

# **A report and comparative-historical look at the Cinta Larga, Suruí, Gavião and Zoró languages**

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This study investigates the relationships between four Tupi-Monde languages: Cinta Larga, Suruí, Gavião and Zoró. Two word lists were collected from each of these languages, and they were analyzed using the comparative method. The results show that these languages are not genetically related in the way previously supposed. The possible historical reasons and implications of these new findings are discussed. A new genetic tree is proposed to take into account the new analysis

*Keywords: Brazil; indigenous languages; Tupi-Guarani; Mondé; Amazon; endangered languages*

## **1 Introduction**

This paper discusses the social situation and language relatedness of four Tupi-Monde languages. It proposes a different genetic tree based on results from using the historical comparative method. It also discusses how an alternative interpretation of history could explain this new subgrouping. This proposal depends on the presupposition that the first split in the Mondé family was when Gavião diverged from the ancestor of the other three languages. Much later, the Gavião and Zoró lived together for a considerable period of time, resulting in their borrowing sounds from each other.

## **2 Background**

The Mondé languages (Salamãý, Aruá, Gavião, Cinta Larga, Suruí, and Zoró) are spoken in the southwest of the Brazilian Amazon basin, between the states of Rondônia and Mato Grosso. The groups live in several Indigenous territories, which are surrounded to the east, west, and south by major and minor Brazilian cities and towns. Over the years outsiders have been drawn to this part of Brazil seeking rubber and animal pelts. Today the commodities which draw people to the region include lumber, diamonds, and gold. Logging, mining, and primarily, agriculture have greatly affected the land and forest.

Mondé is a small branch of the great Tupi family (Rodrigues 1985, Fabre 2005, Ethnologue 2009). In 2007, Dave Eberhard and I (Stan Anonby) travelled to the area to research four of the six languages: Gavião, Cinta Larga, Suruí, and Zoró (the other two are almost extinct). The purpose of our survey was to ascertain the level of intelligibility of the four groups.

The Portuguese term *Cinta Larga*, meaning wide belt, was formerly used to refer to several indigenous groups. These tribes still inhabit the region near the border between Rondônia and Mato Grosso states. Today *Cinta Larga* refers to one language group with three divisions that inhabits several Indigenous territories (Encyclopedia 2003h). The Suruí are divided into four moieties on the border between Rondônia and Mato Grosso. The Gavião live in the state of Rondônia. The Zoró live mostly in the state of Mato Grosso with some living near the Gavião (Brunelli 1986, Silva 1987).

The traditional, subsistence economy is in decline; as all four groups become more and more involved in the global, market economy. Because of this, people are immigrating to the urban areas, and are speaking increasingly more Portuguese. It would be safe to assume Portuguese would become the dominant language of the families living in the cities. At this time there appears to be little danger of any of these languages dying out in the villages.



Figure 1. General area where the Monde tribes live<sup>1</sup>

<sup>1</sup> Author's maps of Brazil and the area where the Mondé languages are found

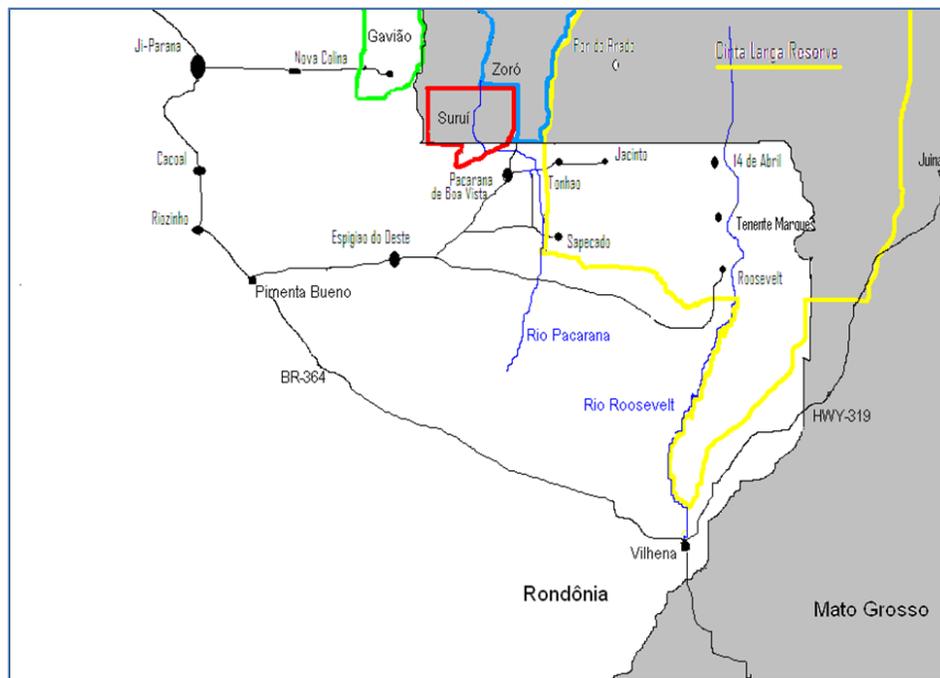


Figure 2. Specific area where the Monde tribes live.

### 3 History

#### 3.1 General history

One of the first draws to the Amazon region of Brazil was rubber. Between 1898 and 1910 rubber production in Brazil peaked, constituting 26% of its export revenues (Fausto 1999:176). It was the installation of telegraph lines (from 1907 – 1913) that really began to open up the region where the Cinta Larga, Suruí, Gavião, and Zoró lived. The renowned Brazilian anthropologist Darcy Ribeiro (1967:97) claims that during this short time, 15 or more of those groups became totally extinct.

In the second half of the 20<sup>th</sup> century, the Porto Velho-Cuiabá highway, BR-364, opened up the area to further colonization (Meade 2003:175-177). Coimbra (1989:23) sums up the period as follows: “The completion of the BR-364 highway during the 1960s allowed thousands of landless colonists from different regions of the country, but particularly from the south, to migrate northward into Rondônia. The prospect of a rich region, with plenty of good soil and titled land for all, provoked the largest migratory movement ever in Amazonian history”. These southern immigrants created a shift in economic emphasis. No longer were logging or mining the main economic draws. Commercial agriculture now began eclipsing them.

## 3.2 Recent history of specific groups<sup>2</sup>

### 3.2.1 *Cinta Larga*

The Cinta Larga today are a combination of three bands of indigenous peoples who speak dialects of the same language. The survey demonstrated they do not consider themselves a homogeneous group. Research indicates that in the past they have not peacefully co-existed. Rather, their relations with each other have often been characterized by conflict (Junqueira 1981:55).

### 3.2.2 *Suruí*

The Suruí migrated from the south in the 1800s. According to Coimbra, the Suruí were in a constant state of warfare for decades. He says that “Conflicts with rubber tappers have been common ever since the beginning of this century, as one realizes from the depositions of various Suruí informants. The Suruí attacked many camps of rubber tappers, prospectors and hunters, always resulting in deaths on one side or both” (1989:30). The first peaceful contact between the Suruí and Brazilian society occurred in 1969. Shortly, outsiders began to move into the territory. For ten years, beginning in 1971, there were numerous violent clashes. According to Bill and Carolyn Bontkes, some of this was due to the Suruí stealing knives and other metal tools (personal communication, April 12, 2007).

### 3.2.3 *Gavião*

The Gavião migrated westward in the early part of the 20<sup>th</sup> century. The move was due to pressure from other Indigenous groups, most likely the Cinta Larga (Moore 1984:1). The Gavião have had a longer relationship with the outside world than the Cinta Larga, Suruí, or Zoró. Their first interactions began the 1940s (Moore 1984:4).

### 3.2.4 *Zoró*

According to Zoró oral tradition, they formed one group with the Gavião until the early 20<sup>th</sup> century, when they split off and moved away (Santos and Coimbra 1991:797). Moore (1981:46) believes the Zoró fled the Gavião village later, in the 1940s. An intriguing question is, whether the Zoró and Gavião (a) originally were two language groups that opted to live together in a single village as one people, or were they (b) originally a single group, whose language only started to

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<sup>2</sup> Unless otherwise indicated, information for this section was taken from: Encyclopedia 2003f.

diverge after the Zoró faction moved away. The traditional hypothesis would seem to support scenario (b), while my proposal supports (a).

Permanent contact was established later for the Zoró than for the others. In 1977, the Gavião, who were part of the contact expedition, expressed concern for the Zoró and invited them to live in their village. They stayed with the Gavião until the end of the year. Within that time they abandoned many of their traditional ways of living. Eventually most returned to the Zoró territory, but some who intermarried with the Gavião stayed (Moore 1981:50-51).

#### 4 The historical comparative method applied to Monde languages

The historical comparative method, which studies sound changes, would lead us to believe that contrary to popular and academic opinion, Gavião and Zoró are not very similar genetically. The comparative method also seems to indicate Zoró is more similar to Suruí than was expected (cf. Figure 4). This paper proposes that the similarities between Zoró and Gavião are due to contact-induced borrowing, rather than close genetic relationship.

Local experts, as well as the anthropological and linguistic literature agree that Gavião, Cinta Larga, and Zoró are very closely related (Furtado 2007, Moore 2005). Most researchers (e.g., Moore 2005, Stute 2007), consider Zoró and Gavião to be the same language. According to Moore (1981:46), the Suruí speak a sister language to Gavião, Zoró and Cinta Larga. Rodrigues lists both Zoró and Cinta Larga as separate languages from Gavião (1986:46). Bill and Carolyn Bontkes have worked with the Suruí for decades and they identified Suruí as being the furthest away from Cinta Larga (personal communication, April 12, 2007). Scholars seem to agree that Suruí is the most divergent member of the group. They arrive at the classification and subgroupings in Figure 3 (below) based on evidence from mutual intelligibility and lexical comparisons.

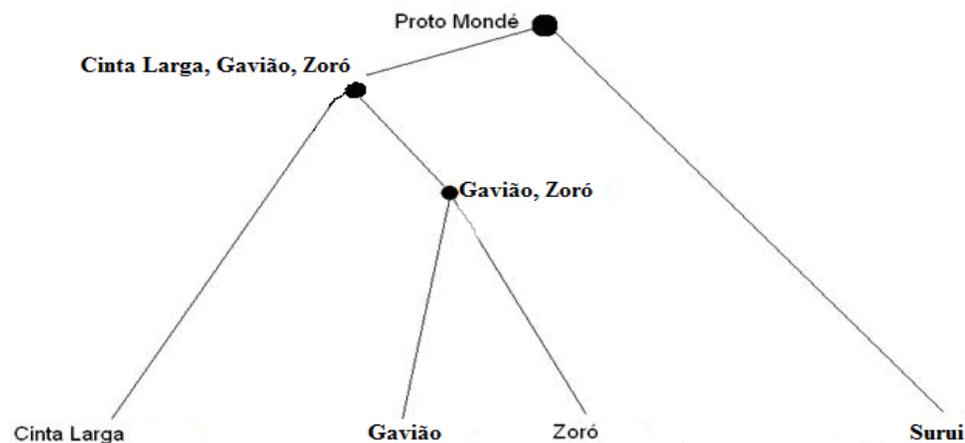


Figure 3. Family tree proposed by Moore (2005), based on mutual intelligibility, sound correspondences, and lexical comparisons.

This paper reports on an investigation of the relationship between these four languages, using data from two word lists: a list of 375 words we collected in 2007, and a list of 124 words collected and phonemicized by Projeto Açai (Sampaio 2000). These data lead us to posit eleven sound changes. They are attested in only some of the languages, and we base our classification on the patterns of shared innovation. The phonological evidence leads us to posit the subgroupings given in Figure 4 (below). The comparative method seems to indicate Zoró is most similar to Suruí. The most divergent language appears to be Gavião.

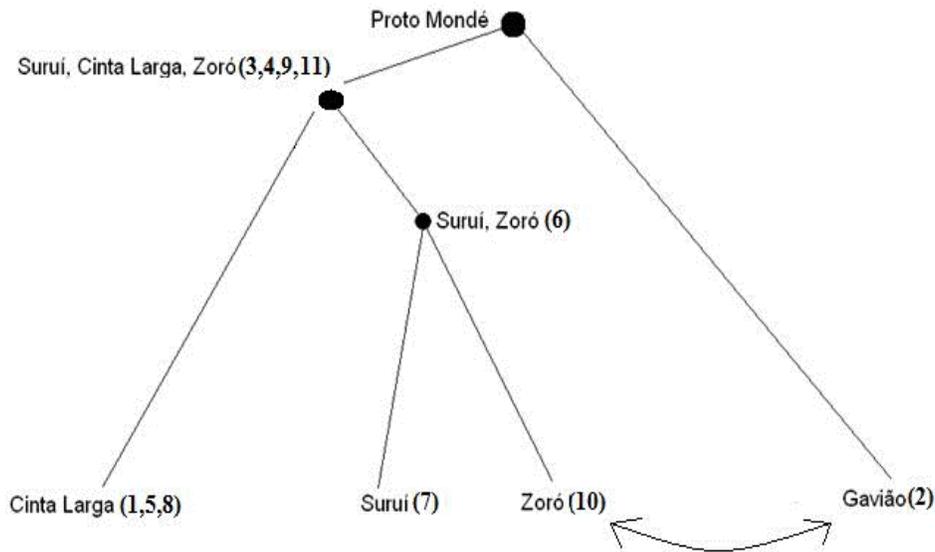


Figure 4. New family tree based on historical-comparative evidence.

I believe the reason Gavião and Zoró were lumped together before probably has much to do with their rather high degree of mutual intelligibility. Also, when asked, the Zoró and Gavião say they speak the same language. I propose the similarities are due to contact-induced borrowing, rather than close genetic relationship.

#### 4.1 The comparative methodology

I will primarily use the comparative method, described in Campbell (1999:122-167). This method tries to reconstruct the ancestor language (proto-language) by comparing its daughter languages. It assumes parts of the proto-language are preserved in the daughter languages.

There are two steps in the comparative method. The first step is to line up similar words (cognate sets) in all four languages. We assume these descend from a single word in the proto-language. I have two different sets of words. Some

data is taken from Projeto Açai. The words are phonemicized. Other data was recorded on the survey itself. These words are transcribed phonetically. The second step in the comparative method is to compare these cognate sets and look at the sounds which are similar (sound correspondences).

The sounds in Suruí, Gavião, Cinta Larga, and Zoró are referred to as reflexes. The comparative method assumes they descend from a single sound in a proto-language. Campbell outlines guidelines that historical comparative linguists have developed to help determine how sounds usually change throughout the years. This leads us to the third step, which is to reconstruct the proto-sound in the proto-language (Proto-Mondé in this case).

Campbell also talks about how to subgroup languages and make family trees. He claims, “The only generally accepted criterion for subgrouping is *shared innovation*” (1999:190). A shared innovation is a change in some trait of the proto-language which is shared by a subset of daughter languages. It is assumed that this change did not happen simultaneously in all daughter languages. Rather, it is more likely the change happened in a single daughter. This one language subsequently split up into various daughter languages. All of these retained this shared innovation. So this innovation is evidence that the daughters were once a single language, thus they are a subgroup.

In this paper I will explain in detail the eleven sound changes in Suruí, Gavião, Cinta Larga, and Zoró. It will then become clearer why it is possible to interpret the relationship between the Mondé languages as in Figure 4 above.

## 5 Rules for sound changes

### 5.1 Vowel raising: o > u

Vowel raising is a sound change frequently attested in many languages. In this case, it applies to Cinta Larga. The data below comes from the phonetic transcription.<sup>3</sup>

Portuguese	English	Suruí
maduro	ripe	ijóp
ficar em pé	stand	enóte
longo	long	ʃaktop
Vir	come	(a)ór
banana	banana	mokobá
tabaco	tobacco	maʃoʔ

<sup>3</sup> In 2007 Stan Anonby and Dave Eberhard conducted a sociolinguistic survey of the four tribes in question. One of the activities of the survey was to collect several lists of the same 375 common words in all four languages. Some of the proposed sound changes were based on the phonetic transcriptions of these word lists taken on the survey.

Gavião	Cinta Larga	Zoró
vog	pup	vop
adótẽ	endutá	mondótə?
ató	tatú	tató?
(ʔá) volo?	(a)ʔulá	(o)volo?
bakoá	makuva	mbakoptía
matʃo?	maʃu	mãitʃo(kóm)

### 5.2 Spirantization: p > v / \_\_#

Spirantization (a stop becoming a fricative) is also a sound change attested in many languages. In this case, we have p>v in word final position in Gavião. It is most clearly seen in the phonemicized data used below.

Portuguese	English	Suruí
arvore	tree	ihb
patoá		yoykab
estrela	star	txoy(kab)
cerejeira	cherry tree	ihb (kap)kod
óculos	glasses	la(kaba) omi(sibeab)
feijão	beans	mixãgap

Gavião	Cinta Larga	Zoró
ihv	iip	ip
ójkàhv	ujkaap	ujkap
gati(kúhv)	juj(kááp)	zuj kap
a(kàhv)	a(kaáp)	a(kap)
adja(káhv) sábéh	paja(kááp) sabeap	paja kop sabe
korakáv	kurakap	kurakap

### 5.3 h Deletion with compensatory lengthening: Vh>V<sub>[long]</sub>

Compensatory lengthening is a common sound change. When a segment is lost (in this case an h), a vowel is lengthened to compensate for that loss. This is a regular sound change, found throughout Cinta Larga. That is, wherever h is lost, the preceding vowel is lengthened. The data below is phonemicized.

Portuguese	English	Suruí
patoá		yoykab
arvore	tree	ihb
tatu	armadillo	waloy
dente de cutia	agouti tooth	wakĩ ikab
mutum	curassaw	wajaõ
arara	macaw	kasar

<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
ójkàhv	ujkaap	ujkap
ihv	iip	ip
mazóhj	wanzúúj	wazuj
vaki jihj	wakĩ jêêj	wakí(jîj)
vakóhj	wakúúj	wakuuj
kasáhl	kasáál	kasal

#### 5.4 Bilabial lenition: b>m/#\_\_

In Suruí, /b/ weakens to /m/ in word initial position. This is a regular change, occurring throughout Suruí. The data is phonemicized.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
banana	banana	<b>mokowa</b>
catete	pig	<b>(men)bekod</b>
peixe	fish	<b>morib</b>
porco	pig	<b>mêbe kod</b>
queixada	peccary	<b>mêbe</b>
espingarda	shotgun	<b>mokaĩab</b>

<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
<b>bákóva</b>	mbakubaa	<b>bakuwá</b>
beekor	(mbe)bekut	<b>(be)bekut</b>
<b>bolív</b>	mbulíp	<b>bulip</b>
<b>bebe(poh)</b>	mbebe kabaa	<b>bebe(pu)</b>
<b>bebe</b>	mbebe tere	<b>bebe</b>
	mbáákamán	

#### 5.5 Word final vowel lengthening: V>V<sub>[long]</sub>/\_\_\_\_#

This sound change applies to Cinta Larga. Cinta Larga vowels are lengthened when they occur at the end of a word, as seen from the phonemicized data below.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
banana	banana	mokowa
coqueiro	coconut palm	pasapwa
lua	moon	ga(tí) kad
ventilador	fan	wago
veado	deer	itiap
rio	river	ih

<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
bákóva	mbakubaa	bakuwá
pasav	pasabaa	pasawa
gár(ti)	ngat <b>tii</b>	ga(ti)
básó dig	mbaasúú	bosu
iti	<b>itii</b>	<b>itii</b>
<b>i</b>	<b>ii</b>	<b>i</b>

### 5.6 Glottalization: V>Vʔ/\_#

This sound change applies to Zoró. The data comes from the phonetic transcription of a word list taken on the survey. In phonemic data set, ʔ isn't marked.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
morrer	die	ají
garra, pata	claw, leg	hobay(pi)kūi
mutum	curassaw	wa(kojá)
lavar	wash	pijá
cacique	chief	ləbiwái
esfregar	rub, scratch	kapkába

<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
avi	pavi	paviʔ
(tʃi) pi (kói)	pupa(ɓe)kūi	(tʃi)pi(kō'iʔ)
oa(kói)	va(kui)	wa(kóiʔ)
pitʃã	pijá	pitʃãʔ
dzawidʒai	naveái	dzawijáiʔ
kijkija	kipkiva	kipkiwaʔ

### 5.7 Rhinoglottophilia: Vh > V<sub>[nasal]</sub>h

Rhinoglottophilia applies sporadically to Cinta Larga, Zoró, and Suruí, thus providing evidence to group these three together. In this case of rhinoglottophilia, vowels nasalize when followed by a proto h. The table contains phonemicized data.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
espingarda	shotgun	
fósforo	match	mokaĩ(a)
flauta	flute	wãahp
cará	type of manioc	roah
terra	land	gõhi
aranha	spider	gerpã

Gavião	Cinta Larga	Zoró
togáhv	--	tungãm
pókáhj	pukãj ap	pukaj
váv	wa'áp	kuxi(rap)
mojà	mujââ	mujã
gój	ngûúj	gũj
gérépà	ngerepã	gerepâ

### 5.8 Deletion: Vh > V

This applies to Suruí, Cinta Larga, and Zoró, thus providing evidence to group these three together. Periodically it even applies to Gavião, as some examples in the following table demonstrate. In Gavião, h deletion appears in only a few cases, indicating the change may be in the initial stages. It is likely the result of recent contact with the Zoró. It looks like a wave change that started with Suruí, progressed to Zoró, and is just beginning in Gavião. The data below is from the phonemicized word list.

Portuguese	English	Suruí
castanha	Brazil nut	man(gap)
estrela	star	txoy(kab)
cerejeira	cherry tree	ihb (kap)kod
lagoa	lagoon	ikara
fósforo	match	mokaĩ(a)
foto	photo	ixo

Gavião	Cinta Larga	Zoró
mav(gáhv)	máam ngap	mam(gap)
gati(kúhv)	juj(kááp)	zuj kap
a(kàhv)	a(kaáp)	a(kap)
íkàhr	ikáát	ikat
pókáhj	pukãj ap	pukaj
pàhxó	pááxú	paxu

### 5.9 Loss of prenasalization: ng > g/#\_\_

Prenasalized consonants lose prenasalization in Suruí and Zoró. The Gavião later lost prenasalization under the influence of Zoró. In the early 20<sup>th</sup> century, the Gavião and Zoró lived together in a single village. Later, after the Suruí attacked them in the 1970s, all the Zoró again moved into the Gavião village for a time. The two groups intermarried and continue interacting until today. I surmise that it was this contact that caused the Gavião to lose prenasalization. It is most clearly seen in the phonemicized data, used in the examples.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
floresta	Forest	gara
lua	Moon	ga(ti)kad
castanha	Brazil nut	man(gap)
sol	Sun	gad
terra	Land	gõhi
aranha	Spider	gerpã
<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
gàla	ngala	gala
gár(ti)	ngat tii	ga(ti)
mav(gáhv)	máam ngap	mam(gap)
gár	ngát	gat
gój	ngûúj	gũj
gérépà	ngerepã	gerepã

### 5.10 Labial weakening: v>w/{#}\_

In Suruí, Cinta Larga, and Zoró, /v/ weakens to /w/ word initially. This change groups Suruí, Cinta Larga, and Zoró together. This phenomenon occurs quite frequently, and is also known as lenition. It is particularly common for a consonant to weaken to a glide. I have posited this change because weakening to a glide is common, and because Suruí, Cinta Larga, and Zoró share other innovations. The data below is phonemic.

<b>Portuguese</b>	<b>English</b>	<b>Suruí</b>
Jenipapo	type of bush	wexoa
Anta	tapir	wasá
Jacaré	alligator	wao
Cutia	agouti	wakĩ
Mutum	curassaw	wajaõ
Papagaio	parrot	awara
<b>Gavião</b>	<b>Cinta Larga</b>	<b>Zoró</b>
vesóa	wesúa	wesua
vása	wása	wasá
vavó	wawú	wawu
váki	wakĩ	wa'kĩ
vakóhj	wakúúj	wakuj
aválav	awáálap	awalap

### 5.11 Deaffrication: tf>f

Deaffrication applies to Suruí, Cinta Larga, and Zoró, and supports subgrouping them together. The Zoró lived with the Gavião, on the Gavião reserve for many

years and they continue to live in close proximity. The Zoró most likely reverted back to *tʃ* under the influence of the more numerous, and prestigious, Gavião. (It may be in the realm of an areal feature). The Zoró would have borrowed affrication from the Gavião. As a result, this change would not be expected to follow regular sound correspondences. It is seen most clearly in the phonetically transcribed a word list taken on the survey.

Portuguese	English	Suruí
noite	night	miʃãŋ
pedra	rock	iʃá
tabaco	tobacco	maʃoʔ
pequeno	small	iʃĩn
pedregulho	pebble	iʃəkəlá
molhar	wet	ʃija(muŋap)

Gavião	Cinta Larga	Zoró
bitʃaŋ(i)	mifa	bitʃəŋ
itʃia	iʃá	itʃá
matʃoʔ	maʃu(kũ')	mãitʃo(kóm)
tʃitʃit	kipʃĩ	tʃitʃĩn
itʃəkʌ'p	iʃákirá	itʃayə'p~itʃasairía
tʃiʔá	ʃimá	tʃimã'ʔ

## 6 Ordering

Some of the above sound changes only make sense when they are ordered. These will be explained below.

### 6.1 $Vh > V_{[nasal]}h$ must come before $Vh > V_{[long]}$

The sound change  $Vh > V_{[long]}$  (h deletion with compensatory lengthening, seen in §5.3) must come after Rhinoglottophilia,  $Vh > V_{[nasal]}h$  (the sound change seen in §5.7). Historically, rhinoglottophilia (§5.7) came before h deletion with compensatory lengthening (§5.3). Logically, it could not have been the other way around. If h deletion with compensatory lengthening (§5.3) had come first it would have left Cinta Larga with no h in that context. Then rhinoglottophilia (§5.7) could not have taken place because there would be no /h/ to act upon. Furthermore, rhinoglottophilia affected Cinta Larga, Suruí, and Zoró when all three were in fact a single language and shared the innovation of rhinoglottophilia. Later on, Cinta Larga diverged from the mother language, and underwent h deletion with compensatory lengthening (§5.3).

### 6.2 $ng > g/\#\_$ must come before $b > m/\#\_$

Bilabial Lenition ( $b > m/\#\_$ , seen in §5.4), is an ordered sound change, coming after loss of prenasalization,  $ng > g/\#\_$  (seen in §5.9). Loss of prenasalization (§5.9) comes before bilabial lenition (§5.4). Loss of prenasalization must have come before bilabial lenition because loss of prenasalization clearly affected both Suruí and Zoró when both were in fact a single language and shared the innovation of loss of prenasalization. Later on, Suruí diverged from Zoró, and underwent bilabial lenition (the sound change seen in §5.4).

### 6.3 $Vh > V_{[nasal]}h$ must come before sound change $ng > g/\#\_$

Rhinoglottophilia (the sound change §5.7,  $Vh > V_{[nasal]}h$ ) is an ordered rule, coming before loss of prenasalization (the sound change in §5.9,  $ng > g/\#\_$ ). Rhinoglottophilia must have come before loss of prenasalization, because rhinoglottophilia clearly affected affected Cinta Larga, Suruí and Zoró when all three were a single language and shared the innovation of rhinoglottophilia. Later on, Suruí and Zoró diverged from the mother language, and together underwent loss of prenasalization.

### 6.4 $Vh > V_{[nasal]}h$ must come before sound change $Vh > V$

h-deletion (the sound change in §5.8,  $Vh > V$ ) is an ordered sound change, coming after rhinoglottophilia ( $Vh > V_{[nasal]}h$ , seen in §5.7). Logically, it could not have been the other way around. If h-deletion (§5.8) had come first it would have left the Cinta Larga, Suruí and Zoró proto family with no h in the context needed for rhinoglottophilia (§5.7). Rhinoglottophilia could then not have taken place because there would be no h for the sound change to act upon.

## 7 Summary of comparative method findings

The following list summarizes all the changes I have talked about, and Table 1 below summarizes the languages affected by each change:

- 1)  $o > u$  (Cinta Larga)
- 2)  $p > v / \_ \#$  (Gavião)
- 3)  $Vh > V_{[long]}$  (Cinta Larga)
- 4)  $b > m / \#\_$  (Suruí)
- 5)  $V > V_{[long]} / \_ \#$  (Cinta Larga)
- 6)  $V > V? / \_ \#$  (Zoró)
- 7)  $Vh > V_{[nasal]}h$  (Cinta Larga, Zoró, Suruí)
- 8)  $Vh > V$  (Cinta Larga, Zoró, Suruí)
- 9)  $ng > g / \#\_$  (Zoró, Suruí)
- 10)  $v > w / \{ \# \} \_$  (Cinta Larga, Zoró, Suruí)
- 11)  $tʃ > f$  (Cinta Larga, Zoró, Suruí)

**Table 1.** Languages affected by sound changes.

	Cinta Larga	Suruí	Zoro	Gavião
o > u	X			
p > v / __#				X
Vh > V <sub>[nasal]</sub> h	X	X	X	
ng > g/#__		X	X	
V > V <sub>[long]</sub> /__#	X			
V > V <sub>?</sub> /__#			X	
Vh > V <sub>[long]</sub>	X			
Vh > V	X	X	X	
b > m/#__		X		
v > w / {#}__	X	X	X	
tʃ > ʃ	X	X	X	

So, how do the rules outlined above support my position that Zoró is not closely related genetically to Gavião, but rather to Suruí? For the new position to be true, the first change we see, furthest back in history, is that Cinta Larga, Suruí, and Zoró diverged from Gavião when the three were a single language. When Cinta Larga, Suruí, and Zoró were still a single language, the proto-language they formed underwent the same four sound changes: 7) rhinoglottophilia, 8) h-deletion, 10) labial weakening and 11) deaffrication. These shared innovations act as evidence that they went through the sound changes together.

Much later, the daughter language of Suruí/Zoró shared loss of prenasalization in (9), setting them both apart from Cinta Larga. This innovation did not happen in Suruí and Zoró simultaneously, at some later date. Rather, the loss of prenasalization happened at a time when Suruí and Zoró were a single daughter language of Cinta Larga, Suruí and Zoró. The fact that this sound change occurred in Suruí and Zoró only is evidence that they once formed a single language.

Later, all four groups underwent sound changes separately. Cinta Larga underwent 1) Vowel Raising: o > u, 3) h-deletion with Compensatory Lengthening: Vh > V<sub>[long]</sub>, and 5) Word Final Vowel Lengthening: V > V<sub>[long]</sub>/\_\_#; Suruí underwent 4) Bilabial Lenition: b > m/#; Zoró underwent sound change 6) Glottalization: V > V<sub>?</sub>/\_\_#; and Gavião underwent sound change 2) Spirantization: p > v / \_\_#. The fact that these sound changes are unique to each group is evidence that they happened after Gavião, Cinta Larga, Suruí, and Zoró had split into different languages.

Then, after the above sound changes took place, my position is that the Gavião and Zoró languages influenced each other because the two groups lived together. According to oral tradition, the Zoró lived with the Gavião until the early 20<sup>th</sup> century, when they split off and moved away (Santos and Coimbra 1991:797). My proposal theorizes that the Zoró and Gavião had already split into two language groups when they opted to live together in a single village. Much

later, in the 1970s, during a time of duress, the Zoró once again returned to live in the Gavião village for a time. Because of their time living together, both groups had some influence on each other. Gavião has begun to show signs of sound change 8) h-deletion: Vh > V, characteristic of the Zoró. Gavião has also lost prenasalization 9) ng > g/#\_\_ because of the influence of the Zoró. Zoró has borrowed affrication from the Gavião, thus has lost sound change 11) deaffrication: tʃ > f.

## 8 Conclusion

Based on the comparative method of shared sound changes, I propose that Gavião diverged very early on from Proto-Monde. At two later occasions, they spent considerable time living together with the Zoró. This explains why Zoró and Gavião appear to be closely related. Their similarity is a result of having recently lived together and borrowed sounds from each other. Because of this, there is a high degree of mutual intelligibility, which led people to assume Zoró and Gavião had only recently diverged.

This is by no means an airtight theory. I intend it merely as an alternate proposal to the prevailing view that Zoró and Gavião are very closely related genetically. There are limitations to the claims, the most striking being the thin evidence grouping Suruí and Zoró. The paper is also based on the assumption that the Zoró and Gavião were separate groups living together in the early 20<sup>th</sup> century. It does not assume the Zoró only became separate linguistically after moved away from the Gavião.

The data in this paper is based on two lists, totalling 507 words. In the future, a much larger database would make the conclusions less tenuous. This could take the form of a bigger word list or a large corpus. There are translations of the Bible in Gavião and Suruí, which may serve as sources. The other languages, Zoró and Cinta Larga, have smaller corpuses of legends that could provide more common words and thus possibly more shared sound innovations.

Finally, there may be historical or archaeological evidence that could shed light on the living arrangements of the four tribes. This type of information could possibly tell us if it is realistic to group the Suruí and Zoró together early on, and the Zoró and Gavião later on.

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