

A GENETIC COMPARISON OF HUA, AWA AND BINUMARIEN

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1. INTRODUCTION

In this paper, a comparison is made of three Papuan languages of the Eastern Highlands of New Guinea, namely, Hua, Awa and Binumarien. Of these three languages, one, i.e. Hua, a Yagaria dialect (Haiman, 1980), is a member of the East-Central family of the Eastern Highlands stock (Wurm, 1975), and two, i.e. Awa and Binumarien, are members of the Eastern family of the same stock (*ibid.*). The languages of the East-Central and Eastern families of the Eastern Highlands stock are also referred to as Gorokan and Kainantu languages respectively (Haiman, 1987). "Ever since the path-breaking descriptive studies of Capell (1948-9), it has been clearly established that the Gorokan and the Kainantu languages are closely related" (*ibid.*:1). According to Capell, although of two groups, the Gorokan languages and the group of Papuan languages to their east, i.e. the Kainantu languages, are strikingly similar: not only are they the same in essential grammatical structures, but also they have certain similarities in vocabulary and phonology which clearly set them off from the Papuan languages located westwards from Chimbu at the western end of the Gorokan Valley (Capell, 1948-9:107). Although Wurm (1975) classified the Gorokan and Kainantu languages along with the languages further west such as those of the Central family (*ibid.*), including Chimbu, into one and the same Eastern Highlands Stock, more recent findings show a linguistic unity between the East-Central and the Eastern families not found with other Papuan languages. Scott (1978:appendix) indicated such a linguistic unity through several dozen cognates from the Gorokan and the Kainantu languages. Foley, in his comparative notes on the Gorokan and the Kainantu languages while exploring a deeper genetic relationship for the Papuan

languages, admitted that his data and reconstructions “leave no doubt as to the genetic affiliations of the Gorokan and Kainantu families” (1986:253). Haiman (1987) also demonstrated the genetic affiliation between the Gorokan and the Kainantu languages through a reconstruction of proto-Gorokan and Kainantu syllable structures.

Through a comparison of three Gorokan and Kainantu languages, this paper attempts to provide some further evidence, morphologically and lexically, in support of a close genetic relationship between the Gorokan and the Kainantu languages. In the unmarked case, Hua, one of the languages in comparison, will stand as the example of the Gorokan languages, while Awa and Binumarien will represent the Kainantu languages. The availability of data on Binumarien, one of the Kainantu languages in comparison, is limited. Therefore, only its possessive markings on nouns and lexical cognates are given in the last two sections of the paper.

2. STEM ABLAUT AND THREE-FOLD DESINENCES

In both Hua and Awa, stem ablaut and some three-fold mood indicating desinences exist marking the person and number of the subject of independent sentences. Take for example the unmarked indicative forms of the verb /*hu*/ “to do” in Hua and the verb /*widehu*/ “to laugh” in Awa.

1sg.	<i>hu-e</i>	<i>widehu-?</i>
2sg.	<i>ha-ne</i>	<i>wideho-na?</i>
3sg.	<i>hi-e</i>	<i>widehi-?</i>
1dl.	<i>hu-?e</i>	<i>widehu-ya?</i>
2/3dl.	<i>ha-?e</i>	<i>wideho-ya?</i>
1pl.	<i>hu-ne</i>	<i>widehu-na?</i>
2/3pl.	<i>ha-e</i>	<i>wideho-?</i> (Haiman, 1980:50; Loving & McKaughan, 1973:41)

The hyphens mark the boundaries between the verb stems and the unmarked final indicative desinences. As can be observed, the same ablaut processes occur in both languages: the stem final vowels of the two verbs, one from Hua and the other Awa, are both [+back] in the first person, i.e. they are [u] in all first persons in both languages, are lowered in the second person, i.e. to [a] for /*hu*/ in Hua and to [o] for /*widehu*/ in Awa, and are fronted in the third person singular, i.e. to [i] in

both languages. The set of person-conditioned ablaut rules common to both Awa and Hua verbs is

- V → back / [first person]
- V → low / [second person]
- V → front / [third person]

In these ablaut rules as shared by the two languages, the first person means all the first persons, i.e. 1sg., 1dl. and 1pl., the second person means all the second persons that can be second, i.e. 2sg., 2/3dl. and 2/3pl., and the third person only the third person singular, i.e. 3sg.. The finding here conforms to the reconstruction by Pawley (1966:178) of an inherited ablaut system for the East-Central and the Eastern families of the Papuan languages.

As can also be observed from the above paradigm, the two languages each have three forms of indicative desinences that correspond to those in the other. These desinences are *e*, *ʔe* and *ne* in Hua and *ʔ*, *yaʔ* and *naʔ* in Awa. They indicate three categories common to both languages. That is, *e* in Hua and *ʔ* in Awa indicate the 1sg., the 3sg. and the 2/3pl. in the two languages respectively, *ʔe* in Hua and *yaʔ* in Awa the dl., and *ne* in Hua and *naʔ* in Awa the 2sg. and the 1pl., as tabulated below:

	Hua	Awa
A. 1sg., 3sg., 2/3pl.	- <i>e</i>	- <i>ʔ</i>
B. dl.	- <i>ʔe</i>	- <i>yaʔ</i>
C. 2sg., 1pl.	- <i>ne</i>	- <i>naʔ</i>

Both languages show evidence that the A forms used for the 1sg., the 3sg. and the 2/3pl., (i.e. *e* in Hua and *ʔ* in Awa,) are the least marked of all. From these the B forms for the dl., (i.e. *ʔe* in Hua and *yaʔ* in Awa,) and the C forms for the 2sg. and the 1pl., (i.e. *ne* in Hua and *naʔ* in Awa,) are derived. Since these categories are arbitrary rather than semantically motivated, the occurrence of them in the two languages can be assumed to be more than an incidental fact.

There are a dozen or so such three-fold desinences in Hua, S i.e. those of the indicative, the imperative, the interrogative, the relative, the purposive, the concessive, the inconsequential, etc. In Awa, however, from the limited data available to hand only two such desinences are observed:

	Indicative	Imperative
1/3sg., 2/3pl.	ʔ	<i>do</i>
dl.	<i>yaʔ</i>	<i>tao</i>
2sg., 1pl.	<i>naʔ</i>	<i>no</i>

(Loving & McKaughan, 1973:40,50)

with the imperative desinences in the table above restricted to second persons.

The sharing of the same ablaut rules on verb stems and the rather arbitrary categories of person and number for the subject in verb desinences suggests an unquestionable relationship between Hua and Awa, one from the Gorokan and the other the Kainantu family.

3. POTENTIAL TOPIC SUFFIXES

In Hua, a frequently occurring suffix on nominal forms is the potential topic marker *-mo* (Haiman, 1980:246). The most important constraint on the distribution of this morpheme is that "it may occur on nouns only if they are performing a nominal function" (ibid.). That is, *-mo* cooccurs with nouns that are acting as nouns and with deverbal nouns, such as the infinitive, the gerund, the adverbials, and medial verbs, all of which can be shown to have nominal status, but *-mo* does not occur with nouns that are acting as qualifiers, such as the nouns in the genitive case, or with nouns acting as complete utterances, such as the nouns in the vocative case (ibid.). Some examples with *-mo* from Hua are as follows.

- (1) *aʔina aʔ mamuʔ oke-mo (N) hu -bai -e*
 this woman erg. song-pt. sing-prog.-fin.3sg
 ...this woman was singing a song.
- (2) *rgiʔ-mo (Adv) ruʔ auva aʔ -mo (N) bai-e*
 really-pt. another kind woman-pt. be-fin.3sg.
 ...she was really another kind of woman.
- (3) *hi -ga -na -mo (Med V)*
 say-3sg.-med.A-ant.3sg.-pt.
 ...she said and he...

(Source: Hua texts, Haiman, 1980:471-512)

In these examples, *-mo* follows a noun in (1), an adverb and a noun in (2), and a medial verb in (3).

A similar suffix can be observed in Awa, in the form of *-we* or *-me*, which occurs under the same constraints as those for *-mo* in Hua. That is, this suffix in Awa occurs on nouns that are acting as nouns rather than qualifiers, as well as on other nominalized forms such as adverbials and non-final verbs. The following examples illustrate the occurrences of *-we* or *-me* in Awa.

- (4) *suwe ayoaka? kari? mahbi-we* (N) *keraniy-e*
suwe (bird) feather small young-man-pt. want-obj.1sg.-aug.
 I want the small young man with the *suwe* bird feather.
- (5) *wen ani-marare-we* (N) *sene-mensamehnsa mewera*
 her children-two-pt. their-things take-ant.3dl.
 ...her two children took their things and...
- (6) *awahwa-we* (N) *poerah?-me* (N) *taka-tara subi?*
 older-brother-pt. pig-pt. two-dl. kill-fin.3sg.
 the older brother killed two pigs.
- (7) *ane? niye ate-we* (Med V) *nah-n-o*
why mine break-pt. eat-2sg.-int.
why did you break and eat my (sugar cane)?
- (8) *Ani-mari sawi-we* (Med V) *mewah-tao aruwe-na*
 child-pl. hold-pt. stay-here-imp. say-ant.3sg.
 "Stay here holding the children", she said, and...
- (9) *Na mahpi-me* (Loc) *mi-ya-we* (Med V)
 now there-pt. stay-ant.3pl.-pt.
 Now (these people) stay there and...
- (10) *poku-ya-na mita?-me* (Tem) *ayahnobe? sawewe-na*
 leave-med.dl.-ant.3sg when-pt. finger stab-ant.3sg.
 she stabbed with her fingers when the two (boys) left...
- (11) *Tago-ta -taidi-me* (Cond)
 see -past-counterfactual cond.-pt.
 If I had seen it, ...

(Source: Awa texts, McKaughan, 1973:89-175)

In sentence (1), *-we* occurs on a head noun, *mahbi*, but not on the noun phrase, *suwe ayoaka?*, that modifies the head noun. The occurrence of this suffix on nouns

rather than their modifiers is further illustrated in sentences (5) and (6). In (5), it occurs after a nominal suffix *-rare*, meaning dual, and in (6), it occurs after two nouns but before a numeral, *taka-tara*, also meaning dual. In both cases, it is a suffix to head nouns rather than their modifiers. Only when such a modifier is a suffix, as is the case in sentence (5), can *-we* always occur following it. Sentences (7) and (8) show the cases where *-we* occurs following the medial, or non-functional, verbs. In (7), it follows a medial verb that indicates the first of a sequence of two actions, and in (8), a medial verb that indicates the attendant circumstance of the final verb. The last three examples give illustrations to the cases where *-we* or *-me* is used with the adverbials. In (9), it follows a locative and a medial, or non-final, verb, in (10), an adverbial clause of time, and in (11), a counterfactual conditional clause.

-we, or *-me*, is in complementary distribution with sentence final desinences, such as the indicative in (6), the interrogative in (7), the imperative in (8), and the augmentative in (4). In addition, it does not occur with the vocative suffix *-o*, such as in *Wae nainahno* "Oh, mother!" because, as are the indicative, interrogative, imperative and augmentative, the vocative is a complete utterance. Thus, the *-we* or *-me* in Awa has a similar pattern of distribution to the *-mo* in Hua. That is, it occurs with nominal constituents that are directly but not exhaustively dominated by a sentence node. The two allomorphs *-we* and *-me* seem to occur in free variation after vowels, but after the glottal stop /ʔ/ *-me* always occurs. The existence of such a bound morpheme as potential topic suffix is peculiar and its occurrence in two languages, one from the Gorokan family and the other the Kainantu family, can be considered as more than incidental as far as the relationship between the two language families is concerned.

4. POSSESSIVE MARKINGS ON NOUNS – COMPARISON OF HUA, AWA AND BINUMARIEN

The comparison in this section includes the third language, Binumarien. In all three languages, i.e. Hua, Awa and Binumarien, nouns are divided into two categories, those that are inalienably possessed and those that are alienably possessed. The division is made according to the privilege of occurrence of nouns with possessive prefixes. The inalienably possessed nouns, which consist of most

and mostly kinship terms and body terms in these languages, have the privilege of occurrence with the possessive prefixes, whereas the alienably possessed nouns, which consist of all the rest of nouns in these languages, have not. Possessors of the alienably possessed nouns in these languages are indicated by suffixes.

In Hua, possessors of inalienably possessed nouns, whether body or kinship terms, are indicated indiscriminately by a set of personal pronoun prefixes, the same prefixes that also indicate the human objects of transitive and ditransitive verbs. These personal pronoun prefixes in Hua are

1sg. *d-* 1dl. *raʔ(a)-* 1pl. *r-*
 2sg. *k-* 2/3dl. *paʔ(a)-* 2/3pl. *p-*
 3sg. \emptyset -

(Haiman, 1980:199)

Possessors of alienably possessed nouns in Hua are indicated either by a set of pronominal suffixes, which are similar to but distinct from the personal pronoun prefixes or by two genitive suffixes, with one, *-maʔ*, expressing singular, and the other, *-ʔiʔ*, plural. These suffixes can be used similarly to indicate possessors of inalienably possessed nouns in Hua.

In Awa, the possessive prefixes, like the free personal pronouns, mark the categories of the first, the second, and the third person singulars, the non-third person plural, and the third person plural, with the exception of an additional possessive prefix that marks only the non-specific third person singular. In addition, with the exception of the non-first person singular forms, including the non-specific third person singular, these possessive prefixes in Awa are discriminative between body terms and kinship terms. That is, allomorphs occur for body terms and kinship terms respectively in the first person singular and all the plurals. These possessive prefixes with some of their allomorphs are as listed in this table.

	Body terms	Kinship terms	Non-specific
1sg.	<i>ni- n-</i>	<i>nani- nai- nanu-</i>	
2sg.	<i>adena-</i>		
3sg.	<i>wena-</i>		<i>a-</i>
1/2pl.	<i>i- iu-</i>	<i>itedi- itei- iteiu</i>	
3pl.	<i>si-</i>	<i>si- sensi-</i>	

(Source: McKaughan & Loving, 1973:31-35)

Examples with some of these possessive prefixes are

<i>adena-yo?</i>	“your younger brother”
<i>si-iyobe?</i>	“their toes”
<i>a-bowa</i>	“someone’s father”
<i>ni-uta</i>	“my eye”

(McKaughan & Loving, 1973:32)

Possessors of alienably possessed nouns in Awa are indicated by a genitive suffix *-ne*, e.g. *iyane nah* “the dog’s house”. The possessors of some body terms may be indicated either by a possessive prefix or by both the non-specific third person singular possessive prefix *a-* and the genitive suffix *-ne*, e.g. *si-uta* “their eyes” or *se-ne a-uta* “their eyes”.

In Binumarien, possessive prefixes indicate three categories, the first person, the non-first person singular, and the non-first person plural. Each of the possessive prefixes in Binumarien has an allomorph, whose occurrence is dependent on the following sound. The following presents the possessive prefixes and their allomorphs in Binumarien.

1sg./pl.	$?i- / \begin{cases} C \\ i \end{cases}$;	$d- / _ V$ [other than <i>i</i>]
/3sg.	$a- / \begin{cases} C \\ i \end{cases}$;	$\emptyset- / _ V$ [other than <i>i</i>]
/3pl.	$ni- / _ C$;	$n- / _ V$ (Oatridges & Healey, 1973:560)

Possessors of alienably possessed nouns in Binumarien are indicated by the suffix *-indi*.

In both Hua and Awa, the pronominal prefixes that indicate possessors of inalienably possessed nouns are related to the free personal pronouns. In Hua, the pronominal prefixes are themselves prefixes of the personal pronouns, for example *d-* in *dgai* “I” and *k-* in *kgai* “you sg.”, although the remainder of those personal pronouns never occur alone as single morphemes. In Awa, the pronominal prefixes, whether possessive or object, can all be identified with the personal pronouns as well, e.g. *n-* “my” versus *ne* “I” and *wena-* “his” versus *we* “he”. The case in Binumarien is not definitely known due to the limited data available.

The resemblance in the formal shapes of the pronominal prefixes in these languages is partial. The only obvious correspondences are the first person

singular prefixes, for which Hua has *d-*, Awa *n-* and Binumarien *d-*, the third person singular prefixes, for which either *a-* or \emptyset - is found in two of the three languages, and the first person plural prefixes, for which there is a *r - t - d* correspondence in the three languages. The connections between the other forms are not apparently relevant. Only Hua has separate categories for the duals, while the other two languages have not. Nevertheless, the classification of nouns into the categories of inalienable and alienable as reflected in the nominal morphology and in the differentiation between pronominal prefixes and suffixes in this respect also provides some evidence for an inherited relationship between these languages.

5. LEXICAL COGNATES

In addition to the morphological features common and unique to both the Gorokan and Kainantu languages as exemplified by Hua of the Gorokan languages and Awa and Binumarien of the Kainantu languages discussed in the above, there are lexical cognates. These give further and the most important evidence for a close genetic relationship between the two language families.

The following presents a list of cognates found in Hua, Awa and Binumarien from the limited data available on these languages.

Hua	Awa	Binumarien	Gloss
1. <i>bai</i>	<i>mi</i>	<i>mari</i>	stay, be
2. <i>bade</i>	<i>mahbi</i>		boy
3. <i>bai²a</i>	<i>marako,</i> <i>maga</i>	<i>ma²a</i>	garden, ground
4. <i>bgo²</i>	<i>mora</i>		some, more
5. <i>bi²ra</i>	<i>morara</i>		beside
6. <i>bi²ra²</i>	<i>mi²</i>		there
7. <i>bro</i>	<i>mara</i>		put
8. <i>bu</i>	<i>mu</i>		vomit
9. <i>d-</i>	<i>n-, ni</i>	<i>ini</i>	I, my, me
10. <i>-da</i>	<i>-na</i>		and I
11. <i>da²na</i>	<i>ane</i>		what
12. <i>de</i>	<i>ani</i>		person
13. <i>do</i>	<i>na</i>		eat
14. <i>gidu</i>	<i>ki²nu</i>		ant
15. <i>fri</i>	<i>puki²</i>		die
16. <i>fu</i>	<i>padah</i>		sun
17. <i>fu</i>	<i>poedah</i>		pig

Hua	Awa	Binumarien	Gloss
18. (<i>)geta</i>	<i>are</i>		ear
19. <i>gia?</i> <i>ai</i>			leg
20. <i>-ga</i>	<i>-ka?</i>		placename suffix
21. <i>gakapu</i>	<i>kakabiah</i>		snail
22. <i>gekia</i>	<i>kenti?</i> <i>-kuri</i>	<i>?u?usa</i>	fence
23. (<i>)gi</i>	<i>-ki?</i>		name
24. <i>-gi</i>		<i>-ko</i>	nominal collective
25. <i>gina</i>	<i>ki</i>		ginger
26. <i>girikiripo</i>	<i>kigi?</i>		fill up
27. <i>-go?</i>	<i>-ka</i>	<i>-kai</i>	restrictive nominal suffix "only"
28. <i>grakrafu</i>	<i>karagara</i>		boil
29. <i>gri</i>	<i>kiro</i>		dig
30. <i>gvu</i>	<i>eku</i>		vegetation
31. <i>ha?gina?</i>	<i>anki?na</i>		ant
32. <i>ha'gu</i>	<i>ah?ki</i>		yam
33. <i>okovu?</i>	<i>koko?mu</i>		blue-black dye
34. <i>uru?urufu</i>	<i>kurugurui?</i>		shake
35. <i>ma</i>	<i>mahna</i>	<i>maana</i>	this
36. <i>-mana</i>	<i>-me</i>		inconsequential
37. <i>meme hu</i>	<i>mare?mare?</i>		soft
38. <i>mi?a</i>	<i>miti</i>	<i>ama?i</i>	meat
39. <i>-mo</i>	<i>-me -we</i>		potential topic
40. <i>mu</i>	<i>mu</i>		rat
41. <i>muna</i>	<i>mara</i>		down
42. <i>mu?</i>	<i>(ah)mi(biu?)</i>		belly
43. <i>na</i>	<i>nane</i>		thing
44. <i>-na</i>	<i>-ena</i>		medial anticipatory desinence
45. <i>mna</i>	<i>nu</i>		louse
46. <i>naga?</i>	<i>nahga</i>		people
47. (<i>)naru?</i>	<i>anah(kawa)</i>		wife
48. <i>no?zu?</i>	<i>nah</i>	<i>maa?a</i>	cobweb
49. <i>-opa</i>		<i>(f)au</i>	not
50. <i>rga?a</i>	<i>(a)ra</i>		fruit
51. <i>ri'</i>	<i>poriah</i>	<i>p-ep-p-a</i>	arrow
52. <i>imi ri</i>	<i>mari</i>		earthquake
53. (<i>)ru?</i>	<i>aru</i>		lap, thigh
54. <i>run</i>	<i>konaro</i>		axe
55. <i>-rva?</i>	<i>ura</i>		true, real
56. <i>mnu</i>	<i>tu?</i>		go down
57. (<i>)ro</i>	<i>teh?</i>		shine, burn

Hua	Awa	Binumarien	Gloss
58. <i>rori</i>	<i>tahtar-tare</i>	<i>?ara</i>	two
59. <i>-roti?</i>	<i>-taten</i>	<i>?ari</i>	ablative
60. <i>rupretapre?ai</i>	<i>tabarabai</i>		drip
61. <i>ati</i>	<i>ara</i>		fig
62. <i>ita</i>	<i>ira(buya)</i>		cloud
63. <i>ade</i>	<i>ahte</i>		woman
64. <i>-(?)to-</i>	<i>-t-</i>		benefactive
65. <i>sai? na</i>	<i>sanseh</i>		dye
66. <i>sosofu</i>	<i>sahsahi?</i>		tall
67. <i>ve</i>	<i>wahnsa</i>		ghost
68. <i>-ve</i>	<i>-we</i>		topic
69. <i>vi</i>	<i>weh</i>		male, man
70. <i>vi</i>	<i>(?)wi</i>		urine
71. <i>vi?</i>	<i>aweh</i>		tooth
72. <i>vo?</i>	<i>(ka)wa</i>		kinsman
73. <i>-ve</i>	<i>-po</i>	<i>-fe</i>	interrogative
74. <i>eva?</i>	<i>ebah</i>		rock, stone
75. <i>gavare</i>	<i>kabara</i>		bird
76. <i>(ha)'va?a</i>	<i>peh</i>		just, merely
77. <i>-vi?</i>	<i>-pi?</i>		inessive
78. <i>za?</i>	<i>ayahn</i>		hand
79. <i>zapu</i>	<i>ayahnta</i>		bone
80. <i>(ha)'(?)abo</i>	<i>ahmpora</i>		help
81. <i>?a?a</i>	<i>a?a</i>	<i>au</i>	negative
82. <i>-gi?</i>	<i>-kaka?</i>	<i>fa?a</i>	too, also
83. <i>-ro?</i>	<i>-ta?</i>	<i>-sa?a</i>	locative
84. <i>ka?</i>	<i>tahnsa</i>		similar
85. <i>-ri?</i>	<i>-ten</i>	<i>-?ari</i>	separative
86. <i>goraN</i>	<i>korah?</i>		blood
87. <i>duN</i>	<i>nah~nana</i>	<i>naan</i>	milk
88. <i>mniN</i>	<i>wani</i>	<i>namari</i>	water
89. <i>ai</i>	<i>ae?</i>		feces, anus
90. <i>au(rga?a)</i>	<i>uta</i>		eye
91. <i>au?a</i>	<i>awe</i>		slope
92. <i>ehi</i>	<i>iri</i>		stand
93. <i>-o</i>	<i>-os</i>	<i>-o</i>	vocative
94. <i>hasa?</i>	<i>ah</i>		path
95. <i>ha'()au-</i>	<i>aru</i>		liver

6. DISCUSSION

The orthographies adopted are from the sources, i.e. Hua from Haiman (Forthcoming), Awa from Loving and Loving (1973, 1975) and Binumarien from Oatridge and Oatridge (1973). A few phonetic properties of the sounds as they are transcribed are worth noting. In Hua, the *v* is used to represent a voiced bilabial fricative, classified as a glide, the *z* is used to represent a palatal glide, which is not much different from the sound represented by *y* in the other languages, and the *N* is used to represent an underlying form which surfaces as the glottal stop *ʔ* in the final position but as the nasal *n* when followed by the citational suffix *-a*. In Binumarien, the *p* is used to represent the unvoiced bilabial fricative. Stress in Hua in marked cases is indicated by an overstrike ' on the syllable. As far as the vowel systems in the three languages are concerned, both Hua and Binumarien have five phonemic vowels *i*, *e*, *u*, *o*, and *a*, whereas Awa has seven vowels *i*, *e*, *eh*, *u*, *o*, *ah*, and *a*, in which *eh* is a low front vowel [æ] and *ah* a low back vowel [a].

The cognate list shows a number of readily identifiable sound correspondences between the languages, e.g. *b - m*, *d - n*, *f - p*, *g - k*, *m - m*, *n - n*, *r - t*, *s - s*, *v - w*, *p - b*, *f - z*, *y*, and *ʔ - ʔ - n*. We can assume that when the sounds corresponding to each other are the same in these languages, they also share the same sources in the proto-language and that when the sounds corresponding to each other are different from each other in these languages, they have come about through different derivations. The following discussion is concerned with a number of sound alternations across language boundaries.

We notice at the beginning of the list, i.e. 1-14, that stops *b* and *d* in Hua alternate with nasals *m* and *n* in Awa and Binumarien. That is, *b* and *d* in Hua correspond to *m* and *n* respectively in Awa and Binumarien. In a different set of cognates, i.e. 35-48, however, we also notice that *m* and *n* in all three languages are in regular correspondence. That is, *m* and *n* in Hua correspond respectively to *m* and *n* in Awa as well as to the same nasals in Binumarien. To account for this difference in sound correspondences, in the next section we take into consideration data from other Gorokan and Kainantu languages:

7. ADDITIONAL COGNATE SETS

- (a)
- | | | | | | |
|---------|------------|------------|------------------|---------|-----------------|
| | <i>m</i> | | <i>m</i> | | <i>m</i> |
| Hua | <i>ma</i> | So Fore | <i>ma?</i> | Usarufa | <i>maan</i> |
| Move | <i>ma</i> | Asaro | <i>ma-mene</i> | Awa | <i>mahna</i> |
| Kanite | <i>ma</i> | Alekano | <i>imane</i> | Gadsup | <i>mana</i> |
| Yate | <i>ma</i> | Auyana | <i>maa-manda</i> | Tairora | <i>maa-mana</i> |
| No Fore | <i>man</i> | Binumarien | <i>mi-maana</i> | Agarabi | <i>mai-mi</i> |
| "this" | | | | | |
- (b)
- | | | | | | |
|-------|--------------|---------|------------|-----|------------|
| | <i>m</i> | | <i>m</i> | | <i>m</i> |
| Hua | <i>mu</i> | No Fore | <i>umu</i> | Awa | <i>umo</i> |
| Move | <i>ha'mu</i> | So Fore | <i>umi</i> | | |
| "rat" | | | | | |
- (c)
- | | | | | | |
|------------|---------------|------------|-----------------|--|--|
| | <i>b</i> | | <i>m</i> | | |
| Hua | <i>bai</i> | Kanite | <i>mai</i> | | |
| Move | <i>bei</i> | Kamano | <i>me, m ni</i> | | |
| Tairora | <i>bai</i> | Fore | <i>miy</i> | | |
| Gadsup | <i>ba</i> | Gimi | <i>miri</i> | | |
| Auyana | <i>b, may</i> | Siane | <i>mino</i> | | |
| Agarabi | <i>baai</i> | Alekano | <i>mino</i> | | |
| | | Gende | <i>mino</i> | | |
| | | Awa | <i>mi</i> | | |
| | | Usarufa | <i>ma</i> | | |
| | | Binumarien | <i>mari</i> | | |
| "stay, be" | | | | | |
- (d)
- | | | | | | |
|----------|--------------|----------|---------------------|------------|---------------------|
| | <i>b</i> | | <i>m</i> | | <i>m</i> |
| Hua | <i>bai?a</i> | Siane | <i>mia?, mika</i> | Yaweyuha | <i>mika</i> |
| Tairora | <i>bat</i> | BenaBena | <i>me?</i> | Auyano | <i>mada</i> |
| | | Asaro | <i>misuvo</i> | Agarabi | <i>wara</i> |
| | | Gende | <i>mikai</i> | Usarufa | <i>maa?-mara</i> |
| | | Gimi | <i>maha</i> | Gadsup | <i>maka</i> |
| | | Fore | <i>ma</i> | Binumarien | <i>ma?a</i> |
| | | Alekano | <i>mini, mikasi</i> | Awa | <i>maga, marako</i> |
| "garden" | | | | | |

(e)	<i>b</i>		<i>m</i>		<i>m</i>
Hua	<i>bro</i>	Yate	<i>mlo</i>	Siane	<i>mere</i>
Move	<i>bolo</i>	Kanite	<i>male</i>	Lufa Siane	<i>moro</i>
Tairora	<i>bato</i>	BenaBena	<i>moro-mara</i>	Usarufa	<i>maraN</i>
		Gimi	<i>mara</i>	Gende	<i>mra</i>
		Fore	<i>mara</i>	Gadsup	<i>maⁿd</i>
		Asaro	<i>moro</i>	Auyano	<i>mar</i>
		Alekanō	<i>mVr</i>	Awa	<i>mara</i>
	"put"				
(f)	<i>n</i>		<i>n</i>		<i>d</i>
Hua	<i>na</i>	Siane	<i>neta</i>	Lufa Siane	<i>idava</i>
Kamano	<i>ənan</i>	Gende	<i>nakwri</i>		
Gimi	<i>ina</i>	Awa	<i>nane</i>		
Fore	<i>ena</i>	Auyana	<i>tantaa?</i>		
Asaro	<i>inite</i>	Gadsup	<i>inda</i>		
	"thing"				
(g)	<i>d</i>	<i>n</i>		<i>n</i>	<i>n</i>
Hua	<i>d</i>	Yate	<i>n(ə)</i>	BenaBena	<i>na</i>
Move	<i>d</i>	Kamano	<i>nə</i>	Alekanō	<i>nV</i>
		Gimi	<i>na-ne</i>	Siane	<i>n</i>
		Fore	<i>na</i>	Yaweyuha	<i>n</i>
				Binumarrien	<i>ini</i>
	"I"				
(h)	<i>d</i>	<i>n</i>		<i>n</i>	
Hua	<i>do</i>	Yate	<i>no</i>	Gende	<i>na</i>
Move	<i>do</i>	Kanite	<i>no</i>	Auyana	<i>naa</i>
		Gimi	<i>na</i>	Gadsup	<i>naa</i>
		Fore	<i>na</i>	Tairora	<i>no</i>
		BenaBena	<i>no</i>	Agarabi	<i>naa</i>
		Yaweyuha	<i>na</i>	Awa	<i>na</i>
		Siane	<i>na</i>	Usarufa	<i>na</i>
	"ingest"				
i)	<i>d</i>	<i>n</i>		<i>n</i>	
Hua	<i>du?</i>	Kanite	<i>nuna</i>	Gadsup	<i>naa(mi)</i>
Move	<i>du?-nu?</i>	Fore	<i>nonoN</i>	Tairora	<i>namə</i>
		Agarabi	<i>naan</i>	Awa	<i>nah-nana</i>
		Auyana	<i>naan</i>	Binumarrien	<i>naan</i>
		Usarufa	<i>naaN</i>		
	"milk"				

(Source: Haiman, Forthcoming)

We observe that in (a), (b) and (f), all languages show the same nasals *m* and *n*, except for Lufa. Siane that shows an exceptional *idava* in (f), while in others, i.e. (c), (d), (e), (g), (h) and (i), the nasals *m* and *n* alternate with the stops *b* and *d* in these languages. Where the *b - m* and *d - n* alternations are found, we notice that only Move, a Yagaria dialect closely related to Hua, of all the other Gorokan languages exhibits the stops *b* and *d* as Hua does in nearly all cases, whereas the other Gorokan and the majority of the Kainantu languages all have the corresponding nasals. Only Tairora of the Kainantu family is like Hua and Move in also having the stop *b* in its cognates in the cognate sets that show a *b - m* alternation, but in its cognates in (g), (h), and (i) where there is a *d - n* alternation between the languages, Tairora also exhibits the nasal *n* as the majority of the other languages do. With the exception of (c), where three other Kainantu languages, i.e. Gadsup, Auyana and Agarabi, also show an initial *b* as Hua, Move and Tairora do, the other Kainantu languages all exhibit the nasals in their cognates where there is either a *b - m* or *d - n* alternation. It can be assumed that the common sources for these corresponding stops and nasals are **M* and **N* respectively and that the *b* and *d* in a few languages like Hua and Move that correspond to the nasals *m* and *n* in the other Gorokan and Kainantu languages are results of a sound change, in which **M* and **N* become *b* and *d* respectively through a process of oralization, i.e. in Hua and Move, **M* *b* and **N* *d*. The best evidence for change in this direction is in Pidgin borrowings into Hua and Move, e.g. *paket* (*aket*) "market" in Hua and Move and *die* (<*nie*) "nail" in Move (Haiman, personal communication). However, it is obvious that this oralization process has not yet affected the entire lexicons of Hua and Move as other Hua and Move words with *m* and *n* testify.

In cognate sets 20-32, a *g - k* alternation between Hua and the two Kainantu languages can be observed. That is, in these cognates, the *g* in word or morpheme initial positions in Hua corresponds to *k* in Awa and in Binumarrien. Some pattern of distribution of *g* and *k* in the Gorokan and Kainantu language families can be seen from the following set of cognates.

(j)	<i>g - ?</i>		<i>k</i>	<i>t</i>
Hua	<i>gekia</i>	Yate	<i>kegi[?]ya</i>	Tairora <i>u'tukə</i>
Move	<i>gegita</i>	Kanite	<i>kegi[?]ya</i>	
BenaBena	<i>gegisa</i>	Gimi	<i>kakia</i>	
Binumarien	<i>?u[?]usa</i>	Fore	<i>kagisaa</i>	
		Awa	<i>kenti[?]-kuri</i>	
		Gadsup	<i>kukuY</i>	
		Auyana	<i>kuri(ya)</i>	
		Usarufa	<i>kuru</i>	

"fence"

(Source: Haiman, Forthcoming)

Here we again notice a pattern indicating a similarity between Hua and Move and a difference between them and other Gorokan and Kainantu languages. BenaBena is like Hua and Move in also having *g* in the initial position, for which the majority of Gorokan and Kainantu languages all have *k*. However, Hua is considered to be among the conservative languages here that still maintain an initial *g* rather than a strengthened *k*, as we follow the account on a general tendency to initial fortition in the Gorokan and Kainantu languages in Haiman (Forthcoming). In fact, the initial *g* in Hua, except when preceded by the prefix *ha-*, represents an archiphoneme /*K*/, the voicing of which is dependent on phonological conditions, and only a very limited number of words in Hua have an invariable [*k*] initially (Haiman, 1980:65-8). The tendency of development of the velar stops in Hua can be indicated as /*g*/ > *k*. /*g*/ in Hua may be considered as an intermediate form in a series of stages of development for the velar stops in the Gorokan and Kainantu languages, and is assumed to have come from an earlier **k* for reasons that will become apparent later in the discussion. Lenition at some stage must have changed **k* to *g* in Hua, or even to zero in some cases, as shown by cognate sets 33 and 34. In these two cognate sets, the initial *k* in Awa corresponds to zero in Hua. As part of a more recent process of initial fortition in the Gorokan and Kainantu languages, the initial /*g*/ in Hua has been strengthened to [*k*].

Further change in the opposite direction in other languages can also be observed. This is represented by Binumarien, one of our Kainantu languages for comparison. In Binumarien, the sound corresponding to *g* or *k* in the other languages in (j) is a glottal stop, indicating the result of a further lenition.

The process of initial fortition in the Gorokan and Kainantu languages is more evident in the sound alternations *f - p* (e.g. 15-17), *r - t* (e.g. 56-60), and *v - p - b - f* (e.g. 73-77). In these sound alternations, the sounds on the leftmost side, i.e. the Hua sounds, are all of a higher sonority than their corresponding sounds from the two Kainantu languages to their right. The Hua sounds are all [+continuant] and their corresponding sounds in Awa and Binumarrien, except for the *f* in Binumarrien that corresponds to the *v* in Hua, are all [-continuant]. As well, except for the *f* in Hua that corresponds to the *p* in Awa, the Hua sounds are [+sonorant], and their corresponding sounds in Awa and Binumarrien are [-sonorant].

Evidence from other Gorokan and Kainantu languages for these sound variations is present in the following examples.

(k)		<i>f</i>	<i>p</i>	<i>h</i>	
	Hua	<i>fri</i>	Fore	<i>puri</i>	Gimi <i>hira</i>
	Move	<i>fi?li</i>	Gende	<i>pri</i>	Asaro <i>her</i>
	Kamano	<i>fri</i>	Auyana	<i>puw</i>	Alekano <i>hVr</i>
	Yate	<i>fal</i>	Gadsup	<i>puk</i>	Yaweyuha <i>her</i>
	Siane	<i>furi - for</i>	Agarabi	<i>pur</i>	
	BenaBena	<i>firi</i>	Awa	<i>puki?</i>	
	"die"				
(l)		<i>f - v</i>		<i>p</i>	<i>?</i>
	Hua	<i>fu</i>	Gende	<i>poi</i>	Tairora <i>?uara</i>
	Yate	<i>fu</i>	Auyana	<i>poi</i>	
	Kanite	<i>afu</i>	Gadsup	<i>pond</i>	
	Kamano	<i>afur</i>	Agarabi	<i>pon</i>	
	Siane	<i>yafu</i>	Awa	<i>poedah</i>	
	Lufa Siane	<i>zavu</i>	Usarufa	<i>po</i>	
			Waffa	<i>puara</i>	
	"pig"				
(m)		<i>r</i>		<i>t</i>	<i>k</i>
	Hua	<i>rga?a</i>	Tairora	<i>təbə</i>	Gadsup <i>(a)ka(mi)</i>
	Awa	<i>(a)ra</i>			
	Usarufa	<i>(a)ran(ma)</i>			
	Auyana	<i>(a)ran(man)</i>			
	"fruit"				

(n)	<i>r - l</i>		<i>t</i>		<i>k</i>
Hua	<i>rmu</i>	Kamano	<i>təmi</i>	Usarufa	<i>kumon</i>
Yate	<i>lmu</i>	Fore	<i>tumu</i>	Gadsup	<i>kumu</i>
Siane	<i>rumu</i>	Gende	<i>teme</i>	Auyana	<i>kum-kunk</i>
BenaBena	<i>rmu</i>	Awa	<i>tu?</i>		
Alekanō	<i>rVin</i>				
"go down"					
(o)	<i>r ~ l</i>		<i>t</i>		<i>k</i>
Hua	<i>ruN</i>	Kanite	<i>tun</i>	Usarufa	<i>kun</i>
Gimi	<i>ru?</i>	Fore	<i>tun</i>	Auyana	<i>kun</i>
Yate	<i>alun</i>	Gende	<i>tu</i>	Awa	<i>kanora</i>
Siane	<i>runa</i>			Gadsup	<i>kura</i>
Lufa Siane	<i>rona</i>			Tairora	<i>kari-tori</i>
Yaweyuha	<i>roda</i>				
Asaro	<i>runo</i>				
Alekanō	<i>run(i)</i>				
BenaBena	<i>ru</i>				
"axe"					
(p)	<i>v - w</i>		<i>f</i>		<i>p</i>
Hua	<i>(ha)?va?a</i>	Gimi	<i>fava</i>	Gende	<i>pa</i>
Kamano	<i>həvia</i>	BenaBena	<i>fa?(meme)</i>	Usarufa	<i>paa</i>
Fore	<i>uwaa</i>	Yate	<i>fa?a</i>	Awa	<i>peh</i>
Alekanō	<i>ha(nuva)</i>			Agarabi	<i>pa(ra)</i>
Siane	<i>vaza</i>				
"just, merely"					

(Source: Haiman, Forthcoming)

As these cognate sets show, while in (k) and (l) *f* occurs in the cognates of most of the Gorokan languages, i.e. Hua, Move, Yate, Kanite, Kamano, Siane, Lufa Siane and BenaBena, *p* is found in all the Kainantu languages present as well as in at least two of the Gorokan languages Fore and Gende. With regard to the alternation between *r* and *l*, as shown by (m), (n) and (o), while a liquid, either in the form of *r* or *l*, occurs in some Gorokan and Kainantu languages, e.g. Hua, Yate, Siane, BenaBena, Alekanō, Auyana and Usarufa, a strengthened *t* is found in others, e.g. Fore, Gende, Kamano, Kanire, Awa and Tairora. *r* and *l* in fact are in free variation in the Gorokan and Kainantu languages, as there is no Gorokan or Kainantu language that contrasts *r* with *l* (Haiman, Forthcoming). As to the *v - p* - *f* alternation, as shown by (p), while a bilabial glide *v* or *w* is attested in the Gorokan languages Hua, Kamano, Alekanō, Siane and Fore, a strengthened *f* is

found in Gimi, BenaBena and Yate, and a strengthened *p* is found in three Kainantu languages Awa, Usarufa and Agarabi and one Gorokan language Gende. The underlying forms of the sounds that are in variation here are assumed to be **f*, **r*, and **w*, and the variations of *f - p*, *r - l - t*, and *v - p - f* as we witness in the cognates of the Gorokan and Kainantu languages are considered cases of initial strengthening of **f* to *p*, **r* or *l* to *t*, and **w* to *p*, *b* or *f*. The general tendency of development in these sound variations can be expressed as



Change in the opposite direction can also be observed. For example, in (k), although a number of Gorokan and Kainantu languages have strengthened **f* to *p*, a few others, e.g. the four Gorokan languages Gimi, Asaro, Alekano and Yaweyuha, have weakened the labial dental fricative *f* to *h*, a fricative in the back position.

Furthermore, in (m), (n) and (o), an alternation between *r*, *l*, *t* and *k* is observed. In these examples, while some languages show correspondences between *r*, *l* and *t*, a number of others, e.g. Gadsup, Usarufa, Tairora and Auyana, have a corresponding sound as *k*. The phonetic properties of *k* are hard to relate to those of *r*, *l* or *t*, but the regular correspondences that *k* has with *r*, *l* and *t* do suggest a connection between *k* and these sounds. These correspondences may be considered as reflexes of an early **kl* in the proto Gorokan and Kainantu, which Haiman proposed in 1987. According to Haiman, **kl* was first derived from a diphthongization of an earlier velar lateral, which is still retained in the languages of the Central family and in at least two Gorokan languages, Move and Kanite, and then this cluster was separated by a rule of consonant cluster simplification and thereafter went through two different lines of development, in one **kl > k > ?* and in the other **kl > l > r* (Haiman, 1987:12). As a common source for *k*, *?*, *l* and *r*, **kl* accounts for the correspondence that these sounds have among the Gorokan and Kainantu languages as well as the postulation of **k* in the above as a source for the corresponding velar stops *g* and *k* also found in these languages.

In addition, beside having a free variation with *l* and corresponding with *t* and *k*, *r* is also found to correspond with *h* in a small number of words, e.g. in cognate

sets 92 and 95, and sometimes also with *s*. Some examples of a correspondence between *r*, *h* and *s* in the Gorokan and Kainantu languages can be found in the following.

(q)	<i>h</i>		<i>r</i>		∅
Hua	<i>haʔ()auʔ</i>	Usarufa	<i>run</i>	Fore	<i>aun</i>
Kanite	<i>haune</i>	Auyana	<i>ru</i>		
Keiagana	<i>hauʔa</i>	Awa	<i>aru</i>		
Gimi	<i>huʔ</i>				
Yate	<i>()hao</i>				
"liver"					
(r)	<i>h</i>		<i>r</i>		
Hua	<i>ha'va</i>	Alekano	<i>rava</i>		
Move	<i>ha</i>				
Gimi	<i>hivi</i>				
"mushroom"					
(s)	<i>h</i>		<i>r</i>		<i>t</i>
Hua	<i>haʔ()ao</i>	Gadsup	<i>reʔo</i>	Auyana	<i>tu</i>
Move	<i>haʔ()ao</i>	Tairora	<i>ruʔu'aru</i>		
Kanite	<i>he</i>	Agarabi	<i>ro</i>		
BenaBena	<i>ho</i>				
Gimi	<i>fa'ha</i>				
"shoot, hit"					
(t)	<i>h</i>		<i>r</i>		<i>s</i>
Hua	<i>huva</i>	Siane	<i>ruva</i>	Irava	<i>suʔa</i>
Move	<i>huva</i>				
Gimi	<i>huva</i>				
Yate	<i>huva</i>				
"Hua people, language"					
u)	<i>h</i>				<i>s</i>
Hua	<i>hoga</i>			Alekano	<i>soga</i>
Move	<i>hoga</i>				
Gimi	<i>hake</i>				
"lefthand, twisted"					

The correspondence between *h*, *r* and *s* as shown in (v), (w), (x) and (y) lends itself to the suspicion that the liquid *r* in the Gorokan and Kainantu languages may come from more than a single source **kl* in the proto language (e.g. Haiman, Forthcoming). Moreover, although *r* does not contrast with *l* in the Gorokan and

Kainantu languages, a contrast is found between them and the velar lateral *gl* in three Gorokan languages Move, Kanite and Yate (ibid.). The evidence is sporadic. Nevertheless, it can be suspected that "there might be an inherited velar or uvular fricative, like French /r/ (ibid.) underlying the alternation between *r*, *h* and *s*.

While the above account has been concerned with initial sound alternations, the following involves the alternation between the glottal stop *ʔ* and the nasal *n*, the only sounds that are found word finally. In Hua, the only possible consonant phoneme finally is the glottal stop *ʔ*. However, a few nouns in Hua also have an underlying *r* or *n*, which only surface when the vowel-initial citational suffix *-a* is added to these noun stems, for example *ar+a* "woman" and *run+a* "axe" but elsewhere *aʔ* and *nuʔ* respectively. Our discussion here is concerned with the underlying final *n* and the final glottal stop *ʔ* in Hua, with the *ʔ - r* alternation having been accounted for in the above. In Awa, there are two possible morpheme final consonants, the glottal stop *ʔ* and the nasal *n*. Examples of *ʔ - n* alternation between Hua and the two Kainantu languages Awa and Binumarrien are found in cognate sets 81-88. As can be seen, in some of these cognates, i.e. 81-83, there is a *ʔ - ʔ* correspondence between Hua and the two Kainantu languages, whereas in others, i.e. 84-85, the correspondence is between the glottal stop *ʔ* in Hua and the nasal *n* in Awa and Binumarrien. What is interesting is that in still others, e.g. 86-88, the glottal stop *ʔ* and the nasal *n* are found both in complementary distribution in Hua and in regular correspondence between Hua, Awa and Binumarrien. The complementary distribution of *ʔ* and *n* in Hua as well as the correspondence of the two sounds among the three languages in comparison do suggest some evidence for an underlying relationship between the two sounds. The common source for both may have been a once existent **NC*, as proposed by Haiman 1987. Just as what happened to the once existent **kl*, the split of **NC* occurred as a result of cluster simplification at some stage, with the nasal and the stop remaining separately word finally in the lexicons of the languages. Then, the general tendency to open syllables caused the loss of the final *n* in Hua and the weakening of the final stop to a glottal stop in these languages. This common source **NC* and the monophthongization of it explain the complementary distribution of the glottal stop *ʔ* and the nasal *n* presently found in Hua as well as

the correspondence between them in Hua, Awa and Binumarien, although the two sounds are differentially distributed in each language lexically.

Further evidence for a onetime *NC can be found in cognate sets 31, 79 and 80. In 31 are cognates of Hua *ha'gina* and Awa *anki?na* "ant", in 79 Hua *zapu* and Awa *ayahnta* "bone" and in 80 Hua *ha'()abo* and Awa *ahmpora* "help". In these cognate sets, the stops *g*, *p* and *b* in Hua correspond respectively to the nasal plus stop clusters *nk*, *nt* and *mp* in Awa. It is possible that, of the original *NC, only stop has remained in these Hua cognates.

Evidence for *NC from other Gorokan and Kainantu languages is shown in the following.

(v)	<i>n</i>		<i>m</i>		?
Kanite	<i>nuna</i>	Gadsup	<i>naa(mi)</i>	Hua	<i>du?</i>
Fore	<i>nonoN</i>	Tairora	<i>namə</i>	Move	<i>du?nu?</i>
Awa	<i>nah-nana</i>				
Usarufa	<i>naaN</i>				
Binumarien	<i>naan</i>				
Agarabi	<i>naan</i>				
Auyana	<i>naan</i>				
"milk"					

(w)	<i>n</i>		?		∅
Hua	<i>mniN</i>	Gimi	<i>one?</i>	Yaweyuha	<i>no</i>
Move	<i>nin</i>	Siane	<i>no?</i>	BenaBena	<i>naga(mi)</i>
Yate	<i>lin</i>			Alekano	<i>naga(mi)</i>
Keiagana	<i>anin</i>			Asaro	<i>noso</i>
Kanite	<i>tin</i>			Gende	<i>noxoi</i>
Kamano	<i>rin-tin</i>				
Fore	<i>wanin</i>				
Usarufa	<i>non</i>				
Gadsup	<i>non</i>				
Awa	<i>no-wani</i>				
Auyana	<i>non</i>				
Agarabi	<i>non</i>				
Binumarien	<i>namari</i>				
Tairora	<i>nə'mə(r)i</i>				
"water"					

(x)	stops		nasals		nasal/stop
	Hua	<i>zapu</i>	Siane	<i>auma</i>	No Fore (<i>)yaampu</i>
	Move	<i>apova</i>	Asaro	<i>amuzo</i>	So Fore (<i>)yaampi</i>
	Gimi	<i>zapu</i>	Gende	<i>yamu</i>	Awa <i>ayahnta</i>
	Lufa Siane	<i>abua</i>	Alekano	<i>amuza-</i>	
	Usarufa	<i>yata</i>		<i>za?muza</i>	others
	Auyana	<i>ayaatan</i>			Yaweyuha <i>avuhar</i>
					Tairora <i>buhaari</i>
	"bone"				
(y)		<i>m</i>		<i>b - p</i>	<i>mb</i>
	Hua	<i>ha'()amu?</i>	Siane	<i>aba?()vo</i>	Asaro <i>aambo</i>
	Move	<i>()hami?na</i>	Alekano	<i>apo()</i>	
	Gimi	<i>ha'()amu?</i>	Gende	<i>raba(wo)</i>	
	Usarufa	<i>raamaa</i>			
	"namesake"				

In (v), we find a correspondence between nasals *n* or *m* and the glottal stop ʔ; in (w), the correspondence between the nasal *n*, the glottal stop ʔ and zero consonant syllable codas; and in (x) and (y), the correspondence between stops, nasals, and nasal plus stop clusters, all of which may be seen as traces of *NC.

CONCLUSION

As data permit, we can then reconstruct the following forms for proto Gorokan and Kainantu. These are **M*, **N*, **f*, **w*, **kl*, **NC*, **r*, **y*, **s*, **i*, **e*, **u*, **o*, and **a*.

To conclude, our analysis and comparison of a few bound morphemes, a substantial number of lexical cognates, and with that the proto-phonology, of Hua, Awa and Binumaric in the above have further confirmed that the affiliation between the Gorokan and the Kainantu languages as represented by the three languages in comparison is beyond dispute.

ACKNOWLEDGEMENT

I am grateful to Professor John Haiman for his suggestions and help in the preparation of the manuscript.

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