

THE EMERGENCE OF SELECTIVE MORPHOLOGICAL  
RULES IN THE WRITTEN LANGUAGE OF DEAF CHILDREN

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We hereby recommend that the thesis prepared under  
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## Chapter I

### Introduction

People communicate with one another through the use of a common language (Sanders, 1971). Language is the expression or communication of feelings, thoughts, and ideas through any possible means, vocal or other (Groht, 1974). Language is the outward expression of inner thinking and feeling. Young children learn to use language to understand reality in intellectual terms (Furth, 1966).

McNeill states that there appears to be an inborn capacity for children to acquire language (1966). The in-born capacity is stimulated by the presentation of necessary information about the language used by the people in the child's environment (McNeill, 1966). The main channel for reception of vital linguistic information is the auditory pathway (Calvert and Silverman, 1975). The hearing impaired child gets limited use from aural stimulation because of the restricted acoustic information he receives (McNeill, 1966). Without the necessary information the hearing impaired child should receive through the auditory pathway, those language constructions which should be established early may not be acquired at all (Kretshmer, 1976).

There are many different aspects of language to be considered when presenting language concepts to hearing

impaired children. If a teacher of the deaf is aware of the areas of language in which students need assistance and the developmental acquisition of certain linguistic rules then this information can help the teacher develop meaningful language lessons (Ziff, 1974).

Most hearing persons have an internalized set of rules which forms the basis of sentence construction in a language. Native speakers of English may not be able to state the rules of English in explicit terms but they can apply the rules to produce utterances they have never heard before. The ability to produce novel yet grammatically correct English utterances requires a knowledge of English formational rules (Cooper, 1967).

It appears to be partially the child's responsibility to discover those rules which form the basis of language. The child is an active participant in the learning of language as he must formulate and test new rules. The child discards or revises rules as he experiments with language constructions (Bowerman, 1973).

Moore states that the rules which form the basis of language are often not entirely conveyed to the deaf child because of a lack of experience with the correct constructions of language (1970). A deaf child learns a language by interacting with a language (Moore, 1970). The learning



of a language is also the learning of a world of thinking (Van Uden, 1970). The deaf child must be able to think in language terms if he is to understand the rules of language. The deaf individual needs to have a good understanding of the rules of language if communication is to play a major part in his life (Fitzgerald, 1974). "Having a command of language is not only a necessity to the deaf child in his daily contact with hearing people, it is the open door to happy, satisfying, broadening, and rewarding living" (Groht, 1974, p. 71).

The structural rules of a language are referred to as the grammar of a language (Slobin, 1975). Grammar can theoretically be divided into four major areas: (a) phonology, (b) syntax, (c) semantics, and (d) morphology (Matthews, 1974). Phonology refers to the functioning of sound units in a language. Syntax deals with the constructions of phrases and sentences and the meaning that is conveyed by the inter-relationship of words in those constructions. The study of individual word meanings is referred to as semantics. Morphology refers to the linguistic rules by which units of language, or morphemes, are combined into words to convey meaning (Cooper, 1967). This research effort will deal only with the morphological area of language.

Many morphemes can convey meaning in isolation while

others are meaningless unless combined with other morphemes (Cooper, 1967). Matthews defines morphemes which are added to words as affixes (1974). Affixes can be divided into prefixes, suffixes, and infixes depending on whether the affix is added before the word, after it, or at some point within it (Matthews, 1974). These morphemes are added to words to change an idea or to convey additional information (Cooper, 1967). This study deals only with that group of morphemes referred to as suffixes.

The morphemes which are added to the ends of words are referred to as suffixes (Wilson and Hall, 1974). Suffixes can either be derivational or inflectional. A word changes form class when a derivational suffix is added (Langacker, 1973). Form class refers to the specific manner in which a word functions when placed in a sentence (Matthews, 1974). Inflectional suffixes add meaning but do not change the form class of words. An understanding of both types of suffixes is vital to the use of language as a communication tool (Cooper, 1967).

A major part of the curriculum in deaf education programs is concerned with providing hearing impaired children with linguistic proficiency in order that they may communicate in the best possible language with the hearing population (Ziff, 1974). If deaf children do not have a strong basic understanding of the effect that suffixes

have on language there could be a deficiency in the understanding which should take place in the communication process. The introduction of morphological rules which deal with suffixes should be incorporated into the language programs for the deaf. Deaf children, as well as all children, must understand the basic morphological rules if they are to produce meaningful and grammatically correct English sentences (Cooper, 1967). If increased exposure to morphological rules is provided for the hearing impaired child in an academic setting, then there should be a greater chance that the child will acquire the language used in the hearing world (Calvert and Silverman, 1975).

Hearing children become familiar with the way morphemes fit into language by hearing and becoming familiar with language (Van Uden, 1970). Teachers of the hearing impaired could benefit from information as to the order of difficulty of usage as shown by the order of acquisition of the following morphemes: (1) the suffix used to change some nouns to their plural forms such as from book to books, (2) the suffix used to change a noun to its possessive form as from cat to cat's, (3) the suffix used to change the basic form of a verb to form the present tense of the third person singular form of a verb such as from run to runs, (4) the suffixes used to change the basic form of some verbs to form the past tense as from change to changed and as from rain to rained,

and (5) the suffix used to change the basic form of a verb to the progressive tenses as from jump to jumping. The progressive form of the verb must be preceded by a form of the be verb to be considered as the progressive form of the verb. Teachers can use this information in the planning of language lessons (Cooper, 1967).

The hypothesis of this study is that this research effort will produce evidence to support that the order of acquisition of the previously mentioned morphemes will consist of the following pattern: (1) the plural s form, (2) the possessive s form, (3) the past tense ed and d forms of verbs, (4) the progressive ing form of the verb, and (5) the third person singular s form of verbs.

The results of this research effort should provide meaningful information relative to which structures might be taught first in structured language programs based on the order of acquisition of these morphemes.

## Chapter II

### Review of the Literature

The different components of language have been analyzed with much emphasis being placed on the way in which children acquire language skills. Many studies indicate that a child is an active participant in the language acquisition process. A child plays an important role in the construction of his language system as he manipulates it to work as a communication tool (Brennan, 1975).

Many deaf children miss what is learned through experience and social contact with the hearing world due to a lack of communication with the hearing world. It is through experience and contact with other people that children acquire language skills. A child experiments with words and language constructions and proceeds to discard those combinations which do not fall into a workable pattern (Brennan, 1975).

The lives of deaf and hearing persons differ minimally in that both are motivated by similar desires. Hearing people and hearing impaired people engage in many similar recreational and professional activities (Furth, 1966). Those conditions which lead to development with the hearing child should also lead to development with the hearing impaired child (Menyuk, 1976).

For many centuries deaf persons were considered to be lacking in normal intelligence. Deafness is not a visible handicap as it manifests itself mainly in the failure to communicate. Language was considered to be the key to all that was abstract and conceptually mature in man. As the deaf individual was unable to communicate with hearing individuals due to a lack of educational programs for the deaf, language remained an almost unattainable goal for hearing impaired persons (Furth, 1966).

In the past few centuries hearing persons began to realize the abilities and capacities of hearing impaired individuals. Many hearing persons became aware of the fact that the only difference between them and their hearing impaired peers was the inability to hear properly (Furth, 1966).

Educational programs were designed to teach the deaf so that they could function in the hearing world. Many ideas developed to improve the methods used to teach the deaf. Research provided much information to use in the deaf education programs (Kretshmer, 1976).

To communicate with other people in his environment a child must formulate the grammar of the language used in his environment. The grammar of language is the framework from which language constructions are formulated. Without an understanding of the basic framework of grammar,

communication of ideas in properly constructed sentences is not possible (Wales and Marshall, 1966).

All speakers of a language make mistakes in grammar. Having a knowledge of grammar provides a resource to which an individual can relate to when a mistake is made so that self correction is possible (Wales and Marshall, 1966).

A grammatically correct utterance is not simply composed of a sequence of responses strung together, it consists of units which are placed in an order based upon a set of rules which govern the language. Each child develops linguistic competencies through practice. The child becomes becomes aware of the linguistic rules and begins to put them to use through expression of ideas (Wales and Marshall, 1966).

Language is a unique system of communication as individuals have the ability to produce creative utterances. As the child continues to come into contact with the social part of his environment, he continues to search for the basic rules of language (Wales and Marshall, 1966).

There are patterns in language productions and it is necessary for the child to become aware of these patterns so that a framework for grammar may be constructed (Wales and Marshall, 1966). The elements which make up the total substance of language are the building blocks with which the child constructs his sentences and expressions.

Individual elements of language do carry meaning but it is not possible to completely isolate each element to understand its function. Sentences consist of elements which when placed in a sentence together affect the meaning of the entire utterance (Van Uden, 1970).

Prior to the 1920's the teaching of deaf children reflected the classical model of instruction. Language was analyzed into parts of speech which classical grammarians felt was the basis for sentence structures. These parts of speech were put into principles which deaf children were expected to memorize (Wilbur and Quigley, 1975).

During the 1920's structural linguists began to place greater emphasis on the sentence and its pattern. Research on the language of deaf children within the structural linguistic framework resulted in major indications as to the errors in sentence patterns as produced by deaf children (Wilbur and Quigley, 1975).

In the late 1950's language instruction of deaf children was being changed as Chomsky began to influence the basic ideas which governed the language programs in schools for the deaf. Chomsky's main hypothesis stated the need for children to learn a small set of rules or principles of sentence formation. This small set of rules could then be used to generate all the sentences of a language (Wilbur and Quigley, 1975).



Studies revealed that a child's early speech does not consist of combinations of words which are selected at random, rather they are patterned. A child searches for the patterns of language so that sentence construction becomes possible (Wales and Marshall, 1966).

Hearing children acquire language skills by continuously hearing the language in their environment (Tyler and Marslen-Wilson, 1978). The deaf child is denied the natural experience with spoken language due to the nature of his handicap, therefore the natural evolvement of meanings and structures does not take place (Brennan, 1975).

It is not possible to measure linguistic competence without measuring linguistic performance. Linguistic competence is the specific skill of an individual who has learned a language. Linguistic performance is the expression of that skill through communication (Furth, 1966).

An individual must have a strong comprehension of linguistic structures if he is to have a strong linguistic competence (Furth, 1966). A child begins to extend his knowledge of linguistic structures as his utterances become more complex and extensive (Lee, 1974).

Many researchers are concerned with the predisposition of the child to search for specific types of regularity in natural language (Wales and Marshall, 1966). The results of the research of the 1960's and early 1970's indicate

that every normal child's ability to understand and utilize linguistic information derives from an innate linguistic capacity. There is, however, a continuous dispute as to whether there is indeed such an innate capacity (Brennan, 1975).

Quigley, Wilbur, and Montanelli studied the question formation in the language of deaf students (1974). The results of this research indicate that there are developmental stages in the acquisition of questions in the language of deaf students (Quigley, Wilbur, and Montanelli, 1974).

Schmitt completed a doctoral study at the University of Illinois in which several syntactic structures in deaf children's language were studied (1968). The results of this research indicate that deaf children's language is generated by a grammar of rules as are all other languages (Schmitt, 1968).

Although many language forms are established early in a child's development, refinement of the child's language skills continues. In the past ten years research in the area of deaf education has focused primarily on investigations of the comprehension and production of specific linguistic principles by language samples of hearing impaired children (Kretshmer, 1976).

In 1969 through a grant from the Bureau of Education for the Handicapped, it was possible for a group at the

Institute for Child Behavior and Development at the University of Illinois to undertake an extensive study of syntax in the language of deaf children. A major goal of this research was to determine specific patterns and deviancies in the language of deaf children (Steinkamp and Quigley, 1977).

In the past fifteen years research in the area of language development has shifted from phonology and morphology to syntax. Morphemes not only affect the surface structure of language, they also affect the deep structure of language (Matthews, 1974). Berko did a research study in 1958 to determine the child's acquisition of English morphology. Berko theorized that it was possible to determine whether a hearing child had an internal ability to use morphological rules by presenting him with nonsense words which he was to inflect properly. Berko determined that formational rules for the third person singular form of the verb and for the possessive form of the noun are acquired earlier developmentally than is the rule for the formation of the plural forms of nouns. Berko also determined that the formational rule for the plurals of nouns is acquired earlier than is the rule for the formation of the past tense of verbs by adding d or ed. Berko did her study with children and adults with normal hearing (1958).

In 1967 Cooper did a study comparing deaf and hearing

children's knowledge of English formational rules dealing with morphology. The results of the research indicate that hearing children develop formational rules dealing with morphology at a younger age and with a greater consistency of utilization than do deaf children (Cooper, 1967).

Kretshmer examined the written language of 120 hearing and 120 hearing impaired children (1976). The hearing impaired children tended to produce sentence strings that were less complex than those of hearing children. Kretshmer observed that the hearing impaired children consistently failed to observe semantic features which govern grammatical use within language (1976).

In a study done by Bunch and Clarke age, sex, and type of language instruction were the variables used to divide the subjects into different groups. The subjects were divided into age groups as follows: (1) 9 years, 0 months-10 years, 11 months, (2) 12 years, 0 months-13 years, 11 months, and (3) 15 years, 0 months-16 years, 11 months. The subjects used in this study attended residential schools which used either the formal or natural methods for language instruction. Selected items from Berko's Test of Morphological Rules were administered to the different groups through written instruction as well as through total communication. The results indicated that sex and type of language method

used did not reflect any significant difference in the performance of the subjects. Significant differences were found within the performance of the different age groups (Bunch and Clarke, 1978).

Contemporary research suggests that there is a delay in most deaf children's language. Several authors have confirmed the consistency of deviant rule usage by a number of hearing impaired children (Kretshmer, 1976).

Directions for future research indicate a need to apply newly developed strategies for studying language acquisition to observation of hearing impaired children's language performance (Kretshmer, 1976). This information should provide a strong basis for development of curriculum designed to overcome the language problems of deaf students (Wilbur and Quigley, 1975).

### Chapter III

#### Research Design

The previous chapter gave a review of the literature on research in the area of language acquisition. As indicated by recent research, hearing children tend to produce a greater number of grammatically correct sentences at a younger age than do hearing impaired children.

Hearing impaired children may be at different levels in language performance depending upon hearing loss, intelligence, educational programs, and amount of family communication, therefore it is difficult to divide hearing impaired children's language into specific age groups so as to ascertain how a child's language compares with that of his hearing impaired peers. Hearing impaired children's language can be analyzed according to specific linguistic skills in comparison with the language of other hearing impaired children.

The Maryland Syntax Evaluation Instrument (MSEI) was developed to provide a meaningful tool with which educators of the deaf are enabled to evaluate the language of their students. The students used to standardize the MSEI attended three different residential schools for the deaf in the United States. The three residential schools used in the standardization of the MSEI have educational programs

based on different philosophies. One school employed the Oral Method, one school employed the Total Communication Method, and one school employed the Rochester Method. The total number of language samples used to standardize the MSEI was divided into seven different categories based upon a general interpretation of linguistic abilities as judged by standard speakers of English. The different categories are interpreted as:

Superior  
Excellent  
Good  
Average  
Below Average  
Poor  
Very Poor

The different categories were interpreted in relation to the language samples of the subjects used to standardize the MSEI (White, 1977).

A quantitative analysis of the written language of 100 hearing impaired children was taken to determine the order of difficulty of usage as shown by the order of acquisition of the following morphemes: (1) the suffix used to change some nouns to their plural forms as from book to bookss, (2) the suffix used to change a noun to its possessive form as from cat to cat'ss, (3) the suffix used to change the basic form of a verb to the present tense of the third person singular form of a verb such as from run to runss, (4) the suffixes used to change the basic

form of some verbs to form the past tense as from change to changed and as from rain to rained, and (5) the suffix used to change the basic form of a verb to its progressive form as from jump to jumping. Those language samples that were used in this research effort were a portion of those used to standardize the MSEI. The children used to standardize the MSEI ranged in age from 6 years, 0 months to 11 years, 11 months. Those students that were judged to be multiply handicapped by the school administrators were not used in this study. The subjects used in this study had a hearing loss ranging from 60 dB to 100 dB or greater in their better ear.

The total number of language samples used to standardize the MSEI was divided into the seven different categories based upon the syntax scores. Numbers were assigned to each language sample in each different category. A respective proportion was randomly selected from each category based upon the total number of language samples in that category. The number of language samples in each category was as follows:

Original Data (White, 1977)		Present Study
General Interpretation	Percentage	Number of Samples
Superior	10%	10
Excellent	12%	12
Good	18%	18
Average	16%	16
Below Average	25%	25
Poor	15%	15
Very Poor	4%	4



Guidelines used as indications of attempts at the usage of the morphemes are listed below:

### The plural s

If a noun was preceded by a number higher than one and no indication of the plural s appeared in the written language then it was determined that this was an unsuccessful attempt to use this morpheme.

Example: Two girl are stand on the box.

If a sentence or word string contained the same noun twice with the conjunction and between then this was counted as an unsuccessful attempt to use the plural s.

Example: girl and girl saw tipitt.

If the plural s appeared in a sentence or word string correctly then this was counted as a successful attempt to use the plural s.

Example: 2 girls on the box stand.

### The possessive s

If a noun was followed by another noun which indicated possessiveness of the following noun but no indication in the written language appeared then this was determined to be an unsuccessful attempt to use the possessive s.

Example: The baby is pulling the cat tail.

If the possessive s appeared in the sentence or word string correctly then this was counted as a successful attempt to use the possessive s.

Example: The baby is pulling the cat's tail.

### The past tense form of the verb (d, ed)

Unless the morphemes d or ed appeared in the written language then it was assumed that no attempt was made to use these morphemes.

Examples: The baby haded the bear.

(unsuccessful attempt)

The baby pulled the cat.

(successful attempt)

The third person singular form of the verb

If a singular noun was followed by the basic form of a verb and no indication of the s appeared in the written language then this was determined to be an unsuccessful attempt to use the third person singular form of the verb in the present tense.

Example: The baby want the bear.

If the third person form of the verb was used correctly then this was counted as a successful attempt to use this morpheme.

Example: The baby loves the bear.

The progressive form of the verb (ing)

If a noun was followed by a form of the be verb and the basic form of the verb then this was counted as an unsuccessful attempt to use the progressive form of the verb.

Example: The girl is eat the cake.

If a noun was followed by the progressive form of the verb but no form of the be verb preceded the progressive form of the verb then this was counted as an unsuccessful attempt to use the progressive form of the verb.

Example: The girl eating the cake.

If the progressive form of the verb appeared with a form of the be verb then this was counted as a successful attempt to use the progressive form of the verb.

Example: The girl is eating the ice cream.

A table indicating the ratio of the number of times each morpheme was used successfully to the number of times each morpheme was attempted is included in the following chapter. A graph indicating the order of difficulty of usage as shown by the order of acquisition of the previously mentioned morphemes as indicated by a percentage that the different morphemes were used correctly is also included in the following chapter.

Hearing impaired children make use of morphological rules as is indicated in their written language. The meaning carried by the morphemes when placed in sentences or word strings appears to be a difficult concept for many deaf children to grasp as is indicated by the number of times the morphemes are used correctly to the total number of times the morphemes are attempted.

## Chapter IV

### Results

Many hearing children display an amazing ability to acquire language skills. Most hearing impaired children do not display a great degree of competency in the acquisition of language skills. Some hearing impaired children have a greater ability to manipulate language constructions than do their other hearing impaired peers.

It has been discovered through many studies done on the language of deaf children that a strong internalized framework for grammar is not evident in their language performance. Many studies have revealed a weak basis with which hearing impaired children formulate their sentences. Studies in the area of deaf education have also revealed a lack of consistency in the language of hearing impaired children which may be one variable that accounts for the weak grammar which governs the language of many deaf children.

Hearing impaired children have different capacities as do their hearing peers. The language samples used in this study were divided into seven separate categories based on the different language capacities of the subjects involved. The categories are specified in the previous chapter. For ease of reference the different categories

will be referred to as follows:

Very Poor	-first category
Poor	-second category
Below Average	-third category
Average	-fourth category
Good	-fifth category
Excellent	-sixth category
Superior	-seventh category

As indicated in the graph in Figure I and the table in Figure II the first morpheme to appear in the written language of the first category was the plural s. It was interesting that the plural s continued to appear correctly in the language samples at about the same percentage throughout all seven categories.

The possessive s and the third person singular s began to appear in the written language in the second category. Neither of these morphemes was used correctly at any time in this category.

Attempts were made to use all five of the morphemes in the third category. The third person singular s and the possessive s continued to not be used correctly at any time. The past tense morphemes d and ed were used at the highest percentage of correctness with the exception of the plural s. The ing morpheme was used at a substantially lower percentage of correctness than were the past tense morphemes.

In the fourth category the plural s began to appear at a slightly higher percentage of correctness than in the third category. The possessive s was used correctly 100

percent of the time in the fourth category which was a dramatic rise from the third category at 0 percent. Two statements may be made about this dramatic rise in percentage of times used correctly. Such a drastic change indicated that the possessive s is acquired quickly once the morphological rule governing the usage of this morpheme is grasped. It must be remembered, however, that the possessive s appeared in the written language before the ing morpheme and the past tense morphemes d and ed and was used correctly at a lower percentage of the time.

In a study done by Bunch and Clarke in which selective linguistic skills dealing with morphemes in the language of deaf children were evaluated, the possessive s was determined to be the most difficult morpheme to acquire (1978). Bunch and Clarke used the test developed by Berko in which nonsense words were presented to a child to inflect. Berko used the test with hearing children.

In the same study done by Bunch and Clarke it was noticed that the one real word item (glass) received the highest number of correct responses when placed in the plural form. Such a difference between the number of correct responses for the inflection of real words and correct inflection for nonsense words might indicate a certain degree of confusion with the unfamiliar nonsense words. Such a difference might also indicate a weak grammar framework

as a child should be able to consistently inflect new words if he does indeed have an internalized grammar.

The past tense morphemes continued to appear at the same percentage of correctness in the fourth category as in the third category. The ing was used at a higher percentage of correctness in the fourth category than in the third category. The third person singular s continued to not be used correctly at any time.

The plural s dropped slightly in the percentage of times used correctly in the fifth category when compared with the fourth category. The possessive s dropped substantially in the percentage of times used correctly in the fifth category. Such a drop indicated that some of the children did not have a strong understanding of the function of this morpheme; however, it should be noticed that the possessive s was attempted in the written language of the subjects in the fifth category a greater number of times than in the written language of the subjects in the fourth category as indicated in Figure II. The past tense morphemes d and ed as well as the ing morpheme continued to rise in the percentage of times used correctly in the fifth category. The third person singular s began to appear correctly in the written language of the subjects in the fifth category. This is the first category in which the third person singular s began to appear correctly in any of the categories.

In the sixth category the possessive s was used at the same percentage of correctness as it was in the fourth category. The plural s remained at about the same percentage of correct usage but the past tense morphemes dropped in the percentage of correct usage. The ing morpheme was used correctly at a much higher percentage in the sixth category than in the fifth category. The third person singular s continued to rise very gradually in the percentage of times used correctly.

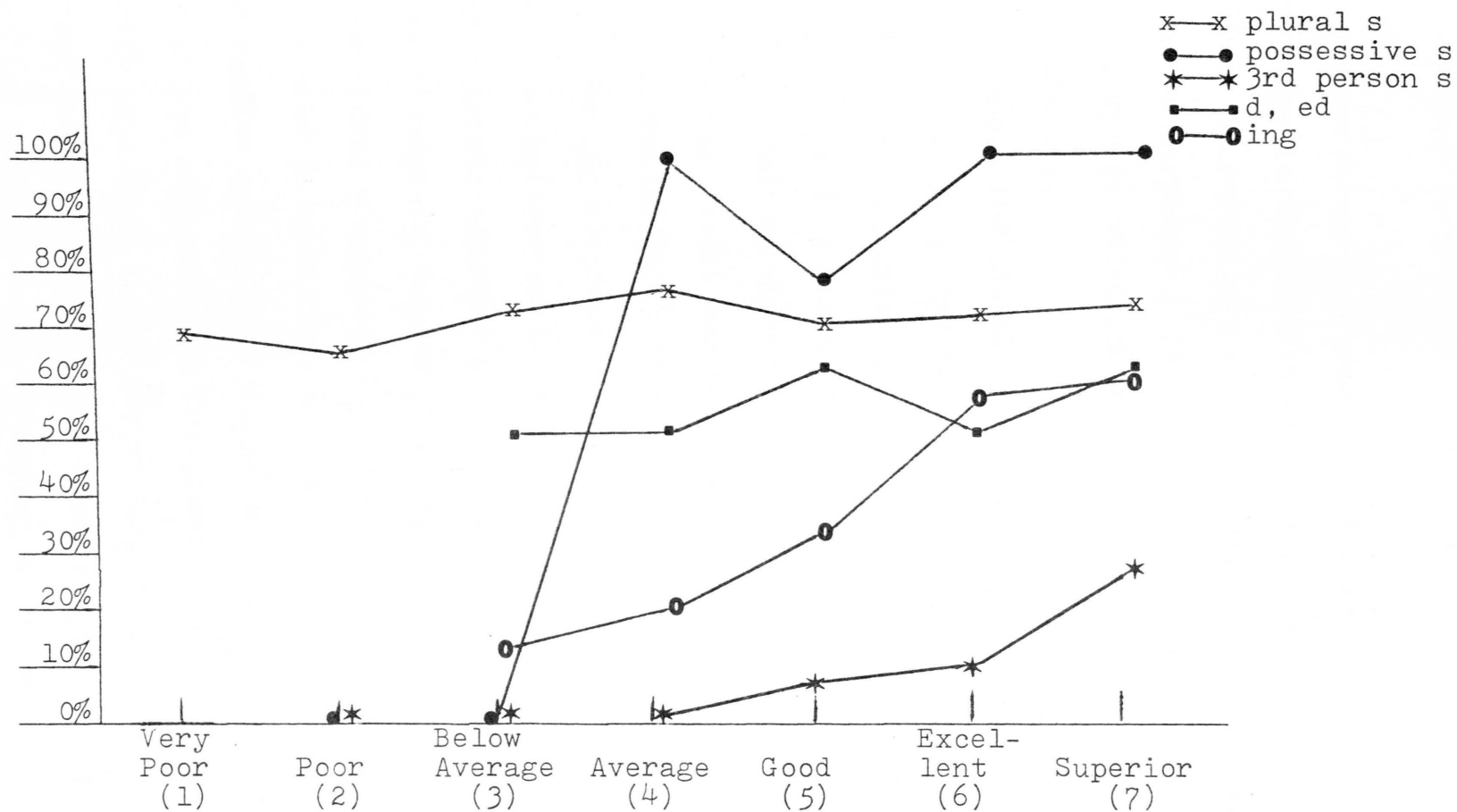
In the seventh category the possessive s remained at the same percentage of correct usage as in the sixth category. The plural s also remained at about the same percentage of correct usage as in the sixth category. The past tense morphemes d and ed rose in the percentage of times used correctly in the seventh category. The ing morpheme remained at about the same percentage of correct usage in the seventh category as in the sixth category. The third person singular s continued to rise in the percentage of times used correctly in the seventh category.

It is interesting to note that the lines on the graph in Figure I connecting the points of correct usage of the morphemes in the different categories leveled out in the sixth and seventh categories with the exception of the past tense morphemes and the third person singular s. The



Figure I

Percentage of Times The Morphemes Were Used Correctly



past tense morphemes were used at the same percentage of correct usage in the seventh category as in the fifth category so there was not a gradual rise in correct usage of these two morphemes. The third person singular s was the only morpheme which continued to rise gradually in the seventh category.

As a whole the plural s appeared in the language of the subjects in all seven categories at about the same percentage of correctness. No great improvement in the usage of this morpheme appeared in the higher categories of language. The possessive s had the most drastic rise in the degree of correct usage. The past tense morphemes d and ed appeared at about the same percentage of correct usage in the last five categories. The ing morpheme rose gradually and leveled off in the last two categories in the percentage of correct usage. The third person singular s rose gradually in the percentage of correct usage in the last four categories.

The plural s appeared in the written language of the subjects used in this study as the first of the five morphemes. The possessive s and the third person singular s began to appear at the same time but the possessive s was used correctly at a much higher percentage of the time in the last four categories. The past tense morphemes d and ed and the ing morpheme began to appear in the written language

of the subjects at the same time but the past tense morphemes were used at a higher percentage of correct usage throughout the different categories with the exception of the last two categories.

Based on the overall percentage of correct usage of the five morphemes as indicated in Figure III the order of difficulty of usage appeared to indicate that the possessive s was the most easily acquired while the plural s was the second most easily acquired. The past tense morphemes d and ed were the third most easily acquired and the ing morpheme was the fourth most easily acquired. The third person singular s appeared to be the most difficult morpheme of the five to acquire based upon the total percentage of correct usage. The order of acquisition differed slightly from the order of difficulty of usage of the different morphemes.

It is probable that the type of language instruction used in the education of the subjects involved in this study had a great deal of influence on the linguistic performance of the subjects. There are other variables which might have also influenced the linguistic performance of the subjects. A discussion of the implications of these findings follows in the next chapter.

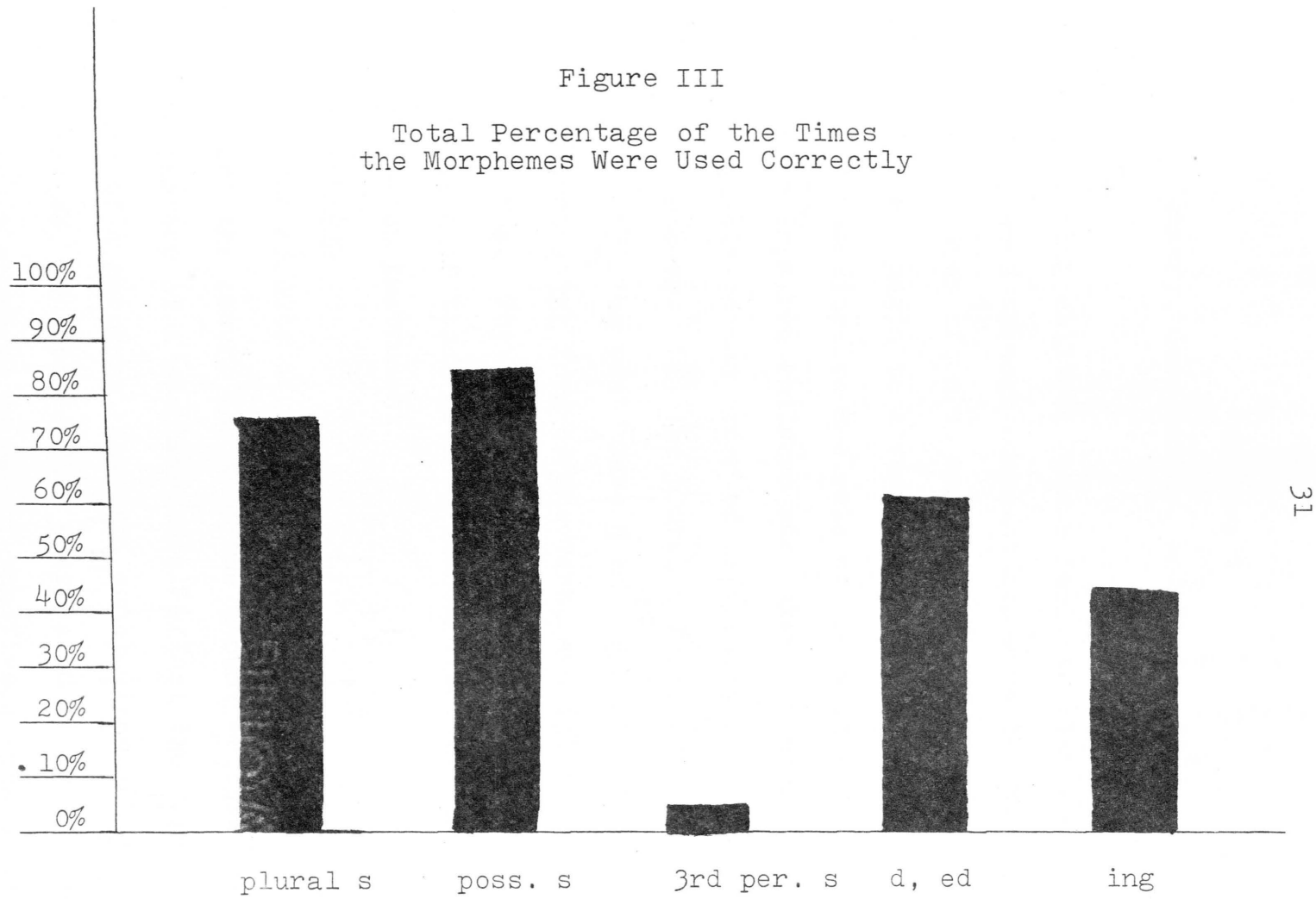
Figure II

Ratio of the Number of Times Each Morpheme Was Used Successfully  
to the Number of Times Each Morpheme Was Attempted

Morphemes	LANGUAGE CATEGORIES							
	Very Poor	Poor	Below Average	Average	Good	Excellent	Superior	Total
plural s	2/3	9/14	28/37	34/44	33/46	24/33	20/27	150/204
poss. s	0/0	0/1	0/2	2/2	7/9	12/12	9/9	30/35
3rd person s	0/0	0/5	0/31	0/22	2/49	2/29	2/9	6/145
d, ed	0/0	0/0	1/2	1/2	4/6	2/4	2/3	10/17
ing	0/0	0/0	2/18	7/36	11/34	19/31	45/71	84/190

Figure III

Total Percentage of the Times  
the Morphemes Were Used Correctly



## Chapter V

### Summary, Conclusions, and Implications

#### Summary

Hearing children become familiar with the functions of morphemes through constant exposure to the language. Deaf children often do not become familiar with morphemes until they begin to attend school.

A quantitative analysis of the written language of 100 hearing impaired children was taken to determine the order of acquisition and order of difficulty of usage of the following morphemes: (1) the plural s form, (2) the possessive s form, (3) the past tense d and ed forms of verbs, (4) the progressive ing form of the verb, and (5) the third person singular s. The language samples used in this study were a portion of those used to standardize the Maryland Syntax Evaluation Instrument.

#### Conclusions

The results of this study provided information to support the assumption that the amount of time necessary for mastery of a morpheme does reflect the degree of difficulty of a morpheme, however, conclusions are limited and tentative. The possessive s appeared to be the least difficult morpheme to use of the five morphemes evaluated in this study based upon the total percentage of times

the morphemes were attempted. The plural s appeared to be the second least difficult morpheme followed by the past tense morphemes d and ed. The progressive ing was the second most difficult morpheme to acquire while the third person s appeared to be the most difficult morpheme to acquire.

The order of acquisition of the five morphemes differed slightly from the order of difficulty of usage of the morphemes as the plural s appeared first in the written language of the subjects used in this study. The possessive s and the third person s appeared second while the past tense morphemes d and ed and the progressive ing morpheme appeared last in the order of acquisition of the morphemes.

#### Implications and Recommendations

The appearance of the plural s as the first morpheme in the written language of the subjects involved in this study may indicate that the subjects were presented instruction on the plural s before they were presented instruction on the other four morphemes. The fact that the plural s continued to be used at about the same percentage of correctness throughout all seven categories indicated that little improvement occurred in the usage of this morpheme.

The possessive s appeared to be difficult to acquire at first but once it was grasped it was used correctly more frequently than any other morpheme. The morpheme, ing,

which is used to form the progressive tenses of a verb appeared to be fairly difficult to acquire. One reason for such difficulty with this form of the verb might be due to the fact that it is a compound form of the verb involving the use of an auxiliary verb. The past tense morphemes d and ed appeared to be easily acquired as with the plural s, however, once students reached about 65 percent mastery level little improvement was noted.

The morphemes affixed to verbs appeared to be the most difficult to acquire. The third person singular s appeared to be the most difficult morpheme to acquire. The concept of third person might present a certain amount of confusion for the hearing impaired child inasmuch as it is quite abstract in nature.

Based upon the findings of this study it is suggested that efforts to teach the plural s and the possessive s should be made before instruction on the inflection of verbs is presented. Of the various verb forms it would appear that efforts to teach the past tense morphemes d and ed should precede efforts to teach the progressive form of the verb. The third person singular s should be taught following the progressive ing morpheme.

This study has provided information related to the apparent order of difficulty of usage of five different morphemes as reflected by the order of acquisition of the



morphemes as they appeared in the written language of the subjects used in this study. It would be interesting to do a study which focuses on the frequency of occurrence of morphemes in oral, signed, and written language to determine if the trends noted are similar to the frequency of occurrence of such structures in natural language. It is hoped that such studies would provide beneficial information concerning deaf children's usage of morphological rules as well as general information regarding the nature of language.

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