

News on the Jorá (Tupí-Guaraní): sociolinguistics, description, and classification

Notícias sobre os Jorá (Tupí-Guaraní): sociolinguística, descrição e classificação

Swintha Danielsen^I, Noé Gasparini^{II}

^IUniversity of Leipzig. Leipzig, Alemanha

^{II}University of Lyon. Lyon, França

Abstract: With 45 languages, the Tupí family is one of South America's largest families. However, several gaps still remain. Some languages are already extinct and there are others for which data can no longer be collected. The situation of Jorá has reached this point. This article aims to summarize all data concerning the Jorá people and their language, parts of which were collected by the anthropologists Hanke (1959) and Béghin (1980) and other parts by the authors. On the basis of sparse data from several sources of differing reliability we attempt to classify the Jorá language using the phoneme inventory, grammatical evidence and lexical comparison. Jorá is classified as Tupí-Guaraní, closely related to Siriono and Yuki.

Keywords: Jorá. Linguistic description. Genocide. Bolivian Tupí-Guaraní. Genetic classification.

Resumo: Com 45 línguas, o Tupi é uma das maiores famílias lingüísticas de América do Sul. Contudo, várias lacunas ainda permanecem. Algumas línguas já são extintas e há outras para as quais já não podemos recolher dados. A situação de Jorá chegou neste ponto. Este artigo aspira a resumir todos os dados acerca do povo de Jorá e a sua língua, as partes da qual se recolheram pelos antropólogos Hanke (1959) e Béghin (1980) e outras partes pelos autores. Com base em dados escassos de várias fontes que tem confianças diferentes, tentamos classificar a língua Jorá usando o inventário de fonemas, evidência gramatical e a comparação lexical. Jorá classifica-se como Tupí-Guaraní, relacionado de perto a Siriono e Yuki.

Palavras-chave: Jorá. Descrição linguística. Genocídio. Tupí-Guaraní boliviano. Classificação genética.

DANIELSEN, Swintha ; GASPARINI, Noé. News on the Jorá (Tupí-Guaraní): sociolinguistics, description, and classification. **Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas**, v. 10, n. 2, p. 441-466 maio-ago. 2015. DOI: <http://dx.doi.org/10.1590/1981-81222015000200012>. Autor para correspondência: Swintha Danielsen. University of Leipzig, Institute of Linguistics, Beethovenstr. 15 04107. Leipzig, Germany. E-mail: swintha@hotmail.com.

Recebido em 16/02/2014

Aprovado em 28/04/2015



[...] They caught them when they were children. This M. (female name) they gave to the old C. (male name). They named her after his brother Ojopi, this was now her surname, this is why she was now M. Ojopi. This savage woman, she was all alone then; all of her group died. [...] They killed them, they were fierce, these savages¹.

INTRODUCTION

The Jorá of Bolivia are still a mystery, because so little is known about their culture and their language. In spite of that, the name Jorá ([ho'ra], alternatively Hora or Yorá) appears in classifications of the Tupí-Guaraní language family (Campbell, 1997, p. 200-201; Fabre, 2005; 2015, p. 2; Jensen, 1998, p. 495; Loukotka, 1963, p. 40), often presuming that it is a dialect of the Siriono language².

The Austrian anthropologist Wanda Hanke observed the situation of the Jorá in Baures in the Bolivian department of Beni, in 1940-41 and 1953. In addition to fighting for the rights of the last Jorá (Hanke, 1959), some of whom are still alive in 2015, Hanke collected Jorá artefacts and vocabulary. Ocampo Moscoso (1982) published the letters Hanke wrote during her Bolivian journeys, describing in detail the disturbing situation of the Jorá people, who had just been captured in the vicinity of Baures when she arrived. In 1951, the Belgian anthropologist François-Xavier Bégghin visited the Jorá in their small settlements and the mission towns nearby. His list of words was published in Bégghin (1980). More recently, one of the authors of this paper (Danielsen on her fieldtrips in the years 2009 and 2011) was able to collect additional linguistic and ethnographic data. Danielsen's data can be distinguished into two types, both secondary only: historical/anthropological data, "talk about the Jorá" in Baures, and linguistic data. The few linguistic notes stem from Baure people, of whom one even remembers a short Jorá song. Danielsen also met the Jorá people in two villages; however, the situation is so sensitive that no data could be directly elicited from them without having offended them and recalled very bad memories.

There is very little information on the Jorá in the literature, and the majority of sources claim or suspect that the Jorá language is extinct³. This article summarizes the knowledge we gain from the available sources on the Jorá people (next section) and the Jorá language (see the section evaluating the linguistic data and the classification) and it presents the most recent news on the Jorá of Bolivia. The comparison of the available data (see also the concluding section) confirms that the Jorá language belongs to subgroup II within the Tupí-Guaraní branch of the Tupí family and that it is distinct from Siriono. The Jorá people belong to a larger complex, referred to as the Sirionoide complex (Jabin, 2012), together with the Siriono and Yuki people. The Jorá also shared their environment with people from other ethnic groups, such as the Baure (cf. also Kelm, 1983, p. 33-34). The Jorá language may therefore show some traces of language contact (see the subsection: Areal contact). Our (re-)evaluation of the linguistic data suggests that Jorá is a language of its own, distinct from Siriono. In this way we connect up with some of the previous speculations on Jorá in the literature.

EVALUATION OF ETHNOGRAPHIC AND HISTORICAL INFORMATION ABOUT THE JORÁ PEOPLE

This section summarizes the descriptions of the Jorá people and culture from the previously mentioned sources and the more recent interviews by Danielsen. These findings are then compared and combined with the linguistic analysis in the subsequent sections.

¹ Citation from a Baure speaker in an interview on the last Jorá in Baures.

² The ISO 639-3 codes of all the languages referred to in this article are: Baure (brg), Guarayo (gyr), Jorá (jor), Guarasu/Pauserna (psm), Siriono (srq), Yuki (yuq).

³ Crevels (2002a, p. 26); Jensen (1999, p. 130); <http://www.etnolinguistica.org/familia:tupi-guarani>; <http://www.ethnologue.com/language/jor>; <http://www.pieb.com.bo/imprimir.php?idn=4725> (all internet sources here last visited 22/05/2015); but: Crevels (2002b, p. 24, 55) and Riester (1976, p. 4).

WHO ARE THE JORÁ PEOPLE?

In the early 1950s, the anthropologist Wanda Hanke heard about the Jorá (Ocampo Moscoso, 1982), living as a group of semi-nomadic people in Bolivian Amazonia, north of the small town of Baures, in the Beni department. They were named after one of the lagoons where they lived, *Lago Jorá*, near Baures. Consider the following citation from Hanke:

Several years ago in Bolivia I heard about an unknown Indian tribe, which had lived in the area located between the lakes Victoria, Jorá, Bolsón de Oro and several smaller lakes. This tribe was completely unexplored and it had never been classified. According to the information, about 500 Indians were living in the lake area. They had small fields on the lake banks and on the small islands, and they were said to be good and hard-working people. They lived in nice huts, clean and well-built, which showed the diligence and skilfulness of their inhabitants.

Due to the fact that the named lakes are rich in fish and crocodiles, many white hunters kept coming there, and they were disturbing the peace not only of the nature, but mostly of the Indians. They wanted to seize the Indian women and children and enslave or sell them. That is why they killed the men and also those women who were defending themselves and kidnapped other women with children, too. Then they sold them in the town of Baures and other places. (Hanke, 1959, p. 146 [translation from Czech by Katarína Marušiaková, p.c.]).

The estimation of the number of Indians that Hanke (1959, p. 146) heard and mentioned in her article (500) does not concur with the statements in her letters, based on direct observation. Compare the following excerpt from a letter written by Hanke from Baures in 1953. The number given here is much more probable, according to our own investigations.

At the Lago Yorá [=Jorá] there are still ten Yorá Indians, the rest are an unstudied tribe. The inhabitants of this zone have the custom to kill the Yorá men and take the women and children with them, whom they sell as slaves soon after. (Ocampo Moscoso, 1983, p. 29 [our translation]).

The small number of Jorá people may have been due, in part, to the fact that they were a small semi-nomadic group to begin with. However, the ongoing genocide had probably also decimated the Jorá people. They were chased and hunted by the local Bolivians, which also included people belonging to the Baure ethnic group, as well as European settlers in the town of Baures, founded by Jesuits in 1708⁴. Many Jorá men were killed, and women and children were generally enslaved by rich farmers (cf. Hanke, 1953, 1959; Kelm, 1983; Nordenskiöld, 1911, p. 16; and Danielsen's interview collection). The local Bolivian population was afraid of the Jorá, as the following citation shows, where the Baure woman LD is talking to Danielsen (SD) about a Jorá slave who lived with her family in the 1940s (compare also Kelm, 1983: p. 21 ff. about the Siriono):

LD: "He didn't speak, he was utterly quiet, he wouldn't say anything; he would speak at all." [...]

LD: "No, he only did this, with his head, he didn't speak. He was really wild. I was afraid of him." [...]

LD: "My mum was afraid of him, she said to him [my father], 'why did you bring this *Chori* [=Indian]?', she said, 'why did you not leave him there?', you see, it was when he [the Indian] remembered [his family], he was already at the door, ready to leave."

The Bolivians were in the business of hunting in the area and jaguar furs and crocodile skins, in particular, were sought after on the local markets. When hunting, the people occasionally came across the Indians who lived deeper in the forests and did not have direct contact with the settlements of other Bolivians. Whether or not the Indians attacked

⁴ In this article, "Baure people" are the ones with whom we collected interview data. When the person speaks the Baure language, we will refer to him/her as a "Baure speaker"; the term "Baure" is not necessarily an ethnic concept, the society of Baures today is a conglomerate of people of different origin, and what counts is the local identity and people refer to themselves as "Baure".

the hunters with their dreaded arrows, the hunters generally tried to kill them as a precaution. Other encounters with the Indians of the forest happened when Baure farmers walked to their remote fields. The Baure people remember many of these occasions. If there was ever a loss on the side of the Baure, they formed groups to hunt the killers in revenge. The daughter of one murdered Baure is cited as saying: “We are killing the Indians, because they killed my father” (Hanke, 1959 [authors’ translation]). The same practice of attacking and hunting the “wild Indians” or “bárbaros”, as they called them, persisted until the 1970s, according to Danielsen’s informants.

When the last Jorá people, who lived around the aforementioned lakes, not too distant from Baures, were discovered, their houses were destroyed, the adults were killed, and the children were brought to Baures and distributed among various families (Hanke, 1953). There they worked as household slaves, but children were also sent to school and adopted with the surname of their host family (see also the introductory citation).

Today, there are only a few Jorá people living in different villages of the region, and they do not identify as members of one ethnic group, but as “civilized barbarians”, integrated into the local Bolivian society. In 1951, Béghin (1980) estimated 20 Jorá dwellings, so that Szabo (2008, p. 356) suggests a number of 80-100 individuals at that time, which is probably a bit overestimated. A Baure woman calculates that roughly 60 Jorá were encountered before 1950, but probably only a few of these survived. SIL members are cited as counting 8 Jorá in 1972 (cf. Szabo, 2008, p. 356), which were probably the ones already living in Baures. According to Key & Key (1967, p. 127), at the time of publication, there were an estimated 10 Jorá speakers, of which 8 were claimed to be monolingual. Riester gives the number of 5 Jorá in 1976 (p. 4). In her article, Hanke wrote: “When I came to Baures in 1953, I found two female slaves and one male slave from this tribe there. A boy, named Rosendo, was about 12 years old, an older girl, Marqueza, about 10 years and a younger one, Maria, about 7 years old” (Hanke, 1959, p. 147)⁵.

In fact, one of the persons mentioned by Hanke still lives in Baures. Another member of the group from Lake Jorá lives in another nearby community now, approximately four hours away from Baures, but contact with the other captured Jorá was already cut off when she was captured. Other Jorá people have been sent to places like Magdalena, El Carmen and Ibiato, where their descendants can still be found today.

ETHNOGRAPHIC CLASSIFICATION OF THE JORÁ PEOPLE

There are two possible conclusions that can be drawn from the information on the Jorá as a people: either they are a Siriono subgroup or they are a group of their own, related to the Siriono and Yuki. It is easy, on the one hand, to find out which of the villagers have the experience of having been caught in the forests and not belonging to the formerly missionized, such as the Itonama, Baure, Mojo and others. It is difficult, on the other hand, to determine to which group the captured Indians belonged. In Baures, there are two stereotypes that classify Indians: those that are light-skinned and pretty and use long bows (Jorá), and those that are dark-skinned and ugly and use short bows (mostly Yanaígua, but possibly also Ayoreo or others), to give a simplified summary (cf. table 1 for details). However, of those Indians with the long bows it is almost impossible to find out whether they belonged to the Siriono, who are so well-known for their long bows (cf. Holmberg, 1950), or to the Jorá people, since the Siriono and the Jorá lived in relatively small clans in almost the same area (cf. figure 1 and Nordenskiöld, 1922, p. 223). The identification of captured Indians in the area depends crucially on knowledge about their exact place of origin.

⁵ Photos of the three Jorá mentioned here can be found in the Wanda Hanke archive in Vienna.

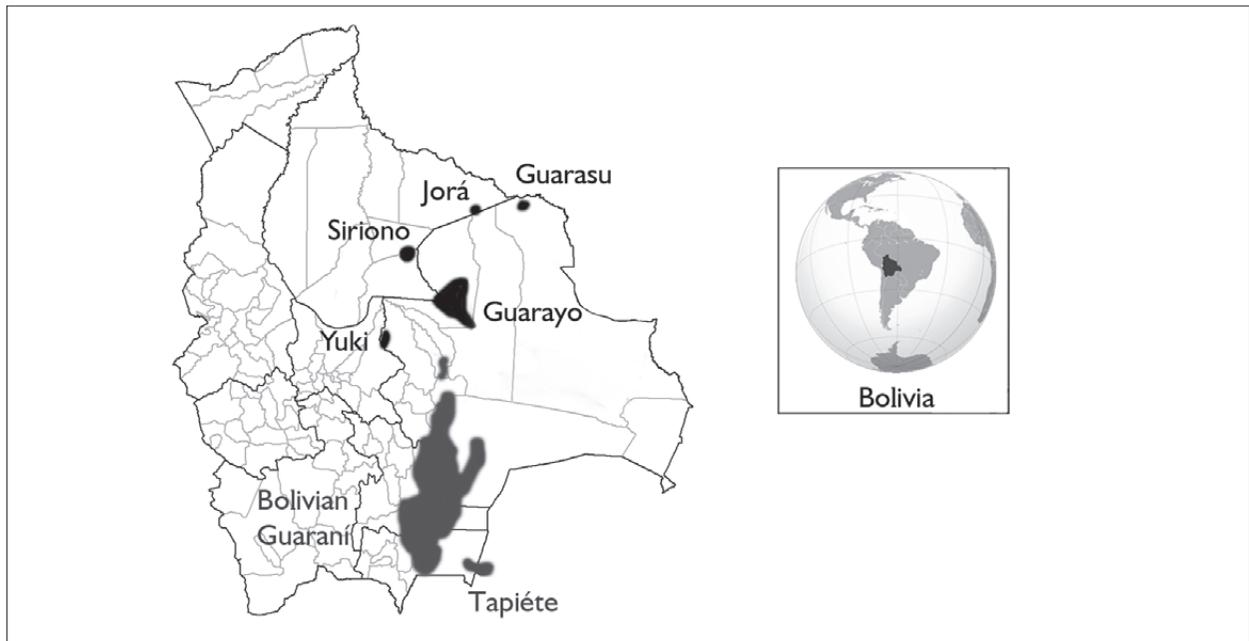


Figure 1. This map gives the approximate location of the Jorá in Bolivia. For more details on the specific locations, see the hand-drawn map in Béghin (1980: 96-97).

The Baure use the name *Chori* for the Jorá, as can be seen in the citation from LD in the previous subsection, but this term is also used for the Siriono. The word *Chori* is argued to be a pejorative term for Indians used by the Guarayo, referring to the Siriono, and meaning something like “barbarians” (Kelm, 1983, p. 14). Nowadays, the Baure also use the name *Chori* to address other Indians, which they clearly distinguish from the Jorá by their appearance (cf. table 1). As DC puts it, “the Yanaígua are also *Chori*”. To make the situation even more confusing, the Baure use the word *Worojy* in their own language to refer to uncontacted Indians, and the related term *Guayaro* also seems to be used in a wider area of lowland Bolivia to refer to any kind of Indian (also for the Ese Eja, cf. Vuillermet, 2012, p. 44-45 or Chapacura, cf. D’Orbigny, 1839, p. 217); compare also the name *Guarasu*, which apparently has the same origin. However, there is the possibility that the names *Jorá* and *Chori* have the same origin, both referring to the nomadic groups of the Yuki and Siriono in this part of the Bolivian lowlands (Combès, 2010, p. 184), for whom the name *Jore* was common since colonial times (Combès, 2010, p. 177-184)⁶. Table 1 summarizes the main stereotypes of the Jorá and other indigenous groups among the local Baure people, excerpted from interviews that Danielsen conducted with the Baure people.

When comparing the collected information about the Jorá to what is known about the Siriono and Yuki people, we can conclude that the following similarities exist between Jorá, Siriono, and Yuki (compared to Stearman, 1984, p. 636-639, and Holmberg, 1950): long bows, whistle language in the forest, nomadic lifestyle, minimal or non-existent

⁶ The names Chiriguano and Siriono are supposedly derived from one common source from a Quechua word *chiri* ‘cold’ and *wa(nu)* ‘excrement’ (for Chiriguano) and the plural *-ono* from Moxo Trinitario (for Siriono), according to Dietrich (2008, p. 39) and Combès (2010, p. 130). This term may as well be related to *Jorá* and *Chori* in turn.

Table 1. Stereotypes among the Baure about indigenous groups of the area (interviews conducted by Danielsen in 2009 and 2011).

topic		Jorá stereotypes	stereotypes of other groups
naming		Chori, Woroiy	Chori, Yanaigua, Woroiy
lifestyle	a	nomadic	
	b	good hunters	
	c	long spears, large bows	short spears
	d	wore no clothes	
	e	dancers	
state of mind	a	intelligent proud	
	b	very wild people	wilder than the Jorá
	c	fearful, not used to "civilization", pierced people with spears	
physical description	a	tall people	
	b	strong men	
	c	strong and pretty women	uglier than the Jorá
	d	clubfeet	
	e	similar to Baure people, similar to Gringos, not so dark skinned; possibly mixed group with some Baure people	very different from Baure people; black-skinned
	f	delicate health (could die from simple flu)	
language	a	they had no proper language	
	b	they used the vowel [ɨ]	
	c	their language was difficult to learn	

shelters, and a high incidence of clubfeet. However, the Jorá differ from the Siriono and Yuki, of whom it has been argued that they lost the knowledge of producing fire, did not produce watercraft or other technology for traversing or exploiting waterways, did not spin or weave or use tree cotton to make thread, and lacked any interaction with other members of their own ethnic group (Stearman, 1984). However, several specific features, such as the higher genetic probability of being born with clubfeet, do seem to support the possibility that the Jorá belong to the same ethnic group as the Siriono and the Yuki. This is also suggested by David Jabin, who refers to the "Sirionoides" as a "conjunto étnico" (ethnic complex).

The Jorá were a small group when Béghin met them. It is possible that they remained in touch with other groups of the Sirionoides, of which the Siriono have presumably influenced their language more than the Yuki. If we consider that the Yuki were only first mentioned as a separate group in the 1950s (Jabin, 2012), it becomes clearer that the Sirionoides complex was perceived as a large group and possibly regarded as more homogeneous than it actually was.

EVALUATION OF THE LINGUISTIC DATA AND CLASSIFICATION OF THE JORÁ LANGUAGE

The present corpus of the Jorá language is taken from the above mentioned sources, that is in detail: 1. Wanda Hanke (WH); 2. François-Xavier Béghin in his own publication (FXB); 3. Béghin cited by Hanke (FXB (WH)); 4. Danielsen's

data (SD). Table 2 summarizes the numbers of entries from each source, the number of phrases therein, and also the number of uniquely occurring entries in each of the word lists⁷:

The Jorá database is not large, but the amount of vocabulary allows for a classification of Jorá in comparison to other possibly related languages, not only on a lexical level, but also with respect to some grammatical characteristics. Our word lists contains the following languages for comparison: Siriono (Gasparini, our data), Yuki (Jabin, p.c.)⁸, Guarasu (generally known as Pauserna, von Horn Fitz Gibbon, 1955), Guarayo (Armoye, 2009), Baure (Danielsen, our data), and Proto-Tupí-Guaraní (PTG, sources are indicated with the proto-forms). In our database, each entry (E) has an ID in Table 7 of the Appendix and throughout the text, e.g. E124 is “entry 124”.

BOLIVIAN TUPÍ-GUARANÍ LANGUAGES OF SUBGROUP II (TG2)

Hanke (1959) was the first one to compare Jorá to Tupí-Guaraní languages and Baure (Arawakan), followed by Loukotka (1963, p. 42-44), who identified Jorá as a Tupí language with no further specification (Loukotka, 1963, p. 8). Later on, it was generally assumed that Jorá was a language in the same subgroup of Tupí-Guaraní with its closest geographical relative: Siriono (Rodrigues; Cabral, 2002, p. 335).

Our attempt to classify Jorá is challenging due to the limits of the dataset. In fact, all languages of the subgroup are poorly described and their classification may have to be revisited in the future when more data have been published and analysed. With our proposal we confirm the membership of Jorá in the Tupí-Guaraní (TG) branch of the Tupí language family, in particular in subgroup II (TG2), applying Rodrigues' (1984/85) and our own proposed criteria. We also discuss the areal influence that Jorá may have undergone, in particular in contact with the Baure language (cf. the subsection on areal contact below).

In Rodrigues (1984/85, also adopted by Jensen, 1999), the author suggests eight subdivisions within TG, based on phonological and lexical evidence. TG2 includes Guarayo, Siriono and Jorá, with Yuki being added later (Rodrigues & Cabral, 2002, p. 335). Guarasu is not classified any further. For us its position is interesting, since Guarasu is spoken in geographical proximity to the languages investigated in this article and it is presumably also genetically closely related, as our latest comparison shows (Gasparini *et al.* 2015). Dietrich presents a number of detailed studies of Siriono, Yuki and their classification and comparison within Bolivian Tupí-Guaraní (Dietrich 2002, 2007a/b, 2008). In Dietrich (2010, p. 12) he proposes a linguistic area Guaporé-Mamoré-Paraguay-Paraná with Guarayo, Guarasu, Siriono, Yuki and Aché⁹, not mentioning Jorá. He claims that the

Table 2. The Jorá corpus.

Sources	Hanke (WH)	Béghin in Hanke (FXB(WH))	Béghin (FXB)	Danielsen (SD)
number of entries	156	26	24	8
number of unique entries	135	6	8	3
number of phrases	18	3	1	2
Total entries	165			

⁷ For the phonetic representation of examples in this article we have used standardized graphemes; those that differ from IPA are: , bilabial fricative, represented as *b*, *v*, or *w* in the sources; <'>, glottal stop; <ñ>, palatal nasal; <y>, palatal glide, but note: this phoneme shows diachronic and synchronic variants /ʒ/ and /dʒ/; prenasalized co-articulation is <nd> [ʎ], <mb> [ᵐb]; labialized consonants e.g. <kw> [kʷ], <gw> [gʷ]; palatalized consonants e.g. <ky> [kʲ]. The accent is on the penultimate syllable, unless marked differently.

⁸ David Jabin's data are based on field observation and Garland's dictionary (1978). We are very grateful for his contribution to our comparative database and many discussions of the subject.

⁹ Aché is a TG language, and its classification is still under investigation, for details see Dietrich, this volume. It is currently being investigated in the Documentation Project on Aché by Rössler and her colleagues.

internal classification is based on the fact that Siriono and Yuki are languages with a great number of lexemes which are apparently not of TG origin (Dietrich, 2002, p. 362), but his analyses of Schermair (1949) resulted in the conclusion that Siriono is “less ‘extravagant’ than what was formerly thought” (Dietrich, 2002, p. 359), i.e. that it can be clearly classified as Tupí-Guaraní¹⁰.

JORÁ IS A TUPÍ-GUARANÍ LANGUAGE

For many of the words used for comparing TG languages, there are cognates in Jorá. Examples of words almost identical to proposed proto-forms are the Jorá lexemes *dzesi* ‘moon’ (E44), *tatá* ‘fire’ (E41), and *dzesi-tatatfi* ‘star’ (E45). Other Jorá words which have clear TG cognates and show only minimal divergence (see Table 7 in Appendix) are *-maná* ‘die’ (E153), *(d)aku* ‘hot’ (E124), *kusa* ‘woman, wife’ (E2b), *awe* ‘person, someone’ (E3b), and *dzak(wa)* ‘jaguar’ (E62). Out of Rodrigues’ (1984/85, p. 36) list of 32 basic TG words, 18 are in our Jorá corpus, marked in bold face in Table 7. We claim that 10 of these 18 entries have a word in Jorá related to TG (E2b, E3b, E41, E44, E46, E51, E87, E122a, E127/153, E140), but 8 are unrelated to TG (E10, E13, E14, E99, E117, E121, E129, E146).

We can also infer grammatical information from Jorá words and phrases, because several entries are morphologically complex. In this article, grammatical features are labelled with a G and are numbered consecutively.

→ **(G_1) Person marking system:** Many Jorá entries contain person marking that corresponds to the system typical of TG as described by Rodrigues (1984/85, p. 35-36). The prefix slot can be occupied by two sets of markers - Set I prefixes mark active subjects (S=A) and Set II prefixes mark stative subjects (S=O), objects or possessors (Jensen 1999: 146-147)¹¹. The following entries are examples of possession marking in Jorá: E6, E16, E30-33, E37, cf. examples (1) and (2) and also (5) below.

- | | | | | | | |
|-----|---|-----------------------------------|------|-----|-----------------------|-------|
| (1) | <i>se-nir,</i> | <i>se-nunge</i> ¹² | (E6) | (2) | <i>se-embe</i> | (E37) |
| | 1SG.II-sister? | 1SG.II-sibling | | | 1SG.II-knife | |
| | ‘my sister’ ¹³ , | ‘my brother/sister’ ¹⁴ | | | ‘my knife’ | |
| | (both of male Ego); translated as “brother” | | | | translated as “knife” | |

The different kinds of subject marking in Jorá can be compared in (3) and (4):

- | | | | | | |
|-----|------------------------------|--------|-----|---|--------|
| (3) | <i>tf-iú</i> | (E149) | (4) | <i>a-tfi-tfitfa</i> ¹⁵ | (E148) |
| | 1SG.II-drink | | | 1SG.I-RFLX?-cut | |
| | ‘I drink’ | | | ‘I cut myself’ | |
| | translated as “drink, drunk” | | | translated as “I cut myself, I become sick” | |

Table 3 compares the available Jorá forms to PTG and the TG2 languages.

¹⁰ “...é menos ‘extravagante’ do que antes se pensava.”

¹¹ Active (Set I) prefixes are also called *forma absoluta* and stative (Set II) prefixes *forma contigua* in Dietrich (2008, p. 45).

¹² Glosses: I=Set I/active; II=Set II/stative; ADJ=adjectivizer; AUG=augmentative; DIM=diminutive; INTS=intensifier; MOD=modifier; NEG=negative; OPT=optative; PL=plural; RFLX=reflexive; SG=singular.

¹³ This is almost certainly cognate with the Tupinambá word *endir* ‘sister (male ego)’ (Zachary O’Hagan, p.c.).

¹⁴ The sibling term presumably refers to sibling of the same gender as the relative (Stearman 1984: 638).

¹⁵ Compare to Siriono *a-chi-chisia* ‘I cut myself’, Yuki *a-je-kuasia*, and Guarayo *a-je-kitfi* (Dietrich, p.c.).

Table 3. Personal reference in PTG (Jensen, 1999, p. 147) and TG2.

Gloss	PTG	Jorá	Siriono	Yuki	Guarayo	Guarasu
1SG.I	*a-	a- E148	a-	a-	a-	a-
1SG.II	*tʃe	tʃ(i)- E126/ se- E6/ tʃe, se E115	se-	tʃe-	tʃe-	se-
2SG.I	*ere/*oro-	??	ere-	ere-/ore-	ere-	ro-?
2SG.II	*ne	d- E15/ de E116	nde-/ ne-	de-/ne-	nde-	ne-
3.I	*o-	?	e-/ (u-)	∅/ (u-)	o-	u-?
3.II	*i-/ *t(s)-	e- E132/ ∅ E155	e-/∅	e-/i-	i-	i-, h-

The Jorá 1SG and 2SG prefixes coincide with the PTG forms. The 1SG in Yuki and Guarayo includes the reconstructed affricate, whereas Siriono and Guarasu have an initial fricative; Jorá has examples of both consonants. For the 2SG, there is only information about the Set II marker in Jorá, which is related to PTG, but did not retain the PTG nasal quality of the consonant. A rather oral realization of the 2SG marker is also observed in Yuki¹⁶. There is possibly also third person marking in the Jorá corpus, considering the stative verb/adjective in (5) with the initial vowel e-. The form coincides with the PTG third person marker of Set II, also found in other TG2 languages. Furthermore, there is zero third person marking of Set II in Jorá, as example (6) shows, compared to Siriono in (7) (Dietrich, 2002, p. 365).

(5) *e-dádtʃa* (E132)
 JORÁ 3.II-bad
 '(it is) bad'; translated as "bad"

(6) *senia tatá* (E155)
 JORÁ 3.light.up fire
 'the fire is burning (for cooking)'

(7) *tata sendi te*
 SIRIONO fire 3SG.burn INTS
 'the fire is burning'; translated as "cook"

The person marking patterns found in Jorá are a strong argument for the TG membership from a grammatical perspective.

Furthermore, there are some recognizable verbal affixes in Jorá, which seem to be general TG.

→ (**G_2**) **Optative prefix t-**: The PTG optative prefix *ta-*, recently analysed in the TG languages (Rose, 2015) is found in Siriono, Yuki, Jorá, and in Guarayo, where Hoeller (1932, p. 103) calls it "permissive". An example of Jorá is given in (8); for Siriono see Schermair (1949, p. 162ff.) and for Yuki Villafañe (2004, p. 119), see example (9). No information on whether Guarasu has this prefix is available at this point.

(8) *t-a-sa* (E140)
 JORÁ OPT-1SG-go
 'Let me go.'

(9) *t-a-so de-rii*
 YUKI OPT-1SG-go 2SG-with
 'Let me go with you!' (Villafañe, 2004, p. 119)

¹⁶ It is possible that there are actually prenasalized variants in Yuki, as suggested by Garland (O'Hagan, p.c.).

→ (G_3) **The reflexive prefix related to *ye-**: There is one example in the Jorá corpus that may be analysed as a reflexive verb, *atjitfitja* 'I cut myself' (E148 in example (4) above). The Jorá reflexive prefix 'RFLX' is *tji-*, like Siriono *tji-*, whereas Yuki has the form *ye-* 'RFLX'. All these forms are presumably related to the PTG **ye-* 'RFLX'. Here again, we lack a Guarasu form.

→ (G_4) **Augmentative suffixes related to *(w)atjú 'big'**: The PTG form *(w)atjú ~ utjú 'big' (E169) with possible realizations also as (gw)atsu ~ (gw)asu (Mello, 2000, p. 47, 157, 203, 204) can also be realized as an augmentative suffix *-asu ~ -ahu (Jensen, 1998; Dietrich, p.c.) in TG. Siriono, Yuki, and Guarayo mainly seem to use the free modifier (g)watfu ~ (g)watsu 'big'. In Siriono, there seems to be an augmentative root or lexicalized suffix -(a)su. In the Jorá corpus, we see the productivity of -asu 'AUG', as e.g. the word *ki(d)-asu* 'large monkey' (E61) demonstrates, which is derived from *kid* 'monkey' (E60). See more Jorá examples in (10) and (11). Guarasu uses the lenited augmentative suffix -uhu.

(10)	<i>ti-asu</i>	(E63-64)	(11)	<i>bi-sú</i>	(E84)
JORÁ	pig-AUG		JORÁ	snake-AUG	
	'wild pig'			'snake (presumably anaconda)'	

Compare Siriono forms *teasu* 'pig' to (10) and *mbei chusu* 'anaconda' to (11), which are possibly lexicalized augmentative forms, as they may be in Jorá.

→ (G_5) **Modifier following noun within NP**: Syntactically, the position of a modifier in an NP in Jorá is the typical TG position: noun-modifier, as shown in (12) for Jorá, and in (13) for Siriono:

(12)	<i>d-ai</i>	<i>didin-tji</i>	(E16)	(13)	<i>nd-eo</i>	<i>ñetë</i>
JORÁ	2SG-finger	little-ADJ		SIRIONO	2SG-finger	little
	'your little finger'				'your little finger'	
	translated as 'little finger'					

In addition to the above-discussed criteria, we have some semantic information about the kinship terminology in Jorá. In TG there are typically gender distinctions in core kinship terms, based on the referent and on the relative genders. A gender opposition of feminine and masculine gender of referent and possibly also speaker can be expected for sibling terms in Jorá (E6 in example (1)). In addition, age is used to distinguish siblings in TG. Some TG kinship forms also have vocative forms. In Jorá, there is evidence of the attested TG vocative form *tain* 'mother' (E1), but we do not know whether other kinship terms in Jorá also show an opposition of vocative and relational forms. It is also unclear whether Jorá did not only preserve one form for 'mother', which does not necessarily have to be a vocative. We only have one form for 'son' (E5), which may also mean 'offspring', and thus refer to 'daughter' as well, which is common in TG (see also Stearman, 1984 for Yuki and Siriono kinship).

EVALUATION OF JORÁ REGARDING PROPOSED CRITERIA FOR TG2 LANGUAGES

Rodrigues & Cabral (2002, p. 329) suggested some very specific phonological criteria for distinguishing subgroups of TG. Villafañe (2004, p. 196) reviewed these characteristics with respect to Yuki, Siriono, Guarayo and Chiriguano, and

Gasparini (2012, p. 99) reviewed them for Siriono. We present an evaluation of these phonological (P) criteria in Jorá and, in passing, in Guarasu, where information is available, summarized in table 4 at the end of this section.

→ **(P_1) Loss of word final consonants:** TG2 languages have lost PTG final consonants¹⁷, as seen in Siriono (Gasparini, 2012). Guarayo only has final *-r* (Dietrich, 1990, p. 13) and Yuki apparently only has final *-(d)n* (Villafañe, 2004, p. 197) or devoiced consonants (Jabin, p.c.). The final consonants we find in Jorá and Guarasu may also be devoiced. Jorá final consonants are *-t*, *-s*, a liquid *-l/-r*, and the nasals *-n* and *-m* (which may well be interpreted as marking nasality of preceding vowels), but they can generally not be related to PTG reconstructions or the other TG2 languages (e.g. E14, E98). Guarasu preserves the final PTG consonant in (E83).

→ **(P_2) Merger of affricates *tʃ and *ts into one sound, either the affricate /ts/ or the fricative /s/:** Even though the merger is argued by Rodrigues & Cabral (2002, p. 329) to be a uniform process from PTG into TG2, the developments display differences within TG2. In Siriono *tʃ and *ts evolved into /s/, but in Yuki this only happened in some cases, while in others /tʃ/ is preserved. For example, the 1SG is *tʃe* in Yuki and Guarayo and *se* in Siriono and Guarasu (cf. table 3). Jorá includes examples of both consonants in 1SG. According to our analysis, Jorá underwent phonological changes similar to those in Siriono and Yuki, with the rare segment *tʃ* as potential evidence for an incomplete merger. Guarayo conflated PTG *tʃ and *ts into /ts/ (Dietrich, 1990, p. 29). In Guarasu *tʃ and *ts partly lenited into /h/, like languages in TG4 and TG6, e.g. *kiha* 'knife' < *kitse/ *kitʃe (E37) and *piha* 'night' < *pitsa (E49b). In addition, there are examples like *tsi, *tʃi 'mother' (E1), where some TG2 languages have an initial plosive *t-*, which shows that the position of the consonants probably played a role, and that the existence of the affricate may also result from different degrees of palatalization, which is shown to vary even within single languages of TG2 (P_10).

→ **(P_3) Change from *pw to [kw] or [k]:** This switch is confirmed in Siriono and Guarayo. In Yuki, Villafañe claims it changed to [gʷ] (2004, p. 201). One example in our corpus is Guarayo *kwã* 'finger/hand' (E15) < *pwã. Another hypothesis is that there may also have been an original *p(w)a sequence, with /pʷ/ and /p/ as a phoneme alternation in some cases. This may be the case for 'lake/river' (E52), which is reconstructed with *-pa-* as *ipab. In Guarasu the reflex is labialized in *ikua*, and in Jorá *ig(u)a* there is an alternation between [g] and [gʷ] (cf. E135). There is also the bird name *tsu-ru-kwa* ('(kind of) grey pigeon', E165, FXB) in Jorá, but this is surely not enough evidence to claim that the labialized velar consonant /kw/ was phonemic, and that it is related to PTG *p(w)a.

→ **(P_4) Retention of *pj(?):** This proto-phoneme suggested by Rodrigues & Cabral (2002, p. 329) only occurs in one reconstruction, *epyak 'to see' (E167) and it does not occur in the Jorá corpus. The sound [pʲ] does not exist in the Siriono, Yuki and Guarayo phonetic inventories either. In Guarasu and Guarayo it may be present in the verb 'to see', but there it could also be analysed as a consonant-vowel sequence. This criterion does not hold for the whole subgroup.

→ **(P_5) Moving of stress to the penultimate syllable:** PTG supposedly had word final stress, and TG2 moved stress onto the penultimate syllable. This criterion holds for Siriono, Yuki, Guarasu and Guarayo¹⁸, but it does not seem to be true for Jorá. The corpus provides many examples with an accent on the ultimate syllable - 62 entries out of 165. Since these 62 make up the majority of disyllabic words and since many of the words are clearly cognates of PTG forms (as e.g. Jorá *tatá* 'fire' (E41), this criterion cannot be confirmed for Jorá.

¹⁷ cf. Jensen (1999, p. 142) for these phonological changes.

¹⁸ In fact, there are three Guarayo dialects, one of which prefers the final stress, whereas the other two use predominantly penultimate or antepenultimate stress, an observation currently still under investigation (by Danielsen and others).

For a better understanding of the internal relations of TG2, we suggest additional P_criteria:

→ **(P_6) Loss of glottal stop:** Dietrich (2007a) remarks that Bolivian TG generally lost the PTG glottal stop. Based on available reconstructions, four examples of Jorá illustrate this loss: E10, E31-33, E51, E59-60, E139/149. While Siriono and Yuki also lost the glottal stop, Guarayo did not.

→ **(P_7) Loss of initial *p:** Within the Bolivian subgroup we can observe the loss of initial *p (Dietrich, 2007b; 2008, p. 40-41). Initial *p can be completely lost, as in Jorá (Dietrich, 2007b, p. 207), or debuccalized, /s/ in Siriono 'fish' or /h/ in a number of Yuki examples. In contrast to the other three TG2 languages, Guarayo and Guarasu preserve *p. Examples of initial *p are E49, E87, E122a, and E168¹⁹.

→ **(P_8) Nasals and post-oralization:** This feature is presented in Cabral & Rodrigues (2011) as a general TG feature, where they claim that in TG1, TG2, TG3 and TG4 all languages "display alternation of nasal and post-oralized stops, the former occurring in nasal contexts and the latter in oral ones" (Cabral & Rodrigues, 2011, p. 74) namely "[t]he alternation of nasal versus post-oralized consonants is motivated by the nasal or oral context following such consonants" (ibid: 76). Rodrigues & Dietrich (1997, p. 268), reconstruct the PTG nasal consonants *m, *n, and *ŋ. These phonemes may show alternative post-oralized variants *mb*, *nd*, and *ng* in a single language or vary in realization in different languages. Yuki, for example, seems to be less nasal in general, i.e. the development may extend to *b*, *d*, and *g*, respectively (Dietrich, 2008, p. 41). This is presumably also the case in Guarasu. In our specific comparison, we observed a relative loss of nasal quality in Jorá and Yuki - e.g. in 'snake' (E84) and '2SG' (E116) -, whereas Siriono preserves it (cf. E7, E18, E135, E157, E166).

Strikingly, there are also some counterexamples. In Jorá (E157), there is one example where *m* corresponds to *b* in Siriono. The presentation of alternative forms, shows the variability of the phonetic realization of the same word with respect to post-oralization of nasals, as e.g. in Jorá 'people' (E7) may be realized as *mbia* or *ma*, and 'fly' (E166) can be *mberu* and *meru* in Guarayo.

→ **(P_9) Reconstruction or fusion of /i/ and /iː/:** The two phonemic vowels *i and *iː of PTG have partly merged in TG2. Yuki lost the central vowel completely (Dietrich, 2007b, p. 206), whereas in Siriono the opposition has been reversed (i.e. *i in PTG is now *i* and *iː is now *iː*; see Crowhurst (2002) and E42, E44, E81, E87, E111, E133). E111 and E133 show the reversal of the vowel opposition in Siriono, on the basis of a reconstructed plain *i. Guarayo keeps the reconstructed central vowel. Guarasu seems to have retained the central vowel, too. Jorá, however, does not show any evidence of the vowel *iː*. The importance of the absence of this phoneme in the data, though, may be trivial. We assume that *iː* existed in Jorá, just like in Siriono, because it is a characteristic that Baure people usually point at when they talk about this language:

SD: "You didn't understand (what they spoke)?"

RP: "Because they didn't speak well, only this *i*, *i*, *i* was what the Indians made."

(Baure speaker RP in Baures, 5 of September, 2009, in interview with Danielsen)

We can imagine that Hanke and Béghin were probably not able to distinguish the two vowels.

→ **(P_10) Palatalization and friction of *k and *t:** A distinguishing feature within TG2 is the affrication of *k as [tʃ], sometimes only palatalized as [kʲ] in some of the languages. In addition, there may be more or less palatalization and friction of *t, generally before a high vowel (Dietrich, 2007b, p. 208). Dietrich (2007b, p. 208) noticed a general

¹⁹ We do not have any clear examples of the behaviour of intervocalic *p.

tendency towards palatalization in the word 'maize, corn' (E111). The tendency is even more advanced in Siriono [s] and Jorá [ʃ]. Particularly interesting is the case of 'milk' (E18) and 'breast' (E10), where Jorá shows an affricate, Siriono and Yuki have palatalized consonants, and Guarasu and Guarayo are close to PTG without any palatalization. Further possible examples are E54, E63, E101, E108, E111. It seems that the process is most advanced in Jorá which is similar to Siriono and Yuki. We can also observe that palatalization proceeded in time and occurred more recently, and older forms in Siriono present less palatalized variants (compare Schermair 1957).

→ **(P_11) Evolution of *(n)y:** The example of 'moon' (E44) shows different developments of word initial *y. In fact, it seems that we can talk about two major processes, one starting off from a *ñ, changing into [n(y)] in Jorá (E96, E31-33), and one starting with an oral *y, corresponding to [dʒ] in Jorá (E44, E62, E76) (O'Hagan, p.c.). The word proposed for comparison, *yuka '(I) kill' (Dietrich, 1990, p. 21), *dutʃa* in Jorá (E152), may be evidence of the oralization of the initial consonant here. Also Guarasu changes the oral *y into [d]. Unsurprisingly (compare P_8), Siriono is more nasal than Yuki (E31-33, E44, E96). Yuki corresponds more or less to Guarayo, generally the most conservative language of TG2. Realization of *ñ shows a different correspondence with [s] in Jorá *kusa* 'woman' (E2b), however, this is in word-medial position (O'Hagan, p.c.).

All the P_criteria outlined above are summarized in table 4 for TG2:

Table 4. Comparison of features identifying TG2 (as proposed by Rodrigues, 1984/85).

criteria	starting feature in PTG	expected in TG2	Jorá	Siriono	Yuki	Guarayo	Guarasu
(P_1)	final consonant	–	+	–	+	–	+
(P_2)	*tʃ and *ts	ts or s	(–) s and tʃ	+	–	+	–
(P_3)	*p(w)a	kwa or ka	+? gwa ~ ga	(+) ka	(+) gwa	+	(+) kwa
(P_4)	*py	py	?	–	–	(+)	(+)
(P_5)	stress on the ultimate	accent on penultimate	–	+	+	+	+
(P_6)	*ʔ	∅	+	+	+	–	+
(P_7)	*p_	*∅_, *s_	+	+	+	–	–
(P_8)	*m	mb, b	m, mb, b, nd	mb, b, nd	b	mb, m	m
	*n	nd, d	n, d	nd	d	nd	n, d
(P_9)	*i	i, i	i	i	i	i	i
	*j	i	i	i	i	i	i
(P_10)	*k, *ti/te	ky, tʃ, s	k < tʃ, ti < ʃ, tʃ	k < ky, ti < si, tʃ	k < ky, ti < ti, tʃ	k ti < ti, tʃ	k, te
(P_11)	*y	y?	d(ʒ)	(n)ʒ/ ∅	y	y	d(y)
	*ñ		n, (s)	ñ	y	ñ	d(y)

The phonological criteria discussed above suggest three clusters within TG2, where Guarayo is different from all the others, but more conservative with respect to the PTG features (P_2, P_3, P_6, P_9). Guarasu often shows tendencies different from the rest, in particular for less extreme palatalization (P_10) diachronically, and the change of PTG *tj and *ts to /h/ (P_2). The latter makes Guarasu more similar to TG4 or TG6 languages, which could mean that either it belongs to another subgroup of TG or that it changed due to contact with languages of other subgroups. Siriono, Yuki and Jorá seem to form a subgroup (P_2, P_6, P_7, P_10). Jorá stands out in particular for the lack of stress shift (P_5).

The idea of the split of TG2 is also supported by the lexicon, as compared in table 5, where again, Guarayo and Guarasu are different from Jorá, Siriono, and Yuki:

SPECIFIC CHARACTERISTICS OF JORÁ

There are several specific features of Jorá that the other languages do not have. Of course, with the sparse data we are dealing with, it is difficult to find particular features that are not described for any other related TG language. We want to be cautious with our claim here because examples may also have been translated badly or misunderstood.

Firstly, there are some examples of vocabulary that have been reconstructed for PTG for which Jorá seems to have a completely unrelated form (E14, E37).

We also noticed a recurring final syllable in Jorá, for which we suggest an analysis as a kind of derivational suffix, possibly adjectivizing: *-(t)ʃi* ~ *-(d)ʒi*. It occurs in the construction of ‘star’ (= lit. ‘fire of the moon’) on the dependent noun in the construction (14), and in *didintʃi* ‘child, little’ (E4), *dadatʃi* ‘pretty’ (E129), *taratʃi* ‘foreigner’ (E9), and a few more.

(14) *dʒesi tata-tʃi* (E45)
 JORÁ moon fire-ADJ
 ‘fire of the moon’; translated as ‘star’

In contrast to Jorá (14), in Siriono, *nyasi tata* ‘star’ does not contain any affix and presumably constitutes a compound of two nouns like in the other TG languages. The Jorá suffix occurs in some expressions that could be adjectival (or stative verbs), but also in nouns, which could have been derived (E24, E40 *idadʃi* ‘path’). In some cases, we may be dealing with a palatalized variant only (P_10). Stress in Jorá generally falls on the last syllable of the stem (P_5) and it is never marked on this syllable, pointing to the analysis of *-tʃi* as a suffix more than a part of the stem. An alternative analysis could be that the suffix is actually a diminutive, possibly related to Baure *-tʃi* ‘DIM’, at least in some cases.

Table 5. Lexical subdivision within TG2.

ID	Gloss	PTG	Jorá	Siriono	Yuki	Guarayo	Guarasu
E21-22	hammock/ baby sling	*ini (D), *inĩ (OH)				ini	ini
		*kitsab (RC246)	ki(t)sa, tikisá	kisa	kisa		
E43	sun	*kwaratsi (L195), *kwár (S100)	aním tenát	těnda	těda	ari	ári

AREAL CONTACT

The TG languages remained in contact with one another and with genetically unrelated languages in their region (Dietrich, 2007b). The Mamoré and Guaporé rivers form a zone of intense contact (Crevels & van der Voort, 2008) and Jorá is located in this area. Towards the south of TG2, there are Chiquitano (known as **Bésiro**, Macro-Gê) and Ayoreo (Zamucoan). To the west, there are the Mojeño languages (Arawakan), and the isolates Yurakaré, Movima, and Itonama. To the north, close to Jorá, there is the Baure language (Arawakan), and in former times there were presumably Chapakuran groups to the north (Moré) and south (Tapakura, Napeka, Kitemoka) of the Jorá (Wienold 2012).

Hanke (1959) and Loukotka (1963, p. 42) propose that Jorá shows “some influence from the Baure language”. At that time, however, the Baure language had not been investigated yet. Since Danielsen has studied Baure in particular detail, we revisit this proposal again here. In her word list (1959, p. 150-154), Hanke marks three entries as possibly related to Baure (the comparative Baure lexicon has been updated from Danielsen’s corpus), which are E5, E10, and E156. Loukotka (1963, p. 43) adds that the Jorá word *in* ‘water’ (E42) could likewise be related to Guaraní *y* (*ñ*), TG, or Arawakan Baure *in*. It is difficult for us to decide on this point, but an additional alternative could be that the Baure word *in* ‘water’ originates in TG as well. Danielsen counts 11 items with a possible Baure source; however, most of them are tentative at best: E2a, E5, E10, E17, E42, E83, E98, E119, E140, and E156 (most probable forms in bold and Baure notes in Table 7 in the Appendix).

For E42, ‘water’, we could probably say that Hanke noted a Baure word, but Béghin did not. Interestingly, Crevels & van der Voort (2008, p. 164) mention that “the only possible similarity found in the 11 Bolivian languages [of the Guaporé-Mamoré area] is the word for ‘water’ in Baure (Arawakan) and Yuki (Tupí-Guaraní)”. The word *mitfkiri* ‘small’ in Baure may be related to Jorá *mitji* (E119), but this root is largely diffused in all South America for the word ‘cat’ (Kiddle, 1964).

For the phrase in (15), we cannot say for sure if the two words separated by a comma were meant to be alternatives or mark a pause. In any case, the first word could be related to Baure (16). If taken as one phrase, we could imagine this to be an example of language mixing in Jorá:

(15)	<i>ni-ká</i>	<i>t-a-sa</i>	(E140)	(16)	<i>ni=kach</i>	<i>ni=kotorek</i>
JORÁ	1SG-go	OPT-1SG-go		BAURE	1SG-go	1SG=work
	‘I’m going to go’; translated as ‘I am already leaving’				‘I’m going to work’	

Three possible contact scenarios of Jorá with Baure could be proposed: 1. bilingualism in the area for a relatively long time; 2. language mixing with Baure people integrated into a Jorá group; 3. language decay in Jorá and contact with the Baure language in Baures after the capturing of the Jorá. We do not know how much the Jorá children had already been in contact with Baure speakers, and therefore when they gave a word, whether they might have given a Baure translation in some cases. We have to be careful in assuming mixing with the Baure language. As our data analysis has shown, the TG character can definitely be identified, and the lexicon seems to be clearly TG2.

Finally, while there is no evidence of Spanish language contact with Jorá in our corpus, there is one possible case of Portuguese language contact: *inóit* ‘night’ (E49) was possibly borrowed from the Brazilian Portuguese phrase *é noite* ‘it is night’.

CLASSIFICATION

In this article we have shown in detail that Jorá is a TG2 language, and we have also discussed the relation of languages within this subgroup. As claimed above, Guarayo is usually the most conservative language within TG2, and Guarasu, even though geographically proximate, contrasts strongly with the Bolivian TG languages. One of the striking observations for TG2 was the shift of word stress to the penultimate syllable (criterion P_5), a claimed areal TG feature that is supposedly “already quite old” (Dietrich, 2007b, p. 215, [the authors’ translation]). Nonetheless, Jorá does not seem to have shifted its stress, but keeps it on the final syllable (cf. the subsection: Evaluation of Jorá regarding TG2 criteria). This could mean that Jorá split off earlier from the other languages of TG2, and similarities could be the results of language contact afterwards. However, it is in general difficult to compare languages of TG2, because they diverge so strongly for some characteristics.

On the basis of our findings, we assume that all three languages, Jorá, Siriono and Yuki, derive from one protolanguage and form a Sirionoan group. Ethnographic descriptions support the thesis of the Sirionoide group (Jabin, 2012) and the membership of Jorá in this group (cf. table 1), and linguistic comparison reinforces this claim of a group forming a large dialectal continuum.

Stearman (1984, p. 649) presents a possible relation among Bolivian TG ethnic groups and Dietrich (2008, p. 47) tried to unite all Bolivian languages. A new collaboration arose to clarify this claim with the team developing the TG Comparative Lexical Database (O’Hagan *et al.*, 2015). We integrated Jorá into a new phylogenetic classification and searched for borrowings through a list of innovations for Sirionoan languages (Gasparini *et al.* 2015). It appears that TG1 and TG2 do not form two nodes but three clades: Guaranian, Guarayo-Guarasu and the Sirionoan languages.

With regard to lexical data, Guarayo and Guarasu show less differentiation than Sirionoan languages, which is illustrated by the length of the lines. A project started late 2014 by the same team compares morphosyntactic data of TG and may shed additional light on certain aspects of the classification. Unfortunately, this new project will not include Jorá and Guarasu because of the scarcity of morphosyntactic data for those languages.

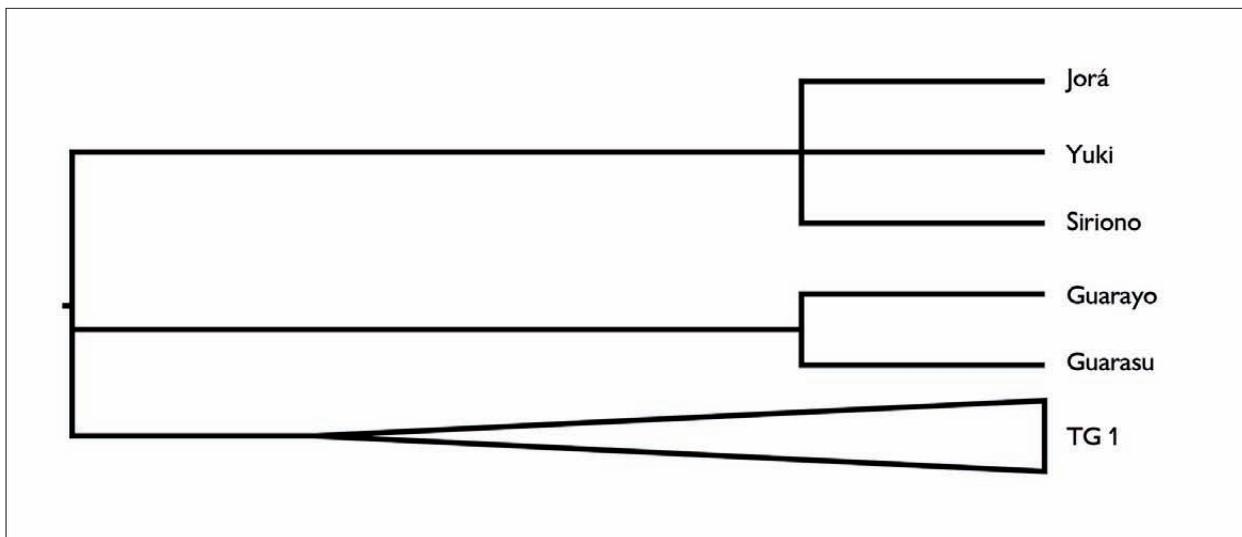


Figure 2. Lexical phylogenetic classification of Tupí-Guaraní subgroup II, TG2 (tree generated by Natalia Chousou-Polydouri based on Tupí-Guaraní Comparative Lexical Database v 1.1, O’Hagan *et al.*, 2015).

CONCLUSIONS ON THE JORÁ LANGUAGE AND PEOPLE

It is always difficult to classify and characterize a language on the basis of sparse data. However, it was possible through systematic comparison to challenge the phonetic criteria for the TG2 group and to describe and compare the pronunciation of the Jorá language with other TG2 languages. Jorá data are not only wordlists with lexical elements but contain a few phrases that shed light on some grammatical criteria including word order within a NP and person marking on verbs and nouns. The lexicon was enough to propose cognates with the TG languages in a lexical comparison and include the language in a phylogenetic classification based on lexicon.

Phonetic criteria, grammatical criteria and lexical comparison allow us to integrate Jorá into a larger complex, together with Siriono and Yuki. All the languages of TG2 still need more intensive investigation where possible. Guarasu, Guarayo and Siriono, are now the focus of documentation projects with grants from the Endangered Languages Documentation Programme (ELDP).

We have tried to gather as much data for Jorá as possible. Nonetheless, there is a small possibility that we will be able to collect more data in the field from one remaining Jorá woman. This means that more studies of TG2 can still be expected in the future. And in addition to this, there will be more descriptions of other TG languages and Bolivian languages of the area, so that a broader comparison is another task.

ACKNOWLEDGMENTS

We would like to express a deep debt of gratitude to the last Jorá speaker. Thanks to two anonymous reviewers for many helpful comments. Thanks to Wolf Dietrich, David Jabin, Sandy Ritchie, Jorge Emilio Rosés Labrada, Emily Clem, Françoise Rose and Natalia Chousou-Polydouri for helping us and leading to more precise analyses. Many thanks to Zachary O'Hagan for discussions at different stages of this analysis and precise comments. Thanks to our financial support for this research: Endangered Languages Documentation Programme (ELDP) for the documentation projects (Danielsen project #IGS0385 on Guarayo and Guarasu; Gasparini project #IGS0185 on Siriono) and the Laboratoire Dynamique Du Langage (DDL)/ASLAN for institutional support.

REFERENCES

- ARMOYE, Celso. **Análisis de la lengua guarayo**. MA thesis, Universidad Autónoma Gabriel René Moreno, Santa Cruz de la Sierra, 2009.
- BÉGHIN, François-Xavier. **Voyage chez les Indiens Jora de la Bolivie**. Brussel: Le Cri, 1980.
- CABRAL, Ana Suely A.C. & RODRIGUES, Aryon Dall'Igna. The interface of stress and nasality in tupí-guaraní languages in a historical perspective. **Revista Lingüística/Revista do Programa de Pós-Graduação em Linguística da Universidade Federal do Rio de Janeiro**, v. 7, n. 1, p. 73-87, 2011. Available at: <<http://www.letras.ufrj.br/poslinguistica/revistalinguistica>>. Access: January 17, 2013.
- CAMPBELL, Lyle. **American Indian languages: The historical linguistics of Native America**. New York: Oxford University Press, 1997.
- COMBÈS, Isabelle. **Diccionario étnico: Santa Cruz la vieja y su entorno en el siglo XVI**. Cochabamba: Editorial Itinerarios, 2010.
- CREVELS, Mily. Why speakers shift and languages die: An account of language death in Amazonian Bolivia. In: CREVELS, Mily, VAN DE KERKE, Simon, MEIRA, Sérgio, & VAN DER VOORT, Hein (eds). **Current studies on South American languages**. Leiden: Research School of Asian, African, and Amerindian Studies (CNWS), 2002a, p. 9-30.
- CREVELS, Mily. Itonama o Sihnipadara: Lengua no clasificada de la Amazonía. Boliviana. **Estudios de Lingüística**, v. 16, p. 11-42, 2002b.
- CREVELS, Mily & VAN DER VOORT, Hein. The Guaporé-Mamoré region as a linguistic area. In: MUYSKEN, Pieter C. (ed). **From linguistic areas to areal linguistics**. Amsterdam/Philadelphia: John Benjamins, 2008, p. 151-179.



CROWHURST, Megan J. Un intercambio de vocales altas en el sirionó (tupí-guaraní), *Revista Linguas Indigenas do América do Sul*, v. 2 Campinas, Brazil: UNICAMP, 2002, p. 7-29.

DIETRICH, Wolf. **More evidence for an internal classification of Tupí-Guaraní languages**. Berlin: Gebr. Mann Verlag, 1990.

DIETRICH, Wolf. A importância da gramática do Sirião do Padre Anselmo Schermair para a lingüística comparativa Tupí-Guaraní. In: CABRAL, Ana Suelly A.C. & RODRIGUES, Aryon Dall'Igna (eds). **Línguas Indígenas Brasileiras. Atas do I Encontro Internacional do Grupo de Trabalho sobre Línguas Indígenas da ANPOLL**, v. 1. Belém-Pará: Editora Universitária da UFPA, 2002, p. 358-373.

DIETRICH, Wolf. Nuevos aspectos de la posición del conjunto Chiriguano (Guaraní del Chaco Boliviano) dentro de las lenguas Tupí-Guaraníes bolivianas. In: ROMERO-FIGUEROA, Andres, FERNAMDEZ GARAY, Ana, & CORBERA MORI, Angel (eds). **Lenguas indígenas de América del Sur: Estudios descriptivo-tipológicos y sus contribuciones para la lingüística teórica**. Caracas, Venezuela, Universidad Católica Andres Bello, 2007a., p. 9-18.

DIETRICH, Wolf. A posição do Yúki dentro do conjunto das línguas Tupí-Guaraní bolivianas. In: CABRAL, Ana Suelly A.C. & RODRIGUES, Aryon Dall'Igna (eds). **Línguas e Culturas Tupi**, v. 1. Campinas: Curt Nimuendajú - Brasília: LALI, UnB, 2007b., p. 205-218.

DIETRICH, Wolf. Nuevos aspectos de la clasificación del siriono y del yuki (tupí-guaraní). In: MESSINEO, Cristina, MALVESTITTI, Marisa, & BEIN, Roberto (eds). **Estudios en Lingüística y antropología: Homenaje Ana Gerzenstein**. Buenos Aires: UBA, Fac. de Filosofía y Letras, 2008, p. 39-48.

DIETRICH, Wolf. Lexical evidence for a redefinition of Paraguayan 'Jopara'. In: BAKKER, Dik & ANSALDO, Umberto (eds). **Languages in contact with Spanish**. Bremen: Akademie-Verlag, 2010, p. 39-51. (STUF - Language Typology and Universals, v. 63, n.1).

D'ORBIGNY, Alcide D. **L'homme américain de l'Amérique méridionale: considéré sous ses rapports physiologiques et moraux**. Paris: Pitois-Levraut, v. 2, 1839.

FABRE, Alain. Tupi. **Diccionario etnolingüístico y guía bibliográfica de los pueblos indígenas sudamericanos**. 2015 [2005] (update of 19/03/15). Available at: <www.ling.fi/Entradas%20diccionario/Dic=Tupi.pdf>. Access: May, 2015.

VON HORN FITZ GIBBON, Friedrich. **Breves notas sobre la lengua de los indios Pausernas El Üaradu-ñe-e**. Sociedad de Estudios Geograficos e Historicos, Santa Cruz de la Sierra, 1955.

GARLAND, Mary. **Diccionario Yuki – Inglés**. Chimore, 1978.

GASPARINI, Noé. **Observations sociolinguistiques et esquisse de la phonologie du siriono**. MA thesis. Université de Lyon, 2012.

GASPARINI, Noé, DANIELSEN, Swintha, CHOUSOU-POLYDOURI, Natalia, O'HAGAN, Zachary, BARTOLOMEI, Keith & MICHAEL, Lev. Southern Tupí-Guaraní Languages: Combining classification with areal linguistics. Paper at the 18th Annual Workshop on American Indigenous Languages, Santa Barbara, May 18, 2015.

HANKE, Wanda. Neznámý indiánský kmen na jezeře Jorá v Bolívií. **Československá ethnografie**, n. 7, 1959, p. 146-156.

HANKE, Wanda. Esclavitud y servidumbre en la América del sur: Labores de la misión de asistencia técnica. Newspaper article in **Ultima Hora**, La Paz (29/06/1953), 1953.

HOELLER, Fray Alfredo. **Guarayo-Deutsches Wörterbuch**. Verlag der Missionprokura der P.P. Franziskaner, Hall in Tirol, 1932.

HOLMBERG, Allan R. **Nomads of the long bow**. Washington, DC: Smithsonian Institution Press, 1950.

JABIN, David. La constelación Siriono: aprehensión y singularización de un conjunto cultural al este del Mamoré. Paper at the Symposium "Ethnohistory of the Guaporé-Mamoré region", 54th international Congress of Americanists, Vienna, Austria, July 27, 2012.

JENSEN, Cheryl. Comparative Tupí-Guaraní morphosyntax. In: DERBYSHIRE, Desmond C. & PULLUM, Geoffrey K. (eds), **Handbook of Amazonian languages**. Berlin: Mouton de Gruyter, v. 4, 1998, p. 490-603.

JENSEN, Cheryl. Tupí-Guaraní. In: DIXON, R. M. W. & AIKHENVALD Alexandra Y. (eds), **The Amazonian languages**. Cambridge: Cambridge University Press, 1999, p. 125-163.



- KELM, Heinz. **Gejagte Jäger: Teil 2 – Die Mbía in Ostbolivien**. Frankfurt a. Main: Museum für Völkerkunde, 1983.
- KEY, Harold & KEY, Mary Richie. **Bolivian Indian tribes: Classification, bibliography, and map of present language distribution**. Summer Institute of Linguistics of the University of Oklahoma. Mexico, 1967.
- KIDDLE, Lawrence B. American Indian reflexes of two spanish words for cat. **International Journal of American Linguistics**, v. 30, n. 3. p. 299-305. 1964
- LEMLE, Miriam. Internal classification of the Tupi-Guarani linguistic family. In: BENDOR-SAMUEL, David (ed), **Tupi Studies I**, SIL, 1971.
- LOUKOTKA, Āestmír. Documents et vocabulaires inédits de langues et de dialectes sud-américains. **Journal de la Société des Américanistes**, n. 52, p. 7-60, 1963.
- MELLO, Antônio Agosto S. **Estudo Histórico da família linguística Tupi-Guarani**. PhD thesis, Universidade Federal de Santa Catarina, Florianópolis, 2000.
- NORDENSKIÖLD, Erland. Die Siriono-Indianer in Ostbolivien: Mitteilung von der Hernmarckschen Expedition. **Petermanns Geographische Mitteilungen**, v.57, n. 1. Gotha: Justus Perthes, p. 16-17, 1911.
- NORDENSKIÖLD, Erland. **Indianer und Weisse in Nordostbolivien**. Stuttgart: Strecker und Schröder, 1922.
- OCAMPO MOSCOSO, Eduardo. **Wanda Hanke en la etnografía Boliviana, 1952-1958**. La Paz: Libreria Editorial Juventud, 1982.
- O'HAGAN, Zachary. **Proto-Omagua-Kokama: Grammatical sketch and prehistory**. UC Berkeley: UC Berkeley Library. Available at: <<http://www.escholarship.org/uc/item/1vx978rq>> Access: 1 August, 2013.
- O'HAGAN, Zachary, CHOUSOU-POLYDOURI, Natalia, & MICHAEL, Lev (eds). **Tupí-Guaraní Comparative Lexical Database v 1.1** with Keith Bartolomei, Erin Donnelly, Swintha Danielsen, Noé Gasparini, Eva-Maria Roessler, Sérgio Meira, Mike Roberts, Vivian Wauters (compilers), and Sebastian Drude, Françoise Rose, Rosa Vallejos (data contributors). 2015.
- RIESTER, Jürgen. **Indians of Eastern Bolivia: Aspects of their present situation**. IWGIA Document 18. Copenhagen: International Work Group for Indigenous Affairs, 1976.
- RODRIGUES, Aryon Dall'Igna. Relações internas na família lingüística tupi-guarani. **Revista de Antropologia**, v. 27/28, p. 33-53, 1984/85.
- RODRIGUES, Aryon Dall'Igna & CABRAL, Ana Suelly A.C. Revendo a classificação interna da família Tupí-Guaraní. **Línguas indígenas brasileiras: Fonologia, Gramática e História. Atas do I encontro internacional do grupo de trabalho sobre línguas indígenas de ANPOLL**, v. 1. Belém: UFPA, 2002, p. 327-337.
- RODRIGUES, Aryon Dall'Igna & DIETRICH, Wolf. On the linguistic relationship between Mawé and Tupí-Guaraní. **Diachronica**, v. 14, n. 2, p. 265-304, 1997.
- RODRIGUEZ BAZAN, Luis Antonio & AYREYU CUELLAR, Herlan (eds). **Lenguages indígenas de la Amazonía boliviana: region de las Cuencas de los Rios Amazonas y de la Plata (Oriente, Chaco y Amazonía)**. Paris: MPEG-ORSTOM, 1998.
- ROSE, Françoise. Reconstructing two functionally-related Tupi-Guarani ta-clauses. Paper at the conference Diachronic Morphosyntax in South American Languages. Lyon, France. May 28-30. 2015.
- SCHERMAIR, Anselmo Ebner. **Gramática de la lengua sirionó**. La Paz: Talleres grafico Gamarra, Yanacocha, 1949.
- SCHERMAIR, Anselmo Ebner. **Vocabulario sirionó-castellano**. Innsbrucker Beiträge zur Kulturwissenschaft, Sonderheft 5, Innsbruck, 1957.
- SCHLEICHER, Charles O. **Comparative and internal reconstruction of the Tupi-Guarani language family**. Orientação: Andrew Sihler. PhD thesis, University of Wisconsin, Madison, 1998.
- SOUSA, Suseile Andrade. **Contribuições para a história linguística do subgrupo Tupí-Guaraní Norte-Amazônico, com ênfase na língua Zo'é**. MA Thesis. Universidad de Brasília, 2013.

STEARMAN, Allyn MacLean. The Yuquí connection: Another look at Siriono deculturation. **American Anthropologist**, v. 86, n. 3, p. 630-650, 1984.

SZABO, Henriette Eva. **Diccionario de la antropología boliviana**. Santa Cruz de la Sierra: Aquaraque, 2008.

VILLAFañE, Lucrecia. **Gramática Yuki. Lengua Tupí-Guaraní de Bolivia**. Universidad Nacional de Tucumán, Ediciones del Rectorado, n. 352, 2004.

VUILLERMET, Marine. **A grammar of Ese Ejja, a Takanan language of the Bolivian Amazon**. PhD thesis, Université Lumière Lyon 2, 2012.

WIENOLD, Christin. 2012. **The Chapacuran language family: Kitemoka and Napeka. Documentational work on two extinct languages**. M.A. Thesis - Revised Version (PRELIMINARY), University of Leipzig. Will be available at: <http://elar.soas.ac.uk/deposit/0104>

APPENDIX 1¹.

(Continue)

ID	Gloss	PTG	Jorá	Sinono	Yuki	Guarayo	Guarasu	Baure
E1	mother (vocative)	*tsi (L118), *tʃi (S57)	tín, tain (WH)	taĩ	taĩ	tsi	hi	
E2a	woman, wife		te, etú (WH)					eton (woman), te/ti (DEM.M/F)
E2b	woman, wife	*kuyã (L135, S129)	kusa (FXB/FXB(WH))	kuña	kyuyã	kuña	kud(y)a, kusa	
E3b	person, someone	*aba (L101, S18)	awe (WH)	aba	aba	aba	aba	
E5	my son (of a man)	*itʃe-ra'ir (D)	ni-fiertʃi (WH)	se-riri	che-rikiya	nde rair	tad/tai	ni=fir-tʃi (1SG=son-DIM)
E6	sibling	*endir? 'sister (male Ego, OH)'	se-nir, se-nunge (WH) 'brother'	se-ninisi 'my wife', se-nonge 'my brother'	ednisi (wife) e-nõgwe (friend)	ri'ke'iri	seretira, serivi	
E7	people	TG1 and TG2: *mbia? (D)	mbia (FXB) ~ (de)ma (WH)	mbia	bia	mbia		
E10	breast	*kam (breast, L163, S106); *poti'a 'chest' (L162, S178)	ʃon-tʃi (WH, cf. E18)	eisia ('chest'), ékyã ('breast')	e-kitã	po'tʃi'a	pisia	ni=ʃon-tʃi (1SG=breast-DIM)
E11	head	*akang (L33, S23)	atʃá (WH)	eãki	ankia	ãkã	api	-po'e, -tokie'
E13	mouth	*yuru (L27, S224)	trátʃi (WH)	e-tʃuru	e-yiru	yuru	duru	
E14	nose/beak	*tĩ (L138, S190); apũy (S35)	d-ús (WH)	eã	i-ãgwa	ã	ava	-pasiri
E15	finger/hand	*pwã (L70), *po (L121)	d-ái (WH)	eo	(i-)oo	kwã	pó, ika	
E16	Little finger		d-ai didin-tʃi (WH)	eo ñetê(ge) nd-eo ñetê				
E17	blood	*uwi (L190, S199)	it (WH)	eruuki	e-rugwi	rubĩ	tubi	iti [iti]
E18	milk	*kami (S106)	tʃandi (WH)	ekyãndi	ekyãdi	kambi	kami	
E21-22	hammock/ baby sling	*inĩ (OH); *kitsab (RC246)	ki(t)sa (WH, FXB), ti-kisá (WH)	kisa	kisa	ini	ini	
E24	needle, thorn	*yu (M227)	meritafĩ (WH)	nyu	yuu	yu		
E31-33	pot, jar, plate	*ya'ẽ (L154) 'pan'	se-niá (WH)	ñio	yeho, e-reyo	na'e	déẽ	

¹ For the reconstructions of PTG, we refer to the following: D (Dietrich 2002, 2007a, 2008, p.c.), J (Jensen 1999: 147), L (Lemle 1971), M (Mello 2000), OH (O'Hagan 2011, p.c.), R (Rodrigues 1984/85: 36), RC (Rodrigues & Cabral in Sousa 2013), S (Schleicher 1998), V (Villafañe 2004); in S, L, and M, the number refers to the list of reconstruction; for others to page number. The basic lexemes of TG (Rodrigues 1984/85: 36) are in bold face.

APPENDIX 1.

(Continue)

ID	Gloss	PTG	Jorá	Siriono	Yuki	Guarayo	Guaraso	Baure
E37	knife	*kitse (L85), *kitʃe (S115)	se-mbe (WH)	tikise	kise	kitse	kiha	
E41	fire	*tata (L91), *(t)atá (S41)	tatá (WH, FXB, FXB (WH)), but tata-ʃi (FXB87)	tata	tata	tata	tata	
E42	water	ĩ (L4, S84)	in (WH), ig (FXB)	i	i	ĩ	i	in
E43	sun	*kwaratsi (L195), *kwár (S100), *kw-ar (OH)	aním (WH), tenát (WH)	těnda	těda	ari	ári	
E44	moon	*yatsi (L115), *yatʃi (S207)	d3esi (WH)	nd3asi	yasi	yatsi	d(y)ahi, lahi	
E45	star	*yasitata (L83)	d3esi-tata-tʃi (WH)	nd3asi tata	yasi riř	jatsi'tata	daitáta	
E46	sky	*ĩbak (L47, S89)	ún (WH), but: uwá 'rain' (WH, E47)	ĩbei	terukya	'iba	ivain	
E49a	darkness	*pítun (L139)	inóit? ² (WH)	itō	hitō	pītū	-pitu, piha	
E49b	night	*pitsa (L140)	inóit? (WH)	itō	hitō	pītū	piha	
E51	Forest/ country	*ka'a (L125, S101)	f-akán ³ (WH)	kya	kya	ka'a	káa	
E52	river/lake	*i(u)pab (L110), *i-upá (S85)	iga (FXB), d3ane (WH), iwúa-te? (WH, cf. E135)	amā 'river/ waterplace'	iha 'lake', ama 'river'	ɨupa 'lake'	íkua 'river'	
E54	field	*yũ 'field' (L37)	turutʃa (WH)	turuka	túyurō (soil)	ko-be	rubi, subi, dsudi	
E59-60	monkey	*ka'i (L116, S103)	ki(d) (WH, FXB)	kyeĩ	kyeĩ	ka'i	kai	
E61	large monkey	*ka'i 'monkey' (L116, S103), *-asu 'AUG' (D)	ki(d)-asu (WH, FXB)	kyeĩ gwasu	kyeĩ gwasu			
E62	jaguar	*yawar (L148), *ya'wár (S206)	d3akwa (FXB), d3aka (SD), d3at (WH)	d3akwa	yagwa	yagwar	dába	
E63	pig	*taitetu (M572), *tajatʃu (M573)	tʃasu (FXB(WH)) ~ tiasu (WH)	teasu (m.), tʃitʃasu (f.)	tiyasu	tiai	tedaho, tadaho	
E64	wild pig	*taitetu (M572), *tajatʃu (M573)	tíd, tái (WH, FXB)	tae	taa	tayazu	tedáho	

² The entry *inóit* 'night' (E49) means 'it is dark' (WH notes), looks similar as Siriono *itōndaru* 'dark, night'. Both words may contain the reconstructed morpheme, or alternatively, what is even more probable is that the Jorá form could be a loan from Brazilian Portuguese *é noite* 'it is night' (Dietrich, p.c.).

³ Schermair (1949: 7) claims that some northern Siriono used [f] when they arrived in Santa Maria mission. This sound is not attested in any of the regional indigenous languages.

APPENDIX 1.

(Continue)

ID	Gloss	PTG	Jorá	Sinono	Yuki	Guarayo	Guarasu	Baure
E76	partridge	*yaku (D)	dʒaku (WH, FXB)	nambu	yaku	yaku	daku	
E81	variety of bird	*mitũ (L136)	mita (WH, FXB)	mbitõ		mitũ	mitu	
E83	feather	*ab, c-ab, c-a-wer 'feather' (L166); *pep 'wing' (L17)	jakon (WH)	heo	eroo	mba'e-pepo	upép	ja 'fur'
E84	snake	*moiy (L57), TG1&2: *mboiy? (D)	bi-sú (snake-AUG) (WH)	mbei chusu 'anaconda'	boi	mboi	mói	
E87	fish	*pira (L164, S162)	itá (WH)	sira	hira	pira	pira	
E96	mosquito	*yati'ũ (D)	nijá (WH)	nyisiõ	yichõ	ñatjĩ'ũ	désu	
E98	louse	*kib (L171, S114)	indút (WH)	ekĩ	ki	kĩ	ki	inok
E99	tree, trunk, (fire?)wood	*'ib 'tree' (L16, S10); *'bira 'stick' (L159), 'tree' (S91); *jepe'áb (R) 'firewood'	tarát (WH)	ira	ira	'bira	depéa	
E101	banana	*pakob (M443)	tja (WH) ~ tia (FXB)	kya á	kya	apu (< *apó 'root', S36)	pako	
E108	cotton	*aminiju (M37)	antfoá (WH), andioti (FXB)	ñidʒu	nĩbo	mandiyu	maniyu	
E111	maize, corn	*abati (L128, S19)	juáfi (WH)	ibasi	ibatjĩ	abatjĩ	abásiki	
E115	I (1SG)	*tjé (J)	se (WH)	se	tje	tje	se	
E116	2SG	*né (J)	de (WH)	nde	de	nde	na	
E117	two	*mokõy (L75, S143)	detjatu (WH)	tjeremo	yese	ñubĩrõ	mókui	
E119	small, child	*pitang/mitang (S164)	mi-tjĩ (WH)	eñete	riřĩ, takõ	ta'ĩ'mi	mine, mini	mitjĩkiri
E121	small, short	*péb (R), *pitang/mitang (S164),	cherangi (SD), and cf. E119	eñete	riřĩ, takõ	ta'ĩ'mi	mine, mini	mitjĩkiri
E122a	long	*puku (S182)	ekú (WH)	euku	eru-	puku	púku	
E124	hot	*akub (L178, S25)	daku (WH)	raku	yakyu	tsakú	háko	
E126	drink							
E129	pretty	*katu 'good' (L29, S110), poráng (R)	dada-tjĩ (WH)	eturã	chakyapĩ		póra	
E132	bad	*aib, aib 'bad' (L126); *aib (S20)	e-dádtja (WH)	ikwã	etiãbete	na'põrãj	hosíva	
E133	wind	*ibitu (L207, S92)	bitú (WH)	itu	iyu	ibitu	ibitu	
E135	far	*amõ-ité (S28); *mirib (L114)	iwúa-te (river-LOC?) (WH)	we	pehe	amo'mbrĩ	momiri	averochon



APPENDIX 1.

(Conclusion)

ID	Gloss	PTG	Jorá	Sinono	Yuki	Guarayo	Guaraso	Baure
E139	drink (V)	*i'u 'drink' (L25, S87)	t-íu 'I want to drink' (WH)					
E140	go (leave)	*ata (L10, S40)	niká, t-asa 'I am already leaving' (WH)	taso 'I will go'				ni=katj (1SG=go)
E146	give	*me'eng (L69, S139)	dotjá! 'give me!' (WH)	mõndo	ebuu che (give me!)			
E148	cut cut, scratch	*kitĩ (L64, S120)	-tjítja (WH)	chisia kisi	kuasa kitjĩ	eyasia kitjĩ	-kisi	
E149	drink (V)	*i'u 'drink' (L25, S87)	tj-ú (WH) (cf. E139)	iu	yu	ei'u	-iu	
E152	kill	*yuka (L124, S220)	dutja (WH)	ik(y)a	yuk'a	eyuka	(a)duka	
E153	die	*manõ (L131, S131)	-maná (WH), also maná 'dead' (WH, E127)	mano	mano	omano	amana	
E155	(she/it) cooks/ burns		senia tatá (WH)	sendi				
E156	(I) cry		niáu (WH)	dzeseo	yikyenõ	eya'tse'o	adahnea, adhea	ni=yaw (1SG=cry)
E157	like		ta-mí	-bi				
E166	fly (insect)	*meru (V198, M356)		m(b)eru	beru	m(b)eru	desu?	
E167	see (V)	*epyák (L208)		tea 'see'; mãe 'look'	itja 'see'; maa 'look'	etsepia	ahepáke, ahepiake	
E168	LOC, DAT	*pe, *pe 'path' (M453)	-te? (cf. E135)	-he	-he	-pe	-pe	
E169	big, AUG	*(w)atjũ ~ utjũ/ (gw)atsu ~ (gw) asu (M491/688)	-asu (WH), assou (FXB)	ekasu	gwasu	gwatsu	-uhu	



APPENDIX 2. List of graphemes in the sources, associated with corresponding sounds and phonemes. (Continue)

Hanke	Béghin	Firestone	Danielsen	IPA phonetic sign	IPA phoneme hypothesized	confidence levels ¹
p				[p]	/p/	1
b, w		b	b, v	[β] or [b]	/β/ or /b/	1
mb, b	mb			[m̃b]~ [b]	/m̃b/	1
m	m			[m]	/m/	1
t	t	t		[t]	/t/	1
d	d	d		[d]	/d/	2
nd, d	nd	nd	nd	[ñd]~ [d]	/ñd/	1
n	n	n		[n]	/n/	1
dž	dj	g	dy	[dy]~[dʒ]	/dʒ/	1
j		y	y	[y]~[ʒ]	/ʒ/	1
r	r	r, g?, gr?	r	[r?]	/r/	1
l		l		[l] ~ [r]	/r/	4 ²
f				[f]	/f/	4 ³
s, ss	s, ss	s	s, z	[s]	/s/	1
š		ch		[ʃ]	/ʃ/	4
č, dš, tš	sh, tš	tsh	ch	[tʃ]	/tʃ/	1
z	ts, ss	ts, z		[ts]	/ts/	1
k	k	k	k	[k]	/k/	1
(kw)	kw, qu, gw		kw	[kʷ]	/kʷ/	1
wu	g		gu	[gʷ]	/gʷ/	2
g	g			[g]	/ng/	3
ng, g	(ng)	ng	ng	[ng]	/ng/	1
					/ŋ/	5
h			j	[h]	/h/	2
x				[x]	/h/	4
-, (g)?	-			[ʔ]	/ʔ/	2
i	i	i	i	[i]	/i/	1
in		ĩ		[ĩ]	/i/	1
y		v or ə		[ə], [i]	/i/	1
yn				[ə]	/i/	4
a	a	a	a	[a]	/a/	1
an	an	en, an	an	[ã]	/ã/	1

¹ (1 = most certain ; 2 = not so sure ; 3 = unsure ; 4 = no phonemic evidence ; 5 = not in the corpus but may be in the language knowing Siriono and Yuki)

² Conclusion based on the flap presence and lateral flap absence in other languages in consideration.

³ See E51.

APPENDIX 2.

(Conclusion)

Hanke	Béghin	Firestone	Danielsen	IPA phonetic sign	IPA phoneme hypothesized	confidence levels ¹
e	e	e	e	[e]	/e/	1
					/ẽ/	5
o	o		o	[o]	/o/	1
on				[õ]	/õ/	1
u	ou	u	u	[u]	/u/	1
un				[ũ]	/ũ/	1

