THE VERBAL ENVIRONMENT OF THE LANGUAGE-LEARNING CHILD

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Preface

This study was conceived and conducted while I was a student in the Department of Communication Disorders and a Research Fellow in the Research, Development, and Demonstration Center in Education of Handicapped Children at the University of Minnesota. It owes much of its form and focus to my association with those two groups.

In the course of developing and conducting this study I have benefited from the encouragement and counsel of Gerald M. Siegel. I would also like to thank him for his suggestions regarding the form and the content of this manuscript.

William Mortimore developed the procedure for identifying pauses and ran the pause identification study at the University of Minnesota Hybid Computer Laboratory.

In addition, I would like to thank several people who, in one way or another added to this study. James Jenkins of the Human Learning Center at the University of Minnesota made insightful and encouraging comments along the way. Charles Speaks of the Department of Communication Disorders helped in the planning of the pause identification study.

Two groups of children were indispensable. My own children, Barbara, Kenneth, and Ronald have been patient and understanding with a rather distractable mother. I really appreciate that. The second group consists of the children (and their mothers) who participated in this study. I thank them all.

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This monograph is dedicated to Bob.

P. A. B.

Mahtomedi, Minnesota
July 1972

Abstract

This paper attempts to identify the speech style that is used by mothers as they talk with their young children and, in some cases, to contrast that style with the speech mothers address to older children and to adults. Speech style is described in terms of the temporal patterning, the fluency, and the content of the speech. In addition, the mothers' sentence patterns are described.

In general, mothers produced speech that was slow, with pauses located always, and only, at sentence boundaries when they talked with their younger children. They used a small vocabulary range and often repeated what they had said, with and without variation. Mothers seldom made linguistically meaningless repetitions or interjections, and they seldom produced broken sentences in talking with their younger children.

Mothers' sentences fall into two major patterns. One is built on the imperative sentence. The other sentence pattern includes variations and permutations of a "be" sentence with *that*, *this*, *it*, *there*, or *here*. Mothers also used single-word responses and grammatically incomplete responses in talking with their younger children.

Introduction

In recent years a great deal of attention has been focused on the patterns of language that emerge in the young child. This current interest seems to be related to a new concept of what it is that the language-developing child must learn. The revolution in grammatical description sparked by Chomsky cast the language-learning task in a new and more complex mold. The more that is known about what it is the child must acquire, the more complex his task appears to be. Ultimately, the child must learn the language practices of his linguistic community, and so one approach to language acquisition has been to concentrate on the terminal behavior, the linguistic competence of mature speakers of the language. Efforts to provide a comprehensive and formal account of adult language are, therefore, highly relevant to the task of describing linguistic development.

Another approach has been to study the earliest utterances of children. To a large extent, attempts to write early grammars have been distributional in nature and have not probed deeply for underlying rules or structures. More recently, researchers have looked for evidence of linguistic competence in even these initial utterances and have attempted to draw lines between the child's first grammars and his later development.

Clearly, the skills children must eventually acquire are represented in adult linguistic competence. It is not at all evident, however, just how children extract crucial linguistic information from the adults around them. Every theory of language acquisition acknowledges that the child must have linguistic input, but the role ascribed to that input varies from one theory to another. Residing within these differences are fundamental questions concerning the extent to which the environment plays an active role in guiding the child through his early language development. To some it has seemed that the speech the child hears is too chaotic, too fractured for him to acquire anything but the crudest sense of the intricate structure of language. The primary source of linguistic information, it is argued, must be locked into the child's innate capabilities rather than environmental experience.

Children might very well have a difficult time extracting underlying regularities from normal discourse between adults. However, adults make conspicuous stylistic changes when they talk to children (or, for that matter, to pets). This knowledge is well represented in the repertoires of cartoonists and comics. It suggests that the language addressed to children differs in pertinent ways from the language children overhear.

There are few studies of the speech addressed directly to children and

little is known about the structure of this linguistic input. Brown and his colleagues were primarily interested in recording the emerging speech of three young children, but in the process of collecting these data, they also kept records of speech samples addressed to the child. Brown and Bellugi (1964) observed that the speech of mothers is short, simple, and consists primarily of grammatical sentences. Brown also observed that a mother sometimes expands the telegraphic utterances of the child into the nearest grammatically complete form of the child's utterance, using situational cues to help her interpret his intent. Brown observed a neat concordance between child and adult speech patterns in these early months of speech development. The child tends to use reduced or telegraphic utterances, marked by the omission of certain grammatical forms (for example, functors). Mothers, on the other hand, will sometimes take the telegraphic utterances of children as a basis for grammatical expansion, and will enlarge on the children's remarks, primarily by inserting the very forms children tend to delete. The significance of these adult expansions for language learning is not known. Attempts by Cazden (1965) and Feldman[1] to enhance language development through a systematic program of expansion failed to demonstrate its usefulness as a language-teaching device.

Speech addressed to children may differ from adult discourse along a number of dimensions, including the content of the message, its place in time, and its grammatical configuration. The form of parental speech in a physical-acoustical sense is also of interest. Speech among adults is rapid (120 to 180 words per minute), with frequent broken sentences, and with pauses that are unrelated to grammatical structure (Maclay and Osgood, 1967; Goldman-Eisler, 1968). Speech in this form would certainly pose enormous problems for the young child who presumably comes to the task of language acquisition with no knowledge of what he is to learn. He doesn't know which acoustic patterns represent words, which are sentences, and which patterns present "false" or irrelevant information about the structure of the language he is to learn. The child may have innate linguistic skills, but he must still discover the linguistic forms that are peculiar to his own language, and the information for this analysis must somehow be embedded in the speech he hears.

Though adults don't optimally mark linguistic structures in speech addressed to other adults, their speech to children may be different. My investigation stems from the premise that in order to understand child language development, it is important to have a full account of the linguistic environment in which children are raised. To explore this linguistic environment, we must examine the interactions that occur between mother and child. The form of this parental stimulation cannot be inferred from the study of adult-adult conversation; it must be studied directly within the special interpersonal space generated by the child and his parents.

[1] Personal communication on effects of various types of adult response in syntactic acquisition of two to three year olds.

The design of this study provided two five-minute situations in which to view the speech of a mother to her children, a play situation, and a story-telling situation. The mother's speech was sampled in conversation with an adult, and with two of her own children, a young, language-learning child and an older, linguistically more proficient child.

This paper is divided into three chapters. Chapter I deals with three broad, descriptive measures of the mother's verbal behavior: rate of speech, rate of disfluency, and diversity of vocabulary. The speech mothers address to their younger children, their older children, and to an adult is compared along these dimensions.

The second chapter deals with the problem of identifying sentences within the speech of the mothers. This section includes a pause analysis of a sample of speech to the children and the adult. Listener judgments of the location of sentence boundaries were also obtained for this sample.

In the third chapter the sentences used by the mothers with their younger children in the play situation are discussed in terms of sentence patterns, the occurrence of sequentially related sentences in the mothers' speech, and the similarity of sentences produced by different mothers.

Chapter I

DESCRIPTIVE MEASURES OF MOTHERS' SPEECH: WORD RATE, DISFLUENCIES, AND VOCABULARY DIVERSITY

Word Rate

Brown (1964) characterized the sentences used by mothers as short and grammatically complete. Phillips (1970) found that mothers took longer and were more fluent when reading particular sentences in a story to young children than when reading the same sentences to an adult. Maclay and Osgood (1967) found that adult speech rates varied from 122 to 181 words per minute in relatively long utterances. Goldman-Eisler (1968) reported consistent individual differences in adult word rate. She also found that the rate of speech used by a speaker had no systematic effect on the speech rate of his partner.

The speech rate measure used in this experiment is words per minute, computed across each five-minute segment. This measure may be interpreted as reflecting the amount of speech the child hears and must process within any given time span. The younger children in this study were linguistically immature. From their perspective, slower rates of adult speech might make the language-processing task easier by reducing the quantity of speech to be handled.

Disfluencies

Disfluencies include the linguistically irrelevant repetition or interjection of sounds, words, or phrases. Broken and retraced sentences are also considered disfluencies. Maclay and Osgood (1967) reported disfluency rates ranging from 3 to 10% of words uttered in conversational speech. Broen and Siegel (in press) found similar rates in normal adult speakers.

Disfluencies provide neither semantic nor syntactic information; as a matter of fact, disfluencies present the child with "false" information. Irrelevant sounds or words occur somewhat unpredictably. Broken sentences provide the child with incomplete information. Pauses appear that are not related to sentence boundaries. Intuitively, therefore, it would seem that disfluent speech should be hard for the young child to process and we might expect that speech addressed to young children would be relatively free of disfluency.

Type-Token Ratio (TTR)

TTR is computed as a ratio of the number of different words (types) to the total number of words (tokens) in a given sample. Because of the structure of language, the ratio tends to vary inversely with the size of the sample: the larger the token, the smaller the TTR. For this reason, unless a correction procedure is used, only samples of the same size can be compared meaningfully.

Johnson (1944) first proposed the TTR as a measure of the speaker's flexibility or variability in vocabulary usage. Under Johnson's direction, Fairbanks (1944) found that schizophrenic patients systematically used lower TTRs than did college freshmen.

Siegel (1967) found that adults characteristically use lower TTRs when talking with low verbal rather than high verbal institutionalized retarded children. This research with retarded children suggests that the TTR used by an individual is, at least in part, a function of his listener. The assumption in these studies with retardates was that the controlling variable was the verbal rather than the intellectual level of the children. These factors are difficult to isolate however, since in retarded populations, low verbal level tends to be systematically related to severe retardation. Intelligence and verbal level were thus probably confounded.

Longhurst (1971) studied the TTR level of college students in a communication task made difficult by the introduction of a distortion in the transmission line between speaker and listener. Adult speakers were asked to describe a set of nonsense drawings. When the transmission line was clear, listeners had no difficulty identifying the drawings. When the distortion was introduced, however, listeners made only 50% correct identifications, and the speakers responded by lowering their TTR in an apparent effort to simplify the listener's task. This appears to be consistent with the lower TTRs adults use with low verbal level retarded children, and suggests that the lower TTR may represent an attempt to facilitate communication.

This experiment focuses on the relationship between the TTR used by mothers and the age of the individual to whom the mother is speaking. Again, such factors as intellectual and verbal skills are confounded with age. There is no way to disentangle these factors; for this study, there is really no need to. We are interested in the linguistic environment of the language-learning child and how that environment changes as the age of the child increases. Age, verbal skills, and intellectual skills vary together in the normal child.

Summary of Measures

In this chapter, three questions will be asked about the speech addressed by the mother to her younger child, to her older child, and to an adult.

1. How does the mother's rate of speech vary with the age of her speaking partner?

2. How does the rate of disfluency exhibited in the mother's speech vary with the age of her speaking partner?
3. How does the mother's type-token ratio vary with the age of her speaking partner?

METHOD

Subjects

Ten mothers participated in this study with their own children. The mothers were not selected from any one source. In general they were friends or, more often, friends of friends of mine. (I knew only four of the 10 mothers personally before the study began.) The mothers tended to have a better than average education. Eight had at least some college and two had master's degrees. The mothers ranged in age from 25 to 41 years, with a mean of 30.3 years.

Each mother had one child between 18 and 26 months of age and one child over 45 months of age. The age of the younger child was considered an important factor in selecting mothers because children's linguistic skills change rapidly during their second year. The mean age of the younger children was 21 months.

Children continue to progress in their grammatical development throughout childhood, but the changes are more subtle (Chomsky, 1969; Kessel, 1970). For this reason, and because the children in natural families are not always spaced for the researcher's convenience, the age of the older child was allowed to vary through a rather wide range. Older children ranged in age from 45 to 94 months, with a mean of 60 months. Five of the older children were between 45 and 47 months.

The sex of the children was not controlled, but a relatively balanced sample was obtained, nevertheless. There were two instances where the two children in a family were of the same sex: one pair of boys and one pair of girls. In five of the eight remaining pairs of children, the older child was a girl and in three pairs the older child was a boy.

For a mother-child group to be included, the older child was required to score not more than 0.5 standard deviations below the mean on three language-related tests: the Peabody Picture Vocabulary Test, and the auditory association and grammatic closure subtests of the Illinois Test of Psycholinguistic Abilities. These tests were included as a check on the mother as a language teacher. If changes in the form of the mother's speech are related to the ease with which children learn, mothers of children who pass this requirement should constitute an optimum sample for observing the changes. Two mother-child groups were excluded because the older children failed this criterion. The remaining children all scored above the mean on all the tests. Subject characteristics including ages and test scores are reported in Appendix 1.

Experimental Facility

This study was conducted in a three-room experimental suite. One room contained a child-sized table and two chairs. Two microphones were suspended from the ceiling: one associated with the recording equipment, and one a part of the communication system between the control and the experimental rooms.

Throughout the experiment the same three toys were on the table: a doll, a small auto transport, and a child's purse containing either a toy pipe or a small wooden doll. A book of sequential story-pictures was also on the table. During the first session the pictures came from *My Donkey Benjamin*, by Hans Limmer; during the second session they came from *The Boy with the Drum*, by David Harrison and Eloise Wilkins.

The sessions were tape-recorded (Magnacord, 1022) and observed from an adjacent control room. I was able to communicate with the subject from the control room.

The second experimental room contained an assortment of toys and a small table and chairs. Testing was done in this room, and all of the children played here when they were not participating in the session.

Procedure

Each mother brought her two children to the experimental facility on two separate days. The complete procedure was carried out on both days, but only the second session was used in the analysis of the data. The first day allowed the mother and children to become familiar with the setting.

After arriving, the two children were settled in the playroom with a graduate student. The mother was seated in the other experimental room and asked to complete some initial forms. After this, the mother was given instructions similar to these.

> I want you to tell each of your children a story from the pictures in this book. You may tell any story you like and the story need not be the same for the two children.
>
> I'll bring the children in one at a time. There will be a little time before you are to begin the story. You and your child can play with the toys during that time if you like. I'll tell you when to begin the story.

The first child was brought to the mother. After five minutes the mother was asked to begin the story. At the end of the next five minutes I exchanged children and the procedure was repeated. Half of the subjects saw their younger children first and half saw their older children first. After the second child had heard the story, I brought that child to the playroom and returned to talk with the mother for five minutes. Some young children were quite upset at leaving their mothers. These children sometimes remained in the room while the mother

and I talked. The children seemed content to play on the floor and seldom became involved in the conversation. The mother and I talked about the children and about mutual friends or topics that seemed of interest to the mother.

The older child was tested while the younger child and the mother were participating in the study. Several speech pathology graduate students tested the older children and entertained the younger children.

Transcriptions

The various analyses used in this study were derived from tape recordings and typed transcriptions. A specially trained typist transcribed all of the sessions from the recordings, using essentially the same instructions included in Schiefelbusch (1963). The transcriptions provided a record of the words spoken during the sessions; unintelligible portions were deleted.

RESULTS

Three measures were obtained from the speech produced by mothers during the experimental session: rate of speech (words per minute), diversity of vocabulary (TTR), and the word-to-word flow (disfluencies per 100 words).

Within this study a word was considered to be a unique orthographic unit. Two major exceptions to this were contractions and compound words. Contractions were considered as two (or more) words. For example, *don't* and *gonna* were considered as two words; *don'tcha* was considered as three words. Compound words used as single words were considered as one word; for example, *good-bye* was considered as one word. Criteria for counting words are similar to those Schiefelbusch (1963) reported.

Reliability

Words were counted from the typed protocols. In establishing reliability, another individual counted words for 10 five-minute segments from the tape-recorded samples of speech. The interscorer reliability was 0.99.

Disfluencies were counted from the tape-recorded samples of speech. A second individual recounted 10 five-minute samples of speech, and the interscorer reliability was 0.98.

TTR was calculated from the typed protocol. The scorer first listened to the tape-recorded sample to determine the word accuracy of the typed protocol. The TTR was then calculated separately and averaged for the second and third 100 words in each of the five-minute speech segments. Where there were fewer than 300 words, the listener calculated the TTR on the last and the next to the last 100 words. The second scorer used the same procedure to calculate the type-token ratio for 10 100-word samples. The interscorer reliability was 0.98.

Statistical Analysis

The data obtained for each measure were subjected to a three-factor analysis with repeated measures (Winer, 1962, pp. 303-307). These data are reported in Tables 2, 4, and 6. The order in which the children were seen was never significant and is disregarded in the rest of the paper.

Rate of Speech

The number of words spoken by the mother during each five-minute segment was divided by five. This measure reflects the total amount of speech that fell upon the child's ears during the session. It does not reflect fine changes in articulatory rate. Words per minute is affected by the amount of speech generated by the speaking partner and the amount of pause time that occurs in the session.

As seen in Table 1, mothers averaged 69.2 words per minute in free play with the younger children and 86.2 words per minute in play with the older children. In the storytelling situation the mothers spoke faster. They averaged 115.1 words per minute with the younger children and 127.5 words per minute with the older children. These data are presented graphically in Figure 1.

TABLE 1. Mean words per minute used by mothers with their younger children (Y), their older children (O), and in conversation with an adult (A).

Situation	*Listener* Y	O	A
Free play	69.2	86.2	–
Storytelling	115.1	127.5	–
Conversation	–	–	132.4
Mean	92.2	106.9	–

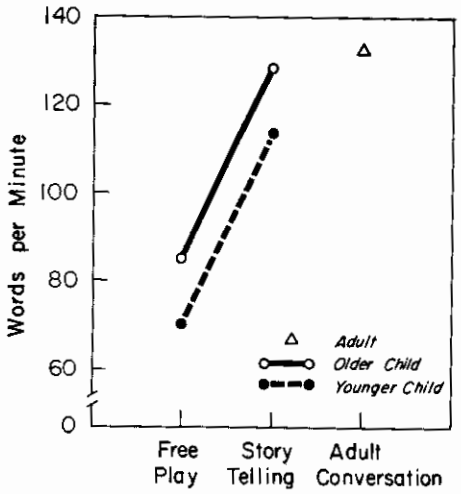

FIGURE 1. Mean words per minute used by mothers with their younger children, their older children, and in conversation with an adult.

A comparison of the mothers' performances with the older and younger children yielded a significant F value of 13.80 (see Table 2). The difference between the storytelling and the play situations yielded a significant F value of 98.44. All interaction F values were less than one.

TABLE 2. Summary table for the number of words per minute used by mothers talking with their older children and their younger children in a spontaneous play task and a storytelling task.

Source of Variation	df	*Mean Square*	F
Between subjects			
A (order)	1	691	<1
Subjects within group (Error a)	8	1,980	–
Within subjects			
B (age)	1	2,168	13.80*
AB	1	5	<1
B x subjects within group (Error b)	8	157	–
C (task)	1	19,022	98.44*
AC	1	75	<1
C x subjects within group (Error c)	8	193	–
BC	1	55	<1
ABC	1	70	–
BC x subjects within group (Error bc)	8	421	<1
Total	39	–	–

*$F_{0.99}$ (1,8) = 11.3

Mothers used more words per minute in talking with their older children than with their younger children, and more words per minute in the storytelling situation than in the play situation.

Though the situations are not completely comparable, the mothers' speech in free play with the older children was compared to their speech in conversation with the adult. Both of these situations were generally conversational and both lacked the structure imposed by the storytelling task. The mothers averaged approximately 132 words per minute with the adult and 86 words per minute with the older children. This difference was analyzed by a t test for related measures and yielded a significant t score of 9.42.

Disfluencies per 100 Words

A disfluency was any break in the word-to-word flow of speech that was not linguistically meaningful. Included as disfluencies were repeated or interjected sounds, words, or phrases, as well as broken sentences. Mothers averaged 0.58 disfluencies per 100 words in the play situation with the younger children and

1.61 disfluencies with the older children (Table 3). In telling the story, mothers averaged 0.66 disfluencies per 100 words with the younger children and 0.77 disfluencies per 100 words with the older children. These data are reported graphically in Figure 2.

TABLE 3. Mean disfluencies per 100 words for mothers talking with their younger children (Y), their older children (O), and in conversation with an adult (A).

Situation	*Listener* Y	O	A
Free play	0.58	1.61	–
Storytelling	0.66	0.77	–
Conversation	–	–	4.70
Mean	0.62	1.19	–

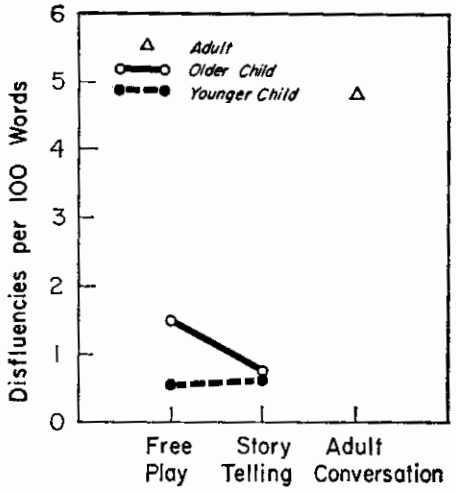

FIGURE 2. Mean disfluencies per 100 words for mothers talking with their younger and older children and in conversation with an adult.

A comparison of mothers' disfluency rate with the older and younger children yielded a significant F value of 13.25 (Table 4). The age-by-task interaction was also significant and yielded an F value of 7.18. The mothers' rate of disfluency was higher with the older children than with the younger children in the play situation, but not in the storytelling situation. These results are presented graphically in Figure 2.

A comparison of the mothers' rate of disfluency in conversation with the adult and in play with their older children yielded a significant t score of 7.02. Mothers averaged 4.7 disfluencies per 100 words in conversation with the adult and 1.61 disfluencies per 100 words in conversation with the older children.

TABLE 4. Summary table for disfluencies per 100 words for mothers talking with older and younger children in a spontaneous play task and a storytelling task.

Source of Variation	df	*Mean Square*	F
Between subjects			
A (order)	1	0.03	<1
Subjects within group (Error a)	8	0.78	–
Within subjects			
B (age)	1	3.25	13.25*
AB	1	0.16	<1
B x subjects within group (Error b)	8	0.246	–
C (task)	1	1.45	5.92†
AC	1	0.05	<1
C x subjects within group (Error c)	8	0.245	–
BC	1	2.11	7.18†
ABC	1	0.59	2.11
BC x subjects within group (Error bc)	8	0.28	–
Total	39	–	–

*$F_{0.99}$ (1,8) = 11.3
†$F_{0.95}$ (1,8) = 5.32

Type-Token Ratio (TTR)

The token size in the current study was 100 words. Words that differed in dictionary spelling were considered to be different types.

As seen in Table 5, the average TTR used by mothers was 0.53 in play with the younger children and 0.61 in play with the older children. In the storytelling situation, TTR averaged 0.49 with the younger children and 0.58 with the older children. These data are presented graphically in Figure 3.

A comparison of the mothers' performance with the younger and older children yielded a significant *F* value of 47.99. The task comparison yielded a nonsignificant *F* value of 3.74. All of the interaction *F* values were less than one (see Table 6).

Mothers used a significantly higher TTR with their older children than with their younger children. The speaking task in which they were engaged did not seem to affect vocabulary diversity.

TABLE 5. Mean TTR for the second and third 100 words spoken by mothers to their younger (Y) and older children (O) and to an adult (A) in conversation.

	Listener		
Situation	Y	*O*	A
Free play	0.53	0.61	–
Storytelling	0.49	0.58	–
Conversation	–	–	0.65
Mean	0.51	0.60	–

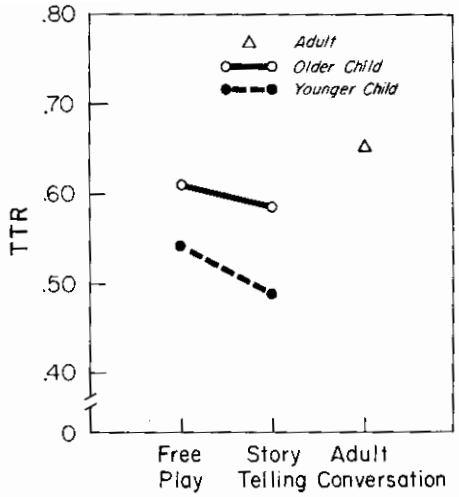

FIGURE 3. Mean TTR for the second and third 100 words spoken by mothers to their younger children, their older children, and to an adult in conversation.

TABLE 6. Summary table for type-token ratios used by mothers in the second and third 100 words spoken to their younger children and to their older children in a spontaneous play task and in a storytelling task.

Source of Variation	df	*Mean Square*	F
Between subjects			
A (order)	1	0.00008	<1
Subjects within group (Error a)	8	0.00498	–
Within subjects			
B (age)	1	0.07966	47.99*
AB	1	0.00085	<1
B x subjects within group (Error b)	8	0.00166	–
C (task)	1	0.01040	3.74
AC	1	0.00028	<1
C x subjects within group (Error c)	8	0.00278	–
BC	1	0.00014	<1
ABC	1	0.00126	<1
BC x subjects within group (Error bc)	8	0.00127	–
Total	39	–	–

*$F_{0.99}$ (1,8) = 11.3

A comparison of the TTR used by mothers in speaking with an adult with the TTR used by mothers in play with their older children yielded a significant *t* score of 5.36. Mothers' TTRs averaged 0.65 in speech to an adult and 0.61 in speech to an older child.

Individual data for words per minute, disfluencies per 100 words, and TTR can be found in Appendix 1.

DISCUSSION

Rate of mother's speech is a function of a number of factors, including the amount of speech generated by the speaking partner, the rate of articulation, the amount of time spent in pausing, as well as the number of words used.

Conversation with an adult generated the most rapid speech rate, despite the fact that this situation involved another adult who was also speaking. In play, especially with the younger child, there was a sense of conversation even though the child didn't talk. The mother would say something and then appear to wait for the child to respond. The child's response might be motor or verbal. The responses of the younger children were seldom more than a word. In speaking to the children, especially to the younger ones, the mothers used long, strategically located pauses. Chapter II deals with a description of the pause pattern and its relationship to the sentences within the mothers' speech.

From this study there is no way to measure possible changes in articulation rate, but there is some indication from the performance of mothers in the Phillips (1970) study that changes in articulation rate may indeed accompany changes in overall speech rate.

Speech presented at a slow rate allows the child more time to process words and sentences. Adults can tolerate, and may even prefer, rapid rates of speech. The very young child, on the other hand, is a foreigner. He does not yet know the language, and a slower rate of speech may be useful to him. Even the older children in this study may benefit from a slower rate since, though they are already reasonably competent, there is good indication they still have language learning ahead (Chomsky, 1969; Kessel, 1970).

Rate of disfluency also reflects a physical parameter of the speech signal. Disfluencies are, in a sense, "false" information about the structure of language. Though they may have some social functions, nonlinguistic repetitions and interjections of sounds, words, or phrases are not a part of the linguistic code the child must acquire. For example, in conversation many adults interject the phrase "you know" between various elements of the sentence. ("We went downtown, you know, and bought a coat.") The "you know" carries neither linguistic nor substantive information, and would appear to be distracting to a listener unfamiliar with the language. Significantly, mothers never used this phrase with the younger child, although it was common in the speech to the adult.

Broken and retraced sentences constitute another category of disfluency. Chomsky (1967) and others comment on the difficulty children must experience in learning syntax when so much of the speech they hear contains numerous examples of broken sentences, retraced sentences, and sentence fragments. The speech of the mothers to me did indeed contain these kinds of structures, but the speech directed to the children did not. At least in these samples, the children did not have to cope with fragmented speech.

This raises an interesting question. Does the child respond selectively to various kinds of speech? Phillips (1970) demonstrated that speech to the young child was highly inflected. The speech used by mothers in this study was not examined along this dimension, but subjectively it seemed that mothers used a

greater range of inflection and a higher pitch in talking with the younger children. Some of this occurred in the speech to the older children also, but it was not as marked. It may be that certain inflection and intonation patterns indicate to the child when speech is addressed specifically to him.

In conversation with the adult, mothers had a disfluency rate that was substantially higher than that produced in speech addressed to the child, but comparable to disfluency rates observed in other studies of adult-adult conversational speech. Disfluencies were very infrequent in the speech to the younger children, especially in storytelling. They increased only slightly in the speech addressed to the older children in play. The storytelling situation generated a low rate of disfluency to both groups of children, even though the word rate increased in this situation. Storytelling from pictures requires less creative effort on the part of the mother. Other studies (Goldman-Eisler, 1968) have shown that where the speech task involves reading or learned material, the disfluency rate is lower. This storytelling task may fall into that category.

The type-token ratio used by mothers was significantly different for each age examined. The mothers used a more restricted vocabulary with younger children. This is in agreement with the Siegel (1963) and Siegel and Harkins (1963) studies where TTR varied with the verbal skills of the retarded child to whom the adult was talking.

The TTR as a measure describes the range of words used within some span of words. There are a number of things that a mother might do in talking with a young child that might result in a lower TTR. She might talk about a limited number of objects or use a limited range of sentence patterns. Each of these changes would result in a lower TTR. Chapter III will discuss the sentence patterns observed in the speech of mothers to their younger children.

CONCLUSIONS

Mothers used fewer words per minute, fewer disfluencies, and a smaller TTR in speech directed toward their younger children than in speech to their older children. The speech rate addressed to the adult was still greater, with substantially more disfluencies and a higher TTR. All of these differences were significant.

Some of these measures were affected not only by the ages of the speaking partners but also by the speaking task. In telling a story, mothers spoke faster. The disfluency rate to the older children was not different from the rate to the younger children in the storytelling situation. TTR was not affected by the speaking task.

Chapter II

THE LOCATION OF PAUSES AND SENTENCE BOUNDARIES IN THE SPEECH OF MOTHERS

If children are to unravel the syntax of the speech they hear, they must first be able to identify the units that are sentences within that speech. The majority of syntactic relations apply within sentence boundaries. To understand or construct sentences requires a knowledge of intersentential relations; this, in turn, requires that the unit "sentence" be identified. Several authors have commented on how difficult it would be for children to acquire syntactic rules from the broken and ungrammatical speech found in adult conversations (McNeill, 1966; Lenneberg, 1967).

The preceding chapter showed that mothers were observed to modify several aspects of their speech systematically as the ages of their speaking partners changed. The mothers' rate of speech was greatly reduced when they spoke to their younger children; it increased somewhat in speech to the older children, but was still less than two-thirds of the rate used with the adult. There are several ways in which mothers can achieve slower rates with the younger children. One method particularly relevant to a discussion of sentence identification involves pauses. The way in which pauses are introduced into the flow of speech may carry crucial information for the child attempting to unlock the regularities of speech. The mother could, for example, introduce pauses randomly. This would slow the speech the child hears, but would not help him segment it into constituent units. On the other hand, judicious placement of pauses might serve the double function of marking sentence boundaries at the same time it decreases speech rate.

A number of authors (for example, Bever, 1970; Blumenthal, 1970) have indicated that the sentence is the basic unit of analysis in language. Bever (1970, p. 280) comments that during the first decade of his life the child learns "primarily how to talk in sentences, how to understand sentences, and how to predict new sentences in his language." If the sentence is a primary unit of analysis for the child, he must be able to identify sentences as distinctive units, separate from other such strings, but cohesive within themselves.

Two problems are encountered in attempting to analyze adult speech into words and sentences. First, the acoustic stream of speech does not segment into sentences and words. As Neisser (1967, p. 188) comments, "The spaces between printed words have no systematic equivalent in spoken speech." Second, the words themselves are not formed neatly into sentences. Broken sentences are common, sentence after sentence is joined by a conjunction to its

successor, and sentences begun in one syntactic fashion may end in another (Maclay and Osgood, 1967).

The lack of physical segmentation of speech becomes obvious if one listens to a conversation in an unfamiliar language. The sounds blend into one another to form a long uninterrupted flow. Pauses, when they occur, are obvious, but the listener has no way to determine their significance. They may or may not mark the end of a sentence.

In adult conversational speech, pauses are at "grammatically appropriate" locations only about 50% of the time (Goldman-Eisler, 1968; Maclay and Osgood, 1967; Boomer and Dittman, 1962). That is, 50% of the pauses fall at the end of a major constituent of the sentence, and 50% occur at some other location.

The pause is a physical occurrence that can be identified by even a naive listener. It requires no previous knowledge of language structure. For this reason the pause could serve as a powerful cue for the young child regarding the location of sentence boundaries. If pauses are to serve as maximum cues regarding sentences, they should occur always (and only) at sentence boundaries. The pauses that occur in adult-adult speech do not provide unambiguous, reliable information concerning sentences (Maclay and Osgood, 1967). It remains to be seen how pauses function in child-directed adult speech.

Phillips (1970) and Drach (1969) found it difficult to segment the speech of mothers to an adult. Phillips found that determination of utterance boundaries was the least satisfactory measure she used. There was 90% agreement between two examiners on the location of utterance boundaries in the speech mothers addressed to their children, and 80% agreement on location of sentence boundaries in the speech mothers addressed to another adult. Phillips commented that there seemed to be a systematic difference in the treatment of utterance boundaries by the two examiners when *and* occurred between clauses.

Drach (1969), in his analysis of the speech of one mother to her child, found much the same problem. The speech addressed to the child was not difficult to segment. It consisted mostly of short segments, preceded and followed by substantial pauses. The speech addressed to the adult, on the other hand, was difficult to segment for several reasons. *And* and *or* were used to connect otherwise complete sentences, intonation contours were unreliable and encompassed more than one otherwise complete sentence, false starts were frequent, and long pauses occurred at places that did not seem to mark sentence boundaries.

In this section three questions will be asked about speech of the mother to the young child, the older child, and the adult. In each instance, the question refers only to the mother's speech.

1. When pauses occur, how often do they occur at sentence boundaries? How often at other than sentence boundaries?
2. When sentences occur, how often are they followed by pauses?
3. How consistently do judges agree on the location of sentence boundaries in the mother's speech, and does this identification relate to the distribution of pauses in her speech?

METHOD

Speech Samples

The speech samples were obtained from the tape recordings of four mothers arbitrarily selected from the 10 who participated in the original study. The only criterion for exclusion was a recording of poor quality. It was necessary to restrict the analysis for several reasons. The computer program used in identifying pauses required a relatively "clean" tape, and some of the recordings failed on this criterion. In addition, the procedure proved to be both expensive and time-consuming. This factor also dictated a shorter sample.

Three samples of speech were selected for each of the four mothers: the first one minute in free play with her younger and her older child, and the first one minute in conversation with the adult. All samples were from the second experimental session and began with a clearly intelligible remark by the mother.

These 12 one-minute samples were dubbed in random order onto a tape with a 10-second silent interval between segments. Two protocols were prepared from the tape. One was used by listeners in making judgments of sentence boundaries; the second was coded and used in subsequent scoring.

The first protocol consisted of all words spoken by the mother and the child or the adult during the one-minute segments. The words were typed, double-spaced, with no punctuation or capitalization. Exceptions to this included using capital letters for "I" and proper nouns, and apostrophes in contractions and possessives. The speech of the adult or the child was enclosed in parentheses.

On the second protocol, I segmented the mother's speech according to a set of rules. These rules were an extension of the procedures used by Drach in attempting to segment his adult-adult speech samples, and of Phillips' suggestions for increased reliability in segmenting. All conjunctions that conjoined two otherwise complete sentences were defined as intrusions and were eliminated from the string of words grouped as an utterance. This rule was applied across all three speech samples. The list of conjunctions thus eliminated included *and, or, because, so,* and *when.* Appendix 2 contains the coded protocols used in this study.

This kind of segmentation was necessary so that both pauses and listener judgments of sentence boundaries could be located within the mother's speech in some standard way. Four utterance categories, in addition to intrusions, were marked; these included: (1) complete, well-formed sentences; (2) complete but less than well-formed sentences; (3) broken sentences; and (4) single words used as complete sentences. Appendix 2 contains a complete description of the rules used in segmenting the speech, as well as the segmented and coded protocols.

These 12 speech samples were subjected to two different procedures. One procedure involved asking judges to identify sentence boundaries. The second procedure involved computer identification of pauses within the speech samples.

Sentence Boundary Identification

Judges. Fourteen of the 18 judges who participated in the sentence identification study were speech pathology faculty or graduate students; the remaining four judges were from outside the university community. Eight were males and 10 were females.

Procedures. Judges were given a copy of the first protocol. The recording was played (Magnacord, 1022) through a speaker (KLH, 22A) to groups of from one to five listeners. Judges were asked to listen to the speech and mark terminal sentence boundaries on the protocols as they went along. The speech of the mother's speaking partner was included in parentheses to help judges keep their place.

Judges were given practice on six 20-second samples of mother-child and mother-adult speech. They were allowed to ask questions at the end of the practice segment, but no substantive additions were made to the instructions and no definition of sentence was given.

Pause Identification

A computer program identified pauses in the tape-recorded speech, timed the pauses, and marked their location on the second channel of the tape recording. All pauses in the mothers' speech in excess of 260 msec were located and their duration measured.

The method used to locate and time pauses is described in Figure 4. The tape-recorded samples were played through a two-channel tape recorder (Sony, TC 686) in which the record mode of one channel could be activated simultaneously with the reproduce mode of the second channel. The speech signal was then processed and shaped to augment the low-power, high-

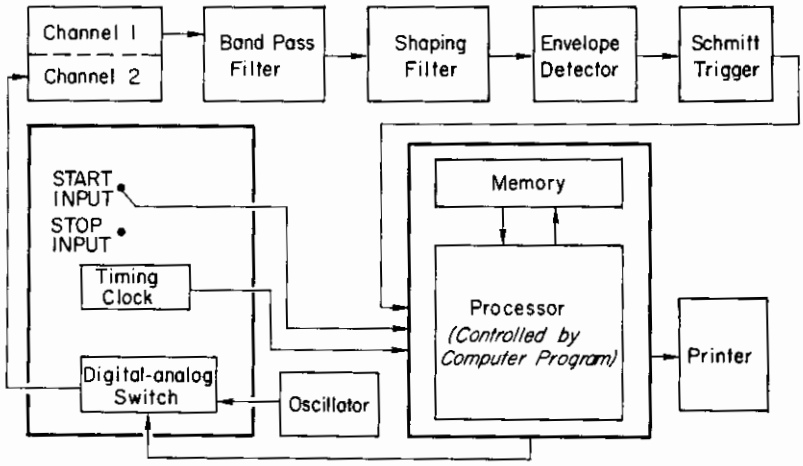

FIGURE 4. Block diagram of the equipment used in locating and timing pauses.

frequency consonant sounds, eliminate low-frequency and high-frequency room and equipment noise, and reflect only intensity information. First the signal was band-pass filtered (Krohn-hite) from 300 to 5000 Hz. This eliminated much of the room noise and tape hiss. The shaping filter then reduced the intensity of low frequencies with respect to high frequencies. This increased the relative strength of the low-power high-frequency speech sounds, particularly sibilant and fricative consonants.

An envelope detector with a 20-msec lag was used to eliminate the frequency information from the signal, leaving only intensity information. The signal was then passed through a Schmitt trigger, which transformed the analog signal into a digital, on-off signal that could be processed by a computer (CDC, 1700).

The speech signal in digital form and a 20-msec sampling pulse were fed into the computer. Simultaneous occurrence of the speech signal and the sampling pulse was interpreted as speech. Occurrence of the timing pulse in the absence of speech was interpreted as pause. The computer was programmed so that for each pause in excess of 260 msec, the duration of the pause was stored together with the time of its occurrence, measured from the beginning of the speech sample. At the end of each one-minute sample, the pause durations and their time of occurrence were printed from the computer storage.

In addition, when a pause in excess of 260 msec was detected, an oscillator was triggered to emit a tone (300 Hz) for the duration of that pause. The tone was recorded on Channel 2 of the tape recorder, synchronously with the remainder of the pause.

A pause duration of 260 msec was chosen arbitrarily. We were interested in pauses that could reasonably be detected by the naive child. There is indication from the literature that adult pause identification becomes unreliable with pauses shorter than about 200 msec (Agnello, 1963; Martin, 1970). Pause durations of 200 to 250 msec have frequently been used in studies of hesitation and juncture pauses in speech, and seem to be quite reliably identified (Goldman-Eisler, 1968; Boomer and Dittman, 1962). A Pearson r correlation of 0.99 was obtained for two consecutive computer runs of four of the 12 samples.

I listened to the processed tapes through stereo earphones. By using the cue button and turning the tape by hand, I was able to locate the tone within the mothers' speech. I matched the tone with the computer print-out of durations, and I marked the location of each pause in excess of 260 msec on the second coded protocol.

On occasion pauses that were clearly discernible by listening were not identified mechanically because noise produced by moving chairs or by toys scraping on the table masked the pause. Where a distinct pause occurred and no pause was mechanically recorded, /P/ was marked at that location in the coded protocol (Appendix 2) and was counted as a pause. This occurred 12 times in the speech samples used, involved four of the 12 one-minute samples, and constituted 7.7% of all pauses identified. Four of the 12 /P/ pauses occurred in speech to an adult and eight occurred in speech to an older child.

No /P/ pauses were recorded in the speech to the younger child. This was not because noise was not a problem, but rather because the pauses in the speech to the younger child tended to be longer and at least some portion of the pause was identified.

RESULTS

The data in this study consist of: (1) the percent of pauses in the mother's speech following various utterance types or occurring within utterance boundaries, (2) the percent of sentences followed by a pause, and (3) the percent of sentence boundaries accompanied by pauses and identified by listeners.

Distribution of Pauses by Utterance Types

Computer-identified pauses were located on the experimenter's protocol occurring after a terminal sentence boundary, a single word, or at some other location. For this analysis, the categories "less than well-formed sentence" and "complete sentence" were combined. Table 7 gives the pause distribution data for individual mothers and the mean percentages averaged for the four mothers; Figure 5 presents these data in graphic form; and Table 8 gives the distribution of sentences by sentence form for the four mothers.

TABLE 7. Percentages of pauses used by mothers in speaking to their younger children (Y), their older children (O), or an adult (A). The pauses were located at terminal sentence boundaries, following single words, or at other locations.

	Pause Location								
	Following Terminal Sentence Boundaries			*Following Single Words*			*Other*		
Mother	*Y*	*O*	*A*	*Y*	*O*	*A*	*Y*	*O*	*A*
5	76.9	83.0	40.0	23.0	0	0	0	16.7	60.0
7	81.8	93.0	70.0	18.2	6.7	0	0	0	30.0
8	56.3	70.0	61.5	37.5	10.0	7.7	6.2	20.0	30.0
10	83.3	80.0	27.3	16.7	10.0	0	0	10.0	72.7
Mean percent	75.4	82.9	51.3	23.2	6.4	2.6	1.4	10.6	46.2

In speaking to the younger children mothers sometimes used single words as sentences. The tendency to do this decreased with increases in the ages of the speaking partners (Table 8). Single words used as sentences included such words as *pretty, okay,* and *listen.* Of the pauses in the speech of the mother to the younger child, 23.2% followed such single words used as complete utterances. Only 6.4% of the pauses in the speech to the older child followed such single-word utterances, and only 2.6% of the pauses in the speech to the adult followed such single word utterances.

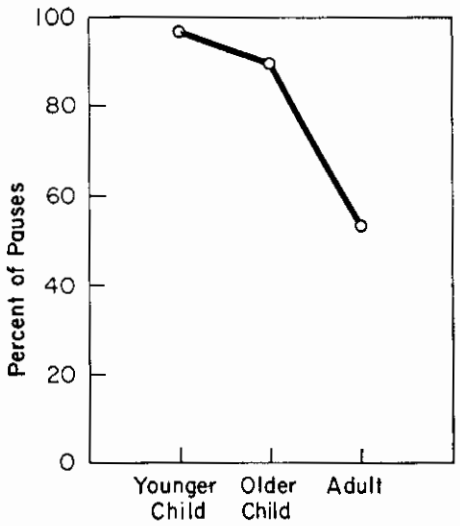

FIGURE 5. The percent of pauses in the mothers' speech that followed sentences or single words used as sentences.

TABLE 8. The distribution of various sentence categories in the speech of mothers to their younger children (Y), older children (O), and to an adult (A).

	Sentence Categories														
	Complete Sentence			*Incomplete Sentence*			*Single Word*			*Broken Sentence*			*Interjection*		
Mother	*Y*	*O*	*A*	*Y*	*O*	*A*	*Y*	*O*	*A*	*Y*	*O*	*A*	*Y*	*O*	*A*
5	10	8	15	3	4	2	4	3	2	0	0	4	0	1	12
7	12	14	21	6	3	1	7	3	2	0	0	3	1	3	17
8	8	8	18	2	2	1	7	4	3	0	3	2	1	1	10
10	15	10	9	0	2	1	8	6	2	0	0	4	1	1	8
Mean values	11.3	10.0	15.8	2.8	2.8	1.3	6.5	4.0	2.3	0	0.8	2.8	0.8	1.8	11.8

In speaking to the younger child, 98.6% of the pauses in the mother's speech occurred following units I identified as sentences or single words used as sentences. Only 1.4% of the pauses in the speech of the mother to the younger child occurred at locations other than following single words or sentences. In speech to the older child, 89.3% of the pauses followed single words or sentences, while 10.6% occurred at other locations. In talking with the adult, 53.9% of the pauses used by the mother followed single word sentences, while 46.2% occurred at other locations.

In summary, as the age of the speaking partner increases, pause location shifts. With the younger child, pauses occur almost exclusively after sentences and single words used as sentences; with the adult, pauses occur following sentences only about half the time.

The frequency of single words decreases as the age of the speaking partner increases. The frequency of broken sentences and interjected remarks increases with the increasing age of the mother's speaking partner, as seen in Table 8.

Interjections increase from 0.8 with the younger child, to 1.8 with the older child, to 11.8 with the adult. The sharp increase in interjected remarks in the speech to the adult reflects a substantial increase in conjunctions used by the mother.

Broken sentences show a similar pattern. There are no broken sentences to the younger children in this sample, and only one mother used any broken sentences in speaking with her older child. There is an average of 2.3 broken sentences in a minute of speech to the adult.

Frequency with Which Pauses Follow Terminal Sentence Boundaries

The last word in either a well-formed sentence or a less than well-formed sentence in the coded protocol was defined as the sentence boundary. Table 9 presents the percent of utterances identified as sentences that were followed by a pause for each mother. Of the sentences used by mothers with the younger children, 92.9% were followed by pauses; 76.5% of the sentences to the older children were followed by pauses; 29.4% of the sentences to the adult were followed by pauses. This pattern occurred for individual mothers as well as for the combined group of mothers.

TABLE 9. Percentages of sentence boundaries that were followed by a pause in the speech of a mother to her younger child (Y), older child (O), and to an adult (A).

	Speaking Partner		
Mother	Y	O	A
5	76.9	83.3	11.8
7	100.0	82.4	31.8
8	90.0	70.0	42.1
10	100.0	66.7	30.0
Mean percent	92.9	76.5	29.4

Sentence Boundary Identification by Listeners

In an attempt to analyze the distribution of mothers' sentences, it soon became apparent that judges had considerable difficulty agreeing on sentence boundary locations when the samples were taken from speech addressed to the adult. This seemed to be a significant finding since, if adult judges find this task difficult, we may assume that it would be even more difficult when the listener is a child. Thus, the reliability with which sentence locations can be specified should provide at least an indirect index of the extent to which the speech presents unambiguous sentence information to the child.

In order to obtain this measure of reliability, all of the boundary locations identified by any one of the judges were first noted. A determination was then made of the percent of these individual locations that were also consistent locations, that is, agreed upon by 80% or more of the judges. The results indicate

that the greatest agreement occurred with the speech addressed to the younger child, and the poorest with the speech addressed to the adult. More specifically, 73.7% of the boundaries located by any judge in the speech to the youngest child fell into the consistent category. For the speech to the older child, the figure was 63.3%. Finally, in speech to the adult, only 13.6% of the boundaries identified by any judge were in the consistent category.

These data are summarized in Table 10 and presented graphically in Figure 6. In every instance, the consistent boundaries coincided with a sentence or followed a single word used as a complete sentence, as identified on the protocol.

TABLE 10. Percentages of locations identified as sentence boundaries in the speech of mothers to their younger (Y) and older (O) children and an adult (A). These pauses were identified by more than 80% of the judges or by less than 80% of the judges as terminal sentence boundaries.

	Less than 80%			*More than 80%*		
Mother	*Y*	*O*	*A*	*Y*	*O*	*A*
5	27.8	47.1	82.6	72.2	52.9	17.4
7	20.8	10.5	90.9	79.2	89.5	9.1
8	23.5	60.0	85.4	76.5	40.0	18.8
10	33.3	29.4	90.9	66.7	70.6	9.1
Mean values	26.3	36.7	86.4	73.7	63.3	13.6

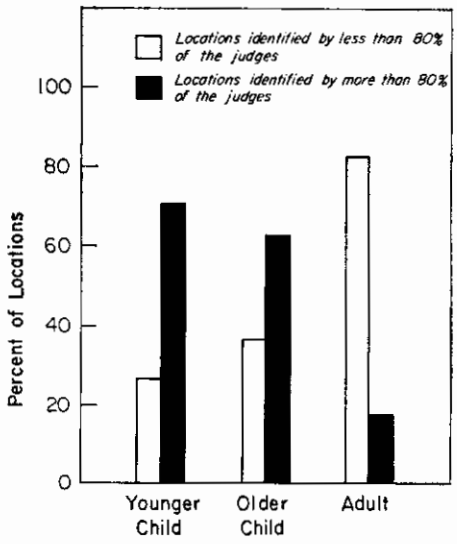

FIGURE 6. Percent of locations identified as sentence boundaries in mothers' speech.

Table 11 relates the computer-generated pause identification data to the sentence boundary locations provided by judges. Locations identified by more than 80% of the judges as sentence boundaries were usually accompanied by pauses. The percentages ranged from 95% with the speech to the younger child, to 80% with the speech to the adult. Locations identified less consistently as

TABLE 11. The percentages of terminal sentence boundaries accompanied by pauses, identified by less than 20% of the listeners, 20% to 80% of the listeners, and more than 80% of the listeners.

	Less than 20%			*20 to 80%*			*More than 80%*		
Mother	*Y*	*O*	*A*	*Y*	*O*	*A*	*Y*	*O*	*A*
5	0.0	0.0	8.3	66.7	0.0	14.3	84.6	100.0	50.0
7	33.3	0.0	10.5	100.0	0.0	36.4	100.0	88.2	100.0
8	0.0	20.0	18.1	100.0	33.0	18.8	100.0	100.0	100.0
10	20.0	0.0	33.0	50.0	0.0	14.3	93.3	75.0	50.0
Overall percentage	18.2	7.7	17.5	75.0	18.2	22.0	95.0	89.4	80.0

terminal sentence boundaries were generally not accompanied by pauses. The one exception was in the speech to the younger child. In the case of terminal sentence boundaries identified by 20 to 80% of the judges, 75% were accompanied by pauses in the speech to the younger child. All but one of these locations followed a single word used as a complete utterance. Perhaps there was some disagreement among the judges as to whether a single word could be a sentence, though these single-word utterances were followed by pauses.

DISCUSSION

This chapter is concerned with the usefulness of pauses as cues to sentence boundaries in speech to young children. In the speech mothers used with me, pauses were distributed in a manner similar to other descriptions of pauses in adult-adult conversational speech. About half of the pauses occurred internal to major sentence constituents. In the speech to the child, nearly all pauses followed sentences or single words used as sentences. This was true in the mothers' speech to both the older and younger children.

The other side of the question is, when sentences occur, are they followed by pauses? They were in the speech to the younger child and to a large extent in the speech to the older child. Thus, sentences to both children were well marked, with pauses occurring primarily at sentence boundaries, and with sentence boundaries generally being accompanied by a pause.

In evaluating these results, the way in which I coded the sentences on my master protocol is important. My coding effectively broke the run-on sentences used by mothers into their smaller constituent sentences. Complete sentences joined by conjunctions were considered to be separate sentences; it is grammatically permissible to join sentences with a conjunction. The problem encountered in this speech sample was that mothers joined three, four, and even five sentences by conjunctions. There seemed to be no way to differentiate legitimate use of conjunctions from their "illegitimate" use. For this reason compound sentences were treated as two or more sentences.

The decision to treat conjunction locations as sentence boundaries may have introduced a bias into the set of results concerned with the percent of sentences

followed by pauses. This decision resulted in the identification of more sentences than would otherwise have been the case. For sentences identified on this basis, there was no real possibility for a pause to occur. Thus, in this instance, the percent of sentences followed by a pause was somewhat artificially reduced. This is a consideration only in the case of speech to the adult, since it was only then that a significant number of conjunctions occurred.

CONCLUSIONS

From these data it appears that the speech to young children contains sentences that are well marked by pauses. False or confusing information in the form of extraneous conjunctions and broken sentences is absent. Single words are used as sentences more often in speech to young children than they are in speech to older children or adults.

The pattern of speech to older children is much like the pattern to younger children, with sentences well marked by pauses, a minimum of interjected speech, and few broken sentences. There are trends toward the adult-adult form in these areas, but no substantial differences emerge between the two groups of children. Mothers do use fewer single-word utterances in speaking with older children.

The speech pattern observed when mothers talked with an adult is much like the pattern described previously in the literature. Pauses do not reliably mark sentence boundaries, broken sentences and interjected speech are common, and sentences are difficult to identify when listening to the speech.

Listeners are able to agree on the location of sentence boundaries in the speech addressed to children, but there is little agreement on sentence boundary locations in the speech addressed to an adult.

Chapter III

FORM OF SPEECH ADDRESSED TO YOUNGER CHILDREN

Both the preceding chapters of this paper and several other studies (Phillips, 1970; Brown, Cazden, and Bellugi-Klima, 1969) have established that speech mothers address to young children is substantially different from their speech to adults or even to older children. The speed, temporal patterning, fluency, and vocabulary usage all vary with the age of the individual to whom the mother is talking. This chapter will describe the sentences produced by mothers during the free-play situation with their younger children.

The kinds of sentences a mother uses with a young child may prove to be the most important and interesting aspect of the mother's speech. These sentences, together with the sentences used by other individuals in talking with the child, constitute the primary corpus of speech from which the child learns his language, and they provide him with basic information about the structure of language.

Drach (1969) compared the speech one mother addressed to her own young child with the speech the same mother addressed to two adults. The frequency of questions and imperative sentences was high in the speech addressed to the child but infrequent in the speech to the adults. Negatives and subordinate clauses were frequent in speech to the adults but seldom occurred in the speech to the child. Deletions, particularly of pronouns, *do*, and "be" verbs, were also frequent in speech addressed to the child, but these deletions never occurred in speech to the adults.

Drach's data suggest that the mother was not just simplifying her speech as she talked with the child but was, rather, changing the type or form of the sentences she generated. These observations support the idea that children hear a special or "base" language form, at least in the speech samples addressed specifically to them.

Ferguson (1964) argues that adults use a "baby talk" language in talking with children. He examined adult speech to young children both at the phonological level and at the lexical level in six languages and found that the patterns of speech to children within those languages were stable across generations.

Phillips' (1970) work indicates that mothers' speech may be most restricted as they talk with their 18-month-old children. These children are just beginning to use speech. They have not yet mastered the creation of sentences and their linguistic skills are changing rapidly (Ervin-Tripp, 1971). There is some indi-

cation that at this age level the child may respond selectively to speech, depending on its structure and his current level of linguistic skill (Shipley, Smith, and Gleitman, 1969). This is why, in the present study, speech addressed to the younger children was chosen for further analysis. If there is a child-directed language form, it ought to occur in speech addressed to these children.

This chapter will describe a language form found to be common across mothers as they talked with their young children. The mothers' speech will be analyzed in terms of the kinds of sentences they used and the juxtaposition of those sentences in their speech.

METHOD

Speech Sample

The speech samples were obtained from the tape recordings described in Chapter I and consisted of all the speech used by the 10 mothers in conversation with their younger children during free-play. This speech was transcribed by a specially trained typist. Unintelligible remarks, nonword vocalizations, and signs of affirmation and negation were deleted from the transcription. The typist's judgments were used in identifying remarks as statements or questions.

Reliability

The typist's judgments were compared with the judgments of listeners in the sentence boundary identification study for the four one-minute samples used in that study. There were only two instances out of 62 (3.2%) where the typist disagreed with the majority of listeners[1] on the segmenting of a particular sentence. In each case the listeners conjoined two sentences that were separated by the typist. An average of 94% of the listeners agreed with the typist on the specific location of sentence boundaries.

ANALYSIS

The technique for analyzing the data in this section was to make a series of pattern searches through the mothers' sentences. In order to search out these patterns, the sentences were organized in a number of ways. Sometimes an analysis was based on the entire corpus of a mother's sentences. In other instances, a particular subset of sentences was identified for special study. For example, one mother might produce a sequence of sentences that were exact repetitions of each other, or she might have a string of successive sentences that were clearly interrelated by a common syntactic form and a common vocabu-

[1]These determinations were made after the deletion of signs of affirmation, negation, and nonword vocalizations.

lary. These clusters of sequential sentences proved to be an interesting area for deeper probing.

It was also instructive to search within and between mothers. Not only did the same mother often use a particular sentence form on several occasions, but the very same sentence was sometimes found in the samples taken from several different mothers.

An initial way of organizing the data was simply to identify each sentence as falling into one of five common sentence categories: single word, imperative, question, declarative, and grammatically incomplete sentences. These were not mutually exclusive categories and, with the exception of the declarative, there was overlap among all the categories. The actual distribution of sentences appears in Appendix 3.

RESULTS

Within the 10 five-minute segments constituting the speech samples in this chapter, mothers produced a total of 680 sentences. Mothers averaged 68.0 sentences, with a range of 33 to 128 sentences. Table 12 provides information regarding the number and percent of individual mothers' sentences that fell within each of the five sentence categories.

TABLE 12. The number and percentage of mothers' sentences that fell within each of the five sentence categories. Sentence categories were not mutually exclusive.

		Single Word Sentences		*Imperative Sentences*		*Questions*		*Declarative Sentences*		*Grammatically Incomplete Sentences*	
Mother	*Total* N	N	%	N	%	N	%	N	%	N	%
1	62	10	16.1	27	43.5	20	32.3	8	12.9	8	12.9
2	66	11	16.7	12	18.2	30	45.5	20	30.3	10	15.2
3	66	5	7.6	22	33.3	21	31.8	19	28.8	11	16.7
4	60	8	13.3	2	3.3	31	53.3	18	30.0	16	26.7
5	57	18	31.6	21	36.8	20	35.1	8	14.0	8	14.0
6	37	6	16.2	12	32.4	14	37.8	12	32.4	6	16.2
7	86	8	9.3	18	20.9	36	41.9	26	30.2	13	15.1
8	33	6	18.2	2	6.1	7	21.2	17	51.5	4	12.1
9	128	16	12.5	35	27.3	38	29.7	45	35.2	12	9.4
10	85	6	7.1	18	21.2	34	40.0	33	38.8	11	12.9
Total	680	94	14.9	169	24.3	251	36.9	206	30.4	99	15.1

Sentence Categories

Single Word Sentences. An average of 14.9% of the mothers' sentences were single words. The percentages ranged from 7.1 to 31.6% for individual mothers. By definition, sentences in this category were single words that were spoken with a sentence-like intonation contour and were not grammatically a part of either the preceding or the following sentence.

"Here" was the most common single-word sentence, occurring 13 times in the total sample. "There" and "see" were the next most common, each occurring 10 times in the total sample.[2]

Table 13 provides a breakdown of the single-word sentences by part of speech. "Here" and "there" are counted separately. They constitute 24.5% of the total sample of single-word sentences. Verbs occurred most often as single-word sentences (31.9%), followed by nouns (21.3%), and then adjectives (12.8%). All the single-word sentences are in Appendix 3.

TABLE 13. The frequency and percentage of single-word sentences falling into various part-of-speech categories.

Part of Speech	*Frequency*	*Percent of Sentences*
Verb	30	31.9
"Here"-"There"	23	24.5
Noun	20	21.3
Adjective	12	12.8
Other	9	9.5
Total	94	100.0

Grammatically Incomplete Sentences. On the average, 15.2% of the sentences used by mothers were identified as grammatically incomplete. About half these sentences involved the deletion of a pronoun, an obligatory *do*, or a "be" verb. These elements were generally omitted from the sentence initial position. Table 14 provides examples of the kinds of mothers' sentences involving such deletions, and Table 15 provides information on the distribution of deletions in the speech of individual mothers. This kind of deletion was also reported by Drach (1969), but only in his sample of speech to the child.

The most common deletion pattern involved the inverted yes/no question form (a question that can be answered by a yes or no). Sentences like "wanna

TABLE 14. Examples of sentences that involved the deletion of *do, be,* or a pronoun.

Mother	*Sentence*	*Deletion*
5	this a car?	is
6	where you going with your truck?	are
6	want that to go in there?	do you
7	want her hat on too?	do you
9	wanna put it back?	do you
4	you gonna hug her?	are
6	you want me to shut it?	do
7	you wanna get down?	do

[2] "Look at" also occurred 10 times in the total sample. In this categorization of mothers' sentences, "look at" was treated as a two-word sentence. This was done because such responses as "look," "look at the purse," and "look in the purse" also occurred.

TABLE 15. Frequency of the omission of *do*, *be*, or a pronoun in sentences identified as grammatically incomplete.

Mother	*Pronoun*	Do	Be
1	4	2	1
2	3	2	1
3	4	0	2
4	5	4	2
5	2	1	1
6	1	3	1
7	6	7	0
8	3	1	2
9	3	3	2
10	1	1	0
Mean	3.2	2.4	1.2

get down?" "you wanna get down?" "do you wanna get down?" all occurred in the speech sample. Both the "wanna" and "you wanna" sentences were considered as reductions of the sentence form "do you wanna . . . ."

It would be possible and reasonable to define this category of incomplete sentences in such a way as to inflate the number of sentences even further. For example, most of the single-word sentences (15% of the total) are, in some sense, incomplete, but were not included. Sentences beginning with *see* were generally grouped with imperatives and questions, but they are also incomplete in that they frequently involved the deletion of the words *do you*. For example, here are some "see" sentences that all yield to the interpretation "do you see . . . ."

	Mother
see the truck?	1
see the car?	8
see the gramma?	8
see the baby over there?	2
see what's inside?	2

Table 16 contains all the "see" sentences used by mothers in this study where *see* is in the sentence initial position and seems to imply "do you see." Table 27 contains all "see" sentences used by mothers; these sentences constitute 4.3% of the total sample.

The 10 single-word (or two-word) "look at" sentences could also have been included as grammatically incomplete and would add another 1.5% to the grammatically incomplete sentences. The inclusion of these additional groups of sentences that might be considered in some sense grammatically incomplete would raise the total of incomplete sentences to 36% of the whole sample.

Questions. An average of 37% of the mothers' sentences were questions (see Table 12). Within the speech of individual mothers, questions ranged from 21.2 to 53.3%. The mother with the fewest number of sentences also had the smallest percentage of questions.

TABLE 16. All of the "see" sentences that appear to have the reading "do you see . . . ?" $N = 29$.

Sentence	*Mother*
see? (10)	1,2,3,5,6,10
see the truck?	1
see the car?	8
see the dolly?	10
see the gramma?	8
see the dolly's eyes?	10
see the dolly's pretty hair?	10
see the baby over there?	2
see her eyes?	10
see her hair?	5
see it?	2
see her pretty hair?	10
see this little part right here?	7
see that hole? (2)	7,10
see this little hole?	10
see what's inside?	2
see how it fits together?	6
see she went night night?	10
see her eyes are closed?	7

There are several ways to form simple, direct questions in English (Klima and Bellugi-Klima, 1969). A sentence can be spoken with a rising intonation contour.

"John went home?"

A question can also be formed by inverting the complete subject noun phrase and the first element of the auxiliary verb.

"John can go home."
"Can John go home?"

If there is no auxiliary verb expressed in the sentence, *do* is added as a first element.

"John went home."
"Did John go home?"

Any of these question forms results in a yes/no question.

In a wh-question, the wh-word (*who, which, where, how, why*) occurs instead of the sentence element being questioned. The subject noun phrase and the first element of the auxiliary verb are inverted and the wh-question word is preposed.

"Where can John go?"
"Who can go home?"

A tag question is a yes/no form that questions the truth of a statement and also reflects the syntactic structure of the sentence.

"John went home, didn't he?"
"John can go home, can't he?"

Table 17 presents the distribution of questions by type. Occurring most frequently was the yes/no inverted question; 70.2% of the mothers' questions were of this type. About half of these were grammatically complete and half, incomplete. The following sentences are typical of the yes/no questions found in this sample:

	Mother
is that a pipe?	1
does daddy smoke a pipe?	2
should we open it?	3
can you say fingers?	5
do you need some help?	9
wanna put your shoes on?	1
want me to shut it?	2
you gonna go bye bye?	3
wanna put her back?	7

Placing a sentence in the category "grammatically incomplete-yes/no question" often involved a judgment as to what the expanded or complete form of the sentence would be. One large group of grammatically incomplete questions was the "see" group of sentences that appeared to involve the deletion of *do you*. These were discussed earlier.

TABLE 17. The frequency of question types in the speech of mothers.

	Question Type				
Mother	*Yes/No Inversion*	*Yes/No Inversion with Deletion*	*Wh-Questions*	*Tag Questions*	*Intonation Only*
1	10	6	4	0	0
2	15	10	0	5	0
3	3	6	11	1	0
4	11	9	8	2	1
5	8	9	3	0	0
6	4	7	3	0	0
7	14	13	6	3	0
8	1	2	2	1	1
9	14	9	15	0	0
10	11	14	7	1	1
Total	91	85	59	13	3
% of the sample	36.3	33.9	23.5	5.2	1.2

Another large group of grammatically incomplete questions began with such words as *wanna, you wanna, want me, gonna,* and *you gonna.*

Though there are other possible interpretations, all of the "wanna" and "want me" sentences were treated as reductions of the form, "do you wanna . . . ," since this seemed most accurately to represent the mothers' intent. Some support for this decision can be seen in the following sequences, in which the mothers actually use three different forms:

Mother 9
do you want me to put it back together?
you wanna put it back together?
wanna put it back?

Mother 6
do you want it off?
you want me to shut it?
want that to go in there?

Wh-questions constituted 23.5% of the total sample of questions. About one-third of these were "what" questions and one-third were "where" questions. "Where" and "what" questions are presented in Table 18.

TABLE 18. All of the "what" and "where" sentences used by mothers. The numbers in parentheses indicate the total number of times those sentences were used by all of the mothers.

Sentence	*Mother*
what? (5)	7,9
what's this? (2)	4,5
but what's this?	4
what's that? (2)	1
what's here?	4
what's in here? (2)	9
what's in there? (4)	3,7,9
what's in the purse?	9
what is it? (5)	3,4,6
what is that? (2)	3,5
what is this?	7
what do you say?	8
what do you want?	3
what do you think?	4
what did you hit the dolly for?	3
what happened? (2)	2
what happened to the car, John?	9
what happened to it?	10
now what are you gonna do with that car?	9
where's her nose? (3)	5,10
where's the car? (3)	9,10
where's the car, John?	9
where's the other one?	1
where's the dolly's toes? (2)	7
where's the dolly's nose?	10
where's the rest of the truck? (2)	10
where's your shoe?	1
where you going? (2)	5,3
where you going with your truck?	6
where'd you get the money? (2)	4
where did it go?	6

Imperative Sentences. An average of 24.3% of the sentences used by mothers were imperatives. The most common verbs were *look, put,* and *see.* Of these, the "see" sentences are distinctive in that only they are spoken with a rising question intonation. Nevertheless, they seem to have the same word-to-word structure and meaning as other imperatives. When a mother says, "See the baby's eyes?" or "Watch the baby's eyes," she appears to be saying, "Attend to the baby's eyes."

Declarative Sentences. Declaratives accounted for 30.4% of the mothers' sentences. As a group, declaratives were perhaps the most diverse. The largest single group of declarative sentences began with the word *that.* All of the "that," "here," "there," and "it" sentences are presented in Table 19. These constitute 29.8% of the total sample of declaratives.

TABLE 19. Sentences beginning with *that's, here's, there's,* and *it's.*

Sentence	*Mother*
that's hard.	5
that's good.	8
that's right. (3) (3)	8,9
that's perfect.	8
that's all.	10
that's nice. (2)	3
that's the way.	3
that's too big.	10
well, that's too big.	10
that's it.	5
that's a lady.	5
that's a car.	2
that's a trailer.	2
that's a truck.	3
that's her bib.	6
that's her mouth.	10
that's the doll's nose.	10
that's a baby's pipe.	2
that's one hat right there.	4
that's the front of your truck.	8
that's the way it's suppose to be.	4
that's a squeeky one, isn't it?	2
that's not how the truck goes.	9
that's like daddy's car.	6
that's like a van, Jay.	6
here's a big truck.	7
here's a car.	9
here's a purse. (2)	10
here's the dolly's nose.	9
there is something in there.	5
there's a baby's pipe.	2
there's the truck.	9

TABLE 19 (Cont.)

Sentence	Mother
there's the car.	10
there's a car in there.	1
there's a pipe in there.	2
it's all right. (1) (1)	3,4
it's too big. (1) (2)	3,10
it's fixed.	7
it's tied.	4
it's grammy.	5
it's a Tonka truck.	7
it's a nice little dolly?	10
it's gonna go around that truck.	2
it's all ready to go.	10
it's just like mom puts it on you.	8
it's like mommy's purse.	1
it was all right.	4

Repetitions

Within Mothers. Within even these brief five-minute samples, individual mothers were observed to produce exactly the same sentence more than once. If the two instances followed each other immediately, the repetition was considered to be sequential. If the two instances of a sentence were separated in the sample, they were considered to constitute a nonsequential repetition.

Table 20 reports the frequency of sequential and nonsequential repetitions in the speech of individual mothers. An average of 15.7% of the sentences spoken by any mother had already been spoken by that same mother before. The percentages ranged from 8.1 to 25.8% for individual mothers. The highest percentage of exact repetitions occurred in the mother with the largest number of

TABLE 20. The number of sequential and nonsequential sentence repetitions that occur in mothers' speech and the percentage of the total number of sentences used that were spoken in repetition of a previous sentence.

Mother	Total Number of Sentences	Number of Different Sentences	Sequential Repetitions	Nonsequential Repetitions	% of Sentences Spoken in Repetition
1	64	53	5	6	17.2
2	66	53	5	8	19.7
3	66	56	8	2	15.2
4	60	54	2	4	10.0
5	57	48	4	5	15.8
6	37	29	3	5	21.6
7	86	79	4	3	8.1
8	33	29	0	4	12.1
9	128	95	12	21	25.8
10	85	75	4	6	11.8
Mean	68.2	57.1	4.7	6.4	15.7

sentences. One-fourth of the sentences spoken by that mother had already been spoken previously.

Across Mothers. Thirty-eight sentences were used by more than one mother in the five-minute play time (Table 21). They account for 144 of the sentences used by mothers, or 21.1% of the total sample.

Table 22 reports the frequency with which individual mothers produced sentences that were also produced by another mother. An average of 21.9% of the sentences produced by one mother were also produced by some other mother. The percentages ranged from 15.1 to 37.8% for individual mothers.

TABLE 21. Sentences that were used by more than one mother. Total = 38 sentences used 144 times. These 38 sentences accounted for 21.1% of the total sample.

Sentence	*Frequency in Sample*	*Mothers Using Sentences*
see that hole	2	7,10
what	5	7,9
there	10	2,3,4,6,8,9,10
here	13	1,2,6,7,8,9
see	10	2,3,5,6,10
purse	3	1,2,5
good	3	4,5,10
thank you	2	1,7
pretty	3	8,5
listen	3	5,7
hi	3	4,6
baby	2	1,4
up	2	2,9
look at	10	1,2,6,7,10
open	5	3,5
come on	3	1,7
look what's in there	2	6,3
it's all right	2	3,4
it's too big	4	3,10
that's right	6	8,9
let's see	2	2,3
there it is	2	9,10
that won't fit	2	3,10
there you go	7	9,3
comes apart	3	3,5,7
did it come apart	2	9,10
is that a pipe	3	1,2
isn't that cute	3	2,6
what's this	2	4,5
what is it	5	3,4,6
what's in there	3	3,7,9
where's the car	3	9,10
where's her nose	3	5,10
can you say purse	3	2,5
should we open it	2	2,3
what is that	2	3,5
like that	2	4,7
where you going	2	5,3

TABLE 22. The number and percentage of sentences used by each mother that were also used by at least one other mother.

Mother	Total Number of Sentences Used by Mothers	Number of Sentences Used by Each Mother Also Used by Another Mother	Percent of Sentences Also Used by Another Mother
1	64	10	15.6
2	66	14	21.2
3	66	17	25.8
4	60	10	16.7
5	57	16	28.1
6	37	14	36.8
7	86	13	15.1
8	33	8	24.2
9	128	26	20.3
10	85	15	17.6
Mean	68.2	14.3	21.9

Sentence Patterns

The mothers' sentences also seemed to fall into two basic or primary patterns around which a great many sentences were built. The patterns appeared to be related to the intentions or purposes that motivated the mothers' speech. Sentence Pattern I involved the imperative sentence form and seemed to reflect the intent of the mother to coax the child into some behavior, usually a motor act. Pattern II involved an "equational" sentence form in which *be* was contracted with one of a small number of words including *this, that, here,* and *there.* Mothers seemed to be naming objects or identifying feeling in the immediate situation with these sentences.

The bases for assigning sentences to either of these patterns were admittedly intuitive in many instances. There may well be additional categories or other categorization schemes that more adequately describe the sentences. Though I have misgivings about the current scheme, it did serve to bring some order to a large portion of the data, and it is presented for the benefit.

Sentence Pattern I: Within Mothers. Individual mothers began one-fourth to one-half of their imperative sentences with the same verb. These groups of sentences form "sentence frames" within the speech of individual mothers. The following are examples of such sentence frames:

Mother 1
look at.
look inside.
look inside.
look in the purse.
look in here.
look in the purse and see what's in the purse.
look and see what's in the purse.
look and see what's in here.

Mother 7
put the dolly on the chair.
put the dolly on the chair.
put the car inside here.

Mother 10
see?
see the dolly's pretty hair?
see her pretty hair?
see that hole?
see the dolly?
see her eyes?
see the dolly's eyes?
see this little hole?
see she went night night?

Table 23 provides a description of the frequency of several verbs in the imperative sentences of individual mothers.

TABLE 23. The frequency of several recurring verbs in the initial position in imperative sentences.

Mother	*Number of Imperative Sentences*	*Verb Frequency*			
		Look	See	Put	*Other*
1	28	9	2	2	4 (*go*)
2	12	4	4	2	–
3	22	1	1	3	6 (*give*), 3 (*open*)
4	2	1	–	–	–
5	21	4	–	–	3 (*open*), 3 (*peek*)
6	12	6	4	–	–
7	18	2	4	3	–
8	2	–	–	–	–
9	35	9	2	12	6 (*make*), 4 (*take*)
10	18	4	10	1	–
Total	170	40	27	23	–

Sentence Pattern I: Across Mothers. Nine verbs account for 73.5% of the total sample of imperative sentences. The verbs *look, put,* and *see* account for 53% of all imperative sentences. The range of nouns is also restricted. In the following subset of sentences the same nouns are used with each of the verbs *look, put,* and *see:*

	Mother
see the truck?	1
see the gramma?	8
see the dolly's eyes?	10
see the dolly?	10
see the car?	8
look at the truck.	9
look at the gramma.	9
look at the dolly's eyes.	10
look at the little dolly.	10
look at the blue car.	9

put the truck back together.	9
put the gramma in the truck.	9
put the little doll on the table.	3
put the car inside the truck.	9

Although *look, put,* and *see* were the most common imperatives, other verbs occurred in the same kind of sentence and with the same noun phrases.

	Mother
push the truck.	7
make the lady walk.	5
watch the dolly's eyes.	10
pick the dolly up.	3
say little doll.	3
get the car out of the truck.	9
pull the string.	8

The following subset of imperative sentences seemed to have a different form from most imperatives. This kind of sentence was found in the speech of several mothers.

	Mother
look what mommy's got in her hand here.	2
look what's in here.	3
look what's in there.	3
see what's inside?	2
see how that fits together?	6
look and see if gramma's in the purse.	9
see if you can fix it.	10

Pattern I: Extensions. There were several groups of sentences that seemed to be closely related to Sentence Pattern I. In one such group, the word *you* was preposed in front of the imperative sentence. This is reasonable since the imperative sentence deletes *you* in the sentence subject position. The 29 declarative sentences that begin with *you* are presented in Table 24. Most of these sentences consist of *you* + an imperative sentence or *you can* + an imperative sentence. In the following examples, the sentences were sequential in the speech of individual mothers:

Mother 8
you pull these.
pull the string.

Mother 3
open?
you open.
you open it.

Mother 1
still have cereal on your face.
you still have cereal on your face.

The examples from Mothers 1 and 3 show the manipulation of *you* within a sentence, although the sentences are not imperatives. Sequential sentences from Mother 9 also reflect a kind of pairing of sentences containing *you* and sentences with *you* deleted.

Mother 9
you put it together.
you wanna put it together?
there it goes.
put it together.

TABLE 24. Sentences beginning with *you*.

Sentence	*Mother*
you put the shoes on too.	6
you put it together.	9
you put it in. (2)	9
you can put her up here.	4
you can put this car on top of here and give it a ride.	7
now you can put the gramma in there.	9
you could put the lady in there.	4
you could put her in there too.	4
you take it this way.	8
you make the truck go and I'll make the car go.	10
you don't make sense at all.	7
you push the truck.	7
you turn it up.	10
you find it. (2)	9
now you find it.	9
you talk funny.	7
you like the truck?	9
you pull these.	8
you still have cereal on your face.	1
you want it on the floor.	10
you did it, Jay.	6
you have to be careful.	6
you have to untie the bow.	8
and you can sit on the chair.	9
you could hug her.	4
you just go like that.	8
and then you just go around her neck.	8

In other extensions of Pattern I an imperative sentence was imbedded in another sentence. In one instance *let's* was preposed before imperative sentences. This was a pattern followed primarily by Mother 7, although other mothers did use some of these sentences. The following is a list of the "let's" sentences that occurred:

	Mother
let's see.	2, 3
let's peek.	4
let's wipe it.	9
let's wipe this tear.	9
let's sit her up.	7
let's rock the dolly, rock.	7
let's lay the dolly down.	7
let's fix her legs.	7
let's fix the dolly's legs.	7
let's sit down with the dolly.	7

The imperative sentences mothers used in this study were never really commands. Generally they appeared to reflect an attempt on the part of the mother to coax the child into some action. Some of the imperatives were expanded into a coaxing sort of question. Questions that had an underlying form of "do you want to" or "are you going to" were commonly used in this way. Often only a portion of the preposed segment was realized in the mother's speech, so the child heard *wanna* + imperative or *you gonna* + imperative. The following are examples of sentences of this form that occurred:

	Mother
do you wanna take the truck apart?	9
do you want to get down and walk around for a while?	3
you wanna get down?	7
you wanna look in there and see what's in there?	7
wanna look at these toys?	4
you wanna put it together?	9
you wanna put her on the chair?	7
wanna put her back?	7
wanna put it back?	9
wanna see this?	4
wanna see that baby?	4
wanna see what's in the purse?	7
wanna sit on my lap and we'll put your shoes on?	1
are you gonna go to sleep?	7
you gonna go bye bye?	3
are you gonna love the dolly?	10
you gonna take her for a ride?	9
are you gonna give it back to the lady?	4
you gonna hug me?	4
are you gonna put it in the bank?	4
you gonna put it back together?	9

Pattern I: Sequential Extensions. The mother frequently presented the child with sequential sentences that fell within Pattern I. Here are some groups of sentences that reflected the imperative pattern and occurred sequentially.

Mother 2
push it.
you can push it.

Mother 4
you can put her up here.
give her a ride up here.

Mother 9
say John, put the car inside of the truck.
can you put the car inside of the truck?
here.
put it inside the truck.
I'll show you how.
make the car go inside of the truck.

This last example is interesting in that it seems to draw out something that was a part of this situation, and perhaps a part of almost any interaction between mothers and children of this age. The child is not able to manipulate the objects easily. Part of the source of repetition in the mothers' speech comes from the childs' inability to comply with the first direction. In the last case, the mother says essentially the same thing four times. The sentences differ from each other slightly and in interesting ways, but the meaning remains constant. The child is exposed to three different ways of saying, "put the car in the truck." In addition he gets a demonstration of the meaning of those sentences because his mother elects to show him.

This mother was the most repetitious subject in the study and also the most verbal. Here is another sequence from Mother 9.

look at the gramma.
see the gramma.
put the gramma in the truck.
put her in the truck.

Mother 10 also produced many interesting sequences of sentences. The child in 10 did not produce any intelligible words, but he did seem to converse. He frequently would say, "huh," and his mother seemed to treat this as a conversational remark. She would stop, wait for him to respond, and then go on. The interchange had a sense of conversation even though the child did not talk.

Mother 10
did you see the doll?
look at the pretty dolly.
see the dolly?
watch the dolly's eyes.
look at the dolly's eyes.
she went night night.
see her eyes?
see the dolly's eyes.

This sequence is interesting for a number of reasons. This is the only instance in which a mother expands a "see" sentence into an inverted yes/no question. The mother says, "did you see the doll?" In this sequence of eight sentences the mother calls the child's attention first to the doll and then to the doll's eyes. The word *doll* or *dolly* occurs six times in the eight sentences, *eyes* occurs four times. The mother is coding a very simple "happening"; when the doll is laid down, her eyes shut. She uses eight sentences that contain almost the same vocabulary items. In one instance she substitutes *her* for *the dolly*. The verbs *see, watch,* and *look at* all are used with the noun phrase "the dolly's eyes." Dolly occurs both as a possessive and a regular noun.

Pattern I: Summary. Tables 25, 26, 27, 28, and 29 contain a consolidation of the inperative sentences plus the sentences that appear to be extensions of, or built upon, imperatives. The three verbs *look, put,* and *see* now account for 18.6% of the total sample of all of the sentences used by mothers in the free-play situation. All imperatives plus the extensions of imperatives account for 37.2% of all the mothers' sentences.

TABLE 25. All 41 "look" sentences used by mothers.

Sentence	*Mother*
look at, John.	9
look.	9
look at. (10)	1,2,6,7,10
look, John.	9
look inside. (2)	1
look in here. (2)	1
look at here. (2)	9
look at the wheels.	2
look at the truck.	9
look at the blue car?	9
now look at the purse. OK?	2
look at the purse.	4
look at the gramma.	9
wanna look at these toys?	4
wanna look at the pipe a little bit later?	2
look at the dolly's eyes.	10
look at the little dolly.	10
look at the pretty dolly.	10
look in the purse.	1
look in the purse and see what's in the purse.	1
look and see what's in the purse.	1
look and see what's in there.	1
you wanna look in there and see what's in there?	7
I'm gonna look and see what's in the purse.	9
look and see if gramma's in the purse.	9
look what's in there. (2)	3,6
look what I have, John.	9
look what mommy's got in her hand here.	2

TABLE 26. All 47 "put" sentences used by mothers.

Sentence	*Mother*
put the little doll down.	3
put the dolly on the chair. (2)	7
put the little doll on the table.	3
put the doll right down on the table.	3
you wanna put her on the chair?	7
put the car on top of the truck.	9
you can put this car on top of here and give it a ride.	7
wanna put your shoes on?	1
you put the shoes on too.	6
should we put them back on?	1
wanna sit on my lap and we'll put your shoes on?	1
put it in.	9
you put it in.	9
yeah, you put it in.	9
are you gonna put it in your bank?	4
put it right in in the back.	9
should we put the pipe back in?	2
should we put the car in there?	10
put the pipe in the purse like this.	2
you could put her in there too.	4
you could put the lady in there.	4
now you can put the gramma in there.	9
put the gramma in the truck.	9
put the dolly in the purse too?	10
don't put the doll in your mouth.	1
don't put the pipe in your mouth though, OK?	2
put that end in your mouth.	1
put the car inside the truck.	9
put the car inside here.	7
say John put the car inside of the truck.	9
put it inside the truck.	9
put your truck back together.	9
do you want me to put it back?	9
put it back.	9
can you put it back together?	9
put it together.	9
you put it together.	9
you put it together, momma.	9
can you put it back together again?	10
you wanna put it together?	9
wanna put it back?	9
wanna put her back?	7
you can put her up here.	4
and put the car up here.	9
put the gramma into the truck.	9

TABLE 27. All 40 "see" sentences used by mothers.

Sentence	*Mother*
see? (10)	1,2,3,5,6,10
let's see. (2)	3,2
let's see the truck once.	2
see the truck?	1

TABLE 27 (Cont.)

Sentence	*Mother*
see the car?	8
see the dolly?	10
did you see the dolly?	10
see the gramma.	8
see the dolly's eyes?	10
see the dolly's pretty hair?	10
see the baby over there?	2
wanna see that baby?	4
see her eyes?	10
see her hair?	5
see it?	2
see her pretty hair?	10
wanna see this?	4
see this little part right here?	7
see that hole?	7,10
see this little hole?	10
see, that little thing's gotta fit in there like that.	7
wanna see what's in the purse?	7
see what's inside?	2
let's see if you can fix it.	10
see if you can fix it.	10
see how it fits together?	6
let's see if he's still in there.	6
see she went night night?	10
see her eyes are closed?	7

TABLE 28. All 31 "make," "give," and "take" sentences used by mothers.

Sentence	*Mother*
make the lady walk.	5
make the car go. (2)	9
make the car go inside of the truck.	9
you make the truck go and I'll make the car go.	10
make the truck go chooo.	9
make the truck go errrr.	9
make the truck go ooooo.	9
make it go together.	1
you don't make sense at all.	1
sure give the car a ride.	10
give me a kiss before you go. (4)	3
can you put this car on top of here and give it a ride.	7
give me your foot.	1
give her a ride.	4

TABLE 28 (Cont.)

Sentence	*Mother*
or are you gonna give it back to the lady?	4
give her a love.	3
give me a kiss.	3
you gonna take her for a ride?	9
take her for a ride.	9
take her for a ride there.	9
wanna take her booties off?	7
take the truck apart.	9
do you wanna take the truck apart?	9
take it apart?	9
now your gonna take it apart.	10
take it in each hand, one end in each hand.	8
you take it this way.	8
shall we take everything out now?	10
they'll take care of her.	3
I'm gonna take this away and put it over here.	9

TABLE 29. Sentences of the same form as those reported in Tables 25-28, but involving different verbs.

Sentence	*Mother*
close it.	6
close it up.	5
close the purse.	7
squeeze that together.	5
tell her good night.	7
try and get it.	7
be careful. (2)	1
you have to be careful.	6
you have to untie the bow.	8
now pick the dolly up.	3
let her in.	5
now use your hand.	3
don't use your teeth.	3
don't hit her, love her.	3
watch your fingers.	5
watch the dolly's eyes.	10
watch this.	5
now watch.	10
remember that truck from last time?	1
come on. (3)	1,7
come on now.	2
come here.	1
come back here.	3
say little doll.	3
say beep.	5

TABLE 29. (Cont.)

Sentence	*Mother*
say ni ni.	7
can you say purse?	2,5
can you say grammy?	5
can you say fingers?	5
can you shut it?	2
you want me to shut it?	6
now you want me to shut it?	6
open. (5)	3,5
you want me to open it?	5
open it up and let's see?	5
you open.	3
you open it.	3
you talk funny.	7
and you turn it up.	10
you like the truck?	9
you pull these.	8
pull the string.	8
push it.	2
can you push it up?	9
push hard.	5
you push the truck.	7
push the truck.	7
are you gonna love the dolly?	10
get up.	1
you wanna get down?	7
get the car out of the truck.	9
can you get the car out?	7
can you find her toes?	7
can you find the car?	9
you find it.	9
now you find it.	9
yeah you find it.	9
shall I find the car, John?	9
let's fix the dolly's legs.	7
let's fix her legs.	7
can Jeffrey fix it?	10
want me to fix it?	7
you can fix it?	7
and you can sit on the chair.	9
you gonna hug her?	4
go like this.	1
go (blows). (3)	1
you just go like that.	8
you gotta go right in there like that.	7
want that to go in there?	6
and then you just go around her neck.	8
it's gonna go around that truck.	2
you gonna go bye bye?	3
are you gonna go to sleep?	7
don't go too far.	3

TABLE 29 (Cont.)

Sentence	*Mother*
push.	5
listen. (3)	5,7
wait.	9
peek. (3)	5

Sentence Pattern II: Within Mothers. A second major sentence pattern involved the use of a small set of words in the sentence initial position, followed by *is*. Following are examples of this type of sentence:

	Mother
that's a car.	2
there's the car.	10
it's a Tonka truck.	3, 4
here's a car.	9

The most common sentence frame within the speech of individual mothers was *that* + *'s* + noun phrase or *that* + *'s* + adjective. Thirty-two such sentences occurred in the total sample of speech. These sentences were well distributed among mothers and constituted sentence frames within the speech of several mothers. Seven mothers produced at least three such sentences and three mothers produced five or more. The following are examples of sentence frames within the speech of individual mothers.

Mother 2
that's a car.
that's a trailer.
that's a baby's pipe.
that's the baby's pipe.

Mother 3
that's a truck.
that's the way.
that's nice.
that's nice.

Mother 8
that's right.
that's right.
that's right.
that's good.
that's perfect.
that's the front of the truck.

The total sample of "that's" sentences is reported in Table 19.

The sentence frame *it is* appeared to be part of this pattern, but was not as common. Sentences with the form *it is* occurred 15 times in the total sample. These sentences are reported in Table 19. They occurred more than three times in the speech of only one mother, and in that case, quite repetitively.

Mother 10
it's too big.
it's too big.
it's too big.
it's a nice dolly?
it's all ready to go.

Sentence frames involving *there* and *here* appeared to be at least somewhat related to "that's" and "it's" sentences.

	Mother
there's a car in there.	1
there's a pipe in there.	2
there's a baby's pipe.	2
there is something in there.	5
there's the truck.	9
there's the car.	10
there's a pipe in there, isn't there.	2
here's a purse.	10
here's a purse.	10
here's the dolly's nose.	10
here's a car.	9
here's a big truck.	7

These sentences occurred only with a noun phrase, while "that's" and "it's" sentences were also followed by adjectives. Sentences involving *there* and *here* seem related to "that's-it's" frames for several reasons. The same noun phrases follow both "that's" and "there's" sentences. This is shown in the initial sample under Sentence Pattern II and in Table 19. Sequential strings occur that contain both "that's" and "here's" sentences.

Mother 10
where's her nose?
that's Jeffrey's nose.
here's the dolly's nose.
that's the dolly's nose.

Mother 2
that's the baby's pipe.
see the baby's pipe over there?
there's the baby's pipe.
that's the baby's pipe.

Pattern II: Extensions. While extensions of Pattern I generally involved the imbedding of a Pattern I sentence in another sentence, extensions of Pattern II were generally transformations of Pattern II sentences into questions. Three basic extensions of Pattern II occurred: "what," "where," and inverted yes/no questions. The set of "what" questions that occurred can be described by the following diagram:

$$\text{what is} \left\{ \begin{array}{l} \text{this} \\ \text{that} \\ \text{–it} \\ \text{(in) there} \\ \text{(in) here} \end{array} \right\}$$

"What's" sentences question the set of words that form the base for Pattern II. Sequential sentences also occurred that related "what" sentences to other sentences in this pattern.

Mother 5
what is that?
it's a grammy.

Mother 3
what is that?
what is it?

The sentence frame *where* + *is* + noun phrases seemed most closely related to the "here's" and "there's" sentences. The following nonsequential sentence frames occurred in the mothers' speech:

Mother 10
where's her nose?
where's her nose?
where's the dolly's nose?
where's the rest of the truck?
where's the rest of the truck?
where's the car?

Mother 7
where's the dolly's toes?
where's the dolly's toes?
where are her toes?

Mother 9
where's the car?
where's the car?
where's the car, John?

Other mothers used the same kinds of sentences.

	Mother
where's her nose?	5
where's her shoe?	1
where's the other one?	1

These sentences involve the same noun phrases as the "there's," "here's," "that's," and "it's" sentences. For the most part these noun phrases coded the objects on the table in the room with the mother and child. Table 30 provides frequency information for the sentence frames in Sentence Pattern II.

The most frequent question form is the inverted yes/no question. Of the grammatically complete yes/no questions, 22% can be described by the following form.

$$\text{is} \left\{ \begin{array}{l} \text{this} \\ \text{that} \\ \text{there} \\ \text{it} \end{array} \right\}$$

TABLE 30. The frequency of sentences belonging to Sentence Pattern II.

Form	*Frequency*
that is	32
there is	9
here is	5
it is	15
is that	14
is this	2
is there	4
is it	3
where is	15
what is that	4
what is this	4
what is (in) there	4
what is (in) here	3
what is it	5
Total	119

These sentences are reported in Table 31. Again, "there" sentences seemed somewhat different in that they generally questioned the contents of a location, while the other sentences seemed to use a question form to name an object.

	Mother
is that a pipe?	1, 2
is that a car?	2
is it pennies?	4
isn't this cute?	4
is there something in there?	5
is there a pipe in there?	2

TABLE 31. Sentences beginning with "is that," "is it," and "is there."

Sentence	*Frequency*	*Mother*
is that a pipe?	3	1,2
is that a baby?	1	1
is that a car?	1	2
is that a little car?	1	7
is that a lady?	1	5
is that red?	1	2
is that fun?	1	5
isn't that nice?	1	10
is it pennies?	1	4
is it a pretty dress?	1	4
isn't this cute?	1	4
isn't that cute?	3	2,6
is there anything in there?	1	10
is there something in there?	1	5
is there something in the purse?	1	5
is there a pipe in there?	1	2

Inverted yes/no questions of this form occurred as sentence frames in the speech of some mothers.

Mother 1
is that a pipe?
is that a pipe?
is that a baby?

Mother 2
is that a car?
is that a pipe?
is that red?
is there a pipe in there?

Mother 4
is it a pretty dress?
is it pennies?

Mother 5
is there something in there?
is there something in there?

These same sentences were related sequentially to other sentences in this category in the speech of individual mothers.

Mother 2
that's a car.
is that a car?

Mother 4
what is it?
is it pennies?

Mother 5
what is that?
it's grammy.
is that a lady?

Mother 5
is there something in there?
is there something in there?
open it up and let's see.
nothing in there.
there *is* something in there.

There was at least one other sentence frame that seemed to occur in the speech of some of the mothers. It had the form *here* + pronoun + *come* or *there* + pronoun + *go*. For the most part these seemed to be relatively stereotyped sentences. Here are some examples.

Mother 2
here it comes.
here it comes.
here it comes.
here it comes again.

there we go.

Mother 9
there it goes.
there it goes.
there it goes.
there you go.
there you go.
there you go.
there you go.
there you go.
there you go.

These sentences occurred occasionally in the speech of other mothers. It is difficult to know if this represents an important pattern in mother's speech.

Pattern II: Sequential Extensions. As was the case with Pattern I, there were also sequential occurrences of Pattern II sentences in mothers' speech.

Mother 2
that's a car.
is that a car?

Mother 2
that's the baby's pipe.
see the baby over there?
there's the baby's pipe.
that's the baby's pipe.

Mother 4
what is it?
is it pennies?

Mother 5
what is that?
it's grammy.
is that a lady?

Mother 9
where's the car?
the car's in the purse.

Mother 10
where's the dolly's nose?
where's her nose?
that's her mouth.
where's her nose?
where's her nose?
here's the dolly's nose.
that's the dolly's nose.

The mother sometimes asked and answered her own question. This appears to be the source of the pairings from Mothers 2, 4, and 5. The mother is requesting some pointing behavior from her son. The eight sentences seem to occur because he fails to understand. In fact, he makes unsuccessful attempts, and finally his mother shows him and codes the situation.

The following set from Mother 5 pairs a question and its declarative counterpart.

Mother 5
is there something in there?
is there something in there?
open it up and let's see.
nothing in there.
there *is* something in there.

Other Sequential Combinations. Sometimes the two sentence patterns were paired in sequential sentences used by mothers. Mother 5 combines the sentence patterns in an interesting way.

Mother 5
that's hard.
push.
push hard.

Mother 9 seems to be repeatedly naming the car for her child in this sequence.

Mother 9
here's the car.
see the car.
look at the blue car.

A sequence from Mother 7 exemplifies several things. First, the phrase "in the purse" is changed to "there." The sentence "wanna see what's in the purse?" is both expanded and reduced in the sentence "you wanna look in there and see what's in there?" Then the subsentence "what's in the purse?" occurs three times in three forms.

Mother 7
wanna see what's in the purse?
listen.
you wanna look in there and see what's in there?
look at.
what's in there?
what is this?

In the set of sentences from Mother 7, the two primary sentence patterns are paired. "What's in there?" is a part of a sentence I have grouped with imperatives. The mother then pulls that subsentence out and uses it alone. All of this occurs at the surface level in the mother's speech.

Mother 9 also does this sort of thing in the following set of sentences:

I'm gonna look and see what's in this purse.
what's in the purse?
what's in there?
is gramma in there?
look and see if gramma's in the purse.

When I attempted to find two examples of a mother pairing the imperative sentence pattern with Pattern II sentences, I found the content of the two examples was similar. The situation of looking in the purse, or getting the child

to look in the purse, seemed to generate a particular kind of sentence.

In the following set the mother codes two aspects of the situation in isolation, and then combines the two in the same sentence:

Mother 10
look at the little dolly.
isn't that nice?
it's a nice little dolly.

Sentence Manipulation. Mothers pair sentences in another way; they follow a sentence with another that either expands or reduces the first sentence. Sometimes the first sentence is just a noun, a noun phrase, or perhaps an adjective.

Mother 2
there.
a pipe.
is that a pipe?

Mother 4
cute.
isn't that cute.
do you think that's cute?

Mother 10
this one?
the blue car?
do you want the blue car?

Sometimes the mother manipulates the internal structure of the sentence as she produces successive sentences.

Mother 3
put the little doll down.
put the doll right down on the table.
put the little doll on the table.

Mother 3
who's that?
who's crying?

that won't fit.
it's too big.
this car would fit.
this would fit.

Mother 3
Becky's ok.
I'm sure Becky's ok.

In the following sequence the mother changed a positive question to a negative question in response to the child:

Mother 7
did you finish your doughnut?
did you finish your doughnut?

Child: un un
no?
didn't you finish your doughnut?

In the next sequence the same mother changed the stress pattern of a sentence. The pair of words contracted changed as she shifted the stress pattern.

Mother 7
we aren't going any place.
Kristen, we're not gonna go any place.
we're not gonna go any place right now.

Mothers sometimes substituted a noun for a pronoun or a pronoun for a noun in otherwise similar sentences produced sequentially.

Mother 4
you could put the lady in there.
you could put her in there too.

Mother 7
where's the dolly's toes?
where's the dolly's toes?
where are her toes?
are her toes here?
can you find her toes?

In the preceding sentences the mother substituted the pronoun *her* for *dolly's*. All of these sentences ask the child to point to the doll's toes. The mother codes this in several ways sequentially for the child so that he is repeatedly exposed to the same message.

Simple, Active, Declarative Sentences. Simple, active, declarative sentences were problematic. They occurred with some frequency, but they didn't seem to cluster in the kinds of patterns I have called sentence frames. The simple, active, declarative sentence has been used as an example of the simplest kind of sentence and has been considered basic to the process of learning sentence structure (Braine, 1963). The following simple, active, declarative sentences did occur, but I could find no compelling way to group them.

	Mother
her arm can move.	4
the truck fell over.	7
the car fell out.	9
there we fixed it.	10

Only Mothers 4 and 9 presented sentences that were even suggestive of a declarative sentence frame.

Mother 4
she likes it.
she sits up real good.
she can't get up.
she won't fit.
she could lay down.

Mother 9
she says hi to you.
she says hi to you.
she says hi.

Child 4 used several two- and three-word sentences during the session and was linguistically most advanced. The sentences to Child 4 don't seem to constitute a sentence frame as I have been using the term here. They just begin with the same word.

DISCUSSION

In this chapter, attention was focused on the word-to-word form of the mothers' speech. Although it is not possible to determine from this study what aspects of the mothers' speech facilitate language learning, this is my ultimate interest. Eventually the young, language-learning child will know which acoustic sequences constitute words and sentences, and how to create and interpret them. The younger children in this study were using one- and two-word sentences. These children were just beginning to crack the code that is speech. At this point it seemed most appropriate to examine the speech the children were exposed to at a word-to-word level; this is the level at which they must operate, even if they have elaborate innate language skills with preprogrammed syntax and innately defined syntactic categories. No matter how complete the child's grammatical knowledge is, he still must identify the sequences that are words and the context in which those words occur. He must translate the acoustic signals he hears into units and patterns.

Studies of adult conversational speech indicate that these units are not always clearly defined in the speech adults address to one another. The evidence in this study indicates that units are defined much more clearly in the speech addressed to the young child.

Common Language Style

In talking with young children, mothers use single words as complete remarks. This was true to some extent of all of the mothers and the tendency to do this decreased with the ages of the mothers' speaking partners. Single words used as complete remarks are interesting in that they provide the child with a clear look at word boundaries. In continuous speech, even in the speech of mothers to their younger children, words are not separated from one another by pauses. If the child is to create sentences, he must identify word boundaries. Single words bounded by pauses allow the child to identify the unity of a word, and perhaps also to identify that sequence when he encounters it in the context of a sentence. A substantial number of the words used as single-word sentences were also incorporated in longer sentences.

There was a similarity in the style of speech across mothers; different mothers used the same sentences. With all of the discussion about the novelty of speech

and the creativity of the speaking situation, it's interesting that about 20% of the sentences used by any one mother were also used by some other mother.

There was a tendency for mothers to repeat sentences that they themselves had said before. Repetitions, especially sequential repetitions, give the child a second "look" at a sentence and a second chance to process it.

At a more abstract level, mothers seem to construct their sentences in similar ways. For example, the three verbs *look, put,* and *see* (used in the extended imperative sentence form) account for almost a fifth of the total sample of sentences. All the sentences built on this pattern account for about two-fifths of the total sample. Mothers seem to construct their sentences in the same ways, and to use the same words as well.

In addition, evidence from the first two chapters suggests that a common language style may occur at a different level of analysis. The mothers made consistent and substantial modifications in the temporal patterning of their speech. These modifications were related directly to the age of the mother's speaking partner.

In general there seems to be evidence that mothers adopt a common sentence pattern and a common style of speech as they talk with their young children. This common speech pattern becomes more "adult like" as mothers talk with their older children.

Language Style

Single Words. Before I began this study, I did not anticipate the use of single-word responses. Other investigators of mothers' speech had talked only about fully developed sentences (Drach, 1969). No one really discussed the occurrence of single words as complete remarks.

These single words provide the child with information about word boundaries. They allow the child to identify the boundaries of the particular word being used. In addition, when that word is used in context, this knowledge should aid the child in identifying the boundaries of other words.

There seemed to be two primary purposes to the mothers' speech: coaxing the child into action, and naming objects and feelings for the child. Single words were used in these two ways; they also seemed to be used to get the child's attention. Words like *listen, here, there,* and the child's own name have an attention getting force.

Grammatically Incomplete Responses. Brown and Bellugi (1964) comment that mothers use short, simple, grammatically complete sentences. My initial impression was that the mothers in this study also used complete sentences, but this proved to be incorrect. Grammatically incomplete sentences should be distinguished from broken sentences. In speaking with the younger children, mothers did not stop in the middle of a sentence and begin another. Almost all the sentences used by mothers were complete in the sense of sentence terminal intonation contour or of a complete thought. They were, however, incomplete in that they were not fully developed, grammatical sentences. In addition,

these sentences were incomplete or grammatically undeveloped in the same or similar ways. In general the subject noun phrase was incomplete or missing. Most of these incomplete sentences belonged to Sentence Pattern I, the sentence pattern built on imperative form sentences.

In the play situation the mother and the younger child talked and played with the objects on the table. Sometimes the mother tried to get the child to do something—put on his shoes, for example, or sit on the chair. The child was generally the subject of those sentences. The mother talked to the child, face to face, in an intimate situation. Sentence-subject reference to the child carries little information in this situation; it is generally clear to whom the mother is referring. The same is true when the mother is referring to herself in some of the situations. When the mother says, "can't get it open," as she tries to open the purse, it is clear that the subject of the sentence is *I*. To make these kinds of determinations accurately requires information not only about the verbal behavior of the mother but also about the situation itself. Unfortunately, only two of the mothers were videotaped and no attempt has been made, thus far, to systematically relate the action to the verbal behavior of the mother. Any extensive discussion of grammatically incomplete responses will require this. In any sentence with elements missing, several interpretations of the fully developed sentence are possible. Accurate knowledge of the situation is required if reliable judgments about the expansion of grammatically incomplete sentences are to be made.

Imperative sentences constitute about one-fourth of the total sample of sentences. An imperative sentence contains no subject noun phrase. The general account of imperatives holds that the imperative has, in its deep structure, the subject *you*. In the realization of the sentence, *you* has been deleted (Katz and Postal, 1964). Sometimes the mother expands the imperative sentence by the addition of *you* in the sentence subject position. The imperative itself seems to constitute another instance of the deletion of the subject noun phrase.

Mothers also frequently omit *be* and *do*. These words are generally unstressed and carry little meaning. Sentences like "she cute?" "she got pretty eyes?" and "this a car?" are all less than complete grammatically. The missing elements all carry little meaning in the context of the sentence. They are also representative of the kinds of deletions children make.

Some grammatically incomplete responses are sentence constituants. Generally they constitute noun phrases. In some instances such noun phrases either precede or follow a fully complete sentence containing the same noun phrase. This kind of juxtaposition of a noun phrase and a sentence could provide the child with some insight into the construction of sentences.

Sentence Pattern I. Sentence Pattern I is based on the imperative form sentence. For the most part these sentences request some physical action on the part of the child. The imperatives themselves provide an uncluttered look at the verb phrase. The constraints of individual verbs become, perhaps, more apparent in the context of an imperative sentence. There is a tendency to use the same noun phrases to complete sentences involving different verbs. Again,

the verbs generally request action from the child. In the expansion of imperative sentences, *you* is sometimes preposed on the sentence. The imperatives are often expanded into coaxing questions. When a mother, within a short period of time, expands the very same sentence in a variety of ways, she is potentially providing the child with information about the construction of sentences. She is also providing information about boundaries; sentences are only expanded, broken, or reconstructed at word boundaries.

Sentence Pattern II. Sentence Pattern II was somewhat less common in this sample. There is subjective evidence that the proportion of these kinds of sentences may increase in the storytelling situation. Sentence Pattern II consists primarily of naming or asking for a name. The sentences are constructed around a small set of words including these:

$$\left\{\begin{array}{l}\text{this}\\ \text{that}\\ \text{here}\\ \text{there}\\ \text{it}\end{array}\right\} \quad \text{is} \quad \left\{\begin{array}{l}\text{what}\\ \text{where}\end{array}\right\}$$

A small group of noun phrases and adjectives is used to complete the sentences. Both questions and statements are included in this category. The manipulation of sentences within this category may also provide the child with important insights into sentence construction. Mothers were observed to juxtapose statements and questions containing common vocabulary in this form.

There are some things the child is not exposed to here. Previously I noted that the child was not exposed to strong patterns or groups of sentences that were simple, active, declarative sentences with a noun subject and a main verb. The idea seems unlikely that the simple, active, declarative forms the base for all other sentences as the child is learning to construct sentences.

The notion of left to right sentence construction also seems unlikely if this sample represents the corpus from which the child learns. Within these samples, sentences are internally manipulated; they are expanded on the left, on the right, and internal to the sentence structure. The most common kind of sentence expansion is probably the preposing of sentence elements; the second most common is probably internal sentence manipulation. The child is exposed to a selected and restricted corpus of speech, but its selection and restrictions are not in agreement with those predicted on the basis of some descriptions of child language acquisition.

Sentence Manipulations. Mothers were observed not only to repeat sentences, but also to expand, reduce, and internally manipulate sentence structure in sequentially produced sentences. Where the vocabulary is held constant but the form of the sentence is varied, the child is exposed to information about word boundaries, acceptable order, and the effect of certain transformations. At this time the child is not yet ready to use this information in his own speech, but it's interesting to know that it's available in the mother's speech.

Qualifications

This study was conducted in a laboratory setting, and the speech samples were taken within a short period of time. There are both advantages and disadvantages to this kind of a sample. It's difficult to generalize freely to the natural environment of the child. There is no assurance that the mothers talk in this manner as they feed and care for their children. On the other hand, if consistent and substantial changes occur in the mother's speech over a short period of time and in an unnatural situation, it may indicate that the effect of the child or the child's age on the mother's speech is relatively powerful. In this study, for example, there was no order effect for the children. The mothers modified their speech in the same direction with respect to the child's age no matter which child they saw first.

The mothers in this study were a selected sample. The intent was to select them on the basis of their language-teaching skill. They were in fact also selected, or at least unique, in that they had above average educations. This kind of sample may bias the study and the effect of that bias needs to be explored. Do some mothers who are good language teachers use a different speech pattern with their children?

There is another set of interesting questions that relates to the relevance of the observed changes in mothers' speech to the language-learning process. From this study it is not possible to directly relate the mothers' speech pattern to the language-learning process. This kind of statement would require a direct intervention in a situation where speech and language skills are not being acquired and the environment is not providing these kinds of speech patterns. Would the child learn if the speech he heard was changed in this way?

General Summary

This paper attempted to identify a unique style used by mothers as they talk with their young children and, in some cases, to contrast that style with the speech mothers address to older children and to adults. Speech style was described in terms of the temporal patterning, fluency, and content of the speech. Content was considered in a number of different ways. TTR, percent of repetition within a mother, and percent of overlap in sentences used by different mothers were all calculated.

In addition to these measures, the mothers' sentences were described with respect to two sentence patterns that seemed to emerge from the data, and in terms of the nature of the sequential sentences mothers produced.

In general, the mothers' speech was slow, with pauses located always, and only, at sentence boundaries when they talked with their younger children. They used a small range of vocabulary and often repeated what they had said, with and without variation. Mothers seldom used linguistically meaningless repetitions or interjections in talking with their younger children and they seldom produced broken sentences.

Mothers' sentences seemed to fall into two major sentence patterns. One pattern is built on the imperative sentence and in general expands that sentence form in a variety of ways. The other sentence pattern includes variations and permutations of a "be" sentence with *that, this, it, there,* or *here.* Mothers also used single-word and grammatically incomplete responses in talking with their younger children.

References

AGNELLO, J. G., A study of intra- and inter-phrasal pauses and their relationship to rate of speech. Doctoral dissertation, Univ. of Ohio (1963).

BEVER, T. G., The cognitive basis for linguistic structures. In J. R. Hayes (Ed.), Cognition and the development of language. New York: Wiley, 279-362 (1970).

BLUMENTHAL, A. L., *Language and Psychology: Historical Aspects of Psycholinguistics.* New York: Wiley (1970).

BOOMER, D. S., and DITTMAN, A. T., Hesitation pauses and juncture pauses in speech. *Lang. Speech,* **5**, 215-220 (1962).

BRAINE, M. D., The ontogeny of English phrase structure: The first phase. *Lang.,* **39**, 1-13 (1963).

BROEN, P., and SIEGEL, G., Variations in normal speech disfluencies. *Lang. Speech* (in press).

BROWN, R., and BELLUGI, U., Three processes in the child's acquisition of syntax. *Harv. educ. Rev.,* **34**, 131-151 (1964).

BROWN, R., CAZDEN, C., and BELLUGI-KLIMA, U., The child's grammar from I to III. In J. B. Hill (Ed.), *Minnesota Symposia on Child Psychology.* Minneapolis, Minn.: Univ. of Minnesota Press (1969).

CAZDEN, C., Environmental assistence to the child's acquisition of grammar. Doctoral dissertation, Harvard Univ. (1965).

CHOMSKY, C., *The Acquisition of Language from Five to Ten.* Cambridge, Mass.: MIT Press (1969).

CHOMSKY, N., The formal nature of language. In E. H. Lenneberg (Ed.), *Biological Foundations of Language.* New York: Wiley (1967).

DRACH, K., The language of the parent: A pilot study. In *Working Paper #14: The Structure of Linguistic Input to Children.* Univ. of California, Berkeley: Language-Behavior Research Laboratory (1969).

ERVIN-TRIPP, S., An overview of grammatical development. In D. Slobin (Ed.), *The Ontogenesis of Grammar.* New York: Academic (1971).

FAIRBANKS, H., Studies in language behavior: II. The quantitative differentiation of samples of spoken language. *Psychol. Monogr.,* **56**, 1-15 (1944).

FERGUSON, C. A., Baby talk in six languages. *Amer. Anthrop.,* **66**, 103-114 (1964).

GOLDMAN-EISLER, F., *Psycholinguistics: Experiments in Spontaneous Speech.* New York: Academic (1968).

JOHNSON, W., Studies in language behavior: I. A program of research. *Psychol. Monogr.,* **56**, 1-15 (1944).

KATZ, J. J., and POSTAL, P. M., *An Integrated Theory of Linguistic Descriptions.* Cambridge, Mass.: MIT Press (1964).

KESSEL, F., The role of syntax in children's comprehension from age six to 12. *Monogr. Soc. Res. child Developm.*, **55**: 139 (1970).

KLIMA, E., and BELLUGI-KLIMA, U., Syntactic regularities in the speech of children. In D. Reibel and S. Schane (Eds.), *Modern Studies in English.* Englewood Cliffs, N.J.: Prentice Hall (1969).

LENNEBERG, E. H., *Biological Foundations of Language.* New York: Wiley (1967).

LONGHURST, T., Effects of communication disorder and listener behavior. Doctoral dissertation, Univ. of Minnesota (1971).

MACLAY, H., and OSGOOD, C. E., Hesitation phenomena in spontaneous speech. In L. A. Jakabovits and M. S. Miron (Eds.), *Readings in the Psychology of Language.* Englewood Cliffs, N.J.: Prentice-Hall (1967).

MARTIN, J., On judging pauses in spontaneous speech. *J. verb. Learning verb. Behav.*, **9**, 75-78 (1970).

MCNEILL, D., Developmental psycholinguistics. In F. Smith and G. A. Miller (Eds.), *The Genesis of Language: A Psycholinguistic Approach.* Cambridge, Mass.: M.I.T. Press, 15-84 (1966).

PHILLIPS, J. R., Formal characteristics of speech which mothers address to their young children. Doctoral dissertation, Johns Hopkins University (1970).

SCHIEFELBUSCH, R., Language studies of mentally retarded children. *J. Speech Hearing Dis. Monogr. Suppl. 10* (1963).

SHIPLEY, E., SMITH, C., and GLEITMAN, L., A study of the acquisition of language: Free response to commands. *Language*, **45**, 322-342 (1969).

SIEGEL, G. M., Interpersonal approaches to the study of communication disorders. *J. Speech Hearing Dis.*, **32**, 112-120 (1967).

SIEGEL, G. M., Verbal behavior of retarded children assembled with preinstructed adults. *J. Speech Hearing Dis. Monogr. Suppl. 10*, 47-53 (1963).

SIEGEL, G. M., and HARKINS, J. P., Verbal behavior of adults in two conditions with institutionalized retarded children. *J. Speech Hearing Dis. Monogr. Suppl. 10*, 39-46 (1963).

WINER, B. J., *Statistical Principles in Experimental Design.* New York: McGraw-Hill (1962).

Appendix 1

INDIVIDUAL SUBJECT DATA

Individual subject's ages, test scores, order, and important notes. Grammatical closure and auditory association mean standard scores = 36. One standard deviation = 6.

Subject	*Age of Mother (Years)*	*Age of Younger Child (Months)*	*Age of Older Child (Months)*	*PPVT Percentile*	*Grammatical Closure*	*Auditory Association*	*Child Order*
1	27	18	46	60	(41)	(42)	O-Y*
2	27	21	46	66	(54)	(54)	Y-O*
3	25	22†	47	96	(67)	(53)	Y-O
4	28	26	94	53	(47)	(51)	O-Y‡
5	28	21	63	97	(47)	(37)	Y-O
6	34	21	78	96	(53)	(47)	Y-O
7	28	18	45	96	(65)	(58)	O-Y
8	26	25§	45	94	(56)	(47)	O-Y
9	39	18	65	99	(45)	(44)	O-Y
10	41	20	70	85	(53)	(50)	Y-O
Mean	30.3	21	59.9	84.2	52.5	48.3	–

*Adopted.
†Twin
‡First session used.
§Some motor system damage at birth—not walking.

Individual subject data for disfluencies per 100 words used by mothers with their older and younger children in a play situation and a storytelling situation and in conversation with an adult.

	Older		*Younger*		
Subject	*Play*	*Story*	*Play*	*Story*	*Adult Conversation*
1	0.5	0.3	0.7	0.4	3.5
2	0.3	0.5	0.8	0.2	6.8
3	1.3	1.1	0.7	0.5	4.0
4	2.1	0.8	0.3	1.3	5.5
5	1.5	0.6	0.3	0.4	3.3
6	3.3	1.8	1.5	0.7	6.0
7	1.0	0.4	0.2	0.6	2.6
8	2.5	0.8	0.0	1.3	4.6
9	1.9	0.7	1.1	0.7	5.8
10	1.7	0.7	0.2	0.5	4.9

Individual subject data for type-token ratio used by mothers in talking with their older and younger children in a play situation and a storytelling situation and in conversation with an adult.

Subject	Older		Younger		Adult Conversation
	Play	Story	Play	Story	
1	0.600	0.595	0.530	0.560	0.620
2	0.575	0.625	0.520	0.530	0.630
3	0.640	0.530	0.550	0.450	0.580
4	0.630	0.675	0.570	0.530	0.675
5	0.610	0.520	0.550	0.435	0.690
6	0.640	0.590	0.515	0.570	0.690
7	0.615	0.555	0.530	0.420	0.625
8	0.600	0.610	0.615	0.500	0.670
9	0.555	0.555	0.430	0.455	0.660
10	0.650	0.625	0.450	0.450	0.665

Mean number of words per minute used by mothers with their younger children and older children in a play situation and a storytelling situation and in conversation with an adult.

Subject	Older		Younger		Adult Conversation
	Play	Story	Play	Story	
1	74.4	139.0	54.6	92.6	122.6
2	73.8	120.2	79.0	107.2	106.4
3	91.5	129.0	60.8	125.0	114.6
4	58.2	94.6	64.0	94.4	108.8
5	66.4	107.0	32.2	104.2	125.4
6	92.2	147.8	58.8	116.8	152.2
7	123.2	180.2	90.6	141.0	194.2
8	72.4	94.6	34.0	110.4	120.6
9	129.2	147.8	131.6	146.4	154.0
10	81.0	114.8	86.0	113.2	127.8

Appendix 2

CODED PROTOCOLS OF MOTHERS' SPEECH

SPEECH SAMPLE CODED FOR UTTERANCE TYPE

The 12 one-minute speech samples used in the sentence identification study were segmented and coded according to the following set of rules: in deriving the coded speech samples, both the tape recording and the written protocol of the speech were used. In general, the mother's speech was broken into the smallest syntactically cohesive units possible. The following material describes the sentence code used:

Sentence Code

+ Complete, well-formed sentence—I used my own judgment.

+? Less than well-formed sentences. These sentences seemed by content and intonation pattern to be complete, but not wholly grammatical. Most fell into two categories: (1) phrases used in answer to a question or as a comment, or (2) sentences in which the subject was omitted.

Br Broken sentences that appeared to be abruptly stopped and abandoned.

Another kind of broken sentence is one in which the speaker stops in the middle, retraces a part of the sentence, and then goes on to finish. The broken sentence is marked (Br) at the point where it is retraced. In the margin, the sentence is marked as less than well-formed (+?).

Sing Single words which were, in themselves, complete remarks: generally, either signs of affirmation or negation (yup, ok, no, all right, un-un), or holophrastic sentences ("listen," "see," "there," "here," "look at"). Such remarks were generally carried by a sentence intonation contour.

Int Interjected or intruded sounds, words, or phrases inserted into the stream of speech without apparent meaning, including the "ah" of filled pauses as well as filler words and phrases like "well" and "you know."

Also included in this category were any conjunctions which joined two otherwise complete sentences or which were used to begin an otherwise complete sentence. There seemed to be evidence from other studies that conjunctions were being used in ways that interfered with the identification of sentences (Phillips, 1970; Drach, 1969). The mothers in this study used conjunctions often, especially in speaking to the adult, and the conjunctions were often inappropriate, either syntactically or semantically, or both. For example, in the following speech of a mother, five complete sentences are joined to one another by *and, so,* and *because.* In some instances the sentences are in the right relationship to each other to be conjoined.

> I worked with him a lot more than I do with her probably because we're redoing our house now and we're busier and we're in more activities, I think, because we did spend a lot more time with him and I know I'm (B).

The second *because* seems clearly inappropriate, and while any two of the first set of sentences could be joined by an *and,* they all are joined together. In

coding the sentences in this set, the decision was made to consider all conjunctions which join two otherwise complete sentences as being interjected into the speech. The segment was coded in the following way:

Sentence Code	*Speech*
+	I worked with him a lot more than I do with her
Int	probably because
+	we're redoing our house now
Int	and
+	we're busier
Int	and
+	we're in more activities, I think
Int	because
+	we did spend a lot more time with him
Int	and
Br	I know I'm (B)

In that stream of speech there were five complete sentences, five interjected words, and one broken sentence.

Several other aspects of the speech were also coded within the body of this sample. The location of a break in a broken sentence was marked by (B). Interjections internal to a sentence were marked (I), and repetitions were marked where they occurred, with (R). Data from the pause detection process and the sentence identification study were also marked in this sample. Pauses were marked where they occurred with /0.00/ to indicate the time in seconds. /P/ was used to indicate pauses which were clearly perceived by a listener but not identified mechanically because of background noise. Twelve /P/ pauses were identified. They involved four of the 12 speech samples and constituted 7.7% of the total number of pauses identified. Four of the /P/ pauses were in the speech to an adult and eight of the pauses were in the speech to an older child. One to an adult and one to a child were midsentence pauses; the rest were sentence terminal.

The distribution of these pauses seems unlikely to have biased the results in the direction of the findings. Their exclusion would inflate the results.

No /P/ pauses occurred in the speech to the younger child. This was not because noise was not a problem; toy noise, especially, occurred frequently when the mother was talking with the younger child. It is more likely that pauses in the speech of the mother to the younger child were long enough so that at least some portion of the pause was identified. However, it may be that the duration of pauses in the mother's speech to the younger child is depressed.

The symbol # # was used to note terminal sentence boundaries identified by 80% or more of the judges in the sentence identification study.

Individual Protocols

Identification of sentence boundaries and pauses in the speech of Mother 5 to an adult: sentence identification study segment number 5.

Sentence Code	*Speech*
Br	no that's (B)
+	Jan /0.34/ made that
Int	and
+	it was Sherry's
Int	and
Br	then we (B)
Br	I have a niece that's a little bit older than (B) ah (I) /1.16/

Int	well
+	she's about the same age as Kim I guess
Int	so
+	I gave them a spring coat of hers
Int	and
+	we've been trading back and forth ##
Adult:	oh that's really nice if you can do that I I guess I didn't remember it from them but but when I was taking it off of her it it's pretty
Sing	yeah
+	I wish I could sew as well as she does ##
+	she sews beautifully /0.90/ ##
Adult:	well when she tackled those drapes that was
Int	and
+?	designing her own valance for the dining room and everything
Sing	oh
+	she really has a knack for it /0.98/ ##
Adult:	yeah you know the last time they were they were shopping for a couch I think the last did they ever find it
+	she found some material that she liked
Int	but
Br	sh (B)
Int	you know
+	it's just a small swatch
Int	and
+	she said, "I can't tell from that"
+	"get me a bigger piece"
Int	so
+	I can at least see some of the pattern
Int	and
+	I think they didn't like it after they saw it
+?	was /0.28/ too big or something
Int	so
+	she's still looking

Identification of sentence boundaries and pauses in the speech of Mother 5 to an older child: sentence identification study segment number 8.

Sentence Code	*Speech*
+?	drive the truck or crash /P/ ##
Child:	she fall off
+	she likes to drive with her feet /P/ ##
Child:	no she can
	she's tall enough to
+?	to see over
Sing	yeah
+	she can can't she
Sing	see
+	her eyes are right over there /0.36/ ##
Child:	and pretend she saw
	and this car wasn't still in here see
	I can figure out
	see the car can go away in front and you can see
Int	and
+	it won't fall off /1.94/ ##
+	what happens if it /0.88/ gets squashed down and falls off /1.64/ ##
Child:	it can go look at
+	is that /0.62/ car too big or too small to go through that hole /1.14/ ##
Child:	it's too big because
+?	the hole is what too small /0.40/ ##
Child:	un hn it's too ski skinny

+?	too skinny /0.76/ ##
Sing	see
+	you got the baby again /0.66/ ##
+	Amy likes the socks /0.36/ ##

Identification of sentence boundaries and pauses in the speech of Mother 5 to a younger child: sentence identification study segment number 2.

Sentence Code	*Speech*
Child:	see
+	can you say fingers ##
Child:	sock
	see
	shoe on
	pre see
Sing	pretty /0.44/
Sing	mmmm /0.30/
Child:	a socky
+	does she have any eyes /2.46/ ##
Child:	eyes see eyes
+	where's her where's her (R) nose /0.50/ ##
Child:	ah nose
+	say beep /1.26/ ##
Child:	her mo
+?	this a car? ##
Child:	mom
Sing	oh
+?	want her over here
Sing	ok /1.80/ ##
+	is there something in the purse /0.88/ ##
+	is there something in there /2.60/ ##
+	open it up and let's see it /1.66/ ##
Child:	in there
+?	nothing in there /0.48/ ##
+	there is something in there /0.56/ ##
Child:	uh out
+	what is that /1.02/ ##
+	it's granny /0.44/ ##

Identification of sentence boundaries and pauses in the speech of Mother 7 to an adult: sentence identification study segment number 10.

Sentence Code	*Speech*
Sing	oh
+	I've been talking to my friends about it since last week
Int	and
+	we all think that the first ones learn faster
Int	because
+	you spend more time with them /0.34/
Int	and
+	the second ones get what they want /0.66/ ##
Adult:	well from the first ones or from you
Int	well
+?	from the first ones
Int	because
Br	they can just (B) /0.56/
+	like we all say, "see what she wants"
Int	and

+	he takes care of her
Int	and
+	he understands her /0.44/
Int	so
+	I don't think she has to communicate as much as he did /0.30/ ##
Adult:	well can you remember things that you that you did that you felt were like like really really trying to each
Sing	yeah
+	I worked with him a lot more than I do with her /0.52/ ##
Int	probably because
+	we're redoing our house now
Int	and
+	we're busier /0.68/
Int	and
+	we're in more activities I think /0.48/
Int	because
+	we did spend a lot more time with him
Int	and
Br	I know I'm (B)
+	sometimes I feel sorta bad about it
Int	but
Br	I suppose (B)
+	I don't know
+	the ne next (R) year he's going to nursery school
Int	so
+	then I know I'll do the same with her
+	I'll /0.38/ you know (I) try to teach her things in the kitchen
Int	because
+	I taught him everything in the kitchen
+	he can fry an egg by himself now and you know (I) fix his own breakfast and everything
Int	which /0.38/
+	he could when he was two

Identification of sentence boundaries and pauses in the speech of Mother 7 to an older child: sentence identification study segment number 9.

Sentence Code	*Speech*
+?	same old gramma's right in there /0.36/ ##
Child:	same old gramma
Sing	yeah
+?	that's that gramma like for your farm set /1.08/ ##
Child:	yeah ha
+	she's got funny hair /0.88/ ##
+	she's got a bun /0.80/ ##
Child:	yup
+	that's what you call a bun /0.92/ ##
Child:	bun
+	she's got funny eyes too /0.44/ ##
+	I wonder why that hole's up there /1.76/ ##
Child:	who's that for
+	I don't know ##
+	she could put it on the end of her pencil /1.14/ ##
+?	sorta funny /0.38/ ##
Child:	he can put this inside or on top see
Sing	right /0.48/ ##
+	I bet we could get four cars in there /P/ ##
Child:	four
Int	but

+	I don't know what this hole in here is for /0.62/ ##
Child:	what are these holes for
Int	well
+	those holes are to hold the wheels of the cars
Int	but
+	I don't know what that other hole is for /0.36/ ##
+	we're gonna wait for that /P/ ##
+	we're gonna tell it in a minute ##
Child:	oh oh
Sing	yeah
Child:	tell it now
+	we're gonna wait for a minute /2.58/ ##

Identification of sentence boundaries and pauses in the speech of Mother 7 to a younger child: sentence identification study segment number 12.

Sentence Code	*Speech*
+?	you gonna go to sleep /1.54/ ##
Sing	hum?
+	are you tired /2.16/ ##
+	is the dolly warm /0.50/ ##
Child:	un hn
Sing	un hun /1.66/
+?	nice dolly /0.76/ ##
+	did you finish your doughnut /1.48/ ##
Sing	hun? /2.42/
+	did you finish your doughnut /0.72/ ##
Child:	un un
Sing	no /1.96/ ##
+	didn't you finish your doughnut /0.40/ ##
+	were you playing with some toys /0.66/ ##
+?	go oo ooo ooo /0.72/ ##
+	you talk funny
+	you don't make any sense at all /0.80/ ##
+?	wanna see what's in the purse /0.90/ ##
Sing	listen /1.84/ ##
+?	you wanna look in there
Int	and
+	see what's in there /1.32/ ##
Sing	ah /0.96/
Sing	look at /3.70/ ##
+	what's in there /0.56/ ##
+	what is this /1.80/ ##
+?	wanna put her back /2.42/ ##
+	close the purse /2.06/ ##

Identification of sentence boundaries and pauses in the speech of Mother 8 to an adult: sentence identification study segment number 1.

Sentence Code	*Speech*
Br	me to teach him is really (B)
+	she's pregnant /0.30/ ##
+	ordinarily I guess she does /0.48/ more with the babies
Int	but
+	she was in there this morning
Int	but ah /1.98/
+	we have to have one mother for each child under three /0.32/ ##
Adult:	oh it's kind ah it's a class

Sing	yeah
+	there there's (R) three of us /P/ all all (R) friends who did it
Sing	yeah
Int	and uh
+	he's the only little one
+	the others are two and a half
Int	and
+	one of them's /0.26/ mother isn't here
+	this is the first lesson
Int	and
+	she's not here
Int	but
Br	I don't (B)
+	I expect that's gonna be disastrous
+	the other one just like Jamie would have last year shrieked /P/ ##
Adult:	oh
Int	but
+	he thought it was great
Int	'cause
+	the only experience he's had has been with Mr. Green and the yacht club this summer /1.06/ ##
Int	when
+?	Jamie was suppose to be having a lesson only was having a temper tantrum /P/ ##
+	Larry got more lessons this summer /P/
Adult:	on Jamie's time
Int	well (to the child)
+	it needed buttoning (to the child) /0.72/ ##
Sing	oh (to the child) /1.48/
Adult:	poor fellow
+	now the girls in the swimming pool come and admire Larry
+	he associates swimming with heaven /0.30/

Identification of sentence boundaries and pauses in the speech of Mother 8 to an older child: sentence identification study segment number 3.

Sentence Code	*Speech*
Sing	yeah
+	you really know how to do it don'tcha /3.22/ ##
Child:	I can put these socks on, can't I
+	can you tell me how many toes she has /1.40/ ##
Child:	one two I ca-
+	you're too busy /2.92/ ##
+	can't you unbutton those ##
Child:	no
+	sure you can /0.94/ ##
Child:	I know I can't
	there go
	there's one
	try to do this
+?	there's two /1.94/ ##
Child:	hey that's this
	wanna see
	this is just like like the little drummer boy
Br	we have to wait 'till we (B)
Br	'till Mrs. (B)
+	is that
Child:	yeah look at
Sing	ok

+?	you can tell me about him when we get (B) when she's ready /2.00/ for us to do that /7.10/ ##
Child:	oh mamma they're hard to get off
Sing	here
+	let's see
+	let's not rip her /1.32/ ##
Br	we had better (B)
Int	um /1.78/
Sing	there /1.60/

Identification of sentence boundaries and pauses in the speech of Mother 8 to a younger child: sentence identification study segment number 11.

Sentence Code	*Speech*
+	I thought maybe you'd think she was pretty nifty /1.22/ ##
Sing	oh
+	you need the bib /0.44/ and the bonnet /8.44/ ##
Sing	ok /5.42/ ##
Sing	here /0.64/
+?	it's just like mom puts it on you /0.88/ ##
+	you just go like that /2.12/ ##
Sing	ok /0.68/
+	take it in each hand here /1.74/ ##
+?	one end in each hand
Int	and
+	then you go around her neck /0.76/ ##
Sing	ok /1.46/ ##
+	if you press hard enough is it going to stay on /0.96/ ##
Sing	yeah /0.36/ ##
+	you think so hun /0.92/ ##
Sing	ok /2.62/ ##
+	now we tie a bow /*/ ##
	(*accurate value could not be determined because the mother whispered)

Identification of sentence boundaries and pauses in the speech of Mother 10 to an adult: sentence identification study segment number 7.

Sentence Code	*Speech*
+	she likes school real well
Sing	un hn
Int	so
+	I'm sure that ah (I) /0.98/ right now she's sorta anticipating the time when all the kids will be playing /0.32/ around outside
Int	but
Sing	no
+	she loves school as far as ah (I) /0.58/ that's concerned /1.02/ ##
Adult:	it seems to me that I remember my kids getting kind of impatient with not being able to read yet
Br	although they do more (B) ah (I) /0.26/
Br	at least (B)
+?	of course that's years ago since I was in kindergarten ##
Adult:	well it's quite a while since my kids were too
Int	but
+	I think she does what they call number papers
Int	and
+	we never had anything like that
Br	it's just (B)
Int	you know

+	like they might have shapes and objects
Int	and
+	they're to /0.52/ count how many shapes there are /0.40/
Int	or
+	if there aren't enough of these /0.32/ particular shapes to correspond with the number that they have /0.94/ on the paper they're to add to them /0.32/
Int	so
+	it's more or less a numbers and reading readiness that they're doing now
Br	I never encountered anything like that in a (B) /0.82/

Identification of sentence boundaries and pauses in the speech of Mother 10 to an older child: sentence identification study segment number 4.

Sentence Code	*Speech*
+	we'll just have to pretend I think /0.62/ ##
Child:	or we could have the same lady
Sing	sure
+	you could do that too /0.46/ ##
Child:	ok we'll do that or maybe we could just pretend
Sing	yeah
+	this dolly even has a bib
+	isn't that nice /P/ ##
Child:	ok mommy
+	isn't that a pretty dress she has on ##
Child:	um hm is it just a decorate or can you play with it
+?	with the dress ##
Child:	no can you play with the doll
Sing	oh
+	sure you can /0.78/ ##
Child:	do you wanna
Sing	alright /0.34/ ##
Child:	we'll do something different everytime and the next time we'll play with this and she'll be the driver
Sing	um hm
Child:	I'll put this on the inside should I put it on the in or out
+?	which ever place you'd like ##
Child:	I'll put it on the inside
Sing	hm
+	she even has nice booties /P/ ##
+	I'll bet at one time /P/ these booties belonged to a real baby /1.36/ ##
Child:	un hum (intelligible)
+	the booties are the size of some that you and Jeffrey had when you were little /P/ ##
Child:	like a _____ that's right
Int	'cause
+	she's about the size of a real baby isn't she /0.76/ ##

Identification of sentence boundaries and pauses in the speech of Mother 10 to a younger child: sentence identification study segment number 6.

Sentence Code	*Speech*
Sing	ready /0.96/ ##
+	you make the truck go
Int	and
+	I'll make the car go /0.96/ ##
Sing	zroom /1.72/

Sing	oh
+	what happened to it /0.80/ ##
+	where's the rest of the truck /1.96/ ##
Sing	huh /0.60/
+	where's the rest of the truck /1.78/ ##
+	there it is /1.76/ ##
+	did it come apart /0.64/ ##
+	let's see if we can fix it /1.08/ ##
Sing	there
+	we fixed it /3.12/ ##
Sing	oh
+	now are you gonna take it apart /4.44/ ##
Sing	well good
+	now can you put it back together again /1.54/ ##
+	can Jeffrey fix it /1.34/ ##
Sing	un hun
+	see if you can fix it /7.66/ ##
Sing	almost /0.86/
+	see this little hole ##
+	see that hole /0.84/ ##
+	you haveta put that right on there /2.06/ ##

Appendix 3

SENTENCES USED BY MOTHERS IN PLAY WITH THEIR YOUNGER CHILDREN

SENTENCES BEGINNING WITH A VERB

Mother 1
look at.
look inside.
look inside.
look in here.
look in here.
look in the purse.
look in the purse and see what's in the purse.
look and see what's in the purse.
look and see what's in here.

see the truck?
see?

go (blows).
go (blows).
go (blows).
go like this.

put that end in your mouth.
don't put the doll in your mouth.

be careful.
be careful.
be careful.

make it go together?
give me your foot.
take that one.
remember that truck from last time?

get up.

come on.
come here.

Mother 2
look at.
look at the wheels.
now look at the purse, ok?

look what mommy's got in her hand here.

see?
see it?
see the baby over there?
see what's inside?

put the pipe in the purse like this.
don't put the pipe in your mouth though, ok?

push it.

come on now.

Mother 3
look what's in there.
love her.
see?

put the little doll down.
put the doll right down on the table.
put the little doll on the table.

open?
open.
open.

give her a love.

give me a kiss before you go.
give me a kiss.
give me a kiss before you go.
give me a kiss before you go.
give me a kiss before you go.

say little doll
now pick the doll up.
now use your hand.
come back here.

don't go too far.
don't hit her, love her.
don't use your teeth.

Mother 4
look at this purse.

give her a ride up there.

Mother 5
see?
see?
see?
see her hair?

open.
open.
open it up and let's see it.

close it up.

listen.
listen.

let her in.

push.

push hard.
watch your fingers.
watch this.
squeeze that together.
make the lady walk.

peek.
peek.
peek.

say beep.

Mother 6
look at.
look at.
look at.
look at.
look at.
look what's in there.

see?
see?
see?
see how that fits together?

close it?
close it.

Mother 7
look at.
look at.

see that hole?
see this part right here?
see her eyes are closed?
see that little thing's gotta fit in there like that.

put the dolly on the chair.
put the dolly on the chair.
put the car inside here.

say ni ni dolly.
tell her good night.
try and get it out.

come on.
come on.

sit her up so her eyes are open.

listen.
close the purse.
push the truck.

Mother 8
take it in each hand here, one end in each hand.
pull the string.

Mother 9
look, John.
look at here.
look at here.
look at the truck.
look at the blue car?
look at the gramma.
look at, John.
look and see if gramma's in the purse?
look what I have, John.

see the gramma.
see the car?

make the truck go chooo chooo.
make the truck go errrrr.
make the truck go oooooo.
make the car go.
make the car go inside the truck.
make the car go.
get the car out of the truck.

take her for a ride there.
take her for a ride.
take the truck apart, John.
take it apart.

and put the car up here.
put the car on top of the truck.
say John, put the car inside of the truck.
put it inside the truck.
put it in.
put your truck back together.
put it together, mama.
put it right in in the back.
put the gramma into the truck.
put it back.
put the gramma in the truck.
wait.
put it together.
put her in the truck.

Mother 10
look at.
look at the dolly's eyes.
look at the little dolly.
look at the pretty dolly.

see?
see the dolly's pretty hair?
see her pretty hair?
see that hole?
see this little hole?
see the dolly?
see her eyes?
see the dolly's eyes?
see if you can fix it.
see she went night night?
put the dolly in the purse too?
sure, give the car a ride.
watch the dolly's eyes.
now watch.

DECLARATIVE SENTENCES

Mother 1
there's a car in there.
that won't work.
that's the right end.
you still have cereal on your mouth.
it's like mommy's purse.
something's hiding.
something's hiding.

here, let me see it for a minute.

Mother 2
there's a pipe in there.
there's a baby's pipe.
there we go.

that's a car.
that's a trailer.
that's the baby's pipe.
that's a baby's pipe.

here it comes.
here it comes again.
here it comes.
here it comes.

let's see.

let's see this truck once.
it's gonna go around that truck.
you're silly.

I'll show you.

but I don't want you to put it in your mouth.
but honey I don't want you to put it in your mouth.
honey, mommy doesn't want you to put that in your mouth though.

Mother 3
that's a truck.
that's the way.
that's nice.
that's nice.

let's see.

that won't fit.
that truck's just like Eve's truck, huh?
this car would fit.
this would fit.
this goes on right there.

it's too big.
it's all right.

Becky's ok.
I'm sure Becky's ok.
they'll take care of her.

Eve's with her.
Eve's taking care of her.

there you go.

you open it.

Mother 4
it was all right.
it's all right.
it's tied.

she likes it.
she sits up real good.
she can't get up.
she won't fit.
she could lay down.

you can put her up here.
you could put the lady in there.
you could put her in there too.

that's the way it's suppose to be.
that's one hat, right there.

her arm can move.
but I don't think the baby tied it.

let's peek.

are you ever lucky.
are you ever lucky.

Mother 5
there *is* something in there.
it's grammy.

that's a lady.
that's hard.
that's it.

my fingers are too big.
you want me to open it.
now there are two.

Mother 6
that's her bib.
that's like a van, Jay.
that's like daddy's car.

she's all dressed to go outside.
she's still in there.

you put the shoes on too.
you have to be careful.
you did it, Jay.
you want that to go in there.

this goes on here.

let's see if he's still in there.

isn't that cute.
isn't she cute.

Mother 7
you push the truck.
you push the truck.
you can put this car on top of here too and give it a ride.
you talk funny.
you don't make sense at all.
there you have it.
you're such a messy thing.
here's a big truck.

now the car's inside.
the car's going for a ride.
she's going to sleep.

let her sit up.
let's rock the dolly, rock.
let's lay the dolly down.
let's fix the dolly's legs.
let's fix her legs.
let's sit down with the dolly.

we aren't going anyplace.
Kristen, we're not gonna go anyplace.
we're not gonna go anyplace right now.
we're gonna stay here for just a minute and then we're gonna go.

the truck fell over.
this is falling off though.
this part's gotta go in that hole.
it's a Tonka truck.
it's fixed.

Mother 8
you just go like that.
you have to untie the bow.
you take it this way.
you pull these.
and then you just go around her neck.
now we tie a bow.
I see.
I guess maybe she's a wetting doll.
it's just like mom puts it on you.
that's right.
that's right.
that's right.
that's good.
that's perfect.
that's the front of your truck.
that hooks on.

I thought maybe you'd think she was pretty nifty.

Mother 9
you like the truck.
you put it in.
yeah, you put it in.

yes, you put it in.
now you find it.
yeah, you find it.
you find it.
now put it together.
you wanna put it together.
now you can put the gramma in there too.
and you can sit on the chair.
she's going for a ride.
she says hi to you.
she says hi to you.
she says hi.

there it goes.
there it goes.
there it goes.
there you go.
there you go.
there you go.
there you go.
there you go.
there you go.
there goes a car.
there it is.
there's the truck.

here's a car.

that's right.
that's right.
that's right.
that's not how the truck goes.

I'm gonna take this away and put it over here.
I'm gonna look and see what's in the purse.

I'll show you how.
I'll help you, John.
I'll help you, honey.

it came apart.
if you want that that's fine.
if you want that that's fine.

the car's in the purse.
the car fell out, John.

up it goes.

let's wipe this tear.
let's wipe it.

Mother 10
you make the truck go and I'll make the car go.
and you turn it up.
now you're gonna take it apart.
you want it on the floor.
you have to put that right on there.

that's the dolly's nose.
that's Jeffrey's nose.

that's her mouth.
well that's too big.
that's too big.
that's all.
I think that's too big too.
that won't fit.

it's too big.
it's all ready to go.
it's too big.
it's too big.
it won't fit in the purse.
it won't fit in the purse.
I think it's too big, Jeffrey.

here's the dolly's nose.
here's a purse.
here's a purse.
there's the car.

I see something.
I'll keep the yellow truck.

she went night night:
see, she went night night.

there it is.
there we fixed it.
there it went.
let's see if we can fix it.

he's gonna turn the corner.
away it goes.

QUESTIONS

Mother 1
is that a pipe?
is that a pipe?
is that a baby?
is your other shoe coming off?

what's that?
what's that?

did your shoe comes off?
did your shoe comes off?

see the truck?
see?
make it go together?
remember that truck from last time?

were you being a cry baby?
were you crying?

should we put your shoes on?
should we put them back on?

where's your shoe?
where's the other one?
wanna put your shoes on?
wanna sit on my lap and we'll put your shoes on?

Mother 2
is that a car?
is that a pipe?
is there a pipe in there?
is that red?

up?

oh, isn't that cute?
oh, isn't that cute?

see?
see it?
see the baby over there?
see what's inside?

does daddy smoke a pipe?
does daddy smoke a pipe?

can you push it?
can you shut it?
can you say purse?
can you say purse?

should we put the pipe back in?
should we open it?
can't you think of anything else?
want me to shut it?

sometimes, doesn't he?
how about that?
that a squeaky one?
how about looking at this truck?
that's a squeaky one, isn't it?
there's a pipe in there, isn't there?
we'll play with the pipe a little bit later, ok?
now look at the purse, ok?
don't put the pipe in your mouth though, ok?

Mother 3
do you want it open?
do you want to get down and walk around for a minute?

should we open it?

what do you want?
what did you hit the dolly for?
what is it?
what is that?
what's in there?
what's in there?
what is it?
where you going?

comes apart?
open?
see?

who's that?
who's crying?
who's crying?
who's crying?

you gonna go bye bye?
so you're not quite as dumb as you act, huh?
well, no kisses for your mama?
no kisses for your mama?

Mother 4
is it a pretty dress?
is it pennies?
isn't this cute?

are you happy now you found me?
are you gonna put it in your bank when you get home?
or are you gonna give it back to the lady?

do you know what's in there?
do you think it's cute?
did you cry?
does she want it back?

what's this?
but what's this?
what is it?
what is it?
what's here?
what do you think is in there?

where'd you get the money, huh?
where'd you get that money?

who gave it to you?

should we wipe your nose?
wanna look at these toys?
wanna see this?
wanna see that baby?
want that car?
you want her to sit down there, huh?

don't you have a kleenex?

she cute?
she got pretty eyes?
you gonna hug her?
pretty shoes?

it's all right anyway, isn't it?

the lady gave you money?

Mother 5
is there something in the purse?

is there something in there?
is that a lady?

can you say fingers?
can you say purse?
can you say grammy?
can you say grammy?
car?
purse?

does she have any eyes?

you want me to open it?

where's her nose?

what is that?

what's this?

this a car?

want her over here?

see?
see?
see?
see her hair?

Mother 6
isn't she cute?

is your truck going over to Minneapolis?
is that fun?

do you want it off?
do you want me to shut it?
where you going with your truck?
where did it go?
what is it?
now you want me to close it?

close it?
see?
see?
truck?
see?
see?
see how it fits together?

Mother 7
is the car stuck?
is the dolly ni ni?
is the dolly warm?
is that a little car?

see that hole?
see this part right here?
see, her eyes are closed?

are you gonna go to sleep?
are you tired?
are her toes here?

can you get the car out?
can you do that?
can you find her toes?

did you finish your doughnut?
did you finish your doughnut?
didn't you finish your doughnut?

what?
what's in there?
what is this?

where's the dolly's toes?
where's the dolly's toes?
where are her toes?
honey?
were you playing with some toys?
want me to fix it?
wanna take her booties off?
you wanna put her on the chair?
you wanna get down?
wanna put her back?
wanna see what's in the purse?
you wanna look in there and see what's in there?

you just don't wanna set, do you?
you have to do it yourself, don'tcha?
comes apart, doesn't it?

no?
you can fix it?

Mother 8
you need the bib and the bonnet?
you think so, huh?
what do you say?
who don'tcha try the other end first?
if you press hard enough is it going to stay on?
want her hat on too?

pretty?

Mother 9
is gramma in there?
is it falling apart again?

do you wanna take the truck apart?
you wanna put it together?
wanna put it back?
want me to help you?
do you want me to put it back together?

do you need some help?
do you like that truck?
do you like her?
you like the truck?

see the car?
look and see if gramma's in the purse?

did it come apart?
did the car fall out?

can you put the car inside of the truck?
can you put it back together?
can you find the car?
can you push it up?
shall I find the car, John?

you gonna put it back together again?

John?

where's the car?
where's the car?
where's the car, John?
what?
what?
what?
what?
what happened?
what happened?
what happened to the car, John?
now what are you gonna do with that car?
what's in here?
what's in here?
what's in there?
what's in the purse?
wanna put it back?

Mother 10
is there anything in there?
isn't that nice?
are you gonna love the dolly?
ready?
did you see the doll?
did it come apart?
did it fall on the floor?
do you want the blue car?

it's a nice little dolly?

now can you put it back together again?
can Jeffrey fix it?

should we put the car in there?
shall we take everything out now?

what happened to it?
where's the nose?
where's the nose?
where's the dolly's nose?
where's the rest of the truck?
where's the rest of the truck?
where's the car?

'spose there's something in the purse?
the dolly too?

this one?
the blue car?

put the dolly in the purse too?
see?
see the dolly's pretty hair?
see that hole?
see this little hole?
see the dolly?
see her eyes?
see the dolly's eyes?
see she went night night?
you've got lots of things in your purse, haven't you?

SINGLE WORDS USED AS SENTENCES[1]

Mother 1
shoes.
truck.
baby.
purse.
here.
here.
go.
go.
go.
see?

Mother 2
here.
here.
pipe.
pipe.
pipe.
pipe.
see?
there.
Michael.
purse.
up?

Mother 3
there.
open?
open.
open.

Mother 4
hi.
hi.
there.
cute.
one.
two.
hat.
good.

Mother 5
good.
see?
see?
peek.
peek.
peek.
listen.
listen.
lady.
purse?
purse.
fingers.
car?
pretty.
open.
open.
push.

Mother 6
hi.
see?
see?
see?
there.
here.

Mother 7
honey?
here.
here.
nice.
what?
Crisy.
listen.
rock.

Mother 8
here.
here.
there.

[1]Signs of affirmation and negation are excluded.

pretty.
stunning.
pretty?

Mother 9
look.
wait.
up.
John?
John.
here.
here.
here.
here.
there.
there.
there.
what?
what?
what?
what?

Mother 10
ready?
almost.
there.
there.
see?
good.

INCOMPLETE SENTENCES

Mother 1
only time in your life you can look in a purse and enjoy it.
that one you have to be careful too.
still have cereal on your mouth.
wanna put your shoes on?
wanna sit on my lap and we'll put your shoes on?
better not.
make it go together?
thank you.

Mother 2
can't open it.
up the leg.
up the leg.
how about that?
how about looking at this truck?
that a squeaky one?
want me to shut it?
wanna look at the pipe a little bit later?
sometimes, doesn't he?
a pipe.

Mother 3
have to open first.
well, no kisses for your momma?
no kisses for your momma?
you silly.
you silly.
a little doll.
little doll.
comes apart?
yeah, comes apart.
where you going?
you gonna go bye bye?

Mother 4
she cute?
she got pretty eyes?
don't have a Kleenex?
want that car?
you gonna hug her?

wanna look at these toys?
wanna see this?
wanna see that baby?
how nice.

like that.
two pennies.
up on this part.
yeah, two shoes on.
pretty shoes on.
pretty shoes?

a baby.

Mother 5
this a car?
want her over here?
two trucks.
nothing in there.
comes apart.
if I can do it.

a doll.
a door.

Mother 6
all gone.
what a boy.
where you going with your truck?
want that to go in there.
you want me to shut it?
now you want me to close it?

Mother 7
wanna see what's in the purse?
wanna put her back?
you wanna look in there and see what's in there?
you wanna put her on the chair?
you wanna get down?
wanna take her booties off?
want me to fix it?
thank you.
comes apart, doesn't it?
came apart.
gotta go right in like that there.
nice dolly.
like that.

Mother 8
want her hat on too?
just like you put it on yourself.
simply smashing.
that end.

Mother 9
wanna put it back?
you gonna take her for a ride.
you gonna put it back together?
you want me to help you.

if that'll make you happy.
what a good boy.
very good.
very good.
you like the truck?
very good boy.
please, momma.
well here.

Mother 10
'spose there's something in the purse?
well good.
too big.
pretty close though.
just the dolly.
too big.
this one?
the blue car?
nothing else.
the dolly too?
put the dolly in the purse too?

Appendix 4

REPETITIONS AND SEQUENTIAL SENTENCES USED BY MOTHERS IN CONVERSATION WITH THEIR YOUNGER CHILDREN

Mother 1
where's your shoe?
did your shoe come off?
is your other shoe coming off?
(four sentences later)
shoes.
did your shoe come off?

were you being a cry baby?
were you crying?

should we put your shoes on?
wanna put your shoes on?
wanna sit on my lap and we'll put your shoes on?

look in the purse and see what's in the purse.
look and see what's in the purse.

look in here.
look and see what's in here.

still have cereal on your mouth.
you still have cereal on your mouth.

something's hiding.
something's hiding.

toot toot.
toot toot.

what's that?
what's that?

look inside.
look inside.

be careful.
be careful.

Mother 2
that's a squeaky one, isn't it?
that a squeaky one?

that's the baby's pipe.
see the baby over there?
there's the baby's pipe.
that's the baby's pipe.

push it.
can you push it?

here it comes.
up the leg.
up the leg.
here it comes again.
here it comes.

that's a car.
is that a car?

there a pipe.
is that a pipe?

want me to shut it?
can you shut it?

pipe.
pipe.
pipe.
purse.
can you say purse?
hm?
can you say purse?

does daddy smoke a pipe?
hm?
does daddy smoke a pipe?

Mother 3
love her.
give her a love.

do you want it open?
should we open it?

a little doll, right.
little doll.
say little doll.

open?
you open.
you open it.

put the little doll down.
put the doll right down on the table.
put the little doll on the table.

give me a kiss before you go.
give me a kiss.

what is that?
what is it?

who's that?
who's crying?

Becky's ok.
I'm sure Becky's ok.

they'll take care of her.
Eve's with her.
Eve's taking care of Becky.

that won't fit.
it's too big.
this car would fit.
this would fit.

you silly.
you silly.

that's nice.
that's nice.

a little doll.
right.
a little doll.

comes apart?
yeah.
comes apart.

who's crying?
who's crying?
hum?
hum?
who's crying?

open.
open.

well, no kisses for your mama?
no kisses for your mama?

Mother 4
what do you think is in there?
do you know what's in there?

cute.
isn't this cute?
do you think that's cute?

are you gonna put it in your bank when we get home?
or are you gonna give it back to the lady?

what is it?
is it pennies?

you can put her up here.
give her a ride up there.

you could put the lady in there.
you could put her in there too.

what's this?
what's this?

where'd you get the money, huh?
where'd you get that money?

what's this?
what's this?
(child) head hair.
un hun.
but what is this?

Mother 5
is there something in the purse?
is there something in there?
open it up and let's see.
nothing in there.
there is something in there.

what is that?
it's grammy.
is that a lady?

that's hard.
push.
push hard.

see?
comes apart.
now there are two.
two trucks.

open.
open.

can you say grammy?
can you say grammy?

peek.
peek.
peek.

listen.
listen.

Mother 6
isn't that cute.
oh isn't she cute.

that's like a van, Jay.
that's like daddy's car.

you want me to shut it?
close it?
now you want me to close it?

look at.
look at.
look at.

see.
see.

Mother 7
did you finish your doughnut?

did you finish your doughnut?
(child) un un.
no?
didn't you finish your doughnut?

wanna see what's in the purse?
listen?
you wanna look in there and see what's in there?
ah, look at.
what's in there?
what is this?

we aren't going any place.
Kristen, we're not gonna go any place.
we're not gonna go anyplace right now.

say ni ni dolly.
tell her goodnight.

let's fix the dolly's legs.
wanna take her booties off?
you're such a messy thing.
here.
let's fix her legs.

where's the dolly's toes?
hmm, where's the dolly's toes?
where are her toes?
can you find her toes?

sit her up so her eyes are open.
let her sit up.

you push the truck.
here, you push the truck.

put the dolly on the chair.
put the dolly on the chair.

rock.
let's rock the dolly, rock.

Mother 8
you pull these.
pull the string.

Mother 9
and look what I have John.
look at here.
look at the truck.

do you wanna take the truck apart?
take the truck apart, John.
take it apart.

do you want me to put it back together?
put it together, mama.

where's the car?
the car's in the purse.

say John, put the car inside of the truck.
can you put the car inside of the truck?
here.
put it inside the truck.
I'll show you how.
make the car go inside of the truck.

wanna put it back?
put it back.

you like the truck?
oh sure.
you like the truck.

make the car go.
here.
make the car go.

now you find it.
yeah you find it.
you find it.

very good.
very good.

you put it in.
yes.
you put it in.

what happened?
the car fell out, John?
what happened?
did the car fall out?

here's the car.
see the car?
look at the blue car.

oh let's wipe this tear.
let's wipe it, ok.

I'm gonna look and see what's in this purse.
what's in the purse?
what's in there?
is gramma in there?
look and see if a gramma's in the purse.

you put it together.
you wanna put it together?
oh yes there it goes.
put it together.

look at the gramma.
see the gramma.
put the gramma into the truck.
ok.
put the gramma in the truck.
put her in the truck.

she's going for a ride.
you gonna take her for a ride?

here.
take her for a ride.
take her for a ride there.

I'll help you, John.
I'll help you, honey.

if you want that that's fine.
if you want that that's fine.

what?
what?

she says hi to you.
she says hi to you.

Mother 10
you make the truck go.
and I'll make the car go.

where's the rest of the truck?
huh?
where's the rest of the truck?
where is it?

let's see if we can fix it.
there we fixed it.

can Jeffrey fix it?
un huh.
see if you can fix it.

see this little hole?
see that hole?

this one?
the blue car?
do you want the blue car?

look at the little dolly.
isn't that nice?
it's a nice little dolly.

should we put the car in there?
there.
there.
the dolly too?
put the dolly in the purse too?

that won't fit.
that's too big.
it won't fit in the purse.
it's too big.
too big.
I think that's too big too.

see?
too big.
it's too big.

where's the car?
there's the car.

did you see the doll?
look at the pretty dolly.
see the dolly?
watch the dolly's eyes.
look at the dolly's eyes.
she went night night.
see her eyes?
see the dolly's eyes?

see her pretty hair?
see the dolly's pretty hair?

where's the dolly's nose?
where's her nose?
that's her mouth.
where's her nose?

where's her nose?
that's Jeffrey's nose.
here's the dolly's nose.
that's the dolly's nose.

here's a purse.
here's a purse.

there.
there.

it's too big.
it's too big.