A CRITICAL EVALUATION OF GREENBERG'S CLASSIFICATION OF ARAWAN, CHAPACURAN, AND MURAN: WHEN NOT SAYING ANYTHING IS BEST

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"A Critical Evaluation of Greenberg's Classification of ARAWAN, CHAPACURAN, AND MURAN: When not Saying Anything is Best[1]

0. Introduction

Greenberg's (1987) classification of the Americas in Language in the Americas (henceforth LIA) has been severely criticized by a number of researchers (cf. especially Campbell 1988 and Kaufman 1990b). The thrust of these criticisms is that Greenberg's classification goes beyond his evidence, claiming a solution before the problem is even posed correctly. Greenberg's comparisons of words without bothering to reconstruct sound systems means that we just cannot know whether the superficial similarities in his lists of "etymologies" are serious or spurious. Greenberg has, in print at least, appeared unmoved by these concerns and criticisms, claiming that although he faced similar criticism from Africanists over his classification of African languages, "... it is reasonable to assert that this classification has won acceptance and has become the basis for a considerable body of comparative work on African languages" (1987, 1).[2]

Be that as it may, as Chomsky as noted many times, "data do not wear their analysis on their sleeves." A hypothesis only becomes accepted as more or less plausible based on the quantity and quality of the arguments adduced

1 I want to thank Terry Kaufman and Sally Thomason for their encouragement to write this paper - and for their advice on its preparation. They are hereby resolved of any blame for the results. Thanks also to the Banawá, Jamamadi, and Jaruara people for making me feel at home on my visits with them. Thanks to Barbara Kern, for hours and hours of discussion on Pacaas-Novos, to Ernest & Barbara Buller and Sharon Reece for discussions and considerable help in the analysis of Banawá stress. I have adopted the spellings Arawan and Chapacuran because these are the most common spellings and because I do not think that the orthography of the country in which a particular group happens to be located should necessarily influence the way that group's name is spelled. Since these are in fact distinct nations, ethnically, culturally, linguistically, and historically, the primary criterion which should determine the spelling of their name is tribal preference or, lacking that, IPA representation or independent linguistic or anthropological convention.

2 cf. Sarah G. Thomason's (1988) discussion of the roots and impact of Greenberg's classification of African languages, for a an alternative assessment.

in its favor. LIA is deficient in lacking independent argumentation in favor of its results. Therefore, while LIA is important as a set of hypotheses generated on the basis of lexical similarities, without additional argumentation it cannot be taken any more (or less) seriously than an educated guess. Greenberg apparently sees his work as much more than this, however. He seems to view his method of multilateral comparisons as a "discovery procedure" which, if applied correctly and with sufficient data of high quality will produce the correct classification of any set of languages under consideration. But if linguistics has learned anything at all from the so-called "Chomskyan revolution," it is that discovery procedures could not exist in any science in principle.[3] In the introduction to LIA, Greenberg argues at length in favor of his method of multilateral comparisons, claiming that it is more likely to provide reliable results than the reconstruction of sound systems or, by extrapolation, than point-by-point grammatical comparisons. This assertion rests on two crucial assumptions. The first is that lexical correspondences are more important than systematic grammatical correspondences (phonology or morphosyntax). This is in fact a point on which Greenberg can expect general agreement from theoretical linguists. Many researchers (Chomsky 1986, Bresnan 1982, Pollard & Sag 1987 and Gazdar, Klein, Pullum, and Sag 1985) agree that the significant variations between languages emanate from the lexicon. Chomsky 1986 argues that systematic, grammatical differences between languages are best accounted for in terms of different settings for universal parameters. If this is correct, a given set of systematic differences distinguishing two languages could have resulted from a single diachronic re-setting of a small number of parameters. Therefore, regular and systematic grammatical differences are not necessarily significant in classifying languages.[4] Rather, it is the words of a language which will generally produce the qualities which can be said to uniquely define that language (as a formal object). Thus, words will in general provide a better diagnostic for relatedness than grammatical structure, although the latter will be of importance in establishing degrees of relatedness, areal diffusion, etc. If this line of reasoning is correct, and it is difficult to see how it would not be, then it is entirely appropriate and theoretically sound to base genetic classifications primarily on lexical

3 Imagine asking a medical researcher what the discovery procedure is for finding the cure for cancer!

4 Although, to be sure, the fact that languages share otherwise marked or rare grammatical processes can be quite significant for classificatory purposes, either in the establishment of genetic relationship or areal diffusion.

comparisons - something that historical linguists have known for over a century.[5] The problem is to be sure of at least three things: (i) that the forms of the words being compared faithfully represent the phonemes of the languages under consideration (and, ideally, that we have some idea of allophonic processes in these languages) (ii) that the comparison is being made at the appropriate level - that is, that we are not comparing a recent sound change in one member of a family with an ancient phonological phenomenon from some proto-language, and (iii) that the words being compared originated in the languages under comparison. This last point brings us to Greenberg's second major assumption. This assumption, upon which the entire multilateral comparison methodology depends, is that so-called "mixed languages" do not exist. This would allow one to maintain that even if the grammars of two or more languages do not support a particular genetic classification, the classification can still be proposed if a multilateral word-comparison implicates it, since the words used for comparison would, by hypothesis, not have been borrowed.[6] This just does not hold up however, as mixed languages surely exist (cf. Thomason & Kaufman 1988). A concrete example from the Americas can be given from Pirahã. Whereas Pirahã has consistently rejected loans from Portuguese and other Amerindian languages, preferring to coin new words - usually descriptive compounds, e.g. **sabáasi ?igapaisai** 'person-poker' for syringe, it has apparently borrowed its entire pronominal system from the Língua Geral (cf. Everett 1983; Nimuendaju 1948)![7] This type of borrowing is rare, perhaps, but it would seem to wreak havoc with the assumptions on which Greenberg's methodology is based. Other examples are not hard to find (cf. Thomason & Kaufman 1988).[8] In the final section of this paper, I discuss each

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5 On the other hand, the type of lexical information and analysis that would be required to produce a theoretically interesting analysis is lacking from most historical studies, especially those which involve only superficial similarities, such as Greenberg's.

6 Or at least the percentage of borrowed words would be low enough not to endanger the methodology.

7 The Pirahã pronouns are **ti** '1'; **gi** (=[**ni**]) '2'; and **hi** '3'. Pirahã has no plural, reflexive, reciprocal, nondefinite or other special pronoun forms. The forms just listed are exactly the same in meaning and sound as the Tupi-Guarani forms of the early Lingua Franca of the region, Nheengatu.

8 For example, the Pirahã almost invariably use Tupi words (which originated in Nheengatu) when telling outsiders the "Pirahã" name for objects and actions. Whereas the Pirahã think they are speaking Portuguese, the outsiders usually

of the words used by Greenberg to classify MURAN as Chibchan-Paezan, concluding that coincidence, error, and borrowing might account for the correspondences noted by Greenberg as well as genetic affinity. In any event, Greenberg's methodology must address points (i) - (iii) from the outset, which it does not.

In order to test the reliability of Greenberg's methodology, and to discuss a number of facts about these languages hitherto inaccessible to most linguists, I would like to consider Greenberg's classification of Arawan and Chapacuran languages. Greenberg claims that these languages all belong to the Arawakan family of the Equatorial subgroup, as in (1):

(1) EQUATORIAL
  1 MACRO-ARAWAKAN
    a GUAHIBO
    b KATEMBRI
    c OTOMACO
    d TINIGUA
    e ARAWAKAN
      (1) ARAWA: Culino (=Culina/Madija); Jarua (=Jaruara); Yamamadi (=Jamamadi); Paumari; PLUS Dení; Banawá.
      (2) MAIPURAN
      (3) CHAPACURA: Abitana; Chapacura; Itene; Kitemoka; Mure; Pawumwa; Quitemo; Torá; Urupa; Wanyam; Yaru; Yuva; PLUS Pacaas-Novos.
      ETC...

Given the "power" that Greenberg claims for his methodology, Lowland South America presents an excellent testing ground, since the little data which we have has been until quite recently almost exclusively lexical and very sparse. In this vast, little-known linguistic region it ought to be possible, as new data (linguistic, cultural, and demographic) becomes available, to see just how Greenberg's classification stands up. Are there widespread methodological problems for "multilateral comparisons" revealed as we learn more? Or do new sources of information tend to confirm Greenberg's original classification? In this paper, I am going to argue that new information (based on my fieldwork and the fieldwork of various others) offers little support for classifications Greenberg has made of these Amazonian languages. Specifically, I am going to argue that there are insufficient structural and lexical similarities between Arawan and Chapacuran (and those there are might be

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assume they are hearing Pirahã. This is reinforced by the fact that the Pirahã's pronunciation of even foreign words sounds tonal, leading one even more securely to the false conclusion that what is being uttered is Pirahã. Most of the words which Greenberg wrongly lists as MURAN could probably be explained in this way.

explained as well by areal diffusion, cf. David Payne's 1990 article on areal diffusion and similarities between Carib and Arawak) to warrant classifying both as ARAWAKAN. The number of serious lexical and structural dissimilarities which exist between Arawan and Chapacuran render any degree of genetic relation between the two families quite remote at best, certainly not at the level of the same family as Greenberg (1987, 384) claims. Also, I am going to show that the data used by Greenberg for the classification of MURAN is of very poor quality.

The paper is organized as follows. First, the basic features of the phonology, morphology, and syntax of Arawan are outlined. This is followed by a sketch of the Chapacuran language, Pacaas-Novos (or Wari'), the only one of the Chapacuran languages for which any detailed grammatical study is available (Kern & Everett to appear). The results of these two surveys are then compared in section three. In section four, the MURAN data are evaluated. The conclusion reached is that there is no support for Greenberg's claims. And it is important to notice that this conclusion does not rest merely on the poor quality of Greenberg's data. Even if his data had been flawless and plentiful, a mulitlateral comparison just begins the argumentation, it does not settle the issue. Without the kind of independent argumentation that is common in any science or other area of linguistic theory, Greenberg's conclusions can only be understood as a good place to begin the real work of classification. A caveat is in order before we begin: since the data for some languages of these groups are still sketchy, I will give data from individual languages as it is available, without any attempts at reconstruction.

1. Arawan

1.0. Introduction

The Arawan languages are Madija/Culina, Jarawara, Paumari, Banawá, Jamamadi, and Dení (cf. the references to this paper for a bibliography of the main works). Data are given on both segmental and prosodic phonology on the languages on which it is available.

1.1. Phonology

1.1.1. Segmental Phonology

TABLE ONE:
Banawá Phonemes (Buller & Buller 1986)

Consonants				
	(p)	t		k
	b	d		
	m	n		
	p	s		h
	w	r	y	
Vowels				
	i			u
	e (e^i)	a		

The segment [p] appears exclusively in Portuguese loan words (e.g. **pira** 'battery' - cf. Portuguese pilha).

TABLE TWO:
Jaruara Phonemes (Vogel 1986)

Consonants				
		t		k
	b			
	m	n		
	p	s		h
	w	l	y	
Vowels				
	i			u
	e	a		

TABLE THREE:
Madija Phonemes (Liclan & Marlett 1990)

Consonants				
	p_h	t_h		k_h
	p^h	t^h		k^h
	b	d		
			z	
			č	
			$č^h$	
	m	n		
		r		
Vowels				
	i			o
	e	a		

TABLE FOUR:
Paumari Phonemes (Chapman & Derbyshire to appear)

Consonants				
	p	t_h		k_h
		t^h		k^h
	b	d		g
	'b	'd		
			ǰ	
			č	
	f	s	š	h
	v			
		ř		
		r		
Vowels				
	i			u
		a		

The Arawan phonemic systems are all quite simple. There is very little allophonic variation and little morphophonemic change in any of these languages. In (2) - (10), I list the basic allophonic processes of Banawá, typical of Arawan in general:

(2) /y/ manifests apparently free variation (with only one or two lexical items where the allophone seems to be constant) between the allophones [y], [d^{y}], and [$\check{j}$].
(3) /$\acute{s}$/ is realized as [$\check{c}$] word-initially before /i/ and [$\acute{s}$] elsewhere
(4) /k/ is realized as [k^{w}] before /i/ and as [k] elsewhere.
(5) /?/ is often deleted in utterance-final position.
(6) /ƥ/ is realized as either [ƥ] or [$ƥ^{w}$] before /i/ and as [ƥ] elsewhere.
(7) /r/ is realized as [l] word-initially and as [r] elsewhere (i.e. a voiced alveolar flap).
(8) /a/ is [ɐ] in unstressed syllables, [a] elsewhere.
(9) /i/ is [ɪ] in unstressed syllables, [i] elsewhere.
(10) /u/ is [o] word-initially or before another vowel; [ʊ] in unstressed syllables interconsonantally; [u] elsewhere.

The Paumari and Madija consonantal systems are somewhat more complex than found in the other Arawan languages. The notable features of course being the presence of aspirated stops in both Paumari and Madija and the implosives /'b/, /'d/ and /r/ in Paumari.[9] The vowel systems of all Arawan languages are simple, with a maximum of four, as in Jaruara, Madija, and Banawá.

1.1.2. Prosodic Phonology

1.1.2.1. Syllable structure

The syllable structures for all the Arawan languages is simple: CV and V. This is of course, hardly unique to Arawan languages. Most languages of Northwestern Brazilian Amazonia have similarly simple syllable inventories. One interesting fact that might be worth noting is that for Banawá at least (and I suspect other Arawan languages, but the data are lacking), CV and V must be analyzed as distinct syllable types and not merely a single syllable type with an optional onset. The evidence for this claim comes from stress placement and extraprosodicity (Everett 1990). V-syllables in initial position within the word do not count for the stress placement algorithm but CV syllables do. This is discussed in the next section.

9 Dení also appears to have aspirated phonemes, although the data are not clear at present.

1.1.2.2. Stress Placement

The rule for stress placement in Banawá is:

(11) Banawá Stress Placement

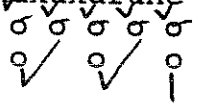
a. $\underset{\sigma}{V}$ ---> extrametrical/#_____

b. Construct left-headed binary trees from left-to-right within the word.[10]

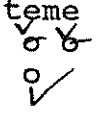
This will correctly stress the words in (12)-(19), as shown in (20)-(27) (__ = stress).

(12) teme 'foot'
(13) nukukurune 'eyeball'
(14) fuana 'lost'
(15) tefe 'food'
(16) Badika 'proper name'
(17) ofabone 'I drink'
(cf. *ofabone if extrametricality does not apply)
(18) ewene 'to pick up'
(cf. *ewene if extrametricality does not apply)
(19) itaboro 'his house'
(cf. *itaboro if extrametricality does not apply)

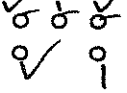
(20) nukukurune



(21) teme

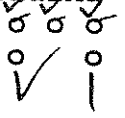


(22) fu a na

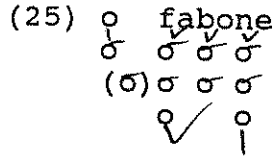


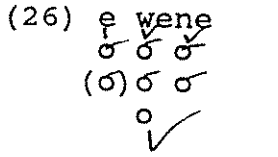
(23) tefe

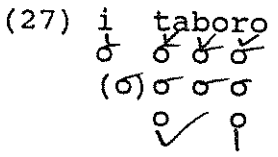
(24) Badika



10 Primary stress is not mentioned here. The algorithm provided accounts only for secondary stresses. Usually, primary stress is heard on the penultimate syllable of the word. However, there are numerous exceptions to this requiring further study.

(25) 

(26) 

(27) 

This very simple alternating stress pattern seems to hold true for all Arawan languages, although some details may differ (e.g. where heads of stress feet go and in what direction the feet are constructed). The rule of extrametricality is obviously crucial for Banawá, but its relevance for other Arawan languages is not known at this time.[11]

1.1.2.3. Minimality

Arawan languages impose a Minimal Word Constraint (cf. McCarthy & Prince forthcoming on the general notion of prosodic minimality and Everett 1990 on minimality in Banawá), limiting isolated words to a minimum of two syllables (i.e., since the largest foot is binary - it contains no more than two syllables - the minimal word is the maximal foot). This can be illustrated for Banawá in (i) the absence of words smaller than two syllables, as in (28), and (ii) in the failure of extrametricality to apply to bisyllabic words, (29):

(28) *fa, *u, *ka, etc.
(29) a. aba 'fish' (cf. *aba, the form predicted by extrametricality)
b. ide[1] 'he spears' (cf. *ide[i], the form predicted by extrametricality)

In Everett 1990, it is argued that forms like (29) and the absence of words like those in (28) must be understood as evidence that Banawá and some of the other Arawan languages (at least Jamamadi and Jaruara) require that all surface forms of words be at least two syllables in length, i.e. that they allow construction of at least one stress foot. These facts may or may not have relevance for classificatory purposes. It is, after all, very easy to provoke apparently drastic changes in superficial prosodic

11 Everett 1990 is the first in-depth analysis of stress in any Arawan language.

patterns through minor value-changes for settings of the underlying prosodic parameters (e.g. headedness, quantity, and directionality of prosodic constituents). Nevertheless, there are indeed some very clear identifying features of Arawan phonology which must be taken into consideration by any typological or comparative work.[12]

1.2. Morphology

1.2.1. Gender

The gender agreement system is fairly uniform throughout Arawan (although there are some very interesting differences from a synchronic perspective which are orthogonal to the classification of Arawan vis-a-vis Chapacuran). The verb agrees in gender with the ABSOLUTIVE NP, i.e. the subject of an intransitive verb or the object of a transitive verb. Gender agreement is marked by a suffix on the auxiliary if there is one, otherwise on the verb:

Madija (Adams 1987,7):

(30) a. tocca -jari 'He went.'
go -IMPERFECTIVE:MAS
b. tocca-jaro 'She went.'
go -IMPERFECTIVE:FEM

Paumari (Chapman & Derbyshire (to appear: 97, 131))

(31) voroni-'i -hi ida kidi-hado
fall -ASPECT-THEME:FEM DEM:FEM his-knife:FEM
'His knife fell.'

(32) dono-a bi -ko'diraha -'a -ha ada
Dono-erg 3SG-pinch -ASPECT-THEME:MAS DEM:MAS
isai hoariha
child:MAS other
'Dono pinched the other boy.'

Jaruara (Vogel 1989,3-33)

(33) Aba me atari me sowe nine -ke
fish PL scales:FEM 3PL remove AUX(iliary)-DECL:FEM
'They are scaling the fish.'

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12 The discussion of primary stress in Paumari found in Chapman & Derbyshire 1990 (192ff) is inconclusive. While it is compatible with the analysis of Banawá primary stress, for example (although as pointed out in Everett 1990, primary stress is more difficult to determine in Arawan than secondary stress), the authors fail to discuss whether there are secondary stresses in the language. This is crucial for intra-Arawan comparisons and reconstruction.

(34) Sire tofiyo-ke
cold spell:FEM end -DECL:FEM
'The cold spell is ending.'

Dení (Koop 1981,255)

(35) Ø -zapani kuma-ru
3SG:MAS-hand:FEM hurt-NOFOC:MAS
'His hand hurts.'
(36) tu -kha -miti -nava
3S:FEM-move-ITERATIVE:FEM-PROG
'She returned.'

According to Koop (1981,13), gender agreement in transitive clauses in Dení is with the object when the subject is first or second person. When the subject is third person, however, gender agreement is with the subject:

(37) pashu u -pavi -hi
water:FEM 1S:MAS-drink-FEM
'I drink water.'
(38) a. anubeza hibu -hibu -tu -ni
wild pig carry-carry-3S:FEM-verb class
mura -hi
climb-DISTR:FEM
'He carried the wild pig up the incline/hill.'

b. anubeza hibu -hibu -da -ni
wild pig carry-carry-1S:FEM-verb class
mura -ha
climb-DISTR:MAS
'I(FEM) carried the wild pig up the incline/hill.'

Verb endings for Dení showing gender (labels are from Koop 1981, 10):[13]

13 Koop (1981) is the only source to actually list all of the various verbal suffixes which inflect for gender.

TABLE FIVE
DENI ASPECTUAL VERB ENDINGS SHOWING GENDER

GENDER		ASPECT
FEM	MAS	
-ru	-ri	Non-focus
-ni	-vi	perfective
-hi	-ha	distributive
-puni	-puvi	simultaneous/non-competitive
-nipe?eni	-vipe?i	simultaneous/competitive
-nava	-	progressive[14]
-rarube	-rariba	completive
-raruha	-rariha	non-completive[15]

TABLE SIX
DENI DERIVATIONAL ENDINGS SHOWING GENDER

GENDER		
FEM	MAS	
-?a		Immediate sequence subordinator
-za		General sequences Subordinator
-nava		Adversative conjunction suffix
-zape	-zapa	Hypothetical condition subordinator
-nizape	-nazapa	Reason subordinator

TABLE SEVEN
DENI MOOD ENDINGS SHOWING GENDER

GENDER		MOOD
FEM	MAS	
-hi	-ha	Specific question
-ki	-ku	Alternative question[16]
-ta?i	-ta?u	Contra-desiderative
-ra?i	-ra?u	Desiderative

Jamamadi (Campbell 1985,133)

(39) Yana awa-bono koro -hi -wite habi
John:MAS tree-fruit:FEM threw-agent-away:FEM happy:FEM
kaba-ra
eat:FEM-OBJECT MARKER
'Happy (a dog's name) ate the fruit that was thrown away by John.'

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14 Progressive aspect lacks a masculine ending, although Koop does not explain why.

15 Koop refers to these as 'previous time' and 'subsequent time', respectively. However, since Arawan lacks tense (and G. Koop also claims this (G. Koop 1981)), I have glossed these as 'completive', 'non-completive.'

16 I do not fully understand what Koop intends with these labels.

In this example, gender is represented on the verb root, according to Campbell (1985,160) . However, it is most often marked by a suffix, as in (40):

(40) wati bono tii -ni oda hawa -to -ni
arrow:MAS shaft:MAS cutting-nom we:FEM finish-state-MAS
'The arrow-shaft cutting was finished by us.'

Campbell (1985,160) argues that the agreement pattern in (40) requires us to treat this as an example of passivization, since she claims that gender agreement is with the subject. However, it would seem to me to follow straightforwardly, without passivization, if gender agreement in Jamamadi is like other Arawan languages and governed by the absolutive NP (**wati bono** 'arrow shaft'). Therefore, I do not interpret this structure as evidence for a passive in Jamamadi (although there might be other evidence I am not aware of).

Banawá (Buller & Buller 1986)

(41) badi mosiri tii nei -bone
Badi:MAS grass cut AUX:MAS-INTENT
'Badi will cut the grass.'

(42) fana foa widi tii na
woman:FEM manioc:FEM tip:FEM cut AUX:FEM
'The woman is cutting off the tips of the manioc.'

Gender may also be marked within the noun phrase. In this case, the head noun is marked by suffixation to agree in gender with the possessor:

Madija (Adams 1987,10)
(43) a. biji 'His arm'
arm
b. biji-ni 'Her arm'
arm -fem
c. biji-ni dení 'Their arms'
arm -fem 3PL

Gender agreement is also governed on the determiner (or DEM(onstrative)). Gender-marking on the determiner in Madija is different from the pattern found in most other Arawan languages (where gender is shown by the selection of the masculine or feminine stem of the demonstrative, and not by suffixation). The forms for the demonstrative in Madija are suffixed with either **-jari** or **-jaro**:

(44) a. na-jari 'That one' (mas)
b. na-jaro 'That one' (fem)

Paumari

Gender in the Paumari noun phrase is indicated by the choice of determiner - **ada** 'masculine demonstrative' and **ida** 'feminine demonstrative' - or on the adjective by suffixation. Note that the determiner agrees with the head noun in alienable possession structures, (45a), and with the possessor in inalienable structures, (45b) (see also section 1.2.2. below):

Demonstrative

(45) a. ida kidi-hado
DEM:FEM his-knife:FEM
'His knife.'
b. ada kidi-mai'da
DEM:MAS his-comb:FEM

Dení

Available data indicates that noun phrase-internal gender agreement in Banawá, Jamamadi, and Jaruara, all follow the pattern seen in Dení and Paumari with few differences, principally in the phonological forms of suffixes and demonstratives. In Dení (Koop 1981), as in these other languages, verbs may occasionally function as adjectives. When they do, they take the PERF(ective) suffix, which is inflected for gender:[17]

(46) badu maku-vi
deer:MAS red -PERF:MAS
'(The) deer (is) red.' OR '(The) red deer.'
(47) shami hada-ni
pineapple:FEM ripe-PERF:FEM
'(The) pineapple (is) ripe.' OR '(The) ripe pineapple.'

Demonstratives

	FEM	MAS
(48)	aru	ari
	paru	pari
	akharu	akhari

1.2.2. Possession

Possession in Arawan is interesting in that in all the Arawan languages, except Paumari, when the head noun of the noun phrase is inalienably possessed, the head noun and the verb agree with the gender of the possessor. In alienable possession structures, gender agreement in the noun phrase

17 Vogel (1989, 13) discusses the classification of nouns by gender in Jaruara and compares this with data from Paumari and Madija. He demonstrates that even though the meaning and phonological form of a word may be (nearly) identical in more than one of the Arawan languages, the gender assigned to a word may vary from language to language.

and on the verb is with the head noun. In Paumari (Chapman & Derbyshire to appear, 100) the head noun agrees with the possessor in inalienable possession structures, but the verb and the demonstrative agree with the head noun (see also (45) above):

Paumari:

(49) o -raba -?a -ha ada maria jora -ni
1S-weave-ASP-THEME:MAS DEM:MAS name:FEM mat:MAS-FEM
'I wove Mary's sleeping mat.'

In example (49), the possessed noun **jora-ni** 'mat' agrees in gender with the possessor 'Mary', while the demonstrative **ada** and the verb agree in gender with **jora** 'mat.' Compare this with the pattern in Jaruara:[18]

Jaruara: Alienable Possession: (Vogel 1989,21-23)

(50) wero ka farina ama-ke
Wero(name):MAS POSS cassava meal:FEM be-DECL:FEM
'It's Wero's cassava meal.'

(51) oko yifo sibi to-ka -na -ka
1S:POSS:FEM hammock:MAS tear 3S-SIG.OTH -AUX-DECL:MAS[19]
'My hammock is torn.'

(52) rosira bati sawi-re -bona -ka
name:FEM father:MAS come-NEG:MAS-INTENT:MAS-DECL:MAS
'Rosira's father won't come.'

Jaruara: Inalienable Possession: (Vogel 1989, 22)

(53) okomobi moni ama-ka
name:MAS sound:FEM be -DECL:MAS
'It's the sound of Okomobi.'
(54) hinabori moni ama-ke
name:FEM sound:FEM be -DECL:FEM
'It's the sound of Hinabori.'

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18 Unfortunately, transitive examples are lacking from the data, making it impossible to illustrate that gender agreement with the object noun phrase will be with the possessor in inalienably possessed phrases.

19 I do not understand what Vogel (1989,21) means by the gloss 'significant other', here abbreviated as SIG.OTH.

1.2.3. Person and Number Agreement

In all Arawan languages, person agreement follows a nominative/accusative pattern - it is always with the subject, whether the verb is transitive or intransitive. The most common forms for the prefixes in the singular are:**o-** '1S' , **(t)i-** '2S', **Ø-/i-/to-** '3S'. Plural forms show greater variation and are therefore not listed.

1.2.4. Valence-Changing Morphology

Adams (1987) discusses several valence-changing constructions for Madija: causative, impersonal passive, antipassive, and reflexive/reciprocal. Chapman & Derbyshire (to appear) discuss passive, reflexive/reciprocal, and causative for Paumari. Campbell 1985 mentions a passive construction for Jamamadi. Little is known about valence alternations in the other Arawan languages, although given the similarity among the languages on so many points, I suspect that all will have causative and a passive of some sort.

1.2.5. Tense

Arawan languages in general seem to lack any clearly identifiable tense-marking affixes. They manifest a variety of aspectual affixes (cf. table four above), including completive, continuous, iterative, and durative. It is difficult to compare here, since there is as yet no standardized terminology among Arawan specialists and because in most of these languages morphosyntactic analysis is still in the initial stages.

1.3. Syntax - Underlying Word Order

In running texts, the basic word order for Arawan is **OSV**. However, there are frequently exceptions to this pattern. The only language in which **OSV** does not appear to be the most common order is Madija. Adams (1987,19) argues that the "basic order" in Madija is **SOV**, although **OSV** is one of several other allowed orders. However, I believe that it is most likely that the underlying word order of these languages is **SOV**. The primary evidence for this comes from anaphoric facts. In all of the Arawan languages, in the reflexive/reciprocal construction the reflexive/reciprocal morpheme must appear adjacent to the verb, whether or not it is an affix (cf. Paumari, where the reflexive morpheme is an independent word **abonoi** 'self' (Chapman & Derbyshire to appear,19)). This would seem to indicate that these languages do have a verb phrase, if we assume a configurational theory of reciprocals and reflexives, along the lines of Chomsky 1986 (cf. Everett 1989 on reflexives in the Amazonian language, Yagua). And the most likely underlying order which would account for all of the anaphoric and typological facts of Arawan is **SOV**. However, this is still merely a hypothesis.

1.4. Lexicon

The following list of words is taken from Vogel (1989, 13. Note: orthographic representations are given):

	Jaruara	Madija	Paumari
AGOUTI:	sinama	ssinama	
LARGE ANIMAL(gen):	bani	bani	
ANTEATER:	moto	modo	
BAT:	mase biri		masi
BOW:	titisa	ssissite	
COATI:	yotomi	dsotomi	
DEER:	bato	bado	
EARTH:	wami		nami
ELECTRIC EEL:	imati	minati	mina?di
FIRE:	yifo	dsippo	
FISH(gen):	aba	aba	aba isana
FOOD:	yamata	dsamatapa	
FROG:	korakaka	torocaca	
HAWK:	sibiri	sibiri	sabira
JAGUAR:	yome	dsomaji	jomahi hiihiha
KINGFISHER:	kere	qqere	
LOUSE:	kamãti	camati	kamã?i
MONKEY:	yowi	dsohuiji	
MOON:	abariko	adasico	masiko
OTTER:	sabira	ssabira	saba?o
PECCARY:	kobaya	anobedse	
PORCUPINE:	misa	misse	
RAT:	awa yapi	dsapi	
SKY:	neme	meme	nama
SLOTH:	yao	dsaho	
SNAKE(gen):	maka	macca	makha
SPIDER(gen):	wanakori	huanaconi	
STAR:	amowa	amohua	
STINGRAY:	bote	botani	?bo?dani
SUN:	bahi	maji	
TAPIR:	awi	ahui	
TORTOISE:	kowa	cahue	
TOUCAN:	yaki	dsaqqui	
TREE(gen):	awa	ahua	ava
WATER:	paha		paha
WEASEL:	sawa	sahua	nami saba?oni
WOODPECKER:	koka	coca	kokajori
WORM:	somi	ssomi	daomi

2. Chapacuran

2.1. Phonology

2.1.1. Segmental Phonology

The phonemes of Pacaas-Novos are as given in TABLE EIGHT:

TABLE EIGHT
Pacaas-Novos Phonemes[20]

Consonants

p	t		k	?
b				
m	n			
		š(x)		h
(b)	r			
w		y(j)		

Vowels

i	ɨ(ü)		
e	ɵ(ö)		o
	a		

Major Allophonic Processes:
(56) All voiceless stops are unreleased in word-final position
(57) Free variation between [š] and [č], orthographic '**x**'.
(58) /?/ is inserted before all word-initial vowels and before consonants in many monosyllables.
(59) Nasals /m/ and /n/ show variation (apparently freely) between [mb] and [m] and [nb] and [n] in syllable-initial position. This variation is less frequent before the vowel /a/ than before other vowels and is most frequent in tonic syllables.
(60) /r/ is always realized as a voiced alveolar flap.
(61) /b/ is found very rarely.
(62) /y/ shows variation between [y] and [ž]. [ž] is more common in tonic syllables.
(63) The sequence [?y] varies with [ǰ] in words with emphatic stress.
(64) Sequences of /huV/ or /kuV/ are realized as [h^{w}V] and [k^{w}V] (written orthographically as '**hwV**' and '**kwV**', respectively.
(65) /e/ is realized as [ɛ] in closed syllables and as [e] elsewhere.
(66) /o/ shows free variation between [o] and [ʊ] in atonic syllables and is realized as [o] elsewhere.

2.1.2. Prosodic Phonology
2.1.2.1. Syllable Structure

Syllable structure in Pacaas-Novos is CV, V, and CVC. The phonemes /s/, /h/, /r/, /b/, /w/, and /y/ are restricted to syllable-initial position.

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20 Orthography is indicated in parentheses when it deviates from standard symbols, as given outside of parentheses.

2.1.2.2. Stress

Word stress is always placed on the last syllable of the word. There do not appear to be secondary stresses within the word, but that is not certain at present. Phrasal stress is placed on the nucleus of the phrase (__ = phrasal stress; _ = word stress).

(67) [h^{W}iyi?ma?] 'children'
(68) mi? na-pari pain[21]
give 3S-1PINCL:R(ealis) P(ast)/P(resent) to:3SNEUT ka
ca tomi? kerek te wa
INFL:NEUT:RP/P speak see father NOM
ka?
this:NEUT:PROX(imate)
'He gives us happiness' (This is an idiom.)

2.2. Morphology
2.2.1. Gender
2.2.1.1. Noun Phrase

Pacaas-Novos distinguishes three genders, masculine, feminine, and neuter. Neuter is used for inanimate objects, loan words, and for agreement with clausal arguments. Only words referring to female humans belong to the feminine class. However, in any mixed group of humans which includes females, feminine gender is used. Also, collective terms for humans such as **hwiyi?ma?** 'children' are feminine in gender. As in Arawan, gender is not marked on the head noun itself but on the possessor or the adjective. There is never any gender agreement of the head noun governed by the possessor as in Arawan:

(69) kapija -in wao?
mouth -3S:NEUT basket:NEUT
'mouth or rim of basket'
(70) kapija -kam narima?
mouth -3S:FEM woman:FEM
'woman's mouth'
(71) kapija -kon wom
mouth -3S:MAS cotton:MAS
'hem of the skirt' (literally, 'mouth of cotton')
(72) wao? ka?
basket:NEUT dem:NEUT:PROX
'this basket'
(73) wom k^{W}a?
cotton dem:MAS/FEM:PROX
'this item of clothing/cotton'
(74) narima? k^{W}a?
'this woman'

21 Words without stress are clitics.

2.2.1.2. Verb Phrase

In all of the Pacaas-Novos examples in which a verb is included, gender agreement with the subject and object is found. See section 2.4. also.

2.2.2. Possession

Inalienable possession is marked in Pacaas-Novos by a possessive suffix and often a different form of the root morpheme. The citation form of an inalienably possessed noun in Pacaas-Novos is suffixed with **-xi** '1PL'. See the vocabulary list below for examples. In general, inalienable possession is limited to body parts, kinship terms, and a few cultural items. Again, there is no alternation in the gender agreement pattern between inalienable and alienable possession as in Arawan.

2.2.3. Person and Number Agreement

See section 2.4. and table eleven below for a discussion and listing of verbal inflection morphemes in Pacaas-Novos. Person and number agreement by affixation is always with the nominative, accusative, and some oblique noun phrases (i.e. the "terms", 1, 2, 3, of Relational Grammar).[22] The pattern of "fusing" gender, person, and number agreement in a single morpheme, with agreement always with the nominative NP, is quite unlike Arawan.

2.3.4. Valence-Changing Operations

Pacaas-Novos also has causative and passive constructions. The passive morphemes are given in table twelve below. The use of a nonactive verbal inflection morpheme renders the clause passive.

2.2.5. Tense

Pacaas-Novos does have a tense system which is reflected in the verbal inflection morphemes (cf. below). It distinguishes (obligatorily in the indicative mood) past/present from future. Tense distinctions are not shown in the irrealis mood (cf. the tables below). The Pacaas-Novos tense system is richer than that found in most Arawakan languages (cf. Derbyshire 1986 and Wise 1986) and is certainly much more developed than that found in Arawan, which appears to lack tense generally.

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22 However, Kern & Everett discuss several verb roots with suppletive plural forms which seem to agree in number with the absolutive noun phrase (in the sense defined for Arawan). That is, the plural form is selected when the object or intransitive subject is plural. Otherwise, the singular root form is used. But this analysis is not yet complete.

2.3. Syntax - Underlying Word Order[23]

Underlying word order in Pacaas-Novos is **VOS** for simple transitive clauses (those with subject and direct object only, VS for intransitive clauses, and VO_1O_2S for ditransitive clauses, where O_1 must be the direct object and O_2 must be the indirect object. In the latter type of clause, verbal agreement will be with O_2, not with O_1. O_1 (the logical or "underlying" direct object) will be preceded by a preposition inflected for person, number, and gender.

(75) mi? pin na nonon jimon
nana-on
give completely 3SRP/P 3P -3SMAS:RP/P name:MAS
'They say that Jimon died (literally, gave completely)'

(76) kep na-in xirim te pane
do 3S-3SNEUT:RP/P house 1S:father remote:past
te
completive
'My father made a house long ago.'

(77) mi? nonon kon h^{w}am h^{w}ijima? mon
nana-okon
give 3P-3PMAS:RP/P 3SMAS:prep fish children collective
tarama?
man
'The men gave the children fish.'

2.4. Lexicon

I will provide more extensive documentation of Pacaas-Novos lexical items than was provided for Arawan, since there is very little available on Chapacuran in general, and almost nothing on Pacaas-Novos, apart from Kern & Everett to appear. Checking these words against Greenberg's (1987, 83ff) list of EQUATORIAL etymologies, I find insufficient similarity to warrant classifying Pacaas-Novos/Chapacuran and Arawan as members of the same subgroup, certainly not at the level of the same family as Greenberg proposes.

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23 I use this term rather than "basic word order", because basic word order is inherently ambiguous between pragmatically unmarked and what generative linguists consider D-structure. I am going to "bite the bullet" here and make a claim on the D-structure of Pacaas-Novos (and the usefulness of that construct for understanding this language). See Kern & Everett to appear for argumentation and further discussion.

Pacaas-Novos Values for Greenberg's "Etymologies"[24]

ABOVE: **tamaxi?** 'top of our head' or **pawin** 'sky, height'
ALL: **xam?**
ARM: **taparaxi?** (**tapan**)[25]
BACK: **hopajixi?** 'lower back', **xonexi?** 'upper back', **waraxi?** 'back'
BAD: **kaji?** 'strangeness', **em?** 'be badly made', **to? ara, xirak** 'do badly'
BELLY: **monoxi?**
BITE: **kio, xok** 'suck' (as of mosquito)
BLACK: **mixem**
BLADDER: **xirinain torexi?** (literally, 'house of our urine')
BLOOD: **kixi?** (**wik**)
BONE: **araxi?**
BROTHER: **taramajixi?** (**taramaju**)
BURN: **tom, wiram**
COLD: **kapin?** (of a person), **xio** (of an non-human object)
DAY: **xek**
EAR: **tarajixi?** (**tara?**)
EAT: **kao?, kakakao?**
EGG: **arajein**
EYE: **tokoxi?** (**tok**)
FAT/GREASE: **homain**
FEATHER: **tenenein** (**moronakon** 'down')
FIRE: **xe** (**xajixi?**)
FISH: **h^{w}am**
GOOD: **awi**
GRANDMOTHER: **pa?** (maternal), **jeo?** (paternal)
GRASS: **tononoin**
GUTS (intestines): **monoxi?** (**mon**)
HAIR: **tenenexi?** (**xun**)
HAND: **mixi?, (um?)**
HEAD: **winaxi?** (**waji?**)
HEAR: **taraju**
HEAVEN: **nanawin** 'sky', **pawin** 'the heights'
HEAVY: **xite, ta?man, te?man**
KNEE: **karamaxi?** (**karam**)
LAKE: **xuterem?**
LAUGH: **tatam?, kakam?**
LEG: **araxi?** (**at**) 'leg bone', **pixijaxi?** 'lower leg', **kokoxi?** 'upper leg'
LIVER: **tarawanaxi?** (**tarawan**)
LONG: **matam**
LOUSE: **io?**

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24 See also Crequi-Montfort and Rivet 1913 for vocabulary items from Chapacura, Kitemoka, Napeka, Itene, Pawumwa, Mure, and Rokorona. Thanks to Terry Kaufman for pointing this source out to me.

25 Forms in parentheses are the less commonly used forms.

MAN: **tarama?**
MANY: **iri?, mijo, mija**
MOON: **panawo?**
MOUTH: **kapijaxi? (topak)**
OLD: **mara?, horon**
RAIN: **xowi?**
RIVER: **kom** 'water'
SMALL: **wijamain**
SMELL: **nak**
SMOKE: **tain?**
SNAKE: **em?**
STONE: **pakun (pacorixi?)**
SUN: **xina**
TAIL: **kah^{w}erein**
THROAT: **kanemexi? (kanom)**
TOOTH: **xixi? (jat)**
TREE/WOOD: **pana**
VAGINA: **manaxi?** (literally, 'our hole')
VEIN: **karapitaxi?**
WATER: **kom**
WING: **tapaxi**
WOMAN: **narima?**
WORM: **mete?**
YELLOW: **koxik**

TABLE NINE
PACAAS-NOVOS PRONOMINALS

The following forms are not free forms but are clitics (usually proclitics; cf. Kern & Everett to appear):

No First or Second Person forms.
ko '3SMAS'
kam '3SFEM'
i '3SNEUT'
karam '3PL'

TABLE TEN:
FREE-FORM EMPHATIC PRONOUNS(p26)

wata'	'1S'
wum	'2S'
wiriko	'3SMAS'
wirikam	'3SFEM'
je	'3NEUT'[26]
wari'	'1PLINCL'
warut	'1PLEXCL'
wahu'	'2PL'
wirikoko	'3PLMAS'
wirikakam	'3PLFEM'

TABLE ELEVEN
VERBAL INFLECTIONAL MORPHEMES[27]
ACTIVE SET

	CLASS ONE			CLASS TWO	OBJECT SUFFIXES
	realis past/pres	realis fut	irrealis		
1S	ina	ta'	xita'	ta'	pa'
2S	ma	ra	xima	ma	-em (pum)
3S	na	tara	xira	ka (MAS)	-on (kon)
				kamã (FEM)	-m (kam)
				ne (NEUT)	-in (pain)
1PINCL	iri'	xi'	xixi'	xi'/iri'	pari'
1PEXCL	urut	xut	xuxut	xut/urut	parut
2P	hwe	je	xihwe	hwe	-uhu' (pahu')
3P	nana	tatara	xirara	kaka (MAS)	-okon (kokon)
				kakamã (FEM)	-akam (kakam)

26 Again, no distinction for number is made with neuter forms.

27 Selection of the proper class is dependent on mood and type of the sentence. I will not go into this here, but the reader is referred to Kern & Everett to appear and Everett in progress for more details. Class one and class two refer to subject proclitics. The parenthesized forms are forms used for direct objects when indirect object is present. The direct object is "demoted." See section on word order.

TABLE TWELVE
NONACTIVE SET

	PASSIVE CLASS ONE	PASSIVE CLASS 2	REFLEXIVE/RECIPROCAL
1S	xita	xita	xije
2S	xima	xima	xijem
3S	ta	tokwa (MAS)	xukun (MAS)
		takamã (FEM)	xekem (FEM)
		xine (NEUT)	xijein (NEUT)
1PINCL	Ø	Ø	xijexi'
1PEXCL	Ø	Ø	xujuxut
2P	xihwe	xihwe	xujuhu'
3P	tata	tokokwa (MAS)	xukukun (MAS)
		takakamã (FEM)	xekekem (FEM)

3. Conclusions

3.1. Lexical Evidence for an Arawan-Chapacuran Connection

The lexical evidence clearly supports Loukotka's (1968, 162) classification of Pacaas-Novos as belonging to that branch of the Chapacuran family which includes Abitana, Kumana, Urupa, Yaru, and Torá.[28] However, I cannot find sufficient evidence in Greenberg's "etymologies" and the data presented above to warrant the classification that Greenberg suggests, even based on "multilateral comparisons", of Arawan and Chapacuran in the same ARAWAKAN family. It is not clear to me that there is even enough lexical evidence to warrant placing them in the same subgroup.

3.2. Structural Evidence

These languages are alike in that all have gender. One might reasonably argue that this and other gross grammatical similarities between Arawan and Chapacuran warrant keeping the "EQUATORIAL" option open for future investigation, although certainly not the ARAWAKAN classification of Chapacuran.[29] However, it is not immediately apparent that

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28 The Torá are alive and well and living on the Maici river. However, they no longer speak Torá but are now monolingual in Pirahã, which they have adopted as their native language. The Torá are completely integrated into Pirahã culture, although their Brazil nut groves and rainy-season home sites are separate from the Pirahã groves and village sites. In the dry season, however, they freely intermingling with the Pirahã. In fact, although in hindsight I can recognize several physical dissimilarities between the Torá and the Pirahã, I only learned that certain individuals were actually Torá after about five years of field work.

29 Nor even, perhaps Arawan. Based on the data I have presented here and that others have presented elsewhere, it is not even clear that Arawan is a subdivision of ARAWAKAN.

the three-gender system in Pacaas-Novos is related to the two-gender Arawakan/Arawan systems. There are a number of differences between these different systems, such as their interactions with inalienable possession, absolutive vs. nominative "trigger" for gender agreement, separate systems in Arawan for number/person and gender vs. the same system for number, person, and gender in Pacaas-Novos, which lead me to conclude that the mere existence of gender in the two groups does not warrant concluding that they all belong to Greenberg's ARAWAKAN. Word order, affix class differences (as listed in the various tables), tense, obligatory "promotion" of indirect object and "demotion" of direct object in Pacaas-Novos ditransitive clauses, etc. (cf. Kern & Everett to appear for more details) also indicate some fundamental differences in the grammars of Chapacuran and Arawan. However, as noted at the outset of this paper, these might turn out on further study to reflect relatively minor adjustments in values for a small set of parameters, which could have occurred over a short period of time and thus these might not represent significant obstacles to establishing a relationship between Arawan and Chapacuran. For the moment, however, the conclusion of this study must be a disappointing one, although perhaps not unexpected. There simply is not sufficient evidence available to warrant either Greenberg's proposed genetic classification of Arawan and Chapacuran nor an outright rejection of any relationship at all (so perhaps they might turn out to belong to the same EQUATORIAL subgroup, although I am not at all sure that I understand what this grouping actually means). Based on the above findings, however, it seems highly unlikely that Arawan and Chapacuran both belong to ARAWAKAN, as suggested by Greenberg.

4.0 A Discussion of Data Used by Greenberg In the Classification of MURAN as CHIBCHAN-PAEZAN[30]

This section begins by a simple listing and word-by-word discussion of Greenberg's data on MURAN. It concludes with a discussion of the implications of these facts for the LIA classification.

The LIA Word List for MURAN

(> means that the form is **in**correct; **Ø** means that Greenberg lists nothing from MURAN)

1. ANT: **ibohu** cf. Pirahã **?ibobiihi**
2. ARM: **apixi** (p184) cf. Pirahã **?apisí**
3. ARROW: Ø(cf. **kani**, **karu**, etc. in other C-P lgs.)
   Greenberg has nothing from MURAN listed here, but cf.

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30 Unnumbered examples are found by beginning on page 108 of Greenberg and following in alphabetical order.

Pirahã **kahaí** 'arrow.'

> 4. BLACK: **torupi** 'shadow' This is unlikely. The Pirahã word is **?opísi** 'shadow'; **kopaíai** 'black.'

5. BLOOD: **be** (p196) cf Pirahã **bii**

> 6. BROTHER: **upi**, **opi** (p200, Matanawï) This is unlikely. It is a common proper name in Pirahã. The term for brother is **?ahaigí**.

> 7. CLOUD: **pe** (p206) This is the word for water. cf. Pirahã **hoá?aí** 'cloud.'

> 8. COME: **abe** 'let's go' This means 'to stay', not 'let's go'. cf. Pirahã **ka?áo** 'let's go.'

> 9. DEER: **manho** This is not a possible word for any MURAN language. But cf. Pirahã **baitói** 'deer.'

10. DRINK: **isi** This is a valid word, but it means 'juice'; cf. Pirahã **?ísi**

> 11. DRY: **pe(-ase)** (p198) This is wrong. The **pe-ase** (cf. Pirahã **piáiso**) here actually means 'low water', the expression used also to refer to summer (the time when the water is low). Alternatively, it means 'empty of water'. cf. Pirahã **?así** 'dry, empty' (**kabogáo ?así ?ai** 'the barrel is empty.').

12. EARTH: **bere** cf. Pirahã **bigí**. Everett 1980 demonstrates that Pirahã /g/ comes from Proto-MURAN ***d**, as does /**r**/ in Mura.

13. FAR: **Ø** (cf. Pirahã **kaó**) (p241)

> 14. FEATHER: **jaa** This is not a possible MURAN word. cf. Pirahã **taí**:

?isi-taí	**?ii-taí**	**?apisi-taí**	**?apai-taí**	etc.
animal-**taí**	wood-**taí**	arm-**taí**	head-**taí**	
'fur/feather'	'leaf'	'arm hair'	'head hair'	

15. FLY(v): **ipoai** 'wing' (p220) cf. Pirahã **?ipóai** 'wing'

> 16. FLY(n): **abari** (p223) cf. Pirahã **?iípai** 'fly'. The word here is in fact the word for 'toucan', cf. Pirahã **?abagi**.

> 17. GO: **ami** (p226) This means to stay, cf. Pirahã **?abí-**. 'To go' is **hoí-** or **?opí-**

> 18. GOOD: **amori**, **amuri** (p228) This is most likely a word from the Lingua Geral. cf. Pirahã **báa?aí** 'good.'

19. HOUSE: **ataj** (p235) This is a type of straw used in making temporary houses (note that the last three letters **taj** are actually the suffix **taí** - cf. above. It may also be used to refer to a house made of such material. cf. Pirahã **?ai-taí**).

> 20. LIVER/HEART: **misi-ta** (p240, Matanawï) This is quite unlikely. cf. Pirahã **?ibíoí** 'liver.'

21. LARGE: **uri** (p241) cf. Pirahã **?ogí**

> 22. LOUSE: **isi, isi, iso** 'flea' (p241). cf. Pirahã, **tihíihí** 'louse'.

> 23. KILL: **batai**. This is most likely a corruption of the Portuguese word **matar** 'to kill.' cf. Pirahã **?ibáboí** 'to arrow.'

24. MAKE: **Ø** cf. Pirahã **kai**

> 25. NIGHT: **jamaru** (p247, Matanawï) This is also quite

unlikely. cf. Pirahã **?ahoá** 'night.'

26. OLD: **ø** cf. Pirahã **toio(-?aagá)**
27. SEED: **iobai** 'flower' cf. Pirahã **?aobái**
> 28. SIDE: **kisi** 'rib' This just means 'food' or 'meat' (of humans or animals); cf. Pirahã **?ai** 'bone.'
> 29. TWO: **mukui** (p264) This is just a word from the Lingua Geral (**mokoi**). cf. Pirahã **hoí** 'two' or 'few.'
30. THREE: **ø** cf. Pirahã **máa(giso)** 'many this'
> 31. THUNDER: **api** (Matanawï), **pia** (Mura) cf. Pirahã **?aópí** 'angry' (**pii ?aópí-koí** 'the water's angry' - a common expression for thunder)
32. VAGINA: **sa** ?(I do not know if this is correct; there are many "slang terms")
33. WATER: **pe, ape** (p265, Mura and Matanawï) cf. Pirahã **pii**
> 34. WAX: **mawi** 'bee' cf. Pirahã **?ibií** 'bee' and **?áitatii** 'wax.' This word is unlikely and violates MURAN syllable structure
35. WOOD: **ii/iji, ie, i,** (p268, Mura, Matanawï, Pirahã) The actual form for Pirahã is **?ií**
> 36. YELLOW: **toma** (p270, Matanawï). This is not likely. cf. Pirahã **?ahoasai** 'green, yellow' or **biísai** 'red, yellow' (depending on shade/hue)

Out of thirty six words that Greenberg used (I am giving him credit for the ones I added as well), nineteen, i.e. **HALF** are wrong! This leaves seventeen words from all the MURAN languages documented to justify classifying MURAN as CHIBCHAN-PAEZAN. Of these, only **pii** 'water', **bii** 'blood', **?ísi** 'juice', **?iobái** 'flower', and **?ií** 'wood' really are like other CHIBCHAN-PAEZAN languages in sound and meaning (in my opinion at least). And **?ií** 'wood' is also like the Hokan and Tucanoan forms for 'wood.' This leaves only four words that can actually be considered relevant for classification. But three of these are only four or less segments in length. Now, languages of the Muran family have very small phonemic inventories (Pirahã's three vowels and eight consonants is one of the smallest inventories ever registered). So, finding two very short words that sound like words from another family can more easily be ascribed to coincidence than genetic affiliation. Surely, the remaining word **?aobái** 'flower' cannot by itself justify any classification at all. Remember that these data were available before Language in the Americas was published. Greenberg's classification of MURAN then must be set aside as mere speculation based on data of poor quality which he never bothered to check.

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