

## INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the original text directly from the copy submitted. Thus, some dissertation copies are in typewriter face, while others may be from a computer printer.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyrighted material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each oversize page is available as one exposure on a standard 35 mm slide or as a 17" × 23" black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. 35 mm slides or 6" × 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.



300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA



**Order Number 8801713**

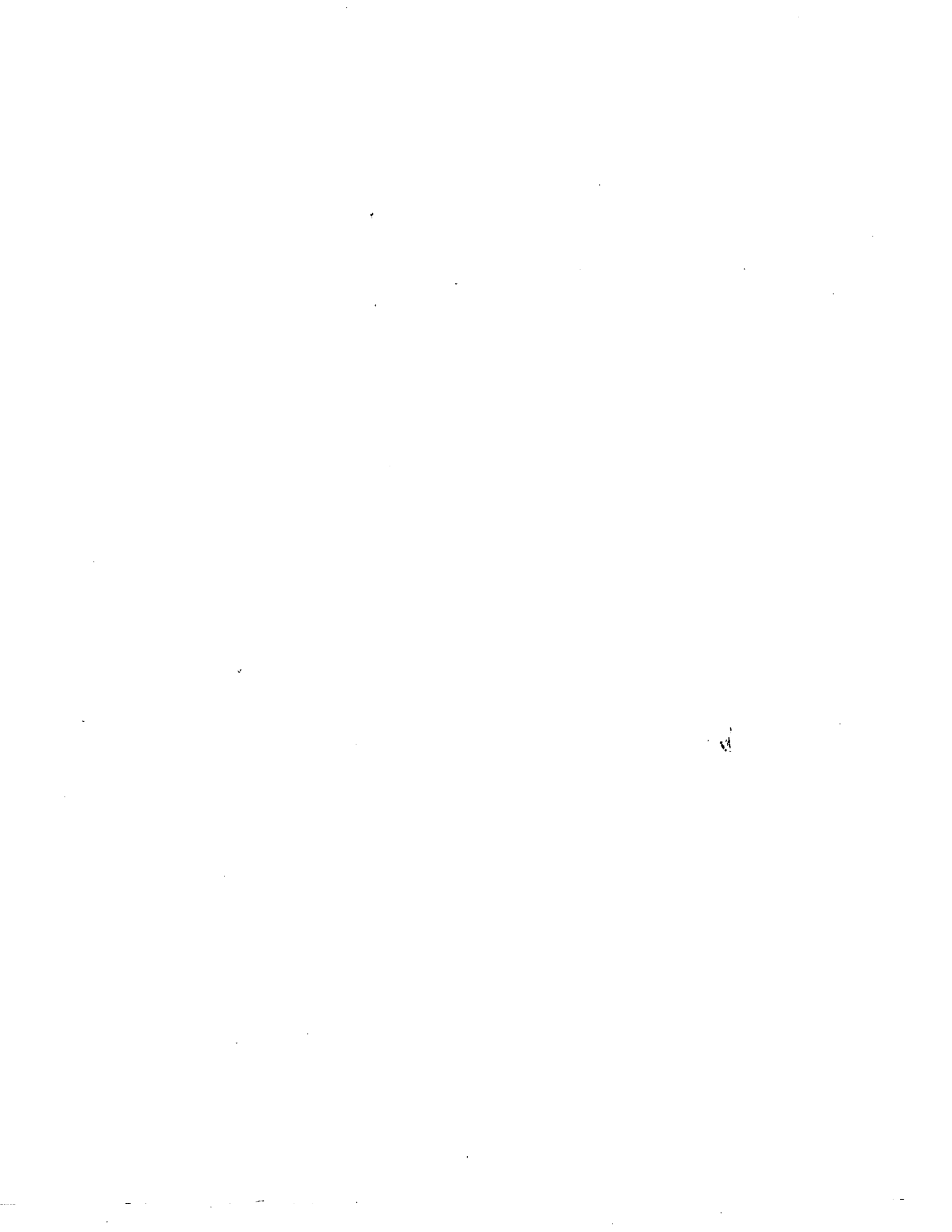
**Form and function in early language development**

**Gerber, Sima, Ph.D.**

**City University of New York, 1987**

**Copyright ©1987 by Gerber, Sima. All rights reserved.**

**U·M·I**  
300 N. Zeeb Rd.  
Ann Arbor, MI 48106



**PLEASE NOTE:**

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark .

- 1. Glossy photographs or pages \_\_\_\_\_
- 2. Colored illustrations, paper or print \_\_\_\_\_
- 3. Photographs with dark background \_\_\_\_\_
- 4. Illustrations are poor copy \_\_\_\_\_
- 5. Pages with black marks, not original copy
- 6. Print shows through as there is text on both sides of page \_\_\_\_\_
- 7. Indistinct, broken or small print on several pages
- 8. Print exceeds margin requirements \_\_\_\_\_
- 9. Tightly bound copy with print lost in spine \_\_\_\_\_
- 10. Computer printout pages with indistinct print \_\_\_\_\_
- 11. Page(s) \_\_\_\_\_ lacking when material received, and not available from school or author.
- 12. Page(s) \_\_\_\_\_ seem to be missing in numbering only as text follows.
- 13. Two pages numbered \_\_\_\_\_. Text follows.
- 14. Curling and wrinkled pages
- 15. Dissertation contains pages with print at a slant, filmed as received
- 16. Other \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





FORM AND FUNCTION IN EARLY LANGUAGE DEVELOPMENT

by

Sima Gerber

A dissertation submitted to the Graduate Faculty  
in Speech and Hearing Sciences in partial  
fulfillment of the requirements for the degree of  
Doctor of Philosophy, The City University of New  
York.

1987

c 1987

SIMA GERBER

All Rights Reserved

This manuscript has been read and accepted for the Graduate Faculty in Speech and Hearing Sciences in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

August 27, 1987      Thomas S. Rees  
Date                                      Chair of Examining Committee

September 28, 1987      Theresa Horshy  
Date                                      Executive Officer

Dr. Margaret Lahey

Dr. Joel Stark

Dr. Louis Gerstman

Supervisory Committee

The City University of New York

## Abstract

### FORM AND FUNCTION IN EARLY LANGUAGE DEVELOPMENT

by

Sima Gerber

Advisor: Professor Norma Rees

The primary purpose of this investigation was to examine the developmental influence between form and function at early language levels. In addition, the study addressed individual differences in form-function development and the use of MLU to describe this development.

Three children were chosen as subjects for the study based on their linguistic levels. The three linguistic levels considered were the single word stage, early syntactic development, and later syntactic development. Communication samples were collected during natural play interactions. These samples were examined with respect to various types of form analysis, two levels of functional analysis (social

function and speech act function), and analysis of form-function combinations.

With respect to functional development, trends included the expression of the majority of speech acts at the first linguistic level and expression of new speech acts such as Routines and Acknowledgments at subsequent linguistic levels. Form-function developments included encoding of frequently expressed speech acts with a range of forms and multifunctional use of frequently produced forms throughout the linguistic stages. Lexical tokens of single words varied relative to uni or multifunctional status, while lexical tokens of multiword combinations were consistently unfunctional.

Form-function developments, such as the use of multiword combinations to express Requests, the emergence and frequent use of the Verb + Object structures for Requests, and the use and non-use of Subjects were explained on the basis of both global and specific functional motivations. Slobin's (1973) notion, "New forms first express old functions and new functions are first expressed by old forms" was extended to the pragmatic domain with respect to speech acts. Evidence for both primacy of form and primacy of function in early development was found.

In terms of individual differences and form-function development, a three-style picture rather than the more typical two-style picture emerged from the data. With respect to MLU, aspects of form-function changed both across and within MLU levels. Finally, the three children demonstrated diversity in form-function combinations at MLUs of 1.75 to 2.25, suggesting that richness in addition to complexity is a hallmark of early syntactic stages of language acquisition.

## Acknowledgments

For many years, I have truly looked forward to the time when I could write these acknowledgments and publicly thank people who have meant so much to me and who have made such unique and distinct contributions to my educational and professional life. I take great pride in sharing these thoughts about my mentors, my teachers, my inspirations, my friends, and my family and imagine each acknowledgment delivered with a drumroll.

Perhaps the greatest moment that can occur in a student's life is the moment when she finds a mentor. In this sense, I have been the luckiest of students, having found Dr. Norma Rees. Dr. Rees, as everyone knows, is a scholar in the truest sense of the word and her thinking has been an unending and expansive source of learning for me in the most satisfying way. To my mentor, Dr. Norma Rees, with great pride for the privilege of being her student.

It is difficult to know where to begin and where to end my thanks to Dr. Joel Stark. Many years ago, I was attracted to the the field of speech and language primarily because of Joel's infectious enthusiasm for the work and his respect for and dedication to the treatment of language impaired children. His charisma

was so powerful that I along with countless other students pursued our careers with energy, integrity, and devotion in unspoken tribute to him. To Dr. Joel Stark, my "facilitator," inspiration, teacher, and friend, with great thanks for his nurturing of me as a professional and as a person.

It has been a great honor to have had the opportunity to work with Dr. Peg Lahey and to have been exposed to her instinctual dedication to quality research. Dr. Lahey's contributions to my work have been so profound, so scientific, and so sound that I shudder to think what I would have done without her. To Dr. Lahey, for sharing her great intelligence and sense of science with me in such a way that I could always comfortably receive them.

Dr. Lou Gerstman, the great student advocate, was there for me when I needed his brilliance, his reinforcement, and his warmth. To Dr. Gerstman for some of the most clever contributions to my work and some of the most delightful hours I spent talking about my dissertation.

My great good fortune did not end with my committee alone. I will always be grateful to the field of speech and language, for through it I met Dr. Carol Prutting. Carol's impact on my work and my life

has gone far beyond her well-known reputation as a respected thinker in the world of speech and language. While I thank her robustly for her enlightening contributions to my dissertation, I thank her most for her beautiful spirit which has touched me and taught me and for her constant affirmation of me.

No study in child language would be complete without some historical perspectives. In this regard, I would like to acknowledge Dr. Maryann Peins, my first professor in speech and language at Douglass College. Dr. Peins served as a model of the consummate professional, adding dignity and wisdom to my first glimpse of the field. Some years later, Robert Rosenbaum and Renee Toueg were inspirations to me as master clinicians who created magic in the air. I would feel most fulfilled if these two teachers were proud of my clinical work.

And to my friends. While all my friends deserve awards for their support, patience, and love throughout this rather long ordeal, one in particular deserves a tribute. Elaine Geller has been so wise, so available, so supportive, so devoted, and so generous in every sense of the word that I can not imagine the past few years without her. Her friendship "in dissertation" as "in life," was constant, comforting, and filled with love and humor.

Susan Longtin served as my personal dissertation advisor, answering endless questions about what to do and how to do it. Her sound advice gave me a sense of stability when it was much needed.

These acknowledgements would not be complete without a tribute to the many language impaired children I have worked with, as they are truly the ones who motivated my pursuit of a doctorate in hopes of finding some answers to the mysteries of communication problems.

And finally, to Erica Sucher, who helped me find myself and like what I found.

To my family, not so much an acknowledgment as a dedication. I dedicate this work to my sister, Lois Gerber Blau, whose deep love and friendship have been and always will be two of the great gifts I have received in life.

And above all, I dedicate this work to my parents, Anna Gerber and Martin Gerber, with great love, respect, and appreciation for their unique contributions to my nature and nurture. Upon completion of this degree, I find myself most thankful that I could share the joy of the accomplishment with my mother and father who have waited long and patiently for this pleasure.

## TABLE OF CONTENTS

Chapter		
I.	INTRODUCTION.....	2
II.	REVIEW OF LITERATURE.....	6
	Research Issues.....	8
	Domains of Language.....	12
	Functional Taxonomies.....	19
	Form Development and Functional Orientation.....	33
	Individual Variation.....	41
	Measures of Language Development- Mean Length of Utterance.....	49
	Conclusion.....	55
III.	METHOD.....	58
	Subjects.....	58
	Procedures.....	62
	Communication Samples.....	64
	Transcription.....	65
	Coding.....	65
	Form.....	66
	Function.....	70
	Productivity.....	87
	Imitations.....	88
	Reliability.....	92
	Analyses	
	Development of form, function, and form-function units.....	93
	Form-function.....	95
	Child clusters and language clusters.....	97
	MLU and the development of form-function relations.....	99
IV.	RESULTS.....	100
	Social Function	
	Distribution of Social Function.....	100
	Social Function of Comments.....	103
	Speech Act Function	
	Distribution of Speech Act Categories.....	111
	Productive Speech Acts.....	120

Speech Acts: Form.....	126
Discourse-Acknowledgments: Form.....	144
General Form Types.....	148
Specific Form Types	
Distribution of Most Frequent Forms.	150
Distribution of Productive Forms....	153
Forms: Speech Acts.....	160
Single Words.....	169
Multiword Combinations.....	176
Lexical-Syntactic Development:	
Speech Acts	
Verbs.....	188
Subject-Verb-Object Relations.....	190
New Forms.....	195
New Functions.....	199
Entropy - Diversity.....	201
Noun Lovers Versus Noun Leavers.....	204
Clusters	
Child Clusters.....	212
Language Clusters.....	215
The Limited Significance of MLU.....	223
Rio - LL1a Compared to LL1b.....	223
Rio - LL2a Compared to LL2b.....	226
Rio - LL1b Compared to LL2a.....	228
Trends.....	232
Summary of Results.....	234
V. DISCUSSION.....	242
The Relationship Between Form and	
Function.....	247
Social Function.....	248
Speech Act Function.....	253
Routines.....	256
Speech Act Measures and	
Individual Variation.....	258
Form-Function: Descriptive Perspective.	260
Discourse-Acknowledgments.....	265
Unifunctional versus Multifunctional	
Use of Forms.....	273
Use of Nouns Relative to Function...	277
Form-Function: Explanatory Perspective.	279
Primacy of Form - Primacy of Function..	289
Clusters.....	293
Mean Length of Utterance.....	302
Realities.....	307
VI. SUMMARY, CONCLUSIONS, AND CLINICAL	
IMPLICATIONS.....	312
Summary.....	312
Conclusions.....	318
Clinical Implications.....	322

## Appendix

A.	Toys Used for Play Interactions.....	331
B.	Conventions for Calculating MLU.....	332
C.	Communication Samples.....	333
D.	Use of Non-imitative Verbs Relative to Speech Acts.....	359
	Bibliography.....	363

---

## LIST OF TABLES

1.	Halliday (1975) - Functions of Language.....	21
2.	Dore (1975) - Primitive Speech Acts.....	24
3.	McShane (1980) - Communicative Functions.....	27
4.	Wetherby and Prutting (1984) - Communicative Functions.....	29
5.	Longtin (1984) - Functions.....	39
6.	Linguistic level, MLU, and chronological age for each sample.....	60
7.	Social functions.....	74
8.	Speech act functions.....	78
9.	Proportion of social functions at Linguistic Levels 1, 2, 3.....	101
10.	Proportion of Comments which was interactive vs. non-focused/non-interactive at Linguistic Levels 1,2,3.....	104
11.	Proportion of Comment on Objects which was interactive vs. nonfocused at Linguistic Levels 1, 2, 3.....	108
12.	Proportion of interactive and non-focused Comment on Action/State at Linguistic Levels 1, 2, 3.....	109
13.	Distribution of major speech act categories at Linguistic Levels 1, 2, 3.....	113
14.	Most frequently expressed speech acts at Linguistic Levels 1, 2, 3.....	114
15.	Productive speech acts expressed at Linguistic Levels 1, 2, 3.....	122

---

16.	Productive speech acts "shared" by the boys at Linguistic Levels 1, 2, 3.....	124
17.	Forms used to realize the most frequently expressed speech acts at Linguistic Level 1.....	128
18.	Forms used to realize the most frequently expressed speech acts at Linguistic Level 2.....	133
19.	Forms used to realize the most frequently expressed speech acts at Linguistic Level 3.....	139
20.	Lexical diversity of Requests and Comments at Linguistic Levels 1 and 2.....	141
21.	Proportion of general form types at Linguistic Levels 1,2,3.....	149
22.	Most frequently produced forms at Linguistic Levels 1 and 2.....	151
23.	Productive forms at Linguistic Levels 1 and 2.....	154
24.	Diversity of most frequent and productive forms at Linguistic Levels 1 and 2.....	158
25.	Speech acts produced by the most frequently produced forms at Linguistic Level 1.....	162
26.	Speech acts produced by the most frequently produced forms at Linguistic Level 2.....	165
27.	Functional status of single words occurring more than once at Linguistic Levels 1 and 2.....	170
28.	Form types and functional status of single words occurring more than once at Linguistic Levels 1 and 2.....	173
29.	Speech acts of single word forms used more than once at Linguistic Levels 1 and 2....	175
30.	Type-token ratios of multiword combinations at Linguistic Levels 1, 2, 3.....	177

31.	Proportion of multiword combinations which was interactive vs. proportion of total sample which was interactive at Linguistic Level, 2, 3.....	178
32.	Proportion of speech act types of multiword combinations at Linguistic Levels 1, 2, 3..	180
33.	Proportion of total sample and proportion of MWC which was Requests.....	182
34.	Proportion of multiword combinations which occur more than once at Linguistic Levels 1, 2, 3.....	185
35.	Functional status of multiword combinations occurring more than once at Linguistic Levels 1, 2, 3.....	186
36.	Speech act functions of verb structures at Linguistic Level 2.....	191
37.	Proportion of old and new speech acts expressed by new forms at Linguistic Levels 1b, 2a, 2b.....	197
38.	Proportion of new forms relative to speech acts.....	198
39.	Type-token ratios of single nouns in total sample at Linguistic Level 1.....	207
40.	Speech acts expressed by nouns at Linguistic Level 1.....	209
41.	Forms used to realize Comment on Objects at Linguistic Level 1.....	211

---

## LIST OF FIGURES

1.	Analysis performed on communicative acts.....	67
2.	Distribution of major speech act categories at Linguistic Levels 1,2,3.....	117
3.	Relative entropy of form-function combinations as a function of MLU.....	202
4.	Language clusters at Linguistic Level 1.....	216
5.	Language clusters at Linguistic Level 2.....	218

---

Natural science does not describe and explain nature; it is part of the interplay between nature and ourselves; it describes nature as exposed to our method of questioning.

Werner Heisenberg  
Physics and Philosophy

The great tragedy of science-the slaying of a beautiful hypothesis by an ugly fact.

Thomas Henry Huxley  
"Biogenesis and Abiogenesis"

...just as every form contains its function, and exists by virtue of it, so every function finds or is engaged in finding its form. And, furthermore, while this is true of the every-day things we see about us in nature and in the reflection of nature we call human life, it is just as true, because it is a universal law, of everything that the mind can take hold of.

Louis H. Sullivan  
Kindergarten Chats

## CHAPTER I

### INTRODUCTION

In 1970, Lois Bloom's book, Language Development: Form and Function in Emerging Grammars, set the study of child language moving in new directions. With this and other seminal works, the world of child language was introduced to theoretical issues which would significantly affect future research. Two of these issues, the study of child language within a synergistic framework (i.e., form and function) and the study of child language in the context of cognitive and social development have proven to be pervasive themes since the 1970's. While interest in "emerging grammars" has expanded to interest in emerging pragmatic-linguistic systems, the question of the relationship between form and function persists as does the consideration of more global theoretical frameworks.

During the past ten years, research in language acquisition has been directed to the study of pragmatic abilities and the social contexts in which these and

other language abilities emerge. Three aspects of the study of pragmatic development served as the motivation for the research reported here. First, the proposal that children at prelinguistic and early linguistic stages of development communicate a range of intentions despite limited linguistic means has clearly been supported. During the past decade, a variety of functional taxonomies have been developed to describe the intentions expressed by young language learners. The role of functional motivations in the development of grammar has been considered (Halliday, 1975; Bates and MacWhinney, 1979), as has the developmental interaction between the child's use of language and the form of his language (Nelson, 1973; Longtin, 1984). The primary motivation for the study presented here was an interest in examining the interactional and/or directional influence between form and function from beyond first words through early syntax.

A second source of motivation for the study came from the recent work on individual variation. The research of the last decade reflects a growing interest in identifying individual differences in various domains of language development and in defining the place of these differences in language learning (Nelson, 1981). While individual styles have been noted in the form of language, the question of

individual differences relative to pragmatic aspects of language have not received as much attention. Further, the pragmatic differences that have been found (Bates, Bretherton, and Snyder, in press) are sometimes attributed to the confounding of form and function. Therefore, the study presented here examined individual differences in speech act development and attempted to identify potential sources of confounding between form and function. The question of invariant and/or individual patterns of development within pragmatics was addressed.

The third source of motivation for the study came from an interest in examining the use of traditional measures of linguistic development, such as Mean Length of Utterance (MLU), for describing pragmatic development. Recent research has questioned the relationship of MLU to chronological age (Scarborough, Wyckoff, and Davidson, 1986) and to grammatical development (Klee and Fitzgerald, 1985). Beyond certain ages and certain linguistic levels, MLU has been considered less reliable for inferring linguistic knowledge. A different line of criticism questions the units being measured, suggesting that MLU may be based on adult units in the child's utterance rather than on child units (Peters, 1983). The question of whether MLU is an appropriate measure of pragmatic development

has been considered (Woilner, 1983), but not examined in previous research. Therefore, the final issue addressed in this study was the description of form and function within and across MLU stages.

With these three issues in mind, the following research questions were posed:

1. What developmental patterns can be identified in the emergence of forms, functions, and the relationship between form and function at varying linguistic levels?
    - a. What trends versus individual styles can be identified in the productivity and frequency of use in language form and language function when examined separately?
    - b. What trends versus individual styles can be identified in form and functional development when examined synergistically?
  2. How do children "cluster" with respect to specific aspects of form and function and how do aspects of form and function "cluster" across children?
  3. Do form, function, and form-function combinations change within and/or across MLU levels?
    - a. What changes can be described in each domain when MLU remains constant?
    - b. What changes can be described in each domain when MLU increases?
-

## CHAPTER II

### REVIEW OF THE LITERATURE

More than a decade ago, the world of child language was introduced to the study of pragmatics. This introduction influenced the research in language development in at least two ways. First, research interests expanded, encompassing areas new to the discipline (e.g., speech acts, conversational skills, cohesion) as well as areas which historically had not been considered within psycholinguistics (e.g., prelinguistic communication and social development). The second more controversial outcome was the proposal of a functionalist approach to grammar (Bates and MacWhinney, 1979; Halliday, 1975).

The functionalist approach provided a distinct alternative to prevailing views of the origins of grammar. Whereas the Chomskian view attributes the learnability of language to the child's a priori knowledge of "the structure and content of an autonomous and abstract grammatical component" (Bates and MacWhinney, 1979, p.168), the functionalist view

---

attributes the learnability of language to the child's discovery of the functional constraints dictating the form of the grammar. While supporters of the Chomskian model suggest that the syntactic categories are primary and "in no way derived from or isomorphic with meaning" (Ibid.), supporters of the functionalist model consider the grammar a secondary system, derived from semantic and pragmatic constraints of the communication task. According to the functionalists, "the child's acquisition of grammar is guided not by abstract categories, but by the pragmatic and semantic structure of communications interacting with the performance constraints of the speech channel" (Ibid.). In the functionalist approach, pragmatic and semantic constructs such as speech acts, discourse structure, lexical semantics, sentence processing strategies, and so forth influence the development of grammar.

Bates and MacWhinney (1979) proposed both weak and strong versions of the functionalist hypothesis. In the former, there is simply a correlation between the surface grammatical devices and communicative functions in combination with processing constraints. In the latter, grammatical forms are "'determined' and 'maintained' by these same communicative functions and processing constraints" (p. 174). While the weak version is compatible with either Chomskian or

functionalist models of language development, the strong version is compatible with the functionalist approach only. Bates and MacWhinney suggest that evidence for the strong version would include the child's acquisition of a function, such as topicalization, prior to the acquisition of syntactic devices, such as subject and word order. Further, discourse notions such as topicalization are seen as the basis of the child's initial hypotheses about the nature of syntactic categories and word order rules.

The proposal that the child's initial learning of form is guided by the communication task is an intriguing one. While Bates and MacWhinney (1979) consider the development of specific linguistic devices from a functional perspective (see also Atkinson, 1979), an even more global account of functional foundations of language learning was proposed by Halliday (1975). The initial motivations for the research reported here was the author's interest in both global and specific functionalist approaches to the development of form.

### Research Issues

Three issues central to the study of child language motivated the questions posed in this

research. These three issues, domains of language, individual variation, and formal measures of language development, have emerged from theoretical and empirical concerns in the study of language acquisition. While each issue has had its specific influence on the work reported here, the interdependence among the issues has significantly affected the nature of the research questions.

The first issue, domain(s) of language to be studied, has undergone its own development in the history of child language research. As the emphasis shifted from syntax to semantics to pragmatics, interest also grew in the synergistic development of all domains of language. As Bloom (1976) states,

...the development of language advances on several fronts at the same time, and it is necessary every now and then to reconsider that, for the child, the three components of language form, language content, and language use come together in the process of language learning (p.1).

The questions posed in the present study pertain to the relationship between two domains of language: form and function. These questions emerged from the author's study of language impaired children. For the study of language disorders, the question of the independence and/or interdependence of form and function is particularly relevant. For example, the

effects of primary deficits in function can be studied relative to the acquisition and use of form.

With respect to the second issue, individual variation, a great deal of the research in the last decade has been devoted to identifying individual differences in all domains of language (form, content, use). Prior to this, identification of linguistic universals was the goal of much research (Brown, 1973; Slobin, 1973), with the result that individual differences were "almost completely ignored" (Nelson, 1981). Nonetheless, these differences were discussed by Bloom as early as 1970. From that point on, individual variation was noted in the form (Nelson, 1973; Bloom, Lightbown, and Hood, 1975), the function (Dore, 1975), and the process (Peters, 1977; Bretherton, McNew, Snyder, and Bates, 1981) of language acquisition. Today, these individual differences are considered essential to an understanding of language and language learning.

The third issue concerns the measurement of language, specifically the use of measures such as Mean Length of Utterance (MLU) to mark language development. While MLU has a long history in the study of language acquisition (Nice, 1925), Brown's (1973) use of MLU in the description of morpho-syntactic development firmly

---

rooted the measure in child language research. More recently, the relationship between MLU and grammatical development has been questioned (e.g., Klee and Fitzgerald, 1985) as has the relationship between MLU and pragmatic development (Wollner, 1983). Further, as a result of the identification of expressive styles where gestalt units larger than morphemes are produced (Peters, 1977), the use of MLU for describing language development across children has been reconsidered.

The study presented here is an effort to explore the synergistic relationship among these three issues within the context of developmental pragmatics. While function may refer to many aspects of pragmatic abilities, the focus of this research was the development of speech acts. With speech acts serving as the window, the independence and interdependence of form and function during the course of early language development was explored. In the following discussion, each of the three issues motivating this study and the interrelationship among them is reviewed in order to provide the theoretical and empirical underpinnings for the present research.

### Domains of Language

A review of the work in child language during the last 20 years reflects three distinct research perspectives, familiarly referred to as syntactic, semantic, and pragmatic. These changing perspectives have been accompanied by at least two major shifts in the nature of child language research. First, each perspective has assumed a different unit of analysis: syntactic analysis requires at least two word utterances, semantic analysis can be accomplished with only single words, and pragmatic analysis can even be based on prelinguistic signals (Golinkoff and Gordon, 1983).

Secondly, the focus on different domains of language has led to embedding the study of child language into wider theoretical contexts, encompassing other disciplines within the area of child development. When the charge of child language was to write rules which characterized the child's discovery of syntax, the research was firmly rooted in linguistics and psycholinguistics. However, when the child's early utterances were considered relative to their content, cognitive achievements underlying content were of interest. At the time, "...the child's cognitive resources seemed sufficient to account for the

acquisition of both the semantic underpinnings and the syntactic structure of language" (Gordon and Golinkoff, 1983, p.6). Most recently, the child's learning of forms and content has been considered with respect to, or sometimes secondary to, the functions which language serves. This pragmatic focus has placed language acquisition in an even wider context, as large as social interaction and culture.

Despite the controversies which currently rage in child language (e.g., conflation of communication and language, limits of cognitive accounts of language, transition from prelinguistic to linguistic communication- see Golinkoff and Gordon, 1983 for discussion of these issues), the trend toward the synergistic study of language domains is now well-established. This synergistic view of language, elegantly proposed by Bloom (1976), suggests that language development can only be understood in terms of the dynamic interaction between and among components during the developmental process.

Language development is synergistic, integrative, and multilateral rather than simply additive, and proceeds vertically through different 'levels of knowing,' as well as horizontally, in that eventually all aspects of the linguistic system the child is learning figure in what he is learning. Children do not add one bit of information about language to another bit of information; rather, there is a progressive transformation of old information in relation to new information (p. 2).

The fact that simultaneous development or what Bloom refers to as "horizontal language development" takes place can be illustrated in various ways. For example, considering the relationship between the lexicon and pragmatics, Bloom suggests that the pragmatic value of a word will depend on how useful the lexical item is in different situations. Because relational words like "more" and "there" can refer to many different objects and events, their more frequent use may be pragmatically motivated.

Describing child language development as variable rather than categorical, Bloom uses the example of the length of child utterances to illustrate the interaction of form, content, and use in language development. Three co-occurring variables - knowledge of the lexicon, grammatical complexity, and discourse - contribute to the child's output by either constraining or facilitating language behavior. For example, discourse factors, such as the relation of the child's utterance to the larger linguistic context, can be shown to affect the length of the child's utterance. In this regard, Bloom, Miller, and Hood (1975) found that children used longer sentences when they had previously said a part of the utterance (suggesting some kind of expansion) or when the adult prompted an expansion or repetition of the utterance. On the other

hand, child utterances that were contingent upon prior adult utterances were not only shorter than spontaneous utterances, but occurred far less frequently than spontaneous or non-contingent speech. Bloom (1976) suggests, therefore, that discourse factors can be identified which facilitate or constrain the child's language.

Continuing with the example of variable sentence length, Bloom (1976) notes that in addition to the separate effects of lexical variation, discourse variation, and grammatical complexity, these factors also operate as co-variables to influence the child's output at any point in time. In other words, these variables combine in different ways that determine whether it is easier or more difficult for the child to produce longer utterances. From this example, Bloom concludes that "language development is considerably more complex than any theory that tries to 'explain' child language purely in terms of only syntax or only semantics or only pragmatics would allow" (p. 19).

If language can be understood only as a dynamic, multi-determined process, then we are obliged to study any specific area of development within an interactional framework. It is clear that attempting to characterize language development by focusing on one

aspect of the communication system only, in a sense lifting it from its supporting systems, may actually distort or at least ignore certain variables critical to the developmental process. In this sense, pragmatics may assist in deriving research questions which reflect a synergistic view of language development.

While earlier research in child language addressed the question "What do children know about language?," pragmatically-motivated research began by addressing a different question, namely, "What do children do with language?" Shifting the question from what children know to what children do produced an accompanying shift in the units of speech considered for analysis. "When the focus is on communication rather than the structure of language, speech acts are more useful units than are sentences" (Rees and Gerber, forthcoming).

The early pragmatic work in child language development was based to a large extent on the notion of speech act analysis as originally discussed by Austin (1962) and Searle (1969). Searle, for example, offered a general theory of speech acts suggesting that these acts are the basic units of linguistic communication. Searle proposed that at least three

acts occur simultaneously when a speaker utters a sentence:

1. the utterance act - the speaking itself
2. the propositional act - the sentence's propositional content
3. the illocutionary act - the speaker's intention in uttering the sentence

The perlocutionary act which may or may not occur refers to the speaker's effect on the listener.

Rees and Gerber further clarify the distinctions between speech acts and sentences in the following description.

Speech acts....are characterized by intended interactive effects between speaker and listener. The following definitional attributes apply: speech acts have a functional rather than a structural character; they are communicative in nature; they occur in conversation; they perform acts as well as contain words and meanings; and they are intentional and goal-directed.

Communicative intention and illocutionary force were the first pragmatic constructs to be explored in child language. In fact, most of the early research in developmental pragmatics was directed to the study of the child's acquisition of speech acts or communicative intentions. From the outset, the role of the pre-linguistic stage in the development of early intentional communication was noted. For example, Bruner (1975, 1978) discussed the significance of the prelinguistic period for creating the framework for

language development. Bruner suggested that communicative intentions, as well as other aspects of pragmatic development, have their roots in the child's early interactive experiences. Presenting a functional basis for the development of language, Bruner suggests that the child's sensitivity to a linguistic system develops "in the service of fulfilling certain functions- predicting the environment, interacting transactionally, getting to goals with the aid of another. These functions are first fulfilled primitively by pre-linguistic communicative means." (Bruner, 1978, p.201).

Other researchers also proposed that the ability to communicate specific intentions emerges in the pre-linguistic period (Halliday, 1975, Greenfield and Smith, 1976, Bates, Benigni, Bretherton, Camaioni, and Volterra, 1979). At this stage, the child communicates early performatives, such as getting the adult to do something or getting the adult's attention with vocal and/or gestural means. These non-verbal expressions of early communicative intents are seen as developing into verbal means of expressing particular speech acts, suggesting overall continuity from the prelinguistic to the linguistic stages of development.

## Functional Taxonomies

One of the major contributions of the early research in pragmatics was the development of taxonomies characterizing the communicative intentions which children express at different stages of linguistic development. Prior to the development of these taxonomies, both Piaget (1926) and Bloom (1970) had addressed the notion of coding functions of child language. Bloom (1970), for example, categorized the function of speech events as comments, reports, directions, and questions. Although the more recent frameworks capture similar aspects of language development, the units of these systems differ from one another: consider Halliday's (1975) functions of language, Bates, Camaioni, and Volterra's (1975) performatives, Dore's (1975) primitive speech acts, McShane's (1980) communicative functions; and Dore, Gearhart, and Newman's (1978) conversational acts. While some researchers attempted to characterize the development from prelinguistic to linguistic expression in the same child or children (Halliday, 1975), others examined the range of communicative acts at a particular stage of linguistic development (Dore, et. al., 1978). Despite these differences, the development

---

of functional taxonomies had a profound impact on the study of language acquisition and language disorders.

The broadest description of early pragmatic development has often been considered that of Halliday's (1975). Halliday traced his son's developing functional system from the point where function of language and use of language were synonymous to the stage where functions and meanings could be distinguished. While the functions of language remained basically finite, the child's acquisition of a lexicon and a grammar in addition to his growing understanding of the requirements of social interaction created the greater capacity to communicate (Rees and Gerber, forthcoming).

Halliday describes three phases in the development of functions of language and by doing so, provides a basis for considering the continuity of language development from a functional perspective. Halliday traces the child's use of functions of language suggesting how the six original Phase I functions (see Table 1) evolve into two "macro-functions," the pragmatic and the mathetic, in Phase II. In reference to these more global functions of language, the pragmatic, which has its origins in the instrumental, regulatory, and interactional functions of language, is

---

TABLE 1 HALLIDAY (1975)-FUNCTIONS OF LANGUAGE\*

<u>AGE RANGE</u>	<u>FUNCTIONS</u>	<u>COMMUNICATIVE FORMS</u>
PHASE I	<u>Instrumental</u> general demand specific demand	
	<u>Regulatory</u> command	
9-12 months	<u>Interactional</u> initiation of interaction  response to interaction	Discriminable vocalizations including some imitation of recognizable words
	<u>Personal</u> participation with others  withdrawal from others	
12-18 months	<u>Heuristic</u> demand for a name confirmation acknowledgment of name	Vocalizations prosodic variants words occasional word combinations
	<u>Imaginative</u> preferred play sound play rhyming	
Phase II	<u>Pragmatic</u> language which enables the child to interact with and manipulate the environment	
18-24 months	<u>Mathetic</u> language which enables the child to learn about his environment	Utterances and tone contours

\*adapted from Rees and Gerber (forthcoming)

seen as the child's use of the symbolic system to act on his world. The mathetic, which has its origins in the personal, heuristic, and interactional functions of language, is seen as the child's use of the symbolic system to learn about his world and reflect on it. In the final phase, Phase III, two "meta-functions," the ideational and the interpersonal, dominate the use of language. Halliday characterized this adult phase (which his son, Nigel, approached at about three years of age) as the point where utterances are multifunctional, reflecting interpersonal (interaction with others), textual (the relationship of utterances to preceding and subsequent utterances), and ideational functions (expressing meaning) as well as functions relative to the social context.

Halliday's discussion of the development of function encompasses all stages of communicative development including the emergence of the basic functions, the reorganization of the relationship between form and function during language development, and the stage at which multifunctional use of language can be identified (Chapman, 1981). Due to the far-reaching scope of Halliday's approach, comparisons to other systems are difficult to make beyond the initial phase.

While Halliday's system is the most comprehensive attempt to account for language development within a functional framework, Dore's (1975) landmark study was in fact the first to consider holophrastic utterances from the perspective of a taxonomy of "primitive speech acts" (see Table 2). According to Dore, primitive speech acts are composed of a "rudimentary referring expression" (a word), and a "primitive force" (an intonation pattern). The power of the communicative system is reflected in the child's ability at the single word stage to use the same word to communicate different intentions by varying intonational contour. For example the word "mama" could be used to perform three different primitive speech acts - labeling, requesting, and calling. Each act was associated with a different intonational pattern.

Unlike Halliday, Dore (1975) proposed a discontinuous view of the development of linguistic entities to accomplish communicative functions. He suggested that the referring and predicating expressions that make up the propositional content of the speech act are emergent language universals which become grammaticalized into the categories of the particular language. Dore considers Halliday's view (1973) that communicative functions determine the structure of language "unreasonably extreme" (p.39).

TABLE 2 DORE (1975)-PRIMITIVE SPEECH ACTS \*

<u>AGE RANGE</u>	<u>PRIMITIVE SPEECH ACTS</u>	<u>COMMUNICATIVE FORMS</u>
about 1 year	labelling repeating answering requesting action requesting objects calling	Single word utterances plus intonation
contour	greeting protesting practicing	

\*adapted from Rees and Gerber (forthcoming)

These two systems - Halliday's and Dore's - have had a pervasive impact on both developmental psycholinguistics and developmental language disorders. It is, in fact, now difficult to imagine studying the language learning process, normal or delayed, without addressing the issue of the function that the child's utterances perform. The ultimate advantages and disadvantages of using one system or another as a pragmatic starting point is yet to be resolved. Both Halliday's (1975) and Dore's (1975) taxonomies have been used extensively and as a result, have been subject to criticism. For example, in reference to Halliday's taxonomy, Schwartz (1982) suggests that the proposed sequence of development of functions may not be universal. In reference to Dore's primitive speech acts, Schwartz suggests that the consistent use of intonation needed to code these acts may not be found in all children. Further, since Dore's primitive speech acts require the use of a lexical item, the use of non-linguistic devices such as gestures is ignored. Finally, both Halliday's and Dore's category definitions have been considered too vague for practical use.

More recent systems devised for coding communicative intent offer specific category definitions and include gesture and/or vocalizations in

---

the analysis (Schwartz 1982). For example, McShane's (1980) system consists of five major communicative functions, each of which subsumes more specific speech act types (see Table 3). Schwartz (1982) considers the inclusion of a conversation category as one of the five major functions a distinct advantage of this taxonomy.

McShane's work yields information relative to the frequency with which six children ranging in age from 1.0 to 2.0 years expressed certain communicative functions (the majority of utterances occurring when the children were between 1.8 and 2.0 years). In addition, McShane traces the children's development from use of non-lexicalized to lexicalized utterances for the expression of each function. McShane's data indicated that the first communicative intentions expressed were pragmatic ones, namely requesting, directing attention, giving, and protesting. When words were used to perform these pragmatic acts, "it was clear that at least some of the words used...were not comparable to their homonymic equivalents in the adult language, in that these words were functionally restricted to certain speech acts or certain types of speech acts." (p.146).

Recent studies of language impaired children have also yielded taxonomies of communicative functions. In

TABLE 3 McShane (1980)-COMMUNICATIVE FUNCTIONS

<u>AGE RANGE</u>	<u>COMMUNICATIVE FUNCTIONS</u>	<u>COMMUNICATIVE FORMS</u>
	Regulation Attention Request Vocative	
	Statement Naming Description Information	
	Exchange Giving Receiving	Non-lexicalized utterances  Lexicalized utterances
1.0-2.0	Personal Doing Determination Refusal Protest	
	Conversation Imitation Answer Follow-on Question	

this genre, Wetherby and Prutting's (1984) work is illustrative. In their study of the cognitive-social and communicative abilities of four autistic and four normal children, the authors derived a functional system which characterized the communicative intent expressed at prelinguistic and early language stages (see Table 4). These functions were described further as interactive (e.g., Request Object, Request Action, Routine, Acknowledgment of Other) and non-interactive (Self-Regulatory, Label, etc.). Among the findings, quantitative and qualitative differences were noted between the autistic and normal children in the expression of communicative function. For example, the autistic children expressed a more limited repertoire of communicative functions and primarily used communication to achieve environmental ends (e.g., Request Object, Request Action, and Protest). Use of language to direct the adult's attention or to label or describe referents was typical of the normal but not the autistic children.

The literature reviewed to this point reflects the focus of one line of research within the area of functions of language in context. To summarize, the attempt in this work has been to characterize the range of functions, communicative intentions, or speech acts expressed in early communication with varying emphases

TABLE 4 WETHERBY AND PRUTTING (1984)-COMMUNICATIVE FUNCTIONS

<u>AGE RANGE</u>	<u>COMMUNICATIVE FUNCTIONS</u>	<u>COMMUNICATIVE FORMS</u>
	INTERACTIVE	
NORMAL CHILDREN- 1.0-2.2	Request Object	
	Request Actions	
	Request Social Routines	
	Request Permission	
	Request Information	
	Protest	
AUTISTIC CHILDREN- 6.11-11.10	Acknowledgement of other	Gestural, vocal, or verbal
	Showing-off	
	Comment	
	NON-INTERACTIVE	
	Self-regulatory	
	Label	
	Performative	
	Exclamatory	
	Reactive	
	Non-focused	

on the pre-linguistic period, non-linguistic communication, developmental sequences, and frequency of use. Regardless of the particular approach, the early research in the development of communicative function revealed that normal children at the beginning stages of language development express a range of communicative intentions.

The taxonomies discussed thus far share the distinction of being attempts to capture the functions or intentions the young child expresses with more global functional attempts (Halliday, 1975), more formal speech act attempts (Dore 1975), and more eclectic attempts (McShane, 1980; Wetherby and Prutting, 1984) having been developed from this single motivation. Differences in the resulting taxonomies reflect varying philosophical points of view as well as differences in the degree to which discourse and social context have been considered, differences in the developmental levels of the children studied, and differences in the dimensions used for coding (e.g., formal similarity, interclausal semantic relations, or discourse relations) (Chapman, 1981).

Chapman (1981) suggests that existing taxonomies address either the utterance level, the discourse level, or the social level of functional analysis. In

---

addition to these differences in the units of analysis, variant manifestations of functional taxonomies can be attributed to the range of developmental and linguistic levels of the children studied. Few studies have addressed speech act development in children as they progress across pre-linguistic through linguistic levels. While Halliday and Mc Shane's taxonomies were derived from children moving across chronological ages and therefore, across linguistic levels, the relationship of speech act development to specific language stages was not described in these studies. Development of a taxonomy of speech acts derived from samples obtained at different linguistic levels would provide a single framework from which one stage of speech act development could be related to another as well as reveal developmental form changes in the way functions are expressed over time, address existing gaps in our understanding of how speech act development relates to form-content development, and identify potential confounding of form and function which affect speech act definitions.

In light of the recent, pervasive use of taxonomies to capture aspects of communicative development, we are reminded of the inherent limitations of such systems by Bloom (1976).

"Taxonomies of linguistic behaviors can lead to missing

the forest for the trees - to overlooking the relatedness and interactions among different aspects of the linguistic system that the child is learning" (p.2). With this problem in mind, the task may be to develop taxonomies which are pragmatically motivated, yet allow for a synergistic conceptualization of language development.

In retrospect, although much of the early pragmatic research had a speech act perspective, the success of the effort was not entirely successful. For example, Levinson (1983) notes,

...despite much use of the terms speech act and performative, the recent work on language acquisition does not really support the importance of the concept of speech act at all; rather it emphasizes the essential roles that communicative intention, utterance function and the interactive context play in the acquisition of language (p.282).

While this criticism may apply to some of the work discussed above, Dore's (1978) research in the area seems particularly faithful to and supportive of the notion of speech act as adapted to the study of language development. Dore has proposed that the speech act is an appropriate unit to use for the analysis of the development of communicative competence, although he points out that application of the concept to child language presents certain problems. For example, the speech act terminology can

only be applied to prelinguistic behavior in a "metaphorical sense." Further, "the description of child language in terms of speech acts does not eliminate the need to explain the emergence of grammar" (Dore, 1978, p.90).

Dore's description of speech acts clarifies why this unit of analysis might be particularly compelling to researchers interested in functional and synergistic approaches to the study of child language.

At the most fundamental level, speech acts are units which simultaneously manifest the structure, content, and function of language. The structure of the speech act is in its grammar. The content consists of the conceptual substance of the proposition and it constitutes what is talked about. Its function is its illocutionary force which consists of the speaker's intentions and expectations...The speech act seems to be the most comprehensive unit of analysis because it accomodates not only the grammaticalization of conceptual content and social understanding, but also the intentions motivating the utterance and the speaker's expectations regarding the consequences of it. (Dore, 1978, p.108).

#### Form Development and Functional Orientation

In addition to the study of the development of speech acts, a second line of research within the area of functions of language can be identified. This work addresses the relationship between the development of form and functional systems particlarly in terms of individual differences. In an early report along these

lines, Dore (1974) noted form differences ("word-baby" versus "intonation-baby") in two children's expression of Primitive Speech Acts (PSA). Dore suggested that these form differences may serve as the basis for the development of different syntactic acquisition strategies. Dore also noted differences between the children in the expression of linguistic function. Differences were found in the range of PSAs expressed, the number of productive PSAs expressed, and the uses to which language was put. In reference to the latter, Dore described two functional styles, one in which the child used language "primarily to declare things about her environment" (referred to as "code-oriented") and the other in which the child used language mainly to "manipulate other people" (referred to as "message-oriented").

While Dore discussed form and function styles independently, Nelson (1973) was the first to suggest a relationship between the two. Nelson described two groups of children differentiated on the basis of the form of their early vocabularies. One group of children referred to as "referential" acquired a high proportion of object names, while the other group referred to as "expressive" acquired more heterogeneous vocabularies (including frozen phrases such as "Stop it."). In terms of functional differences, Nelson

(1973) hypothesized a relationship between lexical style and what the child viewed the function of language to be. Nelson suggested that referential children may view language as a tool for labeling, whereas expressive children may view language as a tool for social interaction. This potential relationship between the functions of language expressed by the child and the nature of the child's early lexicon, while compelling, was not actually studied empirically in Nelson's original study. At a later point, Nelson (1981) proposed,

Although the correlation of language functions with language forms during development in no sense implies that the forms are derivative of the functions, it is important that when and how the child learns about the language initially is apparently determined to an important degree by what he or she supposes the language to be useful for (p. 186).

In a more recent study designed specifically to address these issues, Longtin (1984) investigated the developmental interaction between form and function during several stages of the single-word utterance period. One specific issue which Longtin raised was the influence of function on the development of form during early lexical acquisition. Eight children were followed from the onset of first words to the end of the single word stage. Data from both maternal diaries and videotape observations were used to identify

developmental trends. In terms of the influence of function on the development of form, Longtin's results supported Nelson's earlier findings to some extent, but not completely. For example, results from two of the children in Longtin's study lent support to Nelson's hypothesis that referential children see language as a means of talking about the world (object-oriented functions), whereas expressive children see language as a means of social interaction (personal-social oriented functions). More typically, "shifting preferences" over time from object-oriented to personal-social uses of words rather than consistent use of one functional style were noted for the majority of children. A relatively balanced repertoire of speech acts typical of both orientations was common.

In terms of the interaction between form and function, Longtin makes the distinction between lexical acquisition and lexical use. While functional orientation predicted the types of words that the children used most frequently (i.e., children who used language primarily to talk about their world used more nominal forms than children who used language primarily for interaction), it did not necessarily predict which word types were acquired in the child's first 50 words (with the exception of the two children noted above). The distinction made here between acquisition and use

---

is an important one for researchers interested in the developmental and reciprocal interaction between form and function. While an interaction between lexical and pragmatic domains of language was supported by the frequency of form and functions used, Longtin concludes that a functional view of language development can not account for the individual differences noted in acquisition of forms during the single-word stage. "Although the study of the role of function in language development is an important one that has revolutionized the way language acquisition is viewed, its role in the acquisition of forms at least at the single word level, may be limited" (p. 147). Further understanding of the role of function in language development is needed beyond the single word level using research paradigms such as Longtin's which allow for longitudinal investigation of development.

In terms of other relationships between form and function, Longtin addressed the issue of the unfunctional versus multifunctional status of early word forms. Based on the finding that the children were capable of using forms for a variety of functions, Longtin concludes that "multifunctional uses of words were more common than unfunctional uses ... negating the notion of a one to one correspondence between form and function" (p. 146).

As noted above, Longtin distinguished personal-social functions, defined as "the use of language to express the feelings or activities of the speaker or to engage in interactions with others" (p.62) from object-oriented functions, defined as "the use of utterances to represent or describe some aspect of the world" (p.70) (see Table 5). The former category included functions adapted from Halliday (1975), Dore (1974), and Mc Shane (1980), although several additional functions were derived from the data (e.g., Routine, Affirmation/Denial, Show/Give/Take). The second category included functions adapted from the same sources as well as from Bloom, 1970. Again, one functional category, indicative, was derived by Longtin. While Longtin's object-oriented category did not explicitly exclude interactive functions, the issue of the interactiveness of these functions is unclear. In fact, based on the definition of the personal-social category, the assumption can be made that the object-oriented functions were non-interactive.

Wetherby and Prutting (1984) also considered two global categories of function referred to as Interactive and Non-interactive. Wetherby (1986) defined communicative acts as interactive when the "child addressed an adult or an object and awaited a response from the adult" (p. 302). Non-interactive

TABLE 5            LONGTIN (1984) - FUNCTIONS

<u>AGE RANGE</u>	<u>FUNCTIONS</u>	<u>COMMUNICATIVE FORMS</u>
	PERSONAL-SOCIAL FUNCTIONS	
Approximately 12-24 months*	Instrumental	
	Regulatory	
	Determination	
	Doing	
	Personal	
	Protest/Rejection	
	Affirmation/Denial	
	Interactional	Non-linguistic utterances
	Routine	
	Call	Linguistic utterances
	Greeting	
Show/Give/Take		
Answering		
	OBJECT-ORIENTED FUNCTIONS	
	Indicative	
	Label	
	Comment	
	Heuristic	
	Informative	
	Imaginative	
	OTHER FUNCTIONS	
	Repeating	
	Equivocal	
	Ambiguous	

\* from first words to 50 words

acts did not lead to an environmental or social consequence. Although Longtin's (1984) list of speech acts is more extensive than Wetherby and Prutting's, both similarities and differences may be found. For example, Label is considered object-oriented in Longtin's taxonomy and non-interactive in Wetherby and Prutting's. In contrast, Comments are referred to as interactive by Wetherby and Prutting and object-oriented by Longtin. Review of Wetherby and Prutting's definition of Comment indicates that occasions of "interactive labeling" are included in this category.

While the notion of a functional level beyond the speech act level itself is appealing, the two systems discussed above appear to confound the issue by defining the more global functional level relative to the speech act level. For example, in Wetherby and Prutting's system, an interactive label is a comment, whereas a non-interactive label is a label. If the goal of studies such as these is to study two functional levels, it will be more appropriate to define speech acts independently of their interactive or non-interactive status.

The need for a functional system which addresses both a speech act and interactive level has emerged

---

from recent studies attempting to capture early pragmatic development. The fact that a continuum may exist from communicative acts whose interactive function is tied to their speech act function (consider Requests) to communicative acts whose interactive function is independent of their speech act function (consider Labels) has not been addressed. Development of independent taxonomies of social function and speech act function rather than dichotomous classification of speech act categories is needed to reduce the confounding of functional levels.

#### Individual Variation

The studies which explored the individual differences in the development of form and function provide an excellent illustration of the interaction between research issues. The discussion of differences in form and functional development leads quite easily to the second issue motivating the research reported here - individual variation. In the past, major research studies in child language were directed to describing a course of language development which held true for all children, in other words, to identifying linguistic universals (Brown, 1973; Slobin, 1973). Within this framework, "variation among individuals, cultures, and language communities could

---

only be minor and irrelevant" (Nelson, 1981, p.170). According to Bates, Bretherton, and Snyder (in press), "we believed until quite recently that, by factoring out the 'local details' of acquisition within and across natural languages, universal stages would become apparent" (p.1).

The notion of universality in language development was based on certain assumptions, now considered the hallmarks of earlier psycholinguistic thinking. As a result of the research during the 1960's, psycholinguistics encompassed four "nested assumptions and conclusions" (Bates, et.al., in press, p.1 ). Among these, creativity, predisposition, and the biological basis of language are now regarded as "incontrovertible," while universality is "clearly invalid" (Ibid.). Bates, et. al. attribute this belief in a universal sequence of language development (Lenneberg, 1967; Slobin, 1979) to "the psycholinguists romance with biology" and suggest that biology does not necessarily dictate universality.

While the interest in universals continues and moves in new directions (Slobin, 1982; Slobin, 1986), research from the early 1970's to the present has uncovered important exceptions to universal patterns of development. As a result, the place of individual

differences in the study of language acquisition has expanded. In fact, in combination with the study of universal trends, the study of individual differences is now considered key to the understanding of language learning.

The research of the last decade has revealed individual differences in diverse aspects of language ranging from form (e.g., nominal versus pronominal, Bloom, Lightbown, and Hood, 1975), to use (referential versus expressive, Nelson, 1973), to processing strategies (analytic versus gestalt, Peters, 1977). The linguistic features that have been found to vary across children include phonology, syntax, morphology, semantics, and pragmatics.

In an effort to unify previously reported style differences and to test the "two-style" picture noted in previous research, Bretherton, McNew, Snyder, and Bates, (1983) studied semantic, syntactic, and pragmatic aspects of language development. The authors identified packages or clusters of language items in the language of 30 twenty-month old children studied by maternal interview and videotaped observations. Interview items included rates of imitation and labelling, ability to answer questions and engage in conversation, semantic relations expressed, use of

telegraphic patterns, and presence or absence of noun and verb inflections. Spontaneous speech was analyzed with respect to these same categories.

Although the results of the Bretherton, et. al. study confirmed the styles noted in previous research, "the two style picture that had emerged in the literature up to that point had to be modified in several ways." (Bates, et.al., in press, p. 20). Certain language behaviors previously described as typical of one style or another actually clustered to form their own style. For example, the use of labelling and imitation clustered in what was referred to as the dialogue cluster. In fact, four clusters were identified on the basis of the interview data:

a) nominal/referential cluster- "defined primarily by the number and variety of constructions with content words reported by the mother ....and by the variety of semantic case relations expressed in multiword speech."

b) grammatical morpheme cluster- "reflected the child's use of utterances with pronouns instead of noun phrases and by utterances using verb inflections, articles, prepositions, and auxiliaries."

c) dialogue cluster- "reflected both labelling and imitation rates, as well as the child's tendency to participate in conversation and answer questions."

d) semantic-cognitive cluster- "involved 'decontextualization' language (i.e., talking about absent referents in various ways) and the range of semantic case relations conveyed with single words" (p. 20).

The analysis of spontaneous speech yielded similar results, although here a combined cluster, referred to as the semantic-dialogue cluster, reflecting aspects of both the dialogue and semantic-cognitive clusters was identified.

Bretherton, et. al.'s (1983) data supports many of the style patterns found in previous research. However, the authors suggest that while distinct, the referential and grammatical clusters were only partially dissociable acquisition processes. Many children demonstrated aspects of development typical of both clusters, leading the authors to the conclusion that what was discovered was "clusters of items, not clusters of children" (p. 310).

In reference to individual differences and pragmatics, Bates et.al. (in press) note,

Compared with findings on semantics and grammar, there is considerably less evidence on individual differences in pragmatics, defined as differences in the range of communicative functions that children choose to express with their single and multiword speech. (p. 21).

While individual differences in pragmatics could potentially address a wide range of matters, current research deals mainly with communicative functions and speech acts. Nelson's (1973) hypothesis that referential children use language primarily for

labelling while expressive children use language primarily for social interaction is a frequently cited example of individual variation in pragmatic development. With respect to suggestions such as these, questions have been raised about the independence of the analysis of form and function. For example, Bretherton, et. al. (1983) suggest that a nominal utterance could effectively be used for social regulation (consider "Mommy sock"). Further, the flexibility of the language itself may allow children to use nominals for social interactive functions and pronominals for labelling. In fact, in a recent experimental study by Ross, Nelson, Wetstone, and Tanouye (1980), it was noted that some pronominal children used object-oriented functions frequently, whereas some nominal children used these functions infrequently. While Nelson (1981) maintains that "nominal and pronominal styles are associated with functional preferences" (p. 177), pronominal children have been found to use pronouns in all functions (including Name-Refer) and nominal children have been found to use nouns in all functions (including the Instrumental-Regulatory function).

Still further, as noted in the previous section, levels of function must be clarified. Use of a speech act such as label does not necessarily imply whether

the utterance was socially-oriented or object-oriented. In fact, as Bates, et. al. (in press) suggest, labelling an object for another person is a social act. Confounding of form and function, as well as confounding of speech act and social function, should be addressed in research directed to identifying individual variation in pragmatic development.

Studies which independently and synergistically analyze form and function are needed in order to address the issue of individual variation in functional development. Studies of this type will reveal where form differences result in functional differences, where functional differences result in form differences, and where the two domains can not be viewed independently. Research directed to these goals will provide information not only about individual children and their language development, but also about the language itself. In this regard, researchers will have to resist the temptation of considering units, whether form or function, solely from an adult framework. For example, because child categories and adult categories of form are not necessarily isomorphic (Peters, 1977), it may be important to do analyses at lexical as well as formal levels.

With respect to the strength of individual differences, most researchers agree that despite the appeal of the two style picture and the tendency for researchers to "dichotomize the data," most children actually demonstrate a mixture of the behaviors that compose each pattern (Nelson, 1981). Further, the source of or explanations for individual differences are considered multidetermined and interactional including at the least, "system characteristics, child characteristics, and the characteristics of the learning context" (Nelson, 1981, p. 183). There is no doubt that intriguing questions have been raised by the findings on individual differences in language development, including the extent of variation across children as well as across language domains, the clustering aspects of style phenomenon, the transitory versus enduring effects of individual approaches to language acquisition, and the source of these differences. Research in individual styles also provides a unique window into the aspects of language which are invariant and therefore, potentially universal in language acquisition as contrasted with those aspects of language which are flexible and therefore, potentially subject to individual variation.

---

Measures of Language Development - Mean Length of  
Utterance

Once again, the interaction of research questions can be noted in reference to the third issue considered in this study. The identification of different individual styles of language learning has had a considerable impact on the traditional view of units of language acquisition and consequently, on MLU. The use of MLU as a measure of linguistic progress as well as the description of language acquisition relative to this measure are most often associated with Roger Brown's (1973) work. As a result of Brown's research, five stages of language development were identified based on MLU (Stage I = 1.75; Stage II = 2.25; Stage III = 2.75; Stage IV = 3.5; Stage V = 4.0) and related to specific linguistic achievements in the productive language of three children. Based on Brown's research, MLU in morphemes was considered to be an appropriate index of grammatical development in children with MLUs up to 4.0.

Historically, MLU has been used in child language research as an independent variable for the purpose of assigning normal children to groups which represent specific stages of language development. The assumption has been made that children with similar

MLUs are linguistically similar to each other, while those demonstrating different MLUs are linguistically different from one another. Although this method of dividing the data has been recognized as arbitrary (even by Brown himself), a review of the literature indicates that countless researchers have referred to MLU stages in subsequent studies of normal and language disordered children (de Villiers and de Villiers, 1973; Morehead and Ingram, 1973). While some researchers suggest that MLU is an appropriate index of linguistic development (Leonard, 1979), others suggest that the relationship between complexity and length is unpredictable past the single word stage (Crystal, Fletcher, and Garman, 1976).

Recent criticisms of MLU have cited its tenuous relationship to chronological age and to grammatical development. Many researchers have suggested that MLU becomes decreasingly reliable as chronological age and linguistic sophistication increase. While Brown (1973) suggested that MLUs beyond 4.0 were unstable, Bloom and Lahey (1978) consider MLUs above 3.0 to be both unstable and not well correlated with advances in linguistic development.

Nonetheless, recent support for the relationship between MLU and chronological age (C.A.) comes from

Miller and Chapman's (1981) research. These authors found a linear relationship between C.A. and MLU in morphemes in preschool children aged 17 to 59 months. Based on their concerns that the linearity noted in Miller and Chapman's sample "might not be representative of the more usual developmental course for utterance length (and for the structural advances presumed to correlate with length increases)" (p.394), Scarborough, Wyckoff, and Davidson (1986) reconsidered the relationship between age and MLU. While Scarborough, et. al.'s data supported Miller and Chapman's estimates of mean MLU up to 42 months, considerably lower MLUs were noted in their samples at 48 and 60 months. These data support the questions raised about MLU beyond certain linguistic levels.

In a recent study, Klee and Fitzgerald (1985) investigated the relationship between MLU and age and MLU and grammatical development. The children in this study ranged in age from 25 to 47 months and demonstrated MLUs between 2.50 to 3.99. The results revealed two major problems with respect to MLU:

1. Variability in utterance length was noted within a language sample. Even when context was controlled, MLU was found to vary by two to three stages within one 40-minute sample.

2. MLU was found to be of limited value in predicting grammatical development beyond the earliest periods of language development (Brown's stage II). Specifically, MLU did not differentiate the grammatical ability of two and three year olds in terms of the clause or phrase levels of grammar. Further, although Klee and Fitzgerald's data supported the finding that the acquisition of grammatical morphemes progresses predictably as MLU increases, "the diversity of syntactic constructions in spontaneous language does not grow predictably" as MLU increases (p. 265).

In a recent study with language disordered children, Lahey, Launer, and Schiff-Myers (1983) found low to moderate correlation between MLU (ranging from 1.8 to 4.5) and certain language behaviors elicited during language sampling (e.g., encoding of quantity, action + ing, locative action + intention). The authors suggest that the variation noted in both normal and language disordered children relative to MLU and linguistic development may be due to the types of morphemes which different children combine. While some children may combine lexical items, others may combine lexical items with morphemes. Based on the variation noted across studies and the findings of their study, Lahey, et. al. "suggest exercising caution in the use

---

of MLU as a means of inferring linguistic knowledge" (p. 332).

Alternative means of grouping children for purposes of describing language development have been suggested. For example, Garman's (1979) description of early grammatical development is based on stages of language acquisition that are defined "qualitatively - i.e., in accordance with their characteristic organizing principles" (p. 179). and are, therefore, potentially more revealing about the nature of the emerging grammatical system.

If the relationship between MLU and grammatical complexity is called into question, then the validity of describing more synergistic aspects of language development relative to this measure will certainly be subject to criticism. In this regard, the question of which measures should be used to mark pragmatic development for both normal and language impaired populations as well as for comparisons of pragmatic development across children remains unanswered. Since pragmatic performance is seen as the result of development in linguistic, social, and cognitive abilities, production measures such as MLU may not reflect the critical developments which account for growth in this area. Rather, other language measures,

---

such as comprehension, cognitive measures, and/or socially-based measures may be more appropriately correlated with pragmatic achievements. (Wollner, 1983). The fact that language-learning disabled children often do not use forms within their syntactic capacity to express certain functions of language (Snyder, 1975; Watson, 1977; Donahue, 1983) lends support to the notion that variables other than linguistic sophistication may be critical to an understanding of how a child uses language in discourse.

A different line of criticism of MLU addresses the units being measured. Peters (1977) identified a Gestalt style of speech in which whole phrases or sentences rather than discrete single words (typical of an analytic style) were produced by a young language learning child. The existence of these chunks or formulas in child language led to Peters' (1983) concern that MLU may be based on adult units in the child's utterances rather than child units. While Brown's (1973) three children may, in fact, have been analytic in their approach to language learning (in which case child units would correspond more closely to adult units), the Gestalt styles noted in other children calls into question the practice of using MLU to equate one child's data with another's. Peters

makes the point that Brown's criteria for a unit "may not necessarily apply to other children, or to the same children at different stages, or even to the same child in different utterances." (p. 96).

As can be seen, questions about the traditional notion of MLU range from the validity of the units themselves to the relationship of the units to linguistic development. Undoubtedly, as individual styles of language learning are better understood, the lack of correspondence between MLU and age and/or linguistic development may well be clarified. Within the area of pragmatics, even less is known about the value of describing stages of functional development relative to MLU-defined stages of linguistic development. Before abandoning the MLU measure in pragmatically oriented research, the development of specific aspects of function should be considered within and across MLU stages.

### Conclusion

Although the three issues motivating this study have been treated separately in this review, links between and among them have been suggested. At this point, we might recast these issues into theoretical-methodological questions which address the

what (domains of language), the who (individual and groups), and the how (measurement) of this investigation. While the study of language development offers endless possibilities for definitions of these parameters and for conceptualizations of the particular interactions which will be examined, both theoretical and methodological concerns have dictated the decisions made here.

The motivation for the particular research questions posed in this study was an overriding interest in examining the developmental influence between form and function within a context of synergistic analysis. A small group of normal children was studied in such a way that trends and individual differences could be described. In addition, one child was included in the study whose progress could be examined within language stages. MLU was used as the measure of language development in order to segment the data in a manner comparable to previous studies of language acquisition and in order to define the relationship between MLU and pragmatic development.

In conclusion, the present study examines pragmatic development longitudinally in three normal children at the early stages of language development. For the purposes of this study, pragmatic development

was defined as the relationship between form and speech acts. The majority of analyses addressed the synergistic interaction between form and function during the development of the communicative system from beyond first words to early syntax. The developing relationship of these two domains to the non-linguistic and linguistic context was investigated.

## CHAPTER III

### METHOD

#### Subjects

Three children from the New York metropolitan area served as the subjects for the present investigation. The mothers of the subjects responded to an advertisement seeking children at the early stages of language development to participate in a research study. The advertisement appeared in Mothers' Memos, a newsletter published by the Mothers' Center, a networking organization for mothers of young children. Interested mothers contacted the investigator by phone and based on these conversations, eight children were selected to be studied. When the mothers agreed to participate in the study, an initial appointment was arranged. During this session, the mother was familiarized with the purpose of the study, a developmental history was obtained, and the first taping was conducted. At the end of each session, the next appointment was scheduled within a four to five week period. Each subsequent session began with a

---

brief conversation between the mother and the investigator to discuss recent speech and language developments.

As the goal of the study was to examine pragmatic development from beyond first words through syntax, three linguistic levels were identified based on MLU (see Table 6). These levels correspond to well-defined stages discussed in the language acquisition literature as primarily single word, early syntactic development, and later syntactic development. The MLUs corresponding to each linguistic level (LL) were as follows:

Linguistic Level 1 = 1.0 - 1.4

Linguistic Level 2 = 1.75 - 2.25

Linguistic Level 3 = 2.70 - 3.2

Because the research questions posed in the present study necessitated analyzing each child's language as he moved to a "higher" linguistic stage, the three linguistic levels were non-continuous rather than continuous. The first linguistic level identified here is lower than Brown's first stage. The second linguistic level includes Brown's stages I (1.75) and II (2.25), while the third linguistic level approximates Brown's stage III (2.75).

TABLE 6

LINGUISTIC LEVEL, MLU, AND CHRONOLOGICAL AGE FOR EACH SAMPLE

CHILD	SAMPLE	LINGUISTIC LEVEL/ MLU	CHRONOLOGICAL AGE
IVAN	1	1 - 1.33	1.11
	2	2 - 1.78	2.2
	3	3 - 3.20	2.4
BRIAN	1	1 - 1.20	1.10
	2	2 - 1.97	2.0
	3	3 - 2.72	2.2
RIO	1	1a - 1.37	1.8
	2	1b - 1.34	1.9
	3	2a - 1.78	1.10
	4	2b - 2.11	2.0
TOTAL	10		

Although eight children were followed for a four to five month period, a decision was made to study three of these children intensively. The three children who were selected to be subjects demonstrated linguistic levels which corresponded to the MLU stages under investigation. Two of the children progressed from the first linguistic level to the third linguistic level (as defined above) during the course of the five-month period. The third child's linguistic progress was slower and he did not achieve the third linguistic level during the period of the study. This child's development therefore permitted analysis within the first two linguistic levels over time.

All three children were first-born males from English-speaking homes. The parents of these children were middle-class and college-educated. Each mother was the child's primary caretaker at the time of the study.

The children ranged in age from 1.8 to 1.11 at the outset of the study and 2.0 to 2.4 at the end of the study (refer to Table 6). According to parental reports, the children had achieved the major milestones for motor, social, and language development within normal limits. Although formal language testing was attempted (Preschool Language Scale, Zimmerman,

Steiner, and Evatt, 1979), the results were not considered reliable because the children were unable to attend to the task and complete the test. Instead, informal assessment of comprehension and production of language during the initial session by a certified speech-language pathologist indicated that the children's language development was age-appropriate. For example, in terms of production, each child fell within the predicted age range (+ one standard deviation) for his MLU based on Miller and Chapman's (1979) normative data.

#### Procedures

All interactions took place in a 15' x 18' playroom at the Queens College Speech and Hearing Center. Videotapes were made using a SONY SL 340 Deck and a SONY HVC 2200 Trinicon camera. Audiotapes of each session were made on a Superscope C-104 cassette recorder.

The investigator served as the interactant while a research assistant operated the video equipment, hand recorded the child's utterances, and made notes describing relevant contextual information. The mothers of the children were present during each language sampling session. At the end of each session,

the mother was asked to judge the representativeness of the sample obtained.

Each child was seen on five occasions with four to five week intervals between tapings. Each initial language sampling session included a 10 to 15 minute warm-up period during which the investigator and the mother interacted with the child (This 10 to 15 minute period was not included in the sample). After the warm-up period, the experimenter assumed the role of co-conversationalist while the mother assumed the role of observer, participating only in response to the child's direct attempts to communicate with her. The investigator assumed a non-assertive style of interaction and attempted to follow the child's lead in terms of both play and discourse. Sampling continued until either 150 utterances were obtained or 60 minutes of interaction had been taped.

A set of familiar pre-school toys were used for the play interaction. Toys used for all sessions are listed in Appendix A. The children were free to play with any toys from this pool without specific direction from the investigator. The children were encouraged to play with a new toy when appropriate.

### Communication Samples

A total of 10 communication samples comprise the data base for this study. These 10 samples included three samples each from Ivan and Brian (one at each of the three linguistic levels) and four samples from Rio (two at the lowest linguistic level and two at the second linguistic level). Both cross-sectional and longitudinal data were collected and analyzed.

Although five samples were obtained in all from each child, for Ivan and Brian only three samples were selected for analysis. As Ivan and Brian both reached the third linguistic level at the time of the last taping, only three samples representing the three linguistic levels for each child were analyzed. Rio reached the second linguistic level at the time of the final taping and, therefore, four samples were selected for analysis to permit comparison of two samples at each of the first two linguistic levels. For Ivan and Brian, time intervals between samples were approximately two months. For Rio, one month intervals elapsed between samples 1, 2, and 3, while two months elapsed between samples 3 and 4.

MLUs for each sample were determined using the conventions described in Appendix B.

## Transcription

The procedure for transcribing the video-recorded data was adapted from the conventions described in Bloom and Lahey (1978). All consistent phonetic forms, including conventional, quasi-conventional, and non-conventional forms were transcribed into standard orthography or where possible, were transcribed using the International Phonetic Alphabet. Gestures were described, whereas vocalizations were simply noted as such.

Adult utterances preceding and following child utterances were transcribed in standard orthography. Aspects of the non-linguistic context including relevant features of the setting, child and adult behaviors, body orientation, gaze, facial expression, and prosodic pattern were indicated.

## Coding

The child's first 125 consecutive communicative acts were analyzed for each of the 10 communication samples, producing a total of 1250 communicative acts. Each child's communication samples are listed in Appendix C.

A communicative act was defined as a non-linguistic or linguistic behavior which communicated an intention. For the purposes of this study, intentional communication was defined as "signaling behavior in which the sender is aware a priori of the effect that a signal will have on his listener." (Bates, et. al., 1979, p. 36). Each communicative act was analyzed to reveal its form, function, and form-function units. Figure 1 shows the aspects of form, function, and form-function which were analyzed.

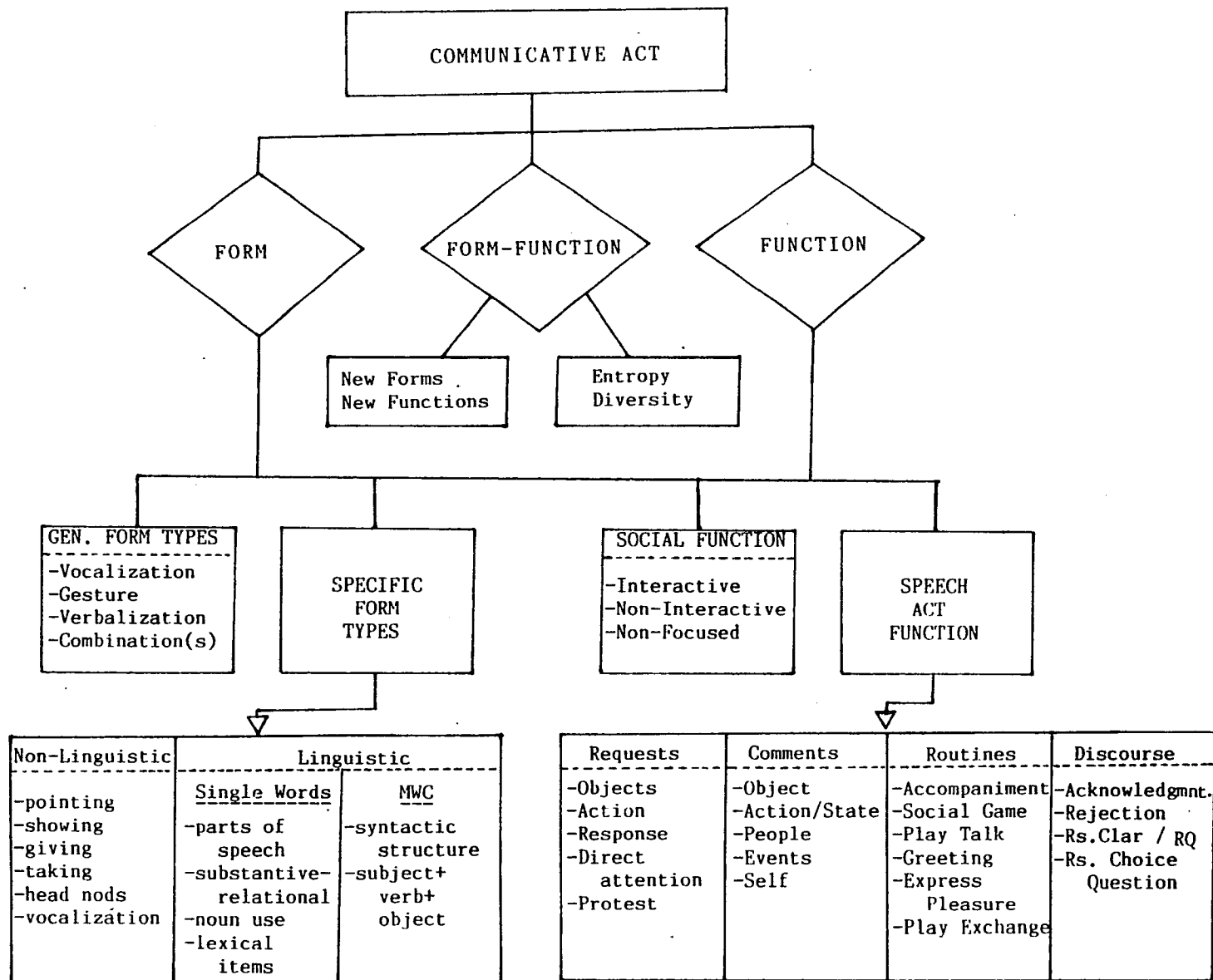
### Form

In the present investigation, the term "form" was defined in two ways. Globally, the general form type of a communicative act referred to whether the act was linguistic (i.e., a verbalization, including conventional and non-conventional forms), non-linguistic (i.e., a vocalization or a gesture), or a combination of linguistic and non-linguistic forms. More specifically, linguistic form was coded relative to various aspects of grammatical structure.

1) General Form Types - Each communicative act was first categorized in terms of its general form. Form types were vocalizations, gestures, verbalizations, or any combination of the above.

Figure 1 - Analysis Performed on Communicative Acts

---



The majority of forms in the 10 samples were verbalizations as would be expected given the subjects' linguistic levels. Verbalizations included recognizable single words or word combinations as well as idiosyncratic approximations of lexical items disambiguated by the parent's report (e.g., gugu/rooster) or by repeated use of the utterance in context. Verbalizations were sometimes partially or totally unintelligible.

Any vowel or consonant plus vowel combination which did not appear to be an attempt at a recognizable lexical item and which was not considered a consistent phonetic form was classified as a vocalization. Gestures included discrete hand and head movements such as pointing, showing, giving, taking, reaching, and head nods.

2) Specific Form Types - Each verbalization was analyzed in terms of its specific linguistic form or structural type. All linguistic forms were described relative to traditional parts of speech, such as nouns, verbs, and so forth. A ritualistic form was similar to Peters' (1983) "speech formula" defined as "a multimorphemic phrase or sentence that, either through social negotiation or through individual evolution, has become available to a speaker as a single prefabricated

item in her or his lexicon" (p. 2). Single morpheme utterances of this type ("Hi," "Boom") were considered ritualistic forms in this study.

Single words were also analyzed with respect to substantive-relational forms, noun use, and lexical tokens. Multiword combinations were analyzed for syntactic structure and subject-verb-object relations.

Communicative acts often involved the use of a form plus a communicative device. A communicative device was defined as a non-linguistic behavior or suprasegmental feature which accompanied the verbalization, vocalization, or gesture. Communicative devices included gaze, gestures, body movements, prosodic patterns such as rising intonation and other suprasegmental features such as stress and volume. Because different suprasegmental patterns were characteristic of individual children, use of intonation was distinguished from use of other suprasegmental features. The communicative device was often critical for determining the social function or the speech act of the communicative act.

### Function

In the present investigation, the term "function" was defined in two ways. Globally, the Social

Function of a communicative act referred to whether or not the act was directed to the other participant in the interaction. Three categories of social function were identified (see Table 7). More specifically, the Speech Act Function of a communicative act referred to the communicative intention of the vocalization, gesture, or verbalization. Twenty categories of speech act function spanning the three linguistic levels were identified (see Table 8). Both of these functional taxonomies were derived emically from the data.

1) Each communicative act was analyzed with respect to its social function: interactive, non-interactive, or non-focused. The social function of a particular communicative act was determined by considering the following parameters:

- a. the form itself
- b. the use of communicative devices
- c. the speech act function of the communicative act
- d. the non-linguistic context of the communicative act
- e. the linguistic context of the communicative act

Determining whether a communicative act was interactive was based on factors which were internal to the communicative act (such as the use of communicative devices) as well as factors which were external to the communicative act itself (such as whether the communicative act was part of a discourse sequence). The use of communicative devices such as gaze, gesture,

and suprasegmentals to signal "other-directed interactions" has been discussed by Gallagher and Craig (1984). While these authors' criterion was use of four out of five behaviors (gaze, body orientation, volume, gesture, proximity), in the present study, use of a single communicative device was taken as evidence that the child was addressing his communicative act to the other participant in the interaction (or to an imaginary listener - e.g., "Hi Mickey Mouse.").

While certain speech acts are necessarily interactive (Request for Action) and other speech acts are necessarily non-interactive (Comment to Self), some speech act types could be either interactive or non-focused (e.g., Comment on Objects). This view of a social level of speech acts differs from existing taxonomies where definitions of the speech acts themselves are based on the presence or absence of interactive criteria (e.g., Comment on Object versus Label, Wetherby and Prutting, 1984). In the present taxonomy, the social function of the speech acts was determined independently and was based on the presence or absence of interactive criteria. As a result, speech acts such as Comment on Object were either interactive or non-focused depending on whether the communicative act was directed to the other participant or not.

---

Definitions and examples of categories of social function can be found in Table 7. Definitions of other terms follow:

Non-linguistic context refers to the physical setting of the interaction, the actions and behaviors of the participants, and the placement of the objects relative to the participants immediately before, during, and after the communicative act.

Linguistic context refers to the utterances (child or adult) preceding or following the communicative act. Two types of linguistically contingent sequences were identified in the samples. These sequences served as the basis for categorizing certain communicative acts as interactive.

- a) Child contingency - The child's utterance was related in topic content to his previous utterance which had been coded as interactive. Linguistic contingency is seen across child utterances in these instances.
- b) Adult contingency - The child's utterance was related in topic content to the prior adult utterance or to the prior adult behavior. Linguistic contingency is seen across adult-child utterances in these instances.

TABLE 7 SOCIAL FUNCTIONS

CATEGORY	DEFINITION	EXAMPLES
INTERACTIVE [IA]	Communicative acts directed to a listener (real or imaginary) as judged by the use of gaze, gesture, suprasegmentals and/or linguistic contingency. Contingency refers to either the relationship between the child's utterance and his prior utterance (i.e., child contingency) or the relationship between the child's utterance and the adult's prior utterance (i.e., adult contingency). <sup>*</sup> Speech-act type itself was generally not used in determining if a communicative act was interactive with the exception of requests (e.g. "want toy") which were not accompanied by "interactive" criteria and yet were clearly directed to the other participant.	<p>A. Eye-Contact Child: "Nana come" (looking at the adult)</p> <p>B. Gesture Child: "that" (pointing to the picture)</p> <p>C. Suprasegmentals 1. Child: "put this back on" (rising intonation) 2. Child: "Ernie, Ernie, Ernie" (said with increasing volume) 3. Child: "<u>more</u> people" (taking dolls from bag)</p> <p>D. Linguistic Context 1. Child: "in, in<sup>↑</sup>" "in" "in" } Interactive (looking in house) 2. Adult: "OK. Go, get it" Child: "no wanna get it" 3. Adult: "What's this?" Child: "doggie"</p>
NON-INTERACTIVE [N-I]	Acts not directed to the other participant. Interactive criteria are absent; volume is low. The child appears to be talking to himself. (See starred utterances in the next column).	<p>1. Child: "it's lock now" (looking at Sima) **lock" (said softly) 2. Child: "on top" (putting blocks in box) **choo choo top" (said softly) **choo choo top" (said softly) 3. Child: "turn it" "turn it" (turning pieces to fit in box) **turn this" (said softly)</p>
NON-FOCUSED [NF]	Communicative acts addressed to no one in particular. Neither interactive or non-interactive criteria are present.	<p>1. Child: "car" (looking at the car) 2. Child: "man" (taking man from the house) 3. Child: "noise" (looking around the room, possibly at equipment.)</p>

<sup>\*</sup>An utterance which itself was not accompanied by gaze, gesture, etc., may have been considered interactive if surrounding utterances in the same conversational unit were interactive. (See example D.1) Non-interactive criteria such as low volume were not present.

2) Each form was analyzed with respect to its speech act function. The term speech act was used despite the fact that some of the communicative acts were gestures and vocalizations rather than speech per se. This decision was based on the trend in the literature and the fact that these non-speech forms made up a small proportion of the samples. Determining the communicative intention of the child's vocalization, gesture, or verbalization was necessary for speech act assignment. The intention or effect of a communicative act was determined on the basis of the following parameters:

- a. the form itself
- b. the use of communicative devices
- c. the non-linguistic context
- d. the linguistic context

As can be seen, the behavioral evidence used to determine speech act functions in the present study was similar to previous studies.

Two major types of speech acts were distinguished. The first category was speech acts which were free of discourse constraints. These speech acts could be identified independent of the previous speech act. They were Comments, Requests, and Routines. While specific occurrences of these speech acts may have been responsive to the previous discourse, these three categories were not defined by discourse features.

Further, communicative acts which were in response to the previous adult utterance and were coded as Comments, Requests, or Routines were not double coded but were coded only in their non-discourse category. For example,

Adult: What do you want?  
Child: want cookie

would be coded as a Request for Object only, not as both a Response and a Request. This decision was made in an effort to address function at the utterance level and to deal with the discourse level only where necessary. Chapman (1981) defines functional analysis at the utterance level as determination of "speaker's intent... independent of the utterance's function in relation to the prior or subsequent utterance, to the overall discourse structure, or to the social structure of the interaction" (p. 112).

The second major category was speech acts which appeared only within discourse constraints. These speech acts were directly elicited by the previous speech act and could not be understood without reference to the prior utterance. In these cases, the adult utterance and the child utterance were treated as a unit. The speech acts in this category were four types of Discourse acts- Acknowledgments, Rejections,

Response to Request for Clarification, and Response to Choice Questions.

Definitions and examples of speech acts can be found in Table 8. Examples are taken from the three children and are representative of the three linguistic levels. The resulting taxonomy was similar to previously developed taxonomies including Dore's (1975) Primitive Speech acts, McShane's (1980) Communicative Functions, and Wetherby and Prutting's (1984) Communicative functions. The concept of major speech act categories (Comments, Requests, Routines, Discourse) and specific speech act types within these was similar in framework to Mc Shane's taxonomy, although the particular categories were different. The coding of speech acts independent of conversational constraints versus those tied to these constraints was similar to the Coggins and Carpenter (1981) Communicative Intention Inventory, although again the particular intentions were different. Finally, the category of Routines assumed a more prominent place in the taxonomy presented here than in previous taxonomies. In fact, in many of the systems mentioned above, no routine speech acts are noted. Although labelled differently, a few taxonomies do include speech acts which are comparable to the Routines described here (e.g., Performative and Exclamatory in

1  
TABLE 8 SPEECH ACT FUNCTIONS

CATEGORY	DEFINITIONS	EXAMPLES
I. COMMENT	Communicative acts which identify or describe objects, actions, states, people or events.	
A. Comment on Objects	Communicative acts which refer to the identity of or properties of objects, including the location, attributes, and ownership of objects. (Reference to characters such as Ernie, Bert, etc. were included in this category.)	<ol style="list-style-type: none"> <li>1. Child: "block" (as he looks at block)</li> <li>2. Child: "Monster" (as he points to picture of Cookie Monster)</li> <li>3. Child: "no more" (looking in empty silo)</li> <li>4. Adult: "The other cup." "where is it?" Child: "there" (pointing and looking at cup on mat.)</li> <li>5. Child: "red" "red" "red" "red" (as he points to picture in house)</li> <li>6. Child: "Daddy's tool" (picking up toy tool)</li> </ol>
B. Comment on Action/ State	Communicative acts which refer to the actions or states of self or of objects. This category includes "symbolic" comments expressed within play schemes.	<ol style="list-style-type: none"> <li>1. Child: "more" (trying to take top off bottle)</li> <li>2. Child: "here" "put here" (putting drainer on side of sink)</li> <li>3. Child: "put that one" (as child begins to pick up phone to put away)</li> <li>4. Child: "fall down" (fixing chair which has fallen)</li> </ol>

TABLE 6 (continued)

C. Comment on People	Communicative acts which refer to the identity of or action of people other than self. The communicative acts which fell into this category most often referred to absent people.	<ol style="list-style-type: none"> <li>5. Child: "Mommy go" (putting Mommy doll in car)</li> <li>6. Child: "I can't open it" (playing with door of house)</li> <li>7. Child: "want' call Ernie" (holding phone on lap and looking at Sima)</li> <li>8. Child: "this people going to sleep now" (playing with doll in toy house)</li> </ol>
D. Comment on Events	Communicative acts which refer to the identity of events within or outside of the immediate contexts.	<ol style="list-style-type: none"> <li>1. Child: "Mommy" (after hearing mother's voice in the background)</li> <li>2. Child: "Nana" (in response to toy phone saying "who's calling?")</li> <li>3. Child: "Nana" (holding toy telephone on lap)</li> <li>1. Child: "loud noise" (after ringing bell on house)</li> <li>2. Child: "mess" (looking at all the toys on mat)</li> <li>3. Child: "that's Ernie" (listening to Ernie's voice on phone)</li> <li>4. Child: "sirens" (after hearing sirens outside building)</li> </ol>
E. Comment to Self	Communicative acts which were said to self as indicated primarily by low volume and less often by non-linguistic behavior. Although these communicative acts could potentially express other functions, the fact that they were said to self was seen as eliminating other speech act possibilities. See items with asterisks in examples. (On occasion, the use of reduced volume was accompanied by the use of clear interactive behavior, such as looking, which resulted in coding the primary speech act function.)	<ol style="list-style-type: none"> <li>1. Child: "going to lock a door" (playing with door on house) **"lock a door" (said softly)</li> <li>2. Child: "go again now" (looking at Sima) **"again" (reduced volume)</li> </ol>

TABLE 8 (continued)

II. Request	Communicative acts which solicit a non-linguistic or linguistic response from another participant in the interaction.	3. Child: "no" "no more" "up there" (closing doors of barn) **"no more" (said softly; **"up there" still closing doors **"there" of barn)
A. Request for Objects	Communicative acts which solicit a desired object that may or may not be in the child's proximity or in the immediate context. The only action required of the adult is giving the desired object.	1. Child: "gimme toys" (looking in box that has farm) 2. Child: "play a farm" (looking at farm box) 3. Child: "I like this" (pointing to garage and looking at Sima) 4. Adult: "What do you want to drink?" Child: "want water" (looking at Sima)
B. Request for Action	Communicative acts which solicit a desired action (other than giving) on an object or person.	1. Child: 'distress vocalization' (looking at Sima; trying to get the car out of the house) 2. Child: "/A/↑" (extending empty chair to Sima; looking at Sima) "got" (extending empty chair to Sima; looking at Sima) 3. Child: "dry off" (looking at Sima; extending wet arm to Sima) 4. Child: "Mommy do it" (getting up to give broken car to Mom) 5. Child: "now it's your turn" (pointing to car that is out of reach; looking at Sima)

Table 8 (continued)

C. Request Response	<p>Communicative acts which solicit a linguistic response from the other participant in the interaction. These include information requests (name of, location of, nature of objects); confirmation request (of child's actions, of participant's attention); and permission requests. At the earlier stages of language development, the specific type of Request Response often can not be determined and therefore, the category was not broken down further in the analysis.</p>	<ol style="list-style-type: none"> <li>1. Child: "chair↑" (looking at chair he is holding)</li> <li>2. Child: "no↑" (trying to fit tractor in barn); looking at Sima</li> <li>3. Child: "put on now↑" "put on now↑" "put on now↑" (trying to put wheel on car)</li> <li>4. Child: "what's that?" (showing Sima bed; looking at Sima)</li> <li>5. Child: "this belongs here " (pointing to place on puzzle; looking at Sima)</li> <li>6. Child: "how come this hole?" (touching holes in sink; looking at Sima)</li> </ol>
D. Request-Direct Attention	<p>Communicative acts which solicit the other participant's attention to an object or an activity.</p>	<ol style="list-style-type: none"> <li>1. Child: (shows Sima cup; looking at Sima)</li> <li>2. Child: "look" (pointing to water on mat)</li> <li>3. Child: "watch" (looking at Sima) "watch Mickey Mouse" (looking at Sima; playing with phone)</li> </ol>
E. Protest	<p>Communicative acts which indicate that the child does not want to engage in an activity or does not want the participant to begin or continue an activity.</p>	<ol style="list-style-type: none"> <li>1. Child: (pushes phone away with foot)</li> <li>2. Child: (hits Sima's hand after Sima put hand on child's finger; looking at Sima)</li> <li>3. Child: "no" (moving Sima's hand away from horn that she is keeping)</li> <li>4. Child: "let go" (looking at Sima; Sima trying to take tissue from child)</li> </ol>

TABLE 8 (continued)  
III. ROUTINES

Communicative acts which are stereotypic or ritualized occasions of "talk" (vocalizations or verbalizations) or of gesture that accompany play activities.

A. Accompaniments

Communicative acts which are occasions of non-propositional talk used in a non-meaningful or ritualized way. The use of these communicative acts accompany and mark the child's actions. Politeness forms were included in this category.

1. Child: "nm"  
"nm"  
"nm"  
(as child puts each block in box)
2. Child: "/hA/!"  
(looking at toys in box)
3. Child: "Yeah" (cheer)  
(after dumping toys on mat)
4. Child: "uh oh"  
(looking at wet pants)
5. Child: "Boom"  
"Boom"  
"Boom"  
(as child reaches for and puts blocks in toy bear)
6. Child: "/okidok/"  
(putting top on bear)
7. Child: "here"  
(as child is giving Sima paper towels; looking at Sima)
8. Child: "gimme"  
"gimme"  
"gimme"  
"gimme"  
(as child picks up each block in his possession and puts it in box)
9. Child: "put be back "  
"put be back "  
(putting blocks in box)
10. Child: "Excuse me"  
(after burping)

TABLE 8 (continued)

B. Social Game	Communicative acts which involve playful sequences or reciprocal action or "talk" attempted as or engaged in as a dyadic game.	<ol style="list-style-type: none"> <li>1. Adult: "Delicious, delicious" ("toasting" child's cup) Child: (puts cup to Sima's cup to "toast") Adult: ("toasts" child's cup) Child: (puts cup to Sima's cup; looking at Sima)</li> <li>2. Child: "Uh oh" (after putting water on hands; extends hand to Sima; looking at Sima; smiling) Adult: (puts hand under faucet for child to push) "Uh oh" (showing child her hand) Child: "Uh oh" (after putting water on his hand; extends hand to Sima; looking at Sima)</li> </ol>
C. Play Talk	Communicative acts which are routinized examples of sounds or words associated with certain kinds of play schemes or occasions of play with sounds or words.	<ol style="list-style-type: none"> <li>1. Child: "choo choo →" "choo choo →" (looking in house)</li> <li>2. Child: "knock-knock" (after Sima knocks on door of house; opens door after utterance)</li> <li>3. Child: "again-gain-gain" (putting toy in the house)</li> <li>4. Child: "ready, go, set" "go" "set" (starting to take farm out of box)</li> </ol>
D. Greeting	Communicative acts which mark openings or closings in the interaction. These include greetings used within play schemes.	<ol style="list-style-type: none"> <li>1. Child: "Hi toys" (looking at toys on the side of the room)</li> <li>2. Child: "Bye-bye" (putting receiver back on telephone)</li> <li>3. Child: "Good night" (putting the car in the house)</li> </ol>

TABLE 8 (continued)  
E. Express Pleasure

Communicative acts which indicate that the child is pleased with some object or activity in the context.

1. Child: "Mm good!"  
(after drinking water from sink)
2. Child: "Wow"  
(looking at bag of toys which he has taken from Sima)

F. Play Exchange

Non-linguistic communicative acts which begin, extend, or negotiate the play activity between two people. The majority of these forms involved giving or offering an object to the adult and less often, self-initiated taking of objects from the adult.

1. Child: gives bed to Sima;  
looking at Sima
2. Child: offers spoon to Sima;  
looking at Sima
3. Child: pushes toy phone to Sima
4. Child: takes doll from Sima;  
looking at Sima

IV. DISCOURSE

Communicative acts which are identified relative to the previous speech act in that they are directly elicited by that act. Some communicative acts serve both a discourse and speech act function, while others are only identified relative to their discourse function. The speech acts listed below fall into this latter category.

A. Acknowledgments

Communicative acts which are in response to a prior request for information (specifically a yes/no request) or to a prior comment and which indicate agreement with or acceptance of the prior proposition. Acknowledgments may be complete propositions which are primarily repetitions of the adult's prior utterance, as well as more "adult-like" forms of acknowledgments.

1. Adult: "Again?"  
Child: "again"  
(looking at blocks)
2. Adult: "Want to give him some gas?"  
Child: "gas"  
(watching Sima put gas in car)
3. Adult: "It's a bed"  
Child: "a bed"  
(playing with bed)
4. Adult: "Can you throw this in the garbage?"  
Child: "throw in the garbage"  
(coming back to Sima to get garbage)
5. Adult: "Daddy's got a tool like that?"  
Child: "Daddy got a tool like that"

TABLE 8 (continued)

		<p>6. Adult: "Want me to get it?" Child: "want me to get it" (waiting for Sima to get toy)</p> <p>7. Adult: "Do you want to have something to eat?" Child: "Yeah" (taking plate from Sima)</p> <p>8. Adult: "You have to lock the door?" Child: "Yeah"</p> <p>9. Adult: "That's a good idea" Child: "Yeah"</p> <p>10. Adult: "Somebody rang that bell" Child: "Yeah"</p>
<p>B. Rejection</p>	<p>Communicative acts which are in response to a prior request for information or to a prior comment and which indicate disagreement with or non-acceptance of the prior proposition.</p>	<p>1. Adult: "You finished?" Child: (shakes head 'no'; looking at Sima)</p> <p>2. Adult: "They gotta get up. Have breakfast." Child: "no" (looking at toys on mat)</p> <p>3. Adult: "OK. Go get it " Child: "no wanna get it"</p> <p>4. Adult: "Wanna try it again?" Child: "no wanna try again" (shaking head 'no')</p> <p>5. Adult: "Can this car get gas?" Child: "no this car get gas" (looking at Sima's car)</p>
<p>C. Response to Clarification Request</p>	<p>Communicative acts which are in response to a prior bid for clarification. See items with asterisks.</p>	<p>1. Child: "/^/^" (extending chair to Sima; after looking around for doll to put in chair.) Adult: "what?" Child: **/^/^" (extending chair to Sima; looking at Sima) **go " (extending chair to Sima; looking at Sima)</p>

TABLE 8 (continued)

D. Response to Choice

Communicative acts which are in response to a prior either/or question.

2. Child: "lion"  
(looking at puzzle piece)  
Adult: "What?"  
Child: \*\*"lion"  
(said louder; looking at puzzle piece)
3. Child: "do it"  
(giving Sima bag of toys; looking at Sima)  
Adult: "What?"  
Child: \*\*\*"this one"  
(pointing to bag)

1. Adult: "Do they sleep outside or  
in the house?"  
Child: "in the house"  
(looking in house)
2. Child: "want me /a/ push it"  
(playing with sink)  
Adult: "Sima or Ivan?"  
Child: "Sima"  
(looking at Sima)
3. Adult: "Do you want 5 dollars  
or 10 dollars?"  
Child: "10 dollars"

V. UNDETERMINED

Communicative acts whose speech act status could not be determined either because the utterance was partially or totally unintelligible or because the function was equivocal.

1

Examples are taken from the three children and are representative of the three linguistic levels. The examples were chosen to illustrate how "speech" acts were expressed with a range of non-linguistic and linguistic forms. Less familiar categories are illustrated with numerous examples.

Wetherby and Prutting (1984); Exchange: Giving and Receiving in Mc Shane (1980); Imaginative in Halliday (1975)). Longtin's (1984) category of Routines is considerably more restricted than the category described here.

### Productivity

In the present investigation, three occurrences or tokens of a form type (e.g., noun, verb) and three occurrences or tokens of a speech act type (e.g., Comment on Objects) were considered sufficient to regard the type as productive. The number of different lexical items noted for a form or a speech act was not used for the productivity criterion. The decision to use number of occurrences in the sample rather than lexical diversity to determine productivity was based on two factors:

- 1) early developmental language levels were being studied where diversity criteria might be too restrictive and,
- 2) diversity criteria would have been difficult to apply to certain speech acts (consider Routine-Greetings, Discourse - Acknowledgments) where forms and speech acts tend to be isomorphic.

In an effort not to by-pass the critical issue of diversity of form, many analyses were done on two levels: form type (noun, verb) and lexical items ("car," "man," "put"). For example, most frequent and

productive forms were analyzed for form type and also for lexical diversity. Further, type-token measures were used frequently to determine the diversity of form categories being discussed. For example, for Multiword Combinations, type-token ratios were determined by dividing the number of different word combinations (types) by the total number of word combinations (tokens) in a sample.

#### Imitations

In the present investigation, an imitation was defined as any child utterance which shared one or more content words with the preceding adult utterance. Within this definition, exact, reduced, and expanded imitations of the adult model were included. Self-repetitions were excluded.

Unlike previous definitions, the boundaries used in the present study were conversational units rather than utterances. Conversational units were composed of one or more communicative acts grouped on the basis of a single uninterrupted turn (uninterrupted by either another speaker's turn or by time). A conversational unit may have included one communicative act or a sequence of communicative acts. The child's imitation occurred within the conversational unit following the

adult's conversational unit and was not necessarily the first utterance following the adult's model. For example,

- 1) Adult: Boom  
Child: Yeah/ Boom
- 2) Adult: What happened to the paper?  
Getting all wet  
Child: Look/ wet

Further, the imitation may have been imitative of an utterance prior to the last one in the adult's conversational unit. For example,

- 3) Adult: How about something to drink?  
This could be your cup.  
Child: drink that
- 4) Adult: Yeah. broken car. Right there.  
I don't know. can't fix.  
Child: broken car

Child imitations which were repeated across conversational units were considered imitations if the intervening adult utterance was either a Request for Clarification or a Discourse-Acknowledgment. For example,

- 5) Adult: What are these things?  
Child: These thing (Imitation)  
Adult: What?  
Child: These thing (Imitation)
- 6) Adult: Look, who's sleeping  
Child: dog sleeping (Imitation)  
Adult: mm  
Child: dog sleeping (Imitation)

The following categories of imitations were derived from the data:

### 1. Exact Imitations

These were imitations in which the adult utterance was unchanged with the possible exception of changes in prosody. For example,

7) Adult: there you go  
Child: there you go

8) Adult: want ketchup?  
Child: want ketchup

### 2. Reduced Imitations

These were imitations in which the adult utterance was partially reproduced. For example,

9) Adult: Should I drink?  
Child: drink

10) Adult: want something else?  
Child: something else

11) Adult: You want the house?  
Child: want the house

### 3. Expanded Imitations

These were imitations in which constituents were added to the adult utterance. The adult model may have been totally or partially imitated. For example,

12) Adult: And can I have the spoon  
the spoon?  
Child: spoon here

13) Adult: Bye bye  
Child: Bye bye horse

14) Adult: A horse?  
Child: A horse going side

Although imitations were not analyzed relative to form and function in the results reported here, several analyses that were done included or excluded particular types of imitations. For example, in the analyses of multiword combinations relative to function, the data base for MWC excluded exact and reduced imitations and included expanded imitations.

In general, imitations were particularly troublesome when determining speech act functions. The speech act functions of exact, reduced, and expanded imitations were often equivocal. For example, determining if an imitation was a Discourse-Acknowledgment or a Comment of some type was difficult, even when non-linguistic behavior such as gaze accompanied the utterance. In fact, imitations accounted for the second largest number of Undetermined speech acts, exceeded only by unintelligible utterances. Nonetheless, most imitations which occurred throughout the samples were coded in terms of speech acts.

## Reliability

Twenty communicative acts from each of the 10 language samples served as the corpus for determining the reliability of the functional taxonomies. The rater independently coded a total of 200 communicative acts or 16% of the data base in terms of Social Function and Speech Act categories. These communicative acts did not overlap with the training items and were selected to represent a range of forms and speech acts. The 200 communicative acts were evenly distributed across the linguistic levels from the lowest to the highest MLU.

Coding by the rater followed 10 hours of reliability training. The rater, a graduate student in speech-language pathology, and the experimenter reviewed 350 of the 1250 communicative acts and classified them according to the taxonomy of Social Function and the taxonomy of Speech Acts. Training included review of the transcripts and videotapes and discussion of the two taxonomies.

Issues which required greatest discussion were imitations, prosody, distinctions between specific speech act categories (e.g., Request Response versus

other types of Requests), and use of the undetermined category.

Results of the reliability codings were calculated separately for the two taxonomies: Social Function and Speech Act Function. The reliability of the functional systems was determined by the percent agreement between the utterances coded by the investigator and the trained rater. The reliability of the coding of Social Function across linguistic levels was 96.5. The reliability of the coding of the Speech Act Functions across linguistic levels was .89.

#### Analyses

The following analyses of the data were performed to answer the three research questions presented above.

#### Development of form, function, and form-function units

In order to describe group trends versus individual styles within single domains of language, several analyses were performed. In terms of developmental patterns relative to form, General Form Types and Specific Form Types were analyzed. Absolute and proportional frequencies of general form types were determined for each child at Linguistic Levels 1, 2, and 3. The distribution of most frequent and

productive specific form types was determined for each child at Linguistic Levels 1 and 2.

In order to describe developmental patterns for function, Social Function and Speech Act Function were examined. Absolute and proportional frequencies of social functions and major speech act categories were determined for each child at Linguistic Levels 1, 2, and 3. The distribution of most frequent and productive speech acts was determined for each child at Linguistic Levels 1, 2, and 3.

In order to describe group trends versus individual style across domains of language, several analyses were done. The distribution of forms relative to the most frequently occurring speech acts was determined for each child at Linguistic Levels 1, 2, and 3. In addition, in-depth analysis of the development of forms relative to Discourse-Acknowledgments was examined across children.

The distribution of speech acts relative to the most frequently occurring forms was determined at Linguistic Levels 1 and 2. Uni versus multifunctional status of single words was determined for each child at Linguistic Levels 1 and 2. In addition, functional aspects of Multiword combinations, including uni versus multifunctional status, social function, and

---

distribution of speech acts, were determined across children at Linguistic Levels 1 and 2.

Three aspects of lexical-syntactic development were analyzed with respect to function: the lexical diversity of Requests and Comments, the distribution of verb tokens in speech acts, and the occurrence of Subject-Verb-Object structures relative to speech acts.

### Form-Function

In addition to the synergistic analyses of form and function (e.g., forms used to encode the most frequently expressed speech acts, distribution of speech acts relative to multiword combinations), two types of analysis of form-function units were done.

#### 1) New Forms - New Functions

Productive "new" forms were identified in the children's samples at Linguistic Level 2. A new form was defined as any part of speech or syntactic structure (e.g., verb + pronoun) used productively (i.e., three or more occurrences) at Linguistic Level 2 which had not been used or had not been used productively at Linguistic Level 1. Three or more occurrences were considered appropriate productivity criteria based on the size and duration of the sample (125 communicative acts and at least one hour).

New forms were analyzed to determine if they expressed "old" or "new" speech act functions. In this context, "old" referred to any speech act which had appeared in the previous sample (regardless of whether it had occurred productively or not); "new" referred to any speech act which had not appeared in a previous sample (regardless of whether it was now occurring productively or not). For example, if Verb + Article + Noun did not appear at Linguistic Level 1 and appeared five times at LL2, it would be considered a new form. If three of those occasions of Verb + Article + Noun expressed Requests for Action, a speech act which had been expressed two times at LL1, this would be considered use of a new form to express an old function. If the other two occasions of Verb + Article + Noun at LL2 expressed Request Response, a speech act which had not been expressed at LL1, this would be considered use of a new form to express a new function.

Productive "new" speech acts were identified in the children's samples at LL2. A new speech act was defined as any intention which occurred productively (three occurrences or more) at Linguistic Level 2 which had not been used or had not been used productively at Linguistic Level 1.

New speech acts were analyzed to determine if they were expressed with old or new forms. In this context, "old" referred to any form which had appeared in the previous sample regardless of whether it had been used productively or not; "new" referred to any form which had not appeared in a previous sample regardless of whether it was now expressed productively or not.

## 2) Entropy-Diversity

In order to analyze the developmental capacity for diversity in form-function units, an entropy measure was used. Following the standard formulas in Garner (1962), an index was generated which varied between 0 and 1.0. Using this measure, 0 would describe the situation of one form for each function within the child's repertoire (e.g., noun: Comment on Object) and 1.0 would reflect a state of total diversity.

### Child clusters and language clusters

In order to re-examine the issue of individual style within a synergistic framework, three analyses were done. First, the use of nouns was re-considered from a form-function perspective across children at Linguistic Level 1. The occurrence of nouns was examined in terms of the speech act(s) expressed with

---

this form in order to determine if form or functional preferences could account for noun use.

Second, children who shared aspects of form, function, and form-function development were grouped in order to determine the tenacity of groups when two domains of language (namely, form and function) are examined separately and synergistically. Aspects of form, function, and form-function units previously analyzed served as the sources of the groupings.

Finally, three language style clusters were identified at Linguistic Levels 1 and 2. Aspects of form, function, and form-function lying on either end of a continuum (e.g., less than .30 frequency of use or more than .30 frequency of use) constituted Clusters 1 and 2. Examination of the clusters provided the opportunity to see which aspects of form, function, and form-function co-existed in development to identify each of the children's "styles." The change in language clusters from Linguistic Level 1 to Linguistic Level 2 was examined to discover how much continuity existed in language clusters and in individual styles over time and development.

---

### MLU and the development of form-function relations

In order to determine the relationship between MLU and form-function relations, analyses across children as well as in-depth analyses for one child (Rio) were completed. Across children, entropy measures of the diversity of form-function units were determined for each linguistic level. Further, the relationship between new forms and new functions was analyzed across children at Linguistic Level 2.

Analyses specific to Rio allowed for description of changes in form, function, and form-function units when MLU remained constant over time (LL1a and 1b; LL2a and 2b) and when MLU increased over time (LL1b to LL2a). Selected aspects of single domains (e.g., most frequently encoded forms, most frequently expressed functions) and cross-domain analyses (e.g., forms used to express the most frequent speech acts) were investigated relative to MLU to determine if changes were noted within and/or across linguistic levels.

## CHAPTER IV

### RESULTS

#### Social Function

##### Distribution of Social Function

With the exception of one sample, the majority of communicative acts expressed by the three boys at the three linguistic levels (LL) were interactive (see Table 9). Rio, whose data came from two samples at each of the first two MLU levels, demonstrated equal proportions of interactive and non-focused acts at LL1a; however, at subsequent samplings, his degree of interactiveness approximated that of the other two boys. One of the functional changes that may occur when early MLU's (<1.4) remain the same over time is an increase in interactive communication.

As Linguistic Level 1 included occasions of non-linguistic communicative acts, analysis of social function was done at this level for verbalizations only. The results of this analysis indicated that the majority of linguistic communicative acts (i.e., verbalizations) were interactive, again with the exception of Rio LL1a. In fact, the proportion of

1  
TABLE 9

PROPORTION OF SOCIAL FUNCTIONS AT LINGUISTIC LEVELS 1, 2, 3

		LINGUISTIC LEVEL		
		LL1	LL2	LL3
IVAN	INTERACTIVE	.74 (93)	.78 (97)	.92 (115)
	NON-FOCUSED	.22 (27)	.18 (22)	.04 ( 5 )
	NON-INTERACTIVE			
	UNDETERMINED	.04 ( 5 )	.03 ( 4 )	.04 ( 5 )
BRIAN	INTERACTIVE	.62 (77)	.66 (82)	.66 ( 82)
	NON-FOCUSED	.33 (40)	.25 (31)	.30 ( 37)
	NON-INTERACTIVE		.01 ( 1)	.02 ( 3 )
	UNDETERMINED	.06 ( 8)	.09 (11)	.02 ( 3 )
RIO a	INTERACTIVE	.44 (55)	.67 (84)	
	NON-FOCUSED	.43 (54)	.22 (28)	
	NON-INTERACTIVE	.06 ( 7)	.08 (10)	
	UNDETERMINED	.06 ( 8)	.02 ( 3)	
Rio b	INTERACTIVE	.73 (91)	.78 (98)	
	NON-FOCUSED	.16 (20)	.17 (21)	
	NON-INTERACTIVE	.06 ( 7)	.01 ( 1)	
	UNDETERMINED	.06 ( 7)	.04 ( 5)	

1

numbers in ( ) are actual counts of a possible 125 communicative acts which defined each sample

interactive acts based on this sub-sample were minimally different from the total sample (.72, .61, .35, and .71 for Ivan, Brian, Rio 1a, and Rio 1b, respectively).

While the general trend was for interactiveness and even for similar proportions of interactiveness at LL 1 and LL 2, differences occurred in proportions at LL 3 for Brian and Ivan. Whereas Ivan was highly interactive (.92), Brian appeared to be less so (.66).

The fact that separate levels of analysis obscure certain facts about language use is first encountered with the finding just noted. The motivation for this research was a commitment to the notion that uni-dimensional descriptions of language acquisition are misleading because they artificially detach or lift an aspect of development from its connecting systems, something which does not happen during the actual language acquisition process. Even within one domain of language development, interactions are hard to ignore. For example, the finding that Ivan was significantly more interactive at LL 3 than Brian is explicated further at the next level of functional analysis. Brian expressed only four requests (a clearly interactive speech act type) at LL3 as opposed to Ivan's 44 and realized interactiveness primarily

---

through comments. Therefore, it may be that Brian is not so much the less interactive child at LL 3, but rather the less "requesting" child at this stage.

The use of other types of social functions was minimal. The non-interactive use of language, while never significant, ranged from non-existent (Ivan) to some use at the earlier stages (Rio).

#### Social Function of Comments

Since the speech act category Comment was not necessarily Interactive, an analysis of social function across comments and across linguistic stages was done to explore the origins of social talk.

While the total number of Comments varied from child to child (see Table 10), the general trend was for increased use of interactive Comments and decreased use of non-focused Comments over time (or in Rio's case, decreased use of non-interactive Comments). The extent of interactive Comments ranged from .58 to .90 at the time of each child's final language sample.

Individual patterns are interesting. For Ivan, frequency of Comments decreased from LL 1 to LL 3; however, at LL2 and LL 3, there was a stable number of Comments (31) with a significant increase in the interactive use of these Comments (.68 to .90). Ivan's

TABLE 10

PROPORTION OF COMMENTS WHICH WAS INTERACTIVE VS.  
NON-FOCUSED/NON-INTERACTIVE AT LINGUISTIC LEVELS 1,2,3

		LINGUISTIC LEVEL		
		LL1	LL2	LL3
IVAN	INTERACTIVE	.57	.68	.90
	NON-FOCUSED/ NON-INTERACTIVE	.43	.32	.10
	TOTAL (of 125)	(54)	(31)	(31)
BRIAN	INTERACTIVE	.48	.51	.58
	NON-FOCUSED/ NON-INTERACTIVE	.52	.49	.42
	TOTAL (of 125)	(62)	(53)	(79)
RIO a	INTERACTIVE	.41	.26	
	NON-FOCUSED/ NON-INTERACTIVE	.59*	.74	
	TOTAL (of 125)	(22)	(38)	
RIO b	INTERACTIVE	.36	.67	
	NON-FOCUSED/ NON-INTERACTIVE	.64*	.33	
	TOTAL (of 125)	(28)	(30)	

\* Large proportion of this category includes Non-interactive Comments to Self.

primary means of commenting interactively was pointing at LL 1, pointing, intonational patterns, and contingency at LL2, and intonational patterns, suprasegmentals, and pointing at LL3.

For Brian, frequency of Comments increased from LL1 to LL3 while the proportion of interactive Comments increased, but not significantly. Brian's primary means of commenting interactively was pointing and looking at LL1, suprasegmental features at LL2, and suprasegmentals, looking, a combination of these, and looking plus contingency at LL 3.

For Rio, frequency of Comments increased to some extent from LL1a to LL2a (21 to 39) with a slight decrease noted at LL 2b. Rio's less frequent use of interactive Comments at LL1a, 1b, and 2a clearly represented a different pattern from that of the other two boys. Many of Rio's comments at these linguistic stages were Comments to Self, accounting for the frequency of non-interactive Comments. By LL 2b, when Rio's frequency of comments was comparable to Ivan's, the proportion of interactive versus non-focused Comments was similar for both boys. At this point, expression of Comments to Self had disappeared. Rio's primary means of commenting interactively was looking at LL 1a, pointing at LL 1b, looking, contingency,

pointing plus contingency at LL 2a, and primarily contingency, pointing and pointing plus looking at LL2b.

In summary, in terms of general trends for Comments, the proportion of interactive Comments was significantly greater than the proportion of nonfocused Comments in each boy's last sample ( $p < .01$  for Ivan and Rio;  $p < .05$  for Brian). Individual variation was noted relative to whether Comments increased or decreased over time and relative to how interactiveness was accomplished. While the boys shared the tendency to express Comments interactively, there were individual differences in communicative style. At the point that each boy expressed his highest proportion of interactive Comments, the primary means of commenting interactively was distinctly individual (see asterisked items below).

Ivan (LL3)	Brian (LL3)	Rio (LL 2b)
*Intonation	*Suprasegmentals	*Contingency
Suprasegmentals	Looking	Pointing
Pointing	SS + Looking	Point + Looking
	Contingency + SS	

While each boy communicated interactiveness primarily with one communicative device at LL1, each child had an interactive repertoire available at the time of the last sample. In addition, Brian's and Rio's frequently

used interactive strategies included combined means such as pointing + looking.

In terms of specific categories of Comments, such as Comment on Objects, some consistency was noted across the children. For example, Ivan and Brian had the same number of Comment on Objects at LL1 with similar proportions of Interactive and Nonfocused functions (see Table 11). At LL2, both boys' proportion of Interactive and Nonfocused Comment on Objects remained similar, although the absolute number was now different. At LL 3, both number of Comment on Objects and proportion of interactiveness was different across the two boys.

Once again, Rio began with important differences from the other two boys. The small number of Comment on Objects at LL1a and the high proportion of interactiveness were distinctly different from what was seen with Ivan and Brian. At LL1b and LL2a, Rio's pattern was more consistent with Ivan's and Brian's. At LL2b, when Rio's number of Comment on Objects was similar to Brian's at LL3, Rio's proportion of Interactive Comment on Object was significantly greater.

The other major category of Comments seen in the data was Comment on Action/State (see Table 12). All

TABLE 11

PROPORTION OF COMMENT ON OBJECTS WHICH WAS INTERACTIVE vs. NONFOCUSED AT  
LINGUISTIC LEVELS 1,2,3

		LINGUISTIC LEVEL		
		LL1	LL2	LL3
IVAN	INTERACTIVE	.54	.53	1.00
	NON-FOCUSED	.46	.47	.00
	TOTAL (of 125)	(46)	(19)	(5)
BRIAN	INTERACTIVE	.46	.51	.50
	NON-FOCUSED	.54	.49	.50
	TOTAL (of 125)	(46)	(35)	(14)
RIO a	INTERACTIVE	.83	.43	
	NON-FOCUSED	.17	.57	
	TOTAL (of 125)	( 6)	(23)	
RIO b	INTERACTIVE	.50	.76	
	NON-FOCUSED	.50	.24	
	TOTAL (of 125)	(14)	(17)	

TABLE 12

PROPORTION OF COMMENT ON ACTION/STATE WHICH WERE INTERACTIVE VERSUS  
NON-FOCUSED AT LINGUISTIC LEVELS 1,2,3

		LINGUISTIC LEVEL		
		LL1	LL2	LL3
IVAN	INTERACTIVE	.75	.91	.88
	NON-FOCUSED	.25	.09	.12
	TOTAL (of 125)	( 8)	(11)	(24)
BRIAN	INTERACTIVE	.00	.38	.63
	NON-FOCUSED	1.00	.62	.37
	TOTAL (of 125)	( 4)	(13)	(59)
RIO a	INTERACTIVE	.50	.00	
	NON-FOCUSED	.50	1.00	
	TOTAL (of 125)	( 8)	( 5)	
RIO b	INTERACTIVE	.43	.50	
	NON-FOCUSED	.57	.50	
	TOTAL (of 125)	( 7)	( 5)	

three boys expressed this speech act minimally at the outset with significant increases noted for Ivan and Brian over time. While Ivan's expression of this speech act was primarily interactive from the outset, Brian moved in this direction by LL3. Rio's proportion of Nonfocused Comments on Action increased from LL1a to LL2a; however, at LL2b equal proportions of Interactive and Nonfocused Comment on Action were noted.

Therefore, in terms of general trends for the social function of specific types of Comments, the pattern of similar proportions of Interactive versus Nonfocused Comment on Objects was constant in 7 out of 10 language samples (Exceptions are Ivan LL3, Rio LL1a and LL 2b). The greater proportion of Interactive versus Nonfocused Comments on Action occurred in one child's samples throughout the stages and another child's sample at the last linguistic stage. Once again, Rio did his "own thing" in terms of Interactive versus Nonfocused expression of these speech acts.

To summarize the findings relative to the distribution of social function, all three boys primarily expressed interactive communicative acts throughout the early stages of language development. Given that the sampling context was dyadic play, it is

possible that the context itself promoted interactiveness. Nonetheless, in terms of Comments, interactive expression of these speech acts increased over time (significant at the  $p < .01$  level for two of the children). The ability to comment and to interact at the same time (as indicated by the use of gesture, suprasegmentals, looking, contingency, and/or some combination of the above) is present at the single word stage and continues to increase through the early syntactic stages. Further, Comment on Action/State, a speech act which increases in use over the early linguistic levels, was characterized by significant increases in interactiveness ( $p < .01$ ) beyond the first MLU stage for two of the three boys. Given that Comments could be either interactive or non-focused/non-interactive, the results support the independent analysis of the social function and speech act function of communicative acts at early stages of language development.

### Speech Act Function

#### Distribution of Speech Act Categories

Group trends as well as individual differences were noted in the frequency and productivity of the expression of speech acts. Of the four major

categories of speech act types (see Table 13), Comments occurred frequently at each of the three linguistic levels across children. Requests were expressed frequently at the first two linguistic levels by all three boys. At LL 3, one child continued to express requests frequently, while this speech act type virtually disappeared in the other child's sample. Routines were subject to considerable individual variation with one child expressing them frequently at LL 1 and 2 (Rio), one child expressing them frequently at LL 2 only (Ivan), and one child expressing them infrequently throughout the linguistic levels (Brian). Discourse acts were expressed with similar frequency by all three boys at LL 2 (.11, .13, .14) and increased in frequency for the two boys who reached the third linguistic level.

In terms of the most frequently expressed specific speech act types, certain patterns of use were evident (see Table 14). More similarity was noted between Ivan and Brian than between Rio and either of the other boys. For example, Brian and Ivan shared more of the frequently expressed specific speech act types. At LL 1, Comment on Objects and Request Response were two of the three most frequently expressed speech acts for both Brian and Ivan. At LL 1b, Rio also expressed Comment on Objects frequently. At LL 2, Comment on

TABLE 13

## DISTRIBUTION OF MAJOR SPEECH ACT CATEGORIES AT LINGUISTIC LEVELS 1,2,3

		LINGUISTIC LEVEL		
		LL 1	LL 2	LL 3
IVAN	COMMENTS	.47 ( 54)	.28 ( 31)	.26 ( 31)
	REQUESTS	.35 ( 41)	.30 ( 33)	.37 ( 44)
	ROUTINES	.16 ( 18)	.32 ( 36)	.04 ( 5)
	DISCOURSE	.03 ( 3)	.11 ( 12)	.33 ( 39)
	TOTAL (of 125)	(116)	(112)	(119)
BRIAN	COMMENTS	.56 ( 62)	.49 ( 53)	.68 ( 79)
	REQUESTS	.25 ( 28)	.29 ( 31)	.03 ( 4)
	ROUTINES	.15 ( 17)	.09 ( 10)	.04 ( 5)
	DISCOURSE	.04 ( 4)	.13 ( 14)	.24 ( 28)
	TOTAL (of 125)	(111)	(108)	(116)
RIO a	COMMENTS	.20 ( 22)	.34 ( 38)	
	REQUESTS	.22 ( 24)	.45 ( 51)	
	ROUTINES	.55 ( 60)	.19 ( 22)	
	DISCOURSE	.03 ( 3)	.02 ( 2)	
	TOTAL (of 125)	(109)	(113)	
RIO b	COMMENTS	.25 ( 28)	.28 ( 30)	
	REQUESTS	.38 ( 42)	.37 ( 40)	
	ROUTINES	.33 ( 36)	.21 ( 23)	
	DISCOURSE	.04 ( 4)	.14 ( 15)	
	TOTAL (of 125)	(110)	(108)	

TABLE 14

## MOST FREQUENTLY EXPRESSED SPEECH ACTS AT LINGUISTIC LEVELS 1, 2, 3

Child	LL1	LL2	LL3			
IVAN	Comment on Object	.40 ( 46)	Comment on Object	.17 ( 19)	Comment on Action/State	.20 ( 24)
	Request Response	.15 ( 17)	Request for Action	.14 ( 16)	Discourse Ackn.	.19 ( 23)
	Request for Action	.12 ( 14)	Request for Object	.11 ( 12)	Request Response	.13 ( 15)
	Total	(116)	Comment on Action	.10 ( 11)	Request for Object	.11 ( 13)
			Routine-Accomp.	.10 ( 11)	Request for Action	.11 ( 13)
		Routine-Play Talk	.10 ( 11)	Discourse Rejection	.11 ( 13)	
		Total	(112)	Total	(119)	
BRIAN	Comment on Object	.41 ( 42)	Comment on Object	.32 ( 35)	Comment-Action/State	.51 ( 59)
	Request for Object	.12 ( 13)	Comment on Action	.12 ( 13)	Discourse Ackn.	.19 ( 22)
	Request Response	.09 ( 10)	Request for Object	.10 ( 11)	Comment on Object	.12 ( 14)
	Total	(111)	Request for Action	.10 ( 11)	Total	(116)
			Discourse Ackn.	.09 ( 10)		
		Total	(108)			
RIO a	Routine-Accomp.	.42 ( 46)	Comment on Object	.20 ( 23)		
	Request for Object	.09 ( 10)	Request Response	.20 ( 23)		
	Total	(109)	Routine-Accomp.	.11 ( 12)		
			Request Dir.Att.	.09 ( 10)		
			Comment to Self	.09 ( 10)		
		Request for Object	.08 ( 9)			
		Total	(113)			
RIO b	Request for Object	.14 ( 15)	Request Response	.24 ( 17)		
	Comment on Object	.13 ( 14)	Comment on Object	.16 ( 17)		
	Request-Dir. Att.	.13 ( 14)	Discourse-Ackn.	.12 ( 13)		
	Routine-Greeting	.13 ( 14)	Total	(106)		
	Routine-Accomp.	.10 ( 11)				
Total	(110)					

Objects, Comment on Action, and Request for Object were expressed frequently by Ivan and Brian. At LL 2a, Rio shared three most frequently occurring speech acts with Ivan (Comment on Objects, Request for Objects and Routine - Accompaniment) and two with Brian (Comment on Objects and Request for Objects). At LL 2b, Rio shared one speech act with Ivan (Comment on Objects) and two with Brian (Comment on Objects and Discourse-Acknowledgment). Finally, at LL 3, Ivan and Brian again shared two most frequently expressed speech acts (Comment on Action/State and Discourse-Acknowledgment).

To summarize, at LL 1, all three boys expressed Comment on Objects frequently and two of the three boys also expressed Request Response frequently. At LL 2, all three boys expressed Comment on Objects and Request for Objects frequently, while two of the three boys also expressed Comment on Action and Request for Action frequently. At LL 3, both boys expressed Comment on Action/State and Discourse - Acknowledgment frequently.

While similarities are noted in terms of speech acts expressed most frequently across children, proportional data may or may not be similar. For example, at LL 1, Comment on Objects was a frequently occurring speech act for all three boys. For Ivan and Brian, this speech act represented a similar proportion

of the data (.39 and .41 respectively), whereas for Rio, the speech act occurred much less frequently (.13). At LL 2, Comment on Objects was expressed with similar frequency by Ivan and Rio (.17 and .20), whereas Brian expressed the speech act more frequently (.32). Request for Objects represented a similar proportion of the data for all three boys (.11, .10, .08). Similarly, Comment on Action occurred with similar frequency at LL 2 for Ivan and Brian (.10 and .12 respectively).

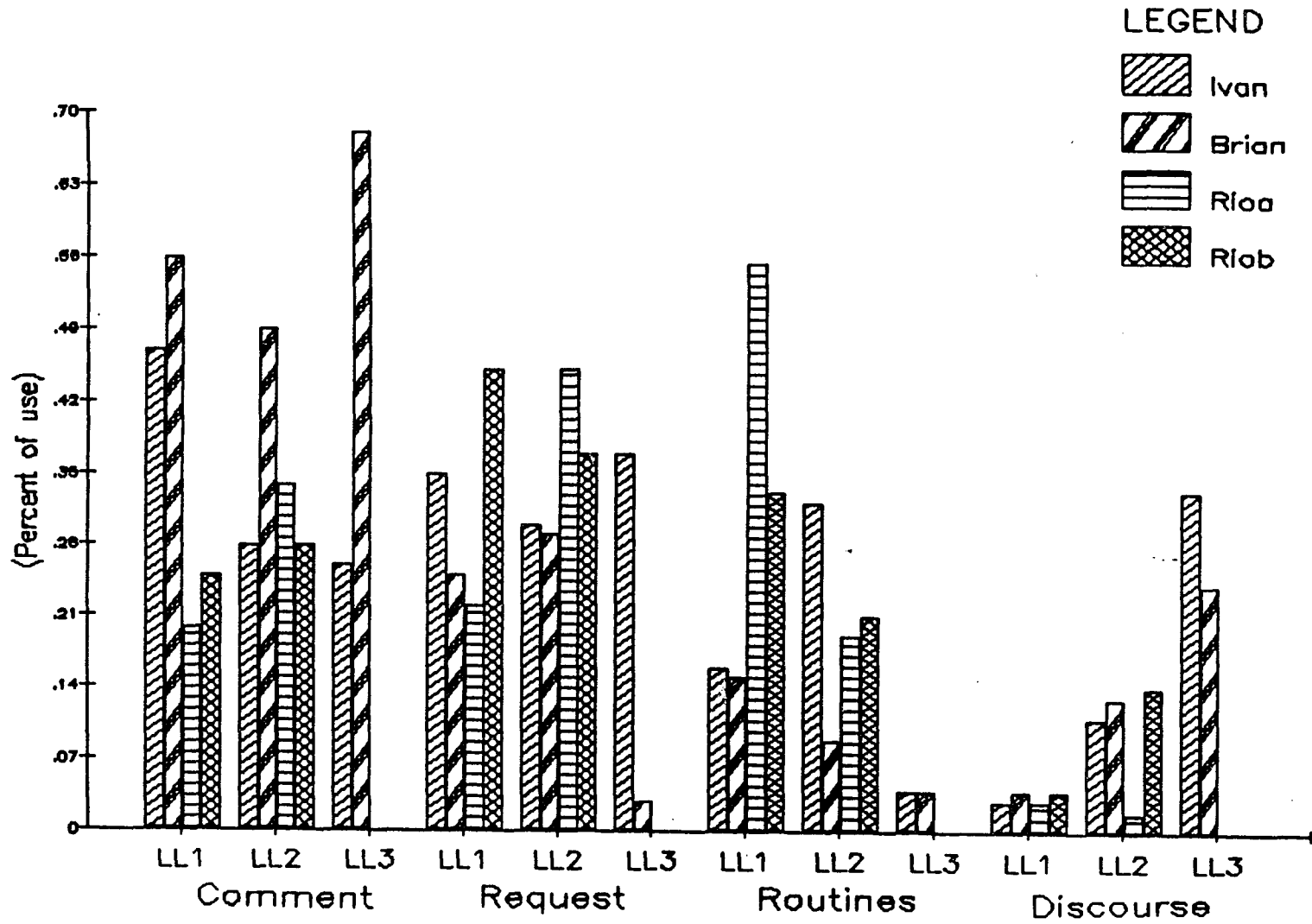
Finally, at LL 3, while Comment on Action/State was one of the three most frequently expressed speech acts for Ivan and Brian, proportional data differed (.20 vs. .51 respectively). Discourse- Acknowledgment represented .19 of the data for both boys.

As can be seen, while the frequently occurring speech acts were similar for all the subjects, the proportional data were in some cases strikingly similar and in others strikingly different.

In terms of the frequency of expression of speech acts over time, different patterns were noted within and across major speech act types (see Figure 2). Comments remained relatively stable over time (with low or high frequency) or decreased in frequency. Similarly, Requests remained relatively stable over

Figure 2 - Distribution of Major Speech Act Categories  
at Linguistic Levels 1, 2, 3

---



time or decreased significantly in frequency. Routines, which varied significantly in frequency at LL1, decreased from initial high or lower proportions or increased and then decreased at LL 3. Routines represented a small proportion of the data at LL 3 for Ivan and Brian. Discourse acts increased significantly over time.

The status of the four major speech act types described here suggests important differences among the categories. While Comments appear constantly in natural play interactions, Requests become subject to individual use in the context sampled. Routines are open to considerable individual variation throughout early language development, whereas Discourse acts may await a certain linguistic, cognitive, and/or social sophistication. Several factors are therefore suggested as possible explanations for the occurrence or non-occurrence of speech act types - context sampled, individual style, and linguistic, cognitive, and/or social sophistication.

A closer look at Rio's data suggests that children at similar MLU's may in fact use language quite differently. Specifically, Rio's extensive use of Routines at LL 1 suggests that his language was more ritualized and less propositional at this time. Before

suggesting that Rio's functional entree into language may have been different from the other boys, the question that remains is whether Rio demonstrated form limitations which in some way affected the ease and frequency with which certain speech acts could be expressed. The possibility that Rio's use of Routines was actually a form rather than a function issue will be considered in a subsequent section.

The fact that movement to a higher MLU level is related to the way language is used at the previous level rather than to more formal measures of language is interesting to consider. For example, Rio's move to Linguistic Level 2 might have been dependent on achieving a functional profile which was similar to the other boys, rather than on more traditionally defined lexical-syntactic developments. In this sense, degree of interactiveness and certain speech act profiles may be prerequisites for advancement beyond the earliest linguistic level. The possibility that some interaction of form and function accounts for development is also appealing and will be considered later in the results.

#### Productive Speech Acts

Relative to productive speech acts, group trends as well as individual differences were noted. As can be

---

seen in Table 15, certain speech acts were expressed productively by all children throughout the linguistic levels (e.g. Comment on Objects, Comment on Action), while other speech acts were expressed productively by all children at certain linguistic levels (e.g., Routine- Greeting at LL 1; Request for Response at LL 1 and 2; Discourse - Acknowledgment at LL 2 and 3). In addition, some speech acts were not expressed productively by all children but rather were specific to a child and appeared to reflect individual style (e.g. Rio - Comment to Self - LL 1a, LL 1b, LL 2a; Brian - Comment on People - LL1, LL 2).

The results indicate that the children expressed a range of productive speech acts from the lowest linguistic level supporting the view that the child at the single word stage is not constrained by form limitations (lexical or syntactic) in communicating a variety of intentions. Further, while the children may differ in terms of which speech acts they express most frequently, they have similar productive speech act repertoires available to them. For example, while Rio's list of most frequently expressed speech acts at LL 1a looked quite different from Brian's and Ivan's, his list of productive speech acts was quite similar. In fact, as can be seen in Table 16, a core of productive speech acts was expressed by all three boys

TABLE 15

## PRODUCTIVE SPEECH ACTS EXPRESSED AT LINGUISTIC LEVELS 1, 2, AND 3

Child	LL1	LL2	LL3			
IVAN	Comment Object	.40	Comment Object	.17	Comment Object	.04
	Comment Action/State	.07	Comment Action	.10	Comment Action/State	.20
	Request Object	.09	Request Object	.11	Request Object	.11
	Request Action	.12	Request Action	.14	Request Action	.11
	Request Response	.15	Request Response	.04	Request Response	.13
	Routine - Play Talk	.04	Routine - Accompaniment*	.10	Discourse - Acknowledgment	.19
	Routine - Greeting	.08	Routine - Social Game*	.03	Discourse - Rejection	.11
	Routine - Play Exchange	.03	Routine - Play Talk	.10		
	Discourse - RS. RQ. Clar.	.03	Routine - Greeting	.04		
			Routine - Play Exchange	.05		
			Discourse- Acknowledgment*	.03		
			Discourse - Rejection*	.05		
			Discourse - RS. RQ. Clar.	.03		
BRIAN	Comment Object	.41	Comment Object	.32	Comment Object	.12
	Comment Action	.05	Comment Action	.12	Comment Action/State	.51
	Comment People	.07	Comment People	.04	Comment Self	.03
	Comment Event	.04	Request Object	.10	Routine - Accompaniment	.03
	Request Object	.12	Request Action	.10	Discourse - Acknowledgment	.19
	Request Action	.05	Request Response	.06	Discourse - Rejection	.03
	Request Response	.09	Routine - Accompaniment*	.04		
	Routine - Play Talk	.03	Routine - Play Exchange	.06		
	Routine - Greeting	.06	Discourse - Acknowledgment	.09		
	Routine - Play Exchange	.05	Discourse - RS. RQ. Clar.*	.13		
	Discourse - Acknowledgment	.03				

TABLE 15 (continued)

RIO a	Comment Object	.06	Comment Object	.20
	Comment Action	.07	Comment Action	.04
	Comment Self	.07	Comment Self	.09
	Request Object	.09	Request Object	.08
	Request Action	.05	Request Action	.05
	Request Response	.04	Request Response	.20
	Protest	.05	Request Direct Attention	.09
	Routine Accompaniment	.42	Protest	.03
	Routine Social Game	.06	Routine Accompaniment	.11
	Routine Play Exchange	.06	Routine Express Pleasure*	.03
	Discourse Acknowledgment	.03	Routine Play Exchange	.04
	RIO b	Comment Object	.13	Comment Object
Comment Action/State		.06	Comment Action	.09
Comment Self		.06	Request Object	.08
Request Object		.14	Request Response	.24
Request Action		.06	Protest	.03
Request Response		.05	Routine Accompaniment	.05
Request Direct Attention*		.13	Routine Social Game	.04
Routine Accompaniment		.10	Routine Greeting	.05
Routine Greeting*		.13	Routine Play Talk*	.03
Routine Play Exchange		.08	Routine Play Exchange	.06
Discourse Acknowledgment		.03	Discourse Acknowledgment	.12

1 Response to Request for Clarification

\* New Speech Acts

TABLE 16

PRODUCTIVE SPEECH ACTS "SHARED" BY THE BOYS AT LINGUISTIC LEVEL 1, 2, 3

LL1	LL2	LL3
COMMENT OBJECT	COMMENT OBJECT	COMMENT OBJECT
COMMENT ACTION	COMMENT ACTION	COMMENT ACTION
REQUEST OBJECT	REQUEST OBJECT	DISCOURSE-ACKN.
REQUEST ACTION	REQUEST ACTION	DISCOURSE-REJ.
REQUEST RESPONSE	REQUEST RESPONSE	
ROUTINE GREETING	ROUTINE-ACCOMPANIMENT	
ROUTINE-PLAY EXCHANGE	ROUTINE-PLAY EXCHANGE .	
	DISCOURSE-ACKN.	

- a - LL1b FOR RIO
- b - LL2a FOR RIO
- c - LL2b FOR RIO

at LL 1 and LL 2. At LL 1, when each boy expressed from 9 to 11 productive speech acts, the majority of these (7) were similar across children. The children at the lowest linguistic level were therefore similar in the speech acts they expressed productively.

At LL 2, when each boy expressed from 10 to 13 productive acts, the majority of these (8) were again similar across children. The children at the early syntactic level were therefore similar in the speech acts they expressed productively.

At LL 3, a core of productive speech acts was expressed by Ivan and Brian. The fact that there are only four shared productive speech acts reflects the decreased number of productive speech acts for each boy (7 and 6, respectively) rather than less commonality between them. (The use of fewer productive speech acts is a reflection of two trends noted at LL3: more frequent expression of particular speech acts, such as Brian's expression of Comment on Action/State, and the "disappearance" of speech acts such as Routines.

The finding that several of the specific Routine types were expressed productively across children at the first two linguistic levels and that other types of Routines were expressed productively by individual children seems to heighten the developmental status of

this speech act category. While individual children expressed Routines more or less frequently, all three children did use ritualized occasions of talk or gestures to accompany their play activities. The fact that the productive expression of Routines virtually disappeared at the highest linguistic level sampled suggests that Routines may serve an important intra- as well as interpersonal function when language is emerging and that the status of Routines is different from other communicative acts.

To summarize, a core of most frequently expressed speech acts and a core of productive speech acts was noted across children and across linguistic levels. This finding should not obscure the fact that individual styles were identified both in terms of frequency and productivity of speech acts.

#### Speech Acts: Form

A major research issue raised in this study was the relationship between function and form during early stages of language development. The question was posed for a number of reasons, two of which were to develop an understanding of or "map" of the interrelationships between these two domains of language acquisition, much as form and content have been studied, and to address the question of trends versus styles in language

development from a synergistic rather than unidimensional approach. To address these issues, a number of analyses were done, some of which were more or less successful in revealing the dynamic aspects of early language development. Once again, trends and individual differences were noted.

The first function-form analysis examined the forms which encoded the most frequently expressed functions. As in other areas, Ivan and Brian's profiles were more similar to each other than either was to Rio at LL 1a. At LL 1b, Rio's pattern approximated the other boys. Specifically, Ivan and Brian demonstrated concentrated function-form relations for two of the three most frequently expressed speech acts (i.e., one form accounted for the majority of occasions of that speech act), whereas the other most frequently expressed speech act had two or three form options (See Table 17). For example, Brian expressed Comment on Objects primarily with nouns (.74), Requests for Objects primarily with nouns (.85), and Request Responses with nouns (.56) and demonstratives (.33). Similarly, Ivan expressed Comment on Objects primarily with nouns (.63), Request for Actions primarily with vocalizations (.71), and Request Responses with prepositions (.24), nouns (.24), and preposition + article + noun (.18).

TABLE 17

## FORMS USED TO REALIZE THE MOST FREQUENTLY EXPRESSED SPEECH ACTS AT LINGUISTIC LEVEL 1

IVAN	COMMENT ON OBJECT		REQUEST RESPONSE		REQUEST ACTION	
	Noun	.63 (29/46)	Preposition	.24 (4/17)	Vocalization	.71 (10/14)
	Adjective	.13 (6/46 )	Noun	.24 (4/17)	Noun	.21 (3/14 )
	Ritualistic + Noun	.07 (3/46 )	Preposition + Article + Noun	.18 (3/17)	Vocalization + Demonstr.	.07 (1/14 )
	Preposition	.04 (2/46 )	Verb	.12 (2/17)		
	Article + Noun	.02 (1/46 )	Preposition + Noun	.12 (2/17)		
	Demonstrative + Noun	.02 (1/46 )	Article + Noun	.06 (1/17)		
	Noun + Noun	.02 (1/46 )	Vocalization	.06 (1/17)		
	Modifier + Noun	.02 (1/46 )				
Undetermined	.04 (2/46 )					
BRIAN	COMMENT ON OBJECT		REQUEST OBJECT		REQUEST RESPONSE	
	Noun	.74 (34/46)	Noun	.85 (11/13)	Noun	.56 (5/9)
	Modifier + Noun	.065 (3/46 )	Unintelligible	.15 (2/13 )	Demonstrative	.33 (3/9)
	Adjective	.02 (1/46 )			Unintelligible	.11 (1/9)
	Demonstrative	.02 (1/46 )				
	Ritualistic	.02 (1/46 )				
	Demonstrative + Noun	.02 (1/46 )				
	Demonstr. + Pronoun	.02 (1/46 )				
	Noun + Noun	.02 (1/46 )				
Unintelligible	.065 (3/46 )					

TABLE 17 (continued)

RIO a	ROUTINE ACCOMPANIMENT		REQUEST OBJECT			
	Ritualistic	.39 (18/46)	Verb		.90 (9/10)	
	Verb	.24 (11/46)	Pronoun		.10 (1/10)	
	Noun + Noun	.17 (8/46 )				
	Vocalization	.09 (4/46 )				
	Verb + Particle	.04 (2/46 )				
	Affirmative	.02 (1/46 )				
	Noun	.02 (1/46 )				
	Unintelligible	.02 (1/46 )				
RIO b	REQUEST OBJECT		COMMENT ON OBJECT		ROUTINE ACCOMPANIMENT	
	Verb	.40 (6/15 )	Noun	.71 (10/14)	Adverb	.55 (6/11)
	Verb + Noun	.20 (3/15 )	Adverb	.07 (1/14 )	Verb	.27 (3/11)
	Noun	.13 (2/15 )	Adjective	.07 (1/14 )	Vocalization	.18 (2/11)
	Modifier	.07 (1/15 )	Modifier + Noun	.07 (1/14 )		
	Verb + Demonstrative	.07 (1/15 )	Article + Modifier + Noun	.07 (1/14 )		
	Verb + Demons.+ Noun	.07 (1/15 )				
	Gesture	.07 (1/15 )	REQUEST-DIRECT ATTENTION			
			Verb	1.00 (14/14)		
			ROUTINE-GREETING			
			Ritualistic + Noun	.50 (7/14 )		
			Ritualistic	.43 (6/14 )		
			Unintelligible	.07 (1/14 )		

Rio's pattern at LL 1a included diverse function-form relations for two of the three most frequently expressed speech acts (i.e., a variety of forms accounted for the occasions of the speech acts), whereas the third most frequently expressed speech act had a form concentration (Verb for Request for Objects-.90).

At LL 1b, Rio's pattern was more similar to Ivan's and Brian's in that concentrated function-form relations for two of the three most frequently expressed speech acts were noted. The third most frequently expressed speech act had three form options. Specifically, Rio expressed Comment on Objects primarily with Nouns (.71), Requests - Direct Attention exclusively with Verbs, and Requests for Objects with Verbs (.40), Verb + noun (.20), and Noun (.13). A fourth frequently expressed speech act, Routine - Greetings, was necessarily expressed by Ritualistic forms in every instance ("Hi" or "Bye").

A common pattern noted at this stage therefore is a concentration of a particular form for two of the three most frequently expressed speech acts with more form diversity (i.e., different form types) noted in the third most frequently expressed speech act. In terms of the particular forms used to encode the

particular speech acts, commonality was noted across the three boys in the unsurprising use of nouns to express Comment on Objects. Other shared frequent speech acts at this level (e.g., Request Response and Request for Object) were expressed with different forms by the two boys who expressed them. These speech acts were open to individual variation for the boys at this linguistic stage, whereas Comment on Objects was not.

Function-form relations were also analyzed relative to the uniformity or diversity of forms used across most frequently expressed speech acts. Two patterns were noted. Two children used a different form to express each of the two most frequently expressed speech acts which had a form concentration. Ivan expressed Comment on Objects with nouns (.63) and Requests for Action with vocalizations (.71). Rio (LL 1b) expressed Comment on Objects with nouns (.71) and Request - Direct Attention with verbs (100%). Brian presented a different pattern, using nouns to express both Comment on Objects (.72) and Request for Objects (.85). This finding suggests that Brian was capable of using the same form type to express different functions, a pragmatic ability noted in early language development (Longtin, 1984).

Ivan's use of a vocalization rather than a verbalization to express Requests for Action suggested that he did not mobilize this linguistic-pragmatic ability, perhaps as a result of the demands of talking and requesting at the same time. The data do indicate, however, that he was capable of using the same form (noun) to express different speech acts at this linguistic level. Of course, the use of the same form type to express different speech acts may simply be a result of the particular speech acts expressed which dictates to some extent the forms that will be mobilized. Consider that Brian used nouns to express Requests for Objects, whereas Ivan used vocalizations to Request Actions. The use of the vocalization may have had more to do with the absence of a lexical item or form type than the demands of the speech act per se. The possibility of considering this finding from a form perspective will be explored later in the results.

At LL 2, the function-form diversity had developed both quantitatively and qualitatively (see Table 18). Continuity from the earlier stage was noted. For example, nouns continued to represent the largest form category for Comment on Objects for Ivan (.72) and Brian (.44). In fact, the status of nouns continued to be significant as one of the major form types for other frequently expressed speech acts (e.g., Ivan, Request

TABLE 18

## FORMS USED TO REALIZE THE MOST FREQUENTLY EXPRESSED SPEECH ACTS AT LINGUISTIC LEVEL 2

## IVAN

COMMENT ON OBJECT		REQUEST ACTION		REQUEST OBJECT	
Noun	.68 (13/19)	Verb + Particle	.38 (6/16)	*Verb + Article + Noun	.42 (5/12)
Ritualistic + Noun	.105 ( 2/19)	Demonstrative + Pronoun	.125 (2/16)	Noun	.33 (4/12)
Ritualistic	.05 ( 1/19)	Noun + Verb(ing)	.125 (2/16)	Demonstrative + Pronoun	.17 (2/12)
Modifier + Noun	.05 ( 1/19)	Verb + Article + Noun	.125 (2/16)	Article + Noun	.08 (1/12)
Noun + Noun	.05 ( 1/19)	Verb + Pronoun + Particle	.125 (2/16)	COMMENT ON ACTION	
Gesture	.05 ( 1/19)	Verb	.06 (1/16)	Noun + Verbing	.45 (5/11)
		Verb + Pronoun	.06 (1/16)	Verb + Particle	.27 (3/11)
				Verbing	.18 (2/11)
				Verbing + Noun	.09 (1/11)
				ROUTINE ACCOMPANIMENT	
				Ritualistic	.82 (9/11)
				Demonstrative + Copula	.09 (1/11)
				Demonst. + Pronoun + Verb	.09 (1/11)
				ROUTINE - PLAY TALK	
				Ritualistic	.55 (6/11)
				Vocalization	.45 (5/11)

\* Starred items indicate productive use of  
Verb + Noun and Verb + Pronoun

TABLE 18 (continued)

BRIAN

COMMENT ON OBJECT <sup>1</sup>		COMMENT ON ACTION		REQUEST OBJECT	
Noun('s) I	.43 (15/35)	Noun	.15 (2/13)	Noun	.27 (3/11)
Adjective	.085 (3/35)	Verb + Particle	.15 (2/13)	Demonstrative	.09 (1/11)
Demonstr. + Pro	.06 (2/35)	Verb	.08 (1/13)	Pronoun	.09 (1/11)
Negative	.03 (1/35)	Verb + Demonstr	.08 (1/13)	Modifier	.09 (1/11)
Demonstrative	.03 (1/35)	Verb + Prep	.08 (1/13)	Demonstr + Noun	.09 (1/11)
Noun's + Noun	.03 (1/35)	Demonst. + Verbs + Adv	.08 (1/13)	Verb + Demonstr	.09 (1/11)
Prep + Adverb	.03 (1/35)	Neg + Verb + Adv	.08 (1/13)	Verb + Noun	.09 (1/11)
Demonstr + Noun	.03 (1/35)	Noun + Verb + Noun	.08 (1/13)	Vocalization	.09 (1/11)
Demonst. + Adj	.03 (1/35)	Verb + Prep + Demons.	.08 (1/13)	UI	.09 (1/11)
Adverbst + Noun's	.03 (1/35)	Verb + Particle + Adv	.08 (1/13)		
Adverb + Noun's	.03 (1/35)	Verb + Pro + Particle	.08 (1/13)	REQUEST ACTION	
Dem + Cop. + N	.03 (1/35)			* Verb + Pronoun	.45 (5/11)
Adv + Noun's + N	.03 (1/35)			Noun + Verb + Pronoun	.27 (3/11)
Dem+ContrCop+Adj	.03 (1/35)			Noun	.09 (1/11)
UI	.085 (3/35)			Demonstrative + Noun	.09 (1/11)
				Verb + Noun	.09 (1/11)
				DISCOURSE-ACKNOWLEDGMENT <sup>1</sup>	
				Affirmative	.20 (2/10)
				Verb + Demonstrative	.20 (2/10)
				Noun	.10 (1/10)
				Verb + Nouns	.10 (1/10)
				Verb + Pronoun	.10 (1/10)
				Verb + Article + Noun	.10 (1/10)
				Preposition + Article + Noun	.10 (1/10)
				Noun+Verb+Art.+Noun+Adv.+Dem.	.10 (1/10)

1 Possessive form

TABLE 18 (continued)

RIO a

COMMENT ON OBJECT		REQUEST RESPONSE		ROUTINE ACCOMPANIMENT	
Neg. + Adj	.17 (4/23)	Adj + Noun	.30 (7/23)	Vocalization	.50 (6/12)
Noun	.13 (3/23)	Noun	.13 (3/23)	Adverb	.33 (4/12)
Adjective	.09 (2/23)	Adjective	.09 (2/23)	Verb	.08 (1/12)
Noun + Prep	.09 (2/23)	Verb	.09 (2/23)	Negative + Neg + Neg	.08 (1/12)
Neg + Adj + Noun	.09 (2/23)	Negative	.09 (2/23)		
Negative	.04 (1/23)	Adv + Verb	.09 (2/23)	REQUEST DIRECT ATTENTION	
Preposition	.04 (1/23)	WH Question	.04 (1/23)	Verb	.40 (4/10)
Negative + Noun	.04 (1/23)	Pronoun + Adjective	.04 (1/23)	Gesture	.10 (1/10)
Adverb + Noun	.04 (1/23)	Verb + Pronoun	.04 (1/23)	Verb + Verb	.10 (1/10)
Noun + Adverb	.04 (1/23)	Prep + Adverb	.04 (1/23)	Prep + Verb	.10 (1/10)
Prep + Nouns	.04 (1/23)	Adverb + Adjective	.04 (1/23)	Verb + Prep	.10 (1/10)
Pro+Contr.Cop+Adj	.04 (1/23)			Noun+Prep+Verb	.10 (1/10)
Adj + Noun + Prep	.04 (1/23)				
Adj + Noun + Prep				COMMENT TO SELF	
+Dem + Noun	.04 (1/23)			Neg + Adj	.50 (5/10)
UI	.04 (1/23)			Verb	.30 (3/10)
				Noun	.10 (1/10)
				Prep + Noun	.10 (1/10)
				REQUEST OBJECT	
				Verb	.44 ( 4/9)
				*Verb + Noun (s)	.44 ( 4/9)
				Verb + Adj + Noun (s)	.11 ( 1/9)

RIO b

REQUEST RESPONSE		COMMENT ON OBJECT		DISCOURSE ACKNOWLEDGMENT	
WHQ+Contr.Cop+Dem	.35 (9/26)	Noun	.235 (4/17)	Noun	.31 (4/13)
Modifier	.15 (4/26)	Dem + Noun	.235 (4/17)	Dem	.15 (2/13)
WHQ('s) + Noun	.115 (3/26)	Adjective	.06 (1/17)	Verb + Art + Noun	.15 (2/13)
WHQ+Contr.Cop+Art+Ns	.115 (3/26)	Art + Noun	.12 (2/17)	Verb	.08 (1/13)
Noun	.04 (1/26)	Adj + Nouns	.06 (1/17)	Noun Phrase	.08 (1/13)
Art + Noun	.04 (1/26)	Adj + Nouns + Adv	.06 (1/17)	Verb + Noun	.08 (1/13)
Pro + Verb	.04 (1/26)	Adv + Contr.Cop + Noun	.06 (1/17)	Art + Noun	.08 (1/13)
Verb + Art + Noun	.04 (1/26)	WHQ's + Dem + Noun	.06 (1/17)	Verb + Dem	.08 (1/13)
Verb + Mod + Noun	.04 (1/26)	Adv+Contr.Cop+Adj+Pro	.06 (1/17)		
UI	.04 (1/26)	UI	.06 (1/17)		

Object -.33; Brian, Request Object -.27) or as a constituent in a multiword combination which represented the major form type for a particular speech act (e.g., Ivan - Comment on Action: Noun + Verb (ing), .42). The other major form type which moved into the boys' linguistic systems and assumed a significant place was verbs (e.g., Ivan - Request Action: Verb + Particle(.38), RQ. Object: Verb + Art + Noun (.42); Brian - RQ. Action: Verb + Pronoun (.45) ).

Analyzing Rio's two samples at LL 2 allows one to view this level of linguistic development in slow motion. At LL 2a, the primary status of nouns seen for Ivan's and Brian's use of Comment on Objects was not found for Rio. Rather, nouns moved to the second most frequent slot for Comment on Object (following Neg. + Adj. - "no more"). Nouns did assume a major role in the expression of Request Response at this level. Verbs were noted with high frequency for Request - Direct Attention (.40), and Comment to Self (.30). At LL 2b, the noun assumed a primary status in two of the frequently occurring speech acts (Comment on Objects; Discourse - Acknowledgment). The development of a new form, the Wh question structure, unique to Rio at this stage, appeared in the Request Response speech act.

The diversity across children for a particular speech act type is best illustrated at this level with Request for Objects. While all three boys expressed this speech act with comparable frequency, form realizations were diverse. Whereas Ivan used primarily verb + art.+ noun (.42) and nouns (.33) and Rio (LL 2a) used primarily verbs (.44) and verb + noun(s) (.44), Brian used a variety of forms. Within the diversity, similarity can be seen in Ivan and Rio's use of a verb phrase with a noun (.42 vs. .44, respectively) to express Request for Objects. This form occurred infrequently in Brian's data (.09) for Request for Objects; however, verb + pronoun was found in Requests for Action with comparable frequency (.45).

As can be seen, the emergence of the Verb + Object relation was found in Requests for Ivan and Rio (LL2a). Brian's non-imitative use of the Verb + Object structure was most frequent in Requests as was Ivan's and Rio's (see asterisked items in Table 18). Productive occasions of these structures were noted in other speech acts for Brian and Rio (LL2b).

Use of verbs was not restricted to Requests at this stage. Brian's use of verbs in diverse multiword combinations was noted in Discourse - Acknowledgments

(6/10). Similarly, Ivan's use of verbs was noted in Comment on Action (11/12), while Rio's use of verbs (LL 2a) was also noted in Comments to Self (3/10).

Trends relative to types of verb constructions and speech act types were noted at LL2. For example, with respect to forms occurring in most frequently expressed speech acts only, Ivan's productive use of verb + (art.) + noun or verb + object occurred in Requests, while his productive use of noun + verb (ing) or Subject + verb occurred in Comment on Action.

In terms of forms used to encode most frequently expressed speech acts at LL 3, diversity was pervasive. This diversity was particularly well illustrated when LL 3 was compared to the previous linguistic stage. Focusing on one speech act type, Comment on Action/State (the most frequently expressed speech act for both boys at LL 3), the striking changes in the form systems can be appreciated (see Table 19).

The issue of diversity in speech acts was explored at the lexical level as well as at the structural level for Requests and Comments (see Table 20). A type-token analysis was done for all intelligible occasions of these speech acts (imitations and the general categories of vocalizations and gestures were included in the tokens). With the exception of Ivan, Comments

TABLE 19

## FORMS USED TO REALIZE THE MOST FREQUENTLY EXPRESSED SPEECH ACTS AT LINGUISTIC LEVEL 3

IVAN

COMMENT-ACTION/STATE		REQUEST-RESPONSE:		REQUEST-ACTION	
Noun+Vbs+Noun+(Adv)	3/24 (.125)	Dem + Vbs + Adv	6/15 (.40)	Verb + Dem (Pro)+Part	3/13 (.23)
Pro + Neg.Do + Verb	2/24 (.08)	Noun	1/15 (.07)	Verb + Pro + Verb+Pro	2/13 (.15)
Neg. Modal+Vb+Dem	2/24 (.08)	Dem	1/15 (.07)	Prep. Phrase	2/13 (.15)
Noun+Neg.Do+Vb+Nouns	2/24 (.08)	Verb + Dem	1/15 (.07)	Poss. Pro + Noun	1/13 (.08)
Neg.Do+Verb+Dem	2/24 (.08)	Verbs + Adv	1/15 (.07)	Neg + Verb + Pro	1/13 (.08)
(Adv)+Dem+N+N	2/24 (.08)	Verb + Dem + Noun	1/15 (.07)	Noun + Verb + Pro	1/13 (.08)
Neg. Phrase+Noun	2/24 (.08)	QPhr+Dem+N	1/15 (.07)	Verb + Art + Noun	1/13 (.08)
Verb + Pro	2/24 (.08)	WHQ. Phr + Adv	1/15 (.07)	Verb+Dem+Part+Prep	1/13 (.08)
Dem + Neg.Do + Verb	1/24 (.04)	Dem + Neg.DO + Verb	1/15 (.07)	Adv+Pro+Contr.Cop+	1/13 (.08)
Adv + N Vb + Pro	1/24 (.04)	Dem + Verb +Prep + N	1/15 (.07)	Poss. Pro + Noun	
Neg.Do+Modal+Vb+Dem+Adv	1/24 (.04)				
Noun+Adv+Vb+Dem	1/24 (.04)				
Adv+Dem+Vbs+N+Adv	1/24 (.04)				
UI	2/24 (.08)				
DISCOURSE-ACKNOWLEDGMENT				REQUEST-OBJECT	
Neg.Do+Verb+(Dem)Pro	2/23 (.09)			Modal + Noun	2/13 (.15)
Modal+Pro+Verb+Pro	2/23 (.09)			Noun + Verb + Dem	2/13 (.15)
Affirmative	1/23 (.04)			Verb + Dem + (Adj)	2/13 (.15)
Noun	1/23 (.04)			Dem	1/13 (.08)
Adjective	1/23 (.04)			Verb + Dem + UI	1/13 (.08)
Demonstrative	1/23 (.04)			Noun + Modal + N	1/13 (.08)
Ritualistic	1/23 (.04)			N + Verb + Dem + N	1/13 (.08)
Verb + Dem	1/23 (.04)			N + Verb + Art + N	1/13 (.08)
Noun + Verb	1/23 (.04)			N + Mdl + Vb + Art + N+Adv	1/13 (.08)
Noun + Adj	1/23 (.04)			Modal + Verb + Dem + Adv	1/13 (.08)
Verb + Dem + Pro	1/23 (.04)				
Noun + Modal + Noun	1/23 (.04)			DISCOURSE-REJECTION	
Verb + Dem + Nouns	1/23 (.04)			Neg + Noun	2/13 (.15)
Adv + Noun's + Noun	1/23 (.04)			Neg+Mdl+Verb+(Art)+N	2/13 (.15)
Pro's + Noun's + Noun	1/23 (.04)			Neg	1/13 (.08)
Modal + Verb + Noun	1/23 (.04)			Dem + Verb + Noun	1/13 (.08)
Modal + Verb + Dem + Noun	1/23 (.04)			Neg DO + Verb + Pro	1/13 (.08)
Modal + Verb + Adj + Noun	1/23 (.04)			Neg Verb + Art + Noun	1/13 (.08)
Neg.Do+Modal+Dem+ Noun	1/23 (.04)			Neg DO+Modal+Dem+Noun	1/13 (.08)
Noun+Verb+Prep+Art+Noun	1/23 (.04)			Neg + Modal + Verb + Pro	1/13 (.08)
Neg.DO+Modal+Inf.Verb+Rit	1/23 (.04)			Neg+ Modal + Verb + Adv	1/13 (.08)
				Neg+DO+Cop+Verb + Adv	1/13 (.08)
				Neg+Dem+Noun+Verb+Noun	1/13 (.08)

TABLE 19 (continued)

BRIAN	COMMENT-ACTION/STATE		DISCOURSE-ACKNOWLEDGMENT		COMMENT-OBJECT	
	Verb (ing)	4/59 (.07)	Affirmative	21/22 (.95)	Noun	3/14 (.21)
	Pro+Verb(ing)+Adv	4/59 (.07)	Noun	1/22 (.05)	Dem + Noun	3/14 (.21)
	Verb + Noun	3/59 (.05)			Dem('s) + Prep + Noun	2/14 (.14)
	Pro + Verb + Pro	3/59 (.05)			Dem + Art + Noun	1/14 (.07)
	Noun(s)+Vb(ing)+N(s)	3/59 (.05)			Noun + Verb + Prep + Noun	1/14 (.07)
	Neg.Modal+Vb+Part+Adv	3/59 (.05)			Dem's + Art + Adj + Noun	1/14 (.07)
	Verb(ing) + Adv	2/59 (.03)			Dem+Adj+Pro+Prep+N	1/14 (.07)
	Verb+Prep+Art+N	2/59 (.03)			N+Contr.Cop.+Prep+N	1/14 (.07)
	Pro + Verb(ing)	2/59 (.03)			Dem+Adj+N+Vb+Art+N+Prep+Pro	1/14 (.07)
	Pro+Modal+Vb+(Dem)+N	2/59 (.03)				
	Dem + Vb + Prep + Noun	1/59 (.02)				
	N + Vbs + Prep	1/59 (.02)				
	Pro'll+Vb+Dem+N+Prep+N	1/59 (.02)				
	Pro'll+Vb+Part+Dem	1/59 (.02)				
	Dem + Noun + Verb	1/59 (.02)				
	Prep + Art + Noun	1/59 (.02)				
	Noun + Noun	1/59 (.02)				
	Verb + Dem	1/59 (.02)				
	Prep + Art + Adj + N	1/59 (.02)				
	N+Vb+Prep+Adj+N	1/59 (.02)				
	N+Conj+N+Vb+Rit	1/59 (.02)				
	Vb+N+Prep+Art+N	1/59 (.02)				
	N + Vbing + Adv	1/59 (.02)				
	Prep + N + Vbing	1/59 (.02)				
	Vb + Part + Adv	1/59 (.02)				
	Pro+Neg.Modal+Vb+Pro	1/59 (.02)				
	Noun+Neg.Mod+Vb+Pro	1/59 (.02)				
	N+Contr.Cop+Vb+Pro	1/59 (.02)				
	N + Modal + Verb	1/59 (.02)				
	N+Prep+Pro+Vbing+N+Adv	1/59 (.02)				
	Vbing + Inf + Vb	1/59 (.02)				
	Dem+N+Vbing+Inf+Vb+Adv	1/59 (.02)				
	Vbing+Inf+Vb+Art+N	1/59 (.02)				
	Adj + Noun	1/59 (.02)				
	Pro+Vb+Prep+Noun	1/59 (.02)				
	Pro+Modal+Vb+Part	1/59 (.02)				
	Pro + Vb + Art + N	1/59 (.02)				
	Vb + Adv + Adv	1/59 (.02)				
	Pro+Vb+Vb+Inf+Vb	1/59 (.02)				
	UI	1/59 (.02)				

TABLE 20

## LEXICAL DIVERSITY OF REQUESTS AND COMMENTS AT LINGUISTIC LEVELS 1 AND 2

CHILD	LINGUISTIC LEVEL 1		LINGUISTIC LEVEL 2	
	Requests	Comments	Requests	Comments
IVAN	.45 (19/40)	.50 (27/54)	.64 (21/33)	.84 (26/31) <sup>2</sup>
BRIAN	.39 (11/28)	.55 (35/64) <sup>1</sup>	.70 (21/30)	.77 (41/53)
RIO a	.43 (10/23)	.65 (13/20) <sup>2</sup>	.60 (30/50)	.68 (26/38)
RIO b	.44 (18/42)	.75 (21/28) <sup>2</sup>	.64 (25/39)	.90 (27/30) <sup>2</sup>

1- significant at  $p < .05$  level

2- significant at  $p < .01$  level

at LL 1 were significantly more diverse than Requests (Brian -  $p < .05$ ; Rio, LL1a and LL1b -  $p < .01$ ). It is possible that a "trade-off" relationship exists between the interactive demands of Requests and lexical diversity. In fact, Comments which were lexically more diverse for two of the three boys were expressed interactively less often than Requests, supporting the "trade-off" notion. The possibility that these findings say more about the language itself than the children's use of language should be considered. For example, Requests may effectively be communicated with a more limited repertoire of single words.

The findings at LL 2 do not support the hypothesis proposed at LL 1. At this stage, Ivan's and Rio's (2b) Comments were significantly more diverse ( $p < .01$ ) than their Requests and they were primarily interactive (.68, .67 respectively). Further, Rio's (2a) Requests and Comments were equally diverse at a point when Requests were primarily interactive and Comments were primarily non-interactive. Although these findings do not negate a potential relationship between interactiveness and lexical development, they do suggest that any limitations imposed on lexical growth by interactiveness may be short-lived.

To summarize the major findings discussed in this section, group trends were noted for forms used to encode frequently expressed speech acts. For example, at Linguistic Level 1, Comment on Objects were expressed with nouns by all three boys. Individual styles were also noted at this stage, specifically in the forms used to express Requests. At Linguistic Level 2, single nouns and word combinations including nouns represented a major form category for Comments and Requests. In addition, Requests were often encoded with single verbs (Rio) or multi-word combinations including verbs. In fact, the emergence and productive use of the Verb Phrase occurred in Requests for all three boys. Despite these trends, individual variation was again noted in the particular forms used to encode Requests (e.g., Verb + Noun versus Verb + Pronoun). Use of a particular form type to express a speech act, such as the Wh- Question to Request Responses, was unique to one child.

Finally, the samples of the two boys who reached Linguistic Level 3 clearly reflect the diversity of form types available to express frequent speech acts at MLUs of 2.75 to 3.2.

### Discourse - Acknowledgments: Form

Following the general analysis of speech acts relative to form, specific analysis of the category of Discourse-Acknowledgments was undertaken. This speech act was of particular interest because it was one of the few functions which emerged over time. Further, the differences noted in the form realizations for the speech act led to questions about the relationship between form and function over the course of early development.

While Ivan and Brian expressed the same number of Discourse - Acknowledgments at LL3 (22), interesting differences in forms used to accomplish this speech act were noted. Ivan used 21 different forms to express Discourse - Acknowledgments with no particular form concentration. Upon closer examination, this finding actually reflected the fact that Ivan's Acknowledgments involved some kind of imitation of the adult's prior utterance. For example,

- 1) Adult: "You wanna puzzle?"  
Ivan : "I wanna puzzle."
- 2) Adult: "Do you wanna play something else?"  
Ivan: "Wanna play something else."

In fact, 100% of Ivan's Discourse - Acknowledgments were imitations of some kind . Interestingly, Ivan

---

used a similar strategy to express Discourse -  
Rejection. For example,

- 3) Adult: "Ivan, do you want to play with the house?"  
Ivan: "No wanna play a house."

The form of Brian's Acknowledgments at LL3 were quite different. In fact, .95 of Brian's Discourse-Acknowledgments were simple affirmations. For example,

- 4) Adult: "You have the key?"  
Brian: "Yeah."

Brian did not use imitation as a strategy to express this kind of Discourse act at this linguistic stage.

This finding leads to an appreciation of the value of longitudinal data. In an attempt to understand the differences in use of forms to express Discourse - Acknowledgment, data from the previous linguistic stage were reconsidered. At LL 2, Discourse - Acknowledgment was one of the most frequently occurring speech acts for Brian (although of low frequency - .10). Of the 10 Discourse - Acknowledgments in Brian's data, eight different forms were noted with no particular form concentration. This finding reflected the fact that .80 of Brian's Acknowledgments involved some kind of imitation of the adult's prior utterance. For example,

- 5) Adult: "You want one of these?"  
Brian: "Want these."

- 6) Adult: "You want to play with that?"  
Brian: "Play that."

It appeared that at an earlier linguistic stage, Brian expressed Discourse - Acknowledgments using an imitation strategy which Ivan mobilized at a higher linguistic level. Beyond this, having passed through the stage, Brian moved on to develop a more sophisticated strategy which actually represented a more adult form of acknowledgment.

Rio's data appear to strengthen the case. In fact, Discourse - Acknowledgment was one of Rio's most frequent speech acts at LL 2b (.12). Of the 13 occasions of Acknowledgment, eight different forms were found (single nouns accounted for .30 of the Acknowledgments). Once again, the form diversity reflected the use of imitation in that 100% of Rio's Acknowledgments involved some kind of repetition of the adult's prior utterance. For example,

- 7) Adult: "You want the house?"  
Rio: "Want the house."

It is reasonable to assume that at subsequent linguistic stages Ivan and Rio's Discourse-Acknowledgments would be characterized by less imitation and more adult-like forms.

In addition to the form of Acknowledgments, the discourse aspect of these speech acts was analyzed.

The question posed here was "What is being acknowledged?" Of the four samples in which Discourse-Acknowledgments were a frequently expressed speech act (i.e., Ivan - LL 3; Brian - LL2, LL 3; Rio - LL 2b), 100% of the Acknowledgments in three of the samples were in response to the adult's Request for a Response. The form of these adult requests was generally elliptical Yes/No questions, such as:

- 8) "want these pieces?"  
 "two more?"  
 "enough?"  
 "want ketchup?"

In Brian's sample at LL 3, Acknowledgments also occurred in response to non-requests. In fact, .32 of Brian's Acknowledgments were in response to the adult's prior comment. These findings suggest that in addition to the linguistic sophistication noted in Brian's Acknowledgments at this point, a conversational sophistication is reflected in his use of Acknowledgments in non-obligatory contexts. The co-existence of these two types of sophistication speaks to the wisdom of discussing form-function developments synergistically, rather than separately.

In summary, a developmental trend for Acknowledgments was identified, not only in reference to form, but also in reference to discourse. It

appeared that acknowledgments, a particular type of discourse act, emerged first in obligatory pragmatic-linguistic contexts (question-response pair). The use of non-obligatory acknowledgments may await increased linguistic and/or conversational awareness.

### General Form Types

The distribution of general form types is displayed in Table 21. The interesting finding here was the prevalence of the use of the combined category, Verbalization + Gesture. While all three boys used verbalization with gesture at LL1, only one child (Brian) demonstrated a decrease in this category over the three linguistic stages. For Ivan, Verbalization + Gesture actually doubled in frequency from the initial linguistic level to the last linguistic level (.14 to .30). For Rio, a significant increase was noted ( $p < .01$ ) at LL1b with a decrease at LL2: however, even with this decrease, Rio continued to use Verbalization with Gesture .16 of the time at LL 2b.

Although the three children were at comparable linguistic levels at the outset, only Rio used gesture alone to any extent (.13). Despite the fact that the use of gesture alone was minimal at early language stages, the use of gesture in combination with talk

TABLE 21

PROPORTION OF GENERAL FORM TYPES AT LINGUISTIC LEVELS 1, 2, 3

		LINGUISTIC LEVEL					
		LL1		LL2		LL3	
		1					
IVAN	VERBALIZATION	.73	(91)	.71	( 89)	.66	( 83)
	GESTURE	.03	( 4)	.05	( 6)	.03	( 4)
	VOCALIZATION	.06	( 7)	.04	( 5)	.01	( 1)
	COMBINED:						
	VB + GS	.14	(17)	.19	( 24)	.30	( 37)
	VOC + GS	.03	( 5)	.01	( 1)		
	VOC + VB	.01	( 1)				
BRIAN	VERBALIZATION	.76	(95)	.84	(105)	.94	(118)
	GESTURE	.04	( 5)	.05	( 6)		
	VOCALIZATION	.02	( 2)	.02	( 2)	.01	( 1)
	COMBINED:						
	VB + GS	.18	(23)	.10	( 12)	.05	( 6)
RIO a	VERBALIZATION	.73	(91)	.74	( 93)		
	GESTURE	.13	(16)	.08	( 10)		
	VOCALIZATION	.04	( 5)	.04	( 5)		
	COMBINED:						
	VB + GS	.10	(12)	.13	( 16)		
	VOC + GS						
	VOC + VB	.01	( 1)	.01	( 1)		
RIO b	VERBALIZATION	.53	(66)	.70	( 88)		
	GESTURE	.07	( 9)	.09	( 11)		
	VOCALIZATION	.02	( 3)				
	COMBINED:						
	VB + GS	.37	(46)	.16	( 20)		
	VOC + GS	.01	( 1)	.05	( 6)		
	VOC + VB						

1

Numbers in ( ) are actual counts of a possible 125 communicative acts which defined each sample

appeared to be a reflection of communicative sophistication as well as individual style.

### Specific Form Types

#### Distribution of Most Frequent Forms

Table 22 displays the most frequent forms produced at Linguistic Levels 1 and 2. Only forms produced at least .09 of the time were included in the frequent form analysis. The "Total" represents the number of intelligible verbal forms produced in that sample. The frequent form analysis was not done at the third linguistic level because the diversity of forms reduced the frequency of any particular structural type.

As with speech acts, group trends as well as individual differences were noted in the frequency and productivity of the expression of specific forms. As can be seen, noun was a frequently produced form at LL1 (Rio-LL1b) for all three boys. The frequent use of ritualistic forms at LL1 was an unexpected finding. The majority of ritualistic forms used at this stage were greetings (e.g., "Good-night") and exclamations (e.g., "Uh oh").

Rio's frequent use of verbs at LL 1a was deceptive because only one lexical item, "Gimme," actually

TABLE 22

## MOST FREQUENTLY PRODUCED FORMS AT LINGUISTIC LEVELS 1 AND 2

CHILD		LL 1		LL 2	
IVAN	Noun	.37 (36)		Ritual	.21 (22 )
	Ritual	.13 (13) <sup>1</sup>		Noun	.19 (20 )
	Total (of 125)	(97) <sup>1</sup>		Verb+Particle	.12 (13 )
				Total (of 125)	(105)
BRIAN	Noun	.64 (61)		Noun	.29 (28 )
	Ritual	.09 (8 )		Verb+(Dem) Pro	.10 (10 )
	Total (of 125)	(94)		Total (of 125)	(96 )
RIO a	Ritual	.26 (22)		Verb	.15 (16 )
	Verb	.24 (20)		Negative+Adj.	.10 (10 )
	Noun+Noun	.12 (10)		Total (of 125)	(104)
	Total (of 125)	(85)			
RIO b	Verb	.25 (25)		Noun	.16 (16 )
	Noun	.21 (21)		WHQ's + Dem	.10 (10 )
	Adverb	.10 (10)		Total (of 125)	(100)
	Total (of 125)	(99)			

1

This number represents the number of intelligible utterances within the total of 125 communicative acts.

accounted for 19 of the 20 occasions of this form type. At LL1b, Rio was capable of verb diversity ("gimme," "drink," "look," "listen," and "see"). Rio's use of verbs of notice, such as "look," "listen," and "see," was idiosyncratic.

Noun continued to be a most frequently expressed form at LL2 (Rio - LL2b) for all three boys. In addition to this similarity, all three boys produced a verb or verb phrase as a frequent form at this stage (Rio - LL2a). Ivan's frequent use of Ritualistic forms and Rio's frequent use of WH Question forms are examples of individual style in form at this stage.

In terms of use of frequent forms at early language levels, group trends included the frequent use of nouns at Linguistic Levels 1 and 2, the frequent use of ritualistic forms at LL1, and the frequent use of verbs at LL2. Individual patterns included the proportional frequency of use of shared forms (e.g., at LL1, Noun frequency ranged from .21 to .64) as well as the use of particular form types (e.g., Wh- Question form). The trends for frequent use noted across children at the first two linguistic levels could not be identified at the highest linguistic level because of the burst of form diversity noted at that point.

Finally, less range was noted in most frequently produced forms than in most frequently expressed speech acts. For example, at LL2, two of the three boys produced only two forms frequently, given the cut-off of .09 or greater. At the same linguistic level, the three boys expressed five or six speech acts frequently (with the exception of Rio - LL2b) suggesting that

- a) a great deal is accomplished functionally with a small repertoire of forms types, and
- b) the form system is more "compact" at LL2 than the functional system.

#### Distribution of Productive Forms

With respect to productive forms, group trends as well as individual differences were again noted. As can be seen in Table 23, certain forms were used productively across children at Linguistic Levels 1 and 2 (e.g., nouns). Other forms were used productively across children at certain linguistic levels (e.g., Ritualistic forms and Ritualistic + Noun at LL1; Verb + Noun at LL 2). Finally, some forms were not used productively by all children, but rather were specific to that child at that time and therefore appear to reflect individual variation. For example,

Ivan	Verb + Particle	LL2
Brian	Noun + Verb + Pronoun	LL2

TABLE 23

## PRODUCTIVE FORMS AT LINGUISTIC LEVELS 1 AND 2

CHILD	Linguistic Level 1	Linguistic Level 2
IVAN	Noun Verb Preposition Adjective Ritualistic Noun + Verb Modifier + Noun Ritualistic + Noun Preposition + Article + Noun	Noun Negative Verb Ritualistic Demonstrative + Pronoun Verb + Participle Noun + Verb(ing) Verb + Article + Noun
BRIAN	Noun Verb Demonstrative Ritualistic Modifier + Noun Ritualistic + Noun	Noun Demonstrative Adjective Demonstrative + Noun Verb + Demonstrative Verb + Pronouns Verb + Noun(s) Verb + Particle + Adverb Noun + Verb + Pronoun

TABLE 23 (continued)

CHILD	Linguistic Level 1	Linguistic Level 2
RIO a	Adverb Affirmative Adjective Verb Noun Ritualistic Negative + Adjective Noun + Noun Ritualistic + Noun	Verb Noun Adjective Negative Preposition Adverb Ritualistic Negative + Adjective Verb + Noun(s) Adjective + Noun(s) Preposition + Noun(s)
RIO b	Adverb Noun Adjective Negative Verb Ritualistic Verb + Noun Verb + Demonstrative Ritualistic + Noun	Verb Adjective Noun Ritualistic Demonstrative + Noun Verb + Noun Adjective + Noun WH Question's + Noun WH question's + Demonstrative Article + Noun Modifier + Verb + Noun Verb + Article + Noun

Rio	Wh Question's + Noun	
	Wh Question's + Demonstrative	LL2b
	Modal + Verb + Noun	

As can be seen, the children expressed a range of 6 to 9 productive forms at the lowest linguistic level and 8 to 12 productive forms at the second linguistic level. Only four of the productive forms were shared by all three boys at LL1, suggesting more diversity in productive forms than had been noted in productive speech acts. (This finding is undoubtedly related to the fact that a greater variety of form categories than functional categories had emerged from the data). This trend was most obvious at LL2 where only two productive forms (Noun; Verb + (Article) + Noun) were shared across the children indicating the enormous productive form diversity or capacity at this point in development. The fact that productive capacity varied across children for form more than for function should not obscure the finding that a smaller number of frequently used forms than frequently expressed speech acts was found within each child's sample. Further, differences found between productivity analyses and frequency analyses suggest that understanding a child's language system requires attention to at least these two measures.

Diversity of most frequent and productive forms was examined by using two levels of criteria. The

first level, low diversity, was defined as three different lexical tokens of a particular form (e.g., nouns), while the second level, high diversity, was defined as more than three different lexical tokens of a form. As can be seen in Table 24, at Linguistic Level 1, Ivan and Rio (LL1a) demonstrated high diversity for one of their most frequent forms, while Brian demonstrated high diversity for both of his most frequent forms. At LL1b, Rio demonstrated high diversity for all three of his most frequently expressed forms. At LL2, high diversity was noted in one to three of the most frequently produced forms, suggesting discontinuity in diversity for frequent forms from the first to second linguistic stage. It should be noted that frequent forms were either "highly" diverse or not diverse at all.

In terms of productive forms at LL 1, diversity was noted for two of Rio's (LL1a) forms (one low, one high), two of Brian's forms (high), and three of Ivan's forms (two low, one high). Rio's form diversity at LL1b was again significantly greater than at LL1a as indicated by the fact that four of his productive forms achieved high diversity, while one additional form reached the low diversity criteria. Considering LL1b, Rio actually demonstrated the greatest form diversity

TABLE 24

DIVERSITY OF MOST FREQUENT AND PRODUCTIVE FORMS POSSESSING LOW AND HIGH DIVERSITY AT LINGUISTIC LEVELS 1 AND 2

CHILD	DIVERSITY	MOST FREQUENT		PRODUCTIVE	
		LL 1	LL 2	LL 1	LL 2
IVAN	LOW			2/9 (.22)	
	HIGH	1/2 (.50)	3/3 (1.00)	1/9 (.11)	5/8 (.625)
	TOTAL			.33	.625
BRIAN	LOW			2/9 (.22)	
	HIGH	2/2 (1.00)	1/2 (.50)	2/6 (.33)	3/9 (.33)
	TOTAL			.33	.55
RIO a	LOW			1/9 (.11)	1/11 (.09)
	HIGH	1/3 (.33)	1/2 (.50)	1/9 (.11)	3/11 (.27)
	TOTAL			.22	.36
RIO b	LOW			1/9 (.11)	3/12 (.33)
	HIGH	3/3 (1.00)	2/3 (.67)	4/9 (.44)	5/12 (.42)
	TOTAL			.55	.75

for both most frequent and productive forms at the first MLU stage.

Significant increases ( $p < .01$ ) in diversity for productive forms were noted in Ivan's sample from .33 at LL1 to .62 at LL 2. Similarly, diversity of productive forms increased significantly ( $p < .01$ ) for Brian from .33 at LL1 to .55 at LL2 and for Rio, from .55 at LL1b to .75 at LL2b. As these findings indicate, in addition to the development of complexity in productive forms at LL2, development of the capacity for diversity appears to be a hallmark and a trend at MLUs of 1.75 to 2.25.

Finally, in terms of noteworthy form differences at LL 3, Ivan's use of a variety of forms to express Discourse-Acknowledgments can be contrasted with Brian's expression of this speech act primarily with Affirmative forms (see Table 19). This difference in form development is an artifact of the use (Ivan) versus non-use (Brian) of imitations within this speech act category discussed earlier in reference to the developmental nature of Discourse - Acknowledgments. Ivan's use of an imitation strategy to respond to Yes - No Requests also resulted in the pervasive use of complete responses to questions with only subjects

deleted. This finding suggests that elliptical responses found in early development do not necessarily reflect full linguistic sophistication regarding presuppositions and redundancy.

To summarize, a core of most frequently encoded forms and productive forms was noted across children and across linguistic levels. Once again, this finding should not obscure the fact that individual patterns were identified both in terms of frequency and productivity of forms. When frequent and productive forms were compared to frequent and productive speech acts, the results show that the children expressed fewer frequent forms than frequent speech acts. Further, more diversity across children was noted in productive forms than had been found in productive speech acts. Finally, lexical diversity in productive forms increased significantly for all three children at the second linguistic level, suggesting that increases in syntactic complexity and lexical diversity co-exist at the two word stage of language development.

#### Forms: Speech Acts

In a second attempt to understand the "map" of the inter-relationship between form and function and to address the question of trends versus styles within a synergistic framework, the distribution of speech acts

relative to the most frequently encoded forms was analyzed. It should be recalled that only forms produced at least .09 of the time were included in the frequent form analysis (See Table 22 for the number of forms that reached this criterion). Based on this cut-off, only two frequent forms will be discussed for certain children at certain linguistic levels.

At LL1, it was noted that the three boys (Rio, LL1b) shared use of nouns as a frequent form to greater or lesser degrees. In all cases (see Table 25), the majority of nouns were used to express Comment on Objects (.78, .54, .48, for Ivan, Brian, and Rio, respectively). The second major type of speech act expressed by nouns was consistently a request; however, each boy demonstrated a different request type:

Ivan	Request Response = .11
Brian	Request Object = .11
Rio (LL 1b)	Request Action = .19

The range of productive speech acts expressed with nouns varied from two for Rio, three for Ivan, and five for Brian. Ritualistic forms were the second most frequent form for both Ivan and Brian at LL 1. Ritualistic forms were used primarily to express

TABLE 25

## SPEECH ACTS EXPRESSED BY THE MOST FREQUENTLY PRODUCED FORMS AT LINGUISTIC LEVEL 1

IVAN	NOUN		RITUALISTIC			
	Comment on Object	.78 (28/36)	Routine-Greeting	.69 (9/13)		
	Request for Response	.11 ( 4/36)	Routine-Play Talk	.31 (4/13)		
	Request for Action	.08 ( 3/36)				
	Undetermined	.03 ( 1/36)				
BRIAN	NOUN		RITUALISTIC			
	Comment on Object	.54 (34/61)	Routine-Greeting	.50 (4/8)		
	Request for Object	.18 (12/61)	Routine-Accomp.	.25 (2/8)		
	Request Response	.08 ( 5/61)	Routine-Play Talk	.125 (1/8)		
	Comment on Event	.06 ( 4/61)	Comment on Object	.125 (1/8)		
	Comment on People	.05 ( 3/61)				
	Discourse-Ackn.	.03 ( 2/61)				
	Undetermined	.02 ( 1/61)				
RIO a	RITUALISTIC		VERB	NOUN + NOUN		
	Routine-Accomp.	.86 (19/22)	Routine-Accomp.	.50 (10/20)	Routine-Accomp.	.80 (8/10)
	Protest	.09 ( 2/22)	Request for Object	.45 ( 9/20)	Comment on Object	.20 (2/10)
	Comment on Action/State	.05 ( 1/22)	Request for Action	.05 ( 1/20)		
RIO b	VERB		NOUN	ADVERB		
	RQ.-Direct Attention	.56 (14/25)	Comment on Object	.48 (10/21)	Routine-Accomp.	.60 (6/10)
	Request for Object	.24 ( 6/25)	RQ. for Action	.19 ( 4/21)	Comment to Self	.10 (1/10)
	Routine-Accomp.	.12 ( 3/25)	Comment on Action	.10 ( 2/21)	Request Response	.10 (1/10)
	Request for Action	.04 ( 1/25)	Request for Object	.10 ( 2/21)	Comment on Object	.10 (1/10)
	Undetermined	.04 ( 1/25)	Comment to Self	.05 ( 1/21)	Undetermined	.10 (1/10)
			Undetermined	.10 ( 1/21)		

Routine - Greetings (.70, .50, for Ivan and Brian, respectively).

Once again, Rio presented a different profile. At LL1a, Rio's most frequent forms were Ritualistic forms (.26) and Verbs (.24). Ritualistic forms were used almost exclusively as Routine-Accompaniments (.86). Verbs were used to express Requests for Objects (.45) and Routine Accompaniments (.50). The majority of occasions of Rio's third most frequently expressed form (Noun + Noun - "triangle block") occurred in sequence within one conversational unit, in this case as Routine- Accompaniments.

Trends noted at this stage were the concentrated use of at least two of the three most frequently expressed forms with more or less flexibility in terms of the number of productive speech acts expressed (Consider Brian's use of nouns versus Rio's use of nouns). The fact that all of Rio's most frequent forms (Ritualistic, Verb, Noun + Noun) were used to express Routine - Accompaniments suggest that this function had a primary status in his developing communication system. In contrast, Brian's use of nouns to accomplish different types of Comments (Object, Event, People) as well as different types of Requests (Object,

Responses) suggests that this form may have had a primary status in his developing communication system.

At LL 1b, Rio's form system had changed considerably. The frequent use of Ritualistic forms disappeared and nouns were now produced frequently. While Routine- Accompaniments continued to be expressed by the third most frequent form, Adverbs, verbs primarily expressed Request-Direct Attention and nouns primarily expressed Comment on Objects as mentioned earlier. Both of these forms expressed other productive speech acts, including Requests for Objects (verbs) and Requests for Action (nouns). Rio's communication system at this point seemed more similar to the other boys, primarily because frequent forms were used to express a variety of speech acts productively (see Table 25).

By LL 2 , form concentrations were diluted as revealed by the proportions of most frequent forms (see Table 22). Although considerable variability was noted across children, the use of nouns as a frequent form to express Comment on Objects (Rio, LL2b) continued to unite the three boys (see Table 26). The fact that use of a single noun to Comment on Objects maintained its central place speaks to the continuity in development

Table 26

## SPEECH ACTS EXPRESSED BY THE MOST FREQUENTLY PRODUCED FORMS AT LINGUISTIC LEVEL 2

IVAN	RITUALISTIC		NOUN		VERB + PARTICLE	
	Routine-Accomp.	.32 (7/22)	Comment on Object	.65 (13/20)	Request for Action	.46 (6/13)
	Routine-Play Talk	.23 (5/22)	Request for Object	.20 (4/20)	Comment on Action	.23 (3/13)
	Routine-Greeting	.18 (4/22)	Comment on Event	.05 (1/20)	Request Response	.15 (2/13)
	Routine-Social Game	.18 (4/22)	Request Response	.05 (1/20)	Discourse-RS RQ. Clar	.08 (1/13)
	Routine-Expr. Pleasure	.05 (1/22)	Discourse-RS RQ Clar.	.05 (1/20)	Discourse-Acknow.	.08 (1/13)
	Comment on Object	.05 (1/22)				
BRIAN	NOUN		VERB+(DEM) PRONOUN			
	Comment on Object	.54 (15/28)	Request for Action	.50 (5/10)		
	Comment on People	.14 (4/28)	Discourse-Acknow.	.30 (3/10)		
	Request for Object	.11 (3/28)	Comment on Action/State	.10 (1/10)		
	Comment on Action/State	.035 (1/28)	Request for Object	.10 (1/10)		
	Comment to Self	.035 (1/28)				
	Request for Action	.035 (1/28)				
	Discourse-Ackn.	.035 (1/28)				
	Discourse-RS.RQ.Clar	.035 (1/28)				
	UD	.035 (1/28)				

TABLE 26 (continued)

RIO a	VERB		NEGATIVE+ADJECTIVE	
	Request for Object	.25 (4/16)	Comment to Self	.50 (5/10)
	RQ.-Direct Attention	.25 (4/16)	Comment on Object	.40 (4/10)
	Comment to Self	.19 (3/16)	Protest	.10 (1/10)
	Request Response	.125 (2/16)		
	Comment on Action/State	.06 (1/16)		
	Request for Action	.06 (1/16)		
	Routine-Accomp.	.06 (1/16)		
RIO b	NOUN		WH QUESTION'S + DEMONSTRATIVE	
	Comment on Object	.25 (4/16)	Request Response	1.00 (10/10)
	Discourse-Ackn.	.25 (4/16)		
	Request for Object	.125 (2/16)		
	Request Response	.06 (1/26)		
	Discourse-Rs.RQ.Clar.	.06 (1/16)		
	UD	.25 (4/16)		

as well as the "comfort" of certain form-function units despite advances in MLU.

Use of a verb to express speech acts was noted in each sample to some extent (Rio 2a). Use of a verb phrase was consistent across the boys, although the form of the verb phrase as well as the expression of productive speech acts with the verb phrase varied.

Ivan	Verb + Particle	(.12)
	Request Action =	.46
	Comment Action =	.23
Brian	Verb + (Dem.) Pronoun	(.10)
	Request Action =	.50
	Discourse Ackn.=	.30
Rio (2b)	Verb + Noun	(.08)
	Comment Action =	.39

Once again, we find more similarity between Ivan and Brian than between Rio and the other boys.

As can be seen in Table 26, only one of each of the boys most frequent forms was syntactic, despite the fact that their MLUs placed them comfortably in the stage of two word combinations. Further, Rio's use of a Wh- Question form may have been formulaic rather than novel based on the fact that the form-function unit was expressed playfully at times, rather than with true information-seeking intent.

One final question remained in terms of form-function development specifically in reference to

Brian. Since Brian was the child who used nouns to express the widest range of productive speech acts (5) at LL1, it was interesting to trace the expression of these acts at LL2. For example, at LL1, nouns were used to express Comment on Objects. At LL 2, Comment on Objects continued to be expressed primarily with nouns, although 13 other form options were noted. At LL 1, nouns were also used to express Request for Objects. At LL2, Request Object was expressed with nouns three times, as well as one occasion each of seven other form options. Finally, at LL1, nouns were used to express Request Response. At LL 2, this speech act was not expressed frequently. The continued use of single nouns to express speech acts such as Comment on Objects and Request for Objects at LL2 was further evidence of bringing the old and familiar units along into the next stage of linguistic development.

In summary, group trends were noted for speech acts expressed by frequently produced forms. For example, at Linguistic Level 1, nouns were frequently used to express Comment on Objects and Requests. Further, at LL 1, frequently expressed forms were mobilized for a variety of functions. At LL 2, use of single nouns to Comment on Objects continued to be seen in the boys' systems.

Individual styles were also noted. Request types expressed by nouns varied across the boys at LL 1, as did the productive speech acts expressed by verb phrases at LL 2.

### Single Words

In addition to analyzing the speech act function of the most frequently occurring forms, single word forms (SW) and multiword combinations (MWC) were examined relative to various aspects of functional development. For example, the use of SW and MWC were analyzed to determine if they were primarily unifunctional (used to express one speech act only) or multifunctional (used to express more than one speech act).

Single words which occurred more than once in a sample (including imitations of others and self-repetitions) served as the corpus. Table 27 displays the proportion of single word forms which were unifunctional versus those that were multifunctional. At LL 1, with the exception of Brian, more than .40 of SW forms were multifunctional. At LL 2, a continuum from primarily unifunctional (Ivan = .67) to primarily multifunctional (Rio a = .63) was found. It should be noted that less frequent use of the same single word to

TABLE 27

FUNCTIONAL STATUS OF SINGLE WORDS OCCURRING MORE THAN ONCE AT LINGUISTIC  
LEVELS 1 AND 2

		LL1	LL2
IVAN	UNIFUNCTIONAL	.53 (10/19)	.67 ( 6/9 )
	MULTIFUNCTIONAL	.47 ( 9/19)	.33 ( 3/9 )
	UD		
	TOTAL (of 125)	( 19 )	( 9 )
BRIAN	UNIFUNCTIONAL	.75 (15/20)	.50 ( 5/10)
	MULTIFUNCTIONAL	.25 ( 5/20)	.50 ( 5/20)
	UD		
	TOTAL (of 125)	( 20 )	( 10 )
RIO a	UNIFUNCTIONAL	.36 ( 4/11)	.38 ( 3/8 )
	MULTIFUNCTIONAL	.45 ( 5/11)	.63 ( 5/8 )
	UD	.19 ( 2/11)	
	TOTAL (of 125)	( 11 )	( 8 )
RIO b	UNIFUNCTIONAL	.54 ( 7/13)	.38 ( 3/8 )
	MULTIFUNCTIONAL	.46 ( 6/13)	.38 ( 3/8 )
	UD		.25 ( 2/8 )
	TOTAL (of 125)	( 13 )	( 8 )

express different speech acts (see Brian - LL1; Ivan - LL2) may actually have been a result of increased lexical capacity (i.e., the child was not limited to the use of the same form for different functions) and not necessarily a sign of a reduced ability to use the same single word form for different functions. Examples of multifunctional use of single words include,

Linguistic Level 1

- |          |         |   |
|----------|---------|---|
| 1. Ivan  | "man"   | Comment on Object<br>Request Response       |
| 2. Brian | "toy"   | Request Object<br>Comment on Object         |
| 3. Rio a | "more"  | Comment on Action<br>Request Action         |
| 4. Rio b | "watch" | Request-Direct Attention<br>Comment to Self |

While considerable variability was noted in the use of single words as uni or multifunctional at LL 2, use of MWC was consistently unifunctional. This finding suggests that although the children had the capacity to use the same form to express different speech acts, the capacity was not extended to or was not mobilized as frequently for MWC as for SW. Examples of unifunctional use of MWC are,

Linguistic Level 2

- |         |                 |                   |
|---------|-----------------|-------------------|
| 1. Ivan | "play a garage" | Request Object    |
|         | "dog sleeping"  | Comment on Action |

2. Brian	"Mommy do it" "take it out"	Request Action Comment on Action
3. Rio a	"Gimme toys" "more toys↑"	Request Object Request Response
4. Rio b	"That house"	Comment on Object

Single words were analyzed more closely relative to the proportion of substantive and relational forms and the relationship between these form types and functions. The majority of Ivan's and Brian's single words at LL 1 were substantive forms. While Rio began with a majority of relational forms (LL1a), he moved to equal distribution of substantive and relational forms at the end of the first linguistic level (LL1b). At LL 2 (Rio, LL2a), all three boys had similar proportions of substantive and relational forms with relational forms having increased significantly in Brian's sample.

At LL 1 (see Table 28), the majority of multifunctional words were substantive forms. Rio LL1b was the exception to this pattern. The fact that at LL1a, Rio's multifunctional forms were primarily substantive, even though he had more relational words in his lexical repertoire (8 versus 3) and that at LL1b, his multifunctional forms were primarily relational, even though he now had a similar number of substantive and relational words in his lexical repertoire (7 versus 6), speaks to the potential independence of form type and functional capacity.

TABLE 28

FORM TYPE AND FUNCTIONAL STATUS OF SINGLE WORDS OCCURRING MORE THAN  
ONCE AT LINGUISTIC LEVELS 1 AND 2

		LL1		LL2	
		UNIFXAL	MULTIFXAL	UNIFXAL	MULTIFXAL
IVAN	SUBSTANTIVE	.60	.89	.50	.67
	RELATIONAL	.40	.11	.50	.33
	SUB-TOTAL	(10)	( 9)	( 6)	( 3)
	TOTAL		19		9
BRIAN	SUBSTANTIVE	.93	.80	.60	.60
	RELATIONAL	.07	.20	.40	.40
	SUB-TOTAL	(15)	( 5)	( 5)	( 5)
	TOTAL		20		10
RIO a	SUBSTANTIVE	.00	.60	.33	.60
	RELATIONAL	1.00	.40	.67	.40
	SUB-TOTAL	( 4)	( 5)	( 3)	( 5)
	TOTAL		9		8
RIO b	SUBSTANTIVE	.71	.33	.33	.67
	RELATIONAL	.29	.67	.67	.33
	SUB-TOTAL	( 7)	( 6)	( 3)	( 3)
	TOTAL		13		6

At LL 2, the majority of multifunctional words were again substantive forms. Taken together, .66 of all multifunctional forms (41) across LL1 and LL 2 and across children were substantive items, suggesting that nouns are inherently easier to use to express different speech acts.

In terms of speech acts at LL 1 (see Table 29), Ivan and Brian's single word forms were primarily used to express Comments and Requests. Rio's single word forms primarily expressed Routines and Requests, with the proportions of each of these "flip-flopping" from LL1a to LL1b. At LL2, the speech act function of single words varied from child to child. Ivan's SW forms primarily expressed Routines; Brian's SW forms primarily expressed Comments; Rio's 2a SW forms primarily expressed Requests and Rio's 2b SW forms were equally distributed among the four speech act categories. Again, the variability seen at LL2 for single words was not found for multiword combinations at this linguistic level. Rather, MWC were used to express primarily Requests and/or Comments by all three boys. This finding suggests that at the early stages of language development, single words offer more flexibility than syntax. Like single words, syntactic combinations may be tied to specific speech acts when they first appear.

TABLE 29

SPEECH ACTS OF SINGLE WORD FORMS USED MORE THAN ONCE AT LINGUISTIC  
LEVELS 1 AND 2

	LL1	LL2
IVAN		
COMMENTS	.57	.26
REQUESTS	.30	.03
ROUTINES	.11	.52
DISCOURSE	.01	.03
UD	.00	.00
TOTAL (of 125)	19	9
BRIAN		
COMMENTS	.56	.57
REQUESTS	.39	.18
ROUTINES	.03	.04
DISCOURSE	.02	.18
UD	.00	.04
TOTAL (of 125)	20	10
RIO a		
COMMENTS	.09	.24
REQUESTS	.26	.53
ROUTINES	.52	.15
DISCOURSE	.06	.00
UD	.07	.09
TOTAL (of 125)	11	8
RIO b		
COMMENTS	.15	.19
REQUESTS	.54	.22
ROUTINES	.24	.22
DISCOURSE	.03	.22
UD	.03	.10
TOTAL (of 125)	13	8

### Multiword Combinations

The diversity of the MWC at each linguistic level based on type-token ratios is displayed in Table 30. As can be seen, Brian demonstrated significantly more diversity in his multiword combinations at LL1 than Ivan and Rio. This trend continued with Brian demonstrating significantly more diversity at LL2 than Ivan and Rio (2a). However, at LL 2b, Rio's diversity in MWC was comparable to Brian's. Further, at LL3, Brian and Ivan demonstrated similarly high degrees of diversity.

The social and speech act functions of MWC were analyzed in an attempt to explore the relationship between syntax and function. Multiword combinations which were neither pure imitations nor reduced imitations served as the corpus for these analyses. As can be seen in Table 31, the majority of MWC at each linguistic level was interactive with one exception (Rio - LL1a). Further, the proportion of interactive MWC was either comparable to or exceeded the high proportion of interactive communicative acts in the total sample. In fact, for both Ivan and Brian at LL2, the proportion of MWC which was interactive was significantly greater than the proportion of interactive utterances in the total sample. This

TABLE 30<sup>1</sup>

TYPE-TOKEN RATIOS OF MULTIWORD COMBINATIONS AT LINGUISTIC  
LEVELS 1,2,3

	LINGUISTIC LEVEL					
	LL1		LL2		LL3	
IVAN	.45	( 9/20) <sup>1</sup>	.62	(29/47)	.94	(66/77)
BRIAN	.92	(11/12)	.76	(32/42)	.91	(64/70)
RIO a	.16	( 3/19)	.60	(27/45)		
RIO b	.71	(15/21)	.72	(34/47)		

<sup>1</sup> Number of different multiword combinations divided by total number of MWC in each sample

TABLE 31

PROPORTION OF MULTIWORD COMBINATIONS WHICH WAS INTERACTIVE  
 VS. PROPORTION OF TOTAL SAMPLE WHICH WAS INTERACTIVE AT  
 LINGUISTIC LEVELS 1,2,3

	Linguistic Level		
	LL1	LL2	LL3
IVAN	.80/.74	.89/.78 *	.95/.92
BRIAN	.64/.62	.81/.66 **	.69/.66
RIO a	.13/.44	.61/.67	
RIO b	.76/.73	.84/.78	

\*  $p < .05$  based on significant tests for two related proportions

\*\*  $p < .01$  based on significant tests for two related proportions

finding must be considered relative to the speech act function of MWC.

In terms of speech acts, use of MWC varied considerably at LL1 (see Table 32). While all the children primarily encoded MWC within interpersonal interactions, the particular speech acts expressed by the MWC were clearly a matter of individual variation. The initial use of syntax, therefore, appeared to be independent of specific speech act function, but tied to occasions of talking to someone.

In some cases, the use of MWC relative to speech act types mirrored the speech act distribution of the total sample. For example, Rio's expression of speech acts in the total sample at LL1b and his use of MWC within speech act categories at this same linguistic level were quite similar (refer to Tables 13 and 32). In contrast, Brian's use of MWC to express Comments at LL1 (.75) far exceeded his use of Comments in the total sample (.56).

At LL2, a pattern of MWC use relative to speech acts emerged. As can be seen in Table 33, the use of MWC (see MWC 1) to express Requests at LL2 was significantly greater than the overall occurrence of Requests in each of the three boys' samples (Rio - LL2b). These findings indicate that syntax was

TABLE 32

PROPORTION OF SPEECH ACT TYPES OF MULTIWORD COMBINATIONS AT  
LINGUISTIC LEVELS 1,2,3

		LINGUISTIC LEVELS		
		LL1	LL2	LL3
IVAN	COMMENTS	.45 (09)	.23 (11)	.34 (26)
	REQUESTS	.55 (11)	.60 (28)	.44 (34)
	ROUTINES	.00	.04 ( 2)	.00
	DISCOURSE	.00	.06 ( 3)	.19 (15)
	UNDETERMINED	.00	.06 ( 3)	.03 ( 2)
	TOTAL	(20)	(47)	(77)
BRIAN	COMMENTS	.75 ( 9)	.48 (20)	.94 (66)
	REQUESTS	.00	.48 (20)	.04 (03)
	ROUTINES	.25 ( 3)	.00	.00
	DISCOURSE	.00	.05 ( 2)	.01 ( 1)
	UNDETERMINED	.00	.00	.00
	TOTAL	(12)	(42)	(70)
RIO a	COMMENTS	.42 (08)	.51 (23)	
	REQUESTS	.00	.40 (18)	
	ROUTINES	.53 (10)	.02 (01)	
	DISCOURSE	.05 (01)	.04 (02)	
	UNDETERMINED	.00	.02 (01)	
	TOTAL	(19)	(45)	
RIO b	COMMENTS	.29 (06)	.34 (16)	
	REQUESTS	.38 (08)	.60 (28)	
	ROUTINES	.29 (06)	.04 (02)	
	DISCOURSE	.00	.00	
	UNDETERMINED	.05 (01)	.02 (01)	
	TOTAL	(21)	(47)	

frequently mobilized to express Requests, although not exclusively so. This undoubtedly accounts in part for the high proportion of interactive MWC in all three boys' samples at LL2 (Rio - LL2b).

As the analyses of MWC used to express Requests included both "reused" tokens of MWC and sequential repetitions of MWC within a sample, the finding noted above was considered potentially misleading. In other words, if a particular token of a MWC was used repeatedly throughout the sample or in a sequence within one conversational unit to express Requests, the strength of the statement that MWC often expressed Requests would be weakened considerably. In this case, the finding would be specific to particular tokens of MWC and not about MWC in general.

To investigate this possibility, two additional types of analyses were done. In the first, MWC 2 (see Table 33), all occasions of MWC Requests repeated in sequence were eliminated from the sample. The proportion of MWC which were requests decreased minimally for all three boys. Further, the use of MWC to express Requests was still significantly greater than the occurrence of Requests in the total sample for two of the three boys (Ivan and Rio).

TABLE 33

PROPORTION OF TOTAL SAMPLE AND PROPORTION OF MWC WHICH WAS REQUESTS

	<u>Total Sample</u>	<u>MWC1</u>	<u>MWC2</u>	<u>MWC3</u>
Ivan	.30 (33/112)	.60 (28/47)	.55* (22/40)	.52* (17/11)
Brian	.29 (31/108)	.48* (20/42)	.40 (14/35)	.38 (13/34)
Rio b	.37 (40/108)	.60* (28/47)	.58* (25/43)	.49 (17/35)

\*  $p < .01$  based on significant tests for two related proportions

In the next analysis, MWC 3 (see Table 33), "reused" tokens of MWC were eliminated from the sample. Here, the proportion of MWC which were Requests decreased insignificantly for all three boys. Again, for Ivan, the use of MWC to express Requests continued to be significantly greater than the occurrence of Requests in the total sample. Table 33 illustrates the results of the three types of analyses relative to MWC used to express Requests.

In order to determine if MWC were unifunctional or multifunctional, those MWC which occurred more than once in a particular sample were examined. These utterances were coded as unifunctional if they expressed the same speech act each time they occurred in the sample or multifunctional if they expressed two or more speech acts within the sample. For example, at LL2b, Rio used the utterance "more toys" five times in the sample. On each occasion, the form expressed the speech act, Request for Response. Thus, "more toys" was a MWC which was unifunctional.

In contrast, at LL2, Brian used the utterance "put on now" four times in the sample. This form was coded as a Comment on Action once and as a Request for Response three times (the utterance was accompanied by

rising intonation on these occasions). Therefore, "put on now" was a MWC which was considered multifunctional.

Table 34 indicates the proportion of each boy's MWC which occurred more than one time. As can be seen, use varies widely among the boys at LL1, even for the same child (consider Rio LL1a versus Rio LL1b). At LL2, Ivan and Rio (LL2a) exhibited similar proportions of MWC used more than once, whereas Brian's proportion was significantly lower. (This obviously was the flip side of Brian's greater diversity in MWC). However, at LL2b, Rio's use of a MWC more than one time decreased significantly and was now more similar to Brian's.

The majority of MWC used more than one time were unifunctional (see Table 35). Although Ivan and Brian demonstrated some capacity to use the same MWC to express different speech acts at LL2, this ability did not expand at the next linguistic level. In fact, while the children's syntactic capacity was great at LL3 as evidenced by the number of different MWC which they produced (Ivan - 66; Brian - 64), the ability to use the same utterance to communicate different intentions, a hallmark of adult pragmatic skills, was yet to appear. While Rio's pattern was somewhat different at LL1, he "shared" these trends with Ivan and Brian at LL2. It should be noted that minimal use

TABLE 34

PROPORTION OF MULTIWORD COMBINATIONS WHICH OCCUR MORE THAN  
ONCE AT LINGUISTIC LEVELS 1,2,3

	LINGUISTIC LEVEL		
	LL1	LL2	LL3
IVAN	.44 ( 4/9)	.34 (10/29)	.12 (8/66)
BRIAN	.10 (1/10)	.16 ( 5/31)	.06 (4/64)
RIO a	.67 ( 2/3)	.30 ( 8/27)	
RIO b	.27 (4/15)	.19 ( 6/31)	

TABLE 35

FUNCTIONAL STATUS OF MULTIWORD COMBINATIONS OCCURRING MORE THAN ONCE AT  
LINGUISTIC LEVELS 1,2,3

	LL1	LL2	LL3
IVAN			
UNIFUNCTIONAL	1.00 (4/4)	.70 (7/10)	.75 (6/8)
MULTIFUNCTIONAL		.30 (3/10)	.25 (2/8)
UD			
TOTAL (of 125)	( 4 )	( 10 )	( 8 )
BRIAN			
UNIFUNCTIONAL	1.00 (1/1)	.60 (3/5 )	.75 (3/4)
MULTIFUNCTIONAL		.40 (2/5 )	.25 (1/4)
UD			
TOTAL (of 125)	( 1 )	( 5 )	( 4 )
RIO a			
UNIFUNCTIONAL	.50 (1/2)	.63 (5/8 )	
MULTIFUNCTIONAL	.50 (1/2)	.25 (2/8 )	
UD		.13 (1/8 )	
TOTAL (of 125)	( 2 )	( 8 )	
RIO b			
UNIFUNCTIONAL	.75 (3/4)	.50 (3/6 )	
MULTIFUNCTIONAL	.25 (1/4)	.33 (2/6 )	
UD		.17 (1/6 )	
TOTAL (of 125)	( 4 )	( 6 )	

of the same MWC for different functions could also reflect the boys' growing cognitive-linguistic capacity, rather than limited pragmatic capacity. This capacity would result in use of lexically and syntactically diverse word combinations.

To summarize, single words varied relative to their unifunctional or multifunctional status across the three boys, whereas multiword combinations were consistently unifunctional. Group trends included the finding that the majority of multifunctional single words were substantive forms.

Variability was noted in the speech acts expressed by single words at LL1 and LL2. This variability was not noted for multiword combinations at LL2, where speech act functions were limited to Requests and Comments. In fact, at this linguistic stage, the proportion of MWC used to express Requests exceeded the proportion of Requests in the total samples. This finding suggests that at the two word stage of development, syntax frequently "serves" a Request function.

Lexical-Syntactic Development: Speech Acts

Verbs

An analysis of productive verbs relative to speech acts was done for LL2. Productive verbs were defined at the lexical level as verbs occurring in single word utterances or in word combinations used non-imitatively three or more times in the data. Linguistic Level 2 was the stage where all three boys had more than two productive verbs. Productive use of verbs was specific to particular speech acts at this stage. For example, Ivan used "fall down" productively for Comments, while "dry" and "play" were productive for Requests. Similarly, Brian used "take" and "go" productively for Comments, while "open" and "put" were productive for Requests. (It should be noted that "put" was also used for Comments, but not productively. Similarly, "go" was used for Requests, but again this did not meet the productivity criteria). The following examples are taken from the data,

1. Ivan

Comment

a) "fall down"

Request

a) "play a garage ↑"  
b) "dry off"

## 2. Brian

CommentRequest

- |                       |                  |
|-----------------------|------------------|
| a) "take this"        | a) "open it"     |
| b) "this goes here"   | b) "put on now↑" |
| c) "Ernie go outside" |                  |
| d) "going bye bye"    |                  |

Rio presented a different profile. At LL2a, Rio's productive use of verbs primarily occurred for the Request function ("watch," "gimme," "look," "fit"). One of these verbs, "watch," was also used productively for Comments to Self. At LL2b, only one verb, "want," was used productively and this occurred in Requests.

As can be seen, when the verb analysis was taken to the lexical level at Linguistic Level 2, differences were found with respect to speech act use. A semantic analysis alone would not have captured these differences because all the verbs coded action or state. With this limited sample and using the productivity criteria, one could make a case for two of the children using different verbs for Requesting and Commenting. (A complete list of productive and non-productive verbs relative to speech acts can be found in Appendix D).

At the third linguistic level, the issue of differential use of verb forms relative to speech acts was moot for Brian as he did not use any verbs

productively for Requests. For Ivan, the trend noted at the earlier linguistic level continued with "needs" occurring productively for Comments only and "like," "want" ("wanna"), and "belongs" occurring productively for Requests only. Examples from Ivan's third sample include,

- |                        |                  |
|------------------------|------------------|
| 1. "car needs gas"     | Comment on State |
| 2. "I like a farm"     | Request Object   |
| 3. "I wanna house"     | Request Object   |
| 4. "this belongs here" | Request Response |

#### Subject - Verb - Object Relations

The use of utterances with verbs as a constituent was examined at the second linguistic level in order to determine if realization of subject (actor) versus realization of object was related to particular speech acts. As can be seen in Table 36, three patterns were observed. Ivan presented the cleanest picture in that .85 (11/13) of the Verb + Object structures which he produced occurred in Requests, whereas .71 (5/7) of the Subject (Actor) + Verb structures which he produced occurred in Comments. When Subjects appeared in Comments, use of the form occurred in reference to play figures (Bert, dog, Mommy) or in two instances, in reference to himself. On the two occasions where

TABLE 36

## SPEECH ACT FUNCTIONS OF VERB STRUCTURES AT LINGUISTIC LEVEL 2

	VERB + OBJECT	SUBJECT + VERB
IVAN	REQUESTS = .85 (11/13)	COMMENTS = .71 (5/7)
	COMMENTS = .075 (1/13)	REQUESTS = .29 (2/7)
	DISCOURSE = .075 (1/13)	TOTAL = (7)
	TOTAL = (13)	
BRIAN	REQUESTS = .44 (8/18)	REQUESTS = .71 (5/7)
	DISCOURSE = .33 (6/18)	COMMENTS = .29 (2/7)
	COMMENTS = .22 (4/18)	TOTAL = (7)
	TOTAL = (18)	
RIO a	REQUESTS = 1.00 (4/4 )	
	TOTAL = (11)	
RIO b	REQUESTS = .39 (7/18)	
	COMMENTS = .39 (7/18)	
	DISCOURSE = .22 (4/18)	
	TOTAL = (18)	

subjects appeared in Requests, they were in reference to himself ("I sit" - Request for Sima to move so Ivan could sit in that place; "nose running" - Request for Mom to tend to his runny nose). All subjects were noun forms. Further, when objects were realized, these were primarily nouns (.75).

For Brian, Verb + Object structures most frequently occurred in Requests (.44); however, use of this form was also noted in Discourse- Acknowledgment (.33) and Comment on Action (.22). Unlike Ivan, .71 of the Subject (Actor) + Verb structures which he produced occurred in Requests. Three of these were produced in sequence and included "Mommy" as the Subject. These were particularly interesting because their use indicated Brian's awareness of what could not be presupposed given the context. As Brian and Sima were the participants in the interaction whereas Mommy was the observer, his initial Request - "do it" - was expanded to "Mommy do it " accompanied by movement toward Mom. Taking this to the discourse level, the fact that the adult's preceding utterance "Can you do it?" was followed by "do it" (accompanied by Brian's own attempt to fix the toy) and then by "Mommy do it" was further evidence of Brian's awareness of the communicative need to mark the actor in a speech act,

Request for Action, which was generally characterized by appropriate deletion of the Actor.

The majority of subjects in Brian's utterances were nouns; however, two pronominal forms were used ("He," "This"). Unlike Ivan, Brian's objects were generally pronominal (.68) rather than nominal forms. This tendency to use pronominal forms in MWC was interesting because Brian demonstrated the most diverse noun vocabulary at LL 1. Finally, four of seven of Brian's utterances which included subjects also contained objects, although one token ("Mommy do it") accounted for three of these occasions.

For Rio, differences between the two types of structures could not be analyzed because the Subject + Verb construction was still not productive in his last sample. At LL 2a, use of the Verb + Object structure was found in Requests only. At LL2b, use of the Verb + Object construction was noted in Requests (.39), Comments (.39), and Discourse-Acknowledgments (.22). Rio's objects were primarily noun forms.

In summary, as with many other aspects of form-function development, individual variation is common across the three boys. The trend toward using Verb + Object constructions to express Requests might be expected given the form of adult imperatives. The

use of Subject is a different matter. Here, we seem to have a structural realization which has more to do with content and context factors than with structural factors alone. As noted above, for Ivan and Brian use of the subject occurred in reference to actions of play figures, in reference to the observer, and/or for self-reference. In the two occurrences of nominal self-reference, one for Ivan and one for Brian, the child's name was used in a contrastive sense. For example, use of "Brian fix " was a Request for confirmation of who had fixed the toy, Sima or Brian.

At this point, one is led to ask how Rio, who did not demonstrate productive use of Subjects, talked about these kinds of contents in similar contexts. The unexpected answer is that he did not refer to those aspects of the context which had led to use of Subjects for the other two boys. Interestingly, in re-examining the contextual data, Rio did not play with toy figures during the sample (LL 2b) until the last portion of the session. Within this play (utterance # 100 - 125), Rio's talk was not about the people, but rather was about the house itself and routines ("Good-night"). Further, Rio did not refer to the observers in the room or to himself in the contrastive way that led to self-reference for Ivan and Brian. The absence of Subjects in Rio's sample may therefore have been a

result of what he did and did not talk about rather than a result of his knowledge of linguistic structure.

### New Forms

In the style of Slobin (1973), "New forms first express old functions and new functions are first expressed by old forms" (p. 184), an analysis of new forms and new functions was done. While Slobin used the term "function" in a semantic sense to refer to meaning, in the present investigation, the term was used in a pragmatic sense to refer to speech acts.

New forms were defined as forms occurring in a sample three or more times which had not occurred or had not occurred productively in the previous sample. These instances were identified in the data at LL2 for Brian and Ivan and at LL1b, 2a, and 2b for Rio. New forms were not identified at LL3 for this analysis for two reasons:

- a) Examination of Ivan's and Brian's data at LL3 indicated that there were many new forms occurring with few of them reaching the productive criteria.
- b) The speech act system at LL3 contained few "new" speech acts, making the question of where new forms occurred moot.

A similar number of tokens of new forms were found across children at LL2 (Ivan = 39, Brian = 29, Rio - LL2b = 34). (It is interesting to note that Rio used

significantly more new form tokens at LL2b than at LL2a, suggesting that the MLU measure alone obscured an important form development (34 versus 14). This issue will be explored further in a later section). In terms of new forms, findings in this study were consistent with Slobin's principle of the relationship of new forms to old functions. New productive forms primarily expressed old speech act functions in each of the boys' samples (see Table 37). More specifically, the majority of new forms appeared within the Request function for all three boys (see Table 38). This finding overlaps with the earlier finding relative to distribution of MWC and Requests, as the majority of the new forms were, in fact, MWC. Finally, new forms were primarily multifunctional in each of the boys' samples (.67, .75, and .86 for Rio, Ivan, and Brian, respectively). It should be noted that analysis of new forms in terms of uni/multi-functional status was at the structural level, Verb + Article + Noun, whereas analysis of MWC in terms of uni/multifunctional status was at the lexical level. This procedure resulted in functional analysis of syntactic utterances at two levels. The results indicated that at MLUs of 1.75 to 2.25, the boys used multi-word structures, such as Verb + Noun, to express more than one function, whereas lexical tokens of multiword combinations, such

TABLE 37

PROPORTION OF OLD AND NEW SPEECH ACTS EXPRESSED BY NEW FORMS AT  
LINGUISTIC LEVEL 1B, 2A, 2B

		Linguistic Levels		
		LL1b	LL2a	LL2b
IVAN	Old		.79 (31/39)	
	New		.15 (6/39 )	
	UD		.05 (2/39 )	
BRIAN	Old		.93 (27/29)	
	New		.03 (1/29 )	
	UD		.03 (1/29 )	
RIO	Old	.73 (8/11)	.93 (13/14)	.94 (32/34)
	New	.09 (1/11)	.00	.03 (1/34 )
	UD	.18 (2/11)	.07 (1/14 )	.03 (1/34 )

TABLE 38

## PROPORTION OF NEW FORMS RELATIVE TO SPEECH ACTS

		LL1b	LL2a	LL2b
IVAN	COMMENTS		.23 ( 9/39)	
	REQUESTS		.51 (20/39)	
	ROUTINES		.00	
	DISCOURSE		.21 ( 8/39)	
	UD		.05 ( 2/39)	
BRIAN	COMMENTS		.28 ( 8/29)	
	REQUESTS		.55 (16/29)	
	ROUTINES		.00	
	DISCOURSE		.14 ( 4/29)	
	UD		.03 ( 1/29)	
RIO	COMMENTS	.27 (3/11)	.21 ( 3/14)	.30 (10/33)
	REQUESTS	.45 (5/11)	.71 (10/14)	.55 (18/33)
	ROUTINES	.00	.00	.03 ( 1/33)
	DISCOURSE	.09 (1/11)	.00	.09 ( 3/33)
	UD	.18 (2/11)	.07 ( 1/14)	.03 ( 1/33)

as "more toys," generally were used to express only one function (e.g., Request for Object).

### New Functions

Since the speech act system was generally stable across the three linguistic levels whereas the form system was not, the issue of new functions was not truly comparable to the issue of new forms. Nonetheless, some statements about new functions can be made.

New functions were defined as speech acts occurring in a sample three or more times which had not occurred or had not occurred productively in the previous sample. These were identified in the data at LL 2 for Ivan and Brian and at LL1b, 2a, and 2b for Rio. LL3 was eliminated from the analysis in order to be consistent with what had been done in the "new forms" analysis and because of the developmental limits that the speech act taxonomy imposed in and of itself.

The appearance of new speech acts was noted minimally for Rio and Brian and more extensively for Ivan. The following statements can be made about new speech acts:

1. New speech acts were generally expressed with old forms. Exceptions occurred when the new speech act was expressed primarily by imitations
-

and these imitated forms were "new" to the child's repertoire ( e.g., Ivan, LL2, Discourse - Acknowledgments).

2. New speech acts were not expressed with syntactically advanced forms (with the exception again of imitations).

3. The majority of the new speech acts across children was within the Routine category. Specifically, .60 of the total of 10 new speech acts expressed by the three boys were Routines. A remaining .30 were Discourse acts (see starred items on Table 16). Examples of Routines include the following:

a. Routine - Accompaniment

Ivan: "Excuse me," said after burping

Brian: "uh oh," trying to put piece in puzzle, but it doesn't fit

b. Routine - Social Game

Ivan: "uh oh," extending hand to S. after he puts water on it

c. Routine - Greeting

Rio: "Hi Mick Mouse," talking into receiver, looking at phone

d. Routine - Play Talk

Rio: "Wo wo," waving plate in air after putting drops of water on it

In summary, new speech acts did not seem to await new forms, nor did they account for new form development. This finding would be expected considering that the majority of the new speech acts were in the Routine category. While the development of new forms was not motivated by the child's need to express new speech acts, it is clear that other

"functional" aspects of the communication system, such as topic-comment, presupposition, and cohesion may lead to new form developments.

### Entropy - Diversity

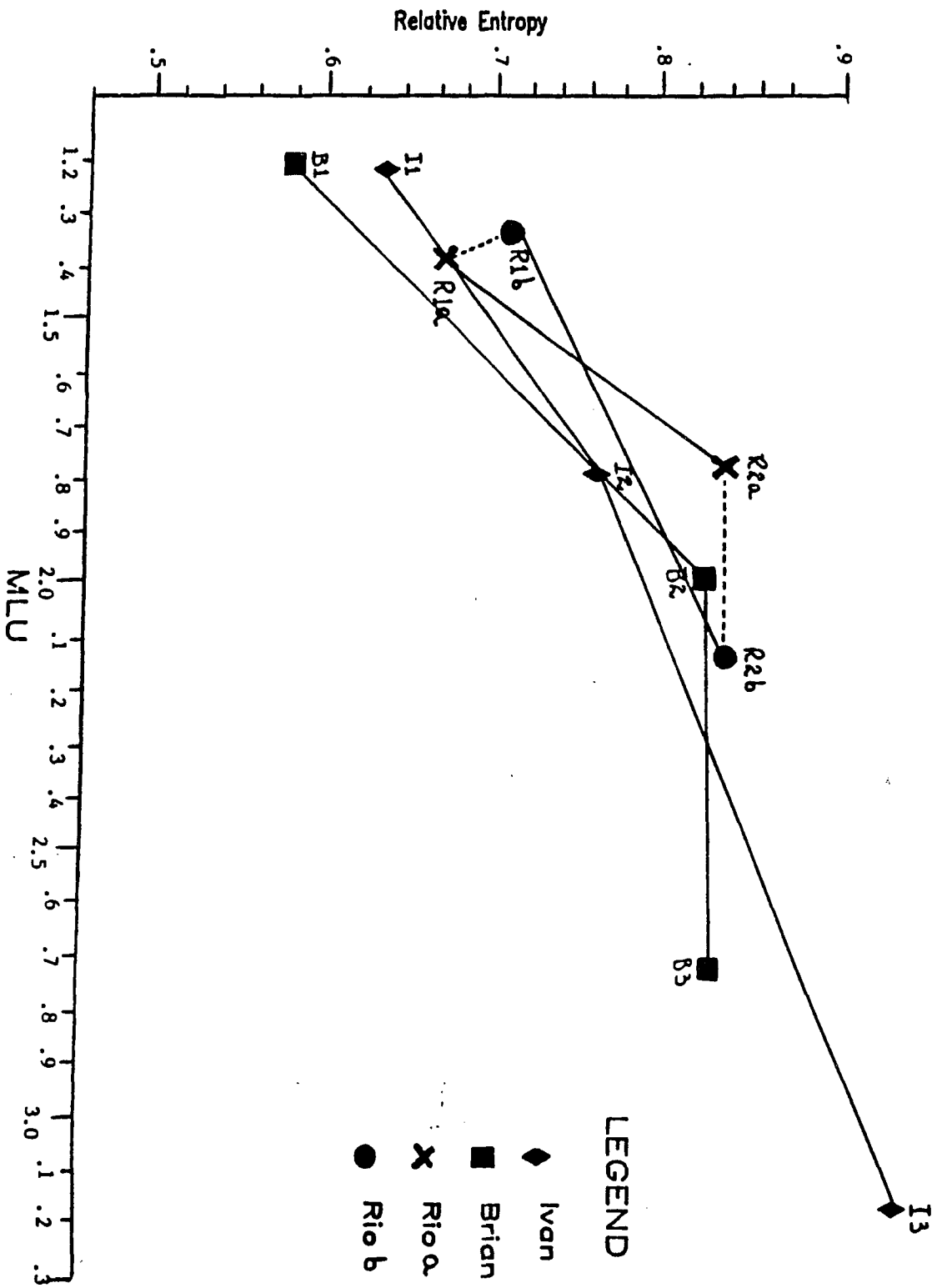
In order to analyze the development of the diversity of the form-function combinations over time, the relative entropy of these units was calculated as a function of MLU (see Figure 3).

Although a first approximation suggests that diversity increases as MLU increases, the complexity of the relationship between the two requires further analysis. For example, differing degrees of entropy were noted across children who were at similar linguistic levels (e.g., Brian, LL 1 (.57) versus Rio, LL1b (.70). As a result, Rio appears to be "ahead" of Brian at LL1 despite their similar MLUs. Similarly, both Rio and Brian are "ahead" of Ivan at LL2.

It was also the case that similar degrees of entropy were noted for different linguistic levels (e.g., Brian, LL3 (.82) versus Rio, LL2a (.83). It appears, therefore, that entropy-diversity does not behave in rate of growth the way MLU does. In fact, Brian demonstrated his entropy spurt between LL1 and

Figure 3 - Relative Entropy of Form-Function  
Combinations as a Function of MLU

---



LL2, whereas Ivan's spurt occurred between LL2 and LL3. Finally, within the same child, stable entropy measures were seen across different linguistic levels (consider Brian, LL2 and LL3).

As can be seen, diversity does not have the monotonic qualities that MLU has. Further, although entropy-diversity is grossly related to MLU, it could also be said that notions of who's ahead of who change as a function of whether one uses MLU as the yardstick or entropy-diversity as the yardstick of pragmatic-linguistic sophistication. Nonetheless, all three children share the capacity for diversity in form-function combinations by the second linguistic level. Therefore, while the rate of growth of the "richness" of the system is somewhat independent of MLU, this richness is clearly a major development in early stages of language acquisition.

#### Noun Lovers Versus Noun Leavers

In an effort to address the issue of individual styles in language acquisition, several approaches to the data were taken. First, since the use of object labels or nouns versus other word types had been looked at in a number of classic studies (Nelson, 1973, 1975; Bloom, Lightbown, and Hood, 1975; Horgan, 1981), this

form class was examined in the present study. While evidence of similar patterns of early lexical or syntactic acquisition (e.g., referential versus expressive, nominal versus pronominal, noun lovers versus noun leavers) have been identified in various studies, descriptions of these styles have differed. For example, Nelson (1973) offers a functionally based description of referential versus expressive styles at the single word stage, whereas Bloom, et.al. (1975) note that children encode similar underlying semantic relations with different forms at early syntactic stages.

The researchers mentioned above have identified certain forms in the data, such as nouns, and explained their use as contrasted with the use of other forms. In this study, the data was examined to see if these words should be considered occasions of a form type (i.e., noun) or occasions of a speech act type (i.e., comments). The question is whether use of nouns or expression of comments accounts for the occurrence of particular forms. The problem is how to disentangle the possibilities. Supportive data for one conclusion or another may be found when nouns are reconsidered in the following way:

---

1. If nouns are used at an early linguistic level for a variety of speech acts, then the form preference would be verified.
2. If nouns are consistently used to express only Comment on Objects, then function may be considered the stylistic preference with noun serving as the vehicle for this preference.
3. Finally, if Comment on Objects are consistently expressed with nouns only, as opposed to nouns and other forms which appear in the sample, the form-function unit rather than either domain may be considered the preference at early stages of development.<sup>1</sup>

In fact, the differences in noun use in the data from the three boys allowed these issues to be considered in varying concentrations. As can be seen in Table 39, the tokens of nouns at LL1 ranged from 5 to 61. It should be noted that Rio's use of nouns increased significantly at the end of the first linguistic level (Rio LL1b).

Interestingly, type-token ratios indicating diversity of noun use were similar for the three boys at LL1 (Rio LL1a), although Rio produced only five nouns in this sample. Therefore, although absolute frequency of nouns was widely variable across the boys, their capacity for diversity appeared to be uniform. At

---

<sup>1</sup>The possibility exists that the researcher's coding of Comment on Objects is tied to the presence of nouns in which case any of the findings would simply be artifacts of the coding system.

TABLE 39

TYPE-TOKEN RATIOS OF SINGLE NOUNS IN TOTAL SAMPLE AT LINGUISTIC LEVEL 1

	TOKENS	TYPE-TOKEN RATIO
IVAN	36	.39 (14/36)
BRIAN	61	.43 (26/61)
RIO a	5	.40 ( 2/5 )
RIO b	21	.57 (12/21)

---

the end of the first linguistic level, Rio's use of nouns was significantly more diverse than Ivan's, Brian's, and himself at an earlier sample. As noted previously, nouns were the most frequently used form for Ivan and Brian at LL1 and one of the most frequently used forms for Rio at LL1b.

The data on nouns were considered in terms of each of the three possibilities outlined above.

#### Test 1 - Use of Nouns for Various Speech Acts

As can be seen in Table 40, the use of nouns at LL1 was productive across children (three or more occasions of the form for a particular speech act) for one to four speech acts in addition to Comment on Objects. Although the boys overwhelmingly used nouns to express Comment on Objects, they all demonstrated some tendency (little in Rio's case, a great deal in Brian's case) to express other speech acts with this form. With respect to the first "test," Brian clearly seemed to be demonstrating a form preference for nouns.

#### Test 2 - Use of Nouns to Express Comment on Objects Only

None of the children used nouns to express Comment on Objects exclusively; however, Ivan did come close. Since .78 of his nouns were used to express Comment on

TABLE 40

## SPEECH ACTS EXPRESSED BY NOUNS AT LINGUISTIC LEVEL 1

IVAN	:	NOUN	(36)		
		COMMENT ON OBJECTS		-	.78 (28/36)
		REQUEST RESPONSE		-	.11 ( 4/36)
		REQUEST ACTION		-	.08 ( 3/36)
		UD		-	.03 ( 1/36)
BRIAN	:	NOUN	(61)		
		COMMENT ON OBJECTS		-	.56 (34/61)
		REQUEST OBJECT		-	.20 (12/61)
		REQUEST RESPONSE		-	.08 ( 5/61)
		COMMENT ON EVENT		-	.07 ( 4/61)
		COMMENT ON PEOPLE		-	.05 ( 3/61)
		DISC ACKN		-	.03 ( 2/61)
		UD		-	.02 ( 1/61)
RIO b	:	NOUN	(21)		
		COMMENT ON OBJECTS		-	.48 (10/21)
		REQUEST ACTION		-	.19 ( 3/21)
		COMMENT ACTION		-	.095 ( 2/21)
		REQUEST OBJECT		-	.095 ( 2/21)
		CMT SELF		-	.05 ( 1/21)
		UD		-	.095 ( 2/21)

Objects, Ivan's frequent use of nouns may be seen as a result of his frequent expression of this speech act.

### Test 3 - Expression of Comment on Objects with Nouns

As can be seen in Table 41, Comment on Objects was generally expressed with nouns by all three boys. For Rio, use of a single noun was the only productive form with which Comment on Objects was expressed. Brian used one additional form productively, Modifier + Noun, to express Comment on Objects, while Ivan used two other forms productively to express this speech act, one which also included a noun (Ritualistic + Noun). Since other forms were clearly used productively at this linguistic level by all three boys, the possibility that Comment on Objects- Noun represented a form-function unit was strong, particularly for Rio. This finding taken together with the fact that Rio did not "pass" test 1 (form preference) or test 2 (functional preference) suggest that the form-function unit may have been his preference or his capacity at this time.

Although Brian's data also tend toward a form-function preference, his test 1 results do support the form preference. Finally, since Ivan productively used one non-noun form to express Comment on Objects, his data for form-function units are the weakest of the

TABLE 41

## FORMS USED TO REALIZE COMMENT ON OBJECTS AT LINGUISTIC LEVEL 1

IVAN	:	COMMENT ON OBJECTS (46)		
		NOUN	-	.63 (29/46)
		MODIFIER	-	.13 ( 6/46)
		RITUALISTIC + NOUN	-	.07 ( 3/46)
		PREPOSITION	-	.04 ( 2/46)
		ARTICLE + NOUN	-	.02 ( 1/46)
		DEMONSTRATIVE + NOUN	-	.02 ( 1/46)
		NOUN + NOUN	-	.02 ( 1/46)
		MODIFIER + NOUN	-	.02 ( 1/46)
		UNDETERMINED	-	.04 ( 2/46)
BRIAN	:	COMMENT ON OBJECTS (47)		
		NOUN	-	.72 (34/47)
		MODIFIER + NOUN	-	.06 ( 3/47)
		ADJECTIVE	-	.02 ( 1/47)
		DEMONSTRATIVE	-	.02 ( 1/47)
		RITUALISTIC	-	.02 ( 1/47)
		NOUN + NOUN	-	.02 ( 1/47)
		DEMONSTRATIVE + NOUN	-	.02 ( 1/47)
		DEMONSTRATIVE + PRONOUN	-	.02 ( 1/47)
		UNINTELLIGIBLE	-	.09 ( 4/47)
RIO	:	COMMENT ON OBJECTS (14)		
		NOUN	-	.71 (10/14)
		MODIFIER	-	.07 ( 1/14)
		ADVERB	-	.07 ( 1/14)
		MODIFIER + NOUN	-	.07 ( 1/14)
		ARTICLE + MODIFIER + NOUN	-	.07 ( 1/14)

three. This taken together with results of test 2 suggest a functional preference for him.

Since each of the three predicted possibilities proposed relative to preference was supported by the data, it appears that the boys' frequent use of nouns reflected different origins. Therefore, to frame the style issue with respect to where on the form continuum the child falls (noun lover or noun leaver) or where on the functional continuum the child falls (object-orientation or personal-social orientation) obscures the possibility that some children may enter language development with form preferences, others with functional preferences, and still others with form-function packages. In order to determine styles, data from both domains must be analyzed. This step seems necessary even before one can make the simple claim that a child is demonstrating a preference for a form, such as noun.

### Clusters

#### Child Clusters

The notion of style as analyzed across domains of language was addressed from two perspectives:

- 1) How do the three children "cluster" relative to certain aspects of form, function, and form-function analyses?

2) How do aspects of language "cluster" across children?

In terms of the first question, the most interesting finding was that the notion of cluster changed relative to the aspects of language being analyzed. While Ivan and Brian formed a cluster relative to certain aspects of development, Ivan and Rio formed a cluster relative to other aspects of development even in the same domain of language. For example, at LL1, Ivan and Brian clustered in the use of nouns as a frequent form, whereas Rio (LL1a) did not demonstrate this pattern at this time. However, relative to another form measure, the proportion of MWC which were imitations at LL1, the clusters were different. Here, Brian and Rio (a and b) formed a cluster in that less than .50 of their MWC were imitations, whereas more than .50 (.68) of Ivan's were.

In terms of function at LL2, Ivan and Rio (a and b) clustered relative to the frequency of use of comments in contrast to Brian who expressed significantly more. However, Ivan and Brian "clustered" in their frequency of expression of Discourse acts (.11, .13 respectively), whereas Rio a's minimal expression of this speech act (.02) represented a different pattern.

In fact, the argument for the elusive nature of clusters of children can be made even stronger with the following kinds of evidence. First, the nature of a cluster could change relative to the same aspect of language when this aspect was analyzed over time. For example, at LL1, Ivan and Brian formed a cluster relative to the frequency of use of Comments whereas Rio (a and b) expressed this speech act significantly less. However, at LL2, Ivan, Rio a, and Rio b now clustered relative to frequency of expression of Comments as opposed to Brian who expressed significantly more.

The strongest case was made when Rio a was contrasted with Rio b. Since Rio was sampled twice at the first two MLU levels, it was possible to find a cluster change on the same measure at the same linguistic level. For example, at LL1, Brian and Rio a formed a cluster relative to the frequency of expression of Requests and were contrasted with Ivan who expressed significantly more. However, when Rio's b sample was analyzed, the cluster changed. Now, Ivan and Rio b clustered, in that they shared the frequency of expression of Requests, while Brian expressed significantly fewer (.37, .38 vs. .25, respectively).

## Language Clusters

In addition to talking about clusters of children and how they change, the data also permitted a description of clusters of language behaviors. In the manner of previous research, two Clusters were identified at LL1 which accounted for Ivan and Brian versus Rio a. These clusters included selected aspects of form, function, and form- function analysis which differentiated the two patterns (see Figure 4). An analysis of what was shared between the two clusters versus what was open to individual variation was also done.

The fact that Rio a and Rio b were treated separately allowed for the description of clusters in four children with the cards seemingly stacked in favor of Rio a and Rio b sharing a style. In fact, at both LL1 and LL2, Rio b presented a different pattern, referred to as Cluster 3. This cluster was actually a composite of Clusters 1 and 2, in that it shared features with each.

As can be seen in Figure 4, at LL1, the form measures which differentiated Cluster 1 from Cluster 2 were the use of nouns as one of the three most frequent forms, the frequency of use of nouns (+ .30), noun diversity (+ .30), the use of verbs as a frequent form,

Figure 4 - LANGUAGE CLUSTERS AT LINGUISTIC LEVEL 1

CLUSTER 1 (Ivan, Brian)	CLUSTER 2 (Rio a)	CLUSTER 3 (Rio b)	FORM			FUNCTION		
			+	-	+	NOUN AS A FREQUENT FORM		
			+	-	+	NOUNS PRODUCED >.30		
			+	-	+	NOUN DIVERSITY >.30		
			-	+	-	VERBS AS A FREQUENT FORM		
			-	+	-	RITUALISTIC FORMS PRODUCED >.20		
			+	-	+	DIVERSITY MWC >.40		
			+	-	+	PRIMARILY IA FUNCTION		
			+	-	+	COMMENTS EXPRESSED >.40		
			-	+	-	ROUTINES EXPRESSED >.40		
			+	+	+	ENTROPY- DIVERSITY >.50		

the frequency of use of ritualistic forms, and diversity of multiword combinations ( $+ .40$ ). The functional measures which differentiated Cluster 1 from Cluster 2 included frequency of use of the Interactive function (high vs low), frequency of expression of speech acts in the Comment category, and frequency of expression of speech acts in the Routine category.

The measure which was shared across Clusters 1 and 2 was a form-function measure, degree of entropy. Measures subject to individual variation were: proportion of MWC which were imitations (form); frequency of Requests(function); and speech act function of MWC (form-function).

At LL2, some changes were made in the measures used to differentiate Cluster 1 from Cluster 2, although again all three domains - form, function, form-function - were examined (see Figures 5). With respect to form, frequency of use of nouns and noun diversity continued to represent two poles of the continuum in the two styles. An additional syntactic-semantic measure was the use of pronominal versus nominal forms to encode the object in verb + object relations. At this stage, the proportion of MWC which were imitations differentiated the two styles

---

Figure 5 - LANGUAGE CLUSTERS AT LINGUISTIC LEVEL 2

CLUSTER	FORM				FUNCTION				FORM-FX
	1 (Brian)	2 (Rio a)	3 (Ivan, Rio b)						
	+	-	+	NOUN AS A FREQUENT FORM	-	+	-	+	
	+	-	+	NOUNS PRODUCED >.25	+	+	-	+	
	+	-	+	NOUN DIVERSITY >.30	+	+	-	+	
	+	+	+	VERB DIVERSITY >.30	+	+	-	+	
	+	-	+	VERB + OBJECT OBJECT = NOMINAL	+	+	-	+	
	-	+	-	MWC > .30 IMITATIONS	+	+	-	+	
	+	+	+	DIVERSITY MWC >.60	-	+	-	+	
	+	-	+	COMMENTS >.40	+	+	-	+	
	-	+	-	REQUESTS >.40	+	+	-	+	
	+	+	-	ROUTINES >.15	+	+	-	+	
	+	-	+	DISCOURSE >.10	+	+	-	+	
	+	+	+	ENTROPY >.75	+	+	-	+	

\* Individual differences noted within Cluster 3.

when a cut-off of greater than or less than .30 was used.

In the area of function, frequency of expression of speech acts in the Comment category, Request category, Routine category, and Discourse category differentiated Cluster 1 from Cluster 2. Number of shared measures included verb diversity, diversity of MWC, and entropy. Since Cluster 1 was represented by one child and Cluster 2 was represented by one child, the issue of individual variation was moot.

Once again, a third style which was a composite of Clusters 1 and 2 was identified and was now represented by two children (Ivan, Rio b). These children used nouns frequently, demonstrated high noun and verb diversity, encoded objects in verb + object utterances with nominal forms (.60, .45), expressed Comments significantly less than Cluster 1 ( $p < .01$ ), expressed Requests with similar frequency (.30, .37), expressed Routines more than .15, and expressed Discourse acts significantly more than Cluster 2 ( $p < .01$ ). Individual variation in the third cluster was noted in the proportion of MWC which were imitations. High verb diversity, diversity of MWC, and entropy measures were shared across the three clusters and across the "four" boys.

Having described three clusters of language development at LL1 and LL2, three issues relative to general trends versus individual styles may be considered:

(1) Aspects of language performance which co-exist and the inherent relationship between these co-occurring aspects of language.

Co-occurring aspects of development were found within and across language domains. For example, the use of nouns as a frequent form and high noun diversity appear to co-exist. Across form and function, frequent use of nouns and frequent use of Comments co-existed. Similarly, frequent use of ritualistic forms and Routines co-existed. The fact that use of Routines may be partially independent of use of ritualistic forms is supported by Cluster 3 at LL1 where Routines were expressed frequently (.33), even though the proportion of ritualistic forms had decreased significantly.

(2) The question of bipolar styles of language acquisition.

The fact that three styles were identified, two at either end of the continuum and one in the middle, allows us to reconsider any conclusions we might want to draw about styles of language acquisition when

conceived of in a bipolar fashion. For example, considering Cluster 1 versus Cluster 2 at both Linguistic Levels, one might propose that a child is either a "noun lover" or a "verb lover" at early stages of linguistic development. However, the existence of Cluster 3 where Rio uses both forms frequently prevents making this claim. This finding should not obscure the fact that "noun lover" versus "ritual lover" seems to be a distinction one can make at the first linguistic level.

While two styles have been identified in previous research, the point has been made that as children progress, they begin to move towards the alternative style. This trend has often been assigned to higher linguistic phases, at which point dichotomous styles may no longer be apparent. In the present research, these shifts occurred within linguistic levels rather than across them. This finding speaks to the value of multiple samplings within linguistic levels.

(3) Continuity versus discontinuity in early stages of language acquisition.

Although one would like to address the issue of which aspects of language development at LL2 are related to aspects of development at LL1, two problems arise. First, Ivan and Brian diverge at LL2 loosening

the link between LL1 and LL2 developments. Secondly, at LL2, Rio b shares Cluster 2 with Ivan, despite the fact that their "roots" were different. It may be more satisfying to point out the commonality across children, having acknowledged the alternative pathways that can be taken to get to these end-points. For example, the use of nouns as a frequent form was characteristic of all three boys at LL1 and LL2, when Rio b was considered. Similarly, noun diversity was quite high ( $>.30$ ) in all three boys at LL1 and LL2, again when Rio b was considered. The use of ritualistic forms was less than  $.20$  in all three boys at LL1 (Rio b). Finally, verb diversity was greater than  $.30$  for each boy at LL2.

In terms of function, the boys shared a high proportion of Interactive communicative acts at LL1 (Rio b) and LL2. In terms of speech acts, the frequent expression of Discourse acts was typical at LL2 (Rio 2b). This finding suggests that the children shared the move to Discourse at the early syntactic level of language development. Finally, in terms of form-function, entropy measures were greater than  $.50$  at LL1 and similar across the boys at LL 2 ( $.75$  to  $.83$ ). This latter finding suggests a shared degree of flexibility and diversity in the pragmatic-linguistic system at the two word stage of development.

---

### The Limited Significance Of MLU

The question of the development in form, function, and/or form-function units within and across MLU stages was addressed relative to Rio, the child whose language was sampled both as MLU remained the same and as MLU increased. Selected aspects of each of the three domains (form, function, form-function) were analyzed in order to see which aspects of development co-existed with MLU increases and which could be identified within MLU stages.

#### Rio - LL 1a Compared to LL 1b

##### Form

At LL1, the majority of aspects of form that were analyzed changed. For example, for General Form Types, use of gesture with verbalizations increased significantly from .10 to .37. Further, two of the three most frequent forms changed, with ritualistic forms dropping out as a frequent form at LL1b and nouns coming in as a frequent form at LL1b. The proportion of productive forms with diversity increased significantly from .22 (2/9) to .56 (5/9). The proportion of MWC with diversity also increased significantly from .20 to .71. Finally, four new productive forms were noted at LL1b.

Certain aspects of form did remain constant at the first linguistic level. These included number of productive forms (9), use of verbs as a frequent form, and proportion of MWC which were imitations.

### Function

At LL1, the majority of aspects of function that were analyzed changed. Proportion of Interactive communicative acts increased significantly (.44 to .73), while proportion of non-focused communicative acts decreased significantly (.43 to .16). Proportion of two major speech act categories changed significantly: Requests increased (.22 to .38) and Routines decreased (.55 to .33). The distribution of the most frequently expressed speech acts changed significantly in that Routine-Accompaniments decreased from .42 to .10. Three speech acts which did not occur or did not occur frequently at LL1a moved into the category of most frequently occurring speech acts: Comment on Objects, Request-Direct Attention, and Routine-Greetings. Finally, three new productive speech acts were noted at LL1b.

Functional consistency within the first linguistic stage was noted with respect to frequency of occurrence of Comments and Discourse acts. Further, Requests for Objects were expressed with similar frequency at LL1a

and LL1b. Finally, the number of productive speech acts remained stable (11).

### Form-Function

Use of a common most frequently occurring function across LL1a and LL1b was limited to Request for Objects. Analysis of the forms used to express this speech act indicated that the majority of occasions were expressed with a verb (.90) at LL1a and with a verb (.40) or a verb + noun (.20) at LL1b.

Use of a common most frequently occurring form across LL1a and LL1b was limited to Verbs. Analysis of the speech acts expressed by this form indicated significant decreases at LL1b in Request for Objects (.45 to .24) and Routine Accompaniments (.50 to .12), in addition to the appearance of a "new" speech act in this form category, Request-Direct Attention.

Form-function consistency was found at the first linguistic level in the entropy-diversity measure (.66; .70).

## Rio - LL 2a Compared to LL 2b

Form

At LL2, the majority of aspects of form changed. Use of the three most frequently occurring forms changed completely at LL2b. Three forms noted at LL2a (verb, negative + adjective, and negative) disappeared or did not occur frequently at LL2b, while three new forms emerged as frequent forms (noun, WhQ + demonstrative, and verb + noun).

The proportion of productive forms with diversity increased significantly from .27 (3/11) to .67 (8/12). Finally, two new productive forms were noted at LL2b.

Certain aspects of form did remain constant in the second linguistic level. These included use of gesture in combination with verbalizations (.13, .16), number of productive forms (11, 12), proportion of MWC which were imitations (.37, .38), and diversity of MWC (.59, .69).

Function

At LL2, the majority of aspects of function that were analyzed did not change. Changing aspects included a significant decrease in Non-Interactive

Communicative Acts, a significant increase in Discourse Acts, a significant decrease in the occurrence of Routine - Accompaniments, and emergence of and frequent use of Discourse - Acknowledgments.

Functional consistency in the second linguistic stage was noted with respect to two categories of Social Function and frequency of occurrence of Comments, Requests, and Routines. Further, two of the most frequent speech acts were expressed with similar frequency at LL2a and LL2b. Finally, the number of productive speech acts remained stable at 11.

#### Form-Function

Use of common most frequently occurring speech acts across LL2a and LL2b included Comment on Objects and Request Response. Analysis of the forms used to express Comment on Objects indicated that at LL2b, Negative + Adjective disappeared, Noun increased significantly (.13 to .24), and Demonstrative + noun emerged and was used frequently. Analysis of the forms used to express Request Response indicated that at LL2b, Adjective + noun and Noun disappeared and three new forms were used to express the speech act. These included,

Wh Question + contracted copula + demonstrative	= .35
Wh Q + contracted copula + (Art.) + Noun(s)	= .24
Modifier	= .15

Use of a common most frequently occurring form across LL2a and LL2b was limited to Nouns. Analysis of the speech acts expressed by this form indicated significant decreases in Comment on Objects (.43 to .25) and Request Response (.43 to not expressed frequently with this form). The appearance of a "new" speech act was noted within this form category at LL2b, namely, Discourse - Acknowledgments.

Form-function consistency was noted at the second linguistic level in the entropy-diversity measure (.83; .83).

#### Rio - LL 1b Compared to LL 2a

##### Form

When MLU increased from 1.34 (LL1) to 1.78 (LL2), once again, the majority of aspects of form that were analyzed changed. For example, for General Form Types, use of gesture with verbalizations decreased significantly from .37 to .13. The co-occurrence of this decrease with an advance in linguistic sophistication might suggest that Rio could now communicate via linguistic structure what he previously was communicating with the help of gesture.

Use of most frequent forms changed completely from LL1b to LL2a. Changes in frequency of occurrence

included significant decreases in verbs (.25 to .15), loss of nouns and adverbs as frequently occurring forms, and appearance of Negative and Negative + adjective as frequently occurring forms.

Two other changes were noted in the opposite direction of what one might expect with linguistic advancement. The proportion of productive forms with diversity and the proportion of MWC with diversity decreased significantly. These changes are mirror images of changes noted in diversity at Linguistic Level 1. Dips in diversity along with increases in linguistic stage might reflect inherent limitations on the developing linguistic system in terms of processing loads. Emphasis on developing structure may override the development of lexical items and new combinations of lexical items.

Stable form measures across linguistic levels included number of productive forms (9, 11), proportion of MWC which were imitations (.30, .37), and number of new productive forms .44 (4/9) and .36 (4/11). In reference to the latter, the fact that the proportion of new productive forms was stable across MLU changes, but increased significantly in Linguistic Level 2 is further evidence of the consuming nature of advances in MLU.

## Function

When MLU increased from LL1b to LL2a, the majority of aspects of function that were analyzed did not change. Those that did change were a significant decrease in the occurrence of Routines (.33 to .19), disappearance of Routine-Greetings as a frequently expressed speech act, and emergence of Request Response and Comment to Self as frequently expressed speech acts. New productive speech acts decreased from three to one.

Functional consistency was noted across linguistic levels in terms of Social Function, frequency of occurrence of major speech act categories (with the exception of Routines), most frequently expressed speech acts (Request Objects, Comment on Objects, Request - Direct Attention, and Routine - Accompaniment), and number of productive speech acts (11).

While significant changes in function were noted in Linguistic Level 1, the stabilization of the functional system appears to be beginning at the end of the first linguistic stage. This is followed by a consistent functional profile at Linguistic Level 2.

### Form-Function

When MLU increased from 1.34 to 1.78, the majority of form-function units that were analyzed changed. Four shared most frequently expressed speech acts were noted across Linguistic Levels, more than had been noted at Linguistic Level 1. Within these four speech acts, all changes in the forms used were significant (decreases or increases) with the exception of one. For example, use of nouns to express Comment on Objects decreased significantly from .71 at LL1b to .13 at LL2a. Use of Negative + adjective to express Comment on Objects emerged at LL2a. Use of Verb + noun to express Request Object increased significantly from .20 to .44 at LL2a. The majority of the forms used to express Routine - Accompaniments at LL1b (Ritualistic, Verb, Noun + noun) dropped out at LL2a. At this stage, Routine - Accompaniments were expressed primarily with Vocalizations (.50) and Adverbs (.33).

One frequently expressed form, verb, was common to LL1b and LL2a. Use of this form to express Request - Direct Attention decreased significantly (.56 to .25), while use of the form to express Routine - Accompaniment disappeared. Use of the Verb to express Comments to Self emerged at LL2a.

Finally, the entropy-diversity measure increased significantly at LL2a (.70 to .83).

Consistency in form-function units across linguistic levels was limited to use of a verb to express Request Objects (.40, .44) and expression of Request Objects with verbs (.24, .25).

#### Trends

Analysis of Rio's data provided answers to the research question asked in reference to the relationship of each of the three domains of language to MLU:

Do form, function, and form-function units change across MLU levels and/or within MLU levels?

The domain of form changed both across and within MLU levels. Interesting changes across Linguistic Levels 1 and 2 included decreases in the use of gesture with verbalization, diversity of productive forms, and diversity of MWC.

The domain of function changed significantly only in the first linguistic level. After this initial change, function remained relatively constant across and within the next linguistic level. In the areas of function analyzed, therefore, things are in place by

the end of the one word stage or at a time when multiword utterances have begun to increase.

The domain of form-function changed significantly within and across linguistic levels. In fact, very little remained stable in this cross-domain of language and it was here that one could best appreciate the richness of the developing linguistic system.

The one aspect of form-function which remained constant within linguistic levels, namely entropy-diversity, changed significantly across linguistic levels and therefore, for Rio, this measure was closely tied to MLU.

In summary, analysis of single and cross domains of language within and across linguistic levels allows one to appreciate the dynamic and stable qualities of each language domain as well as the extent of development relative to MLU stages. With respect to single domains of language, both the form and speech act systems change significantly at the single word stage, while only the form system continues to change significantly at the two word stage. When language is analyzed synergistically, or cross-domains, significant change is observed at both the single word and two word stages, suggesting that this type of analysis may best capture the nature of early development. Whether the

---

patterns noted here for Rio are in fact trends across children is a question for future research.

### Summary of Results

The findings of this study can be summarized with respect to the three research questions posed at the outset.

1. What developmental patterns can be identified in the emergence of forms, functions, and the relationship between form and function at varying linguistic levels?

a. What trends versus individual styles can be identified in the productivity and frequency of use in language form and language function when examined separately?

b. What trends versus individual styles can be identified in form and functional development when examined synergistically?

### Form

1. A core of most frequently encoded forms and productive forms was found across children and across linguistic levels.

---

2. Fewer frequently produced forms were found than frequently expressed speech acts.
3. More diversity was found across children in productive forms than in productive speech acts.
4. Increases in both lexical diversity and syntactic complexity were noted at the two word stage of development.

### Function

1. The majority of communicative acts were expressed interactively throughout the early stages of language development.
  2. The majority of linguistic communicative acts at Linguistic Level 1 were expressed interactively.
  3. Comments were expressed interactively at the single word stage as indicated by the use of communicative devices such as gesture, suprasegmentals, looking, and so forth. The frequency of interactive Comments and the repertoire of devices used to comment interactively increased from the first to the last linguistic stage.
-

4. Individual patterns were found in terms of the communicative devices used most frequently to express interactive Comments.
5. The majority of speech acts were in place at the single word stage of development. New speech acts which emerged and/or increased in frequency at subsequent MLUs included Comment on Action, various types of Routines, and Discourse-Acknowledgments.
6. While some similarity was found in the speech acts expressed frequently, more similarity was found in the repertoires of productive speech acts.

#### Form-Function

1. Some of the most frequently expressed speech acts were encoded with the same form by all three boys (Comment on Objects), while others were open to individual variation (Request Objects).
  2. Form realizations of certain speech acts remained similar across linguistic levels and across children (Comment on Objects), while other form realizations were different across
-

linguistic levels (Comment on Action) or across children (Request Object).

3. The emergence and/or frequent use of the Verb + Object structure was found in Requests for all three boys.
  4. Frequently expressed speech acts were encoded with a range of form types.
  5. Frequently produced forms were multifunctional at the single word stage (and subsequent stages).
  6. Acknowledgments emerged in obligatory pragmatic-linguistic contexts (Yes-No question-response pairs) and were encoded with imitative forms. The one child who achieved a subsequent stage of development for Discourse-Acknowledgments expressed these speech acts in non-obligatory contexts (in response to Comments) and used non-imitative forms (affirmatives).
  7. Some of the most frequently produced forms expressed the same speech acts for all three boys (nouns), while others were open to individual variation (Request types expressed by nouns).
-

8. While lexical tokens of single words varied relative to their uni or multifunctional status, lexical tokens of MWC were consistently unifunctional.
  9. The majority of multifunctional single words were substantive forms.
  10. MWC were primarily used to express Requests at the two word stage of development.
  11. Productive verbs were used differentially for speech acts.
  12. The absence of Subjects in one child's sample at Linguistic Level 2 was a reflection of content and context factors rather than a reflection of absence of linguistic knowledge.
  13. Slobin's notion (1973) that "New forms first express old functions and new functions are first expressed by old forms" was extended to the pragmatic domain in reference to speech acts.
  14. The three children demonstrated diversity in form-function combinations at MLUs of 1.75 - 2.25, suggesting that richness in addition to complexity is a hallmark of early syntactic stages of language acquisition.
-

15. Frequent use of a form may reflect different origins. For one child, use of nouns reflected a form preference, whereas for another child, use of nouns was a result of frequent expression of Comment on Objects.

2. How do children "cluster" with respect to specific aspects of form and function and how do aspects of form and function "cluster" across children?

1. Clusters of children based on form, function, and form-function performance shifted depending on the aspects of language being analyzed.

2. With respect to language clusters, co-occurring aspects of development were found within and across language domains.

3. A three-style picture rather than the more typical two-style picture emerged from the data.

4. Discontinuity in development was noted when aspects of style seen at the first linguistic level were examined at the second linguistic level.

5. Common developmental patterns were found in all domains at Linguistic Levels 1 and 2. For example, nouns were used frequently (LL1, LL2),

---

noun diversity was high (LL1, LL2), verb diversity was high (LL2); interactive communicative acts were frequent (LL1, LL2), Discourse acts were expressed frequently (LL2); entropy measures were similar at LL1 and similarly high at LL2 (>.75).

3. Do form, function, and form-function combinations change within and/or across MLU levels?

a. What changes can be described in each domain when MLU remains constant?

b. What changes can be described in each domain when MLU increases?

1. Aspects of form changed both within and across MLU levels of 1.0-1.4 and 1.75-2.25. For example, most frequent forms, diversity of productive forms, and productivity of MWC changed within and/or across linguistic stages. Changes across MLU stages included dips in development such as decreases in diversity.

2. Aspects of function changed only within the first MLU stage. Proportion of interactive communicative acts, distribution of major speech act categories, and most frequently expressed speech acts changed.

---

3. Aspects of form-function changed both within and across MLU levels of 1.0-1.4 and 1.75-2.25. Forms used to encode frequently expressed speech acts and speech acts expressed by frequently produced forms changed within and across linguistic stages.

## CHAPTER V

## DISCUSSION

In a recent review of the study of child development, Chess (1986) discussed four contemporary directions within the discipline. The first, referred to as "The Neonate as a Human Being," is a distinct alternative to earlier views of the infant as in a state of "blooming, buzzing confusion" (James, 1890). Studies of the past thirty years have provided "convincing evidence of sensory and perceptual competence, of neurobehavioral organization rather than disorganization and confusion, of active learning by imitation as well as conditioning" (Chess, 1986, p. 128). In this view, the infant's biological endowments allow him "to function psychologically as a social human being....With the first fondling, the first feeding, the first perception of the human face and human voice, the newborn responds to and integrates inputs from the environment that have sensorimotor, cognitive, and cultural significance" (Ibid.).

The second area of study is referred to as "Behavioral Individuality in Early Childhood." As an

example of the study of behavioral individuality, Chess considers evidence from a large scale, longitudinal study in which individuals were followed from the first few months of life to early adult life (Chess and Thomas, 1984). The goal of this research was to study the individual differences across children and to determine the significance of these differences for the developmental process. Based on systematic observation, Chess found behavioral differences in temperament, "the how of behavior," and identified three constellations - easy temperament, difficult temperament, and slow-to-warm-up temperament. The interest in temperament as one aspect of behavioral individuality has grown within the field of developmental psychology and has recently been proposed as a potential contributor to individual styles of communicative development (Bates, Bretherton, and Snyder, in press). While the causes of individual differences are of theoretical and clinical interest, Wolff (1986) proposes that the more important issue may be to describe the process which results in "similar capacities, desires, and adaptive mechanisms," despite initial variations in "raw material" and experiential contexts (p. 160).

The third area, "The Plasticity of Human Development," relates directly to the notion of

invariant stages in development. Chess suggests that it is tempting to look for invariance in order to "confirm the ever-present assumption of continuity in the developmental process from infancy to adulthood" (p.139). From Freud to Erikson to Piaget to Kohlberg, intriguing conceptualizations of invariant developmental schemes have been proposed. While Chess accepts the general laws that dictate the development from the simple to the more complex, she suggests that,

It is the formulations that assert invariant unidirectional stages which are true for all children of all classes and all cultures that are to be challenged. Such concepts run counter to the adaptive value for humans of variability and flexibility (p. 140).

As evidence of the human brain's potential for flexibility and plasticity, Chess discusses the alternative pathways used by deaf children to acquire language and the alternative sequences of affective and social development observed in blind children.

The last area discussed by Chess is referred to as "The Significance of Early Life." With respect to mother-child attachment, researchers have suggested that early measures of attachment (Ainsworth, 1978) correlate significantly with certain aspects of later development, such as play and problem-solving at two years of age and interpersonal competence with peers at 3 1/2 years of age (Waters, Wippman, and Sroufe, 1979).

While appealing, the validity of this view of a critical period is criticized by Chess and others. "There is no simple and direct correlation between early life experiences and later development" (Chess, 1986, p.142).

The review of these approaches reminds us that any aspect of child development must be considered within a largely unresolved and undoubtedly expanding body of knowledge. In this regard, the notions introduced above - early competence, individuality, flexibility, and the role of early life experience - are constructs which weigh heavily on the child's development of communication. While these constructs might set the stage for considering the child's acquisition of language, they also raise many questions in and of themselves. For example, in reference to the notion of the competent infant,

Global assertions to the effect that infants are "competent" leave unanswered how the surface features of presumed competencies in the infant are related to later expressions of the same capacity; whether the "essence" of uniquely human capacities is present in detectable form in the naive organism, or whether qualitatively new behavioral forms emerge in ontogenesis that have no demonstrable functional links to the repertory of the competent infant (Wolff, 1986, p.155).

Wolff (1986) asserts that contemporary theories of development adhere to an interactionist perspective and

an epigenetic orientation. "This perspective assumes that all developmental acquisitions are always the vectorial properties of a total interaction between biology (genetics) and experience" (p. 159).

Epigenesis implies a longitudinal continuity as well as a sequence of stage-wise progressions where antecedent conditions are cumulatively integrated into later stages of the individual's development. Wolff is critical of this view, asserting that development is characterized "at least as much by regressions, deletions, and radical discontinuities as by epigenetic unfolding of stagelike progressions" (p. 160). In fact, Wolff suggests that the notion of epigenetic continuity is based on "superficial analogies of form that ignore function" (p. 161). (Consider the pecking movements of hatching chicks versus the pecking movements of hungry chicks foraging for food).

The relationship between the form and function of behavior is clearly an issue of universal interest in child development. The study of this relationship provides an opportunity to address what many would consider the most intriguing questions in development, namely the relationship between the products and processes of development, the relationship of prior developments to newly acquired behaviors, and perhaps of greatest interest, the motivation for change.

Despite the difficulties inherent in addressing these questions, a host of scientists proceed with the search.

### The Relationship Between Form and Function

This study was motivated by an interest in the nature of the child's emerging functional system. Three distinct advantages of the functional approach assumed in this research can be identified. First, the study was longitudinal, with developments in pragmatics examined in relation to increases in linguistic development. Specifically, the development of speech acts was traced from beyond first words through early syntax.

Second, the speech act taxonomy itself, which was derived from data obtained across linguistic stages, reflected an attempt to reduce confounding of structure and function. While not overlooking the inseparability of the two domains (see convention-based accounts of speech acts, Levinson, 1983), the independent analysis of form and function was performed in an effort to explore the developmental relationship between the two. Further, although the two domains were analyzed separately, the majority of these analyses were synergistic in the sense that form was always considered relative to function and visa versa.

Finally, the functional system was considered on two levels, the speech act level and the social level. This distinction was made in an attempt to study the use of language from two perspectives: to express intentions and to interact with others. While in some cases, these levels were inseparable (e.g., Requests), the distinction allowed for analysis of independent development.

The following discussion addresses the results with respect to the three major questions posed at the outset. After considering the two functional levels separately, the synergistic analyses will be discussed from both descriptive and explanatory perspectives. A discussion of the results on clusters and MLU follows.

#### Social Function

The findings on social function suggested that the use of communicative acts was primarily interactive at all three linguistic levels. While the proportion of interactiveness varied across the boys (consider LL3, Ivan - .92; Brian - .66), the majority of gestures, vocalizations and verbalizations in all samples were directed to the co-interactant. This finding was in agreement with Longtin's (1984) results which indicated that children in the late single word stage were able simultaneously to talk and interact with others.

Longtin suggested that the initial separation of and eventual coordination of object and person interactions on a non-linguistic level (Sugarman, 1973) was repeated at a linguistic level. In fact, Longtin proposed that a trend for "increased social uses of language over time characterized most of the development in functions" (p. 133).

At the time of the first taping in this study, when the children were well into the single word period, high degrees of interactiveness were common. This frequent use of social communication was maintained or increased over time as the boys moved beyond the single word stage. While Halliday (1975) discusses the multifunctional nature of the child's utterances at Phase III (when Nigel was about three years of age), the findings of this study suggest that simultaneous expression of interpersonal (interaction with others) and ideational functions (expressing meaning) occurred earlier.

Examination of pragmatic constructs such as social function provides a window into the child's socialization. As Bruner (1983) suggests, the elements of pragmatics "constitute a social reality in their own right in a manner that neither the rules of syntax nor the codes of lexicon do" (p.32). The study of the

pragmatic aspect of language development therefore addresses the child's inherent and developing social knowledge in a way that the study of syntax and semantics may not.

While frequent use of social communication was shared across the boys, the communicative means used to indicate interactiveness was subject to individual variation. For example, in terms of Comments, each boy demonstrated particular preferences for commenting interactively. By the time of the last taping, three distinct patterns were noted - Ivan primarily used intonation patterns, Brian primarily used other suprasegmental features, and Rio primarily used contingency. Style differences in the communicative devices used to express language interactively extends the notion of individual variation to a previously unexplored area of communication. Further, the use of different communicative devices calls into question the generalization of Dore's (1975) notion that the force or intention of Primitive Speech Acts was communicated by an intonation pattern. The results reported here suggest that alternative means may be used to communicate the force of an utterance at the single word stage and beyond.

---

The fact that pointing and suprasegmentals were among the earliest means of communicating socially (looking is a third) supports Griffiths' (1979) notion that "the two earliest ways in which separately significant components enter into single communicative acts are the combination of intonation patterns with sequences of sound and the combination of a gesture and an utterance" (p. 118). The increased use of interactive Comments from Linguistic Level 1 to Linguistic Level 3 and the growing repertoires of communicative devices could be considered additional examples of the children's developing social knowledge or alternatively, their increased inclination to use this knowledge.

Some of the results confirmed the methodological decisions which had been made. For example, the frequent use of interactive Comment on Objects (at least .50 of the occasions with the exception of two out of ten samples) lent support to the need for considering two levels of functional analysis. Many previous discussions of style differences have suggested that the use of labels (one type of Comment on Objects in the present taxonomy) is typical of an object-oriented approach to language contrasted with a more interactively oriented personal-social approach to language (Nelson, 1973; Longtin, 1984). In these

studies, the use of language to label has been taken as evidence of an interest in the world of objects as opposed to the world of people. These descriptions have been based on children at early linguistic levels (emerging first words) suggesting that the capacity for social talk is limited at this point in development. However, at the time of the first taping in this study, when the children's MLUs were 1.0 -1.4, half of each of the child's Comment on Objects were interactive (All Comment on Objects were linguistic). This finding suggests that the two style picture which contrasts object orientation and social orientation may be appropriate only at very early language levels, perhaps before the integration of object and person-oriented interaction occurs at the linguistic level.

Finally, the frequent use of interactive Comments suggests that the place of this function in development warrants further attention. In fact, Griffiths' (1979) discussion of reference provides an excellent starting point for clarifying the role of interactive Comments in language acquisition. From a social perspective, Griffiths suggests that children's efforts to draw attention to objects and point out objects (i.e., acts of reference) are the child's means of interacting with those around him for "the pleasure of dialogue" (p. 117). The fact that comments were frequently

expressed interactively with explicit communicative devices, such as pointing, supports the hypothesis that early reference serves a social function in addition to the emerging cognitive-linguistic function usually identified with it.

### Speech Act Function

While the young child's capacity to express a range of intentions from the outset of language has been described in many studies, the period beyond first words through early syntax has not received as much attention. The findings of this study indicated that the speech act system was basically in place when MLUs were 1.0 to 1.4 and that minimal change occurred in the speech acts expressed throughout the linguistic levels. Since the majority of the 20 speech acts identified were expressed at the first linguistic level (16/20 when data across children are pooled), little can be said about the developmental order of these functions. However, the results of the study suggest that speech acts common to all three boys can be identified at each of the three MLU stages examined and that some speech acts, such as Routines and Acknowledgments, do emerge over time.

Selected speech acts were expressed by all three boys at Linguistic Levels 1 and 2 and by the two boys

who reached Linguistic Level 3. When the boys were 1 1/2 to 2 years old with MLUs of approximately 1.3, they expressed Comment on Objects and Actions, Request Objects and Actions, Request Responses, and Routines such as Greetings (in play) and Play Exchanges. When they were two years old ( $\pm$  2 months) with MLUs of approximately 1.9, they continued to express the functions noted above and in addition, expressed Routine-Accompaniments and Discourse- Acknowledgments. Finally, when two of the boys were just beyond two years with MLUs of approximately 3.0, they used language to express Comment on Objects and Actions and Discourse-Acknowledgments and Rejections in addition to their individual patterns of speech act performance.

The absence of Request-Direct Attention in two of the children's samples was potentially misleading. While Rio did express these explicit bids for attention ("Look," "Listen,"), the absence of these acts in Ivan's and Brian's samples was curious. This finding was considered relative to Griffiths' (1985) proposal that acts of reference which involve "drawing attention to people, things, events, and states," - coded in the present taxonomy as Comment on People, Comment on Objects, Comment on Events, and Comment on Action/State, respectively- are a way of initiating and maintaining interaction with adults. In this sense,

Ivan's and Brian's use of interactive Comments could have served the same global function of initiating and maintaining interactions with adults as Rio's use of Requests-Direct Attention. From this perspective, it is interesting that Rio expressed Request-Direct Attention productively at points where his use of Interactive Comments was infrequent (LL 1b and LL 2b). While establishing and maintaining interaction with adults may be universal, these objectives can be accomplished by different speech acts.

Although continuity in the expression of speech act functions from pre-linguistic to linguistic stages has been noted (Bruner, 1978; Bates, Benigni, Bretherton, Camaioni, and Volterra, 1979; Griffiths, 1979), the continuity at later stages may have been obscured in previous research where different taxonomies have been used. While Halliday's account of functional development certainly speaks to continuity, the fact that the developing system is described in more global functional terms does not allow one to trace the continuity in speech acts per se. The findings of this study support Griffiths' (1979) notion that "the transition from ... early asyntactic utterances to the first syntactic constructions is bridged by functional continuity" and extends the finding beyond the first syntactic constructions.

## Routines

In terms of the major categories identified in this study, Routines require further attention. Results of this study suggest that for some children, the speech act category of Routines may play an important role in emerging language and may affect the form/content aspects of development. The child who uses language for Accompaniments, Social Games, Greetings, Play Talk, and to Express Pleasure, necessarily uses less propositional and more ritualistic talk. While one child in this study expressed Routines frequently at LL 1 and 2, all three boys expressed Routines productively at the first two linguistic levels. The fact that productive expression of these speech acts decreased significantly at MLUs of about 3.0 leads to several questions regarding the status of Routines. For example, one wonders whether Routines actually disappear at higher linguistic levels or alternatively, evolve into something else at the discourse level. The question here is whether the status of Routines is significant but temporary or significant and transitional.

Griffiths' (1979) discussion of early forms of Giving and Receiving sheds light on this issue. As described by Griffiths, these communicative acts would

be similar to the speech act category referred to as Routine - Accompaniments in the taxonomy presented here. Griffiths describes these forms as a "rather forceful and concrete way of drawing attention" to objects. If this is the case, the child's linguistic and social development may provide him with other options of drawing attention over time (e.g., topic-comment structures, contingency, suprasegmentals, etc.) suggesting that these Routines may evolve into more sophisticated means of contributing to conversations.

Further support for the role of Routines in development can be found in McShane's brief discussion of the Exchange category, defined as "utterances that accompanied the acts of giving and receiving" (p. 118). These acts are again comparable to the category referred to as Routine - Accompaniments in the present study. McShane suggests that "the giving and receiving of objects observed in the early months of the second year is probably one aspect of integrated person-object activity" (p. 119). This view suggests that Exchange acts may represent important examples of both integrated behavior and conversational awareness. The fact that Routines of this type will contribute little to linguistic development (it is hard to imagine structural expansions of these utterances), but

significantly to social-functional development is interesting to consider. While Routines may have little semantic value, they may have considerable conversational value (e.g., taking a turn, awareness of listener, drawing attention) and as such may figure significantly in pragmatic development.

### Speech Act Measures and Individual Variation

The use of two different measures, most frequently expressed speech acts and productively expressed speech acts, led to a better understanding of individual differences in occurrence of speech acts. While similarity in frequently expressed speech acts was noted across children, more commonality was noted in productive speech acts. The findings suggest that although the range of speech acts available to the young child may be universal, the actual use of speech acts may be subject to individual variation. Obviously, the factors which account for variability in speech act performance are multi-determined and include at the least, cognitive styles, social styles, temperament styles, contextual factors, and partner characteristics.

The fact that fewer productive forms were shared across children was contrasted with findings on productivity and speech acts. Two possible

---

explanations, one relative to the language user and one relative to the language itself were considered. With respect to the language user, greater individual variation may exist in some domains of language than in others. For example, style differences may be more prevalent in the production of forms than in the production of functions, resulting in fewer shared features across children. Alternatively, the finding might be considered evidence of the inherent differences between domains of language. The nature of form may allow for greater diversity than the nature of function, when function is defined as speech acts. Clearly, the two explanations are related as the greater the capacity for diversity within a domain of language, the greater the potential for individual variation.

The fact that fewer frequently expressed forms were noted than frequently expressed functions leads to an understanding of one aspect of the relationship between form and function at early language levels. Children at early stages of language development appear to communicate a range of intentions with a somewhat small repertoire of forms which varies from child to child. Taking the question of universality and individual differences to the cross-domain level, it appears that there is functional universality in what

one does with language and individual styles of how one does it. This conclusion was supported by within domain variation such as means used to comment interactively and the use of different speech acts for initiating and maintaining interaction with adults.

In the following section, the results of the synergistic analysis of form and function are discussed from a descriptive perspective. This is followed by a discussion of results which contribute to explanatory perspectives on the relationship between form and function.

#### Form-Function: Descriptive Perspective

At the cross-domain level, trends were noted in the specific form-function units expressed by the children. For example, use of Comment on Objects: Nouns and use of Requests (Objects, Actions): Verbs (or MWC with verbs) was noted across the boys. Once again, this finding could be considered relative to the language user or the language itself. In reference to the latter explanation, from a functional perspective, certain speech acts may dictate the forms used at early language levels when form capacity is somewhat restricted. While this appears to be the case, the fact that nouns and verbs were used by all three boys

to express other speech acts at Linguistic Levels 1 and 2 suggests that options are available. Use of specific form-function units across children therefore reveals the kinds of language units children are inclined to use at early levels.

While trends were noted, cross-domain analysis revealed the diversity and individuality of form-function development. Since the functional system itself underwent less change than the form system across language stages, cross-domain analysis was primarily a tracing of the elaboration of form for the expression of a repertoire of speech acts. In fact, it appears that the first step in functional development is getting the basic speech act system in place followed by development of a formal repertoire to communicate these acts. This trend supports Ochs' (1979) notion of "a developmental pragmatic study" as one which documents "the gradual move away from context towards morphosyntactic means for encoding intentions" (p. 14).

An excellent example of this evolution is noted in Ivan's expression of Requests for Action. These speech acts were expressed with similar frequency at each of the three linguistic levels (14, 16, 13, respectively). At Linguistic Level 1, Requests for Action were

expressed primarily with vocalizations and non-linguistic devices in contexts where the intention was easily interpreted. For example, Ivan produced a distress vocalization and looked at S. as he tried to get a car out of the house. While the vocalization was the preferred form at this point, Ivan resorted to other means, non-linguistic and linguistic, when his intention did not receive a desired response. Consider the following sequences,

1. Ivan: /ʌ/ + extending chair to S. /  
           /ʌ/ + extending chair to S. +  
                   looking at S. /  
                   pointing to doll that S is holding
2. Ivan: (looks around the room for a doll to  
           put in an empty chair)  
           /ʌ/ + extending chair to S.  
       Sima: What?  
       Ivan: /ʌ/ + extending chair to S. +  
                   looking at S./  
                   "go" + extending chair to S. +  
                   looking at S.

In both cases, Ivan used communicative options to augment his communicative attempts. In the first example, these options were non-linguistic (looking, pointing), while in the second example, a word was actually mobilized to express the function. The fact that Ivan used vocalizations at a point in development where he had single words available to him was



Within a functional framework, this type of longitudinal analysis illustrates both form continuity and form change across language stages. Further, these findings support the form-function unit as an appropriate unit of analysis in studies of early language development. This view brings us back to the original conception of speech acts in the study of child language (Dore, 1978) and moves us away from discussions of language development where form and function are considered independently.

Longitudinal tracing of form-function units also revealed differences between functions in terms of those whose form realizations changed significantly and those whose form realizations did not. For example, interesting trends were revealed when form realizations for Comments were examined across the three linguistic levels. First, a distinct difference between Comment on Objects and Comment on Action was noted in the form elaboration which each speech act lent itself to. By the third linguistic level, when Brian's syntactic capacity was impressive, he continued to express Comment on Objects with single Nouns and Noun phrases. Similarly, Ivan expressed Comment on Objects at LL3 (not a frequently expressed speech act for him at this level) primarily with Nouns. Secondly, while Ivan and Brian's expression of Comment on Objects was similar

across stages, forms used to realize Comment on Action were vastly different by the third linguistic level. Brian's use of both nominal and pronominal forms in subjective and objective cases was evidence of form flexibility which Ivan had not yet achieved. Finally, the fact that Comments on Action were expressed productively at LL1 but not frequently until LL2 suggests that this speech act came to occupy a central place in both functional and formal development. The review of these differences between Comment on Objects and Comment on Action/State indicates that even speech acts within the same category do not necessarily follow a similar course of form elaboration.

#### Discourse - Acknowledgment

Although the study of function in this investigation was limited to the development of speech acts, the inclusion of a discourse category provided data which supported the emergence of a second stage of functional development. Beyond the use of a core of speech acts, the emergence of a "discourse sense" was observed. Initially, this discourse sense was manifested by the expression of Discourse - Acknowledgments. The most interesting aspect of the development of Acknowledgments was appreciated when the speech act was considered as a form-function unit and

---

development was considered in stages. At the stage at which Acknowledgments were first expressed frequently (LL2 for Brian and Rio; LL3 for Ivan), the form of these Acknowledgments was primarily some type of imitation of the adult's prior utterance. At this point, Acknowledgments were expressed in response to Requests for Responses, specifically elliptical Yes-No questions. Responses to this type of adult speech act might be considered "obligatory," although clearly bids for responses in previous samples had been ignored.

While the boys were similar in the form-function make-up of the Discourse-Acknowledgments, only Brian's data could be examined at the next developmental stage, i.e., at the second stage at which Acknowledgments were expressed frequently (in this case, LL3). At this point, both form and function had changed significantly. Specifically, the form of Brian's Acknowledgments were now primarily simple affirmations ("Yeah"), while the function was expressed in response to prior adult Comments, i.e., non-requests, as well as Requests. The elegance of development is seen in the simultaneous change in form (beyond imitations) and function (beyond "obligatory" discourse contexts) suggesting a synergy in terms of linguistic and conversational sophistication. These examples support McShane's proposal that the children in his study were

"simultaneously mastering the structural and social conventions of language" (p. 147).

The results of this study initially appear contradictory to Bloom, Rocissano, and Hood's (1976) findings. These researchers found that imitations occurred more often after non-questions than questions, whereas linguistically contingent utterances occurred more often after questions than non-questions. Differences are not in the data, but rather in the definitions. Review of Bloom, et. al.'s definition of linguistic contingency indicates that utterances coded as imitations in the present study would fall into the contingent category in the Bloom, et. al. investigation.

Two points can be raised relative to the development of Discourse - Acknowledgments. First, the increasing "discourse sense" seems to have more to do with the development of social knowledge than with the development of linguistic knowledge. This conclusion is supported by the fact that the form ability (imitation) which was ultimately mobilized to achieve Acknowledgments was within the child's ability from the outset, i.e., from the first linguistic level. In fact, for two of the children (Brian and Rio), productive use of Discourse - Acknowledgments was noted

at the first MLU stage. The increased use of the function over time speaks to the children's developing sense of their listener obligations. Needless to say, increasing linguistic sophistication, particularly relative to comprehension, may also contribute to this phase of discourse development.

While the development of conversational skills provides the researcher with an opportunity to study the interface between social development and language development, Greenberg (1984) suggests that "neither theorists nor researchers in these historically separate disciplines have fully recognized their shared interests in the child's developing communicative competence" (p. 208). Of course, this criticism does not apply to Halliday (1975) who deals extensively with the relationship between the learning of language and the learning of the social system.

The learning of language and the learning of culture are obviously two different things. At the same time, they are closely interdependent. This is true not only in the sense that a child constructs reality for himself largely through language, but also in the more fundamental sense that language is itself a part of this reality. The linguistic system is part of the social system. Neither can be learnt without the other (p. 120).

Halliday sees the acquisition of language as an aspect of and conditioned by the social semiotic. "The social semiotic is the system of meanings that defines

or constitutes the culture; and the linguistic system is one mode of realization of these meanings" (p. 139). While Halliday acknowledges that the construction of a system of meanings is a cognitive process, he suggests that the learning of the mother tongue occurs in the context of social interaction. "The act of meaning is a social act" (p. 140). In this view, the connection between the meanings of the language and the meanings of the social context must be made for language learning to occur.

From the perspective of developmental sociolinguistics, language use is viewed as an aspect of communication which promotes social interaction. "That is, the process by which infants learn how to use language is the foundation of developing social competence" (Greenberg, 1984, p. 208). Beyond this, the child's ability to use language in conversation can be viewed as an opportunity to explore his growing capacity for social interaction. As Shatz (1977) suggests, "an understanding that interaction involves cooperation on the part of both speaker and listener" is basic to conversational knowledge.

At this point, the researcher might ask if children's early conversational skills reflect an understanding of the obligations of cooperative

interaction (Shatz, 1977). The answer to this question has often been looked for in studies which explore how children function as speakers with different listeners (Gelman and Shatz, 1977) and to a lesser extent, how they function as listeners (Bloom, Rocissano, and Hood, 1976). In the present study, the emergence of one type of listener awareness has been identified in two year old children, supporting the notion that young children can be "attentive and responsive" co-participants (Shatz, 1977, p.8). The results reported here are also supported by McShane's (1980) finding that at the beginning of the second year, children are responsive to other's utterances, especially if these utterances are questions.

In discussing the possible relationships between social interaction and language development, Shatz (1981) describes "The Process Approach: The Allocation of Resources."

Children develop primitive heuristics for staying in interactions. That is, they have interactive strategies which result in relatively acceptable behavior before they fully understand what is being said to them or what is expected of them. The advantage to the proposal of heuristics is that it avoids the troublesome attribution of social knowledge to the child while still providing a means of making the interactional task "easy" from the perspective of the expenditure of resources (p. 25).

While early conversational skills such as have been described here do not reflect "a high level of prior social knowledge" (Shatz, 1981, p.25), their increasing presence does suggest some growing social awareness or knowledge.

Like Halliday's Nigel, the three boys in this study demonstrated what Goodwin (1985) refers to as the "components of proto-conversation:" intersubjectivity, the coordination of attention to present objects, a repertoire of communicative acts, and turn-taking. While the boys also demonstrated some of the "components of linguistic dialogue," most of these were yet to appear (e.g., textual competence and sociolinguistic competence).

The second point to be made about Discourse-Acknowledgments is that development of this speech act reflects one example of a stage-wise relationship between form and function. At the point where the child's social sense inclined him to acknowledge his conversational partner (a more general conversational inclination has been observed earlier in the single word period with the child's tendency to talk more often following an adult utterance), he adopted the simplest strategy for accomplishing this function, he imitated. As noted above, this option was actually

available to him prior to his frequent use of it for this conversational purpose. The fact that this conversational skill is first manifested through use of imitation is well-supported in the literature. As Shatz (1977) suggests, two year olds "have a device for easing the work of maintaining discourse: they repeat segments of prior utterances in conversation.... While repetition may not provide opportunities for displaying the full range of one's linguistic ability, it does, at the very least, satisfy the conversational obligation of responding to one's interlocutor in a topic-relevant way" (p. 9).

In recent research, the social function of imitations has received considerable attention. As Keenan (1977) suggests, "...children are sensitive to the illocutionary force of prior utterances in discourse. They repeat as an attempt to respond appropriately to particular types of utterances" (p. 131). More specifically, McTear (1978) has suggested that imitation is important for the development of question-answer sequences, a finding which is supported by the research reported here.

Since the sophistication in both form and function relative to Acknowledgments occurred simultaneously in Brian's sample, one cannot uncover the direction of the

influence, if in fact one domain follows another in development. In terms of future developments, we might predict that Ivan and Rio's next stage of Discourse would include use of non-imitative forms, such as affirmation, and acknowledgment in non-obligatory contexts, such as in response to Comments. The nature of Brian's further discourse development may be found in the relationship between his comments and the adult's prior utterances, i.e., in the emergence of the textual function or the ability to relate utterances to preceding and subsequent utterances (Halliday, 1973).

Although the analysis of discourse was limited in the present study, the results support Levinson's (1983) suggestion that "conversational analysis is likely to tell us a great deal more than theories of speech acts about the ways in which language is acquired and used by children" (p. 282). This view lends support to functional approaches to language which emphasize the role that interactive contexts play in the acquisition and use of language.

#### Unifunctional Versus Multifunctional Use of Forms

One of the issues that has been of considerable interest since the inception of form - function studies is the question of unifunctional versus multifunctional use of words and structures. This question was

addressed in the present study from two perspectives. First, single words were contrasted with MWC at the lexical level. This analysis indicated that the functional status of single words was variable. At LL1, Ivan and Rio's (a and b) use of single words were both unifunctional and multifunctional, whereas Brian's use was primarily unifunctional. At LL2, functional status varied from primarily unifunctional (Ivan) to equal proportions (Brian) to primarily multifunctional (Rio a).

The use of single words as uni and multifunctional is undoubtedly related to the make-up of the child's lexicon, both in terms of form types and form variety. For example, a child who uses nouns frequently may have more potential to use forms multifunctionally than a child who uses ritualistic forms frequently (supported by the finding that most multi-functional forms were substantives). The fact that nominals are used early on to express different functions is supported by the work of Barrett (1981) and Longtin (1984). Alternatively, a child who produces nouns frequently may also demonstrate considerable noun diversity in which case he would have more forms available for different functions. Review of the data on lexical diversity suggests that these factors alone do not account for uni versus multifunctional status as all

---

three boys (Rio b) demonstrated high noun diversity at LL1. However, Rio's data at LL2 lends some support to this hypothesis as multifunctional use of single words was high when noun diversity was low, whereas uni and multifunctional use of single words was comparable when noun diversity was high (LL 2b). Further, at LL2, Ivan's unifunctional use of single words was high when noun diversity was high.

In contrast to the variable functional status of single words, the pattern with MWC was uniform. MWC were consistently unifunctional at all three linguistic levels (Occasions of MWC used more than once were non-productive at LL1 for Brian and Rio a. While occasions of MWC used more than once were productive at LL2 and LL3, tokens were low). Therefore, while single words were used flexibly for different functions, MWC did not have this potential at early stages of language development. This finding was supported by Halliday's proposal that "in the beginning, all Nigels' structures, like his vocabulary, are functionally specific." It should be noted that Halliday was referring to more global functions, namely the pragmatic versus the mathetic.

The second contrast considered relative to functional status was the lexical level versus the

structural level of MWC. Whereas specific word combinations were generally not used for a variety of functions, structural types were found to be multifunctional (Analysis at second linguistic level only). Forms such as Verb + Article + Noun were used to express different functions, whereas lexical items such as "Mommy do it" were used to express only Request Action. Review of the data on MWC suggests therefore that at early stages of syntax, use of the same utterance to communicate a variety of forces, a hallmark of adult pragmatic ability, has not emerged. However, it is possible that explanations given for minimal multifunctional use of single words may be appropriately considered here. Growing cognitive-linguistic capacity may lead to greater diversity in MWC and therefore, less "need" to use the same utterance for different functions. In fact, the occasions of repeated use of the same MWC (data on which the uni- versus multi-functional analysis was based) were not extensive, supporting this claim. The absence of multifunctional use of forms was considered as evidence of growing lexical capacity rather than limited pragmatic capacity.

The potential for multifunctional use of forms at the single word level is supported by recent research. For example, Longtin (1984) found that specific tokens

of nominals were used for labelling, heuristic, and instrumental functions. The results of the present study extend the notion of multifunctional use of forms to include the syntactic level, specifically with respect to structural types (Verb + Article + Object), but not lexical tokens of these types.

Finally, while the data in this study support de Villiers' (1984) hypothesis that "Children begin by using a limited set of form-function mappings, and this broadens until they are capable of using a variety of forms for any one function" (p. 196), the claim that children use "one form for a number of different functions" (Ibid.) requires qualification. First, while the child may have the capacity to use lexical items for different functions, this capacity is not necessarily exercised, especially if the make-up of the child's lexical system permits him to do otherwise. Secondly, the hypothesis can not be extended to the early use of multiword combinations.

#### Use of Nouns Relative to Function

The frequent use of nouns and the relationship between these forms and speech acts was considered from a number of perspectives. The fact that nouns were frequently used to express Comment on Objects was not surprising given the nature of the form and the

function. However, the frequent use of Comment on Objects was interesting to reconsider in light of previous discussions of the use of nominal forms or labels. From a cognitive-semantic perspective, coding of existence has been explained on the basis of the child's cognitive development, while from a pragmatic perspective, use of labels has been explained on the basis of functional preferences (Nelson, 1973). In the present study, the frequent use of the form-function unit, Comment on Object-Noun, is considered to be one means of accomplishing the rather global function of initiating and maintaining interactions at early language levels.

From a more linguistic perspective, several analyses pointed to the flexibility of nouns and the use of this form beyond the Comment on Object. For example, at LL1, the second major speech act type expressed by nouns was consistently a Request, although the specific Request type varied. At the second linguistic level, both Ivan and Brian continued to use nouns primarily to express Comment on Objects; however, both also used the form productively to express Request Objects. At LL 2b, Rio expressed Discourse-Acknowledgments in addition to Comment on Objects productively with nouns.

The analysis of the uni versus multifunctional status of single words discussed above was particularly revealing with respect to nouns. At LL1 and LL2, the majority of forms used multifunctionally were nouns. This finding suggests that nouns are inherently easier to use to express a variety of speech acts and gives this form category a status relative to function that has previously not been addressed. While "nouniness" has been positively identified with language acquisition (e.g., Horgan, 1981), the advantage has been considered relative to rate of development. The data from this study suggest that nouniness may result in a functional advantage because of the flexibility of the form.

#### Form-Function-Explanatory Perspective

In this section, form-function relations will be discussed with respect to the functional motivations that may account for the acquisition, use, and non-use of forms. For example, use of MWC revealed certain ties between syntax and pragmatics. At the level of social function, the fact that most MWC were interactive was interesting, but perhaps predictable based on the high degree of interactiveness in the samples. The unexpected and more intriguing finding was the fact that for Ivan and Brian at LL2, the

proportion of interactive MWC was significantly greater than the proportion of interactive utterances in the total sample. This finding was considered with respect to findings at the speech act level. While variability in MWC-speech act use was noted at the first linguistic level, a distinct pattern was noted at the second linguistic level. Here, the use of MWC to express Requests was significantly greater than the occurrence of Requests in the total sample. While the emergence of MWC was non-specific relative to speech acts, at the point of more frequent use, syntax was often mobilized to express Requests.

A similar finding was noted at the structural level. The fact that the Verb + Object construction emerged in Requests for two of the children and was used most frequently for Requests by the third child suggest that the use of this form may have been dictated by the communicative task. If so, the child may experience this structure more frequently in the service of this speech act, although not exclusively so. These findings could be contrasted with McShane's (1980) proposal that "the development of language structure... is most evident and most pervasive in statements" (p. 147).

Although the findings in this study might be explained on the basis of the communicative task of Requesting, the fact that the children were successfully performing these speech acts at a pre-syntactic level cannot be ignored. The question raised here relates to the motivation for the use of syntax for Requests. This question can be considered from two perspectives, from the perspective of the language itself (i.e., some inherent relationship exists between syntax and Requests or between Verb + Object constructions and Requests, analagous to the relationship that exists between nouns and Comment on Objects) and from the perspective of the language user (e.g., the child is more motivated to communicate unambiguously when he is satisfying his needs and therefore, the syntactic capacity which could potentially be mobilized for any speech act is more frequently mobilized for the one that has an environmental end).

The use of syntax for Requests might be considered from a point of view which integrates both of these perspectives. Bruner's (1981) discussion of early requesting can be reviewed in this context. In reference to Requests, Bruner suggested that "the child is indeed learning a heavily pragmatic set of discourse rules well before he can appreciate a grammar of

sentence parts. It is as if the dynamics of language, in the sense of its sens or direction in speech acts, is being learned first in some preliminary way to guide the child in his construction of utterances" (p. 52). The fact that grammar was often realized for Requests supports a relationship between the learning of discourse rules and the acquisition of grammar, as syntax was frequently tied to this speech act.

A third example of the functional motivation for use of forms actually contrasts the use and non-use of a linguistic category. The absence of Subjects in Rio's samples was clearly a reflection of pragmatic factors rather than syntactic ones. Analysis of the data indicated that topic content and non-linguistic context accounted for the presence of Subjects in MWC for Ivan and Brian. As Rio did not refer to the play figures, the observers, or himself (the categories of talk which accounted for realization of Subjects in the other boy's samples), the absence of Subjects was attributed to functional factors rather than limited knowledge of linguistic structure. While linguistic knowledge of the syntactic category is obviously prerequisite to its use, this readiness alone may not be sufficient during the developmental process. Rather, the interrelationship of form and function clearly

---

influences the realization of and possibly the acquisition of syntactic knowledge.

The use of MWC, Verb + Object structures, and Subjects in multiword utterances can be considered from a more specific pragmatic perspective. In discussing the structural and functional transition from single words to early multiword speech, Greenfield, Reilly, Leaper, and Baker (1985) propose that syntactic development occurs in "an environment of pragmatic and semantic continuity. An important aspect of the pragmatic continuity as the child moves from single words to syntax is the use of language to mark variability" (p. 265). In an earlier version of this hypothesis, Greenfield and Smith (1976) suggested that children encode the changing or novel aspect of "a given referential situation... The principle of informativeness" which "predicts the verbal expression of uncertain rather than certain information" (p. 251) was used to explain choices children made at the single word stage. For example, Greenfield (1979) proposed that an object which was not in the child's possession was more uncertain and would therefore be the encoded item in certain single word utterances. In the more recent work, Greenfield et. al. (1985) suggest that the principle of informativeness "continues to characterize

children's word choices at the two word stage"  
(p. 263).

The finding that objects were often encoded in two word utterances expressing Requests might be explained from this perspective. A contextual prerequisite for Requesting is often an uncertain object, uncertain in the sense that it is out of reach or out of sight. According to the principle of informativeness, the use of Verb + Object structures for Requests can be explained based on the relationship between uncertain objects and the speech act conditions of early Requests.

Perhaps the most interesting aspect of the theory is how it accounts for continued use of single words at a point where "two word sentences were the rule in the children's speech" (Greenfield, et. al., 1985, p.264). Greenfield, et. al. propose that this occurs "because these situations were scripted to have only one variable element. Thus, the use of a single-word utterance when one is capable of longer sentences, functions to reflect a referential situation in which there is not much new or variable information and much is taken for granted" (p.264). Since the majority of single word utterances produced at the two word stage in this study were nouns used to express

Comment on Objects, the hypothesis that the single word utterance does not disappear, but rather becomes "an alternative means of expression with its own specialized function" (p.264) is supported.

Greenfield, et. al.'s (1985) view that "the leap from one to two word speech is achieved in the context of the child's pre-existing semantic and pragmatic communicative framework via discourse interaction" (p. 264) is an example of a contemporary approach to the child's acquisition of grammar. Contemporary views can, however, be vastly different. In addressing the origins of and interrelationship of grammar and pragmatics, Foster (1986) suggests that interactive contexts and prelinguistic communication do not play "more than a very minor role" in the development of the grammar (syntax, morphology, phonology, and semantics). Further, Foster claims that pragmatic development in general is independent of grammatical development, a view which can be contrasted with functional approaches to grammar such as that of Bates and MacWhinney (1979).

Even those who find a functionalist approach extreme may find Foster's claim of independent development in need of qualification. In particular, one would like to clarify the stages at which separate development or synergistic development may be more

typical. The position taken in the present study is that certain aspects of form development are independent of pragmatic developments (consider the development of new forms in old functions and the increasing diversity of forms), while other aspects of form development, such as the use of MWC with Objects in Requests, the use of Subjects, and the continued use of single word utterances at the two word stage, must be considered with respect to both global (e.g., demands of the communicative task) and specific (e.g., principle of informativeness) pragmatic motivations. These latter findings support the weak version of the functionalist hypothesis; i.e., the notion that a correlation exists between the surface grammatical devices and communicative functions in combination with processing constraints (Bates and MacWhinney, 1979). Evidence which supports this position co-exists with evidence which supports a contrasting position that "some competences may be relatively independent of earlier functions" (Kagan, 1984, p. 81).

Somewhere between the strong functionalist views and the strong separatist views lies Bruner's current thinking. Bruner (1983) questions whether we can "profitably commit ourselves any longer to the three branched linguistic tree. May not the tired old distinction between syntax, semantics, and pragmatics

obscure their relationship by making them seem so parallel and autonomous" (p. 31). While Bruner recognizes the appeal of the proposal that "grammar is derived from the pragmatic use to which language is put," and accepts that the grammar and lexicon of a language must have been influenced by pragmatic factors to some extent, he contends that this "could not be the whole story" (p. 31). The whole story for Bruner includes understanding the role of "formatted discourse" in the child's language development. Formats for interaction between mother and child provide " a means for structuring and conventionalizing the exchange of messages about intentions." A format "is a device for framing communication, for locating it in a particular piece of social reality to which intentions and conventions relate." In this view, formats are directly related to the acquisition of speech acts in the sense that " a speech act...comes into being once the child is able to internalize and then generalize a format" (Bruner, 1984, p.45).

One final analysis, new forms-new functions, was done in an attempt to determine which domain leads and which domain follows in development. Since new productive forms primarily expressed old speech act functions, form development of this type was apparently not motivated by functional needs. Further, since new

productive speech acts were generally expressed with old forms, functional development was not dependent on new forms. In fact, the majority of new speech acts expressed were Routines characterized by formulaic speech ("Excuse me") and ritualistic talk ("uh oh," "here"). Again, use of these forms to express Routines seems to be evidence of increasing social knowledge of one type or another. For example, use of Routines such as "Excuse me" after burping, reflects increasing social awareness of politeness forms, even though at this stage the forms may represent "packages." Other forms associated with Routines-Accompaniments ("here") or what Griffiths (1979) refers to as "Giving and Receiving" forms may represent direct attempts to draw attention to the context in a way which insures interaction with others.

The findings suggest that Slobin's (1973) notion, "New forms first express old functions and new functions are first expressed by old forms" (p. 184) can be extended to include pragmatic aspects of function. From a broader perspective, these findings also support the trend for new-old combinations when development of two domains of language are studied. Advances in one domain of development may be accomplished with a certain degree of economy by using the old, familiar aspects of development as the anchor.

While this explanation works well for the findings reported here relative to new forms, the nature of the new functions indicates that they were not expressed at the expense of form elaboration. Nonetheless, the combination of old and new noted frequently in this study speaks to the co-existence of continuity and change in development (Kagan, 1984).

#### Primacy of Form - Primacy of Function

Evidence for both primacy of form and primacy of function was found. At LL1, Rio's use of a variety of most frequently produced forms (Ritualistic, Verb, Noun + Noun) to express one function, Routines, supported the primacy of this speech act. At the same linguistic level, Brian's use of his most frequently produced form, Noun, to express a range of speech acts (Comment on Objects, Comment on Events, Comment on People, Request Objects, Request Response) supported the primacy of form. These examples suggest that a child may enter the language acquisition process with either a strong form preference or a strong functional preference, a view which can be contrasted with prevailing conceptualizations of the style phenomena. Many discussions of style have presented a "two-style picture" within a single domain of language. For example, in form, a child may be seen as referential or

---

expressive (Nelson, 1973), whereas in function, a child may be seen as object-oriented or socially-oriented (Longtin, 1984). The proposal made here is that the style continuum can be considered cross-domains, allowing for either form or function oriented approaches to language learning. For example, a child may come into language with a motivation for lexical development (e.g., nouns) and allow this form to accomplish the range of intentions which he is apparently compelled to express. Alternatively, a child may come into language with a motivation for accomplishing particular functions (e.g., Routines) and allow this function to be expressed with the range of forms developing within his repertoire. The emphasis on form (lexical) versus functional (pragmatic) development may have its origins in cognitive versus social styles of interacting with the world.

A similar proposal has been suggested by Bates, et. al.'s (in press) interpretation of Horgan's (1981) research. These authors make a distinction between function-oriented and form-oriented language learning. As an example, "noun lovers" are seen as more interested in "the content of language (i.e., semantics, pragmatics), whereas 'noun leavers' are more interested in levels of form (i.e., syntax, morphology, phonology" (Bates, et. al., in press, p.26). As can be

seen, Bates, et. al.'s use of the term function refers to both semantic and pragmatic aspects of language.

The notion of form preferences versus functional preferences or even some combined form-function preference was further supported in this study by the analysis done on noun use. Results indicated that one child's use of nouns could be explained on the basis of a form preference (Brian), another child's use of nouns could be explained on the basis of a functional preference (Ivan's use of Comment on Objects resulted in frequent use of nouns), and the third child's use of nouns could be explained on the basis of a "package" preference (for Rio, nouns were the only productive form used to express Comments on Objects with minimal use of the form to express other functions). These results illustrate further why style phenomenon must be considered cross-domains. While a child may demonstrate frequent use of a form in his repertoire, functional analysis may reveal that this use is actually a by-product of frequent expression of a particular function. In this case, factors motivating the child's language style are more appropriately captured at the functional level.

Because Rio's pattern of development was different from the other boys, alternative language acquisition

---

processes could be examined. As noted above, Rio used a variety of frequently produced forms to express Routines. In addition to suggesting a functional preference, this finding indicated that Rio's form categories did not necessarily correspond to adult categories. This finding is supported by McShane's (1980) notion that early words used to communicate pragmatic functions were not always "comparable to their homonymic equivalents in the adult language" (p. 146). For Rio, the form "Gimme" at LL1a was often used to express Routines rather than Requests. At LL1b, when Rio demonstrated verb diversity, the use of verbs of notice, such as "look," "listen," and "see" to direct attention supported the hypothesis that Rio was acquiring Routine-Ritualistic packages similar to Peters' formulaic utterances. Further evidence for this style of language acquisition was supported by Rio's acquisition of the Wh- Question form prior to the other boys and in retrospect, his use of these forms as an optional means of calling attention to objects. In discussing Routines, Shatz (1981) suggests several reasons why these units may be "crucial to the acquisition of complex systems composed of multi-constituent sequential behavior." Among these, Shatz proposes that "without requiring much creativity or knowledge on the part of the child, (routines)

foster participation in extended patterned sequences..." (p. 31), an explanation which is particularly well-suited to a discussion of the development of communicative competence.

Taken together, these findings suggest that the separation of form and function may be arbitrary and misleading when discussing the language acquisition patterns of children whose style of development is dependent on Routines. This suggestion corresponds to the notion that measures such as MLU may be misleading for children whose language patterns include use of formulaic speech.

### Clusters

As has been noted in previous research (Bretherton, McNew, Snyder, and Bates, 1983), clusters of language items rather than clusters of children were identified in this study. The analysis of clusters of language items including form, function, and form-function units revealed the co-existence of aspects of language within and across language domains. While some co-occurrences reflected the nature of language (e.g., nouns as a frequent form co-occurring with Comment on Objects as a frequent speech act), other co-occurrences reflected characteristics of the

language user (e.g., frequent use of nouns and high noun diversity; frequent use of ritualistic forms and frequent expression of Routines). When these co-occurrences represented potentially independent aspects of language development, they provided evidence of language-learning preferences and styles. In other words, co-occurrences provide information relevant to different processes of language acquisition, rather than simply descriptive information about behaviors typical of different styles.

Cluster data were also used to re-address the issue of the two style picture. When one child was sampled twice at the same linguistic level, his style was different enough in the second sample to warrant assigning him to a different cluster. This finding suggests that repeated sampling within stages will verify whether a child actually exhibits a style or whether he is simply (and perhaps constantly) in transition.

Finally, the cluster data could be used to address the issue of continuity and discontinuity in early language development. While individual children did exhibit some continuity in their development, the fact that Ivan and Brian started with similar styles (Cluster 1) but diverged at the second linguistic level

suggests that cross-domain styles are not necessarily predictive of later trends. Similarly, the fact that Rio b and Ivan shared a pattern (Cluster 2) at LL2 having come from different roots at LL1 speaks to discontinuity in development. Finally, the finding that within a linguistic level, Rio exhibited two different Clusters, certainly provides strong evidence for discontinuity.

Since the clusters identified here covered aspects of form, function, and form-function units, the "test" for continuity was undoubtedly hard to pass. However, even within domains of language, continuity was not necessarily noted. For example, Brian's use of pronominal forms in Verb + Object utterances following his frequent and diverse use of nouns at an earlier MLU suggests that some realizations at the syntactic level may be unrelated to previous lexical orientations.

The issue of continuity-discontinuity has been of considerable interest in the study of child language, particularly with respect to the transition from prelinguistic to linguistic stages of development and to the emergence of syntax. Shatz (1983) criticizes the continuity-discontinuity issue on the grounds that it ignores the synergistic contribution to communication from linguistic, cognitive, and social

domains of development. Shatz (1983) proposes an alternative model which invokes,

...sets of simultaneously developing subsystems (or variables), each with its own set of constraints, precedence conditions, and mechanisms of change. Some of these conditions are undoubtedly shared, but each subsystem is by definition at least partially differentiated on these grounds from other subsystems (p. 52).

Shatz refers to the integration of these subsystems as "coupling." The child's knowledge of any one subsystem (e.g., syntactic knowledge or speech act knowledge) must be stable before it can be coupled with other systems for competent performance on a wide range of tasks. Examples of this include the young child's inability to use his syntactic knowledge to respond to conversation (supported in this study by the use of imitation as an early discourse strategy) and the use of non-linguistic Requests by children who have the linguistic means to express these acts (supported by Ivan's use of vocalizations and gestures to express Requests).

In some views, both the emergence of words and the move to the two word stage of development are considered within a context of semantic and pragmatic continuity. For example, Greenfield, et. al. (1985) propose that the context of discourse "mediates the integration of the child's semantic abilities of the

one word stage with his or her burgeoning syntactic component" (p. 249). While recognizing that syntactic ability is a "new type of linguistic knowledge," these authors propose that "syntactic innovation occurs in an environment of pragmatic and semantic continuity" (p. 265).

The co-existence of discontinuity and continuity during early phases of language development has been proposed by Halliday (1975). Here again, discontinuity is found in linguistic knowledge and continuity in the meaning potential and social contexts of language use. The child "continues along essentially the same path as before, so that the mother tongue comes in as a natural extension of the baby language" (p. 87).

Finally, Wolff (1986) reminds us that it is quite difficult to make a case for either continuity or discontinuity in human development. The question he poses relative to behavior in general is certainly relevant to communicative development and more specifically, to the issues examined in this study.

How do we determine that the same "underlying" function operates on different structures at different points in development or that structure-function relations do in fact remain constant over time, when their surface manifestations change radically? (p. 162)

Some of the clusters identified in this study are reminiscent of profiles described by Bates, et. al. (in press). For example, one common profile described by these authors includes children who have many nouns in their early vocabularies (but also produce other forms frequently), who mix nominal and pronominal forms, and who sometimes imitate and sometimes don't. Descriptions such as these could be used to characterize Brian. Bates, et. al. suggest that "if the individual differences in the literature reflected a true dichotomy, i.e., a 'parameter setting' of some kind, then these patterns would not be so common" (p. 104).

A second profile describes a child who relies on formulaic speech "permitting him to function reasonably well in many social settings while he works on language structure at a slower pace." This profile is reminiscent of Rio who in five months progressed to Linguistic Level 2, while the other two boys progressed to Linguistic Level 3. (It should be noted that Rio was younger than the other boys at the outset of the study).

While recent research has indicated that the issue of individual styles may be less dichotomous than originally assumed, the fact is that certain children

do exhibit similar constellations of behaviors in early language development. However, the goal of research oriented in this direction may not be to refine the behavioral composites noted in these styles, nor to "identify causes of individual differences, but to define the process by which we all end up to be more or less the same with similar capacities, desires, and adaptive mechanisms, even though we start with different raw material and utilize that material in different contexts of experience" (Wolff, 1986, p.160).

While this process was not uncovered in this study, the data on trends in language acquisition were extended to include aspects of pragmatics. For example, the three children shared a high degree of interactiveness at some point in the first linguistic level which was maintained or increased at subsequent levels. Each child's ability to express Comments interactively increased from the first to the last sample. In terms of major speech act categories, Comments were expressed frequently at each of the three linguistic levels. More specifically, Comment on Objects were expressed frequently at Linguistic Levels 1 and 2, Requests for Responses were expressed frequently at LL1, and both Comments on Action and Discourse- Acknowledgments were expressed frequently at LL 3.

Moving from frequency to productivity, the three boys shared a repertoire of productive speech acts at Linguistic Levels 1, 2, and 3. While formulaic talk may be typical of some children and not others, the research reported here suggests that productive use of Routines was shared by the three children at MLUs of 1.0 to 2.25.

In terms of form-function units, the three boys consistently expressed Comment on Objects with nouns at Linguistic Levels 1 and 2. In addition, use of a noun to express Requests was common at Linguistic Level 1. Emergence and productive use of the Verb + Object structure occurred at Linguistic Level 2 in Requests. Other trends included the multifunctional use of frequently expressed forms at Linguistic Levels 1 and 2.

The developmental pattern noted with Discourse-Acknowledgments suggests a trend, if not a universal. These speech acts were first expressed frequently at the second or third linguistic level. At this point, Acknowledgments were primarily expressed with imitations and were in response to Requests for Responses. Both the form and function of these Acknowledgments were similar across the boys.

At Linguistic Level 2, the use of interactive MWC to express Requests was noted. These findings suggested that the children frequently mobilized their syntactic ability when talking to someone and requesting something of them. At the lexical level, the majority of MWC were unfunctional.

Slobin's (1973) principle, "New forms first express old functions and new functions are first expressed by old forms," can be extended to the pragmatic domain on the basis of the research reported here. Finally, diversity in form-function combinations was found in the three children by the second linguistic level as judged by the entropy measure. While the rate of growth of richness based on diversity was somewhat independent of MLU, the development of the capacity to use different forms for functions was a hallmark of the boys' early language development.

The proposal made here is that those aspects of language development which are universal lead to a fixed relationship between the language and language users (such as the repertoire of speech acts expressed at early language levels), whereas those aspects of language development which can vary lead to a flexible relationship between the language and language users (such as the form realizations for particular speech

acts). Subsequently, analysis of language units which encompass both types of development (form-function units) will reflect the synergistic effects of two complimentary trends- universality and individuality. The relationship between universality and individuality on the one hand and biology and environment on the other is at the heart of the study of these patterns. The fact that "biological factors can be responsible for variation across individuals (e.g., blue versus brown eyes)... and environmental constraints can be responsible for attributes that all of us share (e.g., we all have to learn ways to adjust to gravity, as long as we are bound to planet Earth," Bates, et. al., in press) expands the possible relationships that will ultimately be identified.

#### Mean Length of Utterance

In this research, the approach to the study of MLU involved analysis of three children's form and function development across MLU stages as well as an in-depth analysis of one child's development within MLU stages. While the former analyses were revealing with respect to development in form and function, the latter analyses provided an opportunity to examine the significance of MLU relative to different aspects of development. The fact that form changes were noted both

within and across linguistic levels suggests that the use of MLU as a marker of linguistic development may not capture certain kinds of form development. For example, it was noted that most frequently expressed forms changed from LL1a to LL1b and from LL2a to LL2b, suggesting that this aspect of development would not have been captured if the data were considered with respect to stage changes only. Similarly, significant increases in diversity of productive forms at both levels would not have been detected. As form changes were found within as well as across linguistic levels, it appears that those aspects of form which were examined here were continually growing at early stages of language development and that time, rather than linguistic level was the variable correlated with these changes.

The fact that form changes across linguistic levels occasionally represented dips in development indicated that changes can be qualitatively different from one another. This is an excellent example of Wolff's (1986) point that development is characterized by "regressions, deletions, and radical discontinuities as well as by stage-wise progression" (p. 160). While form changes within linguistic levels consistently represented increased ability, form changes across linguistic levels occasionally represented decreased

ability. For example, decreases in diversity of productive forms and diversity of MWC were noted from LL1b to LL2a. The fact that these dips accompanied the advance in linguistic stage speaks to the possible equilibrium achieved within the system. When structural development assumed a major place in the system, little room was left for development in other domains such as the lexicon. It appears that the emphasis on developing structure may at times override the development of lexical items and new combinations of lexical items. The fact that the number of new productive forms again increased within LL2 lends further support to the consuming nature of advances in syntax noted from LL1b to LL2a.

Shatz's (1977) discussion of information processing loads during language development is relevant here. Shatz suggests that the cognitive load of a task will affect the child's performance on a particular skill. For example, "when new forms are obligatory, they force a limitation to the complexity of the additional elements allowable in an utterance" (p. 10). For example, Bloom (1970) noted that the child's initial uses of the negative restricted the use of other newly acquired syntactic or lexical items. In reference to Rio, use of newly acquired syntactical skills co-existed with restricted use of lexical items.

In the language of information processing, the newly acquired skill of syntax affected the development of other language skills such as lexical diversity due to the "workload interactions" within the linguistic domain and the "limited resources" available to the child.

With respect to MLU and functional development, MLU may be irrelevant relative to certain kinds of pragmatic developments. For example, although functional changes were noted within the first linguistic level, after this point, most aspects of the speech act system remained constant across linguistic levels and within the second linguistic level. Early functional change was particularly robust in Rio's case as his profile was dissimilar from the other two boys' at LL1a and similar to theirs at LL1b.

Analysis of form-function units revealed significant change in this domain both within and across MLU levels. These measures (e.g., forms for most frequently expressed speech acts) reflected the growth of the language system during these early phases of development. Like form, similar kinds of changes were noted within and across linguistic levels, suggesting again that MLU alone does not capture these developments in language skills.

In reference to the entropy measure and its relationship to MLU, interesting dissociations between the development of diversity and complexity were found. While entropy-diversity increased as MLU increased, an isomorphic relationship did not exist between the two across children. The fact that different degrees of entropy were noted at similar linguistic levels and that similar degrees of entropy were noted at different linguistic levels suggests that diversity does not have the monotonic qualities that MLU has. This finding was supported by Klee and Fitzgerald's (1985) research in which it was noted that "the diversity of syntactic constructions does not grow predictably as MLU increases" (p. 265).

The question of which measure, entropy or MLU, might be considered representative of pragmatic and even linguistic sophistication can be addressed. The proposal here is that since the entropy measure increases during early linguistic stages and reflects a form-function richness in the developing communicative system, we might consider the measure an appropriate yardstick of one aspect of pragmatic development. The fact that all three boys shared the capacity for diversity in form-function combinations by the second linguistic level provides an extended view of critical developments at the point of early syntax and suggests

how the newly acquired form capacity is exploited functionally. If further standardized, this measure could be used to assess other aspects of language development as well as development in language impaired population.

### Realities

Recent volumes, such as The Origins and Growth of Communication, include chapters which report the most recent research findings in the study of communication and at the same time, question and criticize the processes of scientific inquiry used to arrive at these findings. While the psychological reality of categories used to code child language has often been questioned, the subjectivity attributed to more recent research has resulted in even greater concerns "for what the researcher is interpreting (and perhaps misinterpreting) about the communication of others" (Harding, 1985, p. 105). As Barrett (1981) notes research in early functional development has been criticized "for its failure to provide any precise or systematic criteria for evaluating the descriptive adequacy of the various sets of functional categories that have been proposed" (p. 275). As a result,

---

It is a matter of contention as to whether or not any of the sets of functions which have been proposed to date actually have any psychological reality for the child (that is, are differentiated within the child's own linguistic system as opposed to that of the adult observer(Ibid.)).

Within the spirit of questioning the scientific process, most aspects of a single study can be criticized. The researcher herself often has a strong sense during and after the data analysis of questions which could be raised about constructs and methodological decisions. Even the less seasoned researcher comes to understand that these questions or criticisms do not arise as a result of bad science, but as an indication that what is being studied, for example communication, does not behave as well as the researcher's mind.

The major points of reflection relative to this study center on the units of analysis. The question of the psychological reality of the units of form (e.g., nouns and verbs, MWC) and the units of function (Requests or Comments) takes an interesting turn when considered in light of Bruner's (1983) statement that the elements of pragmatics "constitute a social reality in their own right in a manner that neither the rules of syntax nor the codes of lexicon do" (p. 32). Historically, form has often been considered the more objective aspect of language analysis, while function

has been considered the more subjective one. In reality, the use of traditional form categories to describe early language can result in attributing a certain kind of knowledge to the child, whereas the coding of function simply results in describing a communicative behavior observed in the context. This is not to say that attributing function is an easy task, especially when the child's intention or the adult's interpretation of that intention are unclear. Nonetheless, in most cases, speech acts have a reality which form categories may not.

The question of mixing of levels of analysis can also be raised. While an attempt was made to avoid confounding form and function so that the developmental relationship between the two could be examined, the nature of the units themselves interfered with the attempt. In the end, one could think of a continuum of speech acts ranging from those that were tied to specific forms (certain types of Routines, Acknowledgments) to those that were more independent of form (Requests, Comments). A similar situation was found in reference to the two levels of function analyzed in this study. These levels were developed in order to avoid confusing the intention of an utterance with its social use. While speech act type did not necessarily dictate the social function, in some cases,

the two were inseparable. For example, Requests and Discourse acts were obviously interactive, whereas Comments and Routines were not necessarily so.

Beyond these realities, two limitations of the study were noted. The first was bypassing the semantic level. While a case had been made for synergistic analysis, the elimination of the semantic domain from the analyses obviously changed the nature of what was studied and in retrospect, precluded a richer description of the developmental process. Secondly, the fact that function was defined exclusively as speech acts precluded the possibility of examining form developments in light of other emerging pragmatic developments such as discourse, cohesion, topic-comment abilities, and so forth. Use of the more restricted definition of pragmatics undoubtedly limited the scope of developmental interactions which could be identified between form and function.

These limitations are offered with the knowledge that all research methods must be considered with respect to strengths and weaknesses as well as their particular contribution to the converging evidence of science. As Neale and Liebert (1980) note, "each of the basic methods of research (experimental, correlational, and case study) and techniques of

comparison (within- or between-subjects) has intrinsic limitations." Further, "only when the systematic study of behavior is undertaken with a keen sense of the strengths and weaknesses of many different methods is the way opened to maximizing and confirming our knowledge of the processes that underlie it" (Ibid.).

## CHAPTER VI

## SUMMARY, CONCLUSIONS, AND CLINICAL IMPLICATIONS

Summary

Three questions relative to the development of form and function were examined in this study. The first question addressed the separate and synergistic development of form and function at early language levels. Taxonomies for two levels of function, social function and speech act function, were developed from the data.

The findings on social function suggested that the use of communicative acts was primarily interactive at the single word stage as well as at subsequent linguistic levels. These findings indicate that the simultaneous expression of interpersonal and ideational functions of language may occur earlier than previously suggested. While frequent use of social communication was shared across the boys, the communicative means used to indicate interactiveness was open to individual variation. Intonation patterns, other suprasegmental

features, and contingency were the most frequently used communicative devices at the time of the last taping.

The frequent use of interactive Comment on Objects lent support to the need for the two levels of functional analysis considered here. This finding also revealed that functional orientations, i.e., object orientation versus social orientation, may be found only at the early single word stage and not beyond this point. The fact that comments were frequently expressed interactively with explicit communicative devices was taken as evidence that early reference serves a social function in addition to the emerging cognitive-linguistic function usually identified with it.

The majority of speech acts identified in this study were expressed at the single word stage of development. New speech acts which emerged and/or increased in frequency at subsequent MLU levels were Comment on Action/State, various types of Routines, and Discourse-Acknowledgments. The frequent expression of Routines by one of the boys and the productive expression of Routines by the other two boys raised questions relative to the status of these speech acts during early language development. It was suggested that although Routines may have little semantic value

and may contribute little to linguistic development, they may have considerable conversational value (e.g., drawing attention, taking a turn) and in this sense, contribute significantly to pragmatic development.

The frequent expression of Discourse-Acknowledgments at LL 2 or LL 3 was taken as evidence of the emergence of a second stage of functional development. In the first stage, the children developed a repertoire of speech acts, whereas in the second stage, they developed a "discourse sense." The emergence of a discourse sense seems to have had more to do with the development of social knowledge than with the development of linguistic knowledge per se. In fact, when the children's social sense inclined them to acknowledge their conversational partners, the linguistic strategy used for accomplishing this function was initially imitation, an ability which was available to them at earlier linguistic levels.

The uni or multifunctional status of forms was examined for both single words and multiword combinations. While single words could be used flexibly for different functions, multiword combinations did not have this potential at early stages of language development. Although structural types of MWC (Verb + Article + Noun) were used to

express different functions, specific lexical tokens of MWC were generally unifunctional. It was suggested that the absence of the multifunctional use of MWC was evidence of growing lexical capacity rather than limited pragmatic capacity.

In terms of differences between the development of the form system and the functional system, fewer frequently produced forms were found than frequently expressed functions. The fact that a range of speech acts were expressed with a small, but individual repertoire of forms suggested that there is functional universality in what children do with language and individual styles of how they do it.

Some of the data on form-function relations were considered with respect to functional motivations for the acquisition, use, and non-use of forms. Ties between syntax and pragmatics were found. For example, the frequent use of MWC to express requests at the second linguistic level suggested that syntax was often mobilized to express particular speech acts. The fact that the Verb + Object construction emerged in Requests for two of the boys and was used frequently for Requests by all three boys suggested similar ties. Finally, the use and non-use of Subjects was explained on the basis of pragmatic factors rather than on the

---

basis of linguistic knowledge alone. Greenfield, Reilly, Leaper, and Baker's (1985) proposal that the move from single words to syntax can be explained relative to the principle of informativeness was explored.

In terms of the developmental influence between form and function, the position taken in this study was that certain aspects of form development were independent of functional development, while other aspects of form development (e.g., use of MWC with objects to express requests and the continued use of single words at the two word stage) were related to both global and specific pragmatic motivations.

Finally, with respect to the first question, evidence for both primacy of form and primacy of function in early language development was found. While one child (Brian) appeared to enter the language acquisition process with a strong form preference, another child (Rio) appeared to enter the process with a strong functional preference. These results suggest that the style continuum can be considered across domains, allowing for either form or function oriented approaches to language learning.

The second question addressed the issue of individual variation and form-function development.

This question was investigated by examining how the children clustered with respect to specific aspects of form and function and how aspects of form and function clustered across children. The findings revealed the co-existence of aspects of language within and across language domains. While some co-occurrences reflected the nature of the language (nouns as a frequent form co-occurred with Comment on Objects as a frequent speech act), other co-occurrences reflected characteristics of the language user (e.g., frequent use of ritualistic forms and frequent expression of Routines).

Cluster data were also used to address the issue of continuity and discontinuity in early language development. Three types of evidence pointed to discontinuity in development when form, function, and form-function were considered. First, children who shared styles at the first linguistic level diverged in styles at the second linguistic level. Second, children who shared a style at the second linguistic level came from different roots at Linguistic Level 1. Finally, Rio exhibited two different clusters when sampled twice within a linguistic level. Despite these discontinuities, trends in the pragmatic aspects of language development were clearly identified across children and across linguistic levels.

The third question examined form and function separately and synergistically with respect to MLU. While function changed primarily within the first MLU stage only, aspects of form and form-function changed both across and within the first two MLU levels.

Finally, the entropy measure indicated that diversity in use of forms to express functions was a hallmark of early language development. While entropy-diversity increased as MLU increased, an isomorphic relationship did not exist between the two. Dissociations between the development of diversity (based on the entropy measure) and the development of complexity (based on MLU) were found.

### Conclusions

Two major conclusions of this study are offered. The first relates to the regularities in development which have been identified. These regularities can be considered relative to two levels of analysis - form-function combinations and clusters of language behaviors. The data suggest that regularities in form-function combinations could be identified for each child at each linguistic level; however, these regularities combine in different ways for different children. While some form-function combinations were

shared across the three boys, each child's profile included examples of combinations specific to that child (Consider the form realizations for certain Requests at Linguistic Level 1 - Vocalizations, Noun, and Verb for Ivan, Brian, and Rio, respectively). Both regularities and differences were found not only in the formal aspects of the language, such as parts of speech and syntactic structures, but also in the use of communicative devices such as suprasegmentals, gestures, and so forth.

When regularities were traced across linguistic levels as was done in the cluster analyses, patterns identified at the first linguistic level did not necessarily predict the clusters which would characterize the child's development at the next linguistic level (Consider that Ivan and Brian shared Cluster 1 at LL1, but diverged at LL2; that Ivan and Rio shared Cluster 3 at LL2 despite different roots; and that Rio a and Rio b constituted different clusters at each linguistic level). These findings suggest that the path a child takes during the course of early language development can not be predicted, at least not from the clusters identified here (Obviously, all possible ways in which these aspects of language may cluster have not been examined). Based on the variability found across children and across levels,

one might expect that additional combinations and clusters would be identified when more children are studied.

Despite the divergences, some trends as well as stability were noted across children and across linguistic levels (Consider the similarity in Brian's clusters at Linguistic Level 1 and 2 and the fact that Clusters 1 and 3 share many features). These findings indicate that some limits on possible combinations may exist because of the nature of the language itself and/or because of the nature of the language user. Further, more abstract levels of analysis may be revealing with respect to regularity in language development. For example, the fact that all clusters shared similar degrees of entropy suggests that certain analyses may capture the regularities which are universal in form-function development.

The second major conclusion of the study relates to how domains of language are investigated. Results of this study suggested that to understand any one aspect of development, several aspects must be looked at simultaneously. Throughout the study, the separate and synergistic analysis of the two domains led to an understanding of how revealing the synergistic approach was. In the end, the nature of early language

development seems to be captured best when the development of domains is examined simultaneously. This conclusion can be considered from both a descriptive and an explanatory perspective. From the former perspective, cross-domain descriptions more accurately characterize the unfolding of language and the qualitative nature of the language system at any point in development. While descriptions of development in single domains are not uninteresting, it is the relationship between domains at several levels of analysis which best represent what the child is capable of and what early language ability is all about.

From the explanatory perspective, synergistic analysis of early language development suggests possible motivations for development. In this respect, consider the finding that one child demonstrated a form preference and another a functional preference or the related finding that noun use had different origins in different children. Perhaps the strongest evidence for simultaneous analysis of domains was the finding that the form-function unit was in fact the smallest unit in one child's early language, suggesting that separate analysis of form and function would have distorted the reality of this child's system.

### Clinical Implications

The results of this study clearly have implications for the assessment and treatment of language impaired children. These implications can be discussed with respect to the processes and products of language development.

Historically, clinicians have been guilty of borrowing selectively from the study of normal language development. While most clinicians gladly turn to a developmental model for determining goals of training, other aspects of the model have not been adopted as readily. While familiarity with the products of normal language development at various linguistic stages and chronological ages undoubtedly leads to sound clinical decisions, thoughtful use of the model also reflects an understanding of the processes of child development in general and of language development in particular.

The fact that the normal model is used in a limited way may be the result of a tendency to see the products of language development as classifiable and immediately applicable to clinical work, whereas the processes of language development are seen as difficult to categorize and teach. Nonetheless, clinicians are obligated to familiarize themselves with these

processes in an effort to truly embrace a developmental model.

Two types of process issues have emerged from this study which seem particularly relevant to language development in language disordered children. The first, continuity and discontinuity, are processes which are typical of all development. While researchers in child development continue to disagree about what constitutes continuity and what kinds of behaviors are evidence of discontinuity, the fact is that both types of development are pervasive. As clinicians, we are more likely to conceptualize treatment within the parameters of continuity than discontinuity, a trend which may lead to misunderstanding certain behaviors. For example, discontinuity in development was found in the decrease in diversity which accompanied Rio's increase in MLU. The seeming regression seen here could potentially be misleading if not appreciated within the larger developmental context. One could imagine a clinician frustrated by a child's plateau in lexical development, a trend that might be explained in terms of information processing loads when accompanied by other advances in language development. In this sense, a plateau or even a regression would not only be explained, but actually would be expected at particular points in development.

The view that the developmental process is exclusively a sequence of stage-wise progressions where antecedent conditions are cumulatively integrated into later stages of the individual's development requires modification (Wolff, 1986). As Wolff suggests, development is characterized "at least as much by regressions, deletions, and radical discontinuities as by epigenetic unfolding of stagelike progressions" (p. 160).

The second process which is of interest to clinicians is the use of heuristic strategies. Some of these strategies are quite familiar to clinicians. For example, imitation has been discussed from many perspectives with respect to the assessment and treatment of language impaired children. In recent years, imitation has received its share of bad press, primarily because the world of language training has agreed that imitation is not the best route to take when teaching a child to talk or even, to talk better. This turns out to be a somewhat limited view of the role of imitation in language development. As Rees (1975) suggested early on, imitation may serve an important function in terms of learning conversational roles, a point which has been supported in recent research. While the role of imitation in language development may be minimal, recent studies including

this one suggest that the role of imitation in conversational development may be significant. In fact, for many children, imitation may provide an entree into discourse development, allowing for what Shatz (1981) refers to as a "primitive heuristic for staying in interactions." Considering the nature of language impairment, clinicians should look high and low for any heuristics that may ease the task of learning any aspect of communicative competence.

Turning to the products of language development, some additional findings in this research may be useful to clinicians. In some ways, the data reported here suggest that with a few exceptions, the expectations for early speech act performance do not change significantly at early language stages. This is not to say that this type of functional assessment is irrelevant beyond a certain point. In fact, three aspects of early speech act development are of particular interest. First, the fact that speech acts were expressed interactively from early linguistic levels suggests that clinicians should direct their treatment not only to the expression of a range of speech acts, but also to the social use of these speech acts. Communicative means used to express speech acts interactively, for example to express comments, will

reflect individual variation and may include use of gesture, suprasegmentals, looking, and contingency.

Secondly, specific speech acts emerged or increased in frequency at the two word stage of development. Routines which may be clinically less appealing because of their limited propositional value seem to have a prominent place in early language development. The suggestion made here is that use of these Routines may potentially be significant not simply as a speech act type, but also as a precursor to more sophisticated Discourse devices. In terms of Discourse-Acknowledgments, the increased occurrence of this speech act at the two word stage of development suggests that modeling of discourse strategies can begin early and possibly, with the use of imitative forms to express this intention.

Another product of early language development noted in this study was the expression of functions with a variety of forms at both the structural and lexical level. This ability appeared to be a hallmark of early development as indicated by the entropy measure. This finding should not be confused with the use of particular lexical items or multiword combinations for a variety of functions, a trend which was variable at the single word stage and absent at the

---

multiword stage. While clinicians will want to expose the language learning child to form options for the functions he expresses, they will not necessarily expect him to use a particular lexical item or MWC to express different functions.

With respect to MLU, although the evidence is limited, the data speak to the importance of looking for development within MLU stages rather than simply across MLU stages. In fact, based on the patterns noted in Rio's form-function system, qualitative changes within an MLU level may be expected before increases to a higher MLU level are achieved. The important concept here is change in that normal language acquisition is consistently characterized by new developments in the relationship between form and function.

With respect to other form-function findings which have implications for clinical work, some forms were more likely to appear with certain functions. For example, MWC with objects were most frequently used to express Requests. Similarly, use of Subjects was dependent on certain semantic and contextual factors and not necessarily on linguistic knowledge alone.

Finally, the fact that one child demonstrated a form orientation and another child a functional

orientation broadens the notion of style to the cross-domain level. In recent years, clinicians have been directed to look within domains for a child's language learning preferences (e.g., referential versus expressive; object-oriented versus socially-oriented) and to "go with" that style during the initial phases of training. If children can demonstrate either form or functional preferences or in some cases, packaged form-function preferences, the continuum of language learning styles expands and the possibilities for achieving goodness of fit increase.

We can return now to the four contemporary directions in child development introduced in the beginning of the discussion and consider the implications of these directions for the language impaired child. With respect to early competence, the language impaired child is obviously at a disadvantage; however, the extent and nature of this disadvantage is variable and unspecified. Like the normal child, the language impaired child experiences "the first fondling, the first feeding, the first perception of the human face and human voice," although his capacity to respond to and integrate these "inputs from the environment" in a way that has "sensorimotor, cognitive, and cultural significance" may well be the first problem.

The second notion, individuality, is of considerable significance to the language impaired child. While researchers continue to identify universals of development, individual patterns have emerged in most aspects of language acquisition. The danger here is that clinicians may assume that the language impaired child must demonstrate an individual style typical of one normal group or another, thereby minimizing the possibility that compensatory strategies may result in processes and products which vary from the norm. Regardless of whether individual variation in language disordered children is a quantitative or qualitative issue, clinicians must be open to the principle of individual styles, not simply the particulars of these styles as identified in normal populations. In fact, identification of individual styles within language disordered groups will undoubtedly be as revealing about their language learning processes as it has been about normal children's.

The issue of flexibility in development is nowhere more relevant than in handicapped children.

In fact, this notion serves as the foundation for the treatment of language impaired children. The premise is that alternative pathways can be exploited in order to approximate communicative ability as close to normal as

possible. Clinicians depend on the plasticity and flexibility of the human brain in response to a fine-tuned language learning environment to achieve the goals of their work.

Finally, the notion of early life experience. Identification of a language disorder and recommendation of treatment immediately result in early life experiences which are different and unique. No formula could be used to determine how this deficit will affect a child in his interactions with the world or a family in their interactions with the child. The language impaired child will undoubtedly be exposed to early life experiences, such as language therapy, that are unknown to his normal peers. Here, we accept Chess' (1986) scientifically-based optimism with respect to "the human capacity for diversity, flexibility, adaptability, and mastery in the face of all kinds of adverse and stressful life situations" (p. 145) and her belief that "our preventative and therapeutic intervention can make a difference at all age-periods" (Chess, 1979, p. 112).

## APPENDIX A - TOYS USED FOR PLAY INTERACTIONS

Fisher Price Play Family Farm

Fisher Price Play Family House

Fisher Price Sink Set

Hasbro Preschool Big Bird Talking Phone

Child Guidance Sesame Street Garage

Playschool Teddybear Shape Sorter

Playschool Take-Apart Workbench

Assorted Wooden Puzzles

Wooden Train

Plastic Puzzle Train

---

## APPENDIX B - CONVENTIONS FOR CALCULATING MLU\*

1. Allow for a 10 to 15 minute warm-up period before beginning the transcriptions of the first samples. In subsequent samples, warm-up periods are not necessary.
2. Transcribe the first 125 communicative acts following the warm-up period. The MLU will be based on the number of intelligible utterances occurring within the sample of 125 communicative acts.
3. Only fully transcribed utterances are used.
4. Exact imitations of an adult's utterances are not included in the sample with the exception of greetings. Imitations which involve any change in the form of the original utterance or a change in intonation pattern are included.
5. Exact self-repetitions are included for a maximum of three occasions. If repetition of the same utterance begins again after the other participant's turn or in the child's next turn conversational unit in discourse, it is included in the sample.
6. Stuttering is marked as repeated efforts of a single word. The word is counted once in the most complete form produced.
7. Fillers such as "oh", "um", or "mm" are not counted. "Oh" is counted when used as an acknowledgement; similarly "uh oh" is counted as one morpheme.
8. All compound words (two or more free morphemes), proper names, and ritualized repetitions count as single words. Examples include French-toast, hotdog, good-night, choo-choo, knock-knock. Social gestures also count as single words. Examples include excuse me and thank-you. Justification is that there is no evidence to suggest that the constituent morphemes function as such for these children.
9. All irregular past forms of the verbs are counted as one morpheme (got, did, went, saw). Justification is that there is no evidence that the child relates these to present tense forms.
10. All diminutives are counted as one morpheme (doggie, Mommy). Justification is that the children do not seem to use the suffix productively.
11. All auxiliaries (is, have, will, can, must, would) and all catenatives (gonna, wanna, hafta) are counted as single morphemes. All inflections are counted as separate morphemes (e.g., possessive -s, plural -s, third person singular -s, regular past -d, progressive -ing). Contracted forms are counted as one morpheme unless there is evidence of use of "not" as a separate morpheme.

\* adapted from Brown, 1973, p.54 and Bloom and Lahey, 1978, p. 42

## APPENDIX C - COMMUNICATION SAMPLES

IVAN

## Linguistic Level 1

1. house
2. house
3. get the house
4. Unintelligible (UI) + house
5. in, in
6. in
7. in
8. distress vocalization
9. a car
10. distress vocalization
11. distress vocalization
12. tunnel
13. tunnel
14. tunnel
15. chair
16. gives Sima (S) chair
17. these things
18. these..thing
19. UI
20. UI
21. gives bed to S
22. a bed
23. good-night
24. good-night
25. good-night
26. good-night
27. good-night
28. car
29. mommy car
30. good-night
31. good-night
32. good-night
33. good-night
34. red
35. red
36. red
37. red
38. blue
39. blue
40. pointing + mommy go
41. door
42. door
43. door
44. door

45. distress vocalizations
46. go + pointing in window at doll
47. bell
48. knock-knock
49. drop
50. drop
51. distress vocalization + that
52. door
53. man
54. man
55. on
56. on
57. on..on man
58. uh oh man
59. uh oh man
60. uh oh man
61. man
62. man
63. dog + hand gesture toward dog
64. /ʌ/ + extending chair to S
65. /ʌ/ + extending chair to S
66. go + extending chair to S
67. /ʌ/ + extending chair to S
68. /ʌ/ + extending chair to S
69. pointing to doll that S is holding
70. UI + showing S another chair he finds
71. /ʌ/ + showing chair
72. chair
73. /ʌ/ + showing chair to S
74. /ə/ + extending empty chair to S
75. more people
76. UI + reaching
77. /ə gugu/ + extending hand
78. /ə gu/ + hand still extended
79. /a gugu/
80. /a gugu/
81. rooster
82. man
83. man
84. man
85. man
86. man
87. UI + sit in a /te/
88. right there
89. /ə/ + showing S table
90. giving S table
91. table
92. a table + taking table from S
93. roll
94. pretty dark + extending hand toward house
95. in
96. in ə people

97. in ə
98. in a door
99. in ə ..a door
100. in ə ..door
101. bell
102. UI
103. Ernie, Ernie, Ernie
104. Ernie, Ernie
105. more house
106. more house
107. more house
108. more house
109. more house
110. more house
111. batter
112. batter + pointing
113. Ernie + pointing
114. Cookie Monster
115. /ə gaga/ (Oscar the Grouch) + pointing to picture
116. so call
117. Oscar the Grouch
118. Oscar call
119. Oscar call
120. Ernie
121. thank for calling
122. Oscar call
123. /kuku man/ (Cookie Monster) + pointing to picture
124. UI
125. UI

### Linguistic Level 2

1. play a garage + pointing to box
2. play a garage + distress vocalization
3. gas
4. gas
5. open
6. Ernie
7. Bert
8. Ivan offers Ernie to S
9. close the door
10. close ə ..a door
11. this one
12. garage + hand extended toward bx
13. pointing to toy
14. get out
15. open it
16. get out
17. bed

18. doggie
19. Mommy
20. Mommy go + taking Mommy from S
21. Where a table?
22. table
23. UI
24. where other table?
25. more table
26. dog sleeping
27. dog sleeping
28. eating
29. ↵ eating
30. fall down
31. fall down
32. UI
33. excuse me
34. man
35. choo choo
36. choo choo
37. choo choo + pointing in house
38. choo choo boat + pointing
39. sailboat + pointing in house
40. choo choo train + pointing in house
41. UI
42. put a table
43. Bert sleeping
44. I sit + pointing to spot on mat
45. take out
46. take out
47. take chair take out
48. Ooo Ooo (siren noise)
49. sirens
50. Ooo (siren noise)
51. good-night
52. good-night
53. no noise
54. night
55. fall down
56. no table
57. nay + shaking head
58. good-night
59. play a farm
60. this one
61. this one
62. this one + pointing to sink
63. uh oh
64. dry off
65. dry off
66. a plate + reaching towards plate
67. french toast + showing plate to Mother
68. nay
69. UI + I fork

70. I fork
71. offers spoon to S
72. gives S fork
73. gives S fork
74. give S knife
75. Uh oh + showing S wet hand
76. dry off
77. Uh oh + showing hand
78. Mmm good
79. eating french toast
80. drink that + offering S cup
81. no
82. uh oh!
83. /wati/ (water)
84. water
85. uh oh
86. dry off
87. dry off
88. uh oh
89. uh oh
90. dry it off
91. UI + Ernie and Bert + pointing to toy
92. UI + gas
93. no
94. play a farm
95. wipe up
96. no get a towel
97. no
98. play a farm
99. throw in the garbage
100. there is
101. this one
102. ready go set
103. go
104. set
105. go
106. ah + gives S top of silo
107. fence
108. horse
109. horsie + showing S harness
110. Ernie
111. UI
112. Big Bird
113. UI
114. a-choo
115. a-choo
116. a-choo
117. no(se) running
118. no(se) running + ah
119. no
120. pick it up + pointing to sink
121. there you go

122. uh oh! + extending hand to S
  123. uh oh! + extending hand to S
  124. uh oh! + extending hand to S
  125. uh oh
- 

### Linguistic Level 3

1. put this back on
  2. want these + taking one toy
  3. pushes tool back to S
  4. don't want it
  5. wanna play something else
  6. kay
  7. no farm
  8. no house
  9. I wanna house
  10. gives bed to S
  11. this doesn't fit
  12. this doesn't fit + pointing to car
  13. doesn't it fit + pointing to car
  14. it doesn't fit
  15. dog sleep in a bed
  16. open the door
  17. Sean crying
  18. no wanna play a house
  19. I wanna play a sink now
  20. I making mouth movements + nodding head
  21. I playing with mouth
  22. how about this
  23. take this off
  24. close this
  25. no turn it + giving S bottle and top
  26. put it + UI
  27. wipe it off
  28. no wanna have dinner
  29. oh
  30. want me ↘ push it
  31. want me ↘ push it
  32. want me ↘ push it
  33. Sima
  34. now I do it
  35. How come this hole?
  36. don't wanna play this now
  37. wanna play this now + pointing to toy
  38. this + pointing to toy
  39. telephone + pointing to toy
  40. no wanna get it
  41. Sima get it + pointing to toy
  42. want me get it
-

43. take it out
44. over there + pointing to spot on mat
45. Big Bird
46. no want to say hello
47. don't want this toy + pointing to toy
48. don't want this toy
49. no want a farm
50. I already have this + pointing to toy
51. have this UI + pointing to toy
52. I want this toy + pointing at S
53. want that one + pointing at S
54. this + pointing at toy
55. no
56. first this come next
57. can't work it
58. can't work this
59. no wanna try again + head shake
60. I finish
61. I wanna puzzle
62. wanna puzzle
63. wanna puzzle
64. wanna do this puzzle + pointing to puzzle
65. want these pieces
66. this goes here
67. nay + pointing to place piece doesn't fit
68. here
69. this go in here + pointing to space on puzzle
70. this belongs here + pointing
71. this belongs here + pointing
72. two more
73. this belongs here
74. I want this + pointing to puzzle
75. wanna do other puzzle
76. this belongs here
77. this belongs here
78. this belongs here
79. this belongs here + pointing
80. this
81. turn it
82. turn it
83. turn this
84. caboose + pointing
85. what happened here?
86. other one
87. two pieces
88. belong.. belongs here + pointing
89. I doesn't need this.. wheels + giving S wheels
90. I doesn't need this wheels + giving S wheels
91. all finish
92. I like a farm
93. I like this + pointing to the box
94. hear this noise

95. I like this + pointing to garage
96. like this + pointing to garage
97. like this better + pointing to toy
98. I like this + pointing
99. like
100. don't like this + pointing to farm
101. don't like this
102. don't like this + pointing to farm
103. UI
104. UI
105. doesn't be fix now
106. this one
107. your turn + pointing to car
108. now it's your turn + pointing to car
109. car needs gas
110. car needs gas first
111. car needs gas
112. 10 dollar
113. over there + pointing to hole for gas
114. ok
115. enough
116. now this time Ernie
117. this time Bert
118. no this car get gas
119. no + pointing
120. this get gas + pointing to car
121. now Bert's turn
122. it's Bert's turn
123. now this get gas first
124. no more
125. no more gas

BRIAN

Linguistic Level 1

1. noise
2. mess
3. car
4. cow
5. UI
6. in
7. blue
8. barn
9. barn
10. girl
11. girl
12. UI + pointing to doll
13. that girl + showing S girl
14. that chicken
15. noise
16. UI
17. UI + pointing to toys
18. toys + UI + pointing
19. toy + pointing
20. toy + pointing
21. hi toys + pointing to toys
22. sleep + UI
23. cow
24. good-night
25. UI
26. horse
27. cow
28. pool
29. mat
30. door
31. door + pointing to window
32. open
33. open
34. car
35. horn
36. beep beep
37. UI
38. horn
39. horn
40. horn
41. horn
42. toys
43. toys
44. toys
45. oops
46. UI + door
47. telephone
48. hi Bert

49. bye-bye
  50. Nana + UI
  51. door
  52. speaker + pointing
  53. speaker + pointing
  54. Nana
  55. Nana come
  56. Papa + UI
  57. hi Nana
  58. pushes phone to S
  59. Nana
  60. Nana
  61. telephone + UI
  62. that + pointing on phone
  63. noise
  64. bing ring ring
  65. Bert
  66. vacuum cleaner + pointing near cabinet
  67. that toys + UI + pointing to box
  68. toys + UI + pointing to box
  69. open
  70. open
  71. uh oh
  72. car
  73. that one + showing tool
  74. Nana
  75. UI
  76. toy
  77. hi
  78. UI
  79. Nana
  80. UI
  81. Bert + pointing
  82. Bert + pointing
  83. Bert + pointing
  84. Bert
  85. Bert
  86. Bert
  87. Bert
  88. Bert
  89. Ernie
  90. broken car
  91. broken car
  92. tools
  93. Daddy tool
  94. tool + showing tool to S
  95. gives S tool
  96. gas
  97. good
  98. UI
  99. bye-bye
  100. put that one
-

101. new toy
  102. water
  103. yeah
  104. doo
  105. toothbrush
  106. toothbrush
  107. gives S fork
  108. knife + showing knife
  109. gives knife to S
  110. that + showing drainer
  111. put UI
  112. gives S bottle
  113. UI + that + reaching for bottle
  114. cup
  115. plate
  116. plate
  117. cup
  118. cup
  119. knife
  120. spoons
  121. that + showing S drainer
  122. that + showing S drainer
  123. here
  124. put here
  125. UI + giving S fork and plate
- 

#### Linguistic Level 2

1. what going on there?
  2. Oscar
  3. no
  4. Oscar + pointing to picture
  5. Ernie + UI + pointing to picture
  6. UI
  7. UI
  8. pushes phone away with foot
  9. farm + pointing
  10. this + hand outstretched
  11. farm
  12. puzzle + hand outstretched
  13. me
  14. that puzzle
  15. UI
  16. UI
  17. dog + UI
  18. cow
  19. this cow
  20. this one + UI
  21. this one
-

22. take this
23. withholds bag from S
24. pointing + distress vocalization
25. have this + reaching
26. this + giving S puzzle
27. gives S puzzle piece
28. this goes here
29. over here
30. not go there
31. see goes here
32. UI
33. duck
34. here
35. do it + giving S bag
36. this one + pointing to bag
37. want these
38. reaching for bag + UI
39. open it
40. open it
41. UI
42. here + UI
43. Mommy
44. Mommy
45. Mommy
46. Mommy
47. this
48. ha!
49. UI
50. UI + here
51. UI
52. yeah + takes piece
53. uh oh
54. lion
55. lion
56. takes piece S is holding
57. gives his puzzle piece
58. more
59. leaves
60. eat leave
61. UI
62. UI + Mommy
63. on the farm
64. farm + pointing to farm
65. takes puzzle piece
66. play farm
67. play that
68. gives toy box to S
69. open it
70. open it
71. UI
72. door
73. door

74. close door + distress vocalization
75. door
76. door
77. tool
78. Daddy's tool
79. take it out
80. take it out
81. that's Brian's
82. UI
83. like Daddy's
84. this is Daddy's
85. Daddy's
86. Daddy's
87. Daddy got a tool like that
88. car
89. this broken
90. Brian
91. Ernie
92. put in
93. he's put in
94. Ernie go outside
95. going a ride
96. like Mommy's car
97. yeah
98. UI + car
99. Ernie + takes Ernie from S
100. Ernie
101. go in this
102. going bye-bye
103. hammer
104. need hammer
105. that one
106. fell off
107. UI
108. put on now
109. put on now
110. put on now
111. put on now
112. do it
113. Mommy do it
114. Mommy do it
115. Mommy do it
116. broken
117. Brian fix
118. broken
119. broken
120. no + turns body away from S
121. hard
122. this one
123. that's..that's broken
124. fix
125. UI

---

Linguistic Level 3

1. that big house has a door on it + pointing to house
  2. yeah
  3. that's a blue door
  4. that's..that's in there
  5. Vocalization
  6. oh
  7. table's in there
  8. UI
  9. sit now
  10. that sit over there
  11. where table?
  12. yeah
  13. girl..girl sit over there + pointing
  14. that another one over there
  15. yeah
  16. Brian sits around
  17. I'll put this table over there
  18. UI
  19. sleep in the bed
  20. they sleep
  21. in the house
  22. I gonna lock this door + pointing
  23. yeah
  24. yeah
  25. h^!
  26. this is a car
  27. I'll take out this...
  28. this car fit
  29. stop
  30. car
  31. drive car
  32. to the supermarket
  33. yeah
  34. where's another car?
  35. man..car
  36. put that
  37. Papa
  38. yeah
  39. yeah
  40. this door over there
  41. this door
  42. this over side
  43. yeah
  44. loud noise
  45. house
  46. they sleeping
  47. on..on the top window
-

48. top..girl go on top window
49. sleep
50. boy and girl come right back
51. yeah
52. buy chicken in the supermarket
53. chicken
54. noise.. wake up
55. yeah
56. girl sleeping now
57. over..over there sleeping + pointing in house
58. put up there
59. sleep in a bed
60. bed
61. I got.. I got lock door
62. lock door
63. lock
64. lock door
65. yeah
66. door can't open it
67. door's lock it
68. I lock it
69. I lock it
70. door can open
71. open
72. it's lock now
73. lock
74. they + UI
75. two making dinner
76. two of them making supper now
77. yeah
78. yeah
79. yeah
80. UI
81. girl's got meats
82. girl got meat
83. yeah
84. this meat + showing S table
85. going to sleep
86. this people gong to sleep now
87. going to lock a door
88. lock a door
89. other way
90. look over there
91. them go over there
92. over there
93. it's lock now
94. I can't open it
95. yeah
96. yeah
97. offer S round table
98. yeah
99. I open it

100. open
  101. UI
  102. get everybody + UI
  103. they sleeping now
  104. yeah
  105. yeah
  106. I can get up
  107. sleeping
  108. I open the door
  109. oh
  110. can't get up now
  111. can't get up now
  112. go again now
  113. again
  114. again!
  115. again
  116. again-gain-gain
  117. I got go to sleep
  118. can't get up now
  119. sleeping now
  120. no
  121. no
  122. no
  123. no
  124. sleep
  125. they sleeping now
-

## RIO

## Linguistic Level 1a

1. away
2. woops
3. woops
4. boom
5. yeah
6. boom
7. boom
8. boom
9. boom
10. more
11. boom
12. uh uh + taking pieces from S
13. UI + moves box toward S
14. more + moves box toward S
15. no more
16. boom
17. gimme + taking block from S
18. gimme
19. gimme
20. gimme
21. gimme
22. gimme
23. gimme
24. gimme
25. gimme
26. gimme + hand outstretched
27. gimme + taking block
28. uh oh
29. that enough
30. enough
31. enough
32. yeah
33. gain
34. gain
35. UI
36. UI
37. on top
38. choo choo top
39. choo choo top
40. choo choo top
41. choo choo choo
42. giving S blocks
43. giving S blocks
44. giving S blocks
45. giving S blocks
46. giving S blocks
47. UI + sound making

48. away
49. way
50. mm
51. mm
52. mm
53. UI
54. oh + UI
55. woops
56. woops
57. woops
58. get down
59. out
60. put be back
61. put be back
62. oops
63. taking block from S
64. taking block from S
65. gimme + taking block from S
66. gimme + taking block from S
67. gimme + taking block from S
68. uh uh
69. that's it
70. no more
71. no more
72. no more
73. UI
74. UI + toys + giving S box
75. UI
76. me + hand outstretched
77. gimme + taking bear from S
78. gimme
79. gimme
80. UI
81. h ^
82. block
83. UI
84. okido..ki
85. oh
86. blocks
87. blockies
88. more..blocks
89. yeah
90. opening and closing mouth and hits S
91. puts block up to space
92. puts block up to space
93. puts block up to space
94. puts block up to space
95. holds block up to space
96. puts block up to space
97. triangle block + giving S block
98. triangle
99. triangle block

100. triangle block
  101. triangle block
  102. triangle block
  103. triangle block
  104. triangle block
  105. triangle block
  106. triangle block
  107. triangle block
  108. triangle block
  109. triangle block
  110. triangle + UI
  111. gimme + taking block from S
  112. gimme
  113. woops
  114. all done
  115. puts S's hand on bear + more
  116. hits S's hand
  117. uhuh
  118. woops
  119. uh oh
  120. puts S's hand on bear + play
  121. hits S
  122. no more
  123. puts S's hand on horn + UI
  124. UI
  125. hitting S's hand
- 

#### Linguistic Level lb

1. UI + point
  2. gimme phone + point
  3. oh
  4. back here
  5. here
  6. block
  7. block
  8. block
  9. here
  10. put in
  11. UI
  12. here + giving S another block
  13. more
  14. no + moving S's hand away
  15. I see triangle + pointing in bear
  16. more
  17. gimme that
  18. gimme that
  19. me that phone
  20. gimme that
-

21. gimme that phone
22. pointing
23. hi
24. hi Big Mouse
25. UI
26. hi Mick Mouse
27. Cookie Monster + pointing
28. Monster + pointing
29. hi Cookie Monster
30. hi Cookie Monster
31. hi Cookie
32. boy
33. yes
34. calling
35. bye
36. good-bye + nodding head
37. UI + bye Monster
38. Monster + pointing to picture
39. bye Big Bird
40. Big Bird
41. Bye Big Birds
42. hi
43. hi
44. here + giving S phone receiver
45. gimme that + pointing
46. hi
47. water
48. water
49. water
50. gives S cup
51. UI
52. UI
53. hard work
54. back
55. here + giving S cup
56. drink
57. more + extending hand to cup
58. gimme + extending hand to cup
59. other cup + pointing
60. the other cup + pointing
61. there + pointing
62. UI
63. here + gives R's cup to S
64. gimme + hand outstretched
65. hand opened and extended
66. gives S cup
67. gives S cup
68. UI + shaking head
69. gives S cup
70. offers cup
71. gimme + giving S cup
72. more + giving S cup

73. look
74. look + pointing to towel
75. look + pointing to towel
76. look + pointing
77. listen
78. listen
79. UI + pointing to door
80. look + pointing to towel
81. no + turns to look at S
82. no
83. look
84. begins to take paper towel from S
85. look + pointing
86. look + pointing
87. wet
88. yeah + taking plate from S
89. gimme + reaching for towel
90. gimme + reaching for cup
91. gimme + reaching for cup
92. gimme water + reaching to sink
93. gimme
94. gimme
95. gives cup to S
96. nother drink
97. hands
98. h^ + UI
99. listen
100. look + pointing to door
101. here + offering S bottle
102. milk + offering S bottle
103. gives S cup
104. put that back
105. look + pointing
106. house + pointing
107. house + pointing
108. wipə wipə
109. look + shows S towels
110. cow
111. gimme + hand outstretched
112. paper
113. gimme paper + hand outstretched
114. gimme
115. cup
116. gimme cup
117. house out
118. take out
119. house out
120. house
121. can't take + UI + out
122. out
123. off box
124. take out + UI
125. take out

---

Linguistic Level 2a

1. dry + giving S spoon
  2. takes spoon
  3. shows S cup
  4. spoon
  5. gone
  6. It's gone
  7. no more
  8. no more water
  9. no more water
  10. kay
  11. no more
  12. finish
  13. no more
  14. finish up
  15. offers plate to S
  16. hΛ
  17. hΛ
  18. hΛ
  19. mm
  20. UI + watch
  21. it dirty
  22. gimme
  23. gimme
  24. watch
  25. watch
  26. watch watch
  27. watch
  28. gimme
  29. gimme
  30. gimme
  31. no
  32. watch
  33. hΛ
  34. water + UI
  35. turn it
  36. more
  37. more push
  38. more + handing bottle to S
  39. off
  40. off
  41. off
  42. gimme bottle + hand outstretched to Mother
  43. gimme bottle + hand out to Mother
  44. yeah (cheer)
  45. look + pointing
  46. water + pointing
  47. water side + pointing
-

48. look
49. beek-beek beek-beek beek-beek
50. mm good
51. water
52. gimme toys + hand outstretched
53. gimme more toys + hand out
54. this one toys
55. all wet
56. here
57. plate
58. here plate + giving to S
59. spoon here
60. here + giving S spoon
61. here + giving S paper towels
62. here + giving S paper towels
63. gimme toys
64. more toys
65. hA
66. more toys in this box
67. no
68. stuck
69. UI + box
70. more
71. more toys
72. side toys
73. more toys
74. more toys
75. hA!
76. these toys in + pointing to bag
77. wow
78. yeah (cheer)
79. no
80. no more
81. up there
82. no more
83. up there
84. there
85. UI + kids
86. inside
87. look inside
88. girl in
89. no girl
90. girl inside
91. no
92. UI
93. this girl inside
94. watch
95. watch
96. a horse going side
97. horse
98. bye-bye horse + pointing to barn
99. more horse

100. more horse
  101. horse
  102. gives horse to S
  103. gives S toy
  104. more toys
  105. no + shaking head
  106. all fit
  107. all fit
  108. UI
  109. fit
  110. try
  111. no
  112. no more
  113. no more
  114. no more
  115. no more
  116. no more
  117. more
  118. putting all away
  119. no
  120. no no no
  121. where
  122. in here
  123. no
  124. put in here
  125. put in here
- 

#### Linguistic Level 2b

1. something else
  2. this cup
  3. wash + taking cup from S
  4. want plate
  5. extends plate to S
  6. extends hand to box + UI
  7. nother plate + extending hand
  8. nother plate + hand extended
  9. more plates here + pointing to box
  10. two
  11. this + taking cup
  12. two cups
  13. here + giving S water
  14. takes bottle from S
  15. more + head nod
  16. water
  17. more
  18. more
  19. want more water
  20. UI
-

21. more
22. more Rio's water
23. puts cup towards S's
24. puts cup to S's
25. these things + hand raised
26. where's.. where's hamburger?
27. ketchup
28. want onions
29. more
30. gives S plate
31. woo + gesture with plate
32. woo + gesture with plate
33. it's raining
34. woo + gesture with plate
35. wo wo + gesture with plate
36. UI
37. finish
38. eat waffle
39. whopper
40. wanna eat whopper
41. whopper
42. cups
43. reaches for cup
44. UI
45. milk
46. want water
47. in here
48. water
49. gives S plate
50. finish
51. what's that water?
52. swipes at S
53. let go
54. telephone
55. let me see
56. UI + telephone
57. wait
58. hear a Cookie Monster?
59. you hear?
60. Mickey Mouse
61. there
62. have find Big Bird
63. find Big Bird
64. find Big Bird
65. Big Bird! + pointing
66. where's Big Bird?
67. Mickey Mouse
68. UI + Ernie
69. Ernie
70. want call Ernie
71. Mickey Mouse
72. that's Ernie

73. vocalization + hitting phone
74. vocalization + hitting phone
75. shakes head no
76. shakes head no
77. where's phone?
78. watch
79. watch Mickey Mouse
80. where's Ernie?
81. here's Ernie + pointing to picture
82. here's Ernie + pointing
83. what's that? + pointing to picture
84. what's that? + pointing
85. what's that?
86. toy
87. toy
88. want the house
89. the farm
90. want the farm
91. the farm
92. want the house + pointing
93. the farm
94. this
95. that farm + pointing to farm
96. that house + pointing
97. that house + pointing
98. want that
99. want house
100. pull it out
101. what's that?
102. what's that + pointing in house
103. the window + pointing
104. the floor + pointing
105. people
106. what's that?
107. what's that?
108. what's that?
109. what's that? + showing S bed
110. UI
111. what's that?
112. takes doll from S
113. good-night
114. good-night
115. where's... where's.. where's.. where's boy?
116. here's nother one
117. good-night
118. night
119. night
120. woop
121. where's a + UI ?
122. what?
123. where's the door?
124. where's the doors?
125. for this

APPENDIX D - USE OF NON-IMITATIVE VERBS RELATIVE TO  
SPEECH ACTS

I. IVAN

LINGUISTIC LEVEL 2

PRODUCTIVE VERBS

COMMENT	#	REQUEST	#	ROUTINE	#	DISCOURSE	#	UD	#
fall down	3	play	4						
		dry off	4						

NON-PRODUCTIVE VERBS

COMMENT	#	REQUEST	#	ROUTINE	#	DISCOURSE	#	UD	#
running	1	open	2			put	1		
sleeping	1	close	2			take out	1		
eating	1	get out	2						
go	1	sit	1						
		running	1						
		pick	1						
		take out	1						

LINGUISTIC LEVEL 3

PRODUCTIVE VERBS

COMMENT	#	REQUEST	#	ROUTINE	#	DISCOURSE	#	UD	#
needs	3	belongs	6					turn	1
turn	2	like	5						
like	1	want							
		(wanna)	5						

NON-PRODUCTIVE VERBS

COMMENT	#	REQUEST	#	ROUTINE	#	DISCOURSE	#	UD#
don't like	2	take	2			get	1	
goes	1	put	1			's	1	
put	1	's	1					
gets	1	open	1					
do	1	close	1					
have	1	hear	1					
come	1	wipe off	1					
can't work	1	doesn't fit	1					
don't		go	1					
wanna play	1							
doesn't need	1							
doesn't fit	1							

## II. BRIAN

## LINGUISTIC LEVEL 2

PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
go(es) 5	open 4			
(ing)	put 3			
take 3	going 1			
put 2				

NON-PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
	have 1		need 1	
	see 1			
	fix 1			
	play 1			
	close 1			

## II. BRIAN (continued)

## LINGUISTIC LEVEL 3

PRODUCTIVE VERBS

COMMENT	#	REQUEST #	ROUTINE #	DISCOURSE #	UD #
sleep(ing)	10	's	1		
open	4				
sit(s)	3				
put	3				
lock	3				
's	2				

NON-PRODUCTIVE VERBS

COMMENT	#	REQUEST #	ROUTINE #	DISCOURSE #	UD #
making	2	stop	1		open 1
got	2	lock	1		
can't open	2				
going to sleep	2				
can't get up	2				
can get up	1				
has	1				
ganna look	1				
take out	1				
fit	1				
drive	1				
come	1				
wake up	1				
got lock	1				
going to lock	1				
got go to sleep	1				

## III. RIO

## LINGUISTIC LEVEL 2a

PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
watch 3	gimme 9	gimme 1		
	watch 5			
	look 3			

NON-PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
finish 1	push 1		put 1	
put 1				

## LINGUISTIC LEVEL 2b

PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
want 2	's 12		's 1	
	want 4			

NON-PRODUCTIVE VERBS

COMMENT #	REQUEST #	ROUTINE #	DISCOURSE #	UD #
wash 1	hear 2	let 1	eat 1	finish 1
wanna 1	watch 2	see 1		
call 1	let go 1			
find 1	wait 1			

## Bibliography

- Ainsworth, M. (1978). Patterns of attachment. Hillside, N.J.: Erlbaum.
- Atkinson, M. (1979). Prerequisites for reference. In E. Ochs and B. Schieffelin (Eds.), Developmental pragmatics. N.Y.: Academic Press.
- Austin, J. L. (1962). How to do things with words. N.Y.: Oxford University Press.
- Barrett, M. (1981). The communicative functions of early child language. Linguistics, 19, 273-305.
- Bates, E. & MacWhinney, B. (1979). A functionalist approach to the acquisition of grammar. In E. Ochs and B. Schieffelin (Eds.), Developmental pragmatics (pp. 167-211). N.Y.: Academic Press.
- Bates, E., Benigni, L., Bretherton, I., Camaioni, L. & Volterra, V. (1979). The emergence of symbols: Cognition and communication in infancy N.Y.: Academic Press.
- Bates, E., Bretherton, I., & Snyder, L. (in press). From first words to grammar: Individual differences and dissociable mechanisms. N.Y.: Cambridge University Press.
- Bates, E., Camaioni, L., & Volterra, V. (1975). The acquisition of performatives prior to speech. Merrill-Palmer Quarterly, 21, 205-226.
- Bloom, L. (1970). Language development: Form and function in emerging grammars. Cambridge, Mass.: The M.I.T. Press.
- Bloom, L. (1973). One word at a time: The use of single utterances before syntax. The Hague: Mouton.
- Bloom, L. (1976). An integrative perspective on language development. Papers and Reports on Child Language Development, 12. Stanford: Stanford University.

- Bloom, L. (1983). Of continuity and discontinuity, and the magic of language development. In R. Golinkoff (Ed.), The transition from prelinguistic to linguistic communication (pp. 79-93). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Bloom, L., & Lahey, M. (1978). Language development and language disorders. N.Y.: John Wiley and Sons.
- Bloom, L., Lightbown, P., & Hood, L. (1975). Structure and variation in child language. Monographs for the Society of Research in Child Development, 40 (Serial No. 160).
- Bloom, L., Miller, P. & Hood, L. (1975). Variation and reduction as aspects of competence in language development. In A. Pick (Ed.), Minnesota Symposium on Child Psychology, 9. Minneapolis: University of Minnesota Press.
- Bloom, L. Rocissano, L. & Hood, L. (1976). Adult-child discourse: Developmental interaction between information processing and linguistic knowledge. Cognitive Psychology, 8, 521-552.
- Bretherton, I., McNew, S., Snyder, L. & Bates, E. (1983). Individual differences at 20 months: Analytic and holistic strategies in language acquisition. Journal of Child Language, 10, 293-320.
- Brown, R. (1973). A first language, the early stages. Cambridge, Mass.: Harvard University Press.
- Bruner, J. (1975). The ontogenesis of speech acts. Journal of Child Language, 2, 1-19.
- Bruner, J. (1978). On prelinguistic prerequisites of speech. In R. Campbell and P.T. Smith (Eds.), Recent advances in the psychology of language: Language development and mother-child interaction. (pp. 199-215). N.Y.: Plenum Press.
- Bruner, J. (1981). The pragmatics of acquisition. In W. Deutsch (Ed.), The child's construction of language (pp. 39-56). N.Y.: Academic Press.
- Bruner, J. (1983). The acquisition of grammatic commitments. In R. Golinkoff (Ed.), The transition from prelinguistic to linguistic communication. (pp. 27-43). Hillsdale, N.J.: Lawrence Erlbaum Associates.

- Chapman, R. (1981). Exploring children's communicative intents. In J. Miller (Ed.), Assessing language production in children (pp.111-136). Baltimore, Maryland: University Park Press.
- Chess, S. (1986). Early childhood development and its implication for analytic theory and practice. The American Journal of Psychoanalysis, 46, 123-148.
- Chess, S. and Thomas, A. (1984). Origins and evolution of behavior disorders. N.Y.: Brunner/Mazel.
- Coggins, T. & Carpenter, R. (1981). The communicative intention inventory: A system for observing and coding children's early intentional communication. Applied Psycholinguistics, 2, 235-252.
- Craig, H. and Gallagher, T. (1986). Interactive play: The frequency of related verbal responses. Journal of Speech and Hearing Research, 29, 375-384.
- Crystal, D., Fletcher, P., & Garman, M. (1976). The grammatical analysis of language disability: A procedure for assessment and remediation. London: Edward Arnold.
- de Villiers, J. (1984). Form and force interactions: The development of negatives and questions. In R. Schiefelbusch (Ed.), The acquisition of communicative competence (pp. 193-236). Baltimore, Maryland: University Park Press.
- de Villiers, J. and de Villiers, P. (1973). A cross-sectional study of the acquisition of grammatical morphemes. Journal of Psycholinguistic Research, 2, 267-278.
- Donahue, M. (1983). Learning disabled children as conversational partners. Topics in language disorders, 15-27.
- Dore, J. (1974). A pragmatic description of early language development. Journal of Psycholinguistic Research, 3, 423-430.
- Dore, J. (1975). Holophrases, speech acts, and language universals. Journal of Child Language, 2, 21-40.

- Dore, J. (1978). Conditions for the acquisition of speech acts. In I Markova (Ed.), The social context of language, (pp. 67-111). N.Y.: John Wiley & Sons.
- Dore, J. Gearhart, M., & Newman, D. (1978). The structure of nursery school conversation. In K.E. Nelson (Ed.), Children's language, Vol. 1. N.Y.: Gardner Press.
- Foster, S. (1986). Learning discourse topic management in the preschool years. Journal of Child Language, 13, 231-250.
- Gallagher, T. & Craig, H. (1984). Pragmatic assessment: Analysis of a highly frequent repeated utterance. Journal of Speech and Hearing Disorders, 49, 368-377.
- Garner, W. R. (1962). Uncertainty and structure as psychological concepts. N.Y.: Wiley.
- Golinkoff, R. & Gordon, L. (1983). In the beginning was the word: A history of the study of language acquisition. In R. Golinkoff (Ed.), The transition from prelinguistic to linguistic communication (pp. 2-27). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Greenberg, M. (1984). Pragmatics and social interaction. In L. Feagans, C. Garvey, and M. Greenberg (Eds.), The origins and growth of communication (pp. 208-223). New Jersey: Ablex Publishing Corporation.
- Greenfield, P. (1978). Informativeness, presupposition, and semantic choice in single-word utterances. In N. Waterson and C. Snow (Eds.), The development of communication. London: Wiley.
- Greenfield, P. & Smith, J. (1976). The structure of communication in early development. N.Y.: Academic Press.
- Greenfield, P., Reilly, J., Campbell, L., & Baker, N. (1985). The structural and functional status of single-word utterances and their relationship to early multi-word speech. In M. Barrett (Ed.), Children's single-word speech (pp. 233-268). N.Y.: John Wiley and Sons.
- Griffiths, P. (1979). Speech acts and early sentences. In P. Fletcher & M. Garman (Eds.), Language acquisition (pp. 105-120). N.Y.: Cambridge University Press.

- Griffiths, P. (1985). The communicative functions of children's single-word speech. In M. Barrett (Ed.), Children's single-word speech (pp. 87-112). N.Y.: John Wiley and Sons.
- Halliday, M.A.K. (1975). Learning how to mean. N.Y.: Elsevier North-Holland, Inc.
- Heisenberg, W. K. (1958). Physics and philosophy: The revolution in modern science. N.Y.: Harper.
- Horgan, D. (1981). Rate of language acquisition and noun emphasis. Journal of Psycholinguistic Research, 10, 629-640.
- James, W. (1890). The principles of psychology. N.Y.: Holt and Co.
- Kagan, J. (1984). The nature of the child. N.Y.: Basic Books, Inc.
- Keenan, E. (1977). Making it last: Repetition in children's discourse. In S. Ervin-Tripp and C. Mitchell-Kernan. (Eds.), Child discourse, (pp. 125-139). N.Y.: Academic Press Inc.
- Klee, T. & Fitzgerald, M. D. (1985). The relation between grammatical development and mean length of utterance in morphemes. Journal of Child Language, 12, 251-269.
- Lahey, M., Launer, P. & Schiff-Myers, N. (1983). Prediction and production: Elicited imitation and spontaneous speech productions of language disordered children. Applied Psycholinguistics, 4, 317-343.
- Lenneberg, E. (1967). The biological foundations of language. N.Y.: John Wiley and Sons.
- Levinson, S. (1983). Pragmatics. N.Y.: Cambridge University Press.
- Longtin, S. (1984). The relationship between functional orientation and early lexical development. Unpublished doctoral dissertation, City University of New York.
- McShane, J. (1980). Learning to talk. London: Cambridge University Press.
- McTear, M. (1985). Children's conversation. N.Y.: Basil Blackwell, Inc.

- Miller, J. and Chapman, R. (1981). The relation between age and mean length of utterance in morphemes. Journal of Speech and Hearing Research, 24, 154-161.
- Morehead, D. and Ingram, D. (1973). The development of base syntax in normal and linguistically deviant children. Journal of Speech and Hearing Research, 16, 330-352.
- Neale, J. and Liebert, R. (1980). Science and behavior. Englewood Cliffs, N.J.: Prentice-Hall, Inc.
- Nelson, K. (1973). Structure and strategy in learning to talk. Monographs of the society for research in child development, 38 (Serial No. 149).
- Nelson, K. (1981). Individual differences in language development: Implications for development and language. Developmental Psychology, 17, 170-187.
- Nice, M. M. (1925). Length of sentences as a criterion of a child's progress in speech. Journal of Educational Psychology, 16, 370-379.
- Ochs, E. (1979). Introduction: What child language can contribute to pragmatics. In E. Ochs and B. Schieffelin (Eds.), Developmental pragmatics (pp. 1-17). N.Y.: Academic Press.
- Peters, A. (1977). Language learning strategies: Does the whole equal the sum of the parts? Language, 53, 560-573.
- Peters, A. (1983). The units of language acquisition. N.Y.: Cambridge University Press.
- Rees, N. S. (1975). Imitation and language development: Issues and clinical implications. Journal of Speech and Hearing Disorders, 40, 339-350.
- Rees, N. & Gerber, S. (forthcoming). Pragmatic abilities of normal and disordered language users. Englewood Cliffs, N.J.: Prentice Hall.
- Ross, G., Nelson, K., Wetstone, H., & Tanouye, E. (1980). Concept acquisition at 20 months. Unpublished manuscript, Graduate School and University Center of the City University of New York, N.Y.

- Scarborough, H., Wyckoff, J., Davidson, R. (1986). A reconsideration of the relation between age and mean utterance length. Journal of Speech and Hearing Research, 29, 394-400.
- Schwartz, R. (1982). Development of pragmatics: Early word level. In J. Irwin (Ed.), Pragmatics: The role in language development (pp. 29-49). La Verne, California: Fox Point Press.
- Searle, J. (1969). Speech acts. N.Y.: Cambridge University Press.
- Shatz, M. (1977). The relationship between cognitive processes and the development of communication skills. In C.B. Keasey (Ed.), Nebraska symposium on motivation (pp. 1-41). Lincoln: University of Nebraska Press.
- Shatz, M. (1981). Learning the rules of the game: Four views of the relation between grammar acquisition and social interaction. In W. Deutsch (Ed.), The child's construction of language (pp. 17-38). N.Y.: Academic Press.
- Shatz, M. (1983). On transition, continuity, and coupling: An alternative approach to communicative development. In R. Golinkoff (Ed.), The transition from prelinguistic to linguistic communication (pp. 43-57). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Shatz, M. & Gelman, R. (1973). The development of communication skills: Modifications in the speech of young children as a function of listener. Monographs of the Society for Research in Child Development, 38 (Serial No. 152).
- Slobin, D.I. (1973). Cognitive prerequisites for the development of grammar. In C.A. Ferguson and D.I. Slobin (Eds.), Studies of child language development. N.Y.: Holt, Rinehart, and Winston.
- Slobin, D.I. (1979). Psycholinguistics (2nd ed.). Glenview, Ill.: Scott, Foresman, and Co.
- Slobin, D.I. (1982). Universal and particular in the acquisition of language. In L.R. Gleitman and E. Wanner (Eds.), Language acquisition: The state of the art. Cambridge: Cambridge University Press.

- Slobin, D.I. (1986). The cross-linguistic study of language acquisition. Hillsdale, N.J.: Erlbaum.
- Snyder, L. (1975). Pragmatics in language disordered children: Their prelinguistic and early verbal performatives and presuppositions. Unpublished doctoral dissertation, University of Colorado, Boulder.
- Sugarman, S. (1973). A description of communicative development in the prelanguage child. Unpublished honors thesis, Hampshire College, Amherst, Massachusetts.
- Sullivan, L. (1947). Kindergarten chats. N.Y.: Wittenborn, Schultz.
- Waters, E., Wippman, J. & Sroufe, L. (1979). Attachment, positive affect and competence in the peer group. Child Development, 49, 483-494.
- Watson, L. (1977). Conversational participation by language deficient and normal children. Paper presented at the annual meeting of the American Speech-Language-Hearing Association, Chicago.
- Wetherby, A. (1986). Ontogeny of communicative functions in autism. Journal of Autism and Developmental Disorders, 16, 295-349.
- Wetherby, A. and Prutting, C. (1984). Profiles of communicative and cognitive-social abilities in autistic children. Journal of Speech and Hearing Research, 27, 364-377.
- Wolff, P. (1986). Discussion: Alternative theories of development and their implications for studying the ontogeny of behavior and social adaptations. The American Journal of Psychoanalysis, 46, 153-166.
- Wollner, S. (1983). Communicating intentions: How well do language-impaired children do? Topics in language disorders, 1-14.
- Zimmerman, I. Steiner, V. & Evatt, R. (1979). Preschool language scale. Columbus, Ohio: Charles Merrill.