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The Acquisition of Semantic Information in Preschool Children

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THE ACQUISITION OF SEMANTIC INFORMATION
IN PRESCHOOL CHILDREN

by

Shirley K. Morgenthaler

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

May

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VITA

The author, Shirley Kloha Morgenthaler is the daughter of Roland Carl Kloha and Hattie (Schmidt) Kloha. She was born September 13, 1938, in Bay City, Michigan.

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CHAPTER I

INTRODUCTION

Purpose

The field of language study, especially early language acquisition has concentrated on descriptive and longitudinal research for the past decade. This has been an important contribution to the understanding of language acquisition. The work of Lois Bloom (1970) in the careful study of her daughter's language acquisition has provided information regarding language production. The work of Roger Brown (1973) with Adam, Eve and Sarah has made a significant contribution to the further understanding of productive language development. Michael Halliday's (1975) record of his son's language acquisition contributed in terms of how children learn to express meaning. Janellen Huttenlocher (1974) described the acquisition of receptive meaning of four children under two years of age. These studies are a small but representative sample of recent language research which has concentrated on children in small numbers and also on children's language acquisition before the age of three years.

Although the greater body of language studies have concentrated on the very young child (birth to age 3), studies have provided evidence that language acquisition continues beyond this age. Carol Chomsky's (1969) study of the acquisition of syntax in elementary school age children has shown that some syntactic forms are not completely understood until the age of ten. Other studies, such as Clark's (1971) study of the acquisition of "before" and "after" have focused on the acquisition of meaning in individual children beyond the first three years.

How preschool children acquire and also modify meaning, or semantic information, is the area of study to which the present investigation has been directed. How young children acquire meanings of words which represent objects and ideas and how these words and ideas are placed into the child's existing "semantic map" (Bowerman, 1978) as he or she gains communicative competence have been systematically studied.

The population for the present study was relatively large by present language research standards. The sample included thirty-two children enrolled in a laboratory nursery school of a private parochial college in Illinois. These children were asked to perform a task both individually and in randomly assigned dyads.

The first task, which children were asked to perform individually, was to select the appropriate objects as

important to the nonsense being, the Galumph, that had been presented to them in a story. The second task was performed in the randomly assigned dyads or pairs. In this task, the two children were asked to perform the task together (i.e., selecting the appropriate objects for the nonsense being). The two children had been told different and conflicting stories about the Galumph which then needed resolution.

Throughout the study and analysis of the data derived from the task performances, the investigator attempted to find commonalities in how preschool children impose their own semantic maps or organization of meaning on unfamiliar information presented to them and how they resolved the reception of conflicting information.

Since much of the information which young children acquire is gained at least in part through verbal communication, the effectiveness of this verbal communication (adult/child, child/child) is an important factor in early childhood education. A more complete understanding of both the nature and function of semantic acquisition in the preschool child's learning is essential to the planning of effective programs for these children.

How thoroughly teachers understand the issues related to semantic acquisition affects the quality of programs provided for young children. The works of Reich (1976) Bowerman (1978) and Litowitz (1979) are important contributions to the understanding of the individual child's

semantic acquisition. This present work adds to the study of individual semantic acquisition and also focuses on the dimension of child/child interaction (communicative competence) as a part of semantic acquisition.

Statement of the Problem

The present study takes the study of semantic maps (Bowerman, 1978) and communicative competence (Tough, 1977) and combines them into a two-part analysis of children's integration and adaptation of new information.

The following hypotheses are germane to this research. Experiments Number 1 and Number 2 shall be discussed in greater depth under the section entitled Procedure.

Experimental Hypotheses

The semantic map which a preschool child possesses and/or acquires is related to his/her age, language facility in both expressive and receptive language, assertiveness in a social setting and self esteem.

The communicative competence of a preschool child as shown by his/her verbal behavior in a social dyad is also related to age, language facility (expressive and receptive), assertiveness and self esteem.

Null Hypotheses

H_1 : There is no significant difference between

Groups A and B in the items chosen as important to the Galumph and placed in the Galumph's "environment."

H₂: There is no relationship between the semantic maps (as evidenced by choices for the Galumph in the individual task) and the main independent variables of age, gender, self esteem, assertive behavior, receptive language and expressive language.

H₃: There is no relationship between the change in the child's semantic map (from individual task to dyad task) and the child's age, gender, self esteem, assertive behavior and language facility (expressive and receptive).

H₄: There is no relationship between the communicative competence of the child (as measured by the verbal behavior variable) and the child's change in semantic map from the individual to the dyad task.

Limitations and Definitions

This study was limited to preschool children (ages 3-5) who were enrolled in a laboratory nursery school of a private parochial college in Illinois during the 1979-1980 academic year. It was limited to those children whose parents had selected this setting as an appropriate early childhood learning environment for their child.

The following definitions of terms shall be used for the purpose of this study:

Assertiveness shall be used to mean the degree to

which the child exerts an influence, either by positive or negative means, verbally or non-verbally, upon people or things in their environment.

Capitulative verbal behavior shall be used to refer to those verbal comments made by the child which are judged to be a form of capitulation or "giving in" to another child.

Communicative competence is the child's verbal ability as measured by performance in making oneself understood to another person.

Concept shall be used to mean the cognitive framework within which the child places information which he or she acquires.

Dissonant shall be used to refer to information given to the child which appears to be incompatible with the child's existing cognitive framework.

Language facility shall be used to refer to the child's ability to use oral expressive and receptive language to communicate about events or concepts.

Nonsense being shall be used to refer to the object which is used as a part of this study and is also referred to as the Galumph. This object has been constructed to be as neutral as possible - looking unlike any animal, bird or fish which the child may be able to recognize.

Self esteem shall be used to refer to the children's attitude toward their ability to do, to make the impact they

desire upon their environment.

Semantic shall be used to refer to the particular aspect of language acquisition by which the child attaches meaning to objects, persons, and/or events.

Semantic map shall be used to refer to the apparent mental semantic organization into which the child has placed information about objects, persons, and/or events.

Social context shall be used to refer to the interactive milieu within which the child shall be expected to interact with another child in order to arrive at mutual semantic parameters for the nonsense being.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

It has been only in the past two decades that widespread interest in the systematic study of child language has erupted. This study has been influenced by the work of other investigators. Piaget's work, beginning in the early part of the twentieth century, focused on the unique quality of the individual child's thought as it was evidenced by his language. This study was focused on the development of thought with only sporadic attention to the nature and role of language.

The work of Noam Chomsky has also influenced the study of child language. In his theory of linguistic competence he included the theory of an innate mechanism, genetically determined which is used by the child to construct language (Chomsky, 1971). This view is now recognized to be inadequate as an explanation for the child's acquisition of language (Dore, 1978).

The continued study and interpretation of Piaget's work has placed additional doubt on the theory of an innate

mechanism for language. Piaget's premise of interactionism (Kohlberg and Mayer, 1972) appears also to shed some light on the question of language acquisition. The theory of the interaction of the individual (innatism) and the environment (associationism) upon each other appears to have implications for the study of child language (cf. film "Piaget on Piaget"). This interaction appears to have been implied and/or accepted by several researchers (Duckworth, 1979), but has not been clearly identified as an area to be studied in relation to language acquisition.

In the past decade an ever-increasing number of researchers have begun to investigate how young children acquire language meaning. This research has been widely diverse, from the study of precursors to language to the study of the context of speech and then how the acquired language functions for the child.

Of particular interest as a foundation for the research problem at hand is the current research literature on the acquisition of meaning in child language. There are also several factors of child development which need to be considered for their potential influence on the child's acquisition of meaning. It will further be of interest to briefly examine the literature regarding early language development as it affects the child's continuing acquisition of meaning.

Overview of Research in Early Semantic Acquisition

One of the basic pre-speech acts which infants and mothers perform is that of pre-linguistic communication (Bruner, 1978). This communication has been described by researchers in a variety of ways. It appears that there are several factors involved which may all be considered to be precursors to language.

One of the pre-speech factors which has been identified is the process of interaction between mother and child which begins early in infancy (Snow, 1977a). This interaction appears to be as much the responsibility of the child as the mother (Bruner, 1978b). It can involve smiles, gestures, requests, responses. On the part of the child, these may or may not be accompanied by vocalizations. They do, however, receive a vocalized response from the mother.

The mother and child appear to develop a "format" (Garvey, 1974) or set of habitual exchanges that provide the basis for interpreting the intent of the communication between mother and child. This involves non-linguistic signaling in which both mother and child initiate and/or respond to the initiations of the partner.

It appears that much of the early format of this intercommunication is in reality the mother's response to the child's vocalizations, a filling of the space in between the child's cooing which then in effect creates the format of dialogue. In this way the child is prepared for later

dialogue in which his/her own early words become a factor. The mother then employs a highly stylized form of dialogue with the child, altering it as the child grows in both responses and linguistic understanding (Bruner, 1978b).

Another factor which appears to be involved in pre-speech communication is that of intentionality. One researcher (Sugarman-Bell, 1978) has postulated that during the pre-verbal period there is a development of general communicative and intentional marking. It appears that infants intend to communicate, although it is unclear when this intentionality comes into being. One factor may be that mothers respond to infants as if the infant intended to communicate something. Thus the mother's attributing of intentionality to the infant may in effect produce the intent (Bruner, 1978a; Dore, 1978). It further appears that the child, in responding to the mother's interaction, incorporates prior knowledge into his repertoire toward the achievement of competence (Bruner, 1978a). It may be that this intentionality is adopted by the child for use in peer communication during the preschool years.

Another factor in the acquisition of early productive vocabulary is that it is related to the child's cognitive development (Huttenlocher, 1974; Bruner, 1978b, Duckworth, 1979). It appears that the child produces words for which he or she may have already developed concepts. The child then maps the adult's word for this concept,

continually expanding and refining the definition of the word by observing the adult's usage in a variety of contexts. Later the child may also redefine words in a context which includes other children. This topic will be discussed in greater depth in a later section. During the early stages of language production, a careful observation and analysis of the child's word usage will indicate how the child then defines the word for himself (Edwards, 1978).

Another theory in the formation of the child's early words is the concept of the holophrase (Bloom, 1970) or single word which is used to represent a phrase or sentence. This idea has been documented quite thoroughly in Bloom's study of her daughter's language acquisition. A somewhat differing view is held by Halliday (1975) who postulates that the child is not using holophrastic communication but rather simply the most significant word in the message. Thus the child's intent is "to mean" and the child is using an emerging linguistic ability in a social function (Tough, 1977).

Dore (1978) refers to the child's one-word utterances as "primitive speech acts." It appears to be clear that these early words at first have a primarily "intentional" meaning rather than a lexical one. The child is understood for what he/she intends to communicate rather than for what the speech sounds actually communicate.

Another defense of the adult's interpretation of the

child's early utterances may be found in Huttenlocher's research (1974) into the origin of the child's language comprehension. Until researchers such as Huttenlocher, much research on early language was conducted on the early production, or expression, of language. Huttenlocher's investigation of comprehension, or reception, may also help to clarify the production aspects of language acquisition. Through a study of the comprehension capabilities of four young children over a several months period, Huttenlocher has documented the apparent differences between comprehension and production. These children, ages 10 months to 20 months were studied in their homes and systematically tested for their comprehension of lexical items. This study appears to point up a major difference in comprehension/production related first to age and also to nouns/verbs. The younger the child, the greater was the difference between the child's comprehension and production capabilities. Also, in most cases nouns were both comprehended and produced in greater numbers before verbs.

Several researchers have theorized that the context in which speech takes place is also a factor in the child's acquisition of language. This context may involve the use of the "here and now" as a speech referent (Bruner, 1978b; Huttentocher, 1974), the dialogue between mother and child (Sachs, 1977b), and the performance of what two researchers call "speech acts" (Dore, 1978; Edwards, 1978).

The use of the "here and now" has been documented by several researchers who have studied language acquisition. It appears that the early referents in the mother's conversation with her infant are virtually limited to what the child can readily see and/or observe (Bruner, 1978b; Huttenlocher, 1974). This use of the here and now in language input by the mother gradually expands to include references to the "there and then."

It appears that this emergence of displaced reference takes place in a gradual and systematic way (Sachs, 1977b). In this study Sachs found that displaced reference tended to begin with reference to absent family members, expanding later to include prior events of the day. This reference to "there and then" was initiated by the adult, with the child responding with increasing success as language facility increased.

Dore (1978) considers the structure of the mother/infant speech act to be its grammar. Thus the use of baby talk and its gradual increase in complexity would be a factor in the speech act. The content of the speech act may be considered to be its conceptual substance. The early limitation to the "here and now," as already discussed, may also be a factor in the speech act. Finally, the function of mother/infant language may be viewed as the conventionalization of dialogue and communication. Thus the mother's reaction to the infant "as if" the infant were

communicating (Bruner, 1978b) would shape the child's later view of the function of language.

Edwards considers the context of speech to be an important factor in the child's development of meaning. He states that the child's meaning derives from three sources. "These are first, the child's understanding of how the physical world of objects, space and persons is structured and operates, second, the child's pre-linguistic and concurrent social relationships, and third, arising out of the first two, the function of reference itself--the conventionalized semiotic relation between sign and referent." (Edwards, 1978, p. 67). The study of the context in which meaning develops is important not only to Edwards but also to Huttenlocher (1974). Her detailed description of the context in which receptive meaning develops helps to highlight this important factor.

A final factor in the early context of speech is the adult's choice in labeling objects for the child. In some instances the adult chooses the class word, in others the specific word. For instance, the adult tends to say "tree" rather than "birch," "dog" rather than "retriever." However the adult would also say "apple" rather than "fruit" or "Muffy" rather than "cat" (if there were a pet cat in the household). It appears that the adult chooses the word which has the most immediate references to what the child might want to talk about (Clark and Clark, 1977, p. 323).

It may also be that the adult chooses the referent which is most likely to be useful in the child's own speech production. Huttenlocher (1974) noted that in her study the presence of a household pet influenced the child's language production. In the instances where there was a household pet the child produced the pet's name as one of the earliest words.

Specific Factors Influencing Semantic Acquisition

It is the continued acquisition of meaning which is the focus of this research. How a child attaches meaning to a new word or object is a problem needing further study.

A study of the acquisition of meaning among nursery school children involves several variables. Those which have been isolated as potentially important to this study are age, gender, self esteem, assertive behavior, expressive language and receptive language. The work of other researchers has shown these variables to be important to varying degrees.

All of the literature reviewed indicate that the age of the child is an important factor in the study of meaning acquisition. Researchers such as Huttenlocher (1974), Bloom (1970), and Bowerman (1978) have indicated that age was a factor in the results of their studies. In each of these studies, however, the age factor occurred only over time due to the limited sample size. In the study at hand the sample

size has been somewhat larger and therefore results may be compared between children ages three to five.

Gender differences in language acquisition are not clearly distinguished by most researchers. In descriptive studies using a small population, it is generally not considered to be a factor. Many researchers study the language of their own children (Halliday, 1975; Bloom, 1970) and from such descriptive studies make appropriate generalizations. Although this study is also descriptive, it has placed children into randomly assigned pairs. It may be possible to make some limited observations regarding how results have been affected by the gender of each child in the pair.

The language facility of the child may also be a variable which could influence the results of this study. Although the child's ability to communicate expressively may also be related to his concept development (Anastasion, 1971), it may be measured (Dailey, 1975) and therefore is identified as one of the variables in the study.

The child's sense of self as it relates to language has been studied by Spitz (1957). It appears that a child may use language as an organizer of "self-ness" and "other-ness". This phenomenon may also be related to the child's egocentric view of the world and his or her use of language in an egocentric manner. Anastasion (1971) further showed that there may be a relationship between self-esteem

and the child's learning of language. This variable is also considered in this study.

A variable somewhat related to self-esteem is assertiveness. Spitz (1957, p. 130-133) discusses aggression (interpreted by this writer as related to assertiveness) as a factor in the child's language learning. In this study assertiveness was considered to be a potential factor especially as randomly assigned pairs were asked to perform a task.

The child's receptive language ability may also be an important variable for the study of language acquisition. Huttenlocher (1974) indicated the importance of identifying the child's receptive vocabulary as a means of measuring his comprehension of meaning.

Finally, the child's concept development may be an important variable in the study at hand. This may be seen from the research of Clark (1971) in which she identified four stages in the acquisition of "before" and "after". These stages in the acquisition of meaning may be thought to reflect the child's conceptual framework. Bloom (1970) has identified three interrelated components of linguistic competence: cognitive-perceptual development, linguistic experience and non-linguistic experience. She states that "accounting for the development of language competence must include an account of cognitive function." (Bloom, 1970, p. 232). This variable has been submerged in the receptive

language score, since the Peabody Picture Vocabulary Test correlates significantly with measures of individual intelligence.

Semantic Acquisition in the Context
of Social Interaction

The early context of the child's language acquisition is generally limited to his or her immediate environment and to the members of the immediate family who are regularly and predictably present, especially the mother. As children develop, their sphere of experience gradually increases. Often by the age of 3 or 4, the child is introduced to play school or nursery school experiences. This new social context may also have an effect on the child's language acquisition. The speech situation (Hymes, 1974), or social context (Wold, 1978), may have an effect on the language of the child. Halliday (1978, p. 141) speaks of the social construct of the environment as important to the acquisition and exchange of language. De Stefano (1978) speaks of the social component of lexical development.

The work of Sachs and Devin (1976) demonstrates that young children modify their language to the social situation. Their research has found that children ages 3.9 to 5.5 tend to change their speech for an adult, a peer and a baby.

Ratner and Bruner (1978) have found that the

predictable social context of formulated play is one which children appear to understand quite readily. "Many of the forms of language that later occur in practical situations make their first appearance in the safe confines of structured games." (Ratner & Bruner, 1978, p. 401).

Martlin et al (1978) have studied the influence of social context on the play of a boy, aged 5.6. Through an analysis of the child's play alone, with a same age friend, and with his mother, the researchers conclude that "a child's awareness of his own role and the expectations he has concerning social interactions lead to modification in language use." (Martlin et al, 1978, p. 81). They have further concluded that elements of successful communication include reciprocity of the participants and a shared context. Further, they state that "the development of social meaning in language, flexibility in the expression of concepts in different ways to different listeners and the recognition of the rules underlying role and context" are important to the language acquisition of children. (Martlin, et al., 1978, p. 98).

The Functions of Speech for the Child

The speech of mother and infants appears to occur in conversations (Snow, 1977; Bruner, 1978b). It may be hypothesized that for both mother and child this dialogue satisfies a need to communicate about the world and events

in the world. Both the utterances of the mother and of the child are shaped by the initiations and responses of the other (Bruner, 1978b; Snow, 1977). This interaction is unique to the speech style of the mother/child dyad. Snow has found that even an experienced mother cannot produce adequate "mother's speech" without the presence of the speech-learning child to cue her. From this it would seem that the primary purpose of speech for the child is to communicate and that this purpose is prompted by the example and cuing of the adult (Brown, 1977).

It appears that another function of language is related to the child's thinking skills, or cognitive development. This was the premise to which Piaget subscribed several decades ago (1926). This assumption has been reinforced by the recent results of mother's speech research (Snow, 1977a). It appears that "language acquisition is guided by and is the result of cognitive development." (Snow, 1977, p. 32). The discussion of the child's early words previously in this paper would tend also to reinforce this view.

Finally, a function of language for the child may be the ultimate communication of meaning to others in an ever widening circle of social relationships. Halliday states that the

social semiotic is the system of meanings that defines or constitutes the culture; and the linguistic system is one made of realization of these meanings. The child's task is to construct the system of social reality. This

process takes place inside his own head; it is a cognitive process. But it takes place in contexts of social interaction, and there is no way it can take place except in these contexts. As well as being a cognitive process, the learning of the mother tongue is an interactive process. It takes the form of the continued exchange of meanings between the self and others. The act of meaning is a social art. (Halliday, 1975, pp. 139 & 140).

By the time the child reaches nursery school, language can be considered to have an interpersonal, social function for the child (Shields, 1976). This sharing of meaning, or communication, depends on what is common and what is distinct in human experience. The acquisition of meaning continues in this larger social context.

Communicative Competence

The larger social context of nursery school provides for the child the opportunity to develop and refine communicative competence. This communicative competence involves the verbal ability of the child as observed through his/her performance in a social setting with his/her peers. Several studies have attempted to identify the factors and dynamics of communicative competence.

Mueller's (1972) study of twenty-four pairs of four-year-old children found that 85% of all utterances of the children attracted either verbal or non-verbal attention of the listener. Garvey and Hogan (1973) similarly found that the predominance of verbal activity of 3-5 year old children in free play was social rather than egocentric

speech.

It appears that children of preschool age are already beginning to acquire competence in social interaction with their peers. From the above studies it appears evident that young children ages three to five already have established a repertoire of conversational skills (Gleason and Weintraub, 1978).

In addition, studies have shown that young children are able to modify their language based on the age of the listener. Gleason found that five-year-old children can modify language to adapt to the age of the listener (Gleason, 1973). Shatz and Gelman (1973) similarly found that four-year-old children used less complex language with two-year-olds than with peers or with adults.

It appears from these studies that young children can begin to accommodate their communicative output to adapt to the perceived point of view of the listener. This beginning of communicative competence, the learning of dialogue is an important aspect in the child's continuing acquisition of language (Tough, 1977).

Ideosyncratic Language

It is the continuing acquisition of meaning which is the focus of this proposed research. How a child attaches meaning to a new word or object is a problem needing further study.

Clark (1978) proposes that children acquire meaning through a gradual accumulation of semantic features. These features are governed by perceptual phenomena such as form, size, texture and shape. Nelson et al. (1978) concentrate on the functional aspects of objects. What an object does or can do is here considered more important than Clark's focus on the properties of objects. Yet another researcher (Anglin, 1978) feels that it is both form-related and function-related properties to which the child attends in acquiring word meaning.

Bowerman (1978) has shown that children modify their organization of word meaning over time. Research which includes this factor of age as it relates to the child's acquisition of word meaning appears to be supported by her study.

Gentner (1978) distinguishes between the acquisition of verb meaning and of noun meaning. She states that verbs appear to convey relationships among objects while nouns identify those objects. She also finds that verb meanings are acquired somewhat more slowly than noun meanings. Thus research which focuses on noun meaning, but also includes verb meaning would appear to be supported by her findings.

Kuczaj and Lederberg (1977) have investigated the influence of context on the acquisition of meaning. They distinguish further between external and internal context. They state that this difference between internal and

external context accounts for ideosyncratic interpretations from person to person. It also can account for differing interpretations by the same person over time. Kuczaj and Lederberg feel that children interpret the context in which they hear words in order to attach meaning to those words. This meaning is then refined as the word is heard repeatedly and each time judged in context (Kuczaj and Lederberg, 1977, p. 412). This view of the importance of context also needs to be considered as further research is planned.

Reich (1976) discusses the distinction between comprehension and production in the study of word meaning acquisition. He finds that children tend to under-generalize before they overgeneralize. He states that overgeneralization seems to occur with production but that it can not so readily be found in the comprehension which has preceded the production stage. He proposes that there are five possible relationships between the "referential coverage of the child's word and that of the adult's - mismatch, overlap, identity, overextension and underextension" (Reich, 1976, p. 117). Clark (1973) deals only with overextension. Reich's analysis of the different referential relationships between adult language and child language appears to have merit for future research.

Bowerman (1978) has developed sample "semantic maps" which she theorizes may visualize the way children place information into a conceptual framework. The use of these

semantic maps will be helpful for further study of semantic acquisition of preschool children. These semantic maps illustrate possible ways in which children organize meanings and concepts as they expand ideas and experiences.

The work of Litowitz (1979) with the ideosyncratic language of dreams and thought in adults may also have some application to the study of ideosyncratic language in children. Kuczaj and Lederberg (1977) have already identified the existence of ideosyncratic language in children. Litowitz has studied adult language, thoughts and dreams, and charted the relationships between ideas in conversation and in dreams. It is her work with dreams that has implications for the study at hand. The non-causal and highly personalized, almost egocentric nature of dream language appears to be related to the language of young children. As with preschool children's language, the language of dreams strongly relies on personal experience. The factors of personal experience, egocentricity and non-causality need to be considered in the study of semantic acquisition and communicative competence. Litowitz's analysis, therefore, of ideosyncratic language, serves to add strength to the current study.

Summary

Current research in semantic acquisition is an exciting field. It includes the study of precursors to

language, especially the early communication and how this is influenced interpersonally. Here the study of language in the mother/infant dyad is especially important. This may be related to later interpersonal communication between peers at the preschool level, where two language learners at similar levels of competence are beginning to communicate with each other rather than with a more competent adult.

The current level of competence of the language learner as measured by several discrete variables may also be an important influence on the semantic acquisition of the child. These factors have been discussed above and their relationship to the literature from a variety of studies has also been articulated. Research is needed which can identify the importance of each factor such as age, gender, self esteem, assertive behavior, and language facility (both expressive and receptive), and also of their combined influence on the semantic acquisition of the child.

The context of social interaction has been identified in the literature as important for semantic acquisition. The presence of other individuals and the ages of these individuals are important to language production and may also influence comprehension.

Speech functions for children-and also for adults-as a means of communication, a social force, or semiotic, which reaches out to others. The literature indicates that by the time the child reaches the preschool age, the interpersonal,

social function of language is already understood by the child, and is in the process of being continually refined.

The literature further shows that preschool children are aware of their social surroundings when other children are present. It appears that they have already developed a degree of communicative competence in their interactions with other preschool children.

At the same time, however, children ages 3 to 5 are involved in primarily ideosyncratic language, according to the literature. This ideosyncratic language is internal, non-causal, and does not always attempt to interpret to the listener the relationships between ideas.

The study of word meaning acquisition which considers context-both external and ideosyncratic; which considers both the form-related and function-related properties of the object; which considers relational meaning (verb meaning) as well as nouns or names of objects; and, finally, which takes into account Reich's five relationships between child meaning and adult meaning, should be undertaken.

This present investigation has considered these factors and proposes to examine the issue of semantic acquisition from yet another point of view, the introduction of cognitive conflict. In this context, the problems of how preschool children acquire and modify meaning is at issue. The present investigation has attempted to integrate the

problems of semantic mapping (Bowerman, 1978) and communicative competence (Tough, 1977), studying both the integration and adaptation of new information by the preschool child.

CHAPTER III

METHOD

Hypotheses

This study has been guided by four null hypotheses. These hypotheses attempt to deal with the question of how children acquire and modify meaning. To this end, the issues of semantic mapping and communicative competence are addressed.

H₁: There is no significant difference between Groups A (the apple/mudhole/water story) and B (the carrot/nest/tree story) in the items chosen as important to the Galumph and placed in the Galumph's "environment."

H₂: There is no relationship between the semantic maps (as evidenced by choices for the Galumph in the individual task) and the main independent variables of age, gender, self esteem, assertive behavior, receptive language and expressive language.

H₃: There is no relationship between the change in the child's semantic map (from individual task to dyad task) and the child's age, gender, self esteem, assertive behavior and language facility (expressive and receptive).

H₄: There is no relationship between the communicative competence of the child (as measured by the verbal behavior variables) and the child's change in semantic map from the individual to the dyad task.

Sample Population

The subjects for this study were forty preschool children (ages 3-5) who were enrolled in three classes in a private laboratory nursery school. Permission signatures were obtained from all parents prior to the collection of data. Of the total enrollment (n=40), thirty-two children were used in the study. Four additional children participated, but their videotapes were used to train research assistants and were therefore not included in the study data. The remaining children, (four), were eliminated due to absence during the week of the study and to enrollment patterns in individual classes. Children were randomly assigned to dyads within classes. In those classes where an odd number of children were enrolled, one child was not assigned and therefore not included in the study.

A comparative summary of the subjects according to age, gender, expressive language score (Dailey), receptive language score (Peabody), self-esteem rating, and assertive behavior score rating is found in Appendix B, Exhibits 1 through 4. In addition, data were collected on the socio-economic status of each family in the study. This was

done in an effort to establish that the sample was socioeconomically homogeneous. These data are summarized in Appendix C.

Each family was asked to provide information regarding any bilingual experiences of the children in the study. Data on primary and secondary language of the children were collected. These data are found in Appendix C. Although information regarding children's bilingual experiences was also collected, they were not included as a variable in this study. The research at hand concentrated on the semantic rather than syntactic acquisition of language. It was therefore judged that the bilingual history of children would not impact this area of language acquisition to any measurable degree. This judgement was corroborated by information collected from the parents which indicated that in all ($n = 7$) children with any bilingual exposure, confusion between the two languages did not exist.

The subjects were randomly assigned to pairs within three intact groups. These three intact groups consisted of the children enrolled in the three classes in the Early Childhood Center. It was determined that problems in scheduling and of interaction between children in different classes would be too complex to solve adequately. Therefore a totally randomized population was not attempted. However, all children were randomly assigned to groups A and B and to the dyad pairs.

Procedure

The experimental portion of the study was conducted over a one-week time span. Supporting data related to the independent variables were collected during two weeks prior to and two weeks following the experiment.

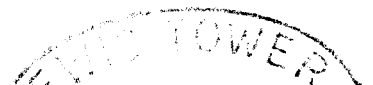
Data collected before the study were the assertive behavior observations and the self esteem scores. Following the experiment, data were collected using the Dailey Language Facility Test and the Peabody Picture Vocabulary Test.

Children were randomly assigned to pairs in the intact groups of the three enrolled classes. The pairs were used in the experiments in the order in which they had been randomly selected. (Dyads 1, A and B and 2, A and B on February 4, et cetera). The same order was preserved for the administration of the Peabody Picture Vocabulary Test and the Dailey Language Facility test in subsequent weeks. In addition the assignment of story A or B to the storytellers and assignment of space for storytelling was done by flipping a coin.

Design and Analysis

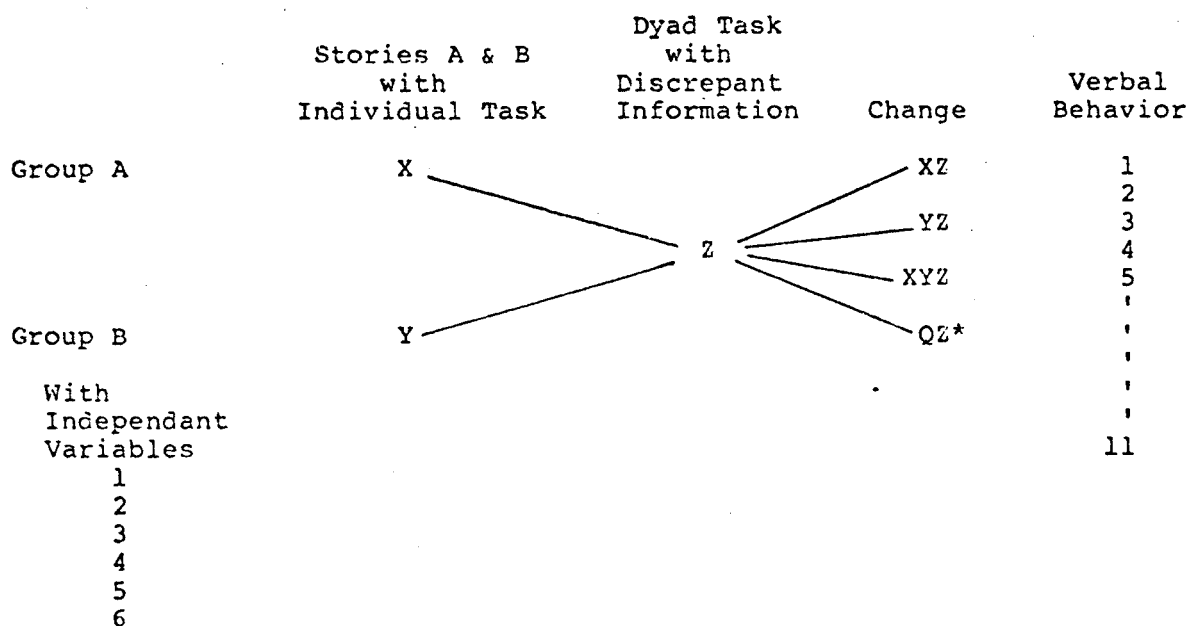
Analytic Paradigm

Overall, the study as described represents a 2x3 randomized factorial design. The subjects were randomly assigned to Group A (the apple/mudhole/water story) and



Group B (the carrot/nest/tree story) within their intact classroom groups. The two versions of the individual task (treatment 1) were randomly assigned to the groups. Both groups then received the same dyad task (treatment 2), which produced a change score. Six major independent variables (age, gender, expressive language, receptive language, self esteem, and assertive behavior) and eleven verbal behavior variables (See Table 1) were included in the final data. A graphic representation of the analytic paradigm is presented below:

Analytic Paradigm



*QZ indicates "none of the above."

In the paradigm, X represents Story A, Y represents Story B, and Z represents the introduction of discrepant information in the dyad task. The change scores listed represent the four major patterns of change from individual task to dyad tasks. The change represented by "XZ" and "YZ" indicate that features from only one story in treatment one were retained. "XYZ" indicates that both stories from treatment one were incorporated into a new version. "QZ" indicates that features from neither individual treatment were retained and the resultant change is labeled "none of the above."

Task Description

The task was divided into two major sections: the individual task and the dyad task. For the individual task, each pair of children randomly assigned to a dyad was administered the task simultaneously. For the dyad task, the two children in the dyad were brought to a third (neutral) location and the dyad task was administered.

During the individual task, each child of the dyad was told a separate story simultaneously with his or her counterpart, but in a separate location. The child assigned to Group A was told the story about the Galumph by Storyteller A. This story described the Galumph as eating apples, swimming in water and sleeping in a mudhole. The child assigned to Group B was told the story about the

Galumph by Storyteller B. This story described the Galumph as eating carrots, climbing trees and sleeping in a nest.

After hearing the assigned story each child was then given the following instructions:

"Here are some things the Galumph might like (point to ten items arranged on three trays). Choose the things the Galumph needs to be happy and put them here on the green mat by the Galumph. Choose all the things the Galumph needs to be happy but only the things the Galumph needs to be happy."

The choices available to all children were the same.

Each set of trays contained

1. apple, orange, carrot, celery
2. tree, water, grass
3. nest, mudhole, bed

The results of each child's choices were recorded, including the time elapsed to complete the task. Each child was also audio-recorded during the individual task but these data were not used since it was possible to complete the task as directed without any verbal output.

After the two children had each completed the individual task, they were then brought together to a third location to perform the task as a social dyad. The pair was directed to a third set of items for the Galumph on trays (identical with the sets used in the individual task) and asked to "make a place for the Galumph to live where it has all the things it needs to be happy and only the things it needs to be happy. Work together and talk to each other as you make a place for the Galumph to live." The results of the dyad's choices, their verbal behavior and the time to

complete the task were recorded on videotape.

Description of the Experimental Setting

The children in the sample attended nursery school in a college laboratory setting. Because of this, the experience of "playing games" with adults (faculty or college students) was one familiar to them. It was therefore judged that setting up a special testing site and situation would not compromise the results of the study. The research site was chosen for its proximity to the Early Childhood Center. Since the study was completed during the winter, it was deemed important that all phases of the study be conducted in the same building. The site chosen was on the same level of the building as the Center and provided space in two adjoining rooms with a folding wall between them. This movable wall could be closed for the individual experiments, providing separate space for the simultaneous experiments with children from groups A and B. This wall could then be collapsed for the dyad experiment, providing the space for the paired experiment as well as for the videotape equipment.

It was decided that individual experiments with groups A and B would be simultaneous with conditions being kept as similar as possible. The choice of space was an important factor, with settings inside the room chosen for each experiment to be kept as identical as possible.

Each area for the individual and dyad tasks was covered with carpet squares to define the space. Each task area contained a felt pad for the Galumph, (referred to in the instructions as a green mat) the Galumph itself, a tape recorder and the three trays of materials constructed and/or chosen for the experiment. At the beginning of each task, the three trays of choices for the Galumph were covered with a sheet. For the individual task, the child was led to the designated area by the researcher, introduced to the storyteller and told that he would "hear a story and play a game" there. The materials on the three trays remained covered until the storyteller completed the story about the Galumph and began to give the instructions for the task. For the dyad task, the pair was simultaneously taken to the third designated area. The materials on the trays remained covered until the researcher began the instructions.

Materials and Instrumentation

The Galumph

Each storyteller was given a model of the Galumph as a prop during the storytelling. This Galumph was basically a "blue blob"---somewhat rectangular, yet also rounded and soft. It had a suggestion of eyes and a nose/mouth. It also had wave-like appendages---not wings, not fins, not legs. This creature was designed to be trans-categorical---a neutral, almost featureless form that

could be animal, bird, fish or insect.

Materials Used as Choices for the Galumph

Each of the three task areas were equipped with three trays on which identical sets of materials were placed.

Food Choices. The food choices on the tray were an apple, an orange, a carrot, a stalk of celery. These items were real fruits and vegetables. Two of the items (apple, carrot) were present in one of the stories (one in each story). The remaining items (orange, celery) were found in neither story.

Places for Play. Items representing a tree, water and grass were placed on a second tray. The tree was constructed of plastic leaves (purchased) and a clay trunk, hand shaped and painted a gray-brown. The entire tree measured about 18 inches. The water was constructed of a 12" by 24" piece of cardboard cut in a somewhat free-form shape. Aluminum foil and blue cellophane were glued together and then crushed to resemble water ripples. This was placed on the cardboard, glued, and bordered by a clay "bank" around the edges. The grass was also constructed of a free-form piece of cardboard, approximately 15" by 20" in size. This cardboard was covered with the "moss" available at craft stores and glued in place.

Sleeping Quarters. Items representing places for the Galumph to sleep occupied the third tray. These items

were a nest, a tray of almost-real mud and a scale model of a bed used by humans. The nest was made of raffia, woven and glued into a nest shape. The mudhole was constructed of gray-brown plastic clay, heated and extended with vegetable oil, to which real dirt was added until the resultant consistency was that of thick mud. This was placed in a pie pan, the edges of which were concealed with clay painted to match the mud. Since the base was plastic clay and vegetable oil, the substance did not harden after cooling, but remained mud-like. The bed included as a choice was a "brass" dollhouse bed, scaled 1/4" to 1 foot.

The three trays containing the materials for the Galumph were covered with identical white bedsheets at the beginning of each task until the researcher or assistant began the instructions for the task.

Description of the Observational Procedure

The assertive behavior data were collected at three separate times for each child. This collection was done by observers trained by the researcher to record children. The observations took place from an observation room through one-way glass so that the children's behavior could in no way be affected by the observer's presence. Each child's assertive/capitulative behavior was recorded for 3 20-minute periods during the school day. These periods were divided between formal and informal scheduled times. Individual children and observation times were chosen at random by the

observers. The assertive behavior data were collected in the two weeks prior to the actual study to avoid contamination by the testing procedures. (See Appendix B, Exhibit 2).

Standardized Variables

The self esteem scale was completed on two separate days. In order to avoid potential contamination by the study itself, these data were collected during the week prior to the experiment. A correlation coefficient of .92 was obtained for the two ratings of self esteem. Because this was considered to be a sufficiently high correlation, a third rating was not completed. The two ratings completed were averaged to provide the score used. The self-esteem rating consisted of a 5-point Likert-scale rating developed by the researcher. To further increase objectivity in the results, the teacher completed the rating in a separate room, out of view of the children or the classroom. A sample of the rating sheet used is found in Appendix B, Exhibit 1.

The Peabody Picture Vocabulary Test was administered as a measure of receptive language. This test was chosen because it measures the child's level of understanding of oral vocabulary without requiring oral responses. It was felt, therefore that as a measure of receptive language it could be considered relatively accurate (See Appendix B, Exhibit 3).

The Peabody Picture Vocabulary test consists of a book of plates (pictures) and a vocabulary list, forms A and B, to be read aloud by the test administrator. For each word the child was asked to point to the picture that most closely showed the word (from a choice of four). The resultant score (total minus incorrect) was recorded for each child.

In order to preserve the sequence of data collection, the PPVT was administered during the week following the individual and dyad tasks. The same chronology was followed, which had originally been established by random assignment. For the PPVT, however, the children were tested individually. A screened-off portion of an office was equipped with child-size furniture for the test.

The Dailey Language Facility test was administered as a measure of expressive language. This test was chosen because its purpose is to measure language output (expressive language) and provides a standardized measure of this output.

The Dailey Language Facility Test consists of three pictures---one photograph, one reproduction of an art masterpiece, one line drawing---with alternate forms available. All pictures are black and white.

Each child is shown the pictures one at a time and asked to "tell a story" about the picture. This story is

tape recorded for later scoring according to coding established by the writer of the test. This coding includes identification of nouns, verbs, complete sentences and complex sentences. Scoring the complexity of the the child's story about each picture provides the final score obtained. (See Appendix B, Exhibit 4).

The Dailey Language Facility Test was administered the week following the Peabody. Again the same chronology was used. Because familiarity with both the researcher and the location would enhance the rapport needed for this oral test, the same administrator and space were used.

Verbal Behavior Coding

The verbal behavior coding was developed by the researcher and refined in consultation with her professional staff. It was further refined after study of the two videotapes used for training. The verbal behavior variables represent the total communication (actions and interactions) of each dyad as they worked together to complete the dyad task. This interaction was recorded on videotapes for careful study and coding.

Verbal behavior was categorized into three major types: questions, statements and actions. These major types were further divided as conciliatory, informative, opinions, responses and initiatory behavior. Table 1 outlines the verbal behavior categories used in the coding. A copy of the coding sheet used by the research assistants is found in

Table 1

Verbal Behavior Code for Dyad Task

Questions of Conciliation of Information of Opinion
Statements of Conciliation of Information of Opinion of Direction
Actions of Conciliation of Initiation of Response
Confusion
Unrelated Behavior

Appendix B, Exhibit 5.

Description of the Research Assistants Training Procedures

For the observational data of the assertiveness index and for the coding of verbal behavior, it was necessary to train research assistants. Storytellers were also trained for the individual task (treatment 1).

Assistants to collect observational data were trained by the researcher on-site. Instances of assertive and capitulative behavior were pointed out and described. The research assistant then observed children for twenty-minute periods. Each child was observed during three different periods of the day. The final assertive behavior score was obtained by taking an average of these three observation periods.

Six research assistants were trained to code verbal behavior. The two videotapes which were reserved for training were used with each of the trainees. The researcher spent from one to one and a half hours per trainee in groups of not more than two. Instances of verbal behavior were discussed and coded during the training. The videotapes were then systematically assigned to each assistant. Each videotape was coded by three assistants and an average taken. Because of the system of assignment, not more than two dyads were coded by the same group of three assistants. For example dyad #1 was coded by Assistants A,

Table 2

Assignment of Dyads to
Research Assistants for Verbal
Behavior Coding

		Assistants					
		A	B	C	D	E	F
	1		9	1	2	1	5
	2		10	3	4	2	6
	3		11	5	6	3	7
Dyad	4		12	7	8	4	8
Coding	5		13	9	10	9	13
Assignments	6		14	11	12	10	14
	7		15	13	14	11	15
	8		16	15	16	12	16

C and E. Only dyad #3 was also coded by the same three assistants. A complete list of coding assignments by research assistant is found in Table 2.

Treatment 1 of the study involved the telling of stories about the Galumph. These stories were identical except in the three elements under study in the experiment (place to play, food to eat, place to sleep). Experimentors were chosen to tell the stories on the basis of physical similarity and similarity of storytelling style. In addition, care was taken to choose storytellers with prior course work and experience in early childhood education. At the same time, it was deemed important that neither storyteller have had prior contact with the children included in the study.

Two individuals fitting all the above criteria were found and trained to tell the stories as identically as possible. Two training periods which included use and playback of tape recordings were held. Attention was given to inflections, adjectives receiving emphasis and other oral interpretation techniques. In addition, the storytellers took care to dress similarly on each day of the experiment. Photo and tape records of their appearance and storytelling were made.

Summary of Variables

Because of the number of variables included in the study, it was considered appropriate to provide a summary of

variables chart. (see Table 3). The variables for the individual subjects are listed according to Group A and Group B. The dyad scores are common scores and are listed as such. Finally, the verbal behavior scores are again listed as scores for the individual under A and B.

Table 3

Summary of Variables

Dyad number	
Child A	Child B
Age Gender Self esteem Dailey score Peabody score Assertive behavior Assertiveness Capitulation	Age Gender Self esteem Dailey score Peabody score Assertive behavior Assertiveness Capitulation
Individual task scores* Apple Orange Carrot Celery Tree Water Grass Nest Mudhole Bed Time	Individual task scores* Apple Orange Carrot Celery Tree Water Grass Nest Mudhole Bed Time
Dyad task scores* Apple Orange Carrot Celery Tree Water Grass Nest Mudhole Bed Time	

Verbal behavior scores	Verbal behavior scores
Question of conciliation	Question of conciliation
Question of information	Question of information
Question of opinion	Question of opinion
Statement of conciliation	Statement of conciliation
Statement of information	Statement of information
Statement of opinion	Statement of opinion
Statement of direction	Statement of direction
Actions of conciliation	Actions of conciliation
Actions of initiation	Actions of initiation
Actions of response	Actions of response
Confusion	Confusion
Unrelated behavior	Unrelated behavior

* Change scores were obtained by comparing individual task scores to dyad task scores and computing the cumulative change between these two sets of scores.

CHAPTER IV

RESULTS

The statistical tests run on the data have been grouped according to the hypotheses to which they relate. The data for each of the four hypotheses were subjected to one or more statistical analyses.

An analysis of covariance procedure was run on the dependent variables of individual choices for the Galumph (including correct and incorrect) with the main independent variables. Group was also included as an independent variable because the two groups were told different stories about the Galumph.

An analysis of covariance test was run on the dependent variables of total change score in the choices made for the Galumph with the main independent variables. The total change score represented change from individual task to dyad task.

Multiple regression analyses were also run on the total change score with the main independent variables. A second multiple regression analysis was run on the total change score with the verbal behavior scores as independent variables.

A discriminant analysis on gender with the verbal behavior scores as dependent variables was run when it was found that gender was a significant variable in the analysis of covariance. Additionally, a canonical correlation between the change scores (apple, orange, carrot, celery, tree, water, grass, nest, mudhole, bed) and the verbal behavior scores was run to determine which group of verbal behaviors affected which combination of change scores.

In addition to the statistical tests run, semantic maps of each child's concept of the Galumph were drawn. These maps were taken from the choices made by each child in the individual task and by each pair in the dyad task. From these maps, three prototypical dyad maps were chosen for specific discussion and other maps were compared to the prototypes.

Results of Tests Run on the Individual
Task Scores with the Main
Independent Variables

An analysis of covariance was run on the individual dependent variables of choices for the Galumph (apple, orange, carrot, celery, tree, water, grass, nest, mudhole and bed) and the main independent variables (see Table 4). The main independent variables of gender and group were used as blocking variables, and the remaining independent variables (age, self esteem, assertive behavior, receptive

Table 4

Means and Standard Deviations
for Group, Gender and
Covariates of Analysis of
Covariance

Source of Variation	Mean	Standard Deviation
TOTALC	3.1250	2.4854
Gender	1.5938	0.4990
Age	4.0884	0.4918
Self Esteem	1.1250	1.1072
Assertive Behavior	3.6969	2.7388
Expressive Language	9.8750	4.4775
Receptive Language	48.8750	10.8798

language) became covariates. In addition, the dependent variables were combined into "correct" and "incorrect" scores for each story version (Group A and Group B). An analysis of covariance was then run on the dependent variables correct and incorrect with the main independent variables. Tables 5 and 6 summarize these results.

Neither of these analyses indicated a statistical significance for the dependent variables on the group treatment (hypothesis one). Therefore hypothesis one, which stated that there was no significant difference between groups in the individual task, was not rejected. The analysis by "correct" and "incorrect" indicated that age was a significant variable for incorrect scores ($F=7.232$, $p<.05$). Hypothesis two, which stated that there was no relationship between choices for the Galumph and the main independent variables, was then rejected. The raw regression coefficient for age with incorrect scores was -2.651 , indicating the younger the child, the more often the inappropriate choices for the Galumph were made.

Because there was found to be no significant difference between Groups A and Group B for the treatment (story told about the Galumph), all subjects were treated as one group for subsequent analyses.

Table 5

Analysis of Covariance of Individual
Dependent Variables (Incorrect Choices for
Galumph) with Main
Independent Variables
(Hypotheses One and Two)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
<u>Covariates</u>	60.424	5	12.085	1.659	0.185
Age	52.673	1	52.673	7.232	0.013*
Self Esteem	2.001	1	2.001	0.275	0.605
Assertive Behavior	3.463	1	3.463	0.476	0.497
Expressive Language	0.337	1	0.337	0.046	0.832
Receptive Language	1.950	1	1.950	0.268	0.610
<u>Main Effects</u>	30.653	2	15.326	2.104	0.145
Group	0.007	1	0.007	0.001	0.976
Gender	30.646	1	30.646	4.208	0.052
<u>Two-Way Interactions</u>	1.628	1	1.628	0.224	0.641
<u>Group</u>	1.628	1	1.628	0.224	0.641
<u>Gender</u>					
<u>Explained</u>	92.705	8	11.588	1.591	0.182
<u>Residual</u>	167.514	23	7.283		
<u>Total</u>	260.219	31	8.394		

<u>Covariate</u>	<u>Raw Regression Coefficient</u>
Age	-2.651
Self Esteem	0.258
Assertive Behavior	0.123
Expressive Language	-0.026
Receptive Language	-0.035

*Significant $<.05$

Table 6

Analysis of Covariance of Individual
Dependent Variables (Correct Choices
for Galumph) with Main Independent
Variables
(Hypotheses One and Two)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
<u>Covariates</u>	1.012	5	0.202	0.243	0.939
Age	0.072	1	0.072	0.087	0.771
Self Esteem	0.712	1	0.712	0.855	0.365
Assertive Behavior	0.165	1	0.165	0.198	0.661
Expressive Language	0.061	1	0.061	0.073	0.790
Receptive Language	0.002	1	0.002	0.002	0.962
<u>Main Effects</u>	1.317	2	0.658	0.790	0.466
Group	1.265	1	1.265	1.518	0.230
Gender	0.052	1	0.052	0.063	0.805
<u>Two-Way Interactions</u>	0.978	1	0.978	1.173	0.290
Group	0.978	1	0.978	1.173	0.290
Gender					
<u>Explained</u>	3.306	8	0.413		
<u>Residual</u>	19.162	23	0.833		
<u>Total</u>	22.469	31	0.725		

<u>Covariate</u>	<u>Raw Regression Coefficient</u>
Age	-0.098
Self Esteem	0.154
Assertive Behavior	0.027
Expressive Language	0.011
Receptive Language	-0.001

Results of the Tests Run on
Total Change with the Main
Independent Variables

Several analyses were run on the total change score with the main independent variables. The total change score was computed by comparing the items chosen for the Galumph from the individual task to the dyad task. This change score was regarded as a quantitative representation of the change in semantic map from the individual task to the dyad task for each child. Figure 1 represents the semantic maps of one child from the sample, showing change from individual task to dyad task. This child's change score was computed to be 6, because the number of items chosen in the dyad task was different from the individual task by six items. (A change score of six could also represent six less as well as six more items chosen in the dyad task).

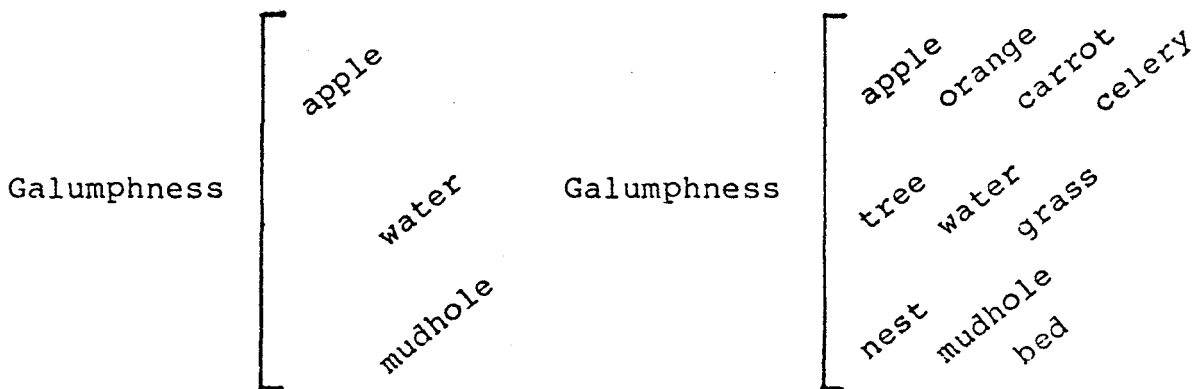
An analysis of covariance was run on the total change score with the main independent variables. The independent variables of group and gender were used as blocking variables and the remaining independent variables (age, self esteem, assertive behavior, receptive language, expressive language) were covariates. Table 7 summarizes the results of this analysis. The results indicated that gender was a significant variable ($F=5.864$, $p<.05$) for total change. For this total change, the mean score for girls was 1.923, while for boys the mean was 3.947. These results are

Figure 1

Total Change in Semantic Map from
Individual to Dyad Task

Individual Task

Dyad Task



*These items represent change since they are not present in both semantic maps.

Table 7

Analysis of Covariance for the
Total Change of Choices for
the Galumph from Individual
to Dyad Task
(Hypothesis Three)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
<u>Covariates</u>				
Age	0.899	1	0.899	0.159
Self Esteem	0.072	1	0.072	0.013
Assertive Behavior	8.274	1	8.274	1.466
Expressive Language	1.913	1	1.913	0.399
Receptive Language	1.650	1	1.650	0.292
<u>Main Effects</u>				
Gender	33.102	1	33.102	*5.864
Explained	50.376	6	8.396	1.487
Residual	141.124	25	5.645	
Total	191.500	31	6.177	

*p < .05

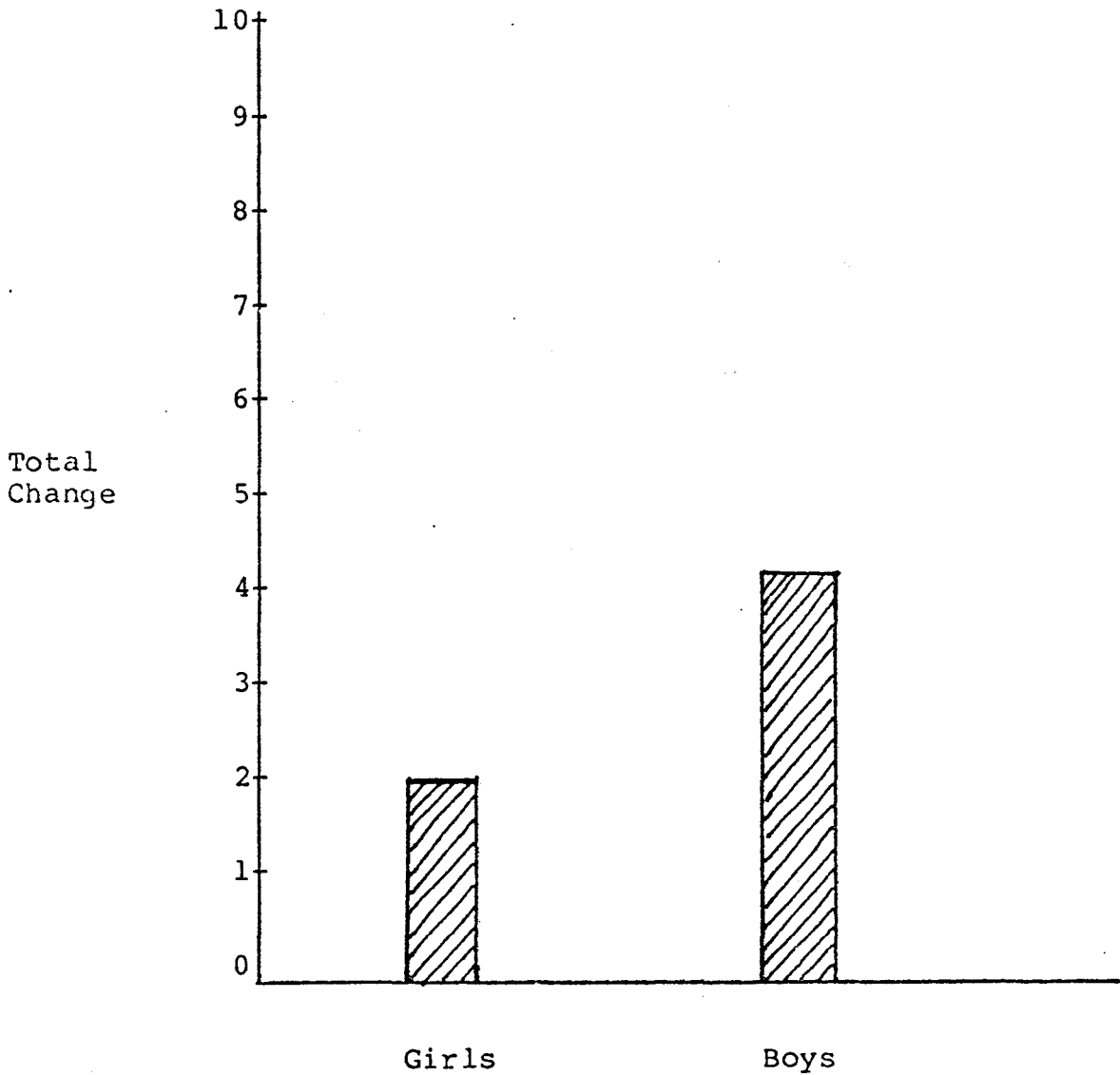
graphically represented in Figure 2. No other independent variables showed a significant effect by the analysis of covariance procedure.

In order to further analyze the relative weight of the effect of the main independent variables on the total change score, a multiple regression analysis was also run on these variables. This procedure was used in order to determine the relationships of the various independent variables to the total change score and the weight they separately and together carried in influencing total change (see Table 8). The results indicated that for total change gender, age and assertive behavior all had a significant effect ($F=3.1326$, $p<.05$).

Since a significant effect was found for total change on gender, age and assertive behavior with the multiple regression procedure, these results have been graphically represented in Figures 2 through 7. Mean scores for total change were represented according to gender, age and assertive behavior. Mean total change by gender indicates that boys ($\bar{x}=3.947$) were more likely to change their choices than girls ($\bar{x}=1.923$) as evidenced in Figure 2. The mean change score for age was also significant, but less strongly so (see Figures 3 & 4). Age and gender together significantly predicted change in the child's semantic map from individual to dyad task (see Figure 5). Still significant, but less strongly than gender or age, assertive

Figure 2

Mean Total change in Semantic Map
from Individual Task to Dyad Task
by Gender



$\bar{x} = 1.923$
sd = 1.891

$\bar{x} = 3.947$
sd = 2.549

Table 8

Multiple Regression for the Total Change
of Choices for the Galumph from
Individual to Dyad Task by
Independent Variables
(Hypothesis Three)

Analysis of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Regression	3	48.12260	16.04087	*3.13260
Residual	28	143.37740	5.12062	

Multiple R	0.50129
R Squared	0.25129
Adjusted R Square	0.17107
Standard Error	2.26288

Variables in the Equation

Variable	B	Beta	Std Error B	F
gender	2.168382	0.43534	0.83498	6.744
age	1.250802	0.24749	0.84818	2.175
assertive behavior	0.1211044	0.13345	0.15083	0.645
(constant)	-5.892391			

Variables Not in the Equation

Variable	Beta IN	Partial	Tolerance	F
self esteem	0.08826	0.08890	0.75950	0.215
expressive language	-0.06258	-0.06589	0.82978	0.118
receptive language	0.08259	0.06728	0.49690	0.123

*p<.05

Figure 3

Mean Total change in Semantic Map
from Individual Task to Dyad
Task by Age

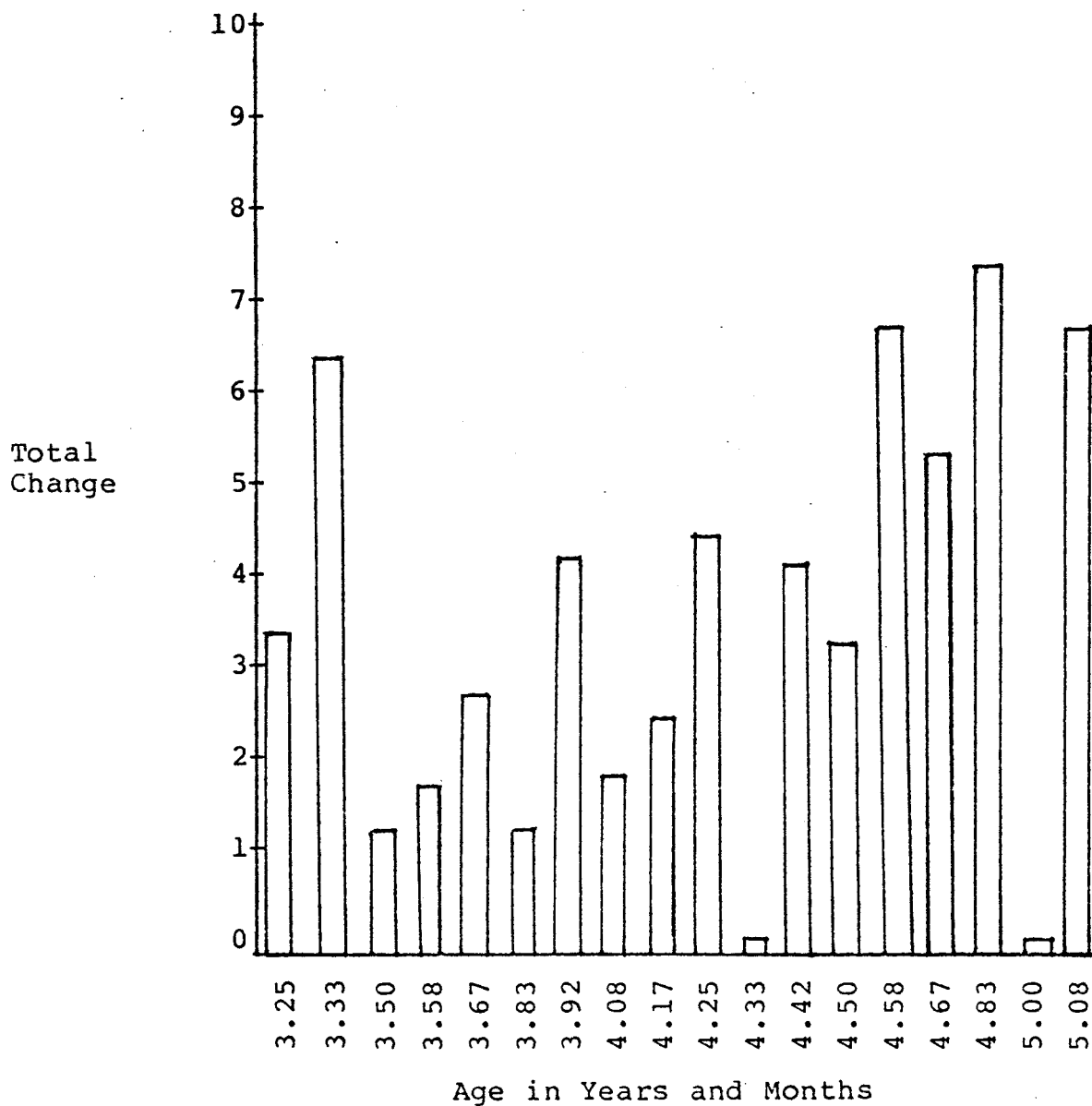
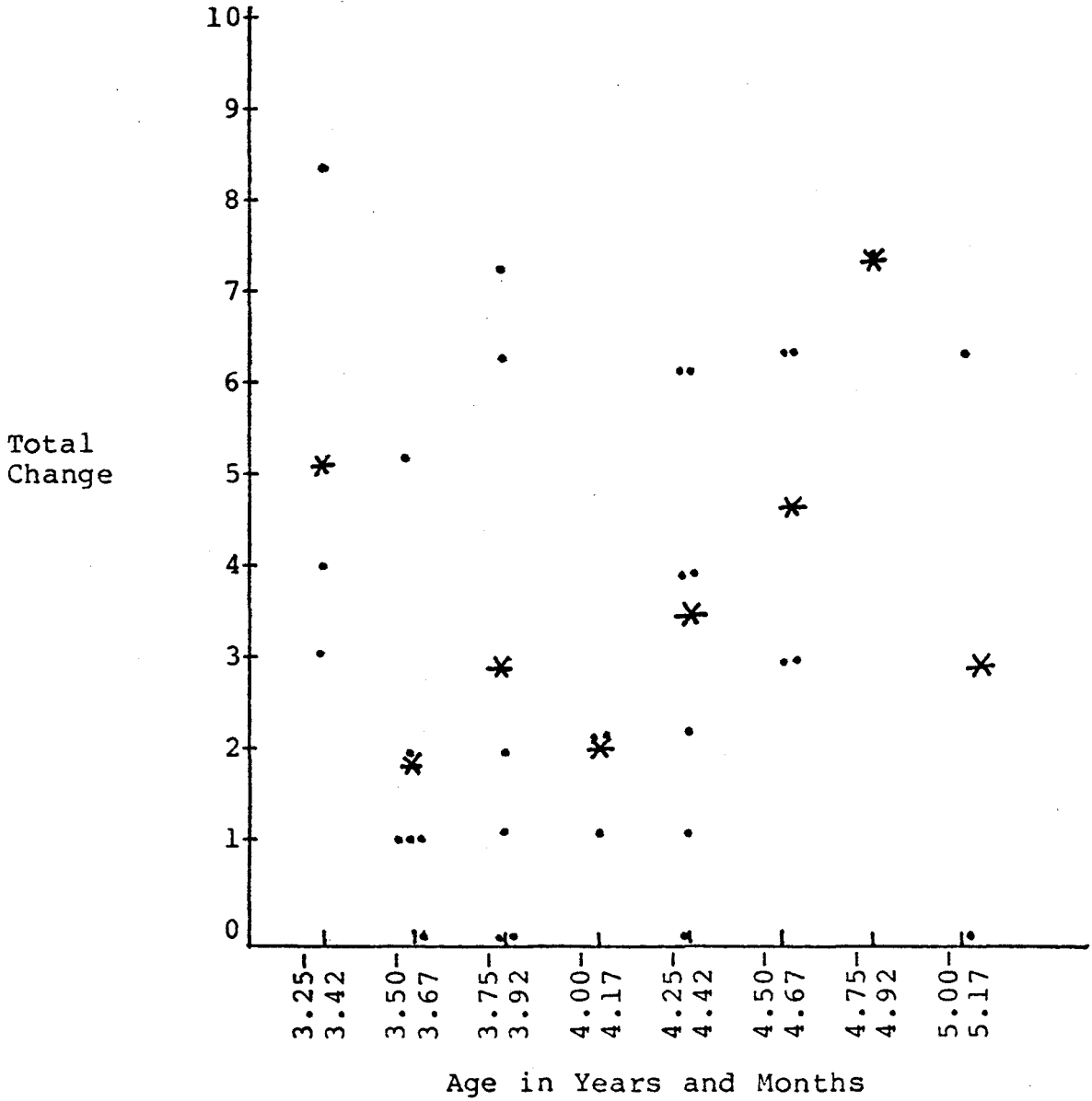


Figure 4

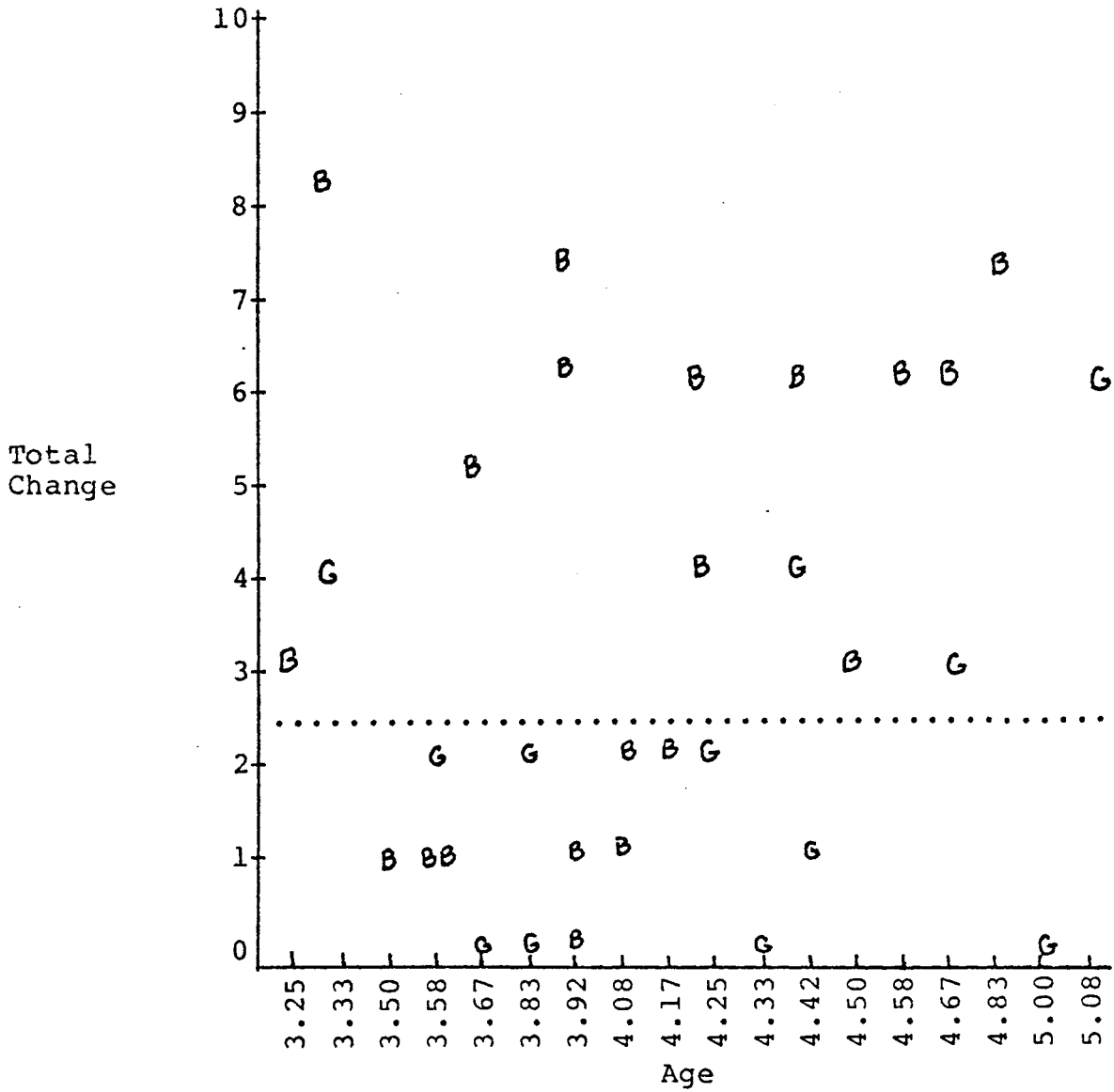
Scatter plot of total Change in Semantic Map from Individual to Dyad Task by Age



*Median

Figure 5

Total Change in Semantic Map
from Individual Task to Dyad
Task by Age and Gender

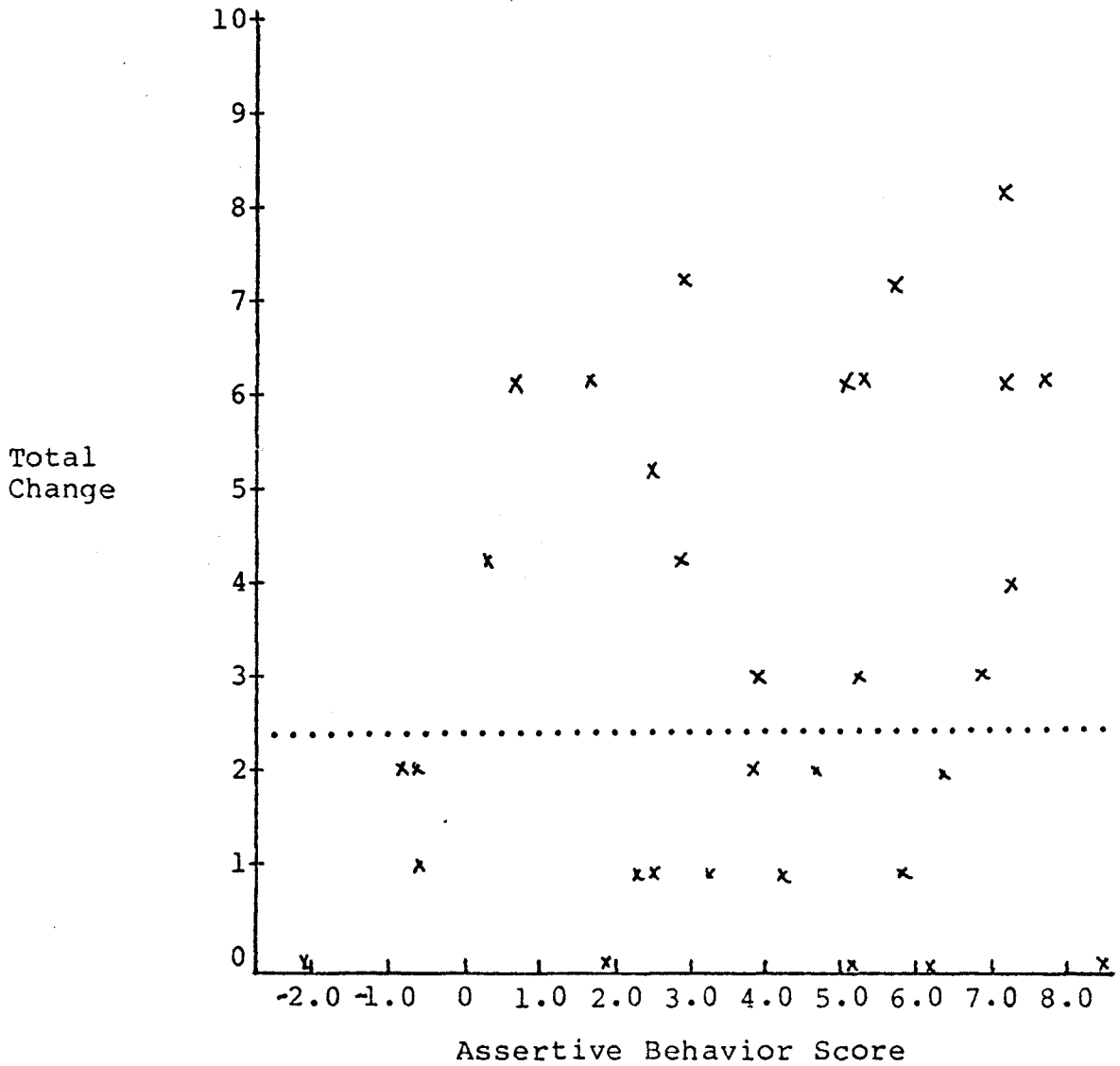


B = Boy
G = Girl

.....Median

Figure 6

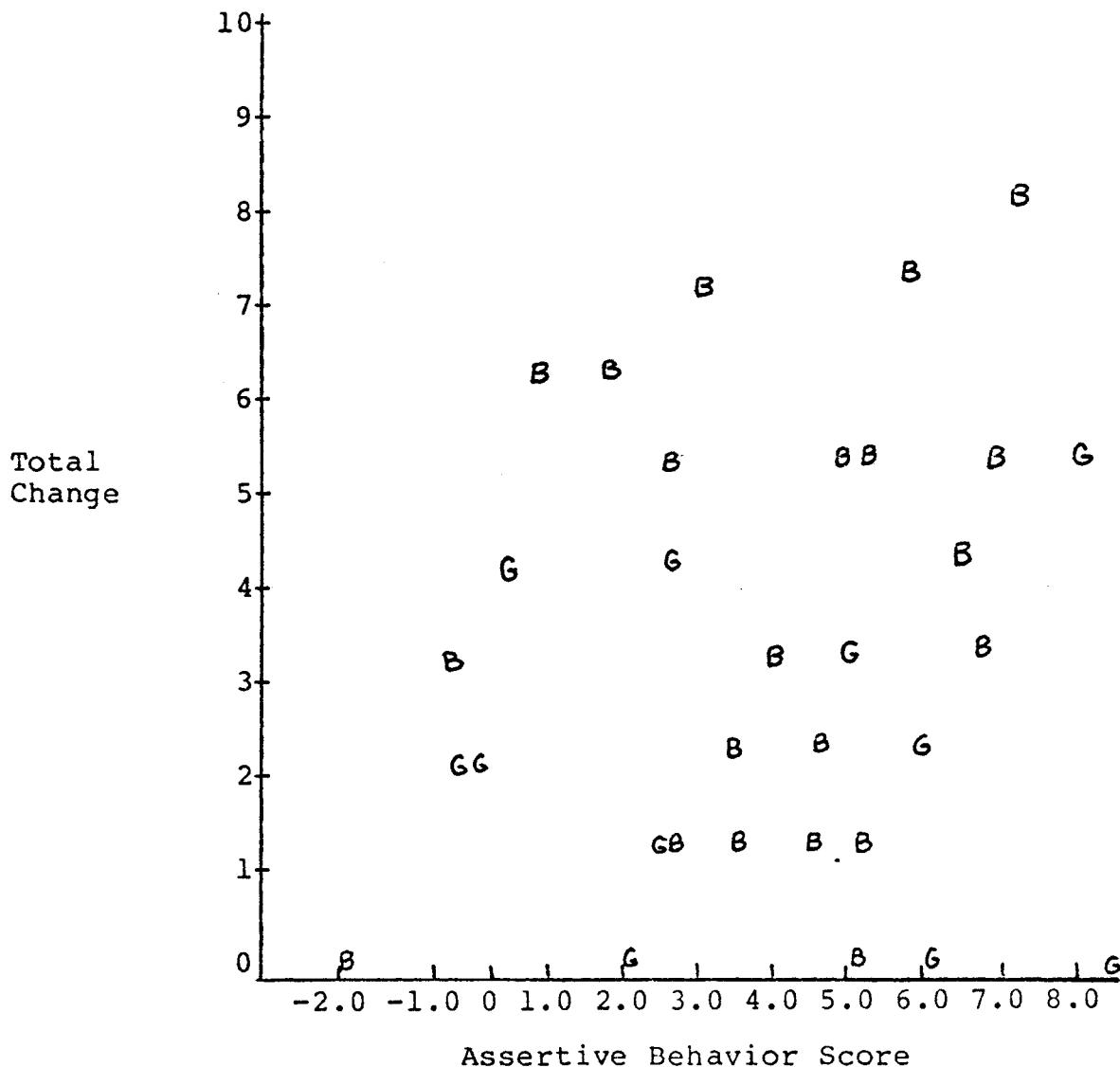
Total Change in Semantic Map
 from Individual Task to
 Dyad Task by
 Assertive Behavior



.....Median

Figure 7

Total Change in Semantic Maps
from Individual to Dyad Task
by Gender and Assertive
Behavior



B = Boy
G = Girl

behavior did help predict change in the semantic map (see figure 6). Gender and assertive behavior combined appeared to show no clear pattern (see figure 7). It appears that older boys tended to be the population most likely to change choices from individual to dyad tasks. On the basis of these results hypothesis three, which stated that there would be no relationship between the change in the child's semantic map and the main independent variables, was rejected.

Results of Tests Run on Total
Change with the Verbal
Behavior Variables

In order to determine the relationships and weights of the various verbal behavior variables to the total change score, a multiple regression analysis on total change with verbal behavior (as coded into eleven categories) was run. The results indicated a significant effect on total change by six of the verbal behavior variables ($F=3.72223$, $p<.01$). The verbal behavior variables included in these significant results were questions of information, statements of conciliation, unrelated behavior, actions of response, questions of conciliation and actions of conciliation (see Table 9).

The Beta weights of these variables indicate that unrelated behavior (Beta=0.49349), statements of

Table 9

Multiple Regression for the Total Change
of Choices for the Galumph from
Individual to Dyad Task
by Verbal Behavior
(Hypothesis Four)

Analysis of Variance	Degrees of Freedom	Sum of Squares	Mean Square	F
Regression	6	90.35578	15.05930	*3.72223
Residual	25	101.14422	4.04577	

Multiple R	0.68690
R Square	0.47183
Adjusted R Square	0.34507
Standard Error	2.01141

Variables in the Equation

Variable	<u>B</u>	<u>Beta</u>	<u>Std Error B</u>	<u>F</u>
Questions of Information	0.1522645	0.40414	0.05754	7.004
Statements of Conciliation	-1.306840	-0.42609	0.46154	8.017
Unrelated Behavior	0.2261372	0.49349	0.07614	8.821
Actions of Response	-0.1730703	-0.25382	0.10834	2.552
Questions of Conciliation	-0.7057466	-0.17159	0.61958	1.597
Actions of Conciliation	-0.4269845	-0.17773	0.39727	1.155
(Constant)	3.427940			

*p < .01

conciliation (Beta=-0.42609) and questions of information (Beta=0.40414) had the strongest relationship to the total change score. The negative Beta weight of statements of reconciliation indicated a negative relationship of this variable to total change. It therefore follows that fewer statements of reconciliation were made by those subjects who received a high total change score.

The R square of the six verbal behavior variables (see Table 9) which were found to be significant for multiple regression on total change ($F=3.72223$, $p<.01$) was 0.47183. It is therefore evident that nearly half of the variability of total change could be predicted by these six verbal behavior variables. Of these six variables, only two (questions of information and unrelated behavior) had positive Beta weights. The remaining four verbal behavior variables carried negative Beta weights, indicating an inverse relationship to the total change score.

Since gender had been found on both the analysis of covariance and the multiple regression analysis to be significant, discriminant analysis on gender with the verbal behavior variables was run. This analysis was made to determine whether the verbal behavior variables were capable of discriminating between genders, and which of the verbal behavior variables would most clearly discriminate between genders. The discriminant analysis resulted in identification of seven verbal behavior variables (see Table

11) which successfully predicted gender for 78.13% of the cases (see table 12). Standardized coefficients for the discriminant analysis for these seven variables are given on Table 11. Table 10 reports means and standard deviations for all verbal behavior variables. For the discriminant analysis questions of opinion (\bar{x} for females=0.89231; \bar{x} for males=1.55263), actions of response (\bar{x} for females=1.84615; \bar{x} for males=3.45789), actions of conciliation (\bar{x} for females=0.71538; \bar{x} for males=0.52105) and actions of initiation (\bar{x} for females=7.37692; \bar{x} for males=5.97895) were significant at the .05 level. Three additional variables (statements of opinion, statements of direction and unrelated behavior) were significant at the .10 level. A study of their means and standard deviations as compared with the four variables significant at .05 indicates that the latter variables (those significant at .10) contained more variability within groups, thereby lessening the level of significance (see Table 10). Table 11 lists the significance of each of the variables under discussion.

The summary table for discriminant analysis (Table 11) indicates that all seven of the significant verbal behavior variables (for discriminant analysis) contributed significantly to the results of the analysis. For those variables with a negative standardized coefficient (statements of opinion, actions of initiation and actions of conciliation) the mean for females was significantly higher

Table 10

Descriptive Data Relative to
Discriminant Analysis
(Hypothesis Four)

Means and Standard Deviation

Verbal Behavior	Mean for Female	Mean for Male	Total	Standard Deviation
Questions of Conciliation	0.04615	0.22632	0.15312	0.60428
*Questions of Opinion	0.89231	1.55263	1.28437	2.27697
Questions of Information	1.67692	3.62632	2.83437	6.59685
Statements of Conciliation	0.76154	0.42105	0.55937	0.81036
**Statements of Opinion	5.39231	2.96316	3.95000	4.13303
Statements of Information	6.63077	6.71053	6.67812	7.64535
**Statements of Direction	1.76923	1.97368	1.89062	2.96315
*Actions of Response	1.84615	3.45789	2.80312	3.64510
*Actions of Conciliation	0.71538	0.52105	0.60000	1.03456
*Actions of Initiation	7.37692	5.97895	6.54687	4.76939
Confusion	1.97692	1.54737	1.72187	2.95184
**Unrelated Behavior	2.82308	4.36842	3.74062	5.42389

*Significant for discriminant analysis $p < .05$

**Significant for discriminant analysis $p < .10$

Table 11

Discriminant Analysis on Gender for
Verbal Behavior
(Hypothesis Four)

Summary Table

Action	Variables Equivalent in	F	Significance	Standardized Coefficient
Step entered				
1. Statements of Opinion	1	2.823172	0.1033	-1.35696
2. Statements of direction	2	2.986943	0.0661	0.78189
3. Questions of Opinion	3	3.594795	0.0258	0.69572
4. Actions of Initiation	4	3.055633	0.0337	-0.44342
5. Actions of Response	5	2.792166	0.0379	0.48536
6. Actions of Conciliation	6	2.535597	0.0468	-0.48813
7. Unrelated Behavior	7	2.344856	0.0565	0.42283

Table 12

Discriminant Analysis on Gender for
Verbal Behavior
(Hypothesis Four)

Classification Results

Actual Group	Number of Cases	Predicted Group Membership		Correct Prediction
		1	2	
Group 1	13	8 61.5%	5 38.5%	61.5%
Group 2	19	2 10.5%	17 89.5%	89.5%
Total				<u>78.13%</u>

than that for males. For the variables with positive standardized coefficients (statements of direction, questions of opinion, actions of response and unrelated behavior) the mean for males was significantly higher than that for females. All seven variables together correctly predicted gender of subjects 78.13% of the time.

Finally, a canonical correlation between the change variables upon which the total change score were based was run in order to identify the specific constellation of verbal behavior variables which significantly influenced the specific individual change variables within the total change score. A significant canonical correlation was identified by this procedure ($\bar{x} = 149.0174$, $p < .05$). This first canonical correlation relate list was the only one with statistical significance (See Table 14). Relate list #2 was not significant at $p < .05$, and lists 3 and 4 were less significant than list #2. The intercorrelation matrix for Relate List #1 is summarized on Table 13. The canonical correction procedure identified the change scores for apple (0.73948), nest (0.52887) and mudhole (-0.73578) to be significantly affected by statements of opinion (1.38462), of confusion (-2.05284) and unrelated behavior (2.2489). Verbal behaviors with significant (but less strongly so) coefficients were question of opinion (-0.70939), statements of conciliation (-0.87350), and statements of direction (-0.91530) (see Table 15). From these data one can conclude

Table 13

Intercorrelation Matrix for Change
Scores from Individual to Dyad Task
with Verbal Behavior Scores

	APPLEC	ORANGEC	CARROTC	CELERYC	TREEC	WATERC	GRASSC	NESTC	MUDHOLEC	BEDC
APPLEC	1.00000									
ORANGEC	0.23429	1.00000								
CARROTC	-0.09245	0.34783	1.00000							
CELERYC	0.53979	0.63828	0.54495	1.00000						
TREEC	0.38331	0.31446	0.07274	0.35675	1.00000					
WATERC	0.23372	0.11366	-0.36116	0.02812	0.14887	1.00000				
GRASSC	0.51141	0.45812	0.18078	0.44753	0.43393	0.24810	1.00000			
NESTC	-0.09245	0.14907	0.33333	0.07785	0.50918	-0.04013	0.32540	1.00000		
MUDHOLEC	0.38331	0.14096	-0.36370	0.08494	0.23810	0.28897	0.43393	0.07274	1.00000	
BEDC	0.15803	0.23217	-0.11396	0.07985	0.15750	-0.01372	0.24309	0.18993	0.42276	1.00000
QCON	0.01094	0.03392	-0.14864	-0.06027	-0.08937	0.02593	-0.13655	-0.14864	0.26015	-0.15315
QINF	0.42657	0.40864	-0.05641	0.30378	0.22236	0.19365	0.21589	-0.10420	0.13213	0.08129
QOP	0.21056	0.27566	-0.22461	0.10097	0.23102	0.25867	0.14906	-0.24715	0.34626	0.10193
SCON	-0.10603	-0.04283	0.16513	-0.02483	-0.30259	0.02315	-0.16414	-0.31443	-0.35788	-0.37559
SINF	0.19185	-0.04564	-0.17383	0.05930	0.01261	0.19302	-0.15123	-0.25727	-0.21258	-0.20162
SOP	-0.08463	0.01375	0.18628	0.08287	-0.09291	0.20076	-0.17780	-0.25902	-0.30971	-0.26121
SDIR	-0.10003	0.09582	0.33344	0.28651	-0.19804	-0.09570	-0.22244	-0.15156	-0.31252	-0.26614
ACON	0.11008	0.21976	-0.06670	0.08707	-0.09280	-0.05461	-0.10455	-0.10631	0.05568	-0.21323
AINI	0.24592	0.00487	0.06034	0.17567	0.04085	-0.07732	0.13069	-0.00115	-0.13897	-0.13617
APES	-0.03389	0.10278	-0.11516	0.00505	-0.17284	-0.09354	-0.23820	-0.22781	-0.18513	0.11307
CONF	0.03772	0.26041	0.04036	0.14344	0.27306	0.23452	0.04035	0.04782	-0.03049	-0.20926
UNRB	0.23930	0.49328	0.17270	0.38637	0.29419	0.12153	0.22981	0.10916	0.00745	-0.27295

Table 13
(Continued)

	QCON	QINF	QOP	SCON	SINF	SOP	SDIR	ACON	AINI	ARES
APPLEC										
ORANGEC										
CARROTC										
CELERYC										
TREEC										
WATERC										
GRASSC										
NESTC										
MUDHOLEC										
BEDC										
QCON	1.00000									
QINF	0.01134	1.00000								
QOP	0.16450	0.71917	1.00000							
SCON	0.03749	0.23446	0.11573	1.00000						
SINF	0.00403	0.30772	0.25501	0.42347	1.00000					
SOP	1.07007	0.22120	0.36460	0.73888	0.46422	1.00000				
SDIR	0.06893	0.12276	0.10712	0.60007	0.28856	0.64303	1.00000			
ACON	0.00722	0.20499	0.06600	0.08080	0.14715	0.05477	0.08913	1.00000		
AINI	0.04713	0.28495	0.17720	0.16209	0.35648	0.24932	0.30925	0.16344	1.00000	
ARES	0.05103	0.06942	0.04952	0.03761	0.35349	0.08097	0.22289	0.35995	0.21069	1.00000
CONF	0.13858	-0.00773	0.29003	0.03868	0.37838	0.50882	0.27733	0.30580	0.23765	0.35304
UNRB	0.24675	0.15583	0.26305	0.14424	0.28390	0.37712	0.46008	0.36326	0.26469	0.30031

Table 13
(Continued)

	CONF	UNRB
APPLEC		
ORANGEC		
CARROTC		
CELERYC		
TREEC		
WATERC		
GRASSC		
NESTC		
MUDHOLEC		
BEDC		
QCON		
QINF		
QOP		
SCON		
SINF		
SOP		
SDIR		
ACON		
AINI		
ARES		
CONF	1.00000	
UNRB	0.82851	1.00000

Table 14

Canonical Correlation Relate
List #1 for Change Scores from
Individual to Dyad Task
with Verbal Behavior Scores

Number	Eigenvalue	Canonical Correlation	Wilk's Lambda
1	0.93081	0.96479	0.00048
2	0.86181	0.92834	0.00694

Number	Chi- Square	D.F.	Significance
1	149.01740	120	0.037
2	96.93356	99	0.540

NOTE: Numbers 3 through 10 on relate list #1 were not listed because they were less significant than number 2 listed above.

Table 15

Canonical Correlation of the Change Scores
with Verbal Behavior for the
Total Group
(Hypothesis Four)

Coefficients for Canonical Variable #1*

<u>First Set</u>	<u>Coefficients</u>	<u>Second Set</u>	<u>Coefficients</u>
Apple C	0.73948**	Questions of Conciliation	-0.41082
Orange C	0.28477	Questions of Information	0.39653
Carrot C	-0.36992	Questions of Opinion	-0.70939**
Celery C	0.15566	Statements of Conciliation	-0.87350**
Tree C	-0.23518	Statements of Information	0.22270
Water C	-0.12785	Statements of Opinion	1.38462***
Grass C	0.34326	Statements of Direction	-0.91530**
Nest C	0.52887**	Actions of Conciliation	-0.18751
Mudhole C	-0.73578**	Actions of Initiation	0.28070
Bed C	-0.03954	Actions of Response	0.17333
		Confusion	-2.05284***
		Unrelated Behavior	2.2489***

*p < .05

**coefficient > .50

***coefficient > 1.00

that statements of opinion, and unrelated behavior strongly and positively affected the individual change scores of apple, nest and mudhole. Confusion strongly but negatively affected the same constellation of change scores. Three additional variables less strongly affected the change scores for apple, nest and mudhole. Statements of direction, statements of conciliation, and questions of opinion were negatively related to the above change scores. These results indicate that in the presence of this constellation of verbal behaviors, change was less likely to occur for apple, nest and mudhole.

On the basis of the results of the various procedures run comparing change in semantic map with verbal behavior (multiple regression analysis, discriminant analysis and canonical correlation), hypothesis four was rejected.

Charting of Semantic Maps

For each individual score and dyad score a semantic map was charted (see Figure 1). These semantic maps were then studied for the purpose of identifying a pattern of conceptual mapping and of change in mapping from individual to dyad task. The change in mapping from individual to dyad task is the total change score used in several statistical analyses. The semantic maps are a graphic representation of the choices made by the child in the individual task or the dyad task. In addition, these maps group the choices into

constellations which give these choices visual organization and categorization. The semantic maps for each child in the individual task and each dyad in the dyad task are found in Appendix H.

The dyad semantic maps are particularly valuable in that the choices made for the Galumph in the dyad task were often explained by the children as they completed the task. A study of the videotape transcription (see Appendix G) in concert with the choices made allowed the investigator to categorize the semantic maps quite accurately according to the conceptual frameworks these maps could represent.

In the study of the semantic maps three major patterns emerge. These patterns are graphically represented in Figures 8, 9 and 10. The maps have been labeled "amphibian-like," "child-like" and "bird-like" based on comments made by children in the dyad task.

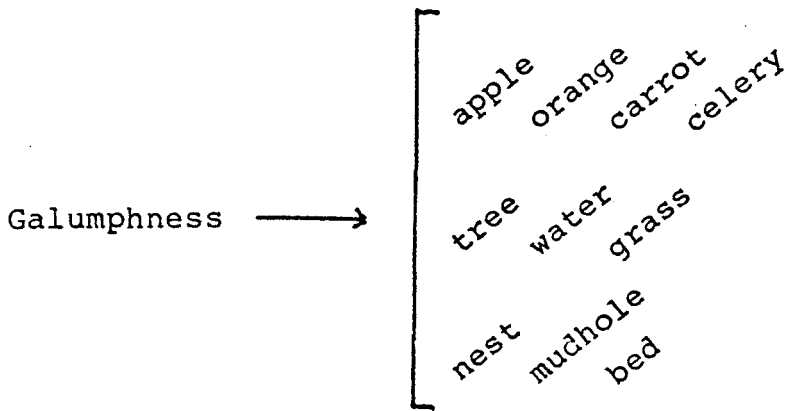
Based on the study of the data, ten of the sixteen dyad maps were clearly categorized into one of the three major patterns: one amphibian-like, six child-like, three bird-like. The remaining six maps were not easily categorized.

"Amphibian-like" semantic map

It appears from a study of the semantic maps that the more sophisticated conceptual map is that map attributing amphibianness to the Galumph. In this semantic map the information of the two individual stories is

Figure 8

Semantic Map: Concept
including Amphibianness



Note: Concept for this dyad may also have included birdness.

combined and blended. In the opinion of the researcher, the ability of this dyad to avoid attributing childness to the Galumph shows the ability to focus on the information given without interjecting themselves into the task.

"Child-like" semantic map.

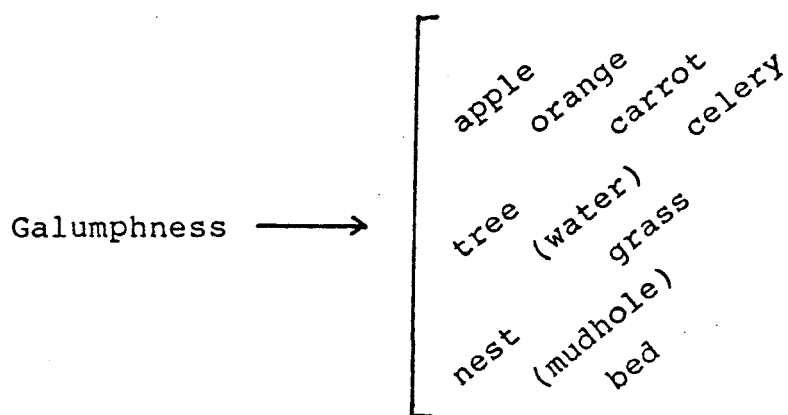
All those that clearly included concept of childness chose all four food items. Those two dyads where the concept "childness" was less clearly indicated included two or three food items, but not limited to those indicated as appropriate in the individual task.

All dyads that clearly indicated the concept childness included the bed as a choice for the Galumph. They also unanimously chose the tree and the nest.

All but one dyad indicating childness chose the grass for the Galumph. The mudhole was also chosen by all but one dyad indicating childness. One child in this dyad clearly indicated that the Galumph did not need the mud "because I don't like mud."

It appears that those dyads indicating through their verbal behavior that "Galumphness" equalled "childness" chose items with which they were personally and experientially familiar. These included all the food items, the tree, nest, and bed. The grass and mudhole were chosen by all but one of these dyads.

Figure 9

Semantic Map: Concept Including
Childness

Note: () indicates choices by some but not all of the dyads included.

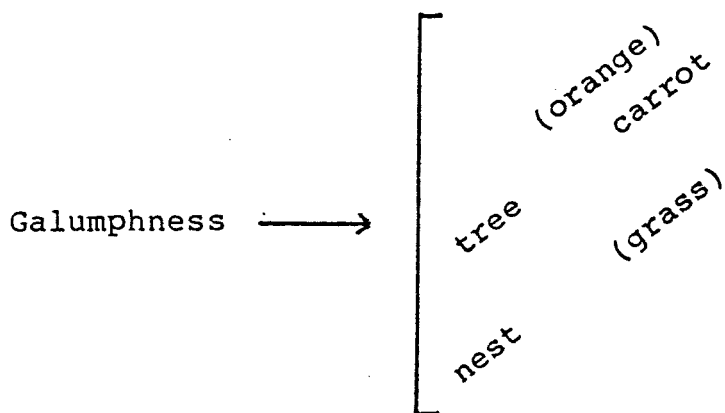
"Bird-like" semantic map

The dyads choosing items and exhibiting verbal behavior which indicated a "birdness" semantic map for the Galumph appear to indicate a less complex semantic map and conceptual framework or categories into which semantic ideas are internally grouped than other dyads. These dyads appear to have ignored the information from the "fishness" or "amphibianness" concept, and to have focused on only one story of the two which had been presented. This reluctance/inability to expand a concept in the face of new information appears to be less mature behavior than that of dyads which were able to take into account and to resolve conflicting information.

In five of the dyads there is no clear indication from the videotape transcriptions what conceptual framework is attributed to the Galumph. From the choices made by these dyads, it appears that the semantic map of three of these five dyads most closely resembles that of the "birdness" concept. One dyad appears to resemble the "childness" concept and the remaining dyad the "amphibianness" concept.

It may be possible that the lack of verbal behavior evidence in these dyads may be another indication of less mature conceptual behavior of these dyads. The frequency of the apparent "birdness" concept for these dyads appears to reinforce this conclusion.

Figure 10

Semantic Map: Concept Including
Birdness

Note: () indicates choices by some but not all of the dyads included.

Change Scores as Related to Semantic Mapping

Finally, the semantic map categories were compared with the mean change scores from individual task to dyad task. This comparison points out some relationships between change (from individual to dyad task) to semantic mapping which were not apparent until the maps were categorized into the birdness, childness and amphibianness prototypes. Further separation of mean change scores into change for males and females adds additional information (See Table 16). These data also confirm the results of hypothesis three, in which the statement of no relationship between change in semantic maps and the main independent variables (age, gender, self esteem, assertive behavior, and receptive and expressive language facility) was rejected.

Summary of Results

Hypothesis one, which stated that there was no significant difference between Groups A and B (the two story versions, or treatments) was not rejected. Therefore hypothesis one was confirmed and this permitted treatment of the entire sample population as one group. Hypothesis two, which stated that there was no relationship between the child's individual semantic map (choice in the individual task) and the main independent variables, was rejected. Hypothesis three, which stated that there was no relationship between change in semantic map and the main

Table 16

Mean Change Scores by Gender
for the Prototypical Semantic Maps

Gender	Semantic Map		
	<u>Birdness</u>	<u>Childness</u>	<u>Amphibianness</u>
Male	5.14 (n=7)	3 (n=8)	3.75 (n=4)
Female	2.8 (n=5)	1.375 (n=8)	- (n=0)
Total	4.17 (n=12)	2.19 (n=16)	3.75 (n=4)

independent variables, was rejected. Hypothesis four, which stated that there was no relationship between change in semantic map and communicative competence (as measured by verbal behavior) was also rejected. The remaining three hypotheses were thus disconfirmed.

CHAPTER V

DISCUSSION

In order to focus on the meaning of the research and its implications, the formulated hypotheses and accompanying statistical analyses need to be integrated. In addition, the findings of the several hypotheses need to be unified in order that their relative importance may be clearly understood.

With this purpose in mind, the following topics will be treated in the discussion: a summary of the tested hypotheses and their status in the study will be given. The implications of these research results will be discussed. Limitations of the present study and recommendations for potential replication will be described. Recommendations for further research will be given. Finally, the educational implications of the present study will be explored.

Summary of the Tested Hypotheses

Null hypothesis one, which stated that there was no significant difference between Groups A and B in the individual tasks (treatment 1) was not rejected. The data indicated that the two treatment groups, or stories, were

equivalent in the items that were subsequently chosen for the Galumph. When the variables were grouped into "correct" and "incorrect" for the treatment (story), data indicated again that there was no significant difference between groups. For subsequent analysis, therefore, Groups A and B were regarded as equivalent.

Null hypothesis two, which stated that there was no relationship between the semantic maps (as evidenced by the choices for the Galumph in treatment 1) and the main independent variables was rejected. Data indicated that for semantic maps on the individual task (treatment 1) age was a significant factor. Younger children in the study were more likely to include incorrect choices (according to the story they had heard) in the items they selected as important for the Galumph. Older children were more likely to select only those items which had been included in the story about the Galumph.

Null hypothesis three, which stated that there was no relationship between the changes in semantic map from individual task to dyad task (treatment one to treatment two) and the main independent variables, was rejected. Data indicated that gender, age and assertive behavior all affected the change in semantic map. Boys were more likely to change from individual to dyad task than girls. Older children were more likely to change. Assertive children tended to change more often. Over all, the population most

likely to change from individual to dyad task was the older boys in the study.

Null hypothesis four, which stated that there was no relationship between the change in semantic map and the verbal behavior variables, was rejected. Data indicated a relationship between change and verbal behavior. The pattern of this relationship did not, however, remain constant for the separate statistical analyses. For the entire group (multiple regression), questions of information and of conciliation, statements of conciliation, actions of response and of conciliation and unrelated behavior were shown to have a significant relationship to change in semantic map. For the discriminant analysis on gender, questions of opinion, statements of opinion and of direction, actions of response, of conciliation, and of initiation, as well as unrelated behavior were significant. For the canonical correlation, statements of opinion, confusion and unrelated behavior had a strong relationship to the individual changes in choice for apple, nest and mudhole.

The charting of the semantic maps and the analysis of their change indicated that three major maps emerged for the resolution of conflict in the dyad task. These have been described as "amphibian-like", "child-like", and "bird-like". Of these, the child-like map occurred with more frequency than the other two maps.

Implications of the Tested Hypotheses

The results of the tested hypotheses appear to indicate several general trends. These include the issues of developmental maturity and semantic acquisition, communicative competence and developmental maturity, gender and cognitive conflict, and egocentricity and response to cognitive conflict. These trends will be discussed in relation to the results and to the current literature.

Developmental Maturity and Semantic Acquisition

Several of the results indicated that for semantic acquisition age was an important factor. For hypothesis two, age was the only significant independent variable related to choices of "incorrect" items for the Galumph. Younger children demonstrated a tendency to choose inappropriate items rather than to focus only on the semantic information they were given in the task. Again for hypothesis three, age was identified as a variable significantly related to the change score from individual to dyad task. The younger children tended to be less likely to change their choices when presented with additional semantic information.

These findings are supported in the literature by the work of Huttenlocher (1974), Halliday (1975) and Bowerman (1978). In each of these studies, the development of semantic acquisition over time was studied longitudinally

in a small number of children. The results of the present study with a larger sample and a limited time span indicate that age is indeed a factor in the acquisition and organization of semantic information.

Developmental Maturity and Communicative Competence

The results relating to hypothesis four indicated that for communicative competence (verbal behavior), the age or developmental maturity of the child was again important. The change score (change in semantic map from individual to dyad task) was positively related to questions of information and to unrelated behavior. This appears to indicate that change was more likely to occur in the child who asked questions of information (competent behavior) or the child who engaged in unrelated behavior (non-competent behavior). The verbally competent child, who asked questions of information, appeared to modify his/her semantic map to accommodate the new information obtained through these questions, therefore the positive relationship to change score. The verbally non-competent child, who engaged in unrelated behavior (as opposed to on-task behavior) appeared also to modify his or her semantic map (or to allow the dyad partner to choose the appropriate items), again resulting in a positive relationship to the change score.

The same change score was negatively related to statements, questions or actions of conciliation and to

actions of response. All of these verbal behaviors may be considered to focus on the dyad partner and to be conciliatory. This negative relationship appears to indicate that change in semantic map was less likely to occur in the child who exhibited conciliatory verbal behaviors. These conciliatory verbal behaviors may be considered competent verbal behaviors in that they focus on the other child in the dyad (the dyad partner). It may be possible that for the child who exhibited these conciliatory verbal behaviors, change in semantic map could be considered (at least by the child) to be inappropriate. It may also be possible that the child who exhibited this particular grouping of verbal behaviors used them (the verbal behaviors) as a means of producing change in the dyad partner. In any case, verbal behaviors could be identified which affected the child's change in semantic map, either negatively or positively.

The canonical correlation between change scores and verbal behaviors yielded results which may also be interpreted to indicate a relationship between developmental maturity and verbal behavior. The individual change scores for apple, nest and mudhole were related to the verbal behaviors of unrelated behavior, statements of opinion and confusion. These three verbal behaviors may be considered to be non-competent and/or less competent behaviors. A study of the semantic maps reveals that change scores for

apple, nest and/or mudhole tended to be related to the less mature dyadic semantic mapping.

The dyad semantic maps were categorized by the investigator into three major groups: "birdness", "childness", and "amphibianness". Of these, the "birdness" map may be considered less mature than the other two maps. For a "birdness" map to be the dyad's selection, the child who had been presented the story which had included apple and mudhole would receive a higher change score for relinquishing these items in the dyad. This same child would receive a higher change score for adding "nest" to the choices if it had not been selected in the individual task. The child who "changed" in each of these three items tended also to exhibit less competent verbal behaviors (unrelated behavior, statements of opinion and confusion). It may be possible that less mature semantic mapping (in this case, the "birdness" map as the dyad choice) and less competent verbal behaviors were related as described above. This conclusion must be considered tentative, and to indicate the need for further study of this aspect of the research.

Gender and Cognitive Conflict

Results indicate that gender was significant for total change in semantic map. Males tended to change from individual to dyad task more frequently than females. However, when this change score is analyzed in relation to type of semantic map (birdness, childness, amphibianness) as

well as gender, some relationships to developmental and/or conceptual maturity appear. For both males and females, the change score for individuals who chose birdness maps in the dyad was higher (males 5.14, females 2.8) than for other semantic maps. The change scores for childness (males, 3.0; females, 1.375) and for amphibianness (males, 3.75; females, no score) were lower than for birdness. It may be postulated that high change scores were related to lack of developmental maturity, rather than an indication of greater developmental maturity.

Current data do not answer whether the high change scores relate more closely to gender (the male/female dichotomy) or to age (the older/younger dichotomy). More research in this area will help to clarify the issue.

Egocentricity and Response to Cognitive Conflict

The three semantic maps into which the dyad results have been grouped may be considered to be prototypes of children's conceptual frameworks. The results of the development of these prototypical semantic maps pointed up some tendencies which appeared to indicate the influence of egocentricity in the child's response to cognitive conflict. Although the prototypes were developed primarily from the dyad task data, their use in studying the results of the individual task semantic maps is also helpful. For 62.5% of the sample, the response to the individual task was to ascribe some form of child-like qualities to the Galumph, as

evidenced by the choices made in the individual task. It appears that even though Stories A and B carefully avoided any reference to child-like qualities, a majority of the children ascribed some form of childness to the Galumph, indicating a tendency toward an egocentric response to the information given.

It appears possible that the child's response resolves the "conflict" between the information given and what the child "knows". (For example the child "knows" that beds, not mudholes or nests are for sleeping. Climbing trees and swimming may not be a part of the child's personal experience, therefore grass is for playing, not trees and water). What appears to the adult to be a cognitive conflict (or imagined cognitive conflict) is resolved by the child by choosing what he/she "knows" over what he/she is told. More research is needed to determine whether this interpretation is appropriate.

A study of total change scores (individual and dyad task) as compared with the prototypical semantic maps provides additional information related to egocentricity. The cognitive conflict presented in the dyad task (Story A vs. Story B) was resolved differently by different dyads. Sixteen children (50% of the sample) ascribed the quality of childness to the Galumph. This trend arises in spite of the fact that neither story presented in the individual task ascribed any childlike qualities to the Galumph. It may be

postulated that these responses indicate a personal identification with the Galumph (egocentricity) on the part of half of the sample. More research is needed to test this trend.

Limitation of the Study

The major limitation of the current research is that of size and composition of the sample population. Although the sample is large by language study standards, it is still small in terms of generalizing the results. Replication is needed to make generalizability feasible.

The sample population includes children from a middle class white population. In addition, this population was limited to those families choosing a Lab School setting for their child's early school experience. Replication among other groups is needed to make generalizability of the general population valid.

Suggestions for Future Research

The present study needs to be replicated with other groups within the population to test the generalizability of the results. This replication needs to be done with other similar groups as well as with other socioeconomic and racial groups. It may also be helpful to use the study with somewhat older children (ages 5 to 7).

The study needs to be replicated with more attention

to the socialization processes at work among the subjects and the influence of these processes on the results of the study. The current data recorded and videotaped could be used as the data for an initial study in this direction, or for a pilot study on the topic.

The current videotape data could further be analyzed in terms of ideosyncratic/social language in the dyad partners. A coding system similar to that used in this study would need to be developed for this analysis.

There is a further need to address the effects of ideosyncratic language on the results of this type of study. The question of how the ideosyncratic language of children (limited cause/effect relational words and descriptors present) affects the issue of cognitive conflict as presented in the study needs to be addressed.

In addition, the relationship of ideosyncratic language to the socialization process needs to be studied. How this ideosyncratic language affects interaction between children and resolution of cognitive conflict are additional issues which need to be addressed.

Finally, this study needs to be expanded to include a retelling of the story about the Galumph by all subjects. These data would need to be collected after the individual and dyad tasks have been completed and the dissonant information resolved by each dyad. After a brief intervening period (one week, for example) each subject

could be asked to retell the story. A comparison of this story with the original and with the dyad's resolution of conflict could add important data to the study of language acquisition.

Educational Implications of the Study

In considering the results of the present investigation, three major findings of importance to those concerned with child development and the educational process appear to have surfaced. These findings include the interpretation of adult conversation by children, egocentricity and ideosyncratic language, the importance of personal experience in child language acquisition, the ascription of human qualities to fictional beings by the young child, and provision for socialization. These findings and their implications will each be discussed separately.

Adult/Child Conversation

The results of the study, especially the data on semantic mapping, appear to support the conclusion that even when adults carefully construct the information they wish to convey to children, the information received may not be the same as the information given. This is particularly apparent as one notes that the results of the individual task show that 50% of the children immediately constructed a "childlike" semantic map for the Galumph. This occurred

even before dissonant information was introduced.

From this it would appear that the child placed the information given into a framework uniquely and individually constructed which only appeared to use the information given by the adult. In fact, the child immediately provided his own internal "dissonant information" which modified the information from the adult long before the planned dissonant information of the study was introduced. Even though the adult carefully constructed the story about the Galumph to include only three major functional characteristics, the child heard the story in terms of his/her own internal set of interpretive givens and altered the information accordingly. Other research, especially that of Piaget (1926), (Duckworth, 1979) comes to similar conclusions.

Young children are continuously given information by adults who believe that the information is being interpreted accurately. This study once again reminds adults that what is spoken and what is heard may indeed be vastly different. From these findings one must conclude that assumptions about what children have interpreted from the information given needs to be carefully monitored so that misinterpretations can be clarified as a part of the ongoing informational process.

Egocentricity and Ideosyncratic Language

The results of the study further appear to demonstrate that the egocentric and ideosyncratic view of

the child is a powerful force in the child's interpretation of the environment and the information to be processed from the environment. The child's limited, self-dominated (egocentric) interpretation of the information presented in the study appears to support this conclusion.

It appears that the child's interpretation of information in both the individual and dyad tasks was strongly influenced by his/her own egocentric view. This resulted in a predominance of ideosyncratic (self-dominated) language, especially among the younger children in the study. For example, "That has things and I don't like that" or "Ok, there put him there" indicate a personal, self-dominated relationship to the other child in the dyad. The child appears to have assumed that the other person, adult or child, held the same egocentric view. Therefore language remained ideosyncratic and less powerfully able to effect change in the dyad partner.

Children in nursery schools and day care centers are continuously being given verbal information by adults and by other children. Results of this study appear to indicate that adults need to carefully take into account the power of the child's egocentricity and to adjust the language used accordingly. Children need to be given information within the framework of their own egocentric viewpoint. For example, the child's personal view ("I know you're afraid Sue will hit you") needs to be verbalized before the

viewpoint of the teacher and other child is stated ("but I can't let you hit her because it will hurt her just like it would hurt you if she really did hit you"). At the same time, however, children also need to be helped to modify their own ideosyncratic language to take another child's point of view into consideration, thus enhancing the communicative competence of conversational partners.

Importance of Personal Experience

Related to the findings already discussed, it must also be noted that the personal and unique experiences of each child in the study appeared to affect the child's perception and interpretation of the Galumph much more than had been expected.

The two stories told in the individual task each specified a place to sleep for the Galumph. In one story the place was a mudhole, in the other, a nest. The array of choices for the task completion included both the nest and the mudhole for each child, as well as a model of a dollbed (mentioned in neither story). Yet in 50% of the cases the bed was chosen for the Galumph. Videotape transcriptions of the dyad task shed some light on this phenomenon. Two children specifically stated that the Galumph needed the bed "because that's where you sleep." It appears that the child was bound by the personal experience of sleeping in a bed and found it difficult to think of the Galumph as sleeping elsewhere.

Again, the message to adults working with young children appears to be clear. The first-hand experiences of the child need to be taken into consideration when planning learning experiences for young children. Providing the group with common first-hand experiences also appears to be important if the children are to enter into group discussions and extensions of their experiences.

A corollary conclusion to the importance of personal experience is the importance of identifying the personal experiences of the children through careful study of their backgrounds and environments. If the nursery school or kindergarten program is to be effective and meaningful, it needs to be planned from an informed perspective. Both the common and unique experiences of the various children in the class can be used to provide the bridge between what is known and what is learned.

Ascription of Human Qualities to Fictional Beings

The literature speaks of the difficulty that children have in separating fact from fantasy (Chukovsky, 1963). This study again supports that observation. The Galumph appears to have been given human qualities by many children in the study, based on the results of the semantic mapping. Several children made specific comments during the dyad task which support this conclusion.

Chukovsky notes that the presentation of fantasy/nonsense to young children is important to their

cognitive development as they attempt to categorize reality and fantasy. He further theorizes that adults can impact this development only to a limited degree, but that the presentation of fantasy/nonsense provides the challenge necessary for the child to develop this distinction internally.

This study appears to support the position of Chukovsky. Further, it provides a caution to adults not to assume that the fantasy/reality distinction presented TO the child will in fact be understood BY the child. During the period from ages three to five included in the study this distinction has not yet been clarified by the child and cannot be assumed by the adult.

Another caution to adults appears to be necessary. It is relatively common in our society to ascribe human qualities to animals, to ideas, or to the world around us. Although it is becoming less common, it is still possible to hear references to "Mother Nature," "Father Time," or to animals that talk and have feelings (to explain their functions in the natural world). These particular examples of anthropomorphism are used because they have tended to be used more frequently with young children than with older children. The results of the study, especially the tendency of children to ascribe human qualities to the Galumph, would appear to indicate a concern and a caution on the use of anthropomorphism in talking and working with children. This

is particularly important in the light of this fact/fantasy confusion which appears to be a part of the normal development of the three to five year old child.

Provision for Socialization

The results of the study support the thesis that children ages three to five do indeed affect the actions of others through their language interactions. The change scores of the dyad partners indicate that children do receive information from other children which then impacts their own personal organization of information. This change appears to be most powerful among the oldest (five year olds) and the youngest (three year olds) children in the study. It appears that reorganization of information to include that new information received socially from another child is learned during this developmental period (ages three to five).

If children are to have the opportunity to practice this skill of integration of socially acquired information, then provision for child-to-child social and communicative interaction needs to be regularly and systematically included in the young child's environment. Organization of the child's curriculum to include adequate opportunity for child to child interaction appears to be strongly recommended. It also appears that self-selection of social partners for interaction may be important. This may include (for many children) a selection of same-gender partners

during these age ranges. Provision of opportunities for children to communicate in small groups and pairs rather than predominantly in large groups (which often become teacher-dominated) are an important consideration as programs for young children are planned.

A Final Word

Some of the results of the study provide new ways of looking at semantic mapping and communicative competence. Other results are not so clear and/or easy to interpret. Still other results reinforce findings and ideas already in the literature.

It was expected that there would be a more clearly identifiable pattern of verbal behaviors which could be grouped in contributing to communicative competence. However, this clear pattern did not emerge from the data. Further work in identifying and qualitatively describing communicative competence needs to be done.

The results of the study appear to be useful to teachers of young children as well as to students of child development. It is hoped that these results will also provide questions for further investigation as we continue to study how young children learn.

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APPENDIX A

SUMMARY OF PILOT STUDY

During July and August, 1979, a pilot study was conducted to determine the feasibility of the research design. Ten children were used for this pilot study, five in Group 1 and five in Group 2.

Each group was presented with the Galumph and told a story about it as outlined under Method. Individual children were then asked to identify the items needed or used by the Galumph. For the major research study this portion of the design has been revised to ask each individual child to make a place for the Galumph to live as they are later asked in pairs. It is hoped that this will lead to additional information regarding children's acquisition of meaning regarding the Galumph.

For the pilot study children were paired according to age, sex (3 pairs of girls, one pair of boys, and one boy/girl pair) and assertiveness. Because of the limited size of the sample, some limitation in the accuracy of pairing was experienced. It was possible, however, to pair children according to age within 6 months, and to pair them according to assertiveness within one point on a five-point scale. For the major research study, however children will be randomly assigned to pairs.

The Dailey Language Facility Test was obtained during the course of the study. It was used with five of

the ten children and determined to be of use for the major study.

The Denver Developmental Screening Test was administered to four of the children in the pilot study. It was then determined that it would not be useful for the major study because of the nature of the broad-range screening test which result in primarily pass/fail scores. The Peabody Picture Vocabulary Test is proposed as an alternate which can result in a single score which has been demonstrated to correlate with an intelligence quotient score.

The assertiveness rating scale was developed by the researcher to be a simple measure of the child's ability to exert an influence on their environment. A sample of this rating scale is included in the appendix. The assertiveness rating was done by the teacher. For the major study, observers will rate the children over time to obtain an assertiveness index based on incidence of assertive behavior.

As a result of the pilot study it appears that self-esteem may also be a factor in the child's ability to participate in the task given to the matched pairs. Thus another rating scale for self esteem has been developed which will be used along with the assertiveness rating in matching pairs for the study. A sample appears in the appendix.

The activity of the matched pairs was recorded in an observational protocol which was then reviewed and analyzed by the researcher and an assistant. The results were then tabulated on a checklist. The original checklist was revised during the pilot study into a form which was found to be more useful for recording data.

APPENDIX B

COLLECTION OF INDEPENDENT VARIABLES

Exhibit 1Self Esteem Rating

Preschool children may be said to have varying levels of self esteem. This self esteem may be thought of as the positive sense of self worth which the child develops and maintains.

Rate each child on the scale that follows. A score of -2 indicates a negative sense of self esteem. This child might be expected to say "I'm bad" "I'm very sad". "Nobody likes me"-or to behave as though he ascribed to these feelings. A score of +2 indicates a child who has a positive sense of self esteem. This child might be expected to say, "I'm a good boy/girl". "My mommie and daddy like me a lot" "I'm happy." -or to behave in ways that indicate these feelings. A score of 0 would indicate a child who has neither a positive nor a negative sense of self esteem. This child may not express strong feelings on anything or behave in such a manner.

Exhibit 2Assertiveness Scale

Children may be said to have varying degrees of assertiveness. This may be viewed as the degree to which the child assumes that he is able to exert an influence on his environment and the people in it. This assertiveness may be positive or negative.

Rate each child, according to your experience with the child in the context of the classroom, on the scale below. A rating of +5 indicates the most assertive child who uses positive means to influence his environment. A score of -5 indicates a highly assertive child who uses negative means to influence his environment.

Sample of Cards Used for Assertiveness Observations

<hr/> Child's Name			
Observation 1 <hr/> date <hr/> time	Assertive Capitulative	Verbal	Non-verbal
Observation to be started between 9:00 and 9:40 or 1:00 and 1:40			

Child's name

Observation 2

	Verbal	Non-verbal
<u> </u> date		
<u> </u> time		

Assertive

Capitulative

Observation to be started
between 9:50 and 10:20
or 1:50 and 2:20.

Child's Name

Observation 3

	Verbal	Non-verbal
<u> </u> date		
<u> </u> time		

Assertive

Capitulative

Observation to be started
between 10:40 and 11:10
or 2:40 and 3:10

Exhibit 3Peabody Picture Vocabulary TestReliability

Alternate form reliability of the PPVT was measured on original norming subjects. The reliability coefficients for raw scores of alternate forms ranged from .67 to .84, the median being .77. Standard errors for I.Q. scores for the same subjects ranged from 6.00 to 8.61, with a median of 7.20. Subsequent studies of alternate form reliability have shown similar results. Studies in the literature providing reliability information involved regular classroom subjects, institutionalized and non-institutionalized retardates, and physically handicapped persons.

Validity

Content validity has been established by selecting only those items for the PPVT that could be pictorially depicted. Construct validity can be documented through a study of the literature.

Congruent and concurrent validity has been established through numerous studies in the literature. Correlations with Wechslev and Stanford-Binet have repeatedly been found to be statistically significant. Likewise, correlations with the California Achievement Tests, Wide Range Achievement Tests and Metropolitan

Achievement Tests, among others, have been shown to be statistically significant ($r=0.52$ to 0.82).

Exhibit 4Dailey Language Facility TestReliability

Scorer reliability of the test protocol has been established through several studies. Resulting reliability coefficients have ranged from 0.88 to 0.94 for different scorers rating the same subjects from a taped protocol.

Inter-correlation between scores from separate pictures in the test averaged at 0.70. Each form of the test includes a photograph, an art masterpiece and a line drawing. Studies providing between picture reliability included retardates, deaf and signing children, middle class and inner-city preschool and primary grade children.

Validity

The idea of testing vocabulary as a means of determining the child's ability to learn is well established in the literature, and is a major portion of most intelligence scales. This test uses expressive language to avoid the issue of environmental influences noted in most other tests. This criticism is established throughout the literature. Studies using the DLFT tend to show that this test avoids much of the bias criticized in other measures of ability to learn.

The DLFT does not correlate highly with the

Stanford-Binet, Metropolitan Readiness Test, or the SRA Achievement Test (correlations ranged from .01 to .20). These results appear to confirm the claim that the DLFT measures language facility independent of standard intelligence scales and traditional achievement scores.

Exhibit 5

Child A _____

Child B _____

The following protocol rating is to be used to rate the frequency of observed occurrences in the categories listed. Record each instance of an action or behavior separately. View each taped episode twice. On the first viewing, record all behaviors of one child of the dyad. On the second viewing, record all behaviors of the second child. If a given behavior could be placed into two different categories, record it in the category which is most appropriate. When your rating is complete, be sure to place the total of each child in the appropriate column.

Question	Tally		Total	
	Child A	Child B	Child A	Child B
conciliation _____				
information _____				
opinion _____				
Statement				
conciliation _____				
information _____				
opinion _____				
direction _____				
Action				
conciliatory _____				
initiatory _____				
response _____				
Confusion				
verbal/non verbal _____				
Unrelated behavior _____				

rater number _____

APPENDIX C

Semantic Acquisition Study
SES - Bilingual Survey
Record Sheet

Name: _____ Phone: _____

Class: _____

Date: _____ Time Begun: _____ : _____ AM/PM

I am calling as a research assistant for Prof. Morgenthaler. There is some additional information which she needs in order to complete her study of language development. Is it convenient for you to take a few minutes at this time to answer some questions for me?

1. Is any language other than English spoken in the home?

yes 6 no 27

If so, which language? Italian (2) Hungarian (1)
Greek (1) Korean (1)
Polish (1)

2. Does the child understand or speak any language other than English?

understand 12 speak 8 which language Spanish (3)
Korean (1)
Greek (1)

What percentage of the time is the second language used? Italian (2)
Polish (2)

child: less than 10% 6 10 - 25% 2 25 - 50% 1

others: less than 10% 4 10 - 25% 3 25 - 50% 1

3. To what extent has your child had any problem in confusing the two languages?

word meaning: great _____ some _____ little _____ none 7

word order: great _____ some _____ little _____ none 7

grammar: great _____ some _____ little _____ none 7

2.

4. What is the educational level of each of the parents of your child?

Mother:

1 - 3 years high school _____

high school graduate 6

some college 6

college graduate 12

some post-graduate 5

post-graduate degree 5

Father:

1 - 3 years high school _____

high school graduate 2

some college 9

college graduate 9

some post-graduate 3

post-graduate degree 9

5. What is the approximate total household income?

a. below \$15,000 _____

b. \$15,000 - 19,999 2

c. \$20,000 - 29,999 11

d. \$30,000 - 39,999 9

e. \$40,000 - 49,999 1

f. \$50,000 and above 7

g. did not respond 2

6. Is the total household income from one or both parents?

Father: full time 32 part time _____

Mother: full time 2 part time 6

Other: full time _____ part time _____

7. Is there any other adult who speaks another language and is with the child significant regular hours?

aunt housekeeper (2)

Who grandmother (3) Approximate number of hours

Daily 3 _____

Several hours/week 2 _____

Several hours/month 1 _____

APPENDIX D

ERIKSON INSTITUTE FOR EARLY EDUCATION

1525 East Fifty-third Street
Chicago, Illinois 60615
(312) 493-0269

October 29, 1979

Ms. Shirley K. Morgenthaler
512 Rugeley Road
Western Springs, Illinois 60588

I am very much impressed with the draft of your dissertation proposal, which I have read with mounting curiosity and gusto. Although I am a non-expert (or is it un-expert?), it seems to me that the design is clear, and the questions you ask are eminently worthwhile. I am not qualified to render a critique, but I have a few comments. Take them as a kind of free association, if you will.

P. 11: The assymetry between language production and comprehension is, either for some people or perhaps for all people, a lifelong one. Are we dealing here with two different neurophysiological phenomena? Perhaps originating in different locations in the brain?

P. 12: Are the characteristics of "motherese"--pitch, patterns, use of particular sounds--universal? Or germane to some languages? Indo-German ones?

P. 13: Is the emergence of concepts in the mother's language, such as "then and there" instead of merely "here and now," a universal phenomenon? Perhaps you don't know. Perhaps nobody knows. But it might be a good idea to raise the question and state that we have no answer to date.

There is a minor misprint: repertoire, not reportoire.

Ask me some day, Shirley, about my own language learning, just for the fun of it. My mother was a singer and I learned speaking via Bach, Schubert, etc., with a great deal of semantic confusion.

Again, I had a great time reading your paper. Thanks.

Best wishes for success,



Maria W. Piers, Ph.D.
Distinguished Service Professor

MWP:me

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LOYOLA UNIVERSITY STRITCH SCHOOL OF MEDICINE

2160 South First Avenue, Maywood, Illinois 60153

312 531-3000

January 14, 1980

Shirley Morgenthaler
 Director, Concordia E. C. Center
 7400 Augusta Street
 River Forest, IL 60305

Dear Shirley:

I didn't receive your paper before I left for vacation, so I hope it's not too late to be helpful.

Page Two: I'm convinced that semantic acquisition continues throughout life because words are the acoustic markers of concepts and conceptualization is a lifelong process. I suggest you read The Psychology of Language for an interesting treatise on the subject. It is further support that early acquisitions form the foundation for later acquisitions.

Page Two: I like the "conflict situation" (2 different stories). Cognitive conflict is, according to Piaget, a necessary condition for intellectual development. Consequently, your situation is relevant to new language acquisitions since it is guided by, and a result of, cognitive development.

The title seems too all-encompassing and, in my opinion, needs limiting. Example: A description of the semantic responses of preschool children (ages 3 to 5) to cognitive conflict.

I've observed (but not documented) the importance of a parent's early imitation of the infant's first facial expressions and vocalizations on subsequent language development. Most parents do this intuitively.

Response to early crying is also, according to Ainsworth, an interaction, and, if responded to during the first few months of life, results in less crying at one year.

The interactive nature of your study is fascinating. From a cognitive standpoint, you've included the conflict situation, a social/interactive milieu, a concrete object (Galumph) for mental manipulation (language comprehension and production)

Shirley Morgenthaler
Page Two

January 14, 1980

and a consideration of mental maturation. I would add, prior to the event, an open-ended question about the Galumph and follow-up with the same question at the conclusion (Example: "Tell me about this"). This might be done individually with each child. The amount and quality of the information gained related to the input would be interesting as well as the level of conceptualization and production which has been obtained.

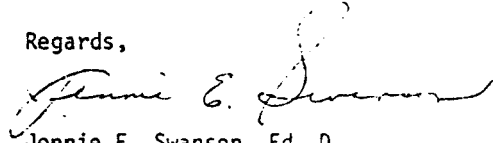
I agree that the DDST is inappropriate. The PPVT, in my opinion, is too culturally-biased and too item specific. It is also language biased.

The video-taping of the situation is an excellent idea!

Other comments related to particular sections are noted in the paper.

I hope you find this helpful. Read not to accept or reject, but to weigh and consider.

Regards,



Jennie E. Swanson, Ed. D.
Director, Pre-Start Project

JES:bv
Enc.

APPENDIX E

Dear

January 14, 1980

I am currently working on a research study for my doctoral dissertation at Loyola University of Chicago. It is a study in the young child's acquisition of language, specifically the acquisition of meaning (what words mean).

The study involves telling each child individually a story and then asking him/her to complete a task based on the story's information. Two children will then be asked to do a similar task together.

The children will be taken to a nearby location- probably the college classroom only a few doors from the Lab- where the study will be done. Each pair of children will be videotaped for future analysis of data. Your child will be removed from his/her own classroom setting for no more than 30 minutes.

I would like your child to participate in this study. For this I need your signature on the accompanying permission form. Please sign it and return it to me by January 20, 1980. The study will be conducted during February and March, 1980. If you have any questions about what the study will include, please feel free to contact me.

Thank you in advance for your interest and participation in this project.

Sincerely,

Shirley K. Morgenthaler
Director of Early Childhood Center

I hereby give permission for Prof. Morgenthaler to include my child _____ in her research study in language acquisition which will be conducted during February and March, 1980 in the Early Childhood Center at Concordia College.

I understand that this study will be conducted according to the procedures outlined in her letter dated January 14, 1980.

signature of parent or guardian

date

APPENDIX F

STORIES USED IN INDIVIDUAL TASK

Story A

I'm going to tell you a story about the Galumph. This Galumph is very special because there is nobody just like it anywhere in the world. Just look at how special it looks. (show Galumph and point out special features)

Do you know what the Galumph likes to do best? Its favorite thing to do is to swim in the water. It swims back and forth and back and forth all day. It plays so hard as it swims back and forth in the water.

All this swimming back and forth makes the Galumph very, very hungry. So it climbs out of the water and looks around on the ground until it finds a big juicy red apple to eat. Yum, Yum! The Galumph just loves apples. So it eats and eats apples until it's not hungry any more. Then it goes back to the water and swims back and forth and back and forth again. That's so much fun!

But pretty soon its eyes go like this, (close own eyes), because it gets so sleepy. So it climbs out of the water and finds a nice gushy mudhole that's just the right size for it to sleep in. It snuggles up in the mudhole and goes fast asleep. Such a good sleep. When the Galumph wakes up it gets up out of the mudhole, goes back to the

water and then it swims back and forth and back and forth in the water until it gets hungry again. Then it eats another apple and swims more in the water and goes to sleep again in the mudhole for another night.

This is how the Galumph lives and that is what makes it very happy.

Now I want you to look at all the things I have here. (remove cover) I want you to choose the things from these three trays that the Galumph needs to make it happy. Put them right here on this mat by the Galumph. (Repeat once if needed)

(Observe task completion. Time with stopwatch.)

(Additional possible prompting sentence) Does he have everything he needs?

Story B

I'm going to tell you a story about the Galumph. This Galumph is very special because there is nobody just like it anywhere in the world. Just look at how special it looks. (show Galumph and point out special features)

Do you know what the Galumph likes to do best? Its favorite thing to do is to climb trees. It climbs up and down and up and down all day. It plays so hard as it climbs up and down on the tree.

All this climbing up and down makes the Galumph very, very hungry. So it climbs down the tree and looks around on the ground until it finds a big juicy orange carrot to eat. Yum, Yum! The Galumph just loves carrots. So it eats and eats carrots until it's not hungry any more. Then it goes back to the tree and climbs up and down and up and down again. That's so much fun!

But pretty soon its eyes go like this, (close own eyes), because it gets so sleepy. So it climbs out of the tree and finds a nice soft nest that's just the right size for it to sleep in. It snuggles up in the nest and goes fast asleep. Such a good sleep. When the Galumph wakes up it gets up out of the nest, goes back to the tree and then it climbs up and down and up and down the tree until it gets hungry again. Then it eats another carrot and climbs more trees and goes to sleep again in the nest for another night.

This is how the Galumph lives and that is what makes it very happy.

Now I want you to look at all the things I have here. (remove cover) I want you to choose the things from these three trays that the Galumph needs to make it happy. Put them right here on this mat by the Galumph. (Repeat once if needed)

(Observe task completion. Time with stopwatch.)

(Additional possible prompting sentence) Does he have everything he needs?

APPENDIX G

VIDEOTAPE TRANSCRIPTION

Dyad Task Comments

Dyad #1 Task completed in silence

Mostly by child B-

B: "He has a carrot, he has a nest he has a tree-

to A: "Does he need anything else?" (No answer)-

Dyad #2 B: "What he needs is he goes up top the tree...

& that makes him happy-

put it right here-

how about this & not that-I don't like that

(mudhole)--That has things & I don't like that.

How about the carrot, the celery, the bed?

& That's all we need to do-"

A: "how about this (mudhole)"

B: "no cause I don't like that-

now it's your turn-"

A: "pointed to mudhole-wouldn't talk-

encouraged by I. to get it-

picked it up- "ooh, gushy"-put it back down"

Dyad #3 no sound at beginning
 "he needs a minute"-
 some single word comments,
 mostly inaudible
 "cause he likes them"
 very little verbalization

Dyad #4 B: "he's not talking"
 B: "What do you want?"
 "he's not talking"
 "that dumb bell" (chapel bell)
 "do it" "don't play crazy"
 "he's not doing anything!!"
 "I think he doesn't wanna do this"
 "I shoulda stayed in there"
 "Get somebody else to play with him"
 "he's not gonna get the plates"
 "are you gonna get the plates? then get em
 get everything..... please....."
 "he's not doing anything-"
 "there-now put all of it down"
 "there. I'll help you."
 "now we're all done-"
 "he doesn't eat this-he eats that-"

Dyad #5 working in silence
 put some items on mat, but no

conversation or visual interaction

A: "I think he needs more"

B: "Don't have anymore"

alternated placing items on mat-

no interaction (parallel play?)

Dyad #6 B: "no-no-"

B: "here this one belongs-"

B: "what?-right here"

A: "what do you think? (repeated several times)"

B: "he climbs up it-he climbs up the tree"

A: "What's this-(pointed to items & repeated ques.)"

B: look at whats on them

A: a bird-a bird

B: he climbs up it-

A: what's that? what do you think?

B: what's this? carrots-apple-

A: (continued "what's this" game for several min.).

B: a tree-a guy chopped it-berries-

Dyad #7 A: "now he likes apples"-

B: "he likes this. That's mud."

A: "a mudhole-"

B: "yike is that a mudpile?"

A: "he needs one of those-"

B: "oh, oh he needs a blanket-"

A: "this is gonna be the best (picnic?)"

B: "this is a tree"
 A: "this is pretend water"
 B: "he likes to climb trees to get the apples"
 A: "this is stuff for the tree" (mud)-
 B: "does this stuff hurt trees?"
 A: "put some of this stuff on the tree?
 he's gonna get all gushy
 he needs all of it-
 this is his soap that's his bathtub
 this is his bed that's his.....
 and this is him- That's all-
 That's his mattress"
 (much unintelligible stuff-but interactive)
 (took everything off & put it back on)-
 (agreed rather quickly & easily that
 G. had all he needed).

Dyad #8 B: put nest on mat & G. in nest

"whats that?"

I: mudhole

B: "what do you want a mudhole for?"

B: "he climbs tree."

A: "he goes in the water, too."

B: "nonsense"

A: (put apple on mat)

B: (put mudhole back)-

A: "he needs it"

B: shook head

A: "ya, he does"

B: "no he doesn't"

(repeated several times)

B: "I'm not too sure if he does or not."

A: "he does"

A: put water on mat

B: "what's this?"

I: mudhole-

A: "water"

B: "that's the tree Mike-"

A: "oh"

B: "timber:"

A: took G. & went to tray of food-had G. pretend
to eat-

B: continued playing with tree-saying "timber!"
as it "fell"

A: put G. into tree-had G. also climb up-
(mudhole)

A: "ya he goes in there-he takes a nap in there-"

B: put G. back into tree-

"he looks around for a apple

oh yeah this is where he looks for his carrot"

A: gets rest of food for G.

A: puts G. in water to swim, then into tree

A: puts G. back into tree-threw him back out-

- B: retrieved G.-put him in nest-
- A: took him out of nest-to "walk" around-
interlude of non-verbal play-some of food
- A: put G. back in tree-
much giggling "eating" food-both G. and
boys-timber.
- A: "I'll be the woodman & you can be the Galumph"
- A: "chopped at tree"-gave instructions to B about
being G.
- B: had G. swim in water-
- A: "now you be the woodmans"
- B: chopped down tree-A "fell" out of tree with G. &
went over to water
- A: "now you be the G."
- B: "what's goin on there" (G. to woodman)
tree got chopped down again.
- A: put this G. back in tree & say "what's going on
here" (did so)-
woodman now sang while he chopped-
- B: put G. back in tree-A chopped it down
repeated 4 times
- I: "does G. have what he needs? leave things on
green mat"-
- A&B: "We're all done"

Dyad #9 A: "he needs a apple, carrot, mudhole, orange"
put it there-"that's water-"

A: added bed & put G. on-

A: took tree-put it back on tray-then on mat-

B: watched entire process

A: took nest off-asked I

I: ask Matthew

A: "does he need it?"

B: "yea"

B: put nest back-

A: "he already has a bed" (mudhole)

"he doesn't need that bed-"

B: "put G. in tree-& back down

A&B: tog. put G in mudhole

A: "I don't think he needs an orange"

put celery, bed back on tray-

A: "doesn't need a tree"

B: "yea" (got ignored)

"I don't think he needs grass-"

A: "I don't he needs a carrot"

B: "I think he does-"

B: "he ate the carrot-"

A: put G. in mudhole-

B: put G. in tree-

A: took G. & sang rockabye baby-

A: "he doesn't need a nest"

B: "yes he does-"

I: "does it have everything it needs?"

A: took off grass.

B: "he doesn't need water"

A: "yes he does-"

A: "he doesn't need the tree"

B: "yeah he needs it."

B: "doesn't need the grass"

A: took bed-

B: doesn't need that-"

A: put bed down anyway-

A: took it back off-

Dyad #10 A: put items on mat-

A: mudhole-

B: nest-

A: bed

B: all food

A: water

B: grass

B: "he don't need mud"

A: "that's his bed"

B: "he doesn't need water"

A: "yea he swims in it-"

A: "it needs all this stuff-"

B: took orange off- (called it peach)

B: took off mudhole-

A: "that's his bed-"

B: "that's mud-"

A: put it back

B: took of tree, etc-

A: put items back-

processed continued several minutes-

Dyad #11 placed items on mat-

no verbalization

completed entire task in silence

I: repeated ques: "Does it have what it needs?"

"more than it needs?"

B: put water back

then grass

ABSOLUTELY silent on entire tape.

A: put back mudhole

B: put back celery-

Dyad #12 A: "I wanna sneak up."

A: took bed, mudhole-

A: "That's mud-"

A: took tree, nest, orange, celery, apple, carrot

sat back next to B-

B: "I don't wanna do it-"

A: "I think I'm done with those things"

I: "make sure G. has everything it needs"

A: "There's no more foods....."

Dyad #13 B: took G. from A-

put G. back on mat-

2 boys lay down & wrestled-

put all food, bed, mudhole, nest on mat

sat in silence

turned backs on mat & lay down again

I: does it have everything it needs?

A: "no-a tree."

B: "he sleeps out here" (on rug)

(separate room??)

lay down again-

Dyad #14 whispering together.

B: retold story to A-

...."climbs up & down trees when he gets

hungry he eats carrots"

A: "no eats apples"

B: "no carrots....."

B: "sometimes he sleeps-in beds & when he gets

rid of his bed he sleeps in a nest-

sometimes he goes to sleep in the nest & when

he wakes up he climbs up in the top of a tree-

& then he goes in his favorite nest & goes to

sleep-Right?"

A: "he eats apples & goes up trees & he sleeps in

beds when he likes to he goes in nests & goes

in mud too & he goes in grass & he goes in

water a lot-"

B: "yea but there's no water here, right?"

A: "& he goes in gooey stuff a lot-that's all-
he sleeps all day-he likes to eat oranges
& he like to eat carrots & apples---& celery"

B: "now make a house for him
how?"

B: "we gotta make a house, you know"

A: "can't make a roof"

A: "we need you & help to make a roof"

I: "you could just pretend-
choose the things from this tray that the
G. needs to be happy"

B: put bed on mat-put G. in bed-

A: "mudhole"

A: "when he gets too big for the bed he sleeps
in a mudhole"

B: "he already is...
he sleeps in the nest-"

B: "pretend he's little, ok? so he can go in
the bed, ok?"

A: "tree-"

A: "don't put anything in that-That's real yucky
that's a mudhole-"

I: "does G. have everything it needs?
does G. have things he doesn't really need?"

B: "He doesn't need those things-& he doesn't need those. He doesn't need apples, just carrots-& he doesn't need the mudpile-"

A: "yes he does-to play in-"

B: "how's he going to get washed off"

A: "in his pool"

A: "this he needs"

B: "this he needs to play in"

B: "he could play on the grass"

"he doesn't need these" (apples, oranges)

"he doesn't need celery-just carrots right?"

B: put tree back-"he climbs in the tree-"

B: picked up G. & started to move him around
in setting on mat

A: went to individual task setting to get
another G.

A: put food back on mat-

B: "I like carrots-Hey galumph do you like
carrots?"

A: "He's trying the apple & the orange"

B: "He needs carrots better & its juicy-I like this
carrot, in fact I think I'm going to like it-"
(play with carrot & pretending G. is eating)

"I'm tired. Are you tired Galumph? I am-"

A: "I am"

A: "I'm going in my nice nest"

B: "I'm going in my bed-there-"

(Both move G. around on mat-)

B: "You so tired Galumph?"

A: "Yes I'm going in the bed"-(bed)

B: "Who's that sleeping my bed?"

B: "That's the story about the two Galumphs _____"

I: "Are there anythings that are on the rug _____"

B: "The two Galumphs can share them-"

(put food back on mat)

B: "Oh oh-this goes here-

This is water"

A: "I'm still asleep"

B: "Is he still asleep?"

A: "Nope"

B: "He climbs up his favorite tree-This is his
favorite tree-"

A: "Mine woke up"

B: "Mine woke up too

I'm going to climb up trees again-"

A: "I'm going to play in the mud"

B: "I'm going to play in the mud too-"

(sing song; play)

B: "I'm all dirty I'm going into the swimming
pool."

B: "I'm gonna swim. I'm gonna have a
bathroom" (Play enactment)

B: "I need to go home"-(enactment)

A: "I'm done--"

I: "tell Margaret--"

A(to B): "I'm done--"

I: "Let me know when you're finished, Margaret"

B: "I'm not"

B: "This is a father & this is the mother.

I'm the mother"

A: "I'm the mother"

B: "Hey they both are mother's ok?"

A: "ok."

B: continue playing while A watches &
occasionally says "Let's go"- A becomes
more insistent, repeating "Let's go."

B: continues to play-

A: again joins in-

Galumphs get moved from beds to grass to
tree with verbalization, much of it almost
unintelligible-

Dyad #15 A: "I'm going to pick all these things
K., does he need these?"

B: shakes head.

A: "ok"-(puts item on mat)

A: "He needs a lotta things-He needs all
the things to eat."

A to I: "he has all the things to eat"

I: "Does he have all the things he needs?"
A: "Ya, cause Krista told me-"
B: also chose some items-
A: put water on mat-
A: "what's this?"
B: "grass"
A: "put it back on tray"
A: "what's this?"
B: "nest"
A: "does he go in the nest?"
B: shook head yes-
A: began pulling nest apart
B: put tree on mat
A: "Does he need a tree?"
B: "yea"
A: "The G. goes in a tree."
B: "yea."
A: "put G. there."
A: "He's going fast asleep in the top of the tree"
(put G. there)
"He's more comfortable there"
B: "no he's not comfortable there-he's scratchy
there." (took G. down)
A: "Here's the orange."
B: "& the carrot"
A: "and celery, too-"

B: "and carrot" (broke it in half)

A: "Can I eat the carrot?"

B: "no it's not peeled."

A: "the celery?"

B: "yea"

A: "orange?"

B: "no it's not peeled."

B: "you can eat the red shiny apple"

A to I: "can I?"

I: "Are you hungry?"

A: "yea."

I: "Wait till you get back to your school room."

B: "He needs a bed"

(some whispering & mumbling here)

A: noticed RA's & said "hi-"

Dyad #16 B: "I'm just looking at the things" (to I)

(silence)

B: "I think there's pretend oranges on that tree"

A: (chose apple)

B: "No, not that John."

A: (chose bed)

B: "no!" (put bed back)-

A: "He needs it to sleep on"

B: put nest on mat

A: "they don't sleep on nests"

B: "yes they do-John thinks Galumphs don't sleep"

on nests, but they don't sleep on beds-"
(to A): "They don't eat apples on this-"
(put items back).

A: "They don't eat that either" (carrot)

B: "yes they do-now leave them there-
leave those there John, put them there-"

A: "He needs this"

B: "No that's mud. This is the nest-"

A: "He needs to sleep on there" (mudholes)

B: "ok there put him there"

A: "what about this?" (water)

B: "no!"

B: "does he need that?" (to I)

I: "ask John"

B: "carrot goes next-I'm gonna put this right
here-"

B: "It has everything it needs now"

B: "I think that's everything it needs."

B: "Does this go there?" (mudhole)

A: "Yea! He needs it."

B: "Ok"

A: "He needs everything-"

B: "I'm all done"

A: "I'm all done, too-"

APPENDIX H

Semantic Maps for

Dyad One

Child 1

Galumph



Dyad Map

Galumph



carrot

tree

nest

Child 2

Galumph

tree

nest

carrot

Semantic Maps forDyad TwoChild 3

Galumph

apple orange carrot celery
 tree water grass
 nest mudhole bed

Dyad Map

Galumph

apple orange carrot celery
 tree water grass
 nest bed

Child 4

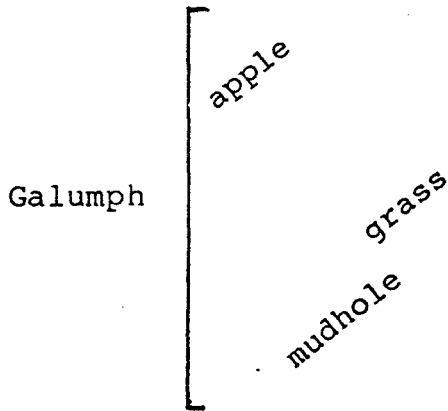
Galumph

apple orange carrot celery
 tree water grass
 nest mudhole bed

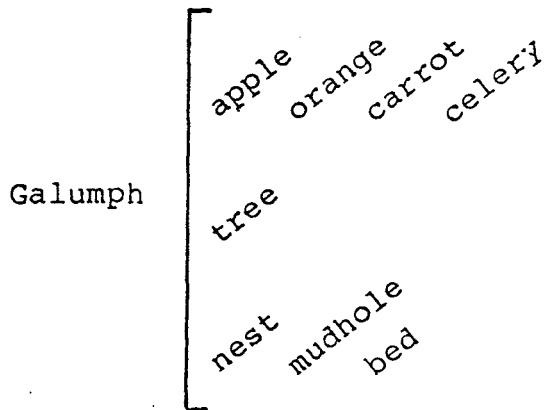
Semantic Maps for

Dyad Three

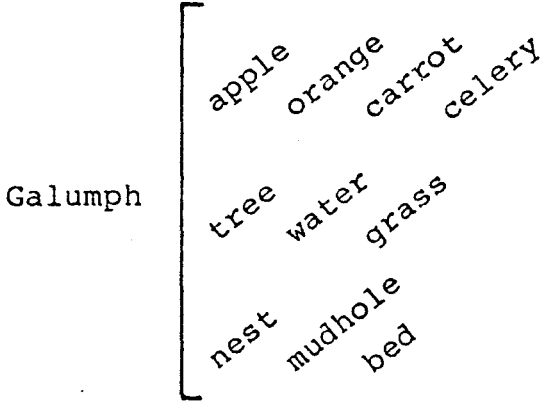
Child 5



Dyad Map



Child 6

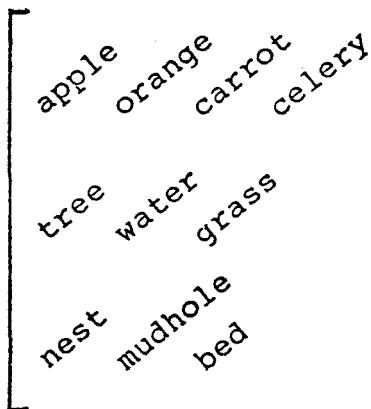


Semantic Maps for

Dyad Four

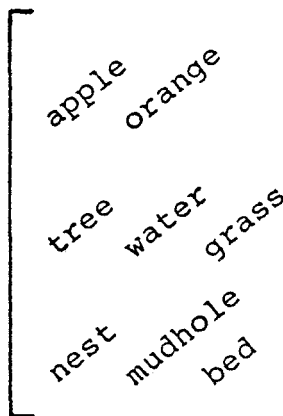
Child 7

Galumph



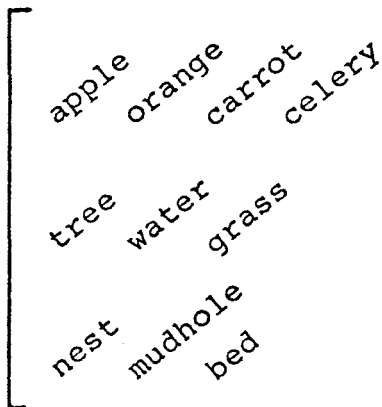
Dyad Map

Galumph



Child 8

Galumph

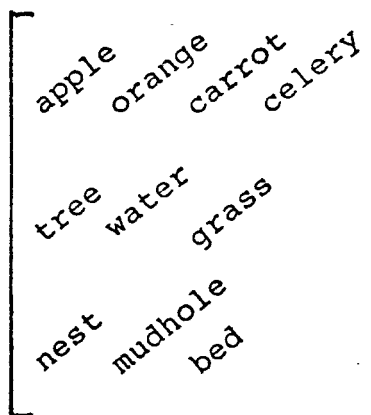


Semantic Maps for

Dyad Five

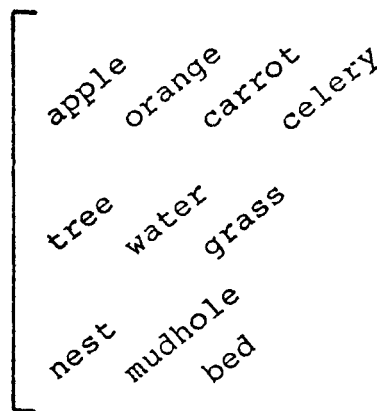
Child 9

Galumph



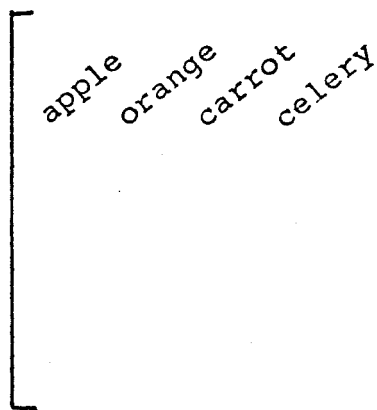
Dyad Map

Galumph



Child 10

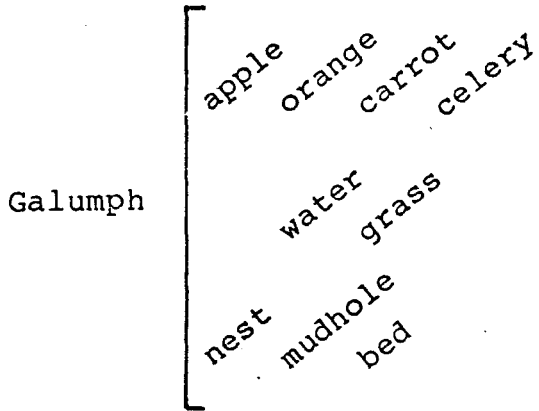
Galumph



Semantic Maps for

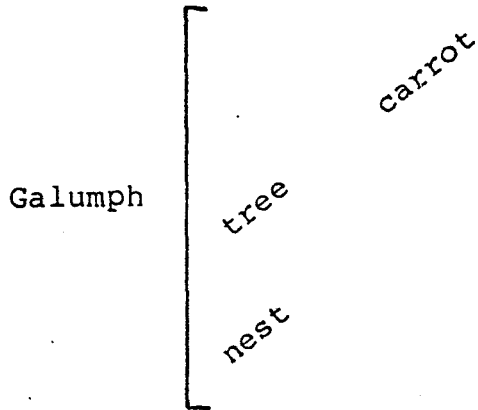
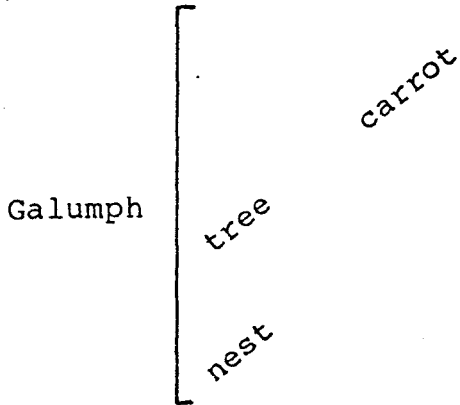
Dyad Six

Child 11



Dyad Map

Child 12

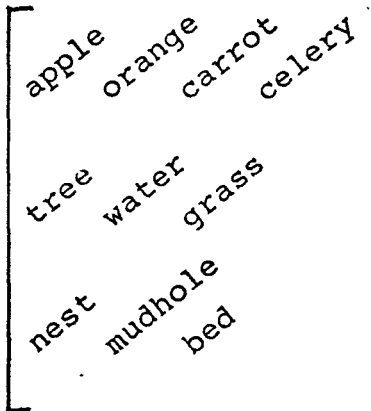


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Dyad Seven

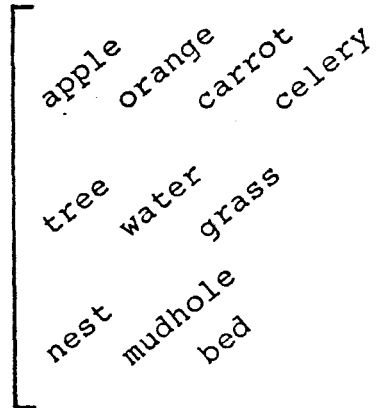
Child 13

Galumph



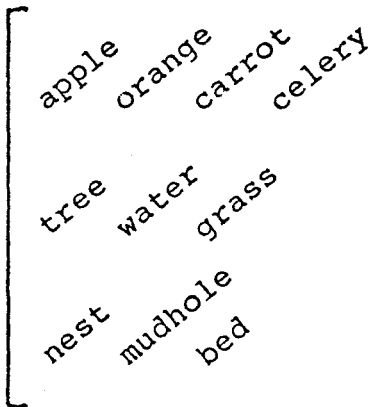
Dyad Map

Galumph



Child 14

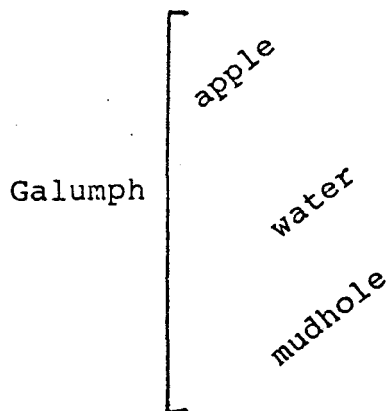
Galumph



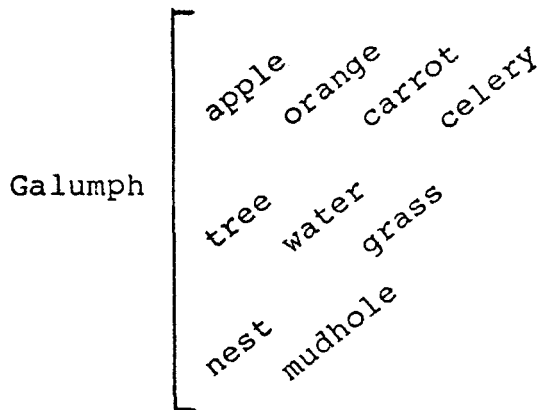
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Dyad Eight

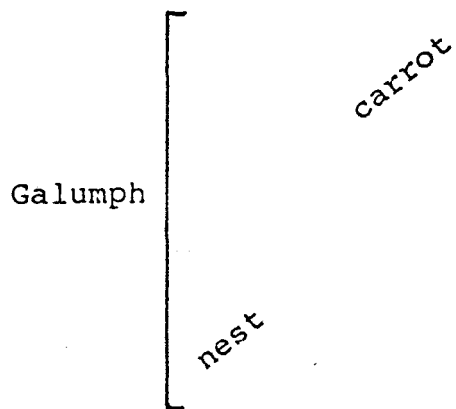
Child 15



Dyad Map



Child 16

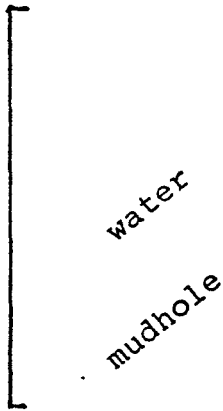


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Dyad Nine

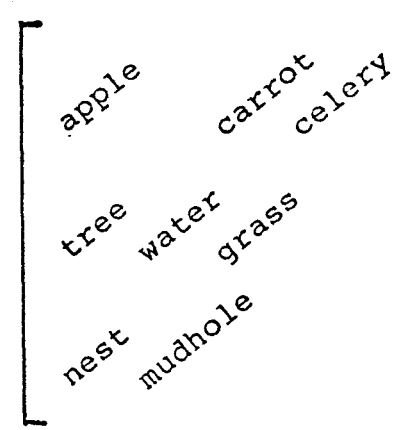
Child 17

Galumph



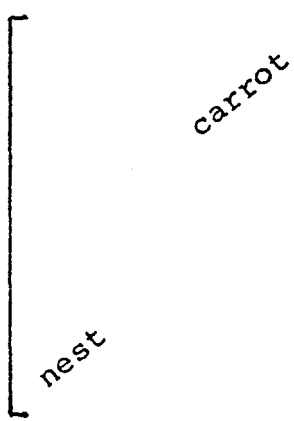
Dyad Map

Galumph



Child 18

Galumph



Semantic Maps forDyad TenChild 19

Galumph

apple orange carrot celery
 tree water grass
 nest mudhole bed

Dyad Map

Galumph

apple orange carrot celery
 tree water grass
 nest mudhole

Child 20

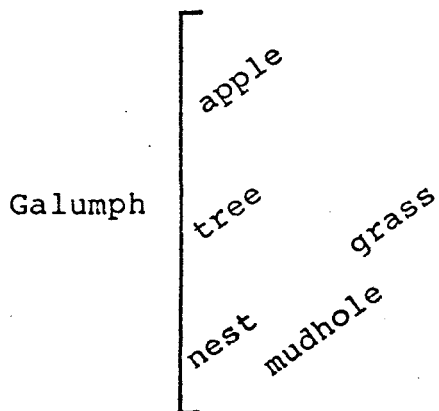
Galumph

apple orange carrot celery
 tree water grass
 nest mudhole bed

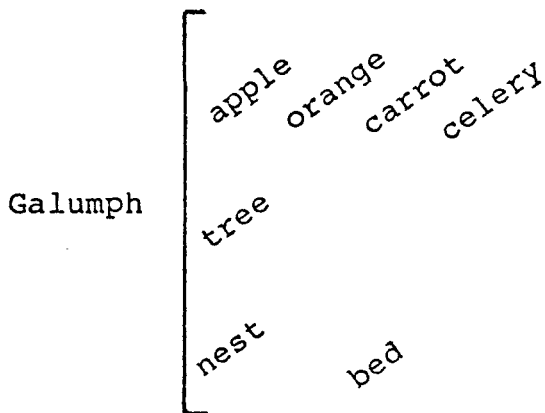
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Dyad Eleven

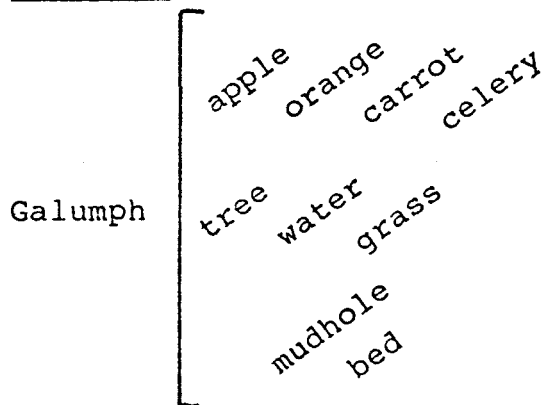
Child 21



Dyad Map



Child 22



Semantic Maps for

Dyad Twelve

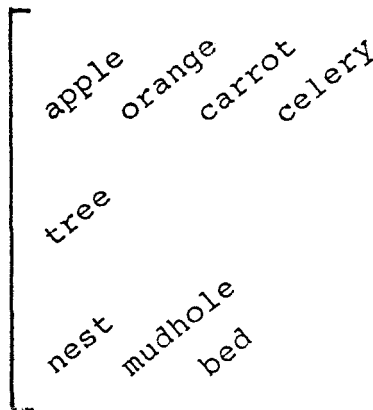
Child 23

Galumph



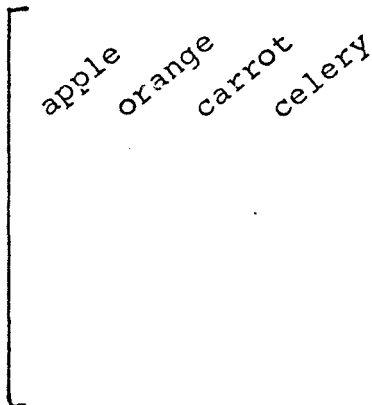
Dyad Map

Galumph



Child 24

Galumph

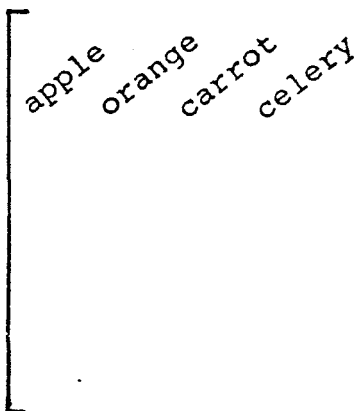


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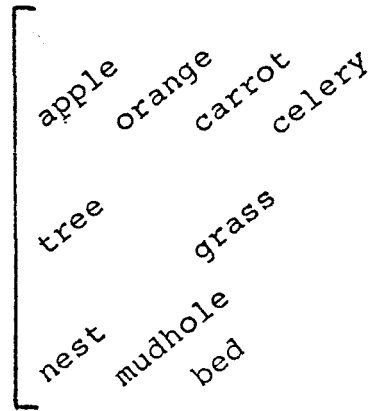
Child 25

Galumph



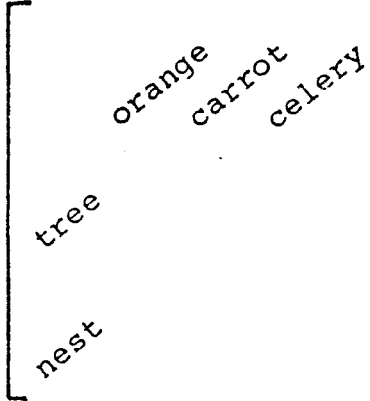
Dyad Map

Galumph



Child 26

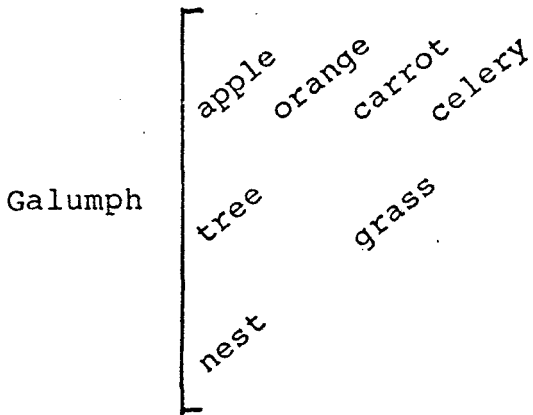
Galumph



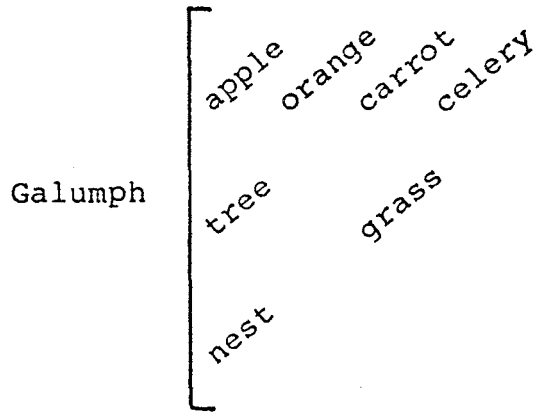
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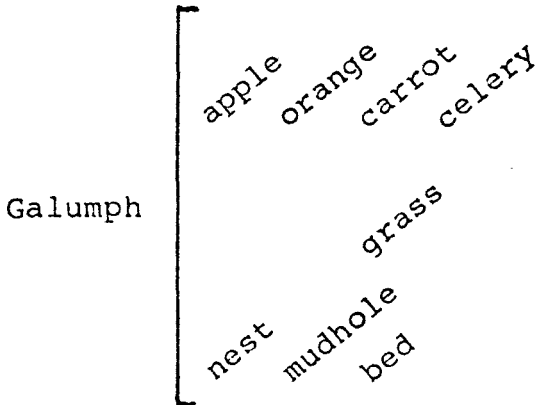
Child 27



Dyad Map



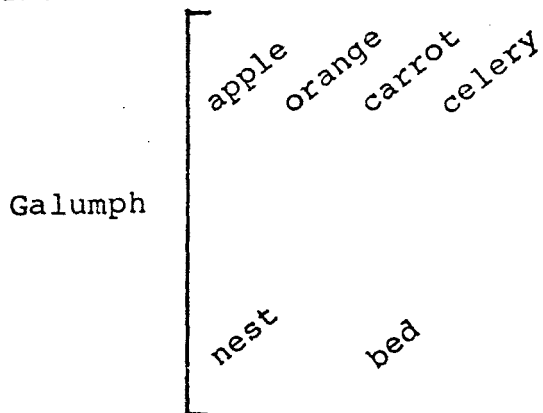
Child 28



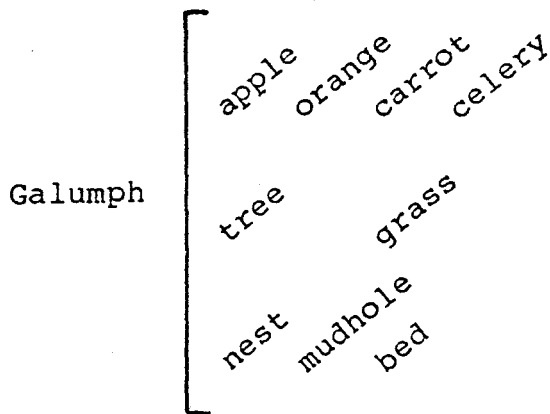
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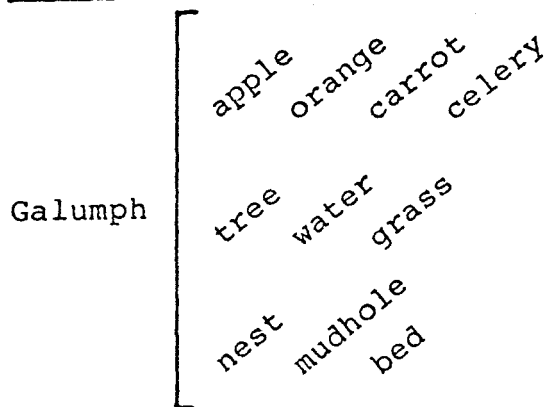
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Dyad Map

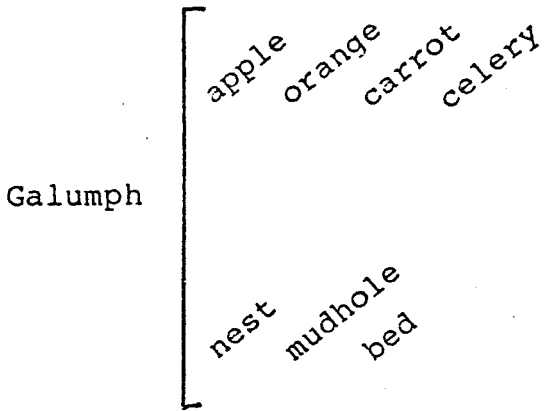


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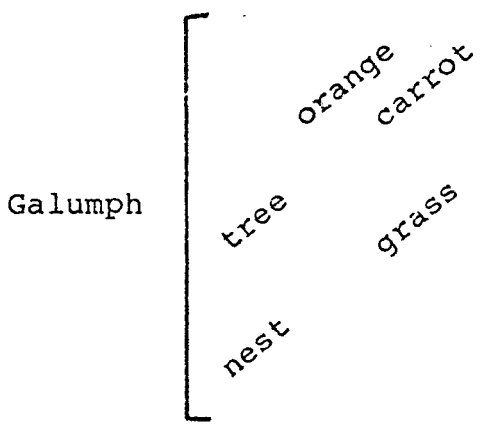


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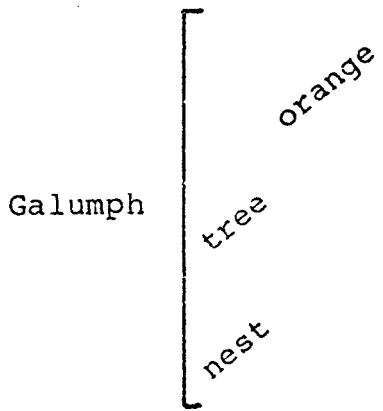
Child 31



Dyad Map



Child 32



APPROVAL SHEET

The dissertation submitted by Shirley K. Morgenthaler has been read and approved by the following committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

April 8, 1981
Date

Gwendolyn Trotter
Director's Signature