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The validity of Aryon Dall’Igna Rodrigues reconstructive hypothesis of two proto-affricated phonemes for Proto-Tupí-Guaraní

A validade da hipótese reconstrutiva de Rodrigues de dois fonemas africados para o Proto-Tupí-Guaraní

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Abstract

This article discusses the reconstruction of two affricates for Proto-Tupí-Guaraní (PTG) – *ts and *tʃ –, proposed by Aryon Dall’Igna Rodrigues (1984-1985), which has been criticized by some linguists who suggest the reconstruction of a single affricate *ts. Our purpose is to revisit Rodrigues’ reconstruction and discuss its validity, demonstrating why the criticisms made against it are unfounded. Among the arguments we have gathered, we highlight the absence of data to support the palatalization in PTG of *ts to *tʃ when preceded by *i, a process that would have given rise to an allophone *tʃ of the PTG *ts, as proposed by the opponents of the reconstruction in question, to justify the reconstruction of a single affricate *ts for PTG (Schleicher 1998; Meira and Drude 2015). Our arguments also include reflexes of what would have been an alveo-palatal affricate in PTG in languages of sub-branches IV and VIII, in addition to strong evidence of contrast between two affricates that would be reflexes of a contrast existing in PTG in languages of sub-branch I. We also show problems with the reconstructions proposed by Schleicher (1998), used as evidence to support the reconstruction of a single affricate for PTG. A preview of our study, developed since 2019, was presented in 2021 (<https://www.youtube.com/watch?v=aKIU4NcNcY>).

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Keywords: Proto-Tupí-Guaraní; Phonological reconstruction; Internal classification; Retentions; Innovations.

Resumo

Este artigo discute a reconstrução de duas africadas para o Proto-Tupí-Guaraní (PTG) – *ts e *tʃ–, proposta por Aryan Dall’Igna Rodrigues (1984-1985), que foi criticada por alguns linguistas que sugerem a reconstrução de uma única africada *ts. Nosso objetivo é revisitar a reconstrução de Rodrigues e discutir sua validade, demonstrando porque as críticas feitas a ela são infundadas. Entre os argumentos que reunimos, destacamos a ausência de dados que sustentem a palatalização em PTG de *ts para *tʃ quando precedida por *i, um processo que teria dado origem a um alofone *tʃ do *ts do PTG, como proposto pelos oponentes da reconstrução em questão, para justificar a reconstrução de uma única africada *ts para o PTG (Schleicher 1998; Meira and Drude 2015). Nossos argumentos também incluem reflexões sobre o que teria sido uma africada alveopalatal no PTG em línguas dos sub-ramos IV e VIII, além de fortes evidências de contraste entre duas africadas que seriam reflexos de um contraste existente no PTG em línguas do sub-ramo I. Também mostramos problemas com as reconstruções propostas por Schleicher (1998), usadas como evidência para apoiar a reconstrução de uma única africada para o PTG. Uma prévia desse nosso estudo, desenvolvido desde 2019, foi apresentada em 2021 (<https://www.youtube.com/watch?v=aKIU4NcNCcY>).

Palavras-chave: Proto-Tupí-Guaraní; Reconstrução fonológica; Classificação interna; Retenções; Inovações.

1. Introduction

In his internal classification of the Tupí-Guaraní language family, Rodrigues (1984-1985) considered lexical, morphological, and especially phonological properties when comparing the languages, grouping them into sub-branches according to the regular correspondences of shared properties. The set of correspondences observed in the languages provided Rodrigues with further support for his reconstruction of Proto-Tupí-Guaraní *pw, *ts, *tʃ, the consonant-vowel sequences *pi and *ti which have different reflexes in the languages of the family, as well as the reconstruction of the syllabic pattern *(C)V(C), among other reconstructions.

In this article, whose preview was presented in 2021 (<https://www.youtube.com/watch?v=aKIU4NcNCcY&t=108s>)³, we discuss the validity of the reconstruction of the two proto-affricate phonemes *tʃ and *ts, which have reflexes with systematic contrasts between /ts/ and /h/, /s/ and /h/, /tʃ/

³ Carvalho (2022) also proposes a reconstruction of two affricates for PTG. Any similarity between Carvalho’s article and ours is purely coincidental, as our article was already ready in 2021, and a preview of it was presented at the LALLI Seminars in 2021 via LALLI YouTube (<https://www.youtube.com/watch?v=aKIU4NcNCcY&t=173s>).

and zero, or between /h/ and zero in languages of sub-branch I (see table below)⁴:

Mbyá	/tʃ/	vs.	zero
Xetá	/tʃ/	vs.	zero
Guayaki (Axé)	/tʃ/	vs.	zero
Guaraní Antigo	/ts/	vs.	/h/
Kaiowá	/s/	vs.	/h/
Nhandéva	/s/	vs.	/h/
Guaraní Paraguaio	/s/	vs.	/h/
Chiriguáno	/s/	vs.	zero
Tapieté	/s/	vs.	zero
Izocéño	/h/	vs.	zero

The question that has been raised is whether the oppositions listed above in cognate words of the languages of a single Tupí-Guaraní family sub-branch would be sufficient to support the reconstruction of two proto-affricate phonemes for the proto-language, since such contrasts are not found in the reflexes of what the two proto-phonemes in question would have been in the languages of the other seven sub-branches of the family (cf. Schleicher 1998; Meira and Drude 2015). In the following sections, we present the reconstructive hypothesis of two affricates for PTG, by Rodrigues (1984-1985) (section 2). Then (section 3), we present counterarguments to the criticisms made of Rodrigues' reconstruction, based on linguistic data that show why they are not sustainable. In conclusion, we reiterate the arguments gathered in the article in favor of Rodrigues' hypothesis, which strongly substantiate his reconstructive proposal of two affricates for PTG.

⁴ The data sources used in the demonstrative comparisons of the reflexes of the proto-phonemes *ts and *tʃ reconstructed by Rodrigues & Cabral for PTG are as follows: Araweté, Anambé and Asurini-Xingu (Cabral and Solano, 2006; Solano, 2004), Asurini-Xingu (Monserrat, 1998), Asurini-Tocantins (Cabral and Rodrigues, 2003), Zo'é (Cabral, 1996a, 1996b, 2012), Ka'apor (Caldas, 2009), Siriono (Crowhurst, 2000), Wajãpi (Jensen, 1990), Mbyá (Dooley 2006), Guajá (Magalhães, 2007), Avá-Canoeiro (Silva, 2021), Jora (Swintha and Gasparini, 2015), Yuki (Villafañe, 2004), Kayabi (Weiss, 1998), Tembé (Boidin, 1966, 1978), Guaraní Antigo (Montoya, 1640), Wiraféd (Nimuendaju, 1925), Warazu (Ramirez et al, 2017), Awetý (Awetý Kamaiurá, 2016), Kamaiurá (*Kamaiurá*, 2015), *Xetá*, (Rodrigues et alii, 2013), *Kaiowá* (Carvalho, 2018), *Guaraní Paraguayo* (Scuchard, 1979), *Guayaki* (Rössler, 2018) *Emérrillon* (Cachine et alii, 2020).

2. Rodrigues' hypothesis of two proto-affricate phonemes *tʃ and *ts for PTG

In Rodrigues' hypothesis (1984-1985), Proto-Tupí-Guaraní would have had two proto-affricate phonemes */tʃ/ and */ts/, unlike Lemle's hypothesis (1971), which proposes a single affricate */ts/. For Rodrigues, the reflexes of what would have been two affricates in PTG are well distributed in the languages of sub-branch I, which, as we have already mentioned, present /tʃ/, /ts/, /s/ or /h/ as reflexes of PTG */tʃ/; and /h/ or zero as reflexes of PTG *ts. The languages of sub-branches II and III, and parts of the languages of sub-branches IV, V, VI, and VIII, apparently present a single reflexe of what would have been two proto-affricate phonemes in PTG. According to Rodrigues' hypothesis, at some point in the prehistory of these languages there would have been a fusion of the reflexes of the alveo-palatal affricate */tʃ/ with the reflexes of the alveolar affricate */ts/, as outlined by Rodrigues in the same article, and presented below:

SUB-BRANCH I

- (b) conservation of *tʃ or its change into ts or s;
- (c) change of *ts to h or zero;

Languages and/or dialects: Ancient Guaraní, Mbyá, Xetá (Serra dos Dourados), Ñandéva (Txiripá), Kaiwá (Kayová, Pãï), Paraguayan Guaraní, Guayakí (Aché), Tapieté, Chiriguano (Ava) and Izoceño (Chané).

Examples: (b) PTG *jatʃĩ 'moon', Mbyá jatxí; (c) PTG *otsó 'he goes', Ancient Guaraní ohó, Mbyá oó.

SUB-BRANCH II

- (b) fusion of *tʃ and *ts, both expressed as ts or s;

Languages and/or dialects: Guarayo (Guarayu), Sirionó and Hora (Jorah)

Examples: (b) PTG *jatʃĩ 'moon', Guarayo Játsi; PTG *otsó "he will", Guarayo ótso.

SUB-BRANCH III

- (b) Fusion of *tʃ and *ts, both manifested as ts or s;

Languages and/or dialects: Tupinambá, Paulista General Language (Southern Tupí), Amazonian General Language (Nheengatú), Kokáma - Kokamíya (Cocamilla) and Omágua

Examples: (b) PTG *jatʃĩ ‘moon’, Tupinambá jasi; PTG *otsó ‘he goes’, Tupinambá osó.

SUB-BRANCH IV

(b) Fusion of *tʃ and *ts, both changed to h (or zero)⁵;

Languages and/or dialects: Tapirapé, Avá (Canoeiro), Asurini-Tocantins (Akuáwa), Suruí do Tocantins (Mujetire), Parakanã, Guajajára and Tembé.

Examples:

(a) PTG *jatʃĩ ‘moon’, Tembé zahí, Asurini-Tocantins tʃahía, Parakanã tʃaía, Tapirapé tʃáhí;

(b) PTG *otsó ‘he goes’, Tembé ohó, Asurini-Tocantins áha.

SUB-BRANCH V

(b) merger of *tʃ and *ts, both changed to h or zero;

Languages and/or dialects: Kayabi, Asurini-Xingu, Araweté (?)

Examples: (b) PTG *jatʃĩ ‘moon’, Asurini-Xingu djahi; PTG *otsó ‘he goes’, Kayabí oó, Asurini-Xingu aha; PTG *tseapwén (or tsiapwán) ‘smells good’, Asurini-Xingu heafen.

SUB-BRANCH VI

(b) merger of *tʃ and *ts, both changed into h;

Languages and/or dialects: Parintintín (Kagwahíb), Tupí-Kawahíb (Tupí do Machado, Pawaté, Wiraféd, etc.) and Apiaká (?).

Examples:

PTG *jatʃĩ ‘moon’, Parintintín jahí; PTG *otsó ‘he goes’, Parintintín ohó; PTG *tseapwén ‘smells good’, Parintintín heakwén.

⁵ Although Rodrigues acknowledges that Avá-Canoeiro and Tapirapé have changed the reflexes of PTG *tʃ to zero, when listing the languages of Subbranch IV with respect to the reflexes of *tʃ and *ts, he does not include the change to zero, only the change to h.

SUB-BRANCH VII

(b) merger of *tʃ and *ts, both changed to h or zero;

Language: Kamayurá.

Examples: (b) PTG *jatʃĩ ‘moon’, Kamayurá jaý; PTG *otsó ‘he goes’, Kamayurá ohó; PTG *pytsatsu ‘new’, Kamayurá pyaú.

SUB-BRANCH VIII

(b) fusion of *tʃ and *ts, both changed to h or zero;

Languages and/or dialects: Takunyapé, Wayampí (Oyampí), Wayampipukú, Emérillon, Amanayé, Anambé, Turiwára, Guajá and Urubú.

Examples:

PTG *jatʃĩ ‘moon’, Urubú jahí, Wayampí jái; PTG *otsó ‘he goes’, Urubú ohó, Wayampí óo.

Rodrigues (1984-1985) makes the following observations about the languages of Sub-branch I, all relevant to his reconstruction of two proto-sibilant phonemes for PTG:

Within this sub-branch, I have a language documented for 350 years, the Old Guaraní of the Guairá Province (Montoya 1639, 1640) and the Uruguay River (Aragona 1979), and the various varieties of modern Guaraní, none of which can be said to be a direct continuation of the former. Apart from Paraguayan Guaraní, whose use became widespread in Paraguay and northeastern Argentina during the colonial period, the most likely candidate for descending from Old Guaraní seems to be Ñandéva (Txiripá, Apapokúva). (Rodrigues, 1984-1985: 42) (Our translation)⁶.

With this observation, Rodrigues opposes the prevailing idea among some scholars that languages of sub-branch I are dialects of Old Guaraní, such as Loukotka (1950: 9-10), Schleicher (1998: 22), and Meira and Drude (2015: 278-279). Other observations made by Rodrigues concern Mbyá,

⁶ “No subconjunto tenho uma língua documentada já há 350 anos, o Guaraní Antigo da Província de Guairá (Montoya 1639, 1640) e do rio Uruguai (Aragona 1979), e as diversas variedades do Guaraní moderno, nenhuma das quais se pode afirmar que seja a continuação direta daquela. Fora o Guaraní Paraguaio, cujo uso se generalizou no Paraguai e no nordeste da Argentina durante o período colonial, o candidato mais provável à descendente do Guaraní Antigo parece ser o Ñandéva (Txiripá, Apapokúva). (Rodrigues, 1984-1985: 42)”.

Xetá da Serra de Dourados, Xiriguano, Tapieté, Izocenho, and Guayaki. Regarding Mbyá, he observes that it “...still maintains a more conservative phonological trait than the corresponding trait in Old Guaraní — the phoneme tx (/tʃ/), originating from PTG *tx (*tʃ), which corresponds to /ts/ in Old Guaraní.” Regarding the Xetá of the Serra dos Dourados in northwestern Paraná, he observes that “...although very differentiated in several phonological and lexical properties, it is, in terms of its diagnostic characteristics, more closely linked to the Mbyá (Xetá ne txo “they bit you”, Mbyá ne txu’ú, but Kaiwá ne su’ú, Old Guaraní ne tsu’ú).” Regarding Chiriguano, he suggests that it separated from a “...common ancestor to the Mbyá and Old Guaraní, therefore some time before the documentation of the latter.” Rodrigues observes about Izoceño that it is “...a dialect of Chiriguano spoken by descendants of the Chané Indians, originally a language of the Arawak family.” Regarding Tapieté, it was spoken “by a Chacoan people, probably of Matáko origin. Finally, regarding Guayakí (Aché), it is considered more strongly altered in its grammatical structure, more particularly approaching Mbyá (Guayakí txu’ú ‘to bite’, Mbyá txu’ú; Guayakí pytxý ‘to take’, Mbyá pytxý; Guayakí raá, raa ‘to carry’, Mbyá araá ‘I carry’, etc.).” (Rodrigues, 1984-1985: 42).

The internal classification of the Tupí-Guaraní family was revised by Rodrigues and Cabral (2002), given the need to regroup some languages and include others in specific sub-branches, since new data from already known languages and data from new languages, whose speakers were contacted in the 1980s, became available, thus requiring adjustments to the classification.

Thus, Kayabí, previously included in sub-branch V, was regrouped into sub-branch VI, as it shares the distinctions of lexical and grammatical modal properties – Indicative II mood –, epistemic modality, and gender (in third-person pronominal forms), characteristic of the other languages of the Kawahíwa complex, including sharing with these languages word order involving verbs and emphatic pronouns, among others. Interestingly, the Kayabi have been calling themselves Kawaiíwa in recent years ([https://pib.socioambiental.org/pt/Povo:Kawaiwete_\(Kaiabi\)#Nota_sobre_as_fontes](https://pib.socioambiental.org/pt/Povo:Kawaiwete_(Kaiabi)#Nota_sobre_as_fontes)).

The Anambé do Cairarí and Amanajé languages were regrouped into sub-branch V because they share lexical, phonological, and morphosyntactic correspondences with Araweté, but not with the languages of sub-branch VIII, where they had been classified by Rodrigues (1984-1985). Ararandewára, not considered by Rodrigues in his classification, was also included in this sub-branch V. The Zo’é language, the ethnonym of the people’s name, was included in sub-branch VIII and was classified as belonging to this sub-branch by Cabral (1996a, 1996b).

3. Review of criticisms made to Rodrigues' (1984-1985) reconstruction of two affricate phonemes for Proto-Tupí-Guaraní

Schleicher (1998) was the first linguist to criticize Rodrigues' (1984-1985) reconstruction of two affricates for PTG, arguing that there is randomness in the correspondences and that variations in the sets of correspondences do not seem to justify two more than three, four or more sibilants.

The reason for positing two and not more for these reflexes was not based on correspondence sets, but on the fact that within each of the Guaranian languages, only two variations are predominant (*č/š* vs. *Ø* in Mbya, *s* vs. *h* in Kaiwa and Paraguayan Guaraní); the 'stronger' reflex supposedly from **č*, the 'weaker' from **c*. However, as has already been seen, the different languages are not always in agreement as to which words reflect which proto-phoneme. The reconstruction of **č* and **c* does not adequately explain the chaotic collection of correspondence sets above. (Schleicher, 1998: 20).

Schleicher's conclusions regarding the two proto-phonemes proposed by Rodrigues for PTG are based on reconstructions he made, several of which are unsustainable, as will be demonstrated below. Schleicher proposes the etymon 11. **-ʔitʃar* 'canoe', but no conservative languages have reflexes that support such a reconstruction. In Tupinambá the word for canoe was *-iar* (and not *-isar*), as well as in Asuriní-Xingú, Kayabí and Tembé the word for canoe has the form *-iar-a*; Wayãpí has *-iaa*, Ka'apór *-járúsú* and Araweté *-iarutʃu*. On the other hand, languages such as Zo'é and Asuriní-Tocantins developed an intervocalic glottal fricative, in cognate words, respectively *-ihét* and *-ihár-a*. There are also languages in which, instead of the insertion of *h*, a *g* was inserted, as in *-igár* of Suruí Aikewára and in *igá ~ igára* of Old Guaraní (Montoya 1640: 635). If in the proto-language the form for canoe was as Schleicher proposes, **-ʔitʃar*, one would expect the form *-ytsár* in Old Guaraní, *-ysar* in Tupinambá, and so on.

Etymon 53, **tʃam* 'cord' (corda), also presents erroneous correspondences. In Asuriní-Tocantins, 'corda' is *-hom* and not *-otʃon*, so Asuriní-Tocantins does not contribute to supporting the reconstruction of **tʃam* 'corda' for PTG.

As for etymon 54, reconstructed as **-tʃarai* 'to play', this should be **-motʃarai*, as this is the form reflected in the cognate words of the languages of the family: Tupinambá *-mosarai* 'to play': GA *-ñembosarái* 'to play, to

gamble’: Tm -mutsaraĩ ‘to play’: As-T -moaráj ‘to play’: Zo’é –bierai ‘to play’.

The reconstruction in 56. *-tʃéy “to wash” also does not hold up. GA has -éj or -héj ‘to wash’, Tembé has -héj, Asurini-Tocantins has -héj, so the correct reconstruction is *-tséi. The etymon in 64 is also not supported by data from modern languages, and should be reconstructed with *ts and not with *tʃ, *ts-un and not *tʃun, where ts- was originally a relational prefix of non-contiguity, whose reflexes in modern languages are -ts, s-, h- or zero, and combine with relative themes of class II: GA h-un ‘black color of something or someone’, xé r-ún ‘I am/I am black’, gwyrá=ún ‘black bird’. Later, reflexes of the PTG *ts- in this word, in several languages, were reanalyzed as part of the root, although in these same languages there are crystallized -ún in animal and plant names, as part of ancient compositions, as in Tembé dapuún ‘black japu’, dawarún ‘black jaguar’, and so on. The same applies to the reconstruction in 116. *tsikije and not *tʃikije.⁷

Returning to Schleicher’s idea that the PTG *ts preceded by *i would have resulted in an allophone tʃ in PTG, we highlight cognate words from the languages of sub-branch I that show contrasts between two sibilants and their respective cognates in Tupi languages from different families that do not show reflexes of the PTG *i preceding the reflexes of the PTC *ts. Let us first examine the absence of such traces in cognate words from subbranch I:

PTG *-atʃá ‘to cross’: Mb -atʃá: Kw -asá:

PTG *-etʃá ‘eye’: Mb -etʃá: Xet -etʃá: Kw -esá: Xet -etʃá:

PTG *-atʃẽ ‘to shout’: Mb -atʃẽ: Kw -asẽ:

PTG *jatʃẽʔó ‘throat’: Mb -ay’o: Xet -djatxeó: Ka -jaseʔo

PTG *-jo-tʃok ‘to punch’: Mb jo-tʃok: Kw -so ‘to punch’:

PTG *-watʃũ ‘intensive’: Mb guatʃu: Kw guasú:

PTG *-tʃorók ‘to burst’: Mb -tʃoro : Kw -soro :

PTG *utʃá ‘crab’: Mb japeutʃa ‘scorpion, crab’: Kw Japeusá

PTG *tʃuʔu ‘to bite’: Mb -tʃuʔu : Xet -tʃo : Kw -suʔu

PTG tʃoʔó ‘game meat’: Mb -tʃoʔo: Kw -soʔo

⁷ There are also numbering errors in Schleicher’s (1998) comparative table, such as numbers 152 and 163, whose etymons do not contain any affricates. Finally, the fact that Ka’apór and Wayampí have words with fricatives, as will be shown later, is due to retention (persistence) or borrowings from the Amazonian General Language.

Note that verbs like PTG ***tʃok* ‘to pound’ and **-tʃuʔu* ‘to bite’ are respectively reflexive forms of PT ***tʃekʷ* and ***čukʔu* ‘to pound’: PTG **tʃok*; AW: MA *tok* : JU *Jurúna pa-dak-u*, *Xipáya dak-u* : MU *Mundurukú jək* : TU *Tuparí tek*; KR *tak* ‘pisar’; MO *Gavião -dek*, *Paitér dég*. In the case of the reconstruction in PT ***čukʔu* ‘to bite’: AW *tuʔu* : MA *eka-tuʔu* : JU *Jurúna a-čú*, *Xipáya tu*; TU *Tuparí toko* ‘to bite, to chew’, *Mekéns sogo*; RA *Káro tó*. (cf. Rodrigues 2007)

Similarly, a name like PTG **-etʃa* ‘eye’ is a reflexes of PT ***etʃa* ‘eye’, but there is no evidence that *tʃ* would have resulted from palatalization in an environment preceded by reflexess of PT^{**}*i*: AW *-eta* : MA *-eha* : JU *Jurúna -etá* : MU *Mundurukú*, *Kuruáya eta* : AR *Karitiána aso* ‘face’ : MO *Gavião íja-kap* : RA *Káro tʃa*.

It is important to consider the fact that if in PT there was no evidence of ***i* preceding ***ts* or ***tʃ* in cognate words, then it cannot be assumed that, in PTG, **tʃ* would be an allophone, nor of PTG **ts* preceded by **i*, nor the result of the palatalization of **t* followed by **i*, as the following etymologies show:

PT ***pitsik* ‘to take, hold’/‘to seize’: PTG **pitsik*: AW *pitik* : MA *pitik*: JU *Jurúna padik-u*, *Xipáya padik-u* : MU *Mundurukú išik*: AR *Karitiána pitik* ‘to arrange, aprontar’/‘to arrange’ (*pesek* ‘apertar’/‘to squeeze’);

PT ***tʃup* ‘ver’/‘to see’: PTG **cuβ* ‘visitar, achar’/‘to visit, to find’: AW *tup* ‘ver, encontrar’ : JU *du* : MU *Mundurukú dzop* : AR *Karitiána tip* ‘achar’/‘to find’: TU *Tuparí top* ‘ver, cuidar’, *Makuráp top* ‘ver’, *Mekéns sob-*: RA *Káro tob*;

PT ***etse* *posp./postp.*: PTG **-etse* ‘sobre, a respeito de’/‘on, about’: AW *ete* : MA *-ete* ‘em, contra’/‘in, against’: JU *Jurúna de*, *Xipáya de*, *ze*: MU *edzi*, *Kuruáya edi* ‘com’/‘with’: AR *-*: TU *Makuráp ete* ‘com, perto de’/‘with, near’;

PT ***atʃe* ‘a gente’/‘people’: PTG **atʃe* ‘nós, a gente’/‘we, one’: AW *ozo* : JU *Jurúna*, *Xipáya si, se-* ‘nós incl.’/‘incl. we’: AR *Karitiána ota* ‘outra pessoa, companheiro, amigo’/‘another person, fellow, friend’;

PT ***tsoče* ‘sobre’/‘on’: TG **tsotʃe*: MA *tote*: JU *Jurúna tʃãde*, *Xipáya tʃade*: MU *Mundurukú dzejdzje*, *Kuruáya dede*: TU *Makuráp tete*;

PT ***tʃik* ‘chegar’/‘to arrive’: TG **tʃik*: AW *tik* : AR *Karitiána tek* ideofone para ‘ir (sg.)’/ideophone for to go (sg.): TU (cf. *Tuparí tik* ‘vir para cá’/‘to come here’): MO (cf. *Gavião tsíg-a* ‘estar perto’/‘to be near’): RA *Káro ti*;

PT ***-tʃukʷu* ‘morder’/‘to bite’: PTG **tʃuɣu* : AW *tuɣu* : MA *eka-tuɣu* : JU Jurúna *a-čú*, Xipáya *tu* : TU Tuparí *toko* ‘morder, mastigar’, Mekéns *sogo* : RA Káro *tó*;

PT***-aču* ‘grande (aumentativo)’/‘big (augmentative)’: PMAT * *-waču* : PTG **-waču* ~ *-uču*: AW *-watu* : MA *-wato*: AR Karitiána *-oti* : TU Tuparí, Makuráp *-ato*, Mekéns *-aso*, Wayoró *-aco* : MO Gavião *àtòd*, Paitér *àtóà* ‘alto’/‘high’: RA Káro *čú*.

The data above show that, even if at a stage prior to PT, ***t*s had become palatalized when preceded by ***i*, then ***i* would have been absorbed by ***tʃ*, the latter sound already being consolidated as a phoneme in the proto-language. As we mentioned at the beginning of this article, there was palatalization of PTG reflexes **t* followed by **i*, only in some languages of the TG family (cf. Rodrigues 1984-1985; Cabral and Rodrigues 2003)⁸, which would have occurred at a late stage in the history of the languages. This spirantization process occurred in some languages of sub-brachs I and VI, and in languages of sub-brachs II, IV, V, VII and VIII. Thus, Old Guarani and Kaiowá (sub-branch I, Tupinambá (sub-branch III), as well as Parintintín, Kayabí and Piripkúra (sub-branch VI) did not spiralize *t* before *i*. Tupinambá (sub-branch III), for example, has *awatí* ‘corn’, and not *awaʃi*, *-apití* ‘to kill’ + *-áβo* ‘gerund’ = *-apitiáβo* ‘killing many’ and not *apiʃiáβo*; *ta ja-juká* = *tiajuká* ‘let’s kill!’ and not *ʃiajuká*. Similarly, Old Guarani has *awati* ‘corn’, *tĩɲi* ‘foam to kill fish’, *poti’a* ‘breast’; and Kaiowá has *pemo’tĩ* ‘to be embarrassed’, *akutí* ‘agouti’.

Returning to Schleicher’s criticisms of the two-affricate reconstruction hypothesis for PTG, these extend to the reconstruction of a specific etymon proposed for Proto-Tupí-Guarani by Dietrich (1990: 26). This concerns the reconstruction of **roʔitʃam* ‘intense cold’. Schleicher states that “...**roʔičam* is an incorrect reconstruction. There is no affricate in the word to begin with, rather *ti*, which becomes *č* in many TG languages.” (Schleicher 1998: 21)⁹. Now, in making such a statement, Schleicher disregards the fact that not all Tupí-Guaraní languages spirantized *t* before *i*; therefore, the assertion that the PTG **-roʔitʃaŋ* would have been something like **roʔitiaŋ* is not at all

⁸ However, there was also palatalization of other consonants in an environment with *i*, as occurred in Araweté (cf. Cabral and Solano 2006), where *k* followed by *i* changed to *tʃ*, or as in Zo’é, where all consonants are palatalized when preceded by *i*, with the reflexes of the PTG **j* undergoing strong palatalization (changing to *dʒ* when preceded or followed by high vowels) (Cabral 2012, 2019). However, the generalized palatalization of consonants such as occurred in Zo’é did not occur in sister languages, such as Wayampí, Avá-Guajá, and Ka’apór.

⁹ “There is no affricate in this word, but the sequence *ti* changes to *č* in many Tupí-Guaraní languages.” (Schleicher 1998: 21);

plausible. This fact is reinforced by the reflexes of the PTG *ti in languages of subbranches I, III, and VI, which did not spirantize t before i. Besides, this word is the result of a compounding processes from -roʔi ‘cold’ + tʃaŋ ‘?’ = ‘intense cold’. The following examples show the late palatalization of reflexes of the PTG *ti in different languages and the reflexes of what would have been a proto-phoneme *tʃ in the etymon -roʔitʃaŋ:

Sub-BRANCH I

Guaraní Antigo	<i>awati</i>	‘milho’	-roytsã (M. 344/338)
Tapieté	<i>awati</i>	‘milho’	-ni’insa (H. 342)

SUB-BRANCH III

Tupinambá	<i>awati</i>	‘milho’	-roisãŋ
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Below are presented examples of the languages that spirantize t before i, but which maintain reflexes distinct from the results of this spirantization as a PTG reflex. *roʔitʃaŋ:

SUBCONJUNTO IV

Asuriní-Tocantins	<i>awatʃi</i>	‘milho’	-royhíŋ
Guajajára	<i>awatʃi</i>	‘milho’	-uwixàŋ
Tembé	<i>awatʃi</i>	‘milho’	-ruwitzang

SUB-BRANCH VI

Kayabí	<i>awatʃi</i>	‘milho’	-i-roisãŋ
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SUBCONJUNTO VIII

Zo’é	<i>awasí</i>	‘milho’	-roihãŋ ‘gelo, frio gelido’ (C. field notes)
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Only a few languages have merged PTG *ti reflexes with PTG reflexes of PTG *tʃ in the reflexes of *roitʃaŋ:

SUB-BRANCH VII

Kamayurá *awatsi* ‘maiz’ *-ro’itsan* ‘gelo, frio gélido’ (W n. c.)

SUB-BRANCH VIII

Ka’apór *awasi* ‘milho’ *-risã* ‘gelo, frio gélido’ (Ca 2009)

The evidence presented so far favours the reconstruction of **-roitʃáng*. In addition to the arguments related to the consonant **tʃ*, the nature of the vowel preceding it in the proto-language must also be considered. It is known that only three of the Tupí-Guaraní languages changed the reflexes of the PTG **i* to *i* (Araweté, Yukí and Warázu), and that only two of these three languages changed the reflexes of the PTG **i* to *i* (Araweté) or *ə* (Warazu). Other languages, however, changed only some occurrences of *i* to *i* (Asurini-Xingu, Tembê, Zo’ê, Avá Canoeiro), confirming that the most common directionality of changes involving the fusion of the reflexes of the PTG **i* with the PTG **i* is **i* > *i* (cf. Crowhurst 2000: 62). This fact also supports the hypothesis that in PTG there was the form **-roitʃáng*.

Regarding the vowel quality in **-roitʃáng*, it is worth considering that in Awetý, a language belonging to the Awetý family, the Tupí family closest to the TG family, the PTG reflexes **t* **tʃ* and **ts* are *t*. And at some point in the history of this language, the reflexes of these two proto-phonemes merged with the PT reflexes ***w* (cf. Silva 2011). It happens that Awetý presents *ɟ* in words like *poziʔa*, for example. This is most likely due to the influence of Kamayurá *potsiʔá* < PTG **potiʔa* < PT ***potiʔa*, whose *ts* sound was adapted to the sound closest to the Awetý language, which is the retroflex fricative *ɟ*. But there is no evidence that Awetý would have had an *i* preceding a *t* in the word *telo’itãng* ‘cold’. Regarding the reconstructions **tʃi* ‘mother’ and **tʃirik* ‘cracking’, Schleicher (1998) considers them mere examples of a rule that preserves **ts* when preceded by *i-* (analyzed by him as third person). But Schleicher does not explain why such a rule did not apply to so many other themes beginning with **ts*. Finally, Schleicher (1998) highlights the fact that Guayaki has *ẽ* and not the expected *tʃẽ* for ‘to leave’, which would indicate *ẽ* as a reflex of **-tsem* and not **-tʃẽm*, as well as the case of Apopakuva, which would have *-piï* and not the expected *-pitsi* for ‘to catch’. But the presence of these forms in the two languages may be due to contact with other languages of subbranch I, or simply result from an internal change in specific lexical items. Schleicher (1998) draws attention

to Dietrich's (1990: 22) observation that such forms would result from dialectal variation in the Proto-Language and then asks: "Why do most or all Tupí-Guaraní languages not show these variations?" Schleicher (1998: 22) proposes that it would make more sense to conceive of a variation of this nature in the languages of I, which he believes to be descendants of Old Guaraní, since in that language Montoya shows examples where there is variation in *sẽ/hẽ* 'to go out'. (Op. Cit.: 23). But as Rodrigues has already demonstrated, how can we prove that Mbyá, Xetá, and Guayakí have *tʃ* and Old Guaraní *ts* in themes without any evidence of palatalization motivation? PTG *-atʃa 'to cross' : GA *atsá*: Mb -atʃa : Kw -asa.

Finally, Schleicher (1998) revisits some Wayampí words that, according to him, are considered by Rodrigues to be loanwords from Amazonian General Language, even stating that there is no reason not to suppose that all lexical items from the Tupí-Guaraní languages used to reconstruct a PTG **tʃ* would also be loanwords. But loanwords from which language or languages to which language or languages? Loanwords should be considered strictly in cases of absence of regular correspondence, which is, in fact, a basic methodological premise. Rodrigues uses the loanword hypothesis in this specific sense and only when there is evidence of irregular correspondences. It would therefore be up to Schleicher to explain in what sense all the reflexes of **tʃ* could be loanwords in all the languages of the Tupí-Guaraní family.

Note that one of the varieties of Parakanã (Eastern Parakanã) begins to change *h* to zero in several words, *kwaraiga* 'sun', for example. But other varieties of Parakanã retain *h*, such as that spoken in the Occidental variant (*kwarahia* 'sun'). In sub-branch VIII, while Zo'é, Emérillon, and Ka'apór retain *h*, a single dialect of Wayampí, that of the upper Jari, preserves *h*, but only in monosyllabic words (Jensen 1989: 22-24), and as a reflex of the non-contiguous relational prefix, which combined with class II themes. In sub-branch V, the Asuriní-Xingu has zero as a reflex of PTG **tʃ* and **ts*, while the other languages of the sub-branch retain *h* as a reflex of these sounds. Languages change, and this weakening of the reflexes of the sibilant phonemes of PTG is attested in all sub-branches.

Meira and Drude (2015: 278-279; 291) and Ramirez, Vegini and França (2017) also criticize Rodrigues' proposed reconstruction. Meira and Drude (2015) assume they follow Schleicher (1998: 278-279), "...following Schleicher, we provisionally assume that PTG **c* (= [tʃ]) and **č* (= [tʃ]) were not distinct segments...", and also consider that their reflexes are different only in the dialects of Old Guaraní, and that mixtures of dialectal variation would be a plausible possibility. Regarding the reconstruction of sibilants in Proto-Mawé—Awetý—Tupí-Guaraní, the authors consider that:

“... (since, as we noted in section ‘PMAG segmental phonology’, the distinction between PTG *č and *c is not universally accepted, it would be at least hasty to assign it to PMAG or to PT solely on the basis of the dialects of Guarani). If, however, $t : t : *č/c$ is assigned to *t, no new proto-segments need to be posited; by Occam’s razor, we again prefer this solution to Rodrigues”. (Meira e Drude, 2015: 291)¹⁰.

The authors conclude that Proto-Mawé—Awetý—Tupí-Guaraní would be a language without fricative and affricate sibilants, and that all sibilants present in the current languages of this genetic grouping would have resulted from “*t or *tj in various contexts”. (Op. cit.)

Ramirez, Vegini and França (2017: 447) also echo Schleicher (1998) and raise the question of where to insert what they call “warázu-sirionic within Tupi-Guarani?”, since this language has h as reflexes of Proto-Tupí-Guaraní sibilants, while most languages of sub-branch II have ts or s as reflexes of these sibilants. The authors agree that Warázu should belong to sub-branch II, which is obvious, since it is not a consonant that defines the classification of languages into sub-branches, but the changes that have occurred in the various linguistic subsystems. Thus, for Ramirez, Vegini and França argue that the fact that Warázu has h as reflexives of PTG *tʃ and *ts, and that it shares other phonological, lexical, and morphosyntactic correspondences with languages of sub-branch II, makes its maintenance in sub-branch II plausible. On the other hand, the authors believe that an ancient ts would have become palatalized when preceded by i, with this vowel subsequently disappearing, and with the weakening of tʃ > ts > h. However, this idea is not demonstrated by the authors.

On the other hand, we have previously shown that there are no traces of *i* in several cognate words of Tupi languages, nor in cognates of these words in languages of other families of the Tupi stock, that would support the claim that the contrasts found between sibilants in languages of sub-branch I result from the palatalization of a Tupi *ts in the context of *i.

¹⁰ “... (since, as we observed in the section ‘Segmental Phonology of PMAG’, the distinction between PTG *č and *c is not universally accepted, it would be at least premature to attribute it to PMAG or PT based solely on Guarani dialects). If, however, $t : t : *č/c$ is attributed to *t, no new proto-segment needs to be postulated; by Occam’s razor, we again prefer this solution to Rodrigues’s. As a consequence, PMAG was, in our view, a language without fricatives or sibilant affricates, all of which, in current Maweti-Guarani languages, result from *t or *tj in various contexts. (Meira and Drude, 2015: 291).

Some conclusions

The data from the Tupí-Guaraní languages are transparent regarding sound correspondences that lead to the reconstruction of two affricates for PTG. The languages of sub-branches II and III would have merged the reflexes of the two proto-phonemes *tʃ and *ts. From sub-branch I, Tupinambá and Old Tupí have s as a result of the merger, and from sub-branch II, Guarayo has ts, Sirionó, Yuki and Horá have s, and Warázu has h. The languages of sub-branch IV, in turn, have zero reflexes (Tapirapé and Avá-Canoeiro), or h or zero, with the Oriental variety of Parakanã beginning to weaken occurrences of h to zero. From sub-branch V, the reflexes are h or zero in Araweté and Anambé, but zero in Asuriní-Xingú. In sub-branch VI there are languages in which the reflexes are h or zero (Apiaká, Parintintín, Tenharin, Piripkúra, Amondáwa, Uru-eu-au-au, Karipúna and Juma), but Kayabí and Wiraféd have zero as the reflex of both proto-phonemes:

PTG	Kayabí	Wiraféd	Glosa
*kwaratsi	kwará	kwarái	‘sol’
*jatʃi	jai	jai	‘lua’
*jatʃi-tata	jai-tata	jai-tata-i	‘estrela’
*iar-utʃu	igar-u	igar-u	‘canoa grande’

Kamaiurá, the only language in sub-branch VII, has zero and few occurrences of h as a reflexes of the two proto-phonemes. Of the languages in sub-branch VIII, Wayãpí of Amaparí has zero, and Wayãpí of Jari, although it has zero, maintains h as a reflex of the PTG *ts corresponding to the phonological form of the non-contiguous relational in monosyllabic words of class II, while Zo’é, Emérillon, Ka’apór, and Avá-Guajá have h or zero as reflexes of the two proto-phonemes. However, as we showed earlier, languages of sub-branches V, VII and VIII have ts, tʃ, ʃ, or h in the word for ‘ice (cold), intense cold’, whose form reconstructed by Dietrich (1990), as well as by Rodrigues for PTG, is *-roʔitʃãŋ. Added to these reflexes are those of languages from sub-branch VIII and one of the languages from Sub-branch IV (Avá-Canoeiro) which have, in some cognate words, reflexes s, ʃ or tʃ of what would have been PTG *tʃ¹¹, as shown by the following data:

¹¹ There is a language that developed from the contact between speakers of a Tupi-Guarani language very close to Tupinambá and speakers of other languages, which has two affricates, ts and tʃ. This is the Kokáma language. But as demonstrated in Cabral (1995), Kokáma developed tʃ from ts followed by the vowel i or preceded by the approximant j. The occurrences of tʃ in Kokáma or ʃ in Omágua are not suitable for the reconstruction of the PTG *tʃ.

Languages of subbranch VIII:

	‘to bite’	‘to cross’	‘game, meet’	‘to slide’	‘crackling’
PTG	* <i>tfo</i> ’o	*- <i>atfa</i>	* <i>tfo</i> ’o	* <i>tʃirik</i>	* <i>tʃirik</i>
Zo’é	- <i>su</i> ’u	- <i>asa</i>	--	- <i>sirik</i>	- <i>sirik</i>
Wayampí	- <i>so</i> ’o	- <i>asa</i>	- <i>so</i> ’o	- <i>pisiry</i>	--
Emérillon	- <i>so</i> ’o	--	- <i>so</i> ’o	<i>syrýk</i>	--
Ka’apór	- <i>so</i> ’o	--	- <i>so</i> ’o	<i>syrýk</i>	--
Avá-Guajá	- <i>xu</i> ’u	--	--	--	--

Jensen (1990: 22-24), when discussing the presence of /s/ in Wayampí, assumes that in this language there is permanence of evidence of two previous stages: /s/ (< *tʃ) found in several words in the two Wayampí dialects compared (that of the upper Jarí and that of the Amaparí); and /h/ (< *ts), preserved in the Wayampí of the upper Jarí in the relational prefix, in monosyllabic nouns. We observed that, while the Wayampí of the upper Jarí retained h as reflexes of the relational non-contiguity prefix (*ts- of the PTG), the Zo’é retained reflexes of this prefix, but crystallized in monosyllabic words, such as in -haj ‘tooth (generic)’ from PTG *ts-ãj ‘tooth’. Note that the h remains in t-ahãj ‘people’s tooth’ (generic and human form) and e r-ahãj ‘my tooth’ (possessed form), but as part of the root. These themes originally belonged to thematic class IIb, but, with the crystallization of relational reflexes, they migrated to class IIc.

Jensen (Op. cit.: 22-24) proposes the V?V environment as a factor resisting the weakening of *tʃ in Wayampí, but we observe that there are reflexes of *tʃ in other environments, both in Wayãpi and in the other languages of sub-branch VIII, as illustrated above.

All these facts add up to solidify Rodrigues’ hypothesis that Proto-Tupí-Guaraní had two affricates, and that there is a well-defined sub-branch of languages in the family that maintains reflexes of the contrast between a Proto-Tupí-Guaraní *tʃ and *ts, with the languages of the other sub-branches having merged these reflexes into ts, s, h or zero, but maintaining reflexes of the PTG *tʃ in words such as “intense cold, ice”, “to bite”, “big”, “to cross”, among others.

The directionality of changes from tʃ to ts or ʃ, and from these to h or zero, is well known. However, what is striking in the languages of sub-branch I is that, contrary to what occurred in the languages of the other sub-branches, there was no fusion of the reflexes of what would have been two distinct affricates in the mother tongue, which gives them a more conservative status regarding this phonological feature, when compared to the other languages of the family. It is also necessary to consider the possibility that languages within sub-branch I preserved the sound tʃ of the proto-language without modifications, as evidenced by data from Mbyá, Xetá, and Guayaki, which preserve the palato-alveolar affricate tʃ.

Another important point to consider, as already pointed out by Rodrigues, is “economy.” Maintaining only the reconstruction of an affricate, the number of independent changes would be much greater, due to the number of splits that would need to be predicted, without any plausible explanation demonstrating motivation for them. As we have shown, there are no environments in the languages that provide arguments for why Mbyá, Xetá, and Guayaki have preserved tʃ in certain environments and zero in others. Similarly, it is difficult to find any motivation for the affricate to be reconstructed for the PTG to occur in Old Guarani as ts in certain environments and h in others, which also does not seem plausible when referring to Kaiowá, Ñandéva, and Paraguayan Guarani, which have s contrasting with h; in addition to Chiriguano and Tapieté, whose reflexes would be s and zero.

Although we know that independent changes occur, as pointed out by Campbell (2013:148) “...the chances of a reconstruction which embodies more economical assumptions being correct are greater than for a reconstruction which assumes less economical developments.”. In this sense, reconstructing two affricates instead of proposing a series of splits in the daughter languages seems, in principle, to be the most appropriate proposal, since reconstructing two proto-phonemes in this case is more economical than reconstructing only one, and also without being able to explain the motivations for the splits.

Rodrigues was fully aware that facts about the proto-language cannot be recovered through the comparative method if the daughter languages do not preserve any evidence of their existence. Finally, if we verify the plausibility of the reconstructed sounds from the perspective of the complete phonological inventory of the proto-language and within the perspective of linguistic universals, the inventory with two affricates demonstrates a certain symmetry and greater plausibility.

Consonants of Proto-Tupi (Rodrigues 2007)

	Bilabial	Alveolar	Palato-alveolar	Velar	Glotal
Obstruents	*p *β *p ^w	*t *ts	*tʃ	*k *k ^w *k ^j	*ʔ
Nasals	*m	*n		*ŋ	
Approximants	*w	*r	*j		

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