MEANING DEVELOPMENT IN ONE CHILD ACQUIRING DAKOTA-SIOUX AS A FIRST LANGUAGE

by

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ABSTRACT

This is a report on research into the language development of one child who is acquiring Dakota-Sioux as a first language. Features of his language system show him to be at a period in development corresponding to Brown's (1973) Stage I, Halliday's (1975) Phase II, and Piaget's (1962) sensorimotor substage VI; in other words he is just beginning to produce multi-morphemic utterances, take part in dialogues and actively use symbolic representations in play and verbal interactions. The report focusses on the development of meaning and is based on the assumption that a child's ability to express meanings involves not only semantic knowledge (that is, the ability to describe relations and to refer using formal linguistic devices), but also pragmatic or functional skills (that is, knowledge about how language can be used to perform communication functions, such as regulating the behaviour of others, expressing personal opinions and feelings, etc.). Overriding both these areas, however, is the understanding that language is one part of a larger symbolizing capacity in humans and that language development, therefore, is above all related to this aspect of cognitive development. The analysis of the data collected from this child is structured around his propositional meanings, his functional meanings, some semantic considerations of his lexicon, and phenomena, which I have labelled gestural representations, which appear to offer strong support for the notion of semiological genesis as described by Piaget.

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CHAPTER ONE

THE INTRODUCTION

Purpose

The purpose of this report is to characterize the meaning development of one child, Gabriel, who is in the early stages of acquiring Dakota-Sioux (Santee) as his first language. His development is examined from three different theoretical approaches. The first approach is aimed at describing the emergence of syntax as propositional structures expressing semantic relations. The second focuses on functional-pragmatic development, language use rather than language content. The third approach is concerned with semiological development--the gradual genesis of linguistic signs, a cognitive achievement which is related to the child's general symbolizing capacity.

Statement of the problem

Most studies in the field of developmental psycholinguistics have been conducted with children acquiring English or other Indo-European languages. The collection of data from a subject acquiring an American Indian language, Dakota-Sioux (Santee), posed the typical difficulties involved in researching exotic languages. During the time spent in the field I required the assistance of a bilingual mother-substitute, who interacted with the subject and helped in the transcription and translation of the tapes. Every effort was made to keep the taping

sessions consistent and as similar to the child's daily routine as could be managed. To facilitate comparison of the study with other cross-linguistic studies, I followed suggestions made by Slobin et al (1967) in A Field Manual for cross-cultural study of the acquisition of communicative competence with respect to the collection procedures and the most common measures to be made on the data.

This research was undertaken at a time when many new studies were appearing dealing with semantic acquisition and demonstrating the limits of more standard forms of analysis (i.e., strictly syntactic analysis). In an effort to account for various significant features of Gabriel's speech, such as the 'gestural morphemes', which fall outside the range of more traditional analyses, I took a broader analytical approach, organizing the data according to the following three models:

1. Roger Brown's (1973) examination of sentence-meaning in terms of a posited set of prevalent semantic relations,
2. M. A. K. Halliday's (1975) functional model of language acquisition, and
3. Jean Piaget's (1962) description of the emergence of the symbolizing capacity in the child.

Assumptions

This study has been based on a number of assumptions which largely deal with the nature of language and the change in orientation of recent child language studies.

1. Language consists of utterances which perform communicative functions (such as requesting, denying, etc.) and facilitate thought, express underlying semantic relations (perhaps a universal set of these), and which use a set of formal linguistic devices (syntactic, lexical and

phonological) (Slobin, 1973, 179). The acquisition of language, therefore, involves the development of skills at all these levels, not just that of formal linguistic devices.

2. Language is a symbolic system; that is, the relationship between the formal expressive devices (phonemes, words and word orders) and the semantic notions underlying them is arbitrary, unmotivated and non-direct. At the same time it is conventional, in that all speakers of a language collectively "agree" to make the same signifier-signified connections. This aspect of language is not immediately apparent to the child, as can be seen from the onomatopoeic and idiosyncratic words which typically appear in the early lexicon.

3. If we are to study language acquisition properly, then we cannot ignore semantics, for it is essential to know what the child means by what he says, and to know how he understands what he hears. One of the most basic steps the child has to take in acquiring his first language is to attach meaning to words, and therefore semantics is central to the study of language development. Furthermore, the acquisition of semantic knowledge needs to be better studied in relation to the development of the child's perceptual and cognitive abilities. Language, after all, is what provides the child with a means of encoding and communicating his percepts and thoughts about the world around him (Clark, 1973, 110).

4. Child language models are, among other things, models of performance. The stricter syntax-based studies which predominated during the sixties often included attempts at writing grammars of the data. van der Geest says that this practice fails because

> . . . it neglects the fact that in linguistics grammars are written to make linguistic intuitions explicit, rather than to describe the products of linguistic abilities . . . [and therefore] . . . a mismatch arises between the purpose of grammars in linguistics in its narrow sense and the use of child grammars in the field of developmental psycholinguistics, which latter are designed to account for the child's productions (1975, 1).

A number of features in the child's communicative system should but cannot be dealt with adequately in a syntax-based model (van der Geest, 1975, 1). In fact, Bates suggests that syntax emerges "developmentally and logically" from semantics, just as semantics emerges from pragmatics, making the mastery of the broader communicative system an integral part of the acquisition of language structure (Bates, 1976, 420).

5. While cognitive and pragmatic development appear to occur somewhat independently of linguistic development, encompassing and influencing the latter, the child is fully developed neither intellectually nor in terms of pragmatic skills when it first starts to speak. The child's meaning potential is different from that of an adult and so adult-referenced analyses may not be very revealing of acquisition processes.

Background

There has been a major shift in case studies of child language acquisition away from the analysis in isolation of strictly linguistic (i.e., phonological, lexical and syntactic) data. A consensus exists among many investigators that early syntactic development is inextricably tied to cognitive and pragmatic development, and that analysis of one area requires the inclusion of the others. Since language is both pragmatic and expresses meanings, the growth of linguistic knowledge entails the acquisition of a meaning system derived from the child's interaction with his environment.

Bowerman (1976) points out that the shift partly reflects a reaction to the nativist model of language, which she describes as follows:

> According to the nativist view, man's capacity for language is a specialized component of his biological makeup and does not arise directly from more general cognitive abilities. The child is seen as coming to the language learning task equipped with much inborn knowledge of language structure; he requires only a certain amount of linguistic input to activate this knowledge [Chomsky, 1965, 1968; Katz, 1966; McNeill, 1966, 1970, 1971] (Bowerman, 1976, 100).

The focus of nativist studies has been on the writing of grammars of the child's linguistic output at various points during development, the researcher being constrained by the model to the analysis of syntactic and phonological processes. The definition of language for the purposes of these acquisition studies excludes pre-syntactic, non-adult word data, thus removing a considerable portion of the child's early vocalizations from analysis; it also avoids any speculations as to semantic interpretations or communicative functions.

While acknowledging the obvious importance of the child's intellectual development and socialization experiences, the nativist view holds them to be merely 'facilitating conditions' for the pre-programmed emergence of the individual's specific linguistic competence (see Chomsky, 1975). Maclay (1971) points out that the nativists are thus taking as <u>given</u> the as yet <u>problematic</u> point that linguistic knowledge and acquisition are different from general cognitive knowledge and processes. He says, "The importance of the independence of linguistic knowledge (for Chomskians) has rested on the presumed impossibility of handling the total knowledge of speakers in any coherent way (Maclay, 1971, 180)." Chomsky may have taken this position for practical reasons; he says that it is presently impossible to form a complete theory of human knowledge and that we should restrict ourselves accordingly. Indeed, his influence on the course of linguistic research has

been so profound that only in recent years have developmental psycholinguists started to seriously challenge this acquisition paradigm. This has led to, among other things, the acceptance of previously inadmissible data (such as the non-adult words and gestural morphemes included in the present study) and the exploration of the relationship between language and cognition.

The first important effort by linguists to include semantic knowledge at the deep structure level of a transformational-generative model was made by Katz and Fodor (1963). Generative semanticists such as Chafe (1969), Lakoff (1970), and McCawley (1968) further blurred the distinction between semantic and syntactic knowledge. Maclay notes, however,

> The fact that any bit of human knowledge may be involved in the judgments of speakers about the interpretation of sentences is not, in itself, conclusive evidence that such knowledge must be part of a linguistic description (Maclay, 1971, 180).

While Maclay's point may be well-taken with regard to adult language, it has been convincingly argued (see, for example, Sinclair-de-Zwart, 1971; Halliday, 1975; Greenfield and Smith, 1976; Ingram, 1976; Bates, 1976) that the acquisition of a first language is a special case and that models which are based on integrating cognitive and linguistic developments have offered valuable insights into the acquisition process and are helping to explain many phenomena which occur in child speech.

Bloom (1970), in one of the first published reactions to the 'lean' characterizations of child speech which resulted from the nativist approach and dominated the literature of the sixties, suggested that obligatory elements that were typically missing from the child's earliest multi-morpheme utterances could be retrieved by attending to

the context in which an utterance was made. She posited underlying syntactic structures for these incomplete utterances on the basis of semantic interpretation, with a Deletion rule to account for what didn't appear in the surface utterance. This method of analysis, the attributing of deep syntactic knowledge to children before it is apparent from surface structure in their speech, is called the 'rich interpretation' approach. Brown (1973) reached a similar conclusion to Schlesinger (1971) in describing the onset of syntax as a period during which the child is acquiring a set of basic semantic relations which in turn reflect his sensorimotor intelligence.

Underlying the 'rich interpretation' approach is the assumption that the adult interpretation of context is adequate for assessing the child's meaning intentions and thereby establishing the underlying structure of the as yet deformed utterances. Howe (1976) offered two criticisms of this assumption. First, since most situations present many possible aspects to be commented upon, any one of a number of adult expansions of a two-term child utterance with obligatory elements missing could be acceptable. Second, evidence from studies in cognitive development, principally those of Piaget, indicate quite strongly that the child's view of the world is very different from that of the adult. This makes adult interpretation of child speech a more interesting comment on the role of adult interpretation in the acquisition of language than on the meaning intentions of the child. The recognition by 'rich interpretationists' of Piaget's work has led to, among other things, a refining of the semantic knowledge once attributed to the child. Sinclair-de-Zwart (1974) pointed out, for example, that one could not posit a 'Negative of non-existence' if the child making the

utterance had not yet attained the concept of object permanence (4).

These semantic-based studies focus on the referential aspects of language, what Bates (1976) calls "meaning as entity or object." A more recent development in the field is the examination of the pragmatic aspect of language, "meaning as act." The position that not all meanings can be reduced to reference is part of the basis of several recent studies. Halliday (1975) points out that giving information (the most clearly referential use of language) is really only one among other language functions, although it is the one which dominates our thinking about language. He says that this function appears relatively late in language development, after earlier "developmentally significant" pragmatic functions, such as the Regulatory (controlling the behaviour of others) and the Instrumental (getting things). It isn't until the child is using the Informative function that the meanings of his utterances derive principally from the referential content of the messages; in earlier utterances, meanings are "derived from what it is the child is making the system do for him" (Halliday, 1975, 63). Bates says,

> According to the "act" interpretation, at least part of the child's meaning may be sensorimotor, described "inside" the child as a set of action schemata rather than a set of deep structures in the traditional sense. Hence, most of the semantics of early child speech is in fact pragmatic; to understand it we must have knowledge of the context within which a sentence is used. Combinatorial meanings, or propositions, are not entities that the child has but performances, involving procedures for using words in context (Bates, 1976, 424).

Essentially reiterating Halliday's position, she adds that

> . . . an examination of the first uses of reference by children leads to the conclusion that reference itself grows out of procedures for getting things done. There is a game, or activity of "referring", which emerges gradually as a distinct kind of operation among a set of pragmatic procedures for doing things to the world (424).

Halliday begins his study with the earliest functionally and structurally

consistent vocalizations and gestures of one child, long before syntax and adult-shaped words. Such an approach considerably extends the data base typical of child language studies.

Accompanying the shift in direction of child language studies there has been renewed interest in the works of Piaget. Some researchers have been investigating very literal connections between cognitive achievements described by Piaget and specific linguistic abilities. For example, Greenfield, Nelson and Saltzman (1972) studied the child's manipulation of seriated cups in an attempt to find parallels with grammar. These studies remain rather speculative. Piaget himself deals with language as one part of a larger symbolizing capacity which emerges gradually out of the sensorimotor period. The capacity to symbolize is necessary for conceptual or representational thought. Semiology is different from semantics in that it focuses on the relationship between a signifier (a word, gesture, drawing, etc.) and its signified (what the signifier represents or 'means'); the content of the signified is not of concern. The possible signifier-signified relationships are many, but language requires true signs--relationships which are arbitrary and unmotivated, just as the word 'black' is to the pigment it refers to. The issue of semiological genesis has been relatively unexplored; most word studies are semantic, investigating the child's categorizing strategies in order to uncover reference patterns (see Clark, 1973; Nelson, 1973; Bowerman, 1976). Morehead and Morehead (1974), however, extracted from Piaget the observations which demonstrate a development from the most primitive sign, the signal, to linguistic signs during the first two years of life. The present study documents a case which appears to support the notion of semiological genesis as Piaget describes

it.

It is the aim of this study to characterize how one child is learning to mean by examining his semantic, pragmatic and semiological development. The discussion is based on the assumption, now gaining much support, that linguistic competence implies more than syntactic knowledge and that careful observation and improved experimental procedures will yield data to support the construction of an expanded model.

Definitions

Meaning--what is signified, represented or intended by an expression in context.

Semantic--having to do with the expression of meanings by formal linguistic devices.

Pragmatic--having to do with the use of language in context.

Semiology--having to do with the relationship between a signifier (form) and its signified (content).

Symbol--a semiological term referring to a content-expression pair where the expression in some way resembles the content.

Gestural morpheme--a gestural imitation of some referent which, because of its occurrence in the context of discourse, has symbolic status, functionally distinct from simple imitations.

Utterance--for the purposes of this study, either a vocalization or a gestural imitation or a combination of both made by the child, bounded (in the case of vocalizations) by a perceptible pause and falling under an intonation contour.

Dakota--if not specified, Dakota will refer to the Santee dialect.

Limitations of the study

There are various reasons why the descriptions made and the conclusions drawn in this study must be qualified to some extent. While the study spans five months, data were collected only during the first three weeks and on the last day of this period, ruling out the observation of gradual developments throughout this time. Although every effort was made to achieve accuracy in transcription and translation, there remain unintelligible utterances in the data. The collection of the data was meant to be observational but interaction with the child often took the form of an interview. Since only one main subject is reported on, it is possible that the interesting features of his speech system are idiosyncratic and thus of limited interest in terms of language acquisition in general.

CHAPTER TWO

THE STUDY

Study setting and informants

The data which are discussed in this report were collected as part of an investigation involving three children who were acquiring Dakota-Sioux (Santee) as a first language. The speech from these children was tape-recorded during 16 playsessions, 15 in a three-week period when Gabriel, the principal subject, was 2;4(0) to 2;4(22), and one further session five months later when he was 2;9(0). Gabriel was a healthy, good-natured, reasonably talkative child who appeared to be developing normally both mentally and physically during the time of the study. The other two children, Esther and Raymond, were both four years old. Esther, Gabriel's cousin, was present at all taping sessions, and Gabriel's interactions with her form an important part of his speech sample. Raymond, one of the younger children of a neighbouring family, took part in only three taping sessions and spoke very little during this time. Only the data from Gabriel are discussed here.

Gabriel and his family were living in an Indian community made up of several different tribes. This community is a job-training centre located on a former air force base in Manitoba. Each family had its own house; a group of Dakota families who had moved from the same reserve approximately forty miles away lived as neighbours at the centre. Gabriel's parents' house is next door to his aunt Wilma's

house, where most of the taping sessions were held. Gabriel's family consists of his mother and father and four other children, Kimberley, 6, Donna, 5, Cory, 1, and Neil, who was born between the 15th and 16th sessions (ages at time of study). Wilma is Gabriel's mother's sister; apart from being a frequent caretaker of the children, she took the rôle of mother-substitute during 14 of the 16 playsessions, interacting with Gabriel and Esther and assisting with the transcription and translation of the tapes. It was not unusual for the children to have a number of different caretakers and playmates in this extended family situation. The grandmother, uncles and aunts, and cousins often came to visit or took the children to their homes. Among the other children who sometimes joined in the play with Esther and Gabriel were Esther's sister Lorraine, 10, Wilma's daughter Gwen, 7, and a cousin Annette, 14.

Only Dakota was spoken in Gabriel's home and it was the principal language in Wilma's home. Esther was approaching fluency in both English and Dakota; however, while Gabriel's lexicon included many English words, he did not respond to English speech directed at him.

The goal in collecting the data was to observe the children at play in a reasonably natural setting. Twelve of the 16 sessions took place in Wilma's living room, where the children played with various toys, pieces of furniture, drawing materials, magazines and mail-order catalogues. The television was sometimes turned on, but without volume. The other four sessions were taped in an empty room of a hospital building at the centre; the toys and colouring books were brought along on these occasions.

Data collection, transcription and translation

In an effort to keep a fairly regular routine in the sessions, most tapings were done between 9:00 and noon when the children were most alert and playful. The children were introduced to the taping equipment during the first session and were only occasionally distracted by it. Taping was done on a Wollensak reel to reel recorder, using 5" Ampex tapes at a recording speed of 3 3/4 ips. I usually sat in a corner of the room, taking a running transcription and making contextual notes. I limited my own interactions with the children because Gabriel was more verbal with Wilma, and Esther tended to answer my Dakota questions in English, a strategy not uncommon for bilingual children, who mark the speakers around them as belonging to one or the other language group.

Each tape was transcribed the day it was recorded. Transcription usually took only slightly longer than taping. This was partly because of the running transcription made during the recording, but also because patterns quickly emerged in the data, with the same conversational routines being re-enacted between Gabriel and Esther and between Gabriel and Wilma. I abandoned my plan to make taped notes because of the confusion my commentaries caused Wilma and the children. Wilma provided both a loose and a literal translation of all the taped utterances, both the adults' and the children's. These are recorded in the data books for almost half of the sessions. It seemed unnecessary to translate the entire corpus, except for new vocabulary items which appeared in later sessions. All utterances were transcribed along with contextual notes. Two further transcriptions were made after leaving the field; these were on a superior Sony playback machine. The transcriptions are

recorded in lab. notebooks; samples from the corpus are given in Appendix I. Conventions used in transcription are explained in Table 2.4.

Overview of Dakota-Sioux

Dakota-Sioux is a member of the Siouan family of languages (Macro-Siouan phylum). It is spoken extensively in the mid-western United States and in seven communities in mid-western Canada. The Dakota-Sioux (Santee) population has been estimated variously to be between 5000 and 10,000 people, the majority of whom speak their language. Dakota-Sioux (Santee) is one of four major branches of Sioux proper, the other three being Teton Sioux or Lakota, Assiniboine or Nakota, and Yankton. The names Dakota, Lakota and Nakota indicate one fairly regular sound substitution among the first three dialects. According to informants, there is some degree of intelligibility among them, although there are many lexical differences. Each of the major dialects has sub-dialects; the speech of Gabriel's community, for example, was slightly different from that of another Santee band in northern Saskatchewan in certain pronunciations and lexical items. Dakota is still the first language of many children growing up in Sioux communities, although the influence of English is spreading. Gabriel was exposed to English on television and in play with older neighbourhood children. In the final session he is using several English words, even though his sentences are too short to determine any syntactic preference.

There are texts written in Dakota, mostly biblical, dating back to the 1800's. There are also several published works dealing with Siouan languages, e.g., Riggs, 1893; Boas and Deloria, 1941; Buechel, 1970;

Carter, 1974. I briefly describe some features of the language in the following section, but the complexities of Siouan morphology and syntax are not yet part of Gabriel's immature speech system, nor is the study aimed at any phonological analysis.

The sound system

According to Carter (1974), Dakota has 25 phonemes, including oral and nasalized vowels, voiced and voiceless velar fricatives and a glottal stop. See Table 2.1 below for a description of the phonemes of Dakota-

TABLE 2.1

PHONEMES OF DAKOTA-SIOUX (SANTEE DIALECT)

Consonants

	Bilabial	Dental/ Alveolar	Palato- Alveolar	Palatal	Velar	Glottal
Plosive						
Voiced	b	d				
Voiceless unaspirated	p	t		c	k	ʔ
Voiceless aspirated	p^h	t^h		c^h	k^h	
Glottalized	$p^ʔ$	$t^ʔ$		$c^ʔ$	$k^ʔ$	
Nasal	m	n				
Fricative		s z	š ž		x ɣ	
Frictionless continuants	w			y		h

Vowels

	front	back
high	i į	u ų
mid	e	o
low		a ą

Sioux. Stress in Dakota is phonemic; that is, there are minimal pairs, as in English, where stress placement changes meaning, e.g., /máȥa/ 'field' and /maȥá/ 'goose'. The rules for stress movement are complex, but in multi-syllable words, stress often falls on the second syllable. Consonant clustering is common within and across morpheme boundaries. Carter lists 41 intramorpheme clusters, e.g., /spáya/ 'wet/, /mní/ 'water', /pšá/ 'sneeze' (1974, 36). Some scholars have chosen to represent the aspirated, velar palatalized and glottalized (or ejective) consonants as consonant clusters (for example, Hollow, 1970; Matthews, 1955); Levin (1964) handles the glottalized consonants as geminates. The sub-dialect spoken by Gabriel's speech community displayed quite clear aspirated, velar palatalized and glottalized forms, as contrasted with the Santee group in northern Saskatchewan. Another Siouan feature is reduplication, which occurs often; there is also some evidence for sound symbolism. The basic syllable structure is (C)CV(C). Intonation and pitch are varied in normal conversation; interrogatives do not require, but often have, rising intonation. The adults involved in this study sometimes spoke sentences in a kind of hiss, with exaggerated lengthening of vowels. This seemed to occur when they were speaking of surprising events or behaviours, and it was not unlike paralinguistic features in English conversation. Gabriel's own sound system is outlined later in this chapter.

Morphology

Dakota-Sioux is a synthetic langauge and has relatively intricate verbal morphology. Carter explains that this intricacy is

> . . . due in large part to the effects of numerous concord and pronominal transformations. These syntactic rules all have the general effect of increasing the semantic content of verb nodes at the expense of their associated noun nodes; much of this increased

> semantic content is literalized as surface verb affixes, typically prefixes (1974, 118).

There are two classes of verb stem, the stative and the active, to which are affixed the various classes of verbal morphemes. According to Stanley (1971), there are 19 classes of these morphemes, 12 prefixed and 7 suffixed. Some of these also have male and female variants. The following are a few of the more common verbal affixes.

1. /ų́k-/--stem class 3, first person plural marker.
2. /ya-/, /ni-/, /ci-/--stem class 9, second person active, second person stative, and a collapsed form of the first person singular subject acting on a second person singular object, respectively.
3. /ka-/, /pa-/, /pu-/, /ya-/, /yu-/--stem class 12, instrumental particles meaning, respectively, 'by sudden impact', 'with pressure away from the body', 'with pressure in an indefinite direction', 'by means of the mouth or teeth', and 'by handling or manipulating with motion directed toward the body'.
4. /-pi/--stem class 14, plural of one or more nouns within the scope of the verb stem to which this morpheme is attached.
5. /-kta/--stem class 15, potential marker.
6. /-šni/--stem class 17, negative marker.
7. /-ye/ or /-e/--stem class 18, predicative marker.

There is evidence of only the predicative marker /-ye/ or /-e/ in Gabriel's speech. Most of these morphemes represent fine semantic distinctions beyond the comprehension of a child his age. The morphophonological changes which accompany their use are an added difficulty in their acquisition. Dakota morphophonology is very complex, so that root words are difficult to separate and reconstruct in analysis.

Carter describes the following morphophonological processes: vowel deletion, syncope, stress movement, ejection (glottalization), aspiration, velar palatalization, lateralization, stop voicing, equi-vowel deletion and syneresis. One would expect mastery of this aspect of the language to occur relatively late (e.g., Moskowitz, 1973).

Syntax

Dakota-Sioux is an SOV language. The only major feature which does not conform to the typical SOV pattern is the occurrence of adjectives, demonstratives and genitives after the nouns they modify. It is still too early to see clearly even this most basic syntactic pattern in Gabriel's speech, as he has only begun producing multi-morphemic utterances. The adult speech from the study, however, provides examples of many different sentence patterns, some of which follow. (See Table 2.4 at the end of this chapter for explanation of transcription and translation symbols.)

1. Simple declarative (active verb stem):

   Cicí ni + yáxte kte yé. "Monster will bite you."

   mons. you bite P. F.

2. Simple declarative, negative (stative stem):

   Wasté šní yé. "It's not good."

   good N. F.

3. Interrogative (with question word):

   Táku detkáʔ há? "What are you drinking?"

   what you-drink Q.

4. Interrogative (yes-no):

   Caʔ + ní + ze há? "Are you angry?"

   you-angry Q.

5. Complex interrogative (yes-no), negative:

   Duksá o + yá + kihí šni há? "Can't you cut it?"

   you-cut you-are able N. Q.

6. Imperative:

   Haáke ǫ̨ǧé káǧa. "Make some clothes."

   clothes some make

7. Imperative, negative:

   ʔíyą̨ ʔú̧ šní. "Don't run."

   run do N.

8. Complex declarative:

   Wa + hdé kąhą̨ waštékte dé. "If I go home, this one will be good."

   I go-home if good P. this

Gabriel's syntax is dealt with in some detail in Chapter Three. See Taylor (1974) and Rood (1973) for transformational analyses of aspects of Sioux syntax.

Description of the data

Thirty-two and one half hours of tape-recorded data were obtained during the observation time, for a total of 7130 utterances from the principal subject, Gabriel. Gabriel's utterances were numbered for each session, with an average of 446 utterances per session. See Table 2.2 below for sessional information.

Calculation of mean length of utterance (MLU) was done for the purposes of "locating" Gabriel in relation to other children in other studies. Since there is no agreement among researchers as to the use of this measure across children acquiring only English as a first language, it is obvious that the problems in cross-linguistic application are considerable. Rather than try to equate the grammatical morphemes in terms of syntactic complexity,

TABLE 2.2

AGE, MLU, UPPER BOUND (UB), NUMBER OF UTTERANCES, TIME IN HOURS, LOCATION, AND PARTICIPANTS IN 16 SESSIONS WITH GABRIEL

Sess.	Age	MLU	U.B.	no. utts.	Length hrs.	Location/time	Participants besides Gabriel and me
I	2;4(0)	1.38	4	409	1½	Wilma's, A.M.	Wilma, Esther
II	2;4(1)	1.30	4	122	½	Wilma's, A.M.	Wilma, Esther
III	2;4(4)	1.24	4	554	2	Wilma's, A.M.	Wilma, Esther, Hazel, Annette, Lorraine
IV	2;4(5)	1.17	4	510	2	Wilma's, A.M.	Wilma, Esther, Annette, Marina, Raymond, Gwen
V	2;4(6)	1.27	5	315	2	Wilma's, A.M.	Wilma, Esther, Marina, Annette, Raymond
VI	2;4(7)	1.48	4	463	2	Wilma's, A.M.	Wilma, Esther, Marina, Raymond, Lorraine, Annette
VII	2;4(8)	1.82	5	736	2½	Wilma's, A.M.	Wilma, Esther, Lorraine
VIII	2;4(11)	1.29	5	113	1	Wilma's, P.M.	Annette, Esther, Lorraine
IX	2;4(12)	1.32	4	555	3	Wilma's, A.M.	Wilma, Esther, Lorraine, Hilda
X	2;4(13)	1.59	4	686	2½	Wilma's, A.M.	Wilma, Esther, Annette, Viola
XI	2;4(14)	1.46	4	241	1	Wilma's, A.M.	Wilma, Hazel, Esther, Lorraine, Donna,
XII	2;4(19)	1.50	4	452	2	hospital, A.M.	Wilma, Esther
XIII	2;4(20)	1.42	5	535	3	hospital, A.M.	Wilma, Esther
XIV	2;4(21)	1.23	4	669	3	Wilma's, A.M. hospital, P.M.	Hazel, Wilma, Esther
XV	2;4(22)	1.18	4	487	2	hospital, A.M.	Wilma, Esther
XVI	2;9(0)	1.42	4	283	2	Wilma's, P.M.	Marina, Esther, Donna, Kimberley, Donald

I have used the measure as though Dakota and English morphemes were more or less equally accessible in order to obtain a rough comparison. I took 100 consecutive utterances from each session starting with the second tape (with the exceptions of sessions II and VI, which were very short sessions), omitting unintelligible and uninterpretable utterances. While I adhered in most cases to the criteria established by Brown (1973) for MLU counts, I departed from these by including certain gestural morphemes and dialogue forms (fillers), such as 'huh', 'hey', and assigning morpheme status to /-ye/, which appeared to be a purely syntactic element in Gabriel's system.

Table 2.3 below gives a rough characterization of Gabriel's sound system, although it is obvious that many of his productions are explicable in terms of phonological processes described by Ingram (1976) and Oller et al (1974). Notably absent from his system are palatalized and glottalized consonants. Similarly, stress placement, nasalization of vowels and aspiration were inconsistent. It is interesting to note that, while his spontaneous speech was phonologically deviant from the adult equivalent, he was producing fairly precise gestural imitations.

Transcription conventions

The transcription system used during this study was devised out of the exigencies of the field situation. It is is a combination of I.P.A., Trager-Smith, personal symbols and traditional orthography which seemed the most convenient for rapid on-site notes and adaptation to the typewriter. Because this was not intended to be a phonological study and the equipment was not exceptionally precise, the phonetic representations are not very detailed. While all utterances have been transcribed in full, certain abbreviations have been used to reduce the bulk in translations. These abbreviations and a key to the phonetic symbols I have used non-conventionally are given in Table 2.4 below.

TABLE 2.3

EXAMPLES OF GABRIEL'S PHONOLOGICAL SYSTEM

Adult sound	Gabriel's substitutes	Examples
Vowels		
i	i	VI. 92. "bibí", 'baby'→bibí
į́	i, į	XIII. 161. cį́, 'want'→cí; XIII. 162. cí→cį́
e	e, a, o	VI. 112. "Annette"→net; VII. 648. wéwe, 'hurt'→wáwa; VI. 28. wéwe, 'hurt'→wówo
a	a, ą, o	VIII. 10. hiyá, 'no'→hiyá; VII. 600. hiyá→hiyą́; VII. 624. ka, 'that'→ko
ą́	ą	VII. 681. hą́pa, 'shoe(s)'→hą́pa
o	o, a	IV. 57. "boat"→bop; XIII. 138. "boat"→bap
u	u, o, a	III. 431. ábu, 'sleep'→ábu; IV. 10. "Andrew"→ando; XII. 389. "moo-moo"→mámú
ų́	ų, o	XII. 405. šų́ką́, 'horse'→kų́ka; III. 127. šų́ką́→kóka
Consonants		
p	p,b	VII. 650. waxpé, 'tea'→pe; VII. 203. ixpáye, 'fall'→bóya
b	b, p	VI. 140. babáya, "bye-bye"→babáya; VII. 10. "birdie"→pódʒi
t	t, tʸ, d, k	IV. 331. "Annette"→net; V. 312. "Annette"→netʸ; XIV. 163. "truck"→dak XII. 273. táku, 'what'→káku
d	d, dʒ, c	IV. 200. de, 'this'→da; VII. 10. "birdie"→pódʒi; V. 10. "birdie"→búci
c	c, t, d, š, ž, dʒ	VI. 176. icú, 'take'→cú; VI. 177. icú→tú; VI. 281. cicí, 'monster'→cidí; XIV. 299. cicí→šicí; VII. 659. šíce, 'bad'→šíže; V. 280. cicí→dʒidʒí
k	k, g	VII. 598. ka, 'that'→ka; XIII. 424. káka, 'that'→gáka
g	g	XIV. 638. Gabriel→gejbl
m	m	VI. 134. "máma"→máma
n	n, m, d	VII. 87. henána, 'that's all'→nána; III. 281. mní, 'water'→mimí; XII. 257. "Annette"→det
s	s, š, dʒ, ž	III. 237. "pusí", 'pussy'→pusí; XIV. 453. "juice"→dʒuš; IV. 131. "pusí"→púdʒi; III. 239. "pusí"→ppží
z		(no examples)
š	š, k	VII. 659. šíce, 'bad'→šíže; III. 127. šų́ką́, 'horse'→kóka

Table 2.3 (continued)

Adult Sound	Gabriel's substitutes	Examples
ž	ž, dʒ	VII. 704. wąží, 'one'→ží; VI. 270. wąží→dʒí
x		(no examples)
ɣ	ɣ	(only in phonological play) VI. 8. ɣuɣú (while playing with a toy car)
v	v	(in borrowed English word) XVI. 47. "T.V."→tíví
w	w, v	VII. 648. wéwe, 'hurt'→wáwa; IV. 70. wéwe→váwa
l	l, y	VI. 367. lála, 'candy'→lála; XII. 243. lála→yála
y	y	VII. 78. iyáye, 'go'→yáya
h	h, k	V. 138. há, 'yes'→há; XV. 153. "horse"→korš

TABLE 2.4

TRANSCRIPTION CONVENTIONS

A. Phonetic symbols

c	--	I.P.A. /ʧ/
ž	--	I.P.A. /ʒ/
š	--	I.P.A. /ʃ/
V	--	nasalized vowel
pppp	--	multiple bilabial flap
WORD	--	capitalized word, exaggerated pitch
´	--	major stress
C^h	--	consonant with strong aspiration
/ɬʌʔʌ́m/	--	phonetic representation of horse neighing, one of Gabriel's words
p^b, k^g	--	no aspiration, slight voicing
/____/	--	more detailed phonetic representation

B. Translation conventions

'---'	--	can't translate
F.	--	/ye/, sentence-ending particle meaning "It's a fact"
Q.	--	/ha/, interrogative particle
N.	--	/šni/, negative particle
P.	--	/kta/, potential marker
Pl.	--	/-pi/, plural marker
G.	--	/ce/, generic particle, meaning "this is how it is"
'____'	--	underlined parts of examples are descriptions of gestural reps.

A:	--	Alicia	G:	--	Gabriel
An:	--	Annette	H:	--	Hazel
E:	--	Esther	Lo:	--	Lorraine
			W:	--	Wilma

CHAPTER THREE

PROPOSITIONAL MEANING

Introduction

An examination of Gabriel's multi-morphemic utterances is undertaken in this chapter for the purposes of a) testing Brown's (1973) hypotheses about the nature of early morpheme combinations, *viz.* as being semantically motivated in the form of a small set of semantic relations and operations of reference, and b) evaluating the 'rich interpretation' of children's utterances through which these operations and relations have been 'uncovered'.

Brown collated and surveyed the data from several child language studies from a variety of languages. Using a 'rich interpretation' approach, he found what he considered to be "impressive uniformities" in the patterns of semantic and grammatical development in these children. The following discussion focuses on Brown's Stage I, the period of early syntax, which he claims is the time when the child is learning to express a small set of basic semantic relations and operations of reference.

'Lean' interpretation

The prevailing paradigm for child language studies during the sixties was the so-called 'nativist' model proposed by Chomsky (1957, 1965). According to this model, the child is innately predisposed to acquiring

the structures of human language and the rules which generate and transform them, structures and rules which form a logic but a logic which is different from general cognitive processes. The first "real" language is produced when the child starts to string recognizable words together to form the earliest syntactic structures. The first attempts to apply transformational-generative grammar to child language data were based on the notion that the child moved through successive approximations to the adult grammar. Using either longitudinal data or data from children of different ages and levels of language development, these investigators wrote grammars at various points in the acquisition period in order to determine the course of the child's approach to adult competence (Brown and Fraser, 1963; Miller and Ervin, 1964). The constraints of early child speech data, where word classes and grammatical modulations are omitted, and of the syntax base of the Chomskian model meant that explanations had to be based on surface level evidence.

It is the opinion of most investigators today that these studies considerably underestimated the linguistic knowledge of the child, which is why they are sometimes referred to as 'lean interpretation' studies. Two descriptive models which appear extensively in child language literature from this period are the telegraphic speech and pivot grammar models. Brown discusses and dismisses them both on the same distributional grounds on which they are based, but also because he feels they do not capture enough of the child's expressive competence at the beginning of syntax.

Early child speech was labelled telegraphic speech because the early utterances of children resemble in many ways the language used in telegrams; that is, content words (nouns, verbs) are retained, less

essential functors are omitted. Explanations for this 'look' were based on the perceptual saliency of content words (these tend to receive major stress in the spoken utterance) and the availability of the meanings of content words (these often have real world referents, as opposed to functor words which designate finer relationships, sometimes purely grammatical). As Brown demonstrates, however, telegraphic speech is not an accurate describer of the early speech of all children. He points out that many children use functor words from the start of their morpheme combinations, and, quite often, they omit content words, which are essential to the meaning, from their earliest constructions. The analogy, therefore, is a weak one.

The second model, pivot grammar, evolved out of the striking appearance in early utterances that there were two word classes operating, one with high combinatorial frequency (the pivots) and the other with low combinatorial frequency (the open class words). This model is most often associated with Martin Braine (1963), although Miller and Ervin (1964) made similar suggestions. Braine extracted only the two-word utterances from protocols collected by mothers of three children. Using these data he posited the word classes, pivot and open, and described positional restrictions related to their occurrence, e.g., an initial pivot may not occur as a final pivot. These distribution rules, however, seem to apply more neatly to Braine's data than to child language data from many other studies, as Brown (1973), Bowerman (1973), and Bloom (1970) have shown. Brown does acknowledge, though, that early child speech often has a clear 'pivot look', which he differentiates from pivot grammar. This 'look' is a characteristic of Gabriel's data and will be examined shortly.

'Rich' interpretation

The 'rich interpretation' method evolved to a large extent out of the failure of earlier models to account for more than some surface characteristics of early word combinations. The approach was aimed at showing that children have underlying grammatical competence, which can be retrieved by attending to the meanings (as far as they can be reconstructed) of their early utterances. Brown (1973) says that 'rich interpretation' reveals that Stage I children express remarkably similar meanings, which suggests to him that this period of language development is motivated by the acquisitional importance of a universal set of cognitively accessible semantic relations and operations of reference. This approach to the analysis of first multi-morphemic utterances is at least two steps removed from pivot grammar. First, it assumes underlying grammatical structure for the child's utterances, and, second, it makes the observation of context an essential part of determining more accurately what meanings are intended by the child (through which underlying structure is inferred). The major proponents of 'rich interpretation' include Brown, Bloom (1970), Schlesinger (1971), and Slobin (1973). Howe (1976), in a critical review of the approach, notes that, along with attention to context, the expansion of the child's deformed utterances into plausible grammatical utterances is another strategy used for reconstructing deep structure. Brown apparently has made use of both strategies; my own interpretations of Gabriel's multi-morphemic utterances for the purposes of applying a Brown-type analysis are based on contextual notes.

Brown's study

While the 'rich interpretation' method has led, in some cases, to researchers positing formal linguistic categories in the deep structure (see, for example, McNeill, 1970), Brown prefers semantically-defined configurations. Using the semantic models of Fillmore, Chafe and Schlesinger, he has organized all of the multi-morphemic utterances in twelve child language corpora into the designated relations and operations of reference and quantified the results. Through this process he has found that there appears to be a set of basic semantic relations which account for about 70% of the two-term utterances in the data investigated. See Table 3.1 below for Brown's operations of reference and prevalent semantic relations.

The impressiveness of this finding led Brown to speculate as to why Stage I utterances were so uniform. He suggests that

> . . . a major dimension of linguistic development is learning to express always and automatically certain things (agent, action, number, tense and so on) even though these meanings may be in many contexts quite redundant. . . . It may be that automatizing a certain number of meanings leaves the human's limited central channel capacity free to cope with the exigencies of particular communication problems, which require that one say what is necessary, omit what is not, and use a lexicon and syntax familiar to the particular audience (Brown, 1973, 245).

He adds that Stage I speech, while semantically tied to the child's immediate context, still demands that listeners have some familiarity with the child's background knowledge in order to interpret its utterances. The child, on the other hand, persists in producing 'deficient' utterances because most of his communications take place in his home, where he is usually understood. In other words, the child can communicate successfully for some time with a very simple syntax through which he is becoming fluent in expressing a small set of relational and

TABLE 3.1

BROWN'S OPERATIONS OF REFERENCE AND PREVALENT SEMANTIC RELATIONS FOR STAGE I

Operations of reference	
Nomination	That car
Recurrence	More cookie
Nonexistence	All gone juice
Reference to self or mother	Hi mommy
Semantic relations	
Two-term relations	
Agent and action	Baby eat
Action and object	See sock
Agent and object	Mommy sandwich
Action and locative	Fall grass
Entity and locative	Baby chair
Possessor and possession	Baby toy
Entity and attribute	Doggie white
Demonstrative and entiry	Train
Three-term relations	
Agent, action and object	Dog eat cake
Agent, action and locative	Daddy sit there
Action, object and locative	Mommy milk table
Action, object and locative	Put baby bath
Four-term relations	
Agent, action, object and locative	Mommy put book table

referential meanings. After examination of these meanings, Brown is confident that they conform to the child's cognitive abilities at the period when morpheme combinations appear (late sensorimotor intelligence). Because children go through roughly the same kind of socialization (exposure to a relatively small group of people during the early years) and because cognitive development is assumed to follow a similar course with all children, Brown feels that the set of relations and operations which he has posited will describe the meanings of all Stage I children, no matter what language they are learning (198). I have extended this analysis to yet another language, Dakota-Sioux, in order to test this hypothesis.

Mean length of utterance

Brown ordered the studies he reviewed according to the developmental measure of mean length of utterance. Without minimizing the problems that are encountered in applying this measure across children and across languages, Brown states that, ". . . MLU is a good simple index of development from about 1.0 to 4.0; it continues to be responsive to what the child is learning but it is primarily responsive to different kinds of knowledge at different times (185)." An example of what Brown is referring to here is the increase in MLU during Stage I, which he says is caused by the compounding of semantic relations rather than by embedding. Table 3.2 below places Gabriel along with Brown's children according to this measure. Some of the difficulties I encountered in determining a relatively comparable MLU figure for Gabriel have already been described (see p. 21). I use the measure here to indicate roughly where he stands in relation to the children

TABLE 3.2

BROWN'S STUDIES ORDERED DEVELOPMENTALLY ACCORDING TO M.L.U., INCLUDING GABRIEL

Kendall I	GABRIEL	Seppo I	Kendall II	Viveka	Sipili	Tofi	Eve I	Sarah I	Seppo II	Rina I	Pepe	Adam I
1.10	1.38	1.42	1.48	1.50	1.52	1.62	1.68	1.73	1.81	1.83	1.85	2.06

TABLE 3.3

PROPORTIONS OF TWO-MORPHEME TYPES REPRESENTED BY FOUR PRESUMPTIVE PIVOTS IN GABRIEL'S CORPUS

	Session											
Pivot	I	II	III	IV	VII	XII	XIII	XIV	XV	Aver.1	XVI	Aver.2
/ka/	32	32	30	38	31	22	17	31	30	29	0	26
/ye/	29	42	19	11	14	22	21	16	7	21	24	21
"hey"	7	11	15	3	3	0	6	5	16	8	10	8
/eyá/	14	0	8	14	6	9	11	9	5	9	12	9
Total percentages	82	85	72	66	54	53	55	61	58	67	46	64

TABLE 3.4

PERCENTAGES OF ALL UTTERANCE TOKENS REPRESENTED BY UTTERANCES WITH 'ka'

No. of morphemes	Session I	II	III	IV	VII	XII	XIII	XIV	XV	Aver.1	XVI	Aver.2
one	39	21	41	57	62	28	20	61	37	41	3	37
two	30	11	30	35	74	30	11	29	22	30	0	27
more	17	5	11	9	41	23	11	10	9	15	1	14
percentage per sess.	21	30	15	20	24	18	8	15	14	19	1	17

TABLE 3.5

PERCENTAGES APPROPRIATE WORD ORDER IN TWO-MORPHEME UTTERANCES IN THE REPRESENTATIVE SESSIONS

	Session I	II	III	IV	VII	XII	XIII	XIV	XV	XVI	Aver.
%	100	100	92	95	87	95	100	89	96	95	95

in the studies which Brown reviewed. The qualifications mentioned earlier are relevant because they may be responsible for misrepresenting Gabriel's performance.

Gabriel's average MLU places him in early Stage I. I was unable to determine how long he had been producing morpheme combinations before the start of data collection; however, most of Gabriel's combinations seem to fit into an utterance category of Brown's which he says is characteristic of early Stage I. The particular category is 'Demonstrative + Entity', which Brown says can be either a semantic relation or redefined as an operation of reference. Brown also says that the prevalence of utterances occurring in this category is responsible for the 'pivot look' of Stage I speech. The 'pivot look' is very strong in Gabriel's speech sample and prompted closer examination in terms of the semantic considerations which Brown says give rise to it.

The 'pivot look'

Brown says that

> . . . the pivot look is not the same as the pivot grammar. The look derives primarily from an impression that there is a sharp discontinuity of combinatorial frequency in the child's words; some, the pivots occurring in numerous different combinations and others, the open words occurring in very few combinations (169).

By taking just the one criterion for a pivot, that of occurring in a large number of different two-word combinations, Brown found that the presumptive pivots obtained in this way from 22 different studies could themselves be reclassified as his operations of reference--nomination, recurrence, nonexistence, and reference to self or mother. Brown also observes that the meanings of the operations of reference are part of the latter stages of sensorimotor intelligence, which apparently coincide

with Stage I in Brown's analysis. He says,

> The combination of cognitive accessibility to the child, expressibility by a small lexicon, and the widest compositional potential might be expected to make operations of reference very prevalent in Stage I speech and partly responsible for the pivot look of such speech (169).

I examined Gabriel's two-morpheme combinations to determine whether such operations of reference occurred and whether they could account for the definite pivot look of his speech. Following Brown, any word which occurred in many different two-word combinations was considered as a presumptive pivot. All of the multi-morpheme utterances were organized by session into Braine-type charts, with sub-groups based on number of morphemes in each utterance type and all combinations of similar structure, for example, /ka/ + Word, listed together. Opposite each utterance type were the utterance numbers for the tokens which occurred in a session. (See Appendix II for an example of this data organization.) Familiarity with the data gave rise to my first intuitions about which morphemes would qualify as pivots. The subsequent quantification supported the choice of the four morphemes shown in Table 3.3 (p.33). This table has been assembled from the two-morpheme data from ten representative sessions--sessions I, II, III, IV, VII, XII, XIII, XIV, XV, and XVI. Because of the four and one half month gap between sessions XV and XVI, session XVI is separated from the others in some of the calculations.

The morphemes which I have found operating as presumptive pivots in Gabriel's language system differ somewhat in nature from those which Brown discovered in the 22 studies he examined. It appears that one of them, /ye/, is a grammatical particle and that another of them, "hey", is an exclamation. None of the four expresses the operations

of recurrence, nonexistence or reference to self or mother. One of them, however, the presumptive pivot /ka/, fits the description Brown gives for the operation of nomination.

A. /ka/. There are three striking aspects of Gabriel's use of this morpheme.

1. In those utterances in which it occurs, /ka/ is almost always in initial position in two-morpheme utterances.
2. Utterances with /ka/ account for an average of 29% of all two-morpheme utterance types in the first nine representative sessions, and 35% of two-morpheme tokens.
3. In session XVI, /ka/ appears to drop out of Gabriel's system, representing only 1% of all utterance tokens, 0% of two-morpheme combinations.

In the adult language /ka/ is a deictic which means 'that farther away (sometimes out of reach, sometimes out of sight)'. As a demonstrative it will normally follow the noun it modifies; as a pronominal subject or object it will precede the verb stem according to the typical SOV sentence pattern. In Gabriel's system, a simple syntactic rule of the form /ka/ + (Word) + (Word) would appear to account for most of the utterances in which it occurs. /ka/ not only appears frequently in two-morpheme combinations; it occurs as a one-word utterance, and in three- and four-morpheme utterances. Table 3.4 (p.34) gives information on the total occurrence of this morpheme in the ten representative sessions; the figures given are based on tokens not types.

As can be seen from the table, in two sessions /ka/ as a one-word utterance accounted for over 60% of all one-word utterance tokens. In session VII, which is the largest sample from Gabriel (736 utterances in

2½ hours) and has the highest MLU (1.82 as compared with the average across sessions of 1.38), /ka/ was present in 74% of all two-morpheme utterance tokens, 41% of morpheme combinations greater than two morphemes, as well as representing 62% of all single-word utterances. Over the first nine representative sessions /ka/ is present in an average of 19% of all utterance tokens, which remains a significant portion.

Tables 3.3 and 3.4 point out the virtual disappearance of /ka/ by the time of the sixteenth session. The reasons could be purely grammatical, indicating a growing syntactic sophistication. Since the pivot look extends into session XVI, however, with the other presumptive pivots still accounting for an average of 46% of two-morpheme types, this hypothesis is weak. It may be, instead, that /ka/ is replaced in this final session by another morpheme of roughly the same nature; that is, one appearing in a large number of different two-morpheme combinations and representing the operation of nomination. A new morpheme does occur in session XVI, making up 12% of the two-morpheme combinations. This morpheme is the English pronoun "me". While "me" utterances could qualify as occurrences of an operation of reference, that of reference to self, they are semantically very different from most /ka/ combinations, making the disappearance of the one and the appearance of the other most likely coincidental.

If there were a semantic explanation, it could be based on the importance of the operation of nomination in Gabriel's early sessions. This in turn could be related either to cognitive-linguistic factors (the phenomenon of naming which has been noted in early child speech samples) or to the interview nature of the data collection in the first 15 sessions. Other considerations are its simple phonological shape

and the fact that it occurs not infrequently in the adult data, in all lengths of utterances. Although it designates a finer semantic distinction in the adult language (/he/ means 'that within reach', /ka/ means 'that farther away'), Gabriel appears to use it as the equivalent of the English 'that'. It operated as a general, multi-purpose term in his system; he used it to initiate exchanges while pointing at objects he hadn't yet used the names for; he used it in response to adult "What's that" questions in much the same way, indicating that the appropriate lexical item was not available to him; he also used it with rising intonation in a number of situations which could have been interpreted as "What is it", "Can I have it", "Is it O.K. to play with that". In the two-morpheme utterance types, I interpreted 68% of /ka/ combinations as expressing the basic semantic relation 'Demonstrative ± Entity', following Brown's definitions for this relation. The other approximately one third of /ka/ types were his 'Entity + Attribute' or 'Other constructions'.

One possible reason for the predominance of the 'Demonstrative ± Entity' relation is the question-answer nature of the data collection in sessions I-XV. In response to Gabriel's quieter times, Wilma often asked "What's this/that" questions to elicit speech from him. In session XVI, on the other hand, he was left more or less to speak spontaneously. If there were some way of being certain that the data collection method affected his responses to that extent, the figures on prevalence of operations of reference, particularly of nomination, and of the semantic relation 'Demonstrative + Entity', will be much less impressive and comparison with other studies will be more difficult.

B. "hey". I have interpreted the two-morpheme utterances with "hey" as expressions of the operation of nomination, contrary to how Brown seems to treat occurrences of such morphemes. While he says that such forms have little interest (180), I feel that Gabriel is saying something like "Look at" or "See" when he uses this word. In both one-word utterances and multi-morpheme combinations, it served the purpose of focussing the attention of others on his own interests. While it wasn't always clearly referential (for example, when it occurred with a verb), it was one of the ways in which Gabriel systematically introduced objects into discussion; in this rôle "hey" is supported by phonological similarity to the adult Dakota deictic /he/, which occurred often in the speech around him.

C. /ye/ or /ya/. The particle /ye/ (usually /ya/ in Gabriel's productions) is the next most frequent presumptive pivot to /ka/. As with /ka/, its occurrence in two-morpheme utterances is positionally restricted, in this case to final position without exception. Likewise, it occurs frequently in the adult speech; /ye/ is the female speech variant of the declarative sentence ending particle, which means, roughly, "it is a fact".[1] Just as a phonetic segment, /ye/ (or /ya/) has wide distribution in Dakota, for example, as a verbal prefix (see p. 19), and it is easy for a child to produce. While it occurred only finally in two-morpheme utterances, it was sometimes medial in utterances longer than two morphemes, giving the impression that it operated rather as a type of morpheme boundary than simply an utterance boundary. With

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[1] Male children normally acquire the female speech variants first because of their constant exposure to females during the early years of life. At around the age of 5 they receive more formal training in appropriate male speech forms.

such a meaning (i.e., as a boundary marker), classification of /ye/ utterances into semantic relations categories is not possible. Indeed, Brown describes three types of "other constructions" which could not be classified. Of these, the category of "idiosyncratic and inflexible terms" seems best to account for Gabriel's use of /ye/. Brown elaborates that such a form is one ". . . that is perceptually salient and highly frequent in the speech of a particular parent (which becomes) lodged in the speech of that parent's child though it will not be used in a full range of appropriate environments (179-80)." Although I didn't explore this, it may be that the frequent adult expansions of Gabriel's one-word utterances, making them into more complete utterances of the form Word + /ye/, could have encouraged Gabriel to form an 'Add /ye/' rule in his own system. There are examples of such build-up sequences in the data. Although Wilma translated Word + /ye/ utterances as "It's a _____", I would hesitate to classify Gabriel's Word + /ye/ utterances as instances of the operation of nomination.

D. /eyá/. This fourth presumptive pivot is even less precise than /ye/. It generally appears in final position, and Gabriel seems to prefer to use it following his imitations of actions or comments on the end states of objects or on their usual motions or activities. Wilma translated it as "it says or goes like that". This is likely another idiosyncratic and inflexible term which has been coincidentally reinforced in the child's system. The one problem with applying this description to either /eyá/ or /ye/ is that Gabriel does demonstrate some flexibility in this use of both of them; that is, each appears to be under some control in his morpheme combination strategies, perhaps in the way that Dore et al (1976) suggest, as placeholder morphemes,

incipient sentence ending particles, or verbs (21-23). In either case they do not lend themselves easily to analysis as operations of reference.

Word order in the two-morpheme utterances

Brown concludes that word order is one of the simpler devices available to children to formally mark their semantic intentions in Stage I (167), and he concludes from evidence in English acquisition studies that Slobin's (1971) operating principle--pay attention to the order of words and morphemes--has some validity, in terms of the child's competence. He refers to Bloom's (1970) position on the child's use of word order:

> . . . when a Stage I child speaking English uses two or three words in an utterance in just that serial order which is appropriate to the context of reference as an adult sees it, then the child has made a kind of discriminating response which may be taken as evidence that he intends the semantic relations the order implies and not just the meanings of the individual words (Brown, 65).

In fact, with utterances so short and with the possibilities for extrapolation so numerous in most speech contexts, the child's combinations of morphemes may indicate nothing more than his desire to comment on two objects/events which to him are in juxtaposition. Howe (1976) points out the circularity of Brown's (and Bloom's) position; Brown has interpreted the semantic intentions underlying the child's utterances by paying attention to word order and then credited the child with using word order to express those intentions. She also suggests that there is a high degree of imitation in the child's utterances during this period of language development and that various researchers (Brown and Fraser, 1963; Brown and Bellugi, 1964) have found that the child maintains word order in imitations. While one may wish to assume that this bears on the child's use of word order in spontaneous speech, Howe cautions that such a relationship has not yet been established (43).

The adult Dakota speech in Gabriel's environment is relatively fixed in order. Table 3.5 (p. 34) gives the percentage of Gabriel's two-term utterances which maintain appropriate word order.

With an average of 95% appropriate word order, I will assume that Gabriel has either internalized or evolved some notion of morpheme sequencing. No tests were performed to determine his comprehension of contrastive orders, however, and so the results are of limited interest. Sequencing of the verbal affixes, which will come at a later time in development, will provide a clearer test of his attention to this aspect of language.

The semantic relations

The semantic characterization of Gabriel's utterances so far has been confined to pivot type constructions. These constructions have the form of a small set of fixed constants in combination with a large set of variables, which Brown says mainly express operations of reference (nomination, recurrence, non-existence and reference to self or mother). I found slightly different results with the presumptive pivots I identified in Gabriel's speech samples.

The search for the semantic relations Brown says are expressed by the child's early morpheme combinations involves redefining the operations of reference where possible and identifying correlates of adult semantic functions in the child's data. Brown states his relations in terms similar to those in Chafe's (1969) and Fillmore's (1968) models. He raises the consideration that ". . . description in terms of a set of prevalent semantic relations may be little more than a technique of data reduction, a way of describing the meanings of early sentences short of

listing them all. . . . (173)", but the fact that, in his findings, most of the interpretable utterances fell into only eight of all the possible relations a human language is capable of expressing and this with surprising uniformity across children and languages, suggests that there is some principle underlying the results. Howe points out that Bloom, Schlesinger and Slobin, working separately from Brown and independently of one another, arrived at very similar conclusions about the semantic intentions expressed by the child's early multi-morphemic utterances (Howe, 29), although she suggests a very different reason for this consensus. Brown feels confident enough about his hypothesis to make the stronger claim of invariance across languages in this development, saying that these basic meanings (his semantic relations) are somehow "made available" to the child when he starts to form sentences.

It has already been shown that one construction type in Gabriel's corpus--/ka/ + Word--accounted for a large number of Gabriel's two-morpheme utterances. Many of the tokens of this type fit the description of the relation Demonstrative + Entity and so a high representation in this category can already be expected. Reclassification of the other presumptive pivots in Gabriel's corpus wasn't possible; for example, my tentative interpretation of "hey" + Word utterances as equivalent to "look at" + Word could not really be extended to fit the relational category of Act + Object without a great deal of speculation. Tables 3.6 and 3.7 below give the results of my analysis of Gabriel's multi-morphemic utterances in terms of Brown's definitions of the prevalent semantic relations.

A glance at Table 3.6 reveals that most posited relations are barely or not at all represented in Gabriel's multi-morphemic utterances.

TABLE 3.6

SESSIONAL RESULTS FROM GABRIEL FOR SEMANTIC RELATIONS EXPRESSED IN MULTI-MORPHEMIC UTTERANCES

Constr.	Session										
	I	II	III	IV	VII	XII	XIII	XIV	XV	XVI	Aver.
MLU	1.38	1.30	1.24	1.17	1.82	1.50	1.42	1.23	1.18	1.38	
No. of types*	53	23	73	49	138	90	82	95	81	54	
2-morph. relations											
Ag.+Act.	02	04	12	12	17	12	06	09	09	15	10
Act.+Obj.	02	00	00	00	00	00	00	01	00	04	007
Ag.+Obj.	02	00	00	00	00	00	00	01	00	00	003
Act.+Loc.	00	00	00	04	00	00	00	00	00	02	006
Ent.+Loc.	00	04	04	00	05	01	04	05	01	00	02
Poss.+Poss.	00	04	00	02	01	00	00	02	00	00	01
Ent.+Attr.	09	00	08	06	11	09	12	06	15	02	08
Dem.+Ent.	30	30	26	27	20	26	12	12	21	02	21
3-morph. relations											
Ag.+Act.+Obj.	00	00	00	00	00	00	00	00	00	02	00
Ag.+Act.+Loc.	00	00	00	00	00	00	00	00	00	00	00
Ag.+Obj.+Loc.	00	00	00	00	00	00	00	00	00	00	00
Act.+Obj.+Loc.	00	00	00	00	00	00	00	00	00	00	00
Total %	45	42	50	51	54	48	34	36	46	27	43

*minus uninterpretables

TABLE 3.7

PERCENTAGES PREVALENT RELATIONS FOR GABRIEL COMPARED WITH RESULTS FROM BROWN'S STUDY

Constr.	Kendall I	Gabriel	Seppo I	Kendall II	Viveka	Sipili	Tofi	Eve I	Sarah I	Seppo II	Rina I	Pepe	Adam I
MLU	1.10	1.38	1.42	1.48	1.50	1.52	1.60	1.68	1.73	1.81	1.83	1.85	2.06
Multi-morph. types	100		111	152	112	112	75	146	183	272	203	242	229
% prev. rels.	81	43	67	72	69	30	51	58	44	74	70	70	64

The average across the ten sessions is 43%, which places him, as is shown in Table 3.7, between the two low figures of 30% for Sipili and 44% for Sarah I. The average across the twelve Brown children is 63% multimorphemic utterances expressing semantic relations. Because Gabriel falls significantly short of this figure, it is in order to speculate as to possible reasons for the disparity.

First, any similarities between Gabriel's data and that of Sipili and Sarah I could be revealing. Brown feels certain that the low figures obtained for the latter two children can be explained by the manner in which their data were collected. He said that the mothers of these children created an unnatural speech environment by asking them questions in an effort to elicit speech. "The resulting protocols for the children were, consequently, overloaded with the names of things, simple nominatives like a book, which were not counted among the prevalent relations (Brown, 178)." Although this type of 'interviewing' was characteristic of the first fifteen sessions with Gabriel, many of the instances of nomination which resulted qualified for reclassification as semantic relations and were counted. In addition, session XVI, which was more 'spontaneous', also showed the lowest percentage semantic relations--26%.

A second consideration is the distribution of the relational results. If one were to remove the figures in the category Demonstrative + Entity from Table 3.6, it would leave Gabriel producing hardly any semantic relations at all, let alone any utterances, whatever the type. Not all of Gabriel's utterances were responses to questions. Since the relation Demonstrative + Entity is essentially a naming function, I assume that naming was an important function performed by his speech during the period of the first fifteen sessions, both in response to

questions eliciting the names of objects and in spontaneous speech. In addition, it should be noted that Gabriel is starting to initiate dialogue, and one of his strategies for doing this is to point things out and name them, sometimes with a rising intonation as if inviting responses. I will discuss nominatives further when I look at Howe's suggested utterance categories for early speech.

It is interesting to note that Brown bases his calculations on multi-morpheme types. I was unable to find out if he meant by that semantic types. If this was not the case, one can draw two possible conclusions. Either the results will contain that error which 'rich interpretation' is supposed to avoid (that is, counting as the same two identical surface level utterances which differ in deep structure) or it may be that multi-relational (or polysemantic) types do not occur in the 12 corpora (as tended to be the case for Gabriel), something that could have slightly interesting implications.

There is an additional factor in my analysis of Gabriel's morpheme combinations, and that is the difficulty I experienced in applying Brown's relational categories to much of the data. Provided with contextual notes taken during the course of the tapings, the help of the caretaker-translator during translations, and sufficient knowledge of the language to understand practically everything Gabriel said, I could still not feel entirely confident about classifying in such specific terms many of the utterances. I believe the problem lies deeper than definition of the relations.

Howe's alternative to 'rich interpretation'

Christine Howe (1976) attacks the basic assumption of the 'rich interpretation' method--that children always intend one of the meanings adults might express. She says,

> At the present state of knowledge, there are grounds for assuming that three very general concepts are available by the time of the first two-word utterances, namely 'action of concrete object' (regardless of the rôle of the object in the action), 'state of concrete object' (whether it be an 'attribute', a 'location', or a 'possession') and 'name of concrete object' (which Piaget [1962] has shown also to be acquired by the end of the second year) (Howe, 36).

In other words, if we take as a priori that the child's utterances express and reflect his knowledge of the world, we must be careful in how we characterize that knowledge. Howe notes that we have only sketchy information about the child's construction of reality; what we "know" has been derived from the cognitive studies of Piaget and others. Brown considers Piaget's description of sensorimotor intelligence in justifying the semantic relations he has posited; however, as Howe points out, he uses the established categories of 'name of object', 'state of object', and 'action of object' as a base from which he extrapolates to the more complex prevalent relations. (For example, Agent + Act + Object utterances ". . . presume the ability to distinguish an action from the object of the action and the self from other persons or objects [Brown, 200].") Howe says we should not so readily attribute to children knowledge about relations such as Agent + Act + Object even though the apparent prerequisites are there.

Howe also attacks the research strategies employed by 'rich interpretationists'. She describes these as follows:

> Specifically, if information about the non-verbal situation preceding each two-word utterance was available, it was felt that

> the situation referred to could be determined by direct observation of the relation between the referents of each word. On the other hand, if such information was not available, it was felt that the situation referred to could be inferred by expanding the two-word utterance into a feasible grammatical sentence, which maintained the word order of the utterance wherever possible, and by assuming that the situation referred to by that grammatical sentence was the referent of the two-word utterance (40).

In light of her objection to the basic assumption of the 'rich interpretation' approach, the first strategy commits the error of equating the adult's and the child's perceptions of any given situation. There is the added consideration that observation of the situation does not always clearly reveal the meaning of the child's utterances; sometimes more than one interpretation is feasible. This difficulty is inherent in the second strategy employed, where almost any two-word combination can be expanded in a number of ways without seeming implausible. In addition, in the second strategy, word order, instead of referent situation, was used to determine the intended meaning.

While Howe's approach means a return to a leaner interpretation of the child's utterances, it is one based on cognitive considerations rather than on linguistic knowledge. Because her categories are so general, they were easy to apply to Gabriel's data. I felt it was clear from his utterances if he was commenting on the name, state or action of an object, whereas determination of semantic relations or rôles was more difficult. Howe notes another attraction of her proposal, namely that

> . . . many of the utterances expressing each of these concepts have characteristic surface structure features. Specifically the presence of a verb of action signifies utterances about the actions of concrete objects; the presence of an adjective signifies utterances about the states of concrete objects; and the presence of a demonstrative pronoun, an impersonal pronoun or a prolocative (or a few, more idiosyncratic, introducers like <u>see</u>) signifies utterances about names of objects (36).

I attempted to apply these categories to Gabriel's multi-morphemic utterances and the results are given in Table 3.8 below. This table demonstrates, if nothing more, that it was easier to account for more of Gabriel's utterances using the broader classes. It also shows that most of Gabriel's utterances are about the names of or the actions of objects. Howe's point is that, while this seems to say little about the child's acquisition of language, it says most of what we can say about the meanings of the first two-word utterances. She suggests that the 'rich interpretation' approach has opened a new area in acquisition studies which needs to be further investigated. She says that Brown's, Bloom's, Schlesinger's and Slobin's

> . . . most significant, though unintentional, contribution to the study of child language development could be their demonstration of the strategies parents use to interpret their children's speech. Parents assume that the two-word utterances of their children express one of the meanings they would themselves express. Parents use word order and their perceptions of the relation between referents of their children's utterances as clues to interpretation (45).

If we accept Howe's criticisms, we must assume that grammars cannot be written for early child speech, even if a semantically-defined model is used.

Summary

An analysis of Gabriel's multi-morphemic data based on Brown's (1973) model was taken in order to examine one aspect of learning how to mean--the construction of propositions. The pivot look which Brown predicts for Stage I (or early syntactic) speech is apparent in Gabriel's corpus, and quantification of the two-morpheme utterances revealed four possible presumptive pivots--/ka/, "hey", /ye/ and /eyá/. Of these, only /ka/ seemed to be a clear example of a pivot which created

TABLE 3.8

HOWE'S CATEGORIES APPLIED TO GABRIEL'S MULTI-MORPHEMIC UTTERANCES

Category	Session I	II	III	IV	VII	XII	XIII	XIV	XV	XVI	Aver.
Action 2-morph.	28	31	40	54	27	43	51	34	30	64	40
All multi-morph.	35	28	36	51	36	45	49	47	38	67	43
Name 2-morph.	65	58	49	41	43	40	40	53	62	24	48
All multi-morph.	54	60	46	37	31	38	38	38	52	18	41
State 2-morph.	7	11	11	5	24	16	8	11	7	12	21
All multi-morph.	11	8	11	5	21	14	8	12	9	10	11
Total % 2-morph.	100	100	100	100	94	99	99	99	99	100	
All multi-morph.	100	96	93	93	88	97	95	97	99	95	

operations of reference utterances; "hey" was so classified with less confidence. The order of Gabriel's multi-morphemic utterances was consistent and appropriate as far as could be determined through comparison with adult sequencing. Classification of the multi-morpheme utterances in terms of Brown's posited semantic relations showed that these categories accounted for considerably fewer of Gabriel's structures than the average found by Brown (Gabriel's 43% compared to Brown's average across 12 children of 63%). Three considerations are raised by this result; that the interview nature of the first fifteen sessions made Gabriel's data unnaturally overloaded with nominatives; that one relation dominated to the near exclusion of others, namely Demonstrative + Entity, indicating that naming is an important function of early child speech; and that Brown's categories are too specific to apply to the deformed and ambiguous utterances of Stage I. Howe's (1976) criticisms of the 'rich interpretation' approach used by Brown and others were introduced in relation to the third consideration. One further classification of the multi-morphemic utterances, this time in terms of the three general utterance categories suggested by Howe--name of object, state of object, and action of object--account for almost all of Gabriel's utterances and indicate that most of them express either the names or the actions of objects.

While Howe urges caution in the interpretation of meanings of the first two-word utterances, there are other issues in the determination of meaning development which are currently under investigation. Among these are the rôle of discourse and the functions of child language in communication situations. Propositional meaning as characterized by Brown is most properly termed <u>semantic</u>; <u>pragmatic</u> meaning as determined through the child's use of language is the focus of the next chapter.

CHAPTER FOUR

FUNCTIONAL MEANING

Introduction

This chapter considers Gabriel's ability to mean as a function of his performance in language interactions, particularly in his emerging dialogue patterns. Discussion is shaped by Halliday's (1975) functional model of language acquistion, in which he states that the total semantic or meaning system a child acquires does not just consist of referential (word meaning) and relational (propositional meaning) components; there is, encompassing these, a functional component whereby the child learns to use language to perform different communicative tasks. There are numerous aspects to the acquisition of pragmatic fluency, but the focus here is Gabriel's initiation of and participation in dialogue, a development which marks his increasing social involvement and which brings his personal language system under the influence of the collective adult system.

Language use

Bates (1976) points out that meaning studies in developmental psycholinguistics tend to be of two types: those which treat meaning as object and focus on the meaning of words and propositions, and those which treat meaning as act and deal with the uses of language in context. She notes that language philosophers such as Strawson (1950) and Frege

(1952) stress that not all meaning can be reduced to reference, but rather that speakers are active in the creation of meaning in different contexts; in fact they consider 'referring' to be "an activity or use of language by speakers rather than an object or property of sentences (Bates, 423)."

One form of this approach is typified in studies such as Greenfield and Smith (1976) and Parisi (1974), which Bates reviews. These writers are concerned with incorporating some notion of the child's actions in its construction of meanings, represented perhaps by sensorimotor structures and inextricably tied to the environment of the referents. They say that the child constructs his meanings by a combination of a linguistic expression which encodes some aspect of the context which is at the same time related to the context surrounding that aspect. They add, "The connection between the explicitly symbolized and encoded meaning and the implicit, perceptual-motor meaning is often indicated with such overt acts as pointing, orientation of the body, eye contact, etc. (Bates, 423)." These gestures help adults to respond more appropriately to what the child is trying to make his language do for him at a time when his linguistic devices are too idiosyncratic or insufficient. Any assumptions about the child's meaning potential or intentions must relate directly to the context of utterances, since his construction of reality is so context-bound at the time of early speech.

Halliday's work is more concerned with the established functions of language (such as getting things, regulating others, expressing personal feelings, etc.). He says,

> The relationship of talk to the environment lies in the total semiotic structure of the interaction: the significant ongoing activity (and it is only through this that 'things' enter into the picture, in a very indirect way), and the social matrix within which meanings are being exchanged (Halliday, 141).

In other words, language is much more than just words and sentences about objects and events and the relationships between them; it is a social instrument through which a culture and the rules for operating within it are being acquired. In fact, Halliday says that the child learns how to perform a number of different meaning functions long before he has the words or grammatical structures to realize those meanings in the adult language. The fact that these functions seem to appear very early, before what has traditionally been considered as the beginning of language, and that they are the same as the functions around which the adult language is constructed, suggests to him that they are what is basic in the acquisition process (Halliday, 9). Bates expresses a similar view, stating that the child's base linguistic development is pragmatic, from which semantic development and then syntactic development proceed (420).

Halliday's work is one of the first of recent studies to attribute explanatory power to pragmatic development in an acquisition model. One important aspect of his model is that he accepts as language any functionally consistent phonological and gestural forms; the beginnings of language, then, can be found in the child's first vocal interactions, before words in the adult sense and before syntax, at a time when he is learning that voicing is an action just as are pointing and grasping. Halliday takes as <u>a priori</u> that language, even artificial utterances, serves some function in relation to the speaker and his environment and audience. This applies as well to child language as to adult language.

Halliday divides the acquisition process into three phases which differ from one another in terms of degree of functional elaboration and communicative competence. While, in the earliest phase, function

equals use, the construction of a lexicogrammatical system in the second phase makes possible multifunctional utterances which, in the third phase, finally acquire the shape they have in the adult language. As Halliday says, the functional component is part of the nature of language. Language is organized around the expression of functions which are shaped by typical interactions between humans in their rôles as speaker and hearer. The child acquiring language is acquiring knowledge of what he can do in relation to others and what language can do to assist him in these interactions.

Halliday's phases

In Halliday's study of his child Nigel, Phase I started at 0;9 and lasted until about 1;6, during which time six basic language functions appeared. The phonological forms used to express them were invented by the child. Phase II was marked by the sudden increase in adult-word vocabulary and the appearance of word combinations--the lexicogrammatical system which makes possible multifunctional utterances and leads to the major work of acquiring the formal structure and rules of the adult language, which Halliday describes as the job of Phase III.

The focus of the following discussion is on Phase II speech. Apart from the vocabulary increase and onset of syntax mentioned above, two other important developments occur in Phase II. These are dialogue, participated in and initiated by the child, and a seventh function, which Halliday calls the Informative function. Both phenomena signal a marked development in the child's knowledge about language. A successful dialogue is conducted according to a complex of rules which are defined by the culture in general and fitted to each particular social setting.

Learning how to mean necessitates learning how to be competent in dialogue situations. The appearance of the Informative function indicates that the child realizes that language can be used not only to express needs and emotions, but to give and receive information. The appearance of this function is tied to the child's ability to 'represent' in Piagetian terms (Phase II corresponds in many ways to Piaget's sensorimotor substage VI and Brown's Stage I). Halliday terms Phase II as a transitional phase because it was during this time that he noted the development of a major division between the basic macro-categories of pragmatic (performative) and mathetic (ideational) functions, which he feels correspond to the ideational and interpersonal components of the adult functional system.

Functional components of the adult language

In his discussion of the sources of functional concepts, Halliday says,

> . . . the adult language displays certain features which can only be interpreted in functional terms. These are found, naturally, in the area of meaning: the semantic system of the adult language is very clearly functional in its composition. . . . But what is really significant is that this functional principle is carried over and built in to the grammar, so that the internal organization of the grammatical system is also functional in character (16).

He distinguishes among three 'sets of options' which he says constitute the functional component of the semantic system: the ideational, interpersonal and textual. The distinction involves systemic constraints (as described by Firth's [1957] system-structure theory) such that a speaker's selections in one set of options affect only the other choices within that set and not the choices in the other sets. In other words, if a speaker makes a statement about something he has

observed (an ideational language use), he does not exclude himself from the possibility of using that statement, say, to influence his audience (an interpersonal language use). The ideational (or observer) options relate to the content of what is said, language as a means of talking about the real world; the interpersonal (or intruder) options are the means whereby the speaker participates in the communication situation, expressing judgments and attitudes, etc.; the textual function is what is intrinsic to language, what relates utterances one to another and to the context, so that speech is not just lists of words (16-17).

Functions of Phases I and II

In order to characterize the functional potential of the child acquiring language, Halliday brought together his observations of language use by the child, theoretical considerations about linguistic function, and considerations of the rôle of socialization and cultural transmission in the acquisition process. On the basis of these he proposed the following as the functions of Phase I (18):

1. Instrumental--This is the use of language for getting things done or satisfying one's needs, a kind of 'I want . . .'function. It tends to be object-oriented.
2. Regulatory--This is the use of language for controlling the behaviour of others; it is focussed on a particular individual, a 'Do that . . .' function.
3. Interactional--This is the use of language for interacting with others, including greetings and invitations to play.
4. Personal--This is the use of language for expressing the personality, distinguishing the self from the environment. Halliday calls it the

'Here I come' function.

5. Heuristic--This is the use of language to explore the environment, often in terms of asking for the names of things.

6. Imaginative--This is the use of language for play and pretending.

A seventh function--the Informative function--appears later in Phase II and is the use of language to communicate information. Halliday points out,

> The idea that language can be used as a means of communicating information to someone who does not already possess that information is a very sophisticated one which depends on the internalization of a whole complex set of linguistic concepts that the young child does not possess. It is the only purely intrinsic function of language, the only use of language in a function that is definable solely by reference to language. . . . It is useful, however, to refer to it at this point, particularly because it tends to predominate in adult thinking about language. This, in fact, is one of the reasons why the adult finds it so difficult to interpret the image of language that a very young child has internalized (21).

It seems that Halliday feels that such a preconception may be responsible to some extent for the focus on semantic content rather than performative meaning taken in many child language studies.

As stated earlier, Halliday says that, during Phase II, these functions fall into two major categories: the pragmatic and the mathetic; these appear to correspond to the two adult functional categories, the interpersonal and the ideational, respectively. Halliday bases this conclusion on a striking feature of Nigel's Phase II utterances, a contrastive use of intonation. There was no equivalent phenomenon in Gabriel's corpus, however, and there is the possibility that the marking of such a distinction is an idiosyncrasy of Nigel's system.

Location of Gabriel in Halliday's model

From what has already been described of Halliday's phases, it seems clear that Gabriel is in Halliday's Phase II. He is producing word combinations; his lexicon is still small relative to the adult vocabulary (about 100 items) and partially consists of idiosyncratic form, but it is growing. He exhibits all of the Phase I functions in his speech and is actively participating in and initiating dialogue.

Phase I functions in Gabriel's speech

The following are examples from the data intended to show that Gabriel has mastered the six Phase I functions. They have been gathered from a survey of all sessions and represent typical utterances in the corpus.

(1) Instrumental. Session III, 2;4(4), utts. 278-281.

(Gabriel is asking his cousin Annette for a drink of water. He persists until he gets one.)

G: Héy. Héy. Nét. Ká mimí. "Hey. Hey. Annette. That water."

" " Annette that /mní/ = water

(2) Regulatory. Session II, 2;4(1), utts. 36-39

(Gabriel and Wilma are looking through a mail-order catalogue.)

G: Hiyú. Ką̣: + ží. "Come here. That one."

come-here that /wą̣ží/ = one

(Wilma starts to turn to the next page.)

G: Hiyá. Hiyá. "No. No."

(Gabriel tries to stop her from turning the page.)

(3) Interactional. Session IV, 2;4(5), utts. 114-117

(Gabriel initiates a turn-taking game with Esther, whom he calls 'Andrew', around the activity of pushing a toy truck along the floor to one another.)

G: Eyá Ándu. Eyá, eyá Ándu. Eyá. "Go (?) Andrew, go (?), etc."

--- Andrew --- --- Andrew ---

(4) Personal. Session VII, 2;4(8), utts. 47-48.

(Gabriel and Esther fight over some toy animals.)

G: Ándrew. "Andrew."

"

A: Ándrew ábu há? "Is Andrew sleeping?"

" sleep Q.

G: Ká /mamáin/. "That's mine."

that "mine"

(Gabriel then slaps Esther.)

(5) Heuristic. Session IV, 2;4(5), utt. 70

(Gabriel watches Wilma putting calomine lotion on her arms.)

G: Ká /váwa/? "That hurt?"

that /wéwe/ = hurt

(6) Imaginative. Session IV, 2;4(5), utts. 347-348

(Wilma holds a ceramic ornament of a horse against Gabriel's back where he can't see it.)

W: He táku ha? "What's that?"

that what Q.

G: Cicí. "Monster."

monster

W: Cicí šni yé. "It's not a monster."

monster N. F.

G: Hiyá. "No." (negative disagreement)

no

It didn't seem that quantification of the data in terms of the functions would be particularly useful. The predominance of one function over the others might reflect some functional priorities in the child's system, but the main point is that the child is capable of using language in a number of functional situations. The identification of these situations is still problematic; many of the child's utterances may accomplish something they were not intended to, as a result of interactant misinterpretation. In addition, what I have chosen as examples of the Phase I functions in Gabriel's speech may not in fact correspond to what Halliday intended, but this would be the result of trying to match two children on the basis of possibly idiosyncratic category definitions.

Effect of interviewing on Gabriel's speech

I noted earlier that much of Gabriel's speech in the first fifteen sessions was in response to elicitation questions designed to get him to speak more. In terms of a Brown-type study, such a collection procedure is considered undesirable because elicited speech tends to be of one type, simple nominations, as opposed to spontaneous speech which is usually more various. While interviewing could result in a functional skew (for example, many Heuristic utterances), any adult interaction with the child, no matter how modelled, is considered to be contributing to language development. It is in listening to and responding to the utterances of others and in experiencing language in the social setting that the child acquires it himself. As might be expected, in a comparison of the two sessions where Gabriel's total output was the greatest and the smallest, there were more speech elicitations directed towards

Gabriel, more responses made to Gabriel's initiation efforts and fewer of Gabriel's interaction attempts ignored in the session where his output was greatest.

DIALOGUE

Assigning and accepting rôles

The basic rule of dialogue is that it requires the assigning and accepting of the rôles of speaker and hearer in a kind of turn-taking pattern. The child must understand that when he speaks someone should listen (if it is to be a successful exchange) and that when he has spoken he can sometimes expect a reply (or, if he has not spoken first, that he should attend to speech directed toward him). The most elementary form of rôle assignment and acceptance in Gabriel's data can be seen in the turn-taking games he plays (usually with Esther). The games are often invented on the spot, revolving on some simple activity, and involving the simple rule--"first my turn, then yours". They are examples of ludic behaviour and are often accompanied by laughter, gasps and exaggerated intonations; one game seems to serve the sole purpose of generating excitement.

(7) Session XIII, 2;4(20), utts. 216-252

(Gabriel initiates this game by telling Esther to dance.)

G: Cĭ Aṅdu cí. "Dance Andrew dance."

/wací/ = dance Andrew dance

(Esther dances, sits down and then tells Gabriel to dance; he does so, ending with the exclamation /haʔh/ and sits down for Esther's turn. The game continues in this way for several minutes with the children dancing and laughing.)

(8) Session VII, 2;8(8), utts. 2-4

(Esther makes a face and says "Andrew". She is amused that Gabriel calls her this.)

E: Ańdrew.

G: Ańdu.

E: Ańdu.

G: Ańdu.

E: Ańdrew.

G: Ańdu.

E: Ańdu. Ańdu.

(9) Session IV, 2;4(5), utts. 193-213

(Gabriel initiates this game by throwing a toy boat and telling Esther to get it. When she brings it back, he throws it again and tells her to get it. Esther's rôle here is in response to Gabriel's commands; she doesn't say anything herself.)

G: Dú. Ańdu. Dú. "Get it, Andrew. Get it."

/icú/ =go-take Andrew go-take

(10) Session XIV, 2;4(21), utts. 366-375

(Gabriel and Esther are colouring in colouring books.)

G: Hey! (he gasps.) Hiyú! Hiyú! "Hey! Come here. Come here."

" come-here come-here

E: Gabriel! Hiyú! "Gabriel! Come here!"

" come-here

G: Hiyú! (+5) Hiyú Ańdu. "Come here. (+5) Come here Andrew."

E: Hiyú! Hiyú Gabriel! "Come here. Come here Gabriel."

G: Hiyú! Ańdu hiyú hiyú. "Come here. Andrew come here, etc."

E: Hiyú hiyú Gable dé: "Come here, come here Gabriel, this."

(Esther points to a picture of a duck in the colouring book.)

These exchanges require cooperation around a very simple two-person activity. They also give the children a chance to practise certain paralinguistic elements, raised pitch, varied intonation, gasping and so on. In example (10), /hiyú/, "come here", seems almost an empty form used by the children to transmit excited tones; the excitement appears to be contrived, as the exchange ends with their looking at a picture of a duck which they have seen many times before. Even though these are play behaviours, they incorporate a skeleton dialogue structure.

Speech routines

Another type of interaction which serves as a model for dialogue is the practised speech routine, similar to "Hello, how are you--I'm fine". In Gabriel's case, the best example of such a routine is the scenario which is enacted almost every time Wilma lights a cigarette and lets Gabriel blow out the match.

(11) Session IX, 2;4(12), utts. 187-188

(Wilma lights a cigarette and holds the match out for Gabriel to blow on.)

W: Hiyú. Wą́ka, i /pú/ ahé + kte + yé.
come-here /wąyáka/ = look 'blow' do P. F.
"Come here. Look, blow this."

G: Ká. "That."
that

W: Tókex? "How?"
how

G: Ká /pú/ ya. "That 'blow'."
that 'blow' F.

(Gabriel blows out the match.)

W: /pú/ ahé + kte há? "Did you blow it out?"
°°
'blow' do P. Q.

This routine recurs in the data with several small variations. The basic elements which always occur are the stimulus (a lit match) which marks the entry point to the exchange, either an invitation from Wilma to Gabriel or a request from Gabriel to Wilma to blow out the match, the incorporation of Gabriel's onomatopoeic word /pu/ into
°°
Wilma's utterances during the exchange, the blowing out of the match, and a yes/no question from Wilma as to whether it has been extinguished, which marks the exit from the exchange.

Even though the parts in a routine have been made relatively automatic through practice, it is more like a dialogue than are the turn-taking games. It involves more than just simple repetition of one utterance or act. There is a mixture of questions and answers relating to an ongoing activity in the context. The beginning and end of the exchange are not arbitrary in the way that the games seem to be. The degree of cooperation required between the participants is higher. The match routine has the same general structure as many of Gabriel's more spontaneous (that is, unpractised) exchanges with Wilma, and it operates as one model for new interactions.

About dialogue

There is no elegant way of presenting the discourse skills that Gabriel is acquiring at the time of the sampling. The predictability which exists in normal spontaneous dialogue involves speaker-hearer expectations which are acquired over a lifetime and which relate to the functions of dialogue, only one of which is to convey information.

Gabriel's emerging skills range from initiation strategies to reparation attempts, when he has realized that he is not being properly understood, to sustaining responses.

Basically, there are two kinds of dialogue with Gabriel--that initiated by the adult and that initiated by the child. Depending on how a dialogue is initiated, the person addressed must respond not only with a possible response but also with an appropriate one. In adult-initiated exchanges Gabriel did the following:

(a) answered questions or obeyed commands

(b) gave a general response form, such as /ka/

(c) requested more information or a repetition by using "hmmm?" or "huh?"

In Gabriel-initiated dialogues, his interactants did the following:

(a) gave back the child's utterance in question form; repeated

(b) made neutral responses like "ohhh" which were intended to show interest

(c) reworded and/or expanded the child's utterance

(d) gave new information

With the first seven sessions I attempted to paragraph the data; that is, I marked off the changes in topic. This procedure is hardly accurate, even when pauses, new referents and new speakers are noted; I could not be sure that what seemed like a change of topic to me actually was for Gabriel. A set of exchanges containing references to several different toys, for example, might still be better considered as one dialogue event in terms of flow and functional character. In general, though, pauses and changes of referent were used here as signals for the purpose of determining the boundaries of specific exchanges.

Initiations

Halliday notes that information-seeking questions are the most common way of initiating dialogue. However, such dialogues can only start to be participated in by the child at the beginning of Phase II, when he can answer information-seeking questions, and can only be initiated by the child later in the phase when he masters the Informative function and is thus able to ask his own information-seeking questions (48).

A. Adult-initiated exchanges. The examples given here are interactions initiated by Wilma, who was Gabriel's principal caretaker and interlocutor during the sessions. Her exchanges with Gabriel had certain predominant characteristics. The orientation was toward Gabriel's interests--himself, the immediate surroundings and people. Wilma used simple and clear language, sometimes with exaggerated intonation to gain Gabriel's attention. Most exchanges began with information-seeking questions such as "What's that?", "Who's that?", "Where is ____?", "How does it go/talk?". Other exchanges pointed things out, for example, "Look here, there's a _____." There was constant modelling, sometimes with several initiation attempts, to help Gabriel understand. This is a typical exchange:

(12) Session I, 2;4(0), utts. 36-38

(Wilma and Gabriel are looking at pictures in a mail-order catalogue.)

W:	Híš	táku ha?	"What's that one?"
	that	what Q.	
G:	Huh?		"Huh?"
W:	Hé	táku ha?	"What's that?"
	that	what Q.	

G:	Ká	/babí/	ya.	"That's a baby."
	that	"baby"	F. (?)	
W:	Ká	"báby"	hà?	"That's a baby?"
	that	"	Q.	
G:	Há.			"Yes."
	yes			

Most of Wilma's elicitation dialogues with Gabriel began with a Wh-question and ended with a yes/no question. Within this framework Gabriel was able to form various responses, almost all of them relating to the immediate context, but some requiring the recall of past events. The supplying of information in this way no doubt contributes to the child's mastery of the Informative function.

B. Child-initiated exchanges. Most of Gabriel's dialogue initiations consisted of an engagement utterance, usually "hey", sometimes accompanied by pointing or eye contact with an object of interest, but mostly with attempts to make eye contact with the hearer to make sure s/he was attending. Sometimes eye contact was sufficient for him to continue, sometimes he waited for a verbal response. These responses tended to be questions, guesses about what he wanted to say or was interested in having others look at. Once begun, most of his dialogues followed the pattern of example (12) above, with Wilma taking up his comment and making it into a yes/no question for him to answer.

The example below is of one of Gabriel's unsuccessful engagement attempts.

(13) Session III, 2;4(4), utts. 531-539

(Gabriel is pointing at the T.V. where a cartoon is showing.)

G: Nét. Hey Nét. Ká. "Annette. Hey Annette. That."

Annette " Annette that

Héy! Héy! Héy! Ká. Nét. "Hey, etc."

Héy! Nét! Nét!

(When Annette doesn't respond, he lets the effort drop.)

The next example is more successful:

(14) Session III, 2;4(4), utts. 2-11

(Gabriel comes into the room and sees the toy animals.)

G: Héy. /ɻʌɻʎ́m/ ká. /ɻʌɻʎ́m/. "Hey. Horse that. Horse."

" 'horse' that 'horse'

W: Tukté? "Where?"

where

G: Ká /mumú;/. "That moo-moo."

that "moo-moo"

W: "Moo-móo"? Oh. "Moo-moo? Oh."

G: Ká /mumú:/. "That moo-moo."

that "moo-moo"

W: Tókex ehá ha /ɻʌɻʎ́m/? "How does it say /ɻʌɻʎ́m/?

how say Q. "

Šɻkɻ́. "Horse."

horse

G: Héy. (+3) /mumú:/. "Hey. Hey. Hey. Moo-moo."

W: Tókex eyá ha? Tókex? "How does it talk? How?"

how say Q. how

G: /mumú/. "Moo-moo."

Example (14) is primarily mathetic in nature. The following example, however, where Gabriel is asking for a drink of water, is pragmatic. Once he has his water, having had to persist in his request for some time, his next utterance is mathetic.

(15) Session III, 2;4(5), utts. 483-493

(Gabriel wants his cousin to give him some water.)

G: Héy. Ká. Nét. Ká memí. "Hey. That. Annette. That water."

" that Annette that /mní/ = water

L: Memí (imitating Gabriel). "Water."

/mní/ = water

G: Nét! Nét! "Annette. Annette."

An: Héy? "Hey?"

G: Ká memí. "That water."

that /mní/ = water

(Annette gives him some water. He turns to Wilma.)

G: Ká Nét mamí ya. "That Annette water."

that Annette water F.

W: Oh̃ Nét mní nicʔú ha? "Oh, Annette gave you some water?"

" Annette water you-give Q.

G: Hą́. "Yes."

yes

W: Oh̃h.

A brief survey of four representative sessions (I, VII, XV and XVI) showed that most of Gabriel's initiated interactions were mathetic in nature. The 'intruder' element is of course present in the engagement efforts which preface the interactions, but the tone of the dialogue seems to be observational. Halliday says that, for the child, ". ... language

evolves in the context of his thinking about the universe no less than in the context of his exploiting it (75)."

Dialogue participation

There were three basic response types Gabriel made in adult-initiated exchanges. The first of these--answering questions or obeying commands--is the most sophisticated. It requires attention to the adult utterance, comprehension of both its intent and referent(s), and then appropriate verbal or actional response. At the time of sampling, Gabriel's performance was still very unstable. He could name the indicated referent or suggest a referent in response to "What's that" questions (within the constraints of his lexicon); however, other Wh-questions, like "What's he doing", "Where is it", "Who is it", and even yes/no questions at times drew poor responses, if any at all. In many ways, the other two types of response--the general response form and the maintaining form--compensated for his inability to answer many questions at this time.

The general response form, usually /ká/, accompanied by a pointing gesture, worked as a substitute for the actual name of an object. Gabriel also used this form without pointing, on which occasions it was sometimes too vague for his interlocutors to go on. The following two examples show his use of this general form.

(16) Session I, 2;4(0), utt. 200

(Wilma points to a picture.)

W: De táku he dé? "What's this?'

this what Q. this

G: Ká. "That."

(Wilma points to a different picture.)

W: Wąyáka t^{x}ó. Táku ha? "Look here. What's this?"

look --- what Q.

(17) Session IV, 2;4(5), utts. 30-34

W: De táku he dé? "What's this?"

this what Q. this

G: Kó. Kó. "That. That."

that that

W: Táku? "What?"

what

G: Kó. Ká. "That. That."

that that

W: "Boat"? "Boat?"

G: Ká /bóp/. "That boat."

that "boat"

In example (17), Wilma finally provides the lexical item Gabriel has been unable to produce and he then forms an appropriate utterance. In these situations, /ka/ is like a placeholder, allowing Gabriel to take on a dialogue rôle without having to wait for an increase in his vocabulary.

The third type of response is slightly less ambiguous only in that it seems to signal that Gabriel does not understand the question or cannot answer it even though he may understand or that he has not been attending but is interested in keeping some sort of interaction going. This is the maintaining response "huh" or "hmmm" (or sometimes "hey"), uttered with rising intonation. The following examples demonstrate how it is used.

(18) Session IV, 2;4(5), utts. 174-182

(Wilma is trying to get Gabriel to imitate the word /ihimú/, which means "tiger".)

W: Kúna. /ìhimú/ áya. "Hurry. Say /ìhimú/."

hurry " say

G: Huh? "Huh?"

W: /ìhimú/ eyá. "Say /ìhimú/."

" say

G: Huh? "Huh?"

W: Kúna. Hey? "Hurry. Hey?"

hurry "

G: Há. /mú/. "That. /mú/."

that /ìhimú/

W: /mú/? "/mú/?"

G: Hą́. "Yes."

yes

W: /ìhimú/. "/ìhimú/."

G: Huh? "Huh?"

W: /ìhimú/. "/ìhimú/."

G: Huh? "Huh?"

W: /ìhimú/. "/ìhimú/."

G: /è mú/. "/è mú/."

W: Hą́. "Yes."

yes

G: /è mú/. "/è mú/."

W: Hą́, /ìhimú/. "Yes, /ìhimú/."

yes "

(19) Session X, 2;4(13), utts. 384-388

W:	Kcí Ańdrew íža duksé + kte + yé.	"Cut it out with Andrew."
	with " her you-cut P. F.	
G:	Huh?	"Huh?"
W:	Ańdrew íža duksé + kte + yé.	"Are you going to cut with Andrew?"
	" her you-cut P. F.	
G:	Huh?	"Huh?"
W:	Ańdrew íža páha yuksé + kte + yá?	"Is Andrew cutting her hair?"
	" her hair cut P. F.	
G:	Huh?	"Huh?"
W:	Ańdrew?	"Andrew?"
G:	Huh?	"Huh?"
W:	Ańdrew íža yuksé + kte + yá.	"Is Andrew cutting?"
	" her cut P. F.	
G:	Andrew?	"Andrew?"
W:	Há.	"Yes."
	yes	

Use of this maintaining response effectively alters the adult strategy in both example interactions. Wilma repeats her utterances several times, sometimes changing them, until Gabriel gives a response other than "huh"; she then reconstructs her replies in terms of the response he has made.

It would seem that Gabriel has a very economical discourse system. Three words--"hey" (for initiations), /ka/ and "huh" (for participation)--are all he needs to be involved in dialogues; that is, as long as his interlocutors are as cooperative as Wilma.

Adult modelling

It is only with a great deal of modelling, restructuring and experimenting that Wilma is able to make continuing dialogues out of Gabriel's still vague verbal responses. Among the obvious ways in which she reshapes her own speech to accommodate him, the most important seem to be:

(a) repetition of his and her own utterances

(b) acceptance of his personal words and conversation 'topics'

(c) limiting her contradictions and corrections of what he has said.

Some examples are given here.

(20) Session IV, 2;4(5), utts. 39-40

W:	Dé "moo-moó" ye dé.	"This is a moo-moo."
	this " F. this	
G:	Cicí ya.	"Monster."
	monster F.	
W:	Oh cicí ya?	"Oh, a monster?"
	" monster F.	
G:	Há.	"Yes."
	yes	
W:	Ohhh.	"Ohhh."

(21) Session XV, 2;4(22), utts. 19-22

W:	Cory ištíma há?	"Is Cory sleeping?"
	" sleeping Q.	
G:	Huh?	"Huh?"
W:	Cory ištíma há?	"Is Cory sleeping?"
	" sleeping Q.	
	Ábu eyá ha?	"Is he sleeping?"
	sleeping go Q.	

G:	Huh?	"Huh?"
W:	Cory ábu eyá ha?	"Is Cory sleeping?"
	" sleeping go Q.	
G:	Há.	"Yes."
	yes	
W:	Oh, tókiyá?	"Oh, where?"
	" where	
G:	Cúci ábu yá.	"Cory sleeping."
	Cory sleeping F.	
W:	Ohh.	"Ohh."

These examples demonstrate the limitations to Gabriel's involvement in discourse. In an adult dialogue there is a constant shifting of positions of both speaker and hearer in their relative rôles. In dialogues with Gabriel, it is the adult who must keep repositioning his/her utterances in accord with Gabriel's.

Other discourse abilities

Gabriel is starting to show other discourse skills which indicate that he is becoming more aware of the need to adapt his own utterances to some extent in order to be understood. On two occasions, for example, he corrects his own speech spontaneously; he also corrects others' repetitions of his utterances, or he tries out several responses in an effort to be more appropriate. These kinds of reparations are typical of the constant adjustment to the social setting (including the discourse itself) which is necessary in adult language use. As Halliday says, they mark a pragmatic development, a use of language for imposing the self on the speech situation in a language-defined way. These are some

examples from Gabriel.

(22) Session VII, 2;4(8), utts. 31-33

(Gabriel pushes a toy horse over.)

G: KÁ BÁYÁ! "That fell-broke."

that fall-break

E: Babáya. (attempting to imitate) "Bye-bye."

"bye-bye" F.

G: /pó yá/. "Fell-broke."

fall-break

E: /bó yá/. (imitating) "Fell-broke."

A: Ixpáye yá. "It fell down."

fall F.

W: Ixpáye yé. "It fell down."

fall F.

G: /pá yá/. "Fell-broke."

W: Há. "Yes."

yes

(23) Session VII, 2;4(8), utts. 147-150

(I tear the cellophane off a tape box.)

G: Ká púya. "That break."

that break (?)

A: Ká púya? "That break?"

that break

(Gabriel hands me another new tape box and indicates that he wants the cello off it too.)

G: Ká bóya. "That break."

that break

A: Ixpáye há? "Fall down?"

fall Q.

G: Hiyá ká ka bóya. "No that that /bóya/."

no that that break (?)

A: Ixpáye? "Fall down?"

fall

G: Hiyá ká bóya ká. "No that /bóya/ that."

no that break that

(24) Session VII, 2;4(8), utts. 301-302

G: Hey máma babáya. "Hey, mama bye-bye."

" " "bye-bye"

W: Hiyá. "No."

no

G: Máma ábu + yá? "Mama sleeping?"

" sleeping F.

W: Há máma ábu + yé. "Yes, mama is sleeping."

yes " sleeping F.

It seems clear from these examples that Gabriel is starting to know enough about language to realize when some sort of clarification is necessary. The word /bóya/, which has many phonetic variants, presents an interpretation problem since it resembles a number of plausible adult words and is used in such a wide range of situations by Gabriel. Gabriel, however, appears to have some sense of the intended and received messages or, at least, of the possibility of having been misinterpreted, judging from the exception he takes to how others repeat or expand this word.

There are obviously many things which Gabriel cannot yet do in his verbal interactions. He asks no Wh-questions; only /ka/ with rising

intonation accompanied by a pointing gesture resembles a request for a name. He doesn't ask permission to do things; there are no 'Can I' forms. Examples from sessions XIII and XIV, where Gabriel pretends a chair is a car and recalls the blind rattling against the window are among the few instances of his symbolic representation and referring to past events. In addition, he responds only to his caretakers.

Summary

In acquiring a language a child is not only learning words and syntactic rules, he is taking on a communication system which performs various interactional functions. According to Halliday the child demonstrates functional development long before the emergence of a formal lexicogrammatical structure; this functional development is tied to the functional components of the adult language system, essentially pragmatic (interpersonal) and ideational (observer) functions. He also notes that the most sophisticated basic function, that of using language to exchange information, is one that we tend to take most for granted; in fact, we do much more with our language than give information. While the child may participate in proto-dialogues during his early development, his ability to answer information-seeking questions, early in Phase II, marks the start of real dialogue. Through this development the child becomes increasingly involved in the social semiotic and his personal language system is brought under the influence of the collective adult system.

An examination of Gabriel's data from a functional perspective reveals that he is using language to perform all of the six basic functions mentioned by Halliday. He is able to answer information-seeking

questions, though only imperfectly, and he appears to have developed some immature dialogue initiation and participation strategies. The words "hey", for engaging an audience, and "ka" and "huh", as general response form and maintaining form, respectively, make up the most frequently used elements in his dialogue system. Gabriel lives in an environment of mathetic speech, with those around him going out of their way to point at things and name them and draw relationships between them; what he doesn't seem able to understand is digested for him by his interlocutors. What constitutes dialogue in his speech production is actually a sometimes loosely connected series of egocentric utterances, highly dependent on modelling and expansion by the adult interactants.

CHAPTER FIVE

LEXICAL MEANING IN SEMANTIC AND SEMIOLOGICAL TERMS

Introduction

One important mechanism for the expression of meaning is the word. This chapter focusses on Gabriel's lexical development, but from two different perspectives. The first goal of the chapter is to characterize briefly his vocabulary in terms of various issues which have emerged through studies into the meanings of the child's early words. The second goal is to demonstrate how instances of gestural imitations occurring with Gabriel's speech can be analysed as proto-words according to Piaget's descriptions of semiological genesis.

Recent studies of child language acquisition which have turned to a Piagetian model in examining the relationship between cognitive and linguistic development have centred largely on the problem of determining the child's meaning potential. Many investigators now assume that the meanings the child is capable of expressing are drawn from a repertoire of cognitive concepts (for example, object permanance), which he is already actively building up by the time he first starts to speak. Another question which arises from consideration of the cognitive-linguistic relationship is to what extent cognitive achievements are responsible for the emergence of formal linguistic structures (that is, the devices for the expression of those meanings, devices such as words). Piaget's position on language is that it is just one part, although the

major part, of a larger symbolizing capacity which starts to evolve in play and imitative behaviour during the sensorimotor period. Language acquisition, according to this view, is by definition a part of semiological genesis, which in Piaget's model is a cognitive development. The data from Gabriel are particularly interesting in this respect in that a significant portion (over 20%) of his approximately 100 observed morphemes are clearly unconventional--some imitative, some idiosyncratic word-like inventions. The most striking aspect of his system is his use of gestural imitations in verbal syntactic frames, as contrasted with other types of gestural behaviour. The appearance of these phenomena make necessary a re-evaluation of the status of his more adult-shaped morphemes in a hierarchy of linguistic signs.

SOME SEMANTIC CONSIDERATIONS OF GABRIEL'S LEXICON

Establishing the lexicon

The child begins speaking with a very limited vocabulary. Several investigators (for example, Nelson, 1973) have noted, however, that vocabulary expansion follows a fairly regular pattern across children. The first rapid growth, after approximately 50-100 words have been acquired, seems to be correlated with the onset of word combinations, the beginnings of dialogue and the appearance of cognitive behaviours marking the transition between sensori-motor intelligence and representational intelligence (sensorimotor substage VI). I counted just over 100 morphemes in Gabriel's corpus, out of 7130 utterances; a much smaller subset of these forms the working core of his vocabulary. Table 5.1 below lists all of his morphemes in 'alphabetical' order (according to English orthography).

TABLE 5.1

GABRIEL'S LEXICON

1.	ábu 'sleep'	SCW
2.	"Andy"	name
3.	"Andrew" 'Esther'	name
4.	àú 'bring'	ASW
5.	"baby"	AEW
6.	"byebýe"	ECW
7.	bóp 'boat'	AEW
8.	"boom"	AEW
9.	bóya 'fall down'	ASW
10.	bi[=pahí] 'pick up'	ASW
11.	"bódi" 'birdie'	AEW
12.	"bag"	AEW
13.	bíka[=píka] 'cards'	ASW
14.	bíba (ref. toy)	PS
15.	"bad boy"	AEW
16.	cí[=cį] 'want'	ASW
17.	cicí 'monster'	SCW
18.	céye 'cry'	ASW
19.	cú[=icú] 'take'	ASW
20.	cíca[=šíce] 'bad'	ASW
21.	cekáya 'weasel'	ASW
22.	ciža[=kšíže] 'fight'	ASW
23.	cakúya 'road'	ASW
24.	de 'this'	ASW
25.	"Donna"	name
26.	"dak"[= "truck"]	AEW
27.	"dáda"["Santa"]	AEW
28.	eyá ---	PS
29.	er 'defecate'	SCW
30.	"Gíba"["Gabriel"]	name
31.	"G∧n"["Gwen"]	name
32.	"go way"	AEW
33.	hm̃, "hũh"	AEW
34.	hą́pa 'shoe'	ASW
35.	"hey"	AEW
36.	hą 'yes'	ASW
37.	hiyá 'no'	ASW
38.	"háti"["hockey"]	AEW
39.	[ʔ∧ʔ∧́m] 'horse'	PS
40.	hiyú 'come here'	ASW
41.	"hat"	AEW
42.	"Hiwda"["Hilda"]	name
43.	"horš"["horse"]	AEW
44.	íši[= išʔíši] 'uncle'	ASW
45.	"dʒúš["juice"]	AEW
46.	"dʒú"["too"]	AEW
47.	ka 'that distant'	ASW
48.	"ka"["car"]	AEW
49.	kà ó[=kà omní] 'that turns'	ASW
50.	kóka[=šų̀ką́] 'horse'	ASW
51.	"kąi"["bike"]	AEW
52.	kúya 'down'	ASW
53.	kukúši 'pig'	ASW
54.	kʔá[=kʔú] 'give'	ASW
55.	kákiya 'over there'	ASW
56.	kadą́[=kadá] 'dump'	ASW
57.	lála 'goodie'	SCW
58.	mimí[=mní] 'water'	ASW
59.	"mine"	AEW
60.	"mamú["moo-moo"]	ECW
61.	"máma"	AEW
62.	"me"	AEW
63.	ma (exclamation)	ASW
64.	"mæ"["man"]	AEW
65.	"net"["Annette"]	name
66.	"nęjn"["Lorraine"]	name
67.	nána 'all gone'	ASW
68.	odé[=ohdé] 'coat'	ASW
69.	pu 'blow'	PS
70.	páʔá[=páha] 'head'	ASW
71.	pppp (motor noise)	PS
72.	"pápi"["puppy"]	AEW
73.	pótet 'two'	PS
74.	pusí 'cat'	ASW,AEW
75.	"póo-poo"	AEW
76.	"Túti"["Cory"]	name
77.	"T.V."	AEW
78.	wąží 'one'	ASW
79.	wadé[=wąyákadé] 'look at this'	ASW
80.	wáwa[=wé we] 'hurt'	SCW
81.	waxpé 'tea'	ASW
82.	wací 'dance'	ASW
83.	"Wóma[["Wilma"]	name
84.	wąná 'now'	ASW
85.	wá[=owá] 'write'	ASW
86.	wa 'I'	ASW
87.	ye ---	ASW?
88.	yáya[=iyáye] 'go away'	ASW
89.	žámiya 'to go "zoom"'	PS
90.	ža[=wicášta] 'man'	ASW
91.	žáža[=yužáža] 'wash'	ASW

Table 5.1 (continued)

92.	(counting words éi, qú, bí, etc.)	
93.	š : : : (tape recorder)	PS
94.	ókakóka (turkey noises)	PS
95.	ʔaʔ (sd. in dance routine)	PS
96.	(pretends to comb hair)	PS
97.	(claps in imit.)	PS
98.	(waves in imit.)	PS
99.	(falls over on couch in imit.)	PS
100.	(makes face in imit.)	PS
101.	(oil well action with hand)	PS
102.	(dances in imit.)	PS
103.	/máj jáu/ (cat's meow)	PS
104.	(hitting action in imit.)	PS
105.	(guitar playing in imit.)	PS

ASW = adult Sioux word
SCW = Sioux child word
PS = personal symbol
AEW = adult English word
ECW = English child word

The criteria used for counting a morpheme as a productive word were fairly simple. Elicited or spontaneous imitations were not counted unless they appeared elsewhere in non-imitative circumstances. Because his core vocabulary was so small, new items tended to be quite noticeable. When they occurred I was able to check with Wilma as to whether he could have acquired such items (for example, after hearing the word used often in his environment, or after being instructed in it prior to a taping session). When she could not verify a particular word, it was included in the count if it occurred in a sentence in discourse with a discernible referent.

Lexical categories

Many child language studies until recently rejected phonological forms which did not resemble adult words. The results of research into the phonological processes at work in the child's early speech have made it possible to recover underlying adult forms from the child's productions. There remain in most corpora, however, forms which cannot be derived from adult-shaped words, forms which have been invented by the child. Most investigators now consider these as words if they are relatively consistent in form and function. Halliday calls these forms proto-words; he was able to find phonologically and functionally consistent forms in the speech of his son as early as 0;9. Dore et al (1976) make reference to phonologically consistent forms (PCF's) which operate in the child's early speech as words, sometimes without semantic content, such as 'dummy elements' which may be serving proto-syntactic rôles (20-22).

Many of the morphemes I have included in Table 5.1 are not derived

from adult Sioux or English words. There are three basic word origin categories in Gabriel's lexicon:

(a) Adult words (Sioux and English)

(b) Baby words (Sioux and English)

(c) Personal words (verbal and gestural).

The inclusion of these latter, the gestural morphemes, involves a radical departure from standard analysis. These are not extralinguistic phenomena, such as pointing along with a request for an object or head-shaking along with an utterance of rejection; rather, they are instances of gestural imitation which are set into syntactic frames and are produced in relation to some referent, present or absent. The personal words also include onomatopoeic forms, such as /ʔʌʔʌ̂m/ for "horse", and Gabriel's own word-like inventions, such as /pṓtet/ for "two".

The principle of phonological consistency must be relaxed in the consideration of most early child language data. Phonological instability is a characteristic of early child speech. Carter (1975) claims to have found evidence that the stabilization of phonetic forms leads to semantic distinctions which were previously fuzzy and overlapping in the child's system (for example, the emergence of "more" and "my" from less distinct forms in the speech of a child she studied) (244-245). Phonological homonymy combined with semantic overlap may in fact delay the stabilizing of some forms; at least, there is one possible example from Gabriel--/báya/. His system is marked by the phonological inconsistency of most forms. The variations of just the one morpheme /báya/ which occurred in one session are given here.

/báya/ /bá:yá:/, /pá:yá:/, /báya/, /bó/, /púya/, /bóya/, /báj/, /bó:/, /bó:eyá/, /bó:ya/, /báye/, /boyá/

In terms of the reference situations, possible adult forms of the word /báya/ are /ixpáye/, "fall down", /yušpúye/, "peel", and /búmiya/, a personal and family form meaning "it went boom" or "it fell down".

Determination of the child's vocabulary, then, involves adjustment in the usual definitions of a word. The rapid lexical expansion which seems to take place at around the same stage of development Gabriel is at during the sampling is an increase in adult-shaped forms, rather than in personal forms. This marks a growth in the child's knowledge about language; that is, that words have collective meanings and are part of a collective system.

Expressive and referential language styles

Nelson (1973) and Dore (1974) hypothesized that children have different language styles, some using language more for making reference to objects and events in the world, some using language as a tool for interactions with others. Nelson calls these the referential and expressive styles, while Dore uses the terms code-oriented and message-oriented. Bowerman (1976) suggests that language style might have some effect on the characteristics of the early lexicon.

> Learning to refer to things appears to necessitate acquiring words, but learning linguistic ways to manipulate and interact with people can involve either learning words ("please", "want", "thank you", "bye bye") or learning intonation patterns which can be used "wordlessly" (Dore, 1974) or in conjunction with words (Bowerman, 122).

The styles mentioned above correspond to the macrofunctions Halliday has discussed. Gabriel's utterances fall into both classes and it is not clear that the personal words he produces are the result of a macro-functional preference.

Cognition and semantic range

Much of the work that has been done on word meanings has focussed on children at the one-word stage. Bloom (1970, 1973) and Ingram (1974), among others, have discussed the possibility of assigning underlying structure (and thus semantic interpretations beyond simple nomination) to one-word utterances. Dore et al (1976) introduce criteria for assuming that single words actually do refer. Because there is no surface syntax, it has been necessary to rely on contextual information and assumptions about the child's cognitive level in order to interpret one-word utterances.

Gabriel has already started to produce morpheme combinations, although interpretation of these in terms of semantic relations is still difficult. The one relation for which there is clear evidence is Demonstrative + Entity, a referential relation. Gabriel also appears to have word categories corresponding to 'noun' and 'verb' and, in a few cases, 'modifier'. His words reflect customary activities (sleeping, washing, being picked up, dancing, etc.), objects in the environment (toys, food, animals, etc.) and familiar people (mother, father, cousins, sisters). Deictic words such as /ka/ occur frequently, as well as words like "yes", "no" and "hey". Words describing the properties of objects are few ("bad", "down", "gone"). Some studies have attempted to establish what kinds of categories the child initially names, for example, objects which can be manipulated or which change; I made no attempt to test Gabriel's knowledge of categories defined in this way. He has attained object permanence, e.g., he follows the path of objects which roll out of sight and opens boxes and bags to find objects normally placed in them; he has also acquired an understanding of cause and

effect relationships, and is exhibiting more complex play behaviours. On the basis of these features it is possible to identify with some confidence the semantic range covered by Gabriel's words.

Development of word meanings: categorization

Bowerman (1976) says that the acquisition of word meanings involves the mastery of categorization rules. According to Piaget, the child begins categorizing at a very early age; he will form classes of graspable objects, objects which rattle, objects which can be put into the mouth, etc. Words often become labels for categories of referents which are united by certain features. There are two competing theories concerning how those categories are formed and what kinds of features form the basis for them. Clark (1973) suggests that the child groups objects according to visually perceptual features (or otherwise salient features like sound, taste or feel). Nelson (1973) says that the child names categories which are based on functional similarities (for example, objects which are eaten, objects which are thrown, etc.). The rôle of perception in Nelson's theory is to identify an object as a probable instance of a concept (Bowerman, 124). Bowerman says that, although there is some experimental evidence to support Nelson's position, Clark's theory accounts better for the data at present (Bowerman, 124).

It is possible to test the two hypotheses to some extent in the overextension data from Gabriel. Overextension is one type of categorization error which children often make in word use, where the word is used for appropriate referents but also for others which have been incorrectly included within the category on the basis of some similarity to appropriate class members. Unfortunately, attempting to make some

logic out of the child's overextensions means imposing an adult interpretation on data which differ in many ways from the adult system. The child may be using purely idiosyncratic features (his personal experiences with the reference objects) in order to extend the range of a word. Bearing this in mind, I have attempted to explain some examples of the semantic range of some of Gabriel's overextended morphemes.

A. /cicí/, "monster".

a paper cut-out in the shape of a man, a poster of a man on horseback, feedback squeal on the tape recorder microphone, some lizards on Sesame Street, the wind blows a branch against the window, Wilma holds a ceramic ornament against Gabriel's back, Gabriel hides around a corner to scare someone, some voices down the hallway, an animated computer on T.V., gorillas on T.V., moving lips on T.V., a turn-taking game with Esther where they pretend to scare one another by saying /cicí/, a picture of a buffalo on a record album cover, Gabriel puts a bag over his head and dances, says /cicí/ after imitating Wilma saying "boo", picture of a soldier on the cover of a colouring book, a Smokey the Bear ad on T.V., a picture of a turtle in a colouring book, a tiny toy man inside a toy car, I knock quietly on a wall, I slam a door in the kitchen, the wind knocks a Venetian blind rapidly against the window sill, Gabriel pulls a net bag over Esther's face (perhaps to make her into a monster?), Gabriel and Esther play a turn-taking game of go-to-sleep-wake-up where /cicí/ is the signal to wake up, the basement door banging in the wind, a game with Esther where they both growl at one another and pretend to be monsters, Gabriel looks at the window sill which was hit by the Venetian blind a day earlier and says /cicí/, Gabriel pretends there

is a monster outside the room making turkey noises, a picture of a clown on a colouring book, I take Gabriel's photograph (the clown on the colouring book is also holding a camera).

It would appear that the word /cicí/ is the label for a very large category of things which are scary or are meant to scare. It is interesting to note that while Gabriel obviously controls this word, it can still be used to frighten him; for example, Wilma could get Gabriel to come back into the room by saying "Come back, /cicí/ is coming". The features which relate all of the above referents appear to be both functional and perceptual; functional in that they arouse fear and require a certain response, perceptual in that they involve startling noises, images, or sensations.

B. /báya/, "fall down", "break", "come apart".

a stuffed dog with a torn ear, Gabriel falls down, Gabriel pushes a toy Volkswagen under the coffee table, Gabriel stalls the tape on the tape recorder, Gabriel wants the cellophane taken off a tape box, the top of the toy Volkswagen comes off, Gabriel plays with the ceramic ornaments (one of which is chipped), the gorilla on T.V. falls down, teeth on T.V. bite into a cucumber, Gabriel wants an orange peeled, Esther tears a page out of story book, Gabriel throws toy animals into the air, a sticker falls off Gabriel's face to the floor, the toy horse with a broken tail, Gabriel breaks a toy boat and tries to fix it, Gabriel is getting a haircut and sees some hair fall to the floor, the top of the crayon box comes open.

Almost all of the above referents involve actions which change the state of some object and are basically perceptual.

C. /bápi/, "puppy".

Yogi Bear, puppy, toy sheep, gorilla on T.V., ornament of a dog.

/kóka/, "horse".

horse, Yogi Bear.

/kukúši/, "pig".

horse, toy sheep, toy puppy, only the red horse.

/ʔʌʔʌ́m/, "horse".

horse, stuffed puppy, sheep, ornament of Dachshund.

/mumú/, "cow".

horse, toy donkey, toy calf.

The referents for the above examples are no doubt related through perceptual attributes. Most of them were toys in mixed colours and about the same size; in fact, Gabriel seems to be trying to make one distinction clear in the later sessions--that the red toy horse is a /kukúši/, "pig", while the other toy horses (which are black and grey) are "horses"--a purely perceptual distinction, as the toy horses were identical in every other way. Another animal word /bódi/, "birdie", was used appropriately, but it is already a very general term encompassing flying two-legged objects.

D. "Andy" (his father's name).

his father, a picture of a man in a mail-order catalogue, a workman fixing the lock on the front door, a man on T.V. walking, a paper cut-out in the shape of a man, a male visitor.

/net/, "Annette" (a teen-age cousin).

Annette, Marina (another teen-age girl), Lorraine (a 10-year-old cousin), me.

/máma/, "mama".

Marina, his mother, an old lady on T.V., a young lady on T.V., a paper cut-out in the shape of a woman, some women in a mail-order catalogue.

Most of these examples appear to be based on perceptual similarities, although /net/, "Annette", could be a functional grouping in that the referents all play with him and look after him. While he uses proper names to refer to many people (instead of to one each), it is still possible that he has a well-established notion of the correct referents. Unfortunately, I didn't test this possibility.

The following example demonstrates the perceptual basis for Gabriel's use of the words /máma/ and /cicí/:

(1) Session VIII, 2;4(11), utts. 3-5

(Gabriel watches a T.V. commercial during which a beautiful red-headed woman turns into Smokey the Bear.)

W: He táku há? "What's that?"
that what Q.

G: Máma. "Mama."

W: Máma táku? "Mama what?"
" what

G: Ká máma. "That mama."
that "

W: Máma ehá ha? "Is that mama?"
" --- Q.

(The woman is transformed into Smokey the Bear.)

G: Cicí á. "Monster."
monster F.

E. /lála/, "goodie."

gum, banana, plums, candy, Wilma's makeup bag, juice, doughnuts.

/wéwe/, "hurt".

Wilma rubbing calomine lotion on fibreglass scratches on her arms, Gabriel's mosquito bites, cuts on Esther's leg, Gabriel bumps his head, old lady in wheelchair on T.V., Wilma is pulling on Gabriel's finger, small white stickers I use for identifying the tape reels.

These two words are Sioux baby words and were applied very generally by the adults in their conversations with the child, much like an English-speaking adult might use the term "nó-no" or "yúm-yum". /lála/ used in reference to Wilma's makeup bag (which he was trying to open at the time he said /lálą/) may be related to the fact that Wilma and Gabriel's mother customarily kept gum and candies inside their handbags. The use of /wéwe/ for the stickers comes possibly from their resemblance to bandages, which are applied to some of the phenomena which are usually called /wéwe/.

The evidence from Gabriel would appear to support the theory that shared perceptual features are used in his classifying referents, as seen in the examples of overextensions in his data.

Just as the child's meanings for his words are initially personal, so are the shapes of many of his words. The ability to symbolize serves, in the early stages, primarily to extend the child's knowledge of the world (for example, through the labelling of perceptual or functional categories), but it soon becomes the core of his social interactions. Successful symbolic communication is the result of a complex of social and experiential factors among which are:

(a) the child's realization that symbols can be exchanged not merely for the expression of needs and desires but for giving and getting information (Halliday's Informative function)

(b) the evolution of what is initially a private and individual system of symbols into the arbitrary, conventional and rule-governed system of linguistic signs which is the adult language.

SYMBOL TO SIGN

Index, symbol and linguistic sign

The ability to symbolize--that is, to substitute some form (the signifier) for some content (the signified)--characterizes a significant development at the end of the sensorimotor period (roughly toward the end of the second year of life, although cognitive growth varies from child to child). The child moves beyond sensorimotor intelligence, which operates through immediately present stimuli, to conceptual representation or thought; he can then work out mental combinations through evoked stimuli and is able to start predicting the future and re-enacting the past. According to Piaget, the symbolizing function is organized in a similar way to other cognitive functions, which means that the ability to symbolize evolves through a process of assimilation and accommodation coordinated by the child's activities and developing internal logic. The origins of this function can be observed in the behaviour of sensorimotor children, especially during the last two sub-stages of this period, substages V and VI, the transition period between intelligence based on sensorimotor activities and intelligence which is representational, that is, sign-based.

Sign is a generic term referring to a unity of some signifier with

some signified. In semiological terms, there are different kinds of relationship which may obtain between a signifier and its signified, among which are the index, symbol, and linguistic sign. The index is a relatively primitive signifier-signified relationship such that the signifier is a trace of the signified. The neighing of a horse or the imprint of its hoof are indexical signifiers in that they indicate, to someone familiar with animals, the existence (proximal in the first instance, though not necessarily so in the second) of some hoofed animal that neighs. Developmentally, the index makes its appearance in Piaget's sensorimotor substage IV in the form of what Morehead and Morehead (1974) call 'shared properties' (172); that is, the child is able to recognize features of an event which are common to his own action schemata. The meaning which he then draws out of the event is that which is attached to the particular schema with which it shares features. The index (or 'shared properties') operates as a mediator between the outside models and the child's own behaviour. The appearance of this phenomenon is taken to be the first evidence that some relationship exists for the child between a signifier and a signified, although such a relationship is not yet representational and is still attached to the present.

The symbol is a representational sign in that the signifier re-presents, or is substituted for, the signified and may be used purposefully to communicate the latter. In classical semiological terms, symbol refers to a sign in which the signifier physically or functionally resembles the signified. An example is the scales of justice, a symbol of impartiality, but an utterance such as "There's a _____" where the imitation of a horse neighing is embedded in

the sentence frame is also an instance of a motivated signifier-signified relationship. Here, the signified "horse" is represented by an imitative signifier "neighing". The appearance of deferred imitations, marking the beginning of substage VI, is the first evidence that the child is capable of representation. Imitation of an absent model (or referent) implies that the model has been replaced by a mental image (the signified) upon which the imitation (the signifier) is based. The mental image is necessary for any kind of symbolizing, and it is from a phenomenon which first appears in substage V--adultomorphic, or adult-like, behaviours--that stable and specific mental images can start to be inferred.

Whatever shape the child's early signifier-signified relationships assume, they reflect in various ways his distance from the collective sign system which is the adult language. A word of an adult language is called a linguistic sign. Like the symbol, the linguistic sign is representational. It differs from the symbol, however, in two important ways. First, unlike the symbol, the linguistic sign is not based on a necessary resemblance between the signifier and the signified; rather, the signifier-signified relationship is unmotivated and arbitrary. There is, for example, no motivation for the connection between the signifier /hors/ and the signified, the mental image of a horse. Second, whereas the child's first signs are private and individual, the linguistic sign is collective, or conventional; that is, all speakers of English have agreed more or less that /hors/ shall designate a four-legged solid-hoofed animal that neighs.

Piaget's work implies that there is a time in development when the child's knowledge of language may be more accurately determined from his

imitative and play behaviours than from his utterances. This means that even the adult-sounding words and word combinations which a child uses during this early time might be described as motivated because of their identity (for the child) with the situations in which they were first incorporated into the child's symbolic system and in which they are subsequently used. (See Barthes, 1967; de Saussure, 1966; and Heath et al, no date; for more on semiology.)

Evidence for representation

Gabriel's use of gestural imitations appears to provide an interesting demonstration of the transition between sensorimotor intelligence and sign-based intelligence and thus of the connection between language development in particular and the symbolizing function in general. Before discussing these phenomena it should be established that Gabriel is in fact able to represent, as indicated in behaviours which are characteristic of substage VI. The first four examples occur outside of discourse but are related to Gabriel's symbolizing activities. Assuming that there is a semiological development, these data and the curious mixture of gestures and adult-sounding words which Gabriel uses in dialogue appear to be precursory to his use of linguistic signs.

A. Adultomorphisms. Although adultomorphisms are presumably substage V behaviours, I give some examples of Gabriel's here to show that we can infer the formation of stable and specific mental images.

(2) Session I, 2;4(0)

Gabriel sees a cup, goes over to it, picks it up and drinks from it.

(3) Session XVI, 2;9(0)

Gabriel picks up a broom and starts sweeping the floor with it.

(4) Session VII, 2;4(8)

Gabriel picks up an LP album, takes it to the stereo and tries to lift the lid which covers the turntable.

B. Deferred imitations. Examples of deferred imitation indicate that the child has been able to internalize a mental image of an action or event without going through the usual channel of imitating it on the spot. The separation in time and space of signifier from what is signified is necessary for true language.

(5) Session I, 2;4(0)

(The model for this imitation is the male "fancy-dancing" performed at the summer pow-wow dances which are held across the Prairies. I cite this as an example of deferred imitation, although Gabriel may have actually imitated the model in its immediate context.)

Gabriel starts to dance, shifting his weight from one foot to the other for every two beats he is marking out with his arms; arms are held close to his sides, elbows bent and hands clenched as though holding shakers. To finish the dance, he suddenly throws back his arms and jumps, landing with his feet spread, and says /hah/.

I include the following example only because it shows clearly how Gabriel has had to evoke a mental image of something which happened a day previous.

(6) Session XIV, 2;4(21), utts, 266-270.

(A day earlier the wind has caused the Venetian blind to rattle sharply against the window sill, to which Gabriel said /cicí/. Now he looks at the window sill with the blind stationary and says:)

G:	Hiyú cicí.	"Come here, monster."
	come-here monster	
W:	Hey?	"Hey?"

G: Cicí. "Monster."

W: Cicí? "Monster?"

G: Hą́. "Yes."

yes

W: Ni + yáxtaké + kte. /ʔáh/! "It will bite you. Hah!"

you bite P.

G: Cicí. "Monster."

/cicí/ here is not a label for the window, but the signifier for a past referent which he has internalized.

C. Immediate imitation of new models. Most of the child's early imitations are trials and bear only gross resemblance to their models. The growth in precision of imitations and the ability to imitate new models precisely indicates that the child has internalized the model before imitating it rather than by imitating it.

(7) Session XIII, 2;4(20)

Esther puts a box of crayons under her chin and holds them there by pressing her chin down against her chest. Gabriel watches her, then picks up his own box of crayons and does the same, still facing her.

(8) Session IX, 2;4(12)

I fan my face with a notebook. Gabriel is close to me watching. He picks up a tape reel box, turns to face in the same direction as I am facing and starts to fan his face with the box, looking back at me once or twice.

(9) Session XIII, 2;4(20)

Esther burps after eating a doughnut and drinking some juice. Gabriel makes burping noises while looking at her. Then they both laugh.

Through this ability to imitate new models precisely, the child becomes better at coordinating his own actions without external practice and is also able to expand his vocabulary through internalization of new acoustic models. The elements of double knowledge of objects (Gabriel treats as a fan in example [8] what he otherwise treats as a box) and of play (Gabriel's games with Esther often take the form of a turn-taking process involving mutual imitation as in example [9]) are further evidence that the separation of assimilation and accommodation has taken place, (e.g., as discussed in Piaget, 1963), thus allowing the differentiation of signifier and signified which is necessary for language and representational thought. Assimilation and accommodation are the two complementary processes which make up the mechanism of adaptation, which Piaget uses as a model for cognitive development. Assimilation describes those behaviours of the child which attempt to reshape external events and objects to some personal internal model the child has constructed. Accommodation applies to those efforts by the child to change his internal model to resemble that presented by the external world. Many kinds of play are assimilatory, while imitation is accommodatory.

D. Ludic imitations. Gabriel is capable of some interesting representations in play. The kind of pretending in the example below involves the invention of a hypothetical situation of falling asleep and being wakened by a monster. Esther and Gabriel take turns being sleeper and monster; both use exaggerated intonations to express the urgency of the situation they are acting out.

(10) Session XIII, 2;4(20), utts. 353-355

(Esther pretends to sleep.)

E:	Gáble. (She wants G. to waken her.)	"Gabriel!"
	Gabriel	
G:	Hey cicí.	"Hey, monster."

(Esther wakes up right away.)

E:	Aké Gabriel. Iwą́ka.	"Again, Gabriel. ---"
	again " ---	

(Gabriel pretends to sleep.)

E:	Gabriel. Hą́ta. Cicí ú + yé.	"Gabriel. Move. Monster is coming."
	" move monst. come F.	
W:	Táku ú ha? Héy?	"What's coming? Hey?"
	what come Q.	
E:	Aké Gabriel.	"Again Gabriel."
	again "	
G:	Héy?	"Hey?"
	"	

(The game continues with Esther lying down to sleep next.)

The imitations of examples (7) and (8) are instances of pure accommodation, where the child's efforts are at moulding his own behaviour to an external model. They contrast very well with example (10), where Gabriel has adapted his representations to suit the assimilatory purposes of play. The presence of these two kinds of imitation in Gabriel's system indicates that his signifiers (imitations or words) are no longer tied through their signifieds to the original referents. This level of abstraction is necessary for the use of true linguistic signs.

Representations in dialogue

The examples given in the preceding section are representational, but they are not symbolic in the sense that I use here. The criteria for symbolic representations are that they occur in discourse and involve an attempt by Gabriel to represent something to someone else. The occurrences of gestural imitations in his corpus actually seem to be instances of the Informative function, the exchange of symbols for transmitting information. While representation clearly need not be verbal representation, not all children manifest the gestural and verbal combinations which Gabriel uses in dialogue. The fact that he does so is, I feël, particularly revealing of what Piaget claims are the symbolic origins of linguistic signs.

A. Elicited imitative responses. It has already been mentioned that Wilma often elicited speech from Gabriel by asking him questions about familiar objects and people. It may be that the particular kinds of questions she asks him (especially about the activities of persons and objects) are an influencing factor in his own dialogue-initiating attempts, where he reports on just those aspects of the environment. It is also possible that he is cognitively attuned to them already. In any case, the examples given below show the simplest use of gestural imitation to represent a referent, response to an adult-initiated exchange. Greenfield and Smith (1976) say that this is more complex for the child than is his participation in exchanges he has initiated himself (181). It may be, then, that imitation is an easier response than supplying a verbal response; however, since Gabriel does not yet use words in reference to these two objects, except for the forms /ca/, "comb", in imitation of the adult form /ipákca/, and /yéye/, uttered

while looking at some guitar pictures, both occurring later in the data, imitation may be the only form of response available to him at this time.

The element /eyá/ has been cautiously translated here as "goes", although it may in fact not have this meaning for Gabriel. It seems to function as some sort of action morpheme in Gabriel's system and, when used with his gestural imitations, may be intended to signal to his hearer(s) that the imitation is a comment to be attended to. Wilma's use of this term, which she translated as meaning "Like that" or "It goes like that" are like an "Oh really" comment meant to keep the exchange with Gabriel alive.

(11) Session IV, 2;4(5), utt. 289

(Wilma and Gabriel are looking at pictures in a mail-order catalogue. Wilma points to a picture of a hair comb.)

W: Táktuk hu̯ + p + cé ye há? "What do they do?"

what do Pl. G. F. Q.

G: Gabriel pretends to comb his hair with his hand from his crown to his forehead.

W: Eyá ha? "Like that?"

--- Q.

(12) Session I, 2;4(0), utts. 333-336

(Wilma and Gabriel are looking at pictures of guitars in the catalogue.)

W: Iš táku ha? "What's this?"

it what Q.

G: Eyá. (no action) "Goes."

W: Eyá ha? "Like that?'

--- Q.

G: Eyá. "Goes."

W: Tókex ecú + ca há? "How is it used?"

how do G. Q.

G: Gabriel goes through the actions of playing a guitar, holding his hands close to his chest and wiggling his fingers.

W: Aké iyá. "Do it again."

again go

Tókex ecú + ca há? "How is it used?"

how do G. Q.

Dé dową́ + kta yé. "This will sing."

this sing P. F.

Dową́ + kta yé. "It will sing."

sing P. F.

G: Há. "yes."

yes

W: Tókex ahíya há? Décex? "How does it sing? Like this?"

how sing Q. like-this

(She points to more guitars.)

G: Eyá. "Goes."

B. Gestural imitations in spontaneous speech. The gestural imitations described in the preceding section, as responses to questions which elicited imitative responses, could be considered both expected and appropriate. The appearance of the gestural morphemes in more

spontaneous speech strengthens my case that these phenomena are in fact proto-words. The following examples show how Gabriel is able to comment on events he hasn't yet acquired the adult words for. His efforts are systematic in that he engages the potential audience and then makes his statement, using a combination of verbal and gestural elements, usually ending with the form /eyá/. These are instances of immediate imitation, occurring in the presence of their stimuli, but it is clear how they are symbolic representations while examples (7) and (8) are not. Here, the imitations are substituted for the events themselves in discussion of them.

(13) Session VII, 2;4(8), utts. 351-353

(Gabriel sees a baby on television clap its hands together.)

G:	Bibí yá?	"Baby?"
	baby F.	
W:	Hą́..	"Yes."
	yes	
G:	Ká bibí <u>he claps his hands together</u> eyá.	"That baby <u>claps</u>."
	that baby	
W:	Eyá ha?	"Like that?"
	--- Q.	
G:	Hą́.	"Yes."
	yes	
W:	Oh.	"Oh."
G:	<u>He claps his hands together again</u>.	

(14) Session III, 2;4(4), utts. 450-453

(Esther is showing Gabriel how to wave good-bye.)

E: Gábriel (+3) Wą́ka. "Gabriel. (+3) Look."

/wą́yáka/ = "look"

(Esther demonstrates waving action.)

G: Hey! (He turns to Wilma.) "Hey!"

He waves to her eyá. "Goes wave."

Ká. (He points to Esther.) "That."

that

W: Tókex hecú́ ha? "How did she do that?"

how that-do Q.

Tókex eyá + ci + ya há? "How do they say it?"

how say G. F. Q.

G: /babáj/. "Bye-bye."

"bye-bye"

(15) Session VII, 2;4(8), utts. 39-43

(Esther is playing with toys on the floor. She knocks some of them over.)

G: Ká /pá:já:/. (He gasps). Kó. "That fell down. That."

that fall (?) that

W: Táktuk hú́ ha? "What did she do?"

what do Q.

G: /ǽ2ú/ /cí/ he falls over on his side on the chesterfield eyá.

Andrew --- ---

"Andrew goes fall down." (or perhaps "Andrew goes causes-to-fall.")

W: Eyá ha? "Like that?"

--- Q.

G: Há. "Yes."

yes

(16) Session XVI, 2;9(0), utts. 88-95

(Gabriel watches a man on T.V. make a face, dropping his mouth open and widening his eyes in an exaggerated way.)

G: Hey! He imitates the face eyá. "Hey! Makes a face."

" ---

/mæ/ Gabriel makes face again. "Man makes face."

"man"

/net/! (He gets Marina's attention.) "Annette."

Annette

He makes face eyá. "Makes face."

He makes face. "Makes face."

/ændu/. (he shakes Esther's arm.) "Andrew!"

Andrew

(Esther looks at him.)

G: Gabriel makes face again eyá. Eyá. "Makes face. Makes face."

It appears that Gabriel has a rule for forming sentences using gestural morphemes, perhaps of the form:

$$\text{Sentence} \longrightarrow (\{^{ka}_{N}\})\underline{\text{Gestural imitation}}\ \text{/eyá/}$$

This sentence pattern provides Gabriel with a frame into which he can at some point substitute linguistic signs for the gestural morphemes he now uses. Note that, in example (14), he does exchange the word /babái/ for the imitation of waving bye-bye after Wilma elicits the word.

One more obvious point about the examples is that Gabriel does not

attempt to represent the shapes of objects, their size or location, but only their customary actions, underlining the sensorimotor nature of his knowledge of the world.

C. Two more cognitively complex uses of gestural morphemes. The next two examples show how extensive is Gabriel's strategy of using gestural imitations. The first example, (17), involves a gestural representation which cannot be imitative of an immediately present stimulus since the represented event did not take place. In fact, it could be an instance of prevarication. Gabriel reconstructs a cause he hasn't observed, given only the effect. In order to do this, he must first form a mental image of what might have happened, and, in the case of prevarication, deform that image in order to re-assemble the incorrect representation. He has been witness to the events preceding the effect, so it is plausible that he is being deliberately misleading.

(17) Session VI, 2;4(7), utts. 178-182

(Marina has brought her younger brother, Raymond, to Wilma's house, intending to leave him to play. When she leaves, however, he starts to cry, so she comes back to get him and they leave together.)

W: Táktuk hú ha? (to Gabriel) What's he doing?"

what do Q.

G: Ábu yá. "Sleep." (perhaps speculating on where Raymond has gone)

sleep F.

Dé /ǽndu/ he pretends to strike with his hand eyá kó.

this Andrew --- that

"Andrew hit this one."

W: Táktuk hú ha? "What did she do?"

what do Q.

G: /é/ he performs the same hitting action yáya.

--- goes

"Goes hit."

W: Oh eyá ha? "Oh, like that?"

" --- Q.

G: Há. "Yes."

yes

While in that example there is contextual support for others to interpret Gabriel's comments, the next example shows that, removed from the referent event, his reconstructions using these personal gestural symbols are not as successful. The limitations of the personal symbol, as opposed to the arbitrary and conventional linguistic sign, become apparent when Gabriel attempts to use his private gestural representation to relate an incident to his mother.

(18) Session I, 2;4(0), reported by Wilma after the session was over

(Gabriel and Esther and I had been playing a Sleeping Beauty game where one of us pretended to be asleep and was woken by another with a kiss on the cheek.)

When Wilma took Gabriel home, his mother was waiting on the front step. He secured her attention and said /net/, pointing to Wilma's house, which is next-door. Then he reached up and kissed his mother's cheek and said /eyá/, pointing to Wilma's house next door.

In order for his communication to be successful, it was necessary for Wilma to translate for Gabriel's mother what her shared experience with Gabriel that morning led her to interpret from his gestures and words. In fact, many children who use personal symbols in early speech, either verbal or gestural, are only comprehensible to their caretakers.

A corollary to this is that the length of time that personal symbols persist in the language system of a child may be a function of how far his social interactions extend beyond the immediate family.

D. Onomatopoeic imitations. In addition to the gestural morphemes, Gabriel has invented some onomatopoeic symbols based on sounds which are attached to objects and events in his environment. One such example is the morpheme /p̥u/, which accompanies his blowing out the match whenever Wilma lights a cigarette. In fact, Wilma has adopted this morpheme of his when she wants him to blow one out.

(19) Session II, 2;4(1), utts. 83-91

(Wilma lights a cigarette.)

G:	Héy! Ká. Ká. Ká. /p̥ú/ + ye.	"Hey. That. That. That. Blow."
	" that that that blow F.	
W:	Hey?	"Hey?"
G:	Ká /p̥ú/ + ya.	"That blow."
	that blow F.	
	Ká. Ká. Ká.	"That. That. That."
	that that that	
W:	/p̥ú/ iyé + kta?	"You'll blow it out?"
	blow go P.	
G:	Há.	"Yes."
	yes	

Another of Gabriel's onomatopoeic representations perhaps provides an example of how a personal symbol can eventually be replaced by a linguistic sign. Gabriel uses both an imitation of a horse neighing, phonetically of the shape /ʔʌʔʎm/, and the form /kóka/, derived from the adult Dakota word /šu̥ká/, to refer to his toy horses and to pictures of

horses. These two forms are used interchangeably throughout the sessions in a number of syntactic frames or as one-word utterances. In session XV, however, while playing with the boy animals, Gabriel uses /ʔʌʔʌ́m/ along with /kóka/ and then appears to "introduce" the English word /hors/ into his lexicon. He has certainly heard the English word in the speech around him, but Wilma was sure it was the first time she had heard him use it himself. The example has been edited in order to present the two following observations:

(a) the use of all three forms for the same referent

(b) the practising of the new form /horš/ in syntactic frames both of the old forms have been used in.

(2) Session XIV, 2;4(22), utts. 125-158

1. (Gabriel picks up one of the small toy horses; its tail is broken off.)

G:	Hey! /kóka/ bóya.	"Hey! Horse broken."
	" horse broken (?)	
W:	Hey?	"Hey?"
G:	Kóka bóya.	"Horse broken."
	horse broken	
W:	Šuką́?	"Horse?"
	horse	
G:	Hą́. Kóka bóya.	"Yes. Horse broken."
	yes horse broken	
W:	Šuką́ ixpáye há?	"Did the horse fall down?"
	horse fall Q.	
G:	Hą́. Kóka bóya.	"Yes. Horse broken."
	yes horse broken	

W: Hą́. Šuką́ ixpáye yé. "Yes. The horse fell down."

G: Hey! "Hey."

W: Hey? "Hey?"

G: Bápi. "Puppy."

"puppy"

W: /bápi/? "Puppy?"

"puppy"

G: /2ʌ2ám/. /2ʌ2ám/. /2ʌ2ám/. "Horse. Horse. Horse."

horse horse horse

(He picks up another toy horse.)

Héy. Héy. /hórš/ iyá. "Hey. Hey. Horse goes."

" " "horse" ---

2. (The following utterances have been removed from the surrounding dialogue, but represent spontaneous utterances using the new form /horš/ in old syntactic frames.)

G: Héy! /horš/ /babą́i/. "Hey. Horse bye-bye."

" "horse" "bye-bye"

/horš/ /ʤiʤíš/. "Horse monster.

"horse" /cici/ = monster

Héy /hórš/. "Hey horse."

" "horse"

Héy /hórš/ iyáya. "Hey horse goes."

" "horse" goes

Héy /horš/ /payá:/. "Hey horse broken."

" "horse" broken

Héy pótet /hórš/ iyá. "Hey two horses go."

" two "horse" ---

The new word /horš/ is brought into Gabriel's system through old structures in which its precursors have been used. It could be that other new adult forms will replace personal symbols according to this operating principle which has been observed in the speech systems of other children:

> Use old structures for practising new forms; use old forms for practising new structures.

Unfortunately, the data don't appear to include other examples, nor was there any reference to horses in the final session to test whether the two old forms had in fact been replaced.

CONCLUDING REMARKS

In this chapter I have attempted to view Gabriel's lexicon from both a semantic and semiological perspective. The first part focussed on word categories and semantic range in Gabriel's vocabulary, indicating tentatively that he is using perceptual features in order to overextend his lexical items. The second part discussed the emergence of linguistic signs from personal symbols, an approach which appears to account quite well for idiosyncratic phenomena in Gabriel's language system. These phenomena, gestural and onomatopoeic representations, match the descriptions given by Piaget of transitional behaviours between sensorimotor intelligence and sign-based or representational

intelligence; they thus appear to be precursors to linguistic signs. I have tried to show that these data provide quite convincing evidence that there is a connection between the child's early imitative behaviours and his eventual capacity to use linguistic signs as a speaker of an adult language.

CHAPTER SIX

CONCLUDING REMARKS

Semiology, pragmatics and semantics

This report has been shaped by the assumption that language acquisition involves the acquisition of semiological, pragmatic and semantic knowledge, all of which can be observed in the speech system of the child before he has developed any syntactic sophistication. This position implies that traditional syntax-based studies, beginning as late as the multi-morphemic stage and attempting to explain even the earliest morpheme combinations in purely syntactic terms, have missed a considerable range of linguistic and linguistic-related data from the child which more recent investigations are suggesting have explanatory power in an acquisition model. According to the broader view, language is first of all a symbolic system and the capacity to symbolize is a cognitive achievement, the basic steps of which take place during the first two years of life. Language is also an activity through which the child can realize a range of goals and potentials related to his ever-increasing involvement in the social meaning system; in other words, every occurrence of speech, with the possible exception of language practice, has functional meaning apart from the semantic content of the words and word combinations being used. Semantic knowledge, the ability to express referential and relational meaning through formal linguistic devices, derives in part from pragmatic development but also from basic cognitive developments, such as categorizing

and recognizing object permanence (± existence), agency, location, and the separation of self from environment. On the assumption that language is used to express meaning which is derived from such cognitive activities and which reflects the child's growing knowledge of the world, researchers are attempting to describe the development of formal linguistic devices in terms of semantic acquisition. For example, early syntax is seen as the expression of a set of universal basic semantic relations which it is claimed are cognitively available to the sensorimotor child; grammatical modulations indicate an awareness of finer distinctions which the child comes to realize can be expressed formally.

What I have briefly described here is a hierarchy of abstraction in the consideration of language. At the outside level, language is a system of symbols which, at the next level, are put to use to perform a number of different functions which, at the next more precise level, involve the expression of the contents of individual symbols or signs, their specific real world referents. It must also be assumed that the child is fully competent at none of these levels when he first begins to interact verbally and that semiological, pragmatic and semantic developments will be occurring simultaneously during the period of early language acquisition.

Semiological development

The ability to symbolize consists of substituting some form (a signifier) for some content (a signified, or mental image of a real world referent). The signifier-signified relationship is called a sign; signs range in complexity from the signal, which is almost like a reflex and

involves no mental representation (the baby's first cries are signals), to the linguistic sign, or word, which involves a mental representation and in which the signifier-signified relationship is unmotivated, arbitrary and, through collective agreement (by the speakers of a language), exact. Piaget says that the child's signing behaviour develops across this range, starting with the reflexive signal and finally reaching the status of linguistic signs (even though people continue to use a full range of different signs throughout their lives, in drawing, gesturing, acting, etc.). The implications of this position for the study of early child speech are clear. One cannot assume that the adult-shaped words a child is producing before he has started demonstrating representational behaviour are full linguistic signs. They are more likely to be symbols, in which the signifier is related in some necessary way to the signified; for the child, this could arise out of a word's association with a particular action schema of his. Until it has been established that the child is capable of representing, and Piaget says that this can be discovered through observation of the child's imitative and play behaviours toward the end of the sensorimotor period, his knowledge of language at the very basic level--the word--differs considerably from the adult's.

The data from Gabriel included a phenomenon which appears to support Piaget's theory of semiological genesis. While the motivated nature of the child's earliest adult-shaped words can only be inferred, Gabriel's use of onomatopoeic and gestural morphemes as words provides what I consider to be clear evidence of the symbolic precursors to linguistic signs. These forms bear a physical resemblance to their referents based either on activities they perform or display or on the

sounds they make, and Gabriel uses them in a range of verbal syntactic frames instead of their lexical equivalents (which I assume he doesn't yet have), thus expanding on an as yet limited vocabulary. It may be possible to suggest that idiosyncratic aspects of his syntax are related to the imperfect knowledge of the conventional nature of language the gestural and onomatopoeic representations reveal.

Pragmatic or functional development

One of the more important claims that Halliday (1975) makes is that language is used for many other purposes than the exchange of information, although it is this function which predominates in adult thinking about language. In fact, Halliday says that the Informative function is a sophisticated one, defined in purely language terms as the exchange of symbols for the purposes of transmitting and receiving information; and it is the latest to appear of seven basic functions. The child uses language to perform much the same functions as an adult: to regulate the behaviour of others, to get things, to interact socially, to express personal feelings, to discover things about the world and to develop and extend the imagination. These functions appear long before the child has acquired a lexicogrammatical structure which will enable him to encode functional meanings in the adult language; this indicates that functional meaning is independent to some extent from the acquisition of formal linguistic devices. All language use, however, is functional or pragmatic by definition. Halliday points out that the adult language is organized around functional components. The child, therefore, must be functionally fluent before he can acquire, say, interrogative or imperative structures.

Besides the lexicogrammatical structure, the adult language system incorporates a system for verbal interaction--the dialogue. The child's ability to answer information-seeking questions, and later to ask such questions, marks, according to Halliday, a potential for true dialogue participation. This development indicates his increasing involvement in the social semiotic and what will be the quickly growing influence of the collective adult language system on his personal language system.

An examination of Gabriel's language use shows that he has mastered the six basic functions and is starting to demonstrate some competence in relation to the giving and getting of information. His performance in discourse reveals that he has acquired a few primitive strategies for initiating and participating in verbal interactions. His principal initiating pattern is to engage an audience by means of the word "hey" accompanied by eye contact and sometimes pointing gestures to identify the focus of his interest. Participation revolves on three basic types of response. The first, answering a question or obeying a command, is the one he is least adept at; however, the general response form /ka/ and the maintaining response form "huh" or "hmmm" (with rising intonation) are used extensively and allow him to take part in a perfunctory way in many dialogue situations. Verbal interactions with him are actually loosely connected egocentric utterances tied together by adult interlocutors through extensive modelling and expansion.

Semantic development

The word and the word combination or sentence are the two major semantic units of a language. They express referential and relational or propositional meanings. According to several researchers (for

example, Bowerman, 1976; Clark, 1973; Nelson, 1973), the ability to categorize is entailed by the formation of word meanings. On the basis of his sensorimotor knowledge of the world, with its perceptual and functional components, the child categorizes objects and events and labels them, using his own personal symbols or adopted adult words. Whether he relies more on perceptual or functional features in this activity is still a matter of debate, although data apparently support the perceptual feature hypothesis. Categorization strategies are revealed, it is claimed, through child word use errors, errors such as overextension, where the child applies the word correctly to the class members but extends it to non-members which presumably resemble the class members in some way.

That the child's first two-morpheme utterances almost always express one of a small set of semantic relations is the position of Brown (1973). He arrived at this conclusion through a semantically-characterized 'rich' interpretation of the early syntactic structures of a number of child language samples from different languages. The prevalent relations which he proposes--agent and action, action and object, agent and object, action and locative, entity and locative, possessor and possession, entity and attribute and demonstrative and entity--and four 'operations of reference'--nomination, nonexistence, recurrence and reference to self or mother--can, he claims, be derived from sensorimotor concepts which are normally available to the child at the beginning of syntax. Interpreting two words occurring together as evidence of the child's underlying relational knowledge involves the assumption that the child both understands and wants to express those aspects of situations which tend to be obvious to, and thus taken for granted by, adults.

Some researchers (for example, Howe, 1976; Trân Duc Thao, 1973) feel, however, that this overestimates the child's semantic potential at the time of early speech. Howe suggests instead very general utterance categories based on what we can be much surer is within the child's cognition--the categories of name of object, state of object and action of object--all of which can be determined from the surface structure of the child's utterances. The occurrence of two words together could merely be the child's expression of his recognition of a simple juxtaposition, rather than of a semantic relation.

In the Brown-type analysis of Gabriel's multi-morphemic data, I found that a significantly lower percentage of his utterances expressed one of the relations proposed by Brown. That percentage consisted almost exclusively of the one relation--Demonstrative + Entity--which is a naming relation closely tied to the operation of reference, nomination. Brown suggests that the 'pivot look' of the early syntax of many children is caused by the frequency of the operations of reference in their speech at this time. Using this framework I was able to identify four 'presumptive pivots' in Gabriel's two-morpheme utterances, one of which, /ka/, accounted for almost one third of his total corpus. The predominance of this operation, and thus of the relation Demonstrative + Entity (through redefinition), may be explained as an effect of the interview nature of the first fifteen data sessions, although this isn't a strong argument in Gabriel's case. It may also indicate that naming is an important activity for this child, something he accomplishes through a simple syntactic pattern of /ka/ + Word. The low counts for the other relations could be due to hesitations I felt about assigning rather complex interpretations to still very deformed and ambiguous data.

Although Brown has defined his utterance categories semantically and tied them to sensorimotor cognitive achievements, it remains that they are essentially syntactic categories. Howe's more general classification accounts for almost 100% of Gabriel's multi-morphemic data, which, as she says, may not say much about the meanings a child at the point of early syntax has, but it says all we can confidently say about semantic meaning at this stage of knowledge.

Final comment

The intention of this report was to characterize according to three levels of linguistic analysis the meaning development of one child who, because he is acquiring a language other than English that has not been reported on before in terms of acquisition, offers an interesting case for comparison of cross-linguistic similar developments.

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APPENDIX I

Excerpts from data sessions I and VII

Session I, 2;4(0), utts. 1-43

W: Iyúteka! "Sit down!"
sit down
(I point to a picture of a little boy in the catalogue.)
A: Hokšína wąží? "Is that a boy?"
boy one
W: De táku he dé? Héy? "What's this? Hey?"
this what Q. this "
(She lights a cigarette.)
Kúna /pú/ + yekte yé. "Hurry, blow this out."
hurry blow go P. F.
Aké. /pú/ iyá. "Again. Go blow."
again blow go
Kúna. "Hurry."
hurry
G: /pú/. (He blows.) "Blow."
blow
A: Ah, waštéé. "Ah, good."
" good
W: --- "----."
Icú! Duksé + kte há? "Get it. Did you break it?"
get you-break P. Q.
Tuwé yuksá ha? "Who broke it?"
who break Q.
A: He takú ha? "What's that?"
that what Q.
(Wilma points to a page of shoes in the catalogue.)
W: Déna táku ha? Héy? "What are these?"
these what Q.
G: Hmmm? "Hmmm?"
W: Déna táku ha? "What are these?"
these what Q.
He táku ha? Táku ha? "What's that? What is it?"
that what Q. what Q.
He táku ha? Déna táku ha? "What's that? What are these?"
that what Q. these what Q.
G: Hąpa. "Shoes."
shoes
W: Hąpa? "Shoes?"
shoes
G: Héy. "Hey."
W: Héy? "Hey?"
G: Hąpa + ye. "Shoes."
shoes F.

W: Hą́pa? "Shoes?"
shoes
De íš to? Táku ha? "What about this? What is it?"
this it -- what Q.
G: /hą́:pa/ + yé. "Shoes."
shoes F.
W: Tókex? "How's that?'
how
G: /hą́:pa/ + yá. "Shoes."
shoes F.
W: /hą́:pa/ + yá ha? "Shoes?"
shoes F. Q.
G: Hą́. "Yes."
yes
W: Diš táku ha? "What's this?"
(dé+íš)
this what Q.
G: Ka eží. /xa/. "That one. That."
(wąží) (ka)
that one that
W: Táku ha? De táku ha, Eśther? "What is it? What's this, Esther?"
what Q. this what Q.
(Esther is looking at pictures of women in the catalogue.)
E: Wíyą. "Women."
W: Wíyą? Hą́. "Women? Yes."
women Q.
/dé:/. He táku ha? "This. What's that?"
this that what Q.
(Wilma points to a picture of a sleeping baby.)
G: /babáya/. "Baby."
baby F.
W: Hey? "Hey?"
G: /babáya/. "Baby."
baby F.
W: Oh. Ábu + yé ha? "Is it sleeping?'
" sleep F. Q.
G: Húh? "Huh?"
W: De ábu + ye. "Is this one sleeping?"
this sleep F.
Táktuk hú ha? /dé:/. "What is it doing? This one."
what do Q. this
G: Húh? "Huh?"
W: /dé:/. "This."
G: Ka ábu + ye. Ká. "That sleeping. That."
that sleep F. that
W: Héy? Táktuk hú ha? "Hey? What is it doing?"
" what do Q.
G: Ká. Cicí. "That. Monster."
that monster
W: Hiyá. Cicí + šni + yé. "No. It's not a monster."
no monster N. F.
Táku ha? Táku? "What is it? What?"
what Q. what

(Gabriel points to another baby in the catalogue.)

G: Ka /beíbi/ + ya. "That baby."
that "baby" F.

W: /beíbi/ he? "Is it a baby?"
"baby" Q.

G: Há. "Yes."
yes

W: Há. "Yes."
yes

G: Ka babí + ya. "That baby."
that "baby" F.

W: De íš to. He túwa ha? "What about this? Who's that?"
this it -- that who Q.

G: Hápa + ya. Ká. "Shoes. That."
shoes F. that

W: Hmmm? "Hmmm?"

G: Ka hápa + ye. "That shoes."
that shoes F.

W: Há. "Yes."
yes

(Wilma points to some clothes.)

De táku ha? "What's this?
this what Q.

G: Cicí. "Monster."
monster

W: Mą dé cicí. De íš to. "Look at this monster. What about this?"
wow this monster this it --

G: Ka hápa ye. "That shoes."
that shoes F.

W: Hápa + yá ha? "Shoes?"
shoes F. Q.

G: Há. "Yes."
yes

W: Tuktéd ų + p + cé he? "Where do they wear them?"
where use Pl. G. Q.

G: Húh? "Huh?"

W: Tuktéd ų + p + cé he? "Where do they wear them?"
where use Pl. G. Q.

G: Húh? "Huh?"

W: Tuktéd ų + p + cé he? "Where do they wear them?
where use Pl. G. Q.

G: Húh? "Huh?"

W: Tuktéd iyé ų + p + cé he dená?
where it use Pl. G. Q. these
"Where do they wear these?"

G: Húh? "Huh?"

W: /dé:/. "This."

G: Húh? "Huh?"

W: Tokecá ehá? "How do you say it?"
(why)
how say

G: Ká /há:pa/ + ye. "That shoes."
that shoes F.
Ká babáye. Ká. "That baby. That."
that baby F. that
W: Hiyá. "No."
no
G: Hmmm. "Yes."
(hą)
yes
W: Híš táku ha? "What's that one?"
(he+íš)
that what Q.
G: Húh? "Huh?"
W: He táku ha? "What's that?"
that what Q.
G: Ká babí ya. "That baby."
that "baby" F.
W: Ká /bé̩jbi/ ha? "Is that a baby?"
that "baby" Q.
G: Há. "Yes."
yes
W: De íš to? "What about this?"
this it --
G: Hiyá ká eží. "No that one." (?)
no that one
W: Húh? "Huh?"
G: Ží. "One."
(wąží)
one
W: Iyúžda ǫ́ duksé + kta há? "Are you going to cut with scissors?"
scissors use you-cut P. Q.
Wąží duksé + kta há? "Are you going to cut one?"
one you-cut P. Q.
G: Há. "Yes."
yes
(Gabriel and Esther are now playing with scissors and construction paper.)
W: Ihú. Yuksá. "O.K. Cut."
O.K. cut
Decéx iyá. "Cut this way."
like-this go
Déċex yuksá. "Cut like this."
like-this cut
Déd iyúžda yuksá. "Cut with the scissors here."
here scissors cut
(Wilma points to a baby in the catalogue.)
He táku ha? Héy? He táku ha?
that what Q. " that what Q.
"What's that? Hey? What's that?"
G: /bé̩jbi/. "Baby."
"baby"

W: /bə́ibi/ ? Oh. "Baby? Oh."
baby
He táktuk u + yáka há? "What's that ----?"
that what use ---- Q.
Máku géd ú he? "Does he wear it on his chest?"
chest there use Q.
Duksá + yá + kihí + šni há? Héy? "Can't you cut it?"
you-cut you able-to N. Q. "
Duksé + kte há? "Are you going to cut?"
you-cut P. Q.
G: Há. "Yes."
yes

Session I, 2;4(0), utts. 81-106

W: Wą́ka + dé. He táku ha? (+2) "Look at this. What's that? (+2)"
(wą́yáka)
look this that what Q.
G: Ka ppṕp yo. "That pppp."
(motor noise)
that ---- F.
(Gabriel is looking at toys in the catalogue.)
W: Héy? "Hey?"
G: Há. "Yes."
yes
W: Tókex eyá + ce há? "How does it talk?"
how talk G. Q.
G: Pppṕ + ya. "Pppp."
---- F.
W: Eyá ha? "Like that?"

Tókex eyá + ce ha? "How does it talk?"
how talk G. Q.
G: Pótet ppṕp. "Two pppp."
two ----
W: Eyá + ca he? Izúmiya há? "Is it like that? Does it go zoom?"
talk G. Q. go-zoom Q.
G: Pótet pṕpp eyé. "Two pppp."
two ---- F.
W: Eyá ha? Ohñh. "Like that? Ohhh."
--- Q. "
G: Héy. Go pótet pṕpp ya ká. "Hey. That two pppp. That."
(ka)
" that two ---- F. that
W: Wakáṅ iyáye + kte? "Is it going to go up?"
up-there go P.
G: Há. "Yes."
yes

W:	/ká:ki/ iyáye + kte?	"Is it going to go over there?"
	over-there go P.	
G:	Húh?	"Huh?"
W:	Tókex iyá + ce he?	"How does it go?"
	how go G. Q.	
	Pótet e tókex iyá + ce he?	"How do those two go?"[1]
	two - how go G. Q.	
G:	Pótet pṕṕp ya.	"Two pppp."
	two ---- F.	
W:	Eyá ha?	"Like that?"
	--- Q.	
G:	Hą́.	"Yes."
	yes	
W:	Oh.	"Oh."
G:	Eyá! Eyá!	"Go! Go!"
	--- ---	
W:	Hey?	"Hey?"
G:	Ke pótet pṕṕp ya.	"That two pppp."
	that two ---- F.	
W:	Pótet pṕṕp a ha?	"Those two go pppp?"
	two ---- - Q.	
G:	Hą́.	"Yes."
	yes	
W:	Dé nakǫ́ wąžį́ iyáye + kte ye.	"Another one is going to go."
	this another one go P. F.	
G:	Hmmm?	"Hmmm?"
	Ka /žyážya/. Ka pṕṕp gó.	"That go. That pppp go."
	(iyaye)	
	that go that ---- "go"	
W:	(gasps) Iyáye + kte?	"Is it going to go?"
	to P.	
G:	Iyáyá.	"Goes."
	go	
W:	Hą́.	"Yes."
	yes	
G:	Hey. Pótet pṕṕp iyáya.	"Hey. Two pppp go."
	" two ---- go	
W:	Hą́.	"Yes."
	yes	
G:	Ka yáya.	"That goes."
	that go	
W:	Iyáya? Hmmm?	"It goes? Hmmm?"
	go	

---

[1]Gabriel has invented the word /pótet/ which he uses in reference to pairs of objects. In this case he is referring to (and Wilma is conforming) a toy airplane. He often uses /pótet/ when the referent appears to be airplanes; one possible reason for this is that his house is near an air force cadet training camp where cadets are given glider training. Most of the time he sees airplanes, then, is in pairs, with the glider being towed.

G: Há. "Yes."
yes
W: Aké wąží /oyá/ dekte. "Look at another one." (?)
again one --- --P.
De íš to. "What about this?"
this it --
G: Huh? "Huh?"

Session I, 2;4(0), utts. 187-198

G: Wáwá. "Hurt."
(wewe)
hurt
W: Hey? "Hey?"
G: Ka wáwa. (He points to mosquito
that hurt bites.) "That hurt."
W: Wéwe he? "Does it hurt?"
hurt Q.
G: Há. "Yes."
yes
W: Pazó to. "Show me."
show --
He táktuk hanú ha? "What are you doing?"
that what you-do Q.
G: Wáwa. "Hurt."
hurt
W: Wéwe ha? "Hurt?"
hurt Q.
G: Há. "Yes."
yes
W: Ohhh. "Ohhh."
/ní:na/ ni + yázą ha? "Does it hurt you a lot?"
much you hurt Q.
G: Há. "Yes."
yes
W: Ohhh. "Ohhh."
(Wilma indicates the tape recorder.)
W: He tókecá ha? "What's that for?"
that why Q.
G: Hey ká. Ká. Ží. Ka ží ya. "Hey that. That. One. That one."
(wazi) (wazi)
" that that one that one F.
W: Táktuk hú ha? "What does it do?"
what do Q.
G: Ká. "That."
that
W: Tókex eyá ha? "How does it talk?"
how talk Q.
G: /š:/ eyá. "It goes 'shhhh'."
"shh" --

Session I, 2;4(0), utts. 222-227

W: Waxpé detką iš mní detką he? "Did you drink tea or water?"
tea you-drink or water you-drink
Q.

G: Hą. "Yes."
yes

W: Táku? "What?"
what

G: /pé/. "Tea."
(waxpé)
tea

W: Waxpé? "Tea?"
tea

G: Hą. "Yes."
yes

W: Ohhh. "Ohhh."

G: /epé/ + ya. "Tea."
(waxpé)
tea F.

W: /pé/ ha? "Tea?"
(waxpé)
tea Q.

G: Hą. "Yes."
yes

W: Ohhh. "Ohhh."

Session I, 2;4(0), utts. 309-330

G: Héy. (+4) "Hey. Hey. Hey. Hey."
Póya. (I've cut a piece of paper.) "Fall-break."
fall-break

W: Ixpáye ha? "Did it fall?"
fall Q.

G: Hą. "Yes."
yes

W: Oh. Páye ha? (Imitating "Oh, did it fall?"
(ixpáye) Gabriel.)
" fall Q.

G: Hą. "Yes."
yes

(Gabriel squeals.)

Káya. "Fall."
(imit. of ixpáye?)
fall

(Wilma suggests that he draw a cow on the paper.)

W: Wąkadé /mumú/ ówa + kąya ye. "Look. Draw a cow."
(wąyáka+de)
look "moomoo" write make F.

G: /mimí/ + ya. "Water."
(mní)
water F.
A: Mní ya? "Water?"
water F.
G: Há. /mimí/ + ya. "Yes. Water."
(mní)
yes water F.
W: Mní datká ha? "Did you drink water?"
water you-drink Q.
(Esther has asked for a drink of water and is now drinking it.)
G: /mimí/ + ya. "Water."
(mní)
water F.
W: /mimí/ + ya? (Imitating Gabriel) "Water?"
(mní)
water F.
G: Ándrew /mimí/ + ye. "Andrew water."
(mní)
" water F.
W: Ándrew /mimí/ + ya he? "Andrew (has) water?"
(mní)
" water F. Q.
G: Há. "Yes."
yes
W: Ohhh. "Ohhh."
G: Héy. Dá. /ci/. "Hey. This. Monster."
(de) °°(cicí)
" this monster
W: Níža mní + ya hé? "Did you (have) some water?"
you water F. Q.
G: Há. "Yes."
yes
He /mimí/ + ya. "That water."
(mní)
that water F.
Ándu /mimí/ + ya. "Andrew water."
(mní)
Andrew water F.
W: Gábriel nakú mní + ya ha? "Did Gabriel have water too?"
" also water F. Q.
G: Héy? "Hey?"
W: Gábriel nakú mní + ya ha? "Did Gabriel have water too?"
" also water F. Q.
G: Ándrew /mimí/ + ya. "Andrew water."
(mní)
" water F.

Session VII, 2;4(8), utts. 119-123
(Gabriel stalls the tape on the tape recorder.)

G: Ka bó. "That broken."
that broken
Ka /mə́jn/. (To Esther.) "That mine."
that "mine"
E: Ábu. Gáble cícə́. "Sleep. Gabriel bad?"
(šícé)
sleep Gabriel bad
G: Ándu cíca. "Andrew bad."
(šícé)
Andrew bad
E: Gáble cicá. "Gabriel bad."
Gabriel bad
G: ÁNDU DÍDA! "Andrew bad."
(šíce)
Andrew bad
E: GÁBLE CÍCA! "Gabriel bad."
Gabriel bad
G: Ándu. "Andrew."
Andrew

Session VII, 2;4(8), utts. 179-188

W: Táktuk hanú ha? "What are you doing?"
what you-do Q.
(Gabriel is at the living room door looking out into the hallway. Annette has just left the room.)
G: Nét lála. "Annette candy."
Annette candy
W: Héy? "Hey?"
G: Nét yáya. "Annette go."
Annette go
W: Annétte iyáya? "Did Annette go?"
" go
G: Nét ká + ya. "Annette there."
Annette there F.
W: Tóki? "Where?"
where
G: Nét ká + ya. "Annette there."
Annette there F.
W: Tóki? "Where?"
where
G: Nét ká + ya. (+4) "Annette there."
Annette there F.
W: Yúze + šní. "Don't touch."
touch N.
G: Nét ká + ya. Nét. "Annette there. Annette."
Annette there F. Annette

W: Hiyú. Hiyú. (Gabriel steps out of the room) "Come here. Come here."
come-here come-here
G: Nét ká + ya? "Annette there?"
Annette there F.
W: Hiyú. "Come here."
come-here
G: Kákekakó? "There?"
(kákiya)
there
W: Héy? "Hey?"
G: Nét kó + ya? "Annette there?"
Annette there F.
W: Hiyá. "No."
no
G: /kakájya/ Nét. "Annette over there."
(kákiya)
over there Annette
W: Hą́. "Yes."
yes
G: Nét ká. "Annette there."
Annette there
W: Annétte iyá. Annétte ábu + ya. "Annette went away. Annette's
" go " sleep F. sleeping."
G: Nét ábu + ya? "Annette sleeping?"
Annette sleep F.
W: Hą́. Akąn ábu + ye.. "Yes. She's sleeping up there."
yes up sleep F.
G: Nét káya? "Annette there?"
Annette there F.
W: Hą́. "Yes."
yes
G: Nét ka + yá? "Annette there?"
Annette there F.
W: Hą́. "Yes."
yes
G: Nét ka + yá. Nét ka + YÁ! "Annette there. Annette there."
Annette there F. Annette there F.
W: Hey? "Hey?"
G. Nétš ka + yá? "Annette there."
Annette there F.

Session VII, 2;4(8), utts. 213-224

(Gabriel hits his head accidentally against the wall.)
G: Ańdu /gá/! (he gasps.) "Andrew that."
Andrew that
E: Gáble. "Gabriel."
Gabriel
G: Ańdu wéwe + ya. "Andrew hurt."
Andrew hurt F.

(Gabriel points to his head and goes to Wilma. He is attempting to blame Esther.)

G: Wéwe. "Hurt."
hurt
Ká wéwe. "That hurt."
that hurt
A: Gábriel. "Gabriel."
G: Ka wá. "That hurt."
that hurt
W: Héy? "Hey?"
G: Ka wá. "That hurt."
W: Wéwe ha? "Hurt?"
hurt Q.
Táktuk hanó ha? "What are you doing?"
what you-do Q.
G: Ańdu wéwe + wa. "Andrew hurt."
(ye)
Andrew hurt F.
W: Héy? "Hey?"
G: Ańdu wéwe + ya. "Andrew hurt."
Andrew hurt F.
W: Ibóto ha? "Did it bump?"
bump Q.
G: Há. "Yes."
yes
W: Tuktéd? Héy? "Where? Hey?"
where "
G: /bubú:/ bú + ya. "Boom-boom." (?)
"boom" ("bóom" iyá = it went boom)
W: Ixpáye ha? "Did it fall?"
fall Q.
G: Ańdu /am:í/. "Andrew --- me."
Andrew -- "me"
W: De táku he dé? (She tries to change subject.)
this what that this "What's this?"
G: Ka /bó:/. "That boom." (or bump)
that "boom" (or = ibóto, 'bump')

Session VII, 2;4(8), utts. 271-279

(Gabriel goes to the front door.)

E: "Býe" Gabriel. "Good-bye Gabriel."
G: "Býe." (+3) "Good-bye." (+3)
W: Tukidá ha? "Where are you going?"
where-go Q.
G: Máma /babáya/. "Mama bye-bye."
" "bye-bye" F.
W: Hiyá ináxa + šne. "No. Don't ---."
(šni+ye)
no --- N. F.

(Gabriel wants to go home.)

G:	Héy. Henána.	"Hey. That's all."
	" that all (no more)	
	Ká. /babáj/.	"That. Bye-bye."
	that "bye-bye"	

Session VII, 2;4(8), utts. 484-498

(Gabriel is playing with the boy animals.)

W:	Tukté /mumú/ ge: á he?	"Where is that cow?"
	where "moomoo" that is Q.	
G:	Hey?	"Hey?"
W:	Tukté /mumú/ ge á ha?	"Where is that cow?"
	where moomoo that is F.	
G:	/ʔʌʔʌ́m/ eyá.	"Goes /ʔʌʔʌ́m/."
	(neigh) ---	
W:	Tókex eyá ha?	"How does it talk?"
	how --- Q.	
G:	Héy?	"Hey?"
W:	Tókex eyá ha?	"How does it talk?"
	how --- Q.	
G:	/ʔʌʔʌ́m/ eyá.	"Goes /ʔʌʔʌ́m/."
	(neigh) ---	
	Ka /ʔʌʔʌ́m/ eyá.	"That goes /ʔʌʔʌ́m/."
	that (neigh) ---	
W:	/ʔʌʔʌ́m/ eyá ha?	"Does it say /ʔʌʔʌ́m/?"
	(neigh) --- Q.	
G:	Hmmḿ.	"Yes."
	(hą́)	
	yes	
W:	Tuktéš /mumú/ ge á ha?	"Where's that cow?"
	(tukté+is)	
	where it moomoo that is Q.	
	Tukté /mumú/?	"Where's the cow?"
G:	Húh?	"Huh?"
	Ka /ʔʌʔʌ́m/ eyá.	"That goes /ʔʌʔʌ́m/."
	that (neigh) ---	
W:	Eyá ha?	"Like that?"
	--- Q.	
G:	Ka /ʔʌʔʌ́m/ eyá.	"That goes /ʔʌʔʌ́m/."
	that (neigh) ---	
W:	Eyá ha?	"Like that?"
	--- Q.	
E:	Ná Wílman.	"Here Wilma."
	here Wilma	
G:	Héy. Ká /ʔʌʔʌ́m/ eyá.	"Hey. That goes /ʔʌʔʌ́m/."
	" that (neigh) ----	
E:	/hǎúsa/ /haúsa/ /líša/.	"Husha-husha Licia."
	"husha" "husha" Licia	

G: Hiyú ----. "Come here ---."
come-here
Lo: Hiyá. Ná. "No. Here."
no here
W: Hécu + ni Gábriel. "Don't do that, Gabriel."
(šni)
that do N. "
Wéwe + kte ya. "You'll get hurt."
hurt P. F.
G: Hé ká. Ká. "That that. That."
that that that
/ʔʌʔʌ́m/ eyá. "Goes /ʔʌʔʌ́m/."
(neigh) ---
W: /ʔʌʔʌ́m/ eyá ha? "Does it go /ʔʌʔʌ́m/?"
(neigh) --- Q.
Lo. "Boó. Boó." "Boo. Boo."
(Lorraine brushes her hair forward over her face and crawls on her hands and knees pretending to be a monster.)
E: /mídʒa/, /mídʒa/. (Wants Lorraine to carry her on her back.)
(míže) (míže) "Me. Me."
me me
/mídʒa/ Gwen. "Me, Gwen."
(míže)
me
Hiyú. "Come here."
come here
W: Íya ú + šni. "Don't run."
run do N.
"Don't chase them around." "Don't chase them around."
G: Héy. Annétte /mumú/ ayá. "Hey. Annette goes moo-moo."
" " moo-moo ---
W: Annétte "móoo" ayá ha? "Did Annette say "Moo"?"
" " --- Q.

APPENDIX II

Braine-type chart of multi-morphemic utterances in session III

	Types	Tokens
Two morphemes		
1.	ka Ándy	500
2.	ka bóya	369
3.	ka cicí	357, 540
4.	ka eyá	169
5.	ka kóka	459, 460
6.	ka mimí	281, 286, 291, 486, 489
7.	ka "míne"	226
8.	ka "moo-móo"	5, 6
9.	ka Nét	294
10.	ka /ó/ (=homní)	553, 554
11.	ka hą́pa	174
12.	ka /pá?a/ (=wapáha)	406, 407, 408
13.	ka "púppy"	133, 135, 137, 141
14.	ka waxpé	522, 524
15.	ayá ya	395
16.	bibí ye (="baby")	148
17.	/bó/ ye (="ball")	157
18.	cicí ye	67, 102, 103, 231
19.	cí ye (=cį́)	210
20.	/?ʌ?ʌ́m̀/ ye	106
21.	/ká/ ye (="car")	516
22.	"moo-móo" ye	211, 230, 545
23.	mimí ye	300
24.	henána ye	64
25.	héy bí	331
26.	héy eyá	184
27.	héy héy	534
28.	héy hiyú	379, 449
29.	héy ká	187, 376, 551, 44
30.	héy Nét	275, 532, 538
31.	héy "púppy"	397, 398
32.	héy wą́ží	65
33.	/bám/ eyá (="boom")	415
34.	Dóńna eyá	389
35.	"hellό" eyá	94, 95
36.	/mː:/ eyá	544
37.	/?ʌ?ʌ́m/ babába (="bye-bye")	380
38.	/?ʌ?ʌ́m/ eyá	224, 232, 233, 363
39.	/?ʌ?ʌ́m/ ká	3

40.	Ańdrew "bye-bý́e"	262, 263
41.	Ańdrew iyáye	269
42.	Ańdrew "míne"	240
43.	Ańdy iyáye	266, 267, 268
44.	pótet eyá	28
45.	pótet í	124, 317
46.	cicí ká	320
47.	eyá ká	472
48.	Nét kóko (=kákiya ?)	271
49.	Nét iyáye	270, 277
50.	Nét "míne"	351
51.	"bád bóy"	53, 481, 548, 549
52.	hiyú kayé	70
53.	kʉ́ka /iyáp/ (=šʉ́ká "hurry up")	529

Three morphemes

54.	ka "báby" ye	151
55.	ka "bírdie" ye	359, 360
56.	ka cicí ye	68
57.	ka /ʔʌʔʌ́m/ "moo-móo"	229
58.	ka iyé Ańdy	498
59.	hey ká "púppy"	527
60.	hey ká /ʔʌʔʌ́m/	100
61.	hey Ańdrew payé	302
62.	hey cicí yaká	319
63.	héy "moo-móo" ye	311
64.	héy pótet yé	125
65.	Nét "bye-bý́e" ye	99, 200
66.	Nét "boóm" eyá	416
67.	Nét "míne" eyé	147
68.	Ańdrew "bye-bý́e" ya	264
69.	Dónna "bye-bý́e" ya	78
70.	Ańdrew "míne" eye	91
71.	"bye-bý́e" ya ká	274
72.	káka kóka cí	546

Four morphemes

73.	ká Nét mamí ya (=mní)	492
74.	Net Wóma "bye-býe" ya (=Wilma)	198

Unintelligibles

75.	hey Nét _____ lála	424
76.	ká x x x ká	276
77.	k$^{\text{ʔ}}_{\text{ooo}}$a k$^{\text{ʔ}}_{\text{ooo}}$a	474
78.	kókaya (ixpáye ?)	128