certain language learning sequences can best be explained by reference to the underlying cognitive schemata--this is the case with expression of action (directionals), general location and general direction. That is, I am claiming that the prior expression of action versus static notions in specific location terms, the prior expression of specific location terms themselves versus terms of general location, and the prior expression of general static location versus general direction

reflect the child's cognitive development. Third, through this analysis, several hypotheses have emerged which point to specific types of explanations for children's language expression. In the following chapters, I will explore these further.

NOTES

1. The logical relationship has been postulated by several authors, and will be discussed in Chapter 3.

2. 'Pragmatic' is used in a broader non-technical sense, see Chapter 3, Section 3.3.

3. A description of the subjects and recording procedures is presented in Appendix A.

4. An explanation of MUL and how it was arrived at is found in Appendix B.

5. Alan is, in terms of MUL compared to age, the slowest in language development of children so far reported in the literature. However, there were no indications at all that he was slow in any other way. Moreover, his mother reported that his older sister, who was six years old and a normal first grader at the time of the study, had been equally late in language development. The mother was somewhat embarrassed about this, as she herself was a teacher in the Estonian preschool and well aware of the language development of young children.

6. M. Vihman's (1971) subject used käes at MUL 1.40. In addition, in 1975 Vihman reported that at age twenty-three months, käes and kätte were well established in her own daughter's language.

7. The problem with the Finnish data is first, Seppo's corpus from Bowerman 1970 does not entirely fit my criteria, in that the necessary situational data are not always available; and second, I do not have usage data, nor adult norms other than what is discussed by Bowerman.

8. This statement is made on the basis of my own informal observations.

9. A brief discussion of Estonian phonology and orthography is presented in Appendix C.

10. Discussion of the idea of possession is postponed until Chapters 3 and 4.

11. Estonian adult data tabulated in Chapter 4 contains 131 occurrences of siin 'here' and 75 of sääl 'there'. The mother in Allison III and Allison IV combined uses here seven times, there fourteen times (data compiled from Bloom 1973b).

12. But see Chapter 4 for a different hypothesis about these expressions. Also see E. Clark (1975), whose data suggest that children's understanding of on and onto may be different from that of adults until after the age of three.

13. In actual fact, the sensorimotor data indicates that motion is salient. It is quite possible that my inclusion of source notions along with goal notions in the 'expected expression' is unwarranted, and could be revised by integrating spatial notions and language with notions such as object permanence and attendant language.

CHAPTER 3

Cognition, Semantics and Pragmatics

3.1 Cognition and Linguistics

I have argued in the previous chapter that cognitive development determines what can be expressed in language. The analysis of both cognition and language focused on content--that is, what are the cognitive categories into which the child has organized the world, and what are the meanings the child expresses in language. Some researchers who are interested rather in the relationship between cognitive processes and language structure have been mentioned, such as Slobin (1973) and Bever (1970); certainly the cognitive strategies available to young children for processing language data have a bearing on language learning. Halliday (1973a, 1975) focuses on a third type of relationship, that between the child's understanding of the social world and his language expression. In Halliday's theory, there is no clear-cut break between the child's understanding of the social world and the physical world, especially as concerns language expression, since in his view almost all of the child's 'important phenomena to talk about' are focused for him by adults.

In this chapter, I will discuss the relationship between cognition (a psychological phenomenon), semantics (language phenomenon) and pragmatics (a language and social phenomenon) and their significance in children's language development. I will argue that cognitive development should not be confused with the development of semantic structure, but that cognitive development, the semantic structure of the adult

language and the pragmatics of the adult language are all important to the understanding of child language development.

3.2 Cognition and Semantics

3.2.1 Semantic Relations and Cognitive Structures

A number of studies have been done which focus on so-called 'semantic relations' expressed by very young children. The assumption has been that semantic relations are based on what children have learned about the world; because human infants everywhere learn about the same physical reality, such relations are the same all over the world, and these are what children try to express in language at first. The task, then, was to discover what these relations are and how they are expressed in different languages.

However, analysis of these studies brings out several problems: 1) this type of work has not resulted in a definitive list of universal semantic relations; 2) these semantic relations are based on linguistic analysis (language data), yet supposedly are also 'what children know about the world'--hence, the relationship between cognitive and semantic structure is not clear; 3) taxonomies of these relations are arbitrary; 4) the semantic relations are to some extent based on adult semantic categories.[1]

Three of the studies on semantic relations (Bowerman 1975, Brown 1973 and Kernan 1970) will be examined here, in order to show that these problems are indeed serious, and that therefore analysis in terms of semantic relations cannot provide a strong theoretical basis for the study of child language acquisition.

The major impetus to the study of semantic relations, as mentioned in Chapter 1, was the dissatisfaction with syntactic analyses of young children's speech--that is, children say something, so the focus of analysis should rather be on semantics, not syntax. An early objection to work which bases child language acquisition study on Chomskian generative grammar was made by Kernan (1970). He pointed out that many of the conclusions reached by those who accept a level of 'syntactic deep structure', at least with respect to child language acquisition, have little explanatory value. For instance, the idea that the child has an 'innate language acquisition device' which functions as a miniature linguist doesn't necessarily lead to better understanding of language acquisition.

Kernan (1970) himself bases his grammar on Fillmore's (1968) case grammar, in which the base is semantic. In his description of the earliest stage (MUL 1.52) of a Samoan child, he first distinguishes all utterances as falling into two types, each with a different semantic function: Stative and Predication. Further, he adds Modality, which in his description, as in Fillmore's, operates on the sentence as a whole, in a sense stands outside the rest of the utterance. For his Samoan child at this stage there were two modalities, negation and interrogation. Predication sentences contain a verb of action, and thus have a noun and a verb; the noun is associated with the verb in a particular case relationship--for this child, Agentive, Direction (Location), or Objective. "Stative may be simply the naming of some item or person, or it may express the semantic concepts of possession, benefit, or location or a combination of naming and location, and of possession and location." (Kernan 1970:179)

Kernan writes a grammar for the utterances in the corpus, but it is a grammar that assumes semantic relationships as constituting the base. The child at this stage had acquired "certain semantic relationships and rules which linguistically express these relationships." (184) For Kernan, the relationships include:

agent + action
object + action
direction + action
dative + action
possession
negation
direction
interrogation
benefit
location

In addition: "Semantics also underlies simple naming behavior and provides for the marking of noun classes such as human and non-human by the markers 'o and le." (184) Kernan seemingly does not intend to imply in any way that the semantic relations he describes are universal--he is simply describing the language of a Samoan child at a certain stage, but with the hope that through comparison with children learning other languages, the universal aspects can be discovered. What is universal, however, is the fact that children express semantic relations, and where these come from:

> The semantic relationships represent the knowledge of the child that discernible and linguistically named entities and actions exist in the world, and that these entities may enter into certain knowable and linguistically expressable relationships. The knowledge which the semantic relationships represent is in some sense innate, in some sense acquired, and in some sense linguistically influenced. (184)

The most extensive work with semantic relations, including a concern with universals, has been done by Bowerman (1973, 1975) and Brown (1973). I want to therefore examine their work and to discuss the

conclusions that they have reached.

Brown (1973) relates early semantic relations to children's achievements during the sensorimotor period. Bowerman (1973) emphasizes that these early semantic relations are universal: they "originate in the way human cognitive abilities process nonlinguistic experiences common to children everywhere." (210-211) The work of these two authors seems to be based on the idea that when children first combine words, they are expressing relations that exist in the outside world which they have become aware of during the period of sensorimotor development. A large part of the job of the psycholinguist consists in discovering what these relations are and of showing how they are expressed in different languages.

Bowerman (1975) compares data from children speaking four different languages (from four different language families): English, Finnish, Samoan and Luo. The speech samples are from what Brown (1973) has termed Stage I--MUL 1.00 to 2.00. Bowerman divides the samples into Early Stage I (MUL 1.30 to 1.50) and Late Stage I (MUL 1.60 to 2.00). She found the following construction patterns occurring in every sample at Early Stage I: agent-action, action-object, possessor-possessed, demonstrator-object demonstrated and adjective-noun. Certain other constructions were very frequent in some samples but did not occur at all in others. Bowerman (1975) points out that therefore these are probably not universal, nor can their occurrence be related to the language being learned. These were: object located-location, subject-object, attributive noun modifier-noun, <u>more</u> or <u>nother</u> + N and <u>hi</u> + N. Other constructions were absent in most samples and rare in others: action-location and negatives. Yes/no interrogatives

were marked by intonation in the samples of all children except the Finnish ones.[2] In Late Stage I, one major development is the combination of two construction patterns in a three-word utterance, resulting in the following types of strings: agent-action-object, agent-action-location, action-object-location and many different ones involving a modified noun + action or demonstrative + modified noun. A new addition at this stage is the indirect object, both in two-word and three-word utterances. Another new development is the use of nonagentive subjects with main verbs--the subject is not an agent, but is 'person affected' or 'object involved'. Wh questions are also added, and occur in all samples, including those of the Finnish children, though not very frequently. Object located-location, subject-object, attributive noun modifier-noun, more or nother + N, hi + N, action-location and negatives now occur in most samples.

Brown (1973) has written a thorough and thoughtful book on Stage I and Stage II of child language. He uses data from his own exhaustive child language project in English, as well as data from a number of other languages. The parts of his book that concern me most are the sections on what he terms 'operations of reference' and semantic relations. Using primarily data from English, Finnish, Samoan, Swedish and Mexican Spanish, he shows first of all that a large number of utterances in Stage I are concerned with the expression of three operations of reference--nomination, recurrence and nonexistence. These occur in the speech of all the children. In addition, there are a number of semantic relations which occur frequently in the samples:

1. Agent and action
2. Action and object
3. Agent and object
4. Action and location

5. Entity and location
6. Possessor and possession
7. Entity and attributive
8. Demonstrative and entity

According to Brown's table on page 174, the only ones which do not occur in all the samples are agent and object, action and locative and demonstrative and entity. In addition, other semantic relations occurring in some of the samples are:

1. Instrumental
2. Benefactive
3. Indirect object datives
4. Experiencer or person affected datives
5. Comitative
6. Conjunctions
7. Classificatory

Some three term relations also occurred in the samples--Brown enumerates four which were the most common: agent, action, object; agent, action, location; agent, object, location; and action, object, location. Additionally, several occurrences of two term relations with the NP expanded were evident (e.g. modified agent and action). Brown considers the development of modalities to occur most fully in Stage III, and so does not discuss them here, except to say that "there is evidence in Stage I of the semantics, if little of the grammar, of the major simple sentence modalities other than the affirmative, declarative modality. There is evidence of some understanding of interrogative, negative, and imperative modalities." (180) However, in classifying utterances which contain these, Brown puts them into the appropriate semantic relation where possible; otherwise they go into the 'other constructions' category. Clearly, Brown is not concerned with accounting for all of the language of the child at this stage (or at any other)--his concern is with what seems to be the predominant means of expression, with what the child is mainly doing when he uses lan-

guage. Thus:

> In sum, I think that the first sentences express the construction of reality which is the terminal achievement of sensori-motor intelligence. What has been acquired on the plane of motor intelligence (the permanence of form and substance of immediate objects) and the structure of immediate space and time does not need to be formed all over again on the plane of representation. Representation starts with just those meanings that are most available to it, propositions about action schemas involving agents and objects, assertions of nonexistence, recurrence, location, and so on...In suggesting that the meanings of the constructions of Stage I derive from sensori-motor intelligence, in Piaget's sense, I mean also to suggest that these meanings probably are universal in humankind but not that they are innate. (200-201)

What is really meant by universal semantic relations? They are presumably ones that occur in the language of children everywhere. But children at what stage? Bowerman (1975) seems to imply that only those relations which occur in all children with an MUL of 1.00 to 1.50 (her Early Stage I) are universal. The cut-off point of MUL 1.50 is entirely arbitrary. If four or five relations are found in all children with an MUL of 1.50 or below, but three or four additional ones in all children with an MUL of 2.00 or below (all of which are present in some children whose MUL is below 1.50), then why are not these also universal? If we were to compare many children in, say, their first week of two-word utterances, we might not find one single relation that they all had in common--this is a high statistical probability. The concept of 'universal semantic relations' is therefore unclear.

The relationship between early sentence structures and cognitive development needs to be more explicit in the analyses. If one believes that early grammar consists of expressing all the relations which are part of the cognitive map of the world, then one would expect all to be expressed. This assumption seems to be the one initially

used by Bowerman and Brown--which is why they express surprise at the fact that, e.g., datives and instrumentals occur fairly late in Stage I, even though children at the sensorimotor stage are familiar with the concepts of recipient and instrument. If one simply believes that early grammar expresses only relations understood by child but not necessarily all of these, then it is perfectly logical not to find all possible relations expressed. Then more interesting questions arise--why are certain relations expressed early by some children but not by others; why are certain relations expressed late by all children? Ervin-Tripp (1971) believes that "the categories, features, and relations available to children at the onset of interpretive activity is a central issue in the explanation and prediction of language learning." (208) I agree that knowledge of these is necessary, but it is not sufficient. It is true, again, as Ervin-Tripp says, that "if we can establish the order of development of these relations, we can better account for the order of development within language; we can find which properties of input are irrelevant because incomprehensible to children on the basis of their cognitive development." (208-209) But if semantic relations are not the same as the 'categories, features and relations' available to or understood by children, and it seems that they are not, then the analysis of semantic relations expressed by children is not nearly enough for a satisfactory explanation of their language development.

In Table 3, I compare three taxonomies of semantic relations to illustrate some of the difficulties with such listings. In attempting to match as closely as possible the various relations posited by Kernan (1970), Bowerman (1975) and Brown (1973), I arbitrarily bracketed some--

Table 3. Comparison of Semantic Relations in the Work of Kernan, Bowerman and Brown.

	Kernan*	Bowerman		Brown	
1.	possession**	possessor-possessed	A	possessor-possessed	A
2.	agent-action	agent-action	A	agent-action	A
3.	object-action	action-object	A	action-object	A
4.	location direction	object located-location	B	entity-location	A
5.	--	adjective-noun	A	entity-attribute	A
		attributive noun modifier-noun	B		
6.	--	more or nother + noun	B	recurrence	A
7.	--	demonstrative-object demonstrated	A	demonstrative-entity	C
8.	naming	--		nomination	A
9.	negation	negatives	C	nonexistence	A
				(negatives)***	A
10.	interrogation	yes/no interrogatives	B	(interrogatives)	A
		wh interrogatives	D		
11.	--	subject-object	B	agent-object	C
12.	direction-action	action-location	C	action-location	C
13.	--	hi + noun	B	--	
14.	three-word combinations	three-word combinations	D	three-word combinations	C
15.	benefit	--		benefactive	D
16.	dative-action	indirect object	D	indirect object	D
17.	--	person affected or object involved	D	experiencer or person affected	D
18.	--	--		instrumentals	D
19.	--	--		comitatives	D
20.	--	--		conjunctions	D
21.	--	--		classificatory	D
22.	--	--		(imperatives)	D

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*From Kernan (1970), Bowerman (1975) and Brown (1973).

**Kernan's relations are based on data from one Samoan child, MUL 1.54. This child would be in the middle of Stage I, which is MUL 1.00 to 2.00. Since Bowerman's and Brown's relations come from data on many children and slightly different stages, an attempt has been made to arrange all the relations in approximate reported order of occurrence. Thus, the letter values are as follows:

A = all children
B = most Early Stage I children (Bowerman)
C = some Early Stage I children (Bowerman); most Stage I children (Brown)
D = Late Stage I children (Bowerman); some Stage I children (Brown)

***Bracketed items are not true semantic relations in Brown's analysis.

e.g., I assumed that what Kernan analyzes as two different ones, namely location and direction, are in Bowerman's and Brown's schemes analyzed as one relation. That is, Bowerman and Brown would put all the utterances that Kernan places in two categories into their one category. However, it is by no means true that even where the category is names the same by all three authors, they would place exactly the same utterances, and only those, into that category.

Another difficulty is that not all the items in Table 3 are really 'semantic relations'--however, because some of the investigators classify them as such, I inserted all the terms used by all. For instance, Brown speaks of three different types of categories: operations of reference, generic relations and modalities. Recurrence is an operation of reference, but in his classification, an utterance like more + noun would be both 'recurrence' and 'entity-attribute'. With respect to negation and interrogation, both Kernan and Brown term them modalities, yet Kernan includes them in his list of relations, while Brown does not.

Additionally, in many cases we don't know whether one investigator leaves out a relation simply because it did not occur in his or her data or because he or she didn't consider it salient enough to list separately. For instance, Bowerman, who used Kernan's data, claims that all children expressed the relations demonstrative-object demonstrated and adjective-noung, yet these two relations are not mentioned by Kernan. Did Bowerman not find anything that she wanted to call 'benefactive', or did she include those utterances that Kernan and Brown called benefactive somewhere else?

Finally, the utterances which can be classified into the semantic

relations listed in the table by each author by no means exhaust the corpora. What about the utterances which cannot be so classified? As an illustration of the actual proportions of utterances classified into the different relations, I have reproduced Brown's (1973) Table 24 from page 176, with the addition of data from two of my own corpora, in Table 4. Note that Brown's 'prevalent relations' refers to numbers 1, 2, 3, 4, 5, 7, 11 and 12 from my Table 3. However, his 'other constructions' includes more than the relations numbered 15 through 22.

My own data also cannot be exhaustively fitted into Brown's categories 15 through 22. For example, the single most frequent type which in my data falls into 'other constructions' is a kind of vocative--when the child is asking his mother for something, or is trying to attract her attention to an object or event. Some Estonian examples are: Mamma kompu 'Mommy candy'; Mamma ringi ringi 'Mommy round round'. This type of construction is termed grammatically uninteresting by Brown. But in fact, some of these constructions may be semantic relations in the child's grammar, if not in the adult's.

The percentages of utterances that actually fall into the category 'prevalent relations' in Brown's table vary widely--from 30% to 81%. Six of the fourteen children included in Table 4 have less than 60% of their utterances falling into this category. If there were some particular significance in talking about 'prevalent relations', one would expect that the percentages of utterances falling into such a category would show some type of trend as the utterance length increases--perhaps a decrease, since logically children would add other utterance types as their language develops. However, even though the MUL in the table varies from 1.10 to 2.06, no such trend is evident.

Table 4. Brown's "Percentages of Multi-Morpheme Types Expressing Prevalent Relations and Falling Into Other Categories", With Data from Two Estonian Children Added: Koidu I and Alan III.*

Construction**	Kend. I	Alan III	Koidu I	Seppo I	Kend. II	Viv.	Sip.	Tofi	Eve I	Sarah I	Seppo II	Rina I	Pepe	Adam I
MUL	1.10	1.23	1.40	1.42	1.48	1.50	1.52	1.60	1.68	1.73	1.81	1.83	1.85	2.06
Multi-Morpheme Types	100	70	98	111	152	112	112	75	146	183	272	203	242	229
Prevalent Relations (in %)	81	46	31	67	72	69	30	51	58	44	74	70	70	64
Other Constructions (in %)	17	23	53	04	07	16	65	35	41	42	22	27	20	30
Uninterpretable (in %)	02	31	16	29	21	15	05	14	01	14	04	03	10	06
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

*After Brown 1973:176.

**Multi-Morpheme Types = the number of different multi-morpheme utterances in the session; Prevalent Relations = relations listed in Table 3 as numbers 1, 2, 3, 4, 5, 7, 11, 12 and some of 14.

It is clear that though investigators who analyze data of early child language in terms of semantic relations claim that children everywhere express the same semantic relations, in fact they do not. In addition, an analysis in terms of semantic relations does not answer the question 'What are children expressing when they first use language?' since much of the data cannot be analyzed in terms of semantic relations.

The semantic relations posited by most investigators are based on what is known about adult semantic categories. Bowerman (1973) criticizes the use of deep structures based on adult grammar in the analysis of child language, giving as an example the attribution of 'subject' to children's grammar. "...the structural phenomena which require the concept of subject in adult speech are evidently missing in early child speech. To credit children with an understanding of the concept is an act of faith based only on our knowledge of the characteristics of adult language." (207) She then goes on to propose semantic categories and relations (as outlined above); at the same time, Bowerman states that these semantic categories are not necessarily the particular ones children use, that they too are abstractions, although not as high level as the concept of 'subject'. Schlesinger (1973) also discusses what he calls the 'anachronistic fallacy'--viewing the child's linguistic development from the vantage point of adult grammar, so that relations which are known to be represented in adult grammar are attributed to the child's language.

Both Bowerman (1970, 1973) and Schlesinger (1971a, 1973) advocate staying very close to actual data, and using flexible analysis procedures to describe children's linguistic development. So far,

Schlesinger in his own work has applied this dictum more faithfully than Bowerman. Implicit in the work of both, and explicit in the work of Bloom (1970, 1973a) is the idea that children exhibit more differences than previously thought in their language development. In that case, it makes more sense not to rely on knowledge of adult grammar in the analysis of child language. An example is given by Schlesinger (1973). He reports that Greenfield and Smith (1976) have postulated an 'associative case' which includes both possession and habitual location. They found that at the time the child begins to use people's names for their possessions, he also points to a location and names the person or object that belongs there. He may therefore be expressing a general notion of 'belongingness' rather than possession or location, two categories very widely used in the analysis of semantic relations. Perhaps an even more striking illustration of the validity of the concept of 'association' is the fact that in some situations it makes no difference whether a child's utterance is interpreted as 'possessor-possession' or 'entity-location'. When a child looks at a man in a car and says man car, this is clearly the case. The relation is best termed 'association'--providing other utterances of the child bear out this interpretation. As I will discuss below, the notion of some type of relatedness between possession and location is maintained in the structure of some languages, e.g. Estonian, in the use of the same case for certain expressions of location and possession. Evidence from different languages can be used to corroborate the plausibility of interpretations about child language, because the very young child does not know what distinctions are made in the language he is learning, and so he may be making dis-

tinctions which are present in some language other than his own. The structure of the language he is learning, however, should not be used as the primary source for discovering what semantic relations are present in very early speech.

There are then several major difficulties with the concept of semantic relations. It is unclear what is meant by 'universal semantic relations', because very few of them were in fact expressed by even the majority of children whose language was analyzed; the relationship between early sentence structure and cognitive development is not always specified; taxonomies of semantic relations are unsatisfactory because there is no agreement on them and because many early utterances are delegated to the 'other' category; and finally, semantic relations in most of the analyses are based to a large degree on adult categories.

It is quite likely that the 'semantic relations' found by researchers are a mixture of 1) relations present in the cognitive schemata of children as well as expressed in language and 2) semantic notions present in adult language but not in the language of children. I have shown in Chapter 2 that cognitive schemata can predict what it is possible to express, but not what will be expressed. It is not surprising, then, that semantic relations are not really universal in the sense of being present in the language of most children at the beginning of the multi-morpheme utterance stage (language expression of cognitive schemata depends on many different factors) and that investigators do not show agreement among themselves (their views on adult semantic categories vary).

Analysis in terms of semantic relations raises many questions and

provides few answers; therefore it is not a promising route to the understanding of child language development.

3.2.2 The Semantics of Spatial Expression

The failure of the concept of 'semantic relations' to illuminate child language development in a sense parallels the failure of purely structural syntactic analysis. That is, just as pivot grammars, Chomskian grammars or even Fillmorian grammars of child language were supposed to be based on structures that children actually use and not on adult grammar, so semantic relations were supposed to represent children's actual semantic structure. In both cases, the analysis did not prove particularly illuminating.

Researchers interested in syntax then postulated that syntactic complexity of the adult language determines the sequence of children's learning. As discussed in Chapter 1, the original version of this hypothesis was not supported by data.

The question that now arises is whether semantic complexity of the adult language determines the sequence of development in children. In child language research, semantic complexity usually has referred to semantic features on lexical items and/or grammatical markers--in the adult language. Some attention has also been focused on the notion of markedness of features.

Since I will make use of the notion of semantic complexity in the analysis of locatives in Estonian child language, it is necessary to present here some important analyses of the semantics of space expressions that have been carried out recently, partially as a reaction to and extension of Fillmore's (1968) introductory paper on case gram-

mar (Bennett 1972 and Fillmore 1971b), and also as a basis for further work in child language (H. Clark 1973 and Parisi and Antinucci 1970).

Fillmore (1971b) sets out more or less to discuss the semantics of space as it is found in English and some other languages. First, locative prepositions in English can be grouped according to what kind of dimensionality they ascribe to the following noun.

Thus: at - no particular dimensionality

on - a line or a surface

in - a bounded two-dimensional or three-dimensional space

He points out that dimensionality has been discussed by others, and their systems are comparable as follows:

	Leech (1970)	Catford (1969)	Austerlitz (1970) (for Finnish)
at	simple location	neutral	--
on	surface	exterior	free
in	interior	interior	confined

The characterization of on and in will readily be recognized as what I have termed 'external' and 'internal' in my discussion of the locative case system of Estonian (see Chapter 4). The reason Austerlitz has no term for the dimensionality associated with at is because he is discussing the Finnish locative case system; while at is perfectly expressible in Finnish, it is not done through the use of case.

Further, orientation in space accounts for another set of English prepositions and other spatial terms. Thus, it is the existence of gravity which is responsible for up and down; associated with the vertical axis also we have above, below, over, under, beneath; and with the horizontal axis front and back. Distance between two points in space is expressed through the use of far, near, high, low, deep,

shallow. (Note that far and near are also associated with the horizontal axis; high and low with the vertical; and deep and shallow include the notion of dimensionality.) These are all static concepts.

Movement accounts for another set of English prepositions. Movement involves a point of origin, or source; a destination, or goal; and also a path. Combining the notions of dimensionality of the following noun and movement, the following system for English prepositions emerges (after Fillmore 1971b), as shown in Table 5:[3]

Table 5. English Prepositions and Their Estonian Counterparts.

	Simple Location	Source	Goal	Path
neutral	at (juures)*	from (juurest)	to (juurde)	via (kaudu)
external	on (peal)	off of (pealt)	onto (peale)	over, across (üle)
internal	in (sees)	out of (seest)	into (sisse)	through (läbi)

*The Estonian forms are in parentheses.

Herbert Clark's (1973) analysis of English leads to similar results. However, Clark undertakes his analysis with the expressed purpose of relating children's acquisition of spatial terms to their semantic structure. Thus, he states that the child acquires English expressions of space

> ...by learning how to apply these expressions to the a priori knowledge he has about space...The knowledge... is simply what the child knows about space given that he lives on this planet, has a particular perceptual apparatus, and moves around in a characteristic manner. (28)

Clark then outlines what he calls perceptual space, or P-space. This is the system of cognitive space that every human has. L-space is the concept of space underlying English terminology. (P-space is cognitive structure; L-space is semantic structure.) He hypothesizes that there should be a close fit between P-space and the L-space of any language.[4] Unfortunately, as in many attempts of this kind, Clark's P-space turns out to be an almost perfect fit with the L-space of English. This is an almost inevitable outcome when working back from language to cognition, especially if one is working primarily with one language. It seems that we do not actually know that much about adults' cognitive space.

A few points from H. Clark's (1973) paper might be illuminating as to what else might be necessary to postulate in P-space, and what may not exist in Estonian L-space (but does in English). In Clark's analysis, there is no discussion of diagonality; yet that this surely has a role in human perceptual structure is shown by Olson's (1970) study of its development in children. One Estonian postposition--kohal--exists which necessitates the addition of another 'dimensionality of the following noun' in Fillmore (1971b) terms. This postposition means 'above but not in touch with'--in other words, 'suspended, hovering above'. The dimensionality would be something like 'suspended in air'. Further, Clark proposes the concepts of canonical position (e.g., upright for humans and bottles) and canonical encounter (face-to-face with other human or object) for his P-space and L-space in English. My preliminary analysis shows no need for these concepts in Estonian L-space. For instance, according to Clark, the English in front of is ambiguous as to whether it means between the person and

and the object or in front of the object, when the object has an intrinsic front-back orientation. But the Estonian postposition ees can only be used with the meaning in front of if the object does have an intrinsic front-to-back orientation. In other cases, the postposition has the meaning of one object obscuring/obstructing the other object. It is clear in any case that canonical encounter is not the same in Estonian as in English; possibly in P-space there is something else which might cover both Estonian and English L-space.

Clark continues his analysis with showing which spatial terms are more complex than others. He then postulates the complexity hypothesis: "...given two terms A and B, where B requires all the rules of application of A plus one or more in addition, A will normally be acquired before B." (54-55) Thus, for example, for the series in, into and out of, in is the simplest, into comes next, and out of is the most complex (because negative direction is marked). There is no difficulty in making predictions when the complexity is along the same dimension. However, Clark admits that there is no way to predict across dimensions using purely linguistic data. Thus he says:

> ...the one-dimensional prepositions [ahead of-behind, in front of-in back of] require knowledge about the direction of motion of objects, whereas the three-dimensional ones [above-below, on top of-underneath] require knowledge about geological verticality. These two types of knowledge are not comparable, and a prediction about the priority of one over the other would seem unwarranted without other information about what the child knows. (56)

Clark then looks at some comprehension studies for evidence with respect to the complexity hypothesis, and finds that most researchers have indeed concluded that the child acquires word meanings by adding progressively more specific semantic features. He also looks at some data on production, cautioning that this is less reliable, since it is

difficult to know what the child's meaning for the word really is, even if he is using it seemingly correctly. He finds no counter evidence to the complexity hypothesis in the small amount of data he examines. In a recent paper, Eve Clark (1975), who has done many comprehension type studies on semantic development herself, concludes that even comprehension studies are difficult to interpret. She cautions:

> ...recent research on the acquisition of meaning by children has shown that the acquisition process cannot be considered in isolation. One must take into account what the child knows, what strategy the child may resort to when he still knows very little about what words and utterances mean. (95)

Parisi and Antinucci (1970) analyze Italian locatives into semantic components. Their theoretical outlook differs from that of both H. Clark and E. Clark in that they explicitly view semantic structure as being equivalent to cognitive structure. Thus, they say:

> We want to make clear that semantic components are not to be conceived as formal entities or as undefined primitives, but that they refer to actual ways of functioning of the human mind and will have to be defined in terms of psychological structures and processes. (201)

However, unlike H. Clark, they do not rely on semantic complexity as analyzed by themselves to make predictions about order of acquisition. Since they are concerned with older children (more than four years old), they use the work of Piaget and Inhelder (1967) to make predictions:

> ...some hypotheses can be formulated on the order of acquisition of at least some of these spatial locatives. More specifically, locatives can be roughly divided into 3 classes: (1) locatives whose meaning can be described in terms of simple topological notions (e.g. <u>in</u>, <u>on</u>); (2) locatives in which dimensional or euclidean space notions are present (e.g. <u>in front of</u>, <u>below</u>, <u>beside</u>); (3) locatives which require more complex spatial notions (e.g. <u>along</u>, <u>through</u>). Our hypothesis is that the order of difficulty of locatives will reflect the developmental course of spatial notions which they contain and therefore they will be acquired in the above order. (203)

In the comprehension task (requiring subjects to draw a dot in specific spatial relations to a circle) that they administered to adults and to two groups of children (mean ages 5;8 and 7;6 years), they found all subjects understood locatives of group (1); the evidence was inconclusive for group (2); and the children did not perform well with locatives belonging to group (3).

These analyses promise to provide some basis for explaining the order of acquisition of spatial expressions. I will refer to them again in Chapter 4 for the analysis of the Estonian data, and discuss to what extent semantic complexity may be a factor in child language development.

3.2.3 Possessive Notions

The major focus of this study is on one particular semantic domain--that of location. The problem with semantic domains is that they are rarely entirely separate. One may need to consider a closely related domain, in this case possession and transfer of possession. Semantically, possession could be considered as location in relation to animate beings. Lyons (1967) makes this point as follows:

> Whether or not the various '<u>have</u> verbs' used for possession developed from 'verbs of action' which once meant something as specifically locative as 'grasp' or 'hold (in the hand)' may well be beyond the scope of etymological recovery; but it seems plausible. It is clearly not by chance that the case of the indirect object (the 'dative') and the directional of 'motion towards' fall together in many languages. In the 'concrete' situations in which the child first learns his language, it would seem that the causative...<u>Give me the book</u> is indeterminate as between possessive and locative ('Make me have the book' and 'Make the book come to/be at me'); note that <u>Give it here</u> is frequently used in such situations and is equivalent to <u>Give it to me</u>. The distinction of locatives and possessives would be a subsequent lan-

> guage-specific development, resting largely upon the syntactic recognition of a distinction between animate and inanimate nouns in various languages. Indeed, is there any other way of saying what is meant by 'possessive'? (392)

Clearly, Lyons is making the point that in human cognition, location and possession are related in just such a way--that is, one has to do with the relationship between an object and a place (inanimate), the other with the relationship between an object and a place (animate). Verbs like 'to have' are a relatively late development in Indo-European languages, Lyons points out; moreover, in many languages of the world no such special verb has developed.

Eve Clark (1970b), in her excellent study of existential, locative and possessive constructions has analyzed data from some forty languages. Her main arguments are:

> ...the constructions traditionally called 'existential', 'locative', and 'possessive' are all examples of a type of construction I shall call <u>locational</u>. These <u>locational</u> constructions are systematically related to each other, as will be shown below. Further, I will hypothesize that the configuration resulting from the systematic relations between locationals is a universal one. The typology of the relations between locational constructions is predicated to be constant across languages. (L1)

Basically, Clark shows that distinctions among existential, locative and possessive construction types in different languages depend on whether the nominal expressing location is [-Animate] or [+Animate], and on whether the topic nominal is [-Definite] or [+Definite]. A limited number of devices are used to distinguish among the constructions. For example, the most common (among the languages analyzed) word order for [-Definite] topic nominals is that they do not occur initially in a sentence, whether the location nominal is [+Animate] or [-Animate]. For example, in English a

[-Animate] [-Definite] locational is expressed through the use of the existential there: There is a book on the table. 'Existential' is then defined by the two combined features of [-Animate] [-Definite]. The same locational in Estonian is expressed through use of the adessive case ending on the location noun and word order: Laual on raamat 'On the table is a book'.[5] Reversing the word order in Estonian results in the locative Raamat on laual 'The book is on the table', expressing the features [-Animate] [+Definite]; in English this is The book is on the table.

Similarly, [+Animate] [-Definite] defines one type of possessive. In Estonian it is expressed by the adessive case and the same word order as the first existential sentence above: Jaanil on raamat 'To John is a book'. Estonian thus does not distinguish in surface structure between an existential and a possessive when the topic nominal is indefinite. In English, the sentence is John has a book, with the use of the special verb 'to have', but using the universally most requent word order for [-Definite] nominals. Further, the [+Animate] [+Definite] types of possessive locationals in both English and Estonian have the [+Definite] nominal in initial position, along with other structural devices. In English, the [+Animate] nominal is expressed with the possessive s: The book is John's, and in Estonian, the same nominal is expressed through the use of the genitive case ending: Raamat on Jaani (oma) 'The book is John's'.[6]

Although E. Clark's study does not consider directionals, their analysis in Estonian shows that the features [-Definite] and [+Definite] are expressed through word order (and different case endings for plural topic nominals) in the cislocative ('motion toward'),

but the features [+Animate] and [-Animate] are not distinguished in surface structure. Thus we have Lauale on pandud raamatuid 'On the table have been placed some books', where lauale is in the allative case, and raamatuid is in the partitive. Raamatud on pandud lauale 'The books have been placed on the table' has raamatud in the nominative case, and lauale again in the allative. Parallel to this, we have Jaanile on kirju 'For John are some letters'; and Kirjad on Jaanile 'The letters are for John'.[7]

For translocative ('motion away from') constructions, the ablative case is used for the location nominal, and word order remains the same as described above. However, there seem to be additional constraints on such constructions in Estonian, since I could not find completely parallel examples, without adding to or changing the construction. For example, [-Definite] constructions sound awkward without the addition of the determiner Üks 'one'. The pursuit of these analytical difficulties will have to be left for future research.

It is clear from such analyses that locative and possessive are indeed closely related in universal semantic structure, and certainly closely related also in Estonian syntactic structure. In Estonian, as we have seen, only one out of the four locational pairs whose semantic features distinguish locative from possessive is also differentiated in surface syntactic structure--the [+Definite] nondirectional construction.[8]

It seems that Estonian together with Finnish is, however, different from all the languages E. Clark (1970b) discusses in the use of the adessive case for the nondirectional locational constructions. Apparently, other case languages favor the dative or the genitive cases.

This specialization of Finnic languages is reflected in the tremendous elaboration of their case systems (Estonian has fifteen cases).

It should be noted also that in all [-Animate] constructions, that is, true locatives, it is possible in Estonian to substitute the equivalent postpositions for the locative case endings. It will be seen in my data (Chapter 4) that in everyday usage, postpositions are in fact overwhelmingly chosen over case endings for external locative meanings marked by the adessive, allative and ablative cases.

These types of considerations, then, led to the decision to include possessives in my analysis.

Recall that in Chapter 2, some of Piaget's sensorimotor schemata that had to do with spatial ideas were postulated to be related to what in language are termed 'possessive' notions rather than 'locative'. Since this is a more appropriate place to discuss these notions, I will reproduce the relevant portion of Table 1 (page 64) here as Table 6.

Table 6. Possessive Notions Expressed by Two-Year-Old Estonian, Finnish and English Children.

Child	MUL	Age	Possession Expressed
Alan I	1.00	30 m	--
Alan II	1.10	32 m	--
Alan III	1.23	34 m	minu 'mine'; N + N
Koidu I	1.40	28 m	N + N; N + K; N + oma 'own'
Seppo I	1.42	22 m	N + N; on 'is' + N
Gia I	1.10	19 m	N + N
Allison I	1.00	16 m	--
Allison II	1.00	19 m	--
Allison III	1.13	20 m	--
Allison IV	1.73	22 m	N + N

Although all the children express possession, in Estonian and Finnish more variety in expression is evident early. The English children use only N + N constructions. Alan uses N + N, and also minu 'mine'. Koidu uses N + N, but also N + K (case), the case used being the adessive. In Estonian, as we have seen, possessives of the form N has N are expressed as N + adessive ending is N, lit. 'on N is N'. In addition, Koidu uses N + oma 'own', a very common way of expressing possession in Estonian (e.g. ema oma 'Mother's own'). Seppo uses N + N, and also on 'is' + N, but with no case inflection, as required by Finnish.[9] Similarly, the English children do not yet express the possessive morpheme s. The use of personal pronouns is nonexistent or very limited for all the children being discussed, so one would not expect any expression of possession through this medium.[10]

The notion of possession, and the relationship between possession and location are complex ideas, and ones which deserve more attention than they have received so far. For instance, I don't believe that the relationship between the idea of give/take and possession can be discovered through the analysis of language and of semantic systems. What is necessary is systematic observation of young children, beginning before the stage of understandable language, and continuing past the age of three or four, observation of their handling of objects, reaction to objects, and associated language when it appears. However, because possession appears very early, I would like to summarize some of the work that has been done on this notion.

Bloom (1973b) discusses Allison's use of personal names at the age of sixteen months (same period as Allison I, but using other data) to refer to objects habitually associated with those persons. She regards

this as possibly being "early evidence of a primitive notion that included both persons and objects in an as yet non-specific relation." (98-99) The fact that Allison did not yet name the objects referred to in the above manner is seen as evidence that these expressions are not yet notions of a possessive relation. Such evidence first occurs two months later, when Allison uses both the name of the person and the name of the object in successive single-word utterances. Very closely related to Bloom's idea is the notion of 'habitual association' as suggested by Greenfield and Smith (1976). In addition to objects referred to by using a proper name, they include location referred to by using the name of a person or object habitually associated with that location. Similarly, they point out that in the very next sessions of both children that they are discussing, two-word utterances were used which were clearly instances of true possessive relation. They regard possessives as a very basic semantic relation.

Although this type of use of personal names did not occur in the Estonian data that I'm discussing here, a very closely related phenomenon did. In Alan I, he says: Auto, Auf auf. 'Car. Doggie.' when looking at a picture of a dog riding in a car. There is no way of designating this utterance sequence as locative or possessive, it rather seems to mean some more general notion of simple association between the dog and the car. Similarly, in Alan III, he is playing with a toy earthmoving machine which has a man inside. He says Onu auto 'Man car'. It is not possible to know whether he means 'The man's car' or 'The man is in the car' or 'The man is driving the car'. This type of semantic ambiguity is not uncommon, and has been discussed by others. (See Howe 1976 and Greenfield and Smith 1976.)

At first glance, one might assume that this notion of 'habitual association' is quite far from Piaget's account of the development of sensorimotor intelligence. However, Piaget (1954) emphasizes throughout his discussion of the development of object permanence, spatial schemata and causality that these schemata are interrelated, and are not separate in the child's cognitive world. In other words, an artificial separation occurs in the attempted description of the system. Since I have here confined myself primarily to discussing the relationship between spatial schemata and language expression, it is not surprising that I should also find in the language of children expression of notions which cannot be termed purely spatial. 'Habitual association' and possession in language might well be based on a cognitive schema involving both object permanence and spatial ideas, with the possible addition of ideas about the relationship between persons and objects.

Edwards (1973) has discussed the acquisition of possessives in child language as well. He first outlines types of possessive relations which occur in language, after the work of Anderson (1971), Chafe (1970) and Fillmore (1968). Edwards states: "All three types of POSSESSIVE relations--inalienable, permanent and transitory--occurred in Helen's early two-word speech." (426) As examples of inalienable possession, Edwards gives expressions involving body parts, such as <u>daddy neck</u>. For transitory possessives, he states that these "occurred in Helen's early utterances only as 'causatives'; that is, referring only to situations in which persons were passing objects to each other." (427)[11] This is the give/take category in my analysis. And on permanent possessives, Edwards has this to say:

> Helen's permanent POSSESSIVES were still all static at the age of three years. She had no concept yet of the transference of proprietary rights whether involving gifts, donations, buying or selling. The reason for this is that her concept of static permanent possession was not in fact quite the abstract, legalistic conception of 'ownership' that adults in our culture have. (428)

There is no justification, either in Edwards' data or mine, for classifying young children's possessives into these three categories. They are very definitely categories that belong to adult language. From Edwards' description, it looks like the expressions termed 'transitory' possessives are realizations in language of the give/take notion as I have discussed it in Chapter 2. No matter how clearly one can show that in adult semantic and syntactic systems these are possessives, in the language of children of this age, one cannot.

The category of 'inalienable' possessive is also tenuous. For instance, in Fillmore's (1968) discussion of it, he points out that many languages make syntactic differentiation between inalienable and alienable possession, but that in no language does the syntax exhibit a perfect fit with the 'real world'. He also shows that in languages where there is no simple differentiation made, inalienable possessives do exhibit different restrictions of occurrence than alienable possessives; yet, he does not commit himself as to whether the notion of 'inalienable possession' is a linguistic universal. The point is, perhaps it would be pertinent to discuss inalienable possession for children who are learning a language which makes the distinction clearly; but in the case of English (and Estonian) one needs other types of evidence besides congruence in meaning with adult expressions.[12]

As for permanent possession, certainly one would not expect children of this age to have adult concepts of 'ownership'. On the other

hand, I am certain that by watching children's behavior as well as recording their language, one would find quite distinct notions of ownership all expressed by the same construction. While mummy's brush (Edwards' example) may simply be the broom that Mommy uses and Helen isn't allowed to touch, Gia Blueyes (Bloom's 1970 example) is very definitely Gia's and only Gia's doll Blueyes. It is probable that the notion of permanent possession at this stage has other dimensions than the two mentioned by Edwards (1973): "the association of persons with the things they habitually wear and use" (429) and "constraints that are imposed on Helen's actions on objects to which her parents have privileged access." (429)

In summary, it is clear that the notion of possession has cognitive, social, affective and cultural dimensions which need to be more thoroughly described in child development before one can analyze the acquisition of possessives in language.

3.2.4 Cognition and Semantics: Conclusion

Semantic complexity, in this discussion, has not always been clearly differentiated from cognitive complexity; or at least, cognitive development has been resorted to whenever no other basis for deciding which is 'semantically' more complex has been available. This procedure is obviously legitimate, since the semantic structure of a language must be based on human cognitive structure--that is, whatever is differentiable in semantic structure must also be differentiable in cognitive structure, or humans could not learn it. On the other hand, not all languages differentiate the same things; there very possibly exist cognitive schemata which are not expressed in any language. It is also

obvious that children are not born with full-fledged cognitive schemata, nor do they develop adult-type cognitive structures within the first few years of life. This is one reason why the semantic structure of the adult language cannot alone be used to decide what is more 'complex'. Thus, H. Clark (1973) uses the complexity hypothesis as if the child already had all the necessary cognitive structures (the P-space), but, he says, this is not a necessary assumption; the relationship between P-space and L-space would be closer if it is assumed that children are learning both at about the same time. His statement that there is little evidence for either assumption is, however, manifestly wrong--we know that children do not have the same P-space as adults, if mostly from the work of Piaget and Inhelder (1967). I suspect that we do not really know how different it is, especially between the ages of two and four. Moreover, the development of cognitive schemata and the learning of semantic structure are so closely related that not only is the child's learning of semantic structure dependent on his/her knowledge of the outside world, but also adult semantic structure is derived from this close interrelationship during development. I believe the notion of markedness, for instance, can only be explained in such a manner (see Chapter 4). For these reasons, it makes sense to take into account both what we know about cognitive development and what we know about semantic complexity in the adult language when discussing language development.

3.3 Pragmatics

3.3.1 Pragmatics and Child Language

Many child language investigators have begun to argue that learning the syntax and semantics of a language is not all there is to learning language. The child in addition has to learn 'when to say what to whom'--that is, language use. Moreover, the pragmatic structure of a particular language may have a bearing on what children will learn first--that is, pragmatic structure, as well as syntactic and semantic structure, may influence the sequence of language acquisition.

I intend the term 'pragmatics' in a broad sense--anything which has to do with using language in actual speech events. This includes such things as functions of human language; situationally conditioned language expression; language expression conditioned by social role; deixis and anaphora; frequency of usage of some structures versus alternative ones; customary usage in a particular language and by particular adults. The work of several investigators in the area of pragmatics will be examined.

3.3.2 Language as Meaning Potential

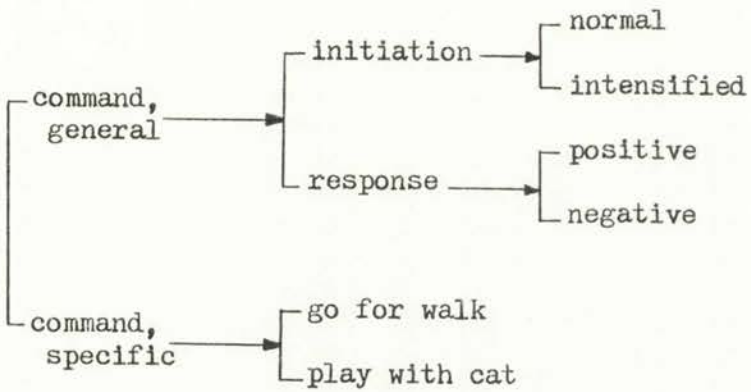
In the realm of child language development theory, Halliday's (1972, 1973a,b,c, 1975) work is unique. He is interested in what children can do by means of language at different stages of development rather than in what rules of structure or usage they have learned, or how they learn them. In his view, language is a social phenomenon, learned necessarily through social interaction, and used always in a social context.[13] In taking this viewpoint, Halliday (1973a) prefers to

talk about meaning potential (what the speaker/hearer can mean) rather than competence (what the speaker/hearer knows), thus characterizing language "objectively as a potential, a set of alternatives (25) rather than "subjectively as the ability, or competence, of the speaker." (25)

In Chapter 1, Section 1.5, I already described some aspects of Halliday's theoretical framework. Phase I was described as the period during which function equals use, and content is expressed directly: one content, one expression. "The content of the system is derived from what it is the child is making the system do for him." (1973c:5) Moreover, the form of the expression is irrelevant at this point, since each expression only has one function or one meaning. Halliday points out that the child he is studying, his son Nigel, in most instances uses forms which are not related to adult lexical items;[14] he speculates that other children may well use forms which are so related. Further, Halliday has this to say about meaning potential in Phase I:

> The meaning potential that a child learns to express in the first phase serves him in functions which exist independently of language, as features of human life at all times and in all cultures. But, at the same time, and in the same process, he is constructing for himself a social semiotic, a model of the culture of which he is himself a member; and he is doing so out of the semiotic properties of situations, situations in which he is a participant or an observer. (1973c:9)
>
> His meaning potential develops as the representation of the social system and of his own place in it. (10)

Thus, in Phase I, the child has a range of meanings (= expressions) within each of five functions of language: the instrumental, the regulatory, the interactional, the personal and the imaginative. These can be expressed as a set of options; the example in Figure 2 is taken from Halliday 1975:150. It shows Nigel's set of options within the regulatory function at the age of 12 - 13½ months.



EXPRESSION		GLOSS
Articulation	Tone	
a; ɜ ; ɜ̃	mid	do that (again)
m̩n̩ŋ	wide; ff	do that right now!
ɜ̃ - - -	low	yes (let's) do that
ãã	mid (both)	no don't (let's) do that
'- - -	--	let's go for a walk
p^{w}i- - -; pe^{w}	high level	let me play with the cat

Figure 2. Expressions Possible in the Regulatory Function at Nigel 3, Age 12 - 13½ months. (After Halliday 1975:150, Figure 3)

This type of language system served Nigel very well from the age of $9\frac{1}{2}$ to about $16\frac{1}{2}$ months. Why, then, did he suddenly move into the lexical mode at that point--that is, why did he begin to use forms of expression which are lexical items in the language of adults around him? Halliday (1972) states that the main impetus for Nigel's move was learning about his environment--the heuristic function. This signalled Nigel's entry into Phase II, where single functions are beginning to be combined. Very few of Nigel's utterances are in fact categorized as purely heuristic--most lexical items enter first in the mathetic function, which is a combination of personal and heuristic. Halliday says that "once the boundary between the child himself and his environment is beginning to be recognized, then the child can turn toward the exploration of the environment." (1975:20) It is surely no coincidence that this statement brings to mind echoes of Piaget--namely, Stage 6 of sensorimotor development, which is marked by separation of self from environment (self as an object in space) and object permanence.

Phase II is also marked by the introduction of grammar and dialogue. Why does the child bother to learn these? Halliday (1973c) says that it is because of "the inherent functional limitations of the child's Phase I system. It can no longer meet the requirements of his own social semiotic." (17) And the child's world at this point is one which includes both objects and things that can be done with them at the same time. In the proto-language (Phase I), says Halliday,

> ...<u>it is impossible to mean more than one thing at once</u>. This can be done only by the interpolation of a lexico-grammatical stratum. The reason for this is that, in order for different meanings to be mapped on to one another and output in the form of single, integrated structures, there has to be an intermediate level of coding in between the meanings and the sounds. This function is served by the lexico-grammar. (1973c:17; italics author's)

One of the first manifestations of the 'pragmatic macrofunction' is the use of intonation with a lexical item, in Nigel's case. Halliday (1973c:20) gives the following examples of early utterances which 'mean two things at a time', together with his glosses:

Anna 'Anna, where are you?'

hole 'there are holes--and something must be done about them'

cake 'that's a cake--and I want some'

In each of these cases, the child names a specific person or object and indicates that he expects/wants some sort of action with respect to them.

Utterances which are functionally 'mathetic', however, can be glossed something like: 'I can see/hear', 'I saw/heard', 'I will see/hear'. That is, the child focuses on his own perception of the external environment, and expects no action with respect to it. The mathetic function, then, "is language enabling the child to learn about his social and material environment, serving him in the construction of reality. This function is realized, in the first instance, through the child's observing, recalling and predicting the objects and events which impinge on his perceptions." (1973c:27)

One of the more complex aspects of Halliday's framework is his view of how syntactic and semantic structures develop, and how these are related to the functions of language. With respect to the mathetic function in Phase II, he says:

> Meanwhile he has developed to a high degree language in its mathetic function, the use of the symbolic system not as a means of acting on reality but as a means of learning about reality. This is the primary context for the evolution of the ideational system of the adult language: classes of objects, quality and quantity, transitivity and the like. The context in which these systems evolve is that of the observation of how things are.

> Nigel's experience of how things are is such that it can be represented in terms of processes, of people and things functioning as participants in these processes, and of accompanying circumstances. Not that reality can only be represented in this way, but this is a possible semantic interpretation; the fact that Nigel adopts this form of representation rather than another one is because this is the way it is done in the language he hears around him. We readily assume that the semiotics of social interaction--the interpersonal component of the semantic system--is constructed in the course of interaction; but it is no less true that the construction of a semiotic of reality--the ideational component--is also and interactive process. (1975:106)

At the beginning of Phase II, Nigel has a set of words for objects--objects which occur in his immediate environment. Soon, however, as his perceptive horizons broaden there is introduction of

> ...names of properties accompanying the object names; the first to appear are colours and the number two (green càr, two·pèg). Next circumstantial elements are introduced, typically expressions of place (as with other structures, these are built up step by step, first as semantic constructs and later grammaticalized: toothpaste òn... tòothbrush before ball go under càr). Next come complex processes involving two elements besides the process itself: either two participants, or a participant and a circumstance. By NL 8 Nigel's world extends to complex phenomena such as dada come on fast tràin and anna make noise gràss." (1975:106-107)

Pragmatic utterances in Phase II are described as follows:

> The significant feature that emerges is the steadily increasing content that is associated with pragmatic utterances. The child's requirements can no longer be formulated in terms merely of objects or actions, involving the simple semantic relation of 'object of desire'. They have to be expressed in complex patterns, semantic configurations in which the desired object or service is garnished in some way, for example with the meaning 'more' (more méat) or by reference to some relation or process (Bartok ón, squeeze órange), including processes which relate the object to himself (help júice). If the request is for an action, this comes to involve specification of the kind of action by means of an element expressing the Range (play tráin, play líons), or by the addition of circumstantial elements (bounce táble, i.e., 'I want to

> bounce my orange on the table'); and including instances where only the circumstances are specified, the action being left unsaid (now róom, i.e. 'now let's go to (play in) your room'). Furthermore the request may be encoded as a statement of an undesired condition to be relieved (train stúck, train under túnnel). These elements soon come to be combined, so that by NL 8 we get complex request forms such as make cross tíckmatick...in dada róom ('I want to make a cross on the typewriter, in Daddy's room') and when newworld fìnish song about bús ('when New World finishes sing me the bus song'). (1975:103)

To Halliday, the detailed analysis of semantic and syntactic (and lexical) structures is unimportant because he is more concerned about why they develop. And they develop because as the child's perceptions of the world expand, and as his needs become more specific and complex, he adopts and uses the language he hears around him to the degree that he can understand and use it at a particular point in time. Halliday's descriptions of the child's lexico-grammar are always in terms of the child's meaning potential and no more--that is, he does not attribute to the child knowledge which is not expressed, or structures which are 'deleted'.

Halliday goes on to describe the relationship between Phase II and Phase III, and the breakdown of the pragmatic/mathetic system.

> Each function, we are suggesting, carries with it a strong sub-motif of the other. Pragmatic utterances also concern things and their relations, and some aspects of these ...may actually be verbalized first in a pragmatic context. Similarly, mathetic utterances also involve some kind of a stance vis-a-vis the environment; the sort of intensification and evaluation that appear in very old trèe, loud nòise, big bàng and expressions with too--too is particularly complex, since it is an evaluative element interpretable in terms only of some reference point, and this reference point may be the speaker's opinion. All these appear first in mathetic contexts.
>
> But the point has to be made in more general terms. When we say that the mathetic function creates the conditions for the emergence of the ideational component in the semantic system, and the pragmatic for the interpersonal component, this means that the ideational systems--transitivity (types of process, participants, circumstances),

> lexical taxonomy (hierarchy of thing names), quality and quantity &c.--evolve first and foremost in mathetic contexts, while the interpersonal systems--mood (indicative, declarative and interrogative, imperative), modality, person, intensity, comment &c.--evolve first and foremost in pragmatic contexts. We are referring, of course, to these systems in the child's developing semantics; his mood system is very different from that of the adult language, and it is a long time before either the system or its grammatical manifestations take the adult form. What we are describing is the evolution of the concept of function, from its Phase II sense of 'generalized context of language use' to its Phase III sense of 'component of the semantic system'.
>
> But if we then look back at Phase II from the standpoint of the organization of the Phase III system, we can see that this organization is present in prototypic form from the start. In Phase II terms, each utterance is either pragmatic or mathetic; this is attested in Nigel's phonology, in which everything must be either rising or falling tone; and it is the form of continuity from the functional meanings of his Phase I system, each of which is specific and simple--one meaning, in one function, at a time. In Phase III terms, however, all utterances are both ideational and interpersonal at the same time; and this is true--inescapably--from the moment the child builds a lexicogrammar into the system. As soon as the utterance consists of words-in-structure, it has an ideational meaning--a content, in terms of the child's experience; and an interpersonal meaning--an interactional role in the speech situation...This is what we mean by saying that Phase II is transitional. It is not so much a system in its own right, intermediate between baby language and adult language, but rather a period of overlap between the two. The interpretation in terms of the 'Phase II function', pragmatic and mathetic, an opposition that turns up frequently under different names in language development studies, is one way of explaining the nature of this overlap; but it is also more than that--it is actually Nigel's major strategy for making the transition, as shown by the fact that he clearly assigns every utterance to one mode or the other. (1975:108-109)

In Phase III, then, 'function' has become a component of the semantic system; the child, in Halliday's view, is now clearly speaking English (or whatever language he is learning) rather than any other language, although he still has a very long way to go before either his semantic or syntactic systems are like adult ones. He continues

to develop cognitively, socially and in language toward the adult norms of his culture.

Halliday (1975) summarizes the development of language acquisition theory and relates his own approach to others. "In the latest analysis, the learning process is a process of cognitive development and the learning of the mother tongue is an aspect of it and is conditioned by it." (139) This is the view that I have taken in the analysis of children's language by relating it to Piagetian sensorimotor schemata. Halliday continues:

> The present discussion shares this non-autonomous approach to language. It seems sensible to assume that neither the linguistic system itself, nor the learning of it by a child, can be adequately understood except by reference to some higher level of semiotic organization. But we have adopted the alternative perspective--one that is complementary to the cognitive one, not contradictory to it--of locating this higher level semiotic not in the cognitive system but in the social system. The social semiotic is the system of meanings that defines or constitutes the culture; and the linguistic system is one mode of realization of these meanings. The child's task is to construct the system of meanings that represents his own model of social reality. This process takes place inside his own head; it is a cognitive process. But it takes place in contexts of social interaction, and there is no way it can take place except in these contexts. As well as being a cognitive process, the learning of the mother tongue is also an interactive process. It takes the form of the continued exchange of meanings between the self and others. The act of meaning is a social act. (1975:139-140)

I have discussed Halliday's framework at some length, because I believe with him that his viewpoint is complementary to the cognitive approach, and therefore ought to provide insights not available through the cognitive approach alone. In the next section, I want to discuss a few insights provided by Halliday's perspective, both with respect to my own work and general language development theory.

3.3.3 Individual, Society and Language--and the Child

"We dissect nature along lines laid down by our native languages." (Whorf 1956:213) Experience, for the monolingual child, can be coded in language only one way--the way it is done in the language the child is learning. As soon as the child begins to build a lexicogrammar, "things and the relations between them are entirely interpreted through the mother tongue..." (Halliday 1975:140) Halliday admits that this is a Whorfian conception, and his interpretation of Whorf is that we "are not the prisoners of our cultural semiotic; we can all learn to move outside it. But this requires a positive act of semiotic reconstruction." (1975:140) Halliday further clarifies his view of the relationship between cognition and language learning through social interaction as follows:

> What makes learning possible is that the coding imposed by the mother tongue corresponds to a possible mode of perception and interpretation of the environment...Important though this is, however, it is still only an aspect of a more significant fact about language and the social system... The essential condition of learning is the systematic link between semantic categories and the semiotic properties of the situation. The child can learn to mean because the linguistic features in some sense relate to features of the environment. But the environment is a social construct. It does not consist of things, or even of processes and relations; it consists of human interaction, from which the things derive their meaning...But the semantics of things is only a part of the total semantic system; most of the time when we are talking about things we are relating them to ourselves; and whether we are or not, they have been coded into the system in a way which reflects their relation to, and value for, the social process. (1975:140-141)

This explanation provides additional support for some of my discussion in Chapter 2, Section 2.4. For example, I said that some languages do not provide a simple and straightforward way of coding a particular experience, while others do, as in the case of the notion of 'upness'

in Estonian versus English. Another statement had to do with the fact that some notions may not be relevant in the way social interaction is carried out between adults and children, for example, the notion of hold/carry. I implied that with respect to such ideas as give/take and possession, their coding in language is mediated through extremely complex relations to, and values for, the social process.

Thus, Halliday's framework encourages and necessitates the extension of language development viewed as encoding of cognitive processes into the realm of social process, simply because many explanatory gaps remain if we do not so extend it.

Before continuing with two additional contributions from Halliday, I would like to insert a note of dissent. Throughout his analysis, Halliday seems to assert that 'all interaction is social interaction is language interaction'--i.e., learning language and learning one's culture through language is by far the overwhelmingly important process of becoming an adult human being, if not the only process. But many cognitive schemata (e.g. aspects of conservation, and of topographical space) and many understandings of social process are acquired and used without any language mediation. The child, as he is growing, engages in cognitive formulation which cannot be expressed in language; some of such formulation may not become a permanent part of his cognitive schemata precisely because it is not encoded in the language he is learning; on the other hand, other more salient and necessary-to-functioning formulations do. So when Halliday states that moving outside our cultural semiotic requires an act of postivie reconstruction, he may be right in some respects--but who has not had the experience, for instance, of recognizing without any necessity for 'positive re-

construction', encoding in another language of ideas not encoded in one's own native language? In other words, I don't believe that everything human beings are or are not can be attributed to language.

Another type of perspective encouraged by Halliday's work, and discussed by him is emphasis on the continuity of the developmental process rather than the discontinuity.[15] Early studies of language acquisition tended to begin with the two-word utterance (it is true that the interest in syntax, and syntax by definition must deal with words in juxtaposition) and to disregard prior stages, as well as one-word utterances occurring in the two-word stage, as if they did not belong to 'true' language acquisition. Prior to these syntactic studies, child language development research was equally fragmented--there were phonological studies (including the separation of studies of 'babbling' from later phonology), there were studies of vocabulary acquisition, and studies of types of phrases which occur in child language. More recently, a few investigators have become interested in the 'one-word stage' (Bloom 1973b and Greenfield and Smith 1976, for example). Yet, the emphasis is still on the differences between the stages.

Viewing language development from a cognitive viewpoint as I have done, one cannot ignore either the one-word stage or the one-word utterances which naturally still predominate at the beginning of the two-word stage. Being interested in how cognitive structures are expressed in language, the presence/absence of language expression of particular ideas becomes much more important than syntactic structure. In this framework, there is continuity from the time the child begins to use lexical items at all up until he has learned the model language. Similarly, Halliday emphasizes that there is no discontinuity in the

functional content during language development:

> The social functions that have determined the proto-language...all these evolve gradually and naturally into the social contexts and situation types that we characterize as semiotic structures; and the semantic systems, the meaning potential that derives from these functions, evolve likewise. The progressive approximation of the child's meanings to those of the adult... begins before these meanings are (necessarily) realized through the words and structures of the adult language, and continues without interruption. Without this continuity, the semantic system could not function effectively in the transmission of the social system from the adult to the child. (1975:79)

Even with regard to semantic-syntactic structure, it is doubtful whether the child at a certain point and without preparation suddenly begins to utter sentences showing evidence of such structure. Ronald Scollon (1973), during the course of a phonological study, discovered what he calls 'vertical construction'--that is, the juxtaposition of several words, each with falling intonation contour, one after the other so that the sequence describes one event or situation. It is also interesting that he discovered this phenomenon in the course of trying to interpret the child's utterances: he had to examine the context in minute detail in order to understand what the child was saying. Scollon considers this phenomenon to show that the child develops "the ability to construct over a period of six months to a year rather than suddenly making constructions without developmental preparation." (79)

Others have noted the existence of such constructions. Halliday notes it for Nigel; my data contain many instances; and Bloom (1973b) regards it as part of the chronology of events leading to grammatical constructions. However, in most cases, and this is true in Bloom's work in general, the discontinuities are brought out as being important. Thus, Bloom (1973b) regards children at the one-word stage as doing

something entirely different in their language expression than children at the two-word and beyond stage. For Bloom, language in the first two years is closely related to thinking, and the child is engaged in forming cognitive structures more than he is in learning language. After the age of two, the emphasis shifts to language structure. "The cognitive categories that result from development in the first two years, and that form the basis for discovering grammatical categories, are networks of relations which the child has come to represent in thought." (1973b: 119)

Similarly, Bloom in her book Language Development (1970) is concerned with showing that 'form follows function'--that is, the child at the early stage "has demonstrated an awareness of some of the possibilities for combining lexical items with different relationships between them to correspond with different semantic experiences." (1970:7) And "the child invariably says what he means, that is, his utterance seems to directly represent what it is he's talking about." (1973a, transcription of lecture)[16] In her present work, she believes there to be an abrupt change in the child's approach to semantic-syntactic structure: at approximately MUL 2.5, according to Bloom (1973a), there is

> the beginning of an important cognitive-linguistic shift in language development...function begins to follow form in child language. Children begin to learn aspects of the adult system that they cannot have full control over based on what they already know, but the system itself seems to have a certain integrity, such that learning one aspect of the system will entail knowing other aspects of the system. Once the child knows such other aspects of the system, he needs to learn the interpersonal, the social, the functional, the cognitive constraints on how such aspects of the system are used. (transcription of lecture)

I do not intend to deny the existence of discontinuities; these are both practically and theoretically interesting. For instance, perhaps

Halliday and Bloom are talking about the same phenomenon when Halliday says that the child is now 'speaking English and not any other language' and Bloom says the child is no longer directly expressing 'what he means', because they both seem to be referring to structural properties, to semantic-syntactic structure which is distinctively English. I have said before that at some point, the child begins to learn and use syntactic structure which is not related in any simple and direct way to either semantic structure or cognitive categories. This may be that point; within the scope of this work it is not possible to expand on this idea. However, by concentrating on discontinuities and on structural features alone, Bloom's (1973a) analysis separates structure from function, so that the impression is of the child learning two sets of rules: those of grammatical structure and those of language use. Moreover, there is no possibility, within such a framework, of discovering how the learning of structure influences function and vice versa. This is exactly what the use of Halliday's framework counteracts: he shows how language function determines structure, and he shows how the child is at all times learning both aspects of language.

A third area emphasized by Halliday, and also lately by others, is the idiosyncratic nature of language learning at the very early stages. Some major aspects of Nigel's speech which Halliday either knows or suspects to be idiosyncratic are: the use of expression-forms not derived from adult lexical items in Phase I; the very short period of one-word utterances (which are lexical items in the adult language) at the beginning of Phase II (four weeks); the use of intonation to make the pragmatic/mathetic distinction during Phase II; and the fact that the main impetus for passing into the lexical mode seemed to be

learning about his environment--i.e., the heuristic-mathetic-ideational components were very prominent.

Bloom in her work has always been concerned with differences among children (1970, 1973a,b). She believes that

> ...not only does the learning of early aspects of grammar derive from the conceptual notions underlying single-word utterances, but such conceptions are apparently of different kinds, which may help to explain certain apparent differences in strategies for learning grammar among different children. (1973b:113)

She expands on her idea of different strategies in her lecture at Ann Arbor (1973a). She found two different strategies in children's two-word utterances before MUL 2.0.

> Eric and Peter used a system of representation that was essentially pronominal--they referred to place as here and there, they referred to affected object as it, they referred to agents (when they themselves are doing the actions) as I; they talk about possession using my or mine. What Gia and Kathryn did was to juxtapose different words, a category of different words, relative to another category of different words [i.e., they used nominals]. (transcription of lecture)

She further points out that Gia and Kathryn had great difficulty later on with the system of personal pronouns (as did Halliday's Nigel), while Eric and Peter had none whatsoever. This is a phenomenon which is certainly noticable even to the layman--at least, it is noticeable with those children who do have the difficulty. Whether such differences are due mainly to differences in strategies for learning grammar--some sort of cognitive hypotheses about how grammar works--as Bloom seems to imply, is however not so clear. The role of language functions and of adult speech to children in this phenomenon is entirely unknown.

Katherine Nelson (1973) has carried out an extremely interesing study into lexical learning, 'milestones' in language development (age

at 10 words; age at 50 words; MUL at two years; vocabulary at two years), and social variables (including mother's speech to child) affecting these. One of her main findings of interest to me at the moment was that the eighteen children she studied could be very clearly divided into two groups: ten children whom she classified as 'referential'--"implying a largely object-oriented language" (22) and eight children classified as 'expressive'--"implying a more self-oriented language."(22) The referential children seemed to be using language primarily as a means of learning about their environment--this is the main function they saw in language. The expressive children seemed to be "learning primarily a personal-social language for expressing feelings, needs, and social forms." (22) Thus, Nelson claims in essence that the form of language was determined by its functional significance for the child.

Another suggestive area that she discusses is that of mothers' speech to the children. She considers the possibility that referential versus expressive is initially the child's own strategy--his personal input to dealing with language. There are then different possibilities, according to the mother's style and personality (and also the child's). For instance, one of the possibilities is that the child's and the mother's styles do not match--i.e., a referential child encounters an expressive mother. The mother could be supportive (i.e., she could accept the child's style) or rejective (try to change the child's style, since she herself has a very difficult time understanding it). Acceptance probably would mean that the child would continue to develop language with minimal difficulty. Rejection might mean that the child would try to switch, would slow down, would become confused, etc. Nelson's statistical data and case histories provide convincing

evidence that such factors do enter into language development.

Thus, we have Bloom's cognitive strategies, resulting in nominal versus pronominal representation; we have Nelson's functional strategies resulting in referential versus expressive representation. And Halliday, although his Nigel is definitely a nominal-referential child in the sense of Bloom and Nelson, manages to analyze the child's language so that cognitive, affective and social functions are in fact shown to be integrated.

In attempting to apply Halliday's functional framework directly to the data that I have worked with in this study, the noteworthy result was that the children are very different. I began with the assumption that Alan, Koidu and Allison are in Halliday's Phase II, and attempted to assign their locative utterances to either pragmatic or mathetic categories. Allison clearly fit the format in Sessions I, II and III; in Session IV it was evident that she was in Phase III already. In the first three sessions, Allison used more locative expressions in the mathetic function than in the pragmatic, and the lexical items she used in the pragmatic function were always also present in the mathetic.

Alan did not use locative expressions in the pragmatic function at all. The single exception was when he told his mother to give him some candy (the give/take notion). Koidu also did not use locative expressions in the pragmatic function, with the one exception of <u>anna</u> (imperative 'give'). In Koidu's case, it seemed most likely that she was already in Phase III, despite her low MUL of 1.40. For example, in one situation she stood in front of me, turned around coyly and said <u>Tudu kleit ilus</u> 'Koidu dress pretty'. Quite clearly, her communi-

cation both had definite ideational content and showed expectation of a specific type of answer from me.

Alan's case may well be an extremely unusual route through language development. It seems odd that at MUL 1.00, 1.10 and 1.23 all of his expressions in a particular semantic area are comments on the situation--i.e., heuristic-mathetic-ideational in function, and this in the area of spatial ideas, where certainly there is plenty of opportunity for expressing wants. Two possibilities exist: that Alan is object-oriented to an extreme, or that he is already in Phase III. As a matter of fact, both may be true. However, there is very little evidence that he is functionally in Phase III; when one takes all of his utterances into account, it is evident that his pragmatic utterances are very strongly so--i.e., when he does try to influence his environment, he is adamant about it. Conversely, when he is commenting on his environment, he is adamant about that: repetition of the same word or phrase is a constant device, often to the annoyance of the listener. And this may be a clue to why Alan seems to be, at such a late age, working through Halliday's Phase II so slowly. Alan's phonology is so extremely variable and unlike adult phonology, that those around him simply have not been able to understand what he says. Even if, just to speculate, he began as an expressive child, in Nelson's sense, he has been forced to switch to referential (since encouragement for expressive children necessitates appropriate reaction)--this may explain the low MUL's at a relatively advanced age. Moreover, he concentrates on playing with and talking about very restricted sets of objects, as if in the attempt to say something new, he would not be understood (which is true). Alan may also find it more difficult to

string words together than most children simply from an articulatory point of view because of his unusual difficulty with phonology. It is also entirely possible that Alan was cognitively more mature than his low MUL and language expression of locatives (which did not go beyond what was postulated at the end of Piaget's period of sensorimotor development) would seem to indicate. Unfortunately, no tests of developmental maturity were carried out. In any event, Alan's language profile is similar to other children's in terms of lexicon, syntax and functions; it differs only in phonology and rate of development.

To apply Halliday's framework to child language data the way that he himself does requires an extremely intimate knowledge of both the child and his social environment. Since such familiarity with a child or children being studied is generally not the case (certainly not in the data discussed here), I have rather used Halliday's ideas to try to fill explanatory gaps in my own data, and to suggest ways of integrating findings from studies with different theoretical orientations and different areas of interest. I believe this latter process is also Halliday's hope, and I deem it an essential step in the development of a complete theory of child language development.

3.3.4 Semantics, Pragmatics and Deixis

Pragmatics, including the notion of indexical or deictic expressions, is a recently growing area of interest within linguistics. Work in this area by linguists is being carried out both in America and in England; my discussion here will include primarily the work of Fillmore (1971c), Silverstein (1976), Atkinson and Griffiths (1973) and Lyons (1973).

Pragmatics is that part of language study which relates linguistic

signs to their users; pragmatic meaning is analyzed by describing the conditions of use of certain parts of utterances in context (Silverstein 1976). Fillmore (1971c) describes deictic aspects of language as "lexical items and grammatical forms which can be interpreted only when the sentences in which they occur are understood as being anchored in some social context, that context defined in such a way as to identify the participants in the communication act, their location in space, and the time during which the communication act is being performed."(1) Silverstein distinguishes deictic signs--in his terminology, indexes--from other types:

> The three sign types, each characterized by its own type of meaning for the users, are icon, index and symbol. Icons are those signs where the perceivable properties of the sign vehicle itself have isomorphism to (up to identity with) those of the entity signaled. Indexes are those signs where the occurrence of a sign vehicle token bears a connection of understood spatio-temporal contiguity to the occurrence of the entity signaled...Symbols are the residual class of signs, where neither physical similarity nor contextual contiguity hold between sign vehicle and entity signaled. (27)

Atkinson and Griffiths' (1973) and Lyons' (1973) works are intended to provide a theoretical basis for the study of child language. Essentially, both articles deal with the analysis of the demonstratives, particularly here and there. Lyons' theoretical position is that deixis is the source of reference--that is, that learning linguistic signs for objects and events localized in space is an antecedent to learning any other linguistic signs. He states:

> ...reference to entities outside the situation of utterance, indefinite and opaque reference, reference to hypothetical entities (treated as hypothetical in the utterance), and various other kinds of reference that have puzzled philosophers and linguists are at least ontogenetically secondary. The fact that the referring expressions used in such cases are comparable in terms of their grammatical structure with deictically referring

> expressions suggests that their use and function is derivative; and depends upon the prior existence of the mechanisms for deictic reference by means of language. (28)

My reasons for using the notion of deixis in analysis of child language are more or less the same as Lyons'. It is possible to study pragmatic acquisition per se, as does Bates (1974), by analyzing pragmatic meaning in adult language and then relating children's language structure to it. However, there are clearly at least two aspects to children's language that intersect with pragmatics: one is that early language is always anchored in the immediate situation and therefore by definition pragmatic (hence my interest in pragmatics); the other is that after the child 'de-contextualizes' his language behavior, he does have to learn numerous rules of language use, or pragmatic meaning (hence Bates' interest in pragmatics).

Halliday (1973a, 1975) has shown that children at the very early stage of language learning are not able to provide new information--that is, talk about events that the hearer is not familiar with. They are not aware of the informative function of language, and the child's and hearer's knowledge of the situation is exactly equivalent. When the child begins to talk about events the hearer does not know about, then he is beginning to de-contextualize language. But the child at first often talks as if the hearer had the same knowledge--that is, the child cannot take the hearer's knowledge (or lack of knowledge) into account. This situation leads to the hearer not understanding the child's attempted communication, in turn setting up the necessary dissonance for the child to begin learning pragmatic rules of discourse. It is here that personality factors and styles of interpersonal communication have their greatest impact, in the final analysis determining the

child's eventual communicative abilities and style. However, these sociolinguistic ramifications are beyond the scope of this analysis. The important point is that the child's early language is anchored in the situation, and is for the most part based on knowledge that the child and the hearer have in common; it is therefore deictic and the child has no knowledge of any other way of using language. (These points have been discussed also in Chapter 1, Sections 1.1. and 1.5.)

My claim is that the sequence of development of locative and possessive expressions, and the nature of their use in early child language is to a large extent dependent on the fact that children first learn to speak about concrete objects and events present in the immediate situation. In Chapter 4 I will summarize the data which I believe show this.

3.3.5 Role of Speech to Children

Speech to children is also part of the relevant pragmatic structure in analyzing children's learning of language structure and use. I will therefore discuss some studies carried out in this area.

Both Brown (1973) and de Villiers and de Villiers (1973) found no correlation between frequency in parental speech and order of acquisition of selected grammatical morphemes. De Villiers and de Villiers did find strong correlations between order of acquisition and both syntactic and semantic complexity. Savić (1975) found, for Serbo-Croatian, that "the order in which adults asked the children questions does not correspond to the order in which questions appeared in the children's speech. Nor did the children's frequency of specific question types correspond in any close way to the adults' frequency." (253) But the author, after a thorough frequency analysis of questions produced by

both adults and children, concludes:

> ...not only does child speech change under the influence of adult speech, but the speech behaviour of adults also changes under the influence of child speech. This reinforces very strongly the view that adult-child communication is an interaction, and not a one-way adult action directed at the child. (259)

Edwards (1973) contends that some early meanings are regulated by parental use of language during the socialization process, but that such early meanings are also "constrained by the nature of sensory-motor intelligence." (424) He concludes that

> The semantic relations expressed in two-word speech are essentially similar to the conceptual relations used in the adult contextualized speech addressed to the child and which are comprehensible to him via his knowledge structures as statements or requests relating to the world as he understands it to work. (431)

Wells (1974) similarly suggests that order of acquisition of clause types is influenced by factors other than the pattern of cognitive development proposed by Piaget. He suggests that children may have a propensity to attend to varying states and attributes rather than to unvarying attributes (also suggested by Macnamara 1972 and Schlesinger 1973, in his idea of 'saliency to the child'). In addition, Wells suggests that we need to consider the sort of entities singled out by the child's caretakers. "It would be surprising if the frequency of occurrence of different types of meaning in the adult input to the child did not have some influence on what the child attended to and sought to communicate about." (268)

Although on the surface it may seem that there is a contradiction between the findings of the first group of researchers (Brown 1973, de Villiers and de Villiers 1973 and Savić 1975) and the second group (Edwards 1973 and Wells 1974) in terms of the influence of parental

speech, there isn't really one. The first group used a different data base--that of grammatical constructions, mostly unrelated to each other and also not related explicitly to cognitive development. The second group used a data base of types of meanings expressed by the child. I believe that it is quite probable that in the case of constructions which are arbitrary (e.g., the English auxiliary), or where the semantic distinction is unimportant to the child (e.g., plurals), their acquisition (in the correct form) will indeed mainly follow criteria of syntactic or semantic complexity. On the other hand, as Wells says, it is difficult to imagine that what adults draw the child's attention to as being appropriate topics for speech won't influence what meanings the child will express.

NOTES

1. Howe (1976) has recently published an article which makes many of these same points.

2. Whether the Finnish children were in fact asking questions or not could not be determined, since Finnish lacks the marking of these kinds of questions by intonation, and none of the children's utterances were interpreted as questions by their parents.

3. I have added the Estonian counterparts for ease of future reference.

4. It should be noted that while nothing can exist in L-space which does not also exist in P-space, many structures in P-space are not in L-space, and L-spaces of the languages of the world differ in their choice of what is represented from P-space. That is, the fit between P-space and L-space is really a one-way fit.

5. Estonian does not have morphological markers for [±Definite] for singular nouns. The word <u>see</u> 'this, that' can be used for [+Definite] and the word <u>üks</u> 'one' for [-Definite], but in most instances the use of these words results in awkward, unusual, or emphatic constructions. For plural nouns, [±Definite] is marked by the use of different case endings. [-Definite] requires the use of the partitive case ending; [+Definite] requires the nominative.

6. In this analysis, the English examples are Clark's; Estonian was indeed one of the languages she included in her study, and so I have simply inserted my own Estonian examples.

7. Interestingly, in Lehiste's (1969) discussion of this topic, she uses the example Isale on kirju 'For Father are some letters', and then states:

> I inverted the word order in [the above example], because KIRJU ON ISALE seemed to me less natural. The rules for word order have not been conclusively formulated for Estonian, and they may resist formulation for some time... (328)

It seems, then, from Clark's analysis, that the particular word order Lehiste is here talking about is not peculiar to Estonian, but is a way of marking [-Definite] in such constructions in a number of languages.

8. There are additional constructions related to those discussed, which were not included in E. Clark's analysis, yet were certainly present in my data. For instance, John has the book could be regarded as a deictic construction, because a certain question has to be asked before this sentence could be used. Similarly, in Estonian the equivalent construction is Raamat on Jaani käes lit. 'The book is in John's hand', with the ambiguous käes 'in the hand', which I have termed an idiom in my analysis (see Chapter 4).

9. In both Estonian and Finnish N + N possessive constructions, the possessor has to be in the genitive case. However, many Estonian words are the same in nominative and genitive cases, so it is impossible to tell whether a child is aware of differences. In Finnish, genitive is always different from nominative.

10. This is especially pertinent to Finnish, where possessive pronominal inflection is used: e.g., taloni is 'my house', where -ni is the possessive first person singular ending. This type of construction does not occur in Estonian.

11. The child described, Helen, is 25 to 32 months old during the study. Since Edwards does not give any MUL data, it is impossible to know whether here is an English child with early expression of give/take or not; from some of the types of utterances mentioned, I would guess her MUL is past 1.60, however.

12. I have played games with children in which I pretend to remove their nose, or thumb, or ear, etc. I distinctly recall some children seemingly believing that this has actually occurred; on the other hand, children who find this game highly amusing and retaliate by pretending to remove mine obviously have acquired the concept of inalienable possession, at least with respect to body parts.

13. Joseph Church (1961) in his psychological study of language and child development premised much of his theory on the crucial importance of language use in social interaction. Many of his statements are reminiscent of Halliday's work; for instance:

> It is in trying to decipher the semantics of utterances detached from their behavioral contexts that students of meaning have gone astray. Instead of asking what a statement, considered as an objective entity, means, we might better ask what this individual means (or intends) when he says thus-and-so, and what this statement uttered by so-and-so means to this listener. (127)

Church's ideas were outside the mainstream of psycholinguistic thought of the time, and so his work has unfortunately been largely neglected.

14. The same was true of a child learning Spanish studied by Gutierrez (1974).

15. Dore (1975) and Dore et al. (1976) have also presented a theoretical model which accomplishes this.

16. This viewpoint of Bloom's is very similar to Schlesinger's as discussed in Chapter 1, although the methods of analysis of structure are different.

CHAPTER 4

The Language of Space: the Two-Year-Old Child

4.1 Introduction

This study examines child language development in several different ways. It does so because, as was discussed in previous chapters, language learning is dependent on several different factors: syntactic and semantic complexity of the adult language, cognitive development and pragmatics. Since the aim is to suggest which factors are more important and at which times during development, the analysis which accounts for the most data at a particular point has been used.

For this reason, in Chapter 2, cognitive development was used as a base for comparison with the language data. Other factors which influence language acquisition were however also suggested. Using cognitive development as a base after the initial stages (that is, past the two- and three-word utterance stage) may be just as legitimate; however, not enough is known about universal cognitive development in the two- and three-year-old child, at least not when it comes to spatial ideas. What we know can be summarized very briefly: the child begins during this stage to develop notions of topographical space, to understand ideas like <u>next to</u>, <u>behind</u>, <u>under</u>. Neither Piaget nor anyone else has carried out any detailed investigations of how these notions develop, nor of what other spatial notions show development at this time. One suspects that it is around this time, for instance, that children expand their world to include notions of different distances, and that this expansion may well depend heavily on their geographical environment as well as social environment. The finding that four-year-old children

understand aerial photographs (Blaut, McCleary and Blaut 1970), for instance, indicates that this type of development must have been going on for some time previous to this age. But we know very little about the sequence or nature of the development of spatial ideas during the third year of the child's life.

My investigation of locatives in Estonian child language is essentially based on the cognitive viewpoint: that children will talk about what they can understand, and that their language is based on the schemata that they have formed about the world. However, the realm of sensorimotor space is surpassed after the child becomes two years of age, and children's cognitive world becomes more complex; social understandings develop--the child's view of space and object, and himself is inevitably more intricately linked with the way adults around him view these things; the child's language has begun to exhibit language-specific structural complexities, such as case marking.

It is for these reasons that, in the previous chapter, I have discussed notions of space, and of some aspects of pragmatics, as these appear in the language of adults. For this reason, also, I will present a brief analysis of Estonian grammar in Section 4.2. These aspects of the adult language and of the social world will then be compared to the two-year-old child's expression in language of spatial ideas. Hopefully, this perspective will yield some insights into language development, and its inadequacies will emerge, suggesting where we need to refine our understanding both of the adult language and of the child's development of spatial notions.

4.2 Locative and Possessive in Estonian

4.2.1 Locative

First I will consider what I would call the most obvious locatives, those that include a noun specifying 'place'. These are expressed in Estonian through the use of case suffixes or postpositions.

Estonian has seven locative cases. One of them is the terminative, used for expressions such as: kaelani 'up to the neck', or puuni 'as far as the tree'. This case will not enter into this discussion, partly because it is not related to the other six, which form a symmetrical system, and partly because none of the children either used it or understood it in a picture comprehension test.

The six locative cases to be discussed form a system having the dimensions internal/external; directional/non-directional; and cislocative (motion toward)/translocative (motion away from), as in Table 7.

Table 7. Six Locative Cases of Estonian

	Non-directional	Directional	
		Cislocative	Translocative
Internal	Inessive (in)	Illative (into)	Elative (out of)
External	Adessive (on)	Allative (onto)	Ablative (from, off of)

These locatives are always formed by adding a case ending to the genitive form of the noun. The regular case endings,[1] with examples, are shown in Table 8.

Table 8. Regular Endings for Six Locative Cases.

CASE	ENDING	EXAMPLES	
Inessive	-s	masinas	'in the machine'
		kastis	'in the box'
Illative	-sse	masinasse	'into the machine'
		kastisse	'into the box'
Elative	-st	masinast	'out of the machine'
		kastist	'out of the box'
Adessive	-l	masinal	'on the machine'
		kastil	'on the box'
Allative	-le	masinale	'onto the machine'
		kastile	'onto the box'
Ablative	-lt	masinalt	'off the machine'
		kastilt	'off the box'

The illative occurs in addition in a 'short form' (often, but not always, an optional alternative to the -sse ending). Since such short forms are very common, especially in frequently occurring words, I will outline briefly the formation of these. Estonian morphophonemic alternation rules are extremely complex.[2] I have not attempted to deal with factors such as noun classes which enter into the formation of the illative. The available sources (Harms 1962, Jänes 1947, 1966, Oinas 1967 and Raun and Saareste 1965) by no means agree in their presentation of this aspect of Estonian grammar. Hence, I will simply indicate the most common rules for forming short illatives, those most likely to be found in the language of children.[3]

One way of forming short illatives is by the frequently occurring, in Estonian, phenomenon of lengthening of either vowels or consonants. All illatives formed in this way exhibit an extra long vowel or consonant.[4] I will indicate this by using the ' in front of the extra long

sound. Some illatives are formed from genitives of the form CVCV by this rule: maja 'of the house' - ma'jja 'into the house'; süle 'of the lap' - sü'lle 'into the lap'; lume 'of the snow' - lu'mme 'into the snow'. This rule also applies to some words with genitives of the form CVVCV or CVCCV: linna 'of the city' - li'nna 'into the city'; liiva 'of the sand' - l'iiva 'into the sand'; kasti 'of the box' - ka'sti 'into the box'; vanni 'of the bath' - va'nni 'into the bath'. This rule also applies to a few common words which have a phonological base form of the CVC type, although the surface genitive form is CVV: käe 'of the hand'- /kät/ - kä'tte 'into the hand'; vee 'of the water' - /vet/ - ve'tte 'into the water'.

Another way of forming short illatives is by substituting -hV for the second vowel in words with the base form (also the nominative and genitive forms) CVV: maa 'earth, ground' - maha 'down', lit. 'into the ground'; pää 'head' - pähe 'onto the head', lit. 'into the head'; suu 'mouth' - suhu - 'into the mouth'. There are very few of this type, and as can be seen in the above examples, some are idiomatic in usage. In the case of maa 'earth, ground', for instance, the -sse form of the illative has a different meaning: maasse really does mean 'into the ground'. All three above are very common in everyday speech. The only others formed by this rule are ones I have never heard in actual speech: töö 'work' - töhe 'into the work'; öö 'night' - öhe 'into the night'.

The above description is extremely simplified, and is only intended to avert confusion when some of these short forms are given as illustrations of illative forms used by the children.

The alternative to case endings is the use of postpositions. Each

of the six locative cases has an exactly equivalent postposition. The genitive of the noun is used with these. Table 9 shows the six postpositions together with examples.

Table 9. Locative Postpositions Equivalent to the Six Locative Cases in Estonian.

POSTPOSITION		EXAMPLE	
sees	'in, inside'	kasti sees	'inside the box'
sisse	'into'	kasti sisse	'into the box'
seest	'out of, from inside'	kasti seest	'out of the box'
peal	'on, on top of'	kasti peal	'on the box'
peale	'onto'	kasti peale	'onto the box'
pealt*	'off of'	kasti pealt	'off of the box'

*An alternative postposition with the same meaning is otsas, otsa, otsast.

The meanings (except in the case of idiomatic expressions) of case endings versus postpositions do not differ. However, postpositions, especially in the external meanings, are more common in informal speech, including also that used to children (see Section 4.4). Note that postpositions have case endings, the same as nouns.

There are a number of other postpositions referring to location in space or motion toward or away from a position in space. Most of them have three case endings, either the internal or external endings. Additional postpositions most commonly used by the children discussed here are shown below:

all, alla, alt	'under, below'
juures, juurde, juurest	'by, at, next to'
taga, taha, tagant	'behind, in back of'

Postpositions used infrequently by the children in the study, but which occur fairly frequently in adult speech are:

ees, ette, eest	'in front of'
kõrval, kõrvale, kõrvalt	'beside'
lähedal, lähedale, lähedalt	'near'
pool, poole, poolt	'at, toward, from'
vahel, vahele, vahelt	'between, among'
vastas, vastu, vastast	'against, across from'
ääres, äärde, äärest	'on the edge of'

Estonian also has a few prepositions, the locational ones being optionally post- or prepositions:

läbi	'through'
mööda	'along'
ümber	'around'
üle	'across, over'

Note that these indicate motion, but without specifying source or goal; they are path expressions (see Bennett 1972 and H. Clark 1973). Note also that they do not take case endings.

Locatives which do not include a noun specifying 'place' can collectively be termed adverbials. For convenience, I will classify these into regular adverbs, deictic adverbs and question words. All postpositions can be used as regular adverbs. This is true for some prepositions in English as well. You can say It's inside as well as It's inside the box. In addition, in Estonian (and English) there are a number of adverbs never occurring as postpositions that nevertheless take case endings. Two used by most of the children are:

väljas, välja, väljast	'outside, out'[5]

üleval, üles(se), ülevalt 'upstairs, up above'

In addition, two others used occasionally are:

kaugel, kaugele, kaugelt 'far away'

kõrgel, kõrgele, kõrgelt 'high up'

Two adverbs that do not take case endings are:

edasi 'forward'

tagasi 'back'

Deictic locative adverbs in Estonian are equivalent to the English ones in meaning, and their meaning usually depends on the viewpoint of the speaker. They are given below:

siin 'here'

siia 'hither'

siit 'hence'

seal 'there'

sinna 'thither'

sealt 'thence'

The corresponding question words are:

kus 'where'

kuhu 'whither'

kust 'whence'

In Estonian, then, there are relatively regular ways of expressing location. For nouns (provided it makes sense semantically), there are six case endings along the dimensions of internal/external; directional/non-directional; and motion toward/motion away from. Postpositions and adverbs take three case endings only, since each form is either internal or external (exceptions exist; for instance, the endings for 'upstairs' are not consistently internal or external). As noted before, there are

idiomatic expressions where the case ending contradicts the meaning (case ending is internal, but meaning external, as in maha 'down').

There is, in expressing location in Estonian, a relatively wide choice of grammatically correct expressions. I have already mentioned that the use of case ending versus postposition is optional, and makes no difference in meaning. In addition, in exactly the same situation, one can use noun + case ending, or noun + postposition, or a combination of both. For instance, one can say: kastis or kasti sees or kastis sees, all meaning 'in the box'. In addition, in Estonian very free use is made of double and even triple locative adverbials, such as seal sees 'there inside' and seal kastis sees 'there in the box inside'. This aspect of Estonian grammar will be discussed further in Section 4.4.

4.2.2 Possessive

The simplest formation of the possessive is through the use of the genitive case.[6] Thus, in Estonian, just as in English, noun + noun constructions occur; in Estonian, the possessor is in the genitive case, while the object possessed can be in any case, depending on its function in the sentence. Thus, we have: mehe talu 'the man's farm', where mehe is in the genitive and talu is in the nominative case; mehe ta'llu 'to the man's farm', where ta'llu is in the illative case. Pronouns are used the same way: minu talu 'my farm'.

A second, and very common way, of indicating possession in Estonian is through the use of oma 'one's own'. This words has what might be termed pronominal, adjectival and nominal characteristics (and adverbial, but this will not concern me here at all), depending on its function in the sentence; sometimes a clear distinction cannot be made. (For a

fairly extensive discussion, see Viks 1972.) Silvet's (1967) dictionary calls the word a pronoun (and adverb) only; Rauk's (n.d.) dictionary translations for the word 'own' include adjectival and nominal examples of oma.

An example of what is termed nominal oma by Viks (1972), and one that is used often by the children in the sample is the following: See on minu oma 'This is mine'; Talu on mehe oma 'The farm is the man's' or 'The farm belongs to the man'. In both of these examples, the word oma could be omitted, but both sentences sound more natural with this word present. In contrast, adding own to the English sentence would make it emphatic: This is my own.

In its role as possessive pronoun, oma in Estonian is obligatory whenever the subject of the sentence is identical with the possessor. Thus, Mees müüs oma talu means 'The man sold his farm' (the farm belonged to the man), but Mees müüs tema talu means 'The man sold his/her farm' (the farm belonged to another person).

In its adjectival usage, oma is almost always translatable as 'own': Igaühel on oma maailm, omad mured ja rõõmud. 'Each has his own world, his own sorrows and joys.' (Example from Viks 1972)

The third way of expressing possession is by use of the external locative cases. (I am including in the notion of possession here the idea of transfer, of acquisition as well.) Thus, the adessive case is used to express in Estonian what in English is expressed by the verb to have. Temal on talu 'He/she has a farm'; Minul on raamat 'I have a book'. Literally, these sentences might be rendered as 'To him there is a farm' and 'To me there is a book'. Further, the recipient of an object is in the allative case: Ta andis raamatu minule 'He/she gave

the book to me'. Oinas (1967) translates the allative case as meaning "onto something; to, for someone" (82). Similarly, the ablative means 'from somewhere, off something, from someone': Isalt on kiri 'There's a letter from Father'. The Estonian usage is by no means unusual--Lyons (1968) and others have pointed out the syntactic similarity of location and possession (see also discussion in Chapter 3, Section 3.2.3), and of directional and indirect object in many languages. In English, the first relationship is obscured by the existence of the verb to have, a type of verb which exists in only a minority of languages. The parallels in English between to a (place) and to a (person), and between from a (place) and from a (person) are obvious.

A few more facts about the semantic structure of Estonian possessives need to be pointed out. In Estonian, there is no distinction made grammatically between inalienable and alienable possession. Parallel to English, also, the genitive construction usually means permanent possession; the use of oma always indicates permanent possession. However, the possessive constructions with case are neutral with respect to permanence. Thus, Isal on raamat 'Father has a book' by itself makes no assumption about the ownership of the book. Similarly, Anna raamat isale 'Give the book to Father' is neutral with respect to whether Father will become permanent or transitory possessor of the book.

There are expressions which clearly indicate transitory possession but which might very well be called locatives at the same time. I am referring to the expressions käes and kätte, already discussed in Chapter 2, Section 2.4.2. Raamat on isa käes 'Father has the book', lit. 'The book is in Father's hand' indicates that Father is in temporary possession of the book; to indicate certain permanent possession, one

would have to say Raamat on isa oma 'The book is Father's'. Similarly, Anna raamat isa kätte 'Give the book to Father', lit. 'Give the book into Father's hand' means that in this particular transaction, the book is to be simply transferred into the father's hands. The ablative form käest is much more widely used in adult language than käes or kätte--almost any time one talks about an animate source of anything, käest can be used. Ma sain selle isa käest 'I got it from Father'; Ma kuulsin seda venna käest 'I heard it from my brother'. However, the two-year-old children in this study did not use the ablative form, nor was it used much by adults in their speech to these children (see Section 4.4).

4.3 Locative and Possessive in Children's Language

The data presented in this section mostly represents utterances from five children between the ages of 23 months and 33 months, with an MUL range from 1.47 to 3.84. As in the analysis of the younger children's data in Chapter 2, the basis for including an utterance was semantic--that is, if the child intended to indicate the location or possession of something, the utterance was included. In addition to the data from children, all locative and possessive utterances of older siblings and adults addressed to the child were analyzed.[7]

All utterances during spontaneous conversation were counted, except those which were immediate repetitions of the child's own or someone else's utterance. My approach to the data was to list all the locative and possessive words or markers used, whether as single-word utterances or as part of multi-morpheme sentences. Thus, if two locative expressions

were used in the same sentence, they would be counted as two locatives. The data in most of this section is therefore not based on the number of locative utterances, but on the number of locative ideas or words.

In the next two sections, I will tabulate the frequencies of occurrence of both locatives and possessives in the children's speech. It will be seen that for locatives, the frequencies of the different types (such as demonstratives versus postpositions, for instance) vary with the language maturity of the children. Moreover, there are differences within the different types and with the maturity of the children in the frequencies of simple locatives versus cislocatives. Error analysis illustrates common processes in children's learning of syntax: we find such errors as substitution of incorrect case endings, omission of case endings and omission of parts of locative expressions. For possessives, we find that some types are used correctly very early, but that possessives with case endings apparently take a while to learn. Error analysis again shows omission of case endings, substitution of incorrect case endings and also redundancy type errors. In comparing these results with results from imitation and comprehension tasks administered to the children, we will find overall no incongruous results.

4.3.1 Development of Locative Utterances in the Two-Year-Old Child

A description of Estonian locatives was given in Section 4.2.1. I will now summarize the data from the children to establish what portion of the Estonian locative system is used by two-year-olds. It will be evident that there is a definite pattern of use (and non-use), as well as an emerging developmental sequence in the children's language.

In this analysis the locatives have been grouped in the same way

as they were described in Section 4.2.1. That is, I have divided them into Demonstratives, Cases, Postpositions, Adverbs and Question Words. In addition, I consider here a group I have called Idioms, which were not previously discussed as a group. Some of these are idiomatic in a regular sense--that is, their meaning in speech is to a greater or lesser degree removed from their literal meaning. A good example of this type is the series käes, kätte, käest 'in the hand', 'into the hand','out of the hand', which was discussed in Chapter 2 and in this chapter, Section 4.2.2, as an example of ambivalently locative/possessive expressions.

Another very common idiom is maas, maha, maast lit. 'in the ground', 'into the ground', 'out of the ground'. In Estonian, these words refer to objects in touch with the surface being used as the major support for humans--i.e., inside a house it would be the floor, outside it would be the ground. Thus, while in English one would say of a fallen object that it fell down, or it fell to the floor, or it fell to the ground, in Estonian one would say: Kukkus maha lit. 'it fell into the ground'.[8]

Yet another series of idioms are those having to do with clothing. Seljas, selga, seljast lit. 'in the back', 'into the back', 'out of the back' have to do with clothing on the human body. Thus, Minul on kleit seljas means 'I have a dress on'. Similarly, we have peas, pähe, peast lit. 'in the head', 'into the head', 'out of the head' and jalas, jalga, jalast lit. 'in the foot', 'into the foot', 'out of the foot'. Ma panen mütsi pähe means 'I will put the hat on', and Võta kingad jalast means 'Take your shoes off'.[9]

There is another small group of words which I have grouped into idioms. These are words which in adult understanding and speech are not idioms, and take regular locative case endings, yet which are so commonly used to little children that the children use them with case endings before they begin using case as a productive system. These include five forms: koju 'to home'; kodus 'at home'; sülle 'into the lap'; süles 'in the lap'; and tutti 'into sleep'. This last form is one of the few Estonian baby words--that is, it is a form used only to small children.

In Table 10, I have sequenced the children approximately according to MUL, and therefor presumably according to language maturity. All groups of locatives discussed are also shown. The numbers indicate how many instances of that particular locative occurred in the child's corpus. Scanning the table, we see that for the least mature children, demonstratives, adverbs and idioms are the only types occurring with much frequency. For the 'middle maturity' children, postpositions increase a little;[10] demonstratives, adverbs and idioms all seem also to increase. Then, for the most mature children, demonstratives continue to increase, cases occur a little more frequently, postpositions stay about the same, but adverbs and idioms actually seem to decrease. Very few question words occur in any of the corpora.

Another aspect of locatives that shows some developmental sequence and also differences between types of locatives is whether they are simple locatives, cislocatives (motion toward) or translocatives (motion away from). Thus, translocatives do not occur until the more mature corpora. (These include the demonstratives siit, sealt 'hence', 'thence'; the elative and ablative cases; the postpositions pealt,

Table 10. Types of Locatives Used by Two-Year-Old Estonian Children.

Type of Locative \ Name / Session / MUL	Koidu II 1.59	Koidu III 1.74	Lillian I 1.74	Lillian II 1.47	Koidu IV 1.94	Koidu V 1.91	Anne I 2.10	Lillian III 2.23	Andy I 2.37	Koidu VI 2.48	Anne II 2.50	Koidu VII 2.51	Anne III 2.81	Koidu VIII 3.03	Andy II 3.18	Andy III 3.16	Tiina I 3.30	Tiina II 3.19	Tiina III 3.32	Andy IV 3.56	Andy V 3.36	Andy VI 3.40	Andy VII 3.84
DEMONSTRATIVES																							
siin	3(1)*	9	1(1)	2	10	9	7	29	1	11	1	4	6(2)	26	-	3(1)	13	10	11	5	3	6	5
seal	2	-	6	4	-	-	11	7	2	-	2	-	6	-	3	4	3	-	9	2	4	7	13
siia	-	2	3	-	3	7	3	1	2	14	2	3	6(1)	19	-	-	-	4	1	2	1	3	1
sinna	1	-	-	-	-	-	-	1	-	-	-	-	12	-	-	1	1	3	-	-	1	5	1
siit	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	4	5	3	2	1	1
sealt	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	1
CASE																							
Inessive	1	-	1	2	-	1(1)	1(1)	2	-	1(1)	-	1	-	-	-	2	2(1)	1	-	-	-	1	3
Illative	-	-	-	2	-	-	1	-	2	1(1)	2	-	-	-	-	2	2	8(1)	-	-	1	1	-
Adessive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2(2)	-	-	-	-
Allative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1(1)	-	-	-	-
Elative	-	-	1(1)	-	-	-	-	-	-	-	-	-	-	1(1)	-	-	-	-	2	1	-	-	4(1)
Ablative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POSTPOSITIONS																							
peal	-	-	-	-	-	1(1)	-	-	-	-	6	-	3	-	-	1	-	1	2	2	1	2	4
peale	-	1(1)	-	2	-	-	6	1	2	1	3(1)	-	3	-	1(1)	1	3	-	1	1	-	2	-
pealt	-	1(1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
sees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
sisse	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-
seest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
simple locative**	-	-	-	-	-	-	-	-	-	-	1	-	-	4(1)	-	-	-	-	2	-	-	-	-
cislocative	-	-	2	-	1	-	-	-	-	-	-	1	1	1	-	1	2	6(1)	1	-	-	-	-
translocative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
ADVERBS																							
simple locative	-	-	-	3	-	1	3	2	-	-	2	4(2)	2	6(3)	3	1	-	1	3	3	-	1	2
cislocative	1	4	14	4	-	-	6	3	2	5	17	4	11	18(1)	-	7	1	8	3	7	11	8	6(1)
translocative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	-	2	2	-	-	-	-
no case marker	-	3(1)	-	-	5	-	-	10	1	18	6	6	7	25	2	2	-	8	9(1)	2	1	5	7
IDIOMS																							
simple locative	-	1	11(4)	-	-	-	1	-	-	-	7(1)	1	3	1(1)	-	1	-	1	-	1(1)	-	-	-
cislocative	2	10	3	1	23	8	-	1	4(2)	7	4	11	2	15	-	-	3	1	1	1	-	2	6
translocative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
QUESTION WORDS																							
kus	-	1(1)	7	-	1(1)	-	-	10	1	1(1)	-	-	3	7(2)	-	-	1	2	1	1	1	-	3
kuhu	-	-	-	-	-	-	-	-	-	-	-	1(1)	-	-	-	-	-	-	-	-	-	-	-
kust	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2(2)	-	-	-	-

*The numeral 3 designates three occurrences of siin in this session; the numeral 1 in parentheses identifies one of the three as an incorrect form.

**Rather than identify every other form used, they have been grouped according to the type of locative case.

seest 'off of', 'from inside'; the question word kust 'whence'; and the other postpositions, adverbs and idioms so designated in the table.) Additionally, it can be seen by scanning the table that for demonstratives, simple locatives (siin, seal) are more common than cislocatives (siia, sinna). But for adverbs and idioms, cislocatives are more common than simple locatives, while for cases and postpositions, simple locatives and cislocatives occur with about equal frequency. These trends are a continuation of those found for the very young children (see Chapter 2), namely that locative ideas having to do with motion are more salient than static ones, except in the case of demonstratives, or expressions indicating 'general location'.

In Table 10 it is also clearly seen that the children use the internal cases (inessive, illative and elative) but not the external; and that in the case of postpositions, the situation is reversed--they use the external postpositions (peal, peale, pealt) but not the internal. Thus, although in the linguistic rules of Estonian the internal and external locative cases and postpositions form a symmetrical system, in their actual use in the children's speech they are obviously not symmetrical.

I have included errors of form in the table, indicated by the numbers in parentheses. Thus, in the first box, it is seen that Koidu in Session II used siin 'here' three times, and one of these times she used an incorrect form. One type of error was using the wrong case ending for what the child intended to mean. This is not surprising, since most of these locatives have obligatory case endings.

Starting with demonstratives, Koidu II, Lillian I and Andy III use the form siia 'hither' for siin 'here' once each. Anne III uses

the form siit 'hence' twice for siin 'here' and once for siia 'hither'. For cases, three of the errors are of this type. Lillian I uses the inessive for a meaning requiring the elative, Tiina II uses the adessive ending once for a meaning requiring the allative and Andy VII uses an inessive ending for a meaning requiring the elative. Similarly, for postpositions there is only one error of this type: Tiina II uses the form taga 'behind' when she means taha 'to behind'. For adverbs, there is one example from Koidu: in Session VII she uses a cislocative form when she means to indicate simple location. For idioms, the same thing occurs: Lillian I, Koidu VIII and Andy IV each use a cislocative when they mean to indicate simple location. For question words, this type of error occurs only in Tiina III. She uses kuhu 'whither' once and kus 'where' once in relative clauses which require kust 'whence'.

Another type of error is the omission of locative case endings altogether, resulting in a noun form unique to the child, or in a noun form with the genitive case ending. (The genitive is often identical with the phonological base form in Estonian.) Thus, for cases, there are the following errors:

Koidu V	köögi (genitive)	for	köögis 'in the kitchen'
Anne I	voodi (genitive)	for	voodis 'in bed'
Koidu VI	voodi	for	voodis
Tiina I	liivakasti(genitive)	for	liivakastis 'in the sandbox'
Tiina II	kool (nominative)	for	kooli 'to school'
Tiina III	tule autot (partitive)	for	tule autol 'on the fire truck'
	tule auto (nominative/genitive)	for	tule autol
Koidu VIII	vära (invention)	for	väravast 'out of the gate'

There are only two examples of this type of error in the postpositions: Koidu III uses pää (invention) for peale (or pääle) 'onto', and in Session VIII she uses luule (invention) for juures 'at, by'.[11] In adverbs, the following occur:

Koidu VII	kõlge 'high'(adjectival form)	for	kõrgel 'high up'
Koidu VIII	kõlge	for	kõrgel
	kõlge	for	kõrgele 'to high up'
Andy VII	üle (invention)	for	üles 'to up'

In idioms, there occur the following errors of this type:

Lillian I	põranda (genitive)	for	põrandal 'on the floor'
	selg (nominative)	for	seljas 'on', as in wearing clothing
Andy I	kätt (partitive)	for	kätte 'into the hand'
Anne II	käed (nominative plural)	for	käes 'in the hand'

The last type of error I want to discuss is the omission of the entire form when an obviously locative meaning is intended or the omission of one part of a locative expression. For cases, there were no examples. For postpositions, the following examples occurred:

Koidu III	Too istu 'Chair sit'	for	Istu tooli peale 'Sit on the chair'
Anne II	Pääle ei pane 'Onto not put'	for	Suu pääle ei pane 'Not put on the mouth'
Andy II	Tädi läha loom 'Lady go animal'	for	Loom läheb tädile peale 'The animal is going on top of the lady'

Some explanation is necessary for my interpretation of the nature of these errors. For the first one, there are two other alternative correct forms. One can say Istu tooli 'Sit in the chair' or Istu toolile 'Sit on the chair'. In a case like this, it is of course

not possible to state with certainty that the child meant to say one rather than the other; I have chosen the postposition alternative only because it occurs most frequently in children's speech. For the second example, the situation in which the utterance occurred required that the noun be included--that is, that a noun + postposition construction be used rather than an adverb alone. Estonian frequently allows an adverb where English would require a prepositional phrase, but there are definite restrictions also in Estonian. In the case of the third example, noun + postposition is one alternative; the other is use of noun with an allative ending + peale 'onto' (see 'Other allative' in Section 4.3.2 for such a construction.)

There were no errors of omission in adverbs or in idioms, but Koidu consistently omitted the question word kus 'where' altogether until her last session. Thus, there are examples of questions without the obligatory question word in Koidu III, IV, VI, VII and VIII. In Session VIII, she even omitted it in a relative clause: she said to her sister Ütle, on isa instead of Ütle kus on isa 'Tell where Father is'.

These errors illustrate some very common processes in children's learning of syntax. For instance, a frequent occurrence is the use of a new form that the child has just noticed to express familiar meanings, resulting in errors where previously the child was using the correct form. An example of this in the data on locatives is in Anne III, who suddenly uses siit 'hence' to mean both siin 'here' and siia 'hither'.

Another process is the expression of a new meaning through the use of a familiar form. Examples are: inessive case ending where the elative is required in Lillian I and Andy VII; cislocative forms

instead of simple locative in adverbs and idioms in Koidu VII, Lillian I, Koidu VIII and Andy IV; in Tiina III, use of the question words kuhu 'whither' and kus 'where' when kust 'whence' is required.

Lack of marking of case endings on nouns used in locative expressions, while at the same time using adverbs and idioms with the correct case endings seems to fit in with Slobin's (1973) Universal F1, which he states as follows:

> The following stages of linguistic marking of a semantic notion are typically observed: (1) no marking, (2) appropriate marking in limited cases, (3) overgeneralization of marking (often accompanied by redundant marking), (4) full adult system. (205)

In these data, the less mature children do not mark nouns with a locative ending (indeed, they use very few) while at the same time they are using adverbs and idioms with appropriate endings, especially the cislocative cases, an illustration of Slobin's #2 stage. As they mature, they begin to overgeneralize the cislocative to simple locative meanings in adverbs and idioms, while still not always marking case for nouns at all (Slobin's #3 stage).

Because I have used a data base which does not depend on frequency of occurrence (as is normally done by investigators on child language), but rather includes any and all occurrences of the expressions of interest, I will here discuss some of the results of imitation and comprehension tests given to some of the children. Hopefully, this will add to the plausibility of the data.

The tests themselves were not drawn up specifically with locatives in mind, since at the time of data-gathering I was not focusing on locatives. However, many of the imitation sentences do include locatives, and a few of the comprehension items do as well (see Appendix D). The

final version of the imitation test contained seventy items; none of the two-year-old children could persevere through all the items at one session. Thus, in cases where the imitation test was given, the number of items with locative expressions imitated ranged between one and eighteen (there were twenty-five items with locatives).

The children varied greatly with respect to their willingness to respond to this test. Lillian would not imitate at all, even in those sessions when her three-year-old sister did. At the other extreme, Anne imitated willingly in all three sessions, and so I administered items until she showed obvious signs of restlessness. Koidu's willingness to imitate fluctuated from session to session. Tiina refused in the first two sessions; then in the third consented graciously to try a few imitations.[12] Andy had to be bribed most of the time to participate in the imitation test, and even so could only be persuaded to stay with it for a short time.

The comprehension test showed no such obvious variation among the children--their willingness to participate seemed to depend on whether they felt like looking at pictures at that particular time, in the case of all the children. Thus, comprehension data were obtained from Anne II and III, Lillian II, Tiina II and III, Andy V, VI and VII, and Koidu V and VI.

The major result obtained was that there were no large inconsistencies between imitation and comprehension data on the one hand and the data based on spontaneous speech on the other. That is, in general the children noticed and imitated correctly locative expressions which they themselves were using in spontaneous speech, but did not imitate or imitated incorrectly expressions which they were not yet using. (An imita-

tion was judged correct when the child used the correct form of the locative word or phrase; the rest of the sentence was ignored for the purposes of this comparison.) Thus, for example, Koidu IV and V imitated correctly demonstratives, adverbs and the idiom koju 'to home', but either omitted or incorrectly imitated the inessive, illative and elative cases. Similarly, Anne I imitated correctly adverbs and the idiom koju, but omitted or incorrectly imitated the inessive and elative cases and question words.

There were only a few inconsistencies. The sentence to be imitated which contained the deictic siin 'here' was a complex sentence with a relative clause--and siin was contained in the relative clause. Both Koidu IV and Anne II omitted the relative clause and therefore siin altogether. The complexity of this sentence therefore led to the omission of siin, which both children were making use of in their spontaneous speech. Another example was Anne's correct imitation of the elative case in Sessions II and III. Since there were no occurrences of this case in her spontaneous speech, this was somewhat surprising. However, I believe it simply confirms both the limitation of the data and the rarity of occasions for the use of the elative.[13]

The comprehension test gave more inconclusive results, especially in the case of the less mature children. For instance, Lillian II seemingly did not understand inessive and illative, while in spontaneous speech she produced both. And Anne III did not comprehend inessive, even though in the imitation test she imitated correctly both the illative and elative (but see footnote 13). I believe the less mature children had difficulties with understanding the task--the comprehension test was not well designed nor really appropriate for very young child-

ren.[14] The two most mature children did much better--Tiina II and III, and Andy V, VI and VII performed consistently with both imitation test data and spontaneous production data.

I have here presented data on locative expressions used by two-year-old Estonian children. Before discussing these results further, I will also present data on the development of possessive expressions. The necessity for considering these derives from three sources, two of which have been discussed previously: the semantic similarity between location and possession (E. Clark 1970b and Lyons 1967, 1968a,b), and the syntactic similarity between them in Estonian. The third is the children's non-use of the adessive and allative cases (both used in possessive expressions) in locative expressions.

4.3.2 Development of Possessive Utterances in the Two-Year-Old Child

In In the compilation of the data on possessives, I have decided to divide adessive and allative possessives into different groups, a procedure which illuminates their acquisition and use by children. In Secion 4.2.2 I described the use of the adessive case in indicating possession, and the allative in indicating transfer of objects. The uses indicated in that section refer to permanent possession of objects, or to permanent transfer of possession. However, the adessive in Estonian is used very much like the verb <u>to have</u> in English. That is, not only can one indicate permanent possession, but also various types of temporary conditions. Thus, I have grouped under 'Other adessive' uses such as the following: <u>Mul on kingad jalas</u> 'I have shoes on'; <u>Sul on maal nuku</u> 'You have [your] doll in the country'; <u>Pudelis oli tal vett</u> 'He/she had water in the bottle'. In such expressions, the

Estonian adessive and the English to have are used to indicate temporary states.

Similarly, the allative in Estonian is used for all indirect objects. This is in English often expressed as to (someone), but sometimes without the preposition. I have grouped expressions using the allative into three types: in Table 11, the first is indicated by Allative (andma). This includes only permanent transfer of objects, or at least transfer where permanence is a possibility. Thus, allatives occurring with verbs like andma 'to give', pakkuma 'to offer', saatma 'to send' and viskama 'to throw' are included in this group. Another group is designated as Allative (näitama). This includes transfer of a kind which is inherently non-permanent, and allatives used with verbs like näitama 'to show', laulma 'to sing' and rääkima 'to tell, speak' are grouped here. The third group, 'Other allative', includes all other uses of the allative (except locative) found in the data. Examples are: Pane peale nukule 'Put it on top of the doll' lit. 'Put on top to the doll'; Ta tõmbas endale kaela 'He/she pulled it on top of him/herself' lit. 'He/she pulled to him/herself onto neck'; Mulle meeldib 'I like' lit. 'It pleases me'; and Mulle maitseb 'I like' lit. 'It tastes good to me'.

Table 11 shows again the same children in the same sequence as Table 10 in the previous section, that is, from the linguistically least mature on the left to the most mature on the right. It is fairly obvious that all the children use the oma possessive and the possessive construction with genitive + noun correctly, with the less mature children perhaps making more use of the oma possessive than the more mature children. However, the use of case systems in the possessive shows a

Table 11. Types of Possessives Used by Two-Year-Old Estonian Children.

Type of Possessive \ Name Session MUL	Koidu II 1.59	Koidu III 1.74	Lillian I 1.24	Lillian II 1.47	Koidu IV 1.94	Koidu V 1.91	Anne I 2.10	Lillian III 2.23	Andy I 2.37	Koidu VI 2.48	Anne II 2.50	Koidu VII 2.51	Anne III 2.81	Koidu VIII 3.03	Andy II 3.18	Andy III 3.16	Tiina I 3.30	Tiina II 3.19	Tiina III 3.32	Andy IV 3.56	Andy V 3.36	Andy VI 3.40	Andy VII 3.84
oma possessive	2	12	10	5	12	1	-	3(1)*	2	2	-	3	1	7	4	2	1	2	-	1	3	2	-
Genitive + N	4	1	3	2	8	-	5(1)	2	1	6	2	-	2	3	4	5	3	3	2	13	3	1	8
Genitive + N + oma**	-	(3)	-	-	(1)	(3)	-	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	-
Genitive alone	-	-	-	2	-	-	-	-	1	7	-	-	-	-	1	2	1	-	-	-	-	-	-
CASE																							
Adessive	1(1)	-	2(2)	-	2(2)	4(4)	-	3	-	4(4)	-	3(3)	1	14(11)	-	-	1	5	4	3	3	3	11
Other adessive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	2(1)	-	-
Allative (andma)	-	-	3(1)	2(1)	2(2)	1(1)	-	1	-	8(1)	8	4(1)	1	23(2)	-	-	1	12(1)	-	-	-	4(1)	5
Allative (nÄitama)	-	-	-	-	-	-	-	3	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-
Other allative	-	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	2	-	-

*The numeral 3 designates three occurrences of the oma possessive in this session; the numeral 1 in parentheses identifies one of the three as an incorrect form.
**This construction is an erroneous one invented by one child; since it combines the two above it, it was given a row of its own in the table.

definite development in terms of errors. That is, the younger children use both the adessive and allative, but almost in every case the form is incorrect; only the most mature children use the adessive correctly, and they still make mistakes in their use of the allative. Moreover, only the oldest children make use of 'Other adessive'; and the only allative used at all extensively is the one indicating permanent transfer.

All children used the oma possessive and the genitive + noun construction correctly. However, in addition to her correct usages, Koidu combined the two ways of indicating possession, resulting in redundant marking. For instance, in Session III she said: Tudu vanke oma lit. 'Koidu's wagon own'. Another example, from Session V is Tudu oma kukk 'Koidu's own, rooster'.

In contrast, in their use of the possessive expressions where adessive or allative case endings are required, the least mature children made numerous errors, all of them errors of omission--that is, they used no case ending, the noun usually having the form of the genitive. This is the case from Koidu II up to Koidu VII. In Koidu VII, there is one occurrence of an allative ending when the meaning required an adessive ending; the other errors are still errors of omission. Again in Koidu VIII, she substituted the allative for the adessive ending eight times, and the adessive for the allative one time; there were still four errors of omission. Tiina II and Andy VI substituted the adessive ending for the allative once each; however, it is doubtful whether these are true errors, since adults in rapid informal speech often omit the final /e/ of the allative.

Again, results from the imitation and comprehension tests were analyzed and compared with spontaneous productions. There were ten items

on the imitation test which contained possessive expressions, all of them using the adessive and allative cases. The number of possessive expressions imitated by the children in any one session ranged from one to eight. The results confirmed the spontaneous production data. There were no correct imitations from Koidu II through Koidu VI. (Lillian III, who exhibits correct usage of adessive and allative possessives, did not perform the imitation test.) Anne II made errors in her attempts at sentences with adessive, 'Other adessive' and Allative (andma) usages, but did imitate one 'Other allative' correctly. In Session III, Anne correctly imitated the adessive, 'Other adessive' and 'Other allative', but not Allative (andma). Tiina III, Andy IV, Andy V, Andy VI and Andy VII imitated correctly, except for one error in 'Other adessive' by Andy IV. Thus, the children were able to imitate forms that they had already learned to produce, but not those they had not learned to produce spontaneously.

Results from the comprehension test were few and certainly inconclusive. Anne III and Andy VI did not seem to comprehend Allative (näitama), even though Anne III shows two spontaneous uses of it. Tiina III and Andy VII responded correctly to these series of pictures, even though Tiina III shows only one instance of spontaneous use and Andy VII none. It isn't possible to interpret such results in view of the very small number of both spontaneous uses and comprehension responses.

4.3.3 Summary and Discussion

Looking at data on both locatives and possessives together results in some general points which were not visible before. For instance, the data show that case endings on nouns developed at about the same time--

that is, those children who made errors in locative expressions which required case endings also made errors in the possessive expressions; when they began to form cases correctly, they did so in both domains. At the same time that case endings came in also, postpositions appeared.

Errors in adverbial case endings began for Koidu in Sessions VII and VIII when she began using case endings on possessives, not always correctly. It is therefore probable that up to that time, adverbs were being learned by her as separate words without any awareness of formation rules for the differentiation of, e.g., simple locative from cislocative meanings.

There were several findings which raise questions possibly answerable by further analysis of the data. One such finding was the differences in types of locatives and possessives used by the children, some of which seemed to be constant across all stages of maturity, others again changing as the children matured. (Instances of this would be extensive use of adverbs and idioms as opposed to cases and postpositions; non-use of some types of allatives in possessive expressions.) Another was the finding that the children used locative case endings for internal meanings, but postpositions for external meanings. A third finding of particular interest was the different proportions of simple locative, cislocative and translocative meanings found, both across types of locatives and according to maturity of the children.

These kinds of differences can have several sources. Some meanings may be cognitively more difficult than others. Again, some expressions may exhibit more syntactic complexity than others. Possibly also, parental speech to children may influence what the children say. And finally, the context of data collecting may be such that situations for

some types of expressions simply do not arise. In order to attempt some clarification of the results obtained so far, I want to look more closely at proportions of different types of locatives and possessives, and also at the speech the children hear most frequently--that of their older siblings and parents speaking to them.

4.4 Use of Locatives and Possessives in Children's Speech and in Speech to Children

In order to better understand the occurrence and development of locatives and possessives in Estonian children's speech, I will first look at the proportions of the different types of locatives found in the two-year-olds' language and in that of their siblings and their parents and grandparents. For this purpose, I am using the five children discussed in the previous sections, and also the three sessions of Alan and Koidu's Session I which were analyzed in Chapter 2. The siblings are Koidu's sister, age six years; Lillian's sister, age three and a half; and Andy's sister, also age three and a half. The adults include Lillian's two grandmothers and her mother; Anne's mother; Andy's grandmother and grandfather; and Tiina's mother.

Table 12 shows percentages of occurrence of different types of locatives, for different groups of speakers. The table is arranged so that the least mature (linguistically) speakers are at the left, and the most mature at the right. The first column, then, includes the sessions discussed in Chapter 2: Alan I, II and III, and Koidu I. The second, third and fourth columns include the sessions discussed in this chapter; that is, the data previously presented in Tables 10 and 11.

Comparing the proportions of locative and possessive types across

Table 12. Types of Locatives and Possessives Used by Two-Year-Old Children, Siblings and Adults.

	MUL 1.40 and below*	MUL 1.45-2.00	MUL 2.10-2.70	MUL 2.80-4.00	Siblings	Adults
LOCATIVES						
Demonstratives	36% (28)	35% (63)	37% (101)	41% (226)	31% (338)	37% (312)
Locative Case	4% (3)	4% (8)	4% (11)	6% (34)	12% (127)	11% (95)
Postpositions	1% (1)	4% (8)	8% (21)	10% (53)	8% (85)	9% (72)
Adverbs	26% (20)	19% (35)	33% (89)	32% (174)	34% (368)	25% (209)
Idioms	31% (24)	32% (59)	13% (36)	7% (39)	7% (77)	5% (55)
Question words	3% (2)	5% (9)	5% (13)	4% (21)	9% (99)	11% (96)
POSSESSIVES						
Possessive Case	11% (2)	21% (18)	50% (34)	60% (105)	72% (372)	80% (274)
Other Possessive	89% (17)	79% (69)	50% (34)	40% (75)	28% (142)	20% (68)

*The figures in this column are based on four sessions with two children; in the second column, six sessions with two children; in the third column, six sessions with four children; in the fourth column, eleven sessions with four children; for siblings, sixteen sessions with three children; and for adults, sixteen sessions with seven different adults.

the groups, it is evident that in some respects, the use of locatives among children resembles their use among adults; in other respects, there is a clear sequence from youngest to oldest of approximation to the adult norm. For instance, the use of demonstratives and adverbs is fairly consistent across all age groups; at least, it does not exhibit any developmental sequence. The use of locative case, postpositions and question words increases somewhat from youngest child to adult (although for postpositions, it seems to level off already at MUL 2.10 - 2.70). For possessives, the use of case increases steadily and substantially from youngest child to adult. Finally, the use of idioms (as I have defined them here) decreases steadily from youngest child to adult.

I believe that what the data in Table 12 reflect is first, the situational context of the speech recorded, and second, the syntactic complexity of some types of locatives and possessives. For example, the frequency of deictic usage in adult speech to children (demonstratives and a substantial proportion of the adverbs) reflects the fact that they are conversing about objects and events which are present at the time of speaking. Naturally, the children are doing the same, and therefore their speech aslo contains frequent deixis. The younger children's infrequent use of expressions which require locative case, postpositon or question word probably reflects mostly their ignorance of the syntax of such expressions (they either do not attempt them, or when they do, make errors.) For possessive case usage, the children's ignorance of syntax could again be the cause for low usage. This category of possessive is the most ambiguous also, in the sense that, for instance, if a child says the name of something he wants, it cannot be counted as 'possessive case', even though two possible readings of e.g.

candy exist: I want candy or Give me candy.

The differences in possessive usage are even more dramatic when the different types of possessives are separated (Table 13). The youngest children make extensive use of the oma possessive, which they have probably at this time identified as the true possessive marker. The most mature two-year-olds use the Genitive + noun and the adessive case about equally to indicate simple possession; their use of oma has decreased to only 13%. No group of children, not even the siblings, make use of the Allative (näitama), while this is the most frequent usage of adults. This finding seems to reflect the role of the adult in the types of directions he or she gives to the child, rather than the child's syntactic knowledge. Most of the parents and grandparents directed the child to show, to tell, to sing something to someone. Very few of the children ever gave these types of directions to anyone.

Further differences were noted in the proportions of simple locatives, cislocatives and translocatives. In Chapter 2 I found evidence that motion is salient for very young children, those who are just beginning to produce two-morpheme utterances. In Table 14, the data presented show that motion is more often expressed in locatives by all children than it is by adults (see total at bottom of table), although the difference is not very large. That is, the children as a group express 'motion toward' or cislocative and 'motion away from' or translocative more often (55% of all locatives with obligatory case endings) than do adults (45% of all locatives with obligatory case endings).

When the types of locatives are separated, we see different types exhibit different profiles of use. Those which show the most use of motion expressions in adults (postpositions, adverbs and idioms) show

Table 13. Types of Possessives Used by Two-Year-Old Children, Siblings and Adults.

	MUL 1.45-2.00		MUL 2.10-2.70		MUL 2.80-4.00		Siblings		Adults	
oma possessive	48%	(42)	15%	(10)	13%	(23)	9%	(47)	3%	(10)
Genitive + N	21%	(18)	24%	(16)	26%	(47)	18%	(92)	16%	(55)
Genitive + N + oma	8%	(7)	0%		1%	(1)	0%		0%	
Genitive alone	2%	(2)	12%	(8)	2%	(4)	1%	(4)	1%	(3)
CASE										
Adessive	10%	(9)	15%	(10)	25%	(45)	28%	(146)	15%	(51)
Other adessive	0%		0%		3%	(6)	11%	(55)	10%	(34)
Allative (andma)	9%	(8)	31%	(21)	26%	(46)	27%	(139)	17%	(58)
Allative (näitama)	0%		4%	(3)	2%	(3)	2%	(10)	36%	(122)
Other allative	1%	(1)	0%		3%	(5)	4%	(21)	3%	(9)

Table 14. Simple Locative, Cislocative and Translocative in the Language of Two-Year-Old Children, Siblings and Adults

	MUL 1.45-2.00	MUL 2.10-2.70	MUL 2.80-4.00	Siblings	Adults
DEMONSTRATIVES					
Simple locative	73% (46)	76% (75)	61% (139)	55% (187)	66% (206)
Cislocative	25% (16)	24% (24)	28% (63)	36% (120)	27% (83)
Translocative	2% (1)	0%	11% (26)	9% (31)	7% (23)
LOCATIVE CASE					
Simple locative	63% (5)	45% (5)	32% (11)	34% (43)	51% (48)
Cislocative	25% (2)	55% (6)	44% (15)	54% (69)	35% (33)
Translocative	13% (1)	0%	24% (8)	12% (15)	15% (14)
POSTPOSITIONS					
Simple locative	13% (1)	33% (7)	43% (23)	37% (31)	39% (27)
Cislocative	75% (6)	67% (14)	51% (27)	54% (45)	52% (36)
Translocative	13% (1)	0%	6% (3)	8% (7)	9% (6)
ADVERBS					
Simple locative	15% (4)	23% (11)	21% (22)	24% (52)	34% (46)
Cislocative	85% (23)	77% (37)	75% (80)	72% (157)	60% (81)
Translocative	0%	0%	4% (4)	5% (10)	5% (7)
IDIOMS					
Simple locative	20% (12)	25% (9)	18% (7)	19% (14)	35% (19)
Cislocative	80% (47)	75% (27)	79% (31)	78% (60)	64% (35)
Translocative	0%	0%	3% (1)	4% (3)	2% (1)
QUESTION WORDS					
Simple locative	100% (9)	93% (13)	90% (18)	85% (84)	73% (70)
Cislocative	0%	7% (1)	0%	13% (13)	25% (24)
Translocative	0%	0%	10% (2)	2% (2)	2% (2)
TOTAL					
Simple locative	44% (77)	52% (120)	46% (220)	44% (411)	55% (416)
Cislocative	54% (94)	48% (109)	45% (216)	49% (464)	38% (292)
Translocative	2% (3)	0%	9% (44)	7% (68)	7% (53)

even more use by the children, especially the linguistically least mature group. Demonstratives and question words exhibit the highest proportion of simple locative versus motion locative among children, siblings and adults. In the case of question words, it is obvious that two-year-old children make very little use of cislocative or translocative questions. A partial cause might be that in informal Estonian speech, and in some dialects, the use of the cislocative and translocative forms in questions is negligible or nonexistent, and has been replaced by the simple form kus 'where'. Thus, the grandparents of Andy, who did not speak standard Estonian, used kus 90% of the time where standard Estonian requires kuhu 'whither' or kust 'whence'.

Table 14 shows in addition the strikingly low incidence of translocative, or 'motion away from' in speech recorded under these particular conditions. Its rarity no doubt has the effect of late acquisition of the correct form (see Section 4.3.1). The only type of translocative that even shows more than 10% usage in adult speech is the CASE group. Much of this is accounted for by a fairly common group of expressions in Estonian which require the elative case ending on the noun plus an adverb. Some examples are: korstnast üles 'up the chimney'; tunnelist läbi 'through the tunnel'; väravast välja 'out the gate'. Thus, the elative is used in some expressions which do not have a true meaning of 'motion away from'. Since there has been no published research on these types of expressions, it was found more convenient for the purposes of this study not to attempt the separation of 'true' 'motion away from' expressions and the kind just described (e.g., is väravast välja a case of true 'motion away from' or not?).

Finally, Table 15 shows more dramatically what was already obvious in the data presented in Table 10--namely, that locative case endings on nouns are used by children for expression of 'internal' notions, and postpositions for expression of 'external' notions.

Table 15. 'Internal' and 'External' in the Speech of Two-Year-Old Children, Siblings and Adults.

	MUL 1.45-2.00		MUL 2.10-2.70		MUL 2.80-4.00		Siblings		Adults	
LOCATIVE CASE										
Internal	100%	(8)	100%	(11)	94%	(30)	88%	(112)	97%	(91)
External	0%		0%		6%	(2)	12%	(15)	3%	(3)
POSTPOSITION										
Internal	0%		0%		12%	(4)	17%	(10)	8%	(3)
External	100%	(5)	100%	(19)	88%	(28)	83%	(50)	92%	(36)

Without the data from siblings and adults, it could be conjectured (as it was in Chapter 2) that the young children are not using external case endings for locative expression because they are instead learning to use them for possessive expression; however, the data in Table 15 show, I believe, that two-year-olds are already using Estonian case endings the way that they are used in speech to them--that is, they are not learning just syntactic structure but also usage from the very beginning.

In Chapter 1, Section 1.5 I discussed the possibility that stylistic differences among languages may have some effect on the structure of the language and on language use by children. Specifically, I postulated that nominal locative expressions should be rarer in Estonian than in English children because of the more general acceptability of deictic (i.e., adverbial) expressions versus nominal expressions. In Table 16, some data on nominal versus other locative usage in English and Estonian are presented.

Table 16. The Use of Nominal and Adverbial Locative Expression by Estonian and English Children and Adults.

	Estonian*		English**	
	Children MUL 1.47-2.00	Adults	Child MUL 1.73	Adult
Nominal	8% (16)	20% (167)	39% (14)	29% (19)
Adverbial***	86% (157)	67% (576)	61% (22)	62% (41)
Question words	5% (9)	11% (96)	0%	9% (6)

*Based on Koidu II, III, IV and V and Lillian I and II, and on sixteen sessions with seven different adults.

**Based on Allison IV and her mother (Bloom 1973b).

***Demonstratives are included.

These data have to be regarded as suggestive only, since only one English-speaking child and one English-speaking adult are considered. It can be seen that the Estonian children use less nominals and more adverbials than the English-speaking child. The same is true of adults. Bloom (1973a), in her discussion of nominal versus pronominal usage in children characterizes Allison as a child using the nominal strategy for learning grammar. However, it could be hypothesized also that parental usage has a bearing on Allison's usage. Further work with more subjects is necessary to resolve the question of nominal versus adverbial expression of locatives in Estonian and English.

It is evident from cursory examination that Estonian allows more leeway in both structure and usage of two or more locatives in the same utterance than does English. For example, in Allison's Session IV (Bloom 1973b), Allison used thirty-five utterances containing locative, but only 1 (3%) was a double locative utterance; Allison's mother used

sixty-six locative utterances, 5 (8%) of which contained two locatives. In a sampling of Andy's Session VI, the following situation was found (Table 17).

Table 17. Double Locatives in the Utterances of Andy VI, His Sister and Grandmother.

	Andy VI	Sister	Grandmother
Total number of utterances containing locative	37	76	33
Number of utterances with two locatives	7 (19%)	13 (17%)	5 (15%)
Number of utterances with demonstrative + another locative	5	12	5

The overwhelming majority of utterances with two or more locatives, then, contain a demonstrative. When these are examined, it seems that this usage serves to contextualize an otherwise fairly specific but abstract reference--e.g., the child says sinna sisse 'there inside' instead of just sisse 'inside'. Consequently, in most cases where two or more locatives are used, the meaning is the same as it would be if only one were used.

In all of the data presented in this section, most of the evidence points in the direction of young children's usage following adult usage. This is not a claim that it is a one-way process--it is clear that adults say to children what they know they will understand. But if the children were concentrating on learning structure only, and paying little attention to the way locative expressions are used, one would expect much more fluctuation from child to child and from group to group, and more differences from adults in the proportions of locatives used.

Other data compiled here points to syntactic complexity as another factor in what the children say or do not say. Cognitive difficulty is not too evident, except perhaps in the case of translocative expressions--the two youngest groups make little use of notions of 'motion away from'. However, the data in this area are very sparse--note that for both locative case and postposition in Table 14 the total number of utterances for the two youngest groups is very small. There is moreover no doubt that 'motion away from' is not very salient in the speech recorded under these circumstances.

Cognitive ease, on the other hand, may be the reason for the high usage of idioms on the part of the two least mature groups. That is, the children learn and use expressions such as maha 'down', lit. 'into the floor, ground' and tutti 'to bed, to sleep' because the idea is easy for them to grasp; not having too much other language at their disposal, they then 'latch onto' these types of expressions as ones that are readily understood by those around them, and ones for which situations occur frequently, or can even be created by the child for the very purpose of verbal communication. (Things drop or can be dropped; dolls can be put to bed indefinitely!) Cognitive saliency, not necessarily connected with ease or difficulty, is shown by children's more frequent use of motion expressions, particularly cislocative ones.

Apart from syntactically complex expressions, such as case and postposition, the ones that children do not use while adults do are connected very obviously to adult roles versus children's roles--the clearest example is the Allative (näitama) type of possessive.

In the next section, I will attempt to put these results into the general contexts of language acquisition and the nature of language.

4.5 Discussion and Conclusions

In this section I will furnish further explanation of the major findings of the previous sections. In Section 4.5.1 I will focus on the question of syntactic complexity and its relevance as an explanatory variable in this study. Section 4.5.2 focuses on semantic complexity and cognitive development as variables for language acquisition. In Section 4.5.3 I will discuss the relevance of the theory of pragmatics and deictic expressions.

4.5.1 Syntactic Complexity

There are two aspects of syntactic complexity that I want to discuss briefly. One has to do with matters such as whether prepositions, postpositions or case endings are syntactically more complex, and therefore perhaps one or another would be more difficult for children to learn. While my research has not provided sufficient data to validate my hypothesis, I would like to suggest that whenever there are syntactic processes such as the above which cannot be differentiated by syntactic complexity, we should compare the semantic arbitrariness of one versus another. The most difficult to learn would be the syntactic device which has no meaning content (for example, the use of the elative case ending in Estonian in expressions such as were described in Section 4.4, or English auxiliaries); the next most difficult to learn would be the syntactic device which uses unique morphemes (i.e., morphemes used only for that particular purpose, such as case endings in Estonian); the easiest would be syntactic devices which utilize substantive morphemes used elsewhere with the same meaning (such as Estonian postpositions, which are also used as adverbs).

In the data presented, the semantically arbitrary elative + adverbial construction does not occur at all except for a few instances in the language of the most advanced children. The children have difficulty with case endings, particularly the adessive and allative ones used in possessive expressions. However, postpositions are used more correctly earlier than case endings--possibly because they are more familiar than case endings, having already been used by the children in their role as adverbs.

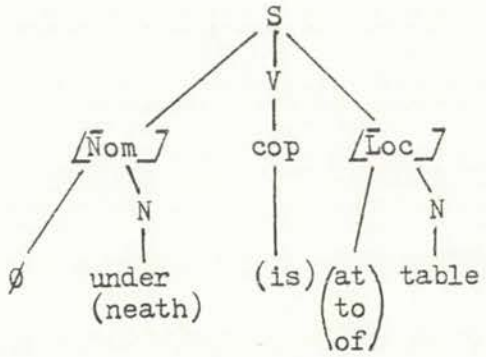
This hypothesis cannot however be substantiated through the use of the present data--there are simply not enough data on these aspects of syntactic learning. They are proposed mostly for indicating possible directions for future research on the role of syntactic complexity in language acquisition.

The other aspect of syntactic complexity that I feel needs some comment is the matter of deletions and embeddings postulated in child grammar. Many researchers, as they analyze child language, begin with a linguist's grammar of the adult language. The child's structures are then related to the adult's, and adult-type transformational rules postulated, often without independent evidence from the child's language. It has been suggested that the need for deletions creates greater syntactic complexity in the child's grammar than is necessary. Embeddings are problematic because an underlying S is assumed.

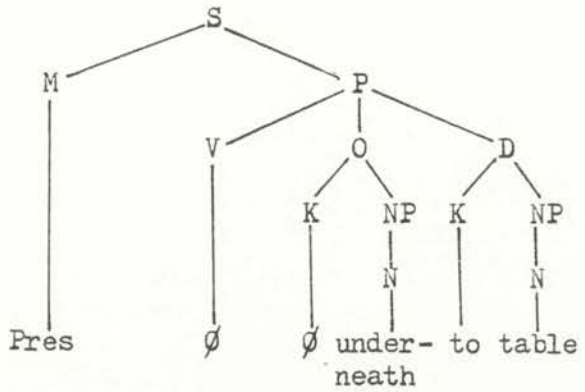
This problem is particularly pertinent to adverbial and possessive constructions, since both are derivationally extremely complex in almost any type of generative grammar. As a matter of fact, case grammar was originally (at least partially) an attempt to simplify the derivation of prepositional phrases, including locative ones, as was proposed by

Chomsky (1965), since in his analysis, such constructions were not related to case constructions, clearly intuitively incorrect.

One common derivation of locative adverbs is one which proposes a N + K (K stands for case, realized either as case ending, preposition or postposition in surface structure), and then an optional deletion of the N in case K is a pre- or postposition. However, even if all locative adverbs could also occur as pre- or postpositions, there is still the problem of the nature of these words, since there are many more of them than proposed case arguments for verbs (see also Fillmore 1971a). It could be proposed that such words are all derived from nominals--so that, for instance, <u>under</u> is derived from an abstract N--perhaps <u>the underneath.</u> In that case, the prepositional phrase <u>under the table</u> would have an embedded S with something like the following structure:



The lexical items in parentheses are never actually realized in surface structure. This tree structure is closest to one that would be derived using Anderson's (1971) dependency rules. Recasting this into Fillmore's (1968) mold, we obtain:



Notice that this is exactly the tree structure given by Fillmore (1968:49) for the S underlying the possessive in English.[17] In English, the <u>to</u> is transformed into the possessive suffix /-s/. In Estonian, then, both locative and possessive, instead of containing any sort of underlying pre- or postposition, contain the genitive case ending. That is, the K in the tree structure which is a constituent of D realizes as the genitive case ending. Thus, such a derivation for Estonian even explains the genitive case endings on the nominals in locative postpositional constructions.

Recall that in the discussion of the relationship between locatives and possessives, one of the constructions arrived at was the [+Animate] [+Definite]: <u>The book is John's</u>, in Estonian, <u>Raamat on Jaani</u>. This type of possessive is nominalized as <u>Jaani raamat</u>, just as it would be <u>John's book</u> in English. (<u>Jaani</u> is in the genitive case.) If we allow also [-Animate] constructions to undergo nominalization, we get phrases like <u>The table's legs</u>. In Estonian, then, one could have <u>Alumine on laua</u> 'The underneath is the table's' realized as the locative postpositional phrase <u>laua all</u> 'under the table'. (<u>Laua</u> is in the genitive case.)

It also follows from the above discussion that if S's like <u>The book is John's</u> (or <u>The book is to John</u>) underlie <u>John's book</u>, then embeddings

are involved in both locative and possessive constructions of the type we have been discussing with respect to the child language data. However, if this type of syntactic complexity had any bearing on what children learn to say first, then children should not be able to use the more complexly derived structures before the simpler ones--they should be using The book is mine before my book, and they should be using inside the house before simply inside. (See also Brown 1973.)

With respect to somewhat simpler deletion transformations, such as proposed by Antinucci and Parisi (1973) in their discussion of the dative construction, it seems to me that postulating the underlying structure of three arguments on the verb, as they do, is unnecessary and unjustified for the child's language. Similarly, Bloom (1970) postulates a syntactic base for the child's grammar which is transformationally related in a complex way to surface structure. These researchers seem to use the same kind of basis for constructing grammars for children as for adults. This results in rules for the child's grammar that are unnecessarily complex. In both these types of constructions and the embeddings discussed above, the complexity in the adult language has little bearing on the child's language development, because in the child's language, the complexity is not there. That is, in the child's language these syntactic structures are derived some other way.

Since there is absolutely no proof that unrealized underlying structures in some sense 'exist' in the child's mind somewhere, postulating them for the child's grammar and then appealing to some sort of cognitive/linguistic/production limitation, as has been done, simply won't hold up. The only positive proof of the existence of anything called 'grammar' in children's minds, just as in adults, is some proof of meta-

linguistic awareness. The only evidence from very small children is in language play (in my data, a sequence of different word orders is an example), or in saying or showing that one type of structure is more correct than another (see Bever 1975, Cazden 1973 and Shipley, Smith and Gleitman 1968). Bever (1975) proposes the concept of a 'psychogrammar' and its purpose:

> A psychogrammar is (by hypothesis and definition) the psychologically internalized representation of linguistic structure. In this sense a psychogrammer can be distinguished from a grammar. A grammar describes what a language is. The psychogrammar describes an internalized representation of the grammar that is a model of neither speech perception nor production, but a representation, in part, of what those skills imply. (64)
> ...the reason that a psychogrammar exists is because of the vital role it plays during language acquisition, much of which occurs during the first five years of life. The psychogrammar is needed during that period to mediate between the systems of production and perception. It is the internal translator that regulates conflicting capacities which arise as each of the two systems of speech behavior develop separately; if one system gets ahead of the other, the psychogrammar can equilibrate their capacities. (65)

The most important implication of this concept is what it says about children's 'internalized' grammar--that it is in constant flux. It seems therefore minimally productive to write grammars for children at specific points in time. Implied also is that grammatical errors, although interesting in themselves, do not necessarily represent what the child's grammar 'really is'; nor do they tell us much about the language learning process. Thus, for example, Koidu's unique construction for possessive which combined Genitive + <u>oma</u> + N (object possessed) may be a temporary part of her system of production of possessives, but she may not find such constructions acceptable when she hears them--then where is the 'real' grammar? More pertinent, however, is why children--for example--begin expressing possessives first with the genitive + N

construction, and only later begin using the English have or Estonian adessive case. In the analysis of the derivation of these possessives in adult language, the first (genitive + N) turns out to be more complex syntactically, whatever system of analysis we use. Yet this fact apparently does not stop the child from learning this construction first, and so the explanation must lie elsewhere. Indeed, in Section 4.5.2, I will show that the first type of possessive is semantically simpler.

4.5.2 Semantic and Cognitive Complexity

In Chapter 3, Section 3.2.2 I reviewed work on the semantics of spatial expressions. Here I want to look briefly at the data I have presented, considering both semantic complexity of spatial expressions and the little we know about children's cognitive structures. In this case, because the children are all younger than those considered by Piaget and Inhelder (1967), I will put forward the tentative hypothesis that children of this age do not use locatives other than those of the simple topological type.

In the list of locatives that I compiled for Table 18, I attempted to group them into the three types discussed by Parisi and Antinucci (1970). The groups of children are the same as those discussed in Section 4.4. I counted three occurrences of a particular locative (whether simple locative, cislocative or translocative form) as evidence of use. I included only locatives used by children and/or adults and grouped either into 'adverbs' or 'postpositions'.

Table 18 shows that locatives in Group 1 (topological) are indeed used by even the least mature children, although sees 'inside', üleval 'up, upstairs' and kõrgel 'high, high up' do not occur until the middle

Table 18. Locatives Used by Two-Year-Old Children, Grouped According to Cognitive/Semantic Difficulty.

Locative		MUL 1.45-2.00	MUL 2.10-2.70	MUL 2.80-4.00
Group 1. TOPOLOGICAL				
juures	'at'			X*
peal	'on'	X	X	X
sees	'in(side)'		X	X
väljas	'out(side)'	X	X	X
all	'down(stairs)'	X	X	X
üleval	'up(stairs)'		X	X
kõrgel	'high (up)'		X	X
Group 2. EUCLIDEAN SPACE				
all	'under'			X
ees	'in front of'			
taga	'in back of'			X
kaugel	'far'			
lähedal	'near'			
vahel	'between'			
keskel	'middle of'			
Group 3. COMPLEX				
mööda	'along'			
üle	'over, across'			
läbi	'through'			X

*The X's indicate at least three occurrences of simple locative, cislocative or translocative form.

group of children. However, the locative juures 'at, by' is an exception, in that it does not occur until the most mature group. Locatives in Group 2 (euclidean space) are not used except for all 'under' and taga 'in back of, behind' by the most mature children. And oddly enough, the locative läbi 'through' from Group 3 (complex) is used by the most mature children. In general, then, the predictions based on semantic/cognitive complexity are borne out.

The exceptions show, however, that the issue is more complex. I pointed out in Chapter 2 that in fact, generalized or perhaps better, vague, location cannot be expected to develop quite as early as more specific types; this was based on Piaget's descriptions of sensorimotor space in very young children. The same finding, then, occurs in the data on the older children--the 'at' type of locative, even though it is termed 'topological', is not found until later in development (MUL 2.80-4.00), perhaps because of its vagueness. Similarly, the path expression via, Estonian kaudu, does not even occur in my table because neither children nor adults ever used it. Use of the Estonian kaudu is almost as unlikely by children as use of English via. And this is the 'neutral', in Fillmore's (1971b) terms, path expression, or the most vague.

The apparent semantic complexity of läbi 'through' does not prevent children, at least those linguistically most mature among my subjects, from using it. (The occurrence could not be accidental, since there were twelve instances of this expression.) I believe both exceptions illustrate that we don't know enough about children's cognitive development, and that semantic complexity (of the adult language) interacts with other factors in determining the sequence of acquisition.

More direct data on semantic complexity can be presented. Recall that H. Clark (1973) predicted 'motion toward' (cislocative) as being an added feature, and so more difficult to acquire than simple location, and that 'motion away from' (translocative) would be even more difficult, since it also contains the feature [+Negative]. In Table 19, I have indicated which particular locatives show at least three occurrences within each group of children.

Table 19. Simple Locatives, Cislocatives and Translocatives in the Speech of Two-Year-Old Children.

	MUL 1.45-2.00		MUL 2.10-2.70		MUL 2.80-4.00	
SIMPLE LOCATIVE	--		peal	'on'	peal	'on'
			väljas	'outside'	sees	'inside'
					all	'down'
					üleval	'up'
					kõrgel	'high'
					taga	'in back of'
CISLOCATIVE	peale	'onto'	peale	'onto'	peale	'onto'
	välja	'outside'	välja	'outside'	välja	'outside'
	alla	'down'	alla	'down'	alla	'down'
					juurde	'at'
					sisse	'into'
					üles	'up'
TRANSLOCATIVE	--		--		--	

The cislocative forms are generally used before, or at the same time as the simple locative forms; the two exceptions in the table are <u>kõrgel</u> 'high' and <u>taga</u> 'in back of'. But translocatives are not used at all by these children. (These findings were already evident in Section 4.3.1, Table 10.) The added feature of [+Directional], then, does not make the acquisition of cislocatives more difficult. Again, the order of development does not necessarily depend on semantic complexity.

I have already discussed the semantics of possession in Chapter 3, Section 3.2.3. I pointed out that since neither English nor Estonian differentiate between alienable and inalienable possession, it seems irrelevant to discuss them separately in child language, as Edwards (1973) does. I discussed E. Clark's analysis of existential, locative and possessive constructions. Extrapolating from her work, it is evident that the crucial difference between the possessive constructions of the N + N type and the <u>have</u> type is indeed semantic in nature--i.e., the first type is used when the object possessed has the feature [+Definite], and the second when the object possessed has the feature [-Definite]. In the discussion of Table 11 in this chapter, I pointed out that the children learned and used the N + N type of construction earlier than the other type (in Estonian, N + Adessive case). If there is marking involved here, then certainly [-Definite] is the one which is marked.

H. Clark (1973) discusses the notion of markedness as it applies to child language development, pointing out that in most studies, it has been found that the unmarked member of a pair of features is learned first. Perhaps this is the explanation for the children's prior use of the N + N construction. However, we need to consider this: markedness is such a pervasive feature of human languages that it must derive from some universal feature or features of human cognition, or even in some cases, possibly universal situational conditions of language acquisition. It seems to me a more plausible explanation lies in the fact that children when they first talk about objects possessively are likely to talk about specific objects which are right there, rather than about 'an object' somewhere. Thus, they will learn a [+Definite] construction

first. This could be the explanation for a feature such as [+Definite] being unmarked in human language. If this is how markedness arises in the first place, then it makes no sense to say that a child learns a feature first because it is unmarked.

The question of permanent versus transitory possession is difficult to analyze. We have already seen that in Estonian, no distinction is made between the two in case constructions--that is, adessive and allative constructions are used, whether possession is permanent or transitory. N + N and N + oma constructions always involve permanent possession, however. On the other hand, the idioms käes 'in the hand' and kätte 'into the hand' always refer to transitory possession, when used as possessives. But käest 'from the hand' is used for both permanent and transitory transfer of possession. There is no indication in the children's language that they differentiate between transitory and permanent in 'transfer of possession' constructions; however, kätte is always used correctly--i.e., even the least mature children only use it when possession is indeed transitory. (But see below.) On the other hand, they use the allative case construction whether transfer is permanent or not. In static possession constructions, children make no use of transitory possession except for the most mature children. (See use of 'Other adessive' in Section 4.3.2, Table 11.) Käes, and perhaps even all instances of kätte are better termed locatives when used by these children, since the context in which they are used always involves the actual location of the object in the hands of someone.[18] Again, when discussing transitory possession such as that expressed by the Allative (näitama) type of construction, I pointed out that children do not use it, not even the older siblings. However, I believe the cause does

not lie in their transitory nature, but rather in the nature of the social roles of children versus adults. There simply is not enough data on the child's cognitive development with respect to permanent/transitory possessive notions, nor on the semantic structure of these notions in Estonian. That the distinction is somehow important, however, is evident from, for example, Edwards' and my attempts to make it, even though neither Estonian nor English semantic structure exhibits a readily definable difference.

4.5.3 Pragmatics

At this point, I will summarize data presented throughout this discussion--data which provide evidence that the influences on what is expressed in the language of two-year-old children go beyond syntactic and semantic complexity, and beyond cognitive development, into the realm of pragmatics, or context of situation. These other influences include parental speech to children--and through this, modes of usage in specific languages, and presence/absence of modes of expression in specific languages; children's focus of interest; and the anchoring of early speech in the immediate situation.

The analysis of universal semantic relations in Chapter 3, Section 3.2.1 is the first case. In that discussion, I showed that the hypothesis which states that what children first express in two-word utterances are universal semantic relations, is faulty. The semantic relations discussed by researchers are usually not explicitly related to cognitive development, but are rather based on relations found in the adult language. Most important, close investigation reveals that most so-called semantic relations cannot be found in all children's language--and the

presence or absence of designated semantic relations cannot be explained by the investigators. If there is any validity or explanatory value in the concept of semantic relations at all, it can only be discovered by first, explicit delineation of the relationship of semantic relations to cognitive schemata; and second, analysis of the contexts of language use by the child and by others around him. (See also Edwards 1973, quoted in Section 3.3.5.)

The analysis of children's sensorimotor development and the language expression of children at the very end of the sensorimotor stage was the topic of most of Chapter 2. At the end of Section 2.5, some hypotheses were put forward about the presence/absence of expected locative expressions in the data on Estonian, Finnish and English speaking children. Some of the reasons posited for known cognitive schemata not being expressed in language were: 1) situational context for an idea rarely occurs; 2) adults do not focus on the idea in their customary language to children; 3) terminology for the idea in the specific language being learned is not unitary; 4) the idea is not salient to the child--he customarily focuses on some other aspect of the situation instead; and 5) various at present unanalyzed social, affective and cultural factors. The reverse of factors 1 - 4 was often found to explain the presence of expression.

In this chapter, several aspects of the analysis pointed in the direction of pragmatic factors in locative and possessive expression. First, in the data on locatives used by two-year-old children (Table 10), it was evident that demonstrative adverbs and idioms were most commonly used by the least mature children, very few N + case or N + postposition expressions occurring. It is obvious that all demonstratives and

almost all adverbs in the data occurred as deictic expressions--that is, the children were talking about objects and events immediately present in the situation, and a hearer had to be there to understand what the child was referring to. Those adverbs which are not deictic (such as ähra 'away) and idioms such as maha 'down' and selga, jalga 'onto' (with reference to clothing and footwear) are expressions of ideas which are known to be extremely salient to small children of this age. Only in the most mature two-year-olds is there non-deictic use of locative expressions, such as N + case, N + postposition and questions. Moreover, the preponderance of cislocative expressions over simple locative ones attests to the continued saliency of motion and action for children past the sensorimotor stage. Thus, one factor in the types of locative expressions used by small children is the anchoring of their speech in the immediate situation. Another factor is the saliency of certain events and activities for small children.

In the data on possessives, it was evident that the least mature children used mostly the oma possessive and Genitive + N constructions; the middle maturity children begin using adessive case to indicate possession, and the most mature children are using both types about equally. I have shown that E. Clark's analysis of locative and possessive constructions (Section 3.2.3 in Chapter 3) gives us a hint as to why this should be the case. The reason lies in the definiteness of the first type of possessive--that is, the very young child's possessives almost always refer to some definite object present in the situation; only later does he begin to talk about 'an' object possessed which is not present in the situation.[19] In these data on possessive constructions, then, we again have the factor of speech anchored in the immediate

situation. (See Lyons 1973 with regard to deixis in children's language.)

In Section 4.4, I presented data on the speech of siblings and adults to the two-year-old child. These data showed that deictic expressions were high also in speech to children--adults' and siblings' speech to a small child is anchored in the situation as well. Non-deictic N + case and N + postpositon constructions were proportionally infrequent, although more frequent than the two-year-old children's. The largest difference between the least mature children versus all other groups was in the use of idioms--it seems that children of the 'middle maturity' group have already found other things to talk about than what was most salient to the two younger groups. The similarity in the proportions of demonstratives, locative case, postpositions and adverbs used by both adults and siblings on the one hand and by two-year-old children on the other lends credence to the view that children will learn to say what is said to them, and in the way it is said to them. This, then, is the third factor which determines what children say.

In the data on possessives, however, parental speech to children is not a factor. That is, adults' and siblings' use of the possessive is not anchored in the situation, at least not in the same way the two-year-old child's is.

In Section 4.4, Table 14, I presented some data on simple locative, cislocative and translocative expressions. I believe the analysis shows that both saliency to the child and parental speech are factors here. The translocative was used very little by any group--two-year-old children, siblings or adults. Thus, the rarity of the translocative can be attributed to the non-saliency of 'motion away from' for both adults and children, and to its infrequent use by adults. The saliency of

'motion toward' for small children is demonstrated by the higher proportions of cislocatives in their speech in almost all types of locative expressions--that is, higher than that of adults. However, the influence of parental speech is also demonstrated--namely, in all cases where the simple locative occurs in higher proportion than cislocative in the speech of adults, it also does so in the speech of two-year-old children; conversely, where the cislocative occurs in higher proportion among adults, it also does so in the speech of the young children.

The analysis of 'external' versus 'internal' expressions shown in Section 4.4, Table 15 shows also a striking influence of parental speech. That is, two-year-old children, siblings and adults all use mainly locative case for 'internal'expressions, and postpositions for 'external' expressions. I believe that this is not a matter of adults adjusting their speech to children's comprehension capabilities, as much of the other parental speech may be, but that this is simply usage in Estonian in general. There is nothing in this particular speech situation which could cause such distinct differences in usage.

One additional factor in the meanings that children express is what we might call social role. We saw that only adults used the construction I called the Allative (näitama), that is, expressions involving the verbs show, tell, sing (to someone). The high proportion of such usage in the speech of adults was due to their continual admonishment of the child to do these various things, while children almost never demanded these kinds of performances from others.

There are therefore numerous influences on young children's language expression which derive from the pragmatics of natural languages rather than from their syntactic or semantic complexity, or from the stage of

cognitive development of the child. The ones I have discussed may be summarized as follows:

1) Anchoring of early speech in the immediate situation

   a) Deictic usage predominates

   b) Situational context for some ideas may rarely occur

2) Saliency to child (focus of interest)

3) Parental speech to children

   a) Parental deictic usage due to situational context

   b) Other parental usage geared specifically to children

   c) General language usage and language structure (not situation-bound)

4) Social role of child

NOTES

1. Case endings themselves are complex, in that /s/ signals 'internal' while /l/ signals 'external'; /e/ is the cislocative ending and /t/ the translocative.

2. For a contemporary treatment, including some discussion of short illatives, see Viitso 1969.

3. I suspect that short illatives are, in the language of children, like irregular forms: they are learned as single items at first. It is quite probable that none of the children in this study had reached a stage of forming such short illatives by rules.

4. See Appendix C for a brief discussion of extra length in Estonian.

5. An alternative adverb with the same meaning used occasionally by both children and adults, is õues, õue, õuest.

6. But recall that the syntactic derivation of these forms is not simple in the adult grammar (see Chapter 3, Section 3.2.3; also Section 4.5.1).

7. The exceptions to 'addressed to child' were Andy's and Lillian's sisters, who were both 3½ years old. All of their locative and possessive utterances were included, not only the ones they addressed to Andy or Lillian. This was done because it proved impossible to differentiate clearly between utterances not intended for the younger children and those so intended, since most conversations with both sets of children were carried out under conditions where the two children involved were both occupied in the same activities.

8. The noun maa 'ground, earth' is one of a very few nouns for which the short illative and the long illative (see Chapter 3, Section 3.2.1) have different meanings. The short illative maha is thus an idiom meaning 'down', 'onto the floor', 'onto the ground', while the long illative form maasse does mean 'into the ground'. In addition, this noun provides another idiom series--namely maal, maale, maalt 'in the country', 'to the country', 'from the country'. Similar to this last series is tööl, tööle, töölt 'at work', 'to work', 'from work'.

9. Again, all three are instances of nouns whose short and long illatives have different meanings: thus, jalasse does mean 'into the foot'.

10. Oksaar (1970) has also reported that for the Estonian child she studied, adverbs and postpositions were important early, from 18-19 months of age.

11. Koidu, like many Estonian children, substitutes [l] for [r] in her phonology; she also has difficulties with the [y] sound (j in Estonian orthography), for which she occasionally substitutes [l].

12. Tiina is the one child in my sample whose utterances contain almost no repetitions of others' utterances at all; her mother confirmed that she very rarely imitates. Consistently again, Anne's sessions are replete with instances of repeated utterances.

13. It is not necessarily the case that because Anne could imitate the elative case ending, she understood it and could have produced it spontaneously had the occasion arisen. The alternative interpretation of her imitation data is that since she was a prolific spontaneous repeater as well, she was simply a good imitator. That children differ in imitative ability and that imitative ability improves with age has been shown previously (Bloom, Hood and Lightbown 1974 and Nelson 1973).

14. The younger the child, the more difficult it is to obtain data through the use of a set sequential task. The child's attention wanders away from the pictures; aspects of the pictures other than the one focused on capture the child's attention. Lillian was not very interested in the pictures at all; Anne pointed out other things in the pictures.

15. Locative expressions which do not have obligatory case endings--i.e., they are neutral as to motion--were not included in this table. They account for 13% of all locative expressions used by the children, including siblings, and for 9% of all locative expressions used by adults.

16. Bloom's data are not directly comparable to Andy VI, however, since Allison's MUL was 1.73 and Andy's 3.90. Also, in Estonian, the deictic locatives are used sometimes where English would use demonstrative modifiers (this, that); an example occurred when Andy's grandmother said Siin metsas... 'Here in the woods...' which in English would be better rendered In these woods.

17. Fillmore's (1968) 'D' is the Dative--"the case of the animate being" and thus the D in this structure is my modification.

18. A true transitory possessive use would be: Minu raamat on Jaani käes 'John has my book', said when neither the book nor John are actually present. Anne II, on the other hand, said Jänku käes õun 'The bunny has an apple (in his hands)' when looking at a picture where such was actually the case.

19. Interestingly enough, many first occurrences of the adessive possessive construction occurred as additions to someone else's statement: e.g., someone would say, Mul on nuku üleval 'I have a doll upstairs', and the child would say Mul on ka nuku 'I have a doll too'.

CHAPTER 5

Syntactic, Semantic, Cognitive and Pragmatic Factors in Language Acquisition

5.1 Introduction

At the beginning of this study, I stated that my two primary aims were 1) to show that consideration of four factors--syntactic, semantic, cognitive and pragmatic--is necessary to our understanding of child language acquisition; and 2) to demonstrate some of the different roles that each factor plays at different times during the language acquisition process. The expression in language by two-year-old Estonian children of two particular semantic domains, those of location and possession, has been the vehicle for illustrating the importance of the different factors, and for indicating some of the ways in which each influences the learning of language. In addition, other studies of language development have been discussed in order to clarify these issues.

Valuable contributions to our understanding of child language development have been made in most of the previous studies I reviewed. Overwhelmingly, the problems with these various studies that have been pointed out centered on the limiting theoretical bases, not on any deficiency in methodology, nor on incorrect theory. Similarly, during the analysis of the data for this study, it became obvious that any one type of theoretical emphasis is inadequate for explaining the data. It therefore seems that we are at a point in child language research where a more complex theoretical framework is necessary. The view of child language must be broadened in such a way that all possible influences

on children's language development are constantly being considered. Enough is now known about the topic, however, so that a more focused framework than this broad statement can be attempted.

5.2 Toward a Theoretical Framework for Child Language Development

The four factors which have been postulated as indispensable in the explanation of language acquisition are the syntactic complexity of the adult language,[1] the semantic complexity of the adult language, the child's cognitive structures and the pragmatics or social context of language. These four factors are not all equally important at all stages of language development; moreover, they interact with each other in various ways. The analysis of data in this study and the analysis of the work of other researchers have indicated the following framework. The cognitive structure that the child has at any stage is the basis for linguistic expression. That is, the child can only talk about what he can understand. At all stages of language development, moreover, pragmatic factors, or the social context, act in various ways in the determination of what the child will express. Semantic complexity of the adult language enters only after the appropriate cognitive structures have been developed. But sometimes what is cognitively salient yet semantically complex can quite easily be expressed by the young child. Conversely, semantically simple features may not be expressed until late in language development if they are not cognitively salient for the child. Syntactic complexity determines linguistic expression to some degree from the beginning; however, it becomes much more important after the child has developed basic understandings about the world--after the age of about two and a half.

In 1969, Sinclair-de-Zwart argued that cognitive development is prior to language development--that language begins as an integral part of the child's total cognitive development and is dependent on that cognitive development. Similarly, E. Clark (1970a) concluded that children have general cognitive capacities related to events in time which underlie the acquisition of temporal descriptions in children' language.

In the analysis of data for this study, in Chapter 2 I showed that prior cognitive schemata determined what could be expressed in language. Moreover, some language learning sequences are best explained by reference to the underlying cognitive schemata. The saliency of motion in children's cognitive structure was predicted on the basis of Piaget's (1954) theory, and the language data presented in both Chapters 2 and 4 showed that language expression of locative motion is learned earlier than simple location, and that the younger children's locative utterances contain a higher proportion of motion expressions than those of older children or adults. In addition, Piaget's theory predicts that the idea of 'general location' is developed later than 'specific location' in children's cognitive schemata; language expression of these notions again followed the same sequence (Chapter 2 and Chapter 4, Section 4.5.2).

Conversely, our lack of knowledge about children's cognitive structure in some areas hinders our understanding of associated language development. The notion of possession is one such area. Young children's cognitive development in this area is relatively unknown; language development of possessives is difficult to handle without this knowledge (Chapter 3, Section 3.2.3 and Chapter 4). Another area is the cognitive schemata involving spatial notions between the ages of two and three, about which very little is known. The analysis of language data

definitely suffers, since the influence of cognition can be only partially explicated (Chapter 4).

The necessity for the cognitive factor to be included in explanation of language development is clear. Knowledge of cognitive schemata tells us what children should be cognitively capable of representing symbolically, and more specifically, in language. But throughout this study, it has been obvious that pragmatics, or how language is actually used in communication, influences its acquisition from the very beginning.

Other investigators have mentioned this factor in language acquisition. Bever (1970) emphasized that the child must acquire behavioral systems for actually using language simultaneously with the learning of its structure. Church's (1961) theory of language development is based on the use of language in context. Sinclair (1971) acknowledges that though her own primary interest is in the relationship between cognitive structure and language structure, many of the child's first language communications are about affective states linked to the child's acts. Halliday's (1973a, 1975) theoretical framework is basically pragmatic. He shows how language function determines structure, and how the child is at all times learning both language use and structure. Halliday also shows that the child's earliest language is anchored in the situation, and for the most part is based on knowledge that the child and the hearer have in common--it is therefore deictic and the child at first knows no other way of using language. Lyons (1973) considers deictic reference to be the basis for learning language; other forms of reference arise from deixis and are therefore secondary.

The significance of this way of looking at very early language

is that it helps to explain data which otherwise might be obscure. The sequence of development of some locative and possessive expressions in Estonian children seems best explained by the fact that children first learn to speak about objects and events present in the immediate situation. For instance, demonstratives and adverbs are the first types of locatives learned and used correctly by two-year-old children (Chapter 4). These were all deictic usages of language. The first type of possessive used was the Genitive + N construction, and the oma possessive. These types of possessives almost always refer to some definite object present in the situation.

Another influence of the pragmatic aspects of language was evident in the Estonian data in that much of the children's usage of different locative constructions was proportionally closely related to that of adults. The most striking example of the influence of parental speech was the use of mainly locative case for 'internal' expressions but postpositions for 'external' expressions on the part of two-year-old children, their older siblings and adults. In general, except where other factors were postulated to have some influence, with respect to locatives the young children's usage followed that of adults. On the other hand, in the case of possessives, this was not true. A larger factor in possessives is the use of deictic expressions by young children but not by adults. Another type of pragmatic influence for possessives was found in social role--the young children never used the Allative (näitama) construction, because its use was in connection with telling someone to 'perform' in some way, a role which they never assumed.

Without the analysis of parental speech to children carried out on the Estonian data, much of the language found could not have been ex-

plained, or unsatisfactory explanations would have been more frequent (such as the attempted explanation in Chapter 2 of the use of 'external' postpositions versus 'internal' case marking in syntactic-semantic terms). But however important pragmatics is in language development, at some point all children do learn semantic and syntactic structure.

The semantic structure of the adult language cannot be used as explanation unless the child's cognitive knowledge is considered. For instance, H. Clark's (1973) treatment of P-space (cognitive structure) and L-space (semantic structure related to spatial ideas) assumes that children have all the necessary P-space and have to fit L-space to it (Chapter 3, Section 3.2.4). But we know that children do not develop adult-type cognitive schemata within the first few years of life. Similarly, the analyses of child language in terms of 'semantic relations' which were discussed in Chapter 3 attribute to the child semantic structures based on adult language structure, without enough consideration of the child's cognitive schemata.

The child's learning of semantic structure is dependent on his knowledge of the outside world--that is, the cognitive distinction has to be there before the equivalent semantic one can be made. However, some semantic structures in adult language which are complex from the viewpoint of linguistic analysis are nevertheless learned earlier than other more 'simple' ones. This was found to be the case with the 'motion toward' idea in the Estonian data, and with the notion of 'through'. Seemingly, these notions are cognitively prior to 'simple location' and 'via' respectively. The data also showed that the notion of 'general location' is expressed in language by children later than 'specific location', which in adult semantic structure is more complex. But this

result was predicted from the examination of Piaget's (1954) outline of sensorimotor schemata--that is, 'specific location' is cognitively prior to 'general location'.

The learning of semantic structure may be integrated in various ways with pragmatics as well. The data suggest that some types of 'marking' in adult semantic structure arise out of the anchoring of speech in the immediate situation at the beginning stages of language development. For example, the possessive construction Genitive + N is learned very early because it contains the feature [+Definite], which itself may be unmarked because young children talk about what is present--that is, [+Definite] is more natural for the child and is therefore unmarked in adult grammar.

The semantic complexity factor in language learning is clearly not operating in any simple way, and is closely tied to both cognitive and pragmatic factors. It may be that for constructions where the semantic distinctions are unimportant (not salient) to children,[2] acquisition order will be found to follow semantic complexity of the adult language more closely.

The role of syntactic structure of the adult language in young children's language learning is difficult to pin down. Partly this is because cognitive and pragmatic factors and probably semantic also are more important, at least before the age of about two and a half; before the role of syntax can be discovered, we need to know exactly how the other factors influence language development.

Bloom (1973b) regards children's language at the one-word stage to be closely related to thinking, and believes the child is primarily engaged in forming cognitive structures; at the two-word utterance

stage, the learning emphasis is shifted to language structure. However, we have seen that even the language found at these later stages is firmly rooted in cognitive development, and that pragmatic factors as well play a major role. For example, some syntactically complex constructions in the adult language, even ones with embedded S's and deleted elements, pose no problems for young children. In the child's language, these structures are cognitively and pragmatically based, and may not at all be the same syntactic constructions as they are in adult grammar.

At the same time, it is clear that at some point, the child begins to learn and use syntactic structure which is not related in any simple and direct way to either semantic structure or cognitive categories. The children in the study, for instance, showed a steady increase in the use of case marking for both locative and possessive expressions. Although the use by the youngest children of mostly deictic demonstratives and adverbs to express location is explainable by their attention to the immediate situation, it is also evident that once the expressions requiring case marking begin to be used at all, typical sequences of syntactic learning are evident (for example, in the types of errors that occur). Syntactic learning then becomes more important the older the child, while cognitive, many pragmatic and certain semantic factors have asserted their influence from the beginnings of language, and continue to do so in various ways throughout the later stages.

One type of order of syntactic learning can be tentatively postulated on the basis of the Estonian data. The easiest constructions would be ones which utilize substantive morphemes--those used elsewhere with the same meaning--such as Estonian postpositions, which the children

seemed to learn a little earlier than case marking, and which they used even earlier as adverbials (Chapter 4, Section 4.5.1). The next in order of difficulty are syntactic devices which utilize unique morphemes--that is, morphemes used for that particular syntactic construction only--such as the locative case endings, used correctly only by the oldest children in the study. The most difficult syntactic devices to learn are those which are semantically arbitrary, such as the elative case ending for certain Estonian expressions (Chapter 4, Section 4.4), which none of the children in the study used.

Indications are that the syntactic complexity factor enters later in language development than the other three factors, and that it becomes more important the older the child. Even with older children, however, its influence is linked with that of the other factors. C. Chomsky (1969) has shown that children as old as nine and ten are still learning certain syntactic constructions, but also that the situational context of language use is important in these children's language production. Moreover, in Chomsky's study the influence of the cognitive factor is not even really considered.[3]

This study of Estonian children's language development has served to explore the complexity of language development and the multitude of ways that the most important factors which influence this development interact. A tentative framework for the study of how children learn to speak has been suggested. It is hoped that in future research, all factors which influence language development will be considered, so that child language study will truly help to illuminate the nature and role of language in human interaction.

NOTES

1. Phonological difficulty may play a minor role, and is therefore to be viewed as included under syntactic complexity.

2. Some examples might be features such as [± Plural], [± Male], [± Female].

3. It is quite possible that a way of thinking is required for the structures discussed by Chomsky which is not attained until Piaget's (1967) postulated cognitive stage of 'formal operations', usually attained after the age of eleven.

APPENDIX A

Methodology and Subjects of Study

The recording of Estonian children's speech was undertaken from the end of February to the end of August, 1968. Two of the subjects participating in this study lived in Montreal, Canada. The girl was visited seven times and the boy eight times during the six months, at intervals of about three weeks each. Four of the subjects lived in Toronto, Canada; they were visited three times each, at intervals of about five to seven weeks. Each visit resulted in $1\frac{1}{2}$ to 2 hours of tape.

The equipment consisted of a wireless microphone and receiver, and a Sony 400 reel-to-reel tape recorder.

My general procedure was to set up the equipment, and then produce the 'toy suitcase', which most of the children learned to anticipate, and usually asked for as soon as I arrived. Many of the children were also fascinated with the taping equipment, and spent some of their time watching the reels and the recording level needle. In one case, it was necessary to set up the equipment in another room, since one child was not content to simply watch the equipment. It did not prove feasible to hang the microphone around the child's neck, as originally planned; it was too heavy, and moreover, the movements of the child occasioned disturbances and noises. Generally I set the microphone in the area where the child or children were playing; in most cases all conversation within the room was successfully recorded without moving the microphone. The advantage of the wireless was that the tape recorder itself could be set up in an out-of-the-way place; and

also if the children moved to another room, I simply took the microphone along. In at least one case, about half of all the sessions taking place in the summer were recorded outdoors--I was able to follow the children inside and outdoors with the microphone.

No particular guidelines were given to the parents, nor were there any regular procedures. In many cases, however, the adult or adults present spent some time trying to get the child to talk, especially in the case of first visits with children who were somewhat shy. Many parents also produced the child's favorite books, and had the child tell about the stories, or name objects in the books. In three cases, the mother would leave the child alone with me from time to time, but would also spend some time in the room with us. In two cases, the adults were always there, and in one of these the child's sister also. In one case, I was left alone with the child and her sister most of the time.

The only structured activities carried out were the imitation test (see Appendix D), the comprehension test (see Appendix D) and some very informal testing of motor skills. These were done only if the child was interested, therefore not necessarily in all sessions nor with all the children.

My procedure for finding the children who served as subjects was distinctly informal. In Montreal, my mother found out by word of mouth who had children of the appropriate age. She made the initial contacts, and I made appointments and explained my study to the parents. There was only one refusal out of a total of eleven children's parents contacted (the other eight children from Montreal were either younger or older than the two which are included in this study). In Toronto, a friend made initial contacts with parents of two-year-old children

she knew; five children participated, but the fifth is not included in this study because the recordings proved too difficult to transcribe--too often, I could not distinguish between the speech of the subject and the speech of his four-year-old sister; also, the noise produced by the almost continual presence of four children resulted in loss of much of the on-going conversation.

Transcription of about half of the tapes was done within a few days of the recording; the rest were transcribed after my return from the field. No phonetic transcription was attempted, except in cases where the utterance could not be interpreted as a regular Estonian word. I did however generally adhere in my transcriptions to what the child actually said--that is, if the vowel was other than what usually occurs, then I wrote the one the child used. My mother transcribed a few of the tapes; these I played through myself afterwards. I tried to include in the transcriptions as much as I could remember of what was actually going on during the conversation.

The only criterion for choosing children for participation was that they be learning Estonian as a first language. Most of the two-year-old subjects in fact turned out to have very little exposure to English, and so fit the criteria. I will briefly describe each child's background to 'set the stage'. The children's names have been changed; I have attempted to give them names which are in accord with their real names, so that, for example, if a child's real name is common in both Estonian and English, I substituted another name also common in both Estonian and English.

Alan. Alan's age was 30 months at the first session, and 34 months at the last. He has a sister aged five and a half, most of whose

friends were English-speaking. Estonian is spoken most of the time in the home, except when the sister's friends are visiting; there is also a tenant who rents a room in the house--an elderly woman, English-speaking. The tenant occasionally plays with Alan; thus Alan does hear a moderate amount of English. The parents are both professional; the mother is completing her degree in psychology and is quite knowledgable about children's development. She also teaches in the Estonian nursery school, and so is quite familiar with language development of Estonian children as well.

Alan did not try to relate to me very much during any of the three visits; most of his interaction was with his sister, his mother and the tenant. The one time that his father was present, Alan showed much interest in talking to his father. All three sessions with Alan took place in the family's living room, with the mother present.

Koidu. Koidu's age was 28 months at the first session and 33½ months at the last. She has one sister, aged six years, who attends public kindergarten in the local elementary school. The sister's friends are all English-speaking; she herself is completely bilingual, at least according to the picture-vocabulary test I administered. Her completion time in Estonian was slightly faster than in English (Estonian, 3 minutes, 13 seconds; English--3 minutes, 36 seconds.) She also attends Estonian school on Saturdays.

Koidu's mother is an instructor in gymnastics; she spends most days at home, and teaches classes in the evenings. The father is a small business man. The family lives in a duplex, the downstairs being occupied by the father's mother, with her living room used as the children's play room. The grandmother also spends most of her time at home

with the children. The parents and grandmother speak only Estonian with both children. Koidu hears very little English--what little she hears is from her sister's friends.

All of the recording sessions except for the last took place in the children's play room (grandmother's living room). The two children were alone with me except for occasional 'drop-ins' by the grandmother or mother. In the last session, the second part of the recording took place upstairs in the kitchen during lunch time, with the mother present.

Koidu was a fairly active child, sometimes very changeable in mood (at one session, she put on a temper tantrum; I had to switch off the recorder and wait for her to be brought back in a calmer mood.) However, she was extremely friendly, and from the second session on exhibited no shyness toward me, but spent much of her time talking to me as well as to her sister. During each session there was at least one game that the three of us would play together; during each session also, the sister would sometimes take out her own toys and talk to me about them, leaving Koidu to play by herself. Sometimes I had to consciously include Koidu again, since the sister did try to monopolize much of my attention.

Lillian. Lillian's age was 24 months at the first session and 28½ months at the last. Lillian had one sister aged three and a half years, and a newborn brother. Neither Lillian nor her sister know very much English, except that her sister has begun to play some with neighborhood children. The father is professional; the mother stays home with the children.

During the first recording session, I visited Lillian at her paternal grandmother's house, since the mother was still in the hospital

after the birth of the baby brother. At first Lillian was somewhat shy, but after a game of peek-a-boo, she consented to play with me. Her grandmother was in the room about one third of the time, leaving me alone with Lillian the rest of the time.

The second session took place in the child's home. Her sister was present most of the time, and her mother about half of the time. Lillian and the sister did not play together, but rather tried to interact with me, separately.

The third session took place in Lillian's other, maternal, grandmother's house. The sister was present some of the time, as was also the grandmother. However, for most of this session, I was alone with Lillian, since the others went shopping.

In view of the birth of the baby, and the different places in which the recording sessions took place, I don't feel that Lillian's language is adequately represented. However, it is clear that Lillian is exposed to a great deal of Estonian and little English, since Estonian is spoken in the home, and she does spend quite a lot of time also with her grandmothers.

Anne. Anne's age at the first session was 27½ months and at the last 31 months. She is an only child; the parents are both about 40. The mother stays home with Anne; the father is a businessman. Anne hears only Estonian at home; moreover, on their street live a number of other Estonian families, whose children speak Estonian, even outside in play groups.

All sessions with Anne took place in the living room. The mother was present about two-thirds of the time. Anne was not shy, she played and talked with me from the first.

Andy. Andy's age at the first session was 22½ months and at the last, 28 months. He has one sister, aged three and a half, and another sister aged fifteen. The mother works, and the children are at home with both of the mother's parents. Both Andy and his younger sister are extremely lively children, and were already quite a handful for the two elderly people. Neither of the children know any English at all. They do not yet play with other children outside. The sister is an extremely talkative child, most of the time trying to monopolize all of the conversation, much of the time talking for the sake of talking. In the first session, it was impossible to tell what Andy's stage of language development was, since he was drowned out by his sister even if he attempted to say anything. In subsequent sessions, I tried to manipulate the situation so that Andy was included more; however, much of the time he still played with his own toys, talking about what he was doing, rather than talking with others in the room. The grandparents were both present during all sessions, although sometimes they did leave me alone with the children for some periods of time.

The first four sessions took place in the family's apartment; the mother was present some of the time during the second session. The older sister was never present, since she arrived from school at about the same time I usually left. The last three sessions took place at the family's country house, where both children stayed all summer with their grandparents.

Tiina. Tiina's age at the first session was 28 months, and at the last 32 months. Her father has his own business; her mother stays home with the children--both are in their early 40's. Tiina has a sister who is eight months old. The parents speak only Estonian to the children, and

are very concerned that the children learn Estonian well. They plan to start Tiina in the Estonian nursery school, even though she is not yet three years old. Tiina is, however, a very sophisticated little girl; she acts older and more mature than her age. She was very friendly to me, never tiring of trying to get me to play games she made up.

The three sessions took place in the family's living room. The mother was always present, although sometimes she was in the kitchen right off the living room, where she could still participate in the conversation. Tiina had many books, and told me the stories from them.

I have described the subjects in order of linguistic maturity; it can readily be seen that age is not related to linguistic maturity as measured by MUL (see Appendix B). Also, sex is not related to linguistic maturity, since the least mature child was the oldest and was a boy; but the youngest child was also a boy, and he and Tiina were probably about the same in terms of linguistic maturity, that is, the most mature of the children. It is also clear that the children have very different homes, and different circumstances under which language is presented to them, varying by people involved and the amount of exposure to English.

The field manual by Slobin et al. (1967) was consulted for both recording methodology and analysis whenever appropriate for the study.

APPENDIX B

Mean Utterance Length (MUL)

The measure Mean Utterance Lenth was used as the major indicator of children's linguistic maturity. Despite several problems with this measure, it has consistently proven to be the only language maturity measure which even approaches validity and reliability criteria, at least for children as young as two years of age.

For the children of this study, the measure is probably not as valid for Andy I and for Lillian I, II and III as it is for the other children. Andy's first session did not provide him with an opportunity to display his true language abilities, in that most of his time was spent playing by himself in a corner of the room with his toys, while his sister monopolized my time. It was found necessary in subsequent sessions to actively involve Andy in activities with his sister and myself--this procedure helped to encourage his language production as communication with others, rather than language as accompanying his solitary play activities.

I feel that Lillian's language production was affected in some ways by the circumstances of her family life during the study. A few days before the first session, a brother had been born, and Lillian was staying with her paternal grandmother, since her mother was still in the hospital. Session II took place in her home six weeks later, and Session III at her maternal grandmother's house two months after Session II. Lillian is the only child in the study whose language production shows more maturity at times (in the analysis) than her mean utterance length (MUL) would predict.

The guidelines in Slobin et al. (1967) were followed, with appropriate modifications, in the calculation of mean utterance length. MUL was calculated once before any analysis of the data was done, and again after most of the analysis was complete. The usual case was that MUL had to be decreased slightly the second time, mainly because familiarity with the speech of each child enabled me to better judge when constituent morphemes did not function as such for the child, and thus were not to be counted as separate morphemes.

The procedure for calculating MUL as presented in Slobin et al. (1967:19-20), together with modifications I made for Estonian, is shown below. (For each session, the MUL was calculated from 100 utterances occurring in sequence somewhere in the middle of the session.)

1. Omit unclear and partial utterances.

2. Include all exact utterance repetitions. Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like (e.g., no, no, no) count each occurrence.

3. Do not count such fillers as mm or oh, but do count no, yeah, and hi.

4. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: telephone, rackety-boom, choo-choo, quack-quack, night-night, pocketbook, see-saw. Justification is that no evidence exists that the constituent morphemes function as such for these children.

5. Count as one morpheme all irregular pasts of the verb. Examples: got, did, went, saw, etc. Justification is that no evidence exists that the child relates these to present forms.
   For the Estonian data, most of the time what I have called 'idioms' were counted as one morpheme, no matter what case was used, until it was obvious that the child was using case endings productively, even on these idioms. Examples: kätte 'into the hand', koju 'to home', maha 'down' (illative case).

6. Count as separate morphemes all inflections. For example: possessive -s, plural -s, 3rd person singular -s, regular past -d, progressive -ing.
   For Estonian, the following procedure was followed. For verbs, the present tense or imperative form was counted as one. Person and past tense also counted as one each. For nouns, the nominative or genitive singular form was counted as one morpheme. Any other case ending, and the plural ending, counted as one each.
   Examples: läksin 'I went' - 3; laula 'sing' (imperative) - 1; jookseb 'he/she runs/ - 2; rongi 'of the train'(genitive) - 1; kastidesse 'into the boxes' (illative plural) - 3.

Table 20 shows the age, MUL and upper limit of utterance length for the children in the study. That MUL did not correlate with age (a common finding) is illustrated in Figure 3.

Table 20. Age, MUL and Upper Limit of Utterance Length for Six Estonian Children.

Name of Child	Session	Age in Months	MUL	Upper Limit of Utterance Length
Alan	I	30	1.00	1
	II	31.5	1.10	3
	III	34	1.23	3
Koidu	I	28	1.40	5
	II	29	1.59	6
	III	30	1.74	5
	IV	31	1.92	5
	V	31.5	1.91	5
	VI	32	2.48	5
	VII	32.5	2.51	6
	VIII	33.5	3.03	7
Lillian	I	24.5	1.74	5
	II	26	1.47	4
	III	28.5	2.23	5
Anne	I	27.5	2.10	7
	II	29.5	2.50	8
	III	31.5	2.81	7
Andy	I	22.5	2.37	8
	II	23.5	3.18	6
	III	24.5	3.16	9
	IV	25.5	3.56	8
	V	26.5	3.36	9
	VI	27.5	3.40	10
	VII	28	3.84	8
Tiina	I	28	3.30	11
	II	29.5	3.19	12
	III	32	3.32	11

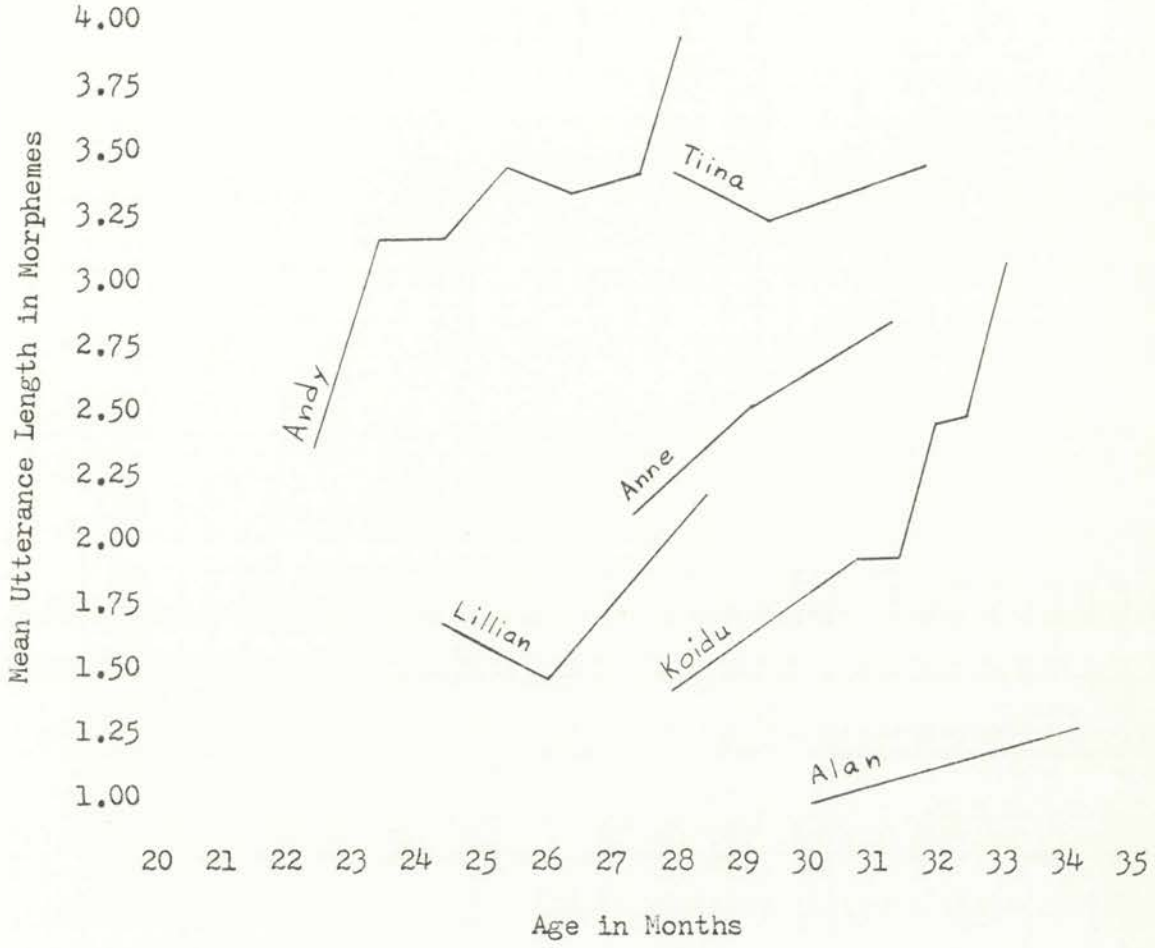


Figure 3. MUL Correlated with Age for Six Estonian Children

APPENDIX C

Estonian Phonology

Because of the phenomenon usually called extra length, Estonian phonology has received considerable attention in the literature. However, no definitive treatment as yet exists. For the purposes of this study, I will simply present the segmental phonemes and discuss briefly the two phenomena about which there has been the most controversy--palatalization and extra length.

Consonants

Estonian has the following consonants:

p		t		k
v	f	s	š	h
m		n		
		l		
		r		
			y	

The consonants /f/ and /š/ have entered the Estonian language through loan words. Lehiste (1960, 1966) excludes these in her analysis, but Harms (1962), Raun and Saareste (1965) and E. Vihman (1974) include them, considering them as being fully integrated into the sound system by participation in various phonological processes. /p t k s š/ are realized as voiceless lenis sounds in the following environments: between two vowels, at the end of a word if preceded by two contiguous vowels, after /r/ and before /rv/. In most other environments, including when they are geminate or long, they are realized as voiceless fortis sounds.

Rule 1

$$\begin{bmatrix} p \\ t \\ k \\ s \\ \check{s} \end{bmatrix} \longrightarrow \begin{bmatrix} B \\ D \\ G \\ Z \\ \check{Z} \end{bmatrix} \Big/ \begin{cases} V\_\_V \\ VV\_\_\# \\ R\_\_ \\ \_\_RV \end{cases}$$

In Estonian orthography, /p t k/ are represented as b, d, g in the environments where they are voiceless lenis, and p, t, k elsewhere. /s š/ are represented as s, š at all times. /v f h m n l r/ are represented as v, f, h, m, n, l, r, except that sometimes /f/ is represented as hv. /y/ is represented as j.

Vowels

At present, the analysis of Estonian indicates nine vowels, as follows:

i	ü		u
e	ö	ë	o
æ		a	

Vowel quality in Estonian is fairly constant across environments, including geminated or long vowels. /e/ is realized as [ɛ̄] in most environments when it is short, but as [ē] when it is long or geminate. /ë/ is a central or back unrounded vowel. /æ/ and /ë/ are represented in the orthography as ä and õ respectively. /i e ü ö a o u/ are represented as i, e, ü, ö, a, o, u.

Palatalization

Traditionally, a palatalized alveolar series of consonants /t̯ s̯ n̯ l̯/ has been considered to be an additional set of segmental phonemes in Estonian. Thus, Lehiste (1960, 1966), Harms (1962) and Raun

and Saareste (1965), as well as many other researchers, include these in the list of consonants. However, palatalization "is clearly the result of assimilation to the stem vowel /i/ in the following syllable..." (E. Vihman 1974). Harms (1968) in his textbook on phonological theory also analyzes Estonian palatalization in this manner, as emerges from the examples he presents as exercises.

In taxonomic phonemic analysis, many minimal pairs are available to prove the existence of such a palatalized series of alveolars in addition to the regular series. Some examples are:

[kass]	(question marker)	[kass']	'cat'
[kaan][1]	'lid'	[kaan']	'leech'
[kann]	'jug'	[kann']	'toy'
[kütt]	'fuel'	[kütt']	'hunter'

The nouns in these examples are all in the nominative case. But when the genitive of these same nouns is presented, it is clear that all palatalized sounds precede the vowel [i]:

		[kass'i]	'of the cat'
[kaane]	'of the lid'	[kaan'i]	'of the leech'
[kannu]	'of the jug'	[kann'i]	'of the toy'
[küttu]	'of the fuel'	[kütt'i]	'of the hunter'

The genitive form of these nouns in Estonian is very close to the phonological base form. The nominative singular of these types of nouns is formed by a deletion rule which apocopates the stem vowel:

Rule 2

$$V \longrightarrow \emptyset \;/\; \#(C)V\begin{Bmatrix}V\\C\end{Bmatrix}C\_\_$$

Estonian has a more general phonological rule which looks something like this:

Rule 3

$$\begin{bmatrix} t \\ s \\ n \\ l \end{bmatrix} \longrightarrow \begin{bmatrix} t' \\ s' \\ n' \\ l' \end{bmatrix} \Big/ \#(C)V(V)\_\_(C)i$$

This rule applies before Rule 2, and so the palatalized alveolars are present in the nominative singular surface forms.

Extra Length

In analyses of the Estonian sound system, it has traditionally been the custom to indicate three degrees of length for both vowels and consonants. Minimal triplets in surface phonology are common. For example:

/ˉlina/	'sheet'
/ˉlin:a/	'of the city'
/ˉlin::a/	'to the city'
/ˉsaDa/	'one hundred'
/ˉsa:Da/	'send!'
/ˉsa::Da/	'to get'

Lehiste (1960, 1966, 1970) has carried out many thorough acoustic analyses of extra length in Estonian. She has concluded that duration of the segment is in fact the major phenomenon, although she also postulates syllabic phenomena which interact with segmental quantity in various ways. Other investigators, however, have postulated that there is no such phenomenon as phonemic extra length, at least not on the systematic phonemic level--Hallap 1963 and E. Vihman 1974, for example. Both of these researchers postulate stress and syllabic phenomena to be involved in the phonetic realization of extra length. The nature of Estonian phonological rules resulting in phonetic extra

length has not yet been definitively determined.

NOTE

1. The standard Estonian form of the nominative for 'lid' is [ˉkaas]. However, in my dialect it is [ˉkaan].

APPENDIX D

Imitation and Comprehension Test Items Containing Locative and Possessive

D.1 Locative Items in Imitation Test

DEMONSTRATIVES

See tädi kes siin käis on haige.	'The lady who was here is sick.'
Koer tuuakse siia.	'The dog is brought here.'
Ma olen juba seal käinud.	'I have already been there.'

CASE

Metsas kõlas linnulaul.	'Birdsong was heard in the woods.'
Lapsed viidi kooli.	'The children were taken to school.'
Me lähme kooli homme.	'We're going to school tomorrow.'
Võtsin riided kapist.	'I took the clothes from the closet.'

ADVERBS

Poiss läheb välja.	'The boy is going out.'
Poiss ei lähe välja.	'The boy is not going out.'
Kas poiss ei lähe välja?	'Isn't the boy going out?'
Kas poiss läheb välja?	'Is the boy going out?'
Tuleb ta sisse nüüd?	'Is he/she coming in now?'
Miks poiss läheb välja?	'Why is the boy going out?'
Ära mine välja.	'Don't go out.'

IDIOMS

Isa toob koera koju.	'Father is bringing the dog home.'
Tüdruk jooksis nuttes koju.	'The girl ran home crying.'
Mitte isa vaid ema tuli koju.	'Not Father, rather Mother came home.'
Poiss ei tohi koju minna ja tüdruk ka mitte.	'The boy is not allowed to go home and neither is the girl.'

QUESTION WORDS

Kus poiss käis?	'Where was the boy?'
Kuhu poiss läheb?	'Where is the boy going?'
Kust poiss tuleb?	'Where is the boy coming from?'

CASE AND ADVERB

Mine uksest sisse.	'Go in the door.'
Ära mine uksest sisse.	'Don't go in the door.'
Mine ukseni ja keera ümber.	'Go as far as the door and turn around.'

D.2 Locative Items in Comprehension Test

Each comprehension item contained three pictures. Two of the pictures depicted what the two sentences said; the third picture was a distractor. The comprehension test was administered so that the child responded to all the items once; then the pictures were shown again, and the second sentence was presented. The order of presentation of the two sentences associated with each item was randomized. There were twenty comprehension items altogether. All the locative ones used case.

Item a.	Kass istub kastis.	'The cat is sitting in the box.'
	Kass istub kastil.	'The cat is sitting on the box.'
Item b.	Laps läks trepile.	'The child went on the stairs.'
	Laps läks trepini.	'The child went as far as the stairs.'
Item c.	Lapsed läksid aeda.	'The children went into the garden.'
	Lapsed läksid aiani.	'The children went as far as the garden.'

D.3 Possessive Items in Imitation Test

ADESSIVE

Poisil on ilusad asjad.	'The boy has nice things.'
Poisil olid ilusad asjad.	'The boy had nice things.'
Poisil oli ilusaid asju.	'The boy had some nice things.'
Poisil olevat ilusad asjad.	'The boy has nice things (they say).'
Koertel on kaks kõrva.	'Dogs have two ears.'

OTHER ADESSIVE

Meil käis üks noor mees külas.	'A young man visited us.'
Meil käis üks noormees külas.	'A youth visited us.'

ALLATIVE (ANDMA)

Ma annan sulle kui sa tahad.	'I'll give you (some) if you want.'
Emale toodi lilli.	'Some flowers were brought for Mother.'

OTHER ALLATIVE

Ta tegi endale haiget.	'He/she hurt him/herself.'

D.4 Possessive Items in Comprehension Test

ALLATIVE (ANDMA)

Item a.	Tädi toob lilli.	'The lady is bringing flowers.'
	Tädile tuuakse lilli.	'Some flowers are brought for the lady.'

ALLATIVE (NÄITAMA)

Item b.	Poiss näitab kassile koera.	'The boy is showing the dog to the cat.'
	Poiss näitab koerale kassi.	'The boy is showing the cat to the dog.'
Item c.	Poiss näitab koera kassile.	'The boy is showing the dog to the cat.'
	Poiss näitab kassi koerale.	'The boy is showing the cat to the dog.'

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