PIRAHÃ

Daniel Everett

INTRODUCTION

Pirahã is a member of the Mura language family, which also included the now (probably) extinct dialects of Bohurá, Yaháhi, Mura, and, possibly, Torá. The language has generally been referred to in Portuguese and English literature as Múra-Pirahã. I have avoided use of this larger term here, since it tends to obscure the distinction between the language family and the language itself. This decision also reflects the preferences of most Brazilian linguists.

Although tentative classifications have placed the Mura family in the Macro-Chibcha phylum, these seem to be poorly motivated; and I would, therefore prefer to reserve judgments on genetic affiliation, considering the Mura family to be still unclassified.

Pirahã is spoken by approximately one hundred and ten individuals along the Maici River, in the state of Amazonas, Brazil. The people are almost completely monolingual; and though some have had frequent contact with outsiders, for the most part they are unacculturated into Brazilian society. Technologically, the Pirahã maintain an extremely primitive existence, using few tools in their day-to-day living, aside from the bow and arrow, crudely woven baskets, and aluminum pots purchased from outsiders.

There are two primary settlements of Pirahã. These are separated by approximately one hundred and fifty kilometers (by river). The village where linguistic work has been done is slightly acculturated, being located close to the mouth of the river and thus seeing traders, rubber workers, hunters, etc. Unlike this group, the upriver village rejects most artefacts of outside culture and is generally hostile to foreigners. Both groups are able to make many artefacts and frequently do. However, the downriver settlement seems to prefer to get by on the barest necessities, begging from passing boats whenever possible.

The research on which this description is based was conducted from January to March of 1979 and from April through December of 1980. Further work was carried on at various times (a total of about four months) with Pirahã informants outside the village. The average workday in the village was two hours of desk-elicitation, three hours filing and analysis, and three hours memorizing vocabulary and conversing with villagers in a number of settings—"perambulatory elicitation." In total, the present author has had approximately fourteen months of intensive contact with the Pirahã.

However, various other researchers have contributed significantly to the description presented here. I want to thank Arlo and Vi Heinrichs, Steve and

Linda Sheldon, and my wife, Keren, for their help on various sections of this paper. Keren Everett (henceforth KE) has contributed greatly to the analyses of verbal morphology and tone. Steve Sheldon (henceforth SS) has also helped a lot with the analysis of verbs and has contributed in one way or another in almost every section. None of these people are to be held responsible, however, for any errors which may have crept in despite their help.

SYNTAX OF THE SENTENCE OR CLAUSE

1 Word order

1.0 Introduction. The basic clause types of Pirahã are transitive, intransitive, copular, and equative. These are distinguished from one another according to the potential occurrence of certain constituents in particular clause types. These constituents are in turn marked morphologically and/or through syntactic positioning within the clause.

The unmarked, basic constituent order of Pirahã clauses is SOV (subject-direct object-verb). Peripheral constituents, such as indirect or oblique objects may be inserted between subject and direct object slots (cf. sects. 1.5 and 1.6 below). The primary criterion for distinguishing between the clause types mentioned (other than copular and equative, cf. sects. 1.3 and 1.4) is the appearance or potential appearance of the object constituent.

1.1 Transitive Clauses. All transitive clauses are distinguished by the (optional) occurrence of a direct object constituent, this being obligatorily absent in intransitive clauses. The unmarked order for transitive clause constituents is SOV. Evidently, classification by verb type is not a sufficient criterion for distinguishing among clause types. Compare, for example, 'kill' and 'die' in (7) below. (For a discussion of the orthographic conventions employed in this paper and their phonetic value in Pirahã, the reader is referred to the phonological summary in sect. 22.)

(1) ti xíbogi ti- baí
1 milk drink-INTNSF
'I really drink milk.'

(2) hi xápiso xaho-aí- i- haí
3 bark eat- ATELIC-PROX-RELATIVE CERT
'He will eat bark.'

(3) hi káixihí xoab-á- há
3 paca kill- REMOTE-COMPLETE CERT
'He killed a paca.'

(4) xisááhai xaita xoho-áo- p- á
grasshopper leaf eat- TELIC-IMPERF-REMOTE
'The grasshopper ate (the) leaves.'

(5) toipií hi xaoói xib-áo- b- í-
Parintintin 3 foreigner hit-TELIC-PERF- PROX-

hi
COMPLETE CERT
'The Parintintin, he arrowed the foreigner.'

This order is considered basic for various reasons. First, given only the basic constituents of (1)-(5), any syntagmatic variations would produce drastic changes in the meaning or focus of the clauses. For example, in

(6) xíbogi ti ti- baí
milk 1 drink-INTNSF

without a pause between *xíbogi* 'milk' and *ti* '1' the meaning would be 'Milk drinks me.' With a pause between these words, *xíbogi* would be interpreted as topic, resulting in a translation such as 'Milk, I drink a lot of.'

(7) káixihí hi xoab-á- há
paca 3 kill- REMOTE-COMPLETE CERT
(i) 'The paca killed it/him' or
(ii) 'The paca died.'

In (7) (cf. (3) above) either (i) or (ii) is a possible translation. Let us remember that the verb *xoab* is translatable as 'kill' or 'die' depending on the number of arguments in the sentence (cf. above) and the context.

Another argument in favor of the claim that SOV is the basic order is its high frequency of occurrence in relation to other possible configurations. A count based on transcribed texts reveals that SOV clauses compose approximately 90% of the total.

Finally, supporting the above observations, any other constituent ordering is best understood as representing a marked form such as topicalization, emphasis, clarification, or other type of comprehension-aiding device (e.g., "Heavy Shift"—cf. sect. 8.5.2 below).

(8) hi xí xoho-i- hiab- a- há
3 3 eat- EP-NEG-REMOTE-COMPLETE CERT

totohoi
[species of bird]
'He doesn't eat them, that is, *totohoi*.'

(9) xoho-áo- p- á- taío páxaihi xigagí
eat- TELIC- IMPERF-REMOTE-RES chicken pepper
'Chickens eat peppers (for) food, therefore.'

Either the subject or the object or both may appear in postverbal position. However, in such cases when two elements are topicalized (set off from the rest of the sentence phonologically) the leftmost is interpreted as related to the subject position and the rightmost to the object position (cf. sects. 2 and 9, as well as Everett (1983)).

1.2 Intransitive Clauses. Although it is common for transitive clauses to appear without subject or object, the potential appearance of a direct object is sufficient to distinguish this syntactic class from intransitives. (The verb *xoab* 'kill/die', see above, is an interesting borderline case. I am not aware of any other similar verbs).

(10) gahióo xabo-óp-ai pixái-xíga
airplane turn- go-ATELIC now- IMMED
'(The) airplane is returning right now.'

(11) pii- boi hiab- iig- á
water-come NEG-CONT-REMOTE
'The water is not coming (i.e., it is not raining).'

(12) tiobáhai xait- á- hói
child sleep-REMOTE-INGR
'The child went to sleep.'

(13) kaí- o hoa- o xaba-áti
house-LOC side-LOC stay- UNCERT
'Stay at the side of the house.'

(14) boitó hi xaba-hói- hiab- a
boat 3 stay- INGR-NEG-REMOTE
'The boat didn't stop.'

As is seen in these examples, the basic order of constituents in intransitive clauses is SV. In all of these examples, the nominal (but not pronominal) element may occur either in preverbal (as in (10)-(12) and (14)) or in postverbal position. Again, a discussion of these alternate configurations is found in sects. 2 and 9 below.

1.3 Copular clauses. Copular clauses are distinguished from equatives (cf. sect. 1.4 below) by the manifestation of verbal elements such as *xaagá* 'to have/to be', *xiigá* 'to be/to have temporarily' and *xai* 'to be/to do'. They are

distinguished from intransitives semantically in that they merely describe objects with little action involved, and lexically in that these clauses are restricted to the verbs just mentioned.

(15) hoáoíi baábi hi xaagá
shotgun bad 3 be
'The shotgun is in bad shape.'

(16) hi bihíhi-igío xaagá-há
3 short- ASSOC be- COMPLETE CERT
'He is short.'

(17) kaisáo hoí hi xai
box two 3 be
'There are two boxes.'

(18) ti baábi xiigá
1 bad be
'I am sick.'

Variation in the order of constituents may occur in these clauses, although it is more restricted than in transitive or intransitive clauses. These restrictions are basically a result of the reduced number of constituents manifested by copular clauses—there are not sufficient elements to allow much variation. Alternate orderings, for example (19) as a reordering of (15), have different pragmatic value (cf. sect. 9) or are simply ungrammatical (as (20)):

(19) baábi hi xaagá hoáoíi
bad 3 be shotgun
'The shotgun is in bad shape.'

(20) *gó xaagá ti
here be 1
'Here I am.'

Copular clauses (and equatives, cf. sect. 1.4 below) may be used to express possession. The most common type of possessive construction, pronoun and noun, is discussed in sect. 15.

(21) ti poogahai xaíbái xao- xaagá
1 fishing arrow many POSSN-have
'I have many fishing arrows.'

At present, I believe that the analysis of *xao-* 'POSSN' is but one of the possible analyses (but I have not investigated other possibilities in any detail).

In any case, *xao-* is a clear marker of possession in this type of clause and is a feature not found in other clause types. A way of expressing possession without *xao-* is shown in (22):

(22) xipoógi hoáoíi hi xaagá
Xipoógi shotgun 3 be
'That is Xipoógi's shotgun.'

In this case the verbal element expresses more the idea of identity, focussing on the thing possessed rather than the possessor.

1.4 Equative clauses. Equatives are used in the general sense of description (which includes possession, identity, etc.). Elements which occur as complements in equatives are modifiers, nouns, and other equative clauses (cf. (25) and (26)). The only distinction between these and copulars is the absence of a verbal element. For example, in (25) the verb construction *xao-xaagá* 'to have' could appear in final position with no apparent change in use or translation.

(23) baitói xoab-ái- p- i pixái xísigíhií
deer die- ATELIC-IMPERF-PROX now meat

xísigíhií báaxáí
meat good
'A deer is dying. Now (there will be) meat, good meat.'

(24) pii boi- baí- so bigí biixi
water come-INTNSF-TEMP ground soft
'When it rains a lot, the ground (becomes) soft.'

(25) xaoói hi xapisí bigaí
foreigner 3 arm thick
'The foreigner has a thick arm (i.e., is strong).'

(26) giopaíxi hi sabí-xi
dog 3 wild-EMPH
'The dog is really wild.'

(27) kohoibiíhai hi kaiíi gáihi
Kohoibiíhai 3 house that
'That is Kohoibiíhai's house.'

1.5 Peripheral constituents. Simple sentences generally comprise only those constituents which are basic or characteristic, in the sense of the discussion above. The minimal number of constituents in declarative sentences is one, the

predicate (supposing that the sentence in question is not a realization of certain phenomena related to the larger context, such as question-response sequences, etc. In these cases, as in English and other languages, syntactic irregularities are permitted which would be ungrammatical in other situations).

Other constituents are possible, however, under the general label of oblique object (temporal expressions, conditionals, indirect objects, certain particles (cf. sect. 21), etc.) At present, the evidence (basically morphological, cf. below) seems to indicate that no rigid distinctions between these elements should be postulated. Note in sect. 15 that oblique case is generally shown by the suffix *-o*. For this reason as well, I have not proposed distinct categories for di-intransitive or di-transitive clauses.

Verbs such as *xahá* 'to go' and *xoba*. 'to throw' do not treat indirect objects differently from other oblique objects but treat all elements in oblique position in the same manner. Therefore, I have considered this entire class of elements as peripheral to transitive and intransitive clause types.

Oblique objects are inserted in the position immediately to the right of the subject. When these objects are larger than five or six syllables they tend to undergo movement to postverbal position. This is apparently a stylistic mechanism to avoid overcrowding of the space between S and V, reminiscent of "Heavy Shift" (cf. (34) below).

(28) xoogiái hi hi-ó xiíi xoab- áo- p- í
Xoogiái 3 up-LOC battery throw-TELIC-IMPERF-PROX
'Xoogiái was throwing the battery upwards.'

(29) ti kaí- o xahá-p- i- tá
1 house-LOC go- IMPERF-PROX-ITER
'I return home.'

(30) ti gí kapiigaxiítoii hoa- í
1 2 pencil give-PROX
'I give the pencil (to) you.'

(31) tioii xohoa-ó kapiigaxítoii
eraser side- LOC pencil

xihi-aí- p- i- haí
put-ATELIC-IMPERF-PROX-RELATIVE CERT
'(Someone) put the pencil beside the eraser.'

(32) big- ó xihi-aí- p- i tábo
down-LOC put-ATELIC-IMPERF-PROX board (table)

xap-ó
top-LOC
'(Someone) put (it) down on top of the table.'

(32) is interesting in that it contains two locative components. As is seen in sect. 9 below, repetition is frequently used to more clearly specify a particular situation. Here the speaker specifies by two locative expressions that he wants someone to put the pencil on top of the table which requires an action downward.

(33) xopísi xahoígí- o xab- op-ai
Xopísi afternoon-LOC turn-go-ATELIC
'Xopísi will return in the afternoon.'

(34) xaxái xab- óp-ai-sai- xáagahá
Xaxái turn-go-do-NOMLZR-OBSERV

xahoahíai xahoigí- o
another day afternoon-LOC
'Xaxái arrived/will arrive another day in the afternoon.'

In (34) the oblique object is moved to postverbal position. This is also the case with (35).

(35) poi ba- áo- p- i- haí
arrow tip sharpen-TELIC-IMPERF-PROX- RELATIVE CERT

kaháíxíói-hió
knife- INST
'(He) sharpens the arrow tip with a knife.'

(36) tagaság- oa xií bói- ta- á xií xóihi
machete-INST tree chop-ITER-REMOTE tree small

taís-oa xií tabói-xába- hái
axe-INST tree fell- finish-RELATIVE CERT

xií xogií
tree large
'With machetes (the Pirahã) chop down small trees.
With axes they fell big trees.'

In (35) and (36) the subject is known through the context, either being present in the immediately preceding sentence as in (36) or present in the nonlinguistic context, as in (35) where the speaker tells me what someone we both see is doing (cf. sect. 13.2.5).

(36) is a more complicated example which shows parataxis and interesting strings of verbal elements. These subjects will be treated in sects. 2 and 18.

At present, I have identified the following markers of oblique constituents: (i) instrumental: *-hió*, *-oá*, and *-xai* (cf. (37) below) and (ii) locative/general oblique: *-ó*.

(37) ti xií tó- p- á- há
1 tree fell-IMPERF-REMOTE-COMPLETE CERT

taísi tagasága-xai píai xií xóihi
axe machete-INST also tree small
'I felled the tree with an axe and a machete.
(It was) a small tree.'

1.6 Other constituents. In sect. 14 there is a discussion of subordinate clauses. Here I have included a few examples of these clauses to show the relation between these and peripheral constituents with regard to their linear position within the sentence.

(38) pii boi- sai ti xahá-p- i- hiab-i-
water come-NOMLZR 1 go- IMPERF-EP-NEG-PROX-

haí
RELATIVE CERT
'Raining (i.e., if it rains), I will not go.'

(39) hi gái-sai hi xog- i- hiab- a
3 say-NOMLZR 3 want-EP-NEG-REMOTE
'His saying (i.e., he said) (that) he doesn't want (it).'

Note that these subordinate clauses precede the subject and do not, therefore, occur in the oblique object position. Thus syntagmatic order is one of the criteria used to distinguish subordinate clauses from peripheral constituents. See sects. 9 and 14 for a fuller discussion.

2 Parataxis

2.0 Introduction. The juxtaposition of phrases and clauses is very common in Pirahã. Equative clauses (cf. sect. 1.4 above) are examples of parataxis because the absence of a verbal element in these represents a different relationship (nonverbal) between their constituents than found in nonequative clauses. However, the constituents of equative clauses manifest a more narrow type of relationship, that of noun-complement, than the elements discussed here. Basically, the elements with which we are concerned here are those which share a relationship to the predicate (or head) which is expressed phonologically (i.e., through juxtaposition), rather than morphosyntactically.

2.1 Phrases. Pirahã phrases which may be augmented through parataxis are nominal, modifying, and verbal.

2.1.1 Nominal phrases:

(40) hi xoo-áo- b- á kapiiga kapiiga xogií
3 buy-TELIC-PERF-REMOTE paper paper big
'He bought (i.e., earned) paper (i.e., money),
lots of money.'

(41) ti xahaigí xao- xaagá xahaigí xaíbá- koí
1 brother POSSN-have brother many- EMPH
'I have brothers, many brothers.'

(42) ti bai xaagá giopaí xahóápátí giopaí
I fear have dog Xahóápátí dog
'I am afraid of the dog, Xahóápátí's dog.'

In the above examples, we see that the phrases occur together in postverbal position (40, 42), or in a discontinuous sequence, separated by the verb (41). In both cases, the second clarifies or comments on the first.

2.1.2 Modifying phrases. The statistically most common modifying phrase is adjectival. This is due to the fact that adverbial notions are normally expressed by verbal affixes.

(43) xoogiái hi xapisí biga aí big- á
Xoogiái 3 arm thick be thick-EMPH
'Xoogiái's arm is thick (i.e., strong), very strong.'

The basic distinction between modifying phrases and nominal or verbal phrases is the fact that modifying phrases are "headless" (cf. sects. 15.3.1 and 19). That is, modifying phrases are built exclusively through parataxis.

(44) xogaí xogií koíhi hiaba
field big small NEG
'(a) big field, not (a) small (one)'

(45) hi si- baí- xi koíhi hiaba
3 cry-INTNSF-EMPH small NEG
'He cries a lot, not a little.'

(44) and (45) show that there are no formal differences between adjectival and adverbial phrases.

In general, modifying phrases are juxtaposed for clarification, emphasis, or correction. When more than one quality is to be predicated of a particular object or action, the connective particle *píaii* 'also' is used. This is discussed in more detail in sect. 8 below. See also sects. 19 and 20, in which it is concluded that adverbs and adjectives are best treated under a more general category of *modifier*.

2.1.3 Verbal phrases. The juxtaposition of verbal phrases is especially common in imperative forms (see sect. 11) although it occurs also in nonimperative verbal phrases.

(46) ti soxóá xi xoabá-aí xi kapágó-b- á
1 already 3 kill- ATELIC 3 shoot- PERF-REMOTE
'I already was killing it, (having) shot it.'

(47) xahoábisi xopí-ta- há kai- ó
Xahoábisi go- ITER- COMPLETE CERT house-LOC

xahá-p- í
go- IMPERF-PROX
'Xahoábisi's going, going to (the) house.'

(48) ko- ó- xio xob- ai- p- í-
inside-LOC-DIR throw-ATELIC-IMPERF-PROX-

i xapa hoag-í- i
COMPLETE CERT head turn-PROX-COMPLETE CERT
'(You) threw (it) into (the box), turning (the box)
upside down (on its head).'

2.1.4 Observations on phrasal parataxis. The basic tendency in the types of phrasal parataxis discussed above is to pause between the juxtaposed elements, with rising intonation on each phrase (cf. also sect. 22).

(49) kahaibó/ kahaibó bogíaga-hoag-á-há-taíó

arrow tip arrow tip warp-INGR-REMOTE-COMPLETE CERT-RESULT
'Therefore, the arrow tip doesn't begin to warp.'

Leftward dislocation is also quite common for topical or clarifying elements (e.g., *kahaibó* in (49)). Phonological dislocation is also used for vocative forms:

(50) ko/ kohoibiíhai ti gí xahoa-í- sog- abagaí
VOC Kohoibiíhai 1 2 speak-EP-DESID-FRUST. INIT
'Hey Kohoibiíhai! I just wanted to talk with you
(i.e., I want to talk/speak with you).'

The juxtaposition of phrases before and after the matrix verb is also quite common (see also (41)).

(51) hi topagahai hi xab- i- baí- só-ai hóki
3 tape recorder 3 play-EP-INTNSF-?- ATELIC hóki
'His tape recorder he plays a lot, Hóki (i.e.,
Hóki plays his tape recorder a lot).'

(51) exemplifies topicalization (a type of juxtaposition) of the genitive phrase 'his tape recorder' and clarification by the addition of *hóki* (the owner of the tape recorder).

(52) hi bai ai- hiab- a hi xaópí-koí xaoói
3 fear have-NEG-REMOTE 3 angry-EMPH foreigner
'He is not afraid. He is really angry, the foreigner.'

(53) xisaitaógií ti xahaigí xigiábií hiaitíihí
Xisaitaógií 1 brother like Pirahã

xigiábi-koí
like- EMPH
'Xisaitaógií is like my brother, like a Pirahã.'

As the above examples show, parataxis may be used to avoid referential ambiguity (51) and (52), and to express emphasis (44) and (45), vocative forms (50) and certain types of coordination (46)-(48).

Parataxis also functions to increase the illocutionary force of certain types of speech acts such as commands or requests (cf. sects. 9 and 11).

Another function of parataxis is modification, which is distinguished from clarification in having more of an appositional function than clarification. That is, whereas clarification may be seen as a type of afterthought (cf. (40)-(42) above) modification seems to be a narrower specification of a particular constituent.

(54) poiooí soxóá xa-xoba-áp- i- ta- á
Poiooí already ?- see- PUNCT-EP-ITER-REMOTE

hoaagái xáisi tai- p- i- sai
(species of fruit) juice drink-IMPERF-PROX-NOMLZR

hoaagái
(species of fruit)
'Poiooí is already looking for fruit, fruit with juice to drink.'

(55) ti xoba-i- sog- abagaí hiaitíihí ti xahaigí
1 see- EP-DESID-FRUST.INIT Pirahã 1 brother
'I want to see the Pirahã, who are my brothers.'

In concluding this section on phrasal parataxis, we might note that, in relation to coordination, the most common form of syntagmatic relating of independent phrases is parataxis, in spite of the existence of *píaii*, the conjunctive particle (cf. sect. 8).

2.2 Clauses

2.2.1 Matrix clauses. The juxtaposition of matrix clauses is seen more clearly in nonelliptical examples. It would be difficult to distinguish between elliptical parataxis of clauses and the juxtaposition of verb phrases in an SOV language (if such a distinction is even valid in the first place). Although criteria might be found in the future to distinguish such cases in a nonambiguous fashion, at present I am considering only those examples in which the subject is repeated together with the verbal element, or the case of imperatives and certain other clausal forms which do not necessarily contain an overt subject.

(56) hi xaho- áti kohoibiíhai gáta bogá-
3 speak-UNCERT Kohoibiíhai aluminum come off-

a-á- xai hi gáta gaigá-a-á- hoi-
?-REMOTE-ATELIC 3 aluminum tie- ?-REMOTE-INGR-

haí
RELATIVE CERT
'Tell (i.e., might you tell) Kohoibiíhai (that) the tin/aluminum is coming off (the roof), (tell) him to tie it.'

(57) hi hoagá xa-xapá- bá- í- hi
3 CONTRAEXP ?- shoot-come-PROX-COMPLETE CERT

ti hoagá xís apaí ba-xap- áo- b-
1 CONTRAEXP animal head ?- shoot-TELIC-PERF-

á- há xoig-iig- á
REMOTE-COMPLETE CERT die- CONT-REMOTE

'Although he shot (him), although I shot (him) the animal in the head, he still is dying (i.e., isn't dead yet).'

2.2.2 Subordinate clauses. Although rare, the juxtaposition of subordinate clauses does occur.

(58) xipóihí xab-óp-ai- so kaí- o xab-óp-
woman turn-go-ATELIC-TEMP house-LOC turn-go-

ai- so ti xahá-p- i- t- aó
ATELIC-TEMP 1 go- IMPERF-PROX-ITER-TEMP
'When the woman returns, when (she) returns to the house, I will leave (go again).'

Another possible example of parataxis involving subordinate clauses is found in quotational complements. Since a discussion of this type of parataxis presupposes an analysis of quotational constructions, I will reserve this for sect. 14.

2.2.3 Conclusion. Phonologically, examples of clausal parataxis show independent intonational patterns for each juxtaposed element.

There is generally a pause between the joined elements. This pause does not appear as consistently with phrases as with clauses. In cases where no pause appears, it is common for the juncture to be marked intonationally, with a rapid fall in intonation followed by rising intonation at the constituent boundary: (56) is an example of this.

3 Ellipsis

3.1 Omission of nonverbal elements of the clause. As was mentioned earlier, any of the nonverbal elements (subject, object, oblique object, etc.) may be omitted. If we were to include a larger number of pragmatic phenomena in our description, such as conversationally permuted structures, then obviously it would be much more difficult to put restrictions on elements which may undergo ellipsis. For this reason, the analysis of ellipsis presented here deals with data from monologues rather than conversation.

(59) hoaoíi baábi hi xaagá hóísai xaá
shotgun bad 3 be rotten ?(be?)
'The shotgun is in really bad shape. It's rotten.'

The ellipsis in (59) is clear: *hoaoíi* 'shotgun' is omitted from the second clause, *hóísai xaá* 'is rotten'.

Ellipsis may also occur intersententially.

(60) hiaitíihí xigía xahoa-op-ai- sog- abagaí
Pirahã ASSOC speak-go-ATELIC-DESID-FRUST.INIT
'He wanted to speak with the Pirahã.'

(60) is elliptical because the subject appears, not in this sentence, but one line up in the discourse from which (60) was taken.

3.2 Conditions. For an element to be omitted there exists a basic condition of "recoverability." This condition is that the element omitted must be present in the preceding sentence.

(61) poogahai xibá-bog- á xib-áo- b-
fishing arrow hit- come-REMOTE hit-TELIC-PERF-

í- i
PROX-COMPLETE CERT
'(I) shot (the snake) (with the) arrow.'

The information in parentheses in the translation comes from the preceding sentence in the discourse and is given again in the sentence following (61) in the same discourse. Note the paratactic emphasis in the repetition of the verbal element.

3.3 Ellipsis in coordinate structures. The omission of elements under identity in coordinate structures is also common (and is seen also in paratactic configurations such as between the two verbal elements in (61)). Also, the omission of verbal syntagmemes is possible exclusively in coordinate structures.

(62) xogiágaó xísi xohoa- í- haí kabatií
everyone animal look for-PROX-RELATIVE CERT tapir

xipóihií pí- o
woman also-OBL
'Everyone will look for the tapir. The women also
(will look for it).'

In (62), *xipóihií pío* 'women also' is an elliptical clause with the verbal element deleted, given in parentheses in the translation. Evidence for this is found in the (optionally) oblique form of the conjunction *pío* which is found in object position (presuming that case marking may precede deletion).

(63) hi kági pí- o xait- á- há tihóá
3 wife also-OBL sleep-REMOTE-COMPLETE CERT Tihóá

xait- a pí- o hoahóá xait- a
sleep-REMOTE also-OBL Hoahóá sleep-REMOTE

pí- o tapaí píaii
also-OBL Tapaí also
'His wife is sleeping. Tihóá is sleeping also.
Hoahóá is sleeping also. Tapaí is (sleeping) also.'

Note that in the successive conjuncts of (63), the verbal suffix *há* 'COMPLETE CERT' is omitted in the second and third conjuncts and in the final conjunct the entire verb is omitted. The form of the conjunction *píaii* is not marked with *-ó* 'OBL', this being optional in elliptical structures, for reasons noted above. The structure of the entire construction of (63), as (64), is that of a list in which each clausal conjunct is listed separately. The most natural interpretation of *tapai píaii* 'Tapai also', therefore, is 'Tapai (sleeps) also.' This carries over to *kapíi píaii* '(eat/drink) coffee also' in (64). On the other hand, the phrase *páohoi bobói píaii* 'bread and candy' is a simple coordinate phrase dislocated from object position.

(64) gíxa xa-oho-i- koí páohoi bobói píaii gíxai
2 ?- eat-PROX-EMPH bread candy also 2

xaí- so xai- hiab- i- koí kapíi
be hungry-TEMP be hungry-NEG- PROX-EMPH coffee

píaii
also
'You will eat lots of bread and candy. Then (as for) being hungry, (you) will not be hungry. Coffee also (you will eat/consume).'

3.4 Conclusion. There is no formal marker of ellipsis in Pirahã. Elliptical constructions, given the condition in sect. 3.2, are frequent in discourse. As was mentioned, a complete study of ellipsis would require an analysis of conversation.

4 Reflexives and reciprocals

4.1 Reflexives

4.1.1 Expression of reflexivity. The notion of reflexivity is expressed syntagmatically in Pirahã. That is, there are no special verbal or pronominal forms to express it. Rather, this notion is expressed as a normal transitive configuration but interpreted differently according to certain pragmatic information. In previous studies on Pirahã, SS mentioned the existence of a reflexive pronoun, *si*, used occasionally in free variation with nonreflexive pronouns.

(65) ti si xib-áo- b- á
1 REFLX hit-TELIC-PERF-REMOTE
'I hit myself.'

(66) ti ti xib-áo- b- á
1 1 hit-TELIC-PERF-REMOTE
'I hit myself.'

I am skeptical of this analysis, although I have no strong counter evidence. The form might be a shortened form of *xísi* 'animal' in which case (65) would be 'I hit an animal', a very common phrase meaning 'I arrowed an animal.' The informant could conceivably have given this phrase rather than what the linguist had attempted to elicit since this might seem like a more "useful" phrase to teach someone.

On the other hand, *si* might have simply lost its distinctiveness as other pronouns were generalized to function also as reflexives. For a hypothesis as to the diachronic development of these pronouns, see sect. 16 and Everett (1983).

Other examples of reflexives, given in a paradigmatic form are:

(67) ti gí xib-áo- b- á- há
1 2 hit-TELIC-PERF-REMOTE-COMPLETE CERT
'I hit you.'

(68) ti hi xibáobáhá
1 3 hit
'I hit him.'

(69) gí ti xibáobáhá
2 1 hit
'You hit me.'

(70) hi ti xibáobáhá
3 1 hit
'He hit me.'

(71) ti ti xibáobáhá
1 1 hit
'I hit myself.'

(72) gí gí xibáobáhá
2 2 hit
'You hit yourself.'

(73) hi hi xibáobáhá
3 3 hit
(i) 'He hit him' or
(ii) 'He hit himself.'

4.1.2 Problems of reference and plural forms. As is seen in sect. 16, there are no plural forms in Pirahã. The general collective *xogiágaó* 'everyone' is discussed below (sect. 4.2) and in sect. 16. Because of this "lacuna" in the pronominal forms, a common way of expressing the plural reflexive is to use the pronoun *hi* '3' and list the names of the participants after the verbal syntagmeme. This listing follows a general pattern (cf. sect. 9) of pragmatic strategies for clarification in which proper nouns in postverbal position are used as a kind of afterthought, a means of disambiguating the preverbal pronominal forms. This "clarification" may involve one or more participants.

(74) hi hi xib-áo- b- á- há xoogiái
3 3 hit-TELIC-PERF-REMOTE-COMPLETE CERT Xoogiái

tihóá píaii
Tihóá also
'Xoogiái hit himself and Tihóá (hit himself) also
(i.e., they (Xoogiái and Tihóá) hit themselves).'

(75) hi hi xibáobáhá xogiágaó
3 3 hit everyone
(i) 'Everyone hit themselves' or
(ii) 'Everyone hit each other.'

(76) hi hi xibáobáhá kohoibiíhai xipoógi pí- o
3 3 hit Kohoibiíhai Xipoógi also-OBL

xaxái píaii
Xaxái also
(i) 'They hit themselves' or
(ii) 'Kohoibiíhai hit himself, Xipoógi hit himself, etc.'

In any case reflexivity is rarely expressed. This may be due to the ambiguity inherent in the pronominal system, among other factors.

4.1.3 Scope of reflexivity. Reflexivity may be perceived as operating across clause boundaries only as the direct object of the embedded clause is understood through the context as coreferent with the subject of the matrix clause.

(77) hi hi xobai-so hi bai xaag-ábai
3 3 see- TEMP 3 fear have-FRUST.TERM
'After he saw himself, he was almost afraid.'

In this case, although the form controlling the "reflexive" is in the same subordinate clause, it is coreferent with the subject of the matrix clause. Although I have no examples of *direct* interclausal control I would expect to come across some, subject to the condition stated above.

4.1.4 Syntactic function of the reflexive. This discussion has been admittedly superficial, since reflexivity, although an expressible notion in Pirahã, does not have any morphological or special syntactic functions. It is not treated differently from other subject-object relations in the language. For this reason, perhaps it would be best to view reflexivity as a purely semantic notion in Pirahã (cf. Everett (1983) for a more detailed discussion).

4.2 Reciprocals. The notion of reciprocity enjoys about the same status in Pirahã as reflexivity. However, there is a morpheme which can enter into a sort of pseudoreciprocal. This is the collective pronoun *xogiágaó* 'everyone'. Thus there are sentences such as:

(78) xogiágaó hi xobai-xiig- á
everyone 3 see- CONT-REMOTE
(i) 'Everyone sees each other' or
(ii) 'Everyone sees themselves' or
(iii) 'Everyone sees him' or
(iv) 'Everyone sees.'

The ambiguity of (78) as seen in (i) - (iv) is both stuctural and semantic. Semantically, the pronoun *hi* is, as has been shown, ambiguous as to number and reflexivity/reciprocity. Syntactically, *hi* can be analyzed in (78) as direct object or a type of agreement marker (cf. Everett (1983)).

When really necessary to express unambiguous reciprocity, the preference is simply to list the participants or, more "commonly" (the quotation marks because the notion in any form is rare), to give *separate* clauses.

(79) xogiágaó hi hi xib-áo- b- á xabagi
everyone 3 3 hit-TELIC-PERF-REMOTE Xabagi

kóxoí xiooitaóhoagí
Kóxoí Xiooitaóhoagí
'Everyone hit each other, Xabagi, Kóxoí, Xiooitaóhoagí.'

(Note that (79) may also have a reflexive interpretation.)

In this section it will have been noted that reflexives and reciprocals have been illustrated with only two verbs. This is a result of the difficulty inherent in eliciting such forms (I have not observed them in textual material or spontaneous speech). Most of these examples were elicited by "staging," where I created certain contexts and then asked an informant to describe the result.

5 Passives

There are no passive constructions in Pirahã, although there is a means of reducing the valency of the verb. This is discussed in more detail in sect. 15.4, since it involves the nominalizer, *-sai*. The most common use of *-sai* is in quotatives (sect. 14).

Another use of *-sai* is in the straightforward nominalization of transitive clauses. I have observed no examples of object-patient nominalization.

(80a) hi kahaí kai- xiig- á
3 arrow make-CONT-REMOTE
'He is making an arrow.'

(80b) kahaí kai- sai
arrow make-NOMLZR
'arrow making/arrow maker'

(81a) hi xií kai- p- i- haí
3 thing make-IMPERF-PROX-RELATIVE CERT
'He will make things.'

(81b) xií kai- sai
thing make-NOMLZR
'thing making/thing maker (i.e., factory)'

(81b) may also be translated 'a place for making things'.

This is the only means I am currently aware of for decreasing the valency of verbs.

6 Causatives

SS described the verbal suffix *-bo* as a causativizer as in (82a) (morphological divisions and translation as in SS):

(82a) xik- oho-a- bo- i- sogi- hiab-iig- áhá-
3SG-eat-DUR-CAUS-INCOMPL-DESID-NEG-CONT-IMMED-

taío
REAS
'Therefore, he remained not wanting to make it eat at that moment.'

However, in my analysis (and that of KE), the translation and morphological divisions of (82a) should be:

(82b) xi koho-a- boi- sog- i- hiab- iig- á-
3 eat- stay-come-DESID-EP-NEG-CONT-REMOTE-

há- taío
COMPLETE CERT-REAS/RES
'Therefore, he came to be (in the state of) not wanting to eat.'

That is, in my analysis, the function of *boi* 'come' is not related to causativization. I am aware of no other possible causativization suffix.

Normally, causativization is realized by means of the verb *xibíib* 'order/cause to do'.

(83) ko xoogiái gói tiobáhai xibíib-a-
VOC Xoogiái 2IMP child order-REMOTE-

áti xabo-óp-i- sai
UNCERT turn- go-EP-NOMLZR
'Hey, Xoogiái! Make your child return!'

(84) ti gíxai xibíib-i- sog- abagaí kahiaí
1 2 order-EP-DESID-FRUST.INIT basket

kai- sai
make-NOMLZR
'I want to make you/order you to make a basket.'

In these examples, the object of the matrix clause is the understood subject of the subordinate clause. There does not appear to be any ambiguity in such sentences. That is, there are no other possible subjects for the embedded clause other than the matrix object.

More investigation of causatives is necessary, to verify or disconfirm my hypothesis that there is no morphological means to express causativization or increase the valency of the verb.

A possible counterexample to the hypothesis is found in example (100) below. It is possible that the verb *(x)ai* 'to make/do' is functioning as a causative suffix. This question remains open, however, awaiting further study.

7 Comparatives and equatives

7.1 Phrasal comparatives and equatives. Equative clauses are discussed in sect. 1. Here we are concerned with general equative expressions and comparatives.

The verbal element *xigiábií* 'similar/like' is very common in equative expressions:

(85) giopaí gáihi kapióxio xigiábií
dog that other like
'That dog looks like another (dog).'

(86) xagí gahióo xogií ái-xi- xi pii xigiábií
path airplane big be-EMPH-EMPH water like
'The airstrip is big, like a river.'

(Note in (86) that the noun *gahióo* 'airplane' modifies *xagí* 'path'.)

Comparison is generally expressed paratactically. Apart from one possible exception, discussed later in this section, no clear examples of nonparatactic comparison have been observed. Generally, attempts to elicit comparative constructions have been frustrated (using methods such as arranging groups of objects—pencils, arrows, children, baskets, etc.—according to size). The results of such attempts are seen in examples such as (87)-(89).

(87) kapiigaxiítoii xogií gáihi kapiigaxiítoii koíhi
pencil big that pencil small

gáihi
that
'That pencil is big; that (other) pencil is small.'

(88) gái koíhi-hi xigí xaaga-há
that small-EMPH ASSOC be- COMPLETE CERT
'That is very small.'

(89) xogi ái-xi gáihi
big be-EMPH that
'That is very big.'

A possible exception to the claim that comparison is not expressed morphologically is found in (90):

(90) xogí-ogií xigí ai kap-í- haí
big- big ASSOC be go- PROX-RELATIVE CERT
'That one is really big/is the biggest.'

I am not sure of the function of the verb *kapíhaí* 'to go' in (90). It seems to be functioning in conjunction with *ai* 'be' as a verb of being. The reduplication of *xogi* 'big' is a type of emphasis, translatable as 'really big'. Thus, comparison is indirectly expressed, presupposing a context similar to (87).

(91) koíhi xai-hí kap-í- haí
small be- EMPH go- PROX-RELATIVE CERT
'(That one) is really small.'

(91) is explained in the same fashion as (90).

Constructions such as (90) and (91) should be considered emphatic rather than merely comparative. When juxtaposed with other clauses in a wider context they are translatable as comparatives.

7.2 Clausal comparatives and equatives. Clausal comparison is similar to that at phrase level:

(92) xoogiái hi baag-a- há koíhi
Xoogiái 3 sell- REMOTE-COMPLETE CERT small

xisaitaógií hi baag-a- há
Xisaitaógií 3 sell- REMOTE-COMPLETE CERT

xogi-ógi-hí
big- big-EMPH
'Xoogiái sells little. Xisaitaógií sold lots more.'

(93) hiopióxio xihiabaí baábi gíxai xihiabaí- baí
other pay poor 2 pay- INTNSF
'Others pay poorly. You pay well.'

(94) xoogiái hi xob-áaxaí xapaitíisi xohoai-
Xoogiái 3 see-well Pirahã language speak-

sai hiaitíihi xigiábi-koí
NOMLZR Pirahã people like- EMPH
'Xoogiái really knows how to speak Pirahã, like the Pirahã.'

As is the case with (94) and others, when two clauses are juxtaposed (or one subordinated hypotactically to the other), certain elements may be omitted.

Normally, the omitted information is recoverable in the sense that it is precisely the point of comparison which is omitted and, therefore, it is present in the matrix clause. Other examples of omission in comparative clauses are:

(95) xisaitoógií hi kapiigakagakai-baí xoogiái
Xisaitoógií 3 study- INTNSF Xoogiái

hi koíhi xabaxáígio
3 little only
'Xisaitoógi studied a lot. Xoogiái (studies) very little.'

Although a few Pirahã have learned the word *mais* 'more' of Portuguese, their "Portuguese constructions" conform to the pattern in Pirahã:

(96) batío pága póoko xoogiái hi mais paga bíi
Martinho pay little Xoogiái 3 more pay well
'Xoogiái pays better than Martinho.'

Even when speaking Portuguese, the Pirahã express comparison by the paratactic conjunction of two clauses. The Portuguese clausal comparative *melhor* 'better' is not used by the Pirahã.

I am not aware of any constructions other than the following which express the correlative notion in Pirahã:

(97) xoi báaxaí-so ti baábi-hiab-
environment/weather good- TEMP 1 bad- NEG-

a xoi baábi-so ti baábi-
REMOTE environment/weather bad- TEMP 1 bad-

koí
EMPH
'When the weather's nice I don't get sick.
When the weather's bad I (get) sick.'

As (97) shows, the expression of correlation conforms to the basic pattern of comparatives, in using parataxis as the basic construction.

8 Coordination

8.1 Clausal coordination. The most common method of conjoining clauses is the use of the connective particle *píaii* 'and/also'. Various clauses or phrases may be connected simultaneously by this particle.

(98) tiobáhai xiaíba xait- á- hói xaogihí
child many sleep-REMOTE-INGR foreign woman

kagihí pí- o xait- á- hói
wife also-OBL sleep-REMOTE-INGR
'Many children are sleeping. The foreign wife is also sleeping.'

In (98) *píaii* is marked by the oblique suffix *-o, pí-o*. This is due to the fact that the oblique position occurs within the verb phrase, in this case headed by *xait* 'sleep'. Nonoblique occurrences of *píaii* generally originate outside the verb phrase. For a more detailed discussion of verb phrase structure, subcategorization and other aspects of Pirahã sentence structure, cf. Everett 1984a.

(99) hi kagí pí- o xait- á- há
3 wife also-OBL sleep-REMOTE-COMPLETE CERT

tihóá xait- a pí- -o hoahóá
Tihóá sleep-REMOTE also-OBL Hoahóá

xait- a pí- o tapaí píaii
sleep-REMOTE also-OBL Tapaí also
'His wife is sleeping. Tihóá is also sleeping. Hoahóá is also sleeping. Tapaí (is sleeping) also.'

In examples like (99) where *píaii* appears without the oblique suffix *-o*, ambiguity arises as to the structure of the unit in which it occurs. For example, the phrase from (99) *tapaí píaii* 'Tapaí also' can be interpreted as an elliptical clause or as a NP conjoined to the final clause which would thus be translated like 'Hoahóá and Tapaí are also sleeping.' The sequence *tapaí pío* 'Tapaí also-OBL' would also be acceptable and, in my analysis, I consider *pío* to be part of a verb phrase where the verb has been deleted, the evidence for this being the occurrence of *-o* 'OBL'. Clausal coordination would, therefore, be said to occur in this case. It might be better, however, to regard *tapaí píaii* simply as a noun phrase, not involving either verb deletion or clausal coordination.

Paratactic conjoining is often quite elliptical, where omitted information is recoverable from the first, nonelliptical clause.

(100) gíxa xa-oho-i- koí páohoi bobói pí- o
2 ?- eat-PROX-EMPH bread candy also-OBL

gíxai xaí-so xai- hiab- i- koí ti gíxai
2 be- TEMP hunger-NEG-PROX-EMPH 1 2

xai- kab- aí- í- koí kapíi píaii kapíi
hunger-NEG-make-PROX-EMPH coffee also coffee

ti- haí
drink-RELATIVE CERT
'You will eat much bread and candy.
You will not be hungry.
I will make you not hungry. You will also drink coffee.'

Note the omission of *gíxai* '2' in the last clause of (100). Also, note that the verb(s) in the successive conjuncts tend to be simplified or even omitted in a coordinated series (cf. sect. 3.3). To sum up, elliptical material in coordinated structures may be (in order of frequency): (1) the subject—when clearly understood through the context; (2) the predicate—when identical to that of the previous conjunct ("identical" as to verbal root); (3) any other information recoverable from the context.

8.2 Phrasal coordination. The major difference between clausal and phrasal coordination is that *píaii*, the marker of phrasal coordination, generally occurs only once, after the final phrasal conjunct.

(101) ti soxóá xiak- áo- p- á-
1 already requested-TELIC-IMPERF-REMOTE-

há baósaí xagikoaísai píaii
COMPLETE CERT cloth blanket also
'I already requested cloth and a blanket.'

However, if the speaker is speaking slowly, correcting himself, or adding something to his list as an afterthought, then *píaii* tends to follow each item.

(102) ti xágaísi xao- xaagá gihió-kasí hai
1 manioc meal POSSN-have bean-name DOUBT

kapí píaii tíxisi píaii
coffee also fish also
'I have manioc meal, beans, hmm, coffee also, fish also.'

8.3 The particle *hoagá*. This particle is discussed in more detail in sect. 21. It functions to subordinate or coordinate sentences. A free translation of *hoagá* would be 'but', although its complete sense is somewhat different, 'CONTRAEXP'. Unlike *píaii*, *hoagá* never connects more than two sentences.

(103) hi toio xaagá hoagá xopaohoai-baí
3 old be CONTRAEXP work- INTNSF
'He is old but nevertheless (he) works a lot.'

(104) ti soxóá koho-áo- p- á hoagá
I already eat- TELIC-IMPERF-REMOTE CONTRA EXP

koho-ái- p- i- haí kapióxio
eat- ATELIC-IMPERF-PROX-RELATIVE CERT another
'I already ate but am going to eat again.'

8.4 Disjunctive coordination. I have not observed any morpheme translatable by the disjunctive element 'or'. Normally, disjunctive coordination is realized by juxtapositioning clauses or, in certain instances, by negated conjunction. Juxtapositioning is shown in examples such as:

(105) ti xísi xibá- bo- i- haí hai
1 3 animal arrow-move-PROX-RELATIVE CERT DOUBT

ti xoi kahá- p- i- haí hai
1 jungle go- IMPERF-PROX-RELATIVE CERT DOUBT
'I will go fishing (or perhaps) I (might) go hunting.'

Negated conjunction:

(106) ti kabatiíogií xogi-hiab- iig- á kosíiva
1 beef want-NEG-CONT-REMOTE canned meat

píaii tixisi xabaxáígio
also fish only
'I do not want beef. (I do not want) canned meat also (i.e., either) (I) only (want) fish.'

(107) tiobáhai koho-ái- hiab-a tomáti gihió-
child eat- ATELIC-NEG-REMOTE tomato bean-

kasí píaii taí píaii
name also leaf also
'(The) children do not eat tomatoes or beans or leaf(y vegetables).'

8.5 General observations

8.5.1 Omission of constituents in coordination. See sects. 3.3 and 8.1.

8.5.2 Expression of comitative. This notion is expressed either by *píaii* 'also' or by *xigí* 'ASSOC'. Therefore, (108) and (109) are similar, although not synonymous:

(108) hoagaixóxai hi soxóá kahá- p- i- ta
Hoagaixóxai 3 already leave-IMPERF-PROX-ITER

gitopaáso píaii
Gitopaáso also
'Hoagaixóxai already left, Gitopaáso also.'

(109a) gitopaáso xi soxóá kahá- p- i- tá
Gitopaáso 3 already leave-IMPERF-PROX-ITER

hoagaixóxai xigí- o
Hoagaixóxai ASSOC-OBL
'Gitopaáso already left with Hoagaixóxai.'

(109b) gitopaáso xi soxóá hoagaixóxai hi xigí- o
Gitopaáso 3 already Hoagaixóxai 3 ASSOC-OBL

kahá- p- i- tá
leave-IMPERF-PROX-ITER
'Gitopaáso already left with Hoagaixóxai.'

Note that with *xigí* 'ASSOC' the postpositional phrase may precede or follow the verb (similar to "Heavy Shift" mentioned earlier).

The basic difference in meaning between (108) and (109), that is, between comitatives with *píaii* and those with *xigí*, is the relationship between the participants and the nature of the action. *píaii*, for example, implies two actions each with its own subject. (108) would thus mean something like 'X left and Y also left.' In other words, in sentences like (108) the comitative interpretation is not obligatory. X and Y may have left together or separately, the interpretation depending on the context. On the other hand, (109) implies but one action, that is, that Y and X performed the same action (more specifically, in my intuition, that Gitopaáso participated in Hoagaixóxai's action).

8.5.3 Restrictions on conjunctions. Pirahã tends to avoid coordinate structures unless, as in the previous examples, each conjunct repeats or elliptically presupposes the verb of the first conjunct. Likewise, clauses which present unrelated information are expressed independently.

(110) *ti kapíi ti- hiab- i- haí
1 coffee drink-NEG-PROX-RELATIVE CERT

taoá kahá- p- i- hiab- i- haí
Taoá leave-IMPERF-EP-NEG-PROX-RELATIVE CERT

piáii
also
'I won't drink coffee, and Taoá won't go also.'

(110) would, for the same reasons, be unacceptable even if interpreted as a disjunctive structure such as 'I won't drink coffee, and Taoá won't go either.'

Noun phrases seem to permit conjunction freely with few, if any, restrictions. This is due to at least two factors. First, noun phrases tend to be simple, with few or no modifiers. Therefore, the conjunction of two or more phrases (cf. sect. 8.2) normally does not result in very complex structures (i.e., long strings), which are avoided in Pirahã. Second, coordinate noun phrases have the same predicate in common (cf. the comments above on the impossibility of conjoining unlike predicates). As stated earlier, however, the presence of the oblique suffix *-o* on *píaii* 'also' is considered to be evidence of verbal deletion and clausal coordination.

9 Pragmatic and discourse characteristics

9.0 Introduction. Many of the items to be discussed in this section are yet unclear to me. Therefore, the analysis suggested below should be considered tentative. On the other hand, there are various aspects of this area about which we feel confident. I will attempt to advise the reader of the less secure sections.

9.1 Topicalization

9.1.1 General remarks. As is seen in previous sections (e.g., sects. 1.1, 2.1, etc.), certain constituents may appear outside of their unmarked position, either to the left or to the right of the sentence in question or on both sides simultaneously. I have called these forms topicalization although compare Everett (1983) for an alternative analysis based on Government-Binding theory (Chomsky 1982).

(111) pii- gió- xio xigóá-xai xagaoa-xai
water-down-DIR travel-be canoe- INST
'By canoe, (he) travels downriver.'

(112) tíihí hi bigí káob- á- há
Brazil nut 3 ground fall- REMOTE-COMPLETE CERT
'The Brazil nut, it fell to the ground.'

(113) paigí hi xob-áaxái paigí
Paigí 3 see-much Paigí
'Paigí, he knows a lot, Paigí.'

The phonological details of examples such as these are discussed below (sect. 9.1.2).

The type of topicalization which appears in examples such as (113) is a possible argument against topicalization by a movement rule. The presence of

two identical noun phrases would seem to indicate that they are "base generated." In Everett (1983) it is argued that another reason not to take such structures as the result of movement is that the pronominal element *hi* '3' in fact is an agreement element outside of subject position. However, I will not pursue this here.

(114) gói pii xoái- p- í pii
2IMP water fetch-IMPERF-PROX water

xig- opa-í- haí
bring-go- PROX-RELATIVE CERT
'Go fetch water, bring water.'

In (114), two predicates are present, one a paraphrased form of the other. This would be a topicalization of the action. I consider this type of verb phrase stringing to be a form of topicalization for the following reasons. Phonologically, although a break does exist between the first clause and the second (begun by *pii* 'water'), it is much shorter than would normally be observed between separate clauses in discourse. Thus, these seem to form a (loose) unit. In terms of the overall discourse, the general theme of conversation was getting water. One speaker was complaining that the job was too hard for one person. Another speaker suggested that someone should help. The first speaker then utters (114) to the second speaker in a sense similar to—'*You* get water, (as far as) bringing water (goes).' Other examples of this type of topicalization are discussed below (sect. 9.4) in terms of "illocutionary force."

To sum up, a more complete study of topicalization would need to propose some sort of treatment of the pragmatic functions of each subtype (e.g., (111), (112), and (113)). As these three types of topicalization of noun phrases plus (114), topicalization of action, are mentioned here, the reader is reminded that if *hi* were analyzed as a verbal agreement element, then we would be forced to modify our typology of topicalized forms. This question remains open here, but is discussed at length in Everett 1984a.

9.1.2 Phonological features of topicalization. The phonological aspects of topicalization are, basically, intonation and pause. This is seen in (115) (where // = larger pause; / = pause; ⌒ = rising intonation):

(115) //xoogiái/ hi xooáioái/ xoogiái//
Xoogiái 3 play around Xoogiái
'Xoogiái, he plays around a lot, Xoogiái.'

9.2 Clarification

9.2.1 General remarks. Although the pragmatic phenomena of topicalization and clarification have certain features in common, there are a few criteria by which they may be distinguished.

Syntactically, clarification differs from topicalization in the following ways: (i) only topicalized structures have the noun phrase in question in preverbal and postverbal positions, as in (115); (ii) topicalization is marked in discourse by discourse-level particles (cf. sect. 21); and (iii) clarification is generally shown by some sort of postverbal elliptical clause or phrase and functions as a sort of afterthought (this is further shown by the fact that clarification elements are not as loud and are somewhat higher in relative pitch than the preceding clause. One gets the impression that the speaker is almost talking to himself).

Semantically and pragmatically, the distinctions between these phenomena are clearer yet. Thus, topicalization marks the most relevant element, "theme," of a particular sentence or discourse section (that is, "What are we discussing?"). Clarification is either the disambiguation of a sentence or the addition of information to turn an unintelligible, vague sentence into a clearer, more intelligible one.

9.2.2 How and when expressed. Clarification is frequently used with (potentially) reflexive sentences. In these cases, reference is extremely ambiguous as to the nature of the action and participants involved without some type of clarifying information.

(116) hi hi xib-áo- b- í- xi kapoíti
3 3 hit-TELIC-PERF-PROX-COMPLETE CERT Kapoíti

xabíai
Xabíai
(i) 'Kapoíti hit Xabíai' or
(ii) 'Kapoíti and Xabíai hit themselves.'

(i) would be the normal interpretation of (116) and (ii) a very rare, but grammatical, possibility. The order of noun phrases in clarification is always subject-direct object (I have not observed any larger expansions with oblique objects). Therefore, in (116) the nonreflexive interpretation is *kapoíti* as agent and *xabíai* as patient. It seems that the order is not so important in the reflexive (ii) interpretation, although this requires further study. Example (116) represents clarification since it functions as a type of afterthought on the identity of the participants rather than as the "theme" of the discussion.

(117) ti xoá-boí- sog- abagaí gáihi pigáia
1 buy-MOVE-DESID-FRUST.INIT that scissors
'I almost am coming to want to buy that, the scissors.'

Examples such as (117) are especially observed when various objects are present and the speaker says initially merely that he is wanting to buy something and then decides. Or, such structures occur when the speaker has spoken and pointed to an object but the seller did not see exactly which object. The phonological division between the verb and clarifying element, here *gáihi pigáia*, may range from a fraction of a second to several seconds.

Another phenomenon which seems related to topicalization is emphasis or "highlighted topicalization." The most common form of this which I have observed is the exclamatory sentence (sect. 22.1.1.3; cf. also Everett 1979).

(118) //kahaibó/ kahaibó bogiaga-hoag-á-ha-taíó//

arrow tip arrow tip warp-INGR-REMOTE-COMPLETE CERT-RESULT
'Therefore, the arrow tip doesn't come to warp.'

In Everett (1979:27) this type of sentence was described roughly as:

> [These sentences] begin like declarative sentences with a gradual crescendo. This crescendo is marked near the beginning by strong accent (ˆ) and pause (/). The intonation then drops quite low, the lowest point in the sentence occurring after the brief pause (/). From there the intonation begins a rising pattern, the sentence final tones being much higher than sentence initial tones.

(Cf. sect. 22 for a general discussion of intonation.)

One further example of emphasis is (119):

(119) //potagíipaxaí/ pago bií tíihí//

Potagíipaxaí pay well Brazil nut
'(He) paid well (for the) Brazil nuts (which grow at the place known as) Potagíipaxaí.'

(119) obviously contains Portuguese loan words. However, as in (118), the emphasized element (*kahaibó* 'arrow tip' in (118), *potagíipaxaí* in (119)) is being emphasized relative to other information in the discourse. (118) comes from a procedural discourse on arrow-making and (119) from a narrative text on Brazil nut traders.

9.3 General features of discourse

9.3.1 Direct and indirect speech. There is a strong preference in all discourse genres in Pirahã to use direct or indirect speech rather than third person narratives. A more detailed discussion of these speech patterns is given in sect. 14, under quotatives. An example of a short discourse representative of this type of phenomenon is (120):

(120) xoogiái hi xá-ga- a kokahá-p- i-
Xoogiái 3 ?- say-REMOTE awake- IMPERF-PROX-

t- aó kaopá-p- á- há
ITER-TEMP leave-IMPERF-REMOTE-COMPLETE CERT

xaí xab-op-ai- ta xoogiái hi xa-ga
then turn-go-ATELIC-ITER Xoogiái 3 ?- say

xahoigí- o kaop- ái- ta- ha-
afternoon-OBL leave-ATELIC-ITER-COMPLETE CERT-

á xopa-ta- há
REMOTE(?) go- ITER-COMPLETE CERT
'Xoogiái said, "When I awake, I will leave. Then he will return." Xoogiái said that he will leave in the afternoon. (Then he) will go.'

Note that new information, in this case the word *xahoigío* 'in the afternoon', is generally introduced by a quotative construction. In the majority of texts I have observed, quotatives are used to mark significant changes of participants, time, or event. Reference (intersentential) is kept clear through knowledge of context. Indirect speech and direct speech are distinguished through intended reference of pronominals in subordinate, quotative clauses. See sect. 14 below.

9.3.2 Proper nouns. In spite of the fact that other Amazonian languages, such as Sateré (Al Graham, p.c.), tend to avoid the use of personal names or proper nouns in discourse and everyday conversation, Pirahã relies heavily on these to avoid ambiguity in discourse. Moreover, it is common to address oneself directly to someone by that person's name (frequently abbreviated by one or more syllables). Even children address their parents using their parents' names rather than kinship terms (although the (loan?) word *baíxi* 'mother/father' is common).

In fact, no discourse would be intelligible without proper nouns to distinguish the participants. A normal text of two or more participants will

generally have a proper noun every other line— according to changes in time, event, or participant in the context.

For example, in (121) which constitutes the first lines of a text with four participants, note the recurrence of the name of the initial character (a pattern repeated throughout the remainder of the discourse).

(121) kohoibiíhai hi gá- í- sai hoasígikoí kosoí
Kohoibiíhai 3 say-EP-NOMLZR lead shot eye

xib-áo- b- í- hi kohoibiíhai
hit-TELIC-PERF-PROX-COMPLETE CERT Kohoibiíhai

hi gá- í- sai ti xís xigiíhi-oa kap-
3 say-EP-NOMLZR 1 3+animal close- MAN shoot-

áo- b- abaga- á
TELIC-PERF-FRUST.INIT-REMOTE(?)
'Kohoibiíhai said that the shot hit (it) in the eye.
Kohoibiíhai said, "I almost hit him by being so close." '

9.4 Illocutionary force. The term "illocutionary force" is being used here in the sense of Searle (1979). He defines illocutionary force as the " . . . differences in the force or strength with which the illocutionary point is presented." Illocutionary point is defined as " . . . the point or purpose of a type of illocution. Illocutionary point is part of but not the same as illocutionary force. Thus, for example, the illocutionary point of requests is the same as that of commands: both are attempts to get hearers to do something. But the illocutionary forces are clearly different." Illocutionary force is expressed morphosyntactically, phonologically, and by other factors. In this section only the morphosyntactic and phonological means of expressing illocutionary force are discussed.

Repetition is especially common in imperative sentences, although it also occurs in declaratives. To increase the force with which a command or asssertion is made, it is common to repeat the verb phrase in a somewhat paraphrased form (with changes in aspect, verb root, etc.).

(122) gói pii xoái- p- í pii
2 water fetch-IMPERF-PROX water

xig- op-a-í- haí
bring-go-?-PROX-RELATIVE CERT
'Fetch water. Bring water.'

(123) ko xoogiái ti soxóá toipií koba-í-
VOC Xoogiái 1 already Parintintin see- PROX-

xi	toipií	hi	xaíbíbái	pii-
COMPLETE CERT	Parintintin	3	many	water-

boó-xio
up- DIR
'Hey Xoogiái, I have seen (some) Parintintin.
Many Parintintin (are) up river.'

Another type of "repetition" is that in which the command or assertion is first stated in a positive form then negatively (or vice versa):

(124)

xaoói	xao	hi	xahoa-í-	sahaí
foreigner	foreigner	3	speak-PROX-NEG.IMP	

xapaitíisi	hi	xahoa-áti
Pirahã language	3	speak-UNCERT

'Don't speak foreign speech (to me). Speak Pirahã.'

(125)

ko	hoahóá	pii-	ó-	xio	xai-sahaí	big-
VOC	Hoahóá	water-LOC-DIR			do-NEG.IMP	ground-

ó	xab-	a-	áti
LOC	stay-REMOTE-UNCERT		

'Hey Hoahóá, don't go into the water. Stay on the bank.'

(126)

kai	ohoa-o	xab-	a-	áti	ti	xigí-	o
house	side-LOC	stay-REMOTE-UNCERT			1	ASSOC-LOC	

xai-sahaxáí
do-NEG.IMP
'Stay at the side of the house. Don't come with me.'

Among other means of marking illocutionary force, emphatic suffixes may also be used. There are three such suffixes in the language: *-koí* 'EMPH', *-xi* 'EMPH', *-baí* 'INTNSF'. The suffix *-baí* is only used with verbs, *-koí* and *-xi* may be used also with nouns and *-koí* may also cooccur with *-baí* (cf. sect. 18.6.4).

(127a)

xaoói	xogi	ái
foreigner	big	be

'The foreigner is big.'

(127b)

xaoói	xogi	ái-xi
foreigner	big	be-EMPH

'The foreigner is really big.'

(128) baíxi hi xagí-baí- koí
parent 3 play-INTNSF-EMPH
'(My) father plays a lot.'

-koí may occur in negative sentences such as:

(129) xágaísi kab- í- koí
manioc meal NEG-EP-EMPH
'There is no manioc meal!'

However, *-baí* may occur only rarely in negative constructions:

(130) xágaísi kab- i- bai
manioc meal NEG-EP-INTNSF
'There is no manioc meal.'

However, these suffixes are very common in everyday speech and, therefore, the difference thus expressed is relatively small in relation to other means of expression (cf. also sect. 10.1 below).

Particles which mark illocutionary force are described in sect. 21.

Phonological marking of illocutionary force is discussed in sects. 9.2.2 and 22.1.1.

9.5 Conclusion. Many other aspects of pragmatic features of Pirahã remain to be studied. A few of these are described in sect. 21 with regard to discourse particles. In a general way, studies of pragmatics in preliterate societies may prove to be very revealing with regard to differences between such societies and more technologically advanced cultures (such as in number and use of performatives, presuppositions involved, role of nonlinguistic context, etc. A similar suggestion, primarily with regard to performative verbs in the two types of societies, has been voiced by John Searle (p.c.)).

10 Interrogatives

10.1 Yes/no questions

10.1.1 General remarks. There are various markers of yes/no questions in Pirahã. There are, for example, four morphological markers which vary in relation to their expression of presupposition or restrictions imposed by the speaker on possible answers or the perlocutionary effect on the hearer. In indirect speech acts, these differences are related to illocutionary force (cf. sect. 11; D. Everett 1983). These would seem to furnish evidence of pragmatic influence on morphology.

In addition to morphologically marked yes/no questions, it is possible to mark interrogatives exclusively by phonological means. Each of these possibilities is discussed in this section.

10.1.2 Phonological marking. This is shown in the following examples:

(131) xágaísi xao-xaag-iig-á
manioc meal POSSN-have-CONT-REMOTE
'Do you still have (any) manioc meal?'

(132) gí xáop-í-hiab-á
2 angry-EP-NEG-REMOTE
'You're not angry?'

Although rising intonation is also associated with declarative sentences (cf. sect. 22), in interrogatives such as (131) and (132) the initial and final points of the intonational contour are lower and higher, respectively, in relation to one another than in declarative rising intonation.

This intonational marking is observed primarily in situations clearly marked by the context as interrogative. In other cases, morphological markers are used.

10.1.3 *híx*. This morpheme is considered to operate as a clause-level interrogative marker. It is distinguished from verbal suffixes by phonological and syntactic criteria.

Syntactically, *hix* never appears to the left of verbal suffixes. That is, there is no evidence in favor of incorporating it into the verbal suffix system.

Phonologically, *hix* is the only CVC syllable in the language (and it is for this reason that the glottal occlusive is analyzed in this position as a clausal feature and noncontrastive at syllable level (cf. sect. 22.2). Moreover, *hix* generally receives the strongest accentuation and highest intonation (occurring rightmost in the clause with rising intonation—therefore a natural result, not necessarily connected with *hix* itself) in the clause.

Semantically, unlike other interrogative elements (except for *-xóxói*, sect. 10.1.4) *hix* carries no implications as to content or form of the expected answer. Being thus rather "neutral" semantically, it is not surprising that *hix* is optional.

(133) xií bait-áo-p-i híx
cloth wash-TELIC-IMPERF-PROX INTER
'Are (you) (going to) wash clothes?'

(134) hi soxóá patoá kak-áo-p-í "hix
3 already suitcase request-TELIC-IMPERF-PROX INTER
'Did he already request a suitcase?'
(" = 'strongest accentuation in clause')

10.1.4 *-xóxói*. The most common of the interrogative suffixes is *-xóxói* and its phonological variant *-xói*. It generally occurs with *hix* in penultimate position in the clause.

The analysis of this suffix as well as the majority of the interrogative morphemes in this section was done by SS. For the most part, the examples are his as well, although I have added several of my own. The occurrence of (*hix*) in the following examples indicates that it is optional.

(135) hi xagíit-óxoí (híx)
3 cold- INTER (INTER)
'Is he cold?'

(136) xa-ohoi-hiab-iig- óxói (híx)
?- eat- NEG-CONT-INTER (INTER)
'(You) haven't eaten yet?'

(137) kohoi xog- i- hiab- iig- óxói (híx)
Kohoi want-EP-NEG-CONT-INTER (INTER)
'Kohoi doesn't want that?'

(138) xísi ib- áo- p- óxói (híx)
3 animal hit/arrow-TELIC-IMPERF-INTER (INTER)
'Did (you) arrow (fish)?'

An important observation on these examples is that the morpheme *-xóxoí* carries no implications as to the answer expected. It is for this reason and also for the higher frequency of occurrence of *-xóxói* in relation to other interrogative sequences which lead me to classify this as the unmarked suffix. All of the other suffixes in this series carry implications as to expected answers.

10.1.5 *hoaxái*. This (usually bound) morpheme is used in questions dealing with existence or possession. In this sense, the speaker restricts the area of discussion and the class of acceptable answers (to those dealing with possession or existence). Again, *híx* is possible but optional.

(139) hi xao- hoaxái tiobáhai
3 POSSN-INTER child
'Does he have children?'

(140) kapiiga xao- hoaxái (híx)
paper/money POSSN-INTER (INTER)
'Do (you) have money?'

(141) xií soxógió hoaxái (híx)
tree much time INTER (INTER)
'Did trees exist long ago?'

(141) is interesting in that it has no verbal root. For this reason it might be better to analyze *hoaxái* as an independent morpheme. However, for the present I will continue to treat it as a dependent term, although its status remains vague.

10.1.6 *-xaoaxái*. By using this interrogative morpheme, the speaker indicates his lack of control over the response. Although SS considered this morpheme as expressing doubt as to the response, it is used primarily to inquire about the behavior of the hearer or others. It is especially common in indirect requests. In terms of general pragmatic effect, *-xaoaxái* seems to affect the illocutionary force—making the request more "politely."

(142) hi ti poogahai xoá-boí- hiab- i- s-aoaxái
3 1 fishing arrow buy-move-NEG-PROX-?-INTER
'Might it be that he is not going to buy the fishing arrow?'

(143) hi xoá- og- ab- í- s-aoaxái
3 delay-DESID-DUR-PROX-?-INTER
'Might it be that he is wanting to delay (i.e., will delay)?'

(144) ko xoogiái xigí- xaoaxái ti gí taísi
VOC Xoogiái ASSOC-INTER 1 2 axe

xig- a- áti
take-REMOTE-UNCERT
'Hey, Xoogiái, I wonder if it would be alright if
I took your axe?'

10.1.7 *káo*. Contrary to other yes/no interrogative markers (with a few possible exceptions such as (144) in which *-xaoxái* appears to be suffixed to the postposition *xigí*), *káo* precedes the verb root and is a free morpheme. The syntagmatic position of *káo* is in fact similar to WH-type interrogatives (cf. below). Also, another unique feature of *káo* is that it is only used to inquire about a past action.

(145) hi káo koho-ái- p- í híx xai
3 INTER eat- ATELIC-IMPERF-PROX INTER be(?)
'Did he already eat?'

(146) xi káo xií bait- áo- p- í hix
3FEM INTER cloth wash-TELIC-IMPERF-PROX INTER
'Did she wash the clothes?'

(147) gí káo xaga- b- á- hói
2 INTER finish- PERF-REMOTE-INGR
'Did you finish?'

10.2 WH questions

10.2.1 *go*. All WH questions except for those with *kaoí* 'who/whose' are expressed by the morpheme *go*. This element may have other elements affixed to it (cf. below) to produce a series of WH questions relating to English 'what', 'where', 'why', etc. I have analyzed *go* as a type of adjective, in terms of its syntagmatic positioning within the clause.

WH questions with *go* are formed in the following manner:

$$+ \textit{hi}\ \text{'3'}\ \ + \textit{go}\ + \left\{ \begin{array}{ll} \textit{ó} & \text{'LOC'} \\ \textit{xigí} & \text{'ASSOC'} \\ \textit{gíiso} & \text{'DEM'} \\ \textit{giíso} & \text{'MAN'} \end{array} \right\}$$

Other WH elements in the language are (i) *kaoí* 'who/whose' and (ii) *so* a variant of *go* (the nature of this variation is still not clear to me although there are various examples) as seen in

(148) hi { go / so } xigí xog- i (híx)
3 WH ASSOC want-PROX (INTER)
'What does he want?'

There is evidently no semantic or pragmatic difference between the two options (*go*, *so*) of (148). Other examples of WH questions are

(149) xabagi go gíiso xigí xog- i (híx)
Xabagi WH DEM ASSOC want-PROX (INTER)
'How much does Xabagi want?'

(150) gahió go gíiso xab-óp-ai
airplane WH DEM turn-go-ATELIC
'When will the airplane return?'

(151) go kais ígi xai (híx) gáihi
WH name ASSOC be (INTER) DISTAL DEICTIC
'What is that/what is he/she/it there called?'

(152) hi go gíiso xigí xai-sog- i (híx)
3 WH DEM ASSOC do- DESID-PROX (INTER)
'What is he doing?'

(153) hoa go gíiso kahá-p- i
day WH DEM go- IMPERF-PROX
'How many days (until he) goes?'

(154) kaoí xigí ai (híx)
who ASSOC be (INTER)
'Who is that/it?'

In the above examples, *híx* is always optional.

(155) kaoí xis igí ai (híx)
who 3 non-human ASSOC be (INTER)
'Whose is that?'

The interrogative morphemes *kaoí* and *go* may also occur alone:

(156) kaói 'who?/whose?'

(157) go 'what?/what's up?'

Other examples of WH questions are

(158) (hi) go- ó xaagá
(3) WH-LOC be
'Where is he?'

(159) (hi) go- ó xigí ahá-p- i
(3) WH-LOC ASSOC go- IMPERF-PROX
'Where is he going?'

(160) xisaabi hi go gi ái ko- ab- ái-
Xisaabi 3 WH DEM(?) be(?) die-DUR-ATELIC-
p- í
IMPERF-PROX
'Why did Xisaabi die?'

It is not clear whether the element *gi* in (160) is an abbreviated form of *gíiso* 'DEM' or *giíso* 'MAN'. In any case, the construction *gi ái* is the principal marker of 'why' questions.

(161) (hi) go gi ái hoaooíi xo- áo- b- i
(3) WH DEM be shotgun buy-TELIC-PERF-PROX

(híx)
(INTER)
'Why did he buy the shotgun?'

(162) (hi) go giíso xái (híx)
(3) WH MAN do (INTER)
'How do you do (that)?'

(163) (hi) go giíso hi kahá- p- i- í
(3) WH MAN 3 leave-IMPERF-PROX-?
'How (in what manner) did he leave?'

10.2.2 Constituents of the sentence which may be questioned

10.2.2.1 Constituents of the matrix clause. Any constituent of the matrix clause may be questioned. That is, the interrogative element may refer to the subject, object, verb, etc., as shown by the above examples. However, there is no movement of the interrogative morphemes, linear configurations following the pattern discussed in sect. 10.2.1.

(164) hiaitíihí hi soxógió xoí kapióxí-o
Pirahã 3 much time jungle other- LOC

toipií koab-ái- p- á
Parintintin kill- ATELIC- IMPERF-REMOTE
'The Pirahã used to kill Parintintins in another (part of the) jungle, a long time ago.'

The following examples are grammatically acceptable, although they probably would never be observed in unelicited data for various reasons (they are long and rather artificial).

(165a) kaoí hi soxógió xoí kapióxi-o toipií
who 3 much time jungle other- LOC Parintintin

koab-ái- p- á
kill- ATELIC-IMPERF-REMOTE
'Who used to kill Parintintins in another jungle a long time ago?'

(165b) hiaitíihí hi soxógió go- ó toipií
Pirahã 3 much time WH-LOC Parintintin

koab-ái- p- á
kill- ATELIC-IMPERF-REMOTE
'Where did the Pirahã used to kill Parintintins a long time ago?'

(165c) hiaitíihí hi soxógió go gíiso xigí ai híx
Pirahã 3 much time WH DEM ASSOC do INTER
'What did the Pirahã do a long time ago?'

(165d) hiaitíihí hi kaoí koab-ái- p- á
Pirahã 3 who kill- ATELIC-IMPERF-REMOTE

soxógió
much time
'Who did the Pirahã used to kill a long time ago?'

(165e) hiaitíihí hi go gíiso toipií koab-ái-
Pirahã 3 WH DEM Parintintin kill- ATELIC-

p- á
IMPERF-REMOTE
'When (was it that) the Pirahã used to kill Parintintins?'

As is seen in examples (156) and (157), the interrogative elements *kaoí* 'who' and *go* 'WH' are not required to appear in complete sentences. Examples (148), (152), (154), (155), and others in this section show elements which may be questioned in equative and copular sentences.

10.2.2.2 Constituents of subordinate clauses which may be questioned. Subordinate clauses are discussed in more detail in sect. 14. Neither SS nor I have observed clear examples of questioned constituents in subordinate clauses except for echo questions. However, even these questions, although referring to subordinate clause constituents, are structured as matrix clauses (frequently elliptical).

(166a) tiosipói hi xab-óp-ai- so ti gaaba
Tiosipói 3 turn-go-ATELIC(?)-TEMP 1 next

xop-í- ta- há
go- PROX-ITER-COMPLETE CERT
'When Tiosipói returns, then I will go.'

(166b) kaoí xab-óp-ai
who turn-go-ATELIC
'Who (is going to) return?'

(166c) kaoi xab-óp-ai- so gíxai xop-i- ta
who turn-go-ATELIC-TEMP 2 go- PROX-ITER
'After who returns you will go?'

The following examples were accepted by my informant although they would be very rare in actual speech (cf. the discussion following the examples). Note that if these are correct, it is possible to question any subordinate constituent except the verb.

(167a) xaoói hi ti hiabaí-so ti bikagogía
foreigner 3 1 pay- TEMP 1 merchandise

xoá-boí- haí
buy-come-RELATIVE CERT
'When the foreigner pays me, I will buy merchandise.'

(167b) xaoói hi kaoí hiabaí-so gíxai xoá- boí-
foreigner 3 who pay- TEMP 2 buy- come-

haí
RELATIVE CERT
'When the foreigner pays whom you will buy (merchandise)?'

(167c) kaoí hi gí hiabaí-so gíxai xoá-boí-
who 3 2 pay- TEMP 2 buy-come-

haí
RELATIVE CERT
'When who pays you you will buy (merchandise)?'

Sentences such as (167b and c) are rare. If the hearer wishes to clarify for himself a sentence such as (167a), he would more likely ask simply, *gogí* 'What's that?' which would generally elicit a complete repetition of the sentence in question. These observations are valid also for other types of subordinate clauses discussed in sect. 14.

10.2.2.3 Noun phrase constituents which may be questioned. In a possession phrase, only the possessor may be questioned.

(168a) ti kaiíi
1 house
'my house'

(168b) kaoí kaiíi
who house
'Whose house?'

(168c) *gíxai go
'Your what?'

(169a) ti xahaigí gáihi
1 brother that
'That (one) is my brother.'

(169b) kaoí xahaigí gáihi
who brother that
'Whose brother (is) that?'

(169c) *gíxai go gáihi
'That is your what?'

In other noun phrases, only the head may be questioned. Once again it should be remembered that these examples are only possible as echo questions—when the noninterrogative clause has already been uttered and the hearer is requesting clarification.

(170a) paió póai hoíhio xao- xaagá
Paió mango two POSSN-have
'Paió has two mangoes.'

(170b) paió hi go xao- xaagá
Paió 3 WH POSSN-have
'Paió has what?'

With regard to constructions such as (170), not only is interrogation limited exclusively to the head, but also modifying elements are eliminated in the interrogative clause.

10.2.2.4 Constituents of postpositional phrases which may be questioned. See sect. 17 for a more complete treatment of postpositional phrases. Only the head of the noun phrase contained in the postpositional phrase may be questioned. Questions regarding instrument, etc. are expressed in terms of manner. That is, even if the instrument is suffixed as oblique or instrument (cf. sect. 23), similar to other postpositional elements, the form of the interrogative would be like (161) and (163) above.

I have considered postpositional phrases noun phrases followed by *xigí* 'ASSOC' or involving the locative suffix, *ó*.

(171a) bií xi kaí- o xab- i-í- haí
Bií 3FEM house- LOC stay-?-PROX-RELATIVE CERT
'Bií will stay in the house.'

(171b) bií go- ó xab- iig- a- áti
Bií WH-LOC stay-CONT-REMOTE-UNCERT
'Bií will stay where?'

(172a) xipoógi hi ti xigí- o kahá- p- i-í
Xipoógi 3 1 ASSOC-LOC leave-IMPERF-?-PROX
'Xipoógi left with me.'

(172b) xipoógi hi kaoí xigí- o kahá- p- í
Xipoógi 3 who ASSOC-LOC leave-IMPERF-PROX
'Who did Xipoógi leave with?'

10.2.2.5 Number of constituents which may be questioned. It is not possible to question more than one constituent simultaneously. Thus, the following sentences are ungrammatical:

(173) *kaoí go- ó xigi xahá- p- i
who WH- LOC ASSOC leave-IMPERF-PROX
'Who is going where?'

(174) *kaoí kaoí xib-áo- b- á
who who hit-TELIC-PERF-REMOTE
'Who hit whom?'

10.2.2.6 Position of the questioned element. (Cf. sects. 10.1 and 10.2.1 above.) There is no movement of the questioned element.

10.3 Responses. Responses are generally incomplete sentences. For yes/no questions, answers are as in (175) - (177):

(175a) hi kaó koho-ái- p- í híx
3 INTER eat- ATELIC-IMPERF-PROX INTER
'Did he eat?'

(175b) soxóá
already
'Already.'

(176a) xigí- aoaxái ti xoá-boí- haí gáihi
ASSOC-INTER 1 buy-come-RELATIVE CERT that
'Might I buy that?'

(176b) xigí ai
ASSOC be
'OK.'

(177a) baósaí xao- xaag-iig- á
cloth POSSN-have-CONT-REMOTE
'Do (you) still have cloth?'

(177b) hiaba
NEG
'No.'

It should be noted, however, that response forms vary considerably, from complete sentences (infrequent) to those listed above (common). The reaction most common to questions, however, is nothing—silence or complete lack of acknowledgement.

There are no special intonational features for responses, the pattern being that found in declaratives.

11 Imperatives

11.1 General remarks. Imperatives may be marked by an imperative pronoun (in case of strongest illocutionary force). The imperative pronouns are *gói* '2' and *kaxáo* '1' (the hortatory mood). In my data *kaxáo* and *xogiágaó* 'everyone' seem to be the only inherently plural items in the lexicon.

Imperative constructions, as is seen below, are calibrated in terms of illocutionary force, the strongest form using one of the imperative pronouns plus the verbal suffix *-áti* 'UNCERT'. The weakest imperative form is the indirect request (sect. 11.2.1.1).

11.2 Marking of imperatives

11.2.1 Positive forms

11.2.1.1 Requests. Just as it is possible to say in English, "My, that sure smells like good pie," and mean "May I have a piece of pie?", so in Pirahã assertions may function as indirect requests for information or action on the part of the hearer.

Thus, someone might say to another who is eating:

(178) xmh ti xi xaagá-hóág- a
EXCLM 1 hunger have- INGR-REMOTE
'Hmm, I just became hungry!'

Or, observing someone leaving to fish:

(179) ti xís ibá- boí- sog- a- baí
1 3 animal arrow-come-DESID-REMOTE-INTNSF
'I really would like to fish.'

That these "assertions" are in fact requests is shown by the most common type of response they elicit. For example, (180) would be a likely answer to (179):

(180) xigí ai-xáagahá hi oa- og- ab- i-
ASSOC be-OBSERV/DECISIVE 3 delay-DESID-DUR-EP-

sahaí
NEG.IMP
'OK, (but) hurry up!'

The basic form of direct requests is

(181) xigí- aoaxái + gíxai + _____
ASSOC-INTER + 2 + _____
'Might it be possible for you to_____?'

(cf. sect. 10.1.6 for a discussion of *-xaoaxái* 'INTER'.)

(182) ko xoogiái xigí- aoaxái gíxai bigí
VOC Xoogiái ASSOC-INTER 2 earth

xihi-ái- p- i gó
put-ATELIC-IMPERF-PROX here/there
'Hey Xoogiái, can you put some earth there?'

On the other hand, there are constructions similar to (182) which request permission. In these cases *gíxai* '2' is substituted by *ti* '1' and the subsequent change in translation would be 'Hey Xoogiái, may I put some earth here?'

There are forms for requests in negative form (cf. sect. 11.2.2).

11.2.1.2 Commands. Commands are divided according to illocutionary force into those in which an imperative pronoun occurs and those in which it does not.

Almost all commands have the suffix *-áti* 'UNCERT'. This is similar to imperative mood in the sense usually used in describing ancient Greek for example, where this mood " . . . expresses neither probability nor possibility, but only intention, and is, therefore, the furthest removed from reality." (Dana and Mantey, 1927:174).

It is in this sense of removal from reality that the term 'UNCERT' is used to translate *-áti*. On the other hand, *-áti* is not exclusively imperative in nature and thus the gloss 'IMP' would be incorrect. Compare sect. 18 for a fuller discussion (note that *-áti* is not the only suffix used with imperatives). It is thus perhaps a type of "irrealis" suffix.

In my observations, moreover, the use of *gói* '2IMP' indicates that either (i) the speaker enjoys a position of relative authority in relation to the hearer (e.g., father-son, hunter-hunting companion, etc.) or (ii) the speaker is (a) joking or (b) desires something in such a way as to use a rather brusque manner in demanding it.

(183) sitó- p- a- áti
rise/stand-IMPERF-REMOTE-UNCERT
'Stand up.'

(184) big- ó xab- iig- a- áti
ground- LOC stay-CONT-REMOTE-UNCERT
'Stay on the ground.'

Note too that imperative clauses are brief (unless repetition is used to increase illocutionary force).

(185) kaisáo xig- a- áti
box bring-REMOTE-UNCERT
'Bring the box.'

(186) gói pii oái- p- í pii
2IMP water fetch-IMPERF-PROX water

ig- op-ái- haí
bring-go-ATELIC-RELATIVE CERT
'Go fetch water. Bring water!'

(187) gói gíiso- ó- xio kagak- a- áti
2IMP DEM-LOC-DIR write- REMOTE-UNCERT
'Write it like this!'

(188) gói xab- áti
2IMP stay-UNCERT
'Stay!'

The hortatory pronoun *kaxáo* is used similarly to *gói* '2', but includes the speaker. It may also be used in a friendly, joking fashion.

(189) kaxáo xagí ai- p- á
HORT path make-IMPERF-REMOTE
'Let's make a path.'

(190) kaxáo xií xig- áti
HORT wood carry-UNCERT
'Let's carry the wood.'

kaxáo, as noted above, is frequently used in a joking fashion, in the sense of 'Come on.' For example, when someone is leaving to perform a rather disagreeable or difficult task (which only he can do in most cases), such as get firewood for his family, receive an injection, etc., he might say to someone in passing, *kaxáo* 'Come on.' The normal response is a chuckle or a curse word.

11.2.2 Negative imperative (prohibitive). As is seen in sect. 12, the verbal suffix *-sahaí* expresses the negative imperative. It is used rather than *-hiab* 'NONIMP. NEG' when a command is being given.

(191) xaoói xao hi aho-
foreign language foreign language(?) 3 speak-

ái- sahaí xapaitíiso hi aho- a-
ATELIC-NEG. IMP Pirahã language 3 speak-REMOTE-

áti
UNCERT
'Don't speak Portuguese to me. Speak Pirahã!'

(192) bigí kao-b- í- sahaí
round fall-PERF-PROX-NEG.IMP
'Don't fall!'

11.3 Responses to imperatives. The most common response to imperatives is nonverbal. That is, the hearer simply obeys or disobeys the command. If a verbal response is given, it is generally something like, *xigíai* 'OK' or *tisoxóá* 'I already (am doing it).'

Refusals are almost always expressed by silence (or a laugh), although it is possible to respond by saying something like *xigíaihiaba* 'Not OK', *hiaba* 'No', or something similar. There is no prescribed form, however, and responses vary.

12 Negation

12.1 Sentence negation

12.1.1 Negative imperative (prohibitive). As is mentioned in section 11.2.2, there is a verbal suffix, *-sahaí* expressing the notion of prohibition. The "long form" of this suffix is *-sahaxáí*, the "short form" *-saí*. At the moment, there is no strong evidence confirming or disconfirming SS's hypothesis that,

> having chosen negative optative *-saí*, the speaker must further choose between possible (no realization) meaning 'I hope it might not', judgmental *-ha-*, infixed into *saí*, which carries a slightly stronger meaning of 'should not', or preventory infix

> *-haxa-* in which the speaker wishes to express the strongest of all optatives meaning 'must not' . . . (1976:16).

Although these alternative forms have been observed, I have not observed any clear semantic differences among them. Since there is a well documented propensity in the language for "free variation" (cf. sect. 22), it would not be improbable to suspect that this variation is a purely phonological phenomenon.

(193a) ti gáí-sai kai-saí gáihi
1 say-NOMLZR do-NEG.IMP that
'I said, "Don't do that." '

(193b) ti gáí-sai kai-sahaí gáihi
1 say-NOMLZR do-NEG.IMP that
'I said, "Don't do that." '

(193c) ti gáí-sai kai-sahaxáí gáihi
1 say-NOMLZR do-NEG.IMP that
'I said, "Don't do that." '

In my opinion, (193a-c) are identical in meaning. This may be incorrect, but SS's analysis requires more data for confirmation.

12.1.2 Nonprohibitive negation. The other negative suffix of Pirahã is *-hiab* 'NEG'. It does not carry any implication of prohibition.

(194a) koho-ái- p- i- hiab- óxóí hix
eat- ATELIC-IMPERF-EP-NEG-INTER INTER
'Haven't (you) eaten yet?'

(194b) ti koho-ái- p- i- hiab- iig- á
1 eat- ATELIC-IMPERF-EP-NEG-CONT-REMOTE
'I still have not eaten.'

(195) xapisíooi hi og- i- hiab-a
Xapisíooi 3 want-EP-NEG-REMOTE
'Xapisíooi doesn't want (it).'

12.2 Constituent negation

12.2.1 Negation of nominals. Nominalized forms are normally used as descriptive names for foreign objects (cf. also sect. 15.4).

(196) xií kai- sai
thing make/do-NOMLZR
'thing-maker (or factory)'

(197) biió kai- sai
grass do/make-NOMLZR
'grass-doer (rake)'

Theoretically, there would be two ways to negate such structures. The first would place only the verb within the scope of negation. Such forms are not grammatical, however:

(198) *xií kai- hiab- i- sai
thing make-NEG-EP-NOMLZR
'thing-not-maker'

(199) *biió kai-hiab-i- saí
grass do-NEG-EP-NOMLZR
'grass-not-doer'

The second possibility would be to place the entire nominalized expression within the scope of negation. This is done by using the free form of the negative, *hiaba*.

(200) xií kai- sai hiaba
thing make-NOMLZR NEG
'That/this is not a thing-maker.'

(201) biió kai-sai hiaba
grass do-NOMLZR NEG
'That/this is not a grass-doer.'

As these examples show, the result of such negation may be a type of equative in which (200) and (201) could occur as full clauses. They are also found, however, as constituents of other types of clause.

Nouns in general are negated in the same fashion as nominalized forms such as (200) and (201). These usually function as responses, presupposing a larger context (they can function as clauses or clause constituents).

(202a) xigihí (with interrogative intonation)
man
'Is it a man?'

(202b) xigihí hiaba
man NEG
'It is not a man.'

A sequence such as (202) might be observed, for example, when someone asks about the sex of a baby. Note that the negative form *hiab(a)* is the same for all levels of negation: sentence, constituent, and verbal affix.

(203a) gíxai xog- óxói hix xágaísi
2 want-INTER INTER manioc meal
'Do you want manioc meal?'

(203b) xágaísi hiaba kapiiga xabaxáígio
manioc meal NEG money only
'(I) don't (want) manioc meal, only money.'

12.2.2 Negation of modifiers. The form *hiaba* is also found in modifying constructions. These modifiers seem verbal in their behavior, that is, in relation to their morphology and syntactic position. In these, I have considered *hiaba* as a suffix.

(204a) xigí ai
ASSOC be
'It is OK.'

(204b) xigí ai- hiaba
ASSOC be-NEG
'It is not OK.'

(204c) xigí ai- hiab-iig- á
ASSOC be-NEG-CONT-REMOTE
'It is not being OK.'

(205a) xai xiit- á
foot hurt- REMOTE
'(The) foot hurts.'

(205b) xai xiit- iab- a
foot hurt-NEG-REMOTE
'The foot doesn't hurt.'

(205c) xai xiit- iab- iig- á
foot hurt-NEG-CONT- REMOTE
'The foot is not hurting.'

Apparently, the form of the negative in (205) *-iab* is due to the deletion of initial h following a consonant. In other cases an epenthetic i is used to break up the consonantal sequence. The factors determining the choice between deletion or epenthesis are not yet clear to me.

(206a) xaibogi
fast
'fast'

(206b) xaibogi-hiaba
fast- NEG
'not fast'

(206c) xaibogi-hiab- iig- á
fast- NEG-CONT-REMOTE
'not being fast'

12.2.3 Negation of postpositions. Again, the negation of members of the postposition class (restricted by and large to directionals) is by *hiaba*. Normally, however, the effect is produced by negation on the verb rather than directly negating the postposition.

(207a) ti xigí- o xai-sahaí
1 ASSOC-LOC do- NEG.IMP
'Don't come with me.'

(207b) ti gí xigí- o xai-hiab-i- haí
1 2 ASSOC-LOC do-NEG-PROX-RELATIVE CERT
'I won't go with you.'

Direction-expressing postpositionals may be negated. As with modifiers (cf. sect. 12.2.2), these seem to function as verbs.

(208) ti kai- ó- xio (-) hiaba
1 house-LOC-DIR (-) NEG
'I am not going to (my) house.'

(209) xo- ó- xio (-) hiab- iig- á
jungle-LOC-DIR (-) NEG-CONT-REMOTE
'(I'm) not going to the jungle.'

The hyphens in parentheses indicate that I am not certain as to whether *hiab* should be considered as a suffix on the directional element.

12.3 Restrictions on the scope of the negative element. At the present, our analysis is only just beginning to reach any reliable conclusions on such syntactico-semantic subtleties as scope of negation. Therefore, the following discussion should be considered tentative.

12.3.1 Matrix vs. subordinate clauses. Since negation is for the most part morphologically expressed in Pirahã, the scope of the negative suffix is limited

to the clause in which it occurs (cf. sect. 12.2.1 for examples of the free form *hiaba*). Verbs within subordinate clauses are only negated when they themselves manifest the negative suffix. Thus the semantic readings or truth conditions of a sentence with negation in the matrix clause will vary significantly from a variant with negation in the subordinate clause.

(210a) ti xibíib-i- hiab- iig- á kahaí kai- sai
1 order-EP-NEG-CONT-REMOTE arrow make-NOMLZR
(i) 'I am not ordering you to make an arrow' or
(ii) 'I will not let you make an arrow.'

(210b) ti xibíib-i- haí kahaí kai- sahaí
1 order-EP-RELATIVE CERT arrow make-NEG.IMP
'I order you not to make an arrow.'

As is obvious, (210a and b) are not at all synonymous.

12.3.2 Number of constituents which may be negated. As mentioned above, since the scope of negation is restricted to the verb in which it occurs (except for a few equative-like constructions as in sect. 12.2.1), to negate successive verbs or clauses it is necessary that *-hiab* be suffixed to each verb. Therefore, (211a) will not have the same translation as (211b).

(211a) poioí hi gái-sai ti hoagái-hiab- i-
Poioí 3 say-NOMLZR 1 come- NEG-PROX-
haí xopáoho-áo- p- i-
RELATIVE CERT work- TELIC-IMPERF-PROX-
haí
RELATIVE CERT
'Poioí said, "I will not come. (I) will work." '

(211b) poioí hi gái- sai ti hoagái-hiab- i-
Poioí 3 say-NOMLZR 1 come- NEG-PROX-
haí xopáoho-ái- hiab- i-
RELATIVE CERT work- ATELIC-NEG-PROX-
haí píaii
RELATIVE CERT also
'Poioí said, "I will not come, nor will I work." '

13 Anaphora

13.1 Means of anaphoric reference

13.1.1 Deletion. In sect. 3.1, it is seen that the absence of certain constituents may function anaphorically. According to my present understanding of this phenomenon, anaphora may operate through deletion under the following circumstances: (i) deletion of constituents in interrogatives (presupposing, or anaphorically related to, an earlier statement); (ii) deletion in responses to questions; (iii) omission of the imperative pronoun in repetitive imperative constructions (cf. sect. 11.2.1.2); (iv) verbal anaphora in paratactic constructions (cf. sect. 2); and (v) omission of elements in coordinate structures (cf. sect. 8; cf. also sect. 15.3.2.2 for a discussion of "gap-relatives").

Interrogative-related anaphora ((i) and (ii)) frequently presupposes nonlinguistic information. That is, someone might simply ask *higoó* 'where' when another person is leaving. However, deletion is also used frequently in these constructions to refer to other items in the linguistic context.

(212a) ti soxóá xopí-ta- há
1 already go- ITER- COMPLETE CERT
'I am already going.'

(212b) hi go- ó
3 WH-LOC
'(To) where (are you going)?'

(213a) xopísi hi gáí- sai hi oba-i- haí
Xopísi 3 say-NOMLZR 3 see-PROX-RELATIVE CERT
gíxai
2
'Xopísi said he will see you.'

(213b) hi go gíiso
3 WH DEM
'When?'

As to the third type of deletion, as is seen in sect. 11.2.1.2, repetition is frequently used in imperative constructions to increase the illocutionary force. In these cases, the imperative pronoun *góí* is omitted in the repeated or paraphrased clause:

(214) gói ti pí- ta- ha- áti xopí-ta-
2IMP 1 leave-ITER-MOT(?)-UNCERT go- ITER-

há
COMPLETE CERT
'Get away from me. Leave!'

A subtype of (iii) above is the omission of verbal elements when a clause is repeated in sentences reporting on the execution of commands:

(215) ti soxóá páaxáí xob- áo- b- á
I already grass throw-TELIC-PERF- REMOTE

páaxáí xobí- ti-a
grass throw-?- REMOTE
'I already threw the grass (off the path). I already threw the grass.'

With regard to the fourth type of anaphoric deletion, various examples of elliptical reference to verbal elements are found in sect. 3 (especially sect. 3.3). For example, I repeat (62) here as (216):

(216) xogiágaó xis xohoa- í- haí kabatií
everyone animal look for-PROX-RELATIVE CERT tapir

xipóihií pí- o
women also- OBL
'Everyone will look for the tapir. The women also (will look for it).'

13.1.2 Pronominal anaphora. Anaphoric relations between pronominal forms and their antecedents are established syntactically (cf. sect. 4). That is, the linear order of the clausal constituents establishes these relations (cf. Everett (1983; to appear a; 1984a) for a fuller account in terms of Chomsky (1982)). This is true for both deictic and nondeictic pronouns (cf. sect. 16). As is seen also in sects. 1 and 4, antecedents may precede or follow (as clarification) the pronoun.

(217) hi hi gái- sai xopísi xoágaii
3 3 say-NOMLZR Xopísi Xoágaii
'Xopísi spoke to Xoágaii.'

In (217), and other examples of this type, reference between pronominals and antecedents is established by a rule which "binds" the leftmost pronoun to the leftmost proper noun. The order of the pronouns, left-right before the verb,

corresponds to the grammatical relations subject-direct object. As is seen in sect. 1, this is also the unmarked order of transitive clause constituents in general. It is evident, however, that a full explanation of such anaphoric relations requires a much more detailed analysis of how linearity is "able" to establish these relations. In Everett (1983; 1984a), we attempt to show that the notions of "government," "Case," and "reference chain" of Chomsky (1982) offer an explanation for these phenomena in general.

(218) ti xi xoba-i- hiab-a baósaí gáihi
1 3 INAN(?) see- EP-NEG-REMOTE cloth that
'I didn't see it, that cloth.'

Note that in (218) the pronoun *xi* '3 INAN' refers to cloth, a rightward antecedent. The (distal) deictic element *gáihi* 'that', however, refers leftward, also to *baósaí* 'cloth'. This is accounted for pragmatically and semantically: *xi* cannot refer to *ti* '1' for semantic reasons (inanimate vs. animate), and *gáihi* has no other possible antecedent in its position of "clarification" (cf. sect. 9 above).

Pronominal anaphora is the principal way by which direct speech is distinguished from indirect, as is seen in (219a) vs. (219b):

(219a) xahoáogií hi gáí- sai hi ká hoag-aó
Xahoáogií 3 say-NOMLZR 3 house come-TEMP

kapiigakagaka-í- haí
study- PROX-RELATIVE CERT
'Xahoáogií said that when he comes home, (he) will study (with you).'

(219b) xahoáogií hi gáí- sai ti ká hoag- aó
Xahoáogií 3 say-NOMLZR 1 house come-TEMP

kapiigakagaka-í- haí
study- PROX-RELATIVE CERT
'Xahoáogií said, "When I come home, (I) will study (with you)." '

Another case is illustrated by (220):

(220) xahoáogií hi gáí- sai ti hoasígikoí xao-
Xahoáogií 3 say-NOMLZR 1 lead shot POSSN-

xaagá
have

(i) 'Xahoáogií said that I (the speaker) have lead shot' or
(ii) 'Xahoáogií said, "I (i.e., Xahoáogií) have lead shot." '

In interpretation (i) *ti* '1' is construed to mean the reporter of Xahoáogií's speech, not *xahoáogií*. In (ii) *ti* is taken to refer to *xahoáogií*. This ambiguity is resolved pragmatically. That is, the interpretation of such sentences presupposes a disambiguating context, the syntax allowing more than one interpretation.

13.1.3 Anaphoric function of discourse particles. See sect. 21 below.

13.2 Syntactic domains of anaphora

13.2.1 Forward anaphora and backward anaphora (cataphora). Various cases have been mentioned in which pronominal elements may refer to topicalized elements, either leftward or rightward (cf. sect. 9). This type of intrasentential reference is more restricted than intersentential reference in that the latter is generally optional whereas the former is obligatory.

(221a) hi hi xib-áo- b- á poioí xahóápátí
3 3 hit-TELIC-PERF- REMOTE Poioí Xahóápátí
'Poioí hit Xahóápátí.'

(221b) hi hi xib-áo- b- á
3 3 hit-TELIC-PERF- REMOTE
(i) 'He hit him' or
(ii) 'He hit himself' or
(iii) 'He hit someone.'

In (221a), the first (most leftward) occurrence of *hi* '3' must refer to *poioí*, whereas the second *hi* must refer to *xahóápátí*. In (b), however, the second *hi* may refer outside of its clause (interpretation (i)) or within its clause (reflexive interpretation (ii)).

13.2.2 Observations on intraclausal anaphora. Pronominal anaphora within the clause is expressed more frequently between a proper noun and pronoun which establishes the grammatical or "thematic" relation of the proper noun's referent to the action described by the clause.

(222) xaikáibaí hi aih- i- haí hi gaaba
Xaikáibaí 3 teach-PROX-RELATIVE CERT 3 next

kapiigakagaka-í- haí
study- PROX-RELATIVE CERT
'Xaikáibaí will teach, (and) then he will study.'

In (222) both occurrences of *hi* refer to *xaikáibaí*.

In my analysis, it is the appearance of the pronoun in such examples which attributes the grammatical relation to the proper noun. This may function leftward, as in (222), or rightward as in (223):

(223) kohoibiíhai hi gái- sai hi hi xogi-hiab-
Kohoibiíhai 3 say-NOMLZR 3 3 want-NEG-

iig- á gáihi
CONT-REMOTE that
'Kohoibiíhai said (that) he's not wanting that.'

In this case, *kohoibiíhaí* receives its subject function of the matrix clause from the first *hi* and *gáihi* 'that' receives its object function from the pronoun *hi* immediately preceding the verb root *xogí* 'want'. The second *hi* is the subordinate clause subject. For further discussion, cf. Everett (1983; 1984a). In other words, nominal elements are understood as bearing certain thematic relations to the clause (agent, patient, etc.) due to their coreference with pronominal elements which occur in these basic (subcategorized) positions.

13.2.3 Anaphora in coordinate structures. See also sect. 3.3 above.

(224) hi kagí pí- o xait- á- há
3 family also-OBL sleep-REMOTE-COMPLETE CERT

tihóá xait- a pí- o hoahóá xait-
Tihóá sleep-REMOTE also-OBL Hoahóá sleep-

a pí- o tapaí píaii
REMOTE also-OBL Tapaí also
'His family is also sleeping. Tihóá, Hoahóá and Tapaí are also sleeping.'

In (224) there is an anaphoric reference (by omission) to the first conjunct verb in the last conjunct. Note also that the form of the verb *xaitáhá* 'sleep' is larger in the first conjunct than in succeeding conjuncts (*-há* 'COMPLETE CERT' being omitted in these). This may be seen as a type of anaphora of aspect, especially since the succeeding conjuncts would seem somehow incomplete without this suffix.

It is also possible to find pronominal elements with anaphoric relations in other types of concatenated structures:

(225) xoágaii hi gái- sai hi xoí kahá-p-
Xoágaii 3 say-NOMLZR 3 jungle go- IMPERF-

i- haí hoa báa giso xab- i-í-
PROX-RELATIVE CERT day many DEM stay-?-PROX-

haí
RELATIVE CERT
'Xoágaii said that he is going to the jungle, (and that)
he will stay many days.'

(226) hi gái- sai- híai hoáipi hi gái- sai-
3 say-NOMLZR- HSY Hoáipi 3 say-NOMLZR-

xóai hi gái- sai hi apióxiai
REPORTED INFORMATION(?) 3 say-NOMLZR 3 another

hi xai-xí
3 do-EMPH
'Hóáipi said it is said that he said,
"Someone else did (it)." '

Note that in (226) both cataphora (first occurrence of *hi* referring forward to *hoáipi*) and anaphora (second and third occurrences of *hi* referring back to *hoáipi*) are present.

(227) hi toio xaagá hoagá hi xopaohoai-baí
3 old be CONTRAEXP 3 work- INTNSF
'He is old, but nevertheless he works a lot.'

In some of these examples, e.g. (225), it will be noticed that pronouns may also be deleted. For our purposes here we can consider this to function in more or less the same way as for full NP's. See Everett (1984a) for a more detailed, theoretical discussion.

13.2.4 Intersentential anaphora. Anaphora is also common between noncoordinated sentences in discourse. However, this is less common than intrasentential anaphora, due to the relatively high degree of ambiguity which results from pronominal reference (cf. sect. 9.3.2). Generally, intersentential reference to the same discourse participant is realized by the repetition of the proper noun or noun phrase in question, primarily in direct speech. A small sample taken from a discourse on spirits contains the following pertinent data ((228a) and (228b) are separated by nine lines in my transcription):

(228a) xigágáí hi xigí- a gáí- sai
Xigágáí 3 ASSOC-? say-NOMLZR
(228b) xig- a- áti ti xigí- o
bring-REMOTE-UNCERT 1 ASSOC-OBL
'Concerning Xigágáí, he said . . . , "I will bring (it) with me." '

In relation to this type of example and the problem of pronominal ambiguity mentioned above, it is interesting to note that immediately following (b) in the source discourse, the narrator paraphrases (b), clarifying that the referent of *ti* in (b) is *xigágáí* in (a).

Examples of intersentential anaphora using third person are:

(229) paitá hi soxóá káó xaho- á hío-ó-
Paitá 3 already for speak-REMOTE up- LOC-
xiai ti hi aih- i- sai
DIR 1 3 teach-EP-NOMLZR
'Paitá already speaks far upward (i.e., to the spirits).
I taught him.'

(230) xigágáí hi gáí- sai xágaísi
Xigágáí 3 say-NOMLZR manioc meal
kai- p- a- áti pahaibií hi gáí-
make-IMPERF-REMOTE-UNCERT Pahaibií 3 say-
sai- híai
NOMLZR-HSY
'Xigágáí said (for) Pahaibii´ to make manioc meal.
(That was) his saying, it is said.'

In (230) the pronominal element *hi* refers to *xigágáí* intrasententially (first occurrence) and intersententially (second occurrence).

13.2.5 Restrictions on anaphora. To sum up the observations made in this section, we note again that anaphora is restricted syntactically and pragmatically. Syntactically: (i) it generally operates intrasententially, connecting matrix subject with coreferent subordinate clause subject or connecting nouns in or outside of verbal argument positions (such as topics, clarification, etc.) with pronouns in order to attribute their thematic relations to the clause; (ii) it is subject to severe restrictions on the linear relationships between antecedents and

pronouns. Pragmatically: (i) intersentential anaphoric reference may occur when the context is sufficiently clear to disambiguate reference **or** (ii) the intersentential marking of participants is realized by the repetition of the proper nouns in each independent sentence in which reference is desired. In (i) when reference is particularly clear, anaphoric relations may be established through zero anaphora. (Cf. sect. 1.5, (35) and (36).)

14 Subordinate clauses

14.1 General remarks. Certain types of subordinate clause (nominalized, temporal and conditional) are marked morphologically on the subordinate verb (see sect. 14.2.1-3 below and sect. 18). Others (see sect. 14.2.4-8) are paratactically connected to the matrix clause (that is, they are phonologically rather than morphologically marked). There are examples of verb incorporation (sect. 18.7) which might possibly be interpreted as "clause union" or "predicate raising" except that (i) (pro)nominals may not occur in these cases, (ii) the units so formed are syntactically indivisible (that is, their components are morphological, functioning together as a single syntactic constituent), and (iii) finally, we note that (a) only verb roots may be incorporated, affixed elements may **not** be incorporated and (b) verb roots often are homonymous with semantically related verb suffixes. By (i)-(iii) we conclude that such examples are to be analyzed as complex verbs in which each verb root is understood to have the same subject (hence this is called "verbal incorporation" in section 18). This is different from the classic cases of clause union in which both verbs may be understood to take different subjects. Another characteristic of clause union which these examples lack, related to the first, is what Harbert (1977:123) calls "underlying bisententiality." (Cf. sect. 18 for further discussion.)

The ordering of basic constituents is the same for subordinate clauses as for matrix clauses, although subordinate clauses do not have peripheral constituents (cf. sect. 1.5 above) but only verbal arguments.

There is no preclausal complementizer such as English 'that' in Pirahã. Rather, complements are introduced morphologically by verbal forms (cf. the discussion below).

Relative clauses are dealt with in sect. 15.3.2.

14.2 Adverbial subordinate clauses

14.2.1 Infinitives, participials, and gerundives. Pirahã has no morphological infinitive in the normal sense. The most common form corresponding to an infinitive in function is the nominalized form (cf. sect. 15.4).

(231) kóxoí soxóá xibíib-i- haí tiobáhai
Kóxoí already order-PROX-RELATIVE CERT child

biío kai-sai
grass do-NOMLZR
'Kóxoí already ordered the child to cut the grass.'

(232) hi ob- áaxáí kahaí kai- sai
3 see/know-INTNS arrow make-NOMLZR
'He really knows how to make arrows.'

As is discussed in sects. 15.4 and 18.6.2.1, the only forms in which the verb is clearly limited to the root plus one suffix are nominalizations and, possibly, forms with the suffix *-sibiga* 'DEDUCT'. No participial or gerundive functions have been observed (but cf. sect. 15.4). In Pirahã such notions tend to be expressed through active forms. Thus, a clause such as English 'Returning quickly, he went with us' would be translated in Pirahã as:

(233) hi xaibogia ab- óp-ai- t- á
3 fast turn-go- ATELIC-ITER- REMOTE

hi ti xigí- o kahá- p- i- ta
3 1 ASSOC-LOC leave-IMPERF-EP-ITER
'He returned quickly. He went with me.'

A gerundive construction such as 'Your fishing kept us eating' might be expressed in Pirahã by a pair of clauses such as (234a and b):

(234a) gíxa xís ib- áo- b- iig- á
2 3 animal arrow-TELIC-PERF-CONT- REMOTE

(234b) xogiágaó koho-ái- p- á- há-
everyone eat- ATELIC-IMPERF- REMOTE-COMPLETE CERT-

taío
RESULT
'You were fishing; therefore, everyone ate.'

14.2.2 Temporal clauses. Temporal and conditional (see sect. 14.2.3) clauses precede the matrix clause, whereas other types of subordinate (adverbial) clauses usually follow the matrix clause.

Temporal clauses are marked by the suffix *-so* (which varies morphophonologically with *-ao* after consonants), translated as 'when', 'during', 'after'.

(235) xaxái xab-óp-ai- so ti tixisi
Xaxái turn-go-ATELIC-TEMP 1 fish

oho- ái- p- i- haí
eat- ATELIC-IMPERF-PROX- RELATIVE CERT
'When Xaxái returns, I will eat fish.'

(236) hi koho-ái- p- áo
3 eat- ATELIC-IMPERF-TEMP

kapiigakagaka-op-ai- haí
study- go-ATELIC-RELATIVE CERT
'After (you) eat, (we) will study.'

(237) gíxai xopaohoa-op-aó boitóhoi pitísi bag-
2 work- go-TEMP boat whiskey sell-

áo- b- á
TELIC-PERF-REMOTE
'While you were working, the boat sold whiskey.'

(238a) gíxai go gíiso ti oba-i- haí
2 WH DEM 1 see-PROX-RELATIVE CERT

(238b) ti ká hoag- aó
I house come-TEMP
'When will you see me? When I come home.'

There do not appear to be any restrictions on the form of the matrix verb. Syntactico-semantic restrictions on the subordinate verb are discussed in sect. 18.

14.2.3 Conditional clauses. Condition is expressed similarly to temporal clauses except for the verbal suffix on the subordinate verb. The conditional suffix is *-saí* 'if' (in fact, this may simply be the nominalizing suffix *-sai*, although the nominalizer does not manifest a high tone elsewhere and normally only appears with nonfinite forms).

(239) pii boi- hiab-i- saí ti ahá-p- i-
water come-NEG-EP-COND 1 go- IMPERF-PROX-

í
COMPLETE CERT(?)
'If it doesn't rain, I'll go.'

(240) gí hi aho- a- áti pii ap- ái-
2 3 speak-REMOTE-UNCERT water enter-ATELIC-

p- i- saí baósaí ib- ái- t- op-í
IMPERF-PROX-COND cloth hit-ATELIC-ITER-go-PROX
'Tell him (that) if (he) goes to take a bath, (to) wash the clothes.'

(241) paió hi ab- óp-ai- saí ti xií oá- boí-
Paió 3 turn- go-ATELIC-COND 1 thing buy-come-

haí
RELATIVE CERT
'If Paió returns, I will buy something.'

14.2.4 Purpose clauses. Intent or purpose is normally expressed by the juxtaposition of the purpose/intent clause after the matrix clause. However, these may also be expressed by a nominalized verb form (cf. also sects. 14.2.1 and 15.4).

(242) xao gáí- sai ga- á hi pi- o
foreigner say-NOMLZR say-REMOTE 3 also-OBL

hi bagia-á-xio hi ao xagaoa kób-ai
3 there-?-DIR 3 foreigner canoe see-ATELIC

hi ao agaoa kai- p- i kob-ái-
3 foreigner canoe make-IMPERF-PROX see-ATELIC-

haí
RELATIVE CERT
'The foreigner said that he also will come (so that we can) see how to make a foreigner (type) canoe.'

(243) ti xig- ahá-p- iig- á bagi- ó ti
1 take-go- IMPERF-CONT-REMOTE there-LOC 1

xií xig- a- átí agaoa kait- i- sai
thing take-REMOTE-UNCERT canoe bore-EP-NOMLZR
(i) 'I will take it there. I will take the canoe-boring-thing' or
(ii) 'I will take it there. I will take it (so that we can) bore the canoes.'

14.2.5 Cause clauses. Cause clauses are similar to purpose clauses in that they are expressed through the juxtaposition of the cause clause after the matrix clause:

(244) hi aba- hói- hiab- a xaoói xogi-hiab-
3 stop-INGR-NEG-REMOTE foreigner want-NEG-

a xihi ogí-oi
REMOTE cost big-?
(i) 'He didn't stop (because) (I) don't want
that foreigner (because) (his) prices (are) too expensive.'

(244) is interesting in that it shows elliptical anaphora in the second subordinate clause (whose understood subject is *xaoói* 'foreigner'). This example's relevance here, however, comes from the fact that two separate cause clauses are juxtaposed to the matrix clause.

To make (244) a bit clearer, the subject of the first subordinate clause, *xaoói xogihiaba* 'don't want the foreigner' is understood as 'I' because by the second subordinate clause we understand that it was not that the foreigner did not want to stop but that the Pirahã did not want him to because of his high prices. Thus, (ii) would **not** be a possible translation of (244):

*(ii) 'The foreigner did not stop because he did not want to,
because his prices are too expensive.'

(244) was recorded when a trader was coming up the river and the Pirahã, contrary to custom, did not signal him to stop. When asked why they had not signalled him, (244) was the response.

(245) hi ti ob- ai- sog- abagaí hi baáb-
3 1 see-ATELIC-DESID-FRUST.INIT 3 sick-

áo- p- á
TELIC-IMPERF-REMOTE
'He wants to see me because he is sick.'

(246) gí ti xahaigí xigiábii gíxai xihiabaí-baí
2 1 brother like 2 pay- INTNSF
'You are like my brother (because) you pay well.'

14.2.6 Result clauses. Result clauses may be expressed either morphologically or through juxtapositioning. Morphologically, the verbal suffix *-taío* 'REAS/RES' is frequently used (247). On the other hand, it is common to observe such clauses expressed only by parataxis (248-49). These juxtapositioned clauses (as is also the case with purpose clauses) may be independent (manifesting all the constituents normally associated with a matrix clause) or dependent (with many elliptical references to the matrix clause).

(247) hi xoga- ó xáohoi xo- ahá- p- i-
3 field- LOC manioc pull up(?)-go- IMPERF-PROX-

taío
REAS
'He is in the field, and therefore he will/in order to get manioc.'

(248) tiobáhai xi ai- hiab-a hi
child hunger be-NEG-REMOTE 3

oho-á- p- i- hiab- i- haí
eat-ATELIC-IMPER-EP-NEG-PROX-RELATIVE CERT
'The child is not hungry (and therefore) will not eat.'

(249) xoí tio- ab- a ti kai-hiab-a
jungle dark-DUR-REMOTE 1 do-NEG-REMOTE
'The jungle is dark (therefore) I will not do (that).'

14.2.7 Comparative-equative clauses. See section 7.

14.2.8 Manner and instrument clauses. These clauses, once again, are expressed through juxtapositioning. At phrase level, there is an (optional) suffix *-oa/-xai* which is affixed to the NP to indicate instrument (cf. sect. 15). However, there is no formal marker at clause level.

(250) ti xií boit-op- i- haí ti taís-
1 tree cut- go(?)-PROX-RELATIVE CERT 1 axe-

oa xiit-á
INST fell-REMOTE
'I cut down the tree. I felled it with an axe.'

(251) xapisíooi hi kabatií koab-ái- p- í
Xapisíooi 3 tapir kill- ATELIC-IMPERF-PROX

hi hoaoíi kap- áo- b- á- há
3 shotgun shoot-TELIC-PERF-REMOTE-COMPLETE CERT
'Xapisíooi killed the tapir by shooting it with a shotgun.'

14.2.9 Desiderative clauses. Clauses expressing desire are marked by the desiderative suffix *-sog* on the matrix verb (cf. sect. 18). An example of this type of clause is

(252) poioí hi ob- ai- sog- abagaí
Poioí 3 see-ATELIC-DESID-FRUST. INIT
'Poioí, he almost began to want to see (it).'

14.2.10 Conjunction of adverbial clauses. As noted earlier, complex constructions tend to be avoided in Pirahã. Therefore, it is not very common

to use larger concatenations of adverbial clauses than those already mentioned (but cf. (244)).

The concatenation of subordinate clauses is realized paratactically:

(253) kabatií hi pi- ó- xio hi bai xaagá hi xaibogisái
tapir 3 water-LOC-DIR 3 fear have 3 fast
'The tapir (jumped) into the water (because) he was afraid. He (jumped) quickly.'

Examples such as (253) are further marked by pause between the adverbials as though one or more were a type of afterthought.

(254) ti hi ob- ai- hiab- i- haí ti
1 3 see-ATELIC-NEG- PROX-RELATIVE CERT 1

kapiigakagakai-iig- á ti hi ob- ai- hiab-
study- CONT-REMOTE 1 3 see-ATELIC-NEG-

a pixái
REMOTE now
'I will not look at (it) (now) because I am studying and, therefore, cannot see it now.'

(255) pii ai- so xáóói xit- op- i-
water shallow-TEMP Brazil nut shell remove-go-EP-

hiab- i- haí tíihí hiab- í- koí
NEG-PROX-RELATIVE CERT Brazil nut NEG-EP-EMPH
'In the time of low water we do not remove Brazil nut shells (since) there are no Brazil nuts (in that time of year).'

(255) is different from (254) and (244) in that the two subordinate clauses are not together, but one precedes the main clause and the other follows it (see sect. 14.2.2). It is different as well in that the second subordinate clause refers not merely to the first subordinate clause but, it seems to me, to the entire complex clause (matrix plus temporal subordinate) which precedes it.

14.3 Quotatives

14.3.1 General features. Direct speech is only distinguished from indirect speech pragmatically, as is noted in sect. 9. For this reason, I have opted for a more general syntactic label here (since these items represent only one syntactic class).

Quotatives are not marked by any special suffix or complementizing particles. Normally, the verb *gai* 'say' appears in a nominalized form. Occasionally, other suffixes (such as *-á* 'REMOTE') are used besides the nominalizer *-sai*.

14.3.2 Indirect statements. As is seen in sect. 9, the principal distinction between indirect and direct speech is seen in the reference of the complement pronouns. Thus, in an example such as:

(256) hi gái- sai xahóápátí ti xi aagá-
3 say-NOMLZR Xahóápátí 1 hunger have-

hóág- a
INGR-REMOTE
(i) 'Xahóápátí said, "I am hungry" ' or
(ii) 'Xahóápátí said (that) I am hungry.'

the correct translation of (256) depends on the reference attributed to the pronoun *ti* '1' of the complement. If *ti* refers to *xahóápaíti*, then the correct translation is the direct speech example, (i). If, on the other hand, *ti* is construed as referring to the narrator, then (ii) is the correct translation. The reference is pragmatically determined in such cases. Another interesting way of distinguishing direct speech is in quotatives in which the person being quoted is not a Pirahã but a native speaker of Portuguese. In such cases, the complement tends to be in Portuguese with the matrix clause in Pirahã:

(257) xaoói hi gái- sai ambora kob-
foreigner 3 say-NOMLZR away (Pg. 'embora') see-

ai- haí itrada
ATELIC-RELATIVE CERT road (Pg. 'estrada')
'The Brazilian said, "Let's go see the road".'

Note also the violations of Pirahã phonology in (257), namely, the consonant clusters: [mb] and [tr] (cf. sect. 22).

14.3.3 Indirect questions. I have not recorded any examples of indirect questions in my data. To ask, for example, 'Do you know where I am?', one would have to use something like:

(258) gí káo ti oba-í- haí
2 INTER 1 see-PROX-RELATIVE CERT
'Did you see me?'

It would not be possible to use a construction such as (259):

(259) *gí kob-ai- hiab- óxói hix ti gó xaagá
2 see-ATELIC-NEG-INTER INTER 1 WH be
'Did you see where I am?'

Neither would one use (260):

(260) *hi gái-sai hi go gíiso xigí ai- sog- i
3 say-NOMLZR 3 WH DEM ASSOC do-DESID-PROX
hix
INTER
(i) 'Did he say what he was doing?'

However, this example would be acceptable with the translation,

(ii) 'He said, "What is he doing?" '

14.3.4 Indirect commands. These have the same form as indirect statements (cf. sect. 14.3.2). That is, the verb *gái* 'say' plus the complement:

(261) hi gái-sai xaibogi ap-a- áti
3 say-NOMLZR fast go-REMOTE-UNCERT
'He said (for you) to go quickly.'

14.4 Complement clauses. Nominalized forms may function as complements to the matrix clause. In these constructions the complement may follow the matrix clause, although this would be somewhat less common than preverbal appearance of the complement.

I consider these forms as pseudo-equatives since, as equatives, an object (the complement) is described by the juxtapositioning of another element. They are "pseudo," however, because verb forms may occur in the main clause.

(262) tiobáhai hóoí ai- sai xabahíoxoi
child bow make-NOMLZR incorrect
'Children's bow making is incorrect.'

These complements are restricted to nominalized forms of *ai* 'do/make' and *gái* 'say' in my data. The complement may function as subject (262) or object (263):

(263) ti xog- i- baí gíxai kahaí kai- sai
1 want-PROX-INTNSF 2 arrow make-NOMLZR
(i) 'I really like your arrow-making' or
(ii) 'I really like you to make arrows.'

14.5 Tense and categorial restrictions on subordinate clauses. See sect. 18 for a discussion of verbal morphology. There is no verbal category of tense in Pirahã. Subordinate clause verbs tend to be less inflected than those in matrix clauses (i.e., they are shorter). The function of this restriction is apparently to limit the appearance of overly complex syntactic configurations. But this is not followed rigidly—factors of style, context, etc. play an important role in these variations. A full discussion of such restrictions is beyond the scope of the present study.

14.6 Grammatical relations in subordinate clauses. Word order, as in matrix clauses, is the principal indicator of grammatical relations in subordinate clauses. Although subordinate clauses (cf. sects. 2 and 13) manifest elliptical anaphora to antecedents in the main clause, when nominal constituents are overtly expressed, their order is S - Oblique O - Direct O - V. No affix has been observed to have the function of marking participants or grammatical relations in the subordinate clause.

SYNTAX OF PHRASE TYPES

15 Noun phrase structure

15.1 Marking for case. As is discussed in sect. 1 and elsewhere, the principal marker of grammatical relations is word order. However, there are morphological markers of oblique relations. For example, instrumental case is expressed by *-oa/-ai* 'INST' and locative or general oblique case is marked by *-o* 'LOC/OBL'. This element may also be attached to postpositions and particles (e.g., *piáii* 'also'—see sect. 8.1) when these occur in the oblique object position. In more theoretical terms, we might consider this position as one receiving some sort of inherent case as a result of verbal subcategorization, regardless of morphological category. Examples of this are:

(264a) ti xahoigí- o kahá- p- i
1 evening-OBL leave-IMPERF-PROX
'I'm going in the evening.' (noun and oblique)

(264b) ti pí- o baósaí xog- i- koí
1 also-OBL cloth want-EP-EMPH
'I also want cloth.' (particle and oblique)

(264c) gí ti xigí- o kahá-p- í
2 1 ASSOC-OBL go- IMPERF-PROX
'You will go with me.' (postposition and oblique)

More discussion of this case marking is given below in the appropriate sections.

15.2 Genitives. The basic order of constituents in possessive phrases is:

(N)+(PRO)+HEAD (at least one of the elements in parentheses must occur).

(265) paitá hi xitóhoi
Paitá 3 testicles (prepuberty)
'Paitá's testicles'

(266) ti kaiíi
1 house
'my house'

I have no examples of expanded nominal expressions in pre-head position in a possessive phrase. In fact, the expansion of a possessive phrase would follow the order of any other noun phrase with the exception of the possessive markers which precede rather than follow. Further, no distinctions have been noticed for alienable vs. inalienable possession. Occasionally, the nonpronominal element occurs in post-head position. This appears to be a type of afterthought or clarification.

(267) (hi) giopaí xaxái
(3) dog Xaxái
'Xaxái's dog'

The only possible morphological marking of possession would be the pre-head pronominal element. However, due to the fact that these elements also occur as free forms, I have not labeled them as prefixes. However, see Everett (1984a) for arguments that these may function as clitics in a more abstract syntactic sense.

There is evidence that the morphological markings of nouns was a productive process in the past. SS (1969) notes that nouns normally end in *-i* and that cylindrical objects begin with *poo-*.

See sect. 1 for a discussion of possession in equative and copular clauses.

15.3 Modifiers

15.3.1 Adjectives. The category "adjective" does not appear to be a distinct morphological class in Pirahã, since noun modifiers may, for the most part, also modify verbs.

Modified nominal phrases are distinguished from purely possessive phrases in that modifiers follow, while possessors normally precede, the phrase head. The normal noun phrase has at most two modifiers. The largest noun phrase in my data is:

(268) kabogáohoi biísi hoíhio xitaíxi
barrel red two heavy
'two heavy red barrels'

(268) is rather artificial, however, in that it was not taken from textual material but rather was separately elicited. Generally, the limit on modifiers is two, regardless of the type of modifier (number, quality, etc.) involved.

(269) xipóihí kapióxio
woman other
'another woman'

(270) tobohói tiooi xog- a- baí
sack rubber want-REMOTE-INTNSF
'I want the rubber sack.'

In (270) the modifier *tiooi* 'rubber' is a noun, showing the possibility of cross categorial functions for some word types. Other examples of cross categorial functions are:

(271a) xaoói xaibogí gáihi
foreigner fast that
(i) 'That fast foreigner' or
(ii) 'That is a fast foreigner.'

(271b) xaibogi áp-a- áti
fast go-REMOTE-UNCERT
'Go fast.'

(271c) ti xaibogi- a- hói
1 fast- REMOTE-INGR
'I am going to run.'

In (a) the lexical item *xaibogí* functions as an adjective; in (b) as an adverb; and in (c) as a verb.

The above examples are representative of the general structure of NP's in Pirahã, so that the basic order of constituents is

(POSSR) + (PRO.CLITIC) + N + (MOD) + (NUMERAL) + (DETERMINER)

This corresponds to Greenberg's Language Universal 20 (Greenberg 1966).

(272) hi hoa báagiso xab- óp-ai
3 day many turn-go-ATELIC
'He will return in several days.'

(273) xágaísi xapagí xao- xaagá
manioc meal much POSSN-have
'He has much manioc meal.'

(274) xaikáibaí hi hoítoí xaíbá- koí xap-
Xaikáibaí 3 curassow many- EMPH shoot-

áo- b- í- i
TELIC-PERF-PROX-COMPLETE CERT
'Xaikáibaí shot a lot of curassow.'

(275) paió hi kapiiga xogií xao- xaagá
Paió 3 money big POSSN-have
'Paió has much money.'

(276) hi kapiiga xoíhi-hi xao- xaagá
3 money small-EMPH possession-have
'He has but little money.'

Certain semantic differences have been noted among the modifiers of quantity present in (272) - (276): *báagiso* 'many' (272) vs. *xaíbái* 'many' (274); *xapagï* 'much' (273) vs. *xogií* 'big/much' (275).

For example, (273) and (274) illustrate mass nouns vs. count nouns. When the head is a mass noun the modifier used is *xapagí*. In other cases it would be *xaíbái*.

The differences between *báagiso* vs. *xaíbái* on the one hand and *xapagí* vs. *xogií* on the other are more subtle. An initial hypothesis is that *báagiso* differs from *xaíbái* in that the former is mostly used with less tangible elements such as *hoa* 'day'. In my (limited) intuition *hoa xaíbái* would be less acceptable than *hoa báagiso*. (**hoa xapagí* would be completely unacceptable.)

xogií 'big' is less commonly translated 'much'. I believe, however, that *xogií* and *xapagí* are interchangeable although *xapagí* is more common.

The morpheme *xoíhi* 'small' of (276) is translatable either as 'small' or 'few/small quantity of' (as *xogií* is either 'large' or 'much/large quantity of'). Due to these observations, no distinction has been made in this analysis between modifiers of ''quantity'' and modifiers of ''quality.''

(277) ko kó baaí (xaíbái) pii ap- ái-
VOC Kó wild pig (many) water enter-ATELIC-

p- i pii bo-ó gai kob-á
IMPERF-PROX water up-LOC DEM see-REMOTE
(i) 'Hey Kó, a pig is entering the water upriver. Look!' or
(ii) 'Hey Kó, a herd of pigs is entering the water upriver. Look!'

Without the modifier *xaíbái* 'many' either (i) or (ii) is a possible translation for (277). With *xaíbái* only (ii) is possible.

15.3.2 Relative clauses

15.3.2.1 Introduction. Strategies of relativization include both "non-reduction" and "gapping," either of which may also have the WH element *go* 'what'.

Comrie (1981:140) defines non-reduction relatives by saying that "the non-reduction type simply means that the head noun appears in full, unreduced form in the embedded sentence in the normal position . . . ." "Gap-relatives" are described (1981:144) as not providing "any overt indication of the role of the head within the relative clause."

A few implications of the use of these relatives, their structure, and their typological and theoretical significance are discussed below. First, however, let us consider the following examples.

15.3.2.2 Gap-relatives:

(278) ko xoogiái xi ab- áo- b- óxói
VOC Xoogiái thing run out-TELIC-PERF-INTER

hix chico hi (go- ó) gíxai ho- áo- b-
INTER Chico 3 (WH-OBL) 2 sell-TELIC-PERF-

i sigíai
PROX same
'Hey Xoogiái, did that same stuff (which) Chico sold to you run out?'

In spite of the translation of (278), which might indicate a non-restrictive relative, I would prefer to consider all examples of this section as restrictive relatives. (279) for example, which also contains the element *sigíai* 'same', seems clearly restrictive in function. Note, too, that the parentheses in (278) indicate the optionality of the WH element.

(279) gái xaoaxáa gái gíxai bikadogía xopí sigíai
that INTER that 2 merchandise steal same
'Isn't that the one who stole your merchandise?'.

(280) ti xagía gá- xai-aí ko kab- i- si
1 DISC.PRT say-be -ATELIC eye NEG-EP-NOMLZR

baósaápisi bag- áo- b- á- há
hammock sell-TELIC-PERF-REMOTE-COMPLETE CERT
'I was saying "(The man) without eyes sold the hammock" or . . . "The without-eyes-one sold the hammock." '

15.3.2.3 Non-reduction relatives:

(281) ti baósaápisi og- abagaí gíxai go- ó
1 hammock want-FRUST.INIT 2 WH-OBL

baósaápisi big- áo- b- í- i
hammock show-TELIC-PERF-PROX-COMPLETE CERT

xai sigíai
be(?) same
'I want the same hammock which you just showed me.'

(282) xoogiái hi go- ó hoasígikoí bíib- i
Xoogiái 3 WH-OBL lead shot send-PROX

híx hoasígikoi koab- áo- b-
COMPLMTZR/INTER lead shot run out-TELIC-PERF-

í- i
PROX-COMPLETE CERT
'The lead shot which Xoogiái sent ran out.'

Note that in (282) the interrogative, *híx*, seems to be functioning as a type of complementizer. This also seems to be the case with *sigíai* 'same' found in (279) and (281).

(283) boitóhoi bog- ái- hiab- i- s- aoaxái
boat come-ATELIC-NEG-EP-?-INTER

boitó báosa xig- i- sai (híx)
boat barge bring-EP-NOMLZR (COMPLMTZR/INTER)
'Might it be that the boat (which) tows barges is
not coming?'

15.3.2.4 General observations. Regarding the function of the ''complementizers'' *híx* 'INTER/COMPLMTZR' and *sigíai* 'same/COMPLMTZR' there seem to be no significant differences in function. The complementizer *hix* is optional in all relatives regardless of whether the embedded sentence is finite (282) or non-finite (283).

I have not recorded any examples of *sigíai* 'same' with non-finite clauses. If it does turn out that this morpheme is associated exclusively with finite clauses, it would be similar to certain complementizers in other languages (cf. Lefebvre (1980:92) for a discussion of Quechua) which are only associated with finite clauses.

Due to the fact that *go* 'WH' is marked with the oblique suffix *-ó* and since it follows the subject of the subordinate clause, as in (281), it seems best to consider it as part of the VP (remembering earlier arguments to the effect that the oblique suffix *-ó* is assigned exclusively within the VP).

As regards the actual construction of relatives, I consider them to have a correlative type structure, e.g., $[_S[_S][_S]]$.

Finally, some observations may be made with regard to Keenan and Comrie's (1977) "accessibility hierarchy." According to this hierarchy, it is predicted that subjects are more accessible than direct objects which are more accessible than indirect objects, which are more accessible than possessor NPs, etc. This implies that if a language relativizes a NP relatively low in the hierarchy, it will also relativize all NPs higher in the hierarchy. Since Pirahã only relativizes direct objects and subjects, it supports this hypothesis.

A further expectation of this hierarchy is also fulfilled in Pirahã. Comrie (1981) notes that the non-reduction relativization strategy is obviously more explicit, in terms of the role of the relativized NP in the embedded clause, than other strategies. We would expect that the more explicit strategies, e.g. non-reduction, would tend to be used with less accessible NPs. At least we might hypothesize that if a language has more than one relativization strategy it will either make available all strategies for all relatives or the more explicit strategies will be associated with less accessible NPs and less explicit strategies with more accessible NPs. Since Pirahã has both an explicit strategy, non-reduction, and a less explicit strategy, gapping, we would expect that (i) both strategies may be applied to subjects and/or direct objects or (ii) non-reduction will apply to direct objects and gapping to subjects. In this case expectation (i) is fulfilled. Thus Pirahã at least conforms to these predictions.

15.4 Nominalizations

15.4.1 *-sai*. The nominalizing suffix, *-sai*, has various functions. One of the most common of these is the transformation of a verb into a nominal expression, especially common in the description of novel or foreign objects. This occurs both with transitive as well as intransitive verbs.

(284) xiohói xiboít-i- sai
wind cut- EP-NOMLZR
'wind cutter (i.e., propeller)'

(285) xií kai- sai
thing make-NOMLZR
'thing maker (i.e., factory)'

(286) xahói-kasí bag-i- sai
rice- name sell-EP-NOMLZR
'sellable rice'

(287) gahió xo- ó xabaip-i- sai
airplane land-LOC sit- EP-NOMLZR
'land-sitting airplane'

(288) gahió pi- ó xabaip-i- sai
airplane water-LOC sit- EP-NOMLZR
'water-sitting airplane (i.e., hydroplane)'

(289) xaoói hi tábo xait- i- sai xao- xaagá
foreigner 3 board sleep-EP-NOMLZR POSSN-have
'The foreigner has a sleeping-board (i.e., a bed).'

I have not observed any examples of verbs without an oblique or direct object nominalized by *-sai*.

Another function of *-sai* is possibly to mark subordinate clauses of condition: compare the discussion in sect. 14.2.3.

-sai is frequently found in quotative clauses (cf. sect. 14.3). In these clauses its function is also that of nominalizer—to transform the verb *gái* 'speak/say' into a nominal. This is interesting for its frequency. With rare exceptions *gái* only occurs in nominalized form. The most common non-nominalized verb form for quotatives is *xaho* 'speak/say'. Perhaps *gái-sai* 'saying/speech' is a crystallized form owing to some feature of its diachronic development (*gái*, as has been noticed by Aryon Rodrigues (p.c.), is similar to the verb 'to say' in Tupi languages, which could indicate borrowing as a possible explanation for its restricted usage).

There is no gerundive use of *-sai*. Therefore, the examples below, (290) and (291), are not grammatical with the (i) interpretations. Only the (ii) interpretations are acceptable.

(290) hi ti xap-i- sai xog- i- hiab- a
3 1 go- EP-NOMLZR want-EP-NEG-REMOTE
*(i) 'He doesn't like my going' or
(ii) 'He doesn't want me to go.'

(291) páohoi kai-sai báaxáí
*(i) 'good bread-making' or
(ii) 'a good bread-maker'

15.4.2 Changes in the verb affected by nominalization. All aspectual distinctions are lost in nominalized forms. The basic form of nominalizations is:

V.ROOT + (EP i) + *-sai*

For a more detailed discussion on aspectual distinctions and positional classes of verbal affixes, see sect. 18.

In quotatives, the subject of the matrix clause becomes the possessor of the nominalized form of *gái* 'say'. In other nominalized expressions, the subject may appear optionally as possessor.

The nominalizer *-sai* is frequently used to produce a pseudo-infinitive type construction:

(292) kohoibiíhai xibíib-i- haí gíxai
Kohoibiíhai order-PROX-RELATIVE CERT 2

xahói-kasí bag-i- sai
rice- name sell-EP-NOMLZR
'Kohoibiíhai orders/wants you to sell (some) rice.'

15.4.3 Conclusion. As is seen in the discussion above, we are only just beginning to understand the various functions of nominalization in Pirahã. Certain elements are still problematic.

One of these elements is the suffix *-si*. In certain constructions, *-si* seems to function as a nominalizer.

(293) ko kab- i- si
eye NEG-EP-NOMLZR
'the blind man/the one without eyes'

In other examples, *-si* seems to serve merely as an optional marker of proper nouns or nouns resulting from morphemic combinations:

(294a) xísaabi (-si) ti xahaigí
Xísaabi (-?) 1 brother
'Xísaabi, my brother'

(294b) xahoa + ogií → xahoaogií(si) '(the) big night'
night big

(Cf. sect. 22 for a discussion of morphophonemic processes.)

A possible explanation of the function of *-si* in examples such as (294) is that it marks some sort of change in the function of a particular expression. All names for people are derived from verbal constructions, animal names, nominal phrases, etc. In about 90% of these cases, *-si* occurs optionally in

morpheme final position, as though marking a change in the basic reference or function. A problem with this analysis is that *-si* (or a homonymous morpheme) also occurs in other environments. Thus, no firm conclusions on the function of this element can be stated at present.

However, recent work by Paul Hopper and Sandra Thompson (Paul Hopper (p.c.)) on the notion of "categoriality" offers some possible insights into this nominalizer. According to their work, categories such as noun or verb are functionally explained in terms of their discourse function. Thus, events are less "verby" when their function is less related to foregrounded information. Thus, certain verbs will appear in nonfinite forms (participles, gerunds, etc.), while others occur in finite forms (more "verby"), depending on their relative importance to the central event line. By this reasoning, we might expect certain nouns to appear more or less "nouny", depending upon their discourse function. An initial, as yet unchecked, intuition would seem to suggest that this might explain the function of the nominalizer *-si*. That is, it may occur with certain nouns, more central to the conversation and/or the major participants in discourse, as a way of making them still more "nouny." This hypothesis is by no means firm but I believe it holds promise for future research.

16 Pronoun system

16.1 General remarks. The pronominal system is relatively simple. For example, there are no special forms for reciprocals, reflexives, or possessives. As is seen below, there are a few differences between free vs. bound forms. Nimuendaju (1948) went so far as to suggest that the entire system might have been borrowed from the *língua franca* of the area, Nheengatu, a creole language based on Tupinambá (still spoken near Manaus, according to Helen Weir (p.c.)) See Everett (1984a) for further discussion of these and related phenomena within a more theoretical framework.

16.2 Personal pronouns

16.2.1 Basic distinctions. The free forms of personal pronouns are:

(295)	ti	'first person'	('1')
(296)	gíxai	'second person'	('2')
(297)	hiapióxio	'third person'	('3')

There are no special plural forms for these pronouns. *hiapióxio* '3' may be plural or singular. Generally, first person plural and second person plural are expressed paraphrastically (cf. sect. 16.2.2).

Bound forms are:

(298)	ti	'first person'	(bound or free)
(299)	gí/gíxa	'second person'	
(300)	hi	'third person'	
(301a)	xi	'third person feminine'	
(301b)	xís	'third person nonhuman'	

(301a) may in fact be a mere phonological variant of *hi* '3'. As translated above it reflects the analysis of SS. (301b) may be only a morphophonological variant of *xísi* 'animal' which functions at times as a noun although occasionally it seems to function as a pronoun. (301) thus is a tentative classification.

In sect. 22 it is shown that these forms are bound phonologically but not morphologically. SS lists other pronominal forms which in my analysis are merely the result of an optional rule of prefixation (cf. sect. 22.3.3).

16.2.2 Number distinctions. The notion of plurality is expressed in various ways, the most common of which is conjunction.

(302) ti gíxai pí- o ahá-p- i- í
1 2 also-OBL go- IMPERF-PROX-COMPLETE CERT
'You and I will go (i.e., we will go).'

(303) ti xaítiso xis ohoa- i- haí
1 also food search-PROX-RELATIVE CERT
'I also will search for food.'

In (303), *xaítiso* is translated as 'also'. I believe this to be a discourse particle marking a secondary participant, in the sense of 'in conjunction with the primary participant' (cf. sect. 21.2.2). SS analyzes *tixaítiso* as a single morpheme meaning 'we'. However, there are counterexamples to this hypothesis:

(304) paió hi xab- óp-ai- so
Paió 3 turn-go-ATELIC-TEMP

ti xaítiso xis ibá- bo- í- haí
1 also animal arrow-go(?)-PROX-RELATIVE CERT
'When Paió returns (then) I will also go fishing
(i.e., Paió has been fishing and when he returns I will go—he has the only canoe).'

In (304) *xaítiso* appears to have an additional temporal function such as 'then'.

Another way of expressing plurality is through the associative/comitative postpositional, *xigí*.

(305) ti gixai xigí- o xopaohoa-i- baí
1 2 ASSOC-OBL work- PROX-INTNSF
(i) 'I work a lot with you' or
(ii) 'We work a lot together.'

The notion of second person plural is expressed in the same fashion as that of first person plural:

(306) gíxai hi xigí- o xop-i- ta- ha-áti
2 3 ASSOC-OBL go- EP-ITER- ?- UNCERT
(i) 'You (sg) go with him' or
(ii) 'You both go.'

(307) gíxai hi pí- o hoagá-p a- áti
2 3 also-OBL come-IMPERF-REMOTE-UNCERT
(i) 'You and he come' or
(ii) 'You both come.'

(308) gí xaítiso xaiaí-baí
2 in conjunction tease-INTNSF
(i) 'You also tease a lot' or
(ii) 'You both tease a lot.'

As is stated in sect. 16.2.1, *hiapióxio* '3' may be either singular or plural in reference, depending on the context.

(309) hiapióxio soxóá xo- ó- xio
3 already jungle-LOC-DIR
(i) 'He already went to the jungle' or
(ii) 'They already went to the jungle.'

There is only one collective form in my data, *xogiágaó* 'everyone'. This is probably another case of a complex morpheme which has come to function as a crystallized form. I have not yet attempted an analysis of its component morphemes.

(310a) kaoí hi gái-sai
who 3 say-NOMLZR
'Who said?'

(310b) xogiágaó
everyone
'Everyone (said).'

(311) xogiágaó xis ahoai- xiig- á
everyone animal search-CONT-REMOTE
'Everyone is searching for food.'

16.2.3 Pragmatic aspects of *hi(apióxio)*. *hi* frequently functions as a pleonastic element or impersonal indefinite (and it is, in these cases, the neutral form, in the sense that it is used when no definite reference is required). Since (proper) nouns are commonly used to make definite references, pronouns with this function are a kind of "marked" case in the sense of "not usual." *hi*, on the other hand, may be used for nondefinite reference as well and in this usage is not "'marked" but in fact quite common. Moreover, *hi* may even be used to refer to first or second persons as well as third person. This often occurs in indirect speech to decrease illocutionary force. The resultant referential ambiguity is resolved through the context.

(312) hi xob-áaxáí ti
3 see- well 1
'Someone knows a lot, (and that someone is) me.'

(313) hi gó gá- xai
3 WH say-ATELIC/be(?)
'What (was it that) { he / you } said?'

hi is the most common pronominal form in WH-type interrogatives.

Further, contrary to the analysis of SS, *hi* often refers to female participants (cf. sect. 16.2.4).

16.2.4 Pronominal distinctions based on class or gender. Previous studies distinguished between several different pronominal types according to class or gender (cf. the remarks of sect. 16.2.1). However, as is shown in sect. 22, these "pronouns" are, in my analysis, the results of an optional phonological rule of prefixation. Nevertheless, there appears to be a difference based on gender which, although not consistently maintained, warrants mention.

(314) xi gái-sai xioitaábi ti xóos aagá
3FEM say-NOMLZR Xioitaábi 1 ignorance have
'Xioitaábi, she said, "I don't know." '

I have, again, recorded several examples in which *hi* clearly refers to women. However, I have not recorded any examples in which *xi* refers to men. Thus there is evidence for a (rather weak) gender distinction (cf. also sect. 22.3.1.3).

16.3 Indefinite pronouns

16.3.1 Specific indefinite. This notion is expressed frequently by the free form *hiapióxio* '3'.

(315a) hiaitíihí kaiíi hiab- iig- oxoí hix
Pirahã house NEG-CONT-INTER INTER
'Is that not a Pirahã house?'

(315b) hiapióxio kaiíi
3 house
'(It is) someone else's house.'

(316) hiapióxio xaópí-koí
3 anger-EMPH
'Someone (is) really angry.'

(317) ti kapí xog- i- koí hiapióxio
1 coffee want-EP-EMPH 3
'I want more coffee' (literally: 'I want coffee, another').

(318a) xaoói gáihi hi baáb-óxói hix
foreigner that 3 sick- INTER INTER
'Is that foreigner sick?'

(318b) kaba hiapióxio
NEG 3
'No, someone else is sick.'

16.3.2 Negative indefinite. The negative indefinite is expressed (exclusively in responses in my data) by the negation of *hiapióxio* '3'.

(319a) hiapióxio xo- áo- b- óxói
3 buy-TELIC-PERF-INTER
'Did someone else buy that?'

(319b) hiapióxio hiab- iig- á
3 NEG-CONT-REMOTE
'No one else.'

(319) presupposes that someone bought something but that that someone is known by the hearer and not by the speaker ('No one else . . . it was John, me, etc.').

16.3.3 Nonspecific indefinite. The only candidate for expressing this notion is again *hi(apióxio)*. In examples such as (312) and (313) above, *hi(apióxio)* may be interpreted as a dummy/pleonastic element such as English 'one' or French 'il'. However, I have no clearer examples in my data and thus merely mention the possibility.

16.4 Possessive pronouns. There are no special possessive forms. The personal pronouns discussed earlier also function as possessives. Free forms are used in the sense of 'mine', 'yours', 'his', etc., while bound forms are used adjectivally, as is also seen in sect. 15.2.

(320) ti hoaoíi gáihi
1 shotgun that
(i) 'That('s) my shotgun' or
(ii) 'That shotgun is mine.'

(321a) kaoí tíihí
who Brazil nut
'Whose Brazil nut (is this)?'

(321b) gíxai
2
'Yours.'

16.5 Demonstrative pronouns. There are two demonstrative pronouns in Pirahã, *gáihi* 'that' and *gíisai* 'this'. Both have been mentioned several times in this paper. As is seen by their translations, they are distinguished by the proximity of the referent to the speaker (and thus may also be labelled as 'distal' and 'proximal' deictics, respectively).

These demonstratives are used both independently and adjectivally. Their independent use is generally observed in response forms.

(322a) hi go igí- og- i híx
3 WH take-want-PROX INTER
'What do you want to take?'

(322b) gíisai
this
'(I want) this.'

(323) ko pó taíhoaxai gáihi xig- a- áti
VOC Pó pan that take-REMOTE-UNCERT
'Hey Pó! Take that pan.'

(324) ti baósaí gíisai xoá-bo- í
1 cloth this buy-come-PROX
'I come to buy/I will buy this cloth.'

(325) taíhoaxai gáihi
pan that
(i) 'that pan' or
(ii) 'That (is a) pan.'

16.6 Reflexive pronouns. In sect. 4, it is noted that there are no special forms to express reflexivity. Compare Everett (1983) for a more complete discussion.

16.7 Reciprocal pronouns. See sect. 4.

16.8 Interrogative pronouns. The only pronominal interrogative form is *kaoí* 'who/whose'. This element is found exclusively in interrogative constructions, that is, it is never found as the head of a relative clause, etc. Compare sect. 10 for a more detailed discussion.

16.9 Relative pronouns. Compare sect. 15.3.2. There are no relative pronouns in Pirahã (*go* 'WH' discussed in sect. 15.3.2 is much wider in function than merely a relative pronoun).

16.10 Imperative pronouns. See sect. 11.

17 Adpositional phrase structure

17.1 Locative and directional suffixes. There are two morphemes to express the notions of location and direction. These are the noun suffixes, *-ó* 'LOC/OBL' and *-xio* 'DIR'. They are generally affixed to nouns, although they may also be attached to *go* 'WH' or postpositions. A restriction on *-xio* is that it may not occur independently of *-ó*.

As is seen in the examples below, morphophonological changes in the root accompany the suffixation of these elements. Compare sect. 22 for a brief discussion of morphophonology.

(326a) xoí 'jungle'

(326b) xo-ó 'in the jungle'

(326c) xo-ó-xio 'to/going to the jungle'

(327a) kaiíi 'house'

(327b)	kaií-ó	'in the house/at home'
(327c)	kaií-ó-xio	'to/going to the house'
(328a)	go	'what?'
(328b)	go-ó	'where?'

-xio is never suffixed to *go* 'WH' in my data.

17.2 Free forms. There are various postpositions of location, association, etc. which may combine with *-ó* and *-xio* or appear as free forms.

(329) xisigíhií xagaoa ko- ó
meat canoe in (stomach)-LOC
'The meat is inside the canoe.'

In (329) the locative suffix *-ó* is affixed to the postposition *ko* 'in/inside'. In Everett (1983) it is argued that this is primarily a result of the subcategorization of this "oblique object" position by the verb. This would explain why various modifiers, particles, nouns, and postpositions are so marked in this preverbal position.

(330) tábo xapo-ó xihi-aí- p- a- áti
board on- LOC put-ATELIC-IMPERF-REMOTE-UNCERT
'Put (it) on top of the board (i.e., table).'

(331) gói kaií- ó xahoa-ó xab-áti
2IMP house-LOC side- LOC stay-UNCERT
'Stay by the side of the house.'

Note the double occurrence of *-ó* in (331). This differs from (329) and (330) since the noun within the postpositional phrase also manifests the locative suffix. Although this type of double occurrence is common, I am not sure of the conditions under which it may appear. Structurally, we might consider this to be along the lines of [x' [x][x]] in which oblique case is assigned to x' and manifested on all constituents of the same category dominated by x'.

As is seen in (329) and (330), postpositions are generally derived from the names of body parts. Postpositional phrases may also be negated:

(332) xoogiái hi kaií- ó- xio hiab- iig- á
Xoogiái 3 house-LOC-DIR NEG-CONT-REMOTE
'Xoogiái is not going home.'

I have not observed any examples of "preposition stranding" in my data (cf. "Apples, I want a lot of"). Further, in my data, postpositions occur exclusively with nouns.

18 Verb structure

18.0 Introduction. As in the majority of Amazonian languages, the area most resistant to analysis in Pirahã grammar has proven to be the verbal morphology. Although knowledge of this area is growing rapidly through analysis and language learning, I am still some way from a complete analysis.

Besides various morphophonological complications (cf. sects. 22 and 23) there is a certain reluctance to repeat utterances *verbatim*. Informants prefer to paraphrase rather than repeat. The fact also that the people are monolingual complicates the task considerably.

Although SS (1976) lists ten positional classes for verbal suffixes, with approximately three members of each class, I believe the number of classes to be more like fifteen, with several possible tonal suprafixes yet to be analyzed. With the exception of imperative pronouns (cf. sects. 9, 11 and 16), the categories below are expressed exclusively by affixes. This study has benefitted significantly from the pioneering work of SS (1976) and KE (1981), although I have reservations with regard to certain sections of their analyses.

In any case, the responsibility for this section is mine. Exemplification of the various suffixes in this section is minimal since they have been illustrated many times throughout this study.

Not all of the suffixes discussed below may occur simultaneously. This is because the suffixes are arranged syntagmatically in various positional classes which follow the verb root. Members of the same class cannot cooccur and between classes semantic and pragmatic restrictions limit cooccurrence. The reader is referred to the Table for a general view. In Everett (1983) initial suggestions are offered for a treatment of morphological cooccurrence restrictions along the lines of Muysken (1981).

TABLE: Tentative Chart of Positional Classes of Verbal Suffixes

1	*2*	*3*	*4*	*5*	*6*
Root	Incorporation Position	Duration of Action	Realization of Action	Division of Action	Desiderative
	Sect. 18.7	*-ab* 'DUR'	*-áo* 'TELIC'	*-b* 'PERFCTV'	*-sog* 'DESID'
		-ap 'PUNCT'	*-ái* 'ATELIC'	*-p* 'IMPERF'	

7	8	9	10	11
Negation	Continuative	Interrogatives	Ingressive	Referential
-hiab 'NEG'	*-xiig* 'CONT'	*-xóxói* *-xaoaxái*	*-hoag* 'STATE'	*-i* 'PROX'
-sahaxái 'PROHIBITIVE'		*-hoaxái* Sect.10	*-hói* 'ACTION'	*-a* 'REMOTE'

12	13	14	15	16
Iterative	Certainty	Frustrated Action	Intensive	Emphatic
-ta 'ITER'	*-áti* 'UNCERT'	*-ábagaí* 'FRUST. INIT'	*-baí* 'INTNSF'	*-koí* 'EMPH'
	-haí 'RELATIVE CERT'	*-ábai* 'FRUST. TERM'		
	-há 'COMPLETE CERT'			

17	18	19
Conditional-Temporal-Nominalizer	Conclusive	Result
-so 'TEMP'	*-híai* 'HSY'	*-taío* 'RES'
-sai ~ *-saí* 'COND/ NOMLZR'	*-xáagahá* 'OBSERV'	
-si 'NOMLZR' (?)	*-sibiga* 'DEDUCT'	

At present, we have noted the following cooccurrence distinctions (which are to be taken as preliminary and tentative):

1. There is no cooccurrence between members of the same positional class.

2. The members of the third positional class, Duration of Action, do not cooccur with classes (4), (5), or (14).
3. *-ap* 'PUNCT' does not cooccur with *-xiig* 'CONT'.
4. Classes (10), (11), (12), and (13) do not cooccur.
5. *-sai* 'COND/NOMLZR' and *-sibiga* 'DEDUCT' only occur with the verb root (although, as 'COND', *-sai* may cooccur with *-hiab* 'NEG').
6. Classes (6), (7), (8), (11), (12), (13), (15) and (16) do not cooccur with *-so* 'TEMP'.
7. *-ái* 'ATELIC' does not cooccur with *-b* 'PERF'.

See the subsections below for more detailed discussions of these restrictions and other features of verbal affixes.

18.1 Tense. Temporal divisions corresponding to the notions 'past', 'present', or 'future' are not expressed as such in Pirahã. Temporal reference is a function of aspectual combinations and the context. Thus, all verb forms tend to be vague with regard to tense, requiring a knowledge of the context for clarification.

18.2 Aspect

18.2.1 Perfective, *-b*. According to Comrie (1976:16), ". . . perfectivity indicates the view of a situation as a single whole . . . ." Using this notion, I have labelled the fifth positional class (*-p* 'IMPERF' and *-b* 'PERF') Division of Action. In other words, the speaker may view the action as a whole or in terms of its internal composition. Occasionally, *-b* 'PERF' seems to contradict this initial analysis, cooccurring with *-iig* 'CONT'. Further studies, semantic, cultural, and morphological, are required to determine more precisely how the Pirahã view action, events, etc.

The perfective, expressed by *-b*, may be combined with other aspects, such as TELIC (most common). The results of such combinations help in the temporal localization of the action (past, present, future). The normal point of reference for temporal localization is the moment of utterance, although I have not studied this in detail.

(333) ti xis ab- áo- b- í- haí kaahaixá
1 animal catch-TELIC-PERF-PROX-RELATIVE CERT macaw
'I will have caught a macaw.'

(334) xogió xap- áo- b- í- hi
all break-TELIC-PERF-PROX-COMPLETE CERT
'Everything/it all broke.'

(335) xágaísi hiab- áo- b- á
manioc meal NEG-TELIC-PERF-REMOTE
'The manioc meal ran out.'

18.2.2 Imperfective, *-p*. The imperfective is generally used of an action seen in terms of component parts rather than as a whole. It is most often associated with *-ái* 'ATELIC'.

(336) xísi xaab- ái- p- á giopái xáiti
animal chew-ATELIC-IMPERF-REMOTE dog *cutia*
'The dog was chewing the *cutia* (meat).'

(337) ti xís o- áo- p- i- haí
1 animal search for-TELIC-IMPERF-PROX- RELATIVE CERT
kaahaixáí
macaw
'I was just now/will be shortly looking for a macaw.'

(338) ti koho-ái- p- i- haí xahoahíai
1 eat- ATELIC-IMPERF-PROX-RELATIVE CERT another day
'I was/will be eating another day.'

18.2.3 Telic, *-áo*. Telic aspect expresses the realization or accomplishment of an action. In conjunction with *-b* 'PERF', *-áo* often expresses a past tense notion.

(339) ti kahi ob- áo- b- iig- á
1 arrow see-TELIC-PERF-CONT-REMOTE
'I had seen/will have seen the arrow.'

(340) xí hiab- áo- b- óxói hix
animal NEG-TELIC-PERF-INTER INTER
'Did the meat already run out?'

(341) ti xi koho-áo- p- iig- á
1 animal eat- TELIC-IMPERF-CONT-REMOTE
'I was eating meat.'

18.2.4 Atelic, *-ai*. This aspect is used to indicate an unaccomplished action.

(342) hi koab-ái- p- á
3 die- ATELIC-IMPERF- REMOTE
'He will die (in the future).'

18.2.5 Continuative, *-xiig*:

(343) hi xopáoho-ái- p- iig- á
3 work- ATELIC-IMPERF-CONT-REMOTE
'He was/will be working.'

(344) xigihí hi xái- xiig- á
man 3 sleep-CONT-REMOTE
'The man is sleeping.'

18.2.6 Iterative, *-ta*. The repetition or reoccurrence of an action is expressed by the iterative aspect suffix, *-ta*.

(345) hi kohoi-tá- há
3 eat- ITER-COMPLETE CERT
'He is eating again.'

(346) ti soxóá xop-í- ta
1 already go- PROX-ITER
'I am already going again.'

(347) xaxái xab- óp-ai- ta- ha-
Xaxái turn-go-ATELIC-ITER-COMPLETE CERT-

ó ti baósaí xoá-bo- i- sog- i- koí
TEMP 1 cloth buy-come(?)-EP-DESID-PROX-EMPH
'When Xaxái returns again, I want to buy (some) cloth.'

18.2.7 Ingressive, *-hoag; -hói*. *-hói* roughly represents the 'initiation of an action', whereas *-hoag* means 'the beginning of a state'. This is not to say that *-hoag* only appears with stative verbs but that it seems to imply a completed transition from one condition (active or stative) to another, the beginning of a new state. *-hói* merely implies the beginning of such a transition.

(348) ti soxóá xait- á- hói
1 already sleep-(?)- INGR
'I already am going to sleep.'

(349) hi soxóá xait- á-hóág- á
3 already sleep-?-INGR-REMOTE(?)
'He already has begun to sleep/is sleeping.'

(350) xagií- híai tiosipói hi biioab-á-hóág- á
finish-HSY Tiosipói 3 tired- ?-INGR-REMOTE
'That's enough. Tiosipói is getting tired.'

18.2.8 Referential aspect. The major part of the analysis in this section derives from work done by KE (1981). I have modified this analysis only slightly here, accepting as well certain suggestions from D. Derbyshire (p.c.).

18.2.8.1 Proximate, *-i*. Proximate aspect implies that an action will occur or has occurred within a relatively brief time span from the moment of utterance, or that the "proximate action" is somehow more "relevant" to the speaker at the moment of utterance. (The problem, of course, is to provide a precise definition of "relevant action." At present, I can only say that such action is potentially subject to influence by the speaker, or that it somehow is more immediate, useful, etc. in some sense. Precise definition awaits further study.)

(351) hi gáí-sai xaoói ti kap- í baaí
3 say-NOMLZR foreigner 1 shoot- PROX wild pig
'The foreigner said, "I am going to shoot a wild pig." '

Proximate aspect frequently appears with *-haí* 'RELATIVE CERT' (cf. below) to produce an effect similar to future tense (or, on the other hand, immediate past).

(352) hisí-hisai xís ohoa- i-
sun-?(Sunday) animal/food search for-PROX-

haí
RELATIVE CERT
'On Sunday (I) will search for food.'

18.2.8.2 Remote, *-a*. Actions which occur within a relatively large time span in relation to the moment of utterance or which are perceived as less "relevant" (cf. above) are generally marked by *-a* 'REMOTE'.

(353) pii kapióxio hi tobaí xo- áo- b- á-
water other 3 *sorva* buy-TELIC-PERF-REMOTE-

há
COMPLETE CERT
'Another water (i.e., year), he bought *sorva*.'

(354) hi xapagiso xigá-ap-i- sog- á- há
3 much take-go-EP-DESID-REMOTE-COMPLETE CERT
'He wanted to bring a lot (of that).'

Continuative aspect, *-xiig*, is normally associated with remote:

(355) hi xa-oho-ái- p- iig- á- há-
3 ?- eat- ATELIC-IMPERF-CONT-REMOTE-COMPLETE CERT-

taío
RES/REAS
(i) 'Therefore, he is eating' or
(ii) 'Therefore, he was eating' or
(iii) 'Therefore, he will be eating.'

Although my original definition of the referential aspects might appear initially to lead to the conclusion that continuative and remote aspects are incompatible, this is not correct. I believe that this association of the two aspects is due to the fact that a continuing action is seen as somehow out of the speaker's control. I have never observed anyone force someone else to stop doing something that that person was engaged in. In (355) above, the speaker is outside of the action, or so perceives himself, and thus the action is in this sense "remote." Normally, when one wants to ask for help, etc. from someone engaged in an activity, he says *kabáobíso* 'when you finish . . . .'

18.2.9 Durative, *-ab*. According to SS (1976:25), durative aspect refers to ". . . the actual physical presence of someone staying or remaining somewhere or in performing an action . . . ." As is seen in sect. 18.7 below, it is difficult to determine whether a verbal element is a suffix or simply an incorporated verb root. In the case of *-ab*, there is a phonologically identical verb root *xab* 'stay, remain'. However, due to the existence of punctiliar aspect *-ap* in the same category (which does not seem to be a verb root), I have considered *-ab* here as a suffix.

(356) taoá oho- ab- a- áti
Taoá search for-DUR-REMOTE-UNCERT
'Perhaps Taoá will continue searching.'

Durative aspect occurs frequently with continuative aspect, *-xiig* (cf. sect. 18.2.5); *-xiig* implies the continuation of an action, whereas *-ab* implies the continuation of the subject's participation.

(357) baíxi hi xahoakohoaihi- o kokaháp-i
parent 3 sunrise/early morning-LOC awake- PROX

hoísai xait- ab- iig- á
children sleep-DUR-CONT-REMOTE
'The father awakes in the early morning, (but) his children continue to sleep.'

18.2.10 Punctiliar, *-ap*. *-ap* marks a nonprogressive, noncontinuative action.

(358) boitó soxóá xab-óp-áp- á
boat already turn-go-PUNCT-REMOTE
'The boat already arrived.'

(359) hi go gíiso kaop- áp- á
3 WH DEM leave-PUNCT-REMOTE
'When did/will he leave?'

18.3 Mood

18.3.1 Conditional. See sects. 14.2.2, 14.2.3, and 15.4.

18.3.2 Degrees of certainty. The degree of certainty (or as was stated earlier, the relation of the action to reality in a sense similar to that of Greek-Latin mood) of the speaker with regard to the enunciation is expressed by three suffixes:

-há 'COMPLETE CERT' (with phonological variants *-i*, *-a*, *-hi*: *-hi* after suffixes ending in -i; *-i* and *-a* following vowels i and a respectively with deletion of h)
-haí 'RELATIVE CERT'
-áti 'UNCERT'

-áti occurs most frequently in imperative constructions, reflecting the removal of the action from control of the speaker or from "reality" in some sense.

(360) xigí- xaoaxái xagaoa xiga-hoag- a- áti
ASSOC-UNCERT.INTER canoe take-INGR-REMOTE-UNCERT
'Would it be possible for you to take the canoe?'

(361) ti soxóá kap- í- hí baaí
1 already shoot-PROX-COMPLETE CERT wild pig
'I already shot a wild pig.'

(362) hi xopí-ta- há
3 go- ITER-COMPLETE CERT
'He is going again (i.e., leaving).'

(363) xisaabi- si hi xit- i- haí
Xisaabi-NOMLZR(?) 3 drink-PROX-RELATIVE CERT
piitisi
whiskey
'Xisaabi will drink whiskey.'

18.3.3 Indicative and imperative. There is no formal expression of indicative mood in Pirahã. Imperatives are discussed in sects. 9 and 11.

18.3.4 Desiderative, *-sog*. The desiderative suffix *-sog* is phonologically similar to the verb root *xog* 'want/desire/like'. For this reason, it might be possible to consider this suffix as merely a case of incorporation, the initial s being possibly a marker of this incorporation. I have, however, abandoned this hypothesis for various reasons. In the first place, no other verb root is specially marked when incorporated. Second, the s is deleted following a, certainly a curious fact if s were a morpheme.

(364) go gíiso ti kobai-sog- a- baí
WH DEM 1 see- DESID-EP-INTNSF
'What's this? I want to see it.'

-sog generally does not cooccur with *-hiab* 'NEG'. To say that one does not want to do something, the most common form of expression is simply to say that it will not be done:

(365) ti tomáti koho-ái- hiab-á
1 tomato eat- ATELIC-NEG-REMOTE
'I do not/will not eat tomatoes.'

(365) expresses a notion similar to 'I normally do not eat tomatoes' or 'I do not like/want tomatoes'. (365) may be conjoined paratactically to another clause, as in (366) to express habituality:

(366) ti tomáti koho-ái- hiab-á pixái koho-
1 tomato eat- ATELIC-NEG-REMOTE now eat-

ái- baí
ATELIC-INTNSF
'I didn't used to eat tomatoes, (but) now I eat lots of them.'

The desiderative *-sog* does, however, cooccur frequently with the negative imperative form *-sahaí* (372). It also occurs with interrogative forms (368):

(367) hi oa- og- ab- i- sahaí
3 delay-DESID-DUR-PROX-NEG.IMP
'Don't want to delay (i.e., Don't delay!).'

(368) ko xoogiái kabatií kap- i- sog- óxói hix
VOC Xoogiái tapir shoot-EP-DESID-INTER INTER
'Hey Xoogiái, do you want to shoot a tapir?
(i.e., hunt tapir?).'

18.3.5 Interrogative. See sect. 10.

18.4 Person. Verbs are not marked for person (although I am investigating the possibility that this may be, or once was, expressed by tonal suprafixes) in the normal sense. In Everett (1983; to appear a; 1984a) it is argued that pronouns (*hi* '3', *gí* '2', and *ti* '1') in fact are used to mark subject agreement. However, this argumentation is fairly theoretical both in form and in its objectives and I will not go into it here.

There is no marking on the verb of such semantic categories as reflexivity, reciprocity, benefactive, animateness of participants, etc.

18.5 Voice-Valency. The use of the nominalizer *-sai* to reduce the valency of the verb is discussed in sects. 5 and 15.4. I have not observed any clear augmentation of verb valency such as causatives, etc. (but see the final paragraph of sect. 6).

18.6 Other categories. The suffixes discussed here seem, superficially at least, to have relatively little in common. However, I believe that all share the feature of expressing the speaker's evaluation of the action, etc. expressed by the verb. I attempt to justify this statement below. The suffix *-taío* 'REAS/RES' (sect. 18.6.1) forms the final positional class of verb suffixes while the suffixes of sect. 18.6.2 represent the penultimate positional class. As is noted in sect. 18.1.2, members of the same class-category may not cooccur.

18.6.1 Result, *-taío*. This suffix expresses the speaker's opinion that one action occurred as a result of another.

(369) hi baáb-ao kaob-ap- á- taío
3 sick-TEMP see- PUNCT-REMOTE-RES
'When he gets sick, he sees (the doctor).'

(370) ti bai aagá koho-ái- hiab- a- há-
1 fear be eat- ATELIC-NEG- REMOTE-COMPLETE CERT-
taío
RES
'I am afraid and therefore won't eat (that).'

18.6.2 Conclusive aspects

18.6.2.1 Deduction, *-sibiga*. When the realization of an action (past or future) has been deduced, the speaker may express this evaluation through the suffix *-sibiga*.

(371) xigí ai hi ab- op-ái hi abáip- i- sibiga
ASSOC be 3 turn-go-ATELIC 3 sit- EP-DEDUCT
'OK, he's arriving. I deduce that he will sit down.'

Deductions do not necessarily refer to the linguistic context but may refer to the nonlinguistic context as well:

(372) kaogiái xís ibá- bo- í- sibiga
Kaogiái animal fish-come-EP-DEDUCT
'Kaogiái must be going fishing.'

The deduction expressed in (372) is based on the observation that *kaogiái* is entering his canoe with his bow and arrow; *-sibiga*, as opposed to other suffixes of this class, such as *-taío*, does not cooccur with other verbal suffixes in my data.

18.6.2.2 Hearsay, *-híai*. A (weak) conclusion, based on something overheard casually, or a commentary on some action may be expressed by the suffix *-híai*. This suffix generally follows the nominalizer *-sai* when expressing something as having been overheard. In its use as 'COMMENTARY' it does not appear to be restricted as to possible cooccurring (preceding) suffixes (Compare sect. 18.0).

(373) gahió hi xabaip-i- sai- híai píxái xíga
airplane 3 sit- EP-NOMLZR-HSY now really
'The airplane is landing right now (according to what the others say).'

(374) hi gái- sai tiooii xob- i- sog- i- sai- híai
3 say-NOMLZR rubber throw-EP-DESID-EP-NOMLZR-HSY
'He says (according to what I've heard) that he wants to play with the ball.'

(375) xaoói sigíhi xig- ab- op- i- sog- i- sai- híai
foreigner meat take-turn-go-EP-DESID-EP-NOMLZR-HSY
'(According to what I've heard) the foreigner is bringing meat.'

(376) xagíi- hiai ti biio- abá
finish-COMMENTARY 1 tired-DUR
'That's enough. I'm tired.'

18.6.2.3 Observation, *-xáagahá*. Although the suffix *-há* 'COMPLETE CERT' is discussed above, in sect. 18.3.2, the suffix *-xáagahá* 'OBSERV'also exists as a form for expressing the speaker's certainty, in this case also implying direct observation. Etymologically, it seems to come from the morphemes *xaagá* 'be' and *-há* 'COMPLETE CERT'. The use of *-xáagahá* also seems to imply the continuation of an action, although this has not been fully studied.

(377) paitá hi pii ap-i- sai- xáagahá
Paitá 3 water go-EP-NOMLZR-OBSERV
'Paitá is going to swim.'

(378) hoagaixóai hi páxai
Hoagaixóai 3 [species of fish]

kaoapáp- i- sai- xáagahá
catch by mouth-EP-NOMLZR-OBSERV
'Hoagaixóai is fishing for *páxai* (with a hook and line).'

18.6.3 Intensive, *-baí*. This suffix is used to express the greater than normal intensity with which an action is performed or to increase the force of an utterance, similar to English 'really' (or Portuguese 'mesmo').

(379) baíxi hoagí xog- i- baí
parent child want-EP-INTNSF
'The parent (or parents in general) really loves his children.'

(380) tiobáhai hi ag- i- baí
child 3 play-EP-INTNSF
'The child(ren) really play(s).'

18.6.4 Emphatic, *-koí*. The emphatic suffix *-koí* is quite similar to the intensive *-baí*. The basic differences between these suffixes which I have observed are: (i) *-baí* occurs only with active verbs, while *-koí* may occur with categories other than verbs, such as modifiers; (ii) *-koí* may follow *-baí* syntagmatically although *-baí* may never occur to the right of *-koí* (thus *-koí* is in a different positional class from *-baí*).

(381) ti gíxai xog- i- baí- koí
1 2 want-EP-INTNSF-EMPH
'I really like you a lot.'

(382) xi hiab- í- koí
thing NEG-EP-EMPH
'There really is none of that.'

Compare (382) with the ungrammatical (383):

(383) *xi hiab- i- baí
thing NEG-EP-INTNS
'There really is none of that.'

18.6.5 Frustrated action

18.6.5.1 Frustrated initiation, *-ábagaí*. This suffix expresses the notion of an action (or state) which was about to begin but was frustrated before initiation. Verbs so marked are generally translated, 'almost . . . '. Curiously, *-ábagaí* appears frequently with the verb *xog* 'want'. My intuition leads me to consider such cases as an idiomatic diminishing of illocutionary force (cf. sect. 9). That is, the person making an indirect request by using the verb *xog* does not simply say 'I want that' but rather "softens" his request, saying merely 'I almost wanted that'. In this analysis, the expression of frustration results from the uncertainty as to the hearer's reaction which almost does not allow the thing to be desired.

(384) hi xí koho-áo- b- ábagaí
3 thing eat- TELIC-PERF-FRUST.INIT
'He almost (began to) eat it.'

(385) ti xog- ábagaí
1 want-FRUST.INIT
'I almost (began to) want it.'

18.6.5.2 Frustrated termination, *-ábai*. An action begun but not completed is generally expressed by the suffix *-ábai*.

(386) hi baitigiísi is ib- áo- b-
3 [species of fish] animal arrow-TELIC-PERF-
ábai
FRUST.TERM
'He almost arrowed the fish.'

In (386) the agent shot the arrow but missed the fish. This is different from *-ábagaí* in that if the latter suffix were used the agent would not have even shot the arrow (his bow might have broken as he pulled it back, for example).

(387) tiobáhai bigí kaob-ábai
child ground fall- FRUST.TERM
'The child almost fell.'

In (387) the speaker perceives the child as beginning to fall but catching himself before hitting the ground.

18.7 Incorporation. Although nonverbal elements normally may not be incorporated into the verb (but see sect. 23), other verb roots are frequently so incorporated. The process of incorporation is an extremely productive method

of forming new verbs. Basically, the conditions on incorporation are: (i) Neither the incorporated roots nor the principal root allow affixation. Suffixes are added to the entire stem as one element. (ii) Certain morphophonological processes are undergone (cf. sect. 22). The most common of these processes is the insertion of an epenthetic vowel, usually i, to avoid consonant sequences.

I am not sure as to other possible restrictions on this type of incorporation. It is common to find up to three roots in the same stem, although this would appear to be the maximum. At times it is difficult to determine if a particular element is an affix or incorporated verb root. The list below gives a sample of some common verb stems formed by incorporation (incorporated roots preceded by '+'):

(388a) xab + op
turn go
'return' or 'arrive'

(388b) xiga + hoag
take come
'bring'

(388c) xig + ab + op
take turn go
'bring back'

(388d) kaob + ap
see go
'go see'

(388e) xiboít + op
cut go
'cut' (emphasis on the movement)

18.8 Auxiliary verbs. None have been observed.

19 Adjective phrase structure

In sect. 15.3.1 it is noted that modifying phrases tend to be restricted to at the most two constituents, although a few larger strings have been recorded. The modifying of the adjective phrase head is either accomplished through the affixation of one of two emphatic morphemes (*-xi* and *-koí*) or, in rare cases, by reduplication. A few of the morphophonological changes which appear in the examples that follow are discussed in sect. 22.

(389a) xogaí + ogií → xogaogií 'big field'
field big

(389b) xogaí + ogií + ogií → xogaogiogií 'very big field'
field big big

xogií 'big' is common in this type of construction, although it is the only adjective which undergoes reduplication in my data.

(390) bigí hoigí-koí
floor dirty-EMPH
'(a) very dirty floor'

(391) xiohói xagíi-xi
wind cold- EMPH
'(a) very cold wind'

The emphatic morphemes in (390) and (391) may be interchanged freely without affecting the translation. Further, these morphemes, along with the singular case of reduplication, offer the only means of modifying the adjective phrase head. One exception to this generalization may be *xabaxáígio* 'only/alone', found in phrases such as *hóihí xabaxáígio* 'only one'. However, I am uncertain as to the etymology of this word and since it appears, at least superficially, to contain some verbal element(s), the phrase *hóihí xabaxáígio* might best be considered as an existential clause such as, 'there is (only) one'. The limited number of head-modifying constructions would appear to support this hypothesis.

20 Adverb phrase structure

Adverbs, like adjectives, are not modified periphrastically. Adverbs occur in preverbal position, and the maximum number allowed in this (the oblique) position is one.

(392) kaioá hi báíhiigí xis
Kaioá 3 slow animal

ibóít- ai- p- á- há kabatií
cut- ATELIC-IMPERF-REMOTE-COMPLETE CERT tapir
'Kaioá was cutting the tapir slowly.'

(393) hi xaibogi xaháp-i hoasaisi
3 fast go- PROX *nambu* (species of bird)
'The *nambu* left quickly.'

(394) xabaxáí xop-í- haí
alone go- PROX-RELATIVE CERT
'(I) will go alone.'

In fact, the lack of distributional or morphological distinctions between "adjectives" and "adverbs" (with a few possible exceptions based on semantics) leads me to consider both as a single class of modifiers. Compare, for example, (395) and (396) below:

(395a) pii xaibogi
water fast
'fast water/river'

(395b) hi xaibogi sitop-í
3 fast stand-PROX
'He stood up quickly.'

(396a) boitóhoi báíhiigí
boat slow
'(a) slow boat'

(396b) boitóhoi báíhiigí xab-óp-ai
boat slow turn-go-ATELIC
'The boat is returning slowly.'

21 PARTICLES

21.1 Sentence particles. Although certain particles function at both the discourse and sentence levels, there exist at least five which seem to function exclusively at sentence level. These particles are discussed below. Three particles which function at both levels are discussed in sect. 21.2.

21.1.1 Contraexpective, *hoagá*. The particle *hoagá* (see also sect. 8.3) expresses the notion of a frustrated, unfulfilled expectation. It would be possible to interpret a sentence introduced by *hoagá* as a subordinate clause, and this may be in fact the desirable analysis. In this case it would be more appropriate to include this discussion in sect. 14. However, in my analysis *hoagá* may also appear in independent sentences. Therefore, I do not feel that *hoagá* is exclusive to subordinate clauses.

Examples of *hoagá* in independent clauses are

(397) ti hoagá poogáíhiaí gí bagá-boí- haí
1 CONTRAEXP banana 2 give-come-RELATIVE CERT
'I (contrary to what you might expect) am giving you these bananas.'

(398) kóxoí hi hoagá pii kobai- xiig- á
Kóxoí 3 CONTRAEXP water watch-CONT-REMOTE
'Kóxoí (contrary to what you might expect) is (simply) watching the river.'

The negated expectations in (397) and (398) are rather subtle. In (397), the verb root, *bagá* 'give' is used with various senses, ranging from 'hand something to someone' to 'sell'. However, its general, common sense is something like 'give with expectation of future payment'. The use of *hoagá* negates this common expectation and implies that the object in question was given as a present, no payment being necessary. Thus the complete or more precise meaning of (397) is 'I give you these bananas and you don't have to pay me back (contrary to our usual custom)'.

In (398), one individual believes that *kóxoí* is looking or waiting for something, since he is crouching at the river's edge. Someone else says that no, as a matter of fact he is just enjoying the lovely view, contrary to what might have been expected.

But *hoagá* also introduces subordinate clauses:

(399) xoí tio aí-koí hoagá ti kaháp- i-
jungle dark be-EMPH CONTRAEXP 1 go- PROX-

haí
RELATIVE CERT
'The jungle is really dark but nevertheless I am going.'

(400) xabagi hi toio aagá hoagá xipóihí xog-i-
Xabagi 3 old is CONTRAEXP woman like-PROX-

baí
INTNSF
'Xabagi is old, but nevertheless (he) still likes women.'

21.1.2 Vocative, *ko*. This particle appears in various examples throughout this paper. Its function is to get someone's attention, like 'Hey!' *ko* always occurs in sentence initial position and is always followed by a proper noun (someone's name). It is used exclusively in direct address.

(401) ko kohoibiíhai kaxáo pii ap-ái-
VOC Kohoibiíhai HORT.PRO water go-ATELIC-

p- í
IMPERF-PROX
'Hey Kohoibiíhai, let's go to the river.'

(402) ko kó tiobáhai xait- íig- á
VOC Kó child sleep-CONT-REMOTE
'Hey Kó, (your) child is sleeping.'

21.1.3 Conjunctive, *píaii*. Coordination is frequently marked by this particle. I have not observed any other implications of this element (such as

the notion of temporal succession expressed at times by English 'and'). See also sect. 8.

(403) ti píaii xog- abagaí
1 also want-FRUST.INIT
'I also want (it).'

(404) hi kagí pí- o xait- ab- iig- á
3 family also-OBL sleep- DUR-CONT-REMOTE
'His family is also sleeping.'

21.1.4 Temporal precedence, *xapaí*. This particle seems to be derived from the word *xapaí* 'head'. It is translated as 'first'.

(405) ti xapaí xop-í- ta- há
1 first go- EP-ITER-COMPLETE CERT
'I will go first.'

xapaí generally appears in conjunction with *gaaba* or *tiohióxio*, both meaning 'next, after, later'.

21.1.5 Temporal succession, *gaaba* and *tiohióxio*. These particles seem to be synonymous.

(406) gíxai xapaí ti gaaba
2 first 1 next
'You first, I (will do it) next.'

(407) poioí xapaí kaop- á- há ti
Poioí first be born-REMOTE-COMPLETE CERT 1

tiohióxio
next
'Poioí was born first. Then I (was born).'

21.2 Discourse particles. This section must begin with the caveat that I am merely beginning to study Pirahã discourse. Even so, there are at least three interesting particles to be discussed here about which I feel relatively confident.

21.2.1 Marking of principal character/participant, *xagía*. This particle appears occasionally in isolated sentences with the function of focussing on a particular participant (cf. (408) below). However, it also occurs (and does so more frequently) in discourses to mark the "behavior" or successive appearances of the principal character. If this character is human, *xagía* is preceded by *hi* '3'. If nonhuman, it is generally preceded by *xis* 'animal'. I have not observed any other types of participants such as, for example, the personification of plants or minerals.

(408) hi xagía gá- xai- sai ti
3 PRINCIPLE PARTICIPANT say-do(?)-NOMLZR 1

baáb-ao- p- á
sick-TELIC-IMPERF-REMOTE
'He (the one we are talking about) said, "I am sick." '

(409) hi koab-áo- b- á- há- taío
3 die- TELIC-PERF-REMOTE-COMPLETE CERT-RES

xis agía hi
animal PRINCIPAL PARTICIPANT 3

kahá- p- í- hiab- a- há- taío
leave-IMPERF-EP-NEG-REMOTE-COMPLETE CERT-RES
'He died therefore (the panther which we are discussing), therefore he didn't get away.'

Note that *hi,* as in (409), may refer to nonhuman participants. However, I am not sure of the conditions which govern this usage.

In the text from which (409) was taken, the principal participant is a panther. The construction *xis agía* occurs frequently to mark the appearances of the panther.

21.2.2 Secondary participants, *xaítiso.* See also sect. 16.2.2. This particle is the least understood of the discourse particles at the present stage of my analysis. It normally refers to a participant somehow associated with the main participant. Generally, *xaítiso* may be translated as 'also', although very frequently it carries the idea of temporal succession.

(410) hiohóasi xop-í- so ti xaítiso kahá- p- i
Hiohóasi go- EP-TEMP 1 also go- IMPERF-PROX
'After Hiohóasi leaves, I will also go.'
(*hiohóasi* is the main participant and *ti* the secondary participant).

(411) xopísi hi xaítiso hóoi ai- p- a- áti
Xopísi 3 also bow make-IMPERF-REMOTE-UNCERT
'Xopísi also seems to make bows (as does the main participant).'

21.2.3 Logical progression of discourse, *xaigiagaó.* This particle has several variants, although I am not sure as to the conditions involved. Personally, I have only observed this particle in discourse although SS (1973) presents various sentence-level examples. Moreover, SS (ibid) considers this particle identical in function to *xagía* (cf. sect. 21.2.1). He may be correct,

although I feel more confident in the analysis presented here, and I believe the examples given here and in sect. 21.2.1 support this distinction.

(412) hi ti gái-sai ai- tá- hói- xií-
3 1 say-NOMLZR sleep-ITER-INGR-?-

haí xií apa-ó hi ti gái-sai
RELATIVE CERT tree up- LOC 3 1 say-NOMLZR

xao hoagá xiho-áo- hoi tiooaísai ti
MAN CONTRAEXP walk-TELIC-INGR dark 1

xiho-ái- p- op- í- haí
walk-ATELIC-IMPERF-go(?)-PROX-RELATIVE CERT

xaigíagaó báihiigí xag- ab- op-í- haí
LOG. PROG slow travel-turn-go-PROX-RELATIVE CERT
'He told me (that he intended) to sleep up in a tree. He told me in this way (which is contrary to what is normal) he would begin to walk in the dark, but, *for this reason*, returning slowly.'

The italicized phrase, 'for this reason', refers to the particle *xaigiágaó* in the example.

(413) xitáíbígai xaoói kaab oá- bog- á-
Xitáíbígai foreigner much buy-come(?)-REMOTE-

ta- haí xao xaigíagaó xis
ITER-RELATIVE CERT foreigner LOG. PROG animal

ogió hi xis og- á
much 3 animal want-REMOTE
'Xitáíbígai, the foreigner, bought a lot (of meat). That is, we are saying that he wants a lot of meat.'

What (412) and (413) have in common with regard to *xaigiagaó* is a logical progression. In (412) it was translated as 'for this reason', whereas in (413) it is rendered 'that is, we are saying that'. The explanation is that in (412) it indicates the reason-result of a previous sentence and in (413) it marks the following clause as a paraphrase which not only paraphrases the central theme under discussion but also the completion of the discourse.

21.3 Verification particles. There are no separate particles expressing the speaker's evaluation of his own utterance, although suffixes with such a function are described in sects. 18.6.1 and 18.6.2. On the other hand, there is

a particle used to express a positive evaluation of someone else's utterance or behavior, *xaió* 'right/correct'. This is seen in situations such as (i) and (ii):

Speaker A	(i)	giso-	ó-	xio kagakai-hiab-óxói	híx
		DEM-LOC-DIR		write- NEG-INTER	INTER
		'Don't I write it like this?'			
Speaker B	(ii)	xaió			
		right			
		'That's it/good/right!'			

22 PHONOLOGY

See D. Everett (1979;1981) for a more complete treatment of Pirahã phonology.

22.1 Word, phrase, and sentence level features

22.1.1 Phonological sentences. In Everett (1979) three types of phonological sentences are distinguished according to patterns of accent, pause, intonation, and other prosodies. This taxonomy is still incomplete and the prosodic elements require a great deal of further study.

22.1.1.1 Declaratives. These sentences begin with a gradual crescendo, which reaches its peak sentence medially, where the sentence also slows slightly. Further, sentence medial position is marked by the heaviest stressed word, words preceding and following receiving lighter stress. (Cf. sect. 22.2.2 for a discussion of stress.) Postmedially, the sentence accelerates slightly, being further marked by decrescendo. The intonation rises gradually throughout the sentential unit, with lexical tones maintaining their relative high-low positions throughout the rising contour.

(414) //kahaí tai ^gáigá-bóg-á gai kob-á xaí kahaí báaxaí//

arrow feather tie-come-REMOTE that see-REMOTE then arrow pretty
'The arrow feather comes to be tied. Then the arrow is pretty.'

The symbols used have the following interpretations:

/	:	pause
//	:	longer pause
^	:	strongest accent in the sentence
⌒	:	rising intonation
⌒	:	falling intonation

< : crescendo
> : decrescendo
~ : slowly
mmm : quickly
\+ : intensification of tone (high-higher; low-lower)

(415) //kag-ái-ahoa-xáisigíai ˆhiaitíihí xáía xaag-ábagagaí

xao xáía soxóá xáía xihiab-ái xáía-ó xáía xoá-bog-á//

?-Brazil nut tree grove-give-the same one Pirahã Brazil nut tree grove be-FRUST.INIT foreigner Brazil nut tree grove already Brazil nut tree grove pay-ATELIC Brazil nut tree grove-LOC Brazil nut tree grove buy-come-REMOTE
'The given-Brazil nut-place, the Pirahã's grove being almost the Brazilian's grove already, the grove paid, at that grove he bought (it).'

22.1.1.2 Interrogatives. This sentence type was discussed in sect. 10. Generally, there is little or no distinction phonologically between interrogatives and declaratives. When there is a difference, it is that the intonational contour of the interrogative sentences rises somewhat higher than in declaratives.

22.1.1.3 Exclamatives. Exclamative sentences differ significantly from declaratives. The prosodic features are employed to express animation or excitement. Future studies are needed to determine more precisely the relationship between prosody and pragmatics (along the lines of Dooley (1982)).

(416) //potagíipa ˆpagobií tíihí xaí xaoói xahoag-í//

Ponta Limpa pay well Brazil nut then foreigner give-PROX
'For Ponta Limpa the Brazilian paid well for the Brazil nuts. Then (we) gave (the place to) him.'

(417) //kahaibó kahaibó ˆbogíaga-hoag-á há-taió//

bamboo bamboo curl up-INGR-REMOTE-COMPLETE CERT-RES
'(Since this is) bamboo, it comes to warp therefore.'

These representative transcriptions show that exclamatives begin, as declaratives, with a crescendo. This crescendo peaks more rapidly than that of declaratives and is generally marked at its peak by two successive heavy accentuations. At this point, the intonational contour drops very low, with lowest intonation (and slowest rate, as shown) coinciding with these heavily accented syllables. From this point on, the intonation rises much more rapidly and steeply than that of declaratives. Note also the greater contrast between peak and final speeds in these examples—very typical of this sentence type.

In discourses marked by high emotional involvement on the part of the speaker (e.g., a report on killing game, sighting of an aircraft overhead, etc.) the prosodic features described above may range over larger syntactic units. That is, several (syntactic) sentences may be grouped together, only one pause, intonational contour, breath, etc., marking the end and beginning of the entire set of sentences, rather than each individual sentence (which is a possible argument for setting up both phonological sentences and syntactic ones). Also, the intonational contour rises from the first sentence to the last, ending in a falsetto quite often.

22.1.2 Phrase features. As was the case with sentences, the description of phonological features of phrases in Pirahã covers merely the grosser details, leaving many details for future analysis. Also, as with the examples of sentences, all data on phrases are taken from textual material.

Basically, the (phonological) phrase is marked by an intensification of the phrase final tone, phrase final position being marked by pause in most cases (see beginning of sect. 22 for a discussion of degrees of pause, breath, etc., with the diacritic markings used in this section).

(418) /póii píaîi^{+}
arrow neck also
'also (the) arrow neck'

(419) /xi- áooí xisoobâi^{+}
wood-tip down (fine feathers)
'(the) tip feathers'

(420) /hi gai-sai ĝaá$^{+}$
3 say-NOMLZR thus(?)
'he said thus'

In each example, the strongest accent '^' falls on the stressed (see sect. 22.2.2 for discussion) syllable of the phrase final word; '+' marks the intensification of the phrase final tone (high is raised, low is lowered).

22.1.3 Word features. As is seen in sects. 22.2.2 and 22.2.3, the word level is an extremely important notion in Pirahã phonology. Nonetheless, the only relevant defining features isolated to date are primarily nonphonological. Due to phenomena such as voiceless consonants (sect. 22.2.1), prosodic restructuring (sect. 22.3.3.3), and morphophonological effects on certain segments, a phonological definition of the word level is extremely difficult to formalize without circularity. Therefore, references to "word" in this paper have been and will be to a lexico-syntactic unit.

22.2 Syllable features (phonotactics)

22.2.1 Syllable types. In K. Everett (1978) and D. Everett (1979; 1981;1983) and Everett and Everett (1984a), five syllable types are described for Pirahã. The taxonomic criteria used included native speaker segmentation of phrases and reactions to presegmented phrases, segment length, and stress placement (sect. 22.2.2). These types are (where C = voiceless consonant and G = voiced consonant): CVV; GVV; VV; CV; GV. The durational value of each syllable type is based on the following ranking: V > C > G ('>' = longer than). Compare Grimes (1981) for spectographic confirmation of this hierarchy.

(421) xi.pói.hí (. = syllable boundary)
CV.CVV.CV
'woman'

(422) xa.ba.gi
CV.GV.GV
'toucan'

(423) tíi.híi
CVV.CVV
'Brazil nut'

(424) xi.bí.gaí
CV.GV.GVV
'thick'

(425) xií.to.ii
CVV.CV.VV
'wood handle'

(426) ho.aí.pi
CV.VV.CV
[species of fish]

The reader is again referred to the works cited for more detailed argumentation.

22.2.2 Stress placement. Stress placement is dependent upon syllable weight and, secondarily, the linear configurations of syllables in words (see sect. 22.1.3.).

The rule for stress placement may be stated informally by saying that primary stress is placed on the heaviest of the final three syllables in the word. In the event that the heaviest syllable type occurring in a word has multiple tokens in that word, the most rightward token will be stressed.

(427) xa.pa.'pai
CV.CV.CVV
'head'

(428) ka.'haí
CV.CVV
'arrow'

(429) bi.'gí
GV.GV
'ground/sky'

(430) ka.ga.'hoí
CV.GV.CVV
'bark canoe'

Syllable boundaries and stress are placed on the phonetic, rather than the phonemic (or underlying, etc.) representation. Verbs appear to obey the same rule of stress placement, although I have not studied them in detail yet.

In sect. 22.3.3.3 syllabic restructuring is discussed as a key to understanding changes in stress and tone patterns.

22.2.3 Tone. Heinrichs (1964) and Sheldon (1974) proposed three phonetic-phonemic tone levels for Pirahã. In my fieldwork and analysis, I made two modifications to these earlier treatments. First, a fourth phonetic tone, 'low-low' (symbolized by '$^{+}$'), was added. Second, phonological processes (cf. below) were described, which permit the postulation of two, rather than three, phonemic or underlying tones.

According to the classificatory criteria suggested in Pike (1948), the tones of Pirahã are registers as opposed to contours. Again, argumentation and more detailed evidence on behalf of the conclusions presented here are to be found in the works cited in sect. 22.2.1 (especially Everett (1979)).

The distribution of phonetic tonal registers is as follows (where H = 'high tone'; M = 'mid tone'; L= 'low tone'; and L^{+} = 'low lowered tone'):

(i) Within nonfinal syllables with geminate vowel sequences, only tone sequences MM, ML, LH, or $L^{+}L^{+}$ may occur. Sequences HH, HL, and LL are never observed in this position.

(431a) [ʔàáˈháí.hī]

(431b) ʔàá.háí.hì 'sugar'

(432a) [mīīˈpài]

(432b) bíí.pài 'blood'

(433a) [ˈtɔ̀ɔ̀.gɪ̀.ʔɪ̀]

(433b) tòò.gì.ʔì 'hoe'

(434a) [ˈčīī.hí]

(434b) tíī.hí 'people'

(ii) The sequence L^{+} X L does not occur except when L is in word final position or X contains tone M.

(435a) [pɔ̀ɔ̀.gàˈhãĩ]

(435b) pòò.gà.hài 'fishing arrow'

(436a) [hɔ̀.ããˈgãĩ]

(436b) hò.àà.gài 'type of fruit'

(437a) [pɛ̀è]

(437b) pìì 'water'

(438a) [pɔ̀ɔ̀.ˈgái.hì.ài]

(438b) pòò.gài.hì.ài 'banana'

(439a) [čɪ̀ì]

(439b) tìì 'excrement'

(iii) (a) H tone never occurs adjacent to low-lowered tone. (b) H never occurs word initially when the immediately following tone is L or L^{+}. (c) H never occurs in the environment:

$$\left\{ \begin{matrix} L \\ L^{+} \end{matrix} \right\} X \text{ ——— } \left\{ \begin{matrix} L \\ L^{+} \end{matrix} \right\} Y$$

unless Y = # and X = consonant. However, M may occur in all the environments just listed (a-c).

(440a) [ˈkãà.bō.gí]

(440b) kàà.bó.gí [man's name]

(441a) [ˈpēè.sì]

(441b) pîi.sì 'cotton'

(442a) [ʔì.tò.ˈhóī]

(442b) ʔì.tò.hóì 'old/big'

(443a) [pāò.ˈhóī]

(443b) páò.ˈhóì 'bread'

(444a) [ˈʔāò.bài]

(444b) ʔáò.bài 'flower

(iv) (a) L never occurs immediately before or after M or H in word medial or word final positions, except in the environment: [+ consonantal] òí .

(b) L never occurs in sequences such as:

$$X \begin{Bmatrix} M \\ H \end{Bmatrix} \text{——} \begin{Bmatrix} H \\ \# \end{Bmatrix}$$

(445a) [kà.hí.ˈāí]

(445b) kà.hí.ài 'basket'

(446a) [ʔāā.ˈpáī.hí]

(446b) ʔáá.pái.hí 'type of fruit'

(447a) [kà.ˈhāí]

(447b) kà.hài 'arrow'

(v) L varies with M in certain words:

(448a) [pàá.sì]

(448b) [pàá.sī]

(448c) pàá.sì 'type of fruit'

(449a) [ʔìí.sì]

(449b) [ʔìí.sī]

(449c) ʔìí.sì 'type of fruit'

(450a) [màí.ʔì]

(450b) [màí.ʔī]

(450c) bàí.ʔì 'father/mother'

(451a) [ˈʔàí.čì]

(451b) [ˈʔàí.čī]

(451c) ʔàí.tì *'cutia'*

22.3 Phonetic segments and orthography

22.3.1 Phonemes. The phonetic features used in this section are basically from Pike (1949) and Derbyshire (1979).

22.3.1.1 Phonemic inventory: p, t, x, b, g, s, h, i, a, o.

22.3.1.2 Basic phonemic processes

22.3.1.2.1 Voiceless consonants. All voiceless consonants are longer (see sect. 22.2.1) than voiced consonants in all positions.

22.3.1.2.1.1 Occlusives: p bilabial; t apico-alveolar; x glottal. p varies with pʕ (implosive) in some idiolects (see sect. 22.3.1.3). t is realized as a lamino-alveopalatal affricate preceding i.

Throughout this paper, I have used the symbol k to represent a dorso-prevelar when preceding i and a dorso-postvelar when preceded and followed by a. Recently, however, I have come to the conclusion that k is an optional portmanteau realization of the sequence *hi*. This is borne out by the fact that whenever a k is found the sequence hi may also be found, idiolects tending to vary in the relative frequency with which k replaces hi.

hi is, for obvious reasons, never replaced by k in free forms such as the pronoun *hi* '3' (but cf. *hiapióxio* vs. *kapióxio* '3', variants of the third person pronoun).

This conclusion makes the phonemic inventory of Pirahã the smallest yet recorded, to my knowledge.

22.3.1.2.1.2 Fricatives: s apico-alveolar; h glottal. s is optionally realized as a lamino-alveopalatal preceding i (cf. sect. 22.3.1.3).

22.3.1.2.2 Voiced consonants: b bilabial; g dorso-velar. b is realized optionally as a bilabial nasal following pause and as a bilabial vibrant preceding o. g is realized optionally as an apico-alveolar nasal following pause. Another allophone of g, [ɽ̆], has been documented more completely in Everett (1982b). This allophone is a double apico-alveolar/sublamino-labial egressive vibrant. To my knowledge, this segment occurs in no other language. The vibrant allophones are perhaps best characterized as 'nonsuperstrate'. Their sociolinguistic implications are discussed in Everett (1984b).

22.3.1.2.3 Vowels: i mid-high front; a low close central; o mid-high close back rounded. i ranges freely over mid-high front vowels [ɪ], [e], [ɛ], [i]. o is realized as a high close back rounded [u] after h or k preceding i. Elsewhere, it is a mid close back rounded. All vowels are optionally nasalized following x or h.

22.3.1.3 Free variation. Pirahã grammar is especially marked by a high degree of 'optional rules' or free variation. Everett (1982b) discusses one case of particular interest involving b and g. However, there is a great deal which apparently occurs without any type of restriction.

Besides those special cases mentioned above (p ~ pʔ ; s ~ š; b ~ b̃ ~ m; g ~ ɽ̆ ~ n), the following examples have been noted:
(i) In a large number of idiolects, p and k are interchangeable (cf. my remarks on k earlier):

(452) píaii ~ kíaii 'also'

(453) xapaí ~ xakaí 'head'

(ii) In an apparently smaller number of idiolects, p, t, and k are interchangeable:

(454) koxopai ~ koxotai ~ koxokai, etc. 'stomach'

(455) tapaí ~ takaí ~ tataí, etc. [girl's name]

(This variation may occur in other positions within the word as well, as indicated by 'etc.')

(iii) In most male idiolects x varies with k word initially (cf. sect. 22.3.2):

(456) kosí ~ xosí 'eye'

(457) kohoáipí ~ xohoáipí 'eat'

(iv) In many male idiolects (cf. sect. 22.3.2) s varies with h in word final syllables (observed only in nouns):

(458) kohoibiísai ~ kohoibiíhai [species of fish]

(459) xapisí ~ xapihí 'arm'

(v) In all idiolects observed, hi varies with k; ho varies with k^{w}; and hoa varies with k^{w}a and ko (see Everett (1979) for a discussion of this variation and possible support it provides for the autosegmental (Goldsmith (1976) et al.) theory of phonology).

(460) xahoaógií ~ xak^{w}aógií ~ xakoógií 'Xahoaógi'

(461) hói ~ k^{w}í 'one' (Note that tone remains.)

(462) hiaba ~ kaba 'no' (NEG. INDICATIVE)

22.3.2 Male-female speech distinctions. Female speech always realizes s as h before i and optionally elsewhere. Also, certain sociological factors affecting allophonic distribution of g and b are not relevant (apparently) to female speech (cf. Everett (1984b)).

Female speech is more guttural than male speech. I suspect that this is related to a contraction of the pharyngeal walls as part of the female phonetic posture, although I have not pursued this matter due to cultural restrictions discouraging women to converse with outsiders, as well as to lack of instruments.

Sheldon (p.c.) suggests that there are possibly syntactic distinctions between male and female speech. Neither I nor my wife, however, have found any strong evidence of this.

22.3.3 Morphophonological processes

22.3.3.1 Prefixation. What I am here calling "prefixation" is an optional but highly frequent rule which changes the phonological forms of morphemes in noun-adjective, noun-verb sequences. Much of what is discussed here has also been discussed, with somewhat different conclusions, in Sheldon (1974). This "prefixation" includes deletion and metathesis. There are, however, a large number of morphophonological processes, especially those involving tone, which are not fully understood and thus will not be discussed here.

22.3.3.1.1 Deletion. Word initial glottal stop is frequently deleted in adjectives and verbs when preceded by nouns, pronouns, postpositions, or modifiers (in verbs). This does not generally occur in slow speech (such as the careful pronunciation common in elicitation). The parentheses in the following examples indicate optionality.

(463) hi go gíiso ti (x)oba-i- haí
3 WH DEM 1 see- PROX-RELATIVE CERT
'When (are) you (going to) see me?'

(464) *xisai-tai (x)ogií
chin-hair big
'big beard'

(* indicates that this derivation is not yet complete; see below).

Word final vowels in nouns (only) are deleted when followed by other morphemes. The condition on such deletion is that it only applies where the verb or adjective-initial glottal stop has been deleted. It is for this reason that I have chosen to analyze vowel-consonant deletion and metathesis as subcomponents of a single process of prefixation.

(465) xisai-tai + ogií → xisaitaogií 'big beard'
chin-hair big

(466) xáíasi + og- abagaí → xáiasogabagaí
Brazil nut grove want-FRUST. INIT
'almost want (a) Brazil nut grove'

(467) kasí + aag-á → kasaagá 'is (his) name'
name be- REMOTE

This deletion of vowels has an interesting effect on tone as well. See below and D. Everett (1981) for a fuller discussion. Also, the examples above illustrate native words (all nouns apparently end in i, except loan words), but the rule also applies to loan words.

(468) kopóo + ab- a- áti → kopóabaáti
cup stay-REMOTE-UNCERT '(the) cup stays'

22.3.3.1.2 Metathesis. A final component of prefixation is metathesis. In nouns ending in

$$\left[\left\{ \begin{matrix} x \\ h \end{matrix} \right\} \left\{ \begin{matrix} ai \\ oi \end{matrix} \right\} \right]$$

and followed by a or o (cf. Sheldon (1974) and Everett (1979)), metathesis of the final two vowels precedes final vowel deletion in prefixation.

(469) kahaí + aip- i → kahiaipi 'make an arrow'
arrow make-PROX

(470) kagahóí + aag-á → kagahiaagá '(it) is a bark canoe'
bark be- REMOTE
canoe

See sect. 22.3.3.3 for further examples.

22.3.3.2 Suffixation. Suffixation is postulated as a separate process from prefixation because it concerns the internal structure of verbs and has no subcomponents which are interdependent as in prefixation.

22.3.3.2.1 Epenthesis. This rule is stated by SS (1976) as:

> Two C's may not cooccur across morpheme boundaries. A vowel is inserted between the two thus:
>
> $Y\ C_1 + C_2\ Z \rightarrow Y\ C_1\ VC_2\ Z$
>
> where the plus sign '+' means morpheme boundary.

Further specifications concern the shape of the epenthetic vowel (also from SS (1976)):

> If either C_1 or C_2 is s, p, or t, then V is i [I have used the orthography and glosses of this paper, DE] as in:
>
> xogaí sog + sai → xogaí sogisai
> field want NOMLZR
> 'wanting a field'
>
> If both C_1 and C_2 are from the set b, g, h, k, or x, then V is a, as in:
>
> xi kob + hoagá → xi kob a hoagá
> it see + INCEPT
> '(He) started to see it.'

22.3.3.2.2 Deletion. These observations are again taken from SS (1976):

> s Deletion: Desiderative *sog* becomes *og* when preceded by a morpheme ending in 'a' as in:
>
> hi oa + sog- abagaí → hi oa-og-abagaí
> 3 delay DESID-FRUST. INIT
> 'He almost wants to delay.'

I believe these observations by SS to be essentially correct and have no further comments on them.

22.3.3.3 Syllable modifications in morphemic combinations. The remarks in this section are further exemplified and argued for in D. Everett (1981) and SS (1974). I will merely describe the grosser aspects of the phonological consequences of morphemic combinations in this section.

In D. Everett (1981), it is suggested that syllable structure and stress placement operate *syntagmatically* without respect for morpheme boundaries, while tone is assigned *paradigmatically*, i.e., as a melody (or feature) of the word or morpheme. Its assignment to individual vowels is affected by changes in syllable structure and stress placement. The following observations would appear to support the first claim.

These observations are limited, however, to noun + adjective or noun + verb sequences. For other sequences, see earlier sections (cf., for example, sects. 18 and 19).

In sequences such as (471)-(475), the (a) examples show original syllable, stress, and tone configurations, and the (b) examples illustrate the modified forms. (Suffix divisions have been omitted to eliminate confusion with syllable structure—see sect. 18.)

(471a) ˈsoí + ˈbaa.gi
CVV GVV.GV
skin sell

(471b) so.ˈbáa.gí 'sell skin'
CV.GVV.GV

(472a) si.ˈtoí + ˈhoí
CV.CVV CVV
egg two

(472b) si.to.ˈhóí 'two eggs'
CV.CV.CVV

(473a) si.pó.ˈaí + ˈxi.gá
CV.CV.VV CV.GV
feather hard

(473b) si.pó.ˈái.gá 'hard feather'
CV.CV.VV.GV

(474a) si.ˈtoí + xo.ga.ba.ˈgaí
CV.CVV CV.GV.GV.GVV
egg want

(474b) si.ˈtŏo.ga.ba.ˈgaí 'want an egg'
CV.CVV.GV.GV.GVV

(ŏ = one vowel manifesting two tones, low + high, simultaneously)

(475a)	hoá.ˈxaí	+	xoá.ba
	CVV.CVV		CVV.GV
	smoke		high
(475b)	ˈhoá.xí.oá.ba		'high smoke'
	CVV.CV.VV.GV		

The significant observation to be made with regard to the above examples is that high tone in word final accented syllables is moved in morphemic combinations. Moreover, this high tone actually appears to "follow" the accent (cf. below) (although, naturally, to support this hypothesis it would be necessary to (i) record many more such examples; and (ii) show through more detailed argumentation the relevance of this observation—is it relevant?; does it help capture significant generalizations?).

When followed by a "perturbable" morpheme whose initial syllable is accented after restructuring, high tone is dislocated to the right (471) and (472). When the final syllable of the first morpheme is accented both prior to and after restructuring, any high tone originating there will continue in that syllable, regardless of its segmental composition (474). When, as in (475), word final accent moves leftward, any high tone originating in that syllable will also undergo left-dislocation, replacing the tone of the adjacent vowel.

(476) below represents the class of words mentioned by SS (1974), namely, words which end in

$$\left[\left\{ \begin{matrix} x \\ h \end{matrix} \right\} \left\{ \begin{matrix} ai \\ oi \end{matrix} \right\} \right]$$

In this class, the high or low tone on the penultimate vowel (a or o) extends rightward in the same syllable. To use a more theoretical terminology, the tone of the "strong" vowel replaces that of the "weak" vowel within the "rhyme" (cf. McCarthy (1979) and D. Everett (1981)).

(476a)	sa.ˈhái	+	ho.ˈáo.bá
	CV.CVV		CV.VV.GV
	fat		give
(476b)	sa.ˈhái.ho.áo.bá		'give fat'
	CV.CVV.CV.VV.GV		

23 MORPHOLOGY

The basic elements of inflectional morphology are found in sects. 15 and 18.

23.1 Compound words. The criterion used to classify the examples to follow as compound words rather than merely phrasal constructions is semantic. For example, in (477) below, the syntagmeme *xabagi soixaoxoisai* may be understood as 'toucan beak' or 'saw', according to the context.

However, the majority of speakers who, for example, ask me for a saw (or other instrument with a compound name) find it very amusing and surprising when I make some sort of remark relating 'saws' and 'toucan beaks'. In my opinion, they are not even aware of the relationship unless they stop to reflect for a moment.

Of course, this criterion is not a strong one. Therefore, the conclusions presented here are to be taken as tentative; i.e., it may be that some of these examples are simply phrases.

23.1.1 Nouns

23.1.1.1 Noun + noun:

(477) xabagi + soixaoxoisai → xabagisoixaoxoisai 'saw'
toucan beak

(478) xapaí + toii → xapaítoii 'ladder'
foot handle

(479) hóii + hoi → hóiihoi 'bowstring'
bow vine

(480) xapaí + soí → xapaísoí 'shoe'
foot leather

23.1.1.2 Noun + verb. Compare sect. 15.4, where examples of new words formed by subject/agent nominalizations are given.

23.1.1.3 Noun + adjective:

(481) pi + gáia → pigáia 'scissors'
thorn crooked

(482) kao + ogiái → kaogiái [type of bass (fish)]
mouth big

23.1.2 Verbs. Compare sect. 18.8 for a discussion of verb root incorporation. It is difficult to determine whether this process is synchronically productive. In other words, rather than being based exclusively on simple

combinations of the sense of each root to produce a sense for the entire stem, the resultant forms often seem somewhat arbitrary in meaning and thus seem to be diachronically formed rather than resulting from synchronic rules.

23.2 Basic word classes. In sects. 19 and 20, we attempt to justify a collapsing of adjectives and adverbs into one class of modifiers.

To sum up, from sects. 15-21, we conclude that the basic, morphosyntactically justifiable word classes in Pirahã are: nouns, pronouns, postpositions, particles, modifiers, and verbs.

24 IDEOPHONES

I have not observed any onomatopoeic forms or other types of noninflected words similar to ideophones.

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