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The Acquisition of K'iche' Maya*

Kate q'ut xkikoh pa tzih utzakik,
   Ubitik
Qanabe chuch,
   Qahav.
Xa q'ana hal,
   Zaqi hal utiyohil.
Xa 'echa raqan,
   Uq'ab vinaq.

And so then they put into words the creation,
   The shaping
Of our first mother
   And father.
Only yellow corn
   And white corn were their bodies.
Only food were the legs,
   And arms of man.
- Popol Vuh

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My goal in writing this chapter is to present as much of the K'iche' acquisition data as possible in a form that is accessible to other researchers.[1] In the present state of the art in cross-linguistic studies of language acquisition, it is essential to develop precise modes of data presentation. All too often, cross-linguistic comparisons of language acquisition rest on a few utterances from children presented in anecdotal fashion. This makes it virtually impossible to test theoretical predictions about the course or pace of language development. Our field can only advance if we have precise descriptions of what is out there. As the traditional book of the K'iche' (the Popol Vuh) states, our world only began after the gods put their creation into words. This chapter is my attempt to put into words some of my findings on the acquisition of K'iche'.

Descriptions of the frequency of morpheme use over time provide a particularly valuable contribution to the cross-linguistic database. Unfortunately, quantitative analyses take a considerable amount of time to perform. An individual cannot hope to achieve the level of thoroughness that hundreds of researchers have provided for English. Undoubtably many issues remain to be addressed, but I think I have succeeded in documenting some of the basic features in the acquisition of K'iche'. I point out some implications of the K'iche' data for acquisition theory in passing, but have not made this a central focus for this chapter. Here and there I point to other publications which discuss the theoretical implications in more detail.

I have been as interested in documenting the acquisition of the many distinctive features of K'iche' as trying to compare the acquisition of specific features in K'iche' with those in English. The enormous differences between K'iche' and English in both structure and function (not to mention the environments in which children learn the two languages) make any direct comparisons highly suspect. Nevertheless, analyses of the development of K'iche' should significantly alter current theories about children's capacity for language acquisition. Any theory that hopes to achieve explanatory adequacy will have to account for the developmental differences evident in the process of acquiring languages as different as English and K'iche'. Theoretical accounts of language acquisition which address the distinctive features of both languages will provide a more realistic assessment of children's capacity for language learning in general.

The research that currently exists on the structure of the Mayan languages and particularly on K'iche' has made my work considerably easier. James Mondloch has written a number of significant books and articles on K'iche' grammar and culture (especially Mondloch 1978 and 1981). Thomas Larsen had just finished his dissertation on K'iche' grammar when I began writing this article (Larsen 1988). Terrence Kaufman (ms.) and William Norman (1976) have also contributed important observations about the structure of K'iche'. In addition linguists associated with the Proyecto Lingüístico Francisco Marroquín have published an enormous number of books and articles on various aspects of K'iche' and other Mayan languages (cf. Du Bois 1987, Craig 1977, England 1983, Dayley 1981 and 1985, Smith-Stark 1978, etc.). Their work has enabled me to investigate extremely subtle aspects of the acquisition of a Mayan language.

I have organized my presentation of the K'iche' acquisition data around several major aspects of the language. The next section provides a brief overview of K'iche' grammar. The following section discusses the cultural context of my work on K'iche' and describes the database I used in writing this article. The succeeding sections present data on lexical, phonological, morphological and syntactic development in K'iche'. I have provided example utterances from the children to illustrate the issues discussed in each

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[1]K'iche' (formerly written as Quiché) underwent a name change as a result of the Guatemalan Government Decree No. 1046-87 of November 23, 1987 regularizing the Mayan orthographies.

section as well as a quantitative summary of the development of each feature over time.

Brief Sketch of K'iche' Grammar

This section will provide a brief introduction to the K'iche' language with special emphasis on those aspects which figure in the description of K'iche' acquisition below. I have drawn heavily upon Terrence Kaufman's (1977) sketch of the structural characteristics of the Mayan Languages in this section, although I cite more specific references where they are relevant.

Phonology

K'iche' belongs to the Eastern group of Mayan languages and is part of the Greater K'ichean group of languages (together with Cakchiquel, Sacapultec, Sipacapa and Tzutujil). Currently, there are roughly a million speakers of K'iche' living primarily in the western highland region of Guatemala (Larsen 1988). I will use the orthographic system developed by the Proyecto Lingüístico Francisco Marroquín to represent the sounds of K'iche'. The K'iche' consonants and vowels are shown in (1).

(1) K'iche' Phonological Inventory

Consonants						Vowels	
p	t	tz	ch	k	q	i, i:	u, u:
b'	t'	tz'	ch'	k'	q'	'	
m	n					e, e:	o, o:
	s		x		j	h	
	l	r				a, a:	
w			y				

The symbols have values close to the IPA set except for the following: tz = /ts/, ch = /tʃ/, ' = /ʔ/, b' = /b/, x = /ʃ/, j = /x/. The sound /h/ only occurs in word-final position. There are a few important morphophonemic rules which affect the vowels. When morphemes that end and begin with vowels occur next to one another in a phonological phrase the vowels may contract. Thus, the phrase *le: a-wa:ch* (the your-face) is realized as *la:wa:ch* (cf. Norman 1976). An underlying long vowel becomes short in non-final syllables. The long vowels which appear in non-final syllables derive from an underlying //VhC// or the contraction of two adajacent vowels. Various K'iche' dialects have lost the length distinction in final vowels. The Zunil dialect that I worked on appears to rely on tone, rather than vowel length (Larsen, pc). The consonants /r l w y/ are devoiced in word-final position and before consonants.

Primary stress falls on the rightmost vowel of a word if that vowel is long or is followed by a consonant. Otherwise primary stress is placed on the penultimate vowel (Norman 1976). Particle forms consisting of a consonant and a short vowel are unstressed. See Larsen (1988) for further details on K'iche' phonology.

Lexical Classes

Inflectional stems in K'iche' belong to one of the following classes: noun, adjective, transitive verb, intransitive verb, positional, and particle. Particles are not inflected, but the other lexical classes have their own characteristic set of inflections. Each stem class contains both root forms of that class as well as forms derived from other stem classes.

Nouns

Nouns take a prefix to indicate possession. The prefix agrees in number and person with the possessor. This allows the possessor to be deleted if it is a pronoun. There is a basic division between nouns depending on whether they require an absolute suffix when they are not possessed. Nouns that do require such a suffix are similar to the class of nouns which involve inalienable possession in other languages (e.g. body parts, kin terms and intimate possessions). K'iche' speakers may refer to such items without indicating a possessor, but must add the absolute suffix, e.g. *wi'-a:j* 'hair-ABS'. Without this suffix possession is obligatory. The following examples of NP possession will give some idea of this construction: *nu-wi:'* 'my-hair', *le: w-u:q in* 'the my-skirt me' (= my skirt), *in-ta:t* 'my-father'. The possessive prefixes are shown in (2).

(2) Possessive prefixes in K'iche'[2]

Person	Prevocalic	Preconsonantal
1	w-	nu-/in-
2	aw-	a-
3	r-	u-

Relational Nouns

One important subclass of nouns are the 'relational nouns'. These stems are similar to nouns in that they take possessive prefixes. However the relational nouns indicate a relation of some sort-either the case relation of an oblique noun phrase (including reflexives), or the location of a noun phrase. Location is fixed with respect to a metaphorical extension of the human body (cf. MacLaury 1989 for discussion of a similar system in Zapotec). The relational noun agrees in person with the head of the NP that it relates to the verb. Agreement is indicated by a possessive prefix on the relational noun, which permit nonemphatic pronouns to be deleted. Examples of relational NP's include: *w-u:k' in* 'with me' (literally 'my-r.n. me'), *chi-u:-pa:m le: kaxa'* 'in the chest (lit. 'at-his-stomach the chest'), and *pa-u:-wi: le: juyub'* 'on top of the mountain' (lit. 'on-his-hair the mountain').

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[2]I have also used the following morphological abbreviations: COMP = completive aspect, INCOMP = incompletive aspect, PERF = perfect aspect, 1A, 2A, 3A = first, second, third person singular absolutive person markers (what Mayanists refer to as 'set B'), 1E, 2E, 3E = first, second, third person singular ergative person markers (or 'set A'), PASS1 = a passive affix (what Mondloch 1981 refers to as Passive 1), PASS2 = the second passive affix, ABS = the absolutive antipassive, CAUSE = the causative affix, FA = the focus antipassive suffix, DER = the affix marking derived transitive verbs, DEP = the dependent marker, EMPH = emphatic marker, INCHO = inchoative affix, INSTR = instrumental affix, TTV = the clause-final termination marker for root transitive verbs, TIV = the clause-final termination marker for intransitive verbs, NEG = the negative marker, NOM = nominalization affix, POSS = possessive suffix, PROLOC = prolocative adverb, T = particle termination.

Children's language samples in K'iche' include a transcript indentification code, e.g. S2-50. The letter identifies the subject, the number before the hyphen identifies the language sample, and the number following the hyphen identifies the page number. The code S2-50 identifies the fiftieth page from Al Tiya:n's second language sample.

Adjectives

Semantic concepts that are expressed as adjectives in English translate into lexical adjectives or intransitive verbs in K'iche'. Root adjectives include terms for dimensions (*nim* 'big'), tastes (*ki:* 'sweet'), colors (*saq* 'white', *rax* 'blue/green'), developmental stages (*ri:j* 'old'), and other properties (*utz* 'good', *latz'* 'crowded'). 'Adjectival' concepts expressed as intransitive verbs in K'iche' include transitory properties: *num* 'hungry', *noj* 'full', *kikot* 'happy', and *kos* 'tired'. These two classes are grammatically distinct, since all verbs require aspect, subject and termination markers. Nouns and adjectives only take subject markers when they are used as predicates. K'iche' does not use a copula with predicate nominals and adjectives, so these sentences resemble sentences with verbs, see (3).

(3) a. in-utz
1A-good

'I am good.'

b. k-in-kikot-ik
INCOMP-1A-happy-TIV

'I am happy.'

Verbs

Verbs in K'iche' have the structure shown in (4).

(4) aspect + ABS (+ movement) + (ERG) + stem (+ derivation) (+ termination)

There are five aspect categories: incompletive, completive, potential, volitive and perfective. The incompletive aspect marks the non-completion of the action indicated by the verb; it is noncommittal as to present, past, or future time. The completive aspect marks the completion of the verb's action; the potential marks a possible, probable, or hypothetical future truth; and the volitive marks the imperative, optative, and hortative moods. The perfective has much the same interpretation in K'iche' as in English. Each aspect category is associated with a termination, shown in (5).

(5)

TENSE-ASPECT-MOOD	ASPECT MARKER	TERMINATION
incompletive	k-	plain
completive	x-	plain
potential	chi-	plain
volitive	chi-	dependent
perfective	Ø	perfective

Both the aspect marker and termination are required to signal a given aspect condition on the verb.

K'iche' uses an ergative cross-referencing morphology on the verb. There are two sets of person markers: the ergative (which Mayanists refer to as set A) is used for subject agreement on transitive verbs; the absolutive (set B) is used for object agreement on transitive verbs and subject agreement on intransitive verbs. These cross-referencing markers are shown in (6). Unlike most morphologically ergative languages, the cross-referencing system in K'iche' remains ergative for all aspects, persons and clause types. It does not split between an accusative and ergative system for any of these features. A prefix indicating movement may optionally be inserted after the

absolutive marker. The movement prefixes derive historically from the intransitive verbs meaning 'to go', 'to come' and 'to pass'. If such a prefix is present, the verb takes the dependent termination.

(6)

	ERGATIVE PREFIXES	ABSOLUTIVE PREFIXES
Person	Preconsonantal	Prevocalic
1 singular	in-	inw-	in-
2 singular	a-	aw-	at-
3 singular	u-	r-	Ø
1 plural	qa-	q-	uj-
2 plural	i-	iw-	ix-
3 plural	ki-	k-	e:-

Non-derived verbs have a root consisting of a single CVC syllable. Derived transitive and intransitive verbs may also have roots of the form CV:C and CV'C. A transitivizing or intransitivizing affix follows the root if the verb is derived, e.g. the intransitive verb *cha:ku:n* 'to work' is derived from the transitive verb *cha:ku:j* 'to work'. The root plus any transitivizing and intransitivizing suffixes form the verb stem.

The termination is the final part of the verb form. Four distinct factors govern its shape: (a) its aspectual category, (b) the transitive vs. intransitive distinction, (c) the root-transitive vs. derived-transitive distinction, and (d) the clause-medial vs. clause-final distinction. The effect that each of these factors has on the form of the termination is shown in (7). Each termination receives primary stress except the dependent intransitive termination *-a*.

(7)

ASPECTUAL CATEGORIES	ROOT TRANSITIVE	DERIVED TRANSITIVE	INTRANSITIVE
PLAIN:	(*-oh*)[a]	*-j*	(*-ik*)
	-a'/-a:[b]		
DEPENDENT:	*-o'/-o:*	*-j*	*-a*/(*-oq*)
	-u'/-u:		
PERFECTIVE:	*-o:m*	*-m*	*-inaq*

[a]Parentheses indicate that the form is a clause-final termination only.
[b]*-a'/a:* are used with verbs whose root V is /i e a/; *-o'/-o:* when the root V is /o/; and *-u'/u:* when the root V is /u/.

The terminations shown in (7) coordinate with the aspectual category of the verb. Some examples of terminations with root transitive and intransitive verbs are shown in (8).

(8) a. k-in-wa'-ik
INCOMP-1A-eat-TIV

'I am eating.'

b. Ø-in-tij-o:m
3A-1E-eat-PERF

'I have eaten something.'

Some examples of derived-transitive verbs as well as verbs with

incorporated movement are shown in (9).

(9) a. chi-in-a-q'alu-j
DEP-1A-2E-hug-DER

'Hug me!'

b. k-at-e:-in-tz'uma-j
INCOMP-2A-go-1E-kiss-DER

'I am going to kiss you.'

c. k-Ø-e:-q'alaj-isa-x-oq
INCOMP-3A-go-clear-CAUSE-PASS1-DEP

'It is going to be made clear.'

Some of the terminations are restricted to clause-medial or clause-final position. The termination for intransitive verbs in the perfective aspect appears in both positions. The final vowel of derived transitive verbs lengthens in clause-final contexts. No explicit analysis of the environments in which the termination are used exists. It is sufficient to note that the termination is obligatory at a clause boundary. Fortunately, it is relatively easy to distinguish between the clause-medial and clause-final environments for the purpose of judging the appropriateness of the terminations. The presence of the negative marker, directionals, and verb particles indicate that the verb is in clause-medial position, while a verb in isolation or at the end of an utterance is in clause-final position.

The cross-referencing system and terminations serve as clear markers of surface transitivity. Like other Mayan languages K'iche' also contains a number of derivational suffixes which can alter the transitivity of the verb stem (see Mondloch 1981). K'iche' has two forms of passive and antipassive voices in addition to the active voice. All of these voices change a transitive verb stem to an intransitive form-indicated by the use of an absolutive cross-reference marker and the intransitive termination. The two forms of the K'iche' passive are similar to the English passive in that they promote an underlying object to the subject position and optionally allow the underlying subject to be expressed in an oblique phrase. One of the K'iche' passives (or 'passive1' as Mondloch 1981 refers to it) is restricted to underlying subject NPs in the third person. This passive cannot be used with underlying subjects in the first or second person. Examples of this passive are shown in (10). Passive1 changes the stem-final *-j* to *-x* in derived transitive verbs and lengthens the vowel of root transitive verbs.

(10) a. k-Ø-q'alu:-x ri: ak'al r-uma:l ri: u-na:n
INCOMP-3A-hug-PASS1 the child 3E-cause the 3E-mother

'The child is being hugged by his/her mother.'

b. at-ch'a:j-inaq r-uma:l le: a-na:n
2A-wash-PASS1-PERF 3E-cause the 2E-mother

'You have been washed by your mother.

Mondloch (1978) and others have observed that passive1 is used to distinguish between a third person subject and object. The active form of the sentence in (10) is ambiguous; there is no unambiguous indicator of the subject. Even changing the word order does not affect a speaker's ability to distinguish the subject. Passive1 provides a means of unambiguously

describing events involving two third person antagonists. It is only secondarily used to focus on object NPs.

The second passive in K'iche' (passive2) primarily serves an aspectual function. It can be used to express either the successful completion of an action or the fact that an action can be carried out successfully. Examples of passive2 are shown in (11). As the sentences in (11) demonstrate K'iche' sentences in passive2 are acceptable with first and second person oblique agents. Passive2 also serves to distinguish between two third person participants.

(11) a. k-Ø-q'alu-taj ri: ak'al aw-uma:l
INCOMP-3A-hug-PASS2 the child 2E-cause

'The child can be hugged by you.'

b. at-ch'aj-taj-inaq r-uma:l le: a-na:n
2A-wash-PASS2-PERF 3E-cause the 2E-mother

'You have been washed by your mother.'

Will Norman (1978) has argued that the two K'iche' passives may also be distinguished by assuming they result from the operation of rules on the syntactic and lexical levels. He argues that passive1 is a syntactic rule while passive2 is lexical. Passive2 adds its own aspectual meaning to the construction. It also changes the meaning of some verbs unpredictably and interacts with incorporated motion verbs in a way that is best explained by assuming it operates in the lexical component. The interaction with incorporated motion, however, occurs in different ways in different dialects of K'iche'. Mondloch (1981) describes the opposite pattern of interaction, and I have found that passive2 behaves like passive1 in the Zunil dialect.

K'iche' has two distinct forms of antipassive as well as passive voices. Antipassive voices are used to focus on the subject or action. The object is sometimes demoted to an oblique phrase. Like passives, antipassives convert transitive verbs to intransitive verbs.

The focus antipassive is one of the more obscure constructions in K'iche'. It is used when an underlying subject is moved to the focus position in front of the verb. This occurs in questions, relative clauses and sentence clefts. Examples of all three of these constructions appear in (12).

(12) a. Question

jachin x-Ø-q'alu-n ri: ak'al
who COMP-3A-hug-FA the child

'Who hugged the child?'

b. Relative Clause

utz ri: winaq (ri:) k-e:-q'alu-n ri: ak'al
good the people (who) INCOMP-6A-hug-FA the child

'The people who hug the child are good.'

c. Subject Focus

are: ri: ak'al k-at-q'alu-n-ik
focus the child INCOMP-2A-hug-FA-TERM

'It is the child who is hugging you.'

There are no limitations on which verbs can appear in the focus

antipassive, however either the subject or the object must be a third person NP. As the example in (8c) shows, the verb agrees with whichever NP is highest on an animacy hierarchy. If neither the subject or the object is a third person NP then the active voice is used (see Larsen 1987 and Pye 1989 for theoretical accounts). This shows that the primary function of the focus antipassive is to distinguish between two third person NP's in the context of questions, relative clauses and clefts. The focus antipassive cannot be used if the subject and possessor of the object have the same referent. In such situations K'iche' speakers use the regular active voice, see (13).

(13) a. * are: ri: at x-at-q'alu-n ri: aw-alk'uwa'al
focus the you COMP-2A-hug-FA the 2E-children

'It was you who hugged your children.'

b. are: ri: at x-e:-a-q'alu-j ri: aw-alk'uwa'al
focus the you COMP-6A-2E-hug-TERM the 2E-children

'It was you who hugged your children.'

The second antipassive construction in K'iche', the absolutive antipassive, is also productive in the language, but there are a number of transitive verbs which do not have absolutive forms (for example, *-esa:j* 'to take out', *-il* 'to see' *-cha:ji:j* 'to take care of', *-woq'e:j* 'to cry over'). A number of other verbs seem to appear almost exclusively in the absolutive, e.g. *-yaja-n* 'to scold', *-tzijo-n* 'to talk', and *-chaku-n* 'to work'. These verbs also demonstrate that the K'iche' absolutive voice is not equivalent to the conative construction (e.g. *cut at*) which Guerssel et al. (1985) claim only applies to verbs whose conceptual structure contains an effect clause and a contact clause. In absolutive constructions the direct object NP may optionally be expressed in an oblique phrase headed by a preposition, see (14). The absolutive can be used with two nonthird person NP's.

(14) k-in-yoq'-on (che: le: in-ta:t) [from Mondloch 1981]
INCOMP-1A-mock-ABS (at the 1E-father)

'I mock (at my father).'

Mondloch (1981) notes three functions of the absolutive antipassive:

a. the indefinite function - 'A speaker at times probably chooses to use the absolutive rather than the active voice because he does not consider the direct object as important as the action and the subject/agent who performs it ...'
b. the hierarchy-linked function - A hierarchy of features such as person and animacy for subjects and objects may trigger the antipassive.
c. the disambiguating function - The active transitive sentence may be ambiguous.

With few exceptions there is a nominalized verb form corresponding to each of the active and nonactive voices. These forms add the suffix *-ik* or *-e:m* to the nonactive verb stems. Kaufman (1977:24) gives the following examples:

(15) x-Ø-u-chap u-chaku-x-ik
COMP-3A-3E-begin 3E-work-PASS1-NOM

'He began working.' (lit. 'He began its being worked.')

(16) x-Ø-u-tanab'a' wa'-i:m
COMP-3A-3E-finish eat-NOM

'He finished eating.'

Another frequent verb nominalization refers to either the location where the action is performed or the instrument which performs the action. This form adds the suffix *-b'al* to verb stems. Examples of this form are shown in (17).

(17) a. k'ayi-b'al
sell-INSTR

market

b. etz'a-b'al
play-INSTR

toy

K'iche' contains many other grammatical-function changing rules. One rule that is used fairly frequently in my transcripts is the rule of instrument advancement. This rule promotes an instrument phrase to direct object and demotes the original direct object to an oblique position where it no longer participates in the cross-referencing system on the verb. The rule adds the suffix *-b'e* to the verb stem. The suffix *-ib'e* can be added to an intransitive verb to advance a locative or circumstance phrase. This suffix changes the verb to a transitive stem. A transitive verb which has undergone instrument advancement may also undergo passivization, but only with passive1. This advances the instrument to subject position. Kaufman gives the following examples:

(18) le: mu:ruh (le:) x-Ø-u-rami-b'e-j le: che:' le: achih
the machete that COMP-3A-3E-cut-INSTR-DER the wood the man

'the machete that the man cut the wood with'

(19) le: achih u-q'ab' k-Ø-u-war-ab'e-j
the man 3E-arm INCOMP-3A-3E-sleep-INSTR-DER

'the man sleeps on his arm.'

K'iche' also contains a productive causative rule. It adds the suffix *-isa* to the verb stem, changing an intransitive verb into a derived transitive verb. This form may then undergo passivization. Some examples of causativized verbs are shown in (20):

(20) a. k-Ø-in-poq'ow-isa-j le: joron
INCOMP-3A-1E-boil-CAUSE-DER the water

'I am boiling the water.'

b. x-Ø-r-a'qan-isa-j le: ak'al
COMP-3A-3E-climb-CAUSE-DER the child

'She made the child climb.'

One final rule creates inchoative verbs from adjective stems. It adds the suffix *-ar* to the adjective. An example of this rule is shown in (21):

(21) x-Ø-saq-ar-ik
COMP-3A-light-INCHO-TIV

'It brightened/dawned.'

Kaufman (1977) provides examples of many other productive derivational processes for K'iche'. Dayley (1985) provides an even more extensive list of the derivational processes for the closely related Mayan language Tzutujil. See Mondloch (1981) and Larsen (1988) for descriptions of K'iche'.

Positionals

The positionals form an unusual stem (and root) class. The meanings of positionals refer to various physical properties such as shape (round, oval, square), position (seated, standing, lying down) or state (loose, tight). Positional roots are always inflected. K'iche' adds the suffix *-e'* to positional roots to form intransitive verb stems. It adds the suffix *-Vl* to roots which do not contain /r/ or /l/ to form a positional stem. The intransitive termination *-ik* is added to this stem in clause-final position. The positional stem functions like an adjective, with a meaning that is similar to that of the perfect participle of the intransitive verb. Kaufman (1977:15) compares the the positional stem *t'uyulik* 'seated' with the participle *t'uyulnaq* 'having sat' (derived from the intransitive verb *t'uye'* 'sit'). The most frequent positional stem in my data is *k'o:lik* which is used to indicate existence, location or possession.

Particles

The particles are the final lexical class I will discuss in detail. Kaufman (15) lists the following types: interrogative and demonstrative words, aspect markers, particles found in the predicate, noun phrase particles, coordinators, and subordinators. He states that there are up to 100 different particles in all Mayan languages. The particles that occur in predicates are the most numerous in my transcripts. These function as verb phrase adverbs. Kaufman (21) provides the following examples shown in (22). The parentheses enclose the clause-final ending. Two of these particles, the negative marker *ta(j)* and the proadverb *wi(h)*, have a special syntactic significance which I discuss below.

(22) *na(h)* 'definitely'
ta(j) negative complement; unrealized fact
wi(h) proadverb of time, place, manner, instrument
chi(k) 'additionally'
k'u(t) 'so/then'

These may be followed by another important class of verb phrase particles--the directionals. These particles are semantically similar to adverbial particles of location or motion (*up*, *down*, *away*) found in English and other Germanic languages. They refer to the literal or metaphorical change of location of an affected object. Frequently used directionals are shown in (23). The clause-final suffix *-oq* changes to *-a* in non-final

position; the *-k* simply drops.

(23) *(u)l-oq* 'hither/this way'
(u)b'i:-k 'hence/away'
apan-oq 'elsewhere/yonder'
aq'an-oq 'up'
qa:j-oq 'down'
ka:n-oq 'staying'

Syntax

Although word order is flexible in K'iche' there is some reason to assume that the basic word order is Verb Object Subject. Sentences will show this order if the object and subject have equal rank on the animacy hierarchy and the object is indefinite and the subject definite (Kaufman 21). If the definiteness conditions are not met the sentence will be ambiguous in the active voice. The animacy hierarchy is: first and second person > third person plural > third person singular. K'iche' permits non-emphatic pronouns to drop so most sentences with first and second person participants do not have overt NP's in subject or object position. The only time overt NP's will appear in both the subject and object positions is when the sentence is about two third person participants.

In one K'iche' text I examined (Norman 1976) 50 percent of the clauses did not contain any overt NP arguments. Twenty-four percent of the sentences contained overt subject NP's. Sixty-four percent of the sentences with transitive verbs contained object NP's. Only 23 clauses (8 percent) in the entire text contained two argument NP's. Mondloch (1978) reports that only 20 sentences out of 1,380 lines of narrative materials contained subject and object NP's with the same person number. Heavy object NP's move to sentence-final position. For further discussion see Larsen (1988).

An NP that is in focus moves to the position directly before the verb. If this NP is the subject, it also adds the focus antipassive suffix to a transitive verb. The verb may be passivized if the NP in focus is the object. If the focused NP is an instrument or location the proadverb *wi(h)* will appear in the verb phrase. The following sentences provide examples of these constructions.

(24) a. Subject Focus

are: le: achih x-Ø-ch'ay-an le: r-ixoq-il
that the man COMP-3A-hit-FA the 3E-woman-POSS

'That is the man who hit his wife.'

b. Object Focus

are: le: ixoq x-Ø-tz'uma-x r-uma:l le: r-achi-il
that the woman COMP-3A-kiss-PASS1 3E-cause the 3E-man-POSS

'That is the woman who was kissed by her husband.'

c. Locative Focus

are: le: xkinul jawi: x-Ø-qa-ri:q wi qa-si:'
that the volcano where COMP-3A-4E-find PROLOC 4E-wood

'That is the volcano where we find our firewood.'

The focus antipassive is obligatory when the subject of a sentence with a transitive verb is in focus, questioned or relativized. No change is required for the object of transitive verbs or the subject of intransitive verbs. This contradicts the predictions Keenan and Comrie (1977) make regarding the 'accessibility' of subjects. In most languages, subjects that are questioned, relativized or in focus do not require a change from the active voice whereas objects may (e.g. Malagasy). The K'iche' facts can be explained relative to Keenan and Comrie's hypothesis if one assumes that K'iche' is syntactically ergative with respect to questions, focus and relative clause formation. This is the only feature in K'iche' which demonstrates syntactic ergativity (Pye, In press).

K'iche' does not contain a distinct lexical category of auxiliary verbs. Instead K'iche' employs a variety of intransitive verbs, adverbs, verb particles and aspect markers to express tense, aspect and modality. Examples of such constructions are shown below.

(25) a. (k-)Ø-tajin-ik k-Ø-ka'y-ik
INCOMP-3A-progressive-TIV INCOMP-3A-look-TIV

'He/she/it is looking.'

b. k-in-kowin-ik k-Ø-in-b'an-oh
INCOMP-1A-can-TIV INCOMP-3A-1E-do-TTV

'I can do it.'

c. k-Ø-b'e: ne'
INCOMP-3A-go perhaps

'Perhaps he/she/it will go.'

Negation is marked on the predicate with the discontinuous particle *(ma) ... ta(j)*. Adult speakers frequently omit the first part of the negative morpheme in casual conversation. Some examples of negated expressions are shown in (26).

(26) a. ma k-Ø-in-q'i ta chi-k
NEG INCOMP-3A-1E-endure NEG again-T

'I cannot endure it again.'

b. ma ki: ta-j ri: kapeh
NEG sweet NEG-T that coffee

'That coffee is not sweet.'

c. ma ali ta-j le: ju:n r-alku'al
NEG girl NEG-T the one 3E-offspring

'His child is not a girl.'

Question words move to sentence-initial position. Question formation interacts with the rules for focus, so questions about subjects of transitive verbs trigger the focus antipassive verb form while questions about locations or instruments trigger the presence of the proadverb *wi(h)*, see the examples in (27).

(27) a. jas u-wa:ch k-Ø-r-a-j k-Ø-r-il-oh

what 3E-face INCOMP-3A-3E-want-DER INCOMP-3A-3E-see-TTV

'What did he/she/it want to see?'

b. jachi:n x-Ø-b'an-ow-ik
who COMP-3A-do-FA-TIV

'Who did it?'

c. jawi: k-Ø-a-loq' wi le: aw-atz'ya:q
where INCOMP-3A-2E-buy PROLOC the 2E-clothes

'Where do you buy your clothes?'

I have already provided several examples of verb complementation in the preceding examples. Verbs in verb phrase complements may appear in their full form or as nominalized forms. The matrix verb determines which of these forms is possible in its complement. Examples (25a,b) and (27a) show matrix verbs which only allow the full verb form to appear in their complements. Examples (15) and (16) above show matrix verbs which only allow nominalized verb forms in their complements. The following example shows a matrix predicate which allows either complement form (from Kaufman 25).

(28) a. k'ax u-b'a:n-ik
hard 3E-doPASS1-NOM

'It is hard to do.' (lit. 'Its being done is hard.')

b. k'ax k-in-ch'aw-ik
hard INCOMP-1A-talk-TIV

'It is hard for me to talk.'

Cultural Context

My studies of language acquisition by K'iche' children are heavily influenced by K'iche' patterns of cultural and economic organization. In this section I will sketch some features of these patterns and point out their implications for studies of language development in the K'iche' context.

The village of Zunil, where I have done most of my research, lies just below the highway between Quetzaltenango, Guatemala's second largest city, and the Pacific coast. According to the 1981 Guatemalan census Zunil had 7,010 inhabitants of whom 93% were classified as Indian with 22.5% of the population being reported as having some knowledge of reading and writing. At an elevation of 2,077 meters, Zunil is the first highland town on the road from the coast. The town lies in a narrow river valley. The river divides the town into two haves. The houses are clustered together in town, there being almost no other flat land available. The elevation together with the clouds that roll in from the Pacific coast each afternoon keep Zunil's temperature on the cool side. It may reach -3°C on winter nights. During the day it usually reaches between 17 and 25°C.

Another road also runs from Zunil to Quetzaltenango by a different route, through Almolonga. Both Zunil and Almolonga have intricate irrigation systems on the rich bottom land surrounding the rivers that run through each town. Water is diverted from the rivers and fed into an elaborate system of ditches and tubes which border each field. The water is then thrown onto the fields manually by means of a specially adapted shovel. This system permits a wide variety of garden crops to be grown year round. Zunilecos truck their produce throughout Guatemala and Central America.

Maize, the main staple of the Indian's diet, is grown on the mountains which rise sharply above the Zunil valley. Suitable land for growing maize is so scarse that the Zunilecos are forced to plant on slopes of 50° in land that has so many rocks they cannot use a hoe.

The ideal is to have two plots of land, one in the river bottom for growing a cash crop of onions, cabbages, radishes, beets, etc. and another in the mountains for growing the family's supply of maize, beans, and squash. At the end of the 1980's more and more families lack sufficient land to grow even a subsistence crop of maize. Family members are forced to find other sources of income such as washing vegetables, working for larger landowners, or seeking work outside Zunil. The official minimum wage for plantation workers is Q3.32 (approximately 80 cents) for a ten-hour work day, which is considered a good wage. A family of 6 requires a 100 lbs. of maize every 2 weeks. In 1989 a quintal (100 lbs.) of maize cost $12. So several family members must work to secure an existence level of food, housing, and clothing. The worsening national economy, with its high rate of inflation, affects the poor most severely. I was told that both land and work are scarse.

Despite its ties with the national economy, Zunil remains very much a "closed, corporate peasant community" (cf. Wolf 1957). Zunilecos remain suspicious of strangers, for example tourists, coming into their town. The guerrila insurgence and government-sponsored terrorism of the early 1980's only served to intensify their suspicion of outsiders. Tourists, who are obviously so wealthy they can afford trips around the world, might one day decide to settle in Zunil and buy up all the available land. At one time Zunilecos believed that tourists threw the pictures they took into a nearby volcano causing outbreaks of measles and whooping cough among Zunil children. In 1987 there was an outbreak of baby snatching. Strangers came into town and stole a baby from its mother's back. Zunilecos tell me it was to satisfy a huge North American adoption market as well as to supply baby parts to foreign hospitals. They also remember the time unidentified gunmen came into town and killed a woman and her son just because they happened to be on the street.

The family is the main unit of social organization in Zunil. A man spends most of his time working in the family's fields. Women spend their time preparing the family's meals, and children are born and raised within the confines of their family's household. The average house compound in Zunil has two small houses; one is the kitchen while the other serves as a bedroom, workroom, and storage space. In 1989 many houses had walls made of concrete blocks and tin roofs although there are still a good number of houses with dirt floors and adobe walls. Most houses now have electricity and sport television antennas dangling from a pole or tree outside. Many houses also now have a water tap in their compound. A decade earlier women had to carry in water from a neighborhood water tap.

Child-raising

Child-bearing and child-rearing take place in a context of extreme poverty in Zunil. Even in the age of television, child-rearing practices have changed little since pre-Columbian times. Zunil practices are supported and interpreted in the light of traditional Mayan concepts about the nature of souls and children's fragility.

Childbirth generally takes place at home. Women prefer to be attended by an *iyom* (native midwife) and regard the hospital as a place one goes to die. The rate of infant mortality is high. An article in *El Grafico* (a Guatemalan newspaper, 10/30/86) stated that infant mortality was 85.9 of 1000 live births. 77.8 of 1000 children die in their first year while 114.4 of 1000 die in their first 2 years. Infant diarrhea, dehydration, and respiratory diseases are leading causes of death.

Mata (1978) provides detailed data on the nutrition and health of

mothers and infants in another rural Guatemalan town Santa Maria Cauque. A study of 24 women revealed that all were infected by one or more parasites (p. 111). "A large proportion of pregnant women had at least one attack of diarrhea or dysentery or of an acute respiratory disease (pneumonia, bronchitis, laryngitis)" (115). Infectious disease of the mother was correlated with a greater probability of fetal infection (147). Mata notes that "Cauque infants were born preterm and at low birth weights at rates comparable to those of the most stressful environmental conditions, for example, those prevalent during the siege of Leningrad" (135). Perhaps most telling is Mata's observation that the long-lasting high infant mortality in Santa Maria Cauque "was not dramatically modified" by the medical care provided by a well-trained pediatrician. "Even if effective immunization had been employed, with the anticipated reduction in mortality, infant death rates still would have been excessive because of a hazardous environment interacting with a child population of whom a third were already malnourished at birth" (166). Indeed malnutrition interacts with high levels of infection to retard physical growth by the second half of the first year. Children ten years of age may only be as tall as North American children seven years old. Mata observes that "The critical period is from six to thirty months; protein-calorie malnutrition, growth retardation, and mortality are most evident then" (322).

This environment supports a number of beliefs about pregnancy and the causes of disease among children. A pregnant woman is referred to as *yawa:b'* "sick". They take care not to tell anyone else of their condition lest they provoke *envidia* (envy). A woman who is barren is supposed to be jealous of a pregnant woman and cause her to miscarry or die in childbirth. An older sibling may also show *envidia* towards a newborn, causing the disease *chaq'imal* in the newborn (Mannard 1966). Belief in the evil eye is universal, and infants are kept well covered when taken away from home. A pregnant woman can cause a child under 12 months old to become sick by staring at him. This sickness can be cured by mixing a plant (*rura:'*) with water and spitting the mixture into the child's face in a crossroads. One of my subjects was treated for the condition known as *xetzalob' uwi:'* "his hair breaks" (a symptom of kwashioker) by having powdered cow's horn rubbed onto it. The village shamans are highly respected; my assistant insisted there were diseases such as polio (*ront*) which only a shaman could cure. Even nonIndians have come to Zunil for treatment.

Parent-child interaction is very different from the American middle-class standard. K'iche' babies are kept close to their mothers at all times, either strapped to their back, in a craddle of rags nearby, or beside them in bed. The mothers are quick to interpret any movement or vocalization as a signal to feed their babies, which they can do while continuing with their own activities. They will also quiet a baby they are carrying on their backs by gently rocking forwards and backwards while patting it on the bottom and saying "sh, sh, sh..." in a soft voice (*kukux ka' chila'*). Occasionally a mother will amuse her baby with her necklace, flowers, or bits of string, but for the most part babies are ignored. Bunzel's observation is still current:

> Presently the baby wakes up and cries. Immediately her father calls Manuela, and she takes the baby to her mother to be nursed. Tomasa nurses him without laying aside her loom, holding him on her lap, with the folds of her voluminous huipil (blouse) pulled over his head. After he has finished she holds him in her arms, whacking his little rear until he falls asleep. Then he is returned to his shady corner. But he has decided he doesn't want the corner any more, and protests. He is promptly picked up, put on his mother's back and tied securely in two large square cloths. This is satisfactory and he goes to sleep at once, while his mother goes on with her work (1959:101).

Such scenes take place all about one and set the tenor for the first year of a Zunil baby's existence.

This behavior is buttressed by Mayan beliefs about infants and infant development. The most important of these is the concept of the soul. Vogt (1969) states that the Zinacantecos of Chiapas, Mexico believe each person has an inner soul (*ch'ulel*) with thirteen parts and located in the heart and blood of each person. The ancestral gods place this soul in the body of an unborn embryo. Although the inner soul is supposed to be eternal and indestructible, it may be temporarily divisible during various kinds of 'soul-loss'. This is particularly apt to happen with infants, so elaborate precautions must be taken. One of the major purposes of baptism is to "fix" the soul more firmly in the child's body (Vogt 1969:370). At death, the soul leaves the body and rejoins the supply of souls which the ancestral gods maintain for reuse in other people. Parents are expected to treat a small child with utmost care and affection, lest its soul, not yet used to its new receptacle, become frightened and leave. Babies are kept guarded from view for a period of weeks after birth so that their souls will not be lost (Vogt 1976:20).

While I could not elicit such an elaborate set of beliefs about souls from my assistants, they do have a variety of terms refering to the soul's condition. A common greeting is *jas kub'i:j lawanima'* "What does your soul say?" Other expressions refer to birth (*xul le: ranima'* "His soul arrived"), death (*xel le: ranima'* "His soul left"), sadness (*koq' le: ranima'* "His soul is crying"), dreaming (*rilom le: ranima'* "His soul has seen it"), and entry into shamanhood (*xpe: le: ranima'* "His soul came").

The ancestors also determine a Mayan child's fate by recycling the souls of the deceased. Nearly all the families that I observed in Zunil had named a child after a grandparent. If the grandparent is still alive, the child and his grandparent refer to one another as *nuk'axe:l* (which my assistants always translated as *tocayo* "namesake"). Mondloch (1980:11) states that the people are thereby expressing their belief that the child is the actual replacement for her grandparent. He adds that, 'One is careful to see that the *k'e'x* is treated properly, for whatever treatment the child receives, be it good or bad, it is taken personally by the grandparent since they are in essence one and the same person' (p. 11). People expect children to have the personality of their *k'axe:l* since they are their grandparent's replacement. It also explains why Zunil parents frequently address their children as *na:n* "mother" or *ta:t* "father". The succession of souls mirror the cycles of time that figure so promenantly in Mayan calendrical thought (Tedlock 1981). Mayan shamen can predict a baby's character from the day sign of its birth.

Although Zunilecos have no organized system of belief concerning the recycling of souls such as Vogt discusses for Chiapas, Mexico there are nonetheless a variety of expressions and behaviors in Zunil that are consistent with such a belief. The fragility of an infant's soul makes sense in the context of endemic malnutrition and infection. It may also support parental behavior directed towards isolating infants from intrusive stimuli and the maintainance of a calm steady state.

Speech to Infants

One area in which this is particulary noticable is parental speech to infants. Vogt states that, 'The Zinacantecos are a highly verbal people; the fact that many different terms describe and differentiate hierarchically the types of talking...testifies to the importance of speech' (1976:203). However he also says that field workers who are still learning to speak Tzotzil 'are treated like babies who are not yet fully human' (p. 204). Yet, 'There is little pressure to master the basic skills of walking, talking, and learning to urinate and defecate outside, and little or no pride on the part of parents over the speed which children learn them' (1969:185). Wagley adds:

> People pay little attention to the sounds that a child makes before it learns to speak intelligibly. Andrea believed that the jabbering of babies "has some meaning to the baby, but that as soon as it learns to talk the child forgets all about it." Children invariably learn to say *Ta* (father) first and only a little later to say *Na* (mother). For a while these monosyllables are all that is expected of the child, and, as far as I could learn, there was no specific age at which children were supposed to have learned to speak. Informants estimated two years, or even three years, as the age when children begin to speak (1949:29-30)

Most ethnographers of Mayan societies report that parents do not engage in any traditional games or songs with their infants. Bunzel's description is typical:

> The Quiché woman is a gentle and solicitous mother, but she never takes time off from serious occupations like weaving to play with her children, or to talk to them. There are no lullabies, no children's tales, no little games which adults play with children. Men pay no attention whatever to small babies except to call their wives when they cry (1959:101).

I could not elicit any games or lullabies from my informants in Zunil, nor did I observe any traditional types of interactions between parents and infants. Brian Stross, however, reports 'a general Tzeltal belief that parental response to child speech is a necessary feature of child socialization and that the state of the child's soul is directly influenced by parental response or the lack of it' (1972:7). Stross' description is in the context of a discussion of a mother's speech to her 30-month-old daughter, and as I show below, there is reason to believe that Mayan parents change their speech behavior after a child begins to talk.

My impression is that vocal interaction between infants and parents is minimal, although there is some variation between parents in this regard, particularly among different economic classes. One mother made a great deal of fuss over her baby girl and frequently talked to her. But she also left her in the care of a deaf and mute sister for long periods of the day. I often felt compelled to talk with my subjects in order to elicit material for my study of their morphological development--spontaneous speech being an extremely rare event. The following example, taken from the tapes of A Ci's, A Se:', and their mother, illustrate the K'iche' mother's tendency to ignore their young children's vocalizations.

(29) Blowing soap bubbles.

Na:n: Ay, x - Ø - paqe chi kaj.
Ay, COMP-3A-climb to sky.
'Ay, they're going up.'

Ay, le:, le:, le:, le: ...
'Ay, there, there, ...'

k'o: ya le:, le:, le:, le:.
'there they are, there...'

A Ci's: Na:n.
'Mother.'

A Se:': aq chi kaj (= e- naq chi kaj)
go-PERF to sky
'They have gone up high.'

A Ci's: Na:n, na:n.
'Mother, mother.'

Na:n: Qasa:ch?
'What?'

Catch one of you own.
There it goes.
There went another one.

Throughout this tape and others, the mother seems preoccupied with what my assistant and I were doing, and tended to ignore A Ci's. She only responds to him when he addresses her as *na:n* "mother", and even then she ignores him sometimes. She repeatedly ignored his other sounds (*m*, *le:* "there", *ah*, and the like). In this, she is a fairly typical representative of Mayan mothers.

However, this example also shows that K'iche' parents treat their toddlers as conversational partners after they learn to speak. The mother's reply ("What?") is a typical response to being addressed by name. A better example of a conversation between young K'iche' children and their parents occurs between Al Tiya:n (2;1), her brother (7 years) and her father, who had just returned home from work in the field.

(30) Playing with some plastic farm animals.

Al Tiya:n: Ch'iw, ta:t (= le: ch'iw ta:t)
the chick daddy
Chick, daddy.

Ta:t: Sa:ch?
What?

Al Tiya:n: Le'.
There.

Ta:t: Sa:ch?
What?

Al Tiya:n: 'iw (= ch'iw)
Chick.

Ta:t: K'o: inaj a-ch'iw?
exist DIM 2E-chick
'You have a chick?'

Al Tiya:n: Le'.
There.

Ta:t: La k'ut e'.
That's right.

Al Tiya:n: Le', le'.
There, there.

Ta:t: Jawi x-Ø-a-ma wih?
Where COMP-3A-2E-bring PROLOC
'Where did you get it?'

Al Tiya:n: Ch'iw.
Chick.

Here, Al Tiya:n and her father have a conversation even though they seem to be talking past one another. Al Tiya:n is practicing her conversational openers, while her father attempts to move the conversation along to a new topic.

These conversations suggest that K'iche' parents make a sharp distinction in their vocal behavior between infants and toddlers. Parents address almost no speech to their babies, whereas by the time their children reach A Ci's' age (1;6-1;8), and certainly by Al Tiya:n's age (2;1), parents engage them in "real" conversation. This corresponds to the transition between baby status (*loch'*) and child status (*alih* "girl" and *alah* "boy") which Francesca Cancian (1963) claimed was marked by weaning and cessation of the nearly constant carrying. This distinction may be slightly exaggerated since even at the toddler stage, K'iche' parents did not talk very often with their children. They certainly lacked any concept of talking with their children for the sake of their language development and were not conscious of their children's particular stage of linguistic development. Al Tiya:n's mother told my assistant that while Al Tiya:n's speech was not yet clear, she was talking. Other parents told me their children were not talking and could not understand why I would be interested in taperecording their speech.

My assistants have told me that parents do not become concerned about delays in a child's language development until the child is three or four years old. Children who do not begin to speak until three years of age are not given any special treatment. There are traditional remedies for language delays, however. The Tenejapa Tzeltal believe it helps to bump a child's head gently every once in a while with a *culha*, a large, short gourd used to keep tortillas warm (Stross 1969:41). They may also give children three or four years old roasted cicadas (*chikitin*) to eat if they have pronunciation difficulties, delays in learning to speak, or problems speaking well or correctly. The Chamula of Chiapas, Mexico believe they can aid a child's language development by feeding him a special type of small tortilla called *memella* (Gossen, personal communication 1982). This practice is especially interesting in light of the traditional connection between corn and language shown in the Popol Vuh. In the town of Cantel (just above Zunil on the highway) they believe they can help a child talk by putting a grasshopper (*xir*) on the child's tongue so that its legs prick the tongue.

In sum, there seems to be a common conceptual framework which underlies and supports baby talk in Mayan societies. Mayans consider all human interaction in terms of a fixed number of souls whose basic characteristics were determined at the beginning of time. A Mayan parent's major task is to embrace the soul of their infant, keeping it safe from the outside world. Mayan mothers keep their babies well protected from the gaze of strangers and do not attach special communicative significance to their infants' vocalizations. During this period their infants are at risk from the combined effects of malnutrition and disease. Many never survive to the next stage. Since their children are the reincarnation of an ancestor, Mayan parents have no particular need to "teach" them language. Such beliefs support a style of baby talk that is extremely different from that of North American middle-class households (Pye 1986; Ratner & Pye 1984).

The K'iche' Data

I recorded the utterances of six children between the ages of 2;1 and 4;0 during my original dissertation research. I visited three of the children regularly over a nine month period. I visited the three other children weekly over the course of a single month. The first set of children have provided most of the data I have reported in my studies. I visited them approximately once every two weeks at which time I recorded a one-hour sample of their speech.

Al Cha:y was 33 months old when my research began. Her parents operated a small cafeteria and barber shop so the children in her family were less afraid of strangers. She had two older sisters, 5 and 10 years old, and an older brother who was 8 years old. They were present during most of my visits. My second subject, A Carlos, was 36 months old when I began visiting him. His family was poorer than Al Cha:y's and A Carlos was more restrained around me, although he was still capable of occasional bursts of enthusiasm. He was the only child in his family for most of my study (a baby sister arrived towards the end). The compound where he lived also housed his father's brother, his father's brother's wife, their daughter (10 years old), and his father's mother. The last of my longitudinal subjects was Al Tiya:n who was 25 months old when I began working with her. At that time she was just beginning to put together two-word utterances and was extremely shy around outsiders. She had an older sister (3 years old) and three older brothers, roughly 7, 9 and 14 years old. Her mother's younger sister also lived in the same house. Her family was one of the poorest in my study. Their house had a dirt floor, adobe walls and a grass roof. Table 1 provides the children's ages, number of utterances, and MLU for their language samples.

Table 1. Ages, number of utterances and MLUs across the K'iche' language samples.

	Al Tiya:n			Al Cha:y			A Carlos		
Sample	age	number	MLU	age	number	MLU	age	number	MLU
1-3	2;1.17	732	1.2	2;9.8	945	1.6	3;1.5	735	1.8
4-6	2;2.6	1069	1.4	2;10.6	1348	2.1	3;1.25	963	2.4
7-9	2;3.19	1155	1.8	2;10.27	1160	2.2	3;4.2	1760	2.8
10-12	2;7.21	844	2.1	3;0.16	1197	2.7	3;4.23	1272	2.8
13-15	2;10.5	1026	2.8	3;1.5	1159	2.7	3;6.26	1333	3.1
16-18				3;2.28	1103	3.0	3;8.5	1508	3.3
19-21				3;4.10	794	3.2			

In addition to the samples of the children's language production I have begun to study K'iche' children's sentence comprehension. During the summers of 1987 and 1989 I pilot tested several procedures to elicit comprehension data on passive, antipassive, causative and instrumental constructions in K'iche'. I have worked with 94 children between the ages of 3 and 12 years old.

The Early Lexicon

Perhaps the best introduction to the starting point of the acquisition of K'iche' would be an analysis of a young child's lexicon. I selected the second session from Al Tiya:n for this purpose. At the time I recorded this session, Al Tiya:n was 2;1.17. Her MLU for this session was 1.07, down from the previous session where she had an MLU of 1.31. Al Tiya:n had the youngest age and lowest MLU of any of my subjects. Her data is therefore the most representative of what the initial acquisition point looks like in K'iche'.

Al Tiya:n produced a total of 417 utterances in this session.

I provide a list of Al Tiya:n's words for the session in Appendix A. Appendix A shows Al Tiya:n's productions, the adult words Al Tiya:n attempted, an English translation, and the number of tokens of each word in the session. Angle brackets around a word indicate that the form or interpretation is questionable. A hyphen preceding a word indicates that a prefix of some kind is obligatory. I have not indicated any morpheme boundaries in the lexicon, but will discuss several later in this section.

Al Tiya:n produced a total of 77 interpretable expressions. She also produced 24 expressions which could not be interpreted. Thirty-three (43%) of the interpretable expressions were common nouns; the largest lexical class. Al Tiya:n also produced 13 verbs (17%), 9 adverbs (12%), and 7 adjectives (10%). These results are summarized in Table 2. It is readily apparent that by the time of this recording Al Tiya:n had made substantial progress in acquiring words from each of the K'iche' lexical classes.

Table 2. Al Tiya:n's lexical categories.

Category	Types	Proportion	Tokens	Proportion
Common Nouns	33	.43	222	.40
Proper Nouns	2	.02	3	.00
Pronouns	3	.04	20	.04
Nominalizations	1	.01	1	.00
Verbs	13	.17	23	.04
Positionals	1	.01	4	.01
Adjectives	7	.10	26	.05
Relational Nouns	1	.01	1	.00
Adverbs	9	.12	28	.05
Demonstratives	3	.04	185	.33
Question Words	3	.04	41	.07
Conjunction	1	.01	1	.00

The meanings of Al Tiya:n's common nouns range across a typical set of concerns to the K'iche' two-year-old. The Spanish items *pelona* 'dove' and *karet* 'cart' are exceptional in several respects. They are not typical early words for K'iche' children and they violate an otherwise inviolate CVC(V) syllable structure. Al Tiya:n produced three independent pronouns, the first, second and third person singular pronouns. She did not show any confusion between them or between singular and plural uses of the pronouns. The few verbs that Al Tiya:n produced range across a wide semantic spectrum. They include simple action verbs *-b'e* 'go' and *-chux* 'sit', change-of-state verbs *-tij* 'eat' and *-tzaq* 'fall', the triadic verb *-ya'* 'give', and the experiential verbs *-il* 'see' and *-cha'* 'say'. The action words are more abstract if the existential positional *k'o:(lik)* is included. There is no indication that Al Tiya:n used the simple action and change-of-state verbs more frequently than the other verb types. Interestingly, none of Al Tiya:n's verbs express attributive notions. She confined her attributive expressions to the K'iche' lexical class of adjectives.

Perhaps the most astonishing aspect of Al Tiya:n's early lexicon is the number of different particles that Al Tiya:n produced. To be sure, these included the universally popular forms meaning 'yes' and 'no'. However, Al Tiya:n also produced a variety of particles with adverbial meanings. Her most frequent particle was the negative marker *taj*. Al Tiya:n used this expression more frequently than the word 'no' to express negation. This particle is frequently used to express nonexistence, which is literally 'it does not exist' in the Zunil dialect (*ma k'o: taj*). Another frequent particle was *mpe* which is used to emphasize the imperative mood. Al Tiya:n reduced the entire

expression *ch-Ø-aw-il-a mpe le:* 'DEP-3A-2E-see-TDEP EMPH that' to the final particle and demonstrative *pe le:*. The other children I recorded used this particle with a variety of different verbs (e.g., *ya'* 'give', *chap* 'grab') in a reduced form. Another particle was *chik* which has a wide range of functions centering around the repetition of an action or object. When used with a noun or pronoun (e.g. *in chik* 'me too') it indicates an additional object or person, similar to the English adjectives 'more' and 'another'. This adverb can also be used with verbs, in which case it has a meaning similar to the English adverb 'again' (e.g. *kimpe: chik* 'I am coming again').

Al Tiya:n's most frequent word was the demonstrative *le:*. It is used as a definite article as well as a demonstrative pronoun and adverb by adult speakers, but Al Tiya:n used it exclusively as a demonstrative pronoun and adverb meaning 'that' or 'there'. This was her favorite term in predications of all kinds. The demonstrative *le:* occurs in the language samples of all my K'iche' subjects. It is probably one of the first words K'iche' children produce. Al Tiya:n was not using a 'pronoun' strategy to form complete sentences (Bloom, Lightbown & Hood, 1975) since she did not use the first and second person pronouns in a way that is similar to her use of the demonstrative, i.e. as general replacements for NPs.

Al Tiya:n's lexicon is similar to that of a ten-month-old boy as reported by his father. At this time his father noted the following words:

Child's Production	Adult's Production	English Translation
Common Nouns		
amah	nu-wah	my-food
awah	a-wah	your-food
cheel	nu-k'axe:l	my-namesake
chi:s	nu-kis	my-shit
chiw	ch'iw	chick
dih	dih	dear (female)
dah	dah	dear (male)
na:n	na:n	mother
pu'x	tu'	breast
ta:t	ta:t	father
tit	ch'ich'	car
totah	pelota	ball (< Spanish)
Pronouns		
at	at	you (singular)
Verbs		
jat	jat	Go! (IV)
e:k	-b'e:	go (IV)
toh	-tij	eat (TV)
quj	-quj	sleep (IV)
Adjectives		
'ax	k'ax	hurt, difficult
Relational Nouns		
w-e:	w-e:	mine
aw-e:	aw-e:	yours (singular)
q-e:	q-e:	ours
Demonstratives		
le:	le:	the/that one/there

Phonology

A phonological analysis of Al Tiya:n's language sample shows that she has acquired most of the plain stops, but has not made much progress in acquiring the glottalized series of stops. I followed the procedure outlined in Ingram (1981) to produce the phonological analysis shown in Table 3. A sound which appears without any notation is productive. A sound in parentheses is marginal while a sound with asterisks is frequent (see Pye, Ingram & List 1987 for details).

Table 3. A phonological analysis of Al Tiya:n

Initial Consonants					Vowels		Final Consonants					
p**	t (tz)	ch*	k**	7	i*	(u)	p	t	ch	(k)	(q)	7
	(d)	(ch')	(k')		e	o	(b')			k'	(q')	
m	n					a*	m*	n*				
	(s)		j						x	j		h
	l**											
w	(y)						(w)	(y)				

It seems to be easier for Al Tiya:n to produce velar and uvular stops in word-final position although /k/ was her most frequent sound in word-initial position. Al Tiya:n has an early affricate /ch/ and an early velar fricative /j/ in both initial and final consonant positions. Her glides are more marginal in word-final position. There is a striking difference in her use of the fricatives /s/ and /x/ in the two word positions. The fricative /h/ only occurs in word-final position in the adult language. Word position also seems to make a large distinction in her use of liquids and glides. She has the most difficulty with /tz/ and /r/. She substituted /l/ for /r/ across the board and sometimes used /ch/ for /tz/.

As I mentioned above, most of Al Tiya:n's words have a CVC(V) syllable structure. Table 4 provides more complete details. Al Tiya:n generally reduced polysyllabic words to their final CVC syllable. She shows a strong preference for the basic CVC syllable of the adult language.

Table 4. The syllable structure of Al Tiya:n's lexicon

Syllable Structure	Number of Lexical Types
CVC	52
CV	12
CVCV	5
VCVC	2
CVCC	3
CVCVC(VC)	4

Her phonology and syllable structure together impose basic constraints on the inflections that she is able to use. This is especially evident with regard to prefixes. Al Tiya:n produced 5 common nouns which require a possessive prefix. Without exception she did not produce the possessive prefix. Cross-reference markers indicating the subject are also obligatory on verbs. Al Tiya:n did not produce any subject markers with her verbs. She did produce first and second person pronouns, however, which have the same form as the subject cross-reference markers of intransitive verbs. There are even some cases in which she produced both the pronoun and a verb, but she could not produce the cross-reference marker as part of the verb word.

The story with regard to suffixes is completely different. Al Tiya:n

uses a wide variety of clause-final terminations on her words. They occur with verbs (*-b'e* 'go', *-wa'* 'eat'), positionals and particles (*chi-k*, *k'u-t*, *ta-j*). There is no indication that Al Tiya:n has analyzed the terminations on the particles as inflections. She always produced the particles in their clause-final forms. Most of the time the particles were in clause-final position so their form was correct. However, there is one utterance in which Al Tiya:n produced the negative marker *taj* before the demonstrative *le:*. In this environment the clause-final form is not appropriate. This suggests that Al Tiya:n had not yet realized the particles have a clause-final inflection.

The verbs and positional *k'o:(lik*) suggest that Al Tiya:n had made substantial progress in analyzing the clause-final termination within these lexical classes. She over-generalized the clause-final termination twice, once with the verb *-b'e:* and once with the positional *k'o:(lik*). All of her productions of the verb *-b'e:* contain the clause-final termination so she probably had not yet recognized the termination on this verb. She produced both the clause-medial and clause-final forms of the positional. Her three uses of the clause-medial form were correct, while 1 of her two uses of the clause-final form was correct. She seems to be in the process of working out the appropriate restriction on the use of the clause-final form.

Her use of the other verbs suggests that she has already worked out the essential features of the clause-medial/clause-final distinction. For example, she used the clause-medial form of the verb *-wa'* 'eat' before the demonstrative *le:*, but she used the clause-final termination when she produced the verb in isolation on three separate occassions. She also used the transitive verb *-tij* correctly in both clause-medial and clause-final forms. The scant evidence that exists, therefore indicates that Al Tiya:n was already using the clause-final termination on verbs productively.

The productive use of the terminations can be related to the syllable structure of the lexical items. In those cases where the stem plus the termination form a single CVC syllable (the particles and the verb *-b'e:* 'go') Al Tiya:n overgeneralized the clause-final forms to clause-medial position. Where the termination adds another syllable to the stem, Al Tiya:n has analyzed the correct use of the termination. She uses just the termination in clause-final contexts and just the verb stem in clause-medial contexts. This shows that she actually knows both parts of the verb, but is limited to producing only a single syllable of the word in either context. Her production of the positional *k'o:(lik*) is exceptional in that she managed to produce both syllables of the word on two separate occasions. On one of these occasions she used the clause-final form in a clause-medial context. There were also seven instances in which she omitted the word entirely in clause-medial contexts.

There are two significant aspects to the early and productive use of the verb terminations. The first is that the terminations encode a complex set of semantic features over and above the clause-medial/clause-final distinction. The most important of these is the distinction between the transitive and intransitive verb classes. Al Tiya:n's productive use of these terminations suggests that she has also realized the verbs are divided into two classes. This realization will make it easy for her to learn the correct use of the ergative and absolutive sets of cross-reference markers as well as a host of other grammatical processes which distinguish between transitive and intransitive verbs.

The second significant aspect to Al Tiya:n's productive use of the verb terminations is that it demonstrates her control of an essential feature of the verb form class. The terminations Al Tiya:n uses productively only occur with verbs. Since she did not overgeneralize these terminations to nouns, adjectives or particles she seems to recognize the formal distinction between verbs and these other lexical classes. The semantic diversity of the verbs and positional Al Tiya:n used with terminations argues against the hypothesis that Al Tiya:n originally recognized the class of verbs on the basis of some type of prototypical action schema. The rote use of the termination with the

prototypical action verb *-b'e*: 'go' further argues against a simple semantic origin for Al Tiya:n's form class distinctions. The semantic hypothesis would seem to predict that the termination would be productive on a verb like *-b'e*: and unproductive on the positional *k'o:(lik)*. Al Tiya:n has worked with the form-meaning combinations the adult language presents to her rather than relying exclusively on the meanings of the items as the primary basis for formal analysis.

Al Tiya:n produced one other item which underlines the saliency of suffixes for K'iche' children. This was the nominalized form of the verb *-b'in* 'travel'. Once again the syllable structure restrictions on her words prevented her from producing both syllables of the nominalized form *b'inem*. Al Tiya:n solved this dilemma by using the final CVC syllable of the word, changing the vowel from /e/ to /i/ in the process. Her production therefore included all of the nominalizing suffix *-em*, but only the final consonant from the verb root. With only one occurrence of a nominalized form there is no way of telling whether the form was productive. However, the verb *-b'in* frequently occurs in the children's transcripts as well as the nominalized form *b'inem*. The early use of such suffixes provides a good opportunity for quickly learning about nominalization processes in the adult language.

Semantic Relations

I grouped Al Tiya:n's utterances in her second sample by the semantic relations they expressed. I only included utterances which contained two or more particles or words. I did not include utterances such as *nim* which includes a derivational morpheme. Al Tiya:n's semantic relations are shown in Appendix B. I have retained the morphological codes to provide a better sense of the adult target. All morphemes which Al Tiya:n failed to produce are preceeded by an asterisk (*) while those morphemes which Al Tiya:n produced, but are not required in the adult target, are preceeded by an exclamation (!).

Table 5 provides a summary of this data. The relations of notice, location, etc. far outnumber the other types of semantic relations in this sample. This no doubt reflects the fact that I had just introduced a set of plastic animals to Al Tiya:n, who seems to have been rather taken by them. It is difficult to reliably separate Al Tiya:n's use of the demonstrative/determiners into locative, notice or attributive senses. This is because the K'iche' demonstratives and determiners have the same form. A single form, such as *le* may appear before an NP as a determiner, or after the NP as a demonstrative. Al Tiya:n's utterance *ak' le*' can be translated as 'a chicken there,' 'that is a chicken' or 'there is the/a chicken.' Linguistic and nonlinguistic contexts occassionally disambiguate these senses so I am fairly certain that the children used such expressions to talk about location, notice, attribution, etc. Since they cannot be reliably distinguished, I have grouped all of these utterances into a single category.

Table 5. A summary of Al Tiya:n's semantic relations

Semantic Relation	Types	Percent	Tokens	Percent
Locatives, etc.	36	52	87	71
Verb Subject	4	6	4	3
Subject Verb	1	1	1	1
Verb Object	2	3	2	2
Object Verb	2	3	2	2
Subject Object	1	1	1	1
Denial	3	4	3	2
Existence	4	6	4	3

Possession	5	7	5	4
Attributive	5	7	5	4
Interrogative	3	4	4	3
Uninterpretable	3	4	4	3
Total	69		122	

These categories are comparable to those Brown (1973) includes in his discussion of the semantic relations present at Stage I. Nevertheless, Al Tiya:n produced a few semantic relations that reflect the unique structure of K'iche'. She produced twice as many instances of the demonstrative/locative relation as any of Brown subjects, although there is an interesting difference between Brown's subjects in the number of demonstrative relations they produced (see Brown's Table 22, p. 174). Most of the children that Brown surveyed produced a majority of two-term utterances with an action word, however several did not. The children Sipili (Samoan) and Pepe (Mexican) produced a majority of possessive relations while Rina I (Finnish) produced a majority of demonstrative expressions. In fact Rina I comes closest to Al Tiya:n in the distribution of semantic relations, but the demonstrative utterances only made up 25 percent of her semantic relations.

Al Tiya:n is evidently not limited to talk about the actions of agents. Her utterance *b'ek joron le'* ('water goes there') shows that she can discuss the movement of inanimate objects. Her utterances about the existence or nonexistence of various objects confirms my impression that Al Tiya:n is not just observing the actions or states of animate beings.

The examples of the Object Verb relation Al Tiya:n produced are unusual in that they reflect the use of the verb *cha'* 'say' with a sentential object. It is not clear whether Al Tiya:n realizes that this verb takes sentential arguments, but this construction will provide an important route to the discovery of complex sentences. The utterances containing the existential positional *k'o:(lik*) are also uniquely K'iche'. Al Tiya:n's comments on the nonexistence of items may be pragmatically equivalent to an English-speaking child's 'all gone', but K'iche' requires such thoughts to be expressed compositionally by negating an item's existence. Her negations are produced in the appropriate way, although she does omit the positional *k'o:(lik*) from time to time. Her correct placement of the negative marker *taj* is in striking contrast to the laborious development of negation in English (cf. Wode 1977).

The Acquisition of Inflectional Morphology

The three K'iche' children that I followed longitudinally showed similar patterns of morphological development. As part of my original dissertation research I compared the acquisition of 18 morphemes for Al Tiya:n, Al Cha:y and A Carlos. These morphemes are presented below in Table 6. Refer to the grammatical sketch for a discussion of their functions.

Table 6. The eighteen K'iche' morphemes.

	Morpheme	Function
1.	*ta(j)*	Second part of the discontinuous negative marker
2.	Directionals	*l(oq)*, *bi(k)*, *kan(oq)*, etc.
3.	Perfective	The perfective suffixes *-V:m* and *-inaq*
4.	Plural	The plural marker *taq*
5.	*jo'/tasaj*	Irregular volitives of the verbs *go* and *come*

6.	*wi(h)*	The proadverb
7.	*-i:b'*	The plural of human nouns
8.	*tajin*	The intransitive progressive verb
9.	*pa*	The preposition meaning 'on,in'
10.	*k'o:lik*	The existential positional
11.	*a*	The masculine familiar marker
12.	*al*	The feminine familiar marker
13.	*le:/ri:/we:*	Articles
14.	*k-*	The incompletive aspect marker
15.	*ch-*	The regular volitive aspect marker
16.	*x-*	The completive aspect marker
17.	*a*	The Yes/No question marker
18.	*ma*	The first part of the discontinous negative marker

The eighteen morphemes differed greatly in the changes of their percentage presence from sample to sample. The aspect markers, for instance, showed a steady rise in their percentage presences with little variation up or down between samples. Other morphemes, such as the familiar markers, showed large variations in their percentage presences in successive samples. Furthermore, many of the morphemes never reached the 90 percent criterion level in the children's speech during my study. All of these factors make it difficult to apply Brown's (1973) and Cazden's (1968) criterion for acquisition of three successive samples of a 90% presence or greater. I used this criterion where I could, i.e. where the children acquired a particular morpheme during the course of the study. In order to reduce the variation between samples, I used only samples with five or more obligatory contexts as a basis for computing the morphemes' percentage presences. For the morphemes that did not reach the criterion level for acquisition, I took the mean of their percentage presence in the last three samples as the basis for computing acquisition orders.

The acquisition orders of the eighteen morphemes for the three children are shown in Figure 1. The morphemes that were not acquired during the study are shown in descending order according to their mean percentage presence in the children's last three samples. The children's ages and stage of development are also pictured in Figure 1. I use a modified version of Brown's (1973) developmental stages which reflects the mean length of utterences in morphemes (MLU) in my language samples. The MLU values for the K'iche' stages are: Stage I, MLU=1.5-2.0; Stage II, MLU=2.0-2.5; Stage III, MLU=2.5-3.15; Stage IV, MLU=3.15-3.75; Stage V, MLU=3.75 and up. Al Cha:y was the only child in my study for whom there was data from all five developmental stages. I lack data from A Carlos' Stage V and Al Tiya:n's Stages III, IV and V.

Figure 1. The order of acquisition of 18 morphemes for Al Cha:y, A Carlos and Al Tiya:n.

Al Cha:y	A Carlos	Al Tiya:n
Stage I (2;9)	Stage I (3;1)	Stage I (2;2)
neg. *ta(j)*, dir., proadverb *wi(h)*	neg. *ta(j)*, dir., irregular volitive	neg. *ta(j)*
plural *taq*	articles	directionals
	perfective	perfective
		plural *taq*

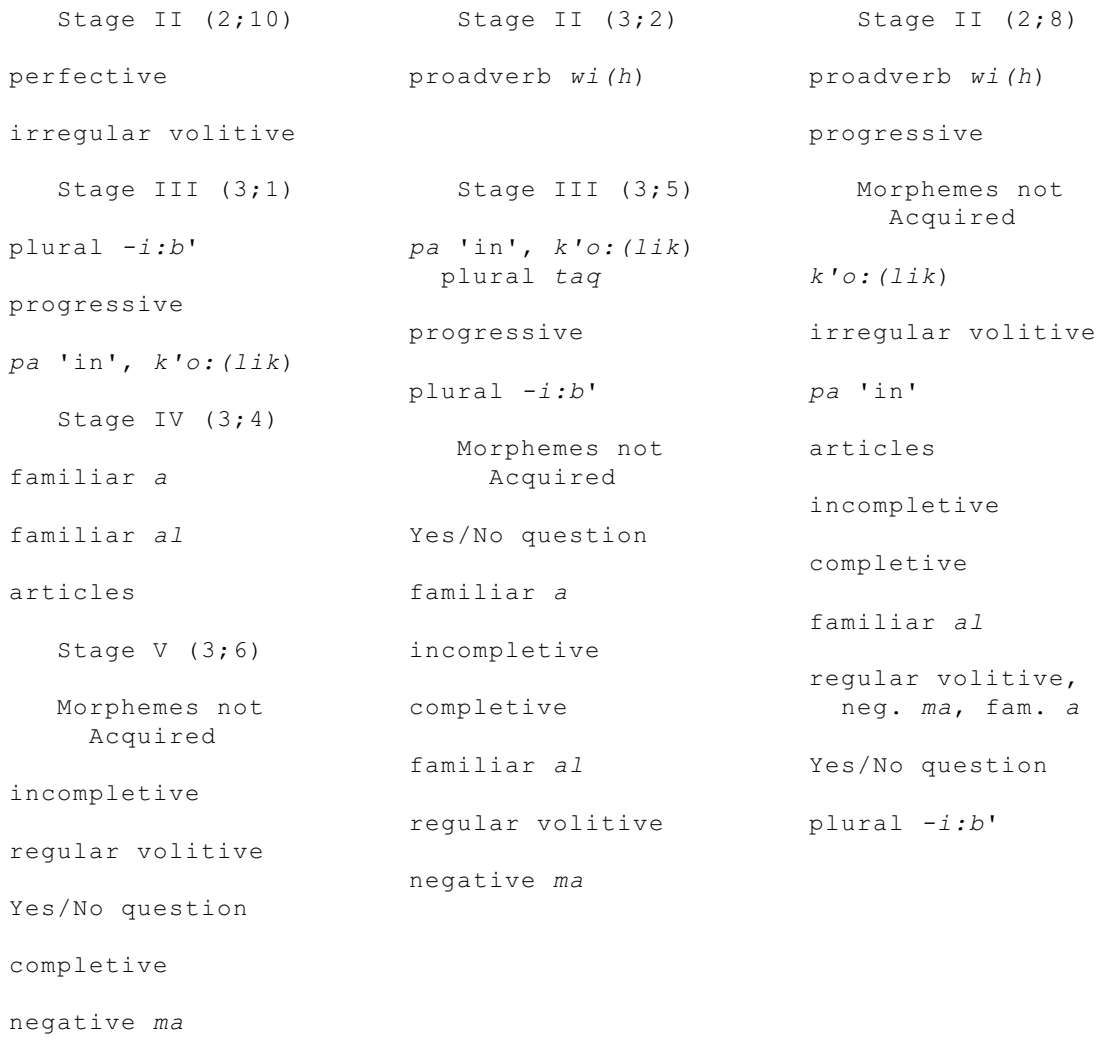

Figure 1 suggests that the children's morpheme acquisition orders are fairly similar to one another despite the heterogeneous nature of their language samples. Al Tiya:n's acquisition order is really an order of morpheme production levels. The negative marker *ta(j)*, the directionals and the perfective were early acquisitions for all three children, while the negative marker *ma*, the regular volitive, and the Yes/No Question particle were late acquisitions. In terms of Spearman rank-order correlation coefficients (rhos), the developmental order of the eighteen morphemes is statistically similar. The rhos, corrected for ties, are: for Al Cha:y and A Carlos, 0.84; for Al Cha:y and Al Tiya:n, 0.82; and for A Carlos and Al Tiya:n, 0.82. Each of these results has a probability of less than .0005 (one-tailed) of occurring by chance. It is remarkable that the degree of similarity between the K'iche' subjects is of the same order as that which Brown found for his subjects learning English.

Parental Frequency

The strong correlation observed between the orders in which the three K'iche' children learned eighteen morphemes suggests that some factor or factors is responsible for this uniformity. One possible determinant is the frequency with which the children's parents used the morphemes in their speech. To test this possibility I took samples for the mothers' speech and

counted the number of times they modeled the various morphemes. I used the first half of Al Cha:y's sample R-13, the whole of Al Tiya:n's sample T-5, and all of A Carlos' samples C-14 to C-18. These sample provided 324 instances of all the morphemes in the speech of Al Cha:y's mother, 330 instances in the speech of A Carlos' mother, and 268 instances in the speech of Al Tiya:n's mother. The frequencies of the individual morphemes in the mothers' speech are shown in Table 7.

Table 7. Children's acquisition order and frequencies for the 18 morphemes in the mothers' speech.

	Morpheme	Al Cha:y's Mother	A Carlos' Mother	Al Tiya:n's Mother
1.	negative *ta(j)*	18	40	14
2.	directionals	11	13	11
3.	proadverb *wi(h)*	11	4	8
4.	perfective	1	9	6
5.5.	irregular volitive	5	6	11
5.5.	plural *taq*	4	5	4
7.	progressive	4	4	0
8.	*k'o:(lik)*	15	32	8
9.	*pa* 'in/on'	6	10	6
10.	articles	62	34	48
11.	plural *-i:b'*	1	0	2
12.5.	incompletive	75	64	60
12.5.	familiar *a*	11	18	1
14.	familiar *al*	50	3	20
15.	completive	12	35	27
16.	Yes/No Question	1	4	0
17.	regular volitive	19	8	22
18.	negative *ma*	18	41	14

There were several morphemes which appeared in less than 90% of their obligatory contexts in the mothers' speech: the familiar marker *al* for Al Cha:y's mother; the familiar marker *a* and the negative marker *ma* for A Carlos' mother; and the negative markers *ma* marker *al* for Al Tiya:n's mother. The familiar ... *ta(j)*, the perfective marker, and the familiar markers show a symmetry in their use in that the mothers of the two girls, Al Cha:y and Al Tiya:n, use the feminine form more frequently than the masculine form, while A Carlos' mother used the masculine form more frequently than the feminine form.

The mothers were fairly consistent in the frequency with which they used the morphemes in their speech. The Spearman correlation coefficients, corrected for ties, were: for the mothers of Al Cha:y and Al Tiya:n, r=0.82 (p=.01); for the mothers of Al Cha:y and A Carlos, r=0.59 (p=.01); and for the mothers of A Carlos and Al Tiya:n, r=0.54 (p=.05). These results are not as robust as those for the children's acquisition orders, but are nevertheless quite respectible.

One reason the correlation betwen the mothers of A Carlos and Al Tiya:n may be lower is the symmetrical use of the familiar markers in the mothers' speech. Since A Carlos is the only boy it would be reasonable to reverse the frequencies of the familiar markers *a* and *al* for A Carlos' mother to compensate for A Carlos' gender. As a result of this single change, the Spearman correlation, corrected for ties, becomes: for the mothers of A Carlos and Al Cha:y, r=0.73 (p=.01); and for the mothers of A Carlos and Al Tiya:n, r=0.79 (p=.01).

The frequencies with which the mothers used the morphemes do not

appear to determine the order in which the children acquired the morphemes. The Spearman correlation between the mothers' average rank order and the children's average acquisition rank order (Table 8) is not significant (r=-.259). The mothers' heavy use of the aspect markers and the determiners seems to be primarily responsible for the difference between their frequency order and the children's order of acquisition. These results, from a language that is typologically distinct from English, offer an impressive confirmation of Brown's findings on inflectional development in English.

Table 8. The average rank order of morpheme frequency of the mothers compared with the children's average rank order of acquisition.

Morpheme	Children	Mothers
negative *ta(j)*	1	4.5
directionals	2	9
proadverb *wi(h)*	3	13
perfective	4	14
irregular volitive	5.5	10
plural *taq*	5.5	15
progressive	7	17
k'o:(lik)	8	7
pa 'in/on'	9	11.5
articles	10	2
plural *-i:b'*	11	18
incompletive	12.5	1
familiar *a*	12.5	11.5
familiar *al*	14	8
completive	15	4.5
Yes/No Question	16	16
regular volitive	17	6
negative *ma*	18	3

Syntactic and Semantic Complexity

Brown (1973) also examined the role of syntactic and semantic complexity in the acquisition of English morphemes. He found that both of these factors were correlated with the children's order of acquisition. It is extremely difficult to evaluate the role of syntactic and semantic complexity in the absence of a syntactic or semantic theory that makes explicit complexity predictions. Most grammars describe only one type of verbal behavior (intuitive judgments about acceptibility) which may have little in common with other verbal processes such as the production and comprehension of speech. Brown (1973) used two methods to determine syntactic and semantic complexity in his study: 1. the number of rules used to describe each morpheme; and 2. cumulative complexity. In the latter, a construction y is more complex than a construction x if y involves all the rules involved in x plus one or more others. Brown could only apply this test to a few of the morphemes in his study. It will not work with the K'iche' morphemes because they are much more heterogeneous syntactically. The syntactic rules which they share only modify the form or position of the morphemes and are not involved in the generation of the morphemes.

I wrote a crude set of syntactic and semantic rules to describe the 18 K'iche' morphemes shown in Table 8 (see Pye 1980a for discussion). These rules capture some of the lexical, transformational, and morphophonemic features of the morphemes. I used these rules to test the role of syntactic complexity by assuming that morphemes involved in a transformation are more complex than morphemes which undergo morphophonemic alternations,

and that these are more complex than morphemes which do not involve transformations or morphophonemic changes. Table 9 shows how this order compares with the children's acquisition order.

Table 9. Comparison of average acquisition order and syntactic complexity.

Morpheme	Acquisition Order	Syntactic Complexity Order
negative *ta(j)*	1	17
directionals	2	9
proadverb *wi(h)*	3	17
perfective	4	3.5
irregular volitive	5.5	3.5
plural *taq*	5.5	13.5
progressive	7	9
k'o:(lik)	8	9
pa 'in/on'	9	9
articles	10	9
plural *-i:b'*	11	13.5
incompletive	12.5	3.5
familiar *a*	12.5	13.5
familiar *al*	14	13.5
completive	15	3.5
Yes/No Question	16	3.5
regular volitive	17	3.5
negative *ma*	18	17

I used the Spearman rho, corrected for ties, to measure the correlation between the rank orders in Table 9 and found a rho of -0.43. It seems that syntactic complexity predictions, measured in such a fashion, do not predict morpheme acquisition orders in K'iche'. My results for semantic complexity (Pye 1980a) show a similar result. The children's early use of the negative marker *ta(j)* and the proadverb *wi(h)* are particularly embarassing to acquisition theories based on semantic complexity. The K'iche' children also acquired the progressive marker and the preposition *pa* at a point that is relatively late compared to the acquisition of the progressive and prepositions *in/on* among Brown's subjects. This is a significant contradiction to Brown's (1973) findings and suggests that syntactic and semantic complexity do not play as significant a role in the acquisition of grammatical morphemes as Brown thought.

Perceptual Saliency

I also examined whether perceptual saliency had any effect on the children's morpheme acquisition orders. Frequency is just one factor determining a morpheme's perceptual saliency; other factors may be even more critical, including: syllabicity, stress, and whether or not the morpheme may appear in utterance-final position. Slobin (1973) noted the importance of these factors and there is experimental evidence for their efficacy (Blasdell and Jensen 1970). It is unfortunate that with all of Brown's other observations, he did not examine the role of perceptual saliency more thoroughly. He noted that perceptual saliency predicts the acquisition orders of the contractible and uncontractible copula, the contractible and uncontractible forms of the auxiliary, and the full and elliptical forms of the possessive.

The effects of perceptual saliency are evident in the American children's acquisition of other morphemes besides these, however. The semantically distinct pair *in*, *on* are identical from the standpoint of perceptual saliency. They occur in exactly the same environments (at the beginning of prepositional phrases and as particles with verbs). They also consist of almost the same sounds and always make up a syllable in spoken English. Although Brown only followed them as prepositions it is likely that the children first noticed them as particles on verbs where they can be stressed and appear in utterance-final position (1973:211). The fact that the children used these prepositions very early in their speech and that the prepositions were acquired at the same time is in agreement with predictions from perceptual saliency (see Pye 1980a for other examples in Brown's data).

There are five morpheme pairs in K'iche' that lend themselves to a test of perceptual saliency as a determinant of morpheme acquisition orders. These pairs are: 1. the two parts of the separable negative morpheme *ma ... ta(j)*, 2. the regular and irregular volitive, 3. the two plural morphemes, 4. the two familiar markers, and 5. the completive and incompletive aspect markers. With the exception of the last two pairs, the members of each pair of morphemes are semantically identical.

The two parts of the negative morpheme are formally distinct. The first part, *ma*, always precedes whatever is being negated, whereas the final part, *ta(j)*, always follows whatever is negated. Both parts consist of a syllable, although the initial part, *ma* is often reduced to a syllabic nasal *n*. Since the final part, *ta(j)*, always follows the negated phrase, it may receive phrase-final stress. The initial part of the negative is never stressed. The *ta(j)* part may appear in utterance-final position, and changes its form slightly in this position. The final part of the negative morpheme, *ta(j)*, is therefore more perceptually salient than the initial part and should be the part that children would notice first.

The regular and irregular forms of the volitive also make up a semantically identical pair of morphemes. The regular volitive is indicated by the prefix *chi-* which precedes the cross-referencing markers on verbs. The regular volitive never receives primary word stress and never appears in utterance-final position. The irregular volitive consists of the volitive of two verbs: *b'e:* 'to go' and *pet* 'to come'. Each irregular volitive form is made up of at least a syllable; this volitive may be stressed and commonly appears in one-word utterances (e.g., *jat* 'Go!'). Children should learn the irregular form of the volitive first, since it is more salient perceptually than the regular form.

Similar predictions can be made with regard to the other pairs of K'iche' morphemes (Pye 1980a). These predictions, and the result of applying them separately to the children's acquisition orders are shown in Table 10. Where perceptual saliency predicts that two morphemes will be acquired at roughly similar times I used a weaker requirement that allowed the morphemes to directly follow one another in the children's acquisition orders. Finally, the aspect markers separated the two familiar particles in A Carlos' data, but I counted the familiar markers as being learned at approximately the same time since they were separated by only 6.4% presence in obligatory contexts. The results are significant at the .01 level by the Sign test. Perceptual saliency therefore appears to be a significant factor in determining the acquisition of morphemes.

Table 10. Sign test of five predictions from perceptual saliency applied to the K'iche' data.

Prediction			Al Cha:y	A Carlos	Al Tiya:n
Negative:	*ta(j)*	< *ma*	+	+	+
Volitive:	irregular	< regular	+	+	+
Plural:	*taq*	< *-i:b'*	+	+	+
Familiar:	*a*	= *al*	+	+	+
Aspect:	incompletive	= completive	+	+	+

The predictions from perceptual saliency may also be compared with the children's general morpheme acquisition order. Table 11 lists the 18 K'iche' morphemes in the average rank order of acquisition, and shows how the morphemes rate with respect to syllabicity, stress and utterance-final position. I counted the number of pluses for each morpheme across the three variables to determine a morpheme's perceptual saliency score, and ranked the morphemes on the basis of this score. For example, since there were seven morphemes which had three pluses each, I ranked them all as rank 4. Expressed in terms of the Spearman rank-order correlation coefficient (corrected for ties), the similarity between the children's average acquisition order and the morpheme's order of perceptual saliency was 0.80 (p=.01, one-tailed). Thus, perceptual saliency seems to play a significant role in determining the K'iche' children's general order of morpheme acquisition.

Table 11. Perceptual saliency of the 18 K'iche' morphemes

	Morpheme	Syllabic	Stressed	Utterance-Final	Perceptual Saliency Rank
1.	negative *ta(j)*	+	+	+	4
2.	directionals	+	+	+	4
3.	proadverb *wi(h)*	+	+	+	4
4.	perfective	+	+	+	4
5.5.	irregular volitive	+	+	+	4
5.5.	plural *taq*	+	+	-	9
7.	progressive	+	+	-	9
8.	*k'o:(lik)*	+	+	+	4
9.	*pa* 'in/on'	+	-	-	13
10.	articles	+	-	-	13
11.	plural *-i:b'*	+	+	+	4
12.5.	incompletive	+	-	-	13
12.5.	familiar *a*	+	-	-	13
14.	familiar *al*	+	-	-	13
15.	completive	-	-	-	17
16.	Yes/No Question	+	-	-	9
17.	regular volitive	-	-	-	17
18.	negative *ma*	-	-	-	17

I applied a similar analysis to the 14 English morphemes that Brown studied and found that the acquisition order in English also correlated with the children's average rank order of morpheme acquisition (r=0.73, p=.01, one-tailed and corrected for ties). Thus, perceptual saliency is the only factor that I found to be correlated with children's morpheme acquisition orders for both K'iche' and English. I concluded that perceptual saliency, not syntactic or semantic complexity, was responsible for the approximately invariant

morpheme acquisition orders observed for K'iche' and English.

Terminations

I published a later study on the acquisition of verb terminations in K'iche' (Pye 1983) which concluded that syllable stress, etc. actually reflected the operation of production factors rather than perceptual saliency. Languages which are largely agglutinative, like K'iche', pose problems for language learners who are restricted to producing one or two syllables in the early stages of acquisition. Ninety-one percent of Al Cha:y's verbs in her first five samples contained one syllable, while 70% of Al Tiya:n's verbs in her first 8 samples contain one syllable. The K'iche' children added new syllables to the front of those they were already producing, in effect working from the back of the verb to the front. In K'iche' this permits an interesting comparison to be made between the children's use of the grammatically complex, productively easy verb terminations and the semantically salient, productively difficult verb roots. The one-syllable-per-word production limit forces K'iche' children to choose between semantic complexity and ease of production.

I examined the children's use of verbs in which the verb root was not stressed, i.e., when the verb root was not the final syllable of the verb. This occurred when the verb was in clause-final position and had a termination, or when the verb stem was polysyllabic (e.g., when it contained a transitivizing suffix). I counted the number of instances in which the verb root was not the final syllable of the verb for the four subjects from whom I had obtained early acquisition data. Besides Al Tiya:n and Al Cha:y, they include two boys, A Carlos and A Li:n (2;0). I used only the samples containing over 70% of one-syllable verb forms: the first eight samples from Al Tiya:n, the first six from Al Cha:y, the first three from A Carlos, and two from A Li:n. The results are shown in Table 12. The binomial test (Siegel 1956) shows that the children consistently chose productive ease over semantic complexity ($p=.005$, two-tailed).

Table 12. Test of semantic and perceptual hypotheses on verbs.

		ONE-SYLLABLE VERBS WHOSE ROOT MORPHEME = FINAL SYLLABLE		
SUBJECT	TOTAL NUMBER OF ONE-SYLLABLE VERBS[a]	ROOT[a,b]	TERMINATION[a,c]	OTHERS[a,d]
Al Tiya:n	108	8	40	60
Al Cha:y	410	23	119	268
A Li:n	56	3	22	31
A Carlos	65	3	16	46

[a]Tokens.
[b]Use of the verb root rather than the final syllable.
[c]Use of the final syllable rather than the verb root.
[d]One-syllable verbs whose root morpheme is also the final syllable.

It is possible, as Brown (1973:88) suggests, that the children were using the verb endings by rote rather than as a productive part of the verb morphology. If this were the case, one would expect the verb terminations to be limited to just a few verb types rather than appearing with a number of different verb roots. Table 13 shows the number of different verb types that the children used with terminations. It suggests that the verb terminations were productive by this criteria.

Table 13. Productivity of the verb terminations.

SUBJECT	INTRANSITIVE TERMINATIONS		TRANSITIVE TERMINATIONS	
	Types	Tokens	Types	Tokens
Al Tiya:n	18	37	15	25
Al Cha:y	13	43	23	172
A Li:n	12	27	6	10
A Carlos	5	7	10	14

A second way of evaluating the productivity of the verb terminations in the children's speech is to examine whether the children ever used verb stems both with and without a termination. If the children were producing the terminations by rote they should consistently use the same verb form--either with or without a termination. There should be few verbs which appear both with and without terminations.

Table 14 shows the children's verb types which appeared with the terminations. For this analysis I used the same samples from the children (S1-8, R1-6, L1-2, C1-3) as in the two previous analyses. However, I only examined the children's use of monosyllabic transitive verbs along with the intransitive verbs. I could not include the polysyllabic transitive verbs in this analysis since they always appear with a termination. The results shown in Table 14 suggest that the children were using the terminations productively at a time when they could only produce a single verb syllable.

Table 14. Verb types appearing with or without terminations.

SUBJECT	WITH A TERMINATION[a]		WITHOUT A TERMINATION[a]		WITH AND WITHOUT A TERMINATION	
	Types	Tokens	Types	Tokens	Types	Tokens
Al Tiya:n	11	23	13	41	12	84
Al Cha:y	10	63	26	97	11	186
A Li:n	8	18	10	30	5	27
A Carlos	4	6	7	9	6	24

[a]Does not include verbs that appear both with and without terminations.

A final question is the extent to which the children use the verb terminations appropriately. This is a complex question to pose since the verb terminations actually encode 4 distinct contrasts: 1. verb transitivity; 2. derivation; 3. status; 4. clause-medial vs. clause-final position. If the children were using the verb terminations by rote, they might eventually make mistakes on all of these contrasts. I will discuss the children's sensitivity to verb transitivity in another section. With regard to the clause-medial/clause-final distinction, the children might use the verb terminations with verbs in clause-medial position or not use the termination with verbs in clause-final position. Table 15 shows the errors the children made on the clause-medial/clause-final dimension of verb termination use in the same samples I used previously.

Table 15. The clause-medial/clause-final distinction.

	CLAUSE-MEDIAL				CLAUSE-FINAL			
SUBJECT	CORRECT		INCORRECT		CORRECT		INCORRECT	
	iv	tv	iv	tv	iv	tv	iv	tv
Al Tiya:n	17	37	1	2	38	18	11	5
Al Cha:y	38	199	16	2	24	15	7	18
A Li:n	12	25	2	-	27	5	2	2
A Carlos	16	7	3	2	6	2	1	-

Table 15 suggests that the children occasionally use clause-final verb terminations in clause-medial contexts. Most of the errors occur on certain, frequently occurring verbs (*b'e:* 'go', *ok* 'enter', *pet* 'come'). So to a small extent it is true that the K'iche' children use the verb termination regardless of whether or not the verb is in a clause-final context. Nevertheless, they use the correct verb form more often than the incorrect form for the majority of verbs.

This data indicates that K'iche' children actually use two different parts of the verb appropriately even though production constraints initially limit them to a single verb syllable. Operating under this constraint, they chose the syllable that receives primary stress. They cannot apply this strategy to the SAME syllable each time, since the stress on the verb shifts with the linguistic context. The children are forced to learn at least two syllables for some verbs, even though they can only produce one of the syllables in an utterance. The children's use of stressed syllables actually reflects a production constraint rather than a perceptual constraint. The children have perceived and produce two different syllables of the verb in different linguistic contexts, but a production constraint limits them to one syllable at a time. The effects of stress, syllabicity, etc. on morpheme acquisition are actually due to production constraints rather than perceptual constraints.

Positionals provide another test of the children's willingness to use terminations rather than lexical roots. The positional *k'o:(lik)* appeared especially frequently in the children's transcripts. It is used to talk about the existence, location or possession of an object. It is made up of the root *k'o*, the positional suffix /-V_1l/, plus the termination /-ik/. It is irregular in that, in clause-medial position, it drops the /l/ of the positional suffix along with the termination, appearing simple as *k'o:*. The obligatory nature of *k'o:(lik)* and its high frequency in adults' and children's speech makes it especially suitable for evaluating the children's use of terminations.

The children used various forms of *k'o:(lik)* in their first samples; e.g.,

(31) In an attempt to get Al Cha:y (2;9) talking, her mother tells her to describe the plastic duck that I had brought.

M: k'o: pala:j katcha' 'It has a face, you say.'
Al Cha:y: laj (= pala:j) 'Face.'
ku paj (= k'o: pala:j) 'It has a face.'
M: k'o: pala:j le: ju:n pa:tax katcha'
'That duck has a face, you say it.'
Al Cha:y: pa:j, tax (= k'o: pala:j le pa:tax.)

(32) While playing together with her brother and sister, Al Tiya:n (2;1) notices something resembling a cow.

Al Tiya:n: kolyih (= k'o:lik) 'Here it is.'
kax (= ju:n wa:kax) 'A cow.'

Brother: k'o: le: ake:j 'You have your horse.'
Al Tiya:n: lik e:' (= k'o:lik e:') 'I have it.'

In (31), Al Cha:y first uses the stem of the positional, and then omits it, but in (32), Al Tiya:n first uses the complete clause-final form, and then only the termination. The termination carries the primary sentence stress in utterance-final position; thus it should be easier to hear and produce than the positional stem which always appears in clause-medial position. The children face a choice between a semantically salient stem or the productively simple suffix in clause-final position. Table 16 shows the children's use of the positional forms in their early samples (the first six samples for Al Cha:y and Al Tiya:n, the first three for A Carlos and two for A Li:n). Considering just the clause-final contexts, it can be seen that the children chose the stressed suffix over the stem (p=.001 by a two-tailed binomial test).

Table 16. Forms of *k'o:(lik)* in children's early samples.

	CLAUSE-MEDIAL			CLAUSE-FINAL		
	0	*k'o:*	*lik*	*k'o*	*lik*	*k'o:lik*
Al Tiya:n	26	12	2	0	20	7
Al Cha:y	65	16	6	0	16	6
A Li:n	9	5	0	0	6	3
A Carlos	13	30	0	0	8	30

The overgeneralization of the positional termination to clause-medial contexts in the samples from Al Tiya:n and Al Cha:y suggests that the children might have been using the termination as a prefabricated routine to some extent. However, the children demonstrated a remarkable understanding of the contexts in which the positional was appropriate, even though they were using the positional in less than 90% of its obligatory contexts (Al Tiya:n used it in 58% of its obligatory contexts, Al Cha:y used it in 35%). The children definitely knew that the stem and termination were different parts of the same lexical item; they did not use the stem or termination to signify different meanings, nor did they use any other word in its place. The overgeneralizations themselves are evidence that the children had made some connection between the clause-medial and clause-final forms of the positional. The overgeneralization was also quite minor; Al Tiya:n and Al Cha:y continued to use the clause-medial form of *k'o:(lik)* in the majority of the clause-medial contexts in which they used the positional.

For both verbs and *k'o:(lik)*, the children systematically distinguished between the clause-medial and clause-final forms in their earliest samples: they used the stems in clause-medial contexts, while using only the terminations in clause-final contexts. This behavior can be tied to the way that stress shifts in the two environments; in clause-medial positions, the word stems are stressed, whereas in clause-final positions the terminations receive primary stress. For both the verbs and *k'o:(lik)*, the production factors result in considerable morphological complexity in the children's first words.

Cross-reference marking

As discussed in the section on K'iche' grammar, K'iche' uses a set of cross-reference markers to indicate the subject and object of verbs, the possessor of nouns, and the object of relational noun phrases. The ergative set of cross-reference markers is used to indicate the subject of a transitive verb, the possessor of nouns and the object of relational nouns. Relational

nouns use a /w-/ is used instead of the first person verb prefix /inw-/ and possessive constructions use /nu-/ instead of the first person verb prefix /in-/. The absolutive set of markers indicates the subject of intransitive verbs and the object of transitive verbs. The independent pronouns have forms that are identical to the absolutive markers except in the third person singular and plural. Larsen (1988) argues that the ergative set of cross-reference markers are prefixes while the absolutive set are clitics.

As shown in the previous section, K'iche' children typically produce only one or two syllables of a word, usually the stem or the stem plus a suffix. The cross-reference markers, by and large, are missing. Al Tiya:n did not produce any cross-reference markers in the sample I analyzed earlier. Since the cross-reference markers are obligatory in all environments it is relatively easy to determine when they are missing in a child's speech. The following example will give some idea of the children's speech during this period. Al Cha:y omits both the subject marker on her verbs and the second person plural possessive marker on the noun *wa* 'food'.

(33) Al Cha:y at 2;9

```
Mother:   le: katijoh katcha'.    'You eat them say.'
Al Cha:y: toh. (= le:  k-Ø-a-tij-oh)
                  those INCOMP-3A-2E-eat-TTV
Mother:   jawi: kaloq' wi liwa: katijoh katcha chareh.
         'Where do you buy the food you eat, say to him.'
Al Cha:y: loq' wi wa:?
          (= jawi: k-Ø-a-loq'       wi    le: i-wa:)
             where INCOMP-3A-2E-buy PROLOC the 5E-food
```

When the cross-reference markers do begin to appear in the children's speech their form seems to be dictated by the syllabification requirements of K'iche' rather than any rule of morphological transparency. If the cross-reference marker ends in a consonant, that consonant will combine with a following vowel to begin a new syllable. The following examples show how syllabification interacts with the form of the cross-reference markers (a slash marks a syllable boundary while a dash or space marks a morpheme boundary).

(34) ka-Ø-/ r-il le: w-e/tz'a/b'a'l
INCOMP-3A-3E-see the 1E-toy
'He/She sees my toy.'

x-Ø-qa-/tij qa-/ri/ki'l
COMP-3A-4E-eat 4E-food
'We ate our food.'

ka-Ø-u-/q'a/luj le: r-a:l
INCOMP-3A-3E-hug the 3E-child
'She holds her child.'

x-Ø-in-/k'am w-u:k'
COMP-3A-1E/carry 1E-with
'I carried it with me.'

The children begin to use the cross-reference markers when they start adding more syllables to their words. If this syllable is a whole cross-reference marker then it will appear intact. However, if the syllable only contains part of a cross-reference marker, then only this part may be produced. A Carlos, for example, produced the following forms with partial cross-reference markers.

(35) A Carlos (3;0)
wiloh. (= k-Ø-a/w-i/l-oh INCOMP-3A-2E-see-TTV)
teloq. (= ch-a/t-e/l-oq DEP-2A-leave-TDEP)

His utterance *wiloh* contains only the second part of the second person singular ergative marker /aw-/ while the utterance *teloq* contains only the final consonant of the second person singular absolutive marker /at-/.

The resyllabification of the cross-reference markers makes it difficult to objectively determine when a child has acquired the cross-reference markers. I originally counted the cross-reference markers as present only if they appeared in their full form. However, there is no reason not to count a marker as present if it only appears as a final consonant. In other words, should the partial forms of the cross-reference markers in the sample of A Carlos' speech be counted as present or absent?

The only reason to count them as absent would be if there were some indication that the children had misanalyzed the cross-reference markers and mistakenly assumed that the final consonant was part of the noun or verb. As a second language speaker of K'iche' I sometimes find it difficult to distinguish the morpheme boundaries of a new word that begins with a vowel from one that begins with a /w/, e.g. *kinwelaq'a:j* vs. *kinwachika:j* (k-Ø-inw-elaq'-aj, INCOMP-3A-1E-rob-DER vs. k-Ø-in-wachik-aj, INCOMP-3A-1E-dream-DER). It is possible that children might hear a word used frequently with a particular cross-reference marker and missegment the form. If they do, such mistakes should be evident when they produce the word with a different cross-reference marker. They might assume the verb *-elaq'a:j* begins with a /w/ and so produce the third person singular form * *kuwelaq'aj* rather than the correct form *karelaq'aj*. They might also assume that the verb *-wachika:j* begins with a vowel and produce the third person singular form * *karachika:j* rather than the correct form *kuwachika:j*.

I found very few examples of such double marking among the cross-reference markers. A Carlos produced 5 examples with three different verbs (* *in-aw-aj* = *inw-aj* 'I want'; * *in-t-oq'* = *in-oq'* 'I cry' (2x); * *k-i-t-ok-a* = *ix-ok-a* 'you enter' (2x)). Al Tiya:n produced one questionable example with a verb (* *k-u-w-aj* = *k-aw-aj* 'you want'). The children also produced occasional examples of double marking for the possessive inflection on nouns. Al Cha:y 14 examples (e.g. * *u-w-ach* = *r-atz* 'his/her older sibling'; * *nu-w-ech'ab'al* = *w-etz'ab'al* 'my toy'). A Carlos produced three examples (e.g. * *nu-w-aqan* = *w-aqan* 'my foot') and Al Tiya:n produced two examples (e.g. * *u-w-atzya:q* = *r-atzya:q* 'his/her clothes'). None of the children produced relational nouns with double cross-reference markers. The following tables will provide some idea of the relative frequency of double marking in the children's speech. Each table shows the number of cross-reference markers in the child's sample, their percent presence in obligatory contexts, the number of double markings the occurred, and the percentage of cross-reference markers that were doubly marked in each sample.

Table 17. Cross-reference marking on verbs

	Al Tiya:n				Al Cha:y				A Carlos			
Sample	No.	%	DM	%DM	No.	%	DM	%DM	No.	%	DM	%DM
1-3	16	50	-	-	3	2	-	-	38	36	-	-
4-6	8	22	-	-	19	7	-	-	83	54	-	-
7-9	10	15	-	-	17	7	-	-	160	45	-	-
10-12	25	22	-	-	51	16	-	-	169	57	-	-
13-15	29	23	1	3	53	18	-	-	161	54	3	2
16-18					90	32	1	1	177	70	2	1

Table 18. Cross-reference marking of possession

	Al Tiya:n				Al Cha:y				A Carlos			
Sample	No.	%	DM	%DM	No.	%	DM	%DM	No.	%	DM	%DM
1-3	3	6	-	-	9	13	-	-	56	64	1	1
4-6	30	22	-	-	24	19	1	1	71	74	-	-
7-9	32	27	-	-	14	12	-	-	125	63	-	-
10-12	28	49	1	2	41	32	-	-	88	68	1	1
13-15	38	73	5	9	59	54	-	-	145	85	1	1
16-18					149	80	12	6	178	94	1	0

Table 19. Cross-reference marking on relational nouns

	Al Tiya:n				Al Cha:y				A Carlos			
Sample	No.	%	DM	%DM	No.	%	DM	%DM	No.	%	DM	%DM
1-3	5	50	-	-	32	63	-	-	24	83	-	-
4-6	3	50	-	-	36	63	-	-	22	92	-	-
7-9	28	82	-	-	35	71	-	-	84	72	-	-
10-12	38	74	-	-	68	65	-	-	61	81	-	-
13-15	48	94	-	-	62	70	-	-	102	88	-	-
16-18					96	87	-	-	101	91	-	-

It is worth noting that even though the cross-reference markers have similar forms in all of these environments, the children first used them consistently to mark the locative objects of relational nouns, then the possessor on nouns, and last the subject on verbs. My feeling is that this outcome also reflects the role of production factors in morpheme acquisition since the relational nouns tend to be monosyllablic and occur in utterance-final position (Pye 1980a, 1980b).

The absence of double cross-reference marking on the relational nouns is also striking. The children used double cross-reference marking most frequently when the noun or verb began with a vowel. There are several relational nouns that begin with vowels, e.g. *-uk'* 'with', *-e:(ch)* 'to, for', and *-ij* 'behind'. I would have expected the children to produce some instances of double marking with these relational nouns, but this did not happen. This suggests that even though the cross-reference markers have similar forms in these environments, the children treated them as separate acquisition tasks. The relative absence of double cross-reference marking on the verbs may be an artifact of the frequency with which the children were producing cross-reference marking on the verbs. They were not yet producing the cross-reference markers in 80% of the verbal contexts.

With one exception, there was no confusion between the various person markers in the children's speech; they either used the appropriate marker or none at all. The exception in K'iche' occurred in the children's use of the preconsonantal allomorph of the first person singular possessive marker. This marker is unusual in that it has two forms: one form /nu-/ is used to mark the possessor with the vast majority of words while the second form /in-/ is used with only two words in my corpus, *ta:t* 'father' and *chaq'* 'younger sibling'. The children produced utterances with * *nu-ta:t* and * *nu-cha:q'* instead of the adult forms *in-ta:t* 'my father' and *in-chaq'* 'my younger sibling'.

The K'iche' children also did not exhibit any confusion between different persons with cross-reference markers. This contrasts with findings from Portuguese (Simoes & Stoel-Gammon 1979), Estonian (Lipp 1977) and Latvian (Ruke-Dravina 1973) where the children initially used the third person singular indicative form for every person. The K'iche' children used the

singular forms more frequently than the plural forms, but all the forms appear in the children's early language samples. Table 20 shows the children's progress with the singular forms of the cross-reference markers on verbs.

Table 20. First, second and third person singular cross-reference marking on verbs (percent obligatory contexts)

	Al Tiya:n			Al Cha:y			A Carlos		
Sample	1	2	3	1	2	3	1	2	3
1-3	33	25	-	-	2	-	37	27	18
4-6	12	23	-	-	9	6	49	54	38
7-9	10	17	20	9	5	4	40	44	42
10-12	13	8	33	3	4	28	52	55	44
13-15	22	20	30	8	16	21	55	48	80
16-18				34	20	36	71	69	75

The children's acquisition of the cross-reference markers on the verbs is of special interest because they follow an ergative morphological pattern. K'iche' uses an ergative set of cross-reference markers to indicate the subject of transitive verbs and an absolutive set to indicate the subject of intransitive verbs and the object of transitive verbs (cf. K'iche' sketch). The distinction between the ergative and absolutive sets holds for all persons, moods and verb aspects. Children cannot use these sets appropriately if they initially depended on some semantic/cognitive notion like agent or actor as the basis for the subject grammatical relation (cf. Pye, in press).

Table 21 presents the data on the acquisition of cross-reference markers for subjects of intransitive and transitive verbs. The children appear to use transitive verbs more frequently than intransitive verbs, but this is an artifact of the way I counted the cross-reference markers for subjects. The third person singular absolutive marker is a zero morpheme. Since I could not tell whether or not this marker was present in the children's speech I excluded all intransitive verbs with third person singular subjects from the analysis. The children seem to produce the absolutive and ergative sets of cross-reference markers at similar rates in their obligatory contexts.

Table 21. The ergative/absolutive contrast on K'iche' verbs

	Al Tiya:n				Al Cha:y				A Carlos			
	Ivs		Tvs		Ivs		Tvs		Ivs		Tvs	
Session	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-3	6	86	9	39	-	-	3	2	19	50	17	71
4-6	3	50	5	11	9	39	10	4	20	67	63	50
7-9	4	31	6	10	5	22	12	6	32	58	128	46
10-12	6	38	19	17	3	7	48	16	17	65	152	54
13-15	4	10	25	19	2	9	51	18	31	70	130	51
16-18	-	-	-	-	14	50	76	33	24	70	149	69
19-21	-	-	-	-	19	59	64	43	23	85	87	71

Table 21 shows that Al Tiya:n and Al Cha:y had begun to use the person markers in 20 percent of their obligatory contexts while A Carlos used the person markers in half of their obligatory contexts for transitive verbs. Al Cha:y used subject markers 51 times with transitive verbs in sessions 13-15

while A Carlos used them 130 times. This would seem to have provided ample opportunity for overgeneralizations if they were going to make them.

If the children were using a semantic/cognitive concept as the basis for their cross-reference marking they should overgeneralize the subject markers in some way. They might, for example, first notice the ergative set of markers and use them to indicate the subjects of intransitive verbs. They could also begin with the absolutive set of markers and extend them to transitive verbs (cf. Pye, in press). In either case, the formal distinction between the ergative and absolutive sets makes it easy to detect any overgeneralizations that the children would produce. Table 22 presents the overgeneralizations that I found in the K'iche' data. I considered an overextension of an ergative marker to an intransitive verb to be an error in the use of the ergative marker. I counted the overextension of an absolutive marker to a transitive verb as an absolutive error.

Table 22. Overgeneralizations of cross-reference markers on verbs

	Al Tiya:n		Al Cha:y		A Carlos	
Session	Abs	Erg	Abs	Erg	Abs	Erg
1-3	-	-	-	-	-	-
4-6	-	-	-	-	-	-
7-9	-	-	-	-	-	5
10-12	-	-	-	-	-	-
13-15	-	1	-	-	-	-
16-18			1	-	1	-

As Table 22 shows, the children only made a small number of overgeneralizations. In sample 18, Al Cha:y used the verb form *kanoh* rather than the appropriate form *ku'anoh* (k-Ø-u-'an-oh, INCOMP-3A-3E-do-TTV). She appears to have used the absolutive third person singular zero morph to indicate the subject of the transitive verb *-an*. In sample 8, A Carlos produced three tokens of the verb form *a'ayo'wik* rather than the adult form *xatyo'wik* (x-at-ya'-ow-ik, COMP-2A-give-FA-TIV). He used an second person singular ergative marker on an intransitive verb.

It seems that cross-reference marker overgeneralizations do occur in K'iche', but very infrequently (no more than 5% of cross-reference marker uses). The children appear to begin overgeneralizing the cross-reference markers some time after they have begun using the markers consistently on verbs. Al Cha:y and A Carlos produced their first overgeneralizations when they were using the cross-reference markers in over 50% of their obligatory contexts. Finally, the children do not show any noticable tendency to overgeneralize the cross-reference markers in any particular direction.

There is no indication in my data that K'iche' children restrict their initial cross-reference markers to any particular semantic class of verbs as Slobin (1985) predicts. Table 23 shows the verb types that the children used with ergative cross-reference markers in their first ten samples. All three children first used cross-reference markers with a wide variety of verbs. They were not more likely to use the markers with actional verbs referring to changes of state or location. Nor did the verb types change dramatically from the youngest subject, Al Tiya:n, to the oldest, A Carlos.

Table 23. Verbs with ergative subject markers in the children's first ten language samples

Session	Al Tiya:n		Al Cha:y		A Carlos	
1	b'an	'make, do'			k'am	'carry'
2					b'an	'make, do'
3	il	'see'	b'iq'	'swallow'	il	'see'
					jat'ij	'tie'
					qaj	'lower'
					ku'	'hide'
4			aj	'want'	q'o'	'paint'
					k'ol	'guard'
					ya'	'give'
5			tij	'eat'	ta'	'hear, ask'
6			xe'j -ib'	'afraid'	ch'ob'	'know'
			chap	'grab'	chuk	'pull'
					tzaq	'lose'
					esaj	'take out'
					loq'	'buy'
					toqij	'take away'
7	ya'	'give'	b'an	'make, do'	chup	'put out'
			sok	'hurt'	tzukuj	'look for'
			iye'j	'wait for'	aj	'want'
			ch'ob'	'know'	jik'	'pull'
					k'ayij	'sell'
					paxij	'smash'
					pis	'wrap'
					sipaj	'gift'
					su'	'wipe'
8					q'upij	'break'
					yojij	'scold'
9	aj	'want'	il	'see'	chap	'grab'
	elaq'aj	'steal'	tz'ib'aj	'write'	tz'ib'aj	'write'
	tij	'eat'			b'ij	'say'
					koj	'use'
					yo'oj	'drive off'
10	k'am	'bring'	tzukuj	'look for'		
	koj	'use'				

I conclude from this data that K'iche' children show an early appreciation of the formal requirements of cross-reference marking in the adult language. It may take over a year from the age of two before the children begin to use the cross-reference markers in over 90 percent of their obligatory contexts, but the children make remarkably few mistakes along the way. They use the different persons and cases appropriately on a wide variety of verbs. They make a few mistakes with the cross-reference markers when they begin to use them consistently, but these mistakes are sporadic and seldom amount to more than 5 percent of their total use. The children's use of the cross-reference markers on verbs reinforces the impression gained from their use of verb terminations that K'iche' children are well aware of their language's specific verb transitivity designations.

Syntactic Acquisition

Word Order

The adult language has a highly variable word order. Topicalized NP's appear in sentence-initial position while focused NP's appear in preverbal position. The presence of obligatory cross-reference markers on verbs,

possessed nouns and relational nouns allows nonemphatic pronouns to be omitted. The combination of these two syntactic features produces the variable surface realizations of the adult language. I show what the adult word order is like in the speech of the children's mothers in Table 26.

Table 24. Word orders for K'iche' adults

Order	Al Tiya:n's Mother		Al Cha:y's Mother		A Carlos' Mother	
VS	35	.28	34	.17	4	.07
SV	11	.09	7	.04	2	.04
VO	52	.41	88	.45	15	.27
OV	11	.09	26	.13	5	.09
VOS	6	.54	7	.33		
VSO	2	.18	1	.05		
SVO	1	.09	8	.38	1	
OVS	2	.18	4	.19		
OSV	1	.05				

This data shows that K'iche' adults most frequently use a transitive verb with a single argument, most often the direct object, but occassionally the subject. When they use two arguments with the verb they may appear in virtually any order, although the VOS order occurs fairly frequently. K'iche' children are presented with the problem of determining what the basic word order of the language might be (or even figuring out if K'iche' is a configurational language) on the basis of such input. The children appear to have solved this problem from the time they begin producing two term utterances. Their frequency profiles closely resemble those of their parents (see Table 25). They produce a majority of verb object utterances, but show a flexibility in their other word orders. They also demonstrate a tendency to put the verb in utterance-initial position.

Table 25. Word orders in K'iche' children's speech (tokens)

	Al Tiya:n				Al Cha:y				A Carlos			
	SV	VS	OV	VO	SV	VS	OV	VO	SV	VS	OV	VO
1-3	-	-	1	3	2	11	4	67	-	3	2	16
4-6	-	1	1	4	4	32	4	103	-	6	-	33
7-9	1	3	2	20	5	32	5	95	6	37	8	106
10-12	-	8	3	28	5	27	8	125	-	7	4	102
13-15	1	12	2	48	6	32	10	95	-	19	7	94
Total	2	24	9	103	22	134	31	485	6	72	21	351
Percent	1%	17%	6%	75%	3%	20%	5%	72%	1%	16%	5%	78%
VOS		1				52				5		
VSO		5				36				10		
SVO		2				20				3		
SOV												
OVS		1				6				3		
OSV						1				1		

The results for the three-place utterances actually show a preponderance of VSO utterances rather than VOS utterances for Al Tiya:n and A Carlos. The explanation is that the VOS order only reflects the unmarked case, and in most of these cases the subject is omitted. The other

word orders represent more marked situations, and in such cases the subject is more likely to be produced. The data from the children's two-term expressions shows an unequivocal tendency to place the subject after the verb from the beginning. Examples of the children's three-term utterances are shown in (36).

(36)

Al Tiya:n

VOS axej wi:b' at (= x-Ø-a#xe7j aw-i:b' at) (S15-4)
scared yourself you
You scared yourself.

VSO yakom ate le: q'ab'e (= Ø-a#ya-om at le: q'ab'-e) (S14-6)
have got you that hand there
You have got that hand there.

SVO lah ti tu wakax (= alah k-Ø-u#tij ta u-wakax) (S7-58)
boy eats not his cow
The boy is not eating his cow.

Al Cha:y

VOS tij lon tax (= k-Ø-u#tij le: jaron le: patax) (R2-38)
eat water duck.
The duck is eating the water.

VSO koj 'uj leya (= k-Ø-qa#koj 'uj bateriya) (R3-6)
use we bateries.
We use bateries.

SVO le: jun mu'x tij xo't (= le: jun mu's k-Ø-u#tij xo't) (R6-29)
that one ladino eat tile.
That ladino eats roof tiles.

OVS le: 'al 'an 'in (= le: 'al k-Ø-in#'an 'in) (R2-42)
the heavy do I.
I'm doing/making the heavy one.

A Carlos

VOS utij jun umux le: le: le: Ci:j
(= k-Ø-u#tij jun u-mux le: le: Ci:j) (C6-40)
eats one his swim that there sheep
That there sheep is swimming.

VSO inqupij in e nayl (= k-Ø-in#qupij in e: nayl) (C8-31)
I tear I the nylon
I'm tearing the nylon.

SVO le: jun tij Cikopi7 (= le: jun k-Ø-u#tij Cikopi7) (C7-38)
that one eats animals
That one eats animals.

OVS li koj in (= ri k-Ø-in#koj in) (C9-38)
this use I
I'll use this.

OSV we jun at e ayojij (= we jun at k-Ø-a#yojij) (C8-60)

if one you scold
if you scold one.

While the children are clearly influenced by the canonical word order of K'iche', Table 25 also shows that they produce sentences with flexible word orders from the beginning. They do not exhibit any special rigidity in adapting to the conver sational demands of K'iche'. The K'iche' children show the same flexibility that other children exhibit who are learning languages such as Finnish (Bowerman 1973) or Turkish (Aksu-Koc and Slobin 1985) which have flexible word orders. What is perhaps more interesting, is that the K'iche' children produce such variable word orders without any reliance on "local cues" such as case markers on nouns. Slobin (1982) thought that such cues were necessary for children to interpret and produce sentences with variable word orders. The K'iche' data shows that children do not require such crutches in order to properly interpret grammatical relations in languages with flexible word orders.

Pro-drop

The frequency of two-term utterances in K'iche' shown in Tables 24 and 25 demonstrates the overall prevalance of the pro-drop phenomenon in the language. More direct data on the presence of subjects and objects in the children's speech is shown in Table 26. K'iche' children omit subjects two to six times more frequently than they omit objects. This result holds steady for all three children across all language samples.

Table 26. Frequency of lexical subject and object NP tokens in K'iche' children's utterances with transitive verbs.

	Al Tiya:n			Al Cha:y			A Carlos		
Sample	No. verbs	No. subj.	No. obj.	No. verbs	No. subj.	No. obj.	No. verbs	No. subj.	No. obj.
1-3	23	-	4	164	13	71	24	3	18
4-6	45	5	14	235	36	107	63	8	33
7-9	61	4	23	215	42	100	279	44	121
10-12	113	8	31	292	32	133	283	8	111
13-15	131	15	51	275	38	105	254	20	117
Total	373	32	123	1181	161	516	905	83	400
Mean percent		8%	33%		14%	44%		9%	44%

The K'iche' children appear to be dramatically different from children learning English or Italian on this parameter (cf. Hyams, 1986). Al Tiya:n, for example, omitted subjects in 92% of her utterances while she omitted objects in 67% of her utterances averaged across all 15 sessions. In contrast, children learning English initially omit subjects in 55% of their utterances, while omitting objects in only 9% of their utterances (Bloom 1989). Thus, the conditions governing subject and object omission are not the same for children acquiring English and K'iche'. Even at the earliest stages, children learning English and K'iche' show an awareness of the specific subject and object properties of their language.

The subject and object positions in K'iche' also exhibit an asymmetry in their percentage presence. While this asymmetry is similar to the differential presence of subjects and objects in adult K'iche' speech, both child and adult data probably reflect the way the structural characteristics of K'iche' interact with discourse demands. It is well known that pronouns are used for old information and that languages usually use the subject

position to mark the topic of conversation which is, by its nature, old information. The high rate of subject omission in K'iche' probably reflects the use of the subject position to encode old information by means of nonemphatic pronouns which are subsequently dropped through the rule of pro-drop. This argument could be strengthened by showing that the use of pronouns in these positions in English corresponds to the frequency of omission in K'iche'.

The issue of how frequently the K'iche' children used subjects and objects obscures a much more interesting connection between the independent personal pronouns and the agreement markers on the verb. Both could be used to mark the subject and object, although the pronouns would be redundant. The K'iche' children used both pronouns and agreement markers on the verb to mark subjects (see Table 27). Comparing Table 26 and 27 shows that almost all the lexical subjects in the K'iche' children's speech were pronouns. This appears to be slightly higher than it is for children learning English, who use pronominal subjects in approximately 80% of their utterances (Bloom, Lightbown & Hood 1975). Pronouns and agreement markers for the subject emerge at about the same time in the K'iche' children's speech. From the beginning, the children seem to use the pronouns to emphasize the subject rather than as a replacement for the agreement markers--a further indication that they are aware of the pro-drop rule.

Table 27. The use of pronouns and agreement markers in K'iche' children's speech (subject position of transitive verbs only).

	Al Tiya:n		Al Cha:y		A Carlos	
Session	pronouns	agreement markers	pronouns	agreement markers	pronouns	agreement markers
1-3	-	9	20	3	2	17
4-6	3	5	29	10	3	63
7-9	3	6	28	12	25	128
10-12	5	19	30	48	6	152
13-15	12	25	32	51	23	130
13-15 as % of tvs	9%	19%	12%	18%	9%	51%

The different rates of production of subjects and objects in the K'iche' children's speech also show that word order is not responsible for this phenomenon as Pinker (1984:133) conjectured. He argued that the relative absence of subjects with adjectives or possessives might be due to cognitive processing capacity. The argument rests on the linear position of the subject relative to the object in English. Elaborated subjects would deplete working memory since they would have to be stored until the rest of the sentence was processed. The K'iche' children showed a similar disparity between subjects and objects even though word order in K'iche' is VOS rather than SVO. They not only produced more objects than subjects, but used more elaborate NPs in object position than in subject position. Thus, processing limitations do not account for the differences between subject and object NPs in child language.

Transitivity

The heart of syntactic acquisition lies in determining the argument structure of verbs. This structure, in turn, directly reflects verb transitivity. While there seems to be a broad consensus between languages on which verbs are transitive and which are not, there are also differences. Hopper and Thompson (1980) outline the major factors which govern transitivity across languages. They argue that these factors produce a transitivity

continuum which individual languages may divide into transitive and intransitive verb classes over a fairly wide range of the continuum. Languages also indulge in many syntactic operations which alter verb transitivity (passives, antipassives, causatives, middles, instrument advancement, locative advancement, dative shift, etc.), hence one must distinguish between root transitivity and derived transitivity.

No account of acquisition would be complete without an analysis of children's understanding of verb transitivity and the transitivity alternations in their language. K'iche' is, in many respects, an ideal language in which to carry out such an analysis. The verbal morphology makes it abundantly clear when speakers have used a transitive or intransitive verb. Rules which alter verb transitivity also leave clear morphological indications of their application. It is easy to follow the children's understanding of verb transitivity as soon as they begin using the verb terminations, cross-reference markers, and the morphological reflexes of the transitivity-changing rules. In the section on the acquisition of the cross-reference markers I showed that K'iche' children make very few mistakes regarding the ergative/absolutive distinction on cross-reference markers. In this section I will review their use of the verb terminations and transitivity alternations.

The transitivity of verb terminations

My sketch of K'iche' grammar outlines the way in which the verb terminations reflect verb transitivity. Any grammatical process which alters verb transitivity also adds an affix to the verb in addition to altering the type of termination appearing on the verb. Verb roots are generally either transitive or intransitive. I show some examples of this in (37).

(37) Transitivity Alternations

tv -> iv

Passive1

-b'ixo:j	'sing'	*-b'ixo-x*	'be sung'
-k'am	'carry'	*-k'a:m*	'be carried'

Passive2

-b'ixo:j	'sing'	*-b'ixo-taj*	'get sung'
-k'am	'carry'	*-k'am-ataj*	'get carried'

Focus Antipassive

-b'ixo:j	'sing'	*-b'ixo-n*	'sing'
-k'am	'carry'	*-k'am-ow*	'carry'

Absolutive

-b'ixo:j	'sing'	*-b'ixo-n*	'sing'
-k'am	'carry'	*-k'am-an*	'carry'

iv -> tv

Causative

-b'in	'travel'	*-b'in-is-a:j*	'cause something to travel'

-war	'sleep'	*-war-tis-a:j*	'cause someone to sleep'
-noj	'full'	*-noj-is-a:j*	'cause something to be full'

There are exceptions to this regular pattern, however. A fairly large number of verbs permit a zero derivation between transitive and intransitive forms. A tiny set of verbs derives transitive forms by adding a /-V:j/ suffix to an intransitive form. The /-V:j/ may also be added to a few monosyllabic transitive roots to derive a transitive stem. Dayley (1985) lists a number of such processes for the Mayan language Tzutujil (which is closely related to K'iche'). Some K'iche' examples of these processes are shown in (38).

(38) Irregular Transitivity Alternations

Zero derivations

iv		tv	
-chup	'go out (candle)'	*-chup*	'put out (candle)'
-qaj	'go down'	*-qaj*	'lower, lend'
-ka'y	'look'	*-ka'y*	'look at'
-tzaq	'fall'	*-tzaq*	'drop, lose'

/-V:j/ derivations

iv		tv	
-pax	'smash'	*-pax-i:j*	'smash'
-silob'	'move'	*-silob'-a:j*	'move'
-tzaj	'become small'	*-tzaj-i:j*	'make small'
-xab'	'vomit'	*-xab'-a:j*	'vomit'
-xojow	'dance'	*-xojow-e:j*	'dance'

The task of learning which processes apply to which verbs is made even more complicated by the irregular interactions between these processes. For example, only some intransitive verbs and some absolutive forms of transitive verbs may be causativized. Finally, some verbs contradict my expectations about verb transitivity. These are verbs which I use most frequently as intransitive forms in English, but which have transitive stems in K'iche' or vice versa. I list some examples in (39).

(39) Transitivity surprises

Intransitive stems

-poqow	'boil'
-kowin	'can, able'
-taq'en	'progressive'
-wa'	'eat'

Transitive stems

-chako:j	'work'
-kuwi:j	'hurry'
-xe'j -ib'	'afraid'
-iye'j	'wait'

I have shown that K'iche' children begin producing verb terminations at a very early point in their acquisition of the language. I also showed that the children sometimes use the clause-final termination on verbs in clause-medial position. It is therefore of interest to see the extent to which children produce transitivity errors in their use of the verb terminations--attaching a transitive termination to an intransitive verb stem or an intransitive termination to a transitive verb stem. These results are shown in Table 28.

Table 28. Transitivity errors with verb terminations

Al Tiya:n

	Transitive Verbs			Intransitive Verbs		
Samples	Number Correct	Errors	Proportion Correct	Number Correct	Errors	Proportion Correct
1-3	4	1	.80	9	-	1.0
4-6	6	-	1.0	10	1	.91
7-9	5	-	1.0	27	1	.96
10-12	8	-	1.0	30	-	1.0
13-15	61	-	1.0	65	-	1.0

Al Cha:y

	Transitive Verbs			Intransitive Verbs		
Samples	Number Correct	Errors	Proportion Correct	Number Correct	Errors	Proportion Correct
1-3	6	-	1.0	13	-	1.0
4-6	26	-	1.0	40	-	1.0
7-9	17	-	1.0	45	-	1.0
10-12	65	-	1.0	43	-	1.0
13-15	39	-	1.0	43	-	1.0
16-18	25	1	.96	45	1	.98

A Carlos

	Transitive Verbs			Intransitive Verbs		
Samples	Number Correct	Errors	Proportion Correct	Number Correct	Errors	Proportion Correct
1-3	33	-	1.0	42	-	1.0
4-6	29	-	1.0	43	-	1.0
7-9	52	-	1.0	98	-	1.0
10-12	36	-	1.0	110	-	1.0
13-15	40	-	1.0	78	-	1.0
16-18	36	-	1.0	74	-	1.0

These results indicate an extremely early knowledge of verb transitivity. The children essentially made no mistakes in their use of the terminations to mark verb transitivity. The few errors that I have indicated in Table 28 are due to the conservative way in which I analyzed the children's data rather than an indication of difficulties among the children with verb transitivity. Al Tiya:n's transitive error, for example, is due to the fact that I counted as incorrect her use of the active form of the verb *give* (-ya'oh) rather than the obligatory Focus Antipassive voice form (-ya'owik). Al Cha:y's transitive error also originated in this fashion. The children's

accuracy, coupled with the productivity of the terminations, implies that K'iche' children establish verb transitivity very early in their acquisition of the language. They do this despite the deletion of nonemphatic NPs in parental speech. In other words, the K'iche' children can successfully identify the transitive/intransitive distinction encoded in the verb terminations in the absence of reliable clues to the verbs' argument structures from overt subject and object noun phrases.

Transitivity alternations

Another measure of K'iche' children's knowledge of verb transitivity is provided by their use of transitivity alternations. The most frequent of these processes in K'iche' are the passive and antipassive voices. The children's use of these different voices underlines their early mastery of verb transitivity. Table 29 lists all of these transitivity alternations that occurred in the children's language samples.

Table 29. Transitivity alternations in K'iche' language samples

Passive1

Al Tiya:n	Al Cha:y	A Carlos
T9 pa'ch 'smash'	R4 pax we:ch 2x 'give'	C1 n kunax taj 'cure'
'anik 'do'	R5 yox taj	C7 t'i:sik 'sew'
T10 b'i:x 'say'	cha:p uj ma:l 'grab'	ka:yik 'hit'
T11 xik 2x 'spill'	ti:j ma:l chi 'eat'	C8 tixik 'spill'
	R6 lo:q' Xela 'buy'	ti'ik 'bite'
	R8 b'i:x ak' 'said'	ka'appisik 'wrap'
	no ah xik 'said'	elaq'axik 'steal'
	R10 mera chi kaloq' 'buy'	
	tzilik tah 'cure'	
	no chi:t wach tukut 'scratch'	
	ya: luk' manena 'give'	
	no mi:ch' uwi:' 'weed'	
	R11 lo:q' wach 'buy'	

Passive2

Al Tiya:n	Al Cha:y	A Carlos
	R7 no loq'tajik 'buy'	C1 tijtajik 'eat'
		C7 sokotaj 'wound'
	R12 tijtaj chi jun mal xirwel 'eat'	

Focus Antipassive

Al Tiya:n	Al Cha:y	A Carlos
*T10 pojonik (xpoqowik) 'boil'	*R3 no Lin loq' 'buy'	C2 lok'owik 'buy'
		C4 exowih 'give'
		C8 at a'ayowik 2x 'give'
		towik 'hear'

Absolutive Antipassive

Al Tiya:n		Al Cha:y		A Carlos	
T3	tiyonik 'bite'	R1	xutin 'turn'	C3	tz'en 'laugh'
T4	atzin 'laugh'	R2	kachaku'un 'work'	C4	innimanik 'write'
T7	nik 'peck'		pan 'write'	C5	usutin 'turn'
T8	t'enik	R6	jan a Xa'n 3x 'scold'	C7	yajan 'scold'
	utin 'turn'	R7	jan tat in 'scold'	C8	xib'inik 'scare'
T11	sutin 'turn'	R9	k'an pin		sutinik 2x 'turn'
T12	jonik 'talk'	R12	no awuxik mich' 'pull'		
T13	toq'opinik 'peck'		ch'akanik 3x 'win'		
	q'upinik 'cut'				
T14	paqinik				
	t'ub'inik				
	raminik 2x 'rip'				
	ketzijunik 'talk'				
	qupin 'cut'				
T15	njan 'scold'				
	ch'ayan 'hit'				

Although the overwhelming majority of children's utterances are in the active voice, they begin using the other voices when they are two years old. Evidently, the children are able to produce a variety of different verbs in different voices. There is an indication that the children use Passive1 before Passive2 and the Absolutive Antipassive before the Focus Antipassive. They also used many of the same verb roots in the active voice, an indication that they had not learned just another intransitive verb, but were aware of the alternation between the different voices. Nonactional verbs such as 'say', 'forget', 'cure', 'scare', and 'hear' also show up in nonactive voices. Most of the children's passive utterances are truncated passives, although there are several full passives in the children's data.

While the production data shows that K'iche' children can produce nonactive verb forms at an early age, it does not conclusively demonstrate that the children use productive grammatical rules rather than rote memory to produce the nonactive verb forms. The children could instead be using limited scope formulae to produce nonactive verb forms in semantically-restricted contexts. Thus, some experimental procedure is necessary in order to evaluate the productivity of the children's nonactive voice forms.

I devised and carried out several pilot studies in 1987 and 1989 to test K'iche' children's comprehension of sentences in the active, Passive1 and Focus Antipassive voices (Pye & Quixtan Poz 1988). I also wanted to see if it made any difference whether the verbs were actional or nonactional in Maratsos et al. (1985) terms. I put together two lists of verbs to test:

Actional		Nonactional	
puyi:j	'push'	xib'i:j	'scare'
q'alu:j	'hug'	il	'see'
ch'ay	'hit'	siq	'smell'
ti7	'bite'	tarane:j	'follow'
eqa:j	'carry'	tzuku:j	'look for'
t'op	'peck'	sik'i:j	'call'
esa:j	'take out'	iye'j	'wait for'
chap	'grab'	riq	'find'
riq'	'lick'	k'ol	'guard'

Operationally, I defined a verb as actional if the two participants were necessarily touching. I tried to balance the number of monosyllabic and polysyllabic verbs in each set, the number of vowel-initial verb stems, and the general phonological characteristics of each set. We used a picture identification task, in which we asked children to identify the picture of the chicken being scared by the rat. We provided the children with three pictures, e.g. a rat scaring a chicken, a chicken scaring a rat, and a rat biting a chicken.

I was in Guatemala six weeks to design the experiments and test children. Our results for the 4 and 5-year-olds are shown in Table 30. The results indicate that 4 and 5-year-old K'iche' speakers, and their parents for that matter, respond at chance levels to sentences in the active voice containing two third person participants. In real conversations, K'iche' speakers rely upon context and changes in the voice of the verb to disambiguate such sentences. The children responded much more reliably to sentences in the Passive1 voice. Their response to Passive1 sentences with actional verbs was statistically significant, while their response to Passive1 sentences with nonactional verbs approaches statistical significance. In fact, the children responded to some of the individual nonactional verbs in Passive1 better than they did to some of the individual actional verbs. There is not a statistically significant difference between their responses to the actional and nonactional verbs in Passive1.

Table 30. Test means with active and Passive1 sentences

K'iche' Fours and Fives, Chance = .333 correct

Active (n=7)		Passive1 (n=10)	
Actional	Nonactional	Actional	Nonactional
.333 (p=.997)	.306 (p=.498)	.467 (p=.036)	.443 (p=.066)

We asked the children another question in our experiment as an additional check of their knowledge of the voice morphemes. Once the subject had selected a picture in the first part of the test we would remove the two other cards from the table and ask the child "Who is Xing?" using the Focus Antipassive voice. In K'iche', the only difference between a question about the agent and a question about the patient is the voice suffix on the verb. Compare for example:

Active	Xupuyi:j.	"He/she pushed it."
Passive1	Jachin e: xpuyixik?	"Who was being pushed?"
Focus Antipassive	Jachin e: xpuyanik?	"Who was pushing?"
Active	Xriloh.	"He/she saw it."
Passive1	Jachin e: ki:lik?	"Who is being seen?"
Focus Antipassive	Jachin e: kilowik?	"Who is seeing?"

If the children did not understand questions using the Focus Antipassive they should have pointed at random to either of the two animals on the card. The results from this segment of the experiment are shown in Table 31. The children are clearly able to interpret questions in the Focus Antipassive voice reliably. The actional/ nonactional distinction in verb semantics did not affect the children's responses in a significant manner.

Table 31. Test means with Focus Antipassive questions

K'iche' Fours and Fives, Chance = .50 correct

Focus Antipassive (n=17)	
Actional	Nonactional
.726 (p <.025)	.795 (p <.005)

Further testing (summer 1990) has shown that three- and four-year-olds respond appropriately to Focus Antipassive questions while failing to interpret Passive1 questions correctly. Five-year-olds respond correctly to both Passive1 and Focus Antipassive questions.

Causatives

My longitudinal subjects did not confine their use of transitivity alternations to the passive and antipassive processes. They also used causativized verbs. Learning to use the causative morpheme in K'iche' involves distinguishing which morpheme encodes the causative meaning as well as which verbs permit the causative morpheme to be added to their stems. Their uses of causativized verbs appear in Table 32.

Table 32. Causativized verbs

Al Tiya:n's Causatives

S15-30 b'isaj win.	(= b'in-is-aj, travel-CAUSE-DER)
b'isaj win.	(= b'in-is-aj, travel-CAUSE-DER)

Al Cha:y's Causatives

R1-55 chat, ix, xa:j.	(= k'at-is-a:j, shine-CAUSE-DER)
R6-33 lij in.	(= walij-is-aj, rise-CAUSE-DER)
R6-35 paq'ixaj chik.	(= paqal-is-aj, rise-CAUSE-DER)
paqixaj in chik.	(= paqal-is-aj, rise-CAUSE-DER)
R7-39 katixaj chaya.	(= k'at-is-a:j, shine-CAUSE-DER)
R8-11 ay pich warli.	(= chup-is-aj, go out-CAUSE-DER)
R12-21 k'utisaj raya.	(= k'at-is-a:j, shine-CAUSE-DER)
ma karaj taj chupixaj jun che.	(= chup-is-aj, go out-CAUSE-DER)
R13-18 q'etixaj.	(= qet-is-aj, come close-CAUSE-DER)
pelipe q'etixaj.	(= qet-is-aj, come close-CAUSE-DER)
R17-28 no, chupisaj taj q'eq.	(= chup-is-aj, go out-CAUSE-DER)
R18-37 k'o chiri, kamixan chah.	(= kam-is-am, die-CAUSE-PERF)
R18-46 k'atixaj warih.	(= k'at-is-a:j, shine-CAUSE-DER)
R18-47 waq'a xaj chika.	(= aq'an-is-aj, climb-CAUSE-DER)
R19-15 qana7 kinchupixaj.	(= chup-is-aj, go out-CAUSE-DER)
R19-23 kam kamixaj jun qak7.	(= kam-is-aj, die-CAUSE-DER)
R22-21 chupisaj chik juna.	(= chup-is-aj, go out-CAUSE-DER)
R24-8 no7, kak'atisaj.	(= k'at-is-a:j, shine-CAUSE-DER)

A Carlos' Causatives

C7-52 ki te k'atisaj jun che lee keb'e.	(= k'at-is-a:j, shine-CAUSE-DER)
C12-23 chab'inisaj.	(= b'in-is-aj, travel-CAUSE-DER)

C12-58 inkaqtisaj. (= ch'aq-is-aj, wet-CAUSE-DER)
inkaqisaj apantalon. (= ch'aq-is-aj, wet-CAUSE-DER)
C15-25 kokusaj wa naj. (= ok-is-aj, enter-CAUSE-DER)
C18-1 ixim poqisaj. (= poq'-is-aj, explode-CAUSE-DER)
C18-1 xa'in xin poq'isaj. (= poq'-is-aj, explode-CAUSE-DER)
C18-29 m, xaq kimpoq'isaj. (= poq'-is-aj, explode-CAUSE-DER)

The children used a variety of verbs with the causative including motion and change-of-state verbs. The productivity of the children's causativized verb forms may be assessed by searching for uses of the intransitive counterparts to their causativized verb forms. Al Tiya:n used the stem *-b'in* 5 times as an intransitive verb. Al Cha:y used the stem *-aq'an* once, the stem *-kam* 18 times, the stem *-paqal* 3 times and the stem *-walij* 4 times as intransitive verbs. She used the stem *-chup* 26 times and the stem *-qet* twice as transitive verbs. A Carlos used the stem *-b'in* 14 times, the stem *-k'at* twice and the stem *-ok* 24 times as intransitive verbs. So there is some evidence that the children were actively using the causative suffix to alter verb transitivity.

They confined their use of the causative to intransitive verbs. The early appearance of the causative suffix on intransitive verb stems suggests that they are aware of the basic constraint on the causative in K'iche'. They did not overgeneralize the causative suffix to intransitive or transitive verbs which do not allow it. The longitudinal data hints that the K'iche' children begin producing causativized verb forms about the time that they begin producing complex sentences (Pye 1990). Bowerman (197) noted that her daughters began to overgeneralize the causative alternation in English after they had begun producing complex sentences. These results suggest a developmental link between causative constructions and complex sentences.

Verb Particles

Verb particles encode a heterogeneous set of semantic and syntactic functions. They include particles marking negation, adverb focus, direction and degree of certainty or doubt. Nevertheless, I shall discuss them as a unit since their form as clitics following the verb seems to result in their appearance in early language samples of the children. The early acquisition of verb particles has been noted for other languages (Garo - Burling 1959; Japanese - Clancey 1985; Dakota - Nokony 1978; Kaluli - Schiefflin 1985), but acquisition theorists have not yet recognized the implications early particle acquisition has for theories of semantic and cognitive development.

The particle indicating negation is one of the most significant early acquisitions of the K'iche' child. It is a discontinuous morpheme like the French negation *ne ... pas*, and like French speakers, K'iche' adults frequently use just the final part of the morpheme *ta(j)*. The parentheses indicate that the negative marker has clause-medial and clause-final forms as well (segments in parentheses are added to the marker in clause-final position). K'iche' speakers also use the word *no'* to indicate negation, but the negative particle *ta(j)* is obligatory. K'iche' children generally use the verb particle to indicate negation and occasionally add the word *no'* for emphasis. Table 33 provides acquisition data for the three longitudinal subjects. It shows the number of obligatory contexts and the percentage of these contexts in which the children produced the negative particle.

Table 33. Use of the negative particle *ta(j)*

	Al Tiya:n		Al Cha:y		A Carlos	
Samples	tokens	percent	tokens	percent	tokens	percent
1-3	5	100	23	100	44	95
4-6	4	100	41	100	70	100
7-9	48	98	28	100	233	99
10-12	44	100	101	100	129	100
13-15			71	100	125	100
16-18			42	100	139	99

The children frequently use the particle by itself in their early language samples, especially Al Tiya:n. For example, in her first sample (S1-38) Al Tiya:n was playing with a car and commented that it disappeared, saying 'ay taj' (= *ma k'o: taj* 'NEG EXIST NEG', 'It is not there'). She omitted the existential positional *k'o:(lik*) and just used the final part of the negative morpheme. The expression *ma k'o: taj* is the most frequent negative expression in my data. Al Tiya:n used the negative marker with other words in her second sample, suggesting that by this time she could express negation productively with different predicates.

There is some evidence that K'iche' children do not feel compelled to put the negative marker at a clause boundary. It most often appears in utterance-final position, but this is probably the result of whatever it is that limits their early speech to an average of two to three morphemes per utterance. Al Tiya:n produced the utterance *uk taj mem* with the negative particle before an appositive phrase in her second sample (S2-35) (= *ma k'o: taj mem* 'NEG EXIST NEG dummy') when telling me that what I had built was not a house. In her sixth sample (S6-35) Al Tiya:n insisted that she did not bite by saying *tiyon ta in* (= *ma k-in-ti'-on ta in* 'NEG INCOMP-1A-bite-ABS NEG 1A', 'I do not bite') in which the negative marker precedes the subject pronoun. I did not find any examples from any of my subjects in which they had incorrectly moved the negative particle to a sentence margin. This finding contradicts explanations for children's negative constructions in English (cf. Wode 1977).

The prolocative particle *wi(h*) is another early acquisition for the K'iche' children. This particle is obligatory whenever a temporal, instrumental, manner or locative adverbial phrase is in focus in preverbal position. This occurs most frequently in questions about the location of objects or events, e.g. *jawi: k'o: wih* 'where EXIST PROLOC', 'Where is it?'; *jawi: xaloq' wih* 'where you_bought PROLOC', 'Where did you buy it?' K'iche' children will frequently omit the first part of such questions and produce such utterances as *wi le: kej* (= *jawi: k'o: wi le: kej* 'where EXIST PROLOC the horse', 'Where is the horse?'). For example, Al Tiya:n's locative questions in her second sample are simply *wi le:* (= *jawi: k'o: wi le:* 'where is that?'). I assumed the word *wi* in such cases corresponded to the prolocative adverb rather than the second syllable of the interrogative word *jawi:* since the prolocative directly precedes the demonstrative *le:* and since the children's expanded utterances in later samples include a predicate which precedes the prolocative. For example, Al Tiya:n imitates the sentence *pa q'aye:s ka'e wih* ('in grass it_goes PROLOC', 'It is going in the grass') as *ye:s wih* (S7-61). Table 34 provides what data I have on the children's use of the locative proadverb *wi(h*).

Table 34. Use of the proadverb *wi(h)*

	Al Tiya:n		Al Cha:y		A Carlos	
Samples	no.	percent	no.	percent	no.	percent
1-3	4	100	14	100	15	100
4-6	5	100	12	100	42	100
7-9	5	83	7	100	42	100
10-12	3	100	6	100	30	100
13-15	5	100	11	100	55	100
16-18			12	100	140	100

It is worth noting that the prolocative adverb is not the sort of morpheme that semantic/cognitive theories predict to be an early acquisition (e.g. Slobin 1985). It encodes a language-specific function of an abstract, structural nature. Its early use by K'iche' children proves that children can easily acquire formal aspects of the adult language as long as they consistently appear in a productively salient position.

Directionals form another class of verb particles. As their name suggests, their primary function is to specify the change of location produced on the objects of transitive verbs. This motion may be either literal or metaphorical. In this way they resemble the adverbial particles (*up*, *down*, *off*, etc.) in English. The most frequent directionals appearing in the children's speech are *l(oq)* 'hither, this way' (arriving here), *b'i(k)* 'hence, away' (going away); 'out' (exiting), and *kan(oq)* 'right there' (staying). The directionals are not grammatical morphemes in the sense of having obligatory contexts. However there seemed to be a point for all the children at which the directionals were present in their speech, especially in their imitation of sentences with directionals.

One other set of verb particles that appeared in the children's language samples encode other adverbial and discourse oriented aspects such as a speaker's degree of certainty or doubt. These are the most difficult words to acquire for the nonnative speaker of K'iche' since several encode extremely subtle aspects of the discourse or situation. Some of the particles in this group
are:

b'a:(') 'indeed'
chi(k) 'again, already'
k'a 'still'
k'u(t) 'so, then'
na(h) 'certainly, must'
ne(') 'maybe, perhaps'
pu(ch) 'perhaps'

Again, it is impossible to state whether these particles are obligatory on most occassions although there appeared to be a point after which the particles became more frequent in the children's speech, especially in their repetition of sentences produced by other speakers. The two most frequent particles in the children's speech were *chi(k)* and *k'u(t)*. They also seem to be acquired before the other particles in this group. The particles *b'a*('), *ne*('), *na(h)* and *pu(ch)* are the least frequent and appear to be acquired later.

Most of the particles have both clause-medial and clause-final forms. The children frequently used the clause-final forms of the particles in clause-medial positions. For example, in her first sample (R1-31) Al Cha:y

produced the utterance *no, koj taj in* (= *no, ma kinkoj ta in* 'no, NEG I_use NEG I', 'I do not use it') in which she used the clause-final form of the negative particle in clause-medial position. Clause-final forms of the negative particle are apparent in Al Cha:y's utterances containing more than one particle. Her particle combinations include *taj chik*, *taj k'ut* and *taj la*, all of which should contain the clause-medial form of the negative particle, *ta*.

The children also produced more particle combinations when they started producing the particles more frequently. A Carlos' utterances are especially rich in multi-particle combinations. These combinations suggest the particles are productive in the children's speech since the particles are not tied to a few verbs. However, producing more than one particle requires figuring out the proper order for the different particles after the verb. The adult order appears to be:

Negative > *chi(k)* > *k'u(t)* > *ne(')* > Prolocative > Directionals

The children seem to have recognized this order from the beginning of their multi-particle productions. A Carlos' most spectacular production was the four particle combination *ta chi ne q'e*. His full utterance was *ma kok ta chi ne q'e:* 'NEG enter NEG again perhaps X' or 'Perhaps it did not enter again' (C16-32). I do not know the function of the last particle *q'e:*, but it showed up occasionally in the speech of all three children.

The K'iche' children's use of verb particles constitutes still another domain in which they apparently have a more sophisticated use of language than their American peers. The appearance of particles expressing negation, doubt, emphasis, etc. in K'iche' children's speech suggests that such concepts are not inherently beyond the grasp of young children. The K'iche' children's use of the directional particles is most similar to American children's use of phrasal verbs such as *turn on*, *use up*, and *take out*. It just happens that the verb particle system is much richer in K'iche' than it is in English, providing K'iche' children with an easier means of acquiring sentence modality.

Summary

Summarizing the data that I have reported in this article and elsewhere is almost as daunting a task as collecting and reporting it in the first place. Rather than reciting all of the K'iche' findings, I will use this space to point out a few observations which I feel have special theoretical significance.

The first of these must be the children's early use of the prolocative adverb *wi(h)*. This is the last morpheme that I expected the children to use when I originally decided to study the acquisition of K'iche'. By itself, this finding might not appear very significant, but I feel that the reasons behind the children's use of the prolocative account for many of the other K'iche' findings. Formost among these, seems to be the contribution of the language's metrical structure to the shape of the children's first utterances (cf. Gerken 1990). Stress placement and syllable structure are significantly correlated with morpheme acquisition order in K'iche' and English. The K'iche' verb termination data shows that these factors underlie the children's sentence production, limiting the number and types of syllables they can produce, rather than the morphemes they perceive.

Metrical structure is very much a formal characteristic of any language. The dominant role of metrical structure in setting the early bounds on children's productions indicates that children must deal with the structural characteristics of their parents' language from the beginning. They cannot postpone this effort while developing a language neutral reportoire of basic cognitive notions. The children's early use of the

prolocative is but one example of their ability to acquire the language specific properties of K'iche'.

The children's phonology, use of verb terminations, and awareness of verb transitivity give no indication that the children have shied away from any of the specific problems of learning K'iche'. Their accurate use of the ergative cross-reference markers provides an especially convincing argument that children will not be swayed by language neutral cognitive preconceptions about morpheme function. The children never systematically overgeneralized the ergative cross-reference markers to the subjects of intransitive verbs or restricted the use of the ergative markers to a semantically distinct class of verbs.

K'iche' children's surprising ability to come to grips with specific features of their parents' language is the main conclusion I draw from the study of K'iche' acquisition. That I am surprised by the dominance of the verb-initial word orders or the profound absence of subject NP's in the K'iche' children's utterances reveals as much about my ignorance of the acquisition process as anything else. However, I do not wish to leave the impression that K'iche' is a language which children can learn effortlessly. Tables 20 and 21, for example, show that the children frequently omitted the cross-reference markers on verbs. They used the completive and incompletive aspectual markers still less frequently on verbs, and like Bowerman's (1973) Finnish subjects, almost always omitted the Yes-No Question particle. Recent cross-sectional testing has shown that K'iche' children twelve years old are still refining their knowledge of the causative and focus antipassive constructions.

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Appendix A. Al Tiya:n's Lexical Types.

Child's Production	Adult's Production	English Translation	Tokens
Common Nouns			
to:ch	-acho:ch	home	6
yak'	ak'	chicken	41
li	ali	girl	5
aq	aq	pig	12
kan	-aqa:n	foot	8
ch'iw	ch'iw	chick	9
chij	chij	sheep	45
kop	chikop	animal	3
dah	dah	dear	1
ichim	ixim	corn	3
kab'	<jab'>	rain	2
lom	jolom	head	6
lon	joron	water	30
k'im	k'im	thatch	1
kelet	karet	cart	1
kej	kej	horse	3
kik'	kik'	blood	3
met	lemet	bottle	1
len	len	penny	1
mank	manka	mango	1
max	mox	egg	1
pam	-pa:m	stomach	1
pin	-pe'n	waste	2
pelona	pelona	dove	1
piq'	piq'	xilote	1
la'y	radio	radio	1
tat	ta:t	father	6
yo'y	taro'y	rooster	3
teh	tew	cold	1
tzi'	tz'i'	dog	15
wah	wah	food	1
chela	xela	Xela	1
kin	-xikin	ear	6
Proper Nouns			
pox	pox		2
sep	se'p		1
Pronouns			
in	in	I,me	6
at	at	you (sing.)	2
ale'	are	he, she, it	12
Verbs			
ek	-b'e	go (IV)	2
cha'	cha'	say (IV)	1
chope	-chapa	grab (TV)	1
chi'	chi'	say (IV)	1
ux	chux	sit (IV)	1
kaj	-eqa:j	carry (TV)	1
pele	-il	see (TV)	5
kama'	-k'ama'	carry (TV)	1

<ti'one'>	-ti'onik	bite	(IV)	1
lo'	-tijo'	eat	(TV)	2
ti'	-tij	eat	(TV)	1
tzaq'	-tzaq	fall	(IV)	1
wa	-wa'	eat	(IV)	1
'ik	-wa'ik	eat	(IV)	3
'o	-ya'o	give	(TV)	1

Nominalizations

nim	b'inem	travel	1

Positionals

o:	k'o:	exist	3
kolih	k'o:lik	"	1

Adjectives

lina	inaj	diminutive	1
jop	job'	five	1
'ax	k'ax	hurt,difficult	13
mem	mem	stupid	2
nim	nim	big	1
pina	pina	fine	6
uch	utz	good	2

Relational Nouns

pam	chup:am	inside	1

Particles

chik'	chik	again	1
i:'	chiri'	here	1
je	je'	yes	6
k'ut	k'ut	thus, so	1
pe	mpe	thus	5
nik'	nik'	who_knows	1
no'	no'	no	5
taj	taj	NEG	7
wi	wi	PROLOC	1

Demonstratives

wa'	jewa'	here	1
le:	le:	the/that one/there	168
li	ri	the,this one,here	16

Question Words

ja	ja	huh	35
wach	jas uw:ach	what	4
wi	jawi	where	2

Conjunction

e	y	and	1

Exclamations

ah	15	ih	1
a	2	m	55
aha	2	oh	5
ay	13	ou	1
eh	8	tet	1
ehe	5	u	1
ei	1	uy	3
ey	1		

Uninterpretable

at	1	na'	3
b'aak	1	opon	1
ch	1	os	1
chich	1	pokj	1
dot	1	tab'kah	1
eq	1	tin	1
he:	1	tink	1
ja'	1	uhu	1
<kalo'x>	1	ya	1
kech	1	ye	1
kij	1	yo'	1
la'	1	-	1
lat	1		

Appendix B. Al Tiya:n's semantic relations in her second language sample.

Locatives/Notice/Demonstratives

a le: ta:t-e, ta:t.	ah the papa-there, papa.	1
ali le'.	girl there.	3
*al se'p le'.	FAM se'p there.	1
ak' le'.	chicken there.	10
aq le.	pig there.	2
are le' le'.	he that there.	1
ch'i:j le'.	sheep that.	4
ch'ij-i ri ri le'.	sheep-this here here that.	1
ch'iw tat.	chick papa.	1
*ch-0-*a/*il-*a mpe le'.	look emph there.	5
joron-e'.	water-there.	6
kej-e.	horse-that.	1
kik'-i'.	blood-here.	1
*la k'u-t-e'.	Qy emph-T-there.	1
le ak'.	the chicken.	2
le: are'.	the he.	6
le' chij.	there sheep.	2
le: ch'iw.	the chick.	1
le', di', le'.	that, dear, that.	1
le kej.	the horse.	1
le le'.	the that.	15
le', le', tz'i'.	that, that, dog.	1
le, le, le, le' tat.	that, that, that, that papa.	1
le: *r-acho:ch.	the 3E-home.	1
le: tew.	the cold.	1
piq' dah.	xilote dear.	1
pox le le le'.	pox that that that.	1
ri le', le'.	here that, that.	1
ri' ri'.	here &here.	2
*r-aqan-e.	3E-foot-there.	2
tat, chij-e'.	papa, sheep-there.	1

tz'i' le'.	dog that.	2
*u-jolom-e'.	3E-head-there.	4
*u-xikin-e'.	3E-ear-there.	1
*u-pa:m-i'.	3E-stomach-here.	1
jewa le'.	here there.	1

Verb Subject

*x-0/b'e-!ik joron le'.	go water there.	1
*k-0/ti'-on-*ik-e'.	bite-that.	1
*k-0/wa le'.	eat that.	1
*x-0/b'e-ik-e'	go-that.	1

Subject Verb

no', at *x-*at/*ya'-*ow-*ik.	no you give.	1

Verb Object

*ch-0-*a/chap-a le: are'.	grab the s/he.	1
*k-0-*u/tij le: are'.	eat the s/he.	1

Object Verb

aw chi'.	aw say.	1
y le: are' *k-*at/cha'.	and the s/he say.	1

Subject - Object

ak' <*k-0-*u:/*tzuku-*j> ixim.	chicken <look_for> corn.	1

Denial

na' ch'ij.	no sheep.	1
no', pelona.	no dove.	1
taro'y, ta-j.	rooster, NEG-T.	1

Existence

je /k'o: ta-j.	yes exist NEG	1
k'o-!l-!ik *le: w-achoch le'.	exist the 1E-home there.	1
*k'o: ta-j le', ri'.	exist NEG-T that, here.	1
*n k'o ta-j, mem.	NEG exist NEG-T, dummy.	1

Possession

in, in tz'i'.	me, me dog.	1
le: a-ch'iw.	the 2E-chick.	1
*in k'o: *w-ak' in.	exist 1E-chicken 1A.	1
k'o-!l-!ik *le: w-achoch le'.	exist the 1E-home there.	1
*r-acho:ch chich.	3E-home car	1

Attributive

ay, ak' are'.	ay, chicken he.	1
k'ax *le: chij.	hurts the sheep.	1
k'ax <*k-0-*a/k'am-a'>.	hurts carry.	1
k'ax *le: kik'.	hurts the blood.	1
pina le'.	fine that.	3

Interrogatives

jas *u-wa:ch.	what 3E-face.	1
jas u-wa:ch, ch'i:j.	what, sheep.	1
jawi le'.	where that.	2

Uninterpretable

are: at.	he you.	1
ali', ak'.	girl, chicken.	1