

A featural analysis
of Quiché Mayan speech to children¹

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There is, by now, an extensive body of literature describing middle-class speech to children learning English (see Farwell 1973; Vorster 1975; Gleitman, Newport & Gleitman 1984 for reviews). The robustness of these findings has led some researchers to conclude that caretaker speech might play a functional role in language learning, 'possibly assisting in the acquisition of linguistic structure, the development of interactional patterns, the transmission of cultural values, and the expression of the user's affective relationship with the addressee' (Ferguson 1978:213-215). Ferguson lists a set of features for caretaker speech in 27 different societies around the world. The functional role of caretaker speech is challenged by findings from cultures with different patterns of child-caretaker interaction (Eisenberg 1982; Miller 1982; Ochs 1982; Schieffelin 1979; Strass 1972; Ward 1971; Watson-Gegeo & Gegeo 1982). However, none of these studies provide full details for the linguistic modifications which Ferguson lists. In this paper, I provide such details for Quiché, a Mayan language spoken by more than a half million people living in the western highland region of Guatemala.

METHOD

I collected the Quiché data during the course of a longitudinal study of morpheme acquisition in 1976-7 (Pye 1980). I visited the children in their own homes for a one-hour play session. Quiché was the predominant language in all the households, although a few Spanish

words and phrases occasionally appear in the transcripts. Two native Quiché assistants visited the children's homes with me and helped transcribe the tapes.

For this study, I isolated sections of caretaker speech to three of the youngest Quiché children I studied. A Tu:n (male) was 1;10 and had a lexicon of less than fifty words. Al Tiya:n (female) was 2;0 and had a basically holophrastic expressive ability with a mean length of utterance in morphemes (MLU) of 1.31. Al Cha:y (female) was 2;9 and was using 1-2 word expressive utterances with an MLU of 1.57. A Tu:n's mother's sample contains 89 sentences while those of the other two mothers have a hundred. I used the first samples that I recorded with Al Tiya:n and Al Cha:y and the second sample for A Tu:n. I had to use different samples to find enough examples of the mothers' speech to adults for A Tu:n and Al Cha:y. I used A Tu:n's first sample (recorded when he was 1;7) and Al Cha:y's thirteenth (when she was 3;1). The sample of Al Cha:y's mother's speech to adults contains 50 sentences while the other two samples have a hundred. I only used the mothers' sentences if the context made it clear who the mother was addressing, and eliminated sentences that were partially formed or unintelligible.

LINGUISTIC FEATURES

Prosody. Ferguson lists three prosodic features that are widely reported for speech to children: high pitch, exaggerated contours and slow rate (see also Blount 1981; Garnica 1977; Stern, Spieker & Mackain 1983).

With Nan Ratner, I performed an acoustic analysis of selected prosodic features in the Quiché mothers' speech (Ratner & Pye, in press). This study was based on a total of 20 noise-free utterances for each mother to their children and to an adult. We analyzed the data on a PV 201 frequency-intensity analyzer marketed by Voice Identification, Inc. This instrument extracts and plots fundamental frequency values, contours and averages for any portion of an utterance up to 9 seconds in duration. It automatically sums F_0 values and averages them across any portion of the utterance. As shown in Table I, Quiché mothers do not exhibit significant prosodic adjustments when speaking to their children. Their mean fundamental frequency, frequency range (defined as the difference between the highest and lowest F_0 recorded within an utterance) and terminal pitch contour (defined as the last unidirectional change greater than 5 Hertz) were all similar in speech to children and adults. Quiché mothers do use exaggerated intonation, but confine its use to infrequent exclamations to both children and adults (Stross 1972 mentions its use with corrections in another Mayan language, Tzeltal). The Quiché mothers frequently reduced their voice so much it became a whisper. At the same time, the speech rate continues at a normal pace or may even be increased slightly (as in Tzeltal, Stross 1972:7).

Table I

Phonology. Ferguson lists four phonological features for speech to children: cluster reduction, liquid substitution, reduplication and special sounds. The syllable structure of Quiché minimizes the number of potential consonant clusters so that even if cluster reduction occurred, it would not be obvious. Words with a final glottal stop-consonant cluster (e.g. meʔk <Sp. muñeco 'doll') appear in caretaker speech with this cluster intact. Elsewhere in my data, the word for 'clothes' (ats'yaq) is produced as tʃa:q. This may be the only example of cluster reduction in my entire corpus. In the sample of Al Cha:y's mother's speech which I analyzed, ats'yaq appears in its unreduced form (the word was not used by the other two mothers).

There is a marked tendency on the part of Quiché caretakers to drop word-initial syllables when addressing children. A Tu:n's mother produced xawuʃ 'a roasted bean' as wuʃ and sapaʔt (<Sp. zapato 'shoe') as paʔt. Al Tiya:n's mother produced alh 'girl' as lh and Tiya:n as Ya:n. Out of 11 polysyllabic common noun types in A Tu:n's mother's speech, 5 (45 percent) were reduced (13 of 21 polysyllabic noun tokens). There were six reduced tokens of one type (r-atʃo:ʃ 'his/her-home'). Al Tiya:n's mother's speech sample contained 12 polysyllabic noun types of which one (8 percent) were reduced (one of 40 noun tokens). Al Tiya:n's mother produced 19 tokens of the unreduced form of alh. There were no instances of reduced nouns in the mothers' speech to adults.

A Tu:n's and Al Tiya:n's mothers reduced verbs in the same fashion. A Tu:n's mother reduced 28 percent of her verb types (4 of 14) or 20

percent of her verb tokens (15 of 75). The verb -tʃiʃ 'spill' accounted for 10 of these verb tokens and was produced as tʃiʃ rather than [-tʃiʃ-ik (aspect-root-termination). I would have expected it to appear as the final syllable ik. Al Tiya:n's mother reduced 38 percent of her verb types (14 of 37) and 20 percent of her verb tokens (44 of 221). The verb -ets'an 'play' accounted for 18 of Al Tiya:n's mother's reduced verb tokens. Al Cha:y's mother had one reduced verb type (6 percent) with 7 tokens in its reduced form (6 percent of 115 verb tokens). All of the mothers reduced the verbs by dropping the initial syllable rather than one or more syllables. A Tu:n's mother, for example, produced the verb tʃatʃoʔqoq 'speak' (tʃ-at-tʃoʔ-q-oq, aspect-subject-root-termination) as tʃoʔqoq. This is a syllable-deletion process rather than morpheme reduction; Al Tiya:n's mother produced the verb tʃaters'anog 'play' (tʃ-at-ets'-an-oq, aspect-subject-root-intransitive suffix-termination) as ets'anog, splitting the subject marker by the syllable boundary. The different rates of word reduction among the three Quiché mothers suggests that the process may be prevalent among caretakers of children under two.

I did not find any examples of substitutions for liquids or fricatives in the mothers' speech. The children produced a liquid (/l/) very early (Pye, Ingram & List 1984) so parents had little reason to substitute any other sound in its place. A Tu:n's mother showed a slight tendency to produce BT forms with an initial /t/ (paʔtʃ 'tamale' was produced as taʔtʃ and ets'ab'al was produced as teh). A Tu:n's mother also reduced a word with an initial glottalized consonant

(producing k'a:ʃ 'hurt, adj.' as ʒaʃ), but she produced other words with initial glottalized consonants correctly (q'a:q 'fire'; ts'i:ʔ 'dog').

The idiosyncrasy and infrequency of such forms suggests that sound

substitution is not a conventional feature of Quiché speech to children.

Speech addressed to Quiché children does contain the only words

(with the exception of Spanish loans) that have a voiced, apical stop

/d/. They are special terms of endearment: dih, if addressed to a girl,

and dah, if addressed to a boy. Both words have approximately the

meaning of 'dear' in English. They may derive from the Quiché words

for girl (alɬ) and boy (alah), with which they are used interchangeably.

In sum, the special sound /d/ and the initial-syllable reduction

process are the only distinctive phonological features of speech to

Quiché children (Stross does not mention any special phonological

features for Tzeltal speech to children).

Lexicon. Ferguson lists five lexical features of speech to children:

special kin terms and body parts, infant games, qualities, compound verbs and diminutives. Quiché does have a special lexicon that is unique to baby talk and recognized as such. The baby talk words and their meanings that I am aware of are:

-ʒaʃ Used by women and small children in place of -tʃu:ɬ 'to urinate'.

tʃ'i:ʃ An exclamation of revulsion used by women and small children.

tʃ'u:ʃ Used by a parent to get a child to sit down.

tʃu:ʃ An exclamation of acclaim used by women and small children.

-ma Used in place of -k'am 'take, bring'.

miʃ Used by a parent to get a child to climb onto their back for carrying; also used by young children in place of meʔs 'cat'.

nuʔʃ A small tortilla given to children.

-qux Used instead of -war 'to sleep'.

The mothers and children also used papa in place of tat 'father', but it is not clear to me whether papa is a Quiché baby talk item or a Spanish loan.

The Quiché baby talk words are noteworthy in that they include a relatively large number of verb substitutes. Verb compounding was almost absent from the mothers' speech, although A Tu:n's mother did use the expression ʃuʔan e: tʃ which incorporates the verb -(b)ʔan 'do, make'. An adult speaking to another adult would just use the verb ʃtʃʃk 'it spilled'. Verb compounding is a wide-spread feature in adult speech, including such idiomatic expressions as -tix xun ʃoxowem 'dance' (lit. 'eat a dance') and -tʃap ura:qik uʃʃi:ʔ 'begin to yell' (lit. 'grab a yell of the mouth'). In addition, verbal compounding serves an important function in adult speech in incorporating Spanish verbs into the native lexicon. There are such expressions as -(b)ʔan enɣa:ɬ 'deceive' (lit. 'do a deceiving') and -(b)ʔan pensar 'think' (lit. 'do a thinking'). The use of verb compounding in adult speech may limit its use in speech to children.

I did not observe Quiché parents engaged in any special games

with their children. When I asked them if they knew of any games similar to nursery rhymes or finger games, they said they did not. Children five and over had a large repertoire of games (marbles, string figures, football), but these were not played with younger children. Twenty-five years ago, the ethnographer Ruth Bunzel made a similar observation:

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 (1959:101).

Stross (1972:9) describes two speech games which a Tzeltal mother played with her 30-month-old daughter, but I did not observe anything similar to these among the Quiché families that I visited.

One highly salient lexical feature of Quiché speech to children is the diminutive adjective inax. The Quiché diminutive is a separate word that is placed in front of the noun it modifies, similar to the English word 'little' in such expressions as 'He has a little wagon' or 'She's wearing a little dress'. A Tu:n's mother's first utterance, le:nax lo:l'l'e: 'There's a little baby' contained this diminutive.

Since Quiché parents use this diminutive to talk about any number of objects, no matter how big or small, I assume it carried a connotation of affection rather than being used in its actual descriptive sense. A variety of other adjectives are available to actually describe the smallness of things. A Tu:n's mother used the diminutive in 5 of her

89 utterances addressed to A Tu:n. Al Tiyan's mother used it in 23 percent of her utterances while Al Cha:y's mother did not use it in her first 100 utterances to Al Cha:y. The mothers only used the diminutive in speech to adults when repeating something their child had said.

Ferguson (1977:225) speculates that the diminutive suffix characteristic of baby talk in English and many other languages might play a role in the development of the child's grammar 'since it may be the first morphological element which the child finds segmentable and thus may begin the development of derivational and inflectional morphology'. The Quiché word inax shows that diminutives do not inevitably appear as suffixes and, therefore, do not provide an easy connection between form and meaning. A deictic particle may serve this function in Quiché since it frequently appears at the end of nouns, verbs and even particles in speech to children. This particle appears at the end of the word lo:l'l' 'baby' in the example from A Tu:n's mother above. This particle occurs in 6 (7 percent) of A Tu:n's mother's utterances, 12 percent of Al Tiyan's mother's utterances and 4 percent of Al Cha:y's mother's utterances. However, it also occurred in 4 percent of A Tu:n's mother's utterances to adults, 9 percent of Al Tiyan's mother's utterances to adults and 2 percent of Al Cha:y's mother's utterances.

In sum, Quiché baby talk contains several lexical features found in other speech communities, but it also contains some novelities (no verbal games, a diminutive which precedes its noun). Lexical features

in speech to children do not provide a dependable source of clues for language analysis.

Syntax. The syntactic features that Ferguson lists are: short sentences, parataxis, telegraphic style and repetition (see Gleitman, Newport & Gleitman 1984; Cross 1977; Gleitman & Wanner 1982 for more extended discussion of the syntactic modifications in speech to children and their possible function). MU provides one measure of sentence length and morphological complexity. A Tun's mother had an MU of 4.63 in her speech to A Tun and 5.32 in her speech to adults. Her longest sentence had 11 morphemes in both conditions. Al Tiyan's mother had an MU of 5.31 in her speech to Al Tiya:n and 5.61 in her speech to adults. Her longest sentence to Al Tiyan contained 14 morphemes while her longest sentence to adults had 13. Al Cha:y's mother had an MU of 8.43 in her speech to Al Cha:y and 7.78 in her speech to adults. Her longest sentence to Al Cha:y contained 21 morphemes while her longest sentence to adults had 20. For comparison, Cross found that her sample of 16 Australian-born middle-class mothers had an MU between 4.1 and 5.4 (1978:208). Al Cha:y's mother's anomalously high MU may be an effect of speech style and personality rather than Al Cha:y's stage of language acquisition. Her mother's utterances were extremely difficult to segment due to her rapid rate of speech and her tendency to add instructions onto the margins of her sentences.

The syllable-deletion process in the mothers' speech had a negligible effect on the morphology. The complex system of verb terminations (described in Pye 1983) was preserved. A Tun's mother's

speech to A Tun contains two sentences where a verb of movement is incorporated into another verb stem (e.g. k- \emptyset -e-in-k'am-a:, aspect-object-go-subject-root-termination, 'I'll go and bring it'). All of his mother's locative questions contain the locative pro-adverb wi(h) (e.g. xawi kux?ei: wi(h)?, 'Where will we go?'). The pro-adverb does not, by itself, encode any basic meaning, but shows that a locative phrase has been moved to preverbal position. A Tun's mother's speech also contains many sentences with verbal enclitics that encode the direction of the verb's action, the speaker's state of belief or the force of the imperative. Twenty-two of her 89 sentences to A Tun have verbal enclitics (25 percent), as do 26 percent of her sentences to adults.

Al Tiyan's mother's first one hundred sentences to Al Tiya:n contain three tokens of a verb with the causative suffix -is (e.g. -b'in-is-ax, walk-CAUSE-termination), one token of a verb in the passive voice (-tsap-ij, close-PASSIVE), three tokens of a verb with the instrumental suffix -b'e which emphasizes an instrument or locative constituent (e.g. -ets'a-b'e-ax, play-INSTRU-termination) and one token of root reduplication to intensify the verb's action (e.g. -tjar-ar-ex, carry-REDUP-termination). She also produced three verbs with incorporated movement. In addition, Al Tiya:n's mother produced eight tokens of two verb types which contain a suffix that I have not been able to identify. Its use is restricted to verbs in the imperative addressed to children and may intensify the force of the imperative.

The two examples from Al Tiya:n's mother are j-aw-i-f(a(x)) (go-subject-see-?, 'Go look at it') and tj-a-k'a-f(a(x)) (aspect-subject-bring-?,

'Go bring it'). This suffix is unusual for Quiché in that it replaces the final consonant of the verb root with /j/. Al Tiyán's mother used verbal enclitics in 17 percent of her sentences addressed to Al Tiyán and in 36 percent of her sentences to adults.

Since Quiché verbs have subject and object markers on the verb, adult speakers only use overt noun phrases to introduce or emphasize a particular referent. Table II shows the number of sentences with overt noun phrases in the speech samples from the children's mothers. The mothers appear to have used fewer overt noun phrases in their speech to children. They also appear to have used a word order that was more fixed when speaking to their children. For two-term sentences (sentences containing a verb and one noun phrase), the mothers used an average of 84 percent canonical word orders (VS and VO) in their speech to children and 70 percent canonical word orders in their speech to adults. The mothers also used more varied word orders for their three-term sentences to adults.

Table II

Finally, the Quiché mothers showed a curious symmetry in repetition patterns for their speech to children and adults. The repetition data

is shown in Table III. All three mothers show roughly the same amount of repetition in their speech to children as to adults, but when speaking to their children they repeat themselves more often than they repeat what others have said, while when addressing adults, they repeat what another person has said more often than what they say themselves. The mothers of the two youngest subjects (A Tu:n and Al Tiyán) also use repetition more frequently than Al Cha:y's mother, although this may also be an effect of Al Cha:y's mother's unique speech style.

Table III

In sum, the syntactic features of speech to children in Quiché are not unequivocally simpler than the corresponding constructions in speech to adults. A more fixed word order stands out as the clearest syntactic difference between the two speech styles. Otherwise, they are about equal in morphological complexity, MLU and amount of repetition.

Discourse. Ferguson lists two features of discourse for speech to children: a more frequent use of questions and pronoun substitutions. The number of declaratives, imperatives, etc. for the mothers' speech to children and adults is shown in Table IV. I used verbal morphology

rather than illocutionary force to identify each sentence type since the former provides a more objective measurement. In these speech samples, the mothers used more questions when speaking to adults than to their own children. They used many more imperative sentences to their children in an attempt to get them playing and talking with my assistants.

Table IV

Ferguson cites the use of the third person singular pronoun for the first and second person and the first person plural pronoun for the second singular. There were no instances of such pronoun shifts in the speech samples I examined, nor am I aware of any occurring anywhere else in my data. Quiché caretakers consistently use the second person singular in the imperative form of the verb when addressing their children. Where the first person plural is used, it always appears to be consistent with a plural interpretation. For example, the only instance where A Tu:n's mother uses this pronoun is in the question 'What should we go buy?' which is difficult to interpret as a suggestion that A Tu:n should go off by himself and buy something (especially since children under two are kept hidden from the gaze of strangers).

There is one sentence of Al T'ya:n's mother in which she uses the second person plural pronoun rather than the second person singular, but this is not unambiguously a case of pronoun shift. Her intention was to have the two children, Al T'ya:n and her sister, play together.

One significant feature of discourse addressed to Quiché children is the interpretive routine involving some form of the verb -t'fa? 'to say'. Unlike other Quiché verbs, even in speech to children, it frequently appears without the markers for aspect, person and clause-final position. The mothers use the bare stem when interpreting a sentence for the child and the full verb form when responding for the child. It always appears sentence finally, despite the fact that Quiché has a VOS word order. This verb is also used less extensively outside speech to children in reciting narratives and myths (Norman 1976; Maxwell 1982) as well as in divination (Tedlock 1981). The three Quiché mothers whose speech I analyzed used some form of -t'fa? in 67 percent of their sentences to children and in only 7 percent of their sentences to adults. Similar routines have been noted for Chicano, Kaului and Black English speakers (Eisenberg 1982; Schieffelin 1979; Ward 1971). Stross also mentions the use of a similar routine among Tzeltal mothers.

The -t'fa? routine significantly increases the syntactic complexity of speech to children in Quiché. The one measure of syntactic complexity which supports the motherese hypothesis is the number of clauses in the average maternal utterance (Newport, Gleitman & Gleitman 1977:122). Cross found that her mothers used an average of 1.02 clauses

per utterance. Counting -tʃaʔ as a separate clause significantly increases the Quiché mothers' score on this measure. Al Tya:n's mother used an average of 1.57 clauses per utterance, the mother of A Tun used 1.49 clauses per utterance, and Al Cha:y's mother used 1.78 clauses per utterance. A -tʃaʔ clause increases overall syntactic complexity at very little cost in processing requirements, which may be why it is tolerated in speech to children.

In sum, Quiché discourse directed to children does not contain the features mentioned by Ferguson, but does have two others: a marked increase in the number of imperative sentences and a special interpretive routine.

SUMMARY

In this paper, I have evaluated 17 features commonly cited for speech to children and found 8 additional features for Quiché: whispering, initial-syllable deletion, BT forms for verbs, a verbal suffix that appears exclusively in speech to children, a relatively fixed word order with relatively fewer overt noun phrases, more imperatives, and a special interpretive routine. Quiché speech to children has only five of the features that Ferguson cites: repetition, BT forms for qualities, compound verbs, diminutives, and special sounds. Admittedly, Quiché speech to children is different from speech to adults, but its features are also different from those of speech to children learning English or Latvian. This result suggests that the features of speech to children

are not universal, but are determined instead by the conventions for interacting with children for each community. Functional explanations of such features will have to take this degree of cultural variation into consideration. Children must learn the distinguishing features of caretaker speech for their community the same way they acquire aspects of the adult language. There is no set of features which children require before learning their first language.

TABLE I. Prosodic features of Quiché speech to child and adult listeners

Child	A Tu:n		Al Tiya:n		Al Cha:y	
Age	1;10		2;0		2;9	
MLU	1.0		1.31		1.57	
Addressee	Child	Adult	Child	Adult	Child	Adult
Average F ₀	243.35	245.55	212.9	229.33	228.75 ¹	269 ¹
Range	134.2	147.2	120.52	133.23	230.05	234.95
Terminal change	-27.95	-56.6	-51.04	-58.71	-20.4	-9.85

¹Adult-directed vs. child-directed comparison (t value) significant at 0.05 level (two-tailed).

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TABLE II. Word orders of Quiché speech to child and adult listeners

Child	A Tu:n		Al Tiya:n		Al Cha:y	
Addressee	Child	Adult	Child	Adult	Child	Adult
VO	8	13	10	13	15	3
VS	-	4	7	8	3	4
OV	1	1	2	6	3	5
SV	-	2	-	3	3	1
VOS	-	-	1	1	4	1
VSO	-	1	-	1	-	1
SVO	-	-	-	-	1	1
OVS	-	-	-	4	-	-

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TABLE III. Repetition patterns of Quiché speech to child and adult listeners

Child Addressee	A Tu:n		Al Tiya:n		Al Cha:y	
	Child	Adult	Child	Adult	Child	Adult
Spontaneous	84%	83%	68.9%	59.8%	68%	68%
Self-repetitions	10%	5%	23.7%	8.5%	18%	8%
Other repetitions	5%	12%	7.3%	31.6%	14%	24%

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TABLE IV. Types of sentences in Quiché speech to child and adult listeners

Child Addressee	A Tu:n		Al Tiya:n		Al Cha:y	
	Child	Adult	Child	Adult	Child	Adult
Imperatives	50%	5%	59%	-	76%	2%
Declaratives	28%	78%	26%	77%	14%	64%
Questions	15%	16%	2%	19%	10%	32%
Exclamations	5%	1%	12%	4%	-	2%

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FOOTNOTES

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