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On the Guaranian evidence for two Proto-Tupi-Guarani affricates

It has been recently claimed that the orthodox reconstruction of two affricate segments for Proto-Tupi-Guarani (PTG) is untenable because the relevant reflexes are too chaotic. Under this view, PTG is best reconstructed with a single affricate segment, the multiplicity of correspondence patterns being explained as the result of later dialectal borrowing among Guaranian varieties. This view is discussed and rejected here after detailed evaluation. I show that the correspondences in question are not as chaotic as implied, and that evidence from the Guaranian branch calls for the reconstruction of two affricate segments for PTG. Minor correspondence patterns with special reflexes in Guaranian and in other Tupi-Guarani languages are plausibly explained by other, independent developments such as palatalization, dialectal borrowing, and sporadic/reductive losses in compounds. Although the traditional reconstruction of two segments is vindicated, we offer here the first explicit formulation of this proposal backed up by comparative reconstruction of PTG etyma.

Keywords: Tupi-Guarani languages; sound change; phonological reconstruction.

1. Introduction

The goal of this paper is to address, in a more systematic manner than has been the case so far, the evidence on one of the most vexed issues in the phonological reconstruction of Proto-Tupi-Guarani (PTG). Since the mid-80s of the last century, PTG has been reconstructed with two affricate segments, **ts* (= **c*) and **ʧ* (=**č*) (see e.g., Jensen (1998, 1999); Dietrich (1990); Rodrigues (1984/1985); Rodrigues & Dietrich (1997)). Almost 20 years later, however, an alternative reconstruction of PTG featuring a single consonantal proto-segment for the same set of correspondences has come to be favored, mainly on the grounds of the evidence and arguments presented in Schleicher (1998). Although recent work on TG languages has opted for this latter solution (e.g., Meira & Drude 2015), which recapitulates the pioneering work of Lemle (1971), the matter has not been settled yet.

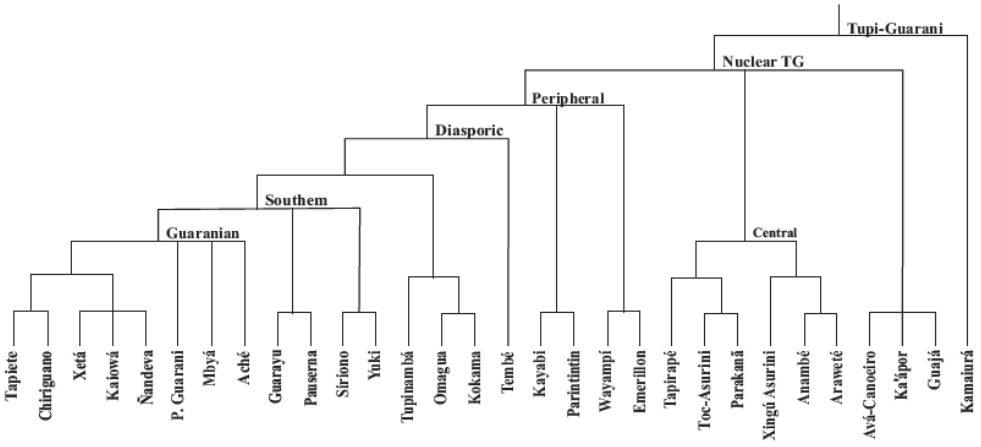

Figure 1. Classification of the Tupi-Guarani language family (source: Michael *et al*. 2015).

This paper will provide evidence, and argumentation (section **3**), in favor of the reconstruction of two affricates for PTG, the reflexes of which are retained in the languages/varieties that make up the Guaranian (*sensu* Michael *et al*. 2015), or branch I (*sensu* Rodrigues 1984/1985), subgroup of the Tupi-Guarani (TG) language family (see Figure 1).[1] It will be necessary, therefore, to scrutinize the counterarguments that have been presented in Schleicher (1998), the most influential source for the single-affricate solution (section 2). I will show that Schleicher's (1998) claim about 'chaotic' correspondence patterns that are suggestive of dialectal borrowing events is seriously flawed. What is worse, factual errors and inconsistencies in Schleicher (1998), hidden beneath neat tables of correspondences, prevent not only an acceptance of his statements on this particular issue, but cast a shadow of doubt on the other claims contained in his work. After addressing the Guaranian evidence for two PTG affricates, I will discuss a series of arguably independent change processes that interact in one way or another with the correspondences produced by the regular development of these affricates (section **4**). Among these independent developments with overlapping effects, palatalization by a preceding **i* is particularly important, as it yields a separate correspondence set. Thus, the reconstruction of two affricate segments for PTG, plus a series of other independent developments, jointly account for the attested patterns of correspondences. In section **5** I discuss in some detail the relation between the nature of the evidence discussed here and the levels of relationship between TG languages and the remaining Tupian languages. I justify my reconstruction of the contrast between two affricates at the PTG level and discuss a series of implications in view of the external evidence from other branches of the Tupian family and in view of what is known (and, perhaps more importantly, unknown) about the diachrony of these languages. Section **6** is devoted to conclusions, and an appendix gives all the cognate sets used in the present work, along with the reconstructed PTG etyma proposed here.

2. The state of the question: a critical overview

The difference between TG languages having oral fricatives or affricates and TG languages whose corresponding segments are glottal fricatives has been recognized early on, first as one of the main isoglosses separating the two classical languages of the family (Old Tupi and Old Guarani) and, later, as a feature of relevance for the internal classification of the family as a whole (see e.g., Edelweiss 1947: 69–83; Dietrich 1990). Lemle (1971), in the first comparative reconstruction of PTG phonology, reconstructs an affricate **ts* (=**c)* for the relevant correspondences. In broad outline, the reflexes of Lemle's **ts* imply a partition of TG languages in two sets, one showing 'strong' reflexes, usually supraglottal fricatives or affricates, such as *s* (in Old Tupi and Sirionó) or *ts*, *ʧ* (in languages like Kokama and Guarayo), and another one showing

[1] Two comments are in order. First, note that it should not be implied that the classification of Michael *et al* (2015) is consensually accepted in the field. In fact, in all aspects relevant to the present paper (to be discussed below) it agrees with Rodrigues (1984/1985), and both are, therefore, equally suitable for our purposes. Figure **1** is a tool to situate the non-expert reader, and nothing more. Second, in agreement with the substantial literature on Tupi-Guarani languages I will use at diverse moments in this paper the label 'Southern / Non-Amazonian' to the (possibly para-phyletic) set of TG languages that includes the Southern clade of figure **1** and Old Tupi / Tupinambá; the complement set of languages within TG is, naturally enough, referred to as 'northern/Amazonian'. Although there is some justification for this in terms of geography and the distribution of some structural features (see Dietrich 1990), the question of whether these are two intermediate-level subgroups within the TG family is very much open. See Gerardi & Reichert (2021) for an alternative classification to that of figure **1**, one that has Old Tupi classified along with other 'Northern' languages.

'weak' reflexes, usually ∅ (the main if not exclusive reflex in languages like Kayabí and Kamayurá), or *h* (in languages like Tocantins Asurini or Tenetehára). This is illustrated in (1) below:

(1) *Exemplar cognate sets* (based on Lemle 1971)
*ja**ts**ɨ* 'moon' > Tocantins Asurini *ja**h**ɨ* : Kamayurá *jaɨ* : Old Tupi *jas**ɨ***
*-e**ts**a* 'eye' > Tocantins Asurini *-e**h**a* : Kamayurá *-ea* : Old Tupi *-e**s**a*
pots**ɨj* 'heavy' > Tocantins Asurini *-po**h**oj* : Kamayurá *-po(w)ɨj* : Old Tupi *-pos**ɨ**j*

Later, however, under the influence of her thesis advisor Aryon D. Rodrigues, Jensen (see Jensen 1984; 1998; 1999) came to recognize *two* affricate segments for PTG. The modification was said to be required to account for data from Guaranian (Jensen 1984: 28; see also Dietrich 1990: 25). Although Lemle (1971) did use Guaranian data in her reconstruction of PTG phonology, data was limited to the Mbyá Guarani language/variety. Even so, already in Lemle (1971), consideration of the Mbyá data would have raised issues for her reconstruction. In particular, the Mbyá forms that fit the etymologies in (1) above, namely: *ja**ʧ**ɨ* 'moon', *-e**ʧ**a* 'eye' and *-poɨj* 'heavy', show a bifurcation **ts* > *ʧ*, ∅ that is neither discussed nor accounted for by Lemle (1971), and which could suggest that two separate proto-segments are indeed necessary. The PTG system with two affricates came to be widely accepted in TG comparative linguistics after its exposition in tone-setting publications such as Jensen (1998, 1999: 137–138) and Rodrigues (1984/1985), where the reflexes of the two PTG affricates **ts* and **ʧ* provided some of the phonological developments taken as criterial for his proposal (see also the later proposal of Dietrich 1990, and the acceptance of this view in Rodrigues & Dietrich 1997).

The final development leading to our present understanding of these issues came with Schleicher (1998), who questioned the reconstruction of two affricates as an account of the complex correspondence patterns of the Guaranian varieties. In his opinion:

> "There is so much randomness in the correspondences that it is impossible to posit one basic correspondence set for one or even two sibilants; the variations in correspondence sets therefore seem not to justify positing two sibilants anymore than positing three, four, or more sibilants (…) the variations are explained by lexical borrowing across languages and phonological influence among dialects" (Schleicher 1998: 20).

Schleicher (1998) argues, then, for the reconstruction of a single affricate, with the more complex correspondence patterns characteristic of the Guaranian varieties being explained by borrowing and "phonological influence". His view yields a PTG which is, in this aspect, identical to that reconstructed by Lemle (1971) in her pioneering study, and it has come to be accepted in some of the latest work on TG languages (e.g., in Meira & Drude 2015: 278–279). Especially for this latter reason, it is important to provide, for the first time in published format, a careful assessment of the arguments and evidence presented by Schleicher (1998).

In sum, we are left with two accounts in the TG comparative literature for the relevant correspondences for TG fricatives (and affricates):

(2) *Two prevailing views on the TG fricative correspondences*
(a) **The single affricate solution:** A single PTG segment is reconstructed and the multiple correspondence sets needed to accommodate the Guaranian varieties are best explained by dialect borrowing among these varieties.
(b) **The two affricates solution:** Two PTG segments are reconstructed, separate reflexes of which are found in the Guaranian varieties alone, all other TG languages showing merged reflexes of these segments.

At the present moment it has not been established which of the alternatives in (2) offers the best account, because the published expositions of both hypotheses present a number of seri-

ous shortcomings. On the one hand, Jensen (1984), the *locus classicus* for the two affricates solution (2b), basically presents PTG etyma paired off with their reflexes in one particular language, Wajãpi, there being no explicit application of the comparative method in order to arrive at PTG reconstructions. The etyma in Jensen (1984) are essentially those of Lemle (1971), with the added updates suggested by Rodrigues, including the presence of two affricates. Later works, such as Rodrigues (1984/1985), Dietrich (1990), Rodrigues & Dietrich (1997), and Mello (2000), either assume the reconstruction as correct, or, as in the case of Jensen (1999: 137: 138), limit themselves to the presentation of correspondences in abstraction from actual cognate sets, which are, however, not found anywhere in the relevant publications.[2]

On the other hand, Schleicher's (1998) work — although sharing with Lemle (1971) a more explicit and methodologically sound foundation than is the case with the published endorsements of the two affricates solution — does present several problems that, to some extent, hinder the evaluation of his claims, and motivate a rejection of many of his arguments and conclusions. The core of Schleicher's (1998) argumentation consists of a table of corresponding segments where *h*, ∅ and 'stronger reflexes' (usually coronal fricatives) show up in 22 different correspondence sets, with no obviously discernible pattern (Schleicher 1998: 20). The correspondences, each restricted to a single etymology (indicated by numbers indexing cognate sets displayed at the end of his monograph), appear so erratic that reconstruction of two affricates (as opposed to three, four, or more) is entirely arbitrary, and, so goes the argument, it would be simpler to postulate a single PTG proto-segment with later dialect borrowing across Guaranian varieties. These instances of borrowing would account for the proliferation of minimally diverging correspondences. However, once Schleicher's (1998: 19) set of correspondences is carefully analyzed and, in particular, once they are compared to the cognate sets presented as evidence at the end of his dissertation, a series of problems become evident:

(3) *Shortcomings in Schleicher's (1998) view of the PTG affricates:*
   (a) **Irrelevant comparisons.** For many of the sets presented by Schleicher (1998: 19) as evidence of the chaotic nature of the correspondences *there is simply no PTG affricate involved*. This is the case with: (numbers refer to the comparative data in Schleicher (1998)): **katu* 'good' (110), **káy* 'burn' (111), **kɨti* 'cut' (120), *páß* 'all' (152), **pirér* 'skin' (163), **pitáŋ*/*mitáŋ* 'child' (164), **-eʔɨm* 'not' (65), **tiŋ* 'white' (189). This is a striking problem with the data, as these make close to half (8/22) of the set of correspondences, which ends up looking bulkier than they actually are with the addition of these spurious sets.
   (b) **Missing comparanda.** In other cases, even though a PTG affricate is in fact involved, languages that are featured in the correspondence sets turn out to lack any cognate in the supporting etymologies. This is the case, for instance, of Mbyá and Kaiowá for set 62, and of Tocantins Asurini for sets 60 and 61 (see Schleicher 1998: 334–5 for the relevant cognate sets).
   (c) **Ghost forms and spurious reconstructions.** In his set for 'canoe', Schleicher (1998: 329) includes a *ghost* (non-existent) Old Tupi form for this meaning: *ɨsár*. Since Old Tupi *s* usually reflects a PTG affricate, Schleicher (1998: 329) incorrectly reconstructs PTG **ɨčár* 'canoe'.[3] Likewise, in his set for 'rope', PTG **čam*, he gives a Tocantins Asurini

[2] The lack of supporting TG data for the assumed PTG system applies to all cited works with the exception of Dietrich (1990) and Mello (2000).

[3] Aside from the Old Tupi lexical ghost, the presence of medial *h* in cognates such as found in Tocantins Asurini may have motivated the reconstruction of the spurious PTG **ɨčár* 'canoe' (the correct form being **ɨat*). Although not discussed by Schleicher, medial *h* in these cases likely reflects a transitional element (usually a voiced velar

form *očon* (Schleicher 1998: 334), which, however, is non-existent, the relevant reflex being *-hóm* 'corda, alça' (Cabral & Rodrigues 2003: 86). In the body of the text, Schleicher (1998: 21) sees an unexplained bifurcation in the Apapocuva reflexes of **pɨčɨk* 'grab, hold' and **jačɨ* 'moon', which are reconstructed with the same affricate *č* in the two affricates solution, as problematic for the latter approach. Note, however, that these reconstructions are incorrect, as the two etyma are in fact supported by contrasting sets of correspondences (as shown in section **3** and in the cognate sets in the appendix of the present paper), and, hence, the Apapocuva forms are not problematic at all for the proposal of two PTG affricates.

(d) **Ovelapping or independent changes.** Cases of word-initial affricates (such as **čɨm* 'smooth', **čɨ* 'mother', **čéj* 'wash') are over-represented among the etymologies that contribute to the erratic patterns of correspondences involving fricatives. However, by Schleicher's (1998: 21) *own assumptions*, these could be explained as secondary developments due to palatalization from a preceding **i-*. If a case is being made for dialectal borrowing as the *explanans* for the pattern of correspondences presented, the effects of other, independent developments must be factored out, rather than included in the correspondences that supposedly show the effects of borrowing. Here again, a bulkier set of overlapping correspondences is produced in an entirely artificial manner.

(e) **Incorrect correspondences.** In some cases, the correspondences used by Schleicher (1998: 19) to demonstrate the messy character of the attested patterns are not, in fact, supported by his own comparative data. Tocantins Asurini, for instance, contributes both *h* and ∅ to the table of correspondences in Schleicher (1998: 19). However, for sets 56 **čéj* 'wash' and 59 **čɨβ* 'rub', where the table indicates ∅, one finds *h* instead (see Schleicher 1998: 334). As noted in **4.1** below, cases where Tocantins Asurini in fact has a ∅ reflex for what Schleicher (1998) reconstructs as a single PTG affricate are encompassed under an independent generalization, as the effects of unrelated and language-specific developments. Among Guaranian varieties, Mbyá Guarani is presented in the table as having ∅/*h* for set 60 **čɨm* 'smooth', but the diverging reflex *č*/*š* for 61 **čɨrɨ* 'run (water)' and 68 **ečá* 'eye'. Examination of the relevant cognate sets in Schleicher (1998: 334–5) reveals that Mbyá Guarani has only *č*/*š* in *all* these cases, thus suggesting a uniform, and arguably less chaotic, set of reflexes.

We have, therefore, every reason to believe that the matter has not been settled by Schleicher's (1998) work, and that his apparent demonstration of a multiplicity of correspondences that challenge the reconstruction of two affricates for PTG is, indeed, merely apparent. Although other questionable aspects of Schleicher's (1998) approach to the issue could be commented upon, such as his reliance on the hypothesis that Old Guarani is a direct ancestor of the modern Guaranian varieties, it is only fair to point out that his discussion does make evident some real limitations in the two-affricates solution that he targets for criticism, such as the incorrect reconstructions in the case of **pɨčɨk* 'grab, hold' and **jačɨ* 'moon', taken from Dietrich (1990), which is one of the main comparative TG studies that assume the reconstruction of two segments. Limitations such as these in the current version of the two affricates reconstruction are expected, since neither Jensen (1984) nor later work by Rodrigues or by Dietrich have provided any explicit comparative reconstructions of PTG etyma. One of the goals of the remain-

fricative) that appears phonetically between *ɨ* and other vowels. This transitional element often shows up as <*g*> in Old Tupi sources from the 16th and 17th centuries (e.g., <Jgara> 'barca ou barco gnlr.'; VLB, I: 52). It is likely that in languages that developed *h* as a phoneme this transitional element was analyzed as a token of these glottal fricatives.

der of this paper is to provide such a rigorous foundation for the reconstruction of two contrasting affricate segments for PTG.

3. Comparative evidence for two PTG affricates

The whole issue around the number of affricate consonants that must be reconstructed for PTG is *phonological* in nature, that is, concerned with the interpretation of the attested correspondence patterns in terms of a reconstructed system of contrasts for PTG and the implied phonological developments in the daughter languages. I will devote less space here to the *phonetic* question of what the proper content of these reconstructed proto segments is (see section **6** for some additional commentary). I will, in fact, take it for granted that the segments underlying the relevant correspondences were affricate consonants in PTG, which seems to be consistent with the existence of both affricate and fricative reflexes, and with the general idea that leniting changes (affricate > fricative) are more likely than fortitions (fricative > affricate) in language change (see e.g., Mowrey & Pagliuca 1995; Bybee & Easterday 2019).

The segmental phonological inventory nowadays accepted for PTG is given in tables 1 and 2, with the two affricates solution being presented for the consonants (see Rodrigues & Dietrich 1997; Meira & Drude 2015).[4]

	Labial	Alveolar	Palatal	Velar	Glottal
Oral stops	*p	*t		*k	*ʔ
	*pʷ			*kʷ	
	*pʲ			*kʲ	
Affricates		***ts**	***tʃ**		
Nasal stops	*m	*n		*ŋ	
	*mʷ			*ŋʷ	
Approximants	*w		*j		

Table 1. Proto-Tupi-Guarani consonants

	Front	Central	Back
High	*i	*ɨ	*u
Mid	*e		*o
Low		*a	

Table 2. Proto-Tupi-Guarani vowels

As was already mentioned in the preceding section, even under the hypothesis that PTG had two affricate consonants, **ts* and **tʃ*, most TG languages show merged reflexes for these two segments. In selecting which languages to compare I have chosen those on which more significant documentation is available, so as to produce, to the most possible extent, complete cog-

[4] There are aspects of this reconstructed inventory, besides the issue of the number of PTG affricates, that are questionable. Carvalho (forthcoming, a) re-analyses the presumed evidence for PTG **kʲ*, and finds that the relevant reflexes are explainable as positional developments of **k*. The labialized nasal stops **mʷ* and **ŋʷ* are likewise probably spurious as contrastive segments. Obviously, dealing with these matters is beyond the scope of this paper. See Carvalho (forthcoming, b) for a book-length reconstruction of PTG phonology.

nate sets, minimizing the number of unattested forms. I have also relied on the previous literature on TG historical phonology as a guide to select a compact set of languages that illustrate both the reflexes of the presumed PTG affricates and the action of other developments that might interfere with these reflexes, usually by yielding partially overlapping correspondences. I will use Old Tupi and Kayabí as two languages, widely separated within accepted TG internal classifications (e.g., Rodrigues 1984/1985; Michael *et al*. 2015), that are consensually accepted as having a single reflex for the PTG affricates: *s* in the case of Old Tupi, ∅ in the case of Kayabí (see e.g., Jensen 1999: 137). A second group of languages is represented here by Tocantins Asurini: these are languages that, despite showing a double reflex, *h* and ∅, are consensually accepted as *not* providing evidence for two PTG affricates, since the two reflexes are accounted for by other means (either borrowing, sporadic exceptions, or by postulating morphologically conditioned exceptions; see e.g., Jensen 1999: 137–138). The third and most important subset of TG languages, as far as the issue at hand is concerned, is the Guaranian subgroup (see figure 1). These are the languages/varieties that either retain the crucial evidence for reconstructing two affricates (under 2b above), or where later dialectal borrowing has muddled the diachronic correspondences of the single PTG affricate (under 2a). In the opinion of Schleicher (1998: 19):

> "(…) the reason for positing two (and not more) proto-phonemes 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. ∅ in Mbya, *s vs. h* in Kaiwá and Paraguayan Guarani); the 'stronger' reflex supposedly from **č*, the 'weaker' from **c*" (Schleicher 1998: 19)

These are the correspondences that will be analyzed here, though, as seen right below, they are slightly more complex than implied by the just quoted passage from Schleicher 1998. In selecting which Guaranian lects to sample, it is vital to have in mind the goal of building cognate sets that are as complete as possible, that is, do not show gaps in the form of unattested forms in some varieties, and this is always challenging when dealing with underdescribed languages. The Guaranian varieties that will be discussed here are: Mbyá, Avañe'ẽ (Paraguayan Guarani), and Old Guarani. Other Guaranian languages/varieties can be excluded from the comparison on principled grounds. Thus, Kaiowá (Paĩ-Tavyterã) will not be further discussed here because, first, it is more poorly described than the others and, second, since it has been previously established that it does not differ from Avañe'ẽ in terms of the distribution and identity of its fricatives (see e.g., Dooley 1991: 10–11). Apapokuva/Apapocuva is even less extensively described and can be left out of consideration for this same reason (though we will briefly comment on Apapokuva at specific points, since this lect has been discussed in past literature in relation to the present issue).[5] Before proceeding, it is important to look at the series of phonologically contrastive fricatives or affricates in the relevant Guaranian lects:

[5] The Guaranian variety known as 'Chiripá' in Paraguay and as Nhandéva in Brazil is not considered here mainly because of a lack of extensive documentation, and also since Dooley (1991: 10-11) has shown that it does not differ from Mbyá in the relevant aspects. Chiriguano will not be discussed here either, as this would unnecessarily complicate matters because of known, dialect-specific developments involving some of the segments and due to the certainty of dialectal borrowing. Note that one dialect of Chiriguano, namely Izoceño, has been subject to a recent change *s* > *h*, followed by the shift *ʧ* > *s*, but shows ∅ unexpectedly in some cases: *kwarás-i* for Ava Chiriguano, but *kwará-i* 'sun', for Izoceño (Dietrich 1986: 189). Moreover, Dietrich (1986: 31) states that some of his native consultants provided evidence for dialectal mixing in case of isoglosses relating to *ʧ*, *s* and *h*. The same reasons underlie the choice not to consider Tapiete, which seems to be rather closely related to Chiriguano. Though future investigation may reveal that these varieties provide some additional insight on the matters explored here, as long as the dialect-specific particularities are innovations (as I believe they are), nothing will change concerning the main issue of the nature and number of the relevant contrasting units that must be reconstructed.

Languages	Alveolar	Alveo-palatal	Glottal
Old Guarani	*s*	*ʧ*	*h*
Avañe'ẽ	*s*	*ʃ*	*h*
Mbyá		*ʧ*	*h*

Table 3. Coronal and glottal fricatives/affricates of the Guaranian languages/varieties

As seen above, Avañe'ẽ has two coronal fricatives, alveolar *s* and alveo-palatal *ʃ*, plus a glottal *h* (Gregorez & Suárez 1967: 49–52; Estigarribia 2020: 3–4).[6] Mbyá lacks an alveolar fricative, showing only *ʧ* and *h* (Guedes 1983; Dooley 1998; Ivo 2014).[7] Mbyá *ʧ*, written as <*x*> in vocabulary sources such as Dooley 1998, has the allophones [ts ~ ʧ] (Dooley 1998: v; Ivo 2014), or [ʧ ~ ʃ], with dialectal variation likely playing a role. As for Old Guarani, while it shows a phonological inventory close to that of Avañe'ẽ, its 'strong' consonant is an affricate just like that of Mbyá (this is based on the most straightforward interpretation of the phonetic value of <*ch*> in 17th century Spanish orthography; see Grannier Rodrigues 1974).[8]

The correspondences between these segments in cognate elements are, however, not as simple as suggested by this comparison of inventories, in particular where Mbyá is concerned. The more convoluted pattern of correspondences is graphically depicted in figure 2, and, in section (4), I present the set of regular correspondences that will be examined in the remainder of this paper.

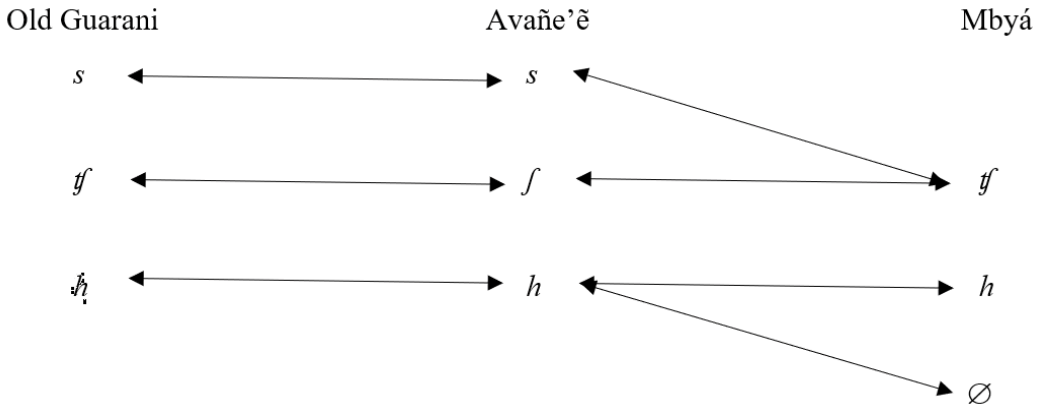

Figure 2. Graphic presentation of correspondences between the relevant subset of fricatives in the three Guaranian lects discussed above.

[6] Gregorez & Suárez (1967) treat the glottal fricative as a velar fricative *x*, while Estigarribia (2020) postulates an additional voiced palatal fricative *ʝ*, instead of having an underlying approximant *j* with optional fricative realizations. These analytical choices, although not incorrect, will be ignored here.

[7] I am ignoring here the other fricative elements present in the inventories of these varieties, such as the velar fricative *ɣ* and the bilabial/labiodental *β*/*v*, as these are not related to the issues under discussion. Note, however, that even their status as fricatives is uncertain. Gregores & Suárez (1967: 50–51) employ the symbols for fricatives but classify the segments as sonorants. Estigarribia (2020: 33–34) is more explicit in employing approximant symbols, *ʋ*, instead of *v*, and *ɰ* instead of *ɣ*, though he acknowledges that fricative realizations of the latter are common.

[8] It is difficult to precisely establish the value of <ç> in Old Guarani. We have opted here for the use of *s*, whereas Grannier Rodrigues (1974) argues in favor of an affricate based on (1) affricate realizations of cognate segments in Guarayo and Apapocuva and (2) in view of its palatalization to <*ch*>, which is non-controversially an affricate. Analyzing <ç> as *ts*, so goes the argument, would make it easier to explain the affricate output of the palatalization process.

The only correspondence featured in figure 2 but not present in (4) below is the one with matching *h* in all three varieties. This has already been accounted for in the existing literature (e.g., Dooley 1991), and it will be briefly discussed here in section **4.2**, only in relation to some developments that are specific to Mbyá.

The correspondences are presented below (from I to VIII); bold script indicates which of those are the main ones (I and V) and which specific reflexes justify the differentiation between the correspondences. For every gloss with a supporting set for each correspondence we also provide the reconstructed PTG etymon:

(4) *Correspondences for Guaranian fricatives*

(I) AVA *h* : OGU *h* : MGU ∅ : TOC *h* : KAY ∅ : TUP *s*
GO (*-***ts***o*); ARRIVE (*-*wa***ts***ẽm*); WASH (*-***ts***ej*); BATH (*-*ja***ts***uk*); LOVE (*-***ts***a***ts***up*); NEW (final syllable) (*p***ts***(ts)a***ts***u*); HEAVY (*po***ts***ij*); THREE (*mo***ts***apɨt*); MEDICINE (*po***ts***ãŋ*); NIGHT (*p***ts***a***ts***are*); YESTERDAY (*kwe***ts***e*)

(II) AVA *h* : OGU *h* : MGU *h* : TOC *h* : KAY ∅ : TUP *s*
3.II (set II third person) (**ts-*)

(III) AVA *h* : OGU *h* : MGU ∅ : TOC ∅ : KAY ∅ : TUP *s*
FEAR (*-***ts***ɨkɨje*)

(IV) AVA *h* : OGU *s/h* : MGU ∅ : TOC *h* : KAY ∅ : TUP *s*
GRAB (*-p***ts***ɨ***ts***ɨk*); SUN (*kwara***ts***ɨ*)

(V) AVA *s* : OGU *s* : MGU *ʧ* : TOC *h* : KAY ∅ : TUP *s*
MOON (*ja***ʧ***i*); PAIN (*a***ʧ***i*); PASS (*ts-a***ʧ***ap*); FORGET (*ts-e***ʧ***araj*); MOTHER (*-***ʧ***i*); EYE (*ts-e***ʧ***a*); ROPE (*-***ʧ***ãm*); KNIFE (*kɨ***ʧ***e*); LEFT HAND (*-a***ʧ***u-pe*); LEAVE (*-***ʧ***ẽm*)

(VI) AVA *s* : OGU *s* : MGU *ʃ* : TOC ∅ : KAY ∅ : TUP *s ~ ʃ*
BITE (*-***ʧ***u?u*)

(VII) AVA *ʃ* : OGU *ʃ* : MGU *ʃ* : TOC *s* : KAY ∅ : TUP *ʃ*
1SG (*i***TS***e*); 3.DAT (*i-***TS***upe*); Angry (*-poi***TS***ɨ*); Aunt (*-aj***TS***e*); Mother-in-law (*t-aj***TS***o*)

(VIII) AVA ∅ : OGU ∅ : MGU ∅ : TOC — : KAY ∅ : TUP *s*
NEW (MEDIAL SYLLABLE) (*p***ts***(***ts***)atsu*)

The two main correspondences, (I) and (V), will be discussed in detail below in this very section, since they provide the clinching arguments for the reconstruction of not one, but two contrasting PTG consonants: while (I) is the main correspondence for PTG **ts*, (V) is the correspondence accounted for by PTG **ʧ*. The remaining correspondences can all be accounted for by invoking other factors (sporadic developments, conditioned changes, or dialectal borrowing) interacting with the reflexes of the two PTG affricates and are discussed in section **4**.

The difference between correspondences (I) and (II) lies in the *h* reflex in Mbyá. Both correspondences can be traced back to a single PTG proto-segment, since (II) is restricted to a single morphological element that occurs in absolute word-initial position: the set II, third person marker for stems of inflectional class IIa.[9] This will be discussed in **4.2**, where certain Mbyá-specific developments will be briefly addressed.

[9] Lack of space prevents any detailed discussion of Tupi-Guarani morphosyntax in this paper, but the following may be enough for the reader to grasp some of the issues related to correspondence (II). Inflected stems in Tupi-Guarani languages — which include dependent nouns, verbs, and postpositions — are traditionally ana-

Correspondence (III), in turn, differs from the main correspondence in (I) only in the Tocantins Asurini reflex, which is, exceptionally, ∅ in the form for 'fear'. An account of this correspondence, and of the correspondence in (VIII), will be discussed in section **4.4** below, as they indicate the action of factors that are independent of the regular development of the PTG affricates, but which produce overlapping and, hence, potentially confusing correspondences.

Correspondence (IV) is not only infrequent, being present in two sets, but has its distinctive character restricted to the existence of doublets in Old Guarani, and this will be discussed in **4.5**, where the topic of dialectal borrowing will be broached.

Correspondence (VII) is uniquely characterized by palatal fricatives in most languages other than Tocantins Asurini, and by a 'hardened' reflex in all languages. That is, it overlaps with correspondence (V) only in the Mbyá and Kayabí reflexes, although its reflexes in the remaining languages are phonetically more similar to those in correspondence (V) than those in correspondence (I). This will be tackled in section **4.3.** along with the vexed issue of the palatalization of PTG affricates.

The core fact about correspondences (I) and (V) is, of course, that they contrast with each other, therefore standing as the reflexes of two independent PTG segments. The first correspondence has *h* in Avañe'ẽ and in Old Guarani, matching ∅ in Mbyá, and the second one has *s* in the first two varieties, matching an alveo-palatal fricative *ʧ* in Mbyá. Table 4 below illustrates the occurrence of these correspondences in quasi- minimal pairs, with the rows indicating distinct, and diverse, vocalic contexts. The three non-Guaranian TG languages presenting different mergers of the PTG contrast are included as well (sources for all these forms appear, in their original orthographies, in the etymologies presented in the appendix).

Context	Glosses	Guaranian varieties			Other TG languages		
		Avañe'ẽ	Old Guarani	Mbyá	Tocantins Asurini	Kayabí	Old Tupi
_e	'yesterday'	*kwehe*	*kwehe*	*kwee*	*sekwehe*	-	*kwese*
	'knife'	*kɨse*	*kɨse*	*kɨʧe*	*kɨhe*	*kɨe*	*kɨse*
a_ɨ	'sun'	*kwarahɨ*	*kwarahɨ*	*kwaraɨ*	*kwarahɨ*	*kwaraɨ*	*kwarasɨ*
	'moon'	*jasɨ*	*jasɨ*	*jaʧɨ*	*sahɨ*	*jaɨ*	*jasɨ*
a_u	'new'	*pɨahu*	*pɨahu*	*pɨau*	–	*pɨau*	*pɨsasu*
	'left hand'	*-asu*	*-asu*	*-aʧu*	*-saho*	*-ajau*	*-jasu*
_ã	'medicine'	*pohã*	*pohã*	*poã*	*pohaŋ*	*fuaŋ*	*posaŋ*
	'rope'	*-sã*	*-sã*	*-ʧã*	*-hom*	*-ãm*	*-sam*
ɨ_a	'night'	*-pɨha-re*	*-pɨha-r*	*-pɨa-ßɨ*	–	*ɨpɨaaje*	*pɨsare*
	'ear hole'	*-apɨsa*	*-apɨsa*	*-apɨʧa*	*-apɨha*	*apɨa*	*-apɨsa*

Table 4. Evidence for the contrastive status of the correspondences.

Under a reconstructed PTG system with a single segment underlying these reconstructions, as first suggested by Lemle (1971) and later accepted by Schleicher (1998), it would follow that, in each of the rows in table 4 above, this single segment was subjected to a non-conditioned split

lyzed as belonging to one of two inflectional classes, I or II, with the former having two additional sub-classes and class II having four sub-classes (see Jensen 1998, 1999 for details). The main formal parameter for the recognition of classes and sub-classes is the exponence of the absolutive third person marker, which is usually reconstructed with two allomorphs: **i-* for class I, and **ts-* for class II or, more precisely, subclass IIa. The absolutive class of person-indexing morphemes is traditionally called 'Set II' and, for this reason, the morpheme **ts-* is here called 'Set II third person', or '3.II' in glosses.

into *h* and *s* in Avañe'ẽ and in Old Guarani, and to a similarly unconditioned split into ∅ and *ʧ* in Mbyá. Even if the comparative evidence from the Guaranian lects is first used to derive a Proto-Guaranian (PG) system, thus implying the occurrence of a single unconditioned split from PTG into PG, instead of multiple unconditioned splits in the daughter Guaranian lects, the right analytical path in face of the contrasting correspondences exemplified in table 4 consists of the reconstruction of two segments, as indicated in (5) below:

(5) *Reflexes of the two PTG affricates*
PTG **ts* > AVA *h* : OGU *h* : MGU ∅ : TOC *h* : KAY ∅ : TUP *s*
PTG **ʧ* > AVA *s* : OGU *s* : MGU *ʧ* : TOC *h* : KAY ∅ : TUP *s*

It might be retorted that the postulation of unconditioned splits is not a necessary feature of Schleicher's (1998) explanation, since dialectal borrowing among Guaranian languages/varieties would be responsible for the two correspondences under his account. However, as discussed in section **2**, Schleicher's proposal is dependent on the recognition of many, slightly differing and overlapping correspondences. What we have here, however, is a much neater pattern with two basic correspondences that are non-distinct for the merging, non-Guaranian languages (here: Tocantins Asurini, Kayabi and Old Tupi), and which differ in regular fashion in the Guaranian varieties, with Avañe'ẽ *h*/*s* matching Old Guarani *h*/*s* and Mbyá ∅/*ʧ*. If a scenario of chaotic dialectal borrowing was true, one would expect, say, an additional correspondence of Mbyá *ʧ* to Old Guarani *s* and Avañe'ẽ *h*, or another correspondence matching Mbyá ∅ to *s* in the other two lects; and yet, none of these are found. (Note that the forms in table 4 are simply used to illustrate the contrast between the two correspondences, but the total number of cognates used here in support of the reconstruction of the two PTG affricates is given in the appendix.)

Based on this more systematic investigation of correspondences that establishes the need for two independent segments in PTG, I will now move on to the consideration of independent developments that can be seen as disturbing the main or basic correspondence patterns given in (5) above by producing additional overlapping correspondences, some of which were mentioned in (5) as well.

4. Independent changes with overlapping effects

Part of the correspondences involving fricatives in two or more TG languages can be attributed to processes that are plausibly independent of the reflexes of PTG **ts* and **ʧ* described in (5). These are discussed sequentially.

4.1. Sporadic/reductive losses: a role for constraints on glottal segments?

One pattern that is particularly common in the Northern or Amazonian TG languages (which usually have *h* as a merged reflex of the PTG affricates), but which has not received attention in the literature on comparative TG phonology, consists of simple, underived roots having *h* while one or more derivatives show ∅ instead. Thus, Kagwahiva *jahy* 'moon', with medial *-h-*, co-exists with *jaytata'ia* 'star' (Betts 2012: 115, 120). In Tocantins Asurini there is, for instance, *kyhé* 'faca' [knife] (CR03: 110), with *h* being suppressed in derivatives: *kyépirét* 'gilete' [razor], *kyé'í* 'faquinha' [small knife], *kyéangáp* 'imitação de faca' [counterfeit knife] (CR03: 110–111). But note that changed reflexes in compounds do not occur, for instance, in Guajajára: *takihe* 'faca, facão' [knife, machete], *takihe'yw* 'cabo de faca' [knife's handle], *takihezyapar* 'foice'

[sickle] (HH13: 139). Clearly, a complete explanation of these facts remains a matter for future research, but they all seem to indicate language/dialect-specific phonetic developments that took place *after* the merger of PTG **ts* and **ʧ* as *h*; they indicate neither the presence of dialectal borrowing, nor the distinct reflexes of separate PTG affricates.

These reductive developments are also relevant for casting Schleicher's (1998) claims about erratic correspondences under a different light. It is significant that many if not all cases of ∅ in Tocantins Asurini in Schleicher's (1998) table of correspondences, where the multiplicity of correspondences is used to point in the direction of his dialectal borrowing solution, occur in these reductive derivatives, as in the case of his set 115 **kɨčé*, where his witness for the language is *kɨeʔia*, a derivative noted above, and which means 'small knife' (cf. Diminutive *-ʔi*). Had he sampled the underived base, *kɨhe* 'knife' (see Cabral & Rodrigues 2003: 110), the ordinary reflex *h* would be attested.

Consideration of comparative patterns among TG languages and plausible etymological hypotheses suggest that the loss of glottal segments, either *h* or *ʔ*, is a frequent correlate of increased lexicalization (i.e., loss of morphological transparency). Two common targets of reduction are reflexes of PTG **maʔe* 'thing' and **kaʔa* 'woods; leaf' that often appear in compound formations. Thus, the Kagwahiva verb meaning 'to hunt', *-kahuv* (Betts 2012: 130), is a compound of the reflexes of **kaʔa* 'woods; leaf' and the verb **-tsup* 'to perceive (something) ' (see Betts 2012: 105, 128 for the Kagwahiva reflexes).[10] A reflex of **kaʔa* appears likewise in the Avañe'ẽ expression *ka'ay*, which means 'boiled Mate', already with glottal loss in the reflex of **ʔɨ* 'water', the second compound member. It is further reduced, though, in the desiderative verb formation, with *-se*, as in: *akay'use* 'quiero matear' [I want to drink Mate] (Guasch 1956: 39), where *kaʔa* loses its glottal segment as well. As for **maʔe* 'thing', it is often incorporated together with verbal roots, either as an expression of a generic (non-animate) object or in anti-passive-like constructions, and, as in the Tenetehara verb *-mai'u* 'to eat', suffers glottal loss after composition with the reflex of **-ʔu* 'to eat' (*mai'u* 'comer' [to eat]; Harrison & Harrison 2013: 260).

Almost all these cases suggest a further phonological conditioning for these reductions: a constraint against multiple glottal consonants in sequence. This would account well for some of the cases above, such as Tocantins Asurini *kyhé ~ kye'i*, and for the Kagwahiva and Guarani cases involving reflexes of PTG **maʔe* 'thing' and **kaʔa* 'woods; leaf'. Other cases could be added as well, such as the Tocantins Asurini reflex of PTG **-eʧa* 'eye', *-eha* 'olho' [eye], featuring a regular *h* reflex for the merged affricates in this language, which is, however, dropped when followed by *-ohó* 'big', as in *sé reáohó* 'my eye is big, I have a big eye' (Cabral & Rodrigues 2003: 62). Also related is the correspondence uniquely instantiated in the set for 'to bite' (correspondence **V** in (**4**)), which differs from the main correspondence for **ʧ* only in that Tocantins Asurini shows ∅ instead of *h*, and in the existence of palatalization, *s ~ ʃ*, in Old Tupi. While palatalization will be tackled later in section **4.3**, the Tocantins Asurini outcome **ʧ* > ∅ in this case is accounted for on the same grounds of this hypothetical ban on multiple glottals (i.e., **-huʔu* > *-uʔu* 'to bite'). Note that this set (see set 63 in Schleicher 1998: 335) is one of those featured in Schleicher's (1998: 19) table of multiple correspondences for the PTG affricate. One can, therefore, eliminate this set as well as additional evidence for a dialectal borrowing scenario.

[10] The gloss attached to PTG **-tsup*, 'perceive', should be taken as tentative only. It is a reflex of a verb stem meaning 'to see' in Proto-Tupian, and a series of findings suggest that it may have had, at the PTG level, a slightly more generalized meaning related to perceptual interactions (seeing, feeling, visiting someone, etc.), whence the label 'to perceive (something)'. A proper study of lexical reconstruction in the Tupi-Guarani domain is still needed.

4.2. Loss of medial *h in Mbyá Guarani

Correspondence (I) for the PTG affricate *ts, as adduced in (5) above, shows that Mbyá regularly has ∅ matching *h* in the other two Guaranian lects. This fact, coupled with the independent knowledge about the mundane character of lenition clines of the kind *ts > *h > ∅ , invites the inference that Mbyá has recently lost *h* — a change which is, in fact, attested for other members of the Guaranian branch, such as Apapocuva (see Dietrich 2013: 82–83). However, as noted in figure 2, Mbyá often shows *h* matching *h* in other Guaranian lects and, thus, was not affected by the context-free development that eliminated all glottal fricatives from varieties such as Apapocuva. Correspondence (II), which involves the Set II third person marker for stem of inflectional class IIa (see Jensen 1998, 1999 for discussion) also has Mbyá *h* for what is plausibly a reflex of PTG *ts (that is, the same affricate underlying correspondence (I)).

We shall not dwell too much on this phenomenon, since it has already been discussed in past literature. Dooley (1991: 8) noted that Mbyá seems to have undergone (*ts >) *h > ∅ only word-medially, with all cases of Mbyá *h* matching *h* elsewhere being restricted to word-initial position, so the reader may be referred to Dooley's study for examples and discussion. Note that the Mbyá preservation of initial *h-* cannot be accounted for in morphological terms even though correspondence (II) happens to be restricted to a single morphological element.[11] First, although third person *ts- has been retained in the language when encountered in word-initial position (cf. PTG *ts-ũn 'black' > h-ũ (Dooley 1998: cix, clxxix), Old Guarani *hûhába* 'negrura' [blackness], *aba hũ* 'hombre negro' [black man] (Montoya 1639: 398v)), this is not the case in word-medial position. In PTG transitive constructions where a transitive verb has a third person affected (P) argument, *ts- occurs between the A-coding prefix and the verb root in Class II verbs, as in Old Tupi *a-s-epjak* 'I see him/her/it' (cf. *Acepiac* 'uer' [to see] (VLB, II, 144) and in Old Guarani *ahecha* 'ver' [to see] (Restivo 1722: 536) (see Jensen 1998: 518 for the PTG pattern). In Mbyá, this medial *-ts- is regularly lost: *o-exa* 'ele viu' [he saw (it)], *ja-exa* 'nós vimos' [we saw (it)] (Dooley 1998: xxxvii), which is consistent with a phonologically conditioned loss of medial *-h- < *-ts- only. Second, there is the case of a prothetic *h-* that shows up in Guaranian varieties/languages whenever the next syllable has a glottal stop onset, most clearly seen in the case of the PTG demonstrative *aʔe (Lemle 1971: 120; Schleicher 1998: 329), whose reflex is *haʔe* in Guaranian. Since this is likely a Proto-Guaranian innovation (see Carvalho 2022 for extensive discussion), it is significant that Mbyá retains it as *ha'e* (Dooley 1998: xiii), again in agreement with the proposed sound change which eliminates *h (of whatever origin) in medial position only.

4.3. Palatalization and the issue of phonetic content

Jensen (1984) is possibly the first work to offer historical hypotheses based on the attested (synchronic) patterns of palatalization of reflexes of the PTG affricate(s). She notes that both Old Tupi and Old Guarani show a palatalization of the coronal fricative *s* by a preceding *i*, further claiming that, at the PTG level, this palatalization rule affected only *ts (= *c*), not *ʧ (= *č*),

[11] I bring this up because it is often stated that some northern/Amazonian TG languages which otherwise show total loss of the PTG affricates would, nevertheless, retain a glottal fricative *h* reflex for PTG *ts- in the specific morphological context of the third person class II marker. This is attested, for instance, in Wajãpi, which has lost *ts and *ʧ entirely but which has *h-* in this morphological function in some of its dialects (see e.g., Jensen 1984: 17, mentioning the Upper Jari variety), and in Tapirapé, where *h* is a very infrequent segment, essentially restricted to the marking of third person in class II words (see e.g., Almeida *et al*. 1983: 12).

and yielded a neutralization of this opposition in this specific context (Jensen 1984: 48). Jensen (1984) states that the lenition, or elimination, of the affricates in the more northern TG languages makes these languages useless for understanding this process. Still, Jensen (1984: 48) thinks that the Old Tupi and Old Guarani evidence is enough to reconstruct the palatalization rule back to PTG. In a later work, however, Jensen (1999: 139) mentions this only as a synchronic rule of Old Tupi phonology, without any explicit comments about its operation at the PTG level. Schleicher (1998: 21), in his proposal of a single PTG affricate, claims that some of the evidence presumably pointing to a second affricate segment derives, in fact, from the action of a preceding **i* which palatalizes the PTG affricate and produces 'stronger' reflexes in this environment alone.[12] As we just saw, however, in section **3**, there is plenty of evidence for two PTG affricates, and it cannot be explained away either as the result of dialectal borrowing or as the effect of secondary palatalization. In fact, this palatalizing effect of a preceding **i-* is accepted by Dietrich (1990) as well, who otherwise assumes a PTG inventory with two affricates. Differently from Schleicher (1998), who only speaks about 'a rule' which preserves the PTG affricates in this context, the use of asterisks in Dietrich's (1990) formulation indicates the acceptance of a PTG palatalization rule triggered by **i* and targeting the PTG affricate(s).

This summary of the views exposed so far on the matter suggest that there are at least two questions on the historical and comparative significance of the palatalization of PTG affricates observed in some of its daughter languages.

Questions on TG affricate palatalization:

(a) Can a process of affricate palatalization be reconstructed for PTG?
(b) If so, how did it operate? Did it target both affricates? Was the opposition between the two affricates neutralized in this context?
(c) What are the consequences of affricate palatalization for the question of PTG affricates?

The language-internal facts that underlie Jensen's (1984) and others' ideas about palatalization in TG languages are attested in the two classical languages of the family. Old Tupi *s* = <*c, ç*> is palatalized to *ʃ* =<*x*> when preceded by the Set II third person prefix *i*: *sɨ* <*Cig*> 'mater' [mother], *ʃe-sɨ* <*xècì*> 'mea mater' [my mother], *i-ʃɨ* <*yxì*> 'eius mater' [his mother] (Anchieta 1595: 15–15v), *a-so* <*Açó*> 'vou' [I go], *i-ʃo* <*Ixó*> 'a sua ida, o seu ir' [his going]; *sam-a* <*Çáma*> 'corda' [rope], *i-ʃam-a* <*Ixáma*> 'sua corda' [his rope]; *sose* <*Çocé*> 'emcima' [above], *i-ʃose* <*Ixocé*> 'emcima delle' [above him] (Figueira 1621: 72–74). The process is also widely attested in Old Guarani, where the following examples have *s* <*ç*> ~ *ʃ* <*ch*>: *i-sɨ̃, i-ʃɨ* <*Yçỹ , Ychỹ*> 'Está resbaloso' [it is slippery] (Montoya 1639: 115); *ʧe-sɨ, i-ʧɨ, o-sɨ* <*Cheçĭ, Ychĭ, oçĭ*> 'Madre' [mother], Montoya 1639: 114); *a-josouɻ* <*Ayoçog*> 'Moler' [grind] (Montoya 1639: 116), but *a-mo-ŋuʔi-ʃouɻ* <*Amônguíchóg*> 'Hazerlo poluo' [make dust] (Montoya 1639: 104v).

If these alternations are seen as retentions of PTG patterns, as suggested by Jensen (1984) and Dietrich (1990), these examples suggest that the process targeted PTG **ts-* and **ʧ-*, since the Old Tupi and Old Guarani data above include reflexes of PTG **-tso* 'to go', **ʧɨ* 'mother' and **ʧãm* 'rope'. This is enough to refute Jensen's (1984: 48) claim that this palatalization affected only PTG **ts*, not **ʧ*. Moreover, since languages like Old Guarani show *ʧ* as the reflex of palatalized **ʧ*, instead of the usual *s* for **ʧ* in non-palatal contexts and of *h* for **ts* (cf. *sɨ* 'mother' vs. *i-ʧɨ* 'his/her mother'), it is not clearly the case that the process caused a neutralization of the opposition between the two affricates in favor of the 'palatal' affricate **ʧ*. Unfortunately, there

[12] More specifically, he proposes that a preceding **i* 'preserves' the affricate in languages where it is usually lost: "(…) *čɨ, čɨrɨk*, are simply examples of a rule that preserved č immediately after *i*" (Schleicher 1998: 21).

are difficulties in assessing this, given the nature of the Old Guarani data (more on this in section **4.5**).

Thus, although in some cases Montoya seemingly indicates that the palatalization is optional, as in *i-sɨ̃, i-ʃɨ̃ <Yçỹ, Ychỹ>* 'Está resbaloso' [it is slippery] where both palatalized and non-palatalized variants are noted (Montoya 1639: 115), this is not always the case; compare, for instance, Old Guarani *wi-sẽm-a <guicêma>* 'Yo salgo' (Montoya 1639: 113), with the Set III first person singular prefix *wi-* preceding a reflex of PTG **-ʧem* 'to leave, go out'. Here we would expect palatalization, at least optionally, as in the above-mentioned case of 'it is slippery', but we lack the relevant data. Moreover, note that in the case of **-tso* 'to go' available evidence suggests that Old Tupi and Old Guarani part company: a comparison of Old Guarani *wi-ho-ßo <Guihóbo>* (Montoya 1639: 156v) and Old Tupi *wi-ʃo-ßo <vixòbo>* (Anchieta 1595: 57), in both cases a Gerund form of the verb **-tso* 'to go', preceded by a Set III first person singular prefix **wi-*, shows that while Old Tupi displays the palatalization process, Old Guarani does not. This lack of agreement between the two classical languages shows that language/branch-specific developments related to palatalization, some, perhaps, of an analogical kind involving inflectionally related forms, took hold early on in the diversification of PTG and that it is difficult to delineate its properties at the PTG level.

The same applies to the PTG etymon for 'to bite', often discussed in relation to the issue of the historical affricates. While Old Tupi has unambiguous evidence for synchronic palatalization in this case as well, as in *a-i-ʃuʔu <Aixuu>* 'morder' [to bite], *çuuguera* 'mordedura' [bite (n.)] (VLB, II, 42), Old Guarani has <ç>= *s* following *i*, as seen in *a-i-suʔu <ayçuú>* 'morder' [to bite] (Restivo 1722: 391). As noted, this set defines a unique correspondence (correspondence **V**), which was discussed before in relation to the loss of *h* < **ʧ* in Tocantins Asurini, but which is also singular for the palatalization in Old Tupi. The correspondence can be easily merged with the one for PTG **ʧ* but seems to indicate language-specific developments in the application of the palatalization rule.[13]

The absence of concordance noted for the reflexes of PTG **-tso* 'to go' and of PTG **-ʧuʔu* 'to bite' in the two classical languages raises a red flag concerning the assumption that the palatalization process can be reconstructed for PTG. As noted, Jensen (1984) and Dietrich (1990) knew that the morphophonological evidence for palatalization is essentially restricted to the Southern, or non-Amazonian, TG languages.[14] Both authors suggest that the generalized lenition of the PTG affricates in the Northern languages is responsible for eliminating evidence of this PTG process. This is, however, not necessarily the case. Languages that show otherwise lenited reflexes of the PTG affricates do retain synchronic traces of palatalization, as in Pauserna *tse-hi* 'minha mãe' [my mother], *ɨ-tsi* 'mãe dele' [his mother] (Ramirez, Vegini & França 2017: 27). As a consequence, absence of evidence for palatalization in Northern/Amazonian languages that lack 'strong' reflexes of the PTG affricates may, in fact, be evidence of absence, that is, evidence that the reflexes of PTG affricates were never palatalized in these languages. This is sufficient reason to backtrack a bit from the consideration of facts internal to the classical languages of the family and to take a systematically comparative look at the relevant correspondences.

[13] Guarayu *zuu aguér* 'Biss, Bisswunde' [bite, bite wound] (H32: 355) is entirely comparable to Old Tupi *çuuaguera* 'mordedura' [bite] (VLB, II, 42). Guarayu, like Old Tupi, shows an alternation between *z* and *ch*, the latter when preceded by *i*. Another Southern / non-Amazonian lect with a comparable alternation in the same form is Pauserna: *tse-húʔu* '(ele) me morde' [he bites me], *a-ɨ-tsuʔu* 'mordo-o' [I bite him] (Ramirez, Vegini & França 2017: 27).

[14] Further examples from Southern / non-Amazonian TG languages / varieties include Chiriguano: *ché-sɨ* 'my mother', *í-chɨ* 'his/her mother' (Dietrich 1986: 336), and Guarayu: (*zì* 'Mutter' [mother], *ichì* 'seine Mutter' [his/her mother] (Hoeller 1932: 70, 340), *guicho* 'Gerund. von *azo* gehend' [Gerund of *azo* 'going'] (Hoeller 1932: 82), *zo* 'Gehen' [go] (Hoeller 1932: 344).

Correspondence (**VII**) in (**4**) is singled out by the fact that all languages other than Kayabi and Mbyá Guarani agree in having a 'stronger' reflex than is the case in the default correspondences for **ts* and **ʧ*. Kayabí shows ∅ as in the other correspondences, and Mbyá has *ʧ*, as in the reflex of PTG **ʧ*. Old Tupi and Avañe'ẽ have *ʃ*, while Old Guarani has *ʧ*. Finally, Tocantins Asurini, which usually has *h* or (as noted above) ∅ in some contexts, shows the reflex *s*. In all these cases, except for 'angry', there is a preceding **i*, which is not present in any of the other correspondences (and for the 'angry' set a preceding **i* can be postulated based on external evidence; see the 'dangerous' set in Rodrigues & Dietrich 1997: 273). Since correspondences (I), for **ts*, and (V), for **ʧ*, never occur following *i*, it is natural to collapse correspondence (VII) with one of them, or with both.[15] The reflexes of the two PTG affricates in (5) are repeated below in (6) with the addition of the diachronic correspondences for the palatal context, and provisional C being used as a cover symbol for the target consonant.

(6) *Correspondences of the two PTG affricates*
PTG **ts* > AVA *h* : OGU *h* : MGU ∅ : TOC *h* : KAY ∅ : TUP *s*
PTG **ʧ* > AVA *s* : OGU *s* : MGU *ʧ* : TOC *h* : KAY ∅ : TUP *s*
PTG **iC* > AVA *ʃ* : OGU *ʧ* : MGU *ʧ* : TOC *s* : KAY ∅ : TUP *ʃ*

Now, even if one accepts that this rule can be reconstructed for PTG, which, as has already been noted, is problematic in itself, clearly one cannot simply say that **i*-palatalization caused a neutralization of the PTG affricates in favor of the 'strongest' member of the pair (say, both **ts* and **ʧ* appearing as**ʧ* in a palatal context). This is the case because the reflexes for **iC* differ from those of both PTG affricates. As to the identity of **C*, it is possible that either one of the PTG affricates **ts* and **ʧ*, or just one of them, was subject to **i*-palatalization. In principle, cases of morphophonological alternation would allow for recovery of the identity of the affricate. Of all the etymologies supporting correspondence (VII), only that of the postposition here glossed as a 'dative' seems to allow for this analysis. Matters are, however, not as simple as expected: Table 5 below gives the form for the postposition **-tsupe* when preceded by the Set II third person prefix **i-*, where the correspondence in (VII) is attested, in comparison to its form without this prefix, in the context of an independent word form or noun phrase (data from Figueira 1621: 121, 122, 74 for Old Tupi; Weiss 2005: 46, 109 for Kayabi; Cabral & Rodrigues 2003: 169–170 for Tocantins Asurini; Montoya 1639: 406v for Old Guarani; De Canese 1983: 57 for Avañe'ẽ and Dooley 1998: cx for Mbyá).

	PTG	Avañe'ẽ	Old Guarani	Mbyá	Old Tupi	Kayabi	Tocantins Asurini
NP_	**tsupe*	*pe*	*upe*	*upe*	*supe*	*upe*	*ope*
3.person	**i-tsupe*	*i-ʃupe*	*i-ʧupe*	*i-ʧupe*	*i-ʃupe*	*j-upe*	*s-ope*

Table 5

Although a root **-tsupe* is abstracted here from the third person form **i-tsupe*, this root does not explain the attested reflexes when no third person prefix is found, with the exception of the Old Tupi form *supe*. Note that Old Guarani and Avañe'ẽ would be expected to have the unattested reflex *hupe* instead, given the reflexes for PTG **ts* in these languages. Moreover, Avañe'ẽ shows a loss of root-initial *u-*, which may indicate a suppletive paradigm where an

[15] I am glossing over the implausible hypothesis that the correspondence in this case could be joined to another correspondence, say, as a context-dependent development of PTG **t*.

etymologically independent postposition, the locative *-*pe* (Jensen 1998: 598) is instead used for some affected arguments, as seems to be the case in other modern Guaranian varieties. The difficulty in reconstructing a full paradigm for this (and other) PTG postpositions is reflected in current overviews of the family: Jensen (1998: 598) gives **tsupe* 'to, for', but without any paradigm, and her later reference chapter, Jensen 1999: 153–154, is equally silent on the matter. The issue of which of the two PTG affricates underlies the conditioned reflex in the third person form is, therefore, a matter awaiting to be settled by future research on the reconstruction of PTG morphology. At this point, acceptance of **tsupe* as the root (or paradigm base) for this PTG postposition would betray an overreliance on the evidence from Old Tupi, which has been a common yet ill-advised practice in TG comparative studies. For the immediate goals of this paper, we will reconstruct **i-TSupe*, with a non-specific affricate.

The remaining comparative sets for correspondence (VII) come from cases of morpheme-internal palatalized affricates, where there is no possible evidence from alternations for retrieving the identity of the palatalized affricate. Therefore, in these cases, a cover-symbol **TS* will appear in the etyma.

	*-*jajTSe* 'aunt'	**t-ajTSo* 'mother-in-law'	**iTSe* '1SG.PRO'	**pojTSɨ* 'angry'
AVA	-	*-aiʃo*	*ʃe*	*poʃɨ*
OGU	*-jaitʃe*	*-aitʃo*	*(i)tʃe*	*potʃɨ*
MGU	*-jaitʃe*	*-aitʃo*	*tʃe*	*potʃɨ*
TOC	*-sasé*	–	*ise*	–
KAY	*-jaje*	*-ojo*	*je*	–
TUP	*-aiʃe*	*-aiʃo*	*iʃe*	*poʃɨ*

Table 6. Morpheme-internal palatalized affricates

Both in **-jajTSe* 'aunt' and **t-ajTSo* 'mother-in-law' the existence of a palatal element preceding the affricate is straightforwardly supported by the comparative data. Note that for Tocantins Asurini **TS* has a zero reflex in this context, and *s* reflects PTG **j* in onset position in this language (see e.g., Jensen 1998: 605; 1999: 137).[16] The same applies to Kayabi, which has ∅ as the regular reflex for both PTG affricates, with *-j-* reflecting the PTG palatal element. In the set for the first-person singular pronoun, all modern Guaranian varieties seem to have lost the initial **i-*, though Montoya (1639: 173) still registers *itʃe* <*Yché*> 'Yo', alongside *tʃe* <*Ché*> (Montoya 1639: 119v). Here as well, the reflexes of PTG **iTSe* are consistent with total loss in the northern languages: **iTSe* > **i(j)e* > *ise* in Tocantins Asurini; **iTse* > **ie* > *je* in Kayabi.[17] Finally, in the set for 'angry' we find a correspondence that is partially identical to the others — with missing forms in Tocantins Asurini and Kayabi — and it could be suggested that here as well the fricative or affricate in the reflexes is preceded by **j*. This is decisively supported by external evidence from Mawé, a non-TG Tupian language that is closely related to PTG, where the cognate *pojtɨ* 'dangerous' is attested (Rodrigues & Dietrich 1997: 273).

[16] In the set for PTG **-ajTSo* 'mother-in-law', Tocantins Asurini does not contribute evidence because it has an innovative descriptive compound *-atyhý* 'sogra' [mother-in-law] (Cabral & Rodrigues 2003: 57).

[17] The development of person markers (free and bound) in TG languages still awaits a proper account, and, at this point, it is hard to discern what can be assigned to regular sound change, analogical reshaping, or sporadic developments. This commentary applies to loss of the initial **i-* of the independent 1SG pronoun. The reader is referred to Schleicher (1998: 191–197) for an overview of the relevant problems.

The evidence reviewed in this section makes it likely that PTG affricates were subjected to a palatalization triggered by a preceding palatal vocoid **i*/**j*; however, in the absence of reconstructions for full paradigms of postpositions and verbs, it remains difficult to assess whether any differences existed in the outcomes of palatalization for PTG **ts* and **ʧ*. Moreover, a comparison of synchronic patterns of palatalization reveals that palatalization was likewise affected by language-specific developments, probably involving generalization or leveling of alternations.

4.4. Other poorly understood developments

Although a PTG etymon for 'new' is reconstructed in virtually every study on comparative TG, e.g., *pɨcacu* 'new' (Lemle 1971: 123), *pɨčačú* 'new' (Schleicher 1998: 347), *pycacu* 'new' (Dietrich 1990: 26), *pɨtsatsu* (Mello 2000: 193), there is an issue with this etymon which has never been raised in print. As noted in (4), the medial syllable of this etymon displays a unique correspondence (correspondence **VIII**), one in which all the languages considered here show a medial ∅, that is, no segment that would match *s* in Old Tupi.

The purely quantitative or distributional aspect would suggest reconstructing **pɨatsu* for PTG, with Old Tupi *pɨsasu* being left as a language-specific oddity to be explained in some *ad hoc* manner. However, the external evidence from the closest relative of PTG, Awetí, suggests that the Old Tupi form is etymological: Aweti *mɨtatu* 'novo' [new] (Borella 2000: 128), with Aweti *t* being the regular match for the PTG affricates (Meira & Drude 2015: 282). We have opted here to reconstruct **pɨ(ts)atsu* as a compromise solution that accounts for the PTG-external evidence but also leaves an indication of the somewhat surprising loss of medial **-ts-* in the other languages, which calls for adequate explanation in future research.

Correspondence (**III**), in (4), which is singled out from the main correspondence in (I) due to the ∅ reflex in Tocantins Asurini, is represented by a single set, the reflexes of what Schleicher (1998: 341) reconstructs as **čɨkɨyé* 'fear' (Schleicher 1998: 341). The oddness of this correspondence becomes less surprising once one notes that this etymon is associated with another sporadic development: a metathesis that produced reflexes such as Old Guarani and Avañe'ẽ *kɨhɨje* 'to fear' (Montoya 1639: 332v; Peralta & Osuna 1950: 340).[18] Since this PTG etymon is associated with the sporadic occurrence of metathesis, it is perhaps not surprising that another sporadic development, in this case, the loss of intermediate **h* in Tocantins Asurini, has occurred as well. In any case, this development in no way obscures the basic facts established above in section **3** about the reflexes of the two PTG affricates.

4.5. Diffusion: Loanwords and dialect borrowing

I hope that, at this point, the reader has been convinced that Schleicher's (1998) account of the relevant TG correspondences in terms of a single PTG affricate and multiple correspondence patterns produced by dialectal borrowing has little support. Instead, as shown in (**7**) below, the correspondences examined support two PTG affricates, backed by a clear pattern of contrasting correspondences, and a series of other developments that, jointly, produce a somewhat complex but thoroughly understandable pattern of partially overlapping correspondences.

[18] At least one other case of metathesis is known in the development of PTG, that of the etymon **kɨpɨ-ʔɨt* 'younger sister (female Ego)'. External comparanda from the Arikém and Tupari branches of the Tupian family provides the decisive evidence (see Carvalho & Birchall 2022).

(**7**) *Correspondences for PTG affricates and related developments*

(a) Main reflexes for PTG **ts*:
AVA *h* : OGU *h* : MGU ∅ : TOC *h* : KAY ∅ : TUP *s*

(b) Main reflexes for PTG **ʧ*
AVA *s* : OGU *s* : MGU *ʧ* : TOC *h* : KAY ∅ : TUP *s*

(c) Palatalization of PTG **ts*/**ʧ* (= **TS*)
AVA *ʃ* : OGU *ʧ* : MGU *ʧ* : TOC *s* : KAY ∅ : TUP *ʃ*

(d) Mbyá preservation of word-initial **h-* < **ts-*
AVA *h* : OGU *h* : MGU *h* : TOC *h* : KAY ∅ : TUP *s*

(e) Isolated/sporadic development of PTG **pɨ(ts)atsu*
AVA ∅ : OGU ∅ : MGU ∅ : TOC — : KAY ∅ : TUP *s*

(f) Isolated/sporadic development of PTG **tsɨkɨje* in Tocantins Asurini
AVA *h* : OGU *h* : MGU ∅ : TOC ∅ : KAY ∅ : TUP *s*

The main implication of the discussion in the preceding sections, and of the summary correspondences in (**7**) above, is that this collection of slightly differing correspondences can be explained by reference either to the regular development of two affricates or to other, contextual and mainly language-specific developments, often of a sporadic nature, without the need for postulating widespread dialectal borrowing, *contra* Schleicher 1998.

Although appeal to dialectal borrowing plays a fundamental role in the reconstruction of a single affricate for PTG proposed by Schleicher (1998), such diffusional phenomena are a recurring and inevitable aspect of language change, and their effects must be recognized and properly understood even under the proposal of two PTG segments **ts* and **ʧ*. In this section I will only comment briefly on a few aspects of Guaranian dialectal borrowing, an issue which deserves much additional investigation, possibly in a book-length or monographic account deeply informed by Old Guarani philology.

In section **3** it was observed that correspondence (IV) had as its distinguishing property the existence of doublets in the existing Old Guarani corpus. More specifically, these are characterized by variants of the same form, one with *s* and the other with *h*, as in the example of <*aya**h**ĭa l. aya**c**ĭa*> 'cortar con hacha ó cuña' (Restivo 1722: 192). In many but not all cases the sources are clear about the dialectal or geographic nature of the variation, as in the entry for 'exit' in Montoya's *Tesoro*: "<*hê, çê*> 'salida', <*Ahê*> 'Yo salgo', aunque no se usa en muchas partes, sino, <*acê*> (Montoya 1639: 146v)". Dialectal differentiation in the Guarani spoken in the 16th and 17th centuries is largely unknown (and possibly unknowable) due to historical processes of uniformization, such as the 'reduction' of autonomous groups to the Franciscan and (later) Jesuit Missions of Paraguay (see e.g., Meliá 1983: 44–45).[19] Aside from groups such as the Guarambaré or the Cario, who were part of the colonial forced labor system of *encomiendas* and whose languages likely contributed to the formation of the Guarani Criollo or Avañe'ẽ (Meliá 1983: 46), the context of the Jesuit Missions, from where most of the documents on Old Guarani originate, was a context of dialect focalization or homogenization:

[19] Jesuit Missions, starting in 1609, were established in regions as distant from each other as the Itatin (currently the westernmost limit of the Brazilian state of Mato Grosso do Sul), the middle course of the Paraná river, the Guairá (nowadays the western fringe of the Brazilian state of Paraná) and the Tapes province (corresponding to the central-western part of the Brazilian state of Rio Grande do Sul). Many of these were later displaced downriver in the Paraná and to the Uruguay river as a defensive strategy against the attacks of slave-raiders from São Paulo (Meliá 1983: 48). Missionary activity by the Jesuit order ended in 1767-68 when the Iberian colonial powers expelled the order from their territories.

> "(…) con la introdución del sistema de las Reducciones, por los franciscanos, primero, y después por los jesuitas, muchos grupos guaraníes se vieron forzados a trasladarse, reubicarse y formar nuevas concentraciones, lo que contribuía a crear una lengua más uniforme y generalizada, en la que las particularidades tendían a desaparecer" (Meliá 1983: 46).
>
> ["(…) with the introduction of the system of the Reducciones, first by Franciscans and then by Jesuits, many Guarani groups were forced to move and resettle, forming new communities, which contributed to create a more uniform and generalized language, where specificities were bound to disappear."]

Old or Jesuitic Guarani denotes the output of the normative activities of codification by the Jesuits, as they created a literary standard out of the diversity of varieties and dialects that likely characterized the vernacular speech of the different Guarani groups that were assembled in their Missions. Understanding in more precise terms the relations between Guarani vernaculars and the codified Old Guarani is a very difficult task (see Cerno 2018 for a fascinating discussion of issues and application to one particular case), but sources such as the anonymous text *Phrases Selectas*, dated to 1687, describe a great degree of dialectal differentiation, to the effect that the codified text as presented in the *Tesoro* of Montoya was not always readily intelligible to speakers of other varieties (see Chamorro 2014; Cerno 2018).

Given all this historical background on the socio-linguistic context in which the *corpus* of Old Guarani sources was formed, it is not surprising that doublets such as the ones noted in correspondence (IV), indicative of dialectal borrowing, show up in Old Guarani. It is certainly the case that other, modern Guaranian languages/varieties also show, as expected, the effects of dialectal borrowing and diffusion, but only a careful study of the role played by sound change in the diversification of Guaranian varieties will help form a clearer picture of these diffusional phenomena. Thus, in Apapocuva or, more generally, Avá-Guarani varieties, where the glottal fricative *h* has been entirely eliminated, loans from other Guaranian varieties, most likely Avañe'ẽ, can be spotted by the presence of these segments (as suggested in Dietrich 2013: 82). Besides purely internal evidence of this kind, external evidence on the past conditions of co-existence between separate Guarani partialities will certainly play a pivotal role in addressing this issue. As an example, consider Dietrich's (2013: 83) hypothesis that the existence of Kaiowá *kwarasɨ* 'sun', instead of the expected *kwarahɨ* (cf. PTG **kwaratsɨ* 'sun' in the appendix), can be explained by suggesting that this form is a loan from Old Tupi. On the basis of external evidence concerning the past co-existence of the ancestors of the Kaiowá and the Guarayu in the Missions of the Itatines region of the Upper Paraguay (see e.g., Combès 2017), it is much more plausible to suppose that the source of the unexpected Kaiowá form is to be found in Guarayu *cuarazĭ* 'Sonnenhitze' [sun heat] (Hoeller 1929: 24), with Guarayu <z> = *ts* being adapted as Kaiowá *s*.[20] A more systematic appraisal of the nature and amount of lexical diffusion among Guaranian lects remains a task for future research.

5. Implications for reconstruction at more inclusive levels

Strictly speaking, the correspondences examined in the preceding sections call for the reconstruction of two contrasting segments at the Proto-Guaranian (PG) level, that is, only at the level of an intermediate proto-language which is the exclusively shared ancestor of the Guaranian languages/varieties among TG languages (see figure 1). Nonetheless, I have accepted the

[20] Greater care and rigor in dealing with sources is also needed in TG comparative studies. Dietrich (2013) gives no source for the unexpected Kaiowá form for 'sun'. The expected reflex showing **ts* > *h*, *kwarahy* 'sol' [sun], is given in Taylor & Taylor (1966: 93).

tradition established by the two-affricate view of Jensen and Rodrigues, and, accordingly, I have assumed throughout this paper that the contrast in question can be reconstructed for Proto-Tupi-Guarani (PTG) as well. In this section I shall consider some alternative scenarios, and, in the end, defend my reconstruction at the PTG level as being plausible, at least for the moment.

As a necessary background to this discussion, figures 3 and 4 depict the two of principal (though still tentative) classifications of the Tupian language family proposed so far.

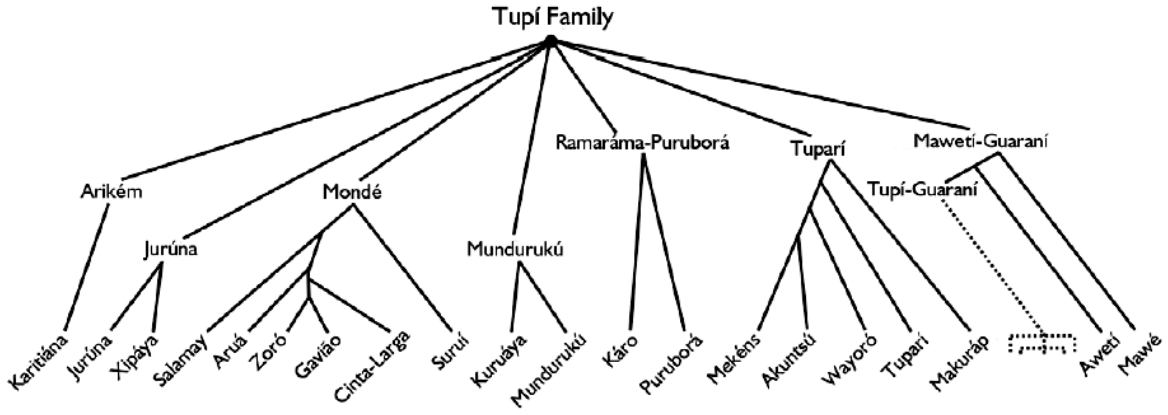

Figure 3. One of the proposed internal classifications of the Tupian language family (from Meira & Drude 2015: 277).

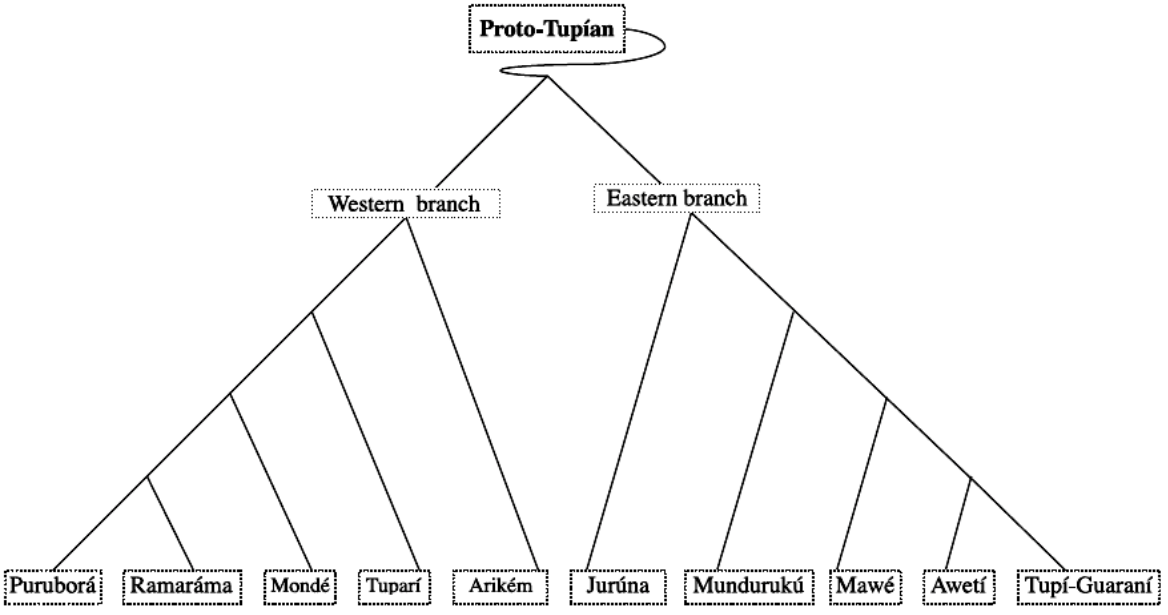

Figure 4. The internal classification of the Tupian language family stemming from Rodrigues' work, after Rodrigues & Cabral 2012.

Despite their differences, these proposed internal classifications agree in one important aspect: both recognize Aweti and Mawe as the two closest relatives of PTG, and, by implication, recognize a common ancestor shared exclusively by these three languages within the Tupian family. This common ancestor has come to be known as Proto-Maweti-Guarani (or PMAG for short), and Meira & Drude (2015) have provided us with a preliminary reconstruction of its phonology and a sample lexicon.

Starting from this core of agreement between the two competing internal classifications, one can consider different levels at which the contrasting correspondences examined in this paper can be reconstructed. A set of alternatives is depicted in table 9**,** along with commentary on the implications of each view in terms of consequences for the historical phonology and for the evidential support necessary to back up the respective proposal (note that the PG level is internal to the Tupi-Guarani branch, and the reader should refer to figure 1 for this).

Level of reconstruction		Implications and required evidence
(a)	Proto-Guaranian (PG)	The split of a single PTG affricate in PG must be motivated somehow.
(b)	Proto-Tupi-Guarani (PTG)	Multiple mergers of the opposition in other, non-Guaranian branches of TG are implied. The split of a single PMAG segment yielding the two PTG affricates, *or*, an even earlier split with subsequent mergers in Aweti and Mawe must be justified.
(c)	Proto-Maweti-Guarani (PMAG)	The merger of the opposition in Mawé and Awetí is implied. The split of a single PT segment into two PMAG affricates must be justified.
(d)	Proto-Tupian (PT)	Merger of the opposition in all branches other than TG.

Table 9. Levels of phylogenetic inclusiveness within Tupian and implications for the reconstruction of the affricate contrast.

Option (a), as advanced, is the safest and most conservative option. Just like the rest, though, it has certain implications: a split must have occurred between the fragmentation of PTG and that of PG, since, under this view, a single PTG affricate (as in the classic Lemle 1971 reconstruction of PTG) has bifurcated reflexes, here given as **ts* and **ʧ*, at the PG level. If the split in question was purely internally motivated, then it means that the phonetic contextual feature which conditioned the split of a single PTG affricate in two PG affricates was lost everywhere without a trace. If we consider instead an external motivation, such as the wholesale adoption of loans from another language, ultimately yielding the adoption of another affricate segment, then one must recognize that nothing in our current understanding of TG historical linguistics suggests what this layer of loanwords and their presumed sources might be. Thus, proposing that PG innovated a split from a single PTG affricate carries its own burden of proof.

Option (b), as mentioned, is the position held by supporters of the traditional reconstruction of two PTG affricates (e.g., Rodrigues & Cabral 2012, though we shall qualify this claim below). As noted above, this requires that the PTG opposition be merged (lost) without trace in all branches of the TG language family other than Guaranian. This was, in fact, a standard assumption in TG comparative linguistics before the publication of Schleicher's doctoral dissertation (see, e.g., Jensen 1998: 614–616; 1999: 137–138). Starting with this option, the reasoning becomes more tightly enmeshed with the overall reconstruction of PT. Note that if PTG is reconstructed with two affricates *and no evidence for these two affricates can be found anywhere else among Tupian languages*, then one of two options are correct: either the contrast was innovated at a pre-PTG stage but after the split between PTG and Aweti, or the contrast was innovated at some point before the dissolution of PMAG but was lost (independently) in Mawe and Aweti. Since the second view implies that PMAG would still retain this contrast, although it ultimately ended up retained only in PTG, it naturally leads us into option (c).

As noted in sections **1** and **2**, Meira & Drude (2015), in their phonological reconstruction of Proto-Maweti-Guarani (PMAG), the common ancestor of PTG, Aweti and Mawe within the Tupian language family, have adopted Schleicher's (1998) proposal of a single affricate for

PTG. However, the common ancestor (PMAG) is reconstructed without any affricate segments (see table 7 below). The authors propose a PTG-specific development of PMAG *t in order to account for the single PTG affricate segment recognized by the authors (see Meira & Drude 2015: 282–283 for details).

*p	*t	*k	*ʔ
	*t^j		
		*k^w	
*ß			
*m	*n	*ŋ	
	*r		
*w	*j		

Table 7. PMAG consonantal inventory in Meira & Drude 2015.

Option (c) in table 6 could be seen as following naturally from an adoption of option (b), granted some assumptions and analytical paths followed by Meira & Drude (2015) in other cases. If PTG is reconstructed with two affricates *ts and *ʧ (as per point (b) in table 6), one could say that it is no longer feasible to account for these as simple reflexes of PMAG *t, as intended by Meira & Drude (2015); one could, instead, reconstruct PMAG with two contrasting segments, say, *ts — *ʧ, and imply an independent merger of this opposition in both Aweti and Mawe. This possibility is sketched in table 8 (Aweti and Mawe forms in table 8 from Meira & Drude 2015).

PMAG	PTG	Aweti	Mawé
*po**ts**ɨj 'heavy'	*po**ts**ɨj	po**t**ɨj	po**t**ɨj
***ts**o 'go'	***ts**o	**t**o	**t**o
*a**ʧ**ɨ 'pain'	*a**ʧ**ɨ	a**t**ɨ	sa**t**ɨ
***ʧ**uʔu 'bite'	***ʧ**uʔu	**t**uʔu	ka-**t**uʔu

Table 8. PTG *ts — *ʧ contrast projected back to PMAG.

It is important to note that the exact same reasoning was applied by Meira & Drude (2015) to the case of the PTG contrast between *w and *ß, and with the same phonological implication: the contrast is reconstructed for PMAG despite being realised only as *w* in both Mawe and Aweti, which, therefore, must have undergone independent mergers of PMAG *w and * ß (Meira & Drude 2015: 284–285, 288).[21] In all cases the employed reasoning is the same: since the split cannot be motivated, it is reconstructed one level up the tree, in agreement with standard methodology.

[21] Another close parallel is the case of the Mawe vowel length contrast, which is reconstructed as well for PMAG, despite having no counterpart in the other two sister languages (Meira & Drude 2015: 284–285). In this case, however, Meira & Drude (2015: 280, fn. 3) find some weak support in the fact that length contrasts are found elsewhere among Tupian languages, even though only one actual cognate set is offered as external support for reconstruction at the PMAG level.

Finally, option (d), which is in fact adopted in Rodrigues' Tupian work, projects the opposition between the two affricates all the way back to PT. For instance, Rodrigues & Cabral (2012: 504–505) in their latest summary statement on the reconstruction of PT, claim that a PT contrast between **c* and **č* was preserved in the two PTG affricates and, possibly, with partial mergers only in the Jurunan and Munduruku branches. Early on, Rodrigues (2007: 172) states that the Proto-Tupian contrast would be supported by the two PTG affricates and by separate reflexes in Munduruku, though many of the claims contained in his table of correspondences are not borne out by the accompanying comparative datasets (thus exemplifying a problem of internal inconsistency or lack of rigor similar to Schleicher 1998). Since PT has no widespread accepted relative, reconstructing the contrast back to PT does not imply any split, PT being the *terminus a quo* for the reconstruction. Obviously, the reconstruction of the opposition between the two segments at the PT level implies the occurrence of an unknown number of independent mergers throughout the family, sparing only Pre-PTG. In view of the uncertainty in the internal classification of the family, noted above in relation to figures 3 and 4, the number of independent mergers required is impossible to estimate at this point.

Wrapping up the discussion on these alternatives, one crucial aspect that must be contemplated while evaluating the relative merits of each proposal in table 6 is that the further we progress to more inclusive levels (a-d), the greater the number of unknowns. This is obvious from the two competing classifications in figure 3 and 4, whose existence shows a great deal of uncertainty concerning the intermediate level subgroups of the family. This uncertainty, in turn, is at least in part due to the fact that the required reconstructive work is progressively less advanced and becomes inherently less trivial the further back we go in time. This is particularly troublesome for the evaluation of alternatives (c) and (d), since it is unclear which feature of PT could have conditioned the split that gave rise to two PMAG affricates (for option (c)), and it is unclear how many independent mergers are needed in case the opposition is reconstructed all the way back to PT (option (d)).[22]

All alternatives other than (d) require at least one split to give rise to the reconstructed opposition between two affricates — and in every single case there is no evidence at our disposal so as to even suggest what the nature of this split could have been. Since a basic feature of the comparative method is that mergers are reconstructed by default, while splits require additional evidence (that is, the comparative method has a bias towards mergers; Fox 2000), one could jump to the conclusion that the contrast between the two affricates should be reconstructed all the way back to PT. This seems to be the reasoning in Rodrigues' Tupian work. And yet, this requires that every other single branch of the Tupian family has merged this contrast unconditionally — an assumption that carries a burden with itself: in the end we must have some way of comparing the relative probabilities of different scenarios. Before we do that, however, a proper reconstruction of PT must be available and, although significant advances have been made in the case of the vowel system (Nikulin & Carvalho, 2022), there is no published alternative to the orthodox Rodrigues 2007 proposal on the consonants.[23] Therefore, until this work has been completed, the present author feels that enough has been contributed

[22] I am assuming that the occurrence of multiple unconditioned mergers is less probable than the occurrence of, say, only one or two such events.

[23] Nikulin & Carvalho (2022) do address some aspects of the PT consonantal system reconstructed by Rodrigues, most notably his appeal to contrasts involving proto-consonants with secondary articulatory features that conditioned separate reflexes in contextual vowels, but there is no complete reconstruction and argumentation offered for the entire PT consonantal inventory (see the Appendix 2 of Nikulin & Carvalho (2022: 38) for an overview of the consonantal correspondences involving PMAG and the other seven remaining branches of the Tupian family).

to the matter at hand by excluding the 'messy dialectal borrowing' scenario, concluding that two contrasting correspondences must be recognized and that further argumentation and reconstructive work is needed before their temporal depth can be ascertained. Nevertheless, and in what is an avowedly conservative position, *vis-à-vis* the state of current scholarship on Tupi-Guarani languages, I have assumed that the two contrastive correspondences do in fact support the reconstruction of two contrasting segments at the level of Proto-Tupi-Guarani (PTG).

6. Conclusion

This work has tried to discriminate between the regular diachronic developments for the two PTG affricates, **ts* and **ʧ*, and the effects of other, independent processes of change, many of which are language- or branch-specific and have produced a relatively complex pattern of correspondences that partially overlap with the reflexes of the affricates. The work has contributed, therefore, to settle an important open problem in TG historical phonology and to raise a number of other, more localized issues waiting to be tackled in a more rigorous manner in future studies.

It may be concluded that Schleicher's (1998) case for the 'chaotic' nature of these patterns, and his conclusion that late dialectal borrowing in the Guaranian branch plus the reconstruction of a single PTG affricate offers the best explanation for the attested patterns, is unwarranted. As discussed at different places in the present paper, 20 of the 22 sets amassed in Schleicher 1998: 19 as evidence for multiplicity of correspondences, indicative of late dialectal borrowing, have one or more problems that make them either entirely irrelevant or at least suspicious as evidence for his claims: 8 sets do not involve a PTG affricate at all (110 **katu* 'good', 111 **káy* 'burn', 120 **kɨti* 'cut', 152 **páß* 'all', 163 **pirér* 'skin', 164 **pitáŋ/mitáŋ* 'child', 65 **-eʔɨm* 'not', 189 **tiŋ* 'white'); 3 have missing comparanda (60 **čɨm* 'smooth', 61 **čɨrɨ* 'run (water)', 62 **čók* 'pull off'); 2 include ghost forms (11 **ʔɨčár* 'canoe', 53 **čám* 'cord'); 1 has a problem of sampling (115, **kɨčé* 'knife'); 2 display incorrect correspondences (56 **čéj* 'wash' 59 **čɨβ* 'rub'); 3 interact with independent or poorly understood phonetic developments (167 **pɨčaču* 'new', 63 **čuʔú* 'bite', 116 **čɨkɨyé* 'fear') and 1 likely involves unsystematic morphological analysis (64 **čún* 'black'). Table 6 displays, in a vertically aligned manner, the correspondences for the two PTG affricates in the set of languages examined, the correspondence for **ts-* in absolute word-initial position (represented here by the third person, class II prefix **ts-*) and the correspondence for the affricate(s) in palatal context, that is, marked by a preceding **i/*j*.

	**ʦ*	**ʦ- '3'*	**ʧ*	**iTS*
Avañe' ẽ	*h*	*h-*	*s*	*ʃ*
Old Guarani	*h*	*h-*	*s*	*ʧ*
Mbyá	∅	*h-*	*ʧ*	*ʧ*
Old Tupi	*s*	*s-*	*s*	*ʃ*
Tocantins Asurini	*h*	*h*	*h*	*s*
Kayabí	∅	∅-	∅	∅

Table 6. Summary developments for the two PTG affricates.

In the two leftmost columns, PTG **ts* has two reflexes in Mbyá, probably due to two independent changes, since **ts* > *h* takes place generally but *h* (< **ts*) was later lost in word-medial

position only. PTG **ʧ* and **ts* show different reflexes in the Guaranian branch (above the solid dark horizontal line in table 9) but have non-distinct (merged) reflexes in Northern/Amazonian languages. Distinct reflexes are found for the PTG affricates in the context of a preceding **i* or **j*, though in tautomorphemic/medial contexts the identity of the affricate at the PTG level cannot be established. In cases of morpheme boundaries, further lexical reconstruction at the PTG level will be necessary before a clearer picture emerges.

For the proper evaluation of the final column where the palatalization reflexes are indicated, the reader should recall, as noted at the start of section **3,** that, since the present contribution is concerned with phonological matters only, the issue of the phonetic interpretation of the two reconstructed segments has a secondary role. Here, too, I have opted to keep the traditional interpretation, noting, however, that the palatalization developments have implications which, once addressed, may force a revision of the reconstruction of **ts* and **ʧ*. In particular, the agnostic and purely formulaic representation of the palatalized proto-segment as *TS* is related in part to the difficult problem of deciding which phonetic segment could have yielded the attested reflexes while being simultaneously differentiated from the postalveolar affricate **ʧ*. For the time being, we leave this as an open problem for a fuller approach to the reconstruction of PTG phonology, one of the concerns of ongoing investigations by the present author.

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Appendix: COMPARATIVE SETS

Orthographic conventions of the sources are retained in the comparative data below, with the following adjustments between source orthographies and IPA symbols: (1) for Old Guarani: *<h>* = *h*, *<ç>* = *s*, *<ch>* = *ʧ*, *< ĭ >* = *ɨ*, *<ê>* = *ẽ*, *<y>* = *j*; (2) for Old Tupi: *<ç, c>* = *s*, *<x>* = *ʃ*, *<ig, î>* = *ɨ*, *<i, y>* = *j*, *<c>* = *k*, *<coV>* = *kwV;* (3) for Kayabí and Tocantins Asurini *<'>* = *ʔ*, *<y>* = *ɨ*. Sources for each comparandum are given in accordance to the following conventions: **Avañe'ẽ**: de Canese 1983 = C83, Peralta & Osuña 1950 = PO50; **Old Guarani**: Restivo 1722 = R22, Montoya 1639 = M39, Montoya 1640 = M40; **Mbyá Guarani**: Dooley 1998 = D98; **Tocantins Asurini**: Cabral 1998 = C98, Cabral & Rodrigues 2003 = CR03; **Kayabí**: Dobson 1973 = D73, Weiss 2005 = W05; **Old Tupi**: Anchieta 1595 = A95, *Vocabulário na Língua Brasílica* = VLB.

PTG	Avañe'ẽ	Old Guarani	Mbyá	Asurini	Kayabí	Old Tupi
**ts-* '3.II'	***h-*** (C83: 49,52)	***<h->*** (M40: 40–43)	***h-*** (D98: xii)	***h-*** (C98: 17)	***∅-*** (D73)	***ç-*** (A95: 12v-13)
-ts**o* 'go'	*-**h**o* (C83: 151)	***<h**o>*** (M39: 165v)	*-o* (D98: lxxxiii)	*-**h**a* (CR03: 84)	*-o* (W05: 79)	*Aç**c**ô* (VLB, I, 15)
-wats**ẽm* 'arrive'	*-ŋwa**h**ẽ* (C83: 155)	*<aba**h**ê>* (R22: 368)	*-vaẽ* (D98: cxi)	*-wa**h**ém* (CR03: 249)	*-waem* (W05: 111)	*Agua**c**em* (VLB, I, 72)
-ts**ɨkɨje* 'fear'	*-kɨ**h**ɨje* (C83: 161)	*<quĭ**h**ĭe>* (M39: 332v)	*-kyje* (D98: lxiv)	*-kyysé* (CR03: 114)	*kye* (W05: 53)	*A**c**igquigiê* (VLB, II, 125)
-pts**ɨk* 'grab'	*-p**h**ɨ* (C83: 169)	*<aypĭ**h**ĭ>, <aypĭçĭ>* (R22: 520)	*-py* (D98: xcvi)	*-py**h**ýk* (CR03: 199)	*-pyyk* (W05: 97)	*Aipig**c**igc* (VLB, II, 13)
-ts**ej* 'wash'[24]	*-jo**h**ej* (C83: 159)	*<ayo**h**ey>* (R22: 357)	*-ei* (D98: xxxi)	*-**h**éj* (CR03: 85)	*-poei* (W05: 155)	*Ajo**c**ey* (VLB, II, 19)
-jats**uk* 'bathe'	*-ya**h**ú* (PO50: 162)	*<aya**h**u>* (R22: 125)	*-jau* (D98: xlviii)	*-sa**h**ók* (CR03: 206)	*-jauk* (W05: 34)	*Aja**ç**uc* (VLB, II, 19)
-jats**eʔo* 'yell'	*ya**h**e'ó* (PO50: 330)	*<aya**h**eó>, <aya**c**eó>* (R22: 369)	*-jae'o* (D98: xlvi)	*-sa'á* (CR03: 208)	*-joo'o* (W05: 135)	*Ajace**ô*** (VLB, I, 73)
-ts**aɨ**ts**up* 'love'[25]	*-**h**aɨ**h**u* (C83: 156)	*<a**h**aĭ**h**u>* (R22: 72)	*-ayvu* (D98: xxix)	–	–	*Aç**au**ç**u**b* (VLB, I, 33)

[24] The root of this verb is **-tsej* but cognates involve further material such as the allomorph *jo-* of the third person object marker (*jo-* being used with monosyllabic verb roots, *-j* with verb roots of two or more syllables), in the Old Guarani and Old Tupi comparanda, and the incorporated noun *-po* 'hand', in the Kayabí form.

[25] The meaning 'to love' is very tentative and based on the testimony of the classical languages. Note that reconstruction on the PTG level is made possible by the discovery of cognates among Northern or Amazonian TG languages, such as members of the Kagwahiva cluster: *-ayhuv* 'dream' (Betts 2012: 63).

PTG	Avañe'ẽ	Old Guarani	Mbyá	Asurini	Kayabí	Old Tupi
*pɨ(ts)a**ts**u 'new'[26]	pɨa**h**u (C83: 169)	<Pĭa**h**ú> (M39: 289)	-pyau (D98: xcvi)	–	pyau (W05: 93)	Pi**ç**a**ç**û (VLB, II, 55)
*po**ts**ɨj 'heavy'	po**h**ɨj (C83: 169)	<po**h**ĭî> (M39: 313)	poyi (D98: xciv)	-po**h**ój (CR03: 192)	-poyi (W05: 92)	Xepo**c**îy (VLB, II, 75)
*mo**ts**apɨt 'three'	mbo**h**apɨ (C83: 164)	<mbo**h**apĭ> (R22: 526)	mboapy (D98: lxx)	–	muapyt (W05: 73)	Moçapir (VLB, II, 136)
*kwara**ts**ɨ 'sun'	cuara**h**ĭ (PO50: 400)	<quara**ç**ĭ> ~ <quara**h**ĭ> (R22: 500)	kuaray (D98: lxi)	kwara**h**ý (CR03: 116)	kwaray (W05: 55)	Coara**c**ig (VLB, II, 120)
*po**ts**ãŋ 'medicine'	po**h**ã (C83: 169)	<Po**h**âng> (M39: 312)	poã (D98: xcii)	-po**h**áng (CR03: 191)	fuag̃ (W05: 29)	Moçanga (VLB, II, 37)
*kwe**ts**e 'yesterday'	kwe**h**e (C83: 161)	<Cùe**h**è> (M39: 103v)	kwee (D98: lxii)	sekwe**h**é (CR03: 216)	–	Coe**c**e (VLB, II, 57)
*pɨ**ts**are 'night'	pi**h**are (C83: 169)	<Pĭ**h**á.r> (M39: 294)	pyávy (D98: xcvii)	–	ypyaaje (W05: 157)	Pigçarê (VLB, II, 50)
*apɨ**ʧ**a 'ear hole'	apĭsá (PO50: 353)	<apĭça> (R22: 407)	-apy**x**a (D98: xxv)	-apy**h**á (CR03: 48)	-apya (W05: 12)	Apigçâ (VLB, II, 61)
*pɨ**ʧ**apẽ 'toenail'	pĭsapẽ (PO50: 416)	<pĭçâpê> (R22: 531)	py**x**ã 'dedo do pé' (D98: cxlv)	–	-pyãpe (W05: 93)	Migçapẽ (VLB, II, 139)
*a**ʧ**ɨ 'pain'	ha**s**ɨ (C83: 156)	<açĭ> (M39: 16)	-a**x**y (D98: xxviii)	-a**h**ý (CR03: 30)	-ay (W05: 19)	Çaçîg (VLB, I, 105)
*ʔɨ**ʧ**apɨ 'dew'	ĭsapĭ (PO50: 390)	<ĭçapĭ> (R22: 481)	y**x**apy (D98: cxxi)	–	'yapy (W05: 115)	Ygçapig (VLB, II, 59)
*taja**ʧ**u 'peccary'	tayasú (PO50: 141)	<Tayaçú> (M39: 353)	taja**x**u (D98: clv)	tasa**h**óa (CR03: 238)	tajau (W05: 101)	Tayaçú (VLB, II, 82)
*-**ʧ**uʔu 'bite'	**s**uʔu (C83: 173)	<ayçuú> (R22: 391)	-**x**u'u (D98: cxvi)	-o'ó (CR03: 168)	-u'u (W05: 110)	Ai**x**uu, çuuaguera (VLB, II, 42)

[26] Although a form with two affricates has been reconstructed (e.g., in Mello 2000: 193), only Old Tupi provides evidence for an affricate at the onset of the medial syllable, which is, for this reason, included between parentheses in the corresponding etymon. External evidence from Awetí, a Tupian non-TG language, where we find *my-tatu*, supports the conservative nature of the Old Tupi form, but leaves the loss of the medial **ts* in the other languages unexplained.

PTG	Avañe'ẽ	Old Guarani	Mbyá	Asurini	Kayabí	Old Tupi
*-**ʧ**ɨrɨk 'flow'	**s**ɨ̃rɨ̃ (PO50: 133)	<o**c**ɨ̃rɨ̃> (R22: 192)	-**x**yry (D98: clvi)	–	-yryk (W05: 119)	A**c**igrîc (VLB, I, 82)
*ts-a**ʧ**ap 'pass'	ha**s**a (C83: 156)	<aha**ç**a> (R22: 420)	-a**x**a (D98: xxviii)	-a**h**áp (CR03: 30)	-aap (W05: 1)	A**ç**a**ç**ab (VLB, II, 67)
*ts-e**ʧ**araj 'forget'	he**s**araj (C83: 156)	<chere**ç**arai> (R22: 409)	-e**x**arai (D98: xxxviii)	-e**h**á (CR03: 62)	–	Xere**ç**arai (VLB, I, 127)
*-**ʧ**ẽm 'leave'	**s**ẽ (C83: 173)	<a**c**ê> (R22: 486)	-**x**ẽ (D98: cxvi)	-**h**ém (CR03: 85)	-em (W05: 22)	A**c**em (VLB, II, 111)
*ts-a**ʧ**ẽm 'cry'	ra**s**ẽ (C83: 170)	<chera**c**ê> (R22: 369)	–	-a**h**ém (CR03: 30)	-waem (W05: 111)	Xera**c**em (VLB, I, 150)
*-**ʧ**ɨm 'slippery'[27]	**s**ɨ̃j (C83: 173)	<ỹb**c**ỹ> (R22: 475)	–	–	-ym (W05: 117)	Xe**c**igm (VLB, I, 123)
*ts-e**ʧ**a 'eye'	r-e**s**a (C83: 171)	<Te**ç**á> (M39: 369)	-e**x**a (D98: xxxvii)	-ehá (CR03: 62)	-ea (W05: 19)	Te**ç**â (VLB, II, 56)
*-**ʧ**ɨ 'mother'	**s**ɨ (C83: 173)	<che**c**ɨ̃> (R22: 371)	-**x**y (D98: cxvi)	hyké (CR03: 87)	-y (W05: 115)	**C**ig (VLB, II, 28)
*-a**ʧ**u-pe 'left hand'	a**s**upe (C83: 153)	<a**ç**u> (M39: 17)	-axu (D98: xxviii)	-sahó 'canhoto' (CR03: 206)	-ajau (W05: 157)	A**ç**û (VLB, II, 32)
*ja**ʧ**ɨ 'moon'	ja**s**ɨ (C83: 159)	<ya**c**ɨ̃> (R22: 366)	jaxy (D98: xlviii)	sahý (CR03: 206)	jay (W05: 35)	Ja**c**ig (VLB, II, 25)
*-wa**ʧ**u 'big'	ɣwa**s**u (C83: 154)	<Gua**ç**ú> (M39: 128)	-guaxu (D98: xxxix)	–	–	goa**ç**û (A95: 13)
*i-**TS**upe '3.DAT'	**ʃ**upe (C83: 154)	<i**ch**upé> (M39: 406v)	i**x**upé (D98: xlvi)	-opé, -sopé (CR03: 169)	-upe (W05: 109)	I**x**upé (F21: 74)
*i**TS**e 1SG.PRO	**ʃ**e (C83: 153)	<**Ch**é> (M39: 119v)	**x**ee (D98: cxvi)	isé (CR03: 92)	je (W05: 147)	Ɣ**x**e (VLB, I, 131)
*-aj**TS**e 'aunt'	–	yai**ch**é (M39: 187v)	-jai**x**e (D98: xlvii)	sasé (CR03: 210)	jaje (W05: 33)	ai**x**e (VLB, II, 127)

[27] The Avañe'ẽ form in this set is not certainly cognate. Nasalization is compatible with the regular loss of PTG *-*m* in the language, but the final -*j* is unexplained.

PTG	Avañe'ẽ	Old Guarani	Mbyá	Asurini	Kayabí	Old Tupi
*t-aj**TS**o 'mother-in-law'	tai**ch**ó (PO50: 403)	tai**ch**ó (M39: 352v)	-rai**x**o (D98: xix)	–	-ojo (W05: 79)	tai**x**o (VLB, II, 120)
*-**ʧ**ãm 'rope'	**s**ã (PO50: 253)	<ç**â**> (R22: 200)	**x**ã (D98: cxv)	-**h**om (CR03: 86)	-ãm (W05: 7)	**Ç**âma (VLB, I, 82)
*ki**ʧ**e 'knife'	k**ɨs**e (C83: 161)	<Qu**ĭc**é> (M39: 332)	ky**x**e (D98: lxv)	ky**h**é (CR03: 111)	kye (W05: 53)	Quig**c**ê (VLB, I, 133)
*-poi**TS**~~ɨ~~ 'angry'[28]	po**ch**ĭ (PO50: 280)	<che-po**ch**ĭ> (R22: 275)	-po**x**y (D98: xciv)	–	–	aicó-po**xî** (A95: 10v)

[28] The medial *-*i*- preceding the consonant is reconstructed on the basis of external evidence from Mawé, a non-TG Tupian language that is closely related to PTG, where the cognate *pojt~~ɨ~~* 'dangerous' is attested (Rodrigues & Dietrich 1997: 273).

Фернанду де Карвалью. Реконструкция двух аффрикат в пратупи-гуарани согласно данным языков гуарани

В последнее время высказываются сомнения относительно необходимости «канонической» реконструкции двух аффрикатных сегментов на уровне пратупи-гуарани (ПТГ), основанные на якобы хаотичном отражении этих сегментов в языках-потомках. Согласно альтернативной гипотезе, ПТГ следует реконструировать с одной-единственной аффрикатой, а множественность рефлексов объяснять позднейшими междиалектными заимствованиями. В данной статье приводится детальный анализ этой точки зрения, которая в конечном итоге отвергается в связи с тем, что наблюдаемые соответствия на самом деле не так хаотичны, как может показаться на первый взгляд, и что данные как минимум по языкам ветви гуарани однозначно указывают на необходимость восстанавливать на ПТГ уровне две аффрикаты. Отдельные отклонения от регулярных рефлексов, наблюдаемые в некоторых языках гуарани (и в родственных языках семьи тупи-гуарани), легко объясняются как результат параллельных процессов, таких, как палатализация, междиалектные заимствования и спорадические или регулярные утраты сегментов в составе композитов.

Ключевые слова: тупи-гуарани языки; звуковые изменения; фонологическая реконструкция.