

AN ANALYSIS OF THE CONTENT OF ORAL
LANGUAGE PATTERNS OF CHILDREN

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi
ABSTRACT.....	vii
CHAPTER	
I	
PURPOSE AND REVIEW OF THE LITERATURE.....	1
Purpose.....	1
Review of the Literature.....	2
II	
PROCEDURE.....	18
Subjects.....	19
Experimental Procedure.....	22
Data Analysis.....	27
III	
RESULTS.....	37
Analysis of Group I Subjects Comparing Condition A and Condition B.....	38
Analysis of Group II Subjects Comparing Condition A and Condition B.....	42
Analysis of Group I and Group II Subjects Under Condition A.....	45
Analysis of Group I and Group II Subjects Under Condition B.....	48
Concept Index Score.....	48

	<u>Page</u>
Leftover Words Not Processed.....	55
Summary.....	57
IV DISCUSSION.....	58
Discussion of Results of Analyses as a Function of Setting.....	59
Discussion of Results of Analyses as a Function of Age.....	68
Dictionary Revision.....	72
Implications for Research.....	74
V SUMMARY.....	79
APPENDICES	
A LETTERS SENT TO ADMINISTRATIVE STAFF OF SCHOOLS AND TO PARENTS CONCERNING THE INVESTIGATION.....	83
B EXCERPTS FROM TWO TRANSCRIPTIONS AND EXAMPLES OF PROCEDURES FOR TYPING, SEGMENTING AND EDITING SPEECH SAMPLES.....	87
BIBLIOGRAPHY.....	94
BIOGRAPHICAL SKETCH.....	99

LIST OF TABLES

<u>Table</u>	<u>Page</u>	
1.	Ages and intelligence scores for individual subjects in Group I and Group II. The intelligence test was <u>Peabody Picture Vocabulary Test</u>	20
2.	<u>Harvard III Psychosociological Dictionary</u> content analysis categories. Examples of entry words used by subjects in this investigation are given within parentheses following each category.....	29
3.	Summary of statistical analysis between Condition A and Condition B, Group I subjects. $U = 55$; $p = 0.05$	39
4.	Summary of statistical analysis between Condition A and Condition B, Group II subjects. $U = 55$; $p = 0.05$	43
5.	Summary of statistical analysis between Group I and Group II subjects, Condition A. $U = 55$; $p = 0.05$	46
6.	Summary of statistical analysis between Group I and Group II subjects, Condition B. $U = 55$; $p = 0.05$	49
7.	Summary of Concept Index Scores for Experimental Condition A and Experimental Condition B for Group I and Group II subjects	51
8.	Leftover list of words not entered in the <u>Harvard III Psychosociological Dictionary</u> spoken by subjects in this investigation.....	56
9.	Summary table of statistically significant differences between Condition A and Condition B. Dependent variables are located in column where the mean frequency was greater..	67

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Mean frequency of scores on 76 dependent variables during Condition A and Condition B for Group I subjects.....	40
2	Mean frequency of scores on 76 dependent variables during Condition A and Condition B for Group II subjects.....	44
3	Mean frequency of scores on 76 dependent variables for Group I and Group II subjects during Condition A.....	47
4	Mean frequency of scores on 76 dependent variables for Group I and Group II subjects during Condition B.....	50

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The language performance of a selected group of four-year-old and seven-year-old children under two conditions was investigated through a content analysis research design. Content is the denotative meaning of objects, concepts and processes as symbolized by verbal utterances. A study of the content of language contributes data concerning the referential dimension of speech. This investigation utilizes a content analysis category system derived from psychological and sociological theory in a study of the referential dimension of child language.

To investigate the content of oral language as a function of setting and age, the following procedures were carried out. Fourteen pairs of siblings were selected from a population of four-year-old and seven-year-old children. The two experimental stimulus conditions were (1) a structured clinic setting and (2) a nonstructured home setting. Under the first condition, the stimuli presented the

subject were a series of items from a children's projective test and five magazine illustrations. For the second stimulus condition, each subject wore a wireless microphone transmitter in his home. The language performance of the subjects was recorded.

Speech samples consisting of 127 consecutive communication units were entered on electronic data processing cards for analysis through an automated system of content analysis. Objects, concepts and processes represented in verbal expressions were reduced and grouped into categories; the meaning of any word or group of words was summarized by listing the category under which it occurred. The dependent variables for this investigation were quantitative data from the 76 categories of the Harvard III Psychosociological Dictionary. Objects are grouped into three major areas: social, cultural and natural events. Behavioral dimensions or psychological processes include emotions, perceptions, thought processes and evaluations, and impersonal and social emotional actions. A third set of categories is comprised of words used to modify or amplify the meaning of nouns and verbs.

To assess how language performance changes as a function of age and setting, each dependent variable was tested using the Mann-Whitney U statistic. There were content differences attributable to setting.

The question of the relation between age and content was partially resolved. Differences in the content of speech between subjects four years of age and seven years of age were statistically

significant for 19 of 76 dependent variables. Within the conditions of this study, four-year-old children and seven-year-old children have the same speech content in 57 categories.

For subjects, four years of age, 19 categories were found to be statistically different, and for subjects, seven years of age, 30 categories were found to be statistically different between settings. A more comprehensive sample of language was obtained under a structured clinic setting with preselected stimuli. However, this is not a representative example of typical verbal behavior. Patterns of equivalent speech usage among varying conditions were identified.

The Harvard III Psychosociological Dictionary, modified to meet the expressions of children, can be utilized as a tool to study language performance. The usefulness of an automated system of content analysis in efficiently and reliably handling large amounts of data was demonstrated in this investigation.

Content analysis is a relevant procedure for the study of the referential dimension of speech in young children.

CHAPTER I

PURPOSE AND REVIEW OF THE LITERATURE

Purpose

An investigation into language performance is confronted with a number of formidable issues. One of these is the description and measurement of the referential dimension of oral language. Research and clinical tools developed to evaluate language performance have described phonology and grammar while largely ignoring the referential area. Content analysis procedures can be a valuable adjunct in an investigation of the referential dimension. The content of an utterance is the denotative meaning of objects, concepts and processes as symbolized by verbal utterances. Content analysis is a technique for making inferences based on the systematic and objective identification of these objects, concepts and processes (Holsti, 1968). The development of electronic data processing programs and techniques facilitates the assessment of content analysis as a research instrument in an investigation of the oral language of young children.

The purpose of this investigation is to employ the methodology of content analysis in a description of the language performance of children. Content analysis provides a systematic set of procedures

for measuring the manifest meaning of verbal statements (Holsti, 1968). It is proposed to examine the content of speech samples as a function of stimulus situation and as a function of age. To accomplish this purpose, the following questions will be asked:

1. What are differences in content in the oral language of four-year-old and seven-year-old children that can be attributed to the age differences of children?
2. What are differences in content in the oral language of four-year-old and seven-year-old children that can be attributed to different stimulus situations?
3. What is the frequency distribution among the dependent variables (categories used for content analysis) for each age group and for each treatment?

An important consideration in this study is the generation of hypotheses for future research. Normative data on content performance can be obtained to use with speech pathology cases. Thematic analyses and content analyses may differentiate pathological language conditions among children. Content analysis may contribute information relative to language differences between the child who speaks standard American English and the child who speaks a patois. With data compiled from this investigation, a new and different perspective on the development of language will be possible.

Review of the Literature

Literature related to this investigation will be discussed under three general areas: (1) experimental settings for sampling

speech of young children; (2) traditional methods for evaluating language performance; and (3) the rationale for content analysis of speech.

Experimental Settings for Sampling Speech

Samples of the oral language of children have been collected in a variety of settings, including the laboratory, the clinic, the classroom and the home (McCarthy, 1954; Ervin-Tripp, 1966; Hutchinson, 1967). It has been assumed that children use different words and different frames of reference with every change of environment.

The majority of speech samples have been collected following a standardized protocol in a structured clinic setting using experimenter-selected stimuli. Stimuli presented to the subject included objects and pictures. The purpose of these studies has been chiefly quantitative. Templin (1957) and others (Wellman, et al., 1931; McCarthy, 1954) have assessed speech development in children in terms of articulation errors, picture and object naming, mean length of response, number of responses, complexity of sentence structure and vocabulary. Normative studies were then conducted assessing the relation of these variables to sex, age, occupational status and socio-economic group.

Oral language records have been taken for the same or matched subjects in two or more nonstructured settings by investigators of early child development. Smith (1933, 1935) analyzed 305 conversational records of 220 children between the ages of 18 months and six years. She contrasted a nonstructured play condition with a nonstructured adult-child interaction. It was observed that

in situations where the child was conversing with an adult, rather than playing with peers, the child used longer and more complex sentences and asked more questions.

Young (1941) obtained language samples (74 subjects, 30 to 65 months of age) under four conditions. The settings were outdoor play, indoor activity, mealtime and responses to adult-presented pictures. Frequency of words was greater outdoors at play and in response to pictures than during indoor activities or at mealtime. There was greater variety to parts of speech when responses were elicited by a picture. Enumeration was pronounced when pictures were presented by the adult to the child.

Williams and Mattson (1942) investigated the responses of nursery school children (six subjects, 41 to 46 months of age) in controlled social settings. The variables under investigation were size of group, function of speech, parts of grammar and length of sentence. The three settings were (1) one child and observer, (2) two children and observer and (3) three children and observer. Average number of words per sentence remained constant for the three social situations. Speech was less egocentric and more social with increase in group size from two individuals to three individuals.

Hahn (1948) observed that first-grade children (116 subjects) use more "nonsentences" and that mean length of sentence is shorter when a child speaks before a peer group than with an adult. It was observed also that length and completeness of sentence structure depend upon the topic of the remarks.

McConnon (McCarthy, 1954) recorded two samples of conversation in six different situations for 28 nursery-school children. The settings represented spontaneous speaking situations, a lunch meal, morning outdoor play period, indoor free play situation, table play, afternoon outdoor play and an outdoor play situation at home. Twenty-five remarks were taken for each sample. This was a methodological study where the two speech samples were tested for internal consistency using quantitative, functional and parts of speech analysis. Low coefficients of agreement were found.

When speech samples from the same subjects have been collected in more than one setting, the independent variable has not always been the setting. The independent variable in a study by Pringle and Tanner (1958) was the home environment of nursery-school children. The sample included both spontaneous talk during play and verbal remarks made during intelligence testing. Contrasts of speech behavior between settings were not tested.

Pilot studies have been undertaken to develop techniques for collecting and analyzing samples of spontaneous talking behavior in a field environment without an investigator present (Soskin and John, 1963). Hutchinson (1967) used a transistorized wireless microphone to gather data in a house setting on linguistic patterns from pre-school children (20 subjects). The speech samples were described in terms of vocabulary, grammatical forms, distribution of syllables by length, distribution of remarks by length and functional categories.

Research on phonology and grammar acquisition has been collected by direct observation and recording of the child in his home environment (Miller and Ervin, 1964; Brown and Fraser, 1964).

The linguistic performance of the child has been examined with emphasis on deductive inferences about the child's underlying knowledge of grammatical structure and syntactic rules.

Integration of these investigations is difficult because each study was independent as to method and purpose. Additional inquiry into setting as an independent variable would contribute to a clarification of the role of the stimulus condition. An investigation of data collected from the same subjects under two different settings and analyzed by the same procedure would contribute direct information to the interaction between verbal behavior and setting.

Methods for Evaluating Language Performance

Investigations into speech and language development can be grouped into two general areas. One set of studies inquires into the phonological and grammatical fields. Another group of investigations describes the referential dimension of language chiefly through vocabulary counts and classification of remarks by function.

Phonological and grammatical studies. - The level of speech concerned with the individual sound system of language is the phonological. The grammar of language consists of its morphology and syntax. Syntax refers to the grammatical rules that apply to arrangement of morphemes within words (Ervin-Tripp, 1966).

The productive acquisition of speech sounds by children under eight years of age has been comprehensively assessed (Wellman, et al., 1931; McCarthy, 1954; Templin, 1957). Norms for development of each sound are given; by eight years of age the production of speech sounds matches the adult model.

By his fourth year, the child's passive phonological knowledge approximates the adult model (Ervin and Miller, 1963). Michel (1965) and Messer (1967) found that three-year-old children selected more nonsense words using English phone patterns than nonsense words using nonEnglish phone units.

The morphological level of grammar is more difficult to analyze and little data are available. Early studies largely enumerated verb forms and parts of speech (McCarthy, 1954). This research was based on both oral language and written language. Fisher (1934) studied the stylistic alternation of the participial suffix -ing versus -in among children in reference to social class. The -ed suffix is used in a generalized manner by four years of age (Ervin-Tripp, 1966).

Studies in morphology treat the application of rules to nonsense materials. Berko (Berko and Brown, 1960) and Anisfeld (1967) have found that by four years of age children have mastered certain fundamental morphological features of their language. Skill in use of morphological rules continues to increase with age.

Syntax units are classes of functional equivalents where members have similar privileges of occurrence in grammatical constructions. The classes include subjects, nouns, verbs, adjectives and so on. On word-association tests, children tend to group terms of general functional equivalence together (Entwistle, 1966). In a preliminary analysis of the grammatical concept "verb," Porter (Berko and Brown, 1960) found that the position of the word carried the most information as to class.

Templin (1957) has presented a comprehensive description of grammar usage (60 subjects, three to eight years of age). Remarks were classified into six categories in reference to grammatical structure varying from incomplete to functionally and structurally complete. Noun, adjectival and adverbial clauses were examined. Parts of speech counted were noun, verb, adjective, adverb, pronoun, conjunction, preposition, article and interjection.

Results of the Templin (1957) investigation and a group of like investigations indicate a correlation between age and approximation of adult model in sentence structure. Changes were measured in length of remark, use of complex sentences and use of inflected verb forms and abstract nouns (McCarthy, 1930; Smith, 1935; Williams, et al., 1937; Young, 1942a).

Menyuk (1963a, 1963b), Brannon (1968) and O'Donnell, et al. (1967) and others (Hass, 1965) have described the development of grammar using a transformational grammar model. A positive relation was found between age and variety of transformations in children between the ages of two years, ten months, and seven years, one month. O'Donnell, et al. (1967) measured oral responses of kindergarten children and older elementary-school children. He found correlations between age and word length and various phrase and clause constructions using a transformational analysis developed for written language.

Loban (1963), in a comprehensive longitudinal study (338 subjects) of elementary-school children, examined structural patterns within communication units. Two types of analysis were applied to the data: (1) amount of subordination; and (2) classification by conventional grammatical usage. His analysis contrasted

a high achieving group of grade-school children against a low achieving group rather than by age.

Investigations into phonology and grammar have been extensive and comprehensive. When age is allowed to vary, the features investigated are correlated with age.

Referential dimension. - The reference system is that area of language which studies the relations between verbal signs and symbols and what they mean. Reference is a correlation between a linguistic form and its nonlinguistic recurrences (Berko and Brown, 1960).

Studies of the referential area can be grouped under two headings: (1) studies where reference is described in terms of vocabulary measures; and (2) studies where language is classified by functional or content categories.

Vocabulary measurement has raised a number of issues. There has been no standard method to distinguish between root and derivative words, to distinguish between common and multiple usages and to identify special terms such as proper nouns, technical, foreign, obsolete and provincial terms (McCarthy, 1954). Different methods of sampling have been used: lengthy samples of speech are recorded, some tests require eliciting of words or stories, other studies involve pointing to pictures and other methods request vocabulary definitions (Irwin, 1960).

Studies of vocabulary definitions from vocabulary scales have classified definitions as a function of age (Entwisle, 1966; Sigel, 1966; Al-Issa, 1969). The purpose of procedures that examine definitions is to discriminate among individuals taking the

test. Emphasis is on the comprehension of language rather than the production of language. Children between five and eight years of age use description, illustration and demonstration types of definitions, while older children respond more often with synonyms and explanatory responses.

Vocabulary can be scaled by parts of speech and by word counts. When vocabularies of young children are counted by parts of speech, the count yields a large proportion of nouns because nouns are predominant in language. Naming is prominent in speech of very young children, but drops to about ten per cent at the age of 4-1/2 years (Smith, 1935). Naming accounts for six per cent to eight per cent of speech among children between the ages of 5-1/2 and 9-1/2 years of age. It has been presumed that a young child goes through a naming stage followed by a question stage (McCarthy, 1954).

When a lengthy sample of spontaneous speech is taken and tabulations of word frequency are made, pronouns, articles and linking verbs account for a high percentage of word forms (Ervin-Tripp, 1966; Wepman and Hass, 1969; Hutchinson, 1967). Tabulations of vocabulary do not stress content since many contentive words having referential function are lower in per cent of usage and appear far into the enumeration.

Investigation into the variability of vocabulary items are rare. Uhrbrock (1936) recorded one child from six weeks of age through her fourth year. Forty per cent of the total number of different words occurred only once. In separate samples of 1000 words, there were an average of 290 different words. Only 52 new

words appeared in the 24th thousand. Hutchinson (1967) recorded 20 children between the ages of three years and five years in their home environment. Using a 10,000 word sample, he found three-year-old children used 1,055 different words, four-year-old children used 1,076 different words and five-year-old children used 1,179 different words.

Jersild and Ritzman (1938) and Hutchinson (1967) have used the ratio of number of different words to total words (tokens). Jersild and Ritzman analyzed verbatim speech records of superior preschool children. About one word in five was "new" to the children between 42 and 47 months of age. Ratios of different words to total words declined with age. Hutchinson found that approximately one word in ten was different for his sample of preschool children. Loban (1963) demonstrated greater diversity in vocabulary among high-level achievers than low-level achievers by use of the type-token ratio.

The problem of selecting a comprehensive set of categories for classifying the content of children's speech and language is not a simple one. A number of classification systems have been used. They have not been concerned with word class, but have emphasized either (1) the topic or theme of the remark, or (2) the function of language, i.e., the expression of feelings and desires.

One group of studies has investigated the function of speech according to the theories of Jean Piaget. Piaget (McCarthy, 1930) identified two types of speech: egocentric and socialized speech. Egocentric speech, exemplified by echolalia, repetitions and monologues

is typical of children between the ages of three and five years. Socialized speech is typical of children around seven and eight years of age. Socialized speech includes adapted information, criticisms, commands, requests, emotional responses, threats, questions and answers.

McCarthy (1930), Fisher (1934) and others (McCarthy, 1954; Fay, 1967) applied the Piaget categories to speech data. In general, Piaget's classifications are applicable. A number of observations pertinent to the proposed investigation have been made in these studies. From 34 per cent to 41 per cent of the remarks of pre-school children contains self-reference (McCarthy, 1954). As the group becomes larger, speech becomes more social and less egocentric (Williams and Mattson, 1942). The purposes and methods of collecting speech samples were similar, but presentation of results is varied. Further, the categories of egocentric and socialized speech were not consistently defined from study to study (McCarthy, 1954; Irwin, 1960).

Other sets of functional categories have been devised to meet the purposes of the investigator and the situation under which the language sample is taken. Loban (1963) used seven categories: facts and unelaborated perceptions, interpretations, personal associations, tentative statements or suppositions, generalizations, irrelevancies, direct questions and figurative language. Other experimenters have noted requests, threats, criticisms, commands and questions.

Hutchinson (1967) used an 11-point scale for function of speech which had been utilized in adult studies. These include

social manipulation, reasoning, nondirected discourse, criticism, imparting information, inquiry, argumentation, imaginative discourse, incoherent verbalizing, expletive expressions and salutation. All but eight per cent of 2700 remarks by preschool children were classified using these categories.

Shirley (1938) and Hahn (1948) have described by topic the content of the verbal language of children in the age range proposed for this study. Hahn described the spontaneous speech of first-grade children during a "share and tell" period. She grouped language content into six topical areas: object shared, home play, family activities, family outings, accounts of movies and accounts of an animal. The speech was highly personal, centering about the child and his life.

Shirley (1938) recorded verbatim records of preschool children (336 subjects, ages two to five years) during a play period. It was found that one-third of the common word concepts or topics related to mother, home, father and siblings. There was a high frequency of make-believe or fantasy concepts. Remarks associated with the situation at hand increase with age. The 11 most frequently used word concepts seemed to carry an emotional tone; concepts seemed to arise out of the common needs of the children.

Métraux (1950) described the language content of children 18 to 54 months under the two categories: relation to an activity and relation to others. Ames (1946, 1948) counted expressions concerned with time and space in the speech of nursery-school children. Smith (1932) observed slight but regular increases in use of criticism between the ages of two years and five years.

Content analysis. - The purpose of content analysis is to measure the referential and semantic components of a text. It is any research technique used to make inferences by systematically and objectively identifying specified characteristics within a sample of language (Stone, et al., 1966; Holsti, 1968). Content analysis examines the manifest attributes of the text. It is typically a thorough study of a small amount of data with frequency counts and distribution patterns as chief sources of inference (Pool, 1959; Holsti, 1968). Objects, concepts and processes are reduced and formulated into classes; the meaning of any word or group of words can be summarized by listing the class or category under which it occurs. This lexical classification aspect of content analysis is its most useful attribute (Stone, et al., 1966).

A content analysis program suitable for language investigation is the Harvard III Psychosociological Dictionary developed by the Department of Social Relations, Harvard University, Cambridge, Massachusetts (Stone, et al., 1966). A general dictionary, such as the Harvard III Psychosociological Dictionary, provides an opportunity to explore a wide range of variables. Each category within the dictionary consists of a number of language signs, words, idioms and phrases that together are a variable. The meaning of a word is summarized by listing the category or categories under which it occurs. Each category is a natural language unit. Natural language units are denotative distinctions that are accepted across the language community. Agreement among language users as to which words should be entered into a category is the measure of denotative meaning (Stone, et al., 1966).

The Harvard III Psychosociological Dictionary was developed as part of a computer content analysis program called the General Inquirer (Stone, et al., 1966; Miller, 1970). General Inquirer and Inquirer II electronic data systems include dictionaries, data preparation systems and data analysis programs to be used for studies in speech, psychology, anthropology, sociology, education and political science.

Summary

A review of the literature indicates that a number of studies have assessed the speech and language performance of children. However, data collection procedures and methods of analyses were varied. It has been assumed that the situational characteristics under which the data are gathered affect the findings concerning vocabulary, grammatical usage and style. There has been little effort to explore this assumption directly. An investigation of the language performance of the same subjects to explore the interaction between speech and setting would provide evidence in support of or rejection of this relationship.

It has been generally assumed that language and speech functions change with age. Normative scales have been developed for the phonology and grammar of oral language. It has been observed, using cross-sectional samples, that phonology and grammar change in increments toward an adult model with age. A knowledge of which word expressions are used at a particular age would offer important insights into patterns of language.

The referential dimension of language has been investigated through vocabulary counts and the identification of the function of verbal expression. A number of issues can be raised. There is a need to distinguish between root and derivative words and to disregard high frequency nonlexical words. Rules for assignment of lexical items into categories can account for root and derivative words, drop technical, obsolete and rare terms, assign words on the basis of denotative meaning and omit high frequency function words. A research design using two groups of subjects selected according to age, using the same methods of data collection and one method of analysis, would demonstrate whether the probability is increased that differences in speech content can be attributed to age and to setting.

One difficulty in determining the content of the speech of children four years and older has come from the use of hand-tabulation methods on large amounts of data. There has been a need for an instrument that is consistent in the tabulation of speech data. A computer program designed to treat objects, concepts and processes within a speech sample would provide greater reliability, process large samples of speech and contribute additional information (Alexander, 1967; Beier, et al., 1967; Borko, 1968; Gerbner, et al., 1969).

A research design using content analysis has the purpose of describing characteristics of a communication. A comparison of a verbal text across time and across situation will (1) describe trends in communication content and (2) relate known characteristics of sources to the messages they produce (Holsti, 1968).

Observable speech behavior, especially the lexical-content features, is processed and analyzed to provide measures for statistical operations. The usefulness of this design has not been explored previously in the area of speech and language development.

Research providing for the examination of the content of speech as a function of stimulus situation and as a function of age using the methodology of content analysis is needed. Such an investigation would assess the probabilities of age and setting as independent variables. It would contribute information as to the feasibility of a content analysis research design in the area of speech and language.

CHAPTER II

PROCEDURE

To study the applicability of content analysis in a description of the referential dimension of oral language, the following procedures were carried out. Fourteen pairs of siblings were selected from a population of normal four-year-old and seven-year-old children. The primary data were recorded samples of speech collected under two experimental conditions. One condition was a clinic setting where the subject was presented experimenter-selected stimuli. The second condition was a home setting where a sample of spontaneous talking behavior was obtained.

Preliminary preparation of data included transcription of speech samples, the segmentation of speech into communication units and editing of transcriptions for electronic data processing.

For data analysis, a general content analysis dictionary, the Harvard III Psychosociological Dictionary (Stone, et al., 1966) was selected. The dependent variables are the 76 lexical categories of the dictionary. The content of the speech samples is assigned on the basis of denotative meaning into the categories. The Inquirer II (Arp, et al., 1968) is a computerized system which implements the data processing.

The procedures used to investigate the content of language in relation to the age of the subject and under two conditions are described in this chapter.

Subjects

Fourteen pairs of siblings were selected; 14 subjects from a population of four-year-old children and 14 subjects from a population of seven-year-old children. The criteria for subject selection were age of subject, sibling relationship, language background, hearing acuity, intelligence and physical status.

Age

Group I. - The age range of the 14 subjects in Group I was 3 years, 9 months to 4 years, 7 months, with a mean age of 4 years, 3 months.

Group II. - The age range of the 14 subjects in Group II was 6 years, 9 months to 7 years, 7 months, with a mean age of 7 years, 2 months.

See Table 1 for the ages of the individual subjects in Group I and Group II.

Sibling Relationship

Subjects in Group I were paired with a sibling subject in Group II. There were eight pairs of brothers and one pair of sisters. Five pairs had one child of each sex.

Location of Subjects

Group II subjects were attending first or second grade in the elementary schools of Gainesville, Florida. Names of children with

Table 1. Ages and intelligence scores for individual subjects in Group I and Group II. The intelligence test was Peabody Picture Vocabulary Test.

Group I			Group II		
Family	Age	Intelligence Score	Family	Age	Intelligence Score
1	4-7	100	1	6-10	91
2	4-3	98	2	7-0	95
3	4-0	98	3	7-5	108
4	4-5	108	4	6-9	106
5	4-4	98	5	7-8	112
6	4-6	108	6	7-8	117
7	4-6	115	7	6-10	114
8	3-11	108	8	7-8	107
9	3-9	103	9	7-6	97
10	4-6	90	10	7-5	108
11	4-4	98	11	7-7	105
12	4-5	108	12	6-10	100
13	4-1	108	13	7-0	118
14	3-10	95	14	7-4	116
Mean	4-3	102.5		7-2	106.7

younger brothers and sisters, ages 3 years and 4 years, were provided by the staff of the following elementary schools: Metcalfe, Littlewood, Glen Springs, Idylwild and St. Patrick's Catholic School.

A letter was sent to the principal of each school describing the purpose of the investigation. Parents of potential subjects were contacted by letter from the investigator. These letters appear in Appendix A.

Language Background

Subjects used in this study spoke American English; no foreign language was spoken by any subject.

Hearing

Each subject passed a hearing screening test in both ears at 20 dB at 500 Hz, 1000 Hz and 2000 Hz. The audiometer used was Beltone 15C. It is assumed that children passing this screening procedure have hearing within normal limits.

Intelligence

The subjects in this study were administered the Peabody Picture Vocabulary Test, Form B (Dunn, 1959), by the investigator. The resulting intelligence scores for the four-year-old subjects ranged from 90 to 115, with a mean score of 102.5. The resulting intelligence scores for the seven-year-old subjects ranged from 91 to 118, with a mean score of 106.7. The results of a t test revealed no significant difference ($t = 0.4568$; $df = 26$) between group mean scores.

See Table 1 for intelligence scores for individual subjects.

Physical Status

Children who demonstrated obvious neuro-muscular involvement or who presented a history of these involvements were excluded.

Experimental Procedure

Data Collection Procedures

The primary data were 56 oral language samples (two from each subject) drawn under two experimental conditions. Experimental Condition A was a clinic setting where the child was presented experimenter-selected stimuli. Experimental Condition B was a home setting where a sample of spontaneous talking behavior was obtained.

Experimental Stimulus Condition A. - The subjects were tested individually by the investigator in a clinic office provided by the Speech Department, University of Florida. The order of presentation of the tasks was: (1) hearing screening; (2) Peabody Picture Vocabulary Test; and (3) picture stimuli.

Under Condition A, the stimuli presented to the child were a series of items from the Children's Apperception Test, human form (Bellak and Bellak, 1950), and five magazine illustrations of children in school, home and play settings. This set of 15 pictures was used to elicit stories and remarks.

The investigator sought to create an atmosphere where the child felt relaxed. The subject was encouraged to talk freely about the selected pictures. Instructions were as follows:

Do you know what a story is? We're going to tell stories about pictures. I will show you a picture and you tell me what is going on; what the children are doing. Be sure you make up a story.

Remarks of encouragement were made by the investigator. These were usually general in nature. Examples of remarks are:

What else? Is there more to your story? What will happen in the future? Why do you think _____ did _____? Can you think of anything more? Take your time. And what happened after he _____. And then what did he do?

Responses of the subjects were recorded magnetically on a Wollensak 1520 tape recorder.

Experimental Stimulus Condition B. - Under Experimental Condition B, the subject wore an FM wireless microphone in his home. Tape recordings were made of the speech of the child during typical home activities. The parent and the child were counselled concerning the desirability of the child following a normal pattern of behavior. The child was free to engage in whatever activity he chose. The minimum length of time recorded was 1-1/2 hours and the maximum time was 3 hours.

Equipment

Magnetic recordings of the oral production of the child under Condition A were made using a Wollensak 1520 tape recorder. The recording speed was 3-3/4 inches per second; Scotch magnetic tape 111 and 175 were used.

The transistorized FM wireless microphone which was worn by the children under Condition B was a Model EC lavalier-type Vega-Mike. It was placed in a cloth harness and worn about six inches from the mouth of the child.

The signal generated by this microphone-transmitter was received by a Vega-Mike FM receiver and fed into a Wollensak 1520 magnetic tape recorder. The recording speed was 3-3/4 inches per second. A 0.5 mil, number 290, Scotch-brand magnetic tape was used to provide up to three hours of recording.

The Wollensak 1520 tape recorder served as a transcription unit also.

Data Preparation

Three procedures were involved in data preparation. These were: (1) transcription of the speech of each subject; (2) segmentation of the language into units; and (3) preparation of data for electronic data processing.

Transcription of speech. - A typed transcription of the speech of the subject was made. Conventional American English spelling was used for all words. Contractions were spelled as two words. Noises were typed when they were an integral part of the sentence. Utterances in which the words were incomprehensible or not understood by the investigator were omitted from the transcriptions.

Segmentation of data. The purpose of segmentation was to equalize sample size. A semantic and syntactical unit was selected rather than a word or morpheme unit because it is the semantic dimension of speech under observation. The basic unit for this investigation is the communication unit. Each sample consists of 127 communication units.

A communication unit is a group of words which cannot be further reduced without the loss of essential meaning (Loban, 1963;

Watts, 1948). The communication unit is comparable to remark units used in speech pathology, such as expression units (Williams, 1937), verbalizations and utterances (McCarthy, 1930; Templin, 1957; Winitz, 1959).

A communication unit must have essential meaning in both a semantic and syntactic sense. A communication unit may be a sentence, independent predication, noun phrase, verb phrase, enumeration, answers to questions lacking repetition of the question, or short utterances such as yes, no, ok. When it is more than one or two words, the communication unit usually is a grammatically independent clause with any of its modifiers between two silences. Excerpts from transcriptions and clarification of procedures used in segmenting the flow of oral language are placed in Appendix B.

Another unit employed was the maze. This is a cluster or fragment of speech which does not have semantic or structural unity (Loban, 1963). Other investigators have referred to this type of verbal production as hesitations, repetitions, incompleting words (Winitz, 1959), false starts or falterings (Miller, 1970), or shifts in expression while talking. Semantic unity of a remark is present when the maze is omitted. Mazes were excluded from the language sample used in this investigation.

Recorder reliability. - The reliability of the investigator to identify communication units was tested. Sixteen speech samples were randomly selected; four from each experimental condition and each age group. Five-minute segments from the 16 different speech samples were dubbed onto magnetic tape using two Wollensak 1520 tape recorders. Five seconds of silence were presented between

samples. Approximately 11 per cent of the communication units of this investigation were represented in the reliability recording.

The reliability recording was presented to two graduate students in speech pathology. Each judge listened to the tape-recorded speech samples and indicated on a typed manuscript what he considered to represent the communication unit. Appendix B (3) was used to instruct the judges. The investigator assisted judges in marking the first two speech samples as part of the training procedure. The judges placed a slash mark at the completion of each communication unit and drew a line through each maze.

The judgments made by the two judges were compared with those of the investigator. Marks which differed were counted and a percentage of agreement was obtained. The investigator identified 670 communication units which were used to determine the percentages. The number of judgments at variance from the investigator for Judge A was 34, and the percentage of agreement was 94.93 per cent. The number of judgments at variance from the investigator for Judge B was 31, and the percentage of agreement was 95.35 per cent. It was predetermined that an agreement of 90 per cent or greater would indicate satisfactory reliability in the identification of communication units. The percentage of agreements was greater than 90 per cent.

Preparation of data for computer processing. - The following steps were taken to prepare the speech samples to be entered on electronic data processing cards. A \pm was used for terminal punctuation of communication units to avoid confusion with standard English punctuation. Punctuation was omitted with the

exception of apostrophes. A # indicated a proper name. Periods were omitted following abbreviations since the computer reads a period as a terminal punctuation mark. Parentheses were used to enclose words of clarification which allowed assignment of words not in the Harvard III Psychosociological Dictionary. Expressions not entered in the dictionary and which appear frequently in the text, such as references to animals, children's activities, time and numerical quantities, are not tagged unless an appropriate dictionary word is added in parentheses. Proper nouns referring to days of the week and business firms are also clarified with a word from the dictionary. Clarified words are printed on a leftover list; they are also categorized for analysis.

Words were clarified in the following manner:

sleep (norm)	numerical words (quantity) or (time)
play (norm)	inside (space)
football (game)	monkey (animal)
bread (food)	hat (clothing)
flashlight (tool)	spanking (discipline)
tugawar (game)	hard (difficult)
cards (game)	cookies (food)
tricycle (toy)	tape (tool)
bicycle (toy)	telescope (tool)
mom (mother)	pajamas (clothing)
dad (father)	Friday (day)
Howard Johnson (store)	car (automobile)

Data Analysis

The dependent variables in this study are quantitative data from the lexical categories of the Harvard III Psychosociological Dictionary. The verbal texts, entered on electronic data processing cards, are computer sorted into 55 first-order and 21 second-order word concept categories. The computer program provides for (1) text and list of category assignments, (2) tag tally by raw scores,

(3) concept index score (the ratio of occurrence of tagged lexical units to total assignments) and (4) leftover list of words not in dictionary (Stone, et al., 1966; Miller, 1970).

The categories and concepts used in the dictionary are derived from sociological and psychological theory. Table 2 gives brief definitions of each category and examples of lexical items used by subjects in this investigation which are entered under that category. The first-order tags represent a set of discrete denotative categories. Each entry word is tagged under only one first-order category. The social realm, cultural realm and natural realm typically have nouns or objects assigned. Social categories refer to persons, social roles and activities. Cultural categories refer to food, clothing, tools, buildings and certain cultural patterns dealing with values and natural objects. The natural realm includes body parts, natural objects and natural world objects. Behavioral dimensions or psychological processes include emotions, perceptions, thought processes and evaluations, and impersonal and social-emotional actions. A third set of categories lists words used to modify or amplify the meanings of nouns and verbs. These are classified under the entry words of time, space, quantity and quality.

Second-order categories or tags represent both denotative and connotative levels of meaning. When a word has been assigned a first-order tag, its meaning can then be enlarged with a second-order tag. Second-order tags are not independent entities since the meaning of any entry word can be tagged with more than one second-order tag. For instance, the word "teacher" has a first-order tag

Table 2. Harvard III Psychosociological Dictionary content analysis categories. Examples of entry words used by subjects in this investigation are given within parentheses following each category.

FIRST-ORDER TAGS

Social Realm

Persons

1. self - all pronoun references to the personal self
(I, me, mine, myself)
2. selves - all pronoun references to the inclusive self
(we, us, ours)
3. other - all nonsex-specific pronouns for others
(you, yours, they, their)

Role

4. male role - all roles with specific male references
(father, boy, king, himself, uncle)
5. female role - all roles with specific female references
(mother, girl, aunt, herself, women)
6. neuter role - all role names not connoting sex or occupation
(baby, anybody, child, friend, ghost, person, somebody)
7. job role - all roles with clear occupational reference;
open to both sexes
(lawyer, maid, teacher)

Collectivities

8. small group - groups in which members are usually able to have
face-to-face interaction
(team, class, meeting, club)
9. large group - collectivities (groups) usually too large for
face-to-face interaction
(people, party, company, church)

Table 2 Cont'd

Cultural RealmCultural Objects

10. food - articles or types of food
(bread, butter, candy)
11. clothing - articles or types of clothing
(purse, dress, shirt)
12. tools - instrumental objects or artifacts of any kind;
broader than hand tools
(pencil, nail, rope, automobile, toy, boat, mirror, dishes,
chair)

Cultural Settings

13. social place - buildings and building parts; political, social
and economic locations
(store, neighborhood, office, tent, school)

Cultural Patterns

14. ideal value - culturally defined virtues, goals, valued
conditions and activities
(kind, pretty, busy, fun, frank)
15. deviation - culturally devalued goals, conditions and types
of activity
(crazy, dumb, stupid, lie)
16. action norm - normative patterns of social behavior
(dinner, game, wedding, jobs)
17. message form - names of communication media including art
objects, money and traditional units
(flag, movie, name, page, stories, newspaper)
18. thought form - units and styles of reasoning
(why)
19. nonspecific objects - abstract references to objects
(it, something, thing, stuff, what, other, that)

Natural Realm

20. body part - parts of the body
(feet, hair, face)

Table 2 Cont'd

-
21. natural object - objects not made by man
(pearl, lion, rock, worms, animal, tree, flower)
22. natural world - geographical places, weather reference and
cosmic objects
(moon, rain, cave, forest, sea)

Qualifiers

23. sensory reference - smell, colors, tastes
(cold, dirty, red, sound, sharp, quiet)
24. time reference - references to measurement of time
(morning, now, once, again, last, before, clock)
25. quantity reference - references to units and measures of
quantity
(hundred, inch, more, both, first, many, these)
26. space reference - references to spatial dimensions
(about, out, outside, under, western, edge)

Psychological Processes

Emotions

27. arousal - states of emotional excitement
(wake, curious, awake)
28. urge - drive states
(want, need, wish, dream)
29. affection - indicants of close interpersonal relationships
(love, goodbye, smile, kissing)
30. pleasure - states of gratification
(funny, laugh, rest, surprised)
31. distress - states of despair, fear, guilt, shame, grief,
failure or indecision
(cry, difficult, scare, afraid, sick, trouble)
32. anger - forms of aggressive expression
(angry, burn)

Thought

33. sense - perceptions and awareness
(listen, look, smell, hear, see)

Table 2 Cont'd

-
34. think - cognitive processes
(know, means, remember, puzzle, wonder, guess)
35. if - conditional words
(might, maybe, almost, probably, else, except)
36. equal - words denoting similarity
(same)
37. not - words denoting negation
(cannot, none, no, nothing)
38. cause - words denoting a cause-effect relationship
(because, cause)
39. defense mechanism - words denoting rationalizations
(pretend)

Evaluation

40. good - synonyms for good
(better, nice, right, clean)
41. bad - synonyms for bad
(awful, bad)
42. ought - words indicating a normal imperative
(must, would)

Behavioral ProcessesSocial-Emotional Actions

43. communicate - processes of transmitting meaning
(talking, said, telephone, told, sings, whisper)
44. approach - movement toward
(give, marry, visit, come)
45. guide - assistance and positive direction
(lead, help, let, point, teach)
46. control - limiting action
(shut)
47. follow - submissive action
(please, promise)
48. attack - destructive, hostile action
(fight, hit, bite, knock, hurt, punish)

Table 2 Cont'd

49. avoid - movement away from
(lost, went, forget, hid, go)

Impersonal Actions

50. attempt - goal-directed activity implying effort
(try, climb)
51. get - obtaining, achieving action
(catch, steal, get, buy, take, win)
52. possess - owning, consuming
(keep, ate, wear, lock, own)
53. expel - ejecting
(scratch, threw, drop, push)
54. work - task activity
(make, work, draw, wash, fix)
55. move - activity involved in physical movement
(carry, fell, pull, sit, hurry, flew, swim, start)

SECOND-ORDER TAGS

Institutional Contexts

56. academic (school, read, page, class, teacher)
57. artistic (draw, picture)
58. community (neighborhood, people, visit)
59. economic (office, pearl, store, automobile, sells, spend)
60. family (married, birthday, kid, pan, mother, home)
61. legal (lawyer, promise, punish)
62. medical (sickness, hospital, ambulance)
63. military (attack, fight, fort, gun)
64. political (flag, king, castle)
65. recreational (swim, game, tent, toy, coach, club)
66. religious (Christmas, church, prayer)
67. technological (knife, make, nail, rope, fix, jobs)

Table 2 Cont'd

Status Connotations

68. higher status (aunt, king, lady, father)
69. peer status (friend, cousin)
70. lower status (baby, child, maid, son)

Psychological Themes

71. overstate (bad, easy, nothing, very, all, strong, especially)
72. understate (but, almost, probably, some)
73. sign strong (catch, fight, fort, lion, right)
74. sign weak (cry, fell, kid, sad, wrong, poor)
75. sign accept (friend, give, kind, ok, please, visit)
76. sign reject (hate, dirty, scratch, steal, secret, punish, interrupt)

of job role and second-order tags of higher status and academic; "swim" has a first-order tag of move and a second-order tag of recreational. Hence, second-order tags transcend the initial basis for classification and are used to supplement or fill out the primary meaning of a word.

Concern is with the semantic or content aspect of language. Therefore, certain high-frequency words, such as determiners, linking verbs and functors, do not enter into frequency counts. Examples of these null words are: a, an, the, is, to and will.

The Harvard III Psychosociological Content Analysis Dictionary was developed and refined through a number of stages. Words to be included in a category were defined as natural language units; agreement among language users as to which word was entered into a category was the measure of denotative meaning.

Assignment of words to categories was based on two methods. First, words drawn from the Thorndike-Lorge count list were put on cards. Word assignments were made by a group of judges drawing upon their experience as language users. They selected which meaning was most common and which tag category should be chosen for the best representation of that meaning. Second, a sample of words was drawn from practical research situations. These included conversational material, personal documents, dreams, responses to survey research questions, nondirective psychological test protocols, literary sources, editorials, speeches and folktales. A key-word-in-context (KWIC) strategy was employed to relate the words to categories. Each occurrence of a word together with the context of the key word is printed. This gives direct information as to

meaning and frequency of a particular word. The third revision of the Harvard Psychosociological Dictionary has classified 3,564 language signs (Stone, et al., 1966).

To assess the amount of change due to age and due to treatment, each dependent variable (the 76 tags or categories) will be tested using the Mann-Whitney U statistic. For descriptive purposes, frequency polygons among the dependent variables for each age group and each treatment will be plotted.

CHAPTER III

RESULTS

This study is concerned with the content of speech samples as a function of setting and of age. Speech data, obtained from 28 children (14 pairs of siblings), were recorded in a clinic setting and in a home setting. These data were processed through a computer content analysis research design using the Harvard III Psychosociological Dictionary and the General Inquirer and Inquirer II systems. The dependent variables were the categories of the Harvard III Psychosociological Dictionary. This chapter presents the results obtained by statistical and descriptive analyses of the content of the speech samples.

To assess the amount of change due to age and due to setting, each dependent variable was tested using the Mann-Whitney U statistic. The level of confidence chosen was 0.05. A U value of 55 or less indicates that the null hypothesis is rejected (Siegel, 1956). The null hypotheses were:

1. There will be no content differences between speech samples obtained under spontaneous play situations and samples obtained when speech is elicited by preselected stimuli that can be differentiated using the Harvard III Psychosociological Dictionary.

2. There will be no developmental changes in use of verbal language between four-year-old and seven-year-old children that can be differentiated using the Harvard III Psychosociological Dictionary.

For descriptive purposes, frequency polygons among the dependent variables using mean scores for each age group and each treatment were plotted. Concept Index Scores were computed for each dependent variable for both experimental conditions and both age groups. Data not processed by the dictionary routine are presented in a leftover list of words.

Analysis of Group I Subjects Comparing
Condition A and Condition B

Table 3 presents the results of Mann-Whitney U tests comparing the scores for the 76 dependent variables between Experimental Condition A (clinic setting) and Experimental Condition B (home setting) for Group I (four-year-old) subjects. A U value of 55 or less indicates the rejection of the null hypothesis. Significant values were obtained between experimental conditions for the following dependent variables: self, male role, large group, tool, non-specific object, social place, action norm, thought form, arousal, urge, sense, think, cause, good, attempt, move, peer status, lower status and sign accept. For these four-year-old subjects, there were nonsignificant values on 57 of the 76 dependent variables.

Figure 1 contrasts two frequency polygons of the mean scores of Group I subjects for Experimental Condition A and Experimental Condition B for the 76 dependent variables. A number of these categories had low frequencies under both conditions. These

Table 3. Summary of statistical analysis between Condition A and Condition B, Group I subjects. $U = 55$; $p = 0.05$.

Dependent Variable	U Value	Significant	Dependent Variable	U Value	Significant
<u>Social Realm: Persons</u>					
1. self	16.0	$p < .05$	38. cause	46.5	$p < .05$
2. selves	58.5	-	39. defense mech.	90.5	-
3. other	81.0	-	<u>Psych. Processes: Evaluation</u>		
<u>Social Realm: Role</u>					
4. male role	6.0	$p < .05$	40. good	47.0	$p < .05$
5. female role	94.0	-	41. bad	92.0	-
6. neuter role	67.0	-	42. ought	94.0	-
7. job role	91.0	-	<u>Behavioral Processes:</u>		
<u>Social Realm: Collectivities</u>					
8. small group	86.5	-	<u>Social Emotional Actions</u>		
9. large group	42.5	$p < .05$	43. communicate	89.0	-
<u>Cultural Realm: Objects</u>					
10. food	91.5	-	44. approach	60.0	-
11. clothing	94.5	-	45. guide	98.0	-
12. tool	20.0	$p < .05$	46. control	91.0	-
<u>Cultural Realm: Setting</u>					
13. social place	49.5	$p < .05$	47. follow	56.0	-
<u>Cultural Patterns</u>					
14. ideal value	72.0	-	48. attack	94.5	-
15. deviation	97.5	-	49. avoid	77.0	-
16. action norm	32.5	$p < .05$	<u>Behavioral Processes:</u>		
17. message form	81.0	-	<u>Impersonal Actions</u>		
18. thought form	50.5	$p < .05$	50. attempt	47.5	$p < .05$
19. nonspec. obj.	29.5	$p < .05$	51. get	98.0	-
<u>Natural Realm</u>					
20. body part	77.0	-	52. possess	87.5	-
21. natural obj.	65.5	-	53. expel	80.0	-
22. natural world	77.5	-	54. work	81.0	-
<u>Qualifiers</u>					
23. sensory ref.	87.0	-	55. move	47.0	$p < .05$
24. time ref.	73.5	-	<u>Institutional Contexts</u>		
25. quantity ref.	73.0	-	56. academic	89.5	-
26. space ref.	73.0	-	57. artistic	76.5	-
<u>Psych. Processes: Emotion</u>					
27. arousal	49.0	$p < .05$	58. community	64.0	-
28. urge	24.0	$p < .05$	59. economic	78.0	-
29. affection	64.0	-	60. family	71.5	-
30. pleasure	96.5	-	61. legal	77.0	-
31. distress	73.5	-	62. medical	84.0	-
32. anger	83.0	-	63. military	68.0	-
<u>Psych. Processes: Thought</u>					
33. sense	37.5	$p < .05$	64. political	79.0	-
34. think	44.0	$p < .05$	65. recreational	63.0	-
35. if	75.5	-	66. religious	80.0	-
36. equal	91.0	-	67. technological	64.5	-
37. not	92.5	-	<u>Status Connotations</u>		
			68. higher status	76.5	-
			69. peer status	49.0	$p < .05$
			70. lower status	1.5	$p < .05$
			<u>Psych. Themes</u>		
			71. overstate	92.0	-
			72. understate	85.5	-
			73. sign strong	79.0	-
			74. sign weak	65.5	-
			75. sign accept	46.5	$p < .05$
			76. sign reject	89.0	-

Mean frequency of scores on 76 dependent variables during Condition A and Condition B for Group I subjects.

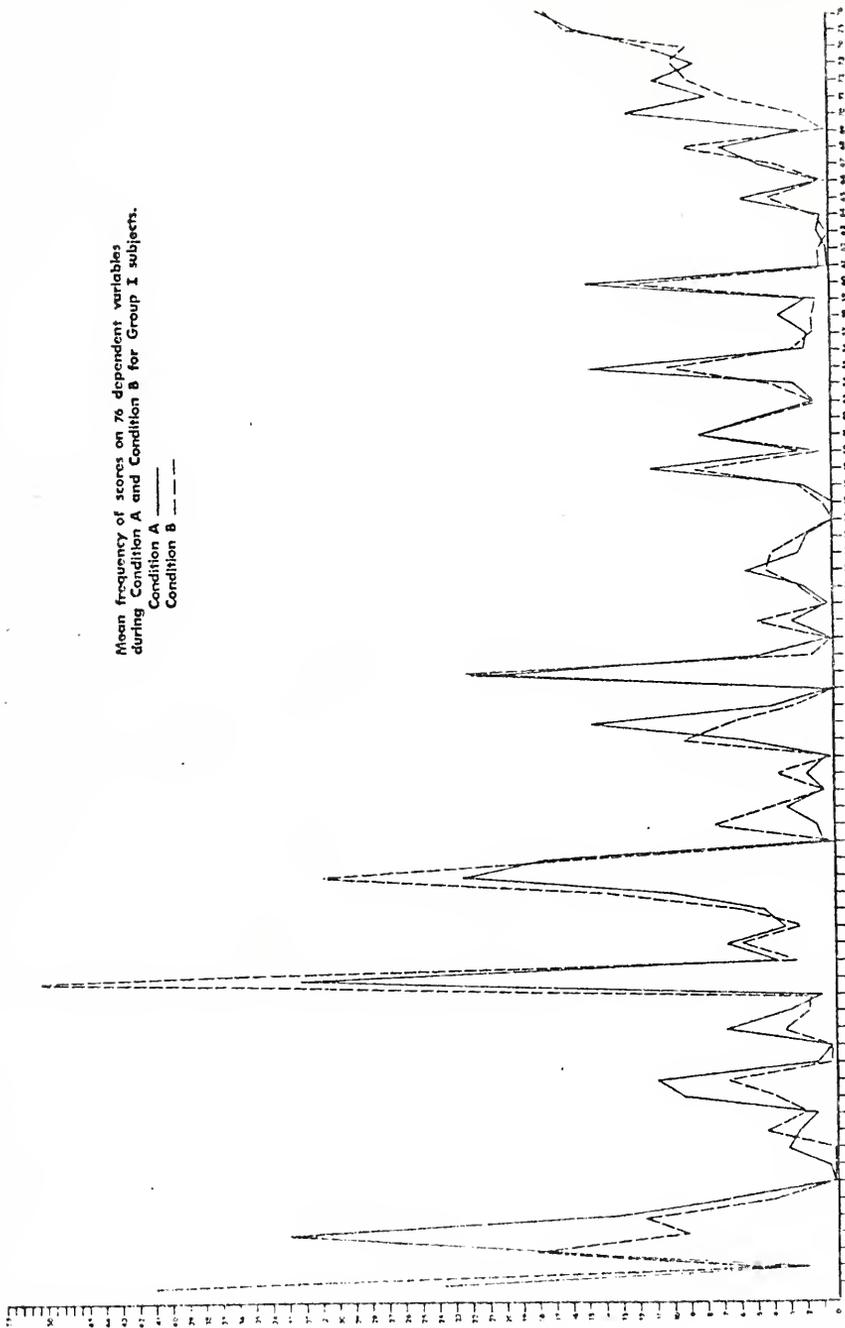


Fig. 1

categories provide little descriptive data for this study. The following dependent variables had mean scores of less than 1.00 under both conditions: job role, deviation, pleasure, anger, equal, defense mechanism, bad, control, artistic, legal, medical, political and religious.

Under Experimental Condition A, the categories of speech content with a mean frequency of ten or greater include the following dependent variables: self, other, male role, female role, non-specific object, time reference, space reference, quantity reference, social place, action norm, sense, think, not, avoid, get, move, family, higher status, lower status, understate, sign strong, sign weak, sign accept and sign reject. These categories provide the most descriptive information concerning content areas. However, having an average frequency of ten or greater does not indicate that these categories are significant to either age or setting.

Under Experimental Condition B, those dependent variables having a mean frequency of ten or greater include: self, other, female role, nonspecific object, time reference, space reference, quantity reference, not, avoid, get, sign strong, sign accept and sign reject.

The configuration of the frequency polygon among the dependent variables under Experimental Condition A approximates the configuration among the dependent variables under Experimental Condition B. There is a correspondence in the patterns of content distribution for four-year-old children in a clinic and home setting. An inverse pattern occurs in the following categories: male role, pleasure and lower status.

Analysis of Group II Subjects Comparing
Condition A and Condition B

Table 4 presents the results of Mann-Whitney U tests comparing the scores for the 76 dependent variables between Experimental Condition A (clinic setting) and Experimental Condition B (home setting) for Group II subjects. Significant values were obtained on the following 30 dependent variables: self, selves, male role, neuter role, small group, food, clothing, natural object, non-specific object, space reference, social place, action norm, arousal, urge, distress, cause, good, guide, attack, avoid, attempt, get, possess, move, family, recreational, lower status, understate, sign weak and sign reject. For these seven-year-old subjects, 46 of the dependent variables were nonsignificant.

Figure 2 presents frequency polygons of Group II subjects comparing Experimental Condition A and Experimental Condition B. The following dependent variables which had mean scores of less than 1.00 provide few data: job role, small group, deviation, arousal, pleasure, anger, equal, not, bad, follow, medical, military and religious.

Categories with a mean frequency of ten or greater represent content areas prevalent in the language of seven-year-old children. There was a somewhat different group of categories with an average of ten or greater with changes in setting. Under Experimental Condition A, the dependent variables with a mean frequency of ten or greater include the following categories: self, other, male role, female role, nonspecific object, space reference, quantity reference, social place, think, not, avoid, move, family, lower status, understate, sign weak, sign accept and sign reject.

Table 4. Summary of statistical analysis between Condition A and Condition B, Group II subjects. $U = 55$; $p = 0.05$.

Dependent Variable	U Value	Significant	Dependent Variable	U Value	Significant
<u>Social Realm: Persons</u>			38. cause	44.5	$p < .05$
1. self	48.0	$p < .05$	39. defense mech.	91.0	-
2. selves	53.5	$p < .05$	<u>Psych. Processes: Evaluation</u>		
3. other	86.0	-	40. good	52.0	$p < .05$
<u>Social Realm: Role</u>			41. bad	86.5	-
4. male role	2.0	$p < .05$	42. ought	62.0	-
5. female role	60.0	-	<u>Behavioral Processes:</u>		
6. neuter role	42.5	$p < .05$	<u>Social Emotional Actions</u>		
7. job role	83.5	-	43. communicate	93.0	-
<u>Social Realm: Collectivities</u>			44. approach	89.0	-
8. small group	38.5	$p < .05$	45. guide	37.5	$p < .05$
9. large group	67.0	-	46. control	89.0	-
<u>Cultural Realm: Objects</u>			47. follow	85.0	-
10. food	38.0	$p < .05$	48. attack	41.0	$p < .05$
11. clothing	52.5	$p < .05$	49. avoid	41.0	$p < .05$
12. tool	77.0	-	<u>Behavioral Processes:</u>		
<u>Cultural Realm: Setting</u>			<u>Impersonal Actions</u>		
13. social place	33.5	$p < .05$	50. attempt	37.5	$p < .05$
<u>Cultural Patterns</u>			51. get	51.5	$p < .05$
14. ideal value	91.5	-	52. possess	28.5	$p < .05$
15. deviation	61.0	-	53. expel	85.0	-
16. action norm	3.5	$p < .05$	54. work	81.0	-
17. message form	76.0	-	55. move	46.5	$p < .05$
18. thought form	72.0	-	<u>Institutional Contexts</u>		
19. nonspec. obj.	15.0	$p < .05$	56. academic	77.5	-
<u>Natural Realm</u>			57. artistic	80.0	-
20. body part	63.0	-	58. community	68.0	-
21. natural obj.	17.5	$p < .05$	59. economic	75.0	-
22. natural world	64.0	-	60. family	33.0	$p < .05$
<u>Qualifiers</u>			61. legal	96.0	-
23. sensory ref.	88.0	-	62. medical	98.0	-
24. time ref.	65.0	-	63. military	57.0	-
25. quantity ref.	97.0	-	64. political	75.0	-
26. space ref.	23.0	$p < .05$	65. recreational	32.5	$p < .05$
<u>Psych. Processes: Emotion</u>			66. religious	83.0	-
27. arousal	42.0	$p < .05$	67. technological	84.0	-
28. urge	48.5	$p < .05$	<u>Status Connotations</u>		
29. affection	92.5	-	68. higher status	60.5	-
30. pleasure	81.5	-	69. peer status	56.5	-
31. distress	16.0	$p < .05$	70. lower status	5.0	$p < .05$
32. anger	91.0	-	<u>Psych. Themes</u>		
<u>Psych. Processes: Thought</u>			71. overstate	94.0	-
33. sense	81.5	-	72. understate	44.0	$p < .05$
34. think	87.5	-	73. sign strong	76.0	-
35. if	70.5	-	74. sign weak	40.5	$p < .05$
36. equal	90.0	-	75. sign accept	62.0	-
37. not	55.6	-	76. sign reject	10.5	$p < .05$

Mean frequency of scores on 76 dependent variables during Condition A and Condition B for Group II subjects.
 Condition A ———
 Condition B - - - -

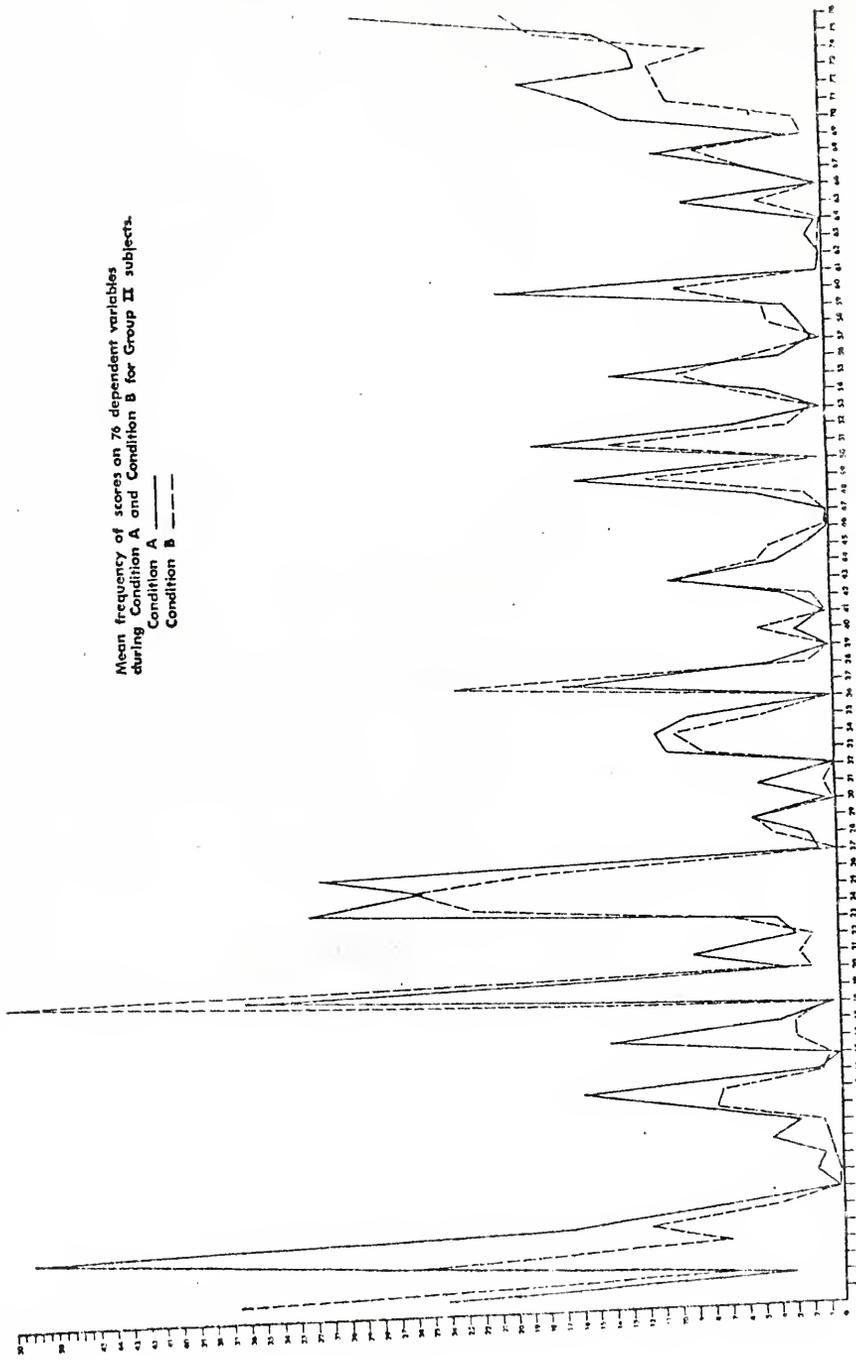


Fig. 2

Dependent variables having a mean frequency of ten or greater under Experimental Condition B for Group II subjects include: self, other, female role, nonspecific object, time reference, space reference, quantity reference, not, family, sign accept and sign reject.

Similarities in content distribution between the clinic setting and the home setting are noted in the configurations of the frequency polygons. The pattern found under Condition A approximates the configuration among the dependent variables under Condition B for Group II subjects. An inverse pattern occurs in the following three categories: male role, quantity reference and sign weak.

Analysis of Group I and Group II Subjects Under Condition A

Table 5 presents the results of Mann-Whitney U tests comparing the scores for the 76 variables between Group I and Group II subject during Experimental Condition A. Significant U values of 55 or less were obtained on the following 12 variables: male role, other, time reference, space reference, action norm, distress, sense, communicate, attack, get, recreational and sign reject. Sixty-four dependent variables were nonsignificant between Group I and Group II in a clinic setting with preselected stimuli.

Figure 3 presents the frequency polygons for Group I and Group II subjects under Experimental Condition A. The configuration of the frequency polygon among the mean scores of the dependent variables for Group I approximates the configuration for subjects in Group II. An inverse pattern occurs in the following dependent variables: large group, quantity reference, space reference and

Table 5. Summary of statistical analysis between Group I and Group II subjects, Condition A. $U = 55$; $p = 0.05$.

Dependent Variable	U Value	Significant	Dependent Variable	U Value	Significant
<u>Social Realm: Persons</u>			38. cause	93.5	-
1. self	95.5	-	39. defense mech.	98.0	-
2. selves	77.5	-	<u>Psych. Processes: Evaluation</u>		
3. other	52.5	$p < .05$	40. good	73.5	-
<u>Social Realm: Role</u>			41. bad	86.5	-
4. male role	40.5	$p < .05$	42. ought	77.0	-
5. female role	71.0	-	<u>Behavioral Processes:</u>		
6. neuter role	71.5	-	<u>Social Emotional Actions</u>		
7. job role	75.0	-	43. communicate	52.5	$p < .05$
<u>Social Realm: Collectivities</u>			44. approach	62.5	-
8. small group	60.5	-	45. guide	88.0	-
9. large group	71.5	-	46. control	84.0	-
<u>Cultural Realm: Objects</u>			47. follow	77.0	-
10. food	62.0	-	48. attack	36.0	$p < .05$
11. clothing	57.0	-	49. avoid	60.5	-
12. tool	95.0	-	<u>Behavioral Processes:</u>		
<u>Cultural Realm: Setting</u>			<u>Impersonal Actions</u>		
13. social place	57.5	-	50. attempt	89.5	-
<u>Cultural Patterns</u>			51. get	19.0	$p < .05$
14. ideal value	88.5	-	52. possess	75.0	-
15. deviation	97.5	-	53. expel	64.0	-
16. action norm	34.5	$p < .05$	54. work	60.5	-
17. message form	66.0	-	55. move	81.5	-
18. thought form	97.0	-	<u>Institutional Contexts</u>		
19. nonspec. obj.	82.0	-	56. academic	71.0	-
<u>Natural Realm</u>			57. artistic	81.0	-
20. body part	97.5	-	58. community	75.0	-
21. natural obj.	71.5	-	59. economic	61.5	-
22. natural world	87.0	-	60. family	72.5	-
<u>Qualifiers</u>			61. legal	70.0	-
23. sensory ref.	95.5	-	62. medical	84.0	-
24. time ref.	8.0	$p < .05$	63. military	83.0	-
25. quantity ref.	57.0	-	64. political	72.5	-
26. space ref.	24.0	$p < .05$	65. recreational	48.5	$p < .05$
<u>Psych. Processes: Emotion</u>			66. religious	81.0	-
27. arousal	87.5	-	67. technological	91.5	-
28. urge	83.5	-	<u>Status Connotations</u>		
29. affection	59.5	-	68. higher status	56.0	-
30. pleasure	94.0	-	69. peer status	69.0	-
31. distress	33.0	$p < .05$	70. lower status	92.5	-
32. anger	83.0	-	<u>Psych. Themes</u>		
<u>Psych. Processes: Thought</u>			71. overstate	70.5	-
33. sense	49.0	$p < .05$	72. understate	56.0	-
34. think	84.0	-	73. sign strong	60.5	-
35. if	64.0	-	74. sign weak	91.5	-
36. equal	84.0	-	75. sign accept	59.5	-
37. not	73.5	-	76. sign reject	18.0	$p < .05$

Mean frequency of scores on 76 dependent variables
for Group I and Group II subjects during Condition A.

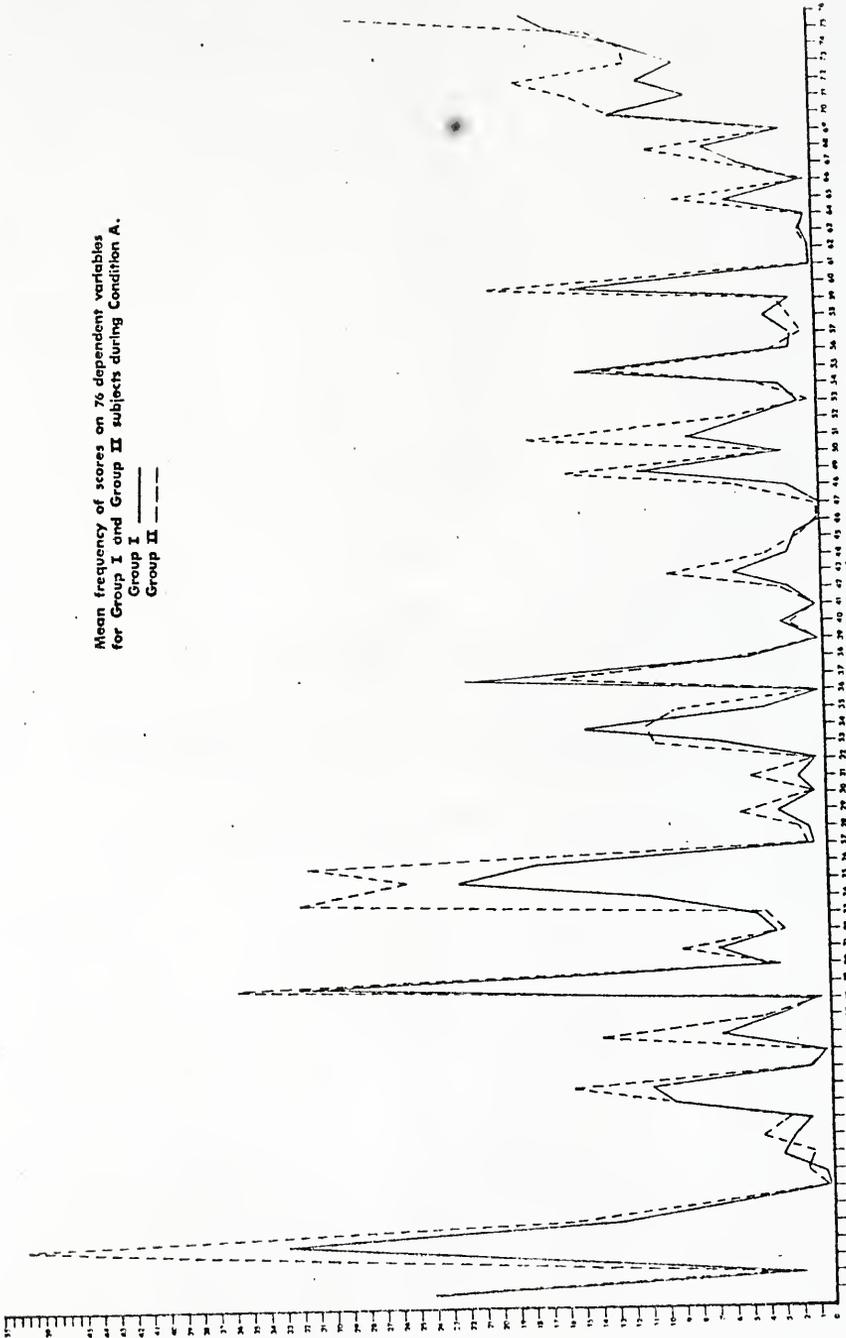


Fig. 3

overstate. The configuration of the frequency polygons indicates that there is a regularity to the language performance of the subjects when a speech sample is obtained in the clinic with preselected stimuli.

Analysis of Group I and Group II Subjects Under Condition B

Table 6 presents the results of the Mann-Whitney U test comparing the scores for the 76 dependent variables between Group I and Group II under Experimental Condition B. Significant differences were obtained on the following seven variables: other, natural object, time reference, distress, guide, get and economic. Sixty-nine dependent variables were nonsignificant between Group I and Group II subjects when speech samples were taken in the home environment.

Figure 4 presents the frequency polygons for Group I and Group II subjects under Condition B. The configuration of the frequency polygon among the mean scores of the dependent variables for Group I approximates the profile for subjects in Group II. An inverse difference occurs in one dependent variable: food. There is a homogeneity to the pattern of content distribution among the two groups of subjects in a home setting.

Concept Index Score

Table 7 presents the Concept Index Scores for each group of subjects and each experimental condition. This score provides for a comparison of speech samples of varying word lengths. The score is a ratio score between the frequency assigned to a given category and the total number of concepts assigned in the verbal sample under

Table 6. Summary of statistical analysis between Group I and Group II subjects, Condition B. $U = 55$; $p = 0.05$.

Dependent Variable	U Value	Significant	Dependent Variable	U Value	Significant
<u>Social Realm: Persons</u>			38. cause	98,0	-
1. self	75,5	-	39. defense mech.	97,0	-
2. selves	67,0	-	<u>Psych. Processes: Evaluation</u>		
3. other	50,5	$p < .05$	40. good	89,5	-
<u>Social Realm: Role</u>			41. bad	92,0	-
4. male role	65,5	-	42. ought	84,0	-
5. female role	91,5	-	<u>Behavioral Processes:</u>		
6. neuter role	94,5	-	<u>Social Emotional Actions</u>		
7. job role	83,5	-	43. communicate	56,0	-
<u>Social Realm: Collectivities</u>			44. approach	92,5	-
8. small group	84,5	-	45. guide	51,5	$p < .05$
9. large group	78,5	-	46. control	83,0	-
<u>Cultural Realm: Objects</u>			47. follow	65,0	-
10. food	56,5	-	48. attack	78,0	-
11. clothing	92,0	-	49. avoid	59,5	-
12. tool	63,5	-	<u>Behavioral Processes:</u>		
<u>Cultural Realm: Setting</u>			<u>Impersonal Actions</u>		
13. social place	93,5	-	50. attempt	89,0	-
<u>Cultural Patterns</u>			51. get	53,5	$p < .05$
14. ideal value	66,0	-	52. possess	59,0	-
15. deviation	63,0	-	53. expel	96,5	-
16. action norm	91,5	-	54. work	70,5	-
17. message form	74,0	-	55. move	97,5	-
18. thought form	64,0	-	<u>Institutional Contexts</u>		
19. nonspec. obj.	71,0	-	56. academic	59,5	-
<u>Natural Realm</u>			57. artistic	92,5	-
20. body part	93,0	-	58. community	62,0	-
21. natural obj.	50,0	$p < .05$	59. economic	40,5	$p < .05$
22. natural world	75,0	-	60. family	68,0	-
<u>Qualifiers</u>			61. legal	93,0	-
23. sensory ref.	87,5	-	62. medical	98,0	-
24. time ref.	43,5	$p < .05$	63. military	97,0	-
25. quantity ref.	90,5	-	64. political	82,0	-
26. space ref.	62,5	-	65. recreational	97,5	-
<u>Psych. Processes: Emotion</u>			66. religious	89,0	-
27. arousal	98,0	-	67. technological	70,0	-
28. urge	65,5	-	<u>Status Connotations</u>		
29. affection	73,5	-	68. higher status	68,5	-
30. pleasure	75,5	-	69. peer status	75,0	-
31. distress	47,5	$p < .05$	70. lower status	80,0	-
32. anger	91,5	-	<u>Psych. Themes</u>		
<u>Psych. Processes: Thought</u>			71. overstate	72,5	-
33. sense	89,5	-	72. understate	91,0	-
34. think	63,0	-	73. sign strong	97,0	-
35. if	58,0	-	74. sign weak	73,5	-
36. equal	83,5	-	75. sign accept	81,0	-
37. not	85,0	-	76. sign reject	79,5	-

Mean frequency of scores on 76 dependent variables
for Group I and Group II subjects during Condition 8.

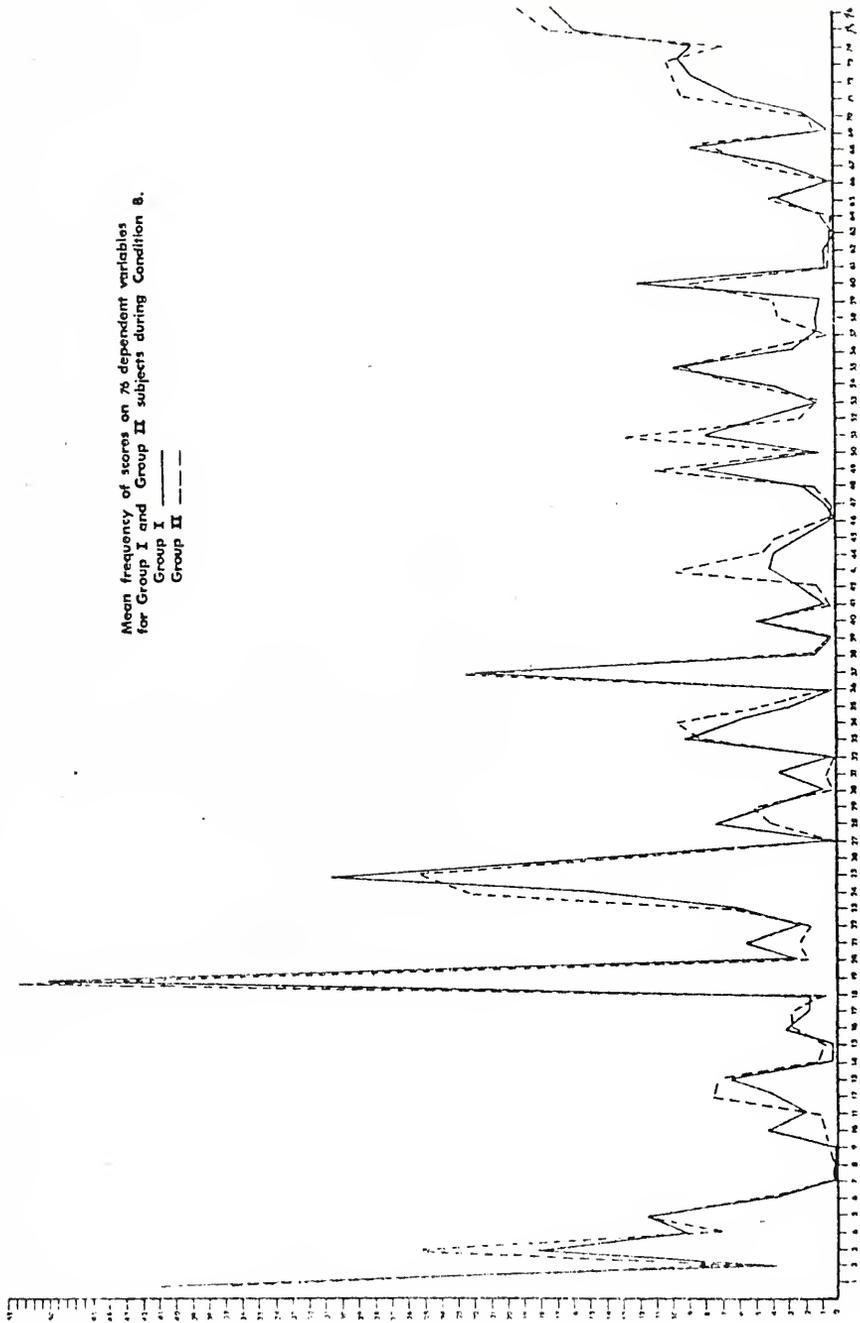


Table 7. Summary of Concept Index Scores for Experimental Condition A and Experimental Condition B for Group I and Group II subjects.

Dependent Variables	Group I		Group II	
	Condi- tion A	Condi- tion B	Condi- tion A	Condi- tion B
I. <u>Persons</u>				
self	5.02	9.10	3.11	7.42
selves	0.41	0.89	0.52	1.32
others	3.46	3.95	3.69	5.23
II. <u>Roles</u>				
male role	7.00	2.02	8.30	1.48
female role	2.83	2.52	2.59	2.30
neuter role	1.38	0.83	1.32	0.84
job role	0.30	0.02	0.08	0.06
III. <u>Collectivities</u>				
small group	0.12	0.05	0.26	0.01
large group	0.64	0.08	0.19	0.12
IV. <u>Cultural Objects</u>				
food	0.52	0.92	0.69	0.19
clothing	0.29	0.34	0.41	0.27
tools	1.99	0.83	1.47	1.54
V. <u>Cultural Settings</u>				
social place	2.32	1.44	2.50	1.49
VI. <u>Cultural Patterns</u>				
nonspecific object	6.84	11.04	5.65	11.23
ideal value	0.29	0.09	0.24	0.27
deviation	0.08	0.09	0.04	0.17
action norm	1.45	0.70	2.23	0.55
message form	0.59	0.41	0.60	0.58
thought form	0.20	0.61	0.09	0.23
VII. <u>Natural Realm</u>				
body part	0.76	0.53	0.50	0.36
natural object	1.39	1.23	1.35	0.51
natural world	0.65	0.47	0.39	0.32
VIII. <u>Qualifiers</u>				
sensory reference	0.94	1.30	0.60	1.23
time reference	2.11	3.02	5.04	4.46
space reference	3.70	3.24	4.94	3.65
quantity reference	4.76	6.74	3.95	5.17
IX. <u>Emotions</u>				
arousal	0.15	0.00	0.18	0.00
urge	0.27	1.59	0.28	0.77
affection	0.62	0.87	0.80	1.06
pleasure	0.14	0.16	0.11	0.06
distress	0.36	0.75	0.74	0.17
anger	0.09	0.02	0.01	0.00

Table 7 Cont'd

Dependent Variables	Group I		Group II	
	Condi- tion A	Condi- tion B	Condi- tion A	Condi- tion B
X. <u>Thought</u>				
sense	1.18	1.98	1.62	1.64
think	3.08	1.31	1.71	2.00
if	0.80	0.55	1.50	0.84
equal	0.00	0.02	0.02	0.06
not	4.43	4.85	2.59	4.62
cause	0.92	0.31	0.64	0.33
defense mechanism	0.01	0.05	0.01	0.03
XI. <u>Evaluation</u>				
good	0.53	1.02	0.38	0.91
bad	0.08	0.12	0.12	0.07
ought	0.39	0.37	0.42	0.27
XII. <u>Social Emotional Actions</u>				
communicate	1.12	0.94	1.50	2.01
approach	0.44	0.84	0.57	0.91
guide	0.39	0.47	0.24	0.77
control	0.00	0.02	0.02	0.09
follow	0.00	0.12	0.05	0.03
attack	0.35	0.44	0.70	0.32
avoid	2.33	1.81	0.02	2.23
XIII. <u>Impersonal Actions</u>				
attempt	0.42	0.16	0.05	0.14
get	1.73	1.75	2.83	2.88
possess	1.00	0.95	0.91	0.49
expel	0.23	0.22	0.08	0.20
work	0.50	0.83	0.57	1.17
move	3.14	1.95	2.07	1.81
XIV. <u>Institutional Contexts</u>				
academic	0.35	0.52	0.45	1.01
artistic	0.32	0.30	0.15	0.07
community	0.68	0.30	0.26	0.71
economic	0.30	0.20	0.45	0.78
family	3.15	2.64	3.09	1.83
legal	0.00	0.14	0.07	0.06
medical	0.04	0.02	0.01	0.01
military	0.15	0.03	0.16	0.06
political	0.12	0.17	0.08	0.03
recreational	1.14	0.84	1.36	0.81
religious	0.14	0.13	0.06	0.03
technological	0.94	0.73	0.73	0.93
XV. <u>Status Connotations</u>				
higher status	1.41	2.16	1.63	1.54
peer status	0.36	0.06	0.33	0.23
lower status	2.58	0.42	1.89	0.38

Table 7 Cont'd

Dependent Variables	Group I		Group II	
	Condi- tion A	Condi- tion B	Condi- tion A	Condi- tion B
XVI. <u>Psychological Themes</u>				
overstate	1.56	1.38	1.45	1.87
understate	2.23	1.88	2.85	1.94
sign strong	1.71	2.09	1.77	2.06
sign weak	2.33	1.88	1.81	1.36
sign accept	2.20	3.47	2.13	3.49
sign reject	3.82	3.72	4.46	3.86

investigation. The quotient is multiplied by 100 to obtain the Concept Index Score (Stone, et al., 1966).

The Concept Index Score provides information relative to the model used in the development of the Harvard III Psychosociological Dictionary. The dictionary is organized to measure language texts for 16 concept clusters on 76 dependent variables. The dictionary identifies verbal lexical events that can be assigned a content category. The verbal text in this investigation has measurable examples of the concepts and variables included in the Harvard III Psychosociological Dictionary.

Concept Index Scores tend to supplement and support statistical analyses. The following observations are pertinent:

1. There are nine dependent variables which have higher Concept Index Scores for Group I and Group II subjects in a structured setting than in a home setting. These include: male role, neuter role, social place, action norm, move, recreational, family, lower status and understate.
2. Five dependent variables have higher Concept Index Scores for both groups of subjects in a home setting than in a structured setting. These include: self, nonspecific object, quantity reference, sign strong and sign accept.
3. Four-year-old subjects during a clinic interview had higher Concept Index Scores for three categories: large group, think and sign weak. In a home setting, they had higher Concept Index Scores for urge and higher status.

4. Seven-year-old subjects during Condition A and Condition B had higher Concept Index Scores for the categories time and get. In the home setting, they had higher Concept Index Scores for others, work and academic.

The Concept Index Scores increase the descriptive data available to this investigation. The score serves as a relative index of frequency in any one category.

Leftover Words Not Processed

Data, not handled by the dictionary routine of the Inquirer II program, were expressions which were not entered in the Harvard III Psychosociological Dictionary. These data were not assigned into any of the 76 dependent variables. The major groups of words which were not assigned tags were proper names, brand names and titles of books or television programs. In addition, the content words listed in Table 8 were not in the dictionary and were used by the subjects of this investigation. Words on the list appeared with a frequency of three times or greater in the verbal output texts under examination. Words with an asterisk (*) appeared with a frequency of ten or more times in the speech of the subjects of this study. Words with a plus sign (+) were edited by the investigator so that the category was assigned; data for these words appear in the statistical and descriptive analyses of the speech samples.

Five general content areas can be identified from this leftover list: (1) clothing, (2) food, (3) animals, (4) toys and (5) parents. In addition, a number of high-frequency verb items was not included in the Harvard III Psychosociological Dictionary. These include: had, has, have, hope, hate, play, sleep, use and watch.

Table 8. Leftover list of words not entered in the Harvard III Psychosociological Dictionary spoken by subjects in this investigation.

Group I		Group II		
Condition A	Condition B	Condition A	Condition B	
+alligator	+bee	+asleep	+*spank	antenna
+asleep	butt	+*balloon	stew	+bike
+balloon	caps	+baseball	+tricycle	+*car
bathtub	+carrot	+bike	+trike	care
bet	+cookies	+car	+three	disqualified
+bicycle	+*daddy	cane	through	+*eight
bike	dirt	crib	+*tugawar	+eighteen
+car	done	crow	+*two	envelope
crib	+dummy	couch	TV	everything
crawl	+eight	+*daddy	undressed	everytime
+*daddy	+*four	+*dad	vampire	+*four
diapers	+five	dirt	+*watch	+*five
everything	*had	+frog	whatever	*has
+football	*has	+football		*have
grab	*have	four		*here
+grass	hope	grandaddy		hi
*had	*here	grandmother		hook
*has	+leopard	*had		hope
*have	+jacket	*has		made
*here	made	+hat		+*mama
+inside	+*mama	*have		mess
lamp	+*mommy	*here		+*mom
+mama	part	hump		+*mommy
+*mommy	+peanut	+inside		+Monday
monster	pill	mad		+nine
+pajamas	+*play	made		+nineteen
+*play	quit	+mama		+*play
+rooster	rake	measles		+*seven
+*sleep	+seven	+*mom		+*six
+sleepy	+six	+mommy		star
sneak	spill	naughty		+tape
+spank	spook	o'clock		+thirty
+three	stove	+owl		+*three
+tricycle	+ten	+*play		through
truck	+*three	ran		tough
through	+*two	+*rooster		+twelve
+*two	*watch	sent		+twenty
used	undone	+*sleep		+*two
watch		+slept		use
		smoke		watch

Symbols: + = edited by investigator; * = frequency of use greater than ten.

Summary

The descriptive and statistical analyses revealed that a number of dependent variables are significant to each experimental condition and to each group of subjects. The patterns of distribution among the dependent variables as described by frequency polygons vary in only a few categories between ages and between treatment conditions. Concept Index Scores indicate that the speech content of the subjects of this investigation is distributed among the 76 dependent variables. A list of expressions not processed by the computer program was presented. The results of this investigation offer data for a discussion of the function of age and setting in the content of speech.

CHAPTER IV
DISCUSSION

The issue involved in this investigation was whether a content analysis procedure for the description of the referential dimension of oral language could be utilized to analyze differences in speech content between age groups and between two experimental conditions.

Two questions were asked:

1. What are the differences in content in the oral language of four-year-old and seven-year-old children that can be attributed to different stimulus situations?
2. What are the differences in content in the oral language of four-year-old and seven-year-old children that can be attributed to the age differences of the subjects?

To answer these questions, the descriptive and statistical results obtained in this investigation will be discussed with respect to the following areas: (1) results of the analyses of the content of oral language as a function of setting; (2) results of the analyses of the content of oral language as a function of age; (3) procedures for revising the Harvard III Psychosociological Dictionary to be used more efficiently in child language studies; and (4) proposals for research generated by this investigation.

Discussion of Results of Analyses
as a Function of Setting

It has been assumed that the referential dimension of speech varies with change of setting. The results of this investigation contribute support for this view. There are, however, a number of content categories that indicate no differences attributable to setting. This implies that some areas of language performance are not embedded in the situation or setting. Within the conditions of this investigation, generalizations may be made between settings for 35 content categories.

Statistically significant differences were found between Experimental Condition A, the structured clinic setting where responses were made to preselected stimuli, and Experimental Condition B, the home environment where speech was spontaneous in response to normal family activity. Eleven variables were significant in distinguishing between the home setting and the clinic setting for both groups of subjects. In addition, eight categories were significant in distinguishing between settings for the four-year-old subjects and 21 categories were significant in distinguishing between settings for seven-year-old subjects. To clarify the discussion of these results, three subdivisions and a table will be employed. The subdivisions are: differences between settings for Group I and Group II subjects, differences between settings for Group I subjects and differences between settings for Group II subjects.

Differences Between Settings for Group I and Group II Subjects

Eleven dependent variables were significant in distinguishing between the clinic setting and the home setting for Group I and Group II subjects.

Categories with higher mean frequencies in structured

setting. - Variables which had a greater magnitude under Condition A are listed below:

<u>Categories</u>	<u>Expressions</u>
male role	father, himself, king, boy
social place	home, tent, school, store
action norm	game, lunch, play, breakfast, job
arousal	awake
cause	because
attempt	try, pull, climb
move	sit, fell, rush, jump, start
lower status	baby, child, boy

In a setting where a subject relates a story in response to a picture, the likelihood of these categories occurring is apparent. Examples from the subjects in this study demonstrate this conclusion.

That is a daddy sitting down smoking his pipe.
 It fell with her.
 And eat their breakfast.
 Then they start the camp fire.
 She is telling the boy what to do.
 But he sings like a lady.
 I think he is going to climb a big tree.
 I bet he might come home with his knee hurting.
 They are inside that little cave or tent.
 Because the wolf was trying to eat her up.

It seems evident that the use of pictures to stimulate stories resulted in significantly different speech content for the categories listed above. The category of male role may reflect the fact that a majority of the subjects were male. The other items are used in developing a story; a place to go, an action or behavior takes place and a child is a participant. Those

categories related to the clinic setting seem to be correlated to the activity of telling stories.

Categories with higher mean frequencies in the home setting. -

Three dependent variables, nonspecific object, urge and good, had a higher frequency during Condition B for both groups of subjects. Words from the category nonspecific object had a high frequency of use under both conditions, but a higher frequency of use in the home environment. Examples of expressions from this tag include: it, that, anything, thing, other and stuff. Objects and persons located near the child appear to be referred to in nonspecific terms. This suggests that much of the communication between persons is based on mutual knowledge or recognition of the topic, issue or object being discussed.

Expressions of desire and need, such as "I want" or "I wish," occurred significantly more often in the home. This seems logical since there are caretaking responsibilities assumed by adults in the home. Children, no doubt, use expressions of need with these adults. The subjects also interact with other children and may express themselves negatively and say "I don't want to do it." The significant results for the category urge probably are a demonstration of this verbal behavior.

Personal evaluations are stated more often under Condition B. Synonyms for good, such as nice and right, are expressed in the home environment with greater frequency than in a clinic environment. The subjects in this study were in a different interpersonal relationship in the home setting. They are not responding to preselected stimuli. The use of expressions such as good, nice and

right suggest they were conversing on a more equal status in the home setting.

Concept Index Scores indicated that self, nonspecific object, quantity reference, sign strong and sign accept had higher scores under Condition B. Pronoun references to oneself are more common in the home. The high scores on the quantity reference can be attributed to the expressions entered in that category. Not only obvious numerical units are included, but words such as big, great, tiny, all, some, most, many, even and much are tagged into quantity reference. Children use these qualifiers in many circumstances. Concept Index Scores for sign strong and sign accept categories are indications of the nouns and verbs children use during play. These are connotative tags and, under sign strong, are words such as brave, big, catch, right and help. For sign accept, subjects used expressions such as party, ask, follow, friend, gift and ok. These words and analogous words are utilized in the home at a greater ratio than in the clinic.

Content in these categories can be attributed to the home setting. Speech with family and friends is embedded in the situation and likely to be less varied and more repetitive. Categories significant to Condition A are related to the activity of telling stories. These 11 dependent variables which are statistically significant for both Group I and Group II subjects have the most explanatory power in describing the content of language as a function of setting.

Differences Between Settings for Group I Subjects

In addition to the 11 dependent variables stated above, eight dependent variables were significant in differentiating between speech samples obtained in a clinic setting and those obtained in the home setting for four-year-old subjects.

Categories with higher mean frequencies in the clinic setting.

- The dependent variables, large group (church, party), tool (nail, rope, toy), think (wonder and know) and peer status (cousin, friend), had greater frequency under Experimental Condition A.

Four-year-old children told stories that included content areas relating to groups of people and that involved artifacts and objects such as vehicles, machines and utensils. They said "I don't know" in answer to questions from the adult; this contributes to the significant difference found for the category think. Their stories included references to cousins, sisters, brothers and friends.

Categories with higher mean frequencies in the home setting. -

The dependent variables, self (I, my, me), thought form (why), sense (look, see) and sign accept (give, ok, yes), were observed with greater frequency under Experimental Condition B.

Expressions from these categories are among the most frequent vocabulary words for children three and four years of age. Hutchinson (1967) listed the same words among the 50 most common vocabulary items for his subjects who were also recorded in the home environment.

For subjects of Group I, 19 variables differentiated between experimental conditions. Homogeneity of content between the home

and clinic is indicated by the 57 nonsignificant variables. Within the conditions of this study, children, four years of age, employ the same speech content under both experimental conditions for 57 categories.

Differences Between Settings for Group II Subjects

Group II subjects had significant differences for 30 dependent variables. In addition to the 11 variables discussed under the first unit of this section, 21 other variables were statistically significant in differentiating the oral language sample obtained in the clinic from the oral language sample recorded in the home setting.

Categories with higher mean frequencies in clinic setting. -

The 18 dependent variables discriminating Condition A from Condition B for seven-year-old subjects are listed below with examples of entry data. Higher mean scores were found under the clinic condition for these variables.

<u>Categories</u>	<u>Expressions</u>
self	I, me, my, mine
selves	we, us, ours, our
neuter role	child, friend, ghost, person
small group	class, picnic, club
food	milk, honey, coffee
clothing	dress, shirt, clothes
natural object	cat, chicken, branches, water
space reference	outside, about, across, edge
distress	cry, scare, trouble, difficult
attack	cut, shot, punish, kick, fight
avoid	lost, went, hid, forget
get	catch, take, gather, finish
possess	keep, ate, own, swallow
family	married, parents, cousin
recreational	game, tent, toy, party
understate	but, probably
sign weak	fell, kid, wrong, poor
sign reject	hate, dirty, scratch, kick

The dependent variable self has a greater frequency in the home environment for the seven-year-old subjects, whereas this tag was found significant for four-year-old subjects in the clinic environment. Subjects in Group II tended to tell stories about persons or friends rather than about themselves. The number of categories which are different statistically suggests that presentation of pictures provides an opportunity for variation in response that is not offered in a home setting. This tendency is more pronounced for these seven-year-old subjects. Language skills provided through schooling may account for this trend.

Category with higher mean frequency in home setting. - One dependent variable, guide, had greater frequency of response under Condition B. Entry words tagged guide include lead, help and let. These items deal with assistance and positive direction. This suggests that seven-year-old children like to boss and give directions interacting in a different manner in the home environment than in a structured clinic setting.

The older subjects had greater Concept Index Scores for others, work and academic. Use of pronouns referring to others increased with age according to Young (1942). This is suggested by the score from the category others in this investigation. A large collection of expressions employed by children is placed in the category work. Within the limits of this study, this cluster of words does not discriminate statistically between conditions under which the sample was obtained. Expressions entered into the category of work include: found, wash, fix, sell, draw, make, spend and build. Academic terms used by the older subjects include: book, teacher, grade, school,

class and read. The Concept Index Score suggests that seven-year-old children who are in school talk about it somewhat more in the home environment.

Table 9 summarizes content differences as a function of setting for Group I and Group II subjects. Greater mean frequencies according to experimental condition and age are indicated.

Smith (1935) observed that there was superior grammatical and vocabulary usage by children in an adult-child interaction setting. This investigation supports this view. The more inclusive description of the content of speech for subjects in this study was obtained in a formal adult-child situation. Presentation of pictorial stimuli provided a more challenging experimental condition than a nonstructured home setting. There were more differences for seven-year-old subjects than for four-year-old subjects. The effect of learning in school may explain the greater number of significant differences for older subjects.

A speech sample obtained in a laboratory setting is not representative of typical verbal behavior. It is not a sample of how speech is employed in meeting the demands of day-to-day communication. If a representative picture of speech behavior is to be obtained, comprehensive research into the area of speech and language development should include data obtained under more than one setting. Consideration should be given to a definition of the situation within the setting. Setting is the locale of speech. Situation would define the nonverbal behavior occurring, such as family meal, interaction with mother, play with other children or solitary play. Patterns of equivalent speech usage among the varying situations could be

Table 9. Summary table of statistically significant differences between Condition A and Condition B. Dependent variables are located in column where the mean frequency was greater.

Mean frequency greater for Group I and Group II subjects	Mean frequency greater for Group I subjects	Mean frequency greater for Group II subjects
<u>Condition A</u>		
male role	large group	self
social place	tool	selves
action norm	think	neuter role
arousal	peer status	small group
cause		food
attempt		clothing
move		natural object
lower status		space reference
		distress
		attack
		avoid
		get
		possess
		family
		recreational
		understate
		sign weak
		sign reject
<u>Condition B</u>		
nonspecific objects	self	guide
urge	thought form	
good	sense	
	sign accept	

identified and interactions that are significant between situations can be found.

These data demonstrate that characteristics of the content of speech as a function of setting can be delineated using Harvard III Psychosociological Dictionary. The dictionary measures language performance by identifying categories unique to a setting. It appears to be a useful tool for describing speech behavior in different settings.

Discussion of Results of Analyses as a Function of Age

This study inquired into content differences in speech samples attributable to age. Differences in the content of speech as a function of age were not found in the majority of the dependent variables. It appears that children four years of age and seven years of age converse with much the same speech content. The following discussion is based on the statistical and descriptive analyses obtained in this investigation. The failure to reject the null hypotheses in 57 of 76 categories may be attributed to a number of factors which will also be discussed.

Differences Between Age Groups During Conditions A and B

Under both Experimental Condition A and Experimental Condition B, the older subjects used two dependent variables with greater frequency than did the younger subjects. The categories were: pronouns referring to others, such as you, yours and they; and content words from the variable get, such as catch, steal, win, buy and take.

A conclusion drawn from these data is that the use of pronouns referring to others and content words from the dependent variable get is indicative of maturation of speech skills as demonstrated in both Condition A and Condition B. Young (1942) observed pronouns as indices of speech development. She noted a decrease in possessive self pronouns with age and an increase in pronouns related to others with age. The data presented here support the observation.

Differences Between Age Groups During Condition A

Statistically significant age differences found in a clinic setting with greater mean frequencies for seven-year-old subjects were the variables of male role, time reference, space reference, action norm, distress, sense, communicate, attack, recreational and sign reject. This indicates that developmental differences can be observed in the content of the following areas: (1) male reference; (2) qualifying references of time and space; (3) normal patterns of social behavior, such as job, game and lunch; (4) states of fear, grief and indecision; (5) sense perceptions, such as look, listen and see; (6) communicative words, such as said and told; (7) hostile actions, such as fight; (8) recreational activities; and (9) words such as dirty, scratch and steal.

The Concept Index Scores emphasize that the subjects selected male heroes and male persons with higher relative frequency for the stories they told in the clinic setting. In the course of telling a story, references that modify and amplify a tale are employed by the seven-year-old subjects. Action and behaviors were described. The pictures used as stimuli offered the opportunity to these older

subjects to employ a larger vocabulary than they might use in another setting.

When stimuli and setting were structured by the investigator, differences attributable to age were found in ten dependent variables. Magnitude was related positively with age.

Differences Between Age Groups During Condition B

In a home setting, four-year-old children employed the categories of natural object and distress with greater frequency than seven-year-old children. The older subjects made more statements utilizing time reference, guide and economic dependent variables. The younger subjects spoke of animals and nature and used words conveying states of fear and despair with greater frequency in the home setting than did the older subjects.

The seven-year-old subjects made more references to measurement of time, to the institutional context, economic (office, store and automobile), and employed verbs conveying orders or positive direction, such as let and help, in the home setting. Significant content analysis differences under Experimental Condition B were found in five variables. The magnitude of two of the differences was inversely related to age; three were positively related.

These differences are not sufficient to make a secure statement that maturational indices can be identified employing the Harvard III Psychosociological Dictionary. A cautious view must be maintained. Oral speech skills under both experimental conditions, as demonstrated by Group I subjects and Group II subjects, approximated each other on the majority of the dependent variables. The frequency polygons and Concept Index Scores indicate that the distribution of the dependent

variables corresponds in configuration under both experimental conditions. Within the limits of this investigation, children, four years of age and seven years of age, used the same content categories in 57 of 76 dependent variables.

Three explanations can be offered to account for these results. The observation that children, four years of age and seven years of age, have the same content categories would be in accord with the view that children demonstrate fundamental phonological and grammatical speech and language skills by four years of age (Ervin-Tripp, 1966; Messer, 1967). Any changes in speech content attributable to age for children four years of age and older would be in the refinement and expansion of entry words within each of the dependent variable categories.

A second explanation for the lack of differences is that a general dictionary, such as the Harvard III Psychosociological Dictionary, may measure indices that do not discriminate maturational variables. An original dictionary developed with variables specific to anticipated differences might be more effective in identifying developmental indices.

The third explanation concerns the view that there may be a wide dispersion in the content of oral language behavior at each age level, which is demonstrated in a failure to reject the null hypotheses on the majority of variables. Williams, et al. (1937) and Smith (1941) noted considerable overlap in vocabulary skills at each age and grade level in children. Templin (1957) noted increases in recognition vocabulary with age, but a less definite trend in speech vocabulary. A future appraisal of content in the

speech of children should investigate the dispersion of dependent variables within one age group.

In surveying the tables and figures provided by this study, the underlying systematic unity of language performance can be observed under both conditions and between ages. The configuration of the frequency polygons indicates that a correspondence is present between setting and between ages in each of the categories. Frequencies of occurrence are available for a number of categories which were not critical to the hypotheses of this study. Thirty-six of the dependent variables demonstrated no significant differences. The dependent variables describe the content of speech and relate speech to a framework of social and psychological theory.

Dictionary Revision

This investigation has considered the utility of the Harvard III Psychosociological Dictionary for data analysis. The dictionary is more inclusive than earlier studies in that those topics Shirley (1938) observed in the speech of her subjects, the content that Hahn (1948) listed for her first-grade children and the two general areas introduced by Métraux (1950) are handled in the routines of the dictionary. Hutchinson (1967) listed word classes for foods, numerals, colors, body parts, parental identifications, television references and taboo words. Only the name of television references is not accounted for in the dictionary. The words selected by Ames (1946, 1948) as conveying a sense of time and sense of space appear in the dictionary. In effect, it is possible to process the data from these six studies in one effort.

However, revision of the Harvard III Psychosociological Dictionary would be useful for future investigations of child language. Revision would make it possible to analyze a greater number of items of content in a verbal text and would facilitate data preparation. Two procedures are involved in dictionary revision: (1) reduction in the dependent variables; and (2) addition of new words into the dictionary.

The reduction of dependent variables would be based on a consideration of those categories which had negligible frequency or zero cells. For example, consideration might be given to consolidation of the small group dependent variable and large group dependent variable into one category entitled collectivities since the two share a common aspect as well as low frequency of occurrence. The dependent variables equal, defense mechanism and thought form did not provide much information for this investigation and could be omitted from the dictionary. Other dependent variables with low frequency appear to be useful for investigation of child language. A decision to omit or to consolidate the following categories should await further investigation:

First-Order Tags

job role
control
follow
ideal value
bad
expel
deviation
arousal
pleasure
anger

Second-Order Tags

legal
political
military
religious
medical
economic
artistic

The addition of words to the Harvard III Psychosociological Dictionary would provide a children's version of the dictionary. Three methods of adding words to the dictionary are proposed. First, there is a group of words which can be categorized by the primary denotative meaning of the word. These include terms that can be tagged into food, clothing, tool, natural object, male role and female role categories. Examples drawn from this investigation include: carrot, cereal, cookies, jacket, pants, balloon, tricycle, dad, daddy, mommy, mama and mom. Second, there is a group of words in which a key-word-in-context strategy can be used to relate words to categories. Such words are more likely to be verbs. Examples drawn from this investigation include: grab, play, sleep, sneak, watch, done, hope, made and quit. There is a third group of words which cannot be tagged to a dependent variable due to the difficulty of assigning a denotative meaning. These words can be entered in the dictionary using key-word-in-context analysis, word association methods and disambiguation methods. Examples of words from this investigation that could be entered in the dictionary following these procedures are: had, has, have, use, kind, like, leave, board, hard and bit.

Implications for Research

A number of areas for further study have been indicated by this investigation. Tentative normative data and methodological clues for additional investigations of speech and language have been provided. Research generated by this study can be divided into four general areas: first, research related to refinement of procedures to identify the significant content variables which are

a function of age; second, studies related to measurement through content analysis of naturalistic settings with speech situation held constant; and, third, research related to the description of pathologies of speech and language as demonstrated in content analysis. Finally, consideration is given to the variable of personality in speech and language research with nonpathological subjects.

Content Analysis and Age

Research related to refinement of procedures which identify content language variables as a function of age has been suggested previously in this chapter. Two possible studies concern different approaches to the verbal texts obtained for this study.

Two selected subgroups of subjects identified as high and low groups on a language proficiency or fluency measure could be tested to investigate the hypothesis of variability of speech content within one age group. A hypothesis of no difference between groups could possibly be rejected.

It may not be the categories but the entry words into the categories which delineate the maturational dimension of speech content. Loban (1963) observed that statements which expressed tentativeness, supposition, hypotheses and conditionality occurred more frequently in the speech of subjects skilled in language. Use of subordinating connectives, such as although, because and unless, developed with age. Ames (1946) observed that children younger than 42 months used specific time references before acquiring general time references. Smith (1926) noted an increase with age

in use of indefinite nouns, such as somebody and anything, and expressions of time, position and quantity. The increasing versatility of expressions might be isolated by investigating within the categories. Therefore, relevant variables in the Harvard III Psychosociological Dictionary might be found in a detailed examination of the entry words assigned to persons, qualifiers, nonspecific objects, sense, think, if, not and cause dependent variables.

Content Analysis and Setting

The design of an investigation to hold home environmental situation constant is more difficult to achieve than one where home environment is free to vary, but it is not impossible. The use of a wireless microphone worn by the subject permits naturalistic observations in the absence of an investigator. Counseling with individuals in the home environment can assure the desired situation or a variety of situations while gathering natural or field observations. The purpose would be to locate those categories which have the most explanatory power in relation to setting. Speech between parents and child during family mealtime may approximate speech samples collected in a structured clinic setting. Having the subject and the parent or model in verbal interaction introduces data relative to acquisition of speech. This type of investigation is larger in view than speech development per se; it would ultimately overlap the fields of sociology and social psychology where such studies have been initiated (Ervin-Tripp, 1964; Barker, 1963).

Content Analysis and Speech Pathology

Content analysis would contribute an objective and consistent identification of deviating speech and language patterns. Questions that might be asked are: Do content and thematic analyses of the stories of cleft lip and cleft palate subjects indicate variations in content that can be attributed to the physical deformity? Can varying forms of aphasia or language disorders be discriminated by content analysis? Can paucity of responses in some categories be utilized in remedial programs? Identification of the content of the speech of predefined classes of speakers, such as minority groups, dialect groups and social classes, would contribute information relative to the referential dimension of language for these groups.

Personality in Speech Research

When gathering data for normative studies, the personality of the child is largely ignored. Identification of subjects prior to experimental treatment using a personality assessment procedure would prevent personality variables from obscuring age and setting differences. This investigation sought to obtain a homogeneous sample of subjects in terms of age, genetic and environmental background, hearing acuity and intelligence. The differences found may reflect personality variables as well as those of age and setting. An investigation of content of speech as a function of age, personality and setting would contribute information relative to this issue.

This investigation has demonstrated that content analysis is one strategy for the study of the oral language of children, four

years of age and seven years of age, under the conditions of a structured clinic setting and a home setting. Dependent variables which were statistically significant were discussed; the limitations of the investigation were suggested. Procedures for modification of the Harvard III Psychosociological Dictionary were proposed to facilitate analysis of additional data from a verbal text. Implications for research were stated.

CHAPTER V

SUMMARY

The language performance of a selected group of four-year-old and seven-year-old children under two conditions was investigated through a content analysis research design. Content is the denotative meaning of objects, concepts and processes as symbolized by verbal utterances. A study of the content of language contributes data concerning the referential dimension of speech. This investigation utilizes a content analysis category system derived from psychological and sociological theory in a study of the referential dimension of child language.

To investigate the content of oral language as a function of setting and age, the following procedures were carried out. Fourteen pairs of siblings were selected from a population of four-year-old and seven-year-old children. The subjects were homogeneous in terms of language background, hearing acuity, intelligence and physical status.

The two experimental stimulus conditions were (1) a structured clinic setting and (2) a nonstructured home setting. Under the first condition (Condition A), the stimuli presented the subject were a series of items from a children's projective test and five

magazine illustrations. For the second stimulus condition (Condition B), each subject wore a wireless microphone transmitter in his home where the subject pursued typical home activities. Responses of the subjects in the laboratory and vocal output in the home setting were recorded.

Speech samples consisting of 127 consecutive communication units were entered on electronic data processing cards for analysis through an automated system of content analysis. Objects, concepts and processes represented in verbal expressions were reduced and grouped into categories; the meaning of any word or group of words was summarized by listing the category under which it occurred. The dependent variables for this investigation were quantitative data from the 76 categories of the Harvard III Psychosociological Dictionary. Objects are grouped into three major areas: social, cultural and natural events. Behavioral dimensions or psychological processes include emotions, perceptions, thought processes and evaluations, and impersonal and social emotional actions. A third set of categories is comprised of words used to modify or amplify the meaning of nouns and verbs.

To assess language performance as a function of age and setting, each dependent variable was tested using the Mann-Whitney U statistic ($U = 55$; $p = 0.05$). The null hypotheses were rejected on a number of the dependent variables. There were content differences between subjects who were four years of age and seven years of age and between speech samples obtained during activities in a home setting and samples obtained when speech was elicited by an adult with preselected stimuli in a clinic setting.

Differences in the content of speech between Group I subjects and Group II subjects were statistically significant for 19 of 76 categories. The 19 categories were: other, natural object, get, male role, time reference, space reference, action norm, distress, sense, communicate, guide, attack, recreation, economic and sign reject.

Within the conditions of this study, children, four years of age and seven years of age, had analogous content in 57 categories. These nonsignificant variables increase the probability that the speech content of four-year-old children is the same as the speech content of seven-year-old children. Three alternative explanations can be proffered. First, Group I and Group II subjects demonstrate the same content in language performance because changes in speech content attributable to age are in the refinement and expansion of vocabulary expressions within each of the categories. Second, the categories of the Harvard III Psychosociological Dictionary do not measure variables critical to maturation of speech skills. Third, there is a wide dispersion of language skills within each age level; this variability prevents isolation of variables which are a function of age.

This study is not unique in finding descriptive differences in speech samples between settings. However, the present data are unique in two ways. First, the data were collected from the same subjects under two different stimulus conditions following parallel procedures. Second, the present data are unique because statistical analyses were performed. This increases the probability that those inferences made concerning the relation of speech sample and setting are true differences.

For Group I subjects, 19 categories were found to be statistically different, and for Group II subjects, 30 categories were found to be statistically different between settings. Under a structured clinic setting, a more comprehensive picture of language performance is obtained. However, this is not a sample of how speech is employed to meet the demands of day-to-day communication. It is desirable that speech data be obtained in a wide variety of settings and situations. Patterns of equivalent or nonequivalent speech usage among the varying conditions can be identified; interactions that are significant between topics, situations and participants can be described.

The Harvard III Psychosociological Dictionary is a tool that can be utilized in studies of speech and language. A sample of speech was reduced into object, concept and process categories. These categories, drawn from psychological and sociological theory, provided a model for the study of the speech content of children. A number of expressions common to the speech of children were not entered in the dictionary. It was proposed that these expressions be placed in the dictionary to provide for future investigations. The usefulness of the General Inquirer and Inquirer II automated systems of content analysis in efficiently and reliably handling large amounts of data was demonstrated in this investigation.

An assessment of language performance in young children is incomplete without information concerning the referential dimension. Content is a relevant area for research in language development because the data contribute information concerning this dimension of speech and language.

APPENDIX A

LETTERS SENT TO ADMINISTRATIVE STAFF OF SCHOOLS
AND TO PARENTS CONCERNING THE INVESTIGATION

1. The following is the letter that was sent to the principals
of five elementary schools.
-

UNIVERSITY OF FLORIDA
Gainesville, 32601

Reply To:

Speech and Hearing Clinics
436 Arts and Sciences Building

Dear _____:

As part of the requirements for the doctorate, Mrs. Shirley Pine is conducting a study in normal language development. Children enrolled in first and second grades who have siblings in the three- and four-year-old age groups will be invited to participate.

The purpose of the investigation is to use the methodology of content analysis in the description of the oral language of children. It is proposed to analyze the content of speech samples as a function of stimulus situation and as a function of age. The variable under investigation is oral language; no measurements will be made in reference to individual children.

As part of the research procedure, both language and hearing screening tests will be given. In addition, a sample of the child's oral language will be recorded. Stimuli presented the child by the investigator will be pictorial.

It is our feeling that children from the public elementary schools would be appropriate subjects, and we would like to secure permission to invite some of the first- and second-grade children to participate. Mr. Tomlinson has been consulted concerning this investigation. It will not require the students giving up part of their instructional day.

Sincerely yours,

E. C. Hutchinson, Ph.D.
Associate Professor

-
2. The following is the letter and form that was sent to the parents of subjects.
-

UNIVERSITY OF FLORIDA
Gainesville, 32601

Reply To:

Speech and Hearing Clinics
436 Arts and Sciences Building

As part of the requirements for a graduate degree at the University of Florida, I am conducting a study in normal language development. The study is concerned with content of language of children at two different ages and under two different conditions. This study will help in the understanding of speech and language of growing children. It will assist in planning educational programs.

Two children from a family will be invited to participate. One child should have a birthday between May 31, 1962, and May 31, 1963; the younger child should have a birthday between May 31, 1965, and May 31, 1966. Should your children have birthdates within these periods, I would like you to participate in this study.

The research will be conducted at the Speech Department, University of Florida. As part of the research procedures, the children will be given language and hearing screening tests. Results of the screening tests will be available to the parents. The study will require approximately one hour at the University.

Each child will also be asked to wear a wireless microphone while playing after school one afternoon. Appointments will be scheduled at your convenience. Transportation to the Speech Department can be provided for the parent and children.

A two-dollar gift certificate from a local toy store will be given each child.

Since children within the appropriate age groups and within the same family will be difficult to locate, I would appreciate your participation. If you have any questions or wish further information, please telephone me, 378-7650, or E. C. Hutchinson, Associate Professor, Speech Department, 392-2041. I am enclosing a form for you to return with an addressed envelope.

Thank you.

Sincerely yours,

Mrs. Shirley J. Pine, M.A.

E. C. Hutchinson, Ph.D.
Associate Professor

Enclosure

_____ Yes, we have two children, the following ages, and will be able to participate in the language study. Our children and their birthdays are listed below.

Name _____ Date _____

Name _____ Date _____

_____ No, we will be unable to take part in the language study.

_____ Yes, we will need transportation to the Speech Department.

Thank you very much.

Signed _____

Address _____

Phone _____

RETURN FORM TO: Mrs. Shirley J. Pine
Department of Speech
University of Florida
Gainesville, Florida
32601

APPENDIX B

EXCERPTS FROM TWO TRANSCRIPTIONS AND EXAMPLES
OF PROCEDURES FOR TYPING, SEGMENTING AND EDITING SPEECH SAMPLES

1. The following is an excerpt from one transcription of a four-year-old girl in the clinic setting.
-

Subject <1341> people are pulling ropes+ they will pull it down to the sea+ because he is almost down there+ they will float+ they will swim+ let us see+ a man is sitting in a chair with a boy beside him+ watching television+ I think he is watching #red #skelton+ he has a red face+ he says people+ #tiny #tim+ sometimes but not all the time+ but he sings like a lady+ you know+ that is a lady carrying a baby+ and somebody is riding a tricycle (toy) behind her+ I think they are going to get some milk+ there is a milk carton+ they will bring it back home+ they will drink it+ because she has got to hurry back for somebody to drink it+ looks like somebody is setting a baby bed by the bed+ it looks like+ talking+ probably about tomorrow+ going to school+ no+ I stay home with the maid+ in five (quantity) days+ these are big people+ and a little one sitting out in cold weather+ because there is no leaves (tree)+ because they camp out+ yes+ we camped out last summer in the woods down in #panama #city+

we used to go to #panama #city #gainesville #panama #city #gainesville
#panama #city+ we kept going back and forth every month+ because
mama (mother) said let us move back and forth every day+ my cousin
lives down there+ they have a great big woods+ and we used to go down
there you know and play (norm)+ and we used to camp out down there+
that is a giant trying to catch that little boy+ tie him up+ he will
I think eat him+ because he does not like him+ because he tried to
do a kind thing+ but he did not do it right+ there is a mother and
another mother telling the father+ and there is a mother telling the
#chinese boy something+ I think she is telling him that day after
tomorrow+ because he has got that kind of face+ about the day before
yesterday+ yes+ there is a baby in a bed+ and they doing something+
and she thinks somebody will come in and get it+ she will holler+
because she would not have her mother with her+ is that all the
picture we have+ there is a daddy (father) spanking (discipline) a
little boy+ I do not know+ I do not know+ he has a shirt on+ he will
play+ cowboys and indians+ I play with my brother+ I am an indian
girl+ there is three (quantity) little birds eating+ the three
(quantity) birds were eating+ and they were eating some worms+ and
they had some bowls+ and they had some napkins+ and the wind started
blowing+ and it blew everything over+ they did not have anything to
eat anymore for lunch+ kind of sad+ probably they flew around+ and
went down to get some more worms+ this is a whole picture+ yes+ it
is a real picture too+ that is some people looking at something+
I think+ I wonder what they are looking at+ I cannot even see+ I
cannot even see+ I can see the class+ but I cannot see anything
else+ they would be looking at a squirrol (animal)+ ok+ that is

another real picture+ that is a daddy (father) talking to a boy+
 he is talking about day before #friday (day)+ at #friday (day)
 you do things+ and then you do not have to go to school+ he is saying
 hip hip hooray+ let that be all the pictures+ three (quantity) more+
 that is somebody getting out when they just got through getting
 married+ because there is her+ she is the one that got married+ and
 she is a wedding flower girl+ and there is their car (automobile)+
 see+ she got married+ with him+ and there is the car (automobile)
 all fluffered with something+ it has all kinds of things on it+ it
 has bathroom paper on and everything else+ yes+ this is a lot of
 people out taking a picnic+ looks like she is going to have another
 baby+ because there is her son right there+ and I bet she is going
 to have another baby+ her food is over there+ yes+ she already had
 a baby+ and it looks like+ I do not know anything else+ cars
 (automobiles)+ and there is one just like ours except it is not
 yellow+ because this back of it is like that+ look at that dog+
 sure a fat dog+ I think it is a girl that is going to have puppies
 (animal)+

-
2. The following is an excerpt from one transcription of a seven-year-old boy in his home environment.
-

Subject <1472> now this is in a parade+ it has got to go slow+ no
 a little faster+ faster+ #danny you cannot get right there+ and
 #laurie you are not going to get there either+ you get right here+
 come on+ I will show you how you get on+ here watch+ see like #roy+

you just put your hand down like here+ then you can go fast+ ok+
ok #laura will push the middle+ you can be the policeman though+ but
you have got to help us too+ #danny you stop+ you got to remember+
yes my name is #mr #john #wade+ yes I am the guy who is part of
the #kennedy family+ and I do drive a sport's car (automobile)+ I
just love cars (automobile)+ this is an old fashioned racing car
(automobile) that I am driving now+ it is real neat+ back up+ slow
as anything+ we are driving around hunting for old fashioned cars
(automobile) that have been wrecked+ ok look+ nineteen twenty eight
(date)+ remember nineteen twenty eight (date) nineteen twenty seven
(date)+ nineteen twenty six (date)+ nineteen twenty eight (date)+
look+ turn+ this is one of those covered wagons+ a big huge you
know what+ no+ I thought you said you were a person who had run out
of gas+ a covered car (automobile) I meant+ ready to carry some
bikes (toy)+ now this called an old fashioned coupe (automobile)+
no #ray+ no we do not+ we know how it runs+ just get off+ I told
you+ I got the microphone+ want to carry it on the covered wagon+
get off+ #greg carried a string where the parade is+ it is called
the oval coupe (automobile) chicken+ it loads on to the back+ see
what happens when you back up+ this can be the old fashioned motor+
on the side+ push her up+ do not you know anything+ like this+ so
we do not fall down+ got that #william+ two (quantity)+ now wait+
you mean the motor+ you mean that+ that is kind of like a motor on
the back+ you can see it+ they broke it out+ #terry wear my hat for
a few minutes+ what+ what do you mean by eighteen (quantity)+ ok+
I got what you meant+ why you going to stand there like a dum dum
(stupid)+ you are a dum dum (stupid)+ see+ now this one will go

pretty slow+ this one of those kind+ you keep making sure the wheel is going+ slow down+ no+ what+ you just leave it to me+ you do not push+ get to wear it+ but it is someone else's+ that lady you know+ not so fast+ see this will not go around+ it is the motor+ but you are not supposed to push it by yourself+ see+ the wheel is pushing it+ see you would have to push+ see they call it an old pump+ one of these are pretty strong with cars (automobile) #danny+ #richard+ no+ not yet you+ #mike will you get it+ I know+ but look+ it is swings back and forth+ because of you+ you ruined it+ I know+ you got to pull it back+ now let it up some+ now just make sure you do not touch anything+ now it is just falling apart+ get out+ I can slug (hit) you+ seven (time) to six (time) fight+ now you would not like that do you+ I do now even think #mike would like a seven (time) to six (time) fight+ he would just say help as soon as he got near me to fight+ would you+ would you just wait a minute+ darn it+ I just think I will work on it in+ it is not+ there what+ yes I know+ I am sure glad I do not have a brother like that+ I hope I am going to have another brother+ but I sure would not like to have a brother like #jeff+

3. Examples of segmentation of speech samples.

- A. Compound sentences which could be divided without essential loss of meaning are edited as two communication units.

Example: Mommy decided to go to the store to get something+ and so a boy got on his tricycle+ and she got the baby+ and when they came back mommy had all she wanted in the basket+ and her boy was riding behind her+

- B. Dependent clauses or phrases uttered independent of another phrase or words were considered communication units.

Examples: outside on the swing set+
cover up+
easy+
or a queen+

- C. One-word salutations and nonsequential expressions were considered as separate communication units if they were spoken independent of another phrase or if they were in response to another verbal utterance. If they accompanied another phrase which clarified the single-word expression, they were included in the communication unit of the expression.

Examples: hello+
goodby+
right+
no he is sitting down fishing+
yes it is a boy+

- D. Noises were included when they were an integral part of the sentence.

Examples: He would just go ekkk+
The owl said whoooo who is crowing+

- E. Remarks that were enumerative were treated as separate communication units.

Example: a doll+ their daddy+ a big bed+ that is their mother's and father's lamp+

- F. Contractions were divided into two words.

Examples: cannot, I am, do not, let us and they are.

- G. Variant colloquial forms were spelled with standard American English.

Examples: Variant forms of yes and no, such as yeah, nah, were spelled with standard American English.

Variant colloquial forms of mother and father were not spelled with standard American English.

- H. Incomprehensible remarks occurred when the child mumbled or whispered or spoke inarticulately. Remarks in which all the words were not clearly understood by the listener were dropped from the protocols.

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