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On the non-phonemic status of the velar nasal /ŋ/ in Jivaroan

ABSTRACT

The modern Jivaroan languages and the reconstructed proto language have all been assigned a velar nasal phoneme /ŋ/ by previous analysts. In this paper I argue that such an analysis is incorrect, and propose that the velar nasals in surface forms come from two sources. The first is assimilation of an underlying unspecified syllable-final nasal archiphoneme /N/ to a following velar stop /k/. The second concerns a group of velar nasals that surface only in Aguaruna and arise as a syllable-final allophone of the phoneme /h/. I also propose to reconstruct a rhotic phoneme for the proto language rather than a velar nasal, and show that it has merged with /h/ in Aguaruna. Historical, comparative and documentary evidence is adduced to support these hypotheses.
KEYWORDS: Jivaroan; Phonology; Reconstruction.

RESUMEN

Estudiosos anteriores consideraron el fonema nasal velar /ŋ/ como parte tanto de las lenguas jíbaras actuales como de la proto lengua reconstruida. En este artículo, argumento que esos análisis están incorrectos; propongo, por el contrario, que la nasal velar en la estructura superficial tiene dos orígenes. El primero se relaciona con la asimilación del arquifonema nasal /N/ no especificado en final de sílaba a la consonante oclusiva velar /k/. El segundo se relaciona con un grupo de consonantes nasales velares que se manifiestan solamente en la lengua aguaruna, concretizándose como alófono, en sílaba final, del fonema /h/. También propongo reconstruir un fonema rótico para la proto lengua y no una nasal velar. Muestro, asimismo, que el rótico se fusionó con /h/ en aguaruna. Recurro a evidencias de tipo histórico, comparativo y documental para corroborar estas hipótesis.
PALABRAS-CLAVES: Jíbaro; Fonología; Reconstrucción.

1. INTRODUCTION[1]

The Jivaroan family consists of four closely related languages spoken in the Eastern foothills of the Andes around the border of Ecuador and Peru: Shuar, Achuar-Shiwiar, Huambisa and Aguaruna (Wise 1999; Gordon 2005). While Aguaruna is the most divergent phonologically, there is evidence for a high degree of mutual intelligibility, suggesting that Jivaroan may be better described as a cluster of dialects. There is no established relationship between the Jivaroan languages and any other language or family, but there is evidence that they are related to a group of now extinct languages formerly spoken in the highlands of southern Ecuador (Gnerre 1975). Typologically the Jivaroan languages show both typically Andean and Amazonian features (see Dixon & Aikhenvald 1999: 8-9).

All modern Jivaroan languages show the phone [ŋ] in surface forms, and previous analysts of all the languages have taken the velar nasal to be phonemic (Pellizaro & Náwech 2005; Gnerre 1999 and Turner 1992 for Shuar; Fast et al. 1996 for Achuar-Shiwiar; Jakway et al. 1987 for Huambisa; Pike & Larson 1964, Payne 1978, 1990 and Corbera 1994 for Aguaruna). The inclusion of such a phoneme has made its way into more general works such as Wise (1999: 314, for Aguaruna) and Adelaar (2004: 434, for Shuar), and a velar nasal phoneme has also been reconstructed for Proto-Jivaroan (PJ) (Payne 1981). In this paper I assess the evidence for the phonemic status of the velar nasal, and demonstrate that [ŋ] in the modern languages is not phonemic, and there is no motivation for reconstructing a velar nasal phoneme for the proto language based on the existing cognates. To account for the reflexes of the putative **ŋ*, I propose instead a rhotic phoneme in the proto language. The arguments against velar nasal phonemes are based on general principles of phonology and historical reconstruction, as well as evidence from the phonology of Spanish loans in Jivaroan languages.

1.1. Important phonological details

All of the modern Jivaroan languages share the stop phonemes *p, t, k*,[2] affricates *ts, tʃ*, fricatives *s, ʃ, h*, nasals *m, n* and glides *w, y*. A third glide *ɯ̯* appears in Aguaruna but has been lost in the other languages[3]. Aguaruna has a flap *ɾ*, but this appears in fewer than 10 lexemes, most of which are probably loans. These words do not appear to have cognates in the other languages. Shuar, Achuar-Shiwiar and Huambisa have a rhotic phoneme *r*. The precise phonetic nature of this phoneme is unclear; recordings I have had access to suggest that it may surface as a flap or a trill, and I transcribe it simply as /r/ in all examples. The *r* of Shuar, Achuar-Shiwiar and Huambisa appears as [h] or [ŋ] in Aguaruna cognates as discussed in §4 below, and is **not** cognate with the *ɾ* of Aguaruna.

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[1] I wish to acknowledge the Aguaruna people of Centro Wawik for helping me learn their language. I also wish to thank Sasha Aikhenvald for valuable comments on this paper.

[2] Aguaruna also has a glottal stop *ʔ* in just three lexemes, which apparently does not feature in the phoneme inventories of the other languages – see discussion in Overall (2007: 24ff).

[3] The glides [w, y, ɯ̯] can be analysed as positional allophones of the high vowels /u, i, ɨ/ (cf. Overall 2007); this is not relevant to the present paper.

All Jivaroan languages have three high vowels *i, ɨ, u* and one low vowel *a*, with contrastive vowel nasality; this system is reconstructed for PJ. Nasality spreads within a domain of contiguous vowels and sonorants (*m, n, h, y, w, uɻ*) within a phonological word. Accent is not well-described for any language except Aguaruna (Payne 1990; Overall 2007). Accent marking is either absent or not clearly explained in works on other languages, and as it plays no role in the current discussion, accent will be ignored for the purposes of this paper.

Two phonological processes, vowel elision and alternation of nasal vowels with VN sequences, are relevant to the discussion and are briefly described below.

A: VOWEL ELISION

Vowel elision is pervasive throughout the Jivaroan languages. After conflating all VV sequences into single syllable nuclei, we can define a light syllable as one with a single vowel nucleus and no coda ((C)V); a heavy syllable has a long vowel or diphthong nucleus or a coda, that is, (C)VV or (C)VC. We shall see that at the underlying level the only coda consonant permitted is a nasal. The first two vowels of a word are never subject to elision.

The nucleus of a final light syllable is elided and the onset resyllabified into the coda of the preceding syllable:

(1) /ka.ti.pi/ → [ka.tip]
'rat'

Then the third and every second vowel subsequently are elided if they head light syllables:

(2) /yuŋ.ki.pa.ki - na/ → [yuŋ.kip.kin]
collared.peccary-ACC[4]

When the vowel of a CV syllable, in which the initial C is a stop and part of a NC cluster, is elided, the C is also elided:

(3) /pi.niŋ.ka/ → [pi.niŋ] NOT *[pi.niŋk]
'bowl'

(4) /ti.hiŋ.ka.sa - na/ → [ti.hiŋ.san] NOT *[ti.hiŋk.san]
ribbon - ACC

[4] Abbreviations used: 1, 2, 3 = 1st, 2nd, 3rd person; ACC = accusative; COP = copula; DECL = declarative; FUT = future; IFUT = intentional future; JUSS = jussive; LOC = locative; NEG = negative; NOM = nominative; O = object; PERT = pertensive (i.e. marks a noun as possessed); PFV = perfective; PJ = Proto-Jivaroan; POSS = possessor; RECPAST = recent past; SG = singular; SPEC1 = speculative modality marker; SPEC2 = speculative modality marker; SS = same subject; TERM = terminative subordinator; VOC = vocative; VR = verbaliser.

This does not happen if C is an affricate, however:

(5) /haan.tʃi/ → [haantʃ] NOT *[haan]
'clothing'

Finally, it should be noted that some roots and affixes contain vowels that are lexically marked as 'non-eliding' – these may arise from historic closed syllables or long vowels. Vowel elision has been described in detail only for Aguaruna, but published materials suggest that the phenomenon operates on essentially the same principles in all Jivaroan languages. In addition, all languages are described as devoicing vowels in the same environment, apparently an intermediate step towards complete elision. This shows that devoicing of vowels must have started at the PJ stage, while complete elision must be a comparatively recent phenomenon. This will be relevant to the discussion in §4.2 below, because it implies that the syllable-final environment for consonants must have developed since PJ split into the modern daughter languages.

Assuming that elision is a synchronic process, the only possible syllable-final segment at the underlying level is a nasal in a homorganic cluster with a following stop or affricate, as discussed in §3.

B: NASAL VOWEL ALTERNATION

A nasal vowel ($\tilde{\mathbf{V}}$) in a root may alternate with a vowel plus homorganic nasal (VN) when followed by a stop or affricate phoneme in some morphological environments (see Overall 2007: 51-52).

(6) a. /yãĩ-pa-ka-ti/ → [yaimpakti]
help-2SG:O-PFV-JUSS
'may (God) help you'

b. /ɨtsã-tu/ → [ɨtsantu]
sun-VR
'shine'

We return to this phenomenon in §3 below.

2. PROPOSED VELAR NASAL PHONEMES

Having covered the basic phonological details, let us now turn to the velar nasals. All four Jivaroan languages have had a phoneme /ŋ/ assigned to them. In all cases the proposed phoneme only surfaces as [ŋ] in syllable-final position; no Jivaroan language allows the phone [ŋ] in syllable-initial position. Occurrences of [ŋ] fall into two distinct sets:

1. All languages show syllable-final [ŋ] in a set of cognate words. These are the only tokens of [ŋ] in Shuar, Achuar-Shiwiar and Huambisa.

2. In addition to the forms of type 1, Aguaruna also shows tokens of syllable-final [ŋ] that fall into two subtypes:

2a. Cognate with *r* in Shuar, Achuar-Shiwiar and Huambisa;

2b. Cognate with *h* in the other languages.

Morphological alternations show that segments of both types 2a and 2b surface as [h] or [h̃] in syllable-initial position in Aguaruna.

Table 1 summarises the cognacy relations of surface phones of types 1 and 2. Examples of types 2a and 2b are given in tables 2 and 4 below.

<table>
<tr><th rowspan="2">TYPE</th><th colspan="2">AGUARUNA[5]</th><th colspan="2">OTHERS</th></tr>
<tr><th>SYLLABLE-INITIAL</th><th>SYLLABLE-FINAL</th><th>SYLLABLE-INITIAL</th><th>SYLLABLE-FINAL</th></tr>
<tr><td>1</td><td>–</td><td>ŋ</td><td>–</td><td>ŋ</td></tr>
<tr><td>2a</td><td rowspan="2">h ~ h̃</td><td rowspan="2">ŋ</td><td colspan="2">r</td></tr>
<tr><td>2b</td><td colspan="2">h</td></tr>
</table>

Table 1. Cognate phonemes in Jivaroan.

Only type 1 is considered phonemic /ŋ/ in Shuar (Turner 1992; Gnerre 1999) Achuar-Shiwiar (Fast et al. 1996) and Huambisa, along with phonemic /r/ (2a) and /h/ (2b). Types 1 and 2a are considered phonemic /ŋ/ in Aguaruna (Payne 1978; Corbera 1994), while 2b is considered phonemic /h/. Furthermore, Payne (1978, 1990) and Corbera (1994) have postulated a contrast between Aguaruna [h̃] and [h], with the former being associated with type 2a and the latter with type 2b. My data suggest that the distinction between these two is not phonemic, and I give supporting evidence for this in §4.1.

Payne (1981) reconstructs a PJ phoneme **ŋ* corresponding to types 1 and 2a. After showing that the phonemic status of [ŋ] in the modern languages is unjustified, in §4 I show that PJ must have had a rhotic phoneme, in place of the **ŋ* reconstructed by Payne (1981).

In sum, I shall propose that type 1 arises from assimilation of an unspecified syllable-final nasal archiphoneme N to a following velar stop *k*; type 2a comes from a proto rhotic **R* and 2b from a proto **h*, giving phonemic *r* and *h* in Shuar, Achuar-Shiwiar and Huambisa;

[5] This work is based on the variety of Aguaruna spoken on the Marañón River and its tributaries, specifically that of the community of Centro Wawik, Imaza District, Bagua Province, Amazonas Region.

but these two phonemes have merged in Aguaruna to a single phoneme *h* with syllable-final allophone [ŋ].

3. TYPE (1): SYLLABLE-FINAL [ŋ] COMMON TO ALL JIVAROAN LANGUAGES

The highly restricted occurrence of type 1 syllable-final [ŋ] is the first clue that it may not be phonemic. In fact, all type 1 examples are syllable-final and followed by a velar stop at the underlying level, as in example (7a) where the nominative form *piniŋ* has had the final syllable /ka/ elided. This is apparent when the accusative suffix *n(a)* is added (7b) and the root surfaces as *piniŋka*.

(7) a. [piniŋ]
'bowl'

b. [piniŋka-n]
bowl-ACC

This is the same elision of the stop in a homorganic /N.C/ cluster as described in §1.1. (cf. example 3). For Shuar, Turner (1992) gives examples of surface clusters involving [ŋ.C] where C is not *k* (see examples 8 and 10), implying that [ŋ] is not simply the result of assimilation. However, Turner's examples also arise from word internal elision of *k*, as in example (8) – the Aguaruna form is given in (9), illustrating the same phenomenon.

(8) Shuar
[piniŋnaiti]
piniŋka-na-iti
bowl-POSS-COP:3:DECL
'*es de la olla* (it is of the bowl)' (Turner 1992: 21)

(9) Aguaruna
[piniŋnauwai]
piniŋka-nau-ai
bowl-POSS-COP:3:DECL
'it is of the bowl'

The surface cluster [ŋ.tʃ] in example (10) arises from assimilation across a morpheme boundary.

(10) Shuar
[yaiŋtʃattahai]
yãĩ-ka-tʃa-tata-ha-i
help-PFV-NEG-FUT-1SG-DECL
'*no ayudaré* (I will not help)' (Turner 1992: 21)

The underlying morphological structure and surface form of this example are identical in Aguaruna. Compare this to [yaimpakti] in example (6a) above, where the same root surfaces with final [m] due to a following *p*. Clearly the underlying syllable-final nasals form a single phenomenon, whereby an unspecified nasal archiphoneme /N/ assimilates to a following stop or affricate forming a homorganic NC cluster.

Furthermore, the syllable-final nasals alternate with nasal vowels in different morphological contexts, suggesting that the archiphoneme /N/ is not restricted to a position directly preceding a stop or affricate, but in other positions surfaces as vowel nasality (compare [ɨtsã] 'sun' and [ɨtsan-tu] (sun-VR) 'shine').

(11) N → m / __ p
n / __ t, ts, tʃ
ŋ / __ k
˜ / elsewhere

The potential morphological alternation of [m], [n], [ŋ] and vowel nasality in the same root, depending on the following phonological environment, shows that the instances of [ŋ] are simply allophonic variants of a nasal archiphoneme /N/, and this is the only consonantal coda permitted in the underlying syllable structure. Payne (1978) takes this view in his analysis of Aguaruna (although in his 1981 work he considers these tokens of [ŋ] to be reflexes of the reconstructed **ŋ* phoneme).

The archiphonemic nasal hypothesis explains all syllable-final nasals as a single phenomenon, and avoids positing a phoneme /ŋ/ with the extreme phonotactic restriction that it only appears syllable-finally preceding an underlying /k/. It also allows us to link syllable-final nasals and vowel nasality and explain the nasal vowel alternation described in §1.1 above.

4. TYPE (2): SYLLABLE-FINAL [ŋ] IN AGUARUNA ONLY

We showed above that there is no velar nasal phoneme in Shuar, Achuar-Shiwiar or Huambisa, and that the type 1 velar nasal segments of those languages and Aguaruna are due to assimilation of an archiphoneme /N/ with a following velar stop. In this section we examine the type 2 velar nasals of Aguaruna. As these segments do not surface as velar nasals in the other languages, a comparative–historical approach is required.

Remember that type 2 syllable-final [ŋ] is not the result of assimilation of /N.k/, but instead surfaces in syllable final position due to elision of the following vowel. In morphological contexts where the vowel is not elided, these segments end up in syllable-initial position, and in that case they surface as [h].

(12)	a.	[piŋkiŋ]	b.	[piŋkɨha-i]
				good-COP:3:DECL
		'good'		'it is good'

(13) a. [yatsu-ŋ] b. [yatsu - hu]
brother-PERT:1SG brother-PERT:1SG+VOC
'my brother' 'my brother!'[6]

Table 2 shows some examples of correspondences; the language data are from Pellizaro & Náwech (2005, Shuar), Fast et al. (1996, Achuar-Shiwiar) and Jakway et al. (1987, Huambisa).

	Shuar	Achuar-Shiwiar	Huambisa	Aguaruna	GLOSS
Syllable-initial	ura	ura	ura	ũhã	'open'
Syllable-final	piŋkɨr	piŋkɨr	piŋkɨr	piŋkɨŋ	'good'

Table 2. Jivaroan lexemes with type (2a) [ŋ] in Aguaruna.

From these correspondences we can reconstruct a Proto-Jivaroan phoneme **R*, as shown in table 3[7].

	Shuar	Achuar-Shiwiar	Huambisa	Aguaruna	PJ
Syllable-initial	r	r	r	h	*R
Syllable-final	r	r	r	ŋ	*R

Table 3. Correspondence sets for PJ */r/.

Not all instances of Aguaruna type 2 ŋ/h correspond to *r* in the other languages, however. Table 4 shows some morphologically simple examples in which Aguaruna ŋ/h corresponds to *h* in the other languages.

	Shuar	Achuar-Shiwiar	Huambisa	Aguaruna	GLOSS
Syllable-initial	aha	aha	aha	aha	'garden'
Syllable-final	ahɨh	ahɨh	ahɨh	ahɨŋ	'ginger'

Table 4. Jivaroan lexemes with type (2b) [ŋ] in Aguaruna.

[6] Vocative case is marked here by suppression of the usual apocope rule.

[7] It is a basic principle of historical linguistics that the reflex of a proto phoneme that appears in the majority of languages should be reconstructed as the proto phoneme in the absence of compelling evidence to the contrary (cf. Fox 1995: 81ff).

Evidence from morphological alternations confirms that this applies equally to word-internal, syllable-final /h/. For example, the verbal first-person singular subject suffix is *ha* in all languages, so must have had that form in PJ:

Shuar	Achuar-Shiwiar	Huambisa	Aguaruna	PJ	GLOSS
-ha	-ha	-ha	-ha	*-ha	first person singular subject

Table 5. Reconstruction of PJ 1SG subject suffix.

In positions where the suffix has its vowel elided it surfaces as [h] in Shuar and Achuar-Shiwiar (no data were available for Huambisa):

(14) Shuar
[takastah tukaman umiktʃamhai]
taka-sa-ta-ha tu-kama-nu umi-ka-tʃa-ma-ha-i
work-PFV-IFUT-1SG say-TERM-1SG:SS complete-PFV-NEG-RECPAST-1SG-DECL

'A pesar de haber deseado trabajar, no cumplí (Although I wanted to work, I did not manage it)' (Turner 1992: 83)

(15) Achuar-Shiwiar
[tuni kanurtah]
tu-ni kanu-ra-ta-ha
where-LOC sleep-PFV-IFUT-1SG

'¿Dónde voy a dormir? (where will I sleep?)' (Fast et al. 1996: 51)

Compare (16) from Aguaruna, where the same suffix *ha* surfaces as [ŋ] when its vowel is elided:

(16) Aguaruna
[piʃaknas wainkamaŋtai]
piʃaka-na-tsu waina-ka-ma-ha-tai
bird-ACC-SPEC1 see-PFV-RECPAST-1SG-SPEC2
'I probably saw a bird'

So from the correspondences in table 4 and examples (15) to (16), PJ **h* can be reconstructed.

	Shuar	Achuar-Shiwiar	Huambisa	Aguaruna	PJ
Syllable-initial	h	h	h	h	*h
Syllable-final	h	h	h	ŋ	*h

Table 6. Correspondence sets for PJ */h/.

It can now be seen from tables 3 and 6 that PJ **R* and **h* have merged in Aguaruna: the reflexes of both are identical and show the same pattern of allophonic variation. Meanwhile both proto phonemes have continued into Shuar, Achuar-Shiwiar and Huambisa as a rhotic /r/ and a fricative /h/ respectively.

Previous analysts (Payne 1978, 1990; Corbera 1994) have suggested that this was not a complete merger: they state that there are two forms of Aguaruna *h*, nasal and non-nasal, and in terms of cognates *h̃* : *r* while *h* : *h*. While it is true that there is often nasality associated with [h] in Aguaruna, and that the surface phone [h̃] is frequently encountered, my field data suggest that this is not a phonemic distinction. In the following section I shall show that [h̃] and [h] are in free variation, before going on to discuss the nature of the phoneme underlying the *h*/ŋ allophones.

4.1. Nasal [h̃] and oral [h]

As mentioned above, the syllable-initial allophone of *h/ŋ* frequently surfaces as nasal [h̃], and adjacent vowels may show nasality. In many examples, nasal [h̃] corresponds to *r* in the other Jivaroan languages, while the plain version corresponds to *h* in those languages (the [ŋ] allophone does not trigger nasality). So perhaps in these examples the locus of nasality is not vowels but *h̃* itself, as suggested by Payne (1978). However, while there is a high degree of coincidence between nasalising *h* and PJ **R*, comparison with Shuar data from Pellizaro & Náwech (2005) shows that this is not always the case. On the one hand, nasal vowels may surface in Aguaruna adjacent to [h] that has arisen from PJ **h*; in that case, the Shuar cognates show no nasality:

AGUARUNA	SHUAR	PJ	GLOSS
h̃ãã	haa	*haa	'tear (cloth etc.)'
ũhũtu	uhutu	*uhutu	'cough'
ãh̃ã	aha	*aha	'cook greens'

Table 7. Nasality triggered by Aguaruna h < PJ **h*.

On the other hand, there are examples of Aguaruna [h] < PJ **R* where no nasalisation appears on adjacent vowels:

AGUARUNA	SHUAR	PJ	GLOSS
kakaham	kakaram	*kakaRama	'powerful man'
ahutap	arutam	*aRutama	'spirit'
tihiŋkas	tiriŋkas	*tiRiNkasa	'ribbon (for hair); female name'

Table 8. Lack of nasality in vowels adjacent to Aguaruna h < PJ **R*.

Many Aguaruna speakers preserve a distinction in nasality in reflexes of PJ minimal pairs distinguished by **h* versus **R*, such as the following:

AGUARUNA	SHUAR	PJ	GLOSS
aha	aha	*aha	'fell trees'
ãh̃ã̃	ara	*aRa	'sow seeds'
uha	uha	*uha	'tell'
ũh̃ã̃	ura	*uRa	'open'

Table 9. Reflexes of PJ minimal pairs.

It is possible that these pairs are distinguished by the presence of /h/ vs. /h̃/, but more plausible, at least synchronically, that an adjacent vowel is the locus of nasality, i.e. is phonologically nasal. The latter option has the distinct advantage that it does not require positing a new phonemic distinction, given that vowel nasality is known to be phonemically contrastive on independent grounds, a fact agreed upon by all analysts (cf Payne 1978; Corbera 1994; Overall 2007). Furthermore, these minimal pairs are not universally accepted. While discussing nasality, a native speaker told me that some speakers do nasalise the vowels of *uha* 'tell', so that for example *uha-ka-ta-hamɨ-i* (tell-PFV-IFUT-1SG>2SG:O-DECL) 'I will tell you' surfaces as [ũh̃ãktahamɨ]. Other speakers, who preserve the distinction, may then laugh and say "you're going to *open* me?" (*ũh̃ã* 'open') – but this is considered to be a valid variant pronunciation rather than an error.

In sum, given the unpredictability of the association betweem etymological **R* and nasality in Aguaruna, including variation across speakers, it cannot be said that there is a consistent synchronic distinction made between nasal [h̃] and oral [h]. In those cases where forms involving nasal and oral realisations consistently contrast for some speakers, the phonemic distinction is better attributed to vowel nasality, and native speaker intuitions appear to support this analysis. Accordingly, I consider [h̃] and [h] to be allophonic variants in syllable initial position of a single phoneme that is realised as [ŋ] in syllable final position. The next question is, what is the underlying form of *h*/*ŋ* ?

4.2. The phoneme underlying Aguaruna [h] and [ŋ]

The allophones [h] and [ŋ] are so phonetically distinct that it is not obvious what the underlying phoneme should be. It has been traditionally assumed among Jivaroanists (Corbera 1994, Payne 1978, 1981, 1990 and cf. Wise 1999; all apparently following Pike & Larson 1964) that the underlying phoneme is /ŋ/, with syllable-initial allophone [h] (Payne 1978, 1981, 1990 and Corbera 1994), and that this phoneme is inherited from a PJ phoneme **ŋ*. In the following section I shall present evidence that the underlying phoneme in contemporary Aguaruna is /h/, with syllable-final allophone [ŋ].

Comparative and historical evidence shows that the PJ phoneme must have been a rhotic (see also the evidence from loan phonology described below). A major factor supporting the proposed /ŋ/ phoneme in Aguaruna was the argument that it was historically prior, as the source phoneme in the proto-language was reconstructed as **ŋ*. With the new

reconstruction, a phonetically implausible historical change of PJ **R* > Aguaruna *ŋ* is suggested. The change of a rhotic **R* > *h*, however, is a simple lenition, and is attested in some varieties of Brazilian Portuguese, for example.

In a variety of Aguaruna spoken on the Nieva River, *h* always surfaces as [h] except preceding *h*; so for example /pɨŋkɨha/ → [pɨŋkɨŋ] 'good', but surfaces in the Nieva variety as [pɨŋkɨh]. This gives us a clue to the likely development of the [ŋ] allophone, as a dissimilation which spread to all syllable-final environments by analogy.

Finally, a number of Spanish loans that are common to all Jivaroan languages show the same patterns as types 2a and 2b illustrated above. Table 10 shows examples of such loans in Shuar and Aguaruna; both the nominative and accusative forms (marked with the suffix *n(a)*) are given, to illustrate the allophony.

TYPE	SHUAR		AGUARUNA		SPANISH SOURCE	GLOSS
	NOM	ACC	NOM	ACC		
2a	kit^{y}ar	kit^{y}ara-n	kitaŋ	kitaha-n	*guitarra*	'guitar'
2b	nawah	nawaha-n	nawaŋ	nawaha-n	*navaja*	'knife'

Table 10. Reflexes of Spanish loans in Shuar and Aguaruna.

The conclusion to be drawn is that at the time that these loans entered the language, Jivaroan **R* was phonetically similar to the Spanish trilled *rr*, and Jivaroan **h* was similar to the Spanish *j* /x/. The change by which **R* merged with **h* came later, and was limited to Aguaruna.

This evidence together further justifies the reconstruction of PJ **R* rather than **ŋ*, and shows that **R* merged with, and took on the phonetic qualities of, **h* in Aguaruna. The [ŋ] allophone was a later development in Aguaruna, possibly arising through dissimilation as suggested by data from the Nieva variety mentioned above.

4.3. Reconstructed **ŋ* for Proto Jivaroan

Having removed the type 1 velar nasals from the equation, reconstruction of proto **ŋ* is justified only on the basis of the proposed underlying *ŋ* phoneme in Aguaruna. Indeed, Payne himself (1981: 347) suggests (confusingly) that proto **ŋ* may have been a rhotic of some sort[8]. We have seen evidence above that a rhotic is the most likely candidate for reconstruction on the basis of standard practice and loan phonology. The postulated PJ **ŋ* is seemingly motivated by the nasality associated with Aguaruna *h*, but there is a body of evidence that demonstrates the phonetic naturalness of nasality triggered by the presence of [h] in various languages (Matisoff 1975 and cf. Aikhenvald 1996: 498-9 for Warekena; Parker 1999 for Iñapari; Dixon 2004: 18 for Jarawara). At the same time, there is no good reason given for the denasalisation implied in the change of **ŋ* > *r*.

[8] "Quizá el fonema [PJ] haya sido una vibrante simple uvular que presentaba calidad nasal por haberse derivado de una velar nasal, o puede haber sido simplemente una vibrante alveolar." (Payne 1981: 347). Meanwhile Turner (1992: 11) suggests: "Se considera que el reflejo original de este fonema puede haber sido un vibrante velar."

5. DISCUSSION

To summarise, we have shown that a synchronic analysis of Shuar, Achuar-Shiwiar and Huambisa does not require a phoneme /ŋ/, as all instances of [ŋ] can be ascribed to assimilation of an archiphoneme /N/ to a following velar stop (type 1). This phenomenon also explains a set of Aguaruna words that surface with [ŋ]. The rest of the Aguaruna [ŋ] (type 2) were shown to have arisen as a syllable-final allophone of /h/, following a merger of a PJ rhotic **R* with PJ **h*. Thus all synchronic velar nasals are non-phonemic. In addition, Payne's (1981) reconstruction of a PJ velar nasal phoneme **ŋ* has been replaced with the proposed **R*.

Previous reconstructions of the Jivaroan family have placed Aguaruna in opposition to a Shuar subgroup comprising the other languages (Fabre 2005; Wise 1999: 309; Stark 1985), as illustrated in figure 1. However, this is based on the reconstruction of PJ **ŋ* from which Shuar, Achuar-Shiwiar and Huambisa innovated their phoneme *r*. On that basis, Aguaruna is seen as the most conservative language, and therefore an earlier split of Aguaruna from the rest of the family is implicated.

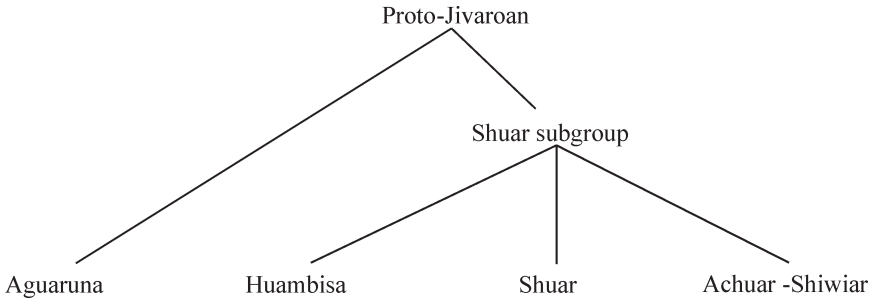

Figure 1. Jivaroan family tree including "Shuar subgroup" (after Stark 1985: 176).

The revised reconstruction of PJ **R* presented above shows that in fact Aguaruna has innovated, and the *r* of the other languages is a shared *retention*. Without any shared *innovation*, then, there is no justification for the proposed Shuar subgroup, and we need to look elsewhere for evidence to support any proposed internal subgrouping[9].

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[9] Indeed, Aikhenvald & Dixon (2001: 4; and throughout) point out that the phenomenon of 'parallel development' should make us cautious of a proposed genetic relationship based on the reconstruction of a single innovation in a group of closely related dialects under conditions of geographical proximity and sustained contact.

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