

ZAMUCOAN PERSON MARKING AS A PERTURBED SYSTEM*

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Abstract. This paper analyzes the Zamucoan system of Person markers: personal pronouns, verbal and possessive inflection. Comparing the three documented languages (Ayoreo and Chamacoco, currently spoken, and extinct Old Zamuco), one can reconstruct for a very ancient stage of this language family an agglutinating structure for both personal pronouns and verbal inflection, with Person and Number dealt with by, respectively, prefixes and suffixes. However, possessive inflection could not be accommodated within this system, since the noun suffix can only express *possessum* Number, while possessor Number has to be expressed by a dedicated prefix. This structural conflict forced the Zamucoan languages to attempt various solutions, departing from the original agglutinating logic.

1. Introduction

1.1. *The paper in a nutshell*

This paper is about the hardly possible (or rather impossible) ‘perfection’ of natural languages, assuming (for the mere sake of the argument) that it consists in a rigid one-to-one mapping of form and meaning, as in the agglutinating ideal or, taking a broader view, in the repeated attempts to build artificial languages.

There are no doubt good reasons to disagree with this idealized perspective, by observing that all languages are in themselves perfect, whatever their structure, inasmuch as they allow the exchange of communication between human beings. Besides, all historically evolved languages have certainly had enough time to reach maturation in a naturally emerging, self-organizing way. This is indeed my own view and assuredly not only mine (see, among others, Dixon 2016). Nevertheless, for the present purpose I am restraining the notion of ‘perfection’ in the above mentioned way, i.e. as one-to-one mapping of form and meaning. My goal is to show that this kind of ‘perfection’ is intrinsically unstable and conducive to ‘imperfection’, or rather to a different kind of perfection, if one agrees that the attainment of the communicative goal is the ultimate measure of full accomplishment by human languages. Indeed, since languages are complex systems, various structural constraints (as well as competing functional principles, such as ‘least effort’)

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prevent full satisfaction of the one-to-one mapping ideal. The category Person is an excellent test case, given its range of meanings, in the sense of speech-act participants and their combinations. With special regard to personal pronouns, Jacquesson (2008:96) observes that they easily undergo diachronic variation, precisely because they intertwine different parameters (Person, Number, Gender).¹

1.2. *Zamucoan*

The Zamucoan family consists of two currently spoken languages, Ayoreo (= **AY**) and Chamacoco (= **CH**), plus a language that was documented in the first half of the 18th century, Old Zamuco (= **OZ**), of which we have the relatively detailed documentation provided by the Jesuit father Ignace Chomé (see Chomé 1958 [before 1745], Ciucci 2018, *forthcoming*). AY and CH speakers presently amount to approximately 4,500 and 2,000, respectively. Their traditional settlement areas were in the Chaco savanna, between Bolivia and Paraguay, where they used to have their nomadic life, still pursued by a tiny Ayoreo group.

Largely based on data reported by Ciucci (2016), Ciucci & Bertinetto (2015, 2017) proposed a possible reconstruction of the Proto-Zamucoan (= ***P-Z**) verb and possessive systems. As shown in Figure 1, OZ and AY belong to the same branch of the family as contrasted with CH, which shares no more than 30% of its basic lexicon with the sister languages, but in terms of grammatical structure there are also features shared by OZ and CH, to the exclusion of AY.

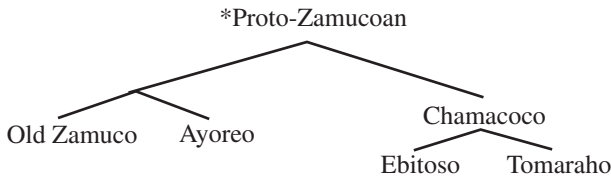


Figure 1. Internal classification of Zamucoan

Although the split of the two branches must have occurred many centuries ago – also according to the glottochronological computations of Wichmann et al. (2016) – it is important to keep in mind that the time depth of ***P-Z** is not as large as, for instance, that of Proto-Indoeuropean, since we have but three languages to compare. Besides, the oldest documentation

¹ Abbreviations: AY = Ayoreo, CH = Chamacoco, OZ = Old Zamuco, ***P-Z** = Proto-Zamucoan, DIST = distal, EXCL = exclusive, F = feminine, GPL = greater plural, INCL = inclusive, M = masculine, PL = plural, PREF = prefix, PROX = proximal, REFL = reflexive, SG = singular, V = thematic vowel.

dates back to no more than three centuries ago. In what follows, I will in fact sometimes hint at a possible language stage preceding *P-Z.

I will adopt here a reversal of the usual procedure: instead of accumulating evidence to justify a plausible reconstruction of the proto-language, I will assume as a solid datum the reconstruction proposed by Ciucci & Bertinetto (2015, 2017). My purpose is to show how a seemingly ‘perfect’ system can have in itself the seed of subsequent ‘degeneration’.

My reasoning will develop in successive steps.

2. Four (not linearly ordered) diachronic steps

2.1. Step One: The *P-Z situation

Table 1 displays the *P-Z personal pronouns and verb inflection paradigms. The following observations are in order:

- (i) The Zamucoan verb has two moods, Realis and Irrealis, but no tense distinctions; hence, the verb inflection paradigm is exhaustively depicted in Table 1.
- (ii) In each cell, –V– stands for the so-called ‘thematic vowel’, which sits between prefix and root, giving rise, in specific cases, to a morphophonological process of vowel substitution in the 2nd person, both singular and plural (more details in Section 4.2). The thematic vowel is in actual fact part of the lexical root, but for analytic purposes it can be singled out as an independent component, similarly to what is usually done in the inventory of Romance verb conjugations (compare the Spanish first conjugation *habl–a–r* ‘to speak’, second conjugation *com–e–r* ‘to eat’, third conjugation *sal–i–r* ‘to get out / leave’).

Table 1. *Proto-Zamucoan personal pronouns and verb inflection paradigms. Depending on the verb, the 3rd person can have three formats: prefixal, thematic (no prefix), radical (no prefix and no thematic vowel).

PERSON	PRONOUNS	*REALIS MOOD	*IRREALIS MOOD
1SG	* <i>(u)jV</i> _[+back]	* <i>a–V–ROOT</i>	* <i>j/tc–V–ROOT</i>
2SG	* <i>(u)wa</i>	* <i>{ba/ma}–V–ROOT</i> * <i>da–V–ROOT</i>	* <i>a–V–ROOT</i>
3(SG/PL)	[* <i>wite</i> (M)] [* <i>wate</i> (F)]	* <i>tc/t/Ø–V–ROOT</i>	* <i>{d/n}/t/Ø–V–ROOT</i>
1PL	* <i>(u)jV</i> _[+back] – <i>k</i>	* <i>a–V–ROOT–ko</i>	* <i>j/tc–V–ROOT–ko</i>
2PL	* <i>(u)wa–k</i>	* <i>{ba/ma}–V–ROOT–(j)o</i> * <i>da–V–ROOT–(j)o</i>	* <i>a–V–ROOT–(j)o</i>
3PL	* <i>ore</i>	–	–

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- (iii) The slashes separate different allomorphs. When they are included between curly brackets (like $\{ba/ma\}$ in the 2nd person), they are governed by nasal harmony.
- (iv) There is a clear phonetic resemblance between the deictic pronouns and the corresponding verbal inflections, at least as far as the Irrealis mood is concerned. Apparently, at some primordial stage (*ante* *P-Z) the independent pronouns were directly recruited to express the category Person, before turning into prefixes.
- (v) By contrast, the 3sg forms stand between square brackets because they consist of demonstratives. This is a typologically fairly frequent situation, to be found, e.g., in Basque, Comanche (Uto-Aztecan), Imbabura Quechua, Lak (Nakh-Dagestanian), Lavukaleve (Papuan), Maricopa (Yuman) (Cysouw 2003). Indeed, more than half of the languages in Bhat's (2013) corpus use demonstratives as 3rd person pronouns. As Jacquesson (2008:88) remarks, this use of the demonstratives strongly supports the idea that 3rd person markers (unlike deictic persons' markers, which are called 'pronouns' only by convention) are true pronouns, rather than rigid designators with the same meaning in all possible worlds. Indeed, instead of being in and by themselves referential, 3rd person markers "phorically or deictically refer to (by then) definite referents other than speech-act participants" (Plank 2017:259).
- (vi) The different allomorphs of the verb's 3rd person indicate that, previous to the *P-Z stage, the speakers had to struggle to create a suitable prefix in the absence of a fully-fledged 3rd person pronoun. The various prefixes presumably stemmed from attrition with different root-initial phonemes, but since this is buried in history, we have no hint at what the initial material might have been. Language contact might have played a role (Ciucci 2014, 2020).
- (vii) The multifarious morphology of the 3rd person can be used, for classificatory purposes, to distinguish the different verb classes (see Table 5 in Section 2.3). The rest of the inflectional paradigm is by contrast, in most cases, regular and thus predictable. Apart from the different prefixes, there are three major types of 3rd person morphology, depending on the number of overtly marked structural components (prefix, thematic vowel, root). When all slots are filled, the verb is called 'prefixal'; 'thematic' verbs dispense with the prefix (\emptyset -V-ROOT), while 'radical' verbs also lack the thematic vowel (\emptyset - \emptyset -ROOT) (see Table 5 in Section 2.3). Prefixal verb classes largely prevail over the thematic and radical ones; the two latter classes are, however, very useful for reconstructing purposes, because they correspond to an older language stratum, prior to the creation of 3rd person prefixes (Ciucci & Bertinetto 2015).

- (viii) There is no Number contrast in the 3rd person of the verb paradigm. The 3PL pronoun was needed to disambiguate Number reference.

In terms of general structure, the Person system of *P-Z looks sufficiently familiar. Using Cysouw's terminology, the 3rd person "horizontal homophony" (i.e. Number neutralization within one and the same person) is the most common of all horizontal homophonies (Cysouw 2003:161–162, Siewierska 2004:7; Baerman et al. 2005).² This kind of paradigm can for instance be found in Kannada (Cysouw 2003:265). Mithun (1991) observes that in North American languages exhibiting Person affixes, the 1st and 2nd persons generally morphologized before the 3rd person, and Number grammaticized later than Person. This can help understand why *P-Z had 1PL and 2PL, but no 3PL.

The starting point of the reasoning is the neat combinatorial structure to be found in the personal pronouns and verb inflection paradigms of *P-Z shown in Table 1, where suffixes mark Number and prefixes mark Person (assuming, for the sake of the argument, that the lexical roots of 1st and 2nd person pronouns play the role of a kind of prefix). This is especially remarkable in the pronouns system, where (using Latin as metalanguage) one finds the following arrangement: *ego*-PL = *nos*, *tu*-PL = *vos*. Incidentally, this shows that, for the Zamucoan early speakers, *nos* and *vos* could be perceived as a sort of plural of *ego* and *tu*, although this cannot be the case in semantic terms (Cysouw 2003:69–70, Jacquesson 2008).

This situation points to a distant past (again, prior to *P-Z) in which Zamucoan must have had a neatly agglutinating behavior. One might view this as a step towards 'perfection', to the extent that a one-to-one mapping of form and meaning is regarded as more speaker- and listener-friendly.³ It is however interesting to note that the modern Zamucoan languages, including OZ (which was spoken only three centuries ago) are all but agglutinating. They are in fact purely fusional in the nominal system, as proven by the fact that every noun carries a suffix simultaneously expressing Gender and Number (plus a third feature, called Form; see Bertinetto et al. 2019). This extends to adjectives, which in addition inflect for Gender (masculine *vs* feminine). Apart from the feature Form (ignored here for reasons of simplicity), the morphological structure of Zamucoan nouns and adjectives is very much like in

² The adjective 'horizontal' is motivated by the type of organization adopted by Cysouw, cross-referencing the values of the feature Number in separate columns and those of the feature Person in separate rows. Hence, when a given person has an identical form for different numbers (singular, plural, dual, paucal . . .), one speaks of 'horizontal' syncretism/neutralization/homophony (here, 3SG = 3PL). By contrast, when there is formal identity of different Person values within the same Number value, one speaks of 'vertical' syncretism/neutralization/homophony (e.g., 1PL = 2PL).

³ The distinction of inclusive *vs* exclusive would be of further help to the hearer, who wants to know whether s/he is or is not included in the referents set (Plank 2017). Among the Zamucoan languages, only Chamacoco has developed such a distinction.

Romance. In this respect, Zamucoan languages possibly are an absolute exception in the context of American Indian languages, which are agglutinating and even, in a large proportion, highly synthetic.

But although the Zamucoan languages have sharply departed from the agglutinating ideal, the Person markers system bears memory of the original arrangement. Even there, however, structural conflicts arose, as this paper will show.

2.2. Step Two: Innovations in the personal pronouns system

Table 2 displays the personal pronouns paradigm of the three Zamucoan languages, with *P-Z repeated from Table 1 for convenience.

The above described agglutinating structure of the plural persons is everywhere in place, with the suffix *-k* in 1PL and 2PL. This kind of arrangement belongs to type B in Jacquesson's classification (2008:167–177; “pluriel parallèle au singulier”), and corresponds to the geographically widespread type 7 of Daniel's typology (2013; “Person stem with a pronominal plural affix”).

In addition, one can remark that:

- (i) The 3PL pronoun is used whenever there is a need to disambiguate Number reference. In subject position, this need is less compelling in CH, which can have Number marking on the verb (see point (viii) in Section 2.3).
- (ii) The 3SG pronouns (plus one CH 3PL form) are again shown between square brackets, because (with a single CH exception) this referential function is fulfilled by demonstratives. Actually, even the remaining CH 3rd person markers are former demonstratives turned into determiners, but for simplicity's sake they are left between brackets in the table.

Table 2. Zamucoan personal pronouns. Items within square brackets are demonstrative pronouns.

*PROTO-ZAMUCO	PERSON	OLD ZAMUCO	AYOREO	CHAMACOCO
* <i>(u)jV</i> _[back]	1SG	<i>(u)ju</i>	<i>(u)ju</i>	<i>jok</i>
* <i>(u)wa</i>	2SG	<i>(u)wa</i>	<i>(u)wa</i>	<i>owa</i>
[* <i>wite</i> (M)]	3SG	[<i>wite</i> / <i>ude</i> (M)]	[<i>ude</i> (M.PROX)]	<i>ir</i> (<i>e</i>)
[* <i>wate</i> (F)]		[<i>wate</i> / <i>uda</i> (F)]	[<i>udak</i> (F.PROX)]	[<i>witei</i> (M)]
			[<i>ute</i> (M.DIST)]	[<i>wate</i> (F)]
			[<i>wate</i> (F.DIST)]	
* <i>(u)jV</i> _[back] - <i>k</i>	1PL	<i>(u)jo-k</i>	<i>(u)jo-k</i>	INCL <i>ejo-k</i> EXCL <i>ôrjo-k</i>
* <i>(u)wa-k</i>	2PL	<i>(u)wa-k</i>	<i>(u)wa-k</i>	<i>ola-k</i>
* <i>ore</i>	3PL	<i>ore</i>	<i>ore</i>	<i>ôr</i> , [<i>wir</i>]

- (iii) CH departs from the other languages because of the peculiar evolution of the 1st person pronouns, with: (a) the replacement of the original 1SG pronoun by means of the 1PL, a phenomenon typologically less frequent than the analogous replacement in the 2nd person, but not unprecedented; (b) the clusivity split in the subsequently created 1PL form (Ciucci & Bertinetto 2015). Besides, CH also has 1PL and 2PL pronouns expressing a ‘greater plural’, i.e. referring to a relatively large referents’ set (respectively, *ejoklo* and *olaklo*, not reported in Table 2).

Despite these CH idiosyncrasies, the overall agglutinating structure of the *P-Z personal pronouns survives in its descendants.

2.3. Step Three: Innovations in verb inflection

The verb inflection paradigms displayed in Tables 3 and 4 for the three Zamucoan languages (plus, again, *P-Z repeated from Table 1) confirm the restless behavior of CH, as compared with the relatively more conservative situation of OZ and AY:

- (i) The most striking feature is the complementary image shown by the Irrealis mood in AY and CH (Table 4), whereby the 3rd person lacks in AY but is the only surviving person in CH. Interestingly, OZ still had the whole paradigm.

Table 3. Zamucoan verb inflection of the Realis mood. When the thematic vowel is high, it is replaced by /a/ (in CH also by /e/) in the 2SG/PL persons. Depending on the verb, the 3rd person has one of three formats: prefixal, thematic (no prefix), radical (no prefix and no thematic vowel).

*PROTO-ZAMUCOAN	PERSON	OLD ZAMUCO	AYOREO	CHAMACOCO
*a-V-ROOT	1SG	a-V-ROOT	[Ø-V-ROOT]	t/tV _x k-V _x -ROOT
*{ba/ma}-V-ROOT	2SG	d-V-ROOT	{b/m}-V-ROOT	Ø-V-ROOT
(*{da/na}-V-ROOT)				
*tc/t/s/Ø-V-ROOT	3(SG)	tc/t/s/j/Ø-V-ROOT	tc/t/Ø-V-ROOT	tc/ts/t/{d/l/n}/Ø-V-ROOT
*a-V-ROOT-ko	1PL	a-V-ROOT-ko/go/ho	[Ø-V-ROOT-ko/{go/ho}/ho]	INCL j-V-ROOT GPL.INCL j-V-ROOT-lo EXCL o-j-V-ROOT
*{ba/ma}-V-ROOT	2PL	d-V-ROOT-o/teo/	wak-V-ROOT-teo/{jo/ɲo}	Ø-V-ROOT-lo
-{jo/ɲo}				
*{da/na}-V-ROOT		{jo/ɲo}		
-{jo/ɲo}]				
-	3PL	-	-	o- + 3rd PERSON

Table 4. Zamucoan verb inflection of the Irrealis mood. When the thematic vowel is high, it is replaced by /a/ (in CH also by /e/) in the 2SG/PL persons. Depending on the verb, the 3rd person has one of three formats: prefixal, thematic (no prefix), radical (no prefix and no thematic vowel).

*PROTO-ZAMUCOAN	PERSON	OLD ZAMUCO	AYOREO	CHAMACOCO
*{j/n}/tɛ/s-V-ROOT	1SG	tɛ/{j/n}/s-V-ROOT	{j/n}-V-ROOT	–
*a-V-ROOT	2SG	Ø-V-ROOT	Ø-V-ROOT	–
*{d/n}/t/Ø-V-ROOT	3(SG)	{d/n}/t/n/{b/m}-V-ROOT	–	{d/n/l}/t-V-ROOT
*{j/n}/tɛ/s-V-ROOT-ko	1PL	tɛ/{j/n}/s-V-ROOT-ko/go/ho	j-V-ROOT-ko/go/yo/ho	–
*a-V-ROOT-{jo/jno}	2PL	Ø-V-ROOT-o/{jo/jno}	Ø-V-ROOT-o/{jo/jno}	–
–	3PL	–	–	o- + 3rd PERSON

- (ii) The curly brackets delimit nasal-harmony-sensitive allomorphs, or (in the case of CH *d/l*) free variation allomorphs.
- (iii) The Realis 1SG/PL persons of AY appear between square brackets in Table 3 because, in the currently spoken language, these inflections are normally replaced by the corresponding Irrealis ones. This can be readily interpreted according to the diachronic tendency to use a marked feature instead of the corresponding unmarked one (Bertinetto & Ciucci 2019).
- (iv) The deviant 1SG prefix *tV*k- of the CH Realis (where V assimilates to the following thematic vowel, as indicated by the *x* subscripts in Table 3) is no doubt connected with the above described change within the pronominal system, with the original 1PL replacing the original 1SG (see point (iii) of the preceding section). One might consider *tV*k- as stemming from the CH 1SG pronoun *jok*, with the verb prefix dissimilation /j/ → /t/ in the frequently occurring sequence *jok jV_xk-V_x-ROOT* ('I 1SG-V-ROOT'). Note that many CH verbs present *t-* as 1SG prefix, but this probably stemmed from deaffrication of the alveopalatal prefix /tɛ/, to be found in the 1SG Irrealis of one class of *P-Z and OZ verbs (see Table 4). Supposedly, this deaffrication process occurred at an earlier stage, thus providing a ready-made phonetic target for the dissimilatory process /jV_k/ → /tV_k/ of the alternative 1SG allomorph.
- (v) The CH loss of the 1st and 2nd persons' Irrealis inflection was most probably caused by replacement of the Realis prefixes by the Irrealis ones. That this is more than mere speculation is proved by the analogous behavior of the AY speakers (see point

Table 5. Zamucoan verbal classes based on the 3rd Person form. This is an updated version of the classification in Ciucci & Bertinetto (2015), with new data stemming from Chomé's OZ dictionary (Ciucci, present volume) which suggest the existence of a class of *s*- and *j*-verbs. Thematic verbs lack the person prefix but preserve the thematic vowel, radical verbs lack both.

	PREFIXAL VERBS			THEMATIC VERBS	RADICAL VERBS	
*P-Z	* <i>tɛ</i> -verbs	* <i>s</i> -verbs	* <i>t</i> -verbs	*Thematic verbs	*Radical verbs	
OZ	<i>tɛ</i> -verbs	<i>s</i> -verbs	<i>j</i> -verbs	<i>t</i> -verbs	Thematic verbs	Radical verbs
AY	<i>tɛ</i> -verbs		<i>t</i> -verbs	Thematic verbs	Radical verbs	
CH	<i>tɛ</i> -verbs	<i>ts/ɛ</i> -verbs	<i>t</i> -verbs	<i>d</i> -verbs	Thematic verbs	Radical verbs

(iii) here). Besides, this pattern transfer supports the possible influence of *t*-verbs (with deaffrication of the original *tɛ*-prefix) on the *tVk*-prefix, as just observed.

- (vi) Consistently with the pronouns paradigm, CH exhibits the clusivity split in the 1PL.
- (vii) A further innovative feature of CH is the 3PL pre-prefix *o-*, which attaches to the 3SG to create the Number contrast.⁴ More exactly, this 3PL affix is only obligatory with human referents and optional with big animals, but excluded with the remaining referents. This abides by the referents hierarchy described in Smith Stark (1974), Aikhenvald & Dixon (1998:58, 66), and Dixon (2012:70–71). Quoting from Aikhenvald (2015:114), there is a universal tendency such that “overt number marking, and even number agreement, is more likely with humans and higher animates than with inanimates”.⁵

The verb paradigms, just as the personal pronouns paradigms, preserve a sufficiently neat one-to-one mapping of form and meaning, allowance made, once again, for the daring assumption that 1PL and 2PL express the actual plural of the corresponding singular form. This suggests persistence of the *P-Z grammatical organization, at least as far as these structural domains are concerned. The striking parallel between the system of personal pronouns and that of verb inflection consists in the usage of suffixation for the feature Number, and prefixation for the feature Person (assuming, on a purely analogical basis, that the pronoun's lexical root plays the role of a prefix). As already remarked, this supports the

⁴ The same pre-prefix is also to be found in the 1PL exclusive, but it possibly has a different origin (Ciucci & Bertinetto 2015).

⁵ The dual might be an exception in this respect, for it does not necessarily follow an animacy hierarchy. In some languages, natural pairs (like twin body-parts) are considered dual-worthy irrespective of animacy. This is especially the case in languages where dual marking is limited to nouns, to the exclusion of personal pronouns (Plank 1996: 127).

hypothesis that, at some primordial stage, the personal pronouns were used to mark Person reference, with Ø marking of the 3rd person.

As Siewierska (2004) writes, however:

While everyone acknowledges that Person clitics and affixes typically evolve from independent Person markers [i.e., independent pronouns (PMB)], synchronic phonological similarity between the two types of forms is by no means always in evidence.⁶ An identity of forms must be viewed as quite exceptional. (p. 251) [. . .]

Such identity may be observed, for example, in the Oceanic language Asumboa between the independent forms and the S/A markers, in the Tibeto-Burman language Mao Naga between the independent forms and both the verbal and nominal prefixes, and in the West Chadic language Mupun between the independent emphatic forms and the object suffixes. Much more common are dependent forms which though not identical to the independent are transparently derived from them. (p. 252).

2.4. Step Four: Possessive morphology, or the fate of the agglutinating 'ideal'

The above described ideal condition, in terms of agglutinating 'felicity', met its limit in the treatment of possessive morphology. While Tables 1 to

Table 6. Possessive inflection in Zamucoan. Each cell should be completed with SUFFIX, as in the left top cell. Depending on the noun, the 3rd person and the generic form can have three formats: prefixal, thematic (no prefix), radical (no prefix and no thematic vowel).

*PROTO-ZAMUCOAN	PERSON	OLD ZAMUCO	AYOREO	CHAMACOCO
*j-V-ROOT-SUFFIX	1SG	j/te/s-V-ROOT	j-V-ROOT	p-V-ROOT
*a-V-ROOT	2SG	Ø-V-ROOT	b-V-ROOT	Ø-V-ROOT
*d/g/j/Ø-V-ROOT	3	d/g/Ø-V-ROOT	d/g/k/j/p/Ø-V-ROOT	d/j/k/w/Ø-V-ROOT
*da-V-ROOT	REFL	d-V-ROOT	d-V-ROOT	d-V-ROOT
*aj-/as-V-ROOT	1PL	aj-/as-V-ROOT	jok-V-ROOT	[INCL <i>ejok</i> + 3rd PERSON] [EXCL <i>ørjok</i> + 3rd PERSON]
?	2PL	aj-/as-V-ROOT	wak-V-ROOT	[<i>olak</i> + 3rd PERSON]
*p/d/dVk/k/Ø-V-ROOT	GENERIC	p/d/Ø-V-ROOT	p/dVk/k/g/Ø-V-ROOT	d/dVk/k/Ø-V-ROOT o- + 3rd PERSON

⁶ Indeed, there are exceptions. For instance, Loporcaro (2017:308–313) has shown, with examples from Romance languages, that new Person distinctions, totally unrelated to the independent pronouns, may arise within a system that already has the Person feature. Alternatively, previous Person markers may turn into exponents of other categories, e.g. Gender.

5 show a substantial convergence between all Zamucoan languages, Table 6 strikes the observer for its lack of consistency, especially in the plural persons. This is the symptom of a perturbed system.

Some observations are in order:

- (i) Each cell of Table 6 should be intended as shown in the top left cell (under *P-Z), namely with SUFFIX added to ROOT, to indicate the obligatory presence of a marker expressing the features Gender and, as required by the contextual referential properties of the *possessum*, Number (plus, in addition, the feature Form, irrelevant to the purpose of this paper; see Bertinetto et al. 2019). For simplicity's sake, the obligatory SUFFIX is ignored in the remaining cells of Table 6.
- (ii) The Zamucoan possessive prefixes, which specify the possessor, sit on the *possessum*. In Dixon's (2010) terminology, they are 'pertensive' affixes.
- (iii) The 3rd person, as well as the 'generic' one, can have the same three morphological patterns available to verbs, namely: 'prefixal' (PREFIX-V-ROOT), 'thematic' (\emptyset -V-ROOT), 'radical' (\emptyset - \emptyset -ROOT). There is, however, a difference in frequency distribution: thematic words largely prevail among nouns, as contrasted with the large prevalence of prefixal verbs. Radical words are rare for both nouns and verbs, but in both cases, due to their often irregular but highly conservative features, they are an important source of historical information (Bertinetto & Ciucci 2019).
- (iv) In contrast to its own inflection systems of personal pronouns and verbs, CH has no dedicated 3PL possessive morpheme. This is additional evidence that the 3PL person was absent in *P-Z morphology.
- (v) The 'reflexive' 3rd person – which is instead a characterizing feature of Zamucoan, as contrasted with the surrounding languages (Ciucci & Bertinetto 2017) – indicates coreference with the subject, as opposed to the neutral 3rd person. This has had important diachronic consequences, because in some nominal classes the reflexive prefix has replaced the neutral 3rd person prefix (Ciucci & Bertinetto 2017), obeying the tendency for the 'marked' features to replace the 'unmarked' ones (Bertinetto & Ciucci 2019).
- (vi) The AY and CH 1PL and 2PL possessive markers correspond to the independent personal pronouns, with one important difference: in CH they are, for all intent and purpose, true pronouns, while in AY they have been turned into prefixes (further considerations in Section 5).
- (vii) Finally, the 'generic' form is used for non-specified possessor, hence, typically, for non-specific designation of the given referent(s),

such as the general concept of *knife* as opposed to *my/your/our/their knife*. This is not infrequent in American languages, such as Algonquian and Arawak (Aikhenvald, present volume), and it has been proposed as an areal trait precisely for the languages of Chaco, where the Zamucoan languages are spoken (Campbell & Grondona 2012:646). Campbell (2012:297–298) highlights this feature for some Mesoamerican languages, such as Nahuatl, while Gianguido Manzelli has pointed out to me Chiricahua Apache (Athabaskan), quoting data from Hoiyer (1967).

Pursuing the reasoning sketched out in Sections 2.1–4, one would expect here again the prefixes to express the feature Person, with suffixes conveying plural number. Besides, in the ideal Zamucoan agglutinating ‘paradise’, possessive prefixes should mirror the form of the independent personal pronouns (excluding the 3rd person, expected to have a \emptyset exponent for the same reasons spelled out for verb inflection). This last tendency is indeed visible in the possessive plural persons of AY and CH, and confirms the following observation by Siewierska (2004:253): “Identity or similarity between independent and dependent person markers are quite commonly manifested only among the non-singular forms”.

However, according to the reconstruction detailed in Ciucci & Bertinetto (2017), the 1PL and 2PL possessive markers of AY and CH should be regarded as a later development, rather than the original status. The reasons for the reconstructed *P-Z paradigm reported in Table 6 are repeated here, by reviewing the critical points of Table 6:

- (viii) The shape of the CH 1sg is the consequence of a spectacular change. The *p-* prefix is in fact the (by far) most frequently used generic prefix of the sister languages. In practice, by way of a somehow bizarre, but psychologically quite understandable pragmatic shift, ‘everybody’s X’ was reinterpreted as ‘my own X’ (a striking implementation of what might be called the ‘egocentric principle’). As Mithun (1993:344) notes: “cross-linguistically, it is not unusual for indefinite pronouns to be used for specific reference, and even to evolve into general referential pronouns, particularly in languages originally lacking third person pronominal forms” (see also Mithun 1991).
- (ix) The generic form has a multifarious shape, although in OZ and AY the largely prevailing prefix remains *p-*, as just noted. This suggests that, although it is possible to reconstruct it for *P-Z, the generic form must have been added to the primordial paradigm (i.e., *ante* *P-Z) via a number of morphophonological processes of which we have no direct evidence. CH is once again a special case: although the morphemes expressing this semantic function are essentially the same as in the sister languages, they

now have but a marginal role in the grammar, where the generic form survives as a residual feature in a small number of CH nouns. Although the generic inflection must have been productive in the past for all Zamucoan languages, some semantically or pragmatically peculiar noun classes must have been exempted from it. This is the case, for instance, of kinship terms, which do not present the generic form in OZ and AY.

- (x) The possessive 2SG of OZ and CH has lost the prefix (except for a few fossils), and this is not without consequences (see Section 4.2). By contrast, AY has extended to the possessive paradigm the same 2SG prefix to be found in its Realis inflection (see Table 3, Section 2.3).
- (xi) The particularly complicated situation of 1PL and 2PL is the real core of the issue. To this we now turn.

3. Plural persons' turbulence

As noted above, one can assume that the original Zamucoan solution, as far as the feature Person is concerned, consisted in using the independent pronouns for that purpose. This preserved the agglutinating strategy, with suffixes expressing plural Number (see Table 1). The turbulence started when pronouns in the possessive function turned into prefixes, since the 1/2PL markers do not only express Person, but also Number (more exactly, possessor Number). This creates a structural conflict with respect to the systems of personal pronouns and verbs, where plurality is expressed by an affix sitting at the very end of the word. In order to follow the same logic in a POSS-NOUN structure, the plural affix should sit at the end of the possessed noun; however, that position must remain available for marking the *possessum* Number, rather than the possessor's. Needless to say, possessor and *possessum* plural are independent notions and must find separate expression; but the point is that, in the present case, this leads to a structural conflict.

Needless to say, for most languages this is no problem. The solution may consist in marking Number on two different words, respectively expressing possessor and *possessum*. In English, for instance, one finds *my/our house(s)*, with possessor Number conveyed by the possessive adjective. The adjectival status is even more evident in Italian, where possessive adjectives agree with the *possessum* not only in Number, but also Gender, in addition to lexically expressing the possessor Number, as in:

- (1) a. *l-a nostr-a cas-a*
the-F.SG *our-F.SG house-F.SG*
- b. *l-e nostr-e cas-e*
the-F.PL *our-F.PL house-F.PL*

In Zamucoan, by contrast, possessive markers preserve traces of their pronominal origin, sharply contrasting with the syntactic behavior of adjectives. As a matter of fact, according to the Zamucoan syntax, an adjective should follow the noun rather than preceding it; by contrast (with the CH partial exception specified below), Zamucoan possessive markers are prefixes and thus precede the modified noun. Note further that, in Zamucoan NOUN+ADJECTIVE phrases, the noun (obligatorily in first position) must be in the singular whatever the number of the designated referent; Number information is only conveyed by the phrase-final adjective, which also conveys Gender agreement, according to a strictly fusional strategy.

To contrastively illustrate, see the following AY examples. In the NOUN+ADJECTIVE phrase in (2), the two adjectives follow the noun and only the second one expresses the Number value; in the POSS-NOUN construction in (3), by contrast, one finds the reverse constituent order (modifier first, head second):⁷

(2) AY: *carata-ke gare queruṅa-ne*
 jaguar-M.SG two.M.SG big-M.PL
 ‘two big jaguars’

(3) AY: *j-i-boti* ‘my food’, *b-a-boti* ‘your food’, *Ø-Ø-poti* ‘her/his food’

Thus, while the plural marker *-k* of the pronominal paradigm (Table 2) abides by the Zamucoan grammatical structure, the same marker in a possessive morpheme, such as in the AY example in (4b), violates two Zamucoan structural tendencies, inasmuch as:

- (A) The possessive plural marker is not at the rightmost boundary of the phonological word, contrary to what happens in the plural forms of personal pronouns and verbs (Tables 2-4).
- (B) The Number marking of the possessive modifier sits on a non-final member of the NP, contrary to what occurs to the modifier in NOUN+ADJECTIVE phrases (as in example (2)).

This said, the following question arises: Were these constraints strong enough to prevent the recruitment of the plural pronouns as possessive prefixes? My tentative answer is that this was possibly not the case. One can indeed conceive of a primordial stage at which the personal pronouns (both singular and plural) were used as possessive markers. However, once they turned into prefixes, the just described structural conflict arose. The AY plural person inflections make this conflict

⁷ I am ignoring here important details of Zamucoan morphosyntax, concerning the use of the so-called ‘form’ inflection (see Bertinetto et al. 2019). Note that the numeral *gare* in (2) is morphologically an adjective. The described NOUN+ADJECTIVE construction is no longer used (or seldom) in CH, but this must be regarded as a departure from the original Zamucoan syntax.

apparent in the comparison between verb forms (4a) and POSS-NOUN constructions (4b):

- (4) a. verb inflection template: PERSON-ROOT-PL
 e.g. AY: *ɲ-a-jona-ɲo* = 1-V-run_after-PL ‘we run after’
 b. POSS-NOUN template: PERSON-PL_x-ROOT-PL_y
 e.g. AY: *jo-k_x-i-giña-ne_y*, = 1-PL_x-V-house-PL_y ‘our houses’
 (with PL_x and PL_y standing, respectively, for possessor and
possessum plural)

This structural contrast might have been the source of the turbulence to be found in Table 6, especially evident in the diverging OZ arrangement of the 1PL and 2PL possessive markers. There are, however, interesting hints at a converging situation, at a previous stage, among all sister languages, as remarked by Ciucci & Bertinetto (2017). The main points are repeated here:

- (i) Baldus (1932:393) reports for CH the forms *as-et* ‘our mother’ and *al-(d)e* ‘our father’. Sušnik (1972:22), in turn, reports CH *as-it* ‘our mother’. *Aset* and *asit* exactly mirror OZ *asote* ‘our mother’, documented by Chomé. Another CH form reported by Baldus (1932:392) is <áirum-me> ‘our hands’, to be interpreted as *aj-rume*.
- (ii) This historical evidence shows convergence between the regular OZ prefixes *aj-* and *as-*, and the barely documented, no longer used, CH 1PL prefixes *al-/aj-* and *as-*. Note that CH *al-* in *al-(d)e* ‘our father’ may be understood as a cognate of the OZ 1PL prefix *aj-* (the most frequently used allomorph, according to the data in Chomé), since CH exhibits other instances of the change /j/ → /l/ after /a/ (Ciucci & Bertinetto 2017:Sections 4.2 and 5.2). Most importantly, since OZ and CH belong to different branches of the family, we can conclude that *P-Z must have had a 1PL possessive prefix of that sort. Regrettably, we cannot build any plausible hypothesis as for the shape of the *P-Z 2PL possessive affix.
- (iii) The decline of the *P-Z possessive plural prefixes must have occurred at a fairly early stage, because AY does not present any relics, although this might simply depend on lack of marginal historical evidence of the sort available for CH.⁸

⁸ As remarked in Ciucci & Bertinetto (2017:321), Ayoreo possibly presents a relic of the *P-Z prefix **as-* in the word *asute* ‘chief’, very similar to *asote/aset*, the archaic Old Zamuco and Chamacoco form of ‘our mother’. If so, we surmise that a 1PL form was reinterpreted as the word’s theme. Ayoreo *asute*, quite exceptionally, is morphologically feminine even though it only refers to males, and as a matter of fact it is not related to any Old Zamuco word for ‘chief/leader’. One might thus cautiously propose that, in a possibly matriarchal ancient society, the word for ‘mother’ was also used with this nuance.

Putting all this together, one can hardly escape the conclusion that the picture in Table 6 must be the result of structural instability. The following section will discuss further evidence of it.

4. ‘Vertical’ neutralizations

4.1. *1/2PL syncretism*

The most remarkable aspect of such a structural turbulence is the identical marking of 1PL and 2PL in the OZ possessive paradigm (see Table 6). Actually, a formal syncretism of Person markers is not a rare typological feature, as extensively itemized by Cysouw (2003). The one in question is an instance of what this author calls “vertical homophony”, because it involves neutralization among different person markers within the same Number category (here the plural; see fn. 2 for the meaning of ‘vertical’). In particular, examples of 1/2 vertical neutralization – which Cysouw dubs as the ‘English type’, as based on the English Present tense inflection – can be found, possibly only in specific subsystems of the nominal or verbal system (e.g. in particular tenses), in Hunzib and Lak (both Nakh-Dagestanian), Svan (South Caucasian), Waskia (a Papuan language), Maltese (Semitic), Krongo/Korongo (Nilo-Saharan), Pame (Oto-Manguean), Nez Perce (Sahaptian), Winnebago (Siouan) (Cysouw 2003:11–12, 48–51). As far as OZ is concerned, however, this syncretism appears to be a striking departure from the agglutinating logic detectable in the other inflectional paradigms of Zamucoan. Where does this come from?

Supposedly, the prefixes *aj-* and *as-* (see Table 6 under OZ) had a phonotactically conditioned distribution, depending on the root they were attached to. Alternatively, they might originally have had a different referential function. Chomé reports in his grammar that the OZ noun for ‘mother’ had diverging 1PL and 2PL forms: *asote* ‘our mother’ and *ajate* ‘your.PL mother’.⁹ It is not surprising that this word belongs to the set of kinship terms, which are often irregular in the world languages. They are indeed irregular in Zamucoan (Ciucci & Bertinetto 2017), even presenting two forms with the same meaning as in AY *jaj* and *japade*, both meaning ‘my father’. As is well-known, irregular inflections often witness older language stages. In the case of *as-ote* ‘our mother’ and *aj-ate* ‘your.PL mother’, one may find some support in the different root vowel (/o/ vs /a/), since this alternation is possibly related to the peculiar Zamucoan mechanism of thematic vowel replacement in the 2SG/PL (more details below; see example (5b) in the next section). Furthermore, in a letter to Lorenzo Hervás y Panduro, the Jesuit Joaquín Camaño reported the

⁹ Actually, the OZ dictionary by the same author (see Ciucci *forthcoming*) does not confirm this datum. However, it was probably written before; possibly, Chomé added this detail in his later work.

possessive paradigm of ‘child’, opposing 1PL <ayab> to 2PL <adab> (Clark 1937:127–128). Since these are second-hand data, provided by other missionaries who had left South America some time before as a consequence of the Jesuits expulsion, they are not fully reliable. Nevertheless, they bear some validity, because the root *ap*, which voices into *ab-* before vowel-initial suffixes, is still used in the sense of ‘child’ in both AY and CH (besides being frequently used as a diminutive affix). One might surmise that, while <y> obviously stands for /j/, <d> in the 2PL possibly stands for [dʒ], which is a frequent allophonic realization of /j/ in both AY and CH. If so, this would merely indicate that <ayab> and <adab> reflect two different pronunciations of the same form. As a second hypothesis, one could however suggest that these two forms, as claimed by Camaño, hint at an original opposition between the 1PL and 2PL possessive prefixes. Possibly, *ad-* was a hardening of *as-*, or at least so it was perceived by those who reported the data.¹⁰ Finally, as a third hypothesis, one might suggest that *ad-* was a relic of the original 2PL possessive prefix, already restricted (when Chomé wrote his OZ grammar) to a few conservative and irregularly inflecting words.

This said, the fact remains that OZ had a syncretic expression (possibly produced by some phonetic accident?) for 1PL and 2PL, and although this is not the only such case (as reported for Navajo by Jacquesson 2008:213), one can assume that it must have been the effect of a perturbed evolution, owing to a kind of pervasive structural conflict.

4.2. 2/3sg syncretism

With some thematic nouns, OZ and CH offer examples of another kind of vertical syncretism, namely the neutralization affecting the 2/3sg possessive markers. This type of vertical syncretism is dubbed as ‘Dutch type’ by Cysouw (2003:41–45), and according to the same author can also be found in Lengua [more precisely, Lengua Sur/Enxet] (Maskoyan [now called Enlhet-Enenlhet]), Chitimacha (an extinct South Louisiana language),¹¹ Wambon (Papuan), Kathmandu Newari (Tibeto-Burman), Qawesqar (an Alcalufan language of Chile), Kenuzi-Dongola (Sudanic), as well as in various Nakh-Dagestanian and Tibeto-Burman languages.

In the case of the OZ and CH 2/3sg neutralization, we know for sure that it has had a contingent morphophonological origin (Ciucci & Bertinetto 2015, 2017). Its source lies in the reinterpretation, as thematic

¹⁰ Although this is a likely interpretation, it cannot go unnoticed that it conflicts with the data reported by Chomé, where *as-ote/aj-ate* ‘our/your.PL mother’ suggest a reverse distribution of the two prefixes, as compared with <ay-ab>/<ad-ab> ‘our/your.PL child’. Note, however, that Camaño reported second-hand data. There is thus the possibility that he simply inverted the meaning of two forms.

¹¹ Jacquesson (2008:315) observes that Chitimacha had 2nd/3rd person syncretism in verbal inflection, whereas personal pronouns preserved the distinction.

vowel, of the /a/ originally belonging to the 2SG/PL prefix. This change occurred in all Zamucoan languages for both nouns and verbs (with the obvious exception of the OZ 2PL possessive), and was further modulated by a vowel strength principle, such that:

- (i) [+high] thematic vowels were replaced by /a/, i.e. by the former prefix vowel (as shown in (3) above);
- (ii) [-high] thematic vowels were preserved, with deletion of the former prefix vowel /a/.

Recall, now, that the 2SG possessive marker of OZ and CH is a Ø–prefix (Table 6); hence, no neutralization can arise in prefixal and radical words, where the 2SG diverges by definition from the 3SG, as shown in (5a). Neutralization is also avoided in thematic nouns with [+high] thematic vowel, as featured in (5b), owing to the just described replacement mechanism (note that, in CH, thematic /a/ turned into /e/, unless phonetic reasons prevented this change to occur). In the remaining thematic nouns, however, the 2/3SG syncretism arose, as shown in (5c). In the following examples, Ø– indicates lack of prefix in thematic nouns, and Ø–Ø– lack of both prefix and thematic vowel in radical nouns, as based on the 3SG inflection:

- (5) a. PREFIXAL NOUN: CH 2SG Ø-*o-sēt* ≠ 3 *d-o-sēt* ‘gift’
 RADICAL NOUN: CH 2SG Ø-*a-bahat* ≠ 3 Ø-Ø-*bahat* ‘price’
- b. THEMATIC NOUNS WITH HIGH THEMATIC VOWELS
 OZ 2SG Ø-*a-mesērak* ≠ 3 Ø-*i-mesērak* ‘what is loved’
 OZ 2SG Ø-*a-kau* ≠ 3 Ø-*u-kau* ‘elbow’
 CH 2SG Ø-*e-tilta* ≠ 3 Ø-*i-tilta* ‘stick’
 CH 2SG Ø-*e-rāte* ≠ 3 Ø-*i-rāte* ‘food’
 CH 2SG Ø-*e-rtē* ≠ 3 Ø-*u-rtē* ‘piece of wood’
- c. THEMATIC NOUNS WITH NON-HIGH THEMATIC VOWELS
 OZ 2SG Ø-*a-kak* = 3 Ø-*a-kak* ‘what is planted’
 OZ 2SG Ø-*e-<dd>o* = 3 Ø-*e-<dd>o* ‘eye’
 OZ 2SG Ø-*o-irak* = 3 Ø-*o-irak* ‘what is added’
 CH 2SG Ø-*a-rmista* = Ø-*a-rmista* ‘blood’
 CH 2SG Ø-*e-rtē* = 3 Ø-*e-rtē* ‘nape’
 CH 2SG Ø-*o-bite* = 3 Ø-*o-bite* ‘wound, injury’

The morphophonological process in question produced the same consequences on the 2/3SG Irrealis of the OZ thematic verbs with [-high] thematic vowel (see Table 4, Section 2.3, and Ciucci & Bertinetto 2015). However, since thematic verbs are by far less frequent than thematic nouns, their impact on the speakers’ morphological awareness must have been less pervasive. Note, in this connection, that no CH thematic verb is built on a non-high thematic vowel; hence, such verbs are immune from this type of neutralization. Whatever the case, one can plausibly assume that the 2/3SG syncretism (in both possessed nouns and verbs) emerged

before the 1/2PL syncretism, since it was caused by a morphophonological process that must have had a distant root in history, considering that we find it in both branches of the Zamucoan family. Hence, one might surmise that the previous existence of the accidental 2/3SG neutralization (relatively frequent among nouns) paved the way to the analogous, and absolutely systematic, syncretism of possessive 1/2PL in OZ. Supposedly, the speakers had already developed convenient strategies for interpreting the person's referential identity in the critical situations, based on discourse redundancy rather than on overt morphological exponents.

4.3. *Typological considerations*

Structurally, the 1/2PL and 2/3SG neutralizations imply dependency of Person on Number (or, to reverse the perspective, paradigmatic dominance of Number over Person), while the 3SG/3PL neutralization implies the reverse (Aikhenvald & Dixon 1998). The coexistence of two distinct structural dependencies within a single paradigm (i.e., that of OZ) must be seen as quite unusual. Note further that while the 1/2PL syncretism is not unprecedented in pronominal systems, Cysouw (2003:126) observes that its co-occurrence within the same paradigm with another instance of Person syncretism is quite rare. Yet, OZ presents the systematic 3SG/3PL neutralization, as well as the just described morphophonologically conditioned 2/3SG neutralization for the relevant words.

In addition, Siewierska (2004:101) observes that “paradigms with vertical [i.e. within the feature Person] and/or singular homophony disfavor horizontal homophony [i.e. syncretism within the feature Number; see again fn. 2]”. This fits well with the CH situation, where (at least for human referents and, optionally, for big animals) there is no horizontal neutralization in the 3rd person. It fits less well, by contrast, with OZ, which (in addition to the 1/2PL neutralization) does not have any affix to distinguish 3PL from 3SG in either verbs or possessed nouns. Whatever the case, the fact that a language exhibits two different types of vertical syncretism (2/3SG, 1/2PL) in one and the same noun paradigm looks like a rather uncommon feature. Unless I missed something, this is not even mentioned in the detailed surveys by Cysouw and Siewierska.

But for the present purpose it is especially important to underline that the really ‘offending’ feature is the systematic 1/2PL neutralization, rather than the lexically conditioned 2/3SG neutralization. The reason is that the OZ affixes for 1/2PL possessive markers have no relation whatsoever with the corresponding personal pronouns, and indeed their diachronic origin is unknown. As one can evince from Table 6, Ciucci & Bertinetto (2017) did not put forth any proposal for the *P-Z 2PL possessive inflection.

5. The possessive markers loop

At this point, it is useful to recall that – unlike OZ – AY and CH have recruited the plural pronouns to express possession. Since the same strategy is adopted for the singular persons, this implements one of the three major types of possessive markers morphology itemized by Jacquesson (2008:224). The remaining two consist in either having specific lexical roots (i.e., different from the pronominal ones), or using morphological exponents unrelated to the personal pronouns. However, the above discussed historical data suggest that the current AY and CH arrangement must have been a later development, for otherwise we could not explain the residual survival, until the middle of the 20th century, of the CH forms reported by Baldus and Sušnik, namely (to repeat from Section 3): *aset* ‘our mother’, *al(d)e* ‘our father’, <áirumme> (*aj-rum̃e*) ‘our hands’ (see also Section 4 for similar forms in OZ).

This suggests the following scenario concerning the Zamucoan possessive morphology:

- (i) At an early stage (*ante* *P-Z), Zamucoan used the independent pronouns as possessive markers. This emerges as quite obvious as far as 1SG and 2SG are concerned, and is consistent with what one can gather about the expression of the category Person in verbal morphology.
- (ii) The independent pronouns gradually turned into prefixes, thus triggering phonetic changes.
- (iii) The structural pressure described in Section 3 forced the Zamucoan speakers to create specialized possessive prefixes for 1PL and 2PL, as witnessed by OZ *aj-/as-* together with the few CH remnants surviving until the last century in some high-frequency conservative words. Since these forms are documented, at least as relics, in both branches of the family, they must have existed in *P-Z.
- (iv) Such affixes were however felt as alien to the overall agglutinating inclination of the language, and this brought about further consequences, namely:
 - (a) OZ lost the (unknown to us) 2PL marker, to create the vertical syncretism depicted in Table 6.
 - (b) AY and CH abandoned altogether (except for the already mentioned relics) the *P-Z 1PL and 2PL markers, and used instead the corresponding independent personal pronouns, thus restarting the loop.

However, the situation of AY and CH is not identical. In AY, the personal pronouns turned again into fully-fledged affixes, as in phase (ii) of the above loop, as proved by: (a) their compulsory usage; (b) the fact that they obey the morphophonological process of thematic vowel replacement in the 2PL (as shown in (6a)). In CH, by contrast, these

possessive markers behave as independent words preceding the 3rd person form of the noun, which can be viewed as a kind of default, and indeed they do not undergo any morphophonological change (6b). Besides, they may be omitted whenever the context is sufficiently explicit:

- (6) a. AY: *jok-i-giṇaj* (1PL), *wak-a-giṇaj* (2PL) ‘our/your.PL house’
 b. CH: *ejok* / *ōrjok* / *olak Ø-i-jute* ‘our.INCL / our.EXCL / your.PL house’
 (with *ijute* coinciding with the 3rd person inflection)

Actually, this is not unprecedented: it is the same situation to be observed in OZ and AY with the 3PL pronoun *ore* optionally added to the undifferentiated 3rd person, in order to disambiguate the 3rd person’s referential meaning, most typically (possibly obligatorily) with human referents. The need for disambiguation is less compelling in CH, considering that this language has a 3PL verb inflection; but recall that, in CH, 3PL verbal agreement is only required for human referents, while it is optional with big animals and plainly excluded with any other referent. At any rate, the contrast between AY and CH abides by one of the tendencies noted by Cysouw (2003:313): “the more oppositions, the higher the proportion of independently marked pronominal paradigms and vice versa”. Indeed, since CH has more Person oppositions in its inflectional paradigm as compared with AY, it can be expected to have a larger use of independent markers, as opposed to inflectional ones.

Needless to say, we cannot know whether there has ever been a phase of vertical neutralization for the (subsequently disappeared) 1PL and 2PL possessive prefixes of AY and CH. If this has happened, it must have been an especially unstable situation in CH, considering that, according to Cysouw’s survey (2003:161), vertical neutralization hardly occurs in paradigms with clusivity split. Indeed, a 1PL/2PL neutralization is ostensibly incompatible with the inclusive *vs* exclusive divide, which only concerns the 1PL. Hence, if this sort of syncretism arose at some past stage, it must have disappeared before the CH implementation of clusivity.

6. Conclusion

This paper developed a reasoning aimed at explaining some odd features of the Zamucoan possessive markers paradigm, which highlight it as a perturbed system.

The major critical point appears to have been the structural attrition between the agglutinating logic, presumably pervasive in the primordial Zamucoan language (*ante* *P-Z), and the inertial tendency to turn personal pronouns into possessive prefixes by means of phonetic fusion. This caused the plural marker /k/ of 1PL and 2PL personal pronouns to sit in a structurally non-optimal position within the phonological word.

This structural conflict caused, in turn, further reasons of turbulence, most notably the creation of the vertical syncretism 1/2PL, definitely alien to a strictly agglutinating morphology. Admittedly, this is only visible in OZ, but on the other hand there are reasons to surmise that dedicated prefixes unrelated to the 1PL and 2PL personal pronouns must have been widespread in Zamucoan, although we do not know how the 2PL prefix might have looked like (hence, the empty *P-Z 2PL cell in Table 6). In any case, another type of vertical syncretism (namely, 2/3SG), stemming from purely accidental morphophonological reasons, was already in place in OZ and CH at the time at which the 1/2PL homophony arose, and this might have cooperated in weakening the Zamucoan original inclination towards one-to-one mapping of form and meaning. As for the AY and CH recruitment of 1/2PL personal pronouns for the possessive function, this is a relatively recent restoration of the supposed primordial system, which in AY has already reached the affixal status within the above hypothesized ‘possessive markers loop’.

Another point of turbulence, limited to CH, was the 1st person. Its source possibly lies in the need to accommodate the clusivity split into the Person paradigm, under the influence of the neighboring languages. This is visible in the CH restructuring of the original 1SG marker, which in the pronominal system was replaced by the original 1PL form, thus inspiring a somehow similar change in the corresponding verb inflection (see the 1SG prefix *tVk-* in Table 3, Section 2.3). The instability of the CH system, in contrast to OZ and AY, is also witnessed by the 1SG possessive marker, with the prefix of the generic form replacing the original *P-Z prefix.

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