A PEDAGOGICAL OBSERVATIONAL SURVEY OF CHILDREN'S COMPREHENSION OF THE PASSIVE

Eric Chappell
B.A., Saint Francis Xavier University, 1976
B.Ed., University of Ottawa, 1978

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Name: Eric R. Chappell

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Examining Committee

Chairman: J. Jaap Tuinman

Janet R. Kendall
Senior Supervisor

Michael A. Massey
Member

Bernice Wong
Member

T. W. Kim
Associate Professor
Department of Languages, Literatures and Linguistics
Simon Fraser University
External Examiner

Date approved October 22, 1980

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A PEDAGOGICAL OBSERVATIONAL SURVEY OF CHILDREN'S COMPREHENSION OF THE PASSIVE

Author: _____
(signature)

Eric R. Chappell
(name)

Oct 22, 1980
(date)

Abstract

Language acquisition studies in recent years have been concerned with establishing a rank ordering hierarchy for acquired language structures. It had been hoped that his hierarchy, once established, would suggest universals of language acquisition. Such research has almost exlusively been based on an analysis of linguistic form: phonological, syntactic and semantic.

Two schools of theoreticians, the sociolinguists and cognitive psychologists, have emphasized the importance of socio-cultural factors in the emergence of language structures. They suggest that the structures used are directly related to the function they serve. Recent research has indicated that language-users modify their utterances in regard to mode of discourse, audience, task and type of question.

This thesis investigated whether function of language exerts a significant effect on language structures. The passive, a structure commonly found by linguistically oriented studies not to be mastered between the ages of seven and nine, was used to look at this problem. specifically, one function of the passive, which is to emphasize the logical object of a sentence, was used to examine children's comprehension accuracy of the passive as it is elicited by picture stimuli. Research has shown that children's verbal responses can be influenced by focusing their attention on certain features of a stimulus. Occurrence and size were used as contrasting dimensions to achieve this focusing.

Illustrations of 12 animals in agent-object and object-agent relationships were used to examine the effect that occurrence (usual and unusual) and size (natural and equal) have on the comprehension accuracy of the passive. A second task, based on the use of passives by adults and the influence that natural forces (e.g., hurricanes, landslides) have on young children's understanding, was designed to test comprehension accuracy when subjects were given both an active and passive sentence. To examine the possibility of a developmental trend, students were divided into two groups based on their age.

Evaluation of children's comprehension of the passive revealed no significant difference on the dimensions of occurrence and size. Significantly more correct responses were elicited with natural force stimuli than with usual occurrence and natural size pictures. When the subjects were divided into an older and younger group, the older children showed a significant increase in correct responses for natural force pictures.

The results suggest that previous studies may have unduly stressed the importance of syntactic factors in the comprehension of the passive. This study indicates that given appropriate tasks which require a functional use of a particular language structure, even very young children have a high degree of accuracy comprehending sentences which have previously been considered difficult. Studies examining language use must take account of function as an important moderating factor.

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CHAPTER 1

INTRODUCTION

> Language (lang'wij) n.1) The expression and communication of emotions or ideas between human beings by means of speech and hearing, the sounds spoken or heard being systematized and confirmed by usage among a given people over a period of time. (Funk & Wagnalls Standard College Dictionary, 1963, p. 761)

Although a long tradition of scholarly language study exists, it has had surprisingly little influence on what most people know about language. Perhaps some of the reason for this is that almost everyone, at one time or another, has been subjected to some version of the Latin and Greek approach to language. This approach tends to assign words to various parts-of-speech classes and to label different types of sentence parts. Typically, grammars based on this notion contain exhaustive lists of declensions, conjugations, rules and exceptions to these rules. The users of the grammar must develop their own intuitions about what goes where in the sentences and about what is not possible. Mistakes

are generally instances of incorrect word usage, for example, using slang or double negatives. The solution to correcting such mistakes is usually prescriptive. Within such an approach one rarely gives thought to the different forces which may influence language.

Returning to our definition, we see that it does include many components which seem indispensible to any critical study of language. It recognizes that language is more than simply learning lists of conjugations and declensions. Language is an act of communication between a speaker and hearer. This communication is made possible by relying on a systematized usage of expression. Thus, while the dictionary seems to offer at least an adequate beginning to outlining what language may be, the traditional approach through which most of us have come offers relatively little.

One immediate issue confronting anyone who wishes to make a serious study of language is that of deciding what the important questions are and what data exist that bear on the questions. Some questions which might be asked are:

How are sounds of speech produced and understood?

How do sentences and words achieve their meanings?

How do the various parts of language hold together?

How do humans acquire language?

Is there a consistent pattern to how language is

acquired?

How does language work in communication? Between two people? In a group of people?

How does language change and vary in space and time? Why does it change and vary?

Do animals have language?

Each of the above questions requires a different kind of investigation. The questions themselves may not be of equal importance, and there is no shortage of data bearing on parts of all of them. The central issue in linguistic investigation is finding the data relevant to answering a particular question which is of widespread interest. Data are valueless in the absence of one or more questions that arise from some kind of researchable hypothesis or theory. As the theory develops and changes different questions will arise. Menyuk, in assessing the multitude of data and theories relating to language development, states that

> depending on one's professional prejudices, lesser or greater emphasis or primacy will be placed on a particular aspect of human behavior or the structure of the human being to explain language development. Thus, neurological or cognitive or social states and changes will be called upon to explain development. (1971, p. 1)

What one proposes to do in linguistics depends on

the questions that one considers to be important and on the availability of data that bear on these questions. The scope of linguistics is not obvious in the sense that everyone does or must agree on what linguistics should be about. The key issue in each case is what the investigator proceeds to do in exploring the specified domain and what insights into language are gained from the exploration.

Context of the Problem

Noam Chomsky's first book, Syntactic Structures (1957), revolutionized the scientific study of language. It was his attempt to answer the question "What is language?" The system of transformational grammar was developed in order to give a mathematically precise description of some of the most striking features of language. Chomsky maintained that language could, and should, be described as a purely formal system. Language is an instrument for the expression of meaning, and it is both possible and desireable to describe this instrument without drawing upon one's knowledge of the use to which it is put.

The transformational grammar, as described by the 1957 model, consists of three types of rules: 1) phrase structure rules which rewrite individual symbols so as to produce strings represented by hierarchical tree diagrams (1957, cf 26) 2) transformational rules which operate on the overall structures of phrase structure strings, so as to produce the strings under-

lying sentences in their final form (1957, cf 61) 3) morphophonemic rules which convert the strings produced by transformational rules into the actual sounds of a sentence (1957, cf 32). Transformational rules can be either obligatory or optional. If only the obligatory transformations are applied, the resulting string will underly a 'kernel' sentence. When both the obligatory and optional transformations are applied, strings underlying more complex sentences can be generated.

In Aspects of the Theory of Syntax (1965) and Topics in the Theory of Generative Grammar (1966) Chomsky reformulated his theory. It includes a semantic component, a syntactic component and a phonological component. Within the syntactic component, there are the categorial rules, the lexicon and the transformational rules. The categorial rules and the lexicon together make up the base. These categorial rules

> define the systems of grammatical relations and determine the ordering of elements in deep structures. (Chomsky, 1965, p.123)

This categorial subcomponent consists of context-free rewrite rules which specify the underlying order of elements that makes possible the functioning of the transformational rules. They may also introduce the initial symbol 'S' into a line of derivation, therefore permitting infinite reuse of the categorial rules. The semantic component is a new addition consisting of rules for semantic interpretation of the meanings

of sentences. The semantic component can be thought of as describing the language user's ability to understand all possible semantic readings of a sentence in the same way as the syntactic component gives the rules for producing all possible grammatical sentences. Which particular sentence is uttered or which interpretation is accepted on any one occasion is, presumably, a matter beyond the scope of a purely linguistic theory.

In both the 1957 and 1965 accounts, Chomsky argues that knowledge of the underlying strings that go to make up a sentence is essential for accounting for the native speaker's understanding of similarity and ambiguity relations between sentences. In the standard theory (1965) deep structures are generated by the phrase structure rules included in the base of the syntactic component. Transformations perform operations on these deep structures in order to map them onto their final form, or surface structure. Every sentence has this deep and surface structure. This emphasis on the role of deep structure relations for understanding semantic relations leads to the crucial proposal that deep structures should contain all the information necessary for semantic interpretation of a sentence. This, then, formalizes the requirement that the output of the syntactic component should provide a basis for the native speaker's awareness of semantic relationships. The rules of the syntactic component provide the structural information necessary for semantic interpretation. But it is the

rules within the semantic component itself that carry out a semantic analysis to arrive at the meaning of the sentence.

Matching this concept of deep structure containing all the syntactic information required for semantic interpretation is the equivalent proposal that the surface structure of a sentence contains all the syntactic information for the phonological analysis. The complete and neatly symmetrical picture is that the syntactic component generates a deep structure for every sentence. The deep structure is the output of the base rules of the syntactic component and the input to the semantic component. The surface structure is the output of the transformational rules and the input to the phonological component. The analysis by the syntactic component is a prior and necessary precondition for both the semantic and phonetic representation. The semantic and phonological components are purely interpretive since they only operate on the output generated by the syntactic component (Chomsky, 1965,p.75).

Since surface structure underlies the phonetic representation of the physical sounds of a sentence, the surface structure of a sentence must consist of linguistic elements in their final derived order after all transformational additions, deletions and permutations have been carried out. The crucial distinction between deep structure and surface structure is that the former specifies the structure of a sentence in such a way as to bring out underlying syntactic relations, even though this may result in an abstract repre-

sentation of constituent strings that is far removed from the final form of the sentence.

Chomsky's transformational approach (1966) was based on dividing the language user's behaviour into competence and performance. Chomsky considers it the role of the linguist to describe a native speaker's competence, that is, the speaker-listener's knowledge of the rules of language: semantic, syntactic and phonological. Performance, on the other hand, is the speaker-listener's actual use of language in real situations under real conditions. Thus, performance in this framework is affected by such factors as the physical state of the speaker-listener, whom the interaction is with, where it is taking place, etc.

> The notion "acceptable" is not to be confused with the notion "grammatical". Acceptability is a concept that belongs to the study of performance, whereas grammaticalness belongs to the study of competence. (Chomsky, 1965, p. 11)

Chomsky considered it extremely important that children are able to derive the structural regularities of their native language, that is, its grammatical rules, from the utterances of those around them, and then can make use of these same regularities in the construction of utterances they have never heard before. In a tranformational generative grammar the deep and surface structures of sentences are related to

each other is a manner described explicity by the rules of transformation. Therefore, a child acquiring a language is acquiring the transformational relations between the deep and surface structures of sentences.

Conceiving of language as the product of evolutionary specialization served to focus McNeill's (1970) attention on two fundamental points: the language itself and the biological support for the language. He suggests that the transformational approach is the best approach available to deal with the first point. In order to approach the second point, he considered an abstract Language Acquisition Device, LAD for short.

> LAD receives a corpus of utterances and from the corpus produces a grammar- that is, a theory of the regularities that hold within the corpus. LAD thereby distinguishes grammatical from ungrammatical structures and develops an ability to understand and produce an unlimited variety of sentences. (McNeill, 1970, p. 19)

This structure would be operative until approximately 12 years of age and permits the child to observe linguistic input from the environment, form hypotheses about its principles and make generalizations in line with language universals so as to produce grammatical language output. The rationalists, represented by the transformational grammarians in linguistic

theory, lay strong emphasis on what is innately specified in the child. Chomsky (1965) accepts that "the proper environmental conditions are necessary for the maturation of these innate structures" (pp. 33-34).

Eric Lenneberg became interested in examining what aspects of language may be biologically determined. His research has lent considerable support to the notions of language universals and innateness of the acquisition process. Lenneberg (1964a) sums up his views by saying that "man may be equipped with highly specialized, biological propensities that may favor and, indeed, shape the development of speech in the child" (p. 69). He suggests that this biological predisposition for language acquisition does not proceed randomly, but that certain regularities characterize the various developmental stages.

The theory of language as held by the transformationalists places linguistics in a major relationship with cognitive psychology. Two psychologists concerned with the developmental aspects of cognitive processes are Bruner and Piaget. Bruner (1966) sees that the very use of language, as formulated in the Chomskian model, presupposes operation of some underlying cognitive process.

> Organic activity can be understood only by recourse to the idea of systems conceived as designed to fulfill functions.

> There is a vast amount of order built into the human body and its nervous system that serves to shape, constrain and support organic functioning. (Bruner, 1968, p. 66)

Piaget, on the other hand, stresses that the grammar of the language is constructed through the child's actions, not through innate structures. Human knowledge is thought of as being essentially active.

> The operative aspect of thought deals not with states but with transformations from one state to another. For instance, it includes actions themselves, which transform objects or states, and it also includes the intellectual operations which are essentially systems of transformation. (Piaget, 1970, p.14)

He would agree with Chomsky in basing language on intellectual structures, although he fails to see why it is necessary to resort to innate characteristics in the child.

> Chomsky goes so far as to say that the kernel of reason on which the grammar of languages is constructed is innate, that it is not constructed through the actions of the infant as I have described but is hereditary and innate. I think that this hypothesis is unecessary, to say the least.
>
> I deny that these structures [that are available to the child] are innate. I think that we have been able to see that they are the result of development.

> Hence the hypothesis that they are innate is, as I have said, unnecessary. (Piaget, 1970, p. 47)

While Chomsky has reversed the classical view that logic is derived from language by maintaining that language is based on intellectual structures, Piaget does not feel that the empirical evidence supports such a stance. The most apparent divergence between Bruner and Piaget is that Bruner considers language to be mediational in the development of thinking; Piaget feels that language expresses the child's intellectual structure but does not serve a mediational function. No matter which view is regarded, it is important to keep in mind that language acquisition and cognitive development are in neither a totally independent nor totally subordinate relationship.

The emphasis on looking exclusively at language itself for generalizations has led to a search for what are called language universals, that is, those properties which all, or most, languages exhibit. Chomsky argues that the general principles which determine the form of grammatical rules in particular languages are to a considerable degree common to all human languages. Chomsky distinguishes two kinds of universals: substantive universals and formal universals. Substantive universals are certain general characteristics which all languages can share. All languages must be built up of a selection from an inventory of possible distinctive features of sounds. All languages will use a selection from a set of categories such as noun and verb and will have ways of referring

to the properties of objects (for example male and female) and to objects, feelings, behaviours, etc. On the other hand, formal universals are the general principles which govern the workings of the grammars of all languages. For example, the fact that transformations apply to constituents, not words, converting one structure into another through addition, deletion and rearrangement, rather than one arrangement of words into another arrangement, is an important formal universal. The necessity of rule sequencing and rule cycling and the very notion of rule itself are other formal universals. According to Chomsky, formal universals are everywhere the same in language. However, in that languages differ in their choice of substantive universals , they may differ considerably from one another. A knowledge of formal universals is also innate in language learners. Their task is to work out from the data around them which substantive universals and what other local elements operate in the particular languages they are to learn. For a complete discussion of Formal and Substantive Universals, see Chomsky (1965, p.27).

The significance of Chomsky's works cannot be over-estimated. The strength of the theoretical background is tremendous, yet many empirical studies (see chapter 2) are mounting evidence that such a formalization of language based primarily on syntax may be inadequate. Does the transformational framework offer a complete picture of what language involves? Put another way, do the questions that can be asked, which are

outside of structural linguistics, offer further insights into language? Structural linguistics tended to separate the form of language from its use and language from communication, just as they have separated competence and performance. As an educator this is not adequate. It is important for educators to know what one can do with language. What is the relationship between language forms and language use? How do people use language to communicate?

New Directions

> Curiously, the use of language for communication has played practically no role in previous treatments of the field. Listening, speaking, and acquisition have usually been considered for the way they reflect language structure - syntax, morphology, and phonology - with little regard for the way they reflect people's aims in communicating with one another. (Clark and Clark, 1977, p.vii)

This lack of concern for the communicative aspect of language is certainly due in part to the influence of the Chomskian school of linguistics. There have been other theorists and many empirical studies which suggest that there are many different important factors in any communication between people. Some of these deserve to be mentioned.

The indirect influence of writers like Austin (1962) and Searle (1969) on exploring communicative language has been considerable. These two philosophers explored the nature of "speech acts", acts performed when one uses languages. Austin, when discussing the way and the sense in which one uses an utterance, for example, asking, assuring, warning, etc., introduced the concept of an illocutionary act. Searle further developed this concept, and he gives a whole table of types of illocutionary acts: requesting, asserting, questioning, etc.

> It is the production of the token in the performance of the speech act that constitutes the basic unit of linguistic communication. To put this more precisely, the production of the sentence token under certain conditions is the illocutionary act, and the illocutionary act is the minimal unit of linguistic communication. (Searle, 1969, p. 139)

It is important to note that in this formulation "linguistic communication" entails much more than merely the syntactic; it is expanded to include intentions in certain contexts. The general orientation of their investigations can best be expressed in the question which Searle poses in the opening sentence of his book, "How", he asks "do words relate to the world?" (1969, p.1)

Dell Hymes realized that if linguistics was to grapple with communicative competence, it would have to deal

with more than simply the grammatical. In suggesting an adequate theory of language users and language use, Hymes suggests the following four questions:

1) whether (and to what degree) something is formally possible;

2) whether (and to what degree) something is feasible in virtue of the means of implementation available;

3) whether (and to what degree) something is appropriate (adequate, happy, successful) in relation to a context in which it is used and evaluated;

4) whether (and to what degree) something is in fact done, actually performed. (Hymes, 1966, p. 19)

As an example, a sentence may be grammatical, awkward, tactful and rare. The goal of a broad theory of competence is to show the ways in which the systemically possible, the feasible and the appropriate are linked to produce and interpret actually occurring language.

For this particular paper, the concern is particularly on the degree to which something is appropriate. Appropriateness seems to suggest readily the required sense of relation to contextual features. Since judgement is made in some defining context, it may always involve a factor of appropriateness. From a communicative standpoint,

> judgements of appropriateness may not be assignable to different spheres, as between the linguistic and the cultural; certainly, the spheres of the two will intersect. (Hymes, 1966, p. 23)

In this sense it would seem necessary to study the context-sensitive rules of a grammar.

The Problem

As the increase in interest in the use of language in situations began to acquire momentum in the early 1960's, many empirical findings (e.g., Johnson-Laird, 1968; Clark 1965; Johnson, 1967) began to show that certain variations in performance could be accounted for without relying totally on the notion of complexity of sentences based on the transformational approach. The next chapter, Literature Review, will discuss these.

Chapter two will examine the divergent findings of researchers who have examined the passive voice in different situational contexts. While these results raise questions as to whether a detailed analysis of language form, by itself, is adequate for a comprehensive examination of language, it will be pointed out that there is an alternate theoretical framework which can account for the wide variations presently apparent in empirical research findings.

Based on an analysis of the passive voice construction

in English and the theoretical perspective as proposed by M.A.K. Halliday (see chapter two) tasks have been designed which will demonstrate that factors other than those accounted for by transformational analysis have a significant influence on the comprehension of the passive. Applying the notion of the function of the passive and the notion of context, it is predicted that the passive structure, heretofore found to be difficult for young children, will be accurately comprehended. The main question asked is:

A) Given appropriate tasks based on the natural function of the passive in appropriate contexts, can children between the age of six and eight years comprehend the passive voice?

Assumptions and Limitations of the study

Several assumptions are implicit in a study such as this. One of these concerns the fact that no control group was used. It is an observational survey of a particular sample population to see if the influence of function on language is apparent within this sample population. The variables that are manipulated will be compared.

The results will apply to this sample population only although they may be generalizable to similar populations. This particular sample was chosen by consulting the school board, the principal and the individual teachers. The actual

students who participated were chosen by the teachers. The tasks were administered by an experienced interviewer with only one child at a time.

Although linguistics as a discipline includes numerous theoretical approaches, the theories presented in this thesis represent approaches which have been influential in producing educational materials. Consequently, the following discussion is not meant as an all inclusive examination of the theoretical approaches available in modern linguistics.

Definition of Terms

Context

As used in this study, context represents any situational variant which may or may not have a direct influence on the comprehension accuracy of the passive voice. For example, given a picture of a cat and then one of a mouse, it would be usual to see them in a "cat chases mouse" relationship. This is derived from our experience as we live in the real world. This experience therefore represents a situational variant when one is presented with the picture of the cat and mouse and so constitutes part of the context for those pictures.

Function

> The specific, natural, or proper action or activity of anything. (Funk & Wagnalls Standard College Dictionary, 1963, p. 541)

In this sense the function of the passive is taken to mean the natural activity which this language form, the passive voice, has evolved to serve in an act of communication between people. For example, in the sentence "The boy was hit by the car." the passive places a greater emphasis on the receiver of the action, "the boy", by making it the grammatical subject. Thus one function of the passive is to change the emphasis in a sentence.

It is important to note that there is no universal agreement on the meaning of the terms "form" and "function" From the educational perspective taken in this study, the term "form" denotes an actually produced active or passive sentence. "Function" refers to the meaning that is conveyed. For example, one function of the passive is to highlight information, in particular the information which is specified as the receiver of the action.

CHAPTER 2

REVIEW OF THE LITERATURE

General Review

A number of empirical studies were motivated by a desire to use tranformational grammar as a tool to investigate language acquistion. Much of this research rests on the assumption that grammars describe the linguistic competence of the language user. This was a direct result of Chomsky's innovation of expressing grammatical rules in a generative form.

One line of investigation was to concentrate on the transfomational component of the grammar. The first experiments were carried out by George Miller and his associates (1964). Miller proposed that speakers when producing complex sentences first generated kernel sentences and then applied a number of optional transformations. The listener on the other hand, had to do the reverse to decode the sentence. (Kernel sentences are found only in the 1957 model. In the 1965 version, a transformation such as the passive would be marked directly in the base component). The main experimental hypothesis that follows from Miller's stance is that each type of transformation is an individual operation that takes a certain measurable amount of time to carry out. A further prediction is that, when several transformations are needed to produce a complex sentence, the times taken for the individual tranformations will be additive.

This would show that the operations are independent and carried out one after the other.

To test these hypotheses Miller and McKean (1964) used a sentence matching task in which each transformational relationship could be investigated individually. For instance, for the active to passive transformation, subjects were presented with a series of sentences, half of which were in the active form and half in the passive. They were told beforehand that they would be required to turn an active into its equivalent passive or vice versa, and then to find the corresponding transformed sentence in a search list of sentences. They were given each sentence separately and asked to press a button when they had made the necessary transformation and were ready for the search list of sentences. The focus of the experiment was on the times taken by subjects to carry out the various transformations. A control condition was included, in which subjects had to search for sentences identical to those presented, thus controlling the time taken just to read the sentences. By subtracting these reading times it was hoped that the remaining time would be a pure measure of transformation time. Following is a list of the six transformations which were tested, as well as the times when corrected for reading (Miller and McKean 1964):

		seconds
active affirmative	passive affirmative	0.81
		0.91
active negative	passive negative	1.01

		seconds	
active affirmative	active negative	0.40	
			0.41
passive affirmative	passive negative	0.42	
active affirmative	passive negative	1.24	
			1.53
active negative	passive affirmative	1.82	

As can be seen from the results, there seems to be ample evidence to support Miller's predictions. The time taken for the two examples of the negative and passive transformations were reasonably consistent. Concerning the prediction about the additivity of times, if one adds together the times taken for the passive and negative transformations, the sum is not far off the time for the double passive and negative transformation. This supports the notion that transformations are individual operations. Finally, it should be noted that, of the single transformations, the passive transformation took longer than the negative.

This experimental approach is described in some detail because it represents the clearest example of deriving a performance model directly from syntactic operations, a clarity that diminished rapidly in succeeding experiments as the effect of an increasing number of non-syntactic factors became apparent. A major criticism of this experiment, in spite of the impressive orderliness of its findings, is that subjects were actually asked to make the transformations and detransformations. While the results show that people can perform

such operations when required to do so and that measures of the times taken to do so reveal interesting and consistent differences, there is no proof that this is what people do when normally producing or comprehending sentences.

As an attempt to get at transformations more directly Savin and Perchonock (1965) asked subjects to memorize sentences of different transformational complexity. The supposition was that they would detransform the sentences and store the kernel (Chomsky's 1957 model), plus a "note" about the transformations required to reconstitute the sentence into its original form. Subjects were to recall orally the presented sentence and a number of unrelated words presented after the sentence. Sentences involving the passive,negatives, questions and combinations of these were used. If the sentence was correctly recalled the number of single words that could be remembered was taken as an index of the amount of extra memory space still available after the sentence had been stored. It was found that the number of extra words recalled was a direct function of the presence of additional transformations, with fewer words being remembered after the more complex sentences. Further, the increment in storage space used up for each transformation was fairly consistent.

These results were in line with those of the Miller and McKean experiment in that performance is again directly related to the number of transformations to be processed.

However, there were some difficulties. In this experiment the extra storage space required for the negative transformation was greater than that for the passive transformation. As Savin and Perchonock point out, there is no basis for predicting the relative difficulty of individual transformations of different types. However, it seems reasonable to expect that different experiments would show the same rank order of increasing complexity due to particular transformations. Another difficulty with the sentence recall paradigm is lack of certainty about what is actually stored by the subjects. Subjects could be trying to remember the sentences as they stood without decoding them. Consequently, this experiment is not a real test of the hypothesis that subjects have to decode sentences into kernels in order to be able to <u>understand</u> them.

This was the motivation behind a series of experiments in which subjects had to decide whether sentences were true or false. The assumption was that in order to evaluate the truth value of sentences they would have to understand their meaning. The predication was that evaluation times would be a function of the number of transformations required to decode sentences into base form. The general experimental design (McMahon,1963; Slobin, 1966; Gough, 1965, 1966) was for subjects to be presented with statements such as "The girl is hitting the boy.", which they had to judge as true or false

in relation to a pictured situation which might or might not show a girl hitting a boy. Active affirmative, active negative, passive affirmative and passive negative sentences were used.

The overall findings show that kernels are the easiest to deal with, sentences with single transformations next, while passive negative sentences take longest to evaluate. These findings again support the idea that response times are a function of the number of transformational operations. However, again there are certain incongruous findings. First, it was found that negative sentences took longer to evaluate than passive sentences. A further complication was that the times for negatives and passives did not have a constant value but varied in relation to whether the sentences were true or false. Thus, whereas true active affirmative and passive affirmative sentences tended to be considerably easier than false active affirmatives and passive affirmatives, with active negatives and passive negatives the trend was in the opposite direction. False negatives took the same or less time than true negatives. Clearly, this goes against the hypothesis that each transformation takes a constant amount of time to perform. It also contradicts the idea that sentences have to be detransformed in order to be understood. This is the case since, if all detransformations have to be carried out prior to any consideration of meaning, there should be no interaction between type of tranformation and

the meaning factor of truth and falsehood.

Other indications that factors involving meaning might be important appear in an evaluation experiment by Slobin (1966) which used both reversible and non-reversible actives and passives. The reversible sentences were those in which either noun could just as well be subject or object, for example, "The boy was hit by the girl". The non-reversible sentences were those in which it would be anomalous to change the subject and object, for example, "The girl is watering the flowers". To put this another way, "The girl is being watered by the flowers" breaks certain selection restrictions on the kind of subject and object that can occur with the verb "waters". Slobin found that these non-reversible passives took no longer to evaluate than equivalent actives, and he argues that this is because, regardless of the form of the sentence, it is obvious which of the two nouns is subject and which is object. It is difficult to explain this equivalence of active and passive evaluation times in terms of the transformational hypothesis, which implies that detransformation of passives into kernels should be a necessary first step before cues of meaning can be taken into account.

As a result of these findings many more studies were begun to test the potential influence of meaning cues or semantic function on sentence production and sentence comprehension. The reasoning behind this research was that neither syntax

nor semantics can be considered in isolation, since the purpose of using different syntactic transformations is to communicate some particular aspect of meaning.

One of the first experiments in this field was by Wason (1965). He investigated the contexts in which it would be natural to use a negative. Wason suggested that one "context of plausible denial" is when a negative is used to correct a misconception. To illustrate this, one would not expect someone to take longer to understand the negative "I am not going to eat lunch today" than the affirmative "I am going to eat lunch today". Assuming that the speaker's normal practice is eating lunch daily, the negative conveys more information by denying something the speaker might normally expect.

To test this hypothesis, Wason presented subjects an array of eight numbered circles, seven of which were red while one, say circle 4 was blue. Since the blue circle is an exceptional item, there is more likelihood to be a misconception that it might be red. The prediction was that it would be natural to use a negative to correct this mistaken expectancy. This was confirmed by the finding that subjects took less time to complete the sentence "Circle 4 is not ...(red)" than the sentence "Circle 7 is not ...(blue)".

An extension of the function of the negative to cover not only cases in which the negative is used to correct a mistaken prior assertion, but <u>all</u> denials of a prior assertion

whether true or false, was suggested by Greene (1970a, b). As Clark wrote in 1970, "a speaker makes an assumption about the beliefs (or apparent beliefs) of his listener whenever he utters a denial." To test this Greene carried out an experiment in which subjects had to decide whether pairs of sentences had the same or a different meaning. She found that, given that "x" and "y" are different numbers, subjects took less time to decide that the following sentences have a different meaning:

"x" exceeds "y"

"x" does not exceed "y"

than that the following two sentences have the same meaning:

"y" exceeds "x"

"x" does not exceed "y".

This result was interpreted as providing support for the view that performance with the negative is facilitated when it is being used to perform its natural function of signalling a change of meaning.

Pairs of active and passive sentences were included as a control and in this the different meaning pairs:

"x" exceeds "y"

"X" is exceeded by "y"

tended to be more difficult than the same meaning pairs:

"y" exceeds "x"

"x" is exceeded by "y".

A further point is that the first "different meaning" negative pair took less time to evaluate than either of the active and passive pairs, showing that when it is being used in a meaning change role the negative causes no special difficulty. This is in contrast to the results of other evaluation experiments in which negatives were often found to be more difficult than passives.

The assumption of the Greene experiment was that the passive transformation is not concerned with meaning change. However, the use of the passive form may carry implications about the relative importance of the logical object (usually the receive of the action) and the logical subject (usually the doer of the action). Johnson-Laird (1968a, b;1969) investigated this using a task in which subjects had to choose between different syntactic forms of a statement in order to communicate a difference in the relative size of coloured areas.

Subjects were presented with long rectangular pieces of paper which were coloured with varying degrees of blue and red. When they were trying to convey that there was a difference in size between the logical subject and object, subjects tended to choose a passive rather than an active form of description. Normally the use of the passive brings the logical object towards the front of the sentence. It was this form which most of the subjects preferred to use when they wanted to emphasize the colour described by the logical object, as in "There is

a red area that is preceded by a blue area.' Interestingly, when they wanted to emphasize the logical subject they still chose a passive but this time the odd inverted form 'There is a blue area that a red area is preceded by' rather than the more common active 'There is a blue area that precedes a red area.' Johnson-Laird argues that the function of the passive is both to draw attention to differential emphasis being placed on the logical subject and object and to indicate this emphasis by changing the word order.

Other experiments have also found that use of the passive increases the relative importance of the logical object. Clark (1965) showed that when people were asked to fill in blanks in active and passive sentence-frames, more animate nouns were used to fill in the logical object position in passive than in active sentences. In active sentences, the actor had much less uncertainty than the verb and object, whereas in the passive sentences, the object, verb and actor did not show noticeably different uncertainties. Clark concludes that the passive sentence-frame was not treated simply as a transformed active sentence-frame, since the pattern of uncertainty in the actor, verb and object and the use of animate nouns as actors and objects differed consistently in the two grammatical forms.

From this evidence, it seems plausible that use of a passive like 'The mouse is being chased by the cat' in place of the form 'The cat chases the mouse' represents a shift in

interest from the logical subject 'cat' to the logical object 'mouse'.

Undoubtedly, choice of a particular form for expressing a statement is determined by a great number of factors. Once one allows one's immediate frame of reference to expand from the strictly syntactic, once one includes language as a means of communication, a multitude of potentially influential factors deserve investigation to assess whether and to what degree they may affect language. Let us now turn to a brief examination of research findings which suggest what some of these other factors may be.

Pope (1974) set out to measure whether or not the use of syntactic rules in the speech of fourth graders varies with the types of discourse, explanatory and narrative. Sixty fourth graders produced a sample of each. Subjects were shown a short film and then asked a) for the narrative speech, to tell the story of say the ant and the dove b) for the explanatory sample, to tell how each of the animals protected themselves While he had difficulty getting all of his subjects to produce the speech responses he was searching for, approximately one sixth of his sample would not or were not able to respond in the narrative, his study points to the potential difference between these two modes of speech. He found that there were almost twice as many and larger T-units in explanatory speech. Of eighteen structure transformations, only the coordinated predicate occurred more frequently in narrative samples. Ten

structures were more frequent in explanatory speech: the relative clause, adjective and possessive; the noun clause; the time clause, cause clause, condition clause and the adverbial comparative phrase; the coordinated nominal and the coordinated non-finite-verb. On seven other structures Pope found no difference between the explanatory and narrative speech samples.

Smith (1977) found that the type of question and the type of stimuli significantly changed how a child answered questions. Her subjects were from grade two and grade four. She was interested in recording possible differences between factual and interpretive responses to stimuli which were presented either orally or in a picture. She found that to answer interpretive questions, both second and fourth graders used significantly larger average communication units. Fourth grader's responses were larger than those of the grade two's. To answer factual questions, however, both groups used about the same length of communication unit. The subjects were also found to respond with longer units when listening, as opposed to being shown a pictorial stimulus. This was only found to be significant for interpretive responses.

Crowhurst and Piche (1979) examined the effects of intended audience and the mode of discourse on the syntactic complexity of compositions. At both grade six and grade ten, 120 students completed assignments for a 'best friend' and 'a teacher'. These tasks involved narrative, argumentive and

descriptive compositions. Three different pictorial slides were used as stimuli. For narrative assignments students were asked to write an exciting story about the picture. For the descriptive assignment, they were asked to describe the picture as fully as possible. To get samples of argumentive speech, students were asked to imagine trying to convince someone who disagreed with you on what the picture meant. Their results showed that there were no significant changes in syntactic complexity at the grade six level when there was a change in audience, however at the grade ten level a substantial change was evidenced. This difference was most clearly evident in the mode of argument. Crowhurst and Piche speculate that this is because argument demands greater attention to audience than either narration or description. Mode exerted an obvious influence and was found to be significant at both age levels. Argument samples were more syntactically complex than narration and description. It is also interesting to note that there was no significant difference in narrative samples between grade six and ten..

In a replication study Crowhurst (1980) also found mode to have a substantial effect.

> The difference in writing task produced a greater difference between students in the same grade than was produced by a four-year age difference. (p. 7)

She draws two conclusions: 1) while syntactic complexity

increases with age, it may be the case that it does not continue to increase in all kinds of writing. 2) given the differences in syntactic complexity produced by task,

> Age norms which take no account of differences in syntactic complexity produced by differences in writing task are meaningless. It would be more useful if developmental norms were established for each grade level in each of several different kinds of writing.... Even then, however, the norms would not reflect the importance of other situational factors which have been found to effect syntactic complexity - audience and topic, for example. (Crowhurst, 1980, p. 11)

Based on the results of the numerous studies already mentioned, it is readily apparent that many different factors influence language. What is actually said or understood is the result of who says it, to whom it is said, how it is said, etc. In short, language as a means of communication depends not only on learning syntactic, phonological and semantic rules as they are formulated in the transformational approach, but also depends on its use by people in our communities. One important study which has examined how children use language has been undertaken by Tough (1976, 1977). While studying 48 children she was concerned with the child's growing ability

to use language for conveying meaning. The children came from heterogeneous home environments, and language samples from their contrasting home environments were recorded in standard play situations for three year olds, and in interviews with five and seven year olds. There were differences in the frequency of the use of particular linguistic features, in the length of utterences and in the complexity of structures in the speech samples of children coming from homes where the parents were of different educational backgrounds. There were also important differences in the purposes for which language was used. (See Appendix A for a complete list of the uses of language and the supporting strategies which she isolated.) It is an important fact that she was able to tabulate so many apparently different language samples into only seven major uses. It raises questions as to whether such uses underlie all of human language and whether use plays a significant role in the total development of language as a communication system. That Tough believes language use is an important aspect in communication, but that it has largely been neglected, is evident from the following:

> While tests may give us the number and degree of complexity of language forms used by children, they cannot tell us when or for what purpose the child will use language, nor how he is disposed to use language to add to his general knowledge and under-

> standing of the world around him. Tests cannot tell us how he naturally uses language. Most measurements and test are designed to examine the child's mastery of the language system. They can tell us whether he has learned verb agreement, noun plurality, etc., but fail to tell us anything about the child's use of language. (Tough, 1976, p. 82)

This is perhaps a good summation of the penetrating influence which the analysis of the American structuralists have had on assessing language development. Given the extremely rich abundance of research findings that point towards a more comprehensive notion of language than the transformationalists offer, it seems time to explore more flexible theoretical frameworks. It is time to examine the function of language as it fulfills the human need to communicate.

Evolution of the functional framework as used by M.A.K. Halliday.

The concern for the function of language gradually grew out of a British tradition which was concerned with fully expanding a cultural context in order that a cultural event be fully understood. It is this notion of context which Malinowski (1923), as an anthropologist, left to Firth. From 1930 on, Firth was to develop the notion of context of situation as it could apply to language. He was able to use it to elaborate the notion of meaning. Halliday (1971), continuing

on in the tradition of analysing language with regards to its total context, is also concerned with what language can accomplish. That is to say that he is concerned with what function language can perform.

General linguistics in London has borne a distinctive impression from being associated with two well-known schools: the school of Phonetics, founded at University College by Daniel Jones, and The School of Social Anthropology first built up by Bronislaw Malinowski at the London School of Economics and continued under his successor Raymond Firth. This particular combination of influences may help account for the "spectrum" method (Firth, 1957) of handling linguistic material. This particular amalgamation has lead to a framework for studying language in which the use to which language is put is an integral part. In its most developed form M.A.K. Halliday's systematic treatment of language is in some senses a culmination of this merging of ideas.

As an anthroplogist Malinowski was concerned with providing the field worker with a theory which would result in a clear perspective and a full set of instructions regarding what to observe and how to record. He insisted that unless cultural phenomena are defined in terms of function and of form, the result will be unrealistic theories of evolution (1944). From the point of view of method and theory of field

work, the functional conception of culture is considered to be the most important principle. To study details detached from their setting must inevitably "stultify theory, field work, and practical handling alike" (Malinowski, 1945, p. 41). From this point of view, culture appears as a vast conditioning apparatus which, through training, the imparting of skills, the teaching of norms and the development of tastes, combines nature and nurture; it produces beings whose behaviour cannot be determined by studying isolated pieces such as physiology or psychology alone.

Malinowski felt that technical skills as well as organization were based on one specifically human characteristic: the development of symbolism, that is, of abstract concepts primarily embodied in language.

> Language and abstract thought are the vehicles of knowledge, of beliefs, of legal systems and tribal constitutions. Through the use of language, tradition and education, that is, the continuance of tradition are made possible. (Malinowski, 1945, p. 43)

Malinowski started from the axiom that culture is an instrumental reality, an apparatus for satisfying fundamental needs: organic survival, environmental adaptation, and continuity in the biological sense. He also detailed four instrumental imperatives; economic organization, the normative system, the organization of force and the mechanisms of education. The material machinery of culture and human behaviour

are maintained, regulated and preserved by a body of traditional lore. This is all made possible by language. the instrument through which man can formulate rules of universal validity and compress them into verbal concepts. To every system of verbal knowledge there corresponds a system of standardized techniques for executing an action.

Thus in a functional analysis, culture is regarded as a socializing agent which gives humans mastery of the environment, maintenance of the species, integrity of the individual and cohesion of groups.

As a social anthropologist and ethnographer, Malinowski was interested in the analytical and functional study of culture, and throughout his work he made the fullest use of language possible to him in stating and commenting on his facts. He looked at language in this ethnographic perspective, using the concept of context of situation in order to give an outline of a semantic theory useful in the work on primitive linguistics, and shed some light on human language in general. He saw the need for the development of a more comprehensive linguistic theory, one which would also include a study of historical change and evolution:

> ...there is an urgent need for an Ethno-linguistic theory,.... A theory which, moreover, aims not at hypothetical constructions -'origins', 'historical developments', 'cultural transferences' and similar speculations- but a theory concerned with the

> intrinsic relation of facts. A theory which in linguistics would show us what is essential in language and what therefore must remain the same throughout the whole range of linguistic varieties; how linguistic forms are influenced by physiological, mental, social and other cultural elements; what is the real nature of Meaning and Form, and how they correspond.
> (Malinowski, 1920, p.69)

Malinowski's main interest was in the problem of meaning. The theory that arose developed from his study of primitive societies and his attempts to make textually accurate translations into English. The key concept which he found most useful in this work on natural languages was the notion of 'context of situation'. Language is far from self-contained. It is entirely dependent on the society in which it is used in two senses: first, it has evolved in response to the specific characteristics of that society, so that its nature and use reflect specific characteristics of that society; secondly, its use or any instance of its use in that society is entirely context dependent.

> ... utterance and situation are bound up inextricably with each other and the context of situation is indispensable for the understanding of the words.
> (Malinowski, 1923, p.121)

Malinowski went on to distinguish between the immediate <u>context of utterance</u> and a general, which was also generalizable,

context of situation. It is through this notion of context of situation that Malinowski maintained the link between the cultural organization and the reflection of this organization in the structure of the language.

That Malinowski's functionalism was extended to language is clear from his Supplement to Meaning of Meaning:(1923) "The lack of a clear and precise view of Linguistic function and of the nature of Meaning has been, I believe, the cause of the relative sterility of much otherwise excellent lingusitic theorizing" (1923, p. 471). Malinowski defined meaning as being derived not from a passive contemplation of the word, but from an " analysis of its functions, with reference to the given culture". The major functions of language which he identified in one Polynesian society are: the pragmatic function, or language as a form of action; the magical function, or language as a means of control over the environment; and the narrative function, or language as a storehouse of useful and necessary information through its preserved accounts of history.

Although he was an anthropologist, Malinowski's outstanding contribution to linguistics was his approach in terms of his general theory of speech functions in contexts of situations, and how he applied it to the problem of meaning in exotic languages. Firth was to take these notions of context and function so that they could be unified and used as a means of relating the statement of function in a context to a description of linguistic units.

In The Tongues of Men (1937) and Speech (1930) Firth laid down an outline of what he considered the fundamental nature of language and of linguistic studies should be. These books also signalled the beginning of many concepts which he would continue to develop. Throughout these two books Firth insisted on the importance of meaning as part of language. In the tradition of sociology and anthropology, which for him was essential to a view of language as a social phenomenon, he developed Malinowski's idea of 'context of situation'.

Speech is personal as well as social and interacts with other forces in a situation. For Firth anything that a person may say or write as an individual in a specific situation on a particular occasion is speech. To this he adds the notion of 'tact'. This is a complex of manners which determines the use of fitting forms of language as functional elements of a social situation. To further clarify this notion of how speech and tact are interwined, Firth introduces the notion of "set".

> If we assume there are certain fundamental urges, drives, feelings, sentiments, we can regard certain forms of linguistic behaviour and other social behaviour as manifestations of such 'sentiments', which are the most general elements of what we have called 'set'. (1937, p. 96).

Accordingly, there is a close association of the appropriate language component and a person's "set"; that is to say that language behaviour may be observed in an actual context of

situation, as well, it can be regarded as manifestations of the particular "sets" which speakers bring to a situation. What a person actually says in a given speech situation is at that moment a dominant process in the working of his or her "set" and is also a dominant factor in the situation. These sets are the means of linking selected input with appropriate output.

> What your are born with and what you make of it, your hereditary nature and your second nature, become one in what you call your 'education and upbringing', your type, your feelings and beliefs, your ideas, your mind your memory and experience, your character and personality, and every time you open your mouth you show the sort of man you are. (Firth, 1937, p. 89)

Firth next turned to the study of what words actually mean. Within this context he also looked at the notion of semantics and of changes in meaning. Through a study of the fundamentals of meaning, the study of semantics, he found that there were three principle which had a bearing on semantics: first the meaning a word has morphologically; second the meaning of words in complete contexts; and third the meaning of words as viewed historically. Firth noted that this study of semantics was traditionally a study of change. He felt that this approach to semantics had to be clearly separated from the purely formal and positional categories of grammatical description in order to facilitate a thorough contextual

study of meaning on sociological lines.

In answer to the question, What do words mean? Firth would likely respond that they mean what they do; they are both affecting and effective. This type of response is the result of his stance which unifies mind and body into a single concept. Firth fails to respect a duality of mind and body and thought and words, and regards the human as thinking and acting as a whole.

Within this framework, meaning is best regarded as a complex of relations of various kinds between the various components of a context of situation. Such a situation is a patterned process conceived as a complex activity with internal relations between its various factors. For example, in a common conversation about people and things present to the senses, the most important "modifiers" and "qualifiers" of the speech sounds are not the words, but the perceived context of situation. In other words "meaning" is a property of the mutually relevant people, things and events in the situation. Some of the events happen to be the noises made by the speakers.

> It is important to realize that 'meaning' is just as much a property of the people, their 'sets', their specific behavior, the things and events of the situation as of the noises made. [Speech is] ...a kind of bodily behavior in adjustment to surroundings, vocal action in the handling of situations. (Firth, 1937, p. 111)

Firth further splits meaning or function into a series of five principal component functions; the phonetic function; the lexical function; the morphological function; the syntactic function; and the semantic function. Each function is defined as the use of some language form or element in relation to some context. Thus meaning is regarded as a complex of contextual relations and each of the five principal functions handles its own components of the complex in its appropriate context. The phonetic element is considered a minor function within a linguistic form. Its function is its use in a context in contradistinction to other possible substitution counters. The morphological and syntactical functions account for further components of meaning in grammatical contexts at the grammatical level of understanding. Within a definite context of situation the semantic function is determined a) positively by the use of words in relation to the rest of the situational context. and b) negatively, by what is termed contextual elimination. For Firth the context of situation as a view of language is closely dependent on stateable general types of situation. A contextual statement is both a) a statement of the other terms in the system which provide the context for the term under consideration and b) a statement of the context in which the system operates.

Considered in this manner, the central concept of the whole of semantics is the context of situation.

By this time we are accustomed to the subdivision of

> meaning or function. Meaning, then, we can use for the whole complex of functions which a linguistic form may have. The principal components of this whole meaning are phonetic function, which I call a 'minor' function, the major functions - lexical, morphological and syntactical (to be the province of a reformed system of grammar), and the function of a complete locution in the context of situation, or typical context of situation, the province of semantics. (Firth, 1935, p. 33)

The technique which Firth has sketched is an empirical rather than a theoretical analysis of meaning. It can be described as a serial contextualization of facts, context within context, each one being a function of a larger context and all contexts finding a place in what may be called the context of culture. Thus, Firth's basic principle is a dispersion of meaning at a series of congruent levels of analysis; at each one statements of meaning are made in linguistic terms. The principle underlying all linguistic description is the statement of the function of linguistic items in their context, and this for Firth is meaning.

> My view was, and still is, that 'context of situation' is best used as a suitable schematic construct to apply to language events, and that it is a group of related categories at a different level from grammatical categories but rather of the same

abstract nature. A context of situation for linguistic work brings into relation the following categories:

a) the relevant features of participants: persons and personalities

   i) verbal action of participants

   ii) non-verbal action of participants

b) the relevant objects

c) the effect of verbal action (Firth, 1950, p. 182)

Thus the context of situation is a convenient abstraction at the social level of analysis and forms the basis of the hierarchy of techniques for the statement of meanings.

While Firth derived his theory of context of situation from Malinowski, he nevertheless developed upon his own lines and produced what is essentially quite a different theory. It has become more abstract and general in form as one of several levels of linguistic analysis, all of which should be congruent.

After Firth, Halliday continues to apply and develop the notion of "context of situations" as it applies to language. While Halliday, in Categories of a Theory of Grammar (1961), states that he derived his notions of scale and category grammar from Firth, his evolved theory appears to depart significantly from that of his predecessor. As much of the terminology used by the two is similar, it can often be confusing. Following is a sketch of Halliday's framework.

Halliday takes a functional view of language in the sense that he is interested in what language can do or rather

in what the speaker can do with it. This approach attempts to explain the nature of language, its internal organization and patterning, in terms of the functions that it has evolved to serve, that is to say that language is as it is because of what it has to do.

Looking at the early stages of language development, Halliday (1974), based on examining the language of one child, found the following functions:

1) instrumental ("I want"); satisfying material needs; refers to the fact that language allows speakers to get things done; it allows people to manipulate the environment.
2) regulatory ("do as I tell you"); controlling the behaviour of others; refers to language used to control events once they have happened.
3) interactional ("me and you"); getting along with other people; this includes any use of language which helps to define and maintain a group; e.g., slang, dialects, jargon.
4) personal ("here I come"); identifying and expressing the self; language used to express the individual's personality.
5) heuristic ("tell me why"); exploring the world around and inside one; language used as an instrument itself in order to acquire knowledge and understanding, that is, language that is used to learn

6) imaginative ("let's pretend"); creating a world of one's own; language used to create imaginary systems; these may include literary works, philosophical systems or may be simple daydreaming.

7) informative ("I've got something to tell you"); communicating new information; in general an exchange of information.

The very young child in his or her first ventures with language, keeps the functions of language fairly clearly separated. When children speak they are doing only one thing at a time, e.g., asking for some object, responding to a greeting, expressing interest or whatever it is. In general, the ability to use language in abstract and indirect contexts of situation is what distinguishes the speech of adults from that of children. All language functions in contexts of situation and is relatable to those contexts. Halliday determined that three variables limit the range within which meanings are used for an expression. These are:

a) what is actually taking place

b) who is taking part

c) what part the language is playing.

The very young child learns that language can be used for a small set of uses or functions. At this stage, use and function are synonymous. This child at first creates a semiotic system to serve this end. For example, children learn that language can be used in a regulatory function to get people

to do what they desire. Within this function children learn to express a small number of meanings, building up a system of context/expression pairs, where the expression is derived entirely from their own resources. Therefore, in functional terms, it can be said that the child creates a language. Then at some point the child, having established the main functions of a semiotic, begins to switch and take over the adult system. The expressions of the adult system are mapped onto the child's function framework.

Halliday sees this happening through a gradual separation of the two notions of function and use; the functional framework is built into the linguistic system and the original uses of language continue to expand as the child uses language in new ways. This separation is believed to come about

> through internalizing a fundamental distinction between pragmatic uses of language, those which demand a response, and represent a way of participating in the situation, and what I call 'mathetic' uses of language, those which do not demand a response but represent rather a way of observing and of learning as one observes. (Halliday, 1974, p. 113)

These abstracted functions grow out of the child's original set of concrete functions, and gradually become components of the linguistic system.

There comes a stage when the child's use of the adult language system will enable him/her to mean more than one

thing at once. The earlier functions of the child are incorporated into highly abstract metafunctions: the pragmatic function into the interpersonal function in the linguistic system and the mathetic function into the ideational function in the linguistic system. In the earlier stages of the child's language

> the functions stand in an 'either ...or' relationship- the child is using language either to do this or to do that- the beauty of the adult linguistic system is that he can do more than one thing at once. In fact he must do more than one thing at once, because now, in the adult stage, every time he opens his mouth he is both observer and intruder at the same time. (Halliday, 1974b, p. 115)

The child's system has two levels and has a content and an expression. The adult system has three levels: a content, form and expression. The adult language system also has a textual component. This is what makes language relevant. It enables meanings in the ideational and interpersonal functions to be actualized.

Thus for Halliday, investigating the language development of young children involves two important aspect. The first concerns the language they invent for themselves on the basis of the set of elementary uses or functions of language which reflect the developmental needs, potentialities and achievements of the infant. The second concerns their tran-

sition to the adult language, a language which is still functional in its origins but where the concept of "function" is no longer synonymous with "use", but has become more abstract. It has become a metafunction.

Figure 1 represents the process which the child undergoes to construct a meaning potential. The child begins (Phase I) by developing a semiotic of his or her own; it is a language which has meaning in certain culturally defined and possibly universal functions. As previously described the functions are: instrumental, regulatory, interactional, personal, heuristic,informative and imaginative.

Phase II is a functionally transitional stage when the child embarks on mastering the adult system. An additional level of coding is added: a grammar is placed between the sounds and the meanings. Functionally,however, there is no discontinuity; language continues to function for the child in the same contexts as before. The addition of a grammatical system opens up the possibility of functional combination; the child can mean more than one thing at once. By generalizing from his set of functions, the child creates an opposition between language as doing and language as learning. In Halliday's terminology, these are the pragmatic and the mathetic functions respectively.

By phase III the child has mastered the principle of an intermediate, lexicogrammatical level of coding as well as the principle of dialogue, that is, the adoption, assignment

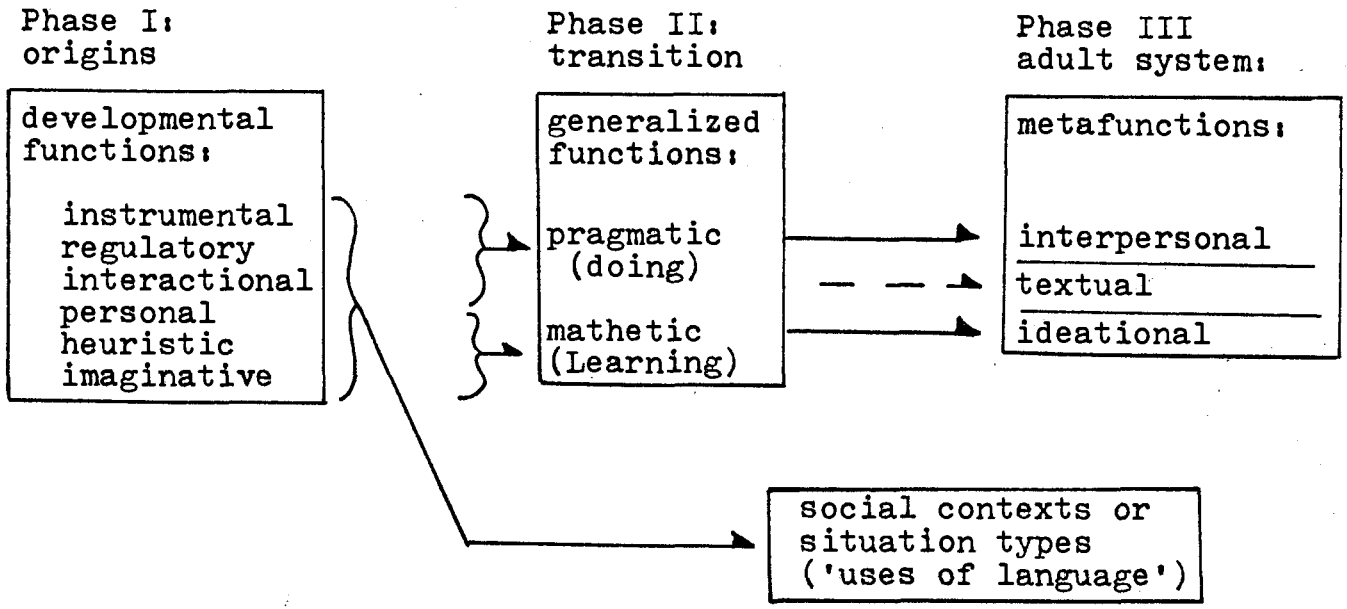


Figure 1

Schematic representation of the child's linguistic system. Adapted form M.A.K. Halliday Social aspects of semantic change. In Heilmann, Luigi (ed.), Proceedings of the Eleventh International Congress of Linguistics. Bologna: Il Mulino, 1975, p. 861.

and acceptance or non-acceptance of communicative roles. These are social roles that come into being only through language. The semiotic substance of the pragmatic/mathetic distinction, between language as doing and language as learning, is now incorporated into the grammar in the form of the functional distinction between interpersonal and ideational functions in the adult system. At the same time the child begins to build in a third component, the textual. This is what makes it possible to create language that is structured in relation to the context of its use (that is, "context of situation"). When these processes of functional development are completed, the child has effectively entered the adult language system.

Within this theory, function has two main characteristics:

a) function refers to the social meaning of speech acts in context of language use;

b) it refers to components of meaning in the language system.

Figure 2 is a schematic representation of the adult's language system. To help clarify what Halliday means by each of these categories, a short definition of each one follows.

A text is "what is meant", selected from the total set of options that constitute what can be said; it is the linguistic interaction in which people actually engage. Text

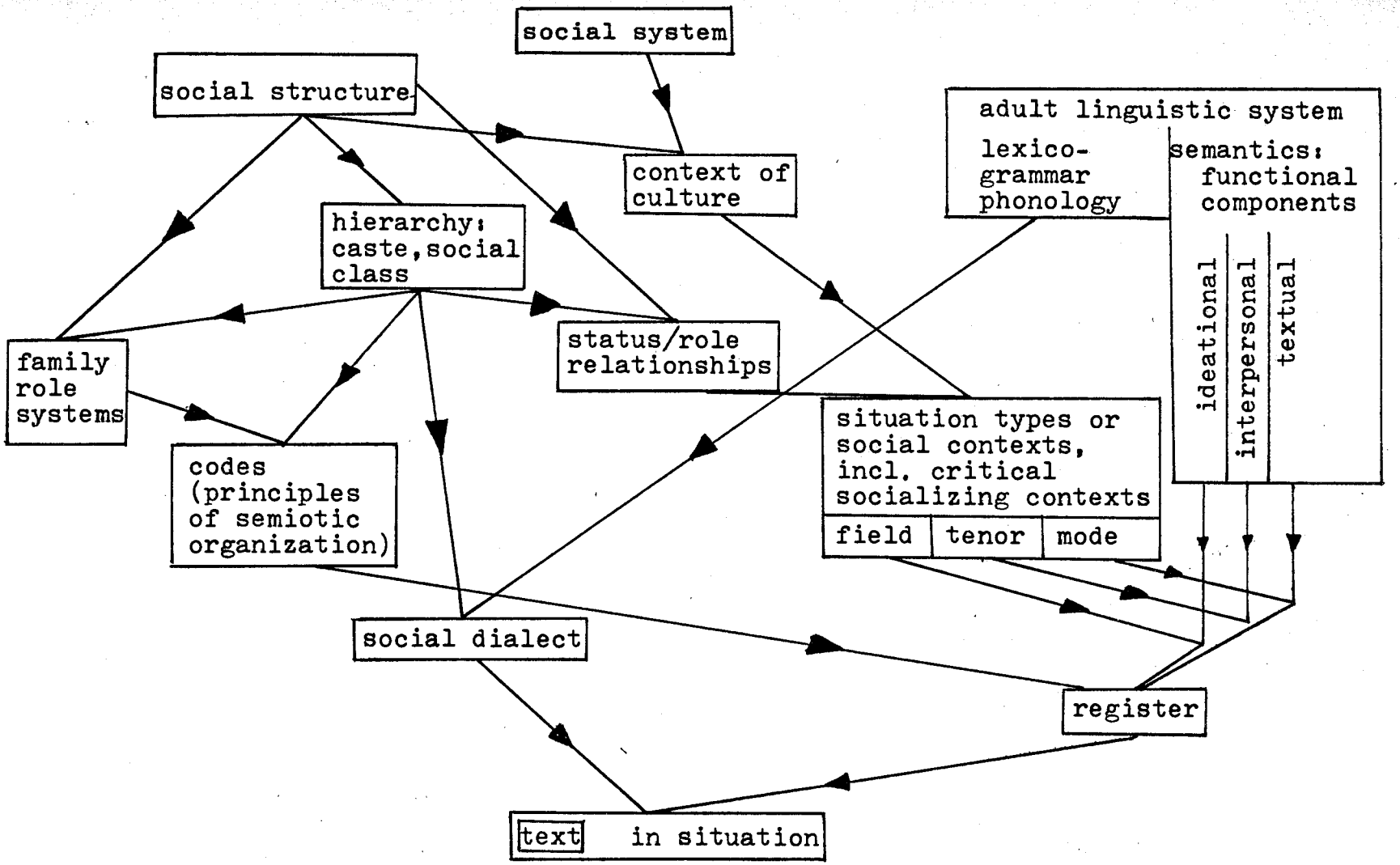


Figure 2

Schematic representation of the adult's language system.
Adapted from M.A.K. Halliday, Social aspects of semantic change.

can be defined as actualized meaning potential.

The situation type is the environment in which text comes alive. The semiotic structure of situation type can be represented as a complex of:

a) field - the social action in which the text is embedded. It includes the subject matter.

b) tenor - the set of role relationships between participants. It includes the level of formality.

c) mode - the channel or wavelength selected. Essentially it is the function that is assigned to language in the total structure of the situation. It includes the medium, spoken/written.

Register is the semantic variety of which a text may be regarded as an instance. The dialect is what a person speaks, determined by who he or she is; the register is what a person is speaking, determined by what she or he is doing at the time. Thus register is the configuration of semantic resources that the member of a culture typically associates with a situation type. Register is all of the potential forms of a text.

The principle of semiotic organization governing the choice of meanings by a speaker and their interpretation by a hearer is the code. Codes are symbolic orders of meaning generated by the social system. They transmit or control the

transmission of the underlying patterns of a culture or subculture, acting through the socializing agencies of the family, peer groups, the school, etc.

Within the linguistic system Halliday assumes a model with a semantic, a lexicogrammatical and phonological stratum. In this framework, however, it is the semantic system that is of primary concern. The functional components of the semantic system (the metafunctions) are the ideational, interpersonal and textual. These are the modes of meaning that are present in every use of language in every social context. The ideational function represents the speaker's meaning potential as an observer. The interpersonal component represents the speaker's meaning potential as an intruder. The textual component represents the speaker's text-forming potential; it is that which makes language relevant.

Social structure defines and gives significance to the various types of social context in which meanings are exchanged. Also, through its embodiment in the types of role relationships within the family, the social structure determines the various patterns of communication; it regulates the meanings and meaning styles that are associated with given social contexts, including those contexts that are critical in the processes of cultural transmission. It also enters in through the effects of social hierarchy in the form of caste or class. This is the background to social dialects.

Within a system where semantics plays such a crucial

role a set of context-specific semantic descriptions is implied such that each one should characterize the meaning potential that is typically associated with a given situation type. In other words a semantic description is a description of register. The set of semantic options that constitute a meaning potential are sociolinguistic in nature (Halliday, 1974a, p. 99). In such a semantics, the elements realize social meanings through linguistic forms. To put this another way, each option in the semantic network is interpreted in the semiotic of the situation and is also represented in the lexicogrammar of the text.

The semiotic structure of a situation type can be represented in terms of the three general concepts of field, tenor and mode. There is a systematic correspondence between the semiotic structure of the situation type and the functional organization of the semantic system. Each of the main areas of meaning potential tends to be determined or activated by one particular aspect of the situation as shown in the following diagram (1975, p. 27).

semantic components		situational elements
ideational	systems activated	field
interpersonal	by features of	tenor
textual		mode

In other words, the type of symbolic activity (field) tends to determine the range of meaning as content or language in

the observer function (ideational). The role relationships (tenor) tend to determine the range of meaning as participation, or language in the intruder function (interpersonal). The rhetorical channel (mode) tends to determine the range of meaning as texture or language in its relevance to the environment (textual). The semiotic features of the situation activate corresponding portions of the semantic system, in this way determining register, the configuration of potential meanings that is typically associated with the situation type, and then becomes actualized in the text. Table I is an example of determining the semantic features by elements of semiotic structures of situation based on a child's play situation.

This synthesis presupposes an interpretation of the social system as a social semiotic. It presupposes an interpretation of a system of meanings that constitute the whole of culture. This would be the highest level to which language is related.

Following is a brief summary of Halliday's framework. Social interaction typically takes a linguistic form, which we call text. A text is the product of infinitely many simultaneous and successive choices in meaning, and is realized as lexicogrammatical structure or "wording". The environment of the text is the context of situation. There may be different situation types. The situation type is a semiotic construct which is structured in terms of field, tenor and mode; respectively, these are the text-generating activity, the role

	situational	semantic	
Field	manipulation of objects	process type and structure	Ideational
	assistance of elder	benefactive	
	movability of objects and fixture and their relation to each other	type of relevant object type of location and movement	
	recall of similar events	past time	
	evaluation	modulation	
Tenor	interaction with elder	person	Interpersonal
	determination of action	mood and polarity	
	enunciation of intention	demand,'I want to'	
	control of action	demand,'I want you to'	
	sharing of experience	statement/question, momologue	
	corroborating experience	statement/question, dialogue	
Mode	dialogue	ellipsis (question-answer)	Textual
	reference to situation	exophoric reference	
	textual cohesion: objects	anaphoric reference	
	textual cohesion: processes	conjunction	
	further child's actions	theme	
	orientation to taks	lexical collocation and repetition	
	spoken mode	information structure	

Table I

Determination of semantic features by elements of semiotic structures of situation based on a child's play situation. Adapted from M.A.K. Halliday, Language as Social Semiotic.

relationships of the participants, and the rhetorical modes they are adopting. They are related to the ideational, interpersonal and textual components of the semantic system. These represent meaning as context (the observer function of language), meaning as participation (the intruder function of language) and meaning as texture (the relevance function). They, field ↔ ideational, tenor ↔ interpersonal, mode ↔ text, are related in the sense that each of the situational features typically calls forth a network of options from the corresponding semantic component. In this way the semiotic properties of a particular situation type and its structure in terms of field, tenor and mode, determine the register (the semantic configuration). The code, which is the principle for the organization of social meaning of a particular slant, regulates these changes. The subcultural variation is in turn a product of the social structure. Children beginning to use languge create their own language to meet their immediate needs. Gradually these concrete functions are generalized into the two functional categories of learning (mathetic) and doing (pragmatic). By continued use of their existing functional categories and the process of abstraction, children construct the functionally organized semantic system of the adult language. The child has now gaine access to the social semiotic. This is the context in which s/he will learn to mean and in which all subsequent meaning will take place.

According to Halliday each child has evolved his/her

own language to serve basic human functions. By the time the child begins to use a particular native tongue, these functions are already incorporated into the child's language. Therefore the child already has all of the basic functions of language very early in his/her development. Accordingly, if any language structure is necessary for a particular function the young child should be able to recognize and use the corresponding language form. Thus these are three important components: a) the appropriate language structure; b) various factors comprising the context of the communication; c) the function of the communication. To lay greater emphasis on any one of these at the expense of another is to overly simplify human communication.

As Educators it is important to examine all aspect of these components. It is not enough to simply know which particular structures are produced or what particular rules a language may have. Educators must know when language structures are used, in which situations and for what purposes they are used. In short, educators are concerned with the whole of language as it acts as a means to communication between humans who live in a social environment.

In an attempt to examine factors outside of the transformational approach which may influence language, the passive voice was chosen. The passive has been used in numerous studies, and although there is a wide disparity between the results, this language structure has consistently been

placed amongst the most difficult for young children. This study was aimed at examining the influence of context and function on the comprehension accuracy of the passive.

Literature on the Passive

Research into the passive can be divided into studies dealing with subjects below the age of 16 and those using older subjects. For the purposes of this study the former are more relevant, however, where certain information is unavailable from studies using children, the following summary reports the findings of experiments using mature subjects. The discussion is broken into two parts: those studies examining what contextual cues influence the comprehension or production of the passive, and studies examining why the passive, as a language structure survives.

Carol Chomsky (1969), studying children between five and ten years of age, examined the "child's competence with respect to grammatical structures" (p. 1). Based on the theory developed by transformational grammarians, it was assumed that children acquire later those structures which are more complex. Complexity, as viewed from the standpoint of the learner, is determined by how the listener assigns a structural interpretation to a string of words which s/he hears. It is thus a specific operation of determining the syntactic structure of a sentence. The listener determines

the grammatical relations between the words and phrases which make up the sentence. Any condition which increases the difficulty in the interpretation of syntactic configuration increase the complexity of the sentence. While Chomsky tends to lay emphasis on structures other than the passive, she point out that the primacy of the active over the passive has been noted in studies of English and Russian children five years and older (1969, p.8). For example, given the passive, children tend to interpret the sentence as if standard order of words was exhibited. More importantly, the underlying assumptions of C.Chomsky's work lay great emphasis on the syntax of a given sentence; this is typical of numerous studies examining the passive. Based on the notion that simple syntactic structures will be acquired before more complex ones, sequential orders and rates of language acquisition for particular language structures became a goal.

Kessler (1971) studied language structures which, from the stand-point of sequencing, the literature indicated developed late within children. Her study focused on the sequential order and rate of language structure acquisitions for children who were bilingual in Italian and English. Based on a surface structure analysis, the study investigated many late developing structures, including active and passive relationships. After conducting a pilot on four and five year olds, it was concluded that the tasks associated with this language structure were overly difficult for children of this

age. Six to eight year olds were then chosen. After screening to assure that the subjects were bilingual, 12 children were selceted.

The active/passive pairs of sentences were read, in a random order, into a tape recorder. The tape was then played to the children and they were instructed to choose one of three pictures which best depicted what they heard.

> From the data, the active and passive constructions are clearly among the late acquisitions in child language. Of the two structures, the active is acquired somewhat earlier than the passive. With over 40 percent of the responses incorrect for items testing the passive, the inference may be drawn that children of the age studied have not yet acquired this structure. (Kessler, 1971, p. 63)

She goes on to say that many of these correct responses were evidenced by a few "high group" children. Since these unduly influence the statistical measures used, it would be important to report more comprehensive statistics, and possibly, tables of the raw data. Unfortunately these are not reported so that an accurate assessment of how many children could use the passive is not available, although it must be somewhat lower than sixty percent.

Menyuk (1963) conducted a study where she recorded speech samples in 3 situations from 48 nursery school children and 48 children in grade one. The first situation was spontaneous speech responses produced by the Blacky pictures, the

second was a conversation with an adult generated by some questions in the test manual and the third situation was a conversation with peers generated by role playing in a family setting. In addition, the children were observed in their classrooms. The language sample contained 8574 sentences obtained in response to the situations and 1009 sentences were obtained in the classrooms. These were analysed according to syntactic variations as described by a generative model. Twenty-three of the 48 nursery school children and 41 of 48 grade one children produced some form of at least one passive. Unfortunately, from the way the data is reported we are not able to tell whether it was used once or many times, whether it was isolated to certain situations, or whether it occurred equally in the four instances. We are also unable to ascertain whether certain children were able to use this language structure more accurately than other children.

Tannenbaum and Williams (1968) carried out an experiment using 72 junior high students. They reasoned that whether the active or passive was used to describe a situation would possible be dependent on whether the student was thinking of the actor-subject or the acted-upon object at the time of the description. This mind set was achieved by first showing an

appropriate series of sentences on 35 mm slides. The sentences would focus on either the subject, object or a neutral referent. Focus was arranged with the active and passive structures. After each student was exposed to the three slides, they were shown simple line drawings depicting a relationship between and actor-subject and an acted-upon object, along with an indication of whether an active or passive sentence was required. The examiner recorded the responses and also encouraged subjects who made mistakes to try and correct their errors. Latency measures were then compared across language structures and focusing.

The results showed a significant interaction between focus and the prescribed language form. The significant difference in the baseline neutral focus condition increased in the subject focus condition with the active form taking even shorter but the passive form exhibiting an increase in generation time. The reverse was apparent for the object focus condition.

The authors conclude that the active and passsive may arise in response to different situational pressures, especially in regards to the conceptual focus of situations.

> Under such an interpretation it is assumed that the passive form , for example, was more apt to be encountered where the attention was directed on the "natural" object of the situation. Such a consistent contextual feature may then become a distinctive

> cue associated with use of the passive voice.
> (Tannenbaum and Williams, 1968, p. 250)

Therefore the demand characteristics of a given encoding situation may activate the appropriate cue and the passive voice form becomes a possible response form.

As an attempt to further delineate possible factors which the child may extract from the environment to use in understanding and producing passive sentences, Strohner and Nelson (1974) examined the particular kinds of non-verbal contexts which influence the child's interpretation of sentences. This included the child's knowledge both of events and of syntactic structure increases and the effects of event probabilities from non-verbal contexts.

Strohner and Nelson asked children two, three, four and five years of age to use puppets to illustrate the meanings of certain sentences. Each subject was given two sentences from each of the following categories: a) improbable actives b) improbable passives c) probable actives d) probable passives e) reversible actives f) reversible passives. Three year olds showed strikingly different performance levels for probable and improbable sentences· 100 percent correct for probable actives and passives, but 90 percent and 100 percent incorrect respectively for improbable actives and improbable passives. By age five subjects only made significant numbers of errors when both the passive voice and an improbable event were involved. It appeared that the four year olds were using

both a probable event strategy and an actor-action-object strategy: 67 percent of reversibles were correctly acted out. They also typically misinterpreted improbables. To examine this, Strohner and Nelson designed a series of tasks just for the four year old group. It was designed to center upon the effects of repeated encounters with certain context-sentence combinations upon the child's interpretations of subsequent sentences. Pictures were used to illustrate the actor and acted-upon. Flaps were put over the actor and acted-upon and then the attention of the child was drawn first to one then the other. The child was then asked to point to one of two pictures best depicting what s/he had seen and heard.

The effect of training in the passive depended crucially on the relation between the sentences and the pictures viewed preceding the sentences. In terms of comprehending the passive reversible sentences, children improved if the order object-actor held in the exposure to the picture through the use of the flaps, but they declined in such performance if the pictured actors were seen before the picture of the objects. For the active it made no difference to the subjects' performance whether the actors or objects were shown in order.

Strohner and Nelson assert that between two and five years of age a child is likely to extract an explicit sentence meaning from both the passive and the active.

But if the child fails to extract explicit information about the object and actor from the syntactic

> structure, then the child usually does not guess randomly- instead, is influenced in strategies such as the probable event strategy or the actor-action-object strategy. (Strohner and Nelson, 1974, pp. 574-575)

It may also be that if the child does extract explicit information of the object or agent, these and other strategies may form a basis for aiding interpretation. In any case, the results demonstrate that there are important influences, for example non-verbal contexts, event probabilities, etc, outside of the strictly syntactic which aid the comprehension of passive sentences in children.

Work with adults has also established the importance of the immediate non-verbal context on sentence comprehension. In this category, Olson and Filby (1972) reported that adults can more easily verify active rather than passive statements if a related perceptual event is coded with primary attention on the subject. If the event is coded with attention to the object, then passives are more easily verified than actives. In reaching these results Olson and Filby conducted a series of five experiments where their subjects were shown a picture which was ambiguous as to which was the actor or the acted-upon. Prior to being given an active or passive sentence the subjects' attention was focused on either the receiver of the action, thus making a passive description appropriate and presumably resulting in a "passive coding", or else to the

agent of the action thus making an active description appropriate and presumably resulting in an "active coding" of the picture. Olson and Filby also reported that passives took longer overall than actives and that false sentences took longer than true ones.

With children, Turner and Rommetveit (1967b) showed that if attention is drawn to the object in an event, then subjects are more likely to employ passives to describe the event. Their subjects were 48 children at each of the following five age levels: nursery school, kindergarten, grade one, grade two and grade three. Two different techniques were used for manipulating the focus of attention of the subjects: first, by changing the sequence or temporal order in which the actor and acted upon elements of a picture were seen, secondly by directing a question to the child about the acted-upon or the actor. Both reversible and non-reversible sentences were used.

In the analysis of the number of passive voice sentences produced, the most significant increase in the occurrence of the passive was when the direction in which a picture was scanned was controlled and this was coupled with a verbal model. The number of passives produced by the scanning task showed a significant increase over passives produced when subjects were simply asked to say what was happening in the picture. Age was also found to play an important role. At grade three, 90 percent of the subjects produced passive

sentences for non-reversible pictures and 57 percent produced passive sentences for reversible sentences. It is important to note that Turner and Rommetveit found that there was a tendency for different pictures to elicit different numbers of passive sentences. This was found to be significant and consistent across ages. It is within this statement coupled with the literature suggesting that situational influences effect the passive, that there may be an answer to a point which Turner and Rommetveit raised.

> In the young child's speech, the active form serves most purposes, and the child has no real need for the passive voice in order to express himself. (Turner and Rommetveit, 1967a, p. 659)
>
> As the passive voice requires more words and is structurally more complex than the active voice, the question as to its function or role in language arises. (Turner and Rommetveit 1967b, p. 169)

That is to say that, if the passive serves no equivocal differential functions with respect to communication patterns, why does it exist?

In 1968 Johnson-Laird investigated this very question based on reports such as those of Clark (1965). Clark randomly assigned 120 high school girls to two groups. Each subject was given 32 active and 16 passive sentences. The sentences were divided into four equal groups depending on whether a blank was left for the actor, the verb, the object or all of

these. The girls were to fill in the blanks with appropriate words. An uncertainty measure for the relative frequency of responses was calculated. Responses were also recorded according to word type.

The results indicated that for full sentence completion the actor had significantly less uncertainty than the verb or object in the active. In the passive there was no difference in uncertainty between the actor, verb or object. The object of the active showed more uncertainty than the object in passives. For partial sentence completion for both passives and actives, the verb was more constrained by the object than by the actor. Also the object was more constrained by the verb than by the actor. In actives 81.5 percent of the actors were animate and 26.7 percent of the objects were animate. In passives 68.3 percent of the actors were animate and 45.8 percent of the objects were animate.

Assessing these results, Johnson-Laird (1968) hypothesized that sentences in the passive voice emphasize the importance of the things referred to by their grammatical subjects to a greater extent than sentences in the active voice. Each of 32 under graduate students was asked to produce simple diagrams to represent two sentences, one active and one passive. It was assumed that the size of areas in the diagrams could be taken as an index of importance. Two groups were formed. One group received an active and passive sentence which referred to equivalent arrangements of colours:

a) Red follows blue

b) Blue is followed by red

Group two received sentences which referred to converse arrangements of colours such as:

a) Red follows blue.

b) Red is followed by blue.

Results showed that the subjects of all sentences tend to be represented as larger than the objects and that the subjects of passives tend to be represented as larger than those of actives.

In another experiment (Johnson-Laird 1969a,b) a similar population was presented with two long narrow rectangles, one divided symmetrically the other asymmetrically, into two colours. A set of four sentences was also presented; there were normal active, inverted active, normal passive and inverted passives. All the sentences specified the arrangement of colours depicted in both stimuli, but the task was to rank-order them in terms of their appropriateness as descriptions of one stimulus as opposed to the other. Where the asymmetrical stimulus was used and the larger area was denoted by the logical object, seven of eight subjects reported that they had attempted to emphasize the larger area. The majority of subjects given the assymmetrical stimulus and where the larger area denoted the logical subject also tried to stress the larger area. When students were given the symmetrical stimulus and the larger area of the asymmetricl stimulus was denoted by the logical

object or the logical subject, choices were divided between the passive and the active.

Johnson-Laird's experiments show that a passive sentence is not necessarily chosen to describe the same things as its corresponding active. It confirms the basic hypothesis about the difference between the two voices, in a situation where relative size determines what has to be emphasized. From these experiments, it appears that the passive functions to lay greater emphasis on the logical object than the active.

Although it is not of direct concern here, it is worth noting that Dubois (1966) has suggested that another function of the passive may be to maintain a proposed preferred surface structure ordering. He suggests that where one of the nouns in a sentence refers to an animate and one to an inanimate entity, this animate → inanimate order is preferred. This is often accomplished through the use of the passive. Dewart (1979) has reported results which lend favourable support to such a hypothesis.

Although this study examines the passive as it is comprehended by children, it is important to note that adults use this language structure for certain purposes. Harwood (1961) transcribed 37,000 speech samples from adults in various social situations; e,g,, talking to a friend, to a receptionist, to an acquaintance, etc. He found that while passives were relatively rare (less than two percent of all utterances)

83 percent of all the passives that did occur involved a death of a personal friend who was in some accident or they involved a large number of deaths due usually to some natural catastrophe. Bassard (1963) elicited 20 responses from each of 40 adults. Each subject was shown a picture and then asked to select one of five sentences which best expressed what the picture was about. She found that 79 percent of the passives were used to describe catastrophes involving people. This was especially apparent with a picture depicting the aftermath of an earthquake.

When does the child synchronize his or her use of the passive with that of adults? A solution my lie within Egan's (1979) analysis of the child's stages of development. Sometime between the ages of five and ten, the child will likely enter the Mythic stage of development. During this stage, Egan (p. 11) feels that the basic human emotions and moral conflicts are embodied in the animation of great natural forces. According to this theory, binary opposites such as good/bad, little/big, brave cowardly, etc. become fundamental to the child's thinking. These are identified in the natural conflicts of natural forces.It may be that the use of the passive with catastrophic events begins here in the Mythic stage. Based on this account, the adult use of the passive would be grounded on the child's original functional use of the passive. Given two emotionally important objects or events, the passive offers the option of emphasizing one over the other.

Comprehension was chosen over Imitation and production for two reasons. First, if the functional approach to language is correct, comprehension should be the easiest of the three. Keller-Cohen (1975) found that imitation required prior knowledge of the linguistic structures to be imitated. "It appeared that once the child must imitate stimulus sentences which exceed auditory memory, imitations deform the sentences in agreement with the child's linguistic system (Keller-Cohen, 1975, p. 111-112). Secondly, imitation would not show us anything in terms of processing or functioning and creating a task to elicit the production of the passive raises serious problems of patterning, response structuring, etc.

The use of the passive voice to place the emphatic center of information at the beginning of the sentence as suggested by Clark (1965) and Johnson-Laird (1968,1969a, b) would be interpreted by Halliday as serving a Thematic function. Any utterance can be regarded, in the Halliday framework, as having a topic which is what the message is about and a comment which conveys to the listener new information about the topic and which tends to come at the end of the sentence where it receives heaviest phonetic stress. When the acted-upon element of a situation is under discussion, use of the passive voice allows it to become the topic or theme of the sentence and to assume sentence initial position. Syntax in general is a thematic organization for Halliday. A different element is selected as theme in each sentence. By definition

the first element is considered the theme. Therefore it is possible to specify an unmarked theme by reference to the system of mood. The unmarked theme is the subject in a declarative clause, the Wh-elements in the WH-interogative and the finite verbal element in a polar interrogative. Any clause in which the element so designated does not occur initially is said to have marked theme. In English importance is assigned to the thematic organization in the syntax of the clause. To say that another way, precisely the same factor favours "inversion" for mood as also favours "inversion" for transitivity, as seen in the relatively high frequency of the passive construction. The passive can be regarded as the structural device for dissociating the roles of actor and theme while leaving the theme unmarked. If, however, the theme and actor do not coincide, the clause may still be active (actor as subject). For example:

a) these houses my grandfather sold

b) these houses were sold by my grandfather

The difference between these sentences is two fold. First, in the active these houses is marked theme, and its selection as point of departure for the message thus constitutes a special "foregrounding". Second, if the focus is unmarked it falls on the actor in the passive form but on the verbal element, the process, in the active form. The passive is therefore the preferred form unless the actor is required

to be overtly specified but non-focal in the clause. That is to say, English favours the passive structure because of the predominance accorded by the speaker to the thematic organization of the clause; the passive allows the actor to remain unspecified or, if specified, to occur at the end of the clause and thus carry unmarked information focus.

In summary, although Strohner and Nelson (1974) used subjects from two to five years of age they were able to demonstrate that the non-verbal context could be an important factor in determining whether the passive was understood or not. As is typical of results reporting comprehension accuracy of the passive at this age, the accuracy level is low. Kessler (1971) has had the most favourable results to date. She reported 60 percent correct responses with eight year olds. Turner and Rommetveit (1967b) reported that even with focusing, nine year olds produced less than 60 percent correct responses on the passive. Johnson-Laird (1968, 1969a, b) and Clark (1965), although they worked with mature subjects, demonstrated that the passive appears to serve a specific function. It seems to place greater emphasis on the receiver of the action. Halliday's functional framework is in accord with these findings.

Purpose of the Study

The present study is aimed at evaluating the potential

influence of context and function on the comprehension accuracy of the passive voice in English. As Kessler (1971) and Turner and Rommetveit (1976a, b) found 60 percent or less correct responses to the passive with eight and nine year olds, this study uses children of a similar age. It is expected that tasks which utilize a controlled context to elicit some function of the passive will increase children's correct responses.

If Halliday is correct in believing that children of three to four years of age or before have already acquired all of the basic functions humans require of language, then if tasks can be constructed such that the situational cues make salient this function of the passive, it is expected that even very young children will show near mastery of this structure.

The previous discussion has emphasized several situational constraints on when the passive is most likely to be elicited. It has also illustrated that the passive structure exists in the English language because it performs some function. To examine the possible effects of situational influences and the possible effect of the function of the passive on children's comprehension accuracy, the following independent and dependent variables were established.

Independent Variable. The independent variable is the context used to elicit the function of the passive. Pictorial stimuli were specifically constructed for this.

Dependent Variable. The dependent variable is the comprehension accuracy of the passive voice as demonstrated by the children pointing to one of two contrasting pictures in a task using occurrence and size as dimensions, and by pointing to the object in a task using pictures of natural forces.

The Hypothesis. It is expected that the comprehension accuracy of the passive voice with children between the ages of seven and nine years of age will be significantly higher than sixty percent. Secondly, it is expected that the different degrees of comprehension accuracy between occurrence and size will be significant. The expected order is as follows:

usual occurrence, natural size < usual occurrence, same size < unusual occurrence, natural size < unusual occurrence, same size

It is also expected that correct responses involving natural forces will be as numerous as those for usual occurrence, natural size.

The rationale for the above hypothesis is based on the following assumpions:

a) that language serves a communicative purpose;

b) that individual language structures serve different functions towards fulfilling this communicative purpose;

c) language evolves within children even at a very young age to serve basic human functions;

d) whether an individual perceives a particular function as being necessary to his/her particular needs depends on a series of situational factors which make up the context of the communication.

It is expected that the comprehension accuracy of six to nine year old children will be greater and more consistent than if these factors are not accounted for as has been the case in other studies. Notably, this includes Kessler's study (1971) where she reported a 60 percent accuracy with children of this age, and Turner and Rommetveit (1967b) who reported below 60 percent accuracy for children in grade three.

Usually the relation of sentences to events and objects in the world has been omitted from developmental accounts of language. However, as Strohner and Nelson (1974) state, it is reasonable to expect that a sentence will be better comprehended if the events it describes are probable rather than rare, and if they are consonant rather than dissonant with the nonverbal context that accompanies the sentence. Herriot (1969) found that pragmatic expectations were a significant variable in the comprehension of active and passive sentences with adults. He speculated that this may be derived from previous experience with the world where a given word will usually fill the position of logical subject

as opposed to that of the logical object. That is to say that "cues may be probabilitstic and based on experience rather than axiomatic and intrasentential" (Herriot, 1969, p. 169). Based on these findings it is expected that sentences describing natural occurrence relationships will be easier to interpret correctly. Size is thought to be important for two reasons: a) in the sense in which it denotes the usual occurrence of an action which may occur in real life, and b) as Johnson-Laird (1977) found that the largest area was usually given the emphasis. Thus it seems that size and occurrence are two important contextual cues for assessing the function of the passive voice.

By all accounts (Turner and Rommetveit, 1967a, b; Menyuk, 1963; Clark, 1965; Strohner and Nelson, 1974) reversible sentences are the most difficult to understand. In reversible sentences, it is suggested that the logical subject and the logical object are more difficult to extract because both nouns in the sentence could fulfill either function. They are harder for adults and children to verify (Slobin, 1966) and harder for children to comprehend, imitate and produce (Turner and Rommetveit, 1967b). This study is restricted to using reversible sentences only. If context and function do have an influence on the comprehension accuracy of the passive voice it will have to be most significant to increase the subjects scores.

Since native adult speakers most often use the passive

when speaking of catastrophies, (Harwood, 1961; Bassard, 1963), especially those caused by uncontrollable natural forces, it was felt that children would either be evolving this particular function or that this function had evolved from the child's use of the passive. Based on this, as well as Egan's (1979) analysis of the stages of development in children, a second task was designed to examine the possible influence of such a context.

CHAPTER 3

METHOD

Subjects

Twenty-nine children between six years ten months and nine years three months of age were used as subjects. The mean age for the group was seven years nine months. There were 14 girls and 15 boys. Students were interviewed at Langley Prairie Elementary School, in Langley British Columbia. The school is predominantly a middle class school, which has, nevertheless, some children from a wide variety of socioeconomic backgrounds. Almost all of the children had two parents.

Only subjects with English as their first langauge were used. In consultation with their regular teacher, only subjects who were thought to have no major learning disabilities were used.

It was left up to the classroom teacher to choose which particular students would participate. The teacher was told that a cross-section of children was most desireable, in terms of background and ability. She was asked to send two children who were above average, two who were below average and either five or six who were average. Insofar as possible a varied socioeconomic background was used.

Before any subject was included in the study s/he

had to reach criterion, 100 percent, in correctly identifying 12 line drawings of the animals used in the study.

Stimuli

Task A: Occurrence/Size. Using 12 animals to represent the actor or agent, reversible active and passive sentences were used to describe picture stimuli. The 12 animals were chosen because word frequency counts indicated that they were relatively common in the child's environment. Twenty-four picture stimuli were divided into four sets, each set consisting of three pairs. Each of the three pairs reflected the manipulation of the two variables, occurrence and size: three pairs depicted animals in some usual relationship drawn in relative natural proportion to each other (e.g., The mouse is being chased by the cat); three pairs depicted the same animals in the usual relationship but drawn the same size; three pairs showed the animals in some unusual relationship drawn in relative natural proportion to each other (e.g., The cat is being chased by the mouse); three pairs showed the same animals in the unusal relationship drawn the same size. These pictures were used for both active and passive sentences. (See Appendix B for an example of the illustrations used with these sentences.) Occurrence and size were delineated as follows:

a) usual occurrence versus unusual occurrence: the relationship which is most commonly found between two animals is considered the usual.

b) natural size versus same size: Two animals which are illustrated on the same card and which are represented in roughly their natural proportions are labelled natural. There are also cards where the two animals are represented as being the same size.

Each picture was a black line drawing done on a flat white background. No perspective was used in any of the drawings and each one was made especially for these tasks. Each cardboard card was approximately 28cm. by 35cm.

Occurrence. Based on the results of Menyuk (1963), Strohner and Nelson (1974) and Olson and Filby (1972) it was concluded that the more often and therefore the more natural an event was in the child's experience, the more likely it would be that that experience would have an influence on which language structure was comprehended. That is to say that stimuli which reflect the usual occurrence of relationships tend to be easier than those which do not reflect such an occurrence.

Size. It is well established within the literature (Kessen, 1967; Bower, 1966) that children have access to accurate information regarding size from very early on in their development. It is therefore not surprising that Piaget (1970, p. 27) found that size was an important factor in grouping among five year olds when they were given cut out shapes. As Johnson-Laird (1977) also was able to demonstrate that

size is of considerable import in the perception of the logical object (receiver of the action) or the logical subject (doer of the action), it has been included as one dimension.

Task B: Natural Forces. Three pictures depicting three different natural forces were illustrated on a flat white cardboard background. These were all black line drawings. Each card was approximately 28cm. by 35cm. Natural forces were defined as follows:

a) natural forces: large forces over which humans have little or no control, for instance, landslides, hurricanes. These are depicted in pictures showing their capacity to effect people or some human directed activity.

An example of the sentences used is: 1a) The train is being crushed by the rocks. What is being crushed? 1b) The rocks are crushing the train. What is being crushed? (See Appendix C for an example of the illustration used with these sentences).

Natural forces. In attempting to use elements which have an important impact on the child's use of the passive, natural forces were included in a second task. However one describes the difference between active and passive sentences in English, one's "naturalness" over the other, at least in adult usage, is dependent on emotional impact of certain personal catastrophic or at least insulting

event. The information is to be relayed without causing undo emphasis on the agent. Lyons cites the following example although one can easily think of more "disasterous" events when one uses the passive.

> For instance, 'John was reading a book' is more natural than 'A book was being read by John' but 'John was hit by a car' is more natural than 'A car hit John'. (1974, p. 97)

Adults also tend to use the passive when death is involved especially with numbers of deaths, such as after an earthquake or any such natural disaster (Harwood, 1961; Bassard, 1963) Combining this with Egan's (1979) analysis of the Mythic stage of development, it is felt that "natural forces" will create a functional setting for the appearance of the passive.

Procedures

Participating children were asked by their teacher to go to the staff room where they would be asked several questions. The children were seen individually by the interviewer. Before beginning the tasks, each child's name and age were recorded. The subject was then shown the 24 animals randomly scattered on a large sheet of railroad board. The subject was then asked to point to the specified animal.

On Task A: Occurrence/Size each subject was shown the two pictures in contrasting Agent-Object positions and was then read clearly, only once, the sentence which represented one of these. Beginning the task each child was told the following: "I am going to read one sentence and then I will show you two pictures. I want you to point to the picture that you think the sentence is about." Hesitation, fidgeting, corrections and interesting comments were all recorded by hand on a specially designed form (See Appendix D). All subjects were given all 12 active and all 12 passive sentences (See Appendix E). When the task was actually performed the two pictures were alternated so that they would appear on the left or the right.

On Task B: Natural Forces each child first had to demonstrate that s/he understood the picture. The subject was asked to describe what s/he thought the picture was describing. When both the examiner and the subject agreed on what was happening in the picture, the experiment proceeded. Each subject was read an active or passive sentence and asked a question requiring an answer indicating the object. This was repeated for the same picture, except the sentence was changed to the opposite voice of what was first used. Again the question required an answer indicating the object. To avoid response bias, three pictures were included with questions requiring agent responses. Task B: Natural Forces was alternately placed before and after Task A: Occurrence/

Size in order to guard against order effects of task.

When the tasks were completed, the child left and another child was asked to come in. One child was always ready at the door. The interviews lasted, on average, 16 minutes (range 11-22 minutes). (See Sppendix F for statements from the children during the data collection.)

Data Analysis

Kessler (1971), who reported the highest number of correct responses to the passive, found 60 percent accuracy. Therefore, to establish whether a significant increase in correct responses took place, a proportional z score was used to compare the results with those of Kessler.

A two by two chi-square using occurrence (usual and unusual) and size (natural and same) was used to determine whether there was a significant difference in the distribution of these variables.

To determine whether there was a significant difference in the number of correct responses between unusual occurrence, natural size and natural force stimuli a t-test was used.

Three t-tests were used to calculate a possible difference between:

a) the number of correct responses for the younger and older children on Task A: Occurrence/Size;

b) the number of correct responses for the younger and older children on Task B: Natural Forces;

c) the correct responses for males and females.

Alpha was set at .20 for two reasons. First, the literature indicated that the difference, if there was one, would be small. It was felt that it would be better to catch this by relaxing alpha and sacrificing experiment-wise error rate for test-wise error rate, than to miss a real difference altogether. Second, in using several t-test in the analysis, the significance levels of each test exponentially influence the significance of the other tests. Relaxing alpha greatly increases the power of the experiment and reduces the chance of committing a Tupe II error.

CHAPTER 4

RESULTS

Task A: Occurrence/Size. The first hypothesis, that the accuracy of comprehension of the passive would be significantly higher than .60, was confirmed. The results of the proportional analysis showed a highly significant increase over Kessler's (1971) findings ($z = {}^{+}7.615$). Of all the passive sentences presented, 81.9 percent were comprehended correctly. The mean number of mistakes on the passive was 2.07. With actives, 99.4 percent were answered correctly. The mean number of mistakes was .07. Five students made no mistakes in either the passive or the active. (See Appendix G for a table containing the raw data.)

The second hypothesis, that the correct responses would be greater for usual occurrence, natural size than usual occurrence, same size which would be greater than unusual occurrence, natural size which would be greater than unusual occurrence, same size pictures, was not born out. The results of the chi-square were not significant $\chi^2(1) = .115$, $p < .20$. (See Table II) To evaluate the presence of a developmental effect, scores were divided into two groups based on the subjects' ages. A t-test performed on the younger and older groups' scores was not significant t-value (27) = 1.05, $p < .20$. Figure 4 shows the consistently accurate

Task	size: natural	size: same	
usual	22	19	41
unusual	10	12	22
	32	31	63

χ^2 (1) = .115, $p < .20$

Table II. Comparison of responses to occurrence and size changes.

group was .14 and for the older group the mean number of mistakes was .12. Figure 3 shows the consistently accurate performance of subjects regardless of their age.

Task B: Natural Forces. When subjects were given a passive sentence, 96.6 percent of the responses were correct. The mean number of mistakes was .10. It is interesting to note that the actual number of correct responses produced after an active sentence was less than that for passives, although it was not statistically significant (81.9 percent produced correct responses; the mean number of mistakes was .55). A t-test between natural forces and usual occurrence, natural size responses was significant t-value (27) = 1.345, $p < .20$. Natural force stimuli produced a significant increase in correct responses. Figure 4 illustrates each student's percentage of correct responses for natural forces and occurrence/size stimuli.

To examine the results for a potential developmental trend, the data were divided in half with the youngest 14 (6.10-7.9 years of age) and the oldest 15 (8.0-9.3 years of age) forming the two groups. Fifty-seven percent of the younger group incorrectly identified the object when they were given an active model. However, in the older group only one child (6.6 percent of the total) produced errors. Figure 5 illustrates that, particularly as age increases, the function of the passive exerts a demanding influence on children, especially when they are dealing with natural

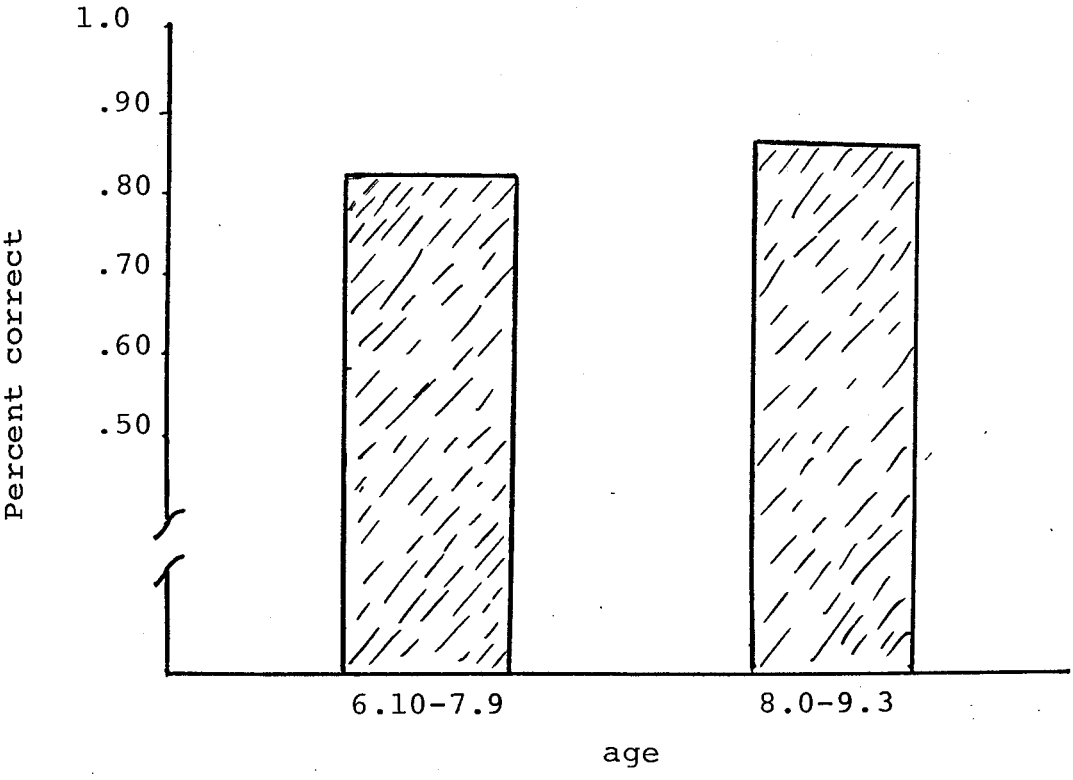


Figure 3. Correct responses on task A as grouped by two age groups.

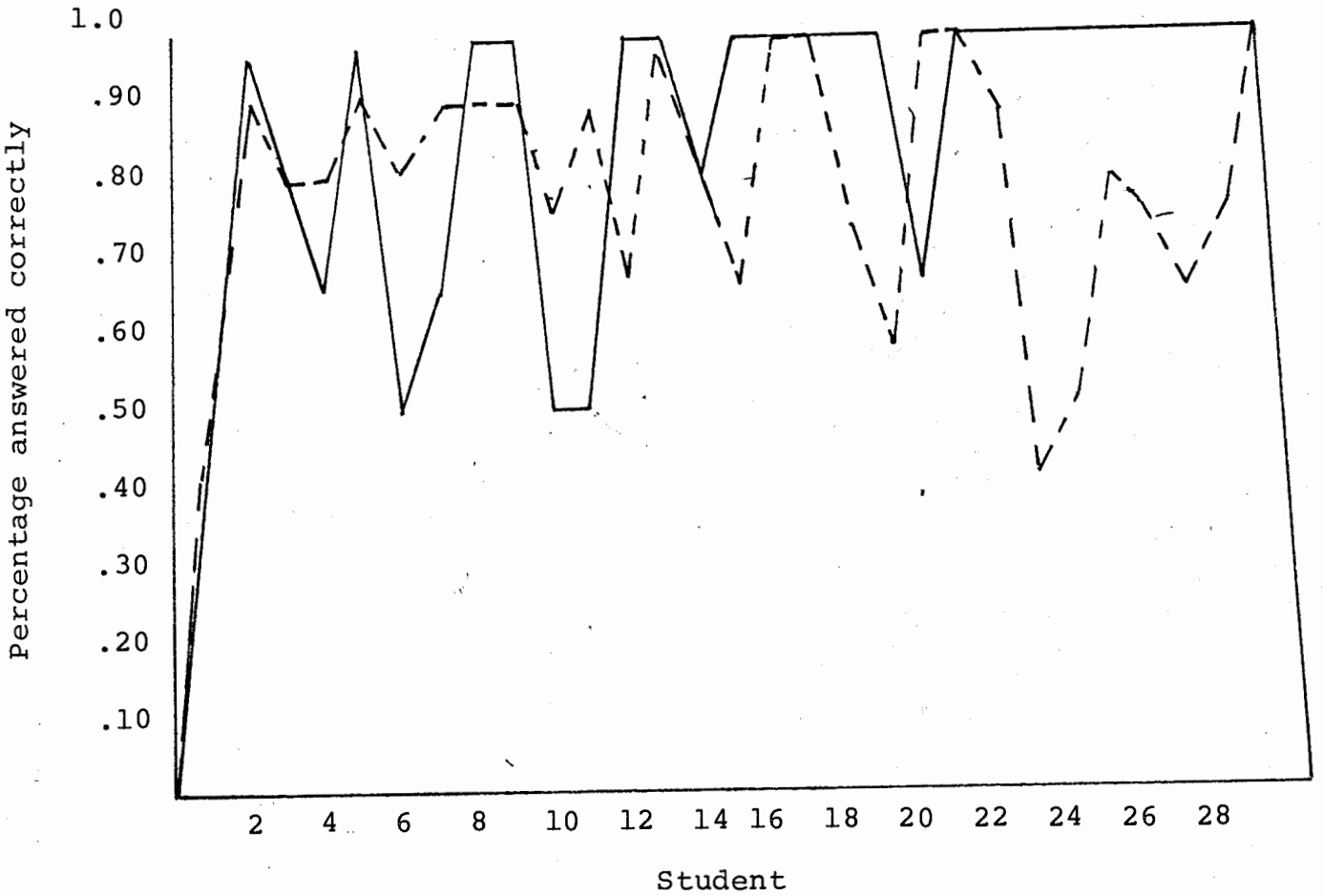


Figure 4. Correct responses for each student.

--- Task A: Occurrence/Size

--- Task B: Natural Forces

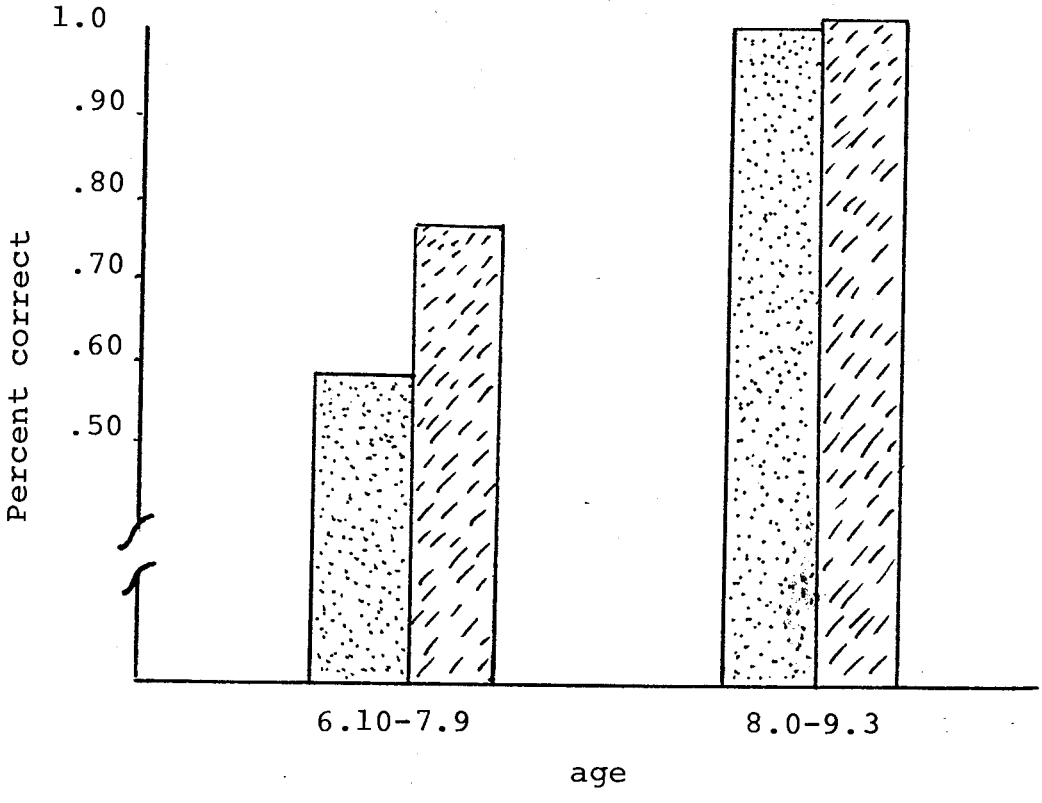


Figure 5. Correct responses on task B: Natural Forces as grouped by two age groups.

--response after an active sentence

--total number of correct responses

force events. A t-test comparing the responses of younger and older students was significant, t-value (27) = 2.89, $p < .20$ (this is still significant at $p < .01$). The mean number of mistakes for the younger group was 3.4 ; for the older group the mean number of mistakes was .02.

No significant difference was found between the responses of males and females, t-value (27) = .08, $p < .20$.

CHAPTER 5

DISCUSSION

The results of this study will be valid only for the particular pairs of sentences and pictures, the students involved, and with the particular school/experimental situation used in this study. It is possible that modifying any one aspect of these would change the results. It is also possible and likely probable that these same students would respond slightly differently on different occasions. However, with these reservations, the results indicate areas of possible research in the future and suggest ways of improving language collecting instruments.

This study has found that with the use of the pictures based on occurrence and size and natural forces, comprehension of the passive was significantly increased over the results of Kessler (1971) and Turner and Rommetveir (1967a,b). These results point to the importance of examining many factors when studying the emerging language forms of children.

No significant interaction was found between the dimensions of size and occurrence, however the functional use of language with natural forces was clearly apparent. It is interesting to note that the passive structure remained relatively stable for task A: Occurrence /Size over the age studied here, yet with natural forces, errors decreased from 57

percent to almost uniform mastery with the oldest children. This again points to the varying effects of different circumstances on the comprehension of language. When one collects language data based only on linguistic form, large chunks of information are missing, so that it is very difficult to analyze the data and achieve accurate results. It becomes easy to realize how previous results have reported such varying degrees of accuracy for the passive voice.

Although no interaction was found between occurrence and size, more empirical studies must be carried out to examine other dimensions, e.g., physical proximity. The results with natural forces illustrate the need to be conscious of the different levels of processing which seem to be available to even young children. Mistakes made by the younger children seemed to focus on the oral input to the detriment of their comprehension accuracy. For example, if the question "What was crushed?" was given to the child without an oral sentence preceding it, children seemed to be able to respond correctly. However, when an active sentence preceded the question, children tended to respond by pointing to the agent, or the first contentive in the given sentence. As the majority of mistakes were found in the active, it would seem to indicate a purely syntactic manipulation of the sentential components, for it is usually the active which is most easily understood. An alternative explanation would suggest that actives, as they are not functional for

these situations, are not an option for the child. If the first argument is accepted then an increase in the knowledge in how to use the semantic and syntactic components of language will lead to an increase in accuracy. The second explanation stresses the importance of function; function is so influential that it limits syntactic options until more experience at using language for different purposes in different situations expands the potential functions of these language structures.

This study has indicated that given an appropriate task and an appropriate situation, children between the ages of seven and nine are already very accurate in comprehending the passive voice. If children are able to comprehend a language structure heretofore considered to be "difficult", it naturally raises the question as to whether other "difficult" structures are also established in early childhood.

Such observations raise doubts as to whether rank ordering hierarchies based on narrowly defined parameters are accurate. Develpmental hierarchies may be accurate if the variables and the relative emphasis given to those variables remains constant. However, this study suggests that considering factors not originally controlled or manipulating even one aspect of a variable may affect the whole rank ordering. While this suggest that established rank order hierarchies be viewed with caution, this does not mean that all such investigations should be stopped.

If the results of this study are supported by follow up studies, such a functional framework may offer reasonable answers

to the problem of language differences between different social classes. The functions, uses and strategies of language may be reflecting the culturally determined, relative emphasis certain language structures will have. To understand language differences, it is important to analyze why and how those structures are used to communicate a language user's needs.

Possibilities of Future Research

The results of this study indicate that function is an important factor in determining which language structures will be comprehended. Therefore, it will be essential in the future to accurately record which functions are used in which circumstances. Natural language data collection will be most profitable if language structures can be recorded with their accompanying functions. It may be possible to use the functional categories already established by Joan Tough (See Appendix A). While this could be accomplished through either cross-sectional or longitudinal studies, the latter would be preferrable. If there is some developmental level correlation with some or all functions or whether each person prescribes an individual path will be most readily observable in a longitudinal study. As Rosansky (1980) has pointed out, while cross-sectional data is valuable, longitudinal confirmation of numerous cross-section data is essential to securely establish a theoretical foundation.

In considering language differences, we must be cautious not to confuse cause and effect. Many of these differences result from factors in the world, that is, many of these are the result of social differences resulting from regional or cultural variations. Studies designed to examine cultural differences in order to find language structures corresponding with these will have to show how children use language.

Hopefully, future research will begin to shed light on why children, although they can use telegraphic speech to carry out most of their needs, very soon abondon it for the more complicated systems requiring mastery of articles, inflections and complex syntactic arrangements. One possible explanation is that the developing cognitive capacities of children require them to construct more and more inclusive systems for the linguistic data they encounter; another possible solution is that the social pressures to communicate require more and more explicit statements about the world, and children can make these statement only by adopting the necessary linguistic devices. This present study has lent support to the latter representation.

Language is used in many different contexts for a wide variety of purposes. Language forms reflect rather than determine what people can say. What they can say is governed to a considerable extent by factors such as age, cultural relationships, etc. People choose language forms

to reflect the degree of conscious or unconscious awareness of such factors which particular context require. They learn the skills to do this during the process of language acquisition and social acculturation.

The study of language and the study of mankind should proceed concurrently. Language is powerfully constrained by people themselves - by their capacities, their interests and their needs. To ignore such factors in the study of language is to opt for a study of form without function, of system without substance and of competence without performance. Language is every bit as much function, substance and performance as it is form, system and competence. It is an artifact of linguistic (theory) history that one set of concerns has been elevated at the expense of the other.

APPENDIX A

USE OF LANGUAGE AND SUPPORTING STRATEGIES

Tough (1976)

1) Self-maintaining

Strategies

1) referring to physical and psychological needs and wants
2) protecting the self and self interest
3) justifying behaviour or claims
4) criticising others
5) threatening others

2) Directing

Strategies

1) monitoring own actions
2) directing the actions of the self
3) directing the actions of others
4) collaborating in action with others

3) Reporting on present and past experiences

Strategies

1) labelling the components of the scene
2) referring to detail
3) referring to incidents
4) referring to the sequence of events
5) making comparisons
6) recognizing related aspects

7) making an analysis using several of the features above

8) extracting or recognizing the central meaning

9) reflecting on the meaning of experiences including own feelings.

4) Towards logical reasoning

Strategies

1) explaining a process

2) recognizing causal and dependent relationships

3) recognizing problems and their solutions

4) justifying judgments and actions

6) reflecting on events and drawinf conclusions

7) recognizing principles

5) Predicting

Strategies

1) anticipating and forecasting events

2) anticipating the detail of events

3) anticipating a sequence of events

4) anticipating problems and possible solutions

5) anticipating and recognizing alternative courses of action

6) predicting the consequences of actions or events

6) Projecting

Strategies

1) projecting into the experiences of others

2) projecting into the feelings of others

3) projecting into the reastions of others

4) projecting into situations never experienced

7) Imagining

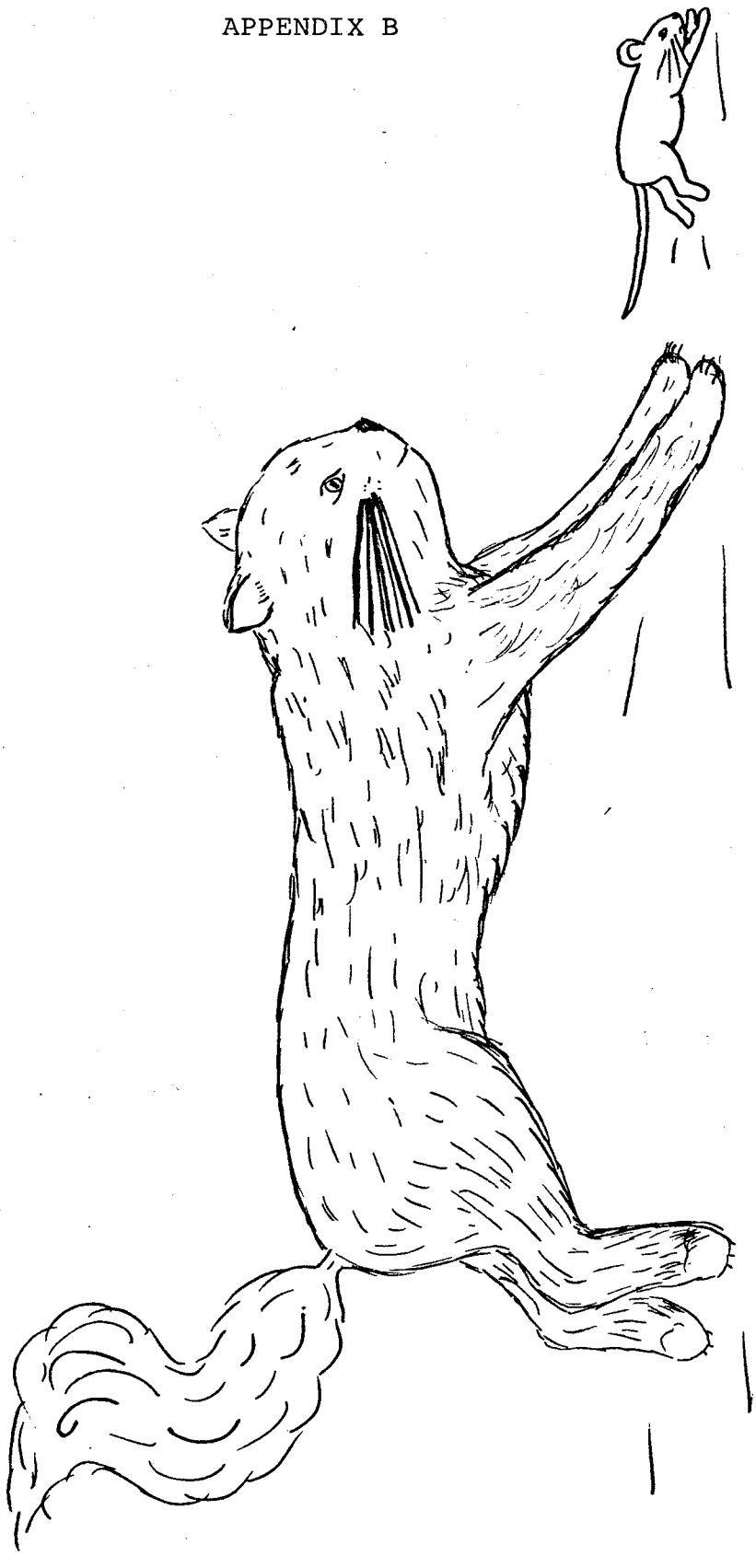
Strategies

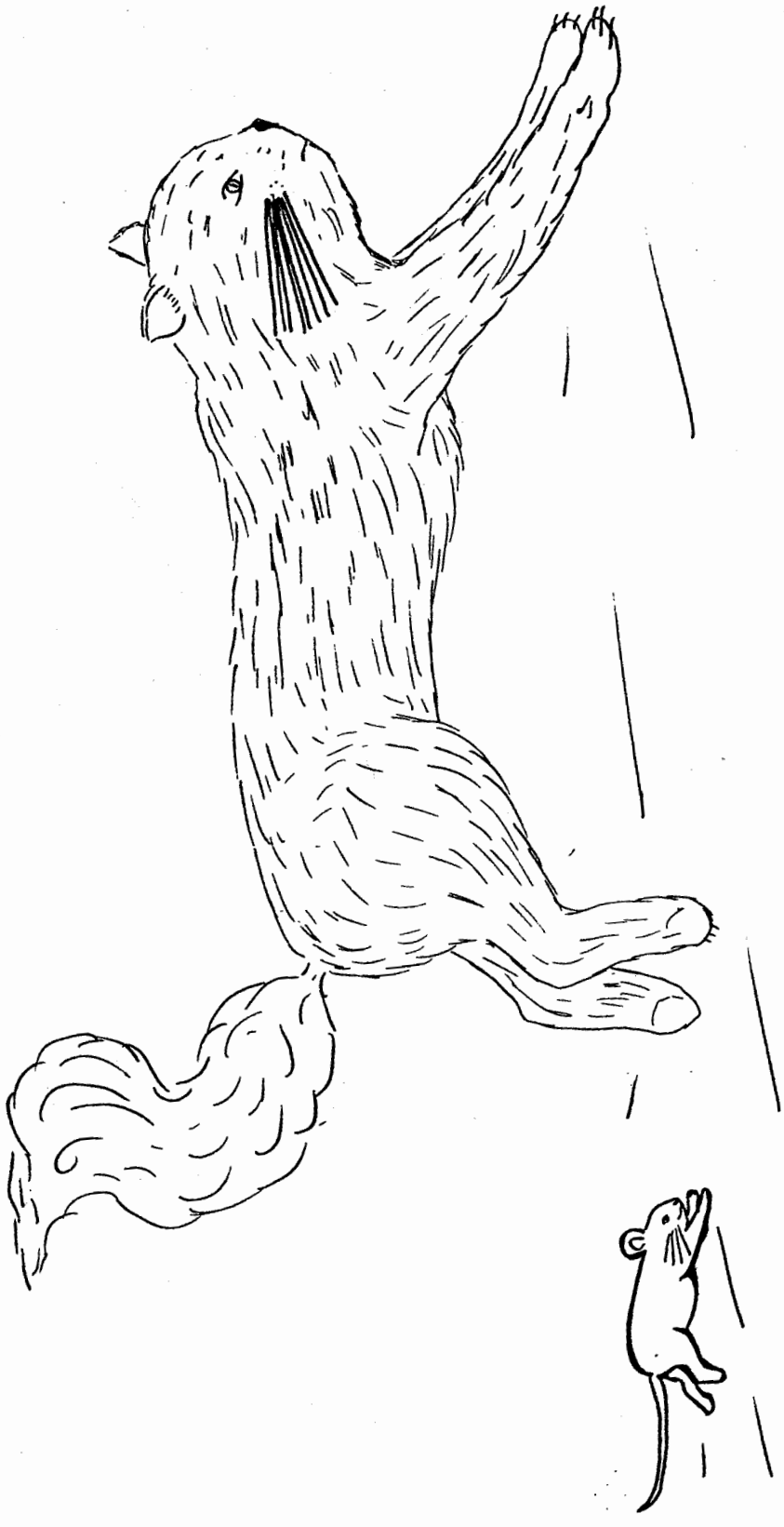
1) developing an imaginary situation based on real life

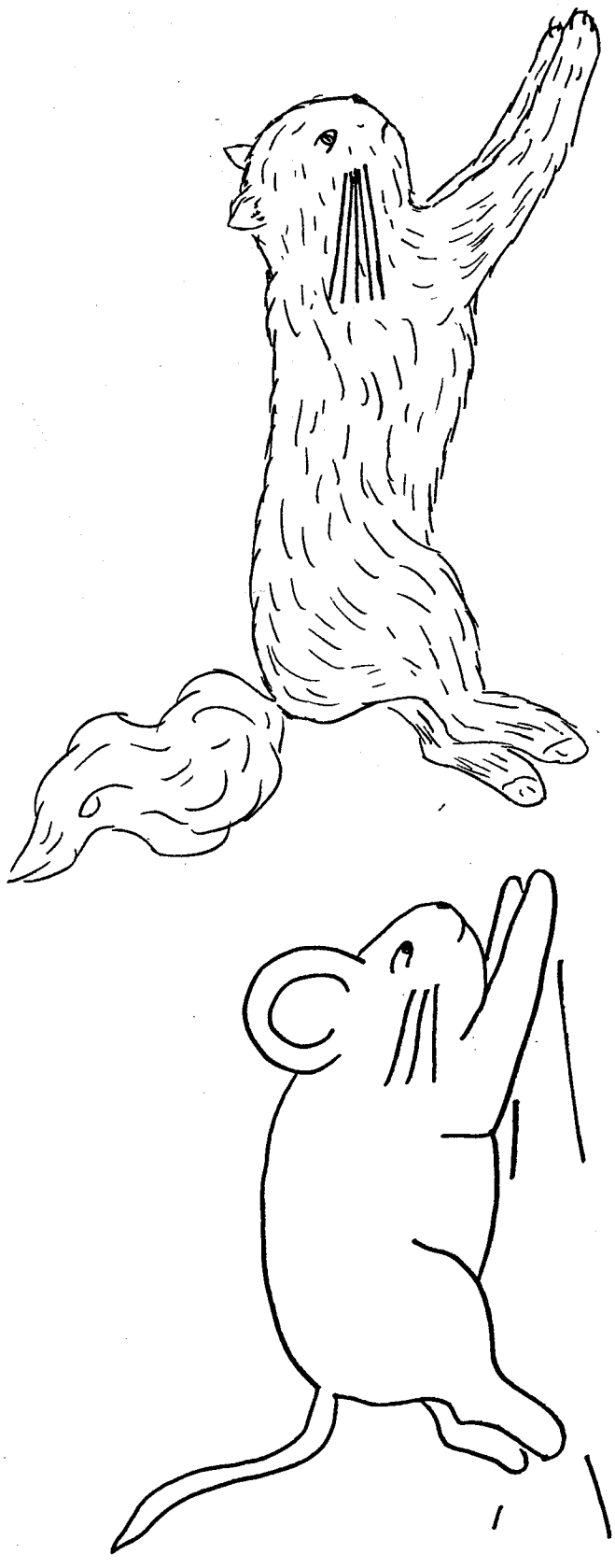
2) developing an imaginary situation based on fantasy

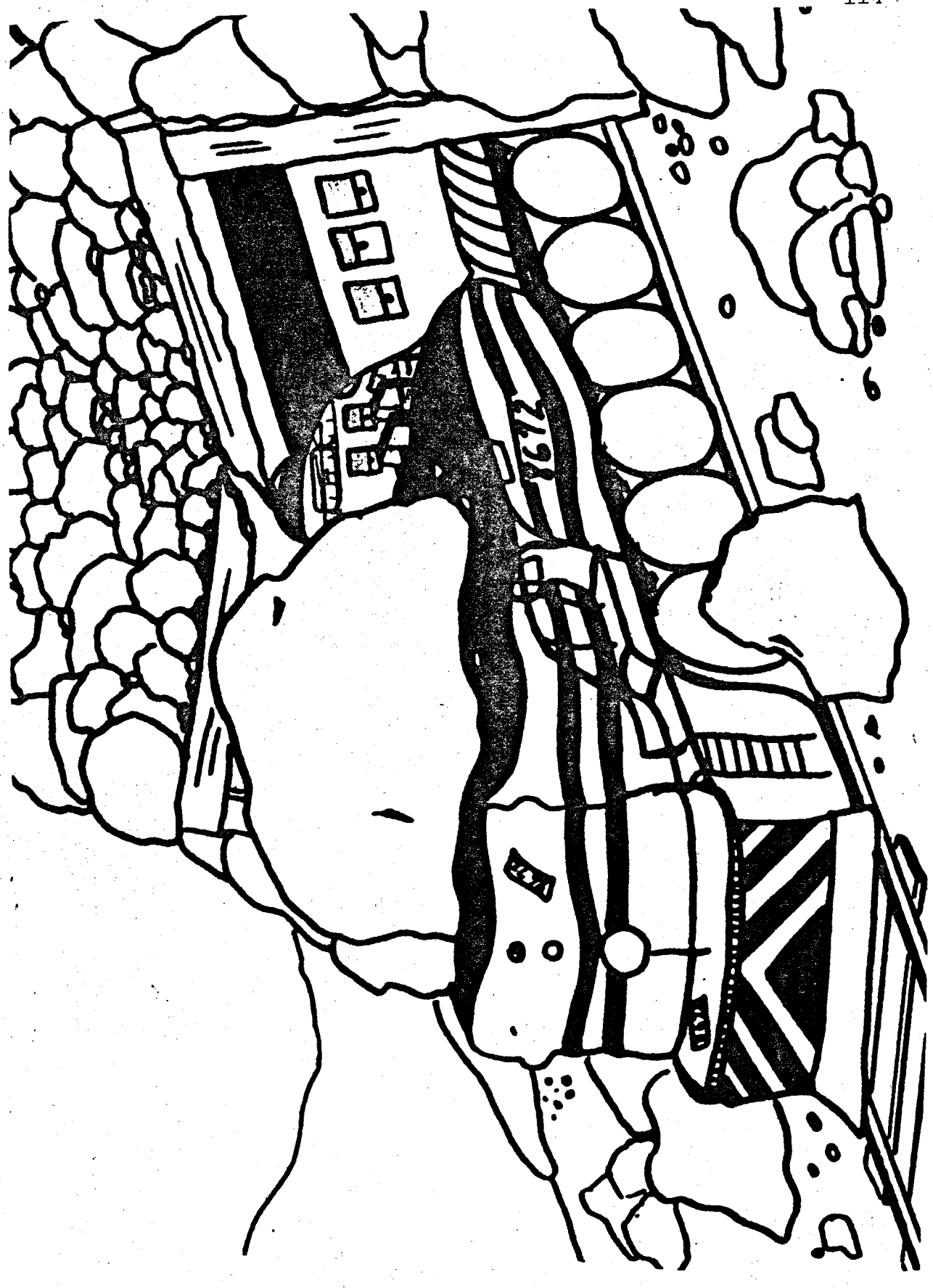
3) developing an original story

APPENDIX B









Name:_____ age:_____

handedness:_____ sex:_____

Teacher's classification:

		yes	no	
01)	active	____	____	comments: _____
	passive	____	____	comments: _____
02)	active	____	____	comments: _____
	passive	____	____	comments: _____
03)	active	____	____	comments: _____
	passive	____	____	comments: _____
04)	active	____	____	comments: _____
	passive	____	____	comments: _____
05)	active	____	____	comments: _____
	passive	____	____	comments: _____

Data Recording Form

06) active ____ ____ comments: _____

passive ____ ____ comments: _____

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07) active ____ ____ comments: _____

passive ____ ____ comments: _____

---

08) active ____ ____ comments: _____

passsive ____ ____ comments: _____

---

09) active ____ ____ comments: _____

passive ____ ____ comments: _____

---

10) active ____ ____ comments: _____

passive ____ ____ comments: _____

---

11) active ____ ____ comments: _____

passive ____ ____ comments: _____

Data Recording Form (continued)

12) active ____ ____ comments: _____

passive ____ ____ comments: _____

Data Recoding Form (continued)

13 a) visual agent ____ ____ comments:

b) aural agent ____ ____ comments:

c) aural passive ____ ____ comments:

14 a) visual agent ____ ____ comments:

b) aural agent ____ ____ comments:

c) aural passive ____ ____ comments:

15 a) visual agent ____ ____ comments:

b) aural agent ____ ____ comments:

c) aural agent ____ ____ comments:

ACTIVE SENTENCES

I a) usual occurrence, natural size

01) The cat is chasing the mouse.

02) The fox is biting the duck.

03) The horse is pulling the dog

b) unusual occurrence, natural size

04) The monkey is following the lion.

05) The sheep is chasing the cow.

06) The rabbit is biting the bear.

c) usual occurrence, same size

07) The cat is chasing the mouse.

08) The fox is biting the duck.

09) The horse is pulling the dog.

d) unusual occurrence, same size

10) The monkey is following the lion.

11) The sheep is chasing the cow.

12) The rabbit is biting the bear.

PASSIVE SENTENCES

I a) usual occurrence, natural size

01) The mouse is being chased by the cat.

02) The duck is being bitten by the fox.

03) The dog is being pulled by the horse.

b) unusual occurrence, natural size

04) The lion is being followed by the monkey.

05) The cow is being chased by the sheep.

06) The bear is being bitten by the rabbit.

c) usual occurrence, same size

07) The mouse is being chased by the cat.

08) The duck is being bitten by the fox.

09) The dog is being pulled by the horse.

d) unusual occurrence, same size

10) The lion is being followed by the monkey.

11) The cow is being chased by the sheep.

12) The bear is being bitten by the rabbit.

SENTENCES WITH NATURAL FORCES

II) natural forces

13 a) What is being burnt?

b) The fire is burning the house. What is being burnt?

c) The house is being burnt by the fire? What is being burnt?

14 a) What is being crushed?

b) The rocks are crushing the train. What is being crushed?

c) The train is being crushed by the rocks. What is being crushed?

15 a) What is being blown over?

b) The wind is blowing over the truck. What is being blown over?

c) The truck is being blown over by the wind. What is being blown over?

APPENDIX F

Comments

It was originally a concern that the data collection session would be too long for the students, however, no signs of fatigue were witnessed by the interviewer. Comments such as the following were common: "That was fun" or "I wish there were 20 more" or "Can't I do that again". These comments came from children who made several mistakes as well as from those who did not make any.

The following reports several comments which will help give the reader a better feel of what the interview situation was actually like. It seems that, although these comments are not reported in any statistical analysis, they may offer some insight into how the child is processing the stimuli.

In Task B when the examiner was determining if the child understood the illustration, there were three spontaneous productions of the passive such as "The train is being crushed by the rocks." Another child on the same task, paid close attention to the picture and pointed to either the agent or the object as it was named in the sentence.

Several children who made mistakes added parts to the sentence as if to explain their choice. For example,

after being read the sentence "The bear is being bitten by the rabbit" the child would add "and the rabbit's trying to get away."

Other comments included:

"Ah, poor rabbit"

"Rabbits usually don't bite bears"

"What a big mouse!"

"That's a scary one"

APPENDIX G

	correct passives, task A, n=12	correct actives, task A, n=12	correct passives, task B, n=3	correct actives, task B, n=3	total correct, task B, n=6	correct passives, task A and B, n=18	correct actives, task A and B, n=18	correct units, task A, n=4	age	sex
1	8	12	3	0	3	11	15	3	6.10	F
2	11	12	3	3	6	17	18	4	6.11	F
3	10	12	3	2	5	15	17	4	6.11	F
4	10	12	3	1	4	14	16	4	6.11	F
5	11	12	3	3	6	17	18	4	7.1	M
6	10	11	3	0	3	13	16	4	7.1	F
7	11	12	3	1	4	15	16	4	7.2	M
8	11	12	3	3	6	17	18	4	7.3	M
9	11	12	3	3	6	17	18	4	7.4	M
10	9	12	3	0	3	12	15	3	7.4	M
11	11	12	3	0	3	14	15	4	7.6	F
12	12	12	3	3	6	14	18	4	7.6	F
13	8	12	3	3	6	18	18	4	7.7	M
14	10	12	3	2	5	15	17	4	7.8	M

Raw data

15	8	11	3	3	6	14	17	2	7.9	F
16	12	12	3	3	6	18	18	4	8.0	F
17	12	12	3	3	6	18	18	4	8.0	F
18	9	12	3	3	6	15	18	4	8.2	M
19	7	12	3	3	6	13	18	2	8.2	F
20	11	12	1	3	4	16	18	4	8.2	F
21	12	12	3	3	6	18	18	4	8.3	M
22	11	12	3	3	6	17	18	4	8.4	F
23	5	12	3	3	6	11	18	1	8.4	F
24	6	12	3	3	6	12	18	2	8.5	M
25	10	12	3	3	6	16	17	4	8.5	F
26	9	12	3	3	6	15	18	3	8.5	M
27	8	12	3	3	6	14	18	3	8.6	M
28	9	12	3	3	6	12	18	3	8.6	M
29	12	12	3	3	6	18	18	4	9.3	M

Raw Data (continued)

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