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ABSTRACT

The purpose of this study was to describe the function-form relationships in a child's developing language by establishing a methodology for examining the child's early propositions and the predications which express them, identifying the points in the syntactic hierarchy at which different "meanings" are encoded, and investigating the relationships between predicatical structures and conceptual constructs. A child named Augusta was studied intensively from her eighteenth month through her thirty-first month, and her spontaneous utterances were analyzed for syntax, sentence-type, and propositional construct-type. Findings were that the child initially used specific words and/or constructions in specific positions to express particular "meanings"; each of these form-meaning composites initially had one or two functions but later generalized to a number of different functions; and each propositional construct-type had different syntactic realizations. The conclusion was reached that the development of predicational structures can be more precisely described by the analysis used here than by syntactic analysis alone. (Author/RE)

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THE DEVELOPMENT OF PREDICATION IN CHILD LANGUAGE

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U.S. DEPARTMENT OF
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ABSTRACT

The purpose of this study was to describe the function-form relationships in a child's developing language by (1) establishing a methodology for examining the child's early propositions and the predications which express them, (2) identifying the points in the syntactic hierarchy at which different "meanings" are encoded, and (3) investigating the relationships between predicational structures and conceptual constructs.

A child named Augusta was studied intensively from her eighteenth month through her thirty-first month. The data were collected in bi-monthly tape-recorded play sessions. Augusta's spontaneous utterances were analyzed for syntax, sentence-type, and propositional construct-type. The investigator used sector analysis, a tagmemic grammar, as the theoretical syntactic base and devised conceptual construct and propositional construct categories for analyzing the child's underlying semantic intentions.

The three major findings were: (1) The child initially used specific words and/or constructions inspecific positions to express particular "meanings." (2) Each of these form-meaning composites initially had one or two functions but later generalized to a number of different functions. (3) Each propositional construct-type had different syntactic realizations.

The investigator concluded that the development of predicational structures can be more precisely described by the analysis used here than by syntactic analysis alone.

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CHAPTER I

INTRODUCTION

1.0. Statement of the Problem

The study of child language within the interdisciplinary framework of what has come to be called "developmental psycholinguistics" is commanding considerable attention today both in the academic community and in the world at large. Most of the work done to date has been based upon a school of linguistics called transformational-generative grammar. Since the questions posed for any study can only be answered within the restrictions of the theoretical framework which forms the basis of the study, it is of critical importance that researchers in child language have more than one viable alternative model against which they can check their data. This is particularly true in instances in which the extant model allows answers which are either counter-intuitive or otherwise unsatisfactory in some way.

It is only within the past few years that there has been any serious questioning of the efficacy of transformational-generative theory for the study of child language. Scholars are becoming more and more aware that any serious study of language development must attempt to incorporate findings of other scholars in both developmental psychology and linguistics. The present study represents one such attempt.

1.1. The History of Developmental Psycholinguistics

Psychologists and linguists have long been interested in the language learning processes in both children and adults. It was not until 1953, however, when scholars from the disciplines of psychology and linguistics met in an interdisciplinary institute at Indiana University, that the field of psycholinguistics began to take form. The psychologists who attended the institute were primarily behaviorists and learning theorists, and the linguists were structuralists and anthropologists, at least by training. (The proceedings of this seminar were published simultaneously, interestingly enough, as supplements to the International Journal of American Linguistics and The Journal of Abnormal and Social Psychology, which made the information immediately accessible to linguists and psychologists alike.[1])

A large body of research in the 1940's and early 1950's had been reported in the area of infant vocalizations, the acquisition of phonological and morphological systems. In addition, there were several diary studies, mostly by scholars who kept written records of the language development of their own children. These early studies have been summarized in extensive bibliographies by Leopold,[2] McCarthy,[3]

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[1]This work was subsequently published as a monograph, Psycholinguistics: A Survey of Theory and Research Problems, eds., Charles E. Osgood and Thomas A. Sebeok (Bloomington, Ind.: Indiana University Press, 1965).

[2]Werner F. Leopold, Bibliography of Child Language (Evanston: Northwestern University Press, 1952).

[3]Dorothea McCarthy, "Language Development in Children," in Leonard Carmichael (ed.), Manual of Child Psychology (New York: John Wiley and Sons, 1954), pp. 492-630.

and Carroll.[1]

A major thrust in psycholinguistics during the past decade and a half has been in the study of the acquisition and development of language in young children.[2] Some important early research in this area, which has come to be called "developmental psycholinguistics," was done at the University of California at Berkeley by Wick Miller and Susan Ervin (now Ervin-Tripp) and at Harvard University under the leadership of Roger Brown and his associates. Both groups worked from a corpus of data collected from children who were learning their native language. These early studies of child language, which were carried out during the 1950's and early 1960's, were of three basic forms: (1) descriptions of various aspects of the child's acquisition of word classes (i.e. "parts of speech") and other morphological forms (such as inflections); (2) more general considerations of imitation and comprehension as well as the quality of the language used by adults talking to children and how the adults' questions and expansions might affect the language of the children; and (3) some systematic specifications of

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[1]John B. Carroll, "Language Development in Children," Encyclopedia of Educational Research (3d ed.; New York: Macmillan Co., 1960), pp. 744-752.

[2]For comprehensive surveys and bibliographies of studies in developmental psycholinguistics, see Martin D. S. Braine, "The Acquisition of Language in Infant and Child," in Carroll E. Reed (ed.), The Learning of Language (New York: Appleton-Century-Crofts, 1971), pp. 7-95; John Elliot (ed.), Human Development and Cognitive Processes (New York: Holt, Rinehart and Winston, Inc., 1971); Susan Ervin-Tripp, "Language Development," in M. Hoffman and L. Hoffman (eds.), Review of Child Development Research, Vol. 2 (Ann Arbor: University of Michigan Press, 1966; Walter MacGinitie, "Language Development," Encyclopedia of Educational Research (4th ed.; New York: Macmillan Co., 1966); and A. Richard Diebold, Jr., "A Survey of Psycholinguistic Research, 1954-1964," in Osgood and Sebeok (eds.), Psycholinguistics: A Survey of Theory and Research Problems, pp. 205-291.

the kinds of "rules" which the child in some way "knows" and uses in his early utterances.[1]

The linguistic descriptions used in these early studies essentially followed the theoretical formulations proposed by such structuralists as Charles C. Fries[2] and H. A. Gleason, Jr.[3] They were, for the most part, distributional studies concerned with the designation of the form classes used by children in their early two- and three-word utterances and with the co-occurence restrictions of these forms.

During this same period of time (that is, during the mid-1950's and early 1960's), psychologists, as Brown has pointed out, were far from speaking with a single voice, but certainly those American psychologists who were concerned with language acquisition were within the mainstream of what is generally known as "behavioral psychology." Most of the prominent theories of the times held to some kind of stimulus-response mechanisms with the concomitant belief in the necessity of some kind of reinforcement.

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[1]Brown has published in a single volume some of his major papers which reflect the changes in his theoretical perspective from 1954 through 1969, and which, in fact, exemplify many of the major changes in developmental psycholinguistics during this period. See Roger Brown, Psycholinguistics (New York: The Free Press, 1970).

[2]See, for example, Charles C. Fries, The Structure of English (New York: Harcourt, Brace and Company, 1952).

[3]H. A. Gleason, Jr., An Introduction to Descriptive Linguistics (2d ed.; New York: Holt, Rinehart and Winston, 1961).

Between 1957 and 1959, Noam Chomsky, a young linguist at the Massachusetts Institute of Technology, published two works which were to be crucial to the psycholinguistic movement: (1) Syntactic Structures,[1] in which he pointed out the inadequacy of behaviorist psychology and structural linguistics for explaining human language and outlined his own transformational-generative grammar as a theoretical perspective from which to view language and the means for evaluating competing grammars, independent of semantic considerations; and (2) a review of Skinner's Verbal Behavior, in which he attacked the claims of behavioral psychology in general, Skinner's work in particular, and in which he proposed, in very general terms, that the grammar of a language is ideally "a mechanism that provides an enumeration of the sentences of a language in something like the way in which a deductive theory gives an enumeration of a set of theorems."[2]

This critique by a linguist of the work of a prominent scholar in behavioral psychology provided overlap between the two disciplines which could hardly be ignored. Chomsky, in so strongly attacking a major work in psychology, had begun to pave the way for his later claim that linguistics is a branch of cognitive psychology.[3] When the Committee on Intellective Processes Research of the Social Science Research Council held its conference on First-Language Acquisition in

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[1]Noam Chomsky, Syntactic Structures (The Hague: Mouton and Co., 1957).

[2]Noam Chomsky, "A Review of B. F. Skinner's Verbal Behavior," in Language, 35:26-58, March, 1959.

[3]Noam Chomsky, Language and Mind (New York: Harcourt, Brace and World, Inc., 1967).

1961, Chomsky was there as a discussant, as were transformationalists Robert B. Lees and Morris Halle. This conference further established the link between transformational-generative grammar and the study of language acquisition.[1]

In his preface to Psycholinguistics, Roger Brown discusses that first SSRC conference and subsequent developments in the field as follows:

> When the SSRC held its conference, the structural linguistics of Bloomfield, Fries, Trager, Pike, Wells, Bloch, and others held sway. In the late 1950's and early 1960's the structuralists were attacked and, in the opinion of most younger linguists, thoroughly discredited by the transformationalists, under the leadership of Noam Chomsky. In the middle 1960's the first version of transformational linguistics was drastically revised by Chomsky, Postal, Katz, and others. Now, in the late 1960's, a much more drastic revision is in progress with James McCawley, John R. Ross, and George Lakoff leading the way. With a fifteen-year perspective it becomes clear that linguistics has its schools consecutively whereas psychology has its schools contemporaneously and that fact alone would account for the import-export balance in psycholinguistics. How different things would be if all psychologists were Skinnerians![2]

One is moved to add: "And how different things would be if there had never been a Chomsky!"

By 1970, the study of child language had begun to take quite a new direction. Lois Bloom working within the theoretical framework of transformational-generative grammar, departed from the purely syntactic model suggested by Chomsky[3] and utilized both linguistic and non-linguistic contexts in analyzing the language of three children. She

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[1]Proceedings reported in Bellugi and Brown (eds.), The Acquisition of Language.

[2]Brown, Psycholinguistics, pp. viii-ix.

[3]Noam Chomsky, Aspects of the Theory of Syntax (Cambridge, Mass.: MIT Press, 1965.

also paved the way for a discussion of cognitive-semantic concepts evident in the language of children.[1]

I. M. Schlesinger[2] and David Ingram[3] published papers which indicated dissatisfaction with the extant syntactic models and proposed alternative means for studying language acquisition which utilized semantic rather than syntactic bases. Both writers clearly recognized the need for greater attention to the intentions of the child and to the developmental nature of child language.

1.2. Rationale for a New Psycholinguistic Model

Each of the psychological and linguistic theories proposed in the past represented an attempt to improve upon earlier theories. The research in child language acquisition has, in turn, reflected these changes. In a chapter for a projected book on developmental psycholinguistics, Roger Brown discusses the theoretical notions which he considers crucial to the study of children in an early stage of their language development, a stage which he calls "Stage I."[4] His

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[1] Lois Bloom, Language Development: Form and Function in Emerging Grammars (Cambridge, Mass.: MIT Press, 1970). This book is based on a doctoral study completed in 1968.

[2] I. M. Schlesinger, "Production of Utterances and Language Acquisition," in Dan I. Slobin (ed.), The Ontogenesis of Language (New York: Academic Press, 1971), pp. 63-101. This paper was first circulated in mimeographed form in 1968.

[3] David Ingram, "Transitivity in Child Language," Language, 47:888-810, December, 1971.

[4] Roger Brown, "Stage I: Semantic and Grammatical Relations" (Cambridge, Mass.: Harvard University, in preparation).

discussion is based upon the data from his own longitudinal study of three children as well as upon Bloom's data and some of the data collected by Melissa Bowerman[1] and Martin D. S. Braine.[2] After examining the data, constructing grammatical models, and combining theoretical constructs in an attempt to produce an overall theory to account for all the children's utterances at Stage I, Brown states that "it is important to see that only the Chomskyan grammar offers any formal apparatus suited to the task."[3] In his final summary, however, he concludes that "we have not found a fully satisfactory formal representation for Stage I grammatical competence, partly because of notational problems and partly because we do not know just what the competence is in certain respects."[4]

It would seem that many of the "notational problems" mentioned by Brown might be solved by utilizing a different grammatical system. As was suggested above, the kinds of questions one asks will to a great extent determine the kinds of answers one will find; similarly, the kind of grammatical analysis one uses will largely determine the kinds of language features that one will note. To this end, it seems that it may be possible to discover additional "facts" about child language by examining the same kind of data cited by Brown within a different

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[1]Melissa Bowerman, "Learning to Talk: A Cross-Linguistic Study of Early Syntactic Development, with Special Reference to Finnish" (unpublished Doctoral dissertation, Harvard University, 1970).

[2]Martin D. S. Braine, "The Ontogeny of English Phrase Structure: The First Phase," Language, 39:1-14, January, 1963.

[3]Brown, "Stage I: Semantic and Grammatical Relations," p. 255.

[4]Ibid., p. 256.

grammatical framework. In addition to a different syntactic analysis, there is a concomitant need for an underlying philosophy of what is learned (and learnable) by the child about language, which will coincide with, rather than either ignore or contradict, what is known about his general cognitive and perceptual development.

In stating the purpose of her study of Kathryn, Eric, Gia, Bloom posed the following questions:

> What are the earliest syntactic structures acquired? What is the sequence in which particular structures are acquired? What is the function of these structures in the course of their acquisition?[1]

The answers to these questions, which were asked within the theoretical framework of transformational-generative grammar, provided invaluable insights into the nature of children's early language and even into the applicability as well as the limitations of the theory of transformational grammar for studying child language.

It would seem that additional insights should come from asking essentially these same questions within a different framework--a framework which explicitly allows for examining a hierarchy of language functions and their manifesting linguistic forms in relation to the underlying conceptual notions which the child expresses through language.

1.3. Purpose of the Present Study

The general purpose of the present study was to define the function-form relationships in children's developing language, from single-word utterances to "full sentences," and to establish a

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[1] Lois Bloom, Language Development: Form and Function in Emerging Grammars (Doctoral dissertation, Columbia University, 1968), p. 22a.

methodology for examining the relationships between children's predicational structures and their underlying conceptual notions. In order to achieve this purpose, a child named Augusta was studied intensively from her eighteenth month through her thirty-first month. The basic linguistic methodology used was sector analysis (as described in section 2.3 of the study), but the complete analysis drew upon other theoretical bases in addition to sector analysis. The following questions were proposed to be answered: (1) Is it possible to explain the development of predicational structures by making a hierarchical sector analysis of a body of data from single-word utterances through more complex structures? (2) Do children express different kinds of "meanings" at identifiable points in the linguistic hierarchy? (3) What is the relationship between the development of linguistic structures and the cognitive structures suggested by Piagetian research?

CHAPTER II

PROCEDURES

2.0. Description of the Study

The present study was part of an ongoing longitudinal study of one child's language development between 18:12 (i.e., the age of 18 months, 12 days) to 31:12. The general purpose of the study was to define the function-form relationships in children's developing language--single words to "full sentences"—and to establish a methodology for examining relationships between children's predicational structures and their underlying conceptual notions. The principal aspect of language development under consideration was PREDICATION.[1]

The investigator proposed to seek answers to the following questions:

(1) Is it possible to explain the development of predicational structures by making a hierarchical sector analysis of a body of data from single-word utterances through more complex structures?

(2) Do children express different kinds of 'meanings' at identifiable points in the linguistic hierarchy (i.e., in different sectors and slots)?

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[1] For the purposes of this study, predication was operationally defined as "saying something about X in such a way as to give 'new information' about X, where X represents either a liguistically stated Subject or something in the 'real world'." This definition was purposely made general enough to account for single-word utterances as well as more complex sentences.

(3) What is the relationship between the development of predicational structures in child language and that of the cognitive structures suggested by Piagetian research?

2.1. The Subject

Augusta, the subject selected for the present study, was a white child from an upper-middle class home in a New York City suburb. Augusta was the second of three children in the family, and the only girl. She was a friendly, intelligent, outgoing child who talked and played freely with the investigator during the "play sessions" in her home. The investigator began visiting the family when Augusta was seventeen-months thirteen days old. At that time, her older brother, Dean, was aged ten. A second brother, Abraham, was born when Augusta was eighteen months old. Both Dean and Abraham figured prominently in Augusta's conversations, as did her nurse (Rosa), another member of the household staff (Sally), her mother ("Mommy") and her father ("Daddy"). Augusta lived very much within the confines of the family, with little contact with children of her own age except for a neighbor child named Shari.

The investigator made two visits to Augusta's home before the actual taping began. These two sessions were spent in getting acquainted, in observing Augusta in her natural surroundings, and in determining how much language Augusta had already acquired. Occasionally her mother acted as interpreter; by seventeen months, however, Augusta's speech was almost always intelligible, even to the investigator. She was quite cooperative in repeating what she said if it was not understood the first time. She would imitate the speech of others if she was

asked to, and regularly imitated such speech spontaneously.

It was evident from the outset that Augusta's mother spent a great amount of time helping Augusta learn the names of things, frequently asking "What's this?" and "Can you say . . . ?," and praising the child when she made the correct response. Sometimes Augusta would purposely give an incorrect response and then laugh gaily when her mother told her she was wrong. This became a favorite game, which Augusta sometimes played with the investigator in later sessions.

2.2. Collection and Transcription of the Data

The data for the present study were compiled from tape-recorded play sessions with Augusta. All of the taping was done in Augusta's room, where she was surrounded by her own playthings. In addition, the investigator regularly brought to the sessions toys, books, crayons, paper, and occasionally even candy, to provide variety to an otherwise stable context.

All of the recording sessions were play sessions in which the investigator assumed the role of a grown-up playmate. The investigator had no predetermined objectives for any of the sessions other than to observe and to record as accurately as possible everything that Augusta said, and everything that she did while she was talking. One deviation from normal interaction was the investigator's regular practice of repeating any of the child's utterances which might prove to be unclear when the tapes were later transcribed. These repetitions took the form of exact repetitions of the child's utterances or of restatements of

her utterances in question form. Also, when certain of her utterances seemed ambiguous in the sense that they might be open to different interpretations, the investigator often interjected contextual cues in order to disambiguate them. (For example, when Augusta picked up a broken truck and said "all gone," the investigator said "holding truck with no wheels." If Augusta ever found anything odd about the investigator's repetitions and comments, she never mentioned it.) The investigator usually played with Augusta alone. Occasionally, however, Augusta's mother and her brother Abraham visited the room for a short period of time.

Sometime within 24 hours after each taping session--most commonly immediately after the session--the investigator replayed the tape and made extensive notes about the non-linguistic contexts within which the child's utterances were made. The data as compiled include these contextual notes for instances in which the utterances themselves did not make the context clear. There were very few utterances which could not be transcribed at all.

Following the procedures suggested by Bloom,[1] all adult utterances and contextual information were written in a column on the left of the page, and the child's utterances were written in a column on the right.[2]

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[1] Bloom, Language Development.

[2] See section 2.4 for further explanation of reporting procedures.

2.2.1. The Equipment Used for Recording and Transcribing the Data

The equipment used for taping the data included a Sony TC 110A Cassette tape recorder with an added ECM-95S cardidoid electret condenser microphone. The tapes were Maxell low-noise cassette tapes. For transcribing, Senheisser earphones (HD 414) were used. All of the equipment proved to be more than adequate.

2.2.2. The Corpus

The corpus of the present study consisted of the utterances made by Augusta during 22 sessions, held at roughly two-week intervals from 18:12 to 31:12. It had originally been proposed to extend the study through Augusta's third birthday; however, it was not possible to collect data during the 5-month interval between 31 months and 36 months, for reasons beyond the investigator's control. Beginning at 36:6 it became possible to resume the taping sessions; the investigator hopes to be able to continue collecting data at monthly intervals until such time as Augusta's speech proficiency closely approximates that of adults in terms of both syntax and propositional construct types.[1] The tape recorded at 31:12 is the last one to be used as data for the present study.

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[1]Previous investigators of child language development have suggested that children acquire most of the structure of their native language by the age of three. However, at 36:6 Augusta's language still lacked many of the features of adult English: her auxiliary system was still quite undeveloped, and her use of the passive, of certain negative forms, and of sentence adverbials was quite limited.

No attempt was made to keep the taping sessions of equal length. Most sessions continued as long as it was possible to maintain Augusta's interest; in other words, the investigator attempted to obtain as many utterances as possible during each recording session. On certain occasions, however, other constraints--such as those imposed by members of Augusta's family--restricted the length of the session. The sessions lasted an average of 68 minutes.

While all of Augusta's utterances during recording sessions were transcribed, only her spontaneous utterances were used as the corpus for the present study. The child's imitations of the investigator's utterances or of her mother's utterances, as well as all her responses to the adults' questions, were systematically excluded. The decision to exclude such utterances was based on the fact that the structure of the responses to questions is often shaped by the questions which precede them, and the responses themselves will often contain constructions not to be found in the child's own spontaneous utterances until later stages of language development. Also excluded were utterances which were unintelligible in part or in whole, except for those few instances in which utterances were "translated" for the investigator by Augusta's mother. The most common of these was Augusta's use of [didæt] for the question What's that? All sentences were transcribed in traditional orthography with two exceptions: (1) the schwa sound was represented by the symbol [ə] in structures where the determiner a seemed inappropriate, and (2) a few of Augusta's "words" were represented by spellings which differentiated between contrasting forms; for example want a, vant to, and wanna represent three different pronunciations for two different meanings.

One transcription from each month of the study was submitted to analysis. The intervening transcriptions were checked for any deviations from the findings in the monthly transcriptions; these were noted and discussed in conjunction with the data for that month. In the 22nd month, there was a considerable difference between the utterances recorded at 22:11 and the utterances recorded at 22:25; both sets of utterances, therefore, were transcribed, analyzed, and discussed in full.

2.3. Analysis of the Data

It was necessary to make three separate kinds of analysis of the data in order to answer the questions originally posed for the study: syntactic analysis, utterance-type analysis, and construct analysis. The syntactic analysis of the child's utterances, using sector analysis as the linguistic framework, revealed surface orders which differed for each of the three major sentence types in English--statements, questions, and commands. A close examination of these sentence types, however, revealed a further sub-categorization which seemed related to what the child was talking about when she produced the utterances. The non-linguistic context within which the utterances occurred provided valuable clues to the possible "meanings" of the utterances, even in cases in which the same lexical forms were used for different functional purposes.

2.3.1. Syntactic Analysis

Sector analysis was used to analyze the syntactic relationships between the various units in Augusta's utterances. For heuristic purposes, the sectors were arranged in a linear display (called the

"sector spectrum" by Allen) rather than in the more usual--and more precise--hierarchical arrangement of positions, constructions, and tagmemes.[1] The sectors were arranged on the data tabulation form in the following sequence:

Topic, Voc., L, F, Q, $\tilde{X}$, S, X, M, V, IO/C, $\tilde{B}$, O, B, O,
B, IO, C, D, E, Z, Voc.

The function of each of the sectors is explained in Table 1 below. (It should be kept in mind that the sectors are positions, which may be either filled or vacant in any given sentence or utterance.)

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[1]For an example of a complete hierarchical analysis of a complicated sentence, see Allen, English Grammars and English Grammar, pp. 226-227. A hierarchical sector analysis of one of Augusta's most complex utterances is shown in Appendix D.

[2]See Appendix B for four samples of a linear analysis of the Augusta data.

Table 1

The Functions of the Sectors in an English Sentence

Sector	Function
Topic	Used only in a "topic-comment" sentence in which all the rest of the utterance makes a predication about the topic, which has been "fronted" for emphasis or to focus the hearer's attention.
Voc.	For name of addressee, either before or after the main body of the sentence.
L	For a "linker" which connects the sentence with the preceding sentence(s). Also used for yes and no as responses to preceding utterances.
F, E,	For a "sentence adverbial" which makes a predication about the rest of the utterance.
Q	For a WH-question word in a WH-Question.
$\tilde{X}$	For the X-Word in a question.
S	For the subject of the sentence or utterance.
X	For the X-Word in a statement.
M	For a middle adverb and/or negator.
V	For the verb together with any auxiliaries other than the X-Words.
$\tilde{IO}/C$	For an indirect object or complement occurring before the object.
$\tilde{B}$	For a particle occurring before the object.
O	For the object of a transitive verb.
B	For a particle occurring after the object.
IO	For an indirect object occurring after the object.
C	For a complement which makes a predication about the preceding subject or object.

Table 1 (continued)

Sector	Function
D	For a predicate adverbial which makes a predication about constructions containing the sectors V through C.
Z	For a tag question or topic occurring after the main body of the sentence.

The core of the sentence is the Trunk construction, which consists of the sequence of higher-layer tagmemes filling the S, X, M, and Y sectors. The Y is the sector for the construction made up of the lower-layer tagmemes filling the sectors V through D. This construction, called a Predicator, consists of two sub-sectors, one of which is obligatory (+H) and one of which is optional (±D). The H, in turn, is filled by any one of three verbal constructions: a Predicator (+H +D),[1] a Predicatid (+V ±O ±B ±IO ±C), or a Consociative-Predicatid (+V $+D_v$).[2]

[1] In a Predicator which fills the H position in the lower-layer Predicator, both the H and the D are obligatory. This formulation allows for the kind of recursiveness which is often found in the Predicator.

[2] The D_v in the Consociative-Predicatid is more closely tied to the verb than is the D in the Predicator.

In the final analysis, the H is always eventually filled by either a Predicatid or a Consociative-Predicatid.

The S and the Y tagmemes together express the proposition (as explained in section 2.3.3.[1] The predicator in Y, like the verb in Fillmore's proposition constituent, is non-finite. The X and the M tagmemes together seem to make up Fillmore's modality constituent. The X-Words (called "Carriers" in Allen's Verb System) carry time, emphasis, modality, and negation in the form of n't. The M sector has two sub-sectors, one for negation and one for a class of function words called "middle adverbs."

Each of Augusta's fully intelligible spontaneous utterances was entered on the data sheet. The constructions were, admittedly, assigned to sectors on the basis of the investigator's subjective judgment. Braine has suggested that, because the child is obviously working within the system of the adult target language, the analyst must perforce use his own knowledge of the adult system in making the analysis.[2] This is particularly true when it comes to assigning

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[1] Sector analysis, like most linguistic and even traditional analyses, has regularly considered the core of the sentence as consisting of a subject and a predicate (in sector analysis, the Trunk). The formulation presented here is a modification of orthodox sector analysis, which was suggested by the data collected for this study and which was adopted since it seems to account more accurately for (1) the fact that English-speaking children regularly do not make use of the X sector for the first several months of their language development, and (2) the fact that in many languages other than English the basic Trunk pattern has the form "S + Y" rather than "S + X + M + Y." The filling of the X (and/or M) position often adds information to the basic assertion of a proposition.

[2] Braine, "The Acquisition of Language in Infant and Child," p. 20.

structural descriptions to homonymous constructions. Braine's example want more stand up the truck is structurally ambiguous if taken out of context. It could be glossed as (1) 'I want more (men) to stand up in the truck' or (2) 'I want the truck to be stood up more (i.e., again).' In (1), more is taken to be a substitute for the noun phrase more men, which function as the subject of the following predication stand up the truck. In (2), more is taken to be a modifier of the predicator stand up the truck. There is a third possibility, which Braine fails to mention. The child might have been standing up in the truck himself and wished to indicate that he wanted to do so one more time. The utterance could again have been want more stand up the truck if the child had not yet begun to use prepositions as in the glossed version 'I want to stand up in the truck again.'

In any case, the non-linguistic context of the utterance and the analyst's knowledge of the structural possibilities of the adult language would make disambiguation possible.

It has already been pointed out that most sectors are positions for constructions, not positions for single words. Once all of Augusta's utterances had been analyzed according to the linear "sector spectrum," it was possible to lay out all of the data in a temporal sequence and thus to trace the development of any construction or tagmeme, or of the use of any sector, during the course of the 14 months covered by the study.

2.3.2. Sentence Type Analysis

After a decision had been reached as to which sectors had been filled for each of Augusta's utterances, the utterance was assigned to

one or another sentence type (assertion, question, or command) on the basis of the form of the utterance as well as its apparent communicative function. In the adult's sentences, for instance, the communicative functions of asserting, questioning, and commanding are reflected in the syntactic combinations used to make up the sentence. Assertions regularly have the form S + X + Y; questions have the form Q + $\tilde{X}$ + S + Y or $\tilde{X}$ + S + Y; and commands have the form $\pm$S + Y (in which the Subject of the command always refers to the hearer). In addition, the adult regularly uses intonational patterns which signal the communicative function of the sentence.

In analyzing Augusta's early utterances--that is, those produced before she had learned to use function words and while her intonation was still quite unreliable it was necessary to rely heavily on non-linguistic contexts. Eventually she came to use the syntactic combinations favored by adults for expressing communicative intent.

The various sentence types are discussed in section 2.3.3. below in conjunction with the propositional constructs which they code.

2.3.3. The Construct Analysis

After the syntactic analysis had been completed, it was obvious that the differences between the various utterances was more than a matter of differences between assertions, questions, and commands. Within each of these categories, there seemed to be a more abstract kind of principle in operation. Braine had observed in his data a distinction between what he called "predicative sentences" and

"ostensive sentences."[1] According to Braine's classification, a predicative sentence is a sentence in which a verb phrase says something about (i.e., makes a predication about) a subject, while an ostensive sentence consists of a demonstrative such as there, here, that, and this, followed by a noun phrase which tends to "identify or name objects, pictures, etc."[2] According to Braine, the obligatory part of a predicative sentence is the predication; the subject about which the predicate says something is optionally expressed by a child--that is, it may be expressed or it may be omitted in any given utterance. In an ostensive utterance the obligatory item is the noun phrase, the demonstrative word being optional.

It seems to the present investigator that the different sentence types described by Braine reflect different kinds of conceptualizations which a child tries to communicate. That is, the difference between a sentence like This is a car and a sentence like This car is going fast seems not to be a matter of syntax alone, but seems rather to represent two different "propositions" which the child is trying to express.

The philosopher Searle, like the linguist Fillmore, suggests that propositions underlie the actual sentences of a language. He states that the two parts of a proposition (1) refer, and (2) predicate, respectively.[3] Since he is concerned only with propositions as encoded

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[1]Braine, "The Acquisition of Language in Infant and Child," pp. 32-34.

[2]Ibid.

[3]Searle, Philosophy of Speech Acts, p. 24.

by adults--and since his treatise is a philosophical study written for adults--he does not specify how a speaker determines the content for referring and the content for predicating.[1] Piagetian psychology, however, offers some possible answers to these questions.

According to Piaget, the child's earliest linguistic productions reflect the perceptual and sensory-motor data which he has assimilated during the months prior to speech.[2] The present investigator re-examined the Augusta data for the purpose of determining just what kinds of conceptual notions this child had encoded (or attempted to encode) in her utterances. There were relatively few such notions coded by Augusta compared with what one would expect from adults in ordinary conversation. These conceptual notions are called "constructs" in the present study. Constructs are defined as "hypothetical entities or processes whose existence can be inferred only from their causes, consequences, or manifestations."[3] In the present study, these "causes, consequences, and manifestations" were deduced from or were present in Augusta's linguistic and non-linguistic behavior.

Table 2 below shows the basic constructs that appeared in the Augusta data during the 14 months of this study.

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[1]Fillmore's attempt to explain the content in terms of the cases of the nouns is not really very instructive for languages (such as English) which are not inflected for case. The notion of case relations is a linguistic notion which, though it may reflect conceptual notions, does not explain how a child could inductively determine the relation between a given concept and its case realization.

[2]Jean Piaget and Barbel Inhelder, The Early Growth of Logic in the Child (New York: Harper and Row, 1964).

[3]Julius Gould and William L. Kolb (eds.), A Dictionary of the Social Sciences (New York: The Free Press, 1964), p. 134.

Table 2

Conceptual Constructs

I Animate Entities			II Inanimate Entities	III Activities	IV States and Attributes	V Directions and Locations	
People		Animals	Objects	Self-Other	Self-Other	Here	Not Here
Self	Other						
'Gusta I, me,	baby Mommy boy girl etc.	doggie kitty bear etc.	house book car etc.	play pick up sleep open crying etc.	sleepy cold little open angry etc.	here in here up down etc.	all gone outside downstairs in New York over there etc.

Table 2 (continued)

VI Repetition or Recurrence			VII Part/Whole Relations		VIII Time		IX Reason	X Potential for Activity			
Of Object	Of Activity		Part	Whole	Now	Not Now		Self-determined (Ability)		Other-deter. (Permission)	
								Affirm.	Neg.	Affirm.	Neg.
more some more 'nother 'nother one	more some more again		some	all	now	yesterday	because for me so I can	can	can't	can	can't
etc.	etc.		etc.	etc.	etc.	etc.	etc.				

XI Willingness to Act		XII Obligation to Act		XIII Introspective		XIV Possession		XV Manner
Affirm	Neg	Affirm	Neg	Affirmative	Negative	Self	Other	
will	won't	should 'posed to have to better	not	want like	don't want don't like	my mine 'Gusta's	his your Mommy's	that way carefully
etc.	etc.	etc.		etc.	etc.		etc.	etc.

It should be noted that the constructs shown in Table 2 are conceptual constructs, not linguistic categories. (The examples given in each of the categories are to be taken as labels for sub-concepts, not as "words.") It would seem that these constructs might provide the content for some rather primitive propositions, at least for the child. If the child were to choose one construct for referring (for example, one from category I) and other for predicating (for example, one from categories III through V), the result would be a kind of propositional construct which could then be coded within the constraints of the child's language. For the purposes of the present study, propositional constructs are defined as "constructs consisting of two terms (A and B) which serve as content for sentences, where A 'refers' and B 'predicates.'" When viewed from this perspective, Braine's predicative and ostensive sentences can be seen to be linguistic manifestations of propositional constructs. In the present study, the predicative and the ostensive categories have been assumed to have two manifesting forms each: the idiotropic is a special kind of predicative propositional construct in which the A and the verb in the B are fixed; the existential is an ostensive propositional construct which is used in displaced ostension. These four separate categories were set up because of the different functional relationships which seem to hold between the referring construct (A) and the predicating construct (B). Table 3 shows the four kinds of propositional constructs and the relations between A and B in each of the four.

Table 3

Propositional Constructs

Type	Relationship Between A and B	Example Assertions
Predicative	"B says something about A," where A refers and B predicates about A.	Baby is sitting on the chair.
Idiotropic	"B says something about A," where A is always self and B is expression of "want X," with X representing an object (ob), self-activity (sac), other-activity (oac), or self-other-activity (soac).	I want a cookie.(ob) I want to ride horsie.(sac) I want you to ride horsie.(oac) I want us to ride horsies.(soac)[a]
Ostensive	"A is an instance of B," where A refers to a present object deictically and B identifies the real-world referent of A.	That's a baby. There's a baby.
Existential	"There is/It is AB," where there indicates unidentified A, it indicates identified A, and B gives location of A (but not deictically). It is also used for time and weather announcements.	There's a book on the table. It's your book on the table. It's time to go to bed. It's raining.

[a]The more common form is the command Let's ride horsies rather than the assertion form given here.

The four kinds of propositional constructs shown in Table 3,, in conjunction with the three sentence types (assertions, questions, and commands) yielded a matrix of nine possible affirmative and nine possible negative propositional constructs which can be expressed in English.[1] Asserting, questioning, and commanding are linguistic acts

[1]For reasons discussed below, commands are only possible as expressions of idiotropic constructs, resulting in nine rather than twelve propositional construct types.

by which the speaker expresses his communicative intentions.[1] Asserting involves declaring a proposition, either affirmatively or negatively. Questioning involves asking for two different kinds of information: Yes/No questions ask whether a proposition is true or not true; WH-questions request additional information relevant to an incomplete proposition, such as information about manner, place, time, reason, and the like. Commanding involves directing a hearer to act.[2]

Some propositional constructs are shown in Table 4. Each of the constructs has been categorized according to its affirmative or negative communicative function. (The examples were contrived by the investigator for illustrative purposes. They should not be construed as being representative of a child's propositional constructs in all cases. In fact, some of these communicative forms do not appear in the Augusta data, even though they are all possible in adult English.)

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[1] It should be noted that the communicative functions suggested here represent a departure from Searle's speech acts. Searle considers asserting, question, and commanding to be "illocutionary acts." In addition, he includes "promising," "warning," "thanking," "advising," "greeting," and the like. It would seem that asserting, questioning, and commanding are either on a different level of "illocutionary acts" than the others or that they are a different kind of "act" altogether inasmuch as all of Searle's "illocutionary acts" rely on the assertion, the question, and the command for their linguistic realization.

[2] While commands have been listed here with the others, it seems that commands themselves are not linguistic realizations of whole propositions. Rather, it seems that the command is a part of the predicating part of a proposition, syntactically functioning as the object of an underlying idiotropic "I want X" propositional construct. No one makes a command without wanting the hearer to comply. This is one possible explanation of why commands are not possible linguistic expressions of ostensive and existential constructs.

Table 4

The Communicative Forms of Some Propositional Constructs

Type	Example
Predicative	
Assertion	The boy is sitting on the chair.
Neg. Assertion	The boy is not sitting on the chair.
Question	Is the boy sitting on the chair? (Yes/No) Where is the boy sitting? (Wh) Who is sitting on the chair? (Wh) What is the boy doing? (Wh)
Neg. Question	Isn't the boy sitting on the chair? (Yes/No) Why isn't the boy sitting on the chair? (Wh)
Ostensive	
Assertion	That's a boy. There's a boy. That's Joe.
Neg. Assertion	That's not a boy. That's not Joe.
Question	Is that a boy? Is that Joe? (Yes/No) What's that? Who's that? (Wh)
Neg. Question	Isn't that a boy? Isn't that Joe?
Idiotropic	
Assertion	I want a cookie. (ob) I want to ride my horsie. (sac) I want you to fix my truck. (oac) I want us to go downstairs. (soac)
Question	Can I have a cookie? (ob) Can I ride my horsie? (sac) Will you fix my truck? (oac) Can we go downstairs?
Command	Give me a cookie. (ob) Let me ride my horsie. (sac) Fix my truck. (oac) Let's go downstairs. (soac)

Table 4 (continued)

Type	Example
Idiotropic (continued)	
Neg. Assertion	I don't want to go downstairs.
Neg. Question	Can't I go downstairs?
Neg. Command	Don't go downstairs.
Existential	
Assertion	There's a baby in the box. It's your baby in the box. It's raining outside.
Neg. Assertion	There isn't any baby in the box. It isn't your baby in the box. It's not raining outside.
Question	Is there a baby in the box? Is it your baby in the box? Is it raining outside?
Neg. Question	Isn't there a baby in the box? Isn't it your baby in the box? Isn't it raining?

Once the categories shown in Table 4 had been established, each of Augusta's sector-analyzed utterances was appropriately classified according to the type of propositional construct it expressed. Each one of the propositional construct-types (predicative, ostensive, idiotropic, existential) in conjunction with a sentence-type (assertion, questions, command) makes up an utterance-type (predicative assertion, idiotropic assertion, idiotropic command, and so on).

2.4. Definitions of Key Terms

The following definitions of terms may be useful to the reader in interpreting the findings reported in Chapter III.

Conceptual constructs: Perceptual and cognitive categories which serve as content for propositional constructs. Some conceptual constructs are: person, object, activity, state/attribute, location/direction, time, and manner. (See Table 2 for description of Augusta's major conceptual constructs.)

Propositional constructs: Combinations of conceptual constructs, one member of which 'refers' and the other of which 'predicates.' The various types are differentiated according to the nature of the relationship between the referring part and the predicating part. The propositional construct-types are PREDICATIVE, IDIOTROPIC, OSTENSIVE, and EXISTENTIAL. (See Table 3.)

Sentence-types: The metafunctional categories by means of which propositional constructs are expressed. The sentence-types are ASSERTIONS, QUESTIONS, and COMMANDS.

Utterance-types: Combinations of propositional construct-types which are realized, either affirmatively or negatively, as PREDICATIVE ASSERTIONS and QUESTIONS, IDIOTROPIC ASSERTIONS, QUESTIONS, and COMMANDS, OSTENSIVE ASSERTIONS and QUESTIONS, and EXISTENTIAL ASSERTIONS and QUESTIONS. The affirmative and negative realizations of all the possible utterance-types are shown in Table 4.

Construction-types: Identifiable units which are defined in terms of syntactic relationships. The constituent structure of each of Augusta's construction-types is shown in Appendix H. (The different construction-types are designated in this study by labels with initial capitals to distinguish them from more general uses of the same term. For example, Phrase indicates the construction-type; phrase indicates a more general usage.)

Sectors: Positions for units having referring and predicating functions within utterances. These positions are designated by capital letters in sector analysis. The sectors for English are listed in Table 1.

Slots: Lower-layer positions within constructions.

Tagmemes: FORM-FUNCTION COMPOSITES in the linguistic hierarchy. Syntactic tagmemes are composites of sectors and constructions.

Utterances: Actual expressions of utterance-types in speech. Also called communicative speech acts.

CHAPTER III

CONCLUSIONS AND IMPLICATIONS FOR FURTHER RESEARCH

3.0. Conclusions

Three major findings emerged during the course of the present study: (1) Initially Augusta used specific words and/or constructions to express particular "meanings" (i.e., conceptual constructs). (2) Each of these form-meaning composites initially occurred in one, or at best two, of the sectors, manifesting specific tagmemes. Eventually Augusta used a number of different constructions of the same construction-type to fill a particular sector, thus expanding the original specific tagmeme to a more inclusive or more general tagmeme. (3) Each of the propositional construct-types had its own particular manifesting tagmemes, which suggests that there are form-function relations on the most abstract levels of the linguistic hierarchy.

All of the findings stated above suggest a possible answer to one of the questions posed for the study: "What is the relationship between the development of linguistic structures and the cognitive structures suggested by Piagetian research?" Several tentative proposals can be made as to the possible nature of first-language acquisition processes, always keeping firmly in mind the fact that the present study of Augusta's language development was carried out within a particular frame of reference and that that frame of reference to some extent determines the kinds of conclusions that can be reached.

During the first year-and-a-half of a child's life he[1] seems to build up "meanings" which he acquires through sensory-motor activity.[2] These meanings combine in different ways to form "meaning complexes," which have been called "conceptual constructs" in the present study. In addition, the child seems to make several important linguistic discoveries. (1) He learns that human speech involves meaningful rather than random noise. (2) He learns that there are sounds and combinations of sound which can be used to express conceptual constructs--that is, that "words" can be attached to some of the meanings which he already possesses in a sensory-motor sense.[3] (3) He learns that these "words" can be used (a) to identify objects and persons, and in some cases even activities (i.e., to make "ostensive" assertions), (b) to request objects and activities (i.e., to make "idiotropic assertions and

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[1]The masculine pro-nominal is used here to distinguish between generalizations and specific statements about Augusta.

[2]Cf. Hermina Sinclair de Zwart, "The Transition from Sensory-Motor Behaviour to Symbolic Activity," Interchange, 3:119-126, 1970.

[3]The theory underlying this notion was suggested by Robert L. Allen in "The Structure of Meanings," Proceedings of the Ninth International Congress of Linguists (The Hague: Mouton and Company, 1964), pp. 422-426. Allen assumes that once a word is attached to a "meaning," the word itself becomes a part of the total meaning. Bloom seems to agree with this notion when she states that ". . . for all intents and purposes, the early meaning of the 'word' and the representation of the object may be isomorphic. Thus, the conclusion that substantive words have a strong 'word-image' cognitive representation." (One Word At A Time, in press, p. 79.) However, she distinguishes substantive words from function words like more, on, and gone, which she feels are relational and "dependent on other referents in behavior and context for making reference." (Ibid., p. 82.) According to the model used in the present study, these words also have underlying conceptual constructs which function words like of and is probably do not have: that is, the distinction between "substantive words" and "function words" may not be the significant distinction.

commands"), and (c) to comment about the activity, state, attribute, location, or direction of person(s) and/or object(s) in the "real world," including himself (i.e., to make "predicative assertions"). (4) He learns that persons and objects can be linguistically referred to and commented upon within a single utterance, and furthermore that 'object' constructs and 'person' constructs are linguistically referred to within a single overall category (the nominative metafunction), while all other constructs, in various combinations, are expressed within another category (the predicative metafunction). Once the child begins to "refer" and "predicate" within a single utterance, he can be said to be expressing propositional constructs if--and only if--he is performing one of the communicative speech acts listed in (3) above.[1]

In predicative utterances, the referring part of the propositional construct is most commonly expressed by the Subject tagmeme. In ostensive utterances, the demonstratives perform the referring function by deictically singling out the real-world referent. That is, the Subject (or demonstrative) usually marks the focus of the utterance about which the predicating part of the propositional construct "says something." This difference in focus can be seen in the pair of utterances I put this in here and This goes in here, in which the former indicates focus upon the speaker and the latter focus upon an object. It would seem that the distinction between 'active' and

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[1]Questions are also communicative speech acts. Initially, they are only marked by intonation. It should be noted that "communicative speech acts" as referred to here differ from Searle's "illocutionary acts" in that the former are assumed to consist solely of assertions, questions, and commands within each of the propositional construct categories. Searle does not differentiate between these kinds of speech acts and the more specific ones of promising, warning, and the like.

'passive' sentences is possibly a reflection of this kind of difference in focus.

However, for several months only the predication is an obligatory element in the child's propositional constructs; he can (and does) omit the "referring" part of his propositional constructs as long as their referents are manifest in his immediate non-linguistic context.[1]

The assumption being made here is that a child's acquisition of language is essentially tagmemic in nature because, from his first form-meaning composite through his most complex syntactic collocations, what he learns is a sequence of hierarchically ordered form-function composites which are all tagmemes, if one includes under that label (as does Allen) both linguistic and non-linguistic forms and functions.

Augusta tended to learn one word for a general construct which she then used to represent a number of sub-constructs. The clearest example of this phenomenon was in her use of the single-word command open, by means of which she expressed a great variety of activities that she wanted the investigator to perform. Eventually she acquired other verbs by means of which she could express more restricted, less global meanings; as these other verbs were added to her repertoire, she began to use open in accordance with adult usage rather than as a general command.

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[1]This position is supported by a number of scholars. For example, Werner and Kaplan state that "the beginnings of predication of action are found in situations in which one member of the relation is not linguistically articulated; rather, it is present only as a perceptual object or implied in gestural activity." (Heinz Werner and Bernard Kaplan, Symbol Formation (New York: John Wiley and Sons, Inc., 1967), p. 165 and ff.) See also, Werner F. Leopold, Grammar and General Problems in the First Two Years, Vol. III of Speech Development of a Bilingual Child: A Linguists's Record (Evanston, Ill.: Northwestern University Studies in the Humanities, 1949), pp. 22-27.

It would seem justifiable to claim that the only need for positing "pivots" rather than tagmemes would arise in instances in which some form had no definable function. However, Augusta's forms all seemed to perform some identifiable function. The collocations which some researchers have defined as pivotal relationships, such as this, that, here, and there with nouns and verbs with on, off, up, and down, can all be accounted for in some other way within the model used for the present study.

A second question to be answered by the present study was posed as follows: "Do children express different kinds of 'meanings' at identifiable points in the linguistic hierarchy?" The answer to this question is unequivocally "Yes." In fact, "meanings," like "functions," can be identified on many different levels of the linguistic hierarchy. A much larger number of different kinds of functions and meanings were discovered as a result of using the model followed in this study than even the investigator herself had expected to find. Not only did "words" have meanings, but so did different combinations of constructions and sectors, and of single forms and intra-construction slots, as well as different utterance-types and different propositional construct-types--in other words, all of the many different possible kinds of tagmemes. One obvious example of Augusta's use of a single lexical item to manifest several different tagmemes is to be found in her use of can, which had the tagmemic distribution and "meanings" shown in Table 5 below.

Table 5

Tagmemic Distribution and Corresponding Meanings of Can

Utterance-type	$\tilde{X}$	S	X	"Meaning"
Idiotropic Question	can	I		(request for permission) 'Will you let me?'
Predicative Assertion		I	can	'I am able to'
Predicative Assertion		you	can	'You have my permission to'
Predicative Question	can	you		'Are you able to?'

As can be seen from Table 5 ', there are identifiable differences in the meanings of can depending upon its tagmemic distribution as well as upon its co-occurrence with I or you Subjects. It should be noted that, while adult speakers would have additional collocations of I and you with can, the distributions shown here were the only ones that Augusta used throughout the study--and always with the meanings given for each distribution. There were a number of similar instances of distributional and co-occurrence phenomena throughout the data.

The findings of the present study suggest that linguistic metafunctions are internalized at a fairly early stage in a child's language development. For example, Augusta was able to produce utterances which were identifiable as assertions, questions, and commands during the first month of the study. The strongest evidence of linguistic metafunctions, however, was to be found in Augusta's apparent differentiation between nominal tagmemes, adverbial tagmemes, predicational tagmemes, and modificational tagmemes. For example,

Augusta used only nominal forms in the Y sector of ostensive utterances. On one occasion she expressed a 'state/attribute' construction in nominal rather than the usual adjectival form: in the utterance That's a nicey. On another occasion she nominalized an activity predication: in the utterance That's a hop. It seems as though Augusta in some way thought of the Y sector in ostensive utterances as a position for the nominal metafunction.

Likewise, Augusta used adjectives as modifiers which were different from those that she used in predications--which suggests a differentiation between modification and predication.[1] She also used adverbial Clauses only as fillers of the D sector and nominal Clauses as fillers of the O sector, which suggests a differentiation between adverbial and nominal metafunctions. Numerous other such instances of differentiation between metafunctions are to be found in the data.

There is some evidence that language learning involves "contextual generalization," as Braine has suggested. However, in suggesting that "grammar acquisition is a process of perceptual learning of pattern," he fails to specify what kind of meaning is to be found in the pattern. It seems that the hypothetical "scanner" which scans input sentences for patterns might pick up metafunctional information in its early scannings. That is, the gross function-form composites would seem to be more significant in the early stages than, for example,

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[1]There was no evidence in the Augusta data to support the transformational-generative analysis of pre-noun adjectives as being derived from the verb phrase by means of a permutation transformation. Augusta regularly used adjectives before nouns before she used those same adjectives elsewhere. Likewise, some adjectives which she used in predications were never used as pre-noun modifiers. Braine has made this same observation: see "The Acquisition of Language in Infant and Child," p. 40. Bloom's subjects Kathryn (I) and Gia (II) also used different adjectives for modification and predication; Bloom categorized Kathryn's busy and Gia's nice as verbs because they only occurred in the verb phrase, not as modifiers of nouns. (Bloom, Language Development, pp. 53 and 253.)

the patternings of "words" or morphemes. Once the various metafunctions have been "stored," it would be easier to store lower-layer form-function composites according to the metafunctions rather than according to form class. In other words, it would seem that an efficient scanner would scan for tagmemes on different levels of the hierarchical linguistic structure.

One final question posed for this study was: "Is it possible to explain the development of predicational structures by making a hierarchical sector analysis of a body of data from single-word utterances through more complex structures?" The answer is affirmative--but with qualifications. While sector analysis provides an invaluable heuristic device for analyzing the syntactic collocations in children's utterances as well as in adults', and although there were many aspects of Augusta's utterances which sector analysis made it possible to identify and to define more clearly, it must be concluded that syntactic analysis alone cannot reveal the multi-level functions of human communicative utterances. It is doubtful that any single syntactic analysis could explain the whole of language structure as it is related to the underlying concepts which it realizes.[1] However, this study has shown that sector analysis used in conjunction with an analysis of conceptual

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[1]Stratificational grammar, as outlined by Lamb and recently elaborated upon by Lockwood, probably comes closer to relating "sound and meaning" relationships than any other grammar. However, while it brings in meaning more effectively than other grammars, stratificational grammar does not show constructional relationships--and inter-relationships--as clearly as sector analysis does. (For detailed descriptions of stratificational grammar, see Sydney M. Lamb, Outline of Stratificational Grammar (Washington, D.C.: Georgetown University Press, 1966) and David G. Lockwood, Introduction to Stratificational Linguistics (New York: Harcourt Brace Jovanovich, 1972).)

constructs and propositional constructs can reveal, on several levels, the kinds of relationships that other child language investigators have believed to exist--but that have not been explicitly studied within one overall model until now. Many of the procedures used in the present study were based upon ideas found in the writings of such linguists, psychologists, psycholinguists, and philosophers as Allen, Bloom, Braine, Brown, Fillmore, Piaget, Pike, Schlesinger, Searle, Sinclair de Zwart, and Slobin.[1] Certainly the idea that there is a relationship between perceptual/cognitive mechanisms and language did not originate with the present investigator. However, as far as can be determined from the literature, no other investigator has yet formulated a specific model for studying that relationship from a psycholinguistic perspective. Hopefully, the present study will encourage others to pursue and to refine the line of inquiry suggested here.

3.1. Implications for Further Research

The present study adds another body of data to the growing accumulation of knowledge about first-language learning. Such knowledge should contribute to the establishing of a baseline for the linguistic behavior of children who, presumably, are following a "normal" course of language development. Such a baseline should prove helpful for both the analysis of, and curriculum development for, children who are, in some way, deviant from the general population.

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[1]References to books and articles by these scholars can be found in the References section for the present study, as well as in footnotes throughout the study.

There are a few methodological details which seem worthy of mention. The decision to collect data every two weeks rather than less frequently or more frequently was both well-founded and ill-founded. Collecting data at greater intervals of time could have resulted in missing some of Augusta's fleeting uses of particular constructions as well as some of the interesting examples of her "practicing" new forms. As it was, however, the body of data collected for the present study required an inordinate amount of time to transcribe and to analyze; collecting the data at even shorter intervals would have made analysis by one investigator almost impossible. On the other hand, it would have been helpful to have had tapes of equal length rather than some which represented more time than others. (The ninety-minute tapes, in most cases, were better than both the shorter ones and the longer ones.) In the opinion of this investigator, the optimum sample size and sampling interval would be one-and-one-half hours every two weeks.

There is no doubt that video-tapes would have aided greatly in the study of Augusta's language development. There were some questions which could not be answered during analysis primarily because of an inability to determine the exact non-linguistic context in which an utterance was spoken. (Most of these questions had to do with Augusta's non-linguistic activity or her proximity to objects and to the investigator.) Much of this kind of information had to be cued directly onto the tape. Until such time as video-tape equipment becomes much more portable than it is at present, however, it will not be possible to make such recordings in the child's home. Transporting a small child to a recording studio involves considerable parental cooperation, as well

as a subject who is not in awe of such strange surroundings. Perhaps an adequate compromise would be to hold one audio-taped session in the child's home and one video-taped session in a studio each month.[1]

It should be noted that playing with toys, particularly toys which have many individual parts or pieces, like a doll house, is more likely to elicit sentences of different propositional construct types than are many other kinds of activity. Drawing, for example, encouraged Augusta to produce many idiotropic commands since she was often unable to draw what she wanted to and requested the investigator to draw the object for her. When she was looking at a book, she was more likely to use ostensive utterances. The doll house was by far the best toy for motivating predicative, idiotropic, and ostensive propositional construct-types in their various assertion, question, and command forms. However, in the early months of the study, Augusta was not able to see the relationships between toy furniture and real furniture, between wooden dolls and real people, or between the rooms in a doll house and real rooms in her own house.[2] During the first several months of the study, she was much more interested in books and in gross motor activity, such as riding her hobby horse, than she was in play which involved pretending and manipulation of small objects. She particularly enjoyed

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[1]The present investigator made one video-tape recording of Augusta with her mother at 22:7. Because they were collected under different circumstances than the other recordings, these data were not included in the corpus for the present study.

[2]One interesting anecdote occurred on one occasion which illustrates this point well. The investigator and Augusta were playing with the dolls and doll house. The investigator asked, "Where's the kitchen, Augusta?" Augusta looked puzzled for a moment and then answered, very matter-of-factly: "It's in the kitchen."

enjoyed playing with tenpins, stacking large blocks to "make a tower," and putting things into and taking things out of containers.[1] Eventually, however, her dolls and their house and its contents occupied much of her time and interest during recording sessions. She gradually learned to make-believe with her toys--but was never, during the course of the study, able to pretend that she was another person. Verbal interaction with the investigator seemed to be much more important during the early months of the study than it was later. However, even after Augusta was able to play for long periods of time with little or no verbal input from the investigator, Augusta seemed to verbalize more in the presence of the investigator than when she was alone. For example, on the few occasions that it was necessary for the investigator to leave the room, Augusta produced no utterances at all during the investigator's absence.

The present study of Augusta's language is just that---the study of the language development of one little girl from one point of view. The investigator does not claim to know how many of the statements made in the present study are representative of what could be said about other children. Many of the findings are confirmed by the observations of other investigators, however, and a perusal of these observations did not reveal any serious discrepancies in the model itself. One cannot be certain that there are no such discrepancies, however, until large amounts of data have been processed by this model. Hopefully, such research will be forthcoming in the near future.

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[1]See Appendix C for list of important toys and books used during recording session.

REFERENCES

REFERENCES

Allen, Robert L. "Shortcuts to English: The Controlled English Course." Istanbul, Turkey: Robert College, 1946. (Mimeographed.)

_____. "The Structure of Meaning." Proceedings of the Ninth International Congress of Linguists. The Hague: Mouton and Co., 1964.

_____. The Verb System of Present-Day American English. The Hague: Mouton and Co., 1966.

_____. "On Linguistic Metafunctions." Paper read at the Sixteenth Annual Conference on Linguistics of the International Linguistic Association, March 13, 1971, New York, New York.

_____. English Grammars and English Grammar. New York: Charles Scribner's Sons, 1972.

_____. "The Structure of Meaning." In preparation.

_____. "The Structure of the English Sentence." In preparation.

Allport, Floyd H. Social Psychology. Boston: Houghton Mifflin, 1924.

Bach, Emmon and Robert T. Harms (eds.). Universals in Linguistic Theory. New York: Holt, Rinehart and Winston, 1968.

Bellugi, Ursula. "The Acquisition of Negation." Unpublished Doctor's Dissertation, Harvard University, 1967.

_____ and Roger Brown (eds.). The Acquisition of Language. Monograph of the Society for Research in Child Development, Vol. 29, No. 1, 1964.

Becker, Alton. "The Subject Tagmeme in English." Unpublished Doctor's Dissertation, University of Michigan, 1969.

Berko, Jean. "The Child's Learning of English Morphology," Word, 14:150-177, December, 1958.

Bever, T. G., J. A. Fodor, and W. Weksel. "Is Linguistics Empirical?," Psychological Review, 72:493-500, 1965.

Binh, Duong Thanh. A Tagmemic Comparison of the Structure of English and Vietnamese Sentences. The Hague: Mouton and Co., 1971.

Bloom, Lois. Language Development: Form and Function in Emerging Grammars. Cambridge, Massachussetts: The M.I.T. Press, 1970.

_____. "Why Not Pivot Grammar?," Journal of Speech and Hearing Disorders, 36:40-50, 1971.

_____. One Word at a Time. The Hague: Mouton and Co., in press.

Bloomfield, Leonard. Language. New York: Holt, 1933.

Bowerman, Melissa. "Learning to Talk: A Cross-Linguistic Study of Early Syntactic Development, with Special Reference to Finnish." Unpublished Doctor's Dissertation, Harvard University, 1970.

Braine, Martin D. S. "On Learning the Grammatical Order of Words," Psychological Review, 70:323-348, 1963. Reprinted in Jakobovits and Miron (eds.). Readings in the Psychology of Language, pp. 232-256.

_____. "The Ontogeny of English Phrase Structure: The First Phase," Language, 39:1-14, January, 1963.

_____. "The Acquisition of Language in Infant and Child." In Carroll E. Reed (ed.). The Learning of Language. New York: Appleton-Century-Crofts, 1971, pp. 7-95.

Brown, Roger. "The Development of WH Questions in Child Speech," Journal of Verbal Learning and Verbal Behavior, 7:279-290, April, 1968.

_____. Psycholinguistics. New York: The Free Press, 1970.

_____. "Stage I: Semantic and Grammatical Relations." Cambridge, Massachussetts: Harvard University. In preparation.

_____ and Jean Berko. "Word Association and the Acquisition of Grammar," Child Development, 31:1-14, 1960.

_____ and Colin Fraser. "The Acquisition of Syntax." In C. N. Cofer and Barbara S. Musgrave (eds.). Verbal Behavior and Learning: Problems and Processes. New York: McGraw-Hill, 1963.

Carroll, John B. "Language Development in Children." Encyclopedia of Educational Research. 3rd ed., pp. 744-752.

_____. Language and Thought, ed. Richard S. Lazarus. Foundations of Modern Psychology Series. Englewood Cliffs, New Jersey: Prentice-Hall, 1964.

_____. "Current Issues in Psycholinguistics," TESOL Quarterly, 5:101-114, June, 1971.

Chase, Richard A. "Evolutionary Aspects of Language Development and Function." In Frank Smith and George A. Miller (eds.). The Genesis of Language: A Psycholinguistic Approach. Cambridge, Massachussette: The M.I.T. Press, 1966, pp. 253-267.

Chomsky, Noam. Syntactic Structures. The Hague: Mouton and Co., 1957.

_____. A Review of B. F. Skinner's Verbal Behavior. In Language, 35:26-58, March, 1959. Reprinted with additional remarks in Jakobovits and Miron, Readings in the Psychology of Language. Englewood Cliffs, New Jersey: Prentice-Hall, 1967, pp. 142-171.

_____. "The Logical Basis of Linguistic Theory." Proceedings of the Ninth International Congress of Linguists. The Hague: Mouton and Co., 1964.

_____. Aspects of the Theory of Syntax. Cambridge, Massachussetts: The M.I.T. Press, 1965.

_____. "The Formal Nature of Language." In Eric H. Lenneberg (ed.). Biological Foundations of Language. New York: John Wiley and Sons, 1967, pp.

_____. Language and Mind. 1st ed., New York: Harcourt, Brace and World, 1967; Enlarged ed., New York: Harcourt Brace Jovanovich, 1972.

Cook, Walter A. "Case Grammar as Deep Structure in Tagmemics." In Richard J. O'Brien (ed.). Languages and Linguistics: Working Papers. Washington, D. C.: Georgetown University, 1971.

Diebold, A. Richard, Jr. "A Survey of Psycholinguistic Research, 1954-1964." In Osgood and Sebeok (eds.). Psycholinguistics: A Survey of Theory and Research Problems. Bloomington, Indiana: Indiana University Press, 1965.

Eliot, John (ed.). Human Development and Cognitive Processes. New York: Holt, Rinehart and Winston, 1971.

Elkind, David and John H. Flavell (eds.). Studies in Cognitive Development: Essays in Honor of Jean Piaget. New York: Oxford University Press, 1969.

Elson, Benjamin and Velma Pickett. An Introduction to Morphology and Syntax. Santa Ana, California: Summer Institute of Linguistics, 1962.

Ervin-Tripp, Susan. "Language Development." In M. Hoffman and L. Hoffman (eds.). Review of Child Development Research, Vol II. Ann Arbor, Michigan: University of Michigan Press, 1966.

Fillmore, Charles J. "The Case for Case." In Emmon Bach and Robert T. Harms (eds.). Universals in Linguistic Theory. New York: Holt, Rinehart and Winston, 1968.

_____. "A Grammarian Looks to Sociolinguistics." Paper read at the 23rd Annual Round Table Meeting, March 18, 1972, Washington, D. C.

Fries, Charles C. The Structure of English. New York: Harcourt, Brace and Co., 1952.

Gleason, H. A. Jr. An Introduction to Descriptive Linguistics. 2nd ed. New York: Holt, Rinehart and Winston, 1961.

Gould, Julius and William L. Kolb (eds.). A Dictionary of the Social Sciences. New York: The Free Press, 1964.

Gruber, Jeffrey. "Topicalization in Child Language," Foundations of Language, 3:37-65, 1967.

Hebb, D. O. The Organization of Behavior: A Neuropsychological Theory. New York: John Wiley and Sons, 1949.

_____, W. E. Lambert, and G. R. Tucker. "Language, Thought, and Experience," Modern Language Journal, 55:217-222, April, 1971.

Hockett, Charles F. "A Note on 'Structure,'" International Journal of American Linguistics, 14:269, October, 1948.

_____ and Robert Ascher. "The Human Revolution," Current Anthropology, 5:135-167, June, 1964.

Hoffman, M. and L. Hoffman eds.). Review of Child Development Research. Vol. II. Ann Arbor, Michigan: University of Michigan Press, 1966.

Ingram, David. "Transitivity in Child Language," Language, 47:888-910, December, 1971.

Jacobs, Roderick A. and Peter S. Rosenbaum (eds.). Readings in English Transformational Grammar. Waltham, Massachussetts: Ginn and Co., 1970.

Jakobovits, Leon A. and Murray S. Miron (eds.). Readings in the Psychology of Language. Englewood Cliffs, New Jersey: Prentice-Hall, 1967.

Jenkins, James J. and David S. Palermo. "Mediation Processes and the Acquisition of Linguistic Structure." In Bellugi and Brown (eds.). The Acquisition of Language, pp. 141-169.

Katz, Jerrold J. and Jerry A. Fodor. "The Structure of a Semantic Theory," Language, 39:170-210, June, 1963.

_____ and Paul M. Postal. An Integrated Theory of Linguistic Descriptions. Cambridge, Massachussetts: The M.I.T. Press, 1964.

Laird, Charlton and Robert M. Gorrell (eds.). Reading About Language. New York: Harcourt Brace Jovanovich, 1971.

Lakoff, George and John Robert Ross. "Is Deep Structure Necessary?" Bloomington, Indiana: Indiana University Linguistics Club. (Mimeographed.)

Lamb, Sydney M. Outline of Stratificational Grammar. Washington, D.C.: Georgetown University Press, 1966.

Lenneberg, Eric H. Biological Foundations of Language. New York: John Wiley and Sons, 1967.

Leopold, Werner F. Speech Development of a Bilingual Child: A Linguist's Record. Vol. III. Evanston, Illinois: Northwestern University Studies in the Humanties, 1949.

_____. Bibliography of Child Language. Evanston, Illinois, Northwestern University Press, 1952.

Lockwood, David G. Introduction to Stratificational Linguistics. New York: Harcourt Brace Jovanovich, 1972.

Longacre, Robert E. Grammar Discovery Procedures. The Hague: Mouton and Co., 1964.

MacGinitie, Walter. "Language Development." Encyclopedia of Educational Research. 4th ed., pp. 686-699.

McCarthy, Dorothea. "Language Development in Children." In Leonard Carmichael (ed.). Manual of Child Psychology. New York: John Wiley and Sons, 1954, pp. 492-630.

McCawley, James D. "Syntactic and Logacal Arguments for Semantic Structures." Edited version of lectures and discussion at The Fifth International Seminar on Theoretical Linguistics, August 24 to September 3, 1970. Mimeographed by the Indiana University Linguistics Club, Bloomington, Indiana.

McNeill, David. "Developmental Psycholinguistics." In Smith and Miller (eds.). The Genesis of Language: A Psycholinguistic Approach. The M.I.T. Press, 1966.

_____. The Acquisition of Language: The Study of Developmental Psycholinguistics. New York: Harper and Row, 1970.

_____. "The Capacity for the Ontogenesis of Grammar." In Dan I. Slobin (ed.). The Ontogenesis of Language. New York: Academic Press, 1971, pp. 17-40.

Miller, Wick and Susan Ervin. "The Development of Grammar in Child Language." In Bellugi and Brown (eds.). The Acquisition of Language, pp. 9-34.

Mowrer, O. Hobart. Learning Theory and the Symbolic Processes. New York: John Wiley and Sons, 1960.

Osgood, Charles E. Method and Theory in Experimental Psychology. New York: Oxford University Press, 1953.

_____ and Thomas A. Sebeok. Psycholinguistics: A Survey of Theory and Research Problems. Bloomington, Indiana: Indiana University Press, 1965.

Piaget, Jean. The Language and Thought of the Child, trans. Marjorie Bagain. New York: The World Publishing Co., 1955.

_____. The Origins of Intelligence in Children, trans. Margaret Cook. New York: W. W. Norton and Co., 1963.

_____. The Child's Conception of Time, trans. A. J. Pomerans. New York: Ballantine Books, 1969.

_____. Genetic Epistemology, trans. Eleanor Duckworth. New York: Columbia University Press, 1970.

_____. Structuralism, trans. Chaninah Maschler. New York: Basic Books, 1970.

_____ and Barbel Inhelder. The Early Growth of Logic in the Child. New York: Harper and Row, 1964.

Pike, Kenneth. Language in Relation to a Unified Theory of the Structure of Human Behavior. The Hague: Mouton and Co., 1967.

_____. "Linguistic Concepts: An Introduction to Tagmemics." Reprinted in part as "More Revolution: Tagmemics," in Charlton Laird and Robert M. Gorrell (eds.). Reading about Language, pp. 234-244.

Reed, Carroll (ed.). The Learning of Language. New York: Appleton-Century-Crofts, 1971.

Ross, John Robert. "On Declarative Sentences." In Jacobs and Rosenbaum (eds.). Readings in English Transformational Grammar, pp. 222-272.

Sapir, Edward. Language: An Introduction to the Study of Speech. New York: Harcourt, Brace and Co., 1921.

Schlesinger, I.M. "Production of Utterances and Language Acquisition." In Dan I. Slobin (ed.). The Ontogenesis of Language, pp. 63-101.

Searle, J. R. Speech Acts: An Essay in the Philosophy of Language. London: Cambridge University Press, 1970.

_____ (ed.). The Philosophy of Language. London: Oxford University Press, 1971.

Sinclair-de-Zwart, Hermina. "Developmental Psycholinguistics." In Elkind and Flavell (eds.). Studies in Cognitive Development: Essays in Honor of Jean Piaget, pp.

_____. "The Transition from Sensory-Motor Behaviour to Symbolic Activity," Interchange, 1:119-126, 1970.

Slobin, Dan I. Psycholinguistics. Glenview, Illinois: Scott, Foresman and Co., 1971.

_____ (ed.). The Ontogenesis of Language. New York: Academic Press, 1971.

Sumardi, Muljanto. "A Sector Analysis of Modern Written Indonesian." Unpublished Doctor's Dissertation, Teachers College, Columbia University, 1967.

Trager, George L. and Henry Less Smith. Outline of English Structure. Norman, Oklahoma: Battenburg Press, 1951.

Vygotsky, L. S. Thought and Language, trans. Eugenia Hanfmann and Gertrude Vakar. Cambridge, Massachussetts: The M.I.T. Press, 1962.

Weinreich, Uriel. Review of John B. Carroll, The Study of Language: A Survey of Linguistics and Related Disciplines in America. In Word, 9:277, December, 1953.

Weir, Ruth. Language in the Crib. The Hague: Mouton and Co., 1962.

Weksel, William. Review of Bellugi and Brown (eds.), The Acquisition of Language. In Language, 41:692-701, December, 1965.

Werner, Heinz and Bernard Kaplan. Symbol Formation. New York: John Wiley and Sons, 1967.

APPENDIX A

Augusta's Verbs,

18:12-31:12

APPENDIX A

Augusta's Verbs, 18:12-31:12

18:12	19:8	20:13	21:24
boom (?)	boom (?)	✓blow	✓bought
open	✓close	crying	✓broke
snap	✓cry, crying	fix	✓build
	✓fix	get	✓eating
	✓found	✓hold	✓fit
	✓get	pick (up)	fix
	✓happen	✓play	get, got
	✓help	✓put	✓give
	✓look	ride	✓kick
	open	see	look
	✓pick (up)	✓sit (down)	✓made
	✓ride	✓walking	open
	✓see		✓read
	✓sit		riding
	snap		sit (down)
	✓stop		✓sleeping
	*✓stucked		stand (up)
	✓want		✓take (off)
			✓talking
			✓wake, woke (up)
			✓watch

KEY: * = Incorrectly formed by adult standards.

✓ = First time used.

APPENDIX A (continued)

22:11

bought
✓bump
✓come
find, found
fit
✓go, going
✓hear
hold
look
making
✓mess
open
pick (up)
playing
✓pull
put
read
ride
✓rocking
see
sitting
sleeping
✓stay
✓step
✓swing
want
✓wind (up)
woke (up)

22:25

bought
come (on)
✓doing
find
get
go
✓lace
make, made
open
pull
put
read
ride
✓show
sit (down)
sleeping
stand (up)
✓took
✓turn
want, wanna

23:9

bought
✓burp
✓carry
✓cover
doing
✓drink
✓fall (down)
fit, fits
go, going
hear
✓hug
✓kiss
✓lay (down)
✓need, needs
put
✓rolls (around)
snap
stand (up)
take, taking
✓throw
✓turn (over)
wake, woke (up)
want, wanna

24:15

break, breaking
✓climb (up)
close
✓draw
✓empty
find, found
fix
get, got
go, going
✓have
hold
✓keep
✓like
✓lose, lost
✓love
need
open
✓pass
play
✓push
put
✓say
see
show
sit
sleep
stop
take, taking
✓think
turn (over)
wake, woke (up)
want, wanna
✓washing
✓wrap

APPENDIX A (continued)

25:10

burp
✓button
✓call
fall
find, found
get
go
have
look
make
open
pick, picked (up)
put
✓reach
read
see
✓shake
sit (down)
sleeping
snap
✓swimming
take
want, wanna, wants
wind (up)
✓yelling

26:18

✓bring
bump
close
✓comb
come
crying
doing
draw
eat, eating
fall, fell
fit, fits
found
get, got
go, goes, going
have
hold
✓hop
keep
kissing
✓know
✓let
like
look
love
need
open
✓peek
pick (up)
play
pull (up)
put, putting
ride
✓ring
say
✓scare
see
sit, sits, sitting
sleep
stand
take
✓taste
✓told
✓turn (around)
✓wait
want, wanna, want to
watch
✓work

27:24

✓bet
bring
✓brush
calling
clean, cleans
close
come
do, doing
drink
fall, *falled, fell
✓feeding
✓finished
fix
get, gets, got
give
go, goes, going
have, has
know
✓lock
love
make, making
✓missed
✓move
need
open
peek
pick (up)
put
read
say
scared
see
sit
sleep
✓spilled
stand, stands
stay
stop
take
✓turn(off)
✓use
wait
walks
want
wash, washing
watch
wind
✓wipe
woke (up)
work

APPENDIX A (continued)

28:17

✓be
bring
brush (off)
✓burn
clean
close
come, came
crying
do, did
✓drive
eating
find, found
get, got
give
go, goes, going
have
hear
help
like
look, looks
*losed
make, making
move
need
open
peeking
play
push
put
ring
says
scrub
see, saw
✓shine
sit (down)
standing (up)
take
talk
✓ticking
✓trying
turn, turns
want, wanna, want to
wash
wipe
work

29:16

bought
*bringed
bumped
clean
close
come
✓count
✓drying
*falled
find, found
fit
get
give
go, goes, going
hold
know
✓leave
like
look
need
open
play
✓press
put
see
sit
sleeping
take, takes, *taked
throw
turn
use
want, wanna, want to
wash, washing
wind

APPENDIX A (continued)

30:13

✓bend
✓bite
bring, brought
broke
✓catch
clean
close, closed
come
crying
doing
draw
✓drop
dry
eat
fall, falling
feeding
find, found
fit
fix
get, got, getting
go, goes, going
give
have
help
✓hurt
✓laughing
like
look, looking
make, made
need
open
✓paint
peek
play
put, putting
read
ring, *ringed
said
see
sit
sleep, sleeping
✓smiling
stand
✓suck

30:13 (continued)

take, took
talking
tell
ticking
trying
turn (off)
wait
want
wash, washing
woke (up)

31:12

bite, bites
break, breaks
brush
carry
close
come
cry
draw
drives
eat
find
fix, fixed
get, got
go
have
help, helping
hold
✓hope
hurt
let
like
lost
make, made
need
open
play
put
shakes
sit
✓sticks
take
talk
think
use
want, want to
wash, washing
wind (up)
work, works

APPENDIX B

Sector Analysis of Data

for 18:12, 19:8, 24:15, and 31:12

Appendix B - Glossary

The utterance-types are shown in the left-hand margin as follows:

PA = predicative assertion (affirmative)

NPA = negative predicative assertion

PQ = predicative question

IA = idiotropic assertion (affirmative)

NIA = negative idiotropic assertion

IQ = idiotropic question

IC = idiotropic command (affirmative)

NIC = negative idiotropic command

OA = ostensive assertion (affirmative)

NOA = negative ostensive assertion

EA = existential assertion

EQ = existential question

Symbols should be interpreted as follows:

Δ = Content of this sector appears in another sector in the same utterance.

Θ = Obligatory filler missing; different meaning if sector is obligatorily unfilled; interpretation by context.

✓ = Assumed underlying conceptual construct not linguistically realized; interpretation by context.

Numbers in parentheses indicate number of times utterance was produced in that session.

TOPIC PREDICATIVE UTTERANCES 18:12

	TYPE		O	S		Y				
1	PA			bear	boom					
2				bear						
3	PA				snap	•	more	(Comment on own activity)		
4	PA				more	•	snap	(Comment on own activity)		
5				airplane				(No plane within hearing)		
6	PA				all gone			(Was present but not present now)		
7	PA				more			(Comment on own activity)	(2)	
8										
9	PA				open			(Comment on own activity)	(4)	
10	PA									
11	PA				all gone			(No wheels on car)		
12	PA				all gone			(A stopped rattling rattle)		
13				ball						
14	PA				boom					
15				doggie						
16	PA				oof-oof					
17	PQ		why						(5)	
18	PQ		where						(2)	
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										

TOPIC IDIOTROPIC UTTERANCES 18:12

DATE OF TABULATION

TABULATED BY

		(I want)			(Other)																										
1 IC		✓			✓				more			(activity)				(17)															
2 IC		✓			✓				open			(activity)				(6)															
3 IC		✓			✓				music			(activity)																			
4																															
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35																															

TOPIC OSTENSIVE UTTERANCES 18:12

	TYPE				Q	Demon. S		Y					
1	CA							bear-bear					(3)
2	CA					that		bear-bear					
3	CA							more	(obj.)				(2)
4	CA							more	(activity)				
5	CA							doggie					(3)
6	CA							truck	(wheel of truck)				(2)
7	CA				What's	that						[didact]	(2)
8	CA							Judy					
9	CA					that		Judy					
10	CA							Mary					
11	CA							meow	(cat)				
12	CA							Dean					
13	CA					this							
14	CA							book					
15	CA							Daddy					
16	CA							fishie					
17	CA							telephone	(hearing phone ring)				
18													
19													
20													
21													
22													
23													
24													
25													
26													
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28													
29													
30													
31													
32													
33													
34													
35													

TOPIC PREDICATIVE UTTERANCES 19:8

	TYPE				Q	X̃	S		X	(Neg) M	V		IÕ/C	B̃	O	B	IO	C		D		E		
1	PA										pick			up										
2	PA										crying												(2)	
3	PA													up									(3)	
4	PA																	all gone					(8)	
5	PA																	up here						
6	PA										open												(5)	
7	PA																	<Ø table>						
8	PA										crying													
9	PQ				Ø						happen													
10	PQ					Ø	Abraham											wet						
11	PA																	nite-nite					(2)	
12	PQ					Ø	Rosa											up there						
13	PA										fix				it									
14	PQ				where		bottle											Δ						
15	PQ				why															Δ			(5)	
16	PA										spill												(2)	
17	PA																	<Ø chair>						
18	PA										cry													
19	PA						I				found				it									
20	PQ				Ø		ball											Δ						
21	NPA									no													(2)	
22	PA										snap													
23	PA						nail																	
24	PQ				where													Δ					(2)	
25	PQ				Ø		bottle											Δ						
26	PA																	there						
27	PA																	right there						
28	PA										boom													
29	PA													off										
30	PA													down										
32																								
33																								
34																								

TOPIC PREDICATIVE UTTERANCES 19:8

TYPE				Q	X̃	S		X	(Neg) M	V		ĨO/C	B̃	O	B	IO	C		D		E	
1 PA						Marco																
2 PA																	all gone					
3 PA										sit			down									(3)
4 PA										get			down									
5 PA						it				stucked												
6 PA										Ø				quack-quack								
7																						
8 PA																			<Ø mouth>			
9 PA										Ø				door								
10 PA																	busy					
11 PA																			more		("again")	
12																						
13																						
14																						
15																						
16																						
17																						
18																						
19																						
20																						
21																						
22																						
23																						
24																						
25																						
26																						
27																						
28																						
29																						
30																						
31																						
32																						
33																						
34																						
35																						

TOPIC IDIOTROPIC UTTERANCES 19:8

DATE OF TABULATION

TABULATED BY

	TYPE		I want		Other		(Neg) M	V		B	O		B						
1	IC		✓		✓			stop			it							(3)	
2	IC		✓		✓			open						(general command form)				(23)	
3	IC		✓		✓			close											
4	IC		✓		✓			look											
5	IC		✓		✓					up								(5)	
6	IC		✓		✓			help										(2)	
7	IC		✓		✓			sit		down.								(3)	
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
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30																			
31																			
32																			
33																			
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35																			

TOPIC OSTENSIVE UTTERANCES 19:8

	TYPE				Q	X̄	(Lemon) S			Y							
1	CA									sweater					(2)		
2	CA									horsie							
3	CA									bottle							
4	CA									girl							
5	CA									two							
6	CA									Terry							
7	CA									doggie					(2)		
8	CA									rabbit					(2)		
9	CA									pickle							
10	CA									Deano					(3)		
11	CA									baby			(Poss)		(2)		
12	CA									cow							
13	CA									marco							
14	CA									baby					(7)		
15	CQ				what's		that								(3)		[didæt]
16	CA									mousie							
17	CA									duck							
18	CA									two							
19	CA									bear							
20	CA									radio					(2)		
21	CA									Abraham							
22	CA									airplane					(2)		
23	CA									tenpin					(3)		
24	CA									car							
25	CA									train							
26	CA									marco							
27																	
28																	
29																	
30																	
31																	
32																	
33																	
34																	
35																	

TOPIC PREDICATIVE UTTERANCES 24:15

	TYPE	Top	L	P	C	X̃	S		X	(Neg) M		V	IO/C	B̃	C		B	C		D		E											
1	PA											lose			it																		
2	PA																																
3	PA						I					fix			that								(2)										
4	NPA						I		can't			fix			that	one																	
5	PA											lose			it								(2)										
6	PA						I											scared															
7	PA											play			jack-in-the-box																		
8																																	
9	NPA						I		can't			put					away																
10	PA						I					wind			it		up																
11	PA											play			babies																		
12	PA											Θ						<Θ daddy office>					(2)										
13	NPA						I		don't			like			that																		
14	PA						I					love			him																		
15	PA											Θ			piggie		down																
16	PA													down																			
17	PA						I		Δ			got			it																		
18	PQ				where		dinner											Δ															
19	PA						I					sit									on it												
20	PA											going		up																			
21	PA											going		down																			
22	PQ				what	's	that guy											Δ															
23	PA						some babies					go						nite-nite															
24	PA						I					have			more	(obj)																	
25	PA											go						nite-nite															
26	PA						I		can																								
27	PA						two baby					sleep									in bath												
28	PQ					Θ	Θ					wanna			sleep																		
29	PA											break																					
30																																	
31																																	
32																																	
33																																	
34																																	
35																																	

TOPIC PREDICATIVE UTTERANCES 24:15

	TYPE	Top	L	F	Q	X̄	S		X	(Neg) M		V	IO/C	B̄	O		B	C		D			E	Z		
1	PA						I		Δ			found			it										(3)	
2	PA											go						nite-nite								
3	NPA						I		can't			fix			it											
4	NPA						I		can't			take			it		out									
5	PQ				where	's	other arm											Δ								
6	PA								Δ			lost			a hand											
7	PA						she		Δ			lost			a hand											
8	PQ				where													Δ						(3)	
9	PQ				where	's	a baby											Δ								
10	PA						baby					bleep								in a bath						
11	PQ				what	's	Δ											in there								
12	PA								Δ			lost			a hand											
13	PA						that's		Δ			ə lost			ə hand											
14	PA											have			ə baby											
15	NPA						this		is	not								good								
16	PA											sit						in the bathtub								
17																										
18	PA											washing			it											
19	PA											close			it		up									
20	PA						I					fix			it											
21	PA											ə put						ə bath								
22	PQ				what	's	Δ											in there						(2)		
23	PA																	on a head								
24	NPA						dress			3rd		go						on a head								
25	PQ				what		Δ											in there								
26																										
27																										
28																										
29																										
30																										
31																										
32																										
33																										
34																										
35																										

TOPIC PREDICATIVE UTTERANCES 24:15

TYPE	Top	L	P	Q	X̃	S		X	(Neg) M		V	TO/C	S̃	O		B	C		D			E	Z								
PA											θ			that			in there														
PA						you											Doris														
PA								Δ			found			baby chair																	
PA											climb								up there												
PA														look					at some boats				two boats								
PA											find			a boat																	
PA											breaking																				
PA											go						on the table														
PA				What	's	that noise											all about Δ												(2)		
PA						I					think			so															(2)		
NEA									not		supposed to																				
NEA						I		can't			draw			it																	
PA											wrap			it		up															
NEA						I		can't			θ								like that												
PA											taking			the baby																	

TOPIC IDIOTROPIC UTTERANCES 24:15

DATE OF TABULATION

TABULATED BY

		(Self) S	(Neg)	(Want) V	(Obj or Act) O	
	IA	✓		✓	see sheer	
	IA	✓		✓	play jack-in-the-box	
	IA	✓		✓	find	
	IA	✓		✓	look at Sally-O	
	IA	✓		✓	fix that	
	IA	✓		✓	fix a baby chair	
	IA	✓		✓	more (activity)	
	IA	✓		✓	more put in	
	IA	✓		✓	more (object)	
	NIA	I	don't	want to		
	IA	I		need	it	
	NIA	I	don't	want	his eyes out	
	NIA	I	don't	want	play babies	
	NIA	✓	don't	want	play babies	
	NIA	I		want		
					not this thing	
	NIA	I	don't	want to	play babies	
	IA	✓		✓	sleep in there	
	IA	✓		want	sleep in there	
	IA	I		✓	look at it	
	NIA	I	don't	want	it come out	
	NIA	I	don't	need	that	
	NIA	I	don't	want	a baby in there like that	
	IA	✓		want	have him	
	IA	✓		need	'nother baby	
	IA	I		need	'nother baby	
	IA	I		want	it	
	IA	I		need	that	(2)
	IA	I		need	baby chair	
	IA	I		need	the baby's potty chair	
	NIA	✓	don't	wanna	put away	

TOPIC IDIOTROPIC UTTERANCES 24:15

TYPE	X̄	S	V	B̄	O	B	IO	C	D1	D2	
13	Can	I	put	on	it						
13	Can	I	look						in there		
13	Can	I	have		it						
13	Can	I	look						at it		(3)
13	Can	I	get		it						
13	Can	I	open		it						
13	Can	I	look						at Terry	in there	(3)
13	Can	I	hold		it						
13	Can	I	look						at the cards		
13	Can	I	draw						on paper		(2)
13	Can	I	show		it		to Rosa				
13	Can	I	have		all the babies						
13	Can	I	put		them			in here			
13	Φ	Φ	have		a cup						

TOPIC IDIOTROPIC UTTERANCES 24:15

DATE OF TABULATION

TABULATED BY

TYPE	(self-cont)	Neg	Other	V	Ø	O	B	C	D	Voc	
IC	✓		✓	sit					in the bathtub		
IC	✓		✓	put			down				(2)
IC	✓		✓	put			back				
IC	✓		✓	push		him					
IC	✓		✓	pass		the water					(3)
IC	✓		✓	fix		the baby chair					
IC	✓		✓	buttonup							
IC	✓		✓	look							
IC	✓		✓	keep		your feet	down				
IC	✓		✓	turn over						baby	
IC	✓		✓	wake up					in the morning		
IC	✓		✓	wake up							
IC	✓			woke up						baby	
IC	✓		✓	say		it					
IC	✓		✓	get		head					
IC	✓		✓	look					at it		(2)
IC	✓		✓	sit down							
IC	✓		✓	have		a cookie					
IC	✓		✓	close		it					(2)
IC	✓		✓	empty		it					
NEG	✓	don't	✓								
IC	✓		✓	open		that					
IC	✓		✓	put away		Doris					
IC	✓		✓	open		it					(3)
IC	✓		✓	open		it	up				
IC	✓		✓	put		that	away				
IC	✓		✓	make		a baby					
NEG	✓	don't	✓	put		it		in there			(2)
IC	✓		✓	stop		it					(4)
IC	✓		✓	stop		it				boys	(2)
IC	✓		✓	stop							(2)

TOPIC COHESIVE UTTERANCES 24:15

	TYPE		Q	X̃	(DEMON) S	here/there	X	(Neg)	Y	Z		
1	CA				that		's		a teddy bear			
2	CC		what	's	that				&		(for both persons & objects)	(14)
3	CA					there			babies			
4	CA								jack-in-the-box			
5	CA				that		's		the baby			
6	CA					here	's		another hand			
7	CA					here	's		a baby spoon			
8	CA				that		's		a baby wake up			
9	CA					there	's		a leg	in there		
10	CA								helicopter			
11	CA				that		's		a helicopter			
12	CA				that				a nice helicopter			
13	CA								music			
14	CA								Terry			(3)
15	CA				that		's		a boy			
16	CA								Shirley Temple			
17	CA								funny bottles			
18	CA								a birdie			
19	CA								funny thing			(2)
20	CA								Winnie-the-Pooh			
21	CA								a bathtub			(2)
22	CA								baby			
23	CA								two babies			
24	CA					there	's		a boat	in the bathtub		
25	CA				that		's		a boat			
26	CA								boat			
27	CA				this				a nicey			
28	CA								tiny baby			
29	CC			&					Terry			(2)
30	CA				that				Terry			(4)
31	CA				that				Ricky			(2)
32	CA				that		's		a Terry			(3)
33	CA				that		's		a Bob			
34	CA				that		's		Bob			
35	CA				this				a Bob			(2)

TOPIC COHESIVE UTTERANCES 24:15

	TYPE		Q	X	S	(DEMON) (here/there)		X	(Neg)	Y				Z																		
1	CC				that			's		Bob																						
2	CC			6	that					Bob																						
3	CQ				this					Bob																						
4	CA				that			's		Terry																						
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																
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31																																
32																																
33																																
34																																
35																																

TOPIC PREDICATIVE UTTERANCES 31:12

	type	Topic	L	P	Q		X	S				X	M	V	IC/C	B	O	B	IO	C		D		E	Voc	I
1	NPA											doesn't		work												
2	PA							I						get			'nother baby									
3	PA							this one				Δ		works												
4	PA							this one				is									orange					
5	PA							this one				Δ		works												too
6	PQ				How		's	that													Δ					
7	PA													put			some hair				on him					
8	PA													put			long long snake				on there					
9	PQ						&	you						like			snakes									
10	PQ						&	you						like			'em									
11	NPA											doesn't		bite			me									
12	PQ						&	it						bites			you									
13	PA													put			a head				on him					
14	PA													put			some eyes				on him					
15	PQ				which one			you						want			Δ									
16	PA							I				Δ		think			I want this one with the boy on it									
17																										
18	PA							I						gonna make			something						on this side			
19														(Intervening IQ # 10)												
20	PA		and											make			some handle									
21	NPA							I				can't		make			a baby						in the carriage			
22	PA													make			his body									
23	PQ				where		's	a mommy to carriage him													Δ					
24	PQ				who			Δ						carry			him									
25	PQ				where		's	a mommy to carry the baby													Δ					
26	PA							mommy						cry									for the monster			
27	PA													make			another one									
28	PA													put			a shirt				on him					
29	PA							I				Δ		made			a mommy									too
30	PA							We				Δ		made			both mommys									
31	PA													take			her hand				out of her hair					
32	PA													put			hair		on							
33	PA							it				Δ		shakes												
34	PA							I						gonna brush			my hair									
35																										

TOPIC PREDICATIVE UTTERANCES 31:12

TYPE	Voc	L	F	Q	X̃	S				X	M	V		IO/C	Ẽ	O			B	IO	C			D			E	Voc	Z
NPA						I				don't																			
NPA						I				don't		have to eat				my lunch													
NPA		No				I				don't																			
PA						I				'm		gonna help				you													
PA						I				'm		helping				you													
PQ				Where	's	the boy															Δ								
PA												have				some ink					on it								
PA						we						gotta get				a new boy													
NPA		No				it				doesn't																			
PA						I						gotta put				this					in the box						too		
PA						It				's		washing																	
PA						It				's											washed								
NPA		No				it				's	not										Φ								
PA												close																	
PQ					Φ	you						need				some more													
PQ					Φ	you						need				some more didi													
PA						you				Δ		fixed				it													
PA												wind				it			up										
PA						I				Δ		got				some ink					on my finger								
PA										Δ		sticks							out										
PA			now			we															all finished								
PA																													
PA						I				Δ		like				that													
PQ				Where	's	the tables															Δ								
PQ				Where	's	'em															Δ								
PQ	tables			Where	are	you															Δ								
PQ				Where	are	you																						babies	
PQ				Where		the babies															Δ								
PA						you				Δ		fixed				the washing machine													
PA						you				Δ		fixed				it													
PQ				Where	's	another baby															Δ								

TOPIC PREDICATIVE UTTERANCES 31:12

TYPE	Topic	L	F	Q	X̄	S	X	M	V	Io/C	B̄	O	B	IO	C	D	E	Voc	Z
1 PQ				What	's	Δ									in there				
2 PQ					e	it			break										
3 PA									have			sugar			on it				
4 PA						I	Δ		lost			it							
5 PQ				Where	's	Rosa									Δ				
6 PA						I	'm		gonna get			some more							
7 PQ					do	you			want			go to Shari's house							
8																			
9 PA						I	'll		get			'em							
10 PA						I	'm		gonna put			them			to Shari's house				
11 PQ				Where		the sailboat									Δ				
12 PQ				e		you			got			some							
13 PQ				e		you									all set				
14 PQ				Where		your baby's blanket									Δ				
15 PA						I			put			these babies			to here				
16 PQ				Where	's	a mirror									Δ				
17 PA						I			gotta get			'nother one							
18 PA						I			get			one							
19 PA						I	Δ	still	have to brush			her hair							
20																			
21 PA									got			so much water							
22 PA						I	Δ		hope			this brush don't get broke							
23																			
24 PA						I			gotta get			some water			in here				OK?
25 PA						I	Δ		think			I need a sprayer							
26 PA						Mark			use			it							
27 PA						I	'll		get			some more water							
28									brush			my hair							
29 PQ				Where		I			put			the water			Δ				
30 PQ				Where		the sink									Δ				
31 PA						I	'll		get			some							
32 PQ				Where		I			put			it			Δ			[illegible]	
33																			
34																			
35																			

TOPIC PREDICATIVE UTTERANCES 31:12

Type	Topic	L	F	Q		X̃	S					X	M	V		Ĩ0/C	B̃	O			B	IO	C			D			Z	Voc	Z
PA		well					I					'll		get				home													
PQ				where			I							put				it					Δ							
PA														put				some					in here						Can	
PQ						Δ	anything					can		go									in the washing machine							
PA							I							gotta get				a clean blanket												
PA														have to wash																
PQ						Φ	you																ready							
NPA							I					can't		find				any more												
NPA							I					can't		talk												about that				
PQ			now	where		's	jack-in-box																Δ							
PQ				where		is	it																Δ							
PA														wash				herself												
PA							her							wash				her ears												
PA							we							got				4 beds												
PA							I							got				another comb					for her							
PA			now				we					're											on the back porch							
PQ						Φ	this one							close																
PQ				who																										(a)
PQ				why																										
PA							you							got				some sandals											too	
PA							I							got				heels											too	
PQ						Φ	this one							hurt																
PQ				where		's	the car																Δ							
PQ				where		is	the car																Δ							
PQ						Φ	this girl							drives																
PA*							I					'm		sit												on the car				
PQ						Φ	you																ready to down by back porch							
PQ						Φ	you							want to																

TOPIC PREDICATIVE UTTERANCES 31:12

TYPE	Voc	L	P	Q		X̃	S				X	M	V		ĨO/C	Ẽ	O			B	IO	C			D			E	Voc	Z
NFA							I				can't		put				it					in there								
FA							I						gonna	break			it													
FA							it				's											over here								

TOPIC COGNITIVE UTTERANCES 31:12

	TYPE	Q			(DEMON) S	(here/there)	X		Y
1	CA					there			your baby's blanket
2	CA					here	's		some rowler
3	CA					there	's		a monster
4	CA				that		is		the bedroom
5	CA					here	's		the bedroom
6	CA					here	's		some more
7	CA					there	's		a jack-in-the-box
8	CA					there	's		baby
9	CA					there	's		a castle
10	CQ			+	that		's		a puppet
11	CA					here	's		a carriage
12								and	a handle
13	CA					here	's		a baby
14	CA					there	's		a monster
15	CA					there	's		a handle
16	CQ		who	's	that				Δ
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									

TOPIC IDIOTYPIC UTTERANCES 32:12

DATE OF TABULATION

TABULATED BY

DATE			L	F		(Self) S		(Non)		(Want) V		O
25						✓				need		some hair (obj)
25						I				need		a bike (obj)
25						I				need		a hamster (obj)
25						✓				need		some little more water

TOPIC TWO-TOPIC UTTERANCES 31:12

TYPE	X	S	V	IO/C	O	B	C	D	E
22	Can	I	have		a barette (see #3, above)				
22	Can	I	have		some more water (see #4, above)				
22	Can	I	have		some powder				
22	Can	I	go					outside	
22	Can	I	go					out the front porch	
22	Can	I	drive		you				
22	Can	I	drive		you			to take your toys	
22	Can	I	play					with Shari	
22	Can	I	have		it				
22	Can	I	make		something			on this side	
22	+	you	get	me	a box				
22	+	you	fix		this				
22	+	you	take		all the toys		to Shari's house		

TOPIC IDIOTOPIC UTTERANCES 31:12

	TYPE	Self Alone			Self-Other	(Other)	(Neg)	V	B	C			B	C		D			E	Z	
1	IC	✓				you		draw		the mommy											I
2	IC	✓				✓		make		her				cry							(3) 2
3	IC	✓				✓		make		a monster											3
4	IC	✓				✓		put		hair				on him							4
5	IC	✓				you		take		that one											5
6	IC	✓			lets			make		another one											6
7	IC	✓				you		make		a mommy				to carry her							7
8	IC	✓						make		her				cry							8
9	IC	✓			lets			make		another mommy											9
10	IC	✓				you		make		another one											10
11	IC	✓														over here					(2) 11
12	IC	✓				you		hold		the mirror											12
13					and	you		hold		the baby						so I can brush her hair					13
14	IC	✓				you		brush		her									now		14
15	IC	✓				you		come						over here							15
16	IC	✓				you		have		this one with the crayons											16
17	IC	✓			lets			take		them						to your house					17
18	IC	✓			lets			put		these			away							too	18
19	IC	✓				you		hold		the mirror											19
20	IC	✓				you		hold		this bucket											20
21	IC	✓				you		hold								like this					21
22	IC	✓				✓		hold		it											22
23	IC	✓				you		open		it						for me					23
24	IC	✓			lets			go								in here					24
25	IC	✓			lets			wash		her hair						over here					25
26	IC	✓				✓		let		me brush her hair						so we can go on the back porch					26
27	IC	✓			lets			go													(5) 27
28	IC	✓				✓		come					on								28
29	IC	✓				✓		let		me see your hurty toe											29
30	IC	✓			lets			play		this											30
31	IC	✓			lets			make		some house											31
32	IC	✓				✓		come					in								32
33	IC	✓				✓		let		me put some beds in there											33
34	IC	✓			here			go								to sleep					(5) 34
35	IC	✓			lets			make		a carriage											35

TOPIC: IDIOTROPIC UTTERANCES 31:12

DATE OF TABULATION:

TABULATED BY:

TYPE	(Self-Mark)	Self-Other	(Other)	(Other)	V	B	O	B	C	D	E	Z
IC	✓			✓	make		a bow		for it			
IC	✓			✓	make		her (yes				too	
IC	✓			✓	put		hair	on				
IC	✓			you	hold		it	up		like that		

TOPIC EXISTENTIAL UTTERANCES 31:12

	TYPE		X̃	S	X		M		Y
1	NEA			it	's		not		time th my night time
2	NEA			there	's		no		water in there
3	EA			there	's				books
4	EA		ϕ	there	's				another bed
5	EA			it	's				eighty-ninth time
6									
7									
8									
9									
10									
11									
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APPENDIX C

The Verb Key to Augusta's X-Word, Quasi-Auxiliary, and Verb Collocations

APPENDIX C

The Verb Key to Augusta's X-Word, Quasi Auxiliary, and Verb Collocations

X-WORDS	QUASI-AUXILIARIES	VERB FORM	EXAMPLE
am ('m)		v-ing[1]	I'm cleaning.
is ('s)		v-ing	He's sleeping.
are ('re)		v-ing	They're yelling.
can (n't)		v	I can't fix it.
could		v	Where could it go?
should		v	Where should I put it?
do (n't)		v	I don't like it.
do-s			
does (n't)		v	That doesn't fit.
will ('ll)		v	I'll hold it.
is ('s)	getting	v-n	It's getting washed.
is ('s)	get	v-n	It's get washed.
	got	v-n	It got fixed.
is ('s)	gonna get	v-n	It's gonna get cleaned.
am ('m)	gonna	v	I'm gonna fix the pail.
	gonna	v	He gonna go bye-bye.
	gotta	v	You gotta wash.
	gotta get	v-n	You gotta get washed.
	hafta	v	I hafta wash this.
	hafta get	v-n	I hafta get finished.
	hasta get	v-n	I hasta get finished.
	had to	v	He had to eat.
	'posed to	v	I 'posed to go home.
	better	v	I better fix it.
am ('m)	supposed to	v	I'm supposed to get out.
is ('s)	going	v	The boy's going wash.

[1] "v-ing" represents the ING form; "v" alone represents the BASE form of the verb; "v-n" represents the D-T-N Form.

APPENDIX D

Sector Analysis of a Command

APPENDIX D

Sector Analysis of a Command

The sector analysis of Augusta's most complex command is shown in page 95 of Appendix D. The analysis is explained layer by layer on page 96.[1]

The features of Augusta's command Let me brush her hair so we can go on the back porch which deserve special attention are noted below:

Line (1): This command is manifested by a Predicator construction. If it had been a Clausid (You let me brush her hair . . .), an extra layer would have been added to the analysis.

Line (1): The wavy arrow under the D indicates that the predication about H is an adverbial predication.

Line (3): The subjects of Clausids (in this case, me) are regularly in the object form. The rectangle indicates that me is a pro-nominal.

Line (4): In this Predicator, the D sector is unfilled (Θ). Augusta could have filled this sector with a Predicator adverbial such as again.

Line (6): The determiner slot in the Noun Cluster is marked by ↦ ; the nucleus slot is marked by * .

Line (8): This construction is a minimal unit because both sentence adverbial sectors (F and E) are unfilled. Augusta could have filled either of these with her sentence adverbial forms now, then, and first.

Line (11): The H sector is filled by the minimal Predicatid, +V:; the optional O, B, IO, and C sectors are unfilled.

Line (12): The Phrase filling the D sector consists of two obligatory slots, the preposition (on) and the object of the preposition (the back porch).

Line (13): In the Noun Cluster, the ⟶ indicates a modifier other than a determiner.

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[1] The numbers in parentheses at the left are used to facilitate discussion of the analysis; they are not a part of the analysis itself.

APPENDIX D

Symbols Used in Sector Analysis of a Command

( ) = Predicator construction

 = adverbial predication (when placed below the text)

< > = Predicatid construction

 = Nominal

 = determiner

* = nucleus of a Cluster

K ϗ = Cluster construction

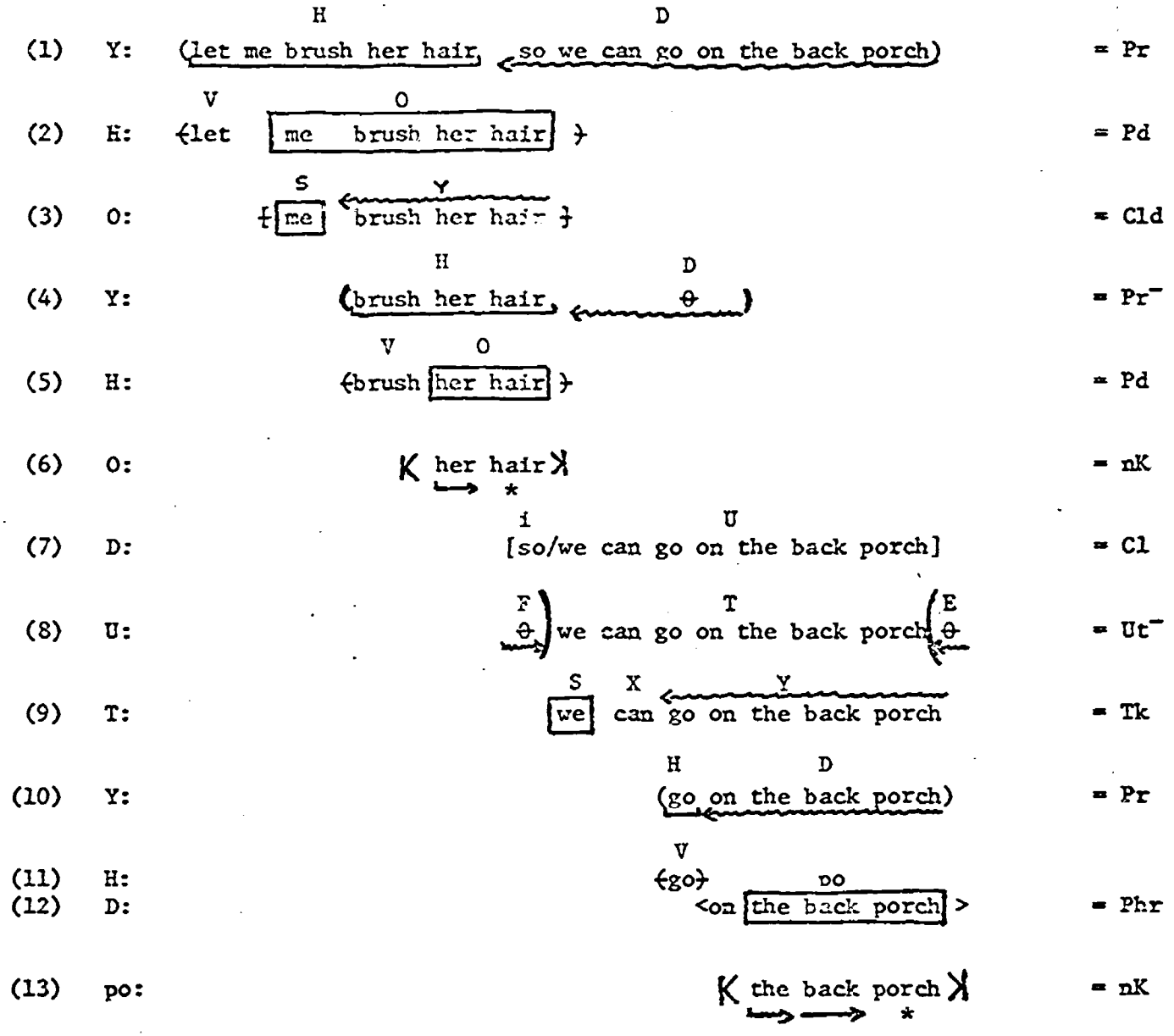
[ ] = Clause construction

i = includer (Clause introducer)

 = primary predication (when placed above the text)

< > = Phrase construction

 = pre-noun (adjectival or noun-adjunct) modifier


H D
(1) Y: (let me brush her hair, so we can go on the back porch) = Pr
V O
(2) H: {let me brush her hair} = Pd
S Y
(3) O: {me brush her hair} = Cld
H D
(4) Y: (brush her hair, θ) = Pr⁻
V O
(5) H: {brush her hair} = Pd
(6) O: her hair = nK
i U
(7) D: [so/we can go on the back porch] = Cl
F T E
(8) U: θ we can go on the back porch θ = Ut⁻
S X Y
(9) T: we can go on the back porch = Tk
H D
(10) Y: (go on the back porch) = Pr
V
(11) H: {go} po
(12) D: <on the back porch> = Phr
(13) po: the back porch = nK

APPENDIX D (continued)

The analysis shown on the preceding page is interpreted below. It should be noted that each tagmeme in an utterance consists of a position (indicated in the left-hand margin) which is filled by a construction (identified in the right-hand margin). Each construction, in turn, consists of a sequence of lower-layer tagmemes, some of which are optional and others of which are obligatory. Constructions in which only the obligatory tagmemes occur (in a given utterance) are called "minimal" construction and are marked with a raised "-".

Line (1): The command is a Y-layer tagmeme which consists of the Y sector filled by the Predicator H + D.

Line (2): The H tagmeme in the Predicator consists of the H sector filled by a V+O Predicatid.

Line (3): The O tagmeme consists of the O sector filled by the Clausid S+Y.

Line (4): The Y tagmeme in the Clausid consists of the Y sector filled by the minimal Predicator (+H-D).

Line (5): The H tagmeme in the Predicator consists of the H sector filled by a V+O Predicatid.

Line (6): The O tagmeme consists of the O sector filled by a Noun Cluster (determiner + noun nucleus).

Line (7): The D tagmeme (from line 1) consists of the D sector filled by a Clause (includer + unit).

Line (8): The U tagmeme consists of the U sector filled by a minimal unit (-F+T-E).

Line (9): The T tagmeme consists of the T sector filled by the Trunk (S+X+Y).

Line (10): The Y tagmeme in the Trunk consists of the Y sector filled by the Predicator (H+D).

APPENDIX D (continued)

Line (11): The H tagmeme consists of the H sector filled by the minimal Predicatid (+V).

Line (12): The D tagmeme of the Predicator (in line 10) consists of the D sector filled by a Phrase (preposition + object of preposition).

Line (13): The object of the preposition tagmeme consists of the po slot filled by a Noun Cluster (determiner + modifier + noun nucleus).

APPENDIX E

Augusta's Idiotropic Assertions with Want and Need, Questions with Can, and Commands with Let's

APPENDIX E

Augusta's Idiotropic Assertions with *Want* and *Need*, Questions with *Can*, and Commands with *Let's*[1]

19:8 Don't want.

22:11 I want blocks.
I want doggie ride horsie.
I want up.
Can I have it?
Can I?
Let's open it.

22:25 I want Raggedy Ann.
I want read book.
I wanna talk to Terry.
I wanna play two blocks.
I wanna sit down.
I wanna hold it.
I wanna open it.
Want read book.

22:9 I want play tenpins.
I want carry baby.
I want carry it.
I wanna hold it.
I need a bath.
I need baby bath.
I need books.
Want talk.
Want talk Mommy.
No want shoes on.

24:1 I want touch that giraffe.
I want a baby.
I wanna see that.

---

[1]For Augusta's idiotropic questions and commands with *You* subjects, see Appendix F.

APPENDIX E (continued)

24:15 I don't want to.
I don't want his eyes out.
I don't want to play babies.
I want • not this thing.
I don't want it come out.
I don't want a baby in there like that.
I need it.
I need another baby.
I need that.
I need baby's potty chair.
I don't need that.
Can I have all the babies?
Can I put on it?
Can I look in there?
Can I have it?
Can I look at it?
Can I get it?
Can I open it?
Can I look at the cards?
Can I draw on paper?
Can I show it to Rosa?
Can I put them in here?
Don't want play babies
Want sleep in there.
Want have him.
Don't wanna put away.
Need another baby.

25:10 I need the baby's blanket.
I need one.
I don't wanna read it.
I wanna go downstairs.
I want it.
Can I have it?

26:6 I want look at candy.
Can have more?
Can I have more?
Can I have more penny?
Can I have it?
Can I have piece?
Can I have that?
Can I have more candy?
Can more?
Can I have them?
Can I have two?
Can have more candy?
Can I have something also?

APPENDIX E (continued)

26:6 (continued)

Can I have a babies?
Can I have lotion?
Wanna squeeze it.

26:18 I don't want the boy in there.
I don't want this in here.
I don't want to.
I wanna go hop.
I wanna comb your hair.
I want that bed fits right here.
I need a cradle.
Don't want to.

27:1 I need clean the boy.
I need to fit up there.
I needa look like going nite-nite.
I need go Larry.
I want to have them.
Can I have a washcloth?
Can I have that?

27:24 I don't want a machine.
I need them.
I need it for my baby.
I need a box.
Let's get the soap.
Let's clean up.
Let's stop the boys.
Can I clean it?
Can I take them out?
Can I have a box?

28:17 I wanna clean up some more.
I wanna go in your pocket.
I want you take that away to Abraham.
I need a baby.
I need toilet.
I need some candy.
I need look at Doris.
Let's go to your house.

28:28 I need soap.
I need your books.
Let's clean those.
Can I clean the house?
Can I have them?
Can I wash her off?

APPENDIX E (continued)

29:16 I want clothes in there.
I wanna get down.
I wanna look at the pictures.
I needa go on the horsie.
I don't wanna.
I don't wanna count the beds.
I wanna get off.
I want that box.
I wanna go on the horsie.
I wanna hold it.
Can I have the washing machine?
Can I play checkers?
Wanna look at that one.
Wanna wash her.
Wanna go on the horsie.
Need a cloth.
Want no more.
Don't wanna.

30:13 I need more pennies.
I want a bandaid on it.
I don't wanna watch TV.
Let's see a different color.
Let's look at colors.
Let's make a tower.
Let's play with these.
Let's go bye-bye in the car.
Let's go.
Let's take them home to our house.
Let's take our car.
Let's take another two of them girls.
Let's go in there.
Let's go in there.
Let's go here.
Let's play games.
Let's eat dinner now.
Let's eat that.
Let's eat the cake.
Let's eat with a fork.
Let's get washed.
Let's go out of here.
Let's go bye-bye.
Want a tissue.
Need a car.

APPENDIX E (continued)

30:27 I don't want to.
I don't want to make in the plate.
I want 'nother gum drop.
I want 'nother one.
I want this one kind.
I want a red one.
I need give one to Rosa.
I want that.
I wanna look at them.
I wanna use this one.
Can I have some more?
Can I give one to Rosa?
Can I have another one?
Can I have one?
Let's make a house.
Let's get out of here.
Let's get candy the boy.

31:12 I think I want this one with the boy on it.[a]
I think I need a sprayer.[a]
I need some hair.
I need a plate.
I need a barrette.
Can I have a barrette?
Can I have some more water?
Can I have some powder?
Can I have it?
Can I go outside?
Can I go out the front porch?
Can I drive you?
Can I drive you to take your toys?
Can I play with Shari?
Can I make something on this side?
Let's write on something.
Let's make another one.
Let's make another Mommy.
Let's take them to your house.
Let's put them away too.
Let's go in here.
Let's wash her hair over here.
Let's go.
Let's play this.
Let's make some house.
Let's go to sleep.
Let's make a carriage.
Need some yellow.

---

[1]Idiotropic assertions embedded in the O sector after <u>think</u>.

APPENDIX F

Augusta's Idiotropic Questions and Commands with You Subjects

APPENDIX F

Augusta's Idiotropic Questions and Commands with You Subjects

22:11 Don't you step on it, Mommy.

25:10 You sit down.

26:18 You sit right here.
You hold on.

27:24 You drink your cup.
You get in here.
You come.
You clean with soap.
You keep this?

28:17 You clean her.
You wash her.
You wash a Daddy.
You scrub a bathroom.
You clean this.
You scrub off the dish.
You brush off the girls.
You brush off a baby.
You brush it off.
You put some water on it.
You sit down.
You find it.
You find the jack-in-the-box.
You play with me.
You push a buttons.
You push a timer.
You put around timers.
You play.
You push this one.
You play with this.
You play with that.
You help me.
You drive Howie.
You play with timer buttons
You come here.
You drive.

APPENDIX F (continued)

29:16 You put the cover on it.
You hold it for me.
You put up there.
You clean.
You hold him a minute.
You come and sit.
You wind it for me.
You clean the house.
You clean it.
You put me on the horsie.
You wash the baby off?

30:13 You put the water in here.
You make a tower.
You bring some orange juice.
You eat more.
You put back on the cover.
You open that?
You help me?
You help me with this?
You give me one?
You stand this little girl up?
You give me some orange juice?
You fix it?
You help me to fix it?
You take off this?
You fix it again?
You fit them in here?
You make one?

31:12 You draw the mommy.
You take that one.
You make a mommy to carry her.
You make another one.
You hold the mirror, and you hold the baby so I can brush her hair, OK?
You brush her now.
You come over here.
You have this one with the crayons.
You hold the mirror.
You hold this bucket.
You hold like this.
You open it for me.
You hold it up like that.
You get me a box?
You fix this?
You take all the toys to Shari's house?

APPENDIX G

Toys and Books Frequently Mentioned in Text

APPENDIX G

Toys and Books Frequently Mentioned in Text

TOYS:

Fisher-Price Doll House
with plastic furniture
and wooden 'family'

plastic washing machine

plastic bathroom fixtures

ball and tenpins

blocks

assorted coffee cans
and other containers

hobby horse

large teddy bear (50 inches tall)

stuffed lamb, pig, and cat

assorted dolls, doll clothes,
blankets, and doll furniture

wind-up toys, including radio,
and monkey

snap-beads

crayons and paper

BOOKS:

Robert L. Stevenson, A Child's Garden of Verses (Random House)

Baby's Day (A Wonder Book)

APPENDIX H

Constituent Structure of Augusta's Construction-Types

APPENDIX H

Constituent Structure of Augusta's Construction-Types

Cluster

Noun Cluster = ±determiner ±numeral ±adj-of-evaluation ±adj-of-size ±adj-of-age ±adj-of-color ±noun-adjunct +noun nucleus ±post-nucleus Phrase

Adjective Cluster = ±too +adjective nucleus

Possessive

Possessive = +noun ±sign-of-the-possessive ('s)

Phrase

Phrase = +preposition +{nominal / pro-nominal / pro-locative}

Clause

Clause = + { adverbial includer / nominal includer } +Trunk

Clausid

Clausid = +S: ±M: +Y:

Predicatid

Predicatid = +V: ±IO/C: ±B: ±O: ±B: ±IO: ±C:

Appendix H (Continued)

Consociative-Predicatid

Consociative-Predicatid = +V: $+D_v$:

Consociate

Consociate = J: $+D_j$:

Predicator

Predicator = +H: ±D

Trunk

Trunk = +S: +X: ±M +Y:

Unit

Unit = ±F: +T: ±E:

Sentence

Sentence = ±Topic: ±Voc: +U: ±Z: ±Voc: +sentence-intonation[1]

---

[1]Topic, Vocative, and Z tagmemes are analyzed as being on the Sentence layer, but they are outside the propositional construct content of the utterance inasmuch as they do not alter that construct in any way.