

THE ADULT ROLE IN EARLY CHILD LANGUAGE ACQUISITION

A STUDY OF THE DIALOGUE OF TWO MOTHER-CHILD PAIRS

by

Lois Josephine Baker

B.Ed., University of Alberta, 1954

M.Ed., University of British Columbia, 1964

A THESIS SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

by

Special Arrangements

©Lois Josephine Baker 1980

SIMON FRASER UNIVERSITY

November 1980

All rights reserved. This thesis may not be reproduced in whole or in part, by photocopy or other means, without permission of the author.

APPROVAL

Name: Lois Josephine Baker

Degree: Doctor of Philosophy

Title of Dissertation: The Adult Role in Early Child Language
Acquisition: A Study of the Dialogue of
Two Mother-Child Pairs

Examining Committee:

Chairman: Jared R. Curtis

Charles P. Bouton

Elinor W. Ames

M. Sheila O'Connell

E. Wyn Roberts

Walburga Von Raffler-Engel
External Examiner
Professor
Vanderbilt University
Nashville, Tennessee, U.S.A.

Date approved: November 21, 1980

PARTIAL COPYRIGHT LICENSE

I hereby grant to Simon Fraser University the right to lend my thesis or dissertation (the title of which is shown below) to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users. I further agree that permission for multiple copying of this thesis for scholarly purposes may be granted by me or the Dean of Graduate Studies. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of Thesis/Dissertation:

The Adult Role in Early Child Language Acquisition;
A Study of the Dialogue of Two Mother-Child Pairs

Author: _____

(signature)

LOIS JOSEPHINE BAKER

(name)

NOVEMBER 21, 1980

(date)

ABSTRACT

In this descriptive study of the language growth and development of two boys between the ages of 2 and 3 years, the focus is on the mothers' roles as they provide language input through mother-child dialogue. From data provided by the transcriptions of monthly videotapes of natural play sessions in each home setting, three aspects of the conversations of the two dyads are considered: to what degree the range of speech strategy and style exhibited by one mother is different from that of the other mother; whether each mother's differences are reflected in recognizable ways in the speech performance of her own child; and, in spite of mother differences, what similarities there are between the two children in speech development at this stage. Unlike the children in many language studies, the subjects come from non-professional, non-academic family backgrounds. An abductive analytical approach is used, the goal being to throw more light on the process of rapid language acquisition that takes place in the child's third year. Work in the field in the 1960's and early 1970's had suggested that the mother's role is one of "simplicity and redundancy", a supposition that is challenged and then reoriented.

The study findings are cast in a general linguistic framework utilizing the descriptive analytical levels of phonetics, syntax, semantics, and pragmatics. There is a clear presentation and exegesis of the distinction between what are particular and shared linguistic developments in the two children. Phonetically, an echo phenomenon is observed to be operating, seemingly a rote replay mechanism relatively independent of cognitive and length restrictions. Salient prosodic qualities of each

mother's speech are mirrored in her own child's performance, particularly as regards rate, elision, and pitch change factors. This repetitive type of speech appears to be well established even in the initial tapes. During the course of the year, developments in the spontaneous speech of the two children are demonstrated to be similar in that both boys are able to adapt familiar, stereotyped phrase and sentence forms by introducing syntagmatic and paradigmatic variations, a skill that is characterized as an accumulative process. In this second type of speech production, length of utterance and extent of lexical choice increase over time. A third type of language use, in which there are elements of personal construction, makes an appearance occasionally but is little developed by either child. In the course of the analysis, C.S. Peirce's general categories (his icon, index, and symbol classification) are modified to suit the particular form of the data in order to establish a distinction between language that is mainly ostensive and informative in form and intent and language that is more clearly symbolic and predicative. The application of this distinction results in a demonstration of relationship between pragmatic-situational factors and language development in the context of mother-child language interplay. Within developmental limitations of an epistemological nature, the mother (adult) role in early child language acquisition is found to be definitive.

ACKNOWLEDGEMENTS

First of all recognition must be given to Simon Fraser University's unique Special Arrangements Program which makes cross-disciplinary studies such as this one possible. Many thanks are due individual professors, videotape technicians, and secretaries in various departments (Audio-Visual, Education, Linguistics, and Psychology) for their aid at particular stages of the project.

I am deeply appreciative of the helpfulness and patience extended to me by the members of my interdisciplinary supervisory committee. Together, their talents and expertise covered a wide field. Acknowledgements go to Dr. Sheila O'Connell, of the Faculty of Education, Dr. Elinor Ames, of the Department of Psychology, and Dr. E.W. Roberts, of the Department of Languages, Literatures, and Linguistics.

As Senior Supervisor, Dr. Charles Bouton of the Languages, Literatures, and Linguistics Department acted as mentor and guide in the preparation of the dissertation, a task to which he freely applied the considerable breadth and depth of his knowledge of language acquisition. His enthusiasm for scholarly investigation and unflinching attention to the progress of the work were of great personal encouragement, and his coordination of the supervisory committee enabled a cooperative and harmonious spirit to develop.

Of prime importance was the contribution of the two mothers and the two children whose conversations formed the data base of the study. Their willing and interested participation made the videotaping sessions feasible.

For all concerned it has been a shared academic venture.

TABLE OF CONTENTS

Approval Page	ii
Abstract	iii
Acknowledgements	v
Table of Contents	vi
List of Tables	ix
List of Figures	x

INTRODUCTION

<u>Chapter One</u> An Historical Preview	i
The Baby Biographers	i
The Norm-Seekers	8
Linguists and Psycholinguists	13
The Present	22

PART ONE REVIEW OF THE LITERATURE

<u>Chapter Two</u> The Simplicity-Redundancy Hypothesis	24
Simplicity in Relation to Age Factors	24
Simplicity as Grammatical Fine Tuning	28
Redundancy as Salience	36
Redundancy as Discourse Cueing	42
<u>Chapter Three</u> A Methodology Influenced by Peircean Pragmatism	51
Study Delimitations	51
An Abductive Way to Work	55
The Evolution of the Study	59
A Search for Pragmatic Categories	70

PART TWO
SOUND FACTORS

<u>Chapter Four</u> Repetitiveness and the Echo Phenomenon	84
Imitation Discussed	84
Variety and Frequency of Repetition Encountered	89
Differences in the Two Subjects' Repetitiveness	100
The Echo Phenomenon	105
<u>Chapter Five</u> Sound Saliencies in Mother Input	112
Rate and Elision Factors	112
Density and Focus Differences	121
Pitch Variation	128
Mother Teaching Techniques	137

PART THREE
FUNCTIONAL SYNTAX

<u>Chapter Six</u> Syntactic Parallels in the Two Children's Speech ...	142
A Pragmatic-Syntactic Analysis of Tape 1	142
Firstness, Secondness, and Thirdness Applied to Speech	148
Elaboration of the OIP Category System	154
Progress of Function in the Two Children's Speech	164
<u>Chapter Seven</u> Syntagmatic-Paradigmatic Patterning	172
An Analysis of an Early Paradigm	172
Ostensive, Informative, and Predicative Paradigms	175
Diagrammatic Evolution of SVO Structure	188
Length of Utterance Related to Paradigm Complexity	193

PART FOUR
FUNCTIONAL SEMANTICS

<u>Chapter Eight</u> Gaps in Understanding	198
A Specific Locative Difficulty	200
A Difficulty with Causal Relations	204
Difficulties with "No" and Polar Qualities	209
Extra-Situational Reference	218
<u>Chapter Nine</u> Mother-Child Dialogue Parameters	225
Focussing on Objects	225
The Buildup Process	230
Barriers to Predication	235
Mother Emphasis and Encouragement	241

CONCLUSION

<u>Chapter Ten</u> Environmental Access to Language	249
Different Mothers - Different Modes	249
Pragmatic Shaping	254
An Environmental Access Hypothesis	261
Recommendations for Further Study	265
Data Appendices	271
Bibliography	436

LIST OF TABLES

Table 1	-	Child Repetition Frequencies	274
Table 2	-	Mother Repetition Frequencies	275
Table 3	-	Pitch Pattern Percentages for Tape 10	
		Sentence Endings	306
Table 4	-	David's Raw Data for Function Categories	373
Table 5	-	Galen's Raw Data for Function Categories	374
Table 6	-	Utterance Function Percentages	375
Table 7	-	Length of Utterance	390

LIST OF FIGURES

Figure 1	- Total Repetition Rates for Each Mother and Child	91
Figure 2	- Child Repetitiveness	94
Figure 3	- Mother Repetitiveness	97
Figure 4	- Rising and Falling Sentence Endings	131
Figure 5	- Rise and Fall Endings Including Final Glides	131
Figure 6	- Progression of O-I-P Function Over the Year	165
Figure 7	- Relation of Ostensiveness to Informativeness	
	7A - Galen	166
	7B - David	166
Figure 8	- Three Kinds of Ostensive Speech	168
Figure 9	- Three Kinds of Informative Speech	
	9A - Galen	169
	9B - David	169
Figure 10	- A Syntagmatic-Paradigmatic Diagram of David's Tape 2 Speech	173
Figure 11	- The Ostensive Paradigm	176
Figure 12	- A Bridging Paradigm from Ostensive to Informative Function	178
Figure 13	- The Informative ₁ Paradigm	179
Figure 14	- The Informative ₂ Paradigm	181
Figure 15	- The Ubiquitous "Put It" Paradigm	183
Figure 16	- The Emerging Predicative Paradigm	185
Figure 17	- The Syntagmatic-Paradigmatic Process - Part One	187

LIST OF FIGURES (cont'd)

Figure 18 -	The Syntagmatic-Paradigmatic Process - Part Two	189
Figure 19 -	The Syntagmatic-Paradigmatic Process - Part Three ...	191
Figure 20 -	The Proposed Progression of Ostensive, Informative, and Predicative Speech	236

CHAPTER ONE

An Historical Preview

The Baby Biographers

An adequate theoretical basis for the learning of language in early childhood has, to the present time, eluded all researchers, though repeated attempts to explain how young children learn language can be traced over many centuries. Herodotus, thought to be the first Greek historian (484-424 B.C.), ascribed to Psammetichus, an Egyptian king of the sixth century B.C., the view that child development is recapitulative of philogeny. The king devised an experiment to prove, by noting whether an untutored child's first words were Phrygian or Egyptian, which culture was the more ancient. (The Histories of Herodotus, Vol. I, 1964, p. 110.) Repeats of the same naive experiment were made by the Holy Roman Emperor Frederick II (1194-1250) and King James IV of Scotland (1473-1514). Although no longer so extreme, the innatist position persists today, albeit in greatly modified forms. In this introductory chapter, various modes of child language research will be reviewed and the current state of theoretical knowledge assessed.

The first known set of recorded observations of a child's speech development was published in 1787 at the University of Marburg by a professor of philosophy, Dietrich Tiedemann, the subject being his son, Friedrich, who became a well-known biologist. A hundred years later, when psychologists and educators with Herbartian ideas were just beginning the study of child language in earnest, Tiedemann's

observations were republished in English, French and German. At the height of the nineteenth century rediscovery of the scientific method, Charles Darwin in England in 1840 and Hyppolyte Taine in France in 1870 both recorded brief sets of language data about their own children. A major contribution was their concern with making careful chronological observations, a habit that ensured the usefulness of their data to researchers who followed them.

By the mid-1800's there were, according to Werner Leopold, two lines of scientific study of child speech. The first, a physiological approach, culminated in 1899 in a "brilliant, searching phonetic, and even phonemic analysis of children's sound learning" (Leopold, 1948, p. 1) by Carl Franke, reportedly a linguist. The compilation of inventories of the first sounds and syllables young children master is a major area of study that has continued to the present. The second or psychological approach was laid out by two Herbartians, Berthold Sigismund in 1856 and Ludwig Strumpell in 1880. Their works emphasized early words and sentences and their concomitant meanings; automatic imitation was also noted by each author. Darwin's English friend, the biologist, G. J. Romanes, and the American, James Mark Baldwin, were instrumental in the establishment of genetically-oriented investigations into child language. Baldwin's contribution of the circular-reaction theory of the speaking process was to be carried over into linguistic theory in the 1920's and 1930's by both his psychologist student, F. H. Allport and the linguist, Leonard Bloomfield.

One of the first great systematic child development studies was that of William Preyer, a German physiologist who adopted a psychological as well as a physiological approach in his exploration of the child

mind. The second of his two chapters on speech (1895) is the one most often referred to by other writers. Three times daily for the first thousand days of his young son's life, Preyer made observations of the child's progress, immediately entering the details into a diary. Much of interest to modern researchers is to be found in his data. The following language milestones are illustrative:

1. Vowels used in crying change little from the first weeks to five months (short u, long a).
2. 43 days - the first recognizable consonant (m).
3. 64 days - the first syllable used by itself (ma).
4. Babbling monologues begin at about 8 mos. and continue with a preponderance of vowels to 21 mos.
5. 11 mos. (329 days) - the first unquestionable sound repetition (ada), also "nanna" for "mamma".
6. 52 weeks - the child shows his understanding of the spoken word by obeying a few commands.
7. 369 days - repeats the word "papa" clearly but as if in a dream.
8. 14 mos. - says "tata" or "atta" for going away - his first concept.
9. 63 weeks - models the word "hot" when he burns himself on a hot biscuit.
10. 18 mos. - points out objects that are named for him.
11. 19 mos. - imitates the newspaper being read aloud.
12. 20 mos. (584 days) - repeats correctly two-syllable words that are reduplications or reversals. (bobo, anna).
13. 21 mos. (from 89 weeks on) - babbling has more consonants

than vowels and much more syllable reduplication.

14. 22 mos. - three syllable words are repeated as three syllables.

15. 23 mos. - has a small vocabulary of consistently used words and can repeat many words - is also echolalic (repeats sentence endings).

16. 24 mos. - combines two words into a sentence.

17. 25 mos. - sometimes combines three words, seldom four - tells about an accidental spill in five words.

18. 26 mos. - names many pictures in a picture book - pronunciation is distorted.

19. 27 mos. - the child's thought is more and more made manifest in his speech - independent observation is considerably developed since 23 mos. when the first judgment was made.

20. 796 days - says knife (it) when describing something to be cut - echolalia is more marked than at any other period.

21. 810 days - answers "Axel" when a stranger asks him his name - has not asked a question himself yet - does not understand the meaning of the numbers one to five.

22. 28 mos. - becomes emphatic about what he wants and about doing things for himself - uses the prepositions "for" and "with" and the articles, first the indefinite, then the definite.

23. 845 days - asks his first question using "where" - is accustomed to answering his father's question "what is that?" but has never asked "what" himself.

24. 29 mos. - uses the personal pronoun "me" for his own name.

25. 30 mos. - begins to talk to himself as he plays - his comments show he is developing concepts which have less content and more extent than the concepts of adults - articulation is still distorted.

26. 31 mos. - sentence-forming is still imperfect.

27. 32 mos. - "I" begins to displace his own name - the verb participle is separated from compound verbs - the neighborhood dialect is perceptible.

28. 33 mos. - tells a story from his picture book using several consecutive verb phrases - still confuses "I" and "you".

29. 1028 days - the word "why" was first used in a question. After three years Preyer ceased recording because the child's manner of speaking closely approximated that of the family. His singing and imitation were by then surprisingly true, grammatical errors were rare, articulation was being perfected, and participle usage was established.

The diary period was climaxed by the extensive investigations of Clara and William Stern and of Werner Leopold himself. In 1907 the Sterns wrote about their three children's language development from a psychological point of view but did not include material on sound acquisition. Leopold remedied this omission by devoting an entire volume of his four book series (1939-1949) to the articulatory progress of his daughter, Hildegard. (For references to other famous diary studies see E. Clark, 1977; Ingram, 1971; Leopold, 1948.) The case study and longitudinal traditions are still alive today, as for example, in works by Carlson and Anisfeld (1969), Harrison (1973), Scollon (1976), N. V. Smith (1973), von Raffler-Engel (1964), and Weeks (1974). The focus on the development of individual children that has proved so fruitful in the past will undoubtedly continue to be a source of significant contributions to the widening base of factual details.

Comparisons and parallels between sets of data furnished by the baby biographers were undertaken by other writers such as James Sully

(1895) and Frederick Tracy (1893). Their books differ from Preyer's in being summaries of other people's work rather than records of their own observations. In the organization of their volumes the split between physiological and psychological data is again evident. It is rewarding to discover in the midst of Sully's fanciful verbiage many valid and pertinent points. For instance: he remarks on the musical and rhythmical qualities common to infant babbling as voice play, "a preliminary trying of the vocal instrument throughout the whole of its register" (1895, p. 136). He suggests that the child's first expressions are but accompaniments to states of feeling and notice, and that it is the tone, the rise and fall of voices, and stress and pitch peculiarities that form the first imitative reproductions, which are made without articulatory precision. He observes that adult words are transformed by the child in many ways, including simplification, substitution, metathesis, syllable reduplication, and assimilation.

The growth of logic and meaning also merited Sully's attention: such facts that children use words without realizing their full or precise meanings; that they generalize terms too widely; that they use primitive analogies as categorizing devices and express abstractions in concrete terms; that they confuse opposites; that they invent nouns from verbs and vice versa; and that even as they become sticklers for precision, they are misled once again by their own literal interpretations. Sully also described the growth of syntax: single words used as sentences; eighteen months tentatively identified as the age for the beginning of sentence construction; imperative verbs appearing as the first word in two-word sentences; the regularization of irregular past verb forms; the preposing of "no" to form the first negatives;

and the appearance of articles and prepositions in the third year. As in Preyer's work, the whole question of the growth of the intellect and the impact of a dawning realization of selfhood was dealt with at some length.

Frederick Tracy, a Canadian professor of philosophy from the University of Toronto, envisioned speech as a product of the two factors of heredity and education, broadly defined. The disposition to utter sounds is genetic, but for actual language development the child is "very largely dependent on his physical and social environment; and all those who compose that environment assist, whether they will or no, in his education" (1893, p. 120). Like Preyer's, his introductory section was physiological, first detailing the speech organs, and then noting that in the infant brain "the convolutions are for a long time comparatively simple" (1909, p. 120). Organizationally, he has chosen to group child language observations over six-month intervals up to the age of two years. In the first six months of the child's life, p, b, and m are likely to be the consonants that appear initially, though in individual cases, even g, l, or r, consonants that are typically late to emerge, may come first. Like Sully and Preyer, he commented on the infant's imitation of the cadences of adult conversation and on the appearance of a few "mechanically" produced syllables. During the second six months, the understanding of much simple vocabulary, and obedience to familiar parental commands are common. Some children can say no words by the end of the first year; few use more than six. Words that do become stable in the child's vocabulary are tied to particular situations and objects; some of these utterances will become generalized (on the basis of some predominant characteristic) to other situations and objects. During the third six months, expressions multiply, single

words are used as sentences, and imperfectly formed short sentences are heard toward the end of the period. Imitation, particularly of songs and rhymes is strong. Reduplication and onomatopoeia occur, and for some children the diminutive suffix ie is added to some words.

Utterances show the influence of association and analogy in the child's mental processes. The fourth six-month period ushers in some elements of grammatical structuring, notably the rudiments of verb inflection, an elementary kind of negation, some personal and possessive pronouns, and the beginning of subject, verb, object word order. A child may still call himself by his own name or "baby", and may confuse I, you, my, and your. Tracy tabled many sets of data including vocabulary, initial sounds, and mispronunciations. In his work, the twentieth century preoccupation with classification has begun, together with the modern predilection for numerical results.

The Norm-Seekers

Diary studies of children's development were followed by the next wave of research, the normative study. Four American women, Margaret Nice, Madorah Smith, Dorothea McCarthy, and Mildred Templin, whose combined work spans a period of forty years, are representative of child language researchers in the United States in the first half of this century. By employing descriptive statistical measures to evaluate and report the findings of large cross-sectional studies, they and their contemporaries formalized the counting procedures begun by the early summarizers, and began to focus on the increasing complexity of language structure displayed by the child at successive age levels.

A modest but significant contribution was Nice's 1925 paper in which she suggested that sentence length be accepted as a major

criterion for evaluating children's speech progress. Using data principally from children aged 2 through 10 she identified four growth stages.

1. The single word stage - the average duration of this period is six months.
2. The early sentence stage - vocabulary of 14-180 words, sentence length of 1.35-2.35 words. Child age is from 13-27 months, with an average age of 18 months. Duration of the stage is 3-13 months. 65% of the vocabulary consists of nouns. Most sentences are incomplete.
3. The short sentence stage - vocabulary of 400-800 words, sentence length of 3.5-4.5 words. Child age is from 2 to 3 years old. Omission of articles, pronouns, prepositions and conjunctions, with 50-60% nouns, 20-24% verbs.
4. The complete sentence stage - vocabulary of 1000 words, sentence length of 6-8 words. Child age is 4 years and up. Inflections are mastered and omissions are minor. (Adult sentence length in spoken language was found to be eight words.)

Smith's 1926 doctoral dissertation dealt quite differently than did Nice's with the same two topics, namely the extent of young children's vocabulary and the development of the sentence. Her study population was 88 children from 2 to 5 years old from three nursery schools of varying socioeconomic levels. Sentence length was found to be a consistent measure of developmental stage, particularly up to 3 1/2 years of age, although children used longer sentences both in periods of lessened activity and in conversation with adults. After age 4 1/2, length of sentence tended to vary considerably with different

kinds of speech situations. Repetitions decreased between the ages of 2 and 5. Most frequently used parts of speech at 2 years were verbs, nouns and adverbs; at 3, verbs and pronouns. The ten words used most frequently were

I, is, it, you, that, do, a, this, not, and the,

which, with the exception of do, all appear in the first 22 words of Horn's List of the 100 most frequently used words in adult writing.

Smith's vocabulary test was ingeniously devised by sampling Thorndike's list of the 10,000 most common words in the English language. She found that the average number of words in young children's vocabularies increased from zero at 8 months to 2,562 at 6 years, the average yearly gain being approximately 570 words. Her vocabulary estimates seem low but are still quoted in recent journal articles (Moscowitz, 1978, p. 94D). There was some indication that children of the same chronological age differed according to social class both in vocabulary acquisition and in acquiring sentence complexity.

McCarthy's 1929 study was a repeat look at some of the questions posed by previous investigators plus the addition of an analysis of sentence function. Sentence complexity was dealt with in terms of incomplete, simple, compound, complex, and elaborated sentences. Only the simple sentence showed lack of correlation to age increase. Mean length of response consistently increased with age, with the period of most rapid increase falling between 18 and 42 months. Her functional analysis is interesting in that she has taken Piaget's distinction between egocentric and socialized speech and developed eight categories from it: egocentric, adapted information, criticism, emotional response, questions, answers, social phrases, and dramatic imitation.

She found little egocentric speech since the situation in which her material was collected was not free play but interaction with an unfamiliar adult visitor. She found that socialized speech did increase with age, but also varied with paternal occupation. The major new contribution was that sex, paternal occupational level, and age of associates were all found to influence the rate at which early language was acquired. Children who associated more with adults than with other children were more advanced at each level than children whose main companions were other children. Also, among children of the same chronological age, higher mental age correlated with language advance.

As well known as her language monograph is McCarthy's review of child language studies which appeared in the 1954 edition of Carmichael's Manual of Child Psychology. It is a comprehensive summary of the normative aspect of child language development. (A shortened version appears in Bar-Adon and Leopold's 1971 volume of child language readings.) Language development milestones from eight major studies were tabled and she compiled summary charts of articulatory development, age of appearance of the first word, frequency of sentence types, percentage of response functions, sentence length, and growth of vocabulary. The only regrettable part of her review was her insistence that the normative type of study is somehow more "scientific" than the work of her predecessors. At the present date it would seem more accurate to say that the observations of the baby biographers are longitudinal studies of individuals and that those of the norm-seekers are cross-sectional and designed to obtain means from groups. In retrospect it can be seen that neither supplants the other; the final evaluation must surely be that the two streams are complementary, not diametric.

Templin's 1957 investigation into children's language skills came some 25 years after the original wave of studies begun by Nice, Smith, and McCarthy, and was the last and largest of the purely count studies. Rigid criteria, including socioeconomic groupings, were maintained in the selection of a sample of 480 children ranging in age from 3 to 8 years. Templin used length and complexity measures from other works to facilitate comparison but devised her own articulation and sound discrimination tests. Her articulation test was extensive, covering altogether a total of 176 sounds in initial, final, and medial positions. She found the order in which accuracy was reached to be: diphthongs, vowels, consonantal elements, and finally, double and triple consonant blends. Errors, omissions, and substitutions were tabulated. The overall accuracy of speech-sounds made by 3-year-olds was found to be approximately 50% of that of 8-year-olds, who themselves had achieved 95% correct articulation. The order of acquisition of consonantal elements was nasals, plosives, fricatives, combinations, and semivowels. Compared to the earlier studies, in Templin's study there were longer utterances at every age level, compound and elaborated sentences were more prevalent, there were fewer incomplete sentences, and in general the children tended to be more loquacious. Templin attributed these quantitative differences to an increased amount of adult language in the child's environment. Differences in favor of advantaged children were found in all areas, including articulation, sound discrimination, sentence length, and sentence complexity. Templin's results did not support the earlier finding that girls were superior to boys in rate of language acquisition. The 25 words used most frequently (over 900 times each) were the conjunctions and and if;

the articles a and the; the pronouns I, my, you, he, she, we, they, this and that; the verbs is, go, got and have; the adverbs here and there; the prepositions up, on, in, to and of; and the word one, which is both noun and adjective.

Linguists and Psycholinguists

The contribution of linguists to the study of language was long delayed. The first crucial theoretical breakthrough in 1939 was that of Roman Jakobson whose phonemic insights originated in the Linguistic Circle of Prague of which he was a member. From the wealth of detail that Antoine Grégoire (1937) had collected concerning the phonetic development of his two young sons during the first two years of their lives, Jakobson brought forth a structural theory of phonetic acquisition. Instead of attempting to find a common order for children's acquisition of vowels and consonants (a task that others before him had tried and failed), he suggested that children were learning, not individual sounds in sequence, but sound categories with universal features. The progression he proposed was one beginning with maximal sound contrasts and coarse approximations and moving towards finer intermediate adjustments. David McNeill's summary in the 1970 edition of the Carmichael handbook draws together the following pertinent points.

1. The principle underlying the phonemic system is differentiation. The phonemic system develops as the result of filling in the gap between the two sounds /a/ and /p/, which represent the largest contrast possible. /p/ is an unvoiced, consonant stop formed at the front of the mouth with a nearly total absence of acoustic energy. /a/ is a vowel formed at the back of the mouth with a complete opening of the vocal tract and a maximum of acoustic energy.

2. On the consonant side, the space between /p/ and /a/ is split and results in a distinction between the labial stop /p/ and the nasalized labial /m/. The vowel /a/ plays the crucial role of combining with the consonants to establish a syllable.

3. After the division into nasal and oral categories, there is a division of the oral consonants into labial and dental categories. /ta/ comes to be contrasted with /pa/. Then divisions occur on the vocalic side. /pi/, a narrow vowel, is set up against /pa/, a wide vowel.

In this way, the differentiation process continues. It moves from a universal core of sounds that appear in all languages to those that are relatively rare in the languages of the world as well as being relatively late in child speech and early to drop out in the speech of aphasic patients. Although it is now known that the sequence is not invariant in the histories of individual children, the principle of successive differentiation of distinctive features still appears tenable, at least in the sense of narrow contrasts being made later than wide contrasts. The consonant errors that young children make may be traceable to a lack of distinction, as in Leopold's example (Bar-Adon & Leopold, 1971, p. 138) of voiced and voiceless consonants in which labial, dental, and velar stops become one phoneme.

A corresponding syntactic breakthrough was to be made by Noam Chomsky two decades later with the theory of transformational generative grammar. The issue of sentence complexity had been dealt with traditionally, as already outlined, in terms of sentence length, modality, and type of clause within the sentence. Chomsky's contribution was to define sentences by his famous rewrite rule $S \rightarrow NP + VP$.

By postulating that each sentence has a deep structure base from which its overt or surface structure may be obtained by the application of appropriate transformation rules, he was able to make a claim of universality as Jakobson had done. Furthermore, he demonstrated that the theoretical possibility of recursiveness, the infinite embedding of one sentence within another, makes for the generative quality of human language. Once again a linguistic analysis was to spark renewed interest in the solution of the child language puzzle, even though researchers soon found much in their data that suggested modification and even refutation of the original conception (see von Raffler-Engel, 1970a, 1970b).

The full story of the impact psycholinguistics has made on the study of child language acquisition will not be reviewed here but is available in many short texts and comprehensive reviews. Those already mentioned are Leopold (1948), McCarthy (1954), McNeill (1970), and Moscowitz (1978). Hans Hormann (1971) has presented an extremely detailed compilation of psycholinguistic and other language studies, as has Roger Brown (1973). Dan Slobin in Ontogenesis of Grammar (1971) concentrates exclusively on research dealing with questions of grammatical import. In 1972, Slobin produced a revised and augmented edition of Leopold's 1952 bibliography of child language. Adele Abrahamson has followed this with an annotated and topically organized guide (1977) of over 1500 references. Ervin-Tripp's (1966) and Bloom's (1975) reviews are complementary in that they appear in succeeding volumes of Review of Child Development Research; Bloom's review takes up the thread where Ervin-Tripp's leaves it. More recently, Bloom and Lahey have co-authored a book-length summary that draws together well-documented material on normal and abnormal child

language development (1978). Written in a psychological vein are valuable reviews by Houston (1971), John and Moskovitch (1969) and Ryan (1974). Books of language readings such as Bar-Adon and Leopold (1971), Ferguson and Slobin (1974), Průcha (1976), and Reed (1971) contain selections difficult to obtain from original sources. The proceedings of child language conferences form the content of many of the best known references, for example, Campbell and Smith (1978), Ervin-Tripp and Mitchell-Kernan (1977), Hayes (1974), Huxley and Ingram (1971), Lenneberg (1964), Lyons and Wales (1966), Moore (1973), Morehead and Morehead (1976), Schiefelbusch and Lloyd (1974), Smith and Miller (1966), Snow and Ferguson (1977), von Raffler-Engel and Lebrun (1976), and Waterson and Snow (1978). Stanford University's Department of Linguistics began annual child language conferences in 1969 and has published close to 20 volumes of papers and reports that faithfully reflect trends and directions in child language study during the decade. The contributions of only three individuals have been selected for inclusion in this historical sketch. Each has spearheaded a large body of research in a particular university setting: Roger Brown at Harvard, Lois Bloom at Columbia, and Charles Ferguson at Stanford.

Roger Brown, whose work spans the last 25 years or more, has produced a range of studies showing interesting extensions of nearly all the major preoccupations of earlier eras. Picking up on sentence length as a measure of language development, he substituted morphemes for words as the measuring unit which he called MLU (mean length of utterance). Chronological age, for Brown, has been subordinated to utterance length; his table of what constitutes a morpheme has been

widely used (Brown, 1973, p. 54). His subjects were three children with the fictitious names, Adam, 'Eve and Sarah. Adam and Sarah were studied from 18 to 26 months old, during the period that their MLUs went from just below two to over four morphemes in length. By writing and analyzing 15 annotated grammars, one for each of the children at MLU points of 1.75, 2.25, 2.75, 3.50, and 4.00 morphemes, he was able to generalize about five syntactic and semantic constructional processes, knowledge of which all three children developed in invariant form and sequence, though at different rates.

The first two stages Brown examined fully in the book, A First Language: The Early Stages (1973). He described children's beginning sentences as

1. the expression of semantic roles such as agent, patient, instrument, and locative in simple sentences by means of linear order, syntactic relations, prepositions, and postpositions.

2. the modulation of meaning by the inclusion of grammatical morphemes (inflections) expressing number, specificity, tense, aspect, mood, etc.

Three further stages that involve sentence modalities, the embedding of one sentence within another, and the coordination of simple sentences through propositional relations await explication. Brown believes that these five processes constitute the core of English sentence construction, and with some syntactic and semantic variation, the core of language generally. He has adopted the method of "rich" interpretation which is to say that he has moved away from early nonsemantic "lean" characterizations. In Brown's work and that of his supporters, the terms "holophrastic", "telegraphic", and "pivot" have been exposed

for what they are: useful for general description but lacking in explanatory power.

For Stage I, Brown lists eight semantic two-term relations which he claims are antecedent to all others and therefore the most basic ones upon which the child builds the rest of his grammar. They are agent and action, action and object, agent and object, action and locative, entity and locative, possessor and possession, and demonstrative and entity. His Stage II is the story of the acquisition of a set of fourteen little words and inflections which mark verb tense and form (present progressive; past irregular; past regular; third person regular; third person irregular; uncontractible copula; contractible copula; uncontractible auxiliary; and contractible auxiliary, in that order) and the simple relations indicated by the locative prepositions in and on, the plural, the possessive, and articles. Through a crosscheck with information available in the work of other researchers it appears that his list is valid, except for some individual variation of order, for children other than Adam, Eve, and Sarah. Even though Brown's work is monumental in its detail and meticulous in its presentation, it is still very difficult to envision what the final netgathering from everyone's research will contain.

Lois Bloom's work and that of her associates has centered largely on the single-word utterance stage and the child's subsequent burst into grammar at the two-word stage. Her oft-quoted "Mommy sock" example illustrates the efforts she has made to correlate linguistic and contextual features. Rather than employing prior categories associated with a formal grammar, she has concentrated on establishing categories of reference such as existence, nonexistence, (which she claims is

the earliest negative), and recurrence, all of which are isomorphic to developments during Piaget's sensorimotor period. Bloom consistently maintains that within each stage there is a continuum of growth and that the child's performance at the beginning of a stage cannot be equated with his or her performance at the end; although MLU may not have changed, control of the language will have. Furthermore, she found syntactic variation in the beginning strategies of four 19-26 month-olds even though the children's semantic relations were congruent (Bloom, Lightbown & Hood, 1975). The two girls, Gia and Kathryn, followed a nominal or noun plus noun pattern, similar to telegraphic speech, while the two boys, Eric and Peter, pursued a pronominal or functor plus noun pattern, essentially a pivot-like construction. At an MLU of 2.0 both pairs of children shifted to the other pair's predominant strategy and all gradually reached proficiency in both.

As well as interactions between syntax and semantics, Bloom recognized that equally important interactions were occurring between the lexicon and phonology and between pragmatics and grammar. Such interactions she labelled horizontal or vertical: horizontal if what the children are learning about the form, content, and use of words is not compartmentalized within phonology or pragmatics but influences all aspects of the linguistic system, and vertical when object and relation words change conceptually over time for the child and so affect succeeding levels of syntactic semantic organization. Nowhere in the work of the psycholinguists has the growing realization that children of different ages are operating mentally at varying cognitive levels of understanding been as carefully acknowledged as it has in the work

of Lois Bloom. In the opening sentence of her monograph on form and function in children's emerging grammars we find her stating

A young child's success in learning to talk depends on his ability to perceive and organize his environment, the language that is a part of that environment, and the relation between the two. Thus, the acquisition of language is a complex process that is crucially related to the child's cognitive-perceptual growth and his interaction in an environment of objects, actions and relations. (Bloom, 1970, p. 1)

In a later paper she continues:

It is proposed that before the use of syntax in their speech, children have little if any knowledge of linguistic structure, and that children learn syntax as a mapping or coding of their underlying cognitive representations. (Bloom, 1973, p. 20)

Her position was stated even more clearly several years later.

An important distinction seems to have been blurred in the emphasis on semantic learning...the distinction between semantic development and conceptual development. Children's early language learning is semantic, to be sure, which simply means that they have learned something about the meanings of words and the meaning relations between words. But how they have learned to think about the objects, events and relations in their experience is something apart from how they have learned to represent such information in linguistic messages. Semantic learning has to do with learning a coding system for representing meaning in natural languages. Meaning derives from an individual's mental representation of experience. Semantic complexity cannot be separated from syntactic complexity -- both represent the linguistic complexity that influences the course of development. On the other hand, one can look at cognitive complexity apart from linguistic complexity and attempt to specify the conceptual constraints that influence development. (Bloom, Lightbown, & Hood, 1975, p. 29)

Although Bloom used the insights offered by both case and transformational grammar, she declined to fit her data into any preconceived system of analysis or linguistic theory. Child language learning for Bloom is a synergistic rather than an additive process.

In spite of the drawing together of syntax, semantics, and pragmatics by many authors, phonology tends to remain a science apart,

harbouring deep internal splits, such as the one between Bloomfieldian phonemics and Firthian prosody. Charles Ferguson and Olga Garnica (1975) have done a summary of four (out of many) opposing phonological theories, each of which has brought into existence a different line of investigation based on a particular data array. First they review the behavioural theory introduced by H. O. Mowrer in the late 1940s and elaborated by H. Winitz and then by J. Murai and D. Olmsted in the late 60s and early 70s. It has a stimulus-response-reinforcement basis and predicts an ease-of-articulation hierarchy of sound acquisition. Second is the distinctive feature theory of Jakobson already outlined, a structural position further refined by Breyne Moscovitz, who regards phonological development as the acquisition of units and their governing rules, and views the child's discovery of successively smaller phonological units as crucial. Third is D. Stampe's natural phonology theory which assumes that there are universal, innate, phonological processes and that learning the sound system of a particular language requires mechanisms of suppression, limitation, and ordering for reconciling contradictory sets of processes, so that the child can continue to modify his speech forms until he achieves correct adult pronunciation. The fourth phonological theory, Natalie Waterson's, is based on Firthian prosody. It is naturalistic, individualistic, and rejecting of both the phoneme and universality; her theory attributes to the child the ability to perceive phonetic schemata and to selectively attend to strongly articulated or high saliency speech content. In another outstanding summary article David Crystal (1973) makes a case for the inclusion of prosodic as well as phonemic elements in our consideration of how the young child acquires language.

The Present

For the present it would seem that the most reasonable position to take with respect to our knowledge of the processes involved in child language acquisition is one of humility as advocated by Elizabeth and Eric Lenneberg in their introduction to the section titled Ontogeny in the two-volume work, Foundations of Language Development (1975).

It is with their words that this brief review will close.

The perusal of...contributions...by...the world's foremost authorities (on child language development) should give us pause for humility. How little progress we have made in explaining language and its onset! Even the most elementary questions on the nature of language and its psychobiological mechanisms or its epistemological foundations still elude us...It is clear that we do not have even simple guidelines of what the rules of the game for theorizing ought to be... the troublesome issue of language knowledge and, by implication, of knowing on the whole, cannot be kept out of any explanatory theory of any aspect of language. It is curious to see that even today there is still a deep-seated conviction that all we need to do to understand language and its acquisition is to record and present the facts. However, no matter how detailed our record of facts may be, how much cross-cultural material we manage to gather, it will hardly bring us much closer to understanding the nature of language or the essential mechanism of its acquisition, for facts do not speak for themselves...(No one) has given us any indication of how we can approach empirically the problem of language knowledge. What does it mean to "know language"?...we simply assume that language knowledge is the same among individuals belonging to the same speech community. When it comes to assessing small children...(it is) evident that the epistemological background of their language is not the same as that of adults. However, it is the difference that interests us, and it is precisely in our desire to explore and study this difference that we are at a loss how to proceed...What is the nature of knowing a language in general, and of knowing a language in particular? (Lenneberg and Lenneberg, Vol. I, 1975, pp. 149-51)

In this regard it promises to be a very long time yet before we reach any definitive answers about the development of language in children.

Meanwhile, many sets of facts will continue to be collected and many theories to be proposed. Surely the preferred stance is that of open,

flexible interpretation, since all else at this point threatens to engulf us in self-limiting and eventually untenable dogmas.

CHAPTER TWO

The Simplicity Redundancy Hypothesis

Simplicity in Relation to Age Factors

In the 1960's, Noam Chomsky made the provocative statement that there is "an enormous disparity between knowledge and experience" and illustrated it by pointing to the gap between "the generative grammar that expresses the linguistic competence of the native speaker and the meagre and degenerate data on the basis of which he has constructed this grammar for himself" (1965, p. 68). Research sparked by this statement has, to date, brought forth impressive evidence against such an uncompromising viewpoint. In its place has grown up what is known as the simplicity-redundancy hypothesis concerning the characteristics of the primary linguistic data to which children are exposed as they learn their native language. A catalogue of features of the linguistic environment of young children has been established through the efforts of dozens of researchers. Carol Thew states that such features define adult language input to the young child as a "fairly narrow and simple subset of the varieties of adult speech" (1975, p. 1). In the words of Dan Slobin, "it may well be that children, universally, are exposed to a special, simplified version of the language of their community" (Lenneberg & Lenneberg, Vol. 1, 1975, p. 295). The first half of this chapter draws together, from voluminous research in the area, some of the findings regarding a simplicity metric in adults' speech to young children. Redundancy is dealt with separately in the latter half of

the chapter. The characteristics of mother speech from which the label "simple and redundant" was created are summarized at the end of the chapter. In the chapters that follow, there is an examination of several facets of mother speech production that differed markedly in the two sets of subjects.

Reaction to the application of the characterization "meagre and degenerate", about the language input a young child receives, first prompted an examination of adult to adult speech as compared with adult to child speech. Granted that speech among adults can be so disjointed and irregularly punctuated as to preclude a forthright demonstration of grammatical rules, could this also be said of speech addressed to young children in their own family circles? Kerry Drach (1968) compared the speech of a Black mother to her 2-year-old son with the same woman's speech to her adult sister and found speech to the child to be grammatically simple and free of hesitations, false starts, and errors. Sentences in the adult to adult sample, in addition to being more variable in length, were on the average $2\frac{1}{2}$ times as long as those in the adult to child sample. The rate of speech between adults was faster and syntactically more complex. Drach's findings on adult length restrictions in speech to young children have been confirmed many times, for example, in the work of Baldwin and Frank (1969), Phillips (1973), Sachs, Brown, and Salerno (1972), and Snow (1972). A slower speech rate in adult to child speech has been reported by Broen (1972), Phillips (1973), and Cross (1977). Also, the fact that speech to the young child tends to be more correct and more carefully enunciated than speech to another adult is supported by work done by Broen (1972), Cross (1977), Waterson (1971), Halliday (1972), and

Phillips (1973). William Labov (1970, p. 42) has claimed that 75% of adult speech in general, or even 98%, after applying simple editing rules, is not grammatically deviant. (See also von Raffler-Engel, 1970)

Juliet Phillips (1973) compared the formal characteristics of mother speech to two age groups. Samples of 10 mothers of 18-month-old boys and 10 mothers of 28-month-old boys talking to their children in a free play session were compared with samples of the same mothers talking to the experimenter. Speech addressed to the adult was characterized by longer utterances, with more verbs and modifiers per utterance, a smaller proportion of content words, and a larger number of verb forms. The same parameters applied to the differences in mothers speaking to the older and younger age groups of children. Her conclusion was that there are differences in syntax, vocabulary, and intonation which change with the age of the person addressed; the language addressed to children during the period in which they develop their basic language skills is specialized and not representative of the language spoken by adults among themselves. This conclusion was echoed by many other researchers. To length and rate and clarity factors were added an ever-expanding number of complexity features such as variety of sentence form, vocabulary content, and clausal subordination.

Catherine Snow (1972), in a series of three experiments, was able to make several pertinent contrasts between mothers and non-mothers speaking to young children, and between mothers speaking to 2-year-olds and 10-year-olds. All the mothers' speech was recorded under two conditions, the first with the child actually present and the second with the adult tape-recording the message as if for the child's

later use. In the first experiment each mother spoke with her own child and another child from the opposite age group, performing the absent condition first. There were three communication tasks: telling a story based on a picture, telling the child how to sort items in various ways, and explaining a physical phenomenon to the child. The second experiment, an altered version of the first, was designed to test the child presence and task difficulty factors more stringently, and the third checked non-mothers' speech to 2-year-olds in the non-present condition only. No major differences among mothers of 2-year-olds, mothers of 10-year-olds and non-mothers were found. They all spoke in less complicated ways to 2-year-olds than to 10-year-olds. Also, speech was simplified most in the presence of 2-year-olds, suggesting that the children themselves play some role in eliciting the speech modifications. Significance levels were reached for mean length of utterance, sentence complexity, and mean preverb length. Speech addressed to the younger children was consistently less elaborated and less complex, with fewer subordinate clauses and compound verbs, and more sentence fragments and sentences without verbs.

Coming at the problem from a totally different angle, Shipley, Smith, and Gleitman (1969) wondered whether children at different stages of language development would respond with better comprehension to well-formed or to simplified commands. Their subjects were 11 18- to 30-month-old children ranked according to median utterance length. Seven children were telegraphic (using 1.4 to 1.85 words per utterance) and four were holophrastic (using 1.06 to 1.16 words per utterance). The stimuli were 48 commands directed to each child to manipulate six toys. The commands varied from single words, to degrees of

telegraphic speech, to completely expressed sentences, i.e., from ball to throw ball to throw me the ball. The general conclusion was that stage and time were crucial, since the two groups, telegraphic and holophrastic, performed optimally when given different degrees of syntactic structure. Well-formed commands were more effective than child forms in eliciting obedience from children whose speech was clearly telegraphic, but child forms or incomplete sentences were more effective for the less verbally mature children. In both cases, language a little in advance of what the children were producing spontaneously was best received and acted upon. Underlying the general tendency to simplify speech to young children may be the factor that it does facilitate interaction; the adult response may be to the level of comprehension generated in the child rather than to the child's level of speech sophistication per se.

The evidence from such comparison studies is conclusive that speakers in general tend to adjust their speech in the direction of syntactic simplicity and correctness when addressing young children engaged in the process of learning a first language. The Chomsky statement about meagre and degenerate data has therefore been judged not accurate for describing the language to which young children are exposed. With this much established, attention turned to discovering the nature and extent of adult speech adjustments.

Simplicity as Grammatical Fine Tuning

The second focus or thrust of the research into simplicity has been an attempt to determine exactly what makes the input simple grammatically, and how finely tuned the mother's syntactic adjustments

are to the child's level of performance. In this regard, two expectations were held: first, that simplicity would be reducible to level of grammatical complexity, and second, that a considerable degree of correlation would be found in mother and child practices within each dyad.

Elissa Newport (1975) referred to the special speech register used in speaking to young children as "Motherese", and attempted to find out how finely tuned it was to the presupposed needs of the young child for syntactic simplicity. She used a correlational analysis of the relations between properties of maternal speech and those of child speech. Each child's syntactic sophistication was scored on 10 measures related to: length of utterance (pertaining to MLU, upper bound, noun phrases per utterance, morphemes, and words); inflectional endings per noun phrase; selected verb measures; and a vocabulary measure (total number of word types as opposed to tokens). Mother speech was examined for well-formedness, sentence complexity, surface-sentence type, surface-structure-deep-structure relations, and the discourse features of repetition and imitation: altogether approximately 40 separate categories. Newport's objective was to find whether the mothers adjusted to age or to the language sophistication of the listener; and if to the latter, whether to vocabulary size or syntactic competence. At this level her results concurred with previous work; the corpus of mother speech to children was well-formed grammatically and clearly articulated, as well as being brief and structurally simple. In a closer look at individual differences, however, she found simplicity to be more apparent than real.

There were three features of mother speech which amounted to a contra-indication of simplicity. First, a wide range of sentence types occurred because of the communicative function of utterances to young children, including questions, declaratives, imperatives, and deictic forms. Secondly, there tended to be in the mothers' surface syntax a number of subject and verb phrase deletions of deep structure constituents. These, in addition to violations of SVO word order would presumably make syntax rules more difficult to recover. Although this would provide a general kind of psychological simplicity, such sentences would have to be considered grammatically difficult in that they are further removed transformationally from their underlying or base structure. The third fact that was not amenable to the simplicity hypothesis was that declarative sentences form a very large part of speech to adults but a relatively small part of speech to children. This seemed to her a less than facilitating factor since her view was that declarative sentences would be the best models in that the underlying structure would be least deformed. Nevertheless, she adopted as her final position that "communicative function determines the outlines of maternal speech, but within these outlines syntactic simplicity itself determines the details" (1975, p. 27).

Therefore, for Newport, simplicity was not the whole answer. Although "Motherese" exists, the crucial question of how to acquire English from a corpus is not thereby explained. In spite of the fact that "Motherese" is simple in very many ways, there are enough qualifications and complications to indicate that "the problem of language acquisition as raised by Chomsky essentially remains intact" (Newport, 1975, p. 44), and there appears to be no avoiding the

attribution of fairly extensive prior structure to the language learner himself. The linguistic environment is shaped by a multiplicity of purposes and is not so much finely tuned to the competence of the learner in the sense of being one small step ahead of him or her in complexity at the syntactic level, as it is generally adapted to suit the situation. Newport argued that the data support the position that mothers' speech is "shaped by a set of conversation purposes which are social and psychological and only peripherally syntactic" (1975, p. 38). So in the end she remained a supporter of a type of Chomskian point of view that language proceeds from innate base structure since there is not enough clear and consistent evidence in the surface structure presented by the environment for the child to deduce the internal structure of the language. She referred in this connection to Fodor and Garrett's 1967 contention that variations which make the deep structure of the sentence less obvious will make the sentence more difficult to process, a position based on the assumption that understanding of deep structure does not proceed from surface structure clues.

Toni Cross at the University of Melbourne in Australia also set out to explore the degree of adaptation (at the syntactic level) displayed in mother to child speech. In her 1977 paper she began with the prospect of confirming one of three hypotheses: the Chomsky hypothesis of "indifference", the "multi-factor" hypothesis just advanced by Newport, or her own and others' hypothesis of "fine-tuning", which predicted a high degree of correlation between mother speech features and child competence, particularly at the syntactic level. The 16 children studied were rapid developers whose mothers had already raised one linguistically superior child. The younger group ranged from 19 to 32 months old and

the older group of siblings from 4 to 6 years. Some 62 parameters of the mothers' speech were coded; Cross found 35 of them to be significantly correlated to listener variables. A prime indicator of mother adaptation was preverb complexity; nine features were connected with repetition, expansion, and elaboration; and the remaining factors involved novelty, semantic relation, clarity, proportion of mother utterance per conversational turn, and correlation between mother and child in linguistic level (Cross, 1978).

Cross's syntactic feature variables were as follows: complexity (an array of length of utterance factors), completeness (including disfluent, unintelligible, and run-on utterances), surface sentence types, and noun-pronoun proportions. The child listener variables were age, a measure of receptive control, maximum utterance length, a child comprehensibility score, a conversational vocabulary score, and MLU. Although Cross obtained some high correlations for several of the mother discourse features, the syntactic feature variable showed considerable unevenness. All measures of length of maternal utterance were significantly related to all language skills, especially reception. Mothers' length of utterance increased with the children's length of utterance and was on an average less than three morphemes longer than their children's. Thus the fine-tuning or one small-step-ahead position was clearly supported for this variable, but not for any other syntactic parameter. Syntactic integrity measures were more responsive to age measures than linguistic measures, with the youngest children receiving the least well-formed speech, although for all mothers the incidence of speech lacking overt syntactic completeness was a low 15%. Abbreviated mother utterances decreased with child receptivity, but since they

appeared together with full forms, this was taken as an indication that not one but several levels of complexity were being monitored.

Relationships between mother complexity measures and child language measures varied significantly in the following ways: single word utterances decreased with child vocabulary, propositional complexity increased with comprehensibility and receptivity, and preverbal complexity correlated only with age; all of these would support a multi-factor account. Nor were mother length increases related to complexity; rather, they were a result of the mothers' attempts to match their children's semantic rather than syntactic levels. The distribution of sentence types showed a stability across mothers in the proportion of questions, declaratives, and deixis in their speech, and no evidence of increase in those sentences in which surface constituents were moved or deleted. All forms of questions decreased with age. The use of pronouns increased with comprehensibility and receptive control. Cross summed up her findings in this area with the statement that "mothers seem to be less able to monitor either their own or their children's syntactic levels than other aspects of the communicative situation" (1977, p. 174).

The syntactic features that Catherine Lord investigated in her 1976 doctoral dissertation were again the well established variables of sentence complexity and length (five measures), well-formedness (six measures), and form or sentence type (six measures). To these she added reference, self-repetition, imitation, and function. Analogous measures were used for both mothers' and children's speech, with age as an added factor for the child. In contrast to much of the mother speech research, her study was a longitudinal one of three mother-child pairs as the children went from 6 to 30 months old. She looked at how

changes in each individual mother's speech related to changes in the speech of her own child. Syntactic comparisons were possible after the development of syntax which occurred during the 18th month for all of the children. Three major comparisons were made: one between 18 and 28 months, one between 18 and 23 months, and one between 23 and 28 months. The pooling of data over five month periods was used because each child showed little change in particular characteristics over one period and a growth spurt in the other. Lord conducted six analyses of mother speech: mother speech to the younger children compared to mother speech to the older children; the effect of each child's initial words on mother speech; the extent to which mother speech is tuned to child language measures; individual differences and individual differences over time; and comparisons of adult to adult speech with adult to child speech.

Lord's longitudinal study of three mother-child pairs has provided some further refinements to the description of mother simplicity adjustments to child language stages. In contrast to the overall trend of increasing complexity in mother speech, she found the most prominent of mother speech adjustments to be a significant reduction in length of mother utterance as the child passed from the preverbal to the one-word stage. For two out of three mothers, the proportion of speech fragments increased significantly at this point as well. There were also decreases in the use of language for comments, reports, and requests for information during the same period, when, contrary to the general trend over time, mother speech became less complicated and more related to the immediate environment. She also discovered through comparing mother to child speech with adult to adult speech that several of the differences had disappeared by the time the child was 30 months old.

Speech was no longer less well-formed, the difference in proportion of one to two morpheme utterances had disappeared, and the number of different utterances per sample did not differ according to the listener. But sentences addressed to the adult were still longer and more complex in the sense of being multi-clausal.

In terms of a mother adjustment factor, what has been found is a rather clear picture of general tuning to the child listener on the part of adult speakers, and widespread corroboration of the fact that simplicity, together with, as we shall see later, redundancy and the here-and-now referential qualities of mother speech, is facilitative for language acquisition. However, tuning to the child is not specifically a syntactic tuning. As Lord reiterated, "Evidence relating general mother changes to specific child language attributes was often weak" (1976, p. 104). Both Lord and Newport found that the age of the child tended to be as good as or a better predictor of adult speech to the child than the child language variables themselves. This has been interpreted to mean that language is only one of a constellation of changing child qualities to which the mother is responding, i.e., in a verbal interchange the adult is not attending solely to the child's linguistic competence.

Moreover, although language complexity in the child varies in direct ratio to the age of the child, mother adjustment to age does not follow a cumulative simple to complex course. Phillips (1973) noted that although mothers' speech to children from 18 to 28 months old increased in complexity, there was no less complexity evidenced in adult speech to 8-month old than to 18-month old children. R. Posner (Lenneberg & Lenneberg, Vol. 1, 1975, p. 286) has suggested that in speech to very

young infants there is no appreciable adjustment. Apparently mothers are likely to talk to them on what approximates an adult level because they do not expect the baby to understand what they are saying. These observations, combined with Lord's discoveries that there is a decrease in complexity in the mother's speech as the child begins to combine words, and only a few parameters of simplicity left by the time the child is 30 months old, seem to indicate that the greatest attention to simplicity in language on the adult's part is sharply delimited to the period of most rapid language acquisition by the child, probably to between 12 to 15 and 30 to 36 months. Linguistic simplicity appears to be largely an unconscious reaction on the part of the adult, one that is in all likelihood triggered as a coping mechanism when faced with the situational pressure of actually having to communicate linguistically with a young child. This particular line of research might be considered to be exhausted as a source of new insights. It could be time to move on from a preoccupation with grammatical complexity to less-explored ideas of what facilitates the language acquisition process.

Redundancy as a Salience Feature

The second part of the special language for young children hypothesis is the redundancy aspect. As research proceeded from the late 1960's to the 1970's, it seemed possible that, whereas simplicity could be regarded as an intuitive feature of the language model that the mother was presenting to the child, redundancy might actually be functioning as a direct or indirect teaching device. In the following two sections, redundancy together with other kinds of mother cueing,

will be discussed and the significance of the conversational or discourse setting in which language is learned will be stressed.

The repetitive nature of mother to child speech was perhaps the earliest mother speech characteristic to be noticed, and a number of researchers have had high hopes of proving its efficacy as a teaching device. The best known of these experiments was mounted by Courtney Cazden in 1965. It was designed to test the effectiveness of the very common adult practice of expanding the child's telegraphic utterances. Curiously, this experiment and all others in which there has been an attempt to isolate specific repetition techniques and apply them systematically have met with generally disappointing results. In actual interchanges with young children, adults tend to demonstrate or check on whether or not they have understood the child, by repeating childish utterances in somewhat fuller form. The adult supplies at least some of the missing words, which are typically functors such as auxiliaries, inflectional affixes, conjunctions, or modifiers. Cazden carried on an experiment for three months, 30 minutes a day, with three children who were shown picture books, and to whose every incomplete comment the experimenter replied with an expansion. The expansion consisted of inserting appropriate words while maintaining the original word order of the child. No significant gains were made. More successful was a variation of expansion called extension or expatiation, which is a kind of repetition with variety. Instead of repeating and enlarging on the child's phrasing, the adult made a further comment about the same topic. Speculation as to why extension was more effective than expansion leads to the major criticism that must be levelled at all language studies of their type. Isolating variables fails to replicate

the natural setting. It may be that the mother's main purpose is to capture the child's attention. If that is the case, enforced expansion could be replacing more compelling factors such as pertinence, interest, and novelty. Further discussion of expansion experiments is to be found in Brown, Cazden, and Bellugi (1969). Later, Brown reasoned that, given an order of morpheme acquisition, expansion, to be successful, must be presented at the point when the child is "ready" for the particular level of complexity (1973, p. 411).

Ben Kobashigawa (1969), using Drach's corpus, found that one Black mother addressing her 26-month-old son repeated 34% of all her utterances: 15% of her statements, 25% of her questions and 60% of her imperatives. Snow (1972) found that complete sentences were repeated three to four times as frequently for 2-year-olds as for 4-year-olds. In Snow's first experiment, 44% of mothers' utterances were paraphrased, three times as many repetitions being made to 2-year-olds as to 10-year-olds. Lord (1976) found the three mothers in her study to be consistent over time in their rank order of frequency of self-repetition. She identified its proportional use as a style characteristic of each mother's unique constellation of speech characteristics. Repetition did not change markedly, as did complexity features, at the time of the child's entry into the one-word stage, but for all mothers there was a gradual decrease in its use; self-repetition decreased significantly from an overall mean of 36.7% to 11.2% as the children grew older. The mothers became more similar to each other in the use of repetition to the children over time, but at all points they repeated themselves more often in speech to the children than in speech to the adult investigator. Evidence is inconclusive as to whether children respond

more often to repeated comments (Benedict, 1975; Newport et al, 1975). However, Lord pointed out that the effect of repetition may be on the child's comprehension rather than on what the child will say (1976, p. 114).

In addition to the very obvious technique of self-repetition, there are many other kinds of language-patterned behavior that mothers use repeatedly, and these have come under scrutiny as potential language teaching and learning processes. Lord included in her doctoral dissertation analyses of a number of these specific kinds of utterances. She divided the mothers' language teaching into two main categories. One was elicitation, or utterances by which the mothers either endeavoured to elicit speech from the children or actually supplied them with names, and the other was a response category of mother reactions to linguistic particulars, including mother imitation of child utterance. Teaching was thus operationally defined and not necessarily indicative of the mother's intention to teach. Instances of elicitation included general elicitation (what's that? and tell me), coaching (say book), labelling (one-word deictic utterances), and occasional questions (you broke what?). Response categories were imitations, corrections, and requests for clarification, though only the first was in the end retained in the study. Language-teaching/elicitation episodes occurred in all mothers' speech with much greater frequency than language-teaching/response episodes. At Stage I and the one-word stage mothers were most similar to each other in elicitation practices. There was a frequency peak during Stage I for coaching and labelling and at the same time a decrease in general elicitation. Coaching decreased and general elicitation returned to its previous strength at the end of Stage I.

Labelling continued high even after Stage I, and occasional questions, which were very low in the beginning, increased steadily throughout all stages. Mother practices became less similar after Stage I. In their responses, mothers tended to imitate exactly the short, nonreferential, incomplete sentences. Lord maintained that language teaching in all its aspects must be considered a very important part of mother-child discourse since it constitutes a large part, up to 65%, of their verbal interchange. No mother in the study devoted less than 35% of her speech to language teaching functions.

Another way of looking at the role of the adult in child language acquisition has been to acknowledge that adult speech to children is phonologically marked. However, this factor has proven to be exceedingly difficult to analyze. There seems to be an intuitive kind of pacing achieved through salience that is easily detected by any listener but that, unfortunately, does not lend itself to objective measurement. Kobashigawa (1969) has written about how repetition functions to make key words salient. Slight alterations in form are fairly typical of self-repetitions in mother speech. The meaning does not change in successive utterances, but there can be changes in word order, addition, deletion or substitution of individual words, morphophonemic or syntactic alteration, and/or intonational differences. The effect is to make the content words of the message stand out and the result is that the child pays attention, replies, or obeys. As words are moved about in the sentence, stressed differently from sentence to sentence, or combined with other words to make simpler or more complicated phrases, word boundaries are more easily found. It becomes possible to segment the speech flow into units.

An introspective exercise concerning the role of saliency in language acquisition and speech input was carried out by Dan Slobin at the University of California at Berkeley. Members of a seminar group compared their findings after listening to an Estonian mother interact verbally with her 2-year-old daughter and with another adult. None of the students listening knew any Estonian except for information about the child's lexicon and grammar that had been presented in a preliminary briefing session. The main difference the listeners found between speech to the child and speech to the adult was the same point mentioned in the previous paragraph: Saliency qualities that made it possible to pick out individual words and sentences in speech to the child were missing in speech to the adult. As the mother spoke to the child, the listeners' attention was rivetted to the words and phrases familiar to them from the briefing session. Without these anchor points most of the meaning of the mother's utterances was lost unless the observable situation was a sufficient clue in itself. Sentences were clear and short, leaving a "good auditory image of such non-segmental features as rhythm, length, pitch contour, and stress" (Lenneberg & Lenneberg, Vol. 1, 1975, p. 285). Stressed syllables and the ends of utterances were remembered best. When successive utterances contained the same words, only differently ordered, segmentation of any new words was the natural outcome. All became aware that repetition with variety was a compelling auditory device. That mothers speak so differently in this regard to their children than they do to their adult friends is perhaps an indication that we should in the future further examine mother speech characteristics for their purely acoustic effectiveness.

Redundancy as Discourse Cueing

Language research conducted at the level of the prelinguistic child is beginning to substantiate the claim that dialogue as a language teaching device begins very early. Jerome Bruner (1975), among others, has suggested that "standard action formats" consisting of signals that direct the joint activities of mother and baby are the underlying basis on which later dialogue skills are built. Speech in these routines frequently turns into ritualized playful activity sequences such as greeting and hiding games (bye-bye, peek-a-boo, etc.). An intersubjectivity framework is gradually established between mother and child. After following the development of conversation between mothers and babies when the infants were 3 to 18 months of age, Snow (1976) proposed, rather than the simplicity-redundancy hypothesis, an attention-compliance hypothesis which she felt better characterized mothers' early responses. Video and audio tapes were made of two baby girls, first at three-week intervals and later at six-week intervals. Each tape was 20 minutes long and included a feeding session and play either before or after the feeding. Half a dozen or so selected tapes of each mother-child pair were transcribed, beginning at 12 to 13 weeks, with sporadic sampling to 1-year old, and two final tapes when each child was 1 1/2 years old. Snow used her data to illustrate a conversation model with a turn-allocation component. At the end of the unit or utterance, be it word, phrase or clause, there is a transition-relevant place where a choice is made by the speaker to continue, or by a new speaker to enter. In adult conversation new speakers may either be selected as the next speaker because a comment or question has been directed their way, or they may select themselves, usually by beginning to speak at the end

of another's turn. In the mother-child conversations, the mother's motivation appeared to be not to get her own turn but to get the child to take a turn, chiefly by an adjacency-pair technique which amounted to giving or demanding a reply. At 3 months, the babies' turns consisted of a smile, a babble, a burp, a gesture or perhaps just an attentive look. The mothers responded by remarking on what the baby had done. When the mother was the elicitor she would become rather voluble and keep up her comments until the baby gave some sign. Any sign would be acknowledged as a reply. If the baby did not finally answer, the mother might end the unit by answering herself and proceed to another topic. At the very early stages these remarks concerned the child's wishes, needs, and intentions. The babies were treated as if they knew something the mother was trying to find out from them.

Changes in mother speech were conceded to be a result of the mothers' efforts to develop the babies' abilities to take a turn in the conversation. Contrary to Lord, Snow avers that there was "no indication whatever that the characteristics of the mother's speech change abruptly at 10 to 14 months in response to the child's linguistic abilities" (1976, p. 6). Long before that age, at about 7 months or as early as 5 months (at any rate before the babies were talking or responding to syntactic features), changes in the mothers' speech registers were recorded. The mothers ceased to respond to cues that were not vocalizations of some sort. Long babbles from the baby were treated as a conversational turn to which the mothers would reply. Snow saw these changes not as responses to cues from the child but as a direct result of the mother trying to cast the child's contribution into a conversational pattern. One mother used the child's babbling as the

basis of an imitative game. The same mother preceded routine action sequences with the identical introductory statement each time, so that the child's response would be in answer to a verbal signal. Vocalizations with a speech-like quality coming from the baby now received a sure response from the adult; other non-speech-like sounds were no longer sufficient. A tendency on the mother's part to talk about what the child was doing when the child was doing it developed further into verbal direction of the child's play.

By 12 months the mothers were treating babbling sequences as if they were real words. Although the nature of the conversational turn-taking itself had not changed much, since the mother still bore the brunt of the comment-making and often had to answer herself, the range of content and the time spent in such activities had greatly increased. By 18 months in one case the child was taking most of her turns, using appropriate replies, and even incorporating her mother's corrections into her replies. The adjacency-pair technique was now mutual; the child as well as the adult initiated conversations. The mother's cooperation made the turn-taking appear to be real conversation in most instances, even though the child still violated many times the rules of politeness, keeping to the topic, etc. Snow attributed most of the distinctive aspects of the mother speech register, its simplicity, repetitiveness, use of questions and commands, and lack of fillers and revisions, to the mother's preoccupation with passing a conversational turn to her immature partner, the underlying conception of the mother being that her child is a social being, and that it is the intention of the baby to communicate. Therefore the mother interprets the baby's acts as communication and her own role as one of maintaining communication.

This is seen in a dyad's relationships as early as 3 months and by 24 months has resulted in the child's acquisition of communicative skills via a conversational mode. (see Bullowa 1975; Bullowa, Fidelholtz & Kessler, 1976).

Ernest Moerk's work (1975) is a further example of the recent trend toward examining the interactional aspects of mother-child dialogue. He has identified a number of interactional patterns which he sees as the mother's informal teaching strategies. His main methodological tool has been the micro-analysis of specific speech sequences within single recording sessions. In an examination of the verbal interaction of 20 mothers with children between 1.9 and 5.0 years old, he found that the mothers were actively teaching all aspects of language, including syntax and morphology. The mother-child dyad was described as a self-regulating, fairly closed system utilizing feedback cycles and calibration processes. The design of Moerk's study was cross-sectional with a $\frac{1}{2}$ hour recording period for each mother-child pair. The material on each audio tape was subdivided into verbal behaviour episodes, each of which was analyzed structurally, functionally, and linguistically. Mother utterances were coded into 22 categories and child utterances into 16. He found the two most frequent types of exchange initiated by the mother to be question and answer routines and mother modelling followed by child imitation. Particularly in the question and answer situation, the kernel structure or core of the exchange was added to by subroutines. Moerk produced tables showing how such subroutines served corrective functions at the rate of five corrections per hour of interaction. This referred to mother initiated speech only and did not include the acknowledgements and corrections the mother made to speech initiated by the child. Whether the core

of the interaction is that the mother asks a question or encodes information, or that the child asks a question, encodes a message, or makes a demand, an analysis of the subroutines reveals that the mother employs the same principles repeatedly. She corrects, she expands, she checks, and on occasion she turns the exchange into a testing or problem solving situation. Even using a conservative definition of teaching which included only instances of immediate feedback correcting, modelling, and supplying linguistic information, up to 60 instances of teaching per hour of interaction were claimed for some mother-child pairs. One of Moerk's conclusions was that extensive work needs to be done at specific age levels.

A paper called "The Fruitful Dialogue" by the Swedish author Ragnhild Söderbergh (1974) has analyzed the intuitive speech of a father and mother to their little girl at 20 to 30 months old. The conversations consisted of spontaneous comments about events that were actually happening or were being recalled. The parents' techniques are described in detail in conjunction with stretches of sample dialogue. When the child was in the two-word stage her father conversed with her by proposing what they might do in their play. He used question forms and the child was able to answer simply by borrowing words from her father's utterances. Once the child replied, the father developed the topic further by building, in his turn, upon what she had said. He followed whatever leads or suggestions his daughter gave; not only does this keep a main thread going in the conversation, it also provides an accompaniment in words to the actions that are taking place. Before the child could handle a time element not yet in her own speech, her parents began to talk to her about what had already happened and what was going

to happen. They asked questions that could be answered in a single word and they left off the ends of sentences so the child could fill in familiar final words. The child's comments were often repeated by the parents, either to signal that the adult agreed, or to provide a model more in line with the correct adult form.

A simple self-styled interrogative form was used constantly by the child herself at 21 months, definitely indicating that her parents' interrogative style was being modelled even before she had the requisite vocabulary. Month by month, the parents' questions became more complicated. By 22 months their daughter received prompts to answer using locative concepts such as position and direction. When she was 25 months old, her parents, after asking a locative question, began the answer for her by using the appropriate preposition. When questions were not answered by the child the adult very often supplied the answer before making a further comment. The parents consistently took it upon themselves to introduce the names of novel things in the environment, to describe the actions they and the child were engaging in, and to explain consequences that were directly observable in the concrete situation; all this occurred within the mutuality of the dialogue format.

Shortly after she was 2, the Söderbergh child, again modelling the adult, began to pose questions on her own. Why and how questions were modelled by the parents some months before their daughter could answer them; as always their technique was to accept her incorrect and illogical replies, supplying the right answer if she were attentive or cueing her by beginning answers for her with words such as "because" and "otherwise". Alternatively, they might fill in her missing endings. When the child was 25 months old, her parents were cueing her to relate

a series of events using consecutive phrases. By 27 months, she was managing the occasional complete sentence in the course of these simple narratives. By 3 she was doing very well at composing her own reports about events. Throughout the paper it is emphasized that the dialogue situation which supplies feedback to both parties in the conversation is the crucial factor. The parents' attitudes of flexibility, careful listening, acceptance, adaptation without over-simplicity, and establishing continuity are given as much weight as the attention they pay to grammatical forms. Above all, these parents had the ability to listen and to incorporate the child's contributions into naturalistic sessions. Helping the child to function from the beginning as an equal partner was their main goal; their techniques followed from it.

As a summary of what has been suggested in all the literature to date about adult speech to young children, let us consider the following points:

1. The syntax of speech directed to children is simpler than that of speech directed to adults. Sentences are shorter, with fewer passives, compound phrases, and subordinate clauses.

2. Vocabulary in speech to children is somewhat limited, with a large overlap among mothers. Generally the child is given the most useful noun to use in a particular situation, regardless of its type; for example, money not dime, and spoon not cutlery. Most mothers use a baby talk register, at least occasionally.

3. Speech to children is semantically obvious with many links to situational aspects. It is often called here-and-now speech.

4. In certain respects, input maintains a consistent relation to the child's interpretive skill. Such adaptation correlates with

the child's age as well as or better than to any other variable. Interpretive skill is a cognitive factor.

5. Speech to children is markedly lacking in hesitations, false starts and errors. It is, on the whole, a grammatically correct model.

6. There is an attention-getting auditory image in mothers' speech which consists of stress on some words and distinctive exaggerations of pause, rhythm, and pitch.

7. Repetition with variation is a facilitating factor in the segmentation of words. Adult to child speech is highly repetitive. Up to 3/4 of parental utterances to the child under two are self-repetitious (Drach, 1968).

8. Input tends to be feedback productive since it contains many imperatives and questions. In the case of mothers of children between 2 and 3 years old, 1/4 to 1/2 of adult speech to children consists of questions (Ervin-Tripp, 1970; Landes, 1975).

9. During the two or three years of most rapid language acquisition, mothers gradually increase the complexity of their sentences. To younger children, mothers speak in simple, active, affirmative statements and questions and simple, active negative statements.

When all the available data are considered, one is obliged to admit that mother-child interaction is a composite of many factors, linguistic and other, and of innumerable one-to-one correspondences. Not surprisingly then, the search for measurable influences between adult practices and child production in general has not produced spectacular results. In fact, it is probably fair to say that the question of whether simplicity and redundancy, both so evident in parental speech, are either necessary or sufficient for child language learning will not be answered

by correlational studies. The best statements concerning environmental impact on child language learning remain couched in cautious terms.

For instance Dan Slobin has stated the case this way:

Children in all cultures learn to speak according to a universal timetable, ...yet parental practices vary widely in regard to feedback and expansion. Furthermore, children in many cultures receive their primary speech input from other children. Therefore it seems that the major role of input is to provide examples of meaningful utterances in a communicative context... (Lenneberg & Lenneberg, Vol. 1, 1975, p. 291).

Gordon Wells of Bristol, in conducting a very comprehensive cross-sectional and longitudinal study for close to 300 subjects, beginning with some at 19 months of age, stated his conclusions in a similar way:

Although the results reported here may thus be taken to support the dependency of language acquisition on prior cognitive development, they still leave unanswered the question as to precisely how the child discovers the way in which linguistic forms are attached to the meanings that he is capable of intending. In global terms it is clear that the very minimum that he requires to make this discovery is experience of language being used in, and about, the situations that he already understands. The ideal situation would be a shared activity with an adult in which the adult gave linguistic expression to just those meanings in the situation which the child already was capable of intending and to which he was, at that particular moment, paying attention. (1974, p. 266).

It remains to be seen whether intensive scrutiny of particulars about individual mother-child pairs will add anything more definite to our knowledge of how young children learn their native language.

CHAPTER THREE

A Methodology Influenced by Peircean Pragmatism

Study Delimitations

As summarized in Chapter Two, research into the adult role in young children's language acquisition had by the mid-70's progressed to the point where a major emphasis was being placed on the interactional nature of the language learning process. Also it was beginning to be suggested that individual in-depth studies would be needed both to carry forward the substantiation of claims such as the simplicity-redundancy hypothesis and to define more clearly the sociolinguistic shaping or limiting of the child's language output. The state of the literature at the beginning of this investigation did accordingly influence the form in which the present contribution has been case. It was decided that in the light of the author's professional orientation toward the education of young children, the most pertinent contribution would be to widen the data base at a particular stage of development through extensive, carefully analyzed observation. Effort would be spent, not only on framing an hypothesis, but specifically on restating the question in a more illuminating way, one that would serve to draw us closer to the real problem. Initial decisions were made, then, in three areas: an age focus, a basis for the selection of actual subjects, and procedures for the collection and recording of data.

As David McNeill (1966, p. 15) points out, 1-1/2 to 4 years of age has come to be the period generally regarded as the one in which the

basic grammatical and lexical features of one's native language are acquired. Of course this is not to say that parallel kinesic developments do not play a fundamental communicative role (see von Raffler-Engel, 1976a, 1976b) , nor that language acquisition either begins or ends within this time span; Certainly much of communicative importance appears earlier than 18 months of age, and according to Carol Chomsky (1969) a specific range of acquisitions is not mastered until as late as age 9. Most writers in the field would agree, however, that language development falls into at least three recognizable stages: a prelanguage period, a "baby" language period, and a third period of gradual transition to adult language forms. Since at 18 months old the typical child begins to be able to link two or several single words together, it has been suggested that it is at this point that an entry into syntax is being made, an entry which by 4 or 5 years old has blossomed into a knowledge of all the most basic structures of the language. To ensure that the third period of development had been reached by the children in this study, a lower bound of 2 years of age was chosen.

Consideration of the work of two researchers in particular confirmed the choice of the third year of life as the age focus for the study. In the 1960's, Burton White conducted a massive U.S. government funded study to discover the characteristics of the competent 6-year-old. These competencies were subsequently expressed in social and intellectual terms (1978, pp. 69-83). He then looked into the backgrounds of the children whose development was greatest and least. What he found was that the children who were doing very well at 6 were already identifiable in terms of competence at 3. He finally was able to select from 1 to 3 years old as a crucial period in the

young child's upbringing. Although little could be predicted about the child's future progress by what he or she was doing at age 1, the competent 6-year-old had been displaying the same range of competencies, although at a lesser level, from the time he or she was 3. Although the study focussed only peripherally on language skills, the same generalization held true. Language competence at 6 years old was foreshadowed by language competence three years earlier. For this reason it was decided to terminate the study by age 3 in order to concentrate on capturing the essence of what these crucial, most basic language acquisitions might be.

The other researcher whose findings influenced the age delimitation of the study was Lev Vygotsky. In his well-known work, Thought and Language, Vygotsky dealt at length with the idea that "ontogenetically thought and speech develop along separate lines and that at a certain point these lines meet" (1962, p. 50). He noted that William Stern appeared to identify this point with the moment of great discovery at about age 2 that everything has its name. For Stern, the child's question, "what is this?" and the consequent rapid increase in vocabulary signified that the child had discovered the symbolic function of words (Vygotsky, 1962, pp. 25-27). Vygotsky, for his part, preferred the more cautious interpretation of the meanings that words have for the young child, and his position was that "grammar develops before logic and that the child learns relatively late the mental operations corresponding to the verbal forms he has been using for a long time" (1962, p. 47). Nevertheless, Vygotsky maintained that "speech cannot be "discovered" without thinking" (1962, p. 44), and it is by this link with thought, however tenuous, that human language development proceeds. In the light of this

reasoning, the period between 2 and 3 years old seemed a promising one for study. Just what links would be found between the children's speech and their growing powers of thought during the year was a subject left open for observation.

Beyond age, the major consideration in the selection of subjects was that their development be normal and not deviant or retarded in any way. In the beginning it was considered that the 2-year-olds in the campus day care centre nearby might be a possible population. Two months were spent manually recording interchanges between several 2-year-olds and the adults in charge, but this approach was abandoned after taking an audio-cassette into two of the same children's homes to listen to and compare their conversations with their mothers. It was immediately realized that for these 2-year-olds, at least, child-mother conversation far surpassed in amount, complexity, and intelligibility the speech of any one child recorded under day care conditions. Even though the children spent much time in the centre, their speech opportunities and proficiencies occurred in their homes.

A fresh start was then made on what was intended as a pilot study to examine the feasibility of using videotape in the home. The choice of the two boys, David and Galen, was somewhat fortuitous. Through casual enquiry, two children who were close to their second birthdays were located. The author knew both sets of parents slightly but had had no previous contact with the children. The intention was to try to so formalize the home videotaping procedures that similar circumstances for viewing a number of children would be obtained. This plan proved both unnecessary and unworkable. From the first set of tapes on, purely informal videotaping procedures were so successful and so compatible to

all concerned that taping of the original pair of subjects did not stop when they reached their third birthdays but has continued almost to the present. The final taping occurred just after the children reached 7. For the recorder, the entire set of tapes is of great interest from the point of view of early childhood education, as well as language acquisition, but for the purposes of the study, only the tapes recorded during each child's third year are considered.

An Abductive Way to Work

A main problem, from the beginning of the study, was to establish a methodology that would free observation from any particular theoretical bias. No major premise or hypothesis was selected from any linguistic theory or school, a decision which in effect ruled out a deductive or syllogistic approach. Instead, the very general linguistic categories of sound, syntax, and meaning were chosen initially to group the kinds of observations being made, and, this overall structural division may be seen quite clearly in the organization of the table of contents. It was only much later during the search for a pragmatic category system by which to classify similarities observed in the children's syntax that a name for the methodology being used in the study was discovered. It is to the same author, C. S. Peirce, who proposed the icon, the index, and the symbol as the only necessary epistemological categories, that we owe the addition of the abductive method to the already established dichotomy of deduction and induction. He conceived of abduction as a third step in scientific work, one that is logically prior to the other two. His original name for it was hypothesis, and throughout his works he variously called it retroduction (Ayim, 1974) and the logic of discovery.

Insofar as observation has been the major concern of this study, neither a deductive nor inductive methodology has been employed. No initial hypothesis is proposed; no concluding generalizations are reached. This accords with a certain disenchantment currently being voiced over the wisdom of relying on physical science research design for research in the social sciences. In this regard, both general and specific limitations as to the efficacy of controlled experiment to reach valid laws about human behaviour have been broached. For instance, P. B. Medawar, in a critique of the worship of measurement and numeration, which uses as examples Cyril Burt's and others' now suspect claims for heredity, referred disparagingly to "the whole farrago of inductivism - especially the belief that facts are prior to ideas and that a sufficiently voluminous compilation of facts can be processed by a calculus of discovery in such a way as to yield general principles and natural-seeming laws" (1977, p. 13).

That we must reconsider current methodology has also been proposed by none other than Lee Cronbach who, in 1957, was responsible for the introduction of an amalgamation of the "correlating and manipulating schools of research" into the social sciences. Later, Cronbach (1975) had serious reservations about their efficacy. For instructional studies, he said, where the dimensions of the person and the situation enter into complex relationships, and interactions are not confined to the first order, an alternative style of work must be sought. He asserted that the amassing of generalizations from which to assemble nomothetic theory is an unrealizable goal for those situations where fixing conditions and isolating variables are impossible. The question that must be asked is whether social science research should attempt to reduce behaviour to laws. Cronbach argued that because the positivistic

strategy of fixing conditions cannot be used, it is not possible in the social sciences to reach strong generalizations or make close predictions to new situations. Not only are most effects interactive, but in manipulative research there is no way of studying isolated organisms, of arranging conditions so they are truly equal between groups, or of assuming that what goes on outside the laboratory experimental situation is immaterial to the outcome. Even the results of correlational research will be singularly unhelpful in real-life situations. Statistical research reports the gross aggregation of conditions which are actuarial in nature and therefore different from the array of conditions that actually impinge on the individual learner. He then suggested study under more natural conditions, a return to observation, and the inclusion of adequate protocols. Rather than looking for strong generalizations, the emphasis must be on collecting data, observing events in context, and appraising results in that setting. Generalization will come late, and exceptions will have to be taken as seriously as the rule. It is, according to him, "too lofty an aspiration" to expect to do what is done in the physical sciences by way of amassing empirical generalizations, restructuring them into general laws and welding these scattered laws into coherent theory. This is not to downgrade the social sciences, but rather to allow for the fact of historical change and for the emergence of new situations. The real goal of social science, according to Cronbach, is to "pin down the contemporary facts". It would be enough, if from systematic inquiry, the social scientist could "assess local effects accurately" and "improve short run controls" (1975, p. 126). In short, our view of man will emerge from explanatory concepts and "to know man as he is" is in itself a worthy endeavour.

Francis Reilly (1970) traced throughout all of Peirce's writings the evolution of his idea of abduction, beginning with its appearance in an 1867 paper, "On the Natural Classification of Arguments", which defined abduction as a kind of inference or conjecture. Abduction is an hypothesis adopted for the sake of explanation, or as Reilly has stated, "the ideas which the scientist tests are first suggested to him in tentative hypotheses", and "abduction is the term which Peirce uses to designate the mental activity by which a hypothesis is formed" (1970, p. 31). Abduction furnishes the reasoner with a problematic theory which induction later verifies. When we explain a curious circumstance by supposing it to be a case of a general rule, or we formulate a possible or likely explanation of some experience, then we are reasoning abductively. Anttila, (1969, p. 30) for example, has presented the novel suggestion that children learn language abductively, in the Peircan sense, through perceptual judgments. The abductive facet of the scientific method is seen as that which combines experience with original thought; only by abduction is there the introduction of new ideas. The conclusion of the abductive method is a tentative hypothesis, a suggestion that something may be the case. Again, in Reilly's words,

Abduction alone give us an understanding of things. At first it is only a weak argument, a mere surmise, but every step in the development of vague ideas into present-day science began as a weak conjecture. Although observation prompts the enquirer to suggest an explanatory hypothesis, and predicted experience strengthens the hypothesis, it is still the hypothesis itself that makes the real contribution to the progress of science. (1970, p. 38)

It is with the tentative formulation of conjectural hypotheses that this researcher will be content. At this date the state of knowledge about the processes by which young children learn language is far from being complete. Much more evidence is needed in every area;

indeed, the main stumbling block may well turn out to be that too many theorists have attempted premature closure of the case for the sake of upholding their own theories. To keep our minds open and flexible enough to receive imaginative new insights and syntheses is surely the immediate task ahead for all of us.

The Evolution of the Study

The dissertation falls into the general field of the relationship between linguistic input and language acquisition. The intent of the writer has been to examine the dialogue of two mother-child pairs with a view to discovering what influences the mother's speech has on the child's speech in the transition period from baby to adult language that occurs normally during a child's third year of life. Differences in the two mothers' speech strategies and styles were identified and categorized. Then the forms each child used in the composition of his own utterances were contrasted with the model presented by the mother in order to determine whether they were comparable in any way. The general questions being asked were:

1. To what extent is the range of strategy and style exhibited by one mother different from that of the other mother?
2. Is this difference reflected in recognizable ways in the speech performance of her own child?
3. In spite of mother differences, what similarities are there between the two children in their speech development at this stage?

An hypothesis that has grown out of the literature is that adults modify their speech to children and, by making it simple and redundant, thereby facilitate the language acquisition process. In this study, for which the children were matched by age, sex, birth order, general

socio-economic background, and absence of health and development problems, it was evident by the end of the first videotaping session that one dyad exemplified the simplicity-redundancy hypothesis and the other was an exception to it. Therefore, a closer examination of mother speech strategies and language style was undertaken. A series of observations has been pursued in relation to the following questions:

1a. Are the prosodic characteristics of each mother's speech sufficiently discriminable to warrant looking for parallels in the children's speech? The dimensions along which differences were sought were speech rate, segmentation and pause characteristics, utterance length, and repetition.

1b. Are there syntactic forms and lexical choices that are particularly favoured by each mother and do these relate to distinguishable conversational styles?

1c. What range of language uses does each mother typically employ in mother-child dialogue? Are there gaps or emphases peculiar to each? Are her referents present or non-present? Is her style of speaking predominantly phatic, reportative, narrative ... ?

In addition, the particular teaching strategies demonstrated by each mother have been noted, using the following questions as guidelines:

1d. What evidence is there of the use of language teaching strategies such as cueing, question and answer routines, word games, well-practiced or familiar exchanges, simplification, collocation, or demonstrations of change in verb mood?

1e. What kinds of responses does each mother typically make to the child's contributions to the conversation? Is there feedback about correctness or incorrectness, elaboration of the child's utterances,

acknowledgement or confirmation of what has been said, or a tendency to follow up the child's initiatory comments?

If. What restrictions or controls does the mother place on the child's language behaviour, particularly in the interest of socialization or discipline? How insistent is the mother that the child follow her lead?

The question of how closely each child models his mother's speech has been studied by looking at every child utterance in relation to the preceding dialogue in order to establish what carryover of speech elements has occurred. Immediately noticeable was the high incidence of repetitiveness in mother-child dialogue at this stage. Equally as apparent was the fact that a very different pattern of repetition existed for the two mothers as well as for the two children. Accordingly, all instances of repetition have been classified as to whether the speaker was repeating himself (herself) or the partner, and whether the repetition was exact, partial (with either addition or deletion), or altered (eg., paradigmatic).

In the counter search for elements of the two children's speech that were similar in spite of having learned language from very different models, it has been productive to collect data in two areas. First, those of the children's utterances which did not fall into the category of modelling or repetition were analyzed as a group for distinguishing characteristics. Second, because gaps in understanding between the mothers and their sons were common to both sets of tapes, every identifiable instance of the occurrence of a misunderstanding or impasse was recorded and studied. As a further over-all check, the appearance and establishment of specific syntactic features have been charted so that

parallel developments between the two children may be identified. Since both children were using all of Brown's fourteen beginning morphemes (Brown, 1974, pp. 274-399) early in the tapes, the present study focusses not only on them but on the children's increasing facility with pronouns as subject and object, modals, relative pronouns used as conjunctions, and the proliferation of general-purpose verbs, locatives, time words, indefinite reference, and indeterminate number.

In summary, the transcripts of the videotapes have been thoroughly examined in order to compile three kinds of child language data:

1. What is repetition and what is not repetition?
2. What parallels are there in the two children's syntactic development?
3. What meaning gaps show up in the dialogue between adult and child?

These data, in conjunction with the data on mother differences, throw considerable light on the main question of the thesis. That is: given mothers who show differences in style and strategy (and these two particular mothers are opposites in many ways) what speech and language characteristics carry over into their own child's production? i.e., what differences are there in the children's use of language because each has been taught by a different person? Just what is there in their speech environment that children 2 to 3 years old make use of as they fashion their own comments? And conversely, what in the two children's speech at this age is common to both of them in spite of exposure to different kinds of input?

The thesis is organized around the presentation of data relevant to the main questions that are asked within each of the three general

linguistic categories of phonetics, syntax, and semantics. Two aspects of phonetics, namely repetitiveness and pitch change, are dealt with by means of frequency counts and percentage comparisons. Repetition results are based on the percentages of both mothers' and both children's conversational turns that contain self-repetition or partner repetition features, a count incorporating every turn from the complete transcription of all 24 videotapes. Tape by tape and total repetition percentages are used to determine the kinds of redundancy differences there are between the two mothers, between the two children, and in tapes of differing activities. Pitch change results are based on the percentages of rising and falling sentence endings of all mother and child utterance on each child's Tape 10, which is matched for activity. Percentage comparisons are used to verify the subjective impression of favorite pitch variations within each dyad. Other phonetic aspects investigated are sentence melody, clarity of enunciation, and speech rate. The presence of sentence melody and enunciation similarities is demonstrated through the selection of matched mother-child examples. Speech rates for mothers, fathers, and children are calculated as syllables per second using randomly selected examples. Ranking of syllable rates determines the faster and slower speaking of the two children and of the two sets of parents. All phonetic results are used to establish the fact of certain sound similarities within mother-child dyads.

To deal with the increasingly complex semantic aspects of the two children's speech, a pragmatic classification system is proposed. The category system began as an utterance by utterance consideration of the children's Tape 1 speech which revealed a preponderance of words, phrases, and sentences used situationally in mostly ostensive and descriptive ways. The final category scheme for the functional analysis of the children's

syntax is an adaptation and extension of C. S. Peirce's notions of the icon, the index, and the symbol. It includes three main classification categories of sentence meaning, Ostension, Informativeness, and Predication, with subcategories and bridging forms and covers over 97% of the entire corpus of child utterances, excluding only those utterances that are non-grammatical fillers such as babbling, agreement and disagreement indicators, and sound effects. Percentages of child utterance types are used to indicate that there are category similarities and subcategory differences between the children plus a change of trend in function over the year. A taxonomy of the syntagms used by one child during the course of an early tape provided primary evidence of the operation of a paradigmatic patterning process in 2-year-old speech. Further structural analyses of sentences within each pragmatic classification category revealed prototypical sentences associated with each type of function. Congruence between the two children's initial sentence forms is illustrated by charts consisting of ordered phrase data. Semantic aspects of the two children's speech are studied in two ways. First, through the provision of notable examples, persistent communication difficulties common in both sets of mother-child dialogue transcriptions are identified in the areas of locative, negative, and causal relations. Also, the pragmatic classification system is used to suggest there may be a developmental progression in the two children's understanding of the use of language that moves through ostensive and informative phases before a more symbolic use of language predominates. Additional information relating to the discussion of all major points is provided in appendices consisting of numerous examples.

The research is presented as a parallel case study of the two boys and their mothers over a full year of language development. Monthly

tapings were begun in April, 1975, when each child was within two weeks of his second birthday. Galen is 22 days younger than David. The overall socio-economic match between the two homes is quite extensive, and the children's environments are similar on many counts. Both families own their own homes and several vehicles, (cars, trucks, vans, tractors, campers, motorcycles). Both parent couples are in their thirties and their homes and families are at the present time their main focus in life. Both homes provide toys, books, pets, music, and outdoor play space. Both fathers are skilled workers employed in unionized trades. There is a warm relationship between the boys and their respective fathers. The children travel by car or van with their parents on family holiday trips and all four sets of grandparents are well-known visitors to their grandchildren's homes. The grandparents are also the main babysitters. In short, both children have the advantage of rather stable home conditions that by any criteria would be judged adequate in terms of child care and stimulation. No developmental problems were expected or found, aside from the fact that David's speech at 2 was not very clear and his parents worried because of a kind of "stutteriness". Both children appeared to be acquiring language skills rapidly and well and this subjective evaluation was corroborated by clinical testing when they reached the age of 3, and again at ages 4, 5, and 6.

What was surprising, and what made standardizing the content of the tapes impossible, was the extent of the difference in the social and psychological climate between the two homes as expressed in the mothers' expectations and child-rearing styles. Socioeconomic matching, close as it was, had by no means ensured the same kind of psychological

match. Galen's quiet, orderly, semi-rural home life was very much influenced by his mother's efforts to cope with a flareup of her previous arthritic condition. Her careful planning kept disorder to a minimum. Galen had adopted her deliberate, methodical way of working and had developed an unusually long attention span. Much of his time was spent in small muscle activities. He had no regular playmates and little opportunity of inclination for large muscle activities. Contrastively, David lived in a busy, even hectic household where mealtimes and bedtimes were irregularly maintained. He and his younger sister were minimally restricted in their physical movements. At 2 years of age David rode wheel toys, climbed freely on his playground gym and was very quick, with well-coordinated large-muscle movements. He had learned to walk up and down stairs at the time he learned to walk. He had none of Galen's control over pencil and paper activities, nor did he concentrate on any one activity for long. Much of his play was extremely boisterous and rough; minor mishaps and emotional upsets occurred daily. David attended playschool two days a week during the winter months. Other major differences that existed were in the childrens' sibling status and the details of their daily routines. At the time of the study David had a younger sister and Galen was an only child. Several years later a younger brother had been born into each family. David also had two teenage half-sisters who lived nearby with his maternal grandparents.

Galen's daily life followed an extremely predictable activity pattern governed by routines appropriate to the time of day, while David's schedule was rarely the same from day to day because of the impact of constant changes and interruptions in his parents' plans.

An unusual feature of this study arises from the choice of subjects. Most child language studies of an observational kind have been done by parents who were also linguists. Not only are the children in this study not the researcher's own, neither are their parents members of a university academic community or of any professional circle. They are, instead, representative of that majority group that is generally under-acknowledged in our society, the average middle-middle-class suburban or town couple to whom their jobs and their homes and their children mean everything. Beyond this, the study is uniquely Canadian. Three of the four parents were born and raised and have lived their whole lives in the immediate British Columbia Lower Mainland area and David's father is a native Canadian in the full sense of the word, as are his paternal grandparents who live in Eastern Ontario. The three sets of British Columbia grandparents are closely matched, all being of British stock and long-time local residents. For these reasons the data are well suited to local interpretation and should also prove to be an interesting addition to the international pool of information about child language acquisition.

The equipment used to record the language sessions was a Sony Portapak videotape recorder and camera using 1/2 inch, half-hour, black and white V30H tape on reels. The camera was situated on a low tripod about eight feet from the mother-child pair. An external microphone was substituted for the camera mike. The researcher transported, set up, and operated the camera herself; no second party was involved in any of the recording or transcribing. Reasonably accurate transcribing procedures were achieved by transferring the videotaped sound to audio-cassettes and listening to the latter with earphones. The tapes were

replayed many times during the analysis in order to ensure correctness. All 24 tapes were completely transcribed. There was no sampling of the tapes; the tapes in their entirety were considered to be samples.

The protocols derived from the tapes were double-space-typed in dialogue form with the mother's or other adult's conversational turn beginning on the left-hand side of the page and child's conversational turn beginning in the middle of the page. For both partners each new sentence begins a new line. The mother's part in the dialogue continues across the width of the page, thus accommodating all but her longer sentences. The mother's turns are punctuated normally, but there is no punctuation or capitalization of anything but proper nouns in the child's turns. Where the intonation but not the grammar indicates that the child has uttered a question, a parenthesis is added to the line stating that it has been (a question). Since the children do not always speak in sentences, what is placed on one line may be either a sentence or a breath group of words. Sentences longer than one line continue on the next line with a slight indentation to mark that a continuation of the former line is intended. There is an occasional reference to the action if it is not clear from the dialogue what is happening. In the thesis text, examples are referred to by citing the tape number, the child's initial, and the signified page number of the transcript. For example, ID3 means that the example is taken from page 3 of the transcript of David's number 1 tape. The children's ages on succeeding tapes can be calculated by adding 23 to the tape number. On Tape 1 the children are 24 months old, on Tape 2 they are 25 months old, etc. (...) indicates that intervening utterances irrelevant to the example have been deleted.

(---) indicates unintelligibility; a parenthesized word (word) following (---) indicates what the missing word probably was.

Each home session consisted of a videotaped half-hour of play and talk between mother and child; occasionally the fathers were present and took part also. One child had a baby sister and this younger sibling regularly got into the action. If the child spoke to the researcher the researcher answered. No attempt was made to structure the situation beyond asking that the mother stay close enough for the child to be able to talk to her. The project was presented to the parents as a study of the development of child language between 2 and 3 years old. It was not made explicit to the mothers that their participation was to be a main focus. The videotapes show the mothers looking at books, singing songs, playing with toys, and doing puzzles or other manual activities with the children. Large floor blocks were introduced during David's second and Galen's third session. David's father provided lumber ends as blocks, so after a while the standardized set of floor blocks stayed permanently at Galen's home. For one session, Tape 7, a Fisher-Price toy camper unit was used to check out mother versus father style of participation. Otherwise the children played with their own selections of toys. Cassette audiotapes, $\frac{1}{2}$ to 1 hour in length, were also recorded during most visits and the mothers kept written notes about interesting utterances the child had made during the month. However, only the material on the videotape has been completely transcribed for this presentation. Knowledge of the children's development on later tapes has added an element of balance to the interpretation of the transcribed tapes and they are at least available should funds for follow-up studies be found.

A Search for Pragmatic Categories

By the middle of the 1970's, there was a shift underway from equating semantics with meaning in child language, to displacing it with pragmatics (paralleling the shift at the beginning of the decade from the primacy of syntax to semantics). Elizabeth Bates, in her extensive work with Italian preschoolers as subjects, incorporated linguistic theory from the field of pragmatics into child language research studies. She took the position that pragmatics is not an area to be studied separately from or in addition to semantics but that

...all of language is pragmatics to begin with. We choose our meanings to fit contexts and build our meanings onto those contexts in such a way that the two are inseparable, in the same way that "figure" is definable only in terms of "ground". According to this view, every act involved in the construction of meaning is in itself a pragmatic act. The act of reference, the selection of lexical items to stand for one or more referent, and the combination of acts of reference into the core unit of semantics, the proposition, are all contextually based uses of language. (1976a, p. 420)

The gist of Bates' contribution has been that "semantics emerges developmentally and logically from pragmatics, in much the same way that syntax has been shown to emerge from semantic knowledge" (1976a, p. 420). She holds consistently to the position that young children's language is better viewed as an "act" than as an "object", and speech as what the child "does" rather than what the child "has". She chooses to define pragmatics as "rules governing the use of language in context" (1976a, p. 421). From Wittgenstein (1969) she adopts the idea of the "language game", that the meaning of a word is built through the circumstances in which it is used; from Austin (1962) the three performative functions, locution, illocution and perlocution; from Searle (1969) the division of the speech act into an optional proposition plus

illocutionary force. For her work she uses the three formally acceptable pragmatic categories, namely performatives, presuppositions, and conversational postulates, plus propositions as a fourth. By the term "proposition" she appears to mean what Austin does by the term "locution" -- acts of constructing propositions and uttering sounds to perform the function of referring. She also draws attention to the fact that Searle's two-fold speech act looks very similar to the generative semanticist divisions of semantic deep structure and transformations. Bates states that predication is "the act of constructing a proposition" (1976a, p. 420).

To demonstrate ontogenetic progression in child language learning Bates set her research results into the framework of Piaget's sensorimotor, preoperational, and concrete operational stages, thereby creating a tentative model of pragmatic development. She and her coworkers worked most extensively with children in the sensorimotor and concrete operational stages. They found that perlocution (as in early signalling gestures) and illocution (as the instrumental use of interrogative and declarative protoforms) emerge as preverbal pragmatic functions; locutions appear with the first real words. Bates has denied that young children first learn a set of isomorphic sign-referent relations. Presupposition, or taking information for granted, is unavoidable at early stages of language learning since learning not to presuppose is a developmental achievement. Advanced forms of presuppositions, called conversational postulates, which require politeness judgments and the recognition of implicit requests, appear much later with the acquisition of the reversibility procedures that Piaget regards as the hallmark of concrete operations. As a corollary to being able to do and undo concrete operations mentally, Bates presents the idea that to operate

effectively with language the child must come to the position of being able to consider simultaneously his own perspective as he encodes speech and his listener's perspective as the other decodes it.

In contrast to what has been determined through pragmatic inquiry at the sensorimotor and concrete operational levels, the preoperational stage is "virtually uncharted territory" (Bates, 1976b, p. 39). This is the period when children begin to rebuild and reorder their sensorimotor knowledge of the world at a level of internal symbolic representation. By reflection, they turn their earlier communicative performatives (which were procedures) into symbolic objects signalled by the surface form of utterances. In addition to a qualitative change in level there is also a quantitative increase in the number of internal units being processed simultaneously. Bates postulated that at this time the child's speech should change from the uttering of simple partial propositions to utterances that encode both aspects of the proposition and aspects of its contextual use. More deliberate control of the presentation of old and new information by using conventional word order was therefore expected and was indeed a major finding.

From the longitudinal speech records of two children over the period from 15 to 43 months, a rather complex and wide-ranging set of developments was assembled. Three developments appeared within several weeks of each other.

1. The children began to be able to refer metapragmatically to the speech situation itself using the word "said".

2. A dimensional concept of time appeared and was expressed both in temporal adverbials (specifically time and place deixis as in terms

such as tomorrow and Saturday) and in future and imperfect past tense .

3. Conjunctions more complex than and, namely but, because, or else, and if also surfaced, and the word not was frequent.

Over a rather longer period there were two further developments.

4. The basic set of personal pronouns tended to replace proper nouns in subject position.

5. At the same time, verb inflections were added, producing subject-verb agreement.

The latter two developments were accompanied by the switch from verb-subject to subject-verb order and some adaptation to the shifting roles of speaker and hearer.

Albeit this is a heterogeneous list of syntactic devices, the larger view indicates that an increase in explicitness is being achieved via sentence and discourse embedding. Overall there is an increase in internal units being simultaneously held and coordinated. The single focus (possibly of the nature of an orienting reflex) that dominated the child in the sensorimotor stage has given way to processes involving seriation and embedding. Seriating sequential events in time and constructing nested relations are two results of the child's preoperational potential for coordinating mental "chunks". Bates draws an analogy between presupposition-proposition and topic-comment, likening both to "ground" and "figure".

Across the preoperational period the child becomes capable of handling not only his proposition, but a performative and one or more presuppositional structures as symbolic objects for a single communicative act. (1976b, p. 158)

Around the same time in development that these children can coordinate two nested propositions, they can also explicitly control both a proposition and a presupposition, or a proposition and a performative. (1976b, p. 330)

The highest skill attained during the period would appear to be a type of coordination that "involves placing a third element inside, between or within the other elements" (1976b, p. 156). And with this incomplete but highly suggestive picture Bates' contribution concludes.

In literature which uses the word pragmatics as a synonym for language function, each writer tends to classify function according to those categories patently observable in his or her own data. M. A. K. Halliday (1975a, 1975b) has investigated very thoroughly the uses a young child makes of speech in the earliest stages, the shaping and reshaping of utterances in accordance with the changing purposes of the child, and what happens to the concept of function as the child's communicative intentions become more sophisticated. Halliday used his own son Nigel's language development from 9 to 24 months to test the seven categories that formed the basis of his functional hypothesis. It was predicted that these categories would appear in the child's communicative attempts in the following order, with each utterance having just one function.

1. Instrumental "I want"
2. Regulatory "do as I tell you"
3. Interactional "me and you"
4. Personal "here I come"
5. Heuristic "tell me why"
6. Imaginative "let's pretend"
7. Informative "I've got something to tell you"

Three phases of development were discovered. By the age of 10½ months Nigel had a language, one without formal grammatical or lexical structure, but one which nevertheless carried the meaning potential

of the first four functions. By the end of this first phase at 15 to 16½ months the heuristic and imaginative functions had also been established, probably appearing at about the same time, between 13½ to 15 months, with the imaginative possibly in advance of the heuristic. The informative function did not appear at all. In fact its appearance was delayed until 21 months. Contrary to expectations, there was no sign of developmental progress in the first four functions over this first period.

Phase II, beginning between 16½ to 18 months, ushered in a shift of functional orientation. As Nigel started to string together conventional lexical items, the instrumental and regulatory functions were being combined within the same utterance as were the personal and heuristic, giving rise to only two main categories of function, the pragmatic and the mathetic. Halliday saw the mathetic as the forerunner of all that is ideational in adult speech, that which can be designated as the use of language either to learn or to represent experience. The pragmatic is the developmental precursor of the interpersonal, namely all that is concerned with the communication process as a form or channel of social action. These two, Halliday postulated, were transitional functions, an intermediate step posed between the original set of seven simple unintegrated uses and the highly abstract, integrated networks of relations in adult language. In Nigel's case, the distinction between the two was made abundantly clear. Pragmatic utterances were spoken with a rising tone and mathetic with a falling tone.

At the same time that the pragmatic-mathetic distinction was made, Nigel learned to engage in dialogue both by responding to wh-questions and commands and by continuing to answer in suitable vein the statements and responses proffered by the adult. He also initiated dialogue by

saying "What's that?" It was in this way, Halliday felt, that the child was able to build himself, his relations with other participants, his attitudes, judgments, commitments, and desires into the linguistic structure. The transfer to the pluri-function of adult language took place in the dialogue process which consisted of meanings being expressed as verbal interactions in social contexts. With the establishment of the third phase it was the concept of function that had changed. Uses of the language had become components of the linguistic system.

To recapitulate: for Halliday, meaning, in the sense of a social, semiotic (meaning built up through interaction with the environment) plays the central role in language acquisition. Functionality, which he defines as a semiotic act in a social context, is the process by which the child learns language. Six of the functions of prelinguistic Stage I, the instrumental, the regulatory, the interactional, the personal, the imaginative, and the heuristic, are, strictly speaking, extra-linguistic, since all of them can be and are expressed without being encoded into language. The seventh, the informative function, hardly comes into play until well into Phase II, the transition stage. Halliday regards Phase II as merely the overlap between Phase I and the final stage, Phase III.

In Phase II, by a regrouping of the original uses of infant language, two linguistic functions, the mathetic and the pragmatic, appear. There is continuity of Phase I with Phase II in that each utterance of the child continues to perform just one function. The mathetic, a combination of the personal and heuristic, covers the function of the observer concerned with learning about the realities of the environment. The pragmatic, essentially a combination of the instrumental

and regulatory, enables the child to be an intruder and doer in communication and the social order. Both, of course, are interactional. There is also continuity of Phase II with Phase III in that the mathetic function presages the adult ideational function and the pragmatic, the adult interpersonal function.

In the adult stage, these two, the ideational and interpersonal, no longer appear in separate utterances, however, and a third function, that of creating text, is combined with them. All utterances are a blend of the three functions. Function itself has changed from being a simple catalogue of uses to being that abstract, integrated network of relations which composes a linguistic system. The informative function, increasing as it does during Phase II, leads the child by Phase III into dialogue and grammar. A third component, the realization of meanings called lexicogrammatical structure, has now entered into the content-expression pairing that was the child's early proto-language. Even by $2\frac{1}{2}$ it is no longer possible to describe function as a list of uses because the child, like the adult, is encoding more than one function simultaneously. He or she has acquired a language system and will continue for the rest of his or her life to develop the use of that system. As the self of the child is built into the linguistic structure, and function becomes the organizing principle of the linguistic system itself, the speaker becomes both observer and intruder at the same time. For Halliday, "a language system is organized as a system for making meanings, rather than as a device for generating structures" (1975a, p. xx). The social system is considered to be a system of meanings, with a social semiotic built up through interaction with the environment.

Language is both the product of and the means by which we gain access to the system of meanings that constitute the culture.

Halliday's contribution in the field of pragmatics seems, to this writer, to stand complete in itself, and no further attempts in the particular direction which he took will be pursued in this study. It would seem that a significant point has been made that by some time in the third year of life the child's language has already become too complicated to be characterized by any list of discretely defined uses. Just as in lists of semantic relations, the number and range of pragmatic relations remains very much a matter of each writer's perceptions and choices. To be useful, some more universal schema is required.

Further attempts to track down the concept of pragmatics as it is related to language leads to semiotics or the theory of signs, and, finally, to that great American philosopher, Charles Sanders Peirce (1839-1914). Although the word pragmatism is most commonly associated with William James, the psychologist, and John Dewey, the educator, their versions are really popularized forms stating that pragmatism is the philosophy that tests the value and truth of ideas by their practical consequences. Peirce's pragmatism was, on the other hand, primarily a philosophy of meaning and much more abstruse. Peirce's major focus was on man's selection and verification of a belief system. Peirce's pragmatism therefore was concerned with intellectual conceptions, essentially those consisting of what humanity believes is true or can be asserted. It was an attempt to analyze thought that is of a logical, rational, reasonable, or common-sensist nature; moreover, in its emphasis on the nature and limits of knowledge, it was an epistemological theory.

John Fitzgerald (1966, p. 95) pointed out that the passage numbered 5.400 in Peirce's collected works' is crucial for providing the details upon which Peirce's formulation of the principle of meaning was worked out. Baldly stated, "the whole function of thought is to produce habits of action"; "what a thing means is simply what habits it involves"; "what a habit is depends on when and how it causes us to act"; and "there is no distinction of meaning so fine as to consist of anything but a possible difference of practice". From this basis Peirce derived his first definition of pragmatism as follows:

Consider what effects, that might conceivably have practical bearings, we conceive the objects of our conceptions to have. Then our conception of these effects is the whole of our conception of the object." (Hartshorne & Weiss, 1934, p. 25)

As Peirce proceeded in the construction of his theory of signs, it became a further foundation for the support of his principle of pragmatism. The habit or habit change as the practical consequence of the clarification of ideas continued to be seen as the final end or goal of rational thinking. It was labelled "the ultimate logical interpretant", an interpretant being an effect in an interpreter's mind that might best be considered an idea or perhaps a modification of consciousness. Effects in the mind that are on the way to becoming habits were classified as signs whose meanings accorded with the kinds of referential relations they signified. Such signs always being triadic, in addition to an interpretant, they consisted of something like the apperception of the existent object plus some sign vehicle. Peirce's most famous sign vehicles are the icon, the index, and the symbol. Semiotic theory today is built around the idea that different kinds of meaning are carried by different kinds of signs.

Peirce used the name, speculative grammar, for his general theory of the nature and meaning of signs. It must be noted, however, that the icon, the index, and the symbol are not signs in themselves, but only those parts of the sign by which iconic, indexical, or symbolic meaning is incorporated into the sign. Meaning is iconic when the relation perceived by the interpreter's mind proceeds largely from recognizing or experiencing a similarity or analogy of some kind; it is indexical when one object represents or reacts with or against another object; and it becomes symbolical with the presence of generality.

A commonly used example for an icon is a painting which resembles its subject in that it expresses the qualities of its subject. An example of an index is a barometer or thermometer which functions as a secondary indicator of weather and temperature facts that are experiences in themselves. Ayers has called this kind of index a reagent; another kind of index that he calls a designation he defined as any sign forcing attention to the thing intended (1968, p. 52). Terms such as words are symbols because, arbitrarily by law or social agreement, they are accepted community-wide as standing not for particulars, as indices do, but for generals.

Peirce built his epistemological theory on the postulated base that all knowledge and experience ought to be reducible to a finite number of universal categories. He was able to find only three that were completely different from each other and that could not be broken down any further. These he labelled Firstness, Secondness, and Thirdness. Firstness consists of the recognition of disembodied features such as sound, colour, smell, pressure, and all kindred sense perceptions or feelings. Secondness is any dyadic association or "brute" encounter;

a particular instance of any kind embodies Secondness. Thirdness adds the elements of generalization and law evident in all mediated relations. The icon, the index, and the symbol are respectively correlated with Firstness, Secondness, and Thirdness.

It is the concept of Thirdness that is the pivot point of Peirce's rationale. Since pragmatism is concerned only with intellectual concepts, or those upon which an argument may turn, the sign involved will be a symbol. Another way of stating this is that some signs do not have a pragmatic meaning because the effect they have in an interpreter is not one of Thirdness. Nevertheless, the functioning of a symbol demands the presence of an icon as well, because the only direct way of communicating is by an icon. Examples of pure icons do not exist; particulars are always in the nature of indices; symbols, through the incorporation of both Firstness and Secondness, are thereby fitted to be generals. The dependence of the symbol upon the icon and the index is to be seen in Peirce's treatment of meaning in language.

No object or expression can be definitively categorized as iconic, indexical, or symbolic since its characterization is in the final analysis pragmatically determined through its function; its function delimits its meaning. Function in language illustrates this point particularly well. Sentences, phrases, and words, because of the generality they express whenever they exhibit a lack of dynamic connection to immediate and external realities, are eminently symbols. Nevertheless, words such as pronouns and demonstratives may be classed as indices since the usual way they operate in sentences is in standing for or pointing out objects. Also, proper nouns are considered to be indexical on the first occasion they are used. Used habitually, a proper noun is a symbol

whose interpretant represents it as an icon of an index of the individual named. Symbols and icons operate only through tokens or indices, and all except natural indices are symbols (Ayer, pp. 155-57). In practice, symbols are commonly restricted to propositions or propositional function. A proposition's meaningfulness comes from the requirement that a proposition have an index and a symbol, the latter involving an icon. The icon and the symbol do not indicate the subject of discourse. Indices bring our attention to the objects to which the symbol and its accompanying icon apply.

In a letter he wrote to an English friend, Peirce analyzed the roles that icon, index, and symbol play in sentences, using as an example the proposition, Cain killed Abel. Cain and Abel are both logical subjects and therefore indices, since "to give the necessary acquaintance with any single thing an index would be required". The imaginable relation between Cain and Abel requires an icon. Then, "to convey the idea of causing death in general, according to the operation of a general law, a general sign would be requisite: that is a Symbol". An icon, or what is imageable, is always contained within any symbol; without the inclusion of an icon no symbol can exist. Peirce restated the concept in these words:

Thus the icon represents the sort of thing that may appear and sometimes does appear; the index points to the very thing or event that is met with ... and finally the symbol represents that which may be observed under certain general conditions and is essentially general. When we have analyzed a proposition so as to throw into the subject everything that can be removed from the predicate, all that it remains for the predicate to represent is the form of connection between the different subjects as expressed in the propositional form.
(Lieb, 1953, p. 24)

Peirce did not extend the discussion of language beyond its place in rational thinking. Studies of child language and child cognition were not, in his time, at all well developed. Of all his compilers it seems that only Ayer has speculated to any degree about how children's thinking and Peirce's category system might be put together. Ayer mentioned briefly that for the child beginning to learn the language everything is external, not in the sense that the existence of objects in themselves is realized, which would require self-consciousness, but in that sensing of "the externality of the presence of non-ego which accompanies perception generally" (Ayer, 1968, p. 218). As has often been remarked, the child appears to treat his own emotions and desires as properties of the objects that evoke them. It follows then that the symbolic level of language usage will be very imperfectly realized by the young child at the beginning of the language learning process. For this researcher, extrapolation from Peirce's theories proved very fruitful, for much of what Peirce touches on in his discussion, particularly of the icon and the index, is highly evocative of the young child's emotional here-and-now way of speaking. In the present work, insights gleaned from Peirce's theory of signs have been used as a framework in which to discuss observational data. How a three-fold category system of language function was worked out by applying the concepts of Firstness, Secondness, and Thirdness is the topic of the next chapter.

CHAPTER FOUR

Repetitiveness and the Echo Phenomenon

Imitation Discussed

In psycholinguistics there has developed a strong disinclination to ascribe significance to imitation as a factor in child language acquisition. First of all, there has been the regrettable split between innatists and environmentalists that is so well personified in the Chomsky-Skinner dichotomy. The transformationalist swing toward the idea of a specific language acquisition device (LAD) resulted in a swing away from early linguistic models such as Bloomfield's that were based on the concept of a stimulus-response dynamic.

Secondly, there is both anecdotal and experimental evidence that, when pressed to do so, children are actually deficient in the power to imitate. There are a number of well quoted examples of children's failures to imitate successfully. In the following one the child does not realize that there is a difference between the adult's statement and his own, as in simple inversions. Similar examples are listed in Klima and Bellugi (1966).

Child - "Why he can't dance?"

Adult - "Say...why can't he dance?"

Child - "Why he can't dance?" (Brown, Cazden, & Bellugi, 1968, p. 62)

At other times the child can hear the adult's incorrectness but not his own. Roger Brown's so-called "fis" phenomenon has its counterpart in every language.

Child - "Fis'" (fish)

Adult - "Fis'" (copying)

Child - "Not fis', fis'!

Adult - "Fish" (and the child is satisfied) (Berko & Brown, 1960, p.531)

An amusing demonstration of the futility of mere repetition as an acquisition factor is David McNeill's account of an adult trying to correct a child's incorrect negation strategy.

Child - "Nobody don't like me."

Adult - "Say...nobody likes me."

Child - "Nobody don't like me." (eight repetitions follow)

Adult - "Listen carefully. Say...nobody likeS me."

Child - "Oh! Nobody don't likeS me." (McNeill, 1966, p. 69)

From these examples, then, it seems clear that in the early stages, the reproduction strategy the child is using is not one of auditorily matching the words he hears himself say and the words he hears the adult say. Perception experiments and intelligence testing also support the fact that children are better imitators as they grow older; the conclusion therefore has been that imitation is not a major learning strategy in child language acquisition. The thrust of this chapter is to question the conclusion that has been drawn from such observations as those made above.

Statements disparaging the role of imitation are to be found in much of modern research literature. (Reviewed in Keenan, 1977) This is not to say, however, that imitation does not have its proponents, mainly authors whose works incorporate extensive observational material. Ruth Weir's 1962 classic, is of special note here. It deals with a two-month period when her own son, Anthony, was between 2 and 3 years

old. Her data consists of the soliloquies of the child when he was left alone at night to go to sleep. They are extremely repetitious in themselves and long stretches of utterance consist of variations or extensions of a single phrase.

there's a hat
 there's another
 there's hat
 there another hat
 that's a hat (p. 20)

mommy
 mommy went bye-bye
 mommy
 mommy went (p. 83)

Mrs. Fisch
 Mrs. Fischer
 say hello to Mrs. Fisch
 say hello to Mrs. Fischer (2x)
 hello to Mrs. Fischer (4x) (p. 209)

Nevertheless, the attack of the 60's upon the imitation theory of language acquisition has tended to obscure the well documented fact that repeating snatches of dialogue is an ever present factor in young children's discourse. No wonder then, that at the beginning of the Galen and David study, the emphasis that the study would eventually place on repetition was not foreseen.

In recent writing, the subject of imitation in child language acquisition has recurred and been dealt with in a number of ways. To illustrate, three imitation studies will be considered briefly. The first is a 1973 paper by the Japanese team of Nakanishi and Owada, dealing with echoic utterances of children between the ages of 1 and 3 years. Their longitudinal study of ten subjects investigated the relations between echoic utterance and the acquisition of vocabulary and sentences in free speech. They found that echoic utterance increased along with

vocabulary up to the age of 2 to 2-1/2 years at which time echoic utterance dropped out while vocabulary continued increasing. Simple sentence forms appeared either at the same time in free speech and in echoic utterance or a little later in echoic utterance. For one boy who suffered language delay the pattern was the same but parallel developments were a year later.

Echoic utterance was defined as an immediate reproduction of an utterance directed either to the subject or between persons around him. Echoic utterances included final particles, word fragments, words with phonological deviation, multiple words, and whole sentences. This wide range of imitative utterance classification was necessary since the children were only a year old as the study began. In their review of the literature on imitation the authors justify their use of the alternative term, echoic utterance, as an attempt to sidestep the implication of intention in the word, imitation. The study resulted in them agreeing with the prevailing viewpoint that echoic utterances are not the source for the acquisition of vocabulary and sentences. Their conclusion was that verbal expression and echoic utterances are parallel results of the maturation of the linguistic motor system. Another finding was that there was a similarity of echoic frequency among all the children up to a point midway between 2 and 3 years of age and then a gradual cessation of echoic utterance.

The most exhaustive study to date on imitation is a 1975 paper by Lois Bloom, Lois Hood, and Patsy Lightbown. It brought together data from six children for that period when utterance length goes from 1.0 to 2.0 morphemes, i.e., from single word utterance to the emergence of grammar, at ages varying from 18 to 25 months. A strict classification

of imitative utterance was adopted. An utterance was classed as imitative only if it occurred in a natural situation (was not elicited) and was spoken within five utterances of a model that was present. The imitation had to be exact or with some functors missing. No additions were acceptable. Utterances were classed as imitative or spontaneous using the aforementioned criteria.

Three separate analyses were performed. The first investigated the extent and consistency of imitation for each child in terms of proportion of utterance types. The second dealt with imitative and spontaneous lexical items (tokens) within sessions and across successive sessions. For the third analysis, multi-word utterances were categorized as to form and meaning, and category types of imitative and spontaneous utterances were compared. Pertinent to the present study are their findings that there were inter-subject differences in the extent of imitation but that each child was consistent over time in the tendency to imitate or not to imitate. For children who imitated, there were lexical and grammatical differences in imitative and spontaneous speech and a developmental shift from imitative to spontaneous use of particular words and semantic syntactic relations.

Elinor Keenan's 1977 paper is something of a departure from previous work on imitation. She noted that the literature of the 60's and into the 70's was dominated by studies which purported to show that language does not develop through repetition. She argued that even if repetition is irrelevant to language development, the question remains, "Why do young children repeat the utterances of others with such frequency?... At this point in time, we still do not understand what children are doing when they repeat a given utterance." (p. 225).

Her paper is a report of an analysis of repetition in child language from a pragmatic perspective. That is, she related an utterance to its context of use. Her subjects were twin boys who at the beginning of the study were 2:09 years of age. The study continued for a year. She examined repetition in relation to prior discourse and found that, through repeating, the child is learning to communicate, i.e. to construct sentences not at random but to meet specific communicative needs. The young child learns to query, comment, confirm, answer a question, respond to a command -- in short, to communicate. From her data Keenan disputes the claim that imitation must preserve the meaning of the model and substitutes the counter-claim that the preservation of meaning is an exception rather than the norm in repeated utterances, i.e., the pragmatic function changes.

She also studied repetition in relation to subsequent discourse. Her claim in this area is that in the discourse of young children information made known through repetition may serve as future topics in subsequent discourse. In her work, discourse history becomes of primary importance. Her concluding hypothesis is that cross-utterance repetition anticipates the syntactic marking of old information and that heavy reliance on repetition gives way once syntactic devices for topicalization emerge in the child's speech corpus. (See also von Raffler-Engel, (1978).

Variety and Frequency of Imitation Encountered

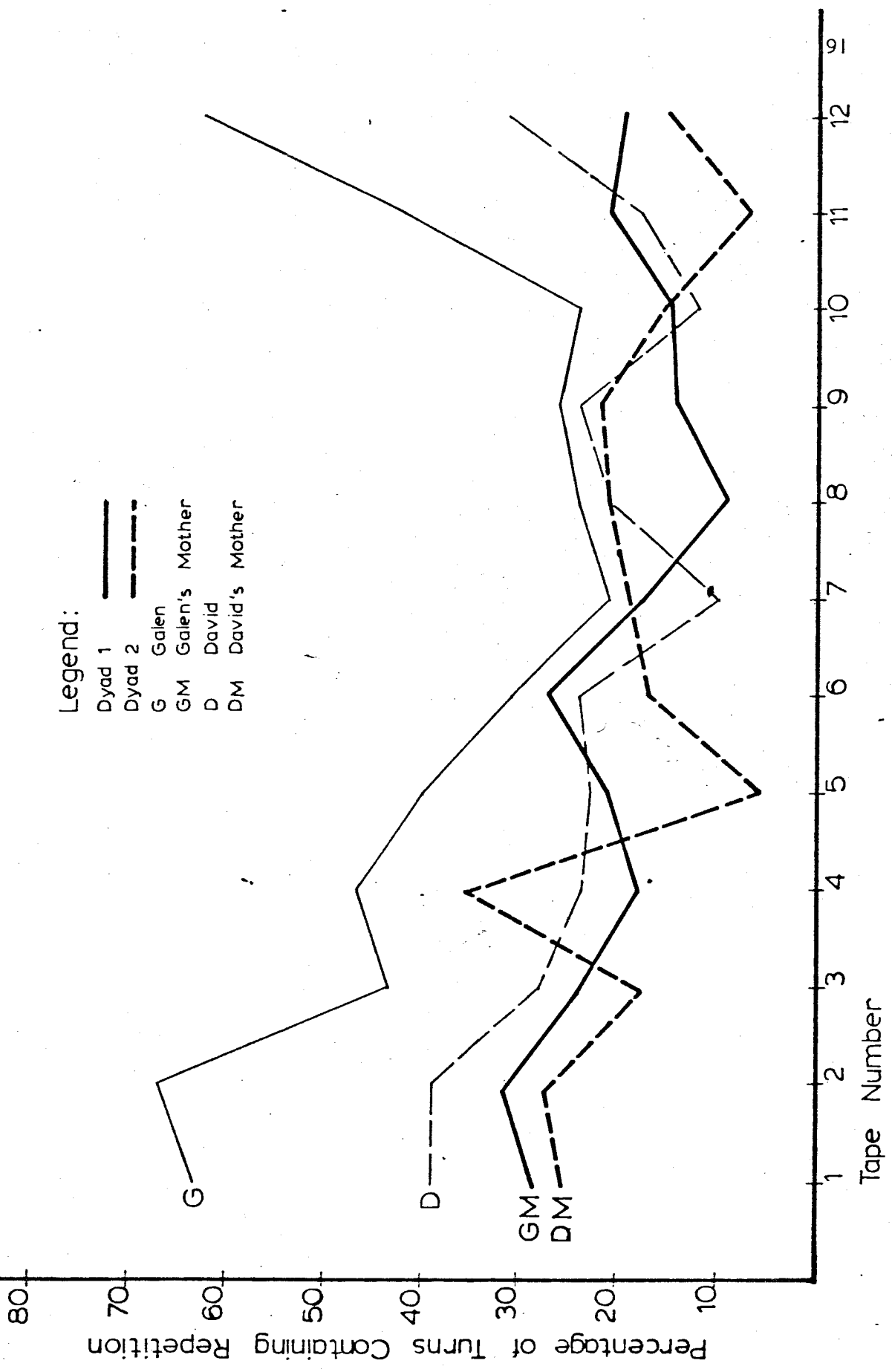
From the time of my first video taping, there was a clear manifestation of a considerable difference between the two dyads in the present study, as to the amount of imitation or repetition in which each child and his mother engaged. It was perfectly apparent that a

large proportion of Galen's contributions to the conversation were either straight imitations or partial modellings of his mother's immediately preceding or oftentimes repeated comments. There was only a trace of such imitation in David's speech and quite often even the carry-overs from the mother's input that did exist appeared only after a delay. A general impression on first viewing the tapes was that one child was an imitator and the other was not.

If with this discovery the decision had been made to look at imitation from some restricted point of view such as its immediacy, its identical nature, or its intentionality, then the results might have been very similar to those of Bloom, Hood, and Lightbown (1975) who concluded that for some, but not for other children, imitation is a productive strategy. The decision that was made, however, was to include as many categories of repetitiveness as could be found of both mother and child repeating each other or themselves, whether immediate or delayed, and not excepting repetitions containing deletions or additions. Statements in which even one unfamiliar word or phrase had been picked up from the preceding conversation were also noted. So the study became one, not of imitation, but of repetitiveness as suggested in the already cited 1977 Keenan paper.

During the course of the study, the term "echoing", which had originally been selected from the Nakanishi and Owada paper as a convenient way to circumvent the intractability of previous definitions of imitation, came to assume a particular significance. The rest of this chapter will lead toward a new concept of the functioning of repetitiveness as a progression from echoing to increasingly controlled mimicking. In addition, the propensity to echo will be featured as having a major

Figure 1: Total Repetition Rates For Each Mother And Child



Tape Number

1 2 3 4 5 6 7 8 9 10 11 12 91

role in both children's learning. It will be suggested that quantitative differences in imitative production may be environmentally induced.

In order to discover to what extent repetition permeated the Galen and David protocols, the following categories were included:

1. the mother's utterance is repeated by the child - R
2. the child repeats himself - SR
3. the mother repeats herself - MM
4. the child's utterance is repeated by the mother - CM

R is the category most closely related to the category of imitation in other studies.

In the case of each category, every type of repetition was included, whether exact, expanded, partially deleted, uttered after some delay, or repeated more than once. Percentages were calculated to express the proportion of conversational turns in which repetitive elements were present. This provided a conservative estimate of the amount of repetition since more than one repetition per turn was omitted from the calculations. The numerical results of the repetition count are set out in Tables 1 and 2 in Appendix 1. Percentage data are displayed in Figure 1 to 3 as a series of graphs indicating total repetition, how frequently the child repeats his mother (R) or himself (SR), and how frequently the mother repeats herself (MM) or the child (CM).

Figure 1 shows the percentage of turns containing repetition of any kind by children and mothers. Galen repeats more than David, and with few exceptions (discussed later in the text) Galen's mother repeats more than David's mother. In general, the more repetitive mother has the more repetitive child. For several reasons,

the repetition frequencies for the mothers are not as representative of actual behaviours as are those for the children. For example, Tape 3 is a highly repetitive tape for Galen's mother because of multiple self-repetitions within single turns. If all repetitions had occurred in separate turns her repetition rate would have been increased from 24% to 42%. On the other hand, all David's mother's repetition rates are inflated because of the measure employed. A clearer representation of the presence of repetition in each mother's speech would have been obtained if the density of each mother's speaking style could have been taken into consideration. David's mother's turns were longer, with more sentences per turn, more words per sentence, and more multi-syllable words, the auditory effect being one of variety, not of repetition. Subjectively, David's mother's speech was less repetitive than the percentage data suggest. To any listener, Galen's mother was highly repetitive, but David's mother's repetitions, because of their embedding in extra verbiage, were not auditorily prominent.

Situational effects related to specific tapes are also shown in Figure 1. Tape 7 gives the lowest overall repetition rate for both boys. This can be interpreted as the effect of playing with unfamiliar toy material since Tape 7 recorded the only session designed to provide an identical play activity for both children. Each child talked first to his father and then to his mother about a toy that was provided by the experimenter. Tapes 1 and Tapes 12 show high rates of repetition for both children because Tape 12 is a repeat of the same kind of activity taking place on Tape 1. For David both tapes involved looking at a picture book, and for Galen both tapes

Figure 2: Child Repetitiveness

Legend:

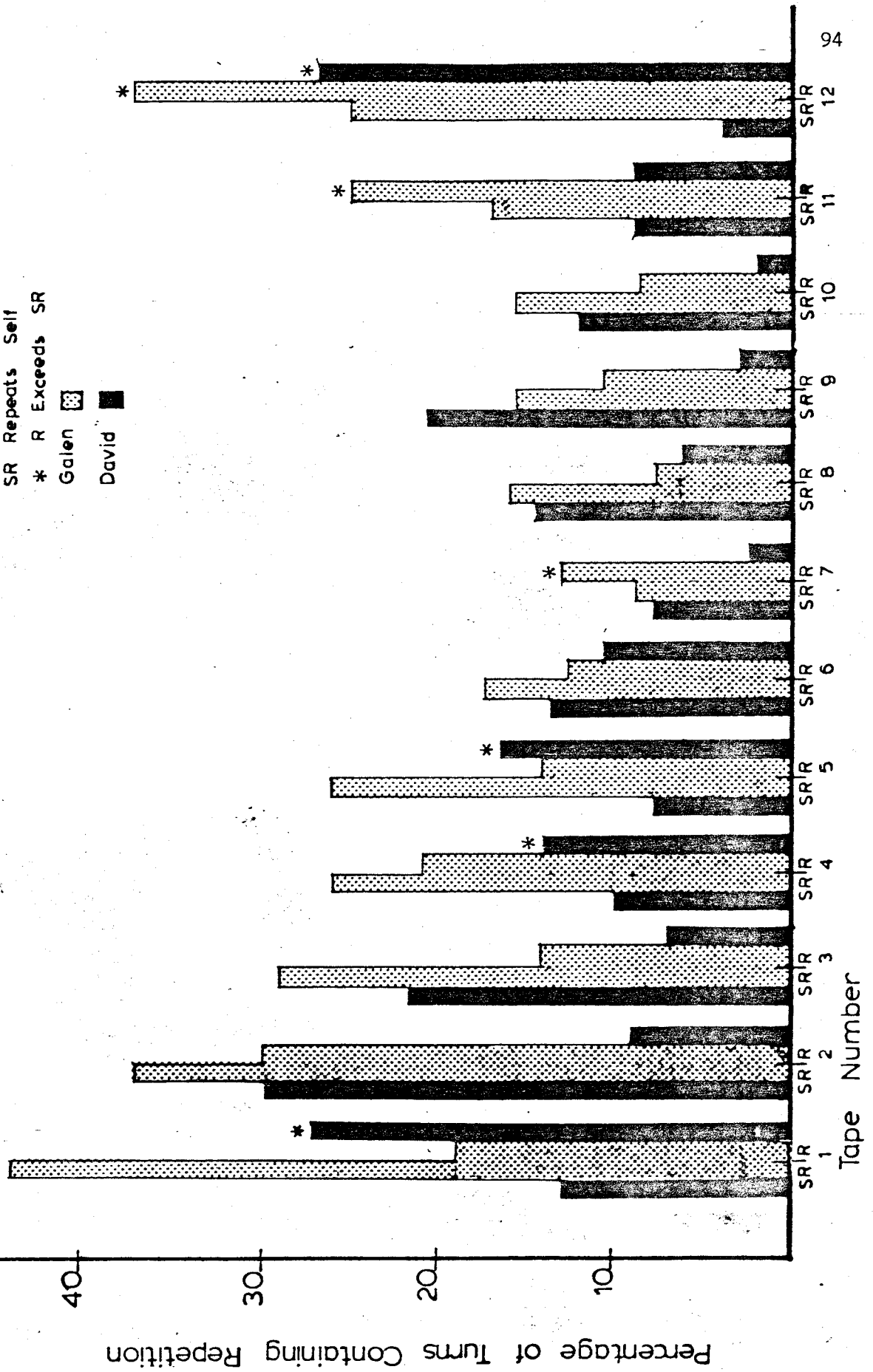
R Repeats Mother

SR Repeats Self

* R Exceeds SR

Galen

David



involved a search for puzzle pieces. Because of such situational effects no consistent decline in repetition was observed over the year. A return to a situation in which repetition was high in previous tapes ensured that a high repetition rate would recur.

Figure 2 shows the percentage of turns containing repetitions of mother (R) and repetitions of self (SR) by each child in each tape. The pattern is clear that month by month Galen's repetition and self-repetition percentages were consistently higher than David's were except for two repetition (R) instances, Tape 1 and Tape 5. (Tape 9 is excluded because David's conversational partner is his father, not his mother.) In Tape 1 David's repetition rate (R) was higher than Galen's but this does not constitute a true exception since Galen's SRs in this tape, but not in later tapes, tended to be multiple repetitions of stereotyped statements that were originally Rs. In Tape 5 David repeated his mother slightly more than Galen repeated his mother. Examination of David's Tape 5 reveals that it was unusual in that there were two adult interlocutors, David's mother and his maternal grandfather, both of whom were trying to elicit from David answers to specific questions. David was hard pressed to understand what they meant and mostly repeated them or said "yeah", not always appropriately. He was given answers to repeat and this raised his percentage of repetition not only above Galen's but also above his own rate of self-repetition. This is another strong confirmation that situational pressures influence amount of child repetition.

It is equally clear from Figure 2 that in 9 out of 12 tapes for Galen and 8 out of twelve tapes for David self-repetition outweighed repetition of the mother for both children. In the case of excep-

tional tapes, examination of the tape concerned reveals the reason why R predominated over SR. Like Tape 5, which has already been discussed, David's Tapes 1, 4, and 12 were high in mother elicitation. In Tapes 1 and 12 the same alphabet book was used. In Tapes 4 and 5 David's reluctance to cooperate was met by adult cueing. Galen's R exceeded his SR on Tapes 7, 11, and 12. In his case it signifies that he was following his mother's lead in their play, a procedure that was so much a part of their interaction that her overt elicitation was unnecessary; he "spontaneously" imitated the expressions his mother introduced.

Partner as well as activity effects are shown. David's Tape 9 is the only one in which his self-repetition exceeded Galen's self-repetition, and this is most likely because his conversational partner throughout was his father. His father closely followed David's play and repeated David in an affirmatory way just as his mother did, but almost never took the lead. David's repetition rate with his father was low. Alternately, Galen's mother was apparently able to set up a pattern of conversation requiring echoed statements with any child partner. One instance was with Galen's 3-year-old cousin B. in Tape 2.

2G14

B: Where's Gordon?
Gone on his motorcycle?

M: That wasn't his motorcycle dear.

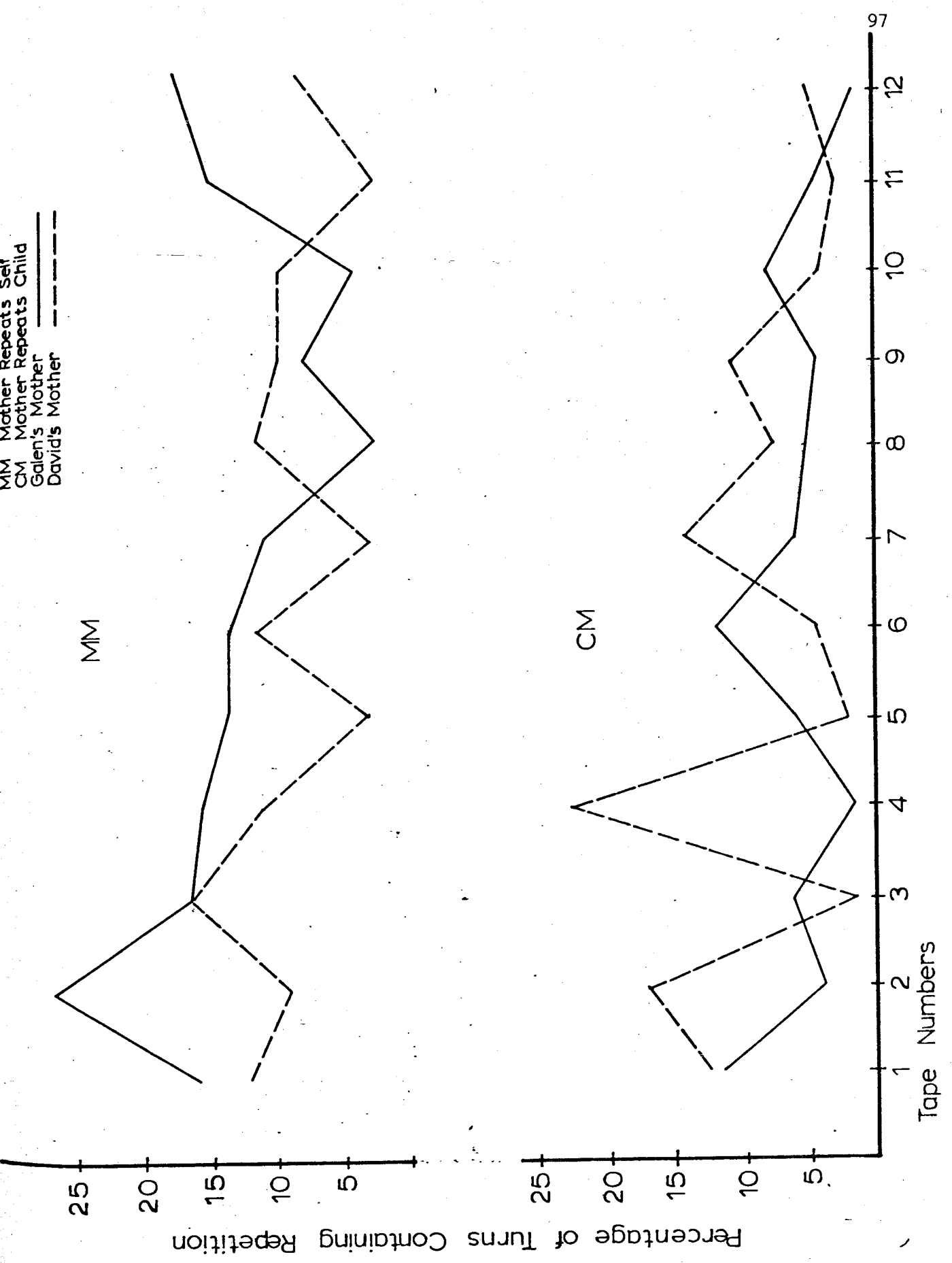
B: What's that?

M: That was another man on his motorcycle.

B: That was another man on his motorcycle.

that was another man on his motorcycle

Galen repeated the statement after both of them, and it is one of



the few completely intelligible comments of his on the entire tape. Galen's speech at this stage clearly required his mother's support for modelling purposes. With a child conversational partner he reverted to syllable play.

Later, when the children were 4 years old, the effect exerted by the conversational partner on child repetitiveness was confirmed in a tape in which each mother in turn interacted with both child subjects. In the course of only 15 minutes David began to repeat what Galen's mother had just said, even though it was not part of the way in which David interacted with his own mother. A different conversational partner sets up a different situation re repetition, as does different play material.

Figure 3 shows the percentage of turns in which mother repeated Child (CM) and repeated self (MM) in each tape. In Tape 9 David's conversational partner was his father. Galen's Tape 10 has a section at the beginning in which he was alone with his father. As already explained, Tape 7 was designed to be a composite of mother and father speech. For all tapes in which there was a dialogue partner other than the parents the speech repetitions of the other partner have been excluded from the repetition analysis. Figure 3 shows that Galen's mother was more self-repetitious than David's mother. It also shows that Galen's mother repeated self (MM) more than she repeated her child (CM). David's mother repeated her child (CM) equally as much or a little more than Galen's mother did, even though she was generally less repetitive than Galen's mother. There was a decline in both mothers' self-repetition (MM) over the year which resulted in a decline

in total repetition. There are no obvious differences over the year in mother repeating the child (CM).

In Tape 8 for both dyads there was another strong indication that rate of repetition is influenced by situational pressures. In a reversal of the general trend, Galen's mother's self-repetition was at its lowest level, and it was exceeded by David's mother's self-repetition. In this tape extreme negativity was shown by both children, and the mothers' repetition practices were affected by their own very different sets of social control practices. To avoid conflict, Galen's mother lowered her level of self-repetition (which was typically a form of insistence). To deal with David's intractability, David's mother stepped up a conciliatory form of self-repetition. There was a corresponding change in the children's Tape 8 repetition rates (See Figure 2). Repetition of the mother on Tape 8 was very low for both children. For Galen it was his lowest R. Tape 10, in which each child again showed a thrust to operate separately from the mother (although this time not negatively) gave nearly the same low mother-repetition rate for Galen and an extremely low mother-repetition rate for David, which was also his lowest. The same relation for Tape 10 as for Tape 8 appeared for the mothers. Galen's mother's self-repetition rate was low and David's mother's self-repetition rate exceeded that of Galen's mother. Repetition frequency is linked to functional demands and fluctuates with them rather than declining with the child's age per se.

Difference in Repetitiveness Between the Two Children

Several kinds of evidence attest to the closeness of the tie between Galen's constant use of repetition and the style of conversation that has evolved in this particular mother-child dyad. Reappearing throughout the first half of the tapes were occasions on which Galen took both sides of the conversation. This is the only type of repetition that drops out over the course of the year. In Appendix 2 is an extended example of this practice that appears very early in the taping.

What is manifestly observable about the Galen tapes is that Galen very often repeated what had just been said, whether the speaker was one of his parents, another adult, another child, or himself. This phenomenon occurred over and over again on every tape and showed no sign of abating during the year. Moreover, throughout the protocols, repetition and turn-taking were such closely allied activities that it might be reasonable to assume that for Galen, at this point in his development, there was a large functional overlap between them. Certainly, even by the age of two, Galen had discovered that repeating the previous speaker was an entirely accepted way of taking a conversational turn, and, for him, this practice was already firmly established. Most often he repeated a sentence verbatim but sometimes he echoed just the ending:

IG5-6

M: That says airplane.

that says airplane

IG7

M: I see cars under there.

I see cars under there

IG8

M: Mummy will look for it.

mummy will look for it uh mummy look
for it in chesterfield

Another characteristic of Galen's repetitiveness was that when repeating himself he sometimes engaged in triple consecutive repetitions of an utterance. Appendix 3 contains representative mother-repetition and self-repetition examples. In Galen's protocols there are so many examples of each type that it would require an in-depth study to indicate just how pervasive repetition actually was in his discourse. For the purposes of this chapter it has been deemed sufficient to conclude that there were noticeable repetition characteristics in Galen's speech.

1. Galen's earliest tapes demonstrated that in familiar contexts he readily took over both sides of the conversation.
2. He repeated his own comments, often three times.
3. Throughout the tapes he used an immediate repeat of what his mother had just said and made it into his conversational turn.
4. His tendency was to repeat whole sentences rather than words or phrases.

Furthermore, since most of Galen's repetitive comments fall within the strict classification boundaries observed by other researchers, Galen would, without a doubt, qualify unreservedly as an imitator.

In the last analysis it was not the overall amount of repetition on the Galen tapes that provided the crucial impetus to study the children's echoing capabilities, but a startling discovery of the extent to which it was possible for Galen to imitate. At just under 28 months of age, on Tape 4, Galen "read" aloud a complete storybook. On the family's return from a holiday, Galen had selected his favourite book, one that had been read to him many times, and settled down

on the living room couch by himself to enjoy it. By chance, his mother, who was working in the kitchen, overheard his performance. The incident occurred the day before the regular videotaping and it was decided to recapture it on tape. A full account of Galen's feat is to be found in Appendix 4.

As previously stated, the initial impression gained from the tapes seemed to indicate that Galen was an imitator and that David was not. But after many careful inspections of the tapes and using different criteria to judge them, this conclusion was seen to be erroneous. In fact, both Galen and David were showing themselves to be capable of definite propensity towards imitation. The real problem was that their repetition skills appeared under such different circumstances that a basis for direct comparison was missing. What made Galen's imitative utterances so easy to identify was that generally they were immediate repetitions of his mother's comments. In David's case, the obscuring factor was that his imitations usually did not occur immediately after his mother's model, but tended to be evoked by a recurrence of situational factors. Extensive study and considerable knowledge of whole tapes were necessary before patterns of repetition became clearly discernible.

All the instances in which David voluntarily imitated or repeated his mother's speech occur in the same context, that of supplying names for objects. Both on Tape 1 at age 2:0 and Tape 12 a year later David and his mother are to be heard looking together at an alphabet picture book. The same routine naming activity went on for each page. When David reached a picture that he could not remember how to identify, his mother gave him the right label for it and he repeated

the word after her. Aside from a few problems in pronunciation due to phonotactic difficulties, his renditions were as clear and accurate as were Galen's longer utterances. He was able to imitate as well as Galen, but his mother's expectation that he would repeat was only set up in mini-testing kinds of situations. Three illustrative examples are listed below.

ID12

M: Teapot

teapot

ID13

M: Those are thistles

thistles

ID13

M: They've got sharp points

got sharp points

The fact that David's incidence of self-repetition increased rather than decreased in some of the later tapes (Tapes 8, 9, and 10) was an unexpected development. Eventually, there were even cases to match Galen's triple repetitions. What seemed to come into operation at this stage was a kind of compulsive practice element. At any rate, the factor of self-repetition had to be accorded relevance because it achieved prominence as a characteristic of both children's speech. The main part of David's repeated statements are set out in Appendix 5.

David's style of imitation was different from Galen's in the following ways:

1. David did not adopt the technique of using a parroted statement as a conversational turn.

2. Rather than repeating a complete sentence verbatim, he tended to pick out single words or expressions and use them as the core of his own contribution.

Two further factors eventually tipped the balance making it necessary to regard David also as a repeater (albeit a different kind of repeater).

3. His self-repetition, which was at first limited to fragments increased in length instead of disappearing in succeeding tapes.

4. Once a delay factor was allowed, even more instances of repetition, or rather, incorporation, showed up. (See Appendix 6).

A final contrast is that his repetitions of others did not conform, as Galen's did, to a strict definition of imitation. Among their disqualifying features was their almost involuntary character. In fact, one tended to ignore or discount a number of them because they had such an irrelevant cast. The problem was really one of attending to David's actual output instead of tuning out discrepancies or hearing only what was expected. Unfortunately, there is an unwitting tendency in the adult listener to edit out the incomprehensible in children's speech, a characteristic which must surely cause us all to miss, at first, some points that later become clear when the material has been rerun many times.

Unfamiliar words introduced into the conversation by adults tended to reappear in David's speech after a time delay. This was true as early as the first tape. For instance, one of my own first comments to him, when he stopped by the dishwasher and touched it, was "that's a dishwasher". This happened before the recording session began. During the taping, when David went to the dishwasher again, he made the same observation.

ID4

this is dishwasher
this this is dishwasher

For David, the process of delayed single word or phrase production or adoption took place many times during the year, both on the tapes and in unrecorded conversations. Until the phenomenon of delay was noticed, it seemed as though he possessed a high degree of topic initiation in his conversation, but after taking into consideration the possibility of deferred speech imitation, most of his unexpected remarks were seen to be triggered by previous input. Some comments that at first appeared to have no antecedents, on examination were discovered to be incorporating suggestions his mother had made earlier. Unlike Galen, David did not use immediate and identical replay. Nevertheless, in many of the dialogue sequences, sentences crop up that are not child-like. They sound as though they have been used before by the adult in similar conversations. David may make adaptations to them but a sense of previous usage remains. In each case there is a situational recurrence or recall that seems to set in motion what was experienced or said in the previous incident. See Appendix 6 for examples.

The Echo Phenomenon

In the end, the greatest insight as to what was happening in the speech or language acquisition process was provided by the very utterances that were being ignored or discounted at the beginning of the study. It was the particular type of involuntary repetition being demonstrated on the David tapes that drew the researcher's attention to a feature later to be dubbed the echo phenomenon. Whereas Galen's chief mode of repetition was an intended mimicking of his mother's model, David's immediate unsolicited repetitions were usually just echoes,

on an occasional basis, of fragments of preceding adult remarks. Unlike Galen's imitations, David's echoes served no function as a conversational turn. His mother did not make any response when he uttered them, nor did David himself seem aware of having said anything. In other words, they were of a largely involuntary nature. For David, involuntary echoes occurred with greater frequency than for Galen, but both echoing and intentional imitation were found to be present in both children's language. Echoing was recognizable by the intonationally faithful sound produced, being literally an echo of the mother's speech. Because many instances of Galen's deliberate mimicking retained an echo quality, it was considered conceivable that his imitations had the same behavioural base as David's unconscious echoing, but that, possibly, the addition of a dialogue function element had gradually brought these echoed types of utterance more under Galen's control. In David's case, it may have been because no conversational use was ever made of the echo, that his imitative ability did not flower.

The fragmentary effect of David's echoing is clear in the examples below.

ID5

M: They're old ones David.

old ones

ID5

M: It's kinda sandy for the table

sandy
table

ID5

M: For your birthday wasn't it?

right
for birthday

ID6

L: What happened?

happened
that a candle

ID9

M: milk sand dirt

dirt

M: Spilled food

food

ID16

M: Pretty red ones

p--- red ones

ID16

M: Oh what are those?

what are those

ID16

M: Yeah they're monsters but those are horns aren't they?

horns

2D3

M: Let's move it all over this way.

let's move all over this way

3D24

Grandmother: That's the way.
Oh boy.

oh boy

4D10

M: Hm they're getting off at that floor?

that floor

4D13

M: One

one

M: Two

two

5D2

M: No it's not one two thirteen.
It's one two three.

one two three

M: One two three
What's the next one?

three

5D5

M: That says hot rod

hot rod

5D17

M: We usually have the light off.

--- the light off

5D18

M: He shall have but a penny

penny

M: A day because he can't work any faster

faster

5D9

M: You watch Sesame Street on it.
What is it?

a Sesame Street on it

Once David began to repeat himself frequently, his overt echoing of his mother ceased to play a noticeable part in the dialogue, except when they looked at books together and naming was actively elicited by his mother. However, the fact that it was still there, but being inhibited in some way is suggested by the following example in which David began by echoing what his mother had said and then switched in midstream to what would be considered a reply and not just an echo.

11D2

M: Where you gonna put the stairs so they can get upstairs?

where are you gon
will you help me put

The occasions on which Galen was merely echoing are much more difficult to identify than similar occasions for David, simply because Galen so often repeated in a pseudo-functional way in order to take his turn. But choice on sound criteria alone, with the semantic element kept to a minimum, does provide a small array of examples. Most often, Galen echoed when he had lost the thread of the interchange. His parents did not pick this up as a teaching opportunity, just as David's parents did not. Of the two final examples below, one is a not-quite-conscious questioning about the unknown word, "wide", and the other is what might be labelled "contagious" repetition of the interjection "hm". The first few examples are Galen's rather uncomprehending echoes of what the adult has just said. They are different from repetitions that fulfill a turn-taking function. The latter have an affirmatory ring to them showing that Galen was purposely adopting the adult model. In the following, echoes are essentially extraneous to a communicative function.

5G10

M: We have one more piece to put in.

we have one more piece _____

6G35

M: What's he doing?

what is he doing

M: Carrying _____

what

M: A big _____

bowl

M: Flower

flower

9G1

F: We need the long ones.

need the long ones

3G6

M: We should move our road shouldn't we?

shouldn't we

M: Yeah

shouldn't we

4G22

M: You'd like to glue it on wouldn't you so it would stay on?

would 'stay on

11G12

M: Wanna put that top on it.
We'll make it wide then.
Okay?wide (a faint questioning which
his mother ignores)

M: Yeah you can put that top on it.

this one (question)

11G11

M: Let's see.
Well we'll have to put them to the side.
Let's see.
Hm

hm

M: Hm

hm hm

M: We're getting so many tunnels.

uhmm hm hm --- hm
you you you

The suggestion being made here is that echoing at 2 to 3 years old be looked at as an extension of the echolalic babbling period, an extension that is temporarily providing the child with easy access

to an almost automatic functioning of a ready-made kind of language. Usage of this type would give, not control of the language, but a way to operate linguistically well before the advent of truly volitional management. At the very least, such a conception would provide a useful basis for the hypothesis that there is a precocious level of language acquisition in which the sound element is available prior to syntactic and semantic understanding. That its genesis is to be found in the one-word stage is demonstrated by the tape excerpts of David's younger sister's speech that forms part of Appendix 7 which draws together more data about the echo phenomenon. Some sound factors that carry over from each mother's speech to her own child's speech are discussed in the next chapter. Throughout the remainder of the thesis it will be assumed that the familiar and the rote form a matrix for further language acquisition.

CHAPTER FIVE

Sound Saliencies in Mother Input

Rate and Elision Factors

By the middle 1970's, the general picture emerging from the literature dealing with mother-child dialogue studies was one of common simplicity-redundancy features in mother speech (Slobin, 1975). Such a view was immediately brought into question at the beginning of this study because there was a noteworthy contrast between the two mothers in precisely these two areas. While one mother's speech might on many occasions be judged to be the epitome of simplicity and redundancy, the other's speech on most occasions was considered to be almost in total violation of these criteria. This much was apparent by a simple inspection of the tapes. If the two children had displayed good or poor language development on the basis of whether the input to them was or was not tailored to their level of development, then there would have been some point to pursuing the search in this direction. However, this possibility proved to have no foundation because language tests at three showed that both children were above average in language development with the edge, if any, at this early date, going to the child whose mother adjusted her speech less. At the conclusion of the year's taping the two boys were tested by a clinical psychologist using the Stanford-Binet intelligence test. Their language development was found to be average or slightly above average, except for one elevated score in David's case. At 3 years 2 months he tested 5 years 1 month in

vocabulary level. By age 6 trends for the two boys had changed markedly. Galen learned to decipher printed words phonetically very early and his language scores were elevated. David entered a French immersion program at age 4 and was now attempting to function in two languages; his language scores had dropped to average. In both cases it was suspected that the changed test scores might be temporary artefacts of different kinds of training.

Since even one negative instance greatly weakens the position that simple redundant speech in the environment is the enabling factor in child language acquisition, the possibility grew that the simplicity-redundancy label might be primarily a statistical creation. The idea that it was either a necessary or sufficient condition became suspect. Meanwhile, further evidence of differences in the two mothers' speech continued to accumulate to the point where it was obvious that along practically every dimension they were opposites. With this, the direction of the search changed towards establishing what differences in the children's language would be found to be congruent with differences in the mothers' speech. In this and the following chapters the differences between the mothers will be analyzed in four main ways: the sound qualities of the mothers' voices, their distinctive teaching strategies, their specific structural and lexical emphases, and several dialogue factors based on the value orientation of each mother. Correspondences between each child's speech and his own mother's speech practices are noted throughout.

One conspicuous difference in the overall sound patterns presented by the two mothers' speech was their speech delivery rate. This factor was first noted when transcribing the tapes. Galen's mother generally spoke very slowly to him, and fewer replays were required to transcribe

her speech than the speech of David's mother. The same phenomenon applied to their children. It was much easier to write down Galen's complete comments than it was to catch everything David said. This is not to say that Galen's mother never spoke quickly or David's mother slowly. As noted earlier, Galen's mother's reading pace was rapid. Also, on later tapes when she spoke quietly and confidentially to him her speech pace quickened. For her part, David's mother slowed up very much for dramatic effect. Nevertheless, in the explanatory and commentary sorts of utterances that comprised most of the two mother's speech to their children, David's mother was the fast speaker and Galen's mother the slow one. Curiously, this difference distinguished the two fathers from one another also.

In order to compare the parents' speech rates, individual audiotapes approximately five minutes in length were compiled of speech samples from Tape 7 for all four parents. (Tape 7 is a matched tape in which each parent plays in turn with the child for 15 minutes using the same toy.) The mother's composite tapes were increased to 10 minutes in length by adding speech samples from a selection of other tapes (excluding Tape 2 for Galen, Tapes 3 and 9 for David, and Tapes 11 and 12 for both boys). Speech excerpts were chosen at random by using the fast forward control on the videotape player, but only parent turns several sentences in length were selected. Pauses between turns were deleted. The resulting audiotapes were transcribed, timed in five-second and minute intervals, and an average syllable rate per second was computed. The transcripts for the rate comparison for the children were composites of each child's speech from all tapes. It was not practical to use spliced-together samples of the children's speech as had been done for

the parents' speech since only a few child turns on each tape consisted of more than one or two short sentences a few seconds in length. Instead, the timing was done directly from the tape soundtrack using a stopwatch. The length of each child's transcript was just over 500 syllables equally divided between the first and last half of the year (between Tapes 1 to 6 and Tapes 7 to 12). As with the parents' transcripts, an average syllable rate per second was computed for each child.

	<u>Average</u>
Galen's Father	2.26 syllables per second
Galen's Mother	2.31 syllables per second
David's Mother	3.21 syllables per second
David's Father	3.68 syllables per second
Galen	1.88 syllables per second
David	2.82 syllables per second

Ordering in terms of rate for both parents and children matched the subjective ranking that had been reached by auditory impression alone. Galen's father spoke slower than Galen's mother, and David's father spoke faster than David's mother. The two mothers' speech rates were almost one second apart in syllable rate, David's mother being the faster. The same difference held for the two children; David's speech rate was almost one syllable per second faster than Galen's. Both children's average speech rates were slower than their own parents' average speech rates. David's average speech rate was faster than the average speech rate of both Galen's parents. The rate aspect of the parents' speech was not pursued further since no base line could be found in the literature. Perhaps in the future, with data from other families, more significance will be attached to the rate difference.

For these two sets of parents, speech rate and its attendant characteristics was the outstanding difference between them. The point that is being made, and the only point that is justified at this primitive stage of investigation, is simply one of congruence. The fast-speaking parents had a fast-speaking child and the slow-speaking parents had a slow-speaking child. Galen's slow rhythmic pace and David's fast elided pace were to be found in their respective parents' speech. What is more, the rate factor introduced other differences into the parents' speech to which their own child's speech was again congruent.

The rate comparison by itself did not adequately delineate what might be called the density factor of each mother's speech production. It must be taken into account that in order to compile a 10-minute sample of mother speech, excerpts from many tapes were transferred onto one tape. The time interval between selections was kept short and uniform throughout, even though it was realized that Galen's mother's deliberately-paced speech was the product not only of syllable rate, but also of the time intervals between statements. In other words, silence between statements contributed as much to the density of each mother's speech as her syllable rate of speaking. The difference in speech density between the two sets of parents was even more pronounced than the difference in syllable rates would suggest. Elaboration of the density factor continues in the next section.

The quality most affected by the rate of speech was the clarity of enunciation to be found in both child and adult speakers. In order to speak as quickly as they did, David's parents' speech was characterized by elisions and unaccented syllables that could scarcely be heard and made transcription very difficult. "Put it" is a case in point.

a whole word by one consonant just as Galen did when he was reciting his story book. An alternative to classifying the latter as telegraphic speech would be to check it against the rate and distinctness of the adult model.

5D8

M: And all the time he was doing it she was tryna stand up in it.

12D35

are they tryna get out of the ground

12D29

M: 'cause there's lotsa kinds of squash you know.

10D22

I got lotsa lotsa work to do

1D1

M: What kinda animals?

12D17

but they're kinda sour

10D14

he mighta have mighta go beddy bye ...

10D5

M: Better put the blade back on.

wait a m'

I gotta put the windshield back on
first

8D23

--- drive the bus

--- wait

--- wait

(in each case "----" is "that one
should")

By way of contrast, the most outstanding feature of Galen's mother's almost exaggeratedly precise speech was her careful enunciation of consonants, particularly, "p", "t", and "k" when they occurred at the ends of words or syllables and the next letter was a vowel. This type of very clear enunciation was used quite consistently as she explained or related something to him. It was at the times that she most wished him to follow what she was saying that her speech became especially simple, very redundant, and precisely articulated. The most telling

contrast was between David's and Galen's realizations of "put it".
 Galen could and did articulate it as carefully as his mother. In the
 text below, underlining marks over-articulated letters.

1G6

M: We have to find it.

1G8

mummy's got it

1G10

M: You put the lid on ...

1G13

M: I'll tell you what it is.
 I don't know what it is.
 It's a Dodge Charger.

3G12

M: Try it again.

3G15

M: Put it around.

5G10

M: Just a little bit.
Just a little bit.

5G10

M: We have one more piece to put in.

we have one more piece to put in

5G17

M: I think you'll have to turn it around.
Turn the tail around.

6G5

M: What are you going to put in the letter?

6G8

a letter on a rabbit

7G11

put it down daddy

8G2

I I don't want you to make it ...
 you can make it
 I don't want to make it

8G3

M: Do you want a house?

yes

I don't want a house

8G4

is that a door
(He says the same thing for three turns)

8G5

M: What are the people going to do now?

...
can s sit right in his high chair

11G12

M: ... put the top ...
(She uses the same phrase six times.)

There are few instances of elision for Galen, but even they can be traced to his parent's speech. Galen begins many sentences with "an'en", (and then), in exactly the same way as his father does. Also, "going to" has at least three realizations. In the example below they all appear in one conversational turn. A third subtle transfer is the dropping of the occasional final "g" (going to "'n" at the end of a present participle) which appears in his father's but not in his mother's speech. Once again it is arguable that particular phonic features of the input are directly influencing Galen's output.

7G7

F: 'N'en the people can climb up there to put the boat on.

9G8

F: An'en we put a big tower.

11G5

an'en o-over along farther there
an'en they have to turn over to
there
an'en they do
an'en they have to turn

11G15

they're going to go all the way around
he's gon go turn
he's gonta turn

8G13

they're havin' a rest

8G13

they're sittin' on a box

8G18

it's falling apart now
it's fallin' apart now

Density and Focus Differences

Not only were Galen's parents' slow rates of speech delivery the converse of David's parents' fast rates, so also was a whole array of speech characteristics associated with rate. Nearly always for Galen's mother there was a clear break between one sentence and another. In fact, the majority of her turns and Galen's father's turns consisted of a single sentence or single focus. Galen also tended to limit his turn to one statement in length, with each utterance being a simple correct sentence. Turntaking itself for this mother-child dyad was quite carefully observed. Pauses were rather lengthy if either declined to answer immediately. There was practically no interruption of one by the other. In total, the pace for both mother and child was unhurried. For such a young child, Galen's actions and words were extremely painstaking and deliberate. Like his mother he would concentrate on a single operation until finished with it. Neither of them ever engaged for very long in what could be called narrative exposition. Of those of the mother's turns that were more than one statement long, most consisted of a number of restatements of one idea, almost identically phrased. Most of Galen's longer turns were not narrative in nature, but rephrasings as his mother's were. There are numerous mother examples similar to the one below in which the focus remains on one idea. During the course of seven turns comprising 16 sentences of varying length, the word "fence" is reiterated 12 times. "Make a fence", "inside our fence", and "here's the fence" all occur more than once.

3617

M: You know what we could make?

what

M: We could make a fence like daddy did.
Would you like to make a fence?

yeah

M: And put all your animals inside the fence?

yeah

M: Okay let's make a fence.
Put it around.
You go and get some animals and we'll put them inside the fence.
You go get some animals and we'll put them inside the fence.

After a few minutes spent pulling up Galen's sock, the conversation continues as before.

M: Okay let's build our fence.
You go and get some animals and put inside.
Can you get some animals for our fence inside our fence?
Here's the fence over here.

here's a elephant for the fence

M: Okay
You put it inside.

I want put it inside.

M: It's in here.
Here's the fence.

Galen's longer turns were all of the type below. What he was saying either accompanied an action sequence or restated a course of action.

He almost never elaborated in an associative way.

oh this those cars go off
he did
those car can park at a storvis
(service) station
can stop with this truck
he can park this over
stop
he's gonna sit down here

Added to the quick rate of David's mother's and father's speech was their rapid coverage of a number of related ideas in one conversational turn. For David's mother in particular, sentence boundaries

were not always marked by pauses in the speech flow. Many sentence beginnings coalesced with the endings of preceding sentences so that pauses demarcated salient words, or short phrases, or even a series of related ideas. Without hearing these sections it is impossible to form an adequate conception of the sound pattern thus produced, but some idea of the effect may be gained from the following excerpt. The lack of an expected pause between the two sentences is signified by (∪) and the insertion of a pause by (/). It was altogether typical for David's mother to go on from point to point in one turn, although this is one of her longer samples. Glancing through the written protocols is enough to confirm the fact that her sentences were longer than those of Galen's mother and contained more subordinate elements. She rarely repeated the same idea in successive statements, and if she did, tended to phrase it quite differently. Usually, as below, she grouped many points around the same topic.

ID6

M: Don't you know what it is?/
 Bet you don't./
 Don't spill any of it on the floor./
 Well when I put the wax outside to cool I spilled a little bit
 on the tablecloth/and it hardened.∪
 And on this side of the wax let me see/your big piece/
 On this side of the wax you can see/the print/of the cloth.∪
 Feel that side.∪
 It feels like cloth.∪
 Doesn't it feel like cloth?/
 And the top side/is smooth./

To illustrate how long her sentences can get, here is the first utterance in her next turn:

ID6

M: And if you take a little piece like this and you hold it in your hand between your finger and your thumb the way mummy's doing then you c'n y' get it get it warm and when you get it warm it'll bend and it won't break.

(51 morphemes)

In Chapter Seven it will be noted that David's longest utterances are longer than Galen's.

David, like his mother, usually did not limit his conversational turn to the expression of one idea; nor did he show as great a predilection for speaking in complete sentences as Galen did. Instead, his successive utterances were not usually repetitions or rephrasings but introduced one element or idea after another in quick succession. His mother's narrative style was very much in evidence in his speech on every tape. He also engaged in narrative-type turns when talking with his father.

9D15

F: What is that going to be?

that will be the light flash on
(He rotates the top block of his
structure.)
ding ding ding ding
that mean the fire truck
ding ding ding ding ding
now ---

F: Yeah that's the way they go all right.

that way they go

F: Yeah mm

yeah
and they go the
and they go to the house with a psh
and the ski up
and so they the guys can go skiing
again

9D16

F: So the guys can go skiin' again?

yeah
and this one goes ding ding ding
ding ding
(He turns the top block again.)
and another skiers come

F: I see.
I thought these were firemen,
But I guess they're skiers eh?

but these are firemen
firemen are kinda the same
they sit on here and this one goes
ding

oh

that fell down

ding (8x)

and that one and this this fire goes
it goes

(He makes a siren sound.)

and it stops

and it go to the right house that got
fire in

and this is the house

right in here

and this stop and the firemen get out
of the fire truck

be careful they ---

oh

(He knocks the structure with his knees.)

that knocked down

(He smiles as his father picks them up.)

9D17

F: Well it's standing up again David.
Yeah

and this one will go and this one will
stay

this one this one --- one a these on

and this one on

no --- the fireman

and they will have something on

where's the fireman

F: Here's one here.
There's another one of those firemen.
That's the guy that was walkin' around behind the back of the house.

this here goes round like that

and then this one goes here like that

this one goes like that

and then this one walks around and get

in the fire truck and gone asleep

so he was sick

F: I see.
He went to sleep 'cause he was sick eh?

yeah

F: That's too bad.
Poor fireman.

that's not a fireman

9D18

F: No?
What is it?

that sick skier

F: A skier?
Oh I thought it was a fireman.
No wonder I didn't know.

but he was sick going skiing

F: I see.
Then they put him in the car did they?

yeah
this is the fire truck that goes
(He makes a siren sound.)
and
I will get two firemens too
and these two firemen
going to get on the fire truck
take the sick skier away and put him
in the doctor

F: Yeah that's right.
That's a good place for skiers all right.

An added effect in David's mother's long stretches of quick utterances were her sudden slowings to dramatize select sections of the discourse. These slower dramatic parts were easily copied by David; they reappeared, not immediately, but as noticeably "adult" sentiments interjected into his own somewhat disjointed style of speaking.

11D24

wasn't that silly thing
(The fireman had fallen in the water)

M: Yeah

yeah

12D35

M: There's just a a spoon and a tin can and it looks like somebody's mitt and somebody's left their dolly out and it's all got snowed on hasn't it?

Lisa: Beebee outside

M: Yeah the baby's outside.

isn't that too bad

Since the speech sound features of the two sets of parents were so clearly different that they could be placed, for the most part, at opposite ends of any feature continuum, it has been possible in the discussion just presented, to show how adult input can influence child performance directly in terms of speech rate, clarity of enunciation, phrasal pausing and singleness or multiplicity of focus. A caution must be inserted at this point against interpreting these results in any absolute way. It must not be claimed, for instance, that parental influence has turned Galen into a slow speaker or David into a fast speaker. Galen speaks quickly on occasion, and David speaks slowly. The overall determining factor is still the larger one of situational modelling. Although Galen's conversational speech can certainly be characterized as slow, deliberate, over-articulated, and composed of short, simple sentences like his mother's, it must be remembered that all these characteristics disappeared in his Tape 4 "reading". At that point he exhibited many of the characteristics associated with David's style of speaking: elision, indistinctness, speed, omissions. And this change matched the change in his mother's speech style as she switched from speaking to reading.

The same reservation must be made for David. In whatever circumstance his mother chose to use careful, slow articulation, David did

also. A distinctive example is the particular manner his mother had of using the interjection "uh-oh!" when something in the nature of a mishap occurred. It was said rather slowly, with an exaggerated difference of pitch between the two syllables. In this case, both David and his younger sister copied their mother's deliberate intonation precisely. Also, in the one instance where his mother slowed up in her singing, David was able to sing along with her (5D22), just as Galen sang along with his mother (5G18). An unanswered question is whether an optimum mother pace is a factor contributing to child repetition. These considerations, of course, do not in any way diminish the adult influence factor. They only emphasize that what is being witnessed is the impact of specific rather than general situational factors. Again it is the echo phenomenon as presented in the chapter on repetition that is predominant.

Pitch Variations

Because some, though not all of the children's repetitions were as faithful to the mother's model prosodically as they were lexically, the state of the children's progress in prosodic acquisition was considered briefly. In English, pitch change is a major component of the analysis of the language's prosodic patterns. J. D. O'Connor and G. F. Arnold (1964, p. 5), in general, envisage the nuclear stressed syllable as a fulcrum around which the tune or "complete pitch treatment of a sense group" is built. They list six nuclear tones or pitch patterns, namely those demonstrating a low fall, a high fall, a low rise, a high rise, a rise fall and a fall rise. A. C. Gimson (1962, pp. 228-29) has noted that the accented syllable in an isolated word, or statement

is higher in pitch and that many common English words change their meanings with a shift of accent, e.g., the nouns, "conduct", "object", "permit" and "rebel" become verbs when the final syllable is stressed. Daniel Jones (1964, p. 279) has divided all English sentences into two main types: Tune 1 with a falling terminal intonation contour and Tune 2 with a rising terminal intonation contour.

For this analysis, Tape 10, when the children were 33 months of age, was transcribed prosodically as simple tunes following the procedures given by the aforementioned authors. Tape 10 in its entirety was chosen because it is one of the more productive tapes in terms of numbers of utterances, and because the main activity for each child was similar, a kind of pretend play with small cars and trucks. One child transported passengers and the other child transported mail. It was at once apparent that all six nuclear tones were well evidenced and that both children were indeed using higher pitch for the accented syllable of single words, as for example in the rising final syllable of cement (10G27) and the higher initial syllable of mailman (10D12). In addition unusual emphasis effects were beginning to be created through raising the pitch. Both David and Galen could stress the word "is" to make a point.

There were few instances of completely developed sentence tunes. Most commonly, Jones' Tune 1 and Tune 2 appeared as much abbreviated stretches of utterance incorporating only one prominent rise or fall per utterance. In longer utterances, of which there were not many, the rise or fall might appear at the beginning or ending of the sentence with otherwise level passages. A frequently used melody pattern was ••••, and its corollary ••••. The rising version

was demonstrated by both David and his mother as a chant, performed in a singsong voice.

8D25

M:

.

Bus is going under the tunnel!

10D12

Both M and D:

. . .

There's your mail! (Mother substitutes the for your.)

By Tape 11 this rising version had blossomed into easily performed chants for both Galen and David.

11D8

.

Time to get up now!

11G32

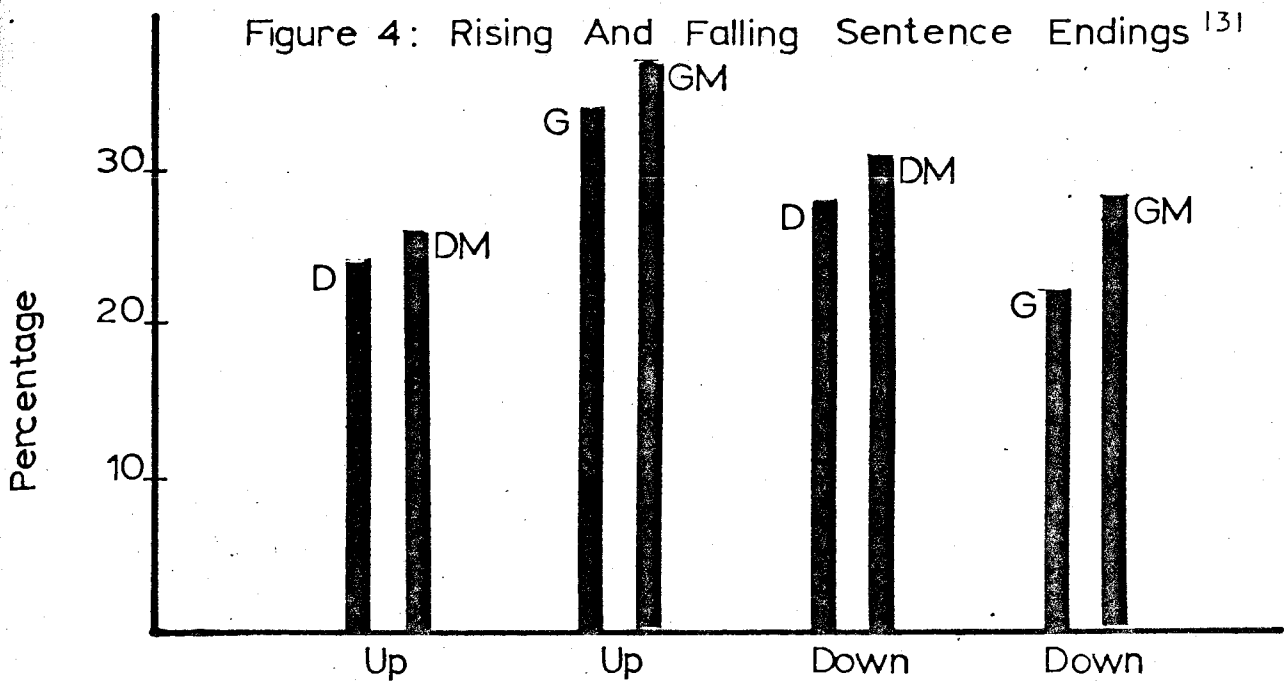
Both M and G:

.

Rush to the train accident! (Galen substitutes g for d in accident.)

A persistent impression was that David and his mother were using predominantly falling terminal pitch patterns (Tune 1) while Galen and his mother were making more use of rising terminal pitch patterns (Tune 2). In order to check this, a count of sentence ending types was made for every utterance on Tape 10 and percentages were computed. For simplicity's sake, only the last two syllables of each sentence were

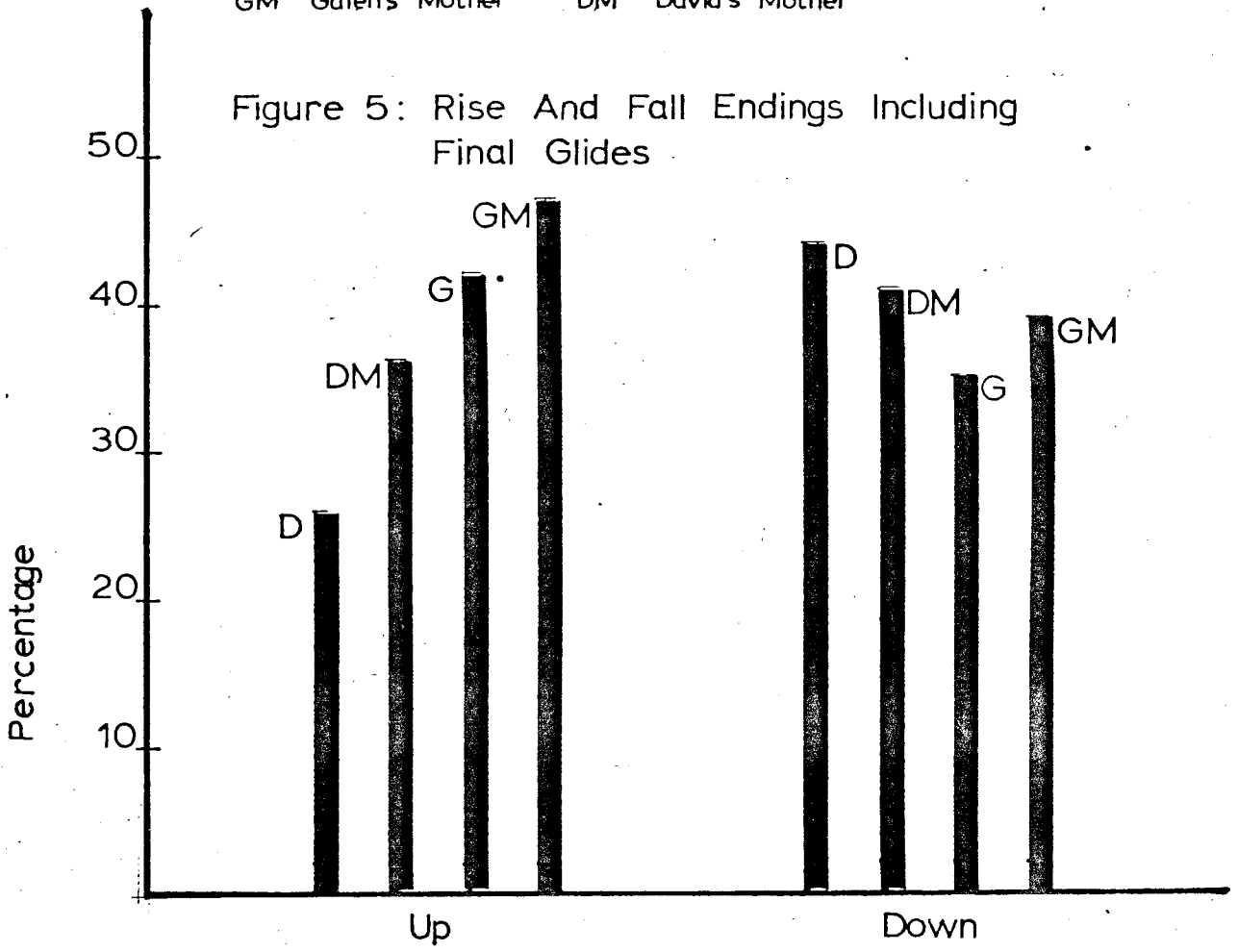
Figure 4: Rising And Falling Sentence Endings ¹³¹



Legend:

- G Galen
- GM Galen's Mother
- D David
- DM David's Mother

Figure 5: Rise And Fall Endings Including Final Glides



considered and single syllable utterances were discarded. Three main types of endings were found: falling, rising, and level. In addition, some final syllables had a perceptible glide either upwards or downwards, and so subcategories to accommodate this feature were added. Cases in which both final syllables were distinctly glissed (i.e., the ending was rise-fall or fall-rise) were tabulated separately. Percentages of each category appear in Table 3 in Appendix 8 and correspondences are graphed in Figures 4 and 5.

Figure 4 shows the percentage of utterances in which the two final syllables of the sentences of both mothers and children created a rising or falling pattern, irrespective of glides on the final syllable. David and David's mother use fewer rising sentence endings than Galen and Galen's mother. Galen uses fewer falling sentence endings than David, and Galen's mother uses fewer falling sentence endings than David's mother.

In Figure 5 the percentages of utterances showing rising and fall-patterns have been modified by including glides on the final syllable. The rank ordering of subjects for frequency of rising endings remains the same as in Figure 4, but when "glissing" of the final syllable is counted, David's use of falling sentence endings exceeds that of his mother. What that means is that part of the impression of predominantly falling sentence endings for David is a result of his use of a downward glide on a single final syllable.

The display is corroborative but not spectacular. Although the results confirm that David and Galen do show the expected differences in final pitch patterns and that each resembles his own mother, the two mothers are less different from one another than the two children

are. This type of result is, of course, to be expected in all quantitative comparisons between mother and child language since the pitch patterns of mature native speakers of English will be very much alike. That is to say, to speak English or any language correctly, pitch usage will necessarily fall within predetermined parameters. Difference parallels which are present in specific instances tend to disappear in statistical treatment.

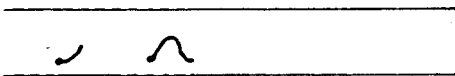
It was concluded from the tune analysis that any claim for a prosodic approach to language acquisition would have to be pursued within the common overall pitch patterns for English. To find melody differences in the two boys' speech one would have to look at specific variations in particular matched utterances, always with the reservation that situational pressures could be expected to modify habitual responses. This endeavor again turned up the match between each mother and her own child that had been noted in pace, elision, and density factors. The definitive example is the question "what's that?" which is used by all four speakers on numerous occasions throughout the tapes. In this and other familiar interjections and stereotyped comments each boy has adopted the slight differences in rhythm and pitch employed by his own mother.

IDI4
M:



What's that?

IDI5
David:



What's that? (4D12 example is even more exaggerated.)

IG4

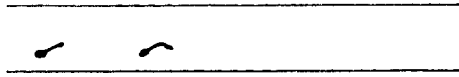
M:



What's that?

IG6

Galen:



What's that? (8GI example is even flatter.)

Similar correspondences are found on Tape 10.

10G9

M:



There it is!

10GI

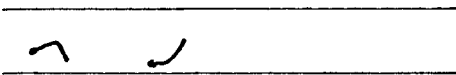
Galen:



Here he is!

10D12

M:



There y'are!

10D12

David:



Here y'are!

Pitch and glide parameters are always greater for David and his mother than for Galen and his mother. Close scrutiny suggests that this is the basis for the original impression that the speech of both Galen and his mother was rather flat and lacking in pitch variation. There are in fact many level phrase stretches for David's mother also; but the downward glissing that tends to be imperceptible in the speech of Galen and his mother is exaggerated to the point of being dramatic in that of David and his mother. David's mother indulged as well in rise fall and fall rise patterns over single syllables and single words to a greater extent than did Galen's mother. Also, the impression of more rising emphasis in Galen's and his mother's speech may be partially accounted for by the presence of a very clear, high rise, non-glissed pitch pattern used for question purposes, which is encountered on all tapes going back to Tape 1.

10G4

M:

10G21 & 26

Galen:

 Is it?

 Is it?

Also used for:

Also used for:

Mhm (10G18)

Mhm (10G18)

Can they? (10G21)

Have you? (10G18)

Of who? (10G16)

The same clear rise is also used for verb particles and at the ends of longer questions.

10G10

M:

10G15

M:

 Shall we put him on here?

 Here are the what?

10G10

Galen:

10G23

Galen:

 Is it raining?

 Did the man hit her?

10G22

M:

10G23

Galen:

 She fell off poor thing!

 We'll take that off.

Questioning forms for David and his mother are more complex. For instance, a complex rise fall in the middle of sentences that pose queries is easily managed by David on Tape II. The important point seems to be that whatever the prosodic input, rather fine prosodic features are reproduced by the child, not invariably, but when they are, with

considerable fidelity.

IID22

M:

You're gonna get more water for the lake?

IID23

M:

Where does the hose get the water from?

IID26

David:

Where's the lake goina go?

IID26

David:

And where's the fish goina go?

To counteract any hasty conclusion that Galen was less capable of producing gliding notes than was David, it must be emphasized at this point that with the provision of a model, he too engaged in complex pitch changes. On Tape II when his mother made the following remark about the road they are building, Galen repeated the novel expression with great satisfaction regardless of the limits there undoubtedly were on his understanding of it.

IIG5

M:

That's a right-angled corner.

Galen:

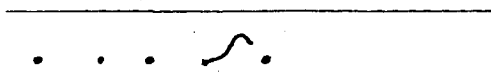
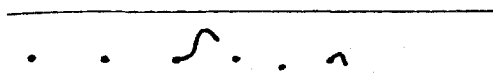
Yeah a right-angled corner.

Instances in which a single word from a complete statement is echoed are no less interesting. Below is an instance of limited echoing in which the child has caught and reproduced one emphasized word from the mother's speech. In the child's utterance the emphasis is not as appropriate as the mother's and the effect is unusual or atypical.

10D26

M:

David:

You look loaded to me.Yeah I got loaded.

From the David and Galen tapes it is evident that prosodic capabilities arise earlier than during the third year. Appendix 9 provides a glimpse of a much younger child, David's sister Lisa, practising prosodic skills at the age of 15 months.

Mother Teaching Techniques

Not only did each child unconsciously reproduce the sound qualities of his own mother's speech, each one also responded compliantly when faced with active elicitation from the mother. Both mothers consistently used their own favoured technique to give their sons vocabulary practice. At no point did either use the other's method. Galen's mother used a collocational strategy in which she would leave out the ending word of the sentence so that Galen could fill it in. By all reports Galen had had constant practice in this skill since he was one year old; it was noted during the first visit, both off and on the videotape. When he was being prepared for his nap, an audiotape recorder was placed under his bed while his mother read him a story. When Galen identified one of the pictures as a sailboat, his mother replied, "out on the

_____". Instead of saying "out on the sea", as she expected he would, he said "out on the sundeck", because that's what he was used to going "out on". At this stage in the study, however, no particular significance was attached to the incident. It was merely a humorous mistake. Much later it was realized that the extent of Galen's parroted facility with the language was probably due to such cueing. Examples of just how his mother inserted her prompting strategy into the context of their play together appear in Appendix 10.

The best proof of the efficacy of his mother's cueing behaviour is the "reading" that Galen does on Tape 4. (See Appendix 4.) When he lost his place in the book and it seemed as if he had no recourse but to begin again at the beginning, his mother persevered with her distinctive collocational cueing strategy until the required pattern finally reasserted itself. The following sample is the cueing section which finally enabled him to recover his bearings and continue on as rapidly and comprehensively as before. Italics mark the text of the book.

468

M: *In its place Donald had put a _____*

toy-sized tree

M: *Just the _____*

size

M: *For his _____*

little to-oy tra-ain

M: *But it's not big enough for a _____*

home for us cried Chip

M: *No _____*

sir

M: *Cried Dale.*
Well this was a fix. Where could they _____
live

M: *The two sad _____*
chipmunks sat and thought
but that didn't get them anywhere

M: *So they started slowly*
started slowly

M: *Walking down the _____*
railroad tracks

M: *Soon they _____*
came to the train where Donald had
left it
 (At this point Galen resumed the full text.)

David's mother, in keeping with her general practice of pursuing her own line of action and letting David pursue his, did not structure their conversation, as Galen's mother did, so that sentence endings were missing. Instead, she posed direct questions which were really requests for David to display his knowledge. The majority of her queries were for the purpose of eliciting lexical items. This was part of every conversation and every session with a book. She was quick to highlight the unusual and the unfamiliar and it was her emphasis that cued David to reply. David was so used to his mother's elicitation strategy that he always answered immediately, with a single word or phrase. Furthermore his enunciation was very clear, in direct contrast to the greater part of his spontaneous speech. Only in an elicitation situation was his ability to repeat what his mother wanted him to say as good as or perhaps better than Galen's. There were several main ways by which his mother signalled that he was to repeat or supply a single word or

phrase. Her commonest ploy was to ask if he could say a particular word. He answered by modelling it.

5D12

M: Can you say elevator?

elevator

M: That's pretty good

Another facet of David's mother's direct questioning technique was that she asked "wh" questions about objects or pictures.

1D3

M: What's it called?
(She is referring to the toy he has on the table.)

's called a bulldozer

12D3

M: And what's this sitting in the tree?

owl
he goes hoot hoot hoot

M: Yeah
A-and what about this bird?
What kind of a bird is that?
Come on you know.
It goes caw caw.

a crow (a question)

M: Right
And what's this big round circle behind the tree?

a moon

M: Right

David's mother did not limit her "wh" questions to the "here and now" but was just as likely to ask questions which stressed recall of previous situations or of objects not present. David became adept at finding answers to such queries, whereas Galen, even when several years older, was not able to discuss the details of a holiday spent in Hawaii

because such discussions had never been part of his conversation with his parents.

Interspersed with direct questions were many instances in which David's mother's manner and tone of voice, plus the situation, indicated to David that it would be appropriate for him to say what she had just said. Interestingly, it was on these occasions that David's mother spoke as slowly and distinctly as did Galen's mother. In addition, she did not lose her tonal expressiveness, a quality only rarely displayed by Galen's mother. The words David used were prosodically true to his mother's model indicating that he, like Galen, could bring under control his capacity to echo. Again, it is the expectation set up in the situation and the kinds of opportunity given for practice that are thought to lie behind the two children's differences in performance. In Appendix II there are examples to illustrate all the points above.

The conclusion of this section is that in future study of young children's language, prosodic similarities between the parents' and the child's speech will probably need to be recorded first. The most that could be done in this study has been to note as objectively as possible that prosodic similarities do exist to an astonishing degree.

CHAPTER SIX

Syntactic Parallels in the Two Children's Speech

Pragmatic-Syntactic Analysis of Tape I

As the basis for this chapter, each child's Tape I was examined minutely to provide a base line for the direction of the children's syntactic progress during the year. An array of functional child language categories based on Peirce's concepts of the icon, the index, and the symbol was established, and a similarity of functional progression of both children's speech was recorded.

In Tape I, the presence of common elements was immediately clear. Both children demonstrated the well-known "what's that?" formula with David using the expression somewhat more flexibly. (See Appendix 12) As might be expected, the two children also exhibited parallels in the structure of their answers to the question "what's that?" by using "that's", "it's", and "there's". With "there's" the familiar locative emphasis was established. These and other ostensive terms, all of which are primarily used as indicators of what the child is paying attention to, made up a substantial part of both Galen's and David's spontaneous speech at 2 years of age. Elaboration of the various kinds of ostensive phrasing found on Tape I can be found in Appendix 12. Later examples of ostension showing a similar progression for both children are collated in Appendix 13.

To summarize, in Tape I for both children the components of the kind of speech that performs an ostensive function are as follows:

1. what's that
2. that's (plus "that" as an alternate form for both children and "that is" and "those a" for David)
3. there's (most productive for both children)
4. where's (this is uncertain since it is missing for David)
5. look at, see
6. it (as in "see it", "put it")
7. here (a specific place)
8. locatives (in, on, up, down)
9. ---ing (used alone as a label for an action)
10. familiar adjectives (big is common to both children)
11. it's
12. this is
13. a (a way of indicating one thing)
14. a few ways of indicating more than one (and, 'n', two, again, another, occasionally plural s)
15. the adverb "just"

Items 11 to 15 are seen as adjuncts to labelling proper in that a split in attention or a lessening of global attention has occurred and is being expressed in speech. The child begins to attend to more than one object or to a particular object among objects.

A brief examination of the small remainder of each child's Tape 1 speech that was not ostensive in nature established further similarities between the two children's constructions. Because so little of Tape 1 falls outside ostension, the examples from Tape 1 were supplemented by similar examples taken from Tapes 2 to 6 in order to illustrate more clearly the several other types of parallel grammatical patterns that

were emerging. Over the same period of a few months, there were at least five major parallels in the children's speech, examples of which recurred more and more frequently in the protocols of both children. Three of them, and these will be dealt with first, are constructions that are intimately bound up with the children's activities. The two boys used them to frame their comments about what was happening, or going to happen, in their play or in their daily routine. The pivot around which this type of speech revolves is the verb "go", and in particular, the verb forms "goes", "going", and "going to".

By Tape 3 both children were using "goes" rather regularly as a way to verbally state what they were making happen in their play. Very little information was provided by the word "goes" but it did form a convenient non-causal kind of link between two labelling structures. Sentences with "goes" are very close to being identical for both children. Although still recognizably ostensive they are used in the same contexts as "---ing" and "gonna" sentences. Their function is to accompany rather than to explain the action to which they are referring. Early and later examples are listed in Appendix 14.

The simplest comments the children made about their own and other's activities employed present progressive verb forms. Used alone, words ending with "ing" (eg. "going", "putting") were primarily labelling devices and as such are designated as ostensive in function. When nouns or locatives were added, with the result that a phrase was produced, the function became informative as well as ostensive. Such phrases were in the process of being developed by both children on Tape 1.

Examples:

IG12 pulling the car

- 1G15 just calvie eating their hay
 1D1 putting
 1D1 putting down there

When present progressive phrases started to be preceded by the first person singular pronoun, a true accompaniment function was achieved. As each child performed he stated what he was doing. Then, in the increasing variety of situations in which the children stated what was happening, other pronouns and a few nouns replaced the self-referential "I". The first examples of this type of usage appear in Tape 3 for both children and are remarkably similar.

Examples:

- 3D3 I building a road
 3G7 I'm building a barn

The complete listing of this kind of utterance is to be found in Appendix 15.

Allied to present progressive constructions are sentences using the words "going to" or its most common elided form "gonna". When they are first used on Galen's Tape 1 they are uttered with a rising intonation and function as requests to be allowed down from his high chair after lunch.

Examples:

- 1G2 I going to get down?
 1G2 I going to ride doss (horse)?
 1G2 I gonna reed (ride) 'n a horse?
 1G2 Galen's gonna ride in a truck?

David's first comment of this type was on Tape 3 and is a statement of his intention, not a question.

Example:

1D16 I'm gon get --- right here

"Going to" continued to make regular appearances through Tape 6. "Want to" and "have to" were used less frequently but performed the same function of indicating what the child would like to have happen. In the second half of the year's tapes these three constructions became even more popular with both children, and were augmented by sentences using modal verb forms. The illustration of this point appears in Appendix 16.

A very differently constructed fourth type of comment was used by both children to obtain specific results. In these cases the command or imperative form of the verb occurred when the child was letting his mother know what he wanted from her or what he wanted her to do. In the beginning, this form, like the "gonna" structure in Galen's case, was on occasion combined with a rising intonation and operated as a question. Also, the words "mummy" and "you" sometimes appeared in subject and not vocative position. David placed "mummy" alternatively at the end of the phrase.

Examples:

1G12 put it on the table

1G11 make a airplane?

1G10 mummy put it in here

1G10 mummy put the bastic (elastic) band on?

1G9 take a bastic band?

1G7 mummy bring them

1G7 bring the fire engine and the truck in there?

1G6 Galen find the helicopter?

IG5 mummy do it?
ID6 'n' put 't in a cake mummy?
ID8 --- want milk
ID18 turn a page?
ID8 turn that way?
ID23 put it
ID24 open that daddy
ID25 put a on daddy
ID25 put a little bit
ID25 put a on a little bit daddy
3DI make this mummy
3DI mummy help mummy help

The fifth type of comment that both children used early in their third year was much less part of the concrete situation. Instead, it was linked with the child's exercise of his own initiative and sense of self, and the message the child encoded incorporated some of his own feeling and thinking about the situation. Apparently it is with this kind of motivation that the SVO (Subject-Verb-Object) patterning of simple declarative sentences is initiated. Nonetheless, during the whole of the year, neither child progressed much beyond the few SVO prototypes that were already present in the first six tapes. The rapid proliferation of lexical choices and substitutions that were found in ostension and other situational speech simply did not occur for utterance that was more personal and more reflective. "I want _____", (most common for David), and "I got _____", (most common for Galen), were the earliest used expressions in this category. By the end of Tape 6 only

six examples of speech that was in some way removed from the situation had emerged.

Examples:

- 5G7 I see Alan (Galen is thinking that Alan should be in the picture.)
- 5D17 'cause we have a door to closed (David means that the rule is to keep the door closed.)
- 5G31 I don't have a piggybank (Galen's mother has assumed that he knows that a piggybank doesn't have to be shaped like a pig.)
- 6D20 I never had one like before like that (David is explaining that he has a new kind of car.)
- 1D19 monsters gots big mouf (David is generalizing about a certain familiar picture.)
- 5D7 I --- (see) a big huge digger go (David is recalling what he saw another day.)

Examples of predication from the first six tapes are grouped and listed in the first half of Appendix 17.

Firstness, Secondness, and Thirdness Applied to Speech

With the establishment of rather strong structural similarities between the two children's courses of language development, the Peirce categories of icon, index, and symbol became a validly useful choice as the theoretical basis for a pragmatic classification system. It was recognized that the differences between labelling, situational, and reportorial speech bore a close relationship to the differences between Peirce's concepts of Firstness, Secondness, and Thirdness. (Ayer, 1968; Buchler, 1966; Fann, 1970; Feibleman, 1969; Gallie, 1966; Goudge, 1950; Greenlee, 1973; Hartshorne & Weiss, 1934; Lieb, 1953; Thompson, 1963; Weiner, 1952) To render this correspondence more explicit the following two sections will recapitulate Peirce's category system and set forth

in detail how it has been adapted to classify the children's speech utterances. The chapter ends with a count of speech function types.

Because language is primarily a vehicle for expressing our experience or knowledge of the world, Charles Peirce's threefold epistemological system embracing the icon, the index, and the symbol was selected as a possible general framework in which to study language acquisition from a functional viewpoint. Accordingly, and using Peirce's associated ideas of Firstness, Secondness, and Thirdness as a guide to demarcating category boundaries, three types of child language construction were identified. In addition, it was discovered that the three types developed in chronological succession. The three categories will be referred to henceforth as Ostensive, Informative, and Predicative. Later in the text the Informative category will be discussed in two parts, Informative₁ and Informative₂.

It is generally acknowledged that what appears first in the young child's intelligible speech is a naming or labelling process. During the course of such utterance, the child seems to be recognizing elements of the world as they impinge on his or her consciousness, and to be exclaiming over or drawing attention to their presence. The child is, as it were, noticing and pointing out a thing or happening, or showing an awareness that something is there. Basically, early comments are intimations that a salient feature of the environment is being perceived. In this study all such functioning falls into the Ostensive category. It corresponds to the icon of the Peirce classification of sign vehicles, and even more particularly to the attribute called Firstness which Peirce finds in the icon. Firstness is his term for an abstract unembodied quality, for example, the concept of redness which exists over and above

its occurrence in specific situations. In the young child's case, what is noticed cannot be classed as abstract in the sense of mentally abstract. Rather it is an abstraction in the sense that the child is attending to something that has been "abstracted" from the surrounding situation. This abstraction is a unity or piece for the child and is referred to as a whole or globally. It is a unity because it is abstracted but not yet differentiated; it is not truly a segment. It is a noticing of some figure without reference to its ground. Whether it is an object, action, place, quality, desire, etc., is not significant; each impression is simply the one thing on which the child has centered for the moment. At this stage neither are words used as parts of speech, i.e., as nouns, verbs, adjectives, or adverbs; all parts of speech fit into one class by reason of their identical function. The criterion for Ostension, then, is the kind of focus the child uses: it has the quality of Firstness that Peirce gave to the icon. As applied to young children's speech, Ostensiveness includes words, phrases, and sentences that are primarily being used as labels. This particular function arises from the fact that the child is attending to an aspect of the surroundings. When attention is captured by some feature of experience the child's first formal use of language is to refer to this unity ostensively.

A second function that has appeared by age 2 is the one labelled Informative in this study. Its counterpart in the Peirce categories is the index, along with its defining characteristic of Secondness. For Peirce, Secondness is that which characterizes a fact, just as Firstness characterizes a quality. As adapted in this study for application to categories of child language function, Secondness encompasses the duality factor that is making its appearance in the young child's

life. As the child gains skill in differentiating among people and events, many kinds of "twoness" are finding their way into emerging speech. The first kind, a sense of more than one, results in a simple stringing together of words and phrases formerly used separately. This is perhaps best classified as a late form of Ostension, one that begins a bridge to Informativeness. Even in this later kind of Ostension, however, there is still no subordination of one impression to another. Each is equally noted, but in quick succession. The focus is on a succession of unities, not a whole with parts, nor a related hierarchy. It is the quality of being parallel or of being side by side (a type of apposition) that marks the boundary between the Ostensive and Informative categories as they are used herein. The distinguishing mark of the Informative stage in this study is that it occurs as each child accompanies his action with talk about what he is doing. The action and the talking about the action occur together in such a way that the speech is part of the ongoing event. In Informative₁ speech the situation is not further explained by the speech; what is happening is self-evident. The speech of the child is a verbal counterpart to action.

A second kind of duality appears in Informative₂ speech. The element of "twoness" becomes oppositional rather than appositional as in Informative₁ speech. Underlying the change to Informative₂ speech is the child's slow mastery of differentiation by means of polarity. The concept of "I" as opposed to "you", "no" as opposed to "yes", and the present as opposed to the future begin to make an impact on the child's speech. Wanting and not wanting something to happen in the immediate future motivates planning for the next step, whether it is in connection with the day's routine or the child's play. With planning

or sequencing comes an emphasis on time, particularly the immediate future. The main focus in the Informative₂ stage is what is going to be done next. It is an adjunct to the Informative₁ stage with its focus on what is being done now. All Informative speech retains very close links to the situation. The function of the child's speech has changed from ostension or "pointing out" to the imparting of information, but only that information which is also carried implicitly by the situation. Speech and action are parallels: In the Informative₁ stage, speech accompanies action, and in the Informative₂ stage it begins to anticipate action.

The Informative mode typically begins as the child plays. Verbal commentary is paced so that it accompanies actions. Talking and doing are again a kind of apposition. When someone is present as the child plays, the stage is set for the transition from parallel talk to speech for a listener. The very nature of the informative function demands that the child recognize the existence of a "self" and an "other". With the use of "I" comes the self component; in the dialogue or conversation that arises when the adult plays or otherwise interacts with the child, informing the "other" or regarding the "other" as a listener is a natural result. This is what is being designated as opposition in contrast to apposition, or side-by-sideness. Precisely this development was noted for the two boys, beginning on Tape 4 for David and on Tape 5 for Galen. Certainly a few examples of Informative₁ statements are to be found on Tapes 1 to 3, but even though they are correct in form, they retain in impact a strongly Ostensive cast. By Tape 8 both children are communicating freely to their respective mothers many of the details of the action occurring in their play. The pronouns, "he",

"she", "you", and "they" start to appear regularly; all of them are used in the dichotomous sense of being the "other" in relation to "self". Also by Tape 8, another kind of opposition, negative forms, is frequent. These developments are interpreted as early syntactic expressions of the child's impulse to initiate or direct or control. They are categorized as Informative₂ because of their close tie to the I₂ function of planning for the immediate future.

The third category used in this research to classify speech function is Predication. It is analogous to Peirce's symbol category with its concomitant criterion of Thirdness. Thirdness, according to Peirce, relates to laws, as Firstness does to qualities, and Secondness to facts. By definition, Thirdness does not exist in specifics but characterizes such mental products as generalization. As long as the young child's use of language is completely tied to the situation it is therefore not truly Predicative in a functionally symbolic sense. In the David and Galen tapes there is relatively little that can be classed as Predication so defined. By age 3 they appear to have made only such beginnings in Predication as SVO word order, the past tense, and the objective use of the third person. Up to this point, "he", "she", and "they" have been used in the same oppositional sense as "I" and "you" have. When the role of the observer replaces the role of the participant, the function of the child's speech momentarily becomes Predicative. Only insofar as the child begins to talk about what is not "here and now" or about what is in thought is there sufficient motivation for the Predicative mode to be used. Predication tells something about something in contra-distinction to Informativeness, which just tells or informs, and Ostension which does not "tell" at all but merely indicates. Both Informative and Ostensive speech are supplemental to

the situation. The message of the words matches or duplicates the message implicit in the situation. Predicative speech, on the other hand, is communication through the verbal form alone. The content of the message is carried in the relations expressed by the syntax. Explicitness replaces implicitness. Such are the definitions assigned to the O-I-P category system formulated in this study. They have been derived from combining Peirce's ideas about the icon, the index, and the symbol with the speech data from the children.

Elaboration of the O-I-P Category System

As the categories O, I₁, I₂ and P were applied to the children's speech corpora, classification difficulties were encountered since category boundaries can never be so clearly demarcated in real life situations as in theory. In addition there was the perennial question of the intermingling of form and function. To solve the dilemma, subcategories were added in order to accommodate all the most frequently used forms. Tabulated results of the raw data for the subcategories and the overall categories appear in Tables 4 and 5 in Appendix 18. In Table 6, to facilitate percentage comparison of the two children, David's scores are in the upper half of each cell and Galen's in the lower half.

Labelling is such a clearcut function in the child's earliest speech that the purely Ostensive category posed no great problem. It was decided to include in it all the kinds of structures discussed in Chapter 4. Three O category divisions were found useful: PO, O, and OBI.

1. PO - All single word labels were categorized as pre-ostension-proper.

Examples:

12D4 owl
 12D38 crying
 12G18 nothing
 12G8 here

2. 0 - Ostension proper was considered to be the function of the complement form as in "that's a ____", and "there's a ____".

Examples:

12D30 it's a weasel
 11G5 there's a corner

3. OBI - A bridge is being created from the Ostensive to the Informative function. The form is still Ostensive but there is a split rather than a single focus. This category included all plurals and cases of double labelling.

Examples:

9D3 a round circle
 9D3 and that's the playroom (use of and)
 9D6 that's the sick house and that's the better house
 12G5 three little pig

The first problem encountered was to find a justifiable cutoff point between the 0 and 1 categories. Pure 0 examples were easy to identify because of their labelling quality. So were pure 1 examples with the criterion that they be a language accompaniment to action. But in between the two categories and partaking of both, were all those utterances in which reference to two elements was gradually appearing. In a sense "twoness" was exhibited initially in the Ostensive period because in order to label something the child must perceive it; how

individuated the perception is, is the question. The criterion that is being used here is that the kind of information that Ostension offers is complementary. The information that "that's an it (or several its) over there", is as far as Ostension can go. Then as the word is becomes a lexical item in its own right, the complement form becomes slightly less Ostensive and somewhat more Informative in function. It must be understood, however, that this change in function can be in some cases so fine that it is only signified in the tone of the voice or by a glance. A good example of a simultaneous change in form and function is found on Tape 8 for Galen. He and his mother are playing a train game in which the railway crossing must be kept clear of traffic. The statement with there announces the presence of the train. The statement with is is said for the purpose of alerting the mother as to what her next move shall be. The first statement is Ostensive in function; the second is Informative. The word is provides a bridge into the informative, (BI).

8G20

M: Okay up goes the gate.

there's the train here	O
the train is here	BI

Like is, the word goes plays a bridging role by enabling the child to move from Ostensive to Informative expression. At least for these two children, goes proved to be an extremely useful lexical addition, one that directly aided a new structural development in their speech. Words and phrases first learned and used for ostensive purposes could now be linked by goes and take on an Informative, function, that of accompanying action with a verbal description of what was happening. Thus it seems that all the locative phrases that have been part of a

child's lexicon for months can be joined with whatever labels the child wishes to use. "That goes there" is the basic bridging pattern and, with its establishment, there can be numbers of substitutions of that by nouns and pronouns, and of there by place or manner expressions. This is "twoness" in the appositional sense. As well as stating the label for the thing claiming his attention, the child adds a second notion, where the thing is. Here are two qualities, side by side, that refer to one object in the child's perception. For the purposes of this study, sentences of a complementary type with is and goes have been judged to be bridging forms and classified as Informative. There are three Informative classifications: BI, I₁ and I₂.

4. BI - This category includes sentences with is and goes that are bridges from the Ostensive to the Informative function.

Examples:

- 5G13 it goes down here mum
- 5G14 what goes there
- 5G18 where does that go
- 7G9 here goes the motorcycle home
- 7G23 there we are
- 6D15 there it goes that way mum
- 5D29 where Lisa other modikin
- 6D23 just go goes that way
- 7D13 is this the bed
- 7D25 those are red

As the protocols show, it is the ability to use the word I that gives the child a real and unmistakable entry into informative language. There is a move in "twoness" from apposition to opposition. At the

Informative₁ stage, "I want", plus a correlative emphasis on the negative, "I don't want" is the verbal formulation of babyhood feelings of need gratification. All the basic Informative statements bear a relation to some kind of expression of desire. "I want to do" is the underlying basis for Informative₂ statements and it is this sentiment of intention that gives them their future orientation. Informative statements always occur as part of the situation: they accompany the action that is in evidence. In the tapes, the Informative function begins to predominate by Tape 7. Tapes 8 to 10 are high in negativity for Galen as are Tapes 8 and 10 for David. Planning for future actions is at a peak for both children on Tape 11 and also on David's Tape 9 which is a play session with his father.

5. I₁ - Informative₁ statements accompany action as it happens.

Examples:

- 5G24 he's goin' on the motorcycle
 8D18 'n 'n she going down that that that one
 9G11 well we're just building highways
 10D4 's boinging the big piece away
 9G25 this car's going along the road now
 10D22 but I'm going to the post office mommy
 8D22 I don't want doggie up here
 7D8 h he is doing it now
 8G5 there he's sittin' in his high chair
 10G25 w why doing

Informative₂ statements occur in the same kinds of contexts as Informative₁ statements, and are of the same type, that is, they provide information about the ongoing situation. The major difference is that

instead of uttering them while the action is occurring, the child uses them in advance of what he intends to do. Usually he is letting his mother know what he plans to have happen in his play. Also, such statements may be used for regulating his own or his mother's next move. Sentences using "going to" and "have to" are prototypes of this kind of speech. On the tapes both Galen and David made these same two lexical choices to express action that is to take place in the immediate future, but they are used in different proportions by each child. Galen, whose mother plans everything for him and her household very carefully, showed a greater partiality for "have to" than "going to", while David, who continually took the initiative, used "going to" almost exclusively. Use of the word can was also influenced by the fact that the discipline or social control area is so differently managed in the two households. (See Appendix 28). Need, and the modals, will, shall, should, and would are used for planning on occasion by both children. Another common denominator in Informative₂ speech is to be found with the sudden addition of time words such as now and then.

6. I₂ - The planning function distinguishes I₂ statements. They are still part of the ongoing action.

Examples:

- | | |
|-------|------------------------------------|
| 6G15 | I'll play with this tractor |
| 10D26 | I will put some here |
| 9D23 | we will leave it right here |
| 9G3 | where can these go? |
| 9G4 | I wanna put this on |
| 9G11 | they're gonna come off the highway |
| 10D26 | I will put some here |

10D18 mailman's gotta have hat

10D18 will you give me some more mail mum?

A second classification difficulty occurred during the search for a demarcation point between Informative and Predicative speech. The difficulty centred around the fact that one syntactic form, the imperative plus it phrase, seemed unclassifiable, since it was destined to become integrated eventually into both Informative and Predicative speech. Finally it was decided on largely practical grounds to regard all phrases structurally based on the "put it" model as bridging forms, and to exclude them entirely from the classification count because their function clearly changed from I to P with time and circumstance and the addition of other sentence components.

Imperative intent apparently arises early as part of some instances of simple labelling. Very soon the child finds in the "imperative" (which we do not define formally here) a way to verbally indicate the strength of his emotions, particularly his desires. So, almost from the beginning, the child can make use of the imperative to carry an information load that goes beyond simple ostensiveness, which merely indicates that the child has noticed or is attending to something. In the first few tapes, Ostension aside, the most productive verbal form for both children was the imperative. This imperative is a form that fulfills much of the function of, but precedes the use of "I want" or "I want (you) to do. Galen used the word "mummy" to preface or conclude many of his commands, and later he added you to the beginnings of imperatives, seemingly as a replacement for mummy. He also referred to himself as Galen and used the imperative form immediately after it to state what he was doing, thus giving the construction a true

Informative function. Galen continued to make a great deal of use of imperatives throughout the tapes while David always used them less. David, on the other hand, showed a greater overall incidence of the phrase "I want" which was used in the identical circumstance of wishing to obtain a desired result.

7. IMP B - The imperative is a bridge to the predicate but is also incorporated into informative statements. It is not included in the O-I-P count.

Examples:

5G26	no you you read
6G6	you say the letter D
5D28	'kay get a fish
5D25	and play with Paulie
12G1	put it on the board
12D1	mummy read about that

The Predicative function as defined in this study is a designation for those statements that are about mentally-held images and concepts. This rules out sentences that make direct reference to objects and actions that are part of the situation that is physically present, i.e., statements performing Ostensive and Informative functions. Basically, in a Predicative statement, the reference is to an idea or an idea of an object. The referent is therefore outside of immediate time and space because it is in the past, in imagination, in the realm of hypothesis, or in the nature of a general or generalization. Unfortunately, at this point there comes to be an overlapping of form and function that is difficult to resolve. For instance, the adult may use the present indicative verb tense in two ways: instead of the

present progressive (I_1); and to refer to objects in thought (P). Also, it is quite possible to use Ostensive and Informative paradigms in a Predicative manner, (new functions appear in old forms), and this is how the children handled most of their pretend references. They referred to imaginary objects as if they were actually present; in actuality we do not even know whether the differing "reality" of concrete and imaginary objects is at all clearly distinguished at this age. So, for simplicity's sake, Predication as it is classified herein was limited to the inclusion of only those statements that had taken on a declarative purpose and were at the same time not primarily Ostensive or Informative in form and function. Since very few of the children's statements qualified for such a restricted category, a bridging form has been postulated as a forerunner of true Predication.

Predicative bridging forms in this study were considered to be those which are basically SVO in form, do not contain modals, and in which any reference to the past is to the immediate past which is still part of the situation. "I got it" is the prototype for the bridging form of the predicate because it is usually said by the child when he means "I have it". But to say "he got it" in reference to something that one is recalling about yesterday, or something that happened in a story is to cross the line into Predication proper. "The girl picked up her basket" or "The mailman delivers the bills every month" would qualify as Predicative in both form and function. It is just this kind of simple declarative sentence that is neither simple for very young children nor common in the speech of these 2-year-olds. The genesis of the SVO pattern would be a complete study in its own right. From the two boys' protocols it looks as though this form comes from the

juxtaposition or overlapping of the two prototypes, "I ____" and "imperative plus it". Early verbs used in the paradigm "I ____ it" are want, like, got and did. Want has been classed as Informative, since it is used to indicate what the next step should be. SVO form with other verbs, nouns instead of pronouns, and with the object as the patient or receiver of the action, is a later, more clearly Predicative function. One might speculate that the reason for distinctly Predicative speech being almost non-existent is because it requires an understanding of cause and effect imperfectly attained before Piaget's concrete operational period. Two-year-old reasoning is still largely syncretic or associational. Full mastery of the complexities of relational thinking lies years ahead; so perhaps do the end stages of language acquisition.

8. BP - Early forms of predication are modelled on the "I got ____" paradigm. They are said while the action is occurring.

Examples:

10D26	I got loaded
10D16	I gotta big lot mummy
9D2	oh it knocked down
9D20	and then they crash cars
10G19	I brokeed it
11G16	I did
5G36	I just roll over
6G6	I make an X

9. P - At the age of 2 to 3 years predication proper is signalled by correctly (or almost correctly) realized SVO sentences with present indicative or simple past verbs. The key is that the child is talking about something.

Examples:

- 10D2 mm he sits right here
- 10D16 Lisa knocked them down
- 11D24 that was deep deep lake
- 12D21 you use that (not a command but a recollection)
- 11G16 the cement truck knocked the bridge over
- 11G18 the truck made the freeway
- 11G34 our train has got a cement truck
- 12G29 it was in here

Progress of Function in the Two Children's Speech

Data for the analysis of child utterance function are presented in Tables 4, 5, and 6 in Appendix 18. Tables 4 and 5 show the frequency counts of utterance function categories for David and Galen respectively. The tape totals in Tables 4 and 5 include all child utterances regardless of intelligibility or grammaticality. The three main function categories used in the analysis are those defined in the previous section: the Ostensive category (with three subcategories), the Informative category (with three subcategories), and the Predicative category (with two subcategories). Frequencies for a fourth category, the "Imperative Bridge", are calculated separately since this form, which at first appears by itself, is later incorporated into both I and P structures. The Combination category consists of utterances which contain more than one function. The Questionable category consists of utterances about which a category decision could not be made. The Non-Applicable category covers cases of gross unintelligibility and incompleteness, interjections such as "oh", sound effects, and simple yes or

Figure 6: Progression Of O-I-P Function Over The Year

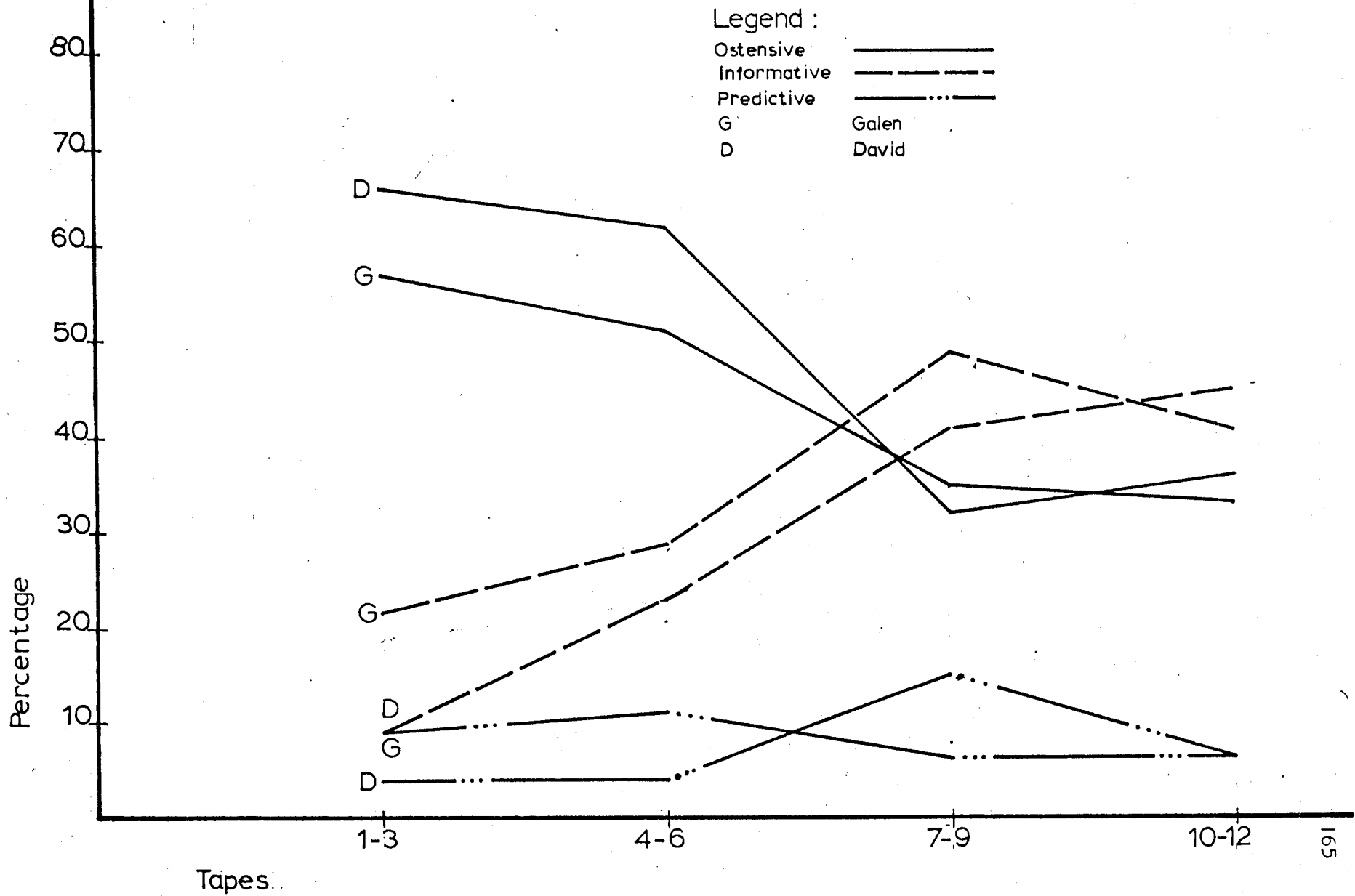


Figure 7A: The Relation Of Ostensiveness To Informativeness Over The Year; Galen.

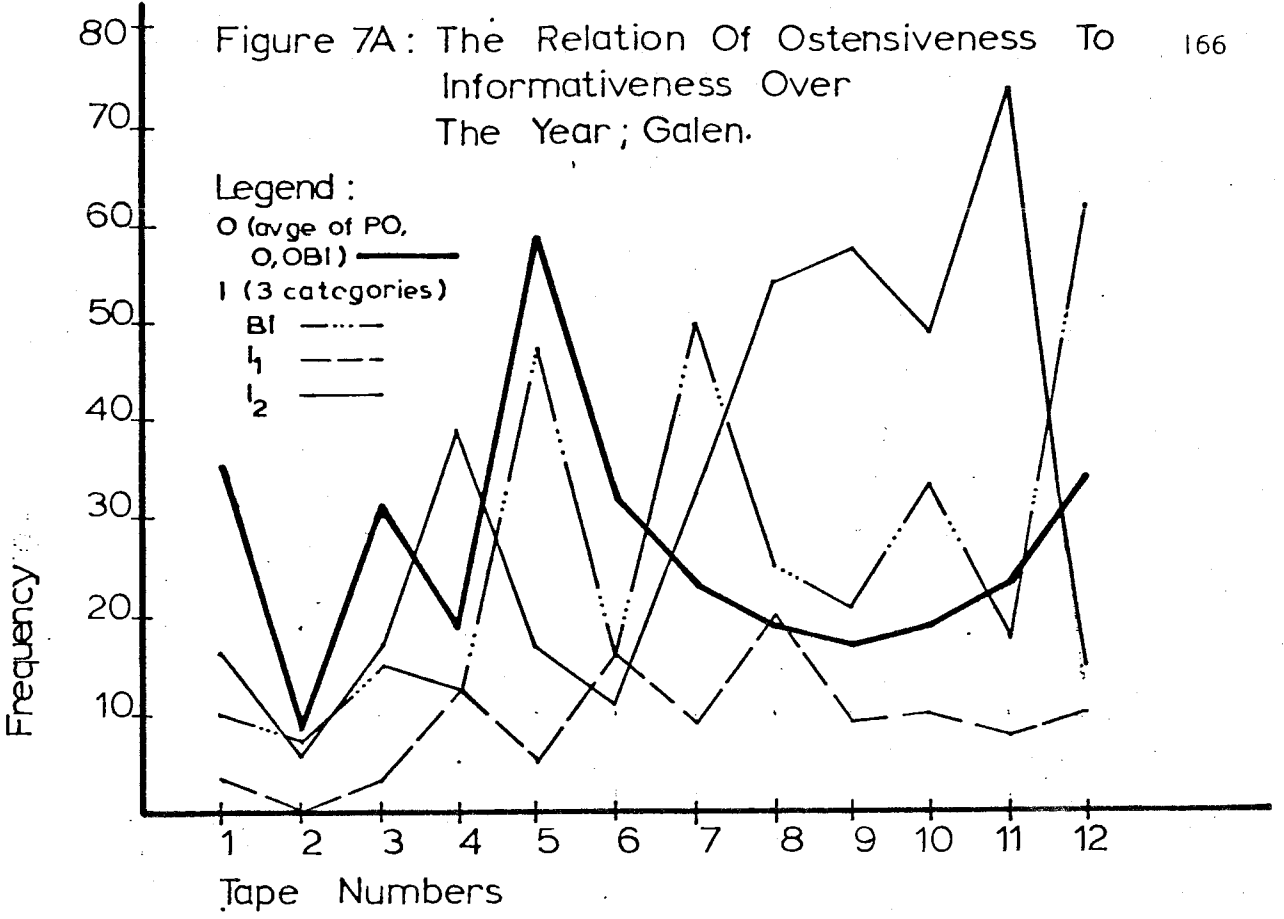
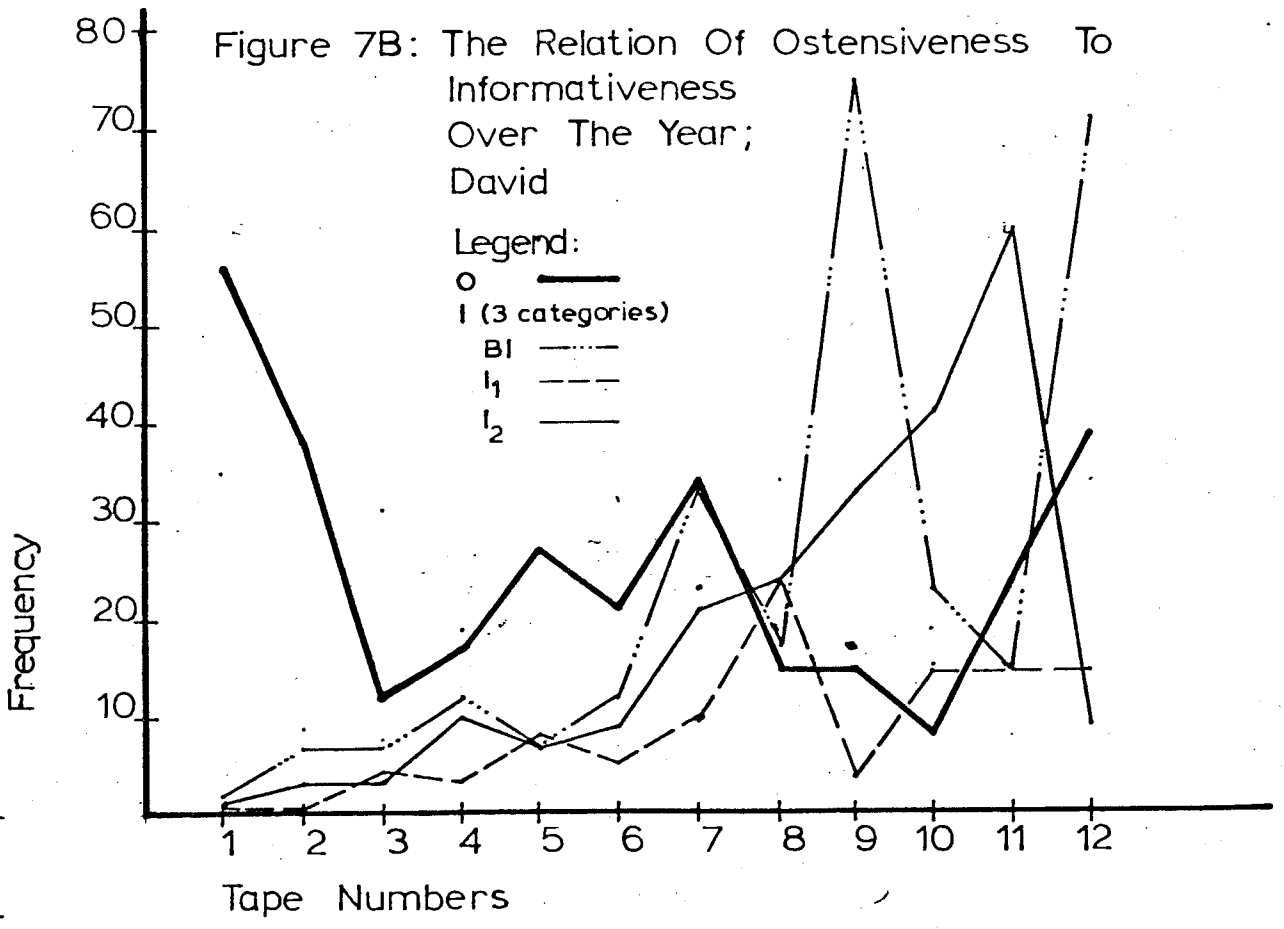


Figure 7B: The Relation Of Ostensiveness To Informativeness Over The Year; David



no responses. A large percentage of N/A comments on a particular tape indicates that some easily identifiable situational factor is making an impact. For instance, 67 of the 85 N/A statements in David's Tape 5 consist of the single word, "yeah", which was being elicited from David by the adults' persistent queries. Another example -- in Galen's Tape 2 the large percentage of N/A utterance is due to the fact that his young cousin was his main dialogue partner, and, deprived of his mother's conversational support, Galen reverted to babbling. Table 6 shows percentage calculations of O-I-P function that are based on Table 4 and 5 tape totals minus the group of utterances considered non-applicable.

Figure 6 shows the percentage variation in three different utterance categories (O, I, and P) over four tape blocks representing successive three-month periods when the two children were from 2 to 3 years of age. Data is taken from Table 6 in Appendix 18. For both children at the beginning of the year, Ostensive utterance was proportionally greater and Informative utterance proportionally less. By the end of the year the two functions had interchanged so that Informative speech exceeded Ostensive speech. Predicative function remained rather constant during the course of the year, with few advances beyond the early use of a limited number of correct SVO forms. Real progress in Predication is therefore assumed to come after age 3. The examination of tapes recorded when the children were 3 to 6 years old will be revealing in this regard.

A second look at what happened to Ostensive function is given by the frequency data graphed in Figures 7A and 7B. Figures 7A and 7B show the tape by tape relation of Ostensive speech to each of the three subcategories of Informative speech. Data is taken from Tables 4 and 5 in

Figure 8: Three Kinds Of Ostensive Speech

○ Category = 100 %

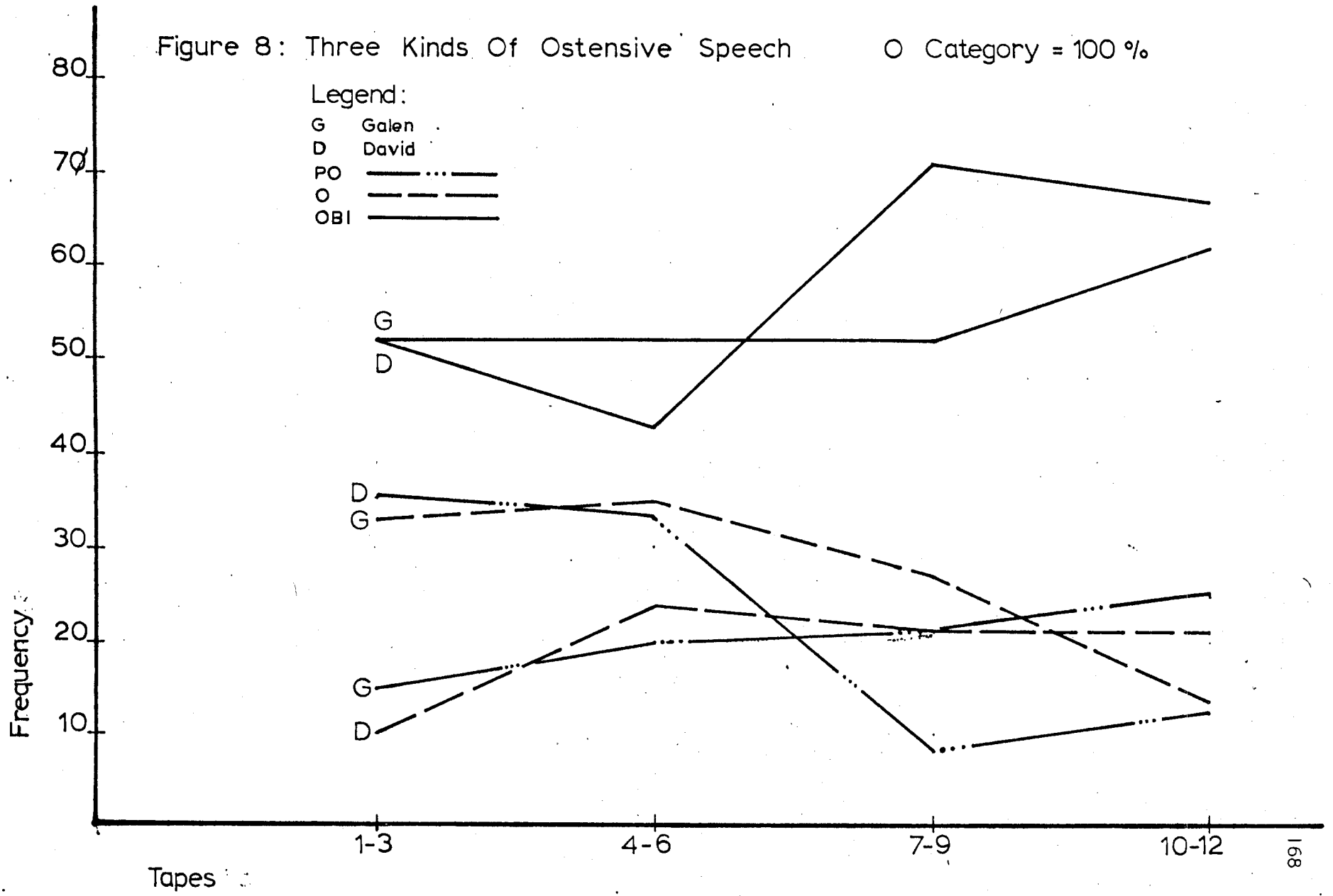


Figure 9A: Three Kinds Of Informative; Speech
Galen I Category = 100%

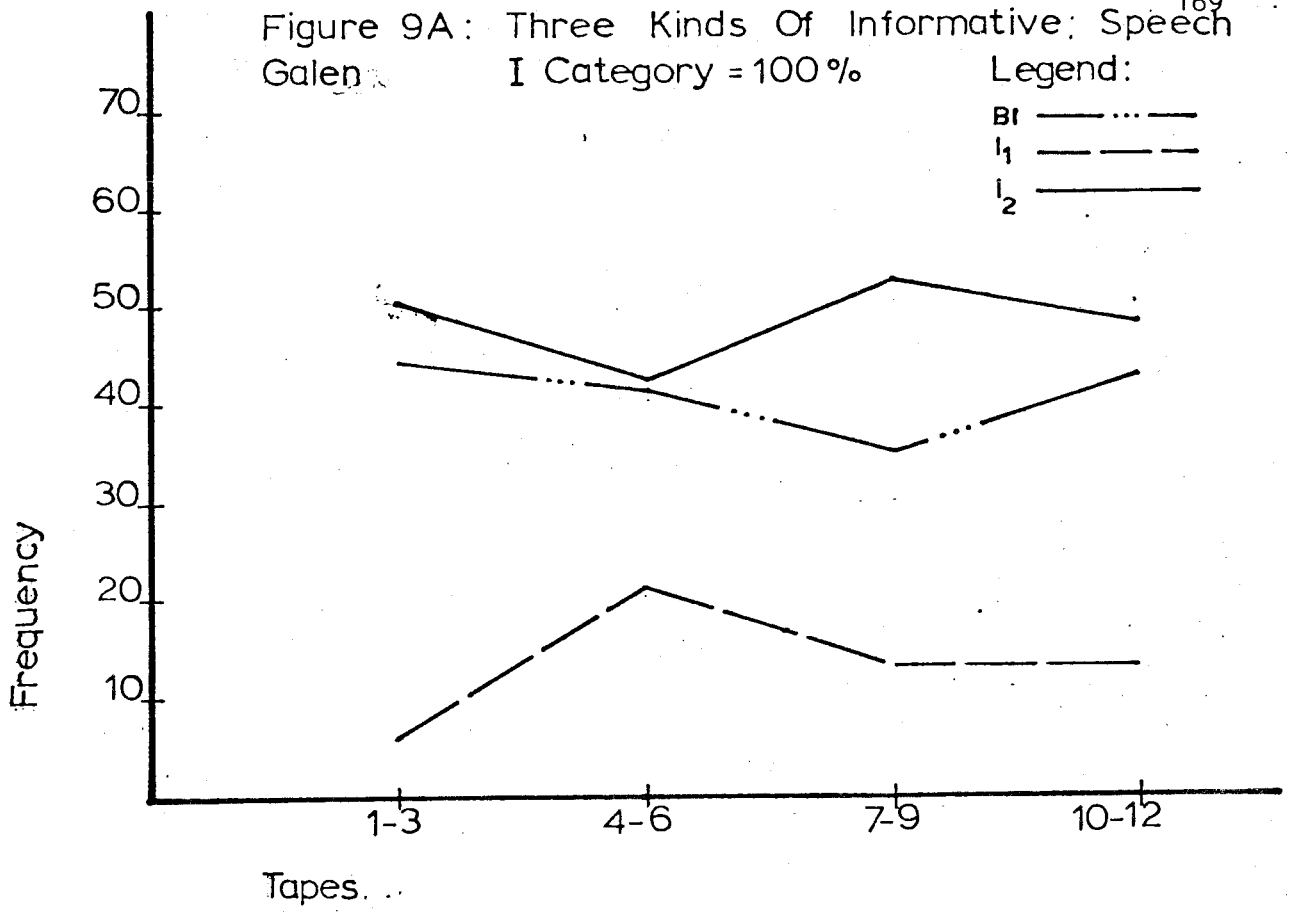
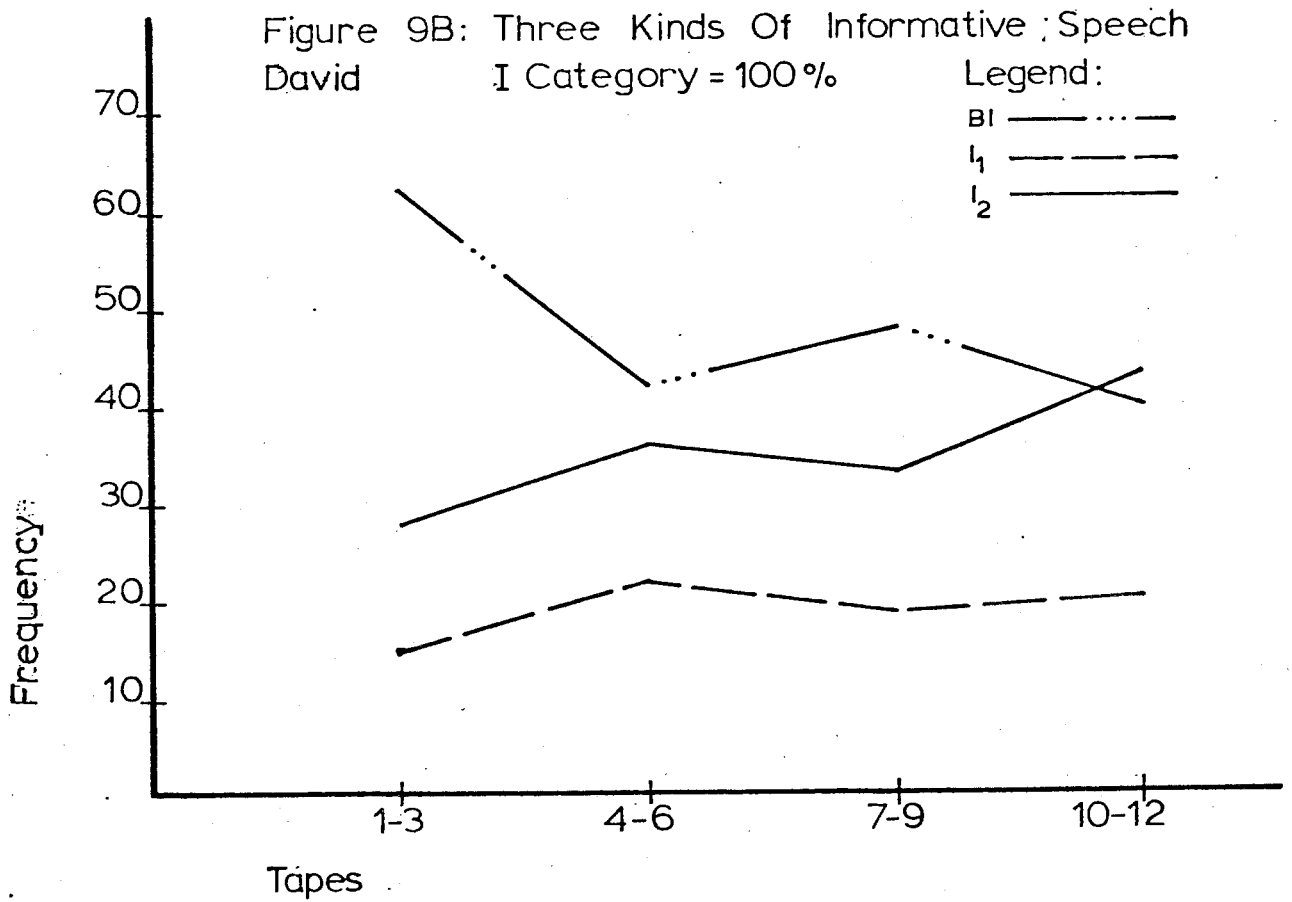


Figure 9B: Three Kinds Of Informative; Speech
David I Category = 100%



Appendix 18. Ostensive speech frequency is presented as one category which for each tape is an average of the three Ostensive subcategories (PO, O, and OBI). Frequencies for each of the three Informative speech categories (BI, I₁, and I₂) are plotted separately. Ostensive speech by no means disappeared; instead, Informative speech developed, not to take the place of Ostensive speech but to supplement it. As Tape 12 for both children illustrates, the frequency of Ostensive speech can be stimulated to reach former heights simply by including the requisite activities. However, on later tapes the dominant use of Ostensive speech does disappear, and Informative speech develops to carry what is hypothesized to be a different communication load. A changeover point appears after the middle of the year for both boys when BI and I₂ speech begin to outweigh Ostensive speech. Relative differences in frequency between the subcategories BI, I₁, and I₂ are also shown in Figures 7A and 7B, but this aspect is dealt with separately in Figures 9A and 9B.

The existence of individual differences within the Ostensive and Informative categories of both boys is exhibited in Figures 8, 9A, and 9B. Figure 8 shows each of the three Ostensive subcategories (PO, O, and OBI) as a percentage of total O utterance over four successive three-month periods. (Each time period is represented by a block of tapes.) At the beginning of the year David used single words (PO) ostensively more than Galen did, and Galen used the complete complementary form (O) more. In the third quarter of the year for David and the fourth quarter of the year for Galen, this trend was reversed. The reversal suggests that Galen's holistic approach was gradually yielding to segmentation, and that David, who began with salient words and phrases, was learning to build complete statements from them. Both processes are

needed. The fact that both children used the OBI subcategory more than either the PO or O subcategories is taken to mean that a multiple focus was appearing. The children were beginning to string words together by referring ostensibly to two features in the same utterance, but without subordination or expressed relationship.

Individual subcategory differences are shown by the two boys in Informative as well as Ostensive speech. Figures 9A and 9B show, for Galen and David respectively, the percentage relation between the BI, I_1 , and I_2 subcategories of Informative speech over the year's tapes. I_1 speech, which involves the use of the progressive verb tense, became functional for both children before the middle of the year and was used thereafter at a rather constant percentage rate. The bridging form, BI, (with "goes") predominated in David's speech until just before the end of the year when I_2 , the planning function, exceeded it. The planning function (I_2) predominated throughout for Galen, presumably because it received much environmental reinforcement from his mother's interactional set. Evidently, room for individuality is to be found within overall developmental congruence. What the study infers in both the repetition results and the speech function results is that individual expression can be heavily influenced by particular environmental exposure. Nonetheless, a shared course of progression is unmistakable.

CHAPTER SEVEN

Syntagmatic-Paradigmatic Patterning

An Analysis of an Early Paradigm

A striking feature of the speech of both 2-year-old boys was the recurring use of a select group of vocabulary terms and sentence patterns. In this chapter a close study will be made of the most evident sentence paradigms to make their appearances over the 12-month period, and a relationship between particular paradigms and the functions of Ostension, Informativeness, and Predication will be demonstrated.

The first strong intimation of the pervasiveness of syntagmatic stringing and paradigmatic substitution in the speech of the two children came in David's Tape 2. In this tape David played for the first time with a set of floor blocks provided by the experimenter. When first replayed, his speech sounded like little more than a jumble of excited, even stuttery phrases. In comparison with other tapes, his mother's role in the conversation was negligible; actually David was so carried away by the new toy that he largely ignored the leads that his mother did give. What he did was try out new combinations of blocks, all the while repeating and recombining the same small set of phrases. When these phrases and phrase combinations were listed and counted, what emerged was a speech strategy or process of paradigmatic substitution based on the pattern "let's have this one like this way".

In the tape there are many variations of the underlying pattern, "let's have this one like this way" but the three segments of which it

Figure 10 A Syntagmatic-Paradigmatic Diagram of David's Tape 2 Speech

The Main Paradigm is:

let's have this one

prior
prnch
mudulushin cars
car-car
choo-choo train
zoom
a bang
part

this has another bridge

right

let's have not
move
put

this one
that part
some
it
all

An Emerging Paradigm is:

The new paradigm slot is inserted between the pro-noun and the locative.

locative

like this way

pretty
nice

on this side
on this way
up
down
in the middle
on the top
around
there

like this way
this way

long

on
over
'bout
along

locative

goes

's
is

is composed, "let's have", "this one" and "like this way", are the main building components throughout. There are under thirty utterances on the entire tape that do not make use of the overall paradigm and most of them are single words, exclamations, oft-repeated utterances that have become formulas, and simple ostensives. The three main segments are used separately or in combination, as well as with a small selection of other phrases, or with the addition of locative phrases. There are variations as follows:

1. "This have" is sometimes used in place of "let's have" and is either a sound confusion between "this" and "let's" or a syntactic confusion of "this have" with "this has", or both.
 2. The phrase "like this way" appears almost as often shortened to "this way". (Both are used in final position.)
 3. "That" is used alternatively with "this" in the phrases "this one" and "this way".
 4. Note that the word "this" is part of the second and third phrases and is the word that is erroneously substituted for "let's" in the incorrect version of the first phrase, "let's have".
- In Appendix 19 the examples are grouped in an attempt to show the underlying regularities in construction. Figure 10 is a summary chart of the appendix lists.

The four most complete renderings of the paradigm were as follows; the stability of the ordering of each version of the sentence is apparent.

Examples:

- | | |
|------|---|
| 2D13 | let's have this one like this way |
| 2D12 | let's have let's have let's h have a part like this way |
| 2D14 | 'n let's have this a part like this way |

2D16 let's have let's have a bridge like this way

The number of times each of the three main syntagms is used and the frequencies for several types of variation:

		TOTAL		
"let's have"	48x	"this have" 11x	59x	
"let's have" followed by "this" ...24x (of 48x above)				
"this one"	21x	"that one"	15x	36x
"like this way"	27x	"this way" & other variations	22x	49x

In the course of learning to use language many such temporary paradigms as David's "let's have this one like this way" no doubt arise and persist as strategies for short periods of time, perhaps for only a day or even just a few times. Other conventional paradigms, those used with great frequency in everyday life, seem to become firmly entrenched and are perhaps what is held in common by the majority of children learning English. At least for David and Galen, there were paradigms associated with the Ostensive, Informative and Predicative functions that were the same for both of them. Question paradigms appear in Appendix 20.

Ostensive, Informative, and Predicative Paradigms

The basic paradigm for Ostension is the complement form although the act of ostension itself is at first, and fairly adequately, expressed by pointing and/or by a single word or word phrase of any speech class. The basic Ostensive paradigm is "that's a (noun)", with locatives being a very natural syntagmatic addition. The Ostensive function occurs when the child is expressing that he has noticed something; i.e., "that's something there" can be said to be the verbal counter-part of what

Figure 11

The Ostensive Paradigm

a linguistic pointing device (deictic term)	modifier	noun label and/or locative
that's	a	truck
there's	two	spiders
here's	another	people
it's	my	zipper
it's		on here

deictic pronoun	separate copula	determiner	adjective or state	noun label and/or locative
this	is	the		word train
this	is	a		snake
this	is	a	heavy	one
that's	is	a	logging	truck

alternate deictic form

see	the	big	light	on there	10D2
look at	the		train		11G34

there's		negative		there	6G4
there's	no		more	in my bedroom	5G24
that's	no		puzzles		12G17
that's	not		chick		5D20
this		broken			10G3
	is	fat			10D6
	is	high			6G16
it		lost			

started as a physical orienting reflex. Any one or any combination of the three basic elements, "that's", "something" and "there" may appear in the syntactic structure. This is the initial paradigm that both Galen and David share and into which the majority of the early utterances fall. The three elements are derived from the fact that what the child notices, he is indicating, labelling, and locating. The Ostensive paradigm is charted in Figure 11 using but a fraction of the available paradigmatic alternatives. An extra page of examples of variations and additions to the basic Ostensive paradigm is to be found in Appendix 13 and shows that while the basic form still continues to be extremely useful, more elaboration and variation of the paradigm does actually occur in the course of both children's language development. Also, just as in mature English speech the complement form is to be found with great frequency embedded in all manner of sentences, even so in Galen's and David's transcriptions there begin to be such embeddings and combinatory kinds of sentences during their third year.

Corresponding to the Informative function are two major types of informative paradigm that will be dealt with presently, but first, mention should be made of a third kind of Informative paradigm with an uncomplicated invariant form that seems to act as a kind of bridge from Ostension to Informativeness. From the point of view of structure, it simply links in a new way by the insertion of the word "goes", the subject and a locative, which are the two elements already familiar because of their use in the Ostensive paradigm. The split in focus that has already occurred with the use of "and" to link two similar elements, now extends to using "goes" to link two elements of different sorts. Another verb which acts similarly is "says". The copula in "this is" and the elided

Figure 12

A Bridging Paradigm from Ostensive to Informative Function

preface	pronoun or indef. noun	bridging form	noun and/or locative	coda
---------	------------------------	---------------	----------------------	------

The word "goes"

is a means to

use elements,

formerly em-

played osten-

sively, for a

new kind of

"accompaniment"

function.

"Says", and "is"

(in certain

situations)

also rechannel

the function in

an informative

direction.

oh	this	goes	there	2G12
no don't	this	goes	right here	3D7
'n'	that	goes	way up here	3D7
	that	goes	in there	3G6
	it	goes	back there	5G6
	it	goes	down here mum	5G13
	that	goes	there	6D14
	that one doesn't go		on there	8D4
	that	says	Cansvonville	4G3
	he	says	buff buff	7D4
	somebody	is	up on there	3G13
	this	is	two drivers	3D10
	it	<u>is</u>	a house	5G4
	that	<u>is</u>	a goose	12D12
	this	is	a living room chair	6D7

Figure 13

The Informative Paradigm

pronoun (sometimes noun) SUBJECT	copula	negative	present progressive verb form	article (as in the Ostensive paradigm)	noun/pronoun locative	coda
-------------------------------------	--------	----------	----------------------------------	--	-----------------------	------

I	'm	not	blowing building carrying chasing coming crying doing driving eating falling finding flying getting giving going having making picking up playing putting saving screaming sitting stepping taking teasing throwing waiting walking working	a		mummy
he	's is			the		
she	's					
it	's					
they	're					
we	're					

The essence of the
function is on
present action---
what is
happening.

verbs indicating
desire or possession

want
like
have
need

it
that
them

don't

copula in "he's", "they're" and "we're" also may be regarded as facilitating a double focus depending on their actual situational use. Examples of sentences using "goes" have been placed in Appendix 14. Figure 12 is a diagrammatic model of this bridging paradigm.

The Informative or accompaniment function appears in two major paradigms, corresponding to what has been designated in Chapter 4 as the Informative₁ and Informative₂ categories. The Informative₁ paradigm is built around the present progressive form of the verb, which in its early occurrences as a single word ending in "ing" performs a labelling or ostensive function. The skeleton form of the Informative₁ paradigm is pronoun, plus elided copula, plus a verb which ends in "ing", plus an optional ending consisting of noun or locative, or both. All of these parts have appeared previously and have been used ostensively. What is new is their recombination to serve the new function of informativeness. Figure 13 illustrates the Informative₁ paradigm. Appendix 15 contains examples of instances of the Informative₁ paradigm.

The Informative₂ or immediate planning function at first appeared to be expressed in a multiplicity of forms, which, however, were in due course found to be reduceable to one paradigm, once the central core, which typically includes a modal verb form or alternatively the infinitive verb form, was recognized. For these two children, at least, many of the common modals appear over the very short time interval of a few weeks or months, and, considering the age of the children, must be regarded as a rather simple type of rote acquisition. It is suggested that it is the part they play in a functionally uncomplicated paradigm that makes their acquisition seemingly effortless. The Informative₂ paradigm is basically "gonna", "wanna" and "hafta" statements, supplemented by the

Figure 14

The Informative₂ Paradigm

pronoun or noun SUBJECT	going, want, have (gonna, wanna, hafta)	infinitive "to"	multi-purpose or verbs	action verbs	art. noun/pronoun locative (as in the Ostensive paradigm)
-------------------------	---	-----------------	------------------------	--------------	---

The essence of
the function is
the immediate
future.

I
it
he
she
this
they

want
wanna
wan'

have (has)
hafta

like
need (s)
gotta
tryna

to
to
to
to
to

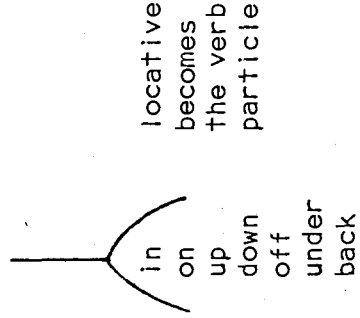
be
come
do
get
go
have
make
move
put
take

blow
bring
brm
crash
cry
drive
drop
find
finish
help
hit
knock
leave
load
play with
ride
see
sit
spray
stand
stay
step
touch
turn
walk
wind
work
write

modal

I
he
she
they
we
this, that
you

can
will ('ill)
shall
better
could
should
mighta



substitution words, "can", "will", "shall", "could", "would", and "better". The Informative₂ paradigm is charted in Figure 14. Actual examples, grouped according to the modal or infinitive form used, make up Appendix 16.

As long as the child refers only to objects and events in the immediate environment his speech tends to remain at Ostensive and Informative levels. The impetus for entry into Predicative modes of speech seems to arise from situations which motivate expression of reflection and thought. As children begin to speak about ideas in their own minds when recalling events and voicing reactions to their pretend play, Predication slowly emerges. Even by 3 years old, however, the child is still so much more a reacting and feeling rather than a thinking being that the need for objectively framed third person reporting hardly arises. Perhaps this is why Predicative paradigms proliferate so slowly in comparison to Ostensive and Informative paradigms. It seems to be the advent of simple judgments and generalizations that stimulates the functioning of Predicative form.

Predication in this study is defined as the process by which the child tells somebody something about something. What is told is not primarily locative, which is a characteristic of the Ostensive function; nor is it a recapitulation of what is manifestly observable, which is the hallmark of the Informative function. It is evident, even on Tape 1, that the same simple beginning in Predication is being made by both children and that the development of several identical structural elements presages the full-blown use of SVO form. The core of Predication seems to be established through the initiation and command aspects of communication as they are expressed in phrases such as "put it", "make

Figure 15

The Ubiquitous "Put It" Pattern

Early Use (by itself)

'n'	put't	in a cake	mummy	ID6
	put it	on the table		IG12
mummy	put it	in here		IG10
	put it			ID20
	got it			IG3
	got it			3D13
	see it			IG9
	see it			ID6
	find it			IG6
	turn it	on		2D21

Used in the Informative₂ Paradigm

I'm going	put	black piece		IOG6
I'll have to	put	the gate		IG24
I will	get	a glass	for lemonade	ID16
I wanna	put	this	on	4G9
they will	have	something	on	9D19

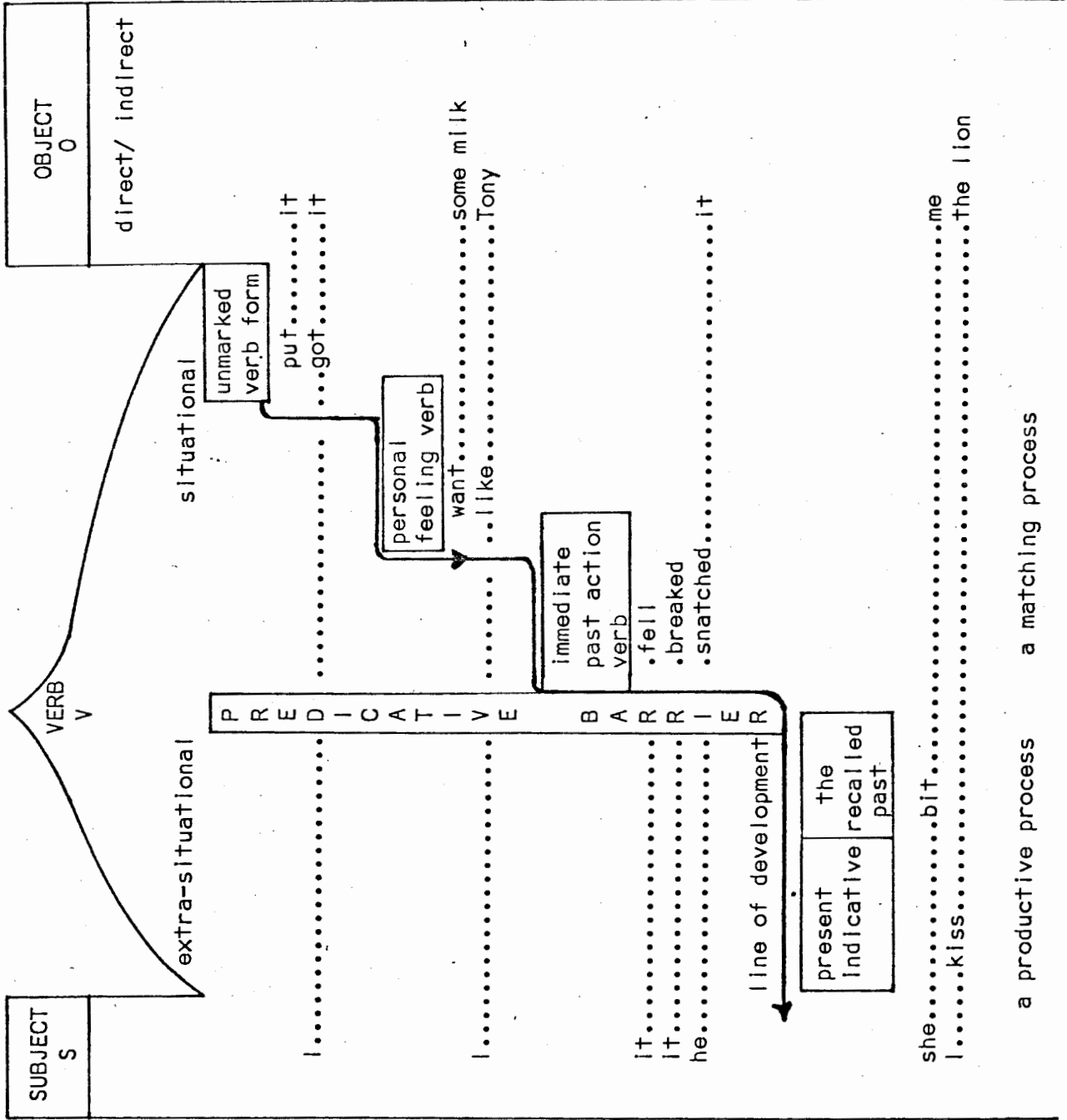
Used in the Predicative Paradigm

we	lost it			IG8
they	rode it			7D6
I	made	the freeway	good	IG18

it", "find it", "take it" and the like. This function is quite different from the Ostensive function of pointing out or showing, although the form overlaps when it comes to the use of commands like "see it" and "look at that", both of which have been classified in this study as Ostensive in function. The structural development of the "imperative plus it" pattern is shown in Figure 15. The "imperative plus it" phrase that initially appears alone is later incorporated into both I_2 and P paradigms.

The emerging Predicative function is different from the Informative function in that it does not merely accompany or anticipate the activity taking place but tells something about what is happening. The change is not abrupt; forms already familiar help create a bridge. At the transition point, as with Ostensiveness, there are some lexical overlaps. Desire words such as "want" and "need" very quickly become part of both Informative and Predicative functioning. "I want ____" performs the same function as the command forms but exhibits SVO structure. Inclusion of the infinitive, changing it to "I want to ____", is one variation of the Informative₂ paradigm. Because of the similarity between "want" and "want to" the former has been arbitrarily classed as Informative₁. The SVO pattern is thus tied initially to specific Ostensive and Informative utterances, a case of form preceding function. The opposite, of course, is also present: reports may be clothed in Ostensive or Informative forms; in practice they must be, if the needed form is not part of the child's repertoire. The point is that as the Predicative function is stimulated by the child's desire to express something of himself, aspects of Predicative form are assembled from previous types of utterances in order to provide a container for thought.

Figure 16 The Emerging Predicative Paradigm (schematic)



Early Stage:
 the unmarked verb plus object with or without a subject

Transition Stage:
 the past tense used in connection with the present situation

End Stage:
 reporting about something

a productive process a matching process

Another main mode of entry into SVO structure occurs for both children via the act of possession. "I got _____", used in the sense of "I have _____", was another common denominator in the two children's speech. At first, pronouns tended to fill the subject and object slots. The verbs used gradually changed from the multi-purpose type to specific action verbs. For these two children only a beginning had been made in using noun subjects and objects and non-anaphoric verbs by age 3. Also, as it was first used, the predicative SVO paradigm was as often as not incomplete, even to the leaving out of the verb element itself.

4D14 I (want) some more dins mummy

It is the full functioning of SVO structure, with the relationships that are implied, that is mandatory for the function of Predication as it is defined in this study. The surest indication of the Predicative mode would seem to be the use of the past tense as it enters into the child's first simple story-telling and reporting of extra-situational events. The past tense initially functions as part of the commenting that the child does about what is happening in his play. As long as it is part of expressions used to describe the immediate past (what has just happened) its function is not truly Predicative, but still informative, since Predication as herein defined transcends any particular time and space and is of the nature of a generalization or mental observation. Catastrophe verbs such as "break" and "fall" may be the first to be used in the past tense. Their over-regularization as "broke" and "fell" seemed to be more associated with the functioning of Predication than the correct use of the past tense of irregular verbs which appeared first. Over-regularization for these two boys began before they were 3 but became more common between 3 and 4. Very

Figure 17 Posited Course of the Syntagmatic-Paradigmatic Process (in three parts)

Part One

Pre-Syntax

1. Segmentation of a sound group (word or phrase) from the environmental speech flow
2. No conventional word classes at the start
Words used as interjections or labels for what is noticed (deixis)
3. The label may be the word for
 - a. a thing (noun)
 - b. a quality (adjective)
 - c. a place (locative)
 - d. an action (___ ing)
4. From early deictic (pointing) function comes the complementary form.

Early Syntax

Interjection

- | | |
|--|-------------|
| Label | Locative |
| a. noun | c. locative |
| b. adjective | |
| d. ___ ing (present progressive verb form) | |

Deixis	Label	Locative
--------	-------	----------

there

that's
there's
it's

article noun

a
the

End State

deictic pronoun	contractible copula	article	noun or other label	locative
-----------------	------------------------	---------	---------------------	----------

gradually, present indicative verb forms began to be used as well. The consistent inclusion of "s" as the declensional ending for third person singular verb forms is taken as another indication that the child is speaking Predicatively, i.e., Predication is strongly marked morphologically. Figure 16 delineates the emergence of the Predicative paradigm. Examples of Predication appear in Appendix 17. The Predicative barrier shown in Figure 16 is discussed in Chapter Nine.

Diagrammatic Evolution of SVO Structure

Figures 17, 18, and 19 are a diagrammatic composite of the three directions of early language development discussed in this paper. They illustrate the syntactic changes and additions being made by the two children as new functions were exercised by them. At the beginning of the study the ostensive or labelling function was very evident. An examination of the words and phrases in the early lexicons reveals that both boys had made an extensive beginning in labelling, or exclaiming about, the outstanding features of their respective environments. Words at this point are not necessarily parts of speech but are expressions gleaned from the adult model in those specific situations which forcefully impinge upon or involve the child's attention. That which strongly impresses the child tends to evoke a word or phrase that the situation itself is supplying. R. M. Jones (1970, p. 128) expressed a similar viewpoint by suggesting that early words have the nature of interjections. Thus in his view, interjection is seen as the starting point of language acquisition. This paper supports the position that the child begins with labels and that the labels signify things, qualities, actions, or locations, i.e., that for the young child, nouns, adjectives, locatives, and the present

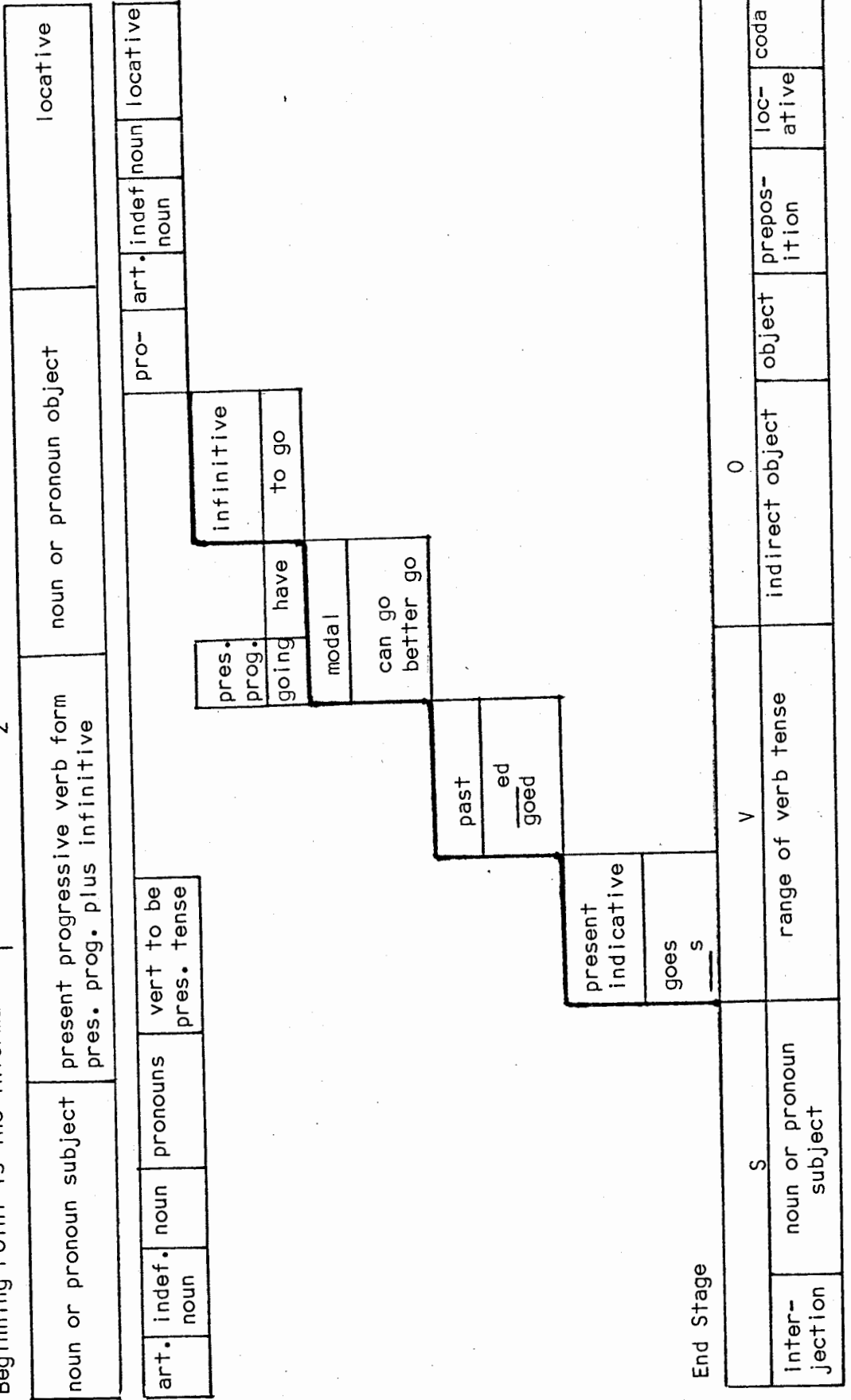
progressive verb form ending in "ing", are amalgamated into one pre-grammatical category, a category of "expressibles" (to coin a phrase). The adoption of conventional complement structures such as "that's a _____", "there's a _____", "it's a _____", and even "see the _____", follows with little difficulty simply because the natural thrust of the child's mental development at this stage is toward locating and identifying objects and happenings. Thus the complement type of sentence frame emerges as a rather stable structure, and word order is determined by the pattern. The word "there" is the only word which occurs in either beginning or ending position. This structural beginning is illustrated in Figure 17.

Figure 18 starts with the locative firmly in its place at the end of the utterance and there it stays, with an occasional coda consisting of "mummy". This stable position is in contrast to the label part of the utterance which, as it comes to be expressed by an article and a noun, gradually assumes two positions. As the complement form of Ostension is replaced by Informative paradigms, the noun segment assumes a new position at the beginning of the utterance as well as the old position which retains its original link with the locative and so comes in the latter half of the utterance. The pronouns "it" and "that" gradually become interchangeable and they also find their way into subject and object position. "That", started out as the first word in the frame "that's a _____ there", and "it" as the last word in the imperative "put it". Also, as already noted, it is the burgeoning Informative function that causes the prototypical forms of the verb "go", namely "goes", "going", "to go", and "can go" to be physically inserted between noun/pronoun beginnings and noun/pronoun phrases

Figure 19 Posited Course of the Syntagmatic-Paradigmatic-Paradigmatic Process (in three parts)

Part Three

Beginning Point is the Informative₁ and Informative₂ paradigms (from Figure 18).



appearing just before the locative. Thus a simple reduplication of beginning and end phrases, together with their separation by the insertion of already well practiced present progressive and imperative verb forms is all that is needed for a practical array of Informative paradigms to become accessible to the 2-year-old. Half a dozen or so variations of the Informative paradigm would be enough to provide each child with sufficient structure to converse adequately about the happenings in his immediate and present situation. And this is precisely the course that language acquisition did take for both subjects.

In Figure 19, the significant role played by increasing verb complexity is made clear. First to be used are the elided copula and the imperative or unmarked form of the verb. "Is" and "goes" are bridges to Informative speech. Informative paradigms incorporate the present progressive to describe the present situation, and modals and infinitives to plan the immediate future. It is suspected that there is a delay in any widespread spontaneous use of the past tense and the present indicative tense because the Predicative function has only begun to emerge by age three. It has been known for some time that at first the child uses the past tense of irregular verbs correctly and only later makes the error of over-regularizing them. An interpretation of that fact in the light of this study would indicate that the early correct use of any past tense is most likely a rote performance limited to a few very familiar or formula-like expressions.

Similarly, a true use of the present indicative is to be expected only when the child is speaking about the present as a third person or observer and not when the child is using language indexically, as in the Informative mode, to stand for the situation being enacted.

In English, the child's lack of the present indicative is obscured by the fact that the unmarked form (the one that appears in the imperative and the infinitive) is also correct in the present indicative for all but the third person singular case, which requires the addition of an "s". And it is the general omission of the type of statement that requires the third person singular "s" that is found in the protocols. There must be, then, as will be shown in Chapter Nine, a Predicative barrier, (See Figures 16 and 20) not of structural impossibility, but of epistemological impossibility. At this point the child's language development is probably delayed if there is a lack of cognitive readiness and/or a lack of opportunity to use the Predicative function. To the degree that the child is capable of using language symbolically to construct a statement of what he is thinking, rather than what he is experiencing situationally, the Predicative function will be open to him. One might then predict that as children mature, a greater variation in their language will be found in Predication than in either Ostension or the Informative use of language. However, all that can be noted in this study is that in their third year both children made little progress Predicatively. The viewpoint taken is that increased complexity is linked with pragmatics; functional complexity is a spur to syntactic complexity.

Length of Utterance Related to Paradigm Complexity

Beyond the demonstrable fact that as each of the children grew older there was an increase in the length of his longest sentences, length as a single factor bore a limited relationship to complexity of utterance. In fact, David's two longest utterances of all are long

because of the recurrence of certain parts of the utterance. They fall into the category of what has been called Informative sentences in this research, since they accompany an action which is being repeated over and over. David reached a length of almost fifty morphemes in a single utterance; or fifty-five if one allows for a single pause, and judges by grammatical structure alone. Both examples below have been given two morpheme counts, depending on whether or not the pause (marked /) is allowed. The words have been grouped into phrases for ease of reading.

9D14

and he was going to do like this and
 this and this and this and this and
 this and this
 to make that go like this
 and then this will be on here
 and this will be on here
 and this will be
 on here/ 47 morphemes
 and they will all
 get crashed 54 morphemes

9D24-25

but the sick people live in right here
 and they climb up the stairs
 and they get on this
 and climb down
 and then they run up here
 and get on top
 and then they run down/ 38 morphemes
 and they walk up here
 they walk up h_____
 they walk up here
 and they walk uh 55 morphemes

Galen's utterances never reached such a length but he also adopted the same repetition technique for structuring many of his longer self-initiated sentences. Note that the word "then", or the idea of relating a succession of events by adding them to the speech flow, is identical to David's, but realized in Galen's own well practiced and familiar phraseology.

3G14

and the lion and the bear and
 another bear and another bear
 and an _____ 14 morphemes

8G12

and they're looking at flowers/
and this she's looking at
the dump truck 17 morphemes

11G10

an'en they have to turn right here
an'en right here
an'en they go right here 18 morphemes

The longer sentences of both children can be sorted according to many length factors, and for this reason no overall MLU count has been attempted. Three major reasons why, at this stage, MLU has probably outlived any indicative relevance are:

1. The MLU count, for that quite large portion of utterances that are products of the child's echoing or repeating, needs to be excluded since utterance length may have been preset by the speaker doing the modelling.

2. The children's very short or incomplete sentence utterances may be occurring simply because they are sufficient to meet conversational demands and are not a result of incapacity to produce longer or syntactically complete answers.

3. As above, the child's longer utterances may be due to a repetitive or run-on element which in the long view may prove a hindrance to the development of clear explicative speech. In other words, relational complexity is not necessarily captured by length of utterance. At some point the embedding process will begin to check the lengthening or adding process and a hierarchical ordering of impressions will make its appearance.

Nevertheless, there are some longer utterances that show interesting structural features, chief among them being those that are not conventionally grammatical but which show the juxtaposition of paradigm segments with which the child is familiar. In short, there are utterances in

both children's protocols that do not fit into the category of grammatically correct or complete sentences, yet one would hesitate to say that they are not therefore playing a crucial or significant role in language development. The usual MLU count has therefore been omitted from this account and length of sentence has been treated as above, by discussing a selection of longer utterances in relation to their structural details. Since length may be achieved in quite simple ways, complexity should be tied in with Predication. For instance, a fairly complicated attempt at communication for Galen is (3G21) "the lion/ bump head", (The lion bump(ed his) head), which appears with a pause between the words "lion" and "bump" and which by all MLU counts would have to be rated as two utterances of two morphemes each. A SVO causal relationship, with the child in the position of observer, is a rare occurrence in the language of either child. The SVO form involved seems simple to the adult but it is unusual for the child to compose something in which the words carry the whole message independently of any actual event.

Galen's longest sentence is 25 morphemes and is not of the run-on type.

11G21

you better put this in the curve
way so the train will go along
over to this road ne an'en the
fire engine can come 25 morphemes

A similar construction occurs earlier but the utterance, which is a whole, grammatically, is counted as three utterances because of its pause structure.

11G4

we got all sorts of bridges for trains

L: Yes

so we have to have a place for cars

L: Uhuh

to go under these tunnels 27 morphemes

When utterances of similar length are considered for David, it is found that sentences shorter than his longest utterances are more complex grammatically.

9D20

I will get two firemens too
and these two firemen
going to get on the fire truck
take the sick skier away and put
him in the doctor 30 morphemes

9D19

and then this one walks around and
get in the fire truck and gone
asleep so he was sick 20 morphemes

Overall length, then, must be considered a very rough estimate of complexity, and before a mean morpheme length is computed, sentences should be sorted according to grammatical criteria.

That sentences get longer, particularly after the age of $2\frac{1}{2}$ years, is shown clearly in Table 7 in Appendix 21 which is a tape by tape count of all utterances eight or more morphemes long. The upper half of each cell contains David's score, the lower half Galen's score. On all but Tapes 8 and 10 Galen used more sentences that were long (long being defined as eight or more morphemes), but David consistently used the greatest number of longest utterances. Only on Tape 3, which is atypical for David because of jealousy problems, did Galen use a longer sentence than David did. The significance of these two facts defies analysis; at present there is no standard or accepted way to compare children's utterances in terms of growth or development stages. Perfecting such a measure is a challenge for future study.

CHAPTER EIGHT

Gaps in Understanding

When considering child language from a semantic viewpoint, it is almost impossible not to assume that somehow the child understands what the adult understands about grammar and the word. As soon as the child uses a particular grammatical construction or lexical item, any parent is likely to feel that the child "knows" what the utterance "means". Conversely, the child's knowledge of the world may be regarded as being already there, waiting for labels. Or, all too often, the words themselves are felt to carry automatically such features as [plus or minus animate] along with their form and use. The age-old physei-thesei controversy is still with us (Moerk, 1977, p. 153). This chapter will look at what the child means by what he says and what he understands of what is said to him. It will be found that in the conversations between these two mothers and their 2-year-old sons there is many an impasse. Gaps in understanding illustrate how perilous and fragile mother-child communication can be, and how "circumstantial" the early meanings in child language actually are. The discussion will first centre on certain persistently recurring conversational limits and then will move on to considering how the very growth of the child's understanding contributes to semantic confusion.

Throughout this chapter it will be necessary to take account of the view that words are not discrete entities. A. R. Luria's formulation of this idea was expressed in his definition of the word as a

"multi-dimensional matrix" of connections (1975, p. 51). To him, this phrase signified each word's relations with many other words through sound as well as meaning associations. J. R. Firth (1957) emphasized that the associations in speech that words have with each other are a source of built-up meanings. The company a word keeps, both collocationally and colligationally, in some sense, defines its meaning. Furthermore, as adults, we realize that one word can have many different meanings and that one meaning can be expressed by many different words. We are able to substitute one word for another or express the same idea by using different syntactic structures. But the many breakdowns in the dialogue between these two mothers and their respective 2-year-olds show that at 2 years of age the associational links between words are likely to be incomplete and are sometimes erroneous, sometimes idiosyncratic. There is the beginning of a multi-dimensional matrix, to be sure, but it is more a vaguely delimitable, often unique conglomeration of associated sounds and meanings than a neatly codified array of constant linguistic features. The child begins with only the two dimensions of sound and contextual meaning and must gradually by trial and error establish for himself the conventional system of classifications and definitions.

What is happening is that, as the child is absorbing the "meanings" of words from their use in particular situations, there are further dimensions of meaning accruing to each word because of its syntactic association with other words. It is difficult for mature speakers to fully appreciate the fact that, at the beginning the child's associations will be wholly experiential, that is, wholly dependent on the varieties of experience available in his home environment. For the adult, it is natural to classify meanings using a varied set of linguistic and

cognitive categories that are inaccessible to the very young child, who has at his disposal none of the formal categories of relation such as synonyms, antonyms, homonyms, nouns, verbs, adjectives, compound words, locatives, agents, actions, patients, subjects, predicates, modals, plurals, tenses, cases, prefixes, suffixes, etc. How the child generalizes or even reacts to these empiric categories is not yet known. In the following sections some of both 2-year-olds' temporary "semantic irregularities" will be touched on briefly. The emphasis will be on the changeover from understanding word and phrase meanings uttered in conjunction with particular situations to understanding syntactic meanings that hold from situation to situation. Appendix 22 illustrates that even the difference in meaning of frequently used words such as the prepositions "in" and "on" is not really comprehended. The first two sections of the chapter deal with the word up as it becomes a verb particle. For Galen the expression that causes difficulty is back up; for David it is make up.

A Specific Locative Difficulty

On Tape II Galen and his mother have developed a game in which each travels along the block road, Galen using a toy cement truck and his mother a toy fire engine. In the examples of dialogue in this chapter, a line consisting of (...) means that non-relevant parts of the interchange have been omitted for brevity's sake. Throughout the tape Galen is trying hard to maintain the director's role and at one point he says:

11615

go beside me

...

you can go beside my cement truck.

The road is so narrow that his mother replies:

M: If I back up I'll go back that way.
I want to go forward.

go forward

M: Okay
Mummy do.
And we'll move the fire engine.

move the fire engine back of the
cement truck

Galen's last comment, using back of, may be what he intended to mean in the first place. His next comment shows one correct and one incorrect use of back:

IIG24

soon's the train's gone I'll put the
gate back

...

now you can back up your truck here

M: Well if I back it up I'll go this way

no no

M: Then I'm going

this way

M: Yeah well what way is that?
That's forward.

forward

Later his mother re-introduces the phrase but soon runs into an objection as before. She in her turn ignores it:

IIG27

M: I gotta back up then.

IIG28

M: Now I can back up and _____

no

M: see if I can help the cement truck.

Next Galen uses "back down" improperly:

IIG29

back your car down
back your car down

M: Why?

'cause you do

M: Why?

'cause want my --- all the way back
again

M: Oh I see you want me to turn it around there.

mhm
like this
yeah like that
that's why you turn it around

M: Oh

come back up like that

His mother's final use of the term raises no objection from Galen:

11G32

M: Gotta back up and help this old guy get himself fixed here.

One would assume that his mother's insistence on giving him the correct phrase and actually demonstrating that his professed direction would lead to wrong results would "teach" him the "meaning" of the words back up, but obviously this is not the case. Galen prefers to use the phrase in the way that he has chosen to use it. He has not quite grasped how language works; again there is little indication that he comprehends yet that word meanings are not as a rule arbitrarily assigned by the speaker. A search through all the protocols revealed that the word "back" was used frequently in both children's homes. Details dealing with the fact that David used the word correctly are set forth in Appendix 23.

Taking the adult examples of "back" on the tapes as being representative of the contexts in which each child has been used to hearing the word, there would seem to be differences between David's and Galen's environments as well as differences in the two children's usage. David

appears to have been exposed to the word in a wider variety of contexts. Perhaps because of his greater locomotor skills, he also seemed to have mastered very early the use of back up which Galen had not. As illustrated, Galen's difficulty with back received his parents' attention on Tapes 7 and 11, to no avail. Also, David's mother seemed to run into some difficulty with back and front on Tape 11 although she had already demonstrated them on Tape 6. All this is rather reminiscent of the de Villiers' observations (1970) that the concept of back for young children is somehow identified with the side farthest from them, and that intrinsic backness is perceived only for objects with a tail. It is the adult who is deceived into thinking that the child, because he uses the word, understands its meaning, when in reality the persistent misuse of a word confirms that the child's grasp of the word is a situational one. Only out of its use in many situations does the meaning of the word finally become clear to the child.

A Difficulty with Causal Relations

David's misunderstanding of the word make up is of an entirely different nature from the difficulties Galen has with back up. The word make like the word back is frequently used in the tapes, but the combination of make and up appears only once and its misuse is a good illustration of the syncretic "thinking" and linguistic behaviour of young pre-schoolers. In the context in which it is used, it means "pretend" or "imagine". It is not likely that David's mother realizes that it is she who introduces the expression, and it is probable that David has never heard it before. In fact, what he hears is make, and the incident does not revolve around "making up" or pretending there is

a lake but around "making" a lake. He and his mother have been engaged in a series of play episodes in which a group of toy people, sometimes called firemen and sometimes representing a family, have come home from school, put out a fire, had supper, and mixed lemonade. His mother, as usual, throws out suggestions which David, usually after a delay, proffers as his own idea for the next bit of the drama. The lemonade incident starts with a suggestion from his mother while she is trying to divert David's attention from the fact that the baby has appropriated one of the firemen.

IID15

M: Look you've got all these people to put at the picnic table yet. Some of them should have a picnic anyway. I bet they'd like to have a glass of lemonade on a nice sunny day like this.

yeah
where's lemonade

M: Oh you'll have to pretend.

oh (He makes water noises.)
that's what was coming out here

After the lemonade is made it is found that the picnic table has been turned over and David begins to get a little upset. His mother makes another suggestion which seems to be forgotten as the lemonade party gets under way again.

IID16

M: Oh look what happened to your picnic table. It fell over.

who did that

M: I dunno.
There it is.
Okay you better put your people around that table.

yeah

M: Maybe they could have a boat ride afterwards.

yeah

Two pages of transcription later the meal is continuing, chairs are still being placed around the table, and supper has turned into breakfast with hot dogs.

IID18

where's this fellow gonna sit

M: Well you could bring out the living room chairs if you want.

'n' they could have coffee

M: Oh they could yes.

yes
let's go out
let's put that---

M: Oh you're gonna put the coffee table out too?

yeah 'n' yeah some more
time for breakfast now (A chant)

The quarrel with his sister finally erupts and it is four pages later that the meal play is resumed. David has not forgotten the suggestion about going for a boat ride although his mother has. It is during this part of the conversation that his mother uses the term "make up".

IID22

M: Let's set these fellows back up at the table or are they through with their coffee?

they through

M: Well come sit down here and tell me about it.

well they're gonna go boating there

M: They're gonna go boating?

yeah wh wh

M: Where's where's the lake?

where's the lake

M: Well you make up the lake.

I will get more I will get more
water for the lake.

M: You're gonna get more water for the lake?
Okay

yeah
d'y'know where the water's going to
come from

M: No
Where?

from the hose

M: Okay

set go
quuh (A water sound)

At this point his mother begins to realize that David's idea of where the water comes from to fill the hose is without any cause-effect foundation. She misses the fact that he is "making" and not "making up" the lake and concentrates on the logic of a source for the water in the hose.

11D23

M: Where where does the hose get it from David?

mm

M: Where does the hose get the water from?

right here (He points to the hose.)

M: Oh

just like daddy---

M: Where does the water come from before it gets into the hose?

it's going over there
--- a building over there
...
no the lake's right here

M: Okay you better back up a little bit then if the lake is right there.

It seems strange that David should keep on showing uncertainty as to where the lake is, especially after he has been so absorbed in making it, but this is another characteristic of 2-year-old conversation. Perhaps the distinction between what is real and what is imagined is still tenuous. After an episode in which one of the firemen jumps into the lake and David speculates on the depth and wetness of the water, his mother returns to the logistics of getting water from hoses.

IID24

M: Well you better park that fire truck at the side of the lake.
Maybe it can take on more water.

IID25

M: Well maybe you'd like to put the hose in the lake and we'll take some water onto the truck shall we?

yeah

M: Okay
Are these fellows fishing?

yeah
there's a fish over there
oh no (He can't find the toy fish.)

M: It's up there beside Lisa.

oh yeah
here it is
gonna go right (He looks for a place.)

M: Well I think it better go in the lake don't you?
Here's the lake over here where the boat is.
'Cause the fish couldn't live outside of the lake.

wh wh where's the lake goina go
(He looks for it.)

M: Well you isn't the boat in the lake?

yeah (He looks away.)
and where's the fish gonna go?

M: I think it better go in the lake.

no the ducks are going to go there

M: Well the ducks are on the top of the lake and the fish is underneath.
Did you know that?

oh no (He drops something.)

M: Oh it's all right.
We'll put them back.

put these things up

M: There we are.

they're in the lake now
ps (10x)

M: Are you putting water into the lake?

yeah

M: Or are you taking water out of the lake?

no I not taking water out of the lake
ps (5x)
now it's in now

In the end, David's mother foregoes explaining that water does not originate in the hose. She accepts his limited idea of causality. Nor does she realize that the impetus behind David's action was his attempt to carry out her suggestion to make (up) the lake. In his case, he has made what sense he could from unfamiliar syntax. Much of conversation with two-year-olds seems to rest on this precarious basis with the adult expressing meaning through syntax and the child interpreting the unfamiliar syntax situationally. At this stage notions of causality are associational, not relational. The use of the word "because" is treated in detail in Appendix 24.

Difficulties with "No" and Polar Qualities

At the core of many of the children's difficulties in communicating with their mothers lies the childish inability to deal with polarities. The most noticeable and frequent breakdown is trouble with the application

of the negative. A stress situation which arises constantly between these two boys and their mothers hinges on the child's unrecognized difficulties with the grammatical implications of negative constructions. Since both children used the word "no" well before age 2, both mothers operate as though their 2-year-olds understand and mean what their negative expressions are saying. In some instances, the mismatch, though at the time it escapes the adult conversing with the child, is noted on successive replays of the protocols. David's conversation with his mother about a gift of bath salts in a fish-shaped container provides a good example.

5D27

a little fish

M: A little fish?
 And you'd like to give a fish to Paulie.
 Maybe you'd like to have a fish yourself.
 Would you like to have a fish yourself?

yeah

M: Yeah the only thing is you'd have to learn not to drink the bath water.
 When you put bath salts in the bath water you can't drink it.
 Do you understand that?

mhm

M: Promise not to drink the bath water?

mhm

M: You promise?

no

M: You don't promise.
 Well I guess I can't give you a fish.
 You have to promise.

•
 I --- (not) prom not to drink the bathtub

M: You're not gonna drink the bathtub.
 Okay
 Well maybe we'll get you a fish then.
 Would you like one?

yeah

M: To play with?
 Okay

In this rather humorous interchange David's mother appears to feel that she was successful in her attempt to correct for grammaticality. There is room for doubt, however, that David actually did more than adjust his expression to meet her approval and gain the response he expected from her. His concern is with what he wants to have happen and he returns to achieving his goal in the immediately succeeding dialogue with somewhat the same results. His mother is again unable to discern that he does not have a negative intention. The difficulty in this instance is that David uses an apparently elided form of "I want to" and his mother gets "I don't want to" from it.

5D28

'kay get a fish

M: Well we have to get the fish at the store where we got Monica's fish.

I'nta go to the store

M: You don't wanna go to the store?

yeah

M: Oh you do.

Negativity, accompanied by downright unreasonableness, reaches its height for both children on Tape 8, when they are about 32 months old. In fact both mother-child dyads quarrel quite heatedly about precisely the same issue of what the child says he intends to do and not to do. In David's tape each disagreement escalates into a screaming session.

8D3

can I have a car going up ---

M: Can you have a car now?
 Sure
 Do you wanna use your box of cars?
 This box of cars?

no no those

M: Why not?
 They're great for that road.

(He begins to scream.)
 I don't want them

M: Oh I'm sorry.
 Okay just forget about it.

I want this big one

M: Okay

Later she selects a car for herself and puts it on the road, but David allows neither this or the mini-bus which she selects next. When his baby sister picks up a piece, he claims it; even when the dog growls in his sleep, David objects to the noise. He will take none of his mother's suggestions for pretending but when she points out that she can't make a car because there is only one set of wheels, he is suddenly sure that there is a way to do it. Finally, when his mother starts a construction of her own, he actively interferes.

8D11

M: (She is building a set of stairs.)
 This is what mummy needs.
 That's it.

no not there
 not there
 (He loses his temper again.)

M: What!
 I won't be able to make what I was gonna make then.

I want it out
 (He throws it.)

M: Well can I have it if you're just gonna throw it away?

mm
(He shakes his head.)

M: Why not?

I was _____

M: You wait.
I'm not gonna show you what _____
You have to wait.

uh uh I want it
uh I don't want it

M: Well let mummy use it.

no

M: Well you can have it when I'm finished building it.
You wait and see what mama's going to do with it.

don't put that on there
(The word "there" turns into a scream.)

His mother persists with her building and after a while a piece falls.

8D14

wha' ya do mummy

M: Oh I mine broke.
Shall I scream the way you do when your things break?

mm
(He shakes his head.)

M: You don't want me to eh?

yeah

M: Well it sure makes you feel like screaming doesn't it?

mhm

M: Especially after you work hard on something and then it falls apart.
Doesn't that make you mad?

no

M: Doesn't it?

no

M: Oh it sure makes your mumma mad.

Obviously no amount of conciliation is going to work and the tape continues as before with David reacting to a positive with a negative and vice versa. Very little sense comes out of it all.

It was uncanny to visit Galen and his mother the next day and witness them struggling with identical communicative frustrations. Galen wanted his mother to play with him and yet objected to every move she made, and just as David did, he contradicted himself. First his mother asks him whether he wants to build a house or a barn and he chooses the latter.

8G2

M: Do you think we can make something with the block now?

yeah

I I don't want you to make one

M: All right

You can make it yourself then.

you can make it

oh my

I don't want to make it

M: Don't you want a barn?

no

M: What would you like?

a house

M: A house

All right

Well can we leave that as part of our house?

no

The building proceeds but then Galen begins knocking everything over.

8D3

M: Hey!

Do you want a house?

yes

I don't want a house

M: What do you want then?

a barn
you can make a house
you can make

M: That's what I thought I'd do dear.

He, like David, will not take any direction.

8G5

M: Do you want them to have some breakfast at the table?

no
they they won't have any breakfast

M: They'll be hungry.

8G6

(He knocks everything over.)
we can build it again

M: We can?

...
I'll build here
you can build your house with me

M: I can or can't?

you can

He continues to knock things down as they are built and suggests each time that his mother start over.

8G9

M: Shall we build a railway track?

no

M: No tracks?
Car?
A road?

yeah a road

M: You can brm your cars on it.

mm
want a road

M: That's what I was building.
Do it yourself then.

you can do do one

M: I'm not gonna do it if you're gonna knock it down on me all the time.

let you do it yourself
let you do it your___

For a while the play settles down after this and the toys have a birthday party and pieces of cake. Then Galen lines them up.

8G12 they're all standing

M: In a row

yeah

M: What are you going to do with them now?

w they're looking at flowers
and this she's looking at the dump
truck

M: Oh

not standing on the blocks
(They are standing on the blocks.)

M: They're standing on the blocks.

yeah
they're not
(He knocks them off.)
are they gonna have their birthday

M: Didn't they already have their birthday?

yes they're going to

Then his mother introduces a chasing game.

8G14

M: This one says "I'm going to walk".

he can't walk

M: What can he do?

he can walk

M: (Mother makes the toy jump.)
Hipop hipop hipop

he can't go po pi pipop
 he can _____

M: He can run?

yeah

His contradictions finally do upset his mother and she declines to play any more, whereupon he makes an effort to give her a role. It is interesting that, like David's, his negativity makes very little sense, but is possibly something of a reaction to any positive statement.

8G16

M: (His mother chants as she plays.)
 Picking up wood
 Picking up wood

it's not picking up wood

M: What's it picking up?

mm ee
 I don't want wood in a truck

M: Oh but I'm playing with the truck.
 You play with the tractor.

I don't want to play with the tractor.

M: This is my toy.
 That's your toy.

I don't want my toy

M: Don'tcha?

no

M: Well go find another one.
 You said mummy could play with the dump truck.

no
 I want to play with it

M: What does mummy get to play with then?

nothing
 (He laughs at her.)

M: Does that mean mummy just not play any more then?

hm

M: You play by yourself now?

yeah

M: Oh all right
(She gets up to leave.)

what are you gonna do

M: I'm not gonna play if you won't give me any toys to play with.

I'll give you another toy

M: What toy are you gonna give me?

another block
here's another block for you to play
with

Polarity problems also extend to the use of antonyms. See Appendix 25 for this type of example.

Extra-Situational Reference

Just as both children operated under similar cognitive limits regarding causality and the attribution of meaning to polar terms, so they exhibited precocity of expression in similar ways. Most, though not all, of the meanings expressed by the children were so closely tied to the environment as to be for all practical purposes part of that environment. Nevertheless, another source of reference did make an appearance during the year. A quite different kind of gap in mother-child communication was revealed when the children began to refer to things not present in the physical sense but present to them because of associations arising in their minds or thoughts. The most striking of these involved the sudden intrusion of the "I" of the child into the outer situation. In these instances, the mother was usually brought up short by a non-sequitur from the child. For the child, the result

he's riding on the coal car
can you read it

M: Can you read it?
(Galen obliges by continuing correctly.)

The reference to Donald Duck falling off the train and not wanting to get on it again refers more correctly to Galen's inner subjective state than to the events portrayed in the book. It is the book that fell and Galen who does not want to get going again. Perhaps a parent's concern with the "truth" and not with the formal correctness of young children's statements stems from incidents such as this where fantasy is so easily set in motion by the child's desires.

The distinction, or rather, lack of distinction, between the children's reference to the external events they are witnessing and their reference to the internal images and ideas that arise within themselves can be very confusing to the adult at this stage. But there is no doubt that the subjective life of the child is slowly growing and that language receives a special impetus from beginning projections of the self. At this stage both children show sudden flashes of that future language development when what is referred to by language means alone will constitute as important a topic of communication as events that are actually physically present. The following are observations of circumstances in which each child suddenly places himself in an imaginary or hypothetical situation.

As in the previous Galen example, David in the next example is referring to himself and not to the toy drama he is enacting. His mother has been somewhat concerned about his rather stuttery speech and his lack of response at times during the videotapings. In this excerpt his mother assumed he was referring to the toy driver, but really he was repeating what he had heard said about himself.

is true because the house he lives in has two levels, but at the moment it is said it is a hypothetical comment. The stairs in his play are stairs his mother has built by a bus stop.

8D15

when when people walk up
when people walk up ---
they get clothes on them

M: They get clothes on them?

yeah when you walk upstairs you get
clothes on your wh I mean yourself

M: Oh

yes when you go out

M: Oh

yeah outside when it's bright and sunny

M: To go out?
Oh

oh it's beautiful

Introducing his own knowledge of his own reactions into a play situation occurs when the fireman takes a quick plunge into the pretend lake. In this instance his semantic intentions outrun his syntactic knowledge and he ends up using three past tenses to express a hypothetical statement with "if".

IID

oh oh the fireman jumped into the lake

M: He had a swim did he?

yes
that was deep deep lake

M: It's a good thing he knows how to swim isn't it?

yeah he didn't fall right down de baw
(bottom)
he just fell right down like that
(He gestures toward the floor.)

M: Mhm

yeah
 , wasn't that silly thing

M: Yeah

yeah
 would got all wet if I went did it

Although Galen has begun the process of imagining by Tape 4 as has David, there are fewer instances of it as time goes on, probably because his mother is not comfortable with the introduction of fantastic incidents into the methodical use of play materials that is the hallmark of this dyad's interaction. However, when Galen is considering what I would like to videotape next, such sentences as those below appear.

5G10

M: Did you want to show her your deer puzzle too?
 Do you want to go get your deer puzzle?

you will like my deer puzzle if you
 want it

L: Oh I think I would like your deer puzzle.

(Galen runs out to get it.)

5G13

M: Aren't you going to show Lois how to put it together?

no

M: She'd like to see.

see
 you'd like to see if you do

L: Yes I can see it if I look through the camera.

In all these examples it is the introduction of a subjective point of view, whether it is the child's own or what he perceives someone else's to be, that pushes him into complicated types of sentence construction. Gaps in understanding on the adult's side will occur when the child's sudden switch in level of association runs up against the adult's learned

habit of logical thinking. Throughout the tapes, communication difficulties traceable to the two children's preconceptual or preoperational thinking are legion.

CHAPTER NINE

Mother-Child Dialogue Parameters

Focussing on Objects

It is proposed here that a better understanding of the issues of simplicity and complexity in the language of mother-child dialogue may be reached through considering both the vocabulary the adult provides and the cognitive demands being placed on the child. Roger Brown (1958a), in an investigation into whether the child begins with generic or specific terms, looked at one side of the coin. What he found was that adults supply some class names and some individual names according to their degree of usefulness. For example, the child is exposed to the word money rather than dime or dollar, and the word bird before robin, sparrow, and crow, but spoon, fork, and knife not cutlery, and chair, table, and bed rather than furniture. The children in this study used the generic terms, animal, bird, flower, people, and furniture as well as a few specific nouns in each category. The precedent for each instance, however, was a particular context of usage. The process of learning expressions situationally is demonstrated in the examples in Appendix 27 in which Galen learns the interjection eek and David the noun xeranthemum. Neither word occurs on any other recorded occasion, but within the taping session when it is demonstrated by the mother the children use the words easily and well. Apparently, one word is as easy to learn as another; the crucial factor is functional relevance.

The other side of the coin, the child's level and manner of cognitive functioning, has been dealt with in quite different ways by Jean Piaget (1926) and Lev Vygotsky (1962), although both are exponents of a hierarchical progression of cognitive functioning that defines and limits intellectual operations at successive stages. Neither of their approaches are pursued here. In this study, the thrust has been to see what light C.S. Peirce's philosophy of pragmatism might shed on early child language acquisition. After analyzing the children's speech data using categories based on Peirce's concepts of the icon, the index, and the symbol (Chapter Six), it was concluded that the earliest meanings children express are the ones connected with the function of separating figure from ground, i.e., of noticing that something is an existent in its own right. A suggested qualification to Brown's study (1958a) is that words used ostensibly do not differ in difficulty for the child. When the adult joins the child in a centering activity or makes a game or routine of joint focusing, the stage appears to be set for the introduction of complementary forms such as "that's a ____". Throughout the study this kind of phrasing was a mainstay of the adult-child dialogue. It was not supplanted by new functions. Rather, its structural components were transferred in segments to new paradigms. In mature speech, ostensive phrases are frequently the embeddings found in complex sentences. According to Peirce, predication cannot exist without the iconic element contained in both grammatical subject and object. Although purely ostensive function is rarely encountered in adult speech as it is in child speech, it is present during specific activities such as taking an inventory, involuntarily repeating the names of zoo specimens, listing shopping items aloud, or calling out place names from a map while sightseeing.

A major finding that supports postulation of the initial primacy of the ostensive function is that the children developed an ability very early to refer to objects by using indefinite nouns and pronouns, a skill they needed because many noun labels had not yet been assimilated. Also, reasonable mastery of the articles a and the, which are sometimes very difficult for second-language learners of English, had also appeared by age 3. These acquisitions occurred in the protocols both as modelled and spontaneous utterances. Words used for indefinite reference to things, people, places, and amounts included the following:

it	thing	more
they	things	one more
them	this thing	any more
that	nothing	some more
this	everything	
these	anything	any
those	that funny thing	both
they're	silly thing	*two both of them
here	something	these both
there	something else	these all
what	somebody else	also
where	sometimes	all
which	some day	they all
who	some	they're all
	some of them	all fixed
way		*some all
ways	the place	every week
this way	side	

that way	other side	one
all the way	back	ones
*a little ways	bottom	long ones
		some stronger ones
other	piece	each one
another	a piece	other ones
others	some pieces	*these ones
other side	one more piece	*those one
other day	the big piece of	one of these
	bit	this one
people	part	that one
the people	a big part	another one
*a people	part of it	two
*one people	divisions	two of them
*this people	whole border	three of them
*peoples		
all the people	sort	too much
all the other people	*two sort	too bad
	two sorts	
enough people	all sorts	
person	all sorts of	
guy	things	
guys	what sorta	
fellow		

There are hundreds of examples of indefinite reference for each child. A few of the more unusual ones appear below. Galen's frequency and range of use is greater than David's. Where and what make a brief appearance as subordinate conjunctions. Questions starting with who

will become common shortly. David uses which as his mother does, and Galen uses what, also as his mother does, in occasional questions (12G25). The combination of echo phenomenon and situational pertinence is presumably enough to motivate the learning of noun and indefinite pronoun in Ostensive statements.

7D8 there one people
7D12 we better put these all in
7G2 and that's somebody else to go for a ride
7G10 nothing is in that pot
8D25 not enough not enough people in there
8D18 two of them are going --- back
8G12 they're all standing
9D20 the firemens are going to do it this thing
9D21 he takes them to that place some day
9G5 where --- these both go
9G6 we're making two sorts of it
10D7 this was the fock (fox) the other day
10D11 can't take the others off
10G2 we can make something else
10G10 some pieces have to go there
11D18 m where's this fellow gonna sit
11G13 we have we haven't got anything to go along our road
12D32 has the girl got too much
12G13 we got the whole border done
12G25 a what house
9D22 I see where the inside is
7D24 which color are these

The Buildup Process

A second and very different kind of language production than the motoric or replay type was equally discernible during the year the two children were studied. It was evident in both David's and Galen's speech, though not identical in proportion or situational usage. It appeared in conjunction with the Informative function. This type of speech seems to be the result of a building or constructional process, one that in Chapter Seven was described as developing along two axes, the syntagmatic and the paradigmatic. It also is a well-documented phenomenon in the literature although other authors have other labels for it. It is very close to what Martin Braine (1963a, 1963b) regards as replacement series: its paradigmatic facet would include his pivot grammar. Ronald Scollon (1976) records its beginnings a year earlier, in the speech of his 1-year-old subject, as buildups of a syntagmatic nature. Ruth Weir's crib monologue examples (1962) are perhaps the best known illustrations. Other ways of conceptualizing buildup speech would be as sentence frames or as slot and string constructions. The chief feature that distinguishes it from simple replay is that the child's emphasis or focus can be seen to shift as he or she begins another attempt to utter the same sentiment. These shifts may be expressed intonationally, lexically, or syntactically, and often strike the listener as playing around with language. Utterance length may remain the same and many telegraphic utterances ensue with different features missing in successive utterances; or syntagmatic gains and losses may be made in succession. A few examples of typical buildups are the following:

4D14 I some more dins mummy

M: Hm?

some more dins

M: Some what?

more dins

M: More dins.
All right more dins.

...

(9 utterances follow as she serves him more dinner.)

want some more dins mummy

4G18

(Galen is throwing the ball.
His mother is batting it.)

have to get it
I have to get it mummy
I have to get it
have to get it for you

4G14

dropped it on down the ---
dropped it on the floor
dropped it on the floor
dropped it on the floor
dropped it
I dropped it on

4G16

--- it down
...
--- throwed two books down
I throwed two books down
--- throw two
just threw two down
--- two dow

5D25

L: Who's Paulie David?

Paulie's home
having his suppah

...

Paulie havin' suppah

M: Mm

suppah
suppah

M: Not yet he won't be.

sup per
per

11D15

in put m put it on 'n' put a
w what shou' we put in the lemon
what shou' we put in the
what shall we put in the water

M: Oh you put lemons in the water to make and sugar to make lemonade.

12G19

--- does this go in here
does this one go in ---
oh does this one go here
no
...
yeah but where does this
one go in here
but where does that one go

12G27

M: Now what is he?
He's the ---.

he's the what
he's the what
whats' is he
's he mummy

Galen also engages in replacement practice with nonsense words and within syllables, a fact that is documented in the final section of this chapter.

In connection with buildups, a characteristic that seems to be the initial signal that the child is switching to a strategy of substituting within structures is a slight disturbance in fluency in the form of minor hesitations and stuttering. It could perhaps be that the child is having coordination difficulties in accomplishing the required shifts away from the familiar patterns and into substitutions. David stuttered frequently on the early tapes; Galen, on the first several tapes in which stereotyped expressions were not so prominent, tended to hesitate or stumble slightly at the beginnings of sentences. For a time, the children were not so fluent as they had been earlier. Both mothers remarked

on it at the time; then they overlooked such developmental stuttering, just as they were, during the next year, to accept the child's grammatical overgeneralizations. When pitch patterns were being analyzed there were found to be a few cases of pitch retrials just as there were lexical and structural substitutions, which would suggest that intonation is also part of familiar sentence patterns at first and that only over time does it become a variable feature.

It appears that the crucial development in this second phase of sentence production is not one of adding one word to another so that complexity can be equated with length of utterance, but the emergence in the child of a sharpened ability to segment or isolate many kinds of pieces in the speech flow he hears, and to reassemble these pieces in patterns comparable to those he has already produced echoically and prosodically. Paradoxically, then, although this new stage seems to be one of adding one term to another, or replacing one term with another, the really crucial accomplishment is one of segmentation so that "one-plus-one" and "one-replace-one" strategies become productive. It is postulated that, whereas the single word stage is due mainly to the exercise of Ostension, informativeness precipitates a stringing together of phrases that represent the unfolding of a situation.

The idea that the two children are "building" new sentences by substituting within paradigmatic slots receives support from the following mixed list of examples. A first type are those in which successive sentences show substitutive changes, some being correct and some not. A second type are those in which there is double slot-filling within one sentence indicating that the child is actually engaged in supplanting one choice with another. Not illustrated, but occurring, are some sentences where

slots remain unrealized but are held by pauses or unintelligible mumbles. In other instances when a slot is missed the child may immediately recapitulate. And in cases where the wrong paradigm is begun, a switch to the right paradigm can be made without pause. This last is most noticeable in questions.

Examples:

- 3G14 other goes up there
 the other go up there
- 5D30 Lisa wants to get the other mosi another mosikin (mocassin)
 off
- 4D9 this one turn gon turn around
- 4D10 'n' this airplane goes go up in the sky
- 4G14 dropped it on down the floor
- 5G13 and and where where does this that go
- 5G14 goes it goes in there
- 5D17 put a light put on
- 5G12 is it does it go in there
- 5G16 is it goes over there
- 6D14 there's tha's those
- 6D14 d-do this go that way
- 6D23 just go goes that way
- 6G10 got I've got one more to do
- 6G20 are they gon eating grass
- 7D8 he will going put the people back in 'cause they sick
- 7D16 tha's is on the patio
- 7D21 the sink's go over here
- 7D26 this is this a camper truck
 ...
 is this a camper truck

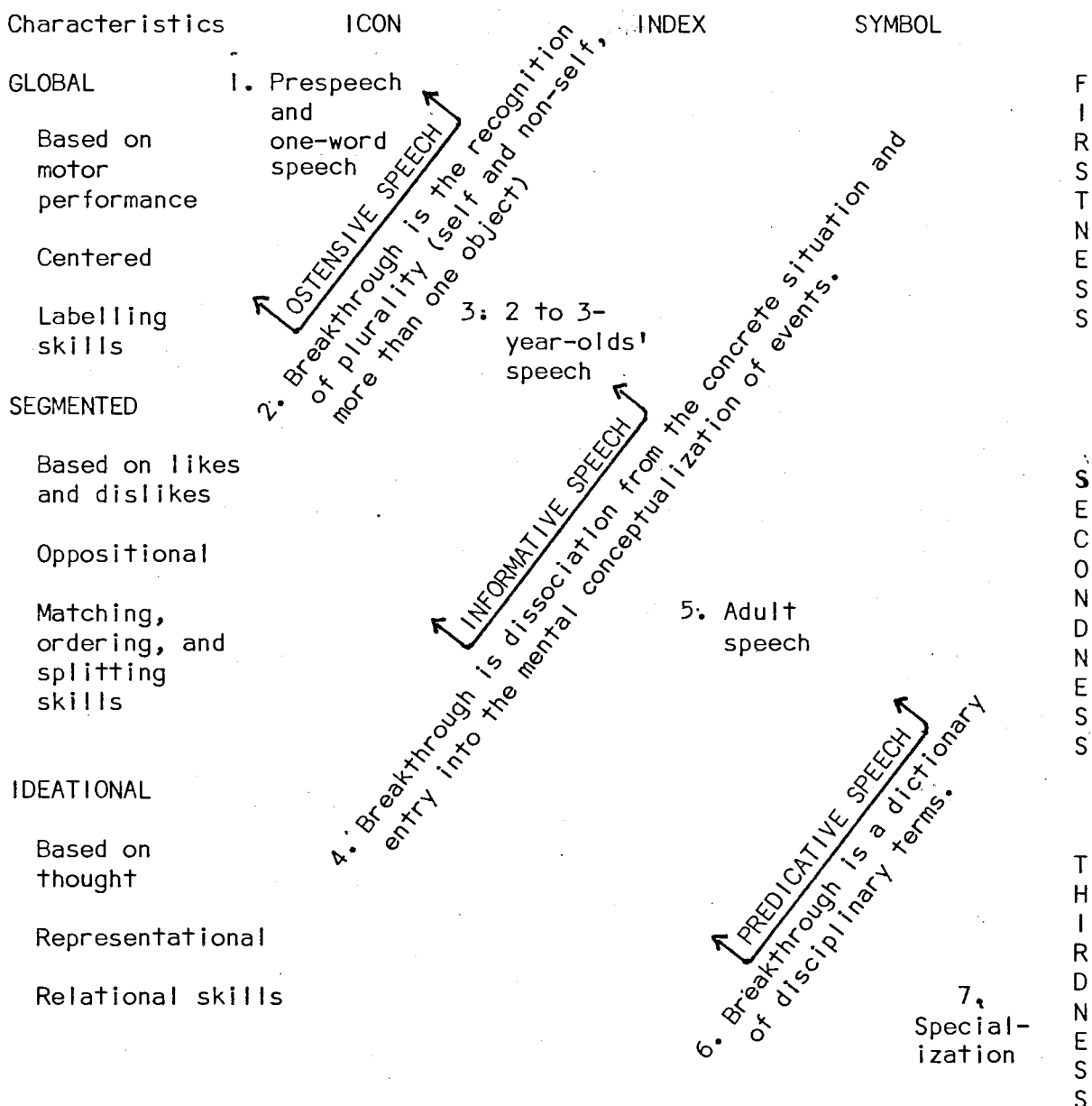
7G9 now where's can a where can a little g d dog go in
7G12 that's its home
7G13 not's its home
7G22 put it the people in here
7G23 there they are
 ...
 there we are
7G25 doesn't it is it
 who's isn't in the holes
8D7 that what you want
 is that what you want
8D8 that one has doesn't ha has flat tire
8D10 'n' these are blue stairs
 ...
 is those are blue stairs
8D13 oh it's night it's nice
8D19 'cause I'm gonna keep them in here
 ...
 'cause they 'cause they're crying
 ...
 'cause they're 'cause they don't like it up here
8G6 you can build my your house with me
8G9 uh what can they put the people in
 what can they put the people in there
9D18 and so they the guys can go skiing again
9D20 the firemens are going to do it this thing
9D20 that's the the our house where better people live in
10G22 we will wanna make something
12D32 is the can sh be's her shower

Barriers to Predication

The two functions, Ostension and Informativeness, underwritten as they are by the echo phenomenon and the stringing and substituting

Figure 20

The Proposed Progression of Ostensive, Informative, and Predicative Speech



1. Language begins as a label for an image. (icon)
2. Barrier between 0 and 1 is lack of twoness. Ostension is single focusing. Informativeness brings differentiation and segmentation.
3. Language is an accompaniment to action. (index)
4. Barrier between 1 and P is an inability to transcend here-and-nowness. Language is still situation oriented until generalization appears.
5. Thought is the new referent for language. (symbol)
6. Barrier to the language of a specialization or discipline is the lack of specialized terminology.
7. A specialization is a new language based on its own rules, formulae, equations, symbols, etc.

process, make conversation between mother and child feasible, even prolific. As shown in Figure 20 the barrier between these two stages is one that experience with the world of concrete objects serves to dispel. With the concept of plurality, both in the sense of more than one and in the sense of otherness, the child makes a critical move from static centration to the dynamics of a happening.

The barrier between Informativeness and Predication is, however, of quite a different order. Whereas there is in Informative speech no indication that the child's purpose in using language is to create or recreate an experience in the listener's mind, Predication performs precisely that function. What is communicated by Predication is in addition to or a substitute for that which is contained in any concrete situation. In Predication, language does not just accompany the experience in an Ostensive or Informative way; it is the experience being transmitted from speaker to listener. Eventually language is used by itself as a structural system which makes meaning self-evident. The purpose of Predication is to tell somebody something about something from the thirdness viewpoint of the observer position. Jason Brown (1977) presents the idea of cognitive stages based on changes in consciousness of the object, a position that has been espoused in this section. Observations from the David and Galen tapes tend to confirm the conjecture that Predication waits on the development of the self from within and without. The language spurts that children make at various points in their development are at least in part a result of functioning at different levels of self-and-other awareness.

To return to the barriers shown in Figure 20, the first breakthrough is at the end of the one-word period when the child learns to

differentiate between two objects and hold them both in mind. Function in the one-word stage is mainly Ostensive but some informativeness is attained as the intent of the child to communicate grows. The second breakthrough involves sequencing in time, with its attendant ability to speak of the immediate past and the next step in the future. References to the immediate past and the immediate future begin as Informativeness, but as the situational links diminish and the reference is to images in memory, the way is laid for generalization and imagination. Predication appears.

Speech that in this study has been labelled as third stage or Predicative showed personal and compositional qualities that set it apart from Ostensive and Informative speech. In general, utterances were considered Predicative if they could be considered as originating from an inner image, feeling, or thought of the child's own. Chief among the characteristics of such sentences were the following:

1. The use of I, or the use of he, she or they in more than a synthetic way. The distinction must be between the "self" and the "other", not just a routine inclusion of the pronoun as in it's or I'm. (O and I usage.)

Examples:

8G10 I blewed it out

8D12 he put his car under the tunnel

2. The use of an emotional or thinking word, e.g., think, guess, like, know, mean. These, as do the pronouns mentioned above, appear to be rote acquisitions in the first place.

Examples:

7G11 I guess everything's in there I guess

11D17 he likes it

10G29 a taller piece means that
something means it

11D22 d'y'know where the water's going to come from

3. The use of conjunctions other than and. For both boys, the word when, used to introduce a subordinate clause, marked an advance in sentence complexity. At about the same period other time words and phrases made their debut.

Examples:

10D21 all the people will see it when they when I go by

10D25 I be there in a minute

11G11 like when they go up an'en down

11G15 you have to wait until it goes

4. Any indication that the child was putting himself in someone else's place. Such motivation led to attempts at more complex structuring, even though the results might be judged somewhat garbled. This category of predication regularly led to simple generalizations.

Examples:

5G10 you will like my deer puzzle if you want it

8D15 yeah when you walk upstairs you get clothes on your wh I
mean yourself

5. The introduction of a pretend element. When the child begins to speak of something he has imagined, even his well-rehearsed ostensive and informative forms take on new personal and intentional force. This may be the best indication of all that the child is shifting into an adult, propositional use of language. Referring to a non-present object, recalling an event, or relating a story without accompanying props, likewise belong to the same predicate-inducing category, presumably because they all call into play internal imagery or memory.

Examples:

9D21 he takes them to that place some day

This is not to claim that the above criteria unfailingly signified that full-fledged Predication had occurred. The difficulty is that complexity of form and complexity of function do not perfectly overlap. Theoretically, any form used at a sufficiently simple functional level should be as easy as any other form to adopt. Conversely, in adulthood, even the simplest construction may be used to express exceedingly complex intentions. Therefore, in addition to the above criteria, the child must be seen to be initiating or injecting the element of his own intent into the comments he utters. When what a child says makes us laugh it is usually the case that we recognize that the expression the child has used says something more or something different than he or she intended. In such a case, complex structure may not be Predication since the degree of the child's intention "to mean" is not carried by the words alone. However appropriate or inappropriate any comment is, or however structurally complicated, it cannot unequivocally be considered the speaker's own composition unless it has been initiated and tailored by intent. The boundary between phatic and intentional communication is, if anything, harder to determine than that between echoed and stereotyped speech. For the purpose of this study it is enough to indicate that mastery of language proceeded for these two children from lesser to greater personal meaning and control. The categories of Ostension, Informativeness and Predication together with bridges served very well to delineate the progression.

Mother Emphasis and Encouragement

In addition to the parameters placed on mother-child dialogue by the children's developmental limitations, there were effects exerted by the mothers' ideas of what constituted acceptable behavior. However small the role of parental approval and disapproval might be in the teaching of syntax, there can be no doubt that when it comes to the appropriateness of their utterances children are getting considerably more feedback. Interestingly, in this study, it was the analysis of the mothers' repetitions of their own child's utterances that uncovered a major difference in their attitudes toward what constituted suitable speech. First of all, repeating the child's utterance was a more frequently recurring reaction for David's mother (and father) than for Galen's mother (see Chapter Four). Secondly, aside from the number of times that it was a check on having heard correctly, the two mothers' use of this kind of repetition was for opposite purposes. When Galen's mother repeated an utterance after him, she did so to cast doubt on or register mild disapproval of what he had just said. Generally it signified a point of disagreement and served to cut off any further conversation along that line. In the mother's mind at least there was nothing to be gained by certain kinds of comments, and her repetition of them seemed to act as a warning signal that he should take care and make sure that what she had said was really the case. Her greatest concern was always to express the literal truth, and because of this, Galen's fantasy comments tended to receive this treatment also.

10G28

(A block falls and Galen attempts to
find a reason.)
walkin' up he did
it wasn't the cement truck

M: Who was it?

I think it was um bear

M: It was a bear!

yeah I think it was

M: Why would a bear ever do that?
(She immediately changes the subject.)
Will it stand up by itself?

Contrast this with the reception David's introduction of an imaginary snake into the conversation receives.

14D11-12

this is a snake down here
that's a snake

M: A snake!

yeah

M: Ooh
(She is impressed.)

that's dirty snake

M: Ugh

M: How'd a dirty snake get down there?

go go up here
--- here

M: Oh
You don't often see a dirty snake at a garage.
...

the girl going --- step on that big
snake

M: Well do you think she wants to step on that big steak snake?

she not going step
two people

M: Two people
Yeah

When David's mother repeated one of his utterances, her tone was regularly one of commendation or appreciation of his contribution. By saying it again, she seemed to be affirming or corroborating his point of view. The more imaginative or unusual a comment he had made, the more likely it was that this would be a comment she would repeat. Her pride in his cleverness and ingenuity manifested itself very clearly in this practice. On the other hand she was equally demonstrative in her disapproval when he failed to give a correct answer to an easy question. Then she would say "David!" (with the accent on the second syllable), in a denigrating tone of voice. An open show of approval and disapproval was an integral part of her overall tendency towards emotional display; her tone was harsh when she scolded David, sympathetic when she comforted him, cold when she disliked him. Negative emotional responses were never avoided or toned down; nor were her pleasure and delight in him.

ID2

M: Shall we go see the whale?

and pigeons

M: And the pigeons

pigeons

M: That was the main attraction was the pigeons.

...

He tried to catch them all.

Next time we go to the park David we'll take some bread for the pigeons and we'll feed them.

And then they'll come right up to you David.

They might even eat out of your hand.

,10D21

I'm I'm I'm gonna put the flashing light on top

M: Yes that's right
You put a flashing light on top.

IID m where's this fellow gonna sit

M: Well you could bring out the living room chairs if you want.

'n they could have coffee

M: Oh they could yes.

In contrast to David's mother's unlimited range of emotional expression, Galen's mother's preference was for emotional restraint, a restraint that amounted to complete avoidance of overt negatives whenever possible. Again in contrast to David's mother, she never spoke disparagingly of her son's actions or blamed him for his failures. Nevertheless, she showed, visibly, her amusement at some of his childish misunderstandings by saying something too sophisticated for him to understand. Galen knew this sign well enough to become uncomfortable about not knowing what was going on. His typical response to being out of his depth in the conversation was to find refuge in the sounds of words by reverting to baby talk or gibberish. This seemed to ease the tension for him as well as direct the conversation to an activity they both enjoyed -- playing with the sounds of words regardless of their meaning.

6G2

M: Okay you tell me what you're saying in your letter to grandma.

a bird

M: That's a bird.

yeah

a big bird

a lird a bird a lird a bird

a lir uh

it's a pird

it's a law

bird a bird a kird

bird a gird a gird a gird

6G4

I gonna try a Bs

there da Bs

M: Those are Bs.
The letter B?
Or the bee that flies in the air?

the the bee that flies in the air

M: Oh that bee

B goes to bodge
B goes oh deed
bodge and jay
bed and doll bed
a day bed woood
it fell off again and again and again
and again
there's no more there

10G28

we have some bigger pieces for them
(He changes to sotto voce.)
we want some bigger pieces for it
burger pices

10G24

M: Hi Alec.
Is that still Marcia behind?

yeah that's still Marcia behind

M: Mm

that's still Marcie Barcie Karcie

10G15

now here's something here
now here are divisions there

M: The visions?
(She is confused because Galen says "de" for "the".)

yeah

M: The visions of what?

of the mat

M: Of who?

of the nat

M: Of the nat?

yeah

M: Who's that?

skunk sih wal bih dur
here's some some easy for you

M: Is that one easy for me?

yeah

M: Oh I need things that are easy thank you.

Not only was his mother not critical of the nonsense type of language usage, but she went so far, on one occasion, as to state that she really found it more enjoyable to read him library books which stressed the sounds of words rather than a story line. Much later it turned out that she herself, as a child, had never been exposed to fairy or fantasy tales and indeed was not familiar with any of these well-known stories. In the second Tape 6 example above, Galen is actually printing the letters he is naming, another precocious accomplishment he has.

David's mother, again choosing the opposite reaction, took all her son's meanings as seriously as he did, and, conversely, had a tendency to become annoyed or consider him silly if he used made-up words instead of the proper ones. Her attitude towards David's unconventional self-created expressions was much like Galen's mother's reaction when he lapsed into fantasy. She summarily switched the subject. David did not show any playful interest in the component sounds of words.

2D14

let's have this one long like that

...

long like --- mudulushin cars

M: Like what?

like a car car

M: Oh like a car car

(She is more pleased with this answer.)

10D10

this is gonna be a ---
(He makes a machine noise.)

M: What's that gonna be?

that's a doinsik

M: A what?

a doinsik

M: Oh I don't know what a doinsix is

oh it's a doinsix tractor goes doink
(He throws a piece in the air.)

M: Oh is that why you call it a doinsix?
(She is trying to make the best of his answer.)

yeah

M: Mm
(David makes a siren noise and bangs.)
Oh come on now you're just being silly.
Gonna build that caterpillar for me?
(It is unusual for her to be so directive.)

It was clear as one watched both dyads that the approval and disapproval reactions of the mothers was, as the literature suggests, not primarily focussed on language acquisition itself. What was being witnessed was a concern, held in common by mothers of children this age, that the child conform in his social behaviour to the pattern considered by the adults around him to be desirable. The fact that the two mothers held opposite notions of what constituted good outcomes explains the very different pressures they placed on their children, but the underlying impetus in both cases was the socialization of the child. And it was the effect of socialization practices as well as language practices per se, that showed up in the children's responses. This facet of language acquisition is pursued in the data appendices and deals with the acceptability of baby talk in the two households (Appendix 26); the acquisition of specific lexical items such as interjections and prefaces (Appendix 27) and verbs (Appendix 28); the particular choices

made for Informative₂ paradigm slots (Appendix 28); and how questions function within the family group (Appendix 29).

CHAPTER TEN

Environmental Access to Language

Different Mothers - Different Modes

In this concluding chapter the focus returns to the influence the adult model can be expected to play on the young child's acquisition of language. What has come to the fore over and over again during the course of this thesis is that the two mothers in the study displayed very different conversational characteristics both in speech delivery and language function, to the point of being at contrasting ends of the spectrum in most specifics. Observations made during this investigation do not support the body of literature which represents "Motherese" as facilitative merely because it is structurally simple. Nor can simplicity and redundancy as defined in this thesis be assumed to have uniform features across a population of mothers. This conclusion has been amply indicated in the chapters on repetitiveness and mother teaching styles (See Chapters Four and Five) but the differences between the two mothers' demonstrations of language bear repeating briefly.

With few exceptions, when speaking to her young son, Galen's mother spoke very simply, clearly, and slowly, using simple sentences well demarcated by pauses. Galen responded to these characteristics of the stimulus by being clearly audible at all times, enunciating consonants carefully, and generally speaking in rather measured tones. Both mother and child increased their speech rate markedly while reading aloud,

thereby decreasing the preciseness with which they spoke. The fact that congruence between the two obtained in the case of rapid as well as slow-paced speech confirmed the premise that Galen was quite capable of reproducing variations in the prosodic features of his mother's speech. The situation dictated the choice of pace chosen by the mother; the child modelled the pace demonstrated as appropriate to the situation. His sentence construction was also generally like that of his mother: simple, correct, and complete, except that in the reading aloud or "recitation" situation functors would occasionally drop out, producing what has been called telegraphic speech (e.g. Brown, 1973). His memorized sentences were longer and more complicated structurally than his spontaneous speech during conversation.

David's mother's speech presented anything but a pattern that was easy to follow. Typically it was fast, full of elisions, and multi-clausal. She used pauses for dramatic effect rather than strictly for syntactic demarcation. This was reflected in David's use of phrasal rather than sentence groupings and his preoccupation with pressing on to further details in his play sequences. He exhibited none of Galen's methodical persistence; instead he attempted to encompass all aspects of each situation, showing considerable impatience and frustration when he could not cope with materials or the interaction. The two mothers were evidently demonstrating how to pay attention to something as well as modelling in their speech how to talk about a particular topic. Language choices were seen to depend on the value systems being fostered by the adults, a fact which helps to explain why mother traits were not consistent across all situations. For instance, Galen's parents, who consistently tried to match with their language what they perceived to be

Galen's childlike level of performance, carefully avoided, however, the use of diminutives in general, whereas David's parents, on the other hand, chose to make baby talk their only concession to toddler immaturity. It is very unlikely, then, that any common range of simplicity factors exists across the adult population. Idiosyncratic pragmatic nurtural choice will be a large factor in the adult model. Alternately, it has been suggested (See Chapters Eight and Nine) that functional aspects take precedence universally in what is presented to children.

As with simplicity, so with repetition. Galen's mother spoke more repetitively as well as more simply, but the real difference was that the two mothers used repetition in quite different ways, as did their children. For instance, Galen was much more repetitious overall than David and so was his mother more repetitious than David's mother. Galen's mother repeated herself and Galen repeated his mother a great deal. David's mother did not repeat herself as noticeably, nor did David constantly repeat his mother, although his self-repetition rate increased slightly rather than diminished over the year. The greatest use of child repetition by David's parents was in repeating something David had said, as a type of commendation. David did not as a rule repeat his mother's comments spontaneously as part of the general conversational strategy seemingly, to this investigator, because it was not appropriate in this mother-child relationship for him to encourage her. However, he did respond to any overt cue that his mother expected him to repeat a particular word. This was a test or practice routine carefully managed between them and it corresponded to Galen's completion technique. Galen's mother did not repeat his utterances

unless she was challenging his veracity. Galen repeated both her comments and his own as a general conversational strategy, apparently a way to advance the interchange (be it ever so slowly). A capacity to echo was common to both boys but was environmentally nurtured only in Galen's case. Instead of repetition, David's mother used expatiation and David followed the same practice.

It cannot be overemphasized that input factors carried the most weight in delimiting the child's response in each instance. Depending on how the mother had chosen to frame her customary comments, each child's replies at first followed the pattern, staying largely within preset lexical and syntactic parameters. This imitative trait, however, was nowhere more noticeable than in the kind of tonal expressiveness adopted by each child. David's pauses and breath groups, like his mother's, were adjuncts to the dramatic elements in their episodic play. David's speech did not fall into complete statements with neat endings as did Galen's. Rather it consisted of long series of concatenated phrases and his rate of delivery would speed up and slow down to match the current action. Similarly he would change pitch to incorporate changes of mood and emotion. He could be very expressive tonally; all this he had demonstrably absorbed from hearing his mother's full range of intonational variation. Not so Galen. Variations in speech rate and intonation were generally lacking in his voice unless he had been playing recently with his more volatile cousin. The steady even beat of his mother's voice was characteristic of his as well, except for the one occasion during the "reading" session when both Galen and his mother used an identical exaggerated narrative style. Of course this strong mother-to-child effect abates with the years and

with the child's increasing association with a peer group. And unless the mother is the constant companion of the child this strong mother-child effect will not appear to the same extent in the first place. When David's younger brother, Gabriel, was between 2 and 3 years of age it was his older siblings' pitch variations and recurrent standard expressions rather than his mother's that were heard in his speech. But the environment in every case can be expected to provide a pattern of intonational use that is unique to the family's own situation.

The claim throughout the thesis has been that the process of learning particular lexical items and sentences is one of initial assimilative response with later re-evocation due to a similarity of circumstances. Each evocation may be likened to a flash flood which finds and flows through a previously used water channel, a channel which between floods has been perfectly dry. In other words, if the situation offers sufficiently salient input, child speech at this level of operation may be considered an inevitable and particular reaction. The verbal echo, in the first instance, is an echo of some perceived sound saliency; the original sound pattern is set in motion again by a similarity of circumstance, presumably through a flash of feeling or a sense of situational identification on the part of the child. Thus anything said within the child's hearing, providing that the stimulus is strongly perceived, either physically, as through loudness, or emotionally by being connected with desire gratification, may give rise to the echo phenomenon. If in future studies the description of this process turns out to be confirmed as validated and universal, and not confined to the two children in this study, many

seemingly precocious child statements can clearly and easily be accounted for. An even more linguistically interesting idea is that a replay capacity on the part of young children may be the essence of the so-called sensitive or critical period. (Montessori, 1959; Hunt, 1961).

Pragmatic Shaping

As work progressed on the thesis, the data revealed that the two children were learning to use in their conversations the same lexical items and syntactic structures insofar as the two mothers presented the same vocabulary and sentence patterns. In the analysis of all the sentences spoken by the two children, only a relatively small set of sentence frames occurred, (See Chapter Seven) and by far the most prominent were those that could be fitted into the functional categories of Ostension and Informativeness. "That's a _____", "it's a _____", "there's a _____" plus "see the _____", "look at the _____", and "what's that?" formed the Ostensive group. There were three sentence frames basic to the Informative function. The first was a Bridging Form using the word goes, the second was Noun plus Copula plus Present Progressive, and the third was Pronoun plus Intention to do, to have, or to go. Imperative plus it was frequent. Another sentence frame common to the two children was Pronoun plus Past Tense of catastrophe verbs such as break and fall. Both Ostensive and Informative utterance was characterized by strong situational links. Occasionally a complete SVO pattern was used, the early examples of which employed Pronoun rather than Noun subjects and verbs such as want rather than Transitive Action Verbs. Self-initiated novel

sentences were very rare and usually indicated that a transfer into dissociation from the situation had been effected; often, grammatical errors or anomalies were exhibited in such sentences.

Two questions then arose: why were the two mothers introducing sentence forms that were so similar and why were these same few expressions, and not others, the statements that the children found easy to acquire? On the assumption that the answer would lie very largely in the situation, a search was made for categories of language function to describe broad areas of usage that the mothers and children employed. This assumption, of course, is linguistically in an extensive relation to the fact that adult speakers of a language have generally-used, favourite sentence patterns (Bloomfield, 1933, pp. 170-177). How Peirce's concepts of the icon, the index, and the symbol were transformed into the ordered categories of Ostension (O), Informativeness (I), and Predication (P) linked by Bridging Forms has been dealt with at length in Chapter Six. The results of that classification process indicated that the children gradually became more proficient in language expression in an O-I-P order. This is not to say that Informativeness and Predication were not present from the beginning, but rather that the slowest evolutive progress over the period was made in the area of developing Predication, and that Ostension, which predominated at first, gave way during the year to Informativeness. The results have been interpreted as an indication that 2 to 3-year-olds use parallel talk, like parallel play, more readily than reciprocal communication. It would appear that the young child speaks most easily and spontaneously when remarking on iconic elements in the situation that are being noticed. A second skill, that of verbally accompanying the occurrence

of action in the situation, is also readily acquired. Talk that refers in a more general nonspecific way to the child's concepts of his own and others' perceptions and actions is very little evidenced before the age of 3. It is speculated that the nature of the gap between Informative and Predicative speech is qualitatively different than the nature of the gap between Informative and Ostensive speech. Ostension is seen to result in Informativeness through the operation of paradigmatic and syntagmatic processes, but Predication appears to involve the child's inclusion of at least a minimal awareness of self and thought.

To regard early language acquisition as situationally inspired proved to be a valuable working hypothesis in assessing the conversation of the 2-year-olds in this study, but it was not particularly illuminating in relation to the equally important question of what it is that the young child is able to understand. If language were simply a matter of phatic communication, then the acquisition of stock phrases would be the sum total of learning required. Obviously, something else enters the process of learning how to carry meaning in cases where the link to concrete situations is broken. Consideration of this point clearly demonstrates the serious lack of explanatory power in both linguistic and psychological theories of language acquisition which makes it extremely difficult to proceed in the description beyond speculation. Literature dealing with thought and cognition attempts to bring just such an alternate focus to language study. Vygotsky (1962) envisioned speech and thought as having different genetic roots. At some point, probably between 2 and 3 years old, these two streams begin to merge but never completely; there is, even in adulthood,

speech without thought and thought without speech. In the Piagetian conception of states of mental functioning antecedent to formal reasoning, language corollaries are not spelled out but many researchers (e.g., Sinclair-De Swart, 1967) are currently attempting to establish stage correspondences between cognition and language acquisition. In the present study an effort was made to combine the situational and the developmental by using categories based on C.S. Peirce's epistemological concepts of Firstness, Secondness, and Thirdness as displayed in the icon, the index, and the symbol. The functions of Ostension, Informativeness, and Predication have been related to what the child is able to use of that which is given in the adult's speech, and also to what the child understands of the world. The practical progression from parroted to patterned to personal speech has its corollary in a developmental and cognitive sequence which moves from the holistic orienting forms associated with Ostension, to the paradigmatic segmenting skills of Informativeness, and finally to the syntactic constructional synthesis of mature Predication. The child is advancing in ways to view the world, in developing a *Weltanschauung*; at each stage of development the child's language skill is both pragmatically shaped and limited. It is the need to use language to express a new kind of understanding that requires skill in language usage to develop. To the extent that the favoured constructions the mothers use for beginning language functions are similar, the developmental limit on understanding at each stage introduces similarity of syntax across an age population. The acquisition of language proceeds in a functional order which in this instance has been postulated to be from Ostension to Informativeness to Predication.

One persistent difficulty in conceptualizing the process of child language acquisition has been its traditional link to the nature-nurture controversy. Lest this piece of research be used to support a purely behavioural position (which it clearly does not if all sections are kept in balance) a composite view is proposed. When one looks at the echo phenomenon in early child speech, the stimulus-response dynamic underlying it is clear. Without bringing into play a reflex-like predilection for speech imitation it would be impossible for language acquisition to begin as early as it does. Beginning language is, however, quite different in terms of the internal relationships of its functions from its end product, adult language. A later, hierarchic form of functioning is indicated to accommodate the fact that speech and language become increasingly intentional and more complex in syntactic organization in order that the speaker be able to express idea relations. In this regard, the biological perspective advocated by Lenneberg (1964, 1967, 1975) is very promising. Similarly, information from the field of neurolinguistics, in which aphasia studies provide some support for the combination of brain localization and association theories of language production, (Jacobson, 1975; Lecours, 1975; Lecours & Rouillon, 1976; Rubens, 1975; Wada, Clarke, & Hamm, 1975) will no doubt eventually prove illuminating. Luria's studies (1966, 1970, 1973, 1974, 1977) actively advocate a hierarchic view of brain functioning which may one day be found to be congruent with the postulated concept of hierarchical language functioning. However, the facts required to support a theoretical position linking child language learning with the concept of ontogenetic changes peculiar to the human brain, are, at present, largely unavailable (but see Jason Brown, 1975, 1976, 1977;

Milner, 1967, 1976; Patel, 1976; Whitaker, 1971; Whitaker & Whitaker, 1976). Were they available it is doubtful that the mind-body dichotomy would disappear entirely (Penfield, 1970). Thus, by all accounts a theoretical basis for the explanation of early child language acquisition is still lacking.

The practical solution adopted in this study to this problem of inadequate theory of child language acquisition was to operate within a pragmatic classification system using the categories of language function extrapolated from Peirce. In this classification, a child's first labelling utterances are considered to be expressions of Firstness or iconicity. The child notices and draws attention to the existence of things present in the environment by, as it were, marking them verbally. According to this view, first words and phrases do not refer to mental representations held by the child; they express qualities of feeling that the child is experiencing. In the kind of speech that accompanies children's play, an indexical quality of Secondness supersedes simple labelling. Subjects and objects are used in accounts of the actual action taking place; a verbal element enters to describe what is happening. Language used symbolically to represent the mental images that the child holds is claimed to be imbued with Thirdness or generality. The extra-situational use of language is dependent on language operating symbolically. Early child language is therefore not considered to be absolutely identical with adult language in what it represents. The pragmatic classification system that evolved during the course of the study was a product of insights from the work of Firth (1957), Malinowski (1965), and Piaget (Flavell, 1963), in addition to the basic ideas gleaned from Peirce's philosophy. Firth

developed his ideas of "context-of-situation" from the sociological writings of Malinowski who wrote extensively about the patterns of marketing and gardening speech used by Trobrianders. Piaget's work permeates all modern thinking on young children's mental functioning. In the present instance, his ideas of object permanence, syncretism, and the child's gradual release from "egocentricity" are intrinsic to the concept of development presented. Finally, de Saussure's (1959) more precise formulation of the concept of the sign was found extremely useful. The final delineation of the O-I-P pragmatic classification system involved a practically and theoretically justified synthesis of these ideas.

The value of the O-I-P classification system lies in its particular usefulness in the field of early childhood education, and also in all disciplines concerned with matters of child language acquisition. In education, it should prove valuable in assessing child language status in the kindergarten and primary grades and make it possible for educators to focus on the development of language beyond the level shown in the results of this study to be common by 3 years of age. In psychology, it is expected to prove to be an addition to developmental stage theory, but claims in this respect need further empirical investigation. In linguistics, the pragmatic O-I-P classification will hopefully illuminate phonetic, syntactic, and semantic function acquisition in a new way. Whether the study can be replicated in languages other than English, or whether it has any relevance for second language learning at any level remains to be investigated. Its benefits may, in the long run, be greatest in sociological terms if it serves in any way as a means of establishing effective teaching

materials that help in correcting the language disadvantage currently characterizing children from poverty backgrounds.

An Environmental Access Hypothesis

The influence of environmental input, after Psammetichus' time, was acknowledged to extend at least to the fact that, on the basis of input, every child learns a particular language with whatever distinctive regional accent his or her chief caretakers employ. The thrust of this study has been to investigate whether any more than sound aspects might be regarded as a direct carryover from the adult model into the child's production. The thesis has summarized the effects and lack of effects that were observable. Influences were many and in all areas: phonetic (segmented and prosodic), lexical, grammatical, semantic, and pragmatic, tempered only by the child's growing capacity for physical and cognitive functioning. Given that, in the case of a healthy child, biological functioning is such that language will be learned, (Lenneberg, 1967), the difference in language performance that occurs from child to child must be, to a wider and different extent than presently realized, environmentally induced. Observation during the course of this study has suggested that what the environment in each case provided was a specific type of access to the language. In daily experience no child meets exactly the same uses and instances of language. Therefore, the precise course of language development will necessarily be to some degree and in some manner unique for each. The level of language competence the child achieves is inevitably bound to relate to what has been provided by environmental opportunity or lack of opportunity.

In this study each child's access to his native language was as different as the environment in which he lived. From the language usage patterns he encountered he found out what language was and the purposes for which it was used. We need to switch our initial concern from the premature search for what is common ("universal") in child language acquisition to what the actual parameters of language learning are in each case. With that knowledge we could begin to work toward eliminating artificial restrictions, filling outstanding gaps, and generally broadening and enriching the functional basis of the language to which each child is exposed. With function comes structural variety; but underlying every facet of the course of each child's language progress is the adult pattern to which he or she is paying attention. The simplicity-redundancy theory is a descriptive-theoretic panacea; the range of language expression and usage in the home is the over-riding feature. Biologically, the child has no recourse but to assimilate and reproduce what is given.

Both children's language progress by 6 years of age was very satisfactory according to clinical tests. Different language facets emerged. Each had the advantages of his own mother's style of conversing as well as the disadvantages of limited exposure to the other mother's style. Familiarity with different language situations has since continued to influence both the lexical content and the syntactic stereotyping of each child's conversation. At the latest testing, David's language at 6 years 5 months was somewhat less advanced than Galen's but this result may have been precipitated by his participation for the last two years in second language French immersion classes. Galen at the same point in time had the higher overall I.Q. score, not

because his language was appreciably better than David's, but because he showed a greater knowledge of early reading and arithmetic skills, which is not surprising in view of his mother's preference for a logical-literal approach. Knowing the children's backgrounds, one is much less complacent about attributing achievements to inherent capacities. Environmental bias is clearly too coincidental and strong to be dismissed.

It was expected at the beginning of the study that whereas some facets of the mothers' language usage would emerge as clearly facilitative and hence desirable, others would be identifiable as definite hindrances to the child's early learning of language. What was being sought was a definitive picture of good adult input. But instead of simple profiles of adults as good or poor language partners, what emerged was the fact that each child was using whatever was being provided by way of auditory stimulus and pattern for the purpose of establishing a vocal repertoire of his own. Language as it was used in the environment became directly what was acquired by each child. Both similarities and differences in actual speech production were traceable to aspects of input that were or were not present in their respective homes. Input, in and of itself, will not be classifiable as desirable or undesirable until firm criteria for excellence have been agreed upon and commonly adopted. Certainly such criteria already exist sociologically as group norms and requirements, but the superiority value, per se, of one kind of production over another, or of one group's production over another group's is a practical not a moral value. An hypothesis of difference, not deficit, is current. It is suggested here that perhaps an emphasis on the functional aspects of language will serve

eventually to define the problem as one of acquiring skills at different levels of language use.

From the study observations came the recognition that it is at a lowest common denominator level of experience with and use of language that the acquisition of language may be regarded as a universal, indeed unexcepted, normal human accomplishment. In order for the child to reach a high functional level of language competence what really counts is the extent or range of language that the child encounters in interchanges with his parents. The sounds of the language which he or she is by nature programmed to echo, plus understandable contexts to which to relate them make the basic language stages easy, indeed inevitable. However, teleologically, language comes to be more than an accompaniment to experience; it must in itself operate as experience. During the year between the ages of 24 and 36 months each of the two subjects began to speak extra-situationally, i.e., Predicatively. A question remains about this area of development. What environmental stimulation is required for it to flourish optimally, and what constitutes sufficient encouragement to achieve this goal? This seems to the author to be the next pertinent concern for linguistic, psychological, sociological and educational investigations into the language acquisition process. On that note this inquiry into the adult role rests.

The environmental access hypothesis put forward in this thesis is based on a reorientation of child language acquisition theory to accommodate the actual observational data of a year's study of two 2-year-old children. Although it is not new to propose that environmental input shapes children's language learning, the particular lines of investigation taken and some of the methods employed in the study

are novel since they were developed to measure and compare the emerging language skills of the subjects. An examination of the repetitiveness of the two mother-child pairs revealed an echo phenomenon that operated to give the children early prosodic access to words, phrases, and sentences that were repeatedly used and/or salient in the child's environment. The overall finding was that, between 2 and 3 years of age, the two boys were similar to their mothers in factors related to sound production and general stylistic conversational factors and similar to each other in their use of a small core of sentence frames and lexical items. Amount of repetition, rate of speech delivery, and the predominance of either rising or falling pitch patterns at the ends of sentences were all found to be more similar within mother-child pairs than between mothers or between children, or between each mother and the child from the other dyad. Investigation into the shared syntactic characteristics of the children's speech resulted in the development of a descriptively adequate, well-motivated modification of Peirce's general categories to fit the particular form of the data. The original contribution of the thesis consists of its demonstration of the relationship between pragmatic-situational parameters and language development in the context of mother-child linguistic interplay. The result is a clear presentation and exegesis of what are particular and shared linguistic developments in the two children.

Recommendation for Futher Research

The intention of this thesis has been through rationally pragmatic modifications and synthesis of available concepts to view the issues about child language acquisition in new and deeper ways. On

a general level, the conclusion has been reached that several reorientations will be necessary before more productive lines of research can be established. One is that the whole question of heredity versus environment needs to be recast as the problem of ensuring a developmental match. Another is that mother speech practices of simplicity and redundancy, though probably facilitative to a degree, do not explain how it is that child language becomes progressively more complex. The third is that norms or statistical confirmation in the field of education do not give answers to instructional problems. The time has come to move beyond test results and start in earnest to supplant educational prescription with effective practice. We are only at the edge of understanding why what happens in child language acquisition does happen. In this study, a hierarchical functioning of Ostensive, Informative, and Predicative language involving Bridging Forms has been formulated. A distinction has been made between stereotyped and creative modes of language, the former a replay type supported by sound factors, and the latter a compositional type motivated by the intention to mean. Language learning has been conceptualized as the gradual incorporation of iconic and indexical functioning into mature symbolic expression. It is a framework within which a great deal of effective research can be achieved.

In terms of specific lines of investigation, each chapter and each appendix has been compiled by pulling together data that begin to frame what some of the definitive questions might be. The first focus, on sound qualities that have carried over from mother to child, motivated the hypothesis that an echo phenomenon exists that makes initial acquisition a matter of course. This conjecture needs corroboration through many more case studies of the language progress of individual children.

Firm answers need to be found to such questions as the following:

1. To what extent do all children show a degree of unconscious echoing of the language spoken within their hearing?
2. Over a large population, does the percentage of conversational turns containing repetition lie within the parameters established by these two children or is there commonly a wider or narrower range?
3. Are there phonetic or social speech interaction characteristics displayed by adults that regularly inhibit or enhance a child's use of repetition and imitation?
4. Is any set of such factors general across a mother (adult) population or are mothers (adults) as individual as this study seems to indicate?
5. What, if any, salience factors in adult voices evoke echoed and imitated responses in children generally?
6. Which mother voice qualities most consistently trigger her own child's repetitiveness? Does her voice have the same effects on children outside the family?

The claim that early, basic, syntactic patterns accrue through familiarity is a second area in which a great deal of follow-up research might be undertaken at a number of age levels. It is conceivable that the persistence of nonstandard English in many segments of the population may one day be related to its acquisition during less volitional stages of brain functioning. Admittedly it would be a major reorientation to allow that early child language has as strong a nonvolitional basis as described in this thesis. However, in the attempt to confirm or deny such a hypothesis, the range of syntactic frames appearing each year from ages 1 to 7 might become even more categorically

delineatable. Thus, research using subjects younger than the children in this study should reveal whether ostension really is the first pragmatic function to emerge. Also, the validity of the claim that Ostension is superseded by Informativeness in the third year of life must be examined more extensively. The perceived shift from Ostensive to Informative to Predicative paradigms via Bridging Devices needs testing in languages other than English if it is to be demonstrated to have universal value. From the observations made in this study, it appears that the child's syntax consists of a set of patterns which may be rule-related in constituency and not to any great extent transformationally. When and how rote usage is subordinated to creative composition is a problem whose solution is urgently required.

A third area recommended for further investigation centers around the study finding that the speech of the two subjects between 2 and 3 years old showed barely a trace of language that could be called Predicative in the sense of voluntarily expressing a thought or referring to an internal representation. Speech at this early age was therefore pictured as a form of language that is a direct spinoff from modelling or a consequence of adapting well-known expressions to the exigencies of concrete situations. Two conclusions followed: first that the distinctive speech manifestations of the age under consideration be interpreted as typical of immature physical functioning, and second, that the period of language acquisition extends beyond preschool age. Just as the child's walking gait changes drastically from age 1 to 7, so do the speech patterns it is possible for young children to project. Due to general developmental limitations, 2-year-olds do not have the capacity to transmit much beyond a situational use of words. In short,

what needs investigation is whether language is as much a "fait accompli" during early childhood as was commonly believed after the transformational school came into prominence. (McNeill, 1966)

There are indications in the study that an occasional leap into Predication may be made by 2½ year-old children but that Predication proper proliferates extremely slowly. A great deal of painstaking documentation of the language of children of all ages will be needed to establish exactly what potentials there are for the development of intentional, creative, truly symbolic, verbal communication at succeeding developmental stages. Questions such as the following are primary: What types of activity and experience need to be provided by the family and within society to allow maximum facility in Predication to develop? Are deficiencies in the ability to function Predicately reflected in poor academic achievement? If so, answers to such issues can, for example, help improve educational practices in the teaching of language and in the preparation of optimal linguistic materials. Then there is the whole question of the child's developing sense of self. With the establishment of relationships between a child's facility with language and sense of selfhood and consciousness, the emphasis in early childhood education would change markedly in the direction of greater individual nurturance within a richer language environment.

What needs to engage the attention of all adults concerned with the education of children, and most particularly parents and teachers, is a more careful analysis of what the individual child listens to, can tolerate, and can convert into learning. It is pointless to talk merely about the language development of children without noting carefully the content of the environmental input each one receives. In this study three main points have been made: that beginning language learning is supported by an echo phenomenon; that familiarity provides matrix

sentence frames and lexical items; and that, developmentally, young children are further along in mastering the Ostensive and Informative aspects of language arising in actual situations than they are in handling the truly symbolic nature language assumes when it is used in the absence of concrete situational parallels. The overall conclusion is that access to learning the language is largely environmental within the context of given biological propensities and, in the case of the younger members of society, the influence of attending and responding adults is primary.

LIST OF DATA APPENDICES

Appendix 1 - Repetition Frequency Tables	273
Appendix 2 - Galen Repeats Both Sides of a Dialogue	276
Appendix 3 - Galen Repeats Himself and Adults	277
Appendix 4 - Galen's Rote Reading of a Storybook	285
Appendix 5 - David Repeats Himself and Adults	294
Appendix 6 - David's Delayed Repetition	299
Appendix 7 - More About the Echo Phenomenon	301
Appendix 8 - Terminal Pitch Pattern Table	305
Appendix 9 - Prosodic Beginnings	307
Appendix 10 - Galen's Mother's Cueing Strategy	309
Appendix 11 - David's Mother's Elicitation Technique	313
Appendix 12 - Ostension on Tape 1	323
Appendix 13 - Further Examples of Ostension	338
Appendix 14 - "Goes" as a Bridge to Informative Function	341
Appendix 15 - Examples of Informative ₁ Speech	346
Appendix 16 - Examples of Informative ₂ Speech	349
Appendix 17 - Predicative Function	363
Appendix 18 - Tabulated Results of O-I-P Function	372
Appendix 19 - David's Tape 2 Speech	376
Appendix 20 - Slots and Strings.....	382
Appendix 21 - Length of Utterance Table	389
Appendix 22 - Uncertain Meanings of Locatives	392
Appendix 23 - The Use of "Back" in Both Boys' Tapes	395

LIST OF DATA APPENDICES (cont'd)

Appendix 24 - Causal Relations and the Word "Because"	404
Appendix 25 - Antonym Confusion	409
Appendix 26 - Baby Talk	412
Appendix 27 - Specific Lexical Biases	417
Appendix 28 - Different Informative ₂ Verb Choices	424
Appendix 29 - Preferred Mother Modes	428

APPENDIX I

Repetition Frequency Tables

Table I

Child Repetition Frequencies

David/
Galen

Tape Number	1	2	3	4	5	6	7	8	9	10	11	12
Total Turns	192/ /113	138/ /46	68/ /138	87/ /140	184/ /288	95/ /166	158/ /169	150/ /188	134/ /179	155/ /213	166/ /253	256/ /149
R Turns with Repetition of Mother	50/ /21	12/ /14	4/ /20	12/ /29	29/ /42	10/ /21	4/ /21	10/ /15	4/ /19	3/ /18	15/ /63	68/ /55
SR Turns with Self Repetition	24/ /50	42/ /17	15/ /40	9/ /37	14/ /74	13/ /31	12/ /14	22/ /30	28/ /28	15/ /33	15/ /44	11/ /32
Total Turns with Repetition	74/ /71	54/ /31	19/ /60	21/ /66	43/ /116	23/ /52	16/ /35	32/ /45	32/ /47	18/ /51	30/ /107	79/ /92

Table 2

Tape Number	Mother Repetition Frequencies						David's Mother/ /Galen's Mother					
	1	2	3	4	5	6	7	8	9	10	11	12
Total Turns	202/ /109	157/ /55	185/ /142	96/ /124	270/ /282	143/ /179	170/ /195	175/ /193	141/ /198	172/ /220	180/ /225	295/ /245
CM Turns with Repetition of Child	26/ /13	27/ /2	3/ /10	22/ /2	5/ /20	7/ /23	26/ /14	16/ /11	17/ /11	9/ /20	7/ /11	19/ /6
MM Turns with Self Repetition	25/ /18	13/ /15	31/ /24	12/ /20	11/ /39	17/ /25	6/ /22	20/ /7	14/ /15	16/ /10	6/ /37	26/ /44
Total Turns with Repetition	51/ /31	40/ /17	34/ /34	34/ /22	16/ /59	24/ /48	32/ /36	36/ /18	31/ /26	25/ /30	13/ /48	45/ /50

APPENDIX 2

Galen Repeats Both Sides of a Dialogue

On Tape 1 Galen and his mother are playing a picture and word-matching game in which the word that goes with the picture is printed on a separate strip that fits into the bottom of the appropriate picture, i.e., if the piece fits, it is the right word, as in a jig-saw puzzle. Emerging from the requirements of the game itself are word patterns based on the search for the missing pieces. These stereotyped sentences form the core of the mother-child dialogue. Galen's mother directs the search by asking such questions as "what's that?", "where's the truck?" and "can you find the word car?" and Galen is able to use appropriate replies such as "that's a motorcycle", "there's a truck", "I can't find it", and "I found it". When he begins to both ask the question and give the reply, the rote character of his utterances is revealed. This is the first clue as to the kind of language practice that this mother-child pair has worked out between themselves. What to say has become, by constant recurrence, a formula. The following speech of Galen's is taken from a single turn.

1G3-4

find the word train
 find the word train
 find the word train
 there's the word train Galen
 there's the word train Galen
 there's the word train Galen
 find the car
 I found it

This is the only type of repetition that drops out of the tapes as time goes on.

APPENDIX 3

Galen Repeats Himself and Adults

A few adult repetition examples from each tape are included. There are very many more.

1G7

M: You think it's under the fridge.
I'll look.

I yook

M: I see cars under there.

I see cars under there

1G8

M: Mummy will look for it.

mummy will look for it

1G10

M: Or you can make a train.

make a train

M: Well you make a train then.

--- make a train

M: Okay you make a train out of your cars.

2G1

F: I'm pumping up the tire.
Pumping up the tire

pumping up a tire

2G10

F: Yes I hear some robins.

I heh m some robins

3G6

M: We should move our road shouldn't we?

shouldn't we

M: Yeah

shouldn't we

3G14

M: It's a ferry boat.

it's a fewwy boat

3G18

F: Your elephant could knock the fence over.
He's so big.

he's so big

3G24

F: Now you can load it over here.

I can load it over here
now I can load it over here

4G21

L: Onto the power pack

onto the power pack

4G22

M: Can you go around the chair and get it or are you going to go under
the chair and get it?

can go under the chair and get it

4G22

M: You'd like to glue it on wouldn't you so it would stay on.

would 't stay on

4G23

M: Bingo was his name oh.

Bing was his na go was his name oh

5G7

M: On this clock here

on this clock

5G10

M: We have one more piece to put in.

we have one more piece ____

M: What is that?

we have one more piece to put in

5G13

M: I always figure the head goes down there.

head goes down there

5G14

M: I think that goes over here.

no goes over here

5G14

M: And that's a pineapple and that's a pear

that's a pineapple and that's a pear

6G12

M: I see a little line.

see a little line

6G19

M: Or did you want to do something else?

do you want to do something else

6G23

M: Looks like a goose

looks like a goose

7G1

F: What does it look like?

what look like

7G13

F: That's the back of the motorcycle.

that's the back of the motorcycle

7G22

M: I wanna see what's underneath it.

I don't know what's underneath it

7G26

M: Noone's in the holes.
They're empty.

they're empty

8G2

M: It's just a picture on the block.

just a picture on a block (a question)

8G8

M: What's that called?
Is that called a microphone?

that's called a microphone

9G1

F: We need the long ones.

need the long ones

9G5

wha're those called (a question)

F: Those are called building blocks.

building blocks (a question)

F: Yes

those are called building blocks Lois

9G8

F: A picnic area

a picnic area

10G3

M: Let's see can we?

uh can we

10G12

M: "Oh", she says.
"My goodness."
"It's so high."

does she say "my goodness"
(same breathless voice as mother)

10G22

M: Let's make our road a little bigger over here.

a little bigger (a question)

M: Mhm

So when the cars turn the corners they don't fall off.

when the cars turn the corners

1163

M: Lets' see.

let's see

1165

M: That's a right-angled corner.

yeah a right-angled corner

1169

L: Oh you've got three of them

three of them

11610

M: Do we need to build a place where they can get some gasoline?

yeah a place where they

11610

M: 'N' there's the pumps.

pumps

11612

M: We'll make it wide then.

Okay?

wide (a question)

11613

M: Ooh it could be um a tower.

oh it could be

11617

M: That's not a very stable bridge.

We'll have to call that London Bridge is falling down.

w we will have to call that London Bridge
is falling down

11628

M: I'll take this post.

and I'll take this post

11G32

M: I'll pick up this pillar.

and I'll pick up this pillar

11G32

M: Rush to the train accident.

rush to the train axigent (hard g)

11G32

M: Watch out for London Bridge.
It'll fall down.

watch out for London Bridge

11G33

M: We are here to fix you up.

we are here to fix you up

12G3

M: That's better.

that's better

12G13

M: Well that looks like a likely spot for it.

--- spot

12G15

M: Do you think that one maybe would go over there?

maybe that one would go up in there

12G24

M: Then what does the littlepig do?

then what does the little pig do

12G25

M: Whose house does he go to then?

then

12G29

M: What is it what's the water in?

what's the water in

12G31

L: He opened the door for his brother.

his brother

12G32

M: It tells the story on the other side doesn't it?

tells the story on the other side

Galen repeats himself frequently, often three times.

1G11

here comes two cars
here comes two cars
two
here comes two cars

1G12

there's a volkswagen car
there's a volkswagen car
...
there's a volkswagen I see
where's a volkswagen
where's a volkswagen
where's a volkswagen right there
there's a volkswagen

1G13

what's that inside
what's that inside

1G14

I got two trucks
I got two trucks

2G2

I gotta bulldozer
I gotta bulldozer

3G8

the cars are under the bridge
the cars are under the bridge

4G2

where's a coach and a mail car
where's a coach and a mail car

4G17

says the cloud
oud oud oud
...
oud oud oud

5G2

lookit all the puzzles mum
lookit all the puzzles

5G15

I guess it's a _____
I guess it's a _____
I guess it's a _____
I guess it's a thing

5G18 where's fawn
 where's a fawn
 where the fawn
 ...
 where's a fawn
 ...
 wh wh where's the fawn

5G19 I can't see it any more
 can't see it any more
 can't see it any more

6G8 a letter on a rabbit
 a letter on a
 ...
 a letter on a rabbit

7G12 where's the motorcycle gonna go
 where's the motorcycle gonna go

8G5 that's his high chair
 ...
 that's his high chair
 ...
 they're all there
 they're all in there

9G4 where can this go
 where can this go
 ...
 where can this go
 where can it go
 (repeated many more times- a formula)

10G21 there go trucks in there
 there go trucks in there

11G4 look at all the bridges
 look at all the bridges

11G13 we could play with this one
 we could play with this

12G25

M: Then what happens?
 You haven't finished the story yet.
 Then what happens?

 then what happens
 then what happens

APPENDIX 4

Galen's Rote Reading of a Storybook

On Tape 4, when Galen is just under 28 months old, he "reads" a 22 page Walt Disney storybook aloud. His reading is, of course, a rote recital of what his mother has read over and over to him. The peculiarity in the situation is the language of this particular book. Walt Disney picture books have a style all their own, one very far removed from Galen's own use of language at 2 and also quite different from the speech his mother used either with him or with another adult. Some of the differences are listed below:

1. Nearly all the verbs are in the past tense and some auxiliary combinations infrequent in conversation are used. Had, was, were, came, went, made, let, thought, saw, got, said, rode, spread, lived, raced, sat, found, marched, knocked, wrecked, looked, hopped, chugged, roared, answered, fumed, fussed, moved, pulled, stopped, rattled, parked, peeked, delivered, swung open, stoked up, were curled up, had put, has stolen, could go, can manage, did seem, didn't get.

2. Nouns are frequently modified with not one but two adjectives, and adverbs are also prolific: a new toy train, a shiny black engine, the toy engine's cab, a toy-sized tree, his little toy train, the two sad chipmunks, best toy train in the world, a real little train, all exactly chipmunk size, tiny bottles of milk, teeny loaves of bread, his fine toy train, much more fun, scarcely, probably, happily, slowly.

3. A variety of conjunctions is used to introduce subordinate clauses: "though", "when", "where", "what", "while". In addition, "and", "but", "because", and "so" are used to introduce clauses standing alone.

4. Reversal of usual word order: soon back they came; away they chugged. Also colloquialisms: it was a beauty; isn't that cute; came spang up against; that did seem too bad; this was a fix; that didn't get them anywhere; Donald Duck was mad; it isn't everyone can manage; as neat as could be.

None of these features seem to present any difficulties for Galen's performance, which must not, then, be one of syntactic complexity but of phonetic repetition. It can be accounted for only if one grants the possibility of a totally prosodic technique being available at this point in his development. In the following paragraphs specific features of this unprecedented feat will be discussed. The text of the storybook is presented in italics. Parenthesized excerpts indicate portions that were omitted in Galen's actual performance. Galen's substitutions appear in regular type.

Most clearly enunciated were the dramatic parts of the story, particularly the dialogue between the two chipmunks when they are faced with the dilemma of finding a new home.

4G4 *But what was this? The tree was gone! They could scarce(ly) believe their eyes.*

4G4 "No sir!" cried Dale. (Well this) that was a fix. Where could they live?

10G4 "Looks like fun." said Chip. "let's go for a ride!" said Dale.

10G11 So Chip and Dale walked inside.

These are the parts that have been said most rhythmically and with greatest

emphasis and expression by his mother. Galen repeats the dash and swing of the words with obvious pleasure.

Almost as clear are the main details of the story. While laying out his toy train in his back yard, Donald Duck has removed a life-sized tree which was in the way of the track, and replaced it with a toy tree, leaving the chipmunks nowhere to live. After a wild ride on the train, Chip and Dale settle down for a nap in one of the tiny houses in the toy village by the train station. This is where Donald, in his search for the train thieves, finally finds them. All ends well when he adopts them as his friends because they are just the right size to play with him and his toy train.

4G10 *So they hopped into the engine cab, which was just their size. They stoked up the little fire with a shovelful of coal. And away they chugged, down the track. They roared through the tunnels, up hill and down (dale) the hill. It was really (a) wonderful ride. Soon they came to the town, and they rang the engine bell and pulled on the brakes and stopped.*

4G11 *So Chip and Dale moved right in. But not far away (a) danger marched. It was Donald Duck. And Donald Duck was mad! "Someone has stolen my train," he fumed. "Best toy train in the world!" he fussed. "And it's probably wrecked by now."*

4G11 *Near the train he found tiny footprints, leading straight to (the) little house. Donald went to the window (and) peeked in.*

4G12 *"Well isn't that cute!" said Donald. "What's more, they're just the right size." So Donald made friends with Chip and Dale.*

4G12 *And he let them drive his fine toy train, while he rode on a coach behind. "It's much more fun," said Donald happily, "to play with folks who are just the right size."*

Each of the above excerpts is spoken without hesitation or pause and at a fast rate. The errors are minimal and of three types. First, there is the occasional omission or substitution of functors or morphemes, such as "and", "a", "the", and "ly" (shown in parentheses). Next, there is the

substitution of familiar for unfamiliar words as in "down the hill" for "down dale". In the previous set of examples "that" replaces "well this". Third, the word "they" (after "soon") is distorted and sounds like a reduplication of the syllable "de". The three-syllable words, "wonderful", "shovelful", "probably", "anywhere" and "happily" pose no problems and are well or over-articulated.

Unlike the examples in the previous section, this next list of utterance stretches, (which are the ones falling at the beginning and end of the story, as well as those that deal with the main action sequences), are neither short nor simple sentences. Apparently in this type of utterance there is little restriction on length. Nor is syntactic complexity a problem. In fact, the best analogy might be to say that the story has become one long song with the meaning of the words definitely subordinated to the overall melody. What has occurred is a convincing demonstration of the role of salience, that elusive quality, often mentioned as a factor in acquisition, but hardly measurable. When the two renditions, mother's and child's, are compared, they are rhythmically congruent.

- 4G6 - *Donald Duck had a new toy train in his back yard and it was a beauty, too. It had a shiny black engine and a coal car behind, where Donald rode. Because he was too big for the toy engine's cab.*
- 4G7 *Donald's train had a coach and a mail car and a red caboose, though none of his friends could go inside. Because it was a toy-sized train.*
- 4G4 *In its place Donald had put a toy-sized (tree) train just the size for his little toy train.*

But by no means are all Galen's "reading" utterances equally correctly rendered. What makes its appearance at this time in Galen's speech is the type of elision and approximation frequently to be found

in David's spontaneous conversation but almost never in Galen's. And once again the correspondence between the way his mother originally presented the story and Galen's rendition of it is striking. The parts that he elides or approximates are those which are not dramatic or crucial to the narrative. They are the very ones his mother has passed over lightly with little tonal highlighting or accenting. The degree of Galen's elision varies from the omission of single unaccented syllables to whole clauses elided to the point of non-intelligibility. However, except for two cases of skipping, discussed later in the text, all phrases and clauses have some form or realization, unless it is a word or so at the beginning of a sentence. This attention to the rhythm or beat of the input would tend to confirm the supposition that this prodigious feat is in the main a prosodic performance. Elision and omission examples follow:

4G3 *(One day) Donald was (laying) u-using some (new) tra train tracks (when he came) spang up against a a great big tree.*

"This will go have to go!" said Donald Duck. (It's much) mut too big for my toy train."

The words "one day" and "new" are omitted altogether. In the phrase "when he came" the consonants "w", "c", and "m" are the only intelligible parts. In "much", a "t" sound comes across in the "ch's" place. Also it can be noted that "for my toy" almost rhymes with "tomato". A few instances of this type of vowel distortion can be found in Galen's conversational speech as well.

4G3 *They were away (at the) time ing ga gathering nuts*

"At the" disappears, having been said by the mother in an unaccented or sotto voce manner. The extra "ing" and "ga" before "gathering" seem to be anticipatory.

4G11 *(It isn't everyone can manage) a real little train like that.*

The first clause is reduced to "ivica madge".

4G11. *(Just then he looked up and he saw) the train parked at the station (as) neat (as) could be.*

The only recognizable sounds in the parenthesized clause are the "k" in the middle and a "t" substitution for "s" in "saw".

4G12 *(Chip 'n' Dale were) curled up in bed, taking naps.*

There are no recognizable phonemes at the beginning of this sentence, even though the chipmunks' names are among the words most clearly pronounced at other places in the text.

4G12 *He (delivered tiny) bottles of milk (and) teeny loaves of bread.*

The only recognizable sound in the parenthesized phrase is the "d" of "delivered". Other instances of minor elisions are: what('s) more; in hi(s) backyard; b(l)ack; it (w)as (a) toy; an(sw)er(ed); in (that) the treetop wa(s) the cozy home.

Finally, there are a few cases of reduplication that sound a little stuttery. Most of them occur in one small stretch of the narrative. They appear below.

4G4 *"But it's not big enough up dup for a home for us," cried Chip.*

4G4 *The soo two sad chip munks sat and thought.*

4G4 *..But that didn't ge(t) 'em them anywhere.*

4G3 *They were away (at the) time ing ga gathering nuts for their winter food. (This example was used in the previous section, but the "ing ga" part is also reduplication.)*

In two instances a sort of mechanical skipping takes place which is evidently triggered by the occurrence of the same word in a similar position in successive sentences. In both cases below, the parenthesized material is what is completely omitted.

4G10-11 *-So they rattled the doors of the little stores. (But no one was there to sell. They knocked at the doors of the little houses.) But no one answered their knocks.*

4G11 *One little door, (though), swung open at their touch. So Chip and Dale walked inside. (Inside the house they found chairs and) there was lamps and tables and beds -- all exchactly chipmunk size.*

In the first instance, the identical element is the phrase "but no one". What disappears entirely is the stretch of words between the two occurrences. In the second instance, where the word "inside" is both the ending of the first sentence and the beginning of the second sentence, only the first occurrence is retained, and without a break, Galen interjects the words "there was" and lists some of the things "inside". Interestingly, the word "exactly" is influenced by the word "chipmunk" which follows it, and comes out as "exchactly".

Such errors would suggest that Galen is not retelling the story by means of meaning cues but that the phonetic input is somehow dominant. This interpretation is borne out by two other kinds of evidence. Twice Galen substitutes quite the wrong word in a crucial phrase and at neither time does it register either for himself or his mother that this wrong reference makes the narrative meaningless at this point.

4G3 *There was a little station beside the track -- Canyon(s)ville, the station sign said. And around the station a little (village) railway spread, with houses and churches and stores. (Only) nobody lived there, because it was too small. And that did seem too bad, mummy.*

In this example Galen has added the word "mummy", which of course does not appear in the book, and substituted "railway" for "village" which does not make sense. "Only" is omitted from the beginning of one sentence, probably because the emphasis falls on the word "nobody"; but perhaps because of the recurrence of "o". The "s" is omitted in Canyonville. Later in spontaneous speech, commenting again on the sign, Galen calls it "Cansyonville" transposing the "s" in an effort to include it.

4G4 *In its place Donald had put a toy-sized (tree) train, just the size for his little toy train.*

It is hard to hear this mistake, not because the substitution is indistinct, but because one expects to hear "tree" and does.

The other form of evidence that Galen is not monitoring his speech by its meaning is his inability to answer direct questions about what he has just read. It happens that he drops his book and thereby loses his place. In an effort to help him identify the page he had reached before the book fell, his mother says:

1G4

M: Can you find your page?....
Can you find the page where the chipmunks were looking at their tree?

4G5

M: You finish reading me the story.
Let's find the page. ...
Can you read the story to me?
Turn it turn over the page.

4G6

M: Let's see.
Where were we?
We got over to where they had _____
There's the old chipmunks.

But nothing will do but Galen must start again at the beginning and his mother finally agrees. His interest wanes, though, and his mother attempts to get him to relate what he is saying to what the picture shows.

4G6

M: Okay Galen what what's happening here?

His answer is wrong and she renews her attempt to get him back to the middle of the book.

4G7-8

M: You were away over here.
Lookit
You didn't finish the story for me though.
We had poor old Chip 'n' Dale without their home.
There they were sitting without their home.
Soon they came back.
Here they are.
What's this?

He refuses to start up again, so she begins to read to him, this time using the cueing game that he knows so well. Twice more, however, she switches to asking direct questions and he does not comprehend. But when she cues him he supplies the missing word.

4G9

M: 'N' what did Dale say?

what

M: "no"

"six"

M: "cried Dale."
Well this was a fix. Where could they _____

"live"

M: "The two sad" _____

"chipmunks sat and thought.
But that didn't get them anywhere."

M: What happens on this page?

--- that says

M: "So they started slowly"

"started slowly"

M: "walking down the" _____

"railroad tracks"

M: "Soon they" _____

"came to the place where Donald had
left it"

And with this, Galen swings along through the last nine pages of the story without a hitch. He is firmly in the groove again, and the record, as it were, plays itself out.

APPENDIX 5

David Repeats Himself and Adults

Outside of a direct cueing situation David tended not to repeat his mother. Both Tape 1 and Tape 12, filmed a year later, record sessions with the same alphabet book. One difference in David's participation on the later tape is that he uses nouns with articles preceding them instead of the noun label alone.

ID13-14

M: Oh what's that little girl playing?

banjo

M: Pretty good but that's a violin

iloin

ID15

M: Cauliflower

cauliflower

ID21

M: They're lily lily of the valley

lilly vladly

I2D1

M: Hot dog

hot dog

I2D3

M: They're hollyhocks.

yeah hollyhock

I2D5

M: That's called a jaguar.

a jaguar

12D8

M: It's called an ibis.

ibit

12D8

M: This is called a Joshua tree.

yeah Joshua tree

Josh u a

Josh u a tree

12D13

M: That's an acorn

a acorn

12D15

M: Yes in a in a bird's nest

in a bird's nest

David's self-repetition grew more noticeable over the year. Later examples expressed insistence or, in a few cases, a functional perseveration.

1D9

again

again

(David is pointing to the spilled milk on the floor)

1D

what's that mummy

(This appears as a formula and is repeated nine times during Tape 1).

2D5

M: Let's us put your road this way David.

let's have this way

M: Let's put your road this way.

let's have this way

2D7

let's have this

let's have this

3D1 mummy help
mummy help
make this mummy
make this

4D11
M: That's a her.
That's the mumma.

that's her
that's her
the mumma

5D3 that's number eight
M: That's number eight.

that's number eight

Grandfather: That's number eight.

yeah

5D3
M: Tell Grandpa the name of that one that you've got in your hand.

fishie

Grandfather: A what?

M: Oh David! (She uses a denigrating tone.)

a fishie

Grandfather: A fishie?

M: That isn't a fishie!
What is it?

a fishie
a motorcycle

6D16 that's the front mumma
that's the front

M: That's what?

that's the front

7D6 and it goes that way
and it goes that way

7D7 they going to go in here
they going to go in in here

7D12 where's the camping trip
daddy where's the camping trip

7D13 they have to go to bed ---
they they have to go to bed

7D22 --- and they eating their hot dogs
they eating their hot dogs mummy

8D2 but where's the top for it
but where's the top

8D16 I wanna go in there
I wanna go in there

M: You do?

I want to go in there

8D23 that one should wait
that one should wait

8D23 he he drived that silly car off the road

M: You wanna get it off the road?

yes he drived the silly car off the
road

8D25 there's not one people in there not
one people in there not one people
in there

9D4 and this one goes like that (this)
(Repeated more than a dozen times)

9D12 these are something else
and these are something else to do
and these are something else

9D14 and then this will be on here and this
will be on here and this will be on
here

9D23 and they walk up here they walk up h
h _____ they walk up here they walk
up here and they walk uh

10D1 and it got a shovel
it got a shovel

10D2 and h he put his he put his seat right
on there
he put his seat right on there mummy

I1D4 that's gonna go there
 that's gonta go there

I1D6 and this is the school
 this is the school
 ...
 this is the school

I1D10 how 'bout this man

M: Okay

 how 'bout this one

M: All right

 or how 'bout this one

I1D19 d'you know d'you know d'you know where
 the fireman's gonna

I1D20 will you put will you put this hose
 into this hole

I1D22 I will get more I will get more water
 for the lake

APPENDIX 6

David's Delayed Repetition

In each of the examples included in this section David uses as his own the comments he has heard in a previous situation. The time interval varies from a few minutes to a number of months.

4D4 I'm gonna drop something on your toe
and be hurted

Preceded by:

4D1
M: You set that silly thing down on my toe.

11D22 well they're gonna go boating there

Preceded by:

11D16
M: Maybe they could have a boat ride afterwards.

12D16
M: What are these kids doing here David?

going down a slide

M: Yeah
Do you like to do that?

yeah
I will have to go on the big slide
again

M: I'll have to get daddy to take you on the big slide.

yeah

Also he is able to quote himself which he does if it creates a laugh from the adults.

9D14 mummy went to the dentist

F: Yeah

to get her bum fixed
(Father laughs and so does David.)

F: Yes I heard that one David.

'cause it was sore

12D17

M: And these are berries that David likes called raspberries.

yeah raspberries

M: We picked them last summer

yeah

M: Remember?

yeah
but they're kinda sour

M: Some of them were.
Some weren't.

APPENDIX 7

More About the Echo Phenomenon

Both children began with the echo phenomenon. Differences in the amount of echoing employed by each child at first obscured the fact that the repetitive and imitative qualities of both 2-year-olds' speech, though different in quantity and function, were similar at a kind of involuntary level. For David, imitation never developed beyond being incidental and fragmentary: it was always far too easy to overlook altogether his uncomprehending echoes. For Galen, on the other hand, echoing turned into extensive and skilled imitation. So in the end it was decided to regard the echoing process as the source of a sort of ready-made speech directly available to the child on a phonic or sound basis, bypassing syntactic and semantic encoding for which the child has had as yet insufficient previous experience.

The clearest example of David's almost undetected replay mechanism is one in which he repeats the unfamiliar word, "happened", and then reiterates the word, "candle", as he shows that it is broken (Chapter Four). The word, "happened", occurs twice again in his tapes and in each case the triggering situation is much the same as the initial one in which the noteworthy feature is that something is no longer intact.

2D14

let's have another car-car do
what's a happen 'n' car-car do

M: Happen in a car car do?

'n' de din happen a car do
(He is involved in crashing cars.)

5D20

that's broken

M: Mm
It's broken now.

happened
that broken now
(He is referring to an olive).

M: Why is it broken?
Did you bite it?

yeah
I bite
--- bite ---

Galen shows a similar involuntary tendency to echo just at the beginning of Tape 1 when his mother asks if he would like some soup. Her sentence is repeated by him in an almost inaudible voice, with little more than a suggestion of the right consonants in the right place. On Tape 2, his speech with his cousin shows the same faintness and a rather dreamy quality throughout. Such instances are in marked contrast to his usual clarity and completeness.

IGI
M: Would you like a little soup?

w---like --- (a question)

Unexpected corroboration of the ubiquity of the echo phenomenon in young children's speech was provided by the unsolicited participation of David's 17-month-old sister on Tape 12. While David and his mother were looking at the same alphabet book they had perused on Tape 1, the younger child alternately roamed the room and came up to her mother to look at the pictures. Attention was paid to her when she took the initiative in pointing to pictures and saying baby or dog. Her

mother agreed with her contribution, whether or not it was particularly apt, by repeating or elaborating it after her. When the tape was transcribed, about half a dozen examples of Lisa's echoing, that had gone unnoticed, were discovered. The best example is almost obscured by David dramatically climbing up on his chair to become an eagle taking off in flight.

12D5

s'eagle going up
(He stretches his arms up.)

Lisa: Geego geego geego
(Hard sound of g employed each time.)

M: And this little boy here is licking something.
What's he licking?

There is a pause between David and Lisa's turns. Because of the few seconds separating David's and Lisa's utterances, their mother's attention has already switched to the next topic. Auditorily, it is Lisa's statement that seems out of context. A delay factor is probably why most echoing goes unnoticed. The initial auditory stimulus has already faded for the adult so the similarity between the model and the response simply is not caught. Echo instances are even elusive during replay until one has been alerted to listen for them. Sometimes the echo is considerably delayed as in the following case about the caw of the crow, in which the stimulus appears on page 4 of the transcription and its echo not until page 6.

12D4

M: What kind of bird is that?

...

It goes caw caw.

a crow (a question)

M: Right.

12D6

that bird is just like this
(David reaches up.)

M: Mhm he's tall.

yeah

M: Very tall

Lisa: Caw caw

Still on the subject of birds, there is an interesting example of an echo being heard as a different but related lexical choice. Apparently the mother's bias is towards what she felt the child might mean since there is no realization on her part that the child's interjection was echoed and not spontaneous. David seems to hear what

Lisa really said:

12D10

M: And that bird is called a lark.

yeah

Lisa: Erk

M: that's a bird yeah

that's a lark Lise

M: Can you say lark Lise?
(There is no reply.)

APPENDIX 8

Terminal Pitch Pattern Table

Table 3 Sentence Ending Pitch Patterns in Tape 10

	Total Utterances	Percentages								other	
		up	up	up	down	down	down	level	level		
D	204	7	15	0	21	2	3	21	2	14	5
	..... 182	.... 8	.... 16	.... 0	.... 23	.... 2	.... 3	.... 24	.... 2	.... 16	.... 6
DM	349	12	11	2	23	2	5	14	10	10	9
	..... 337	.... 12	.... 12	.... 2	.... 24	.... 2	.... 5	.... 14	.... 10	.... 10	.... 9
GM	413	16	16	2	18	3	4	12	10	10	1
	..... 381	.... 17	.... 18	.... 2	.... 20	.... 3	.... 5	.... 13	.... 10	.... 11	.... 1
G	278	14	13	0	16	1	1	16	6	10	0
	..... 222	.... 18	.... 16	.... 0	.... 20	.... 1	.... 1	.... 20	.... 8	.... 13	.... 1

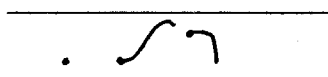
APPENDIX 9


Prosodic Beginnings

A fascinating sidelight in David's Tape 10 is a demonstration of his 15-month-old sister Lisa picking up the melody of a word from the conversation, practicing it, and finally using the same melody and word in a statement of her own (10D18-21). The situation is an episode of the mail delivery game her older brother is playing. David suddenly announces that the mailman has to have a hat and begins rummaging in the closet for one. At first his mother doesn't understand, so the idea is repeated back and forth between them several times. Then the mother makes the further suggestion that Lisa, as the assistant mailman, should have a hat too. The word hat is repeated nine times during fifteen utterances. The mother finally takes the second hat and presents it to her daughter saying

10D18

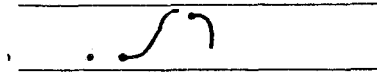
M: There's your hat.



with exaggerated rise fall intonation on the two final words. Lisa immediately intones a long drawn-out aaa  which follows the same melody pattern as the sentence she has just heard. As David and his mother continue to talk, Lisa interjects three times with ha and da, each time using a falling glide. Two pages of conversation later, Lisa picks up David's hat, which he is no longer wearing, and her mother urges her to give it back to him. The conclusion to this second interchange about hats is:

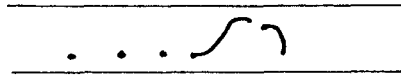
10D21

Lisa: I got da



M: Uhuh

You've gotta hat too.



Still later Lisa again repeats the original aaa melody (10D22).

APPENDIX 10

Galen's Mother's Cueing Strategy

That Galen learned from collocational cueing is clearly demonstrated throughout the tapes, beginning with Tape 1. On Tape 1 he and his mother are playing with a jigsaw transportation puzzle in which the correct names are fitted into the corresponding pictures. In this case Galen is not yet familiar enough with the word "yacht" to complete his mother's sentence, but before the conversation is finished he does comply with her original expectations.

1G5

M: That's a _____

mummy do it (a question)

M: That's a _____ yacht.
Can we find the word yacht?
Find the word yacht?

mummy do it (a question)

M: That's the word.
Thank you.

that's yacht
(Yacht becomes shat.)

On Tape 5, as they are fitting puzzle pieces into a wooden frame, collocational cueing occurs repeatedly. Each puzzle piece is a different kind of building.

5G3

M: That's the _____

what

M: Fac _____

tory

M: Right

How can you tell the factory?

It's got four chimneys on it.

One two three _____

four chimneys
an'en what's that

M: Well that's for here.

And the people are all pushing grocery carts around.

So what's that?

what

M: It's _____

what

M: Grocery _____

store
store

And later with a deer puzzle there is the following conversation.

5G12

that's the deer

M: Mhm

Are you going to take it all apart?

What's that?

His _____

head

M: Yes

With his eye and his _____

nose

M: And his _____

head

M: What does he eat with?

what
tongue

Other examples are:

5G25

M: That's a very sad _____

what

M: Dog

where's a dog
that's a very sad dog

5G30

M: It's a sail _____

boat

11G19

M: Green says _____

go

11G19

M: Does it blow its _____

whistle

This technique gets excellent results when the material is very familiar, for instance, nursery rhymes, but what happens when the cueing is not adequate is shown in the next example. Galen is not attending to the sense of the verse but to the sound. Therefore the same cue gets the same ending, even though he is perfectly familiar with what the next line should be.

5G27

M: Little _____

Boy Blue

M: Come _____

blow your horn

M: The _____

sheep's in the meadow

M: The _____

sheep's in the meadow

M: The cow's _____

--- corn ---

Neither of his parents ever seem to realize that he cannot complete a sentence that he has not heard before. Often what happens when he fails is that they supply the answer and he obliges by repeating what they have said.

7G4

F: How many people are in the boat Galen?

one two three

F: That's right and a _____

what

F: A dog
Three people and a dog

three people and a dog

APPENDIX II

David's Mother's Elicitation Technique

There are four main techniques that David's mother uses to elicit replies from him

1. She tells him the word she wants him to repeat.

5D19

M: Are they delicious?
 (She is referring to the olives David is sampling.)
 Can David say delicious?

delicious

M: I thought you could say delicious.

4D16

M: That's beef stew David.
 That's what it says on here.
 It says beef stew.
 Can you say beef stew?

bee

M: Beef

beef

M: Stew

stew

M: That's right.

3D6

I'm his uncle ---

M: You're his Uncle Tony?
 I think maybe he is your Uncle Tony.
 And you are his nephew.
 Can you say nephew?

nephew

M: Right you're his nephew David Andrew.

5D16

M: Yippee!
David say it.

yippee

5D22

M: David sing Bingo.

Bingo.
(He says it, which suggests that "sing"
and "say" are heard as the same
cue.)

6D16

that's the front mumma
that's the front

M: That's what?

that's the front

M: Yeah that's the front or the bow of the boat.
We call the front the bow of the boat.
Can you say bow?

bow

M: Right
And we call the back of the boat the stern.
Can you say stern?

'stern

By Tape 12 David is no longer being cued as often this way. Rather,
both he and his mother have turned their attention to Lisa, who is
now 17 months old and beginning to be expected to respond to the same
type of elicitation.

12D15

M: That's a raccoon Lise.
Can you say raccoon?

Lisa: Dee dee

a raccoon

M: That's its eye yeah that's its eye.

a rac-coon

2. She asks "wh" questions about objects or pictures. During the alphabet book reading on Tape 1 David is presented with many different "wh" questions, but he is able to answer only the ones requiring simple labelling. This does not discourage his mother; what he can't answer she answers herself. The following group of examples is a selection of questions David hears but for which he has no response. They all require that he solve the problem of reference by first processing the syntactic clues given in the mother's sentence.

ID11

M: Which one of those looks like Elisa?

ID11

M: What's she riding on?

M: What's that little guy

ID12

M: What do you pour?

ID15

M: What did the little girl bring the basket for d'you think?

ID29

M: What's this growing on the head?

The questions to which David does respond are those which do not require him to first pick out what he is supposed to label. Sometimes he asks "what's that?" first and his mother's question turns the job of answering back to him.

ID13

'n' what's that

M: What do you think it is?

boy

M: What's he doing?

--- down

ID14

M: What are those?

punkins

M: How about those?

corns

M: I bet you don't know what those are?

carrots

ID15

M: D'you know what these are?

beans

M: D'you know what that is?

turnips

M: What are they?
Carrots?

carrots

ID17

M: You know what that is?

owl

M: What does it look like?

zebra

ID21

M: What is what are what are these?

flowers

M: No
They're something to eat.

someping to eat

M: yeah lemons

lemons

On Tape 12 the process is the same although the questions are even more varied and by this time David answers them all. Such is

the power given by familiarity. Also, most of his single noun answers are now preceded by an article.

12D1

M: And what kind of a bird is that little one up there?

a hummingbird

M: Oh you know that eh?

12D3

M: What's making her frightened?

what is it

M: What d'you think?

what is it

M: If you were there what would you be frightened of?

the witch

M: I think that's what's frightening her too.
What's she got with her on the broomstick?

a cat

12D7

M: Okay what's this little boy doing with the balls?

he throwing 'd up in the air

M: Oh that's called juggling

juggling

12D26

M: Bet you don't know what that is.

wheelbarrow

M: Right
You did know.

12D30

M: You know what this long slinky animal is?

yeah what is it

M: You don't know?

it's a weasel

M: You do know.

Even if David doesn't know the answer he no longer ignores the question but stays with the conversation until the right word is arrived at. And he knows how to ask his mother similar kinds of questions so that she takes over the answering role.

12D19

M: What's this little girl walking on?

a totem put

M: A totem puck
You're kinda right there.
They're a little bit like totems.
But they're called stilts.

they're stilts

12D23

a turtle

M: That's a turtle.

yeah upside down

M: Yes he's upside down.

what he thinking upside down

M: I think maybe just the whole picture's turned upside down.
Here's a taxicab that's upside down too.

12D12

M: And there's its eye.
See?

yeah where's the other eye

M: Oh it's on the other side.
You can't see it looking from this side.

3. She asks questions involving recall.

1D1

M: Wha'd you see at the park??
(David's grandparents had taken him to Stanley Park.)

animals

M: Did you see the monkeys?

'yep

Then his mother asks three questions ending in the word "doing", to each of which David answers with a barely intelligible word that has the clear ending "ing". "Doing" is apparently a cue word for the present progressive.

M: What were they doing?

putting

M: What was he doing?

(She is now referring to the otter.)

'imming

M: And what were the bears doing?

---ing

M: Playing?

The zoo recall ends with the question:

M: And wha'didya ride on?

horsie

M: A what?

(Her disgusted tone of voice signals that his answer is wrong.)

choo-choo t'ain

M: That's right.

5D12

M: Who did we who did we go to see at the airport?

(Some of the family were arriving back from England.)

Bamma (grandma)

M: Who else?

Deeda (Anita)

M: And who else?

Becky

M: Right
Who else?

Monica

M: No not Monica

The intimation here is not that David understands all the questions he answers, but that he has come to recognize questions as cues that he should answer, just as Galen knows he is to provide the missing endings of sentences. For instance, altogether on Tape 5 David answers "yeah" 67 times in answer to what he perceives as questions. Since some of his answers are wrong, and his response is then to change his answer until it is accepted by his mother, it seems justified to suppose that David's replies are no indication that he understands what is meant. Rather, he is continually put in the position of learning what is meant after the fact. This is the situation that Galen's mother meticulously tries to avoid; much of her emphasis on repetition may be interpreted as an effort to ensure Galen's comprehension. However, the result is that David and Galen learn different skills because of their own mother's preferred speech strategies.

4. She adopts a manner and tone of voice that indicates it would be appropriate for him to repeat what she has just said. This is the regular pattern of their interaction when they look at the alphabet book.

12D25

M: What's this?
It's the top of a mountain and it's blowing out smoke and flame.
What's that called?

a mountain

M: Yeah it's a mountain but when it does that it's called a volcano.

a volcano

M: Right
You know what this is.

a h--- a tart

M: It's a heart.

heart

M: And it's called a valentine.

(called) a valentine

M: Mhm right
What's this little girl playing?

what is it?

M: It's called a violin.

a violin

12D28

M: Mummy has them sometimes.

what are they mummy.

M: Eggplant

eggplant

M: What are those?

corn

M: Squash

squash

M: What are those?

M: Turnips

turnips

M: What's that?
We all like that.

what are they

M: Fresh green leaves
What are they?
What kind of green leaves?
Turnips

tur_____

M: No no I'm sorry.
Spinach

spinach

APPENDIX 12

Ostension on Tape 1

Tape 1 in the case of each child reveals common ostensive elements including several varieties of the predicate complement, ways of indicating more than one, and the question, "what's that?" For Galen there are two major ways of saying "what's that?".

Examples of "what's that?":

IG2 what's that IG5, 6, 10, 13, 15 (6x)

IG5 what's that 'n' that IG6 (2x)

As with the word "hi" at the commencement of the tape, he uses the utterance "what's that" repetitively until his mother replies at a level that satisfies him. During Tape 1, he and his mother search for correct puzzle pieces among many laid out on the floor. It is not likely that in his use of the question "what's that 'n' that" he means each "that" to refer to a separate puzzle piece. Rather, it seems to be as much a formula as "what's that" and to be loosely connected with the idea that the task is to identify many pieces. His placing of 'n' to link that two "thats" is repeated on other tapes and is taken as characteristic of his speech. Also on Tape 1 Galen uses:

IG13 what's that inside (2x)

IG10 huh

On later tapes the single word "what" without a rising intonation is used in the same way "huh" is, i.e. to signal that he needs the situation clarified.

For David, "what's that" is a more flexibly used and spoken phrase. He typically uses "'n'" and "mummy" with it and varies the word selection.

- ID12 'n' what's that mummy
- ID13 'n' what's that
- ID15 what's that mummy
- ID17 and what's that
- ID18 what's that
- ID16 and what are these (Several turns before, his mother has said: D'you know what these are?)
- ID18 what are those (This immediately follows his mother saying: Oh what are those?)

The part on Tape 1 in which "what's that" phrases occur frequently is a session during which David and his mother look through an alphabet book together. A favourite strategy of David's mother is to request labelling and she does not restrict herself to the simple question "what's that". Nor does David, but at this point in time, plural counterparts of "what's that" all follow an immediate mother precedent. Tape 12, a year later, records a similar session with the same book and produces a substantially wider array of related queries. By then, however, David uses the many variants quite independently.

In answer to "what's that?" both children use "that's" and "there's" as follows.

Examples of "that's":

- IG3 that's a motorcycle
- IG3 that's a bus
- IG5 that truck
- IG11 that's a truck

ID6 that a candle
ID6 that's a candle
ID10 that's a monkey hattie
ID16 that is pinatoes (tomatoes)
ID21 that is leopard
ID19 those a teefs
ID21 a those a leopard

"There's" does not follow in answer to the question "what's that", but performs a similar ostensive function.

Examples of "there's":

IG12 there's a volkswagen car
IG12 there's a volkswagen car I see
IG2 there's a steamship
IG3 there's a car
IG3 there's the word train Galen
IG12 there's 1 2 3 4 5 6
IG4 there it is IG6, IG11 (2x)
IG9 here it is
ID4 there's two spiders there
ID6 there's a candle
ID11 and there's a cat
ID22 there's a big kangaroo

David again shows a greater tendency towards variability and complexity particularly in comments starting "there's", although his phonetic clarity is much less. He also attempts the plural "those" and an approximation of the plural "are". Galen's "here it is" and "there it is" are

IG8 in --- chesterfield
 IG9 in the box
 IG14 in Galen's room
 IG13 inside
 IG7 out
 ID6 'n' put 't in a cake mummy
 ID6 'n' put 't in cake
 ID7 a a put 'n
 ID4 outside

Examples of "on":

IG10 mummy put the bastic band on
 IG12 put it on the table
 IG15 I --- put it on the table
 IG12 'n put it on the on the table
 IG12 two cars on the table
 IG13 --- on the floor
 IG15 sit on the counter
 ID10 --- on a log
 ID14 horn on head (R)
 ID15 purse a hanging on arm (R)
 ID25 put a on a little bit
 ID25 put a on daddy
 ID24 no I don't put a on a sharp sharp
 ID23 on my

Examples of "up", "down":

IG1 I going to get down
 IG13 up down up down up down

IG14 trucks standing up
 IG14 two trucks standing up
 ID1 putting down there
 ID13 --- down

Examples of locatives with "there":

IG3 right there
 IG3 there
 IG7 in there
 IG7 under there
 ID1 down there
 2D5 right there 2D11
 2D6 right

To complete the ostensive category are several other types of ostension, namely:

1. Phrases that are commonly used when pointing (look, see)

Examples:

IG8 see the helicopter
 IG9 see it
 IG10 see the truck
 ID4 look at that
 ID6 see it
 ID19 'n look at teefs

2. The present progressive for labelling actions (---ing)

Examples:

IG12 pulling the car
 IG14 two trucks standing up
 IG15 just calvie eating their hay

ID1 putting
 ID1 putting down there
 ID2 ---ing
 ID17 sleeping
 ID10 ---ing on a log

3. Drawing attention to more than one thing at a time (and, 'n')

Examples:

IG12 two cars and a fire engine
 IG5 what's that 'n' that IG6
 ID1 pigeons and roosters
 ID1 and pigeons ID2
 ID17 'n'a zebra

4. Adjectives (impressive qualities of objects)

Examples:

IG14 two big truck
 IG15 two big trucks
 IG11 flat cars
 ID19 monsters gots big moufs
 ID22 there's a big kangaroo
 ID22 there's a big kangaroo
 IG25 a little bit (2x)
 ID24 sharp (3x)

5. Both children use the adverb "just"

Examples:

IG14 mummy just get the trucks
 ID4 they just 'live (alive)

The question of the child's growing sense of number is a most difficult one to trace through the transcriptions, but by looking at the development of "a" and "the", the inclusion of the plural "s", and, of course, the child's elementary "counting", it is possible to suggest what the basic trends are. Although both children have mastered some rote recitation of number it is readily seen that neither has the concept of one-to-one correspondence even by 3 years old, let alone at 2. In Tape 1 David is counting spiders and Galen is counting cars lined up on the table.

Examples of counting:

ID4 look at that
 th there's two 'piders
 there's two 'piders
 one two three

IG12 two cars and a fire engine
 two cars on the table
 there's one two three four five six

The most that can be inferred here is that by this period in their lives both children know that two means that there is more than one thing present.

Evidence from all the categories of plurality listed above confirms that a major step for the child at this stage is the change from a mainly global focus to a state in which his attention is not totally captivated by one impression. His language shows that a kind of sorting or separating out of one object from another is taking place. Besides "counting", the child shows by his use of plural forms that he is attending to the presence of more than one object. Specific Tape 1 examples for Galen and David are as follows.

Examples of plurals:

- ID1 animals, pigeons, roosters, peacocks
- ID4 two spiders, they's', they
- ID5 old ones
- ID5 candles
- ID7 lots candles
- ID13 thistles, sharp points
- ID14 pumpkins, corns, potatoes, carrots
- ID15 onions, beans
- ID16 turnips, brussel sprouts, carrots, red ones, cucumbers
- ID16 pinatoes (tomatoes)
- ID19 monsters, teefs (teeth) they
- ID19 horns
- ID20 lambies
- ID20 nuts, lambs
- ID20 flowers
- ID20 lemons
- ID22 a big kangaroo, a baby kangaroo
- IG11 two cars, two flat cars
- IG12 come on cars, two cars
- IG14 trucks, two cars, two trucks
- ID14 two big truck
- ID15 just calfie eating their hay
- ID15 they're eating grass
- *ID9 again
- *IG13 where's another big truck

The last two (*) are used in the plural sense of recurrence, not in the sense of more than one object present.

By pointing, labelling, and using ostensive terms the child is gaining more and more skill at indicating specific phenomena. A verbal way to individuate is to use "a", "the" and "it". These terms are precisely the ones the two children are beginning to acquire. Previously noted is the use of "a" after "that's" and "there's". In this position David uses "a candle", "a monkey hattie", "a cat", "a mouf" (mouth) and Galen uses "a motorcycle", "a truck", "a car", "a bus", "a volkswagen car", "a volkswagen".

Examples of the article "a":

- ID3 's called a bulldozer
- ID10 ---on a log
- ID25 a little bit
- IG2 I gonna reed (ride) on a horse
- IG2 Galen's gonna ride in a truck
- IG9 mummy take a bastic (elastic) band away
- IG9 take a bastic band
- IG11 make a train
- IG12 make a airplane
- IG12 make that a fire engine
- IG12 here comes a train
- IG13 two cars and a fire engine

On Tape I there are no instances of David using "the". Galen's use of "the" is in sentences that sound as if they are ones the adults around him have used repeatedly. His precocious use of "where's" is also followed by "the".

Examples of the article "the":

- IG3 find the train

IG2 find the word train
IG3 there's the word train Galen
IG4 find the car
IG4 where's the car
IG4 there's the car
IG4 where's the truck
IG4 there's the truck
IG5 I can't find the word bus
IG6 this is the word train
IG6 find the word helicopter
IG7 Galen find the helicopter
IG7 'z the cars out
IG7 bring the fire engine 'n' the truck in there
IG8 where's the yellow car
IG8 we lost the helicopter
IG8 see the heli _____
IG8 can't see the helicopter
IG9 ick can't see the helicopter
IG9 in the box
IG9 see the truck
IG9 mummy put the bastic band on
IG12 put it on the table
IG12 two cars on the table
IG12 --- on the floor
IG14 mummy just get the trucks
IG15 I --- put it on the table
IG15 sit on the counter

Similarly, David's use of "it" is restricted while Galen uses it clearly and correctly but in sentences that may be products of extended exposure.

Examples of "it":

IG3 there it is IG2, IG6, IG11 (3x)
 IG4 I found it (2x)
 IG2 I can't find it (2x)
 IG4 mummy do it (2x)
 IG7 mummy's got it
 IG7 mummy find it
 IG8 we lost it
 IG8 mummy will find it
 IG8 mummy will look for it
 IG8 uh mummy will look for it in chesterfield
 IG9 see it
 IG9 --- look for it too
 IG10 mummy put it in here
 IG12 put it on the table
 IG12 'n' put it on the on the table
 IG13 it's a car
 IG13 it's a truck
 IG15 I --- put it on the table
 ID4 ---it (s)topped yep
 ID6 see it
 ID6 'z broken
 ID6 it stopped
 ID23 put it ---

ID3 's called a bulldozer (M: What's it called?)

ID4 they's 'live (M: Are they alive or are they dead?)

Galen's use of the sibilant alone extends to incorrect usage.

IG7 'z the cars out (M: You want the cars out?)

For both children "is" gradually separates from its many elided forms.

APPENDIX 13

Further Examples of Ostension

ID6 'z broken
ID1 putting down there
ID6 that a candle
IG3 there's two cars there
IG12 there's 123456
ID4 this is dishwasher
IG13 it's a car
2DI6 number 8
2DI7 that one's a block
2G2 here's my truck
2G5 what's that in there
2G12 that's mine
3DI9 here a ball
3DI0 there furniture
2G17 there's a fence
3G4 there's another bridge
4D7 there's a garbage truck
4G13 turning the page
4G4 this a page open
5DI is a race car blue car
4G19 my bat and ball right here
6D4 that mummy's and daddy's room

9D26 that's the sick house and that's the better house
 6G36 that's a pineapple and that's a pear
 12D33 tha's a W and tha's a W
 9G10 well there's tunnels over here
 9G10 oh here's some more daddy
 10G8 that's yellow
 10G15 now here's something here
 10G15 now here are divisions there
 11D5 here a man
 11D13 it's on here
 11G5 there's a corner
 11G18 there's a light
 11G27 there's a train
 12D11 that's a boy
 12D21 that's a train
 12D21 that's a fish
 12D39 it's a cow
 12G3 that's better
 12G13 there's one
 12G17 tha's a chick
 12G6 oh that's a truck
 12G6 it's a backhoe

Alternate Forms of Ostension:

1G10 see the truck
 7D2 see the motorcycle in there
 2D13 watch a choo-choo train
 3D16 look mummy

5G9 there it is the church

9D10 what a heavy block'

10G1 here he is

11D20 look at that

11G13 look at that 12G33

APPENDIX 14

"Goes" as a Bridge to Informative Function

Both children begin to use "goes" on Tape 2 but at first only Galen's usage follows the prototype "that goes there". David's first trials are idiosyncratic, but they too become conventional by Tape 3. The following are but a few examples. More examples from later tapes appear in the second half of this appendix.

Early examples of "goes":

2D19	away a trucks goes
2D4	like this one goes
2G12	this goes there
5G8	that goes there
6D9	that goes here
3D7	goes right here
5G14	goes over here
6D2	it goes in there
3G5	the lion goes in there
3G23	this all goes in there
3G16	that goes on there 'n' that goes
3G16	the other go up here
3G16	other goes up there
3G7	that goes a way up here
5G4	goes back this way
5G13	head goes down there

4D8 that people go down there
 5G20 goes t'here
 5G6 B goes to bodge
 6D5 who go in there?
 6D15 there it goes that way mum
 6D15 it goes off

Further examples of the bridging form "goes":

3G6 'n' that goes in there
 3G23 the lion goes in there
 3G23 this all goes on there
 4D7 there goes it down
 4D9 this one goes round and round
 5G13 head goes down there
 5G13 it goes down here mum
 6D9 that goes here
 6D14 that goes there
 6D15 it goes off
 7D21 the sink's go over there
 7D21 it go down the hole
 7D25 here he comes back again
 7G3 may maybe this goes in here
 7G14 I guess it goes into the kitchen back into the living
 room again
 7G24 he's goes in the truck
 7G21 and the motorcycle goes around and round
 7G22 I guess it goes I guess
 7G22 the wheels go round and round
 7G22 these wheels go round and round

7G24 there he goes

7G25 okay here goes the 'motorcycle

8D4 that d---that one doesn't go on

8D4 that one goes in there

8G3 here comes the dump truck over here

8G24 the sheep goes bah

9D2 'n' it goes like this

9D2 and this one goes on onto there

9D3 and this one goes like that

9D4 and this one goes like this (11x)

9D5 and then they go like this

9D5 and it goes under the table

9G6 this this one goes like this

9D10 it goes like that

9G10 and then m goes like that

9D10 and then this one goes like that and then it goes

9D11 and then they go like this

9D11 no this one goes like that for a race

9D11 this one goes brr

9D13 and this one goes on like that

9D13 'n' this one goes like this (5x)

9D13 'n' this one goes like that 'n' goes way like this

9D13 'n' 'n' 'n' this goes bumpety bumpety over here

9D16 they sit on here and this one goes ding

9G16 it goes (He makes a siren sound.)

9D17 this here goes round like that

9D17 and then this one goes here like that

9D18 this is the fire truck that goes (He makes a siren sound.)
9D21 the blanket walks up here and in this goes and covers
the little boy up
9D24 that --- goes up here
9G13 goes in there mummy
9G21 goes up to goes park
9G25 here it comes up the road
10D3 and this one just go on here
10D11 yeah they go right there
10D12 the mailman goes br br br br
10D12 --- my truck goes
10G21 there go trucks
10G21 there go trucks in there
10G27 there goes Marcie
10G27 there goes Alec
10G27 here he goes
10G28 here comes the people's road
10G28 here he come the people's road
10G29 does it have to stand where this goes for the truck
11D2 that chair doesn't go in the kitchen
11G2 goes chug-a-choo chug-a-choo when it goes along the track
11G26 you have to stop when a train goes
11G30 'n'en 'n'en this goes there
11G31 oh oh and this goes there
11G31 an'en an'en this goes there
11G34 and it goes toot toot
12D4 he goes hoot hoot hoot

12G2 now what goes in here

12G16 this one goes here (a question)

APPENDIX 15

Examples of Informative Speech

Examples:

- 3D3 I building a road
- 3G7 I'm building a barn
- 4G15 I'm falling down
- 4G17 I'm carrying my arms full
- 4G20 I'm throwing the ball
- 4G24 I'm flying
- 5D9 I stepping
- 5D25 Paulie's home having his suppah
- 5G1 I'm playing in the living room mum
- 5G22 I'm not teasing mummy
- 6D12 I going like this
- 7D22 they eating their hot dogs
- 7G1 I'm going in the motorcycle
- 7G24 he's going on the motorcycle
- 7G11 I'm putting things in here
- 8D6 I'm getting it
- 8D13 he's going
- 8D19 'cause they 'cause they're crying
- 8D22 I'm sitting
- 8G5 there he's sitting in his high chair
- 8G12 they're walking

8G13 they're sitting on a box
8G16 it's not picking up wood
9G6 oh we're making two sorts of it
9G25 this car's going along the road now
9G6 oh it's coming
9G11 well we're just building highways
10D7 uh she's making a ---
10D18 I finding another one
10D he is driving to the post-office mummy
10D25 I'm coming mummy
10D7 making something
10D7 I making a car
10G11 making something for lady
10G21 tractor going in there
11D5 yeah he w_____ he's working
11D6 that one saying have a ---
11D7 gonta school now
7D7 they they having their bottles
11D26 no I not taking water out of the lake
11G17 we're just going forward
11G23 there's a train waiting
12D8 he throwing d'up in the air
12D16 going down a slide
12D29 she's playing in the little pool
12D30 making bread
12G23 now he's going to that house
12G24 uh now he's blowing it in

12G24 this pig's saying get away from the wolf
12G26 because the wolf's chasing
12G26 there's a what house he's going
12G26 he's going over to this brick house
12G27 because he's building a house
12G28 oh now he's screaming
12G29 oh oh look at what this pig's doing

APPENDIX 16

Examples of Informative₂ Speech

Examples of "going to", "have to", and "want to":

- 1G2 Galen's gonna ride in a truck
- 2G4 daddy's gonna ride the tractor
- 2G5 I want to play with ---
- 2G5 I don't want to play
- 3D3 I want have that
- 3D16 I'm gon get --- right here
- 3G6 gon put this in a barn
- 3G23 another tractor gonna go
- 4D4 he going get some oil truck
- 4D4 I'm gonna drop something on your toe and be hurted
- 4D12 the girl gonna step on that big snake
- 4G20 it's gonna go
- 5D28 I'nta go to the store
- 5D30 Lisa wants to get the other mosi another mosikin
(mocassin) off
- 5D30 I'm gonna put them all back in mum
- 6D12 he's going stand up
- 6G1 I'm gon a write now
- 7D3 it's going to get lost
- 7D4 we have to put these in
- 7D13 they have to go to bed
- 7D6 they they going to go in here

7G4 I'm gonna brm it
7G9 I don't want to put 'the girl in the camper truck
7G12 a people wants to go n
7G5 this wants to bring this chair
7G11 she's gonna go way up
7G12 no he's gonna sit here
7G13 I'm going to take this one
8D13 another person going come around to side here
8D14 they have to be careful
8D15 I wanna go in there
8D15 I want to go in there 8D18
8G2 I don't want you to make one
8G2 I don't want to make it
8G4 to touch something
8G9 they're gonna have their birthday cake
8D12 they're gonna have some more party
8G12 I'm gonna knock this down with the dump truck
9D8 but we gonta leave --- something like that
9D11 and this 'as to make a show
9D19 'cause he's going to take the sick skier inside
9D20 sick skier is going to do nothing
9D20 the firemens are going to do it this thing
9D18 and these two firemen going to get on the fire truck
9G21 but he's going to take them to there today
9G4 I wanna put this on
9G13 they're gonna go in a little while
9G15 they're gonna go under here

9G16 gonna go to Abbotsford
9G17 they're gonna come 'off the freeway
9G17 'cause they're gonna come down o--- here
9G18 oh the cars are gonna go back on freeway with the trucks
9G19 he's gonna go in
9G20 'cause the cars want to go to the service station
9G20 he's gonna go
9G21 he's gonna sit down here
9G22 he's gonna go up this mountain
9G23 two cars want to
9G25 the truck's gonna come to the road
10D5 I gotta put the windshield back on first
10D8 and this is going to be a big big owl
10D8 just have to put it here blade ---
10D10 this is gonna be
10D10 this is gonna be a
10D10 this is gonta be
10D12 but the truck has to have this on there
10D12 because he just has one to do
10D15 I'm gonna do some more work now mumma
10D20 now I'm gonna go back
10D21 I'm gonna put the flashing light on top
10D22 I wanta have some more work to do
10G1 the man want to go in too
10G3 I'm gonna play o' this
10D6 I'm going put black piece
10D7 we have to make one

10G10 some pieces have to go there
10G10 I have to get this off 's --- stronger one
10G13 Hooper's gon drive the car
10G18 we have to put something around the corner
10G21 this truck is not going knock that bridge now
10G29 it has to go right here
11D2 wanna get out of this fireplace
11D3 this this is gonna go in there
11D4 that's gonta go there
11D5 now he's going get in the bus
11D5 going go to school
11D7 he's gonna
11D7 Farmer Brown gonna go to school too
11D7 Farmer Brown gonna go
11D7 --- gonna knock down
11D8 daddy's gonna wash his hands
11D9 he not gonna cry
11D9 he's gonna sit here
11D9 he's gonna go his house
11D13 they gonna go back home now
11D13 the fireman's gonna go to the fire
11D13 they gonna work
11D14 the truck is gonna go right right there
11D15 gonna be me
11D18 where's this fellow gonna sit
11D18 this one is gonna have ---
11D19 y'know this fire's gonna do

I1D19 he's going he's going go --- house
I1D19 no he's gonna spray
I1D24 I have to get ah oh
I1D25 gonna go right
I1D26 where's the lake goina go
I1D26 and where's the fish gonna go
I1D27 you know you know what the fire truck is gonna go up
I1G4 so we have to have a place for cars to go under these tunnels
I1G4 so --- of all we have to get more blocks
I1G5 an'en they have to turn over to here
I1G6 and now we have to go turn
I1G9 an'en we have to put this ramp on for them to go down
I1G10 an'en they have to turn right here
I1G11 so also we have to get more blocks
I1G11 actually we'll have to get one these big ones
I1G15 they're going to go all the way around
I1G15 he's gon go turn
I1G15 he's gonta turn
I1G15 you have to wait d until it goes
I1G15 now he has to turn around this corner again
I1G15 an'en he have to turn
I1G17 oh I'm gonna dump it in here
I1G17 I'm going to
I1G18 oh I'm gon make a freeway in there
I1G18 an'en now he's gonna go
I1G18 do we hafta wait for a light here
I1G20 so we have to wait

11G22 we have to gate put the gate right here
 11G24 well well I think I'll hafta put the gate
 11G25 now when the train's gone we'll hafta turn
 11G26 you have to stop when a train goes
 11G27 when a train goes you have to go
 11G27 when a train goes you have to go
 11G27 I wan' go this way too
 11G27 I wanna go this way too
 11G29 I hafta to go this way
 11G29 oh gonna go off the track
 11G35 we're gonna take the cement truck
 12D14 going a be
 12D17 I will have to go on the big slide again
 12D24 is she gonna walk on the water
 12G34 I'm gonna hit her
 12G26 this one's gon blow this
 12G26 I think he's gonna blow the stick house down
 12G30 I wanna see the record
 12G3 I want to play with this

Examples of "will":

3G3 I will put another piece
 3G4 we'll find another bridge
 3G10 I will make all the road
 3G17 I will put up my socks
 5G10 you will like my deer puzzle if you want it
 5G14 this will go in there
 5G20 that will move a little bit

5G20 that will move
6G11 I'll do some more
7G13 Lois will take it home in a little while daddy
8D2 uh oh I will get it
8D2 I will do it
8D15 I will go in first
8G21 I'll be back
9D6 daddy that will be the circle one and that and that will
turn around
9D10 this will be the
9D10 this will be the wheel
9D10 and then this will be the smoke-stack
9G10 yeah and this will be the home
9D17 and this one will go and this one will stay
9D17 and they will have something on
9D13 and that will be the post-office where people get sick
9D14 and then this will be on here and this will be on here
and this will be on here and they all will get crashed
9D17 and then all these pieces will be something
9D17 and this will crash
9D15 that will be the light flash on
9D18 I will get two firemens too
9D21 we will leave it right here
9D21 and this sick will go inside
9D22 now where'll we put the sick skier
10D9 yes it will
10D18 'cause I will put more here
10D20 I will load them on

10D21 all the people will see it when they when I go by
10D25 I be there in a minute
10D26 I will put some here
10G2 we will wanna make something
10G2 we will have to make something else
10G5 I'll put something on there
10G8 well I think we'll make it yell _____
10G16 I'll put one over there
10G19 I'll find a arch
10G23 we'll take that off
11D1 that will be ---
11D2 will you help me put
10G8 and after a while he will get into that motorcycle
right here
11D8 yeah and then after a while he will drive
11D13 after a while they will have supper
11G16 I will get a glass for lemonade
11D20 will you put will you put this hose into this hole
11D21 mummy will you put
11D22 I will get more I will get more water for the lake
11D25 mummy will you wind this up mum please
11G3 maybe I'll get another one
11G3 may' this will
11G4 it will
11G4 we'll we'll just finish our railroad track
11G11 actually we'll have to get one these big ones
11G13 I think I'll get the fire engine and the cement truck
to go along it

- 11G16 oh I think I'll go this way an'en to this way
- 11G17 you will have to come over here an'en go into this tunnel
- 11G21 you better put this in the curve way so the train will go along over to this road ne an'en the fire engine can come
- 11G24 well well I think I'll hafta put the gate
- 11G25 now when the train's gone we'll hafta turn
- 12D17 I will have to go on the big slide again

Examples of "shall", "should", "could", "would", "better", "might", "tryna", "gotta":

- 8D8 may' it should go on
- 10D14 he mighta have mighta go beddy-bye
- 10D14 he thinks 'd he would go bed wi' his little sister
- 10D17 I still gotta ha' a picture
- 10D20 you better watch out
- 10D21 you gotta watch out though
- 10D24 I gotta put these things on the truck
- 10G13 you better do a car too
- 10D14 you better do a car
- 11D8 sh' we sh' park it right there
- 10D18 'n' they could have coffee
- 11G9 we could get some more blocks
- 11G9 an'en they could go down
- 11G13 iss could be a church
- 11G13 oh it could be
- 11G21 you better back up the cement truck
- 11G21 you better put this in the curve way ... etc.
- 11G22 now we could put here

11G35 are they tryna get out of the ground

Examples of "can" (excluding question forms)

1G4 I can't find it

1G6 I can't find the word bus

1G8 can't see the helicopter (a question)

1G9 ick can't see the helicopter (a question)

3G6 I can find it

3G16 can stand up

3G21 I can carry some big wood

3G24 I can load it over here

3D3 this garbage truck --- (can't) go --- (through) here

3D10 this can't ---

4G5 I can't 4G8

4G5 you can read this

4G8 you can turn it

4G8 you can turn that

4G8 can read that mummy

4G13 can see the bees back here

4G20 yes I can

4G21 you can't

4G22 can go under the chair and get it

4G22 I can put my hat on I can

4G22 and I can charry the gall (carry the ball)

4G22 ah I can get it

5G19 I can't find it

5G19 I can't see it anymore

5G19 can't see it anymore 5G20

5G25 you can read it
5G25 no you you can sing it there
5G28 'n' then you could read that book if you want to
6D7 this can this go in
6D10 she can (could) sit here
6G15 now now now n you could turn this
7D10 I can't get these open
7G7 I can't put it on the truck
7G20 oh oh you can put this way
7G24 he can go in the motorcycle
8D8 you can't make a car
8D24 um let's see if we can
8G6 we can build it again
8G6 you can build my your house with me
8G6 you can 8G10 (4x)
8G7 you can do those again
8G9 you can do do one
8G13 can sit on a box
8G14 he can't walk
8G14 he can walk
8G14 he can do over here
8G15 you can play
8G15 uh you can you you can sit down
8G18 you you can fix that
8G18 you can fix this
8G20 you can tie this up
8G21 Lois can't see me again

8G21 now she can
9G6 move it so I can put it over there
9G6 now it can go back there
9G13 no he can't
9G19 you can back him up
9G19 that what you can do
9G21 those car can park at a service station
9G21 can stop with this truck
9G21 he can park this over stop
9G21 you can put it
9G21 'n'en you can put it
9G21 now you can play with it
9G23 now you can play with them
9G9 she can do (build) something with these
10G2 no no you can do it too
10G4 that can go on it
10G4 you can put ---
10G7 you can make one too
10G8 you can brm your car
10G8 you can build some more mummy
10G8 you can build it higher
10G11 the man can sit there
10G12 you can do it
10G15 you can break it up
10D15 we can build all sorts of things
10G17 it can't go --- in
10G21 trucks can go in there

10G23 we can
10G27 --- he can go on the road
10G27 he can climb up hill
10G28 he can go under the tunnel
10D4 I can't make make the trailer for this tractor
10D8 see if I can
10D8 I can mummy
10D11 can't take the others off
10D11 I can't mummy
10D21 yeah that's so the people can see it so
10D22 so people can see it
10D22 'cause everybody can't see it when they when I go by
11D2 this can go in the kitchen
11D6 --- he can't get
11D14 that can't be 'way over there
11D18 now they can have this
11G1 it can go up there and then it can go---
11G2 it can go down and then up
11G2 now they can turn round this corner and then into this
tu tunnel
11G13 we could play with this (2x)
11G17 you can just back up with me and just ---
11G17 you can go this way
11G18 now you can go through of these tunnels
11G24 now you can back up your truck to here
11G25 now we can do it again
11G27 an'en you can go right here
11G27 as soon's the train's gone you can go again

- 11G28 "we can put the bridge back ---", said the fire engine
truck
- 11G34 an'en you can (2x)
- 11G34 you can bu put your fire engine on
- 12G1 now we can build um board now
- 12G10 --- can go here
- 12G27 yes he can

Questions beginning "can" appear in Appendix 20.

APPENDIX 17

Predicative Function

SVO patterning with "want" or "got" as the verb element is regarded in this study as the beginning of speech that is truly predicative, i.e., speech that is self-oriented and initiated rather than speech that is environmentally induced. In the following lists, several groupings have been differentiated for ease of scanning. SVO patterning that occurs within sentences using "_____ing" and "going to" are excluded as these have been designated as functionally different (I_1 and I_2). The early examples with "want" and "got" are regarded as proto-predicative. Examples taken from later tapes show a closer connection to the child's thought than to his immediate actions.

Examples of "got" and "have":

- 1G7 mummy's got it
- 1G7 mummy's got cher in her hands
- 1G14 I got two trucks
- 2G2 I gotta bulldozer
- 2G2 I have a bulldozer
- 1D9 monsters gets big mouf (also in SVO list)
- 2D5 this has this bang
- 2D15 this ha zoom like that
- 2D21 this is has a boom like that way
- 2D22 this one has long roadie like this way
- 3D13 I got it ---

3G1 and I got a fire engine
 3G8 I have a load
 3G9 I got new pants on
 3G9 I got new tee shirt on
 4G16 got another book on top of my head (I omitted)
 4G19 and I got you
 5G10 we have one more piece
 5G11 I've got it Lois
 5G29 we got to the P's
 5G31 I don't have a piggybank
 5G23 I didn't got another puzzle in my bedroom
 5G32 I've got a piggybank
 5G32 I've got a piggybank in a story
 5D17 'cause we have a door to closed
 5D30 I have it
 6G13 got one more to do (I omitted)
 6D24 he got a scoop
 6D24 ---got sharp points on it (subject indistinct)

Examples of "want" and "like":

1D7 I I I want that mummy
 1D8 --- want milk (I is indistinct)
 2D4 --- like it (I is indistinct)
 2D12 I want them this way
 3D18 Lise don't want that
 4D5 I like Tony (see 2D4)
 4D4 want my milk (I omitted)
 5D14 I want a bottle today

- 5D17 I want a bottle
 5D25 I'nta 'nother fish'again (elision of want)
 6G7 Lois says she wants me
 6G14 want the music now (I omitted)

Examples of past tense verbs (with no object):

- ID11 ah sure did
 4G6 yes I did
 4G12 yes you just did
 ID it (s)topped
 6G16 it stopped
 3D14 that fell down again
 3G5 that fell down
 3G20 no it won't fell down
 4G7 he fell off the train
 4G7 fell off the train (subject omitted)
 6G3 it fell off
 6G4 it fell off again
 6G6 fell off (subject omitted)
 6G3 it crashed again

Examples of past tense verbs (in SVO frame):

- IG4 I found it
 IG8 we lost it
 IG8 we lost the helicopter
 IG7 you lost them in here
 3G9 I done it
 6G16 there I did it
 4G14 dropped it on the floor (I omitted)

- 4G14 I dropped it on
 4G16 I throwed two books down
 4G16 threw two down (I omitted)
 6G16 I turned it over
 5D22 Bingo had a dog
 6D20 I never had one like before like that
 6G12 made it the wrong way and it fell off (I omitted)
 6D1 --- breaked it in pieces (I is indistinct)
 6D13 he's snatched it
 5D15 he scratched me

Examples of SVO structure with present tense:

- 1D19 monsters gets big mouf (an unusual use of got)
 1G7 I see cars under there
 2G10 I hear some robins
 3D12 no --- take it (I is indistinct)
 3D24 I sing a song
 3G1 I give the person a kiss
 3G3 there I put a pieces in
 3G21 I kiss it all better I think
 3G22 I kiss the lion
 3G23 I open the gate
 5D7 I --- (see) a big huge digger go (sound effect)
 5G7 I see Alan
 5D8 he get a little bit for truck
 6D22 I take these trucks and ---
 6G6 I make an X

5G23 now we do it again Lois

6G17 no you do it

In Predicative examples from Tape 7-12 both continuity of verb choice from previous tapes and lexical overlap between the two boys is discernible.

Examples of Predication from latter half of the year:

7D5 and they fall down da'

7G14 it fells off

7G21 the ladder fells off

7G21 I guess it fells off I guess

8D14 and they felled mummy

9G23 the wheel fell off

9D19 that one felled off

9D21 the blanket falled off ---

10G25 they fell off

11D24 yeah he didn't fall down d baw (to the bottom)

11D24 he just fell right down like that

8D13 he crashed the person

8D13 and he and he crashed up his car

10D5 he bumped into it

9D23 they knocked down the smokestack

10D16 Lisa knocked them down

11G25 pussycat knocked over our bridge

11G27 I knocked the bridge the bridge over

11G28 well I just knocked the bridge over

10G19 I brokek it

10G25 I just broke it

10G27 we lost her broke her joke her
11G15 now I oh d b I broke the ramp
7D5 they take the ---
9D21 he takes them to that place some day
7D6 and they put right here
7G3 I put lots and lots of peoples in
7G6 I can't put it on the truck
8D12 he put his car under the tunnel
10D2 he put his seat right in there mummy
10D3 but the driver put his feet put his feet right there
8D1 no I got it
8D5 --- got two car
8D9 oh maybe we could get one these to hook onto there
8D15 when people walk up---they get clothes on them
8D17 got all
8G19 I got another one
10D1 and it got a shovel
10D9 I got it on
10D16 I got it all through
10D18 I got all the mail off
10D26 yeah I got loaded
10G22 it's got cement
10G22 has it got cement
11G4 we got all sorts of bridges for trains
11G13 we have we haven't got anything to go along our road
11G34 our train has got a cement truck
12D32 has the girl got too much

12G14 now we got the whole border done Lois
8D8 that one has doesn't ha has flat tire
8G11 she has one
10D12 he just has one to do
11G9 and then they had to go right at this
7D11 who made it
11G18 I made the freeway good
11G18 the truck made the freeway
8G5 what did y' do
8G22 he didn't say it
8G23 he said it
9G16 did he 11G15
9G21 he did
9G26 did it
9D8 yes we do
10G23 did the man hit her
11D6 who did that
11G16 I did
12D36 did he find his baby
12G4 we've done it
12G4 we done part of it
8D4 she went off the road
8D4 she went into the tunnel
8D23 but he just went off the road
9D6 they go through a tunnel
9D13 they go to the doctor place 'n' they get sick
9D14 mummy went to the dentist

10D12 he went into a nest
11D20 he's been in the mud
10G28 I think it was um bear
7G6 I miss (need) another chair
10D4 I I need more Lego than this for the tractor
7D6 they go pee and they don't drink out of the toilet do they
7D11 they drink
7D18 and they usually sleep in there
7D9 sits on top
9D2 sits onto there
10D2 mm he sits right here
8G10 he likes it
12D16 I saw one like
12D21 I like that toy
12G21 I hear it on a record player
9D11 and they watch the show
12G15 what hooks in here
12G32 tells the story on the other side (echoing mother's statement)
8D6 I wanted that
9G1 he wants some gas
8D19 she bite me
8D20 Lisa bit me
8G11 I ate one
8D4 sometime guy ride them too
7D8 he he drives it
8D23 he he drived that silly car off the road

8D5 and and and it leaked
8G10 I blewed it out
8G21 I just backed that way
9D19 he stopped to there
9D25 and they built fire
12G25 he builds the stick one
12G30 who opens the door
12G31 now this guy opened the door for this wolf
12G28 oh now he's screaming because he burned his bum
10D13 yeah and the bird's all fixed now 'cause he's all tired
11G16 "I fixed it", said the cement truck
11D24 oh oh the fireman jumped into the lake
9D17 and then this one walks around and get in the fire truck
and gone asleep so he was sick
9D22 and the sick people live in this house right here and
the better one live in the other house right here

APPENDIX 18

Tabulated Results of O-I-P Function

Table 4

David's Raw Data For Function Categories

Function Categories	Tape	1	2	3	4	5	6	7	8	9	10	11	12
PO	67	19	16	18	47	6	6	11	6	-	2	10	26
0	30	7	3	16	4	22	38	3	3	9	10	12	14
OBI	72	90	17	17	37	35	53	36	36	36	12	49	106
BI	2	7	7	12	7	12	34	17	17	75	23	15	71
I ₁	-	-	4	3	8	5	10	24	4	4	14	14	14
I ₂	1	3	3	10	7	9	21	24	24	33	41	60	9
IMP.B	15	59	11	11	7	4	9	6	6	14	18	14	2
BP	6	11	2	1	3	3	7	16	15	15	11	1	1
P	2	2	-	2	-	5	12	18	19	19	7	3	6
COMB.	3	-	-	-	-	-	6	5	10	10	9	6	1
?	2	7	-	4	3	3	9	6	6	6	7	13	4
N/A	45/18%	22/10%	42/40%	30/24%	86/41%	16/13%	32/13%	69/30%	49/18%	60/28%	62/24%	30/11%	
Utterance Totals	245	227	105	124	209	120	242	230	270	214	259	284	

Table 5

Galen's Raw Data for Function Categories

Function	Categories	Tape	1	2	3	4	5	6	7	8	9	10	11	12
	PO	11	6	10	17	31	11	17	6	20	12	16	31	
0	0	50	6	25	14	63	23	19	20	13	15	12	9	
	OBI	44	14	59	25	85	63	32	31	44	31	41	63	
	BI	10	7	15	12	47	16	50	25	21	33	18	62	
1	I ₁	3	-	3	12	5	16	9	20	9	10	8	10	
	I ₂	16	6	17	39	17	11	32	54	58	49	74	15	
	IMP.B	32	2	5	8	6	9	12	10	10	12	40	10	
	BP	6	3	10	15	16	18	2	6	6	3	11	3	
P	P	6	3	3	10	1	1	5	8	4	2	13	12	
	COMB.	-	-	-	1	10	3	7	1	6	13	20	8	
	?	3	3	2	5	4	10	7	2	2	14	12	15	
	N/A	26/ 13%	45/ 47%	69/ 32%	56/ 26\$	70/ 20%	68/ 27%	71/ 27%	86/ 32%	79/ 29%	97/ 33%	122/ 42%	94/ 28%	
Utterance Totals		207	95	218	214	355	249	263	269	272	291	387	332	

Table 6

Tape Number	Utterance Function Percentages										D/ - David's Score		
	1	2	3	4	5	6	7	8	9	10	11	12	/G - Galen's Score
Ostensive	85/ /56	57/ /52	57/ /63	54/ /35	72/ /63	60/ /54	49/ /35	28/ /31	20/ /40	15/ /30	36/ /26	57/ /43	
Informative	1/ /16	5/ /26	22/ /23	27/ /40	18/ /24	25/ /24	31/ /47	40/ /54	51/ /46	51/ /47	45/ /38	37/ /37	
Bridging Form with the Imperative	9/ /18	27/ /4	17/ /3	12/ /5	6/ /2	4/ /5	4/ /6	4/ /5	6/ /5	12/ /6	7/ /15	1/ /4	
Predicative	4/ /7	6/ /12	3/ /9	3/ /16	2/ /6	8/ /10	9/ /4	21/ /8	15/ /5	12/ /3	2/ /9	3/ /6	
Combination	0/ /0	1/ /0	0/ /0	4/ /0	0/ /4	0/ /2	3/ /4	3/ /0	5/ /3	6/ /6	3/ /7	0/ /3	
Questionable	1/ /2	3/ /6	0/ /1	0/ /3	2/ /1	3/ /5	4/ /4	4/ /1	3/ /1	4/ /7	7/ /4	2/ /6	

APPENDIX 19

David's Tape 2 Speech

"let's have this one like this way" was discovered to be the paradigm for the major part of David's utterances on Tape 2. The three main syntagms, "let's have", "this one" and "like this way" appeared separately and in a variety of combinations. The general process was one of stringing and substituting. Some of the variations were due to the following reasons:

1. Nouns were substituted for "this one".
2. "Let's have" was omitted and another verb choice made.
3. "Like this way" was sometimes changed to "along this way" and 'bout this way".
4. "Long" was used with "like" in several instances, e.g. "long like a brnch", and "long like mudulushin cars". ("Brnch" and "mudulushin" are made-up words.)

Combinations of "let's have", "this one" and "like this way":

2D3	---this way
2D8	this way 2D9, 11, 12, 21
2D9	'n' this way 2D16, 19
2D9	'n' this
2D13	this one huh huh
2D11	this one 2D20
2D20	this
2D11	'n' this one

2D13 this one uh this way
2D18 this this one
2D20 that one
2D10 that way 2D11
2D5 like that
2D20 like that mm
2D21 like like this
2D4 'n' this like this
2D4 or like
2D18 like this --- like this
2D22 'n' like this (2x)
2D22 'n' like
2D8 like this way 2D10 (3x), 2D17, 2D22
2D10 'n' like this way
2D9 like that way
2D17 like this way and --- like that way
2D20 like that mm
2D13 let's have 2D20 (2x), 2D21
2D5 let's have this (2x), 2D7 (2x)
2D7 let's have this one (2x)
2D14 let's have uh this one hah
2D15 let's have this way 2D20
2D10 like let's have this way (2x)
2D10 let's have let's have that way
2D18 let's let's have like this way
2D16 let's have this one --- this way
2D13 let's have this one like this way

Combinations of the three main syntagms with locatives added:

- 2D5 this --- right there
 2D8 up along this way
 2D8 away up this way
 2D10 this one 'n this side
 2D 'n' 's on this way
 2D9 let's have this right
 2D6 let's have this around
 2D3 let's have this one on
 2D7 let's have this one up on the top
 2D13 let's have this one along this way
 2D17 let's have this one have a long way

Substitution of other nouns and pronouns for the syntagm "this one":

- 2D10 part this way
 2D11 let's have this part like this way
 2D12 let's have this --- part like uh n n
 2D12 let's have let's have let's h have a part like this way
 2D14 'n' let's have this a part like this way
 2D16 let's have let's have a bridge like this way
 2D17 let's let's have it down
 2D23 let's have another
 2D14 let's have another car-car do
 2D19 let's h have a car-car like this way
 2D23 let's have a car-car like this way

Other verbs used in conjunction with the three main syntagms:

- 2D9 'member this this this way
 2D12 ah mek uh uh uh this way

- 2D12 I want them this way
 2D8 and it comes from this way
 2D8 --- train --- t turns around 'n' back up like this way
 2D12 that is m choo-choo go up 'n' fall down like this way
 2D8 going 'bout this way
 2D14 like a car-car
 2D4 like this one goes
 2D16 let's have this one goes this way
 2D17 let's have a choo-choo train goes down like that
 2D3 let's move all over this way

Adjectives and the three main syntagms:

- 2D14 'n' that one's pretty nice
 2D14 long like --- mudulushin cars
 2D14 let's have let's have let's have long like a brnch

Utterances beginning "this have":

- 2D2 this have some ---
 2D13 this one have --- choo-choo train try that one
 2D15 this have a part like that way
 2D15 this ha' zoom like that
 2D15 this have ---z like this way
 2D15 'n' this one have this way have
 2D17 let's have this one have a long way
 2D21 'n' this have a p p n
 2D21 this ha' this way
 2D21 have 'n' this have s --- n
 2D21 this have
 2D12 let's have this --- part like uh n n this have

Utterances with "this has":

2D2 and this has ---
 2D5 'n' this has
 2D5 this has
 2D5 this has this bang
 2D21 this is has a boom like that way
 2D22 this one has long roadie like this way
 2D22 this is a --- that critch cars

Negatives included in the paradigm:

2D20 no that way
 2D13 not that one 2D17
 2D17 not that one mummy
 2D21 not that one n n this one
 2D14 let's not that one --- this one
 2D13 let's ha have not that wu one
 2D17 let's have not that one mum
 2D14 not like that one either

Utterances not included in the paradigm (fewer than 30):

2D1 uh oh 2D4
 2D2 bang bang
 2D2 wait a minute
 2D2 put it down up
 2D6 come
 2D6 there
 2D8 makes ---
 2D8 going --- high mum
 2D9 the six

2D9 six five two
 2D11 right in the middle
 2D12 that is m choo choo go up 'n fall down
 2D13 I think
 2D4 no not
 2D14 train fall
 2D15 I a a you
 2D16 number 8
 2D19 away a trucks goes
 2D19 this a bumpy road
 2D20 turn on
 2D22 a car creetch
 2D23 this is a --- (hydrant) that critch cars
 2D23 another another another

David's Tape 2 speech has been used as an introductory illustration of syntagmatic - paradigmatic speech processing, a strategy that appears to be available and productive by 2 years old, but this particular paradigm is, of course, a fleeting and idiosyncratic pattern that is never used by Galen. Much later in the tapes, however, both children have achieved fairly good control over the general pattern for sentences starting with "let's".

6G15 let's see this one again
 6G15 let's say Humpty Dumpty again
 10D8 let's make a ---
 11D18 let's go out
 11D18 let's put that ---

APPENDIX 20

Slots and Strings

One of the outcomes of the children's echoing propensities was that certain sentences and phrases became stereotypes and were encountered in the transcriptions over and over for periods of hours or days or weeks. This tendency is common knowledge in connection with the child's use of "what's that?", "where's...?", and "why ---?" In David's and Galen's protocols it also operated in the case of other question forms and, in Galen's case, most conspicuously in any routine or game situation in which there were ordered steps to rehearse. Question paradigms seem to be first learned as wholes and then internal substitutions made within subject and object position slots. Both boys used questions beginning with is, although as M.M. Lewis (1957) points out such early questions are seldom genuine enquiries. For Galen and David they "go with" the situation and serve the general purpose of keeping the conversational pattern going. Examples below are grouped to show parallels in the two children's constructions:

Examples beginning "is":

5G4	is that a barn	7D1	is that Farmer Brown
6G5	is that it	7D13	is this the bed
6G7	is that a monkey	7D23	is this the chair
6G8	is that a rabbit	7D23	is that the chair
8G1	is that the barn	7D24	is that white table
8G4	is that a door		

9G16	is it a bone	12D39	is it a sailboat
10G10	is it raining		
10G20	is it		
10G26	is this the ambulance	9D22	but is this the inside
10G22	is it in here		
7G8	is what the right way		
9G2	is he gonna go now	12D22	is she gonna walk on the water
10G19	is there any more arches	10D5	is the bulldozer gonta bite a gravel pieces

The same kind of patterning applies to questions beginning with "can", but David does not use nearly so many as Galen does.

Examples beginning "can":

2G6	can you ride your motorcycle	9G19	c--- I more
3G13	can you lay down		
4G1	can you read it		
4G18	can I put it on	6D1	can I break it to pieces
4G18	can you put it on	8D3	can I have car going up
4G18	can you put it on again	10D5	can I take it apart--- for the tractor too
4G18	can you get it		
4G23	can you sing it	11D10	can I have the motorcycle
6G20	can they eat some grass	6D13	can this go
9G6	can it go in there	6D7	can this go there
10G3	uh can we	8D8	can we put that on there
10G21	can people go in there		
12G32	can I hear it		

For Galen, but not for David, questions beginning with "what can" and "where can" are almost as numerous as those beginning with "can".

Examples beginning "what can" and "where can":

- 8G5 what can they do
- 8G10 what can you do
- 10G15 what can we do
- 10G15 what can we do at the edge
- 9G2 where can this piece go
- 9G2 where can this go
- 9G4 where can it go
- 9G26 where can they go
- 9G26 where can he go up

Another extremely frequent question pattern for Galen is "where does". Tapes 5, 7, 9 and 12 are peppered with examples, the most common one being a repetition or variation of "where does this go?" said as puzzle pieces are located and fitted together. Do, go, does, goes, and did are usually correctly distinguished from each other but not always.

Examples beginning "where does":

- 5G4 where does that go
- 5G5 * where does that do (* grammatically incorrect)
- 5G13 where does his nose go
- 5G18 where does that body go
- 6G9 where does the letter D go
- 6G16 where does this go
- 7G21 * where does it gonna pull
- 7G25 where does the table go

- 9G5 where do these both go
- 9G13 where do these go
- 12G2 but where where does this go
- 12G2 where did where did these pieces go
- 12G2 where where one them go
- 12G2 where's some of them go
- 12G3 where do some ---
- 12G3 does that go in there
- 12G4 * I done a straight line but where does this one go
- 12G8 where does this one go
- 12G13 where does that one go
- 12G18 where do they go
- 12G19 yeah but where does this one go in here
- 12G19 well that goes in here
- 12G22 where do we start
- 12G25 what does it do
- 12G31 * does this one do open the door

David does not have the pattern "where does" and so tries to use "where's" in every case.

- 7D13 * where's they made their bed made there

The net effect of the substitution of noun, pronoun and locative phrases within familiar paradigms was to provide portable "bits" that could then be used in many different sentences. A constructional or "buildup" activity was observed as illustrated in Chapter Seven. Much of the children's repetition was linked to what might be characterized as a rerun process. For the child to say what he intended to say, several trials involving changes, additions or deletions

seemed to be facilitative. Further examples appear below. This time the examples are grouped by tape number to show that the two children choose different patterns in which to practice substitution skills.

1D25	put a little bit put a on a little bit daddy	1G12	come on cars there's my engine come on cars and fire engine come on cars and fire engine two cars and a fire engine two cars and a fire engine two cars on the table
2D11	let's have this one like this way	2G2	I gotta bulldozer
2D11	let's have this part like this way		I gotta bulldozer
2D13	let's have this one along this way		...
2D14	let's have this one long like that one		I have a bulldozer
2D14	let's have let's have long like a brnch		
2D15	let's have this way		
2D16	let's have a bridge like this way	2G6	I don't ---
2D19	let's h have a car-car like this way		...
2D22	let's have uh one of this a one of this one n this long nn prnch like this		I don't want to ... I want to play with --- ... I don't want to play ---
3D7	goes right here ... no don't that goes a way up here here way up here	3G7	that goes in there that goes in there two pieces r go r in there a two pieces
		3G7	where's a big load where's a big load where's a big load of sticks
4D4	--- heavy one this a heavy one		
4D5	I like I like Tony	4G4	here's a page open this page open mummy this a page open

5D1	is a race car blue car	6G16	he a two ears ... he has two ears ... he a two ears on his back
5D9	I stepping step		
6D13	he's he's a bad boy mummy he's a bad boy he's a bad boy ... he's a bad boy at the table at the kishen table	6G9	is writing the letter D I'm writing the letter D ... yeah the let--- ... writing the letter D
6D22	here's my truck ... here's my oil truck ... here's my hot rod ... here's my digger ... here's my digger	6G10	there's a chap there's a little bit there's a little bit there's a little bik
		6G20	where's the big cow where's another big cow
7D10	--- that the motorcycle that right there motorcycle coming wa'sh out da' motorcycle coming	7G5	there people sit in a chair a dog sit in a chair
		7G10	nothing is in there nothing is in that pot
7D22	--- and they eating their hot dogs they eating their hot dogs mummy ... 'n' they eating their bone	7G10	this these go in the chair ... 'n'en dog go in 'n' this go in a chair 'n' this goes in a chair
8D25	not enough not enough people in there ... there's not one people in there not one people in there not one people in there	8G11	she has one ... I have one too ... mummy ha' one
9D2	no ... no that's the boat ... and that's a boat ... and that's a boat there sits onto there	9G4	where can this go
		9G4	where can it go
		9G5	where --- these both go
		9G6	where can es go
		9G8	can these go where can these go
		9G10	where do these go
		9G10	where can this go

...		9G13	where does this go
this is a block boat goes like this			
...		9G25	a white car
'n' it goes like this		...	...
and you put it onto like that			a yellow car
...	
and this one goes on onto here ---			a black car
	
			a patch car
	
			a natch dar
10D2	and h he put his he put his feet right on there he put his feet right on there mummy	10G26	nambulance
...
	but the driver put his feet put his feet right there		let's see the the ambulance
	
			i is this a ambulance
11D22	I will get more I will get more water for the lake	11G26	and now we have to go turn we have to turn
11D27	you know you know you know what the fire truck truck is gonna go up	11G13	we could play with this one we could play with this
12D29	she's playing in the p--- she's playing in the little pool	12G1	put it on the board wa---put it on the board

APPENDIX 21

Length of Utterance Table

Table 7

Length of Utterance (in morphemes)

Legend: D/
/G

Tape #	8	9	10	11	12	13-20	over 20	Totals
1	2e8	1e9/ /1e9						1/ /3
2			1e10	1e11	1e12			3/ /0
3	1e8	1e9/ /1e9				1e14		1/ /3
4	6e8	1e9/ /1e9	1e10	1e11		1e13		3/ /8
5	1e8	9e9	1e10/ /3e10	1e11				2/ /13
6	2e8/ /3e8	1e9/ /2e9	1e10					4/ /5
7	4e8/ /7e8	1e9/ /2e9	1e10/ /6e10	1e11/ /2e11	1e12	2e14/ /1e13 /1e14		9/ /20

Table 7 (Cont'd)

Tape #	Length of Utterance (in morphemes)							Totals
	8	9	10	11	12	13-20	over 20	
8	5e8/ /6e8	6e9/ /5e9	2e10/ /1e10	1e11	2e12	1e15/ /1e17	17/ /13	
9	16e8/ /11e8	4e9/ /3e9	5e10/ /2e10	9e11/ /1e11	1e12/ /1e12	2e13 1e14,15, 18,19	1e22,30, 37,48 /18	
10	6e8/ /6e8	6e9/ /4e9	3e10/ /2e10	3e11/ /2e11	1e12	2e13 2e14	1e23 1e33/ /1e23	
11	10e8/ /13e8	6e9/ /13e9	2e10/ /9e10	1e11/ /3e11	1e12/ /4e12	1e13/ /4e13 /1e14,18	21/ /51	
12	3e8/ /7e8	11e9/ /5e9	1e10/ /4e10	1e11	1e12	2e16/ /1e14	5/ /19	

APPENDIX 22

Uncertain Meanings of Locatives

An area in which both children acquired a good deal of facility was the use of locative words and phrases in connection with an ostensive function. For instance, in David's use of the phrase "right _____", he shows skill in handling all the following:

- 2D6 right here 3D6,6D4
- 2D7 right there 8D1
- 2D11 right in the middle
- 2D5 this --- right there
- 3D7 goes right here
- 7D11 right in here
- 8D5 right down there

But in Tape 8 as the function became more informative than ostensive, he says:

- 8D2 I'm in the right circle mummy.

He means that he is right in the circle or right in the middle of the circle, not that there is a right circle and a wrong circle. His error shows that his former mastery of the word "right" was more situational than linguistic.

Galen exhibits similar difficulties with "in" and "on", which are both on Roger Brown's list of the first fourteen morphemes to be acquired (1973, p. 274). After handling them very well in his beginning tapes, Galen starts using them interchangeably on Tape 7, which again

brings into question whether he has really comprehended the difference in meaning between them. David, on Tape 9, also mixes "in" and "on".

7G1 I'm going in the motorcycle

7G24 He can go in the motorcycle

7G24 he's goin' on the motorcycle

7G25

M: Is he in the forest?
Or where is he?

he's on the motorcycle

9D13 and they sit on the playroom over there

9D20 take the sick skier away and put him in the doctor

It is also notable that on the occasions when mistakes are made in locatives and prepositions neither mother corrects what the child has said or models what he should have said. In the situation the child's meaning is clear enough.

Another thing that happens to locative lexical items during the year is that they begin to be used alternatively as verb particles. In English, which is a distributive rather than an inflected language, it is an extremely common practice to add words like "out", "in", "on", "off", "up", "down", "under", "over", "away" and "around" to such verbs as "put", "make", "go", "come", "fall", "break" and "turn", these being the very verbs and so-called prepositions that are heard constantly in early child language. Locatives and other verb associates when first used in this way between mother and child can be a source of confusion to both parties. For instance, on each child's Tape II, the very well-known and frequently used word "up" is added respectively to a different multi-purpose type of verb. For Galen it is "back up" and for David it

, is "make up" that reveals the experiential nature of the two children's semantic knowledge. The text elaborates these examples in Chapter Eight.

APPENDIX 23

The Use of "Back" in Both Boys' Tapes

It could be that Galen's wrong use of "back up" is part of his overall confusion about the word "up". At the time of the first tape filming his mother mentioned that for some time he had used "down" to mean "up", "down", "hold me", "carry me", and, in fact, any change of position of himself or an object in a vertical plane. Although in a Tape 1 soliloquy he chants "up down" as he raises and lowers a truck, and this was at first considered to indicate that he was distinguishing the difference, later both children's understanding of terms for polar qualities came to be questioned. Galen's tapes were then reviewed for his use of the word "back" and although there was considerable correct usage, a lack of distinction was found between "back" and "front" on Tape 7 when his father questioned him about the direction the rider of the motorcycle was facing. Tracing the word "back" throughout the tapes is done in detail below. Galen's dialogue parts begin in centre of the page.

His mother uses "back in the box" four times.

1G9-10

M: Shall we put these all back in the box?

in the box

His father tells his cousin twice to move out of the way.

F: You come back this way.

On Tape 4 "back" appears 11 times. It is a word in the story Galen

has memorized ("back yard") and he has to turn "back" in the book when he loses his place.

4G2

M: You went over one page too fast.
You go back.
There it is.

4G5

I'm back here
we're back here

4G6

M: There's the old chipmunks.

back this way

M: You wanta start over again?

yes I did

Galen loses the page again.

4G7

where is it
back there

4G8

M: Soon they came back.

Galen is looking at another book.

4G13

can see the bees back here
the bees are back here

On Tape 5 "back" is used 15 times.

5G1

I'm gonna put them all back in mum

Both adults use it as they position the toys.

5G1

M: Pull this back?

It occurs frequently as puzzle pieces are being fitted into a frame.

5G4

goes back this way

5G6

it goes back there

5G18

goes back this way

His mother uses it in several senses.

5G20

M: Well you come back here and see if you can see it.

5G17

M: That's sort of his back bum area.

5G24

L: Back with mummy

M: You come back

L: You go back with mummy

5G26

M: He's back here somewhere. (In a book "back" may mean towards the front.)

5G28

M: Simple Simon's back this way farther.

Galen also uses the noun homonym "back".

5G16

he has two cars

he has two cars on his back

L: On his back?

yeah

M: On his head?

--- yeah

On Tape 6 his mother uses it once.

6G13

M: Oh well you better make it the right way so it'll fall back on again.

Then on Tape 7 his father experiences the same kind of difficulty with

"back" and its opposite that will turn up later on Tape 11. At first

Galen handles the word correctly as they load the toy camper truck.

7G4

you fix it back on

7G5

F: You slide it back.

7G7

F: Can you put the boat back on the truck?

Then his father notices Galen has put the driver of the motorcycle on backwards.

7G8

F: Is he facing the right way?

yeah

F: He can't see where he's going.

is that the right way

F: Is this fellow looking forward or back?

back

F: Well he's got to look forward doesn't he so he can see where he's going.

there (Galen fixes it)

When Galen asks where to put the dog his father replies:

7G9

F: Well you can put him in the back if you want.

A later direction from his father is:

7G11

F: Why don't you sit over there so Lois can see the back of the truck?

To his father's surprise, when Galen starts the motorcycle on its way home, the driver is facing the wrong way again.

7G13

F: She's driving backwards!

there (He doesn't fix it.)

F: That's the back of the motorcycle.

that's the back of the motorcycle

F: Where's the front?

that's the front (He doesn't know.)

F: Where's the front?
Which way is the girl facing?
The front or the back? (Galen fixes it.)
Oh now she's facing the front.

7G14 I guess it goes into the kitchen
back into the living room again

On the same tape the conversation with his mother contains the word
"back" also.

7G18
M: Can the ladder go back here I wonder?

7G19 put this back on there

7G21
M: No we should move it back a bit.

7G22
M: Can we take the boat off the put the furniture back in the truck?

no

M: Shall we put some of the furniture back inside?

yeah

M: Can you put the table in?

put the table back in

Galen is still playing with the motorcycle as the word "back" is used
for the 19th and final time.

7G25 here he comes back again

On Tape 8 communication breaks down slightly each of the two times
"back" is used.

8G15 you you do it like this

M: From the back?

yeah

...

you you turn around and do it like that

M: Yes boss. (She laughs.)

8G21
M: You better pull him over towards your truck.

oh I just backed that way

M: You just backed that way.

oh I guess towards the truck

On Tape 9 Galen uses "back" locatively but has a problem with it as a verb form.

9G6 now it can go back there

9G18 oh the cars are gonna go back on
freeway with the trucks

9G20 is it is it is this service station
back here

9G20 yeah back there

9G19

M: You bring the other ones back on

pushed him off

M: Where do you want him to go?

you can back him up

M: Back him up?

yeah back him off
back him off
back him off over here

M: Well you do it.
You show me what you want.

On Tape 10 only his mother uses the word "back".

10G3

M: We could put this back like this.

...
'N' do you think we could get some wheels to fit on back here?

...
We'll have to have our truck higher at the back.

10G4

M: It's just a little taller at the back.

David, on the contrary, uses "back up" correctly on the second tape.

2D8

--- train--- t turn around 'n' back
up like this way
like this way

M: That's a good way.

On Tape 11 his mother uses "back up" to direct him where to sit. It is unclear whether he understands what to do from the words or her expectation. His mother does have to emphasize the word "front" as well.

11D23

M: Okay you better back up a little bit if the lake is right there
C'mon
over you come over here and they have the lake in front of you.

David himself uses the word "back" only eight times on the tapes and on each occasion a different phrase is employed. Note that "going to" and "back on" are modelled in 4D4 and 10D5.

4D4

M: Where's it going to now?

going to back here

7D8

he --- put the people back in 'cause
they sick

10D5

M: Better put the blade back on.

wait a m
I gotta put the windshield back on
first

11D12

it's time to go back home now

11D13

no they gonna go back home now

Again on Tape 8 there is a use of "back" that seems to puzzle his mother.

8D18

M: Is she going up the steps?

yeah and the mum go too
she she's going back

M: Careful honey

two of them are going ---back

M: Two of them are going back?

yeah yeah two two

As for the situations in which David hears the word "back", they are varied and tend to be found in fairly long, complicated utterances no matter who the adult speaker is. "Back" is used in conjunction with the verbs put, take, bring, get, move, come and go; it is joined to the relationship words in, on, of, together, to, behind, down, there, and where; as well as "back up" there is "back around" and "back" is used both as a noun and as an adjective. In the following list the name of the adult speaker has been omitted and the sentences have been ordered to show similarities in the lexical environments.

Examples of adult models of "back" in David's tapes:

- 2D1 No no put it back.
- 2D18 Put it back to back with this one.
- 3D14 Put the girl back in.
- 8D13 Let's put this fellow back on the road.
- 9D25 You just have to keep putting it back on until it does that's all.
- 9D25 You put the kitty-cat's dinner back here where he can eat it.
- 6D17 Well you can put it back together David.
- 8D16 I'll see if I can get it back together David.
- 3D14 Bring your train back this way David.
- 6D3 Bring it right back over here and we'll put it this way so that Lois' camera can take the inside of it.
- 7D5 There should be lights back there anyway.
- 6D3 No you have to take it back.
- 6D3 You move back here with me.

- 6D5 Move back this way and then we'll pull the house over.
- 5G24 And the funny old hills come back and say ____.
- 10D17 The truck usually just takes the parcels off and comes back again you know.
- 10D17 Well isn't the truck coming back again?
- 10D17 Oh there'll be more picture when you come back from the bathroom.
- 3D14 Make your train come back David.
- 6D6 Now the house should go back that way.
- 7D15 That's the opening so you can get your hand in honey 'cause you couldn't get your hand in the back door very well.
- 5D2 That's how many steps I have in my back steps.
- 5D15 Just imagine we're goin' up the back steps again.
- 7D21 In this back part here.
- 4D2 I'll hold the back end down and you wheel that up high.
- 7D21 See this place in the back?
- 7D6 They put it right on the back.
- 11D9 He's on the back of the fire truck.
- 7D9 Yeah there was something fell down in the back here too someplace.
- 9D17 That's the guy that was walkin' around behind the back of the house.
- 3D11 We don't want your back all the time.
- 6D6 Hard to keep him from getting his back to you.
- 6D14 I guess they're the back of the eyes.
- 6D16 And we call the back of the boat the stern.
- 4D6 Now you've got more room to back your truck around.

APPENDIX 24

Causal Relations and the Word "Because"

Another lexical item that the two children use and that they might be considered to "know" or "know the meaning of" is the word "because". For David, only one instance is recorded in the first half of the year; then, quite suddenly, coinciding with an increase in negativity, "because" comes frequently into both children's protocols. As is typical of Galen, he learns it as a reply to his mother's cue, "why". For him the function is not one of putting forth a reason but of upholding his own viewpoint. Justification for what he wants to have happen is seen to be the underlying intention. Note that "how" triggers the same response as "why".

8G3

M: Why is the man standing on his head in his house?

'cause he is

8G2

M: How are you going to knock it down?

'cause I am

8G19

M: How did they get undone?

'cause they did

9G20

M: Why do you want a service station?

'cause the cars wants to go the
service station

11G29

M: Back my car down?
Why?

'cause you do

M: Why?

because want my --- all the way back
again

11G14

L: Oh what broke the siren?

'cause it doesn't work like that

11G28

M: Why did you knock the bridge over?

'cause I did

11G4

M: Why won't that one fit?

'cause it won't

David also responds with "because" to his mother's cue which can be "why" or "how come" or "what for", but his reply often includes a recall factor as well. The sense is of two things that occur together rather than of one causing the other.

7D4

and he's going to take the trailer
every month

F: How come?

'cause this
and this 'cause

8D19

M: Do you think you and your little people could go up the stairs?

no

M: Why not?

'cause I'm gonna keep them in here

M: What for?

'cause they 'cause they're crying

M: Oh

'cause they're 'cause they don't like
it up here
'cause sunny and brighting

9D2

F: How come it sits on there?

'cause --- block boat
this is a block boat goes like this

10D13

M: Maybe he could bulldoze some of these things together.
Think he'd like to do that?

(David's answer refers to a different
and earlier part of the conversation.)
yeah and the bird's all fixed now 'cause
he's all tuh tired

...

he mighta have mighta go beddy bye
'cause he's awfully tired...

10D11

see those are mail

M: Those are mail are they?

yeah they go right there

M: I see.

but don't touch them 'cause they're
awfully smooth 'cause they are
'spensive

11D11

M: How come the bus is upside down?

because it's dirty

M: ...

How about if we pretend to clean it with the fireman's hose.

The sequel to this interchange occurs nine pages later, this time
at David's instigation.

11D20

guess who's upside down
this car

M: Hm
Why?

because he's dirty

By Tape 12 both children manage to sound almost correct in their use of "because", although as in 12G27 below, continued questioning by the adult may reduce the child to circularity as in 12G27.

12G24

M: He's running isn't he?

because the wolf's chasing (a question)

12G27

M: He's the smart little pig.

he's the smart little pig (a question)

L: Why is he smart?

because he's building a house

M: of _____

bricks

L: What's good about a brick house?

because a brick house is is what pigs make

M: Can the wolf blow the brick house down?

yes he can

12G28

oh now he's screaming

M&L: Why?

because he burned his bum

What often appears lacking is not the word or the technique of using the word in a situationally apt manner, but the understanding that "because" relates two events in the sense of explaining the relationship as causal. The problem is that, for the child, a considerable portion of the field of meaning which is connected by convention

to the word "because" is missing. And when one adds this type of example to that body of knowledge concerning the growth of cognition in children, it is further evidence for the notion that the young child reasons syncretically. In the case of "because", his intention is not so much to explain, as to include, in an authoritative way, his own desire in the matter. His motive is to establish his position, not to present a reasonable argument. It is the adult who is introducing meaning syntactically, and not necessarily the child at this stage in his development.

M: Yeah

'z dead

M: Mhm

1G13

up down up down up down

2D4

put it down up

2D12

go up and fall down

By Tape 9, however, David has grasped something of the principle at least; his antonym for "sick" is "better". Note that this final example is presented side by side with an earlier instance of the use of "good" and "better" that is mixed with an inaccurate use of the negative. The viewpoint being advocated is that opposites and negatives are inadequately conceptualized by the child at this stage and this in turn sets up discrepancies between the syntactic and semantic implications of what he says.

2D12

M: Here's a nice big one.
This is a better fit.

no that's not good fit

M: It's not a good fit!

no

M: I thought it was a terrific fit.

9D22

that's the house

F: Uhuh

that's the the our house where better
people live in

F: That's where the better people live in eh?

yeah

F: Mmm

and the sick people live in here

F: The sick people live in there?
Gee whiz

yeah

F: I didn't know that.

but the better people live in the
other house right here

F: I see

but the sick people live in right
here

His comment to his mother about the same structure again brings in
the same contrast.

9D24

M: What is it David?
What's this?

that what I maked
that --- goes up here and goes down
and they go way up here and then they
did
duh

M: Is it a building?

no

M: Oh

that's the sick house and that's the
better house
this the sick house --- (what) people
go in

APPENDIX 26

Baby Talk

A paradox in the protocols is that David's mother, whose expressed conviction is that adults should not use baby talk but speak to children without modifying their speech, is the one to employ hypocoristic suffixes extensively. Galen's mother, on the other hand, who so greatly simplifies her utterances for Galen's benefit, hardly ever uses diminutives. On Galen's tapes the neighbour's dog is referred to by its proper name, Lady, except for a period of several months when Galen's pet name for Lady is Lady-G-Lady, which comes from his and his mother's play with beginning sounds. Just once is the word doggie used and in that instance it refers to a picture and not a live dog (5G35). The only other diminutive that is recorded in the entire year is the word "calfie" on Tape 1 (1G15). Nor is a train a choo-choo for Galen, though after playing with his cousin Barry for two weeks Galen does say that the train goes "chugga choo".

Again when it comes to representing the sounds of animals and machines, there is a clear distinction between the practices learned by the two children. David imitates the actual sound directly. His favorite toy is a fire engine, and his fire engine noise, in fact, is so piercing and frequent that for about a year it creates a family problem. As he lives on a fire engine route, hardly a day had gone by since his birth that he hadn't heard the real thing, often being wakened by a siren in the night. Conversely, Galen was given

conventional pronunciations for sound effects. For instance, during the year his mother introduces the car noise "brm" and it eventually reaches the status of a verb, as in (10G8) "You can brm your car".

David, unlike Galen, uses both diminutives and words composed of reduplicated syllables which are not only accepted by his mother but actively instigated by her. The suffix "ie" is occasionally added to more than the noun word class, to create, for instance, adjectives such as "coldie". Three words that crop up repeatedly in David's mother's speech are "doggie" for "dog", "choo choo train" or just "choo choo" for "train", and "car-car" for "car". David uses these words frequently as well, although "dog" and "car" and "train" are also in his vocabulary. He tends to use whichever version she has just used and vice versa.

1D2

M: 'N' we're gonna go on the choo-choo train?

2D2

M: Here comes your choo choo round the corner under another bridge.

2D19

M: Get one of your car-cars to run along that road

let's have a car-car like this way

11D17

M: It looks like the doggie to me.

12D35

M: It's coldie coldie out there.

Other baby talk expressions that are introduced into the conversation by David are "horsie" for "horse" (1D2); "lambie" for "lamb" (1D20); "leopardie" for "leopard" (1D21); "dins" for "dinner" (4D15); "fishie" for "fish" (5D4); "beddy-bye" (10D14); and even "toilie" for "toilet" (7D3). The last is an obvious surprise to his father who has

already used "potty" previously in the conversation. For baby words that David has introduced, the usual procedure is that the parent continues with the use of the diminutive. Only once is a baby talk word rejected by the mother. She does not accept "lambie" for "lamb", presumably because the word "lamb" already indicates smallness.

ID20

M: Yeah but these aren't tigers.
What are they?

lambies

M: Lambs

lambs

ID21

M: Oh yes and what's that?

leopardie

M: Good for you

7D1

F: They don't drink out of the potty.
(He is referring to the miniature toilet in a play camper.)

7D3

F: What's that thing there?

a toilie

F: A what?

a toilie

F: A toilie!

(What David is referring to is a picture of a lobster.)

Since David introduced baby talk into their interchanges more than his mother did, it was assumed that her active teaching of diminutives to David was on the wane, this state of affairs being in direct contrast to what was happening with his sister Elisa. All the following were addressed to the younger child, who had begun to use only one, the

word "doggie". On Tape II (IID17) Lisa replies "doggie dog" to a question her mother asks David. The mother's tone of voice suggests that endearment is the motive behind her use of these expressions.

4D16

M: That crust feels good against her toofies.

9D23

M: Let the kitty cat eat now Lisa.

10D16

M: Diddy up (giddyup)
(Lisa is riding.)

11D11

M: Here Lise
Oopie oopie come
(Oopie is a common interjection for David's mother.)

11D12

M: Come see mummy Lise.
Did y'get a bobo on a finger mm?
(She kisses it.)

A final and slightly different example of the use of baby talk in David's household is the following interchange revolving around the word "little" which David pronounces "widdle". This particular example is also a demonstration of two points made earlier in the chapter on meaning, namely that the child of this age has not made the distinction that opposites are polar qualities, and that the psyche or personal factor may suddenly intrude and distort the factual accuracy of the message. In this case David does not want his little sister to have the distinction of being little and displacing him; nor does he wish to see himself as less grown up than his friend Noel, who is an older, bigger boy. David's mother enjoys and adopts his baby pronunciation, probably even prolonging it, since David's pronunciation of "l" in other words, such as Lisa, lots, and candle, is quite adequate from Tape I on.

5D20

M: Are you a big boy David?
Or are you a widdle boy?

yeah I'm a widdle boy

M: Only a widdle boy?

yeah

M: Widdle widdle?

yeah

M: You're not as widdle as Lisa.

Lisa's bigger.

M: Bigger than who?

I'm widdle.

M: You're widdle?

yeah

M: Are you as widdle as Lisa?

mhm

M: Oh I don't know.
I think maybe you're a big boy now aren't you?

no

M: Are you as big as Noel?

yeah

APPENDIX 27

Specific Lexical Biases

Mother usage of specific lexical items is reflected quite faithfully in the child's usage. It makes no difference to the child whether a new word is an unusual word; if the mother uses it situationally, the child will, as a matter of course, use it as she has done. It is in this way that David's labelling extends to "xeranthemum" and Galen's interjections include "eek".

12D37

M: This is called a uh xeranthemum

a exranchemum

M: Yeah that's a hard word to say.
Mummy has trouble with it too.

11G22

M: Eek!

(She is exclaiming over the arrival of the toy train.)

we have to gate put the gate right
here
eek
it's gone

11G24

eek there's a train
another one
eek
("Eek" appears again in 11G26 and
11G27.)

No claim is being made here that the children now "know" these words. In fact, in both cases, the specific item used appears only this single time over all the tapes. Furthermore, in David's case, it is highly unlikely that the word he imitates will ever become part

of his permanent vocabulary. The real significance of these examples is that they illustrate a process that occurs repeatedly, but is not conspicuous until it involves an out-of-the-ordinary expression. What happens, quite naturally, is that the child is continually reproducing what the mother models as appropriate for the situation. The extent of this duplication has been documented in the chapter on repetition. What is emphasized throughout is that the adult role is significant precisely because of the child's unconscious but thorough assimilation of the adult's speech practices.

During the course of the year's videotaping it became possible to identify many of the stable characteristics of each mother's verbal style. Then it was found that within the dialogue of each mother-child pair there were many idiomatic congruencies. Again it was due to the fact that the two mothers were sufficiently different in their choices of functionally similar lexical items and syntactic constructions that direct carryovers were obvious. The first difference to appear was each mother's manner of commending her child's correct choices. David's mother (and David) used "right", and Galen's mother (and Galen) used "very good" as follows:

ID13

M: What that?

choo choo train

M: Right

ID5

M: Who gave you that one?

Martin

M: For your birthday wasn't it?

right
for birthday

As usual, Galen became adept at the phrase "very good" through his mother's collocational cueing process. In this example he shows how familiar the phrase is by saying it before his mother does.

1G5

M: What does that say?

here
that truck
that truck
very good

M: Very good Galen

By Tape 12 Galen tries to use the word "right" but he does it incorrectly. He tells his mother that one of the puzzle pieces is not put in "right", but since it is right, one can only surmise that he is exhibiting another instance of confusion over semantic polarity, as discussed in Appendix 25, or perhaps a lack of differentiation from the locative, "right here".

12G8

I wasn't right here

M: You weren't right there?

no this wasn't right

M: Well that looks all right to me
What's the matter with it?

nothing

M: Oh
So it's right then.

Another area where adult influence can be very plainly seen is in the matter of favourite ways to preface sentences. For a while Galen's mother used the preface "I guess" a great deal and Galen did too, to the extent that his mother decided that "I think" would be a more accurate phrase for her to use. After she had changed

her "I guess" to "I think", Galen also began to use "I think" exclusively. On Tape 7 a peak in Galen's use of "I guess" occurs, but by Tape 10 the changeover has taken place and even when his mother forgets and uses "I guess" he responds with "I think". On Tape 7 "I guess" is used 20 times and starts to be put at the ends of sentences as well. What triggers its use is usually a question from the adult.

7G21

M: What happens when you take the boat off the top?

I guess it fells off I guess

10G8

M: I guess we'll make our car black and yellow.

well I think we'll make it yell _____
mine's yellow

12G26

M: What is he gonna do with the stick house?

I think he's gonna blow the stick
house down

"Well" is another preface used a great deal by Galen's family and occasionally by him. Galen begins sentences with "well" when he is acting as an equal and giving his opinion.

7G3

F: Well who did you put in there?

8G2

M: Well can we leave that as part of our house?

11G24

well well I think I'll hafta put
the gate

11G28

well I just knocked the bridge over
(The cement truck is saying this.)

David picks up a different set of prefaces from his family's usage, but generally uses prefaces much less than Galen. He does not

attempt to take over the adult explanatory role in the same way that Galen often does, so perhaps he identifies expressions like "well", which he does not use, as belonging to the adult. The phrases that he does pick up are those his father uses constantly and that his mother uses slightly. They say "see", "eh", and "how about". "About" appears in several constructions but most commonly in "how about" and "tell me about". Interestingly, though, he does not use "how come", used in the sense of "why", although he hears it at least as often as he hears "how about". David uses "think" in more than the "I think" construction that Galen uses. "Remember" is an early preface for David, and "d'y know" or "you know" is another favourite that David begins to use later in the year.

7D6

F: See where they put their motorcycle?

7D21

M: See this place in the back?

D12

F: See?

This is how you wash your hands in the sink.

7D9

the boat gonna go
see this is the boat

7D9

see
he's carrying the boat

9D1

F: How about building something up eh?

8D2

that just about 'bout does it
eh mummy

8D12

M: You having trouble?
What happened to your cars?
Where are your cars?

eh

M: Eh what?
Do you know where your cars are?

3D2

M: How about some roads?
Make some roads.

7D9

F: Oh how about building it around the other side?

11D10

how 'bout this man

...

how 'bout this one

...

or how 'bout this one

1D15

M: Do you know what those are?

7D3

F: You know what it looks like to me?

10D18

mailmans gotta have hatsh you know

11D19

d'you know d'you know d'you know
where the fireman's gonna _____

11D22

d'you know where the water's going
to come from

5D13

Grandfather: Tell me about it.

10D2

M: It was a crane with a scoop on it

tell me about it

David's mother and her father use "tell me" and "remember" similarly.

5D10

M: And you remember the old lady who said, "Don't touch my sweater!"
Remember her?

5D14

Grandfather: 'Member when we used to take you up the back steps
and always made you count?

2D19

'member this this this way

David uses "I think" and not "I guess".

7D2

F: All the people sit in there too I think

yeah

I think ---

7D16

M: What do you think they're doing with tha that meat?

10D14

he thinks'd he would go bed wi'
his little sister

APPENDIX 28

Different Informative₂ Verb Choices

Another clear split between the two mothers that was also being reflected in child usage was the alternation of "going to" with "have to" in the Informative₂ paradigm. Tape II shows that David uses "going to" almost exclusively when planning the next step in his play, while for Galen "have to" predominates, just as it does in his mother's speech. Along with "have to" Galen uses the pronoun "we", a word that does not occur except in questions in David's protocols. It is interesting that Galen's mother is unaware that it is her style of conversation that Galen is reproducing. At the beginning of Tape II she objects mildly when he keeps using "we" as he gets his toys ready for action.

11G1

M: Who's we?

But the pattern is so firmly entrenched from previous play sessions that this does not deter Galen from continuing.

Examples of "we":

- 11G4 we got all sorts of bridges for trains
- 11G13 we have we haven't got anything to go along our road
- 11G4 so we have to have a place for cars
- 11G4 we'll j we'll just finish our railroad track
- 11G4 so --- (first) of all we have to get more blocks
- 11G11 so also we have to get more blocks

- 11G5 and now we have to go turn
 11G7 oh yeah we have enough blocks
 11G9 look we've got three of them
 11G9 we could get some more blocks ---
 11G13 we could play with this one
 11G9 an'en we have to put this ramp on them for them to go down
 11G11 an'en an'en we can make a big tunnel
 11G25 now we can do it again
 11G18 do we hafta wait for a light here
 11G20 so we hafta wait
 11G28 "We can put the bridge back ---", said the fire engine truck.

How it is all learned is illustrated at the end of the tape when even his mother reverts to her usual way of talking by pretending the toys are doing the speaking.

11G33

M: We are here to fix you up.

we are here to fix you up

Altogether on Tape 11 Galen uses "have to" 23 times, plus "has to" once. At one point he uses "he has to" correctly but immediately repeats it incorrectly, saying "he have to" (11G15). By way of contrast, he uses "gonna" or "gon" six times, but four of those times are repeats in the course of one incident. David, on the other hand, uses "going to" and its elisions 34 times and "have to" only twice. On Tape 10 he uses "gotta" for "have to" (10D5), and also for "got a _____" (10D1). Galen uses "got" and "have" interchangeably from Tape 2 on, but not "gotta".

11D5

all the people have to go to school

11D24

I have to get ah oh

The psychological reason for the children's difference in usage is not hard to find. Galen's mother encourages his compliance by supervising what he does very closely and making most activities into joint projects. David's mother's interactional procedures are quite the opposite. She plays in parallel with David. Her independent role leaves David free to direct his own play sequences. There is little that David is required to do; Galen's life is regulated by his mother's ordering of his activities. The appearance of "have to" in David's mother's speech is very occasional; in Galen's mother's speech it is habitual.

It may be that the two children's use of "will" and "can" is also a reflection of differences in their mother's socialization practices. On Tape 11 David uses "will" 12 times and "can" only three times, including once negatively, and once interrogatively ("can't" and "can I"). He also says "shall" several times and "would" once (11D24). One of his uses of "will" is with "be" in the sense of pretend.

11D11

the sink shall be right there

11D15

what shall we put in the water

11D1

what will be ---

David's mother is the source for the word "shall", because she quite regularly uses it to begin questions.

4D7

M: Shall we put the driver in it?

Galen, throughout the tapes, uses the word "can" much more often than "will" and much more often than David does. On Tape 11 Galen uses

APPENDIX 29

Preferred Mother Modes

Mother influence on the two children's language extended far beyond the phonetic and syntactic patterning transmitted by the sound of the input. The two mothers' management techniques shaped and controlled every turn of the conversation and in so doing provided each child with a host of specific acquisitions unique to that dyad's interaction. One example is the word "said". Because of the imaginative type of play that David and his mother preferred, the word "said" was never used. When a play character was to do or say something David simply did it or said it himself, often getting so involved that he would express even the feelings of the play figure. For example, in Tape 10 he became the postman, collecting and delivering mail, using Lego pieces as parcels and piling them on a tiny truck. The parcels were "too heavy" and the job was "lotsa work".

Galen and his mother used manipulative play almost exclusively. In a pretend situation they both stayed outside the drama as an audience to it. Galen would describe the actions of his toys as if they were characters in a story or actors in a puppet show. He would tell his mother that certain things had been said or done, for example,

11031

be careful of the corners said
the engine

...

oh ah I fell over said the coal car

The word "said" was thus a lexical item Galen had acquired and David had not.

Manipulation of each other's roles and speech contributions was also very common for Galen and his mother. Galen would tell his mother to "say _____", or ask a leading question so that she would produce a statement that he wanted to hear. His mother persistently introduced elements of planning and sequencing into their joint activities and Galen learned to require her lead. Contrastively, David and his mother operated independently of each other. David's mother did not consult him as to what the action should be but simply went ahead and initiated her own moves in their play together. This left David free to make his own initiatory ventures. In addition, he received approval for introducing new directions and new ideas. Once he got started, his mother could drop out of the activity and become an interlocutor or facilitator. David's pretend play sessions with his siblings grew more and more imaginative over the years while Galen's play continued to hinge on activities employing small muscle movements. Galen's attention to details made him a careful observer and capable of long periods of concentration. David's range of activities continued to encourage a diffuse and scattered approach. The boys' respective homes clearly supported development in totally different directions and all of this was present in microcosm in every session of mother-child dialogue.

Mother questioning style is a second example of the relation between each mother's overall character set and her preferred modes of verbal interaction. David's mother's questions (see Appendix II) were, on the whole, direct requests for information she knows David

possesses. On the other hand, Galen's mother's questions were only in a few instances for the purpose of examining him. She did not try to find out what he knew, nor did she, by questioning, expose him to situations where he was wrong. This was a part of her general carefulness over avoiding unnecessary problems by being painstakingly careful beforehand. What Galen continually got from his mother's questions was cueing. By them he knew what the next step should be. A focus on sequencing can be seen just as readily in his mother's questions as it can be in other facets of her behaviour.

IG1

M: Would you like a little soup?
(She has it ready to give him.)

IG6

M: Where's the word motorcycle?
(She is directing the finding of puzzle pieces.)

IG8

M: What're you gonna do with your cars?
(They have just finished getting them out from under the fridge.)

IG10

M: You gonna put the steamship and the yacht and the bus and everything all back in the box?
(This is the fifth time in a row she has made the same suggestion.)

M: Want to sit on the counter?
(Galen has gone over to the counter to be lifted up.)

His father used the same technique of making a suggestion via a question.

2G5

F: Are you gonna dig some more sand with your tractor?
(Altogether he utters five questions about what Galen might do next with his tractor.)

While David's questions were direct like his mother's, Galen's questions were a means of cueing his mother as to what he would like her next move to be. This had already been established by Tape 1. His questions perform the same function as his parents' questions do.

- IG8 mummy will find it (rising intonation)
(He wants his mother to find a
missing card.)
- IG14 mummy just get the trucks (rising
intonation)
(He wants his trucks from the bedroom.)
- 7D4
M: What do you want to do?
- that there
is that a door
- M: That's a window.
- is that a door
(He wants it to be a door.)
- M: Yes it can be.
- is that a door
(He is cueing her.)
- M: Yes.

The course that conversation and play took for each couple was profoundly influenced by the mother's coping orientation. Just which details the mother focussed on during the dialogue very closely matched her own set of consistent personality traits. For instance, Galen's mother's method of dealing with life situations (and this is perhaps related to her arthritic condition) was to plan and sequence practical operations so carefully that success was assured. This characteristic of hers was more than an action pattern; even her speech fell into sets of carefully ordered and concise sentences that directed Galen's activities little bit by little bit to the desired goal. The extent to which her predilection to accomplish tasks in a stepwise manner dominated the conversation of the pair has to be viewed to be appreciated. Most of her dialogue turns had some element of planning for the next step in them in direct contrast with

David's mother's turns which were largely elaborative. The advantage of this for Galen was that he had already learned by the early age of 2 to be orderly and methodical. His ability to concentrate for long periods of time while carrying out step by step procedures was decidedly unusual; he was deliberate to an unchildlike degree. The fact that he was in a situation of maximum adult control kept him performing at a high level. Everything he did was carefully channelled toward some end; caution was exercised by his mother to the extent that accidents and unpleasantness were largely avoided. Allowing him initiative was a matter of management by his mother as well. When she wanted him to take over she would say, "you do it", which placed him in the reciprocal position of attempting to direct her activities in order to get done what he wanted done. Direct displays of initiative were rare for Galen. Instead, he developed ways of cueing his mother so that she would provide the model he had been trained to seek.

The most compelling contrast between Galen and David was David's comparative freedom to function on his own, which stemmed directly from his mother's totally different outlook as to what constituted workable living arrangements. In David's household there was a minimum of caution taken for the children's physical safety and little shielding from adult problems and concerns. Small accidents and a continuous flow of emotional upsets and minor illnesses were treated as part of the daily routine. David's participation in any activity, be it watching TV, eating, or napping was likely to be impulsive or fleeting. The model his mother presented in the play sessions was one of managing her own affairs; she played in a parallel manner beside David, without anticipating what direction his play might take,

thus leaving him free to introduce whatever action occurred to him. Whatever she did suggest he do was hardly ever taken up immediately by David; but quite often her ideas were subsequently and after no small delay reintroduced into the conversation as his own ideas. The function she assumed in her speech was therefore not one of planning and sequencing but of elaborating: not one of narrowing down to a single focus or problem but one of inclusiveness. She habitually enumerated impressions and details related to what David was doing, by bringing in references to feelings and recalling similar circumstances. Most of her turns brought in more than one idea, whereas Galen's mother's generally kept to a single idea. Fantasy play was a particularly rewarding experience for David because his mother responded best when he became involved in working through the episodes of a pretend situation. What was affected by the dynamics of the situation was the greater number of times which he took the initiative than Galen did.

The effect of parental interests and expectations was most clearly seen in the gaps and precocities displayed in each boy's language usage. David's mother's enjoyment of imaginative expression was paralleled by David's absorption in fantasy play and all the speculative comments that it entailed. Galen's mother's problem-solving bent was also Galen's penchant when it came to making conversation together in front of the camera. By contrast, Galen's flights of fancy were very few, and so was David's sustained interest in construction for the sake of problem solving. Narrative and recall were quite beyond Galen's capabilities at this stage, with one exception -- he could order his toys around like little puppets. Similarly, ordering and sequencing activities usually

ended in frustration for David except for the clever manipulation of Lego blocks which he managed very well from about 20 months old. Galen's mother, who really rather preferred language as sound than as meaning, had a son who was very alive to the sounds and the names and the shapes of letters and who "spontaneously" played at substituting and rhyming with them. David's mother, to whom language was above all a medium for expressing emotions and ideas, had a son who just "naturally" remarked about his play characters' feelings and thoughts. The conclusion drawn from this is that the question of content in child language learning is primarily a matter of the child's unique environment. Each child had learned to speak his native language from a particular model in a particular setting. He had adopted the practices demonstrated for him by his parents as regards prosodic features, lexical range, and conversational turn styles. But the gamut of adult speech a child is exposed to is in its turn shaped by the belief and value system of the parents. Although this aspect is most often considered a sociolinguistic one, this study has featured it as a factor of pragmatics. The line between pragmatics and sociolinguistics is stretched very thin when it comes to child language acquisition.

To conclude, the point that is being made in the foregoing discussion is that for each of the two children their language learning milieu was necessarily and uniquely circumscribed by the purposes and life-styles of the adults in charge of their respective environments. What is important to realize is that in no array of parental traits, good and bad, can we hope to capture the actual effect of the pressures and opportunities inherent in real-life situations. Traits by and of themselves do not hold consistently over the whole range of the adult's behaviour.

For instance, Galen's mother's simplicity of syntax was not matched by a corresponding simplicity of power relations, and David's mother, who avoided talking down to children, nevertheless introduced many diminutive terms, for totally different reasons. What is consistent are the parents' total personality sets; what they encourage, discourage, and model in one conversation is what they encourage, discourage, and model in all conversations. There are countless mother utterances that are similar from day to day, not the same from mother to mother, but the same from the same mother. We miss the true impact of mother-child dialogue if we fail to take into account the familiar interchanges that are engaged in so often that they become indelible parts of the child's experience.

BIBLIOGRAPHY

- Abrahamson, A. A. Child language: An interdisciplinary guide to theory and research. Baltimore: University Park Press, 1977.
- Anderson, E. S. An annotated bibliography. In C. E. Snow & C. A. Ferguson Ferguson (Eds.), Talking to children: Language input and acquisition. Cambridge: Cambridge University Press, 1977.
- Anttila, R. Child language, abduction and the acquisition of linguistic theory by linguists. In W. von Raffler-Engel & Y. Lebrun (Eds.), Baby talk and infant speech. Amsterdam: Swets & Zeitlinger, 1977.
- Aronson, J. L. Connections: A defense of Peirce's category of thirdness. Transactions of the Charles S. Peirce Society, 1969, 5, 158-171.
- Austin, J. L. How to do things with words. London: Oxford University Press, 1962.
- Ayer, A. J. The origins of pragmatism: Studies in the philosophy of Charles Sanders Peirce and William James. London: Macmillan, 1968.
- Ayim, M. Retrodution: The rational instinct. Transactions of the Charles S. Peirce Society, 1974, 10, 34-43.
- Baldwin, A. L., & Frank, S. M. Syntactic complexity in mother-child interactions. Paper presented at biennial meeting of Society for Research in Child Development, Santa Monica, 1969.
- Bar-Adon, A., & Leopold, W. F. (Eds.). Child language: A book of readings. Englewood Cliffs, N.J: Prentice-Hall, 1971.
- Bates, E. Pragmatics and sociolinguistics in child language. In D. M. Morehead (Eds.), Normal and deficient child language. Baltimore: University Park Press, 1976a.
- Bates, E. Language and context: The acquisition of pragmatics. New York: Academic Press, 1976b.
- Bellugi, U. The development of interrogative structures in children's speech. Ann Arbor, Michigan: Center for Human Growth and Development, 1965. (ERIC Document Reproduction Service No. PS 001 494)
- Benedict, H. The role of repetition in early language comprehension. Paper presented at biennial meeting of Society for Research in Child Development, Denver, 1975.

- Berko, Jean. The child's learning of English morphology. Word, 1958, 14, 150-177.
- Berko, J., & Brown, R. Psycholinguistic research methods. In P. H. Mussen (Ed.), Handbook of research methods in child development. New York: John Wiley & Sons, 1960.
- Bernstein, B. A sociolinguistic approach to socialization: With some reference to educability. In F. Williams (Ed.), Language and poverty. Chicago: Markham, 1970.
- Bleich, D. New considerations of the infantile acquisition of language and thought. Psychoanalytic Review, 1976, 63, 49-71.
- Bloom, L. Language development: Form and function in emerging grammars. Cambridge, Mass.: MIT Press, 1970.
- Bloom, L. Why not pivot grammar? Journal of Speech and Hearing Disorders, 1971, 36, 40-50.
- Bloom, L. One word at a time: The use of single word utterance before syntax. The Hague: Mouton, 1973.
- Bloom, L. Language development review. In F. D. Horowitz (Ed.), Review of child development research (Vol. 4). Chicago: University of Chicago Press, 1975.
- Bloom, L. An integrative perspective on language development. Papers and Reports on Child Language Development, 1976, 12, 1-22.
- Bloom, L., Hood, L., & Lightbown, P. Imitation in language development: If, when and why. Cognitive Psychology, 1974, 6, 380-420.
- Bloom, L., & Lahey, M. Language development and language disorders. New York: Wiley, 1978.
- Bloom, L., Lightbown, P., & Hood, L. Structure and variation in child language. Monographs of the Society for Research in Child Development, 1975, 40(2, Serial No. 160).
- Bloom, L., Miller, P., & Hood, L. Variation and reduction as aspects of competence in language development. In A. Pick (Ed.), Minnesota Symposia on Child Psychology (Vol. 9). Minneapolis: University of Minnesota Press, 1975.
- Bloom, L., Rocissano, L., & Hood, L. Adult-child discourse: Developmental interaction between information processing and linguistic knowledge. Cognitive Psychology, 1976, 8, 521-552.
- Bloomfield, L. Language. New York: Holt, Rinehart & Winston, 1933.
- Bolinger, D. Aspects of language (2nd ed.). New York: Harcourt, Brace Jovanovich, 1975.

- Bonvillian, J. D., Raeburn, V. P., & Horan, E. A. Talking to children: The effects of rate, intonation, and length on children's sentence imitation. Journal of Child Language 1979, 6, 459-467.
- Bouton, C. P. La linguistique appliquée. Que sais-je? Collection Encyclopedique No. 1755. Paris: Presses Universitaires de France, 1978.
- Bouton, C. P. Le développement du langage: Aspects normaux et pathologiques. Paris: Masson, 1976.
- Bouton, C. P. La signification: Contribution a un linguistique de la parole. Paris: Klincksieck, 1979.
- Bouton, C. P. Language development: Normal and pathological aspects. Manuscript in translation.
- Bowerman, M. Structural relationships in children's utterances: Syntactic or semantic? In T. Moore (Ed.), Cognitive development and the acquisition of language. New York: Academic Press, 1973a.
- Bowerman, M. Early syntactic development: A cross-linguistic study with special reference to Finnish. London: Cambridge University Press, 1973b.
- Bowerman, M. Learning the structure of causative verbs: A study in the relationship of cognitive, semantic and syntactic development. Papers and Reports on Child Language, 1974, 8, 103-141.
- Braine, M. D. S. The ontogeny of English phrase structure: Language, 1963a, 39, 1-13.
- Braine, M. D. S. On learning the grammatical order of words. Psychological Review, 1963b, 70, 323-348.
- Braine, M. D. S. Length constraints, reduction rules, and holophrastic processes in children's word combinations. Journal of Verbal Learning and Verbal Behavior, 1974, 13, 448-456.
- Braine, M. D. S. Children's first word combinations. Monographs of the Society for Research in Child Development, 1976, 41 (2, Serial No. 164).
- Broen, P. A. The verbal environment of the language-learning child. Monographs of the American Speech and Hearing Association, 1972, 17.
- Brown, J. W. On the neural organization of language: Thalamic and cortical relationships. Brain and Language, 1975, 2, 18-30.
- Brown, J. W. The neural organization of language: Aphasia and lateralization. Brain and Language 1976, 3, 482-494.
- Brown, J. W. Mind, brain and consciousness: The neuropsychology of cognition. New York: Academic Press, 1977.

- Brown, J. W. Lateralization: A brain model. Brain and Language, 1978, 5, 258-261.
- Brown, R. How shall a thing be called? Psychological Review, 1958, 65, 4-21.
- Brown, R. The development of Wh questions in child speech. Journal of Verbal Learning and Verbal Behavior, 1968, 7, 270-290.
- Brown, R. Psycholinguistics: Selected papers. New York: Free Press, 1970.
- Brown, R. A first language: The early stages. Cambridge, Mass.: Harvard University Press, 1973.
- Brown, R., & Bellugi, U. Three processes in the child's acquisition of syntax. Harvard Educational Review, 1964, 34, 133-151.
- Brown, R., Cazden, C. B., & Bellugi, U. The child's grammar from I to III. In J. P. Hill (Ed.), Minnesota Symposia on Child Psychology (Vol. 2). Minneapolis; University of Minnesota Press, 1968.
- Brown, R., & Fraser, C. The acquisition of syntax. In U. Bellugi & R. Brown (Eds.), The acquisition of language. Monographs of the Society for Research in Child Development, 1964, 29(1, Serial No. 92).
- Brown, R., & Hanlon, C. Derivational complexity and order of acquisition in child speech. In J. Hayes (Ed.), Cognition and the development of language. New York: John Wiley & Sons, 1970.
- Bruner, J. S. The ontogenesis of speech acts. Journal of Child Language, 1975, 2, 1-19.
- Buchler, J. Charles Peirce's empiricism. New York: Octagon Books, 1966.
- Bullowa, M. When infant and adults communicate how do they synchronize their behaviors? In A. Kendon, R.M. Harris, & M.R. Key (Eds.), Organization of behavior in face-to-face interaction. The Hague: Mouton, 1975.
- Bullowa, M., Fidelholtz, J. L., & Kessler, A. R. Infant vocalization: Communication before speech. In W. C. McCormack & S. A. Wurm (Eds.), Language and man: Anthropological issues. The Hague: Mouton, 1976.
- Campbell, R. N., & Smith, P. T. Recent advances in the psychology of language (2 vols.). New York: Plenum Press, 1977.
- Carlson, P., & Anisfeld, M. Some observations on the linguistic competence of a two-year-old child. Child Development, 1969, 40, 569-575.

- Cazden, C. B. Environmental assistance to the child's acquisition of grammar. Unpublished doctoral dissertation, Harvard University, 1965.
- Cazden, C. B. Subcultural differences in child language: An interdisciplinary review. Merrill-Palmer Quarterly, 1966, 12, 185-219.
- Cazden, C. B. The acquisition of noun and verb inflections. Child Development, 1968, 39, 433-438.
- Cazden, C. B. Peekaboo as an instructional model: Discourse development at home and at school. Papers and Reports on Child Language Development, 1979, 17, 1-29.
- Chomsky, C. The acquisition of syntax in children from 5 to 10. Cambridge, Mass.: MIT Press, 1969.
- Chomsky, N. Syntactic structures. The Hague: Mouton, 1957.
- Chomsky, N. Review of "Verbal behavior" by B. F. Skinner. Language, 1959, 35, 26-58.
- Chomsky, N. Aspects of the theory of syntax. Cambridge, Mass.: MIT Press, 1965.
- Chomsky, N. Recent contributions to the theory of innate ideas. In J. R. Searle (Ed.), The philosophy of language. London: Oxford University Press, 1967.
- Chomsky, N. Language and mind. New York: Harcourt, Brace & World, 1968.
- Church, J. Language and the discovery of reality. New York: Vintage Books, 1961.
- Clark, E.V. What's in a word? On the child's acquisition of semantics in his first language. In T. E. Moore (Ed.), Cognitive development and the acquisition of language. New York: Academic Press, 1973.
- Clark, E. V. First language acquisition. In J. Morton & J. C. Marshall (Eds.), Psycholinguistics series-1: Developmental and pathological. London: Elek Science, 1977.
- Clark, R. Performing without competence. Journal of Child Language, 1974, 1, 1-10.
- Clark, R., Hutcheson, S., & Van Buren, P. Comprehension and production in language acquisition. Journal of Linguistics, 1974, 10, 39-54.
- Condon, W., & Sander, L. Neonate movement is synchronized with adult speech: Interactional participation and language acquisition. Science, 1974, 183, 99-101.
- Conel, J. L. The postnatal development of the human cerebral cortex (7 vols.). Cambridge: Harvard University Press, 1939-1963.

- Corsaro, W. A. Sociolinguistic patterns in adult-child interaction. Unpublished manuscript, Indiana University, n.d.
- Critchley, M. Jacksonian ideas and the future with special reference to aphasia. British Medical Journal, 1960, 2, 6-12.
- Cromer, R. The development of language and cognition: The cognition hypothesis. In B. M. Foss (Ed.), New perspectives in child development. London: Penguin, 1974.
- Cronbach, L. J. Beyond the two disciplines of scientific psychology. American Psychologist, 1975, 30, 116-127.
- Cross, T. G. Some relationships between motherese and linguistic level in accelerated children. Papers and Reports on Child Language Development, 1975, 10, 64-73.
- Cross, T. G. Mothers' speech adjustments: The contributions of selected child listener variables. In C. E. Snow & C. A. Ferguson (Eds.), Talking to children: Language input and acquisition. Cambridge: Cambridge University Press, 1977.
- Cross, T. G. Mothers' speech and its association with rate of syntactic acquisition in young children. In N. Waterson & C. Snow (Eds.), The development of communication; Social and pragmatic factors in language acquisition. London: John Wiley & Sons, 1978.
- Crystal, D. Non-segmental phonology in language development: A review of the issues. Lingua, 1973, 32, 1-45.
- Crystal, D. Child language, learning and linguistics: An overview for the teaching and therapeutic professions. London: Edward Arnold, 1976.
- Davis, A. E., & Wada, J. A. Hemispheric assymetries in human infants: Spectral analysis of flash and click potentials. Brain and Language, 1977, 4, 23-31.
- deLaguna, G. Speech: Its function and development. Bloomington, Ind.: Indiana University Press, 1963.
- deVilliers, J. D., & deVilliers, P. A. A cross-sectional study of the development of grammatical morphemes in child speech. Journal of Psycholinguistic Research, 1973, 2, 267-268.
- Dore, J. A pragmatic description of early language development. Journal of Psycholinguistic Research, 1974, 3, 343-350.
- Drach, K. The language of the parent. In Working Paper No. 14, The structure of linguistic input to children. Berkeley: University of California Behavior Research Laboratory, 1969.

- Ervin, S. M. Imitation and structural change in children's language. In E. H. Lenneberg (Ed.), New Directions in the Study of Language. Cambridge, Mass.: MIT Press, 1964.
- Ervin-Tripp, S. Language development. In M. Hoffman & L. Hoffman (Eds.), Review of child development research (Vol. 2). New York: Russell Sage Foundation, 1966.
- Ervin-Tripp, S. M. Discourse agreement: How children answer questions. In J. R. Hayes (Ed.), Cognition and the development of language. New York: John Wiley & Sons, 1970.
- Ervin-Tripp, S., & Mitchell-Kernan, D. (Eds.). Child discourse. New York: Academic Press, 1977.
- Fann, K. Peirce's theory of abduction. The Hague: Martinus Nijhoff, 1970.
- Farwell, C. The language spoken to children. Papers and Reports on Child Language Development, 1973, 5, 31-62.
- Feibleman, J. K. An introduction to the philosophy of Charles S. Peirce. Cambridge, Mass.: MIT Press, 1969.
- Ferguson, C. A., & Slobin, D. I. Studies of child language development. New York: Holt, Rinehart & Winston, 1973.
- Ferguson, C. A. & Garnica, O. K. Theories of phonological development. In E. H. Lenneberg & E. Lenneberg (Eds.), Foundations of language development: A multidisciplinary approach (Vol. 1). New York: Academic Press, 1975.
- Ferguson, C. A. Learning to pronounce: The earliest stages of phonological development in the child. Papers and Reports on Child Language Development, 1966, 11, 1-27.
- Firth, J. R. Papers in linguistics 1934-1951. London: Oxford University Press, 1957.
- Fishbein, H. D. Evolution, development and children's learning. Pacific Palisades, California: Goodyear, 1976.
- Fitzgerald, J. J. Peirce's theory of signs as foundation for pragmatism. The Hague: Mouton, 1966.
- Flavell, J. H. The developmental psychology of Jean Piaget. Princeton, N. J.: D. Van Nostrand, 1963.
- Fodor, J. A., & Garrett, M. Some syntactic determinants of sentential complexity. Perception and Psychophysics, 1967, 2, 289-296.

- Fodor, J. A., & Garrett, M. Some reflections on competence and performance. In J. Lyons & R. J. Wales (Eds.), Psycholinguistic papers: The proceedings of the 1966 Edinburgh conference. Edinburgh: Edinburgh University Press, 1966.
- Folger, J. P., & Chapman, R. A pragmatic analysis of spontaneous imitation. Journal of Child Language, 1978, 5, 25-37.
- Fowler, W., & Swenson, A. The influence of early stimulation on language development. Paper presented at biennial meeting of the Society for Research in Child Development, Denver, April, 1975.
- Fraser, C., Bellugi, U., & Brown, R. Control of grammar in imitation, comprehension and production. Journal of Verbal Learning and Verbal Behavior, 1963, 2, 121-135.
- Furrow, D., Nelson, K., & Benedict, H. Mother speech to children and syntactic development: Some simple relationships. Journal of Child Language, 1979, 6, 423-442.
- Gallie, W. B. Peirce and pragmatism. New York: Dover Publications, 1966.
- Garnica, O. K. Some prosodic and paralinguistic features of speech to young children. In C. E. Snow and C. A. Ferguson (Eds.), Talking to children: Language; input and acquisition. Cambridge: Cambridge University Press, 1977.
- Garnica, O. K., & King, M. L. Language, children and society: The effect of social factors on children learning to communicate. Oxford: Pergamon Press, 1979.
- Gazzaniga, M. The bisected brain. New York: Appleton, 1970.
- Goldin-Meadow, S., Seligman, M., & Gelman, R. Language in the two-year-old: Receptive and productive stages. Cognition, 1976, 4, 189-202.
- Geschwind, N. Specializations of the human brain. Scientific American, 1979, 241, 180-199.
- Gibson, W. C. Pioneers in localization of function in the brain. Journal of the American Medical Association, 1962, 180, 944-951.
- Gilbert, J. H. (Ed.). Speech and cortical functioning. New York: Academic Press, 1972.
- Gimson, A. C. An introduction to the pronunciation of English. London: Edward Arnold, 1962.
- Glanzer, D. P., & Dodd, D. H. Developmental changes in the language spoken to children. Paper presented at the biennial meeting of the Society for Research in Child Development, Denver, 1975.

- Gleason, H. An introduction to descriptive linguistics. New York: Holt, Rinehart & Winston, 1955.
- Goldin-Meadow, S., Seligman, M. E. P., & Gelman, R. Language in the two-year old. Cognition, 1976, 4, 189-202.
- Goudge, T. A. The thought of C. S. Peirce. Toronto: University of Toronto Press, 1950.
- Goyvaerts, D. L. 'Learning' and some related problems concerning psycholinguistic research. Linguistics: An International Review, 1973, 97, 5-45.
- Greenlee, D. Peirce's concept of signs. The Hague: Mouton, 1973.
- Grégoire, A. L'apprentissage du langage: Les deux premières années. Paris: Liège, 1937.
- Grégoire, A. L'apprentissage du langage. In A. Bar-Adon & W. F. Leopold (Eds.), Child language: A book of readings. Englewood Cliffs, N. J.: Prentice-Hall, 1971.
- Gruber, J. Correlations between the syntactic construction of the child and the adult. In C. A. Ferguson & D. I. Slobin (Eds.), Studies of language development. New York: Holt, Rinehart & Winston, 1973.
- Guillaume, P. Imitation in children. Chicago: University of Chicago Press, 1971.
- Halle, M., Bresnan, J., & Miller, G. A. Linguistic theory and psychological reality. Cambridge, Mass.: MIT Press, 1978.
- Halliday, M. A. K. Language and experience. Educational Review, 1967, 20, 95-106.
- Halliday, M. A. K. Explorations in the function of language. London: Edward Arnold, 1973.
- Halliday, M. A. K. Learning how to mean: Explorations in the development of language. London: Edward Arnold, 1975a.
- Halliday, M. A. K. Learning how to mean. In E. H. Lenneberg & E. Lenneberg (Eds.), Foundations of language development: A multidisciplinary approach (Vol. 1). New York: Academic Press, 1975b.
- Harrison, H. A case study of a baby's language acquisition. Word, 1973, 26, 344-361.
- Hartshorne, C., & Weiss, P. (Eds.). Collected Papers of Charles Sanders Peirce (Vol. 5) Pragmatics and pragmaticism. Cambridge: Harvard University Press, 1934.
- Hayes, J. R. (Ed.). Cognition and the development of language. New York: John Wiley & Sons, 1970.

- Hebb, D. O., Lambert, W. E., & Tucker, G. R. Language, thought and experience. Modern Language Journal, 1971, 15, 212-222.
- Hebb, D. O. Textbook of psychology. Philadelphia: W. B. Saunders, 1972.
- The histories of herodotus. (G. Rawlinson, Trans.). London: Dent, 1964.
- Holzman, M. The use of interrogative forms in the verbal interaction of three mothers and their children. Journal of Psycholinguistic Research, 1972, 1, 311-336.
- Holzman, M. The verbal environment provided by mothers for their very young children. Merrill-Palmer Quarterly, 1974, 20, 31-42.
- Hormann, H. Psycholinguistics: An introduction to research and theory. New York: Springer Verlag, 1971.
- Houston, S. H. The study of language: Trends and positions. In J. Eliot (Ed.), Human Development and Cognitive Processes. New York: Holt, Rinehart, & Winston, 1971.
- Hunt, J. M. Intelligence and experience. New York: Ronald Press, 1961.
- Ingram, D. Transitivity in child language. Language, 1971, 47, 888-910.
- Jakobson, R. Child language: Aphasia and phonological universals. The Hague: Mouton, 1968.
- Jacobson, M. Brain development in relation to language. In E. H. Lenneberg & E. Lenneberg (Eds.), Foundations of language development (Vol. 1). New York: Academic Press, 1975.
- John, V. P., & Moskowitz, S. Language acquisition and development in early childhood. In A. H. Marckwardt (Ed.), Linguistics in school programs, 69th Yearbook of the National Society for the Study of Education (Part II). Chicago: University of Chicago Press, 1970.
- Jones, D. An outline of English phonetics (9th ed.). Cambridge: W. Heffner & Sons, 1964.
- Jones, R. M. System in child language. Cardiff: University of Wales Press, 1970.
- Karmiloff-Smith, A. A functional approach to child language: A study of determiners and reference. Cambridge: Cambridge University Press, 1979.
- Keenan, E. O. Evolving discourse - The next step. Papers and Reports on Child Language Development, 1975, 10, 80-89.
- Keenan, E. O. Making it last: Repetition in children's discourse. In S. Ervin-Tripp and C. Mitchell-Kernan (Eds.), Child discourse. New York: Academic Press, 1977.

- Keller-Cohen, D. The acquisition of temporal reference in pre-school children. Doctoral dissertation, University of New York at Buffalo, 1974. (Reproduced by the Indiana University Linguistics Club, August, 1975.)
- Kendon, A., Harris, R. M., & Key, M. R. (Eds.). Organization of behavior in face-to-face interaction. The Hague: Mouton, 1975.
- Klima, E. S. & Bellugi, U. Syntactic regularities in the speech of children. In J. Lyons & R. Wales (Eds.), Psycholinguistics papers: The proceedings of the 1966 Edinburgh conference. Edinburgh: Edinburgh University Press, 1966.
- Kobashigawa, B. Repetitions in a mother's speech to her child. In Working Paper No. 14. The structure of linguistic input to children. Berkeley: University of California Behavior Research Laboratory, 1969.
- Labov, W. The study of language in its social context. Studium Generale, 1970, 23, 30-87.
- Lahey, M. Use of prosody and syntactic markers in children's comprehension of spoken sentences. Journal of Speech and Hearing Research, 1974, 17, 656-668.
- Landes, J. E. Speech addressed to children; Input and characteristics of parental input. Language Learning, 1975, 25, 355-379.
- Lecours, A. R. Myelogenetic correlates of the development of speech and language. In E. H. Lenneberg and E. Lenneberg (Eds.), Foundations of language development: A multidisciplinary approach (Vol. 1). New York: Academic Press, 1975.
- Lecours, A. R., Rouillon, F. Neurolinguistic analysis of jargonaphasia. In H. Whitaker & H. A. Whitaker (Eds.), Perspectives in neurolinguistics and psycholinguistics. New York: Academic Press, 1966.
- Lenneberg, E. H. (Ed.). New directions in the study of language. Cambridge, Mass.: MIT Press, 1964.
- Lenneberg, E. H. The biological foundations of language. New York: John Wiley & Sons, 1967.
- Lenneberg, E. H., & Lenneberg, E. (Eds.). Foundations of language development: A multidisciplinary approach (2 vols.). New York: Academic Press, 1975.
- Leonard, L. B., Newhoff, M., & Mesalam, L. Individual differences in early child phonology. Applied Psycholinguistics, 1980, 1, 7-30.
- Leopold, W. F. Speech development of a bilingual child: A linguist's record (4 vols.). Evanston, Illinois: Northwestern University Press, 1939-1949.

- Leopold, W. F. The study of child language and infant bilingualism. Word, 1948, 4, 1-17.
- Lewis, M. M. The beginning and early functions of questions in a child's speech. British Journal of Educational Psychology, 1938, 8, 150-171.
- Lewis, M. M. How children learn to speak. New York: Basic Books, 1957.
- Lewis, M. M. Language and the child. Slough, Bucks.: National Foundation for Educational Research in England and Wales, 1969.
- Lieb, I. C. (Ed.). Charles S. Peirce's letters to Lady Welby. New Haven: Whitlock's, 1953.
- Lieven, E. V. M. Conversations between mothers and young children: Individual differences and their possible implications for the study of language learning. In N. Waterson & C. Snow (Eds.), The development of communication: Social and pragmatic factors in language acquisition. London: John Wiley & Sons, 1978.
- Lightbown, P. M. Consistency and variation in the acquisition of French: A study of first and second language development. Unpublished doctoral dissertation, Columbia University, 1977.
- Lord, C. Language acquisition and the linguistic environment. Unpublished doctoral dissertation, Harvard University, 1976.
- Low, M. D., Wada, J. A., & Fox, M. Electroencephalographic localization of conative aspects of language production in the human brain. Transactions of the American Neurological Association, 1973, 98, 129-133.
- Luria, A. R. The functional organization of the brain. Scientific American, 1970, 222, 66-78.
- Luria, A. R. The working brain: An introduction to neuropsychology. London: Penguin Press, 1973.
- Luria, A. R. Language and brain: Towards the basic problems of neurolinguistics. Brain and Language, 1974, 1, 1-14.
- Luria, A. R. Basic problems in the light of psychology and neurolinguistics. In E. H. Lenneberg & E. Lenneberg (Eds.), Foundations of language development: A multidisciplinary approach (Vol. 1). New York: Academic Press, 1975.
- Luria, A. R., & Simernitskaya, E. G. Note: Interhemispheric relations and the functions of the minor hemisphere. Neuropsychologia, 1977, 15, 175-178.
- Luria, A. R., & Yudovich, F. I. Speech and the development of mental processes in the child. London: Staples Press, 1966.

- Lyons, J., & Wales, R. J. (Eds.). Psycholinguistics papers: The proceedings of the 1966 Edinburgh conference. Edinburgh: Edingurgh Press, 1966.
- Macnamara, J. Cognitive basis of language learning in infants. Psychological Review, 1972, 79, 1-13.
- Maratsos, M. New models in linguistics and language acquisition. In M. Halle, J. Bresnan, & G. A. Miller (Eds.), Linguistic theory and psychological reality. Cambridge, Mass.: MIT Press, 1978.
- Martinet, A. A functional view of language. London: Oxford University Press, 1961.
- McCarthy, D. The language development of the preschool child. Institute of Child Welfare Monograph Series 4. University of Minnesota Press, 1930.
- McCarthy, D. Language development in children. In L. Carmichael (Ed.), Manual of child psychology (2nd ed.). New York: John Wiley & Sons, 1954.
- McCarthy, D. Language development. In A. Bar-Adon & W. Leopold (Eds.), Child language: A book of readings. Englewood-Cliffs, N.J.: Prentice-Hall, 1971.
- McCormack, W. C., & Wurm, S. A. (Eds.). Language and man: Anthropological issues. The Hague: Mouton, 1976.
- McNeill, D. Developmental psycholinguistics. In F. Smith & G. A. Miller (Eds.), The genesis of language. Cambridge, Mass.: MIT Press, 1966.
- McNeill, D. The acquisition of language: The study of developmental psycholinguistics. New York: Harper & Row, 1970a.
- McNeill, D. The development of language. In P. H. Mussen (ed.), Carmichael's manual of child psychology (Vol. 1). New York: John Wiley & Sons, 1970b.
- McTear, M. F. Repetition in child language: Imitation or creation? In R. N. Campbell & P. T. Smith (Eds.), Recent advances in the psychology of language (Part A) Language development and mother-child interaction. New York: Plenum Press, 1976.
- Medawar, P. B. Unnatural science. The New York Review, 1977, February 3, 13-18.
- Menyuk, P. Syntactic structures in the language of children. Child Development, 1963, 34, 407-422.
- Menyuk, P. Sentences children use. Cambridge, Mass.: MIT Press, 1969.

- Miller, W., & Ervin, S. The development of grammar in child language. In U. Bellugi & R. Brown (Eds.), The acquisition of language. Monographs of the Society for Research in Child Development, 1964, 29 (1, Serial No. 92).
- Millikan, C. H., & Darley, F. L. (Eds.). Brain mechanisms underlying speech and language. New York: Greene & Stratton, 1967.
- Milner, E. Human neural and behavioral development: A relational inquiry with implications for personality. Springfield, Illinois: Charles C. Thomas, 1967.
- Milner, E. CNS maturation and language acquisition. In H. Whitaker & H. A. Whitaker (Eds.), Perspectives in neurolinguistics and psycholinguistics (Vol. 3). New York: Academic Press, 1976.
- Moerk, E. L. Processes of language teaching and language learning in the interactions of mother-child dyads. Xeroxed manuscript, California State University at Fresno, April, 1975.
- Moerk, E. L. Pragmatic and semantic aspects of early language development. Baltimore: University Park Press, 1977.
- Montessori, M. The absorbent mind. Adyar, Madras, India: Theosophical Publishing House, 1959.
- Morehead, D. M., & Ingram, D. The development of base syntax in normal and linguistically deviant children. Journal of Speech and Hearing Research, 1973, 16, 330-352.
- Morehead, D. M., & Morehead, A. E. (Eds.). Normal and deficient child language. Baltimore: University Park Press, 1976.
- Moscovitch, M. On the representation of language in the right hemisphere of right-handed people. Brain and Language, 1976, 3, 47-71.
- Moskowitz, A. I. The two-year-old stage in the acquisition of English phonology. Language, 1970, 46, 426-421.
- Moskowitz, B. A. The acquisition of language. Scientific American, 1978, 239 (5), 92-108.
- Mussen, P. H. (Ed.). Carmichael's manual of child psychology. (3rd ed). New York: John Wiley & Sons, 1970.
- Nakanishi, Y., & Owada, K. Echoic utterances of children between the ages of one and three years. Journal of Verbal Learning and Verbal Behavior, 1973, 12, 658-665.
- Nelson, K. Structure and strategy in learning to talk. Monographs of the Society for Research in Child Development, 1973, 38 (1-2, Serial No. 149).

- Newport, E. L. Motherese: The speech of mothers to young children. Centre for Human Information Processing Publication 52, August, 1975. University of California, San Diego.
- Newport, E. L., Gleitman, L. R., & Gleitman, H. A. Study of mothers' speech and child language acquisition. Papers and Reports on Child Language Development, 1975, 10, 111-115.
- Nice, M. M. Length of sentences as a criterion of progress. Journal of Educational Psychology, 1925, 16, 370-379.
- Novikoff, A. The concept of integrative levels and biology. Science, 1945, 101, 209-215.
- O'Connor, J. D., & Arnold, G. F. Intonation of colloquial English. London: Longmans, 1961.
- Patel, P. G. Neural correlates of language development around age seven: A working hypothesis. Paper presented at the NATO Psychology of Language Conference, Sterling, Scotland, June, 1976.
- Pavlovitch, M. Le langage enfantin: Acquisition du serbe et du français par un enfant serbe. Paris: 1920.
- Penfield, W. The mystery of the mind. Princeton, N. J.: Princeton University Press, 1970.
- Peng, F. C. C., & von Raffler-Engel, W. (Eds.). Language acquisition and developmental kinesics. Hiroshima: Bunka Hyoron, 1978.
- Pfuderer, C. Some suggestions for a syntactic characterization of baby talk style. In Working Paper No. 14: The structure of linguistic input to children. Berkeley: University of California Language Behavior Research Laboratory, 1969.
- Phillips, J. R. Syntax and vocabulary in mothers' speech to young children: age and sex comparisons. Child Development, 1973, 44, 182-185.
- Piaget, J. The language and thought of the child. London: Routledge & Kegan Paul, 1926.
- Piaget, J. Judgment and reasoning in the child. London: Routledge & Kegan Paul, 1928.
- Piaget, J. The child's conception of the world. London: Routledge & Kegan Paul, 1929.
- Piaget, J. The child's conception of physical causality. London: Routledge & Kegan Paul, 1930.
- Piaget, J. Play, dreams and imitation in children. New York: W. W. Norton, 1951.

- Posner, R. Determining the onset of speech. Unpublished honors thesis, Department of Psychology, University of California, Berkeley, 1972.
- Potter, V. G. Charles S. Peirce on norms and ideals. Amherst: University of Massachusetts Press, 1967.
- Preyer, W. The mind of the child (Vol. I) The development of the intellect. New York: D. Appleton & Co., 1895.
- Průcha, J. Models of speech activity. Soviet Psycholinguistics. The Hague: Mouton, 1972.
- Reilly, F. E. Charles Peirce's theory of scientific method. New York: Fordham University, 1970.
- Remick, H. Maternal speech to children during language acquisition. In W. von Raffler-Engel & Y. Lebrun (Eds.), Baby talk and infant speech. Amsterdam: Swets & Zeitlinger, 1976.
- Richmond, P. G. An introduction to Piaget. London: Routledge & Kegan Paul, 1970.
- Roberts, E. W. Consonant and vowel: A re-examination. Lingua, 1972, 30, 141-204.
- Rogers, D. Information about word meanings in the speech of parents to young children. In R. N. Campbell & P. T. Smith (Eds.), Recent advances in the psychology of language (Part A), Language development and mother-child interaction. New York: Plenum Press, 1978.
- Ronjat, J. Le développement du langage observé chez un enfant bilingue. Paris: 1913.
- Rosemont, H. Some implications of the innateness hypothesis. The Modern Language Journal, 1974, 58, 403-411.
- Rubens, A. B. Transcortical motor aphasia. In H. Whitaker & H. A. Whitaker (Eds.), Perspectives in neurolinguistics and psycholinguistics (Vol. I). New York: Academic Press, 1976.
- Rutter, M., & Mittler, P. Environmental influences on language development. In M. Rutter & J. A. M. Martin (Eds.), The child with delayed speech. London: William Heinemann, 1972.
- Ryan, J. Early language development: Towards a communication analysis. In M. P. M. Richards (Ed.), The integration of a child into a social world. London: Cambridge University Press, 1974.
- Sachs, J. S., Brown, R., & Salerno, R. A. Adults' speech to children. In W. von Raffler-Engel & Y. Lebrun (Eds.), Baby talk and infant speech. Amsterdam: Swets & Zeitlinger, 1976.

- Saussure, F. de. Course in general linguistics. New York: Philosophical Library, 1959.
- Schacter, F. F., Kirschner, K., Klips, B., Friedrichs, M., & Sanders, K. Everyday preschool interpersonal speech usage: Methodological, developmental, and sociolinguistic studies. Monograph of the Society for Research in Child Development, 1974, 39 (3, Serial No. 156).
- Schiefelbusch, R. L., & Lloyd, L. L. (Eds.). Language perspectives: Acquisition, retardation and intervention. Baltimore, University Park Press, 1974.
- Scollon, R. Conversations with a one-year-old: A case study of the developmental foundation of syntax. Honolulu: University of Hawaii Press, 1976.
- Searle, J. R. Speech acts: An essay in the philosophy of language. London: Cambridge University Press, 1969.
- Sebeok, T. A. (Ed.). Approaches to semiotics. Transactions of the Indiana University Conference on Paralinguistics and Kinesics. The Hague: Mouton, 1964.
- Shields, M. M. Some communication skills of young children: A study of dialogue in the nursery school. In R. N. Campbell & P. T. Smith (Eds.), Recent advances in the psychology of language (Part A) Language development and mother-child interaction. New York: Plenum Press, 1978.
- Shipley, E. F., Smith, C. S., & Gleitman, L. R. A study in the acquisition of language: Free response to commands. Language, 1969, 45, 322-342.
- Sinclair, H. Sensorimotor patterns as a condition for the acquisition of syntax. In R. Huxley & E. Ingram (Eds.), Language acquisition models and methods. London: Academic Press, 1971.
- Sinclair-De Szwart, H. Acquisition du langage et développement de la pensée. Paris: Dunod, 1967.
- Skinner, B. F. Verbal behavior. New York: Appleton-Century-Crofts, 1957.
- Slama-Cazacu, T. The role of social context in language acquisition. In S. W. McCormack & S. A. Wurm (Eds.), Language and man: Anthropological issues. The Hague: Mouton, 1976.
- Slobin, D. I. (Ed.). The ontogenesis of grammar. New York: Academic Press, 1971.
- Slobin, D. I. On the nature of talk to children. In E. H. Lenneberg & E. Lenneberg (Eds.), Foundations of language development: A multidisciplinary approach (Vol. 1). New York: Academic Press, 1975.

- Smith, F., & Miller, G. A. (Eds.). The genesis of language: A psycholinguistic approach. Cambridge, Mass.: MIT Press, 1966.
- Smith, M. E. An investigation of the development of the sentence and the extent of vocabulary in young children. University of Iowa Studies in Child Welfare, 1926, 3, 1-92.
- Smith, N. V. The acquisition of phonology: A case study. London: Cambridge University Press, 1973.
- Snow, C. E. Mothers' speech to children learning language. Child Development, 1972, 43, 549-565.
- Snow, C. E. The development of conversation between mothers and babies. Unpublished paper, Cambridge University, 1975.
- Snow, C. E., Arlman-Rupp, A., Hassing, Y., Jobse, J., Joosten, J., & Vorster, J. Mothers' speech in three social classes. Journal of Psycholinguistic Research, 1976, 5, 1-20.
- Snow, C. E., & Ferguson, C. A. (Eds.). Talking to children: language input and acquisition. London: Cambridge University Press, 1977.
- Snow, C. E. The conversational context of language acquisition. In R. N. Campbell & P. T. Smith (Eds.), Recent advances in the psychology of language (Part A) Language development and mother-child interaction. New York: Plenum Press, 1978.
- Söderbergh, R. The fruitful dialogue. Reprint No. 2, Project Child Language Syntax. Stockholm: Stockholm Universitet Institutionen För Nordiska Språk, 1974.
- Spitz, R. No and yes: The genesis of human communication. New York: International Universities Press, 1957.
- Stern, W. Psychology of early childhood. New York: Holt, Rinehart & Winston, 1930.
- Stern C., & Stern, W. The language of children. In A. L. Blumenthal, (Ed.). Language and psychology. New York: John Wiley & Sons, 1970.
- Streissguth, A. P., & Bee, H. L. Mother-child interactions and cognitive development in children. Young Children, 1972, 27, 154-173.
- Sully, J. Studies of childhood. London: Longmans, Green & Co., 1885.
- Templin, M. C. Certain language skills in children: Their development and interrelationships. Minneapolis: University of Minnesota Press, 1957.
- Thew, C. Theories about linguistic input. Paper presented at the Western Conference on Linguistics, Calgary, Alberta, Canada, October, 1975.

- Thompson, M. H. The pragmatic philosophy of C. S. Peirce. Chicago: University of Chicago Press, 1963.
- Tracy, F., & Stimpfl, J. The psychology of childhood. Boston: D. C. Heath & Co., 1909.
- Van der Geest, T. Evaluation of theories of child language. The Hague: Mouton, 1974.
- Van der Geest, T., Gerstel, R., Appel, R., & Tervoort, B. T. The child's communicative competence. The Hague: Mouton, 1973.
- van Ginnekan, J. La biologie de la base d'articulation. Psychologie du langage. Paris: Alcan, 1933.
- Velten, A. V. The growth of phonemic and lexical patterns in infant language. Language, 1943, 19, 281-282.
- von Raffler-Engel, W. Il prelinguaggio infantile. Brescia, Italy: Paideia, 1964.
- von Raffler-Engel, W. The inadequacy of the transformational approach to the analysis of child language. Word, 1970a, 26, 395-401.
- von Raffler-Engel, W. The LAD, our underlying unconscious, and more on 'felt sets'. Language Sciences, December 1970b, 15-18.
- von Raffler-Engel, W. The development from sound to phoneme in child language. In C. A. Ferguson & D. I. Slobin (Eds.), Studies of child language development. New York: Holt, Rinehart & Winston, 1973.
- von Raffler-Engel, W. Linguistic and kinesic correlates in code switching. In W. C. McCormack & S. A. Wurm (Eds.), Language and man: Anthropological issues. The Hague: Mouton, 1976a.
- von Raffler-Engel, W. The nonverbal behavior of children in a listening situation: Theoretical implications and practical applications. Paper presented in the panel on the science of body movement, 75th Annual Meeting of the American Anthropological Association, Washington, D. C., 1976b. (ERIC Document Reproduction Service No. ED 132 233)
- von Raffler-Engel, W. The function of repetition in child language. Bollettino di Psicologia Applicata, 1970, 97, 27-31. Paper presented at 3rd Southeastern Conference on Linguistics, Florida State University, 1978.
- von Raffler-Engel, W., & Lebrun, Y. (Eds.). Baby talk and infant speech. Amsterdam: Swets & Zeitlinger, 1976.
- von Raffler-Engel, W., & Rea, C. The influence of the child's communicative style on the conversational behavior of the adult. In D. Ingram (Ed.), Proceedings of the first international congress on child language. Tokyo, Japan: 1978. (ERIC Document Reproduction Service No. ED 163 757)

- Vořster, J. "Mommy linguist": The case for Motherese. Lingua, 1975, 37, 281-312.
- Vygotsky, L. S. Thought and language. Cambridge, Mass.: MIT Press, 1962.
- Wada, J. A., Clarke, R., & Hamm, A. Cerebral hemispheric assymetry in humans: Cortical speech zones in 100 adults and 100 infant brains. Archives of Neurology, 1975, 32, 239-246.
- Walkerdine, V., & Sinha, C. Spatial and temporal relations in the linguistic and cognitive development of young children. In G. Wells (Director), Report of the project language development in preschool children. Bristol: School of Education, University of Bristol, February, 1974..
- Walter, G. The living brain. New York: W. W. Norton, 1963.
- Waterson, N. Child phonology: A prosodic view. Journal of Linguistics, 1971, 7, 179-211.
- Waterson, N., & Snow, C. (Eds.). The development of communication: Social and pragmatic factors in language acquisition. London: John Wiley & Sons, 1978.
- Weeks, T. E. The slow speech development of a bright child. Lexington, Mass.: D. C. Heath & Co., 1974.
- Weiner, P. O., & Young, F. H. (Eds.). Studies in the philosophy of Charles Sanders Peirce. Cambridge: Harvard University Press, 1952.
- Weir, R. Language in the crib. The Hague: Mouton, 1962.
- Wells, G. Interpersonal communication and the development of language. Paper presented at the Third International Child Language Symposium, London, September, 1975.
- Wells, G. Learning to code experience through language. Journal of Child Language, 1974, 1, 243-269.
- Wells, G. Describing children's linguistic development. School of Education, University of Bristol, 1976. (Xeroxed)
- Wetstone, H. S., & Freidlander, B. Z. The effect of word order on young children's responses to simple questions and commands. Child Development, 1973, 44, 734-740.
- Whitaker, H. A. On the representation of language in the human brain. Edmonton, Alberta, Canada: 1971.
- Whitaker, H., & Whitaker, H. A. (Eds.). Perspectives in neurolinguistics and psycholinguistics (3 vols.). New York: Academic Press, 1976.

- White, B. L., & Watts, J. C. Experience and environment: Major influences on the development of the young child (Vol. 1). Englewood Cliffs, N. J.: Prentice-Hall, 1973.
- Whitehurst, G. J. Production of novel and grammatical utterances by young children. Journal of Experimental Psychology, 1972, 13, 502-515.
- Wittgenstein, L. The blue and brown books. Oxford: Basil Blackwell, 1969.
- Zaidel, E. Auditory vocabulary of the right hemisphere following brain dissection or hemidecortication. Cortex, 1976, 12, 191-211.
- Zazzo, R. Le problème de l'imitation chez le nouveau-né. Enfance, 1957, 2, 135-142.