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Luca Ciucci, Pier Marco Bertinetto

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5 Possessive classifiers in Zamucoan[#]

Luca Ciucci and Pier Marco Bertinetto

1 Introduction

This paper addresses possessive classifiers in Zamucoan languages. One of the main points of interest is their interaction with the small gender system, the other noun categorization device found in Zamucoan languages. Zamucoan classifiers agree in gender with the noun they classify. This fact is in itself typologically unexpected, but the situation is even more interesting, because possessive classifiers also interact with number and with another grammatical system (called “form”) which is a peculiarity of this language family. The joint expression of these three features (gender, number, form) on possessive classifiers is what makes Zamucoan a unique case study for the typology of classifiers.

After an introduction to Zamucoan (§2), we will first analyse its small gender system (§3), together with the relevant grammatical features of Zamucoan nominals (nouns and adjectives), to finally address the general structure of the possessive NP (§4). The subsequent sections will describe the classifiers and their uses, as well as the different syntactic configurations of the possessive NP in each Zamucoan language: Ayoreo (§5), Chamacoco (§6) and Old Zamuco (§7). In §8, we will compare the previous data, looking for family-internal similarities, and also pointing out possible traces of contact with genetically unrelated surrounding languages. Section 9 presents conclusions.

2 The Zamucoan family

The Zamucoan language family consists of two living languages spoken in the Northern Chaco: Ayoreo, with about 4,500 speakers in southern Bolivia and northern Paraguay, and Chamacoco, with 2,000 speakers in northern Paraguay. In addition, there is the now extinct Old Zamuco, spoken in the 18th century in the mission of *San Ignacio de Samucos*, one of the Jesuit missions of Chiquitos.¹ The internal classification of the family is shown in Figure 1. Old Zamuco and Ayoreo are very close to each other from the lexical point of view (Kelm 1964, Ciucci 2016), while they only have a limited overlap (about 30%) with Chamacoco.

Place Figure 1 about here

Despite these remarkable lexical differences, Old Zamuco and Chamacoco occasionally share features not found in Ayoreo, and this is essential for the reconstruction of Proto-Zamucoan. Old Zamuco is both the earliest documented language, and the most conservative of the family (Ciucci 2016 [2013], Ciucci & Bertinetto 2015, 2017). Almost all available documentation on Old Zamuco is due to the Jesuit missionary Ignace Chomé (1696-1768), author of a grammar, published by Lussagnet (1958), and of a dictionary.² The latter, which substantially expands our knowledge, was recently rediscovered by the present authors: a first analysis of this document is provided by Ciucci (2018). This paper is the first in-depth examination of a grammatical topic based on the upcoming critical edition of Chomé's dictionary by Ciucci (to appear). The Chamacoco people (whose endonym is *Ishiro*) are divided into two groups: Ebitoso (more properly spelled *Ibitoso*) and Tomaraho. The data reported here refer to the Ebitoso dialect, spoken by the vast majority of the Chamacoco, and come from Luca Ciucci's fieldwork. Unless otherwise specified, the Ayoreo data derive from fieldwork by the two authors, and from Higham *et al.* (2000). Despite the fact that both Ayoreo and Chamacoco have their own orthographic systems (see Ciucci 2016 for an analysis), we will report the data in phonemic transcription. By contrast, the Old Zamuco data

will be cited in the Spanish-based orthography used by Ignace Chomé, which is sufficiently transparent.

The order of clausal constituents in Zamucoan languages is SV/AVO. Within a noun phrase, the order is possessor-possessed and noun-adjective. Zamucoan languages are fusional with both prefixes and suffixes. Apart from the peculiar behaviour of the classifier, Zamucoan languages show other typological rarities (Bertinetto & Ciucci 2015), which include: (i) the so-called para-hypotactical syntactic structure (Bertinetto & Ciucci 2012); (ii) radical tenselessness (Bertinetto 2014b); (iii) the threefold system of nominal marking (Bertinetto *et al.*, submitted), whose interaction with the classifiers will be addressed throughout the present paper. The Zamucoan family is, in linguistic terms, genetically isolated and this is confirmed by biological studies on Native American populations (Demarchi & García Ministro 2008; Rickards *et al.* 1994). However, traces of contact with other languages of the Chaco have emerged (Ciucci 2014). In particular, comparison with Mataguayan and Guaycuruan reveals a number of possible borrowings in and from Zamucoan, which, as shown in §9, also involved classifiers.

3 The Zamucoan gender system

Zamucoan has only two genders, masculine and feminine, overtly marked on nouns. Human nouns follow their natural gender,³ even to the point of creating an intermediate area between inflection and derivation (see Aikhenvald 2000: 266) similar to what happens in some Romance languages such as Italian *infermiere* (m.sg) ‘male nurse’ vs *infermiera* (f.sg) ‘female nurse’, *pescatore* (m.sg) ‘fisherman’, *pescatrice* (f.sg) ‘female fisher’. Consider for instance the following examples from Ayoreo: *naiṇaj* (m.sg.FF), *naiṇa* (m.sg.BF), *naiṇe* (f.sg.BF/FF) ‘shaman’; *jusōri* (3.m.sg.FF), *jusōr* (3.m.sg.BF), *juto* (3.f.sg.BF/FF) ‘killer’.⁴ With inanimate nouns, particularly in Old Zamuco and in Ayoreo, gender can be used with

derivational purposes: cf. Ayoreo *gebej* (m.sg.FF) *gebek* (m.sg.BF) ‘metal, iron’ vs. *gebe* (GF.f.sg.BF/FF) ‘weapon made of iron’. In non-human nouns, gender assignment is arbitrary, with some general tendencies: for instance, plant and tree names are mostly feminine. Adjectives, demonstratives and possessive classifiers agree in gender with the noun they refer to. Chamacoco differs from Ayoreo and Old Zamuco in having articles, and these exhibit gender specification in the singular (Ciucci 2016: 73). Moreover, while in Ayoreo the linguistic gender is arbitrarily assigned to animal nouns, many Chamacoco animal nouns inflect for gender depending on natural gender: e.g. *amurmit* (m.sg.FF), *amurmita* (f.sg.FF) ‘armadillo’. In Old Zamuco, by contrast, the natural gender of animals is expressed by adding the word *choqui* (m.sg.BF) for males and *cheque* (f.sg.BF) for females: *ibohi* (monkey.f.sg.BF) *choquitie* (m.sg.FF) ‘male monkey’, *potit* (dog.m.sg.BF) *chequetae* (f.sg.FF) ‘female dog’ (Lussagnet 1958: 132). The same applies to Ayoreo, which makes use of the same words *teoki* (m.sg.BF/FF) ‘male (of an animal)’ and *teeke* (f.sg.BF/FF) ‘female (of an animal)’.⁵

Linguistic gender has been demonstrated to exert an influence on culture (Aikhenvald 2016). However, the case of Ayoreo is special, because in this culture linguistic gender has determined the natural gender of almost all mythological characters, which include virtually every plant and animal, as well as other natural entities and traditional objects (Ciucci 2019).

Since Zamucoan languages are fusional, the gender system interacts with other morphosyntactic systems. Indeed, nouns and adjectives have one suffix which simultaneously expresses: (i) gender (masculine or feminine); (ii) number (singular or plural); (iii) form (BASE FORM, FULL FORM or INDETERMINATE FORM). What we call ‘form’ is a unique feature of Zamucoan languages (see Bertinetto 2014a[2009]; Ciucci 2016). The base form (leaving aside other details) basically expresses predication (1), while the full and indeterminate forms are used in argumental position (including both core and peripheral arguments), as is evident in (1-2) with the contrast between the base form (BF) and full form (FF) of ‘jaguar’. The

indeterminate form (IF) differs from the full form in that it conveys non-specific reference, as in (3):

Ayoreo

- (1) ¡[*karatake*]_{INTRANSITIVE.PREDICATE} *ke* *don* *pedro* *a!*
 jaguar.m.sg.BF *RETR* *don* *Pedro* *MOD*

‘It was a jaguar, don Pedro!’ (QCCB, II: 35; cit. in Bertinetto 2014a)

Ayoreo

- (2) *tɛ-uniŋa* *mu* *karata-j* *t-ōraha* *gesi*
 3-be_surprised but *jaguar-m.sg.FF* 3-throw_into outside

‘He was surprised but the jaguar came out’ (QCCB, II: 36)

Ayoreo

- (3) *a* *ore* *tɛ-aŋa* *aharame-tike.* *aramoro-rake* *a* *dehi*
 MOD *3pl* *3-follow* *armadillo-m.sg.IF* *brown_brocket-f.sg.IF* *MOD* *3.EXIST*

‘They are following an armadillo, or perhaps a brocket’ (QCCB, II: 28)

In all Zamucoan languages, adjectival modifiers follow the head of the NP, with which they agree in gender. As far as number and form are concerned, one finds two different configurations in the noun + adjective sequences:

- (i) In Old Zamuco and Ayoreo, the contextually required form and number, such as the plural full form in (4), is only marked on the last element of the sequence, while all preceding nominal elements are in singular base form. This occurs even when the referent is plural, as in (4), where ‘jaguar’ and ‘two’ are in masculine singular base form, whereas

the final adjective is in masculine plural full form. Here masculine gender on the two adjectives is an NP-internal agreement feature, while plurality and full form on the last adjective respectively convey, on behalf of the whole NP, extralinguistic plural reference and the syntactic role of argument; conversely, singular base form on the non-final NP elements should be intended as a kind of morphosyntactically default option:

Ayoreo

- (4) *tɛ-imo* [karatake gare keruŋ-ane] *ihi ta*
 3-see jaguar.m.sg.BF two.m.sg.BF very_big-m.pl.FF LOC there
 ‘He saw two big jaguars right there’ (QCCB, I: 31; cit. in Bertinetto 2014a)

(ii) In Chamacoco, by contrast, there is agreement in gender, number and form between the head and its adjectival modifiers (5). This is most likely an innovation (Ciucci 2016).

Chamacoco

- (5) *ese:=ni* *ŋo* *o-tɛ-itɛew* [*xotsi-t* *baɭu-t*]=*ni*
 DM=RETR 3.go pl-3-dig hole-m.sg.FF big-m.sg.FF=RETR
 ‘Then, they went to dig the deep hole’

Place Table 1 about here

The allomorphs used in the Zamucoan nominal suffixation are reported in Table 1. Here one can see cases of neutralization, which point out relevant dependencies between interacting grammatical systems (cf. Aikhenvald & Dixon 1998; Dixon 2010: 162-165). Chamacoco has lost the base- vs. full form contrast in the plural, indicating that form is

dependent on number: form < number (with < standing for dependency of the first element on the second). In the Chamacoco plural indeterminate form there is partial gender neutralization, owing to the use of *-ĩr* for both genders, so that we get gender < form / number. Although not derivable from Table 1, gender neutralization is also attested in the singular base form of many nominal paradigms of the whole family, such as the one in (6). Hence: gender < form < number:

(6) Chamacoco: *nomĩra*² (m/f.sg.BF), *nomẽ-t* (m.sg.FF), *nomã-ta* (f.sg.FF) ‘one; only one; alone’

However, in Ayoreo there can be neutralization in the singular between full- and base form, with preservation of the gender distinction, so that one obtains: form < gender < number.

(7) Ayoreo: *pi* (m.sg.BF), *pi* (m.sg.FF), *pi-e* (f.sg.BF/FF) ‘container; means of transportation’

To sum up, in Zamucoan one generally finds the gender < form < number hierarchy, except that in Ayoreo there can be mutual dependency between form and gender, with both depending on number.

4 NP-internal possessive constructions: general structure

Before addressing the topic of possessive classifiers, we must introduce the ways in which Zamucoan languages express possession within the NP. This has the structure in (8), where not all elements necessarily co-occur.⁶ The possessed noun (D) is the semantic head: apart from proper names, any noun can be head of a possessive NP, provided there are no pragmatic restrictions. When no classifier intervenes, D is also the syntactic head; whether or

not it also fulfils this role in the presence of a classifier, depends on the specific construction, as will be shown in §8.

(8) possessor (henceforth: **R**) – classifier – possessed (henceforth: **D**) – adjectival modifiers

Apart from proper nouns, all nouns can be head of a possessive NP. Zamucoan makes a basic distinction between nouns **inflected** *vs* **uninflected for possessor**. Nouns inflected for possessor have personal pertensive prefixes (9-10), while the nouns uninflected for possessor cannot have any pertensive marker.⁷ The same occurs in most Chaco languages, where nouns can be assigned to one or the other group depending on presence *vs* absence of pertensive markers (Fabre 2007). Note that, in terms of morphological marking, the notion of alienability/inalienability in Zamucoan is subordinated to that of ‘inflected for possessor’. If a noun also has an inflected form for ‘unspecified possessor’, what we call ‘generic form’, it is alienable; otherwise, it is inalienable, since it obligatorily marks the possessor.

When D is inflected for possessor, there are two main strategies to express possession within the NP: (i) R is expressed by a pertensive prefix with or without a preceding free personal pronoun (9a-b); (ii) R expressed by a noun in genitival construction accompanied by D in the third person (10).⁸

Chamacoco

- (9) a. *tok-owa* [p-ijẽr]
 1sg-accompany 1sg-friend.f.pl
 ‘I accompany my friends’

- b. *diki* *ɛi* [*jok_R* *p-ixi-k_D* *poro-k*]
 this.m.sg DUR 1sg 1sg-path-m.sg.BF old-m.sg.BF
 ‘This is my old path’

Old Zamuco

- (10) *Ore* *ba-cho* [*Agaye_R* *igueda-tie_D*]
 3pl who_is_patrolling-m.pl.BF Jesuit_Father 3.house-m.sg.FF
 ‘They patrol the house of the (Jesuit) Father’

Table 2 shows the Zamucoan pertensive prefixes and their possible reconstruction in Proto-Zamucoan according to Ciucci & Bertinetto (2017). It also includes the so-called ‘generic form’ (GF), used to express unspecified (or no) possessor. As to pertensive prefixes, Ciucci (2014) pointed out some similarities between Zamucoan and other Chaco languages, which possibly attest to language contact.

Place Table 2 about here

If D is uninflected for possessor and no classifier is available (11), as is most often the case in Chamacoco, there is no overt marker for R and possession is expressed by the mere juxtaposition of R and D, in this order:

Chamacoco

- (11) *xe* *ite* [*owa* *oskōr*] *kiñija?*
 INTER EMPH 2sg type_of_fruit.f.pl be_many
 ‘Are your fruits abundant?’

In Zamucoan, R is always in full form when expressed by a noun, whereas D appears in the form required by the context, such as the base form in (12), where the NP fulfils the predicative role:

Chamacoco

(12)	<i>wate</i>	[<i>jok</i>	<i>p-erm-itε</i>	<i>ir</i>	<i>ɲika:ʔ</i>]	{ <i>NP with</i>
	3.f.sg	1sg	1sg-uncle-m.sg.FF	3sg	black_carob_tree.f.sg.BF	<i>predicative</i>
	'It is the black carob tree of my uncle'					<i>function</i> }

In order to possess nouns uninflectable for possessor, Zamucoan, like most Chaco languages, makes use of possessive classifiers. From now on, this will be the focus of the paper. The Zamucoan possessive classifiers are in most cases normal nouns grammaticalized in this function. This is not surprising, since cross-linguistically “the most common lexical source for classifiers are nouns” (Aikhenvald 2000: 353). Some of them come from deverbal nouns. The fact that the classifiers’ etymology is transparent indicates that this subsystem is relatively young. Zamucoan classifiers mostly have a generic-specific relation with D, they are often function-based and can have the semantics of relational classifiers (cf. Aikhenvald 2000: 295). From a morphological point of view, Zamucoan classifiers have the same inflection as nouns inflected for possessor: i.e., they carry possessive prefixes and have a suffix expressing gender, number and form. The very fact that they can have variable gender is strong evidence of their grammaticalization in the new function.⁹ In this study, we will cite the classifiers in the third person, using the masculine singular full form (unless otherwise specified).¹⁰

5 Ayoreo possessive classifiers

In this section we will first present the Ayoreo classifiers, showing their standard construction and how some classifiers are used in order to convey indeterminacy (§5.1). Finally, we will deal with some innovations (§5.2).

It is not clear whether the Ayoreo classifiers form a closed inventory, because some nouns seem to be only occasionally used with classifier function. Fabre (2007) claims that Ayoreo has more than 20 classifiers. It is safe to say, however, that it presents not less than six to seven well-behaved classifiers with an identifiable functional specialization. Excepting one (*uhoj*), they are also used as normal nouns.

5.1 The inventory of classifiers

The ‘general’ classifier is *gañej* (3.m.sg.FF; *gañek* 3.m.sg.BF; *gañe* 3.f.sg.BF/FF) (13), which, as a noun, means ‘property’. The gender inflection of this word, and others following, is unexpected in an inanimate noun, but is necessary in order to allow the classifier to agree with D in gender, as required by the Ayoreo syntax. Note, however, that this strategy is not alien to Ayoreo morphology as independently shown by double gender nouns such as *gebej* (m.sg.FF) *gebek* (m.sg.BF) ‘metal, iron’ vs. *gebe* (GF.f.sg.BF/FF) ‘weapon made of iron’ (§3).

(13) *tɛi ore g-añe sike(r)e*
 EVID 3pl 3-PCLF:general.f.sg.BF spring.f.sg.BF

‘They are the owners of the spring’, lit. ‘It is their (property, the) spring’

The classifier *gateidi* (3.m.sg.FF; *gateit* 3.m.sg.BF; *gateide* 3.f.sg.BF/FF) is used in order to express possession of pet animals and vehicles (14). As a noun it means ‘pet’. It derives from the verb *-ateia* ‘to breed, to rear an animal’, from which also the “nomen agentis” *gateiñori/gateisōri* (3.m.sg.FF) ‘owner of an animal (*scil.* the one who breeds it)’ derives.¹¹ As

consisted of a small clause semantically specifying the classifier, with D in the role of predicate head. In this configuration, D preserved its role as semantic head, while the role of syntactic head was subsumed by the classifier:

- (16) *igiṇa keru-j dehi tumitɕukua ome*
 3.house.m.sg.BF big-m.sg.FF there_be Tumichucua ADP
d-ateid-ode [kutebasu-teo]_D
 3.RFL-PCLF:pet-m.pl.FF plane-m.pl.BF

‘In Tumichucua there is a hangar for their own planes’ (QCCB II: 15)

[proposed interpretation: ‘...their own pets (which are) planes’]

The classifier *juj* (3.m.sg.FF; *juk* 3.m.sg.BF; *juge* 3.f.sg.BF/FF) is used for harvested vegetables or captured animals (17) and enemies. As a noun, it means ‘haul’: *j-agu* (1sg-eat) *j-ig-ode* (1sg-haul-m.pl.FF) ‘I eat my haul’. As one can gather from (17), this noun/classifier has a very irregular inflection (see also §8, ex. 72):

- (17) *ṇa tɕi ureh-ab-i tɕi tɕ-iṇoke de-j*
 and EVID Ureja-DIM-m.sg.FF EVID 3-carry 3.RFL.PCLF:prey-m.sg.FF
joka
 turtle.m.sg.BF

‘So the former Urejai carried his own turtle’

The classifier for vehicles is *pi* (3.m.sg.BF/FF; *pie* 3.f.sg.BF/FF) (18). Its function overlaps that of *gateidi* as far as means of transportation are concerned (cf. ex. 18 with ex. 14). In (19) it is used as a noun, extending its usual meaning (‘container’) to that of ‘means of

transportation’. However, evidence of its function as classifier is its morphology, for it has developed a distinction between masculine and feminine, with no change in meaning: *pi* (3.m.sg.BF/FF) vs. *pie* (3.f.sg.BF/FF):

- (18) *ore pi cuco*
 3pl 3.PCLF:vehicle.m.sg.BF/FF boat.m.sg.BF
 ‘Their boat’

- (19) *j-ibi tu traktora-j*
 1sg-means_of_transportation.m.sg.BF/FF COP tractor-m.sg.FF
 ‘My means of transportation is the tractor’¹³

The classifier *akaj* (3.m.sg.FF; *akak* 3.m.sg.BF; *aka* 3.f.sg.BF/FF) ‘plant, what is planted’ is another case of deverbal noun (20), derived from *-aka* ‘to plant’. As a classifier, it is used to possess cultivated plants and fruits/vegetables, which are uninflected for possessor in Ayoreo:

- (20) *j-uta j-aka-die*
 1sg-irrigate 1sg-plant-f.pl.FF
 ‘I irrigate my plantation’

- (21) *b-aka-de geṇa*
 2sg-PCLF:plant-m.pl.FF plant_of_corn.m.pl.BF
 ‘Your plants of corn’

- (22) *j-agu* *j-aka-die* *a-die*
 1sg-eat 1sg-PCLF:plant-f.pl.FF fruit-f.pl.FF
 ‘I eat my fruits’ (the fruit I have cultivated)

Finally, *uhoj* (3.m.sg.FF; *uho* 3.m.sg.BF; *uho* 3.f.sg.BF/FF), the classifier for ‘fellow, colleague’ (23), is the only Ayoreo classifier which has lost its original function as noun, for it cannot be used alone (24). As a kind of compensation, however, it can be used with adjectives – which cannot be inflected for possessor – in order to refer to a fellow by their quality (25). Note that this structure is different from that of the sequence “noun + adjective” (see ex. 5). In (26a) *uhoj* indicates a relationship of fellowship with D. Actually, the word for ‘teacher’ is inflected for possessor, but since it here occurs in the ‘generic form’ (see §4, as well as example 15a), the expression of the (symmetrical) possessive relation to a fellow teacher requires the classifier, whereas in (26b) the pertensive prefix points to an asymmetrical pupil – teacher relationship:

- (23) *j-uh-ode* *ajore-o* *no*
 1sg-PCLF:fellow-m.pl.FF Ayoreo-m.pl.BF 3.go
 ‘My fellows Ayoreo go/went away’

- (24) **j-ise* *j-uh-ode*
 1sg-meet 1sg-PCLF:fellow-m.pl.FF

- (29) *j-aŋe-nie* *p-uhure-die*
 1sg-PCLF:general-f.pl.FF GF-problem-f.pl.FF
 ‘My problems’ (due to external causes)

The phrases in (30-32) offer a similar case based on the noun *uhujakej* (3.m.sg.FF) ‘punishment’, with R indicating the person who inflicts the punishment. In (30), where D (i.e. ‘punishment’) is in generic form as preceded by the classifier, the phrase suggests referential indeterminacy, just like example (31) with the indeterminate form on D and no classifier. According to the speakers, the meaning of (30) and (31) is equivalent. By contrast, the noun inflected in full form (32) designates a D which is known to the speaker:

- (30) *g-aŋe-one* *p-uhujake-o*
 3-PCLF:general-m.pl.FF GF-punishment-m.pl.BF
 ‘His punishments’ (inflicted by R; D is unknown)

- (31) *uhujake-rigo*
 3.punishment-m.pl.IF
 ‘His punishments’
 (inflicted by R; D is unknown)

- (32) *uhujake-ode*
 3.punishment-m.pl.FF
 ‘His punishments’

(inflicted by R; D is known)

5.2 Innovations

Agreement in the sequence classifier – D seems to be undergoing some changes. In Colonia Peralta (in the Paraguayan Chaco), next to the standard structure with D in base form (33), we also found (34), with both elements agreeing in form. This is considered innovative by the speakers, who prefer (33). Such an innovation is also documented in the Bolivian Chaco, where example (35) was collected. Here *dori* (f.pl.BF), instead of *doridie* (f.pl.FF), would be the expected option. As we will see in §6 (ex. 44-45), this innovative Ayoreo construction coincides with the one used in Chamacoco.

(33) *j-agu* *j-ig-ode* *oji-teo*
 1sg-eat 1sg-PCLF:prey-**m.pl.FF** fish-**m.pl.BF**
 ‘I eat my fish’ (‘the fish I caught’)

(34) *j-agu* *j-ig-ode* *ojid-ode*
 1sg-eat 1sg-PCLF:prey-**m.pl.FF** fish-**m.pl.FF**
 ‘I eat my fish’ (‘the fish I caught’)

(35) *b-aṅe-nie* *dori-die* *de* *dehi*
 2sg-PCLF:general-**f.pl.FF** caraguata_plant-**f.pl.FF** here 3.there_be
 ‘Your caraguata plants are here’ (Pia 2014: 109)

Another innovation documented in the field concerns the general classifier. In order to possess a noun lacking a specific classifier, such as ‘book’ (36), the general classifier *gaṅej*

(cf. ex. §13) is normally used. However, in Colonia Peralta, the speakers tend to prefer (37), where *juj* (the classifier for what is picked up or captured, cf. ex. 17) replaces *gañej*. In addition, *juj* can be used as a separate noun (38) with the extended meaning of ‘property, belonging’, i.e. adopting the meaning of *gañej*. According to our informants, in the Colonia Peralta variety the noun *gañej* is rather used for items that have been donated:

(36) *j-añe-one* *ao* (*gañej* as general classifier)
 1sg-PCLF-m.pl.FF book.m.pl.BF¹⁴
 ‘My books’

(37) *j-ig-ode* *ao* (*juj* as general classifier, cf. 6.3)
 1sg-PCLF-m.pl.FF book.m.pl.BF
 ‘My books’

(38) *n-imo* *j-ig-ode*
 1sg-see 1sg-belonging-m.pl.FF
 ‘I see my belongings’

In Colonia Peralta we also documented another general classifier, *aniri* 3.m.sg.FF (39; *anire* 3.m.sg.BF; *anire* 3.f.sg.BF/FF). This item is frequently used as phatic marker, but it is also a noun on its own, with the sense of ‘something one has against another; problem; possession’. The last meaning explains its usage as classifier in this variety, as shown in (40), where its function is identical to that of *juj* in its innovating function as general classifier (41).

(39) *n-ani(r)e-nie* *banana-j*
 1sg-PCLF:general-f.pl.FF banana-f.pl.BF
 ‘My bananas’

(40) *n-ani(r)-i* *ateait*
 1sg-PCLF:general-m.sg.FF beam.m.sg.BF
 ‘My beam’

(41) *j-i* *ateait*
 1sg-PCLF:general.m.sg.FF beam.m.sg.BF
 ‘My beam’

The classifier *aniri* is also found with nouns that have a specific classifier, such as ‘dog’ (42), which would normally require *gateidi*. Equally, ‘computer’ was found with both the classifier for ‘pets’ (as in 15) and with *aniri* (43). Since ‘computer’ is a neologism, one might want to consider this as the cause of the oscillating classifier choice, but this would hardly explain the usage of *aniri* with ‘dog’. All in all, this oscillating behaviour seems to indicate incipient loss of classifier’s specificity, and this, along with the above discussed construction change, can be seen as a weakening of the classifier system:

(42) *n-ani(r)-i* *tamoko*
 1sg-PCLF:general-f.sg.FF dog.m.sg.BF
 ‘My dog’

(43) *n-ani(r)-e* *komputado(r)a*

1sg-PCLF:general-f.sg.BF/FF GF.computer.f.sg.BF/FF

‘My computer’

6 Chamacoco possessive classifiers

As shown by diachronic studies (Ciucci & Bertinetto 2015, 2017), Chamacoco is the most innovative Zamucoan language, and this is confirmed by possessive classifiers. Chamacoco has only two classifiers, *uhut* and *etɛit*, plus another possible candidate, *ijõrta*. These are probably the only survivors of a larger set; moreover, *etɛit* and *ijõrta* occur much more frequently as nouns. No general possessive classifier is presently available. The fading away of Chamacoco classifiers is an example of reduction owing to language contact (see Aikhenvald 2000: 386). Indeed, the growing pressure by Spanish and, to a minor extent, Paraguayan Guaraní, has made Chamacoco an endangered language. Classifiers are among the first elements to be lost when a language dies (see Dixon 1986: 110).

The possessive classifier *uhut* (3.m.sg.FF; *uhuta* 3.f.sg.FF; *uhu*[?] 3.m/f.sg.BF) is used with nouns designating human beings to indicate a relationship of fellowship, companionship or friendship, whereby R and D occupy the same hierarchical level. It is a cognate of Ayoreo *uhøj* (cf. ex. 25-26): both cannot stand alone in a clause and only exist as relational classifiers (44). But even though, synchronically, *uhut* cannot be considered a full-fledged noun, unlike most other Zamucoan classifiers, it has the morphology of a noun inflected for possessor:

- (44) *jok tuk-umo [p-uhu-t iĩ-tɛ]*
 1sg 1sg-see 1sg-PCLF:fellow-**m.sg.FF** employer-**m.sg.FF**
 ‘I see my (colleague/friend, the) employer’

Chamacoco classifiers agree with D in gender, number and form. In (44) both words

- (47) *jok tuk-umo [p-uhu-t iɾĩ-tɛ]*
 1sg 1sg-see 1sg-PCLF:fellow-m.sg.FF employer-m.sg.FF
 / [p-insĩr-tɛ]
 1sg-employer-m.sg.FF
 ‘I see my (colleague/friend, the) employer’

Eteit (3.m.sg.BF/FF; *eteita* 3.f.sg.FF; *eteiʔ* 3.f.sg.BF) is a noun meaning ‘pet’, corresponding to Ayoreo *gateit* ‘pet, domesticated animal’. Quite significantly, it is the only term for animals which is inflected for possessor. The classifier usage, similar to that of *gateit* in Ayoreo, survives in the Tomaraho dialect of Chamacoco (Carro Noya, personal communication). In Ebitoso, by contrast, *eteit* has mostly lost its role as classifier: the standard construction used to express possession, e.g., of a ‘dog’ is (48a), with no classifier. However, occasionally the archaic structure emerges (48b-c). Like *uhut*, *eteit* agrees in gender, number and form with D (48b-c). The existence of classifiers such as *uhut* and *eteit* in Chamacoco confirms Aikhenvald’s (2000: 381) observation that “when classifier systems other than noun classes get reduced, classifiers for animates and humans appear to be more stable than others”.

- (48) a. [*jok poho-tɛ*]
 1sg dog-m.sg.FF
 ‘My dog’

b. *witɛi* [*p-etɛi-t* *poho-tɛ*]
 3.m.sg 1sg-pet-**m.sg.FF** dog-**m.sg.FF**

‘This is my dog’

c. *t-ĩr* [*p-etɛi-ta* *miɛ-ta*]
 1sg-feed 1sg-pet-**m.sg.FF** cat-**m.sg.FF**

‘I feed my female cat’

Another possible Chamacoco classifier is the noun *ijõrta* (3.f.sg.FF) ‘plant’ (*ijõro* 3.f.sg.BF).¹⁵ Indeed, it is the only term for plants that is inflected for possessor. It was found in a rare construction such as (49), where it supports R and agrees in gender, number and form with D. In our data, it is only found in the feminine form, but this is possibly due to the prevailing gender of the Zamucoan terms for plants:

(49) [*p-ijõr-ta* *ɲika:-ta*] *de* *wahateã*
 1sg-plant-**f.sg.FF** black_carob_tree-**f.sg.FF** 3.LOC there
p-iju-tɛ *jet*
 1sg-house-m.sg.FF other.m.sg

‘My (plant of) black carob tree is there in my other house’

7 Old Zamuco possessive classifiers

The necessary premise to the analysis of Old Zamuco possessive classifiers is that we have limited data for this extinct language. We can distinguish four classifiers, but their number

was likely higher than that. Almost all available data on classifiers come from the dictionary written by Ignace Chomé in the 18th century (Ciucci, to appear).

All known Old Zamuco classifiers are nouns, with three out of four predominantly documented in the classifier function. They will be introduced in the next section, while their constructions will be dealt with in §7.2. The most interesting aspect, in comparison with Ayoreo and Chamacoco, is that three different NP configurations involving classifiers can be found in the available data (to the extent, of course, that these data can be trusted).

7.1 Old Zamuco documentation

The general classifier is *ganetie* (3.m.sg.FF; *ganec* 3.m.sg.BF; *ganetae* 3.f.sg.FF; *gané* 3.f.sg.BF), corresponding to Ayoreo *gañej* (ex. 13-16). As a noun it means ‘property’ (50), but in our record it is mostly used as classifier (51):

(50) *uyoc* *ay-anec* *nez*
 1pl 1pl-property.m.sg.BF all
 ‘Common to all of us’ (lit. ‘property of all of us’)

(51) a. *velas_yorâzore* *y-anec*
 screen.m.sg.BF 1sg-PCLF:general.m.sg.BF
 ‘My (protective) screen’

b. *velas_yorâzore* *anec*
 screen.m.sg.BF 2sg-PCLF:general.m.sg.BF
 ‘Your (protective) screen’

1sg-PCLF:prey.m.sg.BF armadillo.m.sg.BF

‘My armadillo’

Ohotae (3.f.sg.FF, *oho* 3.f.sg.BF) is the classifier for long and thin objects (55-57). As a noun it means ‘arrow’ (58). It is the only so far observed Zamucoan classifier that refers to a physical property of the object (cf. Aikhenvald 2000: 295). This is a typical characteristic of classifiers at large, but on the other hand *ohotae* is the only classifier for which we do not have the inflection paradigm of both genders. Chomé’s dictionary merely provides the feminine forms. It is impossible to tell, however, whether this is due to insufficient documentation, or to incomplete grammaticalization as classifier (see footnote 9):

(55) a. *ch-oho* *azore*
 1sg-PCLF:long_object.f.sg.BF lance.f.sg.BF
 ‘My lance’

b. *oho* *azore*
 2sg/3.PCLF:long_object.f.sg.BF lance.f.sg.BF
 ‘Your/his lance’

(56) a. *diquitadde* *ch-oho*
 stick.f.sg.BF 1sg-PCLF:long_object.f.sg.BF
 ‘My stick’

- b. *diquitadde* *oho*
 stick.f.sg.BF 2sg/3.PCLF:long_object.f.sg.BF
 ‘Your/his stick’

(57) *diquitadd'ohôzore*
 ‘magistrate’ (lit. ‘the bearer of one’s own stick’)

(58) *Oho-tae* *ch-uparuchêrahâ* *a-maneca-tie* *guecha-tie*
 3.arrow-f.sg.FF 3-go_through 2sg-arm-m.sg.FF 3.behind-m.sg.FF
 ‘His arrow went through your arm’

Ohotae is also used to possess some parts of the arrow, such as ‘arrow head’, ‘arrow nock’ (59) and ‘feather fletching’ (60), which as far as we know are uninflectable for possessor. Thus, on the one hand, *ohotae* still maintains its original meaning, since the ones mentioned are parts of the arrow, but on the other hand it is needed in order to express the possessive relation. Note that in (59-60) the first NP element (‘arrow’) is in singular base form, while the last element is in the number and form required by the syntactic context. This structure diverges from the one regularly used in the Ayoreo classifier NPs (see §5.1), but is the typical one for compounds in all Zamucoan languages. Considering that here the role of *ohotae* is ambiguous, one can perceive in these examples the transition from first element of a compound, to possessive classifier. This, however, is not the only kind of classifier construction to be found in Old Zamuco; we shall return to this issue in §7.2:

- (59) *A-ipiazu* [*ch-oho* *chaqui-tie*]
 1sg-make 1sg-arrow.f.sg.BF nock-m.sg.FF
 ‘I make the nock (of my arrow)’

- (60) *A-ica* [*ch-oho* *az-oddoe*]
 1sg-cut 1sg-arrow.f.sg.BF feather_fletching-m.pl.FF
 ‘I prepare the feather fletching (of my arrow)’ (i.e. I cut the feathers to put them on the arrow)

Gachitie (3.m.sg.FF; *gachit* 3.m.sg.BF; *gachietae* 3.f.sg.FF; *gachide* 3.m/f.sg.BF) is the classifier used for domestic animals (61). Like its Ayoreo cognate *gatēidi* (ex. 14-15), it is a deverbal noun derived from *-achia* ‘to breed, to rear an animal’:

- (61) *g-achide* *cucu*
 3-PCLF:pet.m/f.sg.BF dove.m.sg.BF
 ‘His/her/their dove’

Within the cultural change induced by the life in the Jesuit mission, *gachitie* was also used to express possession of newly introduced and bred animals (e.g. horses and cows). In (62) *gaca gachizore* ‘cowboy’ is a compound: the semantic head is the nomen agentis *gachizore*, referring to someone who rears animals, while its first element is *gaca* ‘cow’, which is uninflectable for possessor and selects the classifier for domesticated animals, even though the compound as a whole designates a human being. Not that this is a normal genitive construction, where *yachidoddoe* is formally the possessor in full form, but in actual fact it

works as a classifier. What is peculiar in this case is that both the classifier and the second element of the compound are built on the same verb (*-achia*):

- (62) *y-achid-oddoe* *gaca_gachizore*
 1sg-PCLF:pet-m.pl.FF cowboy.m.sg.BF
 ‘My cowboy’

Old Zamuco had a loanword for ‘horse’, *cavallu/cavayu* (m.sg.BF), uninflectable for possessor.¹⁶ The following example shows that, in order to indicate the R of a ‘horse’, *gachitie* could be used alone. The fact that ‘horse’ could be understood may be due to the importance or prestige of the horse, which was a ‘new’ means of transport at that time:

- (63) *Achi-tie,* *e* *ch-anigarac* *ique*
 2sg.PCLF:pet-m.sg.FF already 1sg-given_to_drink.m.sg.BF RETR
 ‘I have already given your animal (i.e. horse) something to drink’

7.2 Constructions with classifiers in Old Zamuco

In Chomé's data one can identify three different classifier constructions for Old Zamuco. The first one (henceforth ‘Construction 1’) is illustrated in Table 3 and exemplified in (64). It is identical to the standard Ayoreo construction, with the classifier, in the syntactically appropriate form, followed by D in base form. As noted in §5.1, since the base form typically marks the head of an intransitive predicate, the origin of Construction 1 can be traced back to a small clause. A remarkable feature of this construction, as far as Ayoreo is concerned, consists (among other details) in the systematic number agreement between D and the classifier. Although we can surmise that this was also the case in Old Zamuco, we cannot

provide a conclusive proof, because we do not have any example of classifier constructions with D in the plural. The only possible exception will be discussed below (ex. 70). We thus have to be cautious when dealing with number agreement between classifier and D.

Place Table 3 about here

- (64) *Orâ* [*y-ane-tae* *iyiphe_annirâ*]
 2sg.IRR.bring 1sg-PCLF:general-**f.sg.FF** bezoar_stone.**f.sg.BF**
 ‘Bring my bezoar stone’ [i.e. ‘...my possessed thing (which is) a bezoar stone’]

Constructions 2-3 (see below) are peculiar of Old Zamuco. The order of classifier and D is the same as in Construction 1, but here the classifier is always in base form, while D appears in the number and form required by the syntactic context. Construction 2 (65-66) is similar to the typical construction used in Old Zamuco and Ayoreo for both compounds (a pan-Zamucoan behavior) and noun + adjective phrases (see §5.1, ex. 15). In the latter case, noun and adjective must agree in gender, and judging from the (admittedly scanty) available data it seems that this was also true for classifier and D in Construction 2.

Place Table 4 about here

- (65) [*Ch-oho* *azori-tae*] *ch-inamizarâ* *güecha-de*
 1sg-PCLF:long_object.**f.sg.BF** lance-**f.sg.FF** 3-go_through 3.side-m.pl.FF
 ‘My lance went through him from side to side’

- (66) [*Y-achide* *cucu-tie*] *toi*
 1sg-PCLF:pet.**m/f.sg.BF** dove-**m.sg.FF** 3.die
 ‘My dove died’ (The one I reared)

Construction 3 is the opposite of Constructions 1-2 as far as the order of D, with respect to R and the classifier, is concerned (Table 5). Here D is always in base form and the classifier in the form required by the syntactic context. The shapes of D and the classifier are the same as in a noun + adjective phrase, where only the last element (like the classifier in Construction 3) takes the form required by the syntactic context, while all preceding elements (like D in Construction 3) are in base form. This particular order of D and classifier is a peculiarity of Old Zamuco.¹⁷

Place Table 5 about here

Construction 3 is often found with D consisting of the generic form of nouns inflectable for possessor. Although the semantic interpretation of historical data is not always easy, we can hypothesize that in some cases this construction had a special meaning: in (67) it might emphatically express the indeterminacy of D, corresponding to the Ayoreo usage of nouns in generic form introduced by the classifier, as in example (29-30) of §5.1.

- (67) *A-izau* [*p-iguidde* *Agaye* *g-ane-tae*]
 1sg-receive GF-shirt.**f.sg.BF** Jesuit_Father 3-PCLF:general-**f.sg.FF**
 ‘I have received a shirt from the Father’ (lit. ‘of the Father’)

With *ganetie*, Construction 3 expresses the function of D (68), or a semantic association characterizing D (69), which ostensibly fulfils the role of first element of a compound:

- (68) *Auta* **[*p-ichautat* *p-aboaye-tae* ***g-ane-tie***]**
 1sg.sharpen GF-knife.m.sg.BF GF-beard-f.sg.FF 3-PCLF:general-m.sg.FF
 ‘I sharpen(ed) the razor’, lit. ‘ I sharpen(ed) the beard’s own knife’

- (69) [***Chugupêre* *deha-tie* ***g-anec***]**
 bird.m.sg.BF night-m.sg.FF 3-PCLF:general.m.sg.BF
 ‘Night bird’ (lit. ‘night’s own bird’)

Example (70) has the same order of elements as in Construction 3, but is an exception in which D and R agree not only in gender and number, but also in form. It is not possible to fully explain this unique case. However, agreement in gender, number and form between the classifier and D is typical of Chamacoco (§6, ex. 44-45) and is also an innovative tendency of Ayoreo (§5.2). Supposedly, this had started to surface in Old Zamuco; alternatively, it might be a misunderstanding on the part of the collector:

- (70) *Aca* *a-guraz* [***cucha-ddoe* *y-igueda-tie***]
 NEG 2sg.IRR-finger GF.thing-m.pl.FF 1sg-house-m.sg.FF
g-ane-nnoe
 3-PCLF:general-m.pl.FF
 ‘Do not finger the things of my house’

8 Possessive classifiers in Zamucoan and beyond

This section will compare the possessive classifiers and the related syntactic structures in the three Zamucoan languages. In addition, it will try and expand the perspective beyond Zamucoan, pointing out possible instances of language contact.

The distinction between classifiers characterizing possession of D vs. those characterizing the relationship between R and D is not always sharp. Nevertheless, some Zamucoan possessive classifiers, such as Ayoreo *uhoj* (ex. 23-26) and Chamacoco *uhut* (ex. 44-47) appear to categorize D and the type of relationship within a possessive construction. In other words, they combine the meanings of possessive and relational classifiers (Aikhenvald 2000: 144). As pointed out in §5-7, most Zamucoan classifiers used to be normal nouns: this has also been observed in other South American languages, such as Kipeá-Karirí (Macro-Jê) (Rodrigues 1997) and Apalaí (Carib). In the latter, Koehn (1994) identified inalienably possessed nouns used as possessive classifiers, which in some cases are cognates of Panare (Carib) possessive classifiers. The difference between the classifiers of these two languages is their degree of grammaticalization. In Apalaí, D is the appositive specification of the noun in classifier function, which is thus the head of the possessive NP. This is reminiscent of the standard Ayoreo construction (Construction 1, see §5.1, ex. 16 and §7.2, Table 3), where D – as inflected in the form specialized to express nominal predication (i.e., in the base form) – was originally the head of the intransitive predicate that specified the classifier, while the classifier itself (stemming from a normal noun) used to be the NP head. Note that here we are considering this Ayoreo construction in a diachronic perspective; it is not clear whether or not this peculiar syntactic structure is still available in the synchronic competence of the speaker, who might merely perceive this sequence as a kind of complex NP.

The classifiers so far identified in Zamucoan and their meanings are listed in Table 6.

Place Table 6 about here

The only classifier documented across the board is the one for ‘domesticated animal’, which ostensibly has the same etymon in the three languages. Besides the phonological similarity of Old Zamuco *gachitie* and Ayoreo *gateidi*, there are compelling diachronic reasons, detailed in Ciucci (2016: 708-709) and Ciucci & Bertinetto (2017: 318), to explain the form of Chamacoco *et̪it̪*. The classifiers for ‘fellow’ are related in Ayoreo and Chamacoco, and their inflections even share a unique morphological exception (Ciucci & Bertinetto 2017: 307). One can see it in (71), reporting the first three persons of the possessive paradigm: the vowel /u/ following the prefix (as indicated in the segmentation), should normally be replaced by /a/ or /e/ in the second person, and these are the only known exceptions:

(71) Ayoreo: *j-u-hoj* (1sg), *b-o-hoj* (2sg), *∅-u-hoj* (3) classifier for ‘fellow’

Chamacoco: *p-u-hut* (1sg), *∅-u-hut* (2sg), *∅-u-hut* (3) classifier for ‘fellow’

Considering that Ayoreo and Chamacoco belong to two different branches of the family, one can thus trace back these two classifiers (‘fellow’ and ‘domesticated animal’) to Proto-Zamucoan. Although we cannot exclude that Old Zamuco had lost the former one, its absence might merely depend on scarcity of data. As for the general classifier, it is found in Old Zamuco and Ayoreo (respectively *ganetie* and *ganej*) but not in Chamacoco, where it might have been lost. The classifier for ‘prey / hunted animal’ of Old Zamuco and Ayoreo (respectively *yutie* and *juj*) are obvious cognates. Comparing the full form could be misleading here, because the reconstructed full form suffixes have undergone erosion in

Ayoreo (see Ciucci 2016), but in the masculine singular base form the correspondence is evident (72): both languages share (and not only in base form) the irregular root allomorphy *-ik / -uk* of, respectively, first person singular and third person singular/plural, as well as the uncommon third person prefix *j-/<y>-* (72) (Ciucci & Bertinetto 2017):¹⁸

(72) Ayoreo: *j-ik* (1sg.m.sg.BF), *j-uk* (3.m.sg.BF) classifier for ‘prey’, ‘hunted animal’

Old Zamuco: *ch-ic* (1sg.m.sg.BF), *y-uc* (3.m.sg.BF) classifier for ‘prey’, ‘hunted animal’

As for the Old Zamuco classifier *ohotae* (2/3.f.sg.FF), *oho* (2/3.f.sg.BF) ‘arrow’, Ayoreo has the same word *oho* (3.f.sg.BF/FF), which however does not seem to be used as classifier. In Chamacoco, the word for ‘arrow’, *opinta* (f.sg.FF), is a borrowing from Kadiwéu (Ciucci 2014: 38).

In Zamucoan there are four different constructions involving possessive classifiers. They are compared in Table 7, where only the details of the constructions shared by at least two languages are reported, thus ignoring Constructions 2-3 which are only found in Old Zamuco. Construction 1 is the standard structure of Ayoreo, which also marginally shows Construction 4, involving agreement in gender, number and form between classifier and D. While in Ayoreo this is a recent innovation, in Chamacoco it is the only structure available. Significantly, the latter language has also innovated with respect to agreement in noun + adjective sequences (§3, ex. 5). The intriguing fact is that Construction 4 was also found in a single Old Zamuco example (70): if this is not a mistake in Chomé’s collection of data, it suggests that full agreement between classifier and D might have been a pervasive Zamucoan tendency.

Place Table 7 about here

Finally, it is useful to situate the Zamucoan classifiers within the wider perspective of the Gran Chaco, whose status as a linguistic area has been suggested by (Comrie *et al.* 2010). In a recent study, Ciucci (2014) pointed out a number of grammatical features as likely candidates for contact between Zamucoan, on the one hand, and the Mataguayan and Guaycuruan families, on the other. This also involves classifiers: indeed, most Chaco languages are characterized by the presence of possessive classifiers (Fabre 2007), a likely areal feature. As Aikhenvald (2011: 175) puts it: “It is well known that classification systems often diffuse in situations of language contact. [...] The examples from Gran Chaco confirm the importance of classifiers in areal diffusion”. Further evidence of contact concerning possessive classifiers is the fact that in some Chaco languages they can involve agreement, a typologically unusual feature.

The following Table shows whether the possessive classifiers of some Chaco languages can inflect for gender and/or number. We follow the language-internal definition of classifiers established by the respective authors. The symbol + indicates that all classifiers show a given feature, we use (+) when gender or number are present on most elements, ± when they are found on about half of the elements and – when they are absent from the language. One has to consider that the absence of a given feature could be due to mere lack of data in the available source.

Place Table 8 about here

These data show that in Zamucoan, despite some incomplete data (see §7.2 and footnotes 9 and 19), agreement in gender and number is observed in all available documentation. Zamucoan shows the strongest tendency towards gender/number agreement between classifier and possessed, followed by Mataguayan. Two of the three possessive classifiers of Maká (Mataguayan), covering cultivated items and domestic animals, agree in gender and number with D (Messineo 2011: 202); moreover, like the corresponding

either R or D, or both (cf. 74a-b). Note that in (74) there is no agreement between classifier and D.¹⁹

Enlhet (Enlhet-Enenlhet)

(74) a. *tengma p-ak*

house m-PCLF:general

‘His house’ (Kalisch, personal communication)

b. *tengma p-angk-a’aok*

house m-PCLF:general-DISTR

‘His houses’, ‘Their house’, ‘Their houses’ (Kalisch, personal communication)

In the available documentation for Guaycuruyan languages, we do not find any evidence that Pilagá and Toba possessive classifiers agree in gender and/or number, and there is little evidence of number agreement for one Mocoví classifier (see footnote 21), for this reason it is noteworthy the fact that in Kadiwéu one classifier agrees in gender and number with D, and this is possibly the result of contact with Zamucoan (see below).

Close to the Chaco area, Bororo (Macro Jê) also has possessive classifiers (Crowell 1979: 215-216). This is a likely result of past contact. There are anthropological similarities between the Bororo-Otuqui and the Zamucoan culture (particularly concerning Chamacoco), generally suggesting influence of the former on the latter culture (Cordeu 1980: 285-286; Combès 2009: 16, 18). However, with respect to classifiers, one can speculate that their presence in Bororo might be a pattern borrowed from Zamucoan. Admittedly, it is often hard to determine the actual transfer direction, but a likely exception is the Kadiwéu (Guaycuruan) classifier for domesticated animals. As shown in (75), this item shows phonetic resemblance with the one documented in all Zamucoan languages, and in addition it agrees with D not

only in number, but also in gender, a Zamucoan feature unknown to the other Kadiwéu classifier, as well as to the other Guaycuruan languages and the other Chaco languages (excepted Maká, Mataguyan). Here again, the contact between Chamacoco and Kadiwéu is historically well documented (Boggiani 1894, 1895), and several borrowings in both directions have been identified (Ciucci 2014):

(75) Chamacoco \emptyset -*et̥it* (3.m.sg.FF), \emptyset -*et̥ita* (3.f.sg.FF) ‘pet, domestic animal’

Old Zamuco *g-achitie* (3.m.sg.FF), *g-achietae* (3.f.sg.FF), *g-achit* (3.m.sg.BF), *g-achide* (3.m/f.sg.BF) ‘domestic animal’

Ayoreo *g-at̥it* (3.m.sg.BF), *g-at̥idi* (3.m.sg.FF), *g-at̥ide* (3.f.sg.BF/FF) ‘pet, domestic animal’

Kadiwéu *-wigadi* (m.sg), *-wiqate* (f.sg) ‘domestic animal’ (Griffiths & Griffiths 1976: 126-129; Sandalo 1995: 57, 283; Aikhenvald 2000: 130).²⁰

9 Conclusions

To summarize, Zamucoan has two, non-orthogonal noun categorization devices: (i) a small gender system; and (ii) possessive classifiers. Gender can be masculine or feminine; it is overtly marked on nouns and adjectives by a suffix which also expresses number (singular or plural) and ‘form’. The distinction between base, full and indeterminate form is a special feature of this family. Nouns can be distinguished into inflectable *vs* uninflectable for possessor: the former allow pertensive prefixes, while the latter require the use of classifiers to express a possessive relation (§4). Possessive classifiers have the same morphology as nouns inflected for possessor, from which they derive, and often also maintain their original function as nouns; hence, they carry pertensive prefixes and inflect for number and form, but

also, and quite significantly, for gender. This makes the Zamucoan classifiers a unique grammatical device.

The Zamucoan classifiers can be used in different syntactic structures. In what appears to be the most typical structure, documented in both Ayoreo and Old Zamuco and labelled above as Construction 1, the possessed D agrees in gender and number with the classifier and obligatorily appears in base form, so that one can interpret it (at least diachronically) as a kind of small clause specifying the nature of the possessed referent. In the innovative Construction 4, shared by Ayoreo and Chamacoco, there is full agreement in gender, number and form between D and classifier.

In particular, gender agreement is systematically observed in all Zamucoan constructions, and this highlights two rare characteristics, since in most languages: (i) classifiers generally do not involve agreement (Aikhenvald 2000: 126); and (ii) more specifically, they are not expected to inflect for gender. The latter point, however, should not be confused with the co-existence of gender and classifiers in one and the same language (Aikhenvald 2000 provided various such examples).²¹ What makes this association unusual in the present case is the fact that gender is directly marked on the classifier. Hence, if the very presence of possessive classifiers is considered to be a Chaco areal feature, it is remarkable for language contact that gender-marked classifiers be found in languages belonging to not less than three linguistic families (Zamucoan, Guaycuruan, Mataguayan). This, however, is not the only uncommon feature that spread across this area: among them, one can mention the para-hypotactic structures (Bertinetto & Ciucci 2012), so far observed in few languages worldwide, or the phonological opposition between voiceless and voiced nasals (González 2015; see Bertinetto *et al.* 2010 for Ayoreo and Ciucci 2016 for Chamacoco). Although it is not possible to establish the transfer direction for most of these

cases, we have convincing evidence that the gender distinction in the Kadiwéu classifier for ‘domestic animals’ is due to Zamucoan influence.

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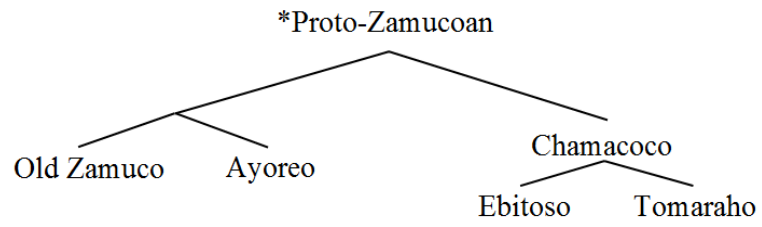


Figure 1. *Internal classification of Zamucoan*

	Old Zamuco		Ayoreo		Chamacoco	
	Singular	Plural	Singular	Plural	Singular	Plural
Masculine Base Form	-∅	-o, -jo	-∅	-o, -jo	-∅, -k, -ak	-o, -e, -tso, -lo
Masculine Full Form	-(i)tie	-odoe	-i	-ode	-it, -(i)tɛ	
Masculine Indeterminate Form	-nik, -rik, -tik	-nigo, -rigo, -tigo	-nik, -rik, -tik	-niŋo, -rigo, -tigo	-tik, -ĩrk	-tijo, -ĩr
Feminine Base Form	-∅	-i, -ji	-∅, (-e)	-i, -ji	-∅, -aʔ, -eʔ, -oʔ, -ĩʔ	-e
Feminine Full Form	-(i)tae	-(i)jie	-∅, (-e), -a, -ia	-(i)die	-(i)ta, -(i)tɛa	
Feminine Indeterminate Form	-nak, -rak	-rigi	-nak, -rak, -tak	-niŋi, -rigi, -tigi	-tã(k), -rã(k)	-ĩr

Table 1. Suffixation of Zamucoan nouns and adjectives (adapted from Ciucci 2016)

	<i>Old Zamuco</i>	<i>Ayoreo</i>	<i>Chamacoco</i>	<i>Proto-Zamucoan</i>
1sg	<i>j</i> -V-root <i>tɛ</i> -V-root <i>s</i> -V-root -	<i>j</i> -V-root - - -	- - - <i>p</i> -V-root	* <i>j</i> -V-root - - -
2sg	∅- <i>a</i> /V-root	<i>b</i> - <i>a</i> /V-root	∅- <i>a/e</i> /V-root	* <i>a</i> -V-root
3	<i>d</i> -V-root <i>g</i> -V-root - <i>j</i> -V-root - ∅-V-root ∅-∅-root	<i>d</i> -V-root <i>g</i> -V-root <i>k</i> -V-root <i>j</i> -V-root <i>p</i> -V-root ∅-V-root ∅-∅-root	<i>d</i> -V-root <i>j</i> -V-root, <i>w</i> -V-root root <i>k</i> -V-root <i>j</i> -V-root - ∅-V-root ∅-∅-root	* <i>d</i> -V-root * <i>g</i> -V-root - (* <i>j</i> -V-root ?) - *∅-V-root *∅-∅-root
3.RFL	<i>d</i> - <i>a</i> /V-root	<i>d</i> - <i>a</i> /V-root	<i>d</i> - <i>a/e</i> /V-root	* <i>da</i> -V-root
1pl	<i>aj</i> -V-root <i>as</i> -V-root -	- - <i>jok</i> -V-root	- - -	* <i>aj</i> -V-root * <i>as</i> -V-root [rare] -
2pl	<i>aj</i> -V-root <i>as</i> -V-root -	- - <i>wak</i> - <i>a</i> /V-root	- - -	?
GF	<i>p</i> -V-root <i>d</i> -V-root - - - ∅-∅-root -	<i>p</i> -V-root - <i>dVk</i> -V-root <i>k</i> -V-root <i>g</i> -V-root ∅-∅-root -	- <i>d</i> -V-root <i>dVk</i> -V-root <i>k</i> -V-root - ∅-∅-root o-[3 rd -person]	* <i>p</i> -V-root * <i>d</i> -V-root * <i>dVk</i> -V-root * <i>k</i> -V-root - *∅-∅-root -

Table 2. Zamucoan pertensive prefixes (adapted from Ciucci & Bertinetto 2017: 315)

OLD ZAMUCO: CONSTRUCTION 1		
(POSSESSOR)	CLASSIFIER	POSSESSED
Not obligatorily expressed (expected in FULL FORM if it is a noun); marked by the pertensive prefix on the classifier.	In FULL or BASE FORM, depending on the syntactic function of the NP. It agrees in gender with D.	In BASE FORM.

Table 3. *Construction 1*

OLD ZAMUCO: CONSTRUCTION 2		
(POSSESSOR)	CLASSIFIER	POSSESSED
Not obligatorily expressed (expected in FULL FORM if it is a noun); marked by the pertensive prefix on the classifier.	In BASE FORM	In the gender, number and FORM required by the syntactic context; in FULL FORM as argument in all sentences reported by Chomé, in BASE FORM as normally reported (without context) in Chomé's dictionary.

Table 4. *Construction 2*

OLD ZAMUCO: CONSTRUCTION 3		
POSSESSED	(POSSESSOR)	CLASSIFIER
In BASE FORM	Not obligatorily expressed (expected in FULL FORM if it is a noun); marked by the possessive prefix on the classifier.	It agrees in gender and number with D; in FULL FORM as argument in all examples reported by Chomé, in BASE FORM as normally reported (without context) in Chomé's dictionary.

Table 5. *Construction 3*

Semantics	Old Zamuco	Ayoreo	Chamacoco
general	<i>ganetie</i>	<i>gaņej, (juj, aniri)</i>	-
domesticated animal	<i>gachitie</i>	<i>gatsidi</i>	<i>etsit</i>
prey, haul	<i>yutie</i>	<i>juj</i>	-
fellow	-	<i>uhoj</i>	<i>uhut</i>
vehicles	-	<i>pi, gatsidi</i>	-
plants	-	<i>akaj</i>	<i>ijõrta</i>
long objects	<i>oho</i>	-	-

Table 6. *Zamucoan classifiers*

CONSTRUCTION 1: OLD ZAMUCO, AYOREO		
(POSSESSOR)	CLASSIFIER	POSSESSED
Not obligatorily expressed (expected in FULL FORM if it is a noun); marked by the pertensive prefixes on the classifier.	In the FORM required by the syntactic context. It agrees in gender and number with D. ²²	Always in BASE FORM.
<ul style="list-style-type: none"> This is the traditional construction and is generally preferred by Ayoreo speakers. 		
CONSTRUCTION 2: OLD ZAMUCO (see Table 4)		
CONSTRUCTION 3: OLD ZAMUCO (see Table 5)		
CONSTRUCTION 4: AYOREO AND CHAMACOCO		
(POSSESSOR)	CLASSIFIER	POSSESSED
Not obligatorily expressed (expected in FULL FORM if it is a noun); marked by the pertensive prefixes on the classifier.	In the FORM required by the syntactic context. It agrees in gender and number with D.	It agrees in FORM with the classifier.
<ul style="list-style-type: none"> This construction is considered innovative by Ayoreo speakers; it is typical of Chamacoco, where also noun and adjective(s) sequences agree in gender, number and form. 		

Table 7. *Constructions with classifiers in Zamucoan*

Language	Gender	Number	Source
Old Zamuco (Zamucoan)	+	+?	Ciucci (to appear)
Ayoreo (Zamucoan)	+	+	Bertinetto (2014a); Ciucci (2016)
Chamacoco (Zamucoan)	+	+	Ciucci (2016)
Maká (Mataguayan)	(+)	(+)	Gerzenstein (1994); Messineo (2011)
Kadiwéu (Guaycuruan)	±	±	Griffiths & Griffiths (1976); Sandalo (1995); Souza (2012)
Wichí (Mataguayan)	–	+ / ±	Terraza (2009) / Nercesian (2014) ²³
Nivaclé (Mataguayan)	–	+	Fabre (2016; personal communication)
Mocoví (Guaycuruan)	–	±?	Grondona (1998), Gualdieri (1998) ²⁴
Chorote (Mataguayan)	–	±	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)
Pilagá (Guaycuruan)	–	–	Vidal (2001)
Toba (Guaycuruan)	–	–	Messineo & Gerzenstein (2007), Messineo (2011)
Chiquitano (isolate)	–	–	Galeote Tormo (1996), Sans (2013), Ciucci (fieldwork)

Table 8. *Inflectional properties of possessive classifiers in Chaco languages*

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¹ Combès (2009) offers a historical account of the Zamucoan populations.

² See Ciucci (2016: 45) for the other (minor) historical sources on Old Zamuco.

³ In Ayoreo a remarkable exception is represented by the word *asute* (3.f.sg.BF/FF) ‘chief, military leader’ which is feminine despite the typically masculine interpretation of this role. For a possible explanation, see Ciucci & Bertinetto (2017: 321, note 35).

⁴ The meaning of these glosses will be explained below.

⁵ Old Zamuco and Ayoreo only differ in the inflection of these words, besides of course the fact that we report Old Zamuco words according to Chomé’s orthography and Ayoreo words in IPA transcription.

⁶ Here we only consider the elements found in all Zamucoan languages. Following Dixon (2010: 262), the abbreviations used in (8) and throughout this paper can be transparently interpreted as the last consonant of, respectively, POSSESSOR and POSSESSED.

⁷ We use the term ‘pertensive’, introduced by Dixon (2010: 268), to refer to the marking of the possessive relationship on the possessed (D).

⁸ In Chamacoco there is another possibility, which applies to both nouns inflected and uninflected for possessor: the third person possessor can be expressed by the sequence of a noun and a coreferential pronoun preceding D, as in *icir* (Chamacoco.m.pl) *ōr* (3pl) *imah-o* (3.enemy-m.pl) ‘The enemies of the Chamacoco’.

⁹ With only two exceptions, we know the shape of both genders for all Zamucoan classifiers. One exception is Old Zamuco *ohotae* (see below), which in all examples reported by Chomé appears in the feminine gender. This is possibly due to scarcity of data. Alternatively, it is possible that this particular classifier could only be used with feminine referents. This seems to be the case with the (rarely used) Chamacoco classifier *ijōrta*, which we only found with nouns of vegetables, that are mostly feminine. Whatever the case, in our fieldwork and in all examples in our corpus we invariably found agreement between classifier and D.

¹⁰ The use of the singular full form for citations is supported by the lexicographic habits of all available sources on Ayoreo and Chamacoco (see Ciucci 2016 for an overview). One of the

reasons is that in the full form gender neutralization is almost never found (see §3, ex. 6-7); besides, Chamacoco is losing the singular base form and has completely lost the full vs. base form distinction in the plural. Chomé mostly cites Old Zamuco nominals in the base form, but he also provides information on the full form.

¹¹ In these deverbal nouns *g-* is a 3-person prefix. Concerning the final *-a* of the verb, it stems from the adposition *aha*, as added to the verb root to modify its meaning.

¹² In (15a) ‘computer’ is in generic form, typically used for unspecified possessor.

¹³ The alternation /b/ ~ /p/ in *jibi* and *pi* is due to a frequent (although not systematic) process of word-initial consonant fortition. As for the vowel /i/ after the prefix *j-* in *jibi*, see Ciucci & Bertinetto (2017).

¹⁴ Note that the term *aoj* ‘skin, peel’ (3.m.sg.FF) is inflected for possessor. Nevertheless, we have found many examples where *aoj*, with the new meaning of ‘book’, is uninflected for possessor and used with the possessive classifier.

¹⁵ This word also has the variant *ixōrta* (3.f.sg.FF), see Ciucci (2016: 376).

¹⁶ This word comes from Spanish *caballo*, but the presence of /u/ in Old Zamuco indicates that it was borrowed from Chiquitano *cavayus*, as documented in the 18th century (see Falkinger & Tomichá Charupá 2012). The same word for ‘horse’, spelled *kabayúx* [kaβa'juʃ], is still found in present-day Chiquitano (Ciucci, fieldwork; see also Ciucci & Macoñó, to appear).

¹⁷ During his fieldwork on Chiquitano, a language historically in contact with Old Zamuco, the first author documented some examples of possessive NPs where classifier and R (lexically expressed) can be either preceded or followed by D (Ciucci, fieldwork). *Mutatis mutandis*, this is reminiscent of Constructions 2-3, so that one might wonder whether the Old Zamuco word order flexibility was possibly due to language contact.

¹⁸ Recall that Old Zamuco words are reported in Chomé's Spanish-inspired orthography, while Ayoreo and Chamacoco words are phonemically transcribed; should one phonemically transcribe <yuc> as /juk/, the equivalence would appear in all its evidence.

¹⁹ Despite the fact that the distributive can render the category of number, it should not be confused with the latter: this can clearly be seen in the verb, where the distributive indicates a multiple event, without saying whether this is due to multiplicity of the agent, of the patient, or to any other reason (Kalisch, personal communication). On the concept of 'distributive' in Enlhet-Enenlhet, see also Kalisch (2009/2010).

²⁰ Concerning the Kadiwéu feminine form *wiqate*, one has to note that the final /e/ recalls the Zamucoan suffix added to the masculine base form singular to obtain the feminine (Ciucci 2016: 471-479): e.g., Ayoreo *gateide* (3.f.sg.BF/FF) from *gateit* (3.m.sg.BF). In Old Zamuco the form *gachide* (even phonetically identical to Ayoreo *gateide*) is epicene, but this is possibly an innovation, for originally it must have been feminine. This final /e/ does not correspond to any gender-marking device reported in the mentioned descriptions of Kadiwéu.

²¹ On the co-existence of gender and classifier, see also Fedden & Corbett (2017).

²² Although we have no example of plural agreement between classifier and D for this Old Zamuco construction, one can reasonably assume that this is merely due to lack of data.

²³ The different values for number agreement in Wichí have to do with the variety documented by the respective authors. Terraza (2009) mostly focuses on the Wichí spoken in Rivadavia, in the Salta province of Argentina, while Nercesian (2014) describes the language spoken in the Argentinian provinces of Chaco and Formosa.

²⁴ In Grondona (1998) and Gualdieri (1998) we find no information on number agreement between classifier and possessed. In Gualdieri (1998: 151) there is one example where the classifier for 'pets' receives plural suffix, but it is cited out of context.