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Transformational Skills of Culturally Disadvantaged and Culturally Advantaged Children

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Transformational Skills of Culturally Disadvantaged and Culturally Advantaged Children

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Sylvia Eileen James

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CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

In recent years much discussion has arisen regarding various speech and language characteristics of the members of the lower socioeconomic class. Controversy has resulted from labeling these characteristics as "substandard." The intent of this researcher was not to make judgments concerning the acceptability of one person's language over that of another. The purpose was to assess specific language characteristics and describe differences in characteristics of children classified as culturally advantaged and children classifies as culturally disadvantaged.

Some investigators, to be cited later, have followed an assumption that a standard of English exists while others have been concerned about dialectical differences or variations within the English language. Various phonological, morphological, and syntactical components of the English language have been studied and researchers have described differences between those in the lower socioeconomic class and those in other classes. Sociologists have described today's society as being primarily dominated by the middle and upper classes who have been responsible for setting linguistic standards. Some educators believe that if the lower socioeconomic children are to achieve more than a subsistence standard of living

as adults they must conform to the speech and language standards of the middle class society in which they will be educated and have to work.

McCarthy (1954) cited environmental factors which influence language acquisition. She discussed the importance of parent-child relationships in regard to amount of contact the child has with the mother, the quality of the mother-child relationship, the experiences afforded by the home, neighborhood influences, bilingualism, and children living outside a family setting. Deutsch (1963) was concerned about these environmental factors and their impact on the language acquisition specifically of the child from the lower socioeconomic class. He was further concerned with the impact of the environmental factors on the intellectual growth and school performance of the socially disadvantaged child. Raph (1965) stated that as a result of adverse environmental circumstances, socially disadvantaged children are not equipped to conceptualize clearly and to verbalize adequately. Both Deutsch and Raph indicated that these children are limited in their ability to profit from compensatory or educational opportunities provided them.

Deutsch discussed the interrelatedness of many of the complex environmental variables which strongly influence the ability of the socially disadvantaged child to profit from the present educational system. Of particular interest here is Deutsch's discussion concerning the syntactical variations between social classes. He stated that in "observations of lower class homes, it appears that speech sequences seem to be temporally very limited and poorly structured syntactically" (1963, p. 174). He further mentioned

the importance of knowledge of context and of syntactical regularities of a language which are necessary for the correct completion and comprehension of speech sequences. Deutsch referred to these as "anticipatory language skills" and said that the child who has not achieved these is greatly handicapped (1963, p. 174). Deutsch stated,

> "In preliminary analysis of expressive and receptive language data on samples of middle- and lower-class children at the first- and fifth-grade levels, there are indications that the lower-class child has more expressive language ability than is generally recognized or than emerges in the classroom. The main differences between the social classes seem to lie in the level of syntactical organization. If, as is indicated in this research, with proper stimulation a surprisingly high level of expressive language functioning is available to the same children who show syntactical deficits, then we might conclude that the language variables we are dealing with here are by-products of social experience rather than indices of basic ability or intellectual deficits" (1963, p. 175).

If one of the main linguistic differences between the two classes is in the level of syntactical organization, it seems reasonable to posite that other features of language, specifically transformations, would also differentiate them.

The problem in developing preventative and/or remedial programs for the culturally disadvantaged child is in determining clear definitions of areas and items on which remediation should occur. In light of the evidence just presented and the present concern with the development of educational programs for children from culturally disadvantaged environments, much more in the way of specific information concerning specific linguistic deficiencies is demanded.

CHAPTER II

REVIEW OF THE LITERATURE

Many studies of children's language behavior have been done during the past several years. Some of them have used modern linguistic methodologies. Much of the research utilized traditional school grammars and included such measures as frequency of occurence of the eight parts of speech, vocabulary assessments, or tabulation of sentence types: simple, compound, complex, inclusion of clauses, declarative, imperative, interrogative, and exclamatory sentences. Some investigators further refined the general categories by such operational definitions as "simple sentence with phrase," or "sentence functionally complete but structurally incomplete" (McCarthy, 1930). Several researchers specified their operational definitions of "sentence." McCarthy (1954) indicated that research utilizing traditional school grammars yielded little useful information about language development.

Descriptive studies of child language were begun by recording in detail phonological, morphological, and syntactical components of the language in a time sequence, however, the studies were usually limited to a few subjects (Leopold, 1939, 1949).

Recent developments in the linguistic theory of language performance are of importance. The outgrowth of research has been productive in

identifying individual differences among children. Braine (1963), Brown (1964), and Ervin (1964) studied the beginning constructions made by children. The results of these studies indicated that in large numbers of utterances, only a small number of patterns emerge. Consequently, the utterances made by children are not random but follow a well-defined pattern.

Lee (1966) developed a method of grammatical analysis of some of the beginning constructions performed by children. Although her method does not account for all constructions, it is a useful device for categorizing utterances of children who are using phrases and beginning base structures. The work of both Braine and Lee suggested that children utilize certain linguistic rules in a certain order as a means of understanding and producing an infinite number of sentences.

Other researchers developed quantitative methods of analysis of complex verbalizations of varying degrees. Many of these methods were found to be useful in assessing individual differences (McCarthy, 1930; Day, 1932; Templin, 1957). Templin compiled normative data concerning the speech and language development of children ages three to eight years in various social classes. Refinement of some of these linguistic analyses were made by other researchers (Sherman, Shriner, and Silverman, (1965), Shriner and Sherman (1967), Shriner (1967), and Miner (1968) to provide methodology for analysis of the complexity of verbalizations. Shriner (1967) synthesized the Length-Complexity Index (LCI) based on the data of Menyuk (1964), Bellugi (1964), and Cazden (1965). Menyuk noted that sentence

complexity was not solely related to sentence length but was also a function of the ability of children to apply increasingly differentiated rules for generating sentences. Miner (1968) further refined the LCT which utilizes both length and complexity and includes computation of some of the transformations occuring in children's language.

It is universally accepted that all languages are composed of phonological, morphological, syntactical, and semantic components. "All native speakers of a language group certain utterances together as being sentences or non-sentences of the language, as being similar in meaning, contrasting in meaning, or ambiguous" (Menyuk, 1965). A new aproach, generative grammar, was formulated to describe the way in which categorization occurs through enumeration of the structure of the possible sentence types in a language.

Chomsky (1957) formulated a theory of generative grammar. McNeill (1966) explained some of the basic concepts of Chomsky's generative grammar. Chomsky devised a system of rules which define structural descriptions for sentences. Every native speaker masters and internalizes the generative grammar that constitutes his knowledge of his language. As most modern linguists and psychologists, Chomsky makes a fundamental distinction between competence and performance. "A language user's competence is his knowledge of his language; his performance is the actual use he makes of that knowledge in concrete situations. It is to describe the language user's intrinsic competence that a grammar is developed" (McNeill, 1965).

McNeill (1966) explained some of the basic concepts of Chomsky's generative grammar. Chomsky devised an abstract system of rules which define structural descriptions for sentences. Every native speaker masters and internalizes the system of rules that constitute his knowledge of his language. McNeill further commented:

> "Performance is the expression of competence in talking or listening to speech. One is competent to deal with an infinite number of grammatical sentences; but one's performance may be distracted in various ways. Performance operates under constraints of memory, which is finite, and time, which must be kept up with. Such limitations are irrelevant to competence. It is important to describe performance without explaining it, but if we wish to explain performance, we must show how it derives from competence; that is how the regularities in his overt linguistic behavior" (McNeill, 1966, p. 17).

Chomsky, in his linguistic theory, described a tri-partite structure: base structure, morphology, and transformations. His generative grammar of language is a theory or set of statements which explains how formal explanations of basic elements of a language occur. His theory is constructed of groups of rules at different levels which provide a systematic process of expansion of grammatical constructions. Menyuk found that Chomsky's method was adequate to assess the language development of the normal child and to study the language development of the child with deviant language (1961, 1963a, b, 1964).

Much research in the area of grammatical constructions including transformational analyses of spoken and primarily written language of school age children in normal populations and in different social classes

has been done by members of the National Council of Teachers of English[1]. Of particular interest here is a study of kindergarten and elementary children conducted by O'Donnell, Griffin, and Norris (1967). The transformational analysis technique utilized in that study was based primarily upon the work of Lees. They found transformational analysis to be a useful technique in assessing qualitative accounts of syntactic differences in language used by children at varying chronological and educational stages, and between written and spoken language. The reader is referred to the National Council of Teachers of English for more specific information regarding related language research in normal children and children in different cultural groups.

Templin (1957) found consistent differences in the linguistic performance between upper and lower socioeconomic status groups. She combined the entire age range within each group and after comparison found that the performance of the upper socioeconomic status group was consistently higher than that of the lower socioeconomic status group. Nearly all of the measures of these differences were found to be statistically significant. Templin stated, "Since the level of intellectual ability of these two socioeconomic groups is significantly different, it may be that some of the results reflect this factor" (Templin, 1957, p. 147). Templin utilized paternal occupation as the criterion of socioeconomic status.

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[1] National Council of Teachers of English, 508 South Sixth Street, Champaign, Illinois 61820.

Other researchers have been concerned about the relationship between social class and language usage (Deutsch, 1963; Raph, 1967; Povich and Baratz, 1967). Raph stated:

> "Disadvantaged children's pronunciation and articulation, word variety, sentence length, and use of grammatical and syntactical constructions resemble privileged children of a younger age level. These culturally deprived children have difficulty being able to use language as a means of carrying on a dialogue with themselves, a skill necessary in independent thinking and problem solving. They lack the use of language as a means of getting and dealing with verbal cues" (Raph, 1967, p. 207).

Raph cited a study by Osser (1966) who compared five year old Negro children from grossly deprived environments. He noted that in his disadvantaged sample certain syntactical structures were not present when compared to Menyuk's data on normal children. Osser viewed these results as attributable more to environmental than maturational lacks.

Povich and Baratz (1967) used both Lee's developmental sentence types and Menyuk's transformational analysis techniques in their study of Negro preschool children. Their results were compared to types and frequency of the transformations and restricted forms found in Menyuk's five year old white middle and upper class children. They stated that their "results indicate that the culturally deprived child is not delayed in language acquisition. He has learned many of the standard English transformations, but has also learned a fully developed though somewhat different system from that of Standard English" (1967).

Cazden, (1965) in her interdisciplinary view of the literature, stated on all measure in all studies, regardless of the definition of the socioeconomic status, the children in the upper class were more advanced linguistically than were the children in the lower class. She stated that the studies dealt with three aspects of language development: phonology, morphology, and sentence structure (or today more often termed grammar). More recently, Shriner and Miner (1967) found no difference in morphological skills between culturally disadvantaged and culturally advantaged children. The choice of transformational generative grammar as a methodology for study of language characteristics between two cultural groups is supported by Cazden who quotes Rosenbaum that the transformation approach "permits a precise and insightful characterization of the relatedness between grammatical systems" (1966, p. 187). Transformational generative grammar has been demonstrated to be of value in the description and comparison of language both within and between cultures.

Relatively little is known about the transformational abilities of culturally disadvantaged children of the Caucasian race. If they possess rules for generating conventional English transformations, culturally disadvantaged white children will produce transformationally acceptable sentences. If they lack the necessary generative rules, their utterances will be deviant.

The purpose of this study is to assess and compare the transformational abilities of white culturally disadvantaged children and white culturally advantaged children. Specifically, the study is designed to

answer the following questions:

1. What transformations are utilized by white culturally disadvantaged and advantaged children?

2. Do differences exist between white culturally disadvantaged and advantaged children in type and frequency of use?

Knowledge of the generative rules of English transformations utilized by the disadvantaged children is imperative if effective remedial instruction is to be initiated.

CHAPTER III

SUBJECTS, PROCEDURES, EQUIPMENT

Selection of Subjects

The thirty subjects selected to participate in this study were residing in the East Central portion of Illinois, specifically in the cities of Mattoon, Charleston, and Greenup. Two groups of fifteen children each were selected and matched on the basis of socioeconomic status and cultural background, mental age, intelligence, sex, and physical status. Each group of fifteen children comprised the culturally disadvantaged and culturally advantaged populations as defined below.

A. Socioeconomic Status and Cultural Background

Culturally Disadvantaged. The children participating in the culturally disadvantaged group were selected on the basis of acceptance in programs for the "culturally disadvantaged." Information obtained from case study workers in two programs involved indicated that the following criteria were used for selection of the children: family annual income less than or about $3,000; lack of parent availability for verbal stimulation; limited amount of stimulation because of limited access to books, educational toys, and enriching experiences outside the home. The children from the two previously

mentioned programs had participated in the programs for periods of less than three weeks. A third program had been organized for the purpose of educating adults who were receiving financial assistance because of low annual incomes (less than $3,000) and limited educational backgrounds. The participants' children were cared for in an associated day care center and kindergarten while their parents attended academic and vocational classes. The case worker indicated that the children attending the program had had limited social contact outside the home and family; few books and toys were available because of low family incomes; and enriching experiences outside their immediate environment were limited. The children from this program included in this study had attended the day care center for about four months. All except one child were cared for in a nursery where they experienced the following activities: breakfast, free play period, story time (approximately 20 minutes), lunch, rest, and dismissal. The other child attended a kindergarten room in which usual kindergarten activities had been made available to him for the four month period.

Culturally Advantaged. The children participating in the culturally advantaged group were either attending private kindergartens and/or known to be advantaged as follows: from a family whose annual income was greater than $5,000; parents had at least high school educations; had access to books and educational toys; had participated in enriching experiences outside of the home; and had parents who had been available for verbal stimulation during the preschool years. Parents or teachers of children attending

private kindergartens were interviewed by the examiner to determine the children's cultural and family backgrounds according to the previously mentioned criteria. The socioeconomic status of the children was determined by parental occupation. The following classifications of the Minnesota Scale of Paternal Occupations (1950) were utilized and the percentages in each group are indicated:

Classification	Number of Subjects	Percentage
I. Professional	3	19.9%
II. Semi-professional and Managerial	4	26.6%
III. Clerical, Skilled Trades, and Retail Business	5	33.33
IV. Rural	3	19.9%

Three lower categories were not included in the study: V. Semiskilled Occupations, Minor Clerical, and Minor Business; VI. Slightly Skilled Trades and Occupations Requiring Little Training; and VII. Day Laborers.

B. Mental Age

It was assumed to be important that the two groups of children be matched as closely as possible on their present performance levels. Mental age is defined as the developmental level of the organism. Zeaman and House (1966) indicate that mental age is more closely related to learning because it is a measure of developmental level. They state that chronological age appears to be an irrelevant variable to learning. In their review, "IQ and Learning," Zeaman and House site a number of studies to this effect. On the basis of this evidence it was assumed by this researcher that mental age was the best

predictor of developmental level and would be more indicative of the child's present level of performance than would chronological age. Some critics might argue that the two groups of children might not be matched on mental age because the culturally deprived child might be penalized because of his lack of experience in taking tests and, consequently, might receive a score lower than his "true" mental age. If the assumption is made that the culturally disadvantaged child's mental age was not assessed, then in all probability his mental age would be higher than indicated on the screening intelligence test. Performance on intelligence tests may be spuriously low but not spuriously high assuming the test has been properly administered.

A contrived form of the Stanford-Binet Form L-M was administered to determine a mental age for each child. The Stanford-Binet items administered were chosen on the basis of those items which most minimized verbal skills. The information obtained from the test administrations essentially are derived scores. The resulting mental ages might be considered to be nonverbal performance scores. Four items at each age level were presented. Each item at the first seven age levels was worth one and a half months of mental age. The three remaining age levels, Years VI, VII, and VIII, were worth three months of mental age for each item passed. Standardized procedures were followed. Any child receiving credit on any item at the VIII Year level was automatically dropped from participation. No alternate items for interruption of test administration were used. Only one was needed so the child was not included in the study. Following are the items used at

each age level on the Stanford-Binet Form L-M:

Year II: Form board; Identifying body parts; Block building; and Identifying objects by name.

Year II-6: Identifying objects by use; Identifying body parts; Obeying simple commands; and Three hole form board.

Year III: Stringing beads; Block building; Copying a circle; and Drawing a vertical line.

Year III-6: Comparison of balls; Patience pictures; Discrimination of animal pictures; and Sorting buttons.

Year IV: Naming objects from memory; Opposite analogies I; Pictorial identification; and Discrimination of forms.

Year IV-6: Aesthetic comparison; Opposite analogies I; Pictorial similarities and differences I; and Pictorial identification.

Year V: Picture completion; Copying a square; Patience rectangles; and Knot.

Year VI: Mutilated pictures; Number concepts; Opposite analogies II; and Maze tracing.

Year VII: Copying a diamond; Opposite analogies III; Repeating 3 digits; and Repeating 3 digits reversed.

Year VIII: Memory for stories; Verbal absurdities; Comprehension IV; and Naming the days of the week.

Table 1 shows the chronological and mental age range and means of the culturally advantaged and disadvantaged groups. The children were matched ± three months of mental age.

TABLE 1.--Chronological and mental age ranged and means expressed in years and months.

	Mental Age	Chronological Age
Disadvantaged		
Mean	5-2	5-2
Range	4-3 to 6-3	3-9 to 6-0
Advantaged		
Mean	5-1	5-3
Range	4-0 to 6-6	3-1 to 6-2

C. Intelligence

An intelligence quotient was obtained for each child from the administration of the special form of the Stanford-Binet. The IQ range was 93 to 116 with a mean of 102.2 for the culturally disadvantaged group, and 89 to 129 with a mean of 103.1 for the culturally advantaged group.

D. Sex

There were eight male and seven female subjects in the culturally disadvantaged group. In the culturally advantaged group, there were seven male and eight female subjects.

E. Physical Status

The subjects were Caucasian, monolingual children with no more than one child per family. Evidence of gross neuromuscular or other gross physical disability such as cleft palate or severe visual problems excluded the children from participation in the study. A hearing screening test was administered at 35 dB at 500, 1,000 and 2,000 Hz. If a subject failed to respond to any one of the frequencies in either ear he was excluded. Subjects who had unintelligible speech or manifested multiple articulation problems were excluded.

Procedure

A. Examiner

After a child had been selected as a subject in the study, a minimum of 110 verbalizations were evoked. The investigator collected all of the

language samples to minimize examiner bias (Cowan, 1967). The examiner had at least 300 hours in evoking language samples and applying the analysis technique used in this study. Examiner transcription reliability was found to be 93.5 per cent when compared to two other speech pathologists who had had previous experience in evoking and transcribing children's verbalizations.

The following definitions were used in the determination of what constitutes an utterance:

1. A response is considered finished if a child comes to a full stop, either letting the voice fall, giving interrogatory or exclamatory inflection, or indicating clearly that he does not intend to complete the sentence.

2. When one simple sentence or fragment of a sentence is followed immediately by another simple sentence or fragment with no pause for breath, the two are considered to comprise one response if the second statement is clearly subordinate to the first. For example: It words at night it's a light./ Maybe she didn't want to tell her that she went got it a cookie.

3. Remarks connected by interjections are considered as separate remarks if the remarks appear to be enumerative. This included single words or noun phrases connected by "and" on such remarks as: a dog (pause) and a boy (pause) and ball (pause) balloon (pause) wagon.

8. Recorder Reliability

Rules for segmentation were based primarily on those reported in Johnson, Darley, and Spriestersbach (1963, p. 167). The examiner and two other observers, speech pathologists with experience in language transcription and segmentation, independently transcribed and segmented the taped

verbalizations of two of the subjects. Intrascorer agreement on the boundaries of children's utterances as defined in the above criteria were found to be 96 percent.

C. Method

The examiner constructed a set of colored stimulus pictures from preprimers of several basic reading series. The pictures were judged by university speech pathologists to be of interest to preschool children. The pictures were of familiar environmental scenes. The pictures were presented to the children one at a time in a standardized procedure. The order of the presentation of the pictures was constant. The examiner stimulated verbalizations by saying one of the following: "Tell a story about the picture;" or "What's happening in the picture?" If the child failed to respond to one of the pictures, the examiner interjected such comments as "Tell me more about the picture; Make a longer story; or What else is happening in the picture?" The verbalizations were tape recorded on a Wollensak Model T-1500 Tape Recorder. The investigator transcribed the taped verbalizations on the same day they were recorded. One-hundred and ten consecutively intelligible verbalizations were recorded. The first ten were discarded because they tend to be shorter and less complex (McCarthy, 1930). In the absence of information indicating the optimum number of verbalizations needed for a transformational analysis, a sample of one hundred verbalizations was chosen arbitrarily to be representative and adequate for analysis.

D. Technique of Analysis of Language Samples

A model for describing the generative rules of grammar has been formulated by Chomsky (1957). This model is viewed as having a tri-partite structure: (a) base structure, (b) morphology, and (c) transformations. Chomsky's model has been applied by Menyuk to study the verbalizations of children with normal and deviant language (1961, 1963a, b, 1964). The basic analysis technique was formulated and described by Menyuk (1961). Her definitions reside in structural linguistic descriptions and changes. The present investigator used Menyuk's basic technique with some modifications. An attempt has been made to define operationally each transformation in other than structural linguistic descriptions and changes. All of Menyuk's transformations were used in this study and the modifications are described in detail in the individual operational definitions. In some cases, the operational definitions are derived by pooling information obtained from other sources (Roberts, 1964; Thomas, 1966). The individual operational definitions and examples may be found in Appendix B.

Transformational grammars are usually based on adult speech patterns. They have been used to describe child grammar but their usefulness in differentiating child and adult grammar has not yet been satisfactorily accomplished. The operational definitions presented in the appendix are not intended to be a complete description of the derivation of all complex utterances, especially ungrammatical ones. The operational definitions are comprised of transformations that occur in the speech of both adults and children.

They are, however, a step in the direction of (1) describing a more detailed transformational grammar, and (2) differentiating child and adult grammar.

The scope of this study was limited to the analysis of transformational rules. No phonological or morphological analyses were made. The following categories were utilized: (1) transformations - as defined in the operational definitions in Appendix B; (2) no transformations - refer to verbalisations in which no transformations were successfully transformed, includes one word or phrase responses and base structure sentences; and (3) mal-transformations - defined as verbalisations in which a transformation had been optionally chosen but unsuccessfully completed because all of the obligatory conditions were not met. A transformation is defined as a linear sequence of rules which maps base structure to derived structure through changes in grammatical morphemes. In other words, the use of transformations enables one to vary the complexity of sentences. An obligatory condition is one rule which must be successfully completed for the ultimate derivation of a grammatical sentence. An optional condition is one rule which may or may not be utilised for ultimate derivation of a grammatical sentence.

E. Scorer Reliability

Intrascorer agreement for the experimenter was found for the transformational analysis. From the typed speech samples, the examiner rescored 250 responses from five different subjects. Intrascorer reliability was found to be 96.0 per cent. Interscorer reliability for the transformational analysis

was not done because of the complexity of the technique and the time that would be required for such an orientation was not practical.

CHAPTER IV

RESULTS AND DISCUSSION

Prior to the presentation of the results of this study, a comment concerning the assumptions made as to the nature of the data and the rationale for choosing the statistical tests used is in order.

While much research has been done on language in children, little is actually known about the shape of the distribution of language skills. While assuming that for any population some children will be significantly poorer or more skilled than the majority of the population in general language ability, the same assumption cannot be made for particular language skills at this point. Transformational skills, as defined in this study, are no exception. Furthermore, while it would seem logical that a child whose language reflects the use of many different kinds of transformations probably has achieved greater language skill than one with fewer transformations, it is not yet clear what the difference between knowing eight transformations and nine transformations actually is.

Since the technique of data collection in this study involved the placement of linguistic structures into defined categories, the measures are best described as nominal. On the assumption that a higher observed frequency

of occurence of transformations reflects "greater" knowledge of generative rules, the data may be cautiously described as ordinal.

Since the data are nominal and perhaps ordinal but lacking in known distributional characteristics, statistical analysis using nonparametric measures is indicated. Since the hypotheses stated in Chapter I imply tests of significance of observed frequencies of transformations between the culturally advantaged and culturally disadvantaged groups, the Mann-Whitney U Test (Siegel, 1956) was chosen.

The analyses were designed to answer each of the following questions:

(1) Are there significant differences between culturally advantaged and culturally disadvantaged children in the total frequency of all types of transformations observed?

(2) Are there significant differences between culturally advantaged and culturally disadvantaged children in observed frequency of use of the individual transformations observed?

The U value obtained for the comparison of the grand sum of observed frequencies of all transformations for the two groups was not statistically significant. U values computed between the observed frequencies for each group for each of the twenty-seven transformations were not statistically significant.

Two additional categories, "maltransformations," and "no transformations" were observed for each group and differences in frequency of occurrence between the groups were tested for significance. Again, the U values were not significant.

Tables 2 and 3 show the observed frequency of each transformation plus maltransformations and no transformations for each subject in each group; and the number of subjects using each transformation in each group.

A rank order of frequency of occurrence of transformations from most to least is reported in Table 4. More detailed analysis of individual transformations and relationships between or among transformations partially explain the resulting ranked frequencies of occurrence.

The most frequently used transformation was "Tr 4 - Contraction." This is partially explained by the fact that contractions are optional or obligatory conditions in other transformations: "negative (n't)," "auxiliary be and have," and "contracted have + got." The latter contracted form is obligatory in that transformation. A speaker may optionally choose to use a contracted negative or auxiliary in those transformations. Analysis of the "negative transformation" shows that the children used the contracted negative (n't) 269 times and non-contracted "not" only 13 times. On the auxiliary verb "be," the children used 98 non-contracted and 406 contracted forms. On the auxiliary verb "have," the children used 35 contracted forms and 9 non-contracted forms. One possible explanation of the appearance of so many contractions is that the use of this operation saves on memory load by relieving the speaker of the effort of saying the deleted morphemes.

Table 2.—Frequency of occurrence of each transformation (Tr), plus multitransformations (MT), no-transformations (NT) for each subject and number of subjects using each transformation in the culturally disadvantaged group.

Subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	No. S's
Tr 1	1	1	0	0	1	0	2	0	0	5	1	2	2	0	0	15	8
Tr 2	10	1	6	7	5	1	19	3	30	8	8	14	6	10	12	140	15
Tr 3	0	0	0	1	0	1	0	0	3	0	0	1	3	0	1	10	6
Tr 4	43	41	33	34	34	62	25	25	62	44	24	49	59	37	36	600	15
Tr 5	0	0	2	6	3	4	0	2	1	16	2	7	2	2	6	53	12
Tr 6	2	3	0	1	2	0	2	0	4	2	1	2	0	0	5	24	10
Tr 7	0	1	1	0	1	2	0	0	0	0	0	0	1	1	3	10	7
Tr 8	14	0	2	0	1	0	0	0	2	3	0	0	7	4	4	53	10
Tr 9	0	1	2	1	1	1	0	2	1	0	2	0	2	1	2	16	11
Tr 10	0	0	1	1	0	4	0	0	0	1	6	0	0	2	0	23	7
Tr 11	10	29	12	24	25	29	4	18	11	16	5	0	22	13	22	247	15
Tr 12	0	3	1	3	0	4	0	0	0	0	5	0	0	2	1	27	8
Tr 13	13	0	7	6	0	4	17	5	36	12	6	16	9	11	14	164	14
Tr 14	2	1	0	0	0	1	1	1	0	6	4	0	0	1	2	19	9
Tr 15	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2	2
Tr 16	9	1	4	1	0	2	2	2	1	14	4	3	13	1	18	75	14
Tr 17	2	5	9	0	2	0	5	5	2	16	13	10	10	5	10	110	14
Tr 18	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	2
Tr 19	0	0	1	0	0	1	0	0	0	1	1	0	0	0	1	5	5
Tr 20	0	0	0	0	0	0	0	0	0	0	3	4	1	0	3	11	4
Tr 21	0	0	0	0	0	1	0	0	0	1	1	0	0	0	2	5	4
Tr 22	2	3	5	4	1	9	4	0	2	14	10	12	25	2	15	100	14
Tr 23	2	0	1	2	2	3	3	0	5	5	3	3	3	3	5	40	13
Tr 24	3	13	9	24	1	11	4	1	8	7	11	7	5	4	9	117	15
Tr 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tr 26	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	4	4
Tr 27	3	1	5	8	4	10	4	1	5	6	6	8	12	3	2	78	15
NT	51	52	52	35	48	33	54	62	27	29	41	34	27	48	32	625	15
MT	18	32	52	14	26	20	17	7	21	37	43	9	15	12	15	336	15

Table 3.--Frequency of occurrence of each transformation (Tr), plus mal-transformations (MT), no-transformations (NT) for each subject and number of subjects using each transformation in the culturally advantaged group.

Subject		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total	No. S's
Tr	1	0	0	1	2	0	2	1	3	4	0	3	3	0	1	0	20	9
Tr	2	29	6	8	4	10	18	5	4	18	10	7	10	2	3	6	142	15
Tr	3	2	4	2	1	1	0	0	0	0	0	0	2	0	0	2	14	7
Tr	4	32	39	25	39	48	25	22	29	51	33	42	45	43	17	41	531	15
Tr	5	1	0	8	2	2	4	10	3	18	2	9	13	4	4	5	85	14
Tr	6	3	17	5	1	6	3	1	0	1	2	1	1	0	0	0	41	11
Tr	7	2	3	1	1	6	1	1	0	1	1	0	2	0	0	2	21	11
Tr	8	0	2	1	2	0	0	0	0	0	2	0	0	7	0	1	15	6
Tr	9	1	0	2	3	1	0	0	0	0	0	1	1	0	0	0	9	6
Tr	10	0	1	3	0	0	0	0	0	1	0	0	0	1	1	2	9	6
Tr	11	6	19	9	15	29	7	26	30	28	6	29	20	36	16	13	257	14
Tr	12	0	1	3	1	0	0	2	0	1	2	0	1	1	2	3	17	10
Tr	13	26	10	11	4	16	23	4	5	13	13	9	6	3	2	7	149	15
Tr	14	1	1	0	0	2	0	1	2	0	0	0	1	1	1	3	13	9
Tr	15	0	2	0	2	0	0	0	0	3	0	0	0	0	0	4	11	4
Tr	16	0	1	14	14	6	2	7	13	15	5	12	21	7	2	12	128	14
Tr	17	1	2	3	22	0	2	4	8	4	1	10	6	9	8	7	83	14
Tr	18	0	0	1	0	0	0	0	0	4	0	1	0	0	1	2	9	5
Tr	19	0	0	1	4	3	0	0	0	1	0	0	1	0	0	0	10	6
Tr	20	0	0	0	0	0	0	1	0	1	0	0	3	0	0	0	5	3
Tr	21	0	0	4	6	0	0	0	0	0	3	0	0	0	0	1	14	4
Tr	22	10	6	14	2	1	1	8	6	12	6	4	7	5	7	15	94	15
Tr	23	1	4	5	6	2	7	0	0	5	5	5	5	1	7	10	76	13
Tr	24	3	3	15	6	0	11	12	10	10	3	0	20	13	6	19	128	14
Tr	25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
Tr	26	0	0	0	0	0	0	0	0	1	0	0	2	3	2	0	8	4
Tr	27	4	4	10	9	8	9	7	4	9	7	8	10	5	5	5	97	15
NT		50	34	30	31	32	51	39	41	33	50	36	27	38	59	31	590	15
MT		29	26	18	41	24	14	14	9	15	14	19	29	3	26	17	298	15

Table 4.--Rank order from most to least of frequency of occurrence of transformations.

Tr	4	Contraction	1139
Tr	11	Auxiliary be	504
Tr	13	Do	313
Tr	2	Negative	282
Tr	24	Complement	245
Tr	16	Conjunctions and, but	203
Tr	22	Adjective	202
Tr	17	Conjunction deletion	193
Tr	27	Nominal Compound	175
Tr	5	Inversion	138
Tr	23	Relative clause	116
Tr	8	There	68
Tr	6	Relative question	63
Tr	12	Auxiliary have	44
Tr	1	Passive	35
Tr	14	Possessive	32
Tr	10	Have + got	32
Tr	7	Imperative	31
Tr	9	Separation	25
Tr	3	Yes/no question	24
Tr	21	Pronoun in conjunction	18
Tr	20	Cause	16
Tr	19	So	15
Tr	15	Reflexive	13
Tr	26	Nominalization	12
Tr	18	If	11
Tr	25	Iteration	2

The next most frequently used transformation was "Tr 11 Auxiliary be." The auxiliary verbs are obligatory to ultimate completion of other transformations: "questions," both "yes/no" and "relative"; "passives", "negatives," and "have + got." Since it is included in the obligatory conditions of these other transformations, it should be expected to appear more frequently.

The "auxiliary verb do," Tr 13, was used third most frequently. It was used 313 times. It is obligatory for some question transformations. The use of this special auxiliary is somewhat inflated due to the numerous uses of the phrase "I don't know." This phrase and similar stereotyped phrases are used often by children of this age (Lee, 1966) and this would account for the high incidence in this study.

The "auxiliary have", "iteration", "nominalization", "if" and "so" were among the transformations most infrequently used. Menyuk (1961) found that those transformations were those which were acquired latest developmentally. Since many of the subjects were below kindergarten age, either chronologically or mentally, these results are consistent with Menyuk's data.

Some attempt has been made by Menyuk to describe the rules used by children at various stages of development in the phonological, morphological, and syntactical components of grammar. Many of the general stages in which a child goes through are orderly and predictable. However, the development of rules at various levels and the interrelationships of these rules

remains relatively unknown. It is assumed that the process is one of hierarchial expansion. Brown and Berko (1960) provide evidence that children comprehend linguistically distinct elements before using them. Menyuk stated that the time sequence of understanding and production is not simple. Probably the time sequence operates differentially for different aspects of the grammar. Differentiation should be made between production and productive use in all three components of the grammar. The scope of this study did not include investigation of hierarchial expansion, however, information in this area would be helpful in delineating pretransformational structures and differences at that level if they exist. On the transformational level, it is assumed that the development of a particular transformation is dependent on the existing phrase or pretransformational structures. The intonational aspects of this interrelationship have not yet been the subject of study but would possibly yield knowledge of development of transformations. For the most part, it is assumed that the most simple transformations are acquired and used prior to the ones of more complexity. The relative complexity of each of the various operations utilized to transform sentences (addition, deletion, substitution, and deletion) and which is acquired first and which is less complex is as yet unknown.

Most studies which conclude that disadvantaged and advantaged children are linguistically different are based on the phonological, morphological and/or phrase structure parameters of language. On the basis of results of this study, the researcher concludes that the culturally advantaged and

disadvantaged children as defined in this study are not different in terms of one parameter of language, namely transformational abilities. It is known and accepted that phonological and morphological differences exist between cultures and within some social groups within a culture, but studies which investigate the combined phonological, morphological, syntactical, and semantic characteristics or interrelationships of these characteristics are yet to be done. It is necessary that each of these components of language be well defined prior to investigation of the relationships that exist between or among them.

Linguistic performance displayed by children has been of much concern both in past and present studies. The relationship between a child's linguistic competence and performance and the influential factors on these have only recently become the subject of discussion. Most of the recent discussion has been concerned with language acquisition and performance. McNeill (1966) discusses the capacity for acquisition of grammar and cites evidence that children have an inborn set of predispositions to develop a grammar of immense complexity and richness. Certainly, physiological and psychological capabilities a child possesses influences the child's acquisition of that grammar. Brown and Lenneberg (1954) discussed the relationship between language and cognition in regard to ultimate acquisition of language of the individual born into a linguistic community. It is accepted by most persons interested in child language that the factors

involved both predispositional and those of influence environmentally are interrelated within the intricately interwoven phonological, morphological, syntactical, and semantic components of language. Among the additional known influences on the acquisition process are psychosocial factors and cultural differences to say or all of the language components. McCarthy (1954) cited several environmental factors related to the child's home environment primarily concerned with interpersonal relationships established or not established adequately there. Deutsch discusses the interaction of social and developmental factors and their impact on the intellectual growth and school performance of children. He cites the importance of patterns of perceptual, language, and cognitive development of the child and the subsequent diffusion of the effects of such patterns into all areas of the child's academic and psychological performance. His statement that children from lower class homes have more expressive language ability than is generally recognized or than emerges in the classroom is supported here. Deutsch (1963) is concerned about the impact of perceptual development and resulting organizational deficits on the use of language by the disadvantaged child. Deutsch contends that the disadvantaged child is perceptually deficit and thereby has resulting language problems. Menyuk (1965) says that in the perception of language by children, we want to know first what are the correlations between the parameters of the physical events and the perceiving organisms discriminations of them. This seems to be an important distinction here because it points out the importance of differentiating the possession

of competence to perform and the resulting ability to do so whether it be on the phonological, morphological, or syntactical level. Perhaps it is the environmentally induced impositions on the performance that yield the distinction between competence and the inability to perform that competence. Consideration must also be given to memory constraints on linguistic performance. These are examples of only two of the known factors which may have an influence on linguistic performance. Surely the interaction of these as well as possibly many other unknown factors when interrelated with the complexities of the communication system account for the breakdown or lack of breakdown of linguistic performance.

It is possible that disadvantaged children do have perceptual difficulties which influence language performance but do not sufficiently retard the acquisition of grammatical rules (or the child's linguistic competence) but do impose certain perceptually related restrictions which influence the effectiveness with which he is able to use the rules he possesses and express himself. Also of importance are some psychological factors which influence linguistic performance. Among these are perceptual discrimination skills, the ability to sustain attention, lack of expectation of reward for performance, lack of self-motivation, and inability to successfully complete a task. Certainly, these factors influence a child's linguistic performance.

Perhaps in a seemingly unstructured, undemanding situation such as that provided in this study, the disadvantaged child experienced a one to

one relationship with an accepting adult. In this situation, the child's interpretations and ideas concerning his perceptions of visually presented stimuli, he did not suffer the social or educational pressure imposed as a result of the presence and competition of socially more advantaged children or authoritarian figure (teacher) which impose environmental constraints on his ability to perform his linguistic competence. Perhaps the pressures of classroom or social situations and expectation levels of an educational environment impair the facility with which he is able to perform linguistically and to productively express his knowledge or ideas. It is possible that the interaction of language with the environmental situation, especially if it is social or educational, accounts for the inability of most disadvantaged children to achieve academically.

Some attention to the amount to which the "disadvantaged population" of this study is different from the "advantaged population" is appropriate. Yes, these children had specific cultural differences which caused some to be advanteged and some to be disadvantaged. Perhaps of more importance is the degree to which a child is disadvantaged or deprived and the resulting influences the "disadvantagement" or the deprivation has on the productive use of language. It is possible that the degree of deprivation or disadvantagement determines the impact the environment has on language competence or performance. Studies designed to test these differences should provide enlightenment on the disparity between linguistic competence and performance of the disadvantaged or deprived child. Certainly,

the use of the term "grossly deprived" suggests a more influential impact of environmental circumstances on language than does the term disadvantaged.

Also worthy of discussion is the reference to the interaction of length and complexity of differences between linguistic performance of advantaged and disadvantaged children. Differences in length of utterances of two different socioeconomic groups has been demonstrated by Templin. Her study also provides information on the complexity of language these two groups demonstrate. Perhaps what is needed are investigations into the interaction of length and complexity which would provide information differentiating the language characteristics of the afore mentioned groups of children. Such a measure is the Length-Complexity Index (Miner, 1968?).

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The purpose of this study was to assess and describe differences in transformations utilized by a group of white culturally disadvantaged children and a group of white culturally advantaged children. Comparisons were made between the types and frequency of occurrence of 27 operationally defined transformations and between two additional categories, mal-transformations and no-transformations.

A review of the literature indicated that culturally disadvantaged children differ in general language ability from white middle and upper class children. Grossly deprived Negro children differed from Caucasian advantaged children in the kinds of transformations they used. These differences were due more to environmental than maturational factors. Culturally deprived Negro children used all the transformations that white middle and upper socioeconomic class children utilize, but they also learned a fully developed though somewhat different system from that of Standard English. No information regarding the transformations used by Caucasian culturally disadvantaged children was found. The review of literature revealed studies

which found transformational analysis techniques to be of use in assessing and comparing the use of transformations by children.

Thirty subjects participated in this study, fifteen in the culturally disadvantaged group and fifteen in the culturally advantaged group. Culturally disadvantaged and advantaged was defined on the basis of socioeconomic status and cultural background factors believed to be related to language development.

The children resided in the East Central portion of Illinois. Each of the subjects had normal hearing, normal intelligence, no obvious neuromuscular disorders and none manifested multiple articulation errors. All of the children were monolingual, Caucasian, with only one sibling per family.

The children were matched on mental age $\pm$ 3 months. Mental age was assumed to be a mathematical statement of an organism's developmental level and considered to be more closely related to linguistic competence than chronological age.

Language samples were evoked from these children. The stimulus material used to evoke the verbalizations consisted of pictures judged to be of interest to nursery and kindergarten children. The language samples were tape recorded and transcribed. An operationally defined transformational analysis technique was used to assess and compare the children's use of transformations.

Since the data was nominal and perhaps ordinal and lacking in known distributional characteristics, nonparametric statistical measures were used in the analysis of data. The Mann-Whitney U Test for significance of differences in observed frequencies of transformations, no-transformations, and mal-transformations between the culturally disadvantaged and culturally advantaged children yielded no statistically significant differences.

Conclusions

On the basis of the results of this study the following major conclusion is drawn: children as defined as culturally advantaged and culturally disadvantaged in this study do not differ significantly in the type and frequency of use of transformations, the one parameter of language measured.

Implications for Further Research

Several questions are raised as a result of this study. Perhaps future research would answer these questions and provide further information regarding the relationship between environmental influences and language behavior.

How is language ability related to different degrees of cultural deprivation? Perhaps this question is really concerned with the differences between a child being deprived or disadvantaged or somewhere in between. A related question is: How do the terms disadvantaged and deprived differ in terms of cultures, from one area of a city to another, or from one area of the country to another in regard to the degree of impact of various environmental factors on the development of specific language skills?

Do length and complexity interact to show differences between groups of culturally disadvantaged or deprived and culturally advantaged subjects more so than length or complexity alone? The Length-Complexity Index is suggested as a possible measure for use to study this relationship or interaction.

Do culturally disadvantaged Caucasian and Negro children differ in their use of transformations? Povich and Baratz indicate that their grossly deprived Negro subjects use all the syntactical patterns utilized by middle and upper class white children as well as some additional ones. In this regard, do culturally disadvantaged Caucasian children also use these additional sentence patterns. An analysis of both transformations and maltransformations is suggested for such a research study.

Language is a powerful mediator of psychological and social development. Since culturally disadvantaged children fail in the development of psychological and social skills, an understanding of their deficits in linguistic skills is perhaps the key to planning programs of education for these children. Answers to the above questions would be a step in this direction.

APPENDIX A

Subject	CA	MA	IQ
Culturally Disadvantaged Group			
1	4- 3	4- 3	93
2	4- 7	4- 4	94
3	4- 7	4- 5	96
4	3- 9	4- 5	115
5	4- 2	4- 9	113
6	4- 6	4- 8	105
7	4-11	4-11	100
8	4- 6	5- 0	110
9	5- 7	5- 8	93
10	5-11	5- 6	92
11	5- 8	5- 6	97
12	5- 7	5- 9	103
13	5- 9	5- 9	96
14	5- 3	6- 0	116
15	6- 0	6- 3	105
Culturally Advantaged Group			
1	3- 1	4- 0	123
2	3- 9	4- 6	117
3	4- 8	4- 6	94
4	5- 0	4- 5	89
5	3- 4	4- 6	128
6	4- 8	4- 8	103
7	5- 7	5- 2	92
8	5- 7	5- 2	92
9	5- 7	5- 8	98
10	5- 6	5- 6	100
11	5- 7	5- 6	98
12	5-11	5- 6	97
13	5- 5	5- 9	102
14	6- 2	5-11	96
15	5- 8	6- 6	117

APPENDIX B

A generative grammar is a useful tool for a speech pathologist because it provides a theoretical model on which various research, diagnostic, and therapeutic processes may be based. It outlines a model from which grammatical utterances of a language may be produced. Basically, generative grammar provides the rules by which a user of a language produces and understands a theoretically infinite number of sentences. The theoretical structure of a generative grammar is a highly organized system of underlying structures on which various functions operate to form and vary the complexity of grammatical sentences.

Since the vocabulary of generative grammar tends to be esoteric, perhaps the following analogy will be helpful in understanding two important concepts. Speech pathologists consider two important underlying components of the speech mechanism: its structures and its functions. The structures may be defined in terms of anatomy; the functions in terms of physiology. The functions and structures interact with each other during speech production, and they can be discussed from either viewpoint depending on the needs of the researcher. Just as it is possible for the speech pathologist to discuss the speech mechanism in terms of its structures or functions, it is also possible to discuss grammar in terms of its structures and functions.

The structure of a language specifies the elements and the ordering of the elements. The structure of language is defined in such terms as: noun (N), verb (V), determiner (Det), noun phrase (NP), verb phrase (VP),

and more complex structures such as kernel sentences (kernels)and transformed sentences (transforms). The functions of the structures are defined in such terms as subject (subj), predicate (pred), object (obj), and subject-predicate relationships.

Traditional grammar concentrates on the functional aspects of grammar. Little emphasis has been placed on the structural properties of language. When structural properties are discussed, they are usually limited to the traditional eight parts of speech. Traditional grammar is focused more on functional aspects, such as subject-verb relationships, or subject-verb-object relationships. The linguist interested in generative grammar focuses on the structures and operations or functions of these structures.

In generative grammar, a sentence structure consists of a NP and a VP. The NP and the VP are referred to as the constituents of the sentence. A sentence is sometimes called a string. The structural description of a sentence or a string is NP + VP, meaning a noun phrase plus a verb phrase is rewritten as a sentence. In terms of structure, a sentence consists of NP + VP.

A grammar defines two kinds of sentences: base structure (or kernels) and derived structures (or transforms). The terms, base structure and kernal sentence are interchangeable. The terms, "derived structures", "transforms," and "transformed sentences are synonymous. The structural description, S— NP + VP, defines the base structure. There are many ways to define transforms; they will be discussed later.

In the kernel sentence, S— NP + VP, the NP functions as the subject and the VP functions as the predicate. The functions indicate the ways in which structures are used. Consider the following kernel sentence: The boy / ran home. The boy is the NP and ran home is the VP. The NP, the boy, functions as the subject. The VP, ran home, functions as the Also consider, The dog / ran to the boy. The NP, the dog, functions as the subject. A NP may consist of one or more structures: the dog, Jim, I, the big boy, or a car. The VP, ran to the boy, functions as the predicate. A VP may consist of one or more structures, one of which is defined as V+NP. The NP, the boy, in the second sentence functions within the VP and tells to whom the dog ran. A VP may consist of one or more structures: runs, walks rapidly, going to the store, hit the boy.

In summary, a generative grammar indicates the rules by which an infinite number of grammatical sentences may be generated, both in terms of structure and function.

In a generative grammar there are two kinds of strings: kernels and transforms. The kernel sentences are the basic structures from which all transforms derive. The transforms are derived from kernel sentences. Consider the following examples:

Kernel	Transform
Jim runs.	Jim can't run.
I know.	I don't know.
I go.	I am going.
	I am not going.

Base structures of kernel sentences are the simplest structures from which variations in complexity occur. Sentence complexity occurs as a result of the four common operations:

Kernel	He runs.
Addition (Introduction of a morpheme)	He will run. He will not run.
Substitution (Replacement of one morpheme for another)	He can't run. He can run.
Deletion (Omission of a morpheme or morphemes)	You run! Run!
Permutation (Rearrangement of morphemes)	He can go. Can he go?

Transforms are generated by the application of one or more rules to a kernel sentence. If more than one rule is applied, the obligatory rules are applied first, then the optional rules are applied. The rules which permit changes from base to derived structure may be described. Once a rule is chosen to vary complexity, obligatory rules are sometimes necessary for the ultimate completion of a derived grammatical sentence.

The rules one utilizes to vary sentence complexity are called transformational rules. Simply stated, a transformation is defined as a linear sequence of rules which indicate how to go from base structure to derived structure through changes in grammatical morphemes. In other words, the use of transformations enables one to vary complexity of sentences.

If a transform is derived from one kernel sentence, the transformational operation is said to be simple. If a transform is derived from more than one kernel sentence, the operation is said to be general. Study the following examples of simple transformations:

Kernel	Transform
John runs.	John is running.
I go.	I can go.

Consider the following examples of general transformations:

Mary has a dress. The dress is red.	Mary has a red dress.
John went to the store. Mary went to the store.	John and Mary went to the store.

Another aspect of transforming sentences is the process of embedding. Embedding consists of nesting one structure within a larger structure. Embedding is a redundancy reduction process which permits variations in sentence complexity, for example, instead of being redundant by saying, "John went to the store," and "Mary went to the store," it is much simpler to say "John and Mary went to the store." The process of embedding simplified grammar considerably.

It is prerequisite that precise operational definitions be developed for research and clinical purposes. These are necessary for precision in analysis. Presently, there are no operational definitions of transformations, beyond the scope of structural definitions of transformations, which lend themselves to clinical utility in language pathology. Definitions that

are useful clinically could be applied to therapeutic processes with delayed, deviant, or cultural language differences. Therefore, in order to satisfy these needs, the following major sources have been consulted: Menyuk (1961, 1968 [personal communication]), Chomsky (1957, 1965), Roberts (1964), Thomas (1965). The resulting operational definitions are based primarily on Menyuk and Chomsky, however, reference to the other listed authors is made as supplementary sources. The definitions state precisely how the transformations have been used to analyze child utterances specifically for this study. These definitions have been used clinically, as well as for this research investigation. Clinically, they have been used both for diagnostic and therapeutic purposes for language disordered and delayed children. When one utilizes these operational definitions for the purpose of studying child language for any reason, he must never lose sight of the fact that he is analyzing the child's spoken language through written form.

ABBREVIATIONS USED

adj	adjective
adv	adverb
adv-m	adverb of manner
adv-p	adverb of place or location
adv-t	adverb of time
aux	auxiliary
cl	clause
comp	complement
conj	conjunction
contr	contraction
det	determiner
indef det	indefinite determiner
kernel	base structure sentence
M	modal
MV	main verb
N	noun
NP	noun phrase
NP_1	noun phrase one
NP_2	noun phrase two
neg	negative
obj	object
past prt	past participle
pl	plural
poss	possessive
pr prt	present participle
pred	predicate
pro	pronoun
pro phrase	prepositional phrase
prt	participle
pss	passive
rel	relative (clause or question)
S	sentence
sing	singular
subj	subject
Tr	transformation
V	verb
VP	verb phrase

OTHER EXPLANATIONS AND EXAMPLES

adv-m - quickly; rapidly
adv-p - there; to the store
adv-t - yesterday; now; today
aux - forms of "be" or "have"
base structure - simple-active-declarative sentence; kernel
det - articles: a, an, the; definite determiner: the; indefinite determiner: a, an, some
kernel - base structure sentence
M - can; may; shall; will; must
NP - John; the boys; he; the little girl
NP_1 - noun phrase in first position in the sentence; usually the subject of the sentence
NP_2 - noun phrase usually located in a post-verbal position; functions as direct object or adverbial complement
negative - "n't;" "not"
past prt - verb+"ed" or "en" in regular verbs
pr prt - verb+"ing" in regular verbs
transform - derived sentence; base structure sentence + transformations
VP - V; aux + V; in some cases $V+NP_2$
* - denotes ungrammatical when precedes a sentence

Tr 1 **PASSIVE**

Orienting Statements

Obligatory Rules

1. addition of "be" or "get" to function as auxiliary verb
2. addition of past prt of MV immediately following the auxiliary
3. NP_2 is transposed to position of NP_1, the former subject
4. application of additional transformation which guarantees subj-v agreement (Obligatory only if "be" is used)

Optional Rules

1. addition of "by + NP_1" (original subject in the last position of the transform)
2. additional application of question transformation
3. addition of negative transformation which results in a passive negation
4. addition of both the negative and question forms of the passive

Examples

VP examples indicative of passive verb:

"get"	1.	breaks	get broke(n)	(past+past prt MV)
	2.	paints	get painted	(past+past prt MV)
"be"	1.	breaks	is broken	(present+past prt MV sing)
	2.	paints	are painted	(present+past prt MV pl)
	3.	drives	was driven	(past+past prt MV sing)
	4.	eats	were eaten	(past+past prt MV pl)

Kernel examples of passive transformation:

Active: The girl broke the doll.
Passive: The doll got broke(n). (addition of "get")
(addition of past prt MV)
(NP_2 now in position of NP_1)

Passive: The doll was broken. (addition of "be")
(addition of past prt MV)
(NP_2 now in position of NP_1)
(subj-v agreement)

Tr 1 continued

Lack of subj–v agreement would result in one of the following:

*The dolls was broken.
*The doll were broken.

Kernel examples with options:

The girl broke the doll.	Active
The doll got broken.	Passive without "by+NP_1" (got)
The doll got broken by the girl.	Passive with "by+NP_1" (got)
The doll was broken.	Passive without "by+NP_1" (be)
The doll was broken by the girl.	Passive with "by+NP_1" (be)

Additional options operating only when "be" is used:

Was the doll broken?	pav+yes/no question
Was the doll broken by the girl?	pav+yes/no question+"by+NP_1"
By whom was the doll broken?	pas+rel question
The doll wasn't broken, was it?	pav+neg+tag yes/no question
The doll was broken, wasn't it?	pas+tag yes/no question+neg

Examples from the children's verbalizations:

1. One day my mommy got burned.
2. My brother he got electrocuted cause he is put it in and he shock hisself and then he almost got killed.
3. One day she's cookin the coffee and then I got steamed I mean it got something I guess it spewed and so the fire got turned out.
4. I don't know what she's named.
5. Except the kitchen was broken.
6. So he sprayed it off and when he brushed it off took a brush and get it all wet and he had he had a scarf and he rinsed it all off til it was cleaned.

Concluding Statements

The passive transformation operates on base structures of the following form: NP+V+NP. The following operations typically occur in adult grammar and define the passive transformation: (Chomsky, 1957)

$NP_1 + V + NP_2$ —
NP_1 + Aux "be" + V + NP —
NP_2 + Pav Aux V (by + NP_1)

In Tr 1 the word order does not remain the same. Both an addition and a permutation occure. In adult grammar the auxiliary verb "be" is added and expands the base structure. In child grammar (and idomatic in edult grammar) "bet" is added to expand the base structure. The direct object (NP_2) in both cases, then is permuted to the front of the transform where it replaces the original subject NP_1. NP_1 may or may not be added to "by" and replace NP_2.

It was found that children did not form many of their passives by the addition of "be" plus past participle, but instead used "got," thereby alleviating themselves of the necessity to use an additional transform for subject verb agreement.

Consideration should be given to the possibility that in children's grammar "get" is used for the transformation of passives. Perhaps passives transformed with "be" (with more obligatory conditions and more options) in reality reside in adult grammar.

Tr 2 NEGATIVE

Orienting Statements

Obligatory Rules

1. addition of an auxiliary verb (M, have, be, do)
2. additional transformation which will guarantee subject-verb agreement
3. addition of negative morpheme: "n't" or "not" to the VP after the auxiliary but before the MV

Optional Rules

1. neg+question - all conditions of the "Negative Tr" must occur, then all conditions of the "Question Tr" must occur with the permutation of the aux+neg to the first position of the transform
2. pev neg - all conditions of the "Passive Tr," "be" form, also occur as well as the addition of the negative morpheme within the VP after the aux but before the MV

Examples

We play it.	kernel
We do play it.	addition of "do"+subj-v agreement
We don't play it.	addition of "do" +subj-v agreement+ "n't"
We do not play it.	addition of "do"+subj-v agreement+ "not"
They look funny.	kernel
They do look funny.	addition of "do"+subj-v agreement
They don't look funny.	addition of "do"+subj-v agreement+ "n't"
Don't they look funny?	addition of "do"+subj-v agreement+ "n't" +yes/no question
She plays.	kernel
She was playing.	addition of "be"+subj-v agreement
She was not playing.	addition of "be"+subj-v agreement+ "not"
She wasn't playing.	addition of "be"+subj-v agreement+"n't"
Wasn't she playing?	addition of "be"+subj-v agreement+"n't" +yes/no question

Examples from the children's verbalizations:

1. I don't know.
2. So he's not jumpin over his.
3. I couldn't get them out.
4. It's not very nice to one of the boards are broken.

Concluding Statements

The negative morpheme "not" generally cannot be attached to the MV. The obligatory condition of the addition of an auxiliary verb is easily observed in the following:

*The horse eats not.
*The horse not eats.
The horse does eat.
The horse doesn't eat.
The horse does not eat.
Doesn't the horse eat?

Double negatives were not scored either as a transformation or mal-transformation but they were noted. Six subjects in the culturally disadvantaged group used double negatives a total of six times. Three subjects in the culturally advantaged group used double negatives a total of four times.

The children used the contracted negative "n't" 14 times for each time the non-contracted "not" form was used. Only 13 of the 30 subjects used the non-contracted form.

Tr 3 YES/NO QUESTION

Orienting Statements

There are a variety of ways of asking questions. In general, questions may be asked which require a yes or no answer) or more information than an affirmative or negative reply. These are operationally chosen; however, when one is selected, certain obligatory conditions must be met. Those questions which require more information than yes or no will be discussed later in the "Relative Question Tr."

Yes/no questions may be optionally asked in one of the four following ways: (Thomas, 1965)

I. Regular yes/no questions
II. Negative tag questions
III. Positive tag question
IV. Echo questions

I. Regular yes/no question

Obligatory Rules

1. addition of an auxiliary to MV (M, do, be, have)
2. addition of subj-v agreement transformation
3. permutation of aux (or first aux if more than one is present) to the first position in the transform
4. addition of rising inflection (indicated by question symbol "?" when written)

Examples:

Mary paints.	kernel
Mary is painting.	addition of "be"+subj-v agreement
Is Mary painting?	permutation of "be"+rising inflection
Mary paints.	kernel
Mary does paint.	addition of "do"+subj-v agreement
Does Mary paint?	permutation of "do"+rising inflection
Mary paints.	kernel
Mary has painted.	addition of "have"+subj-v agreement
Has Mary painted?	permutation of "have"+rising inflection
Mary paints.	kernel
Mary will paint.	addition of M - "will"
Will Mary paint?	permutation of M+rising inflection

II. Negative tag question

Obligatory Rules

1. addition of an auxiliary to MV (M, do, have, be)
2. addition of subj-v agreement transformation
3. formation of a phrase to be added to or "tagged" onto the end of the auxiliary-expanded VP
   a. obligatory conditions of phrase
      (1) appropriate pronoun functions as subj
      (2) neg contr "n't" added to an appropriate form of aux
      (3) subj-v agreement within VP

Optional Rules

1. may or may not use rising inflection

Examples:

Mary paints.	kernel
Mary is painting.	addition of aux "be"+subj-v agreement
Mary is painting, isn't she?	addition of phrase including appropriate pronoun and aux+"n't"

Mary paints.	kernel
Mary does paint.	addition of "do"+subj-v agreement
Mary does paint, doesn't she?	addition of phrase including appropriate pronoun and aux+"n't"

III. positive tag question

Obligatory Rules

1. addition of an auxiliary to MV (M, do, be, have)
2. subj-v agreement transformation
3. addition of "n't" to aux in M?
4. formation of phrase to be added to or "tagged" onto the end of the aux+neg expanded VP transform with following obligations:
   a. obligatory conditions of phrase
      (1) appropriate pronoun functions as subj
      (2) addition and permutation of aux to first position within the phrase itself
      (3) subj-v agreement transformation application

Optional Rules

1. may or may not add rising inflection

Examples:

Mary paints.	kernel
Mary has painted.	addition of "have"+subj-v agreement
Mary hasn't painted.	addition of "have"+"n't"+subj-v agreement
Mary hasn't painted, has she?	addition of phrase including appropriate pronoun and aux, and subj-v agreement

Mary paints.	kernel
Mary can paint.	addition of M "can"_subj-v agreement
Mary can't paint.	addition of M+"n't"+subj-v agreement
Mary can't paint, can she?	addition of phrase including appropriate pronoun and aux, and subj-v agreement

IV. Echo question

Obligatory Rules

1. addition of aux to MV (M, do, be, have)
2. subj-v agreement transformation
3. use of heavy accent and rising inflection

Optional Rules

1. use of heavy accent and rising inflection may occur on the aux and/or VP
2. use of heavy accent and rising inflection may occur on the last word

Examples:

Mike breaks the toy.	kernel
Mike has broken the toy.	addition of "have" +subj-v agreement
Mike HAS broken the toy.	addition of heavy accent and rising inflection on the VP

Silly goes home.	kernel
Silly has gone home.	addition of aux "have" +subj-v agreement
Silly has gone HOME?	use of heavy accent and rising inflection on the last word

Examples from the children's verbalizations:

Is that suppose to come on?	regular yes/no question "be"
Do you know what his name is?	regular yes/no question "do"
Will it be a hard one?	regular yes/no question "M"
He's watering the flowers, isn't he?	neg tag yes/no question
That's for the big ONES?	echo yes/no question
That's the funniest one, isn't it?	neg tag yes/no question

Examples of maltransformations made by the children:

*He's gonna get sprayed on, won't he?	neg tag yes/no question without use of appropriate form of same aux
*for a bake sale?	incomplete regular yes/no question
*You wanta look at more	"do" omitted in regular yes/no question
*She want it, don't she?	neg tag question without subj-v agreement
*Want know what his name is?	"do" omitted in regular yes/no question

Tr 4

CONTRACTION

Orienting Statements

Obligatory Rules

1. addition of an auxiliary verb (M, be*, have, do)
2. deletion of phoneme or morphemes
3. subj-v agreement transformation application

Optional Rules

1. may occur in subj-v relationship
   a. between subj-aux+verb
   b. between subj-linking verb
2. may occur within verb phrase
   a. within modal
   b. within negative
3. other types: "'d" (would); "let's" (let us); "so's" (so as)

Examples

Billy won't go home.	within VP "contr+neg"
He isn't going.	within VP "contr+neg"
They'll come soon.	within subj-v "subj+contr+modal
I'll come with you.	within subj-v "subj+contr+modal
That's good.	within subj-v "subj+contr+linking verb
The book's dirty.	within subj-v "subj+contr+linking verb
Let's turn another page.	deletion of phoneme type 3

Examples from the children's verbalizations:

He's a duck.	subj+linking verb+contr
She's big.	subj+linking verb+contr
That's some grass and mud.	subj+linking verb+contr
The rabbit's in there.	subj+linking verb+contr
He's eating.	subj+aux+contr+pr prt
He's writing an airplane.	subj+aux+contr+pr prt
I don't know.	aux "do"+contr+neg
He shouldn't do that.	M+contr+neg
That's the funniest one, isn't it?	aux "be"+contr+neg
Let's turn another page.	deletion of phoneme - "V+contr+prn"

*In the contraction transformation in this study, linking verbs are included in the forms of "be." A linking verb is defined as a form of "be" used to connect a subject and complement. When the complement is an adjective, the adjective describes the subject. Other linking verbs are: seems, becomes, appears, sounds, tastes, smells. These verbs are not considered here because they do not have contracted forms.

Concluding Statements

Since contractions are words from which an unstressed sound or syllable is deleted in speech, they obviously belong to spoken English. In informal English the fitness of a contraction is usually determined in part by the naturalness with which it falls into place, in part by rhythm. The apostrophe ordinarily stands in place of the omitted phonemes, morphemes, or words in written language. If it were not for the apostrophe, the contractions might appear as other words:

Some contractions occur in spoken English that are not considered correct in written English: "He would go but they won't let him." - He'd go but they won't let him."

There are other infrequently occuring contractions such as "let's" (let us)or "so's" (so as) that were used by the children. These, as well as contractions such as "he'd" were scored as contraction transformations when they were grammatical because the operation involved was the deletion of phonemes or morphemes.

About two-thirds of the contractions used were related to or adjacent to a pronoun, whereas only about one-tenth involved nouns. For example: "He's going to throw the ball" (prn+contr). "Billy's going to throw the ball" (N+contr).

The children used contracted forms of auxiliaries much more often than the non-contracted forms of the auxiliaries. Examples: "'s" for "is;" "'re" for "were." Because the contraction transformation occurred most frequently, and also because the contracted forms of auxiliaries were more frequent than the non-contracted form, it is suggested that children acquire contractions (smaller phonetic units) before non-contracted auxiliaries (larger phonetic units). On the assumption that children acquire morphonemic rules earlier than transformational rules, perhaps the discriminations required for addition of "+s" (for plurals, possessives, and verb tenses which utilize "+s") at the phonological and morphological levels facilitates the development of contractions at the transformational level. When contractions are transformed at the transformational level, it appears to result from the deletion of morphemes.

Consideration should be given to the idea that perhaps an operation involving addition rather than deletion of morphemes is occuring in the transformation of contractions. If an addition operation instead of a deletion operation is occuring, perhaps the contraction transformation is the same operation of addition of "'s" at the phonological and/or morphological level.

Tr 8 INVERSION

Orienting Statements

Obligatory Rules

1. addition of adverb of time in final position of sentence
2. subj-v agreement transformation must be applied
3. permutation of adverb of time to pre-verbal position
4. verb tense must remain unchanged after permutation

Optional Rules

1. may be used in combination with other transformations
   a. conjunctions
   b. conjunction deletion
   c. contraction
   d. negative

Examples

Patty ran to the store.	kernel
Patty ran to the store yesterday.	kernel + "adv-t"
Yesterday Patty ran to the store.	permutation of "adv-t"
The boy has to go.	kernel
The boy has to go now.	ker + "adv-t"
Now the boy has to go.	permutation of "adv-t"

Examples from the children's verbalizations:

Now she's under the table.	inversion + contraction
Then the dog took the rabbit.	inversion
Sometimes we start by mine.	inversion
Then he's gonna put it in the sand.	inversion
She took them and then put them on there.	inversion + conjunction deletion
I played roads like that then I put the dump on the rocks and then I put some dirt on it and then I put sand on it to make oiled roads.	inversion, conjunction, inversion, conjunction, inversion.
One day my mommy got burned.	inversion

Concluding Statements

Adverbials are of several types. They may occur as single words (quickly), as prepositional phrases (in the house), or as noun phrases (this morning). This would be a classification of form. They might also

be classified according to function: time (yesterday), manner (quickly), location or place (in the house), or frequency (sometimes).

The grammatical use of these may be defined in a model of grammar. Although it is difficult to discuss meaning, it is possible to discuss forms that convey meaning. The inversion of adverbials are considered grammatical when their relocation does not introduce confusion in meaning.

Relocation of "adv-t" introduces no confusion, but relocation of other types of adverbials introduces various levels of confusion. This may be observed in the following examples:

Patty ran to the game.	NP_1+VP+adv-p
Patty ran to the game quickly.	NP_1+VP+adv-p+adv-m
Patty ran to the game quickly yesterday.	NP_1+VP+adv-p+adv-m+adv-t

The following sentence is also acceptable:

Patty quickly ran to the game yesterday.
(NP_1+adv-m+VP + adv-p + adv-t)

Following are examples of relocation of adverbs:

Relocation of adv-p:	*To the game Patty quickly ran yesterday. (or) *To the game Patty ran quickly yesterday.
Relocation of adv-m:	*Quickly Patty ran to the game yesterday.
Relocation of adv-t:	*Yesterday Patty ran to the game quickly. (or) Yesterday Patty quickly ran to the game.

Typically, adverbs of manner do not occur in verb phrases with BE or HAVE. When more than one form of adverbial occurs in a single sentence, they typically follow a specific order of placement within the sentence: place, manner, frequency, time (Roberts, 1964, p. 86). The frequency adverbials behave differently from the time adverbials in that they are less definite in the manner of time. For example: time adverbials - yesterday or today are much more specific or definite than the frequency adverb "sometime." Hence, they both involve time but do behave differently.

Following are the usual positions of time adverbials in sentences:

1. Typically adv-t (except frequency) occur at the end of sentences, but may be transformed to the beginning of a sentence.

2. Frequency adverbials are usually found before verbs but immediately following forms of BE.
   Example: Jim walks rapidly.

"Jim is rapidly walking" rather than "Jim is walking rapidly."

Both frequency and time adverbs were scored as inversion transformations.

Tr 6 RELATIVE QUESTION

Orienting Statements

The second major type of question is that which is introduced by interrogatives: "who, which, what, when, where, and the irregular form of how." This kind of question is often referred to as "WH questions" because they all begin with "WH" with the obvious exception of "how." The relative questions require more than an affirmative or negative reply. More information is required. All are related because of their basic inquiry or request. Five primary subclasses are categorized according to the kinds of words they question: nouns, verbs, adjectives, adverbs, or the entire sentence (Thomas, 1966).

Consider the following types of questions and exemplary sentences:

The little girl was crying in the house.

Who was crying in the house?	nominal question
How many girls were crying in the house?	nominal question
What was the girl doing in the house?	verbal question
What did the girl do in the house?	verbal question
What girl was crying in the house?	adjectival question
Where was the girl crying?	adverbial question

Obligatory Rules

1. addition of auxiliary verb (be, do)
2. permutation of aux v to pre-subject position in the transform
3. addition of appropriate "WH" pronoun in first position in the transform
4. addition of question inflection at the end of transform
5. subj-v agreement transformation application

Optional Rules

1. may question nominal aspect
2. may question verbal aspect
3. may question adjectival aspect
4. may question adverbial aspect
5. if negative is also used, "do" is obligatory

Examples from the children's verbalizations:

What's that?	nominal question
Where's he going with that rabbit?	adverbial question
How'd they do that?	nominal question
What are these things?	nominal question
What are they doing?	verbal question

Examples of maltransformations made by the children:

I think they'll say um Daddy Daddy what did you bring home for us a dog?	lack of appropriate permutation
Why the sound don't come on?	inappropriate permutation and lack of subj-v agreement
What happen that no talking?	failure to add aux v to kernel wh pronoun

Concluding Statements

The same types of "WH questions" might also be classified in a different way. It is possible to interrogate the following: subject, object, verb, or adverbials of time, place, or manner.

Consider: John was happily painting paper-mache masks in the studio yesterday.

1.	Who was painting masks yesterday?	subject
2.	What was John painting?	object
3.	What was John doing in the studio yesterday?	verb
4.	When was John painting masks?	adv-time
5.	Where was John painting yesterday?	adv-place
6.	How was John painting yesterday?	adv-manner
7.	What kind of masks was John painting?	adjective

Of course, one is not likely to find all of these questions deriving from one sentence, but the somewhat absurd sentence is useful in exemplifying the possible kinds of relative questions.

Thomas states that the questioning of determiners (as in the irregular interrogative how) is best treated with nominals "since determiners are derived in the phrase-structure expansion of nominals" (Thomas, 1966, p.177). This refers to the question which uses the interrogative "how many." The resulting answer would require a number which is considered to be a determiner. For example: "How many girls were playing the game?" The resulting answer is not negative or affirmative, but difinitive in that the answer must contain a number - the number of girls who were playing the game. How is used to explain the number of the nominal being questioned.

"Who" is used with human form nouns in nominal questions. It is optional to use "whom" instead of "who" (Thomas, 1966).

Negatives may be attached to auxiliaries other than "do." When negatives are embedded in questions the following occurs: "yes/no questions" are transformed when the negative is attached to forms of "be;" either "yes/no" or "relative questions" may be transformed when the negative is attached to forms of "do."

Tr 7 IMPERATIVE

Orienting Statements

Obligatory Rules

1. second person pronoun must be in the subject position (may be implied)
2. tense marker must be "present tense"
3. auxiliary will must be present or implied
4. no other auxiliaries may be present

Optional Rules

1. either "you," the tense marker, or the auxiliary may be deleted
2. negative and tag question transformations may be used

Examples

You will throw the ball.	kernel with restrictions that "you" is subject, "will" is the only aux present, and the tense marker is present
You throw the ball.	deleted auxiliary "will"
Throw the ball.	deleted subject and auxiliary

Examples from the children's verbalizations:

Let's look at the duck.	deleted subj and aux
Look at all those.	deleted subj and aux
Look at that dog.	deleted subj and aux
Let me think here.	deleted subj and aux
Let me see.	deleted subj and aux
Give me this.	deleted subj and aux
Now turn another page.	deleted subj and aux+inversion tr
Give me this, will you?	imperative + tag question
Don't turn the page.	imperative + neg

Concluding Statements

It is possible to embed a constituent sentence after the subject. This would yield a sentence of the following form:

Mike will throw the ball. You will throw the ball.	You, Mike, will throw the ball.

The following sentences may also be transformed:

You, throw the ball.
Mike, throw the ball.
You, Mike, throw the ball.

"You" and or "will" may be deleted. The negative transformation might also be applied and the following sentence would be transformed: "Mike, don't throw the ball." If the negative transformation is optionally chosen, the "do"support" transformation is automatically obligatory.

Tr 8 THERE

Orienting Statements

Obligatory Rules

1. an indefinite determiner + noun must function as subject in NP_1 in sentence 1
2. a form of "be" must function as the predicate in sentence 1
3. adv-p "there" is added in the final position of sentence 1
4. indefinite determiner + noun (NP_1) of sentence 1 is permuted to NP_2 in sentence 2
5. adv-p "there" is permuted to NP_1 where it functions as the subject of sentence 2, the transformed sentence
6. subj-v agreement transformation application

Optional Rules

1. adv-p "there" may be deleted in final position and become implied
2. adv-p "there" may continue to occupy a final position

Examples

The following examples from Menyuk (1968) is provided for clarification of this transformation:

Sentence 1.	Some rain is falling.	indef det+N+"be"+V
2.	There is some rain falling.	"there"+"be"+indef det+N+pr prt
Sentence 1.	A boy is <u>there</u>.	kernel
2.	<u>There</u> is a boy.	"there"+"be"+indef det+N
3.	<u>There</u> is a boy <u>there</u>.	"there"+"be"+indef det+adv-p
4.	<u>There</u> are boys <u>there</u>.	"there"+"be +pl"+N+adv-p

Other examples:

kernel		"there" transform
Some animals are there.		There are some animals.
A dog is there.		There is a dog there.
	(or)	There is a dog.
	(or)	There's a dog.
Some books are there.		There are some books there.
	(or)	There are some books.
Some boys are running.		There are some boys running.

Examples from the children's verbalizations:

There's some milk and a mouse.	"there"+contr+conj del
There's a man and there's a little girl.	"there"+contr+conj+"there"+contr+adj
There's a dog.	"there"+contr+"be"+indef det+N
There's a duck there.	"there"+optional adv-p
There's a dog in it too.	"there"+contr+adv-p as prp phrase

Maltransformations made by the children:

*There's kids in it too.	subj-v agreement tr not applied
*There a doggy.	verb "be" omitted

Pretransformed "There" in children's verbalizations:

Some kids are riding in it.	indef det+N+"be"+adv-p
That's some grass on that there.	possible substitution of "that" for "there" during permutation

Concluding Statements

The difficulty in understanding this transformation is failure to recognize the subtle distinction between indefinite and definite determiners. Indefinite determiners include: "a, an, some." The most common definite determiner is "the."

Another distinction to be recognized is between two ways in which "there" may function as a subject of a sentence. Example: "There goes the ball." (There - demonstrative; "the" ball includes def det; "goes" ther than "be" as the MV) The use of the definite determiner "the" denotes a specific ball.

The children in this study used "there" + "s" contracted auxiliary "be" most of the time. Perhaps this is further support for the previous statement that contracted form of elements, auxiliary in this case, is acquired earlier than non-contracted forms of the same element.

Tr 9 SEPARATION

Orienting Statements

Obligatory Rules

1. addition of relative pronoun in a post verbal position
2. addition of advert of place following the relative pronoun
3. permutation of relative pronoun so that it seperates (or is located between) the V and adv-p

Examples

*He's gonna tear up it.	permutation has not occurred
He's gonna tear it up.	V+rel prn+adv-p
*Momma let out him,	permutation has not occurred
Momma let him out.	V+rel prn+adv-p

Examples from the children's verbalizations:

1. He shaked it off.	V+rel prn+adv-p
2. He wanted to get it off.	V+rel prn+adv-p
3. She stirs them up first.	V+rel prn+adv-p+adv-t
4. You pick it up and put it.	V+rel prn+adv-p+conj del tr

Concluding Statements

This transformation occurs as a result of seperation within the verb phrase by a pronoun. Phrase structure grammar describes the origin of most verb phrase constructions. However, there is one verb phrase construction that involves seperation of verb elements by a pronoun. There is no logical way in which a phrase structure grammar can describe the embedding of a pronoun in a verb phrase, therefore, the occurence of this more complex grammatical construction is described on the transformational level (Chomsky, 1957).

Chomsky further explains this transformation by saying that this has the effect of interchanging the last two segments in the string. It is obligatory that when the NP object is a pronoun, that the pronoun be permuted and embedded within the VP. However, when a noun is the object of the NP_1 it is not obligatory to make the permutation. Following is Chomsky's example which will help illustrate this:

The police brought in the criminal.
The police brought the criminal in. (or)

The N object of NP_1 may or may not be permuted.

*The police brought in him.	prn obj not permuted
The police brought him in.	prn obj permuted

Since this transformation is obligatory only if the NP object is a pronoun and is optional when the NP object is a noun, only the obligatory permutations of pronouns were counted as an occurrence of the "separation transformation." The children did display some permutations of the N object: "They have dirty clothes on." "He knocked the dog down. "He's takin the animals out."

Tr 10 CONTRACTED HAVE + GOT

Orienting Statements

Obligatory Rules

1. MV is a form of "have"
2. "got" is added as MV and "have" becomes an auxiliary
3. application of subj-v agreement transformation
4. addition of contraction as a result of deletion of phonemes in form of "have" to reduce redundancy

Examples

I have a new dress.	MV "have"
I have got a new dress.	"have"+"got" as MV; "have" becomes aux
I've got a new dress.	"have"+contr+"got"
Jim has a book.	MV "have"
Jim has got a book.	"have"+"got" as MV; "have" becomes aux
Jim's got a book.	"have"+contr+"got"
They have the blocks.	"have" MV
They have got the blocks.	"have"+"got" as MV; "have" becomes aux
They've got the blocks.	"have"+contr+"got"

Examples from the children's verbalizations:

A dog's got the ball.	contr+"have"+"got" sing
He's got two cows.	contr+"have"+"got" sing
They've got a seat in it too.	contr+"have"+"got" pl
Well someone's got to be the mother.	contr+"have"+"got" sing
Know what he's got?	contr+"have"+"got" sing with manitransformed yes/no question
She's gonna look at what she's got in there.	contr "have"+"got" sing

Concluding Statements

The term "have got" is often used in traditional grammar as a colloquial way of intensifying or emphasizing "have" in the sense of being obligated or possessing. The verb "have" is capable of carrying the meaning but it is not emphatic, especially when it is contracted. "Have" is often used merely to indicate tense. "Have" + "got" may occur in contracted form. When "have" and "got" are combined in non-contracted form, it appears redundant. "I have got it" is redundant; however, "I've got it," is not. The contracted have + got transformation demonstrates the ability to use the non-redundant form of "have" + "got."

AUXILIARIES

Orienting Statements

Auxiliary verbs complete the forms of other verbs. They may be defined as those verbs which are used with other verbs to form a phrasal tense, voice, or mood.

The first type of auxiliary is the modal. They consist of four words which have both a present and past form and one which has only a present form. They are: can, may, shall, will (present); could, might, should, and would (past); and must (present). When a modal is used as an auxiliary, it always precedes other auxiliaries or the main verb.

There are two other kinds of frequently occurring auxiliaries: forms of "have" and "be." When "have" is used as an auxiliary, the verb that follows is invariably a past participle (ends in ed or en in regular verbs). When "be" is used as an auxiliary in any sentence in the active voice, the main verb that follows is invariably a present participle form (ends in ing). Both "be" and "have" used as auxiliaries function as tense markers.

The forms of "be" which may function as auxiliaries are: "is, am, are, was, were." The forms of "have" which may function as auxiliaries are: "has, had, have."

Every verb phrase that functions as a predicate in a sentence contains an auxiliary. Every auxiliary must contain a tense marker. In other words, something in the verb phrase must be a form that carries the meaning of past or present. In addition, the verb phrase may contain a modal; it may contain "have" + past participle (ed or en); it may contain "be" + present participle (ing); or it may contain a combination of these. It is obligatory that the modal precede both the auxiliary and/or main verb.

Forms of "be" and "have" may function as main verbs - that is, without an auxiliary. When this occurs, "have" and "be" are considered a part of the auxiliary transformations. They are functioning as linking verbs. That is, the verb does not specifically add meaning of its own. For example: "John is sick," "Sam was the president," "Jim has a cold," or "The boys have their bicycles." In these sentences, "have" and "be" are functioning as main verbs and not as auxiliaries; therefore, they are not considered a part of the auxiliary transformations.*

Another special auxiliary is "do." Just as "be" and "have" may function as auxiliaries or main verbs, forms of "do" have similar functions. "Do" may be used as an auxiliary to form verb phrases except with the verb "be" and "models." In other words, forms of "do" may serve the same function in some phrases in place of "be" or "models." The forms of "do" which may function as auxiliaries are: "do, does, did."

Another special auxiliary is "get." It, too, may function as an auxiliary or as a main verb. It's principal forms are: "get, got, got or gotten." "Have got" is often used as a colloquial way of intensifying or emphasizing the sense of possession or of being obligated. The "have" verb is capable of carrying the meaning, but it is not emphatic, especially when it is contracted. It is often used merely to indicate tense. "Have" and "got" may occur together in some verb phrases. Explanation of when this is grammatical is found in the concluding statements of "Tr 10 - Contracted Have + Got."

Tr 11 AUXILIARY "BE"

Orienting Statements

Obligatory Rules

1. addition of form of "be" after the subject but before the main verb
2. application of subj-v agreement transformation

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*Further information concerning linking verbs is found in the concluding statements of Tr 4 - Contraction.

Optional Rules

1. additional transformations may be applied, thus the "be" auxiliary becomes embedded
   a. contraction
   b. passive
   c. negative
   d. yes/no question
   e. relative question
   f. complement

Examples

Kernel	Transform	Explanation
He runs.	He is running.	sing present+pr prt
They play.	They are playing.	pl present+pr prt
I jump.	I am jumping.	sing present+pr prt
He walks.	He was walking.	sing past+pr prt
They eat.	They were eating.	pl past+pr prt

Examples from the children's verbalizations:

The boy is pushing the wagon.	singular present
The pigs are hiding.	plural present
The dog was hiding them.	singular past
The boy is washing his wagon with soap.	singular present
The boy was pushin it.	singular past

Concluding Statements

The auxiliary "be" occurred most frequently embedded within the contraction transformation than any other transformation. Each time a form of "be" was used as an auxiliary whether as the only transformation in a sentence or when embedded within other transformation, it was counted as an occurrence of the auxiliary be transformation.

Tr 12 AUXILIARY "HAVE"

Orienting Statements

Obligatory Rules

1. addition of form of "have" after the subject and before the main verb
2. application of subj-v agreement transformation

Optional Rules

1. additional transformations may be applied, thus the "have" auxiliary becomes embedded
   a. have+got
   b. complement
   c. conjunctions

Examples

Kernel	Transformed Sentence	Explanation
He breaks.	He has broken the toy.	singular past
They go.	They have gone to town.	plural past
He goes.	He had gone to the movie when they came.	singular past

Examples from the children's verbalizations:

He has sprayed it.	singular past
I haven't been in a train.	singular past
He has gone.	singular past
He's drunk all the water out there.	singular past
The ladies had just left.	plural past

Concluding Statements

The "have" auxiliary appeared most frequently when embedded in the "have+got transformation." It appeared infrequently as an auxiliary.

Tr 13 "DO" SUPPORT

Orienting Statements

Obligatory Rules

1. addition of "do" after the subject and before the main verb
2. application of subj-v agreement transformation
3. no other modal or auxiliary may be present

Optional Rules

1. additional question transformation may be applied

Examples

Kernel	Do Support Tr	Yes/No Question
I read the book.	I did read the book.	Did I read the book?
That wheel come off.	The wheel did come off.	Did that wheel come off?
The boy hit the ball.	The boy did hit the ball.	Did the boy hit the ball?

Examples from the children's verbalizations:

Did the other kids do this?	"do support" + yes/no question
Where do you live?	"do support" + yes/no question
Mommy doesn't know where she lives.	"do support" + negative
The mother did put the ball down.	"do support"
He did take it.	"do support"
Do you know what his name is?	"do support" + yes/no question

Examples of maltransformations by children:

You want to look at my shoes?	lack of "do support" + yes/no question
Know what he did last night?	lack of "do support" + yes/no question
Know what he's got?	lack of "do support" + yes/no question
She want it, don't she?	lack of subj-v agreement

Concluding Statements

Some questions have no auxiliaries or modal which enable the transformation of a question form of the sentence. The "do" support transformation is necessary for ultimate transformation of questions of some sentences. "Do" transformation also provides an opportunity to which the negative transformation may be applied.

Tr 14 POSSESSIVE

Orienting Statements

Obligatory Rules

1. kernel sentence has a form of "have to indicate possession
2. deletion of "have" and indefinite article in underlying sentence
3. addition of possessive morpheme + "'s" to noun NP_1
4. permutation of N + possessive morpheme from NP_1 to a position just before the N in NP_2

Optional Rules

1. possessive transformation may be repeated as many times as long as each application includes the definite article for NP + poss to replace each underlying sentence
2. resulting NP + poss may occur in NP_1 or NP_2 in the derived sentence
3. when N + poss occurs in NP_2, it may or may not be elliptical

Examples

Kernel	Possessive Tr	Embedded
Mary has a coat.	Mary's coat	There is Mary's coat.
Cindy has a purse	Cindy's purse	Where is Cindy's purse?
Susie had a date.	Susie's date	Susie's date is here.
Carl has a car.	Carl's car	Carl's car is blue.

Examples from the children's verbalization:

We sleep in our Daddy's tent just me and my sister all by ourself.
And they looked right there but the bunny's eating the doggy's food.
I don't know that girl's name.
We went to my grandma's. (elliptical)
Maybe they're goin to the doctor's. (elliptical)

Concluding Statements

This transformation results from a general deletion operation which permits some structures to be omitted so that sentences may be produced in shorter forms.

The possessive morpheme is regular for all nouns but is irregular for all personal pronouns. The possessive transformation is concerned only with regular forms. The irregular forms operate at changes in the phonological level.

Some mention must be made of the plural form because of its close relationship. The addition of + s morpheme may indicate plurality rather than possession. Usually, the possessive transformation is indicated by N + 's + N; contextual clues are also of use in determination if the "+s" is indicative of possession or plurality. If both are added to the same NP, the plural morpheme is added first, then the possessive morpheme is imposed. In writing, the possessive form is indicated by replacement of an apostrophe for the deleted article in regular nouns. The plural morpheme sounds the same, but is indicated in writing by the addition of an apostrophe "+s." The plural possessive in writing is indicated by addition of the "s" denoting plurality and then the apostrophe denoting possessiveness.

The possessive transformation may be repeated indefinitely if the following restriction is observed. Each application requires the addition of another definite article for NP + Poss. Example:

The boy has a ball.	The girl has a doll.
the boy's ball	the girl's doll
*I see boy's ball.	*There is girl's doll.
I see <u>the</u> boy's ball.	There is <u>the</u> girl's doll.

When using both the above possessives in one sentence, it is necessary to include the definite article preceding the possessive noun each time:

I see the boy's ball and the girl's doll.
*I see the boy's ball and girl's doll.

Possession may be indicated in ways other than transforming a "N + Poss" and then embedding it in a sentence. Possession may be indicated at the phrase level of grammar by using a prepositional phrase of the form "of + noun or pronoun." For example: "The leg <u>of the boy</u> was broken," instead of "The <u>boy's leg</u> was broken." These denote other linguistic rules and are not considered the same type of operation because the structure does not shorten and simplify grammar as does the use of the transformational possessive.

Tr 15 REFLEXIVE

Orienting Statements

Obligatory Rules

1. two underlying sentences have the same subject
2. repeated items (noun or pronoun) must be deleted or replaced by 3rd person pronoun suffix"+ self"
3. must agree in gender and number

Optional Rules

1. typically occurs in affirmative sentences
2. may occur in yes/no question

Examples

They are hurt.	They hurt them.	They hurt themselves.
He is cut.	He cut him.	He cut himself.
I am burned.	I burned me.	I burned myself.

Examples from the children's verbalizations:

I don't push all by myself.
One time I cleaned the house by myself.
Cause he couldn't get himself wet.

Examples of maltransformations:

*They must of made it theirselves. (themselves)
*Cause so they'll learn how to do them theirself. (themselves)
*We sleep in our Daddy's tent just me and my sister all by ourself. (ourselves)

Concluding Statements

When two kernel sentences combine and one utterance is derived, repeated items must be deleted or replaced. If they are not deleted, they may be replaced with another morpheme, in this case, a third person reflexive form of the pronoun. The reflexive pronoun involves the addition of "+self" suffix to personal pronouns.

More simply stated: reflexive verbs are those verbs which may be used with pronoun objects that refer to the subject, which is acting upon itself.

The suffix "self" indicates that the nominal for which the pronoun is substituting is identical to the nominal which is the subject of the sentence. This transformation is similar to the operation in which a nominal form of a second sentence is deleted and replaced with the appropriate pronoun. Example: The girl took the book and tore it. "It" replaces the deleted noun and refers back to it(Thomas, 1965, p. 97; 105).

CONJUNCTIONS

Orienting Statements

Types of conjunctions must be considered before specific conjunctions may be discussed. Conjunctions are words that join sentences or parts of sentences. As a general rule, conjunctions join like grammatical structures.

Conjunctions may join: two nouns, two verbs, two noun phrases, or series of like grammatical structures. Grammaticality results when the conjunction joins like structures. Ungrammaticality results when the conjunction joins unlike structures. The same general rule applies to correlative conjunctions: "not/but;" "not only/but also;" "either/or;" and "neither/nor." Correlative refers to paired conjunctions used within one utterance. One usually introduces the sentence and the other conjoins the two major structures of the utterance.

"And," "or," and "but" connect parts of sentences or whole sentences. "For," "yet," "so" and "nor" connect only whole sentences.

The conjunction "but" is usually needed to indicate that something that follows is unexpected. For this reason, "but" will not ordinarily join simple noun phrases.

When "and" joins two singular noun phrases, it makes them plural, but when "or" joins two singular noun phrases, it leaves them singular. This then determines whether singular or plural verb correlates are used: that is, "is" or "are," "was" or "were."

Tr 16 CONJUNCTION AND

Orienting Statements

Obligatory Rules

1. sentence 1 and sentence 2 both must be grammatical
2. sentence 1 and sentence 2 must have the same verb tense
3. "and," "but," or "or" may join the two sentences

Optional Rules

1. sentences conjoined may be base structure sentences, transformed sentences or combinations of the two with restriction that they both are grammatical and that they both have the same verb tense

Examples

Base structure sentences conjoined:

John ran home.
Mary ran to the park.

John ran home and Mary ran to the park.

The boy has a dog.
The girl has a bunny.

The boy has a dog and the girl has a bunny.

Transformed sentences conjoined:

Sally is breaking it.
It's the yellow one.

Sally is breaking it and it's the yellow one.

I didn't do it.
Jeff didn't do it.

I didn't do it and Jeff didn't do it.

That's a lady.
That's a man.

That's a lady and that's a man.

Base structure sentence and transformed sentence conjoined:

That is a duck.
There is a baby cow.

That is a duck and there's a baby cow.

The girl sees the ducks.
They're lookin at them.

The girl sees the ducks and they're lookin at them.

Examples from the children's verbalizations:

There's the dad and there's the girl.
One's a big one and the other one's a small one.
I work in books and I color.
Last night I went to bed when Mommy told me and I minded.

Maltransformations:

She comed over in our front yard and we play.	tense not in agreement
She's got a table and she's workin on it.	tense not in agreement
He's waterin the flowers and the dog jumped out.	tense not in agreement
The four pigs are drinking and one-two-three.	sentence + fragment

Concluding Statements

Conjunctions may join words or word sequences which have the same structures or which are derived grammatically from the same structures. Conjunctions may join words or phrases at the phrase level of a grammar: bats and balls (N + N); a bat and a ball (A + N + A + N or NP + NP); or singing and playing (V + V). Conjunctions may join sentences of like or similar structures. That is, they have the same basic structure or are derived grammatically from the same basic structures.

Conjoining sentences occur at the transformational level of a grammar. For this reason only those conjunction ("and," "or," "but")which join sentences are considered here. One major restriction is that the two sentences that are conjoined have the same verb tense. The other restriction is that both are grammatical sentences and not sentence fragments.

The most frequently occurring conjunction in children's language verbalizations is"and." "Or" and "but" are two other conjunctions which occur infrequently. The use of "and," "or," and "but" to conjoin two grammatical sentences with the same tense were considered an occurrence of the conjunction transformation.

Tr 17 CONJUNCTION DELETION

Orienting Statements

Obligatory Rules

1. sentences 1 and 2 have two elements that are identical
2. conjunction transformation is applied and "and" joins sentence 1 and 2
3. repeated element is deleted
4. if deleted element is NP, the subject-verb agreement transformation must be applied if necessary to insure subj-v agreement

Optional Rules

1. identical elements may be NP_1 or NP_2
2. identical elements may be VP
3. identical elements may be NP_1 and VP_1

Examples

Identical "VP + Conjunction Deletion Tr:"

Sentence 1: John is going to the store.
Sentence 2: Mary is going to the store.
Transforms: John is going to the store and Mary is going to the store.
*John and Mary is going to the store.
John and Mary are going to the store.

Sentence 1: Cake is good to eat.
Sentence 2: Ice cream is good to eat.
Transforms: Cake is good to eat and ice cream is good to eat.
*Cake and ice cream is good to eat.
Cake and ice cream are good to eat.

Identical NP + Conjunction Deletion Tr

Sentence 1: Tony is playing.
Sentence 2: Tony is singing.
Transforms: Tony is playing and Tony is singing.
Tony is playing and singing. (NP_1 deletion)

Sentence 1: I see a dog.
Sentence 2: I see a cat.
Transforms: I see a dog and I see a cat.
I see a dog and a cat. (NP_2 deletion)

Examples from the children's verbalizations:

That dog's gonna jump up and kick her. (NP_1 deletion)
They're hiding and eating. (NP_1 deletion)
They're sittin down and standin up. (NP_1 deletion)
There's a mother and a girl. (NP_1 and VP_1 deletion)
They runned and tried to get it. (NP_1 deletion)
Steven and Jim went with me. (NP_1 deletion)
Mitz and Butterball showed off to a little farmer boy. (VP deletion)

Maltransformations made by the children:

*A girl and boys was playing	lack of subj-v agreement
*The boy and girl was running to get the dog.	lack of subj-v agreement
*They took the dog the rabbit.	lack of conj tr "and"

Concluding Statements

This transformation may be applied to delete repeated elements in adjacent sentences. Therefore, it may be said that this is a redundancy reduction operation. That is, the conjunction deletion transformation simplifies grammar considerably by eliminating repeated items which are not necessary to meaning.

The deleted elements may be: NP_1 (the subject); VP_1 (the predicate); or when both sentence 1 and 2 have different NP_2 and both NP_1 and VP_1 are identical, NP_1 and VP_1 may be deleted.

Perhaps the title, conjunction deletion, is a misnomer. The title implies that a conjunction or connective word is deleted. However, the deleted element is not a conjunction. A conjunction does join the remaining elements of the two sentences after the repeated element has been deleted.

Tr 18 CONDITIONAL "IF"

Orienting Statements

Obligatory Rules

1. "if" conjoins two dependent clauses
2. a corresponding relationship between the two clauses must exist

Optional Rules

1. "if" + dependent clause may introduce or begin the sentence when it does not introduce confusion of meaning.

Examples

1. Jim can go to the movie if John can go.
2. Bobby can watch television tonight if he is a good boy.
   If Bobby is a good boy, he can watch television tonight.

Examples from the children's verbalizations:

1. I don't know if he's gonna get wet.
2. I knew they'd put fire on it if they got in.
3. If we had a dog, he's eat up the baby kittrn.

Concluding Statements

In terms of structural descriptions and changes, "if" conjoins two NP + VP constructions. Likewise, "so" and "because" may also conjoin two NP + VP constructions. It appears that once the connective is introduced into the operation, it transforms the dependent clause that follows it into an independent clause. Therefore, to differentiate between the "if," "so," and "because" transformations, meaning must be introduced as a result of the connective used. "If" demonstrates and introduces a conditional relationship between the two clauses. The meaning of one clause may be said to be contingent upon the other. For example: in Sentence 2 whether or not Bobby gets to watch television is contingent or dependent on whether or not he is a good boy. In Sentence 1, Jim's going to the movie is dependent on John's being able to also go to the movie.

Tr 19 "SO"

Orienting Statements

Obligatory Rules

1. "so" conjoins two dependent clauses
2. a consequential relationship must exist between the clauses

Optional Rules

1. a modal may be, and is often, used as an auxiliary in the second clause to indicate a mood related to the consequence.

Examples

1. Mary helped Mommy so she could go out to play
2. Johnny broke the toy so he had to go to bed.

Examples from the children's verbalizations:

1. They're gonna put water down there so the pigs won't get out.
2. One day she's cookin the coffee and then I got steamed I mean it got something I guess it spewed and so the fire got turned out.
3. Father came to watch them so the dog came and bit him.

Maltransformations from the children's verbalizations:

*1. Be I think so they can watch.
*2. The boys and girls and rabbit let them so to the dog.
*3. And sittin on the grass in the shade so he's swing clear high and he hit the woman.
*4. So the dog bited him right on the tail and it came off.

Concluding Statements

"So" conjoins two clauses between which a consequential relationship exists. Meaning is an important factor here. There are several connectives which may conjoin two clauses. Structurally, these may be differentiated only on the basis of meaning which the connective introduces. Among those which would be difficult to differentiate are: "so," "if," and "because."

An interesting point: it appears that if the order of the two clauses were to be inverted, and "so replaced with because," the sentence would imply a related, but slightly different relationship.

Tr 20 CAUSAL

Orienting Statements

Obligatory Rules

1. "because" or "cause" conjoins two dependent clauses
2. an explanatory or reason relationship must exist between the two clauses

Optional Rules

1. "because" may conjoin the two clauses
2. "cause" may conjoin the two clauses

Examples

1. Jeff can't go <u>because</u> he is being punished.
2. Kevin got a spanking <u>cause</u> he broke Judy's doll.

Examples from the children's verbalizations:

1. He's running out of the flowers <u>because</u> he's getting wet.
2. I know <u>because</u> my daddy used to be on a train.
3. He's washin the wagon with the hose and water <u>cause</u> it's dirty.

Maltransformations:

*1. Snooks bark <u>so</u> was out doghouse full of snakes.
*2. He watered the flowers and no more water came out <u>cause</u> he wet down and read the paper.

Concluding Statements

The causal transformation structurally conjoins two NP + VP constructions just as the "if" and "so" connectives. Here again, the importance of meaning is observed. The relationship of meaning here involves an explanation, or reason for the dependency of one clause on the other.

It is interesting to note that the children confused the use of "so" and "because" when they were unable to successfully complete the transformation grammatically.

Tr 21 PRONOUN IN CONJUNCTION

Orienting Statements

Obligatory Rules

1. identical nouns function as subjects in sentence 1 and sentence 2
2. conjunction transformation is applied and "and" conjoins the two sentences
3. the repeated element in the second sentence is replaced by a pronoun which agrees in gender and number

Examples

1. John went to the store.
   Then John went to the movie.
   John went to the store and then John went to the movie.
   John went to the store and then he went to the movie.

2. Mommy said I could color.
   Mommy got the coloring book for me.
   Mommy said I could color and Mommy got the coloring book for me.
   Mommy said I could color and she got the coloring book for me.

Examples from the children's verbalizations:

I wanted a sandbox and Daddy was thinking about getting me one and he got it for me for my birthday.

My daddy's gonna take my mom fishing and he knew it'd be a good sport for her.

Concluding Statements

Some similar operations were made by the children. The relationship seems similar but was not included in the analysis of the pronoun in conjunction transformation. Perhaps it should have been since it may be the same operation. For example: "See my mom works there and she gets off and then we go right home as soon as we get there." Consider: "I asked Mommy if I could wear some high heels and she said yes." In both sentences, the personal pronoun was replaced by the appropriate pronoun in two adjacent clauses conjoined by "and." However, the personal pronouns were not functioning as subjects of the sentences. Perhaps the operational definition should read: the replacement of a personal pronoun with the appropriate pronoun when the noun and pronoun appear in adjacent clauses connected by "and."

It must be mentioned here that this transformation is similar to the conjunction deletion transformation. Both operate on a rule which states that repeated elements must be deleted or replaced. In the conjunction deletion transformation, the repeated element is deleted. In the pronoun in conjunction transformation, the repeated element is replaced.

Tr 22

ADJECTIVE

Orienting Statements

Obligatory Rules

1. base structure sentence described as: "The + N + is + adj"
2. adj is permuted to prenominal position after "the" but before N
3. "is" is deleted

Optional Rules

1. the resulting adjectival phrase may be embedded in either a pre- (NP_1) or post-verbal (NP_2) position within a sentence.

Examples

The ball is pretty.	the pretty ball
The school is big.	the big school
The dress is green	the green dress
The chair is broken.	the broken chair
(The + N + is + adj)	(the + adj + N)

Examples from the children's verbalizations:

Mommy got her a new dress.	(embedded in NP2)
She had a red dress.	(embedded in NP_2)
The little girl is inside of it.	(embedded in NP_1)
The big kid is lookin at the side of the chair.	(embedded in NP_1)
She is riding with a ball, and a little girl, and a suitcase.	(embedded in NP_2)

Concluding Statements

Menyuk describes the adjective transformation as deriving in the following way:

Sent. 1	NP	VP	Art	N
	I	have	a	dog.
Sent. 2	NP	NP	Adj	
	The dog	is	pink.	

Transform: I have a pink dog.
Restriction that N in NP_2 of sentence 1 be the same N as the N in NP_1 of sentence 2: and that "definite and indefinite adjectives agree" with the N. (Menyuk, 1961)

It does not appear that this transformation can account for the appearance of adjectives in a preverbal position of a sentence. It seems just as appropriate for an adjective to occur in NP_1 preverbally as it is to occur in NP_2 post-verbally.

A process of nominalization is necessary for the transforming of an adjective. Nominalization refers to the alteration or rearrangement of a word or group of words so that they are able to perform the function of a noun phrase in a sentence (Thomas, 1966, p. 75).

Every adjective that occurs in a prenominal position is introduced into that position as a result of a transformation. The adjective is said to be introduced into that position from an embedded sentence.

This transformation simplifies grammar considerably. It is much easier and more economical to use the adjective transformation as is demonstrated in the following sentences:

The boy is big. The boy took the dog to the doctor. The dog is bad. The doctor is nice. The dog bit the girl. The girl is little.

It is much simpler to understand and much more easier to say: The big boy took the bad dog to the nice doctor after it bit the little girl.

There are no constraints, except those of style on the number of times this transformation may be applied in sequence. The above examples in which four adjectives are embedded within one sentence are possible not

in good style. However, they serve to illustrate the point that the adjective transformation contributes to the recursiveness of the grammar.

Recursiveness makes the grammar capable of producing an infinite number of sentences. The term simply means that it is possible to trace a way through the grammar again and again (Thomas, 1966, p. 91).

Tr 23 RELATIVE CLAUSE

Orienting Statements

Adjectival or adverbial clauses are introduced by a relative pronoun and are embedded within a sentence where it modifies a noun or verb within the sentence.

Adjectival Clauses

Obligatory Rules

1. the N in NP_2 of sentence 1 and the N in NP_1 in sentence 2 are the same noun
2. the appropriate relative pronoun replaces the repeated noun and introduces the resulting adjectival clause which modifies the N
3. when the noun is human, the relative pronoun is "who"
4. when the noun is concrete, the relative pronoun is "what" or "which"
5. when the noun is animate, the relative pronoun is "that"

Optional Rules

1. "that" may be deleted in some cases and does not introduce the relative clause; however, the clause still functions as an adjective modifying the noun

Examples

I got a big truck (<u>that</u>) I ride on at home.	"that" rel prn implied
Our dog used to be like the dog <u>that</u> we used to call Frisk.	"that" rel prn introducing rel cl
All we get is a bar <u>that</u> we play on cause our swing is broken.	"that" rel prn introducing rel cl
The boy <u>who</u> chased the dog fell down.	"who" rel prn introducing rel cl
The kids <u>that</u> runned away didn't get caught.	"that" rel prn introducing rel cl

Adverbial Clauses

Obligatory Rules

1. "while, when, where, that" introduces a dependent clause and functions as subordinating conjunctions which relate the dependent clause to the independent clause
2. the dependent clause modifies a noun, pronoun or verb in the independent clause

Optional Rules

1. "that" may be deleted in some cases and does not introduce the dependent clause; however, the clause still modifies the independent clause

Examples

The boy thinks he can get in it <u>while</u> he's getting her a ticket.	"that" implied; "while" introducing rel cl
<u>When</u> we move out in the country, well I'm gonna get three baby puppies.	"when" introducing rel cl
I don't know <u>where</u> the caboose is.	"where" introducing rel cl
I think <u>that</u> she's got two.	"that" introducing rel cl
I don't know <u>where</u> he's going to ride.	"where" introducing rel cl

Concluding Statements

Clauses are an integral part of a grammar. Nouns, pronouns, and verbs may be modified by single words (adjectives or adverbs) or clauses (relative dependent groups of words). Often single word modifiers are not adequate in completing the meaning a speaker wishes to communicate. A relative clause is more explicit in completing the modification of a noun, pronoun, or verb and able to adequately express the meaning the speaker wishes to communicate. Adjectival clauses may be introduced by "who, which, what, that" and modify a noun or pronoun. Adverbial clauses introduced by "while, when, where, that" may function as modifiers. The introductory words of clauses often serve two functions: (1) introduce the clause and transform an independent clause into a dependent clause, and (2) act as a subordinating conjunction which relates an independent clause to a dependent clause. The appearance of relative clauses in a transformational grammar needs further study and definition.

Tr 24

COMPLEMENT

Orienting Statements

Verbs in some contexts are unable to communicate all that the speaker wishes to say. There are three verbal elements which may be utilized to assist the verb in completing the meaning to be communicated. They are: infinitival complement, participial complement, or complement deletion.

Obligatory Rules

1. when the infinitival complement is used it shall be of the following form: "to" + past participle
2. when the participial complement is used it shall be of the following form: V + past participle
3. when the complement deletion is used the sentence shall have the following form: NP + VP + "to"
4. all shall occur in a post-verbal position

Optional Rules

1. either the infinitival complement, participial complement, or complement deletion verbal elements may be used to complete the function of the verb
2. also a pre-verb element may be used as a complement in this study: "gonna," "wanta"

Examples

All examples are from the children's verbalizations:

A. Infinitival complement ("to" + past participle)
   1. I used <u>to have</u> one of these.
   2. Maybe she didn't want <u>to tell</u> that she got a cookie.
   3. I don't know what she is telling them <u>to do</u>.
   4. I want <u>to listen</u> to that thing now.

B. Participial complement (MV + present participle)
   1. Then he started <u>drinking</u> milk.
   2. I didn't hardly watch nothin cause last night I hurt my toe and I started <u>bleeding</u> and I couldn't walk.

C. Complement deletion (elliptical)
   1. No, but we used <u>to</u>.
   2. Cause his dad told him <u>to</u>.

D. Pre-verb element "gonna," "wanta"

1. He's gonna make the house.
2. You wanta look at more?
3. He's gonna get wet.

Concluding Statements

Most of the pre-verb elements "gonna" + participle were used in combination with contracted auxiliaries. For example: "He's gonna get out," or "They're gonna leave." Most of the complements used by the children were the infinitival and pre-verb forms.

Perhaps the "pre-verb" forms such as "gonna" and "wanta" are examples of the use of complements within a children's grammar; and the infinitival, participial, and complement deletion forms are examples of the use of complements within an adult grammar.

Tr 25 ITERATION

Orienting Statements

Obligatory Rules

1. Infinitival complement "to" + participle is used more than once

Examples

Examples provided by Menyuk (1968):

You have to clean cloths to make them clean.
You have to be good to get an A.

Examples from the children's verbalizations:

You have to place them different ways to get them to stand up.
I learned to know how to count.

Concluding Statements

The iteration transformation is simply an elaboration of the infinitival complement. It is a multiple use of the "to" + complement. Menyuk's example of "You have to be good to get an A" is the result of an additional complement embedded in the transform "You have to be good." Only two iteration transformations were used by the children in this study.

Tr 26 NOMINALIZATION

Orienting Statements

Obligatory Rules

1. sentence 1 has structure: NP+V+det+N
2. sentence 2 has structure: NP+VP
3. sentence 1 and 2 must have the same subject
4. V+det+present participle functions as a noun
5. V+prp+present participle functions as a noun

Examples

Examples provided by Menyuk (1968):

Sentence 1:	She does "det+N"	
2:	She shops	V+det+pr prt
Transform:	She does the shopping.	V+det+pr prt
Sentence 1:	I dream about N	
2:	I grow up.	
Transform:	I dream about growing up.	V+prp+pr prt

Examples from the children's verbalizations:

1. She didn't get a whipping.	V+det+pr prt
2. Usually I get a spanking.	V+det+pr prt
3. You do it by putting it in the dirt.	V+prp+pr prt
4. It is for stopping.	V+prp+pr prt
5. Once I was in swinging and it did to me that.	V+prp+pr prt

Tr 27 NOMINAL COMPOUND

Orienting Statements

Obligatory Rules

1. to transform nominal compound to be embedded in NP_2 of transformed sentence
   a. sentence 1 must have form: NP+VP
   b. sentence 1 VP must include det+N
   c. sentence 2 must have form: NP+"be"+det+N

d. N in NP_2 of sentence 1 and N in NP_1 of sentence 2 must be the same noun
e. NP_1 + "be" + det of sentence 2 is deleted
f. N in NP_2 of sentence 2 is permuted to prenominal position in NP_2 of sentence 1

2. to transform nominal compound to be embedded in NP_2 of transformed sentence
a. sentence 1 must have form: NP+VP
b. sentence 1 VP must include det+N
c. sentence 2 must have form: NP+VP
d. NP in NP_1 of each sentence must be the same noun
e. NP_1 + VP except N in NP_2 of sentence 1 are deleted
f. N in NP_2 of sentence 1 is permuted to prenominal position in NP_1 of sentence 2

Optional Rules

1. may embed nominal compound in NP_1 of transform
2. may embed nominal compound in NP_2 of transform

Examples

Nominal compound to be embedded in NP_1

Sentence 1: The tracks are for the railroad.
2: The tracks are here.
Transform: The railroad tracks are here.

Nominal compound to be embedded in NP_2

Sentence 1: I see a pig.
2: The pig is a baby.
Transform: I see a baby pig.

Examples from the children's verbalizations:

We get a candy bar.	nominal compound NP_2
The railroad tracks are here.	nominal compound NP_1
If we had a dog, he'd eat up our baby kitten.	nominal compound NP_2
We play ball with my new beach ball.	nominal compound NP_2
He's pullin hats out of the hat place.	nominal compound NP_2
The mommy cat is scratchin its let.	nominal compound NP_1

Concluding Statements

The nominal compound is an elaboration of the adjective transformation. One noun is modifying another noun, thus the title nominal compound is derived.

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