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**Ciucci, Luca (2020) *Matter borrowing, pattern borrowing and typological rarities in the Gran Chaco of South America*. Morphology, 30 pp. 283-310.**

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Please refer to the original source for the final version of this work:

<https://doi.org/10.1007/s11525-020-09359-1>

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## **Matter borrowing, pattern borrowing and typological rarities in the Gran Chaco of South America**

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**Keywords:** affix order, clusivity, egophoricity, greater plural, language contact, possessive classifier, Zamucoan, Guaycuruan, Mataguayan, Chaco

**Abstract:** The present paper explores the intersection between typological rarities, matter borrowing and pattern borrowing in the Gran Chaco of South America. In this region the only two living Zamucoan languages are spoken: Ayoreo and Chamacoco. Zamucoan has been for a long time in contact with the other languages of the area, in particular with the Guaycuruan and Mataguayan families. I analyze some rare features of Zamucoan, which developed through language contact or spread to neighboring languages. The reconstruction of Proto-Zamucoan permits us to understand better what has happened in terms of contact, or to figure out the development of rare characteristics involved in language contact: an example is Chamacoco clusivity, introduced via pattern borrowing. The formation of the Chamacoco first person plural exclusive is unusual; in addition, the pronominal system has acquired a split between a plural and a 'greater plural', a pattern borrowing from Nivaê (Mataguayan). Some features spread from Chamacoco to Kadiwéu (Guaycuruan), two languages with a well-documented story of contact. These are: (i) The affix order in the third person plural of Chamacoco verbs, where number prefix precedes person prefix; (ii) The marking of gender and number of possessive classifiers, found in the Kadiwéu classifier for domestic animals. Other unusual features discussed here are voiceless nasals, para-hypotaxis and traces of egophoricity.

**Acknowledgments:** I would like to express my gratitude to the following scholars for their help and suggestions: Alexandra Y. Aikhenvald, Junwei Bai, Pier Marco Bertinetto, Balthasar Bickel, R. M. W. Dixon, Alain Fabre, Brigitta Flick, Lauren Gawne, Hannes Kalisch, *Marcin Kilarski*, Elena Mihas, Verónica Nercesian, Jolene Overall, Alejandra Vidal, Raoul Zamponi and two anonymous reviewers. Special thanks to Francesco Gardani for his meticulous comments. I alone am responsible for all errors this work may contain.

**Conflict of Interest:** The author declares that he has no conflict of interest.

## **Matter borrowing, pattern borrowing and typological rarities in the Gran Chaco of South America**

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### **1 Introduction**

The presence of rare typological features is a key to understanding the limits of variation in human language. This paper will present a case study of how unusual linguistic structures contribute to expanding our knowledge about contact-induced change. I will discuss the borrowing of typologically rare morphological patterns and features between Zamucoan and other languages of the Gran Chaco in South America, in the light of the interaction of MAT borrowing and PAT borrowing (for a terminological introduction, cf. Gardani 2020b). The rarity of the features analyzed makes it unlikely that they are independent innovations, thus being stronger evidence for borrowing. While it is generally recognized that some areal diffusion took place in the Chaco, which was also proposed as a linguistic area (Comrie et al. 2010, among others), studies on language contact in the Chaco are still inchoate. There is indeed a lack of information for several languages, and even those which have a good reference grammar may present remarkable, but under-investigated, dialectal variation. This situation makes it challenging to investigate contact-driven changes and their historical development. In the awareness of this gap, the present study provides new evidence of language contact in the area by presenting original data from the Zamucoan family. Indeed, recent documentation and the rediscovery of historical data (Bertinetto 2014, Ciucci 2016, forthcoming, among others) permit for the first time a systematic comparison between Zamucoan and the other languages of the area, whose description has also advanced in recent years (Carol 2014, Nercesian 2014, Fabre 2016, among others). The reconstruction of Proto-Zamucoan (Ciucci & Bertinetto 2015, 2017a, 2017b; Bertinetto & Ciucci 2019) can provide hints on the direction, evolution and relative time depth of contact-induced features. Finally, the Chaco has a broader importance for contact linguistics, since in this region grammatical diffusion comes together with a low percentage of shared lexicon, two seemingly conflicting phenomena, whose combination, however, has recently been recognized as possible (Aikhenvald 2002, Seifart 2011, Epps 2020, see below for more references).

The paper is organized as follows. Section 2 briefly introduces the Zamucoan family and the other languages of the Chaco. Section 3 summarizes the state of the art on language contact between Zamucoan and the other Chaco languages. Indeed, recent studies on Zamucoan have permitted the identification of several borrowed elements into and from other Chaco languages, particularly Guaycuruan and Mataguayan languages. The following sections focus on the borrowing of unusual or rare features, including (possible traces of) egophoric marking in Proto-Zamucoan (§4), and an unusual morphological expression of clusivity in Chamacoco (Zamucoan), which displays a contrast between plural vs. greater plural (§5). While the circumstances of the contact that facilitated the transfers addressed in §4-5 are unknown, Section 6 deals with Chamacoco, showing how its historically documented war relationship with Kadiwéu (Guaycuruan) has resulted in the spread of two rare features, namely: (i) the order of number and person affixes in the verb (§6.1), and (ii) the marking of gender and number on classifiers (§6.2).

### **2 The Zamucoan family and the other languages of the Chaco**

The only living Zamucoan languages are Ayoreo and Chamacoco: Ayoreo ( $\approx$  4,500 speakers) is spoken in the Chaco area of southern Bolivia and northern Paraguay, while the Chamacoco traditionally inhabit the department of Alto Paraguay in Paraguay. Chamacoco can be divided into

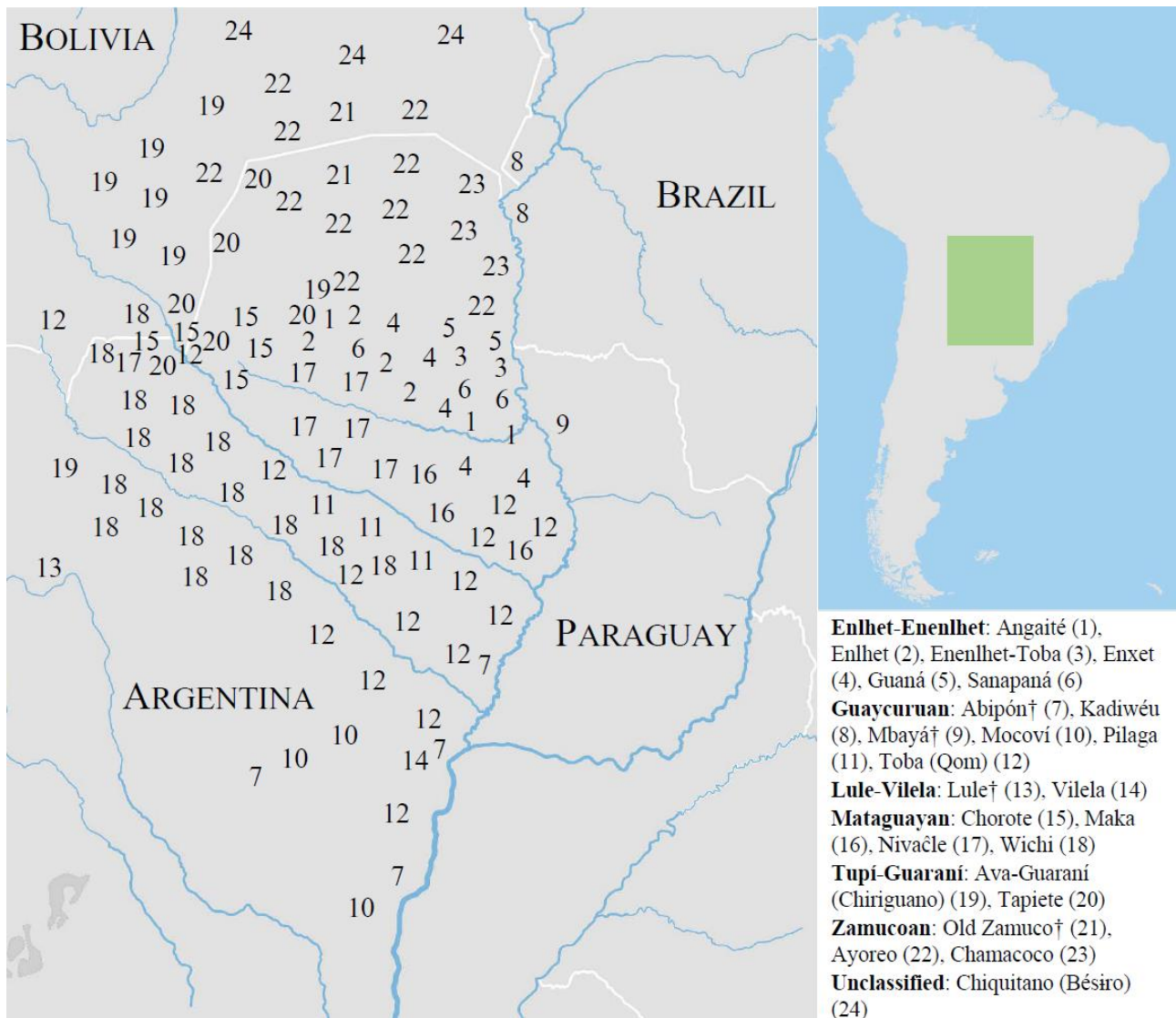
two dialects: Ebitoso (aka Ibitoso) and Tomaraho. In this paper, I only refer to the Ebitoso dialect, spoken by the vast majority of about 2,000 Chamacoco speakers. Zamucoan also includes an extinct language for which we have detailed historical documentation: Old Zamuco, spoken in the 18th century in the Jesuit Missions of Chiquitos. It was described by the Jesuit Father Ignace Chomé, author of a grammar, published posthumously in 1958 (Chomé 1958 [before 1745]), and of a dictionary. The latter is the main source of data on this language and is in the process of being published (Ciucci, forthcoming). Within Zamucoan, Old Zamuco and Ayoreo belong to the same branch, in opposition to Chamacoco. Concerning the typology of Zamucoan, for the purposes of the present paper, suffice it to say that they are AOV/SV languages with fusional morphology. Verbs have prefixes marking subject and mood (realis vs. irrealis). Nouns and adjectives express number (singular or plural) and gender (masculine or feminine). In addition, they distinguish between ‘predicative form’ (PF), used for nominal predication, and ‘argument form’ (AF), which marks the NP with argument function. There is also an ‘indeterminate form’, used when the NP is an argument but has nonspecific reference. This is a rare tripartition in nominal morphology (see Ciucci 2016, Bertinetto et al. 2019). Possessed nouns can have prefixes to express the person of the possessor. In Dixon’s (2010: 268) terminology, they are ‘pertensive’ prefixes, as they mark the possessive relationship on the possessee. If possessed nouns cannot inflect for possessor, they can employ a possessive classifier. Of particular interest for typology are several rare features observed in Zamucoan (Bertinetto and Ciucci 2015), some of which were borrowed into or from this family. The data used here for Zamucoan comes from Ciucci (2016), which offers detailed grammatical and sociolinguistic information on this family. Bertinetto (2014) is a grammatical sketch of Ayoreo. For historical information, see Combès (2009).

Table 1 features the main languages associated with the Chaco. Their approximate distribution is shown in Map 1.

Family	Languages
<b>Enlhet-Enenlhet</b>	Angaité, Enlhet, Enenlhet-Toba, Enxet, Guaná, Sanapaná
<b>Guaycuruan</b>	Abipón†, Kadiwéu, Mbayá†, Mocoví, Pilaga, Toba (Qom)
<b>Lule-Vilela</b>	Lule†, Vilela
<b>Mataguayan</b>	Chorote, Maka, Nivaçle, Wichi
<b>Tupí-Guaraní</b>	Ava-Guaraní (Chiriguano), Tapiete
<b>Zamucoan</b>	Old Zamuco†, Ayoreo, Chamacoco
Unclassified	Chiquitano (Bésiro) <sup>1</sup>

**Table 1.** Main languages of the Gran Chaco

<sup>1</sup> The classification of Chiquitano is uncertain: it was traditionally considered an isolate, although a genetic affiliation with Macro-Jê has been proposed (Adelaar 2008; Nikulin 2020).



**Map 1.** The distribution of Chaco languages (including documented extinct languages)

In the past, the Chaco constituted a cultural and linguistic area (Golluscio and Vidal 2009/2010); Chaco areal features have been noted, among others, by Fabre (2007), Comrie et al. (2010) and González (2015). Campbell and Grondona (2012) also analyze a number of possible areal traits, although they do not consider the Chaco a linguistic area in the narrow sense of the term; indeed Campbell (2017) rather defines the Chaco a ‘trait-sprawl area’, where individual shared traits have non-homogeneous distribution, which does not delimit a well-defined geographical space.

According to Comrie et al. (2010), Guaycuruan and Mataguayan represent the nucleus of the Chaco area in terms of their traditional geographical distribution. Indeed these languages share remarkable similarities, but this does not conclusively demonstrate that the Chaco was a linguistic area, because an alternative hypothesis is that these two families have a common origin (Viegas Barros 2013b). More revealing for the studies on language contact in the Chaco is the fact that Ciucci (2014) identifies several morphological borrowings between Zamucoan, genetically isolated, and Guaycuruan/Mataguayan.<sup>2</sup> This is the object of the following section, which discusses some possible instances of morphological borrowing, and the sociolinguistic dynamics of contact-induced change in the area.

<sup>2</sup> For brevity, I will often refer to both families as ‘Guaycuruan/Mataguayan’, without implying any genetic relationship between the two families.

### 3 Morphological borrowing in the Chaco

This section sets the scene for grammatical transfer between Zamucoan and other Chaco languages. It focuses on person markers, the most significant example among the possible borrowings involving Zamucoan and Guaycuruan/Mataguayan; this section also addresses one peculiarity of language contact in the Chaco, namely low levels of lexical borrowing coupled with substantial grammatical diffusion.

The similarities between Zamucoan and Guaycuruan/Mataguayan person markers can be better observed if one considers Proto-Zamucoan, instead of each Zamucoan language separately. Table 2 features the reconstruction of Proto-Zamucoan verbal and possessive inflection (Ciucci and Bertinetto 2015, 2017a). The prefixes which possibly involve PAT borrowing with Guaycuruan and Mataguayan are highlighted in bold. While some of the similarities shown in the table might be due to chance, if we consider all correspondences, chance similarity can be excluded.

	<i>Proto-Zamucoan verb inflection</i>		<i>Proto-Zamucoan possessive inflection</i>
	REALIS	IRREALIS	
1SG	* <b>a</b> -V-ROOT	* <b>j</b> -V-ROOT * <b>te</b> -V-ROOT	* <b>j</b> -V-ROOT
2SG	*ba-/ma-V-ROOT (* <b>da</b> -/na-V-ROOT)	* <b>a</b> -V-ROOT	* <b>a</b> -V-ROOT
3	* <b>te</b> -V-ROOT * <b>t</b> -V-ROOT *Ø-V-ROOT *Ø-Ø-ROOT	* <b>d</b> -/n-V-ROOT * <b>t</b> -V-ROOT — *Ø-Ø-ROOT	* <b>d</b> -/n-V-ROOT *g-V-ROOT, (*j-V-ROOT ?) *Ø-V-ROOT *Ø-Ø-ROOT
REFL	—	—	* <b>da</b> -/na-V-ROOT
1PL	* <b>a</b> -V-ROOT-ko —	* <b>j</b> -V-ROOT-ko * <b>te</b> -V-ROOT-ko	*aj-V-ROOT *as-V-ROOT [rare]
2PL	*ba-/ma-V-ROOT-(j)o (* <b>da</b> -/na-V-ROOT-(j)o)	* <b>a</b> -V-ROOT-(j)o	?

**Table 2.** Reconstructed Proto-Zamucoan verbal and nominal possessive inflection (Ciucci and Bertinetto 2017a: 325)<sup>3</sup>

Table 3 compares Proto-Zamucoan (first column) with similar elements found by Ciucci (2014) in Guaycuruan and Mataguayan (second column), in order to show the presence of similar or identical exponents, which might be instances of MAT borrowing. One has to note that three out of four Mataguayan languages have realis vs. irrealis distinction in verb inflection, which can be traced back to Proto-Mataguayan.<sup>4</sup> Nouns of most Chaco languages have prefixes to mark the possessor (Fabre 2007), compared in the second part of the table.<sup>5</sup>

<sup>3</sup> In the prefixation of Zamucoan verbs and nouns, one distinguishes prefix, thematic vowel (V) and root; see Ciucci (2016) for more details.

<sup>4</sup> Note that Enlhet-Enenlhet verbs also display a realis vs. irrealis distinction (see Kalisch 2009/2010 and Van Gysel 2017).

<sup>5</sup> In order to make phonetic resemblances clear, one has to point out that:

(i) Zamucoan has nasal harmony. In general, Proto-Zamucoan \*d- and \*da- could nasalize into \*n- and \*na-.

(ii) The phonological inventory of Proto-Zamucoan did not include any lateral consonant: Guaycuruan and Mataguayan laterals systematically correspond to Proto-Zamucoan /d/ (or /n/ under nasal harmony).

Subject markers	
PROTO-ZAMUCOAN	GUAYCURUAN/MATAGUAYAN
1SG.REALIS: * <i>a</i> -V-ROOT	MATAGUAYAN: Chorote <i>a</i> -
2SG.REALIS: * <i>da</i> -/na-V-ROOT	MATAGUAYAN: Chorote <i>hl</i> -; Maka <i>t</i> -, <i>ta</i> -, <i>ti</i> -, <i>tV</i> -, <i>tVn</i> -; Nivaçle <i>t</i> -, <i>ta</i> -, <i>n</i> -, <i>na</i> -; Wichi <i>la</i> - <sup>6</sup>
3.(REALIS): * <i>t</i> -V-ROOT	GUAYCURUAN: Pilaga <i>t</i> -. MATAGUAYAN: Maka <i>t</i> -, <i>tV</i> -; Nivaçle <i>t</i> -, <i>t'</i> -, <i>ta</i> -, <i>ta</i> <sup>2</sup> -, <i>t'a</i> ; Wichi <i>ta</i> - (no REAL/IRR distinction in Pilaga, for Wichi see footnote 6) <sup>7</sup>
1SG.IRREALIS: * <i>j</i> -V-ROOT	MATAGUAYAN: Chorote <i>i</i> -, <i>ja</i> -, <i>j</i> -; Nivaçle <i>j</i> -, <i>ji</i> -, <i>ja</i> -
2SG.IRREALIS: * <i>a</i> -V-ROOT	MATAGUAYAN: Chorote <i>a</i> -, $\emptyset$ -; Maka <i>V</i> -, $\emptyset$ -; Nivaçle <i>a</i> -, <i>a?</i> -, $\emptyset$ -
3.IRREALIS: * <i>d</i> -/n-V-ROOT	MATAGUAYAN: Chorote <i>in</i> -; Maka <i>n</i> -, <i>nV</i> -, <i>nVn</i> -, <i>nVt</i> -; Nivaçle <i>n</i> -, <i>na</i> -, <i>ni</i> -, <i>nVn</i> -, <i>nVt</i> -; Wichi <i>ni</i> - (negative IRR prefix, see footnote 6)
Pertensive markers	
PROTO-ZAMUCOAN	GUAYCURUAN/MATAGUAYAN
1SG: * <i>j</i> -V-ROOT	GUAYCURUAN: Abipón <i>i</i> -; Kadiwéu <i>i</i> -, <i>ej</i> -, <i>j</i> -; Mocoví <i>j</i> -, <i>i</i> -, Pilaga <i>j</i> -, <i>ji</i> -; Toba <i>j(V)</i> -, <i>aj</i> -, <i>i</i> -. MATAGUAYAN: Chorote <i>i</i> -, <i>j</i> -; Maka <i>ji</i> -, <i>j</i> -, <i>i</i> -; Nivaçle <i>i</i> -, <i>ji</i> -; Wichi <i>j</i> -, <i>ja</i> -, <i>ʔi</i> -
2SG: * <i>a</i> -V-ROOT	MATAGUAYAN: Chorote <i>a</i> - (-C) / $\emptyset$ - (-V); Maka <i>V</i> -, $\emptyset$ -; Nivaçle <i>a</i> -, $\emptyset$ -; Wichi <i>a</i> -
3(non-REFL): * <i>d</i> -/n-V-ROOT (3).REFL: * <i>da</i> -/na-V-ROOT	GUAYCURUAN: Abipón <i>l</i> -; Kadiwéu <i>l(i)</i> -, <i>el(i)</i> -, <i>al</i> -; Mocoví <i>l</i> -, <i>al</i> -; Pilaga <i>l</i> -, <i>hal</i> -; Toba <i>l</i> -, <i>al</i> - MATAGUAYAN: Chorote <i>hl</i> -, <i>hi</i> -; Maka <i>t(V)</i> -; Nivaçle <i>t</i> -, <i>ta</i> -; Wichi <i>la</i> -, <i>le</i> -

**Table 3.** Correspondences between Proto-Zamucoan, Guaycuruan and Mataguayan (see Ciucci 2014 for data and discussion)

For the Zamucoan exponents in Table 3, one can rule out the possibility of family-internal diffusion (Ciucci and Bertinetto 2015, 2017a); in addition, the direction of the MAT borrowing is mostly unclear, since contact took place a long time ago. The number of similar exponents between Zamucoan and Guaycuruan/Mataguayan might also suggest a common origin. However, there is not enough evidence to support such a hypothesis so far, because most correspondences identified in Ciucci (2014) have to do with those aspects of Guaycuruan/Mataguayan person marking that are comparable to Zamucoan: unlike Guaycuruan/Mataguayan, Zamucoan verbs do not mark the object and display no person hierarchy. To ascertain any genetic relationship, one also has to compare the rest of the grammar and basic lexicon, where there are not enough similar elements, which leaves contact-induced change as the most plausible hypothesis so far.<sup>8</sup> The fact that most borrowed exponents concern the category of person could be explained by the Principle of Morphosyntactic Subsystem Integrity, stating that “borrowing of paradigmatically and syntagmatically related grammatical morphemes is easier than borrowing of the same number of isolated grammatical

<sup>6</sup> In Wichi, subject prefixes in non-negative contexts do not distinguish between realis and irrealis. In negative contexts, there is a contrast between realis and irrealis negation, which is typically expressed by both a prefix and a suffix. The irrealis negative marker jointly conveys the categories of negation and person (Nercesian 2014: 315-323). One might thus consider this a partial implementation of the category mood. Interestingly, in Chamacoco the irrealis mood is obligatory precisely under the scope of negation.

<sup>7</sup> For Wichi, Terraza (2009: 120) analyses *ta*- as a 3rd person prefix for monovalent verbs. According to Nercesian (2014) and Nercesian and Vidal (2014) the 3rd person prefix is zero, while *t(a)*- marks the class of intransitive verbs, rather than person. For a hypothesis on the development of *t(a)*-, see Vidal and Nercesian (forthcoming).

<sup>8</sup> For a different point of view, see Nikulin and Carvalho (2018), who propose a distant genetic relationship between Carib, Cariri, Chiquitano, Guaycuruan, Macro-Jê, Mataguayan, Tupi and Zamucoan languages.

morphemes” (Seifart 2012: 475).

Besides, the historical reconstruction of Proto-Zamucoan clearly leads to the identification of some borrowed elements. This is the case of the possessive prefixes *\*d-/\*da-*, whose introduction caused a split between 3rd person reflexive vs. non-reflexive (see Ciucci 2014: 21-22; Ciucci and Bertinetto 2017a: 326). The reflexive person (REFL) marks the possessor when it is coreferent with the subject, the non-reflexive or plain 3rd person (simply glossed as 3) indicates no coreference between possessor and subject. Another example, in the opposite direction, could be the 1SG.REAL prefix *a-*, a possible borrowing from Zamucoan (§4). This and other PAT borrowings, such as the overlap of 1.IRR and 3.REAL prefixes (§4), suggest areal convergence rather than genetic relatedness.

Chaco groups had stable genetic and linguistic exchanges for extended periods, sometimes in a situation of bilingualism or multilingualism. Groups merged after a decrease in population, while an increasing population caused splits and subsequent linguistic divergence (Vidal and Braunstein 2020). An interesting aspect of language contact in the Chaco is the low percentage of shared lexicon between Zamucoan and Guaycuruan/Mataguayan.<sup>9</sup> Considering the number of shared person markers in Table 3, one could expect a significant amount of lexical borrowing, often considered more likely to occur than morphological borrowing (Matras 2009: 153-155). However, in many parts of the world the contrary is the case: some linguistic areas of South America, including the Chaco, “exhibit low levels of lexical borrowing, coupled with extensive diffusion of grammatical structures and categories – a combination which stands in fairly profound contrast to multilingualism in many other parts of the world” (Epps 2020; see also Epps and Michael 2017). This is due to an attitude of linguistic purism, which was well described by Aikhenvald (2002, 2012b) for the contact between Tucano (East Tucanoan) and Tariana (Arawak) in the Vaupés area of Amazonia. Seifart (2011, 2012) identified remarkable morphological borrowings in the Caquetá-Putumayo region of Amazonia between Resígaro (Arawak) and Bora (Witotoan), but only 5% vocabulary similarity. The same resistance to the borrowing of foreign words is considered by Campbell and Grondona (2012: 657) among the traits which “may seem more supportive of a Chaco Linguistic Area”.

In the following sections, I shall only focus on cases of transfer of unusual typological features.

#### 4 Traces of egophoricity and PAT borrowing in verb inflection

The first rare morphological feature of Zamucoan has to do with egophoricity. An egophoric system, also known as a conjunct/disjunct system (Hale 1980; Curnow 2002, among others), is a binary system where the egophoric typically marks the 1st person in statements and 2nd person in questions, while the ‘non-egophoric’ expresses 2nd and 3rd person in statements, and 1st and 3rd person in questions (Tournadre 2008; Post 2013; DeLancey 2018; San Roque et al. 2018, among others). Table 4 shows the typical pattern of egophoric vs. non-egophoric marking as related to person number and type of clause. The egophoric, as opposed to the non-egophoric, encodes the ‘assertor’ (Creissels 2008), ‘informant’, or “person who the speaker supposes or claims to be the immediate supplier of the information” (Bickel and Nichols 2007: 223), in other words the ‘primary knower’ (San Roque et al. 2018). Many labels have been used in the literature instead of egophoric and non-egophoric (see the inventory in San Roque et al. 2018: 6-9); here I follow the terminology used in San Roque et al. (2018).

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<sup>9</sup> The relationship between Zamucoan and Guaycuruan/Mataguayan reminds of that between Murrinh-patha and Ngan.gi-tjemmerri, in the Daly linguistic area of northern Australia. These languages have a low percentage of shared lexicon and limited grammatical similarities, mostly restricted to the paradigms of inflecting simple verbs (Dixon 2002: 675).



	Statements	Questions
1	<b>EGOPHORIC</b>	NON-EGOPHORIC
2	NON-EGOPHORIC	<b>EGOPHORIC</b>
3	NON-EGOPHORIC	NON-EGOPHORIC

**Table 4.** Egophoric system

I focus now on the egophoric element of this binary system, leaving apart the non-egophoric. Egophoricity is a rare feature, proper of a few languages, mostly located in the Caucasus, Himalaya, Western China, Papua New Guinea and South America. In Zamucoan there is no egophoric system, but one can find some traces of egophoric marking at an earlier stage. Indeed, comparing Table 4 with Table 5, a similar distributional pattern emerges in person marking. Table 5 features the first three persons realis and irrealis of Proto-Zamucoan and Old Zamuco. The 1PL and 2PL are not reported, because they are obtained from their singular counterparts through a plural suffix, so that the prefix does not change (see Table 2). Proto-Zamucoan displays an overlap of 1.REAL and 2.IRR, both marked by the prefix *a-*. A similar situation is observed in Old Zamuco, which is generally the most conservative language of the family: here, there is the same prefix *a-* in both 1.REAL and 2.IRR, but in the latter *a-* can delete or be deleted by the following vowel (1a-b), so that only in some conservative paradigms the two persons coincide (Table 5).<sup>10</sup> One example is the Old Zamuco irregular verb ‘to look like, to be like’ (1c), which has no *a-* prefix, but displays the same overlap of 1.REAL and 2.IRR.

	Proto-Zamucoan		Old Zamuco	
	REALIS	IRREALIS	REALIS	IRREALIS
1SG	<b>*a-V-ROOT</b>	*j-/tɛ-V-ROOT	<b>a-V-ROOT</b>	j-/tɛ-V-ROOT
2SG	*ba-/ma-V-ROOT (*da-/na-V-ROOT)	<b>*a-V-ROOT</b>	d-V-+ROOT	<b>(a-)(V)-ROOT</b>
3	*tɛ-/t-/Ø-(V)-ROOT	*d-/n-/t-/Ø-(V)-ROOT	tɛ-/t-/Ø-(V)-ROOT	d-/n-/t-/Ø-(V)-ROOT

**Table 5.** The first three verb persons in Proto-Zamucoan and Old Zamuco (Ciucci and Bertinetto 2015)

#### (1) Old Zamuco

- ‘to love’ IRREALIS: *a-* + *-imesẽre* → *a-mesẽre* (2SG) ‘you love’
- ‘to steal’ IRREALIS: *a-* + *-oria* → *Ø-oria* (2SG) ‘you steal’
- ‘to look like, to be like’ REALIS: *o* (1SG), *do* (2SG), *tɛo* (3) ~ Irrealis: *tɛo* (1SG), *o* (2SG), *do* (3).

If one takes into account that: (i) in (positive) statements, the 1.REAL occurs more frequently than its irrealis counterpart (2a); (ii) in questions, the 2.IRR tends to occur more frequently than its realis counterpart (2b),<sup>11</sup> then the syncretism of 1.REAL and 2.IRR is reminiscent of egophoric marking: 1st person in statements and 2nd person in questions. This possibly indicates a tendency towards egophoric marking, or even traces of egophoricity in a remote past.

#### (2) Old Zamuco (Chomé 1958: 136)

<sup>10</sup> For a merely synchronic perspective, one could also say that in Old Zamuco the prefix vowel *a-* for 2.IRR no longer belongs to the slot of the prefix, so that this person became prefixless (Ciucci and Bertinetto 2015: 25). For the purposes of the present study, suffice to point out the presence of the 2.IRR prefix *a-*, at least from a diachronic perspective.

<sup>11</sup> This is confirmed by the analysis of the data in Chomé’s (1958 [before 1745]) grammar.

- a.        **a-imo**                      nani                      nomarã-tie  
             **1SG.REAL-see**        man.M.SG.PF        one-M.SG.AF  
             ‘I see one man.’
- b.        **a-piasu**              gahatearige              e?  
             **2SG.IRR-do**        how\_many\_times        INT  
             ‘How many times have you done it?’

The same syncretism between 1.REAL and 2.IRR is documented in a Mataguayan language, Chorote, which had remote contact with Zamucoan (Ciucci 2014). In the comparison, one has to consider that Zamucoan verbs cannot mark the object. Table 6 reports the affixes for transitive subject (A) in Chorote, which are the same as the ones used for the ‘active’ subject of intransitive verbs in the 1st and 2nd person, with slight changes in the suffixes (Carol 2014: 142-143).

	Chorote	
	REALIS	IRREALIS
1SG	<b>a- / Ø-</b>	i- / ja- / j-
2SG	hi- / hl-	<b>a- / Ø-</b>
3SG	i- / ja- / j-	in-
1PL	<b>a- / Ø-...-ah / -Vk</b>	i- / ja- / j-...-ah / -Vk
2PL	hi- / hl-...-aj	<b>a- / Ø-...-aj</b>
3PL	i- / ja- / j-...-is	in-...-is
Impersonal	ti- / ta- / t-...-ah / -Vk	ti- / ta- / t-...-ah / -Vk

**Table 6.** Affixes for A in Chorote (adapted from Carol 2014: 127-128)

Leaving apart plural persons, which in Chorote, as in Zamucoan, are obtained by adding a suffix to their singular counterpart, one can see that the overlap of 1.REAL and 2.IRR involves the same prefix *a-*, also present in Zamucoan. Note, however, that the same syncretism is not documented in any other Mataguayan language.

The presence of *a-* for 2.IRR is common to Zamucoan and Mataguayan languages (see Table 2), but this prefix also marks the 2nd person of the possessor in both families. What unites Proto-Zamucoan and Chorote, but distinguishes the latter from the rest of its family, is the presence of *a-* for 1.REAL. This is a possible case of MAT borrowing of the prefix. At the same time, one can see here an example of PAT borrowing, if we consider the overlap of 1.REAL and 2.IRR, which is a possible trace of egophoricity in the past, or indicates a shared tendency towards egophoricity.

We cannot be sure about the direction of borrowing. However, the fact that this feature is found in Proto-Zamucoan but in no Mataguayan language apart from Chorote is a hint that Chorote was the recipient language. Carol (2014: 128, footnote 4) notes that such an isomorphism is due to chance if one has to judge from cognates in the other Mataguayan languages. By widening the perspective to the close Zamucoan family, however, the chance explanation can be rejected and it can be shown that this isomorphism is induced by language contact.

Besides, Carol (*ibidem*) points out another isomorphism which can hardly be explained through intra-family comparison: the 1.IRR phonologically coincides with the 3.REAL (see Table 7). The same is observed in Proto-Zamucoan, where the most conspicuous class of verbs was characterized by the 1.IRR prefix *tə-* and by the homophonous prefix for 3.REAL. Such syncretism is not present in the currently spoken languages, because both elements underwent a phonetic change in Chamacoco, and Ayoreo has lost 1.IRR *tə-* (Ciucci and Bertinetto 2015). However, in Old Zamuco the majority of paradigms show the same isomorphism between the two persons, as in Table 7, where the verb ‘to love’ is compared with the Chorote prefixes for transitive subject (A).

	Old Zamuco: ‘to love’		Chorote: markers for A	
	REALIS	IRREALIS	REALIS	IRREALIS
1SG	a-i-mesẽre	<b>te-i-mesẽre</b>	a-/Ø-	<b>i-/ja-/j-</b>
2SG	d-a-mesẽre	a-mesẽre	hi-/hl-	a-/Ø-
3/3SG	<b>te-i-mesẽre</b>	d-i-mesẽre	<b>i-/ja-/j-</b>	in-

**Table 7.** Syncretism between 1.IRR and 3.REAL

The syncretism of 1.IRR and 3.REAL seems to be documented in another Mataguayan language: Nivaçle. In the description by Stell (1989: 248-303) the verb system has an ‘affirmative’ and a ‘negative form’, which are actually a realis and an irrealis mood, respectively. The allomorphs *j-* (before vowels) and *ji-* (before consonants) are used for both 1.IRR and 3.REAL. In the Nivaçle variety described by Fabre (2016: 188-192), one can see a redistribution of realis and irrealis concerning polarity, so that one can often distinguish affirmative and negative realis, and affirmative and negative irrealis. However, also taking into account this greater complexity, the verb morphology has a bipartite distinction, originally corresponding to realis vs. irrealis: in the fourth and fifth conjugation, the allomorphs *j-* and *ji-*, marking the 1st person negative form of both realis and irrealis are identical to those used in the 3.REAL, both affirmative and negative. In other words, in the variety described by Fabre, *j-/ji-* turned out to be associated with negation per se, rather than with irrealis, but we can say that diachronically Nivaçle, Chorote and Zamucoan show the same syncretism between 1.IRR and 3.REAL. Like the overlap between 1.REAL and 2.IRR, this can also be considered a case of PAT borrowing between Mataguayan and Zamucoan rather than being due to genetic inheritance. In this very case, it is difficult to make considerations on the direction of borrowing, since Chorote is not an outlier in its language family. No morphological material is borrowed here, but the Mataguayan 1.IRR prefixes *i-/j(V)-* correspond to the 1.IRR allomorph which in Proto-Zamucoan was used for all other verbs not characterized by 1.IRR/3.REAL prefix *te-* (see Table 2).

## 5 Clusivity and greater plural

Unlike Old Zamuco and Ayoreo, Chamacoco shows clusivity, that is, the distinction between inclusive and exclusive in the 1st person of free pronouns and verbs (see Tables 8 and 9). Clusivity cannot be reconstructed for Proto-Zamucoan (Ciin the same roucci and Bertinetto 2015), and this constitutes indirect evidence for its being a pattern borrowed from a neighboring language. Indeed, clusivity is highly diffusable (see Jacobsen 1980). The origin of Chamacoco clusivity will be discussed in §6.1, because diachronically there is a possible interaction with another typological rarity. Table 8 showcases clusivity in a regular verb. (Note that the final vowel can be dropped.)

	Minimal	Augmented
Exclusive	t-i-tẽew (1SG) ‘I write’	o-j-i-tẽew (1PL.EXCL) ‘we write’
Inclusive	j-i-tẽew (1PL.INCL) ‘we write’	j-i-tẽew-lo (1GP.INCL) ‘we (many, all) write’

**Table 8.** Clusivity in the Chamacoco verb system

Chamacoco clusivity gives rise to a minimal/augmented system, where the 1st person inclusive distinguishes between a minimum amount (the ‘minimal’) and more than the minimum amount (the ‘augmented’). Several typological studies show that in South America this system is less frequent than other types of inclusive-exclusive opposition (Cysouw 2003: 140; Bickel and Nichols 2005: 53; Crevels and Muysken 2005: 318-319). However, it is found in a fair number of South American

languages, including Aymara, Quechua, and in most Carib languages (Dixon 2010: 197), as well as in Palikur (Arawak), which has been in contact with Carib (Aikhenvald 2018a: 21-22). Chamacoco clusivity has two typologically unusual characteristics:

(i) The 1PL.EXCL is derived from the 1PL.INCL through the prefix *o-*. Since there are morphological and semantic reasons to consider the 1PL.EXCL a particular kind of plural of the 1SG, while the 1PL.INCL should be regarded as a person on its own (Cysouw 2005; Daniel 2005),<sup>12</sup> one would expect the 1PL.EXCL to derive from the 1SG, and not from the 1PL.INCL, as happens in verb inflection.<sup>13</sup> In the crosslinguistic sample of  $\approx 250$  languages analyzed by Daniel (2005: 6-7), the only case where the non-singular exclusive person is derived from the inclusive is Limbu, a Tibeto-Burman language. Harbour (2016: 106-111) and Pertsova (2017) also offer few other examples where this occurs.

(ii) Comparing Chamacoco clusivity with what we know about minimal-augmented systems in other languages (see Cysouw 2003: 85-90; Bickel and Nichols 2005: 50-53), we would expect to find a dual as minimal element and a plural as augmented element. Here, however, the minimal is a plural, and the augmented is a greater plural (GP).

A greater plural (sometimes also called ‘plural of abundance’ or ‘global plural’) implies excessive number or all possible instances of a referent: depending on the context, the Chamacoco greater plural of the inclusive person could literally be rendered with ‘we all’ or ‘we many’. The presence of a greater plural itself is rare (Corbett 2000: 30; Velupillai 2012: 162). In Chamacoco, the greater plural is an optional feature, which mostly refers to the totality of contextual referents, independently of the actual cardinality, as in (3a), where ‘we’ refers to ‘we all’. Chamacoco greater plural can also refer to a greater than usual amount, as in (3b), whose subject (‘we many’) is a group of Paraguayan soldiers during the Chaco War. In (3b), the first verb form in the greater plural *jĩ:sil*, lit. ‘we many dig’, highlights the fact that there are many soldiers: such a high amount is necessary to make a trap for an armored truck. Then, in the final pronoun, *ejoklo* ‘we all/many’, the greater plural is ambiguous between high number, referring to the quantity of soldiers present, and totality, implying the fact that the whole battalion risks being exterminated by the enemy. Note that in the middle of the sentence, a first 1PL.INCL, *jimteaha* ‘we put’ (not a greater plural), refers to the same battalion. Indeed the greater plural is not obligatory, and this has two possible explanations: (i) the greater plural is a relatively recent innovation in the Chamacoco pronominal system; (ii) the greater plural, being the marked element, is only used for specific pragmatic needs; otherwise the unmarked counterpart, the plural, is employed.

(3) Chamacoco (Ciucci, fieldwork)

- a. sara, nene, ina:po je dejteole ŋ j-uku-l  
 Sara Nené why NEG tomorrow COORD 1PL.INCL-go-GP  
 peḷe oskōr?  
 type\_of\_fruit.F.PL type\_of\_fruit.F.PL  
 ‘Sara, Nené, why don’t we all go to [collect] fruits tomorrow?’
- b. j-ĩ:si-l xotsi-t baḷu-t par j-imteaha asa  
 1PL.INCL-dig-GP hole-M.SG.AF big-M.SG.AF SUB 1PL.INCL-put that.F.SG

<sup>12</sup> For a different opinion, see Harbour (2016), Pertsova (2017) and Moskal (2018). In this work, both for simplicity reasons and because there is no universal consensus on the nature of the inclusive person, I talk about 1PL.INCL, which should be distinguished from the greater plural of the same person. Since in (3) each segmentable morpheme is analyzed separately, the glosses for the greater plural forms slightly differ from those of the tables, but this is only due to the glossing conventions.

<sup>13</sup> In free pronouns things may be different (see §6.1).

kemjon	baļu-ta	ese	xotsi-t	ehe-t	pork
truck	big-F.SG.AF	that.M.SG	hole-M.SG.AF	3.inside-M.SG.AF	because
asa	wate	ts-in	<b>ejok-lo.</b>		
that.F.SG	DET.F.SG	3-wipe_out	1PL.INCL-GP		
‘We [many] will dig (or: let us dig) a big hole to put the armored truck in the hole, because [otherwise] that is going to wipe out [all of] us [many].’					

The greater plural is not only found in the inclusive person of verbs, but also in the 2nd person of free pronouns, which subcategorizes into singular, plural and greater plural (see Table 9). Note that in the 2nd person of verbs the only number distinction is singular vs. plural, so that the system of free pronouns is asymmetrical in the 2nd person.<sup>14</sup>

	Minimal	Augmented	
Exclusive	jok (1SG)	ōrjok (1PL.EXCL)	
Inclusive	ejok (1PL.INCL)	ejok-lo (1GP.INCL)	
2	owa (2SG)	olak (2PL)	olak-lo (2GP)
3	ir(e), [witci (M), wate (F)]	ōr, [wir]	

**Table 9.** Chamacoco free pronouns

As one can see in Tables 8-9, the greater plural is always marked by the suffix *-lo*. From a family-internal perspective, *-lo* is related to Old Zamuco *-(o)doe* and Ayoreo *-(o)de*, which are suffixes expressing the masculine plural of nouns and adjectives with argumental function (Ciucci 2016: 719-724). Also, Guarañoca, a less known Zamucoan variety documented in the 19th century and close to Old Zamuco and Ayoreo, has *-odo* (Ciucci 2014: 26). (Note that here is a regular correspondence between Old Zamuco/Ayoreo /d/ and Chamacoco /l/ or /d/, because only Chamacoco has /l/ in its phonemic inventory; cf. Table 3.)

In Chamacoco, the plural marker *-lo* disappeared in most nouns and adjectives, but spread to verbs and free pronouns; *-lo* conveys the ‘plain’ plural in the 2nd person of verbs: e.g. *ekirihi* (2SG) ‘you (SG) visit’ → *ekirihi-lo* (2PL) ‘you (PL) visit’ (Ciucci 2016: 130-136). It is not clear whether this was a language-internal development or a contact-induced change.<sup>15</sup> Marking the verb’s 2PL was very likely the primary function of *-lo*, before it was used for the greater plural (i.e., the ‘plural of the plural’) in verbs and free pronouns (Tables 8-9).

Before addressing how contact could have originated the greater plural, one has to point out that the suffix *-lo* is ultimately a case of MAT borrowing. According to Comrie et al. (2010: 99), the presence of a suffix *-C<sub>lateral</sub>(V)* to express the plural is an areal feature of the Chaco: one can see it in Guaycuruan, Mataguanan, Lule and Vilela (4). It is known that nominal plural is relatively easy to borrow, indeed “nominal plural has a higher-than-average borrowing rating [...] In most cases nominal plural markers copied show prototypical properties of agglutinative rather than fusional inflection” (Gardani 2012: 71) (cf. also Mithun 2020). Comrie et al. (2010) did not provide any data for Zamucoan, which has the same suffix (4). Indeed, *-C<sub>lateral</sub>(V)* cannot be immediately detected in

<sup>14</sup> In Table 9, pronouns in square brackets are also used as determiners. Chamacoco free pronouns can also be analyzed distinguishing between singular and group morphemes (Cysouw 2003: 85-90): also in this case, the asymmetry caused by the greater plural of the 2nd person remains.

<sup>15</sup> On this recent development of Chamacoco, see Ciucci and Bertinetto (2015: 80-81). Concerning the fact that the nominal plural was re-employed in the verb for the plural of the 2nd person, this is a pattern found, with different suffixes, also in the other Zamucoan languages (Ciucci and Bertinetto 2015: 72-75).

Old Zamuco and Ayoreo, because the lateral consonant corresponding to /d/ does not exist in these languages. Similar considerations apply to Proto-Zamucoan, where the suffix can be reconstructed as *\*-do*. The suffix *-C<sub>lateral</sub>(V)* is a case of areal diffusion, but it is uncertain whether it was borrowed in or from Proto-Zamucoan. One can, however, speculate that *\*-C<sub>lateral</sub>(V)* was borrowed into Proto-Zamucoan, because only in Zamucoan the lateral corresponds to /d/, and this could be a phonological adaptation necessary to borrow *\*-C<sub>lateral</sub>(V)* in Proto-Zamucoan (*\*-C<sub>lateral</sub>(V) > \*-do*). Later, Proto-Zamucoan *\*-do* turned into Chamacoco *-lo* (4). The presence of /l/ in Zamucoan is an innovation of Chamacoco (Ciucci and Bertinetto 2015), which paradoxically has restored the original lateral consonant of the plural suffix:<sup>16</sup>

(4) **Nominal plural in the Chaco**

**Guaycuruan:** Abipón *-l*, Kadiwéu *-(a)l:i*, Mocoví *-l* (paucal), Pilaga *-l* (paucal), Toba *-l* (distributive)

**Mataguayan:** Maka *-l*, Nivaçle *-k* (<*\*-kl*), Chorote *-(V)l*, Wichi *-(V)l*, *-(i)lis*, *-(V)l*

**Lule:** *-l*, *-el*, *-le*, *-il*

**Vilela:** *-l(V)m*

**Zamucoan:** cf. Old Zamuco *-(o)doe*, Ayoreo *-(o)de*, Guarañoca *-odo*, Chamacoco *-lo* < Proto-Zamucoan *\*-do*<sup>17</sup>

The Chamacoco greater plural has not only to do with an old instance of MAT borrowing. The spread of the nominal plural to the pronoun system is not only found in Zamucoan, but also in some Mataguayan languages, precisely with the same plural suffixes as in (4) or with a similar one. In Wichi, the suffix *-(i)l*, proper of nominal plural, is used for the plural of free pronouns (Nercesian 2014: 335; see also Terraza 2009: 100). The suffixes *-il*, *-Vl* and *-l* mark plural in the 1PL.EXCL and 2PL of Maka verb and possessive inflection; *-il* has the same function in the 1PL.EXCL and 2PL of Maka free pronouns (Gerzenstein 1994: 102, 149, 175-176). In Nivaçle, the suffix *-el* is typically used for the plural subject or plural possessor of 1st and 2nd person (Fabre 2016: 162, 279), but it is also documented with other persons, and in verbs it can express ‘coordinative plural’ (Fabre 2016: 163, 280; Fabre 2017). The suffix *-el* does not coincide with the Nivaçle nominal plural reported in (4), but diachronically it is clearly the same plural suffix ending in a lateral consonant. The suffix *-el* is also the plural suffix of Nivaçle free pronouns (Table 10).<sup>18</sup>

	Minimal	Augmented
Exclusive	ji-vãʃa (1SG)	ji-vãʃe-el (1PL.EXCL)
Inclusive	kas-vãʃa (1PL.INCL)	kas-vãʃe-el (1GP.INCL)
2	a-vãʃa	a-vãʃe-el
3	la-vãʃa	la-vãʃe-el

**Table 10.** Nivaçle free personal pronouns (adapted from Fabre 2016: 102)

<sup>16</sup> It is difficult to say whether contact with other languages maintaining the lateral consonant of this suffix has played a role in the change /d/ > /l/ in the suffix *-lo*.

<sup>17</sup> The data reported here come from Viegas Barros (2013a: 308-309; 2013b: 316) for Guaycuruan and Mataguayan, from Comrie et al. (2010: 99) for Vilela, from Campbell and Grondona (2012: 645) for Lule. For Wichi (Mataguayan), I also have drawn from data in Nercesian (2014: 190).

<sup>18</sup> One also has to note a phonological similarity with the prefixes *l- ~ el-* that in Enlhet (Enlhet-Enenlhet) verbs mark the so-called ‘distributive’ (Kalisch 2009/2010). The distributive is not a plural, but some of its semantic features correspond to those of a plural; the distributive “indifferently indicates the spatial distribution of a state of affairs, the temporal distribution of the same, or its distribution in relation to the different participants” (Kalisch 2009/2010: 127, footnote 20; my translation). Similar considerations apply to the distributive prefix *(e)l-* of Sanapaná verbs (Van Gysel 2017: 33).

Nivaçle has clusivity and, as in Chamacoco, inclusive free pronouns distinguish a minimal element, *kasvãfa*, and an augmented one marked by *-el*. The latter “indicates a greater number of participants, without being able to determine a clear cut in the continuum. Therefore, it cannot be said that it is a difference between dual and paucal” (Fabre 2016: 102, my translation). As in Chamacoco verbs (see Table 8), in Nivaçle verbs *-el* can optionally be added to the 1PL.INCL, to indicate a greater number of participants (Fabre 2016: 279). While the rest of the system is characterized by the opposition singular vs. plural (Table 10), Nivaçle inclusive opposes a plural to a greater plural, as in Chamacoco. Greater plural, a rare feature *per se*, was borrowed as a pattern from Nivaçle into Chamacoco, where it interacts with clusivity, characterized by an unusual morphological shape. The presence of these features cannot be due to chance, and there are two reasons to surmise that Chamacoco was the recipient and not the source of the greater plural:

- (i) First, the spread of the plural suffix ending in a lateral consonant from the nominal to the pronominal system is observed in three Mataguan languages, but not in Old Zamuco and Ayoreo.
- (ii) Second, in Chamacoco free pronouns, the 2nd person has one number cell more than the other person values (i.e. the 2GP, see Table 9), as if *-lo* were introduced later.

The Chamacoco greater plural is thus most likely a PAT borrowing from Nivaçle, but not a direct case of MAT borrowing, because a counterpart of Nivaçle *-el* was already present in Proto-Zamucoan. The fact that both Nivaçle and Chamacoco had a similar plural exponent (*-lo* ~ *-el*) played a role in the spread of this unusual feature. Chamacoco clusivity is also due to PAT borrowing, but the source is unknown (see §6.1 for some hypotheses). Also, an interesting feature of Chamacoco and Nivaçle minimal-augmented system is that the greater plural has, in Dixon’s (2012) words, ‘relative reference’ (i.e., vaguely defined number of referents): indeed there is no clear-cut boundary between the number of referents of plural and greater plural. Considering that no terms with relative reference have so far been observed in a minimal-augmented system (Dixon 2012: 49), Chamacoco and Nivaçle share a unique feature.

(i)	Areal diffusion of the plural suffix <i>*-Clateral(V)</i> (MAT borrowing with Proto-Zamucoan as a possible recipient language)	
(ii)	Proto-Zamucoan <i>*-do</i> (masculine nominal plural)	
(iii)	Proto-Zamucoan <i>*-do</i> > Ayoreo <i>-(o)de</i> , Guarañoca <i>-odo</i> , Old Zamuco <i>-(o)doe</i> , Chamacoco <i>-lo</i>	
(iv)	Use of Chamacoco <i>-lo</i> as plural suffix for the verb’s 2nd person (language-internal change or PAT borrowing)	Development of clusivity in Chamacoco (PAT borrowing from unknown language)
(v)	Chamacoco <i>-lo</i> is used as greater plural marker of the 1PL.INCL of verbs and free pronouns (PAT borrowing from Nivaçle)	
(vi)	The suffix <i>-lo</i> spreads to form the 2GP of free pronouns: <i>olak</i> (2PL) → <i>olaklo</i> (2GP)	

**Table 11.** The formation of the Chamacoco greater plural

Table 11 summarizes the steps which led to the development of the Chamacoco greater plural. Two different processes have been placed in the same row (iv), because it is not possible to establish which one has occurred first. The creation of the 2GP free pronoun *olaklo* (see Table 9) could have been the last change to affect the pronominal system, since *olaklo* possibly originated out of analogy with the 1GP.INCL, and with the verb’s 2PL, obtained through the pluralizer *-lo*, e.g., *ee* (2SG) ‘you (SG) meet’ → *ee-lo* (2PL) ‘you (PL) meet’.

Finally, it is worth mentioning a Chaco language which has a greater plural, but no clusivity.

In the variety of Mocoví spoken in Colonia Aborigen (Chaco Province, Argentina), the independent pronouns of 1st and 2nd person distinguish singular, plural, and greater plural (Juárez and Álvarez González 2017: 234). The presence of a greater plural in Mocoví free pronouns and its implications for language contact is a topic for further research.

## 6 On the contact between Chamacoco and Kadiwéu (Guaycuruan)

In all cases analyzed so far, the direction of borrowing is not always clear, and the sociolinguistic conditions during the contact, often in the remote past, are even quite obscure. By contrast, the dynamics of the contact between Chamacoco and Kadiwéu are well-known. When the first travelers contacted the Chamacoco in the last decade of the 19th century, both populations inhabited opposite banks of the Paraguay river, and the Kadiwéu were feared, because they were the most powerful tribe of the area and made frequent incursions in the Chamacoco territory, taking children as prisoners to be incorporated into their tribe (Boggiani 1894), so that many Kadiwéu actually descended from Chamacoco slaves (Oberg 1949: 5). Chamacoco has lexical items borrowed from Kadiwéu (see Ciucci 2014: 37-8), some of which were first noted by Boggiani (1895). Similarly, Chamacoco has serial verb constructions (SVC), which are absent in Old Zamuco and Ayoreo (Ciucci 2016: 630-631). By contrast, SVCs are documented in Kadiwéu, as well as in other Guaycuruan languages. Structural similarities between Chamacoco and Kadiwéu SVCs suggest that Chamacoco SVCs are a PAT borrowing from Kadiwéu (Aikhenvald 2018b). In the following sections, I will analyze two morphological features for which Chamacoco is the source language.

### 6.1 Affix order in the Chamacoco third person plural

The verb morphology of Proto-Zamucuan did not distinguish between 3SG and 3PL, but Chamacoco has developed an exponent for the 3PL. The 3PL is obtained by adding *o-* to the 3rd person of both realis and irrealis mood (Table 12). Ayoreo and Old Zamuco have no specific form for the 3PL, so that they use the free pronoun *ore* (3PL) to disambiguate the subject, if it is not lexically expressed (Table 12). Since this pronoun corresponds to Chamacoco *õr* (3PL), the obvious conclusion is that *õr* gave rise to the 3PL prefix *o-*.

<b>Old Zamuco</b> (realis mood)	<b>3</b>	ch-/t-/s-/Ø+(V)+ROOT
	<b>3PL</b>	<b>ore</b> ch-/t-/s-/Ø+(V)+ROOT
	e.g., <i>te-i-mesẽre</i> ‘s/he loves’ vs. <i>ore te-i-mesẽre</i> ‘they love’	
<b>Ayoreo</b> (mood syncretism in the 3rd persons)	<b>3</b>	te-/t-/Ø+(V)+ROOT
	<b>3PL</b>	<b>ore</b> te-/t-/Ø+(V)+ROOT
	e.g., <i>te-i-mesẽre</i> ‘s/he wants, prefers’ vs. <i>ore te-i-mesẽre</i> , ‘they want, prefer’	
<b>Chamacoco</b> (realis mood)	<b>3</b>	te-/ts-/t-/d-/n-/l-/j-/Ø+(V)+ROOT
	<b>3PL</b>	<b>o</b> + te-/ts-/t-/d-/n-/l-/j-/Ø+(V)+ROOT
	e.g., <i>ts-a-mur</i> ‘s/he loves, wants’ vs. <i>o-ts-a-mur</i> ‘they love, want’	
<b>Chamacoco</b> (irrealis mood)	<b>3</b>	d-/n-/l-/t-/Ø+(V)+ROOT
	<b>3PL</b>	<b>o</b> + d-/n-/l-/t-/Ø+(V)+ROOT



e.g., <i>n-a-mur</i> (3.IRR) ‘s/he would love, want’ vs. <i>o-n-a-mur</i> (3PL.IRR) ‘they would love, want’
---

**Table 12.** Third person and third person plural in Zamucoan<sup>19</sup>

The 3PL marker is obligatory with human subjects (5a) and facultative with large animals (5b). If the subject refers to a small animal or an inanimate, the 3PL cannot be used (5c-d). These data are consistent with the universal tendency that “overt number marking, and even number agreement, is more likely with humans and higher animates than with inanimates” (Aikhenvald 2015: 114; see also the hierarchy proposed in Smith Stark 1974 and Dixon 2012: 70-71). The contrast between obligatory and optional number marking, as shown here for Chamacoco 3rd person, is rarely found in verbs (Dixon 2012: 52). Such differential marking for the 3PL subject, could indicate that the Chamacoco 3PL exponent is not completely grammaticalized, and this may be evidence that it is an innovation.

(5) Chamacoco (Ciucci 2016: 133-134)

- |    |   |            |              |                |                                |
|----|---|------------|--------------|----------------|--------------------------------|
| a. | boeεε-o                                   | [*d-ebuhu] | o-d-ebuhu    | baja           |                                |
|    | child-M.PL                                | [3-live]   | PL-3-live    | Bahía_Negra    |                                |
|    | ‘The children live in Bahía Negra.’       |            |              |                |                                |
|    |   |            |              |                |                                |
| b. | ojajuwa                                   | de         | /            | o-de           | ono:-ta ehe-t                  |
|    | giant_anaconda.M.PL                       | 3.EXIST    | /            | PL-3.EXIST     | river-F.SG.AF 3.inside-M.SG.AF |
|    | ‘The giant anacondas are in the river.’   |            |              |                |                                |
|    |   |            |              |                |                                |
| c. | kasa:                                     | noj        | [*o-noj]     | d-abis-o       |                                |
|    | ant.M.PL                                  | 3.bring    | [PL-3.bring] | REFL-food-M.PL |                                |
|    | ‘The ants take their food.’               |            |              |                |                                |
|    |   |            |              |                |                                |
| d. | nika:                                     | de         | [*o-de]      | ormi-t         | ehe-t                          |
|    | black_carob.F.PL                          | 3.EXIST    | [3PL-EXIST]  | woods-M.SG.AF  | 3.inside-M.SG.AF               |
|    | ‘The black carob trees are in the woods.’ |            |              |                |                                |

Since *o-* expresses plurality in the 3PL, this constitutes a violation of a universal tendency according to which, when person markers are prefixes, they should precede number markers, irrespective of the order of root and number markers (Trommer 2003; Mayer 2009). The same unexpected order of person and number markers is documented in Kadiwéu, where transitive verbs mark the 3PL subject by premising the pluralizer *o-* to the respective 3rd person prefix (Griffiths and Griffiths 1976: 44; Griffiths 2002: 236-240; Nevins and Sandalo 2010).<sup>20</sup> Consider the following examples from Griffiths (2002):

- (6) d-aqapetege (3SG) ‘s/he meets with’ → o-d-aqapetege (3PL) ‘they meet with’  
j-awe (3SG) ‘s/he blows’ → o-j-awe (3PL) ‘they blow’  
j-alaaqatidi (3SG) ‘s/he remembers’ → o-j-alaaqatidi (3PL) ‘they remember’

There is no other case in Kadiwéu where the pluralizer precedes the person marker. This is both a case of PAT borrowing, as far as the order of the elements is concerned, and a case of MAT borrowing, as regards *o-*. Indeed the origin of this Kadiwéu pluralizer was previously unknown (Viegas Barros

<sup>19</sup> For reasons of simplicity, I did not report the Old Zamuco irrealis: it is understood that the use of *ore* to disambiguate the subject is possible with both moods. The Chamacoco irrealis cannot be properly translated without its context of use.

<sup>20</sup> Owing to the person hierarchy of Kadiwéu, transitive verbs only mark the 3rd person subject when the direct object is also a 3rd person (Sandalo 1995: 47).

2013b: 318), because it is not found in any other Guaycuruan language,<sup>21</sup> and this is further evidence for its origin in Chamacoco, where the formation of the verb's 3PL has a clear explanation (see above).

Besides, the 3PL pronoun *õr* and the pluralizer *o-* could be related to Chamacoco clusivity (§5), which is a case of PAT borrowing, although it is not possible to establish the source. Nivaêlé is a possible candidate, considering its role in the development of the greater plural, but it is not the only neighboring language to show clusivity. There are three hypotheses concerning the formation of the 1PL.EXCL:

(i) Chamacoco might have employed its 3PL exponents in a morphomic way to create the 1PL.EXCL: (a) the prefix *o-* was added to the verb paradigm: *jiteew* (1PL.INCL) → *ojiteew* (1PL.EXCL) 'we write'; (b) *õr* (3PL) + *jok* (1SG) or *õr* (3PL) + *ejok* (1PL.INCL) formed *õrjok* (1PL.EXCL).<sup>22</sup> It is, however, not certain that clusivity developed out of the Chamacoco 3PL.

(ii) The 1PL.EXCL is both a PAT and a MAT borrowing from a Tupí-Guaraní language. These languages have similar exponents: e.g. the 1PL.EXCL pronoun *óre* and the 1PL.EXCL verb prefix *ro-* of Chiriguano (Dietrich 1986: 86, 155), corresponding to Proto-Tupí-Guaraní *\*oré* and *\*oro-*, respectively (Jensen 1999: 147). Further evidence for borrowing from Tupí-Guaraní is provided by the markers for transitive and 'active' intransitive subject (A/Sa) of Tapiete. Indeed, the 1PL.EXCL is conveyed by a discontinuous morpheme consisting of a prefix and the suffix *-ha*. The 1PL.EXCL prefix is homophonous with the 3rd person prefix, which can be *o-*, *Ø-* or *wV-* (González 2005: 143-146). As noted by Carpio and Mendoza (2018), the discontinuous morpheme for non-singular 1st person(s) is a PAT borrowing in Tapiete, but the same feature also spread to other languages in the area (including Chamacoco).

(iii) Chamacoco has employed its 3PL prefix to just replicate the morphological pattern of the Guaraní 1PL.EXCL. If this is so, this is a PAT borrowing like the subsequent formation of the greater plural (originated by contact with Nivaêlé).

To sum up, the innovative Chamacoco 3PL marker *o-* could have played a role in the creation of the 1PL.EXCL (hypotheses [i] and [iii]). If this is not the case, the prefix *o-* of 1PL.EXCL was borrowed from Tupí-Guaraní (hypothesis [ii]). Although it is unclear which hypothesis is preferable, contact with Tupí-Guaraní very likely played a role (hypotheses [ii] and [iii]) and, if the source language was Tapiete, the Chamacoco innovative 3PL prefix *o-* could have been a look-alike (cf. Gardani 2020a: 112-113) which favored the borrowing.

## 6.2 Gender and number marking on possessive classifiers

Most Chaco languages (including Zamucoan) are characterized by the presence of possessive classifiers, which should be considered an areal feature (Fabre 2007). Indeed, classifiers spread easily through language contact, and their presence in Chaco languages is a typical example of areal

<sup>21</sup> The only possible, but not certain, exception could be Mbayá, documented by the Jesuit Father Sanchez Labrador in the 18th century. Kadiwéu is the evolution of a northern dialect of this language, although it does not stem directly from the variety documented by the Jesuits (Sandalo 1995: 5). Mbayá has a prefix *o-*, expressing reciprocity in the 3PL (Sanchez Labrador 1970 [1760]: 134); the pluralizer and the reciprocity marker are both homophonous and associated with the 3PL, but have different functions, so that it is not clear whether they are the same prefix diachronically. If they were cognates, this would indicate that the prefix *o-* must have spread to Mbayá/Kadiwéu before the 18th century.

<sup>22</sup> Despite the fact that *õrjok* is identical to *õr* + *jok*, one cannot exclude that the second element of the pronoun was *ejok*, with deletion of /e/. One also has to consider that diachronically both *jok* and *ejok* are variants of the same 1PL pronoun (Ciucci and Bertinetto 2015: 48). Initially, *jok* was reinterpreted as 1SG in opposition to *ejok*, which turned into the 1PL.INCL pronoun when *õrjok* originated.

diffusion (Aikhenvald 2011: 175). In general, possessive classifiers do not agree with the possessee (Aikhenvald 2000: 126, 133), but in Zamucoan, as well as in other Chaco languages, there is agreement in gender and/or number between possessee and classifier. The marking of gender and number on classifiers is cross-linguistically rare.<sup>23</sup> Table 13 indicates in which languages classifiers can express number and gender. The symbol + indicates that all classifiers have these features, (+) that most classifiers show number and gender, and ± that gender or number are found in about half of classifiers. The minus sign means absence of gender and number on classifiers. The question mark indicates uncertainty due to insufficient data. For an explanation of the values assigned to the single languages, see Ciucci and Bertinetto (2019), which is also a detailed description of Zamucoan possessive classifiers.

Language	Gender	Number	Source
Old Zamuco (Zamucoan)	+	+?	Ciucci (forthcoming)
Ayoreo (Zamucoan)	+	+	Bertinetto (2014); Ciucci (2016)
Chamacoco (Zamucoan)	+	+	Ciucci (2016)
Maka (Mataguanan)	(+)	(+)	Gerzenstein (1994); Messineo (2011)
Kadiwéu (Guaycuruan)	±	±	Griffiths and Griffiths (1976); Sandalo (1995); Souza (2012)
Wichi (Mataguanan)	–	+ / ±	Terraza (2009) / Nercesian (2014)
Nivaê (Mataguanan)	–	+	Fabre (2016, personal communication)
Mocoví (Guaycuruan)	–	±?	Grondona (1998); Gualdieri (1998)
Chorote (Mataguanan)	–	±	Gerzenstein (1978); Carol (2014)
Enlhet (Enlhet-Enenlhet)	–	+	Kalisch (personal communication)
Enxet (Enlhet-Enenlhet)	–	+	Kalisch (personal communication)
Guaná (Enlhet-Enenlhet)	–	+	Kalisch (personal communication)
Toba-Enenlhet (Enlhet-Enenlhet)	–	+	Kalisch (personal communication)
Pilaga (Guaycuruan)	–	–	Vidal (2001)
Toba (Guaycuruan)	–	–	Messineo and Gerzenstein (2007); Messineo (2011)
Chiquitano (unclassified)	–	–	Galeote Tormo (1996); Sans (2013); Ciucci (fieldwork)

**Table 13.** Inflectional properties of possessive classifiers in Chaco languages (Ciucci and Bertinetto 2019)

Zamucoan differs from the other Chaco families, because all possessive classifiers agree in gender and number with the possessee. These features are also observed in two of the three Maka possessive classifiers (Messineo 2011: 202). In the rest of the Mataguanan family, possessive classifiers can express number, as well as in the Enlhet-Enenlhet family, although in Enlhet-Enenlhet classifiers properly express what Kalisch (2009/2010) calls ‘distributive’ (see footnote 24), whose semantic features include those of a plural: when the distributive is marked on the classifier, it can refer to the number of the possessor and/or to the number of the possessee (Ciucci and Bertinetto

<sup>23</sup> Outside South America, Nepali (Indo-European, Indic) has a general numeral classifier which exhibits gender marking (Tang and Kilarski 2020).

2019: 171, ex. 74). Guaycuruan languages have a smaller inventory of possessive classifiers, which mostly express neither gender nor number, as in Chiquitano. An exception, however, is Kadiwéu, which has two possessive classifiers: a generic one, *neb:i*, which has no agreement with the possessee, and one for domestic animals (7), which agrees in gender and number with the possessee (8).

(7) Kadiwéu: -wigadi (M.SG), -wiqate (F.SG), -wiqatedi (M/F.PL) ‘domestic animal’ (Griffiths and Griffiths 1976: 126-129; Sandalo 1995: 57, 283; Aikhenvald 2000: 130).<sup>24</sup>

- (8) Kadiwéu (Griffiths and Griffiths 1976: 101)
- |    |                                  |              |
|----|----------------------------------|--------------|
| a. | li-wigadi                        | nigidagiwaca |
|    | 3-PCLF:domestic_animal.M.SG      | pig(M).SG    |
|    | ‘His pig’                        |              |
| b. | i-wiqate-di                      | neketéo-di   |
|    | 1SG-PCLF:domestic_animal(M/F)-PL | dog(M)-PL    |
|    | ‘My dogs’                        |              |

A possessive classifier for domestic animals is present in all Zamucoan, Guaycuruan, and Mataguayan languages, as well as in Chiquitano and in the Enlhet-Enenlhet family (see Fabre 2007, Campbell and Grondona 2012: 646).<sup>25</sup> In Chaco cultures, animals are considered autonomous entities which cannot directly be possessed (Comrie et al. 2010: 113). In Guaycuruan, Mocoví, Pilaga and Toba have the same classifier *-lo* for domestic animals, which corresponds to Wichi *-lo=* and Nivaê *-kl̥b* in Mataguayan. Kadiwéu is an interesting case, because its classifier for domestic animals is not related to that of the other languages of its family. Agreement in gender and number with the possessed noun is typical of Zamucoan classifiers, but not of those in the other Chaco languages (the only exception being Maka), so that this qualifies as a PAT borrowing from Zamucoan (9), where one can see that the classifier for pets also has some phonetic similarity with Kadiwéu *-wigadi* (7-8). This classifier is found in all Zamucoan languages, where it derives from the verb stem *-ateia* ‘to breed, to rear an animal’, still documented in both Ayoreo (9-10) and Old Zamuco (10).

- (9) Ayoreo (Bertinetto 2014: 379)
- |                                |             |
|--------------------------------|-------------|
| g-ateid-i                      | tamoko      |
| 3-PCLF:domestic_animal-M.SG.AF | dog.M.SG.PF |
| ‘His/her/their dog’            |             |
- (10) Old Zamuco: g-atei-tie (3.M.SG.AF), g-ateie-tae (3.F.SG.AF), g-ateit (3.M.SG.PF), g-ateid-e (3.M/F.SG.PF) ‘domestic animal’  
 Ayoreo: g-ateit (3.M.SG.PF), g-ateid-i (3.M.SG.AF), g-ateid-e (3.F.SG.PF/AF) ‘domestic animal’  
 Chamacoco: Ø-etei-t (3.M.SG.AF), Ø-etei-ta (3.F.SG.AF) ‘domestic animal’

The 3rd person (non-reflexive) in Zamucoan is the basis of possessive inflection, so that it is the most likely element to be borrowed. Gender and number are marked by a suffix, also expressing predicative or argument function (see §2). In the Kadiwéu feminine form *wiqate*, final /e/ recalls the Zamucoan

<sup>24</sup> Gender distinctions are neutralized in the plural. Indeed, when the plural suffix *-di* is attached to the masculine singular form, root-final *-di* dissimilates into *-te* (Griffiths and Griffiths 1976: 120), so that the masculine plural coincides with the feminine plural. Here and in the rest of this section, I use a hyphen before classifiers to indicate that they are preceded by a personal prefix.

<sup>25</sup> Outside the Chaco, a number of Amazonian languages have possessive classifiers, and Tupí-Guaraní languages often have a classifier for pets (Aikhenvald 2012a: 290-291).

suffix *-e* used to form the feminine (Ciucci 2016: 471-479). The original mechanism of gender motion is still preserved in the Ayoreo classifier (10): *g-ateit* (3.M.SG.PF) + *-e* → *g-ateid-e* (3.F.SG.PF/AF). Note that /e/ does not correspond to any autochthonous gender marker described for Kadiwéu.<sup>26</sup>

In conclusion, classifiers are a well-known example of areal diffusion in the Chaco. In Kadiwéu, the agreement properties of the classifier for domestic animals are a case of PAT borrowing, and also the lexeme itself is very likely a MAT borrowing from Zamucoan. The Kadiwéu classifier looks closer to the Ayoreo rather than to the Chamacoco classifier, but here one has to consider that Chamacoco often shows recent innovations (see Ciucci and Bertinetto 2015, 2017a, 2017b; Bertinetto & Ciucci 2019) and that the classifier was probably borrowed long ago from an archaic variety of Chamacoco.

## 7 Conclusions

In this study, I have analyzed some typologically rare features which spread into or from Zamucoan, investigating what has happened in terms of contact. The transfers addressed here cannot be traced back to genetic inheritance, because some of them are internal innovations within their respective families, and none of them can be traced back to two different proto-languages. The only exception is a nominal plural suffix found in most Chaco languages (§5, ex. 4): however, not only is this considered a borrowing by Comrie et al. (2010), but we can even reconstruct how its introduction at a very early stage of Proto-Zamucoan changed the nominal system in the plural (Ciucci and Bertinetto 2017b). The rarity of these features shared by unrelated but neighboring languages reduces the chance of independent development. Typological unusual features represent thus significant evidence for borrowing.

When it comes to morphology, PAT and MAT borrowing come together, but they do not necessarily overlap. A particularly interesting example is the expression of greater plural in Chamacoco clusivity, which stems from the interplay of PAT and MAT borrowing at different stages (§5). First, a clusivity pattern was borrowed from a language which cannot be identified with certainty (possibly a Guaraní language). It is doubtful whether the introduction of clusivity was also linked to the MAT borrowing of a prefix. Then, the greater plural was a PAT borrowing from Nivaçle, where the nominal plural suffix had spread to free pronouns. The same suffix, diachronically, was a MAT borrowing in Proto-Zamucoan, so that Chamacoco could simply re-employ it on the model of Nivaçle. The presence of a similar exponent for plural probably favored the borrowing of the greater plural. Even though the contact situation is largely unknown, language contact has played a role in either the formation or the diffusion of these unusual features. It is not always possible to reconstruct the direction of all borrowings, but future descriptive and historical studies might shed light on aspects which are now unclear. Our knowledge of Chaco historical linguistics is still limited in many respects, but it is advancing parallel to linguistic description. This is exemplified by the present study, made possible by the ongoing documentation of Zamucoan (Bertinetto 2014; Ciucci 2016), by the recent grammatical description of other Chaco languages (such as Carol 2014; Nercesian 2014 and Fabre 2016), and by reconstructive studies (Viegas Barros 2013a; Ciucci and Bertinetto 2015, 2017a, 2017b, among others).

Finally, one has to point out that contact between Zamucoan and Guaycuruan/Mataguayan occurred in a situation of linguistic purism, which resulted in a very low percentage of shared lexicon, despite non-negligible morphological borrowings (Ciucci 2014). While this is seemingly counterintuitive, it is not unusual in South America and leaves room for an open, fascinating

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<sup>26</sup> In Old Zamuco the form *gateide*, identical to Ayoreo, is epicene, but this is an innovation with respect to Ayoreo. One could also note that in Kadiwéu the masculine form ends in /i/, a vowel associated with the masculine gender in Zamucoan, as well as in Kadiwéu (Griffiths and Griffiths 1976: 111; Sandalo 1995: 59, 61).

question, concerning the interaction between typological rarities and the sociolinguistics of the contact. The interplay of these factors is a topic for further research.

**Abbreviations:** 1, 2, 3 = first, second, third person; A = transitive subject; AF = argument form; COORD = coordinator; DET = determiner; GP = greater plural; EXCL = exclusive; EXIST = existential; F = feminine; INCL = inclusive; INT = interrogative; IRR = irrealis; M = masculine; MAT = matter; NEG = negation; O = object; PL = plural; PAT = pattern; PCLF = possessive classifier; PF = predicative form; REFL = reflexive; REAL = realis; S = intransitive subject; Sa = ‘active’ intransitive subject; SG = singular; SUB = subordinator; SVC = serial verb constructions

**Transcription criteria.** For reasons of clarity, all data reported here are in phonemic transcription, following, as far as possible, the indications provided by the respective sources.

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